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PRELIMINARY WETLAND DETERMINATION

Oakland Place

711 Oakland Place
Florence, South Carolina 29506

Report Date

May 21, 2025

Partner Project No.

24-446236.4

Prepared for:

The Paces Foundation, Inc.
2730 Cumberland Boulevard Southeast
Smyrna, Georgia 30080

PARTNER

May 21, 2025

Renee Sandell
The Paces Foundation, Inc.
2730 Cumberland Boulevard Southeast
Smyrna, Georgia 30080

Subject: Preliminary Wetland Determination
Oakland Place
711 Oakland Avenue
Florence, South Carolina 29506
Partner Project No. 24-446236.4

Dear Renee Sandell:

Partner Engineering and Science, Inc (Partner) is pleased to provide the results of the *Preliminary Wetland Determination* report of the abovementioned address (the "subject property"). This assessment was performed in general conformance with the scope and limitations as detailed in our proposal.

This assessment included a site reconnaissance as well as review of available online resources. An assessment was made, conclusions stated, and recommendations outlined.

We appreciate the opportunity to provide environmental services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (818) 337-1203 or mponce@partneresi.com.

Sincerely,

Katie L. Morgan, PWS, EP
Director of Natural and Cultural Resources
Professional Wetland Scientist (#3100)

Misty Ponce
Principal

EXECUTIVE SUMMARY

Partner has performed a Preliminary Wetland Determination in general conformance with the scope and limitations as detailed in our proposal for the property located at 711 Oakland Place in the City of Florence, Florence County, South Carolina (the "subject property"). The Preliminary Wetland Determination is designed to provide The Paces Foundation, Inc. with an assessment concerning wetlands and streams (limited to those issues identified in the report) as they exist at the subject property.

Property Description

The subject property is located on the northeast and northwest of the Oakland Avenue and Layton Street intersection within a residential area of Florence County. Please refer to the table below for further description of the subject property:

SUBJECT PROPERTY DATA

Property Name:	Oakland Place
Address:	711 Oakland Avenue, Florence, South Carolina
Additional Addresses:	701, 703, 705, 708, 710, 711, 712, 713, 714, 716, 718, 720, 722 Oakland Avenue; 601, 603, 607, 611, 613 Layton Street; 703, 705, 707, 709, 711, 713, 717 Rose Street
Historical Addresses:	501, 701, 704, 733, 739, 811 Oakland Avenue and 607 Layton Street
Property Use:	Multi-family residential
Land Acreage (Ac):	6.44 Ac
Number of Buildings:	17
Gross Building Area (SF):	60,000 SF
Date of Construction:	1972
Assessor's Parcel Number (APN):	90100-06-012 and 90100-05-002
Current Tenants:	Oakland Place Apartments consisting of 64 residential units
Site Assessment Performed By:	Kalli Agoglossakis of Partner
Site Assessment Conducted On:	May 20, 2025

The subject property is comprised of approximately 6.44 acres of land which is divided by Oakland Avenue and developed with the Oakland Place Apartments consisting of 64 residents for multi-family residential use. The subject property is improved with 17 single-story buildings, concrete-paved parking areas, associated landscaping, and perimeter fencing. Wetlands were not identified on the subject property.

According to available historical sources, the subject property was developed with single-family residences between 1918 and 1924; single-family residences and a portion of a baseball field from 1941 to at least 1947; single and multi-family residential buildings from 1957 until 1964; and developed with the current structures in approximately 1972. Tenants on the subject property have included undeveloped areas and a single-family residence (1918); undeveloped areas and two single-family residences (1924); single-family residences and a portion of a baseball field (1941-1947); single and multi-family residential buildings and a portion of a baseball field (1957-1964), and multi-family apartment improvements (1977-Present).

ADJOINING PROPERTIES

North:	Iola Jones Park (608 Maxwell Street), Oakland Avenue, and single-family residences (701 and 801 Oakland Avenue)
East:	Rose Street, followed by single-family residences (701 Layton Street, 706 Rose Street, 700 and 702 Pawley Street)
South:	Greater Morning Star Apostolic Ministries No. 7 (609 Oakland Avenue) on the west portion and Layton Street, beyond are undeveloped lots and single-family residences (610 and 611 Rose Street) on the east portion
West:	Single-family residences (702, 704, 706, and 710 Brunson Street)

Findings

According to our preliminary determination, delineation, resource document review, and field observations, no wetlands or surface water bodies were identified on the subject property.

Conclusions, Opinions and Recommendations

Partner has performed a Preliminary Wetland Determination in general conformance with the scope and limitations as detailed in our proposal, for the property located at 711 Oakland Place in the City of Florence, Florence County, South Carolina. Partner concludes and recommends the following:

- This assessment has not revealed evidence of wetlands or surface water bodies on the subject property.

It should be noted the USACE has the ultimate authority for wetlands and Waters of the United States (WOTUS) determinations. The Environmental Protection Agency (EPA) has the ultimate authority for official jurisdictional determinations; however, authority has been delegated to the USACE to give an approved jurisdictional determination (AJD) on potential Waters of the United States.

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1.0 INTRODUCTION

Partner has performed a Preliminary Wetland Determination in general conformance with the scope and limitations as detailed in our proposal for the property located at 711 Oakland Place in the City of Florence, Florence County, South Carolina (the "subject property"). The Preliminary Wetland Determination is designed to provide The Paces Foundation, Inc. with an assessment concerning wetlands and streams (limited to those issues identified in the report) as they exist at the subject property.

1.1 Purpose

The purpose of performing the Preliminary Wetland Determination is to identify and characterize the existing site conditions and observe the subject property for the presence of wetlands and streams.

1.2 Scope of Work

The scope of work for this Preliminary Wetland Determination was performed in general conformance with the scope and limitations as detailed in our proposal. This assessment included: 1) a review of topographical maps, the National Wetlands Inventory map, and aerial photograph resources to assist with identifying suspect streams and wetland areas on the subject property; 2) a property site reconnaissance including wetland and stream data point sampling and flagging wetland boundaries; 3) preparation of a map depicting approximate locations of wetlands and streams observed on the subject property; and 4) completion of this report that includes site characterization information, a discussion of applicable data, and recommendations for the subject property.

1.3 Limitations

Partner warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work. These methodologies are described as representing good commercial and customary practice for conducting a Preliminary Wetland Determination of a property for the purpose of identifying wetlands and streams on the subject property. There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. Partner believes that the information obtained concerning the subject property is reliable. However, Partner cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the Client. No other warranties are implied or expressed.

1.4 User Reliance

The Paces Foundation, Inc. engaged Partner to perform this assessment in accordance with an agreement governing the nature, scope and purpose of the work as well as other matters critical to the engagement. All reports, both verbal and written, are for the sole use and benefit of The Paces Foundation, Inc.. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with Partner

granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, Client and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such Use. Unauthorized use of this report shall constitute acceptance of and commitment to these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted. Additional legal penalties may apply.

1.5 Limiting Conditions

The performance of this Preliminary Wetland Determination was not limited in any way. Partner was granted full and complete access to the subject property.

2.0 SITE DESCRIPTION

2.1 Site Location and Legal Description

The subject property at 711 Oakland Place in Florence, South Carolina is located on northeast and northwest of the Oakland Avenue and Layton Street intersection. According to the Florence County Assessor, the subject property is legally described as Land Parcel Nos. 90100-06-012 and 90100-05-002, and ownership is currently vested in Housing Authority of Florence since 1970.

Please refer to **Figure 1: Site Location Map, Figure 2: Site Plan, Figure 3: Topographic Map, Appendix B: Site Photographs**, and **Appendix C: USACE Wetland Determination Data Forms** for the location and site characteristics of the subject property.

2.2 Current Property Use

The subject property is comprised of approximately 6.44 acres of land which is divided by Oakland Avenue and developed with the Oakland Place Apartments consisting of 64 residents for multi-family residential use. The subject property is improved with 17 single-story buildings, concrete-paved parking areas, associated landscaping, and perimeter fencing. Wetlands were not identified on the subject property.

The subject property is designated Commercial Improved (CI) by the City of Florence.

2.3 Physical Setting Sources

2.3.1 Topography

The United States Geological Survey (USGS) *Florence West and Florence East, South Carolina* Quadrangle 7.5-minute series topographic map was reviewed for this report. According to the contour lines on the topographic map, the subject property is located at approximately 145 feet above mean sea level (MSL). The contour lines in the area of the subject property indicate the area is sloping very gently toward the southeast. The subject property is depicted on the 2020 map as undeveloped.

A copy of the most recent topographic map is included as **Figure 3** of this report.

2.3.2 Hydrology

According to topographic map interpretation, the direction of groundwater flow in the vicinity of the subject property is inferred to be toward the southeast until it reaches an off-site unnamed creek located approximately 0.76 miles to the southeast of the subject property. Wetlands and streams were not identified on the subject property.

Information specific to the subject property regarding the depth to groundwater and direction of groundwater flow was not available for the subject area. However, according to information obtained from online research, depth to the high-water table is anticipated between 10 and 20 feet below ground surface (bgs).

Based on soil samples collected during the site reconnaissance, no surface water was observed on the subject property. No ground water or saturation was observed within the upper 17-inches of the soil profile at any sample point locations.

2.3.3 Geology/Soils

The subject property is situated within the Coastal Plain physiographic province of the State of South Carolina. The uppermost geologic formation underlying the soils at the subject property is the Pliocene Age Duplin Formation. The Duplin Formation consists of sands, sandy and silty clays, and very shelly sands, which frequently overlie a basal phosphatic conglomerate.

According to the EPA Ecoregions of South Carolina map, the subject property is located within the Level IV Atlantic Southern Loam Plains Ecoregion (65l) of the Level III Southeastern Plains Ecoregion (65). The Atlantic Southern Loam Plains Ecoregion is lower, flatter, more gently rolling, with fine-textured soils. It is a major agricultural zone, with deep, well drained soils. The flora is varied due to the variety of edaphic conditions. The region has the highest concentration of Carolina bays. These are shallow, elliptical depressions, often swampy or wet in the middle with dry sandy rims. Carolina bays not drained from agriculture often contain rare or endangered plant and animal species.

The NTCHS hydric soil definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006). However, not all areas within a mapping unit or polygon identified as having hydric soils may be hydric. Conversely, inclusions of hydric soils may be found within soil mapping units where no hydric soils have been identified. The Hydric Soils List should be used as a tool, indicating that hydric soil will likely be found within a given area, but should not be used as a substitute for onsite investigation and field indicators of hydric soils.

Based on information obtained from the USDA Natural Resources Conservation Service Web Soil Survey online database, the subject property is mapped as Urban land-Coxville-Norfolk association. According to the web soil survey hydric rating by map unit list for Florence County, this soil map unit is rated as a partially hydric soil based on the National Soil Information System (NASIS) NRCS hydric soil criteria.

- Urban Land soils consist of areas where the natural soil has been extensively modified or obscured by human development, including buildings, roads, parking lots, and other infrastructure. Slopes range from nearly level to moderately steep, often from 0 to 15 percent, depending on the underlying terrain and grading during development. Urban Land does not have a defined soil profile due to surface disturbance, imported fill, and compaction. Soil horizons are typically disrupted or completely absent, and material characteristics can vary widely within short distances. Permeability, drainage, and runoff characteristics are highly variable and influenced by

the proportion of impervious surfaces. Vegetation, where present, is often ornamental or turfgrass maintained by irrigation and landscaping because of the variability and extent of disturbance. Urban Land units are generally mapped where more than 85 percent of the area is covered by impervious surfaces or significantly altered, making classification into standard soil series impractical.

- The Coxville series is comprised of very deep, poorly drained soils that formed in flats, Carolina bays, and depressions. Parent material consists of marine deposits and fluviomarine sediments. Slopes range from 0 to 2 percent. Mean annual temperature is about 62 degrees Fahrenheit and mean annual precipitation is about 48 inches. The A or Ap horizon, where present, is comprised of fine sandy loam, sandy loam, loam, or rarely sandy clay loam with hue of 10YR to 5Y, value of 2 to 5, and chroma of 1 or 2. The Eg horizon, where present, is comprised of fine sandy loam, sandy loam, or loam with hue of 10YR or 5Y, value of 4 to 6, and chroma of 1 or 2. Redoximorphic features may be present. The Beg or BAg horizon, where present, is comprised of sandy clay loam, loam, or clay loam with hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. Redoximorphic features may be present. The Btg horizon is comprised of sandy clay, clay loam, or clay with hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. Redoximorphic depletions may be present. The BCg or Cg horizons, where present, is comprised of stratified sandy, loamy, silty, or clayey sediments with a hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. Redoximorphic features may be present.
- The Norfolk series is comprised of very deep and well drained soils that formed in marine deposits or fluviomarine deposits on uplands or marine terraces. Slopes range from 0 to 10 percent. Mean annual temperature is about 62 degrees Fahrenheit and mean annual precipitation is about 49 inches. The A or Ap horizon is comprised of loamy sand, sandy loam, fine sandy loam, or loamy fine sand with hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 to 4. Some pedons are fine sand or sand. The E horizon is comprised of loamy sand, sandy loam, fine sandy loam, or loamy fine sand with hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 2 to 6. Some pedons are fine sand or sand. The BE horizon, where present, is comprised of sandy loam or fine sandy loam with a hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 8. The Bt horizon is comprised of sandy loam, fine sandy loam, sandy clay loam, or clay loam with hue of 7.5YR to 2.5Y, value of 5 to 8, and chroma of 3 to 8. Redoximorphic depletions may be present. The 2Bt horizon, where present, has the same color as the Bt horizon; texture is sandy clay loam. The BC or BCt horizon, where present, is comprised of sandy loam, fine sandy loam, sandy clay loam, clay loam, sandy clay, or clay with a hue of 5YR to 2.5Y, value of 5 to 8, and chroma of 3 to 8. Redoximorphic features may be present. The C horizon is comprised of loamy coarse sand, loamy sand, loamy fine sand, coarse sandy loam, sandy loam, fine sandy loam, sandy clay loam, clay loam, or sandy clay with a hue of 2.5YR to 5Y, value of 4 to 8, and chroma of 3 to 8. Redoximorphic features may be present. Some pedons have layers of coarser or finer textured materials.

2.3.4 Flood Zone Information

Partner performed a review of the Flood Insurance Rate Map (FIRM), published by the Federal Emergency Management Agency (FEMA). According to Community Panel Numbers 45041C0134E, dated December

16, 2014; the subject property is located within Flood Zone X (Unshaded), an area located outside of the 100-year and 500-year flood plains, which is also referred to as an area of minimal flood hazards.

According to FEMA, flood hazard areas identified on the FIRM are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30. Moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded).

A copy of the reviewed flood map is included in **Appendix D** of this report.

2.3.5 National Wetlands Inventory

The National Wetlands Inventory (NWI) Map of the subject property was reviewed to identify suspect wetland areas. The map was published by the U.S. Department of the Interior's Fish and Wildlife Service (USFWS) and depicts suspect wetland areas and waterbodies based on stereoscopic analysis of high-altitude aerial photographs.

Partner performed a review of the USFWS NWI online map, and no wetland areas are depicted on the subject property.

The State of South Carolina does not maintain an additional Interactive Wetland map, and the South Carolina Department of Natural Resources (DNR) references the USFWS NWI.

Partner performed a review of the National Hydrography Database (NHD) online map, and no wetland areas are depicted on the subject property.

Copies of the reviewed NWI and NHD maps are included in **Appendix D** of this report.

3.0 HISTORICAL INFORMATION

Partner obtained historical use information about the subject property from a variety of sources. A chronological listing of the historical data found is summarized in the table below:

HISTORICAL USE INFORMATION

Years	Resource	Description/Use
1918-1924	Fire Insurance Maps	Single-Family Residential
1941-1947	Aerial Photographs, Fire Insurance Maps, Topographic Maps	Single-family residential and a portion of a baseball field
1957-1964	Aerial Photographs, Fire Insurance Maps	Single and multi-family residential and a portion of a baseball field
1972-Present	Aerial Photographs, City Directories, Topographic Maps, Interviews	Multi-Family Residential

According to available historical sources, the subject property was developed with single-family residences between 1918 and 1924; single-family residences and a portion of a baseball field from 1941 to at least 1947; single and multi-family residential buildings from 1957 until 1964; and developed with the current structures in approximately 1972. Tenants on the subject property have included undeveloped areas and a single-family residence (1918); undeveloped areas and two single-family residences (1924); single-family residences and a portion of a baseball field (1941-1947); single and multi-family residential buildings and a portion of a baseball field (1957-1964), and multi-family apartment improvements (1977-Present).

3.1 Aerial Photograph Review

Partner obtained available aerial photographs of the subject property and surrounding area from Environmental Risk Information Services (ERIS). The following was observed on the subject property and adjacent properties during the aerial photograph review:

AERIAL PHOTOGRAPH SUMMARY

Dates:	**1941** Scale: **1" = 500'**
Subject Property:	Appears to be developed with a residence on the west portion and a baseball field on the east portion
North:	Appears to be a single-family residence, Oakland Avenue, and a baseball field
East:	Appears to be undeveloped land beyond Rose Street
South:	Appears to be undeveloped land and single-family residences beyond Layton Street

AERIAL PHOTOGRAPH SUMMARY

Dates:	**1941**	Scale: **1" = 500'**
West:	Appears to be single-family residences located along N Brunson Street	

Date:	**1949**	Scale: **1" = 500'**
Subject Property:	No significant changes visible	
North:	No significant changes visible	
East:	No significant changes visible	
South:	Appears to be a church, undeveloped land, and single-family residences beyond Layton Street	
West:	No significant changes visible	

Date:	**1957**	Scale: **1" = 500'**
Subject Property:	Appears to be a mix of undeveloped land, a baseball field, and single-family residence	
North:	No significant changes visible	
East:	Appears to be undeveloped land and single-family residences beyond Rose Street	
South:	No significant changes visible	
West:	No significant changes visible	

Date:	**1964 to 1969**	Scale: **1" = 500'**
Subject Property:	Appears to be a mix of undeveloped land, a baseball field, and single-family residences	
North:	Appears to be single-family residences and a baseball field	
East:	No significant changes visible	
South:	No significant changes visible	
West:	No significant changes visible	

Date:	**1970 to 2023**	Scale: **1" = 500'**

Date:	**1970 to 2023**	Scale: **1" = 500'**
Subject Property:	Appears to be developed with the existing multi-family improvements	
North:	Appears to be single-family residences, a church, and a park	
East:	No significant changes visible	
South:	No significant changes visible	
West:	No significant changes visible	

Copies of select aerial photographs are included in **Appendix D** of this report.

3.2 Historical Topographic Maps

Partner reviewed historical topographic maps obtained from ERIS. The following was observed on the subject property and adjacent properties during the topographic map review:

TOPOGRAPHIC MAP SUMMARY

Dates:	**1940 to 1986**	Scale: **1:24,000**
Subject Property:	Shaded to depict urban development	
North:	Shaded to depict urban development	
East:	Shaded to depict urban development	
South:	Shaded to depict urban development	
West:	Shaded to depict urban development	

Date:	**2014 to 2020**	Scale: **1:24,000**
Subject Property:	No site-specific features are depicted	
North:	Only roadways are shown, and no site-specific features are depicted	
East:	Only roadways are shown, and no site-specific features are depicted	
South:	Only roadways are shown, and no site-specific features are depicted	
West:	No site-specific features are depicted	

Copies of reviewed topographic maps are included in **Appendix D** of this report.

4.0 PRECIPITATION DATA AND ANALYSIS

4.1 Precipitation Data

Partner conducted a site visit of the subject property on May 20, 2025. Partner performed wandering transects across the subject property to characterize and document the vegetative communities that exist on the subject property to determine the presence/absence of wetlands and surface waters.

The weather at the time of the site visit was sunny with temperatures ranging between 80-90F. Precipitation and temperature data from the Florence Regional Airport weather station, for the day of and approximately two weeks before the field investigation is provided in the table below:

SITE PRECIPITATION DATA

Date	Minimum Temperature (F)	Maximum Temperature	Precipitation (inches)	Snowfall (inches)
2025-05-06	51	86	0.00	0.00
2025-05-07	56	83	T	0.00
2025-05-08	63	86	T	0.00
2025-05-09	62	82	0.97	0.00
2025-05-10	61	71	0.02	0.00
2025-05-11	61	75	0.90	0.00
2025-05-12	69	78	0.98	0.00
2025-05-13	68	86	0.02	0.00
2025-05-14	65	86	0.07	0.00
2025-05-15	69	92	0.00	0.00
2025-05-16	70	95	0.00	0.00
2025-05-17	76	89	0.00	0.00
2025-05-18	66	90	0.00	0.00
2025-05-19	65	86	0.00	0.00
2025-05-20*	65	91	0.00	0.00

* Indicates dates of the field investigation.

The percent of normal precipitation for the water year to date and monthly percent of normal precipitation using the NRCS WETS table, from the Florence Regional Airport weather station, for each of the 3 months preceding the field investigation is provided in the table below:

NRCS WETS TABLE DATA

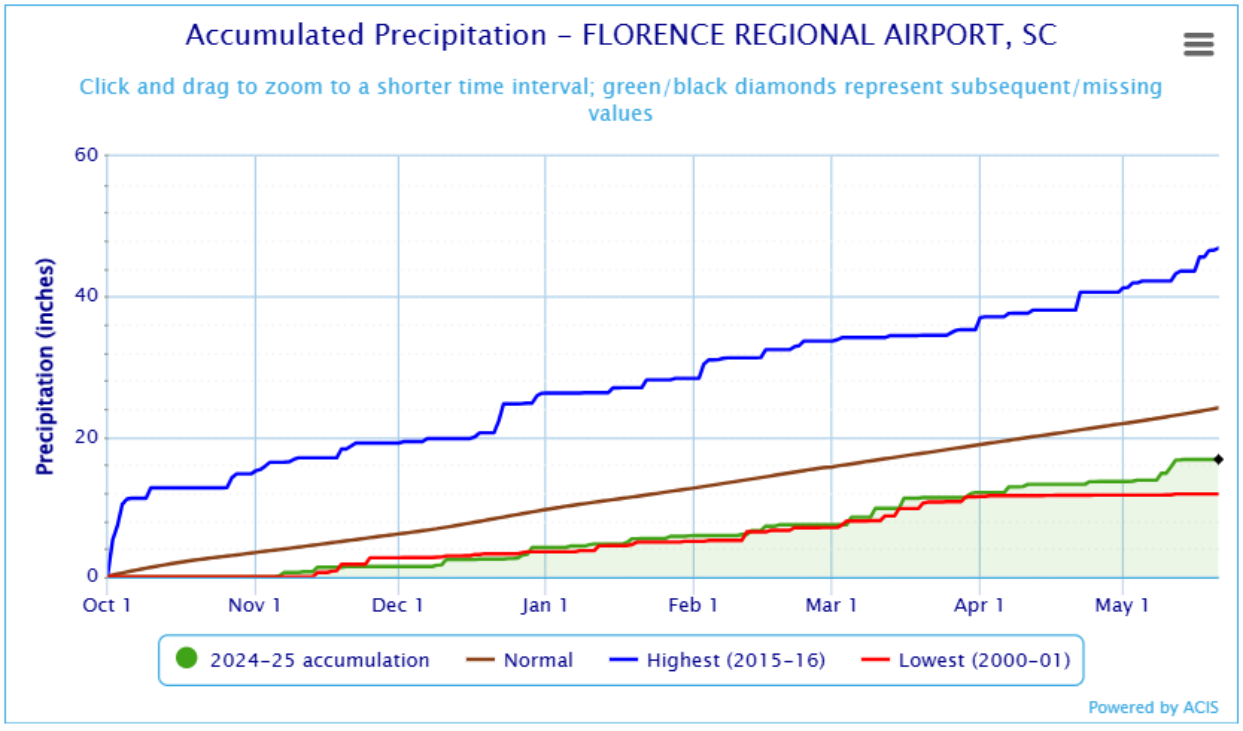
Month	Average Precipitation	30% chance precipitation less than	30% chance precipitation more than
February 2025	3.03	2.05	3.63
March 2025	4.00	2.68	4.79
April 2025	2.78	1.58	3.38
May 2025*	3.27	2.31	3.88

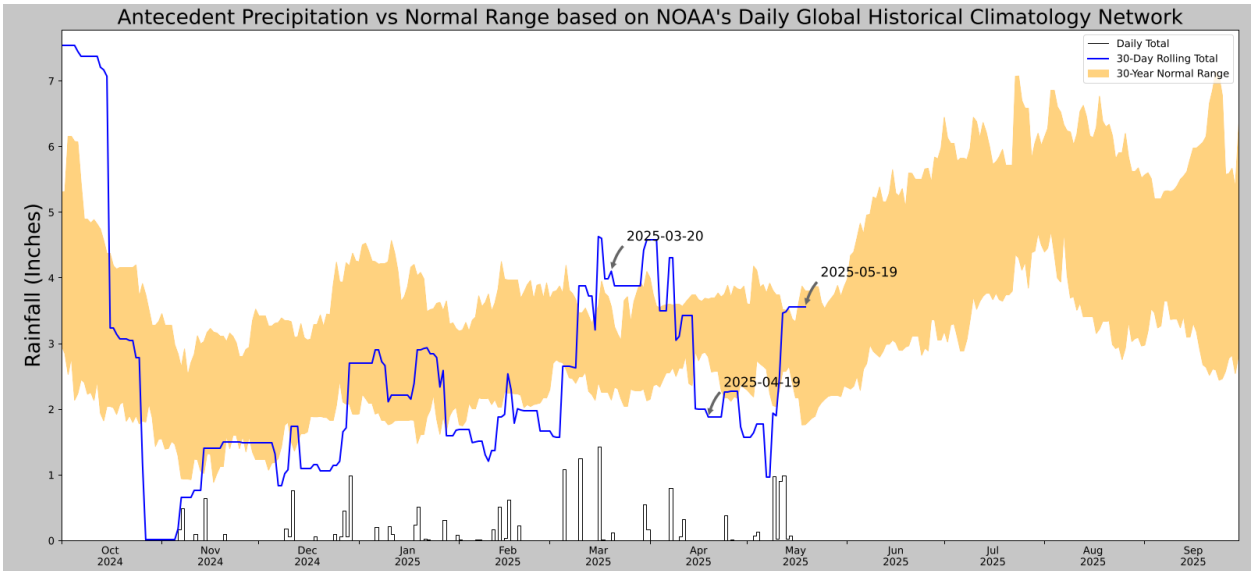
* Indicates month of field investigation

4.2 Precipitation Data Analysis

Monthly precipitation data and monthly summaries for the Water Year for the three months preceding the field investigation was retrieved for the nearest working weather station. The nearest working weather station is Florence Regional Airport, which is situated at 141 ft elevation approximately three (3) miles to the southeast of the subject property.

According to data from nearby stations, precipitation was above normal in March, slightly below normal in April, and normal in May of 2025. According to the monthly climate data from the Florence Regional Airport weather station, the area received 16.78 inches of precipitation in the water year to date (October 1, 2024, to May 20, 2025). This is below the normal range of the 24.12 inches average of precipitation for this timeframe (below).





Coordinates	34.205225, -79.758236
Observation Date	2025-05-19
Elevation (ft)	141.229
Drought Index (PDSI)	Moderate drought (2025-04)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-05-19	1.765354	3.8	3.555118	Normal	2	3	6
2025-04-19	2.798425	3.676772	1.877953	Dry	1	2	2
2025-03-20	2.140945	3.566142	4.102362	Wet	3	1	3
Result							Normal Conditions - 11

US Army Corps of Engineers.
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
FLORENCE RGNL AP	34.1878, -79.7308	141.076	1.977	0.153	0.89	11350	89
FLORENCE 1.2 NNE	34.1963, -79.7717	144.029	2.41	2.953	1.092	0	1
FLORENCE 2.1 SW	34.1624, -79.8091	124.016	4.808	17.06	2.246	1	0
FLORENCE 8 NE	34.2933, -79.74	120.079	7.308	20.997	3.442	2	0

5.0 SITE RECONNAISSANCE

5.1 Methods

United States Army Corps of Engineers

Partner conducted a reconnaissance of the subject property on May 20, 2025, to characterize the existing site conditions and identify the presence of aquatic resources including wetlands and streams on the subject property, if any. Characteristics of potential jurisdictional wetlands and streams were assessed (when applicable) utilizing the criteria detailed below. The evaluation methods generally followed the routine on-site determination method referenced in the 1987 USACE Manual Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.0 (U.S. Army Corps of Engineers, November 2010).

Partner's professional opinion of jurisdictional status of identified features (if any) on the subject property, is consistent with the interpretation used by EPA and USACE.

Department of Housing and Urban Development

Executive Order (EO) 11990 was enacted to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands". To meet these objectives, the Order requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage to wetlands. The EO applies to federally owned or managed facilities, as well as, improvement projects that are undertaken, financed, or assisted by federal agencies.

HUD utilizes the wetland definition at 24 CFR 55.2(b)(11), specifically "those areas that are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. This definition includes those wetland areas separated from their natural supply of water as a result of activities such as the construction of structural flood protection methods or solid-fill road beds and activities such as mineral extraction and navigation improvements. This definition includes both wetlands subject to and those not subject to section 404 of the Clean Water Act as well as constructed wetlands." Under current guidelines the USACE does not have jurisdiction over isolated wetlands; therefore, EO 11990 is more restrictive in that it applies to all areas meeting the wetland definition. Therefore, determination by the USACE that there are no jurisdictional areas on-site is not sufficient documentation for HUD's purposes.

According to 24 CFR 55.2(b)(11), the following process shall be followed in making the wetlands determination:

i. HUD or, for programs subject to 24 CFR part 58, the responsible entity, shall make a determination whether the action is new construction that is located in a wetland. These actions are subject to processing under the § 55.20 decision-making process for the protection of wetlands.

ii. As primary screening, HUD or the responsible entity shall verify whether the project area is located in proximity to wetlands identified on the National Wetlands Inventory (NWI). If so, HUD or the responsible entity should make a reasonable attempt to consult with the Department of the Interior, Fish and Wildlife Service (FWS), for information concerning the location, boundaries, scale, and classification of wetlands within the area. If an NWI map indicates the presence of wetlands, FWS staff, if available, must find that no wetland is present in order for the action to proceed without further processing. Where FWS staff is unavailable to resolve any NWI map ambiguity or controversy, an appropriate wetlands professional must find that no wetland is present in order for the action to proceed without § 55.20 processing.

iii. As secondary screening used in conjunction with NWI maps, HUD or the responsible entity is encouraged to use the Department of Agriculture, Natural Resources Conservation Service (NRCS) National Soil Survey (NSS) and any state and local information concerning the location, boundaries, scale, and classification of wetlands within the action area.

iv. Any challenges from the public or other interested parties to the wetlands determinations made under this part must be made in writing to HUD (or the responsible entity authorized under 24 CFR part 58) during the commenting period and must be substantiated with verifiable scientific information. Commenters may request a reasonable extension of the time for the commenting period for the purpose of substantiating any objections with verifiable scientific information. HUD or the responsible entity shall consult FWS staff, if available, on the validity of the challenger's scientific information prior to making a final wetlands determination.

5.2 Wetland Observations

Wetlands generally have three essential characteristics: hydrophytic (wetland) vegetation, hydric soils, and wetland hydrology. Suspect wetland areas were identified on the subject property prior to the site reconnaissance. Vegetation and hydrology observations were performed throughout the site where access was permitted, and soils were evaluated to determine if wetland characteristics were present. Data regarding the three essential characteristics was gathered within observed suspect wetland areas, if any, to further delineate boundaries. Partner personnel traversed the project site on foot while performing wetland observations.

5.2.1 Plant Community Assessment

Suspect areas were visually observed to determine the species, when possible, and absolute percentage of ground cover for five strata of plant community types. Herbs were generally observed within a five-foot radius, shrubs/saplings within a fifteen-foot radius, and trees and vines within a thirty-foot radius of the observation location.

For each species of vegetation observed, their wetland indicator status was evaluated. The indicator status was determined using the USACE National Wetlands Plant List (NWPL). Per guidance from the USACE, as of April 28, 2016, the most up to date NWPL should be used for wetland determinations and delineations (the NWPL can be found at http://rsgisias.crrel.usace.army.mil/NWPL/).

According to the US Army Corps of Engineers, National Wetland Plant List Indicator Rating Definition document, wetland indicator status ratings and their rating categories, as described in the National List of Plant Species that Occur in Wetlands (Reed 1988) are provided in the table below.

WETLAND PLANT INDICATOR STATUS

Indicator status (abbreviation)	% Occurrence in wetlands
Obligate (OBL). Occur almost always under natural conditions in wetlands.	99
Facultative Wetland (FACW). Usually occur in wetlands but occasionally found in non-wetlands.	67–99
Facultative (FAC). Equally likely to occur in wetlands and non-wetlands.	34–66
Facultative Upland (FACU). Usually occur in non-wetlands but occasionally found in wetlands.	1–33

The percent cover of each stratum was determined, and dominance was evaluated. Dominant species were the most abundant species that accounted for more than 20 percent of the absolute percent coverage of the stratum. The number of dominant species with an indicator status of OBL, FACW, and/or FAC was compared to the total number of dominant species across all strata. Typically, when more than 50 percent of the dominant species had an indicator status of OBL, FACW, and/or FAC, hydrophytic vegetation was present. If the percentage of dominant species with an indicator status of OBL, FACW, and/or FAC was less than 50 percent, prevalence index and morphological adaptations may have been evaluated to confirm if hydrophytic vegetation was present or absent.

At the time of the site reconnaissance, Sample Points 1 through 6 (SP-1 through SP-6) were not dominated by hydrophytic wetland vegetation.

Refer to the wetland determination data forms provided in **Appendix C** for site-specific observations of hydrophytic vegetation identified at each sample point location.

5.2.2 Hydric Soils Assessment

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that form under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. Hydric soil field indicators and a hydric soil technical standard have been developed to determine whether a soil meets the criteria for hydric soils. Evaluation of hydric soils was completed based on criteria defined in NRCS (2010) and as outlined in the 1987 Manual and the Regional Supplement. Soils observed in wetland areas within the proposed survey area typically developed under anaerobic (i.e., inundated/saturated edaphic conditions) or alternating aerobic-anaerobic conditions (i.e., wet/dry hydroperiod).

Subsurface soil samples were collected to depths ranging between 8 and 17 inches below the ground surface. The soil samples were visually compared to Munsell Soil Color Charts (Munsell, 2009); and examined for hydric soil indicators.

The soil profiles at SP-1 through SP-6 did not exhibit hydric soil indicators. Soils observed in upland areas at the site typically developed under aerobic soil conditions. Based on the criteria outlined in NRCS (2010), and as outlined in the 1987 Manual and the Regional Supplement, the soils observed within the upland communities were not considered hydric.

Refer to the wetland determination data forms provided in **Appendix C** for site-specific observations of hydric soil identified at each wetland location.

5.2.3 Wetland Hydrology Assessment

Visual indicators of wetland hydrology were evaluated. Examples of primary wetland hydrology indicators include, but are not limited to, surface water, high water table, soil saturation, water marks, sediment deposits, drift deposits, iron deposits, inundation visible on aerial imagery, and water-stained leaves. Examples of secondary wetland hydrology indicators include, but are not limited to, surface soil cracks, drainage patterns, moss trim lines, and crayfish burrows. If at least one primary wetland hydrology indicator or two secondary wetland hydrology indicators were observed, the observation location was considered to have wetland hydrology.

No primary indicators of wetland hydrology observed within communities associated with SP-4 and SP-6. Secondary indicators of wetland hydrology associated with SP-4 and SP-6 on the subject property included Geomorphic Position (D2).

Indicators of wetland hydrology were not observed within the communities associated with SP-1, SP-2, SP-3, and SP-5.

Refer to the wetland determination data forms provided in **Appendix C** for site-specific observations of hydrology identified at each wetland location.

5.2.4 Wetland Mapping

Upon completion of the review of the three wetland criteria at each area, a wetland determination was made. Under normal circumstances, if one or more of the wetland criteria were not identified, the area was not considered to be a wetland. Likewise, if all three wetland criteria were observed, the area was considered to be a wetland. Additional observations were made throughout the wetland area to define the wetland/non-wetland boundary, which was mapped in the field. Vegetation, soil, and hydrology assessment data from at least one location within identified wetland areas (if any) and one upland location outside of the identified wetland areas were recorded on a USACE Wetland Determination Data Form. The recorded data forms for the subject property can be found in **Appendix C** and data point locations can be seen on **Figure 2**.

5.2.5 Wetland Classification

No wetlands were identified within the survey area.

5.3 Stream Observations

Standard methodologies for identification of the ordinary high-water mark (OHWM) were used for the identification of the top of bank of streams identified on the subject property.

5.3.1 Stream Mapping

The ordinary high-water mark (OHWM) defines the boundaries of aquatic features for a variety of federal, state, and local regulatory purposes. Under the Clean Water Act, the OHWM defines the lateral limits of federal jurisdiction for non-tidal waters of the U.S. in the absence of adjacent wetlands (including Section 404, which regulates the discharge of dredge and fill material into waters of the U.S.). Additionally, under Sections 9 and 10 of the Rivers and Harbors Act of 1899, the OHWM defines the lateral limits of federal jurisdiction for non-tidal traditional navigable waters of the U.S. The USACE Ordinary High Water Mark Identification Regulatory Guidance Letter, dated December 7, 2005, was used to identify the OHWM of the streams identified on the subject property (if any).

5.3.2 Stream Classification

No streams were identified on the subject property.

5.4 Summary of Potentially Jurisdictional Waters

5.4.1 Federal Definition of Jurisdictional Waters of the United States

In accordance with the revised WOTUS rule promulgated on January 18, 2023 ("revised rule") (88 Fed. Reg. 3004),[1] potentially jurisdictional WOTUS include: The territorial seas and traditional navigable waters; perennial and intermittent tributaries that contribute surface water flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters. See 33 CFR 328.3 and 40 CFR 120.2, revised as of January 18, 2023. Paragraph (a) of the revised rule identifies four categories of waters that are "waters of the United States." These waters are referred to as "jurisdictional" in this notice and in the regulatory text. Paragraph (b) of the revised rule identifies those waters and features that are excluded from the definition of "waters of the United States." These waters are referred to as "non-jurisdictional" or "excluded" in this notice and as "non-jurisdictional" in the regulatory text. Paragraph (c) of the revised rule defines applicable terms.

As a baseline concept, this revised rule recognizes that waters of the United States are waters within the ordinary meaning of the term, such as oceans, rivers, streams, lakes, ponds, and wetlands, and that not all waters are waters of the United States. The revised rule includes the agencies' longstanding category of the territorial seas and traditional navigable waters. A "tributary" is defined in the revised rule as a river,

[1] This revised rule was challenged in three federal district courts which, together, blocked implementation of the rule in 27 states. South Carolina is one of the 27 states and, therefore, the agencies continued to apply the revised rule in South Carolina.

stream, or similar naturally occurring surface water channel that contributes surface water flow to a territorial sea or traditional navigable water in a typical year either directly or indirectly through other tributaries, jurisdictional lakes, ponds, or impoundments, or adjacent wetlands. A tributary must be perennial or intermittent in a typical year. The alteration or relocation of a tributary does not modify its jurisdictional status as long as it continues to be perennial or intermittent and contributes surface water flow to a traditional navigable water or territorial sea in a typical year. A tributary does not lose its jurisdictional status if it contributes surface water flow to a downstream jurisdictional water in a typical year through a channelized non-jurisdictional surface water feature, through a subterranean river, through a culvert, dam, tunnel, or other similar artificial feature, or through a debris pile, boulder field, or similar natural feature. The term "tributary" includes a ditch that either relocates a tributary, is constructed in a tributary, or is constructed in an adjacent wetland as long as the ditch is perennial or intermittent and contributes surface water flow to a traditional navigable water or territorial sea in a typical year.

The revised rule defines "lakes and ponds, and impoundments of jurisdictional waters" as standing bodies of open water that contribute surface water flow in a typical year to a territorial sea or traditional navigable water either directly or through a tributary, another jurisdictional lake, pond, or impoundment, or an adjacent wetland. The agencies note that to be jurisdictional, an "impoundment of a jurisdictional water" must be an impoundment of a territorial sea or traditional navigable water, tributary, jurisdictional lake or pond, or an adjacent wetland, and must meet the conditions in paragraph (c)(6) of the revised rule. A lake, pond, or impoundment of a jurisdictional water does not lose its jurisdictional status if it contributes surface water flow to a downstream jurisdictional water in a typical year through a channelized non-jurisdictional surface water feature, through a culvert, dike, spillway, or similar artificial feature, or through a debris pile, boulder field, or similar natural feature. A lake, pond, or impoundment of a jurisdictional water is also jurisdictional if, in a typical year, it is inundated by flooding from a territorial sea or traditional navigable water, or tributary, or from another jurisdictional lake, pond, or impoundment.

The revised rule defines "adjacent wetlands" as wetlands that abut a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water; are inundated by flooding from a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water in a typical year; are physically separated from a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water only by a natural berm, bank, dune, or similar natural feature; or are physically separated from a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water only by an artificial dike, barrier, or similar artificial structure so long as that structure allows for a direct hydrological surface connection to the territorial sea or traditional navigable water, tributary, or lake, pond, or impoundment of a jurisdictional water in a typical year, such as through a culvert, flood or tide gate, pump, or similar artificial feature. "Abut" means when a wetland touches a territorial sea, traditional navigable water, tributary, or lake, pond, or impoundment of a jurisdictional water at least at one point or side. An adjacent wetland is jurisdictional in its entirety when a road or similar artificial structure divides the wetland, as long as the structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

Consistent with the U.S. District Court for the District of Arizona's August 30, 2021, order vacating and remanding the Navigable Waters Protection Rule, promulgated April 21, 2020 (85 Fed. Reg. 22250), effective June 22, 2020, the EPA and USACE halted implementation of the Navigable Waters Protection Rule and began interpreting "waters of the United States" consistent with the pre-2015 regulatory regime, as further defined in the revised rule discussed above. An approved jurisdictional determination (AJD) is a document provided by the Corps stating the presence or absence of "waters of the United States" on a parcel or a written statement and map identifying the limits of "waters of the United States" on a parcel. See 33 CFR 331.2. Under existing Corps' policy, AJDs are generally valid for five years unless new information warrants revision prior to the expiration date. See U.S. Army Corps of Engineers, Regulatory Guidance Letter No. 05–02, § 1(a), p. 1 (June 2005) (Regulatory Guidance Letter (RGL) 05–02). As a general matter, the agencies' actions are governed by the rule in effect at the time the Corps completes an AJD, not by the date of the request for an AJD. Therefore, AJDs that were pending on, or received after the court's decision will be completed consistent with the pre-2015 regulatory regime. AJDs completed prior to the court's decision remain valid until the expiration date unless one of the criteria for revision is met under RGL 05-02, or the recipient of such an AJD requests that a new AJD be provided pursuant to the pre-2015 regulatory regime.

On August 29, 2023, the EPA and the USACE issued a new final rule further limiting the scope of WOTUS consistent with the U.S. Supreme Court's May 25, 2023 decision in the case of *Sackett v. EPA* (as of the date of this report, not yet published in the Federal Register). The agencies are revising the 2023 Rule to remove the significant nexus standard and to amend its definition of "adjacent" as these provisions are invalid under the Supreme Court's interpretation of the Clean Water Act in Sackett. See section II of this preamble for the specific amendments. Under the decision in Sackett, waters are not jurisdictional under the Clean Water Act based on the significant nexus standard. In addition, under the decision in Sackett, wetlands are not defined as "adjacent" or jurisdictional under the Clean Water Act solely because they are "bordering, contiguous, or neighboring . . . [or] separated from other 'waters of the United States' by man-made dikes or barriers, natural river berms, beach dunes and the like." Therefore, under this conforming rule, waters cannot be found to be jurisdictional because they meet the significant nexus standard; nor can wetlands be found to be jurisdictional based on the definition of "adjacent" codified in the 2023 Rule. Furthermore, as a result of the decision in Sackett invalidating the significant nexus standard, the provision for assessment of streams and wetlands under the additional waters provision of paragraph (a)(5) is no longer valid as any jurisdictional streams and wetlands are covered by paragraphs (a)(1) through (4) of the 2023 Rule.2 Finally, the agencies are removing "interstate wetlands" from the 2023 Rule to conform with the decision in Sackett. The Supreme Court in Sackett examined the Clean Water Act and its statutory history and found the predecessor statute to the Clean Water Act covered and defined "interstate waters" as "all rivers, lakes, and other waters that flow across or form a part of State boundaries." Sackett at 1337 (citing 33 U.S.C. 1160(a), 1173(e) (1970 ed.) (emphasis in original)). The Court concluded that the use of the term "waters" refers to such "open waters" and not wetlands. Id. As a result, under Sackett, the provision authorizing wetlands to be jurisdictional simply because they are interstate is invalid. The agencies will continue to interpret the remainder of the definition of "waters of the United States" in the 2023 Rule consistent with the Sackett decision. And it is both reasonable and appropriate

for the agencies to promulgate this rule in response to a significant decision of the Supreme Court and, to provide administrative guidance to address other issues that may arise outside this limited rule.

Partner's professional opinion of jurisdictional status of identified features (if any) on the subject property, is consistent with the interpretation used by EPA and USACE.

5.4.2 State Wetlands and Surface Waters Regulations

It should be noted that, the State of South Carolina has additional wetland and surface water regulations as discussed below.

Regulatory activities pertaining to wetlands are administered by South Carolina's Department of Health and Environmental Control (SCDHEC). SCDHEC's Office of Environmental Quality Control (OEQC), Bureau of Water regulates waters of the state, including wetlands, and issues §401 certifications under the Clean Water Act (CWA). Statewide, 401 Water Quality Certification is applied where a 404 permit is required by federal regulations and follow the same exemptions as those applied under the Section 404 programs by the Corps.

The state's regulation of coastal wetlands is extensive and represents a major component of wetland work in South Carolina. This additional layer of state-level regulation is coordinated by SCDHEC's Office of Ocean and Coastal Resource Management (OCRM)'s Regulatory Division. The Division regulates tideland critical areas through a direct permitting program under the state's Coastal Zone Management Act (CZMA). This program provides two-tiers of regulation. Tier One regulates tideland Critical Areas. Tier Two areas include brackish water wetlands outside the Critical Areas but within the coastal zone."

5.4.3 Local Wetland and Surface Water Regulations

The subject property is located within the municipal limits of the City of Florence. As such, ordinances associated with the City of Florence will apply to development at the subject property.

The City of Florence relies on the Florence Unified Development Ordinance (FUDO) to impose land use restrictions on certain lands within the City of Florence. Codes applicable to the proposed development are outlined within Part 4, Articles 12, 16, and 21, including the following:

Part 4, Article 12, Divisions 2 and 4, Sections 1 and 8 General Information and Submittal Requirements

If the area proposed for development is to impact waters of the state (WOTUS) or jurisdictional wetlands, a United States Army Corps of Engineers (USACE) determination may be required. Prior to site development, a site-specific Stormwater Pollution Prevention Plan (SWPPP) must be developed. The SWPPP must identify and delineate all WOTUS, including wetlands, within the disturbed area and/or the total area associated with the construction site.

During construction activities, there is an established forty-five-foot, undisturbed buffer required where the surface waters are classified as Level I and II Water Bodies by the City. This extended natural buffer should be located between the surface waters and the outermost sediment and erosion controls at the construction site.

Part 4, Article 16, Division 4-16.1, Sec. 12 Use Standards

Wetlands are delineated and defined specifically as wetlands according to the methodology accepted by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency.

Part 4, Article 21, Division 6, Section 1 Submittal Requirements

All environmental areas must be delineated on site plans. General statements regarding the preservation of wetlands are required.

5.5 Onsite Surface Water Observations

No surface waters were identified on the subject property.

6.0 FINDINGS AND CONCLUSIONS

Findings

According to our preliminary determination, delineation, resource document review, and field observations, no wetlands or surface water bodies were identified on the subject property.

Conclusions, Opinions and Recommendations

Partner has performed a Preliminary Wetland Determination in general conformance with the scope and limitations as detailed in our proposal, for the property located at 711 Oakland Place in the City of Florence, Florence County, South Carolina. Partner concludes and recommends the following:

- This assessment has not revealed evidence of wetlands or surface water bodies on the subject property.

It should be noted the USACE has the ultimate authority for wetlands and WOTUS determinations. The EPA has the ultimate authority for official jurisdictional determinations; however, authority has been delegated to the USACE to give an AJD on potential Waters of the United States.

7.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Partner has performed a Preliminary Wetland Determination of the property located at 711 Oakland Place in the City of Florence, Florence County, South Carolina in general conformance with the scope and limitations of the protocol and the limitations stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

By signing this report, we declare that, to the best of our professional knowledge and belief, we have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*.

Prepared By:

Kalli Agoglossakis, MS
Project Manager – Natural Resources

Managed & Reviewed By:

Amy Parker, PWS, PG
Project Manager – Natural Resources
Professional Wetland Scientist (#4014)

Oversight By:

Katie L. Morgan, PWS
Director or Natural and Cultural Resources
Professional Wetland Scientist (#3100)

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FIGURES

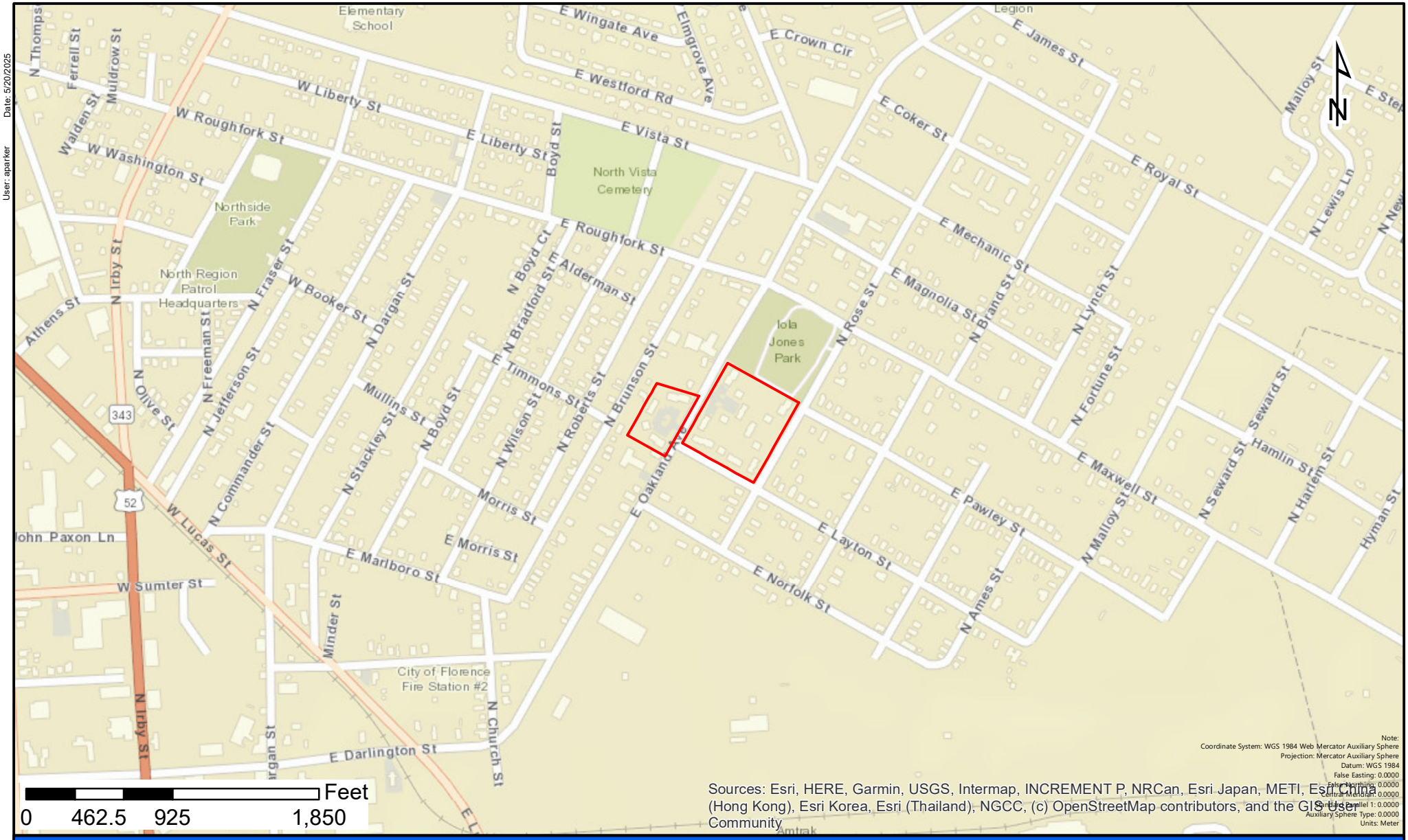

FIGURE 1: SITE LOCATION MAP

Legend

Subject Property

PARTNER Engineering and Science, Inc.®

SOURCES: ESRI, Field Data	DRAWN BY: aparker	DATE: 5/20/2025
PROJECT NUMBER: 24-446236.4 FILE NAME: Oakland Place	SCALE: 1 inch = 833 feet	

User: aparker
Date: 5/21/2025

FIGURE 2: SITE PLAN

Legend

- Subject Property
- Sample Points

PARTNER Engineering and Science, Inc.®

SOURCES: ESRI, Field Data	DRAWN BY: aparker	DATE: 5/21/2025
PROJECT NUMBER: 24-446236.4 FILE NAME: Oakland Place	SCALE: 1 inch = 144 feet	

Date: 5/20/2025
User: aparker

FIGURE 3: TOPOGRAPHIC MAP

Legend

Subject Property

PARTNER Engineering and Science, Inc.®

SOURCES: ESRI, Field Data	DRAWN BY: aparker	DATE: 5/20/2025
PROJECT NUMBER: 24-446236.4 FILE NAME: Oakland Place	SCALE: 1 inch = 833 feet	

APPENDIX A: EXHIBIT W

EXHIBIT W

Identification of Wetlands

Company: The Paces Foundation, Inc.

Development: Oakland Place Apartments

Development Location: 711 Oakland Avenue, Florence, South Carolina

County: Florence Acres: 6.44

AP I certify that the development listed above **does not** contain jurisdictional and non-jurisidictional wetlands.

_____ I certify that the development listed above **does** contain jurisdictional and/or non-jurisidictional wetlands and the proposed development will not disturb the wetlands. The wetlands are _____ (acres) in size, rendering the buildable percentage at _____%.

I have provided the following:

1. National Wetlands Inventory (NWI) map
2. My credentials that qualify me to make this determination.

Financial Interest: Neither I nor the company I work for have any financial interest in the proposed LIHTC application other than in the practice of our profession.

Amy Parker, PWS #4014

Signature and Certification of Wetlands Professional

05/20/2025

Date

Amy Parker

Name of Wetland Professional

Signature and Certification of Development Owner

5/21/25

Date

Paces Preservation Partners, LLC

Name of Developer

APPENDIX B: SITE PHOTOGRAPHS

1. View toward the approximate location of SP-1.

2. The soil profile at SP-1 lacking hydric soil indicators.

3. Vegetation at SP-1.

4. Soil profile at SP-2

5. View toward location of SP-3.

6. Soil profile at SP-3

7. View from SP-3 to nearest tree.

8. Stormwater feature near SP-3.

9. Typical vegetation at SP-3

10. View toward the location of SP-3 showing stormwater feature in shallow ditch.

11. Soil profile at SP-4

12. Typical vegetation at SP-4

13. Saturation, surface water, and ground water were not observed at any locations.

14. View toward location of SP-5, showing stormwater feature.

15. Soil profile at SP-5

16. Typical vegetation at SP-5

17. View toward location of SP-6

18. View of ditch facing south-southwest

19. View of ditch facing east

20. Soil profile at SP-6

21. Vegetation at SP-6

22. Closer view of soil at SP-6

23. Additional view of typical courtyard on east parcel

24. Additional view of typical courtyard on west parcel

APPENDIX C: USACE WETLAND DETERMINATION DATA FORMS

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Oakland Place City/County: Florence / Florence Sampling Date: 5/20/2025

Applicant/Owner: The Paces Foundation, Inc. State: SC Sampling Point: SP-1

Investigator(s): Kalli Agoglossakis Section, Township, Range: Not Applicable

Landform (hillside, terrace, etc.): Residential lawn Local relief (concave, convex, none): Flat Slope (%): <2

Subregion (LRR or MLRA): LRR P, MLRA 133A Lat: 34.205370N Long: 79.759872W Datum: WGS 1984

Soil Map Unit Name: Ub—Urban land-Coxville-Norfolk association NWI classification: UPL

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Slight depressional area along former ag drainage (from aerials prior to present-day improvements).

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:
This note pertains to all sample locations: the site is located in a densely urban context. The entire site is comprised of developed areas such as building foundations and parking lots, with green space comprised entirely of maintained lawns. Vegetation and soils are therefore widely disturbed.

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

Sampling Point: SP-1

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30' Radius)			
1. *Diodia virginiana*	10	No	FACW
2. *Trifolium repens*	12	No	FACU
3. *Stenotaphrum secundatum*	48	Yes	FAC
4. *Sherardia arvensis*	32	Yes	UPL
5. *Taraxacum officinale*	4	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	106 =Total Cover		
50% of total cover: 53	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	48	x 3 =	144
FACU species	16	x 4 =	64
UPL species	32	x 5 =	160
Column Totals:	106 (A)		388 (B)
Prevalence Index = B/A =			3.66

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: SP-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-17	10YR 3/3	80	10YR 5/1	18	D	PL/M	Loamy/Clayey	
			10YR 5/6	2	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Oakland Place City/County: Florence / Florence Sampling Date: 5/20/2025

Applicant/Owner: The Paces Foundation, Inc. State: SC Sampling Point: SP-2

Investigator(s): Kalli Agoglossakis Section, Township, Range: Not Applicable

Landform (hillside, terrace, etc.): Residential lawn Local relief (concave, convex, none): Flat Slope (%): <1

Subregion (LRR or MLRA): LRR P, MLRA 133A Lat: 34.205766N Long: 79.759100W Datum: WGS 1984

Soil Map Unit Name: Ub—Urban land-Coxville-Norfolk association NWI classification: UPL

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

Are Vegetation X , Soil X , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

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

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

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

Remarks:
Near two pin oaks in residential lawn; apparent upland.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: SP-2

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus palustris*	56	Yes	FACW
2. *Pyrus calleryana*	8	No	UPL
3.			
4.			
5.			
6.			
	64	=Total Cover	
50% of total cover: 32		20% of total cover: 13	

Sapling Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 30' Radius)			
1. *Stenotaphrum secundatum*	28	Yes	FAC
2. *Trifolium repens*	28	Yes	FACU
3. *Diodia virginiana*	12	No	FACW
4. *Sherardia arvensis*	20	Yes	UPL
5. *Taraxacum officinale*	4	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	92	=Total Cover	
50% of total cover: 46		20% of total cover: 19	

Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	68	x 2 =	136
FAC species	28	x 3 =	84
FACU species	32	x 4 =	128
UPL species	28	x 5 =	140
Column Totals:	156 (A)		488 (B)
Prevalence Index = B/A =			3.13

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: SP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					Loamy/Clayey	Topsoil
6-15	10YR 3/3	60					Sandy	10YR 6/1 Matrix: 40%
15-17	10YR 3/1	96	10YR 6/8	4	C	M	Sandy	Prominent redox concentrations

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Lower layer appears to be a mix of fill and native soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Oakland Place City/County: Florence / Florence Sampling Date: 5/20/2025

Applicant/Owner: The Paces Foundation, Inc. State: SC Sampling Point: SP-3

Investigator(s): Kalli Agoglossakis Section, Township, Range: Not Applicable

Landform (hillside, terrace, etc.): Residential lawn Local relief (concave, convex, none): Flat Slope (%): <1

Subregion (LRR or MLRA): LRR P, MLRA 133A Lat: 34.205225N Long: 79.758236W Datum: WGS 1984

Soil Map Unit Name: Ub—Urban land-Coxville-Norfolk association NWI classification: UPL

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Location along former agricultural drainage visible in aerial photography prior to the present-day developments.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:
In proximity to three stormwater catch basins in lawn.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: SP-3

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus nigra*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover:	2
Sapling Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Shrub Stratum (Plot size: 30' Radius)			
1. *Stenotaphrum secundatum*	36	Yes	FAC
2. *Dichondra carolinensis*	16	No	FAC
3. *Trifolium repens*	20	Yes	FACU
4. *Sherardia arvensis*	24	Yes	UPL
5.			
6.			
	96	=Total Cover	
50% of total cover: 48		20% of total cover:	20
Herb Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	62	x 3 =	186
FACU species	20	x 4 =	80
UPL species	24	x 5 =	120
Column Totals:	106 (A)		386 (B)
Prevalence Index = B/A =			3.64

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: SP-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					Loamy/Clayey	Topsoil
2-11	10YR 3/3	80					Sandy	10YR 5/4 Matrix: 20%
11-13	10YR 3/3	65	10YR 5/6	15	C	PL/M	Sandy	Distinct redox concentrations
			10YR 4/2	20	D	PL/M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Oakland Place City/County: Florence / Florence Sampling Date: 5/20/2025

Applicant/Owner: The Paces Foundation, Inc. State: SC Sampling Point: SP-4

Investigator(s): Kalli Agoglossakis Section, Township, Range: Not Applicable

Landform (hillside, terrace, etc.): Residential lawn / ditch Local relief (concave, convex, none): Flat Slope (%): <1

Subregion (LRR or MLRA): LRR P, MLRA 133A Lat: 34.205131N Long: 79.757620W Datum: WGS 1984

Soil Map Unit Name: Ub—Urban land-Coxville-Norfolk association NWI classification: UPL

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Located within slight topographic depression in vicinity of stormwater catch basin; ditch along Rose Street.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:
Scattered fungus growth within ditch indicative of moist but not wet conditions.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: SP-4

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30' Radius)			
1. *Stenotaphrum secundatum*	36	Yes	FAC
2. *Trifolium repens*	18	Yes	FACU
3. *Dichondra carolinensis*	12	No	FAC
4. *Sherardia arvensis*	16	No	UPL
5. *Kummerowia striata*	16	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	98 =Total Cover		
50% of total cover: 49	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	48	x 3 =	144
FACU species	34	x 4 =	136
UPL species	16	x 5 =	80
Column Totals:	98 (A)		360 (B)
Prevalence Index = B/A =			3.67

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)
Trees across street were excluded because they are not in the community being sampled.

SOIL

Sampling Point: SP-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 3/3	100					Loamy/Clayey	Topsoil
12-17	10YR 3/3	31	10YR 5/2	65	D	PL/M	Loamy/Clayey	
			10YR 5/6	4	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Sandy clay - lowermost stratum - appears to be a mix of fill and native soil.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Oakland Place City/County: Florence / Florence Sampling Date: 5/20/2025

Applicant/Owner: The Paces Foundation, Inc. State: SC Sampling Point: SP-5

Investigator(s): Kalli Agoglossakis Section, Township, Range: Not Applicable

Landform (hillside, terrace, etc.): Residential lawn Local relief (concave, convex, none): Flat Slope (%): <1

Subregion (LRR or MLRA): LRR P, MLRA 133A Lat: 34.205888N Long: 79.757848W Datum: WGS 1984

Soil Map Unit Name: Ub—Urban land-Coxville-Norfolk association NWI classification: UPL

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Location is within residential lawn.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:
Localized slight depression in vicinity of stormwater catch basin.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: SP-5

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30' Radius)			
1. *Stenotaphrum secundatum*	36	Yes	FAC
2. *Kummerowia striata*	28	Yes	FACU
3. *Dichondra carolinensis*	4	No	FAC
4. *Sherardia arvensis*	16	No	UPL
5. *Trifolium repens*	12	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	96 =Total Cover		
50% of total cover: 48	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	40	x 4 =	160
UPL species	16	x 5 =	80
Column Totals:	96 (A)		360 (B)
Prevalence Index = B/A =			3.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: SP-5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					Loamy/Clayey	Topsoil
2-8	10YR 3/3	99	10YR 5/4	1	C	M	Sandy	Faint redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Compacted sand

Depth (inches): 8

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Six attempts to sample this area were all refused at 8" bgs. There is some evidence of vehicular traffic on this part of the lawn - a potential cause for compaction.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Oakland Place City/County: Florence / Florence Sampling Date: 5/20/2025

Applicant/Owner: The Paces Foundation, Inc. State: SC Sampling Point: SP-6

Investigator(s): Kalli Agoglossakis Section, Township, Range: Not Applicable

Landform (hillside, terrace, etc.): Residential lawn / ditch Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR or MLRA): LRR P, MLRA 133A Lat: 34.206904N Long: 79.759598W Datum: WGS 1984

Soil Map Unit Name: Ub—Urban land-Coxville-Norfolk association NWI classification: UPL

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

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

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:
At confluence of two very shallow (<1" deep) linear ditches that are entirely confined to this area of the property.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: SP-6

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Melia azedarach*	20	Yes	UPL
2. *Liquidambar styraciflua*	20	Yes	FAC
3.			
4.			
5.			
6.			
	40	=Total Cover	
50% of total cover: 20		20% of total cover: 8	

Sapling Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot size: 30' Radius)			
1. *Prunus caroliniana*	16	Yes	FACU
2. *Melia azedarach*	12	Yes	UPL
3.			
4.			
5.			
6.			
	28	=Total Cover	
50% of total cover: 14		20% of total cover: 6	

Herb Stratum (Plot size: 30' Radius)			
1. *Stenotaphrum secundatum*	32	Yes	FAC
2. *Dichondra carolinensis*	20	Yes	FAC
3. *Nothoscordum bivalve*	16	No	FACU
4. *Mazus pumilus*	16	No	FACU
5. *Taraxacum officinale*	2	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	86	=Total Cover	
50% of total cover: 43		20% of total cover: 18	

Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	72	x 3 =	216
FACU species	50	x 4 =	200
UPL species	32	x 5 =	160
Column Totals:	154 (A)		576 (B)
Prevalence Index = B/A =			3.74

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: SP-6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Loamy/Clayey	topsoil
4-16	10YR 3/2	90					Loamy/Clayey	10YR 5/4 Matrix (sand): 10%

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Pieces of tree roots (7.5YR 5/6) is sample and visible in photographs.

APPENDIX D: SUPPORTING INFORMATION

Date: May 13, 2024 **Florence County Taxes Inquiry** Time: 09:40

Map/Block/Parcel 90100 06 012 **Property Card File** Year 2017 File

Close This Window

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FLORENCE COUNTY TAX ASSESSOR
Property Card Record for MBP: 90100-06-012   TAX YEAR: 2023      9/16/23   8:31:34     PAGE:  73267
----------------------- PROPERTY LOCATION Address ------------------------------=== PROPERTY BILLING NAME/ADDRESS ===
   Number: 00000   Suffix:                                                      HOUSING AUTHORITY OF
   Street Name: 00000000              Street Suffix:                            FLORENCE
   City:                   State:     Zip: 00000 0000                           PO DRAWER 969
   District: 110   Land Class: CI COMMERCIAL IMPROVED                           FLORENCE SC            29503
   Legal Desc: OAKLAND AVE
         Land Characteristic Selections
  L A N D  Lots: Regular Lot                    Eff Frontage:  343  Eff Depth:     230
-------------------------------------------------------------------------------------------------------------------
    --- Totals for MBP ---
 # Buildings:   0   Building Value:            .00    Land Market Value:     56,595.00
 Market Acres:           .00    Use Acres:           .00    Land Use Value:           .00
 Bld/Land Use Total:           .00    Bld/Land Mar.Total:      56,595.00    6% Bld Value:           0    # of 6% Blds:             0
 Rental Acres:     0    Rental Acres Value:          0    Ren.Acres-Mar:     0    Ren.Acres Value-Mar:          0
```

Date: May 13, 2024

Florence County Taxes Inquiry

Time: 10:17

Map/Block/Parcel 90100 05 002

Property Card File

Year 2017 File

Close This Window

```
FLORENCE COUNTY TAX ASSESSOR
Property Card Record for MBP: 90100-05-002   TAX YEAR: 2023      9/16/23   8:31:34     PAGE:  73255
----------------------- PROPERTY LOCATION Address ------------------------------=== PROPERTY BILLING NAME/ADDRESS ===
   Number: 40000   Suffix:                                                      HOUSING AUTHORITY OF
   Street Name: 00000000              Street Suffix:                           FLORENCE
   City:                  State:     Zip: 00000 0000                          PO DRAWER 969
   District: 110   Land Class: CI COMMERCIAL IMPROVED                         FLORENCE SC            29503
   Legal Desc: OAKLAND PLANTATION
         Land Characteristic Selections
   01 Topography           1                    Level
   02 Street               1                    Paved
   02 Street               5                    Curb & Gutter
   02 Street               6                    Sidewalk
   03 Utilities            1                    All Public Utilities
   03 Utilities            7                    Storm Sewer
   04 Fronting Traffic     4                    Med.
   05 Ownership            3                    City
  L A N D  Lots: Regular Lot                    Eff Frontage:  480  Eff Depth:     424
-------------------------------------------------------------------------------------------------------------------
    --- Totals for MBP ---
 # Buildings:   0   Building Value:        .00    Land Market Value:     14,880.00
 Market Acres:       .00    Use Acres:       .00    Land Use Value:       .00
 Bld/Land Use Total:        .00    Bld/Land Mar.Total:  14,880.00    6% Bld Value:       0    # of 6% Blds:          0
 Rental Acres:     0    Rental Acres Value:      0    Ren.Acres-Mar:     0    Ren.Acres Value-Mar:      0
```

qPublic.net™ Florence County, SC

Overview

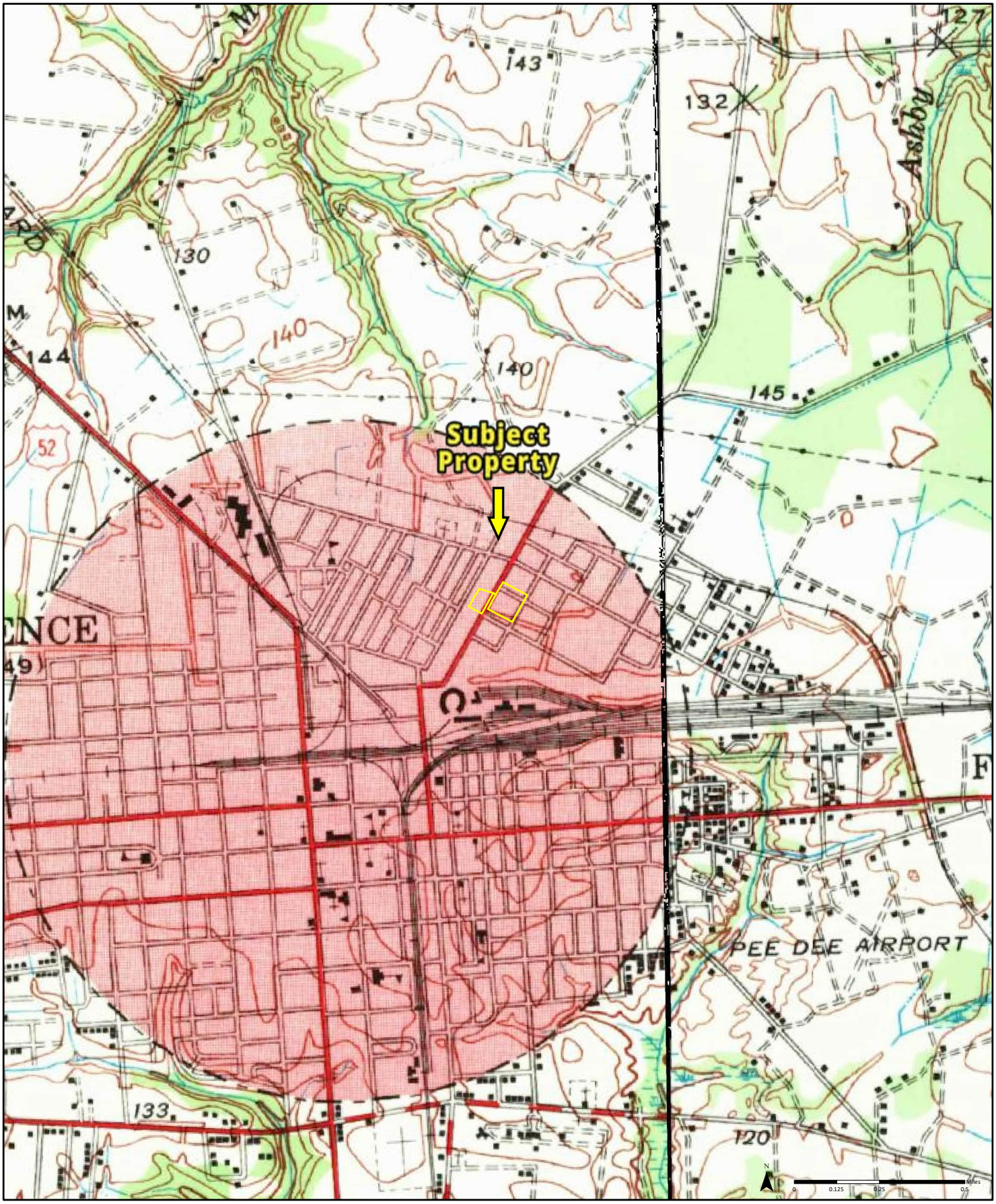
Legend

- Parcels
- Roads

Parcel ID	90100-06-012	**Physical Address**		**Land Value**	$56,595	**Last 2 Sales**	
Property Class	CI COMMERCIAL			**Improvement Value**	$0	**Date**	**Price**
	IMPROVED	**Mailing Address**	HOUSING AUTHORITY OF FLORENCE PO DRAWER 969 FLORENCE SC 29503	**Miscellaneous Value**	$0	n/a	0
Taxing District	110 CITY OF FLORENCE			**Total Value**	$56,595		
				Total Improvement Area	0		
Deeded Acres	n/a						

Date created: 5/13/2024
Last Data Uploaded: 5/13/2024 9:34:07 AM

Developed by Schneider GEOSPATIAL



1940

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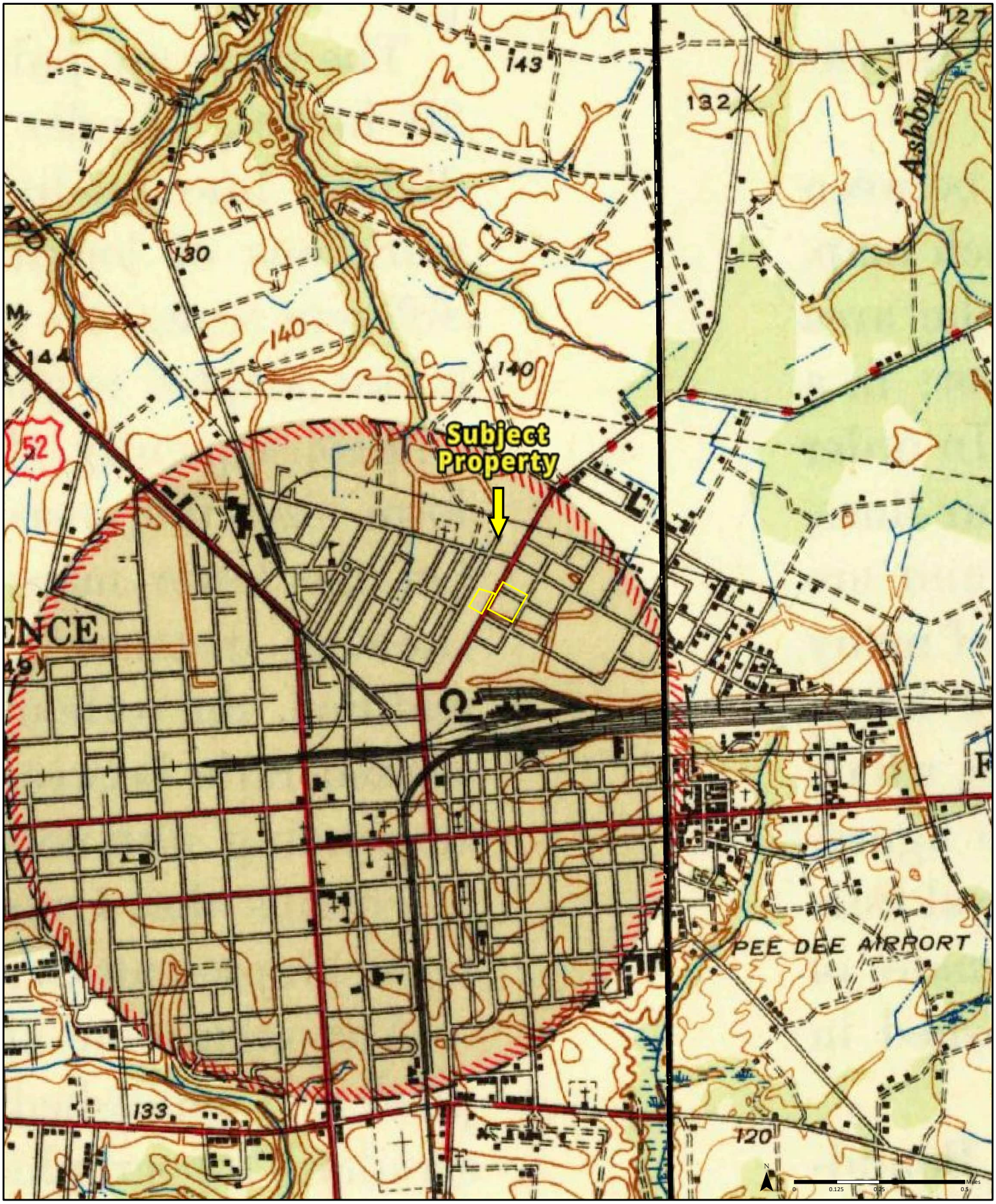
Florence East, SC

Order No. 24042500380

Source: USGS 15 Minute Topographic Map

PARTNER



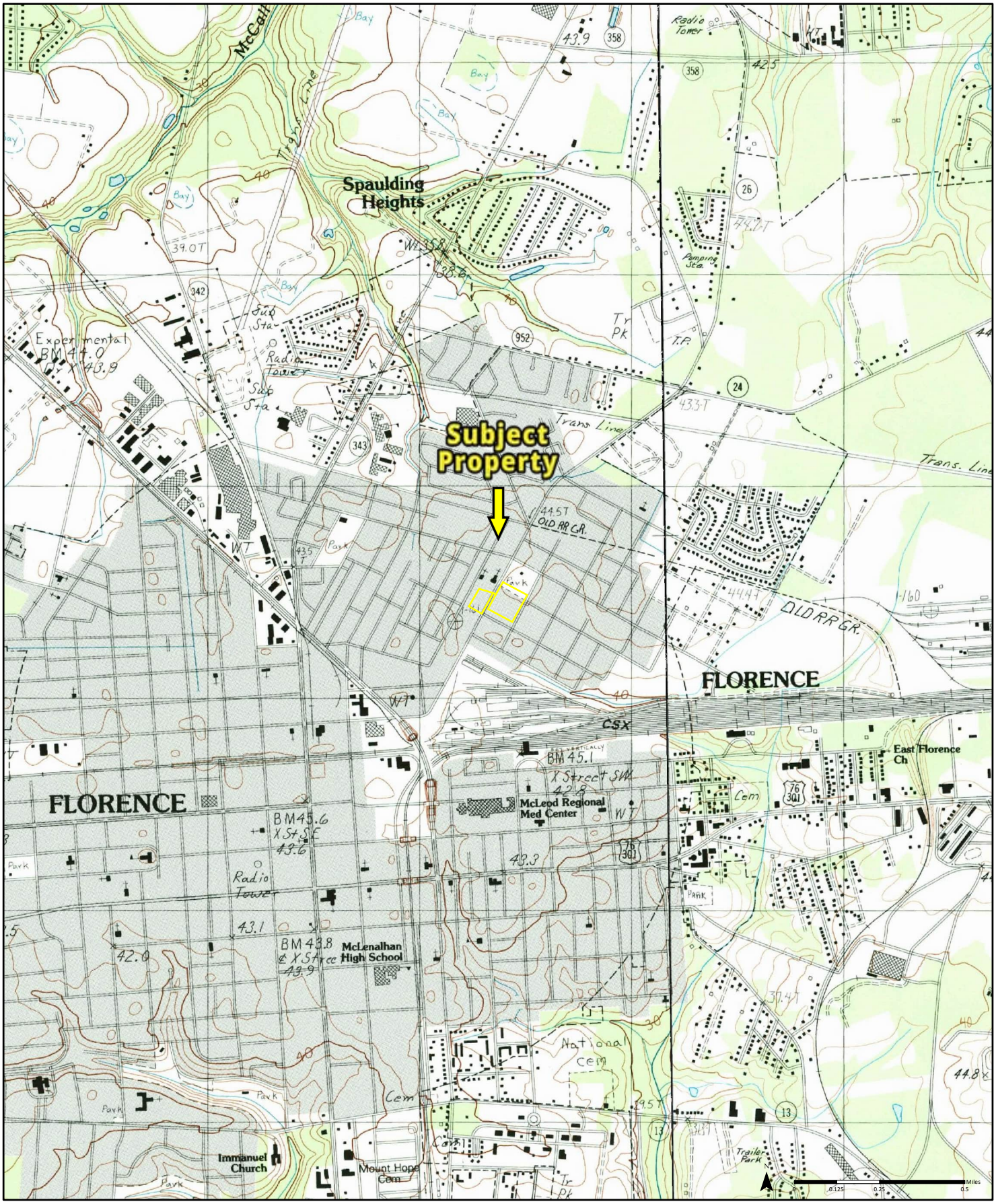
1945

Quadrangle(s): **Florence West, SC**
Florence East, SC

Order No. 24042500380

Source: USGS 15 Minute Topographic Map

PARTNER



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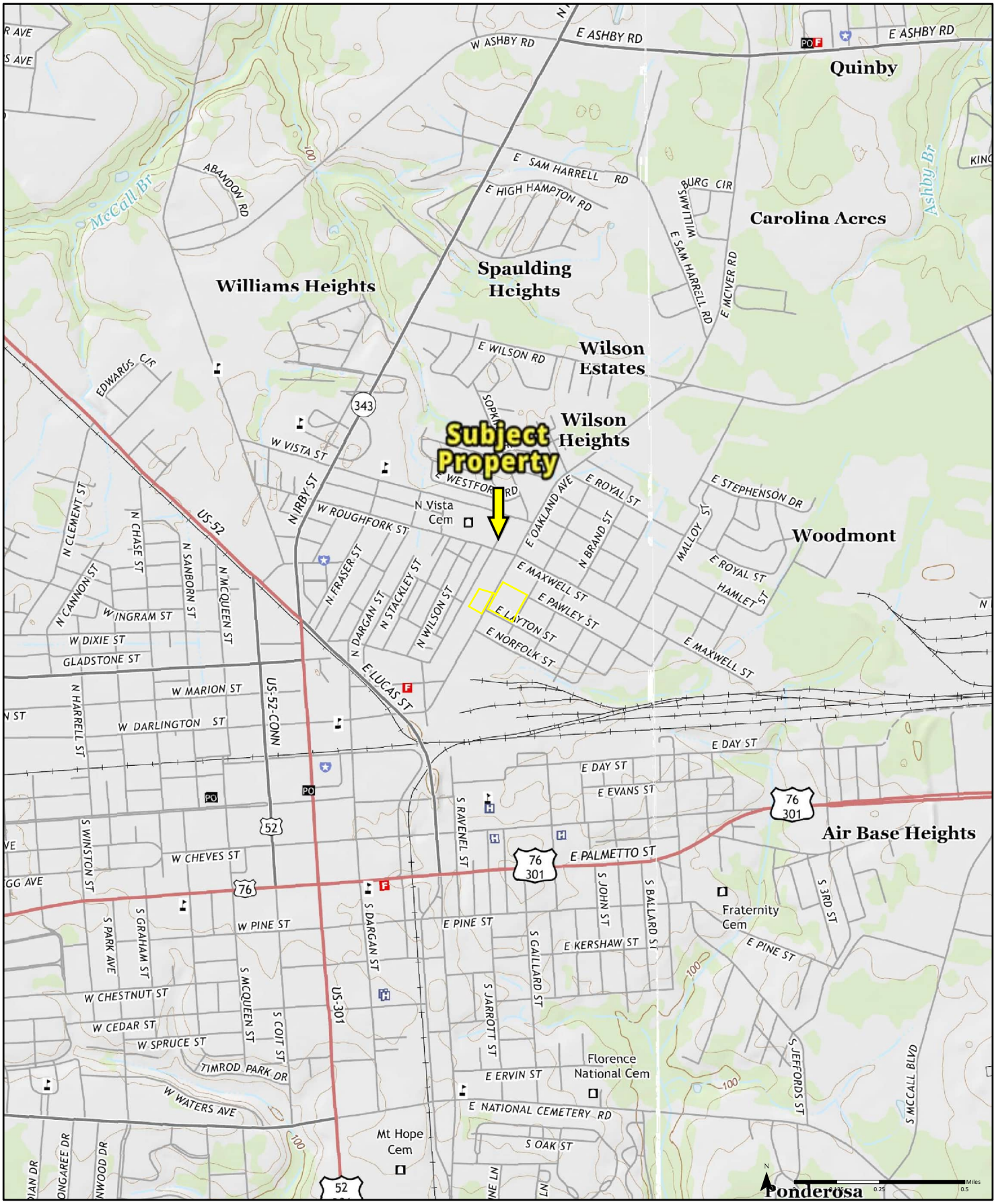
Quadrangle(s): Florence West, SC(2-1986)
Florence East, SC(1-1986)

Order No. 24042500380

Source: USGS 7.5 Minute Topographic Map

PARTNER



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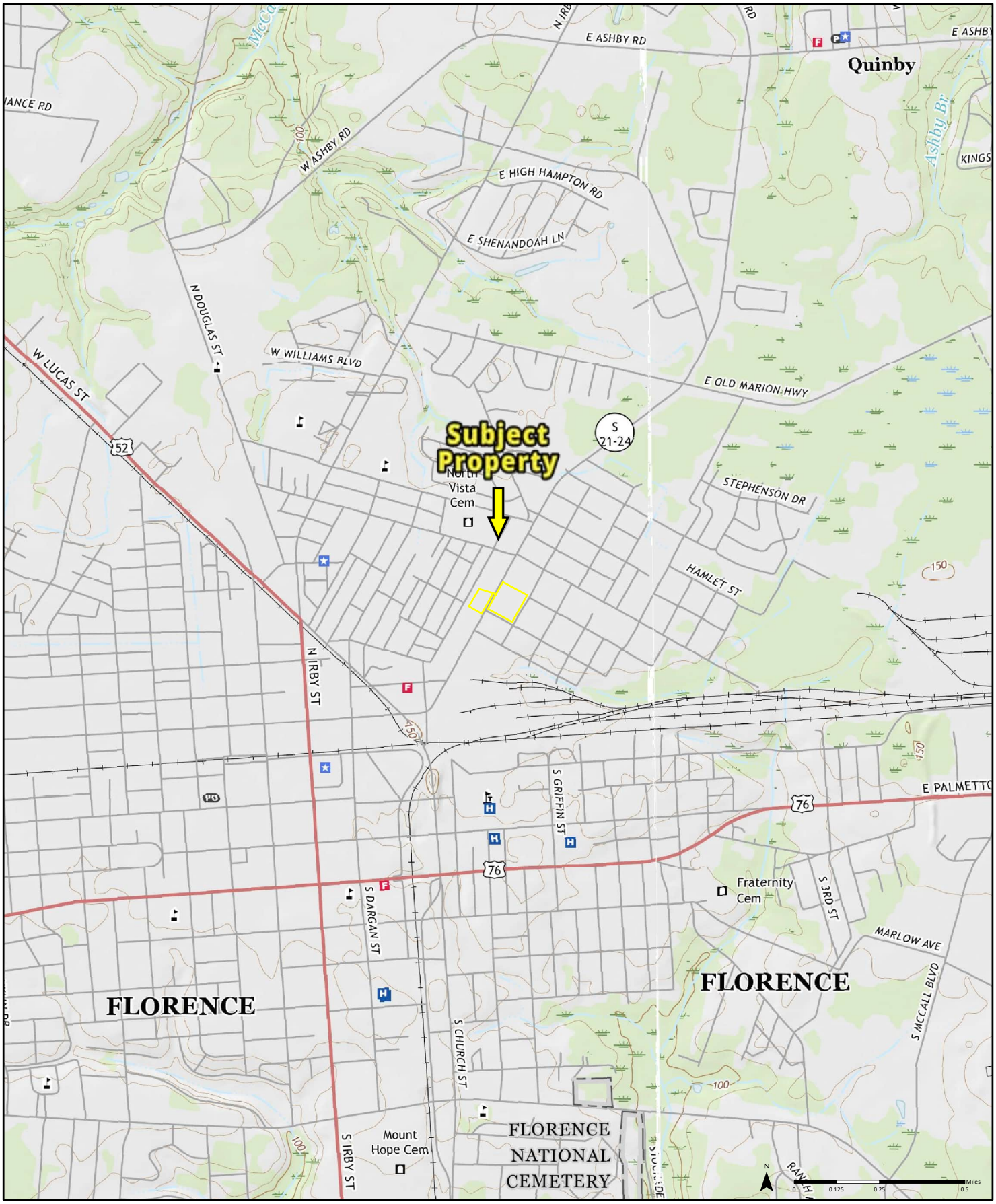
Quadrangle(s): Florence West, SC
Florence East, SC

Order No. 24042500380

Source: USGS 7.5 Minute Topographic Map

PARTNER



2017

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Florence East, SC

Order No. 24042500380

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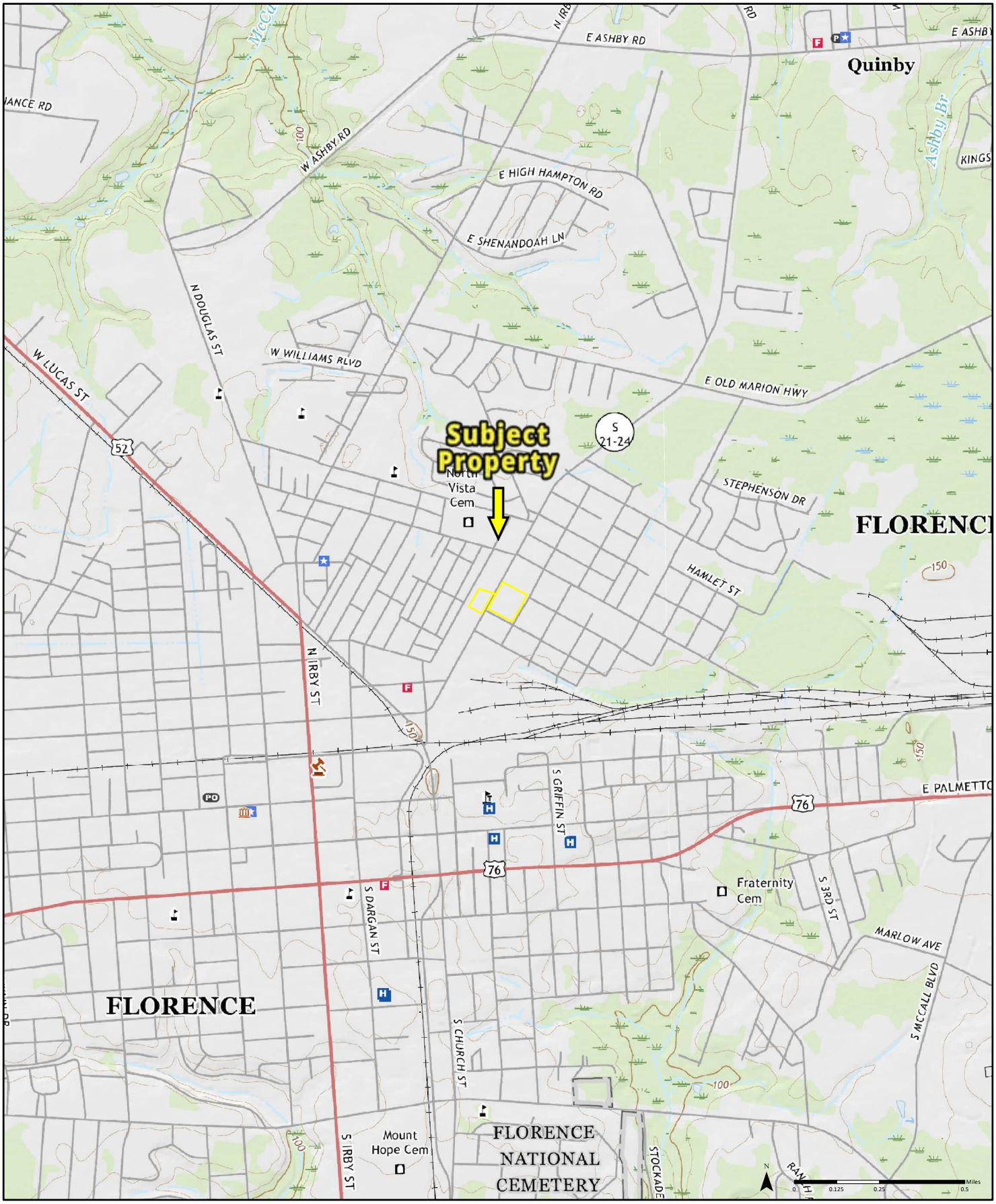
PARTNER



2020

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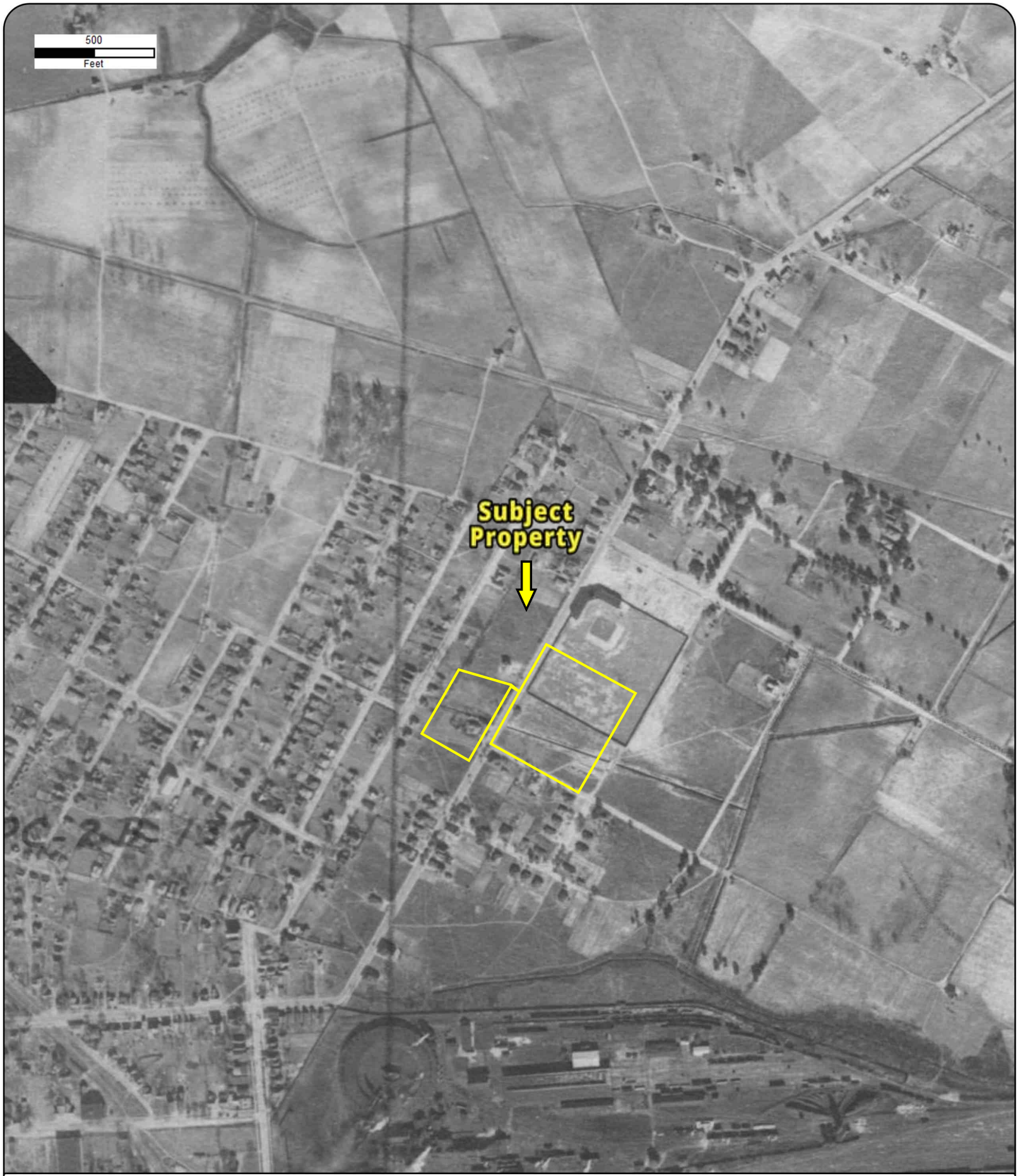
Florence East, SC

Order No. 24042500380

Source: USGS 7.5 Minute Topographic Map

PARTNER



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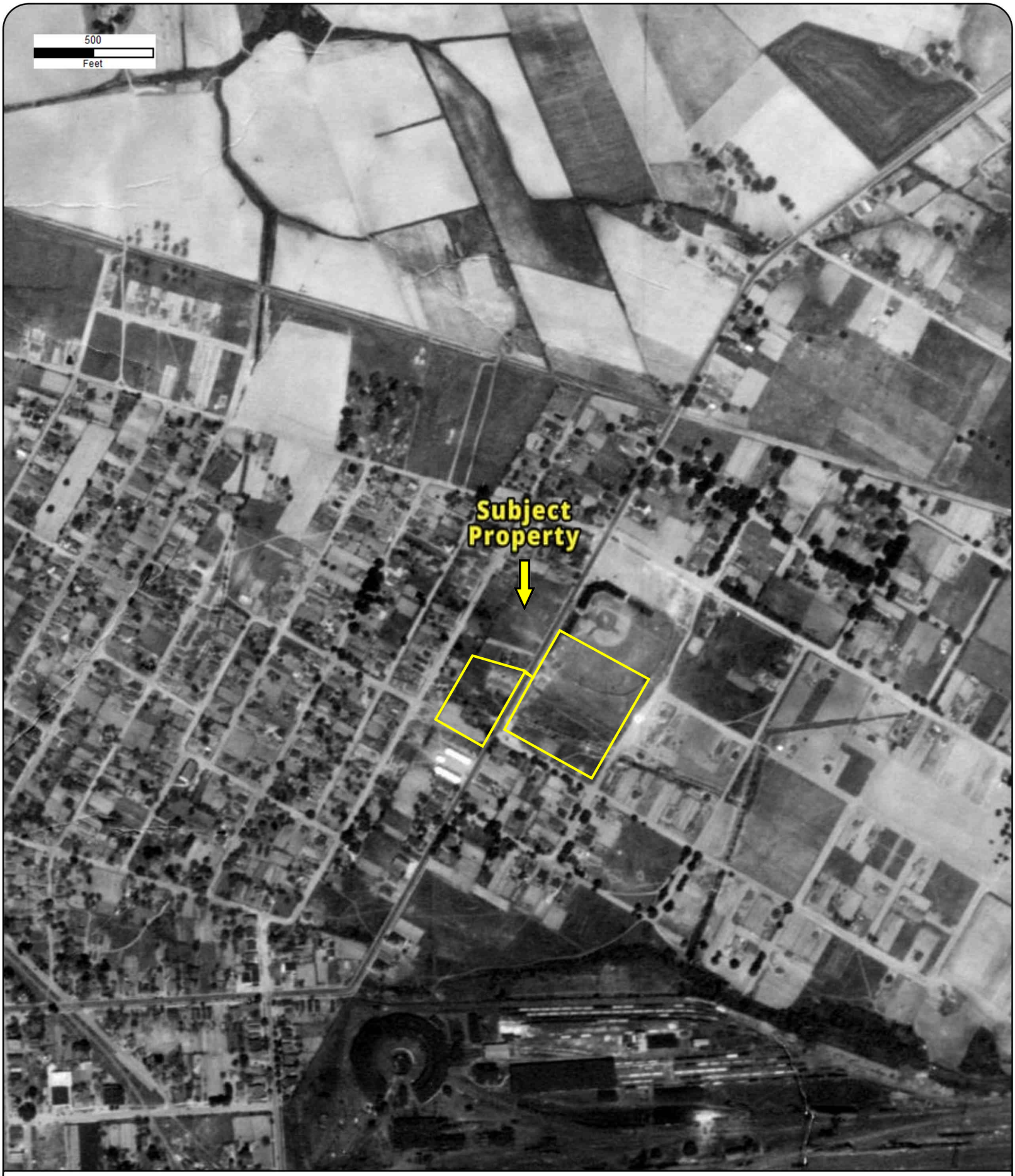

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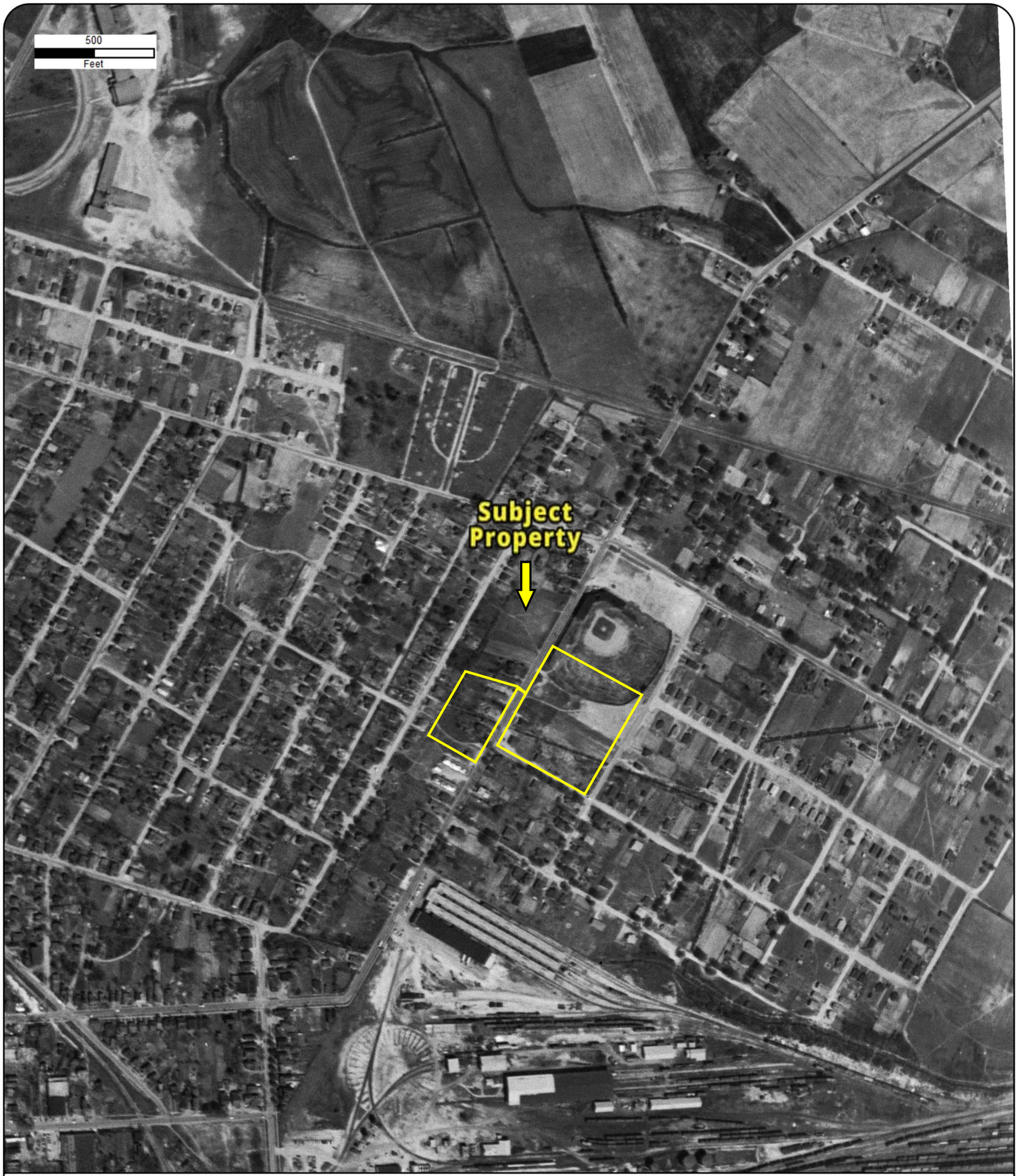

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PARTNER

Year: 1977
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PARTNER

Year: 1983
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Scale: 1" = 500'
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Order No: 24042500380

PARTNER

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PARTNER

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PARTNER

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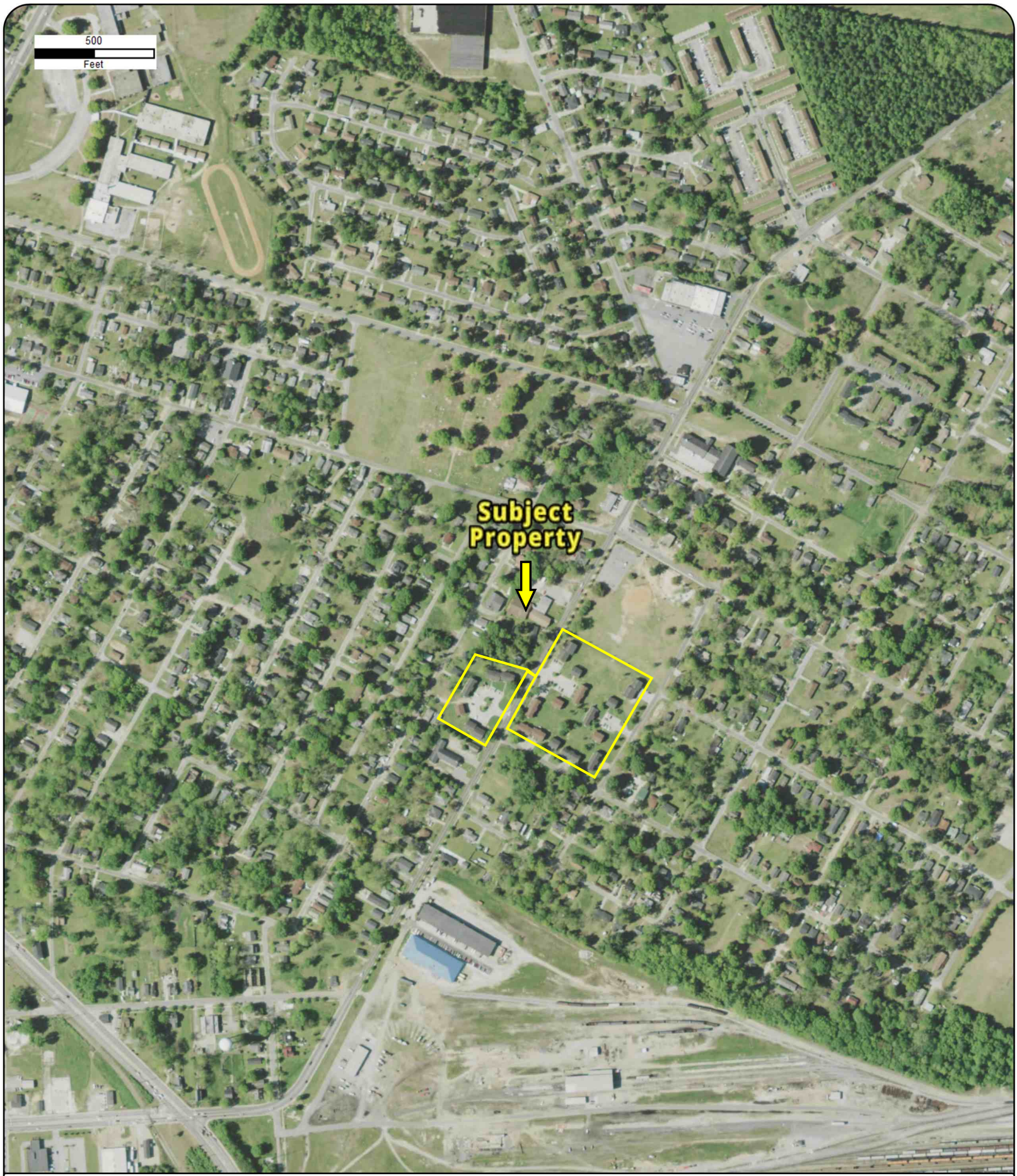

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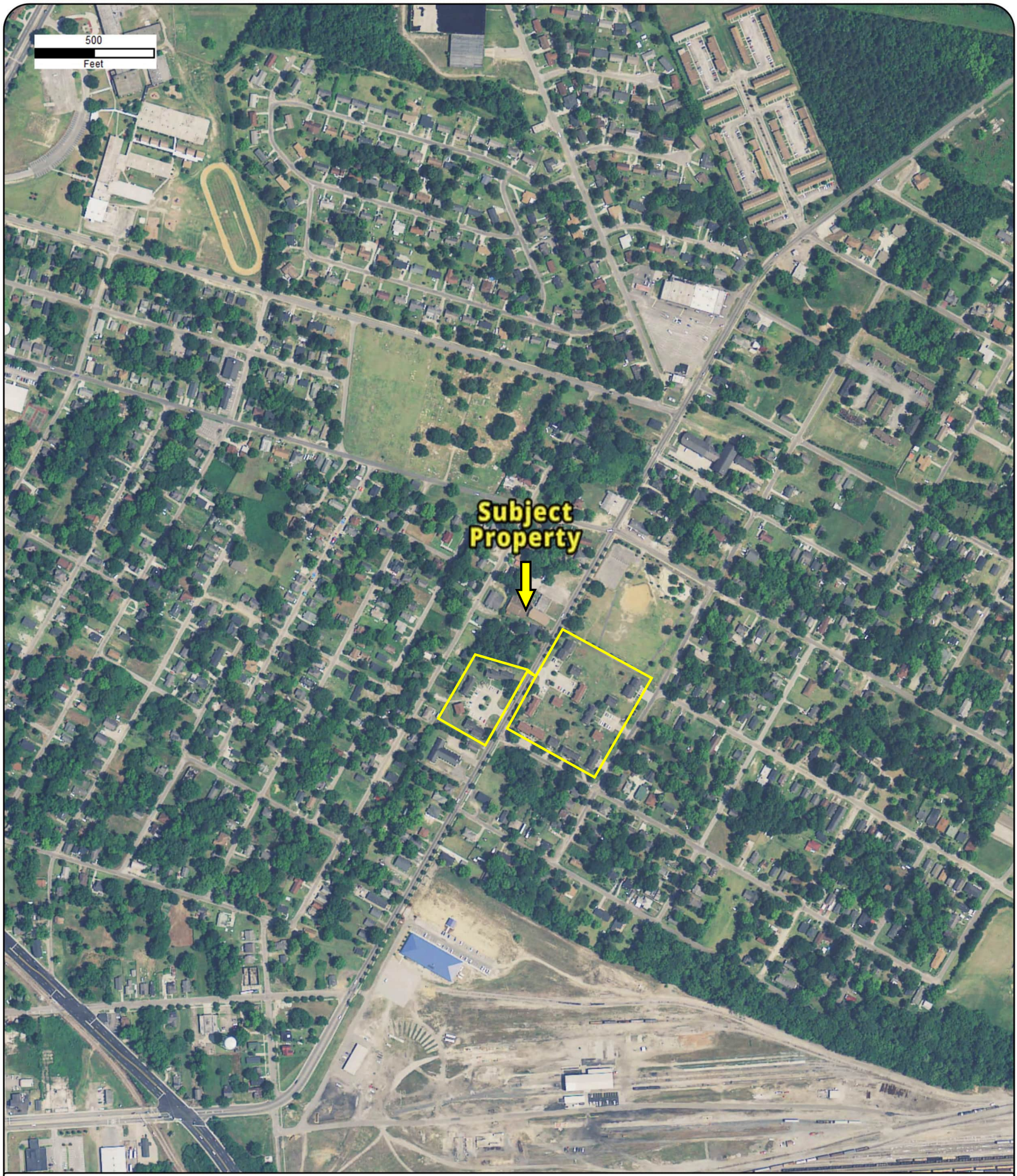

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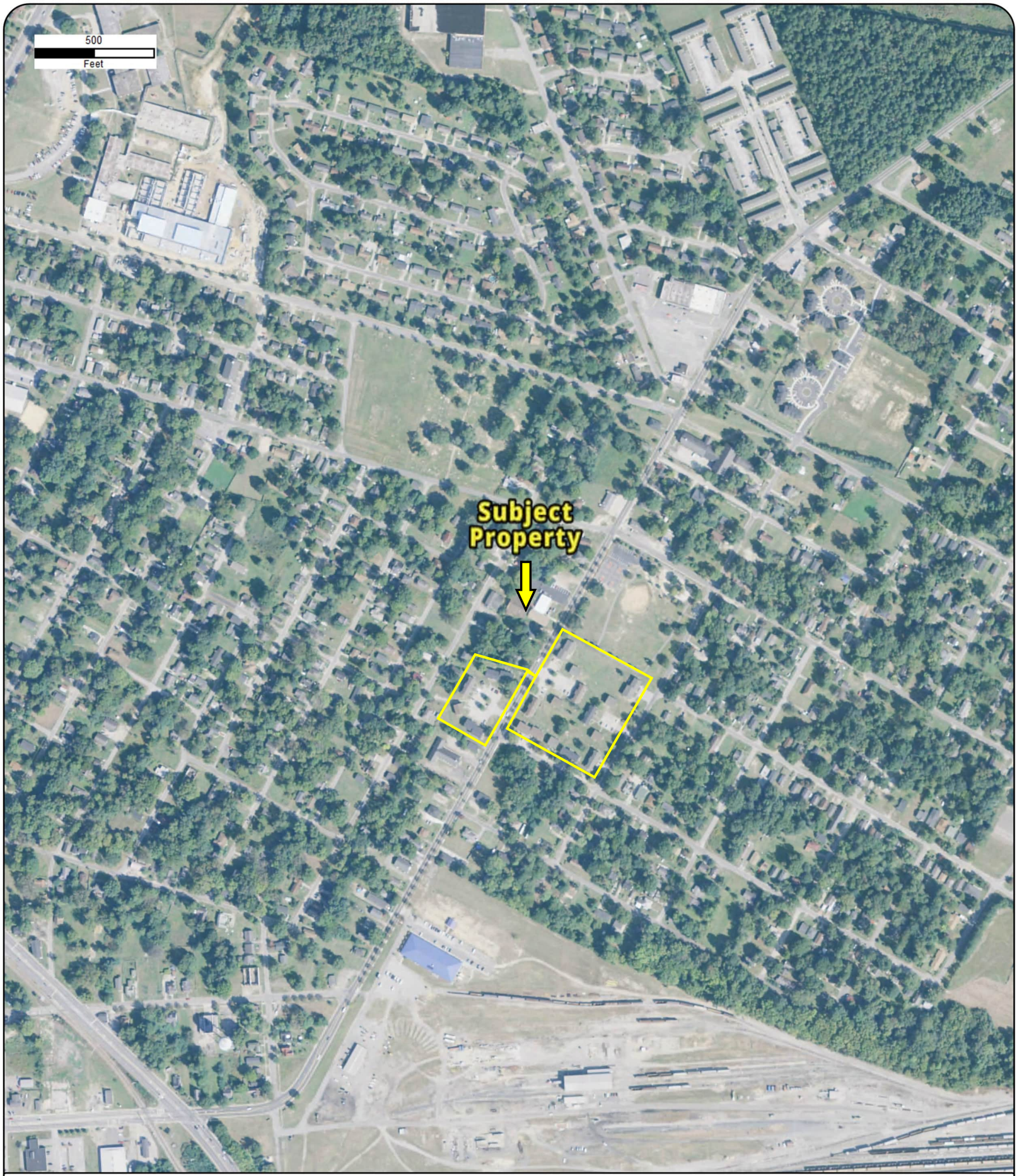

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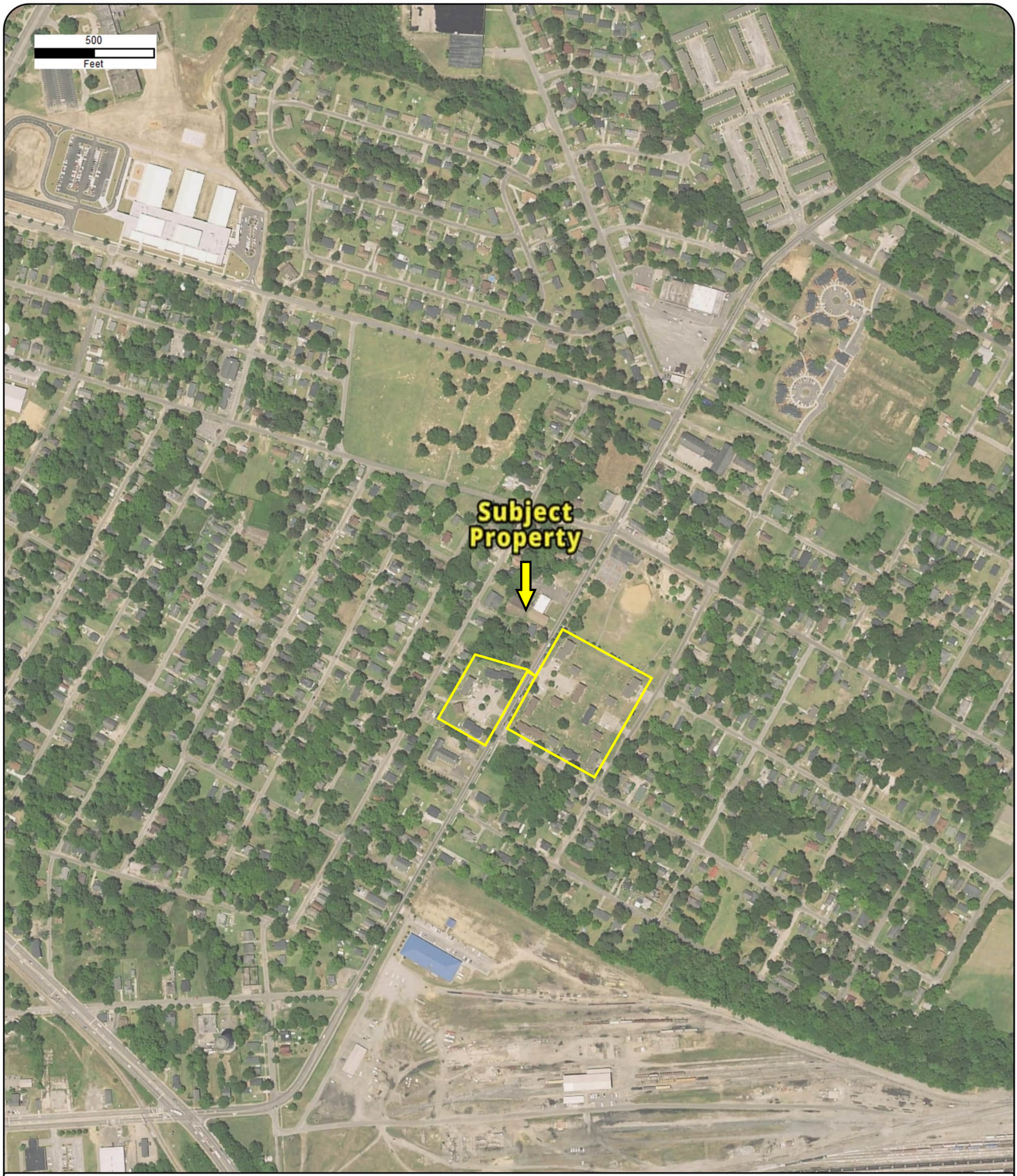

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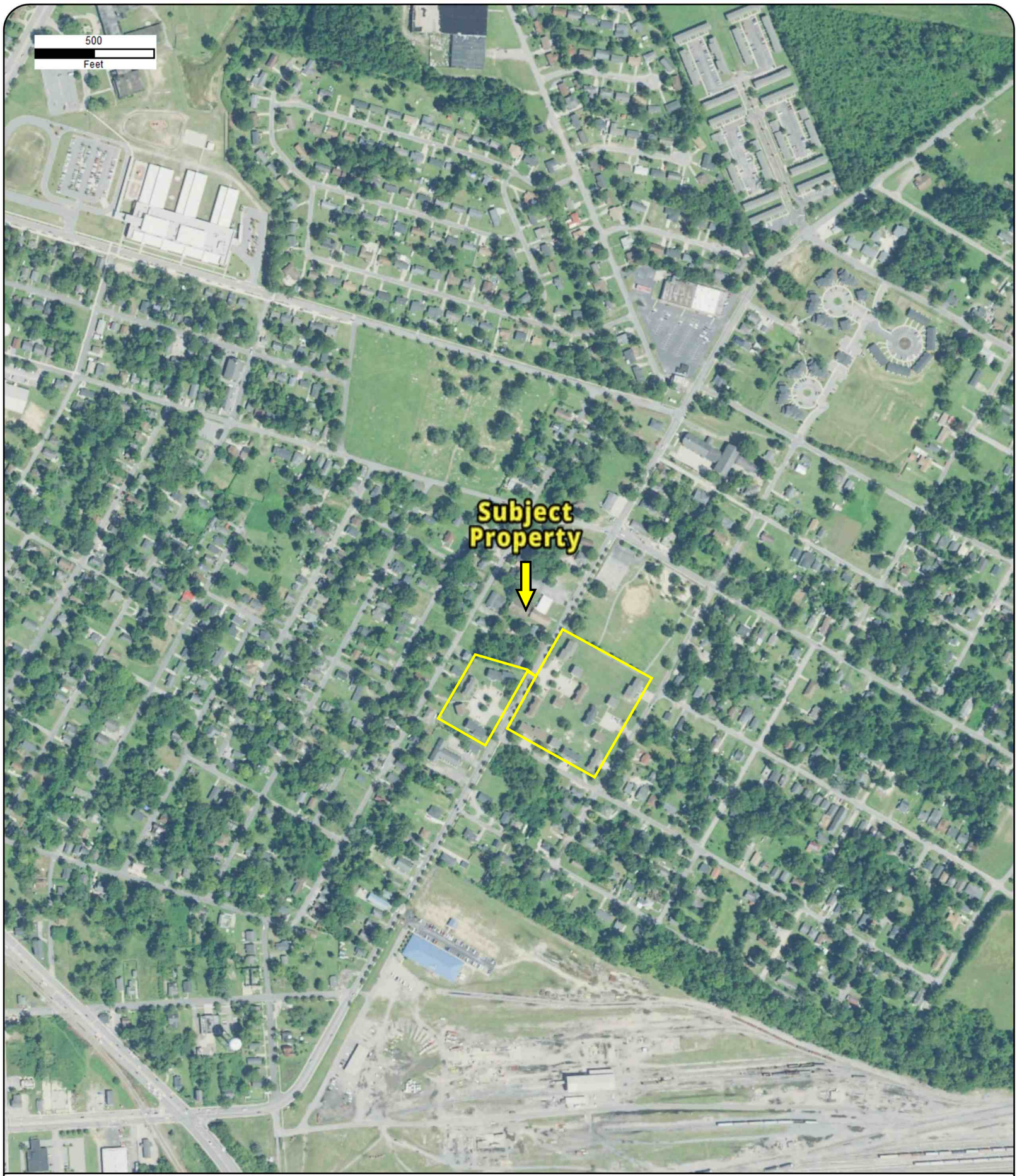

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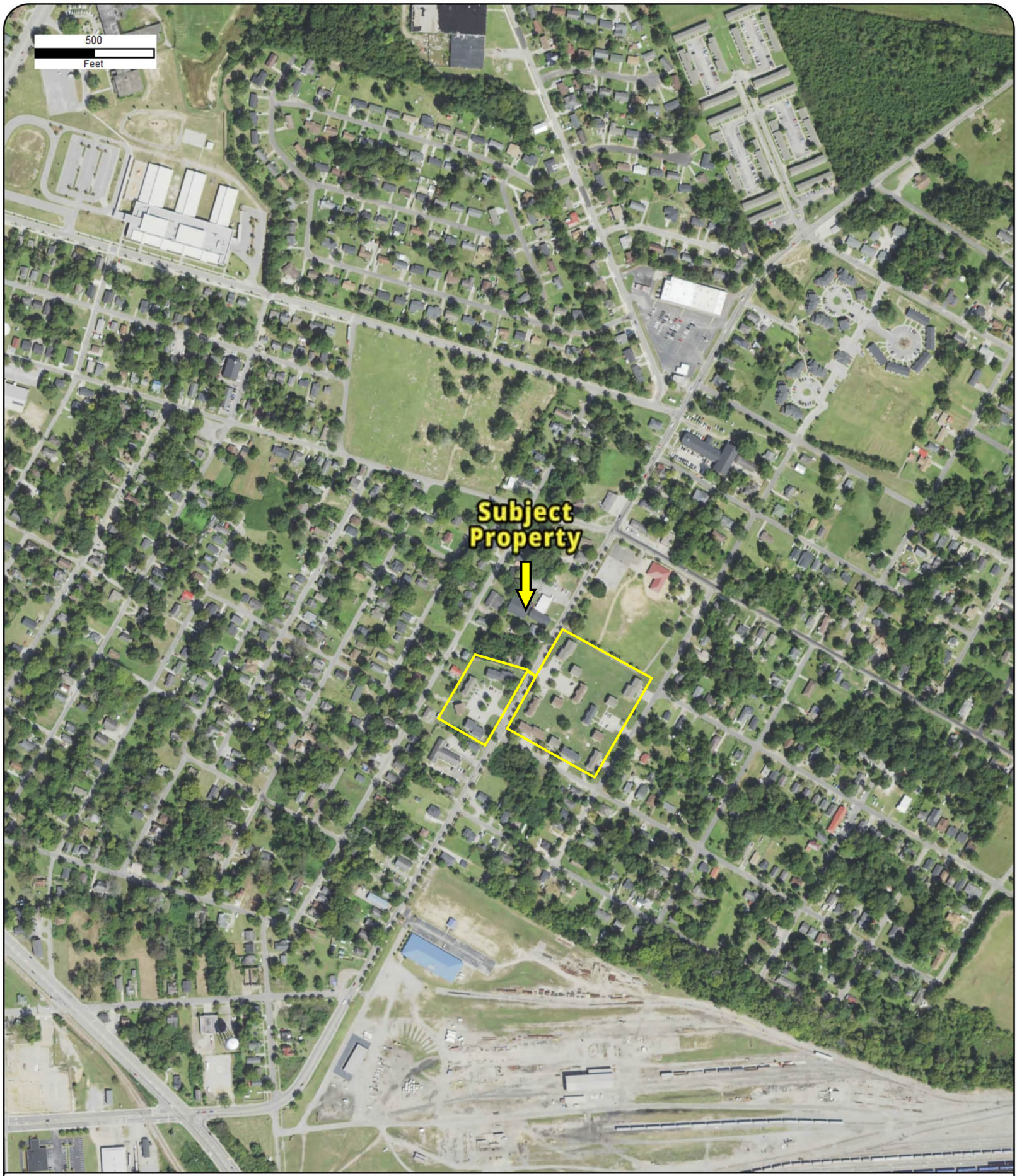

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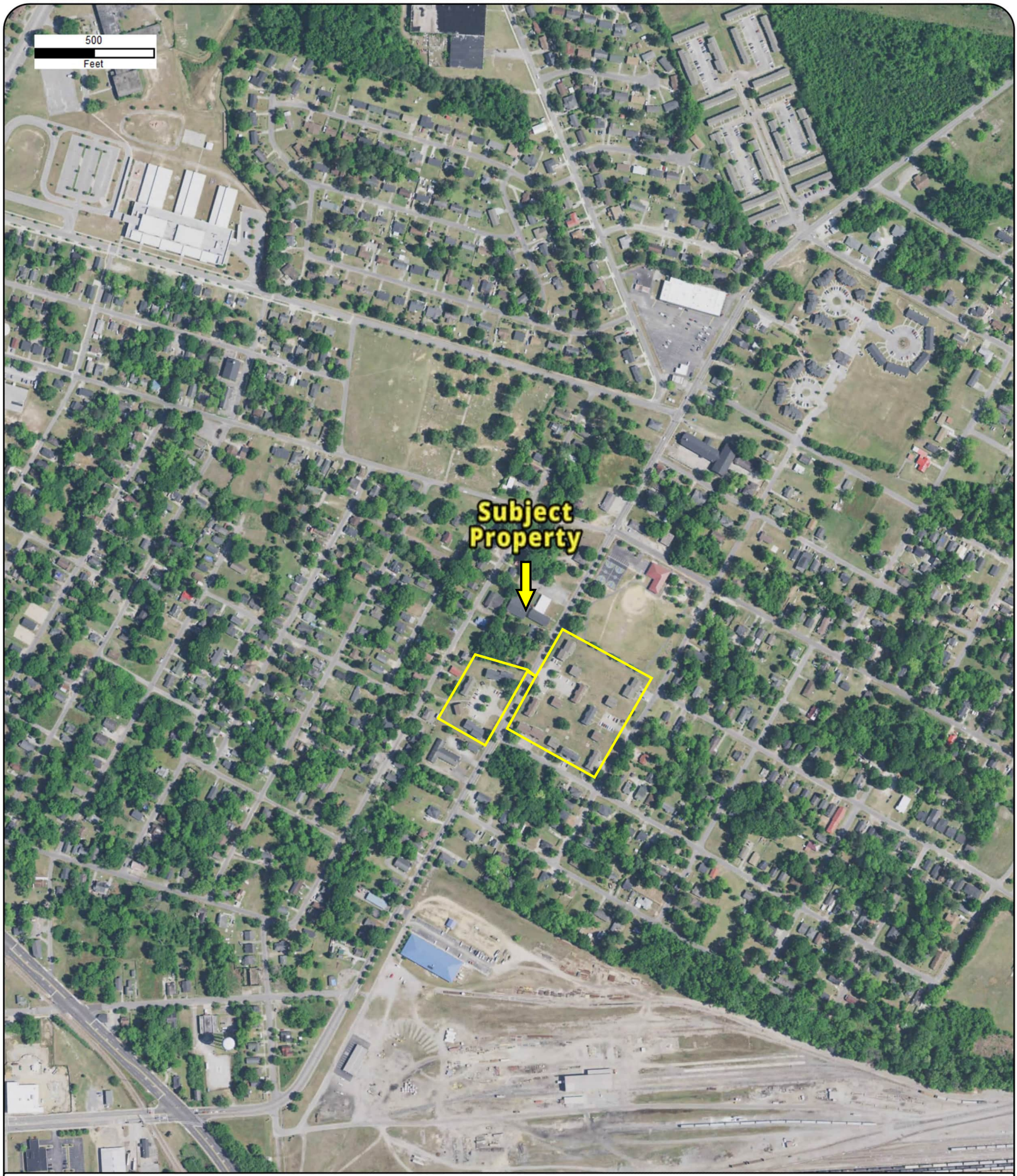

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PARTNER

Year: 2023
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Scale: 1" = 500'
Comment:

Address: 711 Oakland Avenue, FLORENCE, SC
Approx Center: -79.75848172,34.20560289

Order No: 24042500380

PARTNER

Ecoregions of North Carolina and South Carolina

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. By recognizing the spatial differences in the capacities and potentials of ecosystems, ecoregions stratify the environment by its probable response to disturbance (Bryce and others, 1999). These general purpose regions are critical for structuring and implementing ecosystem management strategies across federal agencies, state agencies, and nongovernment organizations that are responsible for different types of resources within the same geographical areas (Omernik and others, 2000).

The approach used to compile this map is based on the premise that ecological regions are hierarchical and can be identified through the analysis of the spatial patterns and the composition of biotic and abiotic phenomena that affect or reflect differences in ecosystem quality and integrity (Wiken 1986; Omernik 1987, 1995). These phenomena include geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology. The relative importance of each characteristic varies from one ecological region to another regardless of the hierarchical level. A Roman numeral hierarchical scheme has been adopted for different levels of ecological regions. Level I is the coarsest level, dividing North America into 15 ecological regions. Level II divides the continent into 52 regions (Commission for Environmental Cooperation Working Group 1997). At level III, the continental United States contains 104 ecoregions and the conterminous United States has 84 ecoregions (United States Environmental Protection Agency [USEPA] 2002). Level IV is a further subdivision of level III ecoregions. Explanations of the methods used to define the USEPA's ecoregions are given in Omernik (1995), Omernik and others (2000), and Gallant and others (1989).

Ecological and biological diversity of the Carolinas is enormous. The two states contain barrier islands and coastal lowlands, large river floodplain forests, rolling plains and plateaus, forested mountains, and a variety of aquatic habitats. There are 5 level III ecoregions and 29 level IV ecoregions in North and South Carolina and most continue into ecologically similar parts of adjacent states.

The level III and IV ecoregions on this poster were compiled at a scale of 1:250,000 and depict revisions and subdivisions of earlier level III ecoregions that were originally compiled at a smaller scale (USEPA 2002; Omernik 1987). This poster is part of a collaborative project primarily between USEPA Region IV, USEPA National Health and Environmental Effects Research Laboratory (Corvallis, Oregon), North Carolina Department of Environment and Natural Resources (NCDENR), South Carolina Department of Health and Environmental Control (SCDHEC), and the United States Department of Agriculture-Natural Resources Conservation Service (NRCS). Collaboration and consultation also occurred with the United States Department of Agriculture-Forest Service (USFS), United States Department of the Interior-Geological Survey (USGS)-Earth Resources Observation Systems (EROS) Data Center, and with other State of North Carolina and State of South Carolina agencies.

The project is associated with an interagency effort to develop a common framework of ecological regions (McMahon and others, 2001). Reaching that objective requires recognition of the differences in the conceptual approaches and mapping methodologies applied to develop the most common ecoregion-type frameworks, including those developed by the USFS (Bailey and others, 1994), the USEPA (Omernik 1987, 1995), and the NRCS (U.S. Department of Agriculture-Soil Conservation Service, 1981). As each of these frameworks is further refined, their differences are becoming less discernible. Regional collaborative projects such as these in North and South Carolina, where some agreement has been reached among multiple resource management agencies, are a step toward attaining consensus and consistency in ecoregion frameworks for the entire nation.

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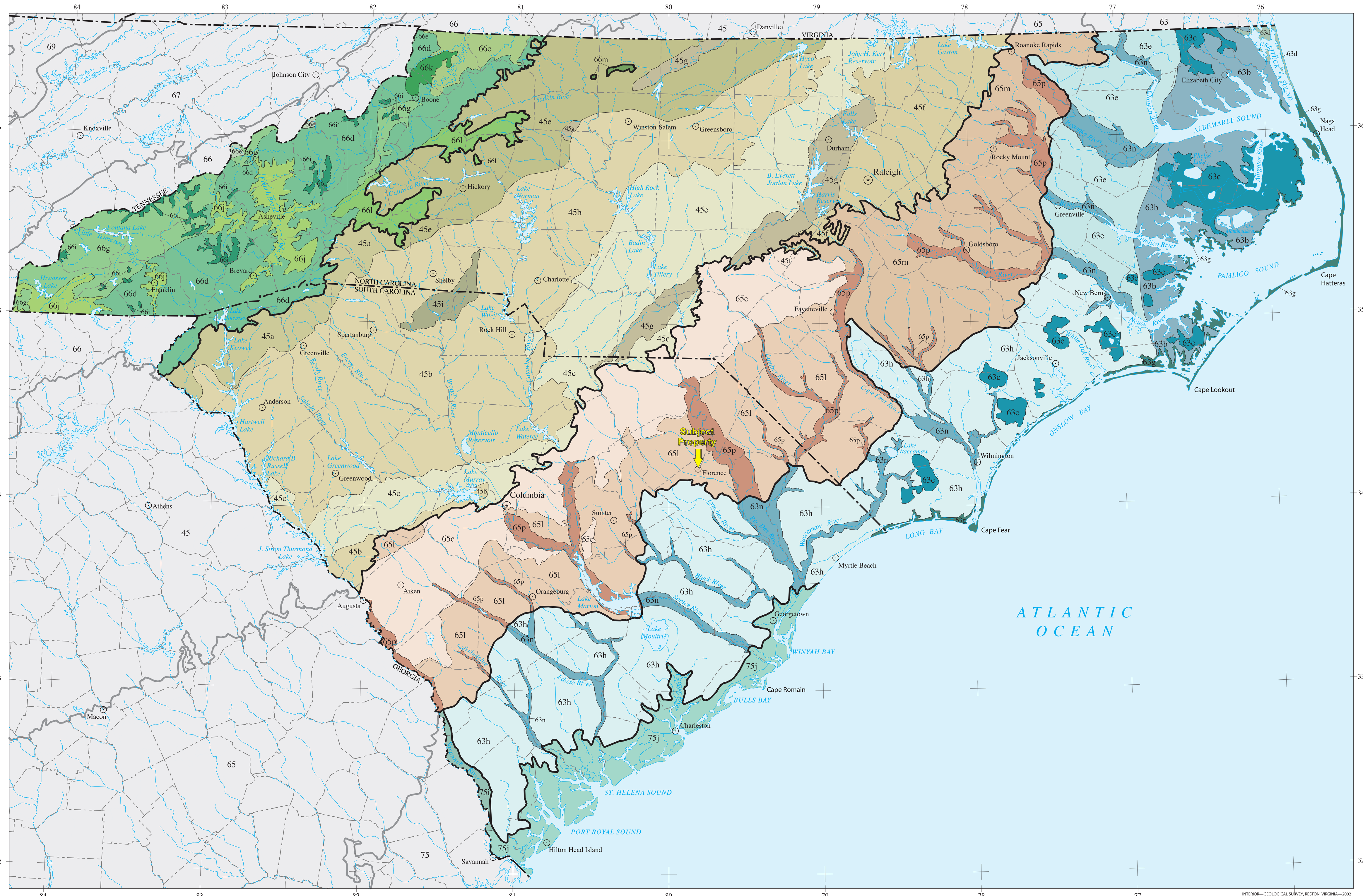

45 Piedmont
- 45a Southern Inner Piedmont
- 45b Southern Outer Piedmont
- 45c Carolina Slate Belt
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- 45f Northern Outer Piedmont
- 45g Triassic Basins
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- 63h Carolina Flatwoods
- 63n Mid-Atlantic Floodplains and Low Terraces

65 Southeastern Plains
- 65c Sand Hills
- 65l Atlantic Southern Loam Plains
- 65m Rolling Coastal Plain
- 65p Southeastern Floodplains and Low Terraces

66 Blue Ridge
- 66c New River Plateau
- 66d Southern Crystalline Ridges and Mountains
- 66e Southern Sedimentary Ridges
- 66g Southern Metasedimentary Mountains
- 66i High Mountains
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- 66k Amphibolite Mountains
- 66l Eastern Blue Ridge Foothills
- 66m Sauratown Mountains

75 Southern Coastal Plain
- 75i Floodplains and Low Terraces
- 75j Sea Islands/Coastal Marsh

Level III ecoregion
Level IV ecoregion
County boundary
State boundary

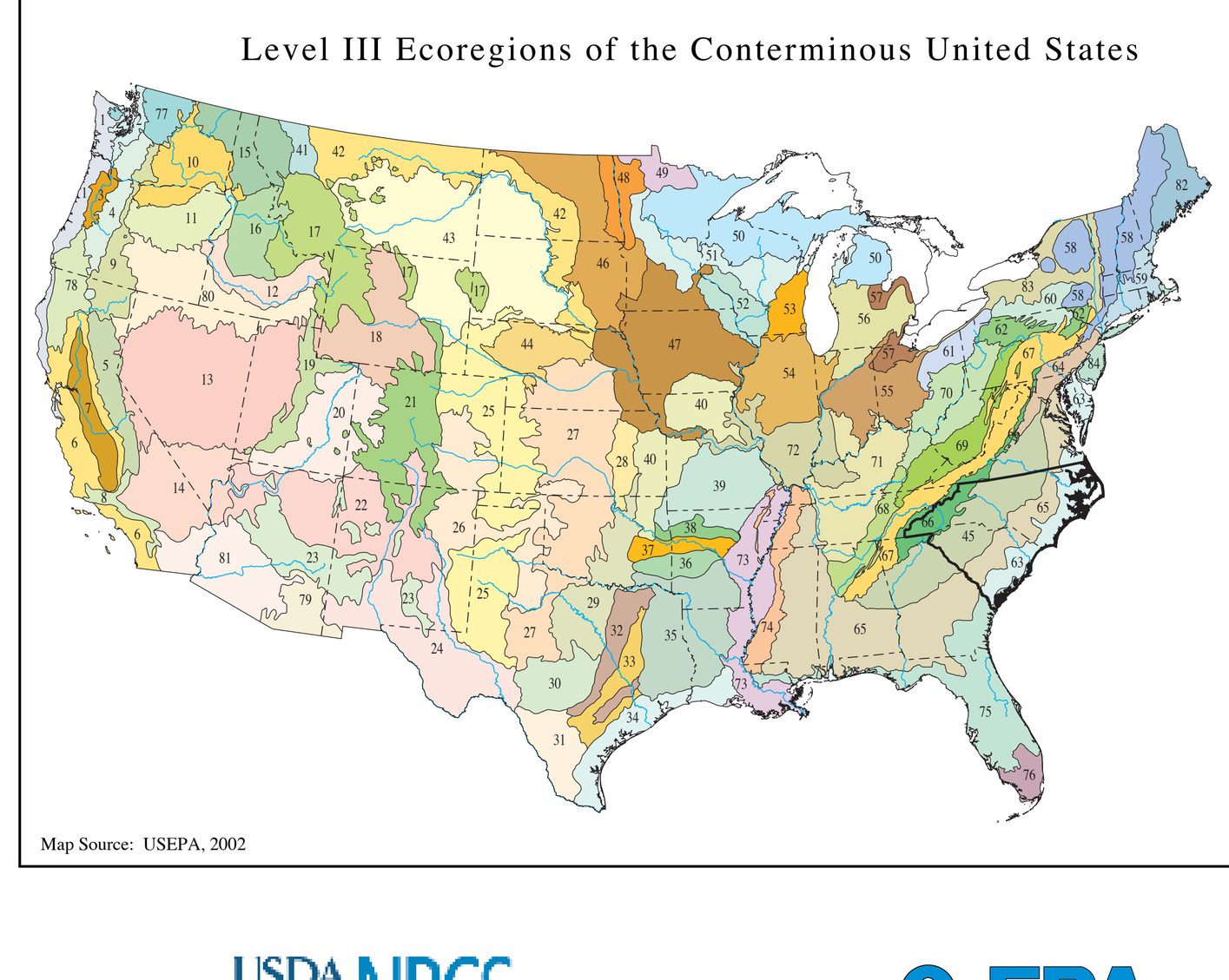
SCALE 1:1 500 000

15 10 5 0 30 60 mi

30 20 10 0 60 120 km

Albers Equal Area Projection
Standard parallels 31 N and 36 N

Level III Ecoregions of the Conterminous United States



Map Source: USEPA, 2002

PRINCIPAL AUTHORS: Glenn E. Griffith (NRCS), James M. Omernik (USEPA), Jeffrey A. Comstock (Indus Corporation), Michael P. Schafale (NCDENR), W. Henry McNab (USFS), David R. Lenat (NCDENR), Trish F. MacPherson (NCDENR), James B. Glover (SCDHEC), and Victor B. Shelburne (Clemson University).

COLLABORATORS AND CONTRIBUTORS: James E. Harrison (USEPA), David L. Penrose (NCDENR), Ronald C. Ahle (South Carolina Department of Natural Resources [SCDNR]), Roy L.Vick, Jr. (NRCS), Ben Stuckey, Jr. (NRCS), Dennis L. Law (USFS), Robert K. Peet (University of North Carolina), Richard T. Renfrow (SCDHEC), Paul G. Nystrom (SCDNR), Richard L. Scharf (SCDNR), Chip Smith (NRCS), Alan J. Woods (Dynamac Corporation), and Thomas R. Loveland (USGS).

REVIEWERS: Stanley W. Buol (North Carolina State University), Berman D. Hudson (NRCS), Charles F. Kovacik (University of South Carolina), Rudy E. Mancke (University of South Carolina), and Gerard McMahon (USGS).

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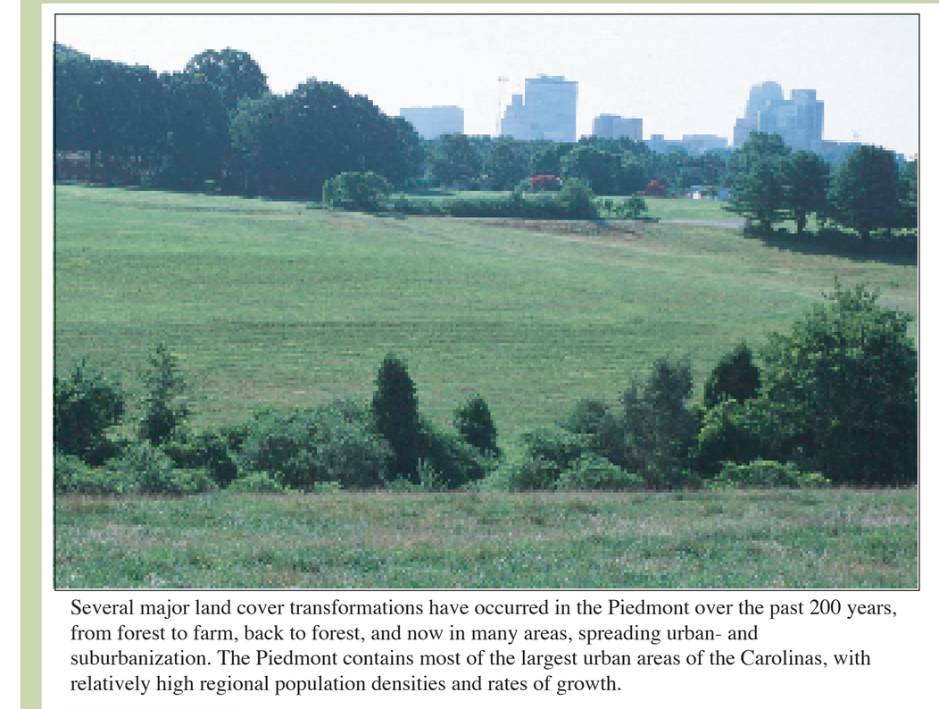
45. Piedmont



Several major land cover transformations have occurred in the Piedmont over the past 200 years, from forest to farm, back to forest, and now in many areas, spreading urban- and suburbanization. The Piedmont contains most of the largest urban areas of the Carolinas, with relatively high regional population densities and rates of growth.

Most rocks of the Piedmont are covered by a thick mantle of saprolite, except along some major stream valley bluffs and on a few scattered granitic domes and flatrocks. Rare plants and animals are found on rock outcrops, such as at Forty Acre Rock in Lancaster County, South Carolina. *Photo: Mike Creel, SCDNR*

Considered the nonmountainous portion of the old Appalachians Highland by physiographers, the northeast-southwest trending Piedmont ecoregion comprises a transitional area between the mostly mountainous ecoregions of the Appalachians to the northwest and the relatively flat coastal plain to the southeast. It is a complex mosaic of Precambrian and Paleozoic metamorphic and igneous rocks with moderately dissected irregular plains and some hills. Once largely cultivated, much of this region is in planted pine or has reverted to successional pine and hardwood woodlands. The historic oak-hickory-pine forest was dominated by white oak (*Quercus alba*), southern red oak (*Quercus falcata*), post oak (*Quercus stellata*), and hickory (*Carya* spp.), with shortleaf pine (*Pinus echinata*), loblolly pine (*Pinus taeda*), and to the north and west, Virginia pine (*Pinus virginiana*). The soils tend to be finer-textured than in coastal plain regions.

45a The **Southern Inner Piedmont** is generally higher in elevation with more relief than 45b. As a transitional region from the Blue Ridge (66) to the Piedmont, it contains some mountain outliers, and it receives more rainfall than 45b and 45c. The rolling to hilly well-dissected upland contains mostly gneiss and schist bedrock that is covered with clayey and micaceous saprolite. It is warmer than 45e to the north, and contains thermic soils rather than 45e's mesic soils. The region is now mostly forested, with major forest types of oak-pine and oak-hickory, and less loblolly-shortleaf pine forest than 45b. Open areas are mostly in pasture, although there are some small areas of cropland.

45b The **Southern Outer Piedmont** ecoregion has lower elevations, less relief, and less precipitation than 45a. The landform class is mostly irregular plains rather than the plains with hills of 45a and 45e. Pine (mostly loblolly and shortleaf) dominates on old field sites and pine plantations, while mixed oak forest is found in less heavily altered areas. Gneiss, schist, and granite are typical rock types, covered with deep saprolite and mostly red, clayey subsoils. Kanhapludults are common soils, such as the Cecil, Appling, and Madison series. Some areas within this region have more alkaline soils, such as the Iredell series, formed over diabase, diorite, or gabbro, and may be associated with areas once known as blackjack oak prairies.

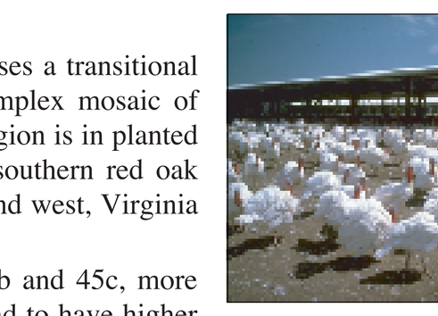
45c The **Carolina Slate Belt** extends from southern Virginia, across the Carolinas, and into Georgia. The mineral-rich metavolcanic and metasedimentary rocks with slatey cleavage are finer-grained and less metamorphosed than most Piedmont regions. Some parts are rugged, such as the Uwharrie Mountains, and many areas are distinguished by trellised drainage patterns. Silty and silty clay soils, such as the Georgeville and Herndon series, are typical. Streams tend to dry up and water yields to wells are low as this region contains some of the lowest water-yielding rock units in the Carolinas.

45e Similar to 45a, the rolling to hilly **Northern Inner Piedmont** has higher elevations, more rugged topography, and more monadnocks or mountain outliers than other areas of the Piedmont. It has colder temperatures, more snowfall, and a shorter growing season than in 45a, b, c, and f, and it has mostly mesic soils rather than the thermic soils that cover other regions of the Carolina Piedmont. The region contains more Virginia pine and less shortleaf pine than 45b and 45c, more chestnut oak, and many mountain disjunct plant species. Streams tend to have higher gradients than in the Outer Piedmont regions, and contain many mountain-type macroinvertebrate species.

45f The **Northern Outer Piedmont** is composed of mostly gneiss and schist rock intruded by granitic plutons, and veneered with saprolite. It is lithologically distinct from the adjacent Piedmont regions 45c and 45g, as well as from the younger unconsolidated sediments of 65m. Rocks and soils are similar to 45b, but 45f is cooler with a shorter growing season. The region contains more loblolly pine compared to the Virginia pine and shortleaf pine found in the Piedmont to the west, but it also contains local concentrations of mountain disjunct plant species. At the eastern boundary, the Fall Line is a broad transition zone where Piedmont rocks occur on the same landscape with Coastal Plain sediments. Some areas near this boundary have metavolcanic and metasedimentary rocks similar to 45c.

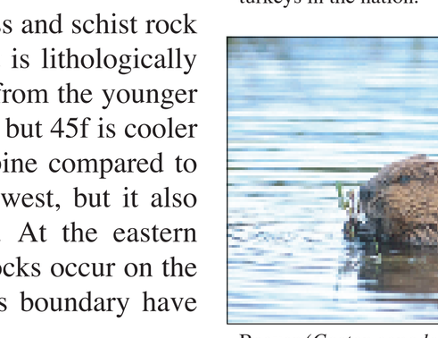
45g The **Triassic Basins** of the Carolinas occur in four narrow bands and have unusual Piedmont geology of unmetamorphosed shales, sandstones, mudstones, siltstones, and conglomerates. Local relief and elevations are often less than in surrounding regions, and, with rocks that are easier to erode, stream valleys that cross the region tend to widen. Soils tend to be clayey with low permeability, and streams have low base flows. The clay has a high shrink-swell potential that can hinder construction; it is also utilized by many brick makers in the region. A mosaic of mixed and deciduous forest, pasture, cropland, and urban land cover occurs here.

45i The **Kings Mountain** ecoregion is a hilly, somewhat rugged area with some northeast- to southwest-trending ridges and distinctive metasedimentary and metavolcanic rocks. Aluminum-rich quartz-sericite schist is common. The metamorphic grade is generally lower than adjacent geologic belts and the rocks contain an unusual variety of mineral deposits. Mining strongly influenced the early development of the region, including an iron industry in the late 1700's to late 1800's, and later production of marble, lime, gold, lead, silver, pyrite, lithium, mica, feldspar, silica, and clay. Soils are often a very fine sandy to silty texture, similar to 45c. The region is covered with oak-hickory-pine forest, and Virginia pine is common.

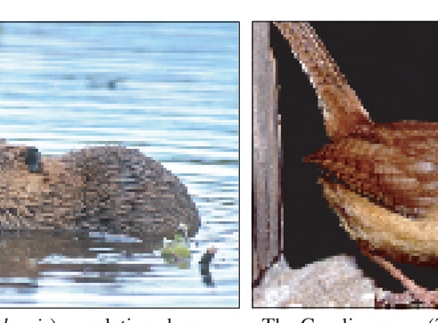


Turkeys are an important part of the Piedmont poultry industry in the Carolinas. North Carolina is often the largest producer of turkeys in the nation.

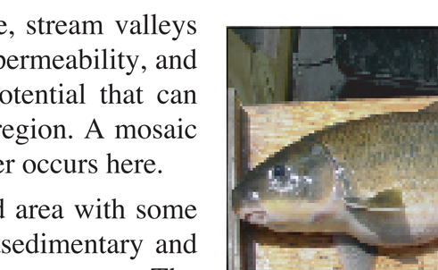
The red fox (*Vulpes vulpes*) is sometimes seen in woodlots and old-field habitats of the Piedmont, hunting for rodents, insects, or berries and other fruits.



Beaver (*Castor canadensis*) populations have increased in the Piedmont. They can create wetland habitat for a variety of plant and animal species, reduce downstream sedimentation, and improve water quality.



The Carolina wren (*Thryothorus ludovicianus*), the state bird of South Carolina, nests from the mountains, across the Piedmont and into the Coastal Plain. *Photo: SCDNR*



The robust redhorse (*Moxostoma robustum*) is a large, long-lived, and now rare fish sometimes found in the fall line area of Ecoregions 45 and 65. A recovery effort is underway to re-establish the species in several Atlantic slope rivers of the Carolinas and Georgia. *Photo: John Crutchfield, Jr., Carolina Power and Light*

Bass fishing is a popular recreation activity on many of the large lakes or reservoirs of Ecoregion 45. Almost all of the major rivers crossing the Piedmont have been impounded. *Photo: NC Wildlife Resources Commission*

63. Middle Atlantic Coastal Plain

Hotel and residential developments are common on many of the barrier islands in Ecoregion 63, but are vulnerable to erosion and flooding. The salt marshes behind the barrier islands are productive ecosystems crucial to the reproduction of fish and shellfish, but their health is often affected by increases in population and urban development.

Saltmarsh cordgrass (*Spartina alterniflora*) in the coastal marshes of Ecoregion 63g. The roots of spartina grass help hold the marsh soil and provide a footing for oysters and ribbed mussels. When the grass dies back in the fall, bacteria and fungi break it down into detritus, the base of the marsh food web. The detritus is eaten by crabs, snails, mussels, oysters, clams, and worms, which in turn are food for fish, shellfish, birds, and mammals.

Ecoregion 63 is found primarily in the Carolinas and other states to the north, and has a broad transitional boundary with Ecoregion 75 to the south. It consists of low elevation, flat plains, with many swamps, marshes, and estuaries. Forest cover in the region, once dominated by longleaf pine in the Carolinas, is now mostly loblolly and some shortleaf pine, with patches of oak, gum, and cypress near major streams, as compared to the mainly longleaf-slash pine forests of the warmer Southern Coastal Plain (75). Its low terraces, marshes, dunes, barrier islands, and beaches are underlain by unconsolidated sediments. Poorly drained soils are common, and the region has a mix of coarse and finer textured soils compared to the mostly coarse soils in the majority of Ecoregion 75. Ecoregion 63 is typically lower, flatter, more poorly drained, and more marshy than Ecoregion 65. Pine plantations for pulpwood and lumber are typical, with some areas of cropland.

63b The **Chesapeake-Pamlico Lowlands and Tidal Marshes** occur on the lowest marine terrace with elevations ranging from sea level to about 25 feet. The western boundary of 63b generally occurs at the Suffolk Scarp. The region is characterized by nearly level plains with some broad shallow valleys, seasonally wet soils (Aquults), brackish and fresh streams, and broad estuaries affected by wind tides. It is flatter and lower in elevation than 63e, with a slightly longer growing season than 63e and 65m. Some major areas of cropland are found in the region, growing corn, wheat, soybeans, and potatoes. Lake Mattamuskeet, the largest natural lake in North Carolina, provides valuable wintering areas for geese, swans, ducks, and other birds.

63c **Nonriverine Swamps and Peatlands** are flat, poorly drained areas containing organic soils of peat and muck. The dark reddish-brown to black soils, acidic and nutrient-poor, often contain logs, stumps, and other woody matter from bald cypress and Atlantic white cedar trees. Pocosin lakes occur in some areas. The vegetation of the high and low pocosins contains a dense shrub layer, along with stunted pond pine, swamp red bay, and sweet bay. Swamp forests are dominated by swamp tupelo, bald cypress, and Atlantic white cedar. Fire during drought periods, logging, and construction of drainage ditches have affected natural vegetation patterns. Several areas of mineral and shallow organic soils have been drained and cultivated for crops of corn, soybeans, and wheat.

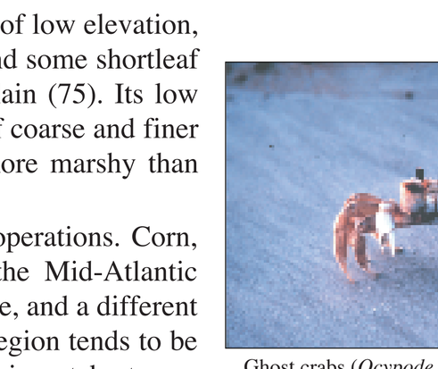
63d **Virginian Barrier Islands and Coastal Marshes** occur in the northeast corner of North Carolina and contain salt, brackish, and freshwater marshes, dunes, beaches, and barrier islands that enclose Currituck Sound. The Quaternary-age deposits of unconsolidated sand, silt, and clay form dynamic landscapes affected by ocean wave, tide, wind, and river energy. The nearshore ocean water, influenced by the longshore Virginia Current, tends to be colder than in most of 63g, especially south of Cape Hatteras, where warmer Gulf Stream waters occur. On the barrier islands, northern beach grass and deciduous oaks are typical, compared to the sea oats and evergreen live oak more commonly found to the south in 63g. Salt marshes are dominated by saltmarsh and saltmeadow cordgrasses and black needlerush, while the freshwater marshes of upper Currituck Sound contain bulrush, cattail, sawgrass, and big cordgrass. The marshes provide wintering habitat for geese, ducks, and wading birds. Piping plover and loggerhead sea turtles occasionally nest along the beaches.

63e The **Mid-Atlantic Flatwoods** occupies the middle portion of the coastal plain in northern North Carolina and southern Virginia. Upland surfaces are wider, lower in elevation, with less local relief, and have more poorly drained soils compared to Ecoregion 65m. Soils such as Aquults and some Udults formed in the mostly Pleistocene-age clays and sands. With slow natural subsurface drainage, except near streams, artificial drainage is common for agriculture and forestry operations. Corn, peanuts, and cotton are typical crops. Although similar to 63h, the Mid-Atlantic Flatwoods historically had a lower frequency of fire, less longleaf pine, and a different mix of grasses than in 63h. There are fewer Carolina Bays, and the region tends to be biologically less diverse than 63h in terms of plants and aquatic macroinvertebrates.

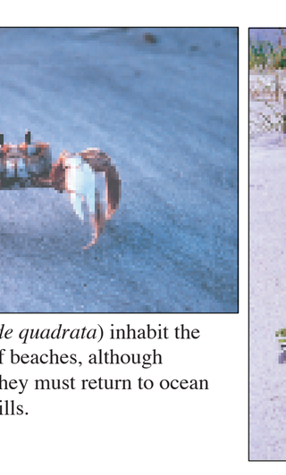
63g The **Carolinian Barrier Islands and Coastal Marshes** covers most of the North Carolina coast, extending from Bodie Island in the north to North Myrtle Beach, South Carolina in the south. Similar to 63d, the region contains marshes, dunes, beaches, and barrier islands, but it tends to be slightly warmer and wetter. In the north, the boundary with 63d is transitional, and there is a high diversity of vegetation in the maritime forests in the boundary area where northern and southern maritime forests overlap, such as at Nags Head Woods. The maritime forests include live oak, laurel oak, loblolly pine, red cedar, yaupon holly, wax myrtle, dwarf palmetto, with cabbage palm (*Sabal palmetto*) in the south. Pamlico Sound is a shallow estuary supporting an important nursery for 90 percent of all the commercial seafood species caught in North Carolina, as well as vast recreational fisheries.

63h The nearly level coastal plain of the **Carolina Flatwoods** has less relief, wider upland surfaces, and larger areas of poorly drained soils than the adjacent, higher elevation Ecoregion 65l. Covered by shallow coastal waters during the Pleistocene, the resultant terraces and shoreline-related landforms are covered typically by fine-loamy and coarse-loamy soils, with periodically high water tables. Other areas have clayey, sandy, or organic soils, contributing to the region's plant diversity. Carolina bays and pocosins are abundant in some areas. The region is a significant center of endemic biota, with more biological diversity and rare species compared to 63e. Pine flatwoods, pine savannas, freshwater marshes, pond pine woodlands, pocosins, and some sandhill communities were once common. Loblolly pine plantations are now widespread with an active forest industry. Artificial drainage for forestry and agriculture is common. North Carolina's blueberry industry is concentrated on some of the sandy, acidic soils of the region.

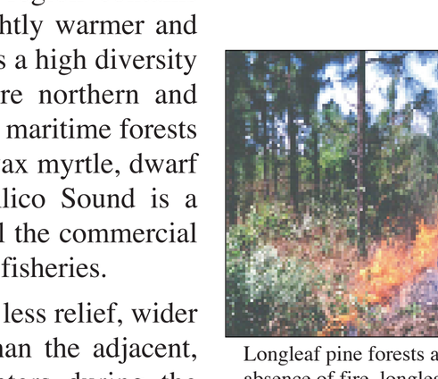
63n The **Mid-Atlantic Floodplains and Low Terraces** are mostly a continuation of the riverine Ecoregion 65p, although a few floodplains mapped in this region originate within Ecoregion 63. Large, sluggish rivers, deep-water swamps, oxbow lakes, and alluvial deposits with abrupt textural changes characterize 63n. Brownwater floodplains originate in or cross the Piedmont (45) and the sediments contain more weatherable minerals than the blackwater floodplains that have their watersheds entirely within the coastal plain. Cypress-gum swamps are common, along with bottomland hardwoods of wetland oaks, green ash, red maple, and hickories.



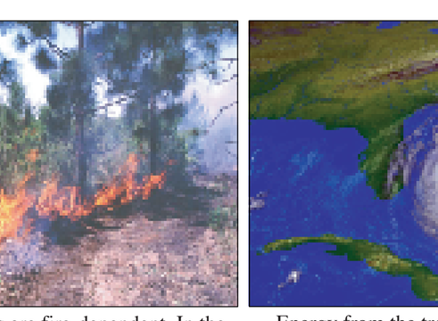
Ghost crabs (*Ocypode quadrata*) inhabit the dry upper portions of beaches, although several times a day they must return to ocean waters to wet their gills.



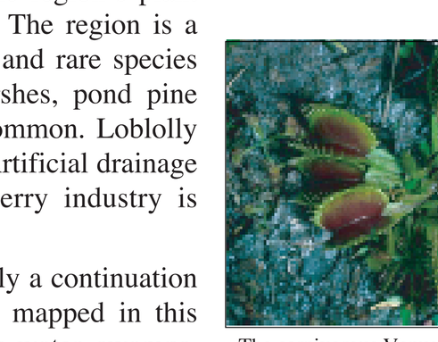
Seabeach amaranth (*Amaranthus pumilus*) is a threatened plant found on barrier island beaches. It has been eliminated from two-thirds of its historic range, from Massachusetts to South Carolina. *Photo: Bill Adams, U.S. Army Corps of Engineers*



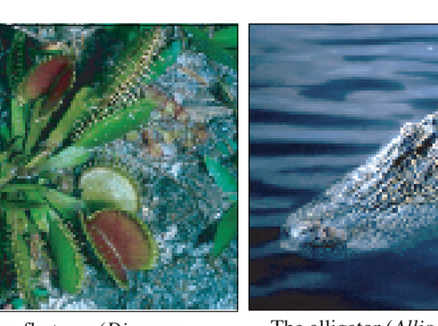
Longleaf pine forests are fire-dependent. In the absence of fire, longleaf pine and its associated plants and animals, some of which are rare and occur only in longleaf pine ecosystems, are replaced by other species. *Photo: Ted Borg, SCDNR*



Energy from the tropics in the form of hurricanes migrates northwestward to affect the Carolinas. In September 1999, Hurricane Floyd dumped more than 15 inches of rain over an area already saturated by Hurricane Dennis.

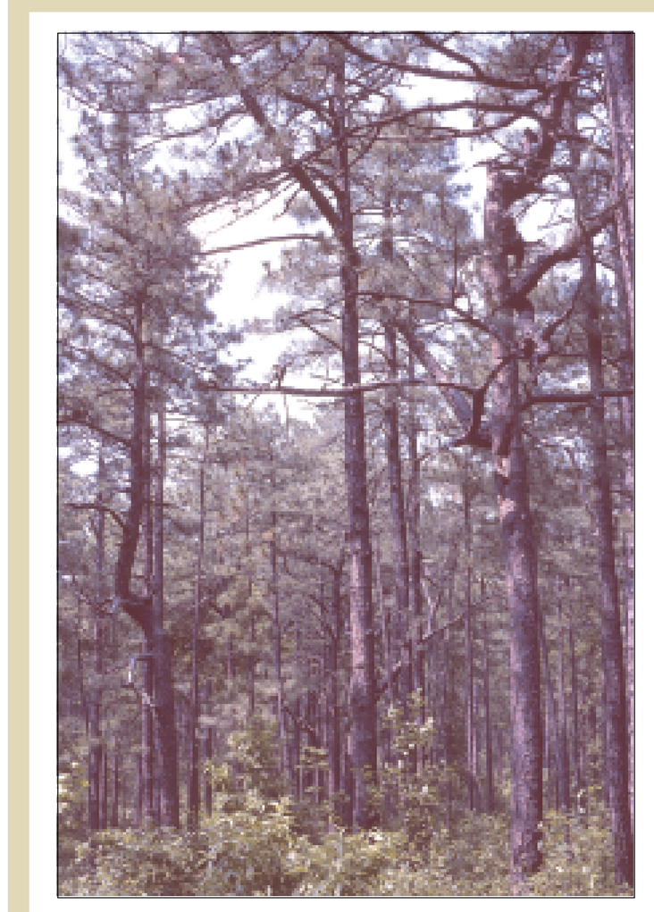


The carnivorous Venus fly traps (*Dionaea muscipula*) are native to some of the pocosins and peat bogs of Ecoregion 63 in the Carolinas.



The alligator (*Alligator mississippiensis*) is an integral component of many wetland ecosystems in the southern part of Ecoregion 63. North Carolina is usually considered the northern extent of its habitat range. *Photo: SCDNR*

65. Southeastern Plains



Longleaf pine forests once covered many portions of the Carolina coastal plain, along with smaller, scattered areas of mixed pine and hardwood forests. These forests had a diversity of age classes, structure, and species in response to environmental gradients and natural disturbances. Over the past three centuries, naval stores or pine tar production, logging, open range cattle and feral hog grazing, agriculture, and fire suppression removed almost all of the longleaf pine forests. Today, a landscape mosaic of cropland, pasture, pine plantations, and forested riparian areas is a typical feature in many parts of the Southeastern Plains ecoregion.

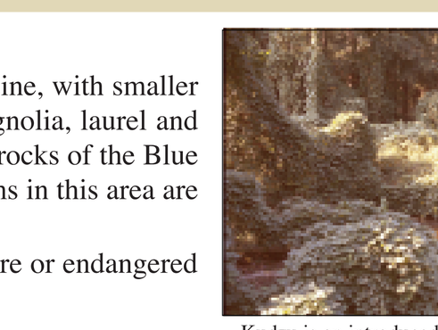
These irregular plains with broad interstream areas have a mosaic of cropland, pasture, woodland, and forest. Natural vegetation was predominantly longleaf pine, with smaller areas of oak-hickory-pine. On some moist sites, especially in the far south near Florida, Southern mixed forest occurred with beech, sweetgum, southern magnolia, laurel and live oaks, and various pines. The Cretaceous or Tertiary-age sands, silts, and clays of the region contrast geologically with the older metamorphic and igneous rocks of the Blue Ridge (66) and Piedmont (45). Elevations and relief are greater than in the Southern Coastal Plain (75), but generally less than in much of the Piedmont. Streams in this area are relatively low-gradient and sandy-bottomed.

65c The **Sand Hills** are a rolling to hilly region composed primarily of Cretaceous-age marine sands and clays, capped in places with Tertiary sands, deposited over the crystalline and metamorphic rocks of the Piedmont (45). Many of the droughty, low-nutrient soils formed in thick beds of sand, although some soils contain more loamy and clayey horizons. Some upland areas are underlain by plinthite, and sideslopes tend to have fragipans that perch water and cause lateral flow and seepage. Stream flow is consistent; streams seldom flood or dry up because of the large infiltration capacity of the sandy soil and the great ground-water storage capability of the sand aquifer. On drier sites, turkey oak and blackjack oak grow with longleaf pine and a wiregrass ground cover. Shortleaf-loblolly pine forests and other oak-pine forests are now more widespread due to fire suppression and logging. The Sand Hills are a center of rare plant diversity in the Carolinas. The region is also known for its peach orchards, golf courses, and horse farms.

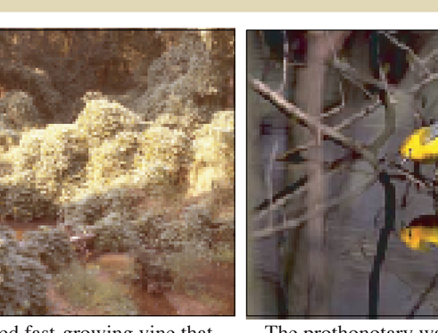
65l The **Atlantic Southern Loam Plains** ecoregion is lower, flatter, more gently rolling, with finer-textured soils than 65c. It is a major agricultural zone, with deep, well-drained soils, and more cropland than 65c or 63h. The flora is varied due to the variety of edaphic conditions, but is generally more mesic than found in 65c, and more xeric than in 63h. The region has the highest concentration of Carolina bays. These are shallow, elliptical depressions, often swampy or wet in the middle with dry sandy rims. Carolina bays not drained for agriculture often contain rare or endangered plant and animal species.

65m The dissected **Rolling Coastal Plain** extends south from Virginia and covers much of the northern upper coastal plain of North Carolina. Relief, elevation, and stream gradients are generally greater than in Ecoregion 63 to the east, and soils tend to be better drained. It has a slightly cooler and shorter growing season than 65l, but is a productive agricultural region with typical crops of corn, soybeans, tobacco, cotton, sweet potatoes, peanuts, and wheat. The region appears to be biologically less diverse than the coastal plain regions 65l and 63h to the south.

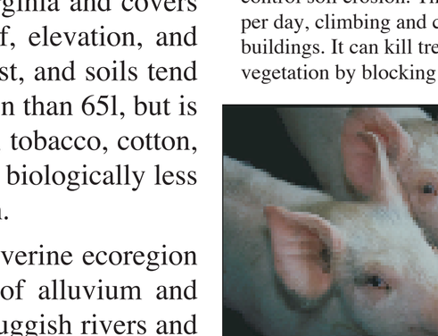
65p **Southeastern Floodplains and Low Terraces** comprise a riverine ecoregion that provides important wildlife corridors and habitat. Composed of alluvium and terrace deposits of sand, clay, and gravel, the region includes large sluggish rivers and backwaters with ponds, swamps, and oxbow lakes. It includes oak-dominated bottomland hardwood forests, and some river swamp forests of bald cypress and water tupelo. Similar to 63n, the flood-prone region includes brownwater floodplains and blackwater floodplains. The brownwater floodplains originate in or cross the Piedmont (45) and the sediments contain more weatherable and mixed minerals than



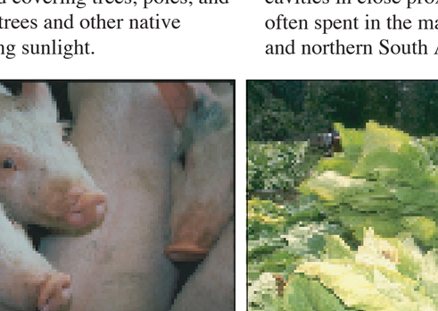
Kudzu is an introduced fast-growing vine that was often planted in the 1930's and 1940's to control soil erosion. The vines can grow a foot per day, climbing and covering trees, poles, and buildings. It can kill trees and other native vegetation by blocking sunlight.



The prothonotary warbler (*Protonotaria citrea*) is often found in the swamps and bottomlands of 65p and 63n. They build their nests in tree cavities in close proximity to water. Winters are often spent in the mangroves of Central America and northern South America.



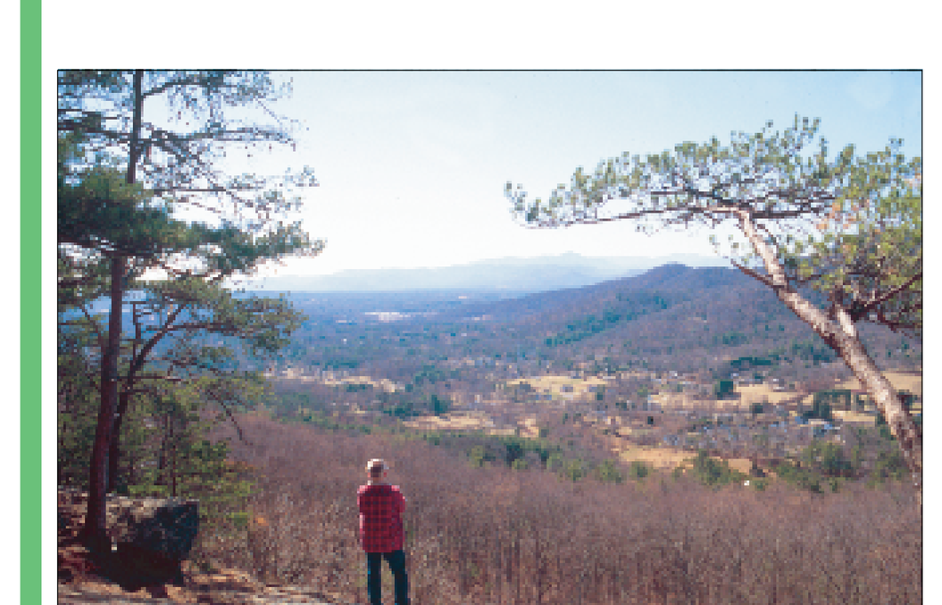
North Carolina is one of the biggest producers of hogs in the U.S. The concentration of hog factories and associated wastes in Ecoregions 65 and 63 has raised concerns about pollution of air, streams, groundwater, and estuaries.



Production of tobacco in the Carolinas occurs primarily in the Coastal Plain, with lesser amounts in the northern portion of the North Carolina Piedmont.

66. Blue Ridge

The Blue Ridge is part of one of the richest temperate broadleaf forests in the world, with a high diversity of flora and fauna. Black bear, deer, wild boar, turkey, grouse, songbirds, reptiles, many species of amphibians, thousands of species of invertebrates, and a variety of small mammals are found here. *Photo: SCDNR*



The Asheville Basin portion of 66j is less rugged than other Blue Ridge ecoregions and contains more urban, industrial, and agricultural landscapes. With drier conditions, the natural vegetation is also different from the more mountainous 66d that surrounds the basin. Many Blue Ridge forests were once dominated by the American chestnut (*Castanea dentata*), an ecologically and economically important tree that provided food and shelter to many animal species. A fungal disease, the Chestnut blight, introduced to the U.S. around 1904, killed almost all of the chestnut trees by the 1930's. Root sprouts and small, young saplings can be found today, but they do not survive. In place of the chestnut, other trees, such as tuliptree, chestnut oak, white oak, black locust, red maple, and pine species have become the important canopy dominants.

The Blue Ridge extends from southern Pennsylvania to northern Georgia, varying from narrow ridges to hilly plateaus to more massive mountainous areas with high peaks. The mostly forested slopes, high-gradient, cool, clear streams, and rugged terrain occur primarily on metamorphic rocks with minor areas of igneous and sedimentary geology. Annual precipitation of over 100 inches can occur in the wettest areas, while dry basins can average as little as 40 inches. The southern Blue Ridge is one of the richest centers of biodiversity in the eastern U.S. It is one of the most floristically diverse ecoregions, and includes Appalachian oak forests, northern hardwoods, and, at the highest elevations in Tennessee and North Carolina, Southeastern spruce-fir forests. Shrub, grass, and heath balds, hemlock, cove hardwoods, and oak-pine communities are also significant.

66c The **New River Plateau** is a high, hilly plateau with less relief and a different land cover mosaic than surrounding Blue Ridge ecoregions. It has less dense woodland and forest cover, and more land devoted to pasture, orchards, cropland, livestock and dairy farms, and Christmas tree production. Elevations are generally between 2500-3500 feet, with a few higher peaks. Oak dominates most of the forests, with beech, birch, hemlock, and poplar on more moist sites and pines on drier areas.

66d The **Southern Crystalline Ridges and Mountains** occur primarily on Precambrian-age igneous and high-grade metamorphic rocks, in contrast to the sedimentary and metasedimentary rocks of 66e and 66g. The crystalline rock types are mostly gneiss and schist, covered by well-drained, acidic, loamy soils. Some small areas of mafic and ultramafic rocks also occur, producing more basic soils. The region has greater relief and higher elevations than 66l, 66c, and 66j. Elevations of this rough, dissected region are generally 1200-4500 feet. The southern part of the region is wetter than the north. It is mostly forested, with chestnut oak (and formerly American chestnut) dominating on most slopes and ridges. There are a few small areas of pasture, apple orchards, Fraser fir Christmas tree farms, or minor cropland.

66e The **Southern Sedimentary Ridges** in North Carolina consist of small areas near the Tennessee border in western Ashe, Watauga, Mitchell, Yancy, and Madison counties. The disjunct areas contain Cambrian-age sedimentary rocks of shale, sandstone, siltstone, conglomerate, and dolomite. Some metasiltstone or metasandstone occurs, but it is material of very low-grade metamorphism. One of the larger areas, in Madison County, is associated with the Hot Springs Window, an opening where the major thrust sheet was eroded to expose younger, underlying rocks such as the Shady Dolomite and Rome Formation shale and siltstone. Slopes of the region are typically steep and forested, with elevations ranging from 1500-4900 feet.

66g The **Southern Metasedimentary Mountains** in North Carolina contain rocks that are not as strongly metamorphosed as the gneisses and schists of 66d. The geologic materials are mostly late Pre-Cambrian and include metagraywacke, metasiltstone, metasandstone, metaconglomerate, slate, schist, phyllite, and quartzite. These are steep, dissected, biologically-diverse mountains that are densely forested. The Appalachian oak forests and, at higher elevations, the northern hardwoods forests include a variety of oaks and pines, as well as silverbell, hemlock, yellow poplar, basswood, buckeye, yellow birch, and beech. Much of the region is public land managed by the National Park Service or U.S. Forest Service.

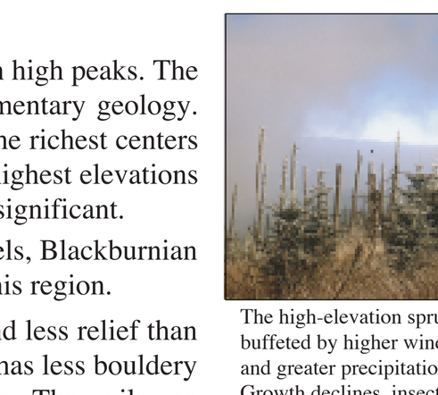
66i The **High Mountains** ecoregion includes several disjunct high-elevation areas generally above 4500 feet. The region has a more severe, boreal-like climate than surrounding regions, with wind and ice affecting vegetation, and it has frigid soils rather than mesic soils. Evergreen red spruce and Fraser fir forests are found at the higher elevations, and red oak forests and northern hardwood forests with beech, yellow birch, yellow buckeye, and sugar maple are common. The spruce-fir forests have been affected by the balsam wooly adelgid, a non-native insect that kills mature Fraser firs, and some forest growth declines are possibly linked to air pollutants. Heath balds dominated by evergreen rhododendron and mountain laurel, and grassy balds are found on some slopes and ridgetops. Northern flying squirrels, Blackburnian warblers, black-capped chickadees, and common ravens are seen in this region.

66j The **Broad Basins** ecoregion is drier, has lower elevations and less relief than the more mountainous Blue Ridge regions (66g, 66d). It also has less bouldery colluvium than those two surrounding regions and more saprolite. The soils are mostly deep, well-drained, loamy to clayey Ultisols, although there are variations between the uplands, the high and low terraces, and the floodplains. The Asheville basin has the lowest annual precipitation amounts in North Carolina, receiving less than 42 inches. Compared to the higher mountainous ecoregions of 66, the Broad Basins have a mix of oaks and pines more similar to the Piedmont (45), with more shortleaf and Virginia pine, and white, southern red, black, and scarlet oaks. Although some areas of this rolling foothills region are mostly forested, overall it has more pasture, cropland, industrial land uses, and human settlement than other Blue Ridge ecoregions. Outlines of abandoned fields with pine-hardwood succession are apparent on many lower slopes.

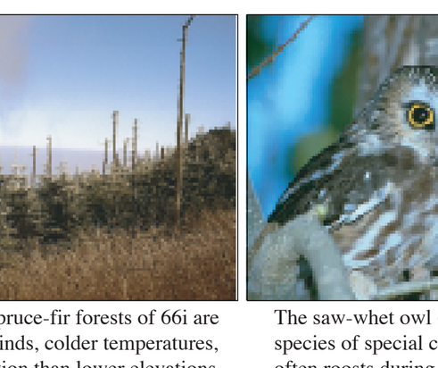
66k Similar to some parts of 66d, the **Amphibolite Mountains** are a botanically diverse area with many rare species, including some relict and disjunct species from areas much further north. The rugged, steeply sloping mountains are composed of Precambrian amphibolite and gneiss. The amphibolite, a metamorphosed black volcanic rock, formed from lavas that spilled on the floor of a shallow sea, mixing with layers of mud, sand, and volcanic ash. In some areas this rock weathers to produce shallow soils high in calcium and magnesium, and less acidic than most Appalachian soils. Oak forests (formerly American chestnut forests) dominate on south, east, and west facing slopes with an understory of Catawba rhododendron, mountain laurel, flame azalea, and dogwood. Cove forests and northern hardwood forests are found on north slopes, and include sugar maple, ash, yellow birch, tulip tree, and basswood.

66l The open low mountains of the **Eastern Blue Ridge Foothills** are lower in elevation (1000-2800 feet) than most Blue Ridge regions and have more Piedmont influences. The region includes the Brushy Mountains to the north and the South Mountains to the south. Covered with mixed oak and oak-hickory-pine forests, these mountains tend to be slightly drier and warmer than most of Ecoregion 66. The South Mountains contain forested areas that harbor many uncommon or rare plant species, including turkey beard (*Xerophyllum asphodeloides*) on xeric ridges and one of North America's rarest orchids, the small whorled pogonia (*Isotria medeoloides*).

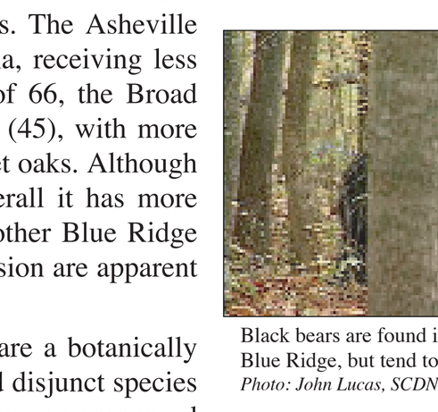
66m The prominent ridges and knobs of the **Sauratown Mountains** rise more than 1000 feet above the rolling Piedmont (45) surface. Sometimes called monadnocks or inselbergs, these isolated mountain outliers are formed in part by their caps of erosion-resistant quartzite. The region has both Piedmont and Blue Ridge vegetation communities: mostly oak and oak-pine forests with some Canadian and Carolina hemlock in moist areas. Other mountain flora found here include rhododendron, azalea, galax, mountain laurel, pitch pine, table mountain pine, and various ferns.



The high-elevation spruce-fir forests of 66i are buffeted by higher winds, colder temperatures, and greater precipitation than lower elevations. Growth declines, insect damage, and air pollution are continuing concerns.

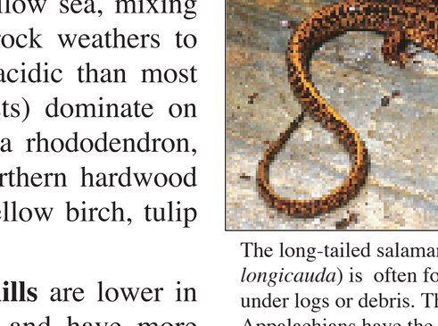


The saw-whet owl (*Aegolius acadicus*), a species of special concern in North Carolina, often roosts during the day in red spruce trees of 66i and nests in cavity trees such as yellow birch or in nest boxes set out for flying squirrels. *Photo: John and Karen Hollingsworth*



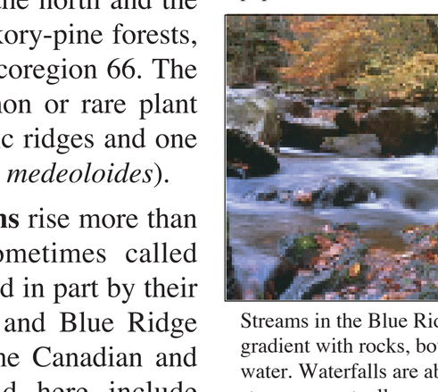
Black bears are found in many parts of the Blue Ridge, but tend to be reclusive by nature. *Photo: John Lucas, SCDNR*

Catawba rhododendron grow at various elevations in the Blue Ridge, often densely on balds at higher elevations. *Photo: Joe and Monica Cook*

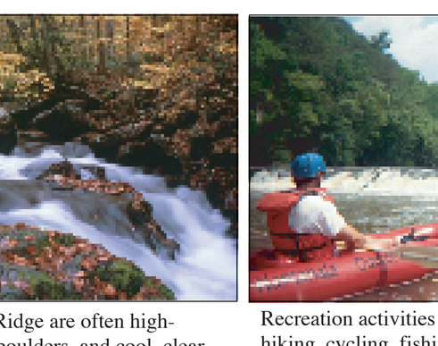


The long-tailed salamander (*Eurycea longicauda*) is often found along streams and under logs or debris. The southern Appalachians have the most diverse salamander population in the world. *Photo: Rich Glor*

The red squirrel (*Tamiasciurus hudsonicus*) is one of the smaller but louder squirrels of the Blue Ridge. It collects nuts, seeds, birds' eggs, and mushrooms from forests generally higher in elevation than occupied by the gray squirrel.



Streams in the Blue Ridge are often high-gradient with rocks, boulders, and cool, clear water. Waterfalls are abundant. Many of these streams eventually supply drinking water for nearby communities, as well as for major cities in the Piedmont.



Recreation activities such as rafting, kayaking, hiking, cycling, fishing, hunting, and camping are increasingly popular activities on the the public lands of the Blue Ridge.

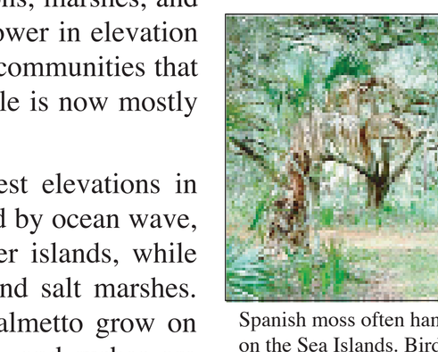
75. Southern Coastal Plain

The Southern Coastal Plain extends from South Carolina and Georgia, through much of central Florida, and along the Gulf coast lowlands of the Florida Panhandle, Alabama, and Mississippi. From a national perspective, it appears to be mostly flat plains, but it is a heterogeneous region also containing barrier islands, coastal lagoons, marshes, and swampy lowlands along the Gulf and Atlantic coasts. In Florida, an area of discontinuous highlands contains numerous lakes. This ecoregion is generally lower in elevation with less relief and wetter soils than Ecoregion 65. It is warmer and has a different mix of vegetation than Ecoregion 63. Once covered by a variety of forest communities that included trees of longleaf pine, slash pine, pond pine, beech, sweetgum, southern magnolia, white oak, and laurel oak, land cover in the ecoregion as a whole is now mostly slash and loblolly pine with oak-gum-cypress forest in some low lying areas, citrus groves in Florida, pasture for beef cattle, and urban.

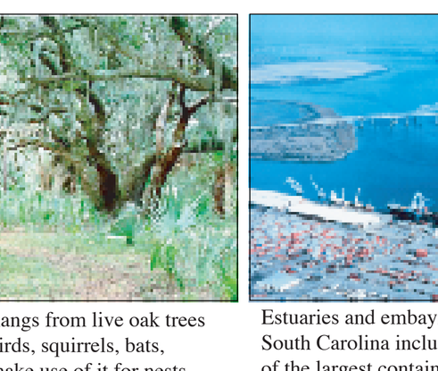
75i **Floodplains and Low Terraces** are a continuation of the riverine 65p ecoregion across the Southern Coastal Plain. Similar to 63n, the broad floodplains and terraces of major rivers, such as the Savannah in South Carolina, comprise the region. Composed of stream alluvium and terrace deposits of sand, silt, clay, and gravel, along with some organic muck and swamp deposits, the region includes large sluggish rivers and backwaters with ponds, swamps, and oxbow lakes. River swamp forests of bald cypress and water tupelo and oak-dominated bottomland hardwood forests provide important wildlife habitat.

Tolerant of salt spray, dry sandy soils, or saturated conditions, cabbage palms (*Sabal palmetto*) are uniquely adapted to the coastal environment. Flexible trunks and shredded, divided leaves bend but tend not to break in hurricanes. Seen here at Bull Island, SC, ocean currents bring them as far north as Bald Head Island, NC. *Photo: Allen Sharpe, SCETV*

75j The **Sea Islands/Coastal Marsh** region contains the lowest elevations in South Carolina and is a highly dynamic environment affected by ocean wave, wind, and river action. Mostly sandy soils are found on the barrier islands, while organic and clayey soils often occur in the freshwater, brackish, and salt marshes. Maritime forests of live oak, red cedar, slash pine, and cabbage palmetto grow on parts of the sea islands, and various species of cordgrass, saltgrass, and rushes are dominant in the marshes. The coastal marshes are important nursery areas for fish, crabs, shrimp, and other marine species. During the colonial and antebellum periods in the 1700's and 1800's, a plantation agriculture economy dominated the region, producing rice, indigo, and Sea Island cotton.



Spanish moss often hangs from live oak trees on the Sea Islands. Birds, squirrels, bats, spiders, and snakes make use of it for nests, bedding, or shelter.



Estuaries and embayments are common in 75j in South Carolina including Charleston Harbor, one of the largest container ship ports on the East Coast. The harbor also contains one of the largest commercial shrimp fisheries in the state, raising concerns about the health of the estuary, coastal marshes and associated flora and fauna. *Photo: Marge Beaver*

Summary Table: Characteristics of the Ecoregions of North Carolina and South Carolina

45. PIEDMONT

Level IV Ecoregion		Physiography		Geology	Soil			Climate			Potential Natural Vegetation	Land Use and Land Cover
	Area (square miles)		Elevation/ Local Relief (feet)	Surficial Material and Bedrock	Order (Great Group)	Common Soil Series	Temperature / Moisture Regimes	Precipitation Mean annual (inches)	Frost Free Mean annual (days)	Mean Temperature January min/max; July min/max (°F)		
45a. Southern Inner Piedmont	1320	Dissected irregular plains, some low to high hills, ridges, and isolated monadnocks; low to moderate gradient streams with mostly cobble, gravel, and sandy substrates.	730-1912 / 100-400	Quaternary to Tertiary clayey, micaceous clay, quartz-rich, and sandy clay saprolite; Precambrian, Cambrian, and Ordovician gneiss, schist, granite, and amphibolite.	Ultisols (Kanhapludults, Hapludults); on floodplains Inceptisols (Dystrudepts) and Entisols (Udifluvents, Fluvaquents)	Cecil, Pacolet, Madison, Rion, Grover, Cataula, Hiwassee; on floodplains Chewacla, Cartecay, Toccoa, Enoree.	Thermic / Udic	52-65	185-220	29/49; 65/87	Mixed oak forest, oak-hickory-pine forest. Mostly white oak, southern red oak, black oak, mockernut and pignut hickories, some Virginia pine and shortleaf pine; on more mesic sites beech, northern red oak, tulip poplar, red maple, some hemlock.	Deciduous forest, mixed forest, pasture, some cattle and hay production, apple orchards.
45b. Southern Outer Piedmont	12708	Dissected irregular plains, some low rounded hills and ridges; low to moderate gradient streams with mostly cobble, gravel, and sandy substrates.	180-1510 / 100-300	Quaternary to Tertiary clay, micaceous clay, sandy clay and sandy saprolite, with rock outcrops and joint-block boulders; Precambrian to Paleozoic schist, gneiss, granite, metavolcanic rock, amphibolite, metagabbro, metadiorite, phyllite, and quartzite.	Ultisols (Kanhapludults, Hapludults, Kandiudults), Alfisols (Hapludalfs); on floodplains Inceptisols (Dystrudepts) and Entisols (Udifluvents, Fluvaquents)	Cecil, Appling, Madison, Pacolet; on more mafic rocks Wilkes, Mecklenburg, Iredell, Enon, Davidson, Lloyd, Winnsboro; on floodplains Chewacla, Toccoa, Enoree, Cartecay.	Thermic / Udic	44-56	190-230	29/50; 67/89	Mixed oak forest, oak-hickory-pine forest. Mostly white oak, southern red oak, black oak, mockernut and pignut hickories, some Virginia pine and shortleaf pine; on more mesic sites beech, northern red oak, tulip poplar, red maple.	Mixed forest, deciduous forest, pine plantations, pasture, urban; hay, cattle, dairy, and poultry production; some barley, oats, and wheat.
45c. Carolina Slate Belt	6454	Dissected irregular plains, some hills, linear ridges, and isolated monadnocks; low to moderate gradient streams with mostly boulder and cobble substrates.	165-1188 / mostly 100-300, some areas to 500	Quaternary to Tertiary silty to clayey saprolite; Precambrian to Cambrian felsic to mafic metavolcanic rock, metamudstone, meta-argillite, phyllite, schist, some Paleozoic gabbro, diorite, and granite.	Ultisols (Kanhapludults, Hapludults), Inceptisols (Dystrudepts)	Georgeville, Herndon, Tatum, Badin, Goldston, Misenheimer, Cid	Thermic / Udic	44-49	185-210 in north, 200-230 in south	29/51; 67/89	Mixed oak forest, oak-hickory-pine forest. Mostly white oak, southern red oak, black oak, southern shagbark hickory, mockernut and pignut hickories, some Virginia pine and shortleaf pine; on monadnocks (Uwharries) chestnut oak; near coastal plain boundary some longleaf pine-shortleaf pine-loblolly pine-hardwoods forest.	Mixed forest, deciduous forest, pine plantations, pasture; cattle, hay, and poultry production, some public land (Uwharrie and Sumter National Forests).
45e. Northern Inner Piedmont	4266	Dissected irregular plains, low to high hills, ridges, and isolated monadnocks; low to moderate gradient streams with mostly cobble, gravel, and sandy substrates.	360-2035 / 150-700	Quaternary to Tertiary sandy clay saprolite and micaceous clay to silty clay saprolite; Cambrian gneiss, schist, and amphibolite, some Ordovician and Precambrian gneiss and granite.	Ultisols (Kanhapludults, Hapludults), Inceptisols (Dystrudepts)	Clifford, Fairview, Halifax, Toast, Bannertown, Stott Knob, Rhodhiss, Westfield, Woolwine	Mesic / Udic	45-55	170-200	25/48; 65/87	Mixed oak forest, oak-hickory-pine forest. Mostly white oak, southern red oak, black oak, mockernut and pignut hickories, some Virginia pine and shortleaf pine; on monadnocks chestnut oak; on more mesic sites beech, northern red oak, tulip poplar, red maple, hemlock.	Mixed forest, deciduous forest, pasture; hay, cattle, poultry, and tobacco production.
45f. Northern Outer Piedmont	2705	Dissected irregular plains, some low rounded hills and ridges; low to moderate gradient streams with mostly cobble, gravel, and sandy substrates.	130-600 / 100-250	Quaternary to Tertiary sandy clay and sandy saprolite with rock outcrops and joint-block boulders; Cambrian gneiss, schist, metavolcanic rock, and metamudstone, some Pennsylvanian to Permian granite.	Ultisols (Kanhapludults, Hapludults); on floodplains Inceptisols (Endoaquepts, Dystrudepts)	Cecil, Pacolet, Madison, Wedowee, Rion, some Georgeville and Nason in Eastern Slate Belt area; on floodplains Wehadkee, Chewacla; some coastal plain soils on uplands near 65m.	Thermic / Udic	44-46	185-210	28/49; 67/89	Mixed oak forest, oak-hickory-pine forest. Mostly white oak, southern red oak, black oak, mockernut and pignut hickories, some shortleaf pine and loblolly pine; near coastal plain boundary some longleaf pine-shortleaf pine-loblolly pine-hardwoods forest.	Mixed forest, deciduous forest, pine plantations, pasture; tobacco, cattle, hay, and poultry production; urban.
45g. Triassic Basins	1418	Dissected irregular plains, some low rounded hills and ridges; low to moderate gradient streams with mostly sand and clay substrates; relatively wider floodplains than other Piedmont ecoregions.	190-1000 / 100-300	Quaternary to Tertiary red sandy loam to silty clay decomposition residuum; Triassic sandstone, conglomerate, mudstone, shale, some minor coal, Jurassic diabase dikes and sills.	Ultisols (Hapludults), Alfisols (Hapludalfs); on floodplains Inceptisols (Dystrudepts)	Mayodan, Creedmoor, White Store, Pinkston, Polkton, Spray, Chewacla; in Dan River Basin Clover, Lackstown, Easthamlet, Wolftrap, Dan River.	Thermic (Mesic in Dan River Basin) / Udic	44-48	180-220	27/49; 66/88	Mixed oak forest, oak-hickory-pine forest. Mostly white oak, southern red oak, black oak, mockernut and pignut hickories, some Virginia pine and shortleaf pine; on more mesic sites beech, northern red oak, tulip poplar, red maple; some bottomland hardwood forest (bottomland oaks, red maple, sweetgum, green ash, American elm).	Mixed forest, deciduous forest, pine plantations, pasture, urban.
45i. Kings Mountain	289	Hills and linear ridges, some irregular plains; moderate gradient streams with bedrock, boulder, cobble, gravel, and sand substrates.	490-1690 / 200-500	Quaternary to Tertiary micaceous saprolite, quartz-rich saprolite; Precambrian quartz-sericite schist, metavolcanic rock, quartz-pebble metaconglomerate, quartzite, Cambrian sericite schist, phyllite, quartzite, marble, amphibolite.	Ultisols (Hapludults, Kanhapludults), Inceptisols (Dystrudepts)	Tatum, Georgeville, Herndon, Badin, Goldston, Manteo	Thermic / Udic	47-49	190-220	28/50; 66/88	Mixed oak forest and oak-hickory-pine forest; Piedmont monadnock forest (chestnut oak, white oak, scarlet oak, post oak, mockernut and pignut hickories, Virginia pine, shortleaf pine); some Virginia pine-dominated woodlands on high ridges.	Mixed forest, deciduous forest, some pine plantations and pasture.

63. MIDDLE ATLANTIC COASTAL PLAIN

Level IV Ecoregion		Physiography		Geology	Soil			Climate			Potential Natural Vegetation	Land Use and Land Cover
	Area (square miles)		Elevation/ Local Relief (feet)	Surficial Material and Bedrock	Order (Great Group)	Common Soil Series	Temperature / Moisture Regimes	Precipitation Mean annual (inches)	Frost Free Mean annual (days)	Mean Temperature January min/max; July min/max (°F)		
63b. Chesapeake-Pamlico Lowlands and Tidal Marshes	2226	Low, flat plains and peninsulas; poorly drained with swamps, some low gradient streams with sandy and silty substrates, a few large lakes; estuaries and sounds.	0-25 / 5-20	Late Pleistocene marine sand, silt, and clay.	Ultisols (Endoaquults, Umbraquults), Inceptisols (Humaquepts), Alfisols (Endoaqualfs), Histosols (Haplosaprists)	Tomotley, Roanoke, Perquimans, Pasquotank, Hyde, Deloss, Portsmouth, Cape Fear, Wasda, Roper, Arapahoe, Yonges, Argent, Dorovan, Currituck	Thermic / Aquic	48-55	210-230	32/52; 69/88	Wet hardwood forest (bottomland oaks, tulip poplar, sweetgum, maple, swamp tupelo); mesic mixed hardwood forest (beech, tulip poplar, maple, oaks, sweetgum); some pond pine woodlands and longleaf pine; tidal and nonriverine cypress-gum swamps.	Cropland with wheat, corn, soybeans, potatoes, cotton, and peanuts; evergreen forest, mixed forest, forested wetlands, pine plantations, pasture, marsh.
63c. Nonriverine Swamps and Peatlands	1692	Low, broad flats and interstream divides, poorly drained, a few lakes, low stream density; channelized drainage is common.	5-50 / 5-25	Holocene peat and silty to clayey swamp deposits, Pleistocene marine sand, silt, and clay.	Histosols (Haplosaprists), Inceptisols (Humaquepts)	Pungo, Dare, Belhaven, Ponzer, Dorovan, Wasda, Scuppernong, Roper, Torhunta, Croatan	Thermic / Aquic	50-56	210-235	32/54; 69/89	Pocosins (fetterbush, ti-ti, inkberry, pond pine); pond pine woodland; Atlantic white cedar forest; nonriverine swamp forest (bald cypress, pond cypress, swamp tupelo, loblolly pine, red maple).	Forested wetlands, evergreen forest, mixed forest, some cropland and pine plantations.
63d. Virginian Barrier Islands and Coastal Marshes	63	Barrier islands, dunes, beaches, lagoons, estuaries, tidal marshes.	0-30, some dunes to 60 / 5-30	Holocene beach and dune sand, saline marsh deposits of sand, silt, clay, and peat.	Entisols (Sulfaquents, Psammaquents, Quartzipsamments), Histosols (Haplosaprists)	Bohicket, Carteret, Currituck in tidal marshes; Corolla, Newhan, Duckston on beach dunes and flats.	Thermic / Aquic	48	220-230	33/52; 69/87	Salt and brackish marshes (cordgrass, saltgrass, rushes); tidal freshwater marsh (cordgrass, sawgrass, cattail, wild rice); maritime shrub (wax myrtle, yaupon); maritime dry grassland (saltmeadow cordgrass); maritime evergreen forest (live oak, sand laurel oak, loblolly pine); dune grass (beach grass, sea oats).	Marsh, forested wetland, evergreen forest, urban, wildlife habitat, beaches, recreation, fish and shellfish production.
63e. Mid-Atlantic Flatwoods	2755	Flat plains on lightly dissected marine terraces; swamps, low gradient streams with sandy and silty substrates.	2-100 / 5-75	Pleistocene and Pliocene marine sand, silt, and clay.	Ultisols (Paleaquults, Paleudults, Albaquults, Hapludults)	Rains, Lynchburg, Goldsboro, Leaf, Craven, Lenoir, Noboco, Pantego	Thermic / Aquic, Udic	46-50	200-230	30/52; 68/89	Mesic pine flatwoods (longleaf pine, loblolly pine, oaks, hickories, bluestem); wet pine flatwoods (longleaf pine with loblolly or pond pine); pine savanna (longleaf pine, pond pine, bluestem); pond pine woodland; some oak-hickory and mixed forest.	Pine plantations, cropland with peanuts, cotton, corn, soybeans, tobacco, wheat, chickens, and hogs; pasture, mixed and deciduous forest.
63g. Carolinian Barrier Islands and Coastal Marshes	557	Barrier islands, dunes, beaches, lagoons, estuaries, tidal marshes.	0-30, some dunes to 100 / 5-30	Holocene beach and dune sand, saline marsh deposits of sand, silt, clay, and peat.	Entisols (Sulfaquents, Psammaquents, Hydraquents, Quartzipsamments)	Bohicket, Carteret, Hobucken in tidal marshes; Corolla, Newhan, Duckston, Fripp on beach dunes and flats.	Thermic / Aquic	50-56	240-260	35/53; 72/86	Salt and brackish marshes (cordgrass, saltgrass, rushes); maritime shrub (wax myrtle, yaupon); maritime dry grassland (saltmeadow cordgrass); maritime evergreen forest (live oak, sand laurel oak, loblolly pine); dune grass (sea oats, bitter panic grass, cordgrass, beach grass).	Marsh, forested wetland, evergreen forest, urban, wildlife habitat, beaches, tourism, recreation, fish and shellfish production.
63h. Carolina Flatwoods	11510	Flat plains on lightly dissected marine terraces; swamps, low gradient streams with sandy and silty substrates; Carolina bays.	2-195 / 5-75	Pleistocene and Pliocene marine sand, silt, and clay; Tertiary sand, silt, clay, and limestone, some Cretaceous sand, silt and clay.	Ultisols(Paleaquults, Paleudults, Endoaquults, Albaquults, Hapludults), Alfisols (Endoaqualfs), Spodosols (Alaquods), Entisols (Quartzipsamments), Histosols (Haplosaprists)	Goldsboro, Lynchburg, Rains, Coxville, Wahee, Bladen, Argent, Coosaw, Noboco, Baymeade, Woodington, Leon, Kureb, Yauhannah, Yemassee, Ogeechee, Croatan	Thermic / Aquic, Udic	46-53	210-240 in the north, 230-250 in the south	33/55; 70/90	Longleaf pine-wiregrass; xeric sandhill scrub (longleaf pine-turkey oak-wiregrass); pond pine forest and woodland; some oak-hickory and mixed forest.	Pine plantations, mixed forest, forested wetlands, cropland of cotton, corn, soybeans, wheat, peanuts, tobacco, blueberries; production of hogs, broilers, and turkeys; some public land, wildlife habitat.
63n. Mid-Atlantic Floodplains and Low Terraces	2193	Major river floodplains and associated low terraces; low gradient streams with sandy and silty substrates, oxbow lakes, ponds, swamps.	2-130 / 5-25	Holocene alluvial silt, clay, and gravelly sand, local swamp deposits and organic muck; some late Pleistocene alluvial and estuarine sand and silt.	Inceptisols (Endoaquepts, Dystrudepts, Humaquepts), Entisols (Udifluvents), Ultisols (Hapludults, Umbraquults, Endoaquults), Alfisols (Albaqualfs)	Johnston, Muckalee, Masontown, Congaree, Dorovan, Chastain, Johns, Kenansville, Roanoke, Lumbee, Paxville, Meggett, Tawcaw, Chewacla, Hobcaw	Thermic / Aquic, some Udic	46-54	210-240 in the north, 230-250 in the south	32/54; 69/90	Southern floodplain forest. Includes cypress-gum swamp (water tupelo, swamp tupelo, bald cypress, pond cypress) and bottomland hardwood forest (bottomland oaks, red maple, sweetgum, green ash, bitternut hickory).	Forested wetlands, deciduous forest, some cropland on larger terraces.

65. SOUTHEASTERN PLAINS

Level IV Ecoregion		Physiography		Geology	Soil			Climate			Potential Natural Vegetation	Land Use and Land Cover
	Area (square miles)		Elevation/ Local Relief (feet)	Surficial Material and Bedrock	Order (Great Group)	Common Soil Series	Temperature / Moisture Regimes	Precipitation Mean annual (inches)	Frost Free Mean annual (days)	Mean Temperature January min/max; July min/max (°F)		
65c. Sand Hills	5147	Dissected irregular plains; moderate to steep side slopes; low to moderate gradient sandy bottomed streams. Seepage and groundwater support steady streamflows and some small, saturated wetlands.	100-720 / 100-300	Quaternary medium to coarse sand decomposition residuum, loamy sand, sandy loam and sandy clay decomposition residuum; Cretaceous sand, sandstone, and mudstone, Tertiary sand and clayey sand.	Ultisols (Paleudults, Hapludults, Kanhapludults, Kandiudults), Entisols (Quartzipsamments)	Blaney, Candor, Lakeland, Gilead, Vaucluse, Ailey, Dothan, Fuquay, Blanton, Wagram, Pelion, Alpin, Troup, Lucy	Thermic / Udic	44-48	200-220 in north, 215-240 in south	30/52; 68/90	Pine/scrub oak sandhill (longleaf pine, turkey oak, blackjack oak, bluejack oak, wiregrass); xeric sandhill scrub (longleaf pine, turkey oak, wiregrass); streamhead pocosin (pond pine, red maple, tulip poplar, evergreen shrubs).	Pine plantations, mixed forest, pasture, recreation, some cropland and peach orchards.
65l. Atlantic Southern Loam Plains	6459	Dissected smooth plains and irregular plains; broad interstream divides and mostly gentle side slopes dissected by many small, low to moderate gradient sandy bottomed streams; Carolina bays.	50-660 / 100-200	Quaternary sand and clay decomposition residuum, marine sand, silt, and clay; Tertiary and Cretaceous sand, clay, and gravel.	Ultisols (Kandiudults, Paleudults, Paleaquults)	Norfolk, Lynchburg, Goldsboro, Rains, Wagram, Aycock, Coxville, Orangeburg, Dothan, Fuquay, Varina, Faceville, Noboco, Troup, Marlboro, Blanton	Thermic / Udic, some Aquic	44-49	200-240	31/55; 68/90	Mesic pine flatwoods (longleaf pine, loblolly pine, oaks, hickories, wiregrass); pine/scrub oak sandhill (longleaf pine, turkey oak, blackjack oak, bluejack oak, wiregrass); oak-hickory forest (southern red oak, post oak, hickories, pines); some mesic mixed hardwood forest (beech, tulip poplar, maple, white oak, red oak, sweetgum).	Cropland and pasture with soybeans, corn, wheat, cotton, tobacco, hogs, and hay; in SC, peach orchards on The Ridge (Edgefield & Saluda counties); some pine plantations, mixed forest, forested wetlands, and urban.
65m. Rolling Coastal Plain	5182	Dissected irregular plains and smooth plains; broad interstream divides with gentle to steep side slopes dissected by numerous small, low to moderate gradient sandy bottomed streams.	30-460 / 100-200	Quaternary sand and clay decomposition residuum, middle and early Pleistocene marine sand, silt, and clay; Pliocene clay and sand; saprolite and some Piedmont rock outcrops on side slopes near 45f.	Ultisols (Kandiudults, Paleudults, Hapludults, Paleaquults; some Kanhapludults on side slopes near 45f)	Norfolk, Goldsboro, Rains, Wagram, Emporia, Coxville, Lynchburg, Autryville, Caroline; Cecil, Appling on side slopes near 45f.	Thermic / Udic, some Aquic	44-51	200-220	29/51; 68/89	Mesic pine flatwoods (longleaf pine, loblolly pine, oaks, hickories, wiregrass); oak-hickory forest (southern red oak, post oak, hickories, pines); some mesic mixed hardwood forest (beech, tulip poplar, maple, white oak, red oak, sweetgum).	Cropland and pasture with cotton, soybeans, corn, wheat, sweetpotatoes, peanuts, tobacco, hogs, and chickens; some pine plantations, mixed forest, and forested wetlands.
65p. Southeastern Floodplains and Low Terraces	2458	Major river floodplains and associated low terraces; low gradient streams with sandy and silty substrates, oxbow lakes, ponds, swamps.	15-200 / 5-35	Quaternary alluvial gravelly sand, sandy gravel, silt, and clay.	Inceptisols (Endoaquepts, Dystrudepts, Humaquepts), Entisols (Fluvaquents, Udifluvents), Ultisols (Hapludults, Umbraquults, Endoaquults)	Johnston, Bibb, Kinston, Chewacla, Wehadkee, Chastain, Riverview, Congaree, Roanoke, Wickham, Altavista, State, Cape Fear, Wahee, Tawcaw, Rutlege	Thermic / Aquic, some Udic	45-50	200-240	31/54; 68/89	Southern floodplain forest. Includes bottomland hardwood forest (bottomland oaks, red maple, sweetgum, green ash, bitternut hickory) and cypress-gum swamp (water tupelo, swamp tupelo, bald cypress, pond cypress).	Forested wetlands, deciduous forest; cropland and pasture where drained and protected from flooding.

66. BLUE RIDGE

Level IV Ecoregion		Physiography		Geology	Soil			Climate			Potential Natural Vegetation	Land Use and Land Cover
	Area (square miles)		Elevation/ Local Relief (feet)	Surficial Material and Bedrock	Order (Great Group)	Common Soil Series	Temperature / Moisture Regimes	Precipitation Mean annual (inches)	Frost Free Mean annual (days)	Mean Temperature January min/max; July min/max (°F)		
66c. New River Plateau	443	Hilly, high plateau, some low mountains. Moderate gradient streams with bedrock, boulder, cobble, and gravel substrates.	2350-4175 / 500-1200	Quaternary to Tertiary sandy to clayey saprolite, some mafic-boulder loamy colluvium; Precambrian gneiss, schist, and amphibolite.	Inceptisols (Dystrudepts, Humaquepts), Ultisols (Hapludults, Kanhapludults), Entisols (Udifluvents)	Evard, Ashe, Hayesville, Clifton, Chandler, Watauga on uplands; Colvard, Toxaway on floodplains.	Mesic / Udic	45-55	150-170	21/42; 58/80	Appalachian oak forest. Includes northern red oak, white oak, and chestnut oak forests; montane oak-hickory forest; cove forests (tulip poplar, basswood, buckeye, yellow birch, beech, hemlock, northern red oak).	Deciduous forest, mixed forest, pasture and cropland with hay, cattle, tobacco, and Christmas trees.
66d. Southern Crystalline Ridges and Mountains	4432	Low to high mountains, gently rounded to steep slopes, narrow valleys. Steep escarpment at eastern boundary. High gradient, bedrock and boulder-bottomed cool, clear streams.	850-5500 / 1000-3500	Quaternary to Tertiary granitic boulder colluvium, loamy colluvium, sandy to clayey saprolite; Precambrian granite, gneiss, schist, quartzite, metagraywacke, metavolcanic rock, and amphibolite, some Paleozoic gneiss and quartz diorite.	Inceptisols (Dystrudepts, Humaquepts), Ultisols (Hapludults, Kanhapludults)	Ashe, Evard, Cowee, Chandler, Fannin, Watauga, Plott, Edneyville, Chestnut, Edneytown, Porters, Hayesville, Cashiers, Saluda, Talladega, Walhalla on uplands; Tate, Tusquitee, Cullasaja on colluvium; Dellwood, Nikwasi on floodplains.	Mesic / Udic, some Aquic in narrow floodplains	45-60 in north, 50-100 in south	145-190	19-26/38-48; 55-62/75-84	Appalachian oak forest. Includes northern red oak, white oak, and chestnut oak forests; montane oak-hickory forest; pine-oak/heath woodlands (Virginia pine, table-mountain pine, pitch pine, scarlet oak); cove forests (tulip poplar, basswood, buckeye, yellow birch, beech, hemlock, northern red oak). At high elevations, northern hardwoods forest (beech, yellow birch, yellow buckeye, maples).	Deciduous and mixed forest; large areas of public land (Pisgah, Nantahala, and Sumter National Forests) with some private land; small clearings for pasture or orchards on less steep land; tourism, recreation, hunting, and forestry.
66e. Southern Sedimentary Ridges	37	Low to high mountains, gently rounded to steep slopes, narrow valleys. High gradient, bedrock and boulder-bottomed cool, clear streams.	1280-5085 / 1500-3000	Quaternary to Tertiary sandy shaly colluvium and colluvium with boulders or huge blocks; Cambrian sandstone, siltstone, shale, dolomite, and conglomerate.	Inceptisols (Dystrudepts), Ultisols (Hapludults)	Ditney, Unicoi, Cataska, Junaluska, Spivey, Tsali	Mesic / Udic	45-50	150-170	20-26/43-47; 56-62/76-82	Appalachian oak forest. Includes northern red oak, white oak, and chestnut oak forests; montane oak-hickory forest; cove forests (tulip poplar, basswood, buckeye, yellow birch, beech, hemlock, northern red oak). At high elevations, northern hardwoods forest (beech, yellow birch, yellow buckeye, maples).	Deciduous and mixed forest, mostly public land (Pisgah National Forest); tourism, recreation, hunting, and forestry.
66g. Southern Metasedimentary Mountains	1677	Low to high mountains, gently rounded to steep slopes, narrow valleys. High gradient, bedrock and boulder-bottomed cool, clear streams.	1200-5400 / 2000-3500	Quaternary to Tertiary arkosic metasedimentary bouldery colluvium; Pre-Cambrian metagraywacke, metasiltstone, metasandstone, metaconglomerate, slate, schist and sulfidic schist, meta-arkose, and phyllite, some Cambrian sulfidic schists.	Inceptisols (Dystrudepts, Haplumbrepts); Ultisols (Hapludults)	Brasstown, Junaluska, Soco, Stecoah, Cheoah, Sylco on uplands; Spivey, Whiteoak on colluvium.	Mesic / Udic	55-80	150-190	20-27/41-48; 55-63/76-85	Appalachian oak forest. Includes northern red oak, white oak, and chestnut oak forests; montane oak-hickory forest; pine-oak/heath woodlands (Virginia pine, table-mountain pine, pitch pine, scarlet oak), cove forests (tulip poplar, basswood, buckeye, yellow birch, beech, hemlock, northern red oak). At high elevations, northern hardwoods forest (beech, yellow birch, yellow buckeye, maples).	Deciduous and mixed forest; large areas of public land (Nantahala and Pisgah National Forests, Great Smoky Mountains National Park); tourism, recreation, hunting, some forestry.
66i. High Mountains	316	High mountain ridges and moderate to steep slopes. A few small high gradient, bedrock and boulder-bottomed streams.	4500-6684 / 1500-2100	Quaternary to Tertiary granitic or metasedimentary bouldery colluvium; Precambrian metagraywacke, schist, metasiltsone, slate, quartzite, and gneiss.	Inceptisols (Haplumbrepts)	Wayah, Oconaluftee, Burton, Craggey, Clingman, Tanasee, Balsam	Frigid / Udic	75-100+	130-140	18/36; 54/69	Southeastern spruce-fir forest (Fraser fir, red spruce, yellow birch, rhododendron); northern hardwoods forest (beech, yellow birch, yellow buckeye, maples); grass balds (mountain oat grass) and heath balds (rhododendron).	Evergreen forest, deciduous forest; mostly public land (Nantahala and Pisgah National Forests, Great Smoky Mountains National Park); tourism, recreation.
66j. Broad Basins	986	Intermountain basins with low mountains, rolling foothills, and moderately broad mountain valleys. Moderate gradient streams with cobble and boulders, low to moderate gradient rivers with sand and bedrock substrates.	1575-3280 / 250-700	Quaternary to Tertiary sandy, silty, and clayey saprolite with some rock outcrops and joint-block boulders, quartz-rich saprolite; Precambrian gneiss, schist, amphibolite, and quartzite; in southwest, metasandstone, metasiltstone, schist, metaconglomerate, quartzite, slate.	Ultisols (Hapludults, Kanhapludults), Inceptisols (Dystrudepts, Humaquepts)	Evard, Cowee, Fannin, Hayesville on uplands; Brevard, Braddock, Saunook, Dillsboro on terraces and footslopes; Rosman, Toxaway, Dellwood on floodplains.	Mesic / Udic, some Aquic in narrow floodplains	40-55	155-190	24/47; 61/84	Appalachian oak forest. Mostly dry-mesic oak-hickory forest (white oak, southern red oak, black oak, hickories, pines), some chestnut oak forest (chestnut oak, scarlet oak, northern red oak, hickories, hemlock, red maple, pines); pine-oak/heath woodlands (Virginia pine, shortleaf pine, pitch pine, scarlet oak).	Pasture and cropland with hay, cattle, corn for silage, apples, and tobacco; urban and suburban, deciduous forest, mixed forest.
66k. Amphibolite Mountains	130	Low to high mountains, gently rounded to steep slopes, narrow valleys. High gradient, bedrock and boulder-bottomed cool, clear streams.	2950-5400 / 1000-2000	Quaternary to Tertiary mafic boulder loamy colluvium, granitic boulder colluvium; Precambrian amphibolite, gneiss, and schist.	Inceptisols (Dystrudepts), Ultisols (Hapludults)	Porters, Fannin, Evard, Edneyville, Ashe, Tusquitee, Thunder, Spivey	Mesic / Udic	52-65	150-160	21/42; 58/79	Appalachian oak forest. Includes northern red oak, white oak, and chestnut oak forests; montane oak-hickory forest; cove forests (tulip poplar, basswood, buckeye, yellow birch, beech, hemlock, northern red oak). At high elevations, northern hardwoods forest (beech, yellow birch, yellow buckeye, maples).	Deciduous forest, mixed forest, recreation, hunting, wildlife habitat.
66l. Eastern Blue Ridge Foothills	652	Low mountains and rolling foothills, gently rounded to steep slopes. Moderate gradient streams with bedrock, boulder, cobble, and gravel substrates.	980-2890 / 800-1300	Quaternary to Tertiary silty to sandy clay saprolite; Cambrian biotite, gneiss, mica schist, quartzite, amphibolite, and Ordovician granite.	Ultisols (Hapludults, Kanhapludults), Inceptisols (Dystrudepts)	Evard, Cowee, Fannin, Cliffield, Hayesville, Saluda on uplands; Greenlee, Tate, on colluvium; Chewacla on small floodplains.	Mesic / Udic	50-60	170-195	25/48; 65/86	Appalachian oak forest. Mostly chestnut oak forest (chestnut oak, scarlet oak, hickories, pines); pine-oak/heath woodlands (Virginia pine, table-mountain pine, pitch pine, scarlet oak); cove forests (beech, buckeye, basswood, tulip poplar, hemlock). Some dry-mesic oak-hickory forest (white oak, northern and southern red oak, black oak, hickories, pines, tulip poplar).	Deciduous forest, mixed forest, recreation, hunting, some pasture with cattle, hay, some public land (South Mountains State Park).
66m. Sauratown Mountains	25	Low mountains and ridges, isolated monadnock, rounded to steep slopes. High gradient, bedrock and boulder-bottomed cool, clear streams.	1000-2595 / 1000-1400	Quaternary to Tertiary quartz-rich saprolite; Cambrian quartzite, quartz-muscovite schist, and biotite gneiss.	Ultisols (Hapludults, Kanhapludults), Inceptisols (Dystrudepts)	Pilot Mountain, Sauratown, Hayesville, Cowee, Ashe, Brevard, Greenlee	Mesic / Udic	48-50	165-185	24/46; 64/86	Appalachian oak forest. Mostly pine-oak/heath woodlands (Virginia pine, table-mountain pine, pitch pine, scarlet oak); chestnut oak forest (chestnut oak, scarlet oak, northern red oak, hickories, hemlock, red maple, pines).	Deciduous forest, mixed forest, public land recreation (Hanging Rock and Pilot Mountain State Parks).

75. SOUTHERN COASTAL PLAIN

Level IV Ecoregion		Physiography		Geology	Soil			Climate			Potential Natural Vegetation	Land Use and Land Cover
	Area (square miles)		Elevation/ Local Relief (feet)	Surficial Material and Bedrock	Order (Great Group)	Common Soil Series	Temperature / Moisture Regimes	Precipitation Mean annual (inches)	Frost Free Mean annual (days)	Mean Temperature January min/max; July min/max (°F)		
75i. Floodplains and Low Terraces	146	Major river floodplains and associated low terraces; low gradient streams with sandy and silty substrates, oxbow lakes, ponds, swamps.	2-80 / 5-25	Holocene alluvial silt and clay.	Inceptisols (Endoaquepts, Dystrudepts)	Chastain, Tawcaw, Chewacla	Thermic / Aquic	48-50	240-260	35/58; 69/91	Southern floodplain forest. Includes cypress-gum swamp (water tupelo, swamp tupelo, bald cypress, pond cypress) and bottomland hardwood forest (bottomland oaks, red maple, sweetgum, green ash, bitternut hickory).	Forested wetlands, deciduous forest.
75j. Sea Islands / Coastal Marsh	1987	Barrier islands, dunes, beaches, lagoons, estuaries, tidal marshes.	0-30 / 5-20	Holocene saline marsh deposits of silt, sand, peat, and clay; Holocene beach and dune sand; Pleistocene beach and near-shore marine sand.	Entisols (Quartzipsamments, Udipsamments, Sulfaquents, Hydraquents), Spodosols (Alaquods, Alorthods)	Seabrook, Wando, Cainhoy, Fripp, Ridgeland, Baritari, Levy; in tidal marshes Bohicket and Capers.	Thermic / Aquic	48-53	260-280	37/58; 72/89	Salt and brackish marshes (cordgrass, saltgrass, rushes); maritime swamp forest (tupelo, red maple, sweetgum, bald cypress); maritime evergreen forest (live oak, sand laurel oak, slash pine, loblolly pine); dune grass (sea oats, bitter panic grass, cordgrass, beach grass).	Marsh, forested wetlands, evergreen forest, urban, wildlife habitat, beaches, recreation, fish and shellfish production.

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U.S. Fish and Wildlife Service
National Wetlands Inventory

National Wetlands Inventory Map

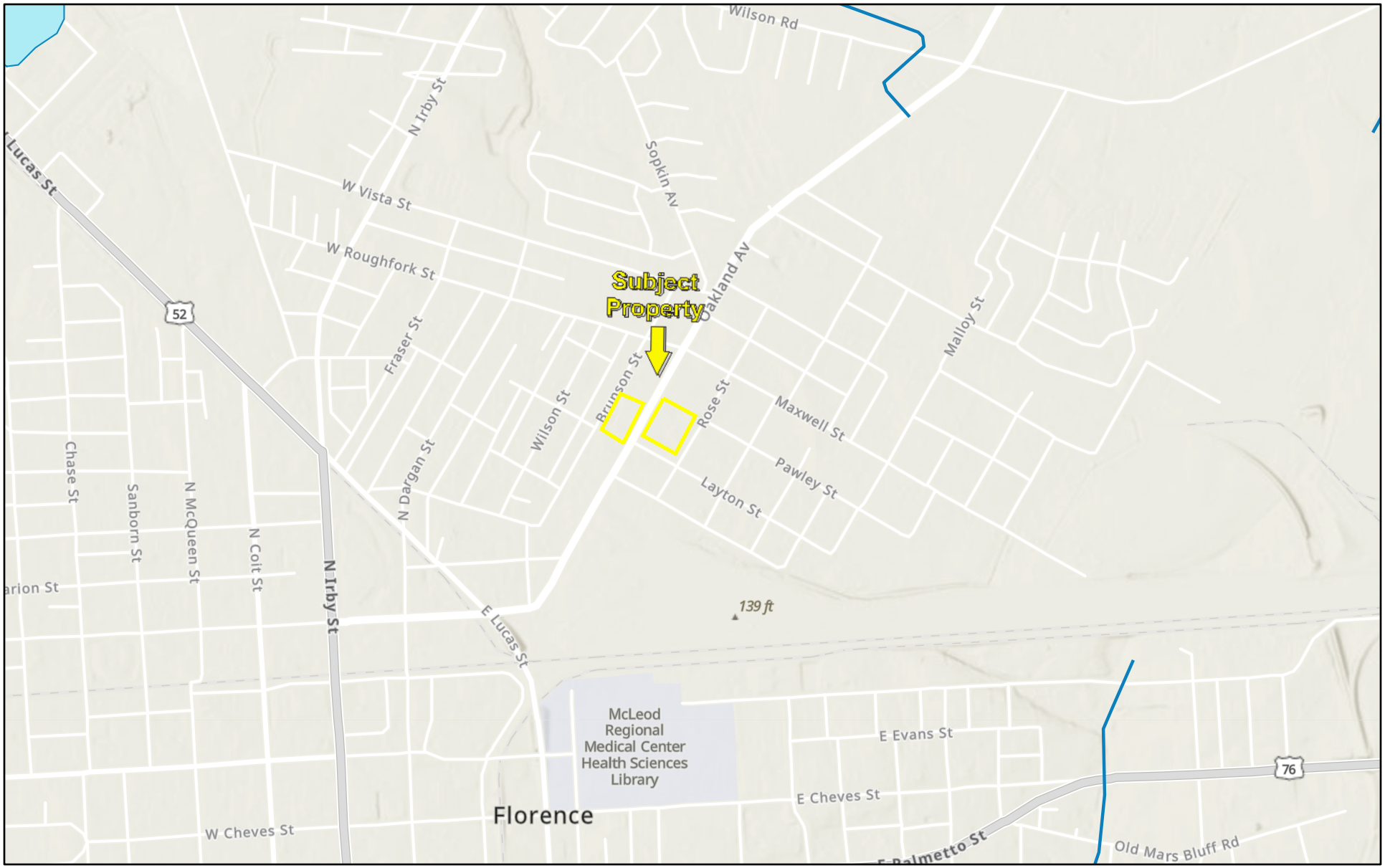
May 13, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

NHD Map



5/13/2025

1:18,498

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Waterbodies

Lakes, Ponds, Reservoirs, Estuaries, and other Waterbodies

Flowlines

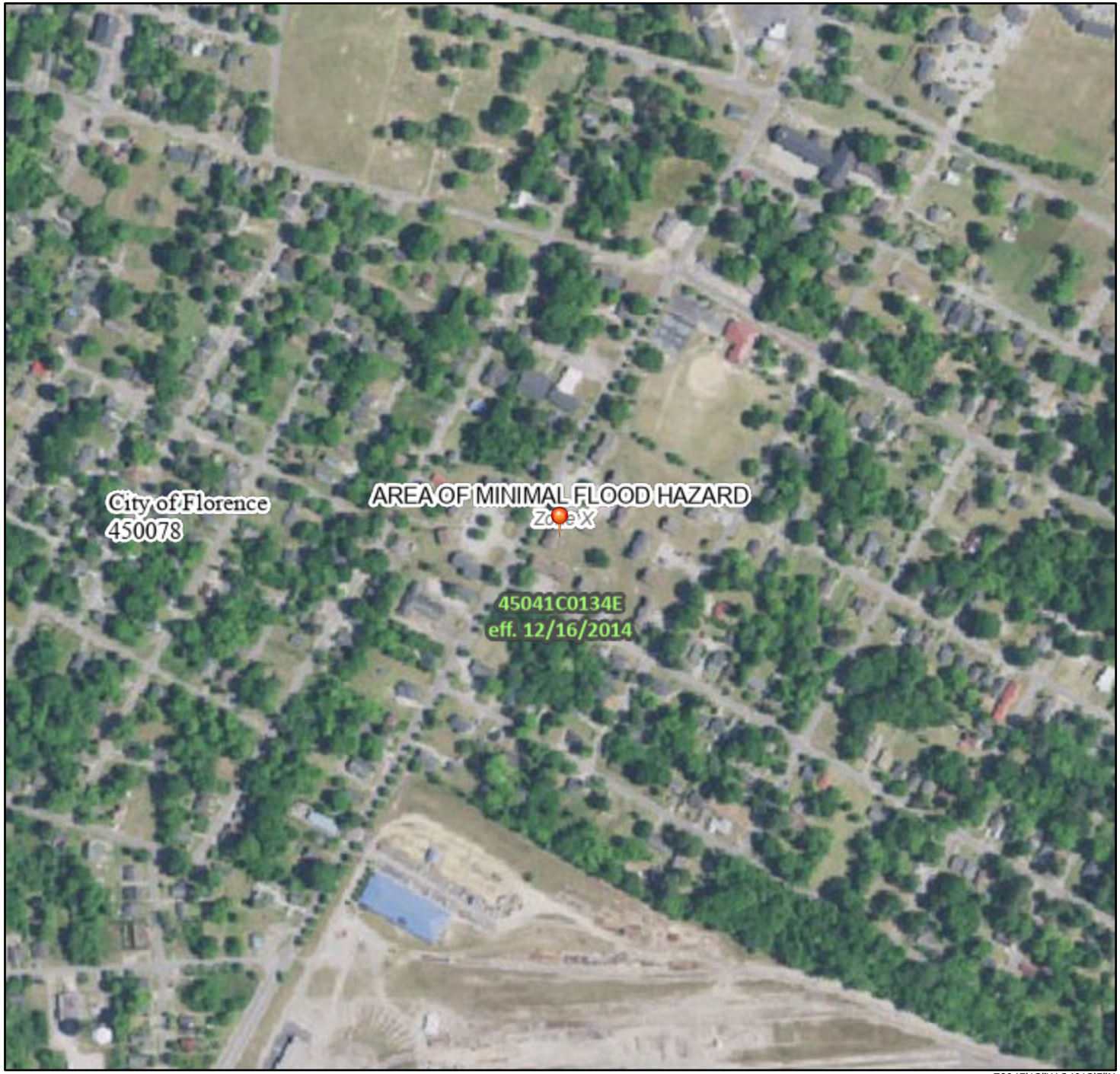
Perennial

World_Hillshade

National Flood Hazard Layer FIRMette

FEMA

79°45'50"W 34°12'35"N



79°45'13"W 34°12'5"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/13/2025 at 7:39 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

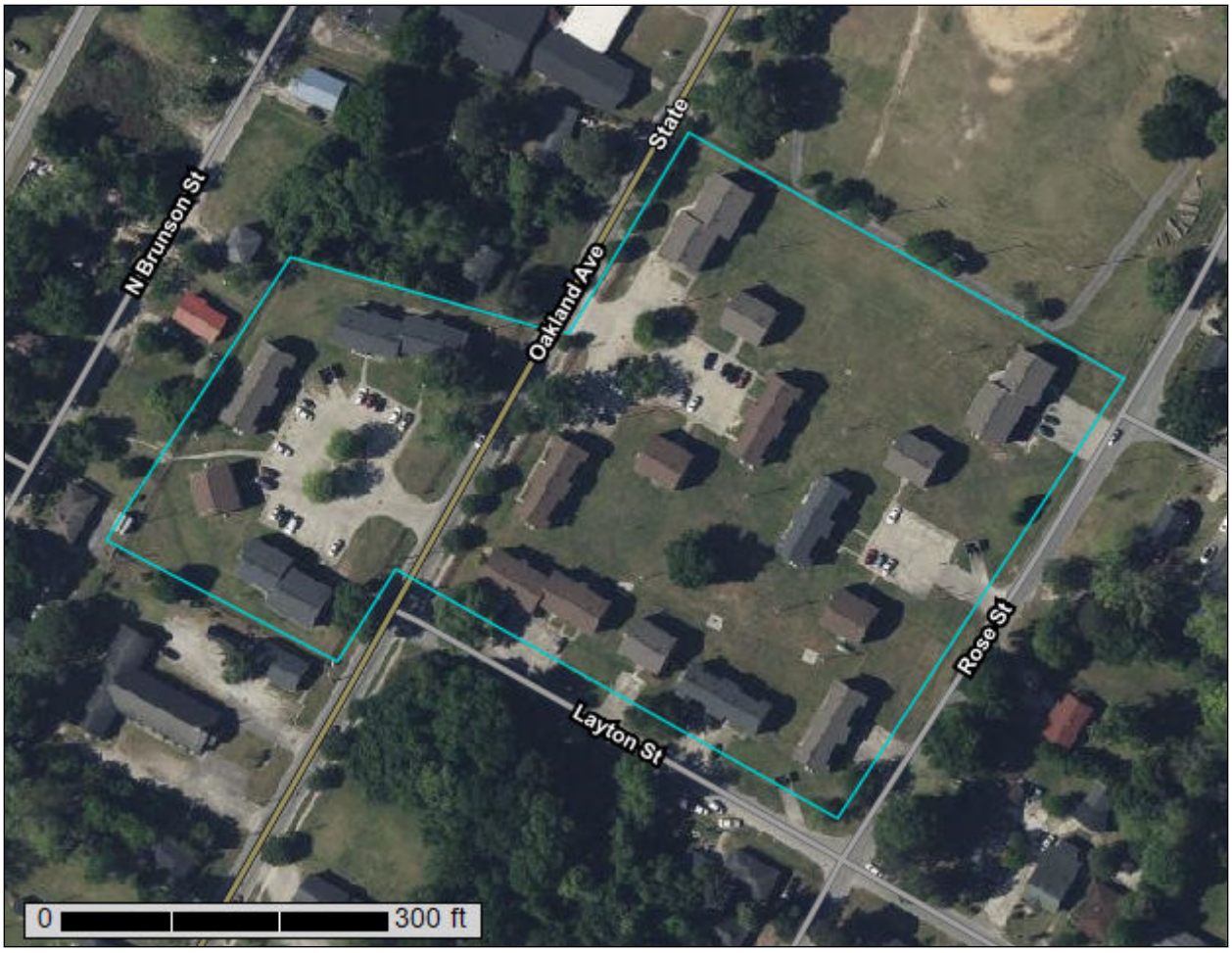
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Florence County, South Carolina



May 13, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,620 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Florence County, South Carolina
Survey Area Data: Version 27, Aug 29, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 17, 2022—May 20, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ub	Urban land-Coxville-Norfolk association	6.9	100.0%
Totals for Area of Interest		**6.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Florence County, South Carolina

Ub—Urban land-Coxville-Norfolk association

Map Unit Setting

National map unit symbol: 4c81
Elevation: 20 to 150 feet
Mean annual precipitation: 40 to 58 inches
Mean annual air temperature: 63 to 72 degrees F
Frost-free period: 230 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent
Norfolk and similar soils: 15 percent
Coxville and similar soils: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marine deposits

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

Description of Norfolk

Setting

Landform: Marine terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marine deposits

Typical profile

Ap - 0 to 8 inches: loamy sand
E - 8 to 13 inches: loamy sand
Bt1 - 13 to 68 inches: sandy clay loam
Bt2 - 68 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Coxville

Setting

Landform: Marine terraces, depressions
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Marine deposits

Typical profile

Ap - 0 to 6 inches: fine sandy loam
Btg1 - 6 to 22 inches: sandy clay loam
Btg2 - 22 to 75 inches: sandy clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

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Soil Survey Area - Soil Data Access (SDA) - Hydric Soils Rating by Map Unit

An SDA-populated select list is used to pick a state and SSA which enables creation of a "Hydric Soils Report" based upon those selections. The data is not static; it hits Soil Data Access Live. To reset the table change the state dropdown. Once a state is selected and table appears, if a new state is selected it will refresh the table. The report uses a count instead of component percent to determine the hydric rating by map unit. For more information about the table,

South Carolina

selected stateId = SC

Florence County, South Carolina

selected SSA areasymbol = SC041

areasymbol	musym	muname	mukey	hydric_rating
SC041	Ex	Exum sandy loam	129952	Predominantly Nonydric
SC041	Ba	Barth loamy sand	129941	Predominantly Nonydric
SC041	Br	Brogdon sand	129942	Nonhydric
SC041	CaA	Cahaba loamy fine sand, 0 to 3 percent slopes	129943	Nonhydric
SC041	Cb	Cahaba-Leaf complex	129944	Partially Hydric
SC041	Ce	Cape Fear loam	129945	Hydric
SC041	Ch	Chastain-Chewacla-Congaree association, frequently flooded	129946	Partially Hydric
SC041	Cn	Chipley loamy sand, dark surface	129947	Predominantly Nonydric
SC041	Cv	Coxville fine sandy loam	129948	Hydric
SC041	Dp	Duplin fine sandy loam	129949	Nonhydric
SC041	DuA	Duplin and Exum soils, 0 to 2 percent slopes	129950	Nonhydric
SC041	DuB	Duplin and Exum soils, 2 to 6 percent slopes	129951	Nonhydric
SC041	FaA	Faceville loamy sand, 0 to 2 percent slopes	129953	Predominantly Nonydric
SC041	FaB	Faceville loamy sand, 2 to 6 percent slopes	129954	Predominantly Nonydric
SC041	FaD	Faceville loamy sand, 6 to 15 percent slopes	129955	Nonhydric
SC041	FuB	Fuquay sand, 0 to 4 percent slopes	129956	Predominantly Nonydric
SC041	Go	Goldsboro loamy sand	129957	Predominantly Nonydric
SC041	Hy	Hyde loam	129958	Hydric
SC041	Jo	Johns fine sandy loam	129959	Nonhydric
SC041	Ka	Kalmia loamy sand	129960	Nonhydric
SC041	KeB	Kenansville sand, 0 to 4 percent slopes	129961	Nonhydric

SC041	LaB	Lakeland sand, 0 to 6 percent slopes, Southern Coastal Plain	129962	Nonhydric
SC041	LaD	Lakeland sand, 6 to 15 percent slopes	129963	Nonhydric
SC041	LkB	Lakeland sand, 0 to 6 percent slopes, Atlantic Coast Flatwoods	2893521	Nonhydric
SC041	Ls	Leaf fine sandy loam	129964	Hydric
SC041	LuB	Lucy sand, 0 to 6 percent slopes	129965	Nonhydric
SC041	LuC	Lucy sand, 6 to 10 percent slopes	129966	Nonhydric
SC041	Ly	Lynchburg sandy loam, 0 to 2 percent slopes	129967	Predominantly Nonydric
SC041	Lz	Lynn Haven sand	129968	Hydric
SC041	Mp	Mine pits and dumps	129969	Nonhydric
SC041	NoA	Norfolk loamy sand, 0 to 2 percent slopes	129970	Predominantly Nonydric
SC041	NoB	Norfolk loamy sand, 2 to 6 percent slopes	129971	Predominantly Nonydric
SC041	On	Olanta loamy sand	129972	Nonhydric
SC041	OrA	Orangeburg loamy sand, 0 to 2 percent slopes	129973	Nonhydric
SC041	OrB	Orangeburg loamy sand, 2 to 6 percent slopes	129974	Nonhydric
SC041	OrC	Orangeburg loamy sand, 6 to 10 percent slopes	129975	Nonhydric
SC041	Os	Osier loamy sand	129976	Hydric
SC041	Pa	Pantego loam	129977	Hydric
SC041	PlB	Pocalla sand, 0 to 4 percent slopes	129978	Nonhydric
SC041	Ra	Rains sandy loam	129979	Hydric
SC041	RnA	Rains sandy loam, 0 to 2 percent slopes, Atlantic Coast Flatwoods	3260154	Predominantly Hydric
SC041	Rs	Rimini sand	129980	Nonhydric
SC041	Ru	Rutlege loamy sand	129981	Hydric
SC041	SuC	Sunsweet loamy fine sand, 6 to 10 percent slopes	129982	Nonhydric
SC041	SuE	Sunsweet loamy fine sand, 10 to 25 percent slopes	129983	Nonhydric
SC041	Ub	Urban land-Coxville-Norfolk association	129984	Partially Hydric
SC041	VaA	Varina loamy fine sand, 0 to 2 percent slopes	129985	Predominantly Nonydric
SC041	VaB	Varina loamy fine sand, 2 to 6 percent slopes	129986	Nonhydric
SC041	W	Water	129987	Nonhydric
SC041	WgB	Wagram sand, 0 to 6 percent slopes	129988	Nonhydric
SC041	WgC	Wagram sand, 6 to 10 percent slopes	129989	Nonhydric
SC041	WgD	Wagram sand, 10 to 15 percent slopes	129990	Nonhydric
SC041	Wh	Wahee fine sandy loam	129991	Predominantly Nonydric
SC041	Wk	Wehadkee-Chastain association, frequently flooded	129992	Hydric
SC041	Wn	Wehadkee and Johnston soils, frequently flooded	129993	Hydric

Report Metadata: Back to top

- **areasymbol:** A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Dane Co., Wisconsin is WI025).

- **musym:** The symbol used to uniquely identify the soil mapunit in the soil survey.
- **Mapunit_Name:** Correlated name of the mapunit (recommended name or field name for surveys in progress).
- **mukey:** A non-connotative string of characters used to uniquely identify a record in the Mapunit table.
- **hydric_rating:** This Hydric Soil Category rating indicates the components of map units that meet the criteria for hydric soils.

Hydric Soil Categories :

This Hydric Soil Category rating indicates the components of map units that meet the criteria for hydric soils. Map units are composed of one or more major soil components or soil types that generally make up 20 percent or more of the map unit and are listed in the map unit name, and they may also have one or more minor contrasting soil components that generally make up less than 20 percent of the map unit. Each major and minor map unit component that meets the hydric criteria is rated hydric. The map unit class ratings based on the hydric components present are: Hydric, Predominantly Hydric, Partially Hydric, Predominantly Nonhydric, and Nonhydric. The report also shows the total representative percentage of each map unit that the hydric components comprise.

- **"Hydric"** means that all major and minor components listed for a given map unit are rated as being hydric.
- **"Predominantly Hydric"** means that all major components listed for a given map unit are rated as hydric, and at least one contrasting minor component is not rated hydric.
- **"Partially Hydric"** means that at least one major component listed for a given map unit is rated as hydric, and at least one other major component is not rated hydric.
- **"Predominantly Nonhydric"** means that no major component listed for a given map unit is rated as hydric, and at least one contrasting minor component is rated hydric.
- **"Nonhydric"** means no major or minor components for the map unit are rated hydric. The assumption is that the map unit is nonhydric even if none of the components within the map unit have been rated.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

If soils are wet enough for a long enough period of time to be considered hydric, they typically exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Vasilas, Hurt, and Noble, 2010).

The NTCHS has developed criteria to identify those soil properties unique to hydric soils (Federal Register, 2012). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria use selected soil properties that are described in â€œField Indicators of Hydric Soils in the United Statesâ€ (Vasilas, Hurt, and Noble, 2010), "Soil Taxonomy" (Soil Survey Staff, 1999), "Keys to Soil Taxonomy" (Soil Survey Staff, 2010), and the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

The criteria for hydric soils are represented by codes, for example, 2 or 3. Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.

2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:

1. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or

2. Show evidence that the soil meets the definition of a hydric soil;

3. Soils that are frequently ponded for long or very long duration during the growing season.

    1. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or

    2. Show evidence that the soil meets the definition of a hydric soil;

4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:

    1. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or

    2. Show evidence that the soil meets the definition of a hydric soil;

Hydric Condition: Food Security Act information regarding the ability to grow a commodity crop without removing woody vegetation or manipulating hydrology.

References:

- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. February, 28, 2012. Hydric soils of the United States.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.
- Vasilas, L.M., G.W. Hurt, and C.V. Noble, editors. Version 7.0, 2010. Field indicators of hydric soils in the United States.

LOCATION COXVILLE NC+AL FL GA SC VA

Established Series
CMO/Rev. JAK
11/2005

COXVILLE SERIES

MLRA(s): 133A--Southern Coastal Plain
MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Raleigh, North Carolina
Depth Class: Very deep
Drainage Class (Agricultural): Poorly drained
Internal Free Water Occurrence: Very shallow to shallow, common to persistent
Flooding Frequency and Duration: None
Ponding Frequency and Duration: None
Index Surface Runoff: Negligible
Permeability: Moderately slow
Landscape: Lower to upper coastal plain
Landform: Flats, Carolina bays, and depressions
Geomorphic Component: Talfs, dips
Parent Material: Marine deposits or fluviomarine sediments
Slope: 0 to 2 percent
Elevation (type location): Unknown
Mean Annual Air Temperature (type location): 62 degrees F.
Mean Annual Precipitation (type location): 48 inches

TAXONOMIC CLASS: Fine, kaolinitic, thermic Typic Paleaquults

TYPICAL PEDON: Coxville fine sandy loam--cultivated. (Colors are for moist soil unless otherwise stated.)

Ap--0 to 9 inches; dark gray (10YR 4/1) fine sandy loam; weak fine granular structure; very friable; common fine roots; slightly acid; clear wavy boundary. (5 to 12 inches thick)

Eg--9 to 11 inches; gray (10YR 6/1) fine sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary. (0 to 8 inches thick)

BEg--11 to 13 inches; grayish brown (10YR 5/2) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, plastic; few fine roots; few fine distinct brownish yellow (10YR 6/8) masses of oxidized iron; very strongly acid; clear wavy boundary. (0 to 6 inches thick)

Btg1--13 to 25 inches; gray (10YR 5/1) sandy clay; moderate medium subangular blocky structure; firm, sticky, plastic; common faint clay films on vertical faces of peds and in root channels; few fine roots; few root channels; few medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid; gradual wavy boundary.

Btg2--25 to 40 inches; gray (10YR 5/1) sandy clay; weak medium subangular blocky structure; firm, sticky, plastic; few faint clay films on faces of peds; common medium prominent brownish yellow (10YR 6/6) and red (2.5YR 4/6) masses of oxidized iron; very strongly acid; gradual wavy boundary.

Btg3--40 to 52 inches; gray (10YR 6/1) sandy clay; weak subangular blocky structure; firm, sticky, plastic; few faint clay films on vertical faces of peds; few medium prominent red (2.5YR 4/6) and reddish yellow (7.5YR 6/6) masses of oxidized iron; very strongly acid; gradual wavy boundary.

Btg4--52 to 72 inches; gray (10YR 6/1) sandy clay; weak medium subangular blocky structure; firm, sticky, plastic; pockets and lenses of clayey and sandy materials; common medium prominent reddish yellow (7.5YR 6/6) masses of oxidized iron; very strongly acid; gradual clear boundary. (combined thickness of the Btg horizon is 40 to more than 80 inches)

Cg--72 to 80 inches; stratified sand, silt, and clay; very strongly acid.

TYPE LOCATION: Pitt County, North Carolina; 1 mile south of Greenville on NC Highway 43, 300 feet east from road.

RANGE IN CHARACTERISTICS:
Depth to Bedrock: Greater than 80 inches
Depth to Seasonal High Water Table: 0 to 12 inches, November to April
Rock Fragment content: 0 to 15 percent, by volume, throughout, but less than 5 percent in most pedons
Soil Reaction: Extremely acid to strongly acid, except where limed

RANGE OF INDIVIDUAL HORIZONS:
Ap horizon or A horizon (where present):
Color--hue of 10YR to 5Y, value of 2 to 5, chroma of 1 or 2, or neutral with value of 2 to 5
Texture (fine-earth fraction)--fine sandy loam, sandy loam, loam, or rarely sandy clay loam

Eg horizon (where present):
Color--hue of 10YR to 5Y, value of 5 to 7, chroma of 1 or 2, or neutral with value of 5 to 7
Texture (fine-earth fraction)--fine sandy loam, sandy loam, or loam
Redoximorphic features (where present)--masses of oxidized iron in shades of red, yellow, or brown and iron depletions in shades of gray

BEg or BAg horizon (where present):
Color--hue of 10YR to 5Y, value of 4 to 6, chroma of 1 or 2, or neutral with value of 4 to 6
Texture (fine-earth fraction)--sandy clay loam, loam, or clay loam
Redoximorphic features (where present)--masses of oxidized iron in shades of red, yellow, or brown and iron depletions in shades of gray

Btg horizon:
Color--hue of 10YR to 5Y, value of 4 to 7, chroma of 1 or 2, or neutral with value of 4 to 7
Texture (fine-earth fraction)-- sandy clay, clay loam, or clay
Redoximorphic features (where present)--masses of oxidized iron in shades of red, yellow, or brown and iron depletions in shades of gray

BCg or Cg horizons (where present):
Color--hue of 10YR to 5Y, value of 4 to 7, chroma of 1 or 2, or neutral with value of 4 to 7
Texture (fine-earth fraction)--stratified sandy, loamy, silty, or clayey sediments
Redoximorphic features (where present)--masses of oxidized iron in shades of red, yellow, or brown and iron depletions in shades of gray

COMPETING SERIES:
Grady soils--Conceptually, Grady soils have a weighted average of 45 to 65 percent clay in the particle-size control section and Coxville soils have 35 to 45 percent.

GEOGRAPHIC SETTING:
Landscape: Lower to upper coastal plain
Landform: Flats, Carolina bays, and depressions
Geomorphic Component: Talfs, dips
Parent Material: Marine deposits or fluviomarine sediments
Elevation: 25 to 450 feet

Mean Annual Air Temperature: 57 to 70 degrees
Mean Annual Precipitation: 38 to 52 inches
Frost Free Period: 190 to 245 days

GEOGRAPHICALLY ASSOCIATED SOILS:
Byars soils--have an umbric epipedon
Dunbar soils--are better drained
Duplin soils--are better drained
Grady soils--have more clay in the particle-size control section
Goldsboro soils--are better drained and fine-loamy
Lynchburg soils--are better drained and fine-loamy
Marlboro soils--are better drained
Norfolk soils--are better drained and fine-loamy
Pantego soils--have an umbric epipedon and are fine-loamy
Rains soils--are fine-loamy

DRAINAGE AND PERMEABILITY:
Drainage Class (Agricultural): Poorly drained
Internal Free Water Occurrence: Very shallow to shallow, common to persistent
Flooding Frequency and Duration: None
Ponding Frequency and Duration: None
Permeability: Moderately slow

USE AND VEGETATION:
Major Uses: Forest, some pasture and cropland
Dominant Vegetation: Where cultivated--corn, soybeans, and truck crops. Where wooded--loblolly and longleaf pine, sweetgum, blackgum, water oak, willow oak, water tupelo, elm, and hickory.

DISTRIBUTION AND EXTENT:
Distribution: Coastal Plain of North Carolina, Georgia, Florida, Alabama, Mississippi, and possibly Virginia and Louisiana
Extent: Large

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Raleigh, North Carolina.

SERIES ESTABLISHED: Pitt County, North Carolina; 1909.

REMARKS: There appears to be no significant difference in soil characteristics or properties of the Grady and Coxville soils that warrants separation at the series level. Each series was proposed before 1910 by the respective states (Georgia and North Carolina) and they have been maintained since. They were separated on clay and silt content in the 1960s. However, Coxville have not been consistently correlated with less than 45 percent clay (or 30 percent silt) in the particle-size control section..

Diagnostic horizons and features recognized in the typical pedon are:
Ochric epipedon--the zone from the surface to a depth of 11 inches (Ap and Eg horizons)
Albic horizon--the zone from 9 to 11 inches (Eg horizon)
Argillic horizon--the zone between depths of 11 and 72 inches (BEg, Btg1, Btg2, Btg3, and Btg4 horizons)

ADDITIONAL DATA:

TABULAR SERIES DATA:

SOI-5	Soil Name	Slope	Airtemp	FrFr/Seas	Precip	Elevation
NC0045	COXVILLE	0-2	57-70	190-245	38-52	25-450

SOI-5	FloodL	FloodH	Watertable	Kind	Months	Bedrock	Hardness
NC0045	NONE		0-1.0	APPARENT	NOV-APR	>80	

SOI-5	Depth	Texture	3-Inch	No-10	Clay%	-CEC-
NC0045	0-11	FSL SL L	0-0	100-100	5-27	2-7
NC0045	11-72	CL SC C	0-0	100-100	35-60	4-7
NC0045	72-80	VAR	-	-	-	-

SOI-5	Depth	-pH-	O.M.	Salin	Permeab	Shnk-Swll
NC0045	0-11	3.5-5.5	2.0-4.0	0-0	0.6-2.0	LOW
NC0045	11-72	3.5-5.5	0.0-1.0	0-0	0.2-0.6	MODERATE
NC0045	72-80	3.5-5.5	0.0-0.05	0-0	0.2-6.0	Low

National Cooperative Soil Survey
U.S.A.

LOCATION NORFOLK NC+AL AR FL GA SC VA

Established Series
CMO/Rev. JAK
11/2005

NORFOLK SERIES

MLRA(s): 133A-Southern Coastal Plain, 153A-Atlantic Coast Flatwoods, 153B-Tidewater Area
MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Raleigh, North Carolina
Depth Class: Very deep
Drainage Class (Agricultural): Well drained
Internal Free Water Occurrence: Deep, transitory or very deep
Index Surface Runoff: Negligible to medium
Permeability: Moderate (Saturated Hydraulic Conductivity: Moderately high)
Landscape: Lower, middle, or upper coastal plain
Landform: Uplands or marine terraces
Geomorphic Component: Interfluve, side slopes
Hillslope Profile Position: Summits, shoulders, backslopes
Parent Material: Marine deposits or fluviomarine deposits
Slope: 0 to 10 percent
Elevation (type location): Unknown
Mean Annual Air Temperature (type location): 62 degrees F.
Mean Annual Precipitation (type location): 49 inches

TAXONOMIC CLASS: Fine-loamy, kaolinitic, thermic Typic Kandiudults

TYPICAL PEDON: Norfolk loamy sand--cultivated. (Colors are for moist soil unless otherwise indicated.)

Ap--0 to 9 inches; grayish brown (10YR 5/2) loamy sand; weak fine and medium granular structure; very friable; nonsticky, nonplastic; few fine and medium roots; darker-colored material in old root channels; strongly acid; clear smooth boundary. (3 to 10 inches thick)

E--9 to 14 inches; light yellowish brown (10YR 6/4) loamy sand; weak medium granular structure; very friable; nonsticky, nonplastic; few fine and medium roots; darker-colored material in old root channels; strongly acid; clear smooth boundary. (0 to 10 inches thick)

Bt1--14 to 17 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; few fine and medium roots; few faint clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2--17 to 38 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; many fine and medium pores; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt3--38 to 58 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; few faint clay films on faces of peds; few fine faint strong brown (7.5YR 4/6) and few prominent yellowish red (5YR 5/8) masses of oxidized iron and few fine distinct pale brown (10YR 6/3) iron depletions; strongly acid; gradual wavy boundary.

Bt4--58 to 70 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; few faint clay films on faces of peds; common medium distinct yellowish

red (5YR 5/8) masses of oxidized iron and pale brown (10YR 6/3) and light brownish gray (10YR 6/2) iron depletions; 1 percent, firm yellowish red plinthite nodules; strongly acid; gradual wavy boundary. (Combined thickness of Bt horizon is 40 to more than 60 inches.)

BC--70 to 82 inches; variegated brownish yellow (10YR 6/6), strong brown (7.5YR 5/6), and yellowish red (5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; 5 percent firm, brittle plinthite nodules; strongly acid; gradual wavy boundary. (0 to more than 15 inches thick)

C--82 to 100 inches; variegated red (2.5YR 4/8), strong brown (7.5YR 5/8), brownish yellow (10YR 6/8) and gray (10YR 5/1) sandy clay loam; massive; friable; slightly sticky, slightly plastic; strongly acid.

TYPE LOCATION: Robeson County, North Carolina; 1.25 miles south of Parkton; 300 feet west of State Road 1724 and 60 feet south of farm road.

RANGE IN CHARACTERISTICS:
Thickness of the sandy surface and subsurface layers: 3 to 19 inches
Depth to top of the Argillic horizon: 3 to 19 inches
Depth to the base of the Argillic horizon: 60 to more than 80 inches
Depth to top of the Kandic horizon: 3 to 19 inches
Depth to bedrock: Greater than 80 inches
Depth to Seasonal High Water Table: 40 to 72 inches, January to March
Soil Reaction: Extremely acid to strongly acid, throughout except where limed
Rock Fragment Content: 0 to 5 percent, by volume throughout; mostly quartz pebbles or ironstone nodules
Plinthite Content: 0 to 4 percent to a depth of 60 inches and 0 to 10 percent or more below 60 inches

RANGE OF INDIVIDUAL HORIZONS:
Ap horizon or A horizon (where present):
Color--hue of 10YR or 2.5Y, value of 4 to 7, chroma of 1 to 4
Texture--loamy sand, sandy loam, fine sandy loam, or loamy fine sand. Some pedons are fine sand or sand.

E horizon:
Color--hue of 10YR or 2.5Y, value of 4 to 7, chroma of 2 to 6
Texture--loamy sand, sandy loam, fine sandy loam, or loamy fine sand. Some pedons are fine sand or sand.

BE horizon (where present):
Color--hue of 10YR or 2.5Y, value of 4 to 6, chroma of 3 to 8
Texture--sandy loam or fine sandy loam

Bt horizon (upper):
Color--hue of 7.5YR to 2.5Y, value of 5 to 8, chroma of 3 to 8
Texture--sandy loam, fine sandy loam, sandy clay loam, or clay loam
Redoximorphic features (where present)--masses of oxidized iron in shades of red, yellow, or brown and iron depletions in shades of brown, yellow, or olive

Bt horizon (lower):
Color--hue of 7.5YR to 2.5Y, value of 5 to 8, chroma of 3 to 8
Texture--sandy loam, fine sandy loam, sandy clay loam, clay loam, sandy clay, or clay
Redoximorphic features--masses of oxidized iron in shades of red, yellow, or brown and iron depletions in shades of brown, yellow, olive, or gray

BC horizon or BCt horizon (where present):
Color--hue of 5YR to 2.5Y, value of 4 to 7, chroma of 3 to 8, or variegated in shades of these colors
Texture--sandy loam, fine sandy loam, sandy clay loam, clay loam, sandy clay, or clay
Redoximorphic features--masses of oxidized iron in shades of red, yellow, or brown and iron depletions in shades of brown, yellow, olive, or gray

C horizon:
Color--hue of 2.5YR to 5Y, value of 4 to 8, chroma of 3 to 8, or is variegated in shades of these colors
Texture--loamy coarse sand, loamy sand, loamy fine sand, coarse sandy loam, sandy loam, fine sandy loam, sandy clay loam, clay loam, or sandy clay. Some pedons have layers of coarser or finer textured materials.
Redoximorphic features--masses of oxidized in shades of red, yellow, or brown and iron depletions in shades of brown, yellow, olive, or gray

COMPETING SERIES:
Orangeburg soils--have hue of 5YR or redder throughout the Bt horizon
Thursa soils--have hue of 5YR or redder below the upper 10 inches of the Bt horizon

GEOGRAPHIC SETTING:
Landscape: Lower, middle, or upper coastal plain
Landform: Uplands or marine terraces
Geomorphic Component: Interfluve, side slopes
Hillslope Profile Position: Summits, shoulders, backslopes
Parent Material: Marine deposits or fluviomarine deposits
Elevation: 30 to 450 feet
Mean Annual Air Temperature: 57 to 70 degrees F.
Mean Annual Precipitation: 35 to 55 inches
Frost Free Period: 190 to 245 days

GEOGRAPHICALLY ASSOCIATED SOILS:
Aycock soils--are in a fine-silty family
Bonneau soils--have an arenic soil surface
Butters soils--are in a coarse-loamy family
Caroline soils--are in a fine family
Craven soils--are in a fine family
Duplin soils--are in a fine family
Exum soils--are in a fine-silty family
Faceville soils--are in a fine family
Foreston soils--are in a coarse-loamy family
Goldsboro soils--are moderately well drained
Marlboro soils--are in a fine family
Noboco soils--have siliceous mineralogy
Lakeland soils--are sandy throughout
Lynchburg soils--are somewhat poorly drained
Rains soils--are poorly drained soils
Orangeburg soils--have hue of 5YR or redder throughout the Bt horizon
Pantego soils--are very poorly drained soils
Thursa soils--have hue of 5YR or redder below the upper 10 inches of the Bt horizon
Wagram soils--have an arenic soil surface

DRAINAGE AND PERMEABILITY:
Depth Class: Very deep
Drainage Class (Agricultural): Well drained
Internal Free Water Occurrence: Deep, transitory or very deep
Index Surface Runoff: Negligible to medium
Permeability: Moderate (Saturated Hydraulic Conductivity: Moderately high)

USE AND VEGETATION:
Major Uses: Mostly cleared and used for general farm crops.
Dominant Vegetation: Where cultivated--corn, cotton, peanuts, tobacco, and soybeans. Where wooded--pines and mixed hardwoods.

DISTRIBUTION AND EXTENT:
Distribution: Alabama, Arkansas, Florida, Georgia, North Carolina, South Carolina, and Virginia
Extent: Large

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Raleigh, North Carolina

SERIES ESTABLISHED: Cecil County, Maryland; 1900.

REMARKS: The June, 1988 revision recognized the low activity clay properties of this soil as defined in the low activity clay amendment of Soil Taxonomy, August
1986. 10/2004, changed water table from 4.0-6.0 ft to 3.3-6.0 ft to cover depth that would be included in the typic subgroup versus associated soils in the Oxyaquic subgroup. Diagnostic horizons and features recognized in this pedon are:
Ochric epipedon--the zone from the surface to a depth of 14 inches (A and E horizons)
Kandic horizon--the zone between 14 and 70 inches (Bt horizon)
Argillic horizon--the zone between depths of 14 and 70 inches (Bt horizon)

ADDITIONAL DATA: (1) U.S. Department of Agriculture, Soil Survey Laboratory Data and Descriptions for Some Soils of Georgia, North and South Carolina. Soil Survey Investigations Report No. 16; SCS, in cooperation with Georgia, North Carolina, and South Carolina Agricultural Experiment Stations; Pages 65, 67, 69. (2) U.S. Department of Agriculture, Certain Properties of Selected Southeastern United States Soils and Mineralogical Procedures for Their Study, Southern Cooperative Series Bulletin 61 (S-14); Soil Conservation Service, Agricultural Research Service and cooperating Experiment Stations; tables 64, 67, 68. (3) U.S. Department of Agriculture, Selected Coastal Plain Soil Properties, Southern Cooperative Service and cooperating Experiment Stations; pages 40, 42, 44, 46.

TABULAR SERIES DATA:

SOI-5	Soil Name	Slope	Airtemp	FrFr/Seas	Precip	Elevation
NC0037	NORFOLK	0-10	57-70	190-245	35-55	30-450

SOI-5	FloodL	FloodH	Watertable	Kind	Months	Bedrock	Hardness
NC0037	NONE		3.3-6.0	APPARENT	JAN-MAR	>80	-

SOI-5	Depth	Texture	3-Inch	No-10	Clay%	-CEC-
NC0037	0-14	SL FSL	0-0	95-100	5-18	1-4
NC0037	0-14	LS LFS	0-0	92-100	2-8	1-3
NC0037	14-38	SL SCL CL	0-0	91-100	18-35	2-4
NC0037	38-70	SCL CL SC	0-0	98-100	20-43	2-5
NC0037	70-100	VAR	-	-	-	-

SOI-5	Depth	-pH-	O.M .	Salin	Permeab	Shnk-Swll
NC0037	0-14	3.5-5.5	0.5-2.0	0-0	2.0-6.0	LOW
NC0037	0-14	3.5-5.5	0.5-2.0	0-0	6.0-20	LOW
NC0037	14-38	3.5-5.5	0.0-0.5	0-0	0.6-2.0	LOW
NC0037	38-70	3.5-5.5	0.0-0.5	0-0	0.6-2.0	LOW
NC0037	70-100	-	-	-	-	

National Cooperative Soil Survey
U.S.A.

Coordinates	34.205225, -79.758236
Observation Date	2025-05-19
Elevation (ft)	141.229
Drought Index (PDSI)	Moderate drought (2025-04)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-05-19	1.765354	3.8	3.555118	Normal	2	3	6
2025-04-19	2.798425	3.676772	1.877953	Dry	1	2	2
2025-03-20	2.140945	3.566142	4.102362	Wet	3	1	3
Result							Normal Conditions - 11

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Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
FLORENCE RGNL AP	34.1878, -79.7308	141.076	1.977	0.153	0.89	11350	89
FLORENCE 1.2 NNE	34.1963, -79.7717	144.029	2.41	2.953	1.092	0	1
FLORENCE 2.1 SW	34.1624, -79.8091	124.016	4.808	17.06	2.246	1	0
FLORENCE 8 NE	34.2933, -79.74	120.079	7.308	20.997	3.442	2	0