



# APPENDIX F: NATURAL RESOURCES TECHNICAL MEMORANDUM

Prepared for:



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## 1.0 INTRODUCTION

The South Carolina Department of Transportation (SCDOT) and Federal Highway Administration (FHWA) are proposing improvements to the I-526/Long Point Road (S-97) interchange in the Town of Mount Pleasant, South Carolina. The project study area (PSA) extends along I-526 from Wando River to Hobcaw Creek, approximately 1 mile north and south of Long Point Road, and along Long Point Road from the Wando Welch Terminal to Egypt Road (Figures 1 and 2, Appendix A).

The I-526/Long Point Road interchange provides access to homes, businesses, schools, parks, restaurants, and commercial and industrial facilities along Long Point Road. The interchange provides access to SC Port's Wando Welch Terminal which serves as a hub for the distribution of freight from the Port throughout the southeast United States. The purpose of the proposed project is to improve operations of the interchange and interstate and to reduce operational conflicts between port-related traffic and local traffic. The need for the project is demonstrated by the growing automobile and truck traffic on I-526 and Long Point Road, the existing interchange deficiencies, and the operational conflicts between cars and trucks on Long Point Road and I-526. If no improvements are made, traffic is expected to increase and result in an extreme level of congestion throughout much of the interchange by 2050.

### 1.1 PROJECT DESCRIPTION

The project would include modification of the I-526/Long Point Road interchange, including entrance and exit ramps, and potentially constructing new interchange ramps that would provide new access to Long Point Road for port-related traffic. Two existing bridges on ramps over a tributary to Hobcaw Creek will likely be replaced as part of the project.

### 1.2 METHODOLOGY

A project study area (PSA) was developed to provide a review of the existing I-526/Long Point Road interchange that includes all reasonable alternatives. The environmental assessment contains details and descriptions of the alternatives evaluated. A geographic information system (GIS) based review of the PSA was conducted prior to field surveys. The GIS review consisted of compiling digital elevation models for Charleston County obtained from the SC Department of Natural Resources (SCDNR 2015) and US Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) maps (USFWS 2019) to create a composite map of natural resources spatial data within the PSA. This composite map was used to estimate the possible type and approximate location of various habitats prior to field verification surveys. Habitat types were confirmed or corrected during field surveys.

The PSA was physically investigated for the presence of wetlands, streams, and other potential waters of the United States (WOTUS) between August 2018 and September 2019, and the summer of 2022 when the PSA was expanded. All wetlands were delineated using the methods outlined by the US Army Corps of Engineers (USACE) Atlantic and Gulf Coastal Plain Regional Supplement to determine jurisdictional

boundaries (USACE 2010). Wetland habitat types were classified using the Cowardin naming convention (USFWS 1979). Other habitat types were classified using the National Land Cover Data Legend (Yang et al. 2018), aerial imagery, and investigator field notes.

The Charleston County list of federally protected species, dated March 29, 2022, was downloaded from the USFWS Charleston Field Office website (USFWS 2022). Each federally protected species was researched by the investigators to determine their respective suitable habitat requirements. Suitable habitats are those habitats which meet the minimum needs of a species. Species utilization of the I-526/Long Point Road interchange PSA was analyzed by comparing current conditions to the suitable habitat requirements needed by each species. Suitable habitats for species were physically investigated over multiple field visits from August 2018 through September 2019, and the summer of 2022. Species presence or suitable habitat was recorded as observed. The PSA boundaries were transferred to the SC Natural Heritage Species Reviewer and a report was generated through SCDNR's data files that provides project specific information about known occurrences of state and federally protected species within the PSA (SCDNR 2022a). A buffer can be specified from 1 to 6 miles from the PSA boundaries. For the purposes of this study a 3-mile buffer around the PSA was requested.

The areas of Essential Fish Habitat (EFH) were determined using wetland delineations to determine the estuarine boundary and the most recent publicly available aerial imagery to determine habitat types. Additionally, maps of aquatic species that utilize these habitat types were generated using the National Oceanic and Atmospheric Association (NOAA) - National Marine Fisheries Service (NMFS) EFH mapper for the Habitat Areas of Particular Concern (HAPC), Atlantic Highly Migratory Species (HMS), and the South Atlantic EFH species (NOAA 2019).

## 2.0 PHYSICAL RESOURCES

### 2.1 LAND USE

The PSA is in Charleston County, in the Lowcountry Region of the state, approximately 5 miles northeast of downtown Charleston centered along the I-526 Mark Clark Expressway corridor in the vicinity of the Long Point Road interchange (exit 28). The PSA is bounded by the Wando River and Wando Welsh Terminal to the west and the Town of Mount Pleasant to the east. Zoning jurisdiction for property within the PSA falls to the Town of Mount Pleasant. As shown on Figure 3 in Appendix A, land use is a mix of:

- Residential
- Institutional
- Commercial
- Light Industrial
- Open Space/Marsh

I-526 connects Mount Pleasant to Daniel Island to the west via the Wando River Bridge. I-526 currently terminates approximately 2 miles southeast of the Long Point Road interchange at US 17. Long Point Road (S-97) provides to the SC State Port Authority (SCSPA) Wando Welch Terminal (WWT) on the west side of I-526 and extends about 2.5 miles east before terminating at US 17. Long Point Road is lined with commercial development, including the Belle Hall Shopping Center, anchored by Harris Teeter, miscellaneous fast-food restaurants, gas stations, and convenience stores.

The SC State Port Wando Welch Terminal encompasses approximately 400 acres and is the state's largest container terminal. Gates are open for truck traffic on Monday to Friday 5AM to 5PM and on Saturday from 6AM to 5PM, as well as temporarily during summer 2022 on Sundays from 8AM to 5PM.

Medical offices and a recently constructed senior living and memory care facility (Atria Mount Pleasant) are located in the southwest quadrant of the I-526/Long Point Road interchange. Long Point Road also provides the only access to Hobcaw Creek Plantation, Oak Park, and Hidden Cove, just west of the interchange.

Large residential neighborhoods are located north of Long Point Road and east of I-526 along Seacoast Parkway, including Belle Hall and Grassy Creek. On the west side of I-526, there are a number of institutional, commercial, and light industrial businesses along Wando Park Boulevard, as well as Avana Long Point Apartments. Wando Park Boulevard also loops under I-526 near the Wando River Bridge to provide access to the Etiwan Pointe neighborhood.

### 2.2 PHYSIOGRAPHY AND TOPOGRAPHY

The project is situated in the Sea Islands/Coastal Marsh Level IV ecoregion as defined by the US Environmental Protection Agency (USEPA). *"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. The island, marsh, and estuary systems form an interrelated ecological web, with processes and*

functions valuable to humans, but also sensitive to human alterations and pollution. The coastal marshes, tidal creeks, and estuaries are important nursery areas for fish, crabs, shrimp, and other marine species” (Griffith et al. 2002).

The overall upland terrain is relatively flat within the PSA with elevations ranging from approximately 5 to 10 feet above mean sea level (US Geological Survey, Charleston and Fort Moultrie, SC, 7.5 Minute Quadrangles) (see Appendix A, Figure 4).

## 2.3 GEOLOGY AND SOILS

According to the US Department of Agriculture’s (USDA) Natural Resource Conservation Service (NRCS) Soil Survey of Charleston County (NRCS 1997), eleven soil map units (SMU) are mapped within the PSA (see Appendix A, Figure 5). The Farmland Protection Policy Act (FPPA) of 1981 (7 USC 4201 and 7 CFR Ch. VI Part 658) requires evaluation of farmland conversions to nonagricultural uses. Farmland can be prime farmland, unique farmland, or farmland of statewide importance. Land that is within US Census-designated urbanized areas is considered already developed or irreversibly converted, and therefore exempt. Because the project is located within a 2010 Census Designated Urbanized Area and in an area already committed to urban development, it is not subject to FPPA protections. Furthermore, based on field visit observations, aerial photography, and county parcel data, none of the land within the PSA is actively used for farming or other agricultural purposes.

Farmland classification and hydric rating for each SMU is noted in **Table 2-1**.

**Table 2-1. Charleston County Soils within the Project Study Area**

Map Symbol	Map Unit Name	Farmland Classification	Hydric Rating	Acres within PSA	Percentage within PSA
Ch	Charleston loamy fine sand	Prime Farmland	Hydric (1 to 32%)	36.9	7.8%
Da	Dawhoo and rutlege loamy fine sand	Not Prime Farmland	Hydric (100%)	18.4	3.9%
Ed	Edisto loamy fine sand	Farmland of Statewide Importance	Not Hydric	39.7	8.4%
HoA	Hockley loamy fine sand, 0 to 2 percent slopes	Prime Farmland	Hydric (1 to 32%)	60.1	12.7%
Ka	Kiawah loamy fine sand	Farmland of Statewide Importance	Hydric (1 to 32%)	101.4	21.4%
Sk	Seabrook loamy fine sand	Not Prime Farmland	Hydric (1 to 32%)	62.2	13.1%
St	Stono fine sandy loam	Farmland of Statewide Importance	Hydric (100%)	32.3	6.8%
Ts	Tidal marsh, soft	Not Prime Farmland	Hydric (100%)	19.6	4.1%
W	Water	Not Prime Farmland	Not Hydric	4.0	0.8%



Map Symbol	Map Unit Name	Farmland Classification	Hydric Rating	Acres within PSA	Percentage within PSA
WgB	Wagram loamy fine sand, 0 to 6 percent slopes	Farmland of Statewide Importance	Not Hydric	1.0	0.2%
Yo	Yonges loamy fine sand	Farmland of Statewide Importance	Hydric (100%)	97.9	20.7%
<b>Total PSA</b>				<b>473.5</b>	<b>100%</b>

The following describe the SMUs found within the PSA:

[Charleston loamy fine sand \(Ch\)](#) – This soil consists of deep, moderately well drained, moderately permeable loamy soils that formed in marine fluvial sediments of the lower coastal plain. Slopes range from 0-2 percent. Approximately half of the acreage is in forests of loblolly pine, water oak, and sweet gum. The remainder is used for truck crops and residential developments. This soil constitutes approximately 36.9 acres within the PSA.

[Dawhoo and rutlege loamy fine sand \(Da\)](#) – This is a deep, very poorly drained soil that is formed in marine sediments. Slopes range from 0 to 2 percent. This soil is slightly acidic or neutral throughout the profile. There are few to common dark colored concretions in most pedons. It is found on low level areas bordering the Atlantic coast. Most of these soils are in woodland areas. Cleared and drained areas are used for cropland. This soil constitutes approximately 18.4 acres within the PSA.

[Edisto loamy fine sand \(Ed\)](#) – This is a somewhat poorly drained, moderately permeable soil that is formed in marine sediments. Slopes range from 0 to 2 percent. These soils typically have very dark grayish brown loamy fine sand A horizons, light olive brown fine sandy loam B horizons, light brownish gray loamy fine sand A2 horizons, and mottled fine sandy loam B2t horizons. Most of these soils are suitable for crops, pastures, and silviculture. This soil constitutes approximately 39.7 acres within the PSA.

[Hockley loamy fine sand, 0 to 2 percent slopes \(HoA\)](#) - This is a moderately well drained, friable, acid soil that contains a moderately fine textured subsoil. It has a high-water table. This soil constitutes approximately 60.1 acres within the PSA and is located near commercial shopping areas in the extreme southern portion of the PSA.

[Kiawah loamy fine sand \(Ka\)](#) – This is a deep, somewhat poorly drained, rapidly permeable, sandy soil that is formed in marine sediments. Slopes range from 0 to 2 percent. Kiawah soils are on nearly level areas of the Pamlico terrace at elevations of 5 to 20 feet above sea level. Most of these soils are dominated by loblolly pine, sweetgum, and water oak forests, however some are used for cropland. This soil constitutes approximately 101.4 acres within the PSA and is located throughout industrial and residential areas in the center of the corridor.

[Seabrook loamy fine sand \(St\)](#) – This is a very deep, moderately well drained, rapidly permeable soil that is formed in sandy marine and fluvial sediments. Seabrook soils are located throughout the Coastal Plain along terraces at elevations of 1 to 120 feet above mean sea level. The primary use of this soil type is woodland with live oak being the dominant species near the coast. Occasionally this soil type is used for

farmland. This soil constitutes approximately 62.2 acres within the PSA and is along the maintained right-of-way along Long Point Road in the center of the corridor.

Stono fine sandy loam (St) - This is a level and very poorly drained soil that has a thick black surface layer and a loamy subsoil. This soil constitutes 32.3 acres within the PSA and is in the center portion of the PSA.

Tidal marsh, soft (Ts) - This a miscellaneous land type occurring on the coast and along tidal streams and rivers between the ocean and the uplands. It is in broad, level, tidal flats that are covered by 6 to 24 inches of salt water at high tide. The surface layer is dark colored soft clay, clay loam, muck, or peat and is saturated. It is covered by salt-tolerant plants, such as black rush and smooth cordgrass. This designation constitutes approximately 19.6 acres within the PSA and is located along the banks of the Wando River in the northern portion of the PSA and small portions in the center and southern end of the corridor.

Wagram loamy fine sand, 0 to 6 percent slopes (WgB) - This is a nearly level, well-drained soil that has a thick, sandy surface layer and loamy subsoil. Wagram soils formed in Coastal Plain and alluvial sediment. This soil type can be satisfactorily worked throughout a wide range of moisture content and is well suited to most locally grown crops. Erosion is a hazard with this soil type, therefore effective runoff and erosion control techniques are needed. This soil constitutes approximately 1.0 acre and is located near the northwestern end the PSA.

Yonges loamy fine sand (Yo) - This is a very deep, poorly drained, moderately slowly permeable soil that was formed in the thick loamy sediments of the Coastal Plain. Yonges soils are typically located on nearly level areas of the lower Coastal Plain from 5 to 25 feet above sea level. Surface runoff is slow, and ponding occurs during rainy periods. This soil constitutes approximately 97.9 acres and is located primarily in the northern portion of the PSA.

Water (W) – This SMU is in multiple locations and constitutes approximately 4 acres within the PSA.

The project would have both short-term construction-related impacts as well as long-term operational impacts on soils in the PSA; however, these impacts are not considered substantial.

## 2.4 WATER RESOURCES

The SC Department of Health and Environmental Control (SCDHEC) divides South Carolina into eight major river basins. A basin can be described as a geographic area in which all surface waters drain to a common point.

According to SCDHEC's SC Watershed Atlas, the Long Point Road PSA lies within the Santee Major River Basin which encompasses 1,923,528 acres. The Santee River Basin is subdivided into 16 watersheds, or 10-digit hydrologic unit codes (HUC), and flows from the Upper and Lower Coastal Plain to the Coastal Zone region. This major river basin includes the Santee River Basin (hydrologic units 03050111, 03050112); the Cooper River Basin (hydrologic units 03050201, 03050202); and the Santee Coastal Frontage Basin (hydrologic unit 03050209, SCDHEC 2022).

The Santee River Basin is subdivided into five watersheds and includes the Santee River as it winds through Lake Marion, along the Rediversion Canal and splits into the North and South Santee Rivers draining to the Atlantic Ocean. The Cooper River Basin is subdivided into nine watersheds and includes Lake Moultrie, the Cooper River, and its tributaries (Wadboo Creek, East Branch Cooper River, Wando River, Ashley River,

Stono River) as it winds its way to Charleston Harbor. The Santee Coastal Frontage Basin is divided into two watersheds that contain portions of the Atlantic Intracoastal Waterway (AIWW). The Santee River Basin has approximately 3,902 stream miles; 133,867 acres of lake waters; and 45,511 acres of estuarine areas (SCDHEC 2022).

The PSA lies within the Wando River Watershed (HUC 03050201-04) which is in Berkeley and Charleston counties and consists primarily of the Wando River and its tributaries. The watershed occupies 72,370 acres of the Coastal Zone region of South Carolina. Land use/land cover in the watershed includes: 33.1 percent forested land, 22.6 percent forested wetland, 17.0 percent non-forested wetland, 16.8 percent urban land, 7.7 percent water, 2.4 percent agricultural land, and 0.4 percent barren land (SCDHEC 2022).

### 2.4.1 Water Quality

SCDHEC develops a priority list of waterbodies that do not currently meet state water quality standards pursuant to Section 303(d) of the Clean Water Act (CWA) and 40 CFR § 130.7. It is commonly referred to as the 303(d) List of Impaired Waters. According to the SCDHEC SC Watershed Atlas (SCDHEC 2022), there are no 303(d) listed waters found within the PSA. SCDHEC also designates suitable Shellfish Harvesting Waters (SFH), determines water quality classifications and standards for the State. Hobcaw Creek and its unnamed tributary (UT) and the UT to Rathall Creek are classified by SCDHEC as SFH. The impoundment in the UT to Hobcaw Creek located under I-526 is designated as freshwater (FW). The entire PSA is in designated municipal separate storm sewer systems (MS4) and Total Maximum Daily Load (TMDL) watersheds.

SCDHEC monitors the water quality of the waters in South Carolina with ambient water quality monitoring stations. These stations are used for “determining long-term water quality trends, assessing attainment of water quality standards, identifying locations in need of additional attention, and providing background data for planning and evaluating stream classifications and standards” (SCDHEC 2020). According to the SC Watershed Atlas (see Appendix B), one permanent water quality monitoring station (MD-264) is in the Wando River near the northern terminus of the PSA and five random stations west of the PSA in Hobcaw Creek and the Wando River. Station MD-264 is a TMDL site due to dissolved oxygen (DO). Three shellfish monitoring stations are in the Wando River near the northern terminus of the PSA. Shellfish Harvest stations 09B-15, 09B-18, and 09B24 are the three closest stations to the PSA with 09B-15 located at the I-526 bridge over the river. Two monitoring stations in Hobcaw Creek (HC1 and HC2), with the closest approximately 2 miles downstream of the I-526 crossing, are listed on the 2018 303(d) list and are impaired due to *Escherichia coli*. One oyster reef is in the PSA along Hobcaw Creek, approximately 90 feet west of the I-526 bridge.

## 3.0 BIOTIC RESOURCES

### 3.1 BIOTIC COMMUNITIES

Biotic communities were initially identified within the PSA using remote sensing data and then confirmed during the field surveys (site photographs in Appendix C). The uplands within the PSA are dominated by commercial development and residential communities. Wetland habitat types were classified using the Cowardin naming convention (USFWS 1979). Non-wetland habitat types are described based on the dominant vegetation observed during the field studies.

#### 3.1.1 Brackish/Saline Habitats

**Estuarine Unconsolidated Bottom** - Unconsolidated bottom includes all wetland and deep-water habitats with at least 25 percent cover of particles smaller than stones, less than 30 percent vegetative cover, and subtidal, permanently flooded, intermittently exposed, or semi-permanently flooded water regimes (USFWS 1979). This designation was chosen to describe the group of habitats that are permanently to semi-permanently inundated by tidal waters. The Wando River, which flows along the northern boundary of the PSA, fits into this category.

**Estuarine Emergent Wetland** - Estuarine emergent wetlands are salt or brackish marshlands that are intertidal, or regularly inundated by the tide cycle. The vegetation of these wetlands is typically dominated by one or two plant species that remain standing at least until the beginning of the next growing season (USFWS 1979). This habitat serves as a nursery for many fish and other aquatic organisms and serves as nesting and foraging habitat for wading birds. The high primary productivity of estuarine emergent wetlands provides abundant food stores for prey species and larval fishes in the form of detritus or decaying plant material. The shallow water column of these wetlands during high tides provides both a low-energy environment away from wave action and currents, as well as a refuge for these organisms to avoid predation by larger fish. Other ecosystem services provided by estuarine emergent wetlands are the trapping of pollutants, storing of sediment, and the attenuation of floodwaters (SAFMC 2016a).

Salt marsh (estuarine emergent wetlands) in the PSA consist of smooth cordgrass (*Sporobolus alterniflorus*) that dominates the areas of the marsh that are inundated by the tide the most and line the Wando River, Hobcaw Creek, and unnamed estuarine tidal creeks. In areas of slightly higher elevation that receive less saltwater during the tide cycle, the saltmarsh is dominated by black needlerush (*Juncus roemerianus*). Salt grass (*Distichlis spicata*) and sedges (*Carex sp.*) are commonly found in brackish areas that receive very little tidal exchange.

**Intertidal Non-Vegetated Flat** - An intertidal area is a subsystem of an estuarine environment (USFWS 1979) that lies between the high and low tide lines. Intertidal non-vegetated flats are sediment deposits that occur across areas of gentle slope within the intertidal zone. The size and abundance of intertidal flats in each system is positively correlated with the tide range. These are dynamic habitats because of the drastic changes in salinity and temperature that occur each tide cycle (SAFMC 2016a). Despite being called “non-vegetated”, these flats can have extensive communities of microalgae that benefit macroinvertebrates and other benthic feeders. Along the South Atlantic coast, these flats typically have very fine sediments, which are inhabitable by benthic organisms such as nematodes, copepods, annelids, bivalves, etc. An important function of these systems is the rhythm that exists among animals and microalgae adapted to life in the intertidal zone. High tide brings food and predators onto the flat while

low tide provides residents a temporal refuge from the mobile predators (SAFMC 2016a). Therefore, intertidal non-vegetated flats are important foraging habitats for many aquatic animal species when inundated, and terrestrial mammals and birds when they are exposed at low tides. Intertidal non-vegetated flats in the PSA are associated with the Wando River and tidal creeks.

**Estuarine Tidal Creek** - Tidal creeks are typically sinuous drainage channels that are subject to the ebb and flow of each tide cycle. As the tide rises, tidal waters flow upstream filling the channel before spilling into the surrounding marshlands. The depths of tidal creeks vary depending on tide range and distance upstream from coastal inlet channels. Shallow depths of tidal creeks serve as nurseries for fish, crustaceans, and mollusks because they are inaccessible to larger predators (SAFMC 2016). Tidal creeks also have soft-bottom substrate that provides habitats and resources like those provided by intertidal flats. Tidal creeks within the PSA consist of Hobcaw Creek and two unnamed tributaries (UT) to Rathall Creek. The features vary widely in dimensions, salinity, and tidal exchange. According to SCDNR's SC Intertidal Oyster Reefs Map Application (SCDNR 2022b), one oyster reef is in the PSA along Hobcaw Creek, approximately 90 feet west of the I-526 bridge.

### 3.1.2 Freshwater Habitats

**Palustrine Riverine** - Two palustrine streams were identified during the WOTUS delineation, both of which are on the eastern side of I-526. One is located at the southern end of the PSA and drains into estuarine emergent wetlands associated with Hobcaw Creek and the other drains into palustrine wetlands at the head of estuarine emergent wetlands associated with a UT to Rathall Creek. Both are classified as a lower perennial, unconsolidated bottom, riverine system (USFWS 1979).

**Palustrine Wetlands** - Palustrine forested wetlands are seasonally flooded freshwater forests (USFWS 1979). Tree species observed in this habitat include water oak (*Quercus nigra*), loblolly pine (*Pinus taeda*), sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), laurel oak (*Q. laurifolia*), swamp chestnut oak (*Q. michauxii*), black gum (*Nyssa sylvatica*), and southern magnolia (*Magnolia grandiflora*). The shrub layer consists of wax myrtle (*Morella cerifera*) and dwarf palmetto (*Sabal minor*). Herbaceous species include longhair sedge (*Carex comosa*), soft rush (*Juncus effusus*), and giant cane (*Arundinaria gigantea*). Woody vines include laurel greenbrier (*Smilax laurifolia*), muscadine (*Vitis rotundifolia*), crossvine (*Bignonia capreolata*), poison ivy (*Toxicodendron radicans*), and roundleaf greenbrier (*Smilax rotundifolia*).

Palustrine emergent wetland (USFWS 1979) identified within the PSA include non-woody species such as broadleaf cattail (*Typha latifolia*), sugarcane plumegrass (*Saccharum giganteum*), rattlebox (*Sesbania punicea*), soft rush, *Polygonum* spp., climbing hempvine (*Mikania scandens*), bushy bluestem (*Andropogon glomeratus*), elderberry saplings (*Sambucus nigra* ssp. *canadensis*), black willow saplings (*Salix nigra*), and various sedges (*Carex* spp.). They are typically found in utility easements through palustrine forested wetlands and on the south side of I-526 at the eastbound on-ramp from Long Point Road. Freshwater emergent wetlands are semi-permanently to permanently flooded, may be tidally influenced, and salt encroachment areas are possible.

Non-jurisdictional ponds excavated in uplands are scattered throughout the PSA. These were constructed for stormwater runoff treatment and are associated with residential and commercial developments. Although they are non-jurisdictional, they can provide foraging habitat for native wading birds and ducks, including American wood storks (*Mycteria americana*).

### 3.1.3 Non-wetland Habitats

**Urban Development** - Urban development includes residences, commercial buildings, and roadways. These areas typically have very little natural habitat. Urban development is categorized by the National Land Cover Data (NLCD) as “Developed, open space/low intensity/medium intensity/high intensity” (Yang et al 2018). They are typically maintained and landscaped. These areas do not provide a significant source of food or shelter for wildlife. The unpaved but maintained areas around the pavement and buildings are typically planted in native and ornamental grasses, shrubs, and trees. Maintained rights-of-way (ROW), roadside ditches, and utility lines typically contain species that are known to colonize disturbed areas such as blackberry (*Rubus* spp.), broomsedge (*Andropogon virginicus*), goldenrod (*Solidago* spp.), and great ragweed (*Ambrosia trifida*). Landscaped areas include species such as St. Augustine grass (*Stenotaphrum secundatum*), cabbage palmetto (*Sabal palmetto*), crepe myrtle (*Lagerstroemia indica*), and other ornamental landscape plants.

**Forested Uplands** - Forested uplands in the PSA tend to have moderately dry and sandy soils. Trees observed include loblolly pine (*Pinus taeda*), southern live oak (*Quercus virginiana*), water oak, southern red oak (*Q. falcata*), swamp chestnut oak, white oak (*Q. alba*), laurel oak, American holly (*Ilex opaca*), American beech (*Fagus grandifolia*), sweetgum, eastern cedar (*Juniperous virginiana*), red maple, and southern magnolia. The shrub layer consists of dwarf palmetto, yaupon holly (*Ilex vomitoria*), wax myrtle, *Vaccinium* sp., eastern baccharis (*Baccharis halimifolia*), and Chinese privet (*Ligustrum sinense*). Woody vines observed include yellow jessamine (*Gelsemium sempervirens*), muscadine, roundleaf greenbrier, and blackberry. Herbaceous species include dog fennel (*Eupatorium capillifolium*), broomsedge, and giant cane. Due to the slight elevational changes in the PSA, the forested uplands gradually grade into the adjacent wetlands; therefore, there are plant species that are common in both habitats.

Maritime forests border brackish or saline areas above the high tide line. Plants in this habitat are tolerant of some saline soil and salt spray. These plants include live oak, yaupon holly, palmettos (*Sabal* spp.), southern red cedar, Spanish moss (*Tillandsia usneoides*), and occasionally loblolly pine.

## 3.2 ESSENTIAL FISH HABITAT

Essential Fish Habitat (EFH) is the aquatic habitat required for marine species to spawn, breed, feed, and grow to maturity (SAFMC 2016a). EFH and managed marine species are under the jurisdiction of the NMFS; they must be consulted before construction activities can begin.

Field work was conducted in January 2020 and summer 2022 to evaluate the estuarine habitats identified within the PSA for the preparation of an essential fish habitat (EFH) assessment. Waters designated as EFH by the South Atlantic Fisheries Management Council (SAFMC) and the Mid-Atlantic Fisheries Management Council (MAFMC) occur within the boundaries of the project. These include estuarine emergent wetland, estuarine tidal creek, intertidal non-vegetated flat, palustrine emergent wetland, unconsolidated bottom, and oysters. More detailed descriptions of identified EFH in the PSA is provided in the Essential Fish Habitat Assessment (2022, appended by reference). The estimated area of each EFH type within the PSA is listed in **Table 3-1**.

Table 3-1. Essential Fish Habitat within the Project Study Area

EFH Type	Acres within PSA
Estuarine Emergent Wetland	16.6
Estuarine Tidal Creek	1.23
Intertidal Non-vegetated Flat	1.0
Palustrine Emergent Wetland	0.71
Unconsolidated Bottom	0.24
Oysters	<0.01
<b>Total</b>	<b>19.78</b>

### 3.2.1 Habitat Areas of Particular Concern

Habitat areas of particular concern (HAPC) are discreet subsets of EFH that are considered high priority areas for conservation, management, or research. HAPCs receive such designation because they are rare, sensitive, stressed by development, or important to overall ecosystem function (SAFMC 2020). HAPC for a given fishery can include intertidal habitats, estuarine habitats, and deep-water habitats used for migration, spawning, and rearing of fish or other managed organisms.

Oysters, whether occurring on reefs/beds, artificial structures, or as non-live oyster shell washes, are considered a Habitat Area of Particular Concern (HAPC). Oysters establish beds on hard surfaces and substrate (NOAA 2022). This habitat type is not common within the corridor, likely due to lack of hard surfaces. Oysters grow on most concrete or metal structures within the intertidal zone. Oysters were observed on existing bridge piles in saline habitats throughout the corridor.

According to the EFH Mapper, the Wando River is considered HAPC for shrimp as a coastal inlet. However, the Wando River proper is immediately outside of the PSA.

### 3.2.2 EFH Species

Species habitat descriptions provided by SAFMC and MAFMC and geospatial data from the NOAA EFH Mapper were used to assist in the identification of which managed fisheries may be affected by any potential impacts to either of the habitat types listed in the previous section as a result of the proposed project. The following species or groups of species have designated EFH present within the project area.

Bluefish (*Pomatomus saltatrix*) is a fish species managed by the MAFMC (MAFMC 1989). Bluefish live up to 12 years, reaching maturity at 2 years of age. Spawning occurs multiple times a year in the offshore waters of the South Atlantic and Mid-Atlantic Bights. Juvenile bluefish are known to occur in estuarine environments where they feed on smaller fish and avoid predation by larger fish in the offshore waters (MAFMC 2020). According to the EFH spatial data from NOAA, EFH for the juvenile life stage of bluefish includes estuarine tidal creeks and coastal inlets (NOAA 2019). No HAPC are designated for bluefish.

Penaeid shrimp include white (*Litopenaeus setiferus*), pink (*Farfantepenaeus duorarum*), and brown (*Farfantepenaeus aztecus*) which use estuaries to grow before returning to the ocean as adults (SCDNR 2013). Penaeid shrimp spawn year-round in deepwater habitats offshore, larval shrimp move to estuarine

areas, and new adults return to offshore areas to spawn. According to the fishery management plan (FMP) for shrimp, essential habitat for White and Brown shrimp includes estuarine emergent wetlands, palustrine emergent wetlands, intertidal non-vegetated flats, riverine tidal creeks, estuarine tidal creeks, and coastal inlets (SAFMC 1993). HAPC for these shrimp species is identified as all coastal inlets, which is not present within the project area (SAFMC 2016b).

The snapper-grouper complex managed by the SAFMC is made up of 59 species across ten families: sea basses and groupers (*Serranidae*), wreckfish (*Polyprionidae*), snappers (*Lutjanidae*), porgies (*Sparidae*), grunts (*Haemulidae*), jacks (*Carangidae*), tilefishes (*Malacanthidae*), triggerfishes (*Balistidae*), wrasses, (*Labridae*), and spadefishes (*Eppiphidae*) (SAFMC 2016c). Species in the complex spawn offshore in hard-bottom areas (SAFMC 2016c). Snapper-grouper larvae are transported to estuarine areas by tides and currents where they grow to maturity. The nursery areas of estuarine waters and wetlands provide shelter from predation as well as an abundance of food. Snapper-grouper species are predatory, feeding on smaller fish and invertebrates. Adult snapper-groupers can be found feeding in estuarine environments (SAFMC 2016c). Several species within the complex, such as the gray snapper (*Lutjanus griseus*), are known to use tidal freshwaters as well. According to the FMP for the snapper-grouper complex, EFH for all life stages includes estuarine emergent wetlands, riverine tidal creeks, estuarine tidal creeks, and coastal inlets. HAPC for the snapper-grouper complex is identified as all coastal inlets and oyster beds (SAFMC 2016b). All oysters present within the project area are considered HAPC for the snapper-grouper complex.

Summer flounder (*Paralichthys dentatus*) spawning occurs several times during the fall and early winter in offshore waters of the continental shelf (NOAA 2021). Summer flounder stay along the bottom of the water column where they hide against the substrate to hunt and ambush their prey. Larval Summer flounder feed on zooplankton and small invertebrates while juveniles and adults feed on invertebrates and fish. Intertidal non-vegetated flats, estuarine tidal creeks, and coastal inlets are designated as EFH for the larval, juvenile, and adult life stages of summer flounder. Designated HAPC for summer flounder involves submerged aquatic vegetation, which is not present within the project area.

### 3.2.3 Other Fishes

Highly migratory pelagic species such as Atlantic blacktip shark (*Carcharhinus limbatus*), Scalloped hammerhead shark (*Sphyrna lewini*), Spinner shark (*Carcharhinus brevipinna*), and Tiger shark (*Galeocerdo cuvier*) are managed by NOAA Fisheries, and spatial data from the EFH mapper indicates the presence of EFH for highly migratory pelagic species within the PSA (NOAA 2019).

The estuarine waters within the PSA also serve as nursery and forage habitat for other species, including red drum (*Sciaenops ocellatus*) (NOAA 2019). Red drum is an important state-managed fishery and estuarine environments within the project area provide habitat necessary for the development and survival of several life stages of red drum.



## 4.0 JURISDICTIONAL WATERS

### 4.1 WATERS OF THE UNITED STATES

Waters of the US (WOTUS) are defined by 33 CFR Part 328 and 40 CFR Part 120 and protected by Section 404 of the Clean Water Act (33 USC 1344), which is administered and enforced by the US Army Corps of Engineers (USACE). The term “waters of the United States,” is currently defined as:

- The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide
- Tributaries
- Lakes and ponds, and impoundments of jurisdictional waters
- Adjacent wetlands

Wetland habitats are defined as *“those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions”* (USACE 2010). USACE utilizes specific hydrology, soil, and vegetation criteria in defining the boundary of wetlands within their jurisdiction. Wetlands generally include swamps, marshes, bogs, and similar areas. SCDHEC’s Ocean and Coastal Resource Management (OCRM) maintains jurisdiction over “critical areas” which can include certain types of wetlands, coastal waters, tidelands, and beach/dune systems, and isolated wetlands that are not regulated by USACE.

A field delineation of WOTUS was conducted in January and February 2018 using the methods outlined by the 1987 Corps of Engineers Wetland Delineation Manual and the 2010 Atlantic and Gulf Coastal Plain Region (Version 2.0) supplement. Additional delineation work was completed in the summer of 2022 when the PSA was expanded. WOTUS boundaries were mapped using a Global Positioning System (GPS) unit. A Preliminary Jurisdictional Determination Request was submitted to USACE on July 19, 2022. A Critical Area Plat (CAP) was prepared and submitted to SCDHEC-OCRM. WOTUS identified within the PSA are shown on Appendix A Figure 6 and consist of predominantly estuarine habitat with some palustrine wetlands. Descriptions of WOTUS identified in the PSA can be found in Section 3.0, Biotic Communities.

On December 30, 2022, USEPA and USACE announced the final “Revised Definition of ‘Waters of the United States’” rule, which was subsequently published in the Federal Register on January 18, 2023 (88 FR 3004). The rule revises the definition “waters of the United States” in 33 CFR 328.2 and 40 CFR 120.2 and is proposed to become effective on March 20, 2023. This revision is not expected to change the limits of delineated jurisdictional features identified in the PSA.

### 4.2 PERMITTING

Impacts to WOTUS and critical areas would require permits and approvals from state and federal agencies. The expected permits and authorizations required prior to beginning construction include a USACE Section 404 permit, SCDHEC Section 401 Water Quality Certification, OCRM Critical Area Permit, and OCRM Coastal Zone Consistency Certification. Impact avoidance and minimization efforts will be applied during the final design phase; however, compensatory mitigation would be required for unavoidable WOTUS

impacts. It is anticipated that SCDOT would purchase mitigation credits from one or more of the six approved banks that service the project area.

## 5.0 PROTECTED SPECIES

### 5.1 FEDERALLY LISTED SPECIES

Section 7 of the Endangered Species Act (ESA) directs all federal agencies to participate in conserving ecosystems upon which endangered and threatened species depend and provide a program for the conservation of such species (USFWS 2022). The USFWS and NMFS are responsible for the enforcement of federal wildlife laws and the protection of endangered species. Listed animals are protected from “take” and being traded or sold. A “take” is defined as “harass, harm, pursue, hunt, shoot, wound, kill trap, capture, or collect, or to attempt to engage in any such conduct.” Section 7 of the ESA does not provide protections for the candidate/at-risk species however they are listed in **Table 5-1** in the event their status changes prior to completion of the project. Additionally, species that are proposed for listing are not subject to Section 7 compliance until they are formally listed.

On September 13, 2022, USFWS issued a proposed rule to list the tri-colored bat (*Perimyotis subflavus*) as endangered (87 FR 56381); therefore, during the structure inspections and habitat assessment, the potential presence of tri-colored bats was also evaluated.

Bald eagles are protected by the Bald and Golden Eagle Protection Act (BGEPA) and are also addressed in this evaluation.

In addition to protection under the ESA, West Indian manatees and listed whale species are also protected under the Marine Mammal Protection Act (MMPA) of 1972. The USFWS also has jurisdiction over species protected under the Migratory Bird Treaty Act (MBTA) and are discussed in Section 5.2 below.

The Charleston County list of federally protected species, dated March 29, 2022 (Appendix D), was downloaded from the USFWS Charleston Field Office website (USFWS 2022), and potential species utilization of the I-526/Long Point Road interchange PSA was analyzed by comparing current conditions to the suitable habitat requirements of each species. Suitable habitats for species were physically investigated over multiple field visits from August 2018 through September 2019, and the summer of 2022. Species presence or suitable habitat was recorded as observed. Threatened and endangered species that are under the USFWS and NMFS jurisdiction that are known to occur in Charleston County are presented in **Table 5-1**.

Table 5-1. Charleston County Federally Protected Species

Common Name	Scientific Name	Federal Protection Status	Effects Determination <sup>^</sup>	Habitat Present in PSA
<b>Amphibian Species</b>				
Frosted flatwoods salamander	<i>Ambystoma cingulatum</i>	Threatened; Critical Habitat	No effect	No
Gopher frog <sup>^</sup>	<i>Lithobates capito</i>	At-Risk-Species	-	No
<b>Bird Species</b>				
American wood stork	<i>Mycteria americana</i>	Threatened; MBTA	May affect, not likely to adversely affect	Yes
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA; MBTA	No mortality	No
Black-capped petrel <sup>^</sup>	<i>Pterodroma hasitata</i>	At-Risk-Species; MBTA	-	No
Eastern black rail	<i>Laterallus jamaicensis jamaicensis</i>	Threatened; MBTA	May affect, not likely to adversely affect	Yes
Piping plover	<i>Charadrius melodus</i>	Threatened; MBTA	May affect, not likely to adversely affect	Yes
Red-cockaded woodpecker	<i>Picoides borealis</i>	Threatened; MBTA	No effect	No
Red knot	<i>Calidris canutus rufa</i>	Threatened; MBTA	May affect, not likely to adversely affect	Yes
Saltmarsh sparrow <sup>^</sup>	<i>Ammodramus caudacuta</i>	At-Risk-Species; MBTA	-	Yes
<b>Fish Species</b>				
Atlantic sturgeon*	<i>Acipenser oxyrinchus</i>	Endangered	No effect	Yes
Shortnose sturgeon*	<i>Acipenser brevirostrum</i>	Endangered	No effect	Yes
<b>Insect Species</b>				
Frosted elfin <sup>^</sup>	<i>Callophrys irus</i>	At-Risk-Species	-	No
Monarch butterfly	<i>Danaus plexippus</i>	Candidate	No mortality	Yes
<b>Mammal Species</b>				
Finback whale*	<i>Balaenoptera physalus</i>	Endangered/MMPA	No effect	No
Humpback whale*	<i>Megaptera novaengliae</i>	Endangered/MMPA	No effect	No
Right whale*	<i>Balaena gracialis</i>	Endangered/MMPA	No effect	No
Sei whale*	<i>Balaenoptera borealis</i>	Endangered/MMPA	No effect	No
Sperm whale*	<i>Physeter macrocephalus</i>	Endangered/MMPA	No effect	No

Common Name	Scientific Name	Federal Protection Status	Effects Determination <sup>^</sup>	Habitat Present in PSA
Northern long-eared bat	<i>Myotis septentrionalis</i>	Endangered**	May affect, not likely to adversely affect	Yes
Tri-colored bat	<i>Perimyotis subflavus</i>	Proposed Endangered***	May affect, not likely to adversely affect	Yes
West Indian manatee	<i>Trichechus manatus</i>	Threatened/MMPA	No effect	No
<b>Plant Species</b>				
American chaffseed	<i>Schwalbea americana</i>	Endangered	No effect	No
Boykin's lobelia <sup>^</sup>	<i>Lobelia boykinii</i>	At-Risk-Species	-	No
Canby's dropwort	<i>Oxypolis canbyi</i>	Endangered	No effect	No
Ciliate-leaf tickseed <sup>^</sup>	<i>Coreopsis integrifolia</i>	At-Risk-Species	-	No
Pondberry	<i>Lindera melissifolia</i>	Endangered	No effect	No
Seabeach amaranth	<i>Amaranthus pumilus</i>	Threatened	No effect	No
<b>Reptile Species</b>				
Eastern diamondback rattlesnake <sup>^</sup>	<i>Crotalus adamanteus</i>	At-Risk-Species	-	No
Green sea turtle****	<i>Chelonia mydas</i>	Threatened: Critical Habitat	No effect	Yes
Kemp's ridley sea turtle****	<i>Lepidochelys kempii</i>	Endangered	No effect	No
Leatherback sea turtle****	<i>Dermochelys coriacea</i>	Endangered	No effect	No
Loggerhead sea turtle****	<i>Caretta caretta</i>	Threatened; Critical Habitat	No effect	No
Spotted turtle <sup>^</sup>	<i>Clemmys guttata</i>	At-Risk-Species	-	Yes

<sup>^</sup> Effects determination not required for At-Risk-Species

\* Species under the jurisdiction of NMFS

\*\* Up-listed from threatened to endangered, proposed effective date of March 31, 2023

\*\*\* Proposed for listing as endangered by USFWS on September 14, 2022

\*\*\*\* Species under the joint jurisdiction of USFWS and NMFS

Currently the northern long-eared bat is listed as threatened. However, on November 30, 2022, USFWS published a final rule in the Federal Register (87 FR 73488) to reclassify the species as endangered. The USFWS proposes the change to become effective on March 31, 2023. Therefore, it is being treated as endangered for the purposes of this evaluation. Until the rule becomes effective, the northern long-eared bat remains protected as a threatened species with a 4(d) rule in place under the ESA. Consultation with USFWS will be re-initiated when the new rule and listing status becomes effective.

Species habitat requirements were analyzed to determine if suitable habitat or the species was present within the proposed construction footprint. Field surveys were performed to evaluate the habitats present including structure surveys conducted to establish the potential presence of bat species. Prior to conducting field surveys, the PSA boundaries were transferred to the SC Natural Heritage Species Reviewer and a report was generated through SCDNR data files that provides project specific information about known occurrences of state and federally protected species within the PSA (SCDNR 2022a). A buffer can be specified from 1 to 6 miles from the PSA boundaries. For the purposes of the protected species evaluation a three-mile buffer was requested. According to the report generated on June 14, 2022, there are no known occurrences of state or federal protected species within the PSA, however, some known occurrences are within the 3-mile PSA buffer (Appendix D).

Based on descriptions of the habitat requirements and life functions of the protected species listed in Charleston County, it was determined that nine of the species listed as threatened or endangered are restricted to beach or ocean habitats, which were not identified within the PSA. Therefore, there would be no effect to finback whale, humpback whale, right whale, Sei whale, sperm whale, seabeach amaranth, Kemp's ridley sea turtle, leatherback sea turtle, and loggerhead sea turtle.

Suitable habitat for ten species under USFWS jurisdiction was observed in the PSA, but suitable habitat for only five of those species occurs within the project construction footprint. The proposed project would not impact any of the listed species. **Table 5-1** provides a complete list of protected species in Charleston County and the effects determinations made during the evaluation. Detailed analysis is documented in the BE (2022, appended by reference). USFWS concurred with these determinations in a letter dated September 21, 2022. An addendum to the BE will be prepared and submitted to USFWS to address the change in status of northern long-eared bat and proposed listing of tricolored bat.

In addition, suitable foraging habitat for two species (Atlantic and shortnose sturgeon) under the direct jurisdiction of the NMFS is present in the PSA; however, no in-water work would be required at the bridges that cross these habitats. Therefore, Section 7 consultation with NMFS was not required.

## 5.2 MIGRATORY BIRDS

Migratory birds listed in 50 CFR § 10.13 of the MBTA are protected from the *“take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations.”* The USFWS migratory bird list contains 1,093 species (USFWS 2020). All the bird species listed as endangered, threatened, or At-Risk-Species in Charleston County by USFWS are also protected by the MBTA. SCDNR lists an additional 69 species of migratory birds for Charleston County (SCDNR 2022a). The list includes wading birds, shore birds, and forest dwelling birds. As the name implies, many of the listed birds are in the state only during the summer months to breed while others over-winter in the state. Structure surveys were conducted, and no migratory birds or nests were observed. Upland forests and WOTUS in the PSA that would be impacted provide habitat for migratory birds, therefore some migratory birds may be affected by the project, but mortalities are not anticipated because they would likely avoid construction areas. Threatened and endangered migratory bird foraging habitat would be impacted by the project (refer to the BE, appended by reference).

### 5.3 BALD AND GOLDEN EAGLES

Bald eagles were once listed in the ESA but are now protected by the MBTA, as well as the Bald and Golden Eagle Protection Act (BGEPA). The BGEPA (16 U.S.C. 668-668c) prohibits the take of bald eagles, eagle “parts, nests, or eggs.” Suitable bald eagle foraging habitat was not observed in the PSA. Suitable nest trees are present however no nests were observed. According to the SC Natural Heritage viewer, the closest eagle nest is approximately 1.5 miles north of the PSA along the Wando River. It was determined that the proposed project would not result in the mortality of any bald eagles.

### 5.4 STATE LISTED SPECIES

A list of state protected species for Charleston County was obtained from the SC Department of Natural Resources’ SC Natural Heritage Program website. The webtool was also used to determine if there are any known occurrences of any of the listed species within the PSA or a 3-mile buffer extending out from the PSA boundary.

SCDNR’s species list for Charleston County are provided in **Table 5-2** below. The table includes the species federal protection status, required habitat types, and if the habitat was identified within the construction footprint of the proposed project.

**Table 5-2. State Protected Species Known to Occur in Charleston County**

Species	State Status	Federal Status	Habitat Type	Habitat Present in PSA
<b>Amphibian Species</b>				
Carolina gopher frog ( <i>Lithobates capito</i> )	Endangered	At-Risk-Species	Semipermanent and temporary ponds (breeding); pine forests, xeric hammocks, mesic flatwoods, mixed hardwood/pine (nonbreeding)	No
Frosted flat-woods salamander ( <i>Ambystoma cingulatum</i> )	Endangered	Endangered	Pine flatwoods and savannas with temporary inundated pools	No
Northern dwarf siren ( <i>Pseudobranchius striatus</i> )	Endangered	Not Listed	Ponds, swamps, and ditches	Yes
<b>Bird Species</b>				
Bachman’s warbler ( <i>Vermivora bachmanii</i> )	Endangered	Not Listed	Swamp and bottomland hardwoods	Yes
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	Threatened	BGEPA	Tall trees (nesting); open water, marsh, and rivers (foraging)	No
Eskimo curlew ( <i>Numenius borealis</i> )	Endangered	MBTA	Prairies, meadows, pastureland	No
Least tern ( <i>Sternula antillarum</i> )	Threatened	MBTA	Beach nesters (sometimes tar/gravel rooftops), any aquatic habitat	Yes
Piping plover ( <i>Charadrius melodus</i> )	Endangered	Threatened	Mud flats and sand flats (foraging habitat)	Yes (foraging)
Red-cockaded woodpecker ( <i>Dryobates borealis</i> )	Endangered	Endangered	Mature pines (nesting); pines >10” DBH (foraging)	No

Species	State Status	Federal Status	Habitat Type	Habitat Present in PSA
Swallow-tail kite ( <i>Elanoides forficatus</i> )	Endangered	MBTA	Swamps (nesting); open fields and above treetops (foraging)	No
Wilson's plover ( <i>Charadrius wilsonia</i> )	Threatened	MBTA	Beaches, sandbars (overwinter habitat); mudflats (foraging habitat)	Yes (foraging)
Wood stork ( <i>Mycteria americana</i> )	Endangered	Threatened	Permanently inundated cypress swamps (nesting); marsh, ditches, swamps (foraging habitat)	Yes (foraging)
<b>Fish Species</b>				
Shortnose sturgeon ( <i>Acipenser brevirostrum</i> )	Endangered	Endangered	Palustrine rivers (spawning), estuarine inland waterways, open ocean (foraging/migration)	Yes
<b>Mammal Species</b>				
Florida manatee ( <i>Trichechus manatus</i> )	Endangered	Threatened; MMPA	Summer visitor in estuarine and palustrine waterways	No
Rafinesque's big-eared bat ( <i>Corynorhinus rafinesquii</i> )	Endangered	Not Listed	Forests (foraging); hollow trees, trees with shaggy or sloughing bark, and man-made structures (roosting)	Yes (foraging and roosts)
<b>Reptile Species</b>				
Leatherback sea turtle ( <i>Dermochelys coriacea</i> )	Endangered	Endangered	Open ocean and beaches	No
Southern hognose snake ( <i>Heterodon simus</i> )	Threatened	Not Listed	Sandhills, pine flatwoods, coastal dunes	Yes
Spotted turtle ( <i>Clemmys guttata</i> )	Threatened	At-Risk-Species	Bogs, drainage ditches, pine flatwoods, wet meadows	Yes

The presence of suitable habitat within the construction footprint was evaluated during the field delineation of WOTUS and field surveys for federally listed species in Charleston County. Several of the state listed species are also listed as threatened or endangered by the USFWS and more details on those species and PSA habitats can be found in the BE prepared for the project. None of these species were observed during field visits.

According to the SC Natural Heritage Program project specific report (Appendix D), the southern hognose snake has been observed within the PSA. Known species occurrences for the spotted turtle, bald eagle, Florida manatee, southern hognose snake, and least tern are listed within the 3-mile buffer around the PSA.

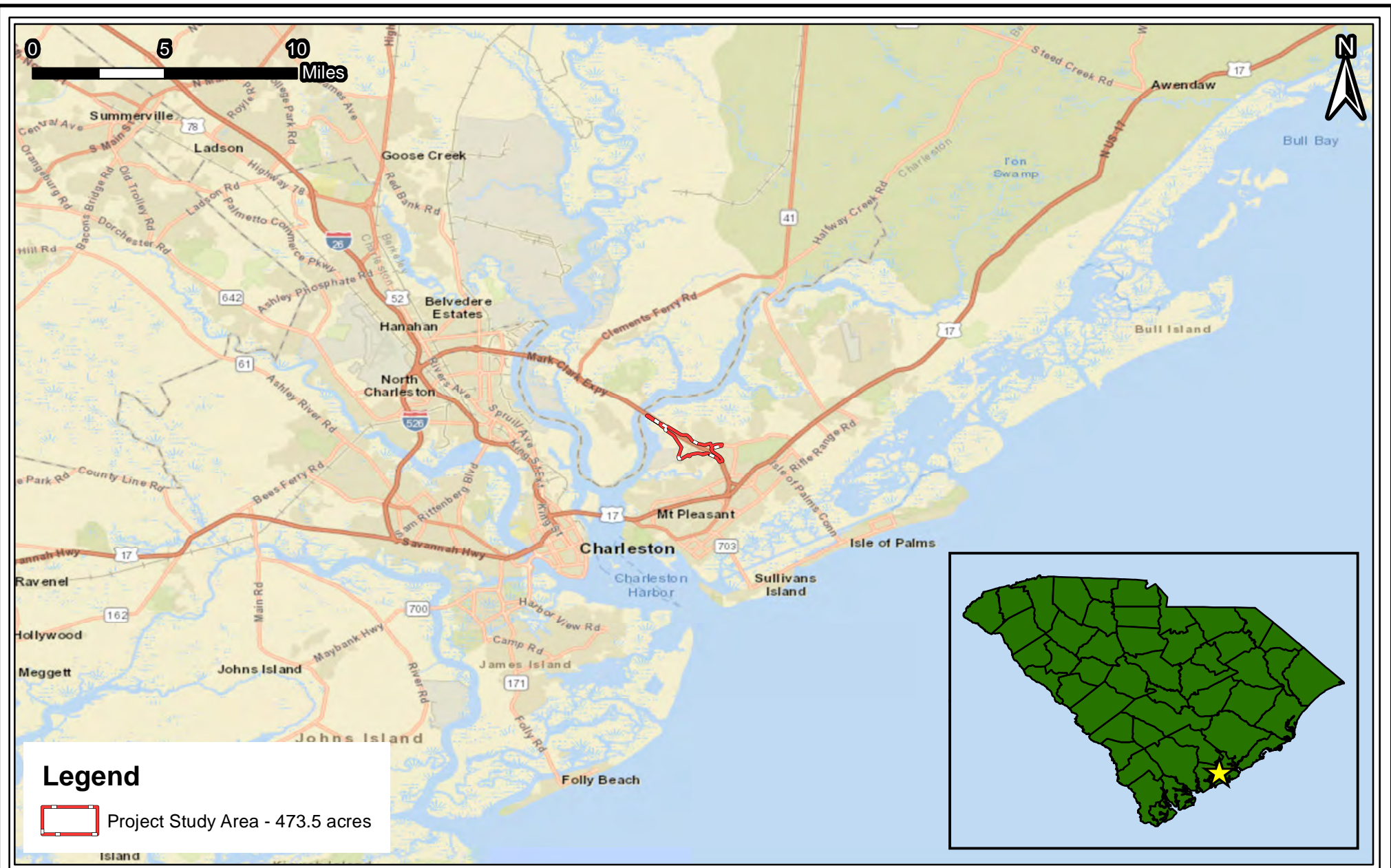
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- Yang, L., S. S. Jin, P. Danielson, C. Homer, L. Gass, S.M. Bender, A. Case, C. Costello, J. Dewitz, J. Fry, M. Funk. 2018. A new generation of the United States Nation Land Cover Database: requirements, research priorities, design, and implementation strategies. Remote sens, 146, pp. 108-123.

## APPENDIX A – FIGURES



Prepared For:

**SCDOT**  
South Carolina Department of Transportation

**Long Point Road Interchange**

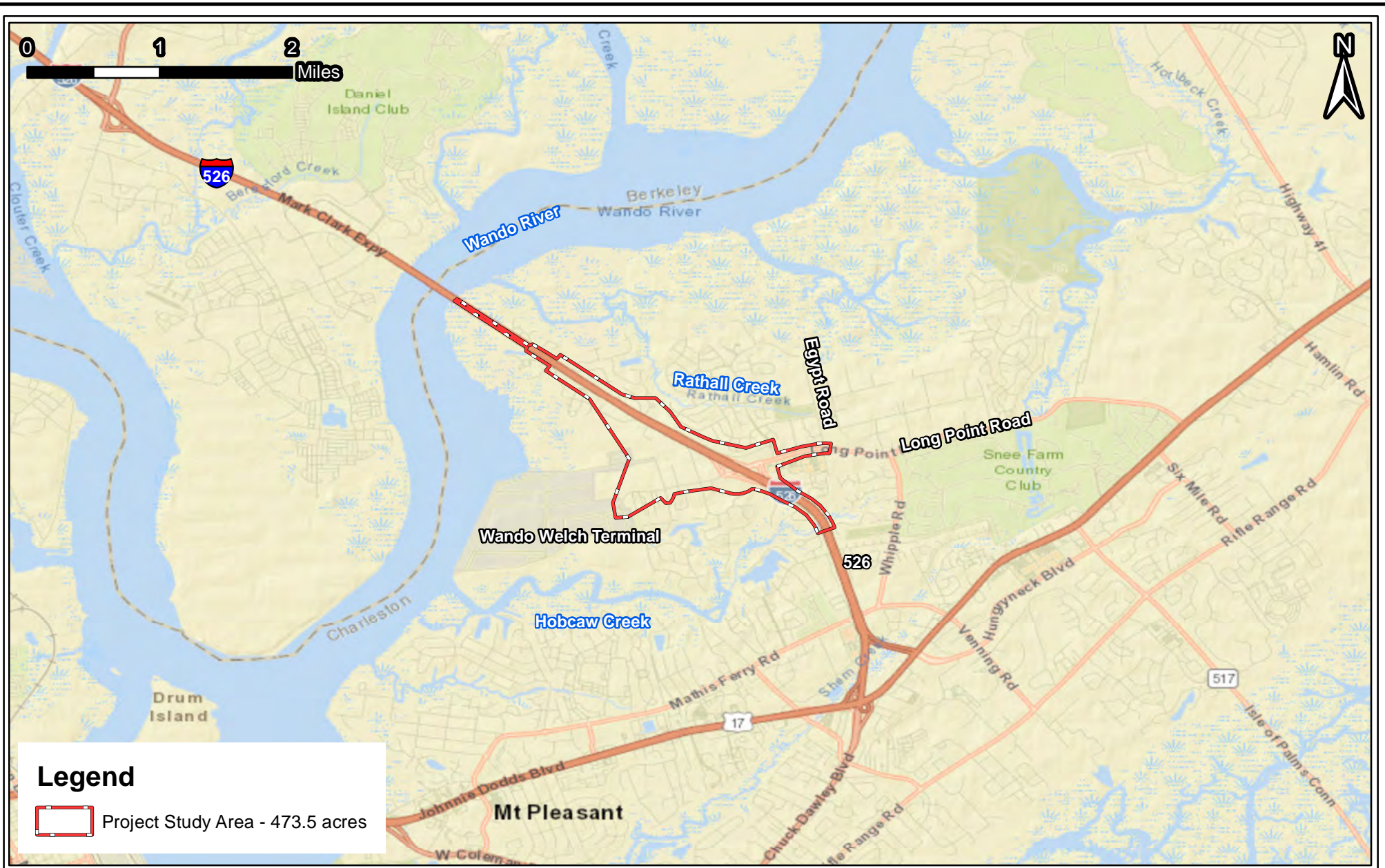
Project Location Map

Charleston County, South Carolina


Date: September 26, 2022	
Scale: 1 in = 5 miles	
Job No.: 17-615	
Drawn By: ZCB	Checked By: WCB

Figure

1



**Legend**

 Project Study Area - 473.5 acres



Prepared For:

**SCDOT**  
South Carolina Department of Transportation

**Long Point Road Interchange**

Project Vicinity Map

Charleston County, South Carolina

Date:  
September 26, 2022

Scale:  
1 in = 1 miles

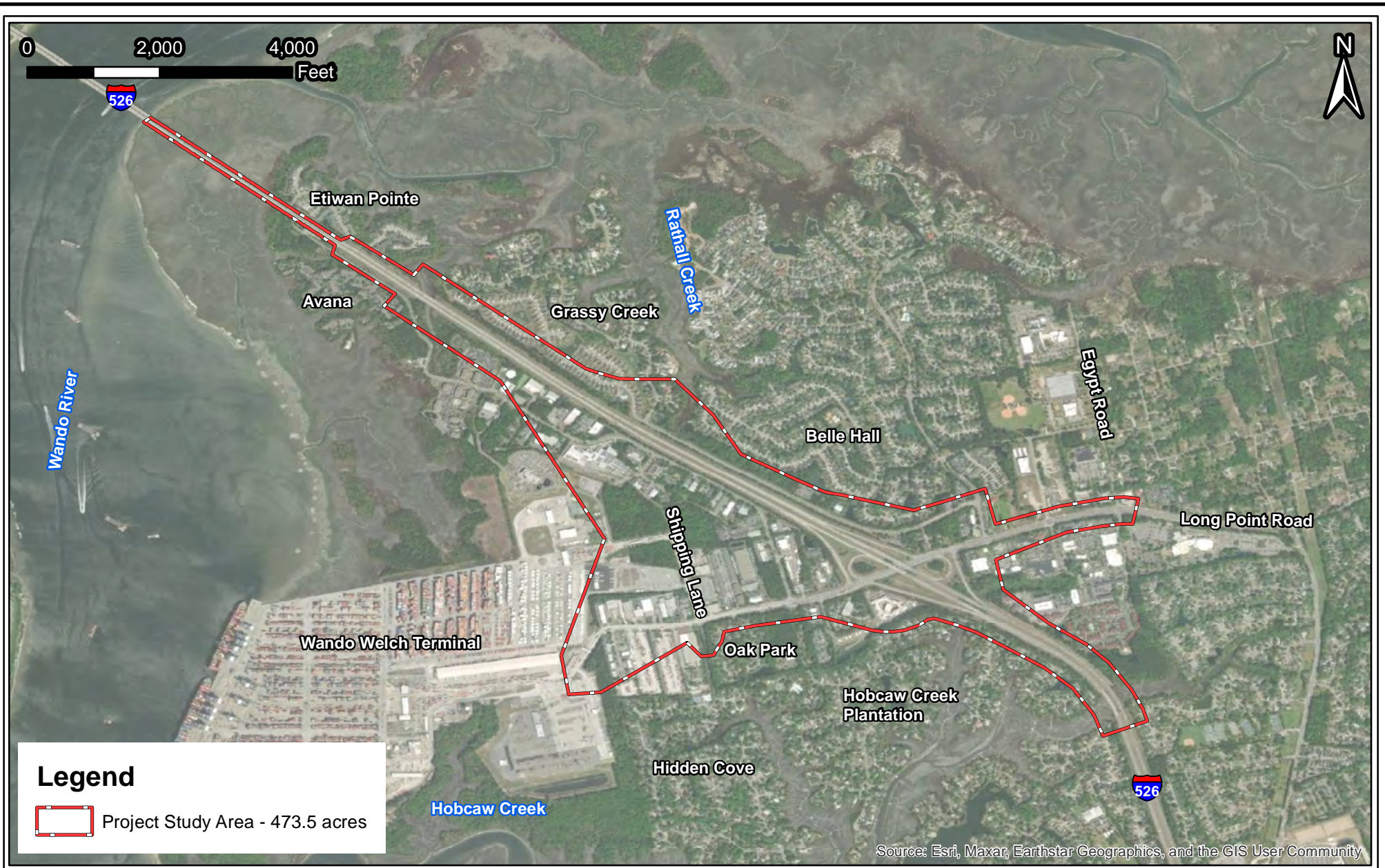
Job No.:  
17-615

Drawn By:  
ZCB

Checked By:  
WCB

Figure

**2**



Prepared For:



South Carolina Department of Transportation

**Long Point Road Interchange**

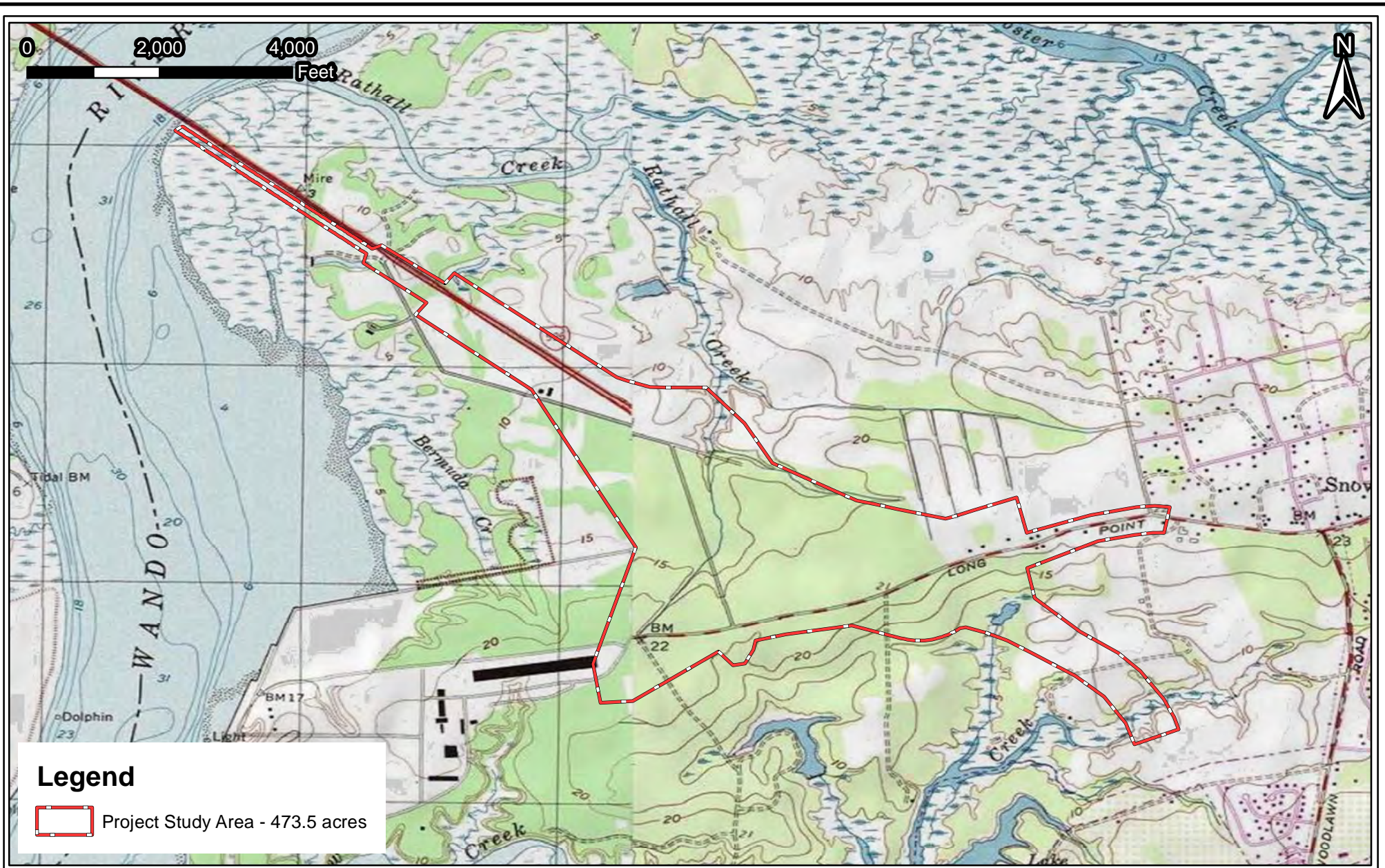
Aerial Map

Charleston County, South Carolina

Date: July 19, 2022	
Scale: 1 in = 2,000 ft	
Job No.: 17-615	
Drawn By: ZCB	Checked By: WCB

Figure

**3**



Prepared For:

**SCDOT**  
 South Carolina Department of Transportation

**Long Point Road Interchange**

Topographic Map  
 Fort Moultrie, SC 2020

Charleston County, South Carolina

Date:  
 September 26, 2022

Scale:  
 1 in = 2,000 ft

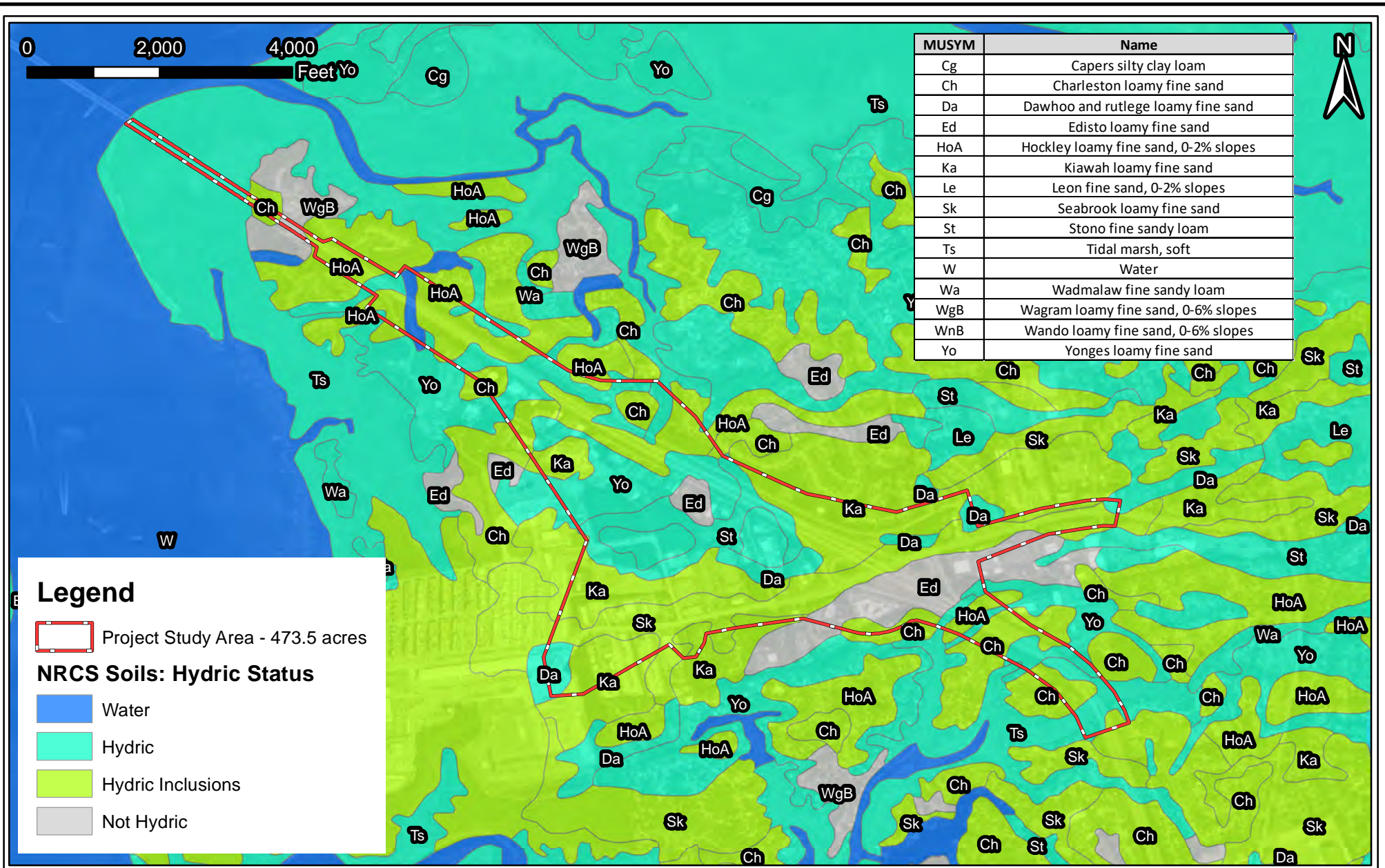
Job No.:  
 17-615

Drawn By:  
 ZCB

Checked By:  
 WCB

Figure

**4**



Prepared For:

**SCDOT**  
South Carolina Department of Transportation

**Long Point Road Interchange**

NRCS Soils Map

Charleston County, South Carolina

Date:  
September 26, 2022

Scale:  
1 in = 2,000 ft

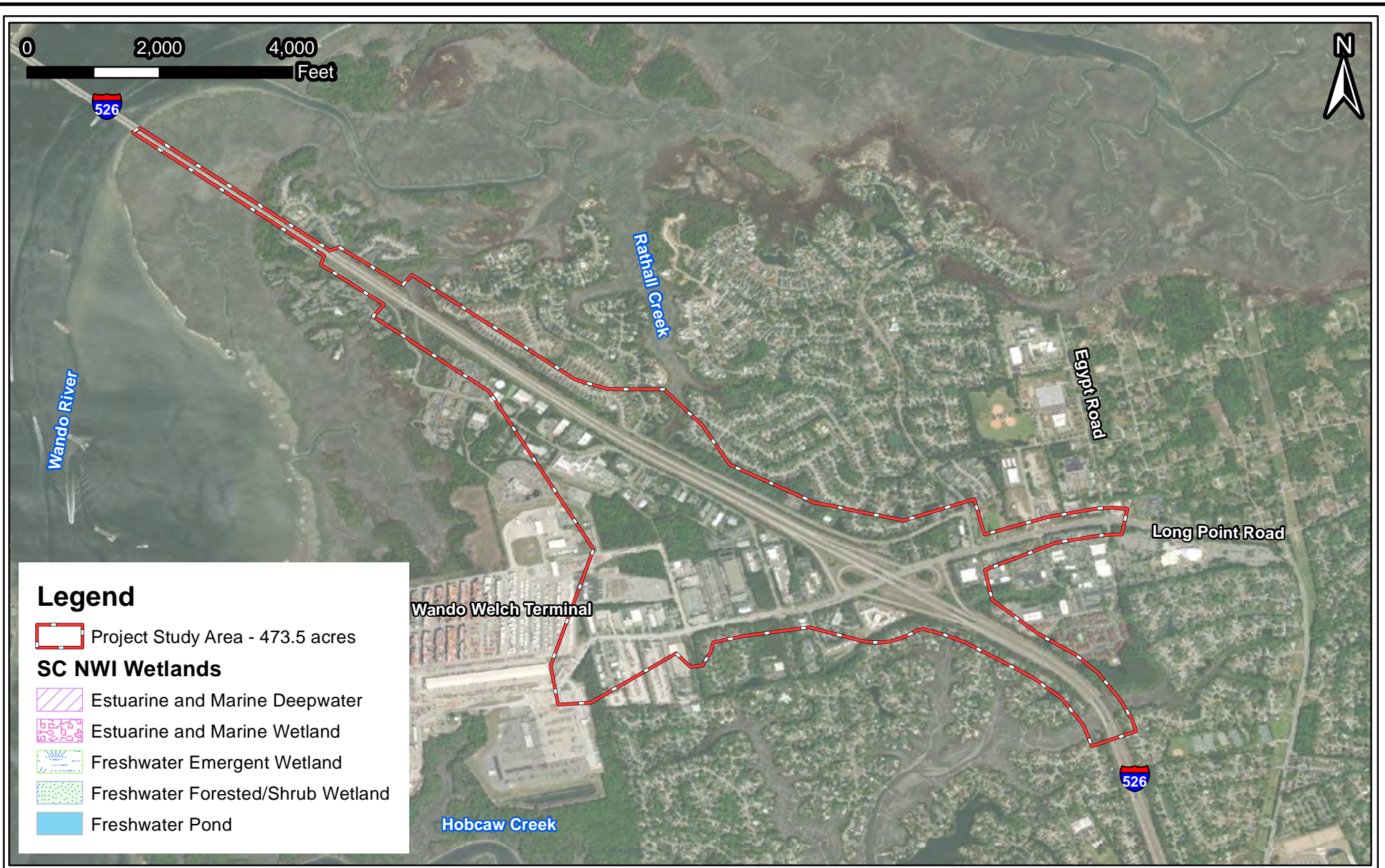
Job No.:  
17-615

Drawn By:  
ZCB







Checked By:  
WCB

Figure

**5**



**Legend**

-  Project Study Area - 473.5 acres
- SC NWI Wetlands**
-  Estuarine and Marine Deepwater
-  Estuarine and Marine Wetland
-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond



Prepared For:



South Carolina Department of Transportation

**I-526 East: Long Point Road Interchange**

National Wetland Inventory Map

Charleston County, South Carolina

Date: September 26, 2022	
Scale: 1 in = 2,000 ft	
Job No.: 17-615	
Drawn By: ZCB	Checked By: WCB

Figure

**6**



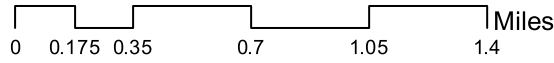
## APPENDIX B - SCDHEC WATER QUALITY AND WATERSHED INFORMATION



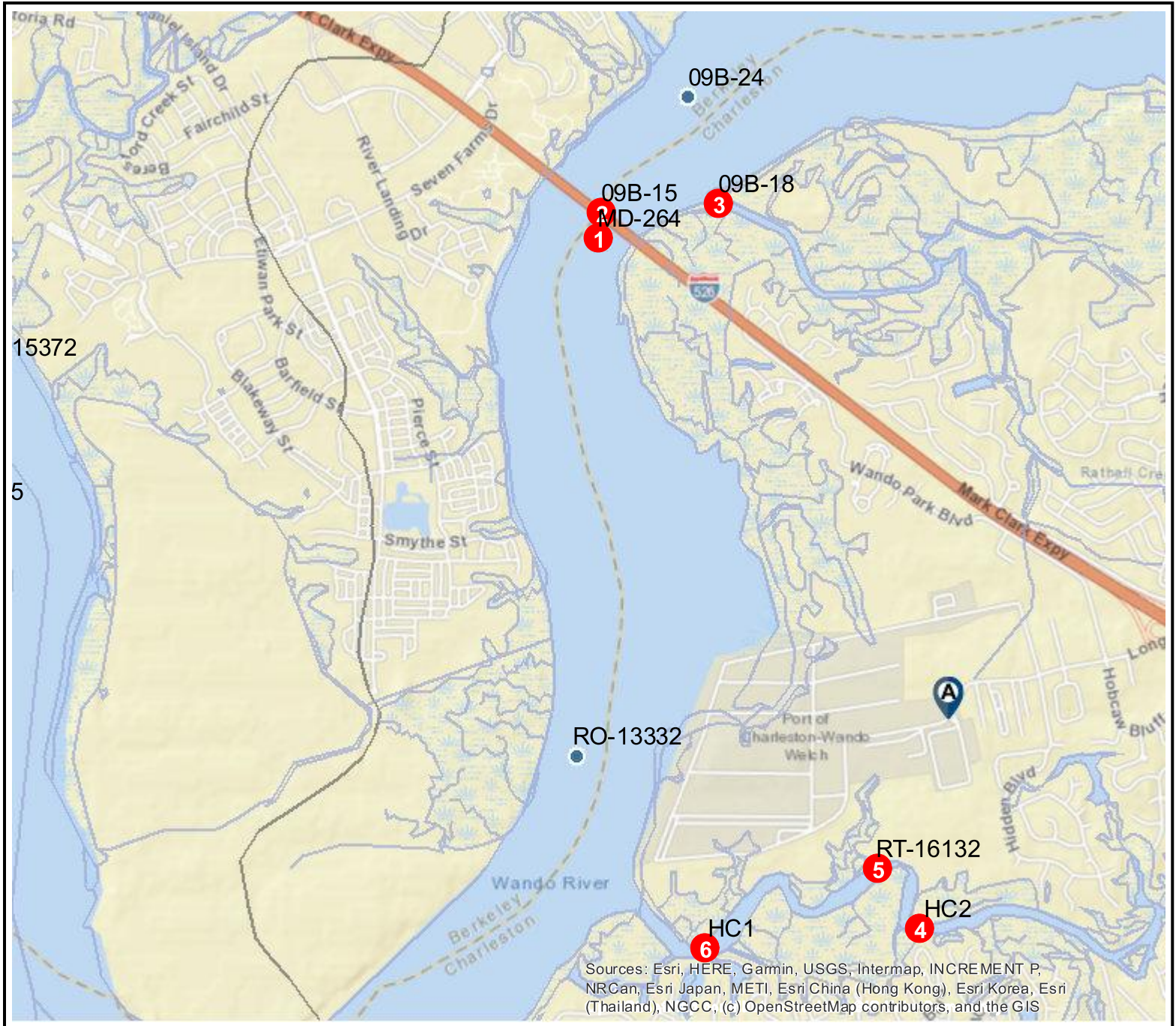


# Watershed and Water Quality Information

N



Print Date: 10/25/2022



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS

Applicant Name: SCDOT  
Permit Type: Construction  
MS4 Designation: Small MS4  
Within SC Coastal Critical Area: YES  
Watershed Name: Wando River  
Watershed Boundary Dataset(WBD): 0305020104  
Waterbody Name: Wando River  
Water Classification:  
Distance to Nearest Waterbody:  
Nearest Downstream Waterbody:  
Monitoring Station: MD-264  
TMDL Site: MD-264 (0506-13-DO Charleston Harbor / Ashley River)

## APPENDIX C – SITE PHOTOGRAPHS

## GENERAL HABITAT PHOTOGRAPHS



Photograph 1: Typical urban development



Photograph 2: Typical forested uplands



Photograph 3: Typical forested wetland



Photograph 4: Typical palustrine emergent wetland in disturbed areas



Photograph 5: Palustrine emergent wetland between I-526 and Chimney Bluff Drive



Photograph 6: Hobcaw Creek and associated estuarine emergent wetlands



Photograph 7: Typical estuarine emergent wetland



Photograph 8: Unnamed tributary to Rathall Creek and associated estuarine emergent wetlands



## APPENDIX D - USFWS PROTECTED SPECIES LIST AND SCDNR NATURAL HERITAGE VIEWER REPORT

## CHARLESTON COUNTY

CATEGORY	COMMON NAME/STATUS	SCIENTIFIC NAME	SURVEY WINDOW/ TIME PERIOD	COMMENTS
<b>Amphibian</b>	Frosted flatwoods salamander (T, CH)	<i>Ambystoma cingulatum</i>	January 1-April 30	Larvae present in breeding ponds
<b>Amphibian</b>	Gopher frog (ARS)	<i>Lithobates capito</i>	Breeding: October-March	Call survey: February-April
<b>Bird</b>	American wood stork (T)	<i>Mycteria americana</i>	February 15-September 1	Nesting season
<b>Bird</b>	Bald eagle (BGEPA)	<i>Haliaeetus leucocephalus</i>	October 1-May 15	Nesting season
<b>Bird</b>	Black-capped petrel (ARS)	<i>Pterodroma hasitata</i>	April-October	Offshore water primarily
<b>Bird</b>	Eastern black rail (T)	<i>Laterallus jamaicensis jamaicensis</i>	April-June	Minimum of five surveys/survey point
<b>Bird</b>	Piping plover (T, CH)	<i>Charadrius melodus</i>	July 15-May 1	Migration and wintering
<b>Bird</b>	Red-cockaded woodpecker (E)	<i>Picoides borealis</i>	March 1-July 31	Nesting season
<b>Bird</b>	Red knot (T)	<i>Calidris canutus rufa</i>	August 1-May 31	Migration and wintering
<b>Bird</b>	Saltmarsh sparrow (ARS)	<i>Ammodramus caudacuta</i>	Fall/winter	Fall/winter surveys
<b>Fish</b>	Atlantic sturgeon* (E)	<i>Acipenser oxyrinchus*</i>	February 1-April 30	Spawning migration
<b>Fish</b>	Shortnose sturgeon* (E)	<i>Acipenser brevirostrum*</i>	February 1-April 30	Spawning migration
<b>Insect</b>	Frosted elfin (ARS)	<i>Callophrys irus</i>	March - June	
<b>Insect</b>	Monarch butterfly (C)	<i>Danaus plexippus</i>	August-December	Overwinter population departs; March-April
<b>Mammal</b>	Finback whale* (E)	<i>Balaenoptera physalus*</i>	November 1-April 30	Off the coast
<b>Mammal</b>	Humpback whale * (E)	<i>Megaptera novaengliae*</i>	January 1-March 31	Migration off the coast
<b>Mammal</b>	Northern long-eared bat (T)	<i>Myotis septentrionalis</i>	Year round	Winter surveys not as successful
<b>Mammal</b>	Right whale* (E)	<i>Balaena glacialis*</i>	November 1-April 30	Off the coast
<b>Mammal</b>	Sei whale* (E)	<i>Balaenoptera borealis*</i>		
<b>Mammal</b>	Sperm whale* (E)	<i>Physeter macrocephalus*</i>		
<b>Mammal</b>	Tri-colored bat (ARS)	<i>Perimyotis subflavus</i>	Year round	Found in mines and caves in the winter
<b>Mammal</b>	West Indian manatee (T)	<i>Trichechus manatus</i>	May 1-November 15	In coastal waters

## CHARLESTON COUNTY

CATEGORY	COMMON NAME/STATUS	SCIENTIFIC NAME	SURVEY WINDOW/ TIME PERIOD	COMMENTS
Plant	American chaffseed (E)	<i>Schwalbea americana</i>	May-August	1-2 months after a fire
Plant	Boykin's lobelia (ARS)	<i>Lobelia boykinii</i>	May-July/August	
Plant	Canby's dropwort (E)	<i>Oxypolis canbyi</i>	Mid-July-September	
Plant	Ciliate-leaf tickseed (ARS)	<i>Coreopsis integrifolia</i>	August-November	
Plant	Pondberry (E)	<i>Lindera melissifolia</i>	February-March	
Plant	Seabeach amaranth (T)	<i>Amaranthus pumilus</i>	July-October	
Reptile	Eastern diamondback rattlesnake (ARS)	<i>Crotalus adamanteus</i>	Most of the year	Peak: April-November
Reptile	Green sea turtle ** (T)	<i>Chelonia mydas</i> **	May 1-October 31	Nesting and hatching
Reptile	Kemp's ridley sea turtle ** (E)	<i>Lepidochelys kempii</i> **	May 1-October 31	In coastal waters
Reptile	Leatherback sea turtle ** (E)	<i>Dermochelys coriacea</i> **	May 1-October 31	Nesting and hatching
Reptile	Loggerhead sea turtle ** (T, CH)	<i>Caretta caretta</i> **	May 1-October 31	Nesting and hatching
Reptile	Spotted turtle (ARS)	<i>Clemmys guttata</i>	February-mid April	

**Note: There are no federally protected species found in this county in the crustacean and mollusk family categories.**

# South Carolina Department of Natural Resources



PO Box 167  
Columbia, SC 29202  
(803) 734-1396  
speciesreview@dnr.sc.gov

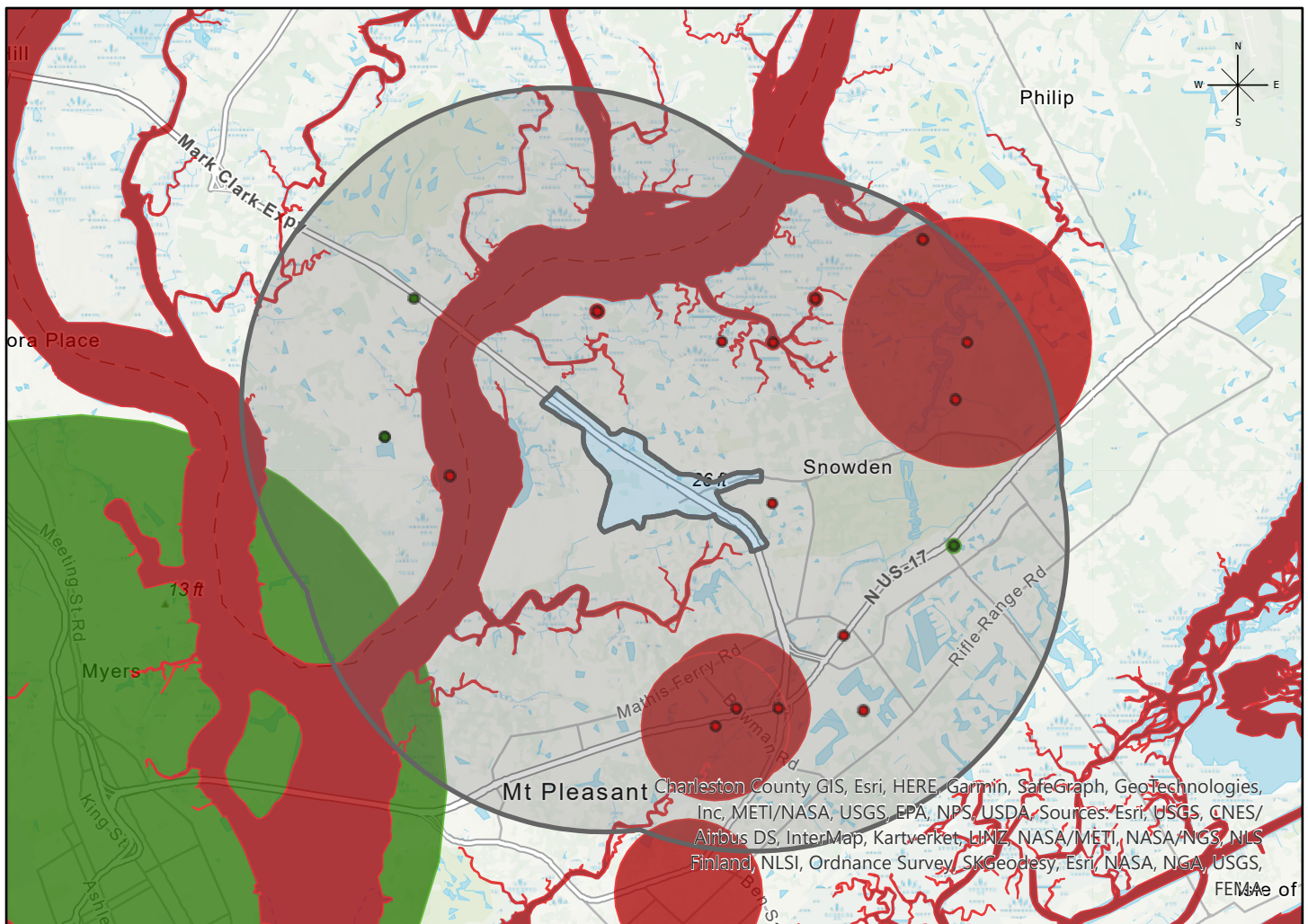
Robert H. Boyles, Jr.  
**Director**

Emily C. Cope  
Deputy Director for  
**Wildlife and Freshwater Fisheries**

*Requested on Tuesday, June 14, 2022 by Gordon Murphy.*

Re: Request for Threatened and Endangered Species Consultation  
Gordon Murphy - Long Point Road Improvements  
Communication/Cell Tower  
Charleston County, South Carolina

The South Carolina Department of Natural Resources (SCDNR) has received your request for threatened and endangered species consultation of the above named project in Charleston County, South Carolina. The following map depicts the project area and a 3 mile buffer surrounding:



# South Carolina Department of Natural Resources

---



Robert H. Boyles, Jr.

**Director**

Emily C. Cope  
Deputy Director for

**Wildlife and Freshwater Fisheries**

This report includes the following items:

- A - A report for species which intersect the project area
- B - A report for species which intersect the buffer around the project area
- C - A list of best management practices relevant to species near to or within the project area
- D - A list of best management practices relevant to the chosen project type
- E - Additional Information & Instructions for Submitting Observations to the SC Natural Heritage Program

Please be advised:

The contents of this report, including all tables, maps, recommendations, and various other text, are produced as a direct result of the information a user provides at the time of submission. The SCDNR assumes that all information submitted by the user represents the project scope as proposed, and recommends that additional reports be requested should the scope deviate from how the project was initially represented to the SCDNR.

The technical comments outlined in this report are submitted to speak to the general impacts of the activities as described through inquiry by parties outside the South Carolina Department of Natural Resources. These technical comments are submitted as guidance to be considered and are not submitted as final agency comments that might be related to any unspecified local, state or federal permit, certification or license applications that may be needed by any applicant or their contractors, consultants or agents presently under review or not yet made available for public review. In accordance with its policy 600.01, Comments on Projects Under Department Review, the South Carolina Department of Natural Resources, reserves the right to comment on any permit, certification or license application that may be published by any regulatory agency which may incorporate, directly or by reference, these technical comments.

Interested parties are to understand that SCDNR may provide a final agency position to regulatory agencies if any local, state or federal permit, certification or license applications may be needed by any applicant or their contractors, consultants or agents. For further information regarding comments and input from SCDNR on your project, please contact our Office of Environmental Programs by emailing [environmental@dnr.sc.gov](mailto:environmental@dnr.sc.gov) or by visiting [www.dnr.sc.gov/environmental](http://www.dnr.sc.gov/environmental). Pursuant to Section 7 of the Endangered Species Act, requests for formal letters of concurrence with regards to federally listed species should be directed to the USFWS.

Should you have any questions or need more information, please do not hesitate to contact our office by email at [speciesreview@dnr.sc.gov](mailto:speciesreview@dnr.sc.gov) or by phone at 803-734-1396.

Sincerely,

A handwritten signature in black ink, appearing to read "Joseph Lemeris, Jr.", written in a cursive style.

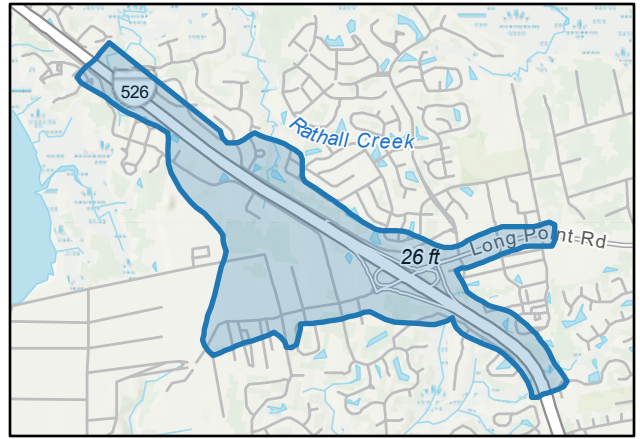
Joseph Lemeris, Jr.  
Heritage Trust Program  
SC Department of Natural Resources

# A. Project Area - Species Report

There are 1 tracked species records found within the project foot print. The following table outlines occurrences found within the project footprint (if any), sorted by listing status and species name. Please keep in mind that this information is derived from existing databases and do not assume that it is complete. Areas not yet inventoried may contain significant species or communities. You can find more information about global and state rank status definitions by visiting NatureServe's web page. Please note that certain sensitive species found on site may be listed in this table but are not represented on the map. Please contact [speciesreview@dnr.sc.gov](mailto:speciesreview@dnr.sc.gov) should you have further questions related to sensitive species found within the project area.



Map Credits: Charleston County GIS, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA. Sources: Esri, USGS, CNES/Airbus DS, InterMap, Kartverket, LINZ, NASA/METI, NASA/NGS, NLS Finland, NLSI, Ordnance Survey, SKGeodesy, Esri, NASA, NGA, USGS, FEMA



Scientific Name	Common Name	G Rank	S Rank	Fed. Status	State Status	SWAP Priority	Last Obs. Date
<i>Heterodon simus</i>	Southern Hog-nosed Snake	G2	S1S2	Not Applicable	ST: State Threatened	Highest	1911-05

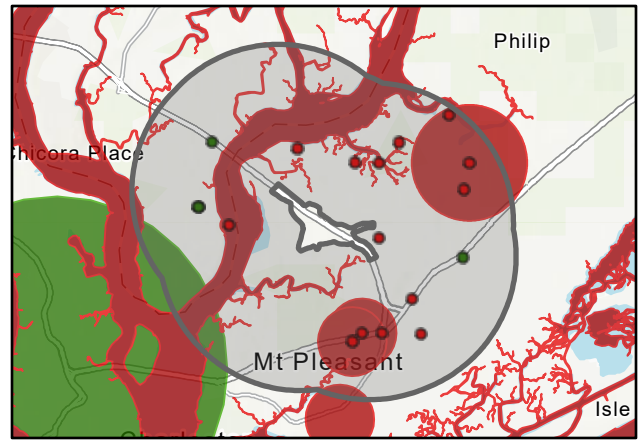


## B. Buffer Area - Species Report (2 of 2)

The following table outlines rare, threatened or endangered species found within 3 miles of the project footprint, arranged in order of protection status and species name. Please keep in mind that this information is derived from existing databases and do not assume that it is complete. Areas not yet inventoried may contain significant species or communities. You can find more information about global and state rank status definitions by visiting NatureServe's web page. Please note that certain sensitive species found within the buffer area may be listed in this table but are not represented on the map.



Map Credits: Sources: Esri, USGS, CNES/Airbus DS, InterMap, Kartverket, LINZ, NASA/METI, NASA/NGS, NLS Finland, NLSI, Ordnance Survey, SKGeodesy, Esri, NASA, NGA, USGS, Charleston County GIS, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA



Scientific Name	Common Name	G Rank	S Rank	Fed. Status	State Status	SWAP Priority	Last Obs. Date
<i>Malaclemys terrapin</i>	Diamond-backed Terrapin	G4	S3	Not Applicable	R: Regulated	High	2021-06-07
<i>Malaclemys terrapin</i>	Diamond-backed Terrapin	G4	S3	Not Applicable	R: Regulated	High	2018-09-05
<i>Malaclemys terrapin</i>	Diamond-backed Terrapin	G4	S3	Not Applicable	R: Regulated	High	2018-06-25
<i>Malaclemys terrapin</i>	Diamond-backed Terrapin	G4	S3	Not Applicable	R: Regulated	High	2018-05-17
<i>Malaclemys terrapin</i>	Diamond-backed Terrapin	G4	S3	Not Applicable	R: Regulated	High	2017-03-29
<i>Malaclemys terrapin</i>	Diamond-backed Terrapin	G4	S3	Not Applicable	R: Regulated	High	2016-06-18
<i>Heterodon simus</i>	Southern Hog-nosed Snake	G2	S1S2	Not Applicable	ST: State Threatened	Highest	1911-05

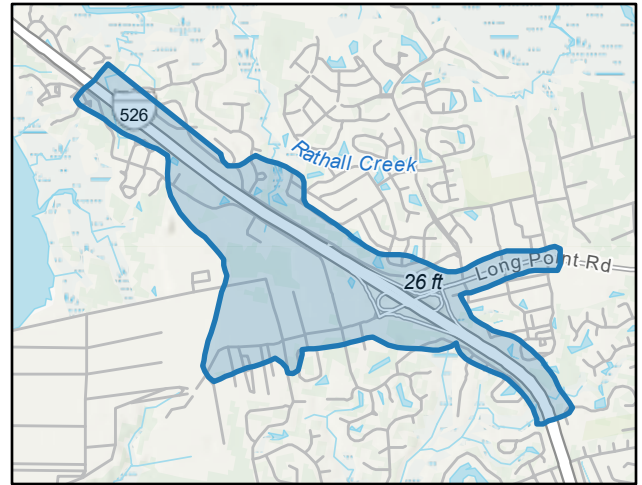


## C. Species Best Management Practices (1 of 2)

SCDNR offers the following comments and best management practices (BMPs) regarding this project's potential impacts to species of concern which may be found on or near to the project area. Please contact [speciesreview@dnr.sc.gov](mailto:speciesreview@dnr.sc.gov) should you have questions with regard to the data provided.



Map Credits: Charleston County GIS, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA. Sources: Esri, USGS, CNES/Airbus DS, InterMap, Kartverket, LINZ, NASA/METI, NASA/NGS, NLS Finland, NLSI, Ordnance Survey, SKGeodesy, Esri, NASA, NGA, USGS, FEMA



One or more occurrences of state listed species are found within or near to your project area. Please note that take of these species are prohibited under S.C. Code of Laws §50-15-30.

The SCDNR recommends that water construction-related activities such as dredging or piling installation be avoided during the months of February through April to limit disturbance to american shad, hickory shad, or blueback herring migrations that occur during this time.

To reduce potential construction-related impacts to the manatee to discountable and insignificant levels, the US Fish & Wildlife Service recommends implementing the following Standard Manatee Construction Conditions to all projects affecting the coastal waters of South Carolina (1 of 2):

- The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel must monitor water-related activities for the presence of manatee(s) during May 1 - November 15. Construction personnel are requested to monitor outside of that timeframe as manatees may be in the area before or after the above dates.
- The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973.
- Any siltation barriers used during the project shall be made of material in which manatees cannot become entangled and must be properly secured, and regularly monitored to avoid manatee entrapment.
- All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

To reduce potential construction-related impacts to the manatee to discountable and insignificant levels, the US Fish & Wildlife Service recommends implementing the following Standard Manatee Construction Conditions to all projects affecting the coastal waters of South Carolina (2 of 2):

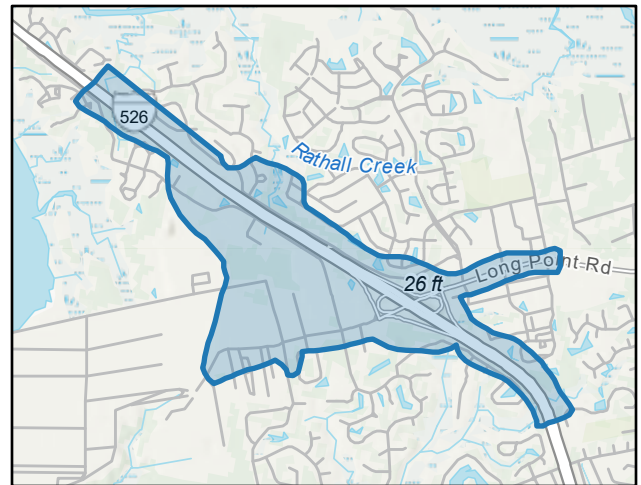
- If manatee(s) are seen within 100 yards of the active construction area all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet to a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) has departed the project area of its own volition.
- The permittee understands and agrees that all in-water lines (rope, chain, and cable, including the lines to secure turbidity curtains) must be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, must be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line is allowed in the water. Where appropriate in water wires, cables, should be fitted with PVC sleeve from the surface to the bottom to prevent any potential scraping of the passing manatees.
- Any collision with and/or injury to a manatee shall be reported immediately to the U.S. Fish and Wildlife Service contacts: Melanie Olds, South Carolina Manatee Lead, Charleston Field Office, at 843-727-4707 ext. 205; or Terri Calleson, Manatee Recovery Coordinator, North Florida Field Office, at 904-731-3286.

## C. Species Best Management Practices (2 of 2)

SCDNR offers the following comments and best management practices (BMPs) regarding this project's potential impacts to species of concern which may be found on or near to the project area. Please contact [speciesreview@dnr.sc.gov](mailto:speciesreview@dnr.sc.gov) should you have questions with regard to the data provided.



Map Credits: Charleston County GIS, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA. Sources: Esri, USGS, CNES/Airbus DS, InterMap, Kartverket, LINZ, NASA/METI, NASA/NGS, NLS Finland, NLSI, Ordnance Survey, SKGeodesy, Esri, NASA, NGA, USGS, FEMA



The spotted turtle is a state-threatened species and a federal At-Risk species (ARS). If spotted turtles are found to occur on the proposed site, please note the following:

- Prior to habitat disturbance in the proposed work area, the areas of impact be completely surveyed by individuals qualified to identify this species and its habitat;
- It is unlawful for any person to take, possess, transport, import, export, process, sell, offer for sale, ship, or receive for shipment any spotted turtle without a permit from the department;
- Spotted turtles may be allowed to be relocated into areas of suitable habitat, management, and conservation status; however, any plans for relocation should be submitted for review to SCDNR with a detailed description and images of the current and future habitat and proposed work plan and methodologies as it pertains to a relocation project.

An active bald eagle nest(s) is known to occur within or near to your project area. Surveys during the nesting season (October through May) to rule out nests in the project area are advised to avoid negative impacts to bald eagles. Eagle nests may occur in areas which have not yet been surveyed where suitable habitat is present, as the SCDNR does not survey every nest every year. Bald eagles are a state listed threatened species and are federally protected under the Bald and Golden Eagle Protection Act. If bald eagle nests are found to be within 660 feet of the project area, please consult with the U.S. Fish and Wildlife Service and the National Bald Eagle Management Guidelines to ensure that impacts are avoided to this species before proceeding with any construction activities.. <https://www.fws.gov/migratorybirds/pdf/management/nationalbaldeaglenmanagementguidelines.pdf>

An occurrence of southern hognose snake (*Heterodon simus*) is known to exist within or near the project area. This state threatened species is often associated with open pine habitats. Southern hognose snakes are most active and vulnerable above ground during the spring (March-April) and fall (September-early November). The SCDNR recommends activities during these times are minimized, especially the use of heavy equipment, to reduce impacts to highly fossorial species underground from soil compaction and crushing. If the southern hognose snake is found within the project footprint, efforts must be made to avoid any negative impacts or take of the species. No southern hognose snake may be removed from the project site without first obtaining a permit from SCDNR.

Cavity- and tree-roosting bat species including the federally threatened northern long-eared bat (*Myotis septentrionalis*), state-endangered Rafinesque's big-eared bat (*Corynorhinus rafinesquii*), and the federally at-risk tricolored bat (*Perimyotis subflavus*) have been known to occur in the county of the proposed site. As a conservation measure, it is recommended that any tree clearing activities be conducted during the inactive season for Northern long-eared bat (November 15th through March 31st) to avoid negative impacts to the species. If any of the above species are found on-site, please contact the USFWS and SCDNR.

In the interest of preserving plant diversity, the South Carolina Plant Conservation Alliance performs native plant rescues in order to protect and preserve our diversity of native plants. If you are interested in assisting with this important endeavor please contact Mrs. April Punsalan at (843) 727-4707 ext. 218, or by email: [scpca@lists.fws.gov](mailto:scpca@lists.fws.gov) before any development occurs onsite. There may be plants of interest on the project site that the Alliance would like to preserve.

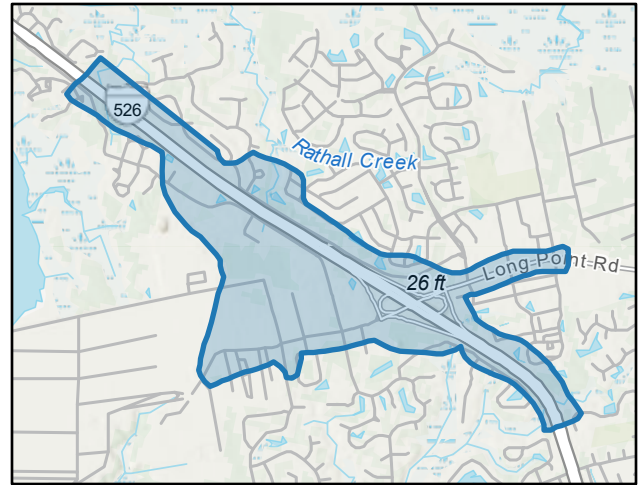
Species in the above table with SWAP priorities of High, Highest or Moderate are designated as having conservation priority under the South Carolina State Wildlife Action Plan (SWAP). SWAP species are those species of greatest conservation need not traditionally covered under any federal funded programs. Species are listed in the SWAP because they are rare or designated as at-risk due to knowledge deficiencies; species common in South Carolina but listed rare or declining elsewhere; or species that serve as indicators of detrimental environmental conditions. SCDNR recommends that appropriate measures should be taken to minimize or avoid impacts to the aforementioned species of concern.

## D. Project Best Management Practices (1 of 2)

SCDNR offers the following comments and best management practices (BMPs) regarding this project's potential impacts to natural resources within or surrounding the project area. Please contact our Office of Environmental Programs at [environmental@dnr.sc.gov](mailto:environmental@dnr.sc.gov) should you have further questions with regard to best management practices related to this project area.



Map Credits: Charleston County GIS, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA. Sources: Esri, USGS, CNES/Airbus DS, InterMap, Kartverket, LINZ, NASA/METI, NASA/NGS, NLS Finland, NLSI, Ordnance Survey, SKGeodesy, Esri, NASA, NGA, USGS, FEMA



Our records indicate one or more parcels within your project area may be associated with a conservation easement. We recommend you inquire with the appropriate County to receive a copy of the recorded deed and plat before moving forward with any alterations to the project site.

Review of available data, National Wetlands Inventory and hydric soils, indicate that wetlands or waters of the United States are present within your project area. These areas may require a permit from the U.S. Army Corps of Engineers (USACE), as well as a compensatory mitigation plan. SCDNR advises that you consult with the USACE Regulatory to determine if jurisdictional wetlands are present and if a permit and mitigation is required for any activities impacting these areas. For more information, please visit their website at [www.sac.usace.army.mil/Missions/Regulatory](http://www.sac.usace.army.mil/Missions/Regulatory). Additionally, a 401 Water Quality Certification may also be required from the SC Department of Health & Environmental Control. For more information, please visit their website at <https://www.scdhec.gov/environment/water-quality/water-quality-certification-section-401-clean-water-act>.

If this project is associated with the Federal Government and the project area is or once was used as farmland, we recommend that consultation occur with the U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS) per the Farmland Protection Policy Act; areas of the site are classified as prime farmland or farmland of statewide importance.

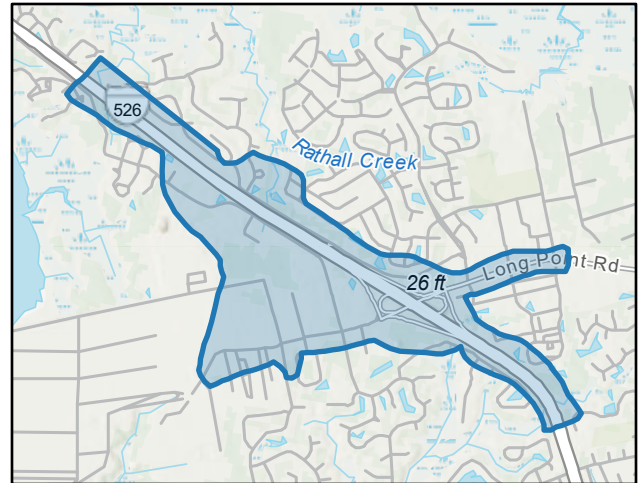
- All necessary measures must be taken to prevent oil, tar, trash and other pollutants from entering the adjacent offsite areas/wetlands/ water.
- Once the project is initiated, it must be carried to completion in an expeditious manner to minimize the period of disturbance to the environment.
- Upon project completion, all disturbed areas must be permanently stabilized with vegetative cover (preferable), riprap or other erosion control methods as appropriate.
- The project must be in compliance with any applicable floodplain, stormwater, land disturbance, shoreline management guidance or riparian buffer ordinances.
- Prior to beginning any land disturbing activity, appropriate erosion and siltation control measures (e.g. silt fences or barriers) must be in place and maintained in a functioning capacity until the area is permanently stabilized.
- Materials used for erosion control (e.g., hay bales or straw mulch) will be certified as weed free by the supplier.
- Inspecting and ensuring the maintenance of temporary erosion control measures at least:
  - a. on a daily basis in areas of active construction or equipment operation;
  - b. on a weekly basis in areas with no construction or equipment operation; and
  - c. within 24 hours of each 0.5 inch of rainfall.
- Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts.
- Land disturbing activities must avoid encroachment into any wetland areas (outside the permitted impact area). Wetlands that are unavoidably impacted must be appropriately mitigated.
- Your project may require a Stormwater Permit from the SC Department of Health & Environmental Control, please visit <https://www.scdhec.gov/environment/water-quality/stormwater>

## D. Project Best Management Practices (2 of 2)

SCDNR offers the following comments and best management practices (BMPs) regarding this project's potential impacts to natural resources within or surrounding the project area. Please contact our Office of Environmental Programs at [environmental@dnr.sc.gov](mailto:environmental@dnr.sc.gov) should you have further questions with regard to best management practices related to this project area.



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- If clearing must occur, riparian vegetation within wetlands and waters of the U.S. must be conducted manually and low growing, woody vegetation and shrubs must be left intact to maintain bank stability and reduce erosion.
- Construction activities must avoid and minimize, to the greatest extent practicable, disturbance of woody shoreline vegetation within the project area. Removal of vegetation should be limited to only what is necessary for construction of the proposed structures.
- Where necessary to remove vegetation, supplemental plantings should be installed following completion of the project. These plantings should consist of appropriate native species for this ecoregion.

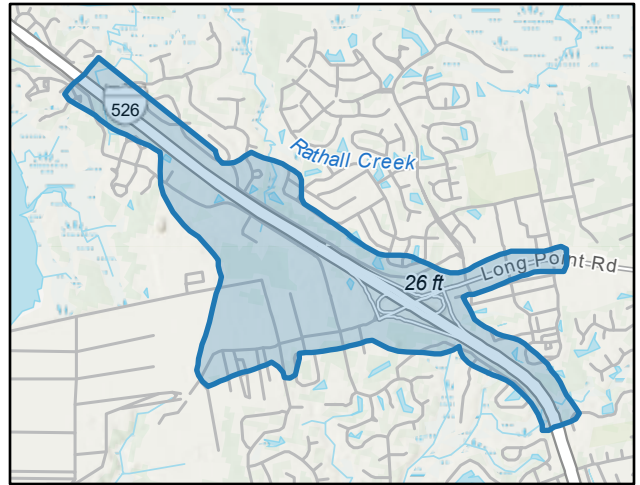
Your project area includes a FEMA special flood hazard area and may require a permit from the County National Floodplain Insurance Program Manager before impacts occur to aquatic resources and the associated floodplains on site. Please refer to <https://www.dnr.sc.gov/water/flood/documents/nfipadmindirectory.pdf> to find your appropriate contact information.

- Maintenance clearing or mowing of rights-of-way should not occur between April 15 and August 1 of a given year to avoid nesting season for a majority of migratory birds. The mower deck should be set no lower than 6 inches high so native herbaceous vegetation will not be damaged.
- The SCDNR recommends you follow the current guidelines outlined in the US Fish and Wildlife Service's Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning (<https://www.fws.gov/migratorybirds/pdf/management/usfwscommtowerguidance.pdf>.)
- Pertinent suggestions discussed in the guidelines that effect birds include using flashing lights only, not situating the tower near wetlands, reducing or eliminating tension wires which are impact hazards, and that vegetation removal be done outside of the nesting season to avoid mortality to eggs and chicks. Migrating bats such as hoary bats sometimes do hit wires and tall structures so reducing guy wires or using a lattice instead per these guidelines might help. Additional tower guidelines for federally protected Northern long-eared bat conservation can be found in the Federal Communications Commission's Tower Construction Guidance for Protection of Northern Long-Eared Bat Under the Endangered Species Act (<https://www.fcc.gov/document/tower-guidance-northern-long-eared-bat>.)
- Your project boundary lies within a coastal county in South Carolina which means you may also need a Coastal Zone Consistency Certification for your project from the SC Department of Health and Environmental Control. For more information, visit: <https://www.scdhec.gov/environment/your-water-coast/ocean-coastal-management/beach-management/coastal-permits/coastal-zone>
- If your project could affect coastal waters, tidelands, beaches and beach/dune systems, you may also need a critical area permit from the SC Department of Health and Environmental Control. For more information, visit: <https://www.scdhec.gov/environment/your-water-coast/ocean-coastal-management/beach-management/coastal-permits/critical-1>

## E. Additional Information & Instructions for Submitting Observations

The SC Natural Heritage Dataset relies on continuous monitoring and surveying for species of concern throughout the state. Any records of species of concern found within this project area would greatly benefit the quality and comprehensiveness of the statewide dataset for rare, threatened and endangered species. Below are instructions for how to download the SC Natural Heritage Occurrence Reporting Form through the Survey123 App.

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### Conservation Ranks & SWAP Priority Status

The SC Natural Heritage Program assigns S Ranks for species tracked within the state of South Carolina based on ranking methodology developed by NatureServe and its state program network. For information conservation rank definitions, please visit <https://explorer.natureserve.org/AboutTheData/Statuses>

The SCDNR maintains and updates its State Wildlife Action Plan (SWAP) every 10 years. This plan categorizes species of concern by Moderate, High, and Highest Priority. Please visit <https://www.dnr.sc.gov/swap/index.html> for more information about the SC SWAP.

### Instructions for accessing the SC Natural Heritage Occurrence Reporting Form

For use in a browser (on your desktop/PC):

- 1) Follow <https://bit.ly/scht-reporting-form>
- 2) Select 'Open in browser'
- 3) The form will open and you can begin entering data!

This method of access will also work on a browser on a mobile device, but only when connected to the internet. To use the form in the field without relying on data/internet access, follow the steps below.

For use on a smartphone or tablet using the field app:

- 1) Download the Survey123 App from the Google Play store or the Apple Store. This app is free to download. Allow the app to use your location.
- 2) No need to sign in. However, you will need to provide the app with our Heritage Trust GIS portal web address. You will only need to do this once: (this is a known bug with ESRI's software, and future releases of the form should not require the below steps. Bear with us in the meantime!).
  - a. Tap 'Sign in'
  - b. Tap the settings (gear symbol) in the upper right corner
  - c. Tap 'Add Portal'
  - d. After the 'https://', type [schtportal.dnr.sc.gov/portal](https://schtportal.dnr.sc.gov/portal)
  - e. Tap 'Add Portal'
  - f. Tap the back-arrow icon (upper left corner) twice to return to the main sign in page.
- 3) Use the camera app (or other QR Reader app) to scan the QR code on this page from your smartphone or tablet. Click on the 'Open in the Survey123 field app'. This will prompt a window to allow Survey123 to download the SC Natural Heritage Occurrence Reporting Form. Select 'Open.'
- 4) The form will automatically open in Survey123, and you can begin entering data! This form will stay loaded in the app on your device until you manually delete it, and you can submit as many records as you like.

