



APPENDIX J: BIOLOGICAL EVALUATION

Prepared for:



Prepared by:





United States Department of the Interior

FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407



September 21, 2022

Mr. Will McGoldrick, Alternative Delivery Environmental Manager
South Carolina Department of Transportation
P.O. Box 191
Columbia, South Carolina 29202-0191

Re: Biological Evaluation, I-526 Long Point Road, Charleston County, South Carolina
FWS Log No. 2022-0080540

Dear Mr. McGoldrick:

The U.S. Fish and Wildlife Service (Service) has reviewed your August 30, 2022, correspondence regarding the Biological Evaluation (BE) for the proposed improvements to the I-526 and Long Point Road interchange in Charleston County, South Carolina. The South Carolina Department of Transportation (SCDOT) is seeking our review of the BE in accordance with requirements set forth under section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)) (ESA).

In August 2022, SCDOT submitted the BE and requested the Service's concurrence on SCDOT's determination of impacts to federally protected flora and fauna that may be present in the project corridor. Table 8-1 of the BE listed thirteen federally threatened or endangered species known to occur in Charleston County. Upon evaluation of the project, SCDOT determined that there would be no effect to eight of these species due to the lack of suitable habitat. Therefore, no further coordination is required for these eight species.

The SCDOT determined the Long Point Road project may affect, but is not likely to adversely affect the remaining five species; northern long-eared bat (*Myotis septentrionalis*)(NLEB), American wood stork (*Mycteria americana*), eastern black rail (*Laterallus jamaicensis jamaicensis*), red knot (*Calidris canutus rufa*), and piping plover (*Charadrius melodus*). This conclusion was based on the presence of suitable habitat in or near the project area. The Service concurs with these determinations. No designated critical habitat for federally protected species occurs within the project area.

Please note that on March 23, 2022, the Service published a proposal to reclassify the NLEB as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The NLEB is currently listed as threatened but faces extinction due to the range-wide impacts of white-nose syndrome, a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only

to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to be addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

As always, due to obligations under the ESA, the potential impacts of this project must be reconsidered if: (1) new information reveals impacts of this identified action may affect any listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner, which was not considered in this assessment; or (3) a new species is listed or critical habitat is designated that may be affected by the identified action.

If you have any questions, please contact the Service's project manager, Mr. Mark Caldwell at mark_caldwell@fws.gov or (843) 300-0426, and reference FWS Log No. 2022-0080540.

Sincerely,



Thomas D. McCoy
Field Supervisor

TDM/MAC



South Carolina
Department of Transportation

August 30, 2022

Mr. Mark Caldwell
c/o Ms. Melanie Olds
South Carolina Ecological Services
176 Croghan Spur Road - Suite 200
Charleston, SC 29407

**RE Section 7 Informal Consultation for the Proposed I-526 Interchange
Improvements at Long Point Road located in Charleston County, South
Carolina; SCDOT PIN P041314**

Dear Ms. Olds:

On behalf of the South Carolina Department of Transportation (SCDOT) and the Federal Highway Administration (FHWA), please accept this request for concurrence of effects under informal consultation per Section 7 of the Endangered Species Act. In support of your review, please find attached a complete Biological Evaluation documenting relevant species, habitats, possible construction activities and effects determinations for applicable species.

If you have any questions or comments, please reach out to me. I am available by phone at 803-737-1326 or by email at mcgoldriwr@scdot.org. I can facilitate discussions via webinars or in person if needed. Thank you for your time and effort.

Sincerely,

Will McGoldrick
Alternative Delivery Environmental Mgr

WRM/wm
enclosures
Biological Evaluation

ec: Chad Long, SCDOT
Shane Belcher, FHWA
Christy Shumate, Three Oaks

File: Env/Design-Build





ENDANGERED SPECIES ACT USFWS BIOLOGICAL EVALUATION

Prepared for:



Prepared by:



August 2022

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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. Traffic is expected to increase and result in an extreme level of congestion throughout much of the interchange by 2050, if no improvements are made.

The proposed project will result in modifications to the human and natural environment. As the lead federal agency, the Federal Highway Administration (FHWA) is responsible for the environmental assessment (EA) according to the provisions of the National Environmental Policy Act (NEPA) and corresponding regulations and guidelines of FHWA (23 Code of Federal Regulations [CFR] Part 771 and 40 CFR Parts 1500–1508A). As required by the NEPA process, as well as Section 7 of the Endangered Species Act of 1973 as amended, potential effects to federally protected species must be evaluated. The purpose of this biological evaluation (BE) is to identify the presence, or potential presence, and document potential project related effects to federally protected species known to occur in Charleston County, within or adjacent to the construction footprint of the Recommended Preferred Alternative.

2.0 AGENCY CONSULTATION HISTORY

Agency meetings have taken place throughout the planning process of the proposed project. SCDOT Agency Coordination Effort (ACE) meetings have been used to provide background information, proposed schedule, and alternatives being considered. Meetings were held on May 12, 2022, and August 11, 2022.

3.0 FEDERALLY LISTED SPECIES AND CRITICAL HABITAT

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 Endangered Species Act (ESA) does not provide protections for the candidate/at-risk species however they are listed in **Table 3-1** 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. However, it is usually prudent to assess potential effects to these species with an Interagency Conference under Section 7 of the ESA (50 CFR § 402.10). 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 Charleston County list of federally protected species, dated March 29, 2022, was downloaded from the USFWS Charleston Field Office website (USFWS 2022a) and a SC Department of Natural Resources’ (SCDNR) Natural Heritage Viewer report was used to evaluate potential project effects on the listed species (Appendix B). Threatened and endangered species that are under the USFWS jurisdiction that are known to occur in Charleston County are presented in **Table 3-1**.

Table 3-1: Charleston County Federally Protected Species

Common Name	Federal Protection Status	Scientific Name
Amphibian Species		
Frosted flatwoods salamander	Threatened; Critical Habitat	<i>Ambystoma cingulatum</i>
Gopher frog	At-Risk-Species	<i>Lithobates capito</i>
Bird Species		
American wood stork	Threatened	<i>Mycteria americana</i>
Bald eagle	BGEPA	<i>Haliaeetus leucocephalus</i>
Black-capped petrel	At-Risk-Species	<i>Pterodroma hasitata</i>
Eastern black rail	Threatened	<i>Laterallus jamaicensis jamaicensis</i>
Piping plover	Threatened	<i>Charadrius melodus</i>
Red-cockaded woodpecker	Threatened	<i>Picoides borealis</i>
Red knot	Threatened	<i>Calidris canutus rufa</i>
Saltmarsh sparrow	At-Risk-Species	<i>Ammodramus caudacuta</i>
Insect Species		
Frosted elfin	At-Risk-Species	<i>Callophrys irus</i>
Monarch butterfly	Candidate	<i>Danaus plexippus</i>

Common Name	Federal Protection Status	Scientific Name
Mammal Species		
Northern long-eared bat*	Threatened	<i>Myotis septentrionalis</i>
Tri-colored bat**	At-Risk-Species	<i>Perimyotis subflavus</i>
West Indian manatee	Threatened/MMPA	<i>Trichechus manatus</i>
Plant Species		
American chaffseed	Endangered	<i>Schwalbea americana</i>
Boykin's lobelia	At-Risk-Species	<i>Lobelia boykinii</i>
Canby's dropwort	Endangered	<i>Oxypolis canbyi</i>
Ciliate-leaf tickseed	At-Risk-Species	<i>Coreopsis integrifolia</i>
Pondberry	Endangered	<i>Lindera melissifolia</i>
Seabeach amaranth	Threatened	<i>Amaranthus pumilus</i>
Reptile Species		
Eastern diamondback rattlesnake	At-Risk-Species	<i>Crotalus adamanteus</i>
Green sea turtle***	Threatened: Critical Habitat	<i>Chelonia mydas</i>
Spotted turtle	At-Risk-Species	<i>Clemmys guttata</i>

* Likely to be up listed to Endangered prior to construction

**Likely to be listed prior to construction

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

Currently the northern long-eared bat is listed as Threatened, however, it will likely be up listed to Endangered in December 2022. Therefore, it is being treated as Endangered for the purposes of this evaluation. Additionally due to the likelihood of the tri-colored bat being listed in December, during the structure inspections and habitat assessment, the presence of tri-colored bats was also evaluated. Based on descriptions of the habitat requirements and life functions of all protected species in Charleston County, it was determined that one of the species listed as threatened is restricted to beach habitat, which was not identified within the PSA; therefore, the project would have **no effect** to seabeach amaranth.

3.1 AMPHIBIANS

3.1.1 Frosted flatwoods salamander (*Ambystoma cingulatum*) – Threatened; Critical Habitat

Frosted flatwoods salamander adults are black or dark gray with white or silver reticulations, spots, or stripes covering their bodies. They have a white-speckled dark underside. They are 3.5 to 5.3 inches long as adults. They have 13 to 16 costal grooves (Nickle 2017). The adults burrow in wiregrass dominated pine savannahs with mesic soils, which indicate a highwater table (Palis et al. 2006). They emerge to migrate up to 1 mile to breeding ponds from October to November and leave from December to January during rains or when soils are saturated. Larvae hatch and grow in inundated fire-dependent pine flatwood and pine savannah forest ponds from January to the end of April. Larvae are dark brown, darker on top gradually turning lighter to the underside with a tan to gold lateral stripe down their side. Larvae can take up to 2 years to reach adulthood. Frosted flatwoods salamanders can tolerate low salt concentrations (Nickle 2017).



Photo by John Jensen (USFWS)

3.2 BIRDS

3.2.1 American wood stork (*Mycteria americana*) – Threatened

American wood storks are large wading birds standing about 45 inches tall with white plumage except on the black trailing edges of the wings. The head and neck are unfeathered and dark gray. They have a large dark bill that is heavy at the base and decurved and pointed at the tip. They soar on thermals with neck outstretched and a wingspan of 60 to 65 inches. Wood storks feed by moving the bill through shallow (6 to 10 inches deep) water slightly open until it touches a small fish when they snap the bill shut. They feed in both freshwater and estuarine waters including marshes, tidal creeks, and swamps especially during periods of falling water levels when the pools are more concentrated. They build nests in colonies in swamps primarily using medium to tall trees.



Photo by Gordon Murphy
(Charleston County, SC)

Wood stork populations declined due to the loss of wetland habitat and a change in water regimes due to water level controls. This loss of habitat reduced the amount of cypress (*Taxodium distichum* and *T. ascendens*) trees that wood storks utilize for nesting, which is critical for the growth of the population. The loss of habitat also reduced their foraging areas and food supplies. Wood storks forage in shallow water with little vegetation where the fish can be congregated into dense schools. According to the USFWS Wood Stork Recovery Plan, it is recommended that human activity should not occur within 300 feet of foraging habitat to the maximum extent possible (USFWS 1997).

3.2.2 Bald eagle (*Haliaeetus leucocephalus*) – BGEPA

Bald eagles are large raptors (6-foot wingspan) which are mottled brown and white until they reach maturity at 4 to 5 years old when they develop a brown body with a white head and tail. They primarily feed on fish, but also feed on waterfowl, and carrion. When prime food options are absent, they will also eat small terrestrial animals. They hunt by sight and are often seen soaring or perched high in a tree near water. Fresh, brackish and marine habitats provide suitable foraging sites and include open water, marsh and riverine types. Prime habitats are characterized by having shallow, slow moving water with abundant fish and waterfowl (SCDNR 2015a). It nests in canopies of large trees usually within half of a mile from coastlines, rivers, and lakes. Nests are usually around 4 to 6 feet across and 3 feet deep. Nests are constructed out of large limbs and lined with soft plant fibers. They typically return to the same areas each year and reuse the same nest. They can be found nesting and rearing young in South Carolina from October until May (USFWS 2020a). Eagle nest locations are required to have a buffer zone ranging from 330 to 660 feet around nests, depending on site-specific conditions (USFWS 2007).



Photo by Steven Mlodinow
(Macaulay Library)

Bald eagle populations declined due to a series of human-caused events such as habitat degradation and loss, shooting, and the use of chemical compounds as pesticides (USFWS 1989). Bald eagles were listed on the Endangered Species Act in 1973 and were delisted in 2007 due to their strong recovery (USFWS 2007). Bald eagles remain under federal protection by the Bald and Golden Eagle Protection Act which protects eagles from “take.” Take is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest or disturb” (USFWS 2022b).

3.2.3 Eastern black rail (*Laterallus jamaicensis jamaicensis*) – Threatened

Eastern black rails are 4 to 6 inches in total length, blackish-gray undersides, chestnut back with small white spots, pointed black bill, bright red eyes, and long dark gray legs and toes. They live in brackish to fresh marshes that may or may not be tidally influenced. They will also utilize artificial impoundments. According to USFWS, “the birds occupy relatively high elevations along heavily vegetated wetland gradients, with soils that are moist or flooded to a shallow depth.” They require a dense canopy and fine stemmed emergent plants to safely forage for small invertebrates and seeds. Coastal South Carolina was considered a historical stronghold for this subspecies. They nest from March to August in vegetated shallow water or moist soil. They are difficult to detect because of their preference to run or walk through dense vegetation rather than flying (USFWS 2018).



Photo by Christy Hand (SCDNR)

3.2.4 Piping plover (*Charadrius melodus*) – Threatened; Critical Habitat

Piping plovers are small (7 inches long) shorebirds that frequent the sparsely vegetated sandy beaches and muddy tidal creek banks for feeding on small invertebrates. They breed and nest on beaches on the northern Atlantic Coast and the Great Lakes. They winter along the South Atlantic, Gulf Coast, and Caribbean beaches and islands. The migration to breeding grounds occurs between February and April. The migration to wintering grounds occurs between July and September. While the color of the birds is generally sandy gray with a white underside and rump, the breeding plumage adds a black breast band, a black brow band, orange legs, and an orange bill with a black tip. Winter migration causes the orange legs to fade to yellow, changes the bill to solid black, and causes the black breast and brow bands to disappear (Center for Biological Diversity 2022).



Photo by Gene Nieminen
(USFWS)

USFWS has established winter critical habitats along the coast associated with beaches, flats, and dune systems because these areas provide the primary biological needs of foraging, sheltering, and roosting habitats (USFWS 2001a). Plovers prefer sandy substrates and are much more concentrated along the ocean shoreline (USFWS 1996).

3.2.5 Red-cockaded woodpecker (*Picoides borealis*) – Threatened

Red-cockaded woodpeckers (RCW) are small (7 inches long) colonially nesting woodpeckers. They are black with white horizontal stripes on the body, a large white cheek patch on the face, and a black cap and nape. The males have a small patch of red feathers (the cockade) which can be found in the upper corner of the cheek patch but are only exposed when agitated. They only nest in cavities of living, mature (at least 70-year-old) pine trees. They prefer long-leaf pines (*Pinus palustris*) that have been maintained by a frequent (less than 5 year) fire regimen. They nest colonially in clusters of 1 to 20 nests over 3 to 60 acres. Maintained, in-use cavity trees are obvious due to sap drips around the cavity hole that turn white when hardened. They forage for insects in the bark of pine trees which are at least 30 years old and over 10 inches in diameter at breast height (USFWS 2020b). Threats to RCW are predominantly the suppression of fire which has resulted in the loss of adequate habitat (USFWS 2003).



Photo by Gordon Murphy
(Berkeley County, SC)

3.2.6 Red knot (*Calidris canutus rufa*) – Threatened

Rufus red knots are a medium-sized shorebird that winter on the beaches and tidal flats of South Carolina. Their nonbreeding/wintering plumage is gray above and whitish undersides. Their black bill is stout with a tapered tip that is a little bit longer than the head length. Their short legs and feet are dark gray. They have a small head, small eyes, and short neck. During breeding season, much of the face, breast, and upper belly are reddish. They feed on invertebrates in sand, gravel, or cobble beaches, tidal mudflats, salt marshes, shallow coastal impoundments and lagoons, and peat banks (USFWS 2014a). They are frequently found utilizing the same foraging areas as piping plovers (USFWS 2014a).



Photo by Gregory Breese (USFWS)

3.3 INSECTS

3.3.1 Monarch butterfly (*Danaus plexippus*) – Candidate

Monarchs are large butterflies with orange wings that are bordered by a black band (USFWS 2020c). The black band contains many white spots; however, the spots do not occur on the black veins of the wing. Their wingspan ranges from 3.5 to 4 inches (Daniels 2003). The typical habitat consists of open areas with sun exposure where they feed on nectar of flowering plants and lay eggs on their host plant (Daniels 2003). The monarch host plant consists of members of the milkweed family (*Asclepias* spp., USFWS 2020c). Small white eggs are deposited on the underside of milkweed leaves and the growing caterpillars forage on the leaves. The caterpillars ingest and retain a toxic substance contained in the milkweed leaves which deters predators when they reach adulthood (USFWS 2020c). Some areas of the United States have resident populations while many monarchs migrate as much as 1,864 miles to their overwintering locations (USFWS 2020c).



Photo by Kenneth Dwain Harrelson

3.4 MAMMALS

3.4.1 Northern long-eared bat (*Myotis septentrionalis*) – Threatened

The northern long-eared bat has a body length of 3 to 3.7 inches. Their fur is dark brown on their backs and lighter brown underneath. They have long ears with a pointed triangular tragus. They hibernate in caves, where white-nose syndrome (WNS) is prevalent; however, in regions where no caves are present, they appear to hibernate in tree cavities (USFWS 2015a). In summer, they roost in a wide variety of dead trees, under bark, and in caves (USFWS 2015a). Northern long-eared bats also roost in human structures. These bats forage for insects in a wide



Photo by Al Hicks (USFWS)

variety of forest types. Since WNS is the primary cause of species decline, critical habitat is not designated under the ESA (USFWS 2015a).

3.4.2 Tri-colored Bat (*Perimyotis subflavus*) – At-Risk-Species

Tri-colored bats are small bats with yellowish-brown fur. The term “tricolored” refers to the three distinct bands of color on the dorsal fur: dark at the base, yellowish-brown in the middle, and dark at the tips. Their mass ranges from about 0.158 to 0.282 ounces (4.5 to 8 grams), and the wingspan ranges from about 8.27 to 10.24 inches (210 to 260 mm), with the females being larger than the males (LeGrand et al. 2022).



Photo by KY
Department of
Fish & Wildlife

Tri-colored Bats are found throughout the eastern United States, extending north and east into Nova Scotia and Quebec, and southwest to the eastern edge of Mexico and northern Honduras. They have been found state-wide through North Carolina (LeGrand et al. 2022). Tricolored Bats often roost in trees near areas of mixed agricultural use during the summer, although they will also roost in heavily forested areas without agricultural use (North Carolina Bat Working Group 2013, Newman et al. 2021). In the winter, they are often found in places where the temperature stays constant, such as caves, rock crevices, and mines (North Carolina Bat Working Group 2013). This species will readily roost in bridges and culverts (Newman et al. 2021). They are known to forage near trees, as well as forest perimeters and along waterways (Fujita and Kunz 1984).

3.4.3 West Indian manatee (*Trichechus manatus*) – Threatened; Critical Habitat; MMPA

West Indian manatees are gray colored marine mammals with bulbous bodies and no dorsal fin. They reach lengths over 14 feet long. They reside in shallow marine, brackish, and freshwater systems eating vegetation. They cannot live in temperatures under 68 degrees Fahrenheit, so their range expands and contracts from warmer to cooler months (USFWS 2001b). In South Carolina, they will move far into freshwater rivers until the river becomes too shallow or they encounter an obstruction (Murphy and Griffin 2012).



Photo by Keith Ramos (USFWS)

3.5 PLANTS

3.5.1 American chaffseed (*Schwalbea americana*) – Endangered

American chaffseed is a perennial herb with unbranched stems, purplish and yellow tube-like flowers, and lance-shaped entire leaves that are 1 to 2 inches long. The plants are densely hairy throughout. Fruits are long, narrow capsules enclosed in a sac-like structure. It is hemiparasitic, relying on other plants for some nutrients, but not host-specific. It occurs in “open pine flatwoods savannas, and other open areas, in moist to dry acidic sandy loams or sandy peat loams” (USFWS 1995). It is dependent on disturbance in the form of fire, mowing, or fluctuating water tables to maintain open canopies. The plants bloom from April to June in the south (USFWS 1995). They might be easier to find by inspecting for dark brown, aging stems after the blooming period (USFWS 1995).



Photo by Gordon Murphy
(Clarendon County, SC)

3.5.2 Canby's dropwort (*Oxypolis canbyi*) – Endangered

Canby's dropwort is a thin perennial herb that grows to be 2.6 to 3.9 feet tall. It has a round stem with stiff, slender, hollow leaves. The inflorescence is made of compound umbels of small, five-parted, white flowers. They bloom from mid-July to September. The seed is a small (0.16 to 0.24 inch) compressed elliptical schizocarp. They seed as early as October. Canby's dropwort suitable soil is sandy loam or acidic peat mucks underlain with clay. They grow in “natural ponds dominated by pond cypress, grass-sedge dominated Carolina bays, wet pine savannas, shallow pineland ponds and cypress-pine swamps or sloughs.” They grow best with little or no canopy cover (USFWS 1990). The largest threat to Canby's dropwort is loss or degradation of wetland habitats (USFWS 1990). This may have been worsened by herbicides, insect predation, and ineffective seed dispersal (USFWS 1990).



Photo by Gordon Murphy
(Florence County, SC)

3.5.3 Pondberry (*Lindera melissifolia*) – Endangered

Pondberry is a small (1 to 6 feet) deciduous shrub with oval to oblong-shaped, thin, alternate leaves. The tips are more pointed, while the base is more rounded. The leaf margins are smooth. The leaf undersides are sparsely to densely covered in fine hairs. The leaf is strongly aromatic when crushed and resembles the smell of sassafras (*Sassafras albidum*). It blooms during February and March, before leaf emergence, with small yellow flowers. They reproduce either through seeds which are a bright red, half-inch long drupe or vegetatively through colonial expansion of numerous stems. In South Carolina, pondberry has been found in Carolina bays, limestone or limesink ponds, sand ponds, and lowland sand prairie depressions (USFWS 2014b).



Photo by Gordon Murphy
(Marion County, SC)

3.6 REPTILES

3.6.1 Green sea turtle (*Chelonia mydas*) – Threatened

Green sea turtles reach shell lengths of 3 to 4 feet. They are easily recognized by the two large scales located between their eyes. They primarily eat vegetation and reside nearshore to feed on seagrass beds (NOAA 2022). Green sea turtles rarely nest in South Carolina; they nest predominantly on the beaches of Florida (SCDNR 2013). Juvenile turtles can frequently be found in South Carolina waters (SCDNR 2013). Green sea turtles utilize inlets and bays that have an abundance of algae and grass (USFWS 2015b). In South Carolina, green sea turtles have been trapped by the SCDNR as far as 14 nautical miles inshore in the Wando River (Hope Charlotte, personal communication 2020).



Illustration by NOAA

4.0 ENVIRONMENTAL BASELINE

4.1 PROJECT STUDY AREA

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 project is in the Cooper River watershed (Hydrologic Unit Code 8: 03050201) and Santee River basin (SCDHEC 2022).

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, Figure 4, Appendix A). Biotic communities were initially identified within the PSA using remote sensing data and then confirmed during the field surveys to include nine basic habitat types (refer to 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.

4.2 BIOTIC COMMUNITIES

Potential habitat communities within the PSA were initially identified by reviewing recent aerial imagery, digital elevation models for Charleston County (SCDNR 2015b), and USFWS National Wetland Inventory mapping (USFWS 2020d) and a composite map of potential habitats within the cumulative PSA was created.

Habitat types identified utilizing remote sensing data were field verified and additional data was collected during site visits and field delineation of waters of the United States (WOTUS), conducted between the summer of 2018 and the summer of 2022 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 (USACE 2010). WOTUS boundaries were mapped using a Global Positioning System (GPS) unit. Refer to Figure 5 in Appendix A for the delineated WOTUS within the PSA.

Additional field work was conducted in the summer of 2022 to further evaluate the estuarine habitats identified within the PSA for the preparation of an essential fish habitat assessment. The initial evaluation for the presence of listed species in the PSA was based on the presence or absence of the species or species-specific suitable habitat. Additionally, online databases such as SCDNR’s SC Natural Heritage Species Reviewer (SCDNR 2022a), The Cornell Lab of Ornithology’s eBird Mapper Tool (Cornell 2022), and the California Academy of Sciences and National Geographic’s iNaturalist (iNaturalist 2022) were utilized to determine previous observations of the listed species PSA, which encompassed all the reasonable alternatives evaluated in the NEPA document. For species with suitable habitat within the PSA, a radius of a minimum of three miles was reviewed for known occurrences of the listed species. The USFWS online

Critical Habitat Mapper was used to determine locations of designated critical habitat for listed species (USFWS 2022c). The National Oceanic and Atmospheric Administration’s (NOAA) ESA Section 7 Mapper (NOAA 2022) was utilized for green sea turtles.

4.2.1 Upland 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 (*Q. nigra*), southern red oak (*Q. falcata*), swamp chestnut oak (*Q. michauxii*), white oak (*Q. alba*), laurel oak (*Q. laurifolia*), American holly (*Ilex opaca*), American beech (*Fagus grandifolia*), sweetgum (*Liquidambar styraciflua*), eastern cedar (*Juniperous virginiana*), red maple (*Acer rubrum*), and southern magnolia (*Magnolia grandiflora*). The shrub layer consists of dwarf palmetto (*Sabal minor*), yaupon holly (*Ilex vomitoria*), wax myrtle (*Morella cerifera*), *Vaccinium* sp., eastern baccharis (*Baccharis halimifolia*), and Chinese privet (*Ligustrum sinense*). Woody vines observed include yellow jessamine (*Gelsemium sempervirens*), muscadine (*Vitis rotundifolia*), roundleaf greenbrier (*Smilax rotundifolia*), and blackberry. Herbaceous species include dog fennel (*Eupatorium capillifolium*), broomsedge, and giant cane (*Arundinaria gigantea*). 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.

4.2.2 Wetland and Open Water 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 2016).

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 2016). 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 2016). 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 located in the PSA along Hobcaw Creek, approximately 90 feet west of the I-526 bridge.

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, loblolly pine, sweet gum, red maple, laurel oak, swamp chestnut oak, black gum (*Nyssa sylvatica*), and southern magnolia. The shrub layer consists of wax myrtle, and dwarf palmetto. Herbaceous species include longhair sedge (*Carex comosa*), soft rush

(*Juncus effusus*), and giant cane. Woody vines include laurel greenbrier (*Smilax laurifolia*), muscadine, crossvine (*Bignonia capreolata*), poison ivy (*Toxicodendron radicans*), and roundleaf greenbrier.

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 onramp from Long Point Road. Freshwater emergent wetlands are semi-permanently to permanently flooded, may be tidally influenced, and salt encroachment areas are possible.

Palustrine Open Water: 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.

4.3 WATER QUALITY

The SC Department of Health and Environmental Control (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 2022a), there are no 303(d) listed waters found within the PSA. SCDHEC also designates suitable Shellfish Harvesting Waters (SFH) and 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, 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. 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 two miles downstream of the I-526 crossing, are listed on the 2018 303(d) list and are impaired due to *E. coli*. One oyster reef is located in the PSA along Hobcaw Creek, approximately 90 feet west of the I-526 bridge.

5.0 PROPOSED ACTION

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 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.

5.1 CONSTRUCTION ACTIVITIES AND POTENTIAL HABITAT IMPACTS

5.1.1 Site Preparation

To prepare the general project area for construction and establish staging areas, the contractor may need to clear vegetation and remove stumps, roots, or debris. Clearing may occur in uplands, estuarine emergent, palustrine emergent, and forested wetlands in the project area. The contractor may also grade portions of the project area to establish a suitable work environment. Staging areas will be selected by the contractor to establish a construction site office and will also include materials, equipment, and fuel storage. Staging areas are expected to be established in uplands to the extent practicable.

The contractor will develop a stormwater pollution prevention plan (SWPPP) and obtain a National Pollutant Discharge Elimination System (NPDES) permit from SCDHEC before construction can commence. The contractor will be required to properly install the required erosion, turbidity, and sediment control devices prior to all other construction activities. The contractor will be required to install these measures around the perimeter of the active construction site, including any off-site staging areas. After the installation of erosion, turbidity and sediment control measures, the contractor will begin the project staging area preparation and general site preparation.

Impacts associated with construction site preparation will be temporary in nature. Clearing of vegetation and maintenance of erosion and sediment control devices may temporarily impact suitable foraging habitat for multiple species. Construction site preparation and maintenance will continue during the different phases of construction and may result in temporary and permanent impacts to suitable habitat for protected species. Construction site preparation is not expected to result in the mortality of any protected species. **The contractor will be required to utilize SCDOT BMPs for soil and erosion control during construction.**

The clearing, grading, or placement of fill in wetlands will require authorization from USACE and SCDHEC. The limits of any clearing, grading, or fill in wetlands will be delineated and shown on approved permitted plans by USACE and SCDHEC. SCDOT and the contractor will comply with all applicable permits and permit conditions for the placement of fill in wetlands.

5.1.2 Borrow Pits and Disposal Areas

The contractor may use areas outside the PSA for borrow pits or spoil areas. Waste and borrow areas will likely be required to dispose of and obtain materials for earthwork and are also subject to clearing and

grubbing. According to SCDHEC's SC Active Mines Viewer (SCDHEC 2022b), there are three approved borrow sites within a 10-mile radius of the PSA.

If existing permitted borrow sites are not available, the contractor will be required to follow SCDOT guidance in Engineering Directive Memorandum 30 (ED-30), Borrow Pit Location and Monitoring, that requires proposed new borrow sites for projects located east of I-95 be screened for wetlands and cultural resources. The screening process includes coordination with the USACE and SCDHEC's Ocean and Coastal Resources Management (OCRM) and once approved, the site is monitored during construction to ensure compliance with applicable environmental laws. The contractor will be responsible for addressing the potential effects to federally listed threatened and endangered species for any new borrow or disposal sites. Demolition debris would be disposed of according to SCDOT guidance and SCDHEC regulations.

5.1.3 Roadway Construction

Once the project area has been prepared, the contractor would begin construction of bridge approaches, new roadway access to existing facilities, intersection improvements, and new ramps at the I-526/Long Point Road interchange. Roadway construction will consist of placing clean fill materials at various locations throughout the PSA. The fill will then be compacted and formed into the roadway prism and shoulder slopes.

Permanent impacts to multiple habitat types in the PSA, including urban areas, forested uplands, and palustrine wetlands are possible. The potential impacts from the placement of fill represents a very small percentage of available habitat in the action area and will ultimately be discountable in the context of the entire ecosystem.

The placement of roadway fill material in wetlands will require authorization from USACE and SCDHEC. The limits of any clearing, grading, and fill in wetlands will be delineated and shown on approved permitted plans by USACE. SCDOT and the contractor will comply with all applicable permits and permit conditions for the placement of fill in wetlands.

5.1.4 Bridge Construction Access

Temporary access for the construction of the bridge supports and superstructure will be required. Bridge construction access may be required throughout the life of the project (approximately 3 years). There are many ways the contractor could establish temporary access such as the use of temporary causeways made of fill, barge mats, or temporary work trestles. It is possible the contractor may elect to use a different method for bridge construction access, but **any method selected will be required to comply with all applicable permits and/or environmental commitments for the project.**

Once the contractor has completed construction of bridge support structures, all temporary barges and barge mats will be removed. All temporary fill materials in wetlands for bridge construction access will also be removed once the contractor has completed work in those locations. **SCDOT and the contractor will comply with all applicable permits and permit conditions for the placement of fill in wetlands.** Temporary bridge construction access areas will be allowed to return to their natural state when construction is completed.

5.1.5 Bridge Construction

Existing bridges within the I-526/Long Point Road interchange may require replacement to meet the purpose and need of the project. Based on preliminary design the I-526 eastbound (EB) on ramp and the I-526 westbound (WB) off ramp to Long Point Road, which include bridges over the tributary to Hobcaw Creek, may be expanded or replaced. The existing bridges are supported by pre-stressed concrete piles, in palustrine emergent wetlands. It is anticipated that bridge expansion or replacement on these ramps would be supported by pre-stress concrete piles in the adjacent palustrine wetlands.

The two bridges over the unnamed tributary to Rathall Creek and the Wando River bridge will not require replacement or reconstruction. These structures will be re-striped to accommodate additional travel lanes.

The proposed project may also include the construction of new interchange ramps that would provide new access to Long Point Road for port-related traffic. The construction of these new ramps would include flyover bridges that span I-526 and Wando Park Boulevard. Overall construction activities are expected to occur throughout the life of the project (approximately 3 years).

5.1.6 Bridge Demolition

Final demolition plans are the responsibility of the contractor and therefore are not available for this analysis. The contractor is required to submit a bridge demolition plan prepared by a licensed engineer to SCDOT for review and approval prior to beginning any demolition work. It is expected the contractor would implement standard bridge demolition techniques such as the use of concrete saws, hoe rams, and jack hammers to dismantle the bridge decks. The concrete girders supporting the decks would likely be lifted off using a crane. The demolition of substructure and bridge supports may be removed by direct pull, vibratory hammer, or cutting concrete pile off with saws, or other cutting tools, at the mudline. Demolition debris would be hauled off site and disposed of in accordance SCDOT policy (Subsection 202.4.2 of the Standard Specifications) and SCDHEC regulations.

5.2 STORMWATER RUNOFF

The current bridges within the PSA discharge directly into the waters they cross. The SCDOT Stormwater Quality Design Manual (2014) requires the treatment of stormwater runoff to avoid or minimize potential impacts to maintain the high water quality levels required for Shellfish Harvesting Waters. **A National Pollution Discharge Elimination System (NPDES) permit that includes a Stormwater Pollution Prevention Plan (SWPPP) will be required prior to the start of construction.**

SCDOT does not propose to pretreat postconstruction stormwater runoff from the proposed new flyover bridge or the new entrance/exit ramps southeast of Long Point Road, prior to discharge into waters below. However, all stormwater discharge would meet the requirements for TMDL watersheds and SCDOT's MS4 permit.

6.0 EFFECTS ANALYSIS

The following section contains discussion about potential effects to specific species. USFWS (1998) defines “take” as: to harass, harm, pursue, hunt, shoot, wound, kill, trap capture, or collect or attempt to engage in any such conduct. [ESA §3(19)] Harm is further defined by USFWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by USFWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behaviour patterns which include, but are not limited to, breeding, feeding, or sheltering. [50 CFR §17.3]

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. A buffer can be specified from 1 to 6 miles from the PSA boundaries. For the purposes of this study a three-mile buffer was requested. According to the report there are no known occurrences of state or federal protected species within the PSA, however, some known occurrences occur within the 3-mile PSA buffer (Appendix B). The PSA was visually inspected to evaluate the appropriate habitats to determine their suitability to support protected species and look for the listed species themselves in those habitats.

6.1 AMPHIBIANS

6.1.1 Frosted flatwoods salamander (*Ambystoma cingulatum*) – Threatened; Critical Habitat

No suitable habitat for the frosted flatwoods salamander was identified within the PSA. According to SCDNR’s online SC Natural Heritage Species Reviewer, the closest known occurrence is approximately 8.5 miles northeast of the project at Francis Marion National Forest (SCDNR 2022a). The closest designated critical area for the species is approximately 8.5 miles northeast of the PSA in Francis Marion National Forest.

Effect Determination: It is anticipated that the project will have **no effect** on the frosted flatwoods salamander or its critical habitat.

6.2 BIRDS

6.2.1 American wood stork (*Mycteria americana*) – Threatened

Suitable wood stork nesting habitat was not observed within the PSA, however foraging habitat is abundant in the form of ditches, ponds, and estuarine and palustrine emergent wetlands associated with Wando River, Hobcaw Creek, and unnamed tidal creeks. According to the SC Natural Heritage Species Reviewer, there are 15 waterbird rookeries within 3 miles of the PSA boundary. If wood storks utilize these rookeries, then it is likely that the birds would utilize foraging habitat within the PSA. No wood storks were observed within the PSA during the field surveys.

Temporary foraging habitat impacts associated with construction access areas are anticipated. The area of suitable foraging habitat that may be temporarily affected by the project represents an extremely small percentage of available habitat for the American wood stork to forage, and/or shelter in and around the PSA. The temporary exclusion from the PSA is discountable compared to the available areas for American wood storks to forage nearby. Temporary materials and equipment in the construction access areas will be removed at the end of construction which will thereby restore the ability for wood stork foraging in areas designated as construction access.

The project is expected to result in the minimal loss of suitable foraging habitat within the PSA. Permanent habitat impacts are expected in areas associated with the placement of fill materials for road construction and for new bridge structures. The area of suitable foraging habitat that may be affected by the project represents an extremely small percentage of available habitat available for the American wood stork to forage.

Effect Determination: The project is expected to result in minor permanent loss of foraging habitat within the construction footprint associated with the Long Point Interchange improvements. Temporary impacts associated with construction that would occur in palustrine and estuarine wetlands. Materials and equipment in these construction access areas would be removed at the end of construction which would thereby restore the ability for wood stork foraging. Temporary disruption of foraging is anticipated during the construction. Upon completion of the construction, wood storks will be able to continue use of these areas. Because foraging habitat is abundant adjacent to the PSA and habitat loss from the proposed project is not anticipated to limit the population's ability to adequately breed, feed, or shelter. The impacts from the project are not expected to result in the mortality of any wood storks. Therefore, the project **may affect, not likely to adversely affect** the American wood stork.

6.2.2 Bald eagle (*Haliaeetus leucocephalus*) – BGEPA

Suitable foraging habitat for bald eagles was not observed within the PSA. Suitable nest trees are present in the PSA, however, no nests were observed. According to SC Natural Heritage Species Reviewer, there are three active and inactive nests within the 3-mile buffer of the PSA with the closest nests being approximately 1.5 miles north of the PSA along the Wando River. None of the project's proposed components would be visible from the nests.

Effect Determination: Effect conclusions for the bald eagle are not required under the ESA. However, the project is not anticipated to result in the mortality of any bald eagles or limit the ability of the species to adequately breed, feed, or shelter.

6.2.3 Eastern black rail (*Laterallus jamaicensis jamaicensis*) – Threatened

According to the SC Natural Heritage Species Reviewer, no eastern black rails have been reported within the three-mile buffer of the PSA. A review of eBird and iNaturalist data also indicate none have been observed within the three-mile PSA buffer. Suitable habitat for eastern black rails consists of high marshes that are inundated only during the higher tide cycles. Potentially suitable estuarine emergent wetlands occur in the PSA associated with the Wando River, Hobcaw Creek, and unnamed tidal creeks. However, currently road shoulder improvements are proposed in these habitats.

Effect Determination: The impacts from the project are not expected to result in the mortality of any eastern black rails. Therefore, the project **may affect, not likely to adversely affect** the eastern black rail.

6.2.4 Piping plover (*Charadrius melodus*) – Threatened; Critical Habitat

USFWS has established winter critical habitats along the coast associated with beaches, flats, and dune systems as these areas provide the primary biological needs of foraging, sheltering, and roosting habitats (USFWS 2001a). Plovers prefer sandy substrates and are much more concentrated along the ocean shoreline (USFWS 1996). The tidally exposed mudflats present associated with the Wando River, Hobcaw Creek, and unnamed tidal creeks within the project action area are suitable foraging habitat for migrating piping plovers. They have been none recorded in the vicinity of the PSA according to the eBird Mapper Tool or iNaturalist data. According to the SC Natural Heritage Species Reviewer, there are no known occurrences within the 3-mile PSA buffer. iNaturalist and eBird do not show any observations within 3 miles of the PSA. The closest designated winter critical habitat is approximately 12 miles northeast of the PSA at the northern tip of Capers Island.

Temporary impacts to foraging habitat would consist of construction access and construction activities in mud and sand flats associated with exit and entrance ramp relocations in palustrine wetlands east of Long Point Road. The construction access impacts to foraging habitat would be temporary and unlikely to limit the population's ability to adequately forage. Any piping plovers near the project area would be able to forage in the abundant areas adjacent to the PSA. Temporary materials and equipment in the construction access areas would be removed at the end of construction which would thereby restore the ability for piping plover foraging. Permanent impacts to foraging habitat would occur where permanent fill materials or structures are placed on mud and sand flats.

Effect Determination: The project is not expected to result in the mortality of any plovers; however, there would temporary impacts to some foraging habitat. It is anticipated that the project **may affect, not likely to adversely affect** the piping plover. There would be **no effect** to critical habitat.

6.2.5 Red-cockaded woodpecker (*Picoides borealis*) – Endangered

Suitable habitat for RCWs was not identified within or adjacent to the PSA. According to the SC Natural Heritage Species Reviewer, there are no known occurrences within the PSA or its 3-mile buffer. Neither iNaturalist or eBird indicate observations within or adjacent to the PSA.

Effect Determination: While loblolly and long-leaf pines are present within the PSA, no suitable nesting or foraging habitat was observed during the field surveys. Therefore, the proposed project would have **no effect** on the RCW.

6.2.6 Red knot (*Calidris canutus rufa*) – Endangered

Suitable foraging habitat for the red knot exists within and adjacent to the PSA. According to the SC Natural Heritage Species Reviewer, there are no known occurrences within the 3-mile PSA buffer. According to iNaturalist and eBird Mapper Tool, no red knots have been observed in the vicinity of the PSA.

Impacts to foraging habitat would consist of construction activities in the mud flats associated with the Wando River and tidal creeks. The construction access impacts to foraging habitat would be temporary and unlikely to limit the population's ability to adequately forage. Any red knots near the project area would be able to forage in the abundant areas adjacent to the PSA. Temporary materials and equipment in the construction access areas would be removed which would thereby restore the ability for red knot foraging. The placement of fill materials and structures in mud flats would result in permanent impacts to identified foraging habitats.

Effect Determination: The impacts from the project are not expected to result in the mortality of any red knots; however, there would temporary impacts to some foraging habitat. Therefore, it is anticipated that the project **may affect, not likely to adversely affect** the red knot.

6.3 INSECTS

6.3.1 Monarch butterfly (*Danaus plexippus*) – Candidate

Adult foraging habitat occurs in the road ROW and utility easements where wildflowers occur. However, no milkweed species were observed during field surveys. The SC Natural Heritage Species Reviewer does not indicate any known occurrences within the 3-mile buffer of the PSA.

Effect Determination: Effect conclusion for the monarch butterfly is not required under the ESA. However, if the butterfly is upgraded to threatened or endangered prior to construction of the project, additional coordination with USFWS may be required. The project is not anticipated to result in the mortality of any monarchs or limit the ability of the species to adequately breed, feed, or shelter.

6.4 MAMMALS

6.4.1 Northern long-eared bat (*Myotis septentrionalis*) – Threatened

According to the SC Natural Heritage Species Reviewer, there are no known occurrences within the 3-mile buffer of the PSA. Suitable roosting structures observed within the PSA during the field surveys consist of bridges and culverts (see site photographs in Appendix C). Bridge and culvert inspections were conducted, to the extent practicable, on August 2, 2022, and no species of bats, bat guano, or unexplained stains on the structures were observed. Droppings observed on some bents were similar to, but larger than big brown bat guano, and determined to be from rodents based on the herbaceous content upon dissection of the droppings. Rats were also observed on one bent. The underside of I-526 bridges over Long Point Road had no dark, cave-like areas and was well lit, and the box culvert under I-526 has water near the roof of the structure; therefore, these structures are not likely utilized by bats for roosting. Bridges over the tidal creeks and marshes are much closer to the ground with darkened areas that would be more likely utilized by bats for day and maternity roosting. Other suitable roosting habitat observed within the PSA includes hollow trees and trees with shaggy or sloughing bark (see site photographs in Appendix C).

Effect Determination: Suitable roosting and foraging habitat is present in the PSA; however, no evidence of bats was observed. Because bats are a mobile species and the structure inspections was a one-time

occurrence, it must be assumed that the proposed project **may affect, not likely to adversely affect** the northern long-eared bat.

6.4.2 Tri-colored bat (*Perimyotis subflavus*) – At-Risk-Species

According to the SC Natural Heritage Species Reviewer, there are no known occurrences within the 3-mile buffer of the PSA. Suitable roosting structures observed within the PSA during the field surveys consist of bridges and culverts (see site photographs in Appendix C). Bridge and culvert inspections were conducted, to the extent practicable, on August 2, 2022, and no species of bats, bat guano, or unexplained stains on the structures were observed. Droppings observed on some bents were similar to, but larger than big brown bat guano, and determined to be from rodents based on the herbaceous content upon dissection of the droppings. Rats were also observed on one bent. The underside of I-526 bridges over Long Point Road had no dark, cave-like areas and was well lit, and the box culvert under I-526 has water near the roof of the structure; therefore, these structures are not likely utilized by bats for roosting. Bridges over the tidal creeks and marshes are much closer to the ground with darkened areas that would be more likely utilized by bats for day and maternity roosting. Other suitable roosting habitat observed within the PSA includes hollow trees and trees with shaggy or sloughing bark (see site photographs in Appendix C).

Effect Determination: An effects determination for tri-colored bats is not required at this time, however, suitable roosting and foraging habitat is present in the PSA. No evidence of bat species was observed during the structure’s inspection. Because bats are a mobile species, and the structure inspections was a one-time occurrence, it must be assumed that tri-colored bats could be affected by the proposed project.

6.4.3 West Indian manatee (*Trichechus manatus*) – Threatened; Critical Habitat

The Wando River is suitable summer habitat adjacent to the PSA for West Indian manatee. According to the SC Natural Heritage Species Reviewer, the closest known occurrence of West Indian manatee in the Wando River is approximately 1 mile southwest of the PSA. The shallow tidal creeks in the PSA are not designated as suitable for the manatee by SCDNR. Designated critical habitat for the manatee is in Florida (USFWS 2010).

Effect Determination: Because no construction activities would occur in suitable manatee habitat, the project would have **no effect** on the West Indian manatee. There would be **no effect** to designated West Indian manatee critical habitat.

6.5 PLANTS

6.5.1 American chaffseed (*Schwalbea americana*) – Endangered

Suitable habitat for American chaffseed was not observed within the PSA during the field surveys. According to the SC Natural Heritage Species Reviewer, there are no known occurrences within the 3-mile PSA buffer.

Effect Determination: It is anticipated that project will have **no effect** on American chaffseed.

6.5.2 Canby's dropwort (*Oxypolis canbyi*) – Endangered

According to the SC Natural Heritage Species Reviewer, there are no known occurrences of Canby's dropwort within the 3-mile buffer of the PSA. The wetland habitats within the PSA do not meet minimum suitability for the Canby's dropwort.

Effect Determination: It is anticipated that the proposed project will have **no effect** on Canby's dropwort.

6.5.3 Pondberry (*Lindera melissifolia*) – Endangered

According to the SC Natural Heritage Species Reviewer, there are no known occurrences of pondberry within the 3-mile buffer of the PSA. Suitable pondberry habitat was not observed within the PSA during the field surveys.

Effect Determination: The project is anticipated to have **no effect** on pondberry.

6.6 REPTILES

6.6.1 Green sea turtle (*Chelonia mydas*) – Threatened

Green sea turtles rarely nest in South Carolina; they nest predominantly on the beaches of Florida (SCDNR 2013). According to the SC Natural Heritage Species Reviewer (SCDNR 2022a), there are no records of green sea turtles within the 3-mile PSA buffer; however, they have been sighted in the Wando River upstream and downstream of the PSA. Suitable foraging habitat and an abundance of food is available for juvenile green sea turtles in the Wando River and tidal creeks (during high tides). Critical habitat has been designated for the green sea turtle and is at Culebra Island located east of Puerto Rico.

Excessive artificial lighting in coastal areas is known to interfere with adult and hatchling turtle navigation as turtles make their way from the beach to the ocean (SCDNR 2013). The bridges in the PSA would not be lighted; therefore, bridge lighting would not affect any sea turtles.

Effect Determination: Construction in suitable foraging habitat is not anticipated; therefore, the project would have **no effect** to the green sea turtle.

7.0 CONSERVATION MEASURES

As coordination with resource and regulatory agencies progresses, standard environmental commitments would be honored, and project specific commitments would be developed. **The contractor will be required to honor/implement SCDOT standard environmental commitments and BMPs, in addition to those project specific commitments developed through agency coordination and the permitting process.** A list of recommended environmental commitments specific to the federally protected species that may be affected by the project can be found at the end of this section.

7.1 EROSION, SEDIMENT, AND TURBIDITY CONTROL

The contractor will develop a SWPPP and obtain an NPDES permit from SCDHEC before construction can commence. Temporary silt/turbidity curtains will be installed prior to commencement of in-water work, where practicable. The contractor will be required to utilize SCDOT best management practices for soil and erosion control during construction.

Additionally, the limits of clearing, grading, or placement of fill in wetlands will be delineated and shown on approved permitted plans by USACE and SCDHEC. The contractor will comply with all applicable permits and permit conditions for the placement of fill in wetlands.

7.2 POST CONSTRUCTION STORMWATER TREATMENT

The final project design will incorporate the conditions of SCDOT's General MS4 permit and TMDL watershed guidance contained in the Stormwater Quality Design Manual.

SCDOT is not proposing to pretreat postconstruction stormwater runoff from the proposed new I-526/Long Point Road ramps and roadway improvements because it will not be discharged within 1,000 feet of a shellfish bed.

7.3 UNDERWATER NOISE REDUCTION

New bridge construction would not occur in waters that protected species inhabit.

7.4 BRIDGE LIGHTING

The existing bridges do not have lighting, and it is anticipated that new and replacement bridges would not have lights.

7.5 PERMITTING REQUIREMENTS

The contractor will be required to adhere to all Special and Regional Conditions associated with all federal, state, and local permits that are required to construct the project. The expected permits and authorizations required prior to beginning construction include a USACE Section 404 permit, a SCDHEC Section 401 Water Quality Certification, and an OCRM Critical Area Permit.

7.6 RECOMMENDED ENVIRONMENTAL COMMITMENTS

Table 7-1 summarizes the effect minimization commitments listed in the previous sections of the document. These commitments are recommended to either avoid or minimize potential effects to federally protected species. For species that may be affected by the project, these measures are intended to prevent the potential to adversely affect the species. **SCDOT and contractor will be required to stay in compliance with all approved environmental conditions and any special conditions established in the required permit authorizations.**

Table 7-1: Recommended Effect Minimization Commitments

Recommended Effect Minimization Commitment	Associated Protected Species
The contractor will develop a SWPPP and obtain an NPDES permit from SCDHEC before construction can commence.	All species
The contractor will adhere to all SCDOT construction and erosion and sediment control BMPs.	All species
The limits of any clearing, grading, or fill in wetlands will be delineated and shown on approved permitted plans by USACE, SCDHEC, and OCRM. The contractor will comply with all applicable permits and permit conditions for the placement of fill in wetlands.	All species
If existing permitted borrow sites are not available, the contractor will be required to follow SCDOT guidance in Engineering Directive Memorandum 30 (ED-30), Borrow Pit Location and Monitoring. The contractor will be responsible for addressing the potential effects to federally listed threatened and endangered species for any new borrow or disposal sites.	All species
The final design will meet the conditions of SCDOT's General MS4 permit and TMDL guidance in the SCDOT's Stormwater Quality Design Manual.	All species
SCDOT and contractor will be required to stay in compliance with all approved environmental conditions and any special conditions established in the required permit authorizations.	All species
Temporary lighting during bridge construction and improvements would be directed away from suitable habitat during the active season of northern long-eared bat and other bat species.	Bat species
To the extent practicable, tree removal would not exceed what is required for project construction (alignments and temporary work areas).	Bat species

8.0 CONCLUSIONS

Table 8-1 provides effects determinations for protected species listed in Charleston County.

Table 8-1: Charleston County Protected Species Effect Determinations

Common Name	Federal Protection Status	Effect Determination
Amphibian Species		
Frosted flatwoods salamander	Endangered; Critical Habitat	No effect
Bird Species		
American wood stork	Threatened	May affect, not likely to adversely affect
Bald eagle	Bald and Golden Eagle Protection Act	No mortality
Eastern black rail	Proposed Threatened	May affect, not likely to adversely affect
Piping plover	Threatened	May affect, not likely to adversely affect
Red-cockaded woodpecker	Threatened	No effect
Red knot	Endangered	May affect, not likely to adversely affect
Insect Species		
Monarch butterfly	Candidate	No mortality
Mammal Species		
Northern long-eared bat	Threatened	May affect, not likely to adversely affect
West Indian manatee	Threatened	No effect
Reptile Species		
Green sea turtle	Endangered	No effect
Plant Species		
American chaffseed	Endangered	No effect
Canby's dropwort	Endangered	No effect
Pondberry	Endangered	No effect
Seabeach amaranth	Threatened	No effect

As presented in Table 8-1, after completing a literature search, field surveys, and habitat assessments, it was determined the proposed project **may affect, but not adversely affect** the American wood stork, eastern black rail, piping plover, red knot, and northern long-eared bat. The project would have **no effect** on the frosted flatwoods salamander, red-cockaded woodpecker, West Indian manatee, American chaffseed, Canby's dropwort, pondberry, seabeach amaranth, or green sea turtles. The mortality of monarch butterflies or bald eagles is not anticipated. Although a determination of effects is not required

for tri-colored bat at this time, should the species be listed prior to construction of the project, due to the presence of and the resulting alteration of suitable roosting and foraging habitat, it is anticipated that the species effect would be the same as the northern long-eared bat.

9.0 REFERENCES CITED

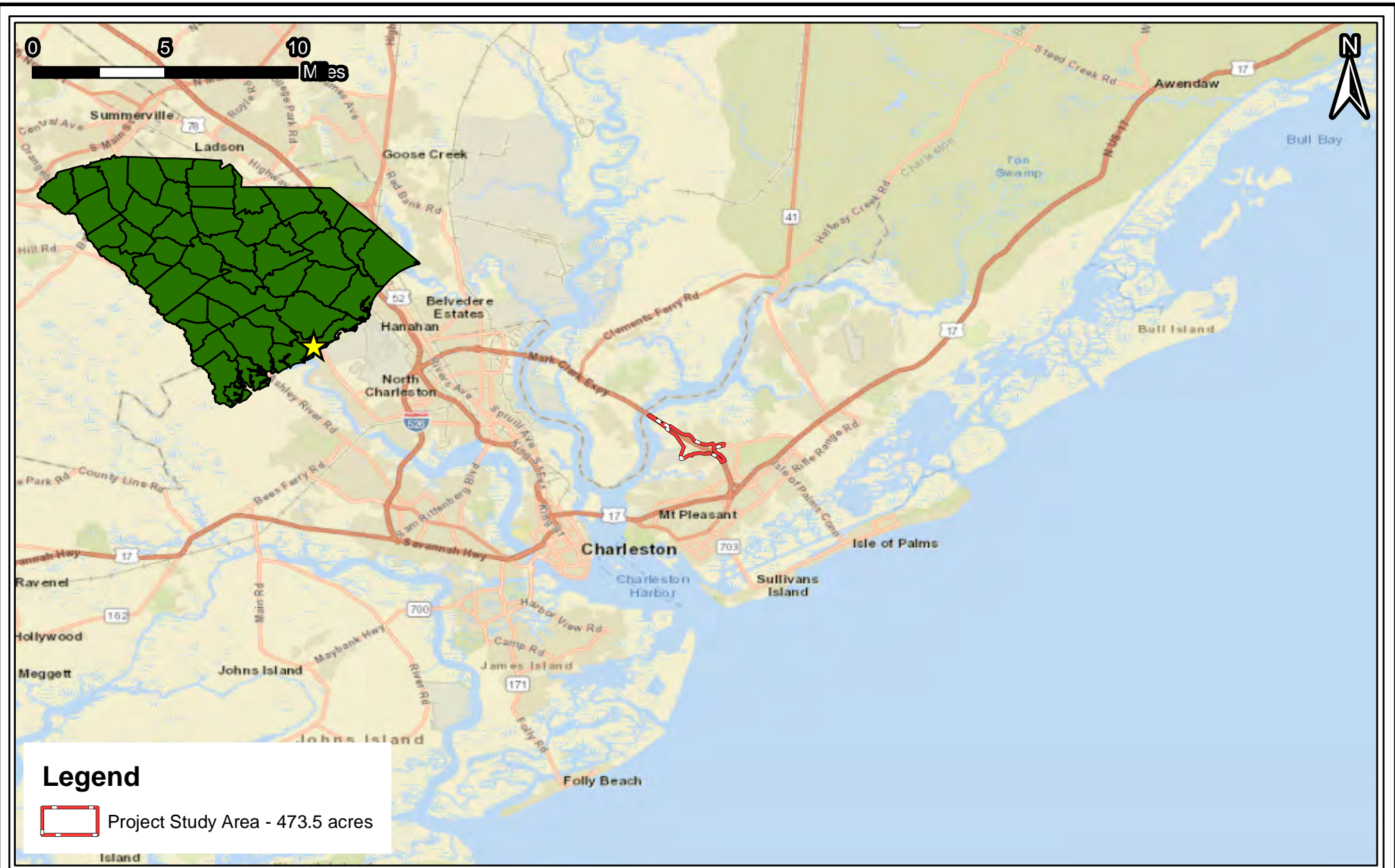
- California Academy of Sciences and National Geographic Society (iNaturalist). 2022. https://www.inaturalist.org/users/sign_in. Accessed August 4, 2022.
- California Department of Transportation (Caltrans). 2017. Hydroacoustic Biological Assessment Guidance. <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/hydroacoustic-ba-guidance-ally.pdf> Accessed February 17, 2022.
- Center for Biological Diversity. 2022. Piping Plover. https://www.biologicaldiversity.org/species/birds/piping_plover/index.html. Accessed February 17, 2022.
- Charlotte, H., Wildlife Biologist, SCDNR. January 31, 2020. Personal communication: Email correspondence.
- Daniels, Jaret C. 2003. *Butterflies of the Carolinas Field Guide*. Adventure Publications, Inc., Cambridge, MN
- Fujita, M.S. and T.H. Kunz. 1984. *Pipistrellus subflavus*. American Society of Mammalogists, Mammalian Species No. 228. 6 pp.
- Griffith, G., J. Omernik and J. Comstock. 2002. Ecoregions of South Carolina. <https://www.nrc.gov/docs/ML1127/ML112710639.pdf>. Accessed February 17, 2022.
- LeGrand, H., L. Gatens, E. Corey, and T. Howard. 2022. Mammals of North Carolina: their Distribution and Abundance. Raleigh NC: North Carolina Biodiversity Project and North Carolina State Parks. <https://auth1.dpr.ncparks.gov/mammals/accounts.php>. Accessed August 25, 2022.
- Murphy, T., and D. Griffin. 2012. Florida Manatee. SCDNR (South Carolina Department of Natural Resources). <http://www.dnr.sc.gov/cwcs/pdf/FloridaManatee.pdf> 6 p. Accessed February 17, 2022.
- Newman, B.A., S.C. Loeb, D.S. Jachowski. 2021. Winter roosting ecology of tricolored bats (*Perimyotis subflavus*) in trees and bridges. *Journal of Mammalogy*, July 2021. <https://academic.oup.com/jmammal/article/102/5/1331/6325737>
- Nickle, D. 2017. *Ambystoma cingulatum*. Animal Diversity Web. https://animaldiversity.org/accounts/Ambystoma_cingulatum/ Accessed February 17, 2022.
- National Oceanic and Atmospheric Administration (NOAA). 2022. Green Sea Turtle Species Page. <https://www.fisheries.noaa.gov/species/green-turtle>. Accessed February 17, 2022.
- North Carolina Bat Working Group. 2013. Tri-colored Bat. <https://www.ncbwg.org/tri-colored-bat-perimyotis-subflavus/>. Accessed: August 25, 2022.

- Palis, J. G., M. J. Aresco, and S. Kilpatrick. 2006. Breeding Biology of a Florida Population of *Ambystoma Cingulatum* (Flatwoods Salamander) during a Drought. *Southeastern Naturalist* Vol. 5, no. 1: 1-8. www.jstor.org/stable/3877916. Accessed February 17, 2022.
- Rycyk, Athena M. et al. 2018. Manatee behavioral response to boats. *MARINE MAMMAL SCIENCE*, 34(4): 924–962 (October 2018). <https://onlinelibrary.wiley.com/doi/epdf/10.1111/mms.12491>. Accessed February 17, 2022.
- South Atlantic Fishery Management Council (SAFMC). 2016. *Description, distribution, and use of essential fish habitat*. <https://safmc.net/wp-content/uploads/2016/06/HabitatPlan16-144.pdf>. Accessed February 17, 2022.
- SAFMC. 2022. Intertidal Flats Habitat. <https://safmc.net/uncategorized/intertidal-flats-habitat/>. Accessed February 17, 2022.
- South Carolina Department of Health and Environmental Control (SCDHEC). *Technical Report No. 1008-19: State of South Carolina Monitory Strategy for Calendar Year 2020*. 2020. <https://scdhec.gov/sites/default/files/media/document/SC%20Monitoring%20Strategy%20CY%202020%20%281%29.pdf>. Accessed January 27, 2022.
- SCDHEC. 2022a. SC Watershed Atlas. <https://gis.dhec.sc.gov/watersheds/> Accessed: February 17, 2022.
- SCDHEC. 2022b. SC Active Mines Viewer. <https://gis.dhec.sc.gov/activeminesviewer/>. Accessed June 22, 2022.
- South Carolina Department of Natural Resources (SCDNR). 2013. SC Marine Turtle Conservation Program, Atlantic green sea turtle. <http://www.dnr.sc.gov/marine/turtles/cm.htm>. Accessed February 17, 2022.
- SCDNR. 2015a. South Carolina’s Bald Eagles-Biology. <http://dnr.sc.gov/wildlife/baldeagle/biology.html>. Accessed February 17, 2022.
- SCDNR. 2015b. South Carolina GIS Data. <https://www.dnr.sc.gov/GIS/gisdownload.html>. Accessed February 17, 2022.
- SCDNR. 2022a. SC Natural Heritage Species Reviewer. <https://schtportal.dnr.sc.gov/portal/apps/sites/#/natural-heritage-program>. Accessed February 17, 2022.
- SCDNR. 2022b. SC Intertidal Oyster Reefs Map Application. <https://scdnr.maps.arcgis.com/apps/webappviewer/index.html?id=5bc898b455be43bea4a908491d2b3414>. Accessed August 29, 2022.
- The Cornell Lab of Ornithology. 2022. eBird Mapper Tool. <https://ebird.org/home>. Accessed February 17, 2022.
- US Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0). U.S. Army Engineer Research and Development Center. Vicksburg, MS.

- United States Fish and Wildlife Service (USFWS). 1979. Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. Classification of wetlands and deepwater habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.
- USFWS. 1989. Southeastern States Bald Eagle Recovery Plan. Atlanta, GA.
https://ecos.fws.gov/docs/recovery_plan/0604194.pdf. Accessed on March 16, 2022.
- USFWS. 1990. Recovery Plan for Canby's dropwort (*Oxypolis canbyi*) [Coulter & Rose] Fernald.
https://ecos.fws.gov/docs/recovery_plan/900410.pdf. Accessed March 16, 2022.
- USFWS. 1995. American Chaffseed (*Schwalbea americana*) Recovery Plan.
https://ecos.fws.gov/docs/recovery_plan/950929c.pdf. Accessed March 16, 2022.
- USFWS. 1996. Piping Plover (*Charadrius melodus*) Atlantic Coast Population Revised Recovery Plan.
https://ecos.fws.gov/docs/recovery_plan/960502.pdf. Accessed on March 16, 2022.
- USFWS. 1997. Wood Stork Recovery Plan. https://ecos.fws.gov/docs/recovery_plan/970127.pdf
Accessed March 14, 2022.
- USFWS. 2001a. Endangered and Threatened Wildlife and Plants: Final Determination of Critical Habitat for Wintering Piping Plovers. 50 CFR Part 17. FR 36038. July 10, 2001.
<https://www.govinfo.gov/content/pkg/FR-2001-07-10/pdf/01-16905.pdf>. Accessed March 15, 2022.
- USFWS. 2001b. Florida Manatee Recovery Plan, (*Trichechus manatus latirostris*), Third Revision. U.S. Fish and Wildlife Service. Atlanta, Georgia. 144 pp.
- USFWS. 2003. Red-cockaded Woodpecker Recovery Plan.
https://ecos.fws.gov/docs/recovery_plan/030320_2.pdf. Accessed March 14, 2022.
- USFWS. 2007. National Bald Eagle Management Guidelines. <https://www.fws.gov/media/national-bald-eagle-management-guidelines-0> Accessed March 14, 2022.
- USFWS. 2010. Endangered and Threatened Wildlife and Plants; 12-month Finding on a Petition to Revise Critical Habitat for Florida Manatee (*Trichechus manatus latirostris*). Federal Register / Vo. 75, No.7 / Tuesday, January 12, 2010 / Proposed Rules. <https://www.govinfo.gov/content/pkg/FR-2010-01-12/pdf/2010-325.pdf>. Accessed: March 14, 2022.
- USFWS. 2014a. Rufa Red-Knot Background Information and Threats Assessment.
<https://rucore.libraries.rutgers.edu/rutgers-lib/46245/PDF/1/play/>. Accessed March 15, 2022.
- USFWS. 2014b. Pondberry (*Lindera melissifolia*) 5-Year Review: Summary and Evaluation.
https://ecos.fws.gov/docs/five_year_review/doc4358.pdf. Accessed March 16, 2022.
- USFWS. 2015a. Northern Long-Eared Bat Fact Sheet.
https://www.fws.gov/sites/default/files/documents/508_NLEB%20fact%20sheet.pdf. Accessed March 16, 2022.
- USFWS. 2015b. Green Sea Turtle Fact Sheet. USFWS Florida Ecological Services Office. 7915 Baymeadows Way, Suite 200, Jacksonville, FL, 32256

- USFWS. 2018. Species Status Assessment Report for the Eastern Black Rail (*Laterallus jamaicensis jamaicensis*), Version 1.2. June 2018. Atlanta, GA.
<https://ecos.fws.gov/ServCat/DownloadFile/154242>. Accessed March 16, 2022.
- USFWS. 2020a. Bald Eagle Natural History and Sensitivity to Human Activity Information.
<https://www.fws.gov/node/265782>. Accessed March 16, 2022.
- USFWS. 2020b. Species Status Assessment Report for the Red-cockaded Woodpecker (*Picoides borealis*) Version 1.3. <https://ecos.fws.gov/ServCat/DownloadFile/188805>. Accessed March 16, 2022.
- USFWS. 2020c. Monarch (*Danaus plexippus*) Species Status Assessment Report, version 2.1 September 2020. <https://ecos.fws.gov/ServCat/DownloadFile/191345>. Accessed March 16, 2022.
- USFWS. 2020d. National Wetland Inventory. <https://www.fws.gov/wetlands/>. Accessed March 16, 2022.
- USFWS. 2022a. South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species by County. Charleston, SC.
https://www.fws.gov/sites/default/files/documents/20210831_SC_Species-List-by-county_0.pdf. Accessed: March 16, 2022.
- USFWS. 2022b. Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).
<https://www.fws.gov/law/bald-and-golden-eagle-protection-act>. Accessed March 16, 2022.
- USFWS. 2022c. Critical Habitat Mapper.
<https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77>. Accessed March 16, 2022.
- 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

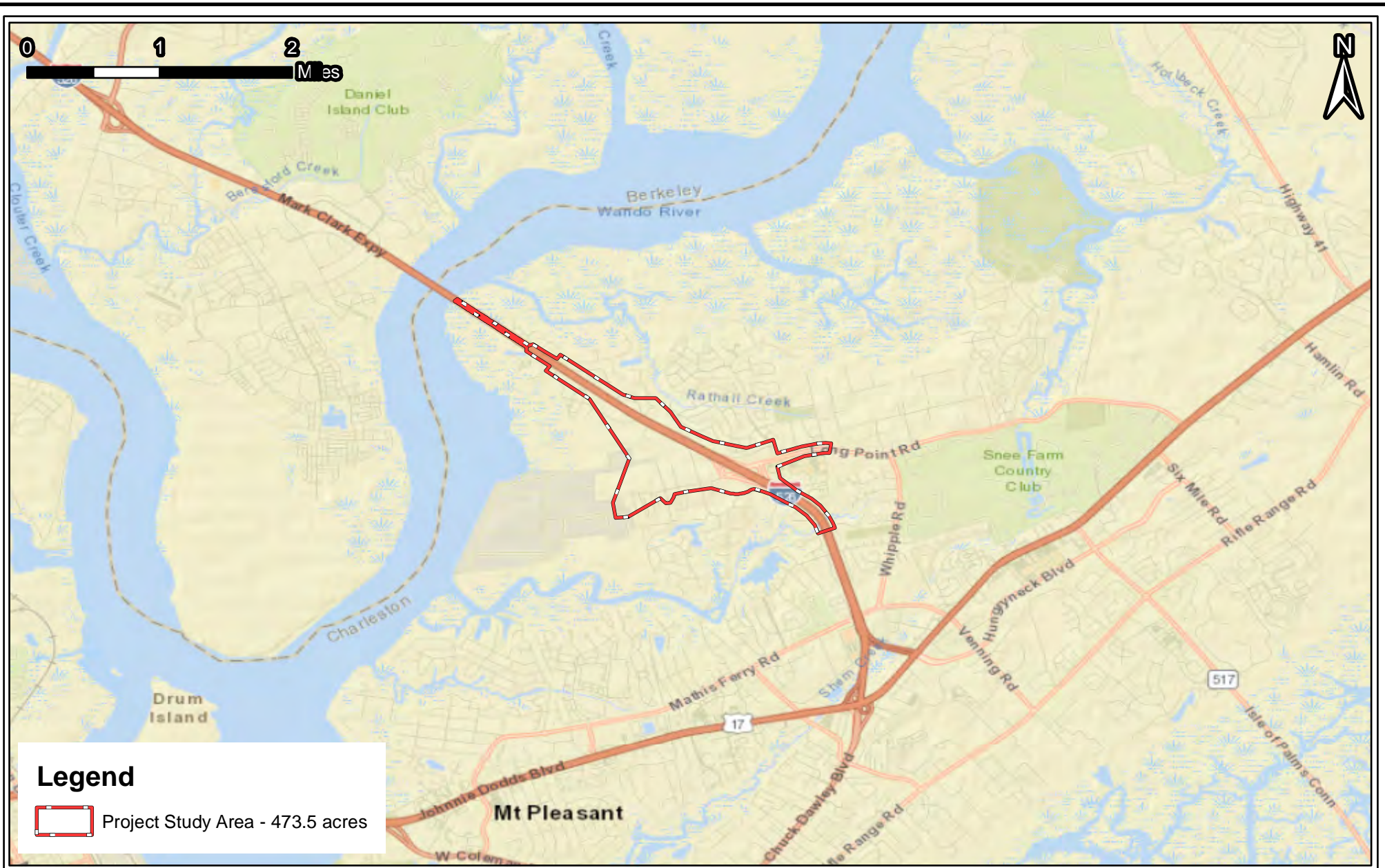
Project Location Map


Charleston County, South Carolina

Date: July 7, 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:

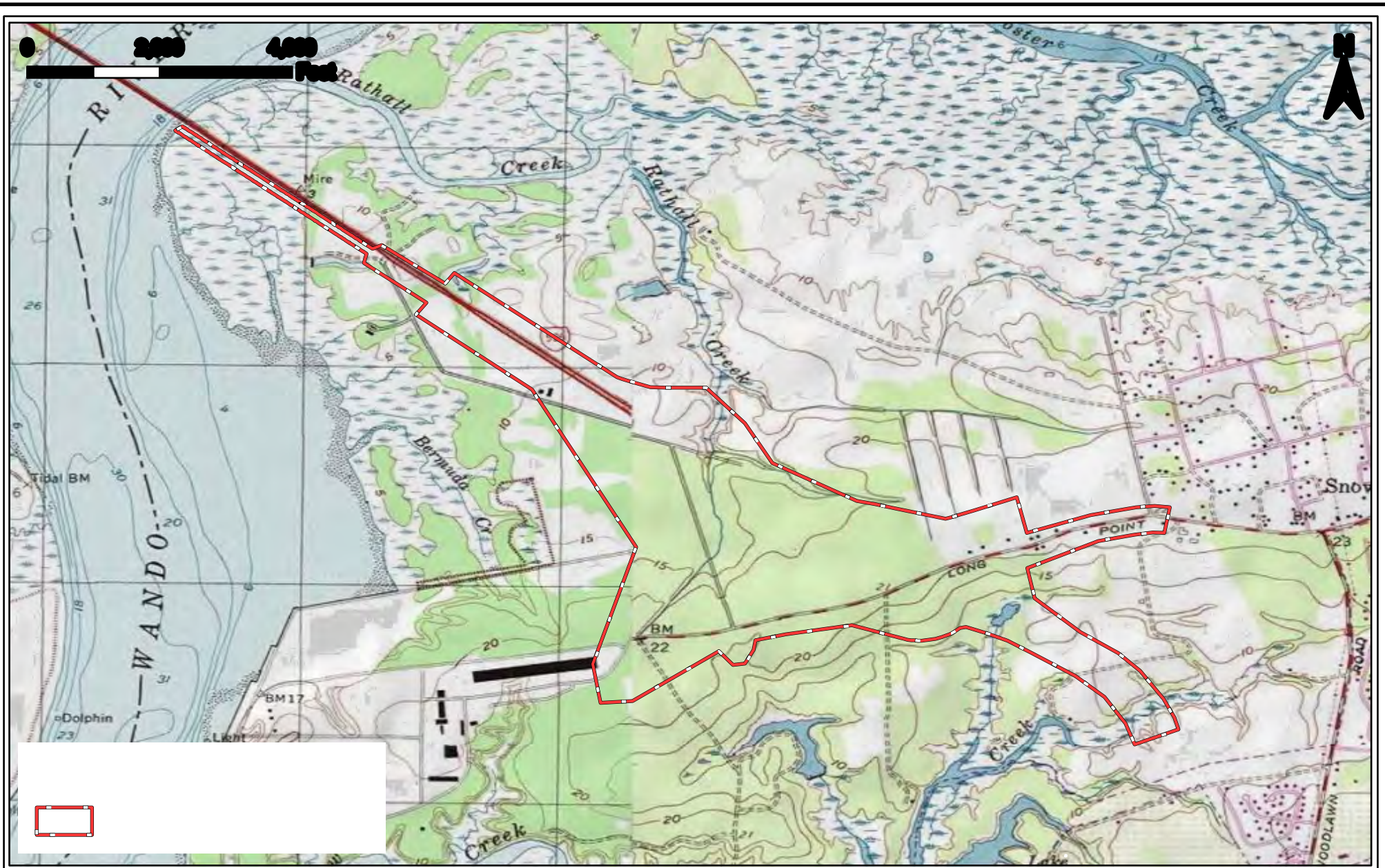
 South Carolina Department of Transportation

I-526 East: Long Point Road Interchange

 Project Vicinity Map
 Charleston County, South Carolina

Date:	July 7, 2022
Scale:	1 in = 1 miles
Job No.:	17-615
Drawn By:	ZCB
Checked By:	WCB

Figure
2



Prepared For:

SCDOT
 South Carolina Department of Transportation

I-526 East: Long Point Road Interchange

Topographic Map

Charleston County, South Carolina

Date: July 7, 2022

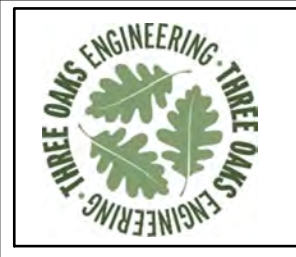
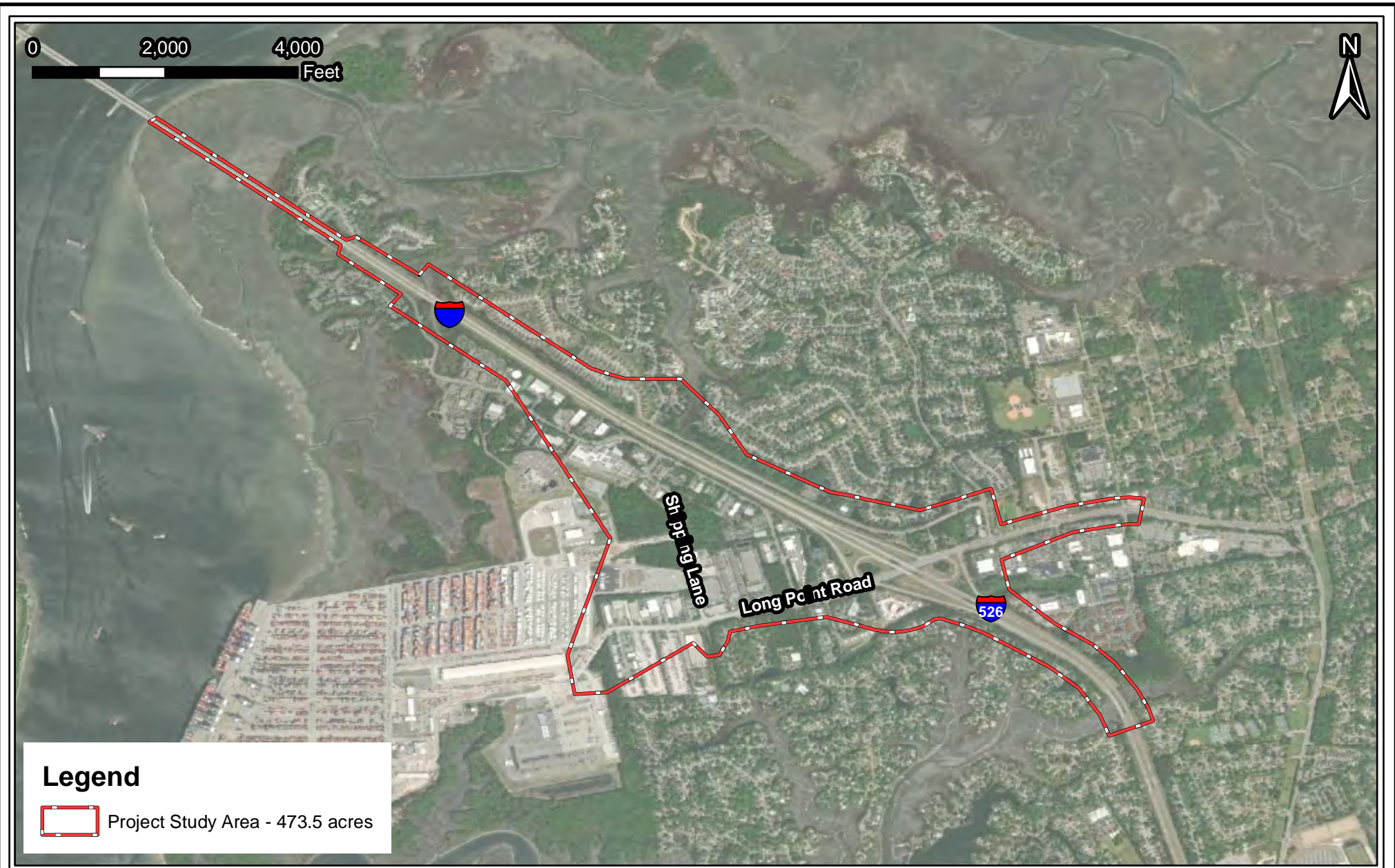
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Job No.: 17-615

Drawn By: ZCB Checked By: WCB

Figure

3



Prepared For:



South Carolina Department of Transportation

I-526 East: Long Point Road Interchange

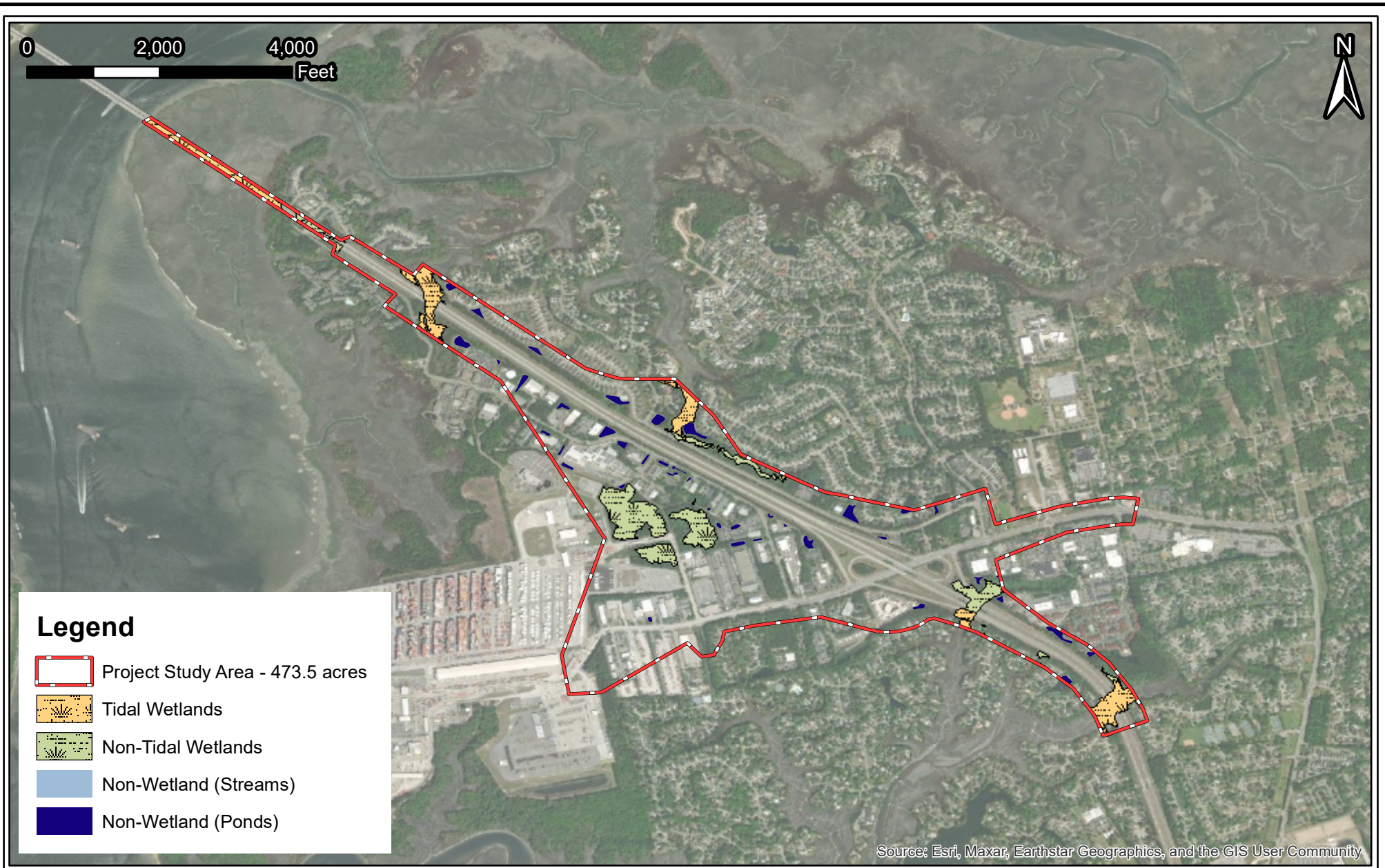
Aerial Map

Charleston County, South Carolina

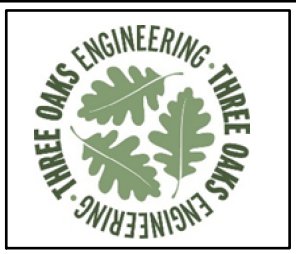
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July 7, 2022	
Scale:	
1 in = 2,000 ft	
Job No.:	
17-615	
Drawn By:	Checked By:
ZCB	WCB

Figure

4



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Prepared For:
SCDOT
 South Carolina Department of Transportation

Long Point Road Interchange

Water Resources 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
5

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

CHARLESTON COUNTY

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

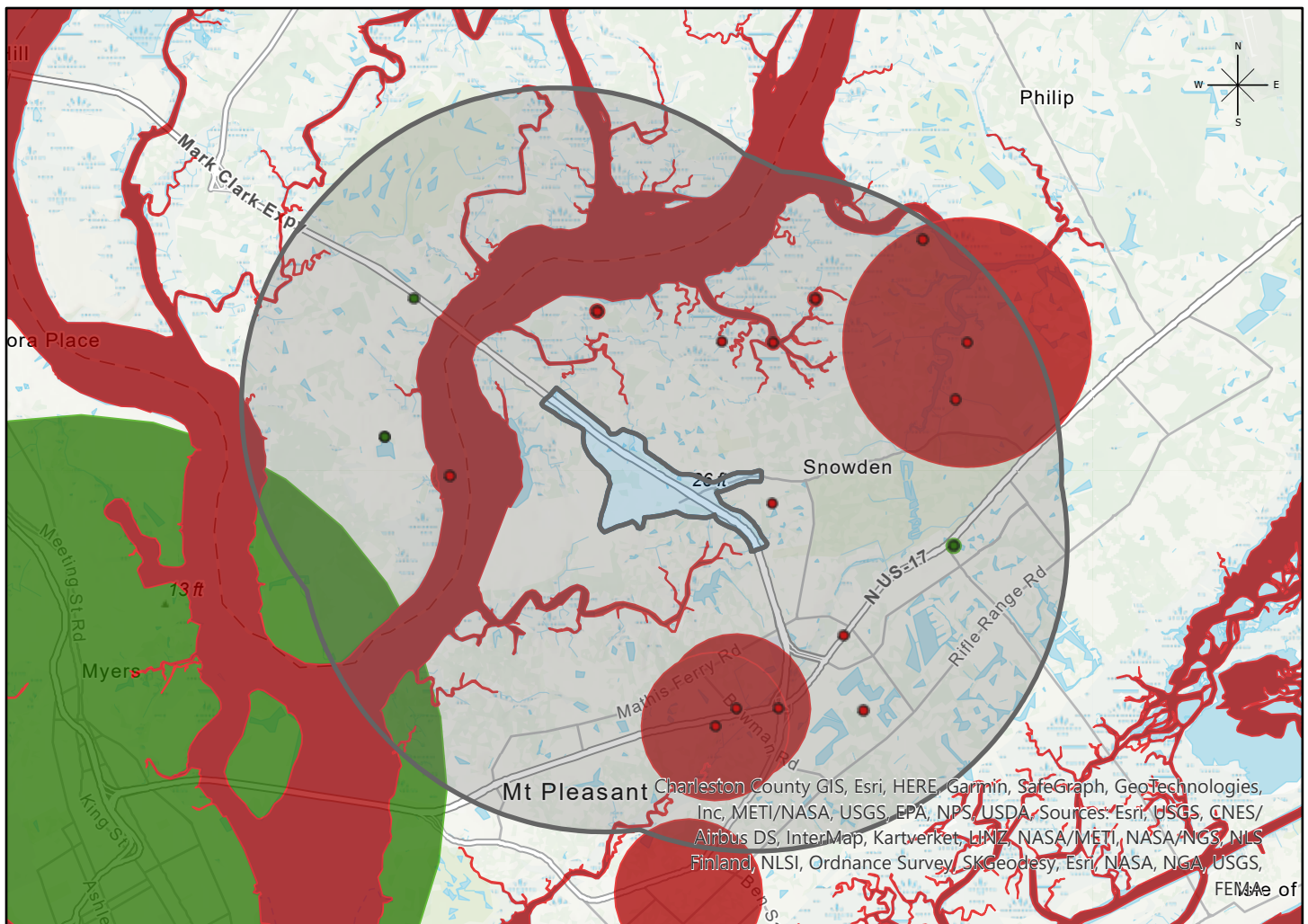
Robert H. Boyles, Jr.
Director

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 or by visiting 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 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.

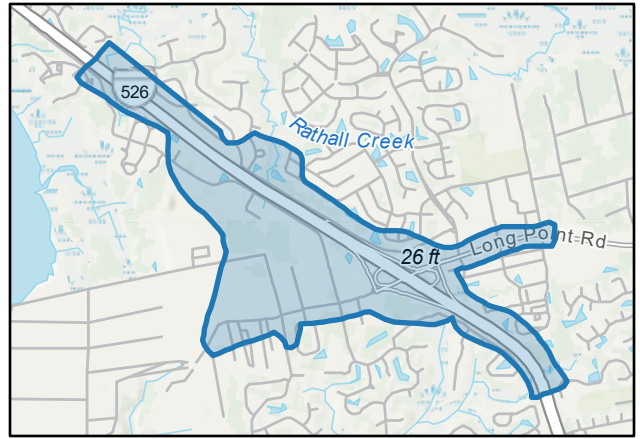
Joseph Lemeris, Jr.
Heritage Trust Program
SC Department of Natural Resources

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 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



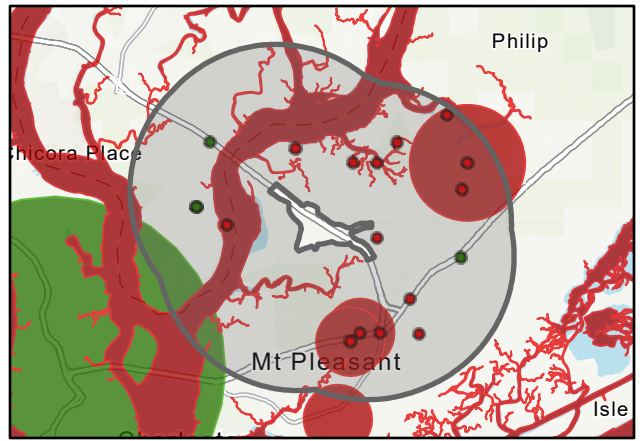
Scientific Name	Common Name	G Rank	S Rank	Fed. Status	State Status	SWAP Priority	Last Obs. Date
<i>Heterodon simus</i>	Southern Hog-nosed Snake	G2	S1S2	Not Applicable	ST: State Threatened	Highest	1911-05

B. Buffer Area - Species Report (1 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



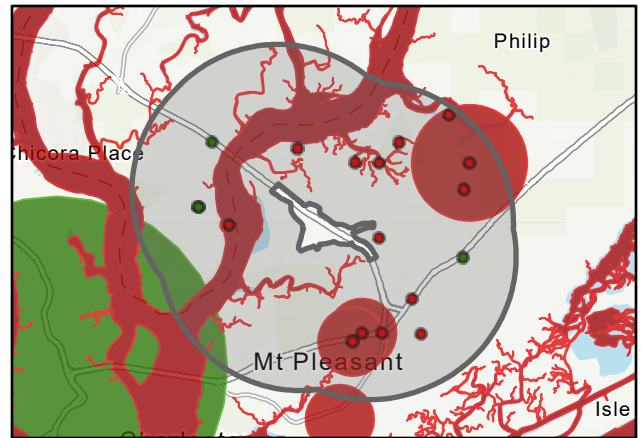
Scientific Name	Common Name	G Rank	S Rank	Fed. Status	State Status	SWAP Priority	Last Obs. Date
<i>Colaptes auratus</i>	Frosted Elf	G2G3	SNR	ARS: At-Risk Species	Not Applicable	Not Applicable	1993-04-17
<i>Clemmys guttata</i>	Spotted Turtle	G5	S3	ARS: At-Risk Species	ST: State Threatened	High	1911-04-18
<i>Haliaeetus leucocephalus</i>	Bald Eagle	G5	S3B,S3N	Bald & Golden Eagle Protection Act	ST: State Threatened	High	2021
<i>Haliaeetus leucocephalus</i>	Bald Eagle	G5	S3B,S3N	Bald & Golden Eagle Protection Act	ST: State Threatened	High	2022
<i>Haliaeetus leucocephalus</i>	Bald Eagle	G5	S3B,S3N	Bald & Golden Eagle Protection Act	ST: State Threatened	High	2021
<i>Trichechus manatus</i>	Florida Manatee	G2G3	S1S2	LT: Federally Threatened	SE: State Endangered	Highest	2020
<i>Ardea alba</i>	Great Egret	G5	S4S5	MBTA: Migratory Bird Treaty Act	Not Applicable	Not Applicable	2011
<i>Ardea herodias</i>	Great Blue Heron	G5	S5	MBTA: Migratory Bird Treaty Act	Not Applicable	Moderate	2012
<i>Icterus galbula</i>	Baltimore Oriole	G5	S3B,S4N	MBTA: Migratory Bird Treaty Act	Not Applicable	High	2018/02/09
<i>Mniotilta varia</i>	Black-and-white Warbler	G5	S5	MBTA: Migratory Bird Treaty Act	Not Applicable	High	2015/10/23
<i>Sterna antillarum</i>	Least Tern	G4	S2	MBTA: Migratory Bird Treaty Act	ST: State Threatened	Highest	1992-09-01
<i>Sterna antillarum</i>	Least Tern	G4	S2	MBTA: Migratory Bird Treaty Act	ST: State Threatened	Highest	1992-09-01
<i>Sterna antillarum</i>	Least Tern	G4	S2	MBTA: Migratory Bird Treaty Act	ST: State Threatened	Highest	1996
<i>Alosa aestivialis</i>	Blueback Herring	G3G4	S5	Not Applicable	Not Applicable	Highest	No Date
<i>Lasiurus cinereus</i>	Hoary Bat	G3G4	S4?	Not Applicable	Not Applicable	Highest	1918-01-14
<i>Lilaeopsis carolinensis</i>	Carolina Lilaeopsis	G3G5	S2	Not Applicable	Not Applicable	Moderate	2018-10-02
<i>Lilaeopsis carolinensis</i>	Carolina Lilaeopsis	G3G5	S2	Not Applicable	Not Applicable	Moderate	2021-03-31
<i>Lilaeopsis carolinensis</i>	Carolina Lilaeopsis	G3G5	S2	Not Applicable	Not Applicable	Moderate	2021-03-31
<i>Litsea aestivalis</i>	Pondspice	G3?	S3	Not Applicable	Not Applicable	High	1978-08-01
<i>Procambarus blandingii</i>	Santee Crayfish	G4	S4	Not Applicable	Not Applicable	Moderate	1969-01-10
<i>Satyrium kingi</i>	King's Hairstreak	G3G4	S2S4	Not Applicable	Not Applicable	Not Applicable	1975-05-26
<i>Sceptridium lunarioides</i>	Winter Grapefern	G4?	S1	Not Applicable	Not Applicable	Moderate	1850
<i>Thalia dealbata</i>	Powdery Thalia, Powdery Alligator-flag	G4	S2	Not Applicable	Not Applicable	Not Applicable	2021-03-31
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1995
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1995
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1995
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1995
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1995
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1995
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Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1995
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1995
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1998
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1996
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1998
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1998
Waterbird Colony	Waterbird Colony	GNR	S3S4	Not Applicable	Not Applicable	Not Applicable	1998

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



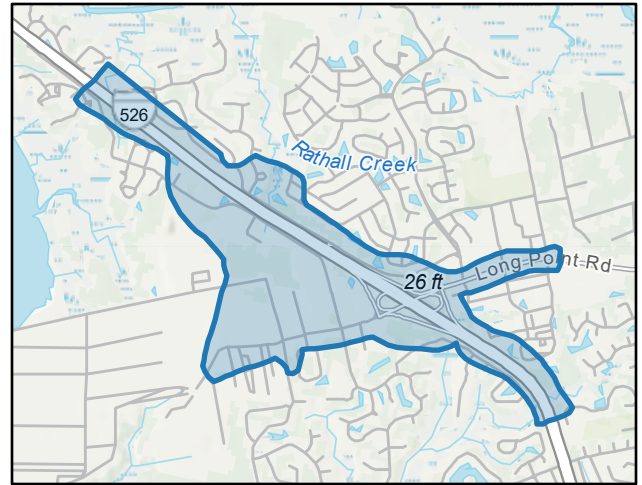
Scientific Name	Common Name	G Rank	S Rank	Fed. Status	State Status	SWAP Priority	Last Obs. Date
<i>Malaclemys terrapin</i>	Diamond-backed Terrapin	G4	S3	Not Applicable	R: Regulated	High	2021-06-07
<i>Malaclemys terrapin</i>	Diamond-backed Terrapin	G4	S3	Not Applicable	R: Regulated	High	2018-09-05
<i>Malaclemys 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 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):

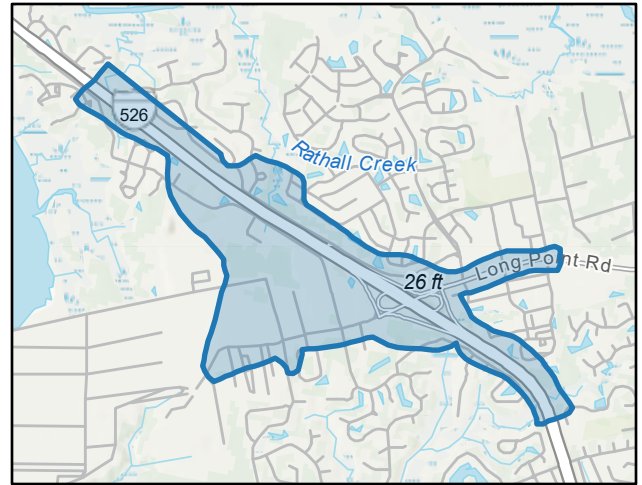
- If manatee(s) are seen within 100 yards of the active construction area all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet to a manatee. Operation of any equipment closer 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 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/nationalbaldeaglenagementguidelines.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 before any development occurs onsite. There may be plants of interest on the project site that the Alliance would like to preserve.

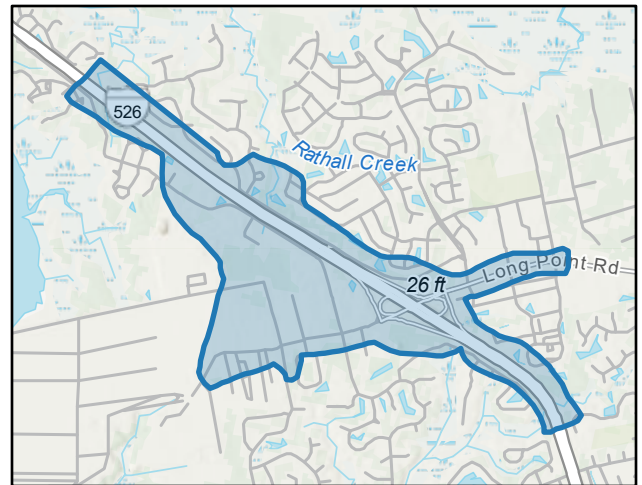
Species in the above table with SWAP priorities of High, Highest or Moderate are designated as having conservation priority under the South Carolina State Wildlife Action Plan (SWAP). SWAP species are those species of greatest conservation need not traditionally covered under any federal funded programs. 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 should you have further questions with regard to best management practices related to this project area.



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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. 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.

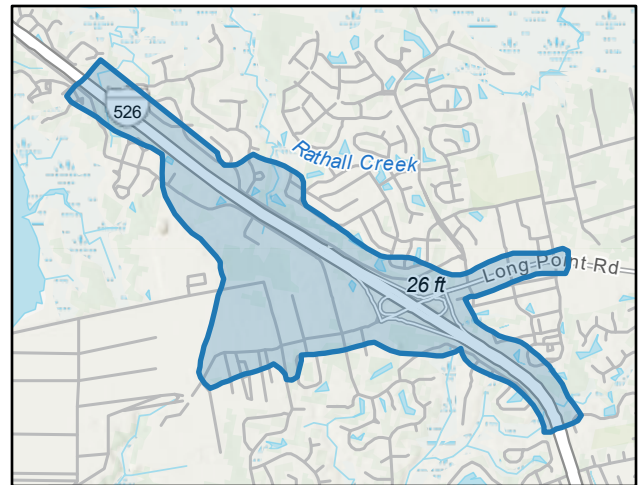
- All necessary measures must be taken to prevent oil, tar, trash and other pollutants from entering the adjacent offsite areas/wetlands/ water.
- Once the project is initiated, it must be carried to completion in an expeditious manner to minimize the period of disturbance to the environment.
- Upon 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 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.

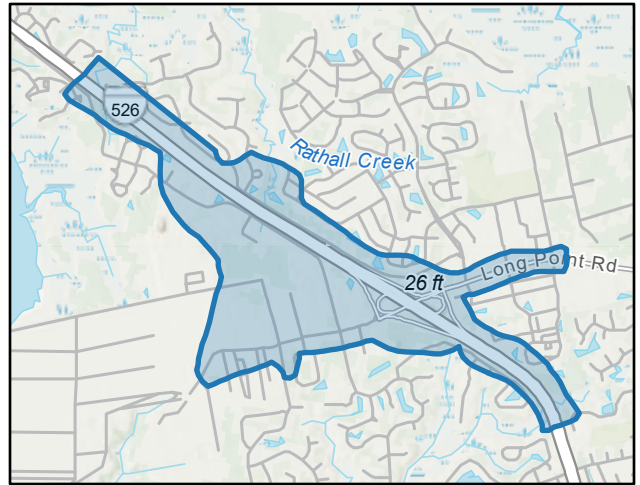
Your project area includes a FEMA special flood hazard area and may require a permit from the County National Floodplain Insurance Program Manager before impacts occur to aquatic resources and the associated floodplains on site. Please refer to <https://www.dnr.sc.gov/water/flood/documents/nfipadmindirectory.pdf>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

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



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
 - 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.



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 6: Hobcaw Creek and associated estuarine emergent wetlands

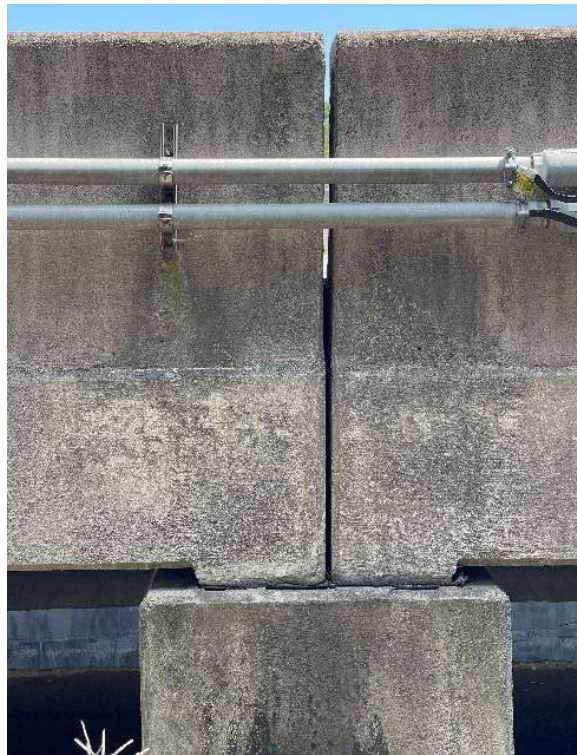


Photograph 7: Typical estuarine emergent wetland



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

EXAMPLES OF POTENTIAL BAT ROOST SITES IN THE PSA



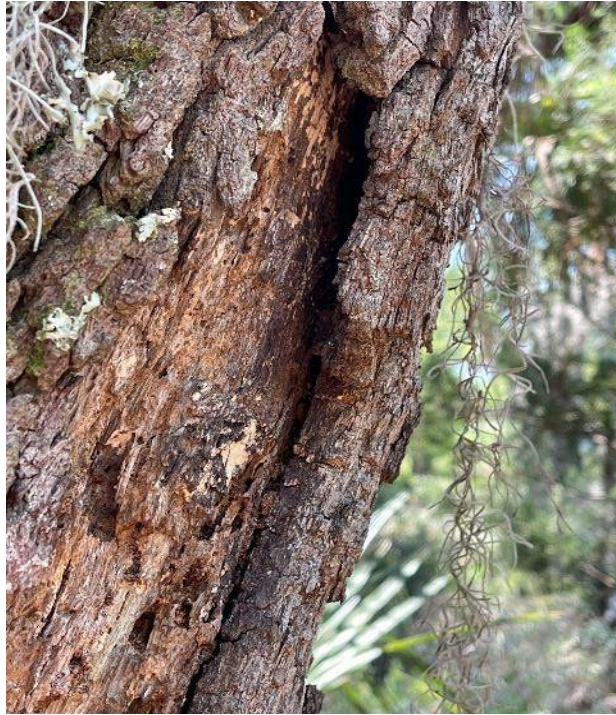
Photograph 10: Tidal creek bridge structure



Photograph 11: Rough surfaces under the decks of tidal creek bridges



Photograph 12: Hollow tree in forested uplands



Photograph 13: Sloughing bark on a dead live oak in forested uplands



Photograph 14: Underside of the I-526 bridge over Long Point Road