S-23-310 (Crestwood Drive) Bridge Replacement over Langston Tributary

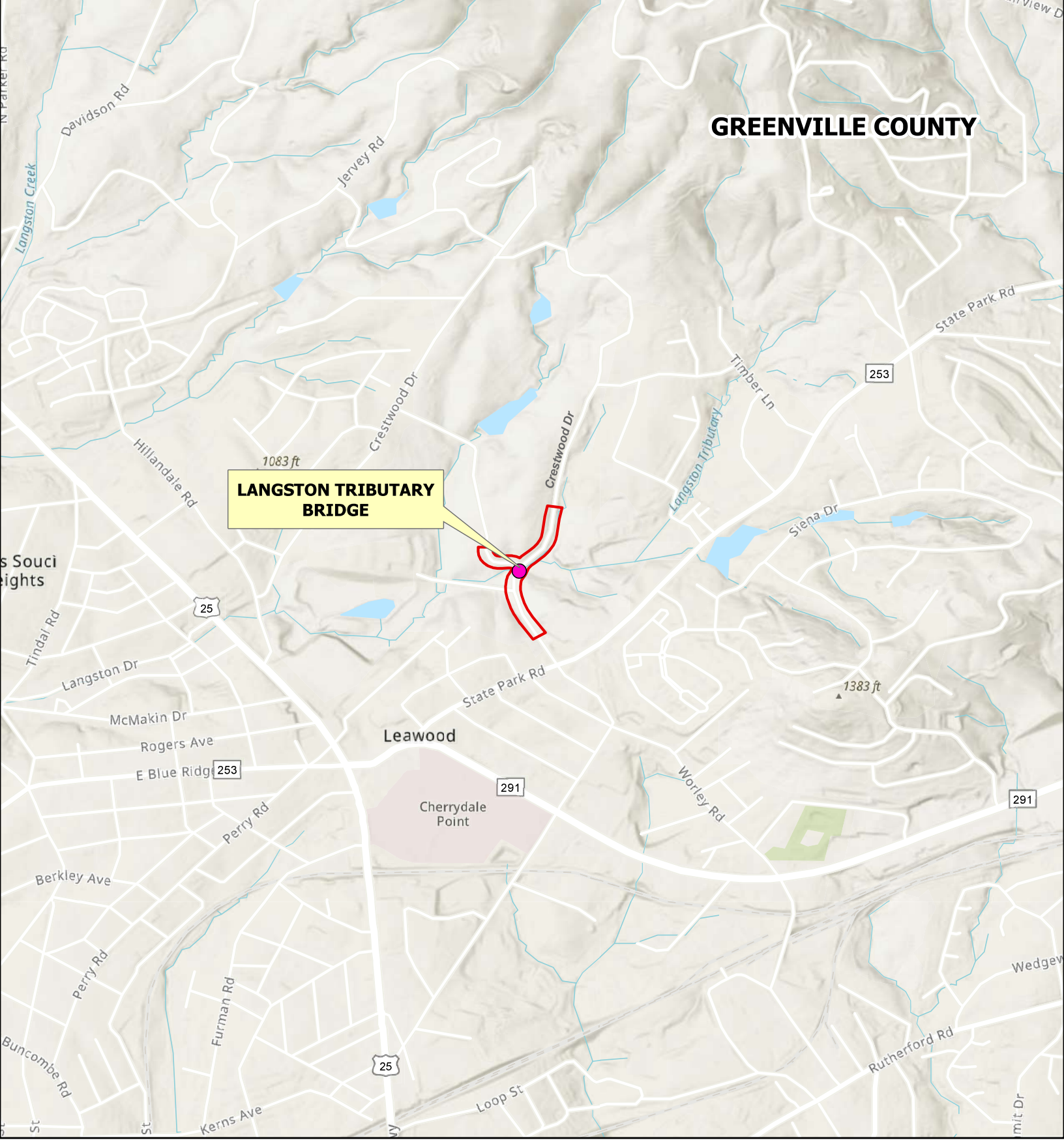
Project ID: P041162

Project Description:

South Carolina Department of Transportation (SCDOT) proposes to replace the S-23-310 (Crestwood Drive) Bridge over Langston Tributary in Greenville County (See Figures 1 and 2).

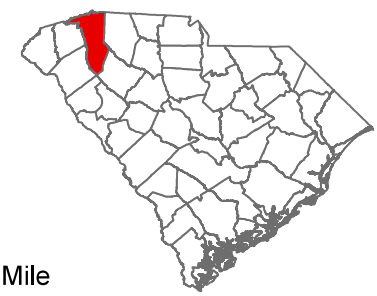
The purpose of this project is to correct the load restriction placed on the bridge and restore all components to good condition. The existing bridge is posted for load restrictions and has one or more components in poor condition. The bridge was built in 1965. According to the SCDOT Structure Inventory and Appraisal Report from August 2022, the bridge has a sufficiency rating of 22.7. An off-site detour may be utilized during construction. The bridge is currently open to traffic.

Field studies revealed no significant impacts or effects to resources within the project study area.



Legend

- Study Area
- Bridge



N

0 0.25 0.5 Mile

HNTB

Figure 1.
Vicinity Map
Replacement of SC Bridge 4543 on Crestwood Drive over Langston Tributary in Greenville County, SC

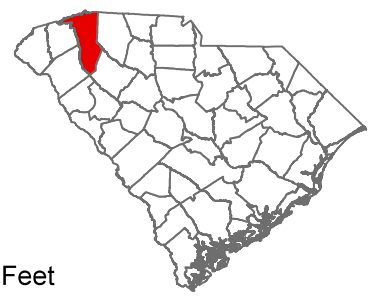
Sources: SCDOT, ArcGIS ESRI Basemap. 2023.

Legend

- Study Area
- Bridge
- Stream
- Road

N

0 250 500 Feet



HNTB

Figure 2.
Study Area Map
Replacement of SC Bridge 4543 on Crestwood Drive over Langston Tributary in Greenville County, SC

Sources: SCDOT, ArcGIS ESRI Basemap. 2023.

S-310 Bridge Replacement Appendices

Appendix A: Cultural Resources Screening Reports

Appendix B: Natural Resources Technical Memorandum

Appendix C: Bridge Scope and Risk Assessment Form

Appendix D: Floodplain Checklist

Appendix E: Public Comments

Appendix A: Cultural Resources Screening Form

CULTURAL RESOURCE FIELD REPORT
SCDOT ENVIRONMENTAL SECTION

TITLE: Phase I Cultural Resources Survey of Proposed Improvements to the S-23-310 Bridge over Langston Tributary

DATE OF RESEARCH: 7/28/23

ARCHAEOLOGIST: Lauren Christian, MA, RPA

ARCHITECTURAL HISTORIAN: Sean Stucker, MHP

COUNTY: Greenville

PROJECT: Closed and Load Restricted Bridge Replacements – Package 19

F. A. No.:

File No.

PIN: P041162

DESCRIPTION:

The South Carolina Department of Transportation (SCDOT) proposes to replace various closed or load-restricted bridges including the S-23-310 (Crestwood Drive) bridge over Langston Tributary in Greenville County, South Carolina. The project area is defined as that area within 75 feet of either side of the proposed roadway centerline and extending 1,700 feet along S-23-310 and 500 feet along S-32-752. The archaeological survey covered the entire project area, while the architectural survey recorded all above-ground resources with sightlines to the bridge. This cultural resource survey was performed under contract with HNTB.

LOCATION:

The project is located within the city limits of Greenville in southern Greenville County, South Carolina (Figure 1).

USGS QUADRANGLE: Paris Mountain, SC **DATE:** 2014 **SCALE:** 1:24,000

UTM: NAD83 **ZONE:** 17N **EASTING:** 372069 **NORTHING:** 3862533

ENVIRONMENTAL SETTING:

The project area is situated in the Piedmont physiographic region, which is characterized by rolling hills formed from extensive weathering of ancient mountain ranges. The topography in the project area ranges from 1,050 feet above mean sea level (amsl) at the southern and northern terminus to 1,010 feet amsl in the vicinity of Langston Tributary. The surrounding landscape is predominantly wooded private property and residential, with commercial buildings and new construction present at the southern end of the project area. Vegetation along the tributary consists of mixed pines and hardwoods with a moderately dense understory.

NEAREST RIVER/STREAM AND DISTANCE:

Langston Tributary bisects the project area and joins Langston Creek approximately 1.5 miles west of the project area. Langston Creek is a tributary of the Reedy River (Hydrological unit code [HUC] 0305010904), which eventually flows into Lake Greenwood and the Saluda River (HUC 03050109) approximately 4 miles west of the town of Waterloo, South Carolina, approximately 40 miles south-southeast of the project area (South Carolina Department of Health and Environmental Control 2023).

SOIL TYPE:

Soils in the project area were formed from alluvium or residuum weathered from granite, gneiss, and/or diorite. Most of the soils are well drained (89.4%), with 10.7 percent identified as somewhat poorly drained (Table 1; Figure 2).

Table 1. Soils Mapped in the Project Area

Map Unit	Map Name	Drainage Class	Notes	Acres in Project Area	Percent of Project Area
Cb	Cartecay and Toccoa soils	Somewhat Poorly Drained		0.8	10.7%
CeC	Cecil sandy loam	Well Drained	6–10% slopes	0.8	10.6%
PcE	Pacolet sandy loam	Well Drained	15–25% slopes	6.0	78.8%
Total				7.6	100%

REFERENCE FOR SOILS INFORMATION:

USDA-NCRS Soil Survey Division, Custom Soil Resource Report (websoilsurvey.sc.egov.usda.gov).

GROUND SURFACE VISIBILITY: **0% ___ 1-25% _X_ 26-50% ___ 51-75% ___ 76-100% ___**

CURRENT VEGETATION:

The vegetation in the project area primarily consists of mixed pines and hardwoods with a moderately dense understory. This understory becomes very dense on either side of the bridge. While the eastern and northern sides of the project area along Crestwood Drive (State Road [SR] S-23-310) are forested, the southwestern portion is newly leveled for construction. The north side of Garden Terrace (SR S-23-752) consists of overgrown pasture, while the southern side contains more forested and manicured areas (Figures 3–5).

INVESTIGATION:

BACKGROUND RESEARCH

Prior to fieldwork, New South Associates, Inc. (NSA) conducted background research using the ArchSite GIS database maintained by the South Carolina Institute of Archaeology and Anthropology (SCIAA) and the South Carolina Department of Archives and History (SCDAH). The background research identified one previous cultural resources survey and two historic structures within the 0.5-mile search radius (Figure 6). None of these resources is in the project area itself.

The survey was conducted in 1998 by the SCDOT (Roberts 1998) and consisted of an intensive archaeological survey of the US 276/25 Business SC 253/2 interchange. No archaeological sites were identified during this survey; however, historic structures 0972 and 0973 were recorded along State Park Road. SHPO Site Number 0972 was identified as the Sidney P. Stover House, while SHPO Site Number 0973 was identified as the William L. Stover House. Both were recommended not eligible for listing in the National Register of Historic Places (NRHP), and although a field revisit was not required or conducted for these properties, historical satellite and Google Streetview imagery indicates that SHPO Site Number 0973 is not extant and that SHPO Site Number 0972 was heavily modified around 2021 (SCIAA and SCDAH 2023).

Table 2. Previously Recorded Cultural Resources

SHPO Site No.	Address	Style/Type	Build Date	NRHP Recommendation
0972	William L. Stover House 300 State Park Road	Unknown	Circa 1950	Not Eligible
0973	Sidney P. Stover House 210 State Park Road	Unknown	Unknown/Not Extant	Not Eligible

SURVEY RESULTS

The cultural resources survey identified no archaeological sites or isolated finds within the project area. The architectural survey recorded one new resource, SHPO Site Number 6397. The results of the cultural resources survey are presented below.

ARCHAEOLOGY

The Phase I Archaeology Survey was conducted on July 28, 2023. Lauren Christian, MA, RPA, served as Field Director and was assisted in the field by Archaeological Technician John Tomko. The archaeological investigation included a pedestrian walkover of the entire project area and the excavation of shovel tests at 30-meter (100-ft.) intervals within the project area. Shovel tests were placed along single transects parallel to either side of Crestwood Drive (SR S-23-310) and Garden Terrace (SR S-23-752). Soil profiles were recorded for all excavated shovel tests, and location data was recorded for all investigated shovel tests using handheld GPS instruments.

Forty-five shovel test locations were plotted at 30-meter intervals across the project area. However, shovel tests that occurred in developed/modified areas, on steep side slopes, or in wetlands were not excavated. All other areas were documented by shovel test excavation or by examining exposed subsoil. As a result, 11 shovel tests were either excavated or were documented based on surface visibility (Figure 7). Nearly 80 percent of the project area has soils classified as steeply sloping, which is evident along both sides of Crestwood Drive. In addition, on the west side of Crestwood Drive south of Crestwood Forest Drive, the land has been cleared and bulldozed for upcoming construction (see Figure 4). Adjacent to the creek, the soils are somewhat poorly drained, and shovel tests in these locations were not excavated, except for ST 11, which is located in a relatively level area adjacent to the creek. The terrain is not as severe along Garden Terrace, where ST 27 through ST 36 were excavated, although conditions at ST 35 were wet.

One general soil profile was noted, consisting of approximately 15 centimeters of brown (7.5YR 4/3) sandy loam Ap horizon overlying a reddish brown (5YR 5/4) sandy clay subsoil containing 50–75 percent pebbles (Figure 8). No archaeological sites or isolated finds were identified in the project area.

ARCHITECTURAL SURVEY

On August 25, 2023, Architectural Historian Sean Stucker, MHP, conducted the architectural survey of the APE, which was defined as all above-ground resources 50 years of age or older with sightlines to the bridge. Such resources were documented with South Carolina State Survey forms and photography and assessed for NRHP eligibility in accordance with the *South Carolina State Historic Preservation Office (SHPO) Survey Manual: South Carolina Statewide Survey of Historic Places*. One architectural resource was recorded, but the bridge itself, constructed in 1965, was not evaluated per the FHWA's Post-1945 Bridges Program Comment (U.S. Department of Transportation, Federal Highway Administration 2012). This bridge (ID 04543) is of a common type and has prestressed concrete channel beams and wood piers that are embedded into the creek banks and that appear to rest on stone footings. A modern wooden retaining wall, which is on the earth side of the piers, was likely installed to prevent erosion (Figure 9). The newly recorded resource, discussed below, is identified in Table 3 and mapped in Figure 10.

Table 3. Newly Recorded Architectural Resources

Site No.	Address	Style/Type	Build Date	NRHP Recommendation
6397	House 28 Garden Terrace (State Rd S-23-752)	Contemporary house	Circa 1964	Not Eligible

SHPO Site Number 6397 – 28 Garden Terrace (State Rd S-23-752)

SHPO Site Number 6397 is a circa-1964 contemporary two-story laterally gabled frame house with a three-bay façade and one-story wings extending from both gable-end elevations (Figure 11). Greenville County tax records do not list a construction date, and the house is present in 1965 aerial imagery but not in 1955 aerial imagery. The Real Property Card on file with the tax assessor shows deed transfers in 1959 and 1964, so the house is assumed to have been built circa 1964 (University of South Carolina 2023).

Located at 28 Garden Terrace, the house faces east, and the core has a symmetrically fenestrated façade with a central entrance flanked by sets of triple windows on the first floor; a single window is centered above the door with paired windows in the outer bays. All windows are six-over-six sash with storm windows and faux shutters on the ground floor, and the upper-level windows are shorter than those below. Exterior cladding is brick veneer on the first floor and pressboard siding on the upper level and in the gable ends of the wings. All four gable-end elevations have rectangular gable vents, and all three roof structures have slightly overhanging boxed eaves and are clad with composition shingles. The foundation is not visible, but two brick chimneys are: one is centered in the ridgeline just off-center to the right of the entrance, and the other is an exterior chimney appended to the rear of the ridgeline on the south elevation. The entrance bay is slightly recessed, with the overhanging second level providing minimal shelter for the door and its flanking sidelights, which have glazing in the upper half and decorative wooden panels in the bottom. The raised brick entry stoop extends out several feet from the façade and has decorative wrought-iron stair and perimeter railings. Both single and paired windows are visible on the side elevations, but the rear elevation is not visible from the public right-of-way. The northern wing is a single auto garage, while the south-side wing is a combination screen porch and interior space. The porch has a set of brick steps ascending to the entrance on the façade elevation, and the screen-porch wall wraps around to the south elevation for several feet. Satellite imagery shows an outbuilding at the rear of the lot that was inaccessible and not visible from the public right of way.

SHPO Site Number 6397 is a circa-1964 contemporary house that is a common example of the type of two-story frame houses built in South Carolina at that time. It is not a distinctive or noteworthy example of this house type. It was not found to embody the distinctive characteristics of a style, period, or method of construction, and it does not possess significance for its engineering or materials. It is not known to be associated with events or persons significant in the past. Therefore, the resource is recommended as not individually eligible for listing in the NRHP under Criteria A, B, or C.

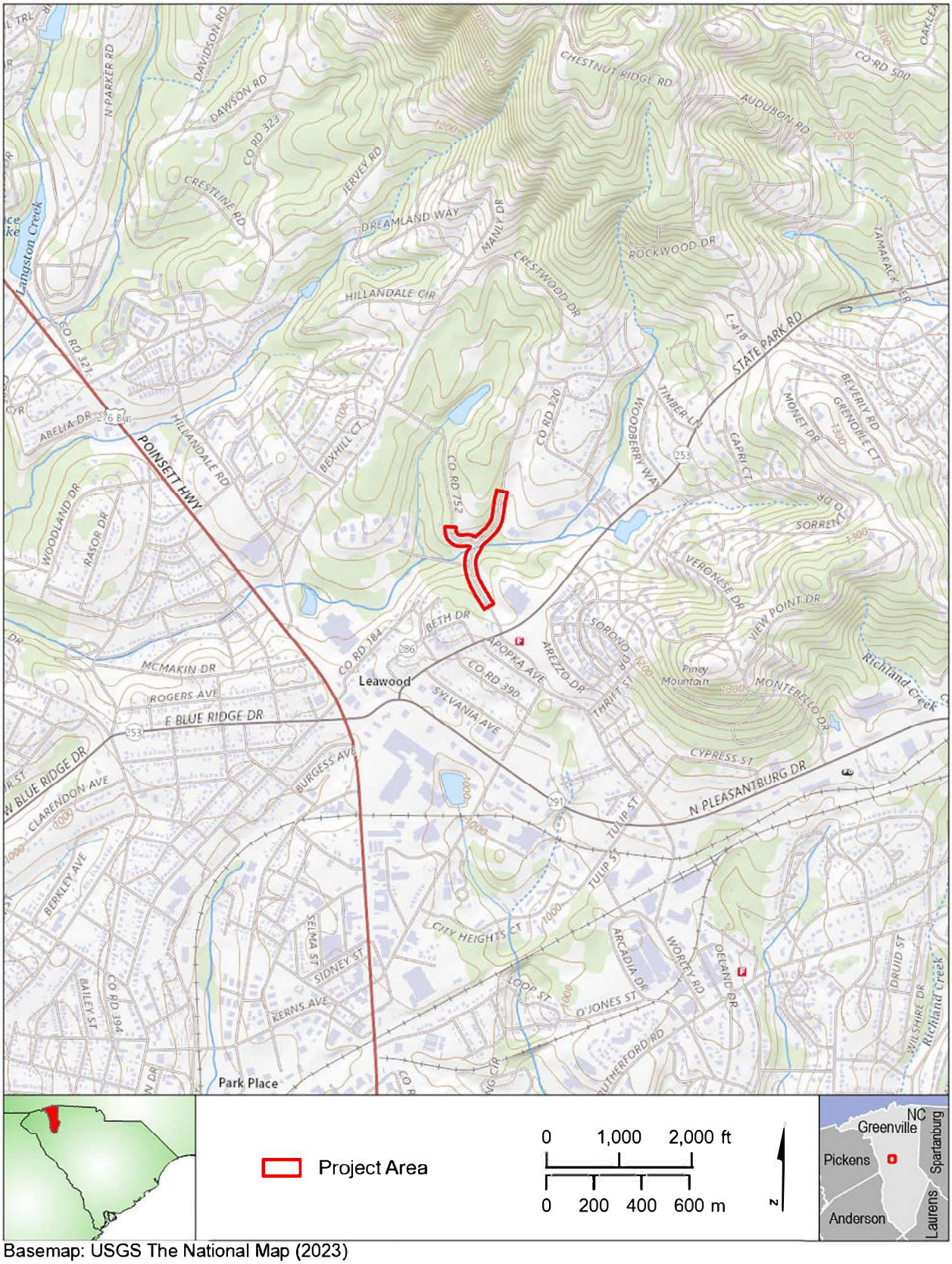
REMARKS AND RECOMMENDATIONS:

While the survey did not identify any new or previously recorded archaeological sites or isolated finds, the architectural survey recorded one new resource, but it is not recommended eligible for the NRHP. The proposed project, as currently defined, would have no effects on historic properties.

SIGNATURE: _____ **DATE:** April 18, 2024

Natalie Adams Pope, Principal Investigator

Figure 1. Project Location Map



Basemap: USGS The National Map (2023)

Figure 2. Soils Mapped in the Project Area

Basemap: NAIP (2021)

Figure 3. Forested Portion of Project Area, Looking South

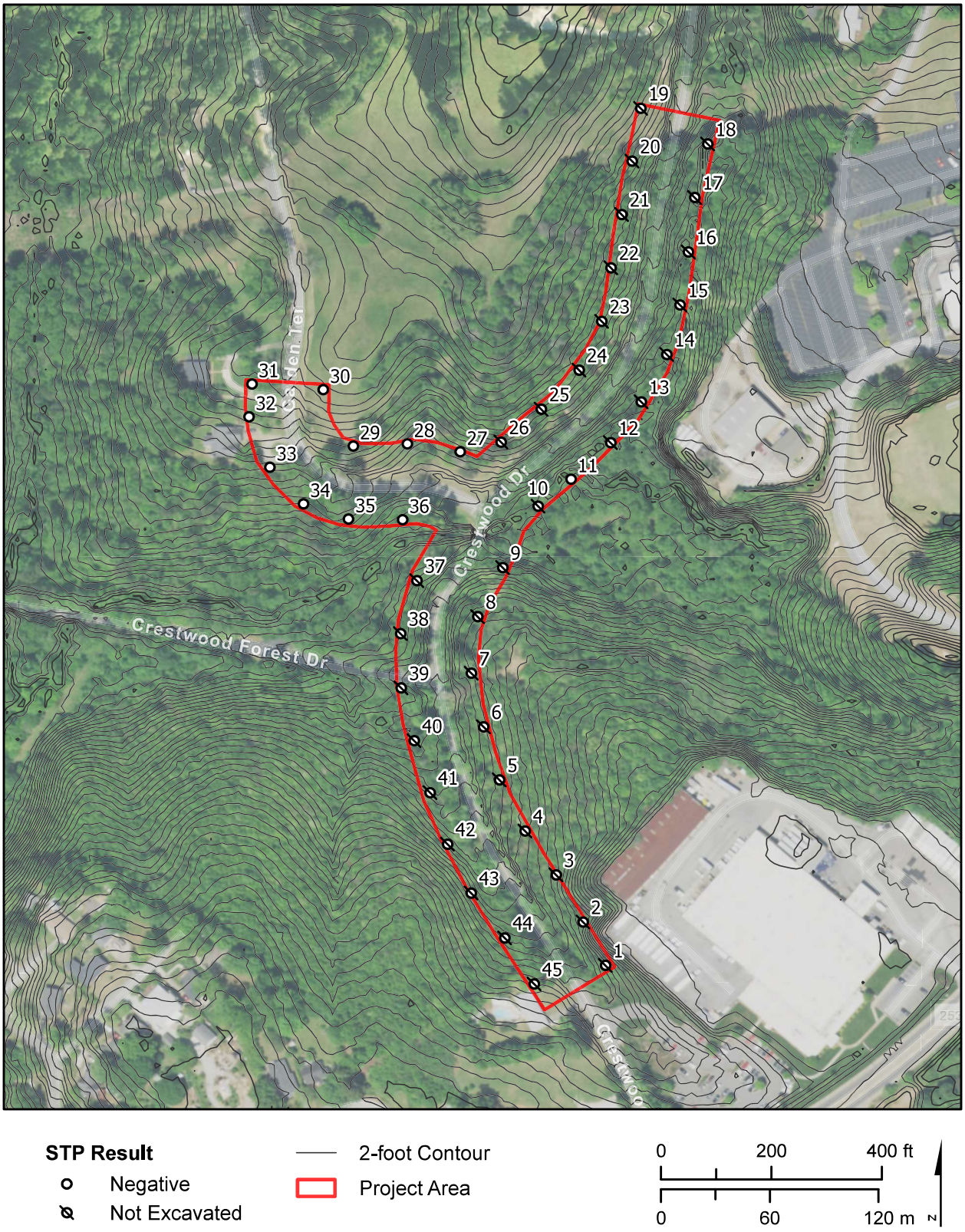
Figure 4. New Construction on West Side of Crestwood Drive, Looking South

Figure 5. Pasture on North Side of Garden Terrace, Looking East

Figure 6. Previously Recorded Cultural Resources Map

Basemap: NAIP (2021)

Figure 7. Shovel Tests Results Map

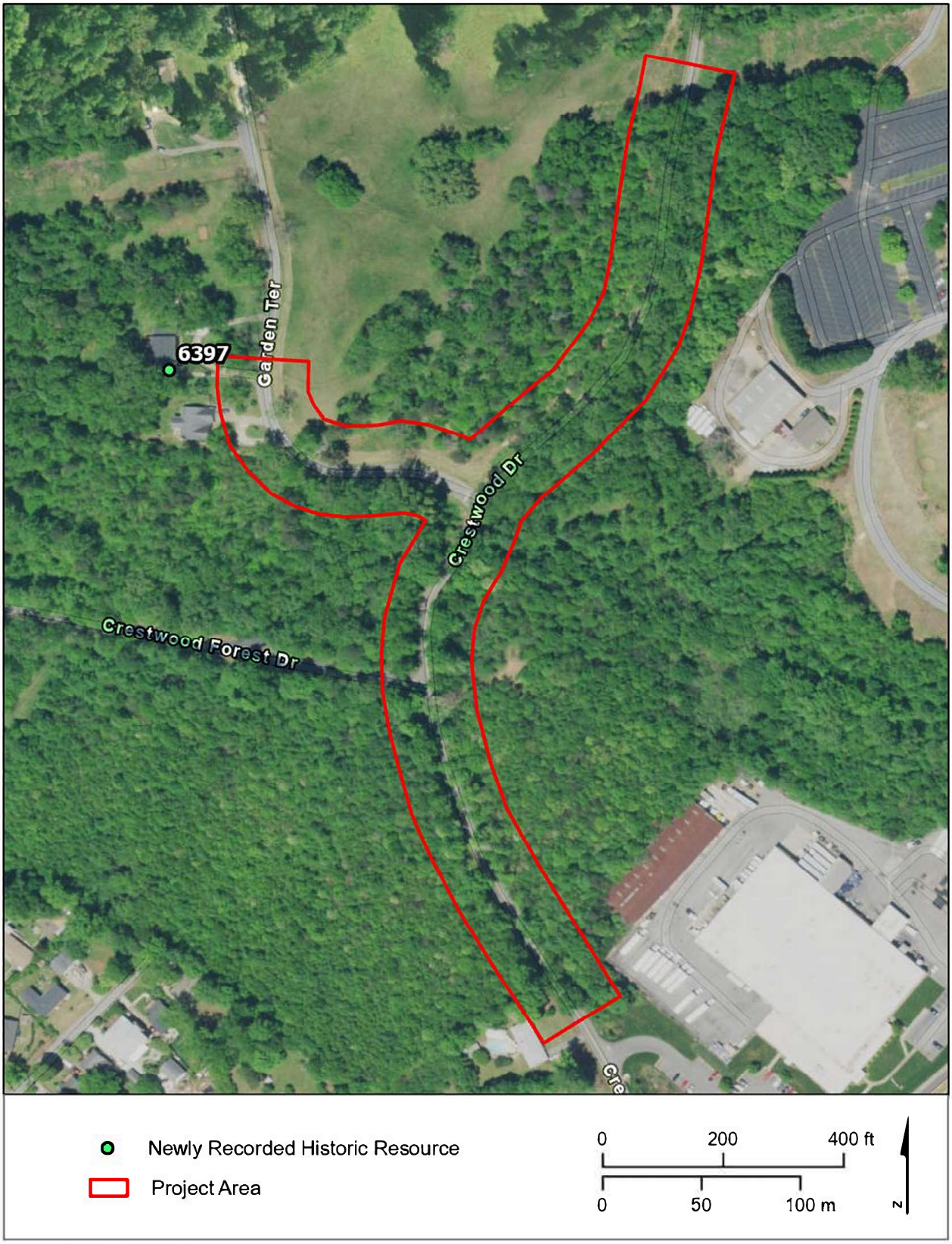


Basemap: NAIP (2021), Contours derived from SCDNR Lidar: Greenville County (2013)

Figure 8. Soil Profile of STP 11, Looking North

Figure 9. S-23-310 Bridge over Langston Tributary, Built 1965 and Not Assessed

Figure 10. Newly Recorded Cultural Resources Map



Basemap: NAIP (2021)

Figure 11. SHPO Site Number 6397 – 28 Garden Terrace

a. Southeast Oblique, Looking Northwest

b. Northeast Oblique, Looking Southwest

c. Façade Detail, Looking Southwest

BIBLIOGRAPHY AND FIGURES

Roberts, Wayne. 1998. *Intensive Archaeological and Architectural Survey of US 278/25 Business*. South Carolina Department of Transportation, Columbia, South Carolina.

South Carolina Department of Health and Environmental Control. 2023. South Carolina Watershed Atlas. *South Carolina Watershed Atlas*. Government Agency, https://gis.dhec.sc.gov/watersheds/.

South Carolina Institute of Archaeology and Anthropology, and South Carolina Department of Archives and History. 2023. SCArchSite. Database, http://www.scarchsite.org/.

University of South Carolina. 2023. South Carolina Aerial Photograph Indexes, 1937–1989. *Digital Collections*. https://digital.library.sc.edu/collections/south-carolina-aerial-photograph-indexes-1937–1989/, accessed August 10, 2023.

U.S. Department of Transportation, Federal Highway Administration. 2012. Program Comment for Actions Affecting Post-1945 Concrete and Steel Bridges. Advisory Council on Historic Preservation, Washington, D.C.

Appendix B: Natural Resources Technical Memorandum

Natural Resources Technical Memorandum

S-310 (Crestwood Drive) Bridge Replacement over Langston Tributary

SCDOT Project ID: P041162

April 24, 2024

ROBBINS & DEWITT

Introduction

The South Carolina Department of Transportation (SCDOT) proposes to replace the S-310 (Crestwood Drive) bridge over Langston Tributary, and improve the roadway approaches to the bridge. The project is approximately 1 mile northwest of the City of Greenville in Greenville County, South Carolina. Furthermore, the project is located in the Saluda River Watershed (03050109 8-digit Hydrologic Unit Code) and the 45a Southern Inner Piedmont Level IV Ecoregion. Please see Attachment A, Figure 1 for a Site Location Map.

A Project Study Area (PSA) has been established, based on preliminary design, to encompass all potential impacts of the project. The PSA encompasses an area approximately 7.92 acres in size and approximately 1,800 feet (0.3 mile) in total length, generally centered on Langston Tributary in either direction. The PSA also extends along approximately 500 feet of S-752 (Garden Terrace). Furthermore, the PSA is 150 feet in total width, generally centered on the centerlines of Crestwood Drive and Garden Terrace.

Robbins & DeWitt conducted a desktop analysis, scientific literature review, and field surveys for natural resources associated with the proposed bridge replacement. This technical memorandum provides a summary of methods and findings related to natural resources and potential project related impacts. Attached to this memorandum are supporting figures, a SCDOT Permit Determination Form, South Carolina Department of Health and Environmental Control (SCDHEC) Watershed and Water Quality Information Report, and a biological evaluation for federally protected species.

Desktop Analysis Methods

A desktop analysis was completed as part of an initial evaluation of the PSA to identify key environmental resources to be considered for permitting and/or avoidance and minimization by the design team. The potential resources identified in the desktop evaluation were field verified by Robbins & DeWitt to ensure that critical regulatory items would not be adversely impacted by the project. The following resources were consulted during the desktop analysis:

- Federal Emergency Management Agency (FEMA) Map Service Center (https://msc.fema.gov/portal)
- SCDHEC Watershed Atlas (https://gis.dhec.sc.gov/watersheds)
- South Carolina Department of Natural Resources (SCDNR) and South Carolina Natural Heritage Program (SCNHP) (https://schtportal.dnr.sc.gov/portal/apps/sites/#/natural-heritage-program)
- SCDNR Digital Elevation Mapping (DEM) and Light Detection and Ranging (LiDAR) (https://www.dnr.sc.gov/GIS/lidar.html)
- SCDNR Open Source Geospatial Data (https://data-scdnr.opendata.arcgis.com/)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (https://websoilsurvey.nrcs.usda.gov/app/)
- U.S. Fish and Wildlife Services (USFWS) Environmental Conservation Online System (ECOS) (https://ecos.fws.gov/ecp/)
- USFWS Information for Planning and Consultation (IPaC) (https://ecos.fws.gov/ipac/)
- USFWS National Wetland Inventory (NWI) (http://www.fws.gov/wetlands)
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) (http://nhd.usgs.gov/)
- USGS Topographic Quadrangle Maps (1:24,000-scale) – Paris Mountain, SC Quadrangle

Jurisdictional Waters of the U.S.

After completing the desktop analysis, Robbins & DeWitt performed field reviews to determine the boundaries of jurisdictional waters of the U.S., including wetlands, in the PSA. Field reviews were conducted on July 13, 2023. A summary of jurisdictional features identified in the PSA is provided in Table 1.

Table 1 - Summary of Delineated Streams and Non-Wetland Waters in the Project Study Area

Stream	Latitude	Longitude	Centerline Length (feet)	Area (acre)
Stream A	34.897287	-82.399956	407	0.11
Stream B	34.897642	-82.399369	476	0.04
Total			**883 feet**	**0.15 acres**

Permitting Considerations

Based on the conceptual bridge design, impacts to jurisdictional waters may occur during construction but are expected to remain below the SCDOT U.S. Army Corps of Engineers General Permit impact thresholds. A completed SCDOT Permit Determination Form and SCDHEC Watershed and Water Quality Information Report are provided in Attachment B.

Federally Protected Species

Environmental scientists performed literature and field reviews to determine the likelihood of protected species within the PSA and the potential for project-related impacts. Field reviews were conducted on July 13, 2023, and November 03, 3023. The SCDNR South Carolina Natural Heritage Species Viewer was also reviewed to determine the presence of known populations of protected species within the vicinity of the project. Based on the literature and field reviews it is determined that the proposed project will have a biological conclusion of 'no effect' on federally protected species. A Biological Evaluation is provided in Attachment C.

Migratory Birds

Certain bird species are protected under the Migratory Bird Treaty Act of 1918. The USFWS IPaC online database was reviewed for information pertaining to migratory bird species. Migratory birds were observed nesting on the existing bridge.

Vegetation

Land use in the PSA is primarily comprised of undeveloped forestland and both established and on-going residential development. Two natural communities were observed within the PSA, consisting of oak-hickory forest and bottomland hardwoods. Refer to the Biotic Communities section in Attachment C for a detailed description of vegetation observed in the PSA.

Soils

According to the (USDA-NRCS) Soil Survey Geographic (SSURGO) data, three Soil Map Units (SMU) are mapped within the PSA. Each SMU IS included in Table 2 below.

Table 2 - Soil Map Units (SMU) in the Project Study Area

SMU	SMU Name	Area (acres)	Percentage of PSA
Cb	Cartecay and Toccoa soils	0.9	11.8%
CeC	Cecil sandy loam, 6 to 10 percent slopes	0.9	11.6%
PcE	Pacolet sandy loam, 15 to 25 percent slopes	6.1	76.5%

If you have any questions, or if Robbins & DeWitt can be of additional assistance, please feel free to contact Matt DeWitt at (864) 201-8446 or matt.dewitt@robbins-dewitt.com.

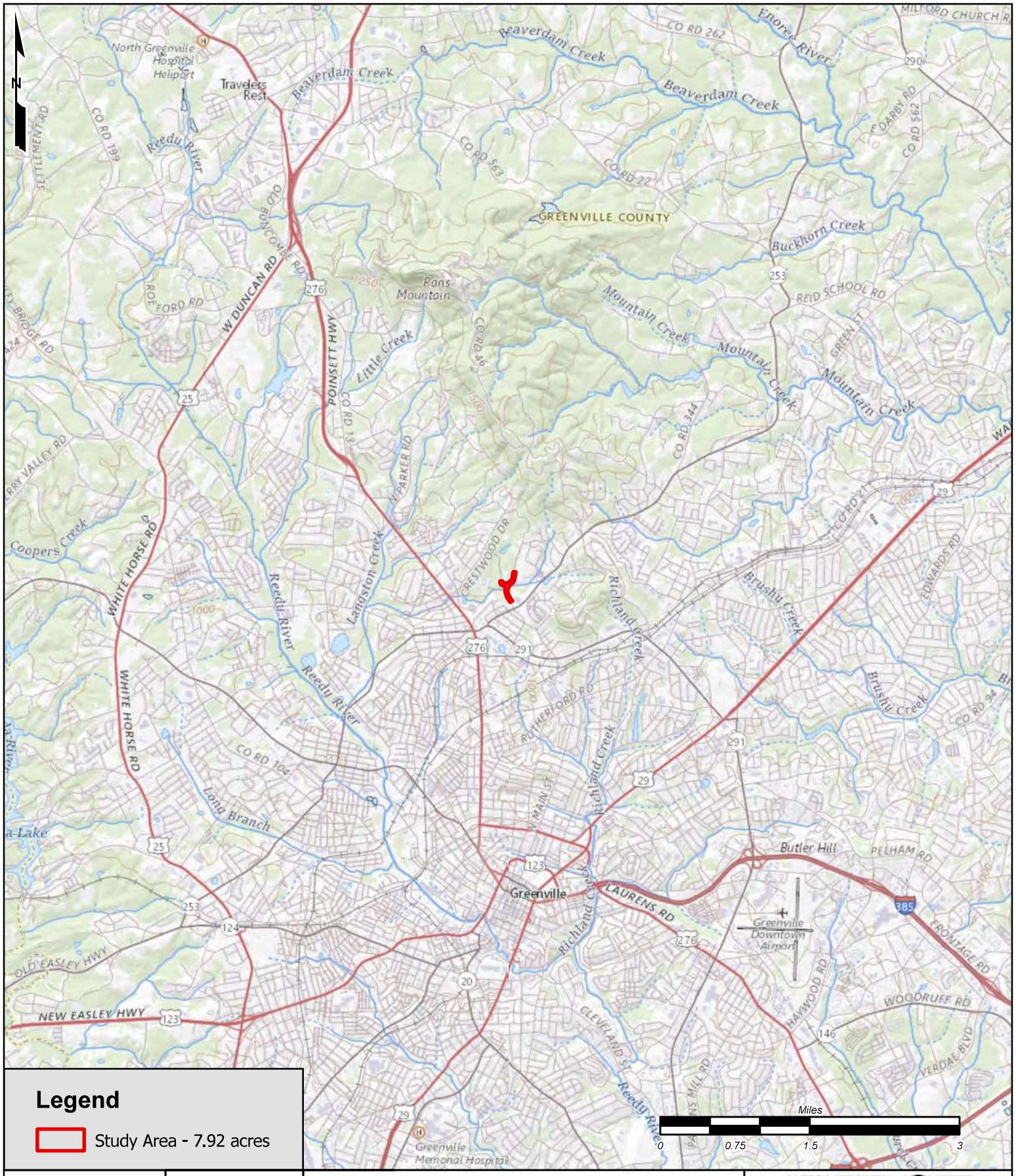
Respectfully Submitted

Matt DeWitt, AICP
Robbins & DeWitt, LLC

Attachment A

Figures

ROBBINS
& DEWITT



Legend

Study Area - 7.92 acres

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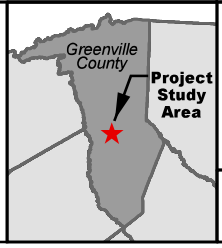


S-310 BRIDGE REPLACEMENT OVER LANGSTON TRIBUTARY
PROJECT ID: P041162

GREENVILLE COUNTY, SOUTH CAROLINA

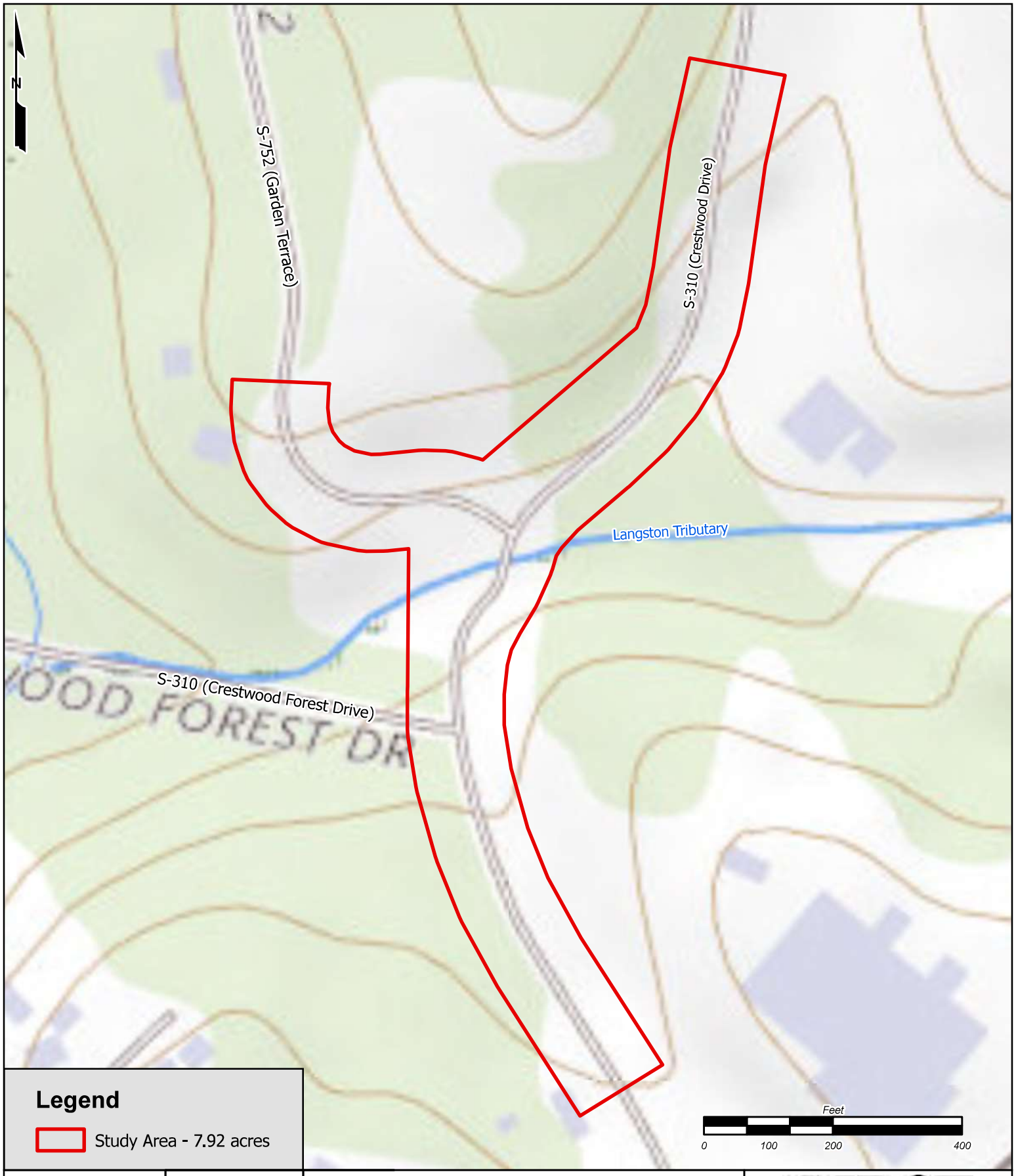
Source: USGS National Map (2023)

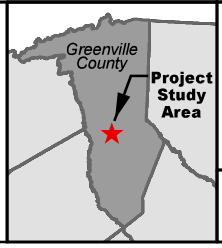
SCDOT
South Carolina Department of Transportation

DRAWN BY: TRC | DATE: 04/24/2024

PROJECT VICINITY

FIGURE 1





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S-310 BRIDGE REPLACEMENT OVER LANGSTON TRIBUTARY
PROJECT ID: P041162

GREENVILLE COUNTY, SOUTH CAROLINA

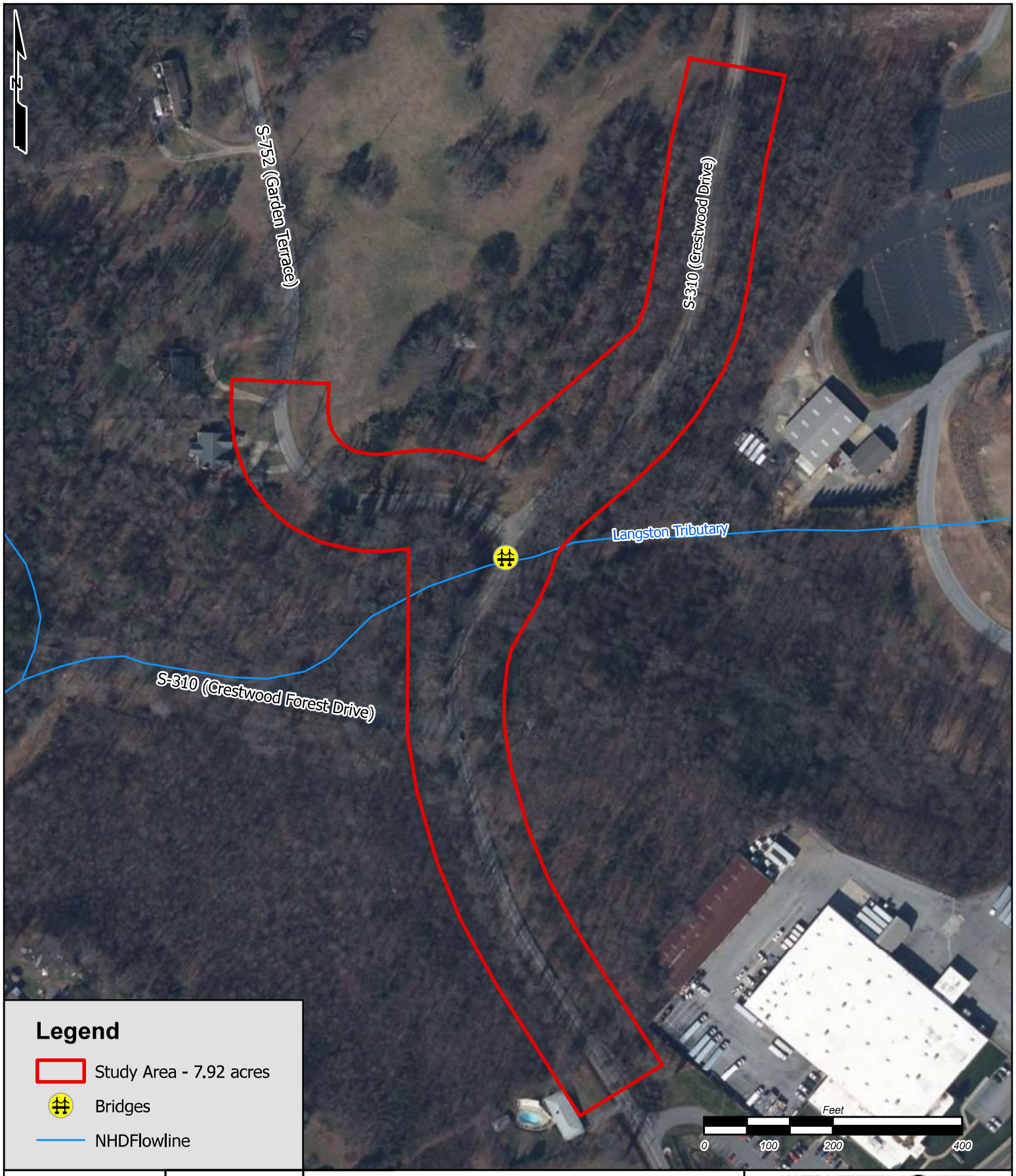
Source: USGS National Map (2023); USGS Paris Mountain, SC Quadrangle (2020)

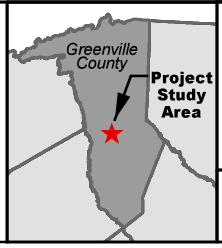
SCDOT
South Carolina Department of Transportation

DRAWN BY: TRC	DATE: 04/24/2024

USGS TOPOGRAPHIC MAPPING

FIGURE 2





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S-310 BRIDGE REPLACEMENT OVER LANGSTON TRIBUTARY
PROJECT ID: P041162

GREENVILLE COUNTY, SOUTH CAROLINA

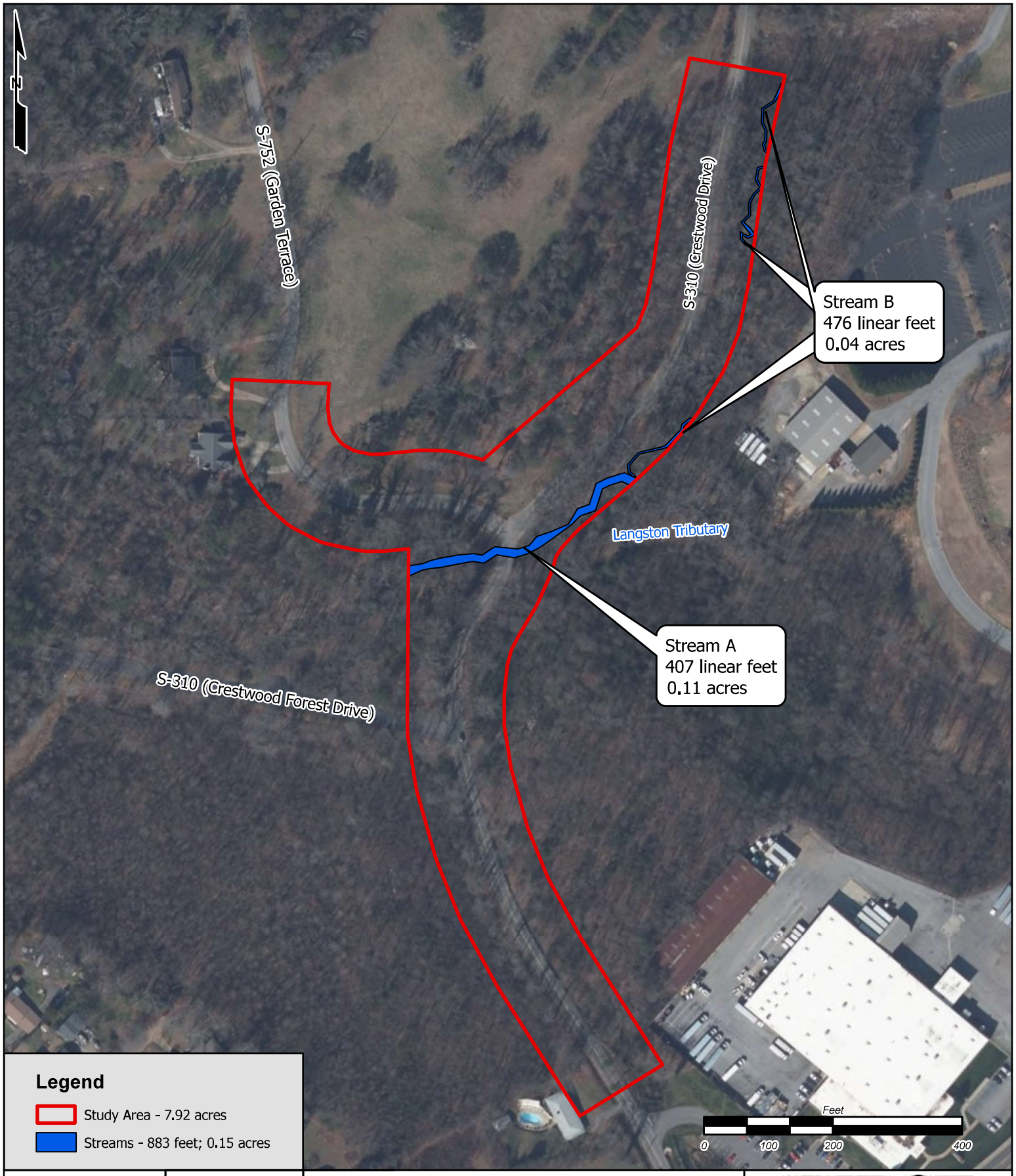
Source: USGS NHD Flowlines (2018); SC Geodetic High Resolution 6-inch, RGB Aerial Imagery [Statewide, South Carolina (2020)]

SCDOT
South Carolina Department of Transportation

DRAWN BY: TRC | DATE: 04/24/2024

AERIAL IMAGERY

FIGURE 3



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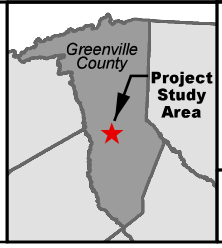


S-310 BRIDGE REPLACEMENT OVER LANGSTON TRIBUTARY
PROJECT ID: P041162

GREENVILLE COUNTY, SOUTH CAROLINA

Source: Approximate boundaries of WOTUS were delineated on July 13 and November 3, 2023; SC Geodetic High Resolution 6-inch, RGB Aerial Imagery [Statewide, South Carolina (2020)]

SCDOT
South Carolina Department of Transportation

DRAWN BY: TRC	DATE: 04/24/2024

APPROXIMATE BOUNDARIES OF WOTUS

FIGURE 4

Attachment B

SCDOT Permit Determination Form & Water Quality Information Report

ROBBINS & DEWITT

PERMIT DETERMINATION

Date: 10/19/2023 Project ID: P041162

From: Matt DeWitt Company: Robbins and DeWitt

Contact Info (phone and/or email): matt.dewitt@robbins-dewitt.com

Permit Manager: Will McGoldrick - Alternative Delivery Coordinator

Project Name: S-310 over Suber Branch

County: Greenville (Optional) Structure #:

STUDY AREA:

Does there appear to be WOTUS in the study area? ◉ YES ○ NO

PERMIT TYPE:

○ It has been determined that no permit is required because:

◉ The following permit(s) is/are necessary:

(Please check which type(s) of permit the project will need)

USACE Permit	GP	☑	IP	☐	NWP ☐
OCRM Permit	Individual CAP	☐		CAP GP	☐
Navigable Permit	State NAV	☐		USCG	☐

408 PROJECT INFO:

Is it within a 408 Project: ○ YES ◉ NO

408 Project Name:

MITIGATION:

Mitigation Bank: ◉ YES ○ NO

Mitigation Bank Name: Corley Mill, Saluda Mitigation Bank

Comments:

The determination above was based on the most recently available information at the time. This is a preliminary determination and is subject to change if the design of the project is modified.

Matt DeWitt
Biologist, SCDOT/Consultant

Nov 29, 2023
Date

Revised 04/2024

Healthy People Healthly Communities

Watershed and Water Quality Information

General Information

Applicant Name: SCDOT
Address: 50 GARDEN TER, GREENVILLE, SC, 29609
MS4 Designation: Medium MS4
Within Coastal Critical Area: No
Waterbody Name: Unnamed Trib

Permit Type: Construction
Latitude/Longitude: 34.897165 / -82.400111
Monitoring Station: S-265
Water Classification (Provisional): FW
Entered Waterbody Name:

Parameter Description

NH3N	Ammonia	CD	Cadmium	CR	Chromium
CU	Copper	HG	Mercury	NI	Nickel
PB	Lead	ZN	Zinc	DO	Dissolved Oxygen
PH	pH	TURBIDITY	Turbidity	ECOLI	Escherichia coli (Freshwaters)
FC	Fecal Coliform (Shellfish)	BIO	Macroinvertebrates (Bio)	TP	(Lakes) Phosphorus
TN	(Lakes) Nitrogen	CHLA	(Lakes) Chlorophyll a	ENTERO	Enterococcus (Coastal Waters)
HGF	Mercury (Fish Tissue)	PCB	PCB (Fish)		

Impaired Status (downstream sites)

Station	NH3N	CD	CR	CU	HG	NI	PB	ZN	DO	PH	TURBIDITY	ECOLI	FC	BIO	TP	TN	CHLA	ENTERO	HGF	PCB
S-265	X	X	X	X	X	X	X	X	X	X	X	X	X	N	X	X	X	X	X	X
S-264	X	X	X	X	X	X	X	X	X	X	X	N	X	A	X	X	X	X	X	X

F = Standards full supported
N = Standards not supported
A = Assessed at upstream station
X = Parameter not assessed at station
WnTN = Within TMDL, parameter not supported
InTN = In TMDL, parameter not supported
WnTF = Within TMDL, parameter full supported
InTF = In TMDL, parameter full supported

Parameters to be addressed (those not supporting standards)

BIO - Macroinvertebrates (Bio)

ECOLI - Escherichia coli (Freshwaters)

Fish Consumption Advisory

Waters of Concern (WOC)

TMDL Information - TMDL Parameters to be addressed

In TMDL Watershed: No
TMDL Report No:
TMDL Document Link:

TMDL Site:
TMDL Parameter:

Report Date: October 19, 2023

Attachment C

Biological Evaluation – Section 7 of the Endangered Species Act

ROBBINS & DEWITT

Introduction

The proposed project consists of replacing the S-310 (Crestwood Drive) bridge over Langston Tributary, and associated roadway approach work, in Greenville County, South Carolina.

Pursuant to Section 7 of the Endangered Species Act (ESA), a field survey was conducted within the Project Study Area (PSA) for the project. A Resource List was requested from the USFWS Information for Planning and Consultation (IPaC) in April 2024, to detail protected species under USFWS jurisdiction that are known or expected to be in or near the project area. Table 1 below includes the species that appear on the IPaC resource list.

Federally Protected Species

Species with the federal classification of Endangered (E) or Threatened (T) or Threatened due to Similarity of Appearance (T [S/A]) are protected under the ESA of 1973, as amended (16 U.S.C. 1531 et seq.). Although Section 7 of the ESA does not provide protections for Candidate species, they are listed in Table 1 in the event of a status changes prior to completion of the project. Additionally, species that are proposed for listing are not subject to Section 7 compliance until the time they are formally listed. The bald eagle is protected by the Bald and Golden Eagle Protection Act (BGEPA) and is included in this evaluation.

Table 1: Threatened and Endangered Species

Category	Common Name	Scientific Name	Protection Status
Bird	Bald eagle	*Haliaeetus leucocephalus*	BGEPA
Mammal	Tricolored Bat	*Perimyotis sublavus*	Proposed Endangered
Reptile	Bog Turtle	*Glyptemys muhlenbergii*	Similar in Appearance to Threatened
Insects	Monarch Butterfly	*Danaus Plexippus*	Candidate
Flowering Plant	Bunched Arrowhead	*Sagittaria fasciculata*	Endangered
Flowering Plant	Dwarf-flowered Heartleaf	*Hexastylis naniflora*	Threatened
Flowering Plant	Mountain Sweet Pitcher-plant	*Sarracenia rubra ssp. Jonesii*	Endangered
Flowering Plant	Small Whorled Pogonia	*Isotria medeloides*	Threatened
Flowering Plant	Swamp Pink	*Helonias bullata*	Threatened
Flowering Plant	White Fringeless Orchid	*Platanthera integrilabia*	Threatened
Lichen	Rock Gnome Lichen	*Gymnoderma lineare*	Endangered

Methodology

Environmental scientists performed literature and field reviews to determine the likelihood of protected species within the PSA and the potential for project-related impacts. Field reviews were conducted on July 13, 2023, and November 03, 3023. The SCDNR South Carolina Natural Heritage Species Viewer was also reviewed to determine the presence of known populations of protected species within the vicinity of the project.

Biotic Communities

Land use in the PSA is primarily comprised of undeveloped forestland and both established and on-going residential development. Two natural communities were observed within the PSA, consisting of oak-hickory forest and bottomland hardwoods.

Oak-hickory forests are commonly found in the rolling uplands of the Piedmont, occurring in mostly fragmented stands. Many hardwoods are present, with oaks and hickories being dominant. Typical canopy and subcanopy species observed in the PSA include *Quercus alba* (white oak), *Quercus rubra* (northern red oak), *Carya tomentosa* (mockernut hickory), *Carya glabra* (pignut hickory), *Acer rubrum* (red maple), *Cornus florida* (flowering dogwood), *Liriodendron tulipifera* (tulip-poplar), and *Pinus taeda* (loblolly pine). The understory species observed include samplings of the overstory species, as well as *Oxydendron arboreum* (sourwood) and flowering dogwood. Groundcover observed was sparse and included grasses and other herbaceous species.

Bottomland hardwoods of the Piedmont are quite variable from one site to another. Most bottomland hardwoods have been logged to some degree and have moist soils associated with river floodplains. Characteristic tree species observed in the PSA include *Liquidambar styraciflua* (sweetgum), tulip-poplar, *Fraxinus pennsylvanica* (green ash), loblolly pine, *Quercus nigra* (water oak), *Carpinus caroliniana* (American hornbeam), and *Betula nigra* (river birch). Groundcover species observed include *Arundinaria gigantea* (river cane), *Rubus* (blackberry), *Aureolaria* ssp. (false foxglove), *Sherardia arvensis* (blue fieldmadder), *Chaerophyllum* ssp. (chervil), *Geranium carolinianum* (Carolina geranium), and various species of *Poa* (grasses) along the roadway fill slopes.

Results

The SCDNR South Carolina Natural Heritage Species Viewer does not identify any protected species within the PSA or within a one-mile radius of the PSA.

Field reviews of the PSA found no suitable habitat for bald eagle, bog turtle, bunched arrowhead, mountain sweet pitcherplant, small whorled pagonia, swamp pink, white fringeless orchid, or rock gnome lichen.

Marginally suitable habitat exists for dwarf flowered heartleaf along the floodplain of Stream B (a tributary to Langston Tributary); however, no suitable habitat for the species exists within the proposed limits of construction for the project.

Suitable habitat for tri-colored bat exists in the PSA. Roosting habitat exists under the existing S-310 bridge and in cavities and crevices of trees within the PSA. A structure survey of the existing S-310 bridge found no evidence of bat roosting. Additionally, a visual inspection and borescope review of cavities and

crevices in trees within the PSA did not indicate the presence of any bat species. A Structures Survey Data Sheet and Habitat Assessment Data Sheet are included in Attachment D.

Conclusions

Based on the literature and field reviews, it is determined that the proposed project will have a biological conclusion of 'no effect' on federally protected species.

If you have any questions, or if Robbins & DeWitt can be of additional assistance, please feel free to contact Matt DeWitt at (864) 201-8446 or matt.dewitt@robbins-dewitt.com.

Respectfully Submitted

Matt DeWitt, AICP
Robbins & DeWitt, LLC

Attachment D

Biological Evaluation Attachments

ROBBINS & DEWITT

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

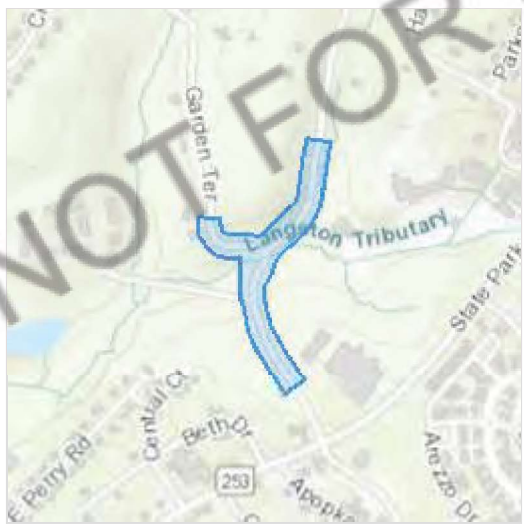
This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Greenville County, South Carolina



Local office

South Carolina Ecological Services

(843) 727-4707
(843) 727-4218

176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can**only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

NOT FOR CONSULTATION

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Reptiles

NAME	STATUS
Bog Turtle *Glyptemys muhlenbergii* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6962	SAT

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Bunched Arrowhead *Sagittaria fasciculata* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1720	Endangered
Dwarf-flowered Heartleaf *Hexastylis naniflora* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2458	Threatened

NOT FOR CONSULTATION

Mountain Sweet Pitcher-plant Sarracenia rubra ssp. jonesii — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4283

Small Whorled Pogonia Isotria medeoloides — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1890

Swamp Pink Helonias bullata — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4333

White Fringeless Orchid Platanthera integrilabia — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1889

Lichens

NAME	STATUS
Rock Gnome Lichen Gymnoderma lineare Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3933	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

NOT FOR CONSULTATION

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles"

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read

"Supplemental Information on Migratory Birds and Eagles" specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

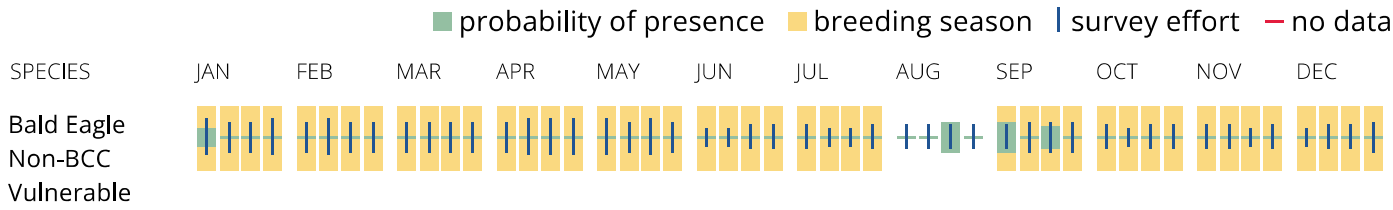
No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

NOT FOR CONSULTATION

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles"

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON

NOT FOR CONSULTATION

Bald Eagle Haliaeetus leucocephalus — Breeds Sep 1 to Jul 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Cerulean Warbler Setophaga cerulea — Breeds Apr 28 to Jul 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/2974

Chimney Swift Chaetura pelagica — Breeds Mar 15 to Aug 25
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Chuck-will's-widow Antrostomus carolinensis — Breeds May 10 to Jul 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Eastern Whip-poor-will Antrostomus vociferus — Breeds May 1 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Kentucky Warbler Geothlypis formosa — Breeds Apr 20 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prairie Warbler Setophaga discolor — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prothonotary Warbler Protonotaria citrea — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

NOT FOR CONSULTATION

Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles"specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence(■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
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To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

NOT FOR CONSULTATION

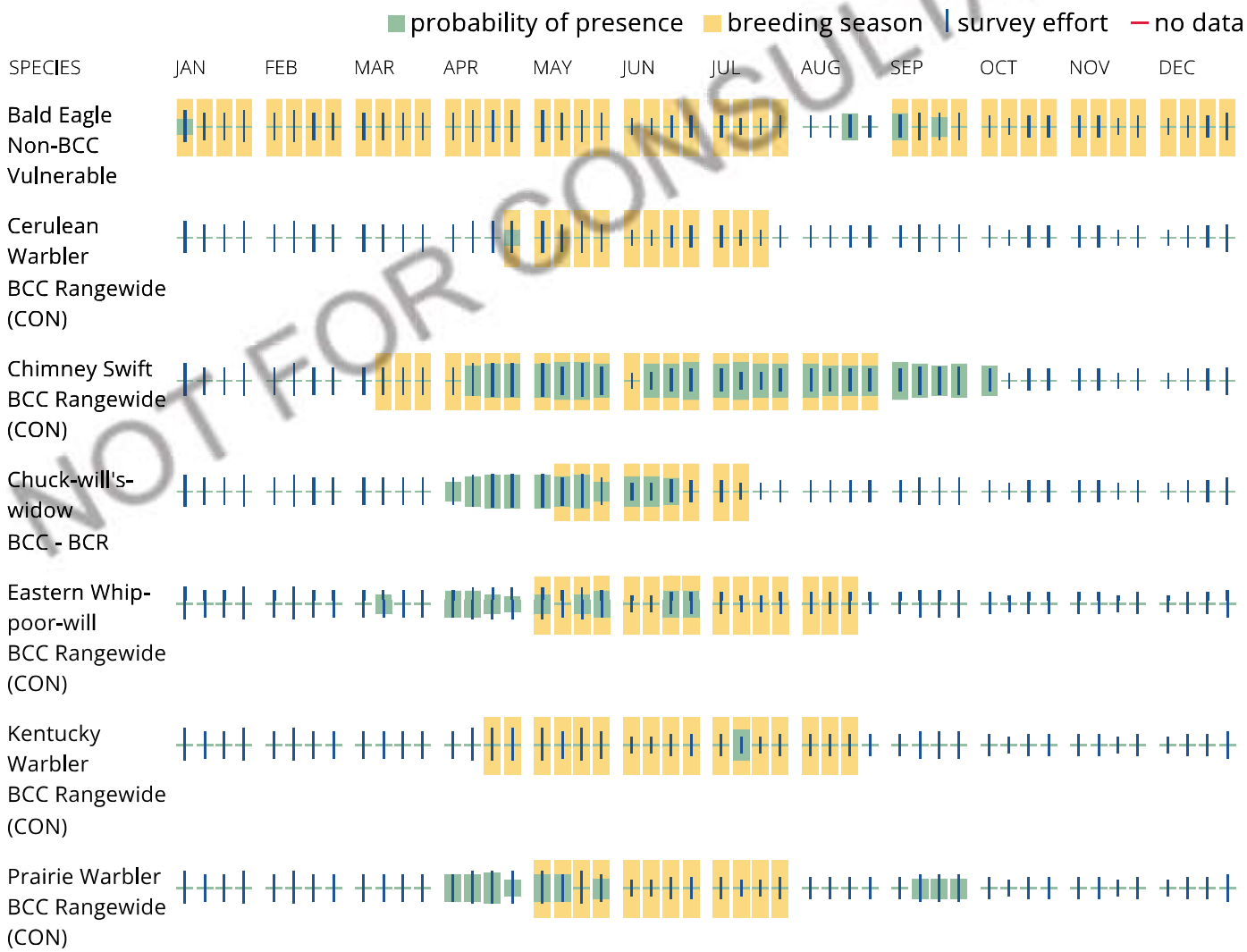
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

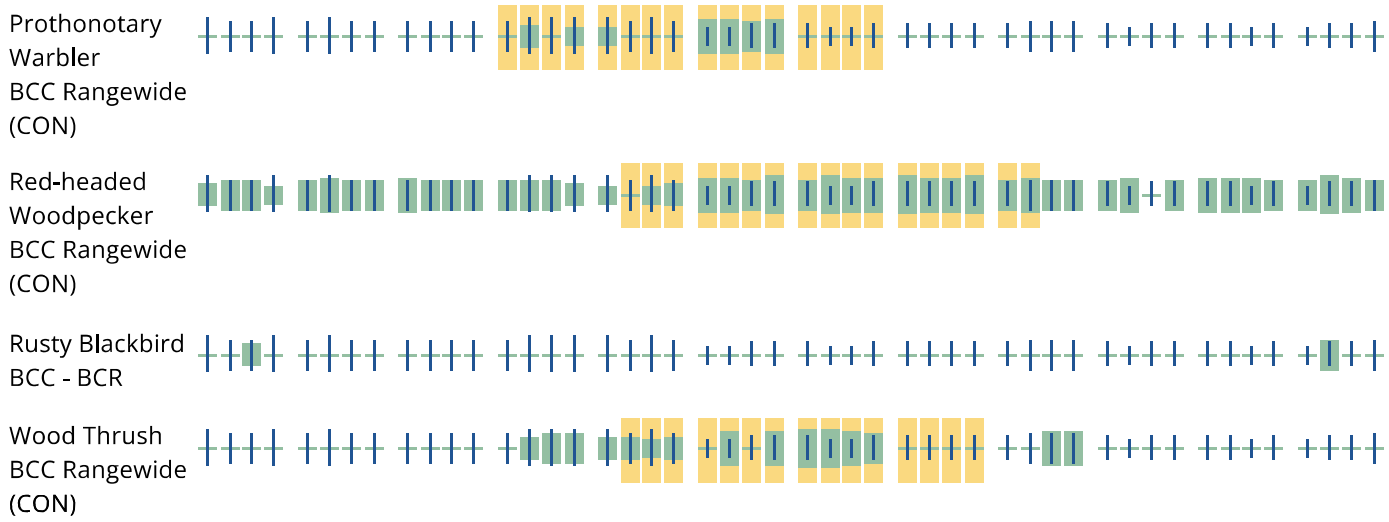
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

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Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

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Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

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Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

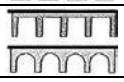
Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local

government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

STRUCTURES SURVEY DATA SHEET

Investigator Names(s): A. CHANDLER, M. DEWITT, C. LEWIS	
Date: 2023-07-13	County: GREENVILLE
Lat Long/w3w: 34.89716, -82.40015	
Project Name: S-310 (CRESTWOOD DR) OVER LANGSTON TRIBUTARY	
SCDOT Structure ID: 04543	Project No.: P041162

Structure Type:			**Underdeck Material:**
☐ Parallel Box Beam 	☐ Steel I-Beam 		☒ Concrete
☒ Pre-Stressed Girder 	☐ Flat Slab / Box 		☐ Corrugated Steel
☐ Cast in Place 	☐ Trapezoidal Box 		☐ Other:
	☐ Other:		
Bridge Note:			

☐ Culvert - Box
☐ Culvert - Pipe/Round
Culvert Note:

Road Type:			
☐ Interstate	☐ US Highway	☒ State Road	☐ County Road
		S-310	

Surrounding Habitat (check all that apply):				
☒ Residential	☐ Agricultural	☐ Commercial	☐ Pine Forest	☐ Grassland
☒ Riparian	☐ Wetland	☒ Mixed Forest	☐ Bottomland Hardwood	
☐ Other:				

Conditions Under Bridge (check all that apply):			
☒ Bare Ground/Sediment	☒ Concrete	☒ Rip Rap	☒ Flowing Water
☐ Standing Water	☒ Open Vegetation (not obstructing flight path)	☐ Closed Vegetation (may obstruct flight path)	☐ Two Lanes
☐ Four (+) Lanes	☐ Unpaved Road	☐ Railroad	☐ Other:

Bats Present:	
☐ YES	☒ NO

Bat Indicators (check all that apply):				
☐ Visual	☐ Smell	☐ Sound	☐ Staining	☐ Guano

Species Present:	
☐ Big brown (*Eptesicus fuscus*)	☐ Northern long-eared (*Myotis septentrionalis*)
☐ Brazilian free-tailed (*Tadarida brasiliensis*)	☐ Northern yellow (*Lasiurus intermedius*)
☐ Eastern red (*Lasiurus borealis*)	☐ Rafinesque's big-eared (*Corynorhinus rafinesquii*)
☐ Eastern small-footed (*Myotis leibii*)	☐ Silver-haired (*Lasionycteris noctivagans*)
☐ Evening (*Nycticeius humeralis*)	☐ Southeastern (*Myotis austroriparius*)
☐ Gray (*Myotis grisescens*)	☐ Seminole (*Lasiurus seminolus*)
☐ Hoary (*Lasiurus cinereus*)	☐ Tri-colored (*Perimyotis subflavus*)
☐ Little brown (*Myotis lucifugus*)	☐ UNKNOWN

Roost Description (if known, check all that apply):			
☐ Day Roost	☐ Nursery Roost	☐ Night Roost	☒ UNKNOWN
Number of Roosts:			

Roost Design (check all that apply):			
☐ Crack/Crevice/Expansion Joint: Under Bridge		☐ Crack/Crevice/Expansion Joint: Top of Bridge	
☐ Plugged Drain	☐ Under/Along Main Bridge Structure	☐ Rail	☐ Other:

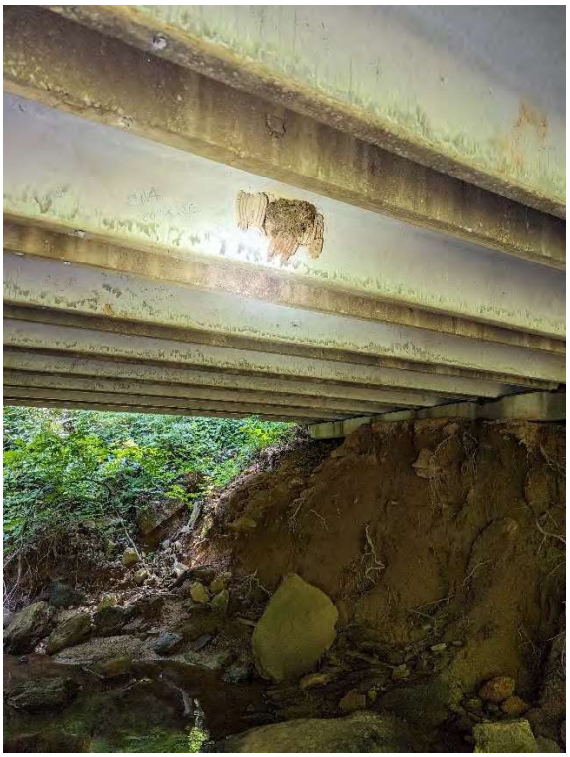
Human Disturbance or Traffic Under Bridge or at Structure?		
☐ High	☒ Low	☐ None

Areas Inspected (check all that apply):			
☐ Vertical Surfaces on I-Beams	☒ Vertical Surfaces between Concrete End Walls and Bridge Deck		
☒ Expansion Joints	☒ Rough Surfaces	☒ Guardrails	☒ Cervices
☐ Other:			
Areas NOT Inspected because of Safety or Inaccessibility:			

Evidence of Migratory Birds Using the Structure?	
☒ YES	☐ NO

Additional Information:

Photograph 1
Date: 2023-07-13
Taken by: A. Chandler
Underneath bridge, facing upstream



Photograph 2
Date: 2023-07-13
Taken by: A. Chandler
Bird nest under bridge

Photograph 3
Date: 2023-07-13
Taken by: A. Chandler
East end bent

Photograph 4
Date: 2023-07-13
Taken by: A. Chandler
West end bent

BAT HABITAT ASSESSMENT DATA SHEET

Project Name: S-310 (CRESTWOOD DR) OVER LANGSTON TRIBUTARY

Date: 2023-07-13

County: GREENVILLE

Surveyor(s): A. CHANDLER, M. DEWITT, C. LEWIS

Lat Long: 34.89716, -82.40015

Brief Project Description

Project Area			
Project	Total Acres	Forest Acres	Open Acres
	7.92	4.47	3.54
Proposed Tree Removal	Completely Cleared	Partially Cleared (Will Leave Trees)	Preserve Acres – No Clearing
	1.19		3.28

Vegetation Cover Types	
Pre-Project	Post-Project
Forested Maintained Right-of-Way	Forested Maintained Right-of-Way

Landscape within 5-mile Radius
Flight corridors to other forested areas?
Roadways, Streams, Utility Corridors
Describe Adjacent Properties (e.g., forested, grassland, developed, water sources)
Forested, Residential and Commercial Development, Langston Tributary

Proximity to Public Land
What is the distance from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
Croftstone Park: 1.5 mi southeast Piney Mountain Park: 1 mi southeast Paris Mountain State Park: 2 mi northeast Northwest Park: 4 mi west

Sample Site Description	
Sample Site No. (s):	Project Study Area (7.92 acres)

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral	Intermittent	Perennial
			SA: 407 lf SB: 476 lf

Pools/Ponds (# and size)		Open and accessible to bats?	

Wetland (approx. acres)	Permanent	Seasonal

Describe existing condition of water sources:

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (< 20')
	4 (41-60%)	3 (21-40%)	4 (41-60%)

Dominant Species of Mature Trees	Loblolly pine, Tulip poplar, Hickory, Sweetgum, Beech, Water oak

Exfoliating Bark (%)	2%

Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (> 15 in)
	3 (21-40%)	4 (41-60%)	2 (11-20%)

No. of Suitable Snags	2%
Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.	

1 = 1-10%, 2 = 11-20%, 3 = 21-40%, 4 = 41-60%, 5 = 61-80%, 6 = 81-100%

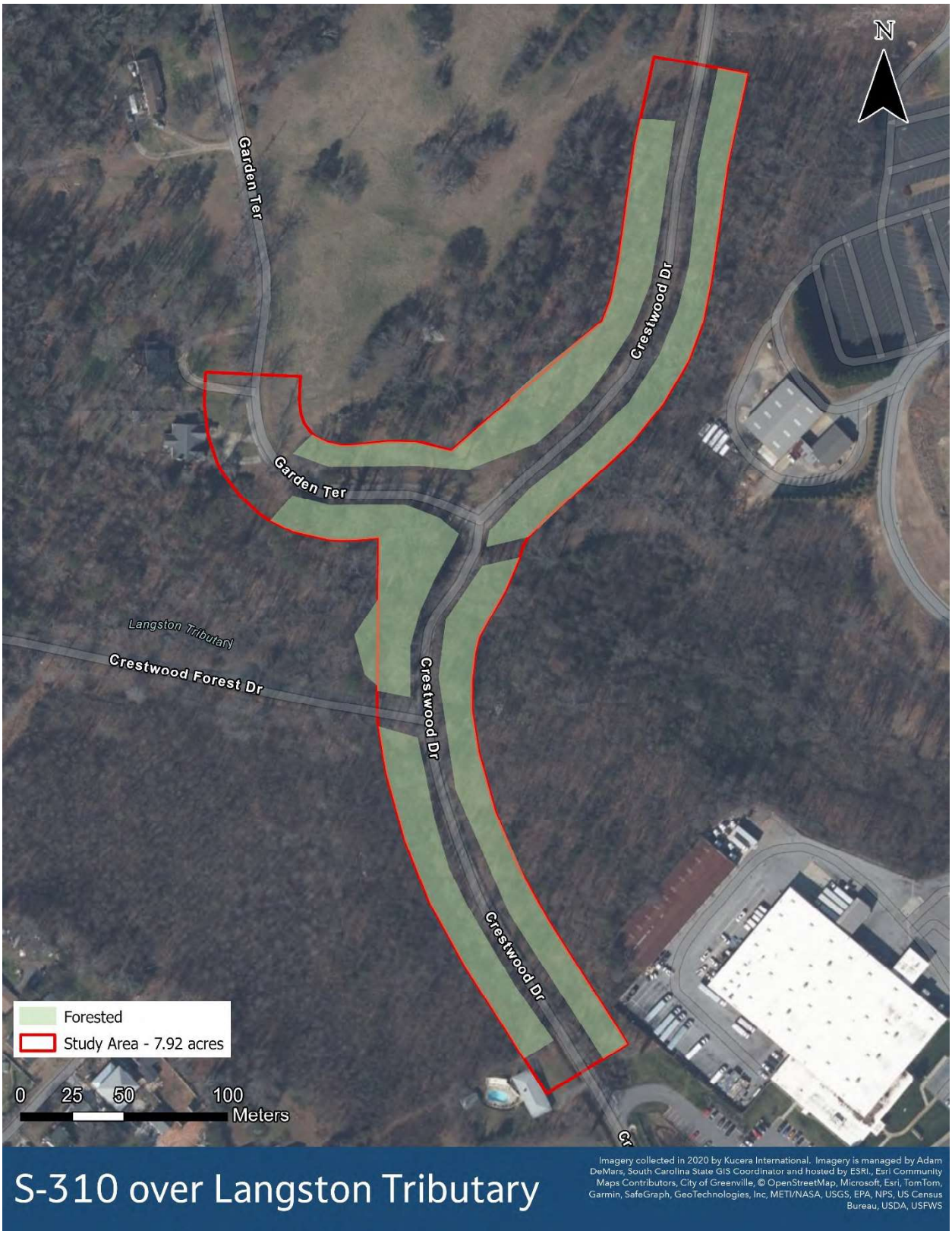
IS THE HABITAT SUITABLE FOR NORTHERN LONG-EARED BATS? NO, OUTSIDE KNOWN RANGE

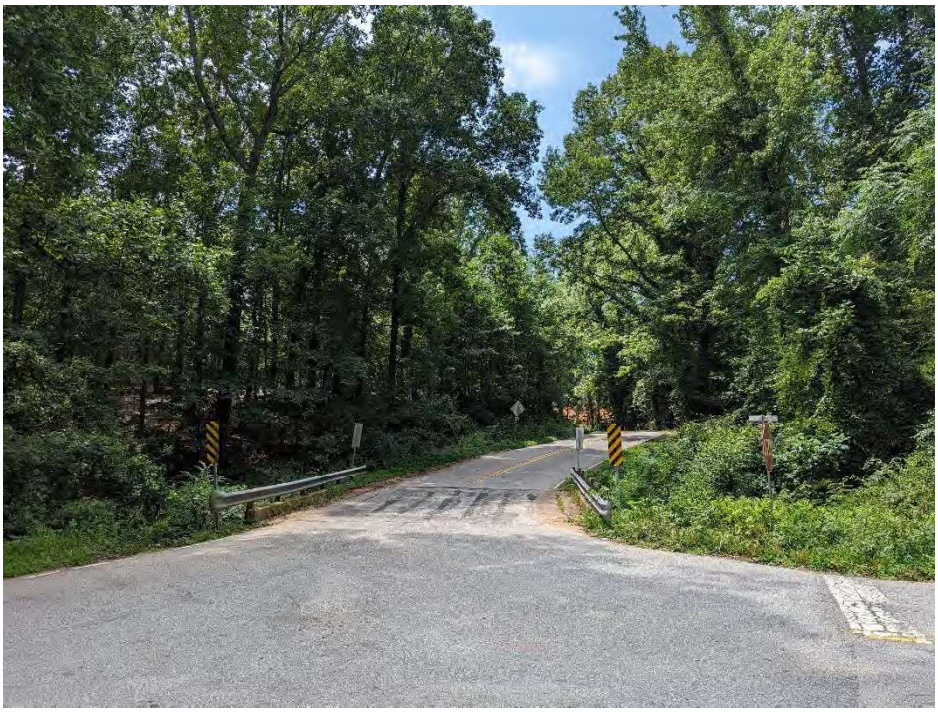
IS THE HABITAT SUITABLE FOR TRI-COLORED BATS? YES

Additional Comments:
Clearing impacts calculated using design S23310pp_Alt3 (1/26/2024). Construction Limits (CstnLmt) extend outside PSA in areas, forested acres and clearing acres were modified to match construction limits provided.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat.

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources


N
Garden Ter
Crestwood Dr
Garden Ter
Langston Tributary
Crestwood Forest Dr
Crestwood Dr
Crestwood Dr
Forested
Study Area - 7.92 acres
0 25 50 100
Meters
S-310 over Langston Tributary
Imagery collected in 2020 by Kucera International. Imagery is managed by Adam DeMars, South Carolina State GIS Coordinator and hosted by ESRI., Esri Community Maps Contributors, City of Greenville, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

	Photograph 1 Date: 2023-07-13 Taken by: A. Chandler S-310 Roadway and bridge
	Photograph 2 Date: 2023-07-13 Taken by: A. Chandler Forested area on east side of S-310

Photograph 3
Date: 2023-07-13
Taken by: A. Chandler
Forested area at intersection of S-310 and S-752 (Garden Ter), facing southwest

Photograph 4
Date: 2023-07-13
Taken by: A. Chandler
Forested area at intersection of S-310 and S-752 (Garden Ter), facing north

Photograph 5
Date: 2023-07-13
Taken by: A. Chandler
Utility corridor

Photograph 6
Date: 2023-07-13
Taken by: M. DeWitt
Stream A

Appendix C: Bridge Scope and Risk Assessment Form

BRIDGE SCOPE AND RISK ASSESSMENT FORM

COUNTY: Greenville DATE: 10/19/23

ROAD #: S-310 STREAM CROSSING: Langston Tributary

Purpose & Need for the Project:

The purpose of the project is to correct the load restriction placed on the bridge and restore all components to good condition. The existing bridge is posted for load restrictions and has one or more components in poor condition.

I. FEMA Acknowledgement

Is this project located in a regulated FEMA Floodway? [X] Yes [ ] No

Panel Number: 45045C0319E Effective Date: 08/18/2014 (See Attached)

II. FEMA Floodmap Investigation

FEMA Flood Profile Sheet Number 159P illustrates the existing 100 year flood:

- [ ] Passes under the existing low chord elevation.
- [✓] Is in contact with the existing low chord elevation.
- [ ] Overtops the existing bridge finished grade elevation.

III. No Rise/CLOMR Preliminary Determination

- [✓] Preliminary assessment indicates this project may be constructed to meet the "No-Rise" requirements. A detailed hydraulic analysis will be performed to verify this assessment.

Justification: Bridge is located in FEMA Zone AE with an established floodway. Preliminary analysis indicates the proposed bridge will satisfy all SCDOT criteria for determine a finding of "No Impact".

- [ ] Preliminary assessmnet indicates this project may require a CLOMR/LOMR. Impacts will be determined by a detailed hydraulic analysis.

Justification:

BRIDGE SCOPE AND RISK ASSESSMENT FORM

IV. Preliminary Bridge Assessment

A. Locate Existing Plans

a. Bridge Plans ☐ Yes ☑ No File No. _____ Sheet No. _____ (See Attached)

b. Road Plans ☐ Yes ☑ No File No. _____ Sheet No. _____ (See Attached)

B. Historical Highwater Data

a. USGS Gage ☐ Yes ☑ No Gage No. _____ Results: _____

b. SCDOT/USGS Documented Highwater Elevations

☑ Yes Results: 1018.25'

☐ No

c. Existing Plans ☑ Yes ☐ No See Above

V. Field Review

A. Existing Bridge

Length: 30 ft. Width: 45 ft. Max. span Length: 30 ft.

Alignment: ☑ Tangent ☐ Curved

Bridge Skewed: ☐ Yes ☑ No Angle: _____

End Abutment Type: Spill Through

Riprap on End Fills: ☑ Yes ☐ No Condition: _____

Superstructure Type: Concrete Deck

Substructure Type: RC Caps with Timber Piles

Utilities Present: ☑ Yes ☐ No

Describe: 6" PVC pipe attached to bottom of guard post on downstream side of bridge.

Debris Accumulation on Bridge: Percent Blocked Horizontally: <5 %

Percent Blocked Vertically: <5 %

Hydraulic Problems: ☐ Yes ☑ No

Describe:

BRIDGE SCOPE AND RISK ASSESSMENT FORM

V. Field Review (cont.)

B. Hydraulic Features

a. Scour Present: ☐ Yes ☑ No Location: _____

b. Distance from F.G. to Normal Water Elevation: 10.1 ft.
c. Distance from Low Steel to Normal Water Elev.: 8.1 ft.
d. Distance from F.G. to High Water Elevation: 0.3 ft.
e. Distance from Low Steel to High Water Elev.: -1.7 ft.

f. Channel Banks Stable: ☑ Yes ☐ No
Describe: General condition of banks are stable with minor erosion/scour

g. Soil Type: Sand / Gravel

h. Exposed Rock: ☐ Yes ☑ No Location: _____

i. Give Description and Location of any structures or other property that could be damaged due to additional backwater.

Residential structures, a Pepsi wholesaler, and a church are located upstream of the tributary.

C. Existing Roadway Geometry

a. Can the existing roadway be closed for an On-Alignment Bridge Replacement
☐ Yes ☑ No
Describe:

The proposed bridge is located on a new alignment.

If "yes", does the existing vertical and horizontal curves meet the proposed design speed criteria?

If "No", will the proposed bridge be:
☐ Staged Constructed
☑ Replaced on New Alignment

BRIDGE SCOPE AND RISK ASSESSMENT FORM

VI. Field Review (cont.)

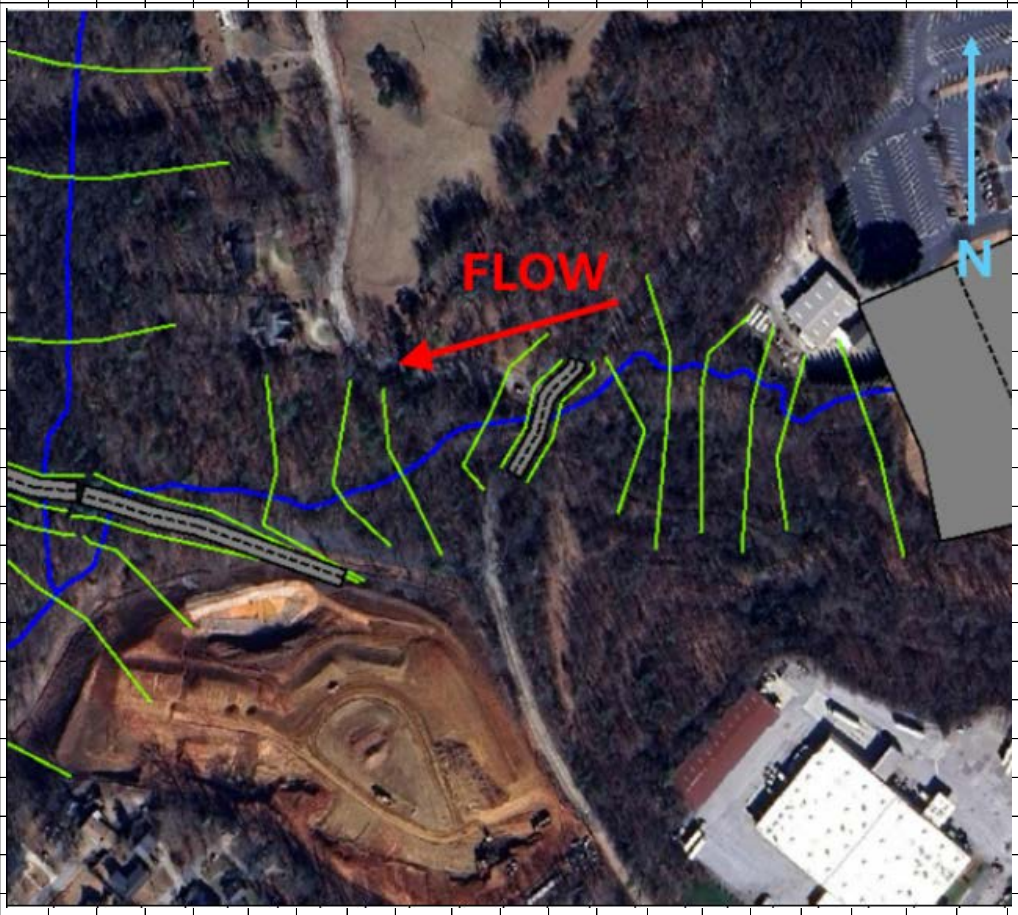
A. Proposed Bridge Recommendation:

Length: 90 ft. Width: 45 ft. Elevation: 1026.79 ft.

Span Arangement: Single span

Notes: Proposed minimum low chord elevation is 1026.79'. Proposed minimum profile/deck elevation is 1030.04'. Proposed 39" deep box beam superstructure with asphalt surface course.

BRIDGE SITE DIAGRAM: (Show North Arrow and Direction of Flow)



Performed By: Hassan Ismail

Title: Project Manager

Appendix D: Floodplains Checklist

South Carolina Department of Transportation
Location and Hydraulic Design of Encroachments on Floodplains Checklist

23 CFR 650, this regulation shall apply to all encroachments and to all actions which affect base floodplains, except for repairs made with emergency funds. Note: These studies shall be summarized in the environmental review documents prepared pursuant to 23 CFR 771.

I. PROJECT DESCRIPTION

The purpose of the project is to correct the load restriction placed on the bridge and restore all components to good condition. The existing bridge is posted for load restrictions and has one or more components in poor condition.

A. Narrative Describing Purpose and Need for Project
   a. Relevant Project History:
   b. General Project Description and Nature of Work (attach Location and Project Map):
   c. Major Issues and Concerns:

Roadway improvements are limited to those associated with accommodating the new structure.
The project crosses Langston Tributary which is shown on the Flood Insurance Rate Map (FIRM) Panel 45045C0319E. Langston Tributary is within a designated Special Flood Hazard Area Zone AE with a regulatory floodway in the vicinity of the Project. The project is not expected to be a significant or longitudinal encroachment as defined under 23 CFR 650A, nor is it expected to have an appreciable environmental impact on the base flood elevation. In addition, the project would be developed to comply with all appropriate floodplain regulations and guidelines.

B. Are there any floodplain(s) regulated by FEMA located in the project area?
   Yes☒ No☐

C. Will the placing of fill occur within a 100-year floodplain?
   Yes☒ No☐

D. Will the existing profile grade be raised within the floodplain?

The roadway grade will be raised to accommodate the larger bridge structure.

E. If applicable, please discuss the practicability of alternatives to any longitudinal encroachments.

Minor longitudinal encroachments are expected based on the revised roadway profile The bridge will be constructed on existing alignment to reduce longitudinal impacts.

F. Please include a discussion of the following: commensurate with the significance of the risk or environmental impact for all alternatives containing encroachments and those actions which would support base floodplain development:

a. What are the risks associated with implementation of the action?

Risks are minimal; the project will replace the existing bridge with larger bridge opening. The increased opening will have a minimal impact on the BFE's along the floodplain.

b. What are the impacts on the natural and beneficial floodplain values?

The project is not expected to impact the floodplain values, as the hydraulics will be retained/improved.

c. What measures were used to minimize floodplain impacts associated with the action?

A similar bridge size will be used and constructed on the existing alignment.

d. Were any measures used to restore and preserve the natural and beneficial floodplain values impacted by the action?

Not Applicable

G. Please discuss the practicability of alternatives to any significant encroachments or any support of incompatible floodplain development.

The impacts are not considered significant encroachments and would not support incompatible floodplain development. The proposed project will have no significant impact to base flood elevations along the stream and will not impact the potential for development within the floodplain

H. Were local, state, and federal water resources and floodplain management agencies consulted to determine if the proposed highway action is consistent with existing watershed and floodplain management programs and to obtain current information on development and proposed actions in the affected? Please include agency documentation.

All analysis for the project was performed in accordance with SCDOT, FEMA, and local regulations. As the project progresses to final construction plans, the hydraulic modeling will be updated based on the final bridge layout

21 June 2023

SCDOT Hydraulic Engineer Date

Appendix E: Public Comments

Full Name	City	Comment	Response
Bill Harmon	Greenville	S-310 Tributary to Richland Creek: The new bridge needs to be angled relative to the water so that it is straight and aligned in the direction of the road. Currently it is straight relative to the water and angled relative to the road. The current direction is dangerous as a vehicle is heading for the guardrails then must turn to the direction of the bridge then turn again to return to the angle of the road. I am assuming that such change in the angle of the bridge was included in the FIRST iteration of the plans, but if it is not, the planning for it needs to be done NOW. It is UNACCEPTABLE to just rebuild the bridge in the same direction it is currently. Secondly, for the safety of walkers and bikers, a more substantial and higher rail needs to be placed on both sides of the bridge. Thirdly, a wider bridge with a walkway on one side is needed. Walkers and bikers use this road and the low guardrails and lack of bike/walking lane are DANGEROUS--an accident waiting to happen.	Bill Harmon, Thank you for your comment on the proposed replacement of the S-23-310 bridge on Crestwood Drive in Greenville County, South Carolina. SCDOT is currently evaluating safety and environmental concerns while developing designs for the new S-23-310 bridge, your feedback will be considered during this process. The roadway and bridge are anticipated to be realigned to meet current road, bridge, and hydraulic design criteria. Your feedback on the proposed project and safety concerns has been reviewed and logged in the project record. We appreciate your interest and feedback on the proposed project.
Carmen T Durham	Greenville	Regarding bridge on Crestwood Drive over the tributary to Langston Creek: Hooray, this bridge is in great need of replacement. I dread the closure, however, because it is how I go to and from work everyday. FYI- during heavy rains, there is severe overflow from a blocked culvert that is uphill from this bridge in the direction of State Park Road. I can explain better by sending a map of the location (I work in GIS at the City of Greenville). Debris and water always flow onto the bridge area and will continue to do so unless the drainage issue is addressed. Will you be realigning the roadway and bridge to make the curve a little easier? Or just replacing the bridge.	Carmen Durham, Thank you for your comment on the proposed replacement of the S-23-310 bridge on Crestwood Drive in Greenville County, South Carolina. SCDOT is currently evaluating safety and environmental concerns while developing designs for the new S-23-310 bridge and identifying detours during construction, your feedback will be considered during this process. The roadway is anticipated to be realigned to meet current design criteria for the speed, traffic volume, road classification, etc.. Your feedback on the proposed project, potential

		Also, the suggested detour works okay for people coming from Poinsett Hwy and onto Crestwood Dr (like to get to Buxton). However, to exit FROM Crestwood and turning left onto Poinsett is a nightmare and really shouldn't be suggested. Consider having people exit the area using the light at Mulligan to turn left	detours, and safety concerns has been reviewed and logged in the project record. We appreciate your interest and feedback on the proposed project.
CFROBB32	Greenville	Having lived in the area of Bridge Projectu s - 23- 310 the tributary over Richland Creek the bridge needs to be made wider and higher and the area around it needs to be cleaned out so that the water from the gullies which are full can run into the creek instead of down the road the area should be cleaned out into the creek also so that the creek can flow part of the creek should also be cleaned out so that the water can flow better and cleaner into the next area the area has a lot of accidents and the debris from the gullies get on the road along with the water and makes it impassable sometime thank you	CFROBB32, Thank you for your comment on the proposed replacement of the S-23-310 bridge on Crestwood Drive in Greenville County, South Carolina. SCDOT is currently evaluating safety and environmental concerns while developing designs for the new S-23-310 bridge, your feedback will be considered during this process. The roadway and bridge are anticipated to be realigned to meet current road, bridge, and hydraulic design criteria. Your feedback on the proposed project and safety concerns has been reviewed and logged in the project record. We appreciate your interest and feedback on the proposed project.
Nick Moody		Hi Michael, I wanted to offer some insights / comments on this project. I am certain most of this is redundant and are items you are already familiar with. However, I cross this bridge 3-4 times daily over the past 12 years of living here, so maybe I have seen something that wasn't noted in your surveys. 1. There is a tremendous amount of foot traffic from the crestwood apartments along the section indicated in red. It is rare that I don't pass a pedestrian, wheelchair bound individual, or cyclist here. If a large portion of this road is going to be worked on leading up to the bridge to bring it up to code it would be the perfect time to include sidewalk space or even a bike lane that could be used by	Michael Responded 7/11/24: Good Afternoon Nick – Thank you for the email and your concerns regarding the bridge replacement over Richland Creek. We really appreciate all feedback we receive and do our best to review and accommodate the asks where possible. As of now in the project studies, we are not adding any additional sidewalks or multi-use paths as a part of the scope of this bridge replacement package. We reviewed the regions long range plan and

		pedestrians. 2. The water run off along the green section is huge and typically runs onto the current bridge rather than being diverted to the creek. 3. This entire area (due to its proximity to Altamont) is heavily traveled by cyclists. Usually no problem but with the blind curves, the bridge, and the T intersection directly next to the bridge, it can prove dangerous at times, a wider bridge and/or a bike lane leading up to the bridge would allow not only separation but also additional width for the turns from Garden Terrace.	there are no proposed bike or pedestrian planned routes through this area. We are however providing adequate shoulders to the width of the bridge but nothing that will be signed. The roadway improvements will only go as far as needed to tie in the new bridge structure. For the run off, our hydraulic design will encompass the surrounding area ditches, streams, etc. and should account for what you've noticed. I hope this information is helpful! Please let me know if you would like to discuss further!

From: Pitts, Michael E.
To: bharmon@bjupress.com
Cc: Nicole Weirich; McGoldrick, Will
Subject: SCDOT Bridge Package 19 - Public Comment Response
Date: Friday, August 30, 2024 9:03:25 AM
Attachments: image001.png

External Email: Use caution when clicking on links, replying, or opening attachments.

Bill Harmon,

Thank you for your comment on the proposed replacement of the S-23-310 bridge on Crestwood Drive in Greenville County, South Carolina. SCDOT is currently evaluating safety and environmental concerns while developing designs for the new S-23-310 bridge, your feedback will be considered during this process. The roadway and bridge are anticipated to be realigned to meet current road, bridge, and hydraulic design criteria. Your feedback on the proposed project and safety concerns has been reviewed and logged in the project record. We appreciate your interest and feedback on the proposed project.

Thank you,

LEAD 2024 Facilitating SUCCESS

Michael E. Pitts, P.E., Assoc. DBIA
Alternative Delivery Program Manager
O 803.737.2566 **M** 803.413.9316 **E** pittsme@scdot.org
955 Park Street, P.O. Box 191, Columbia, SC 29202-0191

From: Pitts, Michael E.
To: Cfrobbb32@gmail.com
Cc: Nicole Weirich; McGoldrick, Will
Subject: SCDOT Bridge Package 19 - Public Comment Response
Date: Friday, August 30, 2024 9:11:10 AM
Attachments: image001.png

External Email: Use caution when clicking on links, replying, or opening attachments.

Good Morning,

Thank you for your comment on the proposed replacement of the S-23-310 bridge on Crestwood Drive in Greenville County, South Carolina. SCDOT is currently evaluating safety and environmental concerns while developing designs for the new S-23-310 bridge, your feedback will be considered during this process. The roadway and bridge are anticipated to be realigned to meet current road, bridge, and hydraulic design criteria. Your feedback on the proposed project and safety concerns has been reviewed and logged in the project record. We appreciate your interest and feedback on the proposed project.

Thanks,

LEAD 2024 Facilitating SUCCESS

Michael E. Pitts, P.E., Assoc. DBIA
Alternative Delivery Program Manager
O 803.737.2566 **M** 803.413.9316 **E** pittsme@scdot.org
955 Park Street, P.O. Box 191, Columbia, SC 29202-0191

From: Pitts, Michael E.
To: carmen_durham@charter.net
Cc: Nicole Weirich; McGoldrick, Will
Subject: SCDOT Bridge Package 19 - Public Comment Response
Date: Friday, August 30, 2024 9:03:52 AM
Attachments: image001.png

External Email: Use caution when clicking on links, replying, or opening attachments.

Carmen Durham,

Thank you for your comment on the proposed replacement of the S-23-310 bridge on Crestwood Drive in Greenville County, South Carolina. SCDOT is currently evaluating safety and environmental concerns while developing designs for the new S-23-310 bridge and identifying detours during construction, your feedback will be considered during this process. The roadway is anticipated to be realigned to meet current design criteria for the speed, traffic volume, road classification, etc.. Your feedback on the proposed project, potential detours, and safety concerns has been reviewed and logged in the project record. We appreciate your interest and feedback on the proposed project.

Thank you,

LEAD 2024 Facilitating SUCCESS

Michael E. Pitts, P.E., Assoc. DBIA
Alternative Delivery Program Manager
O 803.737.2566 **M** 803.413.9316 **E** pittsme@scdot.org
955 Park Street, P.O. Box 191, Columbia, SC 29202-0191

From: Nick Moody
To: Pitts, Michael E.
Subject: Re: S-310 Richland Creek Bridge
Date: Thursday, July 11, 2024 3:55:06 PM
Attachments: image003.png
image004.png

*** This is an EXTERNAL email. Please do not click on a link or open any attachments unless you are confident it is from a trusted source. ***

Thanks for the explanation. Appreciate the response.
-N

Nick Moody
NewWave Consulting Inc
864.335.8658 o
864.363.6425 c

On Thu, Jul 11, 2024 at 1:41 PM Pitts, Michael E. <PittsME@scdot.org> wrote:

> Good Afternoon Nick –
>
> Thank you for the email and your concerns regarding the bridge replacement over Richland Creek. We really appreciate all feedback we receive and do our best to review and accommodate the asks where possible. As of now in the project studies, we are not adding any additional sidewalks or multi-use paths as a part of the scope of this bridge replacement package. We reviewed the regions long range plan and there are no proposed bike or pedestrian planned routes through this area. We are however providing adequate shoulders to the width of the bridge but nothing that will be signed. The roadway improvements will only go as far as needed to tie in the new bridge structure. For the run off, our hydraulic design will encompass the surrounding area ditches, streams, etc. and should account for what you've noticed.
>
> I hope this information is helpful! Please let me know if you would like to discuss further!
>
> Thanks,
>
> LEAD 2024 LOGO-small
>
> **Michael E. Pitts, P.E., Assoc. DBIA**
> *Alternative Delivery Program Manager*
> **O** 803.737.2566 **M** 803.413.9316 **E** pittsme@scdot.org
> 955 Park Street, P.O. Box 191, Columbia, SC 29202-0191
>
> ---
>
> **From:** Nick Moody <nick@newwaveconsulting.com>
> **Sent:** Wednesday, July 10, 2024 1:37 PM
> **To:** Pitts, Michael E. <PittsME@scdot.org>
> **Subject:** S-310 Richland Creek Bridge
>
> *** This is an EXTERNAL email. Please do not click on a link or open any attachments unless you are confident it is from a trusted source. ***
>
> Hi Michael,
>
> I wanted to offer some insights / comments on this project. I am certain most of this is redundant and are items you are already familiar with. However, I cross this bridge 3-4 times daily over the past 12 years of living here, so maybe I have seen something that wasn't noted in your surveys.
>
> 1. There is a tremendous amount of foot traffic from the crestwood apartments along the section indicated in red. It is rare that I don't pass a pedestrian, wheelchair bound individual, or cyclist here. If a large portion of this road is going to be worked on leading up to the bridge to bring it up to code it would be the perfect time to include sidewalk space or even a bike lane that could be used by pedestrians.
> 2. The water run off along the green section is huge and typically runs onto the current bridge rather than being diverted to the creek.
> 3. This entire area (due to its proximity to Altamont) is heavily traveled by cyclists. Usually no problem but with the blind curves, the bridge, and the T intersection directly next to the bridge, it can prove dangerous at times, a wider bridge and/or a bike lane leading up to the bridge would allow not only separation but also additional width for the turns from Garden Terrace.

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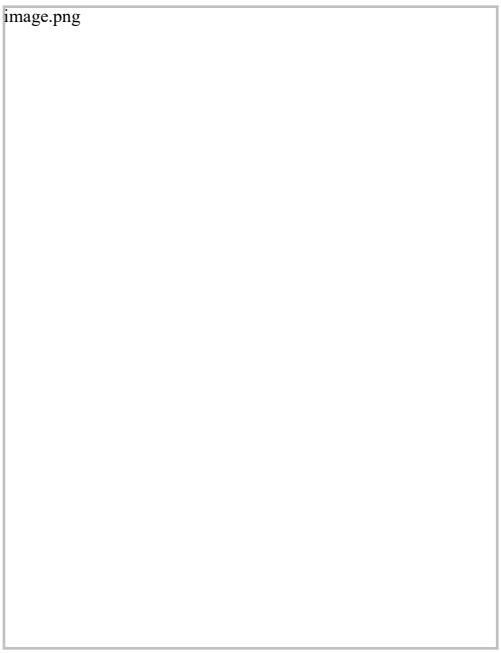

I hope this helps in some way. Feel free to reach out with any questions.

Thanks

-Nick

Nick Moody

NewWave Consulting Inc

864.335.8658 o

864.363.6425 c