

### **Attachments**

**Attachment A- Cultural Resources Project Screening Form and Field Report**

**Attachment B- Natural Resources Technical Memorandum**

**Attachment C- Bridge Replacement Scoping Risk Assessment Form**

**Attachment D- Floodplain Checklist**

**Attachment E- Public Involvement**

## **Attachment A- Cultural Resources Project Screening Form and Field Report**



# Cultural Resources Project Screening Form

File Number:  PIN:  Route:  County:

Project Name:

Type 1: Resurfacing, installation of fencing, signs, pavement markings, traffic signals, passenger shelters, railroad warning devices, installation of rumble strips, and landscaping

Project Type

Type 2: Bridge replacements on alignment, construction of bicycle/pedestrian facilities, and intersection improvements

Type 3: Projects that do not fall into Type 1 and Type 2 categories (e.g. road widening)

Comments

This project replaces the bridge carrying S-1086 (Barrett Road) over Beaverdam Creek. The bridge will be replaced on alignment and it is anticipated that minor amounts of new right-of-way (ROW) will be required. The archaeological project area is 75 feet from the road centerline (150 feet total) and 1,500 feet from the bridge south and 560 feet from the bridge north. The architectural survey examined all above-ground resources with sightlines to the bridge. New South Associates conducted background research and a cultural resources field survey in May 2023 and created a short form report detailing the project. The survey consisted of a pedestrian reconnaissance of the entire archaeological APE augmented by the excavation of shovel test pits (STPs). A total of 68 STP locations were investigated. Fifteen STPs were not excavated due to slope, or the presence of gravel or paved driveways. The remaining 53 STPs were negative for cultural material. The current bridge to be replaced (Asset ID 03560) is a four-span, concrete slab bridge with timber piles constructed in 1960. Although it is over 50 years of age, it was not formally recorded and evaluated for inclusion on the NRHP because it qualifies for streamlined review under the Federal Highway Administration's Post-1945 Bridges Program Comment. The bridge is discussed in the SCDOT Historic Bridge Database where it was recommended as not eligible. No other above ground resources are located within the APE. No historic properties will be affected by this project. No additional cultural resources investigations are recommended.

Effect Determination:

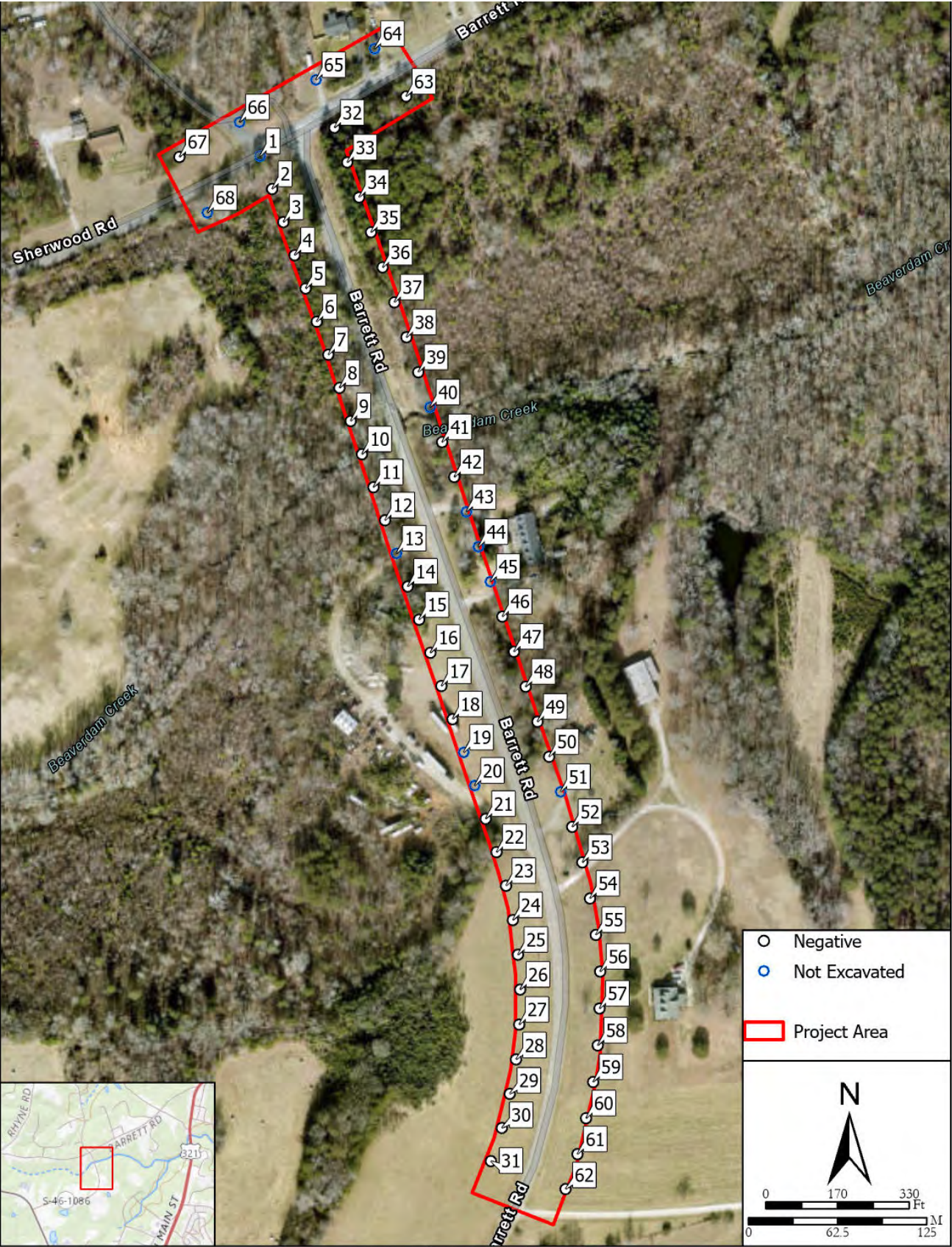
\*SHPO consultation is required for all Type 3 projects and any project with a No Adverse or Adverse Effect Determination.

This screening form was developed to satisfy documentation requirements for Type I and Type II projects under a Programmatic Agreement between the Federal Highway Administration, the South Carolina State Historic Preservation Office, the US Army Corps of Engineers, and the South Carolina Department of Transportation. For Type I and Type II projects that have no effect on historic properties, the completion of this screening form with supporting documentation (e.g. ArchSite Map) provides evidence of FHWA and SCDOT's compliance with Section 106 of the National Historic Preservation Act.

Prepared by:

Review Date:

Figure 6.  
Shovel Test Results





**CULTURAL RESOURCE FIELD REPORT  
SCDOT ENVIRONMENTAL SECTION**



**TITLE:** Phase I Cultural Resources Survey of Proposed Improvements to the S-1086 over Beaverdam Creek Bridge

**DATE OF RESEARCH:** 5/15/2023

**ARCHAEOLOGIST:** Kelly Higgins, MA, RPA

**ARCHITECTURAL HISTORIAN:** Sean Stucker, MHP and Katie Dykens Quinn, MSHP

**COUNTY:** York

**PROJECT:** Closed and Load Restricted Bridge Replacements- Package 20

**F. A. No.:**

**File No.**

**PIN:** PO41173

**DESCRIPTION:**

The South Carolina Department of Transportation proposes to replace various closed or load-restricted bridges including the S-1086 (Barrett Road) over Beaverdam Creek in York County, South Carolina. The project area is defined as that area within 75 feet of either side of the proposed roadway centerline and extending 1,500 feet from the bridge to the south and approximately 560 feet from the bridge to the north. The archaeological survey covered the entire project area, while the architectural survey examined all above-ground resources with sightlines to the bridge. This cultural resources survey was performed under contract with HNTB.

**LOCATION:**

The project area is located approximately 1.5 miles south of the North Carolina border and west of the town of Clover and the unincorporated community of Bowling Green, South Carolina (Figure 1).

**USGS QUADRANGLE:** Gastonia South, NC

**DATE:** 1993

**SCALE:** 1:24000

**UTM:** NAD83

**ZONE:** 17N

**EASTING:** 478895

**NORTHING:** 3888298

**ENVIRONMENTAL SETTING:**

The project area is situated in the Piedmont physiographic region. Elevations within the project area range from 750 feet above mean sea level (amsl) along Beaverdam Creek to 770 and 800 feet amsl at the northern and southern terminus, respectively. The surrounding landscape is rural, with scattered modern single-family homes along the tract. The northern portion of the project area contains stands of mixed pines and hardwoods, while the southern portion contains open fields for agriculture or pasture.

**NEAREST RIVER/STREAM AND DISTANCE:**

Beaverdam Creek bisects the project area, turning into an intermittent creek approximately 145 meters west of the project before terminating approximately one kilometer (0.88 mile) west of Barrett Road. Beaverdam Creek is a tributary of Crowder's Creek, which empties into Lake Wylie and the Catawba River approximately 10 miles southeast of the project area.

**SOIL TYPE:**

Soils in the project area were formed from alluvium or residuum weathered from metavolcanics, metasedimentary rock, or slate. The majority of the soils range from moderately well drained to well drained, with 10 percent identified as somewhat poorly drained. By the early twentieth century, continuous row cropping destroyed soil nutrients and

large tracts of farmland were rendered unsuitable for cultivation. The Natural Resource Conservation Service maps five soil types in the project area, of which almost 60 percent are considered moderately eroded (Table 1).

*Table 1. Soils Mapped in the Project Area*

| Map Unit | Map Name                    | Drainage Class          | Notes                            | Acres in Project Area | Percent of Project Area |
|----------|-----------------------------|-------------------------|----------------------------------|-----------------------|-------------------------|
| ChA      | Chewacla loam               | Somewhat Poorly Drained | 0–2% slopes, frequently flooded  | 1.0                   | 10                      |
| DoB      | Dorian sandy loam           | Moderately Well Drained | 0–4% slopes, rarely flooded      | 1.9                   | 19.6                    |
| GaC      | Georgeville laom            | Well Drained            | 6–10% slopes                     | 1.3                   | 13.2                    |
| GeB2     | Georgeville silty clay loam | Well Drained            | 2–6% slopes, moderately eroded   | 4.9                   | 51.2                    |
| GeD2     | Georgeville silty clay loam | Well Drained            | 10–15% slopes, moderately eroded | 0.6                   | 6.0                     |
| Total    |                             |                         |                                  | 9.6                   | 100                     |

#### **REFERENCE FOR SOILS INFORMATION:**

USDA-NCRS Soil Survey Division, Custom Soil Resource Report ([websoilsurvey.sc.egov.usda.gov](http://websoilsurvey.sc.egov.usda.gov))

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

#### **CURRENT VEGETATION:**

The roadsides throughout the project area consist of mixed hardwoods with a light to moderate understory in the northern half of the tract. Some manicured lawns and landscaping are present at the northern terminus as it is more residential in nature, while the southern portion of the tract consists of open fields for agriculture or pasture. Pines are scattered throughout the project area (Figures 2–4).

#### **INVESTIGATION:**

#### **BACKGROUND RESEARCH**

New South Associates, Inc. (NSA) conducted background research prior to fieldwork 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). One historic resource, 189-1348, was identified in the 0.5-mile search radius (Figure 5). This is a circa 1930 house recorded during the 1991–1993 York County Historic and Architecture Inventory (Jaeger Company 1993); it was recommended not eligible for inclusion in the National Register of Historic Places (NRHP) during that survey. No archaeological sites have been recorded within 0.5-mile of the project area. There are no previously recorded cultural resources within the project area itself.

## **SURVEY RESULTS**

The cultural resources survey did not identify any new or previously recorded archaeological sites or isolated finds. Additionally, no new historic architecture resources were identified. The results of the survey area discussed in detail below.

### **ARCHAEOLOGY**

The Phase I Archaeological Survey was performed on May 15, 2023. Kelly Higgins, MA, RPA, served as Field Director and was assisted in the field by Archaeological Technicians John Tomko and Derrick Westfall. The archaeological investigation included a pedestrian walkover of the entire project area and the excavation of shovel tests at 20-meter (65-foot) intervals within the project area. Shovel tests were placed along a single transect parallel to either side of Barrett Road. Soil profiles were recorded for all excavated shovel tests, and location data was recorded for all investigated shovel tests using handheld GPS instruments.

Sixty-eight shovel test locations were investigated during the survey, of which 53 were negative for cultural material. The remaining 15 shovel tests were not excavated due to slope greater than 15 degrees and gravel or paved driveways (Figure 6). Two soil profiles were noted, one in the wooded portions of the project area and one in the fallow fields. Soils in the wooded areas contained a profile consisting of approximately 16 centimeters of grayish brown (10YR 5/2) sandy loam Ap horizon overlying a brownish yellow (10YR 6/8) sandy clay subsoil. Soils in the open fields consists of approximately 16 centimeters of strong brown (7.5YR 5/8) sandy clay loam Ap horizon overlying a yellowish red (5YR 4/6) sandy clay subsoil (Figures 7 and 8).

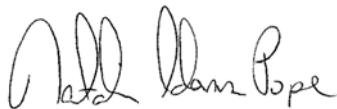
### **ARCHITECTURAL SURVEY**

The architectural survey was conducted on May 18, 2023, by Architectural Historian Sean Stucker, MHP. While one previously surveyed resource was located within 0.5 miles of the project area, no newly identified or previously surveyed architectural historic resources were located within the project area or its viewshed. The bridge carrying S-1086 over Beaverdam Creek, constructed in 1960, was not evaluated per the FHWA's Post-1945 Bridges Program Comment (U.S. Department of Transportation, Federal Highway Administration 2012). This bridge (ID 03560) is of a common type, with flat concrete stringers and wood piers with concrete caps and footings (Figure 9).

### **REMARKS AND RECOMMENDATIONS:**

This Phase I Cultural Resources Survey did not identify any new or previously recorded archaeological sites or isolated finds, and no new architectural resources were recorded. The proposed project, as currently defined, would have no effects to historic properties.

**SIGNATURE:**



**DATE:** May 30, 2023

**BIBLIOGRAPHY:**

Jaeger Company

1993      *York County Historical and Architectural Inventory Survey Report*. Jaeger Company, Gainesville, Georgia.

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.



Figure 1.  
Project Location Map

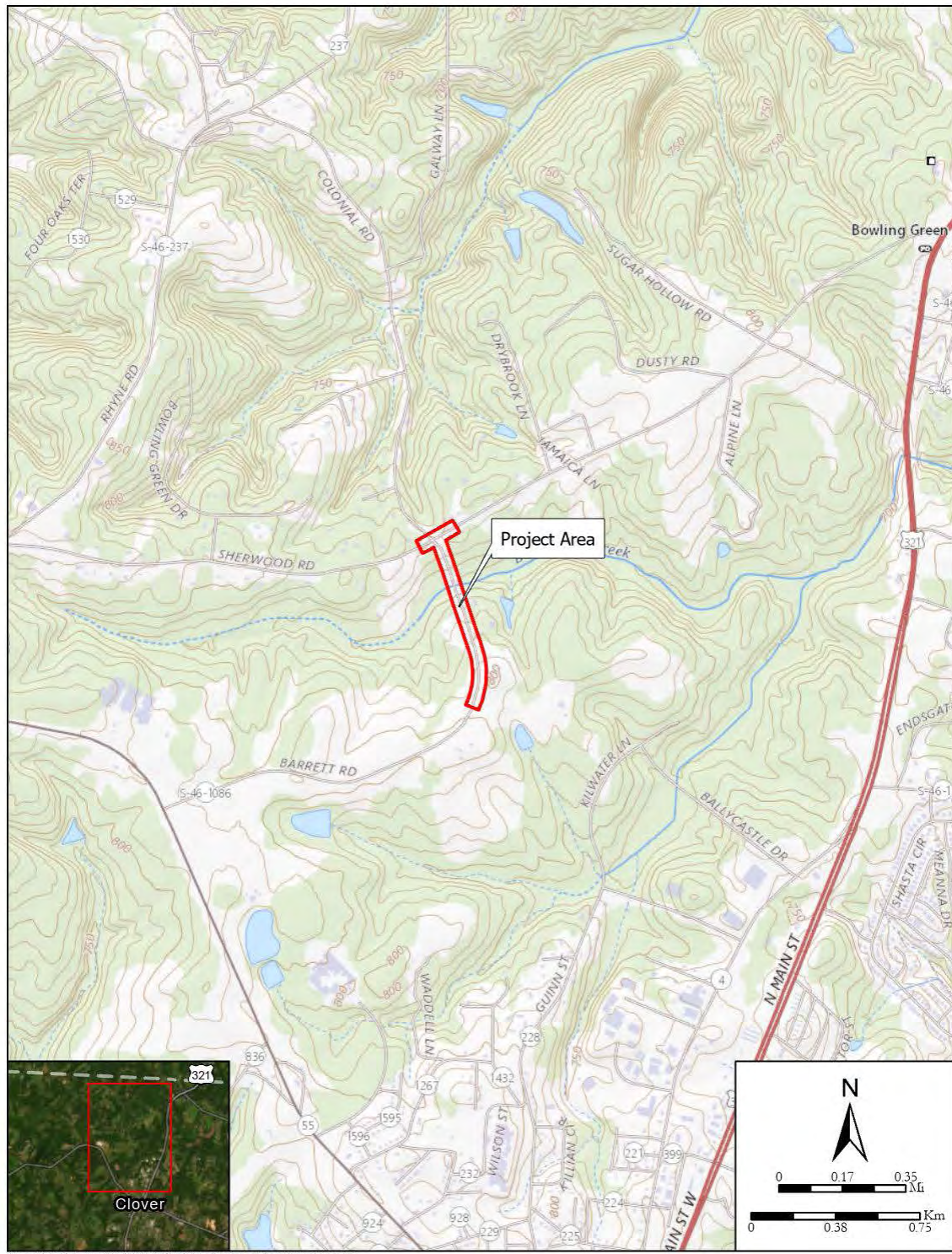




Figure 2.  
Typical Wooded Conditions, Facing South





Figure 3.  
Conditions in the Open Field, Facing South



Figure 4.  
Conditions in the Vicinity of the Bridge, Facing South





Figure 5.  
Previously Recorded Cultural Resources within a 0.5-mile Radius of the Project Area





Figure 6.  
Shovel Test Results

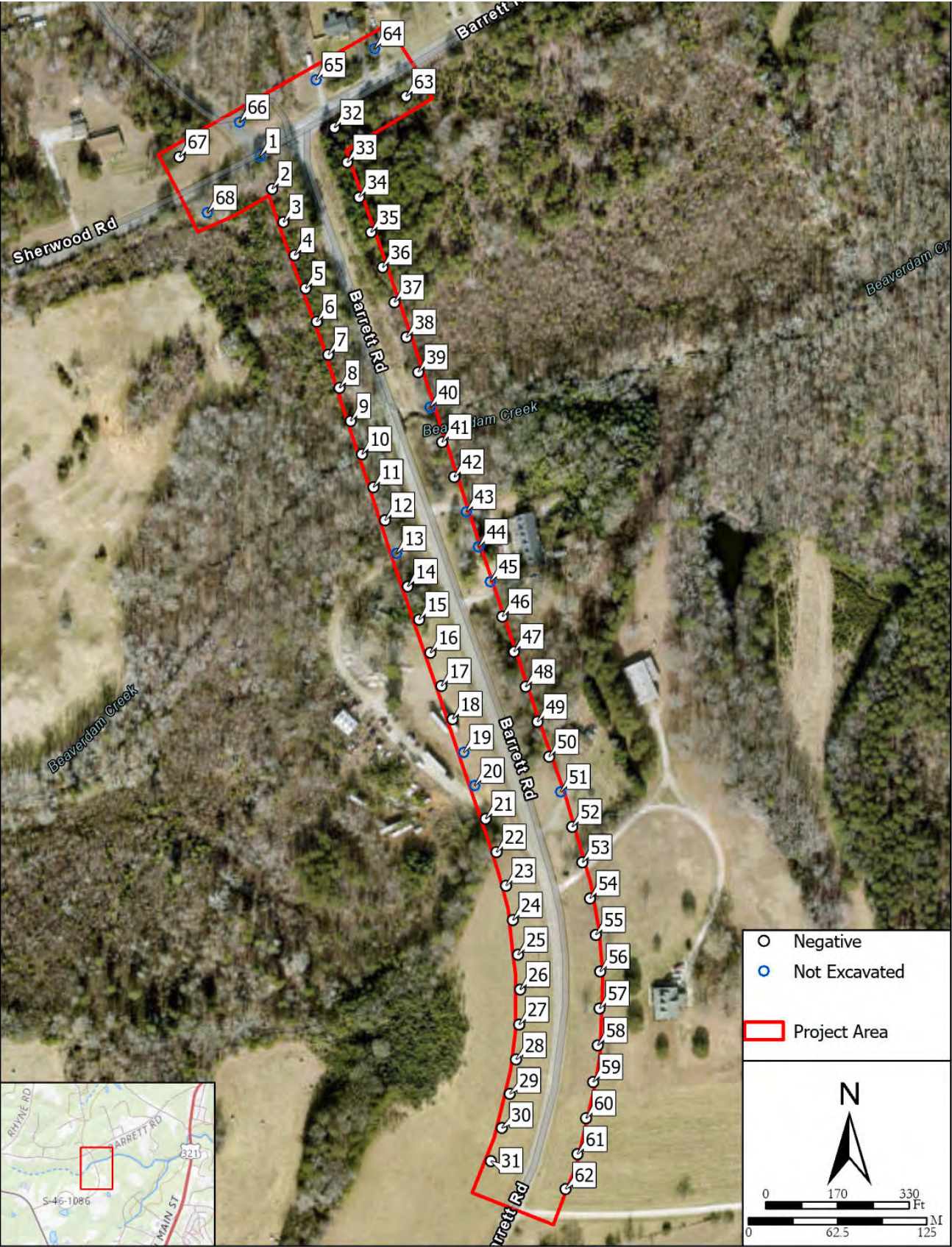




Figure 7.  
Soil Profile in Wooded Area





Figure 8.  
Soil Profile in Open Field





Figure 9.  
Bridge Carrying S-1086 over Beaverdam Creek



A. Contextual, Facing Northwest



B. Substructure

## **Attachment B- Natural Resources Technical Memorandum**





# Natural Resources Technical Memorandum

S-1086 (Barrett Road) Bridge Replacement over Beaverdam Creek

SCDOT Project ID: P041173

July 5, 2023



**ROBBINS  
& DEWITT**

## Introduction

The South Carolina Department of Transportation (SCDOT) proposes to replace the S-1086 (Barrett Road) bridge over Beaverdam Creek in York County, South Carolina. Specifically, the project is in the town of Clover, approximately 9.88 miles north of the City of York. The project is located in the Upper Catawba Watershed (03050101 8-digit Hydrologic Unit Code) and the Southern Outer Piedmont (45b) 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 9.55 acres in size and approximately 2,198 feet (0.42 mile) in total length, generally centered on Beaverdam Creek in either direction. Furthermore, the PSA is approximately 165 feet in total width, generally centered on the centerline of Barrett Road.

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 and 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) – Gastonia South, NC 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 May 2<sup>nd</sup>, 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 | 35.138461 | -81.232139 | 183                      | 0.03        |
| Total    |           |            | 183 feet                 | 0.03 acre   |

## 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 May 2<sup>nd</sup> and 24<sup>th</sup>, 2023. 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 northern long-eared bat, Carolina heelsplitter, dwarf-flowered heartleaf, and little amphianthus (pool sprite). The project effect for Schweinitz's sunflower is 'undetermined'. SCDOT will conduct surveys for the Schweinitz's sunflower during the 2023 survey window to confirm absence or presence of the species in the PSA and finalize the effect determination. 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 includes low-density residential housing and undeveloped forest land. Natural communities observed within the PSA consist of small stream forest. 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, five 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 |
|------|---|--------------|-------------------|
| ChA  | Chewacla loam, 0 to 2 percent slopes, frequently flooded                | 1.0          | 10.0%             |
| DoB  | Dorian sandy loam, 0 to 4 percent slopes, rarely flooded                | 1.8          | 19.2%             |
| GaC  | Georgeville loam, 6 to 10 percent slopes                                | 1.3          | 13.2%             |
| GeB2 | Georgeville silty clay loam, 2-6 percent slopes, moderately eroded      | 4.9          | 51.6%             |
| GeD2 | Georgeville silty clay loam, 10 to 15 percent slopes, moderately eroded | 0.6          | 6.0%              |

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](mailto:matt.dewitt@robbins-dewitt.com).

Respectfully Submitted



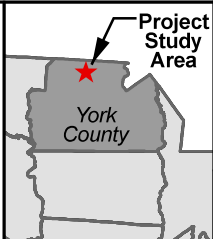
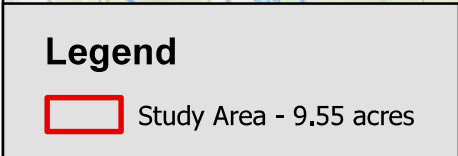
Matt DeWitt, AICP  
Robbins & DeWitt, LLC

# Attachment A

## Figures



ROBBINS  
& DEWITT



**S-1086 BRIDGE REPLACEMENT  
OVER BEAVERDAM CREEK  
PROJECT ID: P041173**

**YORK COUNTY, SOUTH CAROLINA**

Source: USGS National Map (2023); USGS Gastonia South, NC Quadrangle (2022)



South Carolina Department of Transportation

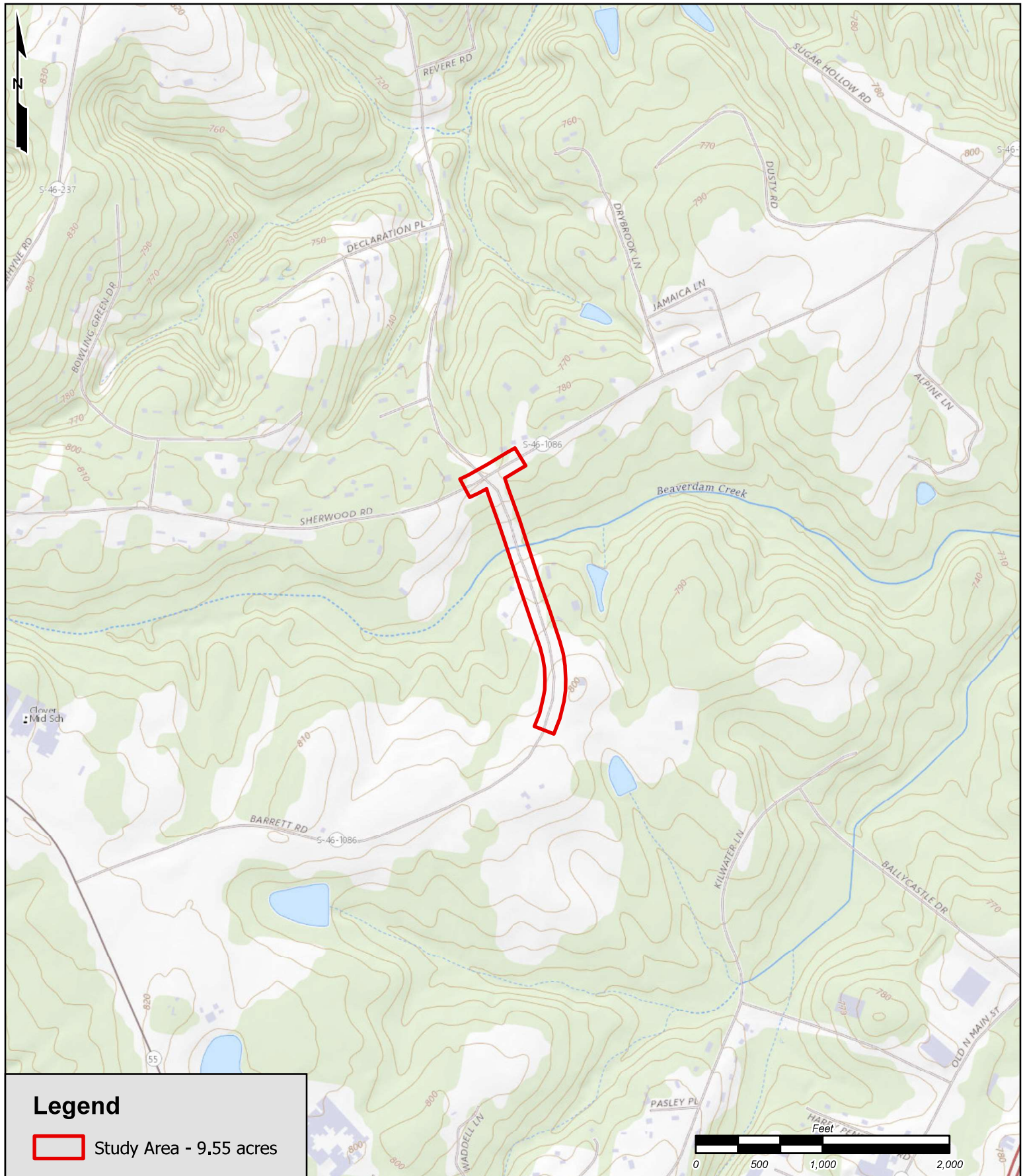
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DATE: 06/05/2023

## PROJECT VICINITY

**FIGURE 1**





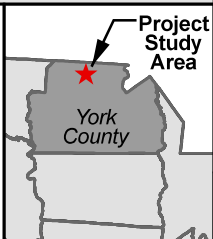
## Legend

Study Area - 9.55 acres



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Project  
Study Area

York  
County

**S-1086 BRIDGE REPLACEMENT  
OVER BEAVERDAM CREEK  
PROJECT ID: P041173**

**YORK COUNTY, SOUTH CAROLINA**

Source: USGS National Map (2023); USGS Gastonia South, NC Quadrangle (2022)



South Carolina Department of Transportation

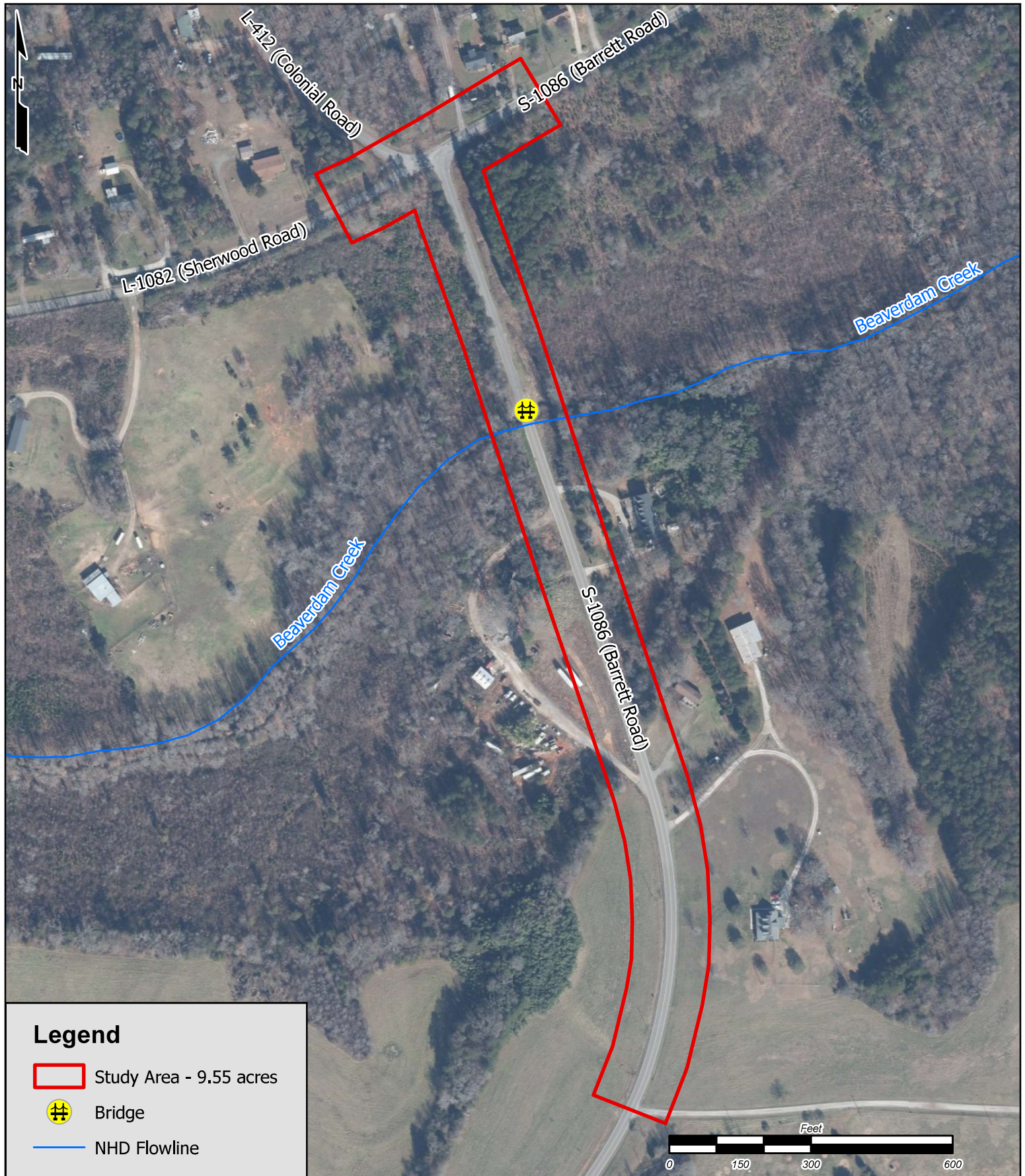
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DATE: 06/05/2023

**USGS TOPOGRAPHIC MAPPING**

**FIGURE 2**





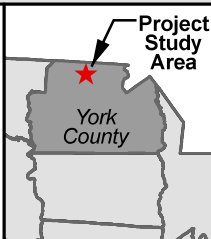
### Legend

- Study Area - 9.55 acres
- ⚡ Bridge
- NHD Flowline



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### S-1086 BRIDGE REPLACEMENT OVER BEAVERDAM CREEK PROJECT ID: P041173

**YORK COUNTY, SOUTH CAROLINA**

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



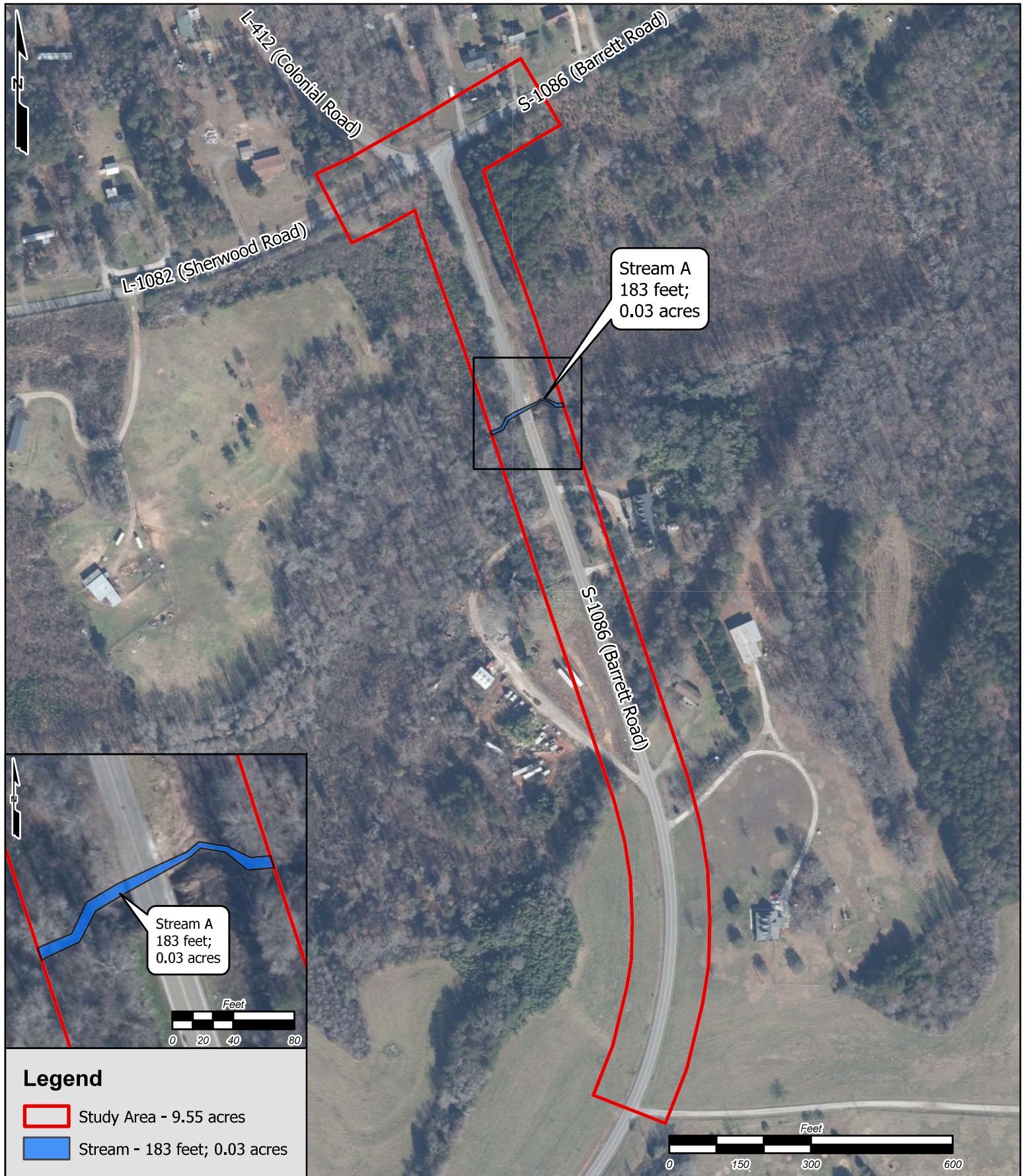
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DATE: 06/05/2023

**AERIAL IMAGERY**

**FIGURE 3**





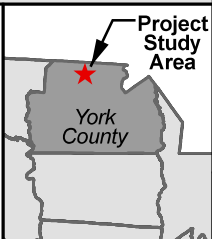
### Legend

- Study Area - 9.55 acres
- Stream - 183 feet; 0.03 acres



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### S-1086 BRIDGE REPLACEMENT OVER BEAVERDAM CREEK PROJECT ID: P041173

**YORK COUNTY, SOUTH CAROLINA**

Source: Approximate boundaries of WOTUS were delineated on May 2, 2023; SC Geodetic High Resolution 6-inch, RGB Aerial Imagery [Statewide, South Carolina (2020)]



DRAWN BY: TRC

DATE: 06/05/2023

**APPROXIMATE BOUNDARY OF WOTUS**

**FIGURE 4**

## **Attachment B**

# **SCDOT Permit Determination Form & Water Quality Information Report**



**ROBBINS  
& DEWITT**



Date: 06/21/23

## PERMIT DETERMINATION

FROM Russell Chandler COMPANY Robbins and DeWitt

CONTACT INFO (phone and/or email) russell.chandler@robbins-dewitt.com

SCDOT PROJECT ENGINEER Michael Pitts

TO Will McGoldrick - Design Build Coordinator

Project Description S-1086 over Beaverdam Creek

Route or Road No. S-1086 County York

CONST. PIN P041173 OTHER PINS or STRUCTURE # \_\_\_\_\_

RESPONSE:

☒ It has been determined that no permits are required because:

Preliminary design avoids impacts to WOTUS

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

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

USACE Permit ☐ GP ☐ IP ☐ 401 ☐ JD

OCRM Permit ☐ CAP ☐ CZC

Navigable ☐ SCDHEC NAVGP – if checked a USCG and/or USACE navigable permit may also be required, but will be determined during the NEPA and Permitting stages.

Other \_\_\_\_\_

Water Classification: FW

*Print and attach the SCDHEC water quality report*

303(d) listed ☐ no ☒ yes, for \* BIO

TMDL developed ☐ no ☒ yes, for \* ECOLI

\*List all that apply using the SCDHEC abbreviations

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.

*T Russell Chandler*  
Biologist, SCDOT/Consultant

06/21/2023  
Date





# Watershed and Water Quality Information

## General Information

**Applicant Name:** SCDOT

**Permit Type:** Construction

**Address:** 884 BARRETT RD, CLOVER,  
SC, 29710

**Latitude/Longitude:** 35.138384 / -81.232052

**MS4 Designation:** Not in designated area

**Monitoring Station:** RS-06020

**Within Coastal Critical Area:** No

**Water Classification (Provisional):** FW

**Waterbody Name:** Unnamed Trib

**Entered Waterbody Name:** Beaverdam Creek

## 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 |
|----------|------|----|----|----|----|----|----|----|----|----|-----------|-------|----|-----|----|----|------|--------|-----|-----|
| RS-06020 | X    | X  | X  | X  | X  | X  | X  | X  | X  | X  | X         | WnTN  | X  | N   | 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)

**ECOLI** - Escherichia coli (Freshwaters)

**BIO** - Macroinvertebrates (Bio)

## Fish Consumption Advisory

## Waters of Concern (WOC)

## TMDL Information - TMDL Parameters to be addressed

**In TMDL Watershed:** Yes

**TMDL Site:** RS-06020

**TMDL Report No:** 005-02

**TMDL Parameter:** Fecal

**TMDL Document Link:** [https://www.scdhec.gov/sites/default/files/docs/HomeAndEnvironment/Docs/TMDL\\_BeavDam.pdf](https://www.scdhec.gov/sites/default/files/docs/HomeAndEnvironment/Docs/TMDL_BeavDam.pdf)

Report Date: May 30, 2023

# **Attachment C**

## **Biological Evaluation - Section 7 of the Endangered Species Act**



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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

South Carolina Ecological Services Field Office  
176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407



July 17, 2023

Mr. Will McGoldrick  
Environmental Services Office  
SCDOT  
955 Park St Rm 506  
Columbia SC 29202-0191

Re: S-1086 (Barrett Road) Bridge Replacement over Beaverdam Creek,  
York County, South Carolina  
FWS Project Code: 2023-0100551

Dear Mr. McGoldrick:

The U.S. Fish and Wildlife Service (Service) has reviewed the above referenced project pursuant to section 7 of the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 *et seq.* (ESA). The following comments do not address all Service concerns for fish and wildlife resources and do not preclude separate review and comments by the Service as afforded by other applicable environmental legislation.

SCDOT has determined that the proposed project will have *no effect* on northern long-eared bat (*Myotis septentrionalis*), Carolina heelsplitter (*Lasmigona decorata*), dwarf-flowered heartleaf (*Hexastylis naniflora*), and little amphianthus (*Amphianthus pusillus*). There is no requirement to request concurrence with a *no effect* determination; however, the Service acknowledges this determination and has no additional comments or concerns regarding these species. SCDOT has also not been able to make a determination for Schweinitz's sunflower (*Helianthus schweinitzii*) for this project because the site assessment was before the survey window for the species.

SCDOT has committed to a final survey during the appropriate survey window and based on those findings make an appropriate effects determination for the species. Therefore, the Service finds that SCDOT is in compliance with Section 7 and once the survey for Schweinitz's sunflower a updated Biological Evaluation should be submitted to our office and we can conclude consultation at that time.

Please note that obligations under section 7 of the ESA must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner, which was not considered in this assessment; or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.



The Service recommends that you contact the South Carolina Department of Natural Resources regarding potential impacts to State protected species. If you need further assistance, please contact: Melanie Olds via email at [melanie\\_old@fws.gov](mailto:melanie_old@fws.gov).

Sincerely,

**WILLIAM**  
**PEARSON**

Digitally signed by  
WILLIAM PEARSON  
Date: 2023.07.17  
15:27:41 -05'00'

William J. Pearson  
Acting Field Supervisor  
South Carolina Ecological Services Field Office

## Introduction

The proposed project consists of replacing the S-1086 (Barrett Road) bridge over Beaverdam Creek, and associated road work, in York County, South Carolina. See Attachment A for project figures.

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 review of the USFWS South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species, dated March 29, 2022, identifies ten federally protected species known to occur or to have formerly occurred in York County (see Attachment D). A Resource List was also requested from the USFWS Information for Planning and Consultation (IPaC) in June 2023, to detail protected species under USFWS jurisdiction that are known or expected to be on or near the project area (see Attachment D). Table 1 below includes the species that appear on at least one of these resources.

## 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               | <i>Haliaeetus leucocephalus</i> | BGEPA                        |
| Insect   | Monarch butterfly        | <i>Danaus plexippus</i>         | Candidate                    |
| Mammal   | Tri-colored bat          | <i>Perimyotis subflavus</i>     | Proposed Endangered          |
| Mollusk  | Carolina heelsplitter    | <i>Lasmigona decorata</i>       | Endangered, Critical Habitat |
| Plant    | Dwarf-flowered Heartleaf | <i>Hexastylis naniflora</i>     | Threatened                   |
| Plant    | Little amphianthus       | <i>Amphianthus pusillus</i>     | Threatened                   |
| Plant    | Schweinitz's sunflower   | <i>Helianthus schweinitzii</i>  | 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 May 2<sup>nd</sup> and 24<sup>th</sup>, 2023. 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 includes low-density residential housing and undeveloped forest land. Natural communities observed within the PSA consist of small stream forest.

The small stream forest consists of an open to dense understory or shrub layer and a sparse to dense herb layer. The canopy has a mixture of bottomland and mesophytic trees including river birch (*Betula nigra*), sycamore (*Platanus occidentalis*), sweetgum, tulip poplar, American elm (*Ulmus americana*), hackberry (*Celtis laevigata*), green ash (*Fraxinus pennsylvanica*), and red maple. Vine species are typically common and can include poison ivy (*Toxicodendron radicans*), summer grape (*Vitis aestivalis*), and crossvine (*Bignonia capreolata*). The subcanopy consists of young canopy species and many tall shrubs including pawpaw (*Asimina triloba*). Invasive Chinese privet (*Ligustrum sinense*) was also observed. The herb layer contains cardinal flower (*Lobelia cardinalis*), longleaf lobelia (*L. elongata*), Nepalese browntop (*Microstegium vimineum*), netted chainfern (*Woodwardia areolata*), royal fern (*Osmunda regalis*), and eastern marsh fern (*Thelypteris palustris*).

## 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, dwarf-flowered heartleaf, or little amphianthus.

While Northern long-eared bat is included on the list of protected species for York County, the USFWS has recently removed York County from the range map for the species.

Suitable habitat for tri-colored bat exists in the PSA. Roosting habitat exists under the existing Beaverdam Creek bridge and in cavities and crevices of trees within the PSA. A structure survey of the existing Beaverdam Creek 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.

SCDOT performed freshwater mussel surveys in Spring of 2022. The survey did not identify any mussels, nor habitat for Carolina heelsplitter. Please see SCDOT coordination email in Appendix D.

Suitable habitat for Schweinitz's sunflower exists in the PSA. The existing, maintained right-of-way of Barrett Road and a maintained overhead powerline represent the most suitable habitat for the species. The natural community near Beaverdam Creek consists of a small stream forest with damp soil and a dense overstory. Based on the conceptual design for the project, the bridge would be replaced on a shifted alignment and roadway approach work would be contained within approximately 500 feet of the existing bridge. The proposed construction limits include suitable habitat for the species.

## Conclusions

Based on the literature and field reviews, it is determined that the proposed project will have a biological conclusion of 'no effect' on northern long-eared bat, Carolina heelsplitter, dwarf-flowered heartleaf, and little amphianthus.

Due to the accelerated schedule for the project, surveys for Schweinitz's sunflower were completed outside of the USFWS-recommended survey window; therefore, the project's effect on the species is 'undetermined'. The SCDOT will conduct surveys for Schweinitz's sunflower during the 2023 survey window to confirm absence or presence of the species. An updated Biological Evaluation will be provided to USFWS with the findings of the survey and a final effect determination. If the species is observed within the anticipated limits of construction, the updated Biological Evaluation will include appropriate avoidance and minimization measures and/or a plan to address how the species would be protected if impacts could not be avoided (e.g. a relocation plan).

The project team will re-evaluate the project's effect on tri-colored bats at the time the species is formally listed under the ESA, and, if necessary, initiate consultation at that time.

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](mailto:matt.dewitt@robbins-dewitt.com).

Respectfully Submitted



Matt DeWitt, AICP  
Robbins & DeWitt, LLC



# **Attachment D**

## **Biological Evaluation Attachments**



**ROBBINS  
& DEWITT**

## YORK COUNTY

| CATEGORY   | COMMON NAME/STATUS                       | SCIENTIFIC NAME                 | SURVEY WINDOW/<br>TIME PERIOD | COMMENTS                                   |
|------------|--|---------------------------------|-------------------------------|--|
| Bird       | Bald eagle (BGEPA)                       | <i>Haliaeetus leucocephalus</i> | October 1-May 15              | Nesting season                             |
| Crustacean | Broad River spiny crayfish (ARS)         | <i>Cambarus spicatus</i>        | November-April                |  |
| Insect     | Monarch butterfly (C)                    | <i>Danaus plexippus</i>         | August-December               | Overwinter population departs; March-April |
| Mammal     | Northern long-eared bat (T)              | <i>Myotis septentrionalis</i>   | Year round                    | Winter surveys not as successful           |
| Mammal     | Tri-colored bat (ARS)                    | <i>Perimyotis subflavus</i>     | Year round                    | Found in mines and caves in the winter     |
| Mollusk    | Carolina heelsplitter (E, CH)            | <i>Lasmigona decorata</i>       | March 1-September 30          | Optimal survey window                      |
| Plant      | Georgia aster (ARS*)                     | <i>Symphotrichum georgianum</i> | Early October-mid November    |  |
| Plant      | Little amphianthus or<br>Pool sprite (T) | <i>Amphianthus pusillus</i>     | Late March-April              |  |
| Plant      | Schweinitz's sunflower (E)               | <i>Helianthus schweinitzii</i>  | Late August-October           |  |
| Plant      | Wire-leaved dropseed (ARS)               | <i>Sporobolus teretifolius</i>  | August-September              | Following fire                             |

**Note: There are no federally protected species found in this county in the amphibian, fish, and reptile family categories.**





## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

South Carolina Ecological Services  
176 Croghan Spur Road, Suite 200  
Charleston, SC 29407-7558  
Phone: (843) 727-4707 Fax: (843) 727-4218



In Reply Refer To:

July 05, 2023

Project Code: 2023-0100551

Project Name: S-1086 (Barrett Road) Bridge Replacement over Beaverdam Creek

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

#### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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Attachment(s):

- Official Species List
  - USFWS National Wildlife Refuges and Fish Hatcheries
  - Migratory Birds
  - Wetlands
-



## OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**South Carolina Ecological Services**

176 Croghan Spur Road, Suite 200

Charleston, SC 29407-7558

(843) 727-4707

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## PROJECT SUMMARY

Project Code: 2023-0100551  
Project Name: S-1086 (Barrett Road) Bridge Replacement over Beaverdam Creek  
Project Type: Bridge - Replacement  
Project Description: SCDOT proposes to replace the S-1086 (Barrett Road) bridge over Beaverdam Creek in York County, South Carolina.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@35.13739805,-81.23170953794067,14z>



Counties: York County, South Carolina

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## ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [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.

## MAMMALS

| NAME  | STATUS                 |
|---|------------------------|
| Tricolored Bat <i>Perimyotis subflavus</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a> | Proposed<br>Endangered |

## INSECTS

| NAME   | STATUS    |
|--|-----------|
| Monarch Butterfly <i>Danaus plexippus</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a> | Candidate |

## FLOWERING PLANTS

| NAME  | STATUS     |
|---|------------|
| Dwarf-flowered Heartleaf <i>Hexastylis naniflora</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/2458">https://ecos.fws.gov/ecp/species/2458</a> | Threatened |

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

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## **USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES**

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 OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

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# MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

- 
1. The [Migratory Birds Treaty Act](#) of 1918.
  2. The [Bald and Golden Eagle Protection Act](#) of 1940.
  3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

**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, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME  | BREEDING SEASON         |
|---|-------------------------|
| Bald Eagle <i>Haliaeetus leucocephalus</i><br>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. | Breeds Sep 1 to Jul 31  |
| Cerulean Warbler <i>Dendroica cerulea</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br><a href="https://ecos.fws.gov/ecp/species/2974">https://ecos.fws.gov/ecp/species/2974</a>                    | Breeds Apr 28 to Jul 20 |

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| NAME   | BREEDING SEASON         |
|--|-------------------------|
| <b>Chimney Swift <i>Chaetura pelagica</i></b><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.                  | Breeds Mar 15 to Aug 25 |
| <b>Kentucky Warbler <i>Oporornis formosus</i></b><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.              | Breeds Apr 20 to Aug 20 |
| <b>Prairie Warbler <i>Dendroica discolor</i></b><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.               | Breeds May 1 to Jul 31  |
| <b>Red-headed Woodpecker <i>Melanerpes erythrocephalus</i></b><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds May 10 to Sep 10 |
| <b>Wood Thrush <i>Hylocichla mustelina</i></b><br>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 and understand the FAQ "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.

### 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 (I)

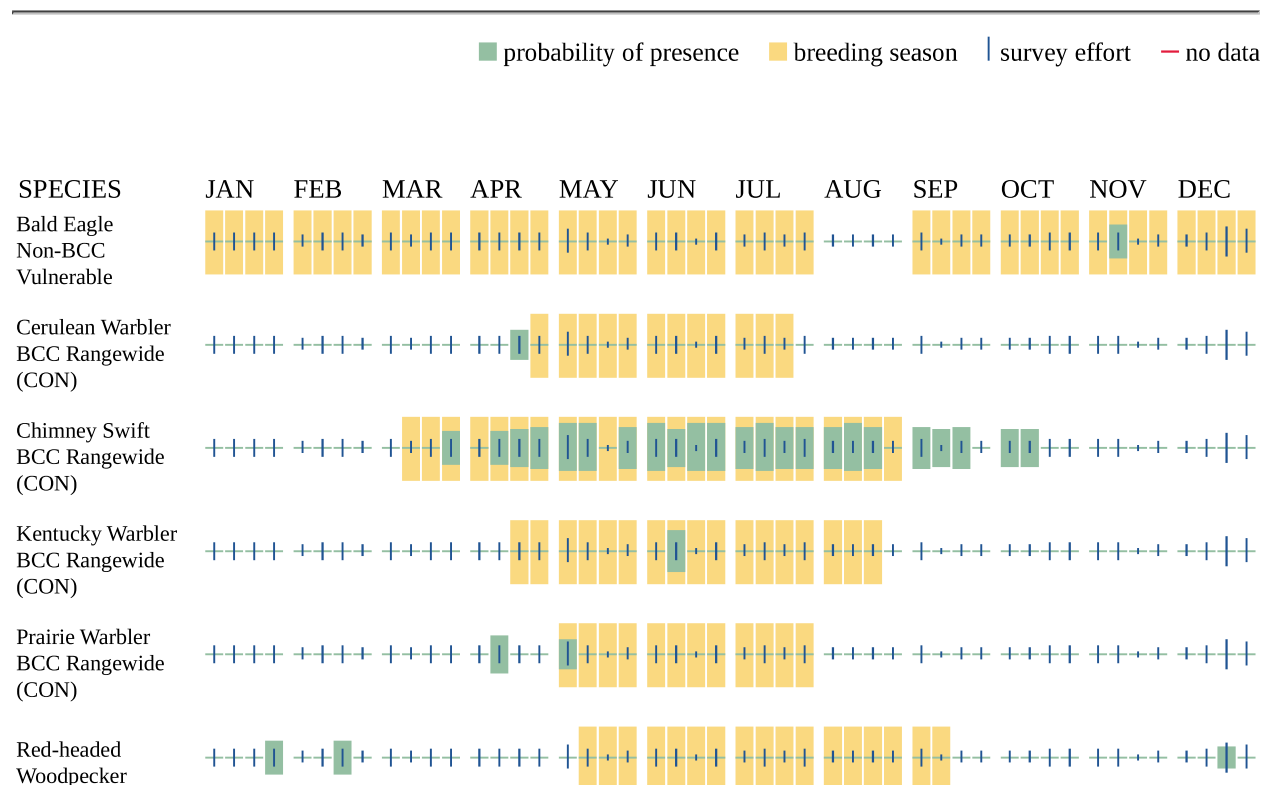
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

**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.



BCC Rangewide  
(CON)

Wood Thrush  
BCC Rangewide  
(CON)



Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

## MIGRATORY BIRDS FAQ

**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](#).

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.

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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.

**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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## WETLANDS

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER FORESTED/SHRUB WETLAND

- [PFO1A](#)
-

**IPAC USER CONTACT INFORMATION**

Agency: South Carolina Department of Transportation  
Name: Russell Chandler  
Address: 321 HOWELL RD  
City: Blythewood  
State: SC  
Zip: 29016  
Email: russell.chandler@robbins-dewitt.com  
Phone: 8033605197

**LEAD AGENCY CONTACT INFORMATION**

Lead Agency: Federal Highway Administration  
Name: Will McGoldrick  
Email: McGoldriWR@scdot.org  
Phone: 8037371326

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# STRUCTURES SURVEY DATA SHEET

Investigator Names(s): A. CHANDLER, M. DEWITT

Date: 5/24/2023






County: YORK

Lat Long/w3w: 35.138449, -81.232152

Project Name: S-1086 OVER BEAVERDAM CREEK

SCDOT Structure ID: 03560

SCDOT Project No.: P041173

| Structure Type:                               |  | Underdeck Material:                          |
|---|--|--|
| <input type="checkbox"/> Parallel Box Beam    |   | <input checked="" type="checkbox"/> Concrete |
| <input type="checkbox"/> Pre-Stressed Girder  |   | <input type="checkbox"/> Corrugated Steel    |
| <input type="checkbox"/> Cast in Place        |   | <input type="checkbox"/> Other:              |
|   |  |  |
|   | <input checked="" type="checkbox"/> Flat Slab / Box                                |  |
|   |  |  |
|   | <input type="checkbox"/> Trapezoidal Box   |  |
|   | <input type="checkbox"/> Other:  |  |
| Note:   |  |  |
| <input type="checkbox"/> Culvert – Box        |  |  |
| <input type="checkbox"/> Culvert – Pipe/Round |  |  |

| Road Type:                          |                                     |  |                                      |
|-------------------------------------|-------------------------------------|--|--------------------------------------|
| <input type="checkbox"/> Interstate | <input type="checkbox"/> US Highway | <input checked="" type="checkbox"/> State Road | <input type="checkbox"/> County Road |
|                                     |                                     | S-1086   |                                      |

| Surrounding Habitat (check all that apply):     |   |  |   |                                    |
|---|---|--|---|------------------------------------|
| <input checked="" type="checkbox"/> Residential | <input type="checkbox"/> Agricultural       | <input type="checkbox"/> Commercial              | <input checked="" type="checkbox"/> Pine Forest         | <input type="checkbox"/> Grassland |
| <input checked="" type="checkbox"/> Riparian    | <input checked="" type="checkbox"/> Wetland | <input checked="" type="checkbox"/> Mixed Forest | <input checked="" type="checkbox"/> Bottomland Hardwood |                                    |
| <input type="checkbox"/> Other:                 |   |  |   |                                    |

| Conditions Under Bridge (check all that apply):          |   |   |   |
|--|---|---|---|
| <input checked="" type="checkbox"/> Bare Ground/Sediment | <input type="checkbox"/> Concrete   | <input checked="" type="checkbox"/> Rip Rap                           | <input checked="" type="checkbox"/> Flowing Water |
| <input type="checkbox"/> Standing Water                  | <input checked="" type="checkbox"/> Open Vegetation (not obstructing flight path) | <input type="checkbox"/> Closed Vegetation (may obstruct flight path) | <input type="checkbox"/> Two Lanes                |
| <input type="checkbox"/> Four (+) Lanes                  | <input type="checkbox"/> Unpaved Road   | <input type="checkbox"/> Railroad                                     | <input type="checkbox"/> Other:                   |

| Bats Present:                |  |
|------------------------------|--|
| <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |

| Bat Indicators (check all that apply): |                                |                                |                                   |                                |
|--|--------------------------------|--------------------------------|-----------------------------------|--------------------------------|
| <input type="checkbox"/> Visual        | <input type="checkbox"/> Smell | <input type="checkbox"/> Sound | <input type="checkbox"/> Staining | <input type="checkbox"/> Guano |

| Species Present:  |   |
|---|---|
| <input type="checkbox"/> Big brown ( <i>Eptesicus fuscus</i> )                  | <input type="checkbox"/> Northern long-eared ( <i>Myotis septentrionalis</i> )      |
| <input type="checkbox"/> Brazilian free-tailed ( <i>Tadarida brasiliensis</i> ) | <input type="checkbox"/> Northern yellow ( <i>Lasiurus intermedius</i> )            |
| <input type="checkbox"/> Eastern red ( <i>Lasiurus borealis</i> )               | <input type="checkbox"/> Rafinesque's big-eared ( <i>Corynorhinus rafinesquii</i> ) |
| <input type="checkbox"/> Eastern small-footed ( <i>Myotis leibii</i> )          | <input type="checkbox"/> Silver-haired ( <i>Lasionycteris noctivagans</i> )         |
| <input type="checkbox"/> Evening ( <i>Nycticeius humeralis</i> )                | <input type="checkbox"/> Southeastern ( <i>Myotis austroriparius</i> )              |
| <input type="checkbox"/> Hoary ( <i>Lasiurus cinereus</i> )                     | <input type="checkbox"/> Seminole ( <i>Lasiurus seminolus</i> )                     |
| <input type="checkbox"/> Little brown ( <i>Myotis lucifugus</i> )               | <input type="checkbox"/> Tri-colored ( <i>Perimyotis subflavus</i> )                |
|   | <input type="checkbox"/> UNKNOWN  |

| Roost Description (if known, check all that apply): |  |                                      |                                  |
|---|--|--------------------------------------|----------------------------------|
| <input type="checkbox"/> Day Roost                  | <input type="checkbox"/> Nursery Roost | <input type="checkbox"/> Night Roost | <input type="checkbox"/> UNKNOWN |
| Number of Roosts:                                   |  |                                      |                                  |

| Roost Design (check all that apply):                                 |  |   |                                 |
|--|--|---|---------------------------------|
| <input type="checkbox"/> Crack/Crevice/Expansion Joint: Under Bridge |  | <input type="checkbox"/> Crack/Crevice/Expansion Joint: Top of Bridge |                                 |
| <input type="checkbox"/> Plugged Drain                               | <input type="checkbox"/> Under/Along Main Bridge Structure | <input type="checkbox"/> Rail   | <input type="checkbox"/> Other: |

| Human Disturbance or Traffic Under Bridge or at Structure? |   |                               |
|--|---|-------------------------------|
| <input type="checkbox"/> High                              | <input checked="" type="checkbox"/> Low | <input type="checkbox"/> None |

| Areas Inspected (check all that apply):                   |  |  |  |
|---|--|--|--|
| <input type="checkbox"/> Vertical Surfaces on I-Beams     | <input checked="" type="checkbox"/> Vertical Surfaces between Concrete End Walls and Bridge Deck |  |  |
| <input checked="" type="checkbox"/> Expansion Joints      | <input checked="" type="checkbox"/> Rough Surfaces   | <input checked="" type="checkbox"/> Guardrails | <input checked="" type="checkbox"/> Services |
| <input type="checkbox"/> Other:                           |  |  |  |
| Areas NOT Inspected because of Safety or Inaccessibility: |  |  |  |

| Evidence of Migratory Birds Using the Structure? |                             |
|--|-----------------------------|
| <input checked="" type="checkbox"/> YES          | <input type="checkbox"/> NO |

- ACTIVE NEST

| Additional Information: |
|-------------------------|
|                         |

## BAT HABITAT ASSESSMENT DATA SHEET

Project Name: S-1086 (BARRETT ROAD) OVER BEAVERDAM CREEK

Date: 5/24/2023

Township/Range/Section: YORK COUNTY, SC

Lat Long: 35.138449, -81.232152

Surveyor: A. CHANDLER

### Brief Project Description

Replacing the S-1086 bridge over Beaverdam Creek and associated roadway approach work.

### Project Area

|                       | Total Acres              | Forest Acres                            | Open Acres                      |
|-----------------------|--------------------------|---|---------------------------------|
| Project               | 9.55 acres               | 2.81 acres                              | 7.04 acres                      |
| Proposed Tree Removal | Completely Cleared       | Partially Cleared<br>(Will Leave Trees) | Preserve Acres<br>– No Clearing |
|                       | < .75 acre (anticipated) | None                                    | > 2 acres (anticipated)         |

### Vegetation Cover Types

| Pre-Project   | Post-Project  |
|---|---|
| Mixed Forest<br>Developed areas with maintained yards and driveways<br>Maintained right-of-way, Overhead powerlines | Mixed Forest<br>Developed areas with maintained yards and driveways<br>Maintained right-of-way, Overhead powerlines |

### Landscape within 5-mile Radius

#### Flight corridors to other forested areas?

S-1086 Roadway and powerline easement, Beaverdam Creek, Driveways off S-1086

#### Describe Adjacent Properties (e.g., forested, grassland, commercial or residential development, water sources)

Forested, Commercial and Residential Development, Beaverdam Creek

### 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)?

Kings Mountain State Park >5 miles west of PSA

### Sample Site Description

Sample Site No. (s): Project Study Area (9.55 acres)



| Water Resources at Sample Site |           |              |                   |
|--------------------------------|-----------|--------------|-------------------|
| Stream Type<br>(# and length)  | Ephemeral | Intermittent | Perennial         |
|                                |           |              | Stream A – 183 lf |

|                             |     |                              |
|-----------------------------|-----|------------------------------|
| Pools/Ponds<br>(# and size) | N/A | Open and accessible to bats? |
|                             |     |                              |

|                            |           |          |
|----------------------------|-----------|----------|
| Wetland<br>(approx. acres) | Permanent | Seasonal |
|                            | N/A       |          |

|  |
|--|
| Describe existing condition of water sources: Perennial stream |
|--|

| Forest Resources at Sample Site |                |                   |                    |
|---------------------------------|----------------|-------------------|--------------------|
| Closure/Density                 | Canopy (> 50') | Midstory (20-50') | Understory (< 20') |
|                                 | 1 (1-10%)      | 3 (21-40%)        | 2 (11-20%)         |

|                                  |  |
|----------------------------------|--|
| Dominant Species of Mature Trees | Oak spp., Hickory spp., Pine spp., Red maple, Sweetgum |
|----------------------------------|--|

|                      |    |
|----------------------|----|
| Exfoliating Bark (%) | 5% |
|----------------------|----|

|                                    |                |               |                 |
|------------------------------------|----------------|---------------|-----------------|
| Size Composition of Live Trees (%) | Small (3-8 in) | Med (9-15 in) | Large (> 15 in) |
|                                    | 3 (21-40%)     | 2 (11-20%)    | 1 (1-10%)       |

|                       |    |
|-----------------------|----|
| No. of Suitable Snags | 5% |
|-----------------------|----|

|   |
|---|
| 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?

YES

IS THE HABITAT SUITABLE FOR TRI-COLORED BATS?

YES

| Additional Comments:  |
|---|
| See Attachment A, Figure 3 for an Aerial Photography Map, and Attachment C for description of forested habitat. |

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



Photograph 1

Date: 5/24/2023

Taken by: M. DeWitt

**Right-of-Way along S-1086**



Photograph 2

Date: 5/24/2023

Taken by: M. DeWitt

**Beaverdam Creek,  
facing S-1086**





Photograph 3

Date: 5/24/2023

Taken by: M. DeWitt

**Beaverdam Creek**



Photograph 4

Date: 5/24/2023

Taken by: M. DeWitt

**Under S-1086 from  
Beaverdam Creek**

**From:** [Altman, Ann-Marie](#)  
**To:** [McGoldrick, Will](#)  
**Subject:** the rest of your NLEBs packages 18-20  
**Date:** Thursday, April 7, 2022 2:08:47 PM  
**Attachments:** [S-197 NLEB.pdf](#)  
[S-31 NLEB.pdf](#)  
[S-51 NLEB.pdf](#)  
[S-133 NLEB.pdf](#)  
[S-160 NLEB.pdf](#)  
[S-32 NLEB.pdf](#)  
[S-195 NLEB.pdf](#)  
[S-998 NLEB.pdf](#)  
[S-1086 NLEB.pdf](#)

---

The two bridges that needed mussel surveys had no mussels and did not have good habitat.



**Attachment C- Bridge Replacement Scoping Risk Assessment Form**

## BRIDGE REPLACEMENT SCOPING TRIP RISK ASSESSMENT FORM

COUNTY: \_\_\_\_\_

DATE: \_\_\_\_\_

ROAD #: \_\_\_\_\_

STREAM CROSSING: \_\_\_\_\_

Purpose & Need for the Project:

### I. FEMA Acknowledgement

Is this project located in a regulated FEMA Floodway? ☐ Yes ☐ No

Panel Number: \_\_\_\_\_ Effective Date: \_\_\_\_\_ (See Attached)

### II. FEMA Floodmap Investigation

FEMA Flood Profile Sheet Number \_\_\_\_\_ 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:

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

Justification:

## BRIDGE REPLACEMENT SCOPING TRIP RISK ASSESSMENT FORM

### IV. Preliminary Bridge Assessment

#### A. Locate Existing Plans

a. Bridge Plans ☐ Yes File No. \_\_\_\_\_ Sheet No. \_\_\_\_\_ (See Attached)  
☐ No

b. Road Plans ☐ Yes File No. \_\_\_\_\_ Sheet No. \_\_\_\_\_ (See Attached)  
☐ No

#### B. Historical Highwater Data

a. USGS Gage ☐ Yes Gage No. \_\_\_\_\_ Results: \_\_\_\_\_  
☐ No

b. SCDOT/USGS Documented Highwater Elevations  
☐ Yes Results: \_\_\_\_\_  
☐ No

c. Existing Plans ☐ Yes See Above  
☐ No

### V. Field Review

#### A. Existing Bridge

Length: \_\_\_\_\_ ft. Width: 27.5 ft. Max. span Length: \_\_\_\_\_ ft.

Alignment: ☐ Tangent ☐ Curved

Bridge Skewed: ☐ Yes ☐ No Angle: \_\_\_\_\_

End Abutment Type: \_\_\_\_\_

Riprap on End Fills: ☐ Yes ☐ No Condition: \_\_\_\_\_

Superstructure Type: \_\_\_\_\_

Substructure Type: \_\_\_\_\_

Utilities Present: ☐ Yes ☐ No

Describe:

Debris Accumulation on Bridge: Percent Blocked Horizontally: \_\_\_\_\_ %  
Percent Blocked Vertically: \_\_\_\_\_ %

Hydraulic Problems: ☐ Yes ☐ No

Describe:



## BRIDGE REPLACEMENT SCOPING TRIP 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: \_\_\_\_\_ ft.

c. Distance from Low Steel to Normal Water Elev.: \_\_\_\_\_ ft.

d. Distance from F.G. to High Water Elevation: \_\_\_\_\_ ft.

e. Distance from Low Steel to High Water Elev.: \_\_\_\_\_ ft.

f. Channel Banks Stable: ☐ Yes ☐ No

Describe:

g. Soil Type: \_\_\_\_\_

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.

#### C. Existing Roadway Geometry

a. Can the existing roadway be closed for an On-Alignment Bridge Replacement

☐ Yes ☐ No

Describe:

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 REPLACEMENT SCOPING TRIP RISK ASSESSMENT FORM

### VI. Field Review (cont.)

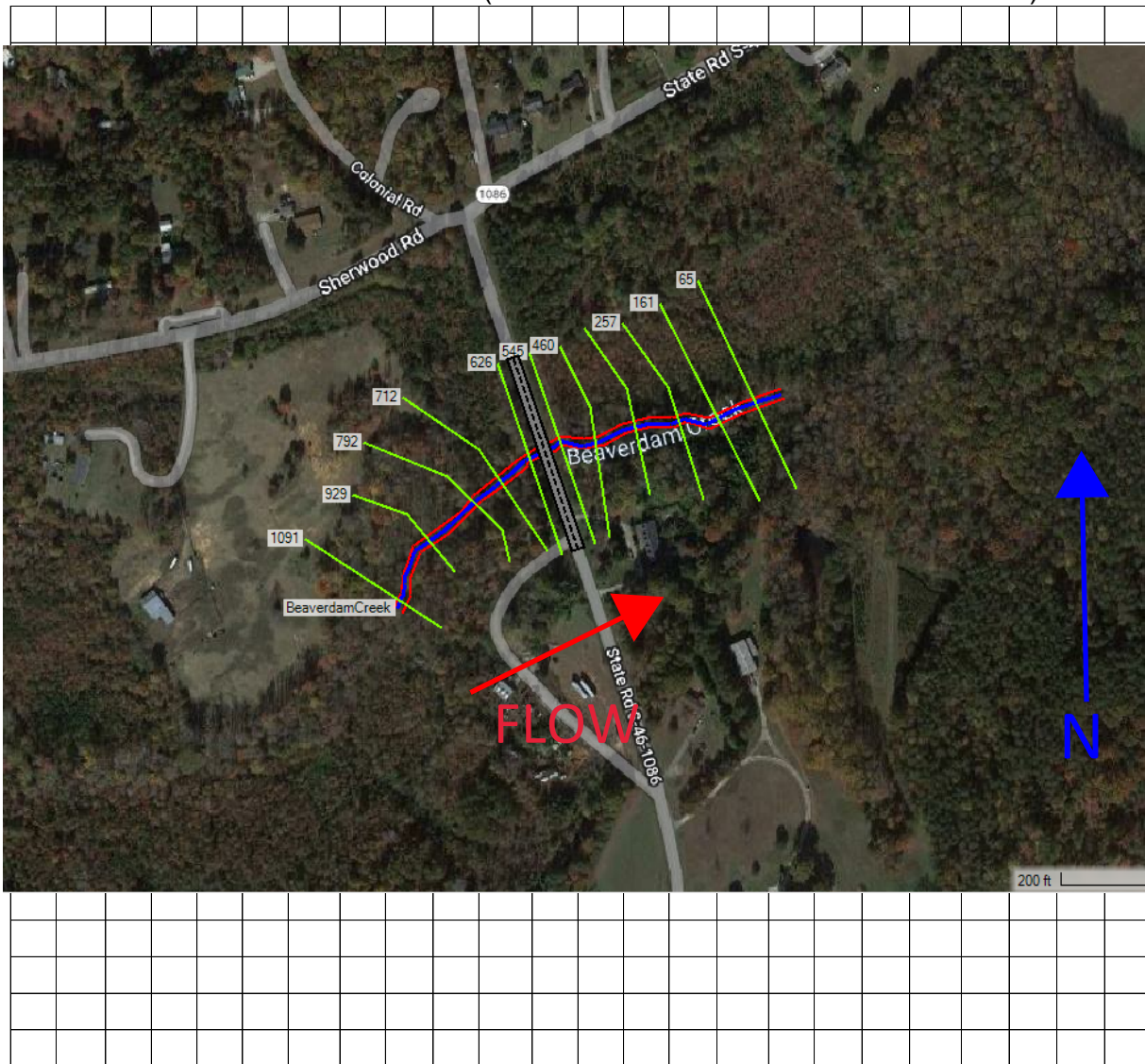
#### A. Proposed Bridge Recommendation:

Length: \_\_\_\_\_ ft.      Width: 30 ft.      Elevation: \_\_\_\_\_ ft.

Span Arrangement: \_\_\_\_\_

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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



Performed By: Elisa J. Jones

Title: \_\_\_\_\_



This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

**Coastal Base Flood Elevations (BFEs)** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was State Plane South Carolina FIPS 3900. The horizontal datum was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRM's for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at <http://www.ngs.noaa.gov/>.

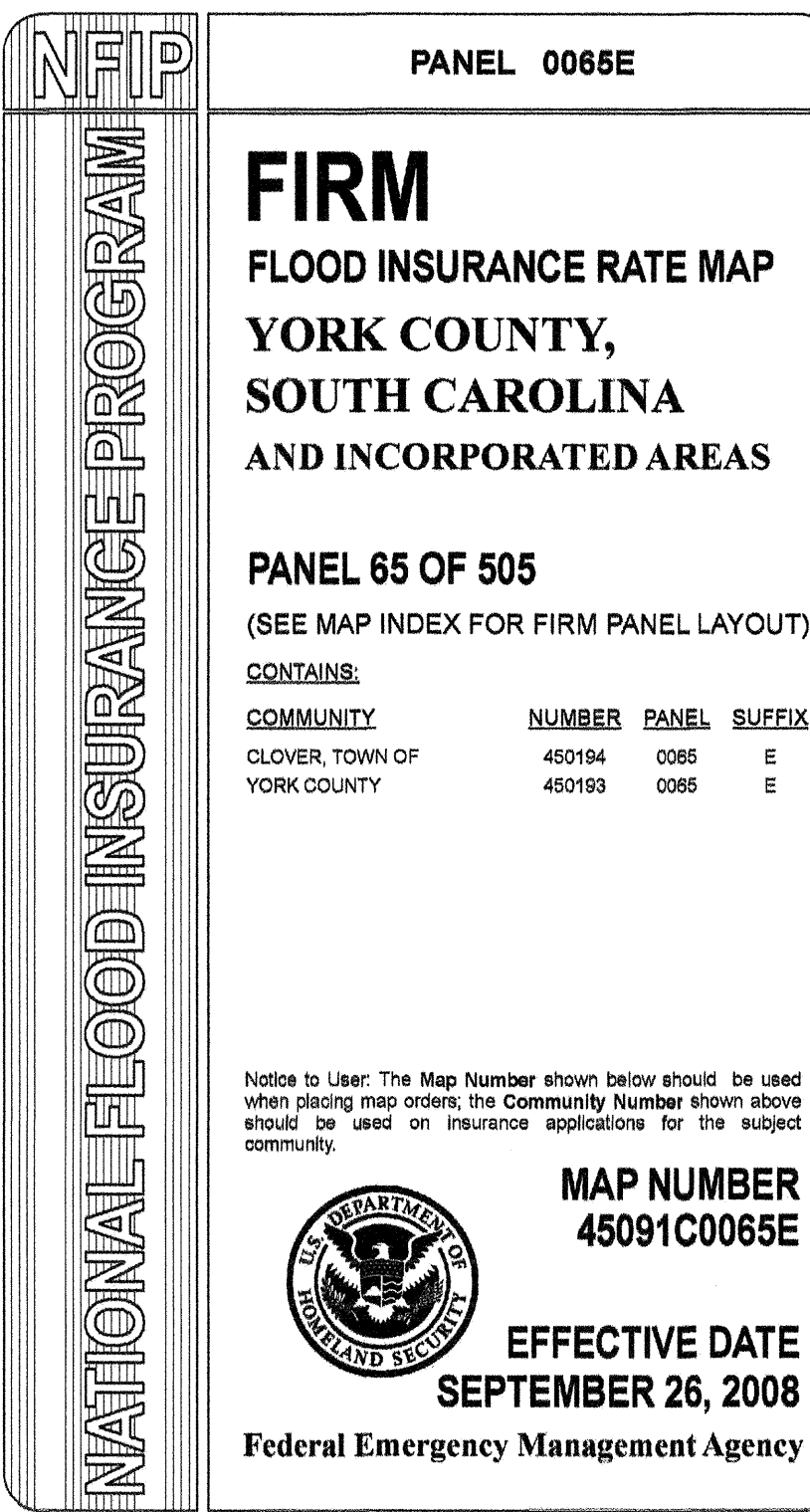
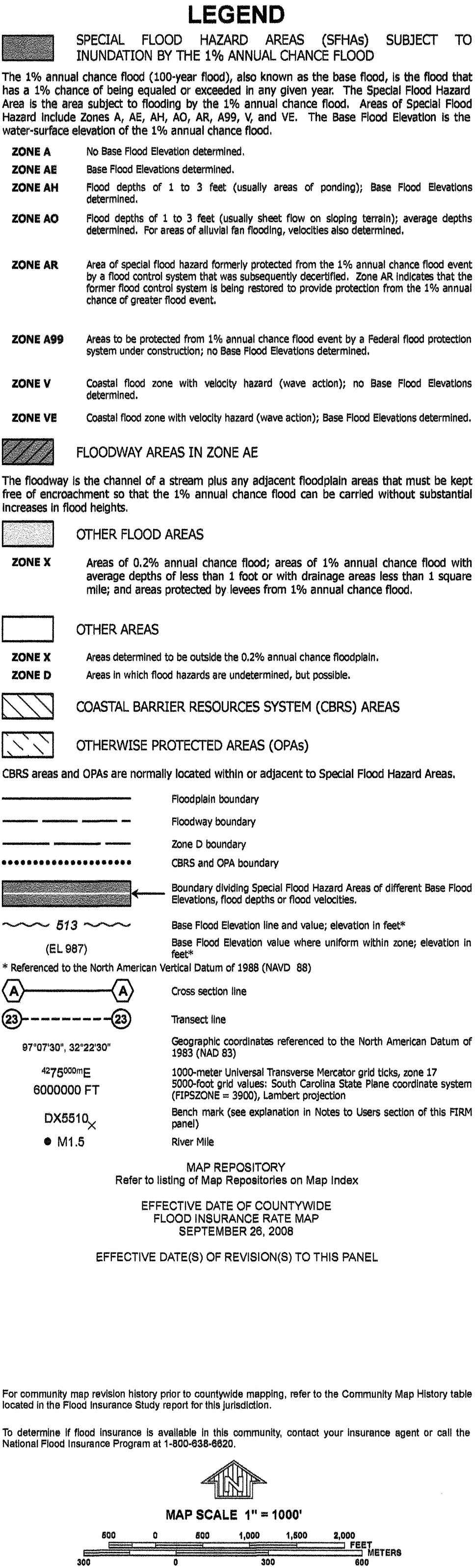
This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a *Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at <http://www.msc.fema.gov/>.

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/>.



## **Attachment D- Floodplain 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:

The purpose of the project is to correct the load restriction placed on the bridge and restore all components to good condition. Roadway improvements are limited to those associated with accommodating the new structure. The project crosses Beaverdam Creek which is shown on the Flood Insurance Rate Map (FIRM) Panel 45091C0065E. The crossing is not within a designated as a Special Flood Hazard Area. 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?**

Not Applicable

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

Not Applicable

- 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?

Not Applicable

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

Not Applicable

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

Not Applicable

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

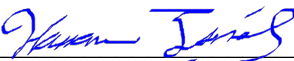
Not Applicable

- 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



SCDOT Hydraulic Engineer

21 June 2023

Date



**Attachment E – Public Involvement**

## Public Outreach Summary:

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**Project:** SCDOT Closed and Load Restricted Bridge Projects-  
Package 19

---

**Subject:** Public Information Outreach

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## Package 20 Overview:

The South Carolina Department of Transportation (SCDOT) proposes to replace seven bridges in Package 20. The projects include replacing the existing bridge structures and constructing the roadway to meet current design and safety standards. The proposed facilities are comprised of two and four lane roadways with 12-foot travel lanes and paved shoulders. The seven proposed bridges are shown below (bridges with in-person public meetings are bolded):

|                                   |                       |
|-----------------------------------|-----------------------|
| <b>S-46-998 (Robertson Road)</b>  | <b>WILDCAT CREEK</b>  |
| <b>S-29-292 (Plantation Road)</b> | <b>BEAR CREEK</b>     |
| S-46-1086 (Dacusville Rd)         | BEAVERDAM CREEK       |
| S-130 (Rudolph Sikes Road)        | BR THOMPSON CR        |
| S-20 (Camp Welfare Road)          | HOGFORK BR            |
| S-296 (Old Creek Road)            | BLACKWELL MILL STREAM |
| S-531 (Henry Funderburk Road)     | IRIS HILLS CK         |

The purpose of these projects is to correct the load restriction placed on the bridges as well as restore all bridge components to good condition. The proposed work involves replacing the current bridges with a new bridges.

## Public Information Outreach Overview:

Public outreach for the entire package consisted of creating a publicly accessible website, individually mailed postcards, installation of informational yard signs, public meeting notification road signs, and public information meetings.

For this project, postcards were mailed to local residents identified through the US Postal Service's Every Door Direct application. Postcards provided basic information about the specific bridge project and provided a website address for the individual to visit to find more information and provide comments if desired. One comment was provided for this site and sent a response.

The comment period for the projects began July 5 and ended on August 11, 2023. Information about the projects, including meeting displays, was available on the website throughout the duration of the comment period. A comment form was also available. The project website can be accessed at: [https://scdotgis.online/CLRB\\_2022\\_Package20](https://scdotgis.online/CLRB_2022_Package20).

### Public Outreach:

Leading up to the comment periods for all 7 bridges, the project team executed several outreach strategies to maximize public participation. The outreach activities completed are listed in the table below.

| Bridge Project         | Outreach Type | Number of Recipients | Type of Recipients  | Date Sent    |
|------------------------|---------------|----------------------|---|--------------|
| All Package 20 Bridges | Postcard      | 581                  | General Public<br>Mailed via Every Door Direct Mail Service<br>Sent to all postal routes surrounding the project areas. | July 1, 2023 |

# Bridge Replacement Package 20

## Design-Build Projects

Counties: Chesterfield, Fairfield, Lancaster and York

## Share Your Feedback

### Project Description

SCDOT proposes to replace seven existing bridge structures and constructing the roadway to meet current design and safety standards in Chesterfield, Fairfield, Lancaster and York counties. This card is to let you know about the bridge replacement near your residence or business. Please provide comments by phone, email, or by visiting the website. You can scan the QR code below or enter the address found on the reverse side of this postcard to access the website.



Scan QR code to visit  
project web page.

### Estimated Project Schedule

- Construction start: Early 2024
- Construction duration: ~24 Months

### Project Manager

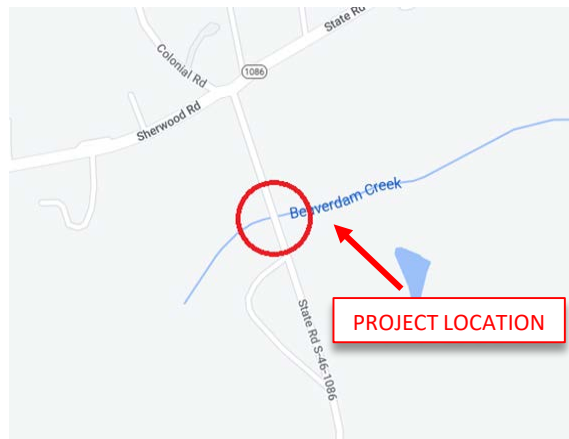
Michael Pitts, PE

Phone: 803-737-2566

Email: [pittsME@scdot.org](mailto:pittsME@scdot.org)

Comments for S-1086 proposed bridge replacement will be accepted until Aug. 11, 2023.

### S-1086 Beaverdam Creek Project Area







South Carolina Department of Transportation



SCDOT is hosting a website with **online project information** for the Design-Build bridge replacement projects (Package 20).

**Visit the Project Website to comment on S-1086 over Beaverdam Creek**

**Comment Period: 7/5/23 - 8/11/23**

### **Contact Us!**



803-737-2566



[PittsME@scdot.org](mailto:PittsME@scdot.org)



[www.scdotgis.online/CLRB\\_2022\\_Package20](http://www.scdotgis.online/CLRB_2022_Package20)

PLACE  
STAMP  
HERE

### **SCDOT Environmental Services Offices**

PO Box 191

Columbia, SC 29202



| Date Received | Full Name         | Email  | Phone Number | Street Address       | City   | Zipcode | Comment   | Response   |
|---------------|-------------------|--|--------------|----------------------|--------|---------|---|--|
| 7/23/2023     | Susie Leatherwood | <a href="mailto:Benda.Leatherwood@clover.k12.sc.us">Benda.Leatherwood@clover.k12.sc.us</a> | 803-810-8318 | Clover Middle School | Clover | 29710   | I was just reviewing the Beaverdam Creek information. I was wondering if the SCDOT have plans in place to redo the intersection of Barrett Rd. and Sherwood Rd. which is right before the bridge? If the weight limit on the bridge is increased and trucks are allowed to pass through again-the intersection becomes even more dangerous. Left turning vehicles coming from Soaring Eagle Rd. trying to turn onto Sherwood Rd. must pull almost entirely onto Barrett Rd. to be able to see if there is oncoming traffic. Closing access from Sherwood to Barrett would be helpful. It would decrease traffic on Barrett Rd. and decrease cut thru traffic on Sherwood Rd. Also, with the bridge closure cut thru traffic on Sherwood is likely to become a huge issue. Thank you in advance for any information you may provide. | Thank you for reaching out and thanks for your comments. As of now, there are no plans to redo that intersection as a part of the bridge replacement. I'm also not seeing anything on our future projects for work in this area. I will pass along your concerns to our local district office and as we develop the plans further if any of this is warranted we would implement this into the work. We're still a little early the design since we don't have a contractor on board yet. Our hopes for the closure will be brief and we hope to provide minimal traffic disruption and issues while the bridge is being replaced. Please let me know if you have any other questions! |


**From:** Pitts, Michael E. <[PittsME@scdot.org](mailto:PittsME@scdot.org)>  
**Date:** Thursday, August 10, 2023 at 8:50 AM  
**To:** Brenda Leatherwood <[Benda.Leatherwood@clover.k12.sc.us](mailto:Benda.Leatherwood@clover.k12.sc.us)>  
**Subject:** RE: S-46-1086 Bridge over Beaverdam Creek

**CAUTION EXTERNAL EMAIL:** This email originated from outside of Clover School District. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good Morning Ms. Leatherwood –

Thank you for reaching out and thanks for your comments. As of now, there are no plans to redo that intersection as a part of the bridge replacement. I'm also not seeing anything on our future projects for work in this area. I will pass along your concerns to our local district office and as we develop the plans further if any of this is warranted we would implement this into the work. We're still a little early the design since we don't have a contractor on board yet. Our hopes for the closure will be brief and we hope to provide minimal traffic disruption and issues while the bridge is being replaced. Please let me know if you have any other questions!

Thank you,


**Michael E. Pitts, P.E., Assoc. DBIA**  
 Alternative Delivery Program Manager  
 P 803.737.2566 M 803.413.9316 E [pittsme@scdot.org](mailto:pittsme@scdot.org)  
 #ProgressisourPriority 955 Park Street, P.O. Box 191, Columbia, SC 29202-0191  
**LET 'EM WORK. LET 'EM LIVE.**