TIP Project No.	B-4950
WBS Element	40108.1.1
Federal Project No.	BRZ-1851(3)

## A. <u>Project Description</u>:

The purpose of this project is to replace Cumberland County Bridge No. 171 and Sampson County Bridge No. 172 on SR 1851/1426 (Faircloth Bridge Road) over the South River. (See **Figures 1-4**.) Bridge No. 171 is 91 feet long, with three spans carrying one 10-foot travel lane in each direction and has a one-foot shoulder on each side. Bridge No. 172 is a 151 feet long, with five spans carrying one 10-foot travel lane in each direction and has a one-foot shoulder on each side.

The replacement structures for Bridge Nos. 171 and 172 will be 33 feet wide, cored slab bridges with a clear roadway width of 30-feet 10-inches. The proposed length of Bridge No. 171 is 120 feet and will consist of three spans. The proposed length of Bridge No. 172 is 185 feet and will have four spans. The proposed typical section includes one 10-foot travel lane in each direction with a six-foot shoulder on each side. The typical sections and preliminary roadway design are included in **Figures 5 and 6**. Traffic will be maintained by an off-site detour during construction (see **Figure 1**). The roadway will be designed with a 60 mph design speed. The roadway grade of the new structure will be approximately the same as the existing grade.

## B. Purpose and Need:

NCDOT Bridge Management Unit records indicate Bridge No. 171 has a sufficiency rating of 26.02 (February 2014), and Bridge No. 172 has a sufficiency rating of 25.76 (February 2014) out of a possible 100 for a new structure.

Bridge No. 171 is considered structurally deficient due to the superstructure condition appraisal of 4 out of 9 and a substructure condition appraisal of 2 out of 9, according to Federal Highway Administration (FHWA) standards. The bridge also meets the criteria for functionally obsolete due to a structural appraisal of 2 out of 9 and a deck geometry appraisal of 4 out of 9.

Bridge No. 172 is considered structurally deficient due to the superstructure condition appraisal of 4 out of 9 and a substructure condition appraisal of 3 out of 9, according to FHWA standards. The bridge also meets the criteria for functionally obsolete due to a structural appraisal of 3 out of 9 and a deck geometry appraisal of 4 out of 9.

Components of both the concrete superstructure and concrete and timber superstructure have experienced an increasing degree of deterioration that can no longer be addressed by maintenance activities. The bridges are approaching the end of their useful life. Replacement of the bridges will result in safer traffic operations.

Bridge Nos. 171 and 172 carry approximately 540 vehicles per day (2014) and have posted weight limits of 25 tons (single vehicles) and 37 tons (trucks).

# C. <u>Proposed Improvements</u>:

## Circle one or more of the following Type II activities:

- 1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).
  - a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
  - b. Widening roadway and shoulders without adding through lanes
  - c. Modernizing gore treatments
  - d. Constructing lane improvements (merge, auxiliary, and turn lanes)
  - e. Adding shoulder drains
  - f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
  - g. Providing driveway pipes
  - h. Performing minor bridge widening (less than one through lane)
  - i. Slide Stabilization
  - j. Structural BMP's for water quality improvement
- 2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.
  - a. Installing ramp metering devices
  - b. Installing lights
  - c. Adding or upgrading guardrail
  - d. Installing safety barriers including Jersey type barriers and pier protection
  - e. Installing or replacing impact attenuators
  - f. Upgrading medians including adding or upgrading median barriers
  - g. Improving intersections including relocation and/or realignment
  - h. Making minor roadway realignment
  - i. Channelizing traffic
  - j. Performing clear zone safety improvements including removing hazards and flattening slopes
  - k. Implementing traffic aid systems, signals, and motorist aid
  - 1. Installing bridge safety hardware including bridge rail retrofit
- 3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.
  - a. Rehabilitating, reconstructing, or replacing bridge approach slabs
  - b. Rehabilitating or replacing bridge decks
  - c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
  - d. Replacing a bridge (structure and/or fill)
- 4. Transportation corridor fringe parking facilities.
- 5. Construction of new truck weigh stations or rest areas.
- 6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.

- 7. Approvals for changes in access control.
- 8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
- 9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
- 10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.
- 11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.
- 12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.
- 13. Acquisition and construction of wetland, stream and endangered species mitigation sites.
- 14. Remedial activities involving the removal, treatment or monitoring of soil or groundwater contamination pursuant to state or federal remediation guidelines.

### D. Special Project Information:

The estimated costs, based on 2015 STIP, are as follows:

Construction Cost	1,850,000
Right-of-way Acquisition	360,000
Utility Relocation Cost	23,000
Total Project Cost	2,372,000

#### **Estimated Traffic:**

Current (2014) - 540 vpd Design Year (2035) - 1,000 vpd

TTST - 1% Dual - 2%

**Accidents:** NCDOT Traffic Safety Unit has evaluated a 10-year period (December 2002 – November 2012) and found two accidents occurring within 500 feet west of Bridge No. 171 to 500 feet east of Bridge No. 172.

**Design Exceptions:** There are no anticipated design exceptions for this project.

**Pedestrian and Bicycle Accommodations:** This portion of SR 1851/1426 (Faircloth Bridge Road) is not located on a designated bicycle route, nor is there an indication of significant bicycle or pedestrian use. The NCDOT Bicycle and Pedestrian Division does not recommend special considerations for this project.

**Bridge Demolition:** Bridge Nos. 171 and 172 are constructed entirely of timber, concrete, and steel. Based on standard demolition practices, bridge removal is not expected to leave debris in the water.

**Utilities:** An underground telephone line is located within the project limits of Bridge Nos. 171 and 172. Aerial power lines are located on the north side of the roadway along both bridges. There is no evidence of Water, Cable TV, Sanitary Sewer or Gas utilities at or near the project. The utility conflict is rated as low.

#### **Alternatives Discussion:**

**No Build** – The no build alternative would result in eventually closing the road, which is unacceptable given the volume of traffic and residential locations served by SR 1851/1426 (Faircloth Bridge Road).

**Rehabilitation** – Bridge Nos. 171 and 172 were constructed in 1965, and the concrete and timber materials within the bridges are reaching the end of their useful life. Temporary repairs were made to both bridges, as indicated in the Bridge Inspection Reports dated February 2014. Rehabilitation would require replacing the timber components, effectively replacing the bridge.

**Offsite Detour** – Bridge Nos. 171 and 172 will be replaced along the existing roadway alignment. NCDOT *Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects* consider multiple project variables beginning with the additional time traveled by the average road user resulting from the offsite detour. The offsite detour for this project would include SR 1851/1426 (Faircloth Bridge Road), SR 1826 (Wade-Stedman Road), SR 1006 (Maxwell Road), SR 1427 (Halltown Road), and SR 1424 (Southriver Road). The detour for the average motorist would result in additional travel of approximately 9.5 miles. Division 6 concurs that the proposed detour route is acceptable. The duration of construction is expected to be 12 months on this project.

**New Alignment/Onsite Detour** – Constructing the proposed bridge on new alignment would result in substantially higher stream and wetland impacts, as the existing bridges and roadway approaches are surrounded by wetlands in all four quadrants. This would also increase the estimated costs by requiring longer bridges and/or mitigation. Given that the alignment for SR 1851/1426 (Faircloth Bridge Road) is acceptable, a new alignment was not considered a viable alternative.

**Structure Type**: Bridge No. 171, built in 1965, is a three-span bridge, skewed approximately 90 degrees to the existing roadway. The superstructure consists of prestressed concrete channels. The vertical end bents are constructed of preformed, prestressed concrete caps and the original timber piles are encased in concrete. The

interior bents are constructed of preformed, prestressed concrete caps and timber piles with timber crosscaps. The bridge roadway deck is situated approximately 17 feet above the river bed. A normal water depth of approximately eight feet was observed at the existing bridge. The current 100-year water surface elevation at this crossing of the South River does not overtop the existing roadway.

The existing structure for Bridge No. 172 is a five-span bridge, skewed approximately 90 degrees to the existing roadway, also built in 1965. The superstructure consists of prestressed concrete channels. The vertical end bents are constructed of preformed, prestressed concrete caps and the original timber piles are encased in concrete. The interior bents are constructed of preformed, prestressed concrete caps and timber piles with timber crosscaps. The bridge roadway deck is situated approximately 14 feet above the river bed. A normal water depth of approximately five feet was observed at the existing bridge. The current 100-year water surface elevation at this crossing of the South River does not overtop the existing roadway.

Bridge Nos. 171 and 172 are designed as 33-foot-wide, cored slab bridges with a clear roadway width of 30 feet, 10 inches. The proposed length of Bridge No. 171 is 120 feet. The proposed length of Bridge No. 172 is 185 feet.

### **Agency Comments:**

The **United States Coast Guard** determined the proposed bridges are exempt and will not require a Coast Guard Bridge Permit based on the Coast Guard Authorization Act of 1982.

Response: Comment noted.

The **US Environmental Protection Agency** recommends considering a longer bridge to span HQ wetlands/floodplain.

Response: The proposed bridges are longer than the existing bridges.

The US Department of the Interior Fish and Wildlife Service has provided general comments, stating there are no specific concerns for this project.

Response: Comment noted.

#### The **US Army Corps of Engineers** recommends that:

- All bridges be replaced with bridges that have hydraulic openings as large or larger than the existing bridges.
- Off-site detours be used.
- If any underground utility lines will have to be relocated as a result of the project, they should be directionally drilled under all waters of the United States, including wetlands. If overhead utility lines will have to be relocated within wetland areas, the new corridors should be cleared in a way that does not disturb the root mat or result in re-deposition of soil.
- The CE should include a bridging alternative.

Response: Comments noted. The proposed bridges will have hydraulic openings as large or larger than the existing bridges. Off-site detours will be used. Utility relocation and redesign, if needed, will be completed during final design. The CE includes one Build

Alternative that proposes to replace the existing bridges with bridges. An alternative to bridge the area between the bridges was not studied.

The USACE also commented that the study area for B-4950 has been delineated and the delineation has been verified by the Corps. The Corps provided NCDOT with a preliminary jurisdiction determination (dated May 18, 2011).

The North Carolina Department of Transportation Office of Human Environment commented that one archaeological site, 31SP384, was identified within the study corridor to the east of Bridge No. 172; however, this site is not considered eligible for the NRHP and no further archaeological work should be required as long as all work associated with this project occurs within the proposed study area. If any ground disturbing activities occur outside the delineated study area, further review will be required.

The North Carolina Department of Transportation Rail Division determined that no rail interaction will be involved on this project.

The North Carolina Wildlife Resources Commission provided general comments, stating their preference to replace these bridges with bridges and standard recommendations apply.

The North Carolina Department of Environment and Natural Resources provided general comments, stating their preference for any replacement structure to span the waterbody, avoid any wetlands or aquatic resources in the project area, replace the bridge in the same location with staged construction, remove and restore the approach fills from the old structure to natural ground elevation, avoid placing bridge supports in the stream if possible, avoid bridge deck drains discharging directly into the stream, and include pretreatment of stormwater.

The **Historic Architecture** group provided their review comments, stating no historic properties are present or affected.

#### **Public Involvement:**

A project initiation and notification letter was sent out to each adjacent property owner in March of 2011. NCDOT staff conducted several site visits. It was determined that a newsletter and workshop were not necessary.

# E. <u>Threshold Criteria</u>

<u>ECOLOGICAL</u>		<u>YES</u>	<u>NO</u>
(1)	Will the project have a substantial impact on any unique or important natural resource?		X
(2)	Does the project involve habitat where federally listed endangered or threatened species may occur?		X
(3)	Will the project affect anadromous fish?		X
(4)	If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-tenth (1/10) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?		X
(5)	Will the project require the use of U. S. Forest Service lands?		X
(6)	Will the quality of adjacent water resources be adversely impacted by proposed construction activities?		X
(7)	Does the project involve waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)?		X
(8)	Will the project require fill in waters of the United States in any of the designated mountain trout counties?		X
(9)	Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?		X
<u>PERN</u>	MITS AND COORDINATION	<u>YES</u>	<u>NO</u>
(10)	If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?		X
(11)	Does the project involve Coastal Barrier Resources Act resources?		X
(12)	Will a U. S. Coast Guard permit be required?		X
(13)	Will the project result in the modification of any existing regulatory floodway?	X	
(14)	Will the project require any stream relocations or channel changes?		X

SOCIA	AL, ECONOMIC, AND CULTURAL RESOURCES	<u>YES</u>	<u>NO</u>
(15)	Will the project induce substantial impacts to planned growth or land use for the area?		X
(16)	Will the project require the relocation of any family or business?		X
(17)	Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population?		X
(18)	If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor?	X	
(19)	Will the project involve any changes in access control?		X
(20)	Will the project substantially alter the usefulness and/or land use of adjacent property?		X
(21)	Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness?		X
(22)	Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)?	X	
(23)	Is the project anticipated to cause an increase in traffic volumes?		X
(24)	Will traffic be maintained during construction using existing roads, staged construction, or on-site detours?	X	
(25)	If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility?	X	
(26)	Is there substantial controversy on social, economic, or environmental grounds concerning the project?		X
(27)	Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project?	X	
(28)	Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places?		X
(29)	Will the project affect any archaeological remains which are important to history or pre-history?		X

(30)	(public parks, recreation lands, wildlife and waterfowl refuges, historic sites, or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)?	X
(31)	Will the project result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended?	X
(32)	Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the National System of Wild and Scenic Rivers?	X

# F. Additional Documentation Required for Unfavorable Responses in Part E

**Response to Question 4:** Approximately 0.18 acres of wetlands will be impacted as a result of the project. The proposed bridge replacement incorporates wider shoulders than the existing bridge and roadway and will change the fill slope from 2:1 to 3:1, the maximum allowable slope given the soil type in the project area. The bridge will be replaced in place, with an off-site detour. All practicable measures to reduce wetland impacts have been evaluated.

**Response to Question 13:** The proposed bridge replacement incorporates a larger hydraulic opening than the existing opening. This is not anticipated to adversely affect the existing regulatory floodway. The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

G. PCE Approval

TIP Project No.

WBS Element
Federal Project No.

B-4950
40108.1.1
BRZ-1851(3)

# Project Description:

The purpose of this project is to replace Cumberland County Bridge No. 171 and Sampson County Bridge No. 172 on SR 1851/1426 (Faircloth Bridge Road) over the South River. (See **Figures 1-4**.) Bridge No. 171 is 91 feet long, with three spans carrying one 10-foot travel lane in each direction and has a one-foot shoulder on each side. Bridge No. 172 is a 151 feet long, with five spans carrying one 10-foot travel lane in each direction and has a one-foot shoulder on each side.

The replacement structures for Bridge Nos. 171 and 172 will be 33 feet wide, cored slab bridges with a clear roadway width of 30-feet 10-inches. The proposed length of Bridge No. 171 is 120 feet and will consist of three spans. The proposed length of Bridge No. 172 is 185 feet and will have four spans. The proposed typical section includes one 10-foot travel lane in each direction with a six-foot shoulder on each side. The typical sections and preliminary roadway design are included in **Figures 5 and 6**. Traffic will be maintained by an off-site detour during construction (see **Figure 1**). The roadway will be designed with a 60 mph design speed. The roadway grade of the new structure will be approximately the same as the existing grade.

Categorical Exc	lusion Action (	Classification:	AROX	Inna and a second
	TYPE II(A) TYPE II(B)	NO BOXES Checked ANY BOX is Checked	SEAL 034390	P
<b>Prepared By:</b>	111		AN WOWEER	
<b>2/23/[b</b> Date	Meredith H	Van Luy I. Van Duyn, PE Project I	Manager Manager	REFERENCE
	RS&H Arc	hitects-Engineers-Planner ense No. 034390		
Approved: 2/24/16	Mich.	O. James		
Date		nes, Project Planning Engi		
2/24/16	Glad	oject Dévelopment and En	vironmental Analysis	
Date '	NCDOT Pro	Cox, PE, Project Engineer ject Development and En	vironmental Analysis	
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Date /		anson, PE, Eastern Region ject Development and En		Section Head
For Type II(B)	Projects:			

10

Federal Highway Administration

John F. Sullivan, III, PE, Division Administrator

# **PROJECT COMMITMENTS:**

Cumberland County and Sampson County
Bridge Nos. 171 and 172 on SR 1851/1426 (Faircloth Bridge Road)
Over South River
Federal Aid Project No. BRZ-1851(3)
WBS No. 40108.1.1
TIP Project No. B-4950

#### NCDOT Division 6

The Division will coordinate with Cumberland and Sampson County Public Schools and local emergency response officials at least one month prior to road closure to allow time for alternate route planning.

Cumberland County Schools: 910.678.2300

Cumberland County Emergency Medical Services: 910.609.5600

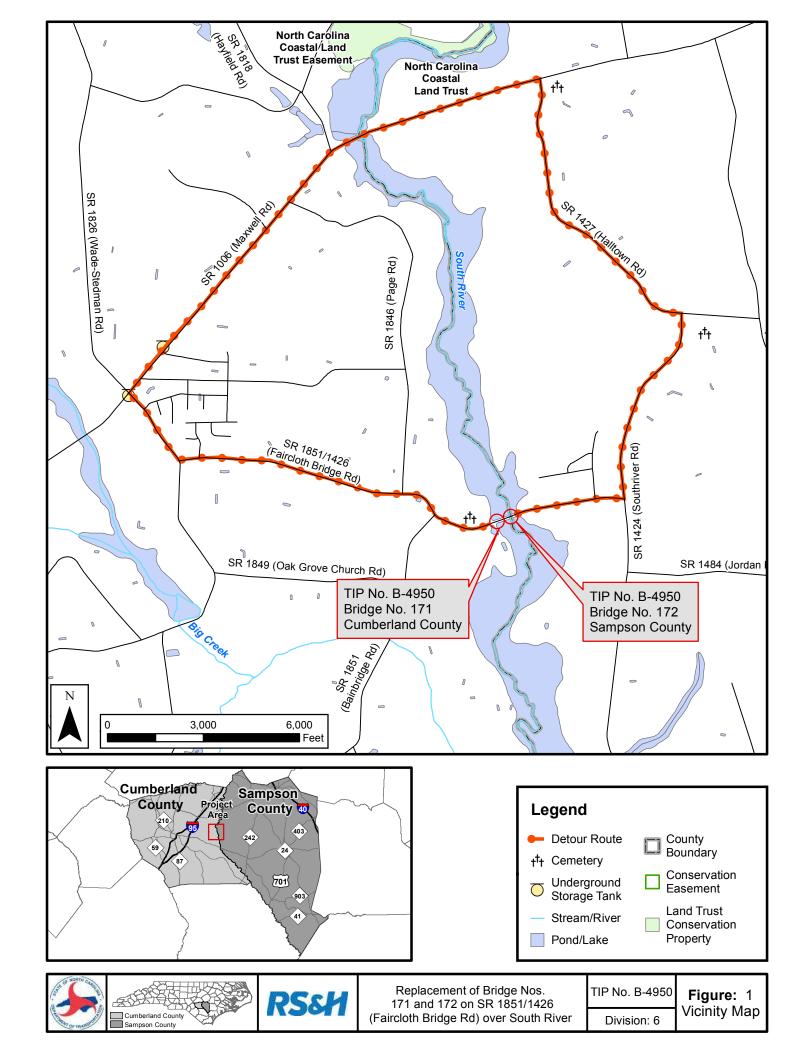
Bethany Volunteer Fire Department: 910.483.1581

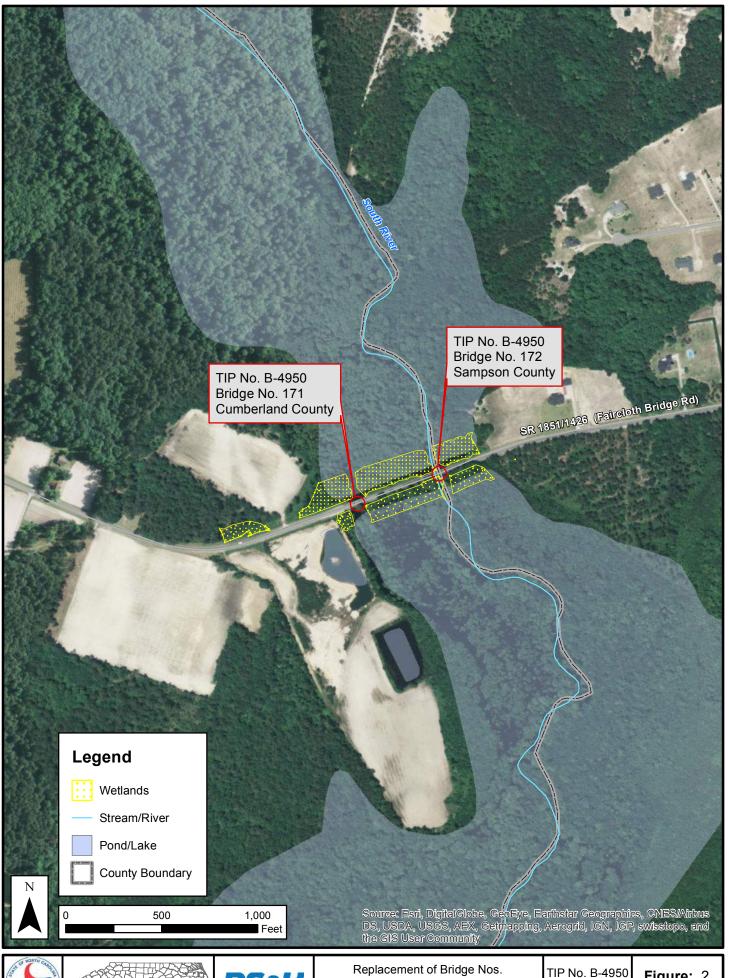
Sampson County Schools: 910.592.1404

Sampson County Communications: 910.592.1151

Sampson County Emergency Management: 910.592.8996

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.





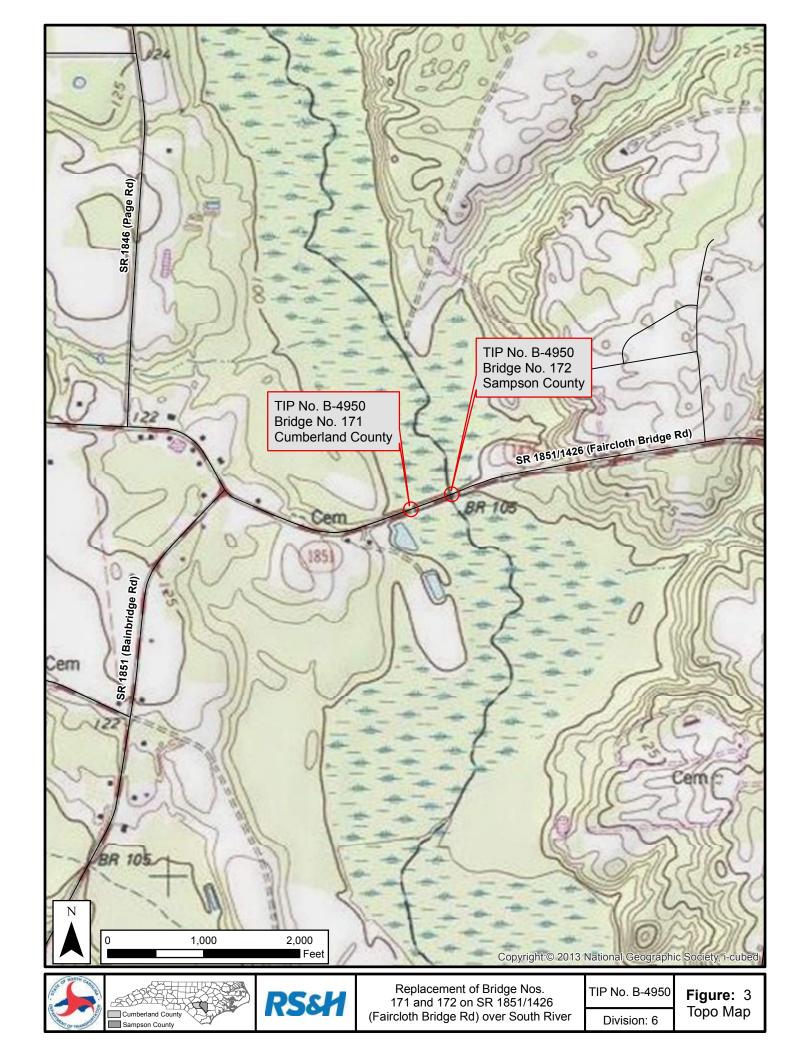






Replacement of Bridge Nos. 171 and 172 on SR 1851/1426 (Faircloth Bridge Rd) over South River

TIP No. B-4950 Division: 6 Figure: 2 Aerial Map





Bridge No. 171 approach facing East

Bridge No. 172 approach facing East





Bridge No. 171 facing West

Bridge No. 172 approach facing West





Bridge Nos. 171 and 172 bridge signage

Bridge No. 172 facing North towards South River



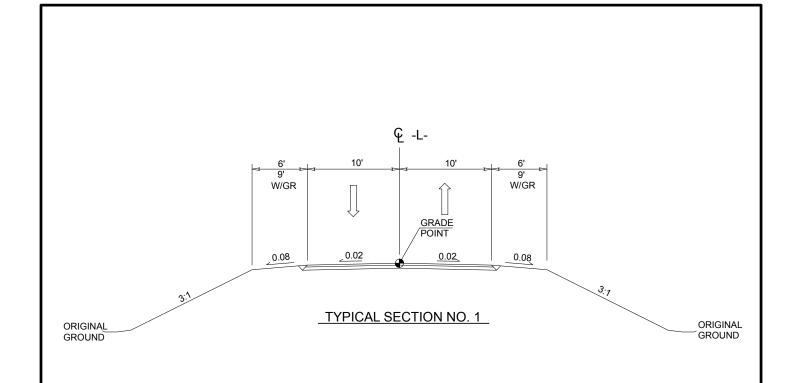


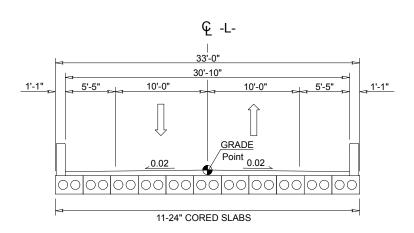


Replacement of Bridge Nos. 171 and 172 on SR 1851/1426 (Faircloth Bridge Rd) over South River

TIP No. B-4950 Division: 6

Figure: 4 Project Area Photos





TYPICAL SECTION NO. 2







Division: 6

