South Carolina Department of Transportation

On Behalf of the Federal Highway Administration - South Carolina Division Office

PROCESSING FORM FOR PROGRAMMATIC CATEGORICAL EXCLUSIONS
NON MAJOR FEDERAL ACTIONS

Project ID	P041152	Route	S-11-86 (Rock House Road)	County	Cherokee

Part 1 - Project Description

Include the Project Name/Description

S-11-86 (Rock House Road) over Kings Creek Bridge Replacement
SCDOT proposes to replace the S-11-86 (Rock House Road) Bridge over Kings Creek in Cherokee County. The purpose of this project is to replace the bridge to correct the load restriction placed on it as well as restore all bridge components to good condition. The existing bridge is currently closed and has one or more components in poor condition. The proposed repair involves replacing the current bridge with a new bridge on existing alignment. The bridge will remain closed to traffic until construction is complete

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

It is anticipated new right of way will be required for the replacement of this structure. Additional right of way will be minor, temporary or permanent strips not including land associated with Kings Mountain National Military Park. Existing right of way is approximately 66'. Given the rural location and field studies conducted, new acquisitions are not anticipated to have negative effects to resources or landowners and will be located within the project study area.

Part 2 - PCE Type

Select the appropriate Categorical Exclusion from 23 CFR Part 771.117 that best fits the entire project from the drop-down menu. **Reference Appendix A of the PCE Agreement for a more detailed description of each CE contained in 23 CFR 771.117.**

23 CFR 771.117(c)	Bridge rehabilitation, reconstruction, or replacement or railroad crossing improvements
23 CFR 771.117(d)	

Part 3 - Thresholds

To be processed as a Programmatic Categorical Exclusion (PCE) the following conditions must be met in addition to the General Criteria (as outlined in the PCE Agreement between FHWA-SC and SCDOT). Place a "X" in the appropriate box below. If the answer is "Yes" to any of the below criteria, SCDOT will consult with FHWA-SC to determine the appropriate level of NEPA documentation required and forward to FHWA-SC for approval. ***Reference Part 4 of the Processing form or Section IV of the PCE Agreement for more details and definitions regarding each threshold.**

1.	Involves any unusual circumstances as described in *23 CFR Part 771.117(b)	☐ Yes	☒ No
2.	The acquisition of more than *minor amounts of temporary or permanent strips of right-of-way	☐ Yes	☒ No
3.	Involves acquisitions that result in residential or non-residential displacements	☐ Yes	☒ No
4.	Involves any adverse impacts to EJ populations	☐ Yes	☒ No

Part 3 - Thresholds Continued			
5.	Results in capacity expansion of a roadway by adding through lanes	☐ Yes	☒ No
6.	Involves construction that would result in *major traffic disruptions	☐ Yes	☒ No
7.	Involves *changes in access control requiring FHWA approval	☐ Yes	☒ No
8.	An adverse effect determination under Section 106 of the National Historic Preservation Act.	☐ Yes	☒ No
9.	Use of Section 4(f) property that cannot be documented with a FHWA *de minimis* determination or a programmatic Section 4(f) other than the programmatic evaluation for the use of historic bridges	☐ Yes	☒ No
10.	Any use of a Section 6(f) property	☐ Yes	☒ No
11.	Requires an Individual USACE 404 Permit	☐ Yes	☒ No
12.	Requires an Individual U.S. Coast Guard Permit.	☐ Yes	☒ No
13.	Work encroaching in a regulatory floodway, adversely affecting the base floodplain (100 yr.) pursuant to E.O. 11988 and 23 CFR Part 650 Subpart A	☐ Yes	☒ No
14.	Construction in, across, or adjacent to a river designated as a National Wild and Scenic River	☐ Yes	☒ No
15.	Involves an increase of 15 dBA or greater on any noise receptor or abatement measures are found to be feasible and reasonable due to noise impacts	☐ Yes	☒ No
16.	May affect and is likely to adversely affect a Federally listed species or designated critical habitat or projects with impacts subject to the BGEPA	☐ Yes	☒ No
17.	Involves acquisition of land for hardship, protective purposes, or early acquisition	☐ Yes	☒ No
18.	Does not meet the latest Conformity Determination for air quality non-attainment areas (if applicable).	☐ Yes	☒ No
19.	Any known or potential major hazardous waste sites within the right-of-way.	☐ Yes	☒ No
20.	Is not included in or is inconsistent with the STIP and/or TIP	☐ Yes	☒ No

Part 3 Continued - Additional criteria to be completed for disposal of excess right-of-way PCE		
1. Is the parcel part of a SCDOT environmental mitigation effort or could it be used for environmental mitigation?	☐ Yes	☐ No
2. Is there a formal plan to use this parcel for a future transportation project (is it part of an approved LRTP)?	☐ Yes	☐ No

Part 4 - Threshold Definitions

Unusual Circumstances (23 CFR Part 771.117) - Unusual circumstances are defined as:

a. Significant environmental impacts;
b. Substantial controversy on environmental grounds;
c. Significant impact on properties protected by Section 4(f) of the DOT ACT or Section 106 of the National Historic Preservation Act; or
d. Inconsistencies with any Federal, State, or local law, requirement, or administrative determination relating to the environmental aspects of the action.

Minor Amount of Right-of-Way (ROW):

A minor amount of ROW is defined as less than 3 acres per linear mile for linear projects or less than 10 acres of impacts for non-linear projects (eg: intersections, bridges), and no removal of major property improvements. Examples of major improvements include residential and business structures, or the removal of other features which would change the functional utility of the property. Removal of minor improvements, such as fencing, landscaping, sprinkler systems, and mailboxes would be allowed.

Major Traffic Disruptions:

A major traffic disruption is defined as an action that would result in: a) adverse effects to through-traffic businesses or schools, b) substantial change in environmental impacts, or c) public controversy associated with the use of the temporary road, detour, or ramp closure.

Changes in Access Control:

Requires approval from FHWA for changes in access control on the Interstate system (eg: Interchange Modification Reports or Interchange Justification Reports).

Environmental Commitments: (Check all that apply)

[X] USTs/Hazardous Materials	[ ] General Permit	[ ] Right of Way
[X] Water Quaility	[ ] Individual Permit	[X] Floodplains
[X] Migratory Bird Treaty Act	[ ] Essential Fish Habitat	[ ] Lead Based Paint
[X] Stormwater	[X] Cultural Resources	
[ ] Coast Guard Permit Exclusion	[ ] Noise	[ ] Non-Standard Commitment (see below)

Part of CLRB 2022-1 DB package 14
The project is adjacent to Kings Mountain National Military Park which is a Section 4(f) resource. However, no additional right of way is anticipated from this resource as a result of the proposed improvements.

Relevant field studies and environmental reviews have been completed to determine that the project meets the criteria set forth in the Programmatic Categorical Exclusion Agreement signed by FHWA-SC and SCDOT. It is understood that any additions/deletions to the project may void environmentally processing the project as presently classified; consequently, any engineering changes must be bought to the attention of SCDOT Environmental Services Office immediately. A copy of this form is included in the project file and one (1) copy has been provided to FHWA.

Approved By: Will McGoldrick Digitally signed by Will McGoldrick Date: 2022.08.15 08:28:50 -04'00' Date

Primavera: [X] Yes [ ] No NEPA Start Date: 3/15/22

Does the project contain additional commitments?: (if Yes attach to form) [X] Yes [ ] No

Date: 07/19/2022

NEPA ENVIRONMENTAL COMMITMENTS FORM

Project ID : P041152 | County : Cherokee | District : District 4 | Doc Type: PCE | Total # of Commitments: 6

Project Name: S-11-86 (Rock House Road) Bridge Replacement over Kings Creek

The Environmental Commitment **Contractor Responsible** measures listed below **are to be included in the contract and must be implemented**. It is the responsibility of the Program Manager to make sure the Environmental Commitment **SCDOT Responsible** measures are adhered to. If there are questions regarding the commitments listed please contact:

CONTACT NAME: Michael Pitts **PHONE #:** (803)737-2566

ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

Water Quality | NEPA Doc Ref: | Responsibility: CONTRACTOR

The contractor will be required to minimize possible water quality impacts through implementation of BMPs, reflecting policies contained in 23 CFR 650B and the Department's Supplemental Specification on Erosion Control Measures (latest edition) and Supplemental Technical Specifications on Seeding (latest edition). Other measures including seeding, silt fences, sediment basins, etc. as appropriate will be implemented during construction to minimize impacts to water quality.

☐ Special Provision

Migratory Bird Treaty Act | NEPA Doc Ref: | Responsibility: CONTRACTOR

The federal Migratory Bird Treaty Act, 16 USC § 703-711, states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The South Carolina Department of Transportation (SCDOT) will comply with the Migratory Bird Treaty Act of 1918 in regard to the avoidance of taking of individual migratory birds and the destruction of their active nests.

The contractor shall notify the Resident Construction Engineer (RCE) at least four (4) weeks prior to construction/demolition/maintenance of bridges and box culverts. The RCE will coordinate with SCDOT Environmental Services Office (ESO), Compliance Division, to determine if there are any active birds using the structure. After this coordination, it will be determined when construction/demolition/maintenance can begin. If a nest is observed that was not discovered after construction/demolition/ maintenance has begun, the contractor will cease work and immediately notify the RCE, who will notify the ESO Compliance Division. The ESO Compliance Division will determine the next course of action.

The use of any deterrents by the contractor designed to prevent birds from nesting, shall be approved by the RCE with coordination from the ESO Compliance Division. The cost for any contractor provided deterrents will be provided at no additional cost to SCDOT.

☐ Special Provision

Stormwater | NEPA Doc Ref: | Responsibility: CONTRACTOR

Stormwater control measures, both during construction and post-construction, are required for SCDOT projects with land disturbance and/or constructed in the vicinity of 303(d), TMDL, ORW, tidal, and other sensitive waters in accordance with the SCDOT's MS4 Permit. The selected contractor would be required to minimize potential stormwater impacts through implementation of construction best management practices, reflecting policies contained in 23 CFR 650 B and SCDOT's Supplemental Specifications on Seed and Erosion Control Measures (latest edition).

☐ Special Provision

Project ID : P041152	SCDOT NEPA ENVIRONMENTAL COMMITMENTS FORM	SCDOT ENVIRONMENTAL SERVICES

ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

Cultural Resources	NEPA Doc Ref:		Responsibility:	CONTRACTOR

The contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics,flakes, bones, graves, gravestones, or brick concentrations during the construction phase of the project, if any such remains are encountered, the Resident Construction Engineer (RCE) will be immediately notified and all work in the vicinity of the discovered materials and site work shall cease until the SCDOT Archaeologist directs otherwise.

☐ Special Provision

USTs/Hazardous Materials	NEPA Doc Ref:		Responsibility:	CONTRACTOR

If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated are encountered during construction, the South Carolina Department of Health and Environmental Control (SCDHEC) will be informed. Hazardous materials will be tested and removed and/or treated in accordance with the United States Environmental Protection Agency and the SCDHEC requirements, if necessary.

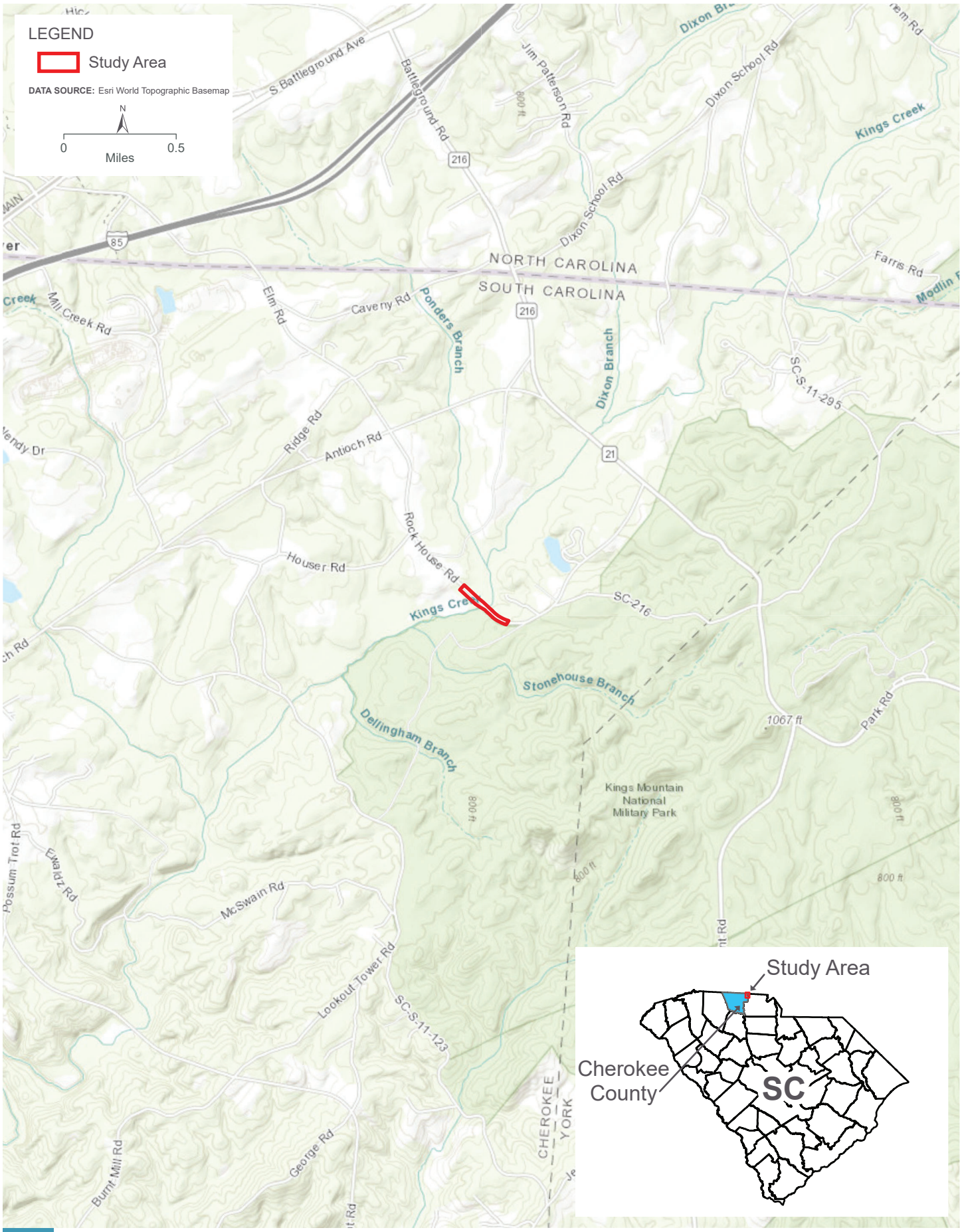
☐ Special Provision

Floodplains	NEPA Doc Ref:		Responsibility:	CONTRACTOR

The Engineer of Record will send a set of final plans and request for floodplain management compliance to the local

County Floodplain Administrator.

☐ Special Provision



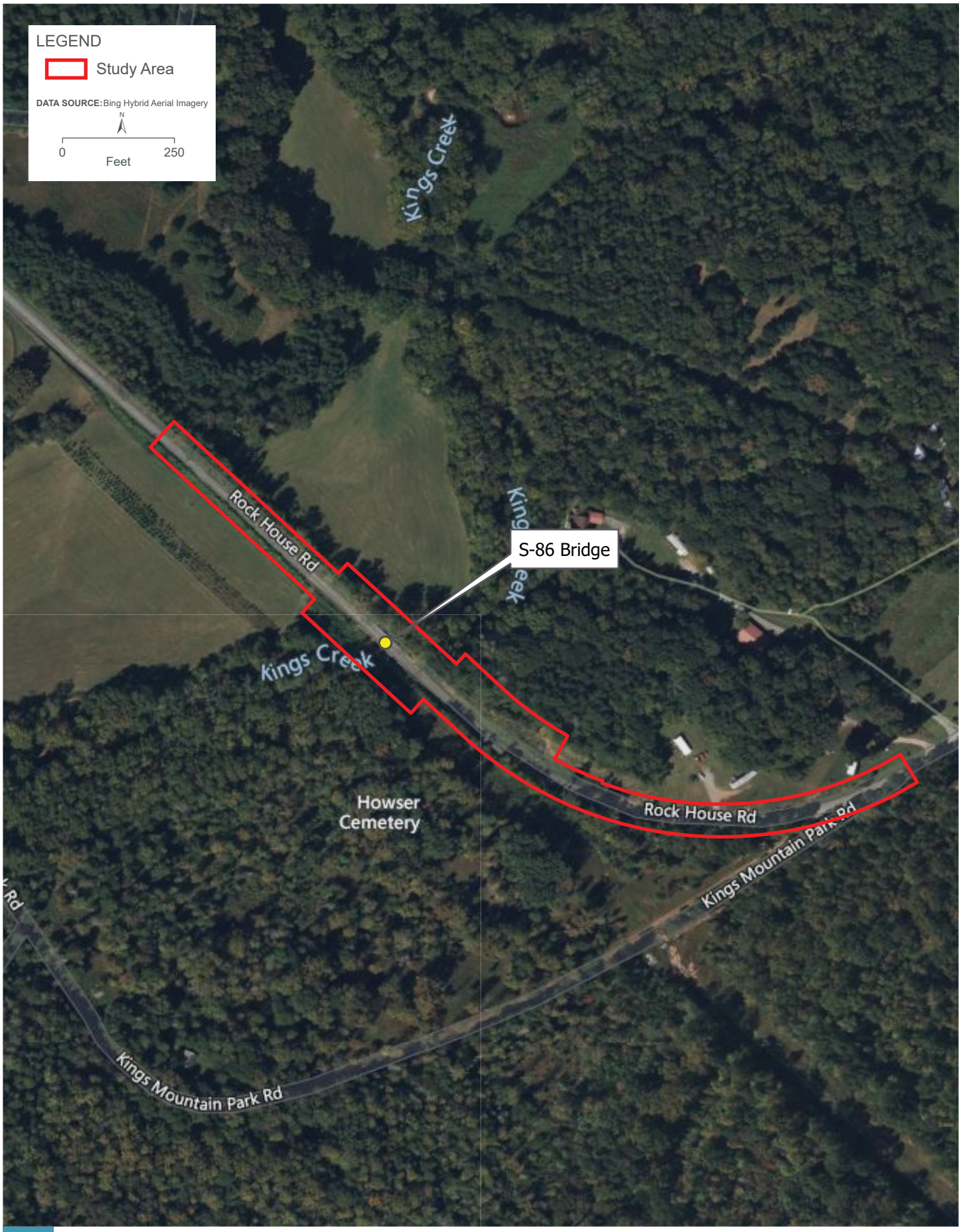
S-86 BRIDGE REPLACEMENT OVER KINGS CREEK

Project Vicinity

Figure 1

TECHNICAL MEMORANDUM

\\CLTSMAIN\GIS_DATA\GIS\PROJECTS\3689_SCDOT\10340628_SCDOT_CLRB_BRIDGEPKG14\7.2_WIP\MAP_DOCS\APRX\SCDOT_CLRB\SCDOT_CLRB.APRX DATE: 8/10/2022



S-86 BRIDGE REPLACEMENT OVER KINGS CREEK

Project Aerial

Figure 2

TECHNICAL MEMORANDUM

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Cultural Resources Project Screening Form

File Number: | PIN: 41152 | Route: S-11-86 | County: Cherokee

Project Name:

S-11-86 (Rock House Road) over Kings Creek Bridge Replacement Project

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

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)

Project Type

2

Comments

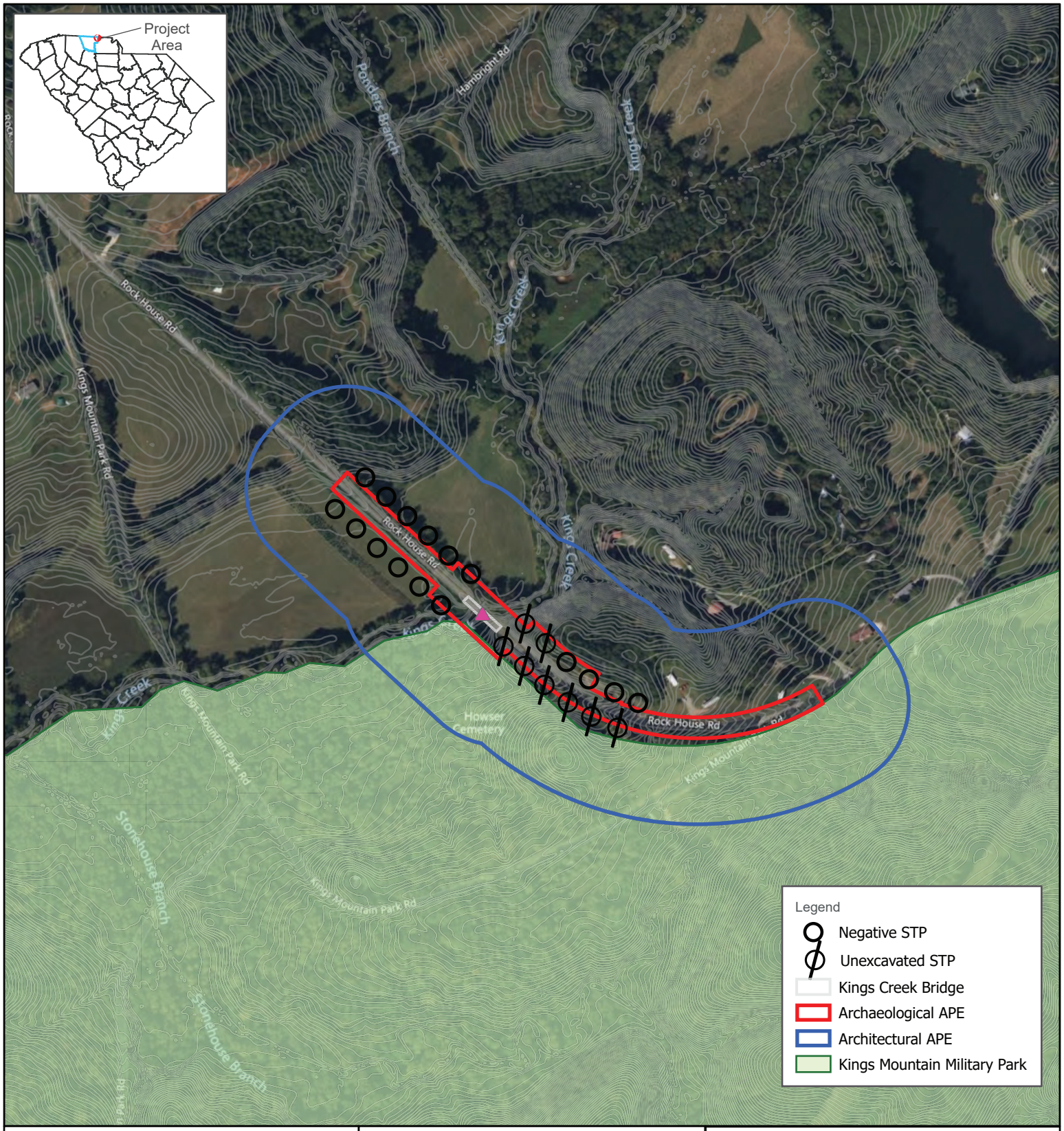
This project replaces the S-11-86 (Rock House Road) bridge over Kings Creek. The study area extends approximately 600 feet to the west and 1,200 feet to the east of the bridge along Rock House Road. The existing right-of-way (ROW) is 66 feet wide along the roadway and in the area of the bridge. The archaeological area of potential effect (APE) is 75 feet from the road centerline in the northwest and southwest quadrants of the project area and 600 feet from either end of the bridge. The archaeological APE in the western portion of the northeast quadrant is approximately 85 feet from the road centerline, in order to accommodate a design change to avoid Kings Mountain Military Park. The archaeological APE at the eastern end of the northeast quadrant is the existing SCDOT 33-foot ROW. The archaeological APE in the southeast quadrant is the existing SCDOT 33-foot ROW, due to the presence of Kings Mountain National Military Park in this area. The architectural APE extends 300 feet outside of the archaeological APE. HDR conducted a field survey on June 28, 2022 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 24 STP locations were investigated. Eight STPs were not excavated due to slope, wetlands, or ground disturbance. The remaining 16 STPs were excavated but produced no cultural resources. No archaeological sites were identified within the archaeological APE. No previously unrecorded historic resources were identified within either APE. The current bridge to be replaced was built in 1957 and has no distinctive or noteworthy details and is neither historically or technologically significant. Although the bridge is over 50 years of age, it qualifies for streamlined review under the Federal Highway Administration's Post 1945 Bridges-Program Comment. This relieves SCDOT from considering the project's proposed effects on the bridge. No additional cultural resources investigations are recommended.

Effect Determination: No Historic Properties Affected

*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: Tracy Martin | Review Date: 8/11/2022



Date:
July, 2022

SCDOT

Cherokee County S-86 Bridge Replacement Over Kings Creek

Figure 2

0 30 60 90 120 Meters

0 100 200 300 400 Feet

N

Memo

Date:	June 10, 2022
Project:	S-86 Bridge Replacement over Kings Creek SCDOT PIN #P041152
To:	Will McGoldrick – SCDOT
From:	Paul Bright – HDR Eric Mularski, PWS – HDR
Subject:	**Natural Resources Survey Technical Memorandum**

HDR conducted a natural resources survey for the South Carolina Department of Transportation (SCDOT) S-86 Bridge Replacement over Kings Creek Project (Project) on April 29, 2022. The Project will involve the replacement of the S-86 Bridge over Kings Creek to improve structural integrity, capacity, and/or safety concerns.

The Study Area encompasses approximately 13.7 acres. The site primarily consists of undeveloped forested lands, agricultural fields, and existing road right-of-way along S-11-86 (Rock House Road) in Cherokee County, South Carolina. An existing transmission powerline easement transects the site on the south side of Rock House Road. This technical memorandum provides a summary of HDR's methods and findings from a desktop analysis and an on-site natural resources survey. Attached to this report are supporting figures, a permit determination form, and a biological assessment.

Desktop Analysis Methods

A desktop analysis was completed as part of an initial Study Area evaluation to identify key environmental resources to be considered for permitting and/or design. The potential resources identified in the desktop evaluation were field-verified by HDR to ensure that critical regulatory items will not adversely impact the Project. The following resources were consulted during the desktop analysis:

- Federal Emergency Management Agency (FEMA) Map Service Center (https://msc.fema.gov/portal)
- 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)
- U.S. Fish and Wildlife Services (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) Grover Quadrangle

Wetlands and Jurisdictional Waters of U.S.

On-site reconnaissance activities identified one stream within the Study Area (Attachment 1, Figure 4). A summary of jurisdictional waters of the U.S. is provided in Table 1.

Table 1. Summary of Delineated Waters of the U.S. within the Study Area

Feature Name	Coordinates (Decimal Degrees)	Type of Aquatic Resource	Cowardin et al. (1979) Classification[1]	Estimated Amount of Aquatic Resource in Study Area (ft)
Streams				
Stream 1 Kings Creek	35.145625 -81.409199	non-section 10 - non-wetland	R3UB2	Length: 581 Average Width: 15-20
			Total Streams:	**Length: 551 lf**

[1] R3UB2: Riverine, upper perennial, unconsolidated bottom, with a sand bottom

No surface water impacts are anticipated. The SCDOT Permit Determination Form has been completed and is attached to this report (Attachment 2).

Pursuant to Section 7 of the Endangered Species Act, a field survey was conducted within the project corridor. Results are in the biological assessment attached to this report (Attachment 3). USFWS. USFWS IPaC was used to determine what potential federally protected species could be on site.

Attachments:

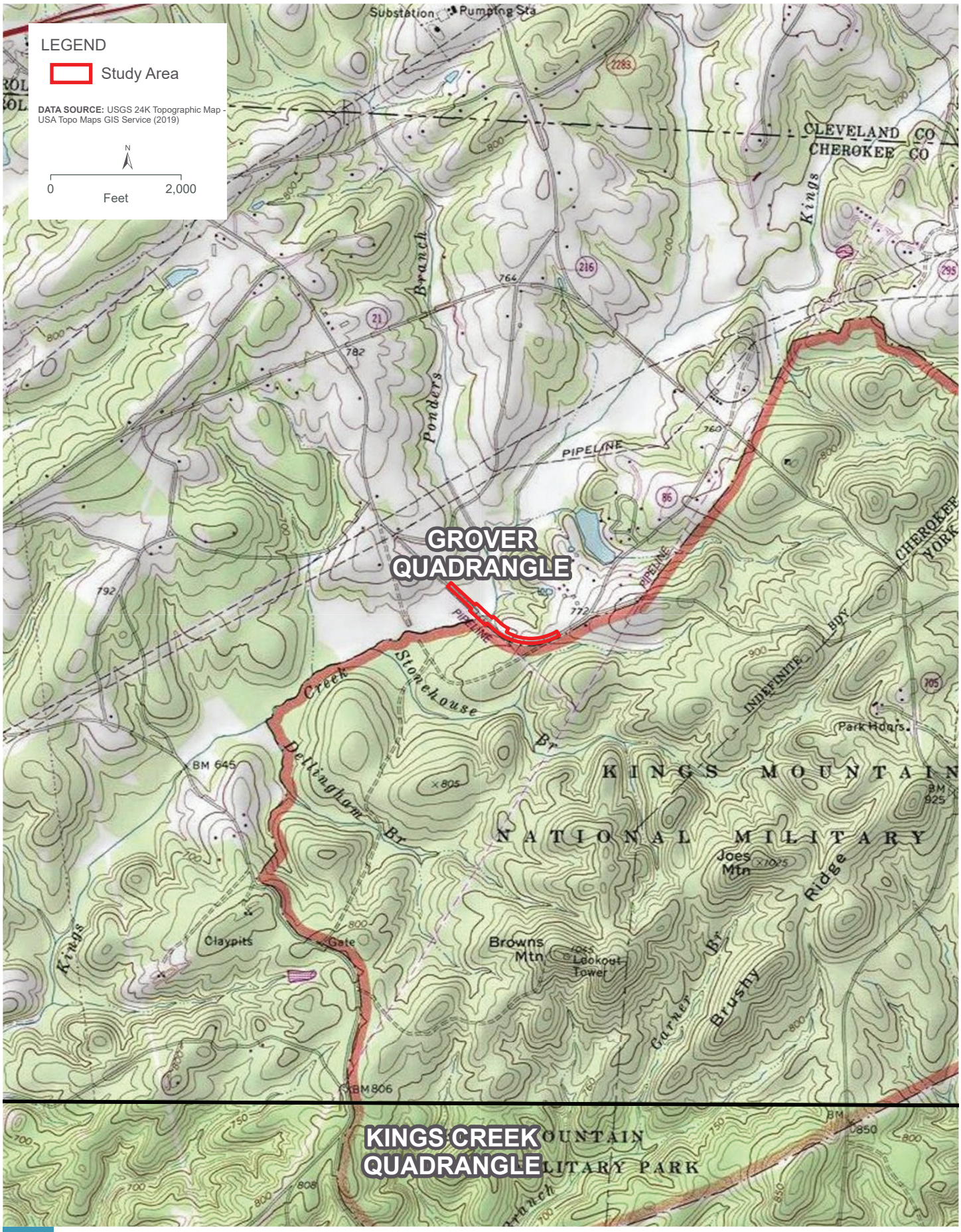
Attachment 1 - Figures
Attachment 2 - Permit Determination Form and SCDHEC Water Quality Report
Attachment 3 – Biological Assessment

References

Cowardin, L.M., Carter, V., Golet, F.C., and LaRoe, E.T. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Washington, D.C.

Federal Emergency Management Agency (FEMA). 2021. Special Flood Hazard Area Definition/Description. (http://www.fema.gov/special-flood-hazard-area) (Accessed May 2022).

South Carolina Natural Heritage Program (SCNHP). 2022. Data Explorer database. (https://schtportal.dnr.sc.gov/portal/apps/sites/#/natural-heritage-program) (Accessed April 2022).

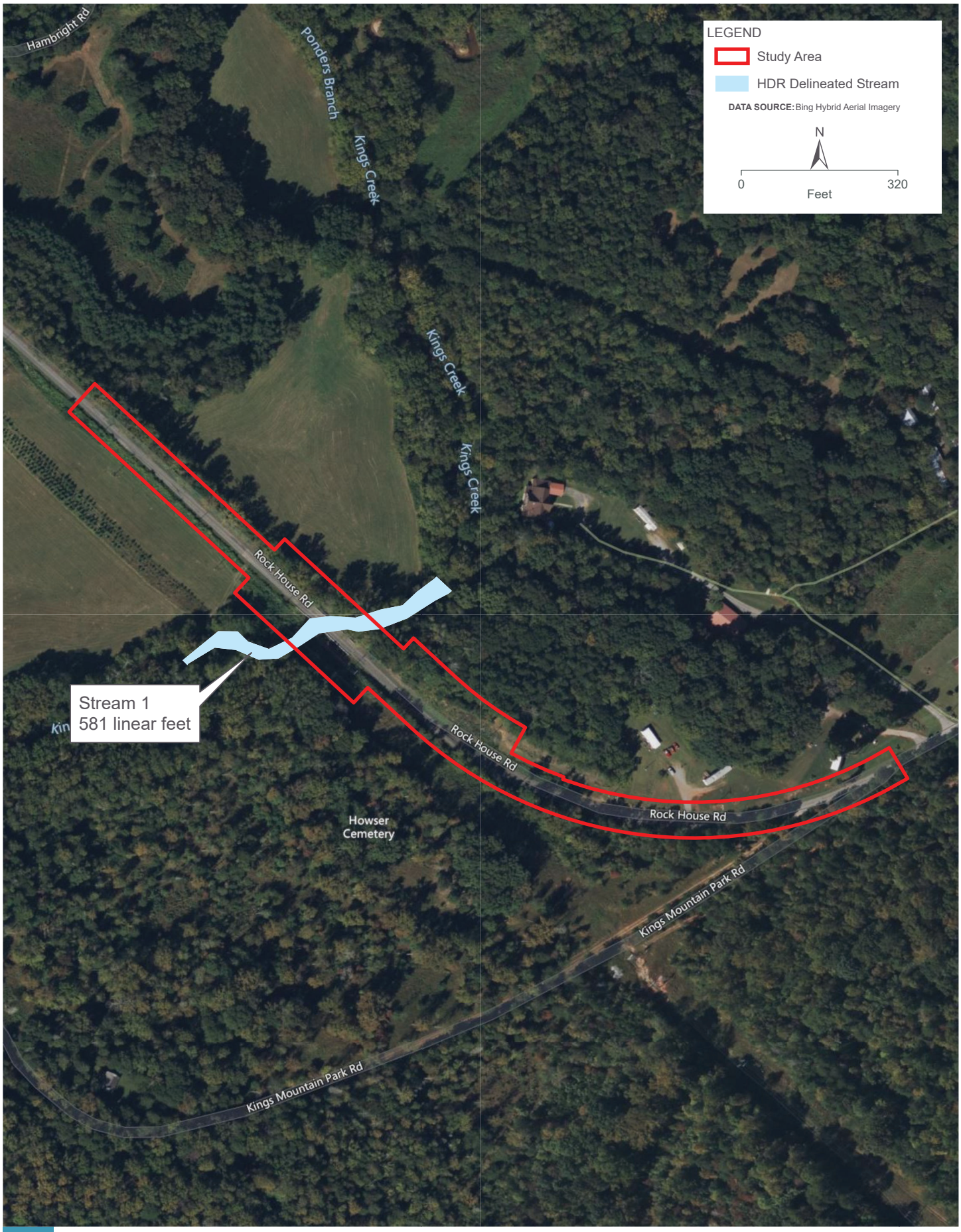


S-86 BRIDGE REPLACEMENT OVER KINGS CREEK

USGS Topographic Quadrangles

Figure 3

TECHNICAL MEMORANDUM



S-86 BRIDGE REPLACEMENT OVER KINGS CREEK

Approximate Boundaries of Waters of the U.S.

Figure 4

Date: 6/10/2022

PERMIT DETERMINATION

FROM Blake Hartshorn COMPANY HDR Engineering Inc.

CONTACT INFO (phone and/or email) blake.hartshorn@hdrinc.com

SCDOT PROJECT ENGINEER Michael Pitts

TO Will McGoldrick - Design Build Coordinator

Project Description Replacing bridge over Kings Creek along Rock House Road in Cherokee County, SC

Route or Road No. S-86 County Cherokee

CONST. PIN #P041152 OTHER PINS or STRUCTURE # _____

RESPONSE:

(●) It has been determined that no permits are required because:

All impacts will be avoided

( ) 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 * _____

TMDL developed ( ) no (●) yes, for * Fecal

*List all that apply using the SCDHEC abbreviations

Comments: S-86 Bridge is an existing bridge replacement project. At this time, impacts should be avoidable.

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.

Hartshorn, Blake L. Digitally signed by Hartshorn, Blake L. Date: 2022.07.19 13:41:08 -04'00' 7/19/2022

Biologist, SCDOT/Consultant Date

Revised 11/2018

Healthy People Healthy Communities

Watershed and Water Quality Information

General Information

Applicant Name: SCDOT
Permit Type: Construction
Address: 563 ROCK HOUSE RD, BLACKSBURG, SC, 29702
Latitude/Longitude: 35.145769 / -81.409267
MS4 Designation: Not in designated area
Monitoring Station: B-333
Within Coastal Critical Area: No
Water Classification (Provisional):
Waterbody Name:
Entered Waterbody Name:

Parameter Description

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

Impaired Status (downstream sites)

Station	NH3N	CD	CR	CU	HG	NI	PB	ZN	DO	PH	TURBIDITY	ECOLI	FC	BIO	TP	TN	CHLA	ENTERO	HGF	PCB
B-333	F	F	F	F	F	F	F	F	F	F	F	WnTN	X	F	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)

Fish Consumption Advisory

Waters of Concern (WOC)

TMDL Information - TMDL Parameters to be addressed

In TMDL Watershed: Yes
TMDL Site: B-333
TMDL Report No: 022-04
TMDL Parameter: Fecal
TMDL Document Link: https://www.scdhec.gov/sites/default/files/docs/HomeAndEnvironment/Docs/tmdl_ubroad_fc.pdf

Report Date: June 9, 2022

Biological Assessment of the
S-86 Bridge Replacement over Kings Creek
Cherokee County, SC
SCDOT PIN #P041152
June 10, 2022

Pursuant to Section 7 of the Endangered Species Act a field survey was conducted within the project corridor. The following list of threatened (T) and endangered (E) species was obtained from the U.S. Fish and Wildlife Service:

Mammals
Northern long-eared bat *(Myotis septentrionalis)* - T
Plants
Dwarf-flowered Heartleaf (*Hexastylis nainflora*) - T

Methods

The project area was examined by GIS and field reconnaissance methods on April 29, 2022. Habitats surveyed were determined by each species' ecological requirements.

Results

The project consists of replacing a bridge and associated road work on S-86 over Kings Creek in Cherokee County, South Carolina. Land use in the vicinity of the project includes forested upland areas, agricultural uses, and residences with a large relatively undisturbed bottomland hardwood swamp forest. Habitat types within the project corridor consist of bottomland hardwood and mixed pine forests dominated by canopy tree species such as southern red oak (*Quercus falcata*), loblolly pine (*Pinus taeda*), sweet gum (*Liquidambar styraciflua*), tulip poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), and American beech (*Fagus grandifolia*), with an understory dominated by giant cane (*Arundinaria gigantea*), common greenbrier (*Smilax rotundifolia*), and Japanese honeysuckle (*Lonicera japonica*).

Bottomland hardwoods are typically found on floodplains of rivers and streams and can occur in the Piedmont as well as the Coastal Plain. Typical trees species found in this bottomland hardwood communities include sweetgum (*Liquidambar styraciflua*), loblolly pine (*Pinus taeda*), hackberry (*Celtis laevigata*), overcup oak (*Quercus lyrata*), water oak (*Q. nigra*), sycamore (*Platanus occidentalis*), American holly (*Ilex opaca*), and American elm (*Ulmus americana*). Immature individuals of canopy species were observed within the subcanopy, plus many tall shrubs including southern arrowwood *(Viburnum dentatum*). Vine species present included trumpet creeper (*Campsis radicans*), poison ivy (*Toxicodendron radicans*), and summer grape (*Vitis aestivalis*). The herb layer contained cardinal flower (*Lobelia cardinalis*), longleaf lobelia (*L. elongata*), and sensitive fern (*Onoclea sensibilis*.

The forested upland areas consist primarily of a dense mixed pine forest dominated by loblolly pine (*Pinus taeda*), and sweetgum (*Liquidambar styraciflua*). An overhead powerline with associated easement maintenance runs along the southwestern portion of the project area.

According to the South Carolina Natural Heritage database of endangered, threatened and rare species, there were no occurrences of any federally listed species in the vicinity of the project. Additionally, a field review of the project study area showed that there is no suitable habitat for any listed species.

The potentially jurisdictional waters in the project area have a very dense tree canopy, and road embankments are not suitable habitat for Dwarf-flowered heartleaf. The bridge substructure was inspected for the presence of bats; however, there was no evidence of bat use.

The project was found to be consistent with the Federal Highway Association biological opinion for northern long-eared bat. SCDOT is providing a concurrence letter to USFWS.

Kings Creek is classified as a perennial, unconsolidated bottom, riverine system. The creek is somewhat incised with areas of minor bank erosion, and it appears that it occasionally leaves its banks during heavy rain events. Woody debris was observed in the stream however no vegetation was growing in the channel.

Based on lack of suitable habitat and/or no observations of the listed species in the vicinity of the project, results of the threatened and endangered species study indicate that the proposed action will not have an effect upon any threatened or endangered species or critical habitats currently listed by the USFWS.

Submitted by:

Blake Hartshorn
HDR Environmental Scientist
6/10/2022

BRIDGE REPLACEMENT SCOPING TRIP RISK ASSESSMENT FORM

COUNTY: Cherokee DATE: 06/24/2022

ROAD #: S-11-86 STREAM CROSSING: Kings Creek

Purpose & Need for the Project:

SCDOT proposes to replace the S-11-86 (Rock House Road) Bridge over Kings Creek in Cherokee County. The purpose of this project is to replace the bridge to correct the load restriction placed on it as well as restore bridge components to good condition. The existing bridge is posted for load restrictions and has one or more components in poor condition.

I. FEMA Acknowledgement

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

Panel Number: 45021C0100D Effective Date: 09/16/2011 (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: The existing bridge is located in a Special Flood Hazard Area Zone A. A preliminary study of the bridge shows that the conditions of a "No-Rise" can be met.

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

Justification:

IV. Preliminary Bridge Assessment

A. Locate Existing Plans

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

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

B. Historical Highwater Data

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

b. SCDOT/USGS Documented Highwater Elevations ☐ Yes ☑ No Results: _____

c. Existing Plans ☐ Yes ☑ No See Above

V. Field Review

A. Existing Bridge

Length: 30 ft. Width: 28 ft. Max. span Length: 30 ft.

Alignment: ☑ Tangent ☐ Curved

Bridge Skewed: ☑ Yes ☐ No Angle: 15

End Abutment Type: Spill-through

Riprap on End Fills: ☑ Yes ☐ No Condition: Fair - some scour at toe.

Superstructure Type: Flat Slab
Substructure Type: Timber Piles

Utilities Present: ☐ Yes ☑ No
Describe:

Debris Accumulation on Bridge: Percent Blocked Horizontally: <25 %
Percent Blocked Vertically: <15 %

Hydraulic Problems: ☐ Yes ☑ No
Describe: Some debris accumulation on existing pier located in channel.

V. Field Review (cont.)

B. Hydraulic Features

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

b. Distance from F.G. to Normal Water Elevation: ~12 ft.
c. Distance from Low Steel to Normal Water Elev.: ~10.5 ft.
d. Distance from F.G. to High Water Elevation: ~4 ft.
e. Distance from Low Steel to High Water Elev.: ~2.5 ft.

f. Channel Banks Stable: ☑ Yes ☐ No
Describe: Generally stable outside of bridge, with some evidence of bank erosion upstream in channel bend.

g. Soil Type: sand/gravel

h. Exposed Rock: ☐ Yes ☑ No Location:

i. Give Description and Location of any structures or other property that could be damaged due to additional backwater.
Single family residence approximately 400' upstream of Road S-11-86 (looking downstream) and approximately 150' from stream centerline to corner of structure.

C. Existing Roadway Geometry

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

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

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

VI. Field Review (cont.)

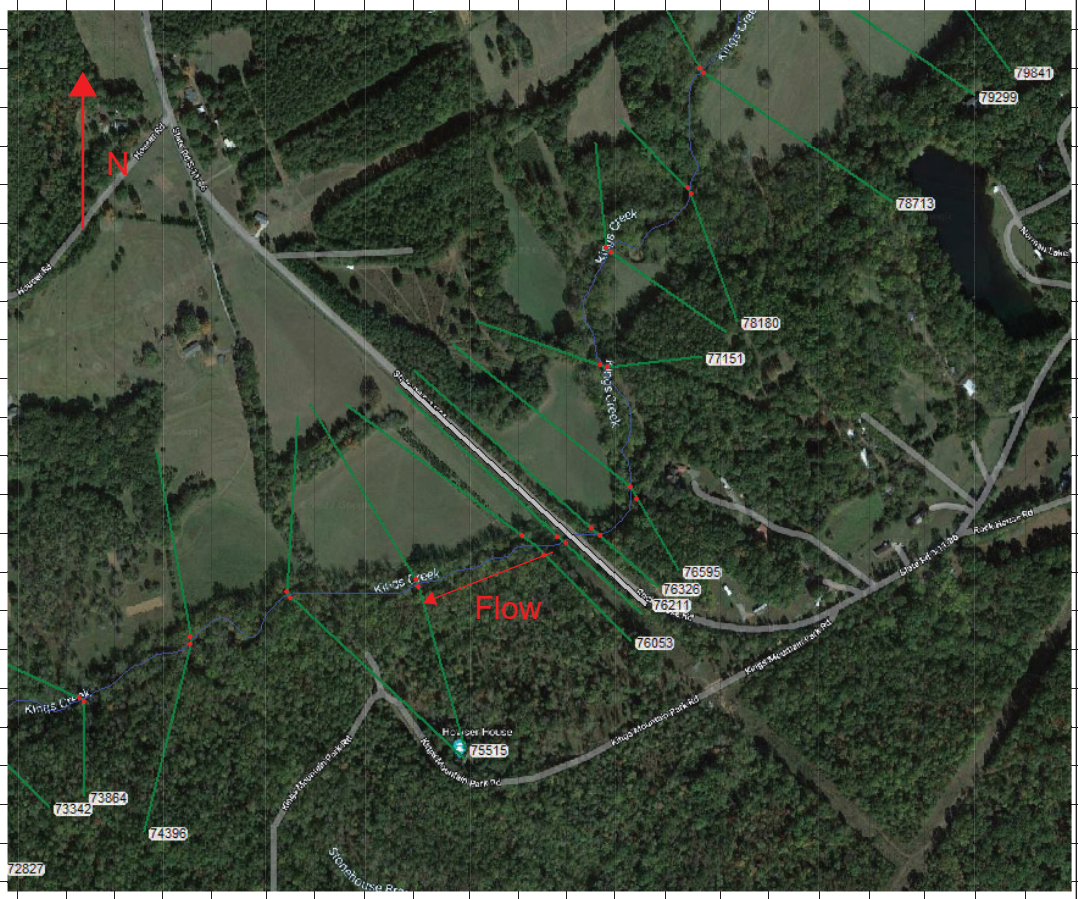
A. Proposed Bridge Recommendation:

Length: 160 ft. Width: 28 ft. Elevation: 662.02 ft.

Span Arangement: 30'-100'-30'

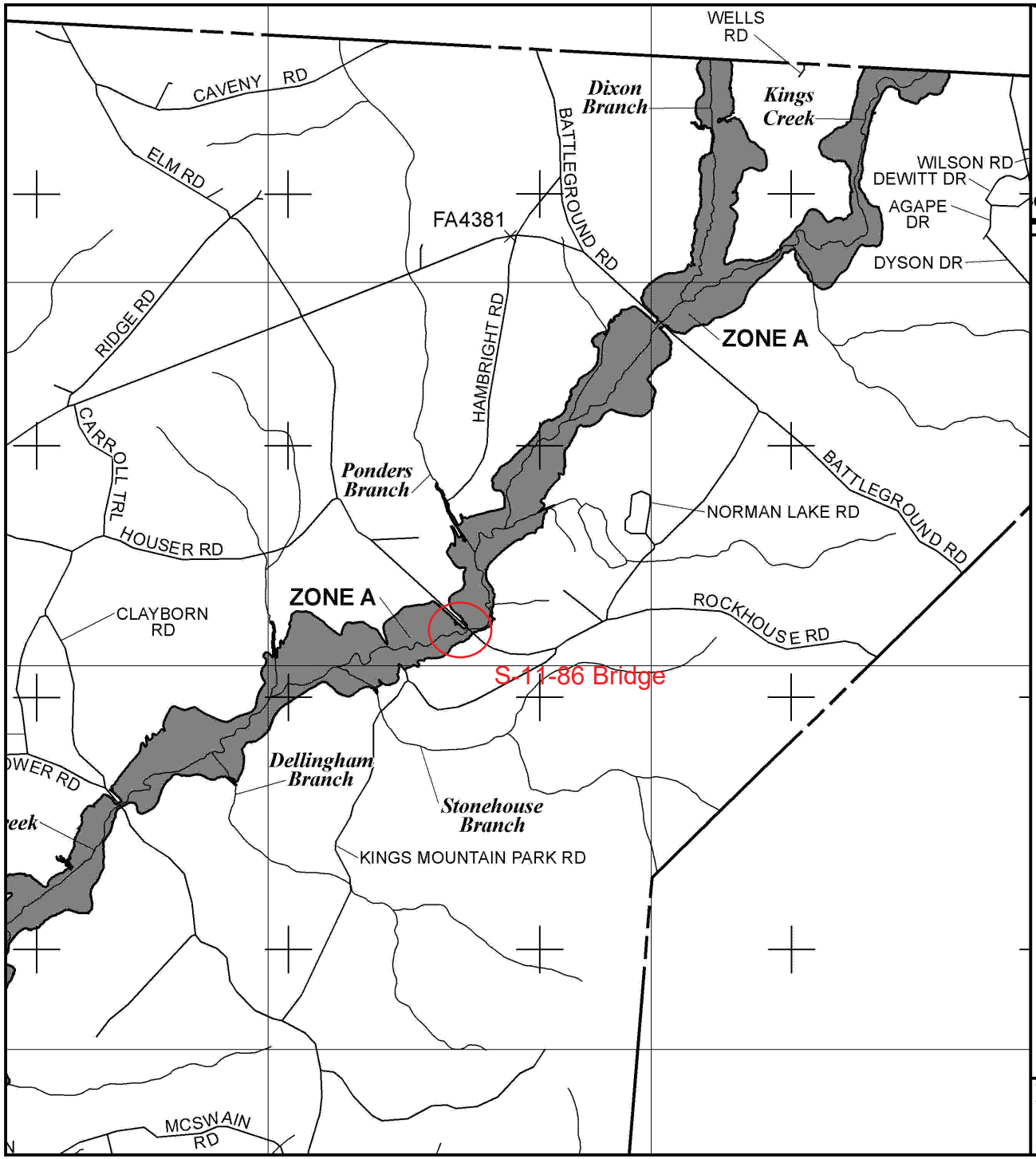
Notes: Proposed replacement 3 span with 2-30' cored slab end spans and a 100' box beam center span with sloping abutments protected with rip rap.

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



Performed By: Thomas Miller

Title: Hydraulic Engineer



MAP SCALE 1" = 2000'

1,000 0 1,000 2,000 3,000 4,000 FEET

00 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0100D

FIRM

FLOOD INSURANCE RATE MAP

CHEROKEE COUNTY, SOUTH CAROLINA

AND INCORPORATED AREAS

PANEL 100 OF 400

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CHEROKEE COUNTY, UNINCORPORATED AREAS	450045	0100	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
45021C0100D

EFFECTIVE DATE
SEPTEMBER 16, 2011

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.

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 South Carolina Department of Transportation (SCDOT) proposes to replace the closed/load restricted bridge crossing of Kings Creek along Road S-11-86 (Rock House Drive) in Cherokee County.

The proposed improvement would replace the existing bridge and include associated roadway improvements to accommodate the proposed bridge. Land uses along the project corridor are largely undeveloped with a few residences outside of the floodplain

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 primary purpose of the project is to replace the existing bridge. Roadway improvements are limited to those associated with accommodating the new structure.

The project crosses Kings Creek which is shown on the Flood Insurance Rate Map (FIRM) Panel 45091C0100D. Kings Creek is designated as a Special Flood Hazard Area Zone A in the vicinity of the project. The project is not expected to be a significant or longitudinal encroachment as defined under 23 CFR 650A, nor is it expected to have an appreciable environmental impact on the base flood elevation. In addition, the project would be developed to comply with all appropriate floodplain regulations and guidelines.

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

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

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

There will be no substantial change in the profile of the roadway.

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

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

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

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

Risks are minimal; the project will replace the existing 5 span bridge with a larger 3 span bridge with a large span over the main channel. The increased opening will have a negligible impact on the BFE's along the floodplain.

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

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

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

A slightly larger bridge size will be used and constructed on the existing alignment. Existing obstructions in the channel will be removed by using a larger center span over the main channel.

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.

The hydraulic modeling for the project was developed utilizing the effective data obtained from FEMA. 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. Upon completion, the results will be evaluated, and it will be determined if the project complies with a “No-Impact” Certification.

___Thomas Miller_____ _____6-13-2022_____

SCDOT Hydraulic Engineer Date