

CATEGORICAL EXCLUSION – Type C

**Bridge Replacement on S-46-22 over Steele Creek
York County, South Carolina**

Project No. BR88 (076)
County: York
PIN 39094RD07
File No. 46.039094

Prepared for:

South Carolina Department of Transportation



Issued by:

AECOM
6201 Fairview Road, Suite 400
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March 2012



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**CATEGORICAL EXCLUSION
Type C**

County: York
Date: March 2012

To: Federal Highway Administration
From: NEPA Coordinator – Midlands Region
Project: Bridge Replacement on S-46-22 (Pleasant Road) over Steele Creek

Project Description: The South Carolina Department of Transportation (SCDOT) proposes to replace the S-46-22 (Pleasant Road) Bridge over Steele Creek in York County, South Carolina (see **Figure 1** for project location). The proposed project is located approximately 0.2 miles south of the North Carolina / South Carolina border and the Charlotte city limits and approximately 5.6 miles north of Fort Mill. The existing bridge is 31.7 feet wide between curbs, has a length of 180 feet and a height of 7 feet. Funding for this project has been approved in the Statewide Transportation Improvement Program (STIP) as indicated in the list of projects located in York County (reference District 4-46-Page 1).

The proposed bridge is anticipated to be built to the east of the existing bridge in order that traffic can be maintained on the existing bridge while the proposed bridge is under construction. A design speed of 40 miles per hour is proposed for the approach roadway and new bridge. Preliminary design indicates that the new bridge would be approximately 25.5 feet in height, 330 feet in length and 40 feet in width to accommodate two, 12-foot travel lanes and 8-foot shoulders on either side (see **Figure 2a** and **Figure 2b** for a plan sketch and typical section). It is anticipated that additional right-of-way (approximately 2.15 acres) would be needed; however, displacements would not be required.

No archaeological sites were found as a result of the survey. The architectural survey includes one residential resource and outbuilding located within 300 feet of the bridge over Steele Creek. The buildings identified do not possess any unique architectural characteristics that would make them eligible for the NRHP; therefore, they were not recommended to be eligible for the NRHP.

The proposed project will impact approximately 0.27 acres of wetlands. Two perennial streams, Steele Creek and an unnamed tributary (Stream 1) to Steele Creek, are located within the project corridor. Stream impacts are not anticipated as the bridge would span Steele Creek (see **Figures 3 and 4** for jurisdictional features). A preliminary hydraulic assessment of the proposed project has determined that the project is within a regulatory floodway and may require a CLOMR/LOMR. Impact will be determined by a detailed hydraulic analysis. It is the intent that the proposed bridge not cause any increase to the flooding potential for the surrounding area (see a correspondence letter with York County Floodplain manager in Appendix B and a Bridge Replacement Scoping Trip Risk Assessment Form in Appendix C).

The proposed project would require permitting under the Corp of Engineers General Permit (COEGP). The project would also have no effect on any historic sites, endangered or threatened species, hazardous materials/underground storage tanks (USTs), farmlands, air quality or noise levels.

Purpose and Need: The existing bridge was built in 1974 and has a sufficiency rating of 41.4 out of 100, classifying the bridge as structurally deficient and functionally obsolete, making it eligible for replacement through the Federal Highway Bridge Replacement and Rehabilitation Program. The purpose of the proposed bridge replacement is to increase the safety of the existing bridge crossing. The existing bridge accommodates two lanes of two-way traffic and

is classified as an Urban Collector. Current Average daily traffic (ADT) on S-46-22 was approximately 8,600 vehicles per day (vpd) and is expected to increase to 13,800 vpd in 2035.

Findings: The project has been assessed for possible effects on the human and natural environment with a determination that no significant environmental impact will occur. The class of action and impact determination documented by this statement would qualify this project as a categorical exclusion under 23 CFR 771, Section 115(b). In consultation with the State Historic Preservation Office (SHPO), as appropriate, the proposed project will not affect any properties identified as being on or eligible for inclusion in the National Register of Historic Places under 36 CFR 800. SHPO, THPO, and ECBI concurrence was obtained in 2011 and a copy of the concurrence letters is included in Appendix A.

The proposed project does not require significant encroachments into the floodplain nor does it support incompatible floodplain development. Under Executive Order 11988, it has been determined that no practicable alternative to this involvement is considered and all practicable measures to minimize harm have been incorporated. The Department will obtain the appropriate permits, as applicable, and adhere to any conditions set forth therein. The public will be advised through appropriate notices of this involvement.

The project is not expected to jeopardize the continued existence of any listed endangered or threatened species or destroy or adversely modify critical habitat protected under Section 7 of the Endangered Species Act. Therefore, no further investigation under Section 7 of the Endangered Species Act is necessary.

Environmental Commitments:

- Impacts to jurisdictional waters will be permitted under a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers. Based on preliminary design, the proposed project would be permitted under the Corps of Engineers General Permit (COEGP). Impacts to approximately 0.27 acres of wetlands are anticipated as a result of the proposed project; no stream impacts are anticipated.
- If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated with petroleum products 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.
- The design-build contractor will complete a future hydraulic study and the proposed project will be coordinated with FEMA. Construction within floodplains will be consistent with FEMA regulations and either a CLOMR/LOMR or a letter of concurrence for no-rise certification from the local floodplain administrator will be obtained.
- The design-build contractor will complete a future hydraulic study and the proposed project will be coordinated with FEMA. Construction within floodplains will be consistent with FEMA regulations and a letter of concurrence will be obtained from the York County Floodplain administrator prior to construction.
- If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated with petroleum products 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.
- Steele Creek is a 303(d) listed stream and the proposed project will need to be in accordance with SCDOT's MS4 permit.

Date

NEPA Coordinator

Date

Federal Highway Administration

SUPPORTING DOCUMENTATION

Acquisitions / Displacements

It is anticipated that new right-of-way would be needed for the proposed bridge replacement. Preliminary engineering design indicates that approximately 2.15 acres of additional right-of-way would be required. There are no displacements identified.

Section 4(f)

The proposed project would not impact publically-owned parks, recreational areas, or wildlife refuges. Therefore, a Section 4(f) evaluation/approval would not be required for this project.

Section 106 – Cultural Resources (Archaeological / Historic)

In accordance with 36 CFR 800.4, a cultural resource survey that included an archaeological review and background research was conducted for the proposed project. No archaeological sites were found as a result of the survey. Two resources were identified in the architectural survey. These resources include a one-story front-gable house constructed in the mid twentieth century and two outbuildings, a small metal shed and a frame outbuilding, stand northeast of the house. The project architectural historian assessed these resources using the NRHP criteria. The buildings do not possess any unique architectural characteristics that would make them eligible for the NRHP and do not convey a strong feeling of mid-twentieth century history; therefore, they are not recommended to be eligible for the NRHP. A copy of the Cultural Resources Report, SHPO concurrence letter, and Tribal Historic Preservation Office (THPO) concurrence letter and Eastern Band of Cherokee Indians (EBCI) concurrence letter are included in Appendix A.

Water Quality

The project study area (PSA) is located in the Lower Catawba River basin (hydrologic unit 0305103). The Catawba River flows through the Piedmont, Sandhills, and Upper Coastal Plain regions of South Carolina and the basin encompasses 2,322 square miles. The Catawba River joins with the Congaree River to form the Santee River. The project lies in the Sugar Creek watershed (Watershed Management Unit 020) which encompasses 29,130 acres in York and Lancaster Counties in South Carolina and Mecklenburg County, North Carolina.

Steele Creek is classified in the 2006 Classified Waters document by South Carolina Department of Health and Environmental Control (SCDHEC), as FW (Freshwater) its entire length. No waters classified as Outstanding National Resources Water (ONRW), Outstanding Resource Water (ORW), or Water Supply occurs within 1 mile of the project corridor. Steele Creek is listed on the 2010 303(d) list, though the creek is listed as impaired on the 2010 303(d) list at its crossing of the US 21 Bypass. This point is approximately 4 miles downstream of the project, although the designation of impairment extends upstream and downstream of this location. Sugar Creek is also listed as impaired at SC 160 (approximately 2 miles downstream of its confluence with Steele Creek). Steele Creek is listed as impaired for falling outside approved parameters for Hydrogen ion concentrations (pH). Sugar Creek is listed as impaired for not meeting the criteria for aquatic life use support. A balanced indigenous aquatic community was not present at this sampling location indicating impairment (SCDHEC, 2010).

The proposed project will not have long term impacts to water quality within the PSA or the Sugar Creek watershed. See the *Permitting* section for additional details on permitting requirements for storm water drainage. NPDES limits will be included on permit drawings.

Wetlands and Streams

The PSA was field reviewed on January 19, 2011 for the presence of jurisdictional water of the U.S. and waters, including wetlands and streams, were delineated. Prior to the fieldwork, a review of the National Wetlands Inventory (NWI) was also conducted. The PSA reviewed was approximately 2,700 feet long, 600 feet wide and generally centered on the S-46-22 Bridge. Approximately 5.32 acres of jurisdictional wetlands and 0.33 acres of non-jurisdictional wetlands were identified within the PSA; impacts to approximately 0.27 acres of wetlands are anticipated as a result of the project.

Two perennial streams, Steele Creek and an unnamed tributary (Stream 1) to Steele Creek, are located within the project corridor. Steele Creek is a fourth order stream that flows into Sugar Creek east of Fort Mill. During the site visit, Steele Creek had continuous normal flow and exhibited slightly turbid water. Substrate consists of a mixture of silt and sand. Banks ranged from 15 to 25 feet in width in the project corridor and bank heights were very low, approximately 1 to 2 feet in height. Riparian buffers were in good condition in the project corridor being at least 300 feet in width and usually greater. Stream 1 joins Steele Creek via a roadside ditch west of the bridge. Stream 1 appears to have once been a natural stream but has been diverted as a result of the widespread commercial development north of the bridge and no longer occupies its natural location. It now materializes in the project corridor at a set of large culverts that drain Wetland 2 and potentially other unknown areas. Stream 1, which has been channelized, has banks 3 to 5 feet in width and also has continuous flow and clear water. Substrate was either silt or clay toward the culvert complex north of the bridge or sand, gravel, and rip-rap where the stream parallels the road. There are no stream impacts anticipated as a result of this project.

No waters classified as Outstanding National Resource Water (ONRW), Outstanding Resource Water (ORW), or Water Supply occur within 1 mile (1.6 km) of the project corridor. Steele Creek is listed on the 2010 303(d) list, though the creek is listed as impaired on the 2010 303(d) list at its crossing of the US 21 Bypass. This point is approximately 4 miles downstream of the project, although the designation of impairment extends upstream and downstream of this location. Sugar Creek is also listed as impaired at SC 160 (approximately 2 miles downstream of its confluence with Steele Creek). Steele Creek is listed as impaired for falling outside approved parameters for Hydrogen ion concentrations (pH). Sugar Creek is listed as impaired for not meeting the criteria for aquatic life use support. A balanced indigenous aquatic community was not present at this sampling location indicating impairment (SCDHEC, 2010). Storm water control measures, both during construction and post-construction, are required for SCDOT projects constructed in the vicinity of 303(d), TMDL, ORW, tidal, and shellfish beds in accordance with SCDOT's MS4 Permit.

Permitting

A Clean Water Act Section 404 permit is required for impacts to jurisdictional waters of the U.S., including wetlands. Section 404 is administered by the USACE. In addition to the Section 404 permit, SCDHEC must grant, deny, or waive a Water Quality Certification (WQC), in accordance with Section 401 of the Clean Water Act. Waters considered by SCDHEC to be sensitive may also require additional consideration during the 401 WQC process. These include, but are not limited to, Outstanding Resource Waters (ORW), Shellfish Harvesting Waters (SFH), trout waters, areas draining to waters included on the 303(d) list of impaired waters, and areas draining to waters with an approved TMDL.

USACE General Permit (GP) 2010-01346 would be required for the proposed project since impacts do not exceed 3.0 acres of freshwater wetlands, 0.5 acres of tidal wetlands, and / or 300 linear feet of stream. Specific permitting requirements and strategies for the project will be determined once impacts to jurisdictional areas (i.e., wetlands and other waters of the U.S.) are quantified following design selection and establishment of proposed project construction limits. Pursuant to Section 404, regulated discharges would include, but are not necessarily limited to, the placement of fill material, riprap, pipes, culverts, etc., into waters of the U.S. The permit application must include a delineation of affected waters of the U.S., including wetlands, as well as a description of impact avoidance and minimization strategies, and an alternatives analysis.

Floodplains

York County is a participant in the National Federal Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA). Based on the most current information available from FEMA, this stream crossing is within a designated flood hazard zone. The current bridge overtops before the 100-yr flood and has spans of 15-feet. The proposed bridge replacement will provide equivalent or greater conveyance than that of the existing bridge (including the overtopping conveyance). The proposed bridge will span the channels to reduce debris accumulation compared to the existing structure. This will minimize impacts to natural and beneficial floodplain values and reduce

risks associated with the proposed project. The proposed project does not require significant encroachments into the floodplain nor does it support incompatible floodplain development.

The design-builder will complete the final hydraulic analysis based on his proposed structure, be required to minimize impacts to the design flood elevations, comply with FEMA and SCDOT and obtain either a no-rise certification or, if required, a LOMR/CLOMR.

A letter with a No Impact Intent Statement was mailed from AECOM on behalf of SCDOT to the York County floodplain manager on December 22, 2011. This letter notified them of the project, attested to the intent of this project not to cause any increase in the 100-year base flood elevations or flooding potential, stated that the hydraulic design and analysis will be completed as part of the design-build contract, and committed to notifying them of the findings of that analysis. A copy of the letter is attached as Appendix B. A copy of the Risk Assessment Form is attached as Appendix C.

USTs / Hazardous Materials

A known leaking underground storage site is located along Pleasant Road. The site, identified as D.M. Creech at 4210 Pleasant Road, is located approximately one-half mile northeast of the existing bridge. The leaked substance at this location is petroleum and it was reported on July 21, 1995 and confirmed on August 7, 1995. The current status of this facility is not known. This site is well beyond the northern terminus of the bridge replacement project and would not be impacted by the project.

Samuel Strapping Systems is located at 200 K Boyer Road, which is a side road off Pleasant Road. It is listed in the EDR Report as ID 1009404986 in the FINDS and SC AIRS databases. This business is still in operation though the location of potential contamination and reason for listing is unknown. Samuel Strapping is located approximately 600 feet west of Pleasant Road and would not be impacted by the project.

No other documented contamination sites have been identified in the project corridor. It is SCDOT's practice to avoid the acquisition of USTs and other hazardous waste materials, if at all possible. If soils that appear to be contaminated with petroleum products were encountered during construction, the South Carolina Department of Health and Environmental Controls (SCDHEC) would be informed. If avoidance were not a viable alternative, tanks and other hazardous materials would be tested and removed and / or treated in accordance with the United States Environmental Protection Agency (EPA) and South Carolina DHEC requirements. Costs necessary for clean up would be taken into consideration during the right-of-way appraisal and acquisition process. A copy of the Hazardous Materials Search Technical Report is attached as Appendix D.

Threatened and Endangered Species

Pursuant to Section 7 of the Endangered Species Act, the list of protected species known to occur in York County was reviewed, and evaluations were performed regarding the likelihood of the presence of each species within the project area. A search of the United States Fish and Wildlife Services (USFWS) database provided existing information concerning the potential occurrence of threatened or endangered species within York County. The USFWS lists six federally protected species for York County as of January 20, 2011 (USFWS, 2011). These species are listed in Table 1. A copy of the Natural Resources Technical Report is located in Appendix E.

Table 1. Federally Protected Species in York County			
Scientific Name	Common Name	Status	Habitat Present
<i>Amphianthus pusillus</i>	Little amphianthus	T	No
<i>Aster georgianus</i>	Georgia aster	C	Yes
<i>Helianthus schweinitzii</i>	Schweinitz's sunflower	E	Yes
<i>Hexastylis naniflora</i>	Dwarf-flowered heartleaf	T	Yes
<i>Haliaeetus leucocephalus</i>	Bald eagle	BGEPA	No
<i>Lasmigona decorata</i>	Carolina heelsplitter	E	Yes
Sources: USFWS, 2011. Key: T=Threatened, E=Endangered, C=Candidate, BGEPA=Bald and Golden Eagle Protection Act			

***Amphianthus pusillus* (Little amphianthus) Threatened**

Little amphianthus is a 2 to 4 inch tall delicate annual herb that has submerged and floating greenish-purple leaves and fibrous roots. This plant typically occurs in shallow flat-bottomed pools found on the crest and flattened slopes of unquarried granite outcrops that occur on large isolated domes or gently rolling flatrocks in full sunlight. These pools range in size from 0.3 to 10.0 square yards, the vast majority ranging from 0.5 to 1.0 square yard. These pools retain water for several weeks following a heavy rain and completely dry out with summer droughts. The seeds can lie dormant over several seasons until moisture becomes available (USACE, 2011).

There were no outcrops present in the project corridor, thus there was no habitat suitable for little amphianthus in the project corridor. This project will have **no effect** on this federally protected species.

***Aster georgianus* (Georgia aster) Candidate**

Georgia aster is a purple composite-flowered perennial herb that is found in sunlit habitat such as open woods and roadsides. Flowering occurs from early October to mid November. The preferred habitat for the species has been identified as post oak (*Quercus stellata*) savannah/prairie communities, although most remaining populations survive adjacent to roads, utility rights of way, and other openings that are artificially maintained in an open state (GSRC, 2011).

Suitable open habitat for Georgia aster was present along the road shoulders of Pleasant Road, a powerline right-of-way southeast of the bridge, and successional areas located in upslope areas adjacent to the small stream forest. Suitable habitat was surveyed for the presence of this species on October 13, 2010 and no individuals were discovered in the project corridor. The proposed project will have **no effect** on this federally protected species.

***Helianthus schweinitzii* (Schweinitz's sunflower) Endangered**

Schweinitz's sunflower is a rhizomatous perennial herb that grows from 3 to 6 ft tall from a cluster of carrot-like tuberous roots. Flowers are yellow composites and occur from mid-September to frost. The species occurs in clearings and edges of upland woods on moist to dryish clays, clay-loams, or sandy clay-loams that often have high gravel content. Schweinitz's sunflower usually grows in open habitats not typical of the current general landscape in the piedmont of the Carolinas. Some of the associated species, many of which are also rare, have affinities to glade and prairie habitats of the Midwest. Other species are associated with fire-maintained sandhills and savannas of the Atlantic Coastal Plain and piedmont (Russo, 2000).

Suitable open habitat for Schweinitz's sunflower was present along the road shoulders of Pleasant Road, within a powerline right-of-way southeast of the bridge, and successional areas located in upslope areas adjacent to the small stream forest. Suitable habitat was surveyed for the presence of this species on October 13, 2010 and no individuals were discovered in the project corridor. The proposed project will have **no effect** on this federally protected species.

Hexastylis naniflora* (Dwarf-flowered heartleaf)*Threatened**

Dwarf flowered heartleaf, also known as dwarf-flowered wild ginger, is a small herb with evergreen leaves that are heart-shaped and have a leathery texture. This species has the smallest flower in the genus, measuring less than 0.4 inches across. The jug-shaped flowers are beige to dark brown, sometimes green or purplish and flowering occurs in late spring. The dwarf-flowered heartleaf requires acidic, sandy loam soils along bluffs and slopes, in boggy areas adjacent to creekheads and streams, and along slopes of hillsides and ravines (Russo, 2000).

Suitable habitat for *Hexastylis naniflora* was present within the project corridor especially the slopes with a northern aspect south of Steele Creek and west of the bridge. These mature hardwood forest slopes were surveyed for heartleaf on January 20, 2011 and no individuals of *Hexastylis* species resembling *H. naniflora* were encountered within the project corridor. The proposed project will have **no effect** on this federally protected species.

Haliaeetus leucocephalus* (Bald eagle)*Bald and Golden Eagle Protection Act**

The bald eagle is a large raptor with a wingspan reaching 7 feet. The bald eagle is primarily associated with coasts, rivers, and lakes, usually nesting less than two miles from open water. Nests are cone-shaped, 6 to 8 feet tall and at least 6 feet in diameter. Nests are built in dominant live pines or cypress trees that provide a good view and clear flight path. Winter roosts are usually in dominant trees similar to nesting trees but can be further from the water (Russo, 2000). Bald Eagles favor coasts and lakes where fish are plentiful, though will also eat small mammals, scavenge carrion, or steal kills from other animals (National Geographic, 2011).

The pond north of the bridge was small and is frequently disturbed by the commercial development and frequent recreational use. Evidence of use by fishermen was present along the dam of the pond of fishing. This pond is unsuitable as nesting habitat for bald eagles. Suitably sized rivers or lakes do not occur in the project corridor, thus this project will have **no effect** on this federally protected species.

Lasmigona decorata* (Carolina heelsplitter)*Endangered**

The Carolina heelsplitter is a greenish brown to dark brown mussel, often with faint greenish brown to black rays on the younger specimens. The historic range of the Carolina heelsplitter included more widespread distributions in the Catawba and Pee Dee River systems in North Carolina and the Pee Dee and Savannah River systems and possibly the Saluda River in South Carolina. Currently, only eleven populations are known to exist (West, pers. com.). Historic records report the Carolina heelsplitter occurring in small to large streams and rivers as well as ponds, probably mill ponds on small streams. The Carolina heelsplitter is now restricted to cool, clean, shallow and heavily shaded streams with moderate gradients. Preferred streams typically have stable streambanks and channels with defined riffle, pool, and run sequences. Furthermore, these streams have little or no fine sediment present. Periodic natural flooding also appears to be a requirement for the species (SCDNR, 2011).

This species has never been reported from the Steele Creek drainage, thus the project will have **no effect** on this federally protected species.

Noise

The proposed project does not represent improvements on an entirely new location. The proposed bridge will be built to the east of the existing bridge in order to maintain traffic on the existing bridge during construction. However, the shift does not represent a Substantial Horizontal Alteration. 23 CFR 772 states, "A substantial horizontal alteration would occur on a project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition." The maximum horizontal alteration is approximately 60 feet from existing centerline to new centerline and does not halve the distance as defined above. Also, this project does not include the addition of through traffic lanes, a significant change in vertical alignment or any other conditions that would qualify it as a Type I project. Therefore, the requirements for conducting noise studies under 23 CFR 772 do not apply.

Air Quality

The proposed project is within York County which is a non-attainment area for 8-hour ozone. All regionally significant federally funded projects in areas designated by the United States Environmental Protection Agency (USEPA) as air quality non-attainment or maintenance areas must come from a conforming LRTP and Transportation Improvement Plan (TIP). As such, the United States Department of Transportation (USDOT), specifically, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), must make a conformity determination on the LRTPs and TIPs in all non-attainment and maintenance areas. On June 10, 2009, the FHWA and FTA found that the RFATS 2035 LRTP and FY 2009-2015 TIP conform to the purpose of the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.

A project of this nature would not have an effect on ambient air quality. This project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOBILE6.2 model forecasts a combined reduction of 72 percent in the total annual emission rate for the priority MSAT from 1999 to 2050 while vehicle-miles of travel are projected to increase by 145 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

Farmlands

The United States Department of Agriculture (USDA) Soil Survey of York County indicates the five mapped soils within the PSA include the following:

- Chewacla loam, 0 to 2 percent slopes, frequently flooded (ChA)
- Mecklenburg-Wynott complex, 2 to 6 percent slopes, moderately eroded (MeB2)
- Wynott-Wilkes complex, 15 to 25 percent slopes, moderately eroded (WwE2)
- Wynott-Winnsboro complex, 2 to 6 percent slopes, moderately eroded (WyB2)
- Wynott-Winnsboro complex, 6 to 10 percent slopes, moderately eroded (WyC2)

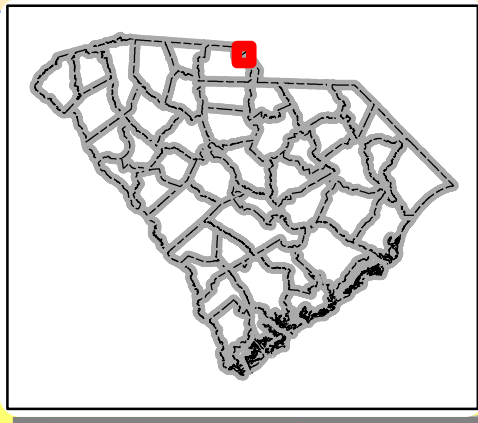
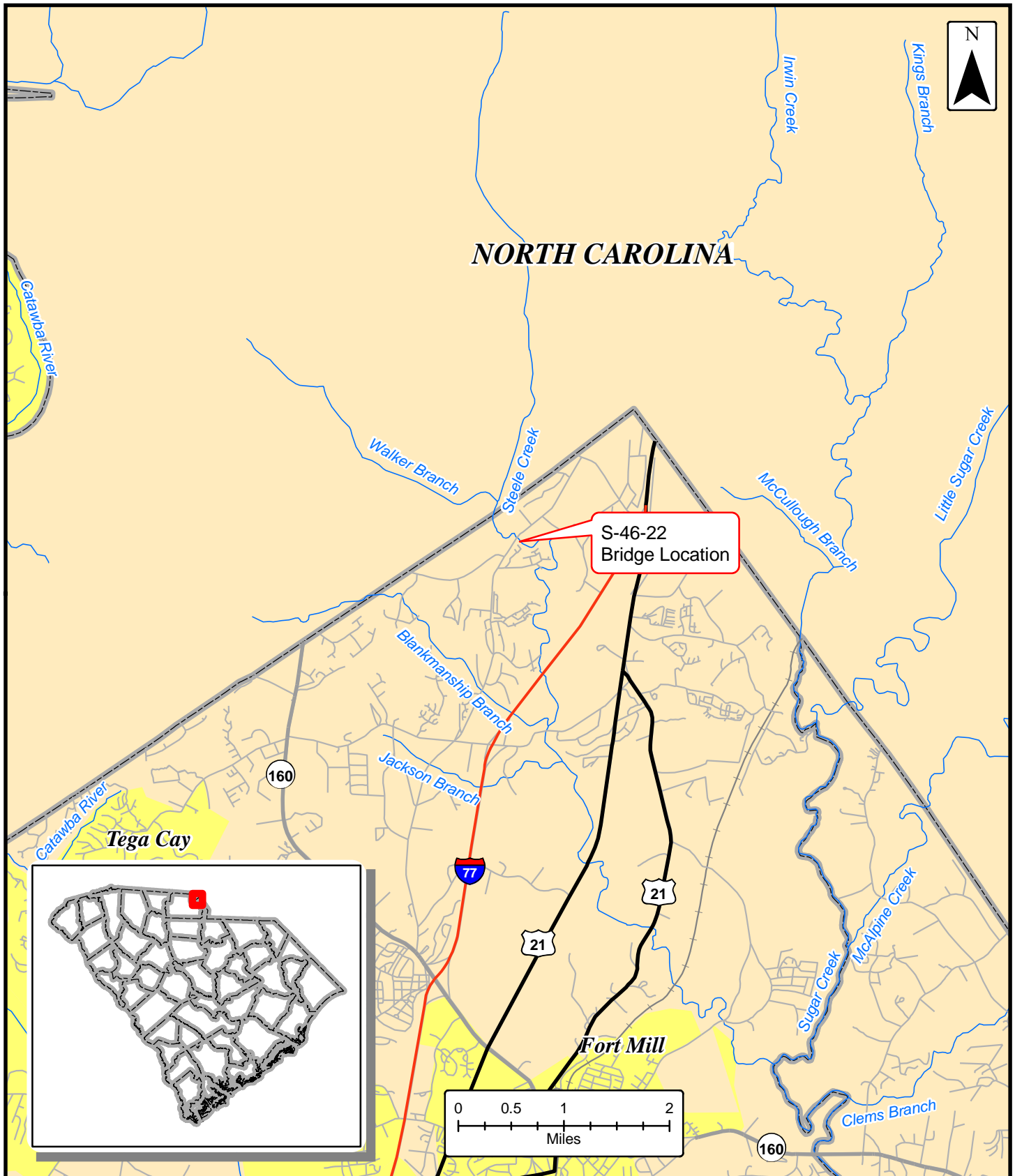
The Farmland Protection Policy Act of 1981 requires evaluation of farmland conversions to nonagricultural uses. Farmland can be prime farmland, unique farmland, or farmland of statewide or local importance. According to the List of Prime and Other Important Farmlands for Cherokee County, WyB2 and MeB2 are farmland soils of statewide importance, while ChA is prime farmland soil if drained and protected from flooding. Approximately 0.80 acres of farmland soils of statewide importance are located within the construction limits, while approximately 1.55 acres of prime farmland soils are located within the construction limits. As a result, the proposed bridge would result in impacts of approximately 2.35 acres to farmland soils.

A Farmland Conversion Impact Rating Form SCS-CPA-106 has been completed for the project corridor. The form provides a site assessment scoring system with criteria for evaluating adverse effects of projects on the protection of farmland. Sites receiving the highest scores up to a maximum of 260 are considered most suitable for protection while those with lowest scores are considered least suitable. Sites receiving scores less than the maximum allowable score of 160 are to be given minimal consideration for protection. The score computed for this proposed action was 115, assuming a relative soil value of 100. As the total points are less than 160, neither consideration of alternative sites nor additional studies for the study area are required under the Act. The Farmland Conversion Form is located in Appendix F.

Land Use

The proposed bridge replacement is located in a developed area of York County approximately 0.2 miles south of the North Carolina / South Carolina border and the Charlotte city limits and approximately 5.6 miles north of Fort Mill.

The York County Future Land Use Plan shows the land immediately surrounding the bridge and to the north of the bridge as being zoned industrial / light industrial, while land to the south of the bridge is zoned single family residential. The driveway to a warehouse, Samuel Strapping Systems, is located approximately 500 feet to the north of the bridge, while the entrance to Pleasant Glen Subdivision is located approximately 800 feet to the south of the bridge. The bridge replacement is not expected to modify existing land use or change the timing or density of development in the area. The project is not in conflict with any plan, existing land use, or zoning regulation.



Legend



- Interstate
- U.S. Highway
- SC Highways
- Railroad
- Streams
- County
- Municipalities

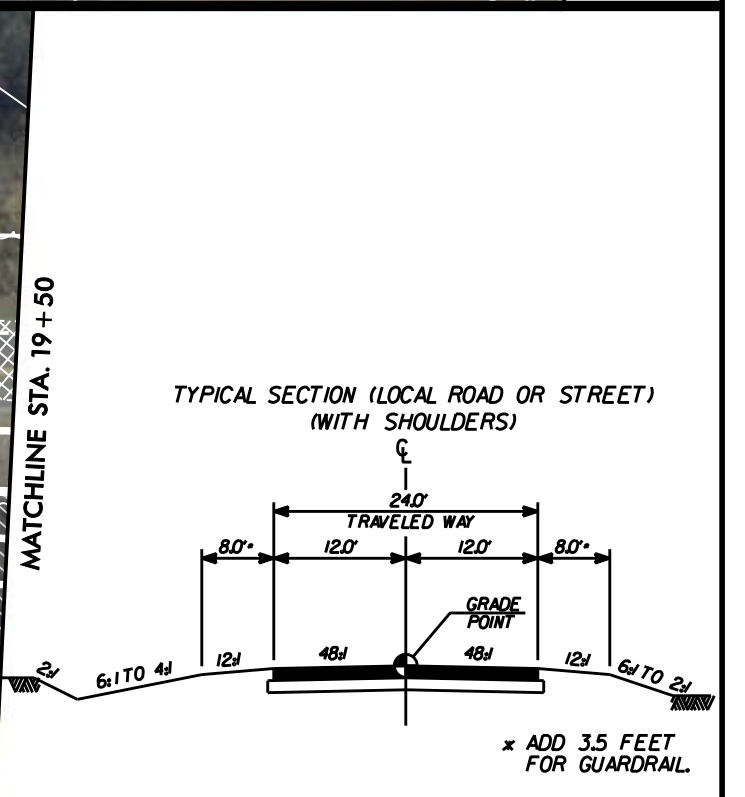
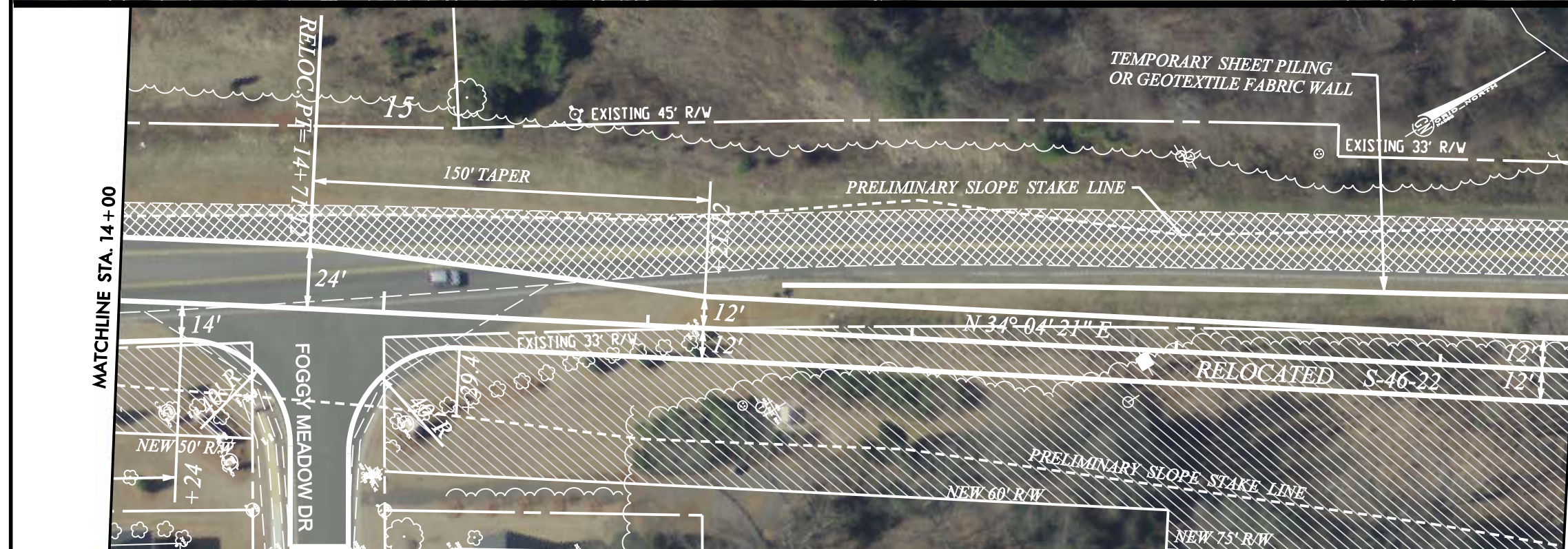
Vicinity Map




S-46-22 Bridge Replacement
over Steele Creek
York County, South Carolina

AECOM

Figure

1



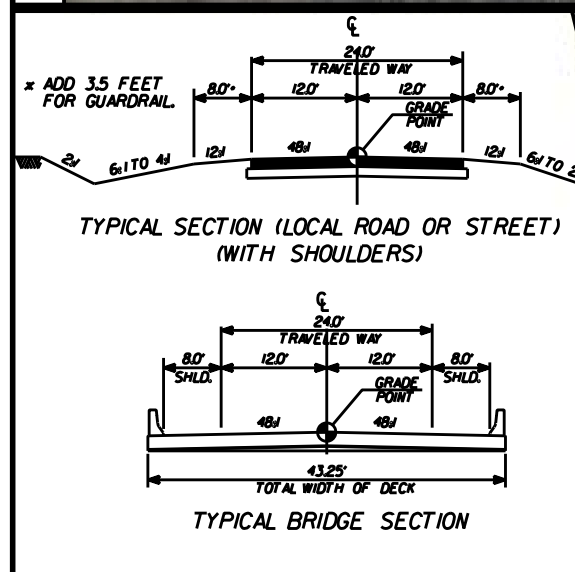
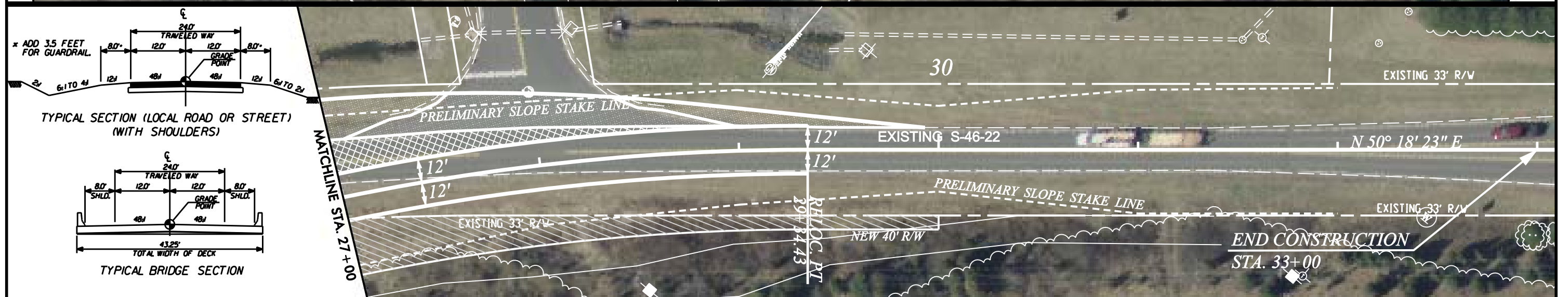
-  ESTIMATED WETLAND IMPACTS: 0.27 ACRES
-  ESTIMATED ROW ACQUISITION: 2.15 ACRES
-  ROADWAY TO BE REMOVED

PLAN SKETCH

S-46-22 OVER
STEELE CREEK

AECOM

FIGURE
2a

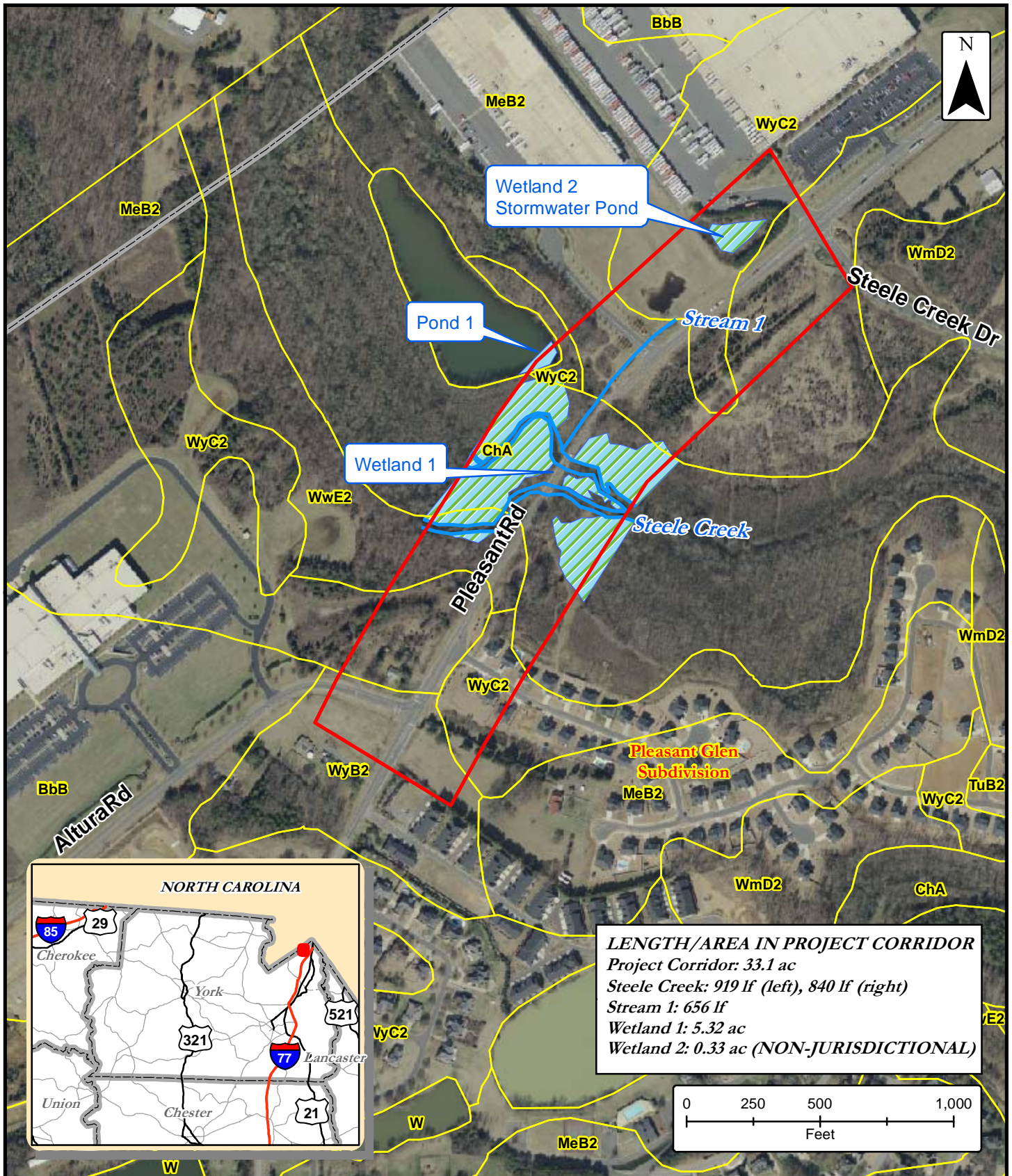


- ESTIMATED WETLAND IMPACTS: 0.27 ACRES
- ESTIMATED ROW ACQUISITION: 2.15 ACRES
- ROADWAY TO BE REMOVED

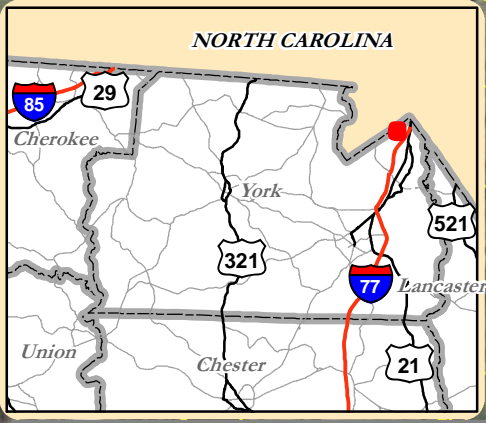
PLAN SKETCH
S-46-22 OVER
STEELE CREEK

AECOM

FIGURE
2b



LENGTH/AREA IN PROJECT CORRIDOR
 Project Corridor: 33.1 ac
 Steele Creek: 919 lf (left), 840 lf (right)
 Stream 1: 656 lf
 Wetland 1: 5.32 ac
 Wetland 2: 0.33 ac (NON-JURISDICTIONAL)



Legend

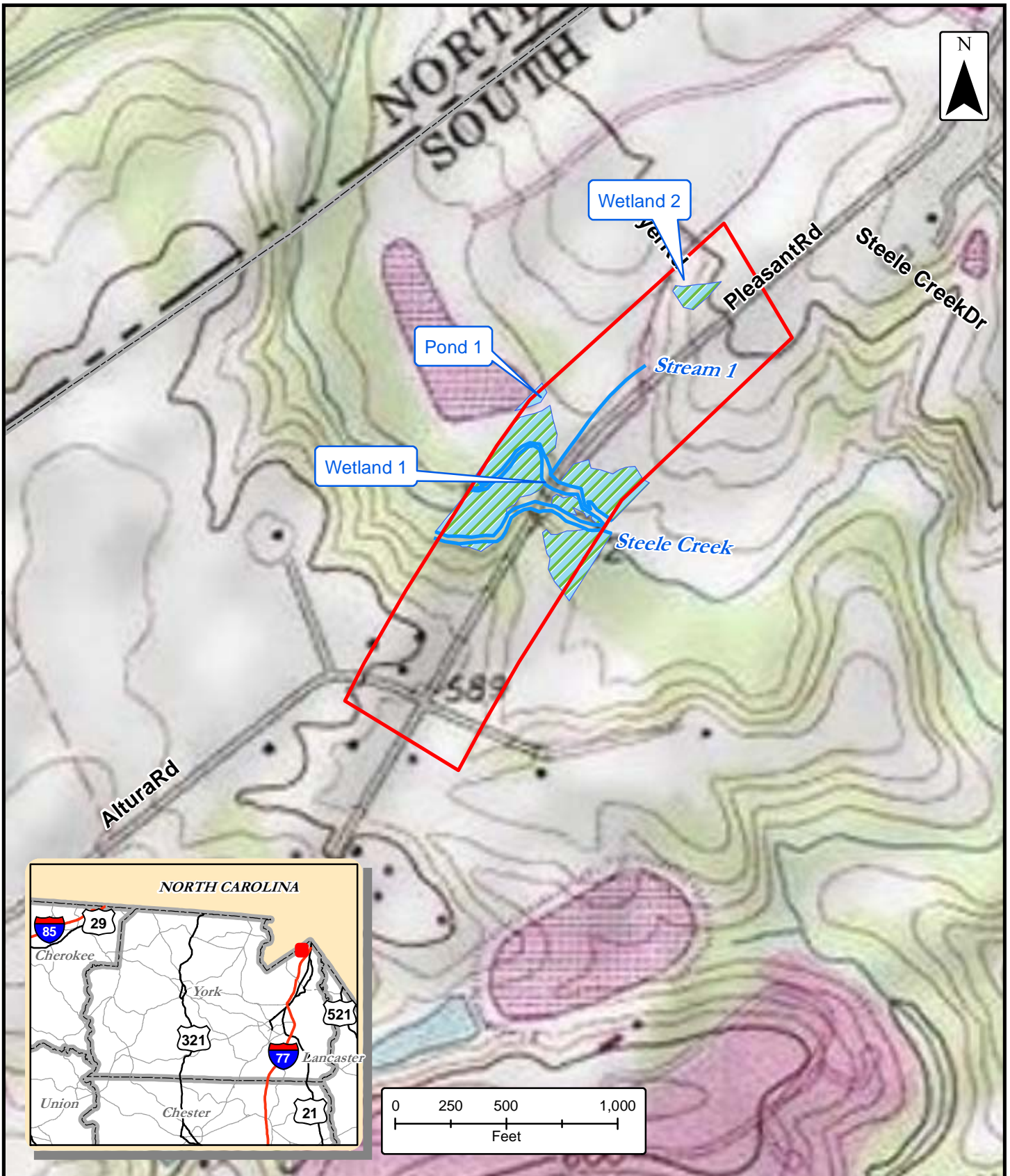
- Project Corridor
- Streams
- Soils
- Ponds
- Wetlands

Jurisdictional Features

S-46-22 Bridge Replacement
 over Steele Creek
 York County, South Carolina

AECOM

**Figure
3**



USGS 1:24,000 Topographic Mapping
Source: ESRI US Topo Maps



Legend

- Project Corridor
- Streams
- Ponds
- Wetlands

Jurisdictional Features

S-46-22 Bridge Replacement
over Steele Creek
York County, South Carolina

AECOM

Figure

4

APPENDIX A

Cultural Resources Report

ARCHAEOLOGICAL FIELD REPORT
SCDOT ENVIRONMENTAL SECTION



TITLE: Cultural Resources Survey of the S-46-22 Steele Creek Bridge Replacement Project, York County, South Carolina

BRIDGE NO.: 0004670002200300

CONSULTANT: Brockington and Associates, Inc.

DATE OF RESEARCH: January and March 2011

ARCHAEOLOGISTS: David Baluha

ARCHITECTURAL HISTORIAN: Paige Wagoner

COUNTY: York

PROJECT: S-46-22 Steele Creek Bridge Replacement Project

DESCRIPTION: The project calls for the replacement of the S-46-22 bridge that crosses Steele Creek in northern York County, South Carolina. The S-46-22 Bridge Replacement Project extends approximately 1,000 feet northeast of the S-46-22 and S-46-773 intersection. The existing right-of-way (ROW) ranges from 66 to 150 feet. At present, a narrow strip of new ROW will be needed along one side of the existing roadway. The bridge is to be replaced alongside the existing structure so traffic can be maintained during construction. However, all construction will occur well within the archaeological survey universe.

Figure 1 presents the location of the project on the 2005 York County General Highway System map. Figure 2 presents the project location and nearby cultural resources on the USGS 1993 *Fort Mill, SC* quadrangle.

The archaeological survey universe includes areas of proposed new ROW along S-46-22, extending approximately 1,270 feet west and 600 feet east of the bridge and 100 feet to either side of the ROW. The architectural survey universe extends 300 feet on either side of the road centerline and is 600 feet wide.

LOCATION: The project is located on S-46-22, with the bridge approximately 1,000 feet northeast from the intersection of S-46-773 in northern York County, South Carolina.

USGS QUADRANGLE: *Fort Mill, SC*

DATES: 1993 **SCALE:** 7.5' **UTM:** **ZONE:** 17 **DATUM:** NAD27

SOUTHERN TERMINUS: **EASTING:** 503926 **NORTHING:** 3882359

NORTHERN TERMINUS: **EASTING:** 504235 **NORTHING:** 3882848

ENVIRONMENTAL SETTING: The project is located along S-46-22; this road passes through undulating topography, dissected by slow-moving streams. S-46-22 crosses Steele Creek. Developed areas, including industrial and residential areas, are located on the northern and southern edges of the project. The developed areas consist of landscaped, grassy areas. For the most part, the project area is wooded. Hardwood swamp and mixed pines/hardwoods characterize the wooded areas of the project.

NEAREST RIVER/STREAM AND DISTANCE: Steele Creek

SOIL TYPES: Chewalca silt loam
Mecklenburg loam

REFERENCE FOR SOILS INFORMATION: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey>, accessed January 17, 2011.

GROUND SURFACE VISIBILITY: 0% ☐ 1-25% ☒ 26-50% ☐ 51-75% ☐ 76-100% ☐

CURRENT VEGETATION: The project area includes hardwood swamp in the Steele Creek floodplain, mixed pines/hardwoods north and south of the floodplain, a residential area to the south, and an industrialized area to the north.

INVESTIGATION: On January 17, 2011, archaeologists consulted the ArchSite program to determine if previously identified archaeological sites are located in the project vicinity. Also on January 17, 2010, the National Register of Historic Places (NRHP) files of the South Carolina Department of Archives and History (SCDAH) were searched for previous investigations and previously identified resources using the ArchSite program. No archaeological sites, historic resources, or previous investigations are located within 0.5 mile of the project area.


ARCHAEOLOGICAL SURVEY: We conducted an intensive archaeological survey on January 20, 2011. The archaeological survey consisted of shovel testing in upland and undisturbed areas that were not wetlands and in undeveloped/relatively intact areas of the project area. None of the project area displayed good ground surface visibility; thus, visual inspection was not conducted. The vast majority of the project corridor is located on terraces overlooking Steele Creek. The southeastern portion of the project extends into the grounds of a residential apartment complex. West of S-46-22, north and south of Steele Creek, investigators encountered floodplain soils. These shovel tests exposed deep, silty soils to greater than 2.0 feet below surface (ft bs). Figure 3 presents typical views of the project area.

Figure 4 presents the location of the project and the locations of shovel-tested areas on a 2006 aerial photograph. Investigators traversed a total of two shovel test transects (one on each side of the road); each transect was placed 50 feet from the edge of the existing ROW of S-46-22. Shovel tests were excavated at 100-foot intervals along each transect. Investigators excavated a total of 18 shovel tests. Areas that would have contained 13 shovel tests were unexcavated due to wetlands or disturbed/developed land. The western end of the project, to the south of S-46-22, has been severely disturbed due to residential construction activities. The western end of the project, to the north of S-46-22, required no shovel testing, as no improvements will occur to the north of the existing S-46-22 alignment in this area. The shovel tests were excavated to an average depth of 1.3 ft bs and ranged from 1.0 to 2.5 ft bs in depth. The fill from these tests was sifted through ¼-inch mesh hardware cloth. We recovered no cultural materials.

ARCHITECTURAL SURVEY: Brockington and Associates, Inc., conducted an intensive architectural survey of the project area on March 22, 2011. The architectural investigations consisted of a windshield survey of the project area to identify any potential historic architectural resources. The project architectural historian recorded any buildings, structures, objects, or landscapes within 300 feet of the project area that are over 50 years of age and that retain sufficient integrity using the Statewide Survey of Historic Properties Intensive Documentation Form and digital photography. The architectural survey universe includes one residential resource (Resource 3771.00) and an outbuilding (Resource 3771.01). The bridge over Steele Creek was constructed in 1974 and is not survey eligible. The resources identified in the architectural survey are discussed below, and the Intensive Survey Forms are attached as Appendix A.

Resources 3771.00-3771.01 (3800 Pleasant Road). Located in Fort Mill, South Carolina, Resource 3771.00 is a one-story front-gable house constructed in the mid twentieth century. The frame house has a composition shingle roof, a brick foundation and replacement vinyl siding. A gabled entry porch marks the central entrance to the house on the front façade while a carport extends from the southwestern elevation and is supported by decorative wrought-iron porch supports. A small addition and a side porch with replacement wooden posts and balustrade are also located on the southwestern elevation. Replacement aluminum windows are found on all four elevations. A brick chimney stands on the central roof ridge. Figure 5 (top) provides a view of Resource 3771.00. Two outbuildings, a small metal shed and a frame outbuilding (Resource 3771.01), stand northeast of the house. Constructed during the same period as the house, Resource 3771.01 is a one-story, frame outbuilding with a raised seam metal roof and weatherboard siding. Figure 5 (bottom) provides a view of Resource 3771.01. The project architectural historian assessed these resources using the NRHP criteria. The buildings do not possess any unique architectural characteristics that would make them eligible for the NRHP and do not convey a strong feeling of mid-twentieth century history; therefore, we recommend Resources 3771.00-3771.01 not eligible for the NRHP.

REMARKS AND RECOMMENDATIONS: Brockington and Associates, Inc., identified two historic architectural resources (Resources 3771.00 and 3771.01) during these investigations. We recommend these resources not eligible for the NRHP. Proposed improvements to the Steele Creek bridge will have no effect on historic properties. However, if current proposed road plans change, additional survey may be necessary.

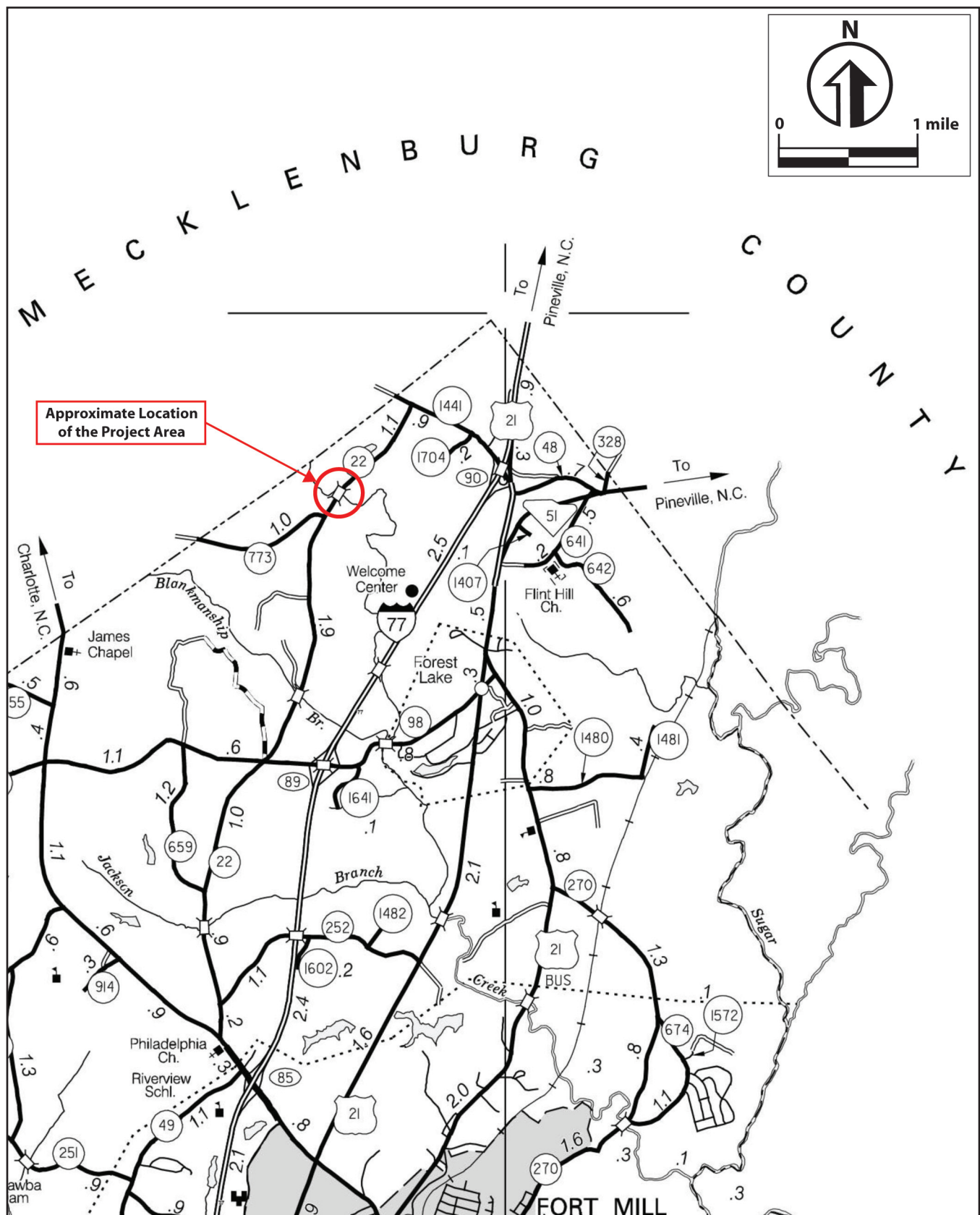
SIGNATURE:  **DATE:** 1/6/12

REFERENCE CITED

United States Geological Survey (USGS)
2011 <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey>, accessed January 17, 2011.

LIST OF FIGURES

- Figure 1. A portion of the 2005 York County General Highway System Map showing the location of the S-46-22 Steele Creek Bridge Replacement Project.
- Figure 2. The location of the S-46-22 Steele Creek Bridge Replacement Project (USGS 1971 *Kings Creek, SC* quadrangle).
- Figure 3. S-46-22 Steele Creek Bridge Replacement Project setting photos: view of the bridge looking north (top); view of the bridge showing the creek looking north (bottom).
- Figure 4. The location of the S-46-22 Steele Creek Bridge Replacement Project, shovel-tested areas, and all identified cultural resources on an aerial photograph.
- Figure 5. View of Resource 3771.00, looking north (top); view of Resource 3771.01, looking northeast (bottom).



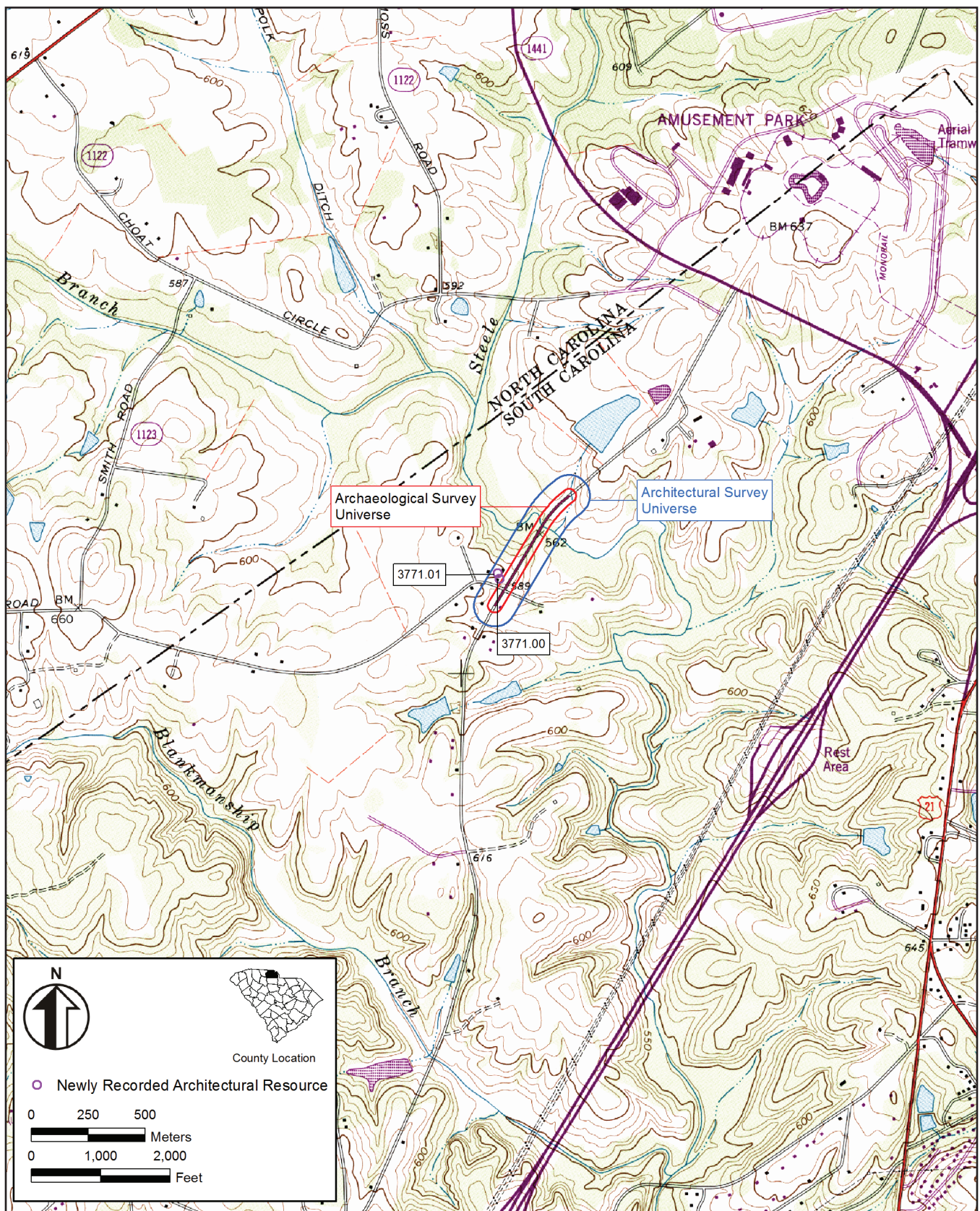


Figure 2. The location of the S-46-22 Steele Creek Bridge Replacement Project (USGS 1971 Kings Creek, SC quadrangle).



Figure 3. S-46-22 Steele Creek Bridge Replacement Project setting photos: view of the bridge, looking north (top); view of the bridge showing the creek, looking north (bottom).

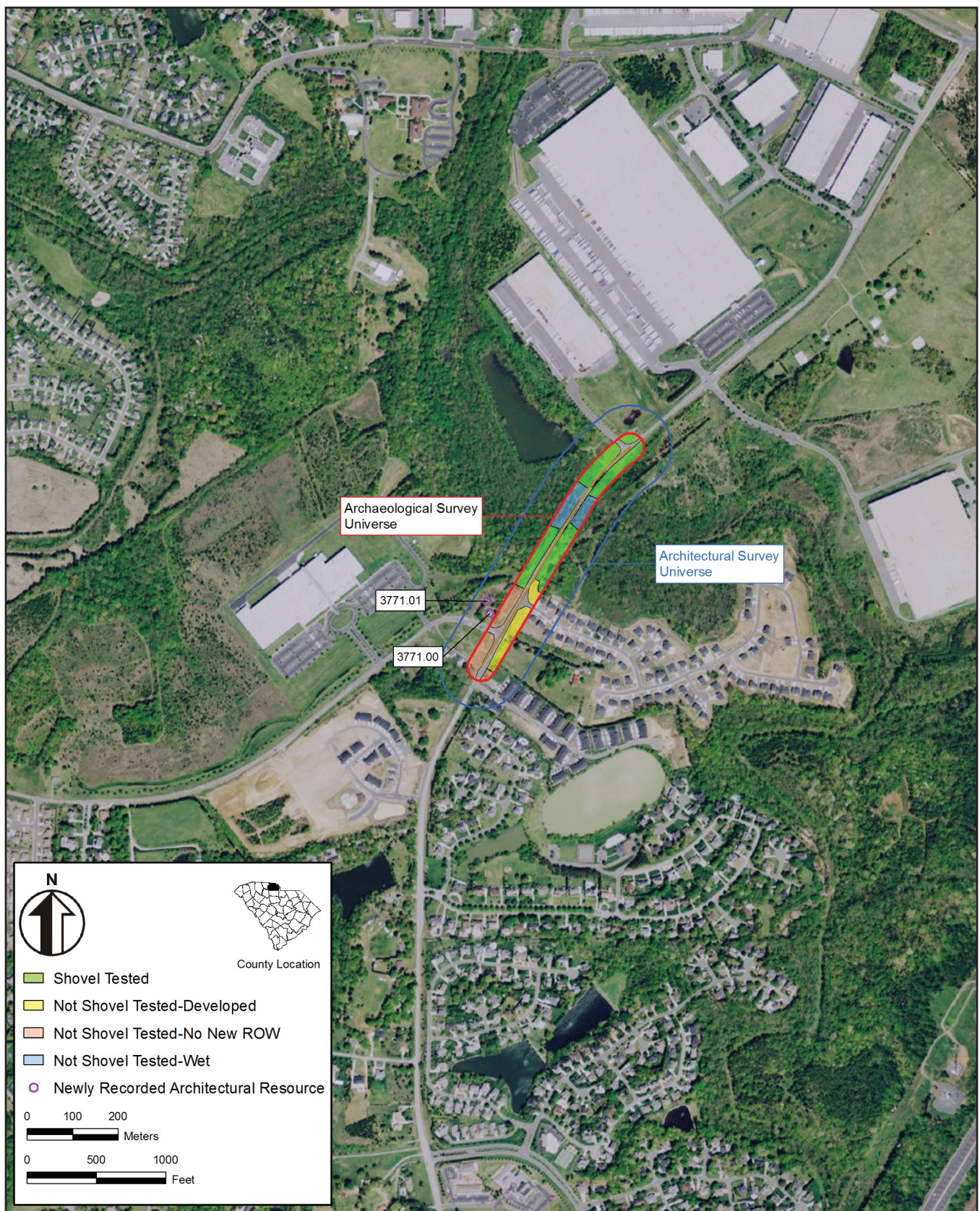


Figure 4. The location of the S-46-22 Steele Creek Bridge Replacement Project, shovel-tested areas, and all identified cultural resources on an aerial photograph.



Figure 5. View of Resource 3771.00, looking north (top); view of Resource 3771.01, looking northeast (bottom).

Appendix A.
Statewide Survey Forms

Statewide Survey of Historic Properties
State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Rd.
Columbia, SC 29223-4905 (803) 896-6100

Control Number: U / 91 / 3771.00
Status County No Site No
Quad Name: Kings Creek
Tax Map No.: 7200000032

Intensive Documentation Form

Identification

Historic Name: Brown House
Common Name: Brown, Fannie B., House
Address/Location: 3800 Pleasant Road

City: Fort Mill County: York
Vicinity of:
Ownership: Private Category: building
Historical Use: Domestic
Current Use: Domestic

National Register of Historic Places Information

SHPO National Register Determination: Not Eligible

Notes on National Register Status:

Other Designation:

Property Description

Construction Date: c. 1950s Commercial Form: Stories: 1 story
Alteration Date: c. 1990s Historic Core Shape: rectangular

Roof Features

Shape: gable, end to front
Materials: composition shingle

Porch Features

Porch Width: entrance bay only
Shape: gable

Construction Method: frame
Exterior Walls: synthetic siding
Foundation: brick

Significant Architectural Features: one-story front-gable house constructed in the mid-twentieth century, vinyl siding, brick foundation, composition shingle roof, entry porch with gable roof and replacement wood posts, replacement aluminum windows, side porch with replacement wooden balustrade and posts, carport with wrought-iron supports, brick chimney on the central roof ridge, vents in gables, metal shed and frame outbuilding located northeast of the house

Alterations: replacement windows, replacement porch supports and balustrade on side porch, replacement posts on front porch, replacement vinyl siding, addition on southwestern elevation

Architect(s)/Builder(s): unknown

South Carolina Statewide Survey of Historic Properties
Intensive Documentation Form

Page 2

Site No.: 3771.00

Historical Information

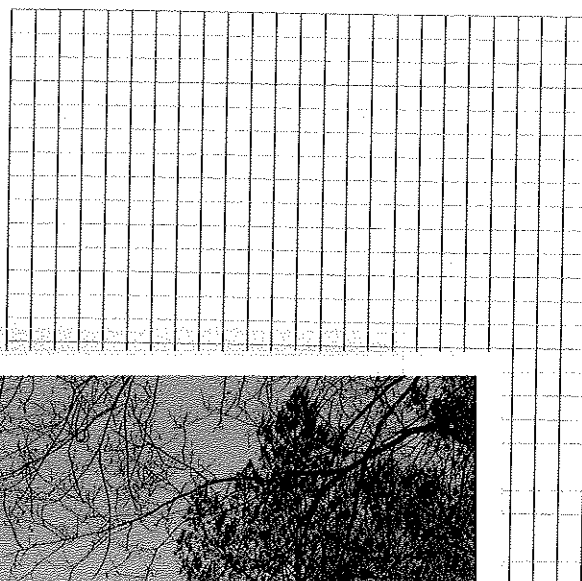
Historical Information:

Source of Information:

Photographs

Roll No.	Neg. No.	View of
1	1	looking N
1	2	looking NE
1	3	looking E
1	4	looking SW

Use Grid for Sketching



Attach



Program Management

Recorded by: Paige M. Wagoner; Brockington and Associates, Inc.

Date Recorded: 03/22/2011

Statewide Survey of Historic Properties
State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Rd.
Columbia, SC 29223-4905 (803) 896-6100

Control Number: U / 91 / 3771.01
Status County No Site No
Quad Name: Kings Creek
Tax Map No.: 7200000032

Intensive Documentation Form

Identification

Historic Name: Brown House
Common Name: Brown, Fannie B., House (outbuilding)
Address/Location: 3800 Pleasant Road

City: Fort Mill County: York
Vicinity of:
Ownership: Private Category: building
Historical Use: Domestic
Current Use: Domestic

National Register of Historic Places Information

SHPO National Register Determination: Not Eligible

Notes on National Register Status:

Other Designation:

Property Description

Construction Date: c. 1950s Commercial Form: Stories: 1 story

Alteration Date: Historic Core Shape: rectangular

Roof Features

Porch Features

Shape: gable, end to front

Porch Width:

Materials: raised seam metal

Shape:

Construction Method: frame

Exterior Walls: weatherboard

Foundation: not visible

Significant Architectural Features: one-story frame outbuilding located northeast of the house, raised seam metal roof, weatherboard siding

Alterations:

Architect(s)/Builder(s): unknown

**South Carolina Statewide Survey of Historic Properties
Intensive Documentation Form**

Page 2

Site No.: 3771.01

Historical Information

Historical Information:

Source of Information:

Photographs

Roll No.	Neg. No.	View of
1	5	looking NE

Use Grid for Sketching



Program Management

Recorded by: Paige M. Wagoner; Brockington and Associates, Inc.

Date Recorded: 03/22/2011



South Carolina
Department of Transportation

May 9, 2011



Ms. Elizabeth Johnson
Deputy State Historic Preservation Officer
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905

RE: Five Bridge Replacement Projects in York and Lancaster Counties

Dear Ms. Johnson:

The Department's consultant completed cultural resource investigations for five bridge replacement projects in York and Lancaster Counties. Two copies of each report are enclosed for your review and comment. The report title and associated findings are listed below:

- 36 1) *Cultural Resources Survey of the S-46-22 Steele Creek Bridge Replacement Project, York County South Carolina.* File No. 46.039094
Findings: Two historic architectural resources (3771.00 and 3771.01) were recorded and recommended not eligible. No archaeological sites were found.
Determination: No historic properties will be affected.
- 36 2) *Cultural Resources Survey of the S-46-64 Allison Creek Bridge Replacement Project, York County, South Carolina.* File No. 46.039094
mark this in our country Findings: One archaeological site (38YK571) was identified and recommended not eligible.
Determination: No historic properties will be affected.
- 37 3) *Cultural Resources Survey of the S-29-64 McAlpine Creek Bridge Replacement Project, Lancaster, South Carolina.* File No. 29.039094
Findings: No cultural resources identified.
Determination: No historic properties will be affected.
- 36 4) *Cultural Resources Survey of the S-46-347 Stoney Fork Creek Bridge Replacement Project, York County, South Carolina.* File No. 46.039094
Findings: No cultural resources identified.
Determination: No historic properties will be affected.
- 36 5) *Cultural Resources Survey of the S-46-732 Calabash Branch Bridge Replacement Project, York County, South Carolina.* File No. 46.039094
Findings: No cultural resources identified. Determination: No historic properties will be affected.



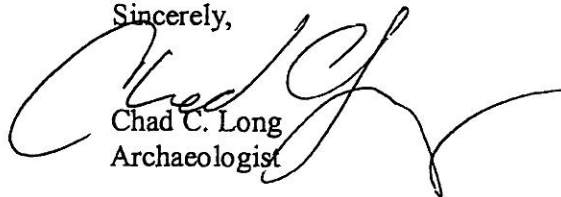
Letter to Ms. Elizabeth Johnson
May 9, 2011

Based on the results of background research and field investigations, the Department has determined that the proposed undertaking will have no effect on historic properties.

In accordance with the memorandum of agreement approved by the Federal Highway Administration, March 16, 1993, the Department is providing this information as agency official designee, as defined under 36 CFR 800.2, to ensure compliance with Section 106 of the National Historic Preservation.

It is requested that you review the enclosed material and, if appropriate, indicate your concurrence in the Department's findings, thus completing the Section 106 consultation process. Please respond within 30 days if you have any objections or if you have need of additional information.

Sincerely,



Chad C. Long
Archaeologist

CCL:ccl
Enclosure

I (~~do not~~) concur in the above determination.

Signed: Wenonah Haire, DR Date: 6/6/11

cc: Shane Belcher, FHWA
Wenonah Haire, CIN THPO
Russell Townsend, EBCI THPO
Lisa C. LaRue Stopp, United Keetowah Band THPO

File: Env/CCL



South Carolina
Department of Transportation

May 9, 2011

MULT (YORK + LAN)
#s 15188, 15189, 15190, 15191,
15192
11-DK0047, 11-DK0048, 11-DK0049
11-DK0050, 11-DK0051
NHPA

Ms. Elizabeth Johnson
Deputy State Historic Preservation Officer
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905

RECEIVED

MAY 17 2011

RE: Five Bridge Replacement Projects in York and Lancaster Counties
SC Department of
Archives & History

Dear Ms. Johnson:

The Department's consultant completed cultural resource investigations for five bridge replacement projects in York and Lancaster Counties. Two copies of each report are enclosed for your review and comment. The report title and associated findings are listed below:

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Determination: No historic properties will be affected.
- 5) *Cultural Resources Survey of the S-46-732 Calabash Branch Bridge Replacement Project, York County, South Carolina.* File No. 46.039094
Findings: No cultural resources identified. Determination: No historic properties will be affected.



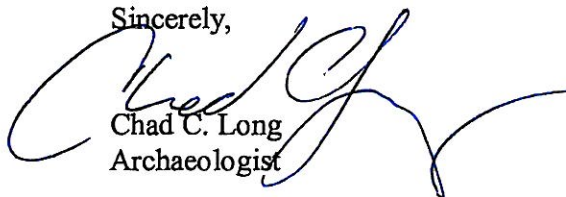
Letter to Ms. Elizabeth Johnson
May 9, 2011

Based on the results of background research and field investigations, the Department has determined that the proposed undertaking will have no effect on historic properties.

In accordance with the memorandum of agreement approved by the Federal Highway Administration, March 16, 1993, the Department is providing this information as agency official designee, as defined under 36 CFR 800.2, to ensure compliance with Section 106 of the National Historic Preservation.

It is requested that you review the enclosed material and, if appropriate, indicate your concurrence in the Department's findings, thus completing the Section 106 consultation process. Please respond within 30 days if you have any objections or if you have need of additional information.

Sincerely,


Chad C. Long
Archaeologist

CCL:ccl
Enclosure

I ~~(do not)~~ concur in the above determination.

Signed: 

Date: 5/17/11

cc: Shane Belcher, FHWA
Wenonah Haire, CIN THPO
Russell Townsend, EBCI THPO
Lisa C. LaRue Stopp, United Keetowah Band THPO

File: Env/CCL



Eastern Band of Cherokee Indians
Tribal Historic Preservation Office
P.O. Box 455
Cherokee, NC 28719
Ph: 828-554-6852 Fax 828-488-2462

DATE: July 19, 2011

TO: FHWA, SC Division
Attn: Robert L. Lee
Division Administrator
1835 Assembly St.
Suite 1270
Columbia, SC 29201

PROJECT(s): Comments regarding:

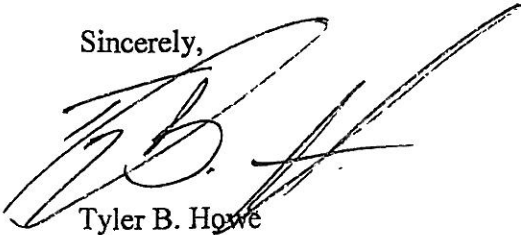
1. Cultural Resource Survey of the S-83 Buffalo Creek Bridge Replacement Project, Cherokee County, SC (11.040188)
2. Phase I Cultural Resources Survey of S-20-12 over Rocky Creek, Fairfield County, SC (20.038091).
3. Cultural Resource Survey of the S-46-22 Steele Creek Bridge Replacement project, York County, SC (46.039094).
4. Cultural Resource Survey of the S-46-64 Allison Creek Bridge Replacement Project, York County, SC (46.039094).
5. Cultural Resource Survey of the S-29-64 McAlpine Creek Bridge Replacement Project, Lancaster County, SC (29.039094).
6. Cultural Resource Survey of the S-46-347 Stoney Fork Creek Bridge Replacement Project, York County, SC (46.039094).
7. Cultural Resource Survey of the S-46-732 Calabash Branch Bridge Replacement Project, York County, SC (46.039094).

The Tribal Historic Preservation Office of the Eastern Band of Cherokee Indians (EBCI THPO) would like to thank you for the opportunity to comment on this proposed section 106 activities under §36 C.F.R. 800.

The EBCI THPO concurs with the archeologist's recommendations that no sites eligible for inclusion on the National Register of Historic Places were encountered during the recent phase I archaeological field surveys. As such, the EBCI THPO believes that the proposed projects may proceed as planned. In the event that project plans change, or cultural resources or human remains are discovered, all work should cease, and this office should be contacted to continue government to government consultation as defined under Section 106 of the National Historic Preservation Act of 1966, as amended.

If we can be of further service, or if you have any comments or questions, please feel free to contact me at (828) 554-6852.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. B. Howe', with a long, sweeping horizontal stroke extending to the right.

Tyler B. Howe
Tribal Historical Preservation Specialist
Eastern Band of Cherokee Indians

C: Wayne D. Roberts



APPENDIX B

Correspondence with Floodplain Administrator

December 22, 2011

Mr. Eddie Bassett
Floodplain Manager, York County
6 South Congress Street
York, South Carolina 29745

Dear Mr. Bassett:

RE: No Impact Intent Statements for S-46-64 over Allison Creek, S-46-732 over Calabash Branch, S-46-64 over Steele Creek and S-46-347 over Stony Fork Creek

The South Carolina Department of Transportation (SCDOT) is preparing to replace the bridges referenced above. The bridge structures will be replaced through a design/build contract where the contractor must construct a minimum structure length, minimum low chord, and minimum channel opening equal to or greater than the existing structure.

This letter attests that the referenced bridges lie within a Zone AE and that the intent of the proposed bridge is not to cause any increase in the base flood elevations or flooding potential for the surrounding areas during the 100 year storm event. Once the design/build contract has been established, the proper hydrologic and hydraulic design and analysis will be performed according to FEMA regulations. You will be notified of the study's findings once it is complete.

If you have any questions regarding this study, please feel free to contact me at (919) 854-6216 or email me at frank.fleming@aecom.com.

Sincerely yours,
AECOM Technical Services Inc.



Frank F. Fleming, PE
Project Manager

cc: Ms. Maria Cox Lamm, South Carolina State Floodplain Coordinator (w/o enclosures)
Ms. Joy Shealy, SCDOT Assistant Program Manager
Project 60181787
File 202.2

APPENDIX C

Bridge Scoping Trip Risk Assessment Form

BRIDGE SCOPE AND 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

Flood Hazard Zone AE

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 SCOPE AND 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: _____ 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 SCOPE AND RISK ASSESSMENT FORM

V. Field Review (cont.)

B. Hydraulic Features

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

b. Distance from F.G. to Normal Water Elevation: _____ 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 SCOPE AND RISK ASSESSMENT FORM

VI. Field Review (cont.)

A. Proposed Bridge Recommendation:

Length: _____ ft. Width: _____ ft. Elevation: _____ ft.

Span Arrangement: _____

Notes: _____

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

[illegible]

Performed By:

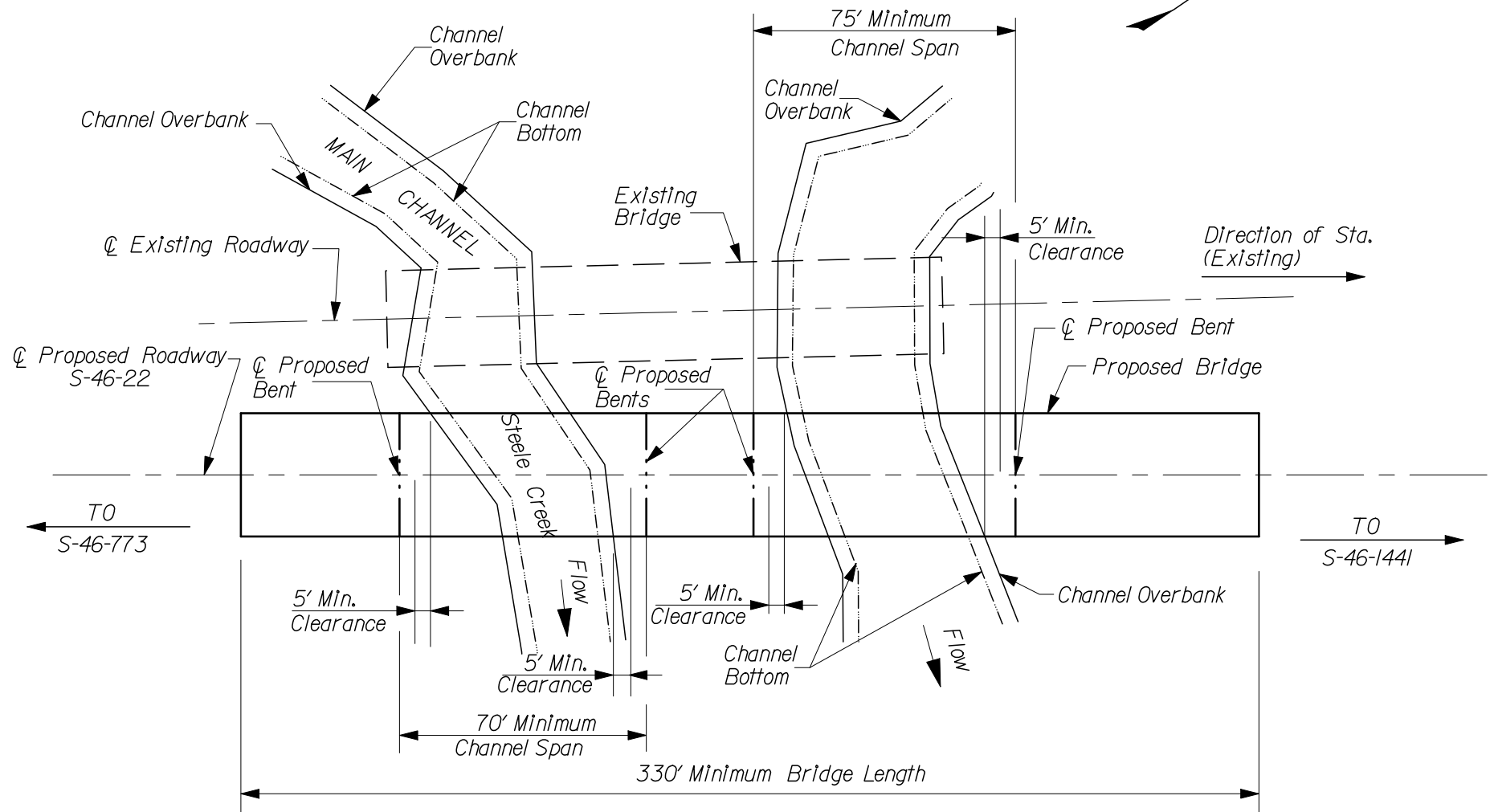
Fred Flie

ROUTE S-46-22 OVER STEELE CREEK

YORK COUNTY

PRELIMINARY BRIDGE LAYOUT

SUBJECT TO CHANGE BASED ON DESIGN



Note: Drawing is not to scale

APPENDIX D

Hazardous Materials Search Technical Report

S-46-22
Bridge Replacement over Steele Creek
York County, South Carolina

**HAZARDOUS MATERIALS SEARCH
TECHNICAL REPORT**

Prepared by

AECOM

for the

**SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION
(SCDOT)**

May 2, 2011

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Appendix A	

1.0 Scope of Services

AECOM conducted a Hazardous Materials/Waste Site Assessment for the proposed bridge replacement project on S-46-22 over Steele Creek in York County. The purpose of this assessment was to review available environmental databases and perform a site visit to determine if there are any existing or potential hazardous material/waste sites located within or adjacent to the project site. The site evaluation procedures conducted during the assessment are summarized as follows:

- ❖ Review of Federal and State lists of environmentally regulated sites, in an effort to identify those sites with documented contamination, and also those sites considered as potential sources of contamination;
- ❖ Physical inspection and photographic documentation of conditions on or near the project site; and,
- ❖ Documentation of findings including appropriate site location information.

The assessment of findings and corresponding regulatory data are summarized on the following pages. Site location maps and descriptions of the regulatory databases are included in Appendix A.

2.0 Site Inspection

AECOM personnel conducted physical inspections of the project site on January 19, 2011, as well as the condition of properties located adjacent to the project corridor. No evidence of contaminated sites was observed within the project corridor. Information collected during the site inspection is summarized in the following sections.

2.1 Site Description

The project corridor is located in suburban York County near Charlotte, NC and south of Carowinds amusement park. Numerous subdivisions and commercial/industrial areas are in the vicinity of the bridge and a few businesses and residences occur within the project corridor.

2.2 Aerial Photography

2009 aerial photography from York County was reviewed and the photography indicates that the project corridor is a mixture of residential and commercial/industrial development. This area is experiencing rapid growth due to its proximity to Charlotte.

3.0 Regulatory Review

The South Carolina Freedom of Information Act office of the Department of Health and Environmental Control (DHEC) was contacted to obtain any information regarding hazardous materials in the vicinity of the bridge location. An Environmental Data Resources Inc. (EDR) database scan report was also obtained for this project due to its proximity to multiple commercial/industrial sites. The DHEC and EDR reports are included in Appendix A.

3.1 Documented Contaminated Sites

The EDR report documents a known leaking underground storage site along Pleasant Road. The site, identified as D.M. Creech at 4210 Pleasant Road, is located approximately one-half mile northeast of the existing bridge. The leaked substance at this location is petroleum and it was reported on July 21, 1995 and confirmed on August 7, 1995. The current status of this facility is not known. This site is well beyond the northern terminus of the bridge replacement project and would not be impacted by the project.

3.2 Potential Contamination Sites

Samuel Strapping Systems is located at 200 K Boyer Road, which is a side road off Pleasant Road. It is listed in the EDR Report as ID 1009404986 in the FINDS and SC AIRS databases. This business is still in operation though the location of potential contamination and reason for listing is unknown. Samuel Strapping is located approximately 600 feet west of Pleasant Road and would not be impacted by the project.

3.3 Local Regulatory Information

The South Carolina DHEC Freedom of Information Center was contacted regarding known environmental concerns in the vicinity of the project corridor. Jody Hamm, coordinator for the Freedom of Information Center responded in a letter dated April 6, 2011 that the Department has no files regarding contamination sites in the vicinity of the project corridor. This letter is included in Appendix A of this report.

4.0 Summary

This report represents a substantial review of the previous and current conditions of the project corridor in reference to the presence of documented and potential hazardous material sites. Upon completion of preliminary engineering plans, it may be warranted to conduct further investigations if areas impacted by the proposed roadway have the potential to be adversely impacted by known or suspected contamination sites. These detailed investigations (Phase II Assessments) may include a review of regulatory files available through the Freedom of Information Act (FOIA) to document environmental conditions in the project corridor area, a detailed site inspection to document the actual locations of specific environmental concerns, and/or a site-specific evaluation of soil/ground water quality. Based on the findings of this assessment, it has been determined that the project corridor for the S-46-22 bridge replacement project has not been impacted by contamination sites.

5.0 Warranty

Services provided by AECOM in this hazardous material/waste assessment have been conducted in accordance with generally accepted environmental practices. This report has been generated solely for the use of the client. The information presented is based only upon site observations and regulatory database reviews. We cannot be responsible for the accuracy of available information provided by others. We accept no responsibility

for damages or claims resulting from past or future environmental impacts to the site caused by on or off-site activities or contamination, nor do we accept responsibility for subsequent remediation. This study is intended to be a non-biased third party assessment of on-site environmental conditions. No other warranties, either expressed or implied, are made.

APPENDIX E

Natural Resources Technical Report

Natural Resources Technical Report
Bridge Replacement on S-46-22 over Steele Creek
York County, South Carolina

Prepared for:

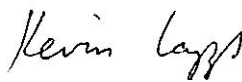
South Carolina Department of Transportation

Issued by:

AECOM
701 Corporate Center Drive, Suite 475
Raleigh, North Carolina 27607

AECOM Project No. 60181787

December 2011

A handwritten signature in black ink that reads "Kevin Lapp". The signature is written in a cursive, flowing style.

Kevin Lapp, Biologist

INTRODUCTION

This Natural Resources Technical Report is submitted to assist the South Carolina Department of Transportation (SCDOT) in the preparation of an Environmental Assessment/Finding of No Significant Impact(EA/FONSI) evaluation for the proposed project. The purpose of this technical report is to inventory, catalog, and describe the various natural resources and environmental features likely to be impacted by the proposed action. The report also attempts to identify and estimate the likely consequences of the anticipated impacts to these resources. These descriptions and estimates are relevant only in the context of the preliminary design concepts. It may become necessary to conduct additional field investigations should design parameters and criteria change.

Project Description

The proposed project involves the replacement of the existing bridge on Pleasant Road (S-46-22) over Steele Creek, in York County, South Carolina (**Figure 1**). This bridge is proposed to be replaced alongside of the existing bridge in order that traffic can be maintained on the old bridge while the new bridge is under construction.

Methodology

Published information and resources were collected prior to the field investigation. Information sources used to prepare this report include the following:

- U.S. Geological Survey (USGS) quadrangle map (Fort Mill, SC, 1980),
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map (Fort Mill, SC, 2010)
- Soil Survey York County, South Carolina (Soil Conservation Service, 1965).
- USFWS list of protected and candidate species
- SC Heritage Trust Program (SCHT) files of rare species and unique habitats

A general field survey was conducted at the proposed project site by AECOM biologists on January 19, 2011. Water resources were identified and their physical characteristics were recorded. Plant communities and their associated wildlife were identified using a variety of observation techniques, including active searching, visual observations, and identifying characteristic signs of wildlife (sounds, tracks, scats, and burrows). Terrestrial community classifications generally follow Nelson (1990) where appropriate and plant taxonomy follows Radford *et al.* (1968). A survey of suitable habitat for threatened and endangered species listed in York County was performed within the study area.

Jurisdictional wetlands were evaluated and delineated based on criteria established in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (USACE, 2010) and revised Guidance on Clean Water Act Jurisdiction following the Supreme Court decision in *Rapanos v. U.S.* and *Carabell v. U.S* (USEPA & USACE, 2008). Wetlands were further classified into

general types based characteristics outlined in Cowardin *et al.* (1979).

Terminology and Definitions

For the purposes of this report, the following terms are used for describing the limits of natural resources investigations. “Project corridor” denotes an area with a length of 1200 feet from the end of the existing bridge southwest to Altura Road and 1200 feet from the end of the bridge northeast to Steel Creek Road. The width of the study corridor is 300 feet either side of the existing centerline. The “study area” is an area extending 1 mile on all sides of the project corridor.

Qualifications of the Principal Investigators

Investigator	Kevin Lapp
Education	M.S. Biology, Appalachian State University
Experience	Staff Biologist AECOM > 11 years
Expertise	Natural resource surveys, wetland delineation, endangered species surveys

Investigator:	Jennifer Cassada
Education	B.S. Fish and Wildlife Science, North Carolina State University
Experience	Staff Biologist AECOM > 9 years
Expertise	Natural resources surveys, wetland delineation, endangered species surveys

Investigator:	Ron Johnson
Education	M.S. Biological Sciences, Illinois State University
Experience	Senior Biologist AECOM > 23 years
Expertise	Natural resources surveys, wetland delineation and mitigation

Regional Characteristics

The study area lies in the Southern Outer Piedmont ecoregion in the piedmont physiographic province. Elevations in the project corridor are approximately 560 to 600 feet (U.S. Geological Survey, 1980). The topography in the project corridor is generally level to gently rolling with only moderate slopes adjacent to the drainages.

The climate in York County is temperate with mild winters and warm summers. Summer is the wettest season with approximately 30 percent of annual precipitation falling during this time period. Winter is also a fairly wet season, receiving approximately 27 percent of the annual precipitation. The heaviest annual rainfall recorded in York County was 63.3 inches in 1936 and the lightest annual rainfall was 32.6 inches in 1933. Summers are warm and long and there are generally few breaks in the heat during midsummer. There is an average of 67 days having a temperature of 90 degrees Fahrenheit or higher and only 1 in 3 summers do not have temperatures reaching 100 degrees. Winter is mild with

temperatures as low as 32 on half of the days in the season. Temperatures drop to 20 degrees or less on 14 days and 15 degrees or less on 6 days or less (USDA, 1965).

The project lies in the Lower Catawba River basin (hydrologic unit 03050103). The Catawba River flows through the Piedmont, Sandhills, and Upper Coastal Plain regions of South Carolina and the basin encompasses 2,322 square miles. The Catawba River joins with the Congaree River to form the Santee River. The project lies in the Sugar Creek watershed (Watershed Management Unit 020) which encompasses 29,130 acres in York and Lancaster counties in South Carolina and Mecklenburg County, North Carolina. Two perennial streams, Steele Creek and an unnamed tributary of Steele Creek, are located in the project corridor.

Steele Creek is classified in the 2006 Classified Waters document by South Carolina Department of Health and Environmental Control (SCDHEC), as FW (Freshwater) its entire length. Steele Creek flows into Sugar Creek, which is also classified as FW. Class FW waters are freshwaters which are suitable for primary and secondary contact recreation and as a source for drinking water supply, after conventional treatment in accordance with the requirements of the Department of Health and Environmental Control. These waters are suitable for fishing, and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. This class is also suitable for industrial and agricultural uses (SCDHEC, 2008).

No waters classified as Outstanding National Resource Water (ONRW), Outstanding Resource Water (ORW), or Water Supply occur within 1 mile (1.6 km) of the project corridor. Steele Creek is listed on the 2010 303(d) list, though the creek is listed as impaired on the 2010 303(d) list at its crossing of the US 21 Bypass. This point is approximately 4 miles downstream of the project, although the designation of impairment extends upstream and downstream of this location. Sugar Creek is also listed as impaired at SC 160 (approximately 2 miles downstream of its confluence with Steele Creek). Steele Creek is listed as impaired for falling outside approved parameters for Hydrogen ion concentrations (pH). Sugar Creek is listed as impaired for not meeting the criteria for aquatic life use support. A balanced indigenous aquatic community was not present at this sampling location indicating impairment (SCDHEC, 2010).

BIOTIC RESOURCES

The proposed project lies in a rapidly developing area of northern York County, north of the city of Fort Mill. This area is experiencing rapid commercial and residential development and numerous businesses and residential areas were present in the study area. Three distinct terrestrial communities were identified within and immediately adjacent to the project corridor: a disturbed community, successional community, and a small stream forest community.

Disturbed Community

This community includes habitats that have recently been or are currently impacted by human disturbance including regularly maintained roadside shoulders, maintained ditch edges, and business grounds. These habitats are kept in a low-growing, early successional state by frequent disturbance or manipulation. Regularly maintained roadside shoulders are present along Pleasant Road and are mowed frequently. These areas are dominated by herbaceous vegetation. The dominant species include panic grasses (*Panicum* sp.), broomsedge (*Andropogon virginicus*.), and low growing weedy species.

Ditch edges are also located along the roadside and are periodically cleared and may be dominated either by grasses or dense, scrubby saplings and weedy vegetation. The dominant species include broomsedge, blackberry (*Rubus* sp.), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), poison ivy (*Toxicodendron radicans*), goldenrod (*Solidago* sp.), Japanese honeysuckle (*Lonicera japonica*), various grasses and low growing shrubs.

Successional Community

Early successional communities are dominated either by grasses and other herbaceous species or dense, scrubby saplings and weedy vegetation. Early successional communities comprise the bulk of the natural communities found in the uplands of the project corridor. An extensive area of an early successional community is located immediately north of the bridge and east of Pleasant Road. This area covers the majority of the upland that extends from the wetland boundary to the edge of the project corridor. Additional areas of early successional community are present outside the wetland boundaries south of Steele Creek. Dominant species include broomsedge, blackberry, red maple, sweetgum, eastern red cedar (*Juniperus virginiana*), greenbrier (*Smilax rotundifolia*), goldenrod, Japanese honeysuckle, pokeweed (*Phytolacca americana*), and various grasses and low growing shrubs.

Small Stream Forest

This community is located in seasonally or intermittently flooded lowlands bordering small stream systems throughout South Carolina. This community is essentially the same as a bottomland hardwood forest but it occurs in dissected mosaic situations. The duration of standing water is not as great as in larger channel systems. A small stream forest community is present in the low floodplain along Steele Creek. Dominant species include hackberry (*Celtis laevigata*), sweetgum, willow oak (*Quercus phellos*), red maple, and giant cane (*Arundinaria gigantea*). The community occurred in a fairly wide area in the vicinity of the bridge due to the braiding of Steele Creek at this location. Flooding is apparently common at this location and has a large influence on the natural community.

Waters of the United States

Wetlands and surface waters fall under the broad category of “Waters of the United States” as defined in 33 CFR 328.3 and in accordance with provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344). These waters are regulated by the U.S. Army Corps of Engineers (USACE). Any action that proposes to dredge or place fill material into surface waters or wetlands falls under these provisions.

Wetlands

Jurisdictional wetland determinations were performed utilizing criteria prescribed in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (U.S. Army Corps of Engineers, 2010). Criteria to identify wetland sites include evidence of hydric soils, hydrophytic vegetation, and hydrology.

It is useful to rank wetlands based on their perceived quality to assist in the design and planning of the project. One method of assessing the value and function of wetlands is in terms of wildlife habitat. The United States Fish and Wildlife Service (USFWS) Resource Category criteria are outlined in the USFWS Mitigation Policy, 46 CFR 7644-7663. Resource categories and mitigation planning techniques are assigned based on the following criteria:

- **Category 1** – Communities of one-of-a-kind high value to wildlife, unique and irreplaceable on a national or eco-regional basis, habitat is not replaceable in-kind based on present day scientific and engineering skills within a reasonable time frame.
- **Category 2** – Communities of high value to wildlife that are relatively abundant on a national or eco-regional basis, habitat can be replaced in kind within a reasonable time frame based on present-day scientific and engineering skills.
- **Category 3** – Community types of high to medium wildlife value which are relatively abundant on a national basis, out-of-kind replacement is allowable if a tradeoff analysis demonstrates equivalency of substituted habitat type and/or habitat values. These sites are often in conjunction with a replenishing resource.
- **Category 4** – Community types of low to medium wildlife value, generally losses will not have a substantial adverse effect on important fish and wildlife resources. These sites have often been affected by the present roadway or human disturbances and are usually isolated.

Two jurisdictional wetland areas were identified within the project corridor. One large wetland complex (Wetland 1) was present in the floodplain of Steele Creek on both sides of the bridge. This complex encompasses the braided channels and numerous low areas within the floodplain. It is treated as one wetland for simplicity in this report. An additional small wetland (Wetland 2) was located in a possible stormwater drainage basin that drains into Stream 1 north of the bridge. The Cowardin classification system describes both wetlands as palustrine forested wetlands with broad-leaved deciduous vegetation (PFO1). Hackberry, red maple, willow oak, and sweetgum comprise the dominant species in Wetland 1. Wetland 2 was dominated primarily by black willow

(*Salix nigra*) shrubs and trees. Wetland 1 would be classified as Category 3 using the USFWS Resource Category criteria while Wetland 2 would be classified as Category 4.

Streams

Two perennial streams, Steele Creek and an unnamed tributary (Stream 1) to Steele Creek, are located within the project corridor and are shown on **Figures 2 and 3**. Steele Creek is a fourth order stream that flows into Sugar Creek east of Fort Mill. During the site visit, Steele Creek had continuous normal flow and exhibited slightly turbid water. Substrate consists of a mixture of silt and sand. Banks ranged from 15 to 25 feet in width in the project corridor and bank heights were very low, approximately 1 to 2 feet in height. Riparian buffers were in good condition in the project corridor being at least 300 feet in width and usually greater. Stream 1 joins Steele Creek via a roadside ditch west of the bridge. Stream 1 appears to have once been a natural stream but has been diverted as a result of the widespread commercial development north of the bridge and no longer occupies its natural location. It now materializes in the project corridor at a set of large culverts that drain Wetland 2 and potentially other unknown areas. Stream 1, which has been channelized, has banks 3 to 5 feet in width and also has continuous flow and clear water. Substrate was either silt or clay toward the culvert complex north of the bridge or sand, gravel, and rip-rap where the stream parallels the road.

Ponds

A small pond is present at the western edge of the project corridor, north of the bridge. Only a small portion of the pond is within the project corridor. The pond shows evidence of use by fishermen. A chair and empty bait boxes were present on the dam and it appeared to be maintained in an open state to facilitate use.

Rare and Protected Species

Some populations of plants and animals are declining either as a result of natural forces or their difficulty competing with humans for resources. Rare and protected species listed for York County, and any likely impacts to these species as a result of the proposed project construction, are discussed in the following sections.

Federally Protected Species

Plants and animals with a federal classification of Endangered (E), Threatened (T), and Candidate (C) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended.

The USFWS lists six federally protected species for York County as of January 20, 2011 (USFWS, 2010). These species are listed in Table 1. The South Carolina Heritage Trust lists Schweinitz's sunflower (*Helianthus schweinitzii*) as occurring approximately 1.8 miles south of the project site.

Table 1. Federally Protected Species in York County

Scientific Name	Common Name	Status	Habitat Present
<i>Amphianthus pusillus</i>	Little amphianthus	T	No
<i>Aster georgianus</i>	Georgia aster	C	Yes
<i>Helianthus schweinitzii</i>	Schweinitz's sunflower	E	Yes
<i>Hexastylis naniflora</i>	Dwarf-flowered heartleaf	T	Yes
<i>Haliaeetus leucocephalus</i>	Bald eagle	BGEPA	No
<i>Lasmigona decorata</i>	Carolina heelsplitter	E	Yes
Sources: USFWS, 2010. Key: T=Threatened, E=Endangered, C=Candidate, BGEPA=Bald and Golden Eagle Protection Act			

***Amphianthus pusillus* (Little amphianthus)**

Threatened

Little amphianthus is a 2 to 4 inch tall delicate annual herb that has submerged and floating greenish-purple leaves and fibrous roots. This plant typically occurs in shallow flat-bottomed pools found on the crest and flattened slopes of unquarried granite outcrops that occur on large isolated domes or gently rolling flatrocks in full sunlight. These pools range in size from 0.3 to 10.0 square yards, the vast majority ranging from 0.5 to 1.0 square yard. These pools retain water for several weeks following a heavy rain and completely dry out with summer droughts. The seeds can lie dormant over several seasons until moisture becomes available (USACE, 2011).

There were no outcrops present in the project corridor, thus there was no habitat suitable for little amphianthus in the project corridor. This project will have **no effect** on this federally protected species.

***Aster georgianus* (Georgia aster)**

Candidate

Georgia aster is a purple composite-flowered perennial herb that is found in sunlit habitat such as open woods and roadsides. Flowering occurs from early October to mid November. The preferred habitat for the species has been identified as post oak (*Quercus stellata*) savannah/prairie communities, although most remaining populations survive adjacent to roads, utility rights of way, and other openings that are artificially maintained in an open state (GSRC, 2011).

Suitable open habitat for Georgia aster was present along the road shoulders of Pleasant Road, a powerline right-of-way southeast of the bridge, and successional areas located in upslope areas adjacent to the small stream forest. Suitable habitat was surveyed for the presence of this species on October 13, 2010 and no individuals were discovered in the project corridor. The proposed project will have **no effect** on this federally protected species.

***Helianthus schweinitzii* (Schweinitz's sunflower)**

Endangered

Schweinitz's sunflower is a rhizomatous perennial herb that grows from 3 to 6 ft tall from a cluster of carrot-like tuberous roots. Flowers are yellow composites and occur from

mid-September to frost. The species occurs in clearings and edges of upland woods on moist to dryish clays, clay-loams, or sandy clay-loams that often have high gravel content. Schweinitz's sunflower usually grows in open habitats not typical of the current general landscape in the piedmont of the Carolinas. Some of the associated species, many of which are also rare, have affinities to glade and prairie habitats of the Midwest. Other species are associated with fire-maintained sandhills and savannas of the Atlantic Coastal Plain and piedmont (Russo, 2000).

Suitable open habitat for Schweinitz's sunflower was present along the road shoulders of Pleasant Road, within a powerline right-of-way southeast of the bridge, and successional areas located in upslope areas adjacent to the small stream forest. Suitable habitat was surveyed for the presence of this species on October 13, 2010 and no individuals were discovered in the project corridor. The proposed project will have **no effect** on this federally protected species.

***Hexastylis naniflora* (Dwarf-flowered heartleaf)**

Threatened

Dwarf flowered heartleaf, also known as dwarf-flowered wild ginger, is a small herb with evergreen leaves that are heart-shaped and have a leathery texture. This species has the smallest flower in the genus, measuring less than 0.4 inches across. The jug-shaped flowers are beige to dark brown, sometimes green or purplish and flowering occurs in late spring. The dwarf-flowered heartleaf requires acidic, sandy loam soils along bluffs and slopes, in boggy areas adjacent to creekheads and streams, and along slopes of hillsides and ravines (Russo, 2000).

Suitable habitat for *Hexastylis naniflora* was present within the project corridor especially the slopes with a northern aspect south of Steele Creek and west of the bridge. These mature hardwood forest slopes were surveyed for heartleaf on January 20, 2011 and no individuals of *Hexastylis* species resembling *H. naniflora* were encountered within the project corridor. The proposed project will have **no effect** on this federally protected species.

***Haliaeetus leucocephalus* (Bald eagle)**

Bald and Golden Eagle Protection Act

The bald eagle is a large raptor with a wingspan reaching 7 feet. The bald eagle is primarily associated with coasts, rivers, and lakes, usually nesting less than two miles from open water. Nests are cone-shaped, 6 to 8 feet tall and at least 6 feet in diameter. Nests are built in dominant live pines or cypress trees that provide a good view and clear flight path. Winter roosts are usually in dominant trees similar to nesting trees but can be further from the water (Russo, 2000). Bald eagles favor coasts and lakes where fish are plentiful, though will also eat small mammals, scavenge carrion, or steal kills from other animals (National Geographic, 2011).

The pond north of the bridge was small and is frequently disturbed by the commercial development and frequent recreational use. Evidence of use by fishermen was present along the dam of the pond of fishing. This pond is unsuitable as nesting habitat for bald eagles. Suitably sized rivers or lakes do not occur in the project corridor, thus this project will have **no effect** on this federally protected species.

***Lasmigona decorata* (Carolina heelsplitter)**

Endangered

The Carolina heelsplitter is a greenish brown to dark brown mussel, often with faint greenish brown to black rays on the younger specimens. The historic range of the Carolina heelsplitter included more widespread distributions in the Catawba and Pee Dee River systems in North Carolina and the Pee Dee and Savannah River systems and possibly the Saluda River in South Carolina. Currently, only eleven populations are known to exist (West, pers. com.). Historic records report the Carolina heelsplitter occurring in small to large streams and rivers as well as ponds, probably mill ponds on small streams. The Carolina heelsplitter is now restricted to cool, clean, shallow and heavily shaded streams with moderate gradients. Preferred streams typically have stable streambanks and channels with defined riffle, pool, and run sequences. Furthermore, these streams have little or no fine sediment present. Periodic natural flooding also appears to be a requirement for the species (SCDNR, 2011).

This species has never been reported from the Steele Creek drainage and a survey completed on June 3, 2011 found only mussels of the common *Elliptio complanata* species. No Carolina heelsplitter mussels were observed. This project will have **no effect** on this federally protected species.

Federal Species of Concern and State Listed Species

Federal Species of Concern (FSC) are not legally protected under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. The Charleston, South Carolina U.S. Fish and Wildlife Service ecological services office does not track Federal Species of Concern and does not have a list of FSC species by county (Caldwell, pers. com).

South Carolina Heritage Trust mapping indicates that the Carolina darter (*Etheostoma collis*) is present in Steele Creek approximately 3.2 miles downstream of the project corridor. There is potential that the species also occurs in the vicinity of the bridge. This species is listed as state threatened on the 2009 list of rare, threatened, and endangered species and communities in York County. AECOM biologists did not observe any state-listed species within the project corridor.

Non-Natural Environment Features

The project corridor is located in a rapidly developing area on the border of North and South Carolina. This regional area is characterized by numerous businesses and residences with a concentration of residences on the North Carolina side of the border. North of the bridge and within the project corridor is the entrance to an industrial packaging facility, Samuels Strapping. Immediately north of the project corridor are numerous commercial buildings including a Black and Decker plant, Lakemont Business Park, and other smaller businesses. Additionally, this road travels north towards Carowinds, a large amusement park that receives thousands of visitors annually

(especially in the warmer months). A large subdivision (Pleasant Glen) and its entrance road are located at the southern end of the project corridor. A single residence and its driveway are located within the project corridor at the south end of the corridor boundary. It appears to predate the majority of the development that has been occurring in the area. Immediately south of the project corridor is a large personal development company, InterNet Services Corporation. Pleasant Road receives heavy traffic and a peak was noted around rush hour, 5:00 to 5:30 PM, during the field visit.

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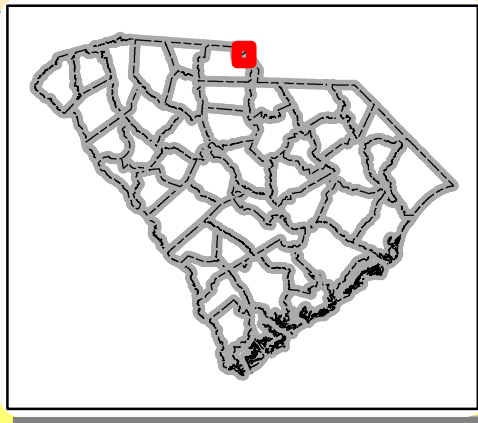
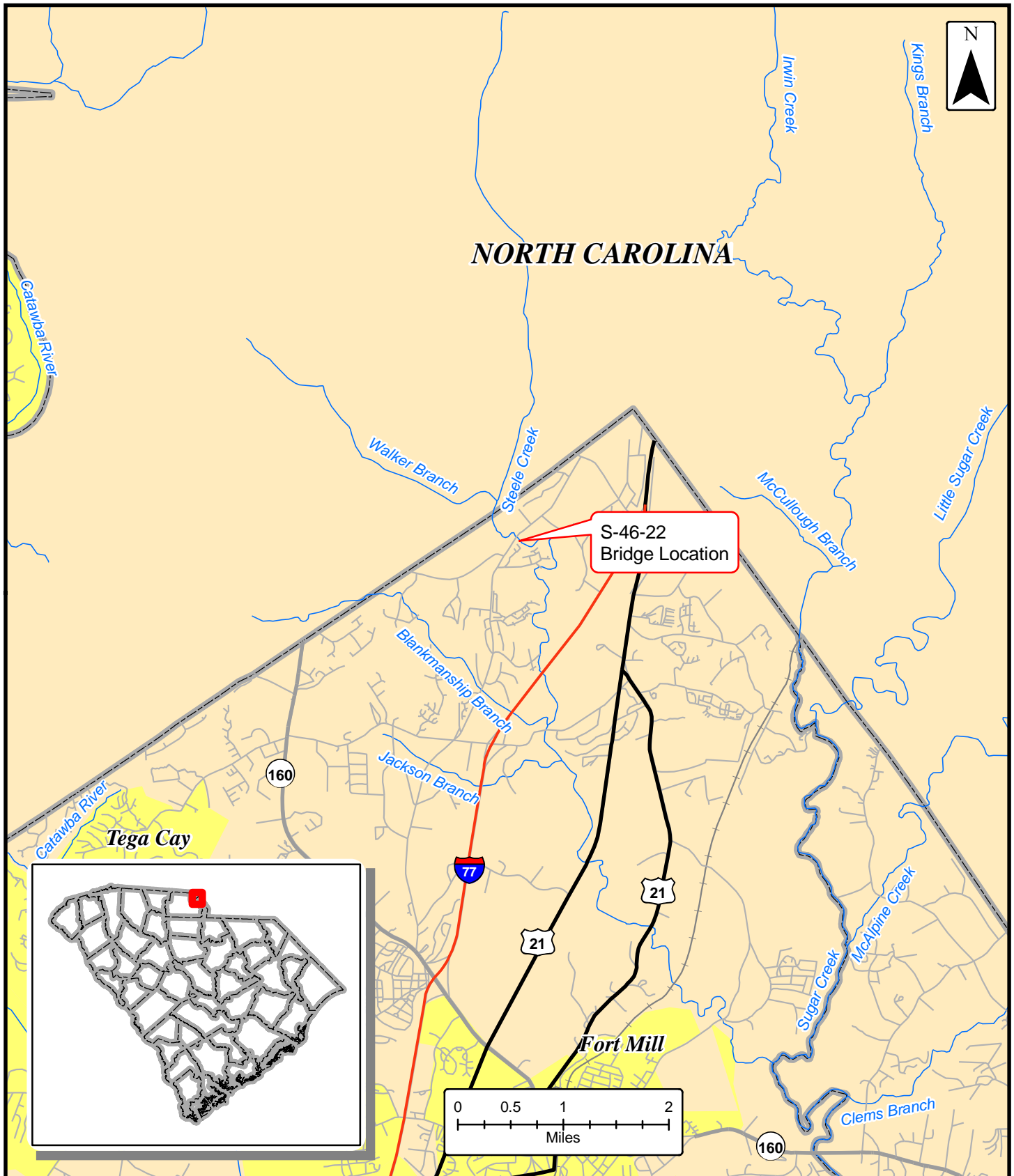
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Legend



- Interstate
- U.S. Highway
- SC Highways
- Railroad
- Streams
- County
- Municipalities

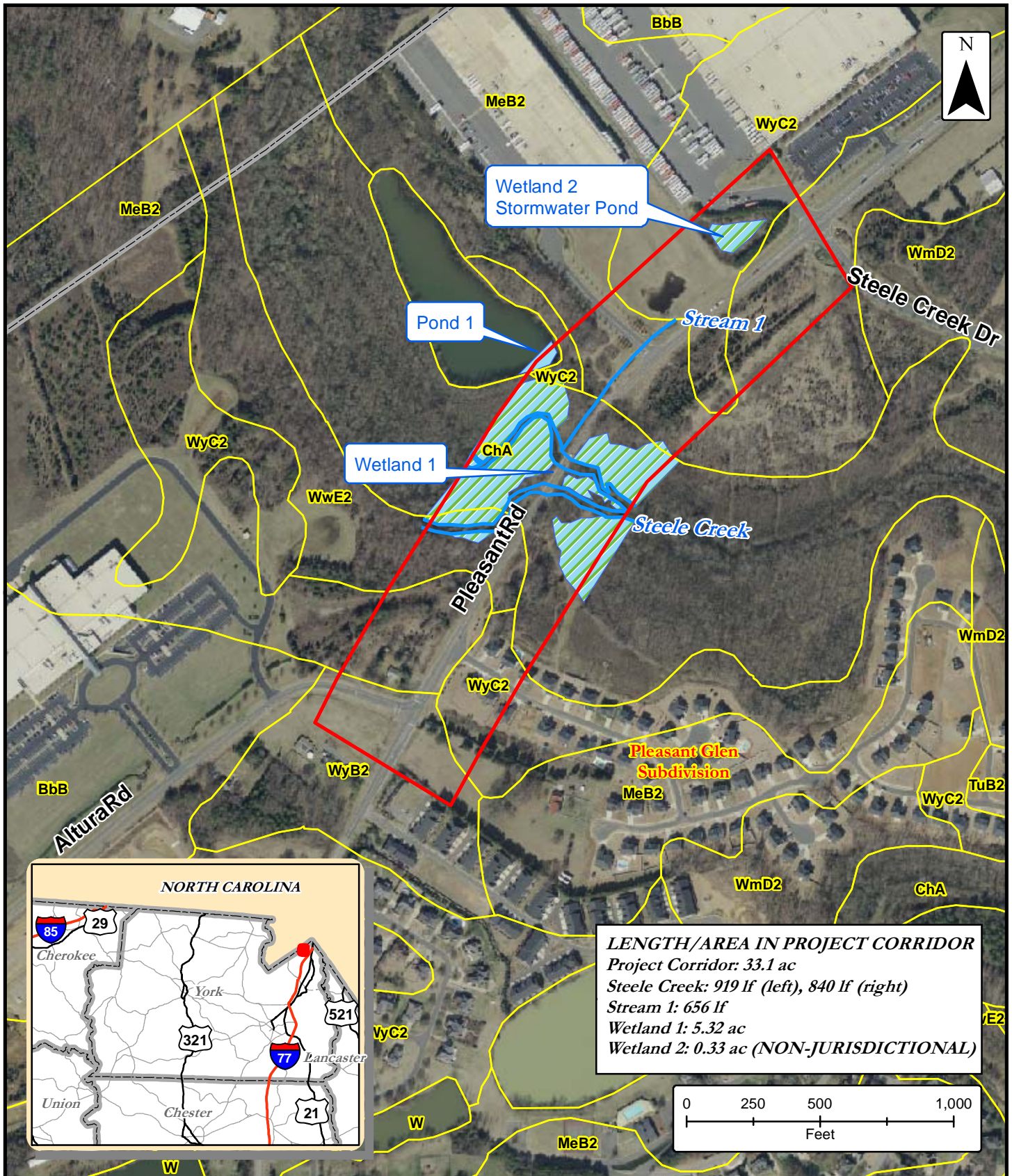
Vicinity Map

S-46-22 Bridge Replacement
over Steele Creek
York County, South Carolina

AECOM

Figure

1



LENGTH/AREA IN PROJECT CORRIDOR
 Project Corridor: 33.1 ac
 Steele Creek: 919 lf (left), 840 lf (right)
 Stream 1: 656 lf
 Wetland 1: 5.32 ac
 Wetland 2: 0.33 ac (NON-JURISDICTIONAL)



Legend

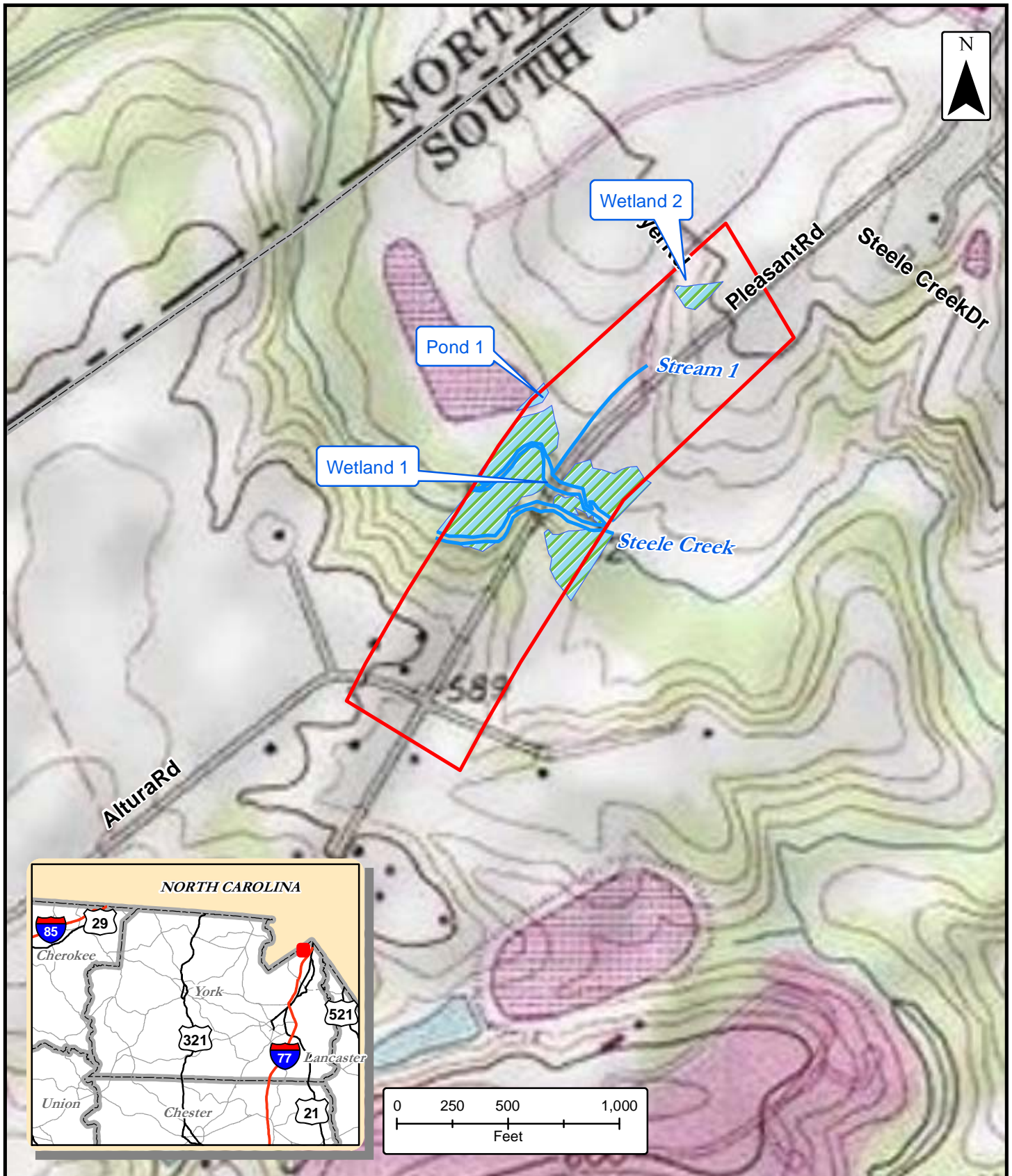
- Project Corridor
- Streams
- Soils
- Ponds
- Wetlands

Jurisdictional Features

S-46-22 Bridge Replacement
 over Steele Creek
 York County, South Carolina



Figure
2



USGS 1:24,000 Topographic Mapping
Source: ESRI US Topo Maps



Legend

- Project Corridor
- Streams
- Ponds
- Wetlands

Jurisdictional Features

S-46-22 Bridge Replacement
over Steele Creek
York County, South Carolina

AECOM

Figure

3

**Biological Survey for Carolina Heelsplitter (*Lasmigona decorata*) for
S-22 Bridge Replacement over Steele Creek
in York County**

June 3, 2011

BIOLOGISTS: Jeffrey West, Siobhan Gordon

U.S. FISH AND WILDLIFE SERVICE ES PERMIT: TE178643-1

STATION 20110408.1jcw

LOCATION: Steele Creek, Santee-Cooper River Basin, York County, South Carolina;
Location: 35° 5' 21" N, 80° 57' 16" W

SURVEY DATE: April 8, 2011

SITE COMMENTS: Stream is in horrible shape. Wide floodplain with much woody debris. Surveyed 200 m upstream and 400 m downstream.

HABITAT DESCRIPTION (dominant types in bold):

Waterbody Type:	Stream
Flow:	Run, slack
Relative Depth:	Moderate
Depth (%<2 ft.):	60%
Substrate:	Sand , pebble, gravel
Compactness:	Normal
Sand/Gravel bars:	Rare
Woody Debris:	High
Beaver Activity:	None
Windthrow:	High
Temporary Pools:	Present
Channel Width:	8 meters
Bank Height:	0.5 meters
Bank Stability:	Unstable
Buffer Width:	Narrow
Riparian Vegetation:	Wooded
Land Use:	Urban
Percent Cover:	15%
Woodland Extent:	Not extensive
Natural Levees:	None

Visibility:	Slightly turbid
Water Level:	High
Weather:	Sun-cloud, warm

TECHNIQUES AND SURVEY TIME:

Techniques:	Visual; tactile
Survey time:	2.3 person-hours

FRESHWATER MUSSELS:

Elliptio complanata - 9 live specimens; 2 shells

OTHER TAXA:

Corbicula fluminea rare

BIOLOGIST: Jeffrey West

U.S. FISH AND WILDLIFE SERVICE ES PERMIT: TE178643-1

STATION 20110602.1jcw

LOCATION: Steele Creek, Santee-Cooper River Basin, York County, South Carolina;
Location: 35° 5' 21" N, 80° 57' 16" W

SURVEY DATE: June 2, 2011

SITE COMMENTS: Surveyed 150 m upstream and 450 m downstream. Saw one live beaver swimming.

HABITAT DESCRIPTION (dominant types in bold):

Waterbody Type:	Stream
Flow:	Run, slack
Relative Depth:	Moderate
Depth (%<2 ft.):	70%
Substrate:	Sand , pebble, gravel
Compactness:	Normal
Sand/Gravel bars:	Rare
Woody Debris:	High
Beaver Activity:	None
Windthrow:	High
Temporary Pools:	Present
Channel Width:	8 meters
Bank Height:	0.5 meters
Bank Stability:	Unstable
Buffer Width:	Narrow
Riparian Vegetation:	Wooded
Land Use:	Urban
Percent Cover:	15%
Woodland Extent:	Not extensive
Natural Levees:	None
Visibility:	Slightly turbid
Water Level:	High
Weather:	Sun-cloud, warm

TECHNIQUES AND SURVEY TIME:

Techniques:	Visual; tactile
Survey time:	0.6 person-hours

FRESHWATER MUSSELS:

Elliptio complanata – 8 live specimens; 1 shell (recently dead specimen)

OTHER TAXA:

Corbicula fluminea rare

BIOLOGICAL DETERMINATION:

No effect for the federally listed endangered Carolina heelsplitter (*Lasmigona decorata*).

APPENDIX F

Farmland Conversion Form

Farmland Protection Policy Act

Assessment Criteria for Form SCS-CPA-106

Project: BR88 (076) Bridge Replacement on S-46-22 over Steele Creek

PIN: 39094RD07

1. 0 Points (0-15)

2. 0 Points (0-10)

3. 0 Points (0-20)

4. 0 Points (Always 0)

5. 10 Points (Always 10)

6. 0 Points (Always 0)

7. 5 Points (Always 5)

8. 0 Points (0-20)

9. 0 Points (Always 0)

10. 0 Points (Always 0)

= 15 Total Points from Department Evaluation (part VI)

+ 100 Points from NCRS Evaluation (part V) (assume 100)

= 115 Total Points Assessment

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request		4. Sheet 1 of _____	
1. Name of Project		5. Federal Agency Involved			
2. Type of Project		6. County and State			
PART II (To be completed by NRCS)		1. Date Request Received by NRCS		2. Person Completing Form	
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form).		YES <input type="checkbox"/> NO <input type="checkbox"/>		4. Acres Irrigated Average Farm Size	
5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: _____ %		7. Amount of Farmland As Defined in FPPA Acres: _____ %		
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System		10. Date Land Evaluation Returned by NRCS		
PART III (To be completed by Federal Agency)		Alternative Corridor For Segment			
		Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly					
B. Total Acres To Be Converted Indirectly, Or To Receive Services					
C. Total Acres In Corridor					
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide And Local Important Farmland					
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value					
PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)					
PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))		Maximum Points			
1. Area in Nonurban Use		15			
2. Perimeter in Nonurban Use		10			
3. Percent Of Corridor Being Farmed		20			
4. Protection Provided By State And Local Government		20			
5. Size of Present Farm Unit Compared To Average		10			
6. Creation Of Nonfarmable Farmland		25			
7. Availability Of Farm Support Services		5			
8. On-Farm Investments		20			
9. Effects Of Conversion On Farm Support Services		25			
10. Compatibility With Existing Agricultural Use		10			
TOTAL CORRIDOR ASSESSMENT POINTS		160			
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100			
Total Corridor Assessment (From Part VI above or a local site assessment)		160			
TOTAL POINTS (Total of above 2 lines)		260			
1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>		
5. Reason For Selection:					

Signature of Person Completing this Part:

DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor