

**Alamance County
Bridge No. 170 on SR 1145 (Pond Road)
over a Prong of Alamance Creek
Federal Aid Project No. BRZ-1145(8)
W.B.S. No. 46061.1.1
T.I.P. No. B-5347**

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

7/26/16

DATE


for Robert P. Hanson, PE – Project Development Section Head
Project Development & Environmental Analysis Unit

7/27/16

DATE


for John F. Sullivan, III, PE - Division Administrator
Federal Highway Administration

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Documentation Prepared by
H.W. Lochner, Inc. By:

7/26/2016
DATE

Brian D. Dehler
Brian D. Dehler, PE
Sr. Project Manager

For NCDOT Project Development & Environmental Analysis Unit

7/26/2016
DATE

Karen S. Reynolds
Karen S. Reynolds
Project Development Engineer
Project Development Section – Western Region

PROJECT COMMITMENTS:

Alamance County
Bridge No. 170 on SR 1145 (Pond Road) over a Prong of Alamance Creek
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Division 7 Construction, Resident Engineer's Office

The Alamance-Burlington School System, Transportation Services Department, will be contacted by calling (336) 570-6541, at least one month prior to shifting traffic to the onsite detour.

Alamance County Central Communications will be contacted by calling (336) 570-6777, at least one month prior to shifting traffic to the onsite detour.

Hydraulic Unit

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

Division 7 Construction

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

Best Management Practices will be implemented during construction to manage invasive plant species.

Heavy Equipment should be operated from the bank, rather than in stream channels, in order to minimize sedimentation, and reduce the likelihood of introducing other pollutants into streams.

Riparian vegetation (native trees and shrubs) shall be preserved to the maximum extent possible. Riparian vegetation must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.

Any burning of vegetation shall be performed in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP), for air quality compliance with 15 NCAC 2D.0520.

Hydraulics Unit, Natural Environment Section, Roadside Environmental Unit

The project shall adhere to Jordan Lake Buffer Rules.

All Design Groups/Division Resident Construction Engineer

Design Standards in Sensitive Watersheds apply for this project.

All Design Groups/Division Resident Construction Engineer

Following a traffic shift to the new replacement structure, the onsite detour will be removed and the area will be restored to its pre-construction condition.

When concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete

shall not be discharged to surface waters, due to the potential for elevated pH and possible aquatic life and fish kills.

Road design plans shall provide for the treatment of the storm water runoff, through best management practices, as detailed in the most recent version of NCDWR's *Stormwater Best Management Practices*.

The proposed reinforced, concrete box culvert will be designed to allow for aquatic life and fish passage, and wildlife passage, if multiple cells are used. The culvert will follow the existing stream channel alignment, to avoid any channel realignment, and to avoid placing riprap in the active thalweg channel or in the streambed, in a manner that precludes aquatic life passage. Additional detailed requirements for RCBC design can be found in NCWRC correspondence, dated April 10, 2013, and found in the appendix of this Categorical Exclusion.

Right of Way Branch, Project Development

This project is located near a VAD. If any property holders refuse settlement, before pursuing condemnation, the Right of Way Branch must contact Project Development in order to pursue a public hearing with the Alamance County VAD. This does not mean that the Department cannot condemn the property but, is instead a procedural requirement prior to condemnation.

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INTRODUCTION: Replacement of Bridge No. 170 is included in the latest approved North Carolina Department of Transportation (NCDOT) State Transportation Improvement Program (STIP). The location is shown in Figure 1 (note that SR 1145 was formerly numbered as SR 1212). No substantial environmental impacts are anticipated. The project is classified as a Federal “Categorical Exclusion”.

I. PURPOSE AND NEED STATEMENT

NCDOT Bridge Management Unit records indicate that Bridge No. 170 has a sufficiency rating of 30.4 out of a possible 100, compared to a new structure. The bridge is considered structurally deficient due to its age, type of service, and a superstructure condition rating of “4” out of “9,” according to Federal Highway Administration (FHWA) standards.

Bridge No. 170 was originally constructed in 1952, and is approaching the end of its useful life. The typical bridge life-expectancy is between 40 to 50 years. Beyond a certain degree of deterioration, timber, steel, and concrete bridges become impractical to maintain, and upon eligibility, are programmed for replacement.

Components of this steel and timber bridge have experienced an increasing degree of deterioration, which can no longer be addressed by maintenance activities. The posted weight limit on the bridge is signed as 18 tons for single vehicles and 23 tons for truck-tractor semi-trailers (TTST). The 64-year old bridge is approaching the end of its useful life, and replacement of Bridge No. 170 will result in safer traffic operations along SR 1145 (Pond Road).

II. EXISTING CONDITIONS

The project is located in the western part of Alamance County, roughly five miles southwest of downtown Burlington, and two miles south of I-85/I-40. Bridge No. 170 is approximately 0.15 miles west of the intersection of NC 62 and SR 1145 (Pond Road). (See Figure 1) SR 1145 (Pond Road) dead ends one mile west of Bridge No. 170, at Lake Macintosh. The immediate area adjacent to the bridge is primarily wooded and inactive farmland.

SR 1145 (Pond Road) is classified as a “local road” in the Statewide Functional Classification System, but this road is not a National Highway System Route.

In the vicinity of Bridge No. 170, SR 1145 (Pond Road) has an 18-foot pavement width, with 5-foot grass shoulders. (See Figure 4) The roadway grade is in a sag vertical curve through the project area, with a low point just west of the bridge. The existing bridge is located in a tangent section of roadway, between two reverse curves, and crosses Prong of Alamance Creek at a skew angle that is near 90 degrees. The roadway is situated approximately 18 feet above the creek bed.

Bridge No. 170 is a single-span structure, which consists of a timber deck with a 2-inch asphalt-wearing surface on steel I-beams. The vertical end bents are constructed of timber caps and piles, with steel plank bulkheads. The existing bridge was constructed in 1952. (See Figure 4) The length of the structure is approximately 36 feet, with a clear roadway width of 25 feet. The posted weight limit on the bridge is signed as 18 tons for single vehicles, and 23 tons for truck-tractor semi-trailers (TTST).

There are no utilities attached to the existing structure, but there is evidence of overhead utilities along the south side of SR 1145 (Pond Road).

The traffic volume of 430 vehicles per day (VPD) is expected to increase to 700 VPD, by the design year (2035). The projected volume includes two percent truck-tractor semi-trailer (TTST) and five percent dual-tired vehicles (DT). The posted speed limit is 45 miles per hour (mph) in the project area. There are three school buses that cross the bridge daily, on their morning and afternoon routes.

The Traffic Safety Unit has evaluated a recent 10-year period, and found no accident records occurring near Bridge No. 170.

SR 1145 (Pond Road), through the project area, is not part of a designated bicycle route, nor is it listed in the STIP as needing incidental bicycle accommodations. Sidewalks do not exist on the existing bridge, and there is no indication of pedestrian usage on, or near Bridge No. 170. Neither permanent, nor temporary bicycle or pedestrian accommodations are required for this project.

III. ALTERNATIVES

A. Preferred Alternative

Bridge No. 170 will be replaced on the existing alignment, while traffic is maintained on a temporary, one-lane, two-way, onsite detour alignment to the north side of SR 1145 (Pond Road). Temporary traffic signals will be utilized to control the traffic flow. (See Figures 2 and 2A)

The permanent replacement structure will consist of a single barrel, 13-foot wide, by 7-foot high, reinforced concrete box culvert (RCBC). The culvert size is based on preliminary design information, and is set by hydraulic requirements. The roadway grade over the new culvert will be approximately the same as the existing roadway grade. A culvert was selected over a bridge, due to the lower initial, and long-term, maintenance costs associated with a low-volume roadway.

The approach roadway will extend approximately 160 feet west of the centerline of the new culvert, and 140 feet east of the centerline of the new culvert. The approaches will be widened to include a 20-foot pavement width, providing two 10-foot lanes. Three-foot grass shoulders will be provided on each side of the proposed roadway approaches. An additional three feet of earthen shoulder, for a total of 6 feet of shoulder, will be provided where guardrail is included. The roadway will be designed as a Local Route, using Sub-Regional Tier Guidelines, with a 45 mile-per-hour design speed.

The total length of the onsite detour alignment is approximately 530 feet. The detour alignment will utilize a temporary 84-inch pipe culvert, under a single, 12-foot wide lane for two-way of traffic. Traffic control is provided by the installation of a temporary traffic signal at each end of the detour alignment. No offsite detour is available, therefore maintenance of traffic onsite is necessary.

NCDOT Division 7 staff concurs that this onsite detour plan is the preferred, bridge replacement alternative.

B. Alternatives Eliminated From Further Consideration

The “No Build” alternative will eventually necessitate closure of the bridge. Closing Bridge No. 170 is not acceptable due to the traffic service provided to this section of Alamance County by SR 1145 (Pond Road).

The bridge was constructed in 1952, and the timber and steel materials within the bridge are reaching the end of their useful lives. Rehabilitation of this structure, would require replacing the timber and steel components, which would effectively replace the entire bridge.

Staged construction is not feasible for this for this bridge replacement, because superstructure and substructure configurations will not support the removal of a portion of the bridge, and maintenance of traffic on the remaining portion, at the same time.

Given that the current alignment of SR 1145 (Pond Road) is acceptable for the scope of this project, a different alignment was not considered as an alternative, due to the bend in the Prong of Alamance Creek, south of the existing roadway, and the proximity to Big Alamance Creek, on the north side of the existing roadway.

IV. ESTIMATED COSTS

The estimated costs based on 2016 prices, are as follows:

Table 1: Estimated Costs

| DESCRIPTION | COSTS |
|--------------------------------|-------------------|
| Structure | \$ 113,000 |
| Roadway Approaches | \$ 93,000 |
| Detour & Signals | \$ 262,000 |
| Structure Removal | \$ 26,000 |
| Miscellaneous & Mobilization | \$ 138,000 |
| Engineering & Contingencies | \$ 93,000 |
| Total Construction Cost | \$ 725,000 |
| Right-of-Way Costs | \$ 31,000 |
| Right-of-Way Utility Costs | \$ 53,000 |
| Total Project Cost | \$ 809,000 |

V. NATURAL ENVIRONMENT

Physical Characteristics

The study area lies in the piedmont physiographic region of North Carolina. Topography in the project vicinity is comprised of gently rolling to hilly landscapes. Elevations in the study area range from 500 to 560 feet above sea level. Land use in the project vicinity consists of forested areas, with low density residential housing and agricultural areas.

Water Resources

Water resources in the study area are part of the Cape Fear River Basin (United States Geological Survey [USGS] Hydrologic Unit 03030002). Three streams (two Perennial and one Intermittent – refer to Table 5) were identified in the study area. (Table 2) The physical characteristics of these streams are provided in Table 3.

Table 2: Water Resources in the Study Area

| Stream Name | Map ID | NCDWR Index Number | Best Usage Classification |
|--------------------------------------|----------------|--------------------|---------------------------|
| Prong of Alamance Creek | SA | 16-19-(4.5) | WS-V; NSW |
| UT to Alamance Creek, including pond | SB | 16-19-(4.5) | WS-V; NSW |
| Big Alamance Creek | Alamance Creek | 16-19-(4.5) | WS-V; NSW |

Table 3: Physical Characteristics of Water Resources in the Study Area

| Map ID | Bank Height (ft.) | Bankfull Width (ft.) | Water Depth (in.) | Channel Substrate | Velocity | Clarity |
|----------------|-------------------|----------------------|-------------------|----------------------|----------|-----------------|
| SA | 4 | 8 | 12 | Sand, gravel, cobble | Slow | Clear |
| SB | 1 | 3 | 4 | Sand, gravel | Moderate | Clear |
| Alamance Creek | 10 | 80 | 48 | Gravel, cobble | Slow | Slightly turbid |

There are no designated, anadromous fish waters or Primary Nursery Areas (PNA) waters, present in the study area. There are no designated High Quality Waters (HQW), Outstanding Resource Waters (ORW), trout waters, or water supply watersheds (WS-I or WS-II), within 1.0 mile downstream of the study area. Big Alamance Creek and its unnamed tributaries are identified on the North Carolina 2014 Final 303(d) list for impaired use for aquatic life, due to fair bioclassification. (See NCDENR correspondence dated February 11, 2013; page 2, item 2 under B-5347 in the Appendix of this CE.)

No fish monitoring data or benthic monitoring data is available for any streams in the study area, or within 1.0 mile of the study area.

Biotic Resources

Terrestrial Communities

Two terrestrial communities were identified in the study area: Maintained/disturbed and mesic mixed hardwood forest (piedmont subtype). A brief description of each community type follows.

Maintained/Disturbed

Maintained/disturbed communities make up the majority of the study area, including roadside shoulders, mowed lawns, and fallow agricultural fields. Terrestrial areas in the easternmost portion of the project study area have been recently cleared for residential development. The vegetation observed in this community type was comprised of early, successional canopy species, such as sweetgum and loblolly pine. Low-growing grasses, shrubs, and herbs present in this community include fescue, multiflora rose, and broomsedge. Vines present in this community include blackberry, Japanese honeysuckle, and greenbriar.

Mesic Mixed Hardwood Forest (Piedmont Subtype)

The mesic mixed hardwood forest communities are located along the moderate hill slopes, in the project study area and along Prong of Alamance Creek. Dominant overstory species in this community include American beech, sweetgum, green ash, American elm, sycamore, tulip poplar, and red maple. Species in the understory consist of American holly, red cedar, American beech, red maple, red oak, and Chinese privet. Herbaceous and vine species observed were limited to Christmas fern and greenbriar. Included within this community is a small floodplain depression, which is classified as a floodplain pool using the NCWAM classification.

Terrestrial Community Impacts

Terrestrial communities in the study area may be impacted by project construction, as a result of grading and paving activities. Community data is presented in the context of total coverage of each type, within the study area. (Table 4)

Table 4: Coverage of Terrestrial Communities in the Study Area

| Community | Coverage (ac.) | Temporary Impacts (ac.) | Permanent Impacts (ac.) |
|--|-----------------------|--------------------------------|--------------------------------|
| Maintained/Disturbed | 3.80 | 0.00 | 0.00 |
| Mesic Mixed Hardwood Forest (Piedmont Subtype) | 2.50 | 0.27 | 0.04 |
| Total | 6.30 | 0.27 | 0.04 |

Terrestrial Wildlife

Terrestrial wildlife communities in the study area are comprised of both natural and disturbed habitats, which may support a diversity of wildlife species. Mammal species that commonly exploit the open habitats, forested areas, and stream corridors within the study area, include the eastern chipmunk, common mouse, gray squirrel, eastern cottontail, raccoon, Virginia opossum, and white-tailed deer. Birds that commonly use forest and forest edge habitats

include the red-shouldered hawk, American crow, eastern meadowlark, yellow-bellied sapsucker, pileated woodpecker, Carolina chickadee, mourning dove, and tufted titmouse. Reptile and amphibian species that may use terrestrial communities located in the study area, include the corn snake, black rat snake, black racer, eastern box turtle, American toad, eastern fence lizard, northern dusky salamander, and five-lined skink.

Aquatic Communities

Aquatic communities in the study area consist of both perennial and intermittent piedmont streams. The Prong of Alamance Creek and Alamance Creek, the perennial streams in the study area, could support shiners, sunfish, snapping turtle, Asiatic clams, mayflies, stoneflies, caddisflies, largemouth bass, channel catfish, and crayfish. The intermittent stream in the study area is relatively small in size, and would support aquatic communities of spring peeper, crayfish, and various benthic macroinvertebrates, including midges and scuds.

Invasive Species

Three species from the *NCDOT Invasive Exotic Plant List for North Carolina* were found to occur in the study area. The species identified were multiflora rose (Threat), Chinese privet (Threat) and Japanese honeysuckle (Moderate Threat). NCDOT will manage invasive plant species as appropriate.

JURISDICTIONAL TOPICS

Surface Waters and Wetlands

Three jurisdictional streams were identified in the study area. (See Figure 3) All jurisdictional streams in the study area have been designated as warm water streams, for the purposes of stream mitigation. (Table 5)

Estimates for stream impacts are shown in Table 6. Final impacts will be determined when designs are complete and the permit package has been approved.

One jurisdictional wetland, WA, was identified within the study area. (See Figure 3) Wetland classification and quality rating data are presented in Table 7. The wetland in the study area is within the Cape Fear River Basin (USGS Hydrologic Unit 03030002). Descriptions of the natural communities at each wetland site are discussed on page 6. Wetland site WA is located within the mesic mixed hardwood community.

Table 5: Jurisdictional Characteristics of Water Resources in the Study Area

| Map ID | Length (ft.) | Classification | Compensatory Mitigation Required | River Basin Buffer |
|----------------|--------------|----------------|----------------------------------|--------------------|
| SA | 340 | Perennial | Yes | Subject |
| SB incl pond | 198 | Intermittent | No* | Subject |
| Alamance Creek | 368 | Perennial | Yes | Subject |
| Total | 906 | | | |

*Non-mitigatable feature determination based upon USACE/NCDWR field review on June 5, 2013.

Table 6: Stream Impacts

| Map ID* | Stream Name | Impact (LF) | Comment |
|----------------|--------------------------------------|-------------|--------------------------------|
| SA | Prong of Alamance Creek | 225 | Permanent |
| SA | Prong of Alamance Creek | 10 | Temporary |
| SB | UT to Alamance Creek, including pond | 0 | Outside of construction limits |
| Alamance Creek | Big Alamance Creek | 0 | Outside of construction limits |

* Please refer to Figure 3 for the Map ID.

Table 7: Jurisdictional Characteristics of Wetlands in the Study Area

| Map ID | NCWAM Classification | Hydrologic Classification | NCDWR Wetland Rating | Area (ac.) |
|--------|----------------------|---------------------------|----------------------|------------|
| WA | Floodplain Pool | Riparian | 29 | 0.01 |

There are no impacts to jurisdictional wetlands that result from the construction of project B-5347.

PERMITS

The proposed project has been designated as a Categorical Exclusion (CE), for the purposes of National Environmental Policy Act (NEPA) documentation. As a result, a Nationwide Permit (NWP) 23 will likely be applicable. A NWP 33 may also apply for temporary construction activities such as, stream dewatering, work bridges, or temporary causeways, which are often used during bridge construction or rehabilitation. The US Army Corps of Engineers (USACE)

holds the final discretion as to which permit will be required to authorize project construction. If a Section 404 permit is required, then a Section 401 Water Quality Certification (WQC) from the North Carolina Division of Water Resources (NCDWR), will be needed.

Construction Moratoria

No construction moratorium apply to any waters, in the study area. In a letter dated April 10, 2013, the North Carolina Wildlife Resources Commission did not request a moratorium.

North Carolina River Basin Buffer Rules

Streamside riparian zones within the study area are protected under provisions of the Jordan Lake Water Supply Watershed Buffer Rules, administered by NCDWR. Table 5 indicates which streams are subject to the buffer protection rule. Streams that are mapped on either the USGS topographic map or the NRCS soil survey map within this watershed, are subject to the Jordan Lake Water Supply Watershed Buffer Rules. Stream SB is not subject to these rules, because it does not appear on either map. Potential impacts to protected stream buffers are shown in Table 8 below. Final impacts will be determined once design plans have been completed.

Table 8: Buffer Impacts

| Map ID* | Stream Name | Reason for Impact | Zone 1 Impact (sf) | Zone 2 Impact (sf) |
|----------|-------------------------|-------------------|--------------------|--------------------|
| Alamance | Alamance Creek | Rip Rap | 730 | 370 |
| SA | Prong of Alamance Creek | Rip Rap | 1,650 | 0 |
| SA | Prong of Alamance Creek | Cut/Fill | 1,170 | 0 |
| Alamance | Big Alamance Creek | Cut/Fill | 1,490** | 2,050** |
| SA | Prong of Alamance Creek | Cut/Fill | 2,720** | 1,100** |

* Please refer to Figure 3 for the Map ID.

** These cut/fill areas are associated with the onsite detour and are considered to be temporary. Following a traffic shift to the new replacement structure, the onsite detour will be removed and the area will be restored to its pre-construction condition. Riparian vegetation must be reestablished within the construction limits of the onsite detour by the end of the growing season, following completion of construction.

Rivers and Harbors Act Section 10 Navigable Waters

There are no jurisdictional streams in the project area designated by the USACE as a Navigable Waters, under Section 10 of the Rivers and Harbors Act.

Mitigation

The NCDOT will attempt to avoid and minimize impacts to streams to the greatest extent practicable, during final design.

Compensatory Mitigation of Impacts

The NCDOT will investigate potential on-site stream mitigation opportunities. If on-site mitigation is not feasible, mitigation will be provided by North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP).

FEDERALLY PROTECTED SPECIES

As of July 19, 2016, the United States Fish and Wildlife Service (USFWS) has not listed any federally protected species for Alamance County. The listing was last updated by USFWS on September 22, 2010. (See www.fws.gov/raleigh/species/cntylist/alamance.html)

Bald Eagle and Golden Eagle Protection Act

Habitat for the bald eagle primarily consists of mature forest, in proximity to large bodies of open water for foraging. Large, dominant trees are utilized for nesting sites, typically within 1.0 mile of open water.

A desktop-GIS assessment of the project study area, as well as the area within a 1.13-mile radius (1.0 mile plus 660 feet) of the project limits, was performed on May 23, 2013, using 2010 color aerials. Lake Mackintosh is located approximately 0.6 miles west of the project study area. Surveys were conducted by Kimley-Horn Associates (KHA) biologists throughout areas of suitable nesting habitat, on March 21, 2013. No bald eagles or nesting sites were observed. Suitable nesting trees were observed to be sparse within the study area, and within 660 feet of the study area. A review of the NCNHP database, updated April 2013, revealed no known occurrences of this species within 1.0 mile of the project study area. Due to the results of the survey, lack of known occurrences, and minimal impact anticipated for this project, it has been determined that this project will not affect the Bald Eagle.

Northern Long-eared Bat

The US Fish and Wildlife Service has developed a programmatic biological opinion (PBO) in conjunction with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), and NCDOT for the northern long-eared bat (NLEB) (*Myotis septentrionalis*) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. The programmatic determination for NLEB for the NCDOT program is “May Affect, Likely to Adversely Affect.” The PBO

provides incidental take coverage for NLEB and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects with a federal nexus in Divisions 1-8, which includes Alamance County, where B-5347 is located. This level of incidental take is authorized from the effective date of a final listing determination through April 30, 2020.

VI. HUMAN ENVIRONMENT

Section 106 Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation Regulations for Compliance with Section 106, codified at Title 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places, and afford the Advisory Council a reasonable opportunity to comment on such undertakings.

Historic Architecture

The NCDOT Human Environment Section, under the provisions of a Programmatic Agreement with FHWA, NCDOT, HPO, OSA and the Advisory Council on Historic Preservation (effective July 1, 2009), reviewed the proposed project and determined that no surveys are required. (See form dated December 15, 2015.)

Archaeology

The NCDOT Human Environment Section, under the provisions of a Programmatic Agreement with FHWA, NCDOT, HPO, OSA, and the Advisory Council on Historic Preservation (effective July 1, 2009), reviewed the proposed project and determined that no archaeological surveys are required. (See form dated July 12, 2016.)

Community Impacts

No adverse impact on families or communities within the proposed project limits, is anticipated. The B-5347 right-of-way acquisition will be limited. No relocatees are expected, with implementation of the proposed project alternative.

No adverse effect on public facilities or services is expected, due to the construction of project B-5347. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The project is not in conflict with any plan, existing land use, or zoning regulation in Alamance County. No change in land use is expected to result from the construction of project B-5347.

The Farmland Protection Policy Act (FPPA) requires all federal agencies or their representatives to consider the potential impacts to eligible soils, from all land acquisition and construction projects. All construction will occur near the existing alignment. There are FPPA eligible soils, in the vicinity of the project. Therefore, project B-5347 will involve the direct conversion of farmland acreage within these classifications.

A preliminary screening of farmland conversion impacts in the project area has been completed using Form NRCS-AD-1006 (Part VI only). A total score of 53 out of 160 points was calculated for the B-5347 project site. Since the total site assessment score does not exceed the 60-point threshold established by NRCS, notable project impacts to eligible soils are not anticipated and no further action is necessary. No other alternatives other than those already discussed in this document, will be considered without a re-evaluation of the project's potential impacts upon FPPA eligible soils.

A Voluntary Agricultural District (VAD) is located in the Direct Community Impact area (DCIA) and inside the Direct Bridge Impact Area (DBIA) to the northwest. Approximately 97 adjoining acres within the Direct Community Impact Area (DCIA) are part of the VAD. Of these 97 acres, 84 acres are owned by a single person, and the remaining 13 acres are owned by a second person.

The Alamance County's VAD ordinance provides that no state or local public agency, or governmental unit, may formally initiate any action to condemn any interest in qualifying farmland within a District, until such agency or unit has requested that the Advisory Board hold a public hearing concerning the proposed condemnation.

The construction of B-5347 will not have a disproportionately high and adverse human health and environmental effect on any minority or low-income population.

Noise & Air Quality

Project B-5347 is an air quality neutral project in accordance with 40 CFR 93.126. It is not required to be included in the regional emissions analysis (if applicable), and project level CO or PM2.5 analyses are not required. This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts, relative to the no-build alternative. Therefore, FHWA has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants, and has not been linked with any special MSAT concerns. Consequently,

this effort is exempt from analysis for MSATs. Any burning of vegetation shall be performed in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP), for air quality compliance with 15 NCAC 2D.0520.

Noise levels may increase during project B-5347 construction; however, these impacts are not expected to be substantial, considering the relatively short-term nature of construction noise and the limitation of construction to daytime hours. The transmission-loss characteristics of nearby natural elements and man-made structures, are believed to be sufficient to moderate the effects of intrusive construction noise.

VII. GENERAL ENVIRONMENTAL EFFECTS

The construction of project B-5347 is expected to have an overall positive impact, in Alamance County. The replacement of this inadequate bridge, will result in safer traffic operations along SR 1145 (Pond Road).

The bridge replacement will not have an adverse effect on the quality of the human or natural environments, with the use of the current NCDOT standards and specifications.

The proposed project will not require right-of-way acquisition or easement from any land, protected under Section 4(f) of the Department of Transportation Act of 1966.

An examination of local, state, and federal regulatory records by the GeoEnvironmental Section revealed no sites with a Recognized Environmental Concern (REC), within the project limits. RECs are most commonly underground storage tanks, dry cleaning solvents, landfills and hazardous waste disposal areas.

Alamance County is a participant in the National Flood Insurance Program. There are no practical alternatives to crossing the floodplain area. Any shift in the existing alignment will result in an impact area, of about the same magnitude. The proposed project is not anticipated to increase the level or extent of upstream flood potential.

The FHWA has determined that a U.S. Coast Guard Permit is not required for this project.

VIII. COORDINATION & AGENCY COMMENTS

The NCDOT has sought input from the following agencies as a part of the project development: Federal Highway Administration, U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service, U.S. Environmental Protection Agency, N.C. Division of Parks & Recreation, Alamance-Burlington School System, and Alamance County Emergency Services.

The **U.S. Fish & Wildlife Service**, in a letter dated January 8, 2013, recommended general conservation measures to avoid and minimize impacts to fish and wildlife resource.

Response: The NCDOT will be replacing Bridge No. 170 with a 13-foot wide by 7-foot high reinforced concrete box culvert (RCBC). The RCBC will be designed with a 40° bend to follow the natural stream channel, and avoid widening the channel. The base of the culvert will be buried at least 1-foot to allow for aquatic life and fish passage. A culvert replacement was selected over a bridge, due to the lower initial construction cost, and to the lower long-term, maintenance costs associated with a low-volume, dead-end, rural roadway.

SR 1145 (Pond Road) has no outlet other than NC 62 (Alamance Road), therefore, there is no suitable off-site detour route available. The NCDOT will be utilizing a one-lane, two-way, on-site detour during construction of the new structure. A temporary 84-inch pipe culvert, flanked by two 12-inch pipe culverts, will convey Prong of Alamance Creek under the onsite detour. Upon the completion of construction, the detour will be entirely removed and the area replanted with appropriate riparian species.

The **N.C. Wildlife Resource Commission**, in a letter dated April 10, 2013, provided a request that they prefer any replacement structure to be a spanning structure. However, if corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for aquatic life and fish passage.
2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows, to allow for wildlife passage.
3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment.
4. Riprap should not be placed in the active thalweg channel, or placed in the streambed in a manner that precludes aquatic life passage.

Response: NCDOT will be replacing the existing bridge with a new 13-foot wide by 7-foot high reinforced, concrete box culvert. The culvert will be designed to allow for aquatic life and fish passage. A culvert replacement was selected over a bridge, due to the

lower initial construction cost, and to the lower long-term, maintenance costs associated with a low-volume, dead-end, rural roadway.

The **N.C. Division of Water Resources** (NCDWR, formerly NCDWQ) requests that the NCDOT considers the following environmental issues for the proposed B-5347 project construction:

1. Big Alamance Creek and its unnamed tributaries are class WSV; NSW waters of the State. NCDWR is very concerned with sediment and erosion impacts that could result from this project. NCDWR recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to Big Alamance Creek and its unnamed tributaries. NCDWQ requests that road design plans provide treatment of the storm water runoff, through best management practices, as detailed in the most recent version of NCDOT's *Stormwater Best Management Practices*.

Response: NCDOT will comply with all storm water requirements through the Post-Construction Storm Water Program, under the Department NPDES Storm Water Permit (NCS000250).

2. Big Alamance Creek and its unnamed tributaries are class WSV; NSW; 303(d) waters of the State. Big Alamance Creek and its unnamed tributaries are on the 303(d) list for impaired use for aquatic life due to fair bioclassification. NCDWR is very concerned with sediment and erosion impacts that could result from this project. NCDWR recommends the most protective sediment and erosion control BMPs be implemented in accordance with *Design Standards in Sensitive Watersheds* (15A NCAC 04B .0124) to reduce the risk of further impairment to Big Alamance Creek and its unnamed tributaries. NCDWQ requests that road design plans provide treatment of the storm water runoff, through best management practices, as detailed in the most recent version of NCDOT's *Stormwater Best Management Practices*.

Response: NCDOT will apply *Design Standards in Sensitive Watersheds* and with all storm water requirements through the Post-Construction Storm Water Program under the Department NPDES Storm Water Permit (NCS000250).

3. B-5347 is within the Jordan Lake Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B .0267. New development activities located in the protected 50-foot wide riparian areas within the basin, shall be limited to "uses" identified within, and constructed in accordance with ISA NCAC 2B .0267. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation," within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, including use of the NC Ecosystem Enhancement Program, must be provided to NCDWR prior to approval of the Water Quality Certification.

Response: The project will adhere to the Jordan Lake Buffer Rules.

Alamance County Emergency Services has no concerns with the one-lane, two-way, on-site detour proposed for use during construction of the replacement of Bridge No. 170 on SR 1145 (Pond Road).

Response: NCDOT will be replacing the existing structure with a new, 13-foot wide, 7-foot high, reinforced concrete box culvert on existing location using a one-lane (12-foot wide), two-way, on-site, temporary detour to maintain traffic during construction.

The **U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, N.C. Division of Parks & Recreation, and State Historic Preservation Office** had no special concerns for this project.

IX. PUBLIC INVOLVEMENT

A letter, dated February 18, 2013, was sent to local residents. No comments have been received to date. Based on the lack of responses to the newsletter, a project-design public meeting was determined to be unnecessary.

X. CONCLUSION

On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from the construction of the proposed project, B-5347. The project is therefore considered to be a federal “Categorical Exclusion,” due to its limited scope and lack of substantial environmental impacts.

| | |
|---|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| B-5347 | 4 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

| -L- | | | |
|---|---|---|---|
| PI Sta 10+48.51 Δ = 3° 56' 05.7" (RT) D = 4° 03' 25.6" L = 96.99' T = 48.51' R = 1,412.23' | PI Sta 11+99.34 Δ = 5° 14' 55.5" (RT) D = 2° 33' 56.7" L = 204.57' T = 102.36' R = 2,233.10' | PI Sta 15+22.82 Δ = 2° 00' 55.7" (LT) D = 1° 38' 48.2" L = 122.39' T = 61.20' R = 3,479.38' SE = 4% RU = 80' | PI Sta 16+84.28 Δ = 14° 37' 34.7" (LT) D = 7° 20' 01.7" L = 199.44' T = 100.26' R = 781.26' SE = 4% RU = 80' |

NAD 83/2011

BEGIN TIP PROJECT B-5347
-L- STATION 11+80.00

END TIP PROJECT B-5347
-L- STATION 17+00.00

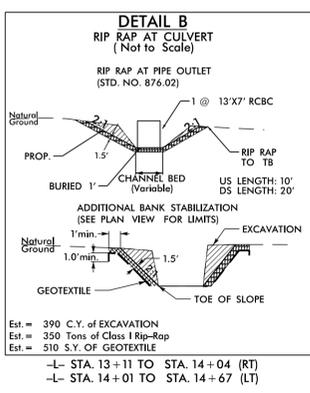
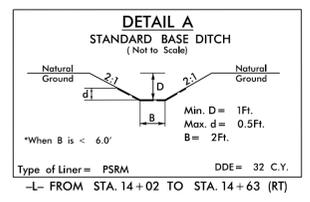
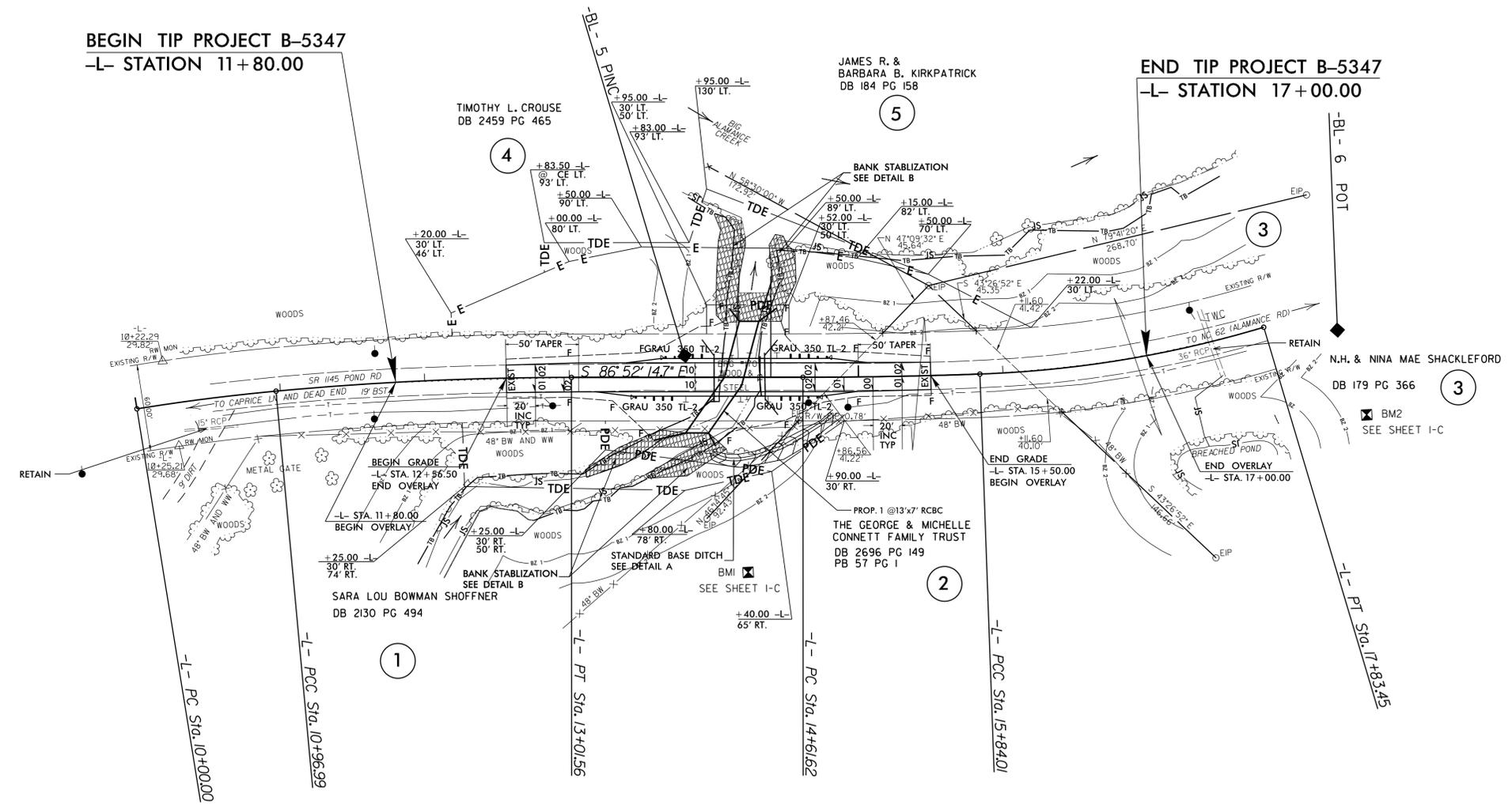
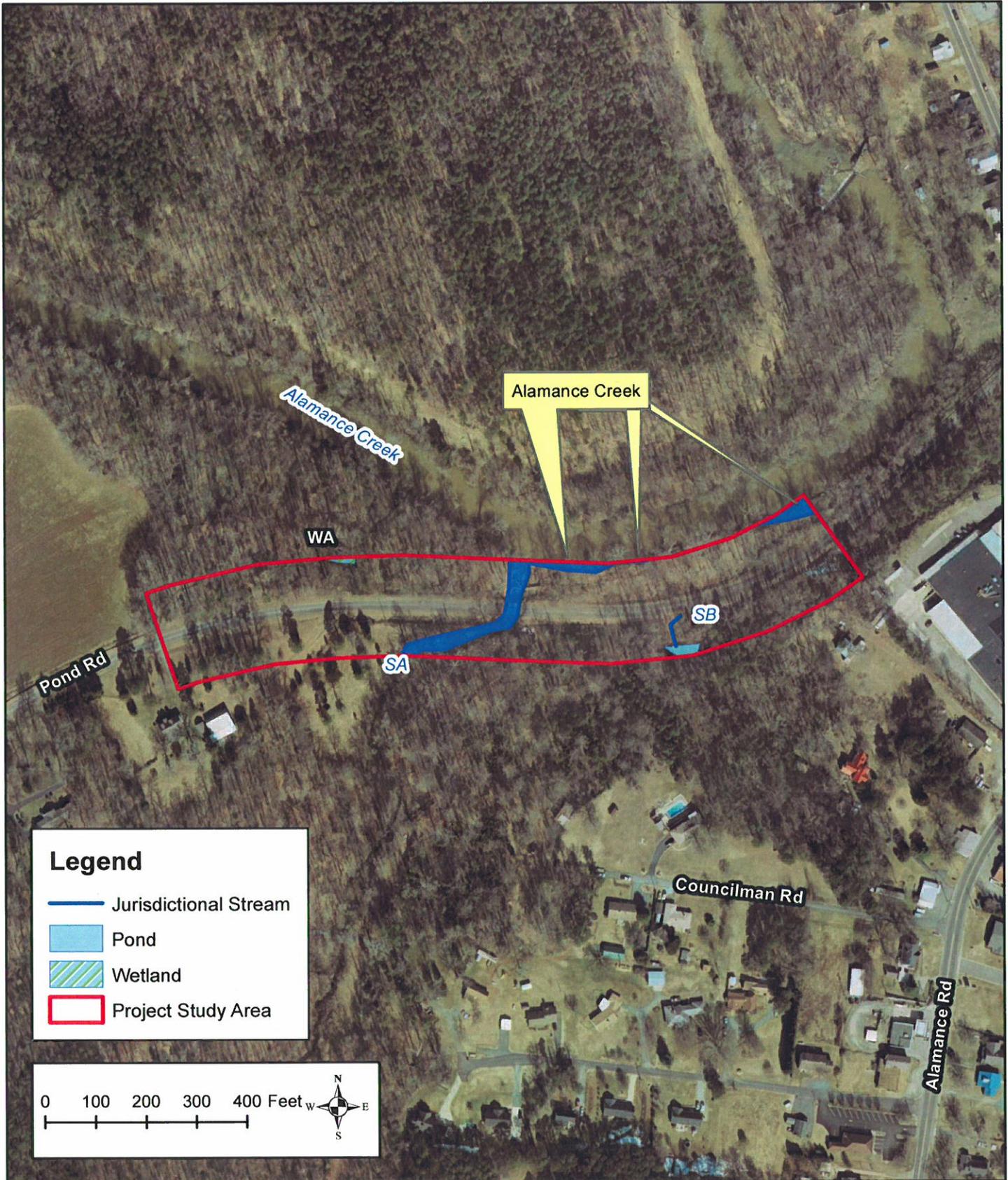


FIGURE 2

REVISIONS

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North Carolina
Department
of
Transportation

Figure 3: Jurisdictional Features Map
TIP Project: B-5347
Bridge #170 on SR1212 over Prong of Alamance Creek
Alamance County, North Carolina

B-5347

Bridge No. 170 on SR 1145 (Pond Road) over Prong of Alamance Creek



Eastbound Approach



North Face of Bridge No. 170



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726
January 8, 2013

Gregory M. Blakeney
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Blakeney:

This letter is in response to your request for comments from the U.S. Fish and Wildlife Service (Service) on the potential environmental effects of the proposed replacement of the following bridges. These comments provide information in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543).

B-5346, Replace Bridge No. 3 over an unnamed creek on SR 1529, Alamance County
B-5347, Replace Bridge No. 170 over a Prong of Alamance Creek on SR 1212, Alamance County
B-5349, Replace Bridge No. 173 over Little Alamance Creek on SR 1149, Alamance County
B-5350, Replace Bridge No. 44 over Jordan's Creek on SR 1768, Alamance County

The Service does not have any specific concerns for these projects. We recommend the following general conservation measures to avoid or minimize impacts to fish and wildlife resources:

1. Wetland, forest and designated riparian buffer impacts should be avoided and minimized to the maximum extent practical;
2. If unavoidable wetland or stream impacts are proposed, a plan for compensatory mitigation to offset unavoidable impacts should be provided early in the planning process;
3. Off-site detours should be used rather than construction of temporary, on-site bridges. For projects requiring an on-site detour in wetlands or open water, such detours should be aligned along the side of the existing structure which has the least and/or least quality of fish and wildlife habitat. At the completion of construction, the detour area should be entirely removed and the impacted areas be replanted with appropriate tree species;
4. In streams utilized by anadromous fish, the NCDOT policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage" should be implemented;
5. New bridges should be long enough to allow for sufficient wildlife passage along stream corridors;
6. On each side of the stream bank underneath bridges, at least 10 feet of the bank should remain clear of riprap;

7. "Best Management Practices (BMP) for Construction and Maintenance Activities" should be implemented;
8. Bridge designs should include provisions for roadbed and deck drainage to flow through a vegetated buffer prior to reaching the affected stream. This buffer should be large enough to alleviate any potential effects from run-off of storm water and pollutants;
9. Bridge designs should not alter the natural stream and stream-bank morphology or impede fish passage. To the extent possible, piers and bents should be placed outside the bank-full width of the stream; and
10. Bridges and approaches should be designed to avoid any fill that will result in damming or constriction of the channel or flood plain. If spanning the flood plain is not feasible, culverts should be installed in the flood plain portion of the approach to restore some of the hydrological functions of the flood plain and reduce high velocities of flood waters within the affected area.

Section 7(a)(2) of the Endangered Species Act requires that all federal action agencies (or their designated non-federal representatives), in consultation with the Service, insure that any action federally authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any federally threatened or endangered species. To assist you, a county-by-county list of federally protected species known to occur in North Carolina and information on their life histories and habitats can be found on our web page at <http://www.fws.gov/nc-es/es/countyfr.html>.

Although the North Carolina Natural Heritage Program (NCNHP) database does not indicate any known occurrences of listed species near the project vicinity, use of the NCNHP data should not be substituted for actual field surveys if suitable habitat occurs near the project site. The NCNHP database only indicates the presence of known occurrences of listed species and does not necessarily mean that such species are not present. It may simply mean that the area has not been surveyed. If suitable habitat occurs within the project vicinity for any listed species, surveys should be conducted to determine presence or absence of the species.

If you determine that the proposed action may affect (i.e. likely to adversely affect or not likely to adversely affect) a listed species, you should notify this office with your determination, the results of your surveys, survey methodologies and an analysis of the effects of the action on listed species, including consideration of direct, indirect and cumulative effects, before conducting any activities that might affect the species. If you determine that the proposed action will have no effect (i.e. no beneficial or adverse, direct or indirect effect) on listed species, then you are not required to contact our office for concurrence.

The Service appreciates the opportunity to comment on these projects. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520, ext. 32.

Sincerely,


for Pete Benjamin
Field Supervisor



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Division of Water Quality
Charles Wakild, P. E.
Director

John E. Skvarla, III
Secretary

February 11, 2013

MEMORANDUM

To: Gregory M. Blakeney, NCDOT Bridge Project Development Section

From: Amy Euliss, NC Division of Water Quality, Office

Subject: Scoping comments on proposed improvements to Bridge nos. 3 (TIP No. B-5346), 170 (TIP No. **B-5347**), 173 (B5349) and 44 (TIP No. B5350) in Alamance County.

Reference your correspondence dated December 27, 2013 in which you requested comments for the referenced project. Preliminary analysis of the project reveals the potential for multiple impacts to streams and jurisdictional wetlands in the project area.

Further investigations at a higher resolution should be undertaken to verify the presence of other streams and/or jurisdictional wetlands in the area. In the event that any jurisdictional areas are identified, the Division of Water Quality requests that NCDOT consider the following environmental issues for the proposed projects:

B-5346: Bridge No. 3 over Dry Creek over on SR 1529 in Alamance County

*Potential impacts to Dry Creek (WSV;NSW)

1. Dry Creek are class WSV; NSW waters of the State. NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDWQ recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to Dry Creek. NCDWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NCDWQ's *Stormwater Best Management Practices*.
2. This project is within the Jordan Lake Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B .0267. New development activities located in the protected 50-foot wide riparian areas within the basin shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 2B .0267. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, including use of the NC Ecosystem Enhancement Program, must be provided to NCDWQ prior to approval of the Water Quality Certification. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, including use of the NC Ecosystem Enhancement Program, must be provided to NCDWQ prior to approval of the Water Quality Certification.

B-5347: Bridge No. 170 over an Unnamed Tributary to Big Alamance Creek on SR 1212 in Alamance County

*Potential impacts to an Unnamed Tributary to Big Alamance Creek (WSV;NSW; 303d Fair Bioclassification-Ecological and Biological Integrity)

1. Big Alamance Creek and its unnamed tributaries are class WSV; NSW waters of the State. NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDWQ recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to Big Alamance Creek and its unnamed tributaries. NCDWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NCDOT's *Stormwater Best Management Practices*.
2. Big Alamance Creek and its unnamed tributaries are class WSV; NSW; 303(d) waters of the State. Big Alamance Creek and its unnamed tributaries Creek is on the 303(d) list for impaired use for aquatic life due to fair bioclassification. NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDWQ recommends that the most protective sediment and erosion control BMPs be implemented in accordance with *Design Standards in Sensitive Watersheds* (15A NCAC 04B .0124) to reduce the risk of further impairment to Big Alamance Creek and its unnamed tributaries. NCDWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NCDOT's *Stormwater Best Management Practices*.
3. This project is within the Jordan Lake Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B .0267. New development activities located in the protected 50-foot wide riparian areas within the basin shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 2B .0267. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, including use of the NC Ecosystem Enhancement Program, must be provided to NCDWQ prior to approval of the Water Quality Certification. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, including use of the NC Ecosystem Enhancement Program, must be provided to NCDWQ prior to approval of the Water Quality Certification.

B-5349: Bridge No. 173 over Back Creek (Little Creek) on SR 1149 in Alamance County

*Potential impacts to Back Creek (Little Creek) (WSV;NSW)

1. Back Creek (Little Creek) are class WSV; NSW waters of the State. NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDWQ recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to Back Creek (Little Creek). NCDWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NCDOT's *Stormwater Best Management Practices*.
2. This project is within the Jordan Lake Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B .0267. New development activities located in the protected 50-foot wide riparian areas within the basin shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 2B .0267. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, including use of the NC Ecosystem Enhancement Program, must be provided to NCDWQ prior to approval of the Water Quality Certification. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, including use of the NC Ecosystem Enhancement Program, must be provided to NCDWQ prior to approval of the Water Quality Certification.

B-5350: Bridge No. 44 over Jordan's Creek on SR 1768 in Alamance County

*Potential impacts to Jordan's Creek (WSII;HQW;NSW)

1. Review of the project reveals the presence of surface waters classified as WSII; High Quality Waters of the State in the project study area. This is one of the highest classifications for water quality. Pursuant to 15A NCAC 2H .1006 and 15A NCAC 2B .0224, NCDOT will be required to obtain a State Stormwater Permit prior to construction except in North Carolina's twenty coastal counties.
2. Jordan's Creek are class WSV; NSW waters of the State. NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDWQ recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to Jordan's Creek. NCDWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NCDOT's *Stormwater Best Management Practices*.
3. This project is within the Jordan Lake Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B .0267. New development activities located in the protected 50-foot wide riparian areas within the basin shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 2B .0267. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, including use of the NC Ecosystem Enhancement Program, must be provided to NCDWQ prior to approval of the Water Quality Certification. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, including use of the NC Ecosystem Enhancement Program, must be provided to NCDWQ prior to approval of the Water Quality Certification.

General Project Comments:

1. The environmental document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping. If mitigation is necessary as required by 15A NCAC 2H.0506(h), it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. Appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.
2. Environmental impact statement alternatives shall consider design criteria that reduce the impacts to streams and wetlands from storm water runoff. These alternatives shall include road designs that allow for treatment of the storm water runoff through best management practices as detailed in the most recent version of NCDOT's *Stormwater Best Management Practices Manual*, such as grassed swales, buffer areas, preformed scour holes, retention basins, etc.
3. After the selection of the preferred alternative and prior to an issuance of the 401 Water Quality Certification, the NCDOT is respectfully reminded that they will need to demonstrate the avoidance and minimization of impacts to wetlands (and streams) to the maximum extent practical. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(h)}, mitigation will be required for impacts of greater than 1 acre to wetlands. In the event that mitigation is required, the mitigation plan shall be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as wetland mitigation.
4. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(h)}, mitigation will be required for impacts of greater than 150 linear feet to any single stream. In the event that mitigation is required, the mitigation plan shall be designed to replace

appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as stream mitigation.

5. Future documentation, including the 401 Water Quality Certification Application, shall continue to include an itemized listing of the proposed wetland and stream impacts with corresponding mapping.
6. NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDOT shall address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.
7. An analysis of cumulative and secondary impacts anticipated as a result of this project is required. The type and detail of analysis shall conform to the NC Division of Water Quality Policy on the assessment of secondary and cumulative impacts dated April 10, 2004.
8. NCDOT is respectfully reminded that all impacts, including but not limited to, bridging, fill, excavation and clearing, and rip rap to jurisdictional wetlands, streams, and riparian buffers need to be included in the final impact calculations. These impacts, in addition to any construction impacts, temporary or otherwise, also need to be included as part of the 401 Water Quality Certification Application.
9. Where streams must be crossed, NCDWQ prefers bridges be used in lieu of culverts. However, we realize that economic considerations often require the use of culverts. Please be advised that culverts should be countersunk to allow unimpeded passage by fish and other aquatic organisms. Moreover, in areas where high quality wetlands or streams are impacted, a bridge may prove preferable. When applicable, NCDOT should not install the bridge bents in the creek, to the maximum extent practicable.
10. Whenever possible, NCDWQ prefers spanning structures. Spanning structures usually do not require work within the stream or grubbing of the streambanks and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges shall allow for human and wildlife passage beneath the structure. Fish passage and navigation by canoeists and boaters shall not be blocked. Bridge supports (bents) should not be placed in the stream when possible.
11. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of NCDOT's *Stormwater Best Management Practices*.
12. Sediment and erosion control measures should not be placed in wetlands or streams.
13. Borrow/waste areas should avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas will need to be presented in the 401 Water Quality Certification and could precipitate compensatory mitigation.
14. The 401 Water Quality Certification application will need to specifically address the proposed methods for stormwater management. More specifically, stormwater shall not be permitted to discharge directly into streams or surface waters.

15. Based on the information presented in the document, the magnitude of impacts to wetlands and streams may require a Nationwide Permit (NW) application to the Corps of Engineers and corresponding 401 Water Quality Certification. Please be advised that a 401 Water Quality Certification requires satisfactory protection of water quality to ensure that water quality standards are met and no wetland or stream uses are lost. Final permit authorization will require the submittal of a formal application by the NCDOT and written concurrence from NCDWQ. Please be aware that any approval will be contingent on appropriate avoidance and minimization of wetland and stream impacts to the maximum extent practical, the development of an acceptable stormwater management plan, and the inclusion of appropriate mitigation plans where appropriate.
16. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
17. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody species shall be planted. When using temporary structures the area shall be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.
18. Unless otherwise authorized, placement of culverts and other structures in waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.
19. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation, floodplain benches, and/or sills may be required where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
20. If foundation test borings are necessary; it shall be noted in the document. Geotechnical work is approved under General 401 Certification Number 388/Nationwide Permit No. 6 for Survey Activities.
21. Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.
22. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities

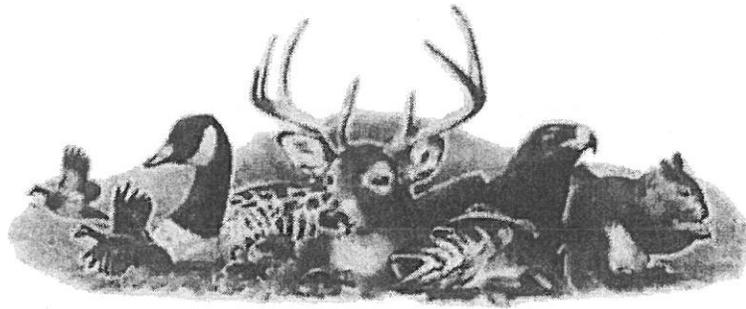
manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

23. While the use of National Wetland Inventory (NWI) maps, NC Coastal Region Evaluation of Wetland Significance (NC-CREWS) maps and soil survey maps are useful tools, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.
24. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment shall be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.
25. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.
26. Riparian vegetation (native trees and shrubs) shall be preserved to the maximum extent possible. Riparian vegetation must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.

Thank you for requesting our input at this time. NCDOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact _____ at (____) ____-____ or _____@ncdenr.gov.

- cc: _____, US Army Corps of Engineers, _____ Field Office (electronic copy only)
_____, Federal Highway Administration
_____, PE, Division ___ Engineer (if applicable)
_____, Division ___ Environmental Officer (if applicable)
_____, Environmental Protection Agency (electronic copy only)
_____, NC Wildlife Resources Commission (electronic copy only)
_____, Division of Coastal Management (electronic copy only) (if applicable)
_____, Ecosystem Enhancement Program (if applicable)
_____, NCDWQ _____ Regional Office (or Central Office if sent from the Regions)

File Copy



☰ North Carolina Wildlife Resources Commission ☰

Gordon Myers, Executive Director

MEMORANDUM

TO: Rachelle Beauregard
NCDOT, PDEA-NES

FROM: Travis Wilson, Highway Project Coordinator
Habitat Conservation Program

DATE: April 10, 2013

SUBJECT: Bridge Replacements

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Our standard recommendations for bridge replacement projects of this scope are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. Bridge deck drains should not discharge directly into the stream.
3. Live concrete should not be allowed to contact the water in or entering into the stream.
4. If possible, bridge supports (bents) should not be placed in the stream.
5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary

structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.
8. In streams that contain threatened or endangered species, NCDOT biologist should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.
10. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.
11. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.
12. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.
13. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.
14. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.
15. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for aquatic life and fish passage. Generally, the culvert or pipe invert should be buried at least 1 foot below the natural streambed (measured from the natural thalweg depth). If multiple barrels are required, barrels other than the base flow barrel(s) should be placed on or near stream bankfull or floodplain bench elevation (similar to Lyonsfield design). These should be

reconnected to floodplain benches as appropriate. This may be accomplished by utilizing sills on the upstream and downstream ends to restrict or divert flow to the base flow barrel(s). Silled barrels should be filled with sediment so as not to cause noxious or mosquito breeding conditions. Sufficient water depth should be provided in the base flow barrel(s) during low flows to accommodate fish movement. If culverts are longer than 40-50 linear feet, alternating or notched baffles should be installed in a manner that mimics existing stream pattern. This should enhance aquatic life passage: 1) by depositing sediments in the barrel, 2) by maintaining channel depth and flow regimes, and 3) by providing resting places for fish and other aquatic organisms. In essence, base flow barrel(s) should provide a continuum of water depth and channel width without substantial modifications of velocity.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.
3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment. Widening the stream channel must be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
4. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be professionally designed, sized, and installed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be utilized as mitigation for the subject project or other projects in the watershed.

Project specific comments:

B-4550, Hoke County, replace bridge No. 41 and 42 on SR 1432 over Rockfish Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4729, Chatham County, replace bridge No. 306 on SR 1303 over North Prong Rocky River: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4802, Rockingham County, replace bridge No. 18 on SR 1002 over the Haw River: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4805, Rockingham County, replace bridge No. 9 on SR 2406 over prong of Troublesome Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4624, Rockingham County, replace bridge No. 80 on SR 1929 over Wolf Island Creek: The potential exist for Roanoke logperch (*Percina rex*: state E, federal E) to be found at this site. NCDOT should coordinate with NCWRC and USFWS in conducting a survey to determine the presence or absence of this species. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4662, Wake County, replace bridge No. 196 on SR 2308 over Moccasin Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4828, Vance County, replace bridge No. 56 on SR 1526 over Sandy Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4831, Wake County, replace bridge No. 371 on SR 1152 over White Oak Creek: Harris Game Land is located within the project study area, DOT should coordinate closely during the design and construction of this project to avoid and minimize impacts to this area. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-4794, Randolph County, replace bridge No. 18 on SR 1107 over Bettie McGees Creek: This portion of Bettie McGees Creek is designated as Significant Aquatic Habitat by the NC Natural Heritage Program. Our records also indicate the potential for listed species to be present within the project area, including: Carolina creekshell (*Villosa vaughaniana*: state E, FSC), Notched rainbow (*Villosa constricta*: state SC), and Eastern creekshell (*Villosa delumbis*: state SR). We recommend NCDOT follow the Design Standards for Sensitive Watersheds during the design and construction of this project. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5322, Person County, replace bridge No. 51 on SR 1343 over Richland Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5323, Granville County, replace bridge No. 143 on SR 1442 over Johnston Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5326, Wake County, replace bridge No. 247 on SR 2555 over White Oak Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5328, Franklin County, replace bridge No. 129 on SR 1406 over Sandy Creek: This portion of Sandy Creek is designated as Significant Aquatic Habitat by the NC Natural Heritage Program. Our records also indicate the potential for listed species to be present within the project area, including: Carolina creekshell Notched rainbow (*Villosa constricta*: state SC), Atlantic pigtoe (*Fusconaia masoni*: state E, FSC), and Creeper (*Strophitus undulatus*: state T). We recommend NCDOT follow the Design Standards for Sensitive Watersheds during the design and construction of this project. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5346, Alamance County, replace bridge No. 3 on SR 1529 UT: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5347, Alamance County, replace bridge No. 170 on SR 1212 over prong of Alamance Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5348, Orange County, replace bridge No. 85 on SR 1005 over Phil's Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5349, Alamance County, replace bridge No. 173 on SR 1149 over Little Alamance Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5350, Alamance County, replace bridge No. 44 on SR 1768 over Jordan's Creek: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5351, Guilford County, replace bridge No. 242 on US29/US70/I-85 Business over the Deep River: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5353, Guilford County, replace bridge No. 147 on US29/US 70/I-85 Business over US 311: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5354, Guilford County, replace bridge No. 360 on SR 4771 over US 29: We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5362, Montgomery County, replace bridge No. 53 on NC 73 over Drowning Creek: This portion of Drowning Creek is designated as Significant Aquatic Habitat by the NC Natural Heritage Program. We recommend NCDOT follow the Design Standards for Sensitive Watersheds during the design and construction of this project. We recommend replacing this bridge with a bridge. Standard recommendations apply.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (919) 707-0370. Thank you for the opportunity to review and comment on this project.

15-11-0040



HISTORIC ARCHITECTURE AND LANDSCAPES NO SURVEY REQUIRED FORM

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

| | | | |
|---------------------------|---|------------------------|--|
| Project No: | B-5347 | County: | Alamance |
| WBS No.: | 46061.1.1 | Document Type: | CE |
| Fed. Aid No: | BRZ-1145(8) | Funding: | <input type="checkbox"/> State <input checked="" type="checkbox"/> Federal |
| Federal Permit(s): | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Permit Type(s): | NW, NW 33, and potentially 401 and 404 WQ certifications |

Project Description:

Replace Bridge No. 170 on SR 1212 (Pond Road) over Prong of Alamance Creek. Project length is 0.1 miles (520 feet). The right-of-way will remain the same. The project will be maintaining two 10-foot lanes and adding earthen shoulders. A temporary bridge will be required during the replacement of Bridge No. 170. Temporary easements will be required.

SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

Description of review activities, results, and conclusions:

Review of HPO quad maps, HPOweb GIS mapping, historic designations roster, and indexes was conducted on 12/8/15. Based on this review, there are no existing NR, SL, DE, LD or SS properties in the Area of Potential Effects (APE). Built in 1952, Bridge No. 170 is not eligible for listing to the National Register of Historic Places (NRHP) according to the North Carolina Historic Bridge Inventory. There are two other properties that fall into the APE over the age of fifty years old: one ca. 1939 residence and another parcel containing a ca. 1920 manufacturing building and a ca. 1910 residence. The latter parcel is at the far eastern end of the APE, buffered from the road by an embankment and a dense buffer of trees, therefore, the buildings should not be affected by the project. The ca. 1939 residence sits at the western end of the APE and according to Google Street view imagery it appears to be an unremarkable one-and-one-half-story frame house lacking the architectural significance to render it potentially eligible for listing to the NRHP.

Therefore, because there are no potential historic resources within the APE, a survey will not be required for this project.

Why the available information provides a reliable basis for reasonably predicting that there are no unidentified significant historic architectural or landscape resources in the project area:

HPO quad maps, HPOweb GIS mapping, Google Street View, Google maps and Alamance County property records are considered valid tools for the purposes of determining the likelihood of historic resources being present. A survey is not required for this project.

SUPPORT DOCUMENTATION

Map(s) Previous Survey Info. Photos Correspondence Design Plans

FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes -- NO SURVEY REQUIRED

Megan Pruett

12/15/15

NCDOT Architectural Historian

Date

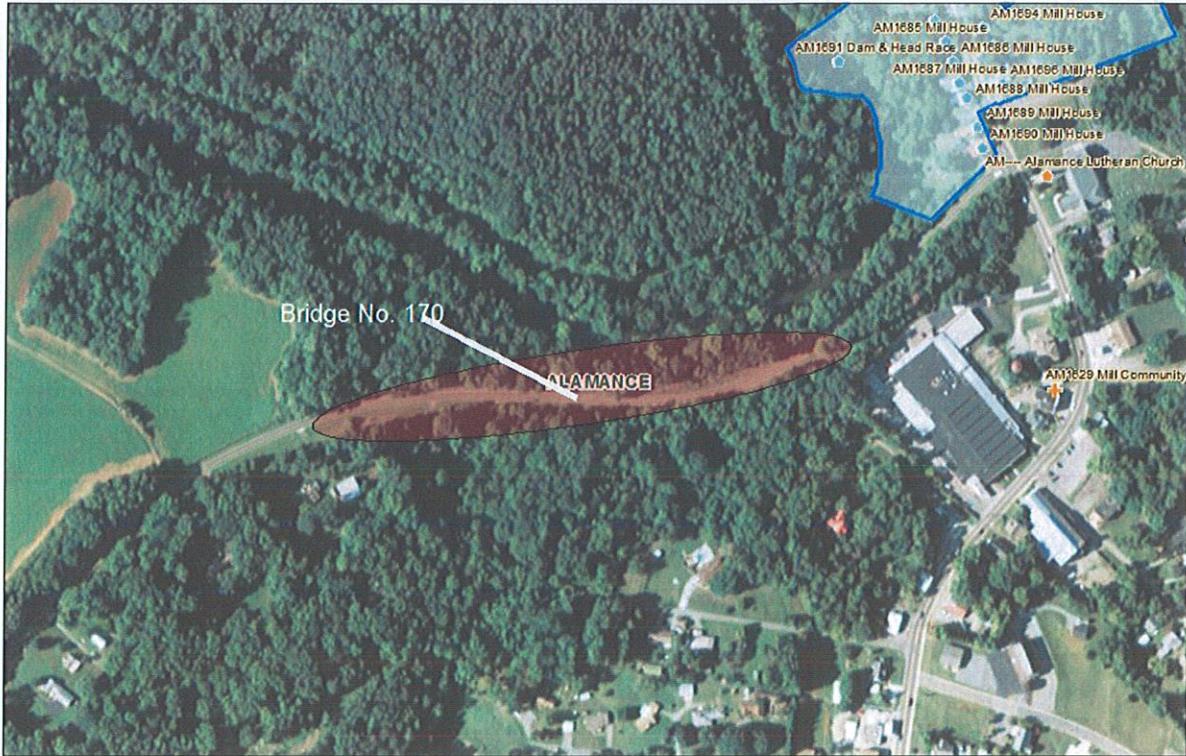


Ca. 1939 House, Pond Road, Alamance County, facing south. Image from Bing Maps.



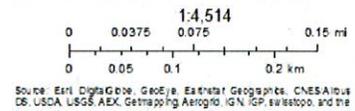
Ca. 1939 House, Pond Road, Alamance County, facing southwest. Image from Google Street View.

HPOweb, Alamance County



December 8, 2015

- NR Points**
- NR Individual Listing
 - NR Listing, Gone
 - ★ NRHD Center Point
 - Boundary of Destroyed/Removed NR Listing
 - National Register Boundary





NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS UNIT

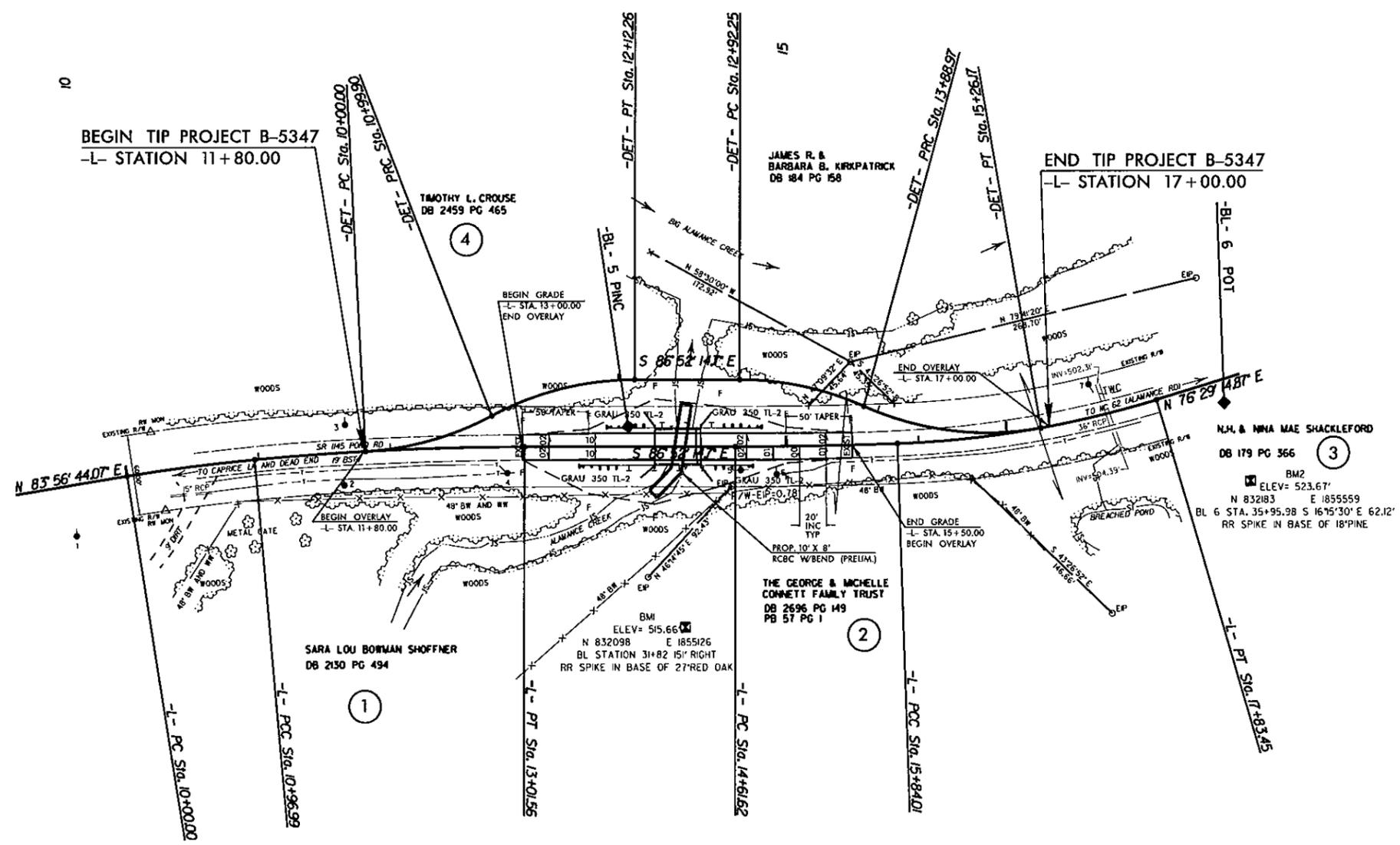
ALAMANCE COUNTY
REPLACE BRIDGE NO. 170 ON SR 1145
OVER PRONG OF ALAMANCE CREEK
B-5347

FIGURE 2 STUDY AREA

| | |
|--|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| B-5347 | 4 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

| -L- | | | |
|---|---|--|--|
| PI Sta 10+48.51 Δ = 3° 56' 05.7" (RT) D = 4 03' 25.6" L = 96.99' T = 48.51' R = 1,412.23' SE = 4% RO = 80' | PI Sta 11+99.34 Δ = 5° 14' 55.5" (RT) D = 2 33' 56.7" L = 204.57' T = 102.36' R = 2,233.10' SE = 2% RU = 40' | PI Sta 15+22.82 Δ = 2° 00' 55.7" (LT) D = 1 38' 48.2" L = 122.39' T = 61.20' R = 3,479.38' SE = 4% RU = 80' | PI Sta 16+84.28 Δ = 14° 37' 34.7" (LT) D = 7 20' 01.7" L = 199.44' T = 100.26' R = 781.26' SE = 4% RU = 80' |

NAD 83/2011



REVISIONS

SEE SHEET 5 FOR DETOUR
SEE SHEET 6 FOR PROFILE

8/17/99
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ARCHAEOLOGICAL SURVEY REQUIRED FORM

This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.



PROJECT INFORMATION

Project No: **B-5347** County: **Alamance**
 WBS No: **46061.1.1** Document: **CE**
 F.A. No: **BRZ-1145(8)** Funding: State Federal
 Federal Permit Required? Yes No Permit Type: **Unknown NWP**

Project Description: NCDOT Division 7 intends to replace Bridge No. 170 on SR 121, Pond Road, over an unnamed tributary of Big Alamance Creek. According to preliminary planning provided along with the Cultural Resources Review request, the proposed project measures nearly 511 feet (almost 156 meters) in length. While the proposed bridge replacement will be constructed largely within existing right-of-way (ROW) along the existing alignment and in the same location as the existing bridge, permanent easements and a temporary detour to the north are expected. As a result of these additional areas, outside existing ROW, the proposed Area of Potential Effects (APE) is estimated to encompass approximately 1.21 acres (.49 hectare).

SUMMARY OF ARCHAEOLOGICAL RESOURCES REVIEW: *SURVEY REQUIRED*

Brief description of review activities, results of review, and conclusions:

A review of the site maps and files archived at the North Carolina Office of State Archaeology was conducted on December 3, 2015. No previously identified archaeological resources are recorded in the location of the proposed project, though a handful of archaeological sites are recorded locally (31Am94, 31Am95, 31Am307**). Soil mapping for Alamance County suggests that much of the proposed APE consists of well-drained alluvial soils with potentially eroded or deflated soils at the margins. While the alluvial soils within the project area may be considerably deep, none of the landforms in the project area appear to be prohibitively sloped. Subsurface testing and an investigation into the possibility of more deeply buried resources is required.

SUPPORT DOCUMENTATION

See attached: Map(s) Previous Survey Info Photos Correspondence
 Other: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

FINDING BY NCDOT ARCHAEOLOGIST – *SURVEY REQUIRED*

NCDOT ARCHAEOLOGIST

January 12, 2016

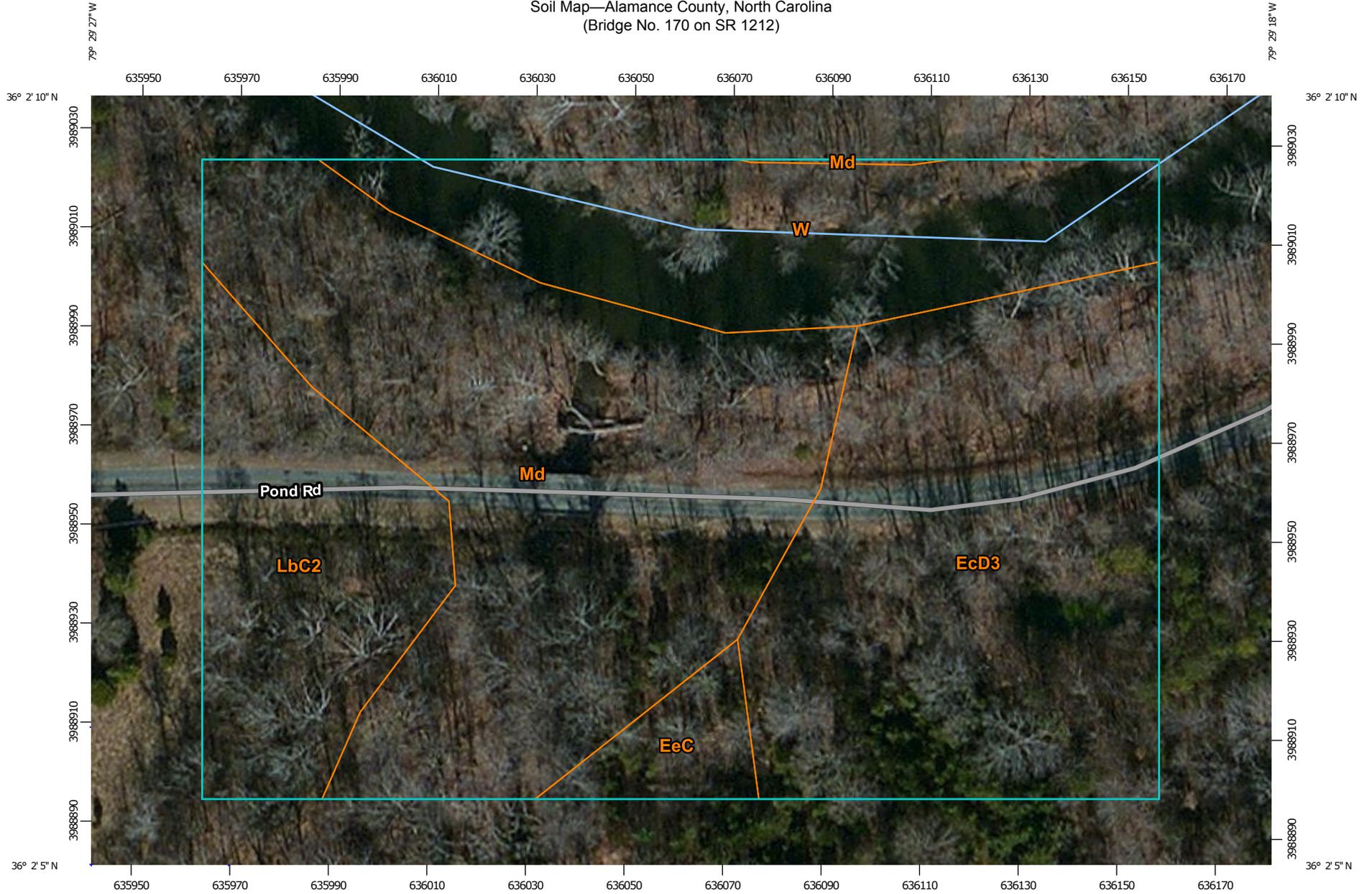
Date

Proposed fieldwork completion date

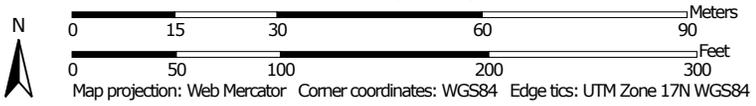


Aerial photograph and 2-foot contour map illustrating the location of the proposed APE (red lines) for the replacement of Bridge No. 170 on SR 1212, Pond Road.

Soil Map—Alamance County, North Carolina
(Bridge No. 170 on SR 1212)



Map Scale: 1:1,100 if printed on A landscape (11" x 8.5") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Alamance County, North Carolina
Survey Area Data: Version 12, Sep 12, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 11, 2011—Mar 3, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

| Alamance County, North Carolina (NC001) | | | |
|---|---|--------------|----------------|
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
| EcD3 | Enon clay loam, 10 to 15 percent slopes, severely eroded (Wynott) | 1.9 | 30.2% |
| EeC | Enon loam, 6 to 10 percent slopes (Wynott) | 0.2 | 2.9% |
| LbC2 | Lloyd loam, 6 to 10 percent slopes, eroded | 0.9 | 14.1% |
| Md | Mixed alluvial land, well drained | 2.2 | 35.7% |
| W | Water | 1.1 | 17.1% |
| Totals for Area of Interest | | 6.2 | 100.0% |



**NO NATIONAL REGISTER OF HISTORIC PLACES
ELIGIBLE OR LISTED ARCHAEOLOGICAL SITES
PRESENT FORM**



This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.

PROJECT INFORMATION

Project No: **B-5347** County: **Alamance**
 WBS No: **46061.1.1** Document: **CE**
 F.A. No: **BRZ-1145(8)** Funding: State Federal
 Federal Permit Required? Yes No Permit Type: **Unknown NWP**

Project Description:

NCDOT proposes to replace Bridge No. 170 on SR 1212, (Pond Road), over an unnamed tributary of Big Alamance Creek in Alamance County. The bridge currently has a 60-foot (18-meter) ROW; however, project plans call for the construction of a new bridge to the north of the existing bridge which would expand the ROW to approximately 150 feet (46 meters) at its widest point. Construction will occur within an area measuring approximately 511 feet (156 meters) long. Therefore, the APE for this project measures approximately 511 feet (156 meters) long by 150 feet (46 meters) wide (at its widest point) and encompasses approximately 1.76 acres (.7 hectares).

SUMMARY OF ARCHAEOLOGICAL FINDINGS

Brief description of review activities, results of review, and conclusions:

Prior to commencement of the field survey, ECA conducted a background literature review to identify previously recorded cultural resources, including archaeological sites, features, or historic structures within the APE of Bridge No. 170. Sources reviewed included the files at the North Carolina Office of State Archaeology (OSA), the National Register of Historic Places (NRHP), the North Carolina Historic Preservation Office (NC SHPO) GIS service, the 1969 (photorevised 1991) *Burlington, NC* topographic map, and aerial photographs. No previously identified sites, features, or historic structures were identified within the APE of Bridge No. 170.

Geologically, the project area is located within the Piedmont physiographic region of North Carolina. The APE is characterized by maintained grass-covered ROW, wooded areas, a power line easement on the southern side of the road, and slopes greater than 20 percent down to an unnamed tributary of Big Alamance Creek. The ROW was delineated with survey stakes. According to the USDA Web Soil Survey, soils located within the APE consist of Mixed Alluvial Land (Md) well drained, Lloyd loam (LbC2), 6 to 10 percent slopes, eroded, and Enon clay loam (EcD3), 10 to 15 percent slopes, severely eroded. Landforms exhibiting slope may have eroded and/or deflated soils, and alluvial soils may be frequently flooded (USDA Soil Survey 2015).

On June 15, 2016, ECA completed an intensive archaeological survey within the APE, located along Bridge No. 170 on SR 1212 (Pond Road). A pedestrian survey was conducted by visual inspection of exposed ground surfaces throughout the project APE in conjunction with systematic shovel testing. Ground surface visibility was less than 10% throughout the majority of the project area. Shovel testing was completed at 50-foot (15-meter) intervals in areas of low ground surface visibility to survey for potential archaeological resources within the project APE. Bridge No. 170 is oriented in a general northeast/southwest orientation. The intensive archaeological survey consisted of four transects, each located on either side of the existing road and bridge, and offset approximately 20-30 feet (6-9 meters) from the edge of the roadway. Transect A was positioned on the north side of the road west of the bridge. Transect B was positioned on the south side of the road west of the bridge. Transect C was positioned on the north side of the road east of the bridge. Transect D was positioned on the south side of the road east of the bridge (see Figures 1 through 5). During project scoping, ECA planned to excavate at least 22 shovel tests within the APE and to add additional tests for high probability land forms to the north of Pond Road as necessary. During our field work ECA determined 22 shovel tests would be necessary due to the geographic composition of the project area. Of these, three shovel tests were omitted due to the presence of slopes greater than 20 percent, berm, and Big Alamance Creek, or because subsoil was present on the surface. All shovel tests measured approximately 16 inches by 16 inches (41 cm by 41 cm) and were excavated into known sterile subsoils for the project area. All soils were screened through a six-millimeter wire mesh archaeology screen to isolate any cultural artifacts. All shovel tests were backfilled.

The intensive archaeological survey revealed both disturbance and intact soils throughout the APE. No artifacts or cultural features were observed within the APE during the surface survey, and all shovel tests were negative (see Table 1 and Figure 5).

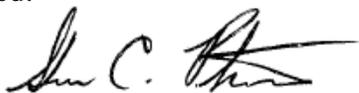
Autumn DuBois, MA, RPA with ECA, recommends no further archaeological investigations for the proposed replacement of Bridge No. 170 in Alamance County. Mrs. DuBois concludes that the proposed improvements will not impact any significant archaeological resources.

The North Carolina Department of Transportation (NCDOT) Archaeology Group reviewed the subject project and determined:

- There are no National Register listed or eligible ARCHAEOLOGICAL SITES present within the project's area of potential effects. (Attach any notes or documents as needed)
- No subsurface archaeological investigations were required for this project.
- Subsurface investigations did not reveal the presence of any archaeological resources.
- Subsurface investigations did not reveal the presence of any archaeological resources considered eligible for the National Register.
- All identified archaeological sites located within the APE have been considered and all compliance for archaeological resources with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

SUPPORT DOCUMENTATION

See attached: Map(s) Previous Survey Info Photos Correspondence
Signed:



July 12, 2016

NCDOT ARCHAEOLOGIST

Date

"NO NATIONAL REGISTER ELIGIBLE OR LISTED ARCHAEOLOGICAL SITES PRESENT"
form for the Amended Minor Transportation Projects as Qualified in the 2007 Programmatic Agreement.

Table 1. Shovel Test Pit Results

| Shovel Test Pit (STP) | STP Width/Length | Munsell Color/Texture | Average Depths Between | |
|-----------------------|--------------------------|---|------------------------|-------|
| | | | Inches | cm |
| A-1 | 16"x16" (41cm x 41cm) | 2.5YR 3/3 (dark reddish brown) loam | 0-9 | 0-23 |
| | | 2.5YR 3/6 (dark red) clay loam | 9-23 | 23-58 |
| A-2 | 16"x16" (41cm x 41cm) | 2.5YR 3/3 (dark reddish brown) loam | 0-2 | 0-5 |
| | | 2.5YR 3/6 (dark red) clay loam | 2-12 | 5-30 |
| A-3 | 16"x16" (41cm x 41cm) | 2.5YR 3/3 (dark reddish brown) loam | 0-2 | 0-5 |
| | | 2.5YR 3/6 (dark red) clay loam; dense roots | 2-6 | 5-15 |
| A-4 | - | Omitted due to large berm with asphalt | - | - |
| A-5 | - | 2.5YR 3/6 (dark red) clay loam visible at surface | - | - |
| A-6 | 16"x16" (41cm x 41cm) | 2.5YR 3/3 (dark reddish brown) loam | 0-2 | 0-5 |
| | | 2.5YR 3/6 (dark red) clay loam | 2-12 | 5-30 |
| A-7 | 16"x16" (41cm x 41cm) | 2.5YR 3/3 (dark reddish brown) loam | 0-2 | 0-5 |
| | | 2.5YR 4/8 (dark red) clay loam | 2-8 | 5-20 |
| B-1 | 16"x16" (41cm x 41cm) | 2.5YR 3/3 (dark reddish brown) loam | 0-9 | 0-23 |
| | | 2.5YR 3/6 (dark red) clay loam | 9-12 | 23-12 |
| B-2 | 16"x16" (41cm x 41cm) | 2.5YR 3/3 (dark reddish brown) loam | 0-8 | 0-20 |
| | | 2.5YR 3/6 (dark red) clay loam | 8-13 | 20-33 |
| B-3 | 16"x16" (41cm x 41cm) | 2.5YR 3/3 (dark reddish brown) loam | 0-11 | 0-28 |
| | | 2.5YR 3/6 (dark red) clay loam | 11-17 | 28-43 |
| B-4 | 16"x16" (41cm x 41cm) | 2.5YR 3/3 (dark reddish brown) loam | 0-6 | 0-15 |
| | | 2.5YR 3/6 (dark red) clay loam | 6-14 | 15-36 |
| C-1 | 16"x16" (41cm x 41cm) | 10YR5/8 (yellow brown) clay | 0-7 | 0-08 |
| C-2 | 16"x16" (41cm x 41cm) | 2.5Y5/4 (light olive brown) sandy loam | 0-9 | 0-23 |
| | | 10YR5/8 (yellow brown) clay | 9-11 | 18-23 |
| C-3 | 16"x16" (41cm x 41cm) | 7.5YR4/3 (brown) sandy loam | 0-8 | 0-20 |
| | | 7.5YR4/6 (strong brown) clay | 8-36 | 20-91 |
| C-4 | 16"x16" (41cm x 41cm) | 10YR4/3 (brown) sandy loam | 0-4 | 0-10 |
| | | 10YR5/8 (yellowish brown) clay | 4-10 | 10-25 |
| C-5 | 16"x16" (41cm x 41cm) | 10YR4/3 (brown) sandy loam | 0-2 | 0-5 |
| | | 10YR5/8 (yellowish brown) clay | 2-8 | 5-20 |
| D-1 | 16"x16" (41cm x 41cm) | 10YR3/3 (dark brown) sandy clay loam | 0-4 | 0-10 |
| | | 2.5YR4/8 (red) clay | 4-8 | 10-20 |
| D-2 | 16"x16" (41cm x 41cm) | 10YR3/3 (dark brown) sandy clay loam | 0-4 | 0-10 |
| | | 2.5YR4/8 (red) clay | 4-6 | 10-15 |
| D-3 | 16"x16" (41cm x 41cm) | 10YR3/3 (dark brown) sandy clay loam | 0-1 | 0-3 |
| | | Rock | 1- | 3- |
| D-4 | 16"x16" (41cm x 41cm) | 10YR3/3 (dark brown) sandy clay loam | 0-3 | 0-8 |
| | | 2.5YR4/8 (red) clay | 3-4 | 8-10 |
| D-5 | 16"x16" (41cm x 41cm) | 10YR3/3 (dark brown) sandy clay loam | 0-4 | 0-10 |
| | | 2.5YR4/8 (red) clay | 4-6 | 10-15 |
| D-6 | - | Omitted due to slope greater than 20% | - | - |



Figure 1: Easterly View of APE.



Figure 2: Easterly View of Transect A.

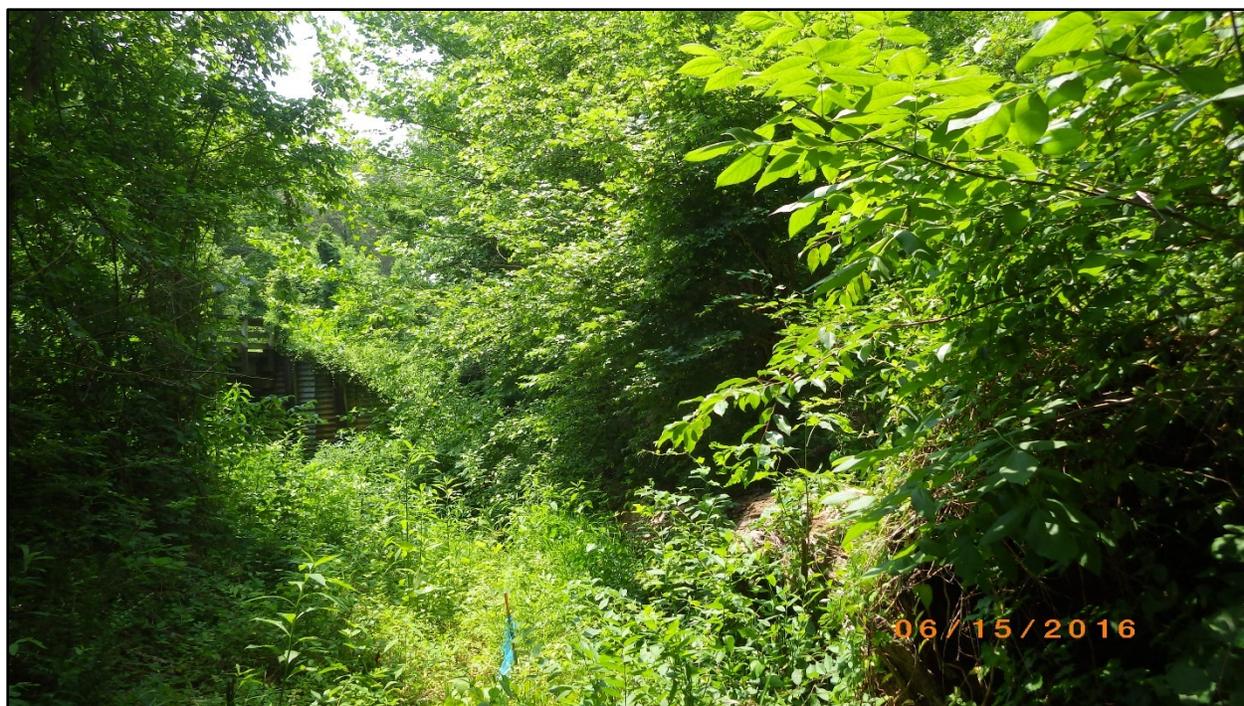


Figure 3: Westerly View of Transect C.



Figure 4: Easterly View of Transect B.

