

**Burke County
Bridge Nos. 160 and 162 on I-40
over SR 1758 (Berea Church Road)
Federal Aid Project No. BRNHS-40-1(159)115
W.B.S. No. 38371.1.1
T.I.P. No. B-4447**



**CATEGORICAL EXCLUSION
UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

May 2016

5-17-16

Date

for 

**Rob Hanson, PE, Project Development Section Head
Project Development & Environmental Analysis Unit**

5-17-16

Date

for 

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

**Burke County
Bridge Nos. 160 and 162 on I-40
over SR 1758 (Berea Church Road)
Federal Aid Project No. BRNHS-40-1(159)115
W.B.S. No. 38371.1.1
T.I.P. No. B-4447**

CATEGORICAL EXCLUSION

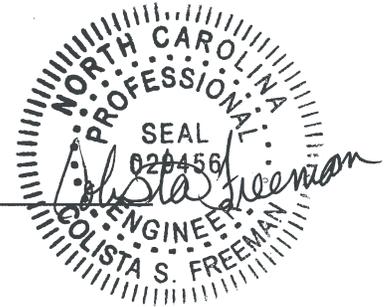
Documentation Prepared by:
CALYX™ Engineers and Consultants

5-2-16

Date



Colista Freeman, PE
Senior Planner



5-2-16

Date

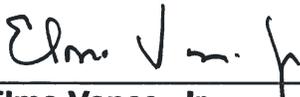


Liz Kovasckitz, AICP
Planning Program Manager

Documentation Prepared for:
North Carolina Department of Transportation

5/17/2016

Date



Elmo Vance, Jr.
Project Development Engineer

5/16/16

Date



Charles Cox, PE
Project Development Group Supervisor

Project Commitments

Bridge Nos. 160 and 162 on I-40 over SR 1758 (Berea Church Road)

BURKE COUNTY

WBS Element 38371.1.1
Federal Project No. BRNHS-40-1(159)115

TIP PROJECT B-4447

Project Development & Environmental Analysis Unit - Natural Environment Section

Prior to contract letting and construction authorization, field investigations will be conducted during appropriate survey windows for dwarf-flowered heartleaf and small whorled pogonia. The NCDOT Biological Surveys Group will be responsible for habitat assessment and surveys for the Northern long-eared bat (NLEB).

Construction authorization will not be requested until Endangered Species Act (ESA) compliance is satisfied for the NLEB, dwarf-flowered heartleaf, and small whorled pogonia.

Table of Contents

I. PURPOSE AND NEED STATEMENT 1

II. EXISTING CONDITIONS 1

III. ALTERNATIVES..... 3

 A. Preferred Alternative..... 3

 B. Alternatives Eliminated From Further Consideration 3

IV. ESTIMATED COSTS..... 4

V. NATURAL ENVIRONMENT 4

 A. Physical Characteristics 4

 1. Water Resources..... 4

 2. Biotic Resources..... 5

 B. Jurisdictional Topics 5

 1. Permits 6

 2. Federally Protected Species..... 6

VI. HUMAN ENVIRONMENT 9

 A. Section 106 Compliance Guidelines..... 9

 1. Historic Architecture 9

 2. Archaeology 9

 B. Community Impacts..... 10

 C. Noise and Air Quality..... 10

VII. GENERAL ENVIRONMENTAL EFFECTS 11

VIII. COORDINATION AND AGENCY COMMENTS 11

IX. PUBLIC INVOLVEMENT..... 12

X. CONCLUSION..... 12

List of Tables

Table 1. Estimated Project Costs 4

Table 2. Water Resources in the Study Area 4

Table 3. Physical Characteristics of Water Resources in the Study Area 5

Table 4. Physical Characteristics of Ponds in the Study Area..... 5

Table 5. Coverage of Terrestrial Communities in the Study Area 5

Table 6. Jurisdictional Characteristics of Streams in the Study Area 6

Table 7. Jurisdictional Characteristics of Wetlands in the Study Area..... 6

Table 8. Federally Protected Species Listed for Burke County 7

Burke County
Bridge Nos. 160 and 162 on I-40
over SR 1758 (Berea Church Road)
Federal Aid Project No. BRNHS-40-1(159)115
W.B.S. No. 38371.1.1
T.I.P. No. B-4447

INTRODUCTION: Bridge Nos. 160 and 162 are included in the latest approved North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP). The location is shown in Figure 1 (Appendix). 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 Bridge No. 160 has a sufficiency rating of 63.7 out of a possible 100 for a new structure. Bridge No. 162 has a sufficiency rating of 95.41. Bridge No. 160 is considered functionally obsolete due to deck geometry appraisal of 2 out of 9 according to Federal Highway Administration (FHWA) standards.

Components of both the concrete superstructure and substructure of Bridge No. 160 have experienced an increasing degree of deterioration that can no longer be addressed by maintenance activities. The bridge is approaching the end of its useful life.

Bridge No. 162 is not currently classified as functionally obsolete or structurally deficient; however, the NCDOT Structures Management Unit compared future anticipated maintenance costs over a 30-year period for both rehabilitation and replacement of the bridge. The total maintenance costs for rehabilitation exceed those of replacement by more than \$100,000. Additionally, replacing the bridge could eliminate or reduce the quantity of joints, which would further reduce future maintenance costs. The use of one temporary detour bridge for both bridge replacements will also increase the cost-effectiveness of the proposed project.

Replacement of both bridges with structures that meet current design standards will result in safer traffic operations.

II. EXISTING CONDITIONS

The project is located in Burke County, just outside the southeastern town limits of Connelly Springs, where I-40 crosses Berea Church Road. Development in the area is rural residential and agricultural in nature.

I-40 is classified as an interstate in the Statewide Functional Classification System. It is on the National Highway System (NHS) and the North Carolina National Truck

Network for Surface Transportation Assistance Act (STAA) Vehicles. I-40 is designated as a Strategic Highway Corridor and a North Carolina Intrastate System route.

In the vicinity of the bridges, I-40 is an interstate on rolling terrain. It is a four-lane divided freeway with full access control. The roadway has two 12-foot lanes in each direction, a 30-foot grass median, 10-foot paved outside shoulders, and four-foot inside paved shoulders. Bridge Nos. 160 and 162 have a minimum vertical clearance restriction of 19 feet 3 inches and 21 feet 9 inches, respectively, above SR 1758.

Both bridges are three-span structures that consist of a reinforced concrete floor on I-beams. The end bents consist of reinforced concrete caps on steel H-piles. The interior bents consist of reinforced concrete caps on steel H-piles encased in concrete. Existing Bridge No. 160 was constructed in 1956. The overall length of Bridge No. 160 is 135 feet, and the clear roadway width is 28 feet. Existing Bridge No. 162 was constructed in 1958. The overall length of Bridge No. 162 is 135 feet, and the clear roadway width is 40 feet. Both bridges are currently un-posted for single vehicles and truck-tractor semi-trailers (TTST).

There are no utilities attached to the existing structure, but overhead power lines are located across and along SR 1758 (Berea Church Road) north and south of the bridge. A water line passes under the bridge, and there is an eight-inch water main along the east side of SR 1758. Six-inch and 12-inch gas mains run south of and parallel to eastbound I-40 at Bridge No. 160.

The current traffic volume of 45,700 vehicles per day (VPD) is expected to increase to 57,600 VPD by the year 2040. The projected volume includes five percent TTST and 10 percent dual-tired vehicles (DT). The posted speed limit is 65 miles per hour in the project area. There are no school bus routes along I-40 through the project limits; however, three buses utilize the section of SR 1758 below I-40 on their morning and afternoon routes each day.

There were 17 crashes reported in the project area during a recent five-year period. Five crashes occurred in the vicinity of Bridge No. 162 (I-40 westbound), and 12 occurred in the vicinity of Bridge No. 160 (I-40 eastbound). Eleven of the crashes (65%) involved fixed objects in the median or shoulder, particularly guardrail and bridge rails. The overall crash rate for this section of I-40 is much higher than the statewide crash rate for rural interstates. The proposed replacement bridges will be built to meet current design standards, and are expected to reduce the potential for these types of crashes.

I-40 is an interstate facility with full access control; therefore, there are no existing bicycle or pedestrian facilities, and permanent or temporary bicycle or pedestrian accommodations are not proposed along I-40 as a part of this project. According to the Burke County Planning Director, SR 1758 (Berea Church Road) is used as a commuter route for students walking and biking from Connelly Springs to the local high school. Although there are no existing sidewalks along SR 1758, Burke County

has requested that the project accommodate a future six-foot paved shoulder along the roadway below I-40.

III. ALTERNATIVES

A. Preferred Alternative

Bridge Nos. 160 and 162 will be replaced on the existing alignment while traffic is maintained on a temporary two-lane onsite detour alignment to the south side (see Figure 2 in Appendix).

The replacement structures will consist of two bridges approximately 110 feet long. The bridge lengths are based on preliminary design information. The bridges will be of sufficient width to provide for two 12-foot lanes with 12-foot offsets on the outside and six-foot offsets on the inside, and will be spaced far enough apart to accommodate possible future I-40 widening (see Figure 3 in Appendix). The roadway grade of the new structures will be raised approximately two feet.

Improvements to the approach roadway will be required for a distance of approximately 1,340 feet to the west and 1,530 feet to the east of the structures. The approach roadway will be 40-foot pavement width in each direction to provide two 12-foot lanes. A 14-foot outside shoulder (12 feet paved) and a four-foot paved inside shoulder will be provided, in accordance with the current NCDOT Design Policy (the shoulder will include three additional feet where guardrail is required). An existing six-foot by six-foot reinforced concrete box culvert carrying a tributary to Drowning Creek will be retained and extended approximately 35 feet upstream and approximately 20 feet downstream.

Traffic will be maintained onsite during construction with the use of a temporary detour bridge just south of Bridge No. 160. The temporary structure will be approximately 105 feet in length with a roadway elevation approximately the same as the existing structures. The detour structure will have a clear deck width of 32 feet, which will provide two 12-foot lanes with four-foot offsets. The cross-over will provide two 12-foot lanes with eight-foot shoulders, of which four feet will be paved (see Figure 3 in Appendix).

Approximately 275 feet of SR 1758 will be improved that will tie into the existing cross section. The design for this section of SR 1758 has the following cross section: two 11-foot lanes with five-foot paved shoulders (see Figure 3 in Appendix).

NCDOT Division 13 concurs that replacement of both structures with an onsite detour is the preferred alternative.

B. Alternatives Eliminated From Further Consideration

The No Build alternative will eventually necessitate closure of the bridges. Closure is not acceptable due to the traffic service provided by I-40.

“Rehabilitation” of the old bridges is not practical due to their age and deteriorated condition. The concrete and steel elements of the existing structures have all deteriorated to a point where maintenance activities will be impractical and too costly for repair and rehabilitation.

An offsite detour is not practical because potential detour routes cannot support the high volume of traffic (greater than 20,000 vehicles per day) that uses I-40.

IV. ESTIMATED COSTS

The estimated costs, based on 2014 prices, are as follows:

Table 1. Estimated Project Costs

	Alternative 1
Structure	\$ 1,279,000
Roadway Approaches	1,467,000
Detour Structure and Approaches	1,625,000
Structure Removal	159,000
Miscellaneous & Mobilization	1,143,000
Engineering & Contingencies	877,000
Total Construction Cost	\$ 6,550,000
Right-of-way Costs	47,000
Right-of-way Utility Costs	216,000
Total Project Cost	\$ 6,813,000

V. NATURAL ENVIRONMENT

A. Physical Characteristics

1. Water Resources

Water resources in the study area are part of the Catawba River basin [U.S. Geological Survey (USGS) Hydrologic Unit 03050101]. Four streams were identified in the study area.

Table 2. Water Resources in the Study Area

Stream Name	Map ID	NCDWR Index Number	Best Usage Classification
UT Drowning Creek	SA	11-52-1	WS-IV
UT Drowning Creek	SB	11-52-1	WS-IV
UT Drowning Creek	SC	11-52-1	WS-IV
UT Drowning Creek	SD	11-52-1	WS-IV

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

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
SA	3-4	3-6	2-6	Sand, Gravel, Cobble	Moderate	Clear
SB	2-3	3-6	2-6	Sand, Gravel, Cobble	Moderate	Clear
SC	3-4	3-4	2-3	Sand, Gravel	Slow	Clear
SD	1-2	3-4	2-3	Sand, Gravel	Slow	Clear

Four ponds are located in the study area, and each of them have surface water connections to jurisdictional stream features.

Table 4. Physical Characteristics of Ponds in the Study Area

Map ID	Appearance	Connecting Feature/Map ID	Total Size (acres)	Size in Study Area (acres)
PA	Residential Pond	SB	0.07	0.03
PB	Agricultural Pond	SB	0.02	0.01
PC	Agricultural Pond	SB	0.08	0.05
PD	Agricultural Pond	SC	0.04	0.02

There are no designated anadromous fish waters or Primary Nursery Areas (PNA) present in the study area. There are no designated High Quality Waters (HQW) or water supply watersheds (WS-I or WS-II) within 1.0 mile downstream of the study area. The receiving stream for all streams within the study area, Drowning Creek, is not designated as an Outstanding Water Resource (OWR) or as a NC Wildlife Resources Commission (WRC) trout water. In addition, no streams within 1.0 mile of the study area appear on the North Carolina 2014 Final 303(d) list of impaired waters.

There are no benthic sampling locations within the Drowning Creek watershed. Drowning Creek flows directly into Lake Hickory.

2. Biotic Resources

Table 5. Coverage of Terrestrial Communities in the Study Area

Community	Coverage (ac.)
Maintained/ Disturbed	13.13
Mesic Mixed Hardwood Forest	17.97
Total	31.10

B. Jurisdictional Topics

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

If impacts to jurisdictional water resources are expected once final design is completed, the NCDOT will investigate potential on-site stream and wetland mitigation opportunities. If on-site mitigation is not feasible, mitigation will be provided by the North Carolina Department of Environmental Quality (NCDEQ), Division of Mitigation Services (DMS). Figure 4 in the Appendix shows the streams and wetlands in the study area.

Table 6. Jurisdictional Characteristics of Streams in the Study Area

Map ID	Length (ft.)	Impacts (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffer
SA	349	82.6	Perennial	Yes	Not Subject
SB	974	0	Perennial	Yes	Not Subject
SC	290	0	Intermittent	Yes	Not Subject
SD	44	0	Intermittent	Yes	Not Subject
Total Length	1,657	82.6			

Table 7. Jurisdictional Characteristics of Wetlands in the Study Area

Map ID	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating	Area (ac.)	Impacts (ac.)
WA	Headwater Forest	Riparian	13	0.01	0.00
WB	Headwater Forest	Riparian	17	0.02	0.00
Total Area				0.03	0.00

There are 82.6 linear feet of impacts to one stream and no impacts to wetlands as a result of the Preferred Alternative. Impacts are based on the preliminary design plus 25 feet beyond the slope stakes.

1. Permits

For the proposed project, a Nationwide Permit (NWP) 23 will likely be applicable. A NWP No. 33 may also apply for temporary construction activities such as stream dewatering, work bridges, or temporary causeways that are often used during bridge construction or rehabilitation.

2. Federally Protected Species

As of July 24, 2015, the United States Fish and Wildlife Service (USFWS) lists nine federally protected species for Burke County.

Table 8. Federally Protected Species Listed for Burke County

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
<i>Glyptemys muhlenbergii</i>	Bog turtle	T(S/A)	No	Not Required
<i>Myotis septentrionalis</i>	Northern long-eared bat	T	Yes	Unresolved
<i>Hexastylis naniflora</i>	Dwarf-flowered heartleaf	T	Yes	Unresolved
<i>Liatris helleri</i>	Heller's blazing star	T	No	No Effect
<i>Hudsonia montana</i>	Mountain golden heather	T	No	No Effect
<i>Gymnoderma lineare</i>	Rock gnome lichen	E	No	No Effect
<i>Isotria medeoloides</i>	Small whorled pogonia	T	Yes	Unresolved
<i>Geum radiatum*</i>	Spreading avens	E	No	No Effect
<i>Sisyrinchium dichotomum</i>	White irisette	E	No	No Effect

E - Endangered

T - Threatened

T(S/A) - Threatened due to similarity of appearance

Northern long-eared bat

USFWS Optimal Survey Window: June 1 – August 15

Habitat Description: In North Carolina, Northern long-eared bat (NLEB) occurs in the mountains, with scattered records in the Piedmont and coastal plain. In western North Carolina, NLEB spend winter hibernating in caves and mines. Since this species is not known to be a long-distance migrant, and caves and subterranean mines are extremely rare in eastern North Carolina, it is uncertain whether or where NLEB hibernate in eastern North Carolina. During the summer, NLEB roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees (typically ≥3 inches diameter at breast height). Males and non-reproductive females may also roost in cooler places, like caves and mines. This bat has also been found, rarely, roosting in structures like barns and sheds, under eaves of buildings, behind window shutters, in bridges, and in bat houses. Foraging occurs on forested hillsides and ridges, and occasionally over forest clearings, over water, and along tree-lined corridors. Mature forests may be an important habitat type for foraging.

Biological Conclusion: Unresolved

Construction authorization will not be requested until coordination with the USFWS is completed for this project regarding potential effects to the NLEB. The NCDOT Biological Surveys Group will be responsible for habitat assessment and surveys for the NLEB.

Dwarf-flowered Heartleaf

USFWS Optimal Survey Window: March-May

Habitat Description: Dwarf-flowered heartleaf is endemic to the western Piedmont and foothills of North and South Carolina. This herbaceous evergreen is found in moist to rather dry forests along bluffs; boggy areas next to streams and creek heads; and adjacent hillsides, slopes, and ravines. Requiring acidic, sandy loam soils, the species is found in soil series such as Pacolet, Madison, and Musella, among others. Occurrences are generally found on a north facing slope. Undisturbed natural communities such as Piedmont/Coastal Plain Heath Bluff, Dry-Mesic Oak Hickory Forest, and Mesic Mixed Hardwood Forest hold the most viable occurrences. However, less viable remnant occurrences are found in disturbed habitats, including logged, grazed, mown, and residential/commercial developed lands; areas converted to pasture, orchards, and tree plantations; roadside rights-of-way; and on upland slopes surrounding manmade ponds or lakes.

Biological Conclusion: Unresolved

Suitable habitat for this species exists within the study area in the form of Mesic Mixed Hardwood Forest with north facing slopes adjacent to streams. Dwarf-flowered heartleaf is known to prefer acidic soils, and the Fairview sandy clam loam soils within the project study area are considered acidic. A handful of individuals of *Hexastylis* belonging to the Virginia group were located in the northwest quadrant of the study area. A review of NCNHP records, updated July 2015, indicates no known occurrence of dwarf-flowered heartleaf within 1.0 mile of the study area.

The taxonomy of *Hexastylis* relies heavily on flowers and pollen to discriminate among species, so identification was not possible at the time of the site visit because the plants were not in bloom. The biological conclusion for this species will remain Unresolved until the *Hexastylis* plants located within the study area can be identified.

Small whorled pogonia

USFWS Optimal Survey Window: mid May-early July

Habitat Description: Small whorled pogonia occurs in young as well as maturing (second to third successional growth) mixed-deciduous or mixed-deciduous/coniferous forests. It does not appear to exhibit strong affinities for a particular aspect, soil type, or underlying geologic substrate. In North Carolina, the perennial orchid is typically found in open, dry deciduous woods and is often associated with white pine and rhododendron. The species may also be found on dry, rocky, wooded slopes; moist slopes; ravines lacking stream channels; or slope bases near braided channels of vernal streams. The orchid, often limited by shade, requires small light gaps or canopy breaks, and typically grows under canopies that are relatively open or near features like logging roads or streams that create long-persisting breaks in the forest canopy.

Biological Conclusion: Unresolved

Suitable habitat for small whorled pogonia exists within the study area in the form of open, dry deciduous woods. Canopy gaps are present in limited locations, mainly within the northwest quadrant of the study area. However, other habitats preferred by

this species are not found within the study area. No small whorled pogonia were found during the field visit on August 11, 2015. A review of NCNHP records, updated July 2015, indicates no known small whorled pogonia occurrences within 1.0 mile of the study area. Due to the presence of suitable habitat for this species within the project study area, the biological conclusion for small whorled pogonia will remain Unresolved until a field investigation can be conducted during the optimal survey window.

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.

No water bodies large enough or sufficiently open to be considered potential feeding sources were identified in the project study area. Additionally, a review of the July 2015 NCNHP database on August 31, 2015, revealed no known occurrences of this species within 1.0 mile of the project study area. Due to the lack of habitat, known occurrences, and minimal impact anticipated for this project, it has been determined that this project will not affect this species.

VI. HUMAN ENVIRONMENT

A. 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's 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.

1. Historic Architecture

In a form dated January 27, 2009, the N.C. Historic Preservation Office (HPO) indicated no surveys for historic properties are required. The form is attached in the Appendix.

2. Archaeology

In a form dated January 27, 2009, the N.C. HPO indicated no archaeological surveys are required. The form is attached in the Appendix.

B. Community Impacts

No adverse impact on families or communities is anticipated. Right-of-way acquisition will be limited. No relocatees are expected with implementation of the proposed alternative.

No adverse effect on public facilities or services is expected. 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. No change in land use is expected to result from the construction of the project.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. All construction will take place along the existing alignment, mostly within the existing right-of-way. There are soils classified as prime and unique in the vicinity of the project, including farmland of statewide importance within parcels adjacent to Bridge 160 in the southeast quadrant. However, no impacts are anticipated since the bridge will be replaced in its current location.

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

C. Noise & Air Quality

The project is located in Burke County, which has been determined to comply with the National Ambient Air Quality Standards. The proposed project is located in an attainment area; therefore, 40 CFR Parts 51 and 93 are not applicable. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

This project will not result in any meaningful changes in traffic volume, 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. As such, 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.

Noise levels may increase during project 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 project is expected to have an overall positive impact. Replacement of bridges with structures that meet current design standards will result in safer traffic operations.

The bridge replacements will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation 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.

VIII. COORDINATION & AGENCY COMMENTS

NCDOT has sought input from the following agencies as a part of the project development: U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service, U.S. Forest Service, Tennessee Valley Authority, Eastern Band of Cherokee Indians, N.C. Division of Water Resources, N.C. Division of Parks & Recreation, North Carolina State Historic Preservation Office, Burke County Planning Department, Burke County Schools, Burke County Emergency Services, Town of Connelly Springs, and Greater Hickory Urban Area Metropolitan Planning Organization (MPO). Copies of letters received are included in the Appendix.

The **N.C. Division of Water Resources** in a letter dated May 4, 2009, listed several points of concern: (1) Acid rock condition is needed; (2) Any anticipated bank stabilization associated with culvert installations or extensions should be addressed in the Categorical Exclusion (CE); and (3) Any anticipated dewatering or access structures necessary for construction should be addressed in the CE.

Response: Geotechnical investigations determined that some residual clay over saprolite of variable depth and consistency covers a thin horizon of weathered rock which grades rapidly to crystalline rock. Cut and fill slopes are expected to be stable at 2:1 H:V. There is an existing 6'x6' reinforced concrete box culvert that will need to be extended on the upstream and downstream end to accommodate the proposed typical section along with 2:1 side slopes.

Burke County Office of Emergency Services in their letter dated May 7, 2009, expressed concern that there are two schools located within two miles of the project, with SR 1758 being a school bus transportation route, and fire department response along SR 1758 would be affected by construction.

Response: SR 1758 will remain open during construction, with only temporary lane closures. NCDOT will coordinate with Burke County officials prior to any closures to ensure impacts to school buses and emergency vehicles are minimized.

The **U.S. Fish and Wildlife Service, the U.S. Forest Service, the U.S. Army Corps of Engineers, the Tennessee Valley Authority, the Eastern Band of Cherokee Indians, the N.C. Division of Parks & Recreation, the Burke County Planning Department, Burke County Schools, the Town of Connelly Springs, and the Greater Hickory Urban Area MPO** had no special concerns for this project.

IX. PUBLIC INVOLVEMENT

A newsletter has been sent to property owners and residents along I-40 from approximately 0.5 mile west of the proposed project to approximately one mile east of the project, as well as to property owners and residents along SR 1758 between Old Highway 70 Loop to just east of East Burke High School. The newsletter was also sent to residents and property owners along Shady Rough Road. No comments have been received to date. Based on the lack of comments, a Public Meeting was determined unnecessary.

There is not substantial controversy on social, economic, or environmental grounds concerning the project.

X. CONCLUSION

On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of the project. The project is therefore considered to be a federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.

Appendix

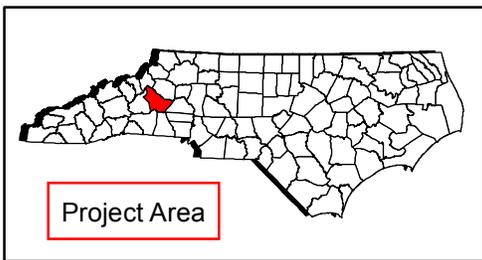
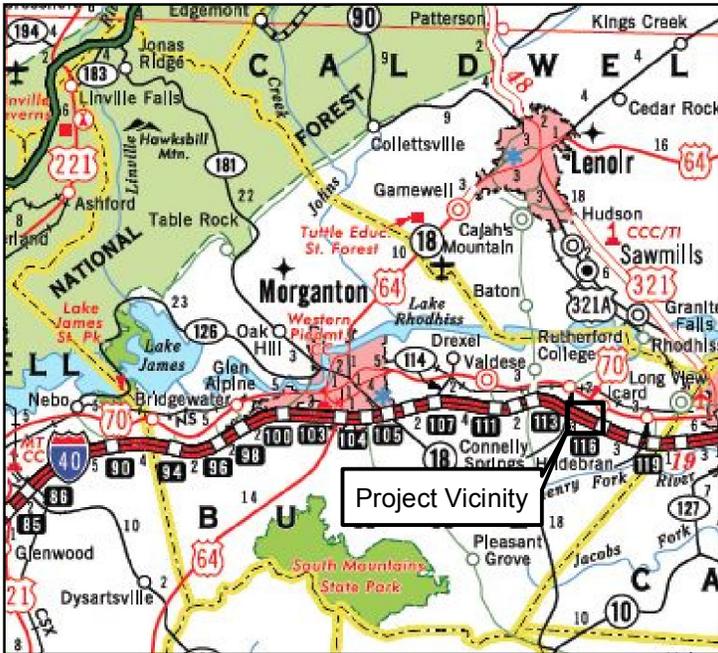


Figure 1

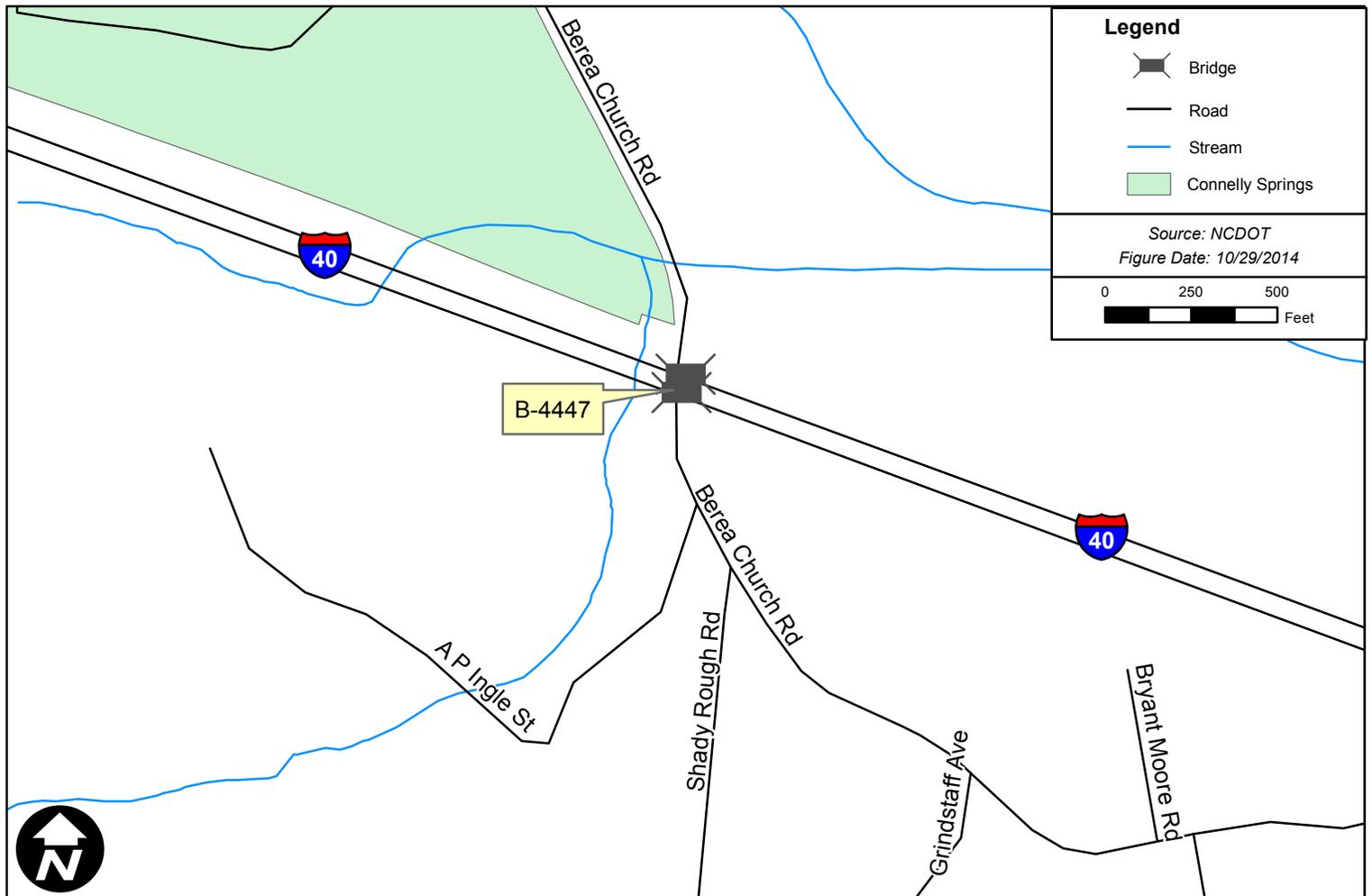
Project Vicinity

Replace Bridge Nos. 160 & 162
on I-40 over SR 1758 (Berea Church Road)
STIP B-4447

Burke County, North Carolina



North Carolina
Department of Transportation



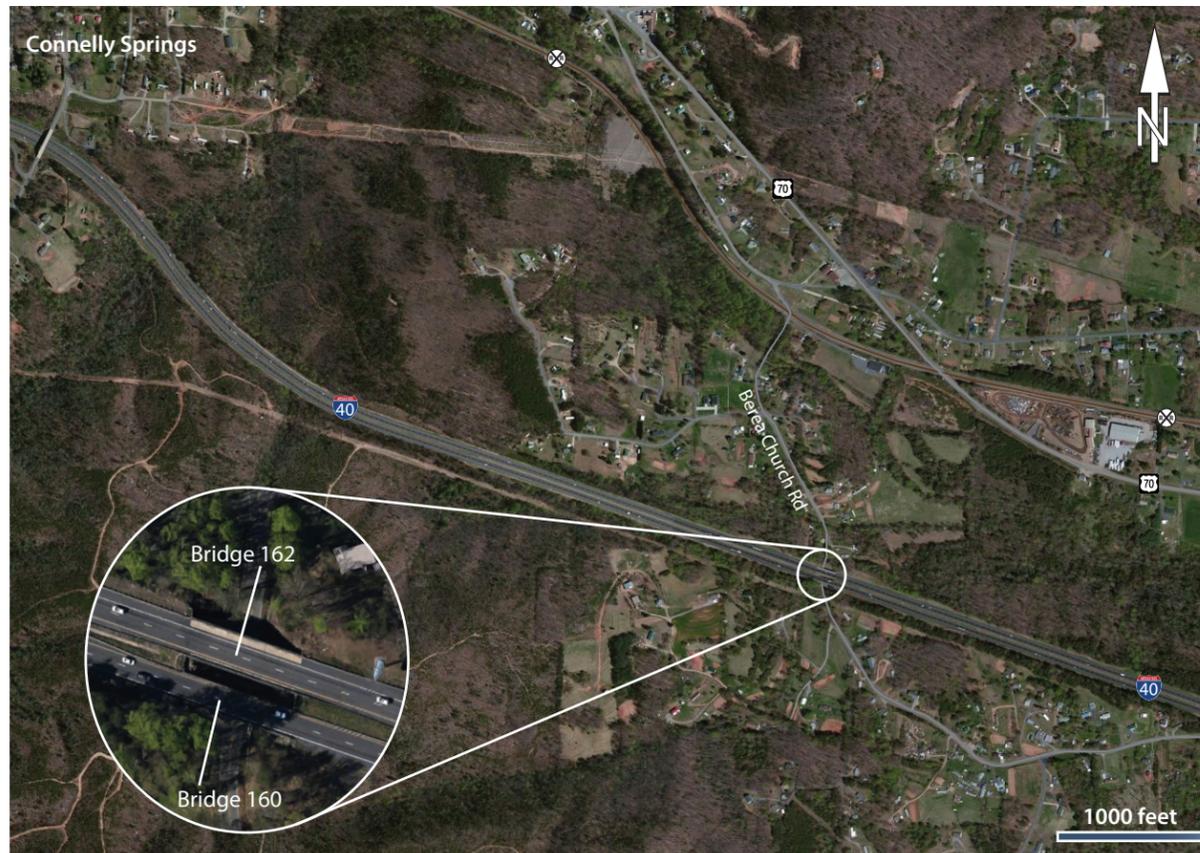


Figure 2

Proposed Project

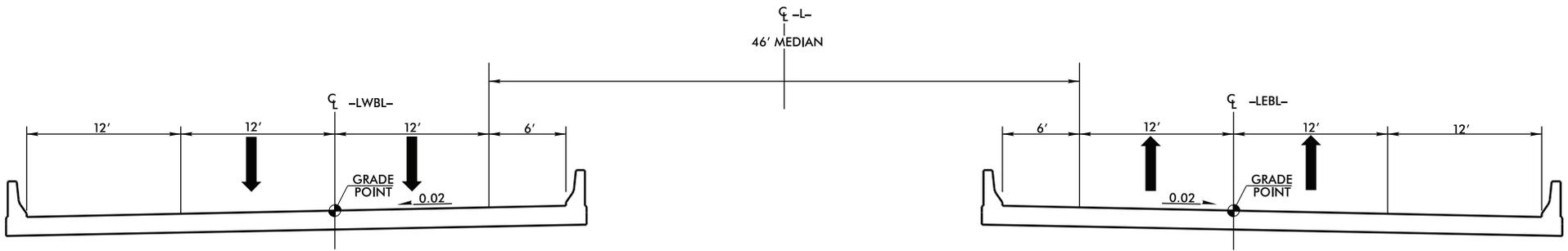
Replacement of Bridge Nos. 160 and 162 on I-40
Over SR 1758 (Berea Church Road)

STIP B-4447

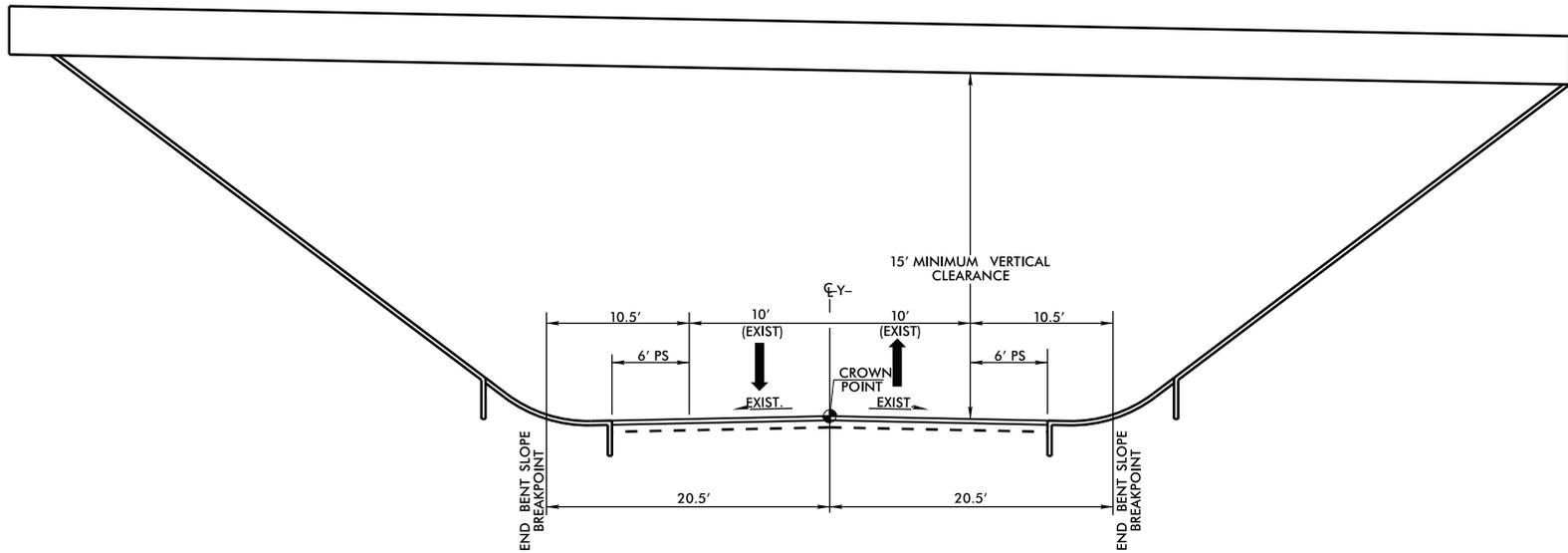
Burke County, North Carolina



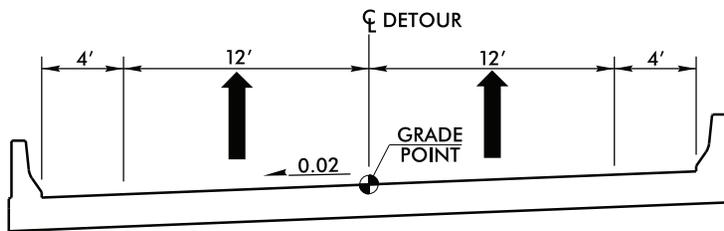
North Carolina
Department of Transportation



TYPICAL SECTION ON STRUCTURE



TYPICAL SECTION ON ROADWAY UNDER STRUCTURE



TYPICAL SECTION ON TEMPORARY STRUCTURE

Figure 3

Proposed Typical Sections

Replacement of Bridge Nos. 160 and 162 on I-40 over SR 1758 (Berea Church Road)

STIP B-4447

Burke County, North Carolina



North Carolina
Department of Transportation



Legend

- - - SLOPE STAKES LINE
- B-4447 IMPACT AREA (SLOPE STAKES PLUS 25FT)

- STREAM
- POND
- WETLAND

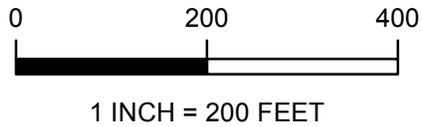


Figure 4 - Potential Project Impacts

*Replace Bridge Nos. 160 & 162 on I-40
Over SR 1758 (Berea Church Rd.)*

STIP No. B-4447 BURKE COUNTY

Bridge Construction CFY 2013-2014

SHPO Number	TIP	Project	County	Division	Project Engineer	Archaeological Survey	Architectural Survey
ER 08-2656	B-4447	Bridge 160 on I-40 over SR 1758	Burke	13	N. Lockhart	No	No
ER 08-2657	B-4717	Bridge 58 on SR 1258 over Rose Creek	Burke	13	N. Lockhart	No	No
ER 08-2661	B-5135	Bridge 1 on SR 1512 over Hunting Creek	Burke	13	N. Lockhart	Yes - if on New alignment	No

B-4447 and B-4717; Cleared,
 A- B-5135; Survey if on new alignment,
 LGH/BJJ 1-5-09

S - (NC)
 11/7/08
 CB

Due 12/31/08

Peter B Sandburn
 1/27/02

NOV 18 2008



North Carolina Department of Environment and Natural Resources

Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

May 4, 2009

RECEIVED
Division of Highways

MAY - 6 2009

Preconstruction
Project Development and
Environmental Analysis Branch

MEMORANDUM

TO: Natalie Lockhart, NCDOT, Bridge Project Planning Engineer
FROM: Brian Wrenn, NCDWQ, Transportation Permitting Unit *BLW*
SUBJECT: Scoping Review of NCDOT's Proposed Bridge Replacement Projects: Bridge No. 1 on SR 1512 over Hunting Creek, B- 5135; Bridge No. 58 on SR 1258 over Roses Creek, B-4717; Bridge No. 160 on SR 1758 over I-40, B-4447; in Burke County, Division 13.

In reply to your correspondence dated April 7, 2009 (received April 13, 2009) in which you requested comments for the above referenced projects, the NCDWQ offers the following comments:

Project-Specific Comments

B-5135, Bridge No. 1 Over Hunting Creek

- 1. Hunting Creek has a best use classification of WS-IV (CA), Water Supply Critical Area. Given the potential for impacts to these resources during the project implementation, the NCDWQ requests that NCDOT strictly adhere to North Carolina regulations entitled "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0124) throughout design and construction of the project. This would apply for any area that drains to streams having WS CA(Water Supply Critical Area) classifications.

Should the bridge project be located within the Critical Area of a Water Supply NCDOT may be required to design, construct, and maintain hazardous spill catch basins in the project area. The number of catch basins installed shall be determined by the design of the bridge, so that runoff would enter said basin(s) rather than flowing directly into the stream, and in consultation with the DWQ.

- 2. Many areas in the western section of NC contain geological formations known as acid-forming rock. When these formations are exposed to moisture and air through land disturbing activities, the runoff from these areas can have very low pHs and can be very detrimental to aquatic habitats. A determination should be made regarding the presence of acid-forming rock using the attached guidance titled, "Assessing and Controlling Acid Rock Drainage on Projects Requiring Section 401 Water Quality Certification."
- 3. Any anticipated bank stabilization associated with culvert installations or extensions should be addressed in the Categorical Exclusion (CE) document. It is understood that final designs are not determined at the time the CE is developed. However, the CE should discuss the potential for bank stabilization necessary due to culvert installation.

Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
Location: 2321 Crabtree Blvd., Raleigh, North Carolina 27604
Phone: 919-733-1786 \ FAX: 919-733-6893
Internet: <http://h2o.enr.state.nc.us/ncwellands/>



4. Any anticipated dewatering or access structures necessary for construction of bridges should be addressed in the CE. It is understood that final designs are not determined at the time the CE is developed. However, the CE should discuss the potential for dewatering and access measures necessary due to bridge construction.

B-4717, Bridge No. 58 Over Roses Creek

1. Roses Creek is class WS-III; Tr waters of the State. NCDWQ recommends that the most protective sediment and erosion control BMPs be implemented to reduce the risk of turbidity violations in trout waters. In addition, all disturbances within trout buffers shall be conducted in accordance with NC Division of Land Resources and NC Wildlife Resources Commission (NCWRC) requirements. A moratorium on in-water work may be required by NCWRC during trout spawning season.
2. NEED ACID ROCK CONDITION
3. Any anticipated bank stabilization associated with culvert installations or extensions should be addressed in the Categorical Exclusion (CE) document. It is understood that final designs are not determined at the time the CE is developed. However, the CE should discuss the potential for bank stabilization necessary due to culvert installation.
4. Any anticipated dewatering or access structures necessary for construction of bridges should be addressed in the CE. It is understood that final designs are not determined at the time the CE is developed. However, the CE should discuss the potential for dewatering and access measures necessary due to bridge construction.

B-4447, Bridge No.160 Over I-40

3. A Unnamed Tributary to Drowning Creek is located in the project study area. Drowning Creek is class WS-IV waters of the State.
4. NEED ACID ROCK CONDITION
5. Any anticipated bank stabilization associated with culvert installations or extensions should be addressed in the Categorical Exclusion (CE) document. It is understood that final designs are not determined at the time the CE is developed. However, the CE should discuss the potential for bank stabilization necessary due to culvert installation.
6. Any anticipated dewatering or access structures necessary for construction of bridges should be addressed in the CE. It is understood that final designs are not determined at the time the CE is developed. However, the CE should discuss the potential for dewatering and access measures necessary due to bridge construction.

General Comments Regarding Bridge Replacement Projects

1. 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.
2. If foundation test borings are necessary; it shall be noted in the document. Geotechnical work is approved under General 401 Certification Number 3687/Nationwide Permit No. 6 for Survey Activities.

3. If a bridge is being replaced with a hydraulic conveyance other than another bridge, NCDWQ believes the use of a Nationwide Permit may be required. Please contact the US Army Corp of Engineers to determine the required permit(s).
4. If the old bridge is removed, no discharge of bridge material into surface waters is allowed unless otherwise authorized by the US ACOE. Strict adherence to the Corps of Engineers guidelines for bridge demolition will be a condition of the 401 Water Quality Certification.
5. 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.
6. 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 NCDWQ's *Stormwater Best Management Practices*.
7. 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.
8. 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.
9. 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.
10. All work in or adjacent to stream waters shall be conducted in a dry work area unless otherwise approved by NCDWQ. 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.
11. Heavy equipment shall 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.
12. In most cases, the NCDWQ prefers the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour shall 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 shall be removed and the approach fills removed from the 100-year floodplain. Approach fills shall be removed and restored to the natural ground elevation. The area shall be stabilized with grass and planted with native tree species. Tall fescue shall not be used in riparian areas.

General Comments if Replacing the Bridge with a Culvert

1. Placement of culverts and other structures in waters, streams, and wetlands shall be 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 disequilibrium 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 the NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.
2. 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 shall 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.
3. 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 shall be properly designed, sized and installed.

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 Brian Wrenn at 919-233-5715.

cc: David Baker, US Army Corps of Engineers, Asheville Field Office
Roger Bryan, Division 13 Environmental Officer
Chris Militscher, Environmental Protection Agency (electronic copy only)
Marla Chambers, NC Wildlife Resources Commission
Mike Parker, NCDWQ Asheville Regional Office
File Copy

**Burke County Office
of
Emergency Services**

Tel. 828-433-6609
FAX 828-438-1841



**Emergency Management
EMS Administration
Fire Marshal's Office
Training Division
Communications**

May 7, 2009

Ms. Natalie Lockhart
Bridge Project Planning Engineer
NC Department of Transportation
1598 Mail Service Center
Raleigh, N.C. 27699-1598

Dear Ms. Lockhart

I am writing to you concerning your recent request for information regarding the potential environmental impacts and recommendation for alternate routes for three (3) bridge projects in Burke County. These projects are:

B-5135 Replacement of Bridge No. 1 on SR 1512 Over Hunting Creek

- * No school(s) within the immediate area however this is a school bus transportation route. Other routes can be utilized such as Zion Road (SR 1522).
- * This is a transportation route to the landfill. The landfill is located off Huffman Bridge Road / Antioch Road (SR 1501). Other routes can be utilized such as Zion Road (SR 1522).
- * No potential problem with fire department response as this is at or near fire district line(s).
- * In January 2006 an explosion and fire occurred at the Synthron, Inc. chemical plant. Runoff from fire control flowed on both sides of the road.
- * No known trout waters.

B-4717 Replacement of Bridge No. 58 on SR 1258 Over Rose Creek

- * No school(s) within the immediate area however this is a school bus transportation route. No alternate route available as this would essentially divide the road distance in half.
- * Fire department response would be affected as again this would essentially divide the road distance in half and dispatch information would be important for location.
- * No known trout waters.

B-4447 Replacement of Bridge No. 160 on SR 1758 Over I-40

- * Major transportation route.

Burke County Emergency Operations Center

200 Avery Avenue
Post Office Box 219 Morganton, North Carolina 28680-0219

- * East Burke High School and East Burke Middle School within two (2) miles and SR 1758 would be a school bus transportation route.
- * Fire department response would have some affect from the SR 1758 stand point however from an I-40 stand point two departments would respond.

Should you have any other question you may contact me at 828-430-4216. Thank you.

Sincerely,

Mark Pitts

Mark Pitts
Burke County Fire Marshal
