

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	<u><b>B-5237</b></u>
W.B.S. No.	<u><b>42838.1.1</b></u>
Federal Project No.	<u><b>BRZ-2703(1)</b></u>

A. Project Description:

The purpose of this project is to replace Wake County Bridge No. 248 on SR 2703 (New Bethel Church Rd.) over Mahler’s Creek (see Figure 1). The project is included in the approved 2016-2025 North Carolina State Transportation Improvement Program (STIP). Existing Bridge No. 248 is 52.5 feet long with a clear deck width of 24 feet. The replacement structure will be a bridge approximately 70 feet long providing a minimum 40-foot clear deck width. The new bridge will include two 11-foot lanes with 4-foot shoulders and 7.5-foot offsets on each side (see Figure 4). The north side of the proposed bridge will include a 5-foot 6-inch sidewalk with a 2-bar metal bridge rail. The bridge length is based on preliminary design information and is set by hydraulic requirements. The roadway grade of the new structure will be approximately the same as the existing structure.

The approach roadway will extend approximately 375 feet from the western end of the new bridge and approximately 235 feet from the eastern end of the new bridge (see Figure 2 & 3). The approaches will be widened to include a 30-foot pavement width providing two 11-foot lanes and 4-foot shoulder. The north side will include curb and gutter with a 10-foot berm (14 feet of berm width where guardrail is required) including a 5-foot sidewalk. The south side will include a 7.5-foot grass shoulder (three additional feet where guardrail is required). The roadway will be designed as a local road using Sub-regional tier guidelines with a 40 mile per hour design speed.

A temporary detour structure located south of the existing bridge will serve as an on-site detour during construction (see Figure 2 & 3).

B. Purpose and Need:

NCDOT Bridge Management Unit records indicate Bridge No. 248 has a sufficiency rating of 18.34 out of a possible 100 for a new structure.

The bridge is considered structurally deficient due to a deck appraisal of 4 out of 9 according to Federal Highway Administration (FHWA) standards. The bridge also meets the criteria for functionally obsolete due to a structural evaluation of 3 out of 9 and a deck geometry appraisal of 2 out of 9.

The bridge was constructed in 1953. The substructure of Bridge No. 248 has timber elements that are sixty-three years old. Timber components have a typical life expectancy between 40 to 50 years due to the natural deterioration rate of wood. Rehabilitation of a timber structure is generally practical only when a few elements are damaged or prematurely deteriorated. However, past a certain degree of deterioration, most timber elements become impractical to maintain and upon eligibility are programmed for replacement. Timber components of Bridge No. 248 are experiencing an increasing degree of deterioration that can no longer be addressed by reasonable maintenance activities; therefore the bridge is approaching the end of its useful life.

C. Proposed Improvements:

Circle one or more of the following Type II improvements which apply to the project:

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).
  - a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
  - b. Widening roadway and shoulders without adding through lanes
  - c. Modernizing gore treatments
  - d. Constructing lane improvements (merge, auxiliary, and turn lanes)
  - e. Adding shoulder drains
  - f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
  - g. Providing driveway pipes
  - h. Performing minor bridge widening (less than one through lane)
  - i. Slide Stabilization
  - j. Structural BMP's for water quality improvement
  
2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.
  - a. Installing ramp metering devices
  - b. Installing lights
  - c. Adding or upgrading guardrail
  - d. Installing safety barriers including Jersey type barriers and pier protection
  - e. Installing or replacing impact attenuators
  - f. Upgrading medians including adding or upgrading median barriers
  - g. Improving intersections including relocation and/or realignment
  - h. Making minor roadway realignment
  - i. Channelizing traffic
  - j. Performing clear zone safety improvements including removing hazards and flattening slopes
  - k. Implementing traffic aid systems, signals, and motorist aid
  - l. Installing bridge safety hardware including bridge rail retrofit

3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.
  - a. Rehabilitating, reconstructing, or replacing bridge approach slabs
  - b. Rehabilitating or replacing bridge decks
  - c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
  - d. Replacing a bridge (structure and/or fill)
4. Transportation corridor fringe parking facilities.
5. Construction of new truck weigh stations or rest areas.
6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.
7. Approvals for changes in access control.
8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.
11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.
12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.
13. Acquisition and construction of wetland, stream and endangered species mitigation sites.
14. Remedial activities involving the removal, treatment or monitoring of soil or groundwater contamination pursuant to state or federal remediation guidelines.

D. Special Project Information:

The estimated costs are as follows:

Structure	\$ 374,000
Roadway Approaches	\$ 435,000
Structure Removal	\$ 20,000
Structure (On-Site Detour)	\$ 248,000
Misc. & Mob.	\$ 292,000
Eng. & Contingencies	\$ 205,000
Total Construction Cost	\$ 1,574,000
Right-of-Way Costs	\$ 450,000
Utility Costs *	\$ 217,000
Total Project Cost	\$ 2,241,000

\* Utility costs do not include the relocation of a 30” sanitary sewer force main impacted by the project. The City of Raleigh Public Utilities Department is responsible for relocating the force main prior to construction of this project and will cover all costs accrued.

**Estimated Traffic:**

Current	-	3,100 vpd
Year 2035	-	8,400 vpd
TTST	-	1%
Dual	-	3%

**Accidents:** Analysis of a recent five year period found six accidents occurring in the vicinity of the project. There were five lane departure crashes (two vehicles struck the end of the bridge rail) and one animal related crash.

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

**Pedestrian and Bicycle Accommodations:** SR 2703 (New Bethel Church Rd.) is designated as a Bicycle Route and bicycle accommodations will be provided (see Figure 3). Mahler’s Creek Greenway is a master plan proposed path to accommodate pedestrians and bicyclists. The Town of Garner was not in favor of the greenway at this location but has requested sidewalks on both sides of the proposed bridge (see email dated August 29, 2013 in the appendix). A 5-foot wide

sidewalk will be provided on the north side of the proposed bridge and a 7.5-foot wide offset (to accommodate future sidewalk) will be provided on the south side of the proposed bridge. A proposed sidewalk will tie into the existing sidewalk on the northeast quadrant of the proposed bridge. There will be a shared cost with Garner for the additional sidewalk added to the project on the northwest quadrant of the bridge.

**Bridge Demolition:** Bridge No. 248 is constructed of timber and steel and should be possible to remove with no resulting debris in the water based on standard demolition practices.

### **Alternatives Discussion:**

**No Build** – The no build alternative would result in eventually closing the road which is unacceptable given the volume of traffic served by SR 2703.

**Rehabilitation** – The bridge was constructed in 1953 and the timber materials within the bridge are reaching the end of their useful life. Rehabilitation would require replacing the timber components which would constitute effectively replacing the bridge.

**Offsite Detour** – The offsite detour for this project would be four miles long using NC 50 (Benson Rd.), SR 2812 (Timber Drive Ext.) and SR 2547 (Hebron Church Rd.). South Garner High School campus is located on the detour route. Wake County Public Schools stated that closure of SR 2703 (New Bethel Church Rd.) would impact school buses. There are several significant events at Lake Benson that utilize a satellite parking lot located on SR 2703 (New Bethel Church Rd.) and relocation of this parking lot is not feasible. The Town of Garner submitted a resolution to NCDOT requesting that SR 2703 (New Bethel Church Rd.) be kept open to through traffic during the entire construction period. See the appendix for the resolution (adopted on July 7, 2015).

**Onsite Detour (Preferred)** – Bridge No. 248 will be replaced along the existing roadway alignment. A temporary detour structure located south of the existing bridge will serve as an on-site detour during construction. The length of the temporary bridge is approximately 110 feet. Improvements to the approach roadways will be required for a distance of approximately 400 feet to the west and 530 feet to the east of the structure.

**New Alignment** – Replacing Bridge No. 248 on a new location would cause greater impacts to residential properties located along the south side of SR 2703 (New Bethel Church Rd.).

### **Other Agency Comments:**

The N.C. Department of Environment and Natural Resources (NCDWR, formally NCDWQ), in a letter dated January 10, 2011, states that Mahler's Creek is class C; NSW waters of the State. NCDWQ recommends that highly protective sediment and erosion control best management practices (BMP's) be implemented to reduce the risk of nutrient runoff to Mahler'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 NCDWQ's *Stormwater Best Management Practices*. Since this project is within the Neuse River Basin, riparian buffer impacts shall be avoided and minimized to the greatest extent possible.

**Response:** Sedimentation and erosion control measures shall adhere to the Design Standards in Sensitive Watersheds and NCDWR riparian buffer rules apply

The N.C. Wildlife Resources Commission, in a letter dated March 28, 2011, recommend NCDOT follow the Design Standards for Sensitive Watersheds during the design and construction of this project. NCWRC recommends replacing a bridge with a bridge.

**Response:** Bridge No 248 will be replaced with a new bridge. Design Standards in Sensitive Watersheds apply for this project.

The U.S. Fish & Wildlife Service, in a letter dated January 7, 2011, recommends that mussel surveys within the project vicinity to assess dwarf wedgemussel habitat quality and to determine presence or absence of the species. Although not known from Mahler's Creek, the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) is known to occur less than one mile downstream of the project area in Swift Creek.

**Response:** A survey was performed by NCDOT staff members on April 6, 2011 and again downstream of the project on May 9, 2011. As a result of each survey, as well as the review of GIS and NHP data, it appears that the dwarf wedgemussel does not exist in the project area. Habitat for the dwarf wedgemussel does not occur in Mahler's Creek, because of the shifting sand substrate, evidence of beaver activity, unstable stream banks, and a rock barrier created by ATV riders. Furthermore, the project crossing of Mahler's Creek is 4.75 miles away from the nearest known population of dwarf wedgemussel in Swift Creek. **This project will have no effect on the dwarf wedgemussel.**

The N.C. Department of Cultural Resources and the U.S. Environmental Protection Agency have no specific concerns or special conditions for this project.

**Public Involvement:**

A letter was sent to all property owners affected directly by this project. Property owners were invited to comment. No comments have been received to date.

Additional coordination was done with the Town of Garner, Wake County Public Schools and Wake County EMS at a meeting held on June 10, 2015, concerning alternatives and detour route.

E. Threshold Criteria

The following evaluation of threshold criteria must be completed for Type II actions

<u>ECOLOGICAL</u>	<u>YES</u>	<u>NO</u>
(1) Will the project have a substantial impact on any unique or important natural resource?	<input type="checkbox"/>	<u>  X  </u>
(2) Does the project involve habitat where federally listed endangered or threatened species may occur?	<input checked="" type="checkbox"/>	<u>      </u>
(3) Will the project affect anadromous fish?	<input type="checkbox"/>	<u>  X  </u>
(4) If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-tenth (1/10) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	<u>  X  </u>	<input type="checkbox"/>
(5) Will the project require the use of U. S. Forest Service lands?	<input type="checkbox"/>	<u>  X  </u>
(6) Will the quality of adjacent water resources be adversely impacted by proposed construction activities?	<input type="checkbox"/>	<u>  X  </u>
(7) Does the project involve waters classified as Outstanding Resources Waters (ORW) and/or High Quality Waters (HQW)?	<input type="checkbox"/>	<u>  X  </u>
(8) Will the project require fill in waters of the United States in any of the designated mountain trout counties?	<input type="checkbox"/>	<u>  X  </u>
(9) Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?	<input type="checkbox"/>	<u>  X  </u>

PERMITS AND COORDINATION

	<u>YES</u>	<u>NO</u>
(10) If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?	<input type="checkbox"/>	<u>X</u>
(11) Does the project involve Coastal Barrier Resources Act resources?	<input type="checkbox"/>	<u>X</u>
(12) Will a U. S. Coast Guard permit be required?	<input type="checkbox"/>	<u>X</u>
(13) Could the project result in the modification of any existing regulatory floodway?	<input checked="" type="checkbox"/>	<u>    </u>
(14) Will the project require any stream relocations or channel changes?	<input type="checkbox"/>	<u>X</u>

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES

	<u>YES</u>	<u>NO</u>
(15) Will the project induce substantial impacts to planned growth or land use for the area?	<input type="checkbox"/>	<u>X</u>
(16) Will the project require the relocation of any family or business?	<input type="checkbox"/>	<u>X</u>
(17) Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population?	<input type="checkbox"/>	<u>X</u>
(18) If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor?	<u>X</u>	<input type="checkbox"/>
(19) Will the project involve any changes in access control?	<input type="checkbox"/>	<u>X</u>
(20) Will the project substantially alter the usefulness and/or land use of adjacent property?	<input type="checkbox"/>	<u>X</u>
(21) Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness?	<input type="checkbox"/>	<u>X</u>
(22) Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)?	<u>X</u>	<input type="checkbox"/>
(23) Is the project anticipated to cause an increase in traffic volumes?	<input type="checkbox"/>	<u>X</u>



- |      |   |                          |                                     |
|------|---|--------------------------|-------------------------------------|
| (24) | Will traffic be maintained during construction using existing roads, staged construction, or on-site detours?   | <u>  <b>X</b>  </u>      | <input type="checkbox"/>            |
| (25) | If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility? | <u>      </u>            | <input checked="" type="checkbox"/> |
| (26) | Is there substantial controversy on social, economic, or environmental grounds concerning the project?  | <input type="checkbox"/> | <u>  <b>X</b>  </u>                 |
| (27) | Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project?   | <u>  <b>X</b>  </u>      | <input type="checkbox"/>            |
| (28) | Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places?  | <input type="checkbox"/> | <u>  <b>X</b>  </u>                 |
| (29) | Will the project affect any archaeological remains which are important to history or pre-history?   | <input type="checkbox"/> | <u>  <b>X</b>  </u>                 |
| (30) | Will the project require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, historic sites, or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)?             | <input type="checkbox"/> | <u>  <b>X</b>  </u>                 |
| (31) | Will the project result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended?  | <input type="checkbox"/> | <u>  <b>X</b>  </u>                 |
| (32) | Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the National System of Wild and Scenic Rivers?   | <input type="checkbox"/> | <u>  <b>X</b>  </u>                 |

F. Additional Documentation Required for Unfavorable Responses in Part E

**Response to Question 2:**

Suitable habitat for Michaux's sumac is present in the study area along roadside shoulders and utility easements. Surveys were conducted by NCDOT biologists throughout areas of suitable habitat on October 13, 2015. No individuals of Michaux's sumac were observed. A review of NCNHP records, updated June 2016, indicates no known occurrences within 1.0 mile of the study area. The biological conclusion is **No Effect** for Michaux's sumac.

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 Wake County, where B-5237 is located. The level of incidental take is authorized from the effective date of a final listing determination through April 30, 2020.

**Response to Question 13:**

Wake County is a participant in the National Flood Insurance Program, administered by the Federal Emergency Management Agency (FEMA). Based on the most current information available from the NC Floodplain Mapping Program (FMP), this stream crossing is in a designated flood hazard zone which is within a detailed flood study reach, having a regulated 100-year floodway. The Hydraulics Unit will coordinate with FMP, to determine status of the 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). This project involves construction activities on or adjacent to a 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 and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

**Response to Question 25:**

Bridge No. 248 will be replaced along the existing roadway alignment; however, a temporary detour structure located south of the existing bridge will serve as an on-site detour during construction. The length of the temporary bridge is approximately 110 feet and will span Mahler's Creek. No wetlands or jurisdictional streams will be impacted by the temporary on-site detour.

G. CE Approval

TIP Project No.	<u>B-5237</u>
W.B.S. No.	<u>42838.1.1</u>
Federal Project No.	<u>BRZ-2703(1)</u>

Project Description:

The purpose of this project is to replace Wake County Bridge No. 248 on SR 2703 (New Bethel Church Rd.) over Mahler's Creek (see Figure 1). The project is included in the federally-approved 2016-2025 North Carolina State Transportation Improvement Program (STIP). Existing Bridge No. 248 is 52.5 feet long with a clear deck width of 24 feet. The replacement structure will be a bridge approximately 70 feet long providing a minimum 40-foot clear deck width. The new bridge will include two 11-foot lanes with 4-foot shoulders and 7.5-foot offsets on each side (see Figure 4). The north side of the proposed bridge will include a 5-foot 6-inch sidewalk with a 2-bar metal bridge rail. The bridge length is based on preliminary design information and is set by hydraulic requirements. The roadway grade of the new structure will be approximately the same as the existing structure.

The approach roadway will extend approximately 375 feet from the western end of the new bridge and approximately 235 feet from the eastern end of the new bridge (see Figure 2 & 3). The approaches will be widened to include a 30-foot pavement width providing two 11-foot lanes and 4-foot shoulder. The north side will include curb and gutter with a 10-foot berm (14 feet of berm width where guardrail is required) including a 5-foot sidewalk. The south side will include a 7.5-foot grass shoulder (three additional feet where guardrail is required). The roadway will be designed as a local road using Sub-regional tier guidelines with a 40 mile per hour design speed.

Categorical Exclusion Action Classification:

TYPE II(A)  
 TYPE II(B)

Approved:

8/23/16  
Date  
April Annis  
April Annis  
Project Planning Engineer  
Project Development & Environmental Analysis Unit

8/23/16  
Date  
Charles R Cox  
Charles R. Cox, PE  
Project Engineer  
Project Development & Environmental Analysis Unit



For Type II(B) projects only:

8/25/16  
Date  
John F. Sullivan, III  
John F. Sullivan, III, PE, Division Administrator  
Federal Highway Administration

**PROJECT COMMITMENTS:**

**Wake County  
Bridge No. 248 on SR 2703 (New Bethel Church Road)  
Over Mahler's Creek  
Federal Aid Project No. BRZ-2703(1)  
W.B.S. No. 42838.1.1  
T.I.P. No. B-5237**

**Division 5 Construction**

This project involves construction activities on or adjacent to a 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 and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

**Hydraulics Unit**

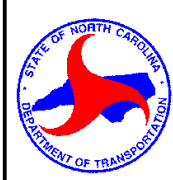
The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

**Roadway Design, Program Development Branch**

The Town of Garner has agreed to share the cost of additional sidewalk located in the northwest quadrant of the proposed bridge. Coordination is underway to secure a municipal agreement for the sidewalk cost.

**Hydraulics Unit, Natural Environment Section, Roadside Environmental Unit**

This project is located in the Neuse River Basin and is, therefore subject to the NCDWR Neuse River Buffer Basin Rules. As a result, Design Standards in Sensitive Watersheds will be adhered to throughout project construction.

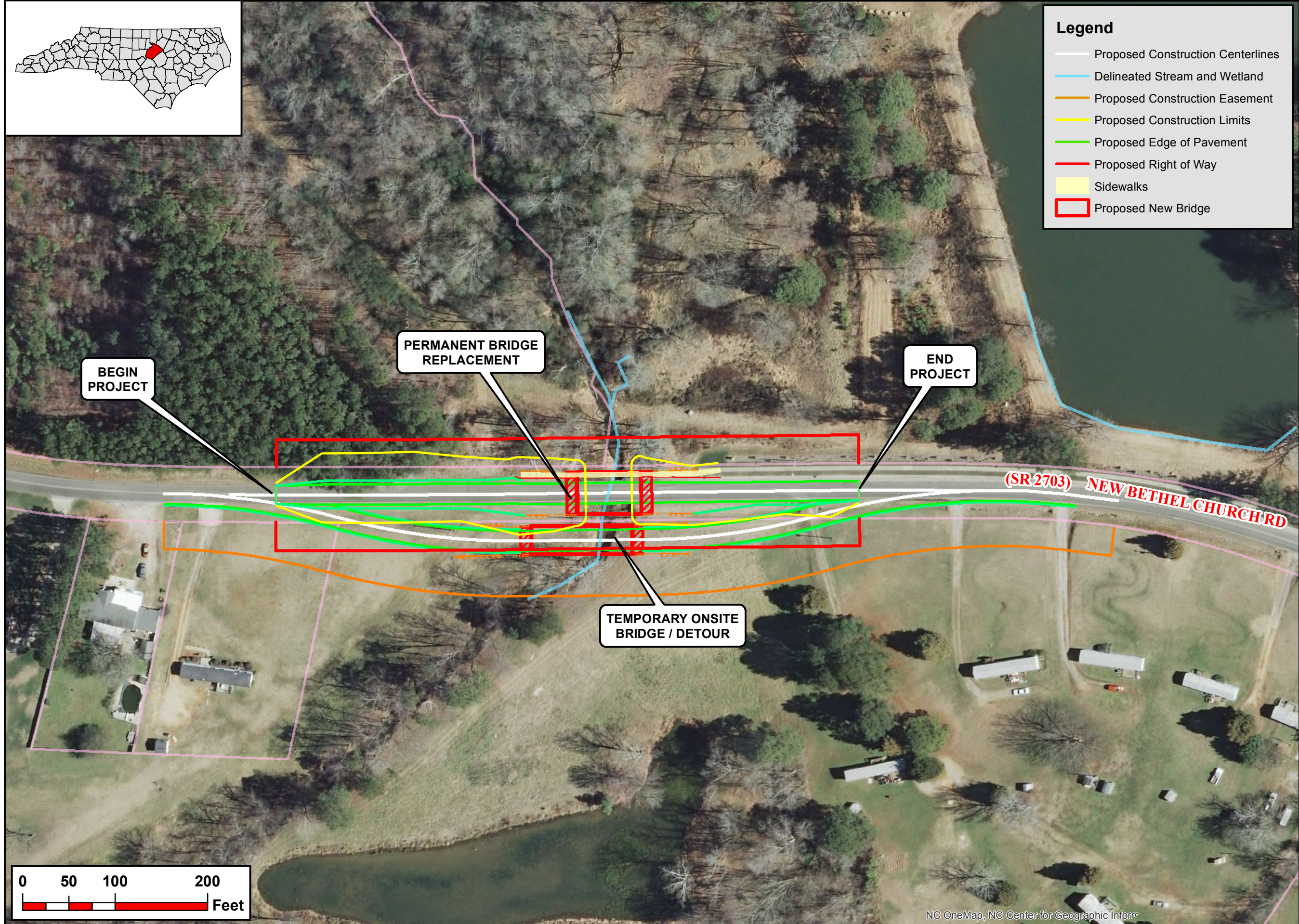
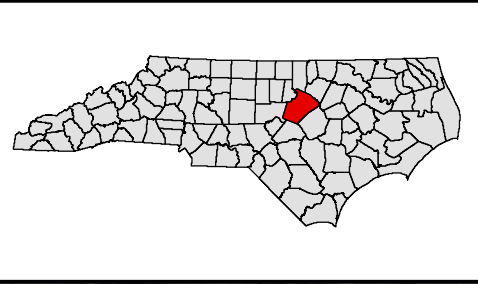


**NORTH CAROLINA DEPARTMENT  
OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PROJECT DEVELOPMENT AND  
ENVIRONMENTAL ANALYSIS UNIT**

**VICINITY MAP  
REPLACE BRIDGE No. 248  
ON SR 2703  
(NEW BETHEL CHURCH RD)**  
  
WAKE COUNTY  
TIP PROJECT B-5237

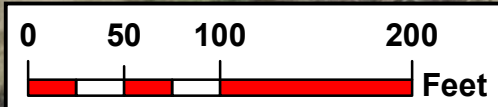
County:	WAKE
Div:	5
TIP#	B-5237
WBS:	42838.1.1
Date:	July 2016

**Figure  
1**



**Legend**

- Proposed Construction Centerlines
- Delineated Stream and Wetland
- Proposed Construction Easement
- Proposed Construction Limits
- Proposed Edge of Pavement
- Proposed Right of Way
- Sidewalks
- Proposed New Bridge



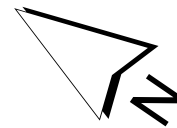
By: J.TORTORELLA

NC OneMap, NC Center for Geographic Inform



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

AERIAL MAP  
REPLACE BRIDGE No. 248  
ON SR 2703  
(NEW BETHEL CHURCH RD)  
WAKE COUNTY  
STIP PROJECT B-5237



County: WAKE

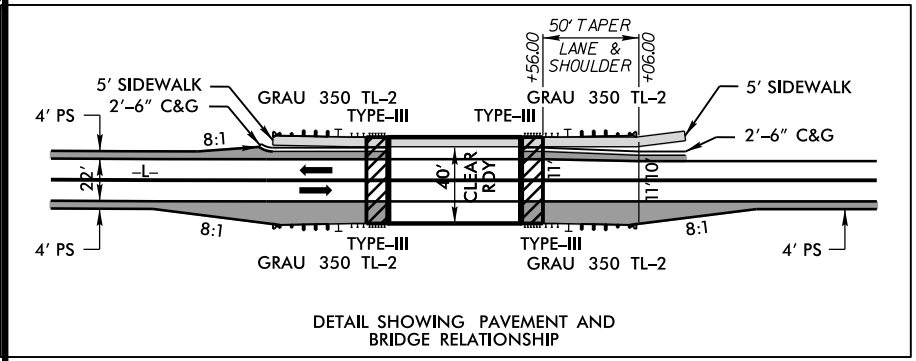
Div: 5 TIP#: B-5237

WBS: 42838.1.1

Date: JULY 2016

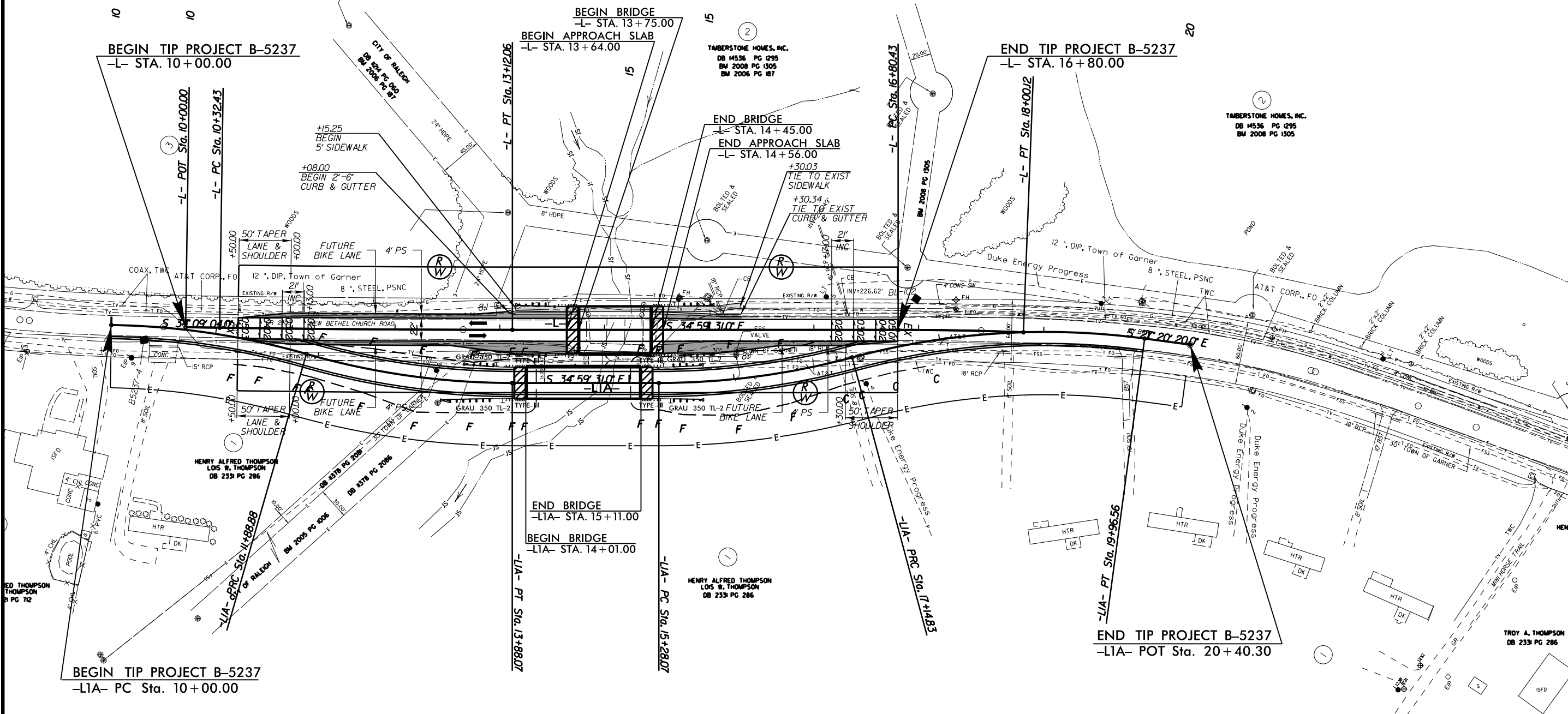
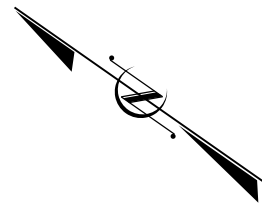
**Figure**  
**2**

# -LIA- ON-SITE DETOUR WITH -L1- REPLACE IN PLACE



-L-

PI Sta 11+72.25	PI Sta 17+40.28
$\Delta = 0' 50' 27.0''$ (LT)	$\Delta = 2' 11' 54.3''$ (RT)
$D = 0' 18' 02.5''$	$D = 1' 50' 12.3''$
$L = 279.62'$	$L = 119.69'$
$T = 139.81'$	$T = 59.85'$
$R = 19,054.00'$	$R = 3,119.40'$
$SE = 06$	$SE = 06$
$V = 40$ MPH	$V = 40$ MPH



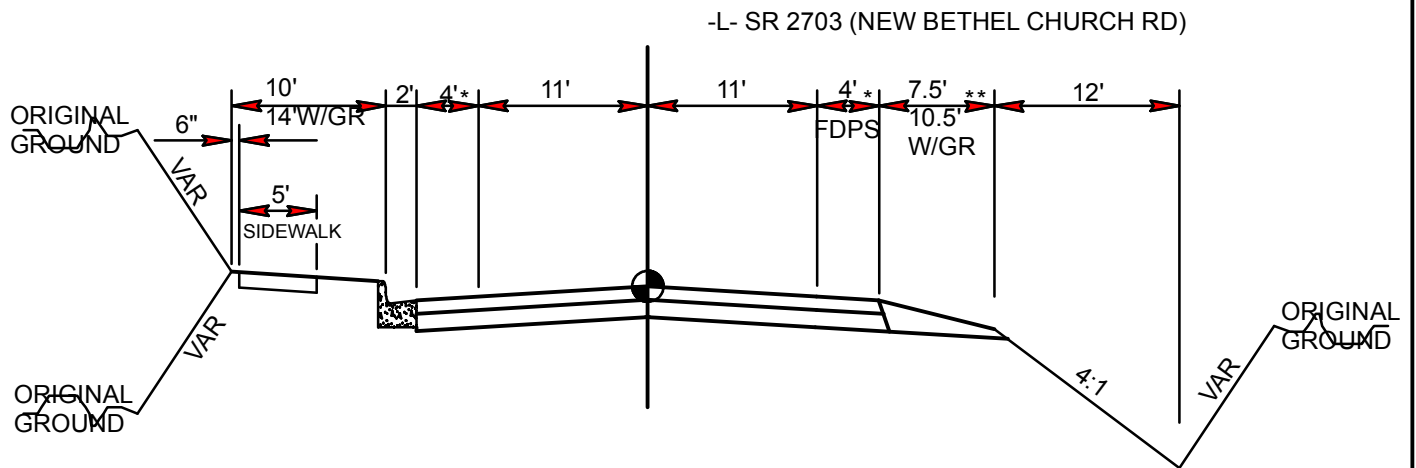
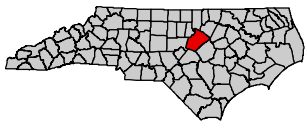
-LIA-

PI Sta 10+95.00	PI Sta 12+89.13	PI Sta 16+21.99	PI Sta 18+57.56
$\Delta = 15' 13' 14.7''$ (RT)	$\Delta = 16' 03' 05.7''$ (LT)	$\Delta = 15' 03' 00.1''$ (LT)	$\Delta = 22' 42' 11.1''$ (RT)
$D = 8' 03' 30.5''$	$D = 8' 03' 30.5''$	$D = 8' 03' 30.5''$	$D = 8' 03' 30.5''$
$L = 188.88'$	$L = 199.19'$	$L = 186.76'$	$L = 281.73'$
$T = 95.00'$	$T = 100.25'$	$T = 93.92'$	$T = 142.74'$
$R = 711.00'$	$R = 711.00'$	$R = 711.00'$	$R = 711.00'$

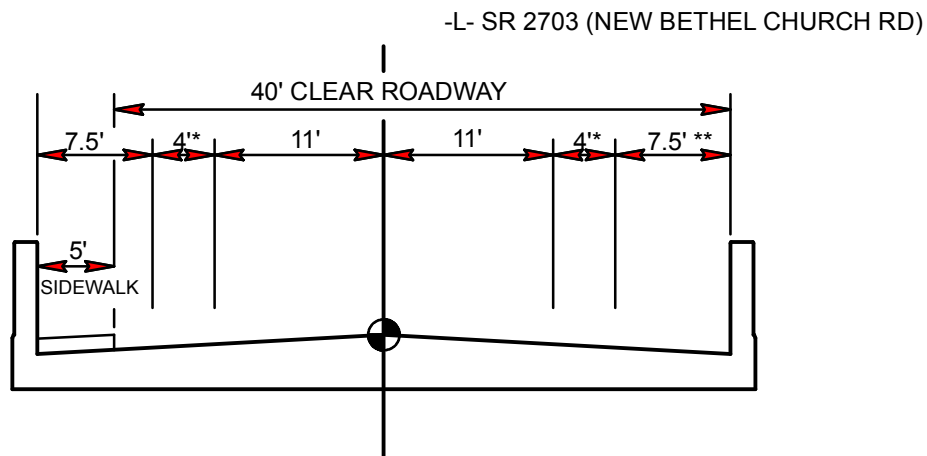
**ROADWAY DESIGN MAP  
REPLACE BRIDGE No. 248  
ON SR 2703  
(NEW BETHEL CHURCH RD)  
WAKE COUNTY  
STIP PROJECT B-5237**

**Figure  
3**

5/14/09  
 22-JUN-2016 12:07  
 R:\Roadway\B5237\_Rd.dsn-L1A.dgn  
 TROY A. THOMPSON  
 DB 233 PG 286



**TYPICAL SECTION ROADWAY**



**TYPICAL SECTION BRIDGE**

\* NOTE: PROPOSED FUTURE 4'-0" BIKE LANE

\*\* NOTE: WIDENED FOR FUTURE SIDEWALK

NOT TO SCALE



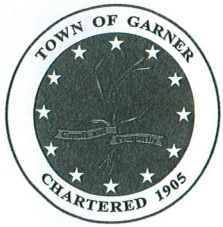
NORTH CAROLINA DEPARTMENT  
OF TRANSPORTATION  
PROJECT DEVELOPMENT AND  
ENVIRONMENTAL ANALYSIS UNIT

**TYPICAL SECTION MAP**  
**REPLACE BRIDGE No. 248**  
**ON SR 2703**  
**(NEW BETHEL CHURCH RD)**  
WAKE COUNTY  
STIP PROJECT B-5237

County:	WAKE
Div:	5
WBS:	42838.1.1
Date:	July 2016

**Figure**  
**4**





## Town of Garner

900 7th Avenue · Garner, North Carolina 27529  
Phone (919) 772-4688 · Fax (919) 662-8874 · www.GarnerNC.gov



July 10, 2015

Joey Hopkins, PE, Division Engineer  
Highway Division 5  
N.C. Department of Transportation  
2612 N. Duke Street  
Durham, 27704

RE: New Bethel Church Road Bridge Replacement Project, Garner, NC

Dear Mr. Hopkins,

At the July 7, 2015 meeting, the Garner Town Council adopted Resolution No. (2015) 2256 regarding the planned New Bethel Church Road Bridge Replacement Project. A certified copy is included with this correspondence.

Please let me know if you have questions or need additional information.

Sincerely,

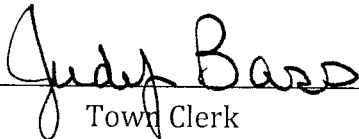
Judy Bass  
Town Clerk

c: Dennis Jernigan, PE, Division Construction Engineer  
Anthony A. Houser, PE, Project Engineer, Roadway Design - Central Region  
Elmo Vance, Jr., Project Development Engineer, Project Development - Western Region  
April Annis, Project Development Engineer, Project Development - Western Region  
Hardin Watkins, Town Manager  
Brad Bass, Planning Director

CERTIFICATION OF CLERK

I, Judy Bass, do hereby certify this is a true copy of Resolution No. (2015) 2256 adopted at the July 7, 2015 Garner Town Council meeting. Said Resolution is recorded in the office of the Town Clerk, Garner Town Hall, Garner, North Carolina.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of the Town of Garner, this 10<sup>th</sup> day of July, 2015.

  
Town Clerk



RESOLUTION NO. (2015) 2256  
TOWN OF GARNER

A RESOLUTION OF THE GARNER TOWN COUNCIL REQUESTING COORDINATION AND PLANNING  
COOPERATION FROM THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION FOR THE  
PLANNED NEW BETHEL CHURCH ROAD BRIDGE REPLACEMENT

**WHEREAS**, the NC Department of Transportation is currently planning to design and construct a new bridge on New Bethel Church Road over Mahler's Creek in the Garner area; and

**WHEREAS**, New Bethel Church Road is a minor thoroughfare designated to serve future growth in the White Oak area of the community; and

**WHEREAS**, the Town of Garner has been in communication with the North Carolina Department of Transportation (NCDOT) staff to advocate for the Town's long-range needs regarding this important future project; and

**WHEREAS**, the Wake County Public School System is making a major investment to construct the new South Garner High School along New Bethel Church Road in the White Oak area ; and

**WHEREAS**, New Bethel Church Road is projected to carry approximately seventy per cent of traffic serving the new high school according to the Traffic Study submitted by Wake County Public School System; and

**WHEREAS**, New Bethel Church road provides a vital route connecting Garner to new high school especially as it relates to student and bus traffic; and

**WHEREAS**, the Town of Garner holds the annual 3<sup>rd</sup> of July celebration event at Lake Benson Park which attracts approximately 18,000 people each year; and

**WHEREAS**, due to the regional popularity of this event the Town utilizes remote satellite parking areas along New Bethel Church Road southeast of Mahler's Creek which are served by shuttle buses connecting to Lake Benson Park; and

**WHEREAS**, closure of the New Bethel Church Road bridge over Mahler's Creek to traffic during the July 3<sup>rd</sup> event will create significant travel delays resulting unacceptable inconvenience to patrons wishing to attend the event; and

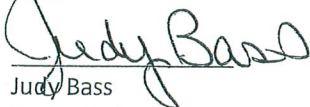
**WHEREAS**, maintaining the New Bethel Church Road open to through traffic during of the construction of the bridge replacement is imperative based on aforementioned findings; and

**NOW THEREFORE BE IT RESOLVED**, the Town of Garner Town Council respectfully requests the NCDOT to select a design option for the New Bethel Church Road bridge replacement that keeps said road open to through traffic during the entire construction period thereby eliminating the need for detours.

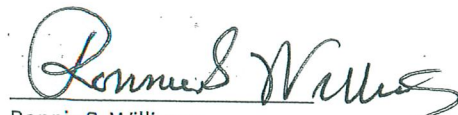
**BE IT FURTHER RESOLVED**, the Town of Garner respectfully requests the NCDOT to include in its project design accommodation for pedestrian and future bicycle facilities for our citizens.

Adopted this 7<sup>th</sup> day of July, 2015.

ATTEST

  
Judy Bass  
Town Clerk



  
Ronnie S. Williams  
Mayor

## **Annis, April A**

---

**To:** Annis, April A  
**Subject:** FW: New Bethel Bridge

**From:** Brad Bass [mailto:[bbass@garnernc.gov](mailto:bbass@garnernc.gov)]  
**Sent:** Thursday, August 29, 2013 5:14 PM  
**To:** Annis, April A  
**Subject:** RE: New Bethel Bridge

April,

Staff updated Council on July 16<sup>th</sup> regarding the New Bethel Church Rd. Bridge Replacement. The Council decided to move forward with the sidewalk design for the bridge but not the greenway design. The Council wanted the design to accommodate sidewalks on both sides of the new bridge. While this area is rural currently the Town expects the area to grow into a suburban development pattern in the future. With an existing park already in place at the intersection of NC 50 and New Bethel Church Road and future schools planned in this general area of the community we expect residential growth will occur here as well. Pedestrian connectivity is important, especially between residential areas and pedestrian generators (parks, schools etc.).

The Town has designated New Bethel Church Rd. as a minor thoroughfare in the adopted Garner Transportation Plan. Our standard calls for sidewalks on both sides of minor thoroughfares. Staff believes a design for sidewalks on both sides of the bridge provides more flexibility for future sidewalks in this area of the community. However, I understand the project may be behind schedule and the Town certainly does not want to affect DOT's project schedule. If this creates issues for DOT please advise me (including schedule implications). Any changes will be need to communicated back to our Town Council. If you have questions, please contact me.

Thanks,  
Brad

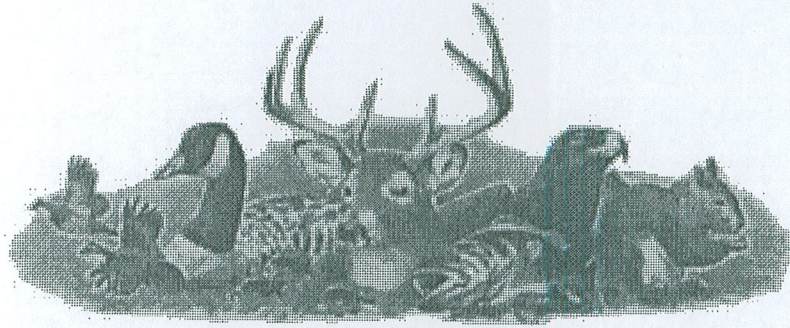
**Brad Bass, AICP**  
**Director of Planning**  
**Town of Garner, NC 27529**

mail: 900 Seventh Avenue, Garner, NC 27529  
phone: 919.773.4444  
fax: 919.662.5135  
email: [bbass@garnernc.gov](mailto:bbass@garnernc.gov)  
web: [www.GarnerNC.gov](http://www.GarnerNC.gov)



*Disclaimer: Please note that email sent to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.*

B-5237



## ☒ North Carolina Wildlife Resources Commission ☒

Gordon Myers, Executive Director

### MEMORANDUM

TO: Rachelle Beauregard  
NCDOT, PDEA-NEU

FROM: Travis Wilson, Highway Project Coordinator  
Habitat Conservation Program

DATE: March 28, 2011

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 Mr. Logan Williams 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-4959: Guilford County Bridge No. 193 on SR 2719 over Buffalo Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5239: Alamance County Bridge No. 126 on NC 87 over Mill Race. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5342: Alamance County Bridge No. 169 on SR 1148 Over Gum Creek. We recommend replacing this bridge with a bridge. Standard recommendations apply.

B-5340: Orange County Bridge No. 234 on SR 1581 over Prong Little River. Our records indicate multiple state and federal listed species in the vicinity of this project: *Villosa constricta* (Notched Rainbow: state SC), *Strophitus undulates* (Creeper: state T), *Lampsilis radiata* (Eastern

Lampmussel: state T.), *Lampsilis cariosa* (Yellow Lampmussel: state E, FSC), and *Fusconaia masoni* (Atlantic pigtoe: state E, FSC). Due to the high diversity of listed species 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-5341: Rockingham County Bridge No. 110 on SR 1767 over Wolf Island Creek. The potential exist for *Percina rex* (Roanoke logperch: State E, Federal E) to be found at this site. NCDOT should follow the Design Standards for Sensitive Watersheds during the design and construction of this project, as well as 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-5237:** Wake County Bridge No. 248 on SR 2703 over Mahler's Creek. Due to the close proximity of this project to Swift Creek which supports multiple state and federal listed species 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-5318: Wake County Bridge No. 126 on SR 2044 over Smiths Creek. The property located in the northeast quadrant of this project has a Clean Water Management Trust Fund conservation easement; impacts to this property should be avoided. 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) 528-9886. Thank you for the opportunity to review and comment on this project.



10-12-0017

**NO SURVEY REQUIRED FORM****PROJECT INFORMATION**

<b>Project No:</b>	B-5237	<b>County:</b>	Wake
<b>WBS No:</b>	42838	<b>Document:</b>	PCE
<b>F.A. No:</b>	BRZ-2703(1)	<b>Funding:</b>	<input type="checkbox"/> State <input checked="" type="checkbox"/> Federal
<b>Federal (USACE) Permit Required?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Permit Type:</b>	
<b>Project Description:</b> Replace Bridge No. 248 on SR 2703 over Mahler's Creek. No design information was provided so the Area of Potential Effects (A.P.E.) included a wide area adjacent to the existing bridge and road.			

**SUMMARY OF CULTURAL RESOURCES REVIEW**

**Brief description of review activities, results of review, and conclusions:** Review included examination of aerial photograph, topographic map, soil survey, and listings of previously recorded sites, previous archaeological surveys, and previous environmental reviews at the Office of State Archaeology. Aerial photograph shows the NW and SW quadrants have been altered to some extent as residential yards, and the SE quadrant has been altered by the construction of a pond and associated landscaping. Topographic map (Garner, N.C.) shows the landforms in the NW and NE quadrants are probably moderate or steep slopes, and the SW and SE quadrants are probably poorly drained. Soil survey shows the soils within the A.P.E. are either poorly-drained or eroded. There are no previously recorded archaeological sites nearby, and the A.P.E. has not been previously surveyed for archaeological sites. The A.P.E. appears to have been included within the limits of two projects (unidentified) that were previously reviewed and cleared without archaeological survey.

**Brief Explanation of why the available information provides a reliable basis for reasonably predicting that there are no unidentified historic properties in the APE:** The review indicates the A.P.E. has little potential for archaeological sites. The area has been disturbed by residential development, the landforms have low to moderate potential, the soils are either poorly drained or eroded, and environmental review(s) of adjacent projects have not required archaeological survey. No archaeological survey is recommended.

**SUPPORT DOCUMENTATION**

Map(s),  Previous Survey Info,  Photos,  Correspondence,  Notes

**FINDING BY NCDOT CULTURAL RESOURCES PROFESSIONAL**

NO SURVEY REQUIRED.  Archaeology

Historic Architecture

Caleb Smith



2/7/2011

NCDOT Cultural Resources Specialist

Date

10-12-0017

**NO SURVEY REQUIRED FORM**

**PROJECT INFORMATION**

Project No: B-5237

County: Wake

WBS No: 42838

Document: CE/CPE

F.A. No: BRZ-2703(1)

Funding:  State  Federal

Federal (USACE) Permit Required?  Yes  No Permit Type:

Project Description: Replace Bridge No. 248 over Mahler's Creek on SR 2703

**SUMMARY OF CULTURAL RESOURCES REVIEW**

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

Review of HPO quad maps, historic designations roster, and indexes was undertaken on February 4, 2011. Based on this review, there are no existing NR, SL, LD, DE, or SS properties in the Area of Potential Effects.

*Brief Explanation of why the available information provides a reliable basis for reasonably predicting that there are no unidentified historic properties in the APE:*

The Wake County Survey was updated in 1994 and is considered valid for the purposes of determining the likelihood of historic resources being present.

**SUPPORT DOCUMENTATION**

See attached: Map, Aerial Photographs, NCHPO GIS map

**FINDING BY NCDOT CULTURAL RESOURCES PROFESSIONAL NO SURVEY REQUIRED**

ARCHAEOLOGY

HISTORIC ARCHITECTURE

(CIRCLE ONE)

  
NCDOT Cultural Resources Specialist

2/4/2011  
Date



North Carolina Department of Environment and Natural Resources

Division of Water Quality  
Coleen H. Sullins  
Director

Beverly Eaves Perdue  
Governor

Dee Freeman  
Secretary

January 10, 2011

RECEIVED  
Division of Highways

JAN 14 2011

Preconstruction  
Project Development and  
Environmental Analysis Branch

**MEMORANDUM**

TO: Brenna Poole, NCDOT Bridge Project Development Unit  
FROM: Rob Ridings, NCDWQ Transportation Permitting Unit *RR*  
SUBJECT: Scoping Review of NCDOT's Proposed Bridge Replacement Projects: B-5237 & B-5318 in Wake County

In reply to your correspondence dated received January 6, 2011 in which you requested comments for the above referenced projects, the NCDWQ offers the following comments:

**Project-Specific Comments:**

**B-5237, Bridge No. 248 over Mahler's Creek, Wake County**

1. Mahler's Creek is class C; 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 Mahler'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 NCDWQ's *Stormwater Best Management Practices*.

2. This project is within the Neuse River Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B.0233.

**B-5318, Bridge 126 over Smith's Creek, Wake County**

1. Smith's Creek is class C; NSW; 303(d) waters of the State. 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* to reduce the risk of nutrient runoff to Smith'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 NCDWQ *Stormwater Best Management Practices*.

2. This project is within the Neuse River Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B.0233.

## 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.
13. 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 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.
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.

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 Rob Ridings at 919-807-6403

cc: Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office  
Chris Murray, Division 5 Environmental Officer  
Travis Wilson, NC Wildlife Resources Commission  
File Copy



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Raleigh Field Office  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726

January 7, 2011

Brenna Poole  
North Carolina Department of Transportation  
Project Development and Environmental Analysis  
1598 Mail Service Center  
Raleigh, North Carolina 27699-1598

Dear Ms. Poole:

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 Bridge No. 248 on SR 2703 over Mahler's Creek, Wake County, North Carolina (TIP No. B-5237). 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).

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. A biological assessment/evaluation may be prepared to fulfill the Section 7(a)(2) requirement and will expedite the consultation process.

Although not known from Mahler's Creek, the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) is known to occur less than one mile downstream of the project area in Swift Creek. The Service recommends that mussel surveys be conducted within the project vicinity to assess dwarf wedgemussel habitat quality and 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) this or any other federally 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.

To minimize potential impacts to the dwarf wedgemussel, the stream should be completely spanned, the most stringent erosion control measures implemented, in-water work minimized to the maximum extent possible, and the bridge be designed so as to minimize fill within the floodplain. Other conservation measures may also be prudent.

In addition, the Service recommends the following general conservation measures to avoid or minimize environmental impacts to fish and wildlife resources:

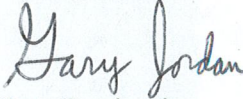
1. Wetland, forest and designated riparian buffer impacts should be avoided and minimized to the maximum extent practical;
2. If unavoidable wetland or stream impacts are proposed, a plan for compensatory mitigation to offset unavoidable impacts should be provided early in the planning process;
3. Off-site 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 planted with appropriate vegetation, including trees if necessary;
4. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons. In waterways that may serve as travel corridors for fish, in-water work should be avoided during moratorium periods associated with migration, spawning and sensitive pre-adult life stages;
5. New bridges should be long enough to allow for sufficient wildlife passage along stream corridors;
6. Best Management Practices (BMP) for Construction and Maintenance Activities should be implemented;
7. 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;
8. The 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
9. 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.

We reserve the right to review any federal permits that may be required for this project, at the public notice stage. Therefore, it is important that resource agency coordination occur early in the planning process in order to resolve any conflicts that may arise and minimize delays in project implementation. In addition to the above guidance, we recommend that the environmental documentation for this project include the following in sufficient detail to facilitate a thorough review of the action:

1. A clearly defined and detailed purpose and need for the proposed project;
2. A description of the proposed action with an analysis of all alternatives being considered;
3. A description of the fish and wildlife resources, and their habitats, within the project impact area that may be directly or indirectly affected;
4. The extent and acreage of waters of the U.S., including wetlands, that are to be impacted by filling, dredging, clearing, ditching, or draining. Wetland boundaries should be determined by using the 1987 Corps of Engineers Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers;
5. The anticipated environmental impacts, both temporary and permanent, that would be likely to occur as a direct result of the proposed project. The assessment should also include the extent to which the proposed project would result in indirect and cumulative effects to natural resources;
6. Design features and construction techniques which would be employed to avoid or minimize impacts to fish and wildlife resources, both direct and indirect, and including fragmentation and loss of habitat;
7. If unavoidable wetland or stream impacts are proposed, project planning should include a compensatory mitigation plan for offsetting the unavoidable impacts.

The Service appreciates the opportunity to comment on this project. Please continue to advise us during the progression of the planning process, including your official determination of the impacts of this project. 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

cc: Eric Alsmeyer, USACE, Wake Forest, NC  
Travis Wilson, NCWRC, Creedmoor, NC  
Chris Militscher, USEPA, Raleigh, NC  
John Sullivan, FHWA, Raleigh, NC



**Poole, Brenna E**

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**From:** Militscher.Chris@epamail.epa.gov  
**Sent:** Wednesday, January 05, 2011 10:56 AM  
**To:** Poole, Brenna E  
**Cc:** gary\_jordan@fws.gov  
**Subject:** Start of Study letters for B-5237 & B-5318

Brenna: EPA has reviewed the Start of Study letters for B-5237 (Bridge No. 248 over Mahler's Creek in Wake Co.) & B-5318 (Bridge No. 126 over Smith's Creek in Wake Co.).

Based upon the information provided we have not identified any environmental concerns at this time.

From a recent NCDOT Turnpike meeting on the Raleigh Southern Outer Loop (referred to as the Triangle Southeast Connector), the subject of endangered mussels and Mahler's Creek came up with respect to being part of the Swift Creek sub-watershed. It may not be an issue with specific reference to the B-5237 replacement project, but I thought I would let you know and copy Gary Jordan, USFWS for coordination aspects.

Thank you for the opportunity to comment.

Christopher A. Militscher, REM, CHMM  
USEPA Region 4 Raleigh Office  
Merger Team Representative  
919-856-4206