STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

November 30, 2007

US Army Corps of Engineers
Regulatory Field Office
PO Box 1890
Wilmington, NC 28402-1890

ATTENTION: Richard Spencer
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 404 Nationwide Permit 33** for the replacement of Bridge No. 140 over an unnamed tributary to Gabriel's Creek on SR 2215 (Henley-Country Road), Randolph County. Federal Aid Project Number BRZ-2215(1), WBS No. 33587.1.1, State Project No. 8.2574201, Division 8, T.I.P. No. B-4244

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 140 over an unnamed tributary to Gabriel's Creek. The project involves constructing the new bridge at the existing location, while maintaining traffic on an off-site detour during construction. The existing bridge is currently in poor condition and in need of replacement. The new bridge is intended to provide a safer bridge structure consistent with federal and state bridge standards.

The proposed bridge is a steel plate girder structure with a single span of 80 ft. It will convey two 12-foot wide travel lanes with 6-foot wide shoulders for a total clear roadway width of 36 ft. Consisting of only one span, it will have no interior bents. Please find the enclosed permit drawings, design plans, JD (Rapanos) Form, Pre-Construction Notification, and letter of concurrence from the USFWS for the subject project. A Categorical Exclusion (CE) and Right of Way Consultation were completed for this project in July 2005 and July 2006, respectively, and distributed shortly thereafter. Additional copies of these documents are available upon request.

IMPACTS TO WATERS OF THE UNITED STATES

The project is located in the Cape Fear River Basin (subbasin 03-06-09). This area is part of Hydrologic Cataloging Unit 03030003 of the South Atlantic-Gulf Coast Region. The unnamed tributary to Gabriel's Creek is the only feature designated a Waters of the U.S. within the project area. There are no wetlands in the project area. The unnamed tributary receives the same Best Usage Classification as its receiving stream, Gabriel's Creek, which is Class "C". No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), Water Supply (WS-II), or 303(d) Waters occur within 1.0 mile of the study corridor.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-715-1334 or
919-715-1335

FAX: 919-715-5501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD. SUITE 240
RALEIGH NC 27604

Permanent Impacts

There will be no permanent impacts to any Waters of the U.S. in association with this project.

Temporary Impacts

A temporary rock work pad will need to be placed in the unnamed tributary to Gabriel's Creek to facilitate removal of the existing pier of the old bridge (Site 1, Sheet 6 of 8). Detail of the temporary work pad is shown on Sheet 4 of 8. The total area of temporary impacts is < 0.01 ac. After construction, the work pad will be removed.

Utility Impacts

Two telephone poles on the south side of the bridge will need to be relocated during construction of the new bridge; however, this will not impact the unnamed tributary. There will be no utility impacts in association with this project.

Bridge Demolition

The existing bridge, built in 1950, consists of two spans which total 36 feet in length. The deck is composed of timber with an asphalt wearing surface. The substructure consists of a timber pier and timber abutments. The existing structure will be removed without dropping any structural components into the creek. The existing pier in the unnamed tributary to Gabriel's Creek will be removed down to the streambed. A temporary work pad will be necessary to facilitate removal of the pier as described above in the Temporary Impacts section. Best Management Practices for Bridge Demolition will be implemented during removal of the bridge.

RESTORATION PLAN

Following construction of the bridge and approaches, all material used in construction will be removed. The impacted area from temporary fill in the unnamed tributary to Gabriel's Creek is expected to recover naturally, since all fill material will be removed upon completion of construction down to the original streambed. NCDOT does not propose any additional planting in this area. All temporary erosion control devices will be removed upon completion of construction. Pre-project elevations will be restored.

REMOVAL AND DISPOSAL PLAN

The contractor will be required to submit a reclamation plan for the removal and disposal of all material off-site at an upland location. The contractor will use excavation equipment for removal of any earthen material. Heavy–duty trucks, dozers, cranes, and various other pieces of mechanical equipment necessary for construction of roadways and bridges will be used on site. Temporary fill placed in the unnamed tributary to Gabriel's Creek will be removed upon completion of construction. The contractor will have the option of reusing any of the materials that the engineer deems suitable in the construction of project. After the erosion control devices are no longer needed, all temporary materials will become the property of the contractor.

MITIGATION OPTIONS

Avoidance and Minimization and Compensatory Mitigation

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

According to the Clean Water Act (CWA) §404(b)(1) guidelines, NCDOT must avoid, minimize, and mitigate, in sequential order, impacts to waters of the US. The following is a list of the project's jurisdictional stream avoidance/minimization activities proposed or completed by NCDOT:

Avoidance/Minimization

- Temporary construction impacts will be minimized through implementation of stringent erosion control methods and use of Best Management Practices (BMPs).
- *Best Management Practices for Protection of Surface Waters* will be implemented.
- The new bridge will be approximately 44 feet longer than existing bridge, thereby restoring a greater area of the floodplain in the vicinity of the crossing to its original grade.
- The bridge will be replaced in the existing location with no bents in the creek, thereby resulting in no permanent impacts to surface waters.
- An off-site detour will be utilized during construction.

Compensatory Mitigation:

The project will result in no permanent impacts to surface waters. Mitigation is not proposed for the temporary impacts of <0.01 ac to the unnamed tributary to Gabriel's Creek.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. The United States Fish and Wildlife Service (USFWS) lists 2 species for Randolph County. Table 1 lists the species and their federal status.

Table 1. Federally Protected Species in Randolph County, NC

Common Name	Scientific Name	Federal Status*	Biological Conclusion	Habitat Present
Cape Fear shiner	*Notropis mekistocholas*	E	No Effect	No
Schweinitz's sunflower	*Helianthus schweinitzii*	E	May affect, not likely to adversely affect	Yes

*E= endangered, T=threatened

A biological conclusion of "No Effect" was issued for Cape Fear shiner due to lack of suitable habitat. A biological conclusion of "No Effect" was initially issued for Schweinitz's sunflowers in the CE (July 2005). Due to the discovery of a previously documented population of Schweinitz's sunflowers in the NCNHP database and located less than one mile from the project site, the conclusion was changed to "May affect, not likely to adversely affect" in the Right of Way Consultation (July 2006). Surveys for

Schweinitz's sunflowers were most recently conducted on 9/28/2006 and 9/11/2007 by NCDOT biologists. One cluster consisting of approximately 15 stems of Schweinitz's sunflowers was observed within the original project area on 9/28/2006 (near Station 15+00.00 on the southwest side of the road; Site 1, Sheet 6 of 8). On 9/11/2007, this same population was again observed consisting of 26 stems, 1 flower, and 2 buds, and exhibiting signs of drought stress. No other specimens have been found within the project area. The project construction limits have been revised to avoid the Schweinitz's sunflowers. The specimens are now approximately 20 feet outside of the construction area. Due to the close proximity to the construction area, the biological conclusion of "May affect, not likely to adversely affect" remains valid.

To further protect the Schweinitz's sunflowers, NCDOT has agreed to implement the following conservation measures:

- Prior to let, a protective fence made of highly visible polyvinyl fencing material will be installed 2 feet outside the boundary of the cluster of Schweinitz's sunflowers.
- Lezpedeza and tall fescue will not be included in the seed mix used for erosion control in the project area (hard fescue and Kentucky bluegrass will be included in the seed mix).

Concurrence was received from the USFWS in the enclosed letter dated 5/2/2007.

SCHEDULE

The project calls for a letting of July 15, 2008 (review date of May 27, 2008) with a date of availability of August 26, 2008. It is expected that the contractor will choose to start construction in September 2008.

REGULATORY APPROVALS

Section 404 Permit: The NCDOT requests that these activities be authorized by Nationwide Permit 33 (72 FR 11092; March 12, 2007).

Section 401 Permit: We anticipate Section 401 General Certification number 3688 will apply to this project. All general conditions of this WQC will be met, therefore no written concurrence is required. In accordance with 15A NCAC 2H, Section .0500(a) and 15A NCAC 2B.0200 we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their notification.

A copy of this permit application will be posted on the NCDOT website at: http://www.ncdot.org/doh/preconstruct/pe/. If you have any questions or need additional information, please call Duncan Quinn at 919-715-5524.

Sincerely,

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

w/attachment
Mr. John Hennessy, NCDWQ (2 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
w/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Tim Johnson, P.E., Division 8 Engineer
Mr. Art King, Division 8 Environmental Officer
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Wade Kirby, PDEA

Office Use Only: Form Version March 05

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:
   - ☒ Section 404 Permit
   - ☐ Section 10 Permit
   - ☐ 401 Water Quality Certification
   - ☐ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ
   - ☐ Express 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: NWP 33

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☒

4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: ☐

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information
   Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
   Mailing Address: North Carolina Department of Transportation
   1598 Mail Service Center
   Raleigh, NC 27699-1598
   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address: _____

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name: _____
   Company Affiliation: _____
   Mailing Address: _____
   Telephone Number: _____ Fax Number: _____
   E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of Bridge No. 140 over an unnamed tributary to Gabriel's Creek on SR 2215 (Henley-Country Road)

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4244

3. Property Identification Number (Tax PIN): N/A

4. Location
   County: Randolph Nearest Town: Asheboro
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): From the intersection of US-64 and E Presnell St approximately 2.5 miles east of Asheboro, turn onto E Presnell St heading west toward Asheboro. Make an immediate right onto Henley-Country Rd (SR 2115) and travel approximately 2 miles north to bridge site. It is located between Old Cedar Falls Rd and Randolph Tabernacle Rd. (It is the bridge closest to Randolph Tabernacle Rd.)

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 35.7393 °N 79.7630 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Gabriel's Creek

8. River Basin: Cape Fear
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: SR 2215 (Henley-Country Road) is classified as a rural local

road by the statewide functional classification system. Land use includes wooded areas with six single-family residences located near the project corridor.

10. Describe the overall project in detail, including the type of equipment to be used: The project involves removal of the existing structure and construction of a new bridge on the existing alignment, while maintaining traffic on an off-site detour during construction. The proposed bridge is a steel plate girder structure with a single span of 80 ft. It will convey two 12-foot wide travel lanes with 6-foot wide shoulders for a total clear roadway width of 36 ft. Consisting of only one span, it will have no interior bents. Heavy duty excavation equipment will be used such as trucks, dozers, cranes, and other various equipment necessary for roadway construction.

11. Explain the purpose of the proposed work: The existing bridge, built in 1950 and having a sufficiency rating of 32.2 out of a possible 100 (for a new structure), is considered functionally obsolete and structurally deficient. The new bridge is intended to provide a safer bridge structure consistent with federal and state bridge standards.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules. N/A

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems.

Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts:

Permanent Impacts

There will be no permanent impacts to any Waters of the U.S. in association with this project.

Temporary Impacts

A temporary rock work pad will need to be placed in the unnamed tributary to Gabriel's Creek to facilitate removal of the existing pier of the old bridge (Site 1, Sheet 6 of 8). Detail of the temporary work pad is shown on Sheet 4 of 8. The total area of temporary impacts is < 0.01 ac. After construction, the work pad will be removed.

Utility Impacts

Two telephone poles on the south side of the bridge will need to be relocated during construction of the new bridge; however, this will not impact the unnamed tributary. There will be no utility impacts in association with this project.

2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
Total Wetland Impact (acres)					0.00

3. List the total acreage (estimated) of all existing wetlands on the property: 0.00

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam

construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
Site 1	UT to Gabriel's Cr.	Temporary Fill	perennial	15-20 feet	34	<0.01
Total Stream Impact (by length and acreage)					34	<0.01

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
Total Open Water Impact (acres)				0

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	<0.01
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	<0.01
Total Stream Impact (linear feet):	34

7. Isolated Waters
Do any isolated waters exist on the property? ☐ Yes ☒ No
Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

8. Pond Creation
If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.):_____
Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.):_____
Current land use in the vicinity of the pond:_____
Size of watershed draining to pond:_____ Expected pond surface area:_____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts._____
Temporary construction impacts will be minimized through implementation of stringent erosion control methods and use of Best Management Practices (BMPs). Best Management Practices for Protection of Surface Waters will be implemented. The new bridge will be approximately 44 feet longer than existing bridge, thereby restoring a greater area of the floodplain in the vicinity of the crossing to its original grade. The bridge will be replaced in the existing location with no bents in the creek, thereby resulting in no permanent impacts to surface waters.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's

Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   No mitigation is proposed.

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

   Amount of stream mitigation requested (linear feet):_____
   Amount of buffer mitigation requested (square feet):_____
   Amount of Riparian wetland mitigation requested (acres):_____
   Amount of Non-riparian wetland mitigation requested (acres):_____
   Amount of Coastal wetland mitigation requested (acres):_____

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes ☒ No ☐

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation. Yes ☒ No ☐

3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)? Yes ☐ No ☒

2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3 (2 for Catawba)	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from the top of the near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. N/A

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.
N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?
Yes ☐ No ☒

Is this an after-the-fact permit application? Yes ☐ No ☒

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description:
N/A

XV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).
N/A

E. L. Fuste 11.30.07

Applicant/Agent's Signature **Date**
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: NCDOT TIP# B-4244, Replacement of Bridge No. 140 over an unnamed tributary to Gabriel's Creek on SR 2215 (Henley-Country Road)

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State:NC County/parish/borough: Randolph City: Asheboro
Center coordinates of site (lat/long in degree decimal format): Lat. 35.7393° N, Long. 79.7630° W.
Universal Transverse Mercator: Zone 17 N
Name of nearest waterbody: Gabriel's Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Deep River
Name of watershed or Hydrologic Unit Code (HUC): Cape Fear 03030003

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s): USACE has not scheduled site visit; NCDOT consultant field evaluation: 6/2/2004, JD request letter sent by consultant 8/27/2004

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 150 linear feet: 10-20 width (ft) and/or acres.
      Wetlands: 0.00 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: **Pick List**
   Drainage area: **Pick List**
   Average annual rainfall: inches
   Average annual snowfall: inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **Pick List** tributaries before entering TNW.

   Project waters are **Pick List** river miles from TNW.
   Project waters are **Pick List** river miles from RPW.
   Project waters are **Pick List** aerial (straight) miles from TNW.
   Project waters are **Pick List** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: .
   Tributary stream order, if known: .

---

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

---

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: The unnamed tributary to Gabriel's Creek is a second order stream that exhibits the geomorphological, hydrological, and biological characteristics typical of a perennial stream.
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **150** linear feet **10-20** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **Unnamed Tributary to Gabriel's Creek**.

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

---

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s). Cite scale & quad name: .
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☐ National wetlands inventory map(s). Cite name: .
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☐ Photographs: ☐ Aerial (Name & Date): .
  - or ☐ Other (Name & Date): .
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

cc: L. Williams

mclamb

United States Department of the Interior

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

May 2, 2007

Gregory J. Thorpe, Ph.D.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

This letter is in response to your letter of April 30, 2007 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 140 on SR 2215 over an unnamed tributary to Gabriel's Creek in Randolph County (TIP No. B-4244) may affect, but is not likely to adversely affect the federally endangered Schweinitz's sunflower (*Helianthus schweinitzii*). In addition, NCDOT has determined that the project will have no effect on the federally endangered Cape Fear shiner (*Notropis mekistocholas*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to information provided, plant surveys were conducted at the project site on August 18, 2004 and September 28, 2006. During the 2006 survey, one clump of approximately 15 stems of Schweinitz's sunflower was observed within the project area. Subsequently, the project was redesigned to avoid the sunflowers. The sunflowers are now approximately 20 feet outside the construction area. Due to the proximity of the sunflowers, NCDOT has agreed to implement the following conservation measures:

- Prior to let, a protective fence made of highly visible polyvinyl fencing material will be installed 2 feet outside the boundary of the clump of Schweinitz's sunflowers.
- Lespedeza and tall fescue will not be included in the seed mix used for erosion control in the project area (hard fescue and Kentucky bluegrass will be included in the seed mix).

Based on the information provided and on the commitment to implement the two conservation measures listed above, the Service concurs with your determination that the project may affect, but is not likely to adversely affect the Schweinitz's sunflower. Also, based on the lack of habitat, the Service concurs with your determination that the project will have no effect on the Cape Fear shiner.

We believe that the requirements of section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

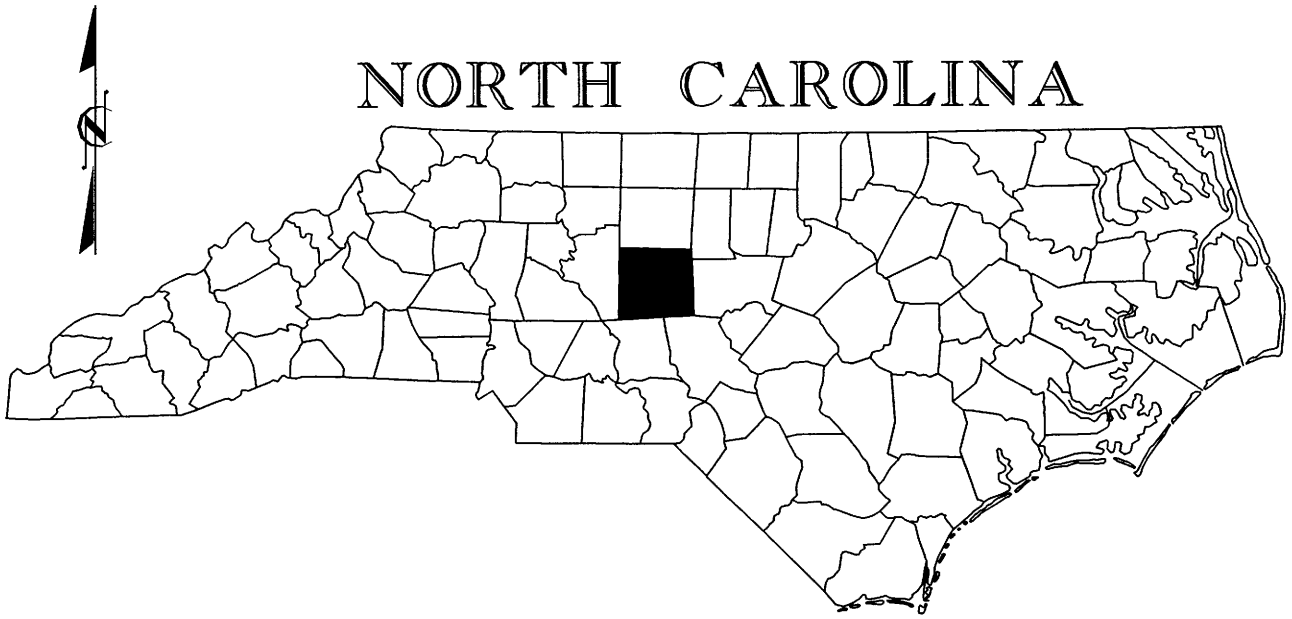
The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

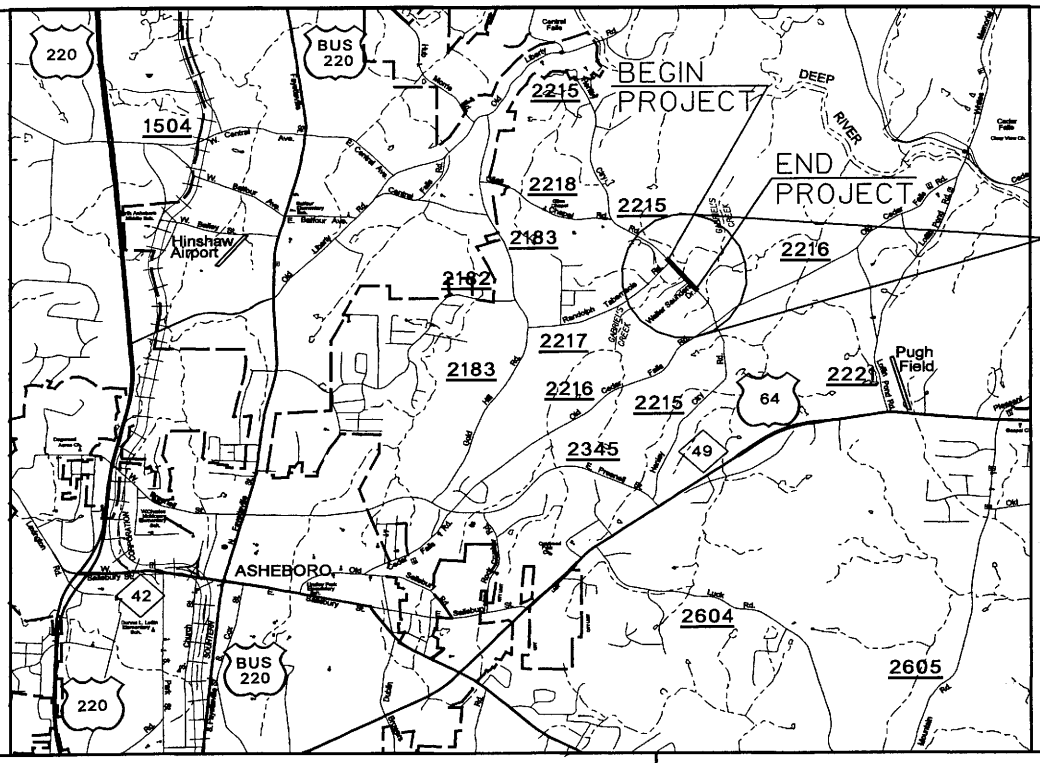
Sincerely,

Gary Jordan

for Pete Benjamin
Field Supervisor

cc: Richard Spencer, USACE, Wilmington, NC
Polly Lespinasse, NCDWQ, Mooresville, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC
John Sullivan, FHwA, Raleigh, NC
David Harris, NCDOT, Raleigh, NC





VICINITY MAP

NCDOT

DIVISION OF HIGHWAYS

RANDOLPH COUNTY

PROJECT: 33587.1.1 (B-4244)

BRIDGE 140 OVER

GABRIEL'S CREEK

ON SR 2215

SHEET 1 OF 8 **9/7/07**

9/7/2007
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WETLAND LEGEND

WLB — WETLAND BOUNDARY

WETLAND

DENOTES FILL IN WETLAND

DENOTES PERMANENT SURFACE WATER IMPACT

DENOTES PERMANENT SURFACE WATER IMPACT (POND)

DENOTES TEMPORARY FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY SURFACE WATER IMPACT

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB — TOP OF BANK

WE — EDGE OF WATER

C — PROP. LIMIT OF CUT

F — PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG — NATURAL GROUND

PL — PROPERTY LINE

TDE — TEMP. DRAINAGE EASEMENT

PDE — PERMANENT DRAINAGE EASEMENT

EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

EPB — EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

COIR FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT
12"-48" PIPES
54" PIPES & ABOVE

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 — ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

NCDOT

DIVISION OF HIGHWAYS

RANDOLPH COUNTY

PROJECT: 33587.1.1 (B-4244)

BRIDGE 140 OVER GABRIEL'S CREEK ON SR 2215

SHEET 2 OF 8 **9/7/07**

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WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 18+10 (LT/RT)	Temp. Rock Access	---	---	---	---	---	---	< 0.01	---	34	---
TOTALS:									< 0.01		34	

SHT 3 OF 8

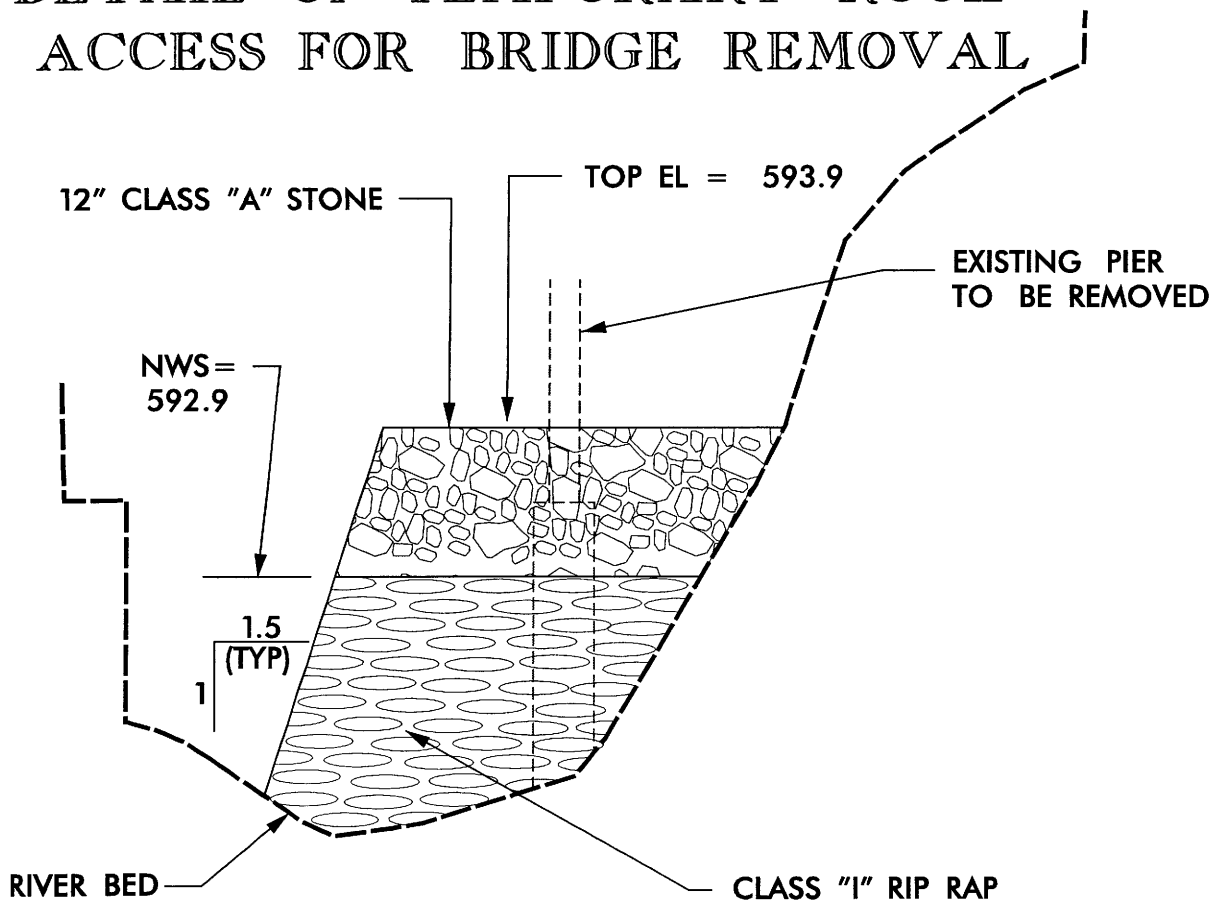
ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RANDOLPH COUNTY
WBS - 33587.1.1 (B-4244)

SHEET 3 OF 8 9/10/2007

DETAIL OF TEMPORARY ROCK ACCESS FOR BRIDGE REMOVAL



VOLUME AND AREA OF TEMPORARY FILL (CLASS "I" RIP RAP) BELOW NWS
AREA = 0.007 Ac VOLUME = 18 CY

ENGLISH

NCDOT

DIVISION OF HIGHWAYS
RANDOLPH COUNTY
PROJECT: 33587.1.1 (B-4244)
BRIDGE 140 OVER
GABRIEL'S CREEK
ON SR 2215

SHEET 4 OF 9 — 9/10/07

9/10/2007
12:28:27 PM
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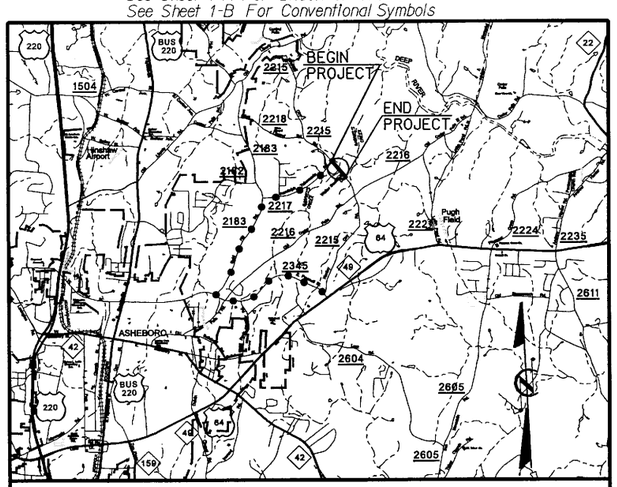
09/28/99

TIP PROJECT: B-4244

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

DENOTES OFF-SITE DETOUR

90% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

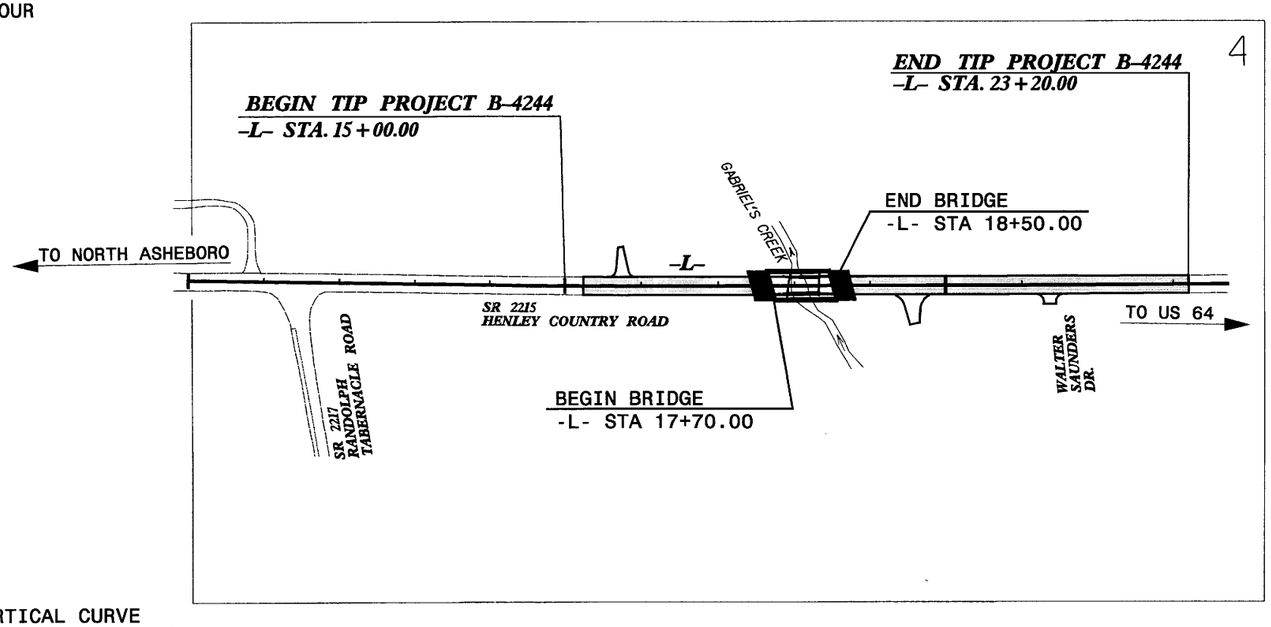
RANDOLPH COUNTY

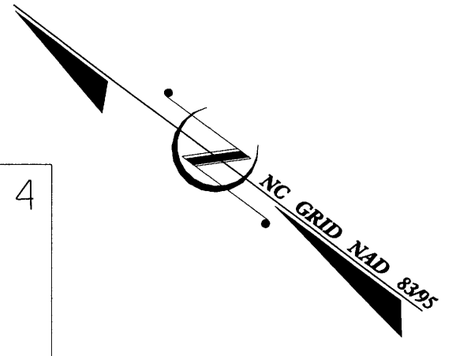
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4244	1	

WBS NO.	F. A. PROJ. NO.	DESCRIPTION
33587.1.1	BRZ-2215(1)	P.E.
33587.2.1	BRZ-2215(1)	R/W & UTIL
33587.3.1	BRZ-2215(1)	CONSTR.
~~Permit Drawing~~		
~~Sheet~~ 5 of 8		

LOCATION: BRIDGE NO. 140 OVER GABRIEL'S CREEK ON SR 2215

TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE





PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

* DESIGN EXCEPTION REQUIRED FOR VERTICAL CURVE
K FACTOR, VERTICAL SSD, BRIDGE WIDTH AND MAX. GRADE.

NCDOT CONTACT: CATHY HOUSER, P.E.
ROADWAY DESIGN - ENGINEERING COORDINATION

NCDOT
DIVISION OF HIGHWAYS
RANDOLPH COUNTY
PROJECT: 33587.1.1 (B-4244)
BRIDGE 140 OVER
GABRIEL'S CREEK
ON SR 2215

SHEET 5 OF 7 9/10/07

GRAPHIC SCALES

50 0 50 100
PLANS

50 0 50 100
PROFILE (HORIZONTAL)

10 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT (2007) = 4,320
ADT (2027) = 7,970
DHV = 12 %
D = 60 %
T = 3 %
*V = 60 MPH

(TTST = 1% + DUALS = 2%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4244	=	*0.140 MI.*
LENGTH STRUCTURES TIP PROJECT B-4244	=	*0.015 MI.*
TOTAL LENGTH OF TIP PROJECT B-4244	=	*0.155 MI.*

Prepared In the Office of:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 Schaub Dr. Suite 202 Raleigh NC 27606
(919) 851-5066

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 15, 2006

LETTING DATE:
JULY 15, 2008

MICHAEL A. YOUNG, PE
PROJECT ENGINEER

BRIAN A. WILES, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER *P.E.*

9/10/2007
R:\Hydraulics\dgn\Permits\B4244_hyd_tsh.dgn
Ko & Associates, P.C.

KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE 202 RALEIGH, N.C. 27606
(919) 851-6066

PROJECT REFERENCE NO.	SHEET NO.
B-4244	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 6 of 8

REVISIONS
1. 10-23-06 REVISED BEGINNING OF PROJECT TO AVOID SUNFLOWERS.
2. 11-13-06 PROPERTY OWNER CHANGE ON PARCEL 2.
3. 3-19-07 LENGTHENED END OF PROJECT PER DIVISION REQUEST TO REMOVE ROCK CUT.

8/17/99

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
DDE = 63 C.Y.
FROM -L- STA. 16+00 TO STA. 17+88 LT
FROM -L- STA. 17+41 TO STA. 18+17 RT

DETAIL C
LATERAL 'V' DITCH
(Not to Scale)
Min. D= 1Ft.
Max. d= 1.5 Ft.
b= 5 Ft.
DDE = 151 C.Y.
Type of Liner= Class 'B' Rip-Rap
FROM -L- STA. 18+05 TO STA. 20+00 LT

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)
Min. D= 1Ft.
Max d= 1.5 Ft.
Type of Liner= PSRM
FROM -L- STA. 20+00 TO STA. 23+20 LT

-L-
PI Sta 15+42.14
Δ = 0° 59' 15.8" (LT)
D = 0° 28' 38.9"
L = 206.87'
T = 103.44'
R = 12,000.00'

-L-
PI Sta 22+01.30
Δ = 0° 10' 14.5" (LT)
D = 0° 17' 11.3"
L = 59.59'
T = 29.79'
R = 20,000.00'

NC GRID
NAD 83/95

BEGIN PROJECT B-4244
-L- POC STA 15+00.00
S 39°36'39" E

-L- PC 14+38.70

-L- PT 16+45.57

END PROJECT B-4244
-L- POT STA 23+20.00

-L- PT 22+31.10

-L- PC 21+71.51

JULIUS C. CRAVEN

RANDOLPH COUNTY

DONALD S. HENLEY

TEMPORARY ROCK ACCESS TO ELEV. 593.9

TEMPORARY IMPACT IN SURFACE WATER

LATERAL 'V' DITCH SEE DITCH DETAIL B

CLASS 'B' RIP RAP EST 2 TON EST 7 SYFF

15" CSP W/ELBOWS, ROD AND LUG CONNECTORS

END PROPOSED BRIDGE
-L- POT STA 18+50.00

END APPROACH SLAB
-L- POT STA 18+74.00

LATERAL 'V' DITCH W/CLASS 'B' RIP RAP SEE DITCH DETAIL C

SPEC. CUT DITCH W/PSRM, SEE DITCH DETAIL D

50' TAPER LT & RT

EXISTING R/W

SR 2215 HENLEY COUNTRY RD. (SR 2215)

S 39°19'05.2" E

S 40°18'21" E

S 40°28'35.6" E

RETAIN

18" RCP

INV = 635.14'

INV = 631.96'

BM #1
-BL- STA 6+21.69
41.73 RIGHT
ELEV = 631.84

SUNFLOWERS DO NOT DISTURB

TONY W. SAUNDERS

END SBG 17+25 RT & -L-

BEGIN APPROACH SLAB
-L- POT STA 17+46.00

15" CSP W/ELBOWS, ROD AND LUG CONNECTORS

CLASS 'B' RIP RAP EST 2 TON EST 7 SYFF

CLASS II RIP RAP UP TO ELEV. 600 (TYP.)

LATERAL 'V' DITCH SEE DITCH DETAIL B

ENNIS POTTS

BEGIN PROPOSED BRIDGE
-L- POT STA 17+70.00

TIE TO EX. DITCH

BM #2
-BL- STA 13+78.99
75.18' RIGHT
ELEV = 607.35'

RETAIN 15" CONC

RETAIN 18" CONC

JOHN F. SAUNDERS

BERLIN L. LAWSON

DONALD S. HENLEY

TIE TO EX. DITCH

WOODS

BRUSH

EIR

EIP

PIEDMONT NATURAL GAS LINE

PROGRESS ENE

WATER SAUNDERS DR (PRIVATE)

TO US 64

100 0 50 100
SCALE: 1"= 100' HORIZ.

PLAN VIEW
SITE 1

LEGEND
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NCDOT
DIVISION OF HIGHWAYS
RANDOLPH COUNTY
PROJECT: 33587.1.1 (B-4244)
BRIDGE 140 OVER
GABRIEL'S CREEK
ON SR 2215

SHEET 6 OF 7 9/10/07

9/10/2007
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KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE 202 RALEIGH, N.C. 27606
(919) 851-6066

PROJECT REFERENCE NO.	SHEET NO.
B-4244	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

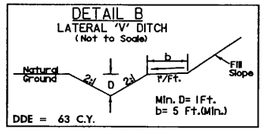
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 7 of 8

8/17/99

REVISIONS

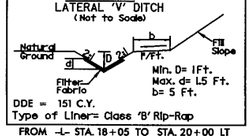
1. 10-23-06 REVISED BEGINNING OF PROJECT TO AVOID SUNFLOWERS.
2. 11-13-06 PROPERTY OWNER CHANGE ON PARCEL 2.
3. 3-19-07 LENGTHENED END OF PROJECT PER DIVISION REQUEST TO REMOVE ROCK CUT.

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



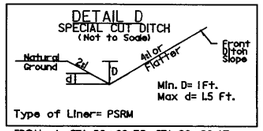
Min. D= 1Ft.
b= 5 Ft.(Min.)
DDE = 63 C.Y.
FROM -L- STA. 16+00 TO STA. 17+88 LT
FROM -L- STA. 17+41 TO STA. 18+17 RT

DETAIL C
LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1Ft.
Max. d= 1.5 Ft.
b= 5 Ft.
DDE = 151 C.Y.
Type of Liner= Class 'B' Rip-Rap
FROM -L- STA. 18+05 TO STA. 20+00 LT

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1Ft.
Max d= 1.5 Ft.
Type of Liner= PSRM
FROM -L- STA. 20+00 TO STA. 23+20 LT

-L-
PI Sta 15+42.14
Δ = 0° 59' 15.8" (LT)
D = 0° 28' 38.9"
L = 206.87'
T = 103.44'
R = 12,000.00'

-L-
PI Sta 22+01.30
Δ = 0° 10' 14.5" (LT)
D = 0° 17' 11.3"
L = 59.59'
T = 29.79'
R = 20,000.00'

NC GRID
NAD 83/95

BEGIN PROJECT B-4244
-L- POC STA 15+00.00
S 39°36'39" E

-L- PT 16+45.57

1 RANDOLPH COUNTY

END PROJECT B-4244
-L- POT STA 23+20.00

3 DONALD S. HENLEY

TEMPORARY ROCK ACCESS TO ELEV. 593.9

TEMPORARY IMPACT IN SURFACE WATER

END PROPOSED BRIDGE
-L- POT STA 18+50.00

END APPROACH SLAB
-L- POT STA 18+74.00

-L- PT 22+31.10

-L- PC 21+71.51

SPEC. CUT DITCH W/PSRM, SEE DITCH DETAIL D

50' TAPER LT & RT

LATERAL 'V' DITCH SEE DITCH DETAIL B

CLASS 'B' RIP RAP EST 2 TON EST 7 SYFF

15" CSP W/ELBOWS, ROD AND LUG CONNECTORS

LATERAL 'V' DITCH W/CLASS 'B' RIP RAP SEE DITCH DETAIL C

-L- PC 14+38.70

JULIUS C. CRAVEN

RETAIN

S 39°19'05.2" E

INV = 635.14'

INV = 631.96'

BM #1
-BL- STA 6+21.69
41.73' RIGHT
ELEV = 631.84

SUNFLOWERS DO NOT DISTURB

2 TONY W. SAUNDERS

END SBG 17+25 RT & LT

BEGIN APPROACH SLAB
-L- POT STA 17+46.00

15" CSP W/ELBOWS, ROD AND LUG CONNECTORS

CLASS 'B' RIP RAP EST 2 TON EST 7 SYFF

CLASS II RIP RAP UP TO ELEV. 600 (TYP.)

BEGIN PROPOSED BRIDGE
-L- POT STA 17+70.00

ENNIS POTTS

S 40°18'21" E

S 40°28'35" E

TIE TO EX. DITCH

BM #2
-BL- STA 13+78.99
75.18' RIGHT
ELEV = 607.35'

RETAIN 15" CONC

RETAIN 18" CONC

DONALD S. HENLEY

TIE TO EX. DITCH

4 JOHN F. SAUNDERS

BERLIN L. LAWSON

EIP

LEGEND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100 0 50 100
SCALE: 1"= 100' HORIZ.

PLAN VIEW
SITE 1

NCDOT
DIVISION OF HIGHWAYS
RANDOLPH COUNTY
PROJECT: 33587.1.1 (B-4244)
BRIDGE 140 OVER
GABRIEL'S CREEK
ON SR 2215

SHEET 6 OF 7 9/10/07

8/10/2007
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K:\Projects\B-4244\

PROJECT REFERENCE NO.	SHEET NO.
B4244	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 7 of 7

ENGLISH

5/14/99

REVISIONS

1. 10-23-06 REVISED BEGINNING OF PROJECT TO AVOID SUNFLOWERS.
2. 3-19-07 LENGTHENED END OF PROJECT PER DIVISION REQUEST TO REMOVE ROCK CUT.

B.M. #1 EL = 631.84
RR SPIKE IN BASE OF
POWER POLE (CP&L K808AD)
42' RT OF -BL- STA 6+22
61.29' RT OF -L- STA 12+35.44

B.M. #2 EL = 607.35
RR SPIKE IN BASE OF
POWER POLE (CP&L K794AD)
75' RT OF -BL- STA 13+79
90.12' RT OF -L- STA 19+90.63

BEGIN PROPOSED GRADE
-L- STA 15+25.00
EL = 610.94

PVC STA 15+35.00
EL = 610.38

PI = 17+00.00
EL = 601.12'
VC = 330'
K = 37 x
DS = 30 mph
NWS = 592.9

BEGIN PROPOSED BRIDGE
-L- POC STA 17+76.00
EL = 604.61

END PROPOSED BRIDGE
-L- POC STA 18+50.00
EL = 606.04

PVT STA 18+65.00
EL = 606.50

PVC STA 18+71.00
EL = 606.66

TEMPORARY ROCK ACCESS
TO ELEV. 593.9

PROPOSED GRADE
PI = 19+60.00
EL = 609.60'
VC = 180'
K = 38 x
DS = 30 mph

PVT STA 20+50.00
EL = 616.80

PVC STA 20+69.00
EL = 619.20

PI = 21+40.00
EL = 624.00'
VC = 120'
K = 69
DS = 45 mph

END PROPOSED GRADE
-L- PVT STA 22+00.00
EL = 627.76

1.5" OVERLAY

END 1.5" OVERLAY
-L- PVT STA 23+00.00

-L- STA 23+20.00
TAPER TO EXIST.

EXISTING GROUND

(-)5.6155%
(+)3.2622%
-1.92%
-3.29%
-3.45%
+6.63%
+10.60%
(-)8.0000%
+1.33%
(+)6.2688%
+6.95%

BEGIN DITCH
STA. 16+00 - LT
INV. 598.00

STA. 17+36 LT
INV. 595.50

BEGIN DITCH
STA. 17+41 RT
INV. 596.00

END DITCH
STA. 17+88 LT
INV. 593.50

BEGIN DITCH
STA. 18+05 LT
INV. 598.50

END DITCH
STA. 18+11 RT
INV. 593.50

STA. 19+80 LT
INV. 593.80

STA. 20+00 LT
INV. 610.40

STA. 21+50 LT
INV. 621.40

END DITCH
STA. 22+50 LT
INV. 628.35

* DESIGN EXCEPTION REQUIRED

EXCAVATION = 190 CY

TEMPORARY IMPACT IN
SURFACE WATER

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 820	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 599.1	FT
BASE DISCHARGE	= 1300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 600.1	FT
OVERTOPPING DISCHARGE	= 3600 +/-	CFS
OVERTOPPING FREQUENCY	= 500 +	YRS
OVERTOPPING ELEVATION	= 604.52	FT
DATE OF SURVEY	= 7-5-2005	
W.S. ELEVATION AT DATE OF SURVEY	= 592.9	FT

-L-

FOR PLAN, SEE SHEET NO. 4

LEGEND

18 25 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NCDOT
DIVISION OF HIGHWAYS
RANDOLPH COUNTY
PROJECT: 33587.1.1 (B-4244)
BRIDGE 140 OVER
GABRIEL'S CREEK
ON SR 2215

SHEET 7 OF 7 9/10/07

9/10/2007
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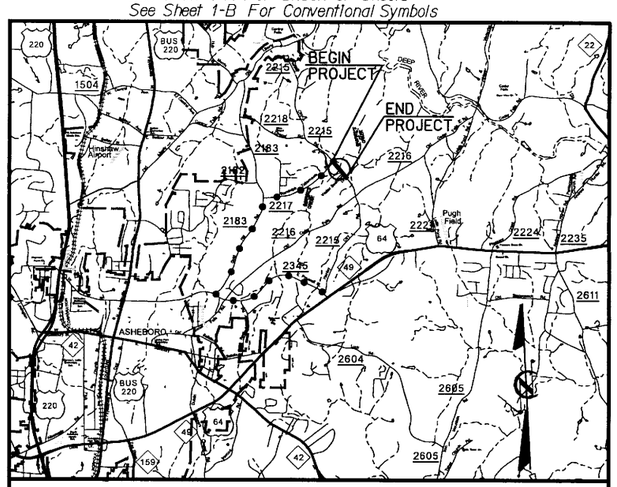
Kok & Associates, P.A.

09/08/99

TIP PROJECT: B-4244

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

DENOTES OFF-SITE DETOUR

90% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

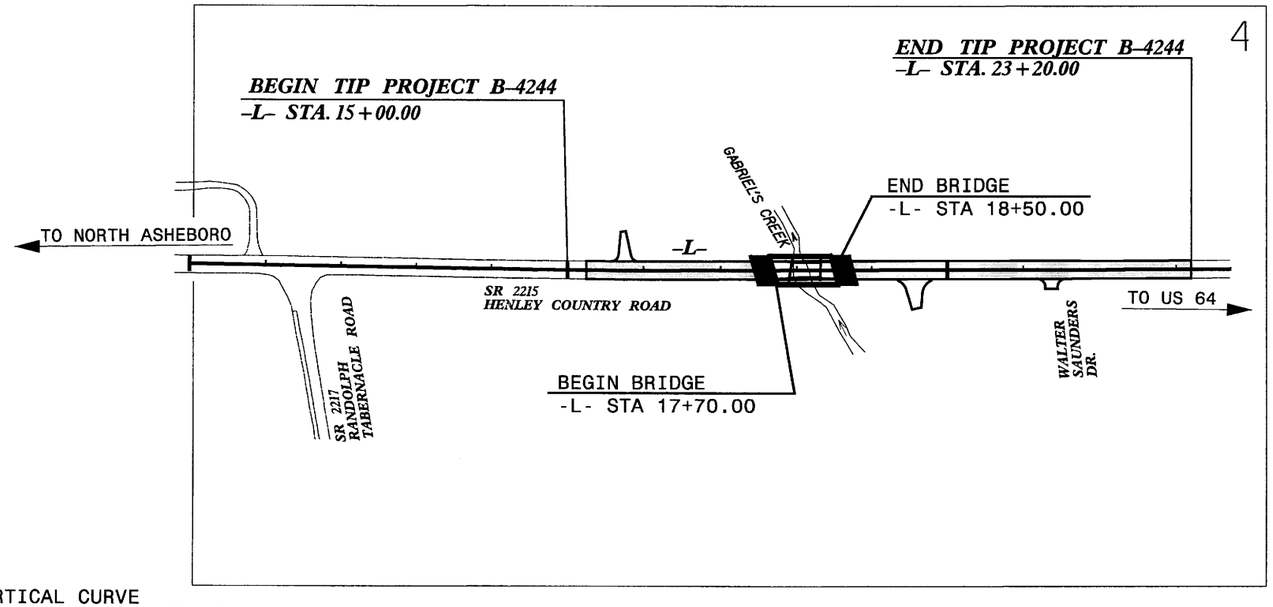
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4244	1	

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
33587.1.1	BRZ-2215(1)	P.E.
33587.2.1	BRZ-2215(1)	R/W & UTIL
33587.3.1	BRZ-2215(1)	CONSTR.

LOCATION: BRIDGE NO. 140 OVER GABRIEL'S CREEK ON SR 2215

TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

NC GRID NAD 83/95



* DESIGN EXCEPTION REQUIRED FOR VERTICAL CURVE
K FACTOR, VERTICAL SSD, BRIDGE WIDTH AND MAX. GRADE.

NCDOT CONTACT: CATHY HOUSER, P.E.
ROADWAY DESIGN - ENGINEERING COORDINATION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 0 50 100
PLANS

50 0 50 100
PROFILE (HORIZONTAL)

10 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT (2007) = 4,320
ADT (2027) = 7,970
DHV = 12 %
D = 60 %
T = 3 %
*V = 60 MPH

(TTST=1% + DUALS=2%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4244	=	*0.140 MI.*
LENGTH STRUCTURES TIP PROJECT B-4244	=	*0.015 MI.*
TOTAL LENGTH OF TIP PROJECT B-4244	=	*0.155 MI.*

Prepared in the Office of:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 Schaub Dr. Suite 202 Raleigh NC 27606
(919) 851-6066

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 15, 2006

LETTING DATE:
JULY 15, 2008

MICHAEL A. YOUNG, PE
PROJECT ENGINEER

BRIAN A. WILES, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER *P.E.*

9/10/2007
R:\Roadway\Proj\B4244_Rdy_tsh.dgn
Ko & Associates, P.C.

10/25/05

PROJECT REFERENCE NO.	SHEET NO.
B-4244	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point — PC
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

6/2/99

PAVEMENT SCHEDULE	
C	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE 202 RALEIGH, N.C. 27606
(919) 851-6066

PROJECT REFERENCE NO.	SHEET NO.
B-4244	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

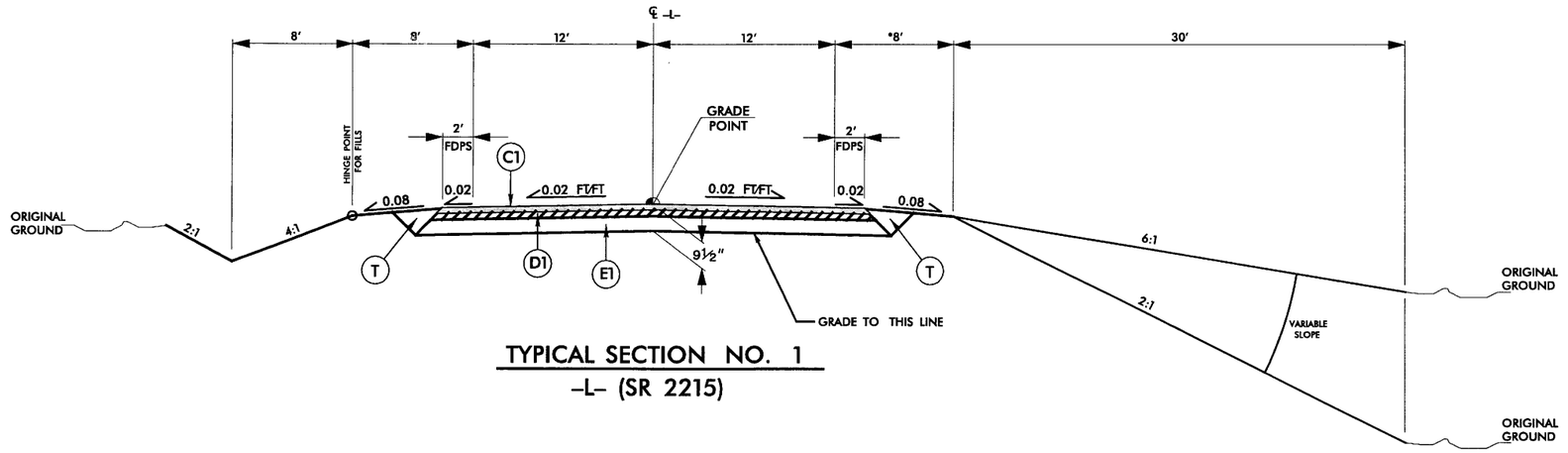
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

1. 3-19-07 ADDED T.S.NO.2 DUE TO LENGTHENED END OF PROJECT PER DIVISION REQUEST.

TRANSITION FROM EXISTING TO T.S. NO. 1
-L- STA. 15+25.00 TO 15+75.00

USE TYPICAL SECTION NO. 1
-L- STA. 15+75.00 TO 17+46.00 (APPROACH SLAB)
-L- STA. 18+74.00 (APPROACH SLAB) TO 21+50.00

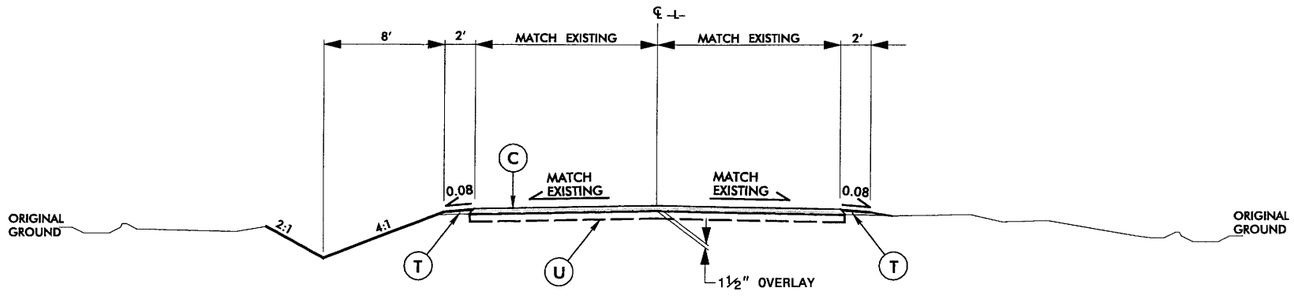
* ADD 3' WITH GUARDRAIL



TYPICAL SECTION NO. 1
-L- (SR 2215)

TRANSITION FROM T.S. NO. 1 TO T.S. NO. 2
-L- STA. 21+50.00 TO 22+00.00

USE TYPICAL SECTION NO. 2
-L- STA. 22+00.00 TO 23+20.00



TYPICAL SECTION NO. 2
-L- (SR 2215)

8/27/2007
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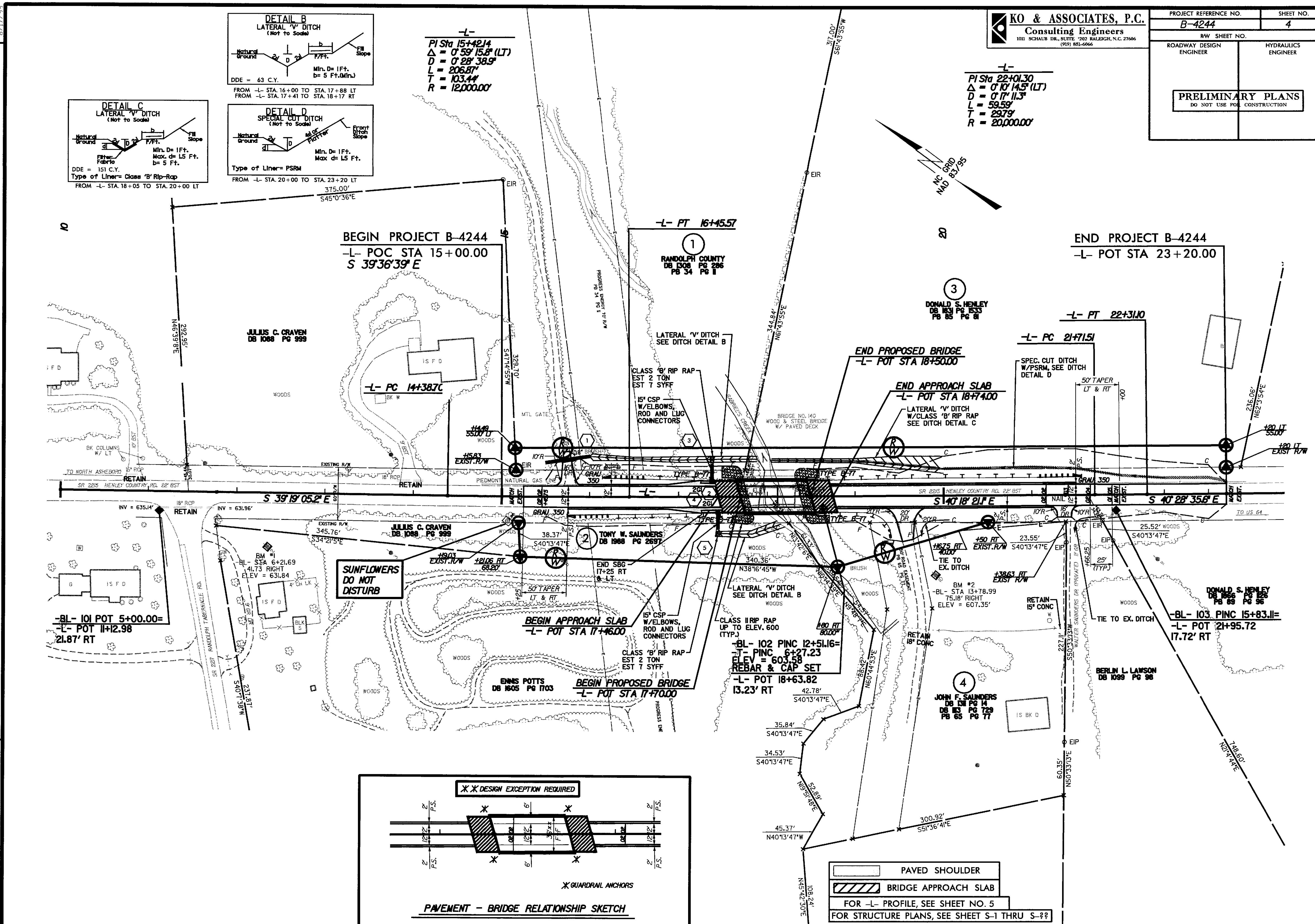
Ko & Associates, P.A.

KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE 202 RALEIGH, N.C. 27606
(919) 851-6066

PROJECT REFERENCE NO.	SHEET NO.
B-4244	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

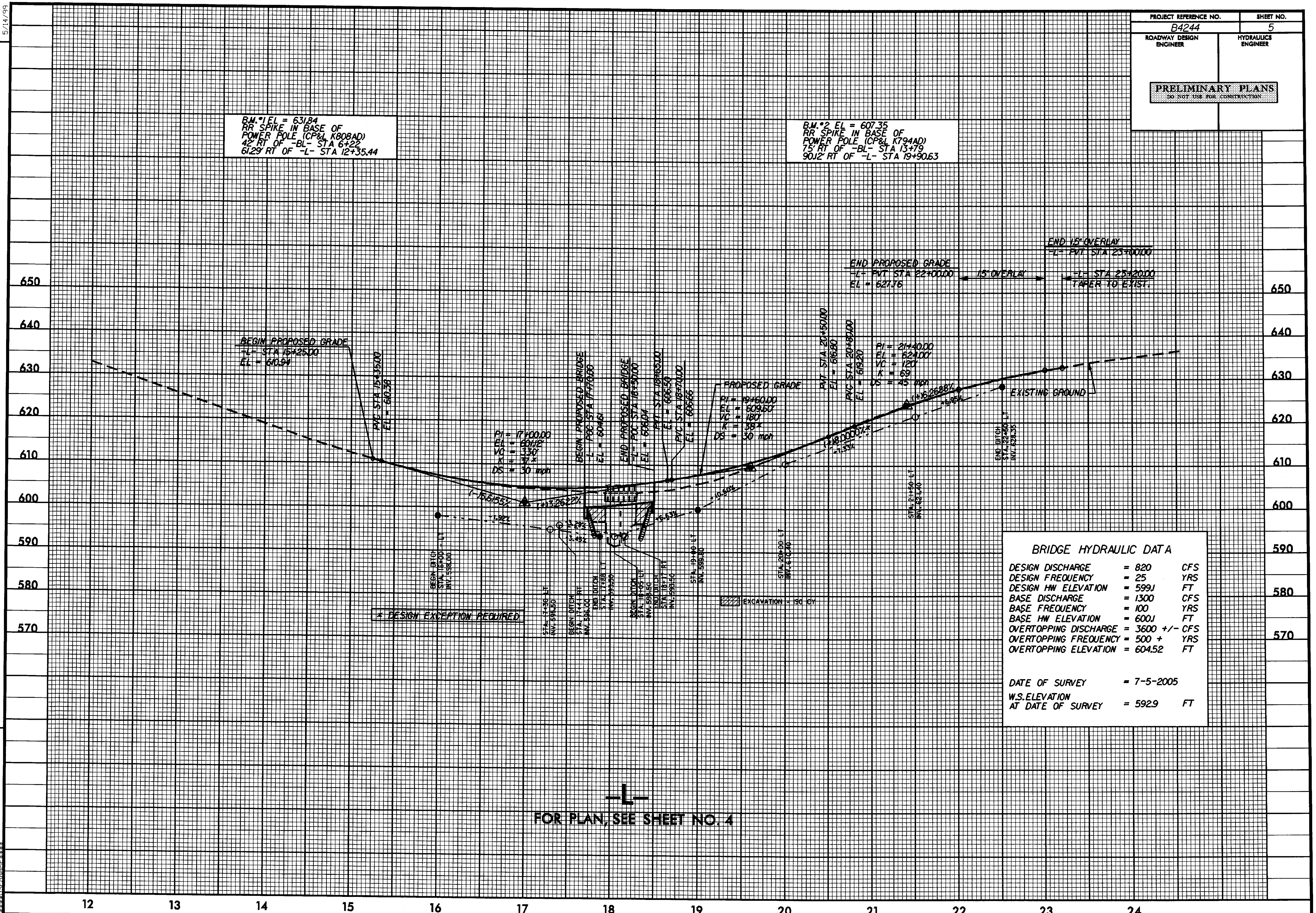
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
1. 10-23-06 REVISED BEGINNING OF PROJECT TO AVOID SUNFLOWERS.
2. 11-13-06 PROPERTY OWNER CHANGE ON PARCEL 2
3. 3-19-07 LENGTHENED END OF PROJECT PER DIVISION REQUEST TO REMOVE ROCK CUT.



PROJECT REFERENCE NO.	SHEET NO.
B4244	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



B.M.#1 EL = 631.84
RR SPIKE IN BASE OF
POWER POLE (CP&L K808AD)
42' RT OF -BL- STA 6+22
61.29' RT OF -L- STA 12+35.44
B.M.#2 EL = 607.35
RR SPIKE IN BASE OF
POWER POLE (CP&L K794AD)
75' RT OF -BL- STA 13+79
90.12' RT OF -L- STA 19+90.63
END 1.5" OVERLAY
-L- PVT STA 23+00.00
END PROPOSED GRADE
-L- PVT STA 22+00.00
EL = 627.76
1.5" OVERLAY
-L- STA 23+20.00
TAPER TO EXIST.
BEGIN PROPOSED GRADE
-L- STA 15+25.00
EL = 610.94
PVC STA 15+35.00
EL = 610.36
PI = 17+00.00
EL = 601.12'
VC = 330'
K = 37*
DS = 30 mph
BEGIN PROPOSED BRIDGE
-L- POC STA 17+70.00
EL = 604.61
END PROPOSED BRIDGE
-L- POC STA 18+50.00
EL = 605.04
PVT STA 18+65.00
EL = 605.50
PVC STA 18+70.00
EL = 605.66
PROPOSED GRADE
PI = 19+60.00
EL = 609.60
VC = 180'
K = 38*
DS = 30 mph
PVT STA 20+50.00
EL = 616.80
PVC STA 20+80.00
EL = 619.20
PI = 21+40.00
EL = 624.00
VC = 120'
K = 69
DS = 45 mph
(-10.6155%)
(+3.2627%)
(+8.0000%)
(+6.2688%)
EXISTING GROUND
BEGIN DITCH STA. 16+00 LT INV. 598.00
STA. 17+30 LT INV. 595.50
BEGIN DITCH STA. 17+44 RT INV. 594.00
END DITCH STA. 17+88 LT INV. 593.50
BEGIN DITCH STA. 18+05 LT INV. 598.50
END DITCH STA. 18+77 RT INV. 593.50
STA. 19+00 LT INV. 599.80
STA. 20+00 LT INV. 610.40
STA. 21+50 LT INV. 621.40
END DITCH STA. 22+50 LT INV. 628.35
EXCAVATION = 50 CY
* DESIGN EXCEPTION REQUIRED
650
640
630
620
610
600
590
580
570
12
13
14
15
16
17
18
19
20
21
22
23
24

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	820	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	599.1	FT
BASE DISCHARGE	=	1300	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	600.1	FT
OVERTOPPING DISCHARGE	=	3600 +/-	CFS
OVERTOPPING FREQUENCY	=	500 +	YRS
OVERTOPPING ELEVATION	=	604.52	FT
DATE OF SURVEY	=	7-5-2005	
W.S. ELEVATION AT DATE OF SURVEY	=	592.9	FT

REVISIONS

1. 10-23-06 REVISED BEGINNING OF PROJECT TO AVOID SUNFLOWERS.
2. 3-19-07 LENGTHENED END OF PROJECT PER DIVISION REQUEST TO REMOVE ROCK CUT.

-L-

FOR PLAN, SEE SHEET NO. 4

5/14/99

13-SEP-2007 10:50
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North Carolina Department of Transportation
PROJECT ENVIRONMENTAL CONSULTATION FORM
I.D. No. B-4244

I. GENERAL INFORMATION

a.	Consultation Phase:	Right of Way
b.	Project Description	Replacement of Bridge No. 140 on SR 2215 over an Unnamed Tributary to Gabriel's Creek, Randolph County
c.	State Project: Federal Project:	33587.1.1 BRZ-2215(1)
d.	Document Type:	Categorical Exclusion July 11, 2005 Date

II. CONCLUSIONS

The above environmental document has been reevaluated as required by 23 CFR 771. It was determined that the current proposed action is essentially the same as the original proposed action. Proposed changes, if any, are noted below in Section III. It has been determined that anticipated social, economic, and environmental impacts were accurately described in the above referenced document(s) unless noted otherwise herein. Therefore, the original Administration Action remains valid.

III. CHANGES IN PROPOSED ACTION AND ENVIRONMENTAL CONSEQUENCES

DESIGN PLANS

The design plans have been reviewed in respect to the preferred alternative in the Categorical Exclusion (CE). The design plans have not been revised since the CE was finalized.

WATER RESOURCES

The project study area is located within the Cape Fear River Basin subbasin 03-06-09, hydrologic unit 03030003. The project study area contains two unnamed tributaries (UT) to Gabriel's Creek, UT1 and UT2. Water resource classifications have not changed since the CE was prepared. The unnamed tributaries receive the same classification as the receiving stream, Gabriel's Creek, Class "C." Class "C" waters are suitable for aquatic life propagation and protection, agriculture, and secondary recreations. Secondary recreation includes wading, boating, and other uses not involving human body contact with waters on an organized for frequent basis.

Neither High Quality Waters (HQW), Water Supplies (WS I: undeveloped watersheds or WS II: predominately undeveloped watersheds) nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project study area. No streams in the project area are listed on the DWQ 2002 303-(d) list of impaired waters.

PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended in 1979. As of March 8, 2006, the U.S. Fish and Wildlife (USFWS) lists 2 protected species for Randolph County (Table 1).

Table 1. Federally protected species in Randolph County

Scientific Name	Common Name	Federal Status	Biological Conclusion	Habitat
Notropis mekistocholas	Cape Fear Shiner	E	No effect	No
Helianthus schweinitzii	Schweinitz's Sunflower	E	May affect, not likely to adversely affect	Yes

E-Endangered-A species that is threatened with extinction throughout all or a significant portion of its range

The species listed and the associated biological conclusions are provided in the referenced CE document. A Biological Conclusion of "No Effect" was issued for the Cape Fear Shiner. An evaluation of potential habitat within the project area for the Cape Fear Shiner was performed by NCDOT biologists on October 14, 2004. There is no potential habitat for the Cape Fear shiner within the project area. The North Carolina Natural Heritage Program (NCNHP) records indicate that there are no known populations of the Cape Fear Shiner within one mile of the project area. The biological conclusion of "No Effect" remains valid and no further surveys are required.

A Biological Conclusion of "No effect" was issued for Schweinitz's sunflower. There is potential habitat within the project study area along roadside shoulders, utility corridors, and forest edges. The most recent survey was completed on August 18, 2004 by EcoScience biologists. No specimens of Schweinitz's sunflower were within the project area. However, the NCNHP database documented a population of Schweinitz's sunflower approximately 0.5 miles southeast of the existing bridge. According to NCNHP botanist, Misty Franklin, specimens were confirmed at this site as of October 2005. Due to the presence of this species within one mile of the project study area, the biological conclusion will change to "May affect, not likely to adversely affect." NCDOT will seek concurrence from the U.S. Fish and Wildlife Service. Additional surveys will be required in 2006 during the appropriate survey window (late August-October).

IV. LIST OF ENVIRONMENTAL COMMITMENTS

D.O.T. will implement all practical measures and procedures to minimize and avoid environmental impacts.

See attached "Green Sheet".

V. COORDINATION

Project Development and Environmental Analysis Branch personnel have discussed current project proposals with others as follows:

Design Engineer:	Malcolm Watson	May 7, 2006 Date
FHWA Engineer:	Felix Davila	July 5, 2006 Date
Permits Section:	Erica McLamb	June 14, 2006 Date

VI. NCDOT CONCURRENCE

Project Planning Engineer — Date

for Project Development and Environmental Analysis Branch Manager — Date

PROJECT COMMITMENTS

Randolph County
SR 2215
Bridge No. 140 over an Unnamed Tributary to Gabriel's Creek
Federal-Aid Project No. BRZ-2215(1)
State Project No. WBS 33587.1.1
T.I.P. No. B-4244

In addition to the Nationwide Permit #23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for Protection of Surface Waters, NCDOT'S Guidelines for Best Management Practices for Construction and Maintenance Activities, General Certifications, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Project Development and Environmental Analysis Branch (PD&EA):

The NC Natural Heritage Program (NCNHP) database documented a population of the Schweinitz's sunflower approximately 0.5 miles southeast of the existing bridge. The presence of this species was confirmed by a NCNHP botanist in October 2005. Due to the presence of the species within one mile of the project study area, the biological conclusion will change to "May affect, not likely to adversely affect" from "No Effect." NCDOT will seek concurrence from the U.S. Fish and Wildlife Service.

An additional survey will be completed in 2006 during the appropriate survey window (late August to October) to confirm the Schweinitz's sunflower will not be impacted by the project.

Construction Office, Division 8:

Randolph County Emergency Services has requested NCDOT to give 2 –3 weeks notice prior to the closing of the bridge.

Randolph County
SR 2215
Bridge No. 140 over an Unnamed Tributary to Gabriel's Creek
Federal-Aid Project No. BRZ-2215(1)
State Project No. WBS 33587.1.1
T.I.P. No. B-4244

CATEGORICAL EXCLUSION

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

N.C. DEPARTMENT OF TRANSPORTATION

APPROVED:

7-11-05
DATE

for Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch, NCDOT

7/11/05
DATE

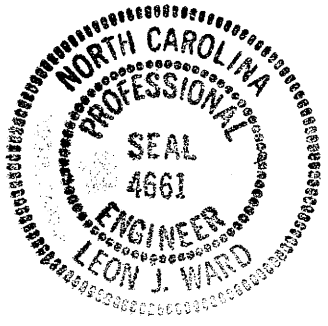
for John F. Sullivan III, P.E.
Division Administrator, FHWA

Randolph County
SR 2215
Bridge No. 140 over an Unnamed Tributary to Gabriel's Creek
Federal-Aid Project No. BRZ-2215(1)
State Project No. WBS 33587.1.1
T.I.P. No. B-4244

CATEGORICAL EXCLUSION

June 2005

Documentation Prepared By Ko & Associates, P.C.



L. J. Ward, P.E.
Project Manager

For North Carolina Department of Transportation

for

Karen B. Taylor, P.E.
Project Development Engineer

PROJECT COMMITMENTS

Randolph County
SR 2215
Bridge No. 140 over an Unnamed Tributary to Gabriel's Creek
Federal-Aid Project No. BRZ-2215(1)
State Project No. WBS 33587.1.1
T.I.P. No. B-4244

In addition to the standard Nationwide Permit #23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for Protection of Surface Waters, NCDOT's Guidelines for Best Management Practices for Construction and Maintenance Activities, General Certifications, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Construction Office, Division 8

Randolph County Emergency Services has requested NCDOT to give 2 –3 weeks notice prior to the closing of the bridge.

Randolph County
SR 2215
Bridge No. 140 over an Unnamed Tributary to Gabriel's Creek
Federal-Aid Project No. BRZ-2215(1)
State Project No. WBS 33587.1.1
T.I.P. No. B-4244

INTRODUCTION: The replacement of Bridge No. 140 is included in the North Carolina Department of Transportation 2004-2010 Transportation Improvement Program and in the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1A. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion."

I. PURPOSE AND NEED STATEMENT

Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 32.2 out of a possible 100 for a new structure. The bridge is considered functionally obsolete and structurally deficient. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

SR 2215 (Henley-Country Road) crosses over an unnamed tributary to Gabriel's Creek (Asheboro, NC 7.5-minute quadrangle) in Randolph County approximately 0.4 mile north of its junction with SR 2216 (Old Cedar Falls Road). For descriptive purposes, the unnamed tributary will be referred to as UT1 in this report. Bridge No. 140 is located just east of the city of Asheboro. The project study area is hilly and heavily wooded. There are six houses in the surrounding area. Four of the houses are located along the north roadway approach of the bridge, and two are along the south roadway approach. There are no historic properties in the surrounding area. The driveway to a private park is located near the bridge in the southeast quadrant. SR 2215 is classified as a Rural Local Road in the Statewide Functional Classification System.

SR 2215 has a current pavement width of 20 feet with 5-foot grass shoulders in the area of the bridge. The roadway approaches are on tangents and on downgrades toward the bridge. The vertical sag occurs at the bridge, but the bridge is flat. The sight distance is good on both approaches. The horizontal alignment of the roadway approaches in the immediate area of the bridge is good, but the vertical alignment is poor.

The current traffic volumes on SR 2215 at UT1 are 3900 vehicles per day (vpd) and for the design year 2025 the estimated traffic volumes are 7600 vpd. The volumes include an estimated 1 percent truck-tractor semi-trailer (TTST) and 2 percent dual-tired (DT) vehicles. The posted speed limit is 55 mph in the vicinity of the bridge.

Bridge No. 140, as shown in Figures 2A and 2B, has an overall length of 36 feet and a clear deck width of 19 feet. The existing two-lane bridge has a timber deck on timber piles. The structure was constructed in 1950. There is no posting on the weight limits. The bridge has a sufficiency rating of 32.2 compared to a rating of 100 for a new structure. Bridge No. 140 has a bed-to-crown distance of approximately 12 feet.

One accident was reported in the vicinity of the bridge during the period from May 1, 1999 to April 30, 2002. The accident rate for the period is 134.18 accidents per 100 million vehicle miles (MVM) of travel as compared to the statewide average of 347.58 accidents per 100 MVM for rural secondary routes (two lanes undivided) for the three-year period 2000–2002.

There are overhead power transmission lines that parallel UT1 along the north side, crossing SR 2215 just north of the bridge. Overhead power service lines also parallel the west side of SR 2215. The telephone cables are underground along the west side of SR 2215, but are overhead across the creek. A steel gas main along the east side of SR 2215 crosses under the creek and a gas service line crosses under SR 2215 just north of SR 2217. No utilities are attached to the bridge.

There are four school bus crossings daily over the bridge.

III. ALTERNATIVES

A. Project Description

NCDOT proposes to replace Bridge No. 140 with a new bridge approximately 85 feet long with a clear roadway width of 40 feet. The final length of the bridge will be determined during final bridge design. New approaches to the bridge will provide 12-foot travel lanes in each direction with 8-foot shoulders [2-foot paved]. The proposed cross sections are shown in Figure 3A. The design speed will be 60 mph.

B. Build Alternatives

The studied alternatives were: (1) Replace Bridge No. 140 at its existing location by closing the existing roadway and maintaining traffic with an off-site detour; and (2) Replace Bridge No. 140 at its existing location while maintaining traffic with a temporary structure and detour on the east side. These alternatives are shown in Figures 4 and 5.

The off-site detour proposed with Alternate 1, shown in Figure 6, is approximately 5.2 miles in length and utilizes SR 2217 (Randolph Tabernacle Road), SR 2183 (Gold Hill Road) and SR 2216 (Old Cedar Fall Road). In accordance with the NCDOT Guidelines for Evaluation of Off-site Detours for Bridge Replacement Projects (April 2004), the average delay per motorist is estimated to be about 7 minutes for a construction period of 12 months, which falls under the Evaluation (E) range of the Guidelines. The Evaluation (E) range suggests that an on-site detour is justifiable from a traffic operations standpoint but must be weighed with other project factors to determine if it is appropriate. Further coordination with the Emergency Services of Randolph County indicates the detour would not cause any problems or major delays in providing services to the area. The TIMS Coordinator was contacted and indicated it was not an unworkable situation. The off-site detour is acceptable under the requirements of the NCDOT guidelines.

C. Alternatives Eliminated from Further Study

The No-Build or "do-nothing" alternative was also considered but this alternative would eventually necessitate closure of the bridge. This is not a desirable alternative due to the traffic service provided by SR 2215.

Investigation of the existing structure by the NCDOT Bridge Maintenance Unit indicates that rehabilitation of Bridge No. 140 is not feasible due to its age and deteriorated condition. The existing bridge is classified as structurally deficient.

D. Preferred Alternative

Alternate 1, replacing the bridge at its existing location with an off-site detour is the preferred alternative. It was selected since it has the least environmental impact and is the most economical. Representatives from the Division Office recommend resurfacing the off-site detour route as a part of this project at an estimated cost of $500,000. No other structures are located along the off-site detour route.

The new structure will be 85 feet long with a clear roadway width of 40 feet. The grade of the new structure will be about 5 feet above the grade of the existing bridge. A minimum grade of

0.3% on the bridge is recommended to facilitate deck drainage. New approaches to the bridge will provide 12-foot travel lanes with 8-foot shoulders, including 2-foot paved shoulders. Approximately 1600 feet of new approaches will be required.

The design speed of the replacement structure will be 60 mph; however, a design exception for the vertical alignment will be necessary. The design exception for the vertical curve with a design speed of 35 mph is required because maintaining a 60 mph design speed will necessitate a longer vertical curve and raising the grade approximately 25 feet. A longer vertical curve and grade change may impact adjacent residences and will increase the estimated cost of this alternate.

The estimated cost for the recommended proposed improvement is $1,482,390. The current estimated cost of the project, as shown in the NCDOT 2004-2010 Transportation Improvement Program, is $45,000 for right-of-way and $450,000 for construction.

The Division Office concurs with the recommended improvements.

IV. ESTIMATED COST

The estimated costs of the alternatives studied, based on 2005 prices, are:

	Alternate 1 (Exist. Loc.) Off-site Detour	**Alternate 2 (Exist. Loc.) On-site Detour**
Structure Removal	$ 9,480	$ 9,480
Structure	$ 292,400	$ 292,400
Roadway Approaches	$ 290,325	$ 290,325
Mobilization and Miscellaneous	$ 176,435	$ 176,435
Engineering and Contingencies	$ 131,000	$ 131,000
Detour	$ 500,000 [1]	$ 675,000 [2]
SUBTOTAL	$1,399,640	$1,574,640
Right-of-Way/Const. Ease./Util.	$ 82,750	$ 120,500
TOTAL	$1,482,390	$1,694,640

[1] Cost of resurfacing off-site detour route.

[2] Cost of on-site detour.

The above estimates are based on functional design plans; therefore, 45 percent is included for miscellaneous items and contractor mobilization, and 15 percent for engineering and contingencies.

V. NATURAL RESOURCES

A. Methodology

Materials and literature supporting this investigation have been derived from a number of sources including U.S. Geological Survey (USGS) topographic mapping (Asheboro, NC 7.5-minute quadrangle), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping (Asheboro, NC 7.5-minute quadrangle), Natural Resources Conservation Service (NRCS; formerly the Soils Conservation Service) soils mapping (SCS 1992), N.C. Wildlife Resources Commission (NCWRC) proposed Significant Aquatic Endangered Species Habitats, and recent aerial photography.

Plant community descriptions are based on a classification system utilized by the N.C. Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names generally follow nomenclature found in Radford *et al.* (1968) with adjustments for updated nomenclature (Kartesz 1998). Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (USACE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979) and/or the N.C. Division of Environmental Management (DEM) *Field Guide to North Carolina Wetlands* (1996). Aquatic and terrestrial wildlife habitat requirements and distributions were determined through field observations, evaluation of available habitat and supportive literature (Martof *et al.* 1980, Potter *et al.* 1980, Webster *et al.* 1985, Menhinick 1991, Rohde *et al.* 1994, Palmer and Braswell 1995, and Voshell 2002). Water quality information for area streams and tributaries was derived from available sources (NCDWQ 2000, NCDWQ 2004a-c). Quantitative sampling was not undertaken to support existing data.

The most current FWS listing of federally protected species with ranges extending into Randolph County (February 25, 2003 FWS list) is considered in this report. NHP records documenting the presence of federally or state listed species were also consulted before commencing field investigations. In addition, Significant Aquatic Endangered Species Habitats proposed by the NCWRC (December 11, 1998 listing) were consulted to determine the presence of Proposed Critical Habitats for aquatic species.

The project study area (Figure 7) was walked and visually surveyed for significant features. The study area is approximately 300 feet wide (centered on the existing roadway) and about 1740 feet in length, encompassing an estimated 12.0 acres. Potential impacts of construction will be limited to cut-fill boundaries for each alternative. Special concerns evaluated in the field include 1) potential protected species habitat; and 2) wetlands and water quality protection of UT1.

B. Physiography and Soils

The project study area is located within the Carolina Slate Belt ecoregion of North Carolina. This ecoregion is characterized by dissected irregular plains, some hills, linear ridges, isolated monadnocks, and low to moderate gradient streams with mostly boulder and cobble substrates (ecoregion map). The project study area is located within a moderately sloping floodplain valley. Elevations within the study area range from a high of approximately 650 feet National Geodetic Vertical Datum (NGVD), at both ends of the project study area, to a low of approximately 600 feet NGVD within the stream channel. Land uses within and adjacent to the project study area consist of woodlands, agriculture, residential lots, utility line right-of-ways, and roadside shoulders.

Based on soil mapping for Randolph County (SCS 1992), the project study area is underlain by four soil series: Badin silt loam (*Typic Hapladults*), Tarrus silt loam (*Typic Kanhapladults*), Georgeville sandy clay loam (*Typic Kanhapladults*), and Riverview sandy loam (*Fluventic Dystrudepts*). Within the project study area, Badin and Tarrus soils are intricately mixed to form a complex. Riverview silt loam occurs adjacent to the stream, while the Badin-Tarrus complex and Georgeville sandy clay loams are found on the upland slopes and ridges. Riverview silt loam is considered to have hydric inclusions in Randolph County (NRCS 1997), and underlies approximately 1.8 acres, or 15 percent of the project study area.

The Badin series (2 to 25 percent slopes) consists of moderately deep, well-drained silt loam mixed with Tarrus silt loam. Depending upon slope, erosion is moderate to severe when the soil surface is bare and unprotected. Permeability is moderate, depth to bedrock is greater than 60 inches, and the seasonal high water table occurs at a depth greater than 6 feet.

The Georgeville series (2 to 8 percent slopes) consists of deep, well-drained eroded sandy clay loam. Permeability is moderate, and erosion is moderate when the soil surface is bare and unprotected. Depth to bedrock is greater than 60 inches, and the seasonal high water table occurs at a depth greater than 6 feet.

The Riverview series (0 to 2 percent slopes) consists of deep, well-drained sandy loam that formed in recent alluvium and is subject to frequent flooding. Permeability is moderate and erosion is slow to occur. Depth to bedrock is greater than 60 inches, and the seasonal high water table occurs between 3 and 4 feet.

The Tarrus series (2 to 25 percent slopes) consists of moderately deep, well-drained silt loam mixed with Badin silt loam. Depending upon slope, erosion is moderate to severe when the soil surface is bare and unprotected. Permeability is moderate, depth to bedrock is greater than 60 inches, and the seasonal high water table occurs at a depth greater than 6 feet.

C. Water Resources

1. Waters Impacted

The project study area is located within sub-basin 03-06-09 of the Cape Fear River Basin (NCDWQ 2000). This area is part of USGS Hydrologic Unit 03030003 of the South Atlantic/Gulf Region (Seaber et al. 1987). The structure targeted for replacement spans an unnamed tributary to Gabriel's Creek. The portion of this unnamed tributary that lies within the project study area has not been assigned a Stream Index Number by the N.C. Division of Water Quality (NCDWQ) (NCDWQ 2000); however, Gabriel's Creek has been assigned Stream Index Number 17-14 from its source to Deep River.

2. Water Resource Characteristics

The project study area contains two streams: an unnamed tributary to Gabriel's Creek (UT1) and an unnamed tributary to UT1 (UT2). UT1 generally flows northward through the middle of the project study area. UT2 is located in the southeastern quadrant formed by the intersection of Henley Country Road and UT1. UT2 originates from a concrete pipe which drains the adjacent maintained residential lot, and flows west for approximately 8 feet before leaving the project study area.

UT1 enters the project study area as a well-defined, second-order, perennial stream with moderate flow over a substrate of bedrock, cobble, gravel, and sand. At Bridge No.140, UT1 is approximately 20 feet wide. The banks of UT1 are approximately 4 feet high and are steeply sloping. During field investigations, the water level appeared low and ranged from 2 inches to approximately 2 feet deep. The water of UT1 was cloudy white, resulting in poor clarity, and flow velocity was low. No persistent emergent aquatic vegetation was observed within the stream, whereas benthic organisms were observed. UT1 may provide good aquatic habitat for mussels and benthic macroinvertebrates due to the observation of little siltation within the stream and the channel substrate composition. Opportunities for habitat within UT1 include overhanging trees, undercut banks, fallen logs, and leaf packs.

UT2 originates in the project study area as a well-defined, first-order, intermittent stream with light flow over a cobble, sand, and silt substrate. The banks of UT2 are approximately 2 feet high and moderately sloped. During field investigations, the water level appeared low and ranged to approximately 4 inches in depth. Water clarity was good, with visibility to the substrate, and flow velocity was slow. No persistent emergent aquatic vegetation was observed within the stream, whereas benthic organisms were observed. Opportunities for habitat within the UT include overhanging trees, undercut banks, fallen logs, and leaf packs.

The NCDWQ has assembled a list of impaired waterbodies according to the Clean Water Act Section 303(d) and 40 CFR 130.7, hereafter referred to as the N.C. 2004 Section 303(d) list. The list is a comprehensive public accounting of all impaired waterbodies. An impaired waterbody is one that does not meet water quality standards including designated uses, numeric and narrative criteria, and anti-degradation requirements defined in 40 CFR 131. The standards violation may be due to an individual pollutant, multiple pollutants, pollution, or an unknown cause of impairment. The impairment could be from point sources, nonpoint sources, and/or atmospheric deposition. Some sources of impairment exist across state lines. North Carolina's methodology is strongly based on the aquatic life use support guidelines available in the Section 305(b) guidelines (EPA-841-B-97-002A and -002B). Those streams attaining only Partially Supporting (PS) or Not Supporting (NS) status are listed on the N.C. 2004 Section 303(d) list. Streams are further categorized into one of six parts within the N.C. 2004 Section 303(d) list, according to source of impairment and degree of rehabilitation required for the stream to adequately support aquatic life. Within Parts 1, 4, 5, and 6 of the list, North Carolina has developed a priority ranking scheme (low, medium, high) that reflects the relative value and benefits those waterbodies provide to the State. No tributaries to Gabriel's Creek are listed on any section of the N.C. 2004 Section 303(d) list (NCDWQ 2004c).

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. A Best Usage Classification of C has been assigned to Gabriel's Creek and its unnamed tributaries. Class C waters are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. Secondary recreation includes wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis. No designated High Quality Waters (HQW), Outstanding Resource Waters (ORW), Water Supply I (WS-I), Water Supply II (WS-II) waters, or watershed Critical Areas (CA) occur within 1.0 mile of the project study area (NCDWQ 2000).

The NCDWQ has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed project study area is summarized in the Cape Fear River Basinwide Water Quality Plan (NCDWQ 2000). Gabriel's Creek and its tributaries are currently listed by NCDWQ as Supporting their designated uses. No benthic macroinvertebrate monitoring stations occur within 1.0 mile of the project study area (NCDWQ 2000).

Sub-basin 03-06-09 of the Cape Fear River Basin supports 14 permitted, point source discharges with a total discharge of 9.85 million gallons per day. One of the permitted discharges is classified as a major discharger, discharging 9 million gallons per day. The 13 remaining permitted dischargers are minor (NCDWQ 2004b) with one having no limit set on discharges.

Major non-point sources of pollution within the Cape Fear River Basin include runoff from construction activities, agriculture, timber harvesting, mining, hydrologic modification, failing septic systems, roads, parking lots, and roof tops. Sedimentation and nutrient inputs are major problems associated with non-point source discharges (NCDWQ 2000).

The WRC has developed a Significant Aquatic Endangered Species Habitat database to enhance planning and impact analysis in areas proposed by WRC as being critical due to the presence of Endangered or Threatened aquatic species. No Significant Aquatic Endangered Species Habitat occurs within the project study area. The nearest Significant Aquatic Endangered Species Habitat within the Cape Fear River Basin occurs approximately 2.5 miles to the south in an unnamed tributary to Squirrel Creek (WRC 1998).

3. Anticipated Impacts to Water Resources

Impacts to water resources in the project study area may result from activities associated with project construction. Activities that would result in impacts are clearing and grubbing on streambanks, riparian canopy removal, in-stream construction, fertilizers and pesticides used in revegetation, and pavement/culvert installation. The following impacts to surface water resources could result from the construction activities mentioned above.

- Increased sedimentation and siltation downstream of the crossing and increased erosion in the project study area.
- Alteration of stream discharge due to silt loading and changes in surface and groundwater drainage patterns.
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
- Changes in and destabilization of water temperature due to vegetation removal.
- Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.
- Increased nutrient loading during construction via runoff from exposed areas.
- Increased concentrations of toxic compounds in roadway runoff.
- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.

Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion-control schedule and the use of Best Management Practices (BMPs). The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled Control of

Erosion, Siltation, and Pollution (NCDOT, Specifications for Roads and Structures). These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in floodplains and adjacent to waterways; re-seeding of herbaceous cover on disturbed sites; management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and avoidance of direct discharges into streams by catch basins and roadside vegetation.

4. Impacts Related to Bridge Demolition and Removal

The proposed bridge replacement will allow for continuation of pre-project stream flows in UT1, thereby protecting the integrity of this waterway. Long-term impacts resulting from construction are expected to be negligible. In order to minimize impacts to water resources, *NCDOT's Best Management Practices for the Protection of Surface Waters* will be strictly enforced during the entire life of the project.

D. BIOTIC RESOURCES

1. Plant Communities

Three distinct plant communities were identified within the project study area: disturbed/maintained land, mixed pine/hardwood forest, and alluvial forest. Plant communities were delineated to determine the approximate area and location of each (Figure 7). These communities are described below in order of their dominance within the project study area. Wildlife directly observed in a plant community or determined to be present through evidence (tracks, scat, burrows, etc.) during field investigations are indicated with an asterisk (*). In addition, approximately 0.8 acre (7 percent) of the project study area is covered by the impermeable surface of Henley Country Road.

a) Disturbed/maintained land

Approximately 7.0 acres (61 percent) of the project study area is encompassed by disturbed/maintained land. This community includes roadside shoulders, agricultural fields, utility line corridors, residential lots, and a recently timbered area. Along residential and agricultural land margins, and roadside shoulders, grasses and herbs dominate the vegetation. Representative species include wingstem (*Verbesina alternifolia*), Queen Anne's lace (*Daucus carota*), pokeweed (*Phytolacca americana*), poison ivy (*Toxicodendron radicans*), aster (*Aster* sp.), dandelion (*Taraxacum officinale*), wild onion (*Allium canadense*), and fescue (*Festuca* sp.). Vines present are limited to kudzu (*Pueraria lobata*). Residential lots contain scattered canopy trees of white oak (*Quercus alba*), weeping willow (*Salix babylonica*), and eastern red cedar (*Juniperus virginiana).*

The recently timbered area in the northeast quadrant of UT1 and Henley Country Road contains scattered canopy trees of Virginia pine (*Pinus virginiana*) and sweetgum. The sapling/shrub layer contains canopy species as well as red maple (*Acer rubrum*), white ash (*Fraxinus americana*), flowering dogwood (*Cornus florida*), American holly (*Ilex opaca*), sourwood (*Oxydendron arboreum*), and American beech (*Fagus grandifolia*). Vines present include muscadine grape (*Vitis rotundifolia*) and Virginia creeper, and herbs present are limited to scattered individuals of Christmas fern (*Polystichum acrostichoides*), dog fennel (*Eupatorium capillifolium*), and ground pine (*Lycopodium complanatum*). In addition, a small agricultural field adjacent to the eastern edge of the timbered area is being used to grow wheat (*Triticum* sp.).

b) Mixed Pine/Hardwood Forest

Approximately 3.0 acres (25 percent) of the project study area is encompassed by mixed pine/hardwood forest. This community occurs on uplands in the project study area. This community consists of a mature forest characterized by a closed canopy with a relatively open understory.

This community supports a canopy of Virginia pine, sweetgum, tulip poplar (*Liriodendron tulipifera*), white ash, shagbark hickory (*Carya ovata*), and southern red oak (*Quercus falcata*). Sapling and shrub layers include canopy species as well as eastern red cedar, flowering dogwood, redbud (*Cercis canadensis*), red maple, sourwood, and scarlet oak (*Quercus coccinea*). Vines within this community include muscadine grape. The herbaceous layer is sparsely vegetated by herbs such as Christmas fern and ground pine.

c) Alluvial Forest

Approximately 1.2 acres (10 percent) of the project study area is encompassed by shrub assemblage. This community occurs in the floodplain of UT1 and on floodplain slopes. This community consists of a closed canopy with a dense understory of shrubs, vines, and herbs. Canopy species include sycamore (*Platanus occidentalis*), tulip poplar, green ash, and black walnut (*Juglans nigra*). The subcanopy layer includes American elm (*Ulmus americana*), ironwood (*Carpinus caroliniana*), red mulberry (*Morus rubra*), redbud, and eastern red cedar. Shrub species present include American holly (*Ilex opaca*), multiflora rose, and Chinese privet (*Ligustrum sinense*). Representative herbs include poison ivy, Christmas fern, Virginia creeper (*Parthenocissus quinquefolia*), Jack-in-the-pulpit (*Arisaema triphyllum*), slender spikegrass (*Chasmanthium laxum*), and jewelweed (*Impatiens capensis*). Vines present consist of Japanese honeysuckle (*Lonicera japonica*), muscadine grape, and kudzu, which is encroaching upon the forest edge.

2. Wildlife

Disturbed/maintained land

Wildlife which may occur within the open portion of the project study area include vegetation and seed eaters such as meadow vole (*Microtus pennsylvanicus*), hispid cotton rat (*Sigmodon hispidus*), house finch* (*Carpodacus mexicanus*), and American goldfinch* (*Carduelis tristis*); insectivores such as eastern mole (*Scalopus aquaticus*), least shrew (*Cryptotis parva*), Carolina wren* (*Thryothorus ludovicianus*), eastern phoebe* (*Sayonoris phoebe*), chimney swift* (*Chaetura pelagica*), common yellowthroat* (*Geothlypis trichas*), yellow-breasted chat* (*Icteria virens*), six-lined racerunner (*Cnemidomophorus sexlineatus*), eastern garter snake (*Thamnophis sirtalis*), northern black racer (*Coluber constrictor*), southeastern five-lined skink (*Eumeces inexpectatus*), and northern cricket frog (*Acris crepitans*); predators of small mammals, birds, and herptiles such as red fox (*Vulpes vulpes*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and garter snake (*Thamnophis sirtalis*); omnivores including blue jay* (*Cyanocitta crista*) and eastern box turtle (*Terrapene carolina*); and scavengers such as Virginia opossum (*Didelphis virginiana*), American crow* (*Corvus brachyrhynchos*), and turkey vulture (*Cathartes aura*).

Along woodland edges and the utility line corridors, the sapling/shrub layer consists of scattered individuals of sassafras (*Sassafras albidum*), slippery elm (*Ulmus rubra*), persimmon (*Diospyros virginiana*), sweetgum (*Liquidambar styraciflua*), and multi-flora rose (*Rosa multiflora*). Vines include kudzu, trumpet creeper (*Campsis radicans*), and cat greenbrier (*Smilax glauca*). The herb layer is scattered through this area, the majority of which is maintained by mowing. Grasses present include fescue, and representative herbs consist of dandelion, microstegium (*Microstegium vimineum*), and poison ivy.

These ecotones provide both food and cover for eastern cottontail (*Sylvilagus floridanus*) and white-tailed deer (*Odocoileus virginianus*). Birds commonly found in shrubby areas and along forest/grassland ecotones include the omnivorous northern mockingbird (*Mimus polyglottos*), brown thrasher* (*Toxostoma rufum*), and brown-headed cowbird* (*Molothrus ater*), and the seed-eating indigo bunting* (*Passerina cyanea*). Insectivorous species such as eastern fence lizard (*Sceloporus undulatus*) and gray treefrog (*Hyla chrysoscelis*), and predators including black racer (*Coluber constrictor*), utilize this habitat.

Mixed Pine/Hardwood Forest

The complexity and size of this community allow for a diverse assemblage of wildlife including forest interior species. This community should support predators such as great horned owl (*Bubo virginianus*), copperhead (*Agkistrodon contortrix*), and ringneck snake (*Diadophis punctatus*); herbivores such as gray squirrel (*Sciurus carolinensis*), white-tailed deer, and northern cardinal*

(*Cardinalis cardinalis*); and insectivores such as Carolina chickadee* (*Poecile carolinensis*), blue-gray gnatcatcher (*Polioptila caerulia*), red-eyed vireo* (*Vireo olivaceous*), summer tanager* (*Piranga rubra*), pine warbler (*Dendroica pinus*), wood thrush (*Hylocichla mustelina*), golden-crowned kinglet (*Regulus satrapa*), red bat (*Lasiurus borealis*), five-lined skink (*Eumeces fasciatus*), gray treefrog, spring peeper (*Pseudacris crucifer*), American toad (*Bufo americanus*), and slimy salamander (*Plethodon glutinosus*); and omnivores such as eastern box turtle and raccoon (*Procyon lotor*).

Alluvial Forest

This relatively narrow community extends through the project study area along both sides of UT1 and provides food, cover, and a travel corridor for wildlife within this riparian habitat. Species utilizing alluvial forest in this portion of the state include predators such as barred owl (*Strix varia*), southern ringneck snake, and northern water snake (*Nerodia sipedon*); omnivores such as eastern box turtle, raccoon* and gray catbird *(Dumetella carolinensis*); seed and vegetation eaters such as northern cardinal*, white-tailed deer*, gray squirrel, and golden mouse (*Ochrotomys nuttali*); and insectivores such as white-breasted nuthatch* (*Sitta carolinensis*), red-bellied woodpecker* (*Melanerpes carolinus*), yellow-billed cuckoo* (*Coccyzus americanus*), golden-crowned kinglet, red bat, five-lined skink, spring peeper, American toad, and southern leopard frog (*Rana utricularia*)

3. Aquatic Communities

The project study area includes two perennial streams, all bounded by natural vegetation. These streams are characterized by natural channels providing diverse habitats for fish and wildlife (riffle-pool complexes, undercut banks, rock and organic debris in the stream beds, and overhanging branches. These waters are expected to support a fishery and benthic population which serves as a food source for aquatic herptiles such as northern water snake, green frog (*Rana clamitans*), eastern musk turtle (*Sternotherus odoratus*), and two-lined salamander (*Eurycea bislineata*).

No sampling was undertaken in UT1 to determine fishery potential, though minnow-sized fish were observed during the field survey. Fish species that may be present in this reach of UT1 include smaller fish species such as margined madtom (*Noturus insignis*), creek chub (*Semotilus atromaculatus*), and spottail shiner (*Notropis hudsonius*).

Several species of invertebrates were identified within UT1. These include water striders* (Family *Gerridae*), flatheaded mayfly nymph* (Family *Haptageniidae*), and caddisfly* (Order *Trichoptera*).

4. Anticipated Impacts to Biotic Communities

Several permanent and temporary impacts are anticipated with this project. Permanent impacts are considered to be those impacts that occur within the common, permanent proposed cut-fill limits of Alternates 1 and 2. Temporary impacts are considered to be those impacts which occur within the cut-fill footprint associated with the temporary detour of Alternate 2. In addition, approximately 0.08 acre of alluvial forest will require clearing of vegetation but no fill material for the installation of the temporary structure associated with Alternate 2. Plant communities within the project study area were delineated to determine the approximate area and location of each (Figure 7). A summary of plant community areas and the potential impacts to each is presented in Table 1.

Table 1. Plant Communities Within Cut/Fill lines of Respective Alternatives

	Alternate 1	Alternate 2		
Plant Community	**Permanent**	**Permanent**	**Temporary**	**Total**
Maintained/Disturbed Land	1.20	1.20	0.98	2.18
Mixed Pine/Hardwood Forest	0.40	0.40	0.21	0.61
Alluvial Forest	0.10	0.10	0.23	0.33
Total	1.70	1.70	1.42	3.12

Areas are given in acres.

Projected permanent impacts to natural plant communities resulting from bridge replacements are generally restricted to narrow strips adjacent to the existing bridge and roadway approach segments. Little area of natural plant community is expected to be permanently impacted by the proposed project. Temporary impacts present the greater amount of impact to natural communities, and although these impacts are considered to be short-term, re-growth of this community to pre-project stand age and ecological function will require several decades.

No significant habitat fragmentation is expected as a result of project activities since potential improvements will be restricted to adjoining roadside margins. Construction noise and associated disturbances are anticipated to have short-term impacts on avifauna and migratory wildlife movement patterns.

No Significant Aquatic Endangered Species Habitat exists within or near the project study area. Impacts associated with turbidity and suspended sediments resulting from bridge replacement will be minimized through stringent erosion control measures. The existing bridge is expected to be removed without dropping components into UT1. Therefore, no fill is expected to be deposited in waters of the United States.

Potential downstream impacts to aquatic habitat are anticipated to be avoided by bridging the stream system to maintain regular flow and stream integrity. Short-term impacts associated with turbidity and suspended sediments may affect benthic populations. Temporary impacts to downstream habitat from increased sediment during construction will be minimized by the implementation of stringent erosion control measures.

E. Special Topic

1. Waters of the United States

Surface waters within the project study area are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the United States (33 CFR Section 328.3). The National Wetlands Inventory (NWI) system for classification of wetlands and deepwater habitats was used to determine the type of each jurisdictional area present (Cowardin *et al.* 1979). Section 404 jurisdictional areas are depicted by Figure 7.

UT1 exhibits characteristics of a well-defined, second-order, perennial stream with low flow over a substrate of bedrock, cobble, gravel, and sand. UT1 can be classified as riverine, lower perennial with an unconsolidated bottom composed primarily of gravel and cobble (R2UB1). UT2 can be classified as a well-defined, first-order, riverine, lower perennial stream with an unconsolidated bottom composed primarily of sand and silt (R2UB2).

Vegetated wetlands are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987). No vegetated wetland areas are present within the project study area; therefore, no impacts to wetlands will occur as a result of this project.

Both alternatives contain an identical replacement in-place component, while Alternate 2 also contains a temporary on-site detour component. Bridge supports are expected to be removed from UT1, which would constitute a jurisdictional area impact.

2. Permits

Impacts to jurisdictional areas are anticipated from the proposed project. As a result, construction activities will require permits and certifications from various regulatory agencies in charge of protecting the water quality of public water resources.

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. The USACE has made available Nationwide Permit (NWP)

23 (67 FR 2020, 2082; January 15, 2002) for CEs due to minimal impacts to waters of the U.S. expected with bridge construction. NCDWQ has made available a General 401 Water Quality Certification for NWP 23 (GC 3403). If temporary structures are necessary for construction activities, access fills, or dewatering of the site, then a NWP 33 (67 FR 2020, 2087; January 15, 2002) permit and the associated General 401 Water Quality Certification (GC 3366) will be required. Impacts to vegetated wetlands may be authorized under NWP 3 (67 FR 2020, 2078) and the associated General 401 Water Quality Certification (GC 3376). In the event that NWPs 23, 33, and 3 will not suffice, impacts attributed to bridge replacement and associated approach improvements may qualify under General Bridge Permit (GP) 031 issued by the Wilmington USACE District. NCDWQ has made available a General 401 Water Quality Certification for GP 031 (GC 3404). Notification to the Wilmington USACE District office is required if this general permit is utilized.

3. Mitigation

The USACE has adopted through the Council on Environmental Quality (CEQ) a wetland mitigation policy which embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of waters of the United States, and specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). Each of these three aspects (avoidance, minimization, and compensatory mitigation) must be considered sequentially.

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to waters of the United States. According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the USACE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of these impacts and practicable in terms of cost, existing technology and logistics in light of overall project purposes.

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, right-of-way widths, fill slopes, and/or road shoulder widths. All efforts will be made to decrease impacts to surface waters.

Compensatory mitigation is not normally considered until anticipated impacts to waters of the United States have been avoided and minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. In accordance with 15A NCAC 2H .0506(h), NCDWQ may require compensatory mitigation for projects with greater than or equal to 1.0 acre of impacts to jurisdictional wetlands or greater than or equal to 150 linear feet of total perennial stream impacts. Furthermore, in accordance with 67 FR 2020, 2092; January 15, 2002, the USACE requires compensatory mitigation when necessary to ensure that adverse effects to the aquatic environment are minimal. The size and type of the proposed project impact and the function and value of the impacted aquatic resource are factors considered in determining acceptability of appropriate and practicable compensatory mitigation. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, preservation and enhancement, and creation of waters of the United States. Such actions should be undertaken first in areas adjacent to or contiguous to the discharge site.

Mitigation for Section 404 jurisdictional areas may not need to be proposed for this project due to the potentially limited nature of the project impacts. However, utilization of BMPs is recommended in an effort to minimize impacts. Temporary impacts to floodplains associated with construction activities could be mitigated by replanting disturbed areas with native riparian species and removal of temporary fill material upon project completion. A final determination regarding mitigation rests with the USACE and NCDWQ.

F. Rare and Protected Species

1. Federally Protected Species

Species with the federal classification of Endangered, Threatened, or officially Proposed for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The term "Endangered Species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range," and the term "Threatened Species" is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532).

Two federally protected species are listed for Randolph County (February 25, 2003 FWS list): Cape Fear shiner (*Notropis mekistocholas*) and Schweinitz's sunflower (*Helianthus schweinitzii*). Both species are listed as Endangered.

Notropis mekistocholas **(Cape Fear shiner)**
Endangered
Family: Cyprinidae
Date Listed: September 25, 1987

The Cape Fear shiner is a small (to 2 inches), moderately stocky minnow. It is pale silvery yellow with a black band along the sides and the moderate-sized eyes are located on the sides of the head (FWS 1988). This species is distinguished from all other Notropis by having a coiled alimentary tract that is visible through the wall of the belly (Rohde *et al.* 1994). Plant material forms the primary part of the shiner's diet. The species is generally associated with gravel, cobble, and boulder substrates and has been observed to inhabit slow pools, riffles, and slow runs (Snelson 1971, Pottern and Huish 1985). In these habitats, the species is typically associated with schools of other related species, but it is never the numerically dominant species. Juveniles are often found in slackwater, among large rock outcrops in midstream, and in flooded side channels and pools (Pottern and Huish 1985). Little is known about the Cape Fear shiner's life history. The NCWRC has designated Critical Habitat for this species in Fork Creek and in the Deep River downstream from Fork Creek in Randolph County, approximately 18 miles to the southwest.

BIOLOGICAL CONCLUSION: NO EFFECT
A habitat and site evaluation was carried out by the NCDOT on October 14, 2004, to determine the presence/absence of this species within this reach of UT1. This study concluded that due to the lack of appropriate habitat, the completion of this project would not impact the Cape Fear Shiner. Appropriate soil and erosion control measures should be in place during the construction of this project to insure that no additional sediment is added to UT1.

Helianthus schweinitzii **(Schweinitz's sunflower)**
Endangered
Family: Asteraceae
Date Listed: May 7, 1991

Schweinitz's sunflower is an erect, unbranched, rhizomatous, perennial herb that grows to approximately 6 feet in height. The stem may be purple, usually pubescent, but sometimes nearly smooth. Leaves are sessile, opposite on the lower stem but alternate above; in shape they are lanceolate and average 5 to 10 times as long as wide. The leaves are rather thick and stiff, with a few small serrations. The upper leaf surface is rough and the lower surface is usually pubescent with soft white hairs. Schweinitz's sunflower blooms from September to frost; the yellow flower heads are about 0.6 inch in diameter. The current range of this species is within approximately 60 miles of Charlotte, North Carolina, occurring on upland interstream flats or

gentle slopes, in soils that are thin or clay in texture. The species needs open areas protected from shade or excessive competition, reminiscent of Piedmont prairies. Disturbances such as fire maintenance or regular mowing help sustain preferred habitat (FWS 1994). NHP files reviewed on April 17, 2004 document the occurrence of Schweinitz's sunflower approximately 2000 feet southeast of the project study area.

BIOLOGICAL CONCLUSION: NO EFFECT

The project study area does contain suitable habitat for Schweinitz's sunflower within disturbed/maintained land, specifically roadside shoulders, utility line corridors, and forest edges. A survey for Schweinitz's sunflower was conducted within the project study area on August 18, 2004, in which overlapping transects were used to cover the habitat area. However, no specimens of Schweinitz's sunflower were located, and the presence of this species within the project study area can be discounted.

2. Federal Species of Concern

The February 25, 2003 FWS list also includes a category of species designated as "Federal species of concern" (FSC). A species with this designation is one that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing). The FSC designation provides no federal protection under the ESA for the species listed. FSC species listed for Randolph County are presented in Table 2.

NHP files list no documentation for FSC species within 2.0 miles of the project study area, and no species were observed during field observations.

Table 2. Federal Species of Concern

Common Name	Scientific name	State Status**	Potential Habitat
Carolina darter	*Etheostoma collis lepidinion*	SC	Yes
"Carolina" redhorse	*Moxostoma* sp.	SR (PE)	Yes
Atlantic pigtoe	*Fusconaia masoni*	E	Yes
Brook floater	*Alasmidonta varicosa*	E	Yes
Carolina creekshell	*Villosa vaughaniana*	E	No
Pee Dee crayfish ostracod*	*Dactyloctythere peedeensis*	***	***

*Historic record - the species was last observed in the county more than 50 years ago.

**State Status: E = Endangered; SC = Special Concern; SR = Significantly Rare; PE = Proposed Endangered

***Information unavailable (Amoroso 2004, LeGrand and Hall 2004)

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having an effect on properties listed in or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

B. Historic Architecture

In a memorandum dated: March 10, 2004, the North Carolina State Historic Preservation Office (HPO) determined that the project would not affect any historic structures. Accordingly, NCDOT architectural historians did not initiate a survey of the project area. A copy of this memorandum is included in the Appendix.

C. Archaeology

A memorandum from the HPO dated March 10, 2004 states that they are aware of no historic resources that would be affected by the project. Accordingly, NCDOT archaeologists did not initiate a survey of the project area. A copy of the memorandum is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact by replacing a potentially unsafe bridge.

The project is considered a Federal "Categorical Exclusion" due to its limited scope and environmental consequences.

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

The project is not in conflict with any plan, existing land use, or zoning regulations. No significant change in land use is expected to result from replacement of the bridge.

The studied route does not contain any bicycle accommodations, nor is it a designated bicycle route; therefore, no bicycle accommodations have been included as part of this project.

No residential or business relocates are anticipated as a result of the proposed project.

No adverse impact on families or communities is anticipated.

No adverse effect on public facilities or services is anticipated. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The proposed project is excluded from the Farmland Protection Policy Act (FPPA) since the project is located within the Asheboro Extra Territory Jurisdiction. (7 CFR Part 658)

There are no publicly owned parks, recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project.

The project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required. 40 CFR Part 51 is not applicable because the proposed project is located in an attainment area. If vegetation or wood debris is disposed of by burning, it shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520 and 1990 Clean Air Act Amendments and the National Environmental Policy Act. The replacement of the existing bridge will not increase or decrease traffic volumes. The noise levels will increase during the construction period, but will only be temporary. This evaluation completes the assessment requirements for highway traffic noise of Title 23, Code of Federal Regulations (CFR), Part 772 and for air quality (1990 Clean Air Act Amendments and the National Environment Policy Act) and no additional reports are required.

The results from a pre-scoping geotechnical and geoenvironmental investigation performed by the NCDOT Geotechnical Engineering Unit showed that no underground storage tank sites or hazardous waste sites or apparent landfills were identified within the project limits. The geotechnical pre-scoping report is included in the appendix.

The project will have an impact upon the utilities in the area. The impacts will be minimized by close coordination with utility owners as required by NCDOT's standard specifications.

On the basis of the above discussion, it is concluded that no significant adverse environment effects will result from implementation of the project.

VIII. PUBLIC INVOLVEMENT

A "start of study" letter was distributed to local officials and agencies requesting information and concerns relative to the proposed project. Their responses are included in the Appendix.

Due to the isolated nature of this bridge replacement project and the absence of any expressed concern from public officials, no formal public involvement program was initiated.

IX. AGENCY COORDINATION

Letters requesting comments and environmental input were sent to the following agencies:

US Army Corps of Engineers - Wilmington District*
US Fish and Wildlife Service*
NC Department of Cultural Resources*
NC Wildlife Resources Commission*
NC Division of Water Quality*
County Manager, Randolph County
Chairman, Randolph County Commissioners
Superintendent, Randolph County Public Schools*
Randolph County Emergency Management Services
Director, Randolph County Planning and Zoning Department
Sheriff, Randolph County
Mayor and City Manager, City of Asheboro
Planning Department, City of Asheboro
Fire Chief, Asheboro Fire Department

Asterisks (*) indicate agencies from which written/oral comments were received. Scoping comments and corresponding responses are given below. Copies of the comments received are in the Appendix.

1. United States Department of Interior – Fish and Wildlife Service

Comment: "If suitable habitat occurs within the project vicinities for [the Cape Fear shiner], surveys should be conducted to determine presence or absence of the species".

Response: A survey of the project area concluded no suitable habitat exists in the project area for the Cape Fear shiner.

Comment: "The Service recommends surveys for Schweinitz's sunflower at [the bridge site]".

Response: A survey of the project area concluded this project will not affect the Schweinitz's sunflower.

2. **North Carolina Wildlife Resources Commission**

Comment: "We recommend replacing this bridge with a bridge".

Response: A new bridge will replace the existing bridge at its current location utilizing an off-site detour during construction.

3. **Randolph County Emergency Services**

Comment: "We do request that we be given 2-3 weeks notice prior to the closing of [the] bridge so that a more strategic and detailed survey can be taken of the immediate residences and/or businesses in those areas. At that time we will also notify each Fire Department, Rescue Service, EMS, and Law Enforcement".

Response: A recommendation to contact Randolph County Emergency Services prior to closure of SR 2215 has been included in this document.

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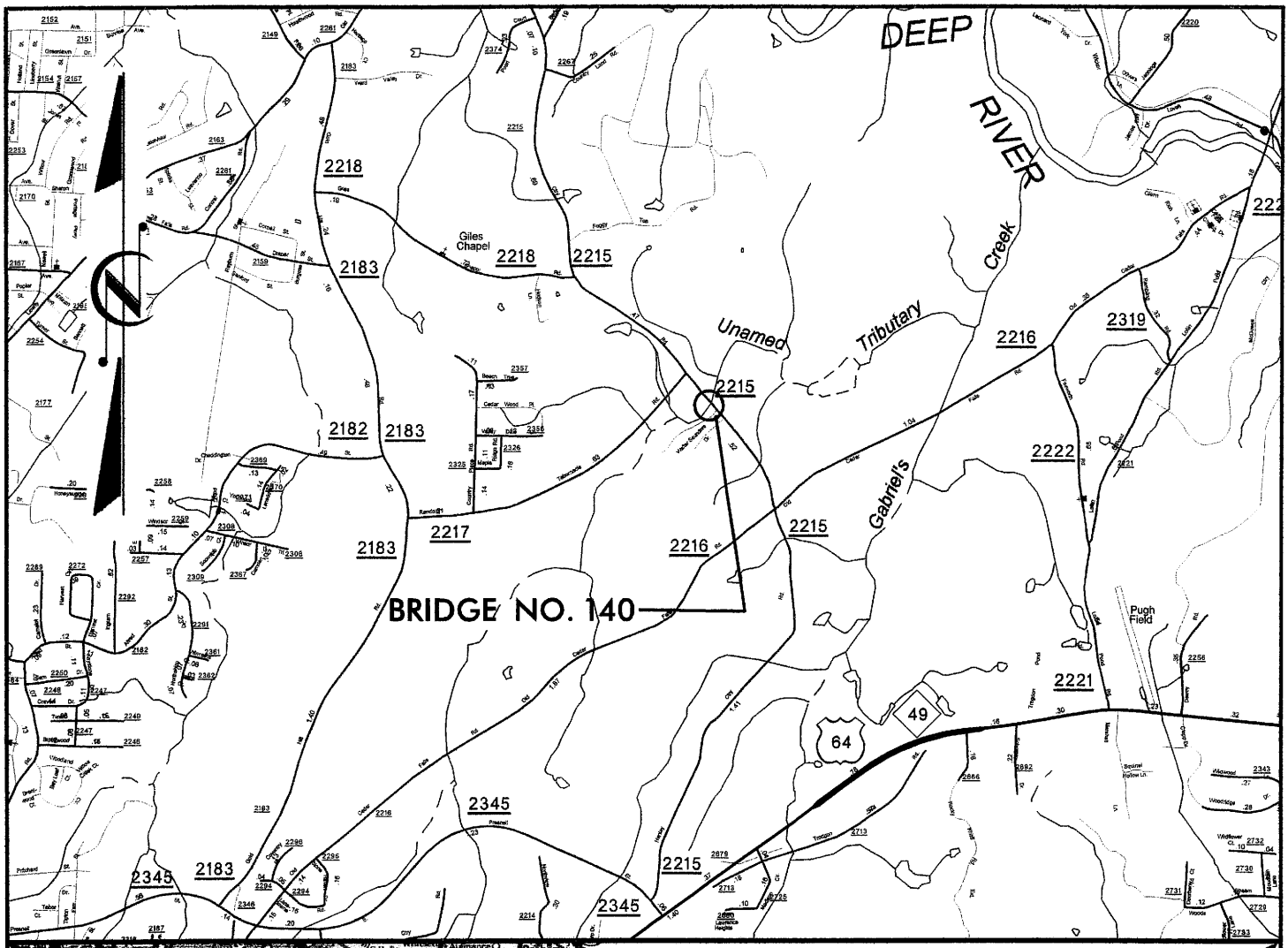
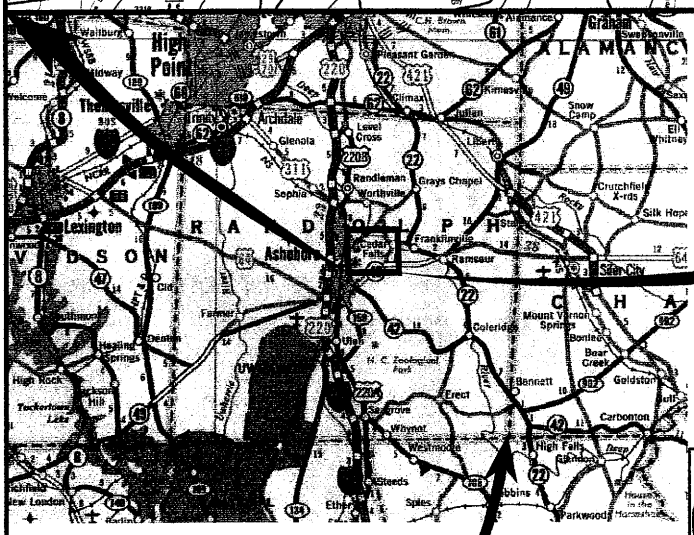
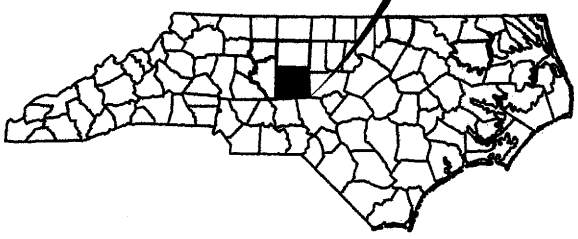
Figures







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GRAPHIC SCALE (MILES)

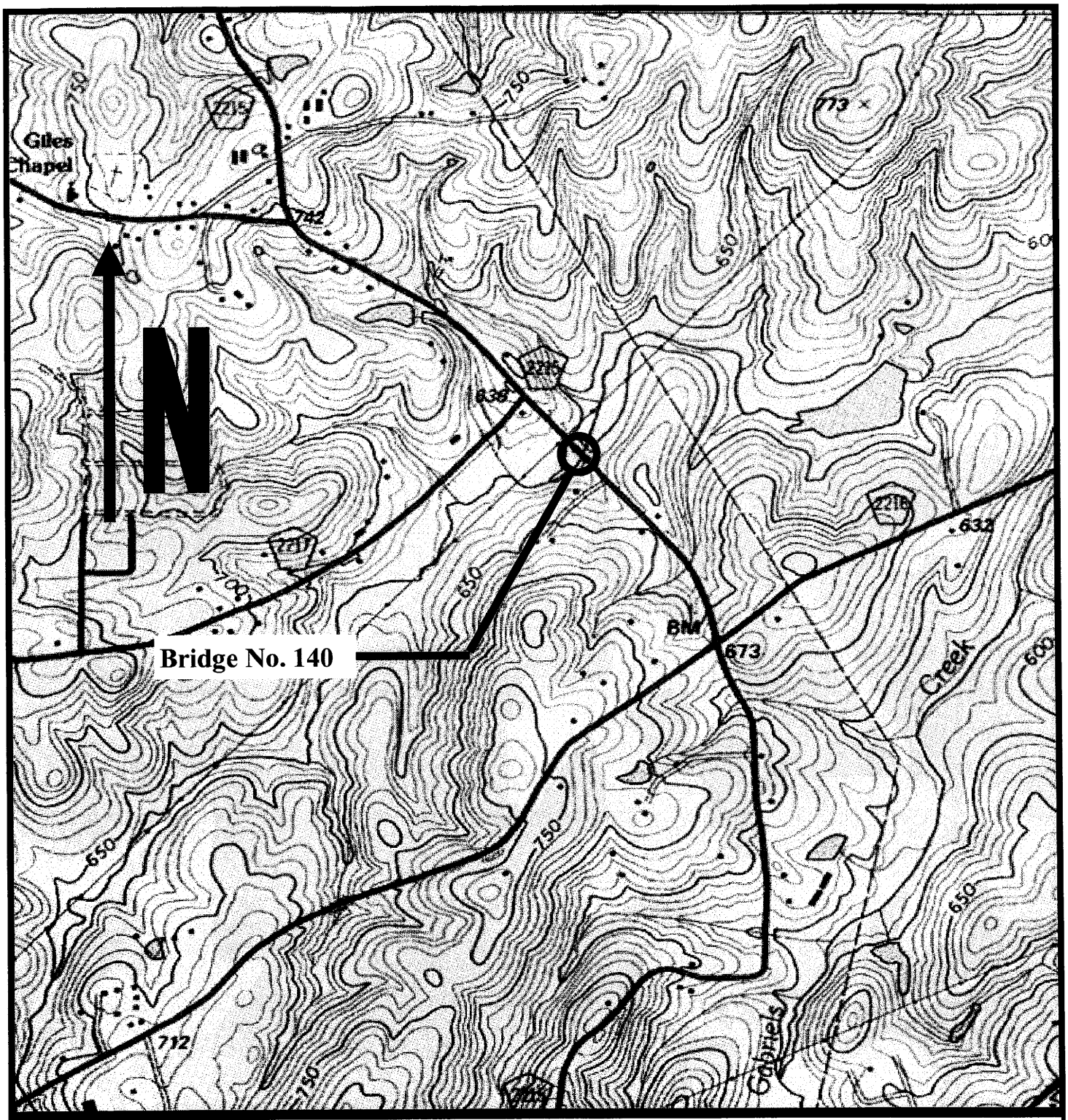
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Project Development and Environmental Analysis Branch

BRIDGE NO. 140
SR 2215 OVER UNAMED TRIBUTARY TO GABRIELS CREEK
RANDOLPH COUNTY
B-4244

VICINITY MAP

FIGURE 1A



North Carolina Department of Transportation

Project Development and Environmental Analysis Branch

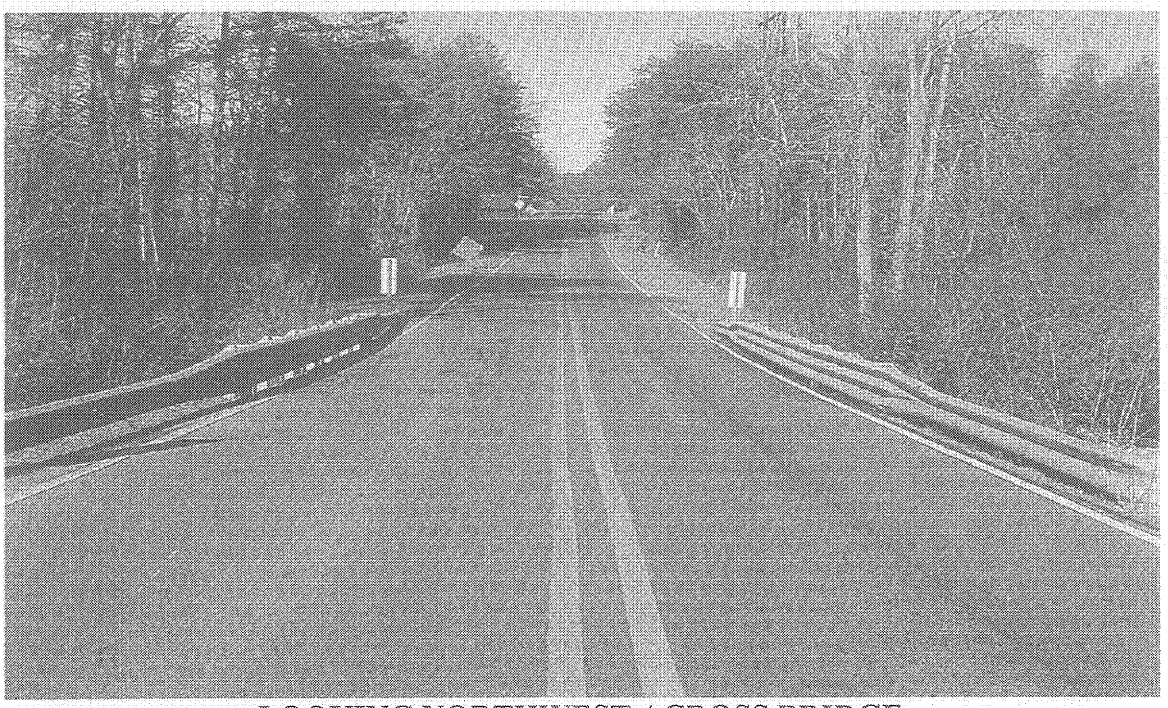
T.I.P. B-4244

Bridge #140 Over Unamed Tributary to Gabriel's Creek

On SR 2215 - Randolph County, N.C.

Quad. Map: Asheboro

FIGURE 1B



LOOKING NORTHWEST ACROSS BRIDGE

LOOKING SOUTHEAST ACROSS BRIDGE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

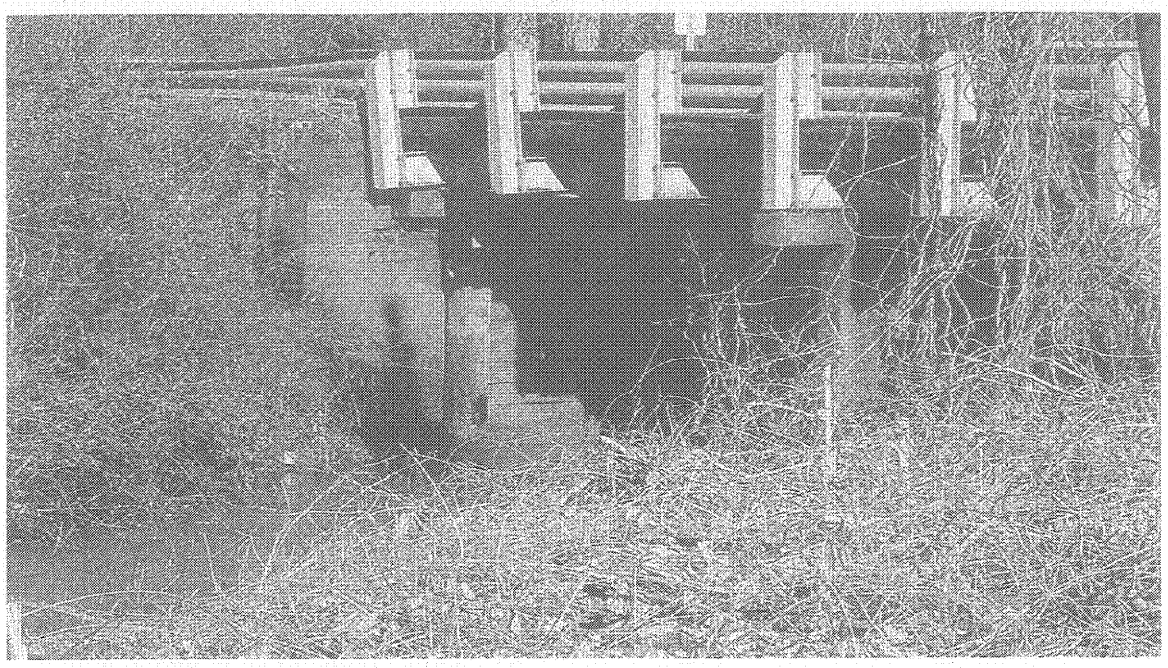
BRIDGE NO. 140

ON SR 2215 OVER UNAMED TRIBUTARY TO GABRIELS CREEK

RANDOLPH COUNTY

B-4244

FIGURE 2A



STRUCTURE PROFILE, LOOKING NORTH & DOWNSTREAM

STRUCTURE PROFILE, LOOKING SOUTH & UPSTREAM

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

BRIDGE NO. 140

ON SR 2215 OVER UNAMED TRIBUTARY TO GABRIELS CREEK
RANDOLPH COUNTY
B-4244

FIGURE 2B

PROPOSED DESIGN CRITERIA

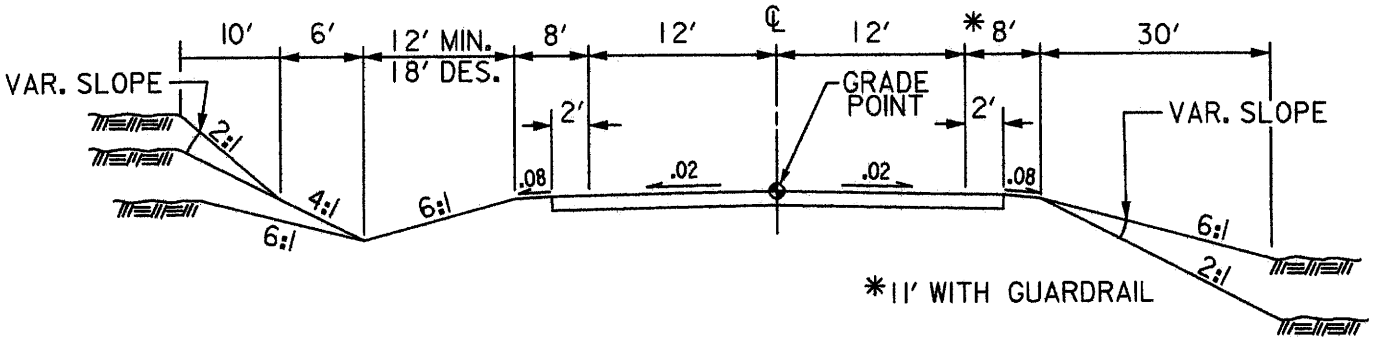
FIGURE 3A

REPLACE BRIDGE NO. 140 ON SR 2215
OVER UNAMED TRIBUTARY TO GABRIEL'S CREEK
RANDOLPH COUNTY
B-4244

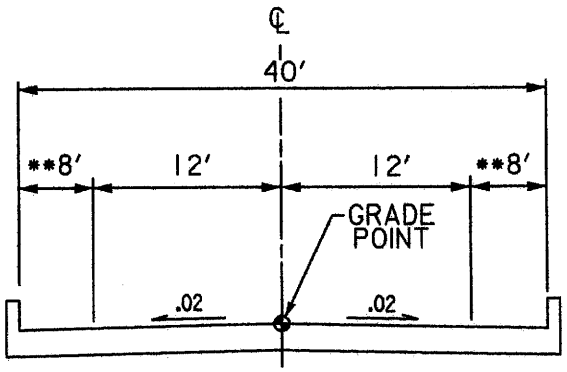
FUNCTIONAL CLASSIFICATION: RURAL LOCAL
POSTED SPEED: 55 MPH (ASSUMED)
ESTIMATED ADT:

2005 ADT	=	3,900
2025 ADT	=	7,600
TTST	=	1%
DUAL	=	2%
DHV	=	12%
DIR	=	60%

DESIGN SPEED: 60 MPH
MAXIMUM RATE OF SUPERELEVATION: 0.06 ft/ft
MAXIMUM DEGREE OF CURVE: 4°15'
MAXIMUM GRADE: 6%
MINIMUM DESIRABLE K FACTORS: Ksag = 136 Kcrest = 151
SHOULDER WIDTH & TYPE : 2.0 ft FDPS 8.0 ft TOTAL (11.0ft WITH GUARDRAIL)
LANE WIDTHS: 12.0 ft
BRIDGE DECK WIDTH: 40.0ft CLEAR
BRIDGE LENGTH: 85.0 ft



APPROACH ROADWAY TYPICAL SECTION



** IF FINAL DESIGN LENGTH OF BRIDGE IS OVER 100', 8' SHOULDER MAY BE REDUCED TO 3'

BRIDGE TYPICAL SECTION

NOTE:
A VERTICAL DESIGN EXCEPTION MAY BE REQUIRED.

PREPARED BY: KO & ASSOC. DATE: 02-04-04
APPROVED BY: _____ DATE: _____

PROPOSED DETOUR CRITERIA

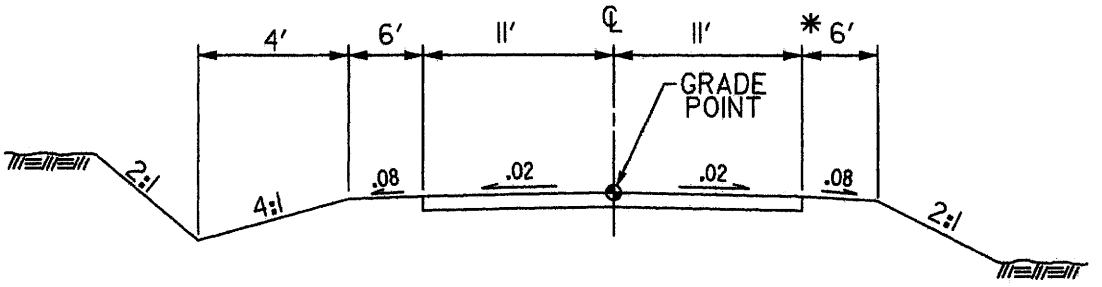
FIGURE 3B

REPLACE BRIDGE NO. 140 ON SR 2215
OVER UNAMED TRIBUTARY TO GABRIEL'S CREEK
RANDOLPH COUNTY
B-4244

FUNCTIONAL CLASSIFICATION: RURAL LOCAL
POSTED SPEED: 55 MPH (ASSUMED)
ESTIMATED ADT:

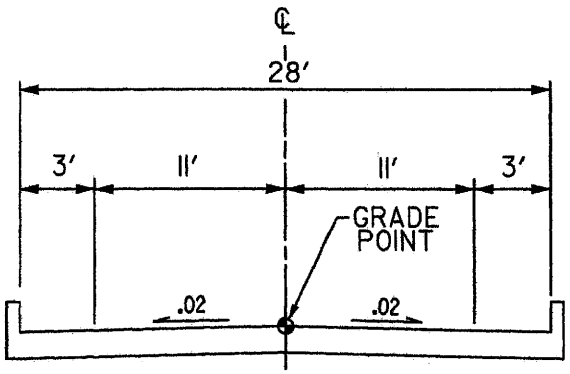
2005 ADT	=	3,900
2025 ADT	=	7,600
TTST	=	1%
DUAL	=	2%
DHV	=	12%
DIR	=	60%

DESIGN SPEED: 45 MPH
MAXIMUM RATE OF SUPERELEVATION: 0.06 ft/ft
MAXIMUM DEGREE OF CURVE: 8°40'
MAXIMUM GRADE: 9%
MINIMUM DESIRABLE K FACTORS: Ksag = 79 Kcrest = 61
SHOULDER WIDTH & TYPE : 6.0 ft TOTAL (9.0ft WITH GUARDRAIL)
LANE WIDTHS: 11.0 ft
BRIDGE DECK WIDTH: 28.0ft CLEAR
BRIDGE LENGTH: 85.0 ft



* 9' WITH GUARDRAIL

DETOUR APPROACH ROADWAY TYPICAL SECTION



DETOUR BRIDGE TYPICAL SECTION

NOTE:
A VERTICAL DESIGN EXCEPTION MAY BE REQUIRED.

PREPARED BY: KO & ASSOC. DATE: 02-04-04
APPROVED BY: _____ DATE: _____

PLANS PREPARED FOR N.C.D.O.T. IN THE OFFICE OF:
KO & ASSOCIATES, P.C.
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

FUNCTIONAL PLANS
DESIGN ALTERNATIVES
DO NOT USE FOR CONSTRUCTION
DO NOT USE FOR R/W ACQUISITION

FEBRUARY 2004

0 50 100 150
(FEET)

BRIDGE NO. 140
SR 2215 OVER UNAMED TRIBUTARY
TO GABRIEL'S CREEK
RANDOLPH COUNTY
B-4244

FIGURE 4

SHEET 1 OF 2

PLANS PREPARED FOR N.C.D.O.T. IN THE OFFICE OF:
KO & ASSOCIATES, P.C.
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

FUNCTIONAL PLANS
DESIGN ALTERNATIVES
DO NOT USE FOR CONSTRUCTION
DO NOT USE FOR R/W ACQUISITION

FEBRUARY 2004

0 50 100 150
(FEET)

BRIDGE NO. 140
SR 2215 OVER UNAMED TRIBUTARY
TO GABRIEL'S CREEK
RANDOLPH COUNTY
B-4244

FIGURE 4

SHEET 2 OF 2

PLANS PREPARED FOR N.C.D.O.T. IN THE OFFICE OF:

KO & ASSOCIATES, P.C.
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

FUNCTIONAL PLANS
DESIGN ALTERNATIVES
DO NOT USE FOR CONSTRUCTION
DO NOT USE FOR R/W ACQUISITION

FEBRUARY 2004

0 50 100 150 (FEET)

BRIDGE NO. 140
SR 2215 OVER UNAMED TRIBUTARY
TO GABRIEL'S CREEK
RANDOLPH COUNTY
B-4244

FIGURE 5

SHEET 1 OF 2

PLANS PREPARED FOR N.C.D.O.T. IN THE OFFICE OF:
KO & ASSOCIATES, P.C.
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

FUNCTIONAL PLANS
DESIGN ALTERNATIVES
DO NOT USE FOR CONSTRUCTION
DO NOT USE FOR R/W ACQUISITION

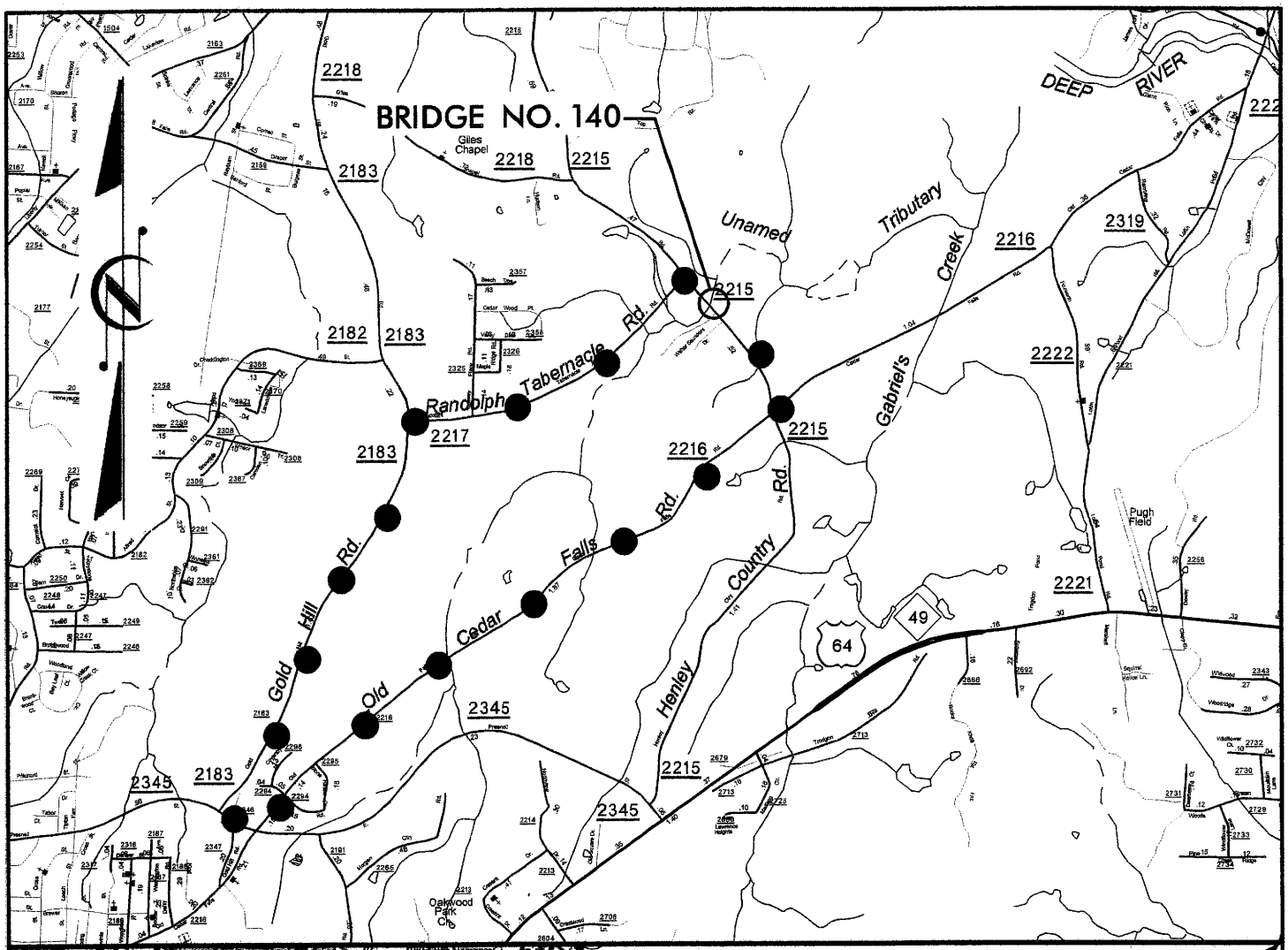
FEBRUARY 2004

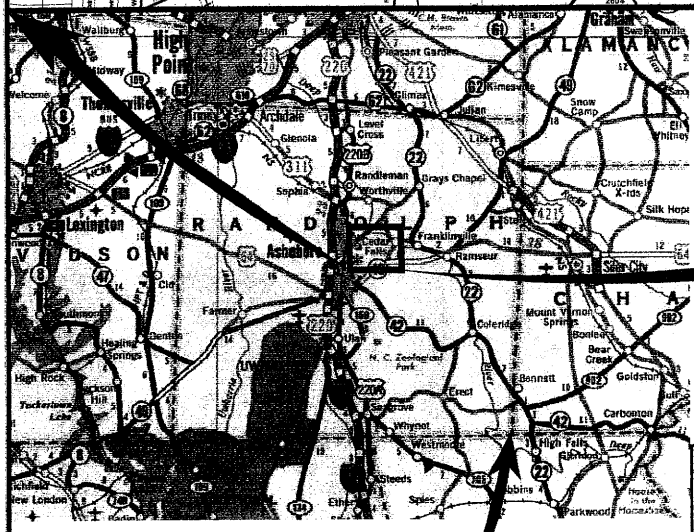
0 50 100 150
(FEET)

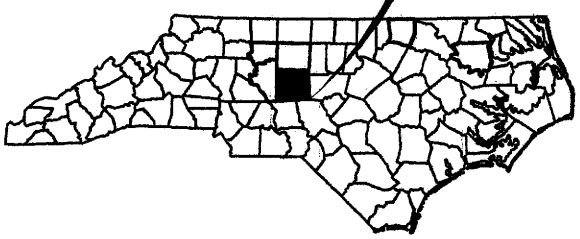
BRIDGE NO. 140
SR 2215 OVER UNAMED TRIBUTARY
TO GABRIEL'S CREEK
RANDOLPH COUNTY
B-4244

FIGURE 5

SHEET 2 OF 2







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GRAPHIC SCALE (MILES)

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Project Development and Environmental Analysis Branch

BRIDGE NO. 140
SR 2215 OVER UNAMED TRIBUTARY TO GABRIELS CREEK
RANDOLPH COUNTY
B-4244

DETOUR MAP

FIGURE 6

200 0 200 400 600 800 1000 Feet

N
W E
S

B-4244
Bridge No. 140

SR 2215
(Henley Country Road)
over Unnamed Tributary
to Gabriel's Creek

Legend:

- Project Study Area
- Bridge No. 140
- SR 2215
- UT1
- UT2
- Alluvial Forest
- Mixed Pine/Hardwood Forest
- Disturbed/Maintained Land

Figure 7
Project
Study
Area

EcoScience
Corporation
1101 Haynes Street, Suite 101
Raleigh, NC 27604

Ph: 919-828-3433
Fax: 919-828-3518

Appendix

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

REPLY TO
ATTENTION OF:

April 2, 2004

Regulatory Division

Subject: Action ID No. 200400429 (B-4243) - Dagnino
200400431 (B-4244) - Feulner
200400432 (B-4246) Unassigned Eric

Gregory J. Thorpe, Ph.D.
Environmental Management Director
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

I am responding to your letter dated February 10, 2004 requesting scoping comments on TIP Projects B-4243, Bridge number 71 on SR 1504 over Reek Creek; TIP Projects B-4244, Bridge number 140 on SR 2215 over Gabriels Creek; and TIP Projects B-4246, Bridge number 228 on SR 2834 over Richland Creek, Randolph County, NCDOT Division 8. Based on the information provided and GIS, it appears that jurisdictional areas as defined at 33 CFR 328.3(a) are located within the proposed project scoping area. In accordance with Section 404 of the Clean Water Act of 1977, as amended, Department of the Army (DA) authorization will be required for the discharge of dredged, excavated or fill material into waters of the United States, including wetlands that are identified in association with this project.

Your letter specifies that Categorical Exclusion would be prepared for this project. However, to qualify for nationwide permit authorization under Nationwide Permit #23 or any other form of general permit, the application and/or project planning report should contain sufficient information to document that all proposed activities associated with the project do not have more than a minimal individual or cumulative impact on the aquatic environment. All activities, including temporary construction, demolition, access, and dewatering activities, should be included in the application and/or project planning report. A copy of the project planning report should be included with the application submittal. The report should contain an adequate description of all proposed activities, both permanent and temporary. The amount of permanent and temporary impacts to waters and wetlands as well as a description of the type of habitat that will be affected by the proposed project should also be included in the report. In addition, the report should provide a reasonable estimate of the linear feet of adverse impacts to streams and acreage impacts to verified wetlands. The type of DA authorization and any specific permit requirements will depend on the crossing design, extent of the fill work within jurisdictional areas, construction methods and other public interest and environmental factors.

Our experience has shown that replacing bridges with culverts often results in more than minimal impacts on the aquatic environment and the proposed project would therefore not be

eligible for authorization under a general permit. These impacts are generally associated with alteration of hydrologic pathways and hydraulics, disruption of the free movement of aquatic and terrestrial organisms indigenous to the area, and increased impacts to aquatic habitat. If a bridge is proposed for replacement with a culvert, NCDOT must demonstrate that the work will not result in more than minimal impacts on the aquatic environment, specifically addressing the passage of aquatic life including anadromous fish, if applicable. The work must also not alter the stream hydraulics and create flooding of adjacent properties or result in unstable stream banks. In some cases, a hydraulic analysis (HECRAS) may be required and should be included with the application. In addition, the report should address the impacts that the culvert would have on recreational navigation and natural wildlife corridors, if applicable.

Lengthening existing bridges can often benefit the ecological and hydrological functions of the associated wetlands and streams. In addition, longer bridges where there are large adjacent contiguous forested floodplains could enhance existing wildlife passage thereby creating a safer roadway. Most bridge approaches are connected to earthen causeways that were built in floodplain wetlands and streams. Replacing these causeways with longer bridges would allow previously impacted wetlands to be restored. In an effort to encourage this type of restoration effort, mitigation credit for wetland restoration activities can be provided to offset the added costs of lengthening an existing bridge.

Off-site temporary construction detours should be fully explored in lieu of on-site detours constructed in wetlands. If an on-site detour is the requested action, justification should be provided that demonstrates that alternatives, including an off-site alternative, with lower aquatic resource impacts are not practicable. On-site detours, unless constructed on a spanning structure or on a previous detour that was used in a past construction activity, can cause permanent wetland impacts due to soil compression resulting from the on-site detour fill placed on compressible soils and associated heavy equipment compaction. Substantial soil compression in wetland systems may in turn cause a subsurface hydrologic barrier in the wetland, which would alter the hydrologic regime of the wetland and impair its ecological and hydrologic functions. For proposed projects and associated on-site detours that cause minimal losses of wetlands, an approved wetland restoration and monitoring plan will be required prior to issuance of a DA Nationwide or Regional general permit. For proposed projects and associated on-site detours that cause substantial wetland losses, an individual DA permit and a compensatory mitigation proposal for the unavoidable wetland impacts may be required.

Endangered Species Act (ESA) federally listed species may be found within close proximity to the bridge project. All work related to federally listed ESA species as required by Section 7 of the ESA including copies of all correspondence and meeting minutes with the U.S. Fish and Wildlife Service and/or the NOAA Marine Fisheries Service associated with the subject projects should be coordinated with this office.

If concrete structures, such as bridge piers and footers, are a component of these projects, methods must be employed to avoid any contact of "live" concrete with surface waters and all instream construction should be conducted in the "dry" by use of stream diversion methods. If temporary stream diversions are to be utilized, a plan and description should be provided showing the proposed structure and method of diversion. A restoration plan will be required showing how the diversion area will be returned to pre-construction conditions following the

completion of the project. If restoration involves revegatation of the disturbed area, the plan should include a planting scheme using only endemic vegetation. Bridge piers and footers should be located outside of the waterway whenever possible and where not practicable should be keep to a minimum.

Based on the information provided for the referenced project site, the apparent level of wetland impacts, and scope of the project, the referenced project does not appear to warrant coordination pursuant to the integrated Section 404/NEPA-merger agreement.

We appreciate this opportunity to provide you with our scoping comments. Should you have any questions or wish to discuss our comments further, please call me at the Wilmington Field Office at 910-251-4172.

Sincerely,

Richard K. Spencer
NCDOT Project Manager

CF:

Ms. Karen Taylor, P.E.
Project Development Engineer
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Mr. John Dorney
NCDENR-DWQ
Wetlands Section
1621 Mail Service Center
Raleigh, NC 27699-1621

Mr. Travis Wilson
Highway Coordinator
North Carolina Wildlife Resources Commission
1141 I-85 Service Road
Creedmoor, North Carolina 27522

Mr. Gary Jordan
United States Fish & Wildlife Service
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Chris Militscher
U.S. EPA
Raleigh Office
310 New Bern Avenue, Room 206
Raleigh, North Carolina 27601

Mr. James J. Rerko
North Carolina Department of Transportation
Division 6
P.O. Box 1150
Fayetteville, North Carolina 28302

Mr. Art King, DEO
North Carolina Department of Transportation
Division 8
P.O. Box 1067
Aberdeen, North Carolina 28315

United States Department of the Interior

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

March 4, 2004

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

Dear Dr. Thorpe:

This letter is in response to your request for comments from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of the proposed replacement of the following three bridges in Randolph County:

B-4243, Bridge No. 71 on SR 1504 over Reek Creek
B-4244, Bridge No. 140 on SR 2215 over Gabriels Creek (W. Branch)
B-4246, Bridge No. 228 on SR 2834 over Richland Creek

These comments provide scoping information in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

For bridge replacement projects, 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 impacts are proposed, every effort should be made to identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity via conservation easements, land trusts or by other means should be explored at the outset;

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. The general moratorium period for anadromous fish is February 15 - June 30;

5. New bridges should be long enough to allow for sufficient wildlife passage along stream corridors;

6. Best Management Practices (BMP) for Protection of Surface Waters 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;

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.

There are two federally protected species listed for Randolph County – Cape Fear shiner (*Notropis mekistocholas*) and Schweinitz's sunflower (*Helianthus schweinitzii*). Although the North Carolina Natural Heritage Program (NCNHP) database does not indicate any known occurrences of Cape Fear shiners in the vicinity of any of the project sites, use of the NCNHP data should not be substituted for actual field surveys if suitable habitat occurs near the project sites. The NCNHP database only indicates the presence of known occurrences of federally protected species and does not necessarily mean that such species are not present. It may simply mean that an area has not been surveyed. Information about the habitats in which this species is often found is provided on our web site http://endangered.fws.gov/ . If suitable habitat occurs within the project vicinities for this species, surveys should be conducted to determine presence or absence of the species. All survey documentation must include survey methodologies and results.

Although federally endangered, the Schweinitz's sunflower is locally abundant in the Asheboro area. The NCNHP database indicates a known occurrence of this species approximately 0.5 mile from the B-4244 project site. There is a reasonable probability that the species occurs near the other sites as well. The Service recommends surveys for Schweinitz's sunflower at all three bridge sites.

We reserve the right to review any federal permits that may be required for these projects, 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, including the "no action" alternative;

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. Acres of wetland impact should be differentiated by habitat type based on the wetland classification scheme of the National Wetlands Inventory (NWI). 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 secondary impacts to natural resources, and how this and similar projects contribute to cumulative adverse effects;

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 direct loss of habitat;

7. If unavoidable wetland or stream impacts are proposed, project planning should include a detailed 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 Garland B. Pardue, Ph.D.
Ecological Services Supervisor

cc: Richard Spencer, USACE, Wilmington, NC
Beth Barnes, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Karen Taylor
Project Development and Environmental Analysis Branch, NCDOT

FROM: Travis Wilson, Highway Project Coordinator
Habitat Conservation Program

DATE: March 19, 2004

SUBJECT: NCDOT Bridge Replacements in Rockingham, Randolph, and Guilford counties. TIP Nos. B-4252, B-4254, B-4243, B-4244, B-4246, B-4129, B-4130, and B-4131.

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 steam 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. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. 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:

1. B-4252, Rockingham County, Bridge No. 67 over Little Beaver Creek and Bridge No. 95 over Big Beaver Creek on US 311. We recommend replacing this bridge with a bridge. A significant fishery for sunfish exists at the Big Beaver Creek site, therefore we request an in-water work moratorium for sunfish from April 1 to June 30. Standard recommendations apply.

2. B-4254, Rockingham County, Bridge No. 89 over Little Troublesome Creek on SR 2627. We recommend replacing this bridge with a bridge. A significant fishery for sunfish

exists at this site, therefore we request an in-water work moratorium for sunfish from April 1 to June 30. Standard recommendations apply.

3. B-4243, Randolph County, Bridge No. 71 over Reek Creek on SR 1504. We recommend replacing this bridge with a bridge. Standard recommendations apply.

4. B-4244, Randolph County, Bridge No. 140 over Gabriels Creek on SR 2215. We recommend replacing this bridge with a bridge. Standard recommendations apply.

5. B-4246, Randolph County, Bridge No. 228 over Richland Creek on SR 2834. We recommend replacing this bridge with a bridge. Standard recommendations apply.

6. B-4129, Guilford County, Bridge No. 226 over Little Alamance Creek on SR 3000. We recommend replacing this bridge with a bridge. A significant fishery for sunfish exists at this site, therefore we request an in-water work moratorium for sunfish from April 1 to June 30. Standard recommendations apply.

7. B-4130, Guilford County, Bridge No. 228 over Alamance Creek on SR 3045. We recommend replacing this bridge with a bridge. A significant fishery for sunfish exists at this site, therefore we request an in-water work moratorium for sunfish from April 1 to June 30. Standard recommendations apply.

8. B-4131, Guilford County, Bridge No. 11 over Little Alamance Creek on SR 3394. We recommend replacing this bridge with a bridge. A significant fishery for sunfish exists at this site, therefore we request an in-water work moratorium for sunfish from April 1 to June 30. Standard recommendations apply.

NCDOT should routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. Restoring previously disturbed floodplain benches should narrow and deepen streams previously widened and shallowed during initial bridge installation. NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks and reduce habitat fragmentation.

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 these projects.

Cc: Gary Jordan, U.S. Fish and Wildlife Service, Raleigh

North Carolina Department of Cultural Resources
State Historic Preservation Office

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary
Office of Archives and History

Division of Historical Resources
David L. S. Brook, Director

March 10, 2004

MEMORANDUM

TO: Greg Thorpe, Ph.D., Director
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: David Brook RSL for David Brook

SUBJECT: Bridge No. 71 on SR 1504 over Reek Creek, B-4243; Bridge No. 140 on SR 2215 over Gabriels Creek, B-4244; Bridge No. 228 on SR 2834 over Richland Creek, B-4246; Randolph County, ER04-0471, ER04-0472 and ER04-0473

Thank you for your letter of February 10, 2004, concerning the above project.

We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Mary Pope Furr
Matt Wilkerson

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 10, 2004

Dr. Jeffrey J. Crow
Division of Archives and History
Department of Cultural Resources
4610 Mail Service Center
Raleigh, NC 27699-4610

Dear Dr. Crow:

Subject: Randolph County
B-4243, Bridge No. 71 on SR 1504 over Reek Creek
B-4244, Bridge No. 140 on SR 2215 over Gabriels Creek (W. Branch)
B-4246, Bridge No. 228 on SR 2834 over Richland Creek

The Project Development and Environmental Analysis Branch of the North Carolina Department of Transportation (NCDOT) has begun studying proposed improvements to the subject bridge replacement projects. The projects are included in the NCDOT's 2004-2010 Transportation Improvement Program and are scheduled for right-of-way in fiscal year 2005 and construction in fiscal year 2007.

B-4243, Bridge No. 71 on SR 1504 over Reek Creek

The existing two-lane structure, constructed in 1962, crosses over Reek Creek and is 41 feet long and 24 feet wide.

The following alternatives will be studied for this bridge project:

- Do-Nothing
- Rehabilitate the Existing Structure
- Replace at existing location by closing the existing roadway and maintaining traffic with an off-site detour.

If the structure is replaced at its existing location utilizing an off-site detour route, SR 1504 will be closed to through traffic during the construction of the replacement

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

structure. If you feel this would create undue travel hardships to the community please advise. Any comments regarding potential impacts to School Bus Routings and Emergency Response Units (fire, rescue, police, etc.) would be especially helpful.

B-4244, Bridge No. 140 on SR 2215 over Gabriels Creek (West Branch)

The existing two-lane structure, constructed in 1950, crosses over Gabriels Creek and is 36 feet long and 19.1 feet wide.

The following alternatives will be studied for this bridge project:

- Do-Nothing
- Rehabilitate the Existing Structure
- Replace at existing location by closing the existing roadway and maintaining traffic with an off-site detour.
- Replace at existing location maintaining traffic with a temporary structure and detour on east side.

If the structure is replaced at its existing location utilizing an off-site detour route, SR 2215 will be closed to through traffic during the construction of the replacement structure. If you feel this would create undue travel hardships to the community please advise. Any comments regarding potential impacts to School Bus Routings and Emergency Response Units (fire, rescue, police, etc.) would be especially helpful.

B-4246, Bridge No. 228 on SR 2834 over Richland Creek

The existing two-lane structure, constructed in 1951, crosses over Richland Creek and is 92 feet long and 19.5 feet wide.

The following alternatives will be studied for this bridge project:

- Do-Nothing
- Rehabilitate the Existing Structure
- Replace on the west side maintaining traffic on the existing structure as an on-site detour.
- Replace at existing location maintaining traffic with a temporary structure and detour on west side.

We would appreciate any information you have that would be helpful in evaluating potential community and environmental impacts of the above projects. If applicable, please identify any permits and/or approvals required by your agency.

Please note that there will be no formal interagency scoping meeting for these projects. This letter constitutes solicitation for scoping comments related to the projects. It is desirable that you respond by March 31, 2004, so that your comments can be used in the preparation of a proposed Categorical Exclusion for the above projects. You may

have previously been contacted concerning these bridge replacement projects, please note that the alternatives may have changed or additional alternatives may have been added.

If you have any questions concerning the projects, please contact Karen Taylor, P.E., Project Development Engineer, of this Branch at (919) 733-7844, extension 223.

Sincerely,

Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and
Environmental Analysis Branch

Attachments
KT/jw

Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E., Director
Division of Water Quality
Coleen H. Sullins, Deputy Director
Division of Water Quality

March 24, 2004

MEMORANDUM

TO: Gregory J. Thorpe, PhD, Director
NCDOT Project Development and Environmental Analysis Branch

FROM: Robert Ridings, Env. Tech., DWQ 401 Unit

THROUGH: John Hennessy, Supervisor, DWQ 401 Transportation Unit

SUBJECT: Scoping Review of NCDOT's proposed bridge replacement projects: B-4281, B-4112, B-4252, B-4254, B-4100, B-4101, B-4243, B-4244, B-4246, B-4104, B-4129, B-4130, B-4131.

In reply to your correspondence dated February 10, 2004 (received February 18, 2004) to Cynthia Van der Wiele, in which you requested comments for the referenced projects, the NC Division of Water Quality has the following comments:

I. General Comments Regarding Bridge Replacement Projects

1. If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used to replace the bridge, then DWQ recommends the use of Nationwide Permit No. 14 rather than Nationwide Permit 23.

2. Bridge demolition should be performed using Best Management Practices developed by NCDOT.

3. DWQ prefers 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.

4. Bridge deck drains should not discharge directly into the stream; stormwater should 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 NCDOT Best Management Practices for the Protection of Surface Waters

5. Live concrete should not be allowed to contact the water in or entering into the stream. Concrete is mostly made up of lime (calcium carbonate) and when in a dry or wet state (not hardened) calcium carbonate is very soluble in water and has a pH of approximately 12. In an unhardened state concrete or cement will change the pH of fresh water to very basic and will cause fish and other macroinvertebrate kills.

6. If possible, bridge supports (bents) should not be placed in the stream.

7. 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 re-vegetate naturally and minimizes disturbed soil.

N. C. Division of Water Quality, 401 Wetlands Certification Unit,
1650 Mail Service Center, Raleigh, NC 27699-1650 (Mailing Address)
2321 Crabtree Blvd., Raleigh, NC 27604-2260 (Location)
(919) 733-1786 (phone), 919-733-6893 (fax), (http://h2o.enr.state.nc.us/ncwetlands)
Customer Service #: 1-877-623-6748

8. A clear bank (rip rap-free) area of at least 10 feet should remain on each side of the steam underneath the bridge.

9. Sedimentation and erosion control measures sufficient to protect water resources must be implemented prior to any ground disturbing activities. Structures should be *maintained regularly*, especially following rainfall events.

10. Bare soil should be stabilized through vegetation or other means as quickly as feasible to prevent sedimentation of water resources.

11. 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.

12. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

II. General Comments if Replacing the Bridge with a Culvert

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 end 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 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, the 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. Tall fescue should not be used in riparian areas. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

III. Project-Specific Comments

B-4281, Bridge 60, Dan River, Stokes County
Dan River is classified as C Trout and is in the Roanoke River Basin. A moratorium prohibiting in-stream wo and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. DWQ would prefer this bridge to be replaced with a bridge and the use of BMPs (particularly for sediment and erosion control) to be maximized.

B-4112, Bridge 30, Muddy Creek, Forsyth County
Muddy Creek is classified as C and is in the Yadkin River Basin. DWQ has no special concerns with this proje Please refer to general recommendations listed above.

B-4252, Bridges 67 and 95, Little Beaver and Big Beaver Creeks, Rockingham County
Little Beaver and Big Beaver Creeks are both classified as C and are in the Roanoke River Basin. DWQ has nc special concerns with this project.

B-4254, Bridge 89, Little Troublesome Creek, Rockingham County
Little Troublesome Creek is listed as C NSW and is in the Cape Fear River Basin. It is a 303(d) listed water. NCDOT shall maximize the use of Best Management Practices for all work crossing or draining to the Critical Area of the Water Supply Watershed and 303(d)-listed waters. In addition, NCDOT shall strictly adhere to "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0124).

B-4100 and B-4101, Bridges 142 and 141, Abbotts Creek, Davidson County
Abbotts Creek is listed as WS-III water supply stream and is in the Yadkin River Basin. There are 30-foot vegetated buffer requirements in WS waters in addition to the requirements to minimize storm water runoff anc maximize use of BMPs. Refer to 15A NCAC 2B .0216(3)(b)(i)(F) and (G).

B-4243, Bridge 71, Hasketts Creek, Randolph County
Hasketts Creek is listed as C and is in the Cape Fear River Basin. It is a 303(d) listed water. NCDOT shall maximize the use of Best Management Practices for all work crossing or draining to the Critical Area of the Water Supply Watershed and 303(d)-listed waters. In addition, NCDOT shall strictly adhere to "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0124).

B-4244, Bridge 140, Gabriels Creek, Randolph County
Gabriels Creek is listed as C and is in the Cape Fear River Basin. DWQ has no special concerns for this projec

B-4246, Bridge 228, Richland Creek, Randolph County
Richland Creek is listed as C and is in the Cape Fear River Basin. It is a 303(d) listed water. NCDOT shall maximize the use of Best Management Practices for all work crossing or draining to the Critical Area of the Water Supply Watershed and 303(d)-listed waters. In addition, NCDOT shall strictly adhere to "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0124).

B-4104, Bridge 21, Carter Creek, Davie County
Carter Creek is listed as WS-IV and is in the Yadkin River Basin. There are 30-foot vegetated buffer requirements in WS waters in addition to the requirements to minimize storm water runoff and maximize use c BMPs. Refer to 15A NCAC 2B .0216(3)(b)(i)(F) and (G).

B-4129, Bridge 226, Little Alamance Creek, Guilford County

Little Alamance Creek is listed as WS-IV NSW CA and is in the Cape Fear River Basin. There are 30-foot vegetated buffer requirements in WS waters in addition to the requirements to minimize storm water runoff ar maximize use of BMPs. Refer to 15A NCAC 2B .0216(3)(b)(i)(F) and (G). Since the project is located withi the Critical Area of a water supply watershed, hazardous spill catch basins may be required for this project bas on traffic count, percent truck traffic or proximity to industries transporting hazardous materials. The project shall incorporate the requirements for WS-IV Waters within the critical area as specified in 15A NCAC 2B .0 (i.e., stormwater management, sedimentation and erosion control, and buffers).

B-4130, Bridge 228, Alamance Creek, Guilford County

Alamance Creek is listed as WS-IV NSW CA and is in the Cape Fear River Basin. There are 30-foot vegetated buffer requirements in WS waters in addition to the requirements to minimize storm water runoff and maximi use of BMPs. Refer to 15A NCAC 2B .0216(3)(b)(i)(F) and (G). Since the project is located within the Criti Area of a water supply watershed, hazardous spill catch basins may be required for this project based on traffic count, percent truck traffic or proximity to industries transporting hazardous materials. The project shall incorporate the requirements for WS-IV Waters within the critical area as specified in 15A NCAC 2B .0215 (stormwater management, sedimentation and erosion control, and buffers).

B-4131, Bridge 11, Little Alamance Creek, Guilford County

Little Alamance Creek is listed as WS-IV NSW CA and is in the Cape Fear River Basin. There are 30-foot vegetated buffer requirements in WS waters in addition to the requirements to minimize storm water runoff an maximize use of BMPs. Refer to 15A NCAC 2B .0216(3)(b)(i)(F) and (G). Since the project is located withi the Critical Area of a water supply watershed, hazardous spill catch basins may be required for this project ba on traffic count, percent truck traffic or proximity to industries transporting hazardous materials. The project shall incorporate the requirements for WS-IV Waters within the critical area as specified in 15A NCAC 2B .0 (i.e., stormwater management, sedimentation and erosion control, and buffers).

Thank you for requesting our input at this time. The DOT 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 Robert Ridings at (919) 733-9817 or Cynthia Van der Wiele at (919) 733-5715.

cc: USACE Raleigh Field Office
File Copy

4/2/03
Not An Unworkable Situation
Discussion With Leslie Cox
DJM

Henley Ctry
1 Regular 2
1 EC 2
Total 4

STATE OF NORTH CAROLI
DEPARTMENT OF TRANSPO

MICHAEL F. EASLEY
GOVERNOR

August 21, 2002

MEMORANDUM

TO: Leslie Cox
School Transportation Director
Randolph County Schools
2234-A Enterprise St.
Asheboro, NC 27203

FROM: William T. Goodwin, Jr. PE
Project Development & Environmental Analysis Branch

SUBJECT: Replacement of Bridge No. 140 on SR 2215 over Creek, Randolph County, Federal Aid Project No. BRZ-2215(1), State Project No. 8.2574201, TIP No. B-4244

The N. C. Department of Transportation has begun the planning process to replace the above bridge, which is nearing the end of its useful life. Construction is planned for year 2006.

Alternative methods of replacing the bridge will be studied. Some alternatives may require road closure at the bridge site. In that case, all traffic would be detoured onto other local roads.

The type of bridge or structure that we select will determine how long the road would have to remain closed. However, the time of closure would not be longer than 8-12 months.

We would like to know the specific number of bus crossings per day and if road closure could be handled by re-routing or other changes, or if it would create an unworkable situation for your school bus operations. Of course, closure is not a realistic option for dead end roads. In such cases traffic will be maintained.

We ask that you let us know your opinion in writing by using the enclosed addressed envelope. We need your reply by December 2, 2002.

If you have any questions concerning the project, please contact Davis Moore at (919) 733-7844, ext. 258.

Attachment

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794
WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 27, 2004

TIP Project: B-4244
County: Randolph
Description: Bridge No. 140 on SR 2215 over Gabriels Creek (West Branch)

MEMORANDUM

TO: Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch
Attention: Karen Taylor, P.E., Project Development Engineer

FROM: for Nathan K. Phillips, P.E., Plan Review Engineer Deborah K Jokisch
Congestion Management Section

SUBJECT: Categorical Exclusion for B-4244

The Plan Review Squad of the Traffic Engineering and Safety Systems Branch has completed a preliminary review of this project. We would like to share the following comments received from Traffic Control and our Signing Section.

- Traffic Control recommends an offsite detour for this project during construction as the most viable option. According to Traffic Control, the off-site detour may need to be resurfaced to ensure that the additional traffic is properly accommodated.

- Our Signing Section estimates that $2000 will be required for contract signing on this project. The Signing Section further comments that a field trip will be conducted during the project's preliminary plan preparation phase to determine whether the signing work will be handled by contract or through the division force account.

At this time we have no additional comments. If you have any questions, please contact Nasir Siddiqui, Plan Review Project Engineer, or me at (919) 250-4151.

NKP/ns

cc: T. Johnson, P.E. (Attention: W. C. Garner Jr., P.E.)
V. Barbour, P.E. (Attention: C. S. Houser, P.E.)
A.L. Grandy
T. M. Hopkins, P.E. (Attention: J. H. Dunlop, P.E.)
R. E. Mullinax, P.E.
J. S. Bourne, P.E.
R. W. King, P.E.

MAILING ADDRESS:
TRAFFIC ENGINEERING AND SAFETY SYSTEMS BRANCH
1592 MAIL SERVICE CENTER
RALEIGH, NORTH CAROLINA 27699-1592

TELEPHONE: 919-250-4151
FAX: 919-250-4195
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH, NORTH CAROLINA 27610

Jack Ward

From: Davis, Donovan L. [dldavis@co.randolph.nc.us]
Sent: Wednesday, August 18, 2004 3:27 PM
To: jward@koassociates.com
Subject: Randolph County, NC Bridge replacement projects

Mr. Ward,

In reference to the bridge closing projects; B-4243, B-4244, and B-4246. I do not see any immediate concerns regarding the detours. We do request that we be given 2-3 weeks notice prior to the closing of each bridge so that a more strategic and detailed survey can be taken of the immediate residences and/or businesses in those areas. At that time we will also notify each Fire Department, Rescue Service, EMS, and Law Enforcement.

It is difficult to make exact determinations with the provided maps. I did look on our GIS but could not determine the specific area when comparing the two maps.

The most problematic area will be the project on Old Cox Rd (SR 2834) because of NC Zoo traffic in the area. Again, with 2-3 weeks notice prior to the closing, this should not be a major problem.

Please give me a call if you have any other questions or need further assistance.

Sincerely,
Donovan Davis,
Deputy Director - EM
Randolph County Emergency Services
336-318-6943 Office
336-318-6951 Fax
www.co.randolph.nc.us/

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

Lyndo Tippett
SECRETARY

September 8, 2004

MEMORANDUM TO: Mr. Gregory J. Thorpe, Ph.D., Director
Project Development and Environmental Analysis Branch

ATTENTION: Karen B. Taylor, PE
Project Development Engineer

FROM: Njoroge W. Wainaina, PE
State Geotechnical Engineer

TIP NO. B-4244
WBS 33587.1.1
FEDERAL PROJECT: BRZ-2215 (1)
COUNTY: Randolph
DESCRIPTION: Bridge # 140 over a Creek on SR 2215

SUBJECT: Geotechnical Pre-Scoping Report

The Geotechnical Engineering Unit performed a limited pre-scoping investigation of the above reference project to provide an early identification of any Geotechnical and GeoEnvironmental issues that might impact the project's planning, design or construction. The following information summarizes our findings.

GEOENVIRONMENTAL ISSUES

Purpose

This report presents the results of a GeoEnvironmental impact evaluation conducted along the above referenced project. The main purpose of this investigation is to identify properties within the project study area that are or may be contaminated and therefore result in increased project

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
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FAX: 919-250-4237
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC

costs and future liability if acquired by the Department. GeoEnvironmental impacts may include, but are not limited to, active and abandoned underground storage tank (UST) sites, hazardous waste sites, regulated landfills and unregulated dumpsites.

Techniques/Methodologies Used

The Geographical Information System (GIS) was consulted to identify known environmentally impacting sites in relation to the project corridor. GeoEnvironmental Section personnel conducted a field reconnaissance survey along the project corridor on March 23, 2004.

Findings

Underground Storage Tank (UST) Facilities

Based on our study, there are no UST sites identified within the project limits.

Hazardous Waste Sites

No Hazardous Waste Sites were identified within the project limits.

Land Fills

No apparent landfills were identified within the project limits.

Other GeoEnvironmental Concerns

There were no other geoenvionmental concerns identified within the project limits.

Anticipated Impacts

There are no GeoEnvironmental impacts anticipated within the project limits.

The GeoEnvironmental Section observed no additional contaminated properties during the field reconnaissance and regulatory agencies' records search. The GeoEnvironmental Section will provide soil and groundwater assessments on each of the above properties after identification of the selected alternative and before right of way acquisition. Please note that discovery of

additional sites not recorded by regulatory agencies and not reasonably discernable during the project reconnaissance may occur. The GeoEnvironmental Section should be notified immediately after discovery of such sites so their potential impact(s) may be assessed.

If there are any questions regarding these or other GeoEnvironmental issues on the project, please contact Gene Tarascio, GIT at (919)-250-4088.

GEOTECHNICAL ISSUES

Techniques and Methodologies

A site reconnaissance was conducted on May 11, 2004. A single Standard Penetration Test boring was performed on June 2, 2004, in the northwest quadrant about seven feet off the existing pavement. The collar elevation was about 10 feet above the streambed.

Findings

The proposed corridor lies within the Carolina Slate Belt province in an area mapped as felsic meta-volcanic rock. Rock "float" is abundant, and rock outcrop is present in the stream channel. The rock is foliated and fractured yielding a "blocky" texture common in Slate Belt areas. The floodplain is minimal and not expected to be an issue. The test boring found six feet of roadway fill, five feet of very soft alluvial clay, then weathered to hard rock. The weathered rock horizon is near the stream bed elevation.

Anticipated Impacts

The southern approach for a temporary structure on the east side would likely require some minor excavation. Some small quantities of hard rock excavation can be anticipated. Shallow rock is anticipated at the structure foundation locations. A bridge would be founded on shallow rock; spread footings or drilled shaft foundations would be likely. Shallow rock in the streambed makes a bottomless culvert possibly feasible.

If there are any questions regarding these Geotechnical comments, please contact Clinton B. Little, L.G or John L. Pilipchuk, L.G., P.E. at (704)-455-8902

NWW/GT/CBL/JLP/dbm