STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

December 28, 2007

North Carolina Division of Water Quality
Transportation Permitting Unit
1650 Mail Service Center
Raleigh, NC 27699-1650

ATTENTION: Mr. Rob Ridings
NCDOT Coordinator

Dear Sir:

Subject: **Application for Tar-Pamlico Riparian Buffer Authorization** for the replacement of Bridge No. 67 over Reedy Creek on SR 1507 (Davis Rd.), Warren County, Division 5. Federal Project No. BRZ-1507(1), WBS No. 33247.1.1, T.I.P. B-3707.

The North Carolina Department of Transportation (NCDOT) proposes to replace the 87-foot, Bridge No. 67 over Reedy Creek. The project involves replacing the current bridge in its existing location, while using an off-site detour to maintain traffic during construction.

The proposed structure will be a three span, 21-inch prestressed cored slab bridge with spans at 35-feet, 50 feet, and 30 feet. The proposed bridge will be approximately 115-feet in length with a clear roadway width of 30-feet. The substructure will be composed of end bents on 12-inch steel piles and interior bents on 14-inch steel piles. The new approaches to the bridge will provide 11-foot travel lanes with 6-foot grass shoulders (9-foot with guardrail). The grade will remain as close to the existing grade as possible. The proposed bridge will span Reedy Creek; no bents will be located within the channel.

Please see the enclosed pre-construction notification, U.S. Fish and Wildlife (USFWS) concurrence letter, permit drawings, and design plans for the subject project. A Categorical Exclusion (CE) was completed for this project in March 2006 and distributed shortly thereafter. Additional copies are available upon request.

IMPACTS TO WATERS OF THE UNITED STATES

The project is located in the Tar-Pamlico River Basin (sub-basin 03-03-04). This area is part of Hydrologic Cataloging Unit 03020102 of the South Atlantic-Gulf Coast Region. Reedy Creek is the sole jurisdictional resource within the project area.

The section of Reedy Creek crossed by the proposed bridge has been assigned Stream Index Number 28-79-25-5 by the N.C Division of Water Quality. Reedy Creek has a best usage classification of C NSW. No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply (WS-II), waters occur within 1.0 mile of the study corridor. Reedy Creek is not listed on the

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

Final 2006 303(d) list of impaired waters for the Tar-Pamlico River Basin, nor does it drain into any 303(d) waters within 1-mile of the project area.

There will be no permanent or temporary impacts to jurisdictional streams or wetlands due to construction of the proposed project.

IMPACTS TO TAR-PAMLICO RIPARIAN BUFFER

Reedy Creek is subject to the Tar-Pamlico Buffer Rules. The USGS topographic map depicted an additional unnamed tributary (UT1) located approximately 90-feet from the roadway within the project area. However, during a field visit on March 26, 2007, NCDOT biologists Erica McLamb and Chris Underwood confirmed that the stream is located approximately 200-feet outside of the project area. Construction of the new bridge and approaches will not impact the buffers of the unnamed tributary. Construction of the new bridge and approaches will result in impacts to the buffers of Reedy Creek. Buffer impacts are described in Table 1 below.

Table 1. Tar-Pamlico River Buffer Impacts

	Bridge	Road Crossing
Zone 1 Impact (sq. ft)	2460	0
Zone 2 Impact (sq. ft)	572	779
Mitigation requirements (exempt, allowable or allowable with mitigation)	Allowable	Allowable (impacts less than 150 linear feet or one-third of an acre).*

* Approximately 85 linear feet of road crossing impacts

Under the Tar-Pamlico Buffer Rules, impacts to buffers resulting from the construction of bridges are allowable. Impacts resulting from construction of the approaches are allowable because the impacts do not exceed 150 linear feet or one-third of an acre.

Utility Impacts to Riparian Buffers

The sole utility in the project study area is an existing power line (3-phase power) located parallel to the road on the southwest side of the project area. The existing power line will not be impacted by the proposed project. There will be no impacts to riparian buffers resulting from the removal or relocation of the utilities.

No Practical Alternative Analysis

The project area has been evaluated and there are no practical alternatives to replacing the bridge. This bridge has been determined to be structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations. Because this bridge needs to be replaced, impacts to the riparian buffers are unavoidable.

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) website (updated May 10, 2007) lists three species for Warren County. Table 2 lists the species and their federal status.

Table 2. Federally Protected Species in Warren County, NC

Common Name	Scientific Name	Federal Status*	Biological Conclusion	Habitat Present
Bald eagle	*Haliaeetus leucocephalus*	Delisted	Not required	No
Tar spinymussel	*Elliptio steinstansana*	E	May affect, not likely to adversely affect	Yes
Dwarf wedgemussel	*Alasmidonta heterodon*	E	May affect, not likely to adversely affect	Yes

*E= endangered

The bald eagle, though still listed on the USFWS website, was officially delisted on August 8, 2007. However, bald eagle still receives protection under the Bald and Golden Eagle Protection Act. The stream at this location is not large enough to provide suitable foraging habitat for the bald eagle and there are no large streams or lakes within 1-mile of the project area, therefore, no surveys are required (G. Jordan, personal communication, April 3, 2006). The North Carolina Natural Heritage database indicates no known occurrences of the bald eagle within 1-mile of the project area.

Surveys for the Tar spinymussel and the dwarf wedgemussel on March 16, 2006 by NCDOT biologists Karen M. Lynch and Logan Williams. The project study area does contain potential habitat for both species however, no specimens were observed during the 2 man hour survey. Neither the dwarf wedgemussel or the Tar spinymussel have ever been found in Reedy Creek. The dwarf wedgemussel is also not found in the receiving stream, Little Fishing Creek. The Tar spinymussel has been recorded 24 miles downstream in Little Fishing Creek, however, it is unlikely to occur within the project area. The North Carolina Natural Heritage database indicates no known occurrences of the dwarf wedgemussel or Tar spinymussel within 1-mile of the project area. A biological conclusion of "May affect, not likely to adversely affect" has been issued. USFWS concurrence (enclosed) was issued on April 26, 2007.

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 and Neuse Buffer avoidance/minimization activities proposed or completed by NCDOT:

Avoidance/Minimization

- Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of stringent erosion control methods and use of Best Management Practices (BMPs).
- Design Standards in Sensitive Watersheds will be implemented.
- A preformed scour hole located north of the proposed bridge will be utilized to reduce stormwater impacts.
- The proposed bridge will span Reedy Creek with no bents located in the channel.

- The proposed bridge will be 28-feet longer increasing the floodplain under the bridge.
- The bridge will be replaced in its existing location minimizing impacts to buffers.
- Traffic will be detoured offsite during construction.
- All non-maintained riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the pre-construction contours and revegetated with native woody species.

Compensatory Mitigation:

NCDOT has avoided and minimized impacts to the Tar-Pamlico Riparian Buffers to the greatest extent possible as described above. Mitigation in not proposed for impacts resulting from the construction of the proposed bridge because all impacts are allowable.

SCHEDULE

The project calls for a letting of August 19, 2008 (review date of July 1, 2008) with a date of availability of September 30, 2008. It is expected that the contractor will choose to start construction in October 2008.

REGULATORY APPROVALS

This project has been designed to comply with the Neuse River Basin Riparian Buffer Rules (15A NCAC 2B.0233). NCDOT requests written authorization for a Buffer Authorization from the Division of Water Quality. We are providing five copies of this application to North Carolina Department of Environment and Natural Resources, Division of Water Quality (NCDENR, DWQ) for review and approval. This project has been reviewed for jurisdiction under the Federal Clean Water Act (CWA). There are no impacts to Waters of the US, therefore none of the actions of this project fall under jurisdiction of the CWA. Therefore, no permits pursuant to the CWA are required.

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 Erica McLamb at 715-1521.

Sincerely,

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

w/attachment
Mr. Brian Wrenn, NCDWQ (5 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. J. Wally Bowman, PE., Division Engineer
Mr. Chris Murray, DEO
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
Ms. Jennifer Fuller, 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: None

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: 1598 Mail Service Center
   Raleigh, NC 27699-1548
   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: N/A
   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.67 over Reedy Creek on SR 1507 (Davis Rd.)

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3707

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

4. Location
   County: Warren Nearest Town: Liberia
   Subdivision name (include phase/lot number):
   Directions to site (include road numbers/names, landmarks, etc.): see map in permit drawings

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): 36.3572 °N 78.0641 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Reedy Creek

8. River Basin: Neuse
   (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: . The general land use in the vicinity of the project consists of forested land, agriculture, and some residential development.

10. Describe the overall project in detail, including the type of equipment to be used:

Bridge No. 158 will be replaced on existing location with an offsite detour. 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: To replace a deteriorating bridge

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: none

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

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

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)
Total Stream Impact (by length and acreage)						0

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

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. Please refer to the attached cover letter.

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.
   Mitigation is not proposed for this project.

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): 0
   Amount of buffer mitigation requested (square feet): 0
   Amount of Riparian wetland mitigation requested (acres): 0
   Amount of Non-riparian wetland mitigation requested (acres): 0
   Amount of Coastal wetland mitigation requested (acres): 0

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 Neuse)? 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	2460	3 (2 for Catawba)	0.0
2	1351	1.5	0.0
Total	3811		0.0

* 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. Mitigation is not required for this project.

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:

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).
None

E. L. Lust 12-31-07

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

McLamb

RECEIVED

MAY 2 2006

DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

United States Department of the Interior

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

April 26, 2006

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 13, 2006 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. 67 on SR 1507 over Reedy Creek in Warren County (TIP No. B-3707) may affect, but is not likely to adversely affect the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) and Tar spinymussel (*Elliptio steinstansana*). In addition, NCDOT has determined that the project will have no effect on the federally threatened bald eagle (*Haliaeetus leucocephalus*). 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, a mussel survey was conducted at the project site on March 16, 2006. The survey extended 200 meters upstream and 400 meters downstream of SR 1507. Only the common eastern elliptio mussel (*Elliptio complanata*) was observed. Based on the mussel survey results and other information available, the Service concurs with your determination that the proposed bridge replacement may affect, but is not likely to adversely affect the dwarf wedgemussel and Tar spinymussel. Also, due to the lack of habitat, the Service concurs with your determination that the project will have no effect on the bald eagle. 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.

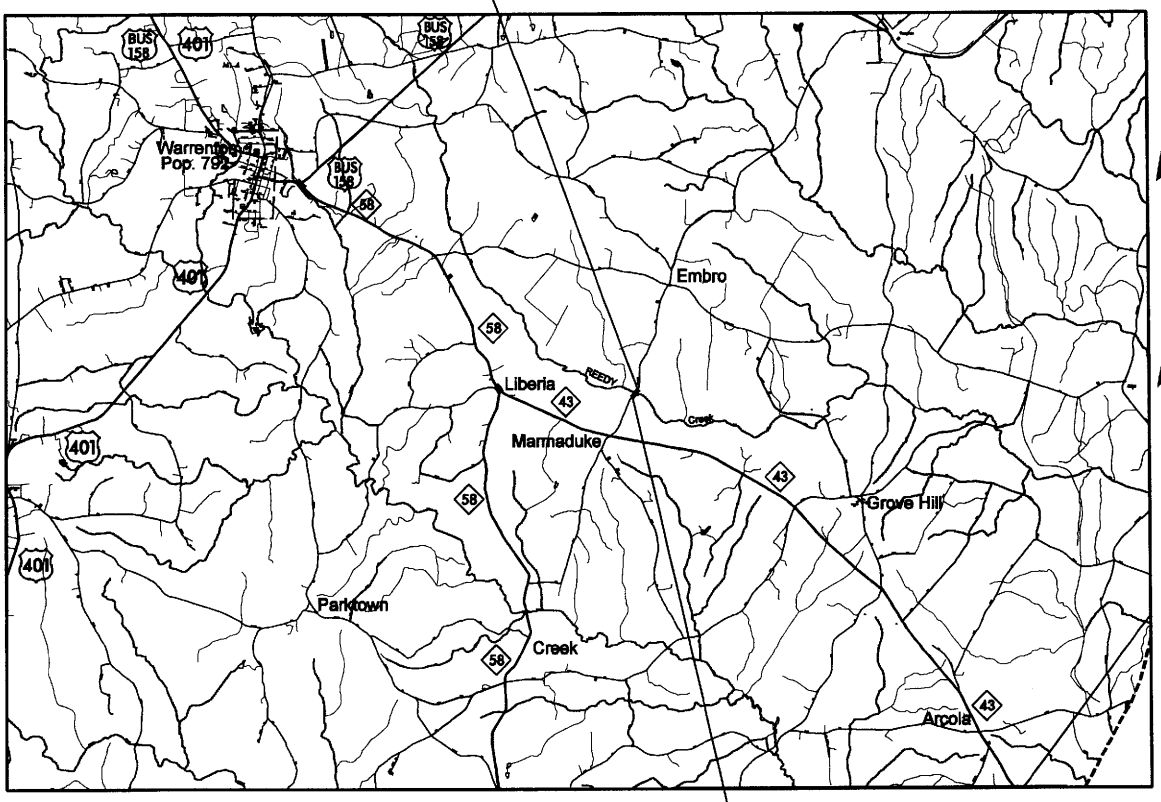
The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Pete Benjamin
Ecological Services Supervisor

cc: Eric Alsmeyer, USACE, Raleigh, NC
John Hennessy, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC
John Sullivan, FHwA, Raleigh, NC

END PROJECT



BEGIN PROJECT

NOT TO SCALE

TAR PAMLICO RIVER BUFFER

VICINITY MAPS

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WARREN COUNTY

PROJECT: 33247.1.1 (B-3707)

BRIDGE NO. 67
OVER REEDY CREEK
ON SR 1507

SHEET 1 OF 6 **11/15/07**

11/15/2007
11:40:10 AM
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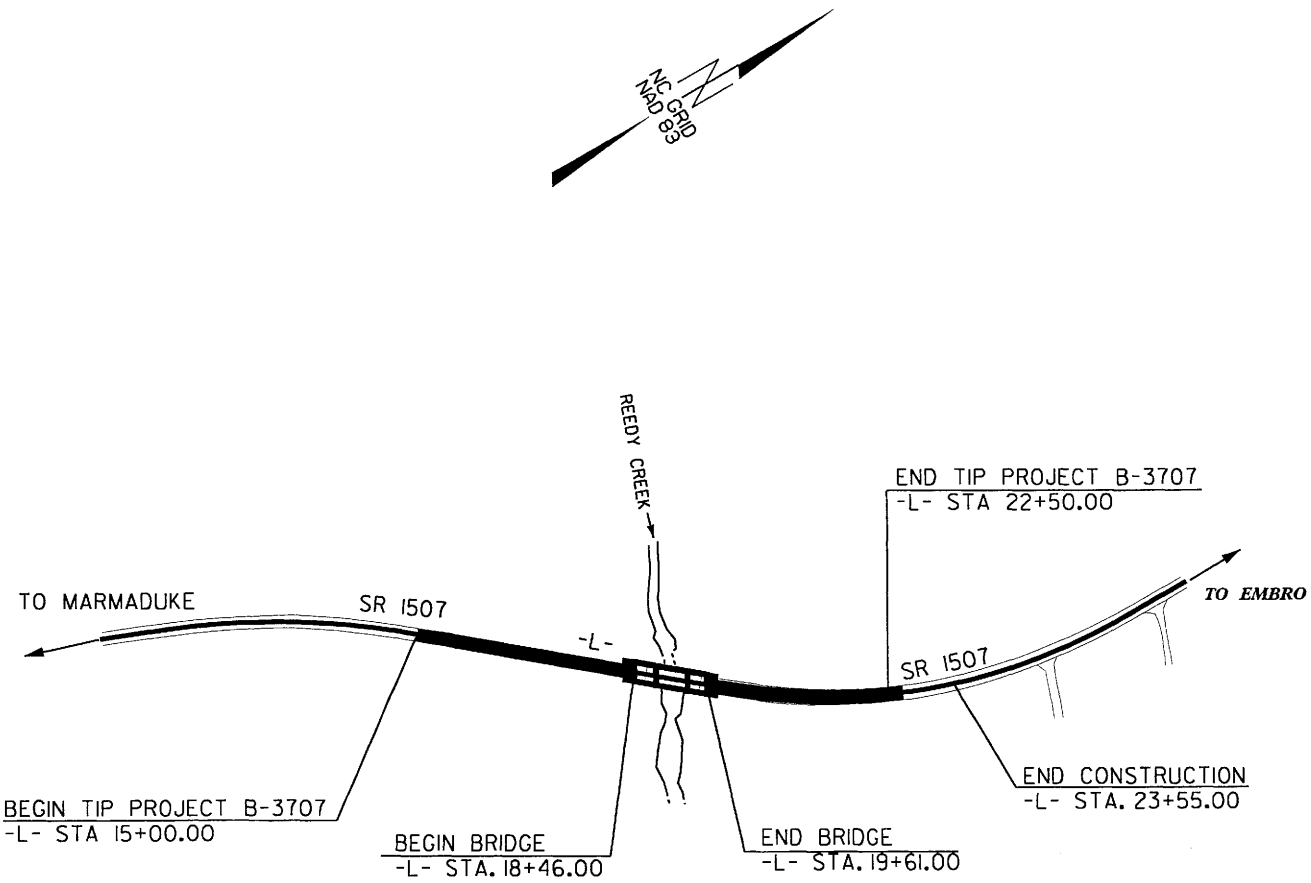

NOT TO SCALE

TAR PAMLICO RIVER BUFFER

LOCATION MAPS

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WARREN COUNTY

PROJECT: 33247.1.1 (B-3707)

BRIDGE NO. 67
OVER REEDY CREEK
ON SR 1507

SHEET 2 OF 6 7/02/07

7/2/2007
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BUFFER LEGEND

WLB — WETLAND BOUNDARY

WETLAND

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

BZ — RIPARIAN BUFFER ZONE

BZ1 — RIPARIAN BUFFER ZONE 1
30 ft (9.2m)

BZ2 — RIPARIAN BUFFER ZONE 2
20 ft (6.1m)

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 (PSH)

LEVEL SPREADER (LS)

DITCH/ GRASS SWALE

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WARREN COUNTY

PROJECT: 33247.1.1 (B-3707)

BRIDGE NO. 67
OVER REEDY CREEK
ON SR 1507

SHEET 3 OF 6 — 7/02/07

7/2/2007
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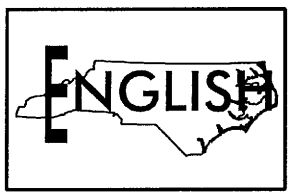
SUMMARY OF AFFECTED PROPERTY OWNERS

TRACT NO.	PROPERTY OWNER	ADDRESS	SITE NO.
(1)	FISHING CREEK LAND & TIMBER CORPORATION	ROUTE 3, BOX 621 WARRENTON, NC 27589	1
(2)	ROBERT C. KELLEY & MARY E. KELLY	210 TIMBERWOOD AVE. SILVER SPRING, MO 20901	1
(3)	MARGARET MOSS	177 CIRCLE DRIVE TEANECK, NJ 07666	1
(4)	ELMER W. HARRIS	ROUTE 3, BOX 614 WARRENTON, NC 27589	1



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WARREN COUNTY

PROJECT: 33247.1.1 (B-3707)

BRIDGE NO. 67
OVER REEDY CREEK
ON SR 1507

SHEET 4 OF 6 7/02/07

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	BRIDGE - 21" PCCS, OAL = 115'	-L- 18+18 to 19+83		X		2460	572	3032					
			X			0	779	779					
TOTAL:						2460	1351	3811	0	0	0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WARREN COUNTY
PROJECT: 33247.1.1 (**B-3707**)
REPLACEMENT OF BRIDGE NO. 67
OVER REEDY CREEK ON SR 1507
11/6/2007
SHEET 5 OF 6

Rev. May 2006

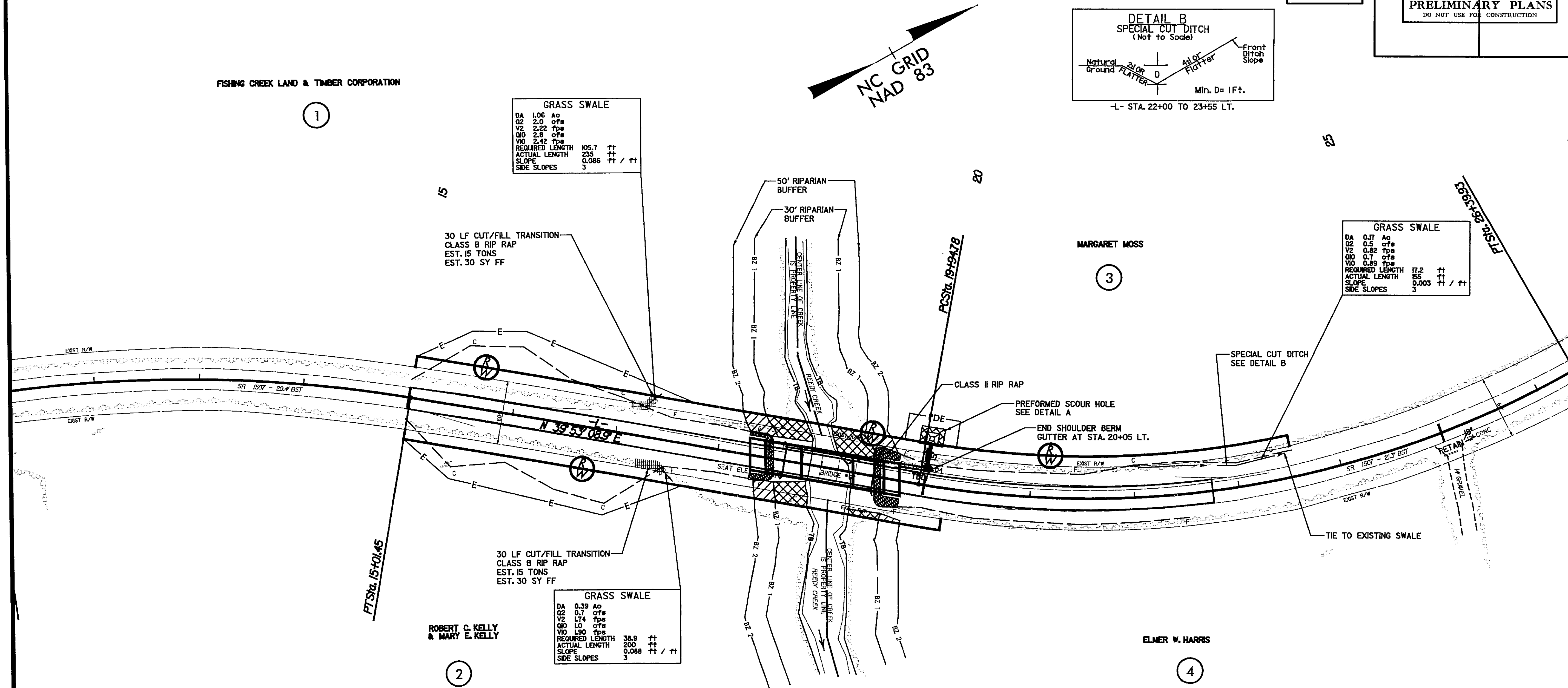
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE *202 RALEIGH, N.C. 27606
(919) 851-6066

PROJECT REFERENCE NO.	SHEET NO.
B-3707	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



GRASS SWALE

DA	1.06	Ac
Q2	2.0	cfs
V2	2.22	fps
Q10	2.8	cfs
V10	2.42	fps
REQUIRED LENGTH	105.7	ft
ACTUAL LENGTH	235	ft
SLOPE	0.086	ft / ft
SIDE SLOPES	3	

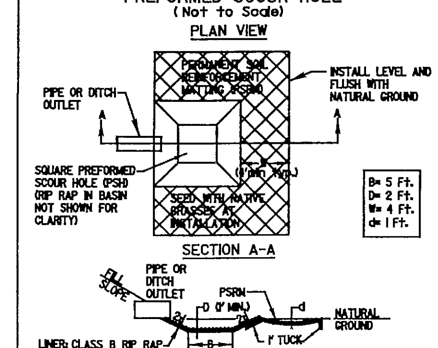
GRASS SWALE

DA	0.17	Ac
Q2	0.5	cfs
V2	0.82	fps
Q10	0.7	cfs
V10	0.89	fps
REQUIRED LENGTH	17.2	ft
ACTUAL LENGTH	155	ft
SLOPE	0.003	ft / ft
SIDE SLOPES	3	

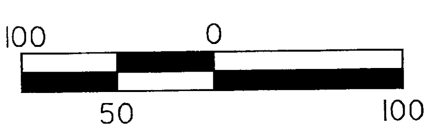
GRASS SWALE

DA	0.39	Ac
Q2	0.7	cfs
V2	1.74	fps
Q10	1.0	cfs
V10	1.90	fps
REQUIRED LENGTH	38.9	ft
ACTUAL LENGTH	200	ft
SLOPE	0.088	ft / ft
SIDE SLOPES	3	

DETAIL A
PREFORMED SCOUR HOLE
(Not to Scale)



BUFFER SITE 1
PLAN VIEW



SCALE: 1"= 100' HORIZ.

LEGEND

- BZ 1 — RIPARIAN BUFFER - ZONE 1
- BZ 2 — RIPARIAN BUFFER - ZONE 2
- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2

Buffer Drawing
Sheet 6 of 6

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WARREN COUNTY
PROJECT: 33247.1.1 (B-3707)
BRIDGE NO. 67
OVER REEDY CREEK
ON SR 1507

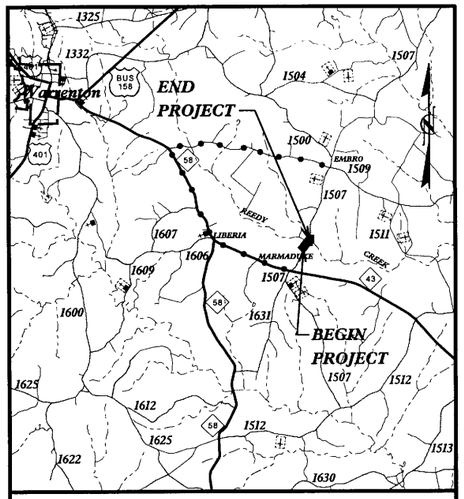
SHEET 6 OF 6 7/02/07

09/08/09

TIP PROJECT: B-3707

CONTRACT:

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



VICINITY MAP

OFFSITE DETOUR ROUTE

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

R/W PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

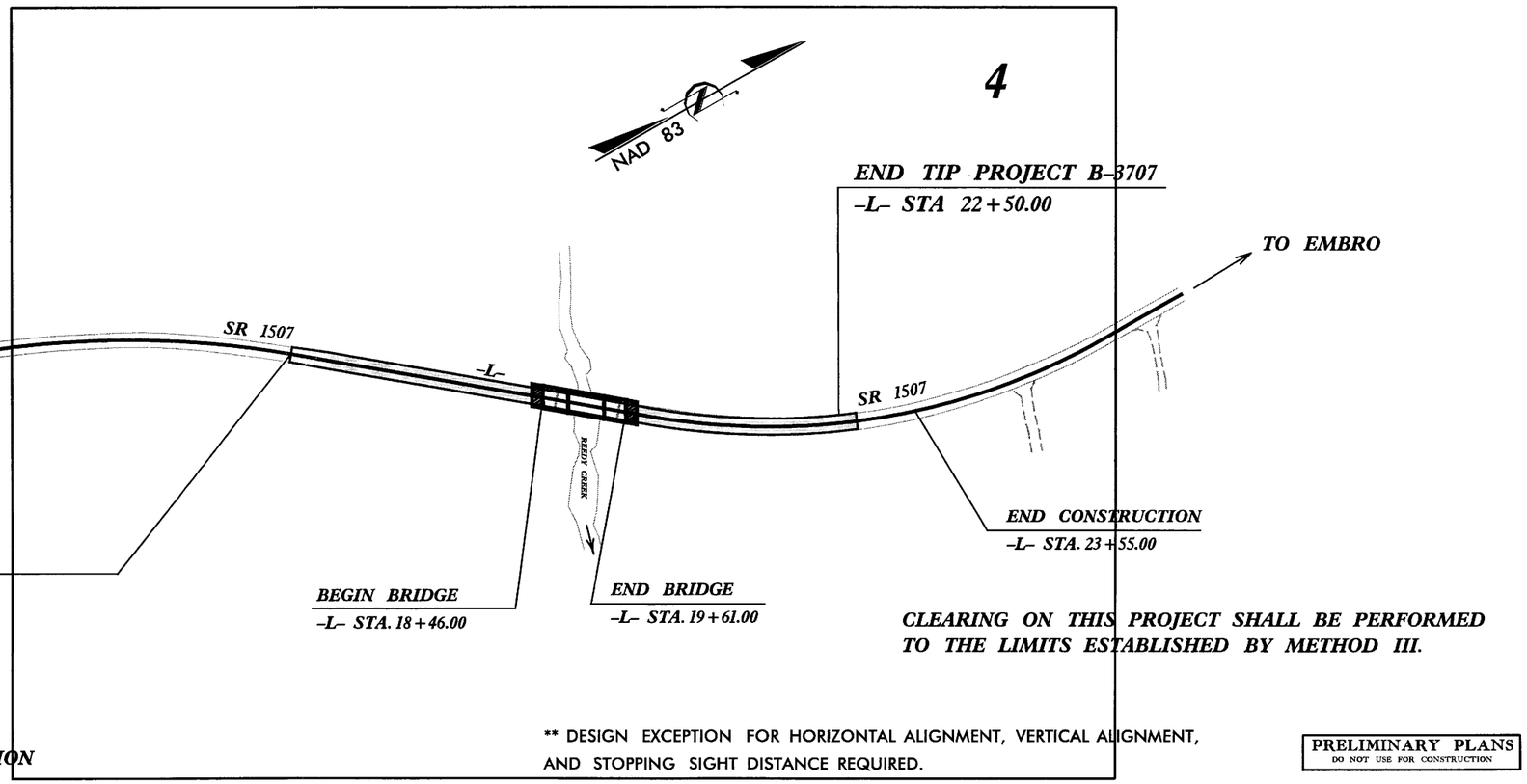
WARREN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3707	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33247.1.1	BRZ-1507(1)	P.E.
33247.2.2	BRZ-1507(1)	R/W & UTILITIES

LOCATION: Bridge No. 67 over Reedy Creek on SR 1507

TYPE OF WORK: Grading, Drainage, Paving and Structure



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

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

** DESIGN EXCEPTION FOR HORIZONTAL ALIGNMENT, VERTICAL ALIGNMENT, AND STOPPING SIGHT DISTANCE REQUIRED.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 215
ADT 2028 = 515
DHV = 10 %
D = 60 %
T = 7 %
TTST 3% DUAL 4%
** V = 60 MPH
FUNC. CLASS. = RURAL LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-3707 = 0.120 mi.
LENGTH OF STRUCTURE TIP PROJECT B-3707 = 0.022 mi.

TOTAL LENGTH OF TIP PROJECT B-3707 = 0.142 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:
August 17, 2007

LETTING DATE:
August 19, 2008

Brian A. Wiles, P.E.
PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY DESIGN ENGINEER *P.E.*

10/26/2007
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KO & ASSOCIATES, P.C.

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-3707	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
- Wetland
- 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
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access
- Proposed Control of Access
- 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
- Proposed Wheel Chair Ramp Curb Cut — WCC
- 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.

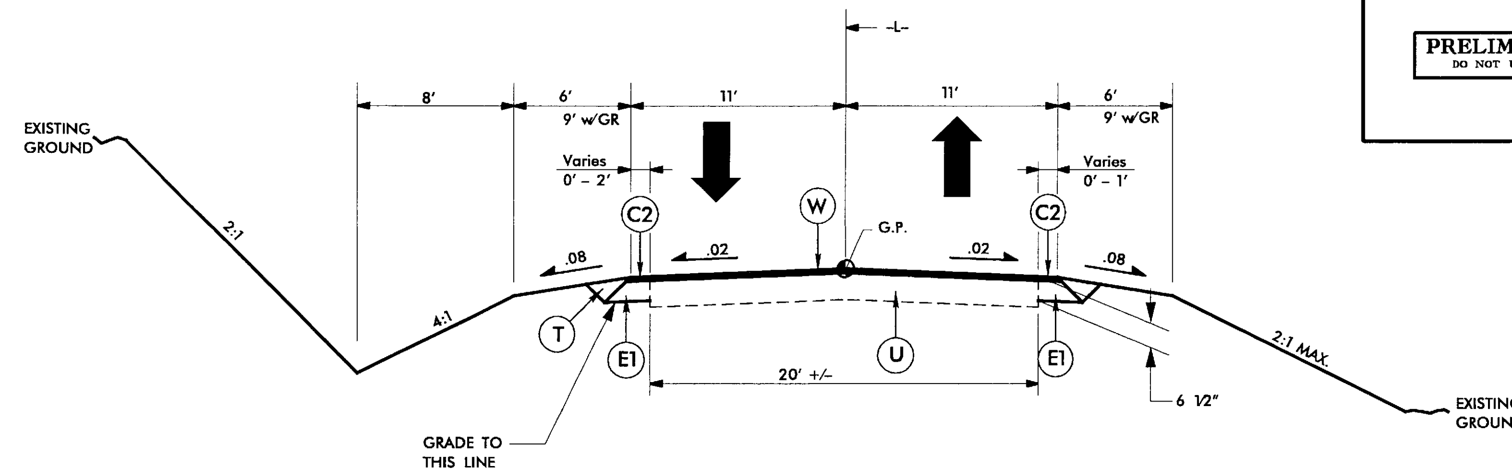
PROJECT REFERENCE NO.	SHEET NO.
B-3707	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

CODE	DESCRIPTION
C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP.VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL
U	EXISTING ASPHALT PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

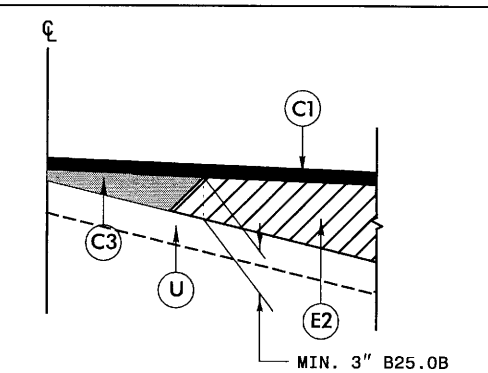
NOTE: ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS NOTED OTHERWISE.



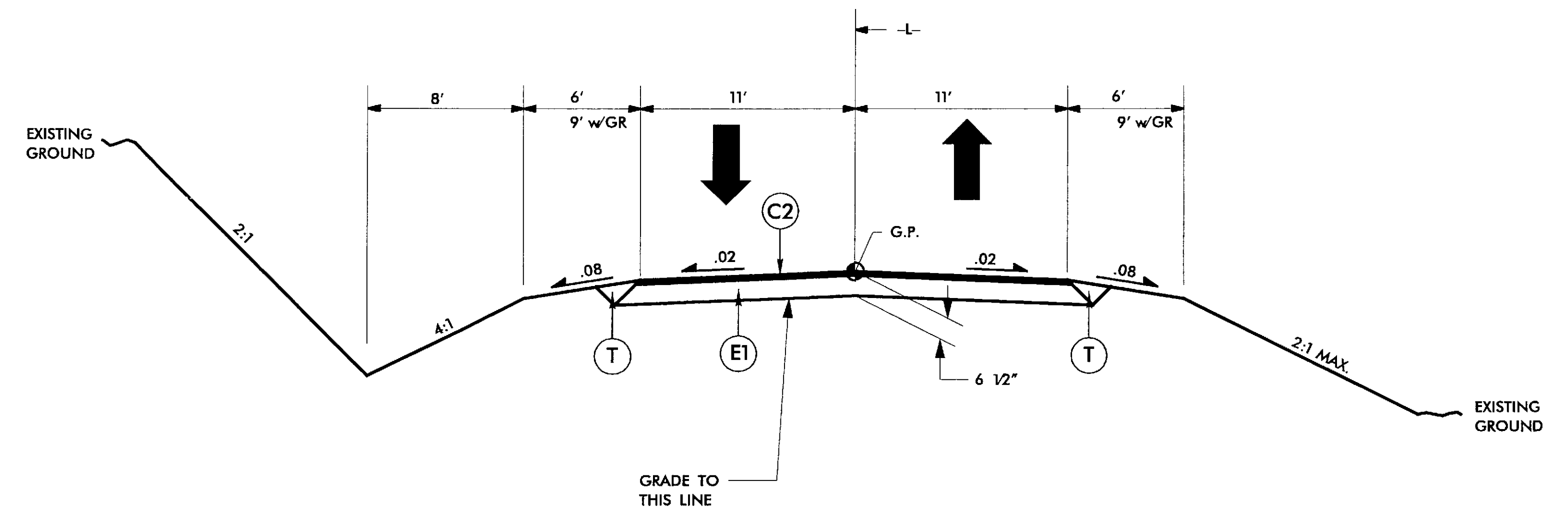
TYPICAL SECTION NO. 1
-L- STA 15+25 TO -L- STA 18+00
-L- STA 20+00 TO -L- STA 22+50

TRANSITION FROM EXISTING TO T.S. NO. 1
-L- STA 15+00 TO -L- STA 15+25

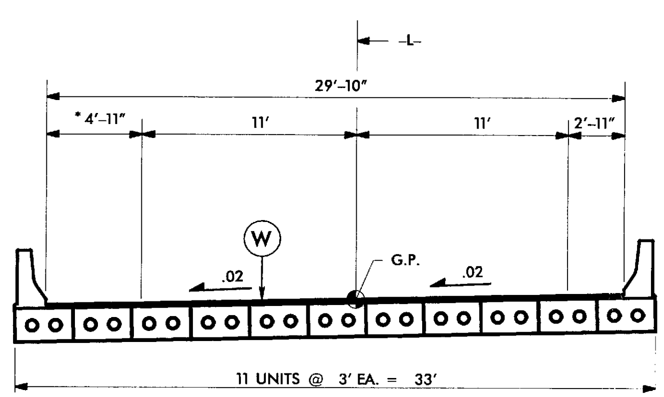
TRANSITION FROM T.S. NO. 1 TO EXISTING
-L- STA 22+50 TO -L- STA 22+75



WEDGING DETAIL



TYPICAL SECTION NO. 2
-L- STA 18+00 TO -L- STA 18+32.02 (APPROACH SLAB)
-L- STA 19+74.98.00 (APPROACH SLAB) TO -L- STA 20+00



TYPICAL SECTION NO. 3
-L- STA 18+46.00 TO -L- STA 19+61.00
* Widened shoulder due to Hydraulic spread

6/2/99
10/26/2007
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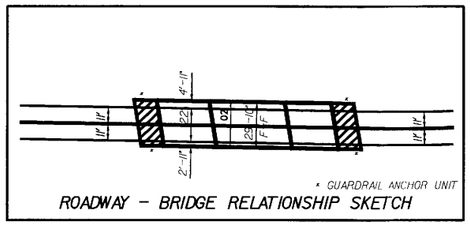
PROJECT REFERENCE NO.	SHEET NO.
B-3707	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

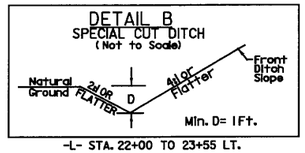
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS



ROADWAY – BRIDGE RELATIONSHIP SKETCH



-L- STA. 22+00 TO 23+55 LT.

NC GRID
NAD 83

FISHING CREEK LAND & TIMBER CORPORATION
DB 480 PG 198
1

BEGIN PROJECT B-3707
-L- POT STA. 15+00.00

-BL-2 7+83.54 PNC
-L- POC 13+36.82 (13.71' RT.)

30 LF CUT/FILL TRANSITION
CLASS B RIP RAP
EST. 15 TONS
EST. 30 SY FF

CLASS II RIP RAP
(STRUCT PAY ITEM)

50' RIPARIAN BUFFER

30' RIPARIAN BUFFER

BM #2
-BL- STA 18+82
145' LEFT
ELEV. 262.62'

END BRIDGE
-L- STA.19+61.00

END APPROACH SLAB
-L- STA.19+74.98

PCS Sta. 19+94.78

CLASS II RIP RAP
(STRUCT PAY ITEM)

PREFORMED SCOUR HOLE
SEE DETAIL A

END SHOULDER BERM
GUTTER AT STA. 20+05 LT.

MARGARET MOSS
DB 216 PG 538
3

END PROJECT B-3707
-L- POC STA. 22+50.00

PTS Sta. 22+19.83

END CONSTRUCTION
-L- POC STA. 23+55.00

SPECIAL CUT DITCH
SEE DETAIL B

TIE TO EXISTING SWALE

PI Sta 12+99.09
Δ = 17° 50' 48.9" (RT)
D = 4° 22' 25.4"
L = 408.05'
T = 205.69'
R = 1,310.00'
SE = 0.040
DS = 60 MPH

PT Sta. 15+01.45

ROBERT C. KELLY
& MARY E. KELLY
DB 577 PG 600
2

BEGIN APPROACH SLAB
-L- STA.18+32.02

BEGIN BRIDGE
-L- STA.18+46.00

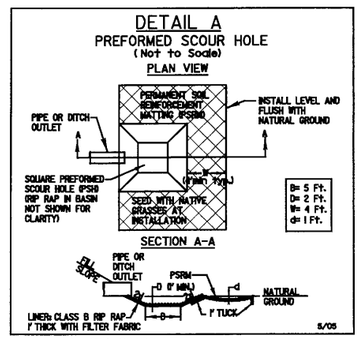
-BL-3 13+04.18 PNC
-L- POT 18+59.56 (16.42' RT.)

ELMER W. HARRIS
DB 698 PG 902
4

-BL-4 17+64.71 PNC
-L- POC 23+17.61 (15.85' RT.)

PI Sta 23+30.94
Δ = 39° 44' 47.8" (LT)
D = 6° 09' 39.0"
L = 645.15'
T = 336.17'
*R = 930.00'
SE = 0.040
DS = 50 MPH

* DESIGN EXCEPTION REQUIRED



-L- STA. 20+00 LT.

LEGEND
PAVED SHOULDER
APPROACH SLAB

FOR -L- PROFILE, SEE SHEET NO. 5

10/26/2007
c:\projects\proj\b3707_rdy_psh_04.dgn

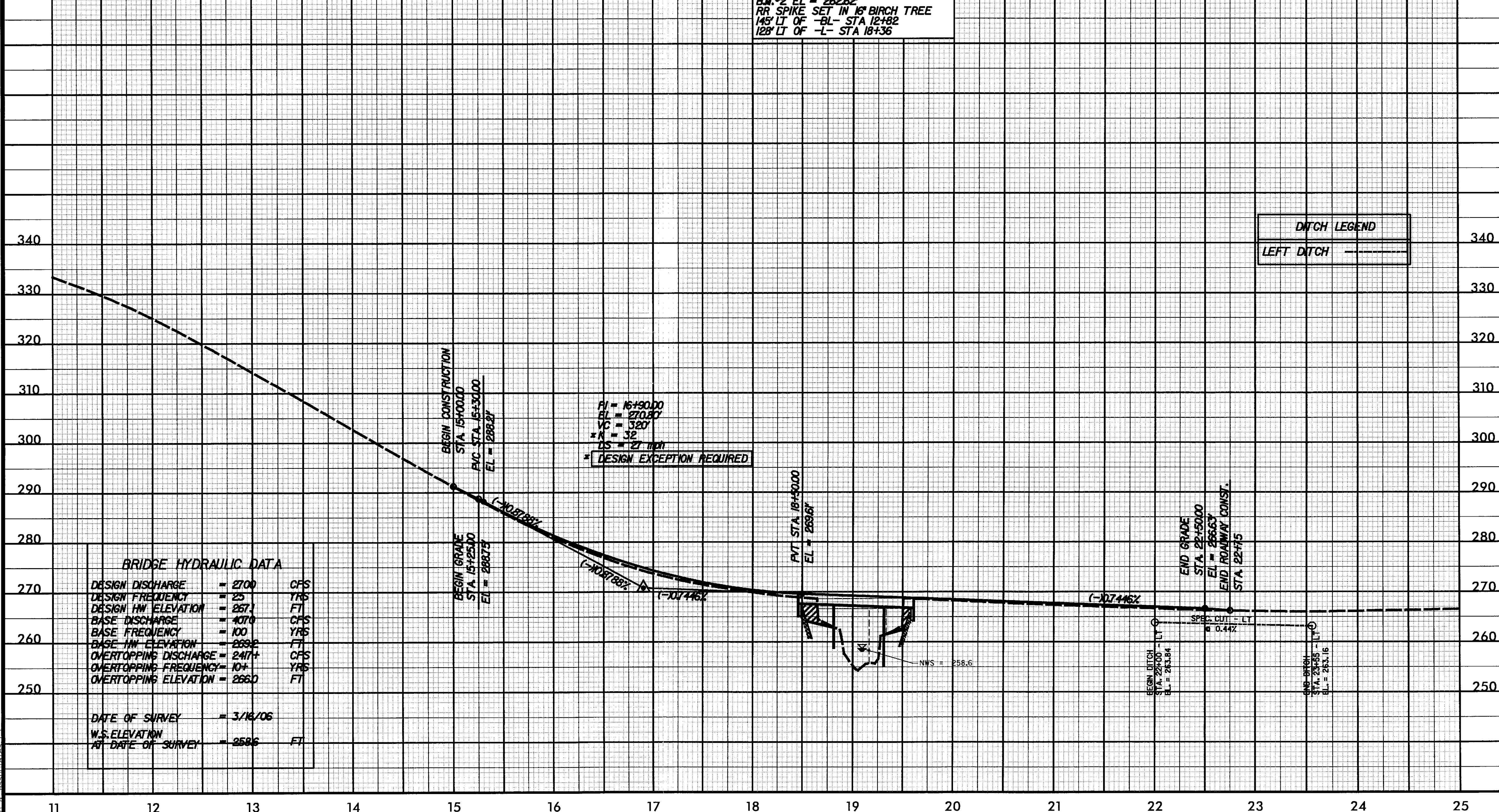
KO & ASSOCIATES, P.C.
Consulting Engineers
011 SCHAUB DR., SUITE *202 RALEIGH, N.C. 27606
(919) 851-6066

PROJECT REFERENCE NO.	SHEET NO.
B-3707	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 267.1	FT
BASE DISCHARGE	= 4070	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 269.2	FT
OVERTOPPING DISCHARGE	= 2417+	CFS
OVERTOPPING FREQUENCY	= 10+	YRS
OVERTOPPING ELEVATION	= 266.0	FT
DATE OF SURVEY	= 3/16/06	
W.S. ELEVATION AT DATE OF SURVEY	= 258.6	FT

5/14/99

10/26/2007
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Warren County
SR 1507 (Davis Road)
Bridge No. 67 over Reedy Pond Creek
Federal-Aid Project No. BRZ-1507(1)
WBS No. 33247.1.1
T.I.P. No. B-3707

CATEGORICAL EXCLUSION

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

N.C. DEPARTMENT OF TRANSPORTATION

APPROVED:

3/29/06
Date

for **Gregory J. Thorpe, Ph.D., Director**
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation

3/29/06
Date

John F. Sullivan III, P.E.
for **Division Administrator**
Federal Highway Administration

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March 2006

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For the North Carolina Department of Transportation

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PROJECT COMMITMENTS

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In addition to the standard Nationwide Permit #31 and #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 Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

PDEA/Hydraulics/Roadway Design

The Tar-Pamlico River Basin Rule applies to this project.

Highway Design Branch/Division 5

The project will be coordinated with the Director of Transportation Services for the Warren County School System and the Director of Emergency Services before construction begins so appropriate changes in school bus and emergency service routes can be made. The Director of Transportation Services has requested a temporary bus turn around at a driveway located about 1 mile north of the bridge on SR 1507. The existing driveway will be suitable with the addition of gravel and possible pipe replacement. This can be included as part of the special provisions of the construction contract. See discussion on page 3 of the CE and in the Appendix.

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INTRODUCTION: The replacement of Bridge No. 67 is included in the North Carolina Department of Transportation 2006-2012 Transportation Improvement Program and in the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

The bridge was selected for addition to the TIP in 1996. At that time, Bridge Maintenance Unit records indicated the bridge had a sufficiency rating of 37.0 out of a possible 100 for a new structure. The bridge was determined to be structurally deficient.

Immediate repairs were needed in 2000, and the timber floor and joists were replaced. Also, a number of the piles have been repaired or replaced over the years. The resulting bridge repairs were considered to be a temporary solution.

The latest bridge safety inspection in 2005 indicates the timber caps and piles are soft to a depth reaching 1 inch, and several piles are delaminated and decaying. The bridge currently has a sufficiency rating of 49.3 and is no longer considered to be structurally deficient by NCDOT standards. However, in January 2006, NCDOT Bridge Maintenance and FHWA engineers reviewed the safety inspection results and agreed that the bridge is a good candidate for bridge replacement because of its timber construction, deteriorating caps and piles, and the need for a permanent improvement. The replacement of this structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

This project involves the replacement of Bridge No. 67 on SR 1507 (Davis Road) over Reedy Pond Creek in central Warren County. SR 1507 is classified as a Rural Local route in the Statewide Functional Classification System. The existing bridge, as shown in Figures 2A and 2B, has an overall length of 87 feet, a total width of 26 feet and two 9-foot travel lanes. The existing two-lane bridge has a creosote timber deck on creosote timber joists supported by timber caps, piles and abutments. There are 25 feet of clear roadway width. SR 1507 has a current pavement width of 18 feet with two grass shoulders approximately 8 feet wide in the area of the bridge. The roadway approaches are tangent and on slight downgrades toward the bridge. The vertical sag occurs on the north approach just off the bridge. Sight distance is good to the north and south.

Overhead electrical lines parallel the existing bridge approximately 20 feet to the east. There are no utilities attached to the bridge.

The structure was constructed in 1961. The current posted weight limits are 9 tons for single unit vehicles and 16 tons for truck-tractor semi-trailer vehicles. Bridge No. 67 has a bed-to-crown distance of approximately 13 feet. The estimated traffic volumes on SR 1507 are currently 300 vehicles per day (vpd) and are projected to be 500 vpd for the design year 2025. 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. Development in the immediate area is almost exclusively woodland. One metal building approximately 1000 feet south of the bridge appears to be a hunting club facility. One accident was reported in the vicinity of the bridge in the most recent three year period.

Public school buses cross the present bridge two times per day.

III. ALTERNATIVES

A. Project Description

NCDOT proposes to replace Bridge No. 67 with a new bridge approximately 100 feet long with a clear roadway width of 28 feet. The final bridge length and width will be determined during final design. New approaches to the bridge will provide 11-foot travel lanes in each direction with 6-foot grassed shoulders.

B. Build Alternatives

The studied alternatives were: (1) to replace the structure at the existing location with an on-site temporary detour on the west side; (2) to replace the structure on new alignment west of and parallel to the existing location; and (3) to replace the structure at the existing location, utilizing an off-site detour. These alternatives are shown in Figures 3, 4, and 5.

Alternative 1 replaces the existing structure at the existing location with an on-site temporary detour on the west side. The estimated cost of the temporary detour is $675,000. While targeted for 60 mph, one horizontal curve limits the design speed to 50 mph. In addition, Alternative 1 will require a design exception for the vertical alignment.

Alternative 2 replaces the existing structure on new alignment west of the existing bridge at a cost comparable to Alternative 1. While targeted for 60 mph, two horizontal curves limit the design speed to 55 mph. In addition, Alternative 2 will also require a design exception for the vertical alignment.

Alternative 3 (preferred) replaces the existing structure with a new bridge at the existing location, closing SR 1507 to through traffic during construction and utilizing an off-site detour. While targeted for 60 mph, one horizontal curve limits the design speed to 50 mph. In addition, Alternative 3 will require a design exception for the vertical alignment.

The possible off-site detour route (Figure 1) includes SR 1509 (Warrenton-Embro Road), NC 58 and NC 43, a distance of 7 miles. The bridge on SR 1509 is posted 19 tons for duals and 28 tons truck-tractor, semi-trailers. These postings exceed those on Bridge No. 67. In accordance with the NCDOT Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects (April 2004), the average delay per motorist using the off-site detour is estimated to range from five to less than ten 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.

The Director of Transportation Services for the Warren County School System did not indicate a problem with the off-site detour alternative. One school bus crosses the bridge two times each school day. The Director of Transportation requests a temporary bus turn around located at a driveway about one mile north of the bridge on the west side of SR 1507, see Figure 7. The existing driveway will be suitable with the addition of gravel and possible pipe replacement. This can be included as part of the special provisions of the construction contract. See further discussions in the Appendix.

No comments were received directly from the volunteer fire departments serving the area, Warren County EMS, or the Warren County Sheriff's Department; however, the Warren County Firemen's Association indicated all of these agencies could work with any of the alternatives, including an off-site detour and the closure of the road to through traffic. Based on these comments, the off-site detour is considered appropriate.

C. Alternatives Eliminated from Further Study

The No-Build or "do-nothing" alternative was also considered but this choice would eventually necessitate closure of the bridge. This is not a desirable alternative due to the traffic service provided by SR 1507. Investigation of the existing structure by the NCDOT Bridge Maintenance Unit indicates that additional rehabilitation of Bridge No. 67 is not feasible due to its age, timber construction, and deteriorating condition.

D. Preferred Alternative

Alternative 3, replacing the existing structure with a new bridge 100 feet long with a 28-foot clear roadway width is the preferred improvement. The approaches to the new bridge will have a pavement width of 22 feet with 6-foot grassed shoulders. This will provide two 11-foot lanes. The targeted design speed is 60 mph. With a 60 mph design speed for the vertical curve, the existing grade at the bridge will have to be raised 7 to 8 feet. This amount of fill would preclude the replacement of the bridge in its existing location with minimum impacts. With a 30 mph vertical design speed, the south end of the existing bridge would have to be raised approximately 2 feet. There is one horizontal curve with a design speed of 50 mph. It is recommended a design speed of 30 mph be used for the vertical alignment and a design exception requested for both the horizontal and vertical alignments. The estimated design year 2025 traffic is 500 vehicles per day.

The Division Office and FHWA concur with the recommended improvements.

IV. ESTIMATED COST

The estimated cost for the recommended proposed improvement is $685,500. The current estimated cost of the project, as shown in the NCDOT 2006-2012 Transportation Improvement Program, is $646,000. The estimated costs of the alternatives studied are shown in the following table:

Table 1: Estimated Costs

	Alternative 1 Existing Location On-site Detour West Side	Alternative 2 New Location West Side of Existing Bridge	Alternative 3 Existing Location Off-site Detour (Preferred)
Structure Removal	$ 30,600.00	$ 30,600.00	$ 30,600.00
Structure	$ 277,200.00	$ 277,200.00	$ 277,200.00
Roadway Approaches	$ 167,360.00	$ 505,700.00	$ 167,360.00
Mobilization and Miscellaneous	$ 121,840.00	$ 274,000.00	$ 121,840.00
Engineering and Contingencies	$ 78,000.00	$ 162,000.00	$ 78,000.00
Temporary Detour	$ 675,000.00	NA	NA
SUBTOTAL	$ 1,350,000.00	$1,250,000.00	$ 675,000.00
Right of way/Const. Ease./Util.	$ 32,500.00	$ 20,000.00	$ 10,500.00
TOTAL	**$ 1,382,500.00**	**$1,270,000.00**	**$ 685,500.00**

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. Estimates reflect 2006 costs.

V. NATURAL RESOURCES

A. Methodology

Materials and research data in support of this investigation have been derived from a number of sources including applicable U.S. Geological Survey (USGS) topographic mapping (Inez, NC 7.5 minute quadrangle, 1971), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping (Inez, NC 7.5 minute quadrangle, 1995), and recent aerial photography (scale 1 inch=100 feet).

On September 29, 2000 the study corridor was walked and visually surveyed for significant features. For purposes of field surveys, the study corridor was assumed to be approximately 1700 feet in length for Alternative 1, 1950 feet for Alternative 2 and 600 feet in length for Alternative 3. The corridor width was 200 feet from centerline to the west of SR 1507 and 100 feet from centerline to the east of SR 1507 for all three alternatives to ensure proper coverage. Plant community area calculations are based on cut-and-fill boundaries for permanent impacts and construction easements for temporary impacts; jurisdictional area calculations for impacts on streams are based on approximate bridge widths. Actual impacts will be limited to construction limits and are expected to be less than those shown for right of ways. Special concerns evaluated in the field include potential habitat for protected species and wetlands, and water quality protection in Reedy Pond Creek.

Plant community descriptions are based on a classification system utilized by North Carolina 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 made to reflect more current nomenclature. Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Wetland jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Habitat used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and supportive documentation (Webster *et al.* 1985, Potter *et al.* 1980, Martof *et al.* 1980, Rohde *et al.* 1994, Menhinick 1991, Palmer and Braswell 1995). Water quality information for area streams and tributaries was derived from available sources (DWQ 1998, 1999). Quantitative sampling was not undertaken to support existing data.

The most current US Fish and Wildlife Service (USFWS) listing of federally-protected species with ranges which extend into Warren County (June 16, 2000) was obtained prior to initiation of the field investigation. In addition, NHP records documenting presence of federally- or state-listed species were consulted before commencing the field investigation.

B. Physiography and Soils

The study corridor is underlain by the Felsic Crystalline geologic formation within the Piedmont physiographic province of North Carolina. Soil systems have been formed over bedrock of granite, granite gneiss, mica gneiss, and mica schist. Inclusions of more mafic rock, with darker

and more plastic soils, are common. Topography includes broad, gently sloping uplands and moderately dissected landscapes, with narrow convex ridges and steep valley slopes (Daniels *et al.* 1999). Topography of the area is characterized as gently rolling with steep areas along major streams. The study corridor is located within and adjacent to the floodplain of Reedy Pond Creek. Within the study corridor, a gradual, shallow slope on the northern bank, and a steep bluff on the south bank characterize the floodplain. Elevations in the study corridor are approximately 250 to 350 feet National Geodetic Vertical Datum (NGVD) (USGS Inez, NC quadrangle). The broad floodplain and bluff extend out of the study corridor to the east and west.

The Natural Resources Conservation Service has not mapped soils in the major part of Warren County. Dominant soil series in the eastern portion of the Felsic Crystalline System are Pacolet, Cecil, Appling, Vance, and Helena in the uplands and Congaree, Chewakla, and Wehadkee in river terraces and floodplains (Daniels *et al.* 1999).

The Pacolet series (*Typic Kanhapludults*) is a very well drained, moderately permeable group of soils formed from weathered acid crystalline rock. Slopes are commonly 15 to 25 percent. The Cecil series (*Typic Kanhapludults*) consists of very deep, well drained, moderately permeable soils on ridges and side slopes of the Piedmont uplands. Cecil soils formed from felsic, igneous and high-grade metamorphic rocks of the Piedmont uplands. Slopes range from 0 to 25 percent. The Appling series (*Typic Kanhapludults*) is very deep, well drained, and moderately permeable, and found on ridges and slopes of Piedmont uplands. Appling soils formed in residuum weathered from felsic igneous and metamorphic rocks of the Piedmont uplands. Slopes range from 0 to 25 percent.

The Vance series (*Typic Hapludults*) consists of well-drained, slowly permeable soils that formed in residuum weathered from acid crystalline rock in the Piedmont. This series is found on ridges and side slopes, with slopes from 2 to 25 percent. The Helena series (*Aquic Hapludults*) consists of gently to strongly sloping, deep, moderately well drained soils that occupy small areas on side slopes. Helena soils are formed in forested areas from mixed acidic and basic rocks. The Congaree series *(Typic Udifluvents*) consists of nearly level, well-drained soils on floodplains, originating from fine loamy material washed from soils on uplands. The Chewacla soils (*Fluventic Dystrochrepts*) are nearly level, somewhat poorly drained soils on floodplains, formed of fine alluvial deposits. The seasonally high water table is at a depth of approximately 1.5 feet below the ground surface. The Wehadkee series (*Fluventic Haplaquepts*) is nearly level, poorly drained, and typically found on floodplains. Wehadkee soils are formed of fine loamy material, and the seasonal high water table is approximately at the surface. (Daniels *et al.* 1999, USDA 1970).

The Natural Resources Conservation Service considers the following soil series to be hydric in Warren County: Chewacla and Wehadkee silt loams, where frequently flooded; Worsham (*Typic Ochraquults*); and Helena soils with Worsham inclusions. These series are saturated for a significant period during the growing season, and support woody vegetation under natural conditions (USDA 1997). The Worsham series (*Typic Ochraquults*) is nearly level or gently sloping, poorly drained, and occupies small areas at the heads of drainages, at foot slopes, and in slight depressions. Worsham soils are formed from alluvial and residual material, and the seasonal high water table is approximately at the surface (USDA 1970).

The soils of the flat floodplain area of the study corridor appear to be of a uniform type and texture. The surface texture is sandy and the entire solum appears to be well drained, with no hydric inclusions found during the field survey.

C. WATER RESOURCES

1. Waters Impacted

The study corridor is located within sub-basin 03-03-04 of the Tar-Pamlico River Basin (DWQ 1999). This area is part of USGS accounting unit 03020102 of the South Atlantic-Gulf Coast Region. The section of Reedy Pond Creek crossed by the subject bridge has been assigned Stream Index Number 28-79-25-5 by the N.C. Division of Water Quality (DWQ 1997).

2. Water Resource Characteristics

Reedy Pond Creek is a well-defined, second-order Piedmont stream with low flow. During the field survey, water depths along the study corridor varied from 8 inches to 3 feet. The stream is entrenched, with 3 to 4 feet between the water surface to the bankfull line along the study corridor at the time of the field visit. The depth of the stream channel apparently holds the water table well below the soil surface in the adjacent floodplain. Water clarity was moderate to low during the field visit, with visibility to within 18 inches of the surface. A slight tannin stain, due to organic matter in the water, was apparent. The channel width ranged from 8 to 22 feet and was approximately 20 feet in width at Bridge No. 67. Within the study corridor, the creek exhibits weak to moderate sinuosity and a weakly developed riffle and pool sequence. The substrate ranges from coarse sand in riffle areas to mud in pools. The 300-foot length of stream in the study corridor included several areas where the banks were undercut, and trees had collapsed into the stream. Bank erosion is apparently an active and ongoing process in this stream, perhaps intensified by sedimentation from agricultural and/or forestry operations upstream. The floodplain contains mixed mesic hardwood forests. No hydric soils were observed.

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 NSW has been assigned to Reedy Pond Creek (DWQ 1997). The designation C denotes that appropriate uses include aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation refers to wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis. The supplemental classification NSW denotes nutrient sensitive waters that need additional nutrient management because they are subject to excessive growth of microscopic and macroscopic vegetation (DWQ 1997). No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within 1 mile of the study corridor.

The Division of Water Quality (DWQ) (previously known as the Division of Environmental Management, Water Quality Section [DEM]) has initiated a whole basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed study

corridor is summarized in the Tar-Pamlico River basin management plan (DWQ 1999). Reedy Pond Creek has not been sampled nor rated for its support status. The Tar-Pamlico sub-basin 03-03-04, containing the entire Fishing Creek watershed including Reedy Pond Creek, supports major discharges from the towns of Warrenton and Enfield, and from the Scotland Neck WWTP. Total permitted flow for the major and minor dischargers is 3.6 million gallons per day (MGD) (DWQ 1999). There are no direct discharges into Reedy Pond Creek.

The DWQ 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. 2002 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. 2002 Section 303(d) list. Streams are further categorized into one of six parts within the N.C. 2002 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. The Reedy Pond Creek is not listed on any section of the Final N.C. 2002 Section 303(d) list or the Draft N.C. 2004 Section 303(d) list.

3. Potential Impacts to Water Resources

Proposed project alternatives include complete bridging of Reedy Pond Creek to maintain the current water quality, aquatic habitat, and flow regime. 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. 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.

The proposed bridge replacement will allow for continuation of pre-project stream flows in Reedy Pond Creek, 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 "Best Management Practices for the Protection of Surface Waters" (BMPs) will be strictly enforced during the entire life of the project.

4. Impacts Related to Bridge Demolition and Removal

The bridge structure is built entirely of timber. Therefore, there is little potential for components of the bridge to be dropped into "waters of the United States." No temporary fill is expected to result from removal of the existing bridge. NCDOT's Best Management Practices for Construction and Maintenance Activities must be applied for the removal of this bridge.

D. BIOTIC RESOURCES

1. Plant Communities

Two distinct plant communities were identified within the study corridor: mesic mixed hardwood forest (Piedmont subtype), and urban/disturbed land. These plant communities are described below.

a) Mesic Mixed Hardwood Forest (Piedmont Subtype)

Mesic mixed hardwood forest occurs in the flat floodplain north of Reedy Pond Creek and continues up the fairly steep slope on the south bank. This community is described by Schafale and Weakley (1990) as occurring on lower slopes, steep, north-facing slopes, ravines, and occasionally well-drained small stream bottoms, on acidic soils. Under natural conditions these forests are uneven-aged, with the canopy dominated by mesophytic hardwoods. At the Reedy Pond Creek study corridor, the canopy includes river birch (*Betula nigra*), white ash (*Fraxinus americana*), beech (*Fagus grandifolia*), white oak (*Quercus alba*), tulip-poplar (*Liriodendron tulipifera*) and loblolly pine (*Pinus taeda*). Dominant species in the midstory are red maple (*Acer rubrum*) and ironwood (*Carpinus caroliniana*), with scattered flowering dogwood (*Cornus florida*), silky dogwood (*Cornus amomum*), winged elm (*Ulmus alata*), American holly (*Ilex opaca*), and sapling-sized willow oak (*Q. phellos*) and northern red oak (*Q. rubra*). Shrubs include Chinese privet (*Ligustrum sinense*), southern arrowwood (*Viburnum dentatum*), elderberry (*Sambucus canadensis*), and blackberry (*Rubus argutus*). Vines are sparse to common in more open patches, including muscadine (*Vitis rotundifolia*), Japanese honeysuckle (*Lonicera japonica*), greenbrier (*Smilax rotundifolia*), cross vine (*Bignonia capreolata*), and poison ivy (*Rhus* [*Toxicodendron*] *radicans*). The understory includes frost aster (*Aster dumosa*), queen-of-the-meadow (*Eupatorium fistulosum*), beggar-ticks (*Bidens* sp.), and cocklebur (*Xanthium strumarium*) in sunny spots, with Christmas fern (*Polystichum acrostichoides*), sensitive fern (*Onoclea sensibilis*), broadleaf uniola (*Uniola latifolia*), Nepal microstegium (*Microstegium vimineum*), jewelweed (*Impatiens capensis*), and giant cane (*Arundinaria gigantea*) under the canopy. The area has apparently been logged in the past, as early-successional species are common, and more valuable oaks are rare or present in the sapling stage. As the floodplain rises approximately 100 feet on the south side of Reedy Pond Creek, a larger component of even-aged pines and immature oaks becomes apparent.

b) Urban/Disturbed Land

Urban/disturbed land occurs along the right of way of SR 1507. This roadside area is approximately 20 feet wide. The roadside margin is planted with bluegrass (*Poa* sp.) and fescue

(*Festuca* sp.). A few weedy species, such as nightshade (*Solanum carolinense*), honeysuckle, and cocklebur are also present. The roadway and margins are elevated above the level of the surrounding floodplain, but no ditching or other drainage construction is present.

2. Wildlife

No tracks or other signs of mammals were observed during the field survey. Some characteristic mammals which are expected to frequent wooded floodplains in the Piedmont include southern short-tailed shrew (*Blarina carolinensis*), eastern pipistrelle (*Pipistrellus subflavus*), eastern chipmunk (*Tamias striatus*), beaver (*Castor canadensis*), white-tailed deer (*Odocoileus virginianus*), white-footed mouse (*Peromyscus leucopus*), gray fox (*Urocyon cinereoargenteus*), and long-tailed weasel (*Mustela frenata*).

Bird species that were identified during the field survey are Carolina wren (*Thryothorus ludovicianus*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhyncos*), Carolina chickadee (*Poecile carolinensis*), tufted titmouse (*Baeolophus bicolor*), and turkey vulture (*Cathartes aura*). The wooded creekside might be expected to also support habitat for other species, including great blue heron (*Ardea herodias*), red-tailed hawk (*Buteo jamaicensis*), barred owl (*Strix varia*), belted kingfisher (*Megaceryle alcyon*), red-bellied woodpecker (*Melanerpes carolinus*), Acadian flycatcher (*Empidonax virescens*), red-eyed vireo (*Vireo olivaceus*), hooded warbler (*Wilsonia citrina*), and American goldfinch (*Carduelis tristis*).

No terrestrial reptile or amphibian species were documented within the study corridor. Species that might be expected in this habitat are eastern box turtle (*Terrapene carolina*), Fowler's toad (*Bufo woodhousei*), five-lined skink (*Eumeces fasciatus*), black racer (*Coluber constrictor*), rat snake (*Elaphe obsoleta*), eastern hognose snake (*Heterodon platyrhinos*), scarlet king snake (*Lampropeltis triangulum*), rough green snake (*Opheodrys aestivus*), and copperhead (*Agkistron contortrix*).

3. Aquatic Communities

An unidentified frog was the only aquatic amphibian or reptile observed during the field survey. Reedy Pond Creek provides suitable habitat for aquatic and semi-aquatic reptiles including eastern musk turtle (*Sternotherus odoratus*) and northern water snake (*Nerodia sipedon*). Typical amphibian species for this habitat type include dwarf mudpuppy (*Necturus punctatus*), green frog (*Rana clamitans*), northern dusky salamander (*Desmognathus fuscus*), slimy salamander (*Plethodon glutinosus*), and gray treefrog (*Hyla chrysoscelis*). No mollusks or arthropods were observed. The NHP has documented the Neuse River waterdog (*Necturus lewisi*) in the study corridor, just upstream of Bridge #67, and notched rainbow (*Villosa constricta*) approximately 1.6 miles east of the study corridor.

No sampling was undertaken in Reedy Pond Creek to determine fishery potential. Small minnows were seen during visual surveys, but no larger fish were noted. Species which may be present within Reedy Pond Creek include eastern silvery minnow (*Hybognathus regius*), white shiner (*Luxilus albeolus*), creek chubsucker (*Erimyzon sucetta*), yellow bullhead (*Ameiurus natalis*), tessellated darter (*Etheostoma olmstedi*), and white crappie (*Pomoxis annularis*).

4. Anticipated Impacts to Biotic Communities

a) Plant Communities

Plant community areas are estimated based on the amount of each plant community present within the projected right of way. Permanent impacts are considered to be those impacts that occur within proposed cut and fill boundaries. Temporary impacts are those impacts that occur between right of way boundaries and construction easements.

A summary of potential impacts to individual plant communities at Bridge No. 67 for Alternatives 1-3 are presented in Table 2.

Alternative 1 calls for a temporary detour west (upstream) of Bridge No. 67. Permanent impacts to plant communities resulting from bridge replacement in Alternative 1 are generally restricted to narrow strips adjacent to the existing bridge and roadway approach segments, resulting from improvements in road grading. Approximately 69 percent of this area will impact disturbed land, with 31 percent affecting mesic mixed hardwoods. Temporary impacts for Alternative 1 involve a 1700-foot long easement, 165 feet wide at its widest point. This easement allows for construction of the temporary detour west of the existing bridge. These impacts are comprised of approximately 78 percent mesic mixed hardwoods and 22 percent disturbed land. After completion of the bridge replacement, the temporary detour, including fill, roadbed, and bridge structure, will be removed and the affected area replanted. Total impacts for Alternative 1 are over twice those for Alternative 3, and approximately 2/3 of those for Alternative 2.

Alternative 2 calls for relocating the bridge to the west of the existing roadway. The existing Bridge No. 67 and adjacent roadway would remain in use during construction of the new bridge. Temporary impacts result from a construction easement and right of way for the new roadway approach segments and bridge. Permanent impacts consist of grading and fill for the new roadway segments. Approximately 80 percent of the area impacted consists of mesic mixed hardwoods, with smaller impacts to disturbed land on the existing roadway margins. Alternative 2 has the highest permanent impacts of the three alternatives due to its long project corridor and the relocation of the permanent roadway. At the completion of the new bridge and approach roadway, the existing Bridge No. 67 and adjacent road sections would be dismantled and replanted. This would involve 0.53 acre of pavement and 0.85 acre of grassy right of way, for a total of 1.38 acres to be replanted.

Table 2: Potential Impacts to Plant Communities - Alternatives 1, 2, and 3

Plant Community	POTENTIAL IMPACTS (Acres)								
	Alternative 1 Detour West of Bridge No. 67			**Alternative 2** Replacement Bridge			**Alternative 3(Preferred)** Off-site Detour		
	Temporary	Permanent	Total	Temporary	Permanent	Total	Temporary	Permanent	Total
Mesic Mixed Hardwood	1.78	0.24	2.02	1.50	1.77	3.27	0.46	0.24	0.70
Urban/Disturbed Land	0.51	0.39	0.90	0.25	0.62	0.87	0.08	0.39	0.47
TOTAL	**2.29**	**0.63**	**2.92**	**1.75**	**2.39**	**4.14**	**0.54**	**0.63**	**1.17**

Alternative 3 involves replacement of the bridge in place, with an off-site detour. Permanent impacts to plant communities are identical to those in Alternative 1. Temporary impacts are limited to construction easements ranging from 100 feet to 115 feet in width. Of the impacted 1.17 acres, 60 percent consists of mesic mixed hardwoods. Temporary impacts to plant communities are less for Alternative 3 because the off-site detour produces no additional temporary impacts.

From an ecological perspective, impacts resulting from replacing Bridge No. 67 in Alternatives 1 and 3 are minimal. No new fragmentation of plant communities will be created, only narrow strips of adjacent natural communities. Alternative 1 would require at least temporary incursion into mesic mixed hardwoods, resulting in the removal of a few mature trees. However, on completion of roadway improvements, temporary detours will be removed and natural communities will be restored. Alternative 2 would impact a larger portion of mesic mixed hardwoods than the other two alternatives. Its impact on the disturbed roadside would be about equal to that of Alternative 1. In addition, Alternative 2 would have much larger permanent impacts on both community types, totaling 2.39 acres. These impacts may be partially offset by the reclamation of 1.38 acres of land occupied by the existing bridge and adjacent approach.

Roadside forest ecotones typically serve as vectors for invasive species into local natural communities. An example of an undesirable invasive species utilizing roadsides is kudzu. The establishment of a hardy groundcover on road shoulders as soon as practicable will limit the availability of construction areas to invasive and undesirable plants.

b) Wildlife

Due to the limited extent of infringement on natural communities, the proposed bridge replacement will not result in significant loss or displacement of known terrestrial animal populations. No significant habitat fragmentation is expected since most permanent improvements will be restricted to or adjoining existing roadside margins. Construction noise and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement patterns. Long-term impacts are expected to be inconsequential for Alternative 3, with longer recovery periods expected for Alternatives 1 and 2. After removal of temporary bridge structures and associated fill, the area will be replanted. Potential down-stream impacts to aquatic habitats will be avoided by bridging the systems to maintain regular flow and stream integrity. Short-term impacts associated with turbidity and suspended sediments will affect benthic populations. Temporary impacts to downstream habitats from increased sediment during construction will be minimized by the implementation of stringent erosion control measures.

c) Aquatic Communities

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

E. SPECIAL TOPICS

1. Waters of the United States

Surface waters within the embankments of Reedy Pond Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR section 328.3). Reedy Pond Creek can be characterized as a perennial stream system with an unconsolidated bottom of mud and/or sand.

Wetlands adjacent to Reedy Pond Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR section 328.3). These areas 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). NWI mapping indicates that areas adjacent to Reedy Pond Creek exhibit characteristics of a palustrine, broad-leaved, deciduous forest system that is seasonally flooded (PFO1C) (Cowardin *et al.* 1979); however, the site visit failed to verify this description. No areas included in the study corridor (outside of the stream channel itself) were found to contain hydric soils. Very little evidence of hydrology, such as drift lines, siltation, or topography, was noted. Hydric vegetation was sporadic and mixed with upland plants.

The Tar-Pamlico River Basin Rule applies to 50-foot wide riparian buffers directly adjacent to surface waters in the Tar-Pamlico River Basin. This rule does not apply to portions of the riparian buffer where a use is existing and ongoing. Any change in land use within the riparian buffer is characterized as an impact. The Nutrient Sensitive Waters Management Strategy for the Protection and Maintenance of Riparian Buffers (15 A NCAC 2B .0259) provides a designation for uses that cause impacts to riparian buffers within the Tar-Pamlico Basin and affect their nutrient removal functions. Expected activities involved with project development include roadway crossings for Alternatives 1 and 2, and bridge replacement for all three alternatives. Total riparian buffer impacts along the banks of Reedy Pond Creek (measured parallel to the stream) range from 100 to 165 feet. In addition, stream buffer area impacts range from 0.11 to 0.19 acre (linear distance times buffer width). These impacts are designated Allowable with Mitigation within the riparian buffer, if a determination of no practical alternatives to the proposed use has been granted by the Division of Water Quality prior to project development. In addition, requirements for the Riparian Buffer Mitigation Program for the Tar-Pamlico basin must be met. The Nutrient Sensitive Waters Management Strategy: Mitigation Program for Protection and Maintenance of Riparian Buffers (15A NCAC 2B.0260) outlines the requirements for mitigation. Mitigation may be performed by payment of a mitigation fee, donation of property or interests in property, or riparian buffer restoration.

Buffer and stream areas and reaches affected by Alternatives 1, 2, and 3 are given in Table 3.

Table 3: Potential Impacts to Jurisdictional Areas

Jurisdictional Type	JURISDICTIONAL AREA WITHIN RIGHT OF WAY								
	Alternative 1			Alternative 2			Alternative 3 (Preferred)		
	Temporary	Permanent	**Total**	Temporary	Permanent	**Total**	Temporary	Permanent	**Total**
Stream linear distance (Feet)	20	26	**46**	26	26	**52**	0	26	**26**
Stream area (Acres)	0.01	0.01	**0.02**	0.04	0.03	**0.07**	0	0.01	**0.01**
Riparian buffer linear distance (Feet)	105	60	**165**	95	65	**160**	70	30	**100**
Riparian buffer area (Acres)	0.12	0.07	**0.19**	0.11	0.07	**0.18**	0.08	0.03	**0.11**
Wetland area (Acres)	0	0	**0**	0	0	**0**	0	0	**0**

Linear distance of "stream" impacted by each alternative is obtained from the width of the bridge. Stream area is bridge width times stream width at the point of the bridge, and describes the amount of stream surface that would be impacted by shading. Linear distance of riparian buffer permanently impacted by each alternative has been determined by the width of the cut-and fill boundaries for road approaches. Linear distance to be temporarily impacted has been calculated from the width of temporary easements and proposed right of ways. Both distances were multiplied by two to include both stream banks. Buffer area is calculated by multiplying buffer linear distance by buffer width (50 feet).

All three alternatives result in permanent impacts to approximately 0.01 acre of waters of the United States, due to shading. Additional permanent encroachment beyond design plans will be avoided. Alternative 3 avoids temporary impacts to waters of the United States.

No jurisdictional wetlands were detected within the study corridor in the floodplain of Reedy Pond Creek.

There is little potential that components of the existing bridge may be dropped into "waters of the United States" during construction. Therefore, no temporary fill is expected to result from bridge removal. NCDOT will coordinate with the various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved. In addition, NCDOT's "Guidelines for Best Management Practices for Construction and Maintenance Activities" will be applied for the removal of this bridge.

2. Permits

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. The COE has made available Nationwide Permit (NWP) No. 23 (61 FR 65874, 65916; December 13, 1996) for CEs due to expected minimal impact. DWQ has made available a General 401 Water Quality Certification for NWP No. 23. However, authorization for jurisdictional impacts through use of this permit will require written notice to DWQ. In the event that NWP No. 23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the Wilmington COE District. Notification to the Wilmington COE office is required if this general permit is utilized.

3. Mitigation

Compensatory mitigation is not recommended for this project due to the scope of project impacts. Required permits must be obtained from the Division of Water Quality prior to project initiation. Utilization of BMPs is recommended in an effort to minimize impacts. Fill or alteration of streams may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). A final determination regarding mitigation rests with the COE and DWQ.

F. Protected Species

1. Federal-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). Federal-protected species listed for Warren County (February 25, 2003 USFWS list) are listed in Table 4.

Table 4: Federal-Protected Species

Common Name	Scientific Name	Federal Status	Biological Conclusion
Dwarf wedgemussel	*Alasmidonta heterodon*	Endangered	**MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT**
Tar spinymussel	*Elliptio steinstansana*	Endangered	**MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT**

Dwarf Wedgemussel - The dwarf wedgemussel is a small bivalve, 1 to 1.5 inches long, shaped like a rhomboid or trapezoid. Its shell is olive green to dark brown with a bluish to silvery white interior grading to cream or salmon toward the junction of the two valves. Little is known of the life history of the mussel. A fish species or group of species functioning as a host for reproductive dispersal is not known. The dwarf wedgemussel is apparently a favored food for muskrats in winter. Once ranging from Canada to the Neuse River in North Carolina, the dwarf wedgemussel is now known only in the Connecticut River system, parts of the Choptank and Potomac Rivers in Maryland, and the Tar and Neuse River systems in North Carolina. Causes for decline are generally attributed to stream channelization, sedimentation, and degraded water quality. This species is now known from Neuse Basin in Orange, Wake, Johnston, and Nash Counties; and from Tar River Basin in Granville, Vance, Johnston, Franklin, Halifax, and Nash Counties. In North Carolina, the dwarf wedgemussel occurs mainly near the fall line, in deep runs over coarse sands, in streams with moderate flow. It may also be found in gravel or mud bottoms with submersed aquatic plants or under overhanging vegetation, especially just downstream of debris and on banks of accreting sediment (TSCFTM 1990).

Reedy Pond Creek is a shallow Piedmont stream with low flow. It exhibits a weak to moderate sinuosity and a weakly developed riffle and pool sequence. A coarse sand substrate exists in the riffle areas, and may provide suitable habitat for dwarf wedgemussels. Mussels may also occur in the muddier pool bottoms adjacent to submerged logs and other debris. However, the shallow depth of the stream and lack of submersed aquatic vegetation may be detrimental to continued

survival of the species. Sedimentation of the waters of Reedy Pond Creek may also be harmful to molluscan habitat. A cursory inspection of the substrate revealed no evidence of dwarf wedgemussels, and no relict shells were found in the study corridor.

The project site was most recently surveyed for the dwarf wedgemussels on March 16, 2006. Surveys for mussels were conducted from approximately 200 meters upstream to 400 meters downstream of the bridge crossing, and no dwarf wedgemussels were found. However, one species of mussel (*elliptio complanata*) was found. According to NHP records, dwarf wedgemussels have been documented in Warren County within the last 20 years. NHP records do not document the presence of dwarf wedgemussels within 1 mile of the study corridor.

BIOLOGICAL CONCLUSION: MAY AFFECT NOT LIKELY TO ADVERSELY AFFECT

The study corridor contains potential habitat for dwarf wedgemussels. NHP records document no occurrences of dwarf wedgemussels within one 1 mile of the project corridor. Given the survey results, it is apparent that the dwarf wedgemussel does not occur in the project area. Based on an NHP record search and habitat surveys conducted during field investigations, the project is not likely to adversely affect the dwarf wedgemussel.

Tar Spinymussel - This small 2.4-inch mollusk has an orange-brown to dark brown shell of irregular oval shape. The interior of the shell is pink and iridescent bluish white. Two or more linear ridges extend across the inside of the shell. Most specimens have from a few to 12 short spines, 0.2 inch in length, arranged in a row along both valves. The spines probably help to anchor the mollusk to the substrate in its swiftwater habitat. Details of natural history and fish hosts are little known. The Tar spinymussel is endemic to North Carolina. Its historic range probably included most of the Tar River drainage, but only two isolated populations are known today in this river system. The Tar spinymussel has also recently been found in the Neuse River drainage. Preferred habitat is characterized by fast flowing, well-oxygenated, silt-free water with nearly neutral pH and a gravel or coarse sand substrate. This habitat is usually associated with shallow water. The Tar spinymussel faces habitat degradation from siltation, which destroys the gravel and coarse sand riffles in which it occurs. Industrial and sewage effluents also degrade water quality. (TSCFTM 1980, LeGrand and Hall 1999).

Based on the habitat requirements of the Tar spinymussel, Reedy Pond Creek has limited potential for harboring this bivalve species. While coarse sand substrates occur in some shallow riffle areas of the stream, the waters of Reedy Pond Creek contained in the study area are neither fast-flowing nor silt-free. Based on the floodplain vegetation, sandy loam texture of the soil surface, and tannin staining of the water, it might be expected that Reedy Pond Creek has an acid pH value, rather than neutral. No Tar spinymussels were observed during a cursory inspection of the creek, and no relic shells were seen during the site visit.

The project site was surveyed for the Tar spinymussel on March 16, 2006. Surveys for mussels were conducted from approximately 200 meters upstream to 400 meters downstream of the bridge crossing, and no Tar spinymussel were found. However, one species of mussel (*elliptio complanata*) was found. According to NHP records, Tar spinymussels have been documented in Warren County within the last 20 years. NHP records do not document the presence of Tar

spinymussels within 1 mile of the study corridor.

BIOLOGICAL CONCLUSION: MAY AFFECT NOT LIKELY TO ADVERSELY AFFECT

The study corridor contains potential habitat for the Tar spinymussel. NHP records document no occurrences of Tar spinymussel within 1 mile of the project corridor. Given the survey results, it is apparent the Tar spinymussel does not occur in the project area. Based on an NHP record search and habitat surveys conducted during field investigations, the project is not likely to adversely affect the Tar spinymussel.

2. Federal Species of Concern

The February 25, 2003 FWS list also includes a category of species designated as "Federal species of concern" (FSC) in Warren County. 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). A list of FSC species occurring in Warren County is given in Table 5.

Table 5: Federal Species of Concern (FSC)

Common Name	Scientific Name	Potential Habitat	State Status**
Bachman's sparrow	*Aimophila aestivalis*	No	SC
Pinewoods shiner	Lvthrurus *matutinus*	Yes	SC
Atlantic pigtoe	*Fusconaia masoni*	Yes	SC
Yellow lance	*Elliptio lanceolata*	No	SC
Heller's trefoil*	*Lotus helleri*	No	SC

* Historic populations not seen since 1979

**State Status Codes:

C – Candidate SC - Special Concern E - Endangered
SR - Significantly Rare PE - Proposed Endangered
T – Threatened PT - Proposed Threatened
W2 - Watch List: rare, but taxonomically questionable
W3 - Watch List: rare, but with uncertain documentation
W5 - Watch List: rare because of severe decline.

The FSC designation provides no federal protection under the ESA for species listed. NHP files do not document any occurrences of FSC species within 1 mile of the study corridor.

3. State-Protected Species

Plant and animal species which are on the North Carolina state list as Endangered (E), Threatened (T), Special Concern (SC), Candidate (C), Significantly Rare (SR), or Proposed (P)

(Amoroso 1999, LeGrand and Hall 1999) receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.*). NHP records document the occurrence of the Neuse River waterdog (*Necturus lewisi*) in the study corridor, just upstream of Bridge #67. This amphibian has a state status of SC (a species of special concern). The notched rainbow (*Villosa constricta*), a bivalve, has been documented by the NHP about 1.6 miles east of the study corridor. The notched rainbow's state status is SR(PSC), or significantly rare and proposed as a species of special concern. Neither species was observed during the course of the field visit.

NHP also documents a significant natural heritage area, the Fishing Creek Aquatic Habitat, on the northern bank of Reedy Pond Creek at the bridge site. This area is registered by the NC DENR as a Natural Heritage Area, based on occurrences of rare plant and animal species, rare or high quality natural communities, and special animal habitats.

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, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires Federal Agencies to take into account the effect of their undertakings (federally-funded, licensed, or permitted projects) on properties included in or eligible for the National Register of Historic Places (NRHP) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings.

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted on February 22, 2000. All structures within the APE were photographed, and on April 28, 2000 an NCDOT staff architectural historian reviewed these photos. There were no structures within the APE over fifty years of age. The photographs were shown to the State Historic Preservation Office (HPO) in a meeting on June 1, 2000. At that meeting HPO staff concurred that there are no National Register-listed or National Register-eligible properties within the APE for this project and a form was signed to this effect. Copies of all correspondence are included in the Appendix.

C. Archaeology

In their September 12, 2000, letter (See Appendix), the HPO stated, "There are no known-recorded archaeological sites within the project boundaries. However, the project area has never been systematically surveyed to determine the location or significance of archaeological resources. We recommend that a comprehensive survey be conducted by an experienced archaeologist to identify the presence and significance of archaeological remains that may be damaged or destroyed by the proposed project. Potential effects on unknown resources should be assessed prior to the initiation of construction activities." A survey was conducted on November 26-28, 2001 by NCDOT Archaeologists. The results of the survey indicated the

proposed project would not impact any archaeological sites that are on or are eligible for inclusion on the NRHP. The survey report was reviewed by the HPO and in a letter dated January 30, 2002, stated " We have reviewed the subject report and note that is meets our guidelines and those of the Secretary of the Interior. Since no archaeological sites were located as a result of this work, no further archaeological investigations will be necessary for the project as planned." A copy of the January 30, 2002 letter is 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 adverse impact on families or communities is anticipated. Right of way acquisition will be limited. No relocatees are expected with implementation of the proposed project.

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 was coordinated with the US Department of Agriculture (See Appendix). The proposed project is excluded from the Farmland Protection Policy Act (FPPA) in so much as it is in an area for which no soils survey exists. The proposed project is to replace the existing structure in the existing location; no additional land or farmland will be converted.

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

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 open burning, it shall be done in accordance with applicable local laws and regulations, the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520 and the 1990 Clean Air Act Amendments, and the National

Environmental Policy Act. Traffic volumes will not increase or decrease due to the replacement of the bridge. 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 Environmental Policy Act) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Waste Management revealed no leaking underground storage tanks or hazardous waste sites in the project area.

Warren County is a participant in the National Flood Insurance Regular Program. This crossing of Reedy Creek is located in a designated flood hazard zone, but is not included in a detailed flood study. The existing upstream floodplain is rural, wooded or agricultural, and there are no buildings in the project vicinity with floor elevation below the 100-year level. The proposed bridge replacement will provide equivalent or improved conveyance compared to that of the existing bridge; therefore, the project will not have any significant adverse impact on the existing floodplain or on the associated flood hazard to the adjacent properties and buildings.

In compliance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to determine whether minority or low-income populations were receiving disproportionately high and adverse human health and environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low-income populations.

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

VIII. PUBLIC INVOLVEMENT

NCDOT developed a "start of study" letter describing the study alternatives, which was mailed to local officials and agencies. Due to the lack of development in the vicinity of the bridge, no public meeting was held for the community. Property owners located along SR 1507 (Davis Road) were notified in a letter dated July 28, 2004, that the NCDOT preferred replacing the bridge at its existing location, closing SR 1507 to through traffic during construction and rerouting traffic to other local roads (Alternative 3). No adverse comments were received and one property owner with land adjacent to the bridge agreed with the selection of Alternative 3 with the off-site detour.

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
*US Department of Agriculture, Natural Resources Conservation Service
N.C. Department of Administration - State Clearinghouse

*NC Department of Cultural Resources
NC Department of Public Instruction
*NC Department of Environment and Natural Resources
NC Wildlife Commission
NC Division of Water Quality
NC Natural Heritage Program
County Manager, Warren County
Chairman, Warren County Commissioners
*Superintendent, Warren County Schools
Coordinator, Warren County EMS
Sheriff, Warren County
*President, Warren County Fireman's Association

Asterisks (*) indicates agencies from which written comments were received. The comments are included in the appendix of this report.

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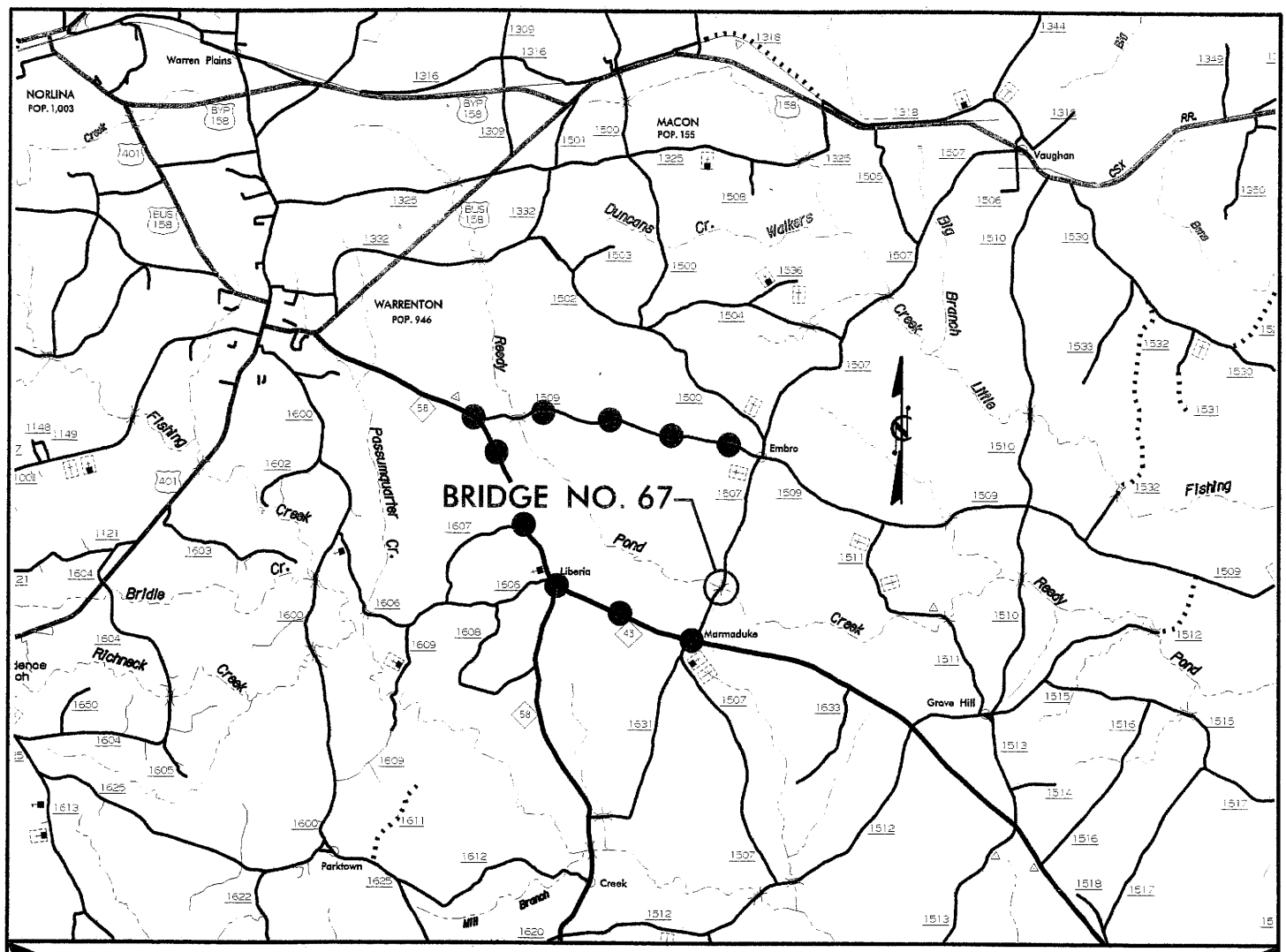
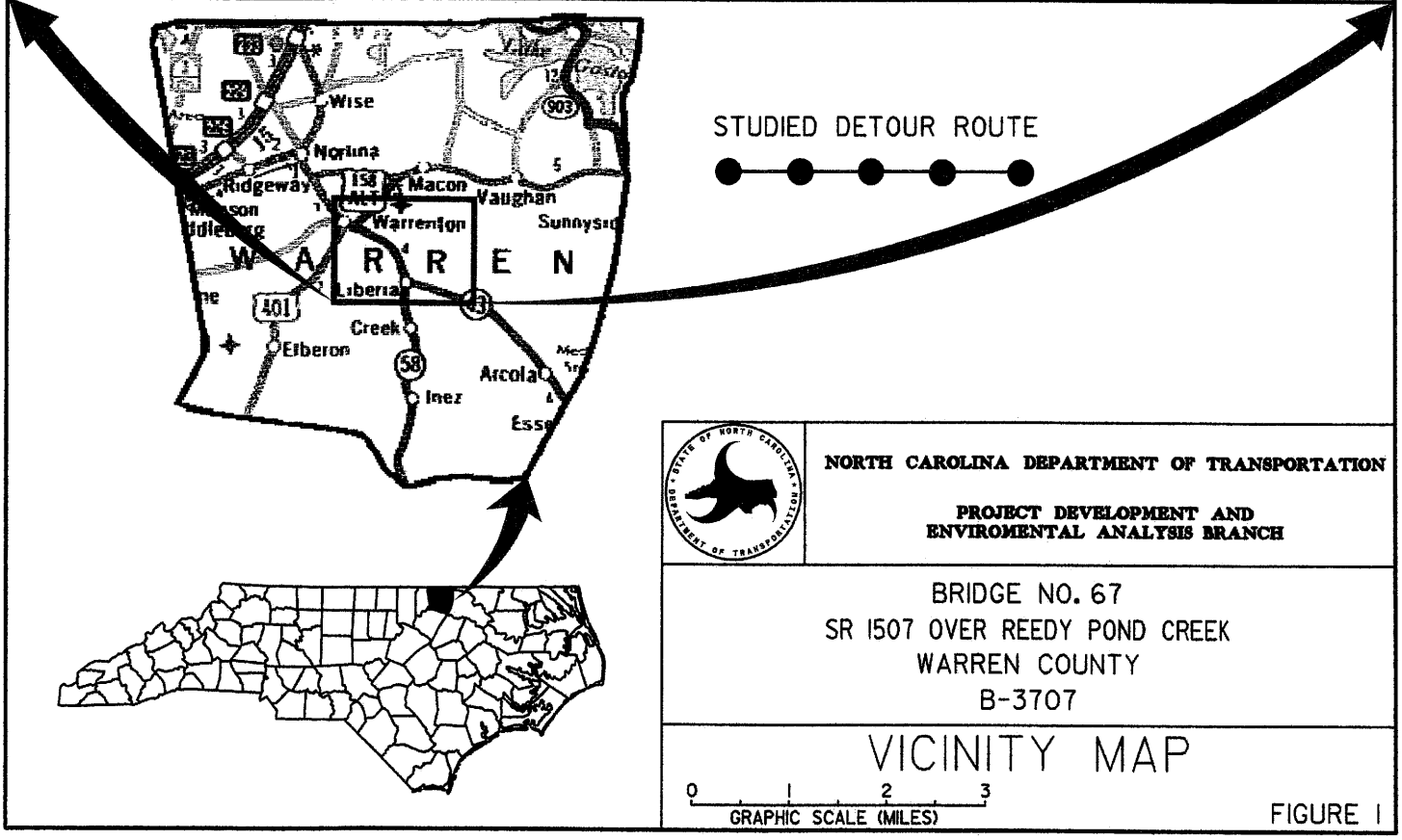
FIGURES





NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

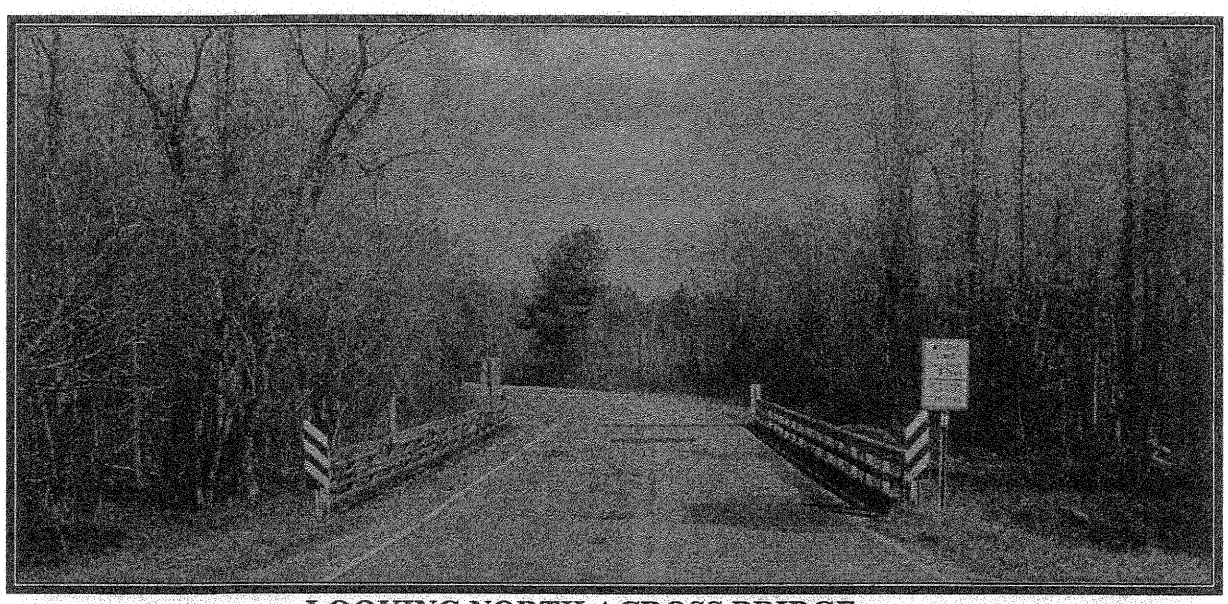
PROJECT DEVELOPMENT AND ENVIROMENTAL ANALYSIS BRANCH

BRIDGE NO. 67
SR 1507 OVER REEDY POND CREEK
WARREN COUNTY
B-3707

VICINITY MAP

0 1 2 3
GRAPHIC SCALE (MILES)

FIGURE 1



LOOKING NORTH ACROSS BRIDGE

LOOKING SOUTH ACROSS BRIDGE

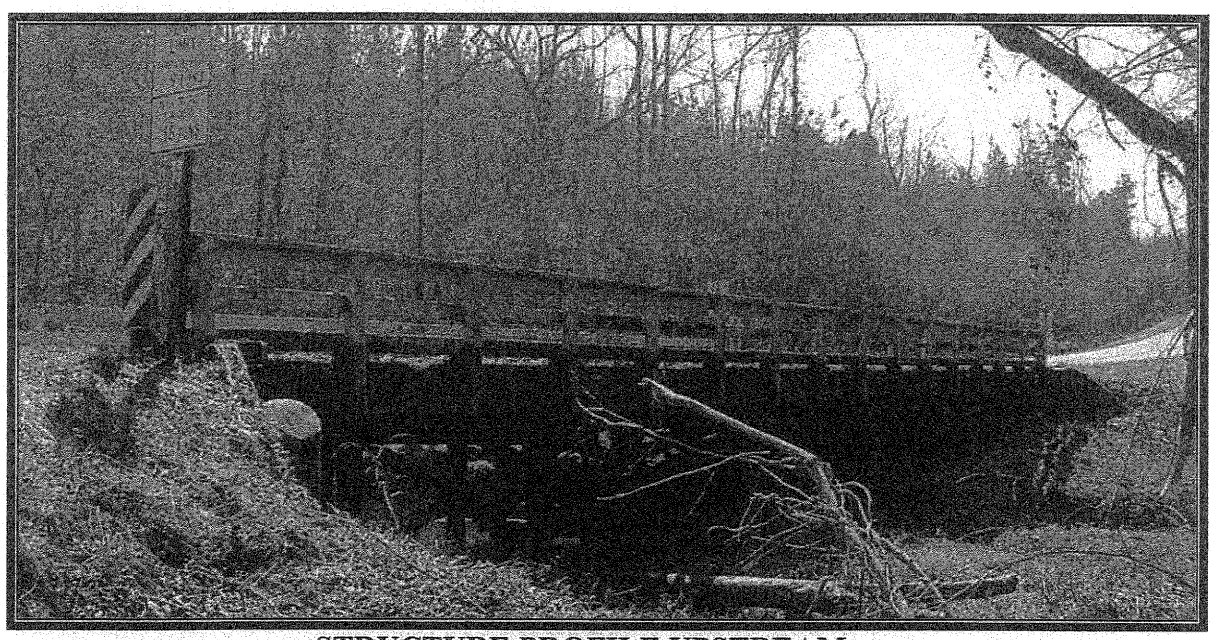
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

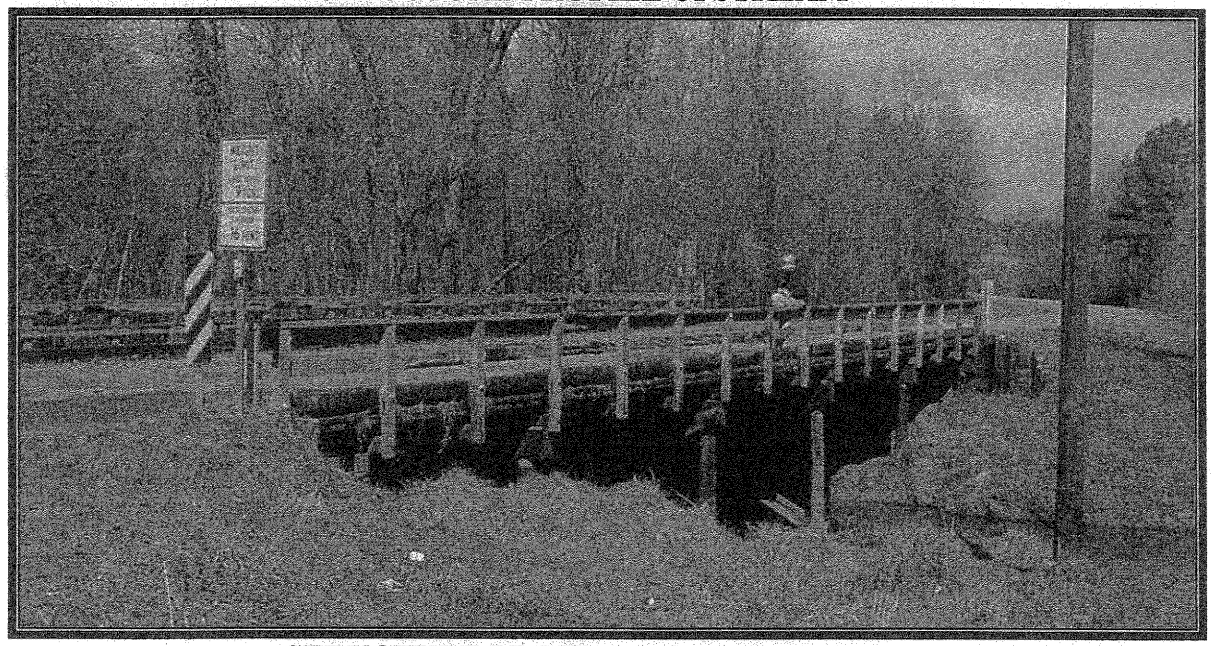
BRIDGE NO. 67

ON SR 1507 OVER REEDY POND CREEK
WARREN COUNTY
B-3707

FIGURE 2A



STRUCTURE PROFILE UPSTREAM



STRUCTURE PROFILE DOWNSTREAM

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

BRIDGE NO. 67

ON SR 1507 OVER REEDY POND CREEK
WARREN COUNTY
B-3707

FIGURE 2B

-L-
PI Sta 15+20.32
Δ = 18° 36' 26.0" (RT)
D = 4° 15' 00.0"
L = 437.82'
T = 220.85'
R = 1,348.14'
DS = 60 MPH
PI Sta 25+73.51
Δ = 40° 08' 24.4" (LT)
D = 6° 20' 09.1"
L = 633.54'
T = 330.39'
R = 904.31'
DS = 50 MPH
30+00
TO EMBRO
25+00
20+00
REEDY POND CREEK
15+00
END ALTERNATE '3'
STA. 25+00.00
TO MARMADUKE
EXISTING BRIDGE NO. 67
FLOW
BEGIN ALTERNATE '3'
STA. 17+00.00
SR 1507
ALTERNATE 1
DESIGN EXCEPTION REQ'D FOR HORZ. AND VERT. ALIGNMENT
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
—E——E— TEMPORARY EASEMENT
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
0 50 100 150
(FEET)
BRIDGE NO. 67
SR 1507 OVER REEDY POND CREEK
WARREN COUNTY
B-3707
FIGURE 3
SHEET 1 OF 1

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

BRIDGE NO. 67
SR 1507 OVER REEDY POND CREEK
WARREN COUNTY
B-3707

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

0 50 100 150
(FEET)

BRIDGE NO. 67
SR 1507 OVER REEDY POND CREEK
WARREN COUNTY
B-3707

FIGURE 4 SHEET 2 OF 2

q:\planning\Graphics\B-3707\dgn\b3707_2h.psh
01/07/2006


-L-
PI Sta 15+20.32
Δ = 18° 36' 26.0" (RT)
D = 4° 15' 00.0"
L = 437.82'
T = 220.85'
R = 1,348.14'
DS = 60 MPH
PI Sta 25+73.51
Δ = 40° 08' 24.4" (LT)
D = 6° 20' 09.1"
L = 633.54'
T = 330.39'
R = 904.31'
DS = 50 MPH
30+00
25+00
20+00
15+00
TO EMBRO
TO MARMADUKE
REEDY POND CREEK
SR 1507
END ALTERNATE '3'
STA. 25+00.00
BEGIN ALTERNATE '3'
STA. 17+00.00
EXISTING BRIDGE NO. 67
ALTERNATE '3' (Preferred)
(OFF-SITE DETOUR REQ'D)
DESIGN EXCEPTION REQ'D
FOR HORZ. AND VERT. ALIGNMENT
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
—E——E— TEMPORARY EASEMENT
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
0 50 100 150
(FEET)
BRIDGE NO. 67
SR 1507 OVER REEDY POND CREEK
WARREN COUNTY
B-3707
FIGURE 5
SHEET 1 OF 1

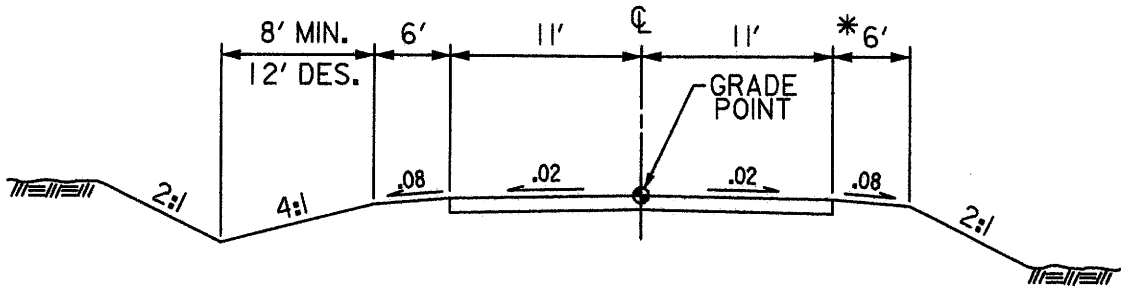
PROPOSED DESIGN CRITERIA

REPLACE BRIDGE NO. 67 ON SR 1507
OVER REEDY POND CREEK
WARREN COUNTY
B-3707

FUNCTIONAL CLASSIFICATION: RURAL LOCAL
POSTED SPEED: 55 MPH
ESTIMATED ADT:

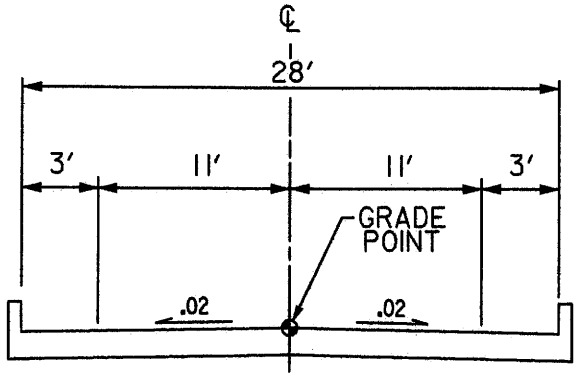
2005 ADT	=	300
2025 ADT	=	500
TTST	=	1%
DUAL	=	2%
DHV	=	10%
DIR	=	60%

DESIGN SPEED: 60 MPH
MAXIMUM RATE OF SUPERELEVATION: 0.06 ft/ft
MAXIMUM DEGREE OF CURVE: 4°15'
NO SPIRALS
MAXIMUM GRADE: 6%
MINIMUM DESIRABLE K FACTORS: Ksag = 136 Kcrest = 151
SHOULDER WIDTH & TYPE : 6.0 ft GRASSED (9.0ft WITH GUARDRAIL)
LANE WIDTHS: 11.0 ft
BRIDGE DECK WIDTH: 28.0ft CLEAR



*9' WITH GUARDRAIL

APPROACH ROADWAY TYPICAL SECTION



BRIDGE TYPICAL SECTION

NOTE:
HORIZONTAL & VERTICAL DESIGN EXCEPTIONS MAY BE REQUIRED.

PREPARED BY: KO & ASSOC. DATE: _____
APPROVED BY: DATE:

PROPOSED DETOUR CRITERIA

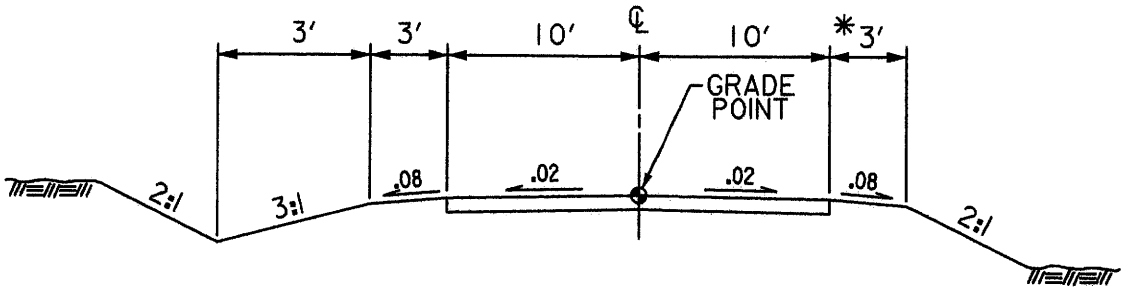
FIGURE 6A

REPLACE BRIDGE NO. 67 ON SR 1507
OVER REEDY POND CREEK
WARREN COUNTY
B-3707

FUNCTIONAL CLASSIFICATION: RURAL LOCAL
POSTED SPEED: 55 MPH
ESTIMATED ADT:

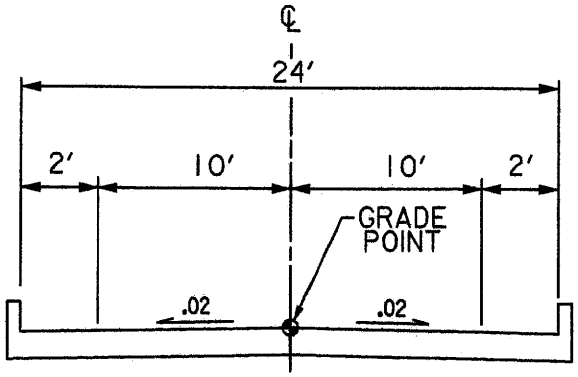
2005 ADT	=	300
2025 ADT	=	500
TTST	=	1%
DUAL	=	2%
DHV	=	10%
DIR	=	60%

DESIGN SPEED: 40 MPH
MAXIMUM RATE OF SUPERELEVATION: 0.06 ft/ft
MAXIMUM DEGREE OF CURVE: 11°45'
NO SPIRALS
MAXIMUM GRADE: 9%
MINIMUM DESIRABLE K FACTORS: Ksag = 64 Krest = 44
SHOULDER WIDTH & TYPE : 3.0 ft GRASSED (5.0ft WITH GUARDRAIL)
LANE WIDTHS: 10.0 ft
BRIDGE DECK WIDTH: 24.0ft CLEAR



*5' WITH GUARDRAIL

DETOUR APPROACH ROADWAY TYPICAL SECTION



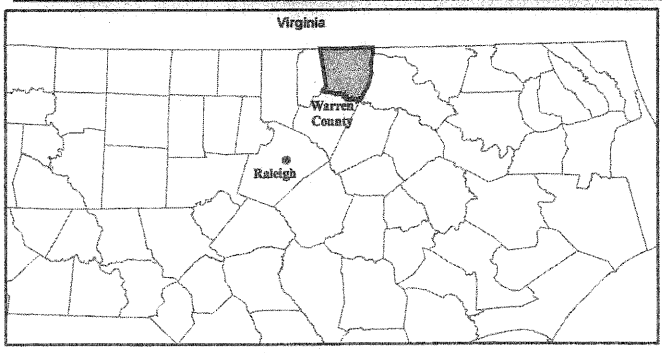
DETOUR BRIDGE TYPICAL SECTION

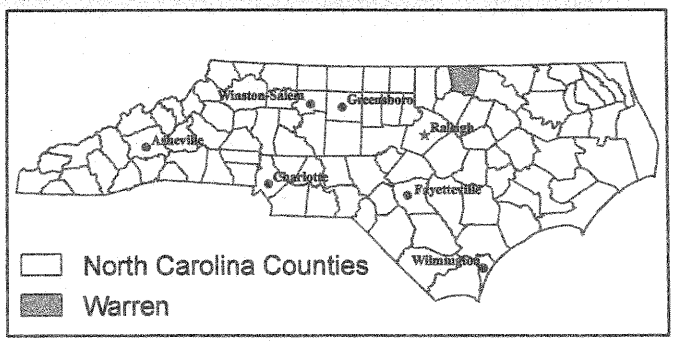
NOTE:
HORIZONTAL & VERTICAL DESIGN EXCEPTIONS MAY BE REQUIRED.

PREPARED BY: KO & ASSOC. DATE: _____
APPROVED BY: DATE:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP B-3707
Warren County





N

* School Bus Turn Around Location

0 750 1,500 Feet

Map Sources:
North Carolina Department of Transportation
Maptech, Terrain Navigator
Warren County
Ko & Associates, P.C.

Figure 7

APPENDIX

Joyner

United States Department of the Interior

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

November 1, 2000

Mr. William D. Gilmore, P.E., Manager
NCDOT
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Gilmore:

Thank you for your August 15, 2000 request for information from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of proposed bridge replacements in Warren County, North Carolina. This report provides scoping information and is provided in accordance with provisions of the Fish and Wildlife Coordination Act (FWCA) (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). This report also serves as initial scoping comments to federal and state resource agencies for use in their permitting and/or certification processes for this project.

The North Carolina Department of Transportation (NCDOT) proposes to replace the following bridge structures:

1. B-3706 Bridge No. 20 on SR 1100 over Fishing Creek, and

2. B-3707 Bridge No. 67 on SR 1507 over Reedy Pond Creek.

The following recommendations are provided to assist you in your planning process and to facilitate a thorough and timely review of the project.

Generally, the Service recommends that wetland impacts be avoided and minimized to the maximum extent practical as outlined in Section 404 (b)(1) of the Clean Water Act Amendments of 1977. In regard to avoidance and minimization of impacts, we recommend that proposed highway projects be aligned along or adjacent to existing roadways, utility corridors, or previously developed areas in order to minimize habitat fragmentation and encroachment. Areas exhibiting high biodiversity or ecological value important to the watershed and region should be avoided. Crossings of streams and associated wetland systems should use existing crossings and/or occur on a structure wherever feasible. Where bridging is not feasible, culvert structures that maintain natural water flows and hydraulic regimes without scouring, or impeding fish and wildlife passage, should be employed. Highway shoulder and median widths should be reduced through wetland areas. Roadway embankments and fill areas should be stabilized by using

appropriate erosion control devices and techniques. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons.

The National Wetlands Inventory (NWI) maps of the Middleburg and Inez 7.5 Minute Quadrangles show wetland resources in the specific work areas. However, while the NWI maps are useful for providing an overview of a given area, they should not be relied upon in lieu of a detailed wetland delineation by trained personnel using an acceptable wetland classification methodology. Therefore, 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. 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. 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 (Corps).

2. If unavoidable wetland impacts are proposed, we recommend that every effort 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, preferably via conservation easement, should be explored at the outset.

The document presents a number of scenarios for replacing each bridge, ranging from in-place to relocation, with on-site and off-site detours. The Service recommends that each bridge be replaced on the existing alignment with an off-site detour.

The enclosed list identifies the federally-listed endangered and threatened species, and Federal Species of Concern (FSC) that are known to occur in Warren County. The Service recommends that habitat requirements for the listed species be compared with the available habitats at the respective project sites. If suitable habitat is present within the action area of the project, biological surveys for the listed species should be performed. Environmental documentation that includes survey methodologies, results, and NCDOT's recommendations based on those results, should be provided to this office for review and comment.

FSC's are those plant and animal species for which the Service remains concerned, but further biological research and field study are needed to resolve the conservation status of these taxa. Although FSC's receive no statutory protection under the ESA, we would encourage the NCDOT to be alert to their potential presence, and to make every reasonable effort to conserve them if found. The North Carolina Natural Heritage Program should be contacted for information on species under state protection.

COMMON NAME	SCIENTIFIC NAME	STATUS
WAKE COUNTY		
Vertebrates		
Bachman's sparrow	*Aimophila aestivalis*	FSC
Bald eagle	*Haliaeetus leucocephalus*	Threatened
Southern hognose snake	*Heterodon simus*	FSC*
Southeastern myotis	*Myotis austroriparius*	FSC
Red-cockaded woodpecker	*Picoides borealis*	Endangered
Invertebrates		
Dwarf wedge mussel	*Alasmidonta heterodon*	Endangered
Yellow lance	*Elliptio lanceolata*	FSC
Atlantic pigtoe	*Fusconaia masoni*	FSC
Green floater	*Lasmigona subviridus*	FSC
Diana fritillary butterfly	*Speyeria diana*	FSC*
Vascular Plants		
Sweet pinesap	*Monotropsis odorata*	FSC
Michaux's sumac	*Rhus michauxii*	Endangered
Carolina least trillium	*Trillium pusillum* var. *pusillum*	FSC
WARREN COUNTY		
Vertebrates		
Bachman's sparrow	*Aimophila aestivalis*	FSC
Invertebrates		
Dwarf wedge mussel	*Alasmidonta heterodon*	Endangered
Yellow lance	*Elliptio lanceolata*	FSC
Tar spinymussel	*Elliptio steinstansana*	Endangered
Atlantic pigtoe	*Fusconaia masoni*	FSC
Vascular Plants		
Heller's trefoil	*Lotus helleri*	FSC
WASHINGTON COUNTY		
Vertebrates		
Red wolf	*Canis rufus*	EXP
Rafinesque's big-eared bat	*Corynorhinus (=Plecotus) rafinesquii*	FSC
Waccamaw killifish	*Fundulus waccamawensis*	FSC
Bald eagle	*Haliaeetus leucocephalus*	Threatened

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 these comments, please contact Tom McCartney at 919-856-4520, ext. 32.

Sincerely,

Garland B Pardue

Dr. Garland B. Pardue
Ecological Services Supervisor

Enclosures

cc:
COE, Raleigh, NC (Eric Alsmeyer)
NCDWQ, Raleigh, NC (John Hennessy)
NCDNR, Northside, NC (David Cox)

FWS/R4:TMcCartney:TM:10/31/00:919/856-4520 extension 32:\2brdgwar.ren

* U.S. GOVERNMENT PRINTING OFFICE: 1984-451-159/1324

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 10-25-00.
Name Of Project B-3707	Federal Agency Involved Federal Highway Admin.
Proposed Land Use Bridge Replacement	County And State Warren Co, N.C.
PART II *(To be completed by SCS)*	Date Request Received By SCS 10/30/00 WEW
Does the site contain prime, unique, statewide or local important farmland? Yes ☐ No ☐ *(If no, the FPPA does not apply — do not complete additional parts of this form).*	Acres Irrigated / Average Farm Size
Major Crop(s) / Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined in FPPA Acres: %
Name Of Land Evaluation System Used / Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS 11/1/00 WEW

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A 1	Site B 2	Site C 3	Site D
A. Total Acres To Be Converted Directly	1.38	4.36	1.38	
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	1.38	4.36	1.38	
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by SCS)* Land Evaluation Criterion – Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*				
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points			
1. Area In Nonurban Use	15	15	15	15	
2. Perimeter In Nonurban Use	10	10	10	10	
3. Percent Of Site Being Farmed	20	5	5	5	
4. Protection Provided By State And Local Government	20	0	0	0	
5. Distance From Urban Builtup Area	15	15	15	15	
6. Distance To Urban Support Services	15	15	15	15	
7. Size Of Present Farm Unit Compared To Average	10	5	5	5	
8. Creation Of Nonfarmable Farmland	10	0	0	0	
9. Availability Of Farm Support Services	5	0	0	0	
10. On-Farm Investments	20	0	0	0	
11. Effects Of Conversion On Farm Support Services	10	0	0	0	
12. Compatibility With Existing Agricultural Use	10	0	0	0	
TOTAL SITE ASSESSMENT POINTS	160	65	65	65	
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland *(From Part V)*	100			
Total Site Assessment *(From Part VI above or a local site assessment)*	160	65	65	65	
TOTAL POINTS *(Total of above 2 lines)*	260			

Site Selected: | Date Of Selection | Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

No Soil survey exist for area. Chances are that the Relative Value will be low. It is probably [illegible] soils - which are not prime/state

Joyner

NCDENR

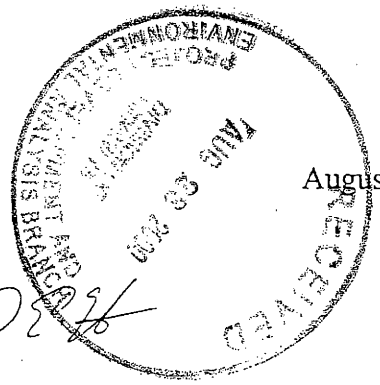
JAMES B. HUNT JR.
GOVERNOR

BILL HOLMAN
SECRETARY

DAVID S. VOGEL
DIRECTOR

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF SOIL AND WATER CONSERVATION



MEMORANDUM: August 21, 2000

TO: Melba McGee

FROM: David Harrison

SUBJECT: NCDOT Bridge Replacement Projects B-3500 (Person County); B-3654 and B-3655 (Harnett County); and B-3706 and B-3707 (Warren County).

If additional land is needed beyond the existing right-of-way, the environmental assessment should include information on adverse impacts to Prime or Statewide Important Farmland.

The definition of Prime or Statewide Important Farmland is based on the soil series and not on its current land use. Areas that are developed or are within municipal boundaries are exempt from consideration as Prime or Important Farmland.

For additional information, contact the soils specialists with the Natural Resources Conservation Service, USDA, Raleigh, NC at (919) 873-2141.

Cc: William D. Gilmore

1614 MAIL SERVICE CENTER, RALEIGH, NORTH CAROLINA 27699-1614

D. Joyner

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

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

Division of Historical Resources
David J. Olson, Director

January 30, 2002

MEMORANDUM

TO: William D. Gilmore, Manager
NCDOT, Division of Highways

FROM: David Brook RSG for David Brook

SUBJECT: Archaeological Survey Report for Bridge #67 on SR 1507 over Reedy Pond Creek, B-3707, Warren County, ER 01-7362

We have reviewed the subject report and note that it meets our guidelines and those of the Secretary of the Interior. Since no archaeological sites were located as a result of this work, no further archaeological investigations will be necessary for the project as planned.

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.

DB:kgc

cc: Matt Wilkerson, NCDOT

Joyner

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

September 12, 2000

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

From: David Brook
Deputy State Historic Preservation Officer

Re: Bridge #67 on SR 1507 over Reedy Pond Creek, B-3707, Warren County, ER 01-7362

Thank you for your letter of August 15, 2000, concerning the above project.

There are no known-recorded archaeological sites within the project boundaries. However, the project area has never been systematically surveyed to determine the location or significance of archaeological resources.

We recommend that a comprehensive survey be conducted by an experienced archaeologist to identify the presence and significance of archaeological remains that may be damaged or destroyed by the proposed project. Potential effects on unknown resources should be assessed prior to the initiation of construction activities.

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.

DB:kgc

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8653
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342 • 715-2671
RESTORATION	515 N. Blount St., Raleigh NC	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801

Federal Aid #BRZ-1507(1) *TIP* #B-3707 *County*: Warren

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replace Bridge No. 67 on SR 1507 over Reedy Pond Creek

On June 1, 2000, representatives of the

- [x] North Carolina Department of Transportation (NCDOT)
- [x] Federal Highway Administration (FHWA)
- [x] North Carolina State Historic Preservation Office (SHPO)

Reviewed the subject project at

- [ ] a scoping meeting
- [x] photograph review session/consultation
- [ ] other

All parties present agreed

- [x] there are no properties over fifty years old within the project's area of potential effect.
- [x] there are no properties less than fifty years old which are considered to meet Criterion Consideration G within the project's area of potential effect.
- [ ] there are properties over fifty years old (list attached) within the project's area of potential effect, but based on the historical information available and the photographs of each property, properties identified as _____ are considered not eligible for the National Register and no further evaluation of them is necessary.
- [x] there are no National Register-listed properties located within the project's area of potential effect.

Signed:

Mary Pope Furr — 6-1-00
Representative, NCDOT — Date

Michael R. Dawson — 6/1/00
FHWA, for the Division Administrator, or other Federal Agency — Date

David Montgomery — 6/1/00
Representative, SHPO — Date

David Brook Deputy — 6/9/00
State Historic Preservation Officer — Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF PARKS AND RECREATION

September 21, 2000

JAMES B. HUNT JR.
GOVERNOR

BILL HOLMAN
SECRETARY

DR. PHILIP K. MCKNELLY
DIRECTOR

MEMORANDUM

TO: Drew Joyner, Project Engineer
DOT

FROM: Stephen Hall SH

SUBJECT: Review of Scoping Sheets – Bridge Replacement on SR 1507 over Reedy Pond Creek

REFERENCE: TIP B-3707

The Natural Heritage Program database contains records for several rare species of aquatic animals from Reedy Pond Creek in the vicinity of the proposed bridge replacement. Neuse River waterdog (*Necturus lewisi*), state listed as Special Concern, has been recorded right at the bridge; notched rainbow (*Villosa constricta*) and North Carolina spiny crayfish (*Orconectes carolinensis*), both proposed for state listing as Special Concern, have been recorded downstream.

In order to protect these species and other aquatic organisms, we strongly recommend that all best management practices for the control of erosion and sedimentation be strictly followed and that all concrete used in the project be fully cured before being allowed into contact with the water.

/sph

1615 MAIL SERVICE CENTER, RALEIGH, NORTH CAROLINA 27699-1615
PHONE 919-733-4181 FAX 919-715-3085

Joyner

WARREN COUNTY FIREMEN'S ASSOCIATION, INC.

P. O. BOX 563 WARRENTON, N. C. 27589

August 17, 2000

William D. Gilmore, P.E., Manager
Project Development and
Environmental Analysis Branch
NC Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Subject: Warren County
B-3706, Bridge No. 20 on SR 1100 over Fishing Creek
B-3707, Bridge No. 67 on SR 1507 over Reedy Pond Creek

Dear Mr. Gilmore:

Thank you for requesting my comments regarding these projects. I feel only capable of speaking to the potential impacts to Emergency Response Units. There are no permits and/or approvals required by this Association.

B-3706
This area is served by the Soul City Volunteer Fire Department, Warren County EMS and the Warren County Sheriff Department. Your description indicates that you do not plan to give much consideration to road closure to through traffic during the construction of the replacement structure. If that is the case, there will be no impact to the emergency service organizations. If you desire to change that line of thought, notification to these agencies prior to beginning construction would prove very necessary. The most effected agency due to road closure would be the Soul City Fire Department. If could delay their response in that area in two ways.

- Delay volunteer firefighters', which would normally travel that route, arrival time at the fire station.
- Delay responding fire apparatus which would have to travel an alternate route of approximately five additional miles to serve areas of their response district.

With these considerations in mind, I recommend that you follow the alternatives you outlined for study. Also, please note that there are regional water system transmission lines on the east and west sides of the current bridge.

B-3707
This area is served by the Warrenton Rural Vol. Fire Department, Arcola Vol. Fire Department and Macon Rural Vol. Fire Department, Warren County EMS and the Warren County Sheriff Department. I feel that with prior construction notice to Warren County's Telecommunication Center in the Warren County Sheriff Department, all these agencies can work with any of your alternatives, including an off-site detour route and the closure of the road to through traffic.

If you have any further questions which you would like for me to address or you wish to discuss any of the above comments, please feel free to contact me, 252-257-3104 or wia@gloryroad.net.

Sincerely,

Walter M. Gardner, Jr.
President

FOUNDED 1981

Transportation Services

Joseph Mustian, Director
Wendy Young, Supervisor

Warren County Schools
109 Cousin Lucy's Lane
Post Office Box 110
Warrenton, North Carolina 27589
Phone (252) 257-3184 Fax (252) 257-5357

September 27, 2000

William D. Gilmore, P. E., Manager
NC Dept. of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Gilmore:

This is in regard to your letter dated August 15, 2000 concerning B-3706, Bridge No. 20 on SR 1100 over Fishing Creek and B-3707, Bridge No. 67 on SR 1507 over Reedy Pond Creek.

We have three buses that cross B-3706, Bridge No. 20, a total of seven times per day with an average of 24 students per trip. On B-3707, Bridge No. 67, we have four buses that cross the bridge with an avearge of 5 students per trip.

If I can be of any assistance, please give me a call at (252) 257-3860.

Sincerely,

Joseph Mustian

Joseph Mustian

Coordination Regarding School Bus Turn Around

Source: E-mail Correspondence
Dated September 22, 2005 and July 28, 2005

From: J. Wally Bowman, PE
Sent: Thursday, September 22, 2005 10:12 AM
To: Mark Reep
Subject: Re: Bridge 67 on Davis Rd (SR 1507) over Reedy Pond Creek (B-3707)

The Division is OK with this approach. We'd prefer the contractor to perform any work in the "turn-around area" in lieu of our own state forces. Although it is outside the project limits, I believe it could be addressed in the Project Special Provisions giving the address, scope of work, method of measurement and pay, etc. We've done similar work before on off-site detours without plans. I'll let our Construction Engineer, Mr. Tracy Parrott, know about our conversation.

From: Mark Reep
Sent: Thursday, July 28, 2005 11:48 AM
To: 'Mike Penney'
Subject: RE: Bridge 67 on Davis Rd (SR 1507) over Reedy Pond Creek (B-3707)

Denise Swanner from the Warren County Schools Transportation Department followed up with me on the school bus turnaround needs during the B-3707 construction period. The school system can turn around in a private drive as long as the bus wheel base stays in the road right of way. She visited the project site this morning and located a suitable driveway location in a wooded area about a mile north of the bridge site on the west side of the road. A school bus can back into this driveway and turn around while staying in the road right of way. This location can meet the school bus needs if gravel is added to the driveway to cover an exposed drainage pipe. She also knows this property owner. This seems to be something that the Division Office could do with their forces, or could be taken care of easily with the project. It may require some easement if the gravel extends outside of the right of way.

From: Mark Reep
Sent: Thursday, July 28, 2005 10:15 AM
To: Denise Swanner
Subject: RE: Bridge 67 on Davis Rd (SR 1507) over Reedy Pond Creek (B-3707)

As we discussed, Ko & Associates is assisting NCDOT on the replacement of Bridge 67 on SR 1507 (Hugh Davis Road) over Reedy Pond Creek (B-3707) near Embro and Marmaduke. Of the alternatives considered for the bridge replacement, NCDOT's preference is to construct a new bridge at the existing location, close Davis Road during the construction period, and detour traffic off-site using existing roads (NC 43/ NC 58/ Warrenton-Embro Road). The traffic delays may range from five to seven minutes. Based on our conversation, the school system currently has one high school bus (two daily trips) using the route to pick up students on the north side of the bridge. (From previous correspondence in the year 2000 from the school system, four buses used the route). Our records show that SR 1507 has a current pavement width of 18 feet with two grass shoulders approximately eight (8) feet wide each in the area of the bridge. Thank you for helping us by looking at this road to determine your needs for buses to turn around near either side of this bridge during the eight to 12-month construction period.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

July 14, 2004

Dear Property Owner:

Subject: **B-3707**, Bridge No. 67 over Reedy Pond Creek on SR 1507 (Davis Road) Warren County

The Project Development and Environmental Analysis Branch of the North Carolina Department of Transportation (NCDOT) has studied three alternatives for the proposed bridge replacement project (location shown on attached figure). Existing Bridge No. 67 is a two-lane structure, constructed in 1961. The bridge is 87 feet long with a clear deck width of 25.3 feet. Bridge No. 67 has a sufficiency rating of 48.0 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.

The three alternatives studied for this bridge replacement project are:

Alternate 1 replaces the existing structure at its existing location with an on-site temporary detour on the west side. Alternate 1 will cost $1,107,500 (includes $575,000 for a temporary detour).

Alternate 2 replaces the existing structure on new alignment west of the existing bridge using the existing structure to maintain traffic during construction. Alternate 2 will cost $995,000.

Alternate 3 replaces the existing structure with a new bridge in the existing location, closing SR 1507 to through traffic during construction and rerouting traffic to other local roads. Alternate 3 will cost $635,000.

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

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

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Do-Nothing and rehabilitate the existing structure were also considered but these alternatives were not considered feasible. In consideration of the cost and the low traffic volumes on SR 1507 (140 vehicles per day), Alternate 3 is the preferred alternative. In the North Carolina Department of Transportation 2004-2010 Transportation Improvement Program, this project is schedule for construction later this year. During the construction period, estimated to be 6-12 months, SR 1507 at Bridge No. 67 will be closed to through traffic.

If you have questions concerning this project, please contact me at (919) 733-7844, extension 260. If you desire to submit a written comment, please respond by August 31, 2004, so that your comments can be considered and included in the environmental document for the project.

Sincerely,

Michael Penney, P.E.
Project Manager
Project Development and
Environmental Analysis Branch

Attachment
MP/jw