STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 12, 2004

U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

ATTENTION: Mr. Michael Bell
NCDOT Coordinator

SUBJECT: **Nationwide 23 and 33 Permit Application** for the proposed replacement of Bridge No. 212 on SR 1002 (Rains Mill Rd.) over Little River, Johnston County. Federal Project No. BRSTP-1002(8), State Project No. 8.2312601, T.I.P. No. B-3865.

Dear Sir:

Please find enclosed three copies of the project planning report for the above referenced project. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 212 over Little River [DWQ Index # 27-57-(20.2) Class "WS-IV NSW"]. The project involves replacing Bridge no. 212 on new alignment immediately west of and parallel to the existing bridge. This alternate was selected because it is the most economical option that maintains traffic service on-site.

IMPACTS TO WATERS OF THE UNITED STATES

A small area of jurisdictional wetlands will be affected by the proposed project. The construction of bridge no. 212 results in permanent impacts by mechanized clearing of 0.015 acres and fill of 0.007 acres wetland.

BRIDGE DEMOLITION

Bridge No. 212 is currently 225.0 ft. long and located on SR 1002 over Little River in Johnston County. It has a reinforced concrete deck on I-beams supported by reinforced concrete caps and piles at approximate 45-foot centers. There is potential for the concrete components of the bridge to be dropped into Waters of the United States during

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

TELEPHONE: 919-733-3141
FAX: 919-733-9794
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

construction, resulting in temporary fill of a maximum of approximately 115 cubic yards. Best Management Practices for Bridge Demolition and Removal will be followed.

BRIDGE CONSTRUCTION

Bridge No. 212 will be a three span continuous for live load 54 inch prestressed concrete girder bridge, requiring bents to be at the waters the waters edge. Construction of the bridge will require the need for a temporary causeway.

TEMPORARY CAUSEWAY

The construction of bridge no. 212 will require the use of causeways consisting of 36 tons of Class II Rip Rap to provide access to the site for construction equipment. The resulting temporary surface water fill will be 0.052 ac.

The materials used as temporary fill in the construction of the rock causeways, will be completely removed. The entire causeway footprint shall be returned to the original contours and elevations after the purpose of the causeway has been served. After the causeways are no longer needed, the contractor will use excavating equipment to remove all materials. All causeway material will become the property of the contractor. The contractor will be required to submit a reclamation plan for removal of and disposal of all materials off-site.

NEUSE RIVER BASIN RULES

This project is located in the Neuse River Basin; therefore the regulations pertaining to the Neuse River Buffer Rules will apply. A no practical alternative analysis has been done, and the design has been evaluated to avoid and minimize impacts to buffers. There are 5873.0 square feet of allowable impacts to Buffer Zone One and 3214.0 square feet of impact to Zone Two.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of 29 January 2003, the Fish and Wildlife Service (FWS) lists four federally protected species for Johnston County.

A Biological Conclusion of "No Effect" was reached for the Red-cockaded woodpecker (*Picoides borealis*) due to lack of habitat. Surveys for two species have just been completed for Dwarf wedgemussel (*Alasmidonta heterodon*) and Tar spinymussel (*Elliptio steinstansana*). A site search for the Dwarf wedgemussel and Tar spinymussel was conducted in October 22, 2003 and no individuals were found, therefore the Biological Conclusion is "May Effect, Not Likely to Adversely Affect". Available habitat for Michaux's sumac was surveyed in June 25, 2001 and no individuals were

found. Since the survey was conducted more than two years ago a new survey will be conducted before the construction of the project, due to the expired time.

Federally-Protected Species for Johnston County

Common Name	Scientific Name	Status
Red-cockaded woodpecker	*Picoides borealis*	Endangered
Dwarf wedge mussel	*Alasmidonta heterodon*	Endangered
Tar spinymussel	*Elliptio steinstansana*	Endangered
Michaux's sumac	*Rhus michauxii*	Endangered

KEY: Endangered (a species that is in danger of extinction throughout all or a significant portion of its range).

PROJECT COMMITMENTS

- Although the shortnose sturgeon is not on the most recent USFWS list of Federally Protected Species for Johnston County, the NCDOT committed in the CE document to avoid the necessity of in-stream activities during the spring migration period of shortnose sturgeon (February 1 to June 15).
- Implementation of High Quality Water erosion control standards are recommended to minimize the impacts to the mussel fauna occurring at the site as well as avoid potential impacts to populations that may occur downstream of the project area.

REGULATORY APPROVALS

Section 404 Permit: It is anticipated that the construction of the temporary causeways will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing construction of the causeway. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR § 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification numbers 3361 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their records.

Neuse Buffer Rules: This project lies within the Neuse River Basin; therefore, the regulations pertaining to the Neuse River Buffer Rules will apply. There are 5873.0 ft^2 of impacts to Buffer Zone One and 3214.0 ft^2 of impacts to Buffer Zone Two. These uses require written authorization from the Division or the delegated local authority. Therefore, NCDOT requests written authorization for a Buffer Certification from the Division of Water Quality.
A copy of this permit application will be posted on the DOT website at: http://www.ncdot.org/planning/pe/naturalunit/Permit.html.

Thank you for your assistance with this project. If you have any questions or need additional information please call Chris Manley at (919) 715-1487 or via e-mail at cdmanley@dot.state.nc.us

Sincerely,

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

w/attachment
Mr. John Dorney, Division of Water Quality (2 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Greg Perfetti, P.E., Structure Design

w/o attachment
Mr. David Franklin, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. J. H. Trogdon, P.E., Division 4 Division Engineer
Mr. Jamie Shern, Division 4 DEO
Mr. William T Goodwin , PE, PDEA Project Planning Engineer)

Office Use Only: Form Version May 2002

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

2. Nationwide, Regional or General Permit Number(s) Requested: NW 23, NW 33

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

4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), 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: North Carolina Department of Transportation
   Mailing Address: 1548 Mail Service Center
   Raleigh, NC 27699-1548
   Telephone Number: 919-733-3147 Fax Number: 919-766-9794
   E-mail Address: gthorpe@dot.state.nc.us

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

III. Project Information

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

1. Name of project: Bridge Replacement over the Little River, Johnston County

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3865

3. Property Identification Number (Tax PIN): _____

4. Location
   County: Johnston Nearest Town: Princeton
   Subdivision name (include phase/lot number): _____
   Directions to site (include road numbers, landmarks, etc.): Bridge No. 212 over the Little River on SR 1002

5. Site coordinates, if available (UTM or Lat/Long): 35° 29'N, 78° 08'30"W
   (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

6. Property size (acres): Rural

7. Nearest body of water (stream/river/sound/ocean/lake): The Little River

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: A 225 ft. reinforced concrete deck on I-beam bridge.

10. Describe the overall project in detail, including the type of equipment to be used:
Replacement of existing bridge on new alignment immediately west of existing bridge with a three span prestressed concrete girder bridge. Cranes, Earth moving equipment.

11. Explain the purpose of the proposed work: To replace bridge no. 212.

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.

None

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.

None

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. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must 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 below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
1	fill	0.007	yes		
1	clearing	0.015	yes		

* List each impact separately and identify temporary impacts. 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.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at http://www.fema.gov.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property:_____
Total area of wetland impact proposed: 0.022 ac.

3. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
1	fill	0.052 ac.	Little River		

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, 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.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site:_____

4. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

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

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

5. 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.):_____

_____

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.

In order to minimize impacts to water resources, NCDOT "Best Management Practices for the Protection of Surface Waters" will be strictly enforced durinf the entire life of the project.

_____

_____

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 March 9, 2000, 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 NCWRP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

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

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

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

Amount of Coastal wetland mitigation requested (acres): zero

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

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 ☐

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.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)?

Yes ☐ No ☐ If you answered "yes", provide the following information:

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	5873.0	3	
2	3214.0	1.5	
Total			

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

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

n/a

XI. Stormwater (required by DWQ)

Describe impervious acreage (both 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.

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.

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

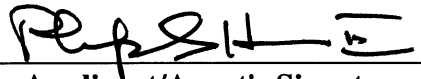
Yes ☐ No ☒

Is this an after-the-fact permit application?

Yes ☐ No ☒

XIV. 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).



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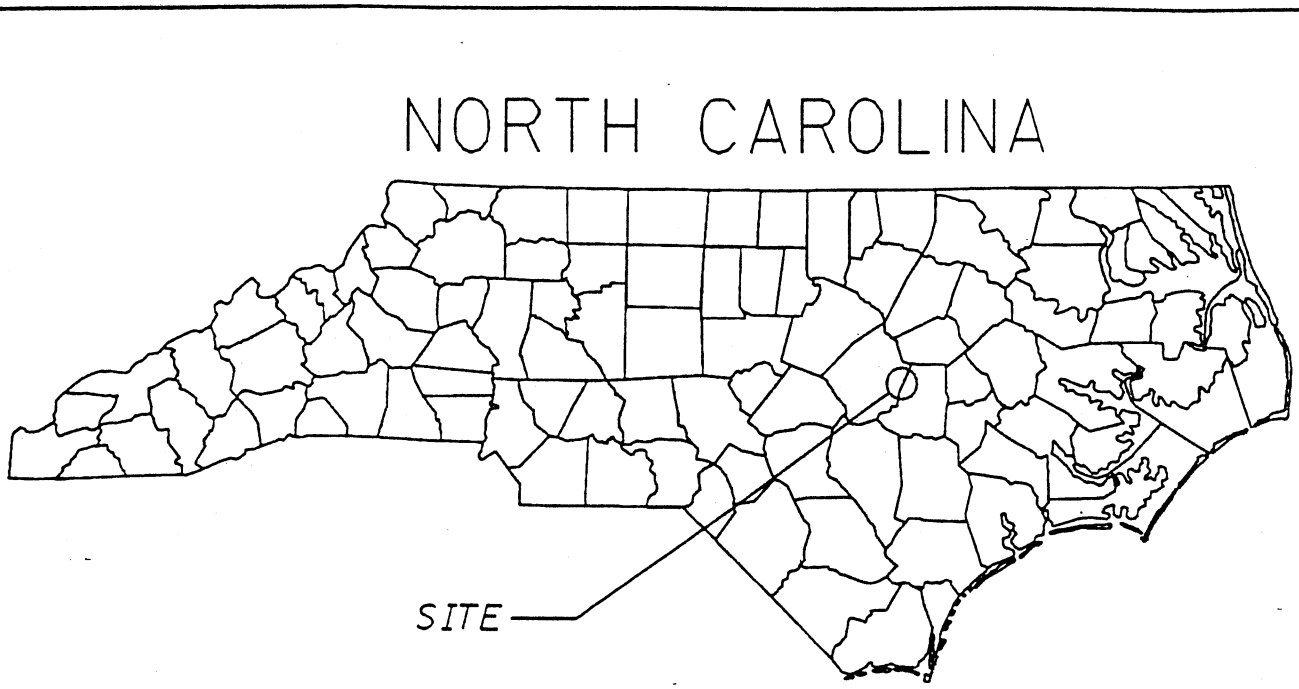
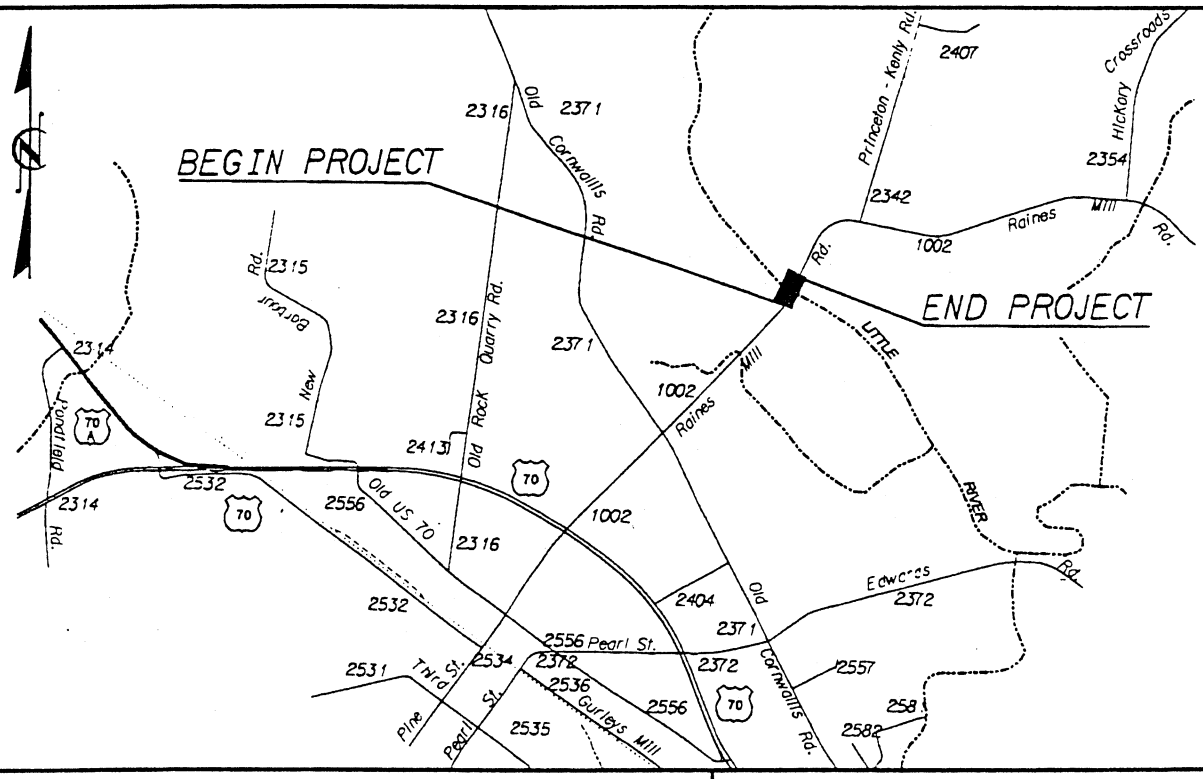
Applicant/Agent's Signature **Date**

(Agent's signature is valid only if an authorization letter from the applicant is provided.)





VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
JOHNSTON COUNTY
PROJECT: 8.2312601 (B-3865)
BRIDGE NO. 212
OVER LITTLE RIVER
ON SR 1002

WETLAND LEGEND

WLB WETLAND BOUNDARY

WETLAND

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES FILL IN SURFACE WATER (POND)

DENOTES TEMPORARY FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB TOP OF BANK

WE EDGE OF WATER

C PROP. LIMIT OF CUT

F PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG NATURAL GROUND

PL PROPERTY LINE

TDE TEMP. DRAINAGE EASEMENT

PDE PERMANENT DRAINAGE EASEMENT

EAB EXIST. ENDANGERED ANIMAL BOUNDARY

EPB EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

CORE FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT

(DASHED LINES DENOTE EXISTNG STRUCTURES)

12"-48" PIPES

54" PIPES & ABOVE

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

PREFORMED SCOUR HOLE WITH LEVEL SPREADER (PSH)

LEVEL SPREADER (LS)

GRASS SWALE

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

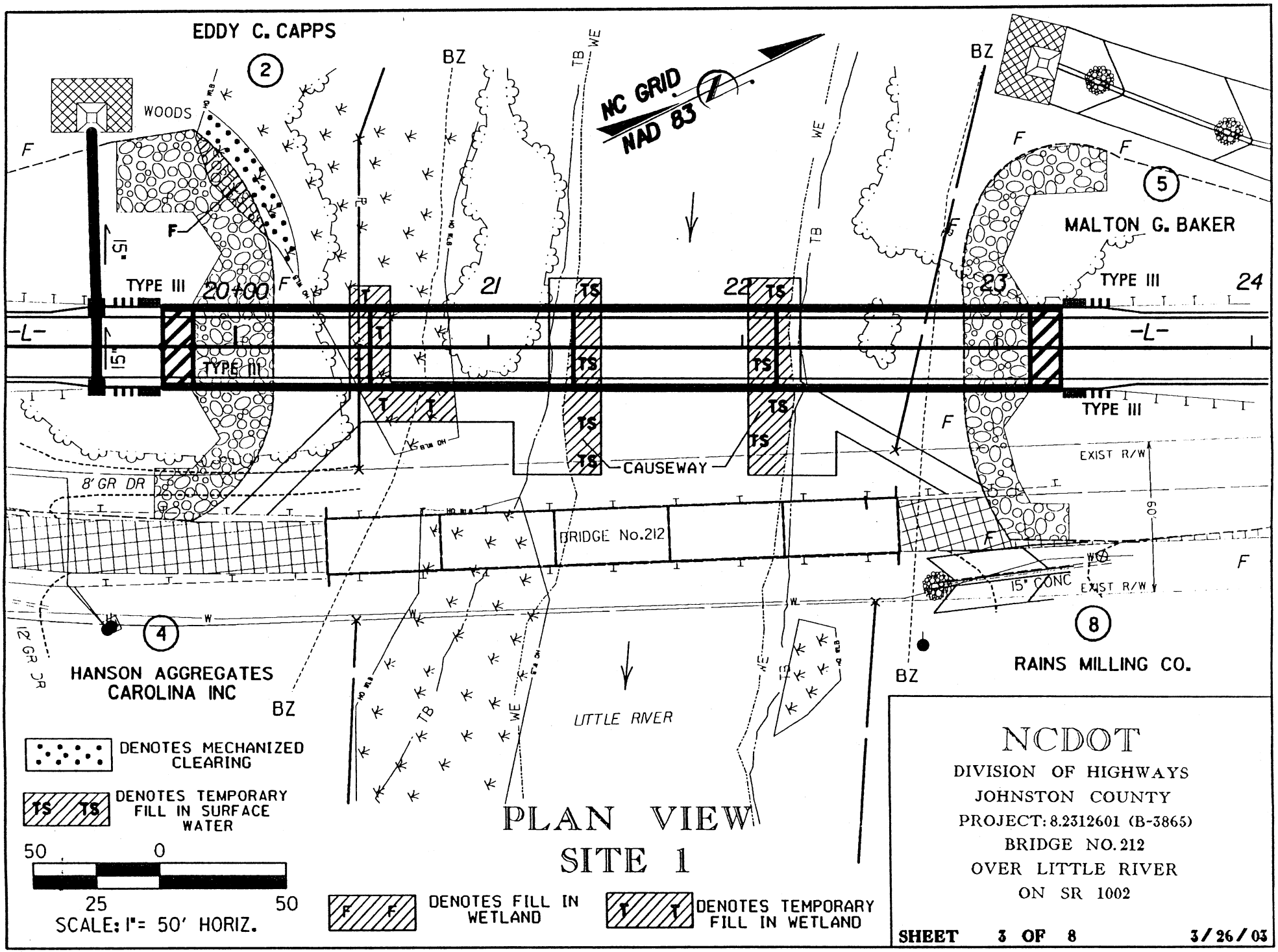
PROJECT: 8.2312601 (B-3865)

BRIDGE NO. 212

OVER LITTLE RIVER

ON SR 1002

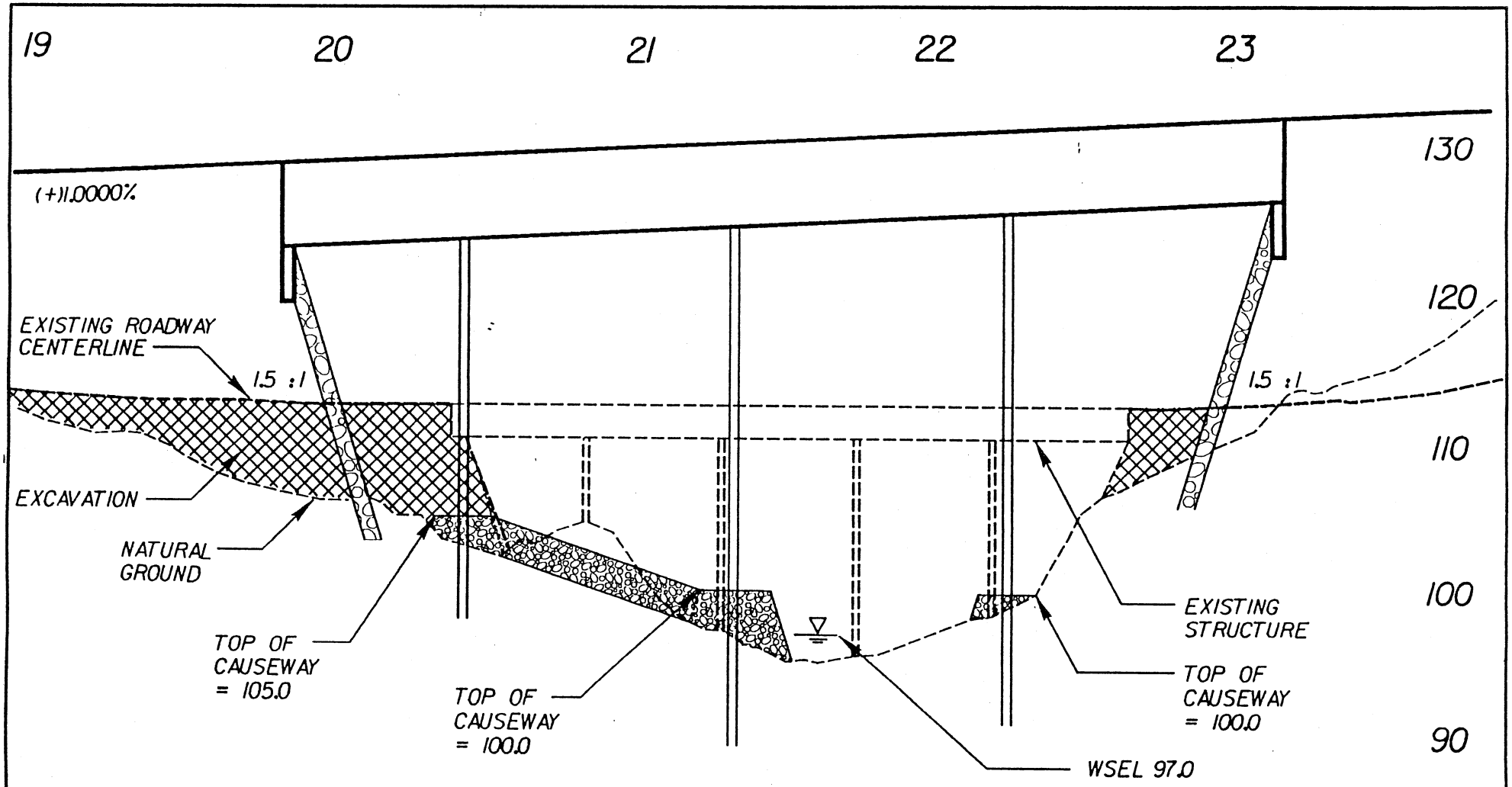
3/26/03



PLAN VIEW
SITE 1

NCDOT
DIVISION OF HIGHWAYS
JOHNSTON COUNTY
PROJECT: 8.2312601 (B-3865)
BRIDGE NO. 212
OVER LITTLE RIVER
ON SR 1002

SHEET 3 OF 8 3/26/03



PROFILE VIEW

SITE 1

25' 0' 50'

HORIZONTAL SCALE

5' 0' 10'

VERTICAL SCALE

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: 8.2312601 (B-3865)

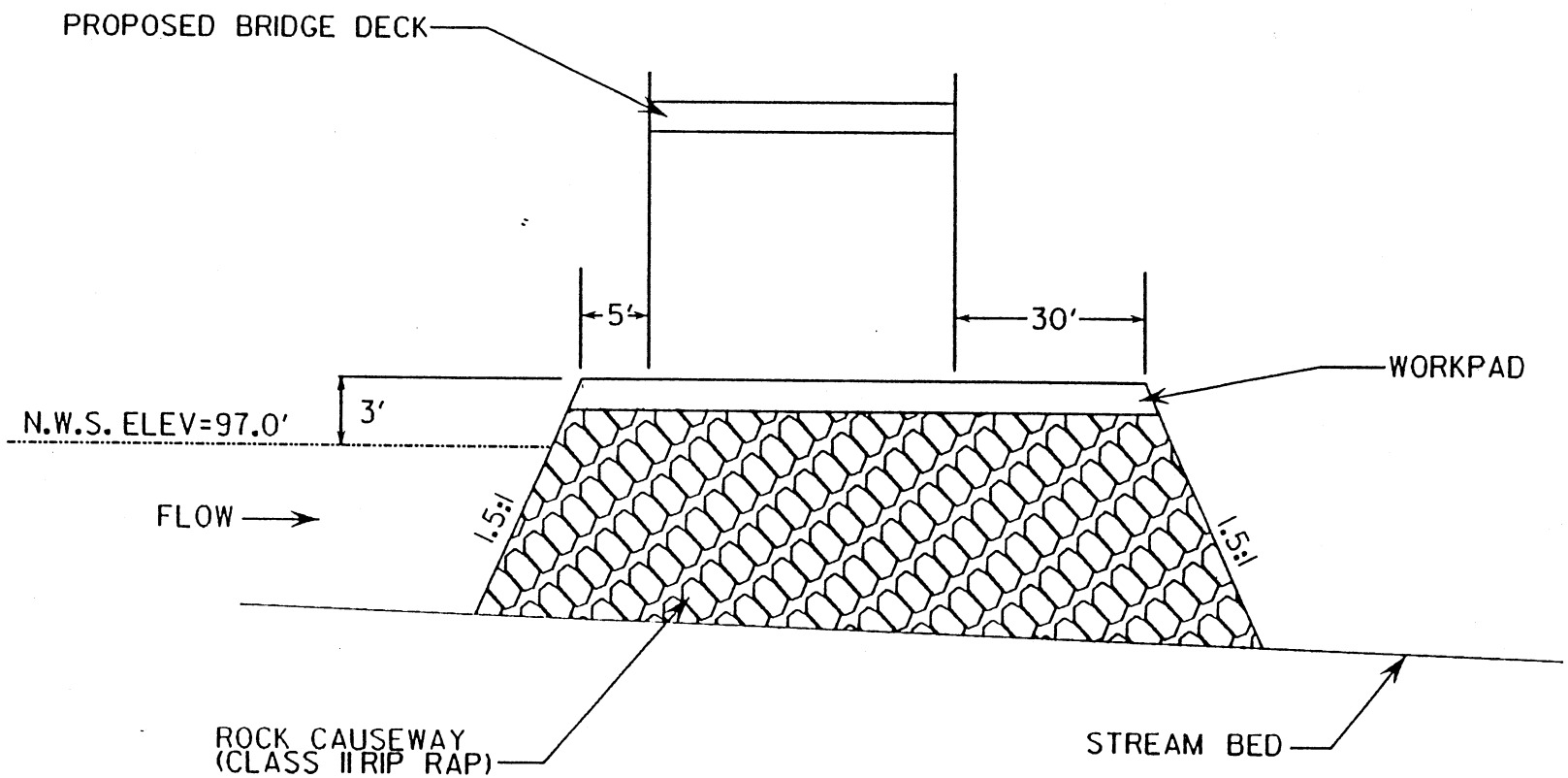
BRIDGE NO. 212

OVER LITTLE RIVER

ON SR 1002

SHEET 4 OF 8 3/26/03

CAUSEWAY DETAIL
(NOT TO SCALE)



QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP= 670 yds^3

AREA OF CLASS II RIP RAP= 0.16 acres

Estimate 36 Tons Class II Rip Rap

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

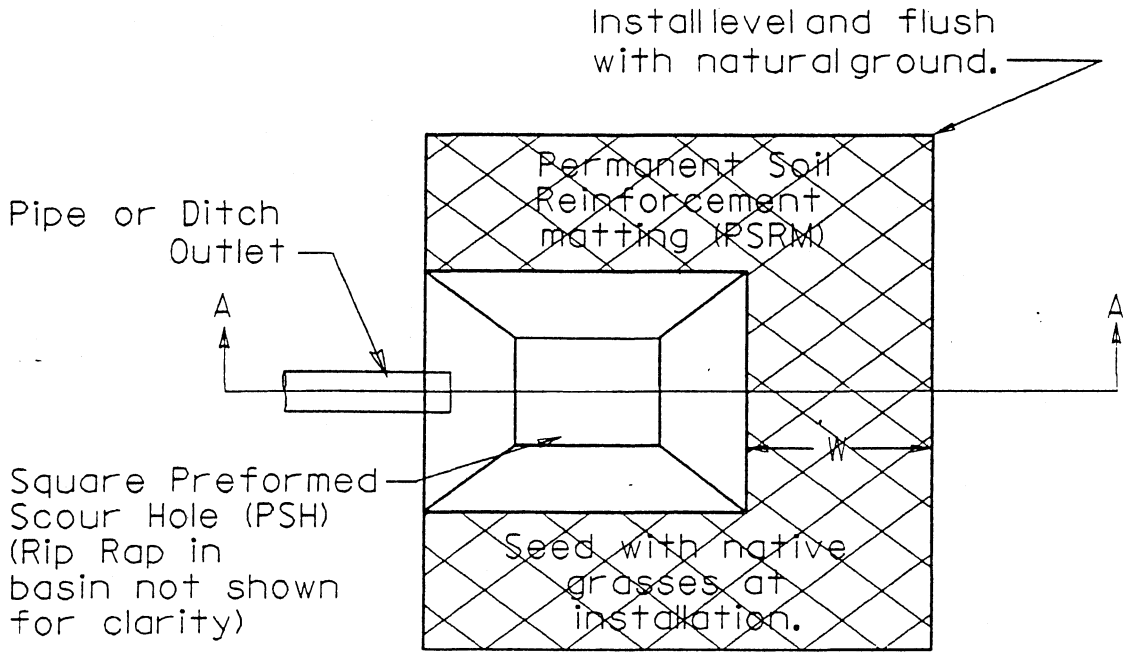
PROJECT: 8.2312601 (B-3865)

BRIDGE NO. 212

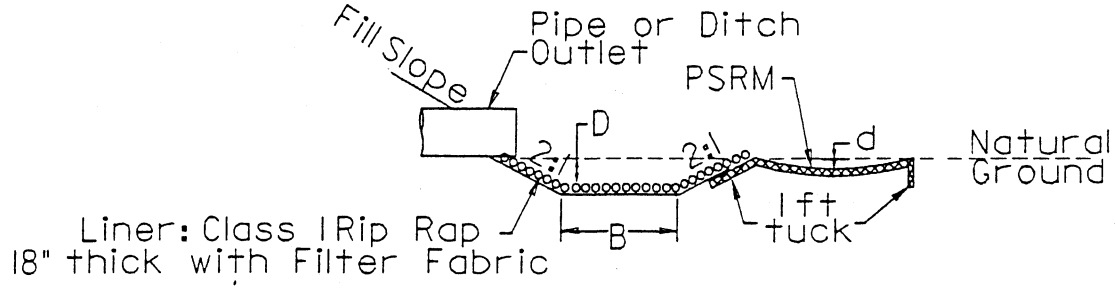
OVER LITTLE RIVER

ON SR 1002

PLAN VIEW



SECTION A-A



B 4 ft D 2 ft

W 10 ft d 1 ft

CLASS I RIP RAP 17 Tons

PERFORMED SCOUR HOLE WITH LEVEL SPREADER APRON (PSH)

(Not to scale)

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: 8.2312601 (B-3865)

BRIDGE NO. 212

OVER LITTLE RIVER

ON SR 1002

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
(2) DB 1639 PG 526	EDDY C. CAPPS	1392 RAINS MILL ROAD PRINCETON, NC 27569
(4) DB 1964 PG 37 MB 56 PG 434	HANSON AGGREGATES CAROLINA INC	PO BOX 13983 RESEARCH TRIANGLE PARK, NC 27709
(5) BK 1202 PG 375	MALTON G. BAKER	130 McCORMICK DR. SELMA, NC 27576
(8) DB 557 PG 327 MB 6 PG 259	RAINS MILLING CO.	UNKNOWN ADDRESS

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: 8.2312601 (B-3865)

BRIDGE NO. 212

OVER LITTLE RIVER

ON SR 1002

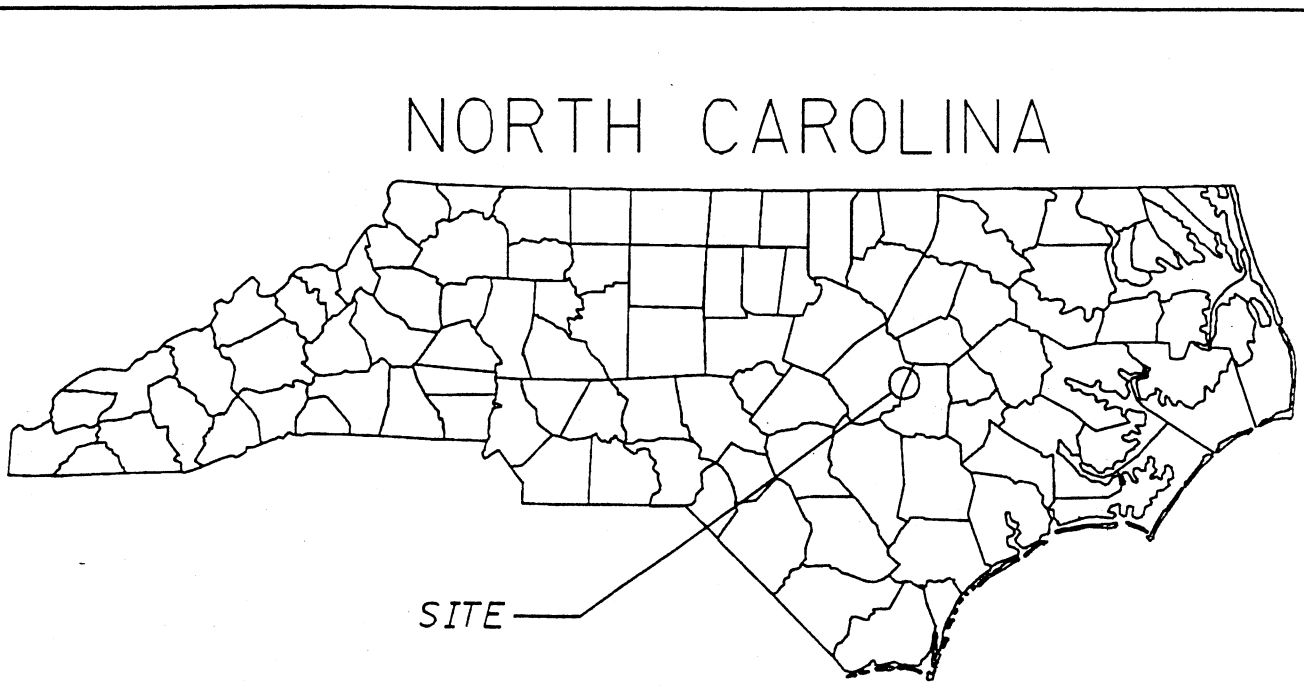
IMPACT SUMMARY

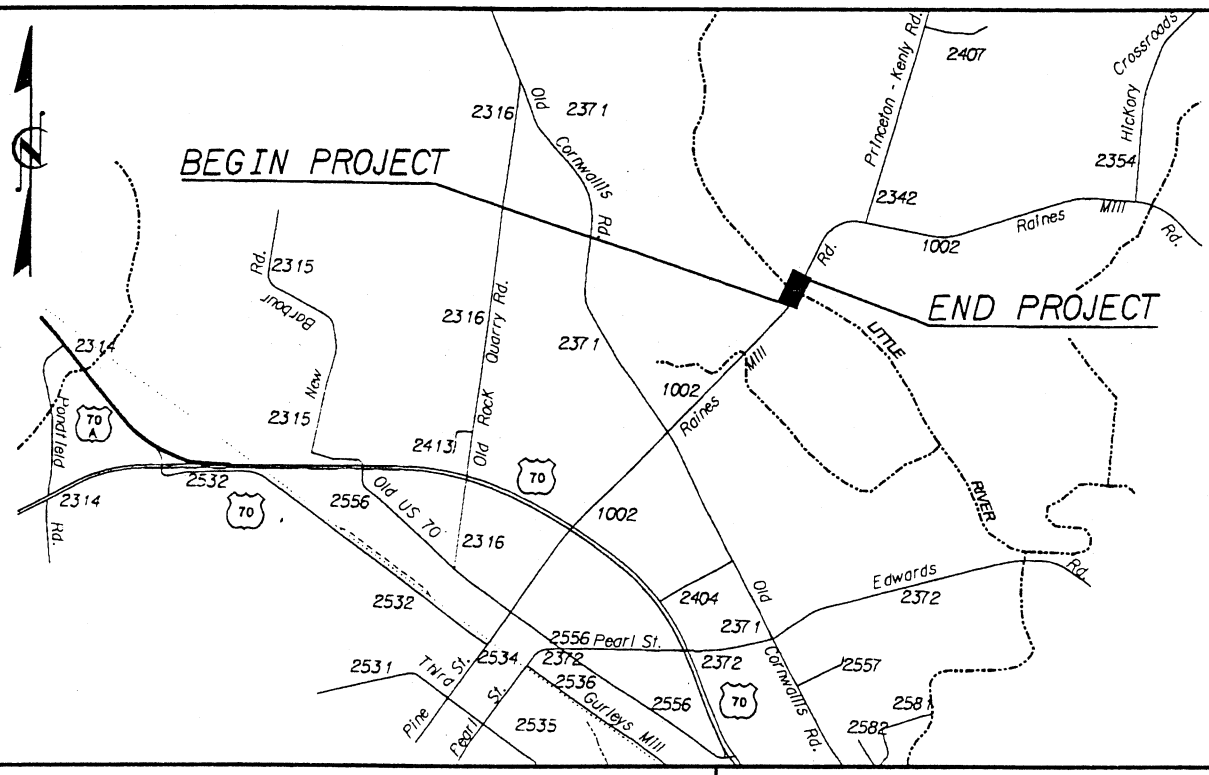
			WETLAND IMPACTS				SURFACE WATER IMPACTS					BUFFER IMPACTS		
Site No.	Station (From/To)	Structure Size	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method II) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Relocated Channel (ft)	Zone 1 (ac)	Zone 2 (ac)	Mech Clear (ac)
1	20+00 TO	N/A	0.007	0.027		0.015			0.052					
	23+00 -L-													
TOTALS:			0.007	0.027	0	0.015	0	0	0.052	0	0	0	0	0

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

PROJECT: 8.2312061 (B-3865)
BRIDGE NO. 212 OVER LITTLE RIVER
ON SR 1002

SHEET 8 OF 8 03/26/03





VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: 8.2312601 (B-3865)

BRIDGE NO. 212

OVER LITTLE RIVER

ON SR 1002

BUFFER LEGEND

WLB — WETLAND BOUNDARY

WLB / WLB — WETLAND

ALLOWABLE IMPACTS ZONE I

ALLOWABLE IMPACTS ZONE II

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

CORE 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 WITH LEVEL SPREADER (PSH)

LEVEL SPREADER (LS)

GRASS SWALE

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

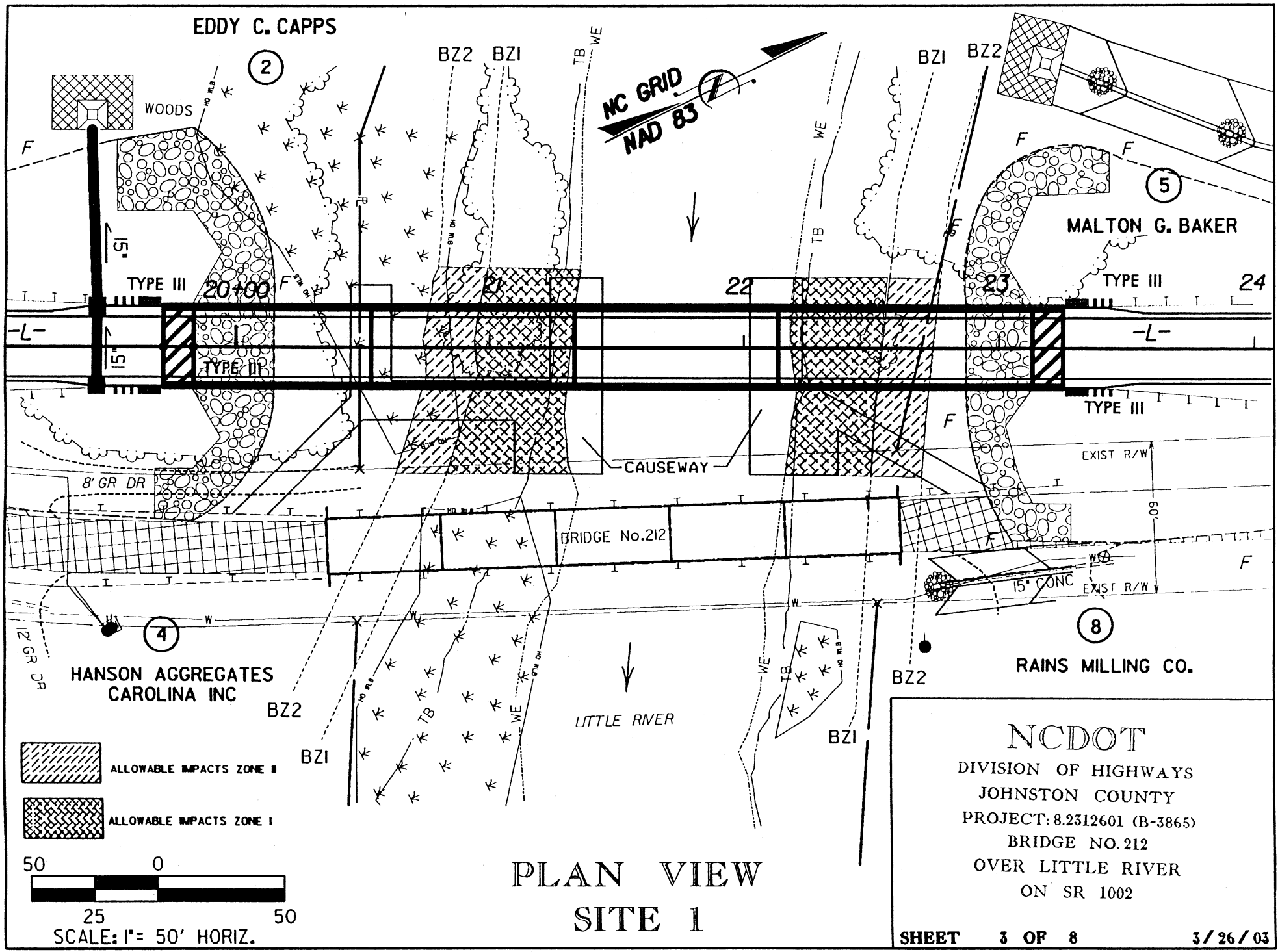
PROJECT: 8.2312601 (B-3865)

BRIDGE NO. 212

OVER LITTLE RIVER

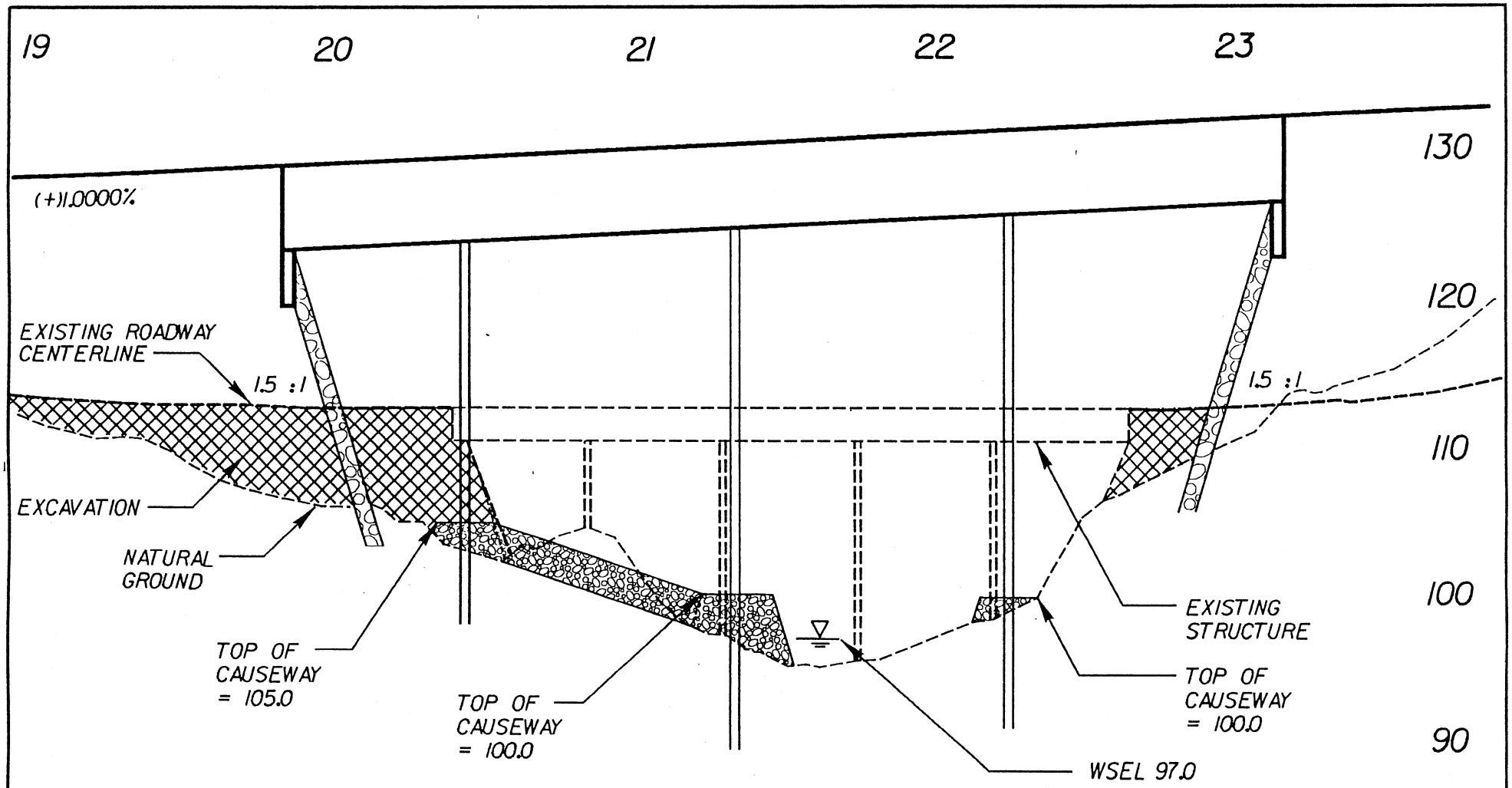
ON SR 1002

SHEET 2 OF 8 3/26/03



PLAN VIEW
SITE 1

NCDOT
DIVISION OF HIGHWAYS
JOHNSTON COUNTY
PROJECT: 8.2312601 (B-3865)
BRIDGE NO. 212
OVER LITTLE RIVER
ON SR 1002



PROFILE VIEW

SITE 1

25' 0' 50'

HORIZONTAL SCALE

5' 0' 10'

VERTICAL SCALE

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: 8.2312601 (B-3865)

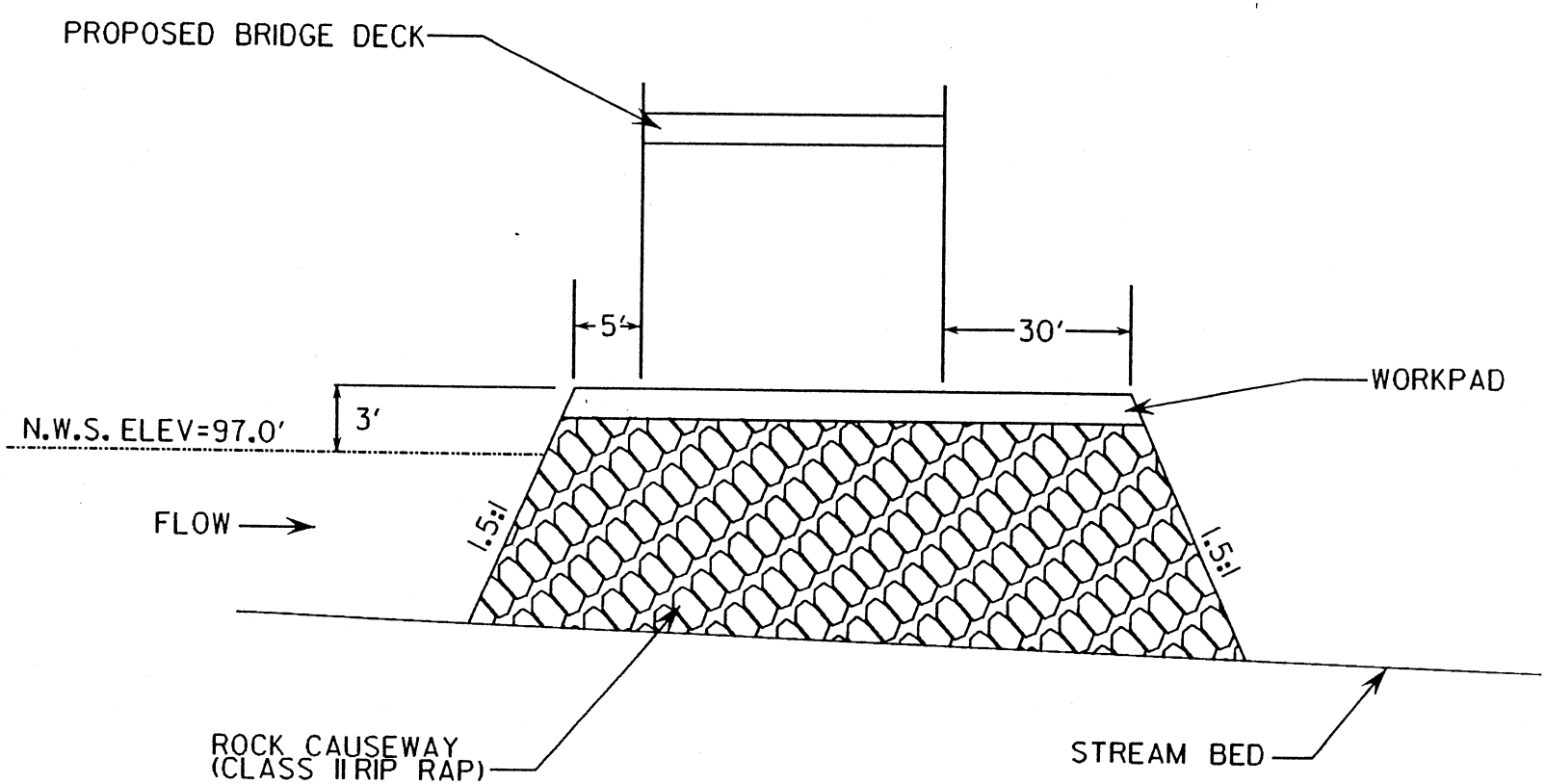
BRIDGE NO. 212

OVER LITTLE RIVER

ON SR 1002

SHEET 4 OF 8 **3/26/03**

CAUSEWAY DETAIL
(NOT TO SCALE)



QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP= 670 yds^3

AREA OF CLASS II RIP RAP= 0.16 acres

Estimate 36 Tons Class II Rip Rap

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

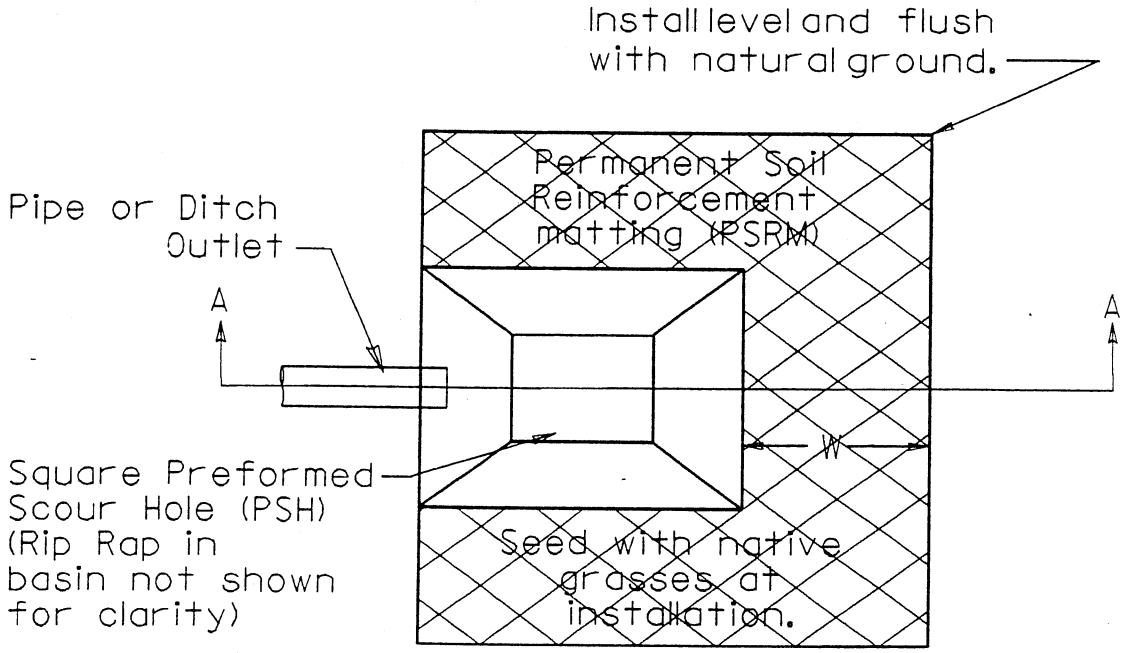
PROJECT: 8.2312601 (B-3865)

BRIDGE NO. 212

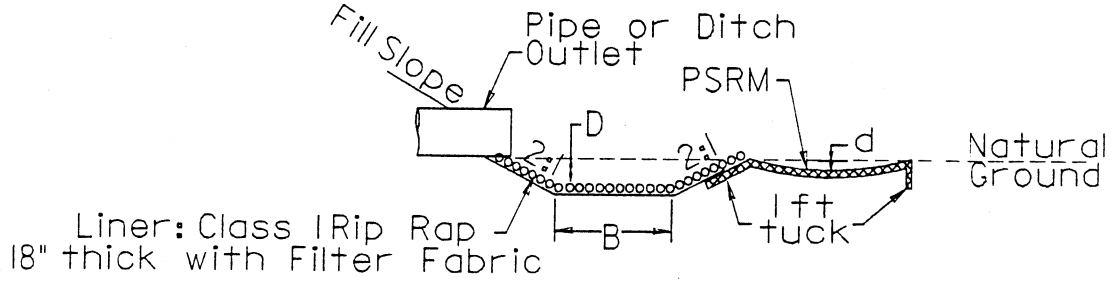
OVER LITTLE RIVER

ON SR 1002

PLAN VIEW



SECTION A-A



B 4 ft D 2 ft

W 10 ft d 1 ft

CLASS I RIP RAP 17 Tons

PERFORMED SCOUR HOLE WITH LEVEL SPREADER APRON (PSH)

(Not to scale)

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: 8.2312601 (B-3865)

BRIDGE NO. 212

OVER LITTLE RIVER

ON SR 1002

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
(2) DB 1639 PG 526	EDDY C. CAPPS	1392 RAINS MILL ROAD PRINCETON, NC 27569
(4) DB 1964 PG 37 MB 56 PG 434	HANSON AGGREGATES CAROLINA INC	PO BOX 13983 RESEARCH TRIANGLE PARK, NC 27709
(5) BK 1202 PG 375	MALTON G. BAKER	130 McCORMICK DR. SELMA, NC 27576
(8) DB 557 PG 327 MB 6 PG 259	RAINS MILLING CO.	UNKNOWN ADDRESS

NCDOT

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: 8.2312601 (B-3865)

BRIDGE NO. 212

OVER LITTLE RIVER

ON SR 1002

BUFFER IMPACTS SUMMARY

			IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	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	-L- Sta 21+48+/-	X		5873.0	3214.0	9087.0					
TOTAL:					5873.0	3214.0	9087.0	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

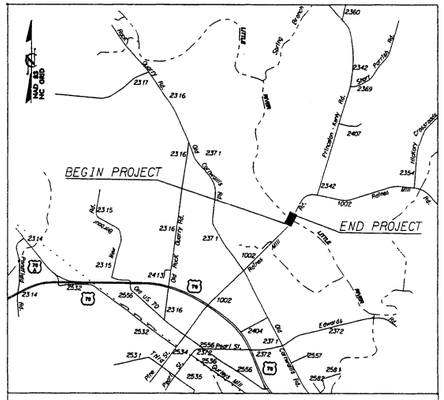
PROJECT: 8.2312061 (B-3865)
BRIDGE NO. 212 OVER LITTLE RIVER
ON SR 1002

SHEET 8 OF 8 03/26/03

09/08/99

CONTRACT: 8.2312601 TIP PROJECT: B-3865

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

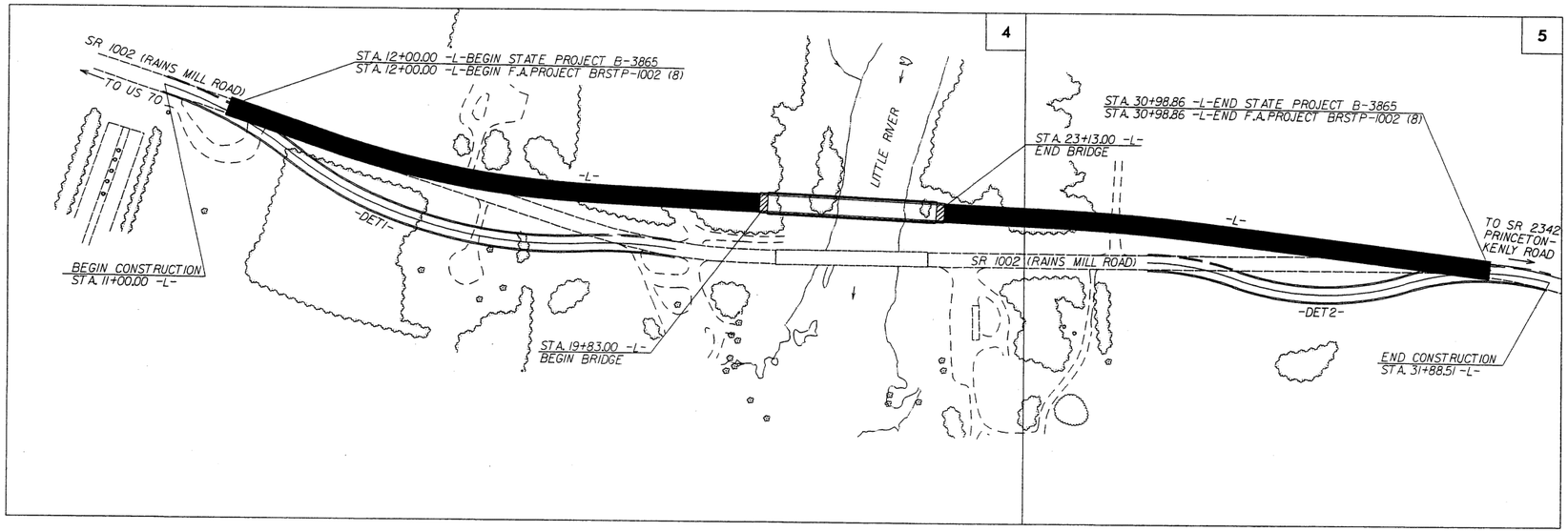
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3865	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
8.2312601	BRSTP-1002 (8)	PE
8.2312602	BRSTP-1002 (8)	R/W, UTILITIES
8.2312602	BRSTP-1002 (8)	CONSTRUCTION

LOCATION: BRIDGE NO. 212 OVER LITTLE RIVER AND APPROACHES ON SR 1002

TYPE OF WORK: GRADING, DRAINAGE, GUARDRAIL, PAVING AND STRUCTURE

NC GRID
NAD 83



NCDOT CONTACT: MS. CATHY S. HOUSER, PE, PROJECT ENGINEER

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 2003 = 3900 VPD
ADT 2023 = 6600 VPD
DHV = 9%
D = 60%
T = 6% *
V = 60 MPH
* TTST 2% + DUAL 4%

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT BRSTP-1002(8) = 0.297 MILE
LENGTH STRUCTURE F.A. PROJECT BRSTP-1002(8) = 0.063 MILE
TOTAL LENGTH STATE PROJECT 8.2312601 = 0.360 MILE

Prepared for NCDOT in the Office of:
KCI Associates of North Carolina, P.A.
RALEIGH OFFICE
ENGINEERS • PLANNERS • ECOLOGISTS
SUITE 200, LANDMARK CENTER I
4601 SIX FORKS RD.
RALEIGH, N.C. 27609-5210
(919) 783-9214

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 18, 2003

LETTING DATE: MAY 18, 2004

MICHELLE R. BRAME, P.E
PROJECT ENGINEER

JENNIFER M. SPOHN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

$$$$$$$SYSTIME$$$$$$$
$$$$$$$USERNAME$$$$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3865	I-B

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

*S.U.E = SUBSURFACE UTILITY ENGINEER

ROADS & RELATED ITEMS

- Edge of Pavement
- Curb
- Prop. Slope Stakes Cut (C)
- Prop. Slope Stakes Fill (F)
- Prop. Woven Wire Fence
- Prop. Chain Link Fence
- Prop. Barbed Wire Fence
- Prop. Wheelchair Ramp (WCR)
- Curb Cut for Future Wheelchair Ramp (CCFR)
- Exist. Guardrail
- Prop. Guardrail
- Equality Symbol
- Pavement Removal

RIGHT OF WAY

- Baseline Control Point
- Existing Right of Way Marker
- Exist. Right of Way Line w/Marker
- Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
- Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
- Exist. Control of Access Line (C/A)
- Prop. Control of Access Line (C/A)
- Exist. Easement Line (E)
- Prop. Temp. Construction Easement Line (E)
- Prop. Temp. Drainage Easement Line (TDE)
- Prop. Perm. Drainage Easement Line (PDE)

HYDROLOGY

- Stream or Body of Water
- River Basin Buffer (BZ)
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Shoreline
- Falls, Rapids
- Prop Lateral, Tail, Head Ditches (FLOW)

STRUCTURES

MAJOR

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

MINOR

- Head & End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Boxes (CB)
- Paved Ditch Gutter

UTILITIES

- Exist. Pole
- Exist. Power Pole
- Prop. Power Pole
- Exist. Telephone Pole
- Prop. Telephone Pole
- Exist. Joint Use Pole
- Prop. Joint Use Pole
- Telephone Pedestal (T)
- U/G Telephone Cable Hand Hold (TH)
- Cable TV Pedestal (C)
- U/G TV Cable Hand Hold (TVH)
- U/G Power Cable Hand Hold (PH)
- Hydrant
- Satellite Dish
- Exist. Water Valve
- Sewer Clean Out
- Power Manhole (P)
- Telephone Booth
- Cellular Telephone Tower
- Water Manhole (W)
- Light Pole
- H-Frame Pole
- Power Line Tower
- Pole with Base
- Gas Valve
- Gas Meter
- Telephone Manhole (T)
- Power Transformer
- Sanitary Sewer Manhole
- Storm Sewer Manhole (S)
- Tank; Water, Gas, Oil
- Water Tank With Legs
- Traffic Signal Junction Box (S)
- Fiber Optic Splice Box (F)
- Television or Radio Tower
- Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement (TS)
- Recorded Water Line (W)
- Designated Water Line (S.U.E.*) (W)
- Sanitary Sewer (SS)
- Recorded Sanitary Sewer Force Main (FSS)
- Designated Sanitary Sewer Force Main(S.U.E.*) (FSS)
- Recorded Gas Line (G)
- Designated Gas Line (S.U.E.*) (G)
- Storm Sewer (S)
- Recorded Power Line (P)
- Designated Power Line (S.U.E.*) (P)
- Recorded Telephone Cable (T)
- Designated Telephone Cable (S.U.E.*) (T)
- Recorded U/G Telephone Conduit (TC)
- Designated U/G Telephone Conduit (S.U.E.*) (TC)
- Unknown Utility (S.U.E.*) (?UTL)
- Recorded Television Cable (TV)
- Designated Television Cable (S.U.E.*) (TV)
- Recorded Fiber Optics Cable (FO)
- Designated Fiber Optics Cable (S.U.E.*) (FO)
- Exist. Water Meter
- U/G Test Hole (S.U.E.*)
- Abandoned According to U/G Record (ATTUR)
- End of Information (E.O.I.)

BOUNDARIES & PROPERTIES

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Property Line Symbol
- Exist. Iron Pin (EIP)
- Property Corner
- Property Monument (ECM)
- Property Number (123)
- Parcel Number (6)
- Fence Line
- Existing Wetland Boundaries (WW & ISBW) (WLB)
- High Quality Wetland Boundary (HQ WLB)
- Medium Quality Wetland Boundaries (MQ WLB)
- Low Quality Wetland Boundaries (LQ WLB)
- Proposed Wetland Boundaries (WLB)
- Existing Endangered Animal Boundaries (EAB)
- Existing Endangered Plant Boundaries (EPB)

BUILDINGS & OTHER CULTURE

- Buildings
- Foundations
- Area Outline
- Gate
- Gas Pump Vent or U/G Tank Cap
- Church
- School
- Park
- Cemetery
- Dam
- Sign (S)
- Well (W)
- Small Mine
- Swimming Pool

TOPOGRAPHY

- Loose Surface
- Hard Surface
- Change in Road Surface
- Curb
- Right of Way Symbol (R/W)
- Guard Post (GP)
- Paved Walk
- Bridge
- Box Culvert or Tunnel
- Ferry
- Culvert
- Footbridge
- Trail, Footpath
- Light House

VEGETATION

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (VINEYARD)

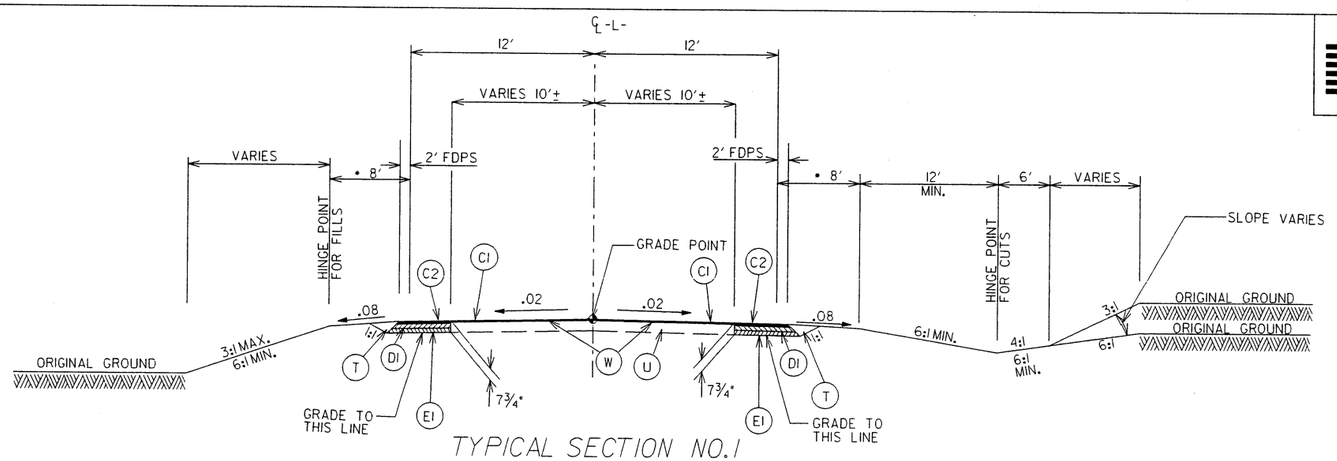
RAILROADS

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)

revised 02/02/00

$$$$$$$$$$$$SYSTIME$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$USERNAME$$$$$$$$

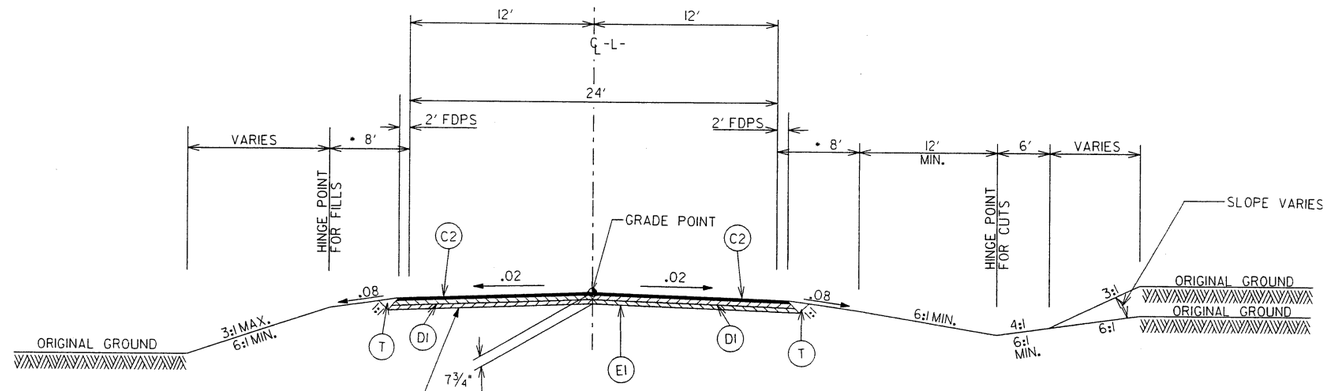
REVISIONS



TYPICAL SECTION NO.1

-L- STA. 12+00.00 TO STA. 14+55.00
-L- STA. 29+00.00 TO STA. 30+98.86

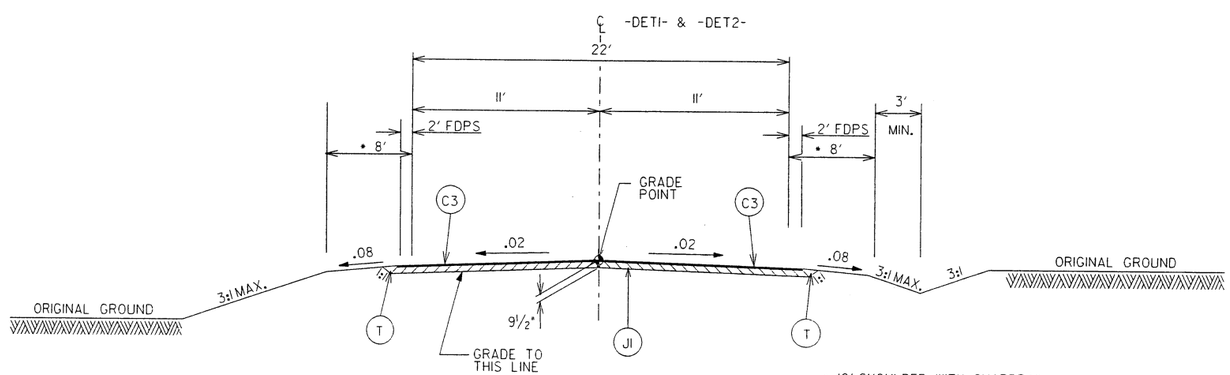
• 11′ SHOULDER WITH GUARDRAIL



TYPICAL SECTION NO.2

-L- STA. 14+55.00 TO STA. 19+83.00 (BEGIN BRIDGE)
-L- STA. 23+13.00 (END BRIDGE) TO STA. 29+00.00

• 11′ SHOULDER WITH GUARDRAIL



TYPICAL SECTION NO.3

-DET1- STA. 1+20.40 TO STA. 7+25.64
-DET2- STA. 0+89.55 TO STA. 4+69.36

• 10′ SHOULDER WITH GUARDRAIL

KCI Associates of North Carolina, P.A.
RALEIGH OFFICE
ENGINEERS • PLANNERS • ECOLOGISTS
SUITE 200, LANDMARK CENTER I
4601 SIX FORKS RD.
RALEIGH, N.C. 27609-5210
(919) 783-9214

PROJECT REFERENCE NO.	SHEET NO.
B-3865	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

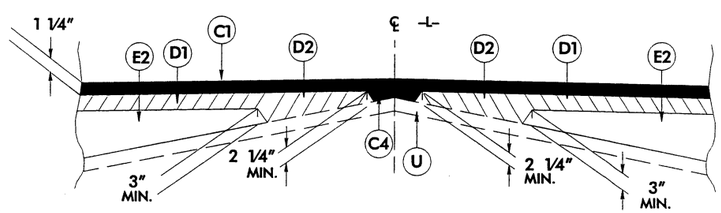
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

CODE	DESCRIPTION
C1	PROP. APPROX. 1¼" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS PER SQ. YARD.
C2	PROP. APPROX. 2½" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS PER SQ. YARD IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 1½" ASPHALT CONC. SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 168 LBS PER SQ. YARD.
C4	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS PER SQ. YARD PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1-1/2" IN DEPTH.
D1	PROP. APPROX. 2¼" ASPHALT CONC. INTERMEDIATE COURSE, TYPE 119.0B, AT AN AVERAGE RATE OF 256.5 LBS PER SQ. YARD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 300 LBS PER SQ. YARD.
E2	PROP. VAR. DEPTH ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS PER SQ. YARD PER 1" DEPTH. TO BE PLACED IN LAYERS NOT GREATER THAN 5½" IN DEPTH OR LESS THAN 3" IN DEPTH.
JI	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT MATERIAL.
W	VAR. DEPTH ASPHALT PAVEMENT. (SEE WEDGING DETAIL)

USE 1:1 PAVEMENT EDGE SLOPES UNLESS OTHERWISE NOTED



WEDGING DETAIL

WEDGE AS REQUIRED TO ACHIEVE DESIRED CROSS SLOPE AS DIRECTED BY ENGINEER

6/21/00

COMPUTED BY: J. RECK DATE: 03-11-03
CHECKED BY: MRB DATE: 03-11-03

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

KCI Associates
of North Carolina, P.A.
RALEIGH OFFICE
ENGINEERS • PLANNERS • ECOLOGISTS

SUITE 200, LANDMARK CENTER I
4601 SIX FORKS RD.
RALEIGH, N.C. 27609-5210
(919) 783-9214

PROJECT REFERENCE NO.	SHEET NO.
B-3865	3-A

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C.P. PIPE (UNLESS NOTED OTHERWISE)								BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE)													15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)		QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03				D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	M.D.I. TYPE "A" STD. 840.17 OR 840.26	M.D.I. TYPE "B" STD. 840.18 OR 840.27	M.D.I. TYPE "D" STD. 840.19 OR 840.28	M.D.I. FRAME WITH GRATE STD. 840.22	M.D.I. FRAME WITH TWO FLAT GRATES STD. 840.29	M.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	M.D.I. FRAME WITH TWO FLAT GRATES STD. 840.29	PARALLEL PIPE END SECTION						CATCH BASIN REMOVAL EACH	CORR. STEEL ELBOWS NO. & SIZE 15"	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
SIZE								12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"		30"		36"		42"		48"					CU. YDS.		PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE		TYPE OF GRATE																											
THICKNESS OR GAUGE		FROM	TO													.064	.064	.064	.064		.079		.079		.109		.109					R.C.P.	C.S.P.					E	F	G																									
12+50 -L-	RT	1							36'																																																							
15+75 -L-	LT	2							24'																																																					16'	
16+00 -L-	RT	3							20'																																																					15'	
18+30 -L-	RT	3A							36'																																																					17'	
19+15 -L-	RT	EX																																																												21'	
19+45 -L-	RT	5	4	128.18	125.43	125.33	YES		32'																									1											1			1																
19+45 -L-	LT	4	OUT	128.18	125.33	111.50	NO		72'																									1											1			1												2				
23+10 -L-	RT	EX																																																												67'	
25+00 -L-	RT	6							36'																																																						
25+35 -L-	LT	7							24'																																																						
25+40 -L-	RT	EX																																																												23'	
30+43 -L-	LT&RT	8			128.20	127.30				88'																																																					41'	
1+55 -DET1-	RT	9															68'																																														
4+80 -DET1-	LT	10															32'																																														
5+10 -DET1-	RT	11															64'																																														
5+82 -DET1-	LT&RT	12															40'																																														
2+12 -DET2-	LT&RT	13															40'																																														
TOTAL									280'	88'							244'																	2											2			2												2			200'	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
M.D.I.	MEDIAN DROP INLET
M.D.I. (N.S.)	MEDIAN DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUCTION BOX

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

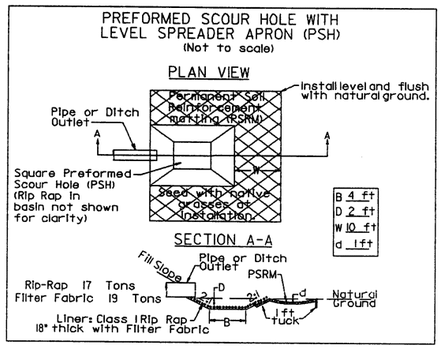
KCI Associates of North Carolina, P.A.
RALEIGH OFFICE
ENGINEERS • PLANNERS • ECOLOGISTS
SUITE 200, LANDMARK CENTER I
4601 SIX FORKS RD.
RALEIGH, N.C. 27609-5210
(919) 783-9214

B-3865	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
PARCEL 3: CHANGED RIGHT OF WAY TAKE TO A PERMANENT DRAINAGE EASEMENT.
PARCEL 4: ELIMINATED RIGHT OF WAY TAKE OF 26 SF.
PARCEL 13: ADDED A TEMPORARY DRAINAGE EASEMENT WHERE PROPOSED R/W MATCHES EXISTING R/W.
PARCEL 8: DELETED EASEMENT AND -DRIVE2- AND ADDED A TEMPORARY DRAINAGE EASEMENT
PARCEL 4: REVISED EASEMENT DUE TO ALIGNMENT CHANGES ON -DRIVE1-.

PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON (PSH)
(Not to scale)



DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

FROM STATION 13+00 TO STATION 15+50 RT.

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

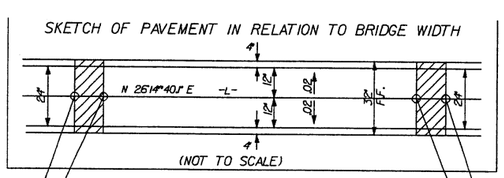
FROM STATION 15+50 TO STATION 16+50 RT.

DETAIL C
LATERAL BASE DITCH
(Not to Scale)

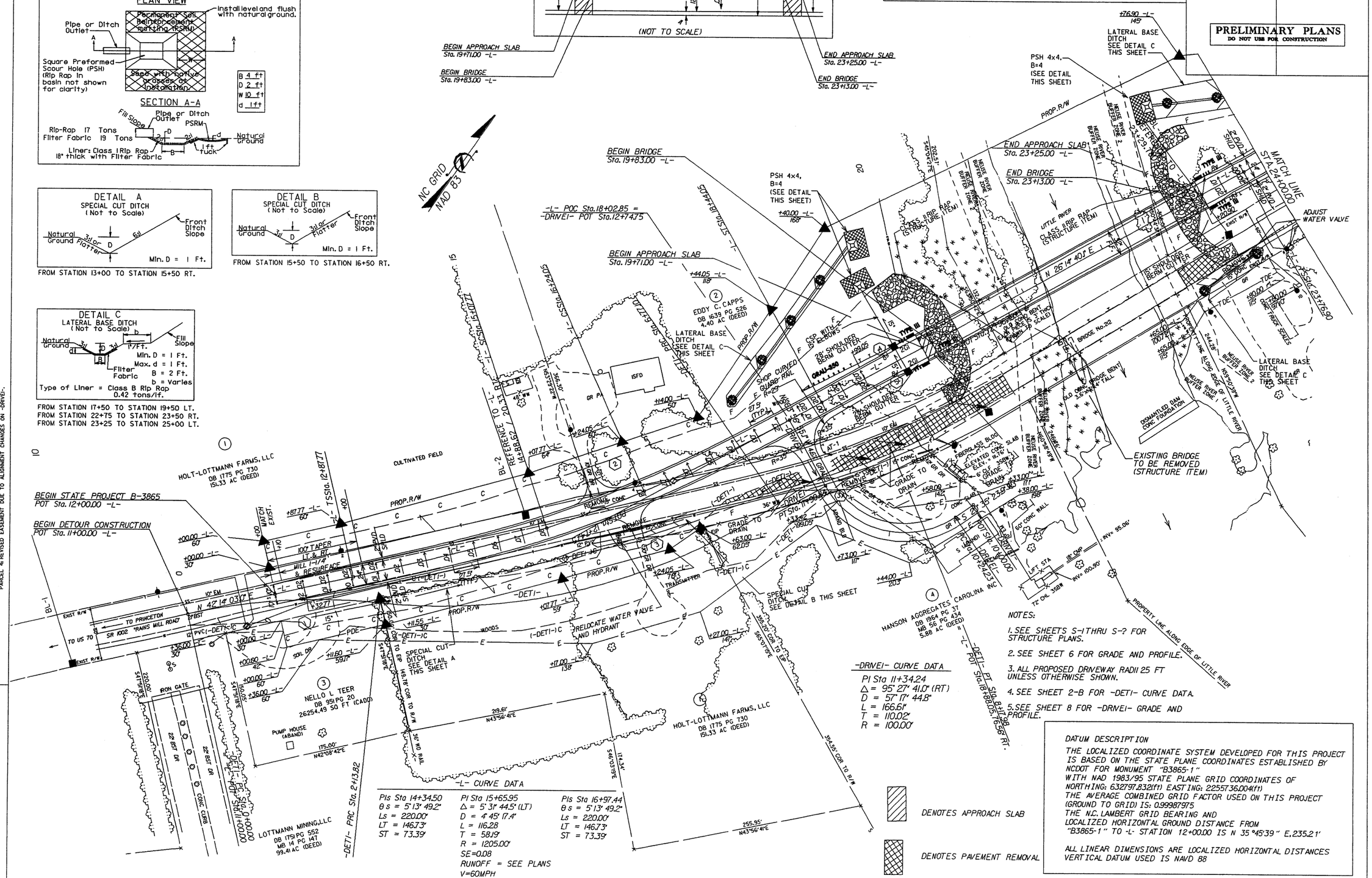
Type of Liner = Class B Rip Rap
0.42 tons/lf.

FROM STATION 17+50 TO STATION 19+50 LT.
FROM STATION 22+75 TO STATION 23+50 RT.
FROM STATION 23+25 TO STATION 25+00 LT.

SKETCH OF PAVEMENT IN RELATION TO BRIDGE WIDTH



BEGIN APPROACH SLAB
Sta. 19+71.00 -L-
BEGIN BRIDGE
Sta. 19+83.00 -L-
END APPROACH SLAB
Sta. 23+25.00 -L-
END BRIDGE
Sta. 23+13.00 -L-



NOTES:

1. SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS.
2. SEE SHEET 6 FOR GRADE AND PROFILE.
3. ALL PROPOSED DRIVEWAY RADII 25 FT UNLESS OTHERWISE SHOWN.
4. SEE SHEET 2-B FOR -DET1- CURVE DATA.
5. SEE SHEET 8 FOR -DRIVE1- GRADE AND PROFILE.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3865-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 632797.832(ft) EASTING: 2255736.004(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987975
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3865-1" TO -L- STATION 12+00.00 IS N 35°45'39" E, 235.21'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

PROJECT REFERENCE NO.	SHEET NO.
B-3865	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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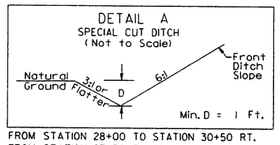
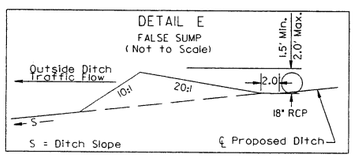
REVISIONS



FROM STATION 28+00 TO STATION 30+50 RT.
FROM STATION 27+50 TO STATION 30+50 LT.

FROM STATION 25+00 TO STATION 27+50 LT.



-DRIVE2- CURVE DATA

PI Sta 10+54.33
Δ = 0° 39' 33.2" (LT)
D = 1° 23' 22.9"
L = 47.44'
T = 23.72'
R = 4,122.92'

-L- CURVE DATA

PI Sta 32+04.20
Δ = 17° 06' 55.8" (RT)
D = 8° 11' 06.4"
L = 209.11'
T = 105.34'
R = 700.00'

-L- CURVE DATA

PIs Sta 24+70.23	PI Sta 25+66.52	PIs Sta 26+62.80
θs = 1° 20' 12.8"	Δ = 1° 53' 42.5" (RT)	θs = 1° 20' 12.8"
Ls = 140.00'	D = 1° 54' 35.5"	Ls = 140.00'
LT = 93.34'	L = 99.23	LT = 93.34'
ST = 46.67'	T = 49.62'	ST = 46.67'
	R = 3000.00'	
	SE=0.05	
	RUNOFF = SEE PLANS	
	V=60MPH	

NOTES:

1. SEE SHEET 6 FOR GRADE AND PROFILE.
2. ALL PROPOSED DRIVEWAY RADII 25 FT UNLESS OTHERWISE SHOWN.
3. SEE SHEET 2-C FOR -DET2- CURVE DATA.
4. SEE SHEET 8 FOR -DRIVE2- GRADE AND PROFILE.

DENOTES PAVEMENT REMOVAL

Johnston County
SR 1002 (Rains Mill Road)
Bridge No. 212 over Little River
Federal-Aid Project No. BRSTP-1002(8)
State Project No. 8.2312601
T.I.P. No. B-3865

CATEGORICAL EXCLUSION

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

N.C. DEPARTMENT OF TRANSPORTATION

APPROVED:

for _____
William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

4-30-2002
DATE

for _____
Nicholas L. Graf, P.E.
Division Administrator, FHWA

4-30-2002
DATE

Johnston County
SR 1002 (Rains Mill Road)
Bridge No. 212 over Little River
Federal-Aid Project No. BRSTP-1002(8)
State Project No. 8.2312601
T.I.P. No. B-3865

CATEGORICAL EXCLUSION

April 2002

Documentation Prepared By Ko & Associates, P.C.

L. J. Ward, P.E.
Project Manager - Ko & Associates

For North Carolina Department of Transportation

Robert Andrew Joyner, P.E.
Project Development Engineer

PROJECT COMMITMENTS

Johnston County
SR 1002 (Rains Mill Road)
Bridge No. 212 over Little River
Federal-Aid Project No. BRSTP-1002(8)
State Project No. 8.2312601
T.I.P. No. B-3865

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

Highway Design Branch, Division 4

Little River is a tributary of the Neuse River, so there is a possibility of shortnose sturgeon among other more common, anadromous fishes. Design and scheduling of bridge replacement shall avoid the necessity of in-stream activities during the spring migration period (February 1 to June 15).

Roadside Environmental Unit, Division 4

Mussel surveys were conducted at the project site by the North Carolina Wildlife Resources Commission staff. Although no federally protected mussel species were found, six species of native fresh water mussels were found during the survey. These species include the Roanoke *slabshell (Elliptio. roanokensis*), Threatened in North Carolina and the eastern lampmussel (*Lampsillis radiata),* which will be upgraded to Threatened in North Carolina effective July 1, 2002. Implementation of High Quality Water erosion control standards are recommended to minimize the impacts to the mussel faunal occurring at the site as well as avoid potential impacts to populations that may occur downstream of the project area.

Johnston County
SR 1002 (Rains Mill Road)
Bridge No. 212 over Little River
Federal-Aid Project No. BRSTP-1002(8)
State Project No. 8.2312601
T.I.P. No. B-3865

INTRODUCTION: The replacement of Bridge No. 212 is included in the North Carolina Department of Transportation 2002-2008 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

Bridge Maintenance Unit records indicated the bridge has a sufficiency rating of 39.2 out of a possible 100 for a new structure. The bridge is considered functionally obsolete and structurally deficient. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

SR 1002 (Rains Mill Road) crosses over Little River approximately 0.8 miles (1.3 kilometers) north of the intersection with US 70 and north of Princeton in Johnston County. Development in the immediate area is sparse. Two residential dwellings and associated outbuildings are located on the south approach, and there is a cluster of six metal grain bins and an old platform scale off the northeast corner of the existing bridge. SR 1002 is classified as a Rural Major Collector in the Statewide Functional Classification System.

SR 1002 has a current pavement width of 19 feet (5.8 meters) with 6-foot (1.8-meter) grass shoulders in the area of the bridge. The bridge structure is in a tangent section with a sag vertical alignment both north and south of the existing structure. There is a left curve (6-degree) approaching the bridge from the south and a right curve (9-degree) approximately 700-feet (213.3 meters) north of the bridge. Sight distance is good both to the north and to the south of the bridge.

The estimated traffic volumes on SR 1002 at Little River were 3600 vehicles per day (vpd) in 2000 and are projected to be 6800 vpd for the design year 2025. The volumes include an estimated 1 percent truck-tractor semi-trailer (TTST) and 3 percent dual-tired (DT) vehicles. The posted speed limit is 55 mph (88.5 kmph) in the vicinity of the bridge.

Bridge No. 212, as shown in Figures 2A and 2B, has an overall length of 225 feet (68.6 meters) and a clear deck width of 22 feet (6.6 meters). The existing two-lane bridge has a reinforced concrete deck on I-beams supported by reinforced concrete caps and piles at approximate 45-foot (13.7-meter) centers. The structure was constructed in 1955. The current posted weight limit is 20 tons (18.1 metric tons) for single unit vehicles and 24 tons (21.8 metric tons) for truck-tractor semi-trailer vehicles. The bridge has a sufficiency rating of 39.2 compared to a rating of 100 for a new structure and approaches. Bridge No. 212 has a bed-to-crown distance of approximately 16 feet (4.8 meters).

Six accidents were reported in the vicinity of the bridge during the period from March 1, 1997 to February 28, 2000. The accidents were predominantly sideswipe and rear-end type. Four of the accidents were at Bridge No. 212. The accident rate is 638.6 accidents per 100 million vehicle miles of travel (377.86 accidents per 100 million vehicle kilometers) which is higher than the statewide average of 261.86 accidents per 100 mvm of travel (162.75 accidents per 100 mvkm of travel) for rural secondary routes (2 lanes undivided).

An overhead power and telephone line are on the east side of the bridge. The telephone line is underground along the approaches to approximately 400 feet (122 meters) south and 100 feet (30 meters) north of the bridge. There are no utilities attached to the bridge.

Nine public school buses cross the present bridge two times per day.

III. ALTERNATIVES

A. Project Description

NCDOT proposes to replace Bridge No. 212 with a new bridge approximately 240 feet (73.2 meters) long with a clear roadway width of 30 feet (9.2 meters). New approaches to the bridge will provide 12-foot (3.6 meter) travel lanes in each direction with 8-foot (2.4 meter) shoulders [2-foot (0.6 meter) paved]. The proposed cross sections are

shown in Figure 7. The design speed will be 60 mph (96.56 kph).

B. Detailed Study Alternatives

The studied alternatives were: (1) to replace the structure on 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 on the existing location closing SR 1002 and utilizing an off-site detour. These alternatives are shown in Figures 3, 4, and 5. The investigation of the temporary detour alternative is compared with the off-site detour alternative. The posted speed limit is 55 mph (88.6 kph) and the corresponding design speed is 60 mph (96.56 kph). With a 60 mph (96.6 kph) design speed, the existing grade at the crossing will be raised 2-3 feet (0.6-0.9 meters).

Alternate 1 replaces the existing structure on the existing location with an on-site temporary detour on the west side. The estimated cost of the detour is $ 525,000 and no improvement is made to the south approach to the bridge. **Alternate 2** (Preferred) replaces the existing structure on new alignment west of the existing bridge at a cost comparable to Alternate 1. **Alternate 3** replaces the existing structure with a new bridge in the existing location, closing SR 1002 to through traffic during construction and utilizing an off-site detour at a cost savings of $ 400,000 compared to Alternate 2.

The possible off-site detour route (Figure 6) suggested by the Division includes utilizing SR 2342, SR 2320, SR 2141, US 70A and US 70. A second suggested route would be SR 1002, SR 1330, SR 1234, and US 70. The first route is in good condition with the exception of SR 2141, which is posted for 6.5 tons (5.9 metric tons) maximum axle weight. In addition, three structures are on the route. One is not posted, one is posted 10 tons (9.1 metric tons) for duals and 13 tons (11.8 metric tons) for truck-tractor, semi-trailers. The remaining one is posted 23 tons (20.9 metric tons) for duals and 24 tons (21.8 metric tons) for truck-tractor, semi-trailers. The second route has no posted structures, but SR 1330 is recommended to be resurfaced prior to being used as a detour route.

The Johnston/Wayne County maps indicate SR 1002 connects US 70 at Princeton to the northern sections of Goldsboro near the Goldsboro-Wayne Municipal Airport. At its junction with SR 2342 just north of Bridge No. 212, there is a large turning movement north-to-west. This turning traffic seems to have an origin-destination from Raines Crossroads. The distance from Raines Crossroads to Princeton via SR 2342 and SR 1002 is 3.7 miles (6.0 kilometers). The distance via SR 2320, SR 2323 and SR 2316 is

5.6 miles (9.0 kilometers). For 1,300 vehicles per day the excess distance is 1.9 miles (3.1 kilometers). For traffic to and from the Goldsboro area, beginning at Pike Crossroads, the distance to Princeton via SR 1002 is 5.8 miles (9.3 kilometers) and via SR 1002, SR 1234, and US 70, 7.4 miles. For a maximum of 2,200 vehicles per day, the excess travel would be 1.6 miles (2.6 kilometers). With a 1-year construction period, the maximum additional road user cost is estimated at $ 710,600. The benefit cost ratio, which compares the road user cost to the cost for an on-site detour is 1.35. The benefit cost ratio for the additional cost of the new alignment alternate (Alternate 2 minus Alternate 3) is 1.73.

Alternate 1 was not selected since it has a higher estimated cost as a result of constructing a temporary detour. Alternate 3 was not selected because it requires closing the road during the estimated one year construction period. Road closure was opposed by the Town of Princeton, local emergency response personnel, and local residents.

C. Alternatives Eliminated from Further Study

The No-Build or "do-nothing" alternative was also considered but this alternative would eventually necessitate closure of the bridge. This is not a desirable alternative due to the traffic service provided by SR 1002.

Investigation of the existing structure by the NCDOT Bridge Maintenance Unit indicates that rehabilitation of Bridge No. 212 is not feasible due to its age and deteriorated condition. The existing bridge is classified as structurally deficient.

D. Preferred Alternative

Alternate 2, replacing the existing bridge on new alignment immediately west of and parallel to the existing bridge is the preferred alternative. Alternate 2 was selected because it is the most economical option that maintains traffic service on-site. The new structure will be 240 feet (73.2 meters) long with a clear roadway width of 30 feet (9.2 meters). New approaches to the bridge will provide 12-foot (3.6 meter) travel lanes with 8-foot (2.4 meter) shoulders including 2-foot (0.6 meter) paved shoulders. Approximately 1600 feet (488 meters) of new approaches will be required. The design speed will be 60 mph (96.56 kmph). The estimated cost for the recommended proposed improvement is $1,378,800. The current estimated cost of the project, as shown in the NCDOT 2002-2008 Transportation Improvement Program, is $ 100,000 for right-of-way and $1,100,000 for construction.

The Division Office concurs with the recommended improvements.

IV. ESTIMATED COST

The estimated costs of the alternatives studied, based on 2001 prices, are shown in the following table:

	Alternate 1 On-site Detour West Side	Alternate 2 New Location West Side (Preferred)	Alternate 3 Off-site Detour
Structure Removal	$ 39,600.00	$ 39,600.00	$ 39,600.00
Structure	$ 468,000.00	$ 468,000.00	$ 468,000.00
Roadway Approaches	$ 73,600.00	$ 312,200.00	$ 70,600.00
Mobilization and Miscellaneous	$ 202,000.00	$ 311,000.00	$ 205,000.00
Engineering and Contingencies	$116,800.00	$ 169,200.00	$ 116,800.00
Temporary Detour	$ 525,000.00	NA	NA
SUBTOTAL	$ 1,425,000.00	$ 1,300,000.00	$ 900,000.00
Right-of-Way/Const. Ease./Util.	$ 68,900.00	$ 78,800.00	$ 31,600.00
TOTAL	$ 1,493,900.00	$ 1,378,800.00	$ 931,600.00

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.

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 (Princeton, NC 7.5 minute quadrangle, 1974), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping (USFWS NWI 2000), and recent aerial photography (scale: 1 inch=100 feet).

Bridge No. 212 was visited on November 20, 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 1200 feet (366 meters) in length for Alternate 1, 1850 feet (564 meters) for Alternate 2 and 500 feet (152 meters) in length for Alternate 3. The corridor width was 150 feet (45.7 meters) from centerline to the west of SR 1002 and 100 feet (30.5 meters) from centerline to the east of SR 1002 for all three alternatives to ensure adequate coverage. Plant community area and wetland 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 and stream widths. Actual impacts will be limited to construction limits and are expected to be less than those shown for right of ways. Buffer length impacts are based on cut-and-fill boundaries for permanent impacts and construction easements for temporary impacts. Buffer area impacts are calculated as buffer length times buffer width (50 feet [15.2 meters]). Special concerns evaluated in the field include potential habitat for protected species and wetlands and water quality protection in Little River.

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 Johnston 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 northwest extremity of the Large River Valleys and Flood Plain System geologic formation within the Coastal Plain physiographic province of North Carolina. Wide river valleys with narrow floodplains and several well-defined terraces that are a few yards to several miles wide characterize this system. Soil systems have been formed from Piedmont and Coastal Plain sediments. Soils on the terraces are sandy and loamy in texture, with finer sediments in more poorly drained areas. The Large River Valley and Flood Plain System is distinguished by susceptibility to flooding and abrupt juxtaposition of soil textures caused by depositional patterns of alluvium (Daniels *et al.* 1999). The study corridor is located within and adjacent to the floodplain of Little River. Within the study corridor, the narrow floodplain is flanked by terraces which rise 25 to 30 feet (7.6 to 9.1 meters) from the valley floor. Elevations in the study corridor are approximately 100 to 130 feet (30.4 to 39.6 meters) National Geodetic Vertical Datum (NGVD) (USGS Princeton, NC quadrangle). In the southwest quadrant of the study corridor (the south bank of Little River, west of Bridge No. 212), a natural levee rises from the stream bank and fronts a backwater slough, from which the floodplain slopes upward to the terrace surface.

The Natural Resources Conservation Service (NRCS) indicates the following soils in the study corridor: Wehadkee loam (*Typic Fluvaquents*), Goldsboro sandy loam (*Aquic Paleudults*), Gilead sandy loam (*Aquic Hapludults*), State sandy loam (*Typic Hapludults*), Lynchburg sandy loam (*Aeric Paleaquults*) and Cowarts loamy sand (*Typic Kanhapludults*) (USDA 1994).

The Wehadkee series consists of very deep, poorly drained soils on floodplains, with

slopes of less than 2 percent. They formed in recent alluvial sediments, and are frequently flooded. The Goldsboro series consists of very deep, moderately permeable, moderately well drained soils that formed in Coastal Plain sediments. These soils are found on uplands; in the study corridor they are located on the flat upper terraces on both banks of the Little River. Slopes are 0 to 2 percent. The Gilead series is a very deep, moderately well drained series found in the uplands of the North Carolina Coastal Plain. They formed from loamy and clayey marine sediments. The Gilead series is found on lower terraces of the north bank of Little River, with slopes of 8 to 15 percent. The State series is found on the south floodplain and terraces of Little River. State soils are very deep and well drained. They formed from loamy alluvial sediments. In the study corridor, slopes are 0 to 3 percent, and State soils are occasionally flooded. The Lynchburg series is on uplands along SR 1002 north of Bridge No. 212. Lynchburg soils are very deep, somewhat poorly drained soils with slopes of 0 to 2 percent. They are formed from loamy marine sediments. Cowarts soils are on upper terraces on the south bank of Little River, with slopes of 6 to 10 percent. This series consists of very deep, well drained soils in uplands on the Coastal Plain, formed from loamy marine sediments (USDA 1994, Daniels *et al.* 1999).

Of the predominant soil map units in the study corridor, the NRCS lists the Wehadkee series as hydric. In addition, two series have hydric soil inclusions: Goldsboro, with inclusions of Rains soils, and Lynchburg, with inclusions of Toisnot, Grantham, and Rains. Inclusions occur in depressions within the larger soil matrix, or around the edges of the map unit. These hydric soils are saturated for a significant period during the growing season, and support woody vegetation under natural conditions (USDA 1996). The Rains series (*Typic Paleaquults*) is very deep, poorly drained, moderately permeable, and formed in thick, loamy sediments on marine terraces. These soils are on level flats or in depressions, with slopes of 0 to 2 percent, and are likely to have a loamy sand surface texture. Toisnot loam (*Typic Fragiaquults*) is poorly drained and found in the lower areas of the Lynchburg map units. The Grantham series (*Typic Paleaquults*) is poorly drained silt loam in slight depressions within the Lynchburg map units. Slopes are 0 to 2 percent (USDA 1994).

C. WATER RESOURCES

1. Waters Impacted

The study corridor is located within sub-basin 03-04-06 of the Neuse River Basin (DWQ 1999). This area is part of USGS accounting unit 03020201 of the South Atlantic-Gulf Coast Region. The section of Little River crossed by Bridge No. 212 has been assigned Stream Index Number 27-57-(20.2) by the N.C. Division of Water Quality (DWQ 1998).

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2. Water Resources Characteristics

The Little River has an average slope of 2.6 feet per mile (0.8 meters per 1.6 kilometers) as it meanders through the Coastal Plain in its lower reaches. It is a third-order blackwater stream that has some swamp-like characteristics, including slight tannin staining and moderate flow. Within the study corridor, Little River is broad and shallow, exhibiting weak sinuosity and a weakly developed riffle and pool sequence. Width of the stream was approximately 100 feet (30.5 meters) at the point of the bridge crossing. During the field survey, water depths along the study corridor varied from 0 to 24 inches (0.0 to 61.0 centimeters). The water level was low, with 1.5 to 2 feet (45.7 to 61.0 centimeters) of exposed riverbank above the water surface. Exposed bars of clay, coarse sand, and organic material were seen within and beyond the 250-foot (76.2-meter) length of the river within the study corridor. Large woody debris is abundant in the streambed, as well as large rocks and pieces of concrete. The remains of an old dam footing downstream of the present bridge protruded slightly above the water surface. This old footing collects additional sand and debris as they flow down the river. Emergent aquatic vegetation was observed along the stream banks, including smartweed (*Polygonum* sp.), creeping seedbox (*Ludwigia repens*) and alligator weed (*Alternanthera philoxeroides*). Water clarity was good during the field visit. The streambed was visible in most places, despite a rain event on the night before the field visit. The substrate ranges from coarse sand in overwash areas to clay in the main stream channel. The exposed stream banks are also composed of clay. Sedimentation and erosion are not apparent in the section of the river observed during the field visit.

The stream bank rises abruptly from the stream on the north shore to a level terrace. On the south shore, west of the bridge, the bank rises steeply to a natural levee fronting a backwater slough. Behind this slough, there is a gradual rise to the first river terrace. The southwest bank of the river lacks a natural levee, and rises gradually to the first river terrace.

The floodplain and terraces support mixed pine-hardwood forest, bottomland hardwood forest, and levee and mud bar plant communities, as well as more disturbed and early-successional areas. Three areas of hydric soils were located: 1) on the north bank of Little River, east of Bridge No. 212, 2) on the south bank in a backwater slough behind a natural levee west of the bridge, and 3) on the south bank east of the bridge. The southeast area of hydric soils includes a small peninsula of organic material which extends upstream into Little River.

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 WS-IV NSW has been assigned to Little River. The designation WS-IV denotes water supply waters that are located in moderately to highly developed watersheds; point source discharges of treated wastewater are permitted under certain restrictions, and local programs to control nonpoint source and stormwater discharge of pollution are required. Suitable uses of these waters include aquatic life propagation and survival, fishing, wildlife habitat, 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 supplementary classification NSW denotes nutrient sensitive waters which need additional nutrient management because they are subject to excessive growth of microscopic and macroscopic vegetation (DWQ 1998). 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 (1.6 kilometers) 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 Neuse River basin management plan. Water quality samples in 1995 indicated Good-Fair water based on macroinvertebrate samples, but Good quality based on fish samples. Little River has been monitored and sampled at three locations and has a use support rating of fully supporting but threatened in 69 percent of its reaches. An additional 29 percent of Little River waters are rated partially supporting. The Neuse sub-basin 03-04-06, containing the entire Little River catchment from its headwaters at Moore's Millpond to its confluence with the Neuse River near Goldsboro, supports major discharges from the Kenly Regional WWTP (0.52 million gallons per day [2.0 million liters per day] permitted flow). Minor discharges originate from agricultural and forestry operations and a growing component of small towns (DWQ 1999).

3. Anticipated Impacts to Water Resources

a) General Impacts

Proposed project alternatives include complete bridging of Little River 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 steams by catch basins and roadside vegetation.

The proposed bridge replacement will allow for continuation of pre-project stream flows in Little River, 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.

b) Impacts Related to Bridge Demolition and Removal

There is potential that components of the existing bridge may be dropped into "waters of the United States" during construction. Since Bridge No. 212 consists of reinforced concrete deck, bent caps and columns there is a potential for approximately 115 cubic yards (87.9 cubic meters) of temporary fill to result from bridge removal. In consideration of surface water impacts, this project can be classified as Case 2, where no in-stream work may occur during moratorium periods due to anadromous fish migration. NCDOT will coordinate with the various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved. NCDOT's "Best Management Practices for Bridge Demolition and Removal" (BMP-BDR) must be applied for the removal of this bridge.

D. BIOTIC RESOURCES

1. Plant Communities

Six distinct plant communities were identified within the study corridor: mixed pine-hardwood forest, including successional shrub areas; Coastal Plain Bottomland Hardwoods (Blackwater Subtype); Coastal Pain Levee Forest (Blackwater Subtype); Sand and Mud Bar; Urban/Disturbed land; and Agricultural land. These plant communities are described below.

a) Mixed Pine-Hardwood Forest

Mixed pine-hardwood forest occurs on the terraces north and south of Little River and continues up to the interstream divides outside of the study corridor. This community is likely in a successional stage leading to Mesic Mixed Hardwood Forest, Coastal Plain Subtype, described by Schafale and Weakley (1990) as occurring on north-facing slopes, ravines, and mesic upland areas historically protected from fire. Under natural conditions, these forests are uneven-aged, with the canopy dominated by mesophytic hardwoods. At the Little River study corridor, the canopy includes loblolly pine (*Pinus taeda*), black cherry (*Prunus serotina*), sweetgum (*Liquidambar styraciflua*), southern red oak (*Quercus falcata*), water oak (*Q. nigra*), river birch (*Betula nigra*) and blackgum (*Nyssa sylvatica*). The midstory and shrub layer are well-developed. Dominant species are Chinese privet (*Ligustrum sinense*), red maple (*Acer rubrum*), blackberry (*Rubus argutus*), and beautyberry (*Callicarpa americana*), with scattered winged elm (*Ulmus alata*) and green ash (*Fraxinus pennsylvanica*) saplings. Vines are sparse to common in more open patches, including muscadine (*Vitis rotundifolia*), Japanese honeysuckle (*Lonicera japonica*), Carolina jessamine (*Gelsemium sempervirens*), and greenbrier (*Smilax rotundifolia*). The understory is sparse, and includes netted chain-fern (*Woodwardia areolata*) and giant cane (*Arundinaria gigantea*). This community type exists in an early-successional shrub phase on the northwest bank of Little River, adjacent to a residential lot. In addition to loblolly pine, black cherry, and red maple, the developing canopy layer contains chinaberry (*Melia azederach*), black walnut (*Juglans nigra*), black willow (*Salix nigra*), water ash (*Fraxinus caroliniana*), and swamp cottonwood (*Populus heterophylla*). Shrubs include groundsel (*Baccharis halimifolia*) and hardwood saplings. Goldenrod (*Solidago* sp.), broomsedge (*Andropogon virginicus*), dog fennel (*Eupatorium capillifolium*), and beggar-ticks (*Bidens frondosa*) are dominant in the herb layer.

b) Coastal Plain Bottomland Hardwoods (Blackwater Subtype)

Schafale and Weakley (1990) describe this community type as occurring in relict natural levee deposits, point bar ridges, and other higher parts of river floodplains. Soils include various bottomland mineral soils, which are seasonally to intermittently flooded. At the study corridor, Coastal Bottomland Hardwoods occur in a backwater slough fronted by a natural levee on the south bank of Little River. Another area of bottomland hardwoods is adjacent to the north bank of the river, west of Bridge No. 212. Both areas merge into mixed pine-hardwood forest as the land surface slopes upward from the floodplain. Canopy vegetation consists of water ash, cherrybark oak (*Quercus pagoda*), and river birch. The shrub layer includes black willow, groundsel, and young red maples. Herbs include smartweeds (*Polygonum* spp.), alligator-weed (*Alternanthera philoxeroides*), camphor-weed (*Pluchea camphorata*), dog fennel, beggar-ticks, and pokeweed (*Phytolacca americana*).

c) Coastal Plain Levee Forest (Blackwater Subtype)

Coastal Plain Levee Forest occurs on a natural levee on the southwest quadrant of the study corridor, where the river bank extends slightly into the Little River. Schafale and Weakley (1990) describe this community as occurring on natural levee deposits on sandy, loamy, or mucky soils. The levee areas are often too small to be distinguished on soil maps. Water flow and flooding regimes are highly variable, as is typical of blackwater river systems. At Bridge No. 212, old, multi-stemmed, water ash trees dominate the Levee Forest. No other canopy tree species are common. The shrub layer is sparse with a few groundsel bushes and large herbs such as beggar-ticks and pokeweed. Herbs include dog fennel, climbing hempweed (*Mikania scandens*), and goldenrod.

d) Sand and Mud Bar

Sand and Mud Bars occur along both banks of the Little River. Schafale and Weakley (1990) define these areas as sand and mud deposits in and adjacent to streams, which lack soil development. They do not support forest canopies. Within the Little River study corridor, Sand and Mud Bars are composed of clay, coarse sand and gravel, or organic material. A small wetland area on the north bank of Little River just east of Bridge No. 212 has clay substrate and supports seedlings of cherrybark oak, black willow, and green ash. Herbs include seedbox (*Ludwigia alternifolia*), creeping seedbox, smartweed, soft rush (*Juncus effusus*), mallow (*Hibiscus* sp.), and camphor-

weed. On the southeast bank, a bar composed of coarse, organic material juts upstream into the Little River. It supports no vegetation except for a few black willow seedlings. The bar fronts a slough of stationary water, from which a clay mud bank gradually rises. This bank is frequently flooded, and supports a mud bar community composed in large part of a thick mat of smartweed. Other vegetation includes alligator-weed, creeping seedbox, soft rush, sedges (Cyperaceae spp.), and a few scattered black willow, green ash, and blackgum seedlings. Exposed clay riverbanks along the study corridor also support small areas of Sand and Mud Bar community.

e) Urban/Disturbed Land

Urban/disturbed land occurs along the right of way of SR 1002, and at residential lots, old home sites, and an agricultural storage operation along the study corridor. The roadside area is approximately 20 feet (6.1 meters) wide. The roadside margin is planted with bluegrass (*Poa* sp.) and fescue (*Festuca* sp.). Roadside ditches provide stormwater drainage. At home and farming operation sites, disturbed land includes planted grass lawns and other vegetation grading into early-successional stages of mixed pine-hardwood forest. Canopy tree species found at these sites include chinaberry, loblolly pine, red maple, eastern red cedar (*Juniperus virginiana*), pecan (*Carya illinoensis*), sweetgum, catalpa (*Catalpa* sp.), and black cherry. Shrubs include groundsel, blackberry, and Chinese privet. The herb layer is dense and rich in sunny sites, with goldenrod, dog fennel, beggar-ticks, broomsedge, pokeweed, dock (*Rumex* sp.), and mallow (*Sida rhombifolia*), along with planted and naturally occurring grasses including bamboo grass (*Dicanthelium scoparium*).

f) Agricultural land

Large areas of agricultural land extend from the edges of the study corridor, including a cotton field to the southwest, an active cow pasture to the northwest, and a fallow field or pasture in the northeast section of the study corridor. Along with crop and pasture plants, weedy species include sicklepod (*Cassia obtusifolia*), evening primrose (*Oenothera biennis*), and paspalum grass (*Paspalum* sp.). These areas are buffered from the Little River by 300 to 600 feet (91.4 to 182.9 meters) of vegetated land, and are not expected to contribute significant amounts of agricultural nutrients or sediment to the river flow.

2. Wildlife

During the field survey, tracks of white-tailed deer (*Odocoileus virginianus*) and raccoon (*Procyon lotor*) were observed within the study corridor. Some characteristic mammals which are expected to frequent wooded and brushy river corridors in the upper Coastal Plain include Virginia opossum (*Didelphis virginiana*), southeastern shrew (*Sorex longirostris*), red bat (*Lasiurus borealis*), southern flying squirrel (*Glaucomys volans*), eastern harvest mouse (*Reithrodontomys humulis*), hispid cotton rat (*Sigmodon hispidus*), red fox (*Vulpes vulpes*), and mink (*Mustela vision*).

Bird species that were identified during the field survey are American robin (*Turdus migratorius*), red-tailed hawk (*Buteo jamaicensis*), American crow (*Corvus brachyrhyncos*), Carolina chickadee (*Poecile carolinensis*), tufted titmouse (*Baeolophus bicolor*), white-throated sparrow (*Zonotrichia albicollis*), and turkey vulture (*Cathartes aura*). The semi-wooded riverside habitat might be expected to also support habitat for other species, including wood duck (*Aix sponsa*), red-shouldered hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*), common snipe (*Gallinago gallinago*), mourning dove (*Zenaida macroura*), belted kingfisher (*Megaceryle alcyon*), common flicker (*Colaptes auratus*), downy woodpecker (*Picoides pubescens*), eastern phoebe (*Sayornis phoebe*), brown thrasher (*Toxostoma rufum*), eastern bluebird (*Sialia sialis*), ruby-crowned kinglet (*Regulus calendula*), loggerhead shrike (*Lanius ludovicianus*), yellow-rumped warbler (*Dendroica coronata*), purple finch (*Carpodacus purpureus*), American goldfinch (*Carduelis tristis*), and eastern towhee (*Pipilo erythrophthalmus*).

No terrestrial reptile or amphibian species were observed within the study corridor. Species that might be expected in this habitat are eastern spadefoot toad (*Scaphiopus holbrooki*), Fowler's toad (*Bufo woodhousei*), northern cricket frog (*Acris gryllus*), Carolina anole (*Anolis carolinensis*), southeastern five-lined skink (*Eumeces inexpectatus*), eastern hognose snake (*Heterodon platyrhinos*), king snake (*Lampropeltis getulus*), brown snake (*Storeria dekayi*), and eastern garter snake (*Thamnophis sir*

3. Aquatic Communities

No aquatic amphibian or reptile was observed during the field survey. Little River provides suitable habitat for aquatic and semi-aquatic reptiles including river cooter (*Pseudemys concinna*), rainbow snake (*Farancia erytrogramma*), and banded water snake (*Nerodia fasciata*). Typical amphibian species for this habitat type include dwarf mudpuppy (*Necturus punctatus*), marbled salamander (*Ambystoma opacum*), green

frog (*Rana clamitans*), and squirrel treefrog (*Hyla squirella*). No mollusks or arthropods were observed. The NHP has documented the Neuse River waterdog (*Necturus lewisi*) approximately 2.2 miles (3.5 kilometers) northwest of the study corridor in the Little River.

No sampling was undertaken in Little River to determine fishery potential. Small minnows were seen during visual surveys, but no larger fish were noted. Species which may be present within Little River include eastern silvery minnow (*Hybognathus regius*), golden shiner (*Notemigonus crysoleucas*), creek chub (*Semotilus atromaculatus*), white catfish (*Ameiurus catus*), redfin pickerel (*Esox americanus*), and black crappie (*Pomoxis nigromaculatus*). The NHP records the occurrence of the Roanoke bass (*Ambloplites cavifrons*) just downstream of Bridge No. 212. The Roanoke bass has also been observed approximately 1.8 miles (2.9 kilometers) northwest of the study corridor in the Little River. Other species of special concern were recorded near a gaging station 2.2 miles (3.5 kilometers) northwest of the study site in the Little River. Species recorded at this spot are the Pinewoods shiner (*Lythrurus matutinus*) and Carolina madtom (*Noturus furiosus*).

Since this project is in the Coastal Plain and includes the crossing of a stream delineated on the most recent USGA 7.5-minute topographic quadrangle, anadromous fish passage should be considered in the timing of any proposed in-stream activities associated with bridge replacement. Little River is a tributary of the Neuse River, so there is a possibility of shortnose sturgeon among other more common, anadromous fishes. Design and scheduling of bridge replacement shall avoid the necessity of in-stream activities during the spring migration period (February 1 to June 15).

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. 212 for Alternates 1-3 are presented in Table 1.

Alternate 1 calls for a temporary detour west (upstream) of Bridge No. 212. Permanent impacts to plant communities resulting from bridge replacement in Alternate 1 are generally restricted to narrow strips adjacent to the existing bridge and roadway approach segments, resulting from improvements in road grading. Approximately 11 percent of the impacts occur in disturbed land, with 89 percent occurring in the more natural community types (mixed pine-hardwoods, bottomland hardwoods, levee forest, and sand and mud bar communities). Temporary impacts for Alternate 1 involve a 1200 foot (365.8 meter) long easement, 150 feet (45.7 meters) 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 86 percent natural communities and 14 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 Alternate 1 are almost twice those for Alternate 3, and approximately 28 percent those for Alternate 2.

Alternate 2 calls for relocating the bridge to the west of the existing roadway. The existing Bridge No. 212 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 48 percent of the area impacted consists of natural communities, with 52 percent of impacts to disturbed land on the existing roadway margins, residential and agricultural developments, and agricultural land. Alternate 2 has the highest permanent impacts of the three alternatives due to its long project corridor and the relocation of the permanent roadway. Permanent impacts are six to seven times larger than for Alternatives 1 and 3. At completion of the new bridge and approach roadway, the existing Bridge No. 212 and adjacent road sections will be dismantled and replanted. This will involve approximately 1400 feet (42.7 meters) of roadway, with 0.96 acre (0.39 hectare) of pavement and 1.29 acre (0.52 hectare) of grassy right of way, for a total of 2.25 acres (0.91 hectare) to be replanted.

Alternate 3 involves replacement of the bridge in place, with an off-site detour. Permanent impacts to plant communities are identical to those in Alternate 1. Temporary impacts are limited to construction easements of 100 feet (30.5 meters) in width. Of the impacted 0.79 acre (0.32 hectare), 89 percent consists of natural communities. Temporary impacts to plant communities are less for Alternate 3 because the off-site detour produces no additional temporary impacts.

From an ecological perspective, impacts of upgrading existing road facilities, called for

in Alternates 1 and 3, are minimal. No new fragmentation of plant communities will be created, as the project will result only in relocation of community boundaries. Alternates 1 and 3 may only claim narrow strips of adjacent natural communities. Alternate 1 would require that at least temporary incursion into mixed pine-hardwood forest, bottomland hardwoods, levee forest, and sand and mud bar communities, 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. Alternate 2 would impact a larger portion of plant communities than the other two alternatives, both on a temporary and a permanent basis. The permanent impacts of Alternate 2 on all community types, excluding urban/disturbed and agricultural, total 2.24 acres (0.91 hectare). These impacts may be partially offset by the reclamation of 2.25 acres (0.91 hectare) 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.

Table 1: Potential impacts to plant communities at Bridge No. 212, Johnston County, for Alternates 1, 2, and 3. Impact areas are given in acres, with hectares in parentheses.

Plant Community	ESTIMATED AREA								
	Alternate 1 Detour West of Bridge			Alternate 2 Replacement Bridge			Alternate 3 Off-site Detour		
	Temporary	Permanent	Total	Temporary	Permanent	Total	Temporary	Permanent	Total
Mixed Pine-Hardwood Forest	0.49 (0.20)	0.21 (0.08)	0.70 (0.28)	0.40 (0.16)	0.83 (0.34)	1.23 (0.50)	0.10 (0.04)	0.21 (0.08)	0.31 (0.13)
Coastal Plain Bottomland Hardwoods	0.31 (0.13)	0.10 (0.04)	0.41 (0.17)	0.26 (0.11)	0.25 (0.10)	0.51 (0.21)	0.14 (0.06)	0.10 (0.04)	0.24 (0.10)
Coastal Plain Levee Forest	0.07 (0.03)	0.00 (0.00)	0.07 (0.03)	0.06 (0.02)	0.00 (0.00)	0.06 (0.02)	0.05 (0.02)	0.00 (0.00)	0.05 (0.02)
Sand and Mud Bar	0.07 (0.03)	0.00 (0.00)	0.07 (0.03)	0.05 (0.02)	0.00 (0.00)	0.05 (0.02)	0.08 (0.03)	0.00 (0.00)	0.08 (0.03)
Urban/ Disturbed Land	0.15 (0.06)	0.04 (0.02)	0.19 (0.08)	0.41 (0.17)	0.38 (0.15)	0.79 (0.32)	0.09 (0.04)	0.04 (0.008)	0.13 (0.04)
Agricultural Land	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.31 (0.13)	0.78 (0.32)	1.09 (0.44)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
TOTAL:	1.09 (0.44)	0.35 (0.14)	1.44 (0.58)	1.49 (0.60)	2.24 (0.91)	3.73 (1.51)	0.46 (0.19)	0.35 (0.14)	0.81 (0.32)

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 Alternate 3, with longer recovery periods expected for Alternates 1 and 2. After removal of temporary bridge structures and associated fill, the area will be replanted.

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 Little River are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR section 328.3). Little River can be characterized as a perennial stream system with an consolidated bottom of clay mud.

Wetlands adjacent to Little River 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 a strip of floodplain in the southwest quadrant of the study corridor exhibits characteristics of a palustrine, broad-leaved, deciduous forest system that is seasonally flooded (PFO1C) (Cowardin *et al.* 1979). This map unit corresponds to the backwater slough area behind

a natural levee that has been described in this report as Coastal Plain Bottomland Hardwood habitat. In addition, two other areas were found to contain hydric soils, vegetation and wetland hydrology. One area, to the southeast of Bridge No. 212, is described as Sand and Mud Bar habitat. A small area across Little River consists of the same type of habitat.

The Neuse River Basin Rule applies to 50-foot (15.2-meter) wide riparian buffers directly adjacent to surface waters in the Neuse 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 Neuse Basin and affect their nutrient removal functions. Expected activities involved with project development include roadway crossing for Alternates 1 and 2, and bridge replacement for all three alternatives. For all three alternatives, greater than 150 linear feet (45.7 meters) of the banks of Little River (measured parallel to the stream) will undergo temporary or permanent impacts. In addition, Alternates 1 and 2 involve temporary or permanent impacts to greater than 0.33 acre (0.13 hectare) of stream buffer area (linear distance times buffer width). These impacts are designated Allowable with Mitigation, 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 Neuse 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 Alternates 1, 2, and 3 are given in Table 2.

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, 15.2 meters).

All three alternatives result in permanent impacts to approximately 0.05 acre (0.02 hectare) of waters of the United States, due to shading. Additional permanent encroachment beyond design plans will be avoided. Alternate 3 avoids temporary impacts to waters of the United States.

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. Buffer Rules

The Neuse River Basin Rule applies to 50-foot (15.2-meter) wide riparian buffers directly adjacent to surface waters in the Neuse 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 Neuse Basin and affect their nutrient removal functions. Expected activities involved with project development include roadway crossing for Alternates 1 and 2, and bridge replacement for all three alternatives. For all three alternatives, greater than 150 linear feet (45.7 meters) of the banks of Little River (measured parallel to the stream) will undergo temporary or permanent impacts. In addition, Alternates 1 and 2 involve temporary or permanent impacts to greater than 0.33 acre (0.13 hectare) of stream buffer area (linear distance times buffer width). These impacts are designated Allowable with Mitigation, 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 Neuse 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 Alternates 1, 2, and 3 are given in Table 2.

4. Mitigation

Section 404 compensatory mitigation is not recommended for this project due to the limited nature of project impacts to vegetated wetlands and open waters. However, 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 Section 404 jurisdictional area mitigation rests with the COE and DWQ.

All proposed alternatives will require riparian buffer mitigation due to the fact that temporary impacts exceed 150 linear feet (45.7 meters) of riparian buffer. The area of mitigation needed shall be determined by either the DWQ or a delegated local authority. Options for meeting a mitigation determination include 1) payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund, 2) donation of real property or of an interest in real property, or 3) restoration or enhancement of a non-forested riparian buffer (15A NCAC 02B .0242).

Table 2: Potentially affected areas and lengths of jurisdictional streams and riparian buffers located within the alternate right of ways. Areas are given in acres, with hectares in parentheses; lengths are given in feet, with meters in parentheses.

Jurisdictional Type	JURISDICTIONAL AREA WITHIN RIGHT-OF-WAY								
	Alternate 1			Alternate 2			Alternate 3		
	Temporary	Permanent	Total	Temporary	Permanent	Total	Temporary	Permanent	Total
Stream linear distance	20 (6.1)	22 (6.6)	42 (12.8)	30 (9.1)	22 (6.6)	52 (15.8)	0.00	22 (6.6)	22 (6.6)
Stream area	0.05 (0.02)	0.05 (0.02)	0.10 (0.04)	0.07 (0.03)	0.05 (0.02)	0.12 (0.05)	0.00	0.05 (0.02)	0.05 (0.02)
Riparian buffer linear distance	276 (84.1)	44 (13.4)	320 (97.5)	236 (71.9)	44 (13.4)	280 (85.3)	156 (47.5)	44 (13.4)	200 (61.0)
Riparian buffer area	0.32 (0.13)	0.05 (0.02)	0.37 (0.15)	0.27 (0.11)	0.05 (0.02)	0.32 (0.26)	0.18 (0.07)	0.05 (0.02)	0.23 (0.09)
Wetland area	0.06 (0.02)	0.11 (0.04)	0.17 (0.07)	0.05 (0.02)	0.00	0.05 (0.02)	0.08 (0.03)	0.00	0.08 (0.03)

F. Rare and 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 Johnston County (March 22, 2001 USFWS list) are listed in Table 3.

Table 3: Species name and status for federal-protected species in Johnston County per the March 22, 2001 USFWS list

Common Name	Scientific Name	Federal Status
Red-cockaded woodpecker	*Picoides borealis*	Endangered
Dwarf wedgemussel	*Alasmidonta heterodon*	Endangered
Tar spinymussel	*Elliptio steinstansana*	Endangered
Michaux's sumac*	*Rhus michauxii*	Endangered

*Historic occurrence in county - last seen more than 50 years ago

Red-cockaded Woodpecker - This small woodpecker (18 to 22 cm [7 to 8.5 inches] long) has a black head, prominent white cheek patch, and black-and-white barred back. Males often have red markings (cockades) behind the eye, but the cockades may be absent or difficult to see (Potter *et al.* 1980). Primary habitat consists of mature to over-mature southern pine forests dominated by loblolly (*Pinus taeda*), long-leaf (*P. palustris*), slash (*P. elliottii*), and pond (*P. serotina*) pines (Thompson and Baker 1971). Nest cavities are constructed in the heartwood of living pines, generally older than 70 years, that have been infected with red-heart disease. Nest cavity trees tend to occur in clusters, which are referred to as colonies (FWS 1985). The woodpecker drills holes into the bark around the cavity entrance, resulting in a shiny, resinous buildup around the entrance that allows for easy detection of active nest trees. Pine flatwoods or pine-dominated savannas that have been maintained by frequent natural fires serve as ideal nesting and foraging sites for this woodpecker. Development of a thick understory may result in abandonment of cavity trees. The woodpeckers utilize pine stands in close

proximity to the colony site for foraging. Foraging areas, depending on the quality of habitat, have been found to range from 84 acres (34 hectares) to over 409 acres (165.5 hectares). Food sources include wood-boring insects, grubs, beetles, corn worms and other invertebrates found within 0.5 miles (0.8 kilometers) of the colony site. Stands preferred by foraging birds are pines greater than 30 years of age although mixed pine/hardwood stands are also used.

The study area contains pine trees, but no specimens old enough to be cavity tree candidates or foraging areas for red-cockaded woodpeckers. The mixed pine-hardwood communities in the study corridor also have well-developed shrub and midstory layers, which red-cockaded woodpeckers avoid for both nesting and foraging. According to NHP records, red-cockaded have been documented in Johnston County within the last 20 years, but not within 1.0 mile (1.6 kilometers) of the study corridor. No red-cockaded woodpeckers were observed during the field visit.

BIOLOGICAL CONCLUSION: The study corridor contains no suitable foraging or nesting habitat for red-cockaded woodpeckers. NHP records document no occurrences of red-cockaded woodpeckers within 1.0 mile (1.6 kilometers) of the project corridor. Based on NHP records, field observations, and professional judgement, the impact of this project on the red-cockaded woodpecker is **NO EFFECT**.

Dwarf Wedgemussel - The dwarf wedgemussel is a small bivalve, 1 to 1.5 inches (25 to 38 millimeters) 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)

Little River is a shallow Piedmont stream with low flow. It exhibits a weak sinuosity and a weakly developed riffle and pool sequence. A coarse sand substrate exists in overwash 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, especially in areas containing submersed aquatic vegetation. However, the shallow depth of the stream may be detrimental to continued survival of the species.

NCDOT contracted the North Carolina Wildlife Resources Commission Non Game Program (NCWRC) to survey the project site for the dwarf wedgemussels. NCWRC biologist visited the site on September 28, 2001. Surveys for mussels were conducted from approximately 1300 feet (400 meters) downstream to 328 feet (100 meters) upstream of the project crossing. A visual survey of the river was conducted by wading in the water and looking for mussels using a batiscope. Six species of native fresh water mussels were found during the survey. These species include the Roanoke *slabshell (Elliptio. roanokensis*), Threatened in North Carolina and the eastern lampmussel (*Lampsillis radiata),* which will be upgraded to Threatened in North Carolina effective July 1, 2002. The dwarft wedgemussel was not found during the surveys. According to NHP records, dwarf wedgemussels have been documented in Johnston County within the last 20 years. NHP records do not document the presence of wedgemussels within 1.0 mile (1.6 kilometers) of the study corridor.

BIOLOGICAL CONCLUSION: The study corridor contains potential habitat for dwarf wedgemussels. NHP records document no occurrences of dwarf wedgemussels within 1.0 mile (1.6 kilometers) of the project corridor. Given the survey results, it is apparent that the dwarf wedgemussel does not occur in the project area. Additionally, the Rains Mill Dam is located at the site, which creates conditions that are typically unsuitable for this species. This dam is scheduled for removal. It is unlikely that this species will be impacted by the project bridge replacement project. However, because the species is known to occur in the Little River, it is remotely possible that it may occur downstream of the project area. Implementation of High Quality Water erosion control standards are recommended to minimize the impacts to the mussel faunal (which includes two state-listed species) occurring at the site as well as avoid potential impacts to populations that may occur downstream of the project area. It is concluded the project construction is "Not Likely to Adversely Affect" the dwarf wedgemussel. The USFWS was contacted in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act , as amended (16 U.S.C. 1531 *et seq.).* The USFWS concurred (see concurrence letter in the Appendix) in the biological conclusion of **"Not Likely to Adversely Affect"** the dwarf wedgemussel.

Tar Spinymussel - This small (2.4 inches [60 millimeters]) 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 (0.2 inches [5 millimeters]) spines 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, Little River has very limited potential for harboring this bivalve species. While coarse sand substrates occur in some overwash areas of the stream, most of the substrate in the stream is clay. The waters of Little River contained in the study area are neither fast flowing nor neutral in pH. Like all blackwater streams, Little River has an acid pH value, rather than neutral. No Tar spinymussel individuals or shells were observed during the site visit.

NCDOT contracted the North Carolina Wildlife Resources Commission Non Game Program (NCWRC) to survey the project site for the Tar spinymussels. NCWRC biologists visited the site on September 28, 2001. Surveys for mussels were conducted from approximately 400 meters downstream to 100 meters upstream of the project crossing. A visual survey of the river was conducted by wading in the water and looking for mussels using a batiscope. Six species of native fresh water mussels were found during the survey. These species include the Roanoke *slabshell (Elliptio. roanokensis*), Threatened in North Carolina and the eastern lampmussel (*Lampsillis radiata),* which will be upgraded to Threatened in North Carolina effective July 1, 2002. The Tar spinymussel was not found during the surveys. NHP records do not document the presence of Tar spinymussels within 1.0 mile (1.6 kilometers) of the study corridor.

BIOLOGICAL CONCLUSION: Little River provides less than favorable habitat for the Tar spinymussel, due to its predominantly clay bottom, low flow, and acidity. NHP

records do not document any occurrence of Tar spinymussels within 1.0 mile (1.6 kilometers) of the study corridor. Given the survey results, it is apparent that the Tar spinymussel does not occur in the project area. Additionally, the Rains Mill Dam is located at the site, which creates conditions that are typically unsuitable for this species. This dam is scheduled for removal. It is unlikely that this species will be impacted by the bridge replacement project. However, because the species is known to occur in the Little River, it is remotely possible that it may occur downstream of the project area. Implementation of High Quality Water erosion control standards are recommended to minimize the impacts to the mussel faunal (which includes two state-listed species) occurring at the site as well as avoid potential impacts to populations that may occur downstream of the project area. It is concluded the project construction is "Not Likely to Adversely Affect" the Tar spinymussel. The USFWS was contacted in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.).* The USFWS concurred (see concurrence letter in the Appendix) in the biological conclusion of **"Not Likely to Adversely Affect"** the Tar spinymussel.

Michaux's sumac - Michaux's sumac is a densely pubescent, deciduous, rhizomatous shrub, usually less than 2 feet (0.6 meter) high. The alternate, compound leaves consist of 9 to 13 hairy, round-based, toothed leaflets borne on a hairy rachis that may be slightly winged (Radford *et al.* 1968). Small male and female flowers are produced during June on separate plants; female flowers are produced on terminal, erect clusters, which later produce small, hairy, red fruits (drupes) in August and September. Michaux's sumac tends to grow in disturbed areas where competition is reduced by periodic fire or other disturbances, and may grow along roadside margins or utility right-of-ways. In the Piedmont, Michaux's sumac appears to prefer clay soil derived from mafic rocks or sandy soil derived from granite; in the Sandhills, it prefers loamy swales (Weakley 1993). Michaux's sumac ranges from south Virginia through Georgia in the inner Coastal Plain and lower Piedmont.

Roadside margins within the study corridor support a roadside/disturbed land plant community that may provide habitat for Michaux's sumac. However, an evaluation of roadside and grassland areas indicates that regular maintenance has eliminated any likelihood of Michaux's sumac occurring there. On June 25, 2001, NCDOT biologists conducted a plant by plant survey in all areas along the project alignment that contained potential habitat for Michaux's sumac. No specimens were found. Additionally, a review of NHP files revealed no documentation of this species within 1.0 mile (1.6 kilometers) of the study corridor and this species has not been identified in Johnston

County within the past 50 years.

BIOLOGICAL CONCLUSION: Portions of the study corridor occur in areas which contain habitat suitable to Michaux's sumac; however, NHP files have no documentation of this species within 1.0 mile (1.6 kilometers) of the study corridor, and a survey conducted by NCDOT biologist did not find this species. This species has not been identified in Johnston County within the past 50 years. Therefore, project construction will not affect Michaux's sumac. **NO EFFECT**

2. Federal Species of Concern

The March 22, 2001 USFWS list also includes a category of species designated as "Federal species of concern" (FSC) in Johnston 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 Johnston County is given in Table 4.

Table 4: Species name, habitat potential within the study corridor, and state status for species federally designated as FSC within Johnston County.

Common Name	Scientific Name	Potential Habitat	State Status**
Pinewoods shiner	*Lythrurus matutinus*	Yes	SR
Yellow lance	*Elliptio lanceolata*	Yes	T(PE)
Atlantic pigtoe	*Fusconaia masoni*	Yes	T(PE)
Yellow lampmussel	*Lampsilis cariosa*	No	C
Green floater	*Lasmigona subviridis*	Yes	E
Tar River crayfish	Procambarus medialis	No	W3
Spring-flowered goldenrod	*Solidago verna*	No	E(PT)
Carolina asphodel*	*Tofieldia glabra*	No	C
Carolina least trillium	*Trillium pusillum* var. *pusillum*	No	E

* Last observed in Johnston County before 1987

**State Status Codes:

C - Candidate
E - Endangered
PE - Proposed Endangered
PT - Proposed Threatened
SC - Special Concern
SR - Significantly Rare
T - Threatened
W3 - Watch List: rare, but with uncertain documentation

The FSC designation provides no federal protection under the ESA for species listed. NHP files do not document any occurrences of FSC species within 1.0 mile (1.6 kilometers) of the study corridor. However, the pinewoods shiner (*Lythrurus matutinus*) is documented 6.0 miles (9.6 kilometers) northwest of Bridge No. 212.

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 Roanoke bass (*Ambloplites cavifrons*) in the project corridor, just east (downstream) of Bridge No. 212. This fish has a state status of SR (a significantly rare species that needs monitoring). The Roanoke bass has also been documented 1.8 miles (2.9 kilometers) northwest of the project corridor. The Neuse River waterdog (*Necturus lewisi*), a salamander, has been documented by the NHP approximately 2.2 miles (3.5 kilometers) to the northwest of the project corridor. Its state status is SC, a species of special concern. The Carolina madtom (*Noturus furiosus*), Neuse River population, has also been documented 2.2 miles (3.5 kilometers) northwest of Bridge No. 212. This fish has a state status of SC. Neither species was observed during the course of the field visit. NHP documents a Significant Natural Heritage Area, the Little River Aquatic Habitat, on the southern bank of Little River at the bridge site. Significant Natural Heritage Areas are selected on the basis of the occurrence of rare plant and animal species, rare or high quality natural communities and special animal habitats. Little River Aquatic Habitat has a significance rating of A (NC DENR 1999). This rating denotes nationally significant natural areas that contain examples of natural communities, rare plant or animal populations, or geologic features that are among the highest quality or best of their kind in the nation, or clusters of such elements that are among the best in the nation.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on

Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally-funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The project was coordinated with the North Carolina State Historic Preservation Officer (SHPO) in accordance with the Advisory Council's regulations and FHWA procedures.

B. Historic Architecture

A field survey of the area of potential effects (APE) was conducted by Ko and Associates on March 9, 2000. All structures within the APE were photographed and submitted for review. Mary Pope Furr, NCDOT staff architectural historian, reviewed the maps and photographs in a meeting April 28, 2000, and determined that a technical report evaluating two sites should be prepared. In October, 2000, Dr. Richard Mattson conducted a field survey of the properties in question. His findings are detailed in the technical report, *Historic Architectural Resources Survey Report*, dated December 20, 2000. Two properties –"house and outbuildings" and the Elijah Edgerton House – were identified within the Area of Potential Effects and evaluated. Neither property is recommended eligible for the National Register. The SHPO has reviewed the above report and concurs with the findings (see letter attached in the Appendix).

C. Archaeology

In their letter of October 18, 2000, the Department of Cultural Resources noted that Bridge No. 212 was in the proximity of a mill complex and requested additional information. The mill and mill dam were removed by the US Army Corps of Engineers (USACE). In a letter addressed to the USACE and dated September 24, 1999, the Department of Cultural Resources had "no comment" on the USACE proposal to remove the dam and mill. By telephone conversation on December 29, 2000, the Department of Cultural Resources indicated that their letter of September 24, 1999, addressing the USACE proposal would cover their concerns relative to NCDOT's replacement of Bridge No. 212. No additional comments relative to archaeology have been received from the Department of Cultural Resources.

VII. ENVIRONMENTAL EFFECTS

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

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

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

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

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

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

No adverse impact on families or communities is anticipated.

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

The Farmland Protection Policy Act of 1981 requires all federal agencies to consider the impact of land acquisition and construction projects on prime and important farmland soils, as designated by the United States Soil Conservation Service. The Act does not expressly require a federal agency to modify any project solely to avoid or minimize the effects of conversion of farmland to nonagricultural uses. The Act merely requires that before taking action or approving any action that would result in the conversion of farmland, the federal agency examine the effects of the action using criteria provided by the US Department of Agriculture. This bridge replacement project has been coordinated with the US Department of Agriculture (see Form AD1006 in the Appendix). The recommended alternate, Alternate 2, requires the conversion of 0.72 acre (.29 hectare) of prime and unique farmland and 0.28 acre (.11 hectare) of statewide local and important farmland. The temporary detour alternate also affects 0.33 acre (.13

hectare) of prime and important farmland. The road closure alternate would not impact farmland. The effects to farmland are minor and restoration of the abandoned approaches may mitigate the conversion of farmland by the recommended alternate. The Natural Resources Conservation Service (USDA) determined that prime farmlands would be affected by the recommended alternative, thereby, meeting the requirements of the Farmland Protection Policy Act (7 CFR Part 658).

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

The project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required. 40 CFR Part 51 is not applicable because the proposed project is located in an attainment area. The replacement of the existing bridge will not increase or decrease traffic volumes because of the project. 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.

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

Due to the isolated nature of this bridge replacement project, no formal public involvement program was initiated. A newsletter was sent to property owners in the immediate vicinity in September 2000. A copy of the newsletter is included in the Appendix. Letters were received from two (families) and from Board of Transportation Member Durwood Stephenson citing contact with "a large contingent of concerned area citizens, including emergency services personnel, farmers, and area property owners", all expressing concern about the project and requesting that traffic be maintained on site during the replacement project.

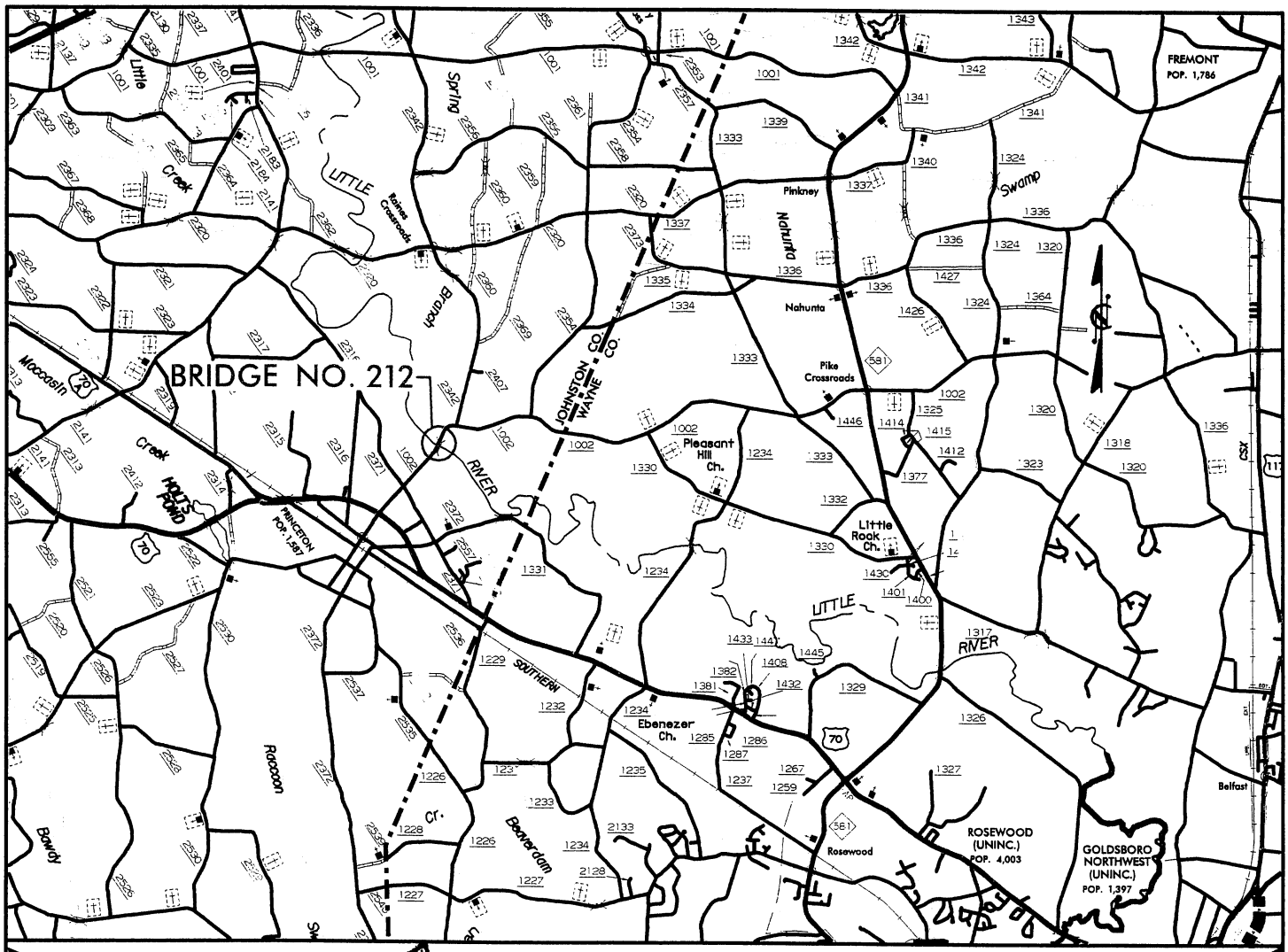
IX. AGENCY COORDINATION

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
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, Johnston County
Chairman, Johnston County Commissioners
Superintendent, Johnston County Public Schools
Johnston County Emergency Management Services
Chief, Boone Hill Fire District
Sheriff, Johnston County

Asterisks (*) indicates agencies from which written comments were received. Comments were also received from the Town of Princeton and the Princeton Volunteer Fire Department. The comments are included in the appendix of this report.

FIGURES



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT DEVELOPMENT AND ENVIROMENTAL ANALYSIS BRANCH

BRIDGE NO. 212
SR 1002 OVER LITTLE RIVER
JOHNSTON COUNTY
B-3865

VICINITY MAP

0 1 2 3
GRAPHIC SCALE (MILES)

FIGURE 1

LOOKING NORTH ACROSS BRIDGE

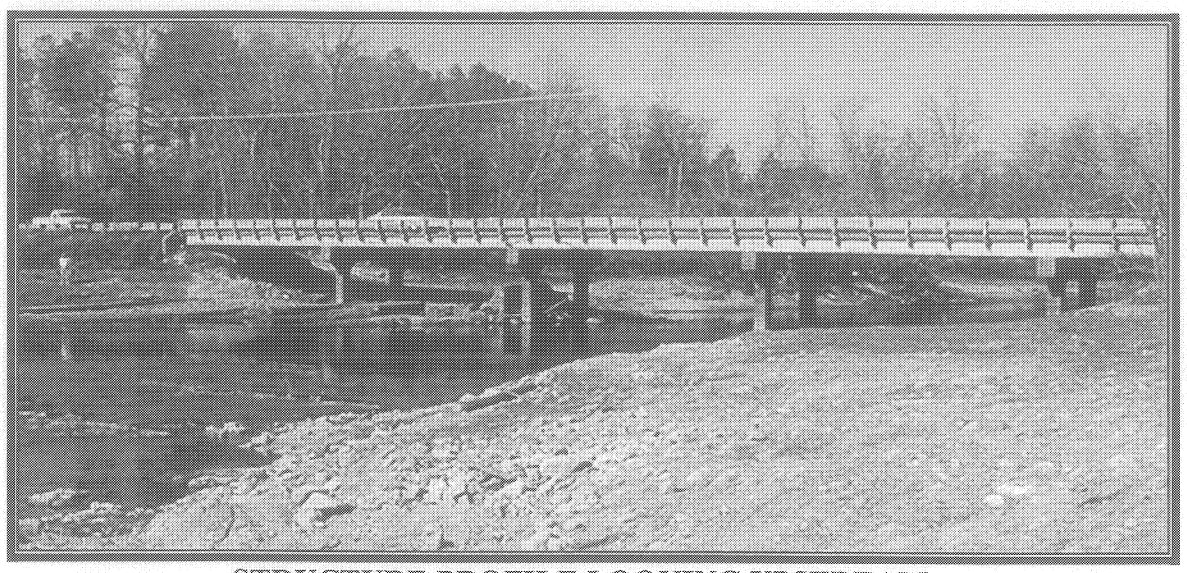
LOOKING SOUTH ACROSS BRIDGE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

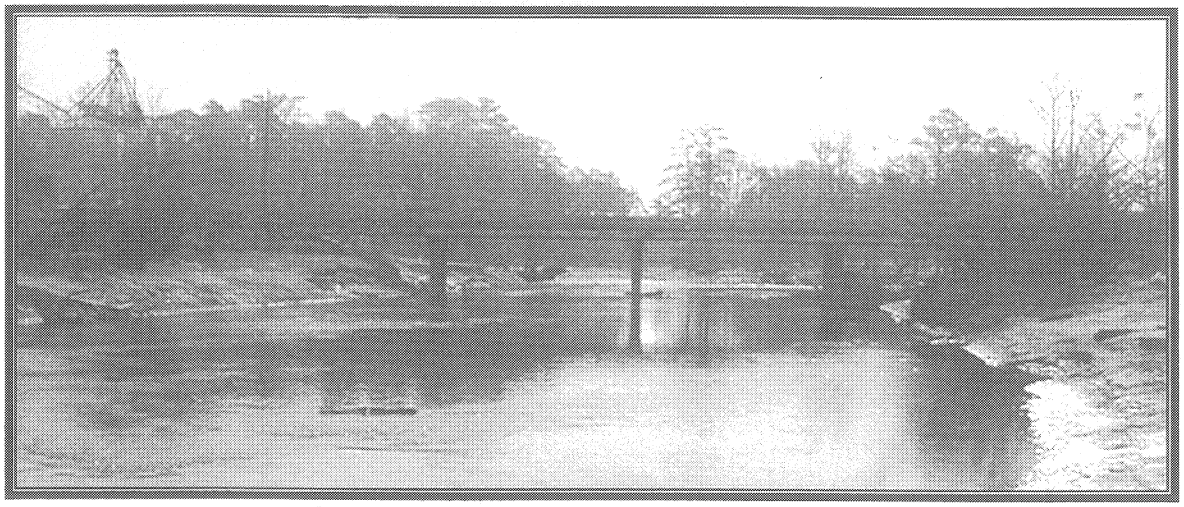
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

BRIDGE NO. 212
ON SR 1002 OVER LITTLE RIVER
JOHNSTON COUNTY
B-3865

FIGURE 2A



STRUCTURE PROFILE LOOKING UPSTREAM
LOOKING DOWNSTREAM



STRUCTURE PROFILE UPSTREAM
LOOKING DOWNSTREAM

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

BRIDGE NO. 212
ON SR 1002 OVER LITTLE RIVER
JOHNSTON COUNTY
B-3865

FIGURE 2B

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

OCT. 2000

0 50 100 150
(FEET)

BRIDGE NO. 212
SR 1002 OVER LITTLE RIVER
JOHNSTON COUNTY
B-3865

FIGURE 3

SHEET 1 OF 1

ALTERNATE '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

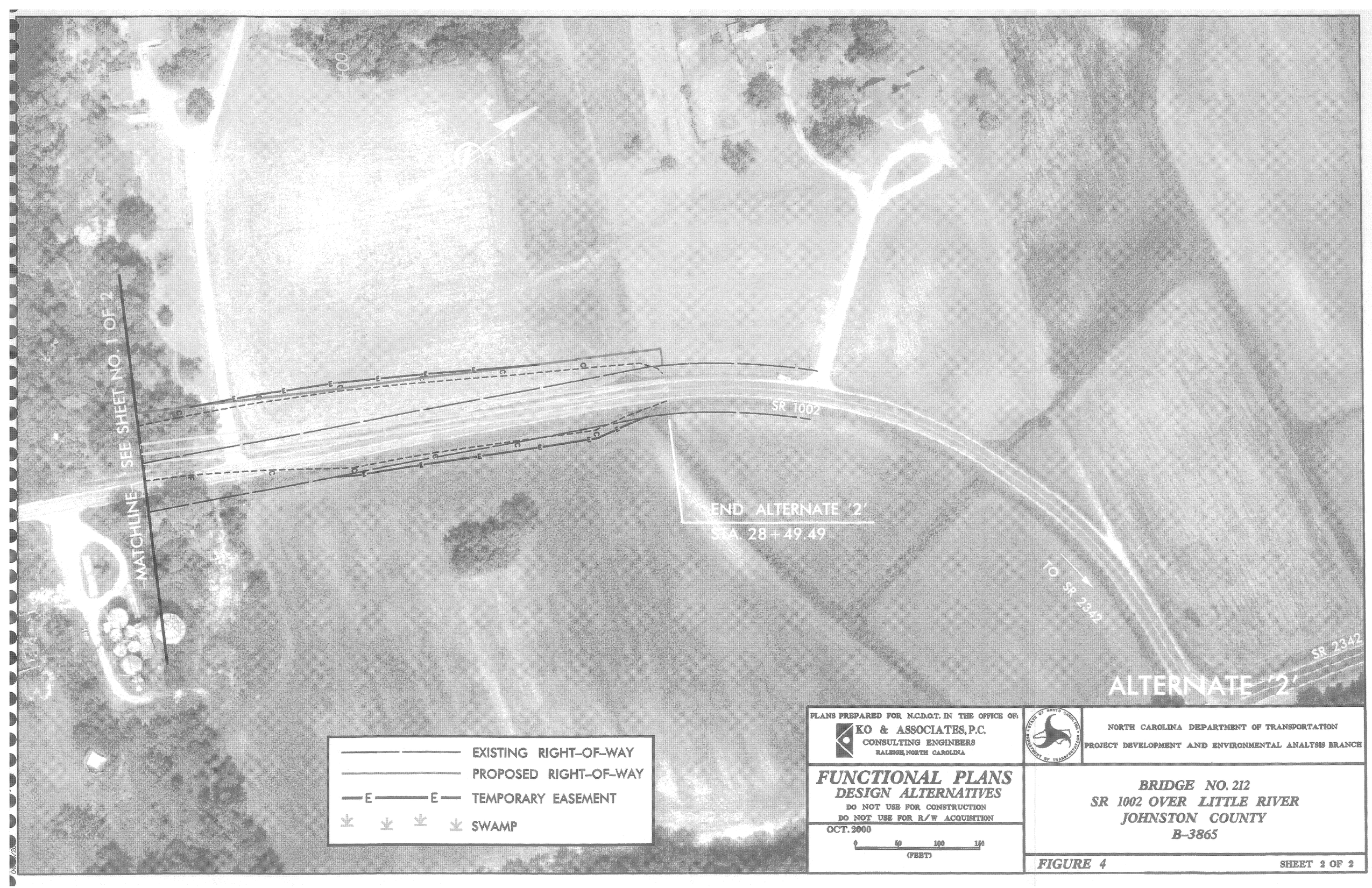
OCT. 2000

0 50 100 150
(FEET)

BRIDGE NO. 212
SR 1002 OVER LITTLE RIVER
JOHNSTON COUNTY
B-3865

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

OCT. 2000

0 50 100 150
(FEET)

BRIDGE NO. 212
SR 1002 OVER LITTLE RIVER
JOHNSTON COUNTY
B-3865

FIGURE 4

SHEET 2 OF 2

PI Sta. 13+94.16
Δ=18° 08' 22.5" (LT)
D = 5° 50' 00.0"
L = 310.96'
T = 156.79'
R = 982.21'

LITTLE RIVER

FLOW

HO WLB

SR 1002

TO US 70
PRINCETON

TO SR 2342

BEGIN ALTERNATE '3'
STA. 14+00.00

END ALTERNATE '3'
STA. 19+00.00

EXISTING
BRIDGE NO. 212

EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
E TEMPORARY EASEMENT E
SWAMP

ALTERNATE '3'
(OFF-SITE DETOUR REQ'D)

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

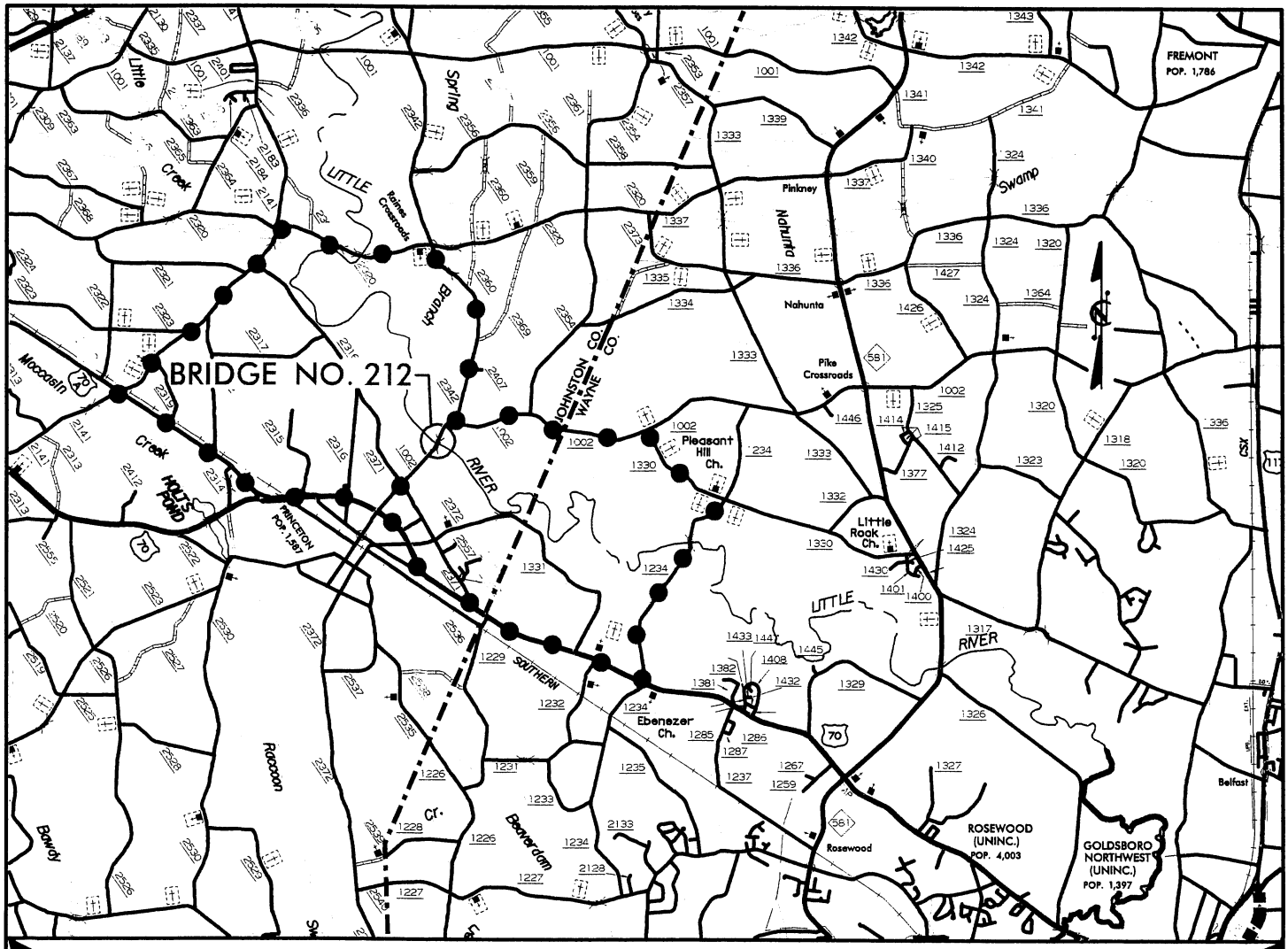
OCT. 2000

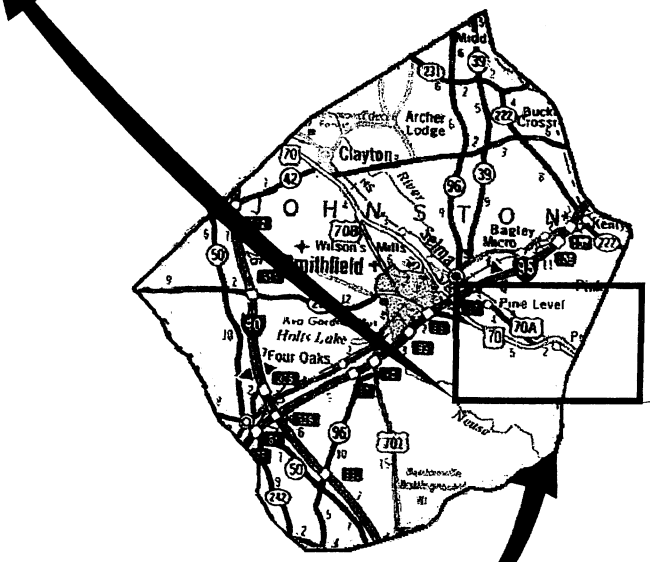
0 50 100 150
(FEET)

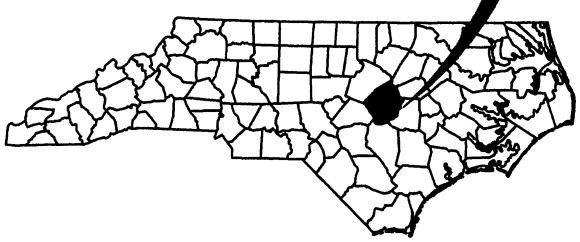
BRIDGE NO. 212
SR 1002 OVER LITTLE RIVER
JOHNSTON COUNTY
B-3865

FIGURE 5

SHEET 1 OF 1







STUDIED DETOUR ROUTES

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT DEVELOPMENT AND ENVIROMENTAL ANALYSIS BRANCH

BRIDGE NO. 212
SR 1002 OVER LITTLE RIVER
JOHNSTON COUNTY
B-3865

STUDIED DETOUR ROUTES

0 1 2 3
GRAPHIC SCALE (MILES)

FIGURE 6

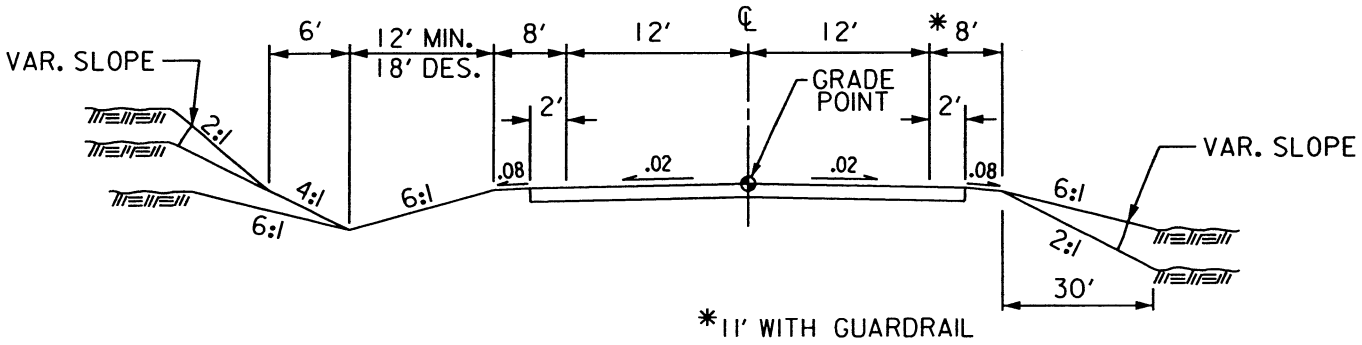
PROPOSED DESIGN CRITERIA

REPLACE BRIDGE NO. 212 ON SR 1002
OVER LITTLE RIVER
JOHNSTON COUNTY
B-3865

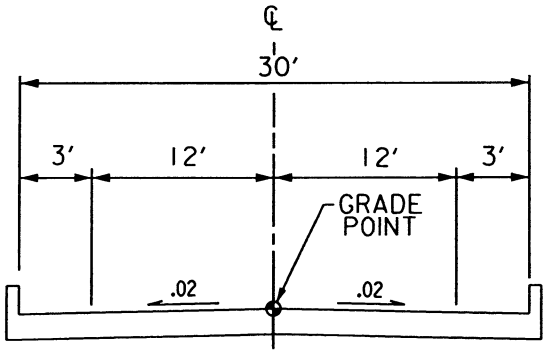
FUNCTIONAL CLASSIFICATION: RURAL MAJOR COLLECTOR
POSTED SPEED: 55 MPH
ESTIMATED ADT:

2000 ADT	=	3,600
2025 ADT	=	6,800
TTST	=	2%
DUAL	=	4%
DHV	=	9%
DIR	=	60%

DESIGN SPEED: 60 MPH
MAXIMUM RATE OF SUPERELEVATION: 0.08 ft/ft
MAXIMUM DEGREE OF CURVE: 4°45'
NO SPIRALS
MAXIMUM GRADE: 6%
MINIMUM DESIRABLE K FACTORS: Ksag = 120 TO 160 Kcrest = 190 TO 310
SHOULDER WIDTH & TYPE : 2.0 ft FDPS 8.0 ft TOTAL (11.0ft WITH GUARDRAIL)
LANE WIDTHS: 12.0 ft
BRIDGE DECK WIDTH: 30.0ft CLEAR



APPROACH ROADWAY TYPICAL SECTION



BRIDGE TYPICAL SECTION

FIGURE 7

NOTE:
HORIZONTAL & VERTICAL DESIGN
EXCEPTIONS MAY BE REQUIRED.

PREPARED BY: KO & ASSOC. DATE: 5-03-00
APPROVED BY: _____ DATE: _____

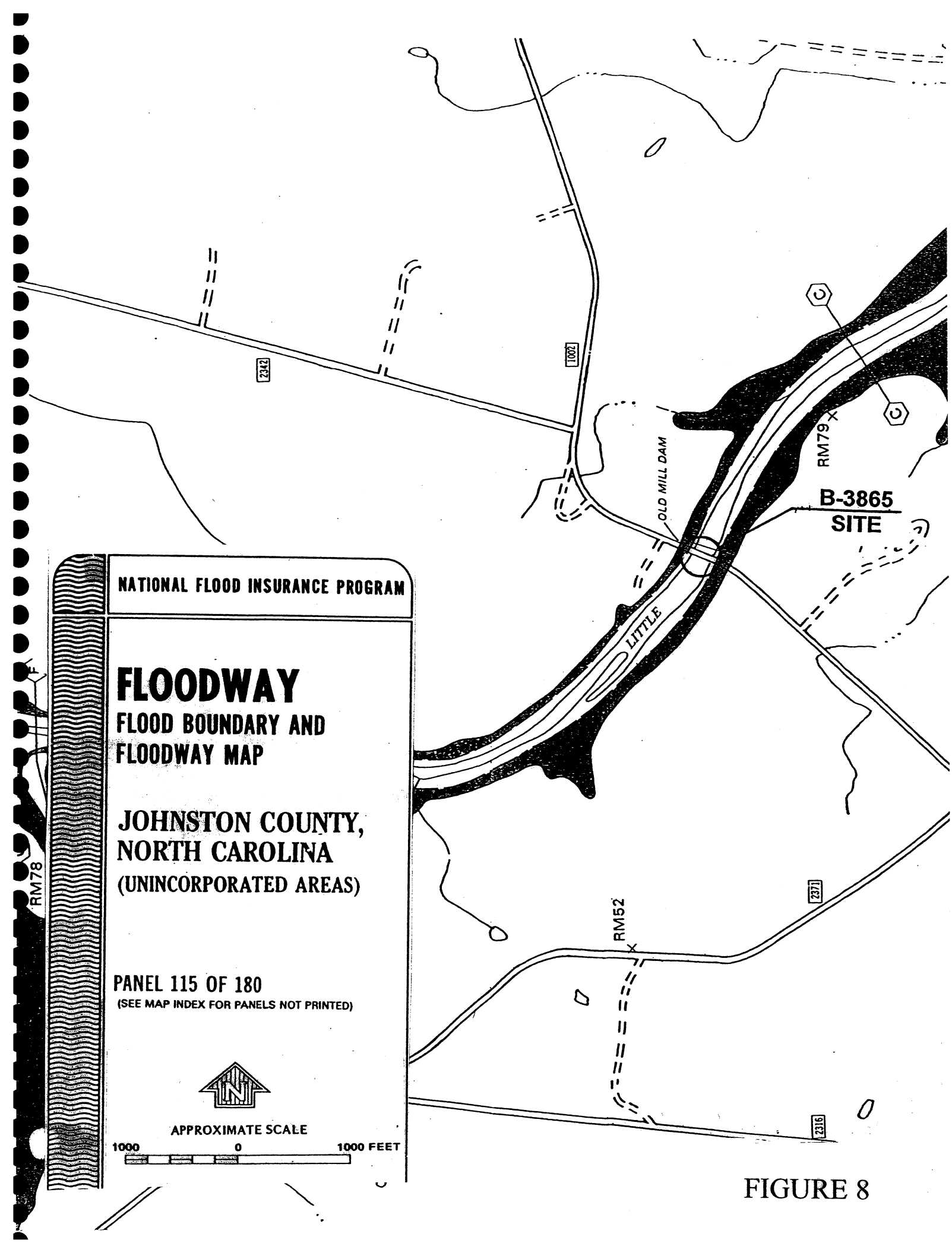

NATIONAL FLOOD INSURANCE PROGRAM
FLOODWAY
FLOOD BOUNDARY AND FLOODWAY MAP
JOHNSTON COUNTY, NORTH CAROLINA
(UNINCORPORATED AREAS)
PANEL 115 OF 180
(SEE MAP INDEX FOR PANELS NOT PRINTED)
APPROXIMATE SCALE
1000 0 1000 FEET
B-3865 SITE
OLD MILL DAM
LITTLE
RM79
RM78
RM52
2342
1002
2371
2316

FIGURE 8

APPENDIX

United States Department of the Interior

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

April 8, 2002

Drew Joyner, P.E.
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
Mail Service Center 1548
Raleigh, NC 26799-1548

Dear Mr. Joyner:

Thank you for your February 20, 2002 letter requesting concurrence from the U.S. Fish and Wildlife Service (Service) regarding impacts to federally protected species from the replacement of bridge number 212 on SR 1002 (B-3865), in Johnston County, North Carolina. This letter is provided in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act (Act), as amended (16 U.S.C. 1531 *et seq.*). The Service's March 26, 2002 letter concurred with NCDOT's biological conclusion of "Not Likely to Adversely Affect" for the dwarf wedgemussel (*Alasmidonta heterodon*), however, that letter did not address the Tar spiny mussel (*Elliptio lanceolata*). This letter supercedes our March 26, 2002 letter.

Based on a review of our records and the information provided, the Service concurs with NCDOT's biological conclusion of "Not Likely to Adversely Affect" for the dwarf wedgemussel (*Alasmidonta heterodon*) and the Tar spiny mussel (*Elliptio lanceolata*). Please note, however, that this determination is based on our current knowledge of the occurrences of federally listed species in Johnston County and the surveys that have been conducted on the proposed alignment. We believe that the requirements of section 7(a)(2) of the Act 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; (2) this action is subsequently modified in a manner that was not considered in this review; (3) a new species is listed or critical habitat determined that may be affected by the identified action.

The Service appreciates the opportunity to comment on this document. Please advise us of any changes in project plans. If you have any questions regarding these comments, please contact Dale Suiter at (919) 856-4520 Ext. 18.

Sincerely,

John E. Ellis

Garland B. Pardue, Ph.D.
for Ecological Services Supervisor

cc: USACE (Eric Alsmeyer)
NCDWQ (John Hennessey)

FWS/R4:DSuiter:919.856.4520x18/Johnston B-3865-2.wpd

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 22, 2000 request for information from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of the proposed replacement of Bridge No. 212 on SR 1002 over the Little River near Princeton, Johnston County, North Carolina (PIN B-3865. 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 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) map of the Princeton 7.5 Minute Quadrangle shows wetland resources in the project vicinity. 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 the bridge, ranging from rehabilitating the existing structure in-place, to replacing the bridge on existing location with on-site and off-site detours, to replacing the bridge on new location. 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 Johnston County. Be aware that the Dwarf- wedge mussel (*Alasmidonta heterodon*) occurs in the Little River in Johnston 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.

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:\1brdgjoh.nst

COMMON NAME	SCIENTIFIC NAME	STATUS
JACKSON COUNTY		
Vertebrates		
Green salamander	*Aneides aeneus*	FSC
Hellbender	*Cryptobranchus alleganiensis*	FSC
Peregrine falcon	*Falco peregrinus anatum*	Endangered
Carolina northern flying squirrel	*Glaucomys sabrinus coloratus*	Endangered
Indiana bat	*Myotis sodalis*	Endangered
Olive darter	*Percina squamata*	FSC
Northern pine snake	*Pituophis melanoleucus melanoleucus*	FSC
Invertebrates		
Appalachian elktoe	*Alasmidonta raveneliana*	Endangered
French Broad crayfish	*Cambarus reburrus*	FSC
Whitewater crayfish ostracod	*Dactyloctythere prinsi*	FSC
Tawny crescent butterfly	*Phycoides batesii maconensis*	FSC
Diana fritillary butterfly	*Speyeria diana*	FSC
Vascular Plants		
Fraser fir	*Abies fraseri*	FSC
Mountain bittercress	*Cardamine clematitis*	FSC
Manhart's sedge	*Carex manhartii*	FSC
Tall larkspur	*Delphinium exaltatum*	FSC
Glade spurge	*Euphorbia purpurea*	FSC
Swamp pink	*Helonias bullata*	Threatened
Small-whorled pogonia	*Isotria medeoloides*	Threatened
Butternut	*Juglans cinerea*	FSC
Fraser's loosestrife	*Lysimachia fraseri*	FSC
Sweet pinesap	*Monotropsis odorata*	FSC
Carolina saxifrage	*Saxifraga caroliniana*	FSC
Divided-leaf ragwort	*Senecio millefolium*	FSC
Mountain catchfly	*Silene ovata*	FSC
Nonvascular Plants		
Gorge moss	*Bryocrumia vivicolor*	FSC
Rock gnome lichen	*Gymnoderma lineare*	Endangered
A liverwort	*Plagiochila sullivantii* var. *spinigera*	FSC
A liverwort	*Plagiochila sullivantii* var. *sullivantii*	FSC
A liverwort	*Plagiochila virginica* var. *caroliniana*	FSC
Carolina star-moss	*Plagiomnium carolinianum (=Mnium carolinianum)*	FSC
A liverwort	*Sphenolobopsis pearsonii*	FSC
JOHNSTON COUNTY		
Vertebrates		
Red-cockaded woodpecker	*Picoides borealis*	Endangered

COMMON NAME	SCIENTIFIC NAME	STATUS
Invertebrates		
Dwarf wedge mussel	*Alasmidonta heterodon*	Endangered
Tar spinymussel	*Elliptio steinstansana*	Endangered
Yellow lance	*Elliptio lanceolata*	FSC
Atlantic pigtoe	*Fusconaia masoni*	FSC
Yellow lampmussel	*Lampsilis cariosa*	FSC
Green floater	*Lasmigona subviridis*	FSC
Tar River crayfish	*Procambarus medialis*	FSC
Vascular Plants		
Michaux's sumac	*Rhus michauxii*	Endangered*
Spring-flowering goldenrod	*Solidago verna*	FSC
Carolina asphodel	*Tofieldia glabra*	FSC*
Carolina least trillium	*Trillium pusillum* var. *pusillum*	FSC
JONES COUNTY		
Vertebrates		
American alligator	*Alligator mississippiensis*	T(S/A)
Southern hognose snake	*Heterodon simus*	FSC*
Red-cockaded woodpecker	*Picoides borealis*	Endangered
Carolina gopher frog	*Rana capito capito*	FSC
Invertebrates		
Croatan crayfish	*Procambarus plumimanus*	FSC
Vascular Plants		
Carolina spleenwort	*Asplenium heteroresiliens*	FSC
Chapman's sedge	*Carex chapmanii*	FSC
Venus flytrap	*Dionea muscipula*	FSC
Carolina bogmint	*Macbridea caroliniana*	FSC**
Godfrey's sandwort	*Minuartia godfreyi*	FSC
Savanna cowbane	*Oxypolis ternata*	FSC
Carolina goldenrod	*Solidago pulchra*	FSC
Spring-flowering goldenrod	*Solidago verna*	FSC

LEE COUNTY

Critical Habitat Designation:

Cape Fear shiner, *Netropis mekistocholas* - Approximately 0.5 river mile of Bear Creek, from Chatham County Road 2156 Bridge downstream to the Rocky River, then downstream in the Rocky River (approximately 4.2 river miles) to the Deep River, then downstream in the Deep River (approximately 2.6 river miles) to a point 0.3 river mile below the Moncure, North Carolina, U.S. Geological Survey Gaging Station. Constituent elements include clean streams with gravel, cobble, and boulder substrates with pools, riffles, shallow runs and slackwater areas with large rock outcrops and side channels and pools with water of good quality with relatively low silt loads.

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*		Date Of Land Evaluation Request	10-26-00
Name Of Project	B-3865	Federal Agency Involved	Federal Highway Ac
Proposed Land Use	Bridge Replacement	County And State	Johnston Co., NC

[redacted]

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A 1	Site B 2	Site C	Site D
A. Total Acres To Be Converted Directly	1.15	4.25		
B. Total Acres To Be Converted Indirectly	-	-		
C. Total Acres In Site	1.15	4.25		

[redacted]

		0.13	0.28	
		76.30	76.30	
PART V *(To be completed by SCS)* Land Evaluation Criterion				
B. Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*		21.6	20.90	

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		
2. Perimeter In Nonurban Use		10	10		
3. Percent Of Site Being Farmed		10	10		
4. Protection Provided By State And Local Government		0	0		
5. Distance From Urban Builtup Area		15	15		
6. Distance To Urban Support Services		15	15		
7. Size Of Present Farm Unit Compared To Average		5	5		
8. Creation Of Nonfarmable Farmland		0	0		
9. Availability Of Farm Support Services		0	0		
10. On-Farm Investments		0	0		
11. Effects Of Conversion On Farm Support Services		0	0		
12. Compatibility With Existing Agricultural Use		0	0		
TOTAL SITE ASSESSMENT POINTS	160	70	70		
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	70	70		
TOTAL POINTS *(Total of above 2 lines)*	260				

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

Reason For Selection:

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

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

February 20, 2001

MEMORANDUM

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

From: David Brook RSF for David Brook
Deputy State Historic Preservation Officer

Re: Replace Bridge No. 212 on SR 1002 over Little River, TIP B-3865
Johnston County, ER 00-8474

Thank you for your letter of January 12, 2001, transmitting the survey report by Mattson, Alexander & Associates, Inc., concerning the above project.

For purposes of compliance with Section 106 of the National Historic Preservation Act, we concur that the following properties are not eligible for listing in the National Register of Historic Places:

- House and Outbuildings
- Elijah Edgerton House

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 any questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919 733-4763.

cc: Nicholas Graf
Mary Pope Furr

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 Histc
Jeffrey J. Crow, Direct

October 18, 2000

MEMORANDUM

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

From: David Brook RBE for David Brook
Deputy State Historic Preservation Officer

Re: Bridge #212 on SR 1002 over Little River Creek, B-3865, Johnston County, ER 01-7364

We have reviewed the subject project and note that it is in close proximity to a mill complex. We will require additional information concerning the age of the mill and the possible affects of the project on the complex.

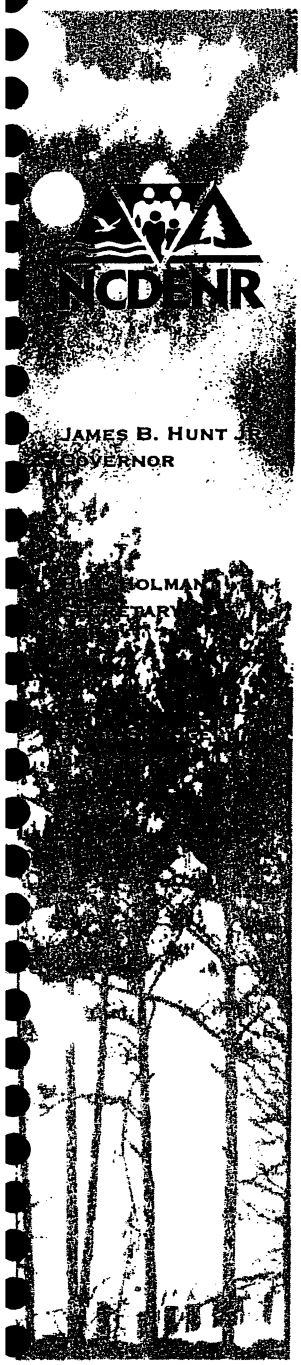
The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

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

cc: Mary Pope Furr, NCDOT
Tom Padgett, NCDOT
Roy Shelton, FHwA

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8(
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342 • 715-2(
RESTORATION	515 N. Blount St., Raleigh NC	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4(
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4(



NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF SOIL AND WATER CONSERVATION

MEMORANDUM: September 7, 2000

TO: Melba McGee

FROM: David Harrison

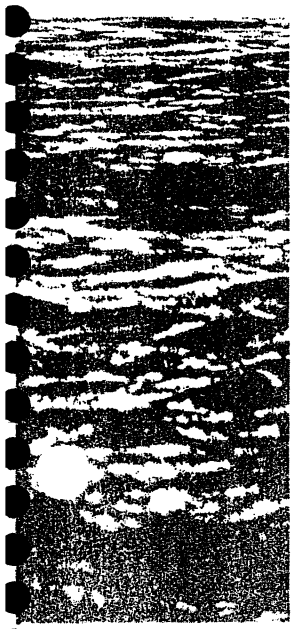
SUBJECT: NCDOT Bridge Replacement Project B-3865 (Johnston County).

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

NCDENR

JAMES B. HUNT JR.
GOVERNOR

BILL HOLMAN
SECRETARY

DR. PHILIP K. MCKNELLY
DIRECTOR

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF PARKS AND RECREATION

October 6, 2000

MEMORANDUM

TO: Drew Joyner
Project Development and Environmental Analysis Branch, DOT

FROM: Stephen Hall SH

SUBJECT: Replace Bridge No. 212 on SR 1002 over the Little River

REFERENCE: B-3865

The Natural Heritage Program database contains a record for the Carolina madtom (*Noturus furiousus*), state listed as Special Concern, from the Little River at this bridge crossing. In order to protect habitat quality for this species and other aquatic organisms, we recommend the following:

- follow all best management practices for the control of erosion and sedimentation
- do not allow wet concrete to come into contact with the water
- do not place weep holes directly over the channel

/sph

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

TOWN OF PRINCETON

Mayor
William E. Ormond

Mayor Pro Tem
Eddie Haddock

Town Clerk
Marla Ashworth

116 S. Pine Street
PO Box 67
Princeton, North Carolina 27569

PHONE: (919)936-8171 • FAX: (919)936-2918

Commissioners
Walter Martin, Jr.
David Starling
Larry Withrow

Chief of Police
Edward Lewis

March 13, 2001

Mr. Drew Joyner, P. E.
Project Engineer
NCDOT - PDEA
1548 Mail Service Center
Raleigh NC 27699-1548

Dear Mr. Joyner,

The Princeton Town Board of Commissioners would like to advocate that on-site detour be utilized in the replacement of Bridge No. 212 on SR 1002 over Little River in Johnston County. Numerous citizens in Princeton utilize this route to Kenly and Wayne County and it would be a hardship on these people if this road were to be closed during the bridge replacement.

Sincerely,

Marla H. Ashworth

Marla H. Ashworth
Town Clerk

PRINCETON FIRE DEPT.

PRINCETON VOLUNTEER FIRE DEPARTMENT, INC.

P. O. Box 631
Princeton, North Carolina 27569

November 3, 2000

Mr. Durwood Stephenson
1090 W. Market Street
Smithfield, NC 27577

Dear Mr. Stephenson:

This letter is in reference to the planned bridge replacement on Rains' Mill Road at the Little River, north of Princeton. This project was referred to in a letter to me from William Gilmore with the DOT as B-3865, bridge no. 212 on SR 1002 over the Little River. I am submitting this correspondence in my capacity as Chief of the Princeton Volunteer Fire Department, Inc.

My understanding is that there are 2 proposals for traffic routing being considered during the construction phase of the project. One plan calls for an on-site detour while the other involves an off-site detour.

We strongly recommend the proposal, which includes the on-site detour for a number of reasons. First, it has been determined that an off-site detour will add 10 plus miles and 15 or more minutes to response time for emergency vehicles. As you know, as little as 2 minutes in an emergency situation can make the difference between life and death. Not only will the local residences and daily users of the bridge be impacted, but also the entire Princeton community could be adversely affected by delayed response time due to our mutual aid agreements with surrounding departments. For example, a downtown Princeton business engulfed in flames could require assistance from 3 different departments (Nahunta, Little River, and Kenly) which would access Rains' Mill Bridge, and an off-site detour would significantly hamper, if not totally eliminate their ability to provide a timely and effective response.

Therefore, we see the total and uninterrupted access of Rains' Mill Road (SR 1002) as the only viable option for the protection of life and property for all concerned.

Sincerely,

Ken Starling

Ken Starling, Chief

REPLACEMENT OF BRIDGE NO. 212 ON SR 1002 OVER LITTLE RIVER IN JOHNSTON COUNTY TIP NO. B-3865

September 2000 **NEWSLETTER** Number 1

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 212 on SR 1002 over Little River in Johnston County (see attached map). The bridge replacement is necessary to maintain the safety of those traveling this route as the existing structure is nearing the end of its useful life.

For approximately the next six months, the NCDOT will be conducting engineering and environmental studies to determine the most economical and environmentally sound alternative for replacing the existing bridge. Two alternates are under consideration. These include (1) replacing the bridge at its existing location while utilizing a temporary, on-site detour and (2) replacing the bridge at its existing location while closing the roadway utilizing an off-site detour (i.e., detouring traffic on other roadways) during construction of the new structure. If an off-site detour is utilized as the preferred alternate, the roadway will be closed to traffic for approximately one year.

The current schedule in the NCDOT's Draft 2002-2008 Transportation Improvement Program is for right of way acquisition to begin in fiscal year 2002 and for construction to begin in fiscal year 2003. Please note that this schedule is subject to change.

The NCDOT does not plan to conduct a Citizens Informational Workshop for this project. Please consider how the proposed alternates may affect you and use this opportunity to express any comments and concerns you might have relative to the general alternates expressed above.

The NCDOT has engaged the private engineering firm of Ko and Associates, P. C., to conduct the study. The results of the study will be used by NCDOT to select a preferred alternate to replace Bridge No. 212 that minimizes impacts to both man-made and natural resources, while meeting the public's transportation needs at a reasonable cost.

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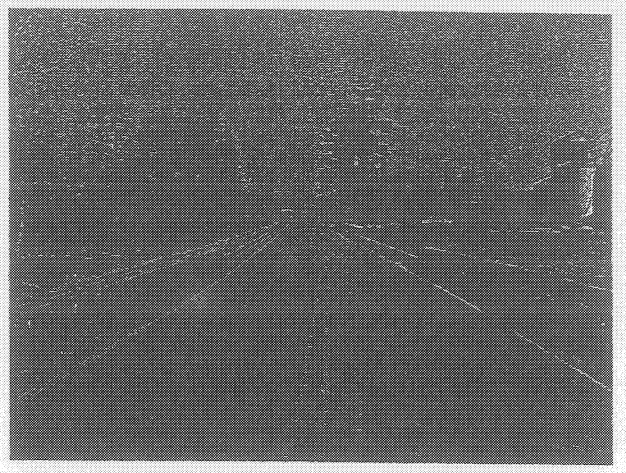
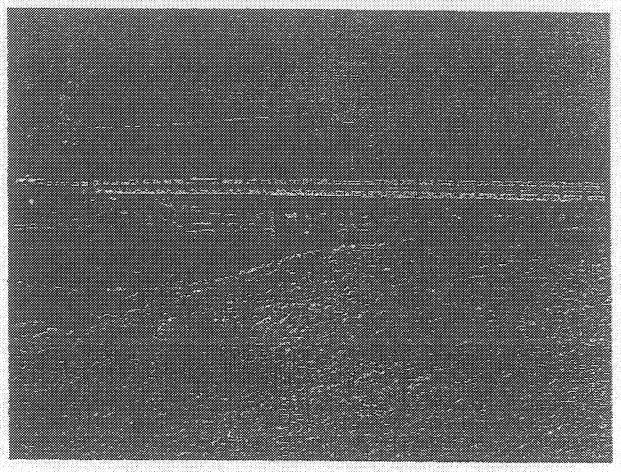
If you have questions concerning other transportation projects, please call our Customer Service Office toll free at 1-877-DOT-4YOU or check our website for more information at www.dot.state.nc.us



ON SR 1002 LOOKING NORTH



PROFILE OF BRIDGE NO. 212

PLEASE ADDRESS COMMENTS OR CONCERNS TO EITHER OF THE FOLLOWING:

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