STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

November 29, 2006

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

ATTENTION: Mr. William Wescott
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide 33 Permit Application and Neuse Riparian Buffer Authorization Request** for the Replacement of Bridge No. 94 over Little River on NC 96; Johnston County; TIP Project B-3481; Federal Aid Project No. BRSTP-96 (2); State Project No.8.1312101; WBS 33098.1.1.

Please find enclosed the Preconstruction Notification (PCN), permit drawings, half-size plans, Natural Resources Technical Report (NRTR) and the Programmatic Categorical Exclusion (PCE) for the above-mentioned project. The North Carolina Department of Transportation proposes to replace existing Bridge No. 94 over Little River on NC 96 in Johnston County. The project involves replacement of the existing bridge and related approaches with a new bridge and new approaches. The new bridge will feature two 12-foot lanes with 6-foot offsets. The project schedule calls for April 15, 2007 let with a review date of March 27, 2007. There are no proposed permanent impacts associated with this project. Proposed temporary impacts to surface waters will be 0.05 acre.

Impacts to Waters of the United States

General Description: Little River is located in the 03020201 USGS Cataloging Unit of the Neuse River Basin (Subbasin 030406). The Division of Water Quality (DWQ) has assigned Little River a Stream Index Number of 27-57-(8.5). DWQ has assigned a best usage classification of **WS-V NSW**.

The Little River is not designated as a North Carolina Natural or Scenic River, or as a National Wild and Scenic River, nor is it listed as a 303(d) stream. No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within 3.0 miles of the project study area.

Permanent Impacts: As stated above, there are no proposed permanent impacts associated with this project.

Temporary Impacts: Temporary impacts are 0.05 acre to surface waters for a causeway.

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

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

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Utility Impacts: A temporary power line will be used during the construction process. There will be no impacts to Waters of the U.S. due to the temporary power line installation.

Neuse Buffer Rules: This project lies within the Neuse River Basin, therefore, the regulations pertaining to the Neuse River Buffer Rules will apply. According to the buffer rules, bridges are allowable. There are 4,593.6 square feet of impacts to Zone 1 and 3,932.1 square feet of impacts to Zone 2.

Temporary impacts to the 50' buffer zone will be due to non-mechanized clearing of vegetation beneath the temporary overhead electric line. This perpendicular crossing will be less than 65' in width. All vegetation debris due to clearing beneath the temporary power line will be removed from the 50' buffer zone and disposed of properly. These temporary impacts are considered exempt, but are being described for informational purposes.

Bridge Demolition

The superstructure for Bridge No. 94 will allow removal without dropping components into the water. Likewise, it should be possible to remove the timber piles without dropping them into the water. The concrete piers may result in as much as 10 cubic yards of fill depending on the method of removal to be determined after a contractor is selected. Best Management Practices for Bridge Demolition and Removal will be implemented. Any component of the bridge dropped into the water shall be immediately removed.

Avoidance and Minimization

To avoid impacts, NCDOT is replacing Bridge No. 94 in place and utilizing an off-site detour. The bridge will be built using top-down construction. NCDOT is also minimizing impacts to surface waters by utilizing longer spans with no bents in the water.

Mitigation

Compensatory mitigation is not proposed for this project. There will be no permanent impacts to wetlands and only temporary impacts to surface waters. There are 8,525.7 square feet of impacts to the Neuse River Riparian Buffers, which are allowable for this project.

Federally Protected Species

As of April 27, 2006, the US Fish and Wildlife Service (USFWS) lists six federally protected species for Johnston County. The following table lists these species.

Common Name	Scientific Name	Status	Habitat	Conclusion
Bald Eagle	*Haliaeetus leucocephalus*	T	N	No Effect
Red-cockaded Woodpecker	*Picoides borealis*	E	N	No Effect
Dwarf wedge mussel	*Alasmidonta heterodon*	E	Y	MANLTAA
Tar spinymussel	*Elliptio steinstansana*	E	Y	MANLTAA
Michaux's sumac	*Rhus michauxii*	E	Y	No Effect

Note: E – Endangered; MANLTAA – May affect not likely to adversely affect

Please refer to the U.S. Fish and Wildlife Service Section 7 concurrence letter, dated March 4, 2005 attached to this application. NCDOT will adhere to all conservation measures in this letter.

Regulatory Approvals

Section 404 Permit: This project is being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit but propose to proceed under a Nationwide 33 as authorized by Nationwide Permit 33 (67 FR 2020; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification number 3366 will apply to this project. In accordance with 15A NCAC 2H, Section .0500(a) we are providing five copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their review.

Neuse River Basin Buffer Authorization: NCDOT requests that the NC Division of Water Quality review this application and issue a written approval for a Neuse River Riparian Buffer Authorization.

A copy of this permit application will be posted on the NCDOT website at: http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html.

If you have any questions or need additional information, please contact Veronica Barnes at (919) 715-7232.

Sincerely,

E. R. Lusk

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

W/attachment

Mr. John Hennessy, NCDWQ (5 Copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Mr. Michael Street, NCDMF
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. Richard E. Greene , PE, Division 4 Engineer
Mr. Jamie Guerrero, Division 4 Environmental Officer

W/o attachment

Mr. Scott McLendon, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. John Williams, P. E., Planning Engineer

United States Department of the Interior

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

March 4, 2005

Phil S. Harris, III, P.E.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

This letter is in response to your letter of February 22, 2005 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 94 on NC 96 over Little River in Johnston County (TIP No. B-3481) may affect, but is not likely to adversely affect the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) and Tar spinymussel (*Elliptio steinstansana*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to information previously provided, a mussel survey was conducted at the project site on August 5 and 25, 2004. The survey extended 100 meters upstream and 400 meters downstream of NC 96. Neither of the federally listed species was found, though good habitat was observed. Though no specimens of the listed mussels were found in this recent survey, the dwarf wedgemussel was observed in a 1998 survey a few hundred meters downstream of the terminus of the recent survey. This fact warrants the implementation of conservation measures to minimize the potential for effects to this species.

In a January 24, 2005 letter to NCDOT, the Service recommended several conservation measures. Your current letter states that NCDOT will comply with all of our recommendations except one. The conservation measures that NCDOT will implement are listed below:

- Utilize an off-site detour
- Avoid in-stream work except for placement of one bent in the channel
- Cut off timber piles flush with the "mudline"
- Use BMPs for Protection of Surface Waters
- Use BMPs for Construction and Maintenance Activities to include Special Sediment Control Fence (i.e. hardware cloth faced with small clean gravel)
- Avoid clearing and grubbing within 50 feet of the stream banks during the non-growing season
- If project is not constructed prior to August 2006, conduct another mussel survey
- Utilize stone work pads
- If drilled shaft construction is utilized, do not allow slurry to enter stream

Based on the mussel survey results and the commitment to the conservation measures listed above, the Service concurs with your determination that the proposed bridge replacement may affect, but is not likely to adversely affect the dwarf wedgemussel and Tar spinymussel. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied for these species. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

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

Sincerely,

Pete Benjamin
Ecological Services Supervisor

cc: Bill Biddlecome, USACE, Washington, NC
Nicole Thomson, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

Office Use Only: Form Version March 05

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

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

I. Processing

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

2. Nationwide, Regional or General Permit Number(s) Requested: 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 Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: ☐

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

II. Applicant Information

1. Owner/Applicant Information
   Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
   Mailing Address: 1598 Mail Service Center
   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address:

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

III. Project Information

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

1. Name of project: Replacement of Bridge No. 94 on NC 96 over the Little River

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3481

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

4. Location
   County: Johnston Nearest Town: Corinth Holders
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): Project is on NC 96 in Johnston County over the Little River

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 35.7522 °N 78.2918 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Neuse River

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

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The project is located in a rural area of Johnston County. The dominant land use in the area is agriculture, although most of the land in the project area is bottomland hardwood forest.

10. Describe the overall project in detail, including the type of equipment to be used: The bridge will be replaced in place using top down construction techniques with an off site detour.

11. Explain the purpose of the proposed work: To replace the current bridge, which is functionally obsolete due to a deck geometry appraisal of 2 out of 9 and a sufficiency rating of 29.3 out of 100.

IV. Prior Project History

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

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
No

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: There will be no impacts to wetlands and only temporary stream impacts totaling less than 0.1 acres.

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

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

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

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	Little River	Temporary	Perennial	70 ft		0.052
Total Stream Impact (by length and acreage)						0.052

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

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

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

Stream Impact (acres):	0.052 Temp
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	0.052
Total Stream Impact (linear feet):	N/A

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

8. Pond Creation
If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): N/A
Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): N/A
Current land use in the vicinity of the pond: N/A
Size of watershed draining to pond: N/A Expected pond surface area: N/A

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.

To avoid impacts, NCDOT is replacing Bridge No. 94 in place and utilizing an off-site detour. The bridge will be built using top-down construction. NCDOT is also minimizing impacts to surface waters by utilizing longer spans with no bents in the water.

VIII. Mitigation

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

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

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

   N/A

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

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

IX. Environmental Documentation (required by DWQ)

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

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

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

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

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

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

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

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1	4,395.6	3 (2 for Catawba)	0
2	3,932.1	1.5	0
Total	8,525.7		0

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

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

XI. Stormwater (required by DWQ)

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

XII. Sewage Disposal (required by DWQ)

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

XIII. Violations (required by DWQ)

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

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

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description:
The project is a relatively small bridge replacement in a rural area. There will be no new road created and no additional lanes added, therefore it is unlikely to attract development.

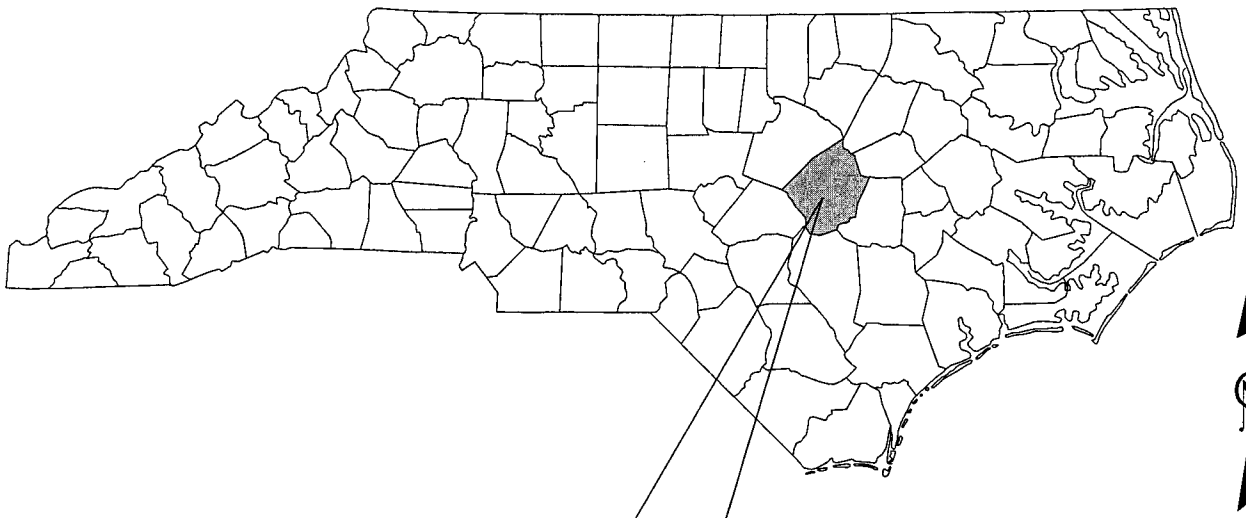
XV. Other Circumstances (Optional):

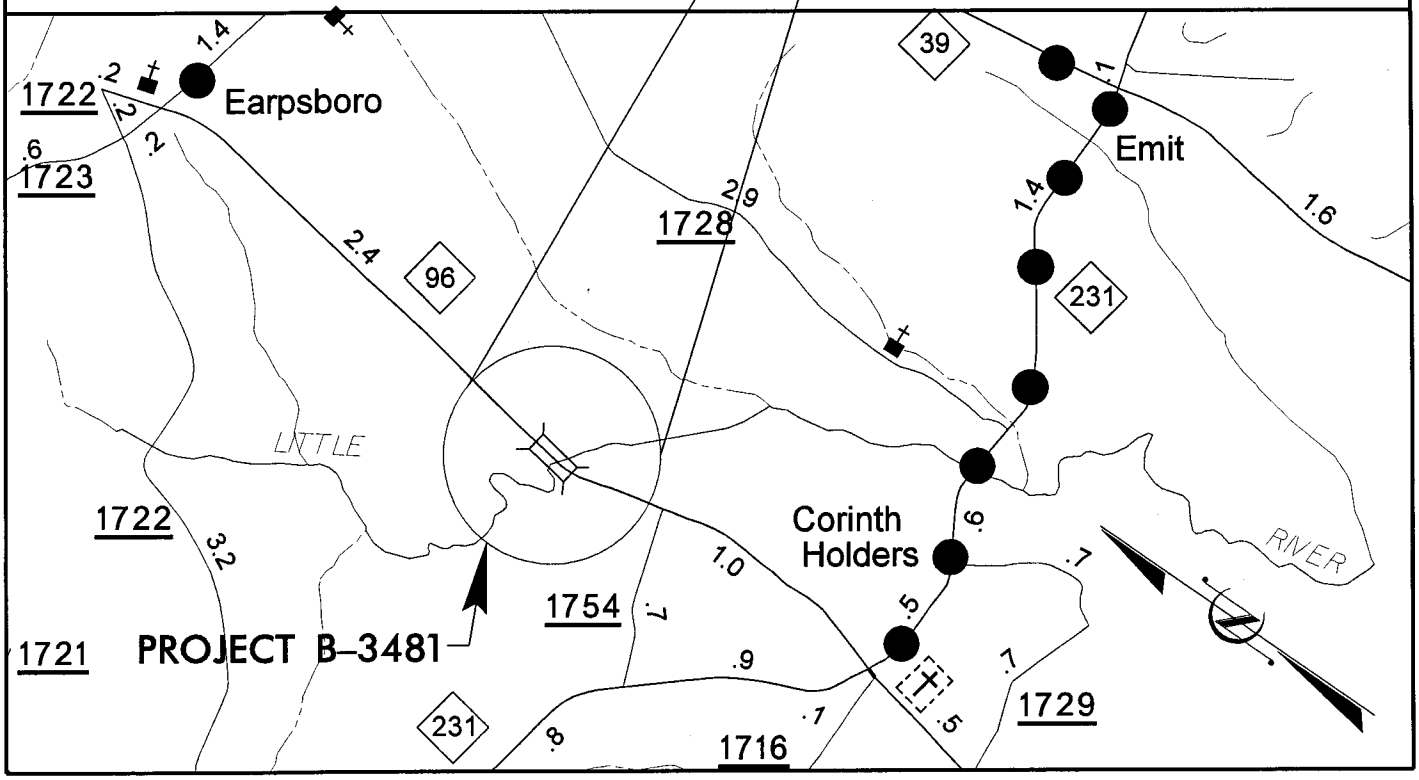
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g.,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

E. L. Lusk 11.27.06

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

NORTH CAROLINA





WETLAND PERMIT DRAWING
VICINITY MAP
B-3481

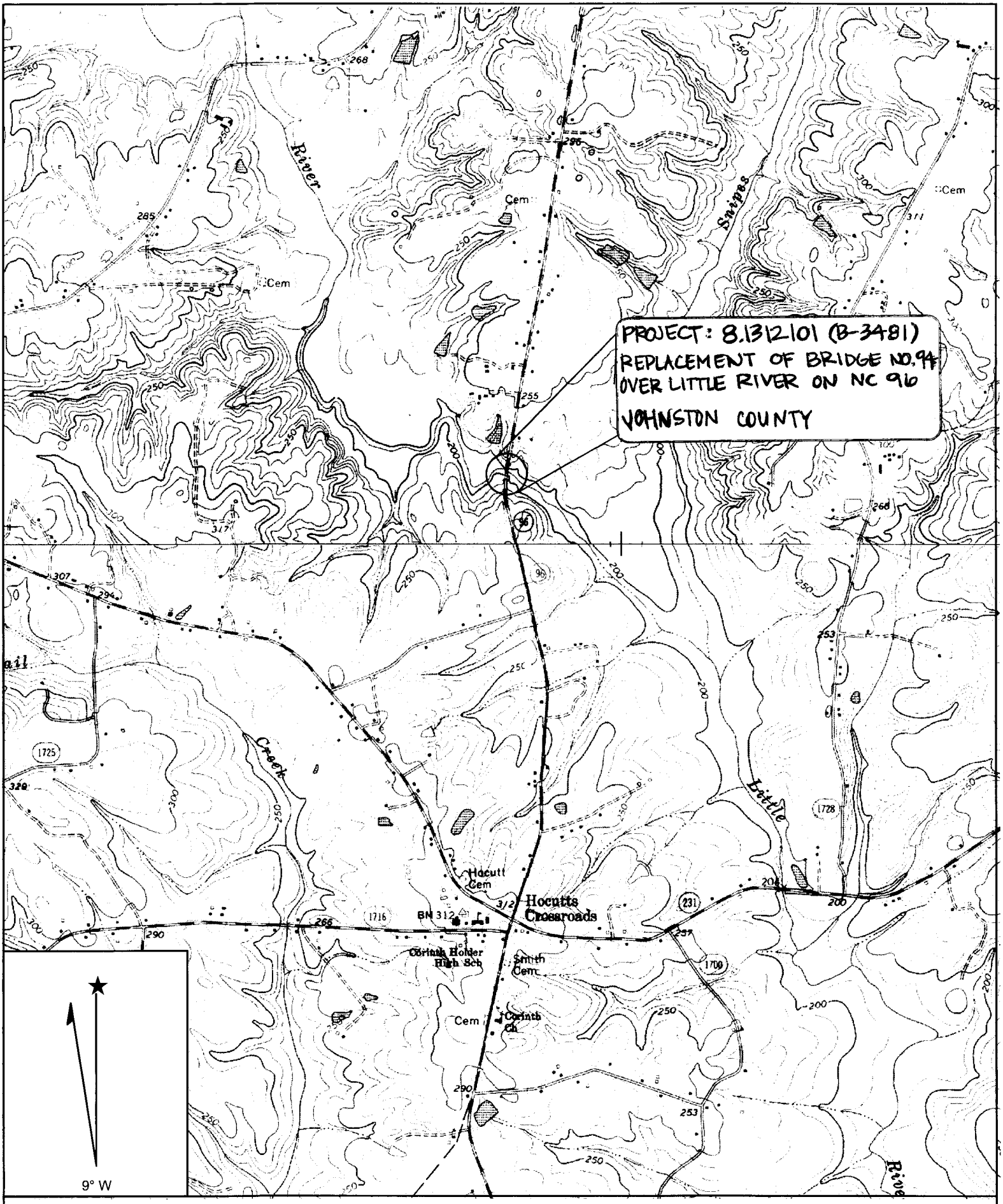
DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.1312101 (B-3481)
REPLACEMENT OF BRIDGE NO.94
OVER LITTLE RIVER ON NC 96

9/13/2006

R:\01\055062\Plan\Permits\Wetland vicinity map.dgn

9/13/2006



Name: FLOWERS
Date: 9/13/2006
Scale: 1 inch equals 2000 feet

Location: 035° 44' 50.8" N 078° 17' 54.5" W
Caption: Project: 8.1312101 (B-3481)
Replacement of Bridge No. 94
Over Little River on NC 96

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	-L- STA 19+25	CAUSEWAY							0.05168		
TOTALS:			0	0	0	0	0	0	0.05168	0	0

Note: < 0.001 acre of impacts to surface waters due to placement of bridge bents.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT 8.1312101 B3481

9/13/2006

Form Revised 3/22/01

Sheet 3 of 9

	OWNER'S NAME	ADDRESS
(1)	Curtis, Mary Francis Corbett	14231 NC Hwy 96 Zebulon, NC 27597
(2)	Creech, Vivian Richardson	14417 NC Hwy 96 Zebulon, NC 27597
(3)	Hinton, Carolyn Sue Corbett	213 Strickland - Hinton Rd. Zebulon, NC 27597
(4)	Hood, Bertie H.	14362 NC Hwy 96 Zebulon, NC 27597

PROPERTY OWNER NAME AND ADDRESS

DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.1312101 (B-3481)

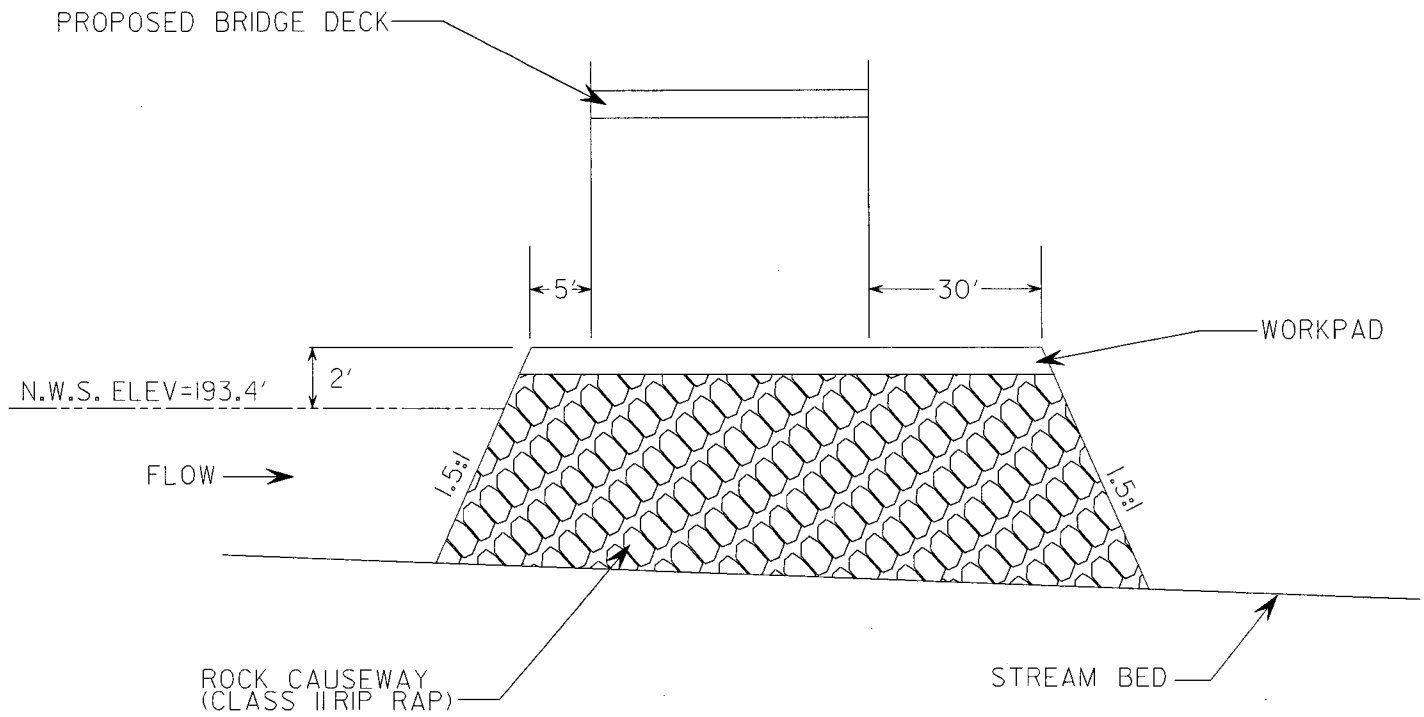
REPLACEMENT OF BRIDGE NO. 94
OVER LITTLE RIVER ON NC 96

9/13/2006

R:\01056062\Plan\Permits\Wetland Property Owners.dgn

9/13/2006

CAUSEWAY DETAIL
(NOT TO SCALE)



QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP= 470 yds^3
AREA OF CLASS II RIP RAP= 0.07 acres
Estimate 675 Tons Class II Rip Rap

NCDOT
DIVISION OF HIGHWAYS
JOHNSTON COUNTY
PROJECT: 8.1312101 (B-3481)
REPLACEMENT OF BRIDGE NO.94
OVER LITTLE RIVER ON NC 96

9/13/2006

8/17/99

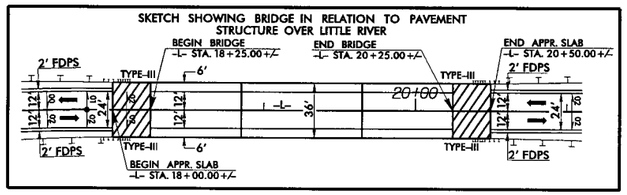
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3481	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT STRUCTURE OVER LITTLE RIVER



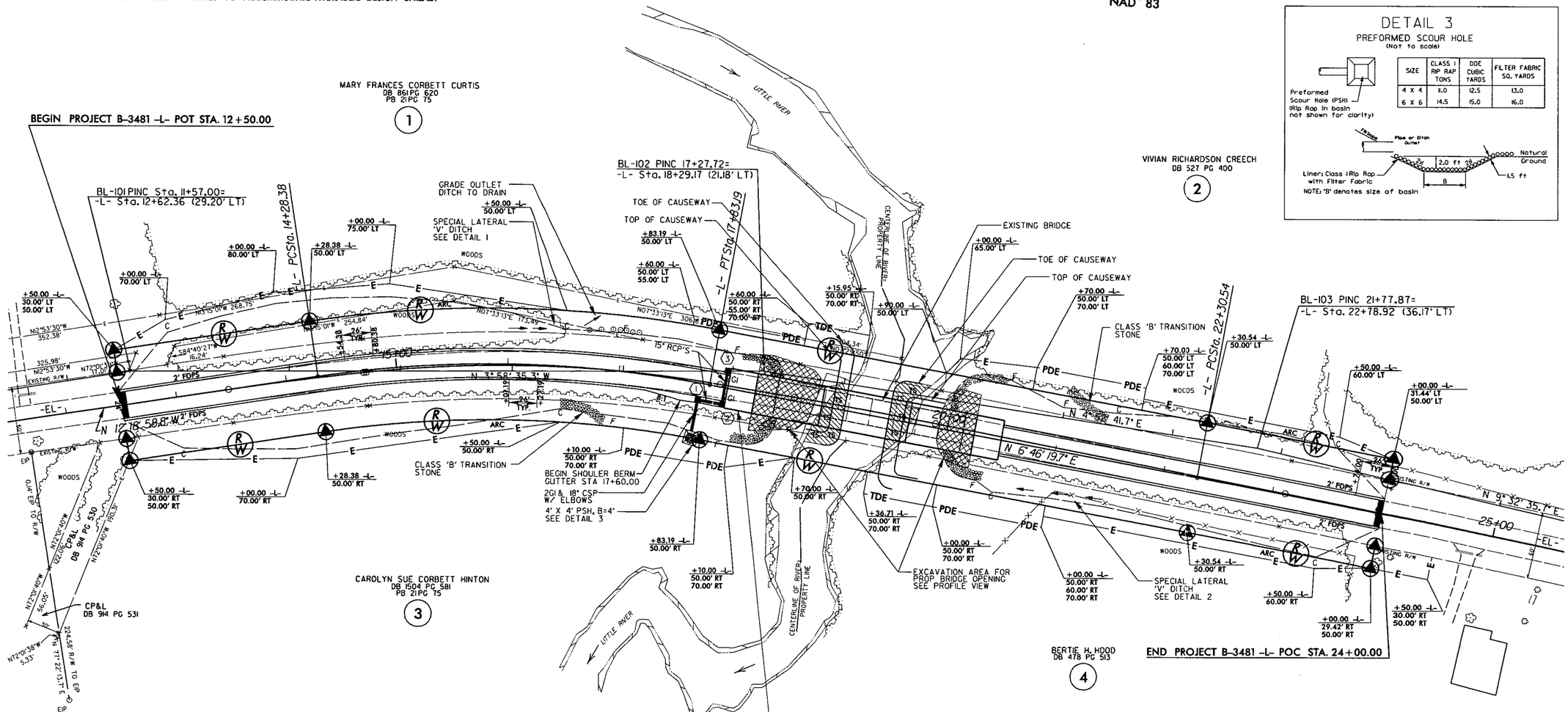
NOTE: BRIDGE HAS BEEN WIDENED TO ACCOMMODATE HYDRAULIC DESIGN SPREAD.

-L-	
PI Sta 16+07.44	PI Sta 24+44.64
Δ = 19° 05' 18.6" (RT)	Δ = 2° 10' 42.3" (RT)
D = 5° 22' 47.6"	D = 0° 30' 31.7"
L = 354.81'	L = 428.15'
T = 179.07'	T = 214.10'
R = 1,065.00'	R = 11,261.00'
SE = 0.06	SE = NA
RUNOFF = 156'	RUNOFF = NA

NAD 83

DETAIL 3
PREFORMED SCOUR HOLE
(Not to scale)

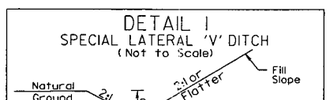
SIZE	CLASS I RIP RAP TONS	DDE CUBIC YARDS	FILTER FABRIC SQ. YARDS
4 X 4	11.0	12.5	13.0
6 X 6	14.5	15.0	16.0



DENOTES TEMPORARY SURFACE WATER IMPACTS

-L- STA 16+00 TO 16+60 (LT)

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
PERMANENT SOIL
Type of Liner = REINFORCEMENT MATERIAL

-L- STA 20+40 TO 21+50 (RT)

DETAIL 2
SPECIAL DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = CLASS 'B' RIPRAP

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-__ FOR STRUCTURE PLANS

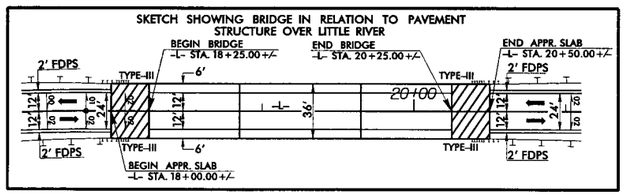
PROJECT REFERENCE NO.	SHEET NO.
B-3481	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS 8/17/99

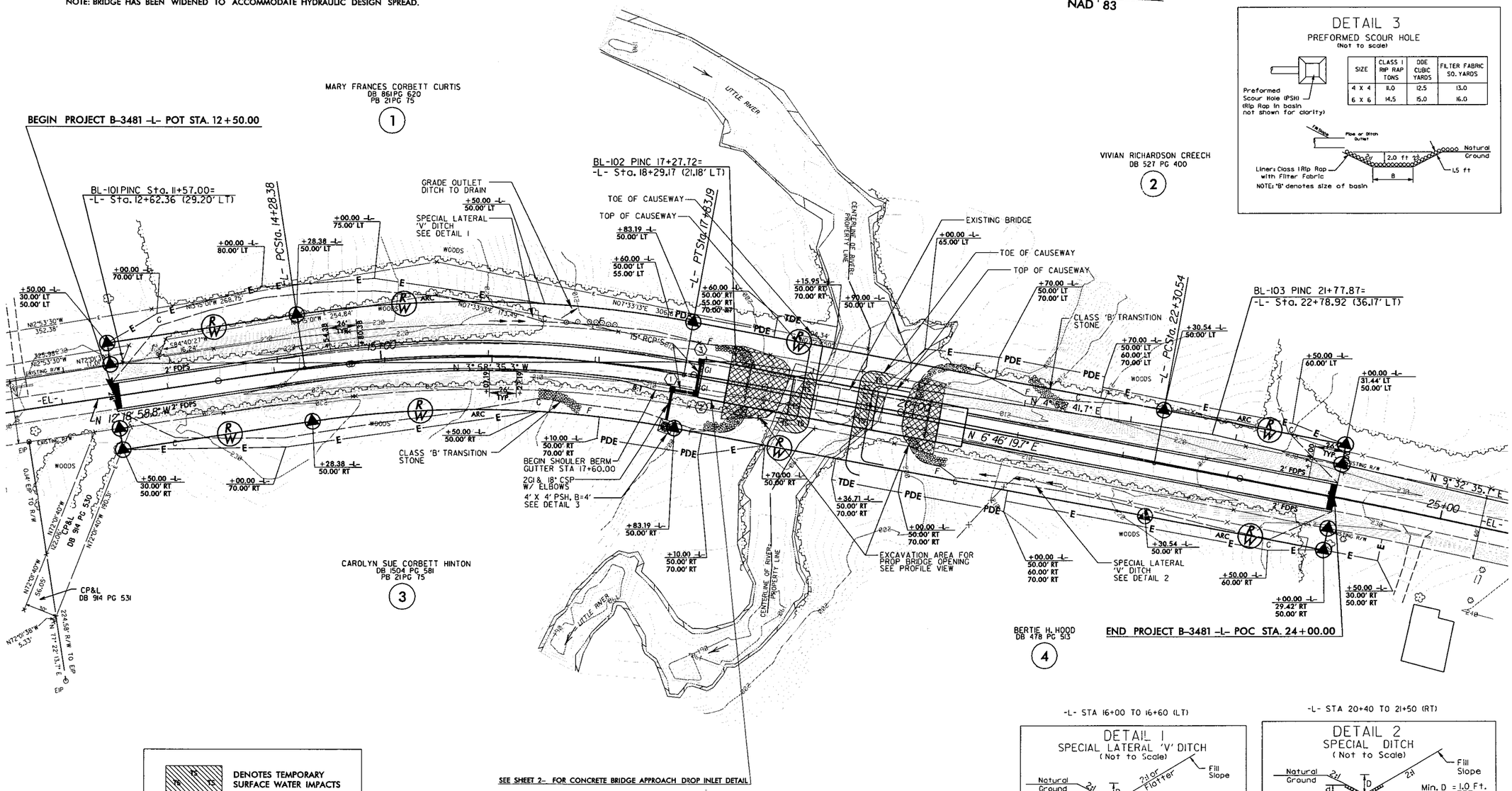
SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT STRUCTURE OVER LITTLE RIVER



NOTE: BRIDGE HAS BEEN WIDENED TO ACCOMMODATE HYDRAULIC DESIGN SPREAD.

-L-	
PI Sta 16+07.44	PI Sta 24+44.64
Δ = 19° 05' 18.6" (RT)	Δ = 2° 10' 42.3" (RT)
D = 5° 22' 47.6"	D = 0° 30' 31.7"
L = 354.81'	L = 428.15'
T = 179.07'	T = 214.10'
R = 1,065.00'	R = 11,261.00'
SE = 0.06	SE = NA
RUNOFF = 156'	RUNOFF = NA

NAD 83



DETAIL 3
PREFORMED SCOUR HOLE
(Not to scale)

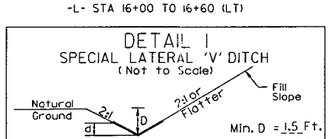
SIZE	CLASS I RIP RAP TONS	DDE CUBIC YARDS	FILTER FABRIC SQ. YARDS
4 X 4	11.0	12.5	13.0
6 X 6	14.5	15.0	16.0

DENOTES TEMPORARY SURFACE WATER IMPACTS

SEE SHEET 2- FOR CONCRETE BRIDGE APPROACH DROP INLET DETAIL

-L- STA 16+00 TO 16+60 (LT)

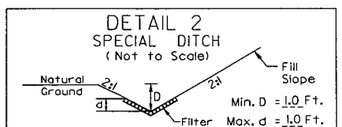
DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to scale)



PERMANENT SOIL
Type of Liner = REINFORCEMENT MATERIAL

-L- STA 20+40 TO 21+50 (RT)

DETAIL 2
SPECIAL DITCH
(Not to scale)

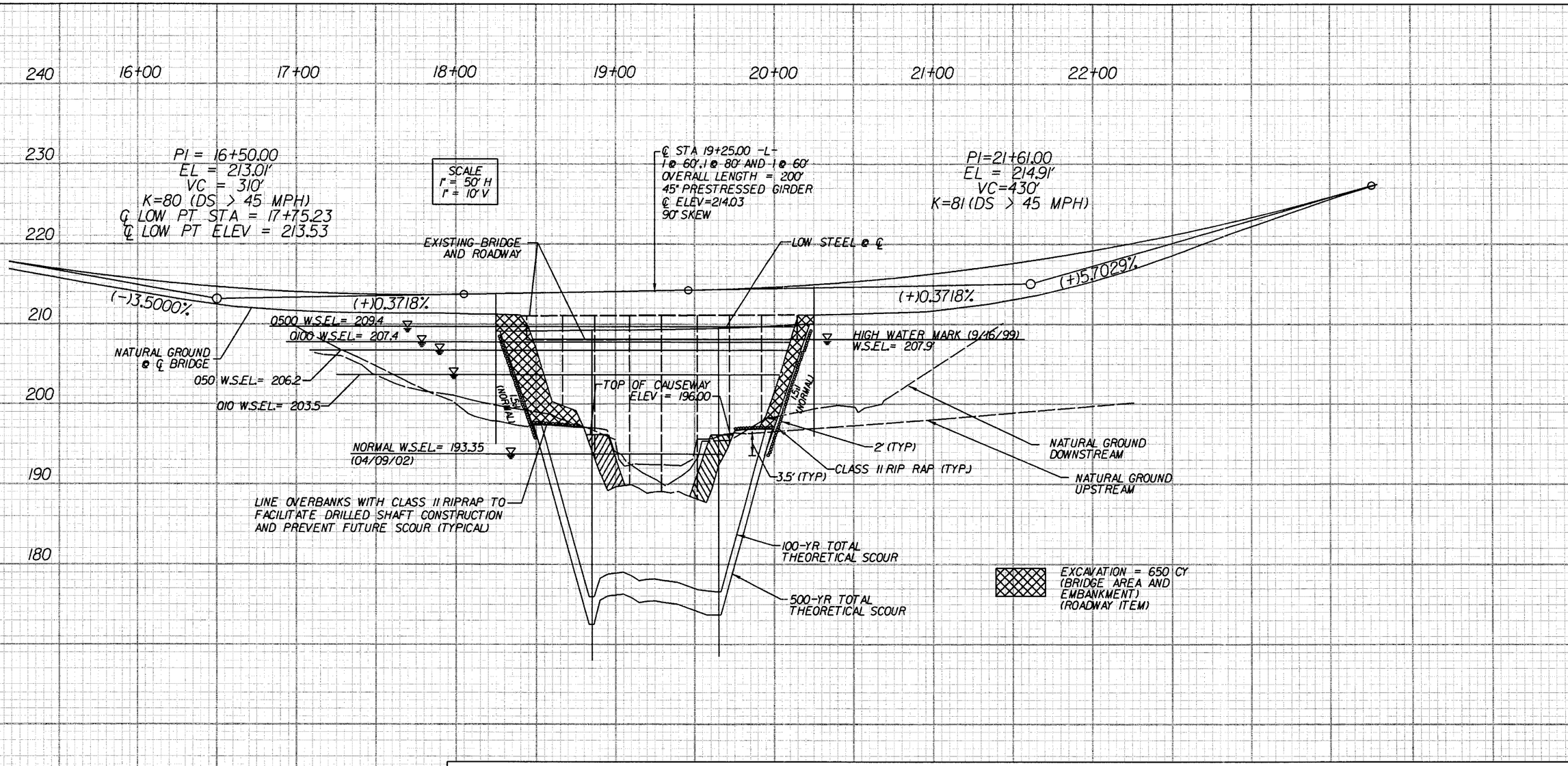


Type of Liner = CLASS 'B' RIPRAP

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-__ FOR STRUCTURE PLANS

\\\\\\SYSTIME\\\\\\
\\\\\\USERNAME\\\\\\

Sheet 7 of 9



WETLAND PERMIT DRAWING
BSR PROFILE
B-3481

NCDOT

DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.1312101 (B-3481)
REPLACEMENT OF BRIDGE NO.94
OVER LITTLE RIVER ON NC 96

9/13/2006

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-3481	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

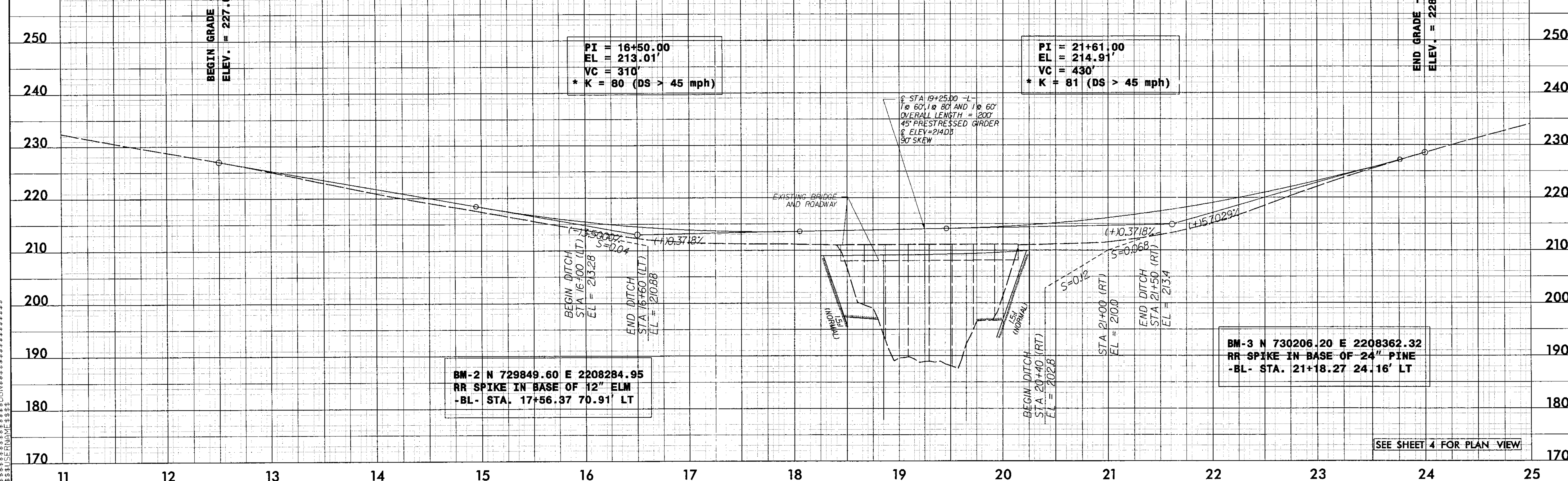
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	9300 CFS
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	206.2 FT
BASE DISCHARGE	=	11000 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	207.4 FT
OVERTOPPING DISCHARGE	=	27000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	213.53 FT

*** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE.**



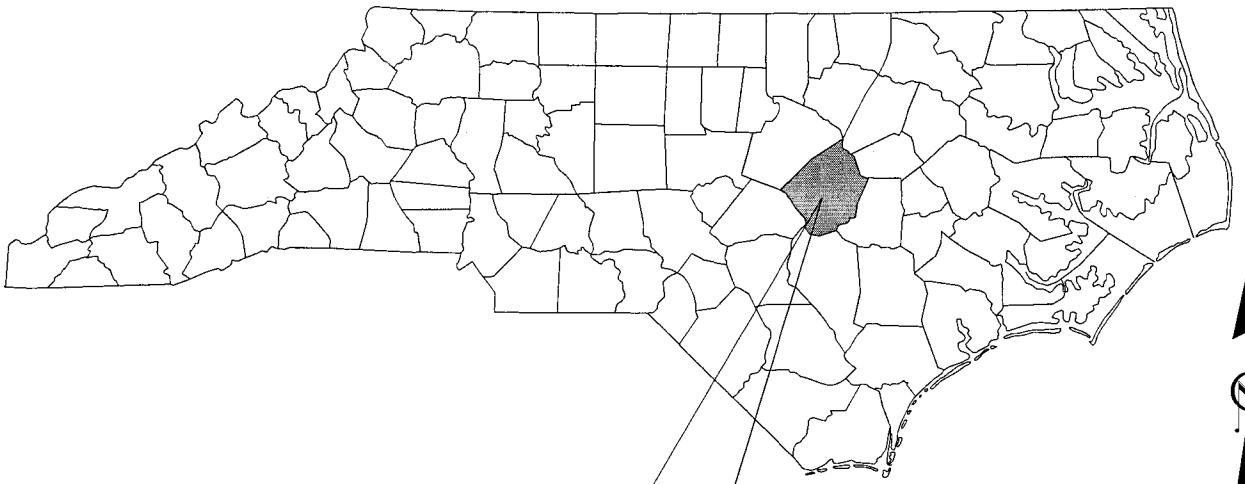
BEGIN GRADE -L- Sta. 12+50.00
ELEV. = 227.01
END GRADE -L- Sta. 24+00.00
ELEV. = 228.54
PI = 16+50.00
EL = 213.01'
VC = 310'
* K = 80 (DS > 45 mph)
PI = 21+61.00
EL = 214.91'
VC = 430'
* K = 81 (DS > 45 mph)
℄ STA 19+25.00 -L-
1 @ 60', 1 @ 80' AND 1 @ 60'
OVERALL LENGTH = 200'
45" PRESTRESSED GIRDER
℄ ELEV=214.03
90° SKEW
EXISTING BRIDGE AND ROADWAY
(-)3.5000%
S=0.04
(+)0.3718%
(+)0.3718%
S=0.068
(+)5.7029%
S=0.12
BEGIN DITCH STA 16+00 (LT) EL = 213.28
END DITCH STA 16+60 (LT) EL = 210.88
BEGIN DITCH STA 20+40 (RT) EL = 202.8
STA 21+00 (RT) EL = 210.0
END DITCH STA 21+50 (RT) EL = 213.4
1.5:1 (NORMAL)
1.5:1 (NORMAL)
BM-2 N 729849.60 E 2208284.95
RR SPIKE IN BASE OF 12" ELM
-BL- STA. 17+56.37 70.91' LT
BM-3 N 730206.20 E 2208362.32
RR SPIKE IN BASE OF 24" PINE
-BL- STA. 21+18.27 24.16' LT
250
240
230
220
210
200
190
180
170
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

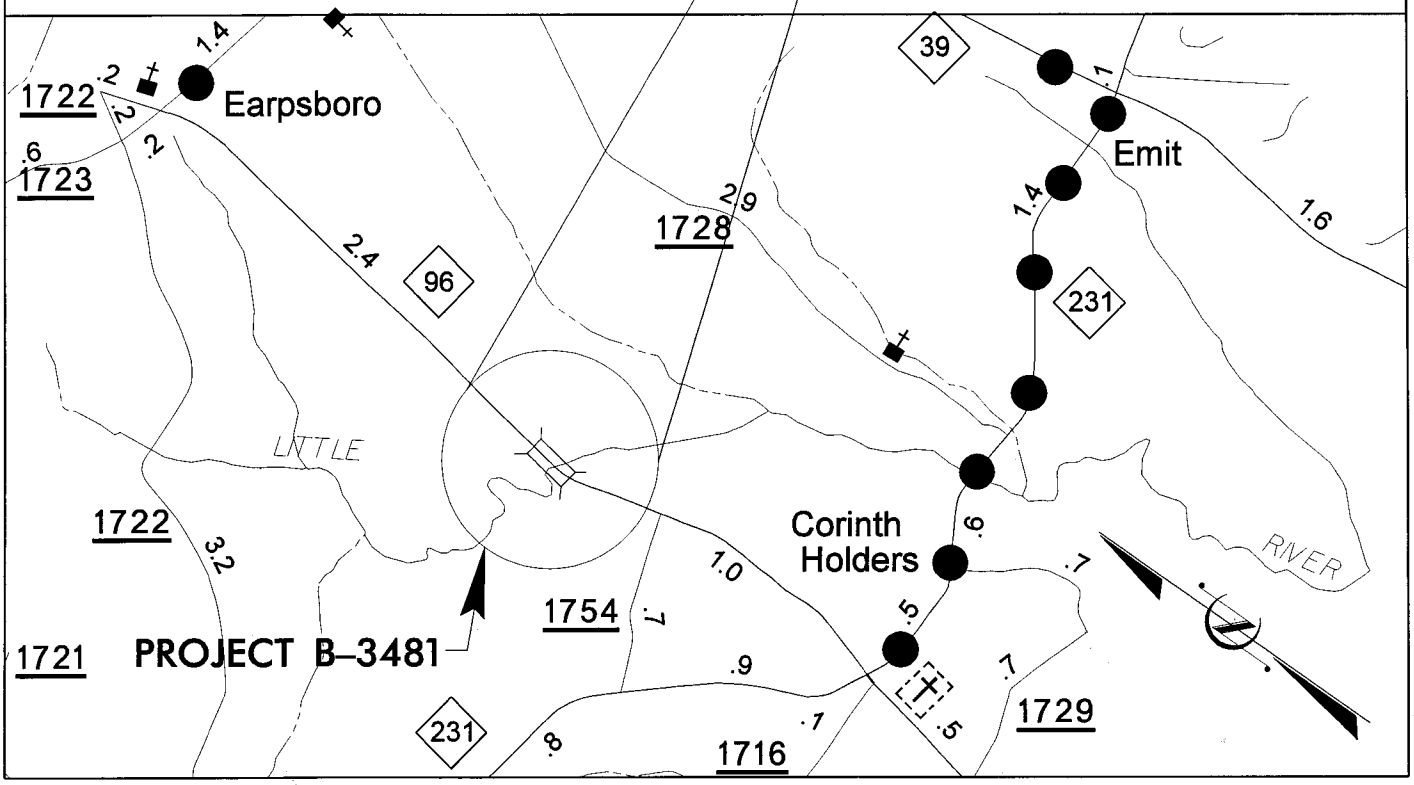
SEE SHEET 4 FOR PLAN VIEW

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

Sheet 9 of 9

NORTH CAROLINA





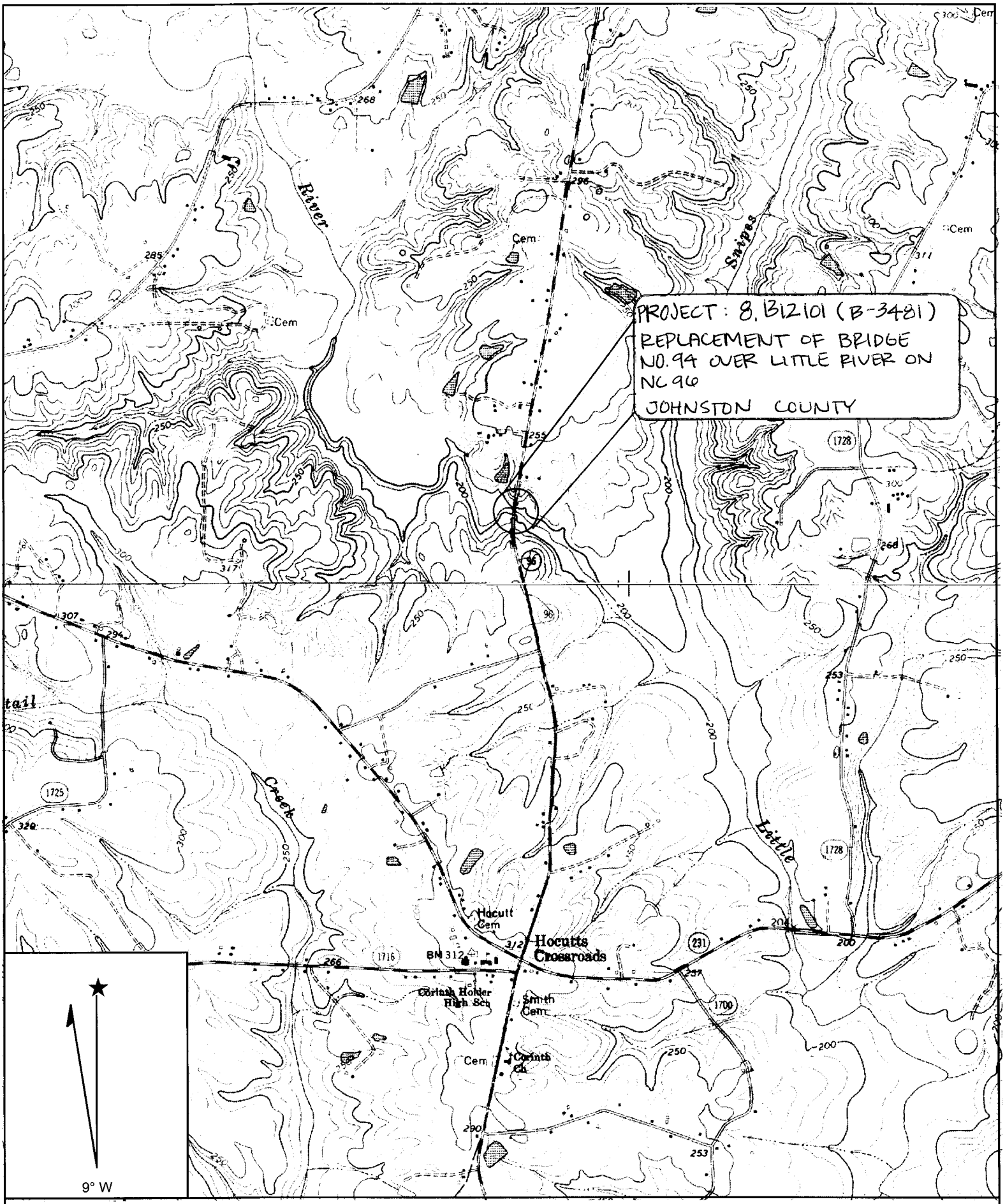
BUFFER PERMIT DRAWING
VICINITY MAP
B-3481

DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.1312101 (B-3481)
REPLACEMENT OF BRIDGE NO.94
OVER LITTLE RIVER ON NC 96

9/13/2006

R:\01105062\Plan\Permits\Buffer vicinity map.dgn
9/13/2006



Name: ZEBULON
Date: 9/13/2006
Scale: 1 inch equals 2000 feet

Location: 035° 44' 57.1" N 078° 17' 56.1" W
Caption: Project: 8.1312101 (B-3481)
Replacement of Bridge No. 94
Over Little River on NC 96

	OWNER'S NAME	ADDRESS
(1)	Curtis, Mary Francis Corbett	14231 NC Hwy 96 Zebulon, NC 27597
(2)	Creech, Vivian Richardson	14417 NC Hwy 96 Zebulon, NC 27597
(3)	Hinton, Carolyn Sue Corbett	213 Strickland - Hinton Rd. Zebulon, NC 27597
(4)	Hood, Bertie H.	14362 NC Hwy 96 Zebulon, NC 27597

PROPERTY OWNER NAME AND ADDRESS

DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.1312101 (B-3481)

REPLACEMENT OF BRIDGE NO. 94 OVER LITTLE RIVER ON NC 96

9/13/2006

9/13/2006 R:\01\056062\Plan\Permits\Wetland Property Owners.dgn

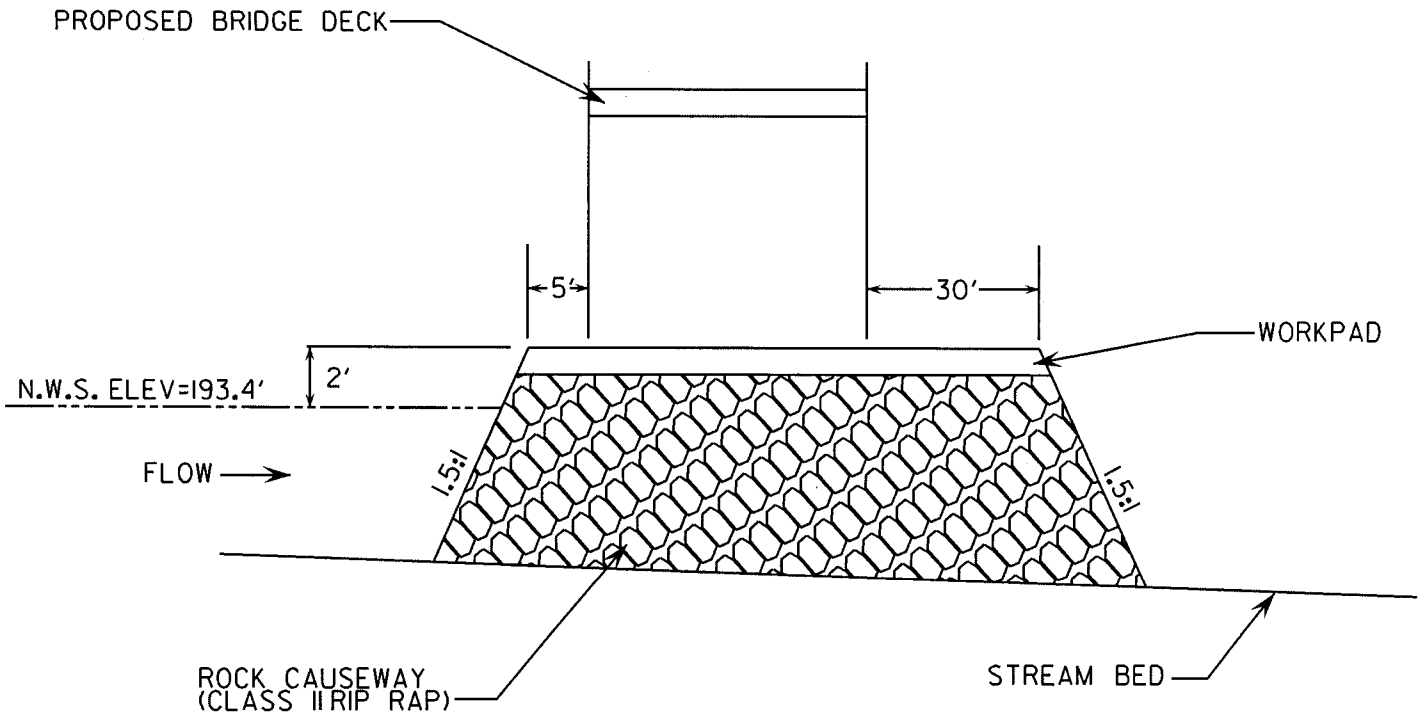
BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	BRIDGE	STA 19+25-L-		X		4593.6	3932.1	8525.7					
TOTAL:						4593.6	3932.1	8525.7	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT: 8.1312101 (B-3481)
REPLACEMENT OF BRIDGE NO. 94
OVER LITTLE RIVER ON NC 96
9/13/2006
SHEET OF

CAUSEWAY DETAIL
(NOT TO SCALE)



QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP= 470 yds^3
AREA OF CLASS II RIP RAP= 0.07 acres
Estimate 675 Tons Class II Rip Rap

NCDOT
DIVISION OF HIGHWAYS
JOHNSTON COUNTY
PROJECT: 8.1312101 (B-3481)
REPLACEMENT OF BRIDGE NO.94
OVER LITTLE RIVER ON NC 96

9/13/2006

Sheet 5 of 9

8/17/99

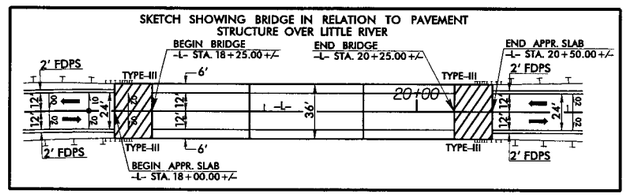
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3481	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

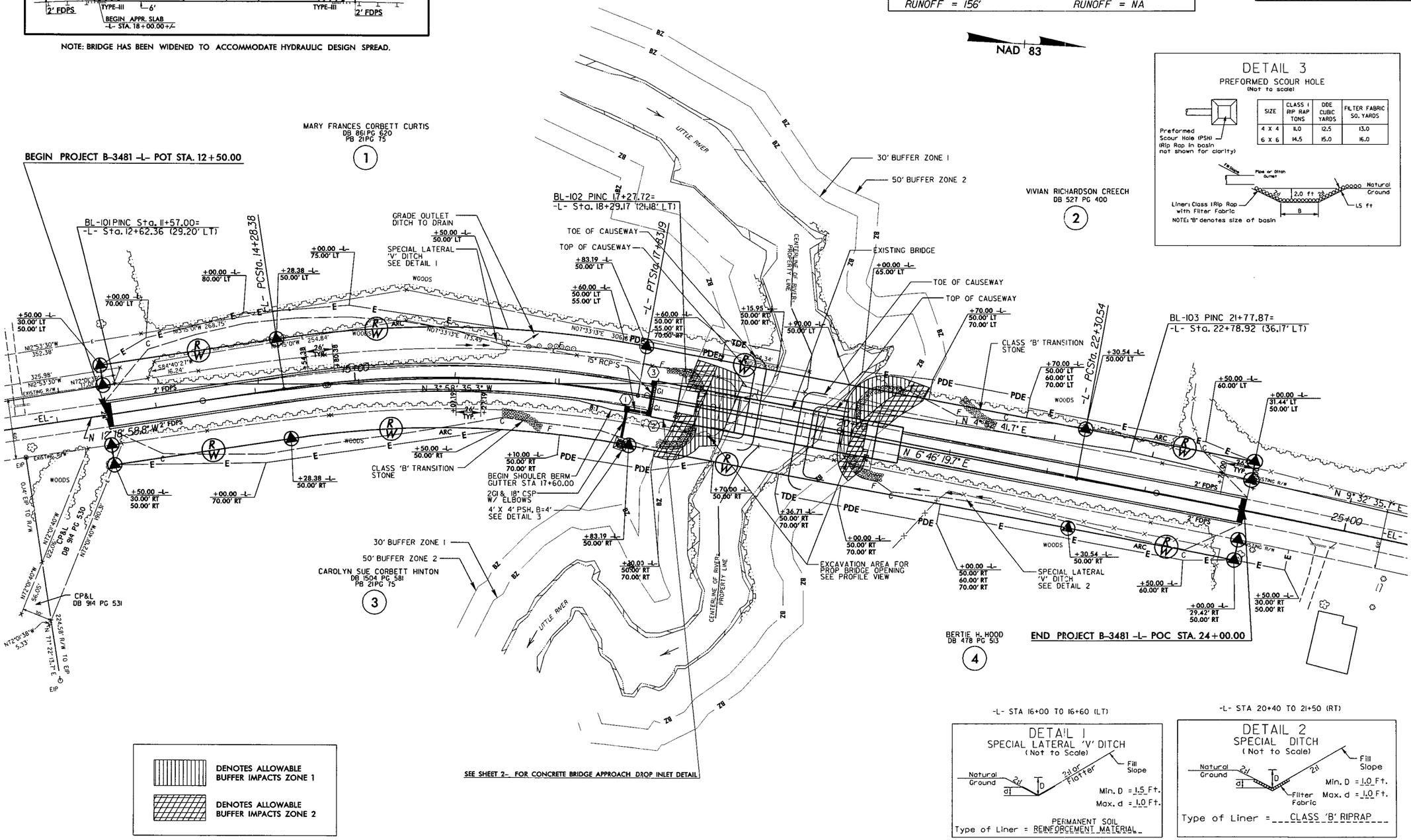
SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT STRUCTURE OVER LITTLE RIVER



NOTE: BRIDGE HAS BEEN WIDENED TO ACCOMMODATE HYDRAULIC DESIGN SPREAD.

-L-	
PI Sta 16+07.44	PI Sta 24+44.64
Δ = 19° 05' 18.6" (RT)	Δ = 2° 10' 42.3" (RT)
D = 5° 22' 47.5"	D = 0° 30' 31.7"
L = 354.81'	L = 428.15'
T = 179.07'	T = 214.10'
R = 1,065.00'	R = 11,261.00'
SE = 0.06	SE = NA
RUNOFF = 156'	RUNOFF = NA

NAD 83



DENOTES ALLOWABLE BUFFER IMPACTS ZONE 1

DENOTES ALLOWABLE BUFFER IMPACTS ZONE 2

DETAIL 3
PREFORMED SCOUR HOLE
(Not to scale)

SIZE	CLASS 1 RIP RAP TONS	DDE CUBIC YARDS	FILTER FABRIC SQ. YARDS
4 X 4	11.0	12.5	13.0
6 X 6	14.5	15.0	16.0

-L- STA 16+00 TO 16+60 (LT)

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
PERMANENT SOIL
Type of Liner = REINFORCEMENT MATERIAL

-L- STA 20+40 TO 21+50 (RT)

DETAIL 2
SPECIAL DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = CLASS 'B' RIPRAP

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-__ FOR STRUCTURE PLANS

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

8/17/99

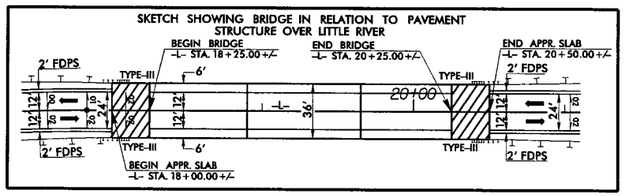
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3481	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT STRUCTURE OVER LITTLE RIVER



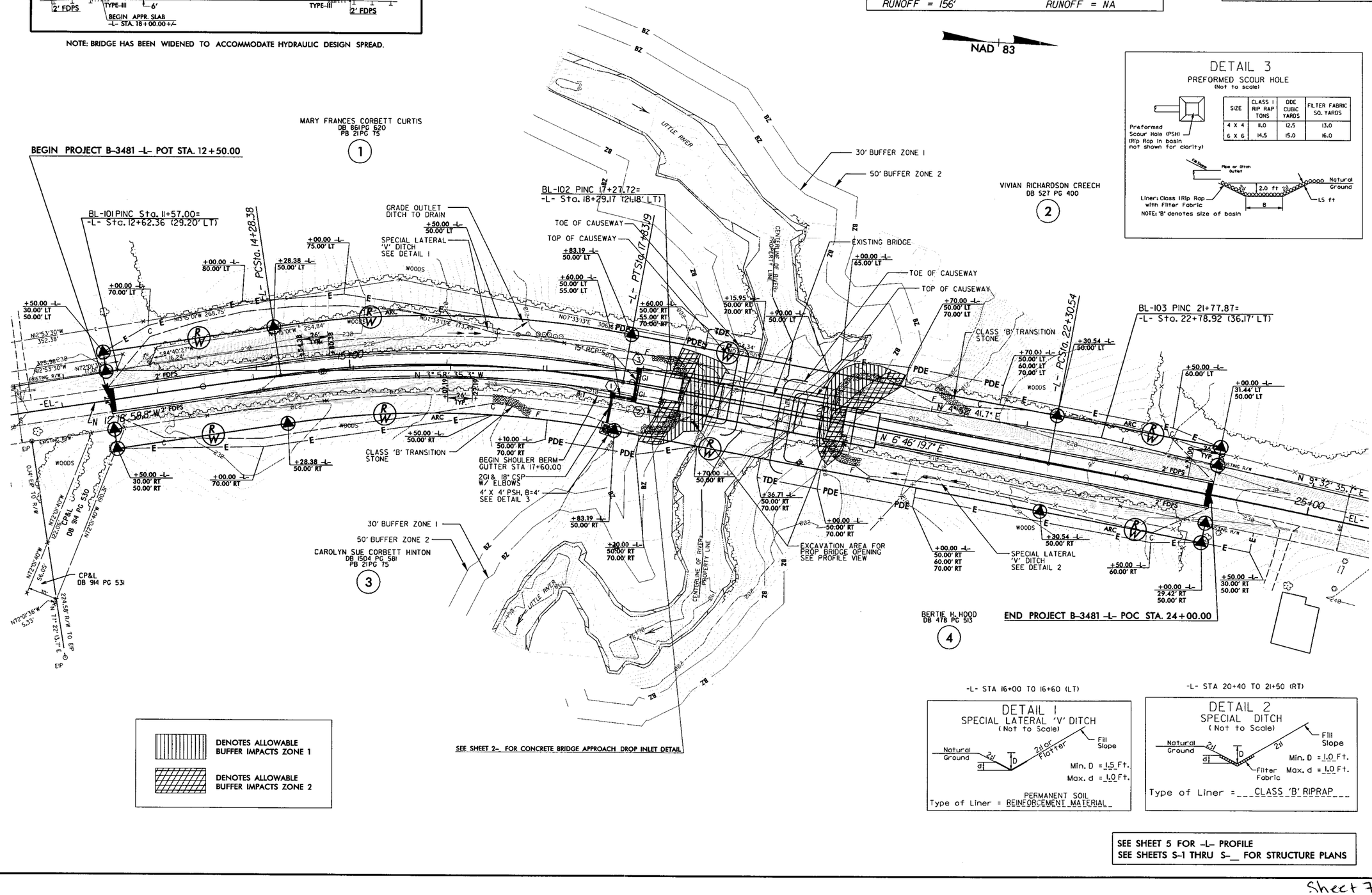
NOTE: BRIDGE HAS BEEN WIDENED TO ACCOMMODATE HYDRAULIC DESIGN SPREAD.

-L-	
PI Sta 16+07.44	PI Sta 24+44.64
Δ = 19° 05' 18.6" (RT)	Δ = 2° 10' 42.3" (RT)
D = 5° 22' 47.6"	D = 0° 30' 31.7"
L = 354.81'	L = 428.15'
T = 179.07'	T = 214.10'
R = 1,065.00'	R = 11,261.00'
SE = 0.06	SE = NA
RUNOFF = 156'	RUNOFF = NA

NAD 83

DETAIL 3
PREFORMED SCOUR HOLE
(Not to scale)

SIZE	CLASS I RIP RAP TONS	ODE CUBIC YARDS	FILTER FABRIC SQ. YARDS
4 X 4	11.0	12.5	13.0
6 X 6	14.5	15.0	16.0



SEE SHEET 2- FOR CONCRETE BRIDGE APPROACH DROP INLET DETAIL

-L- STA 16+00 TO 16+60 (LT)

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1.5 Ft.
Max. d = 1.0 Ft.

PERMANENT SOIL
Type of Liner = REINFORCEMENT MATERIAL

-L- STA 20+40 TO 21+50 (RT)

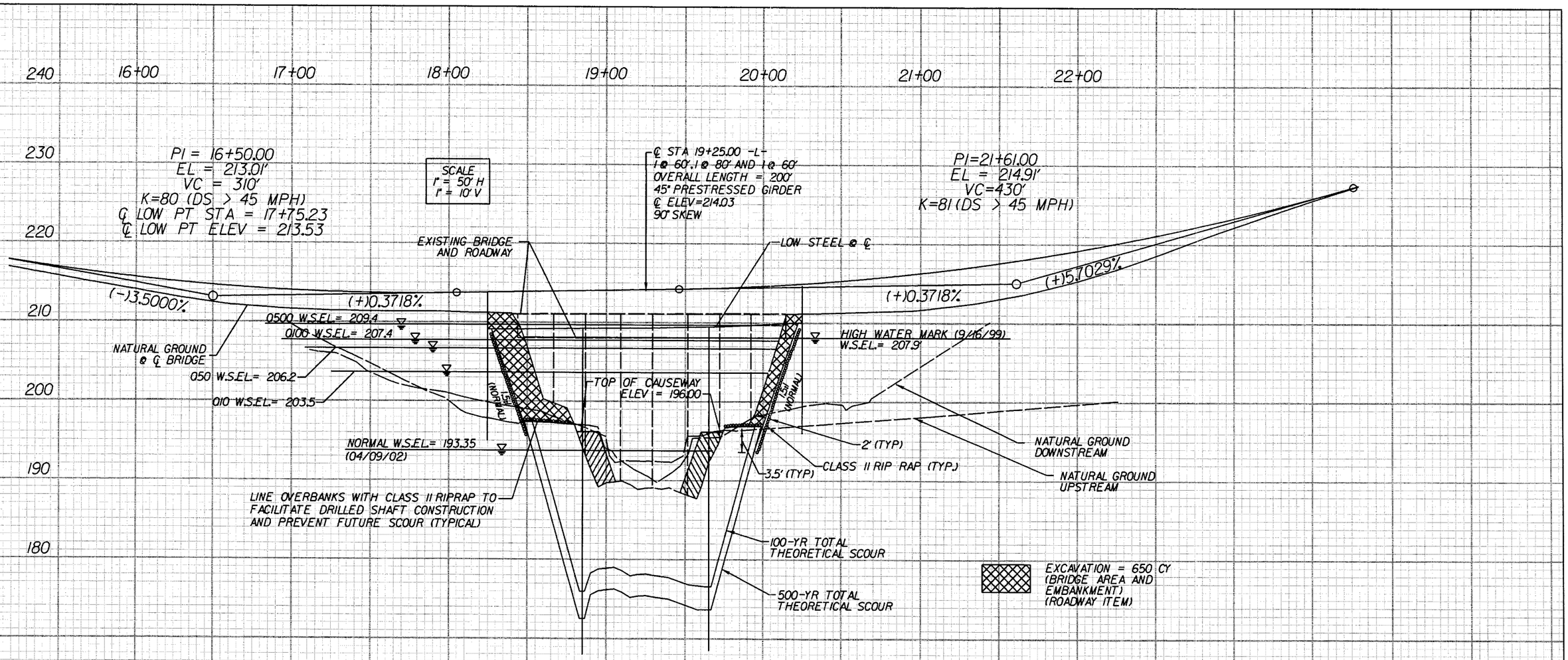
DETAIL 2
SPECIAL DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 1.0 Ft.

Type of Liner = CLASS 'B' RIPRAP

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-__ FOR STRUCTURE PLANS

$$$$$$$SYSTIME$$$$$$$
$$$$$$$USERNAME$$$$$$$
$$$$$$$DGNNAME$$$$$$$



BUFFER PERMIT DRAWING
BSR PROFILE
B-3481

NCDOT

DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.1312101 (B-3481)
REPLACEMENT OF BRIDGE NO.94
OVER LITTLE RIVER ON NC 96

9/13/2006

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-3481	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	9300 CFS
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	206.2 FT
BASE DISCHARGE	=	11000 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	207.4 FT
OVERTOPPING DISCHARGE	=	27000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	213.53 FT

*** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE.**

PI = 16+50.00
EL = 213.01'
VC = 310'
*** K = 80 (DS > 45 mph)**

PI = 21+61.00
EL = 214.91'
VC = 430'
*** K = 81 (DS > 45 mph)**

BM-2 N 729849.60 E 2208284.95
RR SPIKE IN BASE OF 12" ELM
-BL- STA. 17+56.37 70.91' LT

BM-3 N 730206.20 E 2208362.32
RR SPIKE IN BASE OF 24" PINE
-BL- STA. 21+18.27 24.16' LT

SEE SHEET 4 FOR PLAN VIEW

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

Sheet 9 of 9

TIP PROJECT: B-3481

CONTRACT:

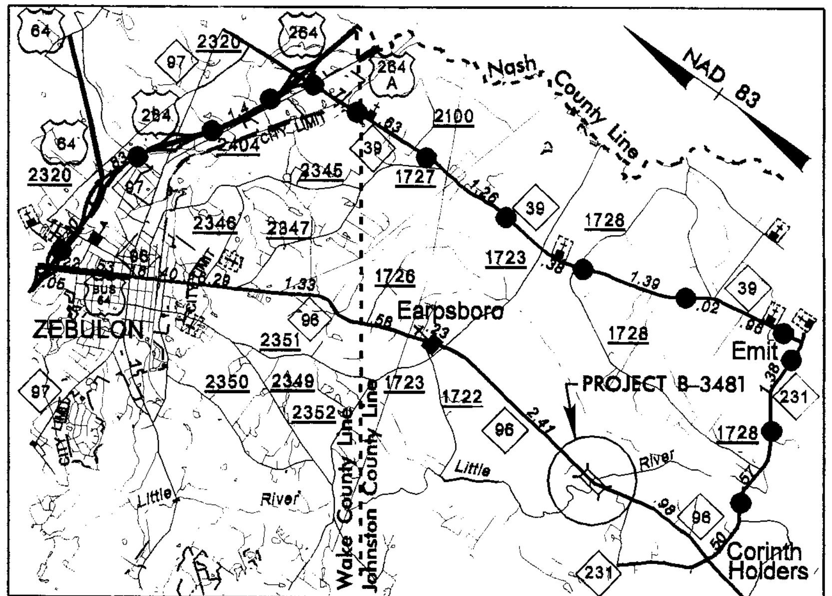
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Plan Sheet Symbols
See Sheet 1-C For Survey Control Sheet

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3481	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33098.1.1	BRSTP-96(2)	P.E.	
33098.2.2	BRSTP-96(2)	R/W & UTILITIES	

JOHNSTON COUNTY

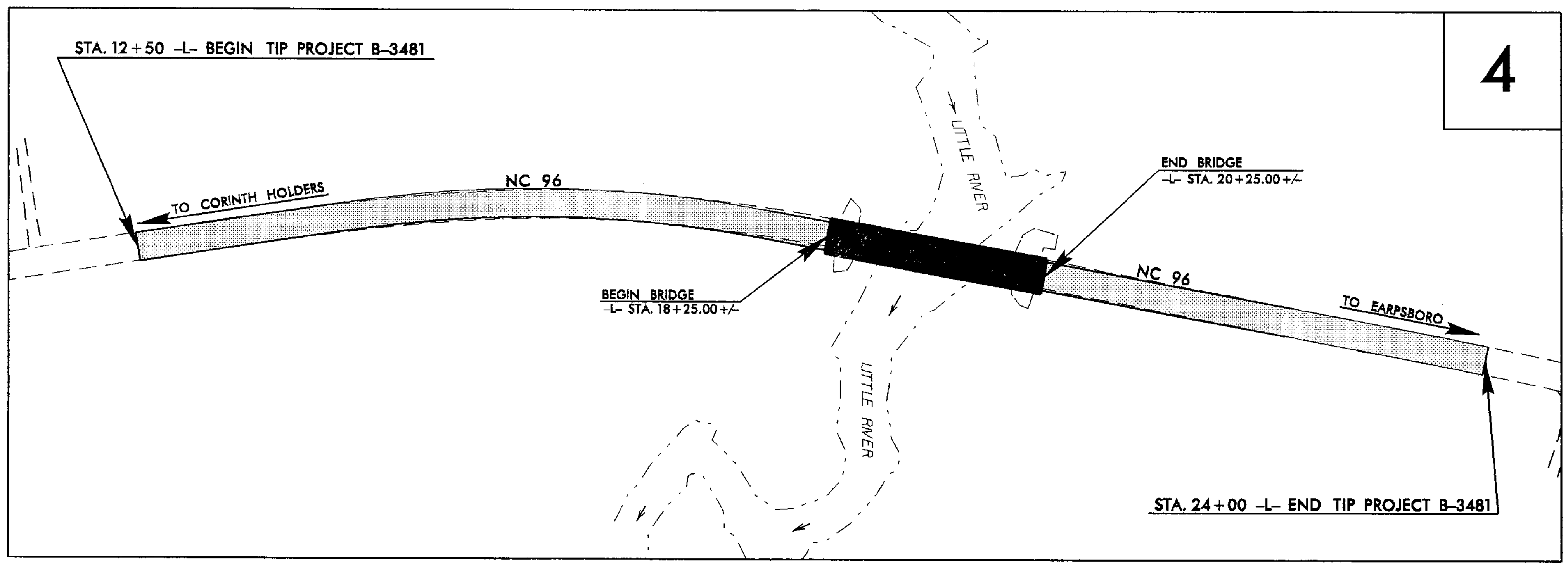
LOCATION: BRIDGE NO. 94 OVER LITTLE RIVER ON NC 96
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, AND GUARDRAIL



VICINITY MAP

●●● DETOUR ROUTE

NAD 83



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARIES OF ZEBULON.
** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES AND STOPPING SIGHT DISTANCES.

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 2005 = 2800
ADT 2025 = 4500
DHV = 10 %
D = 60 %
T = 14 % *
V = 55 MPH
* TTST 6 % DUAL 8 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3481 =	0.180 MI
LENGTH STRUCTURE TIP PROJECT B-3481 =	0.038 MI
TOTAL LENGTH OF TIP PROJECT B-3481 =	0.218 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 16, 2005

LETTING DATE: MAY 15, 2007

JAMES A. SPEER, PE
PROJECT ENGINEER

DANNY GARDNER
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

PROJECT REFERENCE NO.	SHEET NO.
B-3481	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

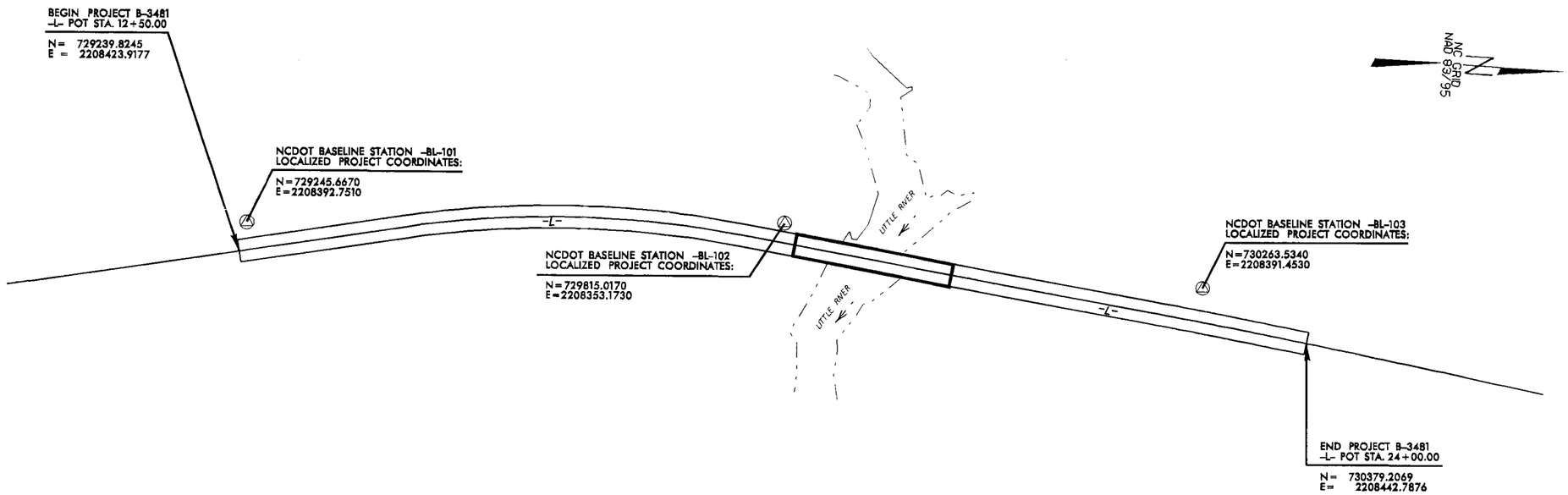
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-3481	1-C
Location and Surveys	

SURVEY CONTROL SHEET B-3481

JOHNSTON COUNTY

BRIDGE 94 OVER LITTLE RIVER ON NC96



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	GPS B3481-2	728605.0200	2208538.4210	250.50	OUTSIDE PROJECT LIMITS	
101	BL-101	729245.6670	2208392.7510	229.94	12+62.36	29.20 LT
102	BL-102	729815.0170	2208353.1730	209.45	18+29.17	21.18 LT
103	BL-103	730263.5340	2208391.4530	226.89	22+78.92	36.17 LT
3	GPS B3481-3	730811.4800	2208483.5730	243.65	OUTSIDE PROJECT LIMITS	

```
*************************************
111       ELEVATION = 228.75
N 729167      E 2208461
L STATION 11+71 21' RIGHT
RR SPIKE IN BASE OF 12" PINE
*************************************

*************************************
112       ELEVATION = 199.52
N 729850      E 2208285
L STATION 18+55 93' LEFT
RR SPIKE IN BASE OF 12" ELM
*************************************
*************************************
113       ELEVATION = 225.68
N 730206      E 2208362
L STATION 22+19 58' LEFT
RR SPIKE IN BASE OF 24" PINE
*************************************
```

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

PROJECT CONTROL ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION.

SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES

NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B3481_LS_CONTROL_050804.TXT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-3481-1" WITH STATE PLANE GRID COORDINATES OF NORTHING: 728121.992(11) EASTING: 2208645.075(11) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999904118 THE NC LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-3481-1" TO -L- STATION 12+50.00 IS N 11°11'28.12" W 113.50' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

26-JUL-2006 11:46
r:\location\surveys\b3481_ls_lc_050804.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-3481	2

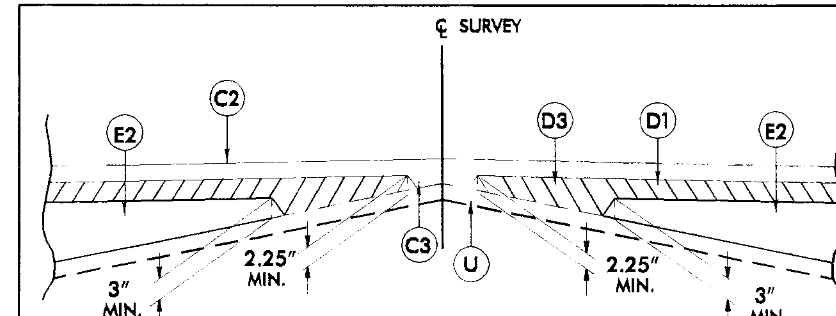
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

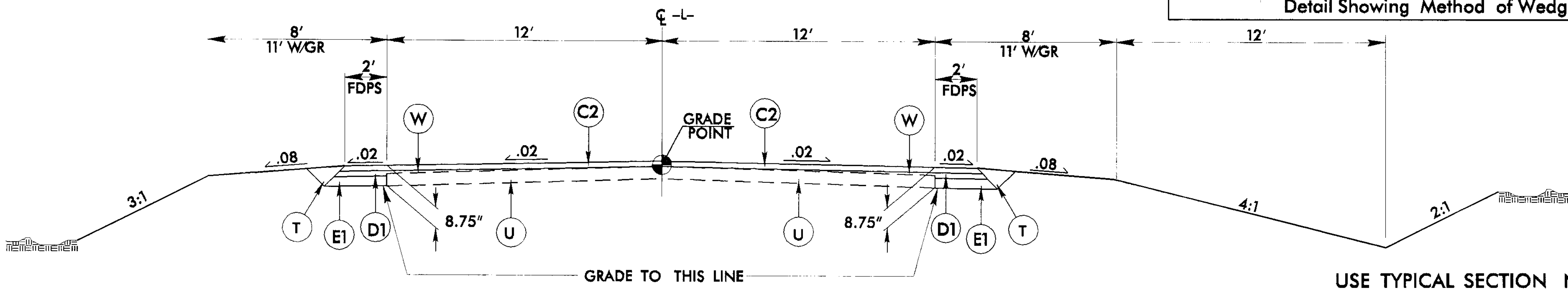
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.	T	EARTH MATERIAL
D1	PROP. APPROX. 2 1/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 256.5 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D2	PROP. APPROX. 3 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL FOR RESURFACING)
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, 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.		

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



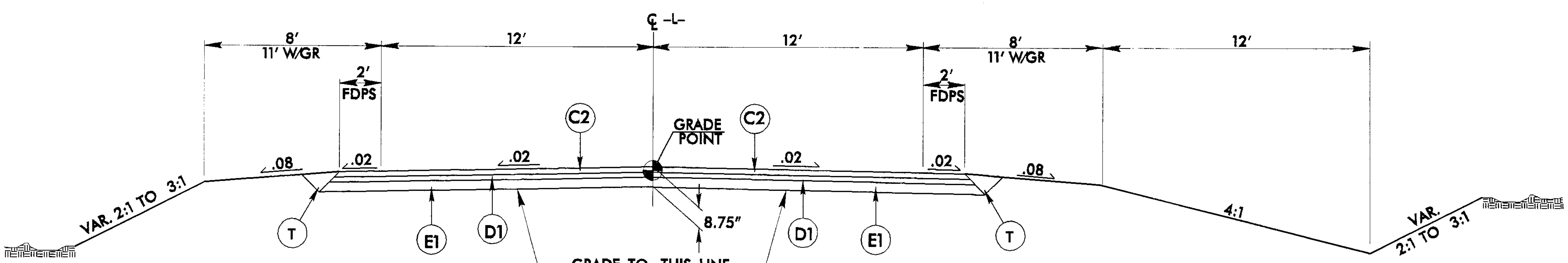
Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA. 12+50 TO STA. 13+50
-L- STA. 23+25 TO STA. 24+00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L- STA. 13+50 TO STA. 18+25.00+/- (BEGIN BRIDGE)
-L- STA. 20+25.00+/- (END BRIDGE) TO STA. 23+25

26-JUL-2006 11:46

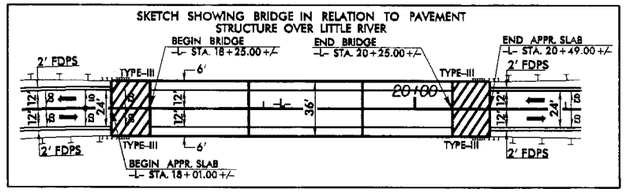
PROJECT REFERENCE NO.	SHEET NO.
B-3481	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

02/13/06 R/W REVISION (PJS) - REVISED THE RIGHT OF WAY MONUMENTS THAT TIE TO EXISTING RIGHT OF WAY TO REFLECT THE OFFSET DISTANCES BASED ON THE RIGHT OF WAY STAKING PLANS. REMOVE AND RESET 48" WOVEN WIRE FENCE TO R/W LINE NOTE WAS DELETED ON PARCEL 2 (VIVIAN RICHARDSON CREECH). TEMPORARY CONSTRUCTION EASEMENT WAS EXTENDED AN ADDITIONAL 50' FROM -L- STA.24+00 TO STA.24+50 RT. ON PARCEL 4 (KATIE H.LEWIS)

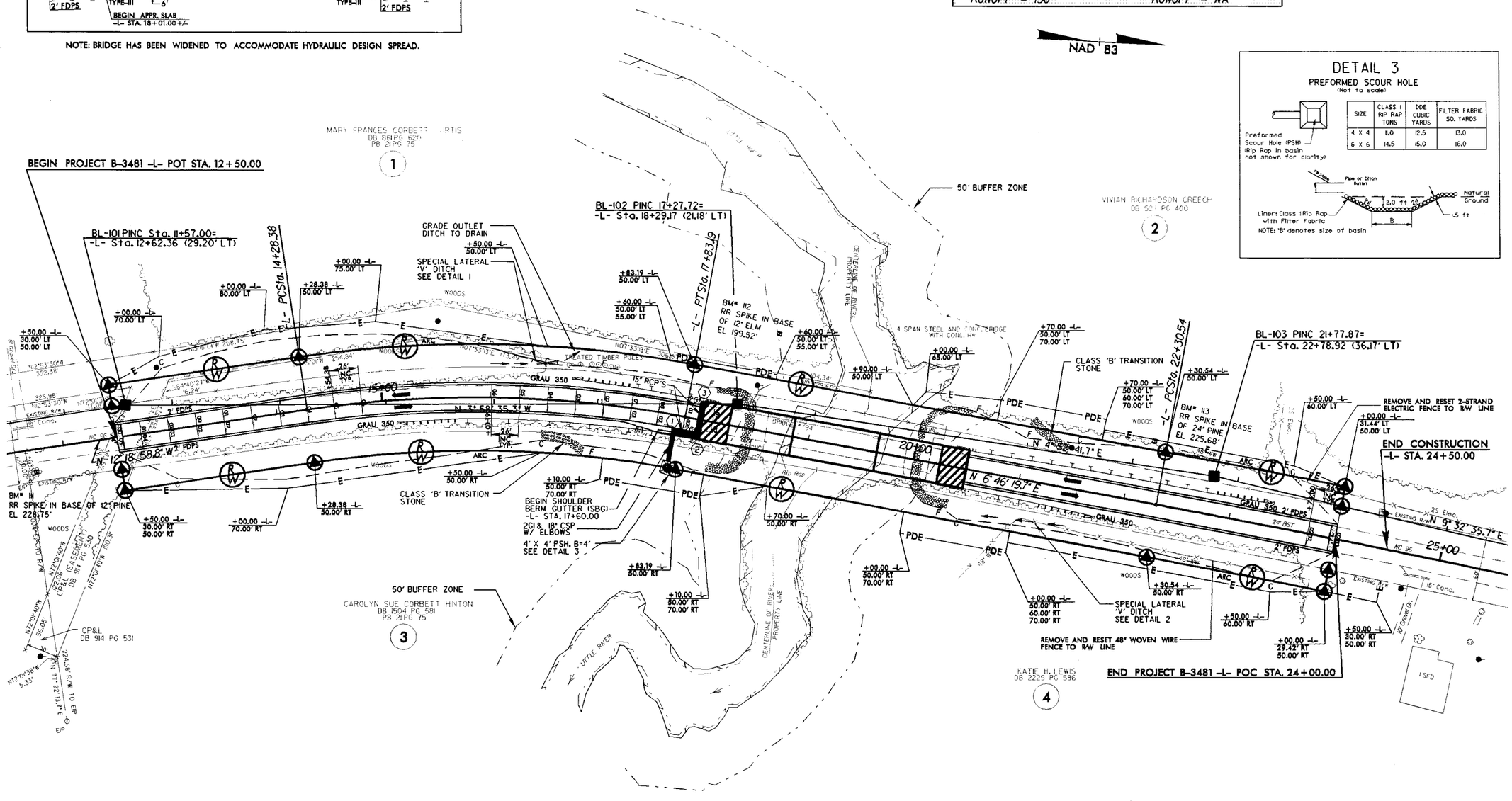
SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT STRUCTURE OVER LITTLE RIVER



NOTE: BRIDGE HAS BEEN WIDENED TO ACCOMMODATE HYDRAULIC DESIGN SPREAD.

-L-	
PI Sta 16+07.44	PI Sta 24+44.64
Δ = 19°05'18.6" (RT)	Δ = 2°10'42.3" (RT)
D = 5°22'47.6"	D = 0°30'31.7"
L = 354.81'	L = 428.15'
T = 179.07'	T = 214.10'
R = 1,065.00'	R = 11,261.00'
SE = 0.06	SE = NA
RUNOFF = 156'	RUNOFF = NA

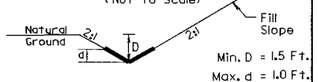
NAD 83



DETAIL 3
PREFORMED SCOUR HOLE
(Not to scale)

SIZE	CLASS I RIP RAP TONS	DOE CUBIC YARDS	FILTER FABRIC SQ. YARDS
4 X 4	11.0	12.5	13.0
6 X 6	14.5	15.0	16.0

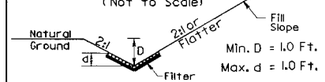
DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner = PERMANENT SOIL REINFORCEMENT MATERIAL

-L- STA 16+00 TO 16+60 (LT)

DETAIL 2
SPECIAL DITCH
(Not to Scale)



Type of Liner = CLASS 'B' RIPRAP

-L- STA 20+40 TO 21+50 (RT)

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-__ FOR STRUCTURE PLANS

PROJECT REFERENCE NO.	SHEET NO.
B-3481	5

ROADWAY DESIGN ENGINEER

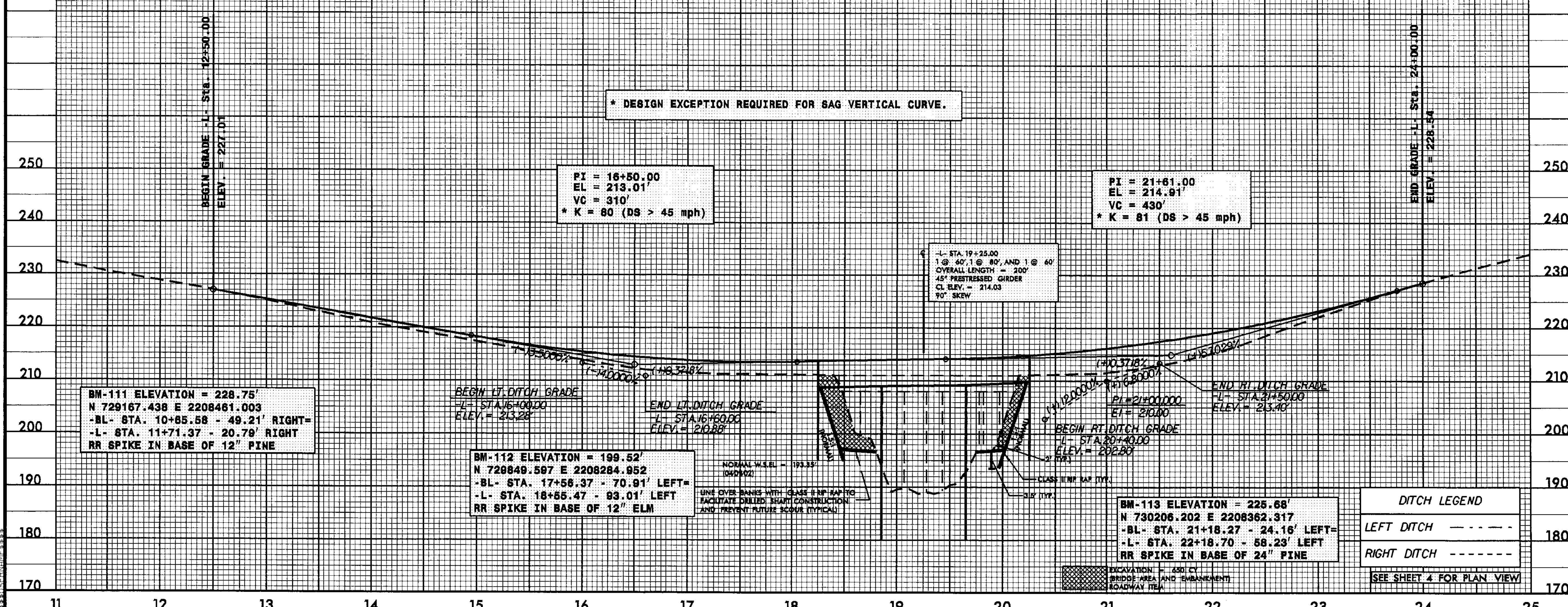
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

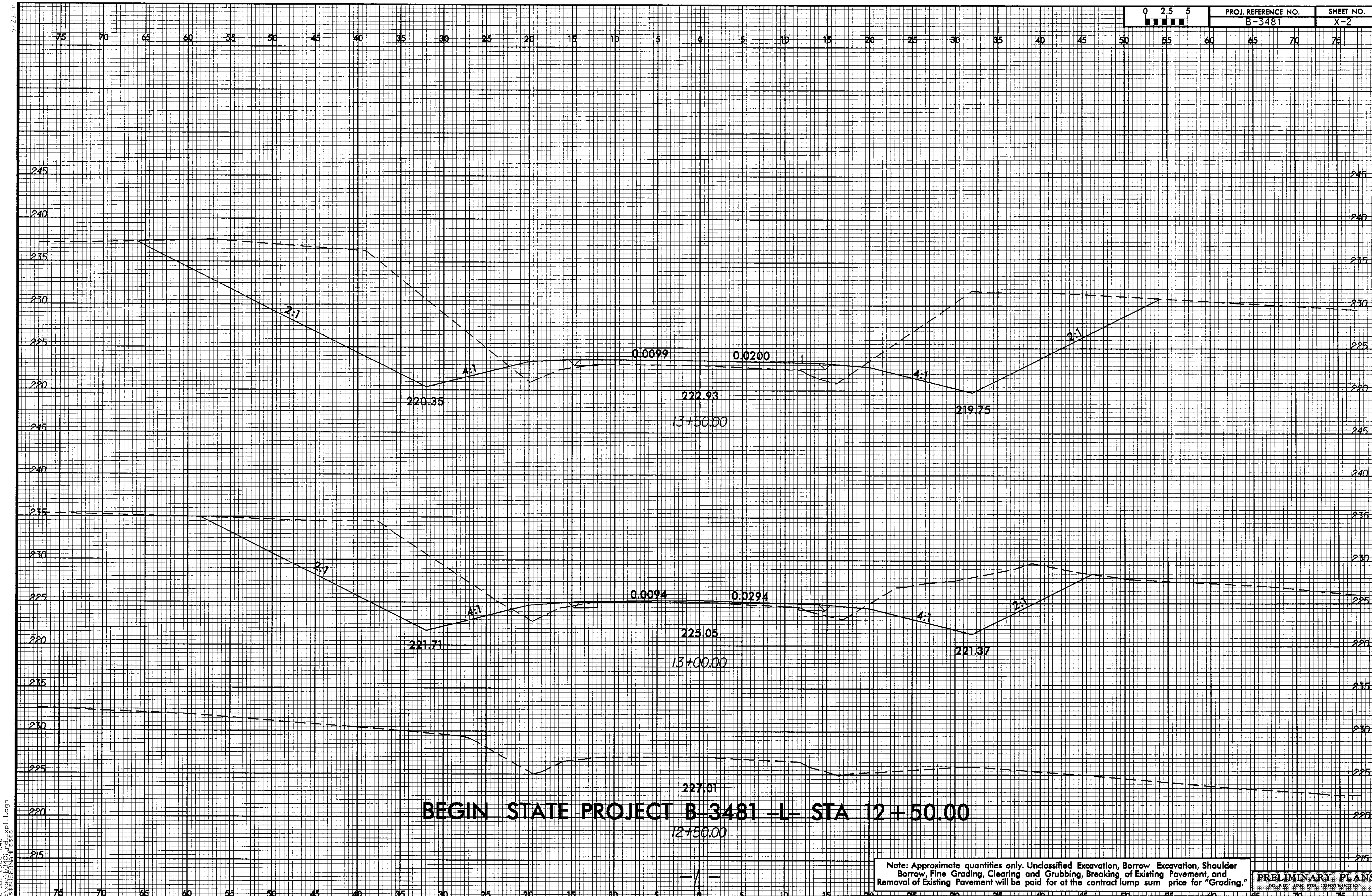
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 9300 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 206.2 FT
BASE DISCHARGE	= 11000 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 207.4 FT
OVERTOPPING DISCHARGE	= 27000CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 213.5 FT
DATE OF SURVEY	= 4/9/02
W.S. ELEVATION AT DATE OF SURVEY	= 193.35FT



* DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE.
BEGIN GRADE -L- Sta. 12+50.00
ELEV. = 227.01
END GRADE -L- Sta. 24+00.00
ELEV. = 228.54
PI = 16+50.00
EL = 213.01'
VC = 310'
* K = 80 (DS > 45 mph)
PI = 21+61.00
EL = 214.91'
VC = 430'
* K = 81 (DS > 45 mph)
-L- STA. 19+25.00
1 @ 60', 1 @ 80', AND 1 @ 60'
OVERALL LENGTH = 200'
45" PRESTRESSED GIRDER
CL ELEV. = 214.03
90° SKEW
(-1.5000)%
(-1.40000)%
(+0.3718)%
(+0.3718)%
(+1.20000)%
(+1.68000)%
(+1.57029)%
BEGIN LT. DITCH GRADE
-L- STA. 16+00.00
ELEV. = 213.28'
END LT. DITCH GRADE
-L- STA. 16+60.00
ELEV. = 210.88'
PI = 21+00.000
EI = 210.00
BEGIN RT. DITCH GRADE
-L- STA. 20+40.00
ELEV. = 202.80'
END RT. DITCH GRADE
-L- STA. 21+50.00
ELEV. = 213.40'
NORMAL W.S.EL = 193.35' (04/09/02)
LINE OVER BANKS WITH CLASS II RIP RAP TO FACILITATE DRILLED SHAFT CONSTRUCTION AND PREVENT FUTURE SCOUR (TYPICAL)
2' (TYP.)
CLASS II RIP RAP (TYP.)
3.5' (TYP.)
BM-111 ELEVATION = 228.75'
N 729167.438 E 2208461.003
-BL- STA. 10+65.58 - 49.21' RIGHT=
-L- STA. 11+71.37 - 20.79' RIGHT
RR SPIKE IN BASE OF 12" PINE
BM-112 ELEVATION = 199.52'
N 729849.597 E 2208284.952
-BL- STA. 17+56.37 - 70.91' LEFT=
-L- STA. 18+55.47 - 93.01' LEFT
RR SPIKE IN BASE OF 12" ELM
BM-113 ELEVATION = 225.68'
N 730206.202 E 2208362.317
-BL- STA. 21+18.27 - 24.16' LEFT=
-L- STA. 22+18.70 - 58.23' LEFT
RR SPIKE IN BASE OF 24" PINE
EXCAVATION = 650 CY
(BRIDGE AREA AND EMBANKMENT)
ROADWAY ITEM
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
SEE SHEET 4 FOR PLAN VIEW
250
240
230
220
210
200
190
180
170
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

PROJ. REFERENCE NO.	SHEET NO.
B-3481	X-2



Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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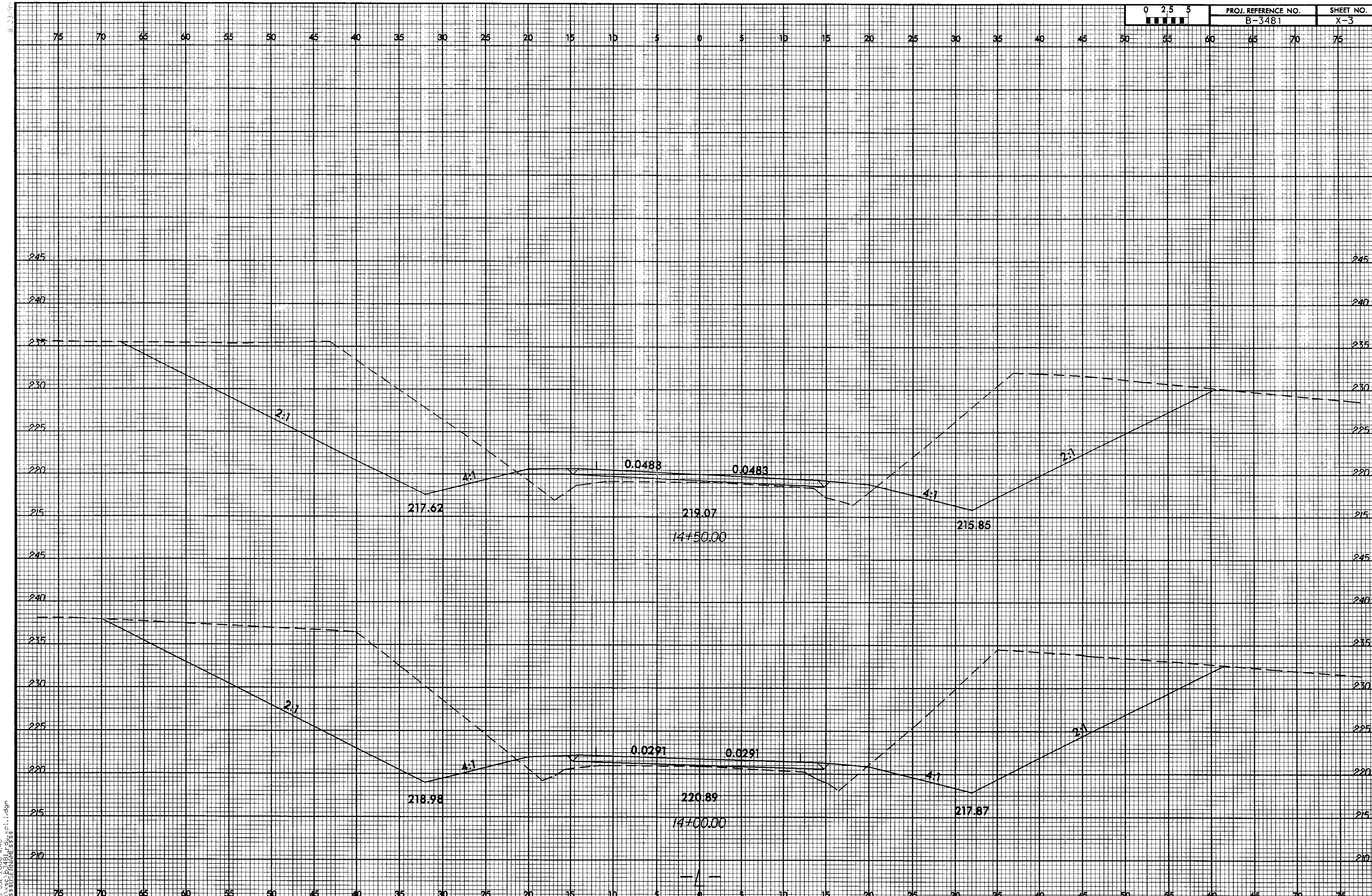

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-3481	X-4

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

230 225 220 215 210 235 230 225 220 215 210 240 235 230 225 220 215 210

2:1 4:1 0.0600 213.28 213.87 16+00.00 210.89

2:1 4:1 0.0600 214.54 215.58 15+50.00 212.14

2:1 4:1 0.0600 216.10 217.36 15+00.00 213.80

SHOULDER TAPER

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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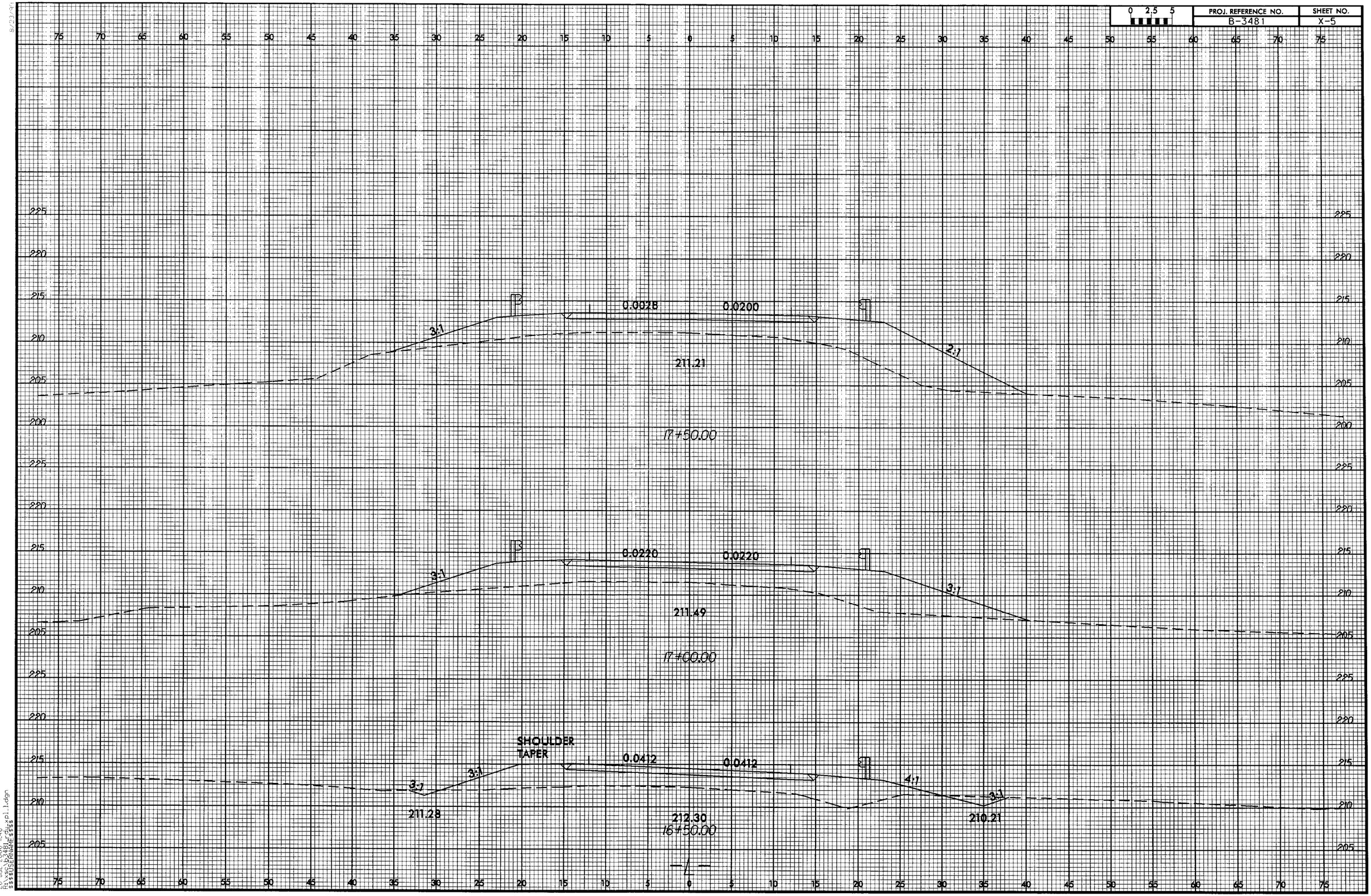
	B-3481	X-5



0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-3481	X-6

BRIDGE

190.30

19+50.00

BRIDGE

189.53

19+00.00

BRIDGE

206.69

18+50.00

0.0165

0.0200

2:1

2:1

211.16

18+00.00

—L—

9/23/11

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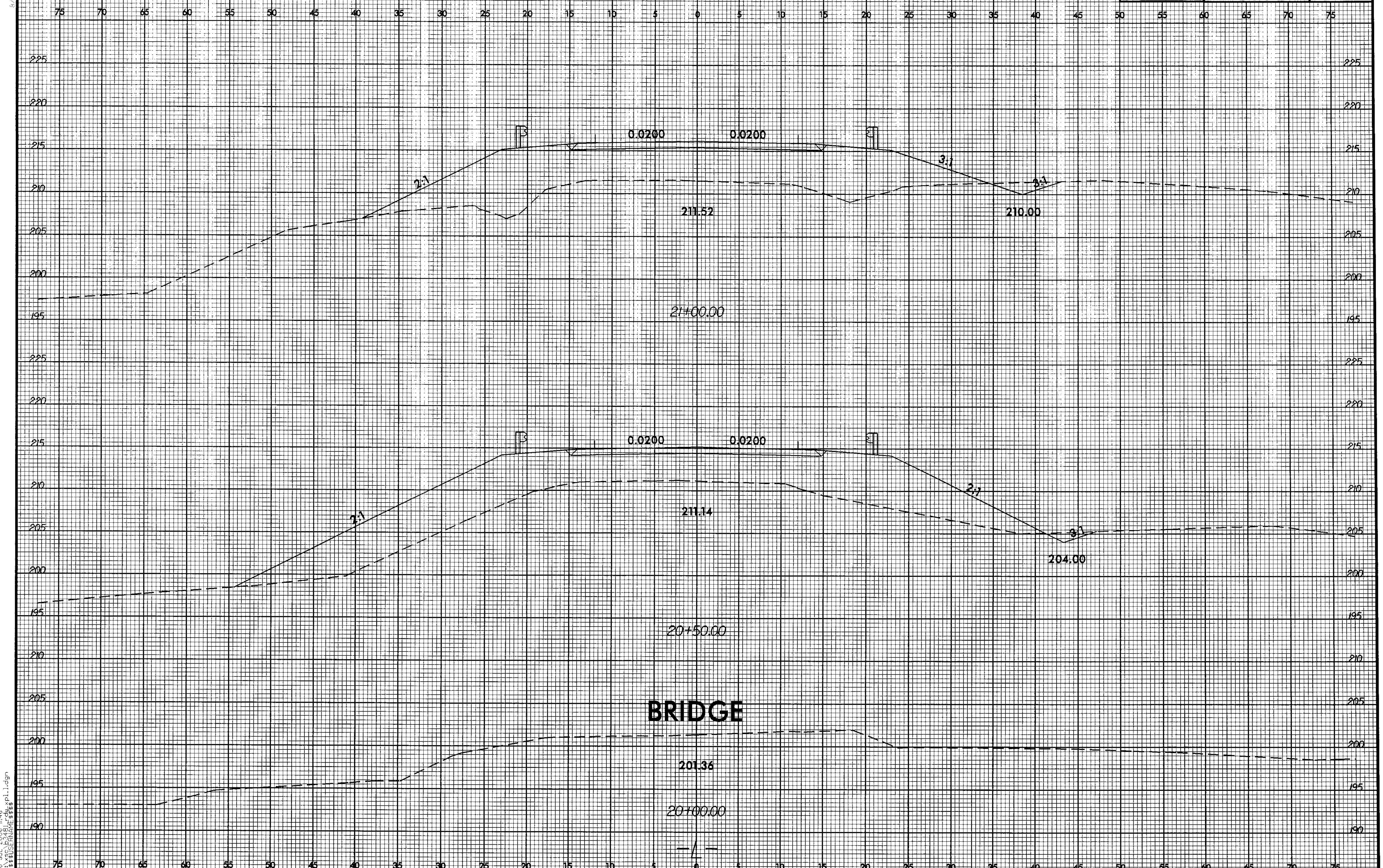
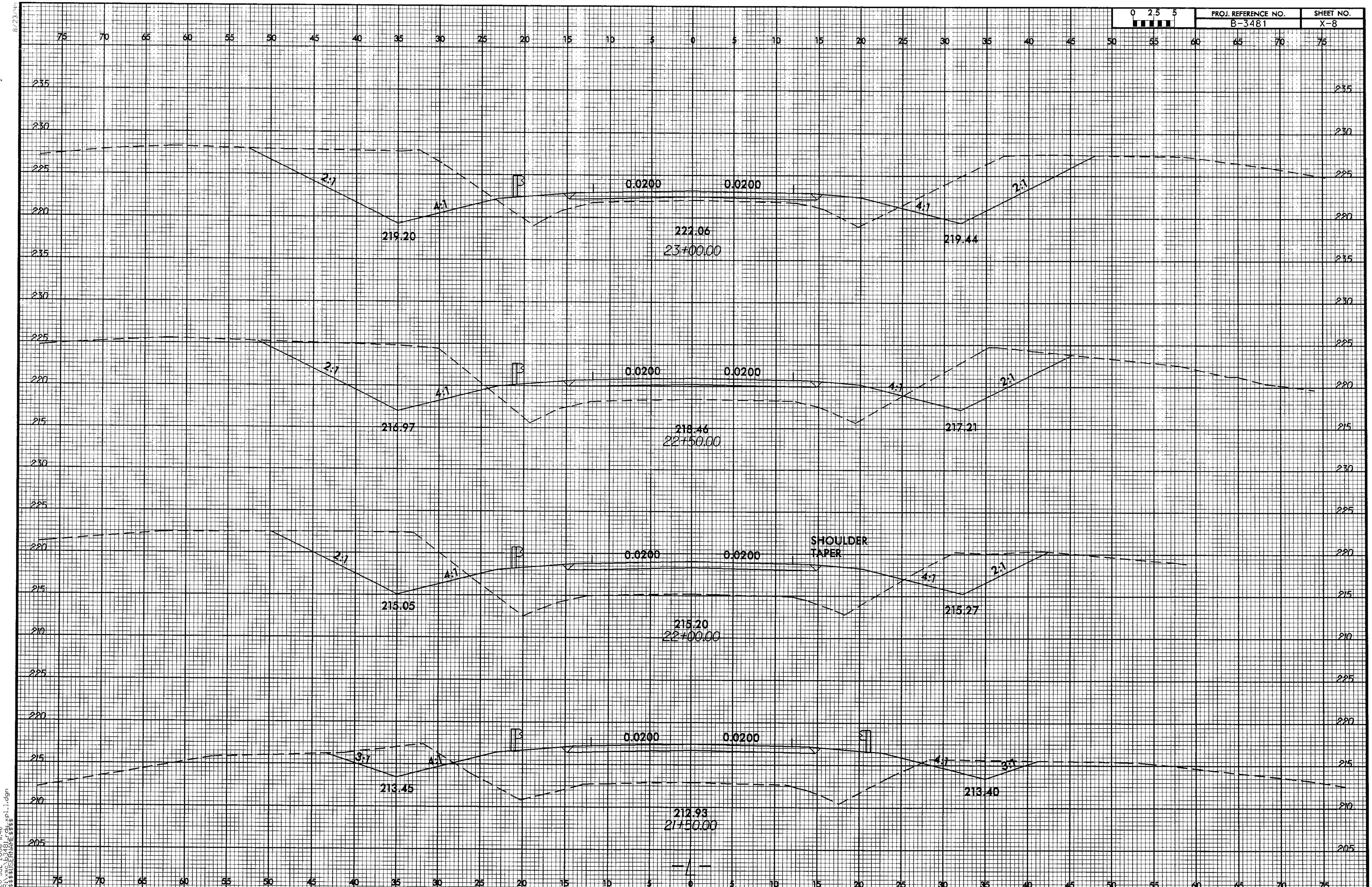
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-3481	X-7

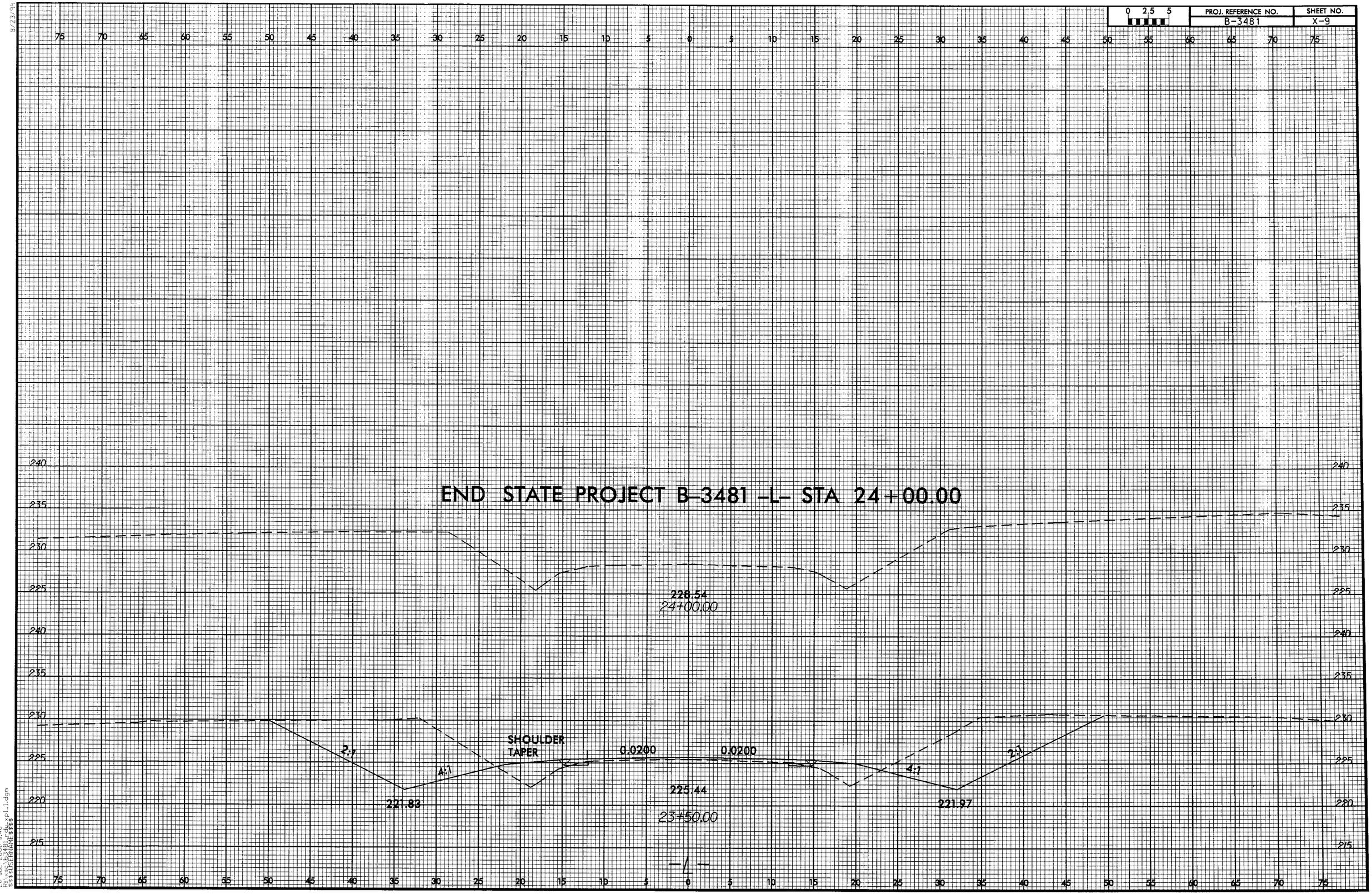




0 2.5 5
PROJ. REFERENCE NO.
B-3481
SHEET NO.
X-8
2:1
4:1
0.0200
0.0200
4:1
2:1
219.20
222.06
219.44
23+00.00
2:1
4:1
0.0200
0.0200
4:1
2:1
216.97
218.46
217.21
22+50.00
SHOULDER
TAPER
2:1
4:1
0.0200
0.0200
4:1
2:1
215.05
215.20
215.27
22+00.00
3:1
4:1
0.0200
0.0200
4:1
3:1
213.45
212.93
213.40
21+50.00

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-3481	X-9

END STATE PROJECT B-3481 -L- STA 24+00.00



Underwood

RECEIVED
APR 21 2005
DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

April 11, 2005

MEMORANDUM TO: Mr. Omar Sultan
Program Development Branch

FROM: Gregory J. Thorpe, PhD
Environmental Management Director, PDEA

SUBJECT: Programmatic Categorical Exclusion Approval for Federal Aid Project BRSTP-96 (2), Replacement of Bridge No. 94 on NC 96 over the Little River, Johnston County, WBS 33098.1.1, State Project 8.1312101, TIP No. **B-3481**

Attached are four copies of the subject report, including 2 copies for your files and 1 copy for distribution to FHWA. No significant adverse environmental effects are expected as a result of the project; therefore, no other distribution of the report is necessary.

GJT/cdb
Attachment
cc/atta:
Mrs. Deborah M. Barbour
Mr. Art McMillan
Mr. Jay Bennett (2 copies)
Mr. Greg Perfetti (2 copies)
Mr. Victor Barbour
Mr. D. R. Henderson
Mr. N. W. Wainaina (2 copies)
Mr. Charles W. Brown (3 copies)
Mr. C. B. Goode, Jr. (3 copies)
Mr. Phillip S. Harris, III
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Mr. Jim H. Trogden (3 copies)
Mr. Ron Lucas, FHWA
Mr. John Emerson., Attn. Mike Summers
Mr. Doug Lane
Mr. Mike Bell, US Army Corps of Engineers Rep
N. C. State Publications Clearinghouse (10 copies)

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	**B-3481**
State Project No.	**8.1312101**
W.B.S. No.	**33098.1.1**
Federal Project No.	**BRSTP-96(2)**

A. Project Description:

The purpose of this project is to replace Johnston County Bridge No. 94 on NC 96 over the Little River. The replacement structure will be a bridge approximately 200 feet long with 36 feet clear deck width. The proposed bridge will be approximately at the same location and the roadway grade raised approximately four feet. The cross section will include two 12-foot lanes and 6-foot offsets (includes an extra 3-foot to prevent ponding on the bridge roadway).

The approach roadway extends approximately 375 feet from the north end of the proposed bridge and 575 from the south end of the proposed bridge. The approaches will be widened to include two 12-foot lanes and 8-foot shoulders including 2-foot paved shoulders. An additional 3-feet will be included on the shoulder width where guardrail is required. The roadway will be designed as a Rural Major Collector with a 60 mile per hour design speed.

Traffic will be detoured offsite during construction (see Figure 1). Improvements will be made to SR 1723, part of the off-site detour, before construction begins. The improvements include minor widening, resurfacing, and the addition of guardrail on existing structure No. 289 on SR 1723.

B. Purpose and Need:

Bridge No. 94 includes an eight-span superstructure composed of a reinforced concrete deck supported by steel girders. The substructure includes three bents with reinforced concrete caps and timber piles, and three temporary bents with steel caps and steel piles.

Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 29.3 out of a possible 100 for a new structure. The bridge is considered functionally obsolete due to a deck geometry appraisal of 2 out of 9 according to Federal Highway Administration (FHWA) standards and therefore eligible for FHWA's Highway Bridge Replacement and Rehabilitation Program.

Timber sub-structures typically do not last beyond 30 to 40 years of age due to the natural deterioration rates of wood. Rehabilitation of timber structure is generally practical only when a few members are damaged or prematurely deteriorated. However, past a certain degree of deterioration, timber structures become impractical to maintain and upon eligibility are programmed for replacement. Bridge No. 94 is approaching the end of its useful life.

C. Proposed Improvements:

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

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).

   a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
   b. Widening roadway and shoulders without adding through lanes
   c. Modernizing gore treatments
   d. Constructing lane improvements (merge, auxiliary, and turn lanes)
   e. Adding shoulder drains
   f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
   g. Providing driveway pipes
   h. Performing minor bridge widening (less than one through lane)
   i. Slide Stabilization
   j. Structural BMP's for water quality improvement

2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.

   a. Installing ramp metering devices
   b. Installing lights
   c. Adding or upgrading guardrail
   d. Installing safety barriers including Jersey type barriers and pier protection
   e. Installing or replacing impact attenuators
   f. Upgrading medians including adding or upgrading median barriers
   g. Improving intersections including relocation and/or realignment
   h. Making minor roadway realignment
   i. Channelizing traffic
   j. Performing clear zone safety improvements including removing hazards and flattening slopes
   k. Implementing traffic aid systems, signals, and motorist aid
   l. Installing bridge safety hardware including bridge rail retrofit

3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.

   a. Rehabilitating, reconstructing, or replacing bridge approach slabs
   b. Rehabilitating or replacing bridge decks
   c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
   d. Replacing a bridge (structure and/or fill)

4. Transportation corridor fringe parking facilities.

5. Construction of new truck weigh stations or rest areas.

6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.

7. Approvals for changes in access control.

8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.

9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.

10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.

11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.

12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

13. Acquisition and construction of wetland, stream and endangered species mitigation sites.

14. Remedial activities involving the removal, treatment or monitoring of soil or groundwater contamination pursuant to state or federal remediation guidelines.

D. Special Project Information:

Estimated Costs:

Replacement Costs	$ 775,000
Off-site Detour Cost	$ 425,000
Right of Way	$ 32,000
Total	$ 1,232,000

Estimated Traffic:

Current – 2200 vpd	Year 2025 – 4500 vpd
TTST - 6%	Dual – 8%

Design Exceptions: The vertical alignment and stopping sight distance are substandard for the statutory 55 mph speed limit for this facility. This project will include improvements to address those deficiencies, however the propose design speed is 45 mph for the project corridor, thus requiring a design exception.

Bridge Demolition: Most timber and steel structures (as is Bridge No. 94) can be removed without any resulting fill in the stream.

Offsite Detour: NCDOT Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects considers multiple project variables beginning with the additional time traveled by the average road user resulting from the offsite detour. The offsite detour for this project would include SR 1723, NC 39, NC 231 and back to NC 96. The detour for the average road user would result in 5.0 minutes additional travel time (3.3 miles additional travel). Up to an eight-month duration of construction is expected on this project. According to the guidelines, an offsite detour route requiring five to ten minutes travel time and at least six months of road closure must be evaluated. Consideration of traffic maintenance onsite begins to be weighed against factors such as environmental impacts and costs. In this particular case, maintaining traffic onsite would result in environmental impacts. Wake County Emergency Services, specifically Zebulon EMS, provide service to residents on the NC 96 route. Zebulon EMS and Johnston County School Transportation have indicated that an offsite detour is acceptable and that services can be adequately re-routed during construction. The Division concurs in this recommendation. In view of the lower environmental impacts and no major opposition, an offsite detour is recommended.

E. Threshold Criteria

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

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

		YES	NO
(9)	Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?		X
	PERMITS AND COORDINATION	YES	NO
(10)	If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?		X
(11)	Does the project involve Coastal Barrier Resources Act resources?		X
(12)	Will a U. S. Coast Guard permit be required?		X
(13)	Will the project result in the modification of any existing regulatory floodway?		X
(14)	Will the project require any stream relocations or channel changes?		X
	SOCIAL, ECONOMIC, AND CULTURAL RESOURCES	YES	NO
(15)	Will the project induce substantial impacts to planned growth or land use for the area?		X
(16)	Will the project require the relocation of any family or business?		X
(17)	Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population?		X
(18)	If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor?	X	
(19)	Will the project involve any changes in access control?		X
(20)	Will the project substantially alter the usefulness and/or land use of adjacent property?		X
(21)	Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness?		X
(22)	Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)?	X	
(23)	Is the project anticipated to cause an increase in traffic volumes?		X

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

F. Additional Documentation Required for Unfavorable Responses in Part E

Response to Question 2: Habitat exists for the Tar Spinymussel and Dwarf Wedgemussel. A survey taken in August 2004 indicates no species found near the bridge. However, the species has been present downstream. US Fish and Wildlife Service has concurred in the biological conclusion of "May Effect, Not Likely to Adversely Effect" for the Tar Spinymussel and Dwarf Wedgemussel. The letter is located in the appendix.

*Response to Question 3: The North Carolina Wildlife Resources Commission indicated in their letter dated March 19, 1999 that plans are being made to remove a dam on the Little River downstream of the site, which would open the area up to anadromous fish runs. According to Travis Wilson, a representative of WRC, two dams were located downstream, one currently being removed. However, there were no plans to remove the dam closest to the site. Therefore, no moratorium would be applied.

G. CE Approval

TIP Project No.	**B-3481**
State Project No.	**8.1312101**
W.B.S. No.	**33098.1.1**
Federal Project No.	**BRSTP-96(2)**

Project Description:

The purpose of this project is to replace Johnston County Bridge No. 94 on NC 96 over the Little River. The replacement structure will be a bridge approximately 200 feet long with 36 feet clear deck width. The proposed bridge will be approximately at the same location and the roadway grade raised approximately four feet. The cross section will include two 12-foot lanes and 6-foot offsets (includes an extra 3-foot to prevent ponding on the bridge roadway).

The approach roadway extends approximately 375 feet from the north end of the proposed bridge and 575 from the south end of the proposed bridge. The approaches will be widened to include two 12-foot lanes and 8-foot shoulders including 2-foot paved shoulders. An additional 3-feet will be included on the shoulder width where guardrail is required. The roadway will be designed as a Rural Major Collector with a 60 mile per hour design speed.

Traffic will be detoured offsite during construction (see Figure 1). Improvements will be made to SR 1723, part of the off-site detour, before construction begins. The improvements include minor widening, resurfacing, and the addition of guardrail on existing structure No. 289 on SR 1723.

Categorical Exclusion Action Classification: (Check one)

____ TYPE II(A)
_X_ TYPE II(B)

Approved:

4/06/05 — Date
Project Planning Unit Head
Project Development & Environmental Analysis Branch

4/6/05 — Date
Project Planning Engineer
Project Development & Environmental Analysis Branch

For Type II(B) projects only:

4/16/05 — Date
for John F. Sullivan, III, Division Administrator
Federal Highway Administration

PROJECT COMMITMENTS:

Johnston County
Bridge No. 94 on NC 96
Over the Little River
Federal Aid Project No. BRSTP-96 (2)
State Project No. 8.1312101
W.B.S. No. 33098.1.1
T.I.P. No. B-3481

Division Four Construction/Roadway Design/Program Development– Overlapping Detours

The detour routes for B-3481 and B-3863 (see Figure 1) share NC 96 as one leg of the detour, therefore coordination of construction activities should be considered in scheduling both projects.

Hydraulic Design Unit/Office of Natural Environment

This project is subject to the Riparian Buffer Rules.

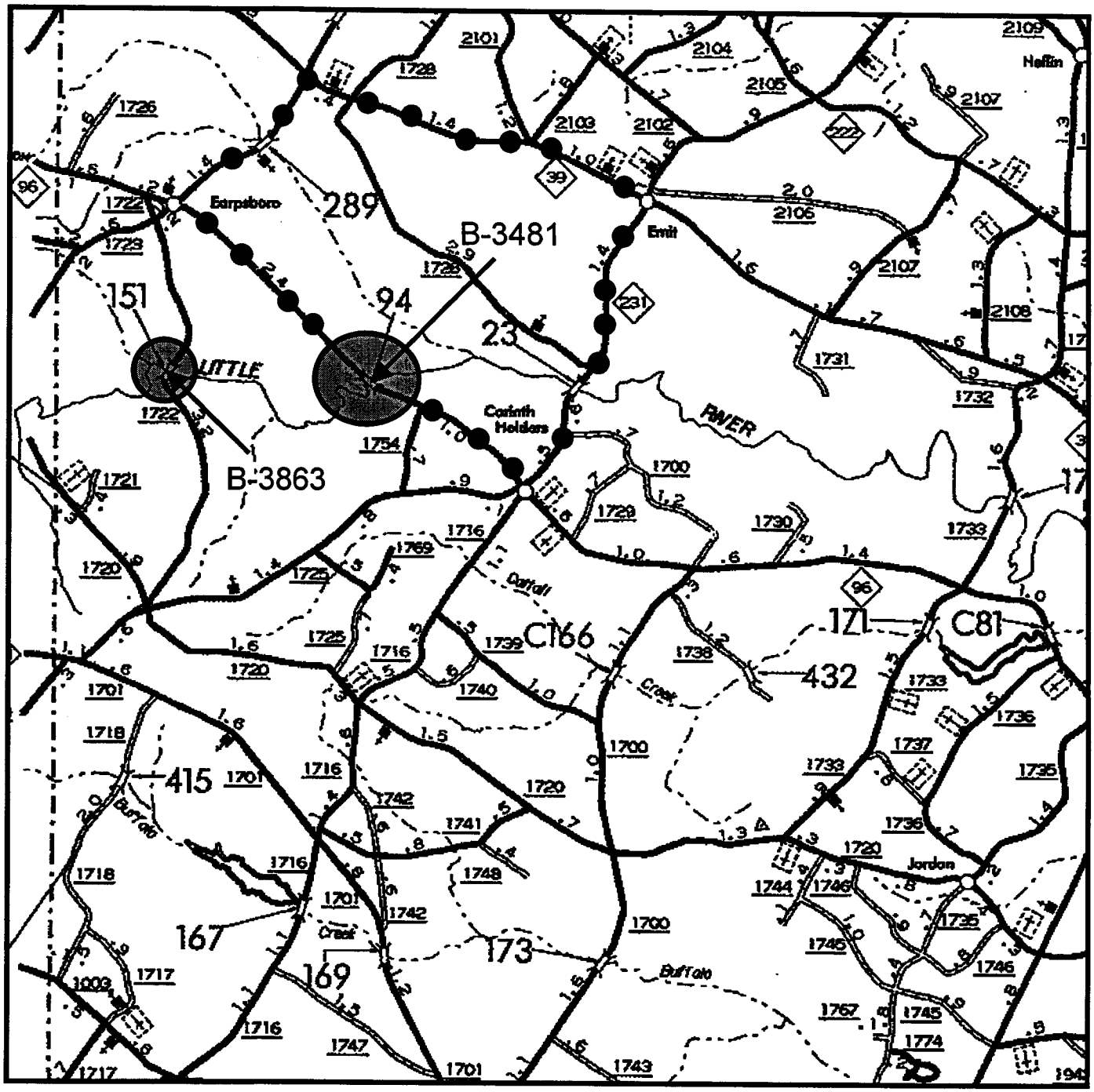
Division Four Construction

NCDOT will upgrade SR 1723 to safe standards in order to be utilized for the off-site detour during construction. The upgrades to the road will include widening, resurfacing, and the addition of guardrail on existing structure No. 289 on SR 1723. B-3481 shall not begin utilizing an offsite detour until improvements on SR 1723 as part of B-3481 are complete.

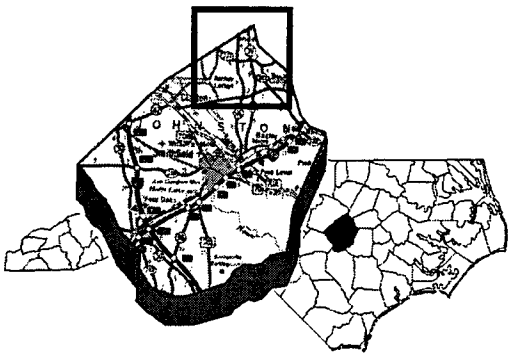
Roadway Design Unit/Structure Design Unit/Roadside Environmental Unit/Hydraulic Design Unit/Division Four Construction Unit/Project Development and Environmental Analysis Branch – Tar Spinymussel and Dwarf Wedgemussel

The U. S. Fish and Wildlife Service (USFWS) was consulted in regard to the effect of project construction on the Tar Spinymussel and the Dwarf Wedgemussel. The USFWS concurred in the biological conclusion that project construction is "Not Likely to Adversely Affect" the Tar Spinymussel and the Dwarf Wedge mussel and NCDOT will implement the conservation measures listed below:

1) Utilize an off-site detour
2) As part of the removal process for the existing bridge, bents located in the river and that are in conflict with the proposed drilled shafts will be cut off and not pulled out, as to not disturb the substrate. Any existing piles in conflict with the proposed drilled shafts shall be removed as necessary to avoid interference. These existing piles shall be removed through temporary steel casing so that no sediment enters the flowing stream from this operation. This temporary casing shall be installed as the normal procedure for the drilled shaft installation in the footprint of the temporary rock causeway. The contractor shall install and remove the temporary casing one time for each drilled pier.
3) Cut off all piles flush with the "mudline"
4) Use BMPs for Protection of Surface Waters
5) Use BMPs for Construction and Maintenance Activities to include Special Sediment Control Fence (i.e. hardware cloth faced with small clean gravel)
6) Avoid clearing and grubbing within 50 feet of the stream banks during the non-growing season
7) If project is not constructed prior to August 2006, conduct another mussel survey
8) Utilize stone work pads
9) If drilled shaft construction is utilized, do no allow slurry to enter stream



Proposed Detour ●—●—●—●



	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH
JOHNSTON COUNTY **REPLACE BRIDGE NO. 94 ON NC 96** **OVER LITTLE RIVER** **B-3481**	
Figure 1	

United States Department of the Interior

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

March 4, 2005

Phil S. Harris, III, P.E.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

This letter is in response to your letter of February 22, 2005 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 94 on NC 96 over Little River in Johnston County (TIP No. B-3481) may affect, but is not likely to adversely affect the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) and Tar spinymussel (*Elliptio steinstansana*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to information previously provided, a mussel survey was conducted at the project site on August 5 and 25, 2004. The survey extended 100 meters upstream and 400 meters downstream of NC 96. Neither of the federally listed species was found, though good habitat was observed. Though no specimens of the listed mussels were found in this recent survey, the dwarf wedgemussel was observed in a 1998 survey a few hundred meters downstream of the terminus of the recent survey. This fact warrants the implementation of conservation measures to minimize the potential for effects to this species.

In a January 24, 2005 letter to NCDOT, the Service recommended several conservation measures. Your current letter states that NCDOT will comply with all of our recommendations except one. The conservation measures that NCDOT will implement are listed below:

- Utilize an off-site detour
- Avoid in-stream work except for placement of one bent in the channel
- Cut off timber piles flush with the "mudline"
- Use BMPs for Protection of Surface Waters
- Use BMPs for Construction and Maintenance Activities to include Special Sediment Control Fence (i.e. hardware cloth faced with small clean gravel)
- Avoid clearing and grubbing within 50 feet of the stream banks during the non-growing season
- If project is not constructed prior to August 2006, conduct another mussel survey
- Utilize stone work pads
- If drilled shaft construction is utilized, do not allow slurry to enter stream

Based on the mussel survey results and the commitment to the conservation measures listed above, the Service concurs with your determination that the proposed bridge replacement may affect, but is not likely to adversely affect the dwarf wedgemussel and Tar spinymussel. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied for these species. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

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

Sincerely,

Pete Benjamin
Ecological Services Supervisor

cc: Bill Biddlecome, USACE, Washington, NC
Nicole Thomson, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

North Carolina Department of Cultural Resources

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

Division of Archives and History
Jeffrey J. Crow, Director

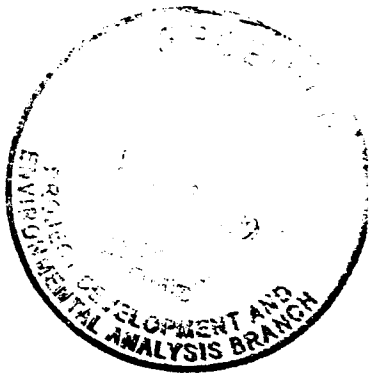
February 24, 1999

MEMORANDUM

TO: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook
Deputy State Historic Preservation Officer

SUBJECT: Bridge No. 94 on NC 96 over Little River, B-3481, Johnston County, ER 99-8180



Thank you for your letter of January 29, 1999, concerning the above project.

We have reviewed our files and are aware of no historic structures in the project area, although a log house is noted outside the area of potential effect. We, therefore, do not recommend an architectural survey be conducted for this project.

There are no known archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources which may be eligible for inclusion in the National Register of Historic Places will be affected by the project.

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, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

DB:slw

cc: N. Graf
B. Church
T. Padgett

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

DAVID MCCOY
SECRETARY

May 19, 2000

MEMORANDUM TO: Wayne Elliot, Unit Head
Bridge Replacement Unit

FROM: Chris Rivenbark, Natural Systems Specialist
Natural Systems Unit

SUBJECT: Natural Resources Technical Report for the proposed replacement of Bridge No. 94 over Little River on NC 96 in Johnston County. Federal Aid Project No. BRSTP-96(2), State Project No. 8.1312101, TIP No. B-3481.

ATTENTION: Karen Orthner, Project Planning Engineer
Bridge Replacement Unit

The attached Natural Resources Technical Report (NRTR) provides inventories and descriptions of natural resources within the project area to assist in preparation of a Categorical Exclusion. Estimations of impacts likely to occur to these resources as a result of project construction are provided as well. If you have any questions, please contact me at 733-9513.

cc:
Bruce Ellis, Unit Head, Natural Systems Unit
File: B-3481

Replacement of Bridge No. 94 over Little River on NC 96 in Johnston County.

Natural Resources Technical Report

T.I.P. No. B-3481

State Project No. 8.1312101

F.A. Project No. BRSTP-96(2)

North Carolina Department of Transportation
Division of Highways
Project Development and Environmental Analysis Branch
Natural Systems Unit

Chris Rivenbark, Natural Systems Specialist
May 19, 2000

TABLE OF CONTENTS

1.0 INTRODUCTION

The following Natural Resources Technical Report is submitted to assist in preparation of a Categorical Exclusion.

1.1 Project Description

The proposed project calls for the replacement of Bridge No. 94 over Little River on NC 96. The bridge will be replaced in approximately the same location and elevation as the existing bridge. The proposed right-of-way will be 80.0 ft (24.4 m). Currently there are two alternates being considered for the project. Project length will depend on which alternate is selected. Alternate 1 will have a project length of 470.0 ft (143.3 m) and will use existing roads for an off-site detour. Alternate 2 will have a project length of 800.0 ft (243.8 m), with traffic being maintained on an on-site temporary detour during construction.

1.2 Purpose

The purpose of this document is to describe and inventory the natural resources identified within the project vicinity and estimate potential impacts to these resources. Recommendations are made for measures which will minimize natural resource impacts. These descriptions and estimates are relevant only in the context of existing design concepts. If preliminary design parameters change, additional field investigations may be necessary.

1.3 Terminology and Definitions

For the purposes of this document, the following terms are used concerning the limits of natural resources investigated. **Project study area** denotes the area bounded by the proposed right-of-way limits. **Project vicinity** describes an area extending 0.5 mi (0.8 km) on all sides of the project study area. **Project region** is equivalent to an area represented by a 7.5 minute USGS quadrangle map [61.8 sq mi (163.3 sq km)], with the project as the center point.

1.4 Qualifications of Principle Investigator

Investigator:	Chris Rivenbark, Natural Systems Specialist
Education:	B.S. Natural Resources-Ecosystem Assessment North Carolina State University
Experience:	NCDOT Natural Systems Specialist, 1997-current
Expertise:	Natural resources investigations, wetland delineation, protected species surveys

1.5 Methodology

Prior to the site visit, published resource information pertaining to the project vicinity was gathered and reviewed. Information sources include: U.S. Geological Survey (USGS) quadrangle maps (Zebulon, Flowers), NCDOT aerial photographs of project study area (1:1200), Geographic Information Systems data (N.C. Center for Geographic Information & Analysis), Fish and Wildlife Service (USFWS) list of protected species and N.C. Natural Heritage Program (NCNHP) database of uncommon and protected species and unique habitats.

A field survey for the project was conducted on March 9, 2000 by NCDOT Natural Systems Specialists Chris Rivenbark and Eric Black. Plant communities were identified and recorded. Wildlife was identified using a number of observational techniques, including habitat evaluation, active searching and recording identifying signs of wildlife (sounds, tracks and burrows).

2.0 PHYSICAL RESOURCES

Soil and water resources which occur in the project area are discussed below with respect to possible environmental concerns. Soil properties and site topography significantly influence the potential for soil erosion and compaction, along with other possible construction limitations or management concerns. Water resources within the project area present important management limitations due to the need to regulate water movement and the increased potential for water quality degradation. Excessive soil disturbance resulting from construction activities can potentially alter both the flow and quality of water resources, limiting downstream uses. In addition, soil characteristics and the availability of water directly influence the composition and distribution of flora and fauna in biotic communities, thus affecting the characteristics of these resources.

2.1 Project Characteristics

The proposed project is located in eastern Johnston County. This area is located in the outer Piedmont Physiographic Province of North Carolina (see Appendix A). Topography in the vicinity of the study area is characterized as nearly level to gently sloping along streams. Project elevations range from 190.0-220.0 ft (57.8 - 67.1m) above mean sea level.

2.2 Soils

Soils located in the project area are of the Wedowee association. The Tarboro series is the dominant soil in the study area. Pacolet loam and Wedowee sandy loam are also located within the project study area. Information concerning specific soil types occurring in the study area is provided below.

Tarboro loamy sand soils are nearly level, somewhat excessively drained soils on stream terraces. Infiltration is moderate and surface runoff is slow. Permeability is rapid and the available water capacity is very low or low. The seasonal high water table is typically greater than 6.0 ft (1.8 m) below the surface. The soil is non-hydric and is subject to rare flooding. The slope ranges from 0 to 2 percent.

Pacolet loam is a non-hydric well drained soil on hill slopes in dissected areas in Piedmont uplands. Infiltration is moderately slow, and surface runoff is very rapid. This soil has a low organic content, moderate permeability, and low or moderate available water capacity. The seasonal high water table is typically greater than 6.0 ft (1.8 m) below the surface. The slope ranges from 10 to 15 percent.

Wedowee sandy loam consists of non-hydric well drained soils on side slopes in Piedmont uplands. Infiltration is moderately slow, and surface runoff is rapid. The organic matter of the surface layer is low. Permeability is moderate and the available water capacity is moderate. The seasonal high water table is typically greater than 6.0 ft (1.8 m) below the surface. The slope ranges from 8 to 15 percent.

2.3 Water Resources

This section contains information concerning surface water resources likely to be impacted by the proposed project. Water resource assessments include the physical characteristics, best usage standards, and water quality aspects of the water resources, along with their relationship to major regional drainage systems. Probable impacts to surface water resources are also discussed, as are means to minimize impacts.

2.3.1 Best Usage Classification

The Division of Water Quality (DWQ) has assigned index numbers for streams and tributaries in North Carolina. The subject project crosses a perennial stream in the Neuse River Basin, Little River [DWQ Index No. 27-57-(8.5), (8/3/92)]. This stream carries a Best Usage Classification of WS-V NSW. Class WS-V refers to waters protected as water supplies which are generally upstream of and draining to Class WS-IV and are suitable for all Class C uses. Class C is defined as freshwaters protected for secondary recreation, fishing, aquatic life including propagation and survival, and wildlife. All freshwaters shall be classified to protect these uses at a minimum. Nutrient Sensitive Waters (NSW): waters subject to growths of microscopic or macroscopic vegetation requiring limitations on nutrient inputs.

No waters classified as High Quality Waters (HQW), Outstanding Resource Waters (ORW), or Water Supplies (WS-I or WS-II) occur within 1.0 mi (1.6 km) of the project study area.

2.3.2 Physical Characteristics

One piedmont perennial stream is crossed by Bridge No. 96. At the time of the field visit, Little River had an approximate depth of 1.5 ft (0.46 m). The average channel depth was approximately 3.0 ft (0.91 m). The average channel width was approximately 70.0 ft (21.3m) with a flow width of approximately 66.0 ft (20.1m). The brownwater stream had a moderate flow and the substrate consisted primarily of silt and sand.

2.3.3 National Pollutant Discharge Elimination System

Point source refers to discharges that enter surface water through a pipe, ditch, or other defined point of discharge. The term most commonly refers to discharges associated with wastewater treatment plants. Point source dischargers located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) program. Dischargers are required to register for a permit. There are no permitted dischargers located within1.6 km (1.0 mi) upstream of the project study area.

Non-point source refers to runoff that enters surface waters through stormwater flow or no defined point of discharge. There are many types of land use activities that can serve as sources of nonpoint source pollution including land development, construction, crop production, animal feeding lots, failing septic systems, landfills, roads, and parking lots. Sediment and nutrients are major pollution-causing substances associated with nonpoint source pollution. Others include fecal coliform bacteria, heavy metals, oil and grease, and any other substance that may be washed off the ground or removed from the atmosphere and carried into surface waters.

2.3.4 Water Quality

The DWQ has initiated a whole basin approach to water quality management for the 17 river basins within the state. To accomplish this goal the DWQ collects biological, chemical and physical data that can be used in basinwide assessment and planning. All basins are reassessed every five years. Prior to the implementation of the basinwide approach to water quality management, the Benthic Macroinvertebrate Ambient Network assessed water quality by sampling for benthic macroinvertebrate organisms at fixed monitoring sites throughout the state. There are no biological monitoring sites located within the project vicinity.

3.0 BIOTIC RESOURCES

This section describes the ecosystems encountered and the relationships between vegetative and faunal components within terrestrial, and aquatic ecosystems. Descriptions of the terrestrial systems are presented where applicable in the context of plant community classifications (Schafale and Weakley, 1990).

Representative animal species which are likely to occur in these habitats are cited. Animals observed during the site visit are denoted by an asterisk (*) in the text. Sightings of spoor evidence are equated with sightings of individuals. Scientific nomenclature and common names (when applicable) are used for plant and animal species described. Subsequent references to the same organism will include the common name only.

3.1 Biotic Communities

Three biotic communities: maintained roadside, bottomland hardwood, and piedmont perennial stream, exist within the project study area and may be impacted by the subject project. Each of these communities are described below.

3.1.1 Maintained Roadside

The maintained roadside community consists of the highly maintained shoulders and some less intensively managed areas that grade into the surrounding natural communities as well as residential communities. Significant soil disturbance and compaction, along with frequent mowing or herbicide application, keep this community in an early successional state.

Dominant plants in the heavily maintained portions of the roadside community include fescue (*Festuca* sp.), geranium (*Geranium carolinianum*), wild onion (*Allium canadense*), violet (*Viola* sp.) and plantain (*Plantago* sp.).

3.1.2 Bottomland Hardwood

Dominant plants in this community on the southwest quadrant of the bridge, include greenbrier (*Smilax* sp.), poison ivy (*Toxicodendron radicans*), Chinese privet (*Ligustrum sinense*), ironwood (*Carpinus caroliniana*), Japanese honeysuckle (*Lonicera japonica*), violet , chickweed (*Stellaria* sp.), white oak (*Quercus alba*), Northern red oak (*Quercus rubra*), blackberry (*Rubus argutus*), elderberry (*Sambucus canadensis*), American beech (*Fagus grandifolia*), green ash (*Fraxinus pennsylvanica*), American holly (*Ilex opaca*), strawberry bush (*Euonymus americanus*), horse sugar (*Symplocos tinctoria*), giant cane (*Arundinaria gigantea*), and red maple (*Acer rubrum*).

The the vegetation community in the northwest quadrant of the project is comprised of many of the species listed above, as well as river birch (*Betula nigra*), loblolly pine (*Pinus taeda*), and sycamore (*Platanus occidentalis*). A small wetland is also present in this community which appears to get the majority of its water supply from a pond on an adjacent property. This wetland is dominated by river birch, red maple, green ash, holly, and ironwood. Soils in this wetland had a hue of 10YR, value of 4, and a chroma of 1. Hydrologic indicators included saturation within 12 inches of the surface, and water stained leaves. This wetland is approximately 0.04 ac (0.01 ha) in size.

3.1.3 Piedmont Perennial Stream

Little River is a brownwater stream located in the project area. Fishes likely to be found in creeks such as Little River may include mosquitofish (*Gambusia* holbrooki.) redbreast sunfish (*Lepomis auritus*), bluegill (*Lepomis macrochirus*), and possibly largemouth bass (*Micropterus salmoides*).

3.1.5 Wildlife

Wildlife found in these communities is limited and consists primarily of wide-ranging, adaptable species which are well suited to coexistence with human development. Mammals common to disturbed edge areas, such as eastern cottontail rabbit (*Sylvilagus floridanus*), beaver *(*Castor canadensis*), Virginia opossum (*Didelphis virginiana*), raccoon* (*Procyon lotor*), gray fox *(*Urocyon cinereoargenteus*), white-tailed deer* (*Odocoileus virginianus*), and gray squirrel *(*Sciurus carolinensis*) may inhabit forested fringes. Common reptiles found in such habitats are the eastern box turtle (*Terrapene carolina*), black racer (*Coluber constrictor*), and eastern garter snake (*Thamnophis sirtalis*). Small mammals such as the southeastern shrew (*Sorex longirostris*), white footed mouse (*Peromyscus leucopus*), and hispid cotton rat (*Sigmodon hispidus*) in these disturbed habitats.

Birds likely to frequent such habitats include common crow *(*Corvus brachyrhynchos*), Carolina chickadee *(*Parus carolinensis*), rock dove (*Columbia livia*), belted kingfisher *(*Megaceryle alcyon*), turkey vulture *(*Cathartes aura*), Carolina wren (*Thryothorus ludovicianus*), Eastern phoebe *(*Sayornis phoebe*), American robin (*Turdus migratorius*), white-throated sparrow *(*Zonotrichia albicollis*), mourning dove (*Zenaida macroura*), and European starling (*Sturnus vulgaris*).

3.2 Summary of Anticipated Impacts

Construction of the proposed project will have various impacts on the biotic resources described. This section quantifies and qualifies potential impacts to the natural communities within the project study area in terms of the area impacted and the organisms affected.

3.2.1 Anticipated Impacts to Terrestrial Communities

Impacts to terrestrial communities will result from project construction due to the clearing and paving of portions of the project study area, and thus the loss of community area. Calculated quantitative impacts to terrestrial communities reflect the relative abundance of each community present in the study area (Table 1). Estimated impacts are derived based on the project length of 470.0 ft (143.3 m) for Alternate 1 and 800.0 ft (243.8 m) for Alternate 2. The entire right-of-way [80.0 ft (24.4 m)] was used for this calculation. The entire right-of-way will probably not be impacted, therefore actual impacts to the communities may be considerably less. In addition, if the off-site

detour is selected, it is unlikely that the bottomland hardwood and wetland communities will be impacted.

Table 1. Estimated impacts to terrestrial communities.

Community type	Alternate 1 impacts ac (ha)	Alternate 2 impacts ac (ha)
Maintained roadside	0.57 (0.23)	0.81 (0.33)
Bottomland hardwood	N/A	1.01 (0.41)
Bottomland wetland	N/A	0.04 (0.01)
Total	**0.57 (0.23)**	**1.86 (0.75)**

Flora and fauna occurring in these communities are generally common throughout North Carolina because of their adaptability to wide ranging environmental factors. Moreover, a similar roadside shoulder community will be re-established after construction. Animals temporarily displaced by construction activities should repopulate areas suitable for the species following project completion. As a result, it is unlikely that existing species will be displaced significantly from the project study area following construction. However, to minimize the temporary effects of project construction, all cleared areas along the roadways should be revegetated promptly after project completion to minimize erosion and the loss of wildlife habitat.

3.2.2 Anticipated Impacts to Water Resources

Estimated impacts to Little River will be minimal. The bridge has four spans totaling 170.0 ft (51.8 m) in length. The deck and bridge railings are composed on concrete. The substructure consists of timber piles with concrete caps. Both the bridge railings and the timber piles will be removed without dropping their components into Waters of the United States. There is potential for components of the deck and caps to be dropped into the Waters of the United States during construction. The resulting temporary fill associated with deck and caps is approximately 58.0 yd^3 (44.3 m^3).

Aquatic communities are sensitive to any changes in the environment. Any action that affects water quality can have an adverse impact on aquatic organisms. Although most of the disturbance caused by project construction will be temporary, some environmental impacts caused by the proposed project will be long term or irreversible. Installation or modification of instream structures, such as replacement of bridges, can permanently affect many physical stream parameters.

Project construction may result in the following impacts to surface waters:

- Increased silt loading and sedimentation from erosion of disturbed soils.
- Changes in light incidence, water clarity and water temperature due to increased sediment load and riparian vegetation removal.

- Alteration of stream discharge due to silt loading and changes in surface or ground water drainage patterns.
- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.

Precautions must be taken to minimize these and other impacts to water resources in the study area. NCDOT's Best Management Practices (BMP) for the Protection of Surface Waters must be strictly enforced throughout the construction stage of the project. The project will be treated as an "Environmentally Sensitive Area" with associated guidelines and restrictions. The project may also require a moratorium on clearing and grubbing from November 1 to April 15. The minutes that discuss these restrictions from the inter-agency field meeting held on April 27, 2000 are included at the end of this document (see Appendix B).

As the project is located in the Neuse River Basin, Riparian Area Buffer Rules for Nutrient Sensitive Waters apply. The rules state that roads, bridges, stormwater management facilities, ponds, and utilities may be allowed where no practical alternative exists. They also state that these structures shall be located, designed, constructed, and maintained to have minimal disturbance, to provide maximum nutrient removal and erosion protection, to have the least adverse effects on aquatic life and habitat, and to protect water quality to the maximum extent practical through the use of best management practices. Every reasonable effort will be made to avoid and minimize wetland and stream impacts. Once the temporary detour is removed, the buffer will be revegetated.

4.0 JURISDICTIONAL TOPICS

This section provides inventories and impact analyses pertinent to two significant regulatory issues: Waters of the United States and rare and protected species. These issues retain particular significance because of federal and state mandates which regulate their protection. This section deals specifically with the impact analyses required to satisfy regulatory authority prior to project construction.

4.1 Waters of the United States

The U.S. Army Corps of Engineers (USACE) promulgated the definition of "Waters of the United States" under 33 CFR §328.3(a). Waters of the United States include most interstate and intrastate surface waters, tributaries, and wetlands. Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions are considered "wetlands" under 33 CFR §328.3(b). Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands are identified based on the presence of hydric soils,

hydrophytic vegetation, and saturated or flooded conditions during all or part of the growing season. Any action that proposes to place dredged or fill materials into waters of the United States falls under the jurisdiction of the USACE, and must follow the statutory provisions under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344).

4.1.1 Characteristics of Surface Waters

One surface water, Little River, exists within the project study area and is considered a jurisdictional surface water under Section 404 of the Clean Water Act (33 U.S.C. 1344). Discussion of the biological and water quality aspects of this water resource are presented in previous sections of this report.

4.1.2 Summary of Anticipated Impacts

Estimated impacts to Little River will be minimal. Impacts to a small bottomland hardwood wetland may occur as a result of project construction. Approximately 0.04 ac (0.01 ha) of the wetland may be temporarily impacted. Estimated impacts are derived based on the project lengths of 470.0 ft (143.3 m) for Alternate 1 and 800.0 ft (243.8 m) for Alternate 2. The entire right-of-way [80.0 ft (24.4 m)] was used for this calculation. The entire right-of-way will probably not be impacted, therefore actual impacts to the stream may be considerably less.

4.2 Permits

Clean Water Act §401 authorizes states to determine whether activities permitted by the federal government comply with state water quality standards. The DWQ may require a Section 401 Water Quality Certification if a project fills or substantially modifies waters or wetlands. The Section 401 Water Quality Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. North Carolina developed General Certifications (GCs) that satisfy CWA §401 and correspond to the Corps of Engineers' NWPs (NCDENR, DWQ, Water Quality Section, Wetlands Water Quality Certification; undated Internet site). The issuance of a 401 permit from the DWQ is a prerequisite to issuance of a Section 404 permit. Water Quality Certification No. 3107, which corresponds to NWP 23, will likely be required for the project.

Clean Water Act §404 establishes a permit program to regulate the discharge of dredged or fill materials into waters of the United States. The USACE, which administers the permit program under CWA §404, established nationwide permits for minor activities, specialized activities, and activities regulated by other authorities. A nationwide permit (NWP) is a permit by rule. In other words, compliance with the NWP rules satisfies the statutory provisions under Section 404 of the Clean Water Act. Forty NWPs referenced by a number currently exist (Strand, 1997). Nationwide 23, entitled Approved Categorical Exclusions, covers certain activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal

agency or department. Nationwide Permit 23 applies when another Federal agency or department determines that their activity, work, or discharge is categorically excluded from an environmental impact statement (EIS) under the National Environmental Policy Act (NEPA). The activity, work, or discharge becomes categorically excluded when its actions neither individually nor cumulatively have a significant effect on the human environment. The Office of the Chief of Engineers must receive notice of the agency's or department's application for the categorical exclusion and concur with the categorical exclusion determination (61 FR 65874, 65916; December 13, 1996).

A Nationwide Permit 23 CFR 330 Appendix A (B) (23) is likely to be applicable for the crossing of Little River. This permit authorizes construction provided the following conditions are met:

- the width of the fill is limited to the minimum necessary for the actual crossing;
- the fill place in Waters of the United States is limited to a filled area of no more than 1.0 ac(0.45 ha);
- no more than a total of 150 linear ft (45.7 m) of the fill for the roadway can occur in special aquatic sites, including wetlands;
- the crossing is culverted, bridged or otherwise designed to prevent the restriction of, and to withstand, expected high flows and tidal flows and movement of aquatic organisms, and;
- the crossing, including all attendant features, both temporary and permanent, is part of a single and complete project for crossing of Waters of the United States.

4.3 Mitigation

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

4.3.1 Avoidance

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to Waters of the United States. According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the COE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and

practicable in terms of cost, existing technology, and logistics in light of overall project purposes.

4.3.2 Minimization

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

4.3.3 Compensatory mitigation

Compensatory mitigation in not normally considered until anticipated impacts to Waters of the United States have been avoided and minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation, and enhancement of Water of the United States, specifically wetlands. Such actions should be undertaken in areas adjacent to or contiguous to the discharge site.

Estimated impacts to jurisdictional wetlands are less than 0.04 ac (0.01 ha). Final permit decisions rest with the COE and DWQ.

Minimal impacts to jurisdictional surface waters may occur as result of the proposed project. If fill or dredging in surface waters occurs as a result of construction activities, permits and certifications will be required from various regulatory agencies in charge of protecting the water quality of public waters resources.

4.4 Federally Protected Species

Some populations of fauna and flora have been in, or are in, the process of decline either due to natural forces or their inability to coexist with human activities. Federal law (under the provisions of the Endangered Species Act of 1973, as amended) requires that any action, likely to adversely affect a species classified as federally protected, be subject to review by the U.S. Fish and Wildlife Service (FWS).

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 December 20, 1999, the U.S. Fish and Wildlife Service (FWS) lists four federally protected species for Johnston County (see Table 2). A brief description and a biological conclusion is provided for each species is provided below.

Table 2. Federally Protected Species for Johnston County.

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

Note:

- "Endangered" a species in danger of extinction throughout all or a significant portion of its range.
- "*" denotes a historic record- the species was last observed in the county more than 50 years ago.

Picoides borealis (red-cockaded woodpecker) **Endangered**
Family: Picidae
Date Listed: 13 October 1970

The red-cockaded woodpecker once occurred from New Jersey to southern Florida and west to eastern Texas. It occurred inland in Kentucky, Tennessee, Arkansas, Oklahoma, and Missouri. The red-cockaded woodpecker is now found only in coastal states of its historic range and inland in southeastern Oklahoma and southern Arkansas. In North Carolina, moderate populations occur in the sandhills and southern coastal plain. The few populations found in the piedmont and northern coastal plain are believed to be relics of former populations.

The adult red-cockaded woodpecker has a plumage that is entirely black and white except for small red streaks on the sides of the nape in the male. The back of the red- cockaded woodpecker is black and white with horizontal stripes. The breast and underside of this woodpecker are white with streaked flanks. The red-cockaded woodpecker has a large white cheek patch surrounded by the black cap, nape, and throat.

The red-cockaded woodpecker uses open old growth stands of southern pines, particularly longleaf pine (*Pinus palustris*), for foraging and nesting habitat. A forested stand must contain at least 50% pine, lack a thick understory, and be contiguous with other stands to be appropriate habitat for the red-cockaded woodpecker. These birds nest exclusively in trees that are $\geq$60 years old and are contiguous with pine stands at least 30 years of age. The foraging range of the red-cockaded woodpecker is up to 200

hectares 500 acres (202.3 ha). This acreage must be contiguous with suitable nesting sites.

These woodpeckers nest exclusively in living pine trees and usually in trees that are infected with the fungus that causes red-heart disease. Cavities are located in colonies from 12-100 ft (3.6-30.3 m) above the ground and average 30-50 ft (9.1-15.7 m) high. They can be identified by a large incrustation of running sap that surrounds the tree. The large incrustation of sap is believed to be used as a defense by the red-cockaded woodpecker against possible predators. A clan of woodpeckers usually consists of one breeding pair and the offspring from previous years. The red-cockaded woodpecker lays its eggs in April, May, and June and hatch 38 days later. Clutch size ranges in number from 3-5 eggs. All members of the clan share in raising the young. Red-cockaded woodpeckers feed mainly on insects but may also feed on seasonal wild fruits.

Biological Conclusion: **No Effect**

Suitable habitat for the red-cockaded woodpecker in the form of pine trees that are $\geq$60 years old and are contiguous with pine stands at least 30 years of age was not observed during the site visit. In addition, a review of the North Carolina Natural Heritage Program (NCNHP) database on May 2, 2000 indicated that there is no known occurrence of red-cockaded woodpeckers within 1.0 mi (1.6 km) of the project area. Therefore, this project will not affect this species.

Alasmidonta heterodon (dwarf wedgemussel) **Endangered**
Animal Family: Unionidae
Date Listed: 3/14/90

Alasmidonta heterodon formerly ranged from the Petitcodiac River, Canada to the Neuse River, North Carolina. In North Carolina populations are found in Middle Creek and the Little River of the Neuse River Basin and in the upper Tar River and Cedar, Crooked, and Stony Creeks of the Tar River system.

The dwarf wedgemussel is a small mussel ranging in size from 2.5 cm to 3.8 cm in length. It's shell is distinguishable by two lateral teeth on the right half and one on the left half. The periostracum (outer shell) is olive green to dark brown in color and the nacre (inner shell) is bluish to silvery white.

Successful reproduction is dependent on the attachment of larval mussels to a host fish. It is not known what the host fish is but evidence suggests that it is either an anadromous or catadromous species. This mussel is sensitive to agricultural, domestic, and industrial pollutants and requires a stable silt free streambed with well oxygenated water to survive.

Biological Conclusion: **Unresolved**

Suitable habitat for the dwarf wedgemussel was observed during the site visit. This species was found in the Little River in 1998. NCDOT personnel met with representatives from the U.S. Fish and Wildlife Service and the NC Wildlife Resources Commission on April 27, 2000. As a result of this meeting, NCDOT biologists will survey the stream during the summer of 2000 and again prior to project construction. Should dwarf wedge mussel be found during either survey, a Section 7 Formal Consultation will be required as well as a Biological Assessment. A review of the North Carolina Natural Heritage Program (NCNHP) database on May 2, 2000 indicated one occurrence of dwarf wedgemussel adjacent to the project area. One live animal was found in 1998 on the east side of the bridge.

Elliptio steinstansana (Tar spinymussel) **Endangered**
Animal Family: Unionidae
Date Listed: 7/29/85

The Tar spinymussel has always been endemic to the Tar River drainage basin, from Falkland in Pitt County to Spring Hope in Nash County. Now it is limited to populations in Swift Creek and the Tar River in Edgecombe and Nash counties and the has recently been found in the Little River in the Neuse River Basin.

This mussel requires a stream with fast flowing, well oxygenated, circumneutral pH water. The bottom is composed of uncompacted gravel and coarse sand. The water needs to be relatively silt-free. It is known to rely on a species of freshwater fish to act as an intermediate host for its larvae.

The Tar spinymussel grows to an average length of 60 millimeters. Short spines are arranged in a radial row anterior to the posterior ridge on one valve and symmetrical to the other valve, others have two rows of spines on each valve. The nacre is pinkish (anterior) and bluish-white (posterior). Young specimens have an orange-brown peristracum with greenish rays and adults are darker with inconspicuous rays. The shell is generally smooth in texture with as many as 12 spines that project perpendicularly from the surface and curve slightly ventrally.

Biological Conclusion: **Unresolved**

Suitable habitat for the Tar spinymussel exist. This species was found in the Little River in 1998. NCDOT personnel met with representatives from the U.S. Fish and Wildlife Service and the NC Wildlife Resources Commission on April 27, 2000. As a result of this meeting, NCDOT biologists will survey the stream during the summer of

2000 and again prior to project construction. Should Tar spinymussel be found during either survey, a Section 7 Formal Consultation will be required as well as a Biological Assessment. In addition, a review of the North Carolina Natural Heritage Program (NCNHP) database on May 2, 2000 indicated that there is no known occurrence of the Tar spinymussel within 1.0 mi (1.6 km) of the project area.

Rhus michauxii (Michaux's sumac) **Endangered**
Plant Family: Anacardiaceae
Federally Listed: September 28, 1989
Flowers Present: June

This species prefers sandy, rocky, open woods, and roadsides. Its survival is dependent on disturbance (mowing, clearing, fire) to maintain an open habitat. It is often found with other members of its genus as well as with poison ivy (*Toxicodendron radicans*). There is no longer believed to be an association between this species and specific soil types.

Michaux's sumac is a dioecious shrub growing to a height of 0.06 - 0.31 ft (0.2 - 1.0 m). Plants flower in June, producing a terminal, erect, dense cluster of 4-5 parted greenish-yellow to white flowers. Fruits, produced from August through September, are red, densely short-pubescent drupes, 0.25 in (5 - 6 mm) across. Most populations, however, are single sexed and reproduce only by rhizomes. The entire plant is densely pubescent. The deciduous leaves are composed of 9 - 13 sessile, oblong leaflets on a narrowly winged or wingless rachis. The acute to acuminate leaflets have rounded bases and are 1.5 - 3.5 in (4 - 9 cm) long and 1.0 - 2.0 in (2 - 5 cm) wide. They are simply or doubly serrate.

This species is threatened by loss of habitat. Since its discovery, 50 percent of Michaux's sumac habitat has been lost due to its conversion to silvicultural and agricultural purposes and development. Fire suppression and herbicide drift have also negatively impacted this species.

Biological Conclusion: **No Effect**

Suitable habitat for the Michaux's sumac in the form roadsides was observed during the site visit. However, Michaux's sumac was not observed during the site visit. In addition, a review of the North Carolina Natural Heritage Program (NCNHP) database on May 2, 2000 indicated that there is no known occurrence of Michaux's sumac within 1.0 mi (1.6 km) of the project area. Therefore, this project will not affect this species.

4.5 Federal Species Of Concern And State Listed Species

There are nine Federal Species of Concern (FSC) listed by the FWS for Johnston County (Table 3). Federal Species of Concern are not afforded federal protection under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. However, the status of these species is subject to change, and so should be included for consideration. Federal Species of Concern are defined as a species which is under consideration for listing for which there is insufficient information to support listing. In addition, organisms which are listed as Endangered, Threatened, or Special Concern by the North Carolina Natural Heritage Program list of Rare Plant and Animal Species are afforded state protection under the NC State Endangered Species Act and the NC Plant Protection and Conservation Act of 1979.

Table 3. Federal Species of Concern for Johnston County.

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

Note:

"E"--An Endangered species is one whose continued existence as a viable component of the State's flora is determined to be in jeopardy.

"T"--A Threatened species is one which is likely to become endangered species within the foreseeable future throughout all or a significant portion of its range.

"C"--A Candidate species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction, direct exploitation or disease. The species is also either rare throughout its range or disjunct in North Carolina from a main range in a different part of the country or the world.

"SR"--A Significantly Rare species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction, direct exploitation or disease. The species is generally more common elsewhere in its range, occurring peripherally in North Carolina.

"W3"--A Watch Category 3 species is a species which is poorly known in North Carolina, but is not necessarily considered to be declining.

"/P_"--denotes a species which has been formally proposed for listing as Endangered, Threatened, or Special Concern, but has not yet completed the listing process.

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

Surveys for these species were not conducted during the site visit. A review of the N.C. Natural Heritage Program database of the rare species and unique habitats on May 2, 2000 revealed one record of North Carolina rare and/or protected species in or near the project study area. Neuse waterdog (*Necturus lewisi*) which has a state status of Special Concern, was found near the east side of the bridge.

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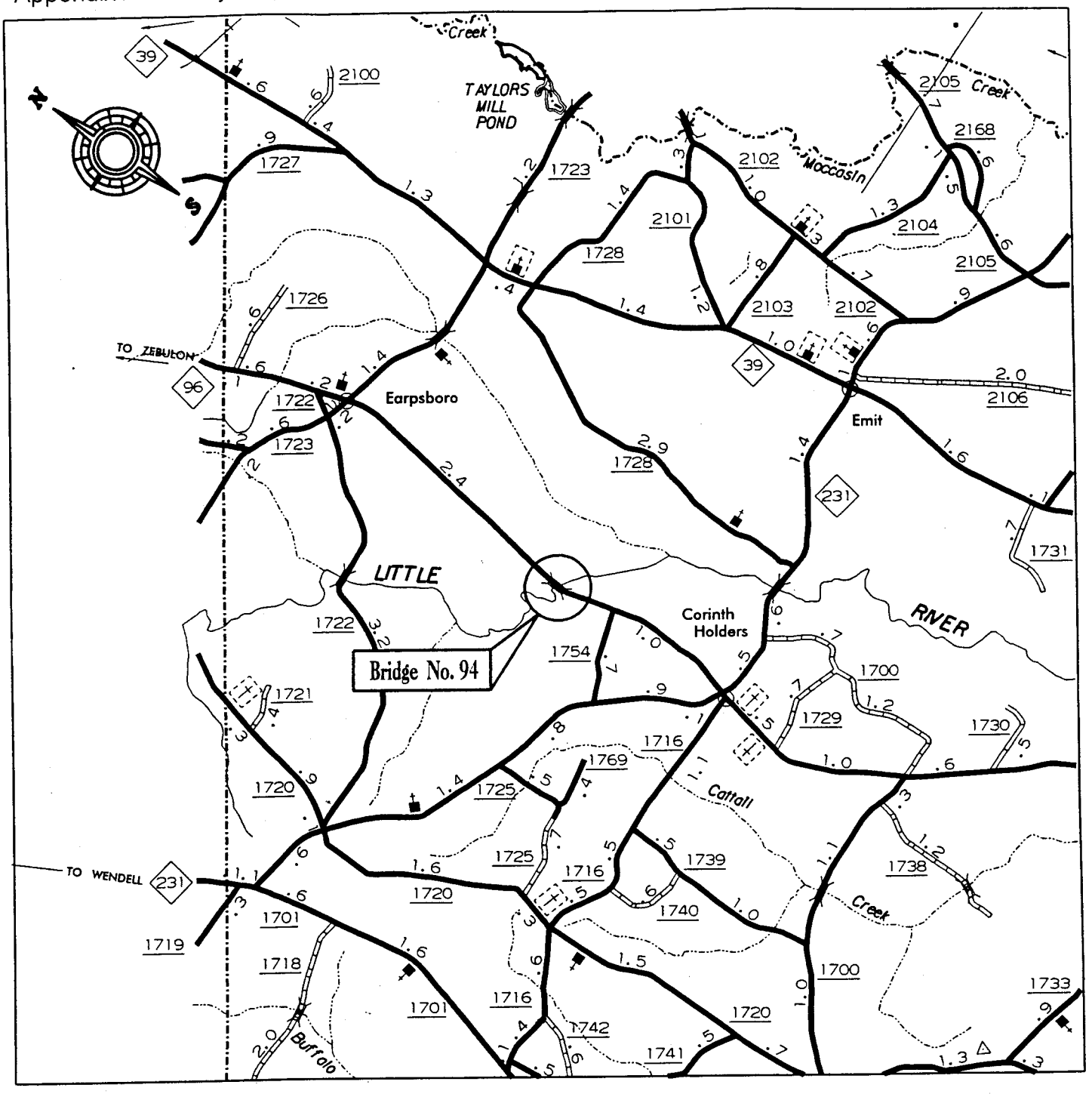
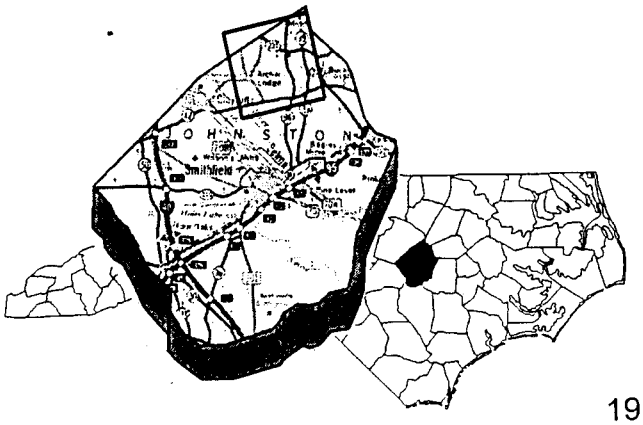
Appendix A. Vicinity Map





North Carolina
Department of Transportation
Division of Highways
Planning & Environmental Branch

Johnston County
Replace Bridge No. 94 on NC 96
Over Little River
B-3481

Appendix B. Field Meeting Minutes

April 27, 2000

MEMO TO: B-3481 Project File

FROM: Karen T. Orthner
Project Development Engineer

SUBJECT: Section 7 Field Meeting for Replacement of Bridge No. 94 on NC 96 over the Little River, Johnston County, Federal Aid Project No. BRSTP-96(2), State Project No. 8.1312101

An informal Section 7-consultation field meeting for the subject project was held on April 11, 2000. The following people were in attendance:

Candace Martino	U. S. Fish and Wildlife Service
Judith Johnson	N. C. Wildlife Resources Commission
Wendi Oglesby	Division Four Construction
Mike McKeel	Division Four Construction
Jackson Provost	Bridge Construction
Ray Moore	Structure Design
Neb Bullock	Structure Design
Kim Moore	Roadside Environmental
Logan Williams	Project Development and Environmental Analysis
Chris Rivenbark	Project Development and Environmental Analysis
Karen Orthner	Project Development and Environmental Analysis

The following comments were made in reference to conservation measures for the Dwarf-wedge and Tar spiny mussels found in the Little River:

Judith Johnson of the N. C. Wildlife Resources Commission (NCWRC) gave a brief history of the Dwarf-wedge mussel and Tar spiny mussel surveys completed in 1998, where both species were located in the Little River. Judith requested that the bridge be spanned across the river with no bents located in the water. She also referred to a bridge replacement project constructed over Crooked Creek in Franklin County. In this project, techniques such as using a special low-sediment fill with filter fabric covers were used to limit the amount of sediment entering the stream during construction. Judith requested that the existing bents located in the river be cut off and not pulled out, as to not disturb the substrate during bridge removal. Judith stated that even if no federally endangered species are found at the bridge site, no in-water work should be permitted.

Neb Bullock of Structure Design indicated that their design is contingent upon Hydraulic's recommendations. Neb indicated that raising the roadway grade may be necessary to span the river. Neb also noted that the bridge demolition removal method would be top-down, using the existing structure for the removal process. Neb suggested that an end bent for the replacement bridge may not be necessary on the

west end of the bridge so that construction would take place on the east side only, preventing in-stream water construction work.

Wendi Oglesby, Division Four-Construction Engineer, concurred in the recommendation to close the road during construction and detour traffic along surrounding roads. Wendi resolved to ride the detour routes in order to confirm that the routes are acceptable for detouring NC 96 traffic during construction.

Candace Martino of the U. S. Fish and Wildlife Service (USFWS) requested a preconstruction survey of the mussels by Tim Savidge and Logan Williams just prior to construction. In addition, an immediate mussel survey of the bridge site is necessary to determine exactly where the mussel populations are located. Candace suggested that the group wait until the mussel survey was completed and Hydraulic comments were available to determine environmental commitments for this project. Candace stated that a Formal Consultation is contingent upon the mussel survey results.

Jackson Provost, Area Bridge Construction Engineer, commented that using underwater torches to cut the steel bents, rather than pull them, was not a normal procedure in bridge removal. However, he stated that it was possible.

Kim Moore of Roadside Environmental stated that the river would be treated as an "Environmentally Sensitive Area" (ESA), with associated guidelines and restrictions. This commitment should be stated in the Project Commitments sheet of the document.

Logan Williams of Project Development and Environmental Analysis mentioned that a moratorium on clearing and grubbing would occur from November 1 to April 15. Logan stated that Tim Savidge and he would perform a mussel survey in the bridge vicinity in the next month.

Bridge demolition and removal methods were also discussed among the group members as a critical issue in this project. Methods such as using a tarp to keep any concrete out of the water and non-shattering methods of removing the bridge deck were deemed necessary, as no part of the bridge should be allowed to drop into the river.

The meeting attendees concluded that hydraulic recommendations would be necessary to determine specific environmental commitments to conserve the Dwarf-wedge and Tar-spiny mussels during construction of this project. With the results of the mussel survey at the bridge site and the appropriate hydraulic input, environmental commitments will be agreed upon in coordination with the represented agencies in the near future. An environmental commitment to stay out of the stream during construction will be considered after the mussel survey is complete. Notification should be given to the appropriate agencies for their participation in the environmental consultation and pre-construction conference held prior to the initiation of construction