STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 28, 2004

US Army Corps of Engineers
Regulatory Field Office
6508 Falls of Neuse Road, Suite 120
Raleigh, NC 27615

ATTENTION: Mr. John Thomas
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide 23 and 33 Permit Application** for the Replacement of Bridge No. 264 over North Fork Reddies River on SR 1567, NCDOT Division 11, Wilkes County. Federal Aid Project No. MABRZ-1567(1), State Project No. 8.2761001, WBS No. 32971.1.1, TIP Project No. B-3266.

Please find enclosed three copies of the Categorical Exclusion (CE) Document, as well as, the Pre-construction Notification, permit drawings, and ½ size plans for the above referenced project completed by the North Carolina Department of Transportation (NCDOT). The agency proposes that Bridge No. 264, consisting of 52 feet of timber floor on I-beams, be replaced with a new 190-foot long two lane cored slab bridge, approximately 60 feet east of the existing structure. The new bridge will contain four spans and have one bent in the water. The current one lane bridge will remain in place to maintain traffic during construction and will be removed once construction is complete. Due to brown trout spawning season, a moratorium on any in-water work or land disturbance within the 25 foot buffer zone on each side of the stream will be observed from November 1 through April 1 of any given year.

The new cored slab bridge will be approximately 190 feet in length and 30 feet in overall width. A paved travelway of 24 feet will be accommodated, with an offset of 3 feet. The approach roadway will have a 24-foot travelway, with 4 foot grassed shoulders on each side. Where guardrail is required, shoulders will be increased by a minimum of 3 feet. The new structure will be approximately 3 feet higher in elevation than the existing bridge. The total project length will be equal to 1,214 feet.

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

IMPACTS TO WATERS OF THE UNITED STATES

Wetlands

Site 1: The wetland impacts associated with this project are 0.02 acres of permanently drained wetlands. There is a man made pond, which is not mentioned in the Natural Resources Technical Report or the Categorical Exclusion because it was created after these were written. The wetland is located at the northern tip of the pond and although it will not be impacted by construction, NCDOT has calculated it as a total take since the pond, which feeds the wetland, will be filled.

Surface Waters

The three surface waters impacted by this project are the North Fork Reddies River, an unnamed tributary (UT) to North Fork Reddies River and a man made pond.

Site 1: The man made pond, adjacent to the wetland, will be permanently drained and will account for 0.03 acre of permanent fill.

Site 2: A 30 inch reinforced concrete pipe, used to divert the stream under the road, will account for 42 feet of existing channel impacts to UT North Fork Reddies River, along with 0.002 acre of permanent fill.

Site 3 & 4: North Fork Reddies River is located in sub-basin No. 030701 of the Yadkin-Pee-Dee River Basin in cataloging unit No. 03040101 and is classified by the Division of Water Quality as Class WS-II, (Tr). Anticipated temporary impacts are 0.05 acres of fill which will be placed in the stream channel to support work pads and removed immediately once the project is complete. The existing channel pattern, dimension and profile of the North Fork Reddies River will not be affected by this bridge replacement.

BRIDGE DEMOLITION

The existing bridge No. 264 consists of an asphalt overlay wearing surface on a timber deck along steel I-beams. The abutments and the single pier are reinforced concrete. The asphalt overlay will be removed prior to demolition without dropping any pieces into the water. The timber and steel components will also be removed without dropping any pieces into the water. The center concrete pier will contribute approximately 1.5 cubic yards of fill into the water because it must be turned over on its side, broken into pieces and then removed. During removal, Best Management Practices for Bridge Demolition and Removal will be followed.

UTILITY IMPACTS

There are no water lines or sewer lines in the project vicinity. There are, however, above-ground power lines regulated by Duke Power and underground fiber optic telephone lines regulated by Wilkes Telecommunications. Two power poles will need to be moved ,but these will not impact wetlands or surface waters. Wilkes Telecommunications is going to abandon their underground fiber optic cable and go aerial with Duke Power in order to

avoid interference because of construction. These changes will have no impact on surface waters or wetlands in the project area.

TEMPORARY WORKPADS

There will be 0.05 acres of temporary impacts from the construction of two temporary work bridges in the North Fork Reddies River. These work bridges will be required to provide access to the site by the construction equipment, to construct the proposed cored slab bridge and to remove the existing bridge.

Restoration Plan: The material used for installation of the temporary work bridges will be removed after its purpose has been served. The temporary fill areas will be restored to their original contours. After the temporary work bridges are no longer needed, the contractor will use excavating equipment to remove all material within jurisdictional areas. All material will become the property of the contractor who will be required to submit a reclamation plan for removal of and disposal of all materials off-site.

Schedule for Restoration of Temporary Fill Areas: It is assumed that the contractor will begin construction of the first proposed work bridge shortly after the date of availability for the project. The Let date is February 15, 2005 with a date of availability of March 28, 2005.

Removal and Disposal: The work bridges will be removed within 90 days after they are no longer needed. All materials placed in the stream by the contractor will be removed. All other materials removed by the contractor will be disposed of at an off site, non-jurisdictional, upland location.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of February 5, 2003 the Fish and Wildlife Service (FWS) lists one federally protected species for Wilkes County (Table 1).

The bog turtle is listed as T(S/A). This designation is due to the bog turtle's similarity of appearance to another rare species currently listed for protection. Species designated under T(S/A) are not subject to Section 7 consultation. Therefore, a biological conclusion for this species is not required.

AVOIDANCE, MINIMIZATION AND MITIGATION

Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States." The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional stages; minimization measures were incorporated as part of the project design. The impacts to North Fork Reddies River have been minimized by replacing Bridge No. 264, which is 52 feet long, with a new bridge, 190 feet long, which will span a larger portion of the river and buffer

area. The embankment and roadway fill around the existing bridge will be removed, as well as some existing embankment further downstream. This will aid in restoring some of the original floodplain which was filled in when the existing bridge was built in 1950.

The NCDOT will follow Design Standards in Sensitive Watersheds (formerly High Quality Water Guidelines) and restrict any earth disturbing activities within 25 feet of the stream during brown trout spawning season, which is from November 1 through April 1.

During bridge demolition the center concrete pier will contribute approximately 1.5 cubic yards of temporary fill into the water because it must be turned over on its side, broken into pieces and then removed. We examined the possibility of using a temporary work bridge to remove the pier, but this method would require sawing the pier into pieces, which would produce hazardous dust and slurry. The possibility of this dust and slurry getting into the stream would be far more detrimental than placing rock in the stream.

Mitigation: Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District (MOA)", it is understood that the North Carolina Department of Environment and Natural Resources Ecological Enhancement Program (EEP), will assume responsibility for satisfying the Section 404 compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the Ecological Enhancement Program (EEP) transition period which ends on June 30, 2005.

Compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the Ecosystem Enhancement Program (EEP). The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. The remaining, unavoidable impacts to 0.02 acres of jurisdictional wetland and 42 feet of stream will be offset by compensatory mitigation provided by the EEP. (See attached EEP confirmation letter.)

REGULATORY APPROVALS

Section 404 Permit: It is anticipated that the construction of the work bridges will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing construction of the work bridges. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit, but propose to proceed under a Nationwide 23 as authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification numbers 3403 and 3366 will apply to this project. We will adhere to the general conditions of the Water Quality Committee in accordance with 15A NCAC 2H .0500(a) and 15A NCAC 2B .0200. We are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their records.

A copy of this permit application will be posted on the DOT website at: http://www.ncdot.org/planning/pe/naturalunit/permit.html.

If you have any questions or need additional information, please contact Megan Willis at (919) 715-1341.

Sincerely,

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

w/ attachment:

Mr. John Hennessy, NC DWQ (2 copies)
Mr. Carl McCann, P.E., Division Engineer
Mr. Omar Sultan, Programming and TIP
Mr. David Franklin, USACE, Wilmington
Ms. Marla Chambers, NCWRC
Mr. Heath Slaughter, DEO
Mr. Art McMillan, PE, Highway Design
Mr. Jay Bennett, P.E., Roadway Design
Mr. Derrick Weaver, Planning Engineer
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Ms. Marella Buncick, USFWS

Ecosystem Enhancement PROGRAM

October 26, 2004

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-3266, Bridge 264 over North Fork Reddies River,
Wilkes County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide wetland mitigation for the subject project. Based on the information supplied by you in a letter dated October 15, 2004, the impacts are located in CU 03040101 of the Yadkin River Basin in the Northern Mountains Eco-Region, and are as follows:

Riverine Wetland: 0.02 acre; Stream: 42 feet

As stated in your letter, the subject project is listed in Exhibit 2 of the Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, Wilmington District dated July 22, 2003. The wetland mitigation for the subject project will be provided in accordance with this agreement.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

William D. Gilmore, P.E.
Transition Manager

cc: John T. Thomas, Jr., USACE-Raleigh
John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-3266

Ecosystem Enhancement PROGRAM

October 26, 2004

Mr. John T. Thomas, Jr.
U. S. Army Corps of Engineers
Raleigh Regulatory Field Office
6508 Falls of the Neuse Road, Suite 120
Raleigh, North Carolina 27615

Dear Mr. Thomas:

Subject: EEP Mitigation Acceptance Letter:

B-3266, Bridge 264 over North Fork Reddies River, Wilkes County
Cataloging Unit 03040101 (Yadkin); Northern Mountains Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) proposes to provide compensatory wetland mitigation for the unavoidable 0.02 acre of riverine wetland impacts. Also, EEP proposes to provide preservation to compensate for the unavoidable 42 feet of stream impacts of the subject project in the following manner:

Wetland Preservation (10:1) in same eco-region (420 feet)
Lone Mountain, McDowell County

The subject TIP project is listed in Exhibit 2 of the Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, Wilmington District dated July 22, 2003. The stream mitigation for the project will be provided in accordance with Section IX, EEP Transition Period, of the Agreement. The EEP intends to provide riverine wetland compensatory mitigation at a ratio up to 2:1 in Cataloging Unit 03040101 of the Yadkin River Basin.

If you have any questions or need additional information, please contact Ms. Beth Harmon at (919) 715-1929.

Sincerely,

William D. Gilmore, P.E.
Transition Manager

cc: Phil Harris, Office of Natural Environment, NCDOT
John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-3266

Office Use Only: Form Version May 2002

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

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

I. Processing

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

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

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

4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here: ☐

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

II. Applicant Information

1. Owner/Applicant Information
   Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
   Mailing Address: 1598 Mail Service Center
   Raleigh, North Carolina 27699-1598
   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address: gthorpe@dot.state.nc.us

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

III. Project Information

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

1. Name of project: Replacement of Bridge No. 264 over North Fork Reddies River.

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3266

3. Property Identification Number (Tax PIN): _____

4. Location
   County: Wilkes Nearest Town: North Wilkesboro
   Subdivision name (include phase/lot number): _____
   Directions to site (include road numbers, landmarks, etc.): From Raleigh take I-40 west to highway 421. Once in Wilkes county go through Wilkesboro and turn onto highway 16 north. Go approximately 8 miles then turn onto Old NC 16. Take your first right onto Mertie road then your second right onto Vannoy road. Go until you reach a two lane wooden bridge.

5. Site coordinates, if available (UTM or Lat/Long): Approximately 36.20' latitude and 81.25' longitude
   (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

6. Property size (acres): _____

7. Nearest body of water (stream/river/sound/ocean/lake): North Fork Reddies River

8. River Basin: Yadkin-Pee Dee
   (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 area surrounding the bridge is maintained yard, Montane Alluvial Forest, and maintained roadside.

10. Describe the overall project in detail, including the type of equipment to be used: Plans for this project include replacing bridge No. 264 north of the existing bridge to improve sight distance. The existing bridge will be used for traffic during construction. Standard bridge construction equipment will be used.

11. Explain the purpose of the proposed work: To increase the safety of travelers along SR 1567 by replacing the old bridge and improving the alignment of the road leading up to the bridge.

IV. Prior Project History

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

N/A

V. Future Project Plans

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

N/A

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: The wetland impacts associated with this project are 0.02 acres of permanently drained wetlands. The two surface waters impacted are the North Fork Reddies River and a man made pond. Permanent impacts to surface waters are 0.03 acres of fill and temp impacts are 0.05 acres of fill.

2. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
1	Drained/Perman.	0.02	Yes	Approx. 30	Marsh

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

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

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

List the total acreage (estimated) of all existing wetlands on the property: < 1 acre
Total area of wetland impact proposed: 0.02 acre

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

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
2	Fill/Permanant	0.002 acre	UT to NFRR	3 ft.	Perennial

3	Fill/Temp.	0.022 acre	North Fork Reddies	27 ft.	Perennial
4	Fill/Temp.	0.025 acre	North Fork Reddies	27 ft.	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

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

Cumulative impacts (linear distance in feet) to all streams on site: 42

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

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
1	Fill	0.03		Pond

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

5. Pond Creation

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

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.):_____

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.):_____

Size of watershed draining to pond:_____ Expected pond surface area:_____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact

site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

Impacts to the river were reduced by replacing the 52 foot long bridge with a 190 foot long bridge. The existing embankment and roadway fill will be removed to restore the original floodplain.

VIII. Mitigation

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

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

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

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

   EEP will resume responsibility for compensatory mitigation.

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

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

IX. Environmental Documentation (required by DWQ)

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

Yes ☒ No ☐

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes ☒ No ☐

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

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

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

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

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

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

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

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

N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

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 ☒

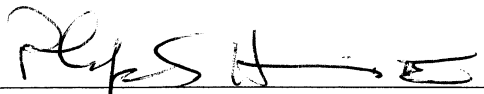
XIV. Other Circumstances (Optional):

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).

_____

_____

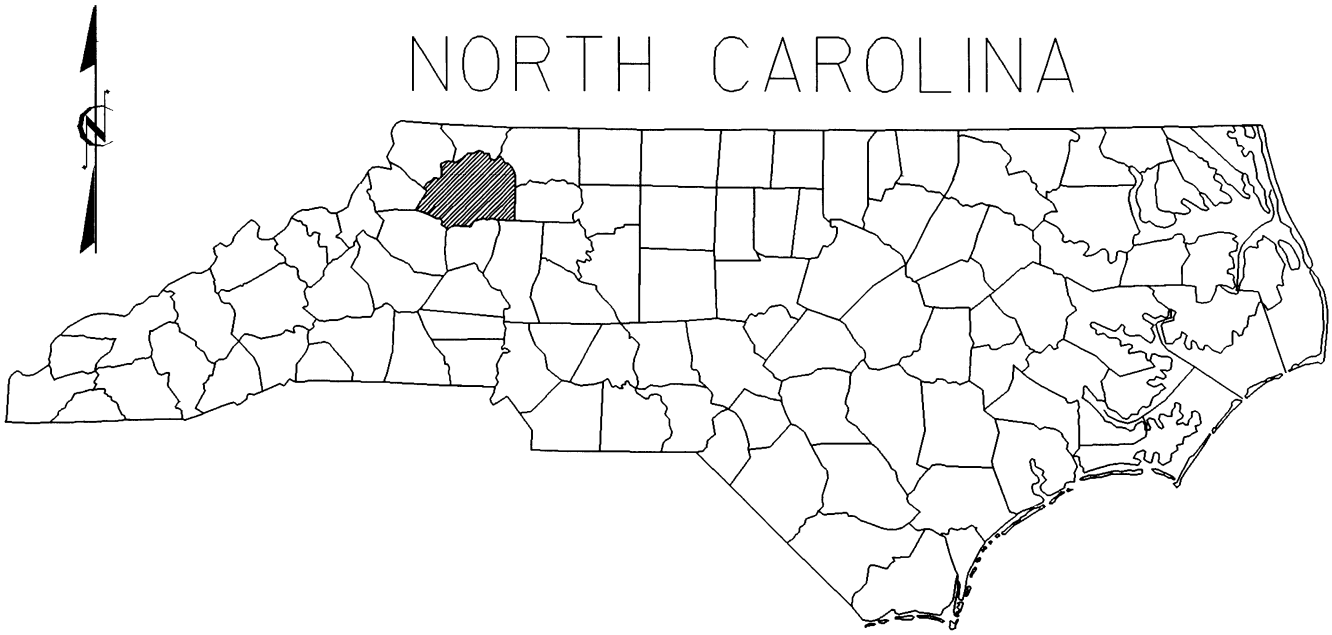
_____

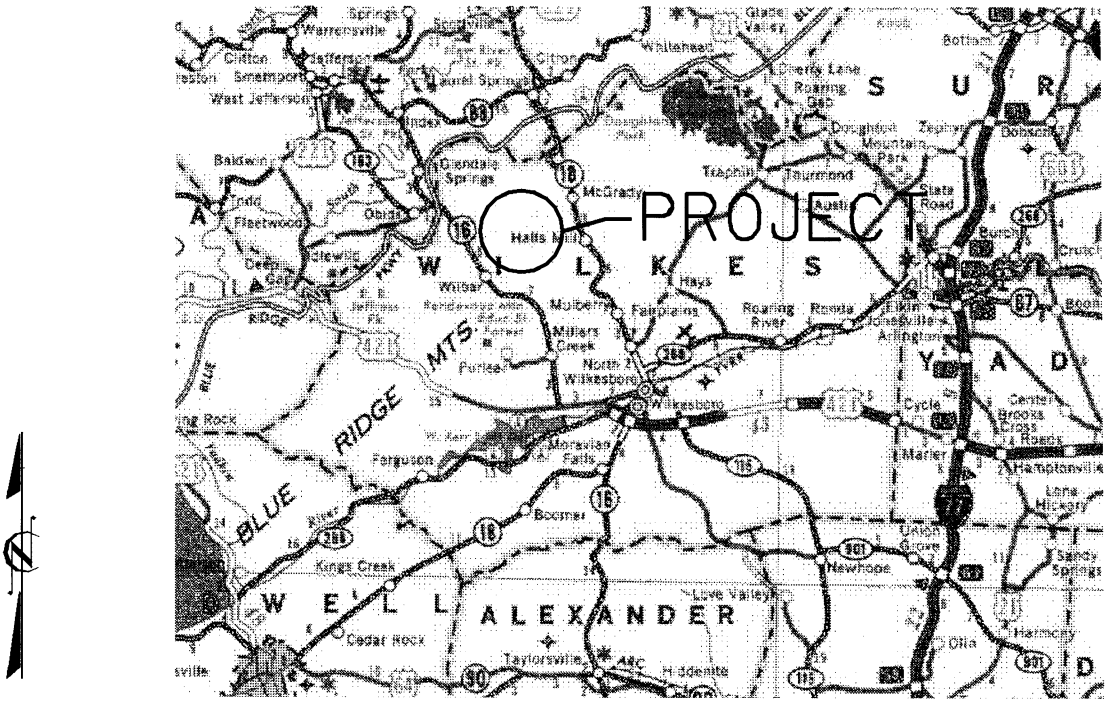


10/28/04

Applicant/Agent's Signature **Date**

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

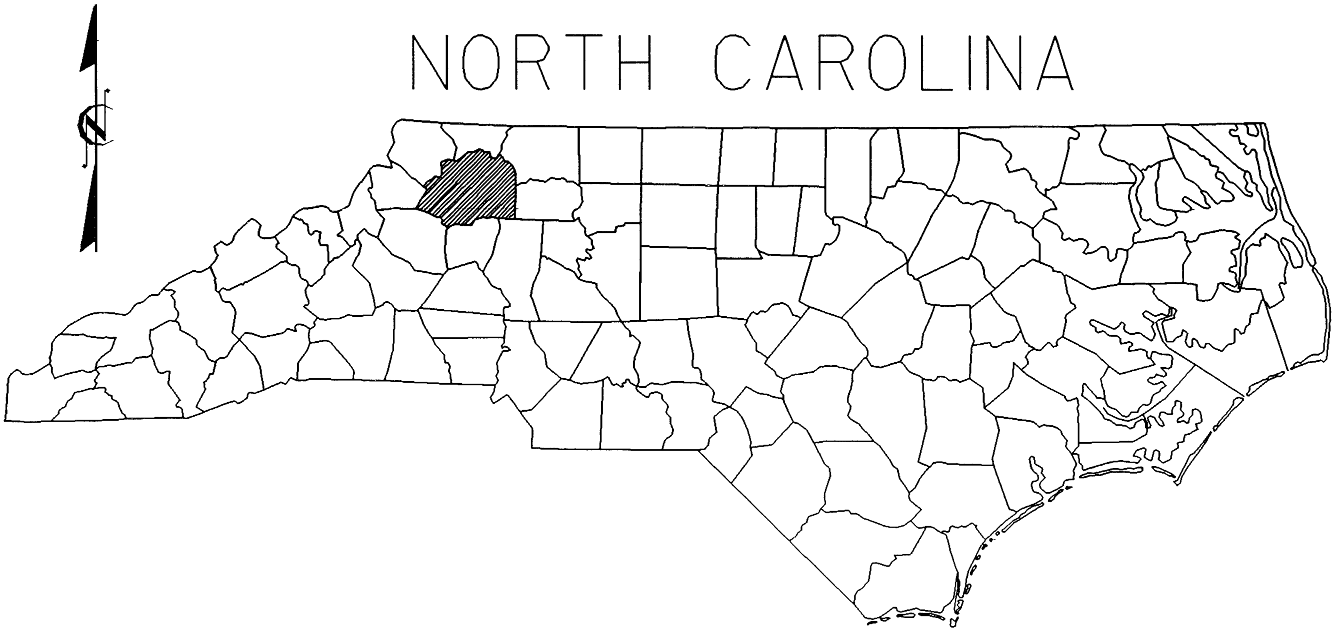


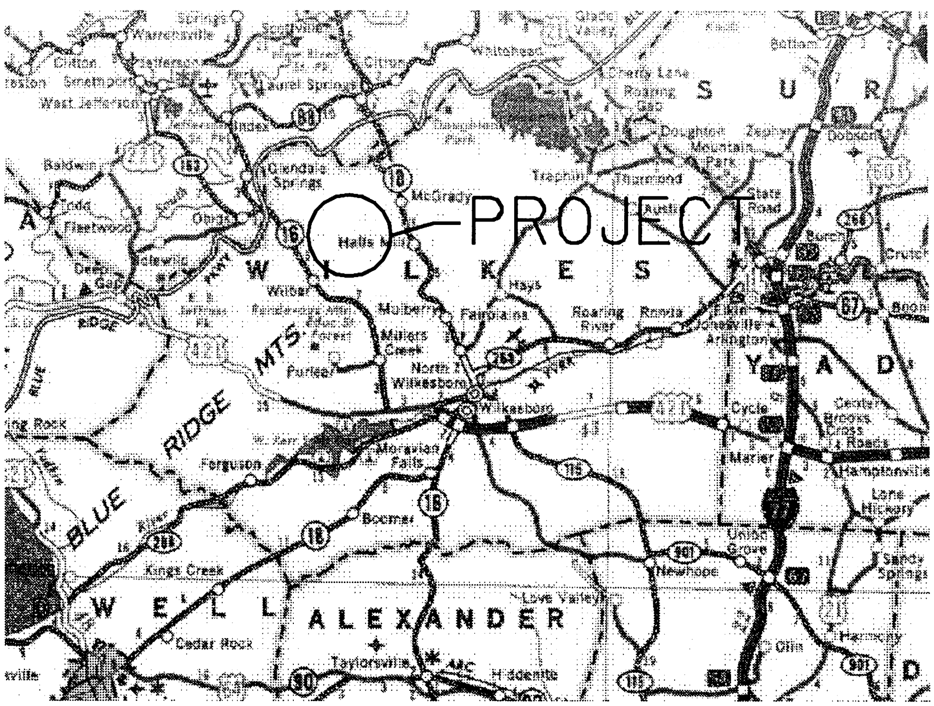


VICINITY MAPS

NCDOT
DIVISION OF HIGHWAYS
WILKES COUNTY
PROJECT: 32971.1.1 (B-3266)
PROPOSED REPLACEMENT OF
BRIDGE NO. 264 OVER
NORTH FORK REDDES RIVER
ON SR 1567

SHEET 1 OF 9 5/5/04 REV. 10/5/04



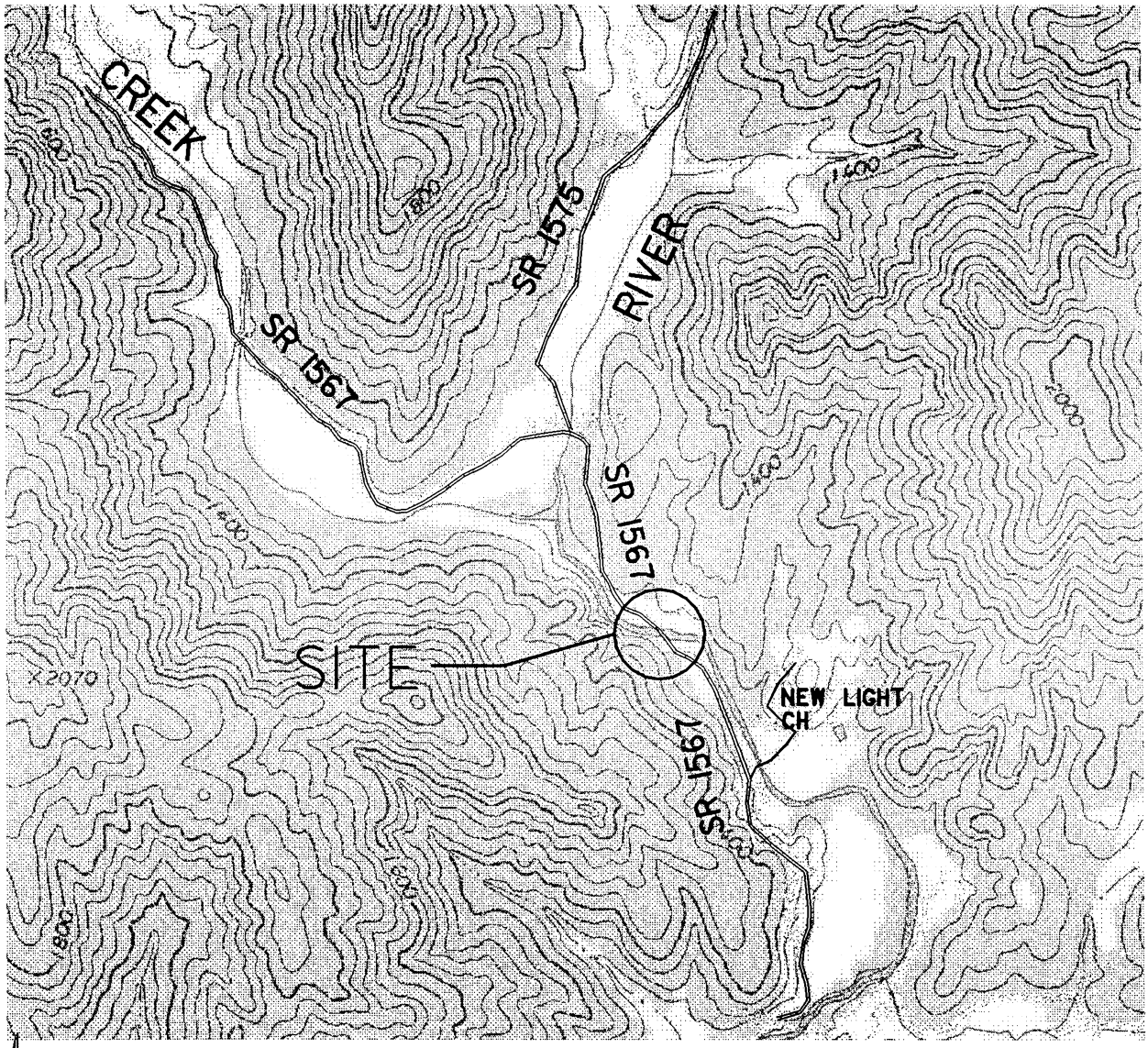


VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
WILKES COUNTY
PROJECT: 32971.1.1 (B-3266)
PROPOSED REPLACEMENT OF
BRIDGE NO. 264 OVER
NORTH FORK REDDES RIVER
ON SR 1567

SHEET 2 **OF** 9 **3/5/04**



NOT TO SCALE

N

TOPOGRAPHIC MAPS

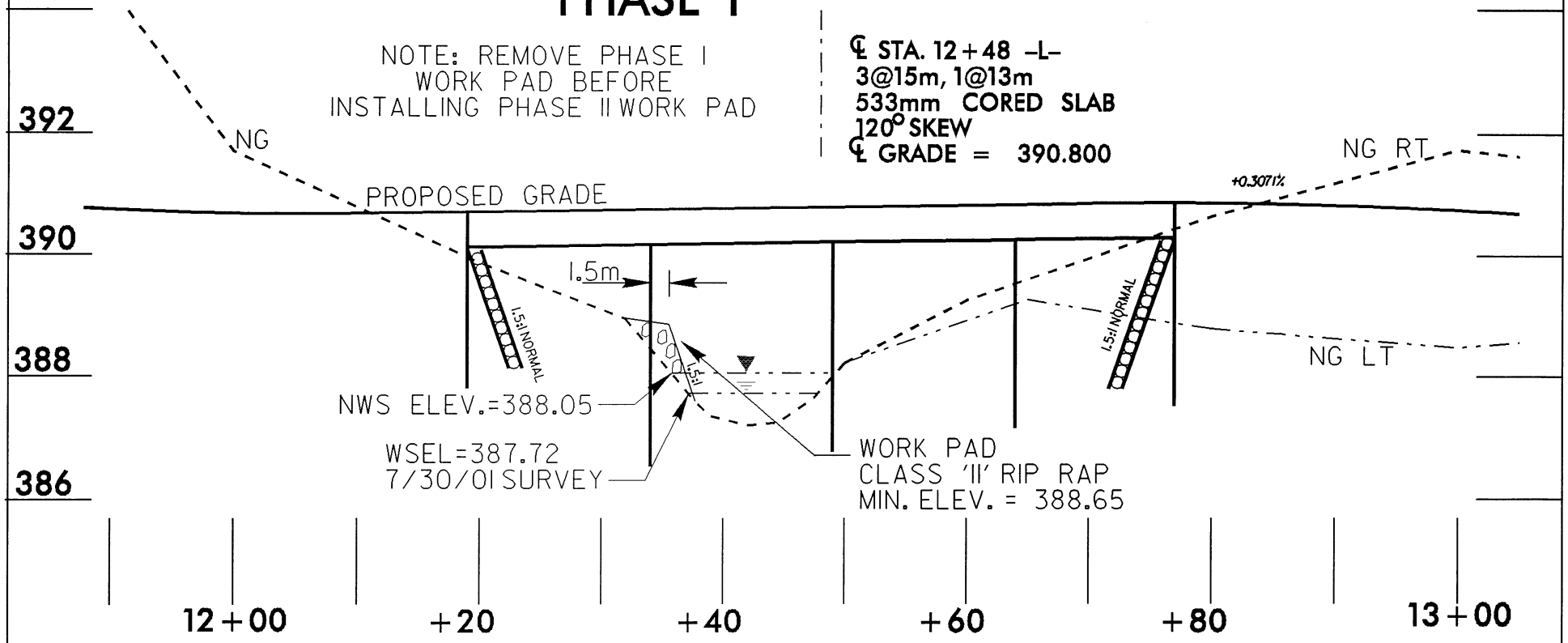
NCDOT
DIVISION OF HIGHWAYS
WILKES COUNTY
PROJECT: 32971.1.1 (B-3266)
PROPOSED REPLACEMENT OF
BRIDGE NO. 264 OVER
NORTH FORK REDDES RIVER
ON SR 1567

SHEET 3 OF 9 3/5/04

SITE III
PHASE I

NOTE: REMOVE PHASE I
WORK PAD BEFORE
INSTALLING PHASE II WORK PAD

℄ STA. 12+48 –L–
3@15m, 1@13m
533mm CORED SLAB
120° SKEW
℄ GRADE = 390.800



PROFILE
WORK PAD
CLASS 'II' RIP RAP

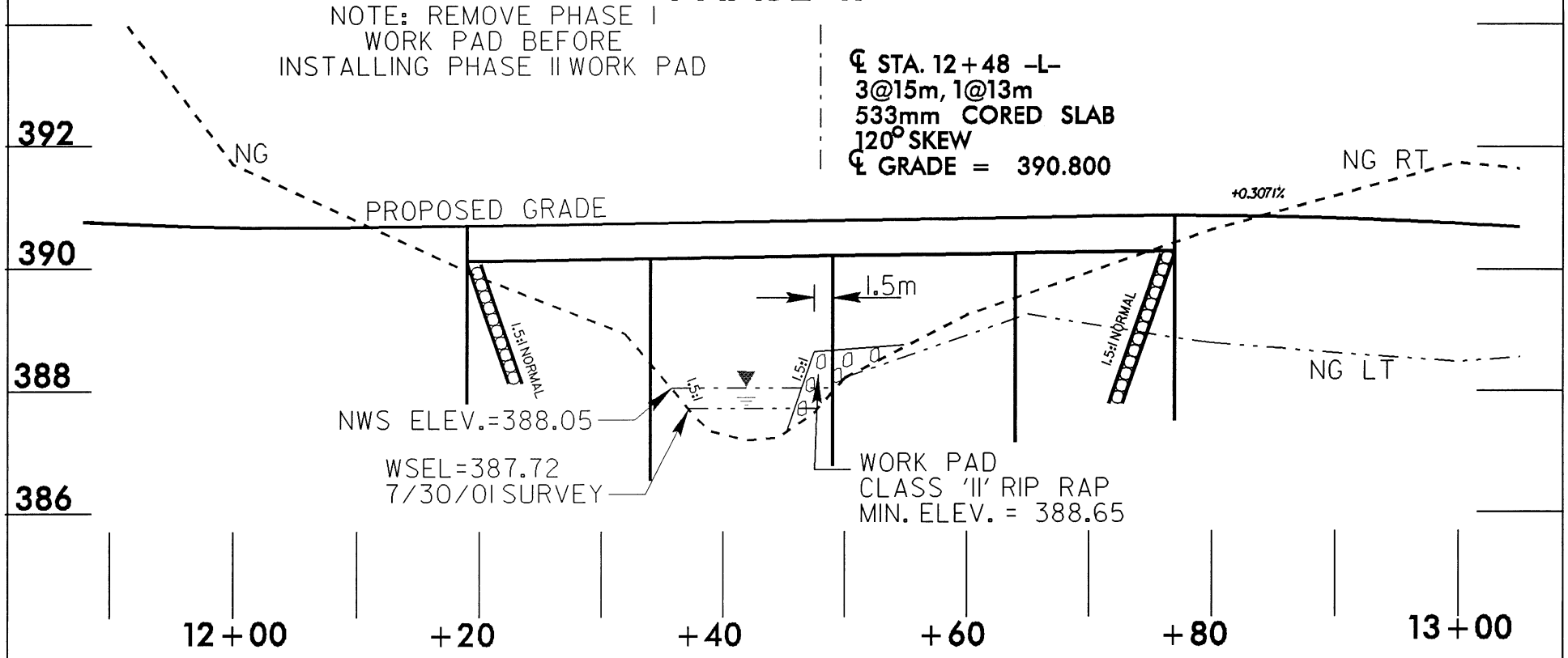
ESTIMATES OF QUANTITIES

VOLUME OF CLASS 'II' RIP RAP BELOW O.H.W. = 4.5m^3
AREA OF CLASS 'II' RIP RAP = 0.0023 ha.
ESTIMATE 9 TONS CLASS 'II' RIP RAP

NCDOT
DIVISION OF HIGHWAYS
WILKES COUNTY
PROJECT: 32971.1.1 (B-3266)
PROPOSED REPLACEMENT OF
BRIDGE NO. 264 OVER
NORTH FORK
REDDES RIVER ON SR 1567

 3/5/04

SITE III
PHASE II



PROFILE
WORK PAD
CLASS 'II' RIP RAP

ESTIMATES OF QUANTITIES

VOLUME OF CLASS 'II' RIP RAP BELOW O.H.W. = 32.4m^3

AREA OF CLASS 'II' RIP RAP = 0.0065 ha.

ESTIMATE 62 TONS CLASS 'II' RIP RAP

NCDOT

DIVISION OF HIGHWAYS

WILKES COUNTY

PROJECT: 32971.1.1 (B-3266)

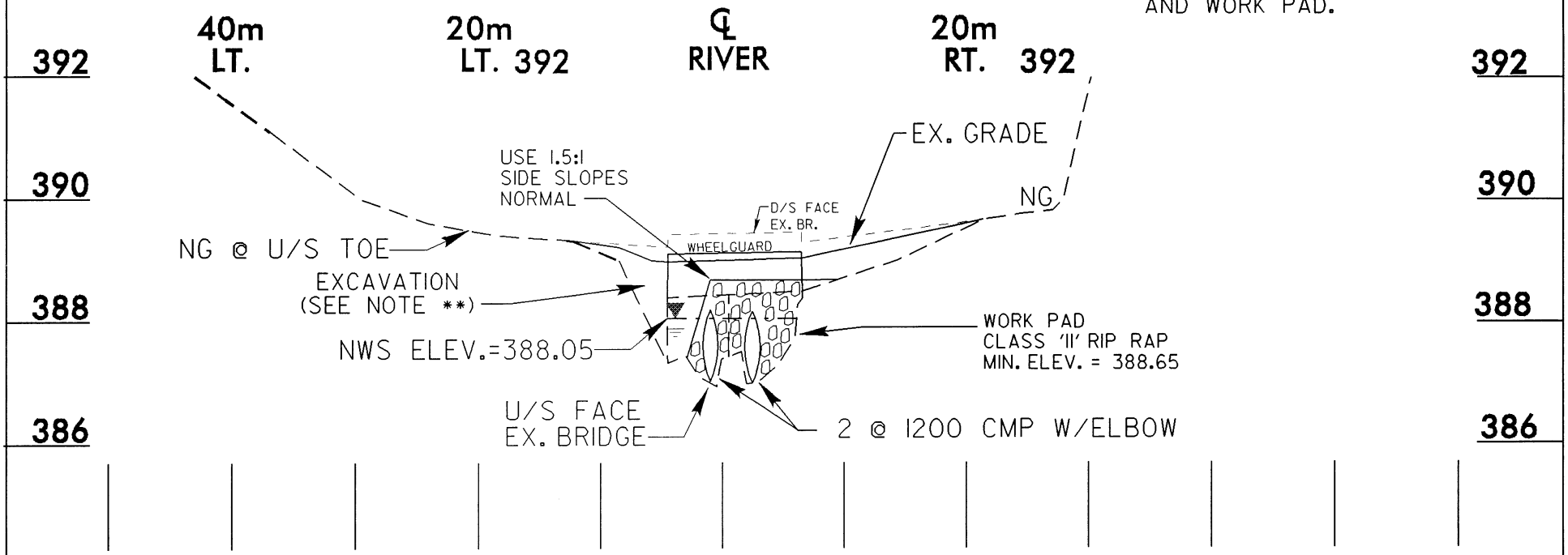
PROPOSED REPLACEMENT OF BRIDGE NO. 264 OVER NORTH FORK REDDES RIVER ON SR 1567

SHEET 5 OF 9 3/5/04

SITE IV
PHASE III

FLOODPLAIN VIEW

**NOTE: REMOVE THE NORTHERN EXISTING END BENT AFTER REMOVAL OF THE EXISTING BRIDGE DECK.
PERFORM THE PROPOSED EXCAVATION OF EXISTING EMBANKMENT PRIOR TO INSTALLING THE TEMPORARY PIPES AND WORK PAD.



ESTIMATES OF QUANTITIES

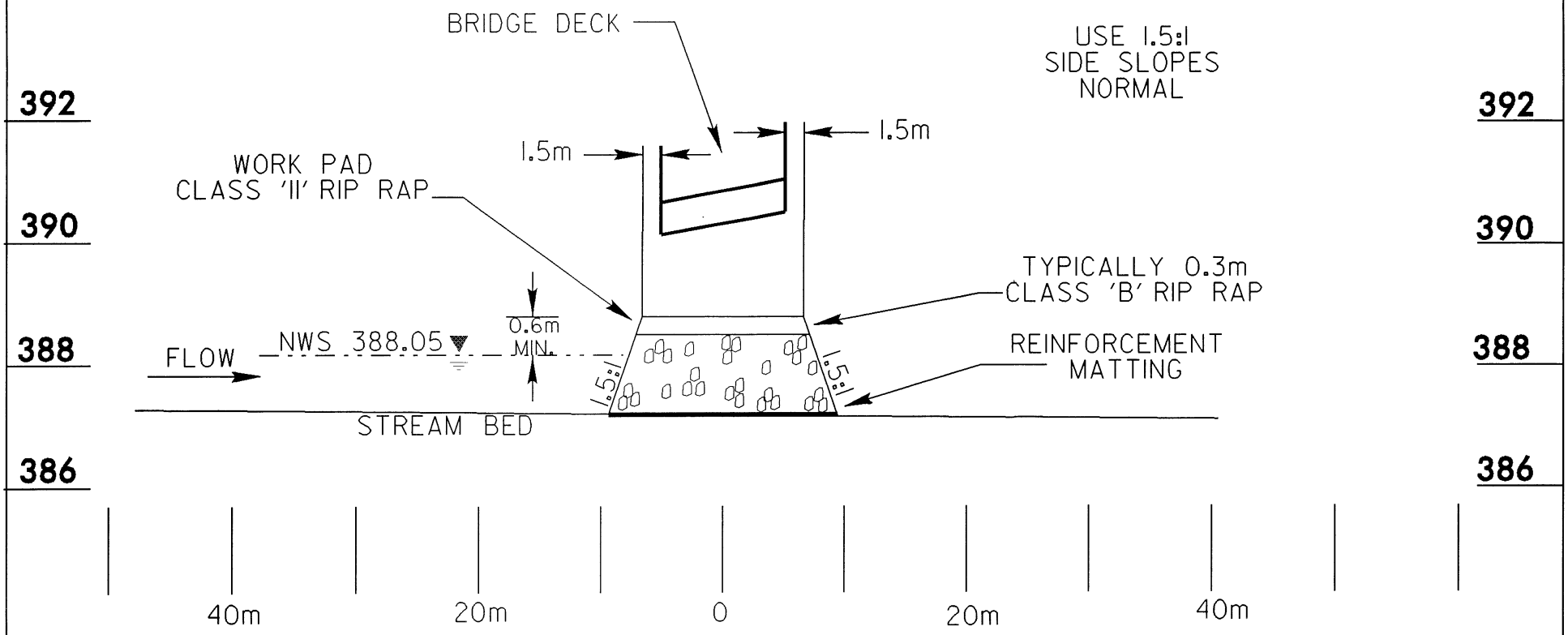
VOLUME OF CLASS 'II' RIP RAP BELOW O.H.W.= 123.3m^3
AREA OF CLASS 'II' RIP RAP = 0.0103ha.
ESTIMATE 237 TONS CLASS 'II' RIP RAP

NOTE: PLOT IS SKEWED PERPENDICULAR TO DIRECTION OF FLOW TO MORE ACCURATELY REPRESENT EFFECTIVE BRIDGE OPENING AND FLOODPLAIN.

TYPICAL
CLASS 'II' RIP RAP
WORK PAD
EXISTING BENT
REMOVAL

NCDOT
DIVISION OF HIGHWAYS
WILKES COUNTY
PROJECT: 32971.1.1 (B-3266)
PROPOSED REPLACEMENT OF
BRIDGE NO. 264 OVER
NORTH FORK
REDDES RIVER ON SR 1567
SHEET 6 OF 9 3/5/04

SITES III & IV



TYPICAL CROSS SECTION
CLASS 'II' RIP RAP
WORK PADS

NCDOT
DIVISION OF HIGHWAYS
WILKES COUNTY
PROJECT: 32971.1.1 (B-3266)
PROPOSED REPLACEMENT OF
BRIDGE NO. 264 OVER
NORTH FORK
REDDES RIVER ON SR 1567
SHEET 7 OF 9 **3/5/04**

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	BOYD HUFFMAN	2905 VANOY RD. MILLERS CREEK, N.C. 28651
2	BOYD HUFFMAN	2905 VANOY RD. MILLERS CREEK, N.C. 28651
3	JERRY WADE ROYAL	2604 VANOY RD. MILLERS CREEK, N.C. 28651
4	JERRY WADE ROYAL	2604 VANOY RD. MILLERS CREEK, N.C. 28651
5	ROY LEE MITCHELL	2464 VANOY RD. MILLERS CREEK, N.C. 28651

NCDOT

DIVISION OF HIGHWAYS

WILKES COUNTY

PROJECT: 32971.1.1 (B-3266)

PROPOSED REPLACEMENT OF

BRIDGE NO. 264 OVER

NORTH FORK REDDES RIVER

ON SR 1567

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*	11+49 TO	30" RCP	0	0	0.02	0	0	0.03	0	0	0
	11+65 -L- LT										
2	11+60 TO	30" RCP	0	0	0	0	0.002	0	0	42	0
	11+68 -L- RT										
3	12+32 TO	PROP. BRIDGE	0	0	0	0	0	0	0.006	0	0
	12+38 -L-	WORK PAD PHASE I									
3	12+45 TO	PROP. BRIDGE									
	12+55 -L-	WORK PAD PHASE II	0	0	0	0	0	0	0.016	0	0
4	12+31 TO	EXISTING BRIDGE	0	0	0	0	0	0	0.025	0	0
	12+41 -L-	WORK PAD PHASE III									
TOTALS:			0.00	0.00	0.02	0.00	0.00	0.03	0.05	42	0

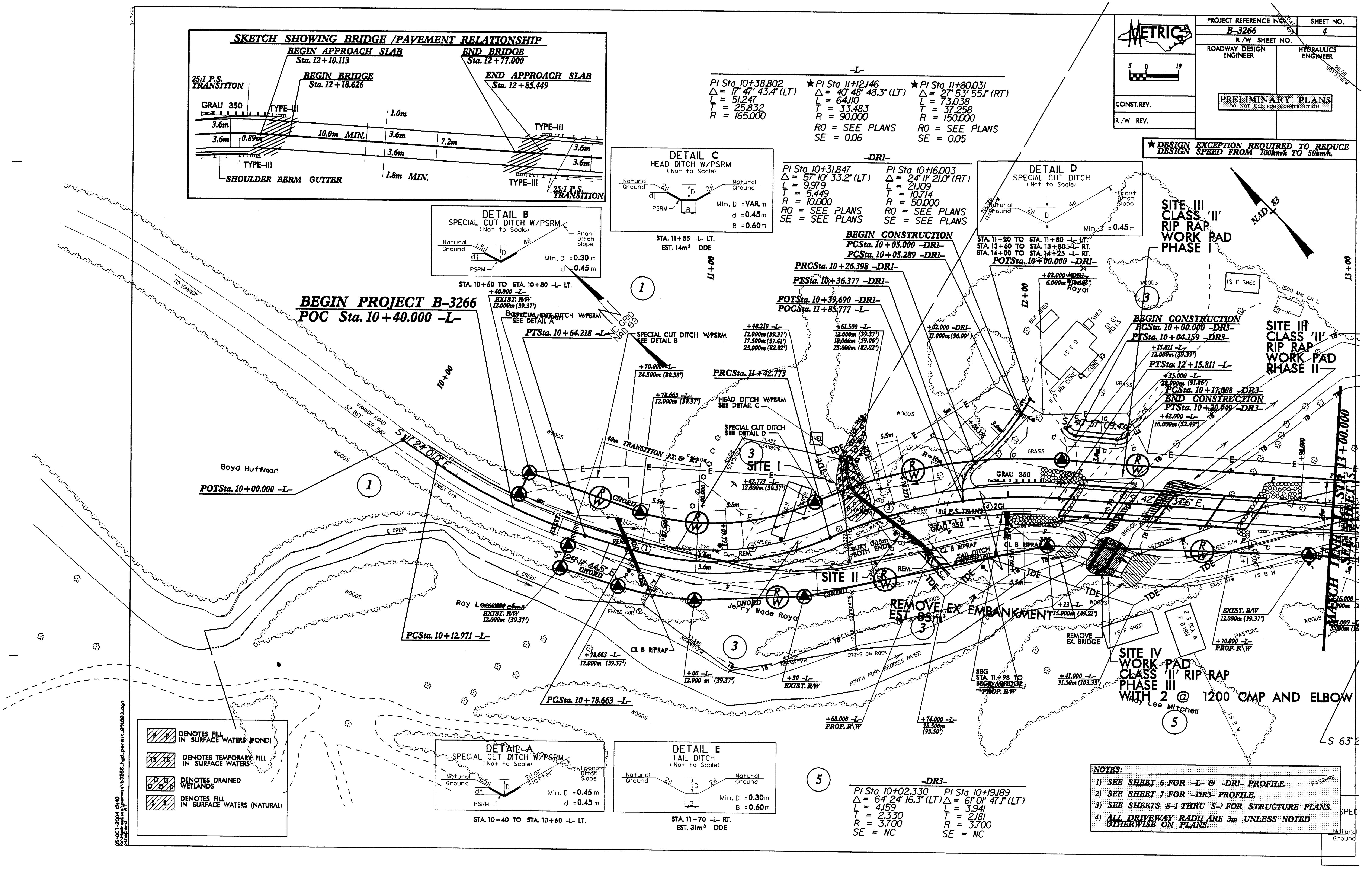
***NOTES FOR SITE 1:**

"EXCAVATION IN WETLANDS" QUANTITY REPRESENTS DRAINED WETLAND.

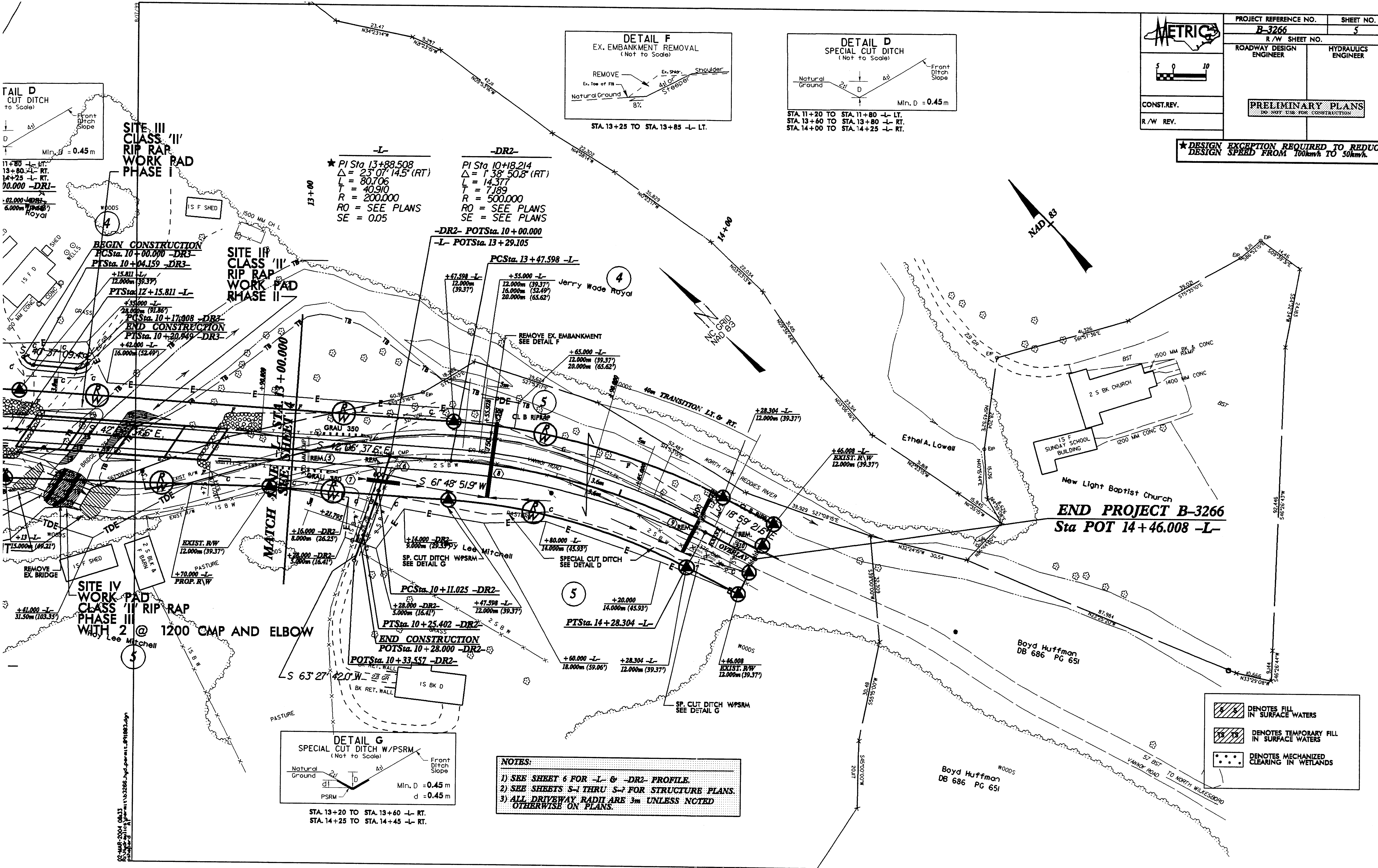
"FILL IN SW (POND)" QUANTITY REPRESENTS THE FOLLOWING:
0.018 AC. ARE FILL IN SURFACE WATERS
0.015 AC. ARE THE REMAINDER OF THE POND AREA DRAINED
FOR A TOTAL IMPACT OF 0.03 AC.

Form Revised 3/22/01

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
WILKES COUNTY
PROJECT 32971.1.1 (B-3266)
BRIDGE NO. 264
NORTH FORK REDDES RIVER ON SR 1567
SHEET 9 OF 9 REV. 10/28/04

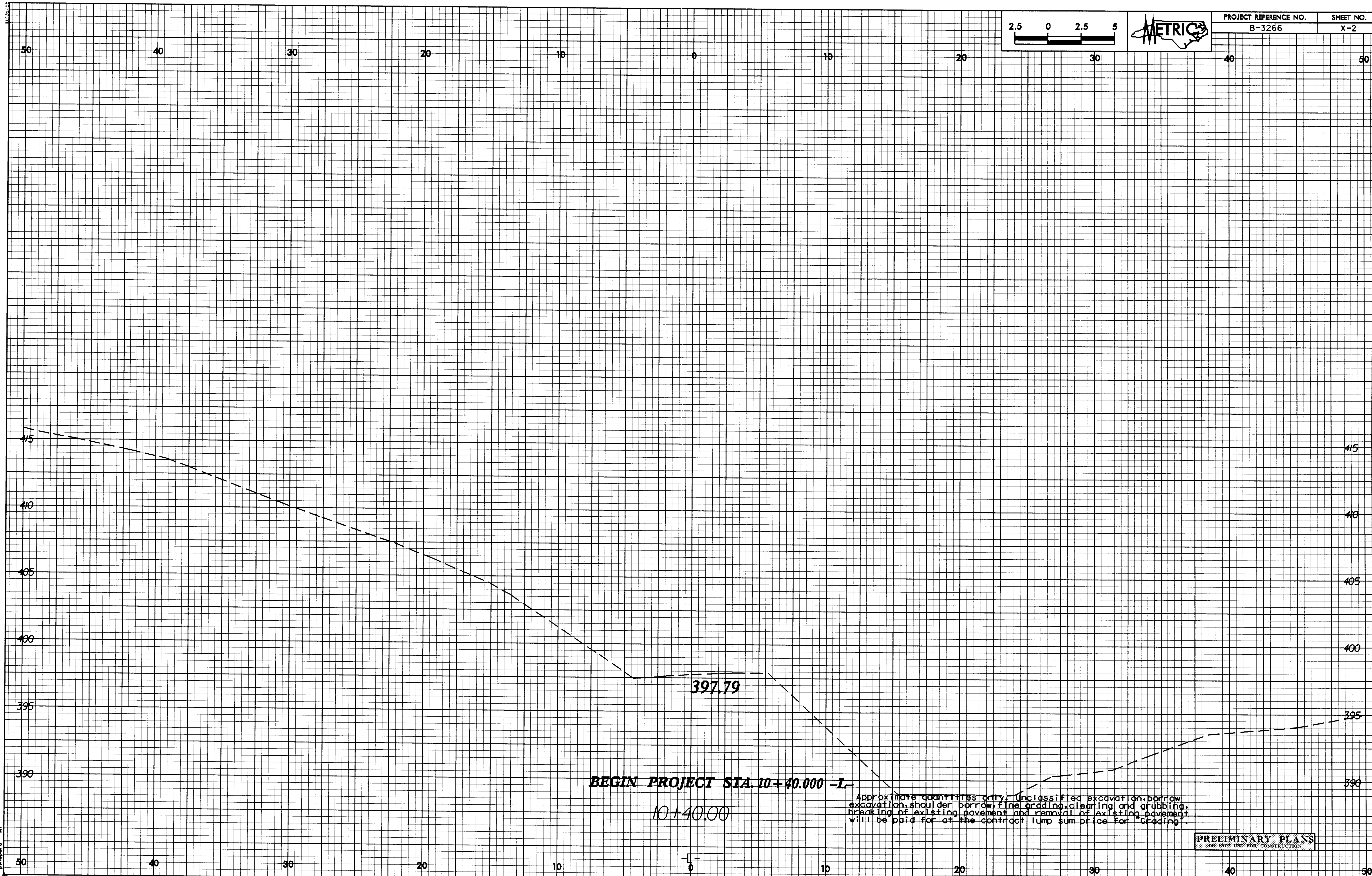


METRIC
PROJECT REFERENCE NO. B-3266
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
CONST. REV.
R/W REV.
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
★ DESIGN EXCEPTION REQUIRED TO REDUCE DESIGN SPEED FROM 100km/h TO 50km/h.
NAD 83
SKETCH SHOWING BRIDGE /PAVEMENT RELATIONSHIP
BEGIN APPROACH SLAB
Sta. 12+10.113
END BRIDGE
Sta. 12+77.000
BEGIN BRIDGE
Sta. 12+18.626
END APPROACH SLAB
Sta. 12+85.449
25:1 P.S. TRANSITION
GRAU 350
TYPE-III
3.6m
0.89m
10.0m MIN.
1.0m
3.6m
7.2m
1.8m MIN.
SHOULDER BERM GUTTER
-L-
PI Sta 10+38.802
Δ = 17° 47' 43.4" (LT)
L = 51.247
T = 25.832
R = 165.000
★PI Sta 11+12.146
Δ = 40° 48' 48.3" (LT)
L = 64.110
T = 33.483
R = 90.000
RO = SEE PLANS
SE = 0.06
★PI Sta 11+80.031
Δ = 27° 53' 55.1" (RT)
L = 73.038
T = 37.258
R = 150.000
RO = SEE PLANS
SE = 0.05
-DR1-
PI Sta 10+31.847
Δ = 57° 10' 33.2" (LT)
L = 9.979
T = 5.449
R = 10.000
RO = SEE PLANS
SE = SEE PLANS
PI Sta 10+16.003
Δ = 24° 11' 21.0" (RT)
L = 21.109
T = 10.714
R = 50.000
RO = SEE PLANS
SE = SEE PLANS
DETAIL C
HEAD DITCH W/PSRM
(Not to Scale)
Min. D = VAR.m
d = 0.45m
B = 0.60m
STA. 11+55 -L- LT.
EST. 14m³ DDE
DETAIL B
SPECIAL CUT DITCH W/PSRM
(Not to Scale)
Min. D = 0.30 m
d = 0.45 m
STA. 10+60 TO STA. 10+80 -L- LT.
DETAIL D
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 0.45m
STA. 11+20 TO STA. 11+80 -L- LT.
STA. 13+60 TO STA. 13+80 -L- RT.
STA. 14+00 TO STA. 14+25 -L- RT.
BEGIN PROJECT B-3266
POC Sta. 10+40.000 -L-
BEGIN CONSTRUCTION
PCSta. 10+05.000 -DR1-
PCSta. 10+05.289 -DR1-
PRCSta. 10+26.398 -DR1-
PTSta. 10+36.377 -DR1-
POTSta. 10+39.690 -DR1-
POCSta. 11+85.777 -L-
POTSta. 10+00.000 -DR1-
PTSta. 10+64.218 -L-
PRCSta. 11+42.773
POTSta. 10+00.000 -L-
PCSta. 10+12.971 -L-
PCSta. 10+78.663 -L-
BEGIN CONSTRUCTION
PCSta. 10+00.000 -DR3-
PTSta. 10+04.159 -DR3-
PTSta. 12+15.811 -L-
PCSta. 10+17.008 -DR3-
END CONSTRUCTION
PTSta. 10+20.949 -DR3-
SITE I
SITE II
SITE III CLASS 'II' RIP RAP WORK PAD PHASE I
SITE II CLASS 'II' RIP RAP WORK PAD PHASE II
SITE IV WORK PAD CLASS 'II' RIP RAP PHASE III WITH 2 @ 1200 CMP AND ELBOW
REMOVE EX. EMBANKMENT EST. 85m³
REMOVE EX. BRIDGE
NORTH FORK REDDIES RIVER
Boyd Huffman
Roy Lee Mitchell
Jerry Wade Royal
MATCH LINE
WOODS
GRASS
PASTURE
DETAIL A
SPECIAL CUT DITCH W/PSRM
(Not to Scale)
Min. D = 0.45 m
d = 0.45 m
STA. 10+40 TO STA. 10+60 -L- LT.
DETAIL E
TAIL DITCH
(Not to Scale)
Min. D = 0.30m
B = 0.60m
STA. 11+70 -L- RT.
EST. 31m³ DDE
DENOTES FILL IN SURFACE WATERS (POND)
DENOTES TEMPORARY FILL IN SURFACE WATERS
DENOTES DRAINED WETLANDS
DENOTES FILL IN SURFACE WATERS (NATURAL)
-DR3-
PI Sta 10+02.330
Δ = 64° 24' 16.3" (LT)
L = 4.159
T = 2.330
R = 3.700
SE = NC
PI Sta 10+19.189
Δ = 61° 01' 47.1" (LT)
L = 3.941
T = 2.181
R = 3.700
SE = NC
NOTES:
1) SEE SHEET 6 FOR -L- & -DR1- PROFILE.
2) SEE SHEET 7 FOR -DR3- PROFILE.
3) SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS.
4) ALL DRIVEWAY RADII ARE 3m UNLESS NOTED OTHERWISE ON PLANS.


PROJECT REFERENCE NO. B-3266
SHEET NO. 5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
METRIC
CONST. REV.
R/W REV.
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
★ DESIGN EXCEPTION REQUIRED TO REDUCE DESIGN SPEED FROM 100km/h TO 50km/h.
DETAIL F
EX. EMBANKMENT REMOVAL
(Not to Scale)
REMOVE
Ex. Shldr.
Shoulder
Ex. Toe of Fill
Natural Ground
4:1 or Steeper
8%
STA. 13+25 TO STA. 13+85 -L- LT.
DETAIL D
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
2:1
4:1
Front Ditch Slope
Min. D = 0.45 m
STA. 11+20 TO STA. 11+80 -L- LT.
STA. 13+60 TO STA. 13+80 -L- RT.
STA. 14+00 TO STA. 14+25 -L- RT.
-L-
★ PI Sta 13+88.508
Δ = 23° 07' 14.5" (RT)
L = 80.706
T = 40.910
R = 200.000
RO = SEE PLANS
SE = 0.05
-DR2-
PI Sta 10+18.214
Δ = 1° 38' 50.8" (RT)
L = 14.377
T = 7.189
R = 500.000
RO = SEE PLANS
SE = SEE PLANS
-DR2- POTSta. 10+00.000
-L- POTSta. 13+29.105
PCSta. 13+47.598 -L-
SITE III
CLASS 'II' RIP RAP
WORK PAD
PHASE I
SITE III
CLASS 'II' RIP RAP
WORK PAD
PHASE II
SITE IV
WORK PAD
CLASS 'II' RIP RAP
PHASE III
WITH 2 @ 1200 CMP AND ELBOW
BEGIN CONSTRUCTION
PCSta. 10+00.000 -DR3-
PTSta. 10+04.159 -DR3-
PTSta. 12+15.811 -L-
PCSta. 10+17.008 -DR3-
END CONSTRUCTION
PTSta. 10+20.949 -DR3-
MATCH LINE STA. 13+00 SEE SHEET 4
Jerry Wade Royal
Ethel A. Lowell
New Light Baptist Church
2 S BK CHURCH
1 S F SUNDAY SCHOOL BUILDING
Boyd Huffman
DB 686 PG 651
Lee Mitchell
REMOVE EX. EMBANKMENT SEE DETAIL F
SP. CUT DITCH W/PSRM SEE DETAIL G
SPECIAL CUT DITCH SEE DETAIL D
40m TRANSITION LT. & RT.
NORTH FORK REDDIES RIVER
VANNOY ROAD
S 61° 48' 51.9" W
S 63° 27' 42.0" W
S 18° 59' 21.5"
PCSta. 10+11.025 -DR2-
PTSta. 10+25.402 -DR2-
END CONSTRUCTION
POTSta. 10+28.000 -DR2-
POTSta. 10+33.557 -DR2-
PTSta. 14+28.304 -L-
END PROJECT B-3266
Sta POT 14+46.008 -L-
NC GRID NAD 83
REMOVE EX. BRIDGE
DETAIL G
SPECIAL CUT DITCH W/PSRM
(Not to Scale)
Natural Ground
2:1
4:1
Front Ditch Slope
PSRM
Min. D = 0.45 m
d = 0.45 m
STA. 13+20 TO STA. 13+60 -L- RT.
STA. 14+25 TO STA. 14+45 -L- RT.
NOTES:
1) SEE SHEET 6 FOR -L- & -DR2- PROFILE.
2) SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS.
3) ALL DRIVEWAY RADII ARE 3m UNLESS NOTED OTHERWISE ON PLANS.
DENOTES FILL IN SURFACE WATERS
DENOTES TEMPORARY FILL IN SURFACE WATERS
DENOTES MECHANIZED CLEARING IN WETLANDS

PROJECT REFERENCE NO.	SHEET NO.
B-3266	X-2

METRIC



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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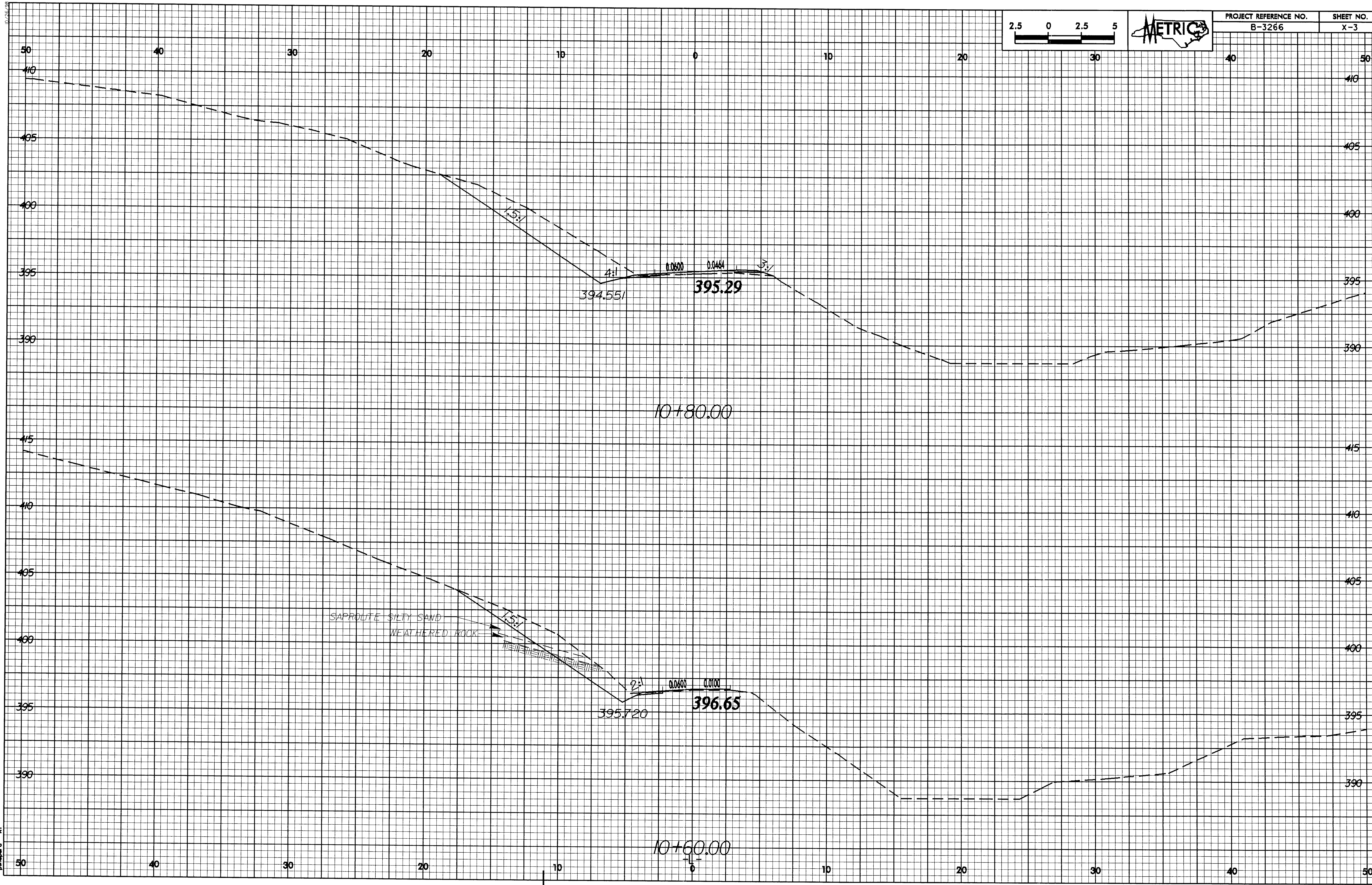
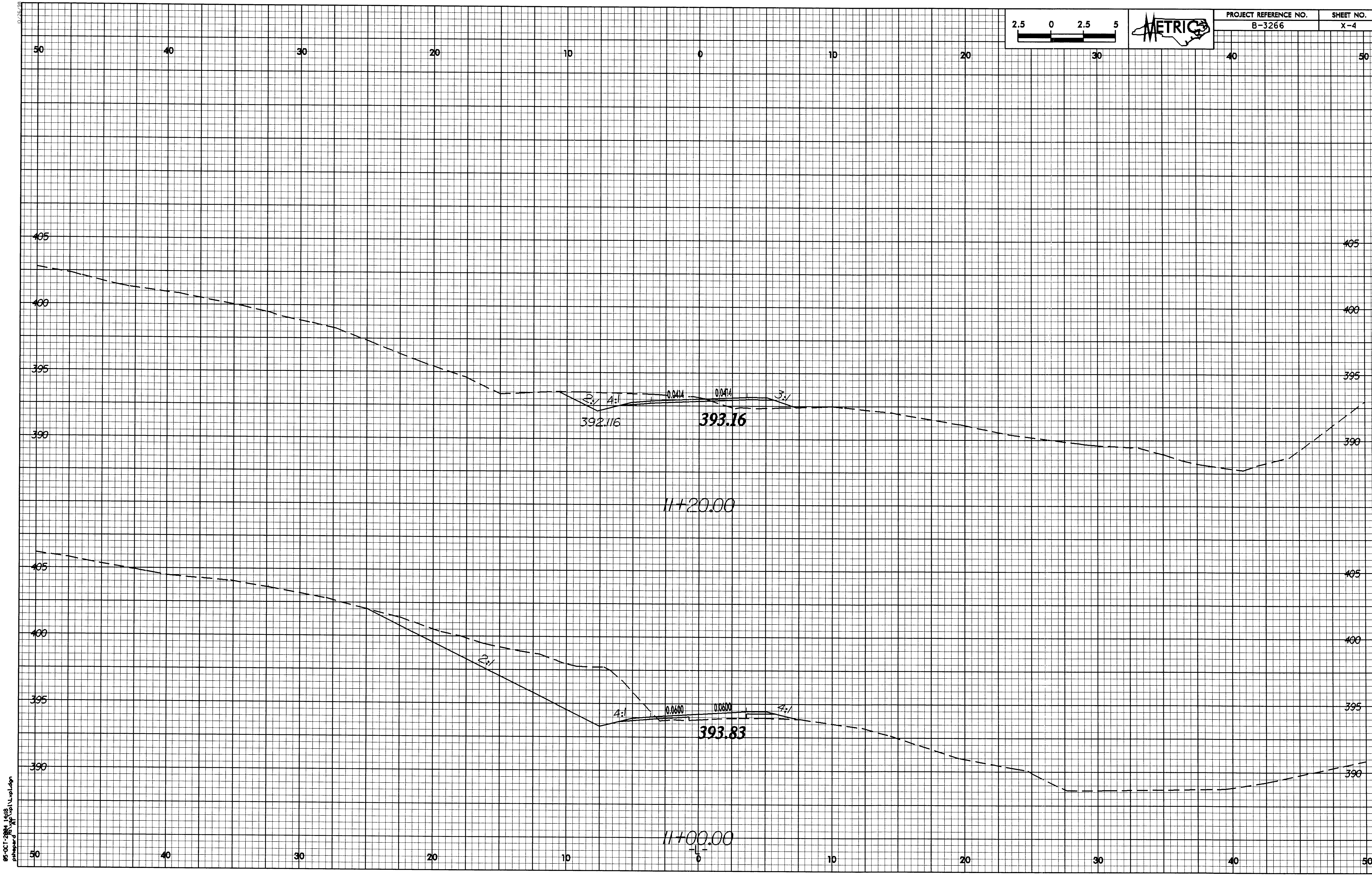
pshepard

PROJECT REFERENCE NO.	SHEET NO.
B-3266	X-3



PROJECT REFERENCE NO.	SHEET NO.
B-3266	X-4

METRIC



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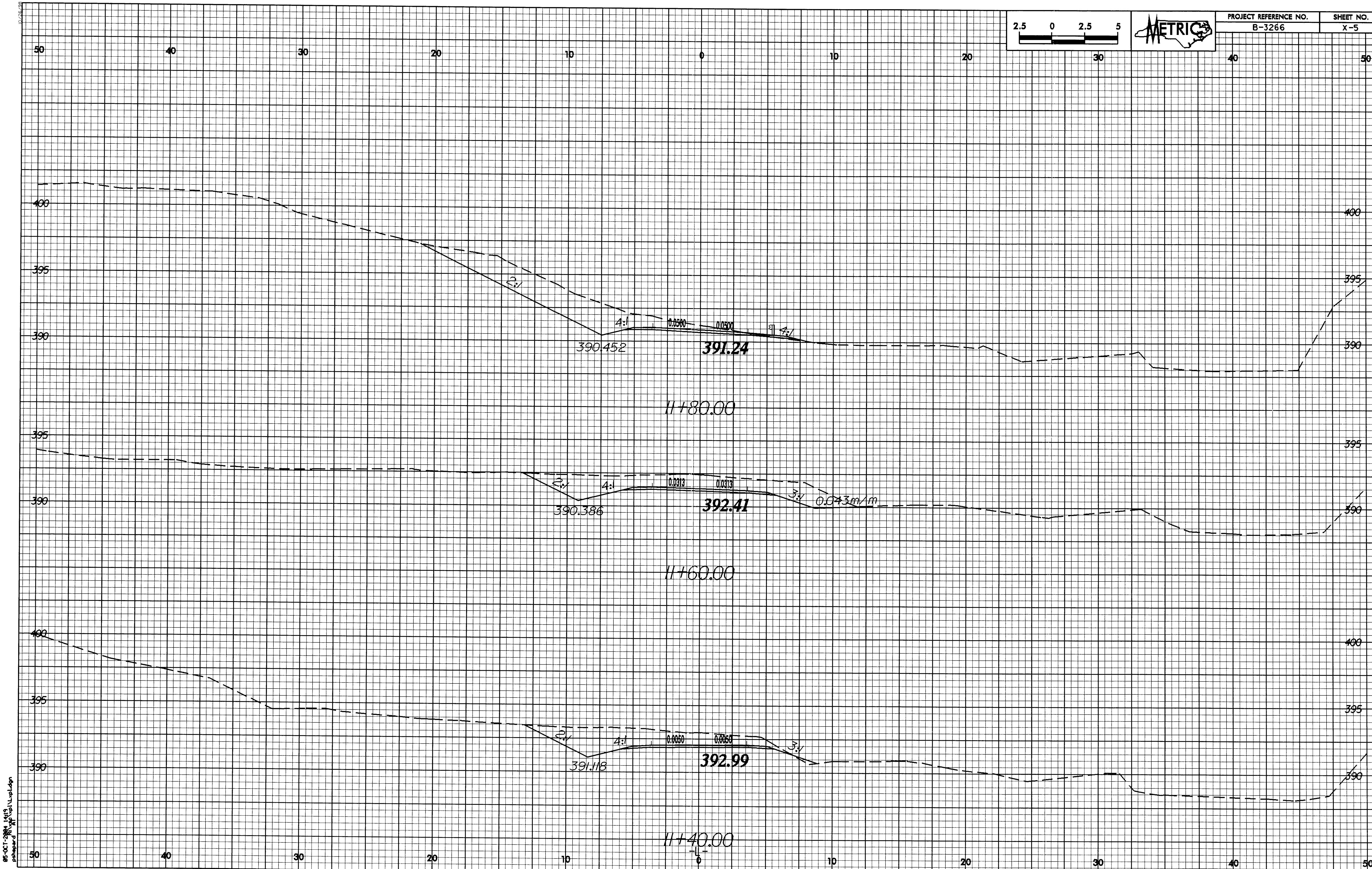
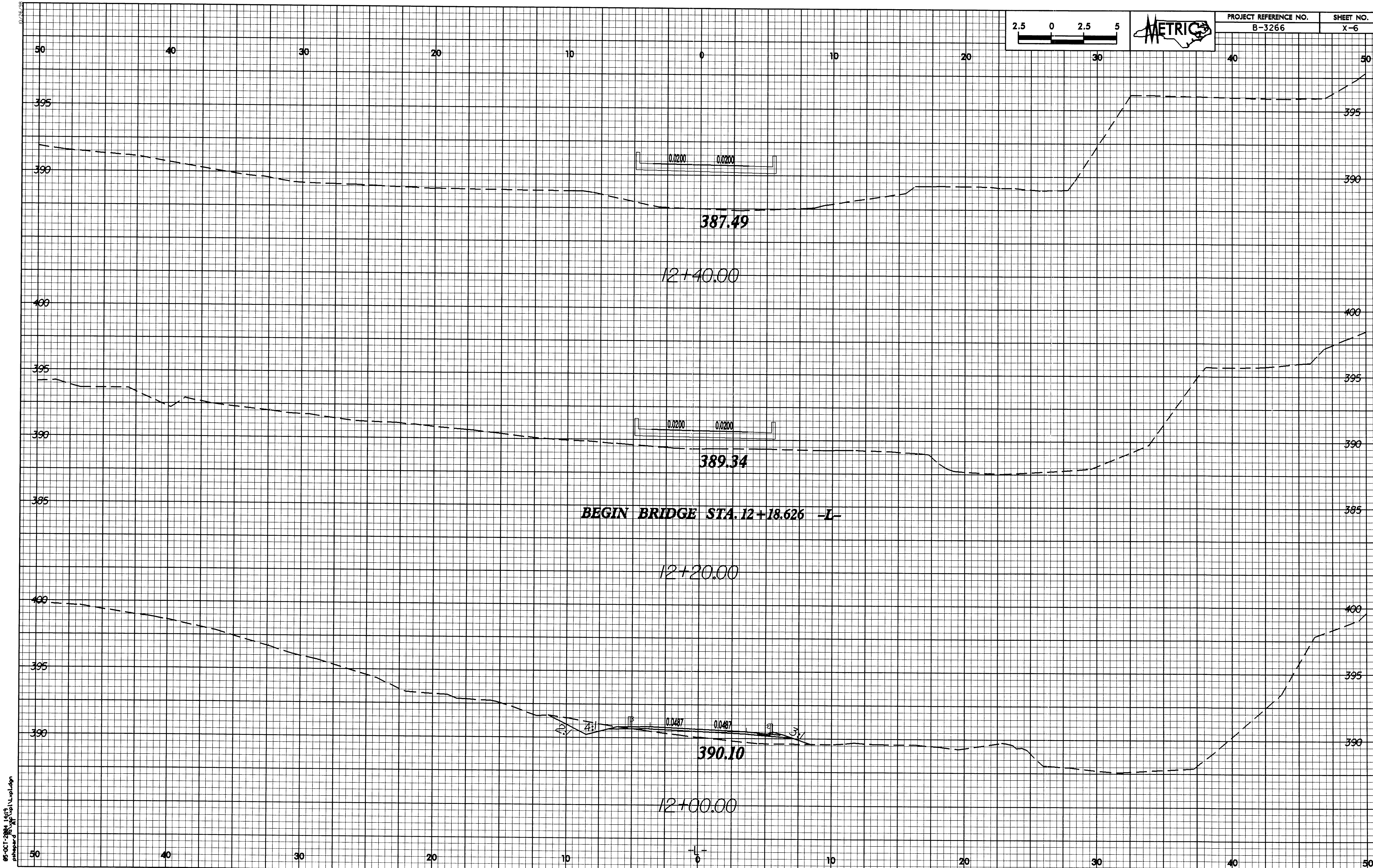
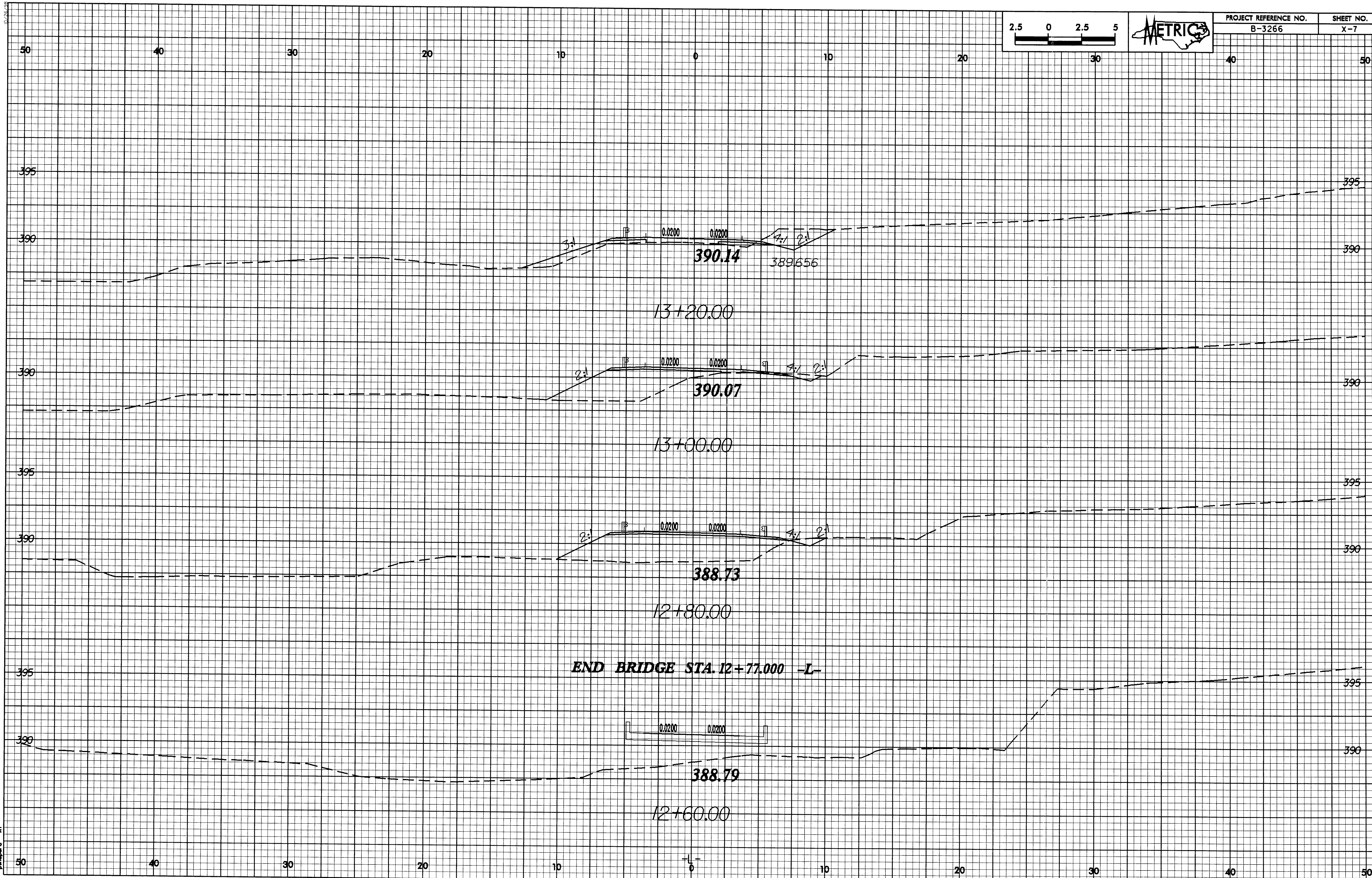
pthepard
R:\xpl\xpl\L.xpl.dgn


PROJECT REFERENCE NO.
B-3266
SHEET NO.
X-5
METRIC
2.5 0 2.5 5
2:1
4:1
0.0500
0.0500
4:1
390.452
391.24
11+80.00
2:1
4:1
0.0313
0.0313
3:1
0.043m/m
390.386
392.41
11+60.00
2:1
4:1
0.0050
0.0050
3:1
391.118
392.99
11+40.00



PROJECT REFERENCE NO.
B-3266
SHEET NO.
X-6
METRIC
2.5 0 2.5 5
0.0200 0.0200
387.49
12+40.00
0.0200 0.0200
389.34
BEGIN BRIDGE STA. 12+18.626 -L-
12+20.00
4:1
0.0487 0.0487
3:1
390.10
12+00.00
-L-



PROJECT REFERENCE NO.
B-3266
SHEET NO.
X-7
METRIC
2.5 0 2.5 5
50 40 30 20 10 0 10 20 30 40 50
395
390
3:1
0.0200
0.0200
4:1
2:1
390.14
389656
13+20.00
2:1
0.0200
0.0200
4:1
2:1
390.07
13+00.00
2:1
0.0200
0.0200
4:1
2:1
388.73
12+80.00
END BRIDGE STA. 12+77.000 -L-
0.0200
0.0200
388.79
12+60.00
-L-

PROJECT REFERENCE NO.	SHEET NO.
B-3266	X-8

METRIC

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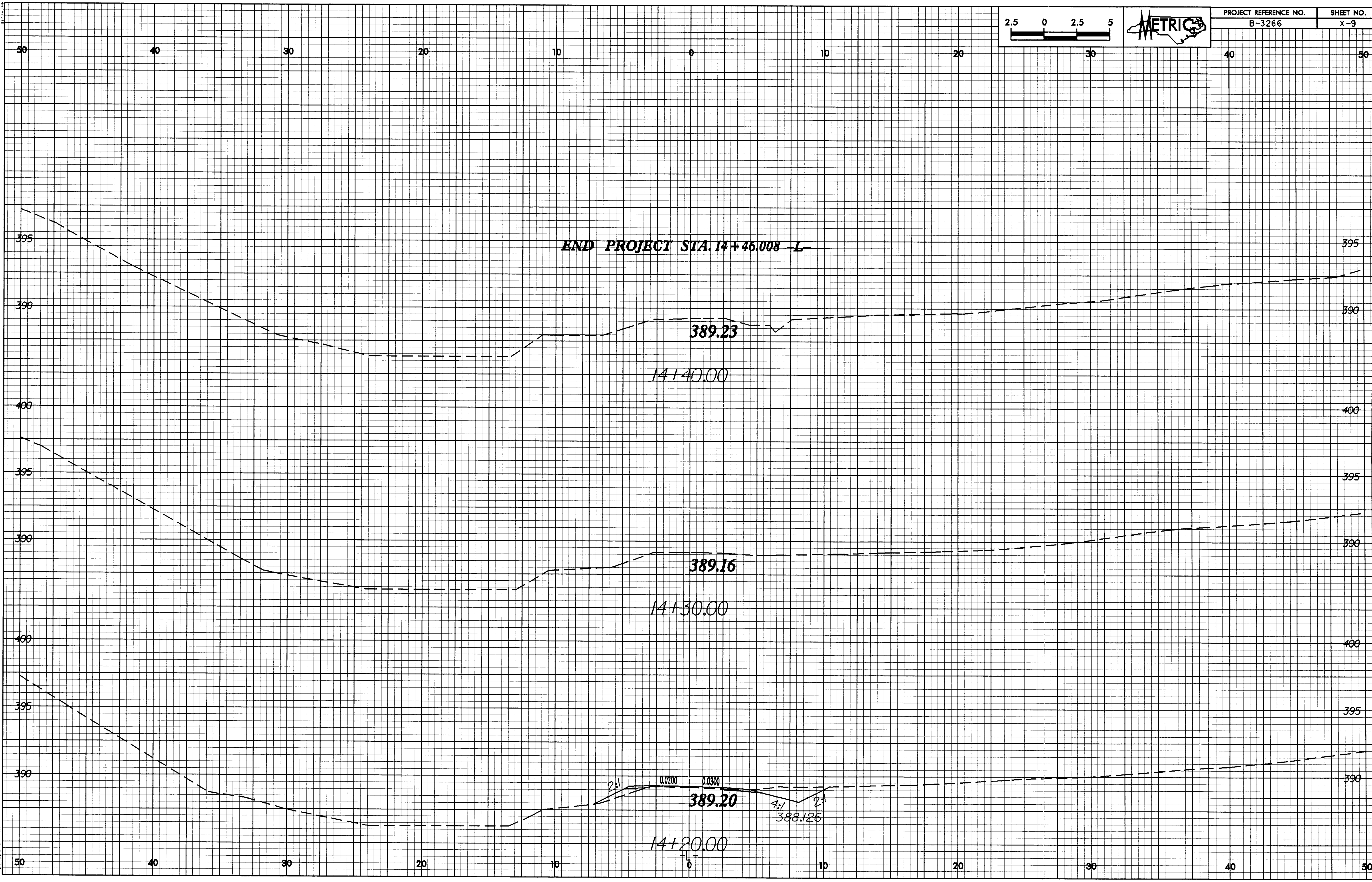
pshepard



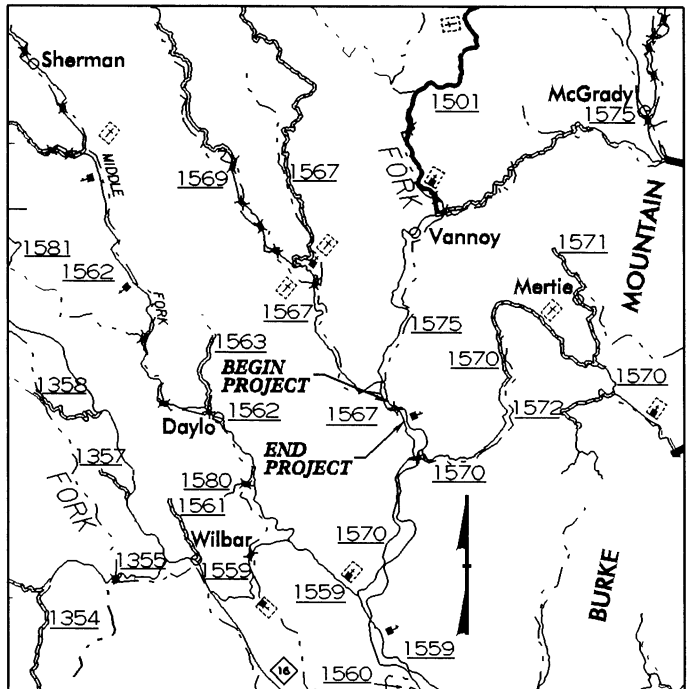
PROJECT REFERENCE NO.
B-3266
SHEET NO.
X-9
METRIC
2.5 0 2.5 5
END PROJECT STA. 14+46.008 -L-
389.23
14+40.00
389.16
14+30.00
0.0200
0.0300
2:1
389.20
4:1
2:1
388.126
14+20.00
-L-
50 40 30 20 10 0 10 20 30 40 50
395
390
400

6/24/99

TIP PROJECT: B-3266

CONTRACT: C201120

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILKES COUNTY

LOCATION: BRIDGE NO. 264 OVER NORTH FORK REDDIES RIVER AND APPROACHES ON SR 1567 (VANNOY ROAD)

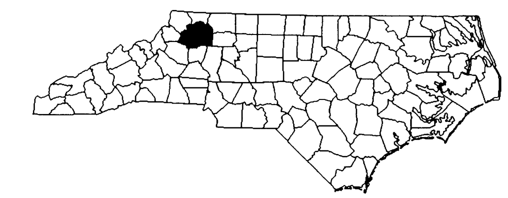
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

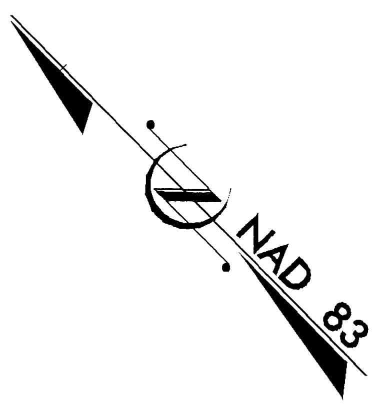
METRIC

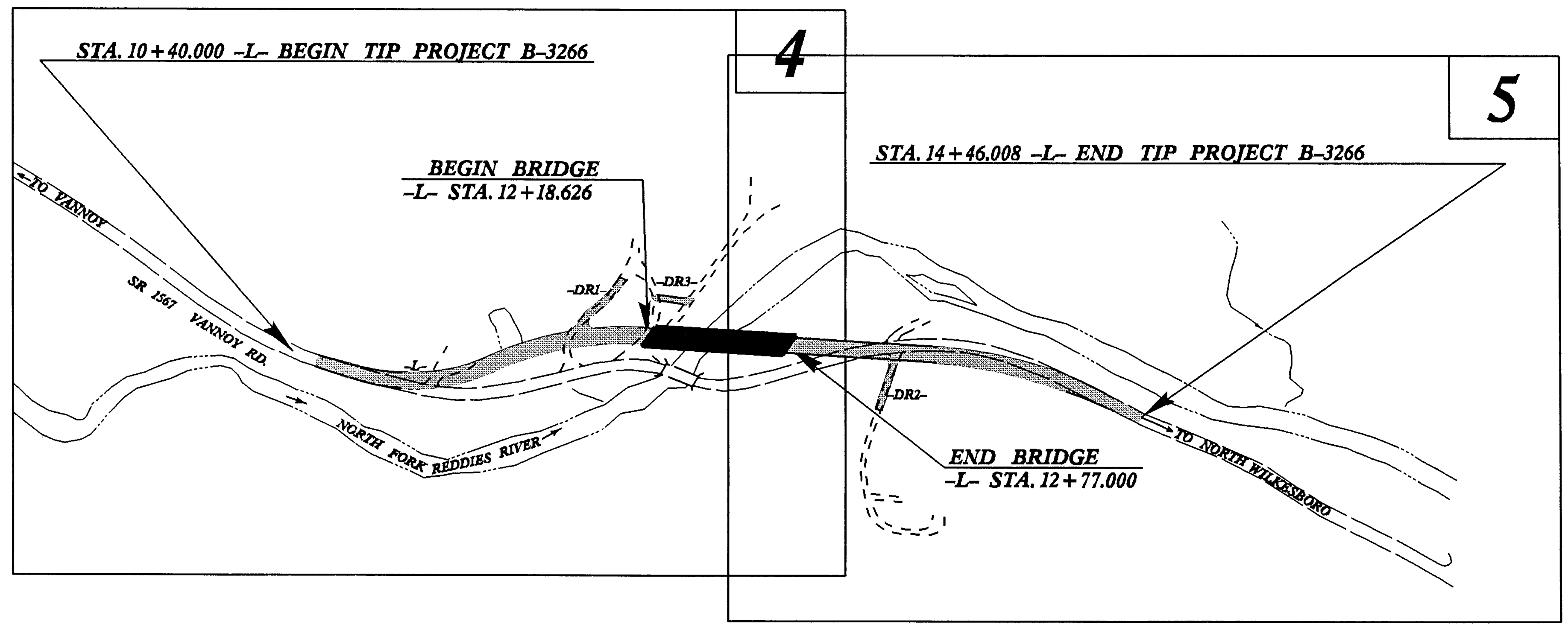
ALL DIMENSIONS IN THESE PLANS ARE IN METERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3266	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
32971.1.1	MABRZ-1567(1)	P.E.
32971.2.1	BRZ-1567(2)	R/W & UTIL







**DESIGN EXCEPTION REQUIRED TO REDUCE DESIGN SPEED FROM 100km/h TO 50km/h.

GRAPHIC SCALES

PLANS: 5 0 10

PROFILE (HORIZONTAL): 5 0 10

PROFILE (VERTICAL): 1 0 2

DESIGN DATA

ADT 2005 = 481
ADT 2025 = 773
DHV = 10 %
D = 60 %
*T = 3 %
**V = 50 km/h
*TTST 1% DUAL 2%
FUNC CLASS = RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3266 = 0.348 km
LENGTH STRUCTURE TIP PROJECT B-3266 = 0.058 km
TOTAL LENGTH OF TIP PROJECT B-3266 = 0.406 km

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 BIRCH RIDGE DR., RALEIGH, NC 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 30, 2004

LETTING DATE: FEBRUARY 15, 2005

GLENN W. MUMFORD, P.E.
PROJECT ENGINEER

JEFFREY L. TEAGUE, E.I.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE:

ROADWAY DESIGN ENGINEER

SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 60 mm ASPHALT CONC. SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 72 kg PER SQ. METER IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 2.40 kg PER SQ. METER PER 1 mm DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 30mm IN DEPTH OR GREATER THAN 40mm IN DEPTH
E1	PROP. APPROX. 100 mm ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 245 kg PER SQ. METER.
E2	PROP. VAR. DEPTH ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 2.45 kg PER SQ. METER PER 1 mm DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 75 mm IN DEPTH OR GREATER THAN 140 mm IN DEPTH.
J1	PROP. 150mm AGGREGATE BASE COURSE
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE STANDARD WEDGING DETAILS)

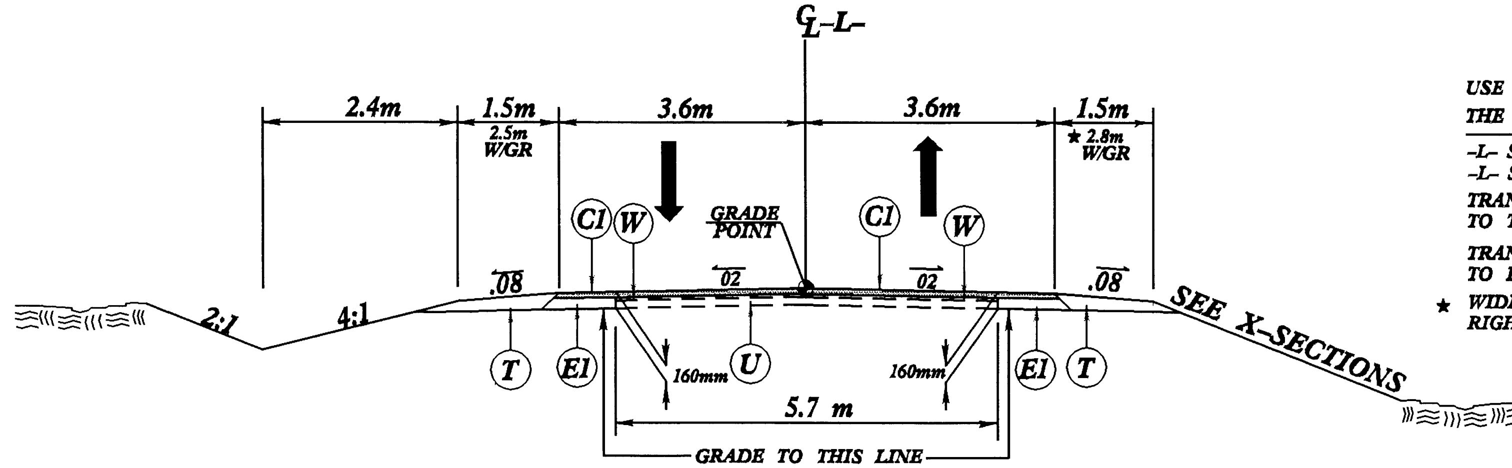
NOTE : PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

METRIC

PROJECT REFERENCE NO.	SHEET NO.
B-3266	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CONST. REV.

R/W REV.



TYPICAL SECTION NO. 1

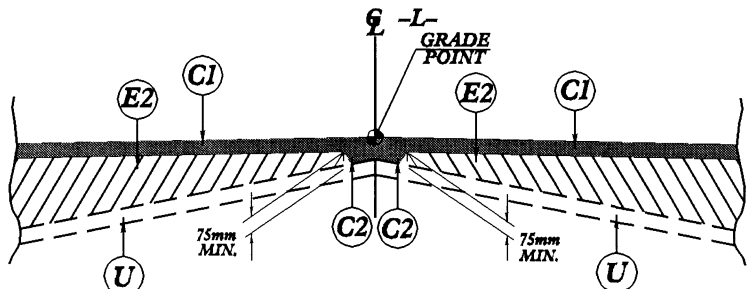
USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:

-L- STA. 11+00.000 TO 11+20.000
-L- STA. 13+00.000 TO 13+90.000

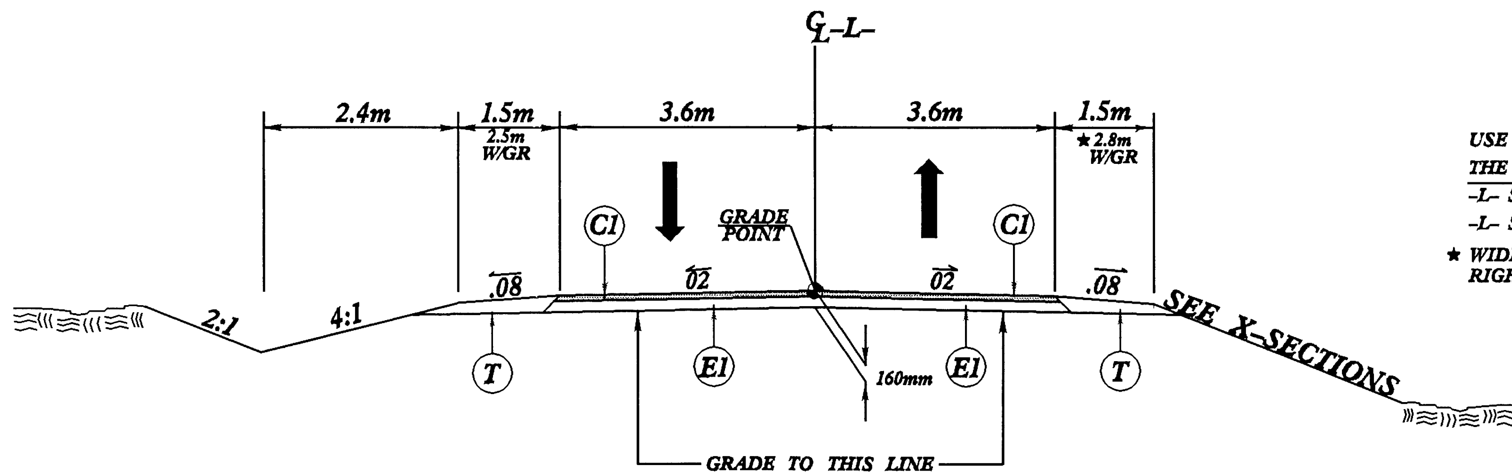
TRANSITION FROM EXISTING @ -L- STA. 10+60.000 TO TYPICAL NO. 1 @ -L- STA. 11+00.000

TRANSITION FROM TYPICAL NO. 1 @ -L- STA. 13+90.000 TO EXISTING @ -L- STA. 14+30.000

★ WIDEN SHOULDER TO 2.8m MIN. FOR GUARDRAIL RIGHT OF -L- DUE TO CURVE WIDENING ON BRIDGE.



Detail Showing Method of Wedging
USE IN CONJUNCTION WITH TYPICAL NO. 1

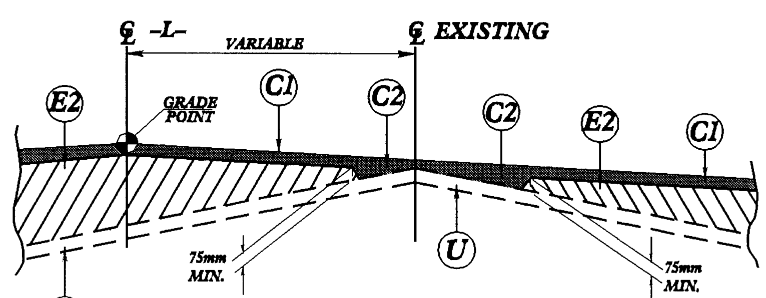


TYPICAL SECTION NO. 2

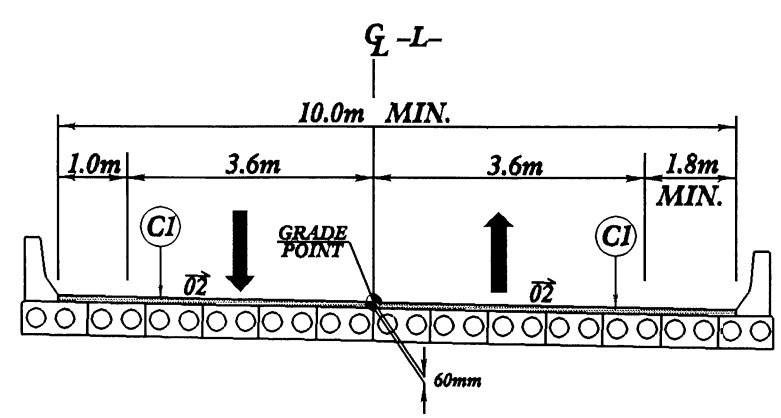
USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:

-L- STA. 11+20.000 TO 12+18.626 +/- (BEGIN BRIDGE)
-L- STA. 12+77.000 +/- (END BRIDGE) TO -L- STA 13+00.000

★ WIDEN SHOULDER TO 2.8m MIN. FOR GUARDRAIL RIGHT OF -L- DUE TO CURVE WIDENING ON BRIDGE.



Detail Showing Method of Wedging
USE IN CONJUNCTION WITH TYPICAL NO. 1



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATIONS:

-L- STA. 12+18.626 +/- BEGIN BRIDGE TO -L- STA. 12+77.000 +/- END BRIDGE.

8/17/99

OCT-2004 09:43
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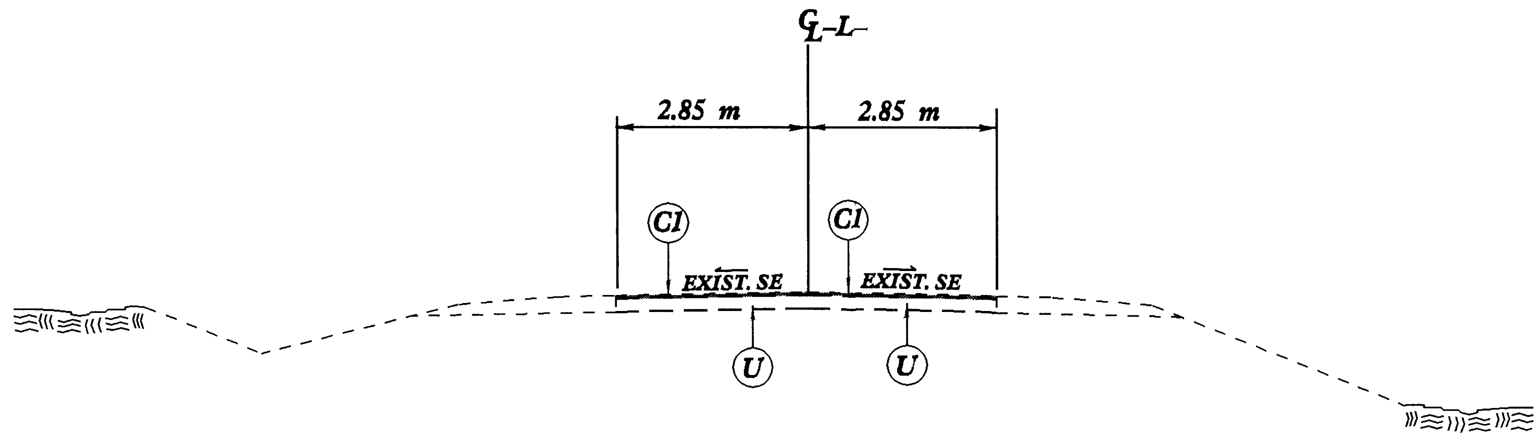
PROJECT REFERENCE NO.	SHEET NO.
B-3266	2-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

CONST. REV.

R/W REV.



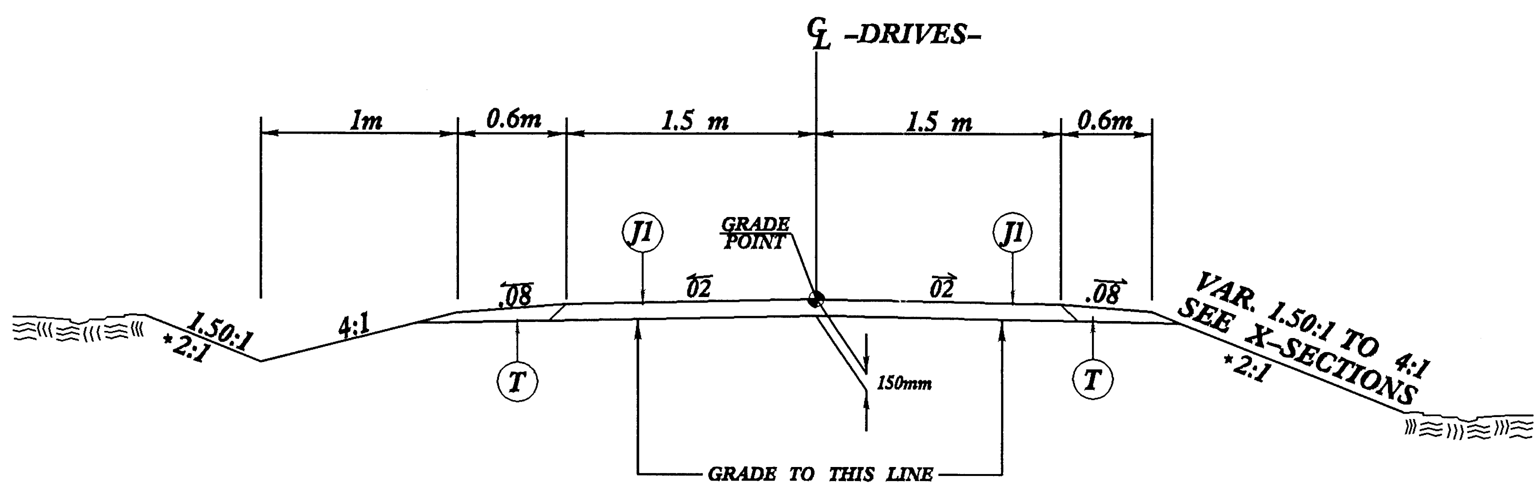
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATIONS:

-L- STA. 14+30.000 TO 14+46.008 (OVERLAY EXISTING PAVEMENT)

PAVEMENT SCHEDULE	
C1	60mm SF9.5A
C2	VAR SF9.5A
E1	100mm B25.0B
E2	VAR B25.0B
J1	150mm ABC
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

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



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 4 AT THE FOLLOWING LOCATIONS:

-DR1- STA. 10+05.000 TO 10+36.377

*-DR2- STA. 10+03.709 TO 10+28.000

*-DR3- STA. 10+00.000 TO 10+20.950

PROJECT REFERENCE NO.	SHEET NO.
B-3266	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

CONST.REV.

R/W REV.

NOTES: 9-23-04 RIGHT OF WAY REVISIONS
1) CHANGE PARCEL NUMBER 02 TO PARCEL NUMBER 01.
1) CHANGE PARCEL NUMBER 04 TO PARCEL NUMBER 03.

★ DESIGN EXCEPTION REQUIRED TO REDUCE DESIGN SPEED FROM 100km/h TO 50km/h.

SKETCH SHOWING BRIDGE / PAVEMENT RELATIONSHIP

BEGIN APPROACH SLAB Sta. 12+10.113
BEGIN BRIDGE Sta. 12+18.626
END BRIDGE Sta. 12+77.000
END APPROACH SLAB Sta. 12+85.449

-L-

PI Sta 10+38.802	★ PI Sta 11+12.146	★ PI Sta 11+80.031
Δ = 17° 47' 43.4" (LT)	Δ = 40° 48' 48.3" (LT)	Δ = 27° 53' 55.1" (RT)
L = 51.247	L = 64.110	L = 73.038
T = 25.832	T = 33.483	T = 37.258
R = 165.000	R = 90.000	R = 150.000
	RO = SEE PLANS	RO = SEE PLANS
	SE = 0.06	SE = 0.05

-DR1-

PI Sta 10+31.847	PI Sta 10+16.003
Δ = 57° 10' 33.2" (LT)	Δ = 24° 11' 21.0" (RT)
L = 9.979	L = 21.109
T = 5.449	T = 10.714
R = 10.000	R = 50.000
RO = SEE PLANS	RO = SEE PLANS
SE = SEE PLANS	SE = SEE PLANS

-DR3-

PI Sta 10+02.330	PI Sta 10+19.189
Δ = 64° 24' 16.3" (LT)	Δ = 61° 01' 47.1" (LT)
L = 4.159	L = 3.941
T = 2.330	T = 2.181
R = 3.700	R = 3.700
SE = NC	SE = NC

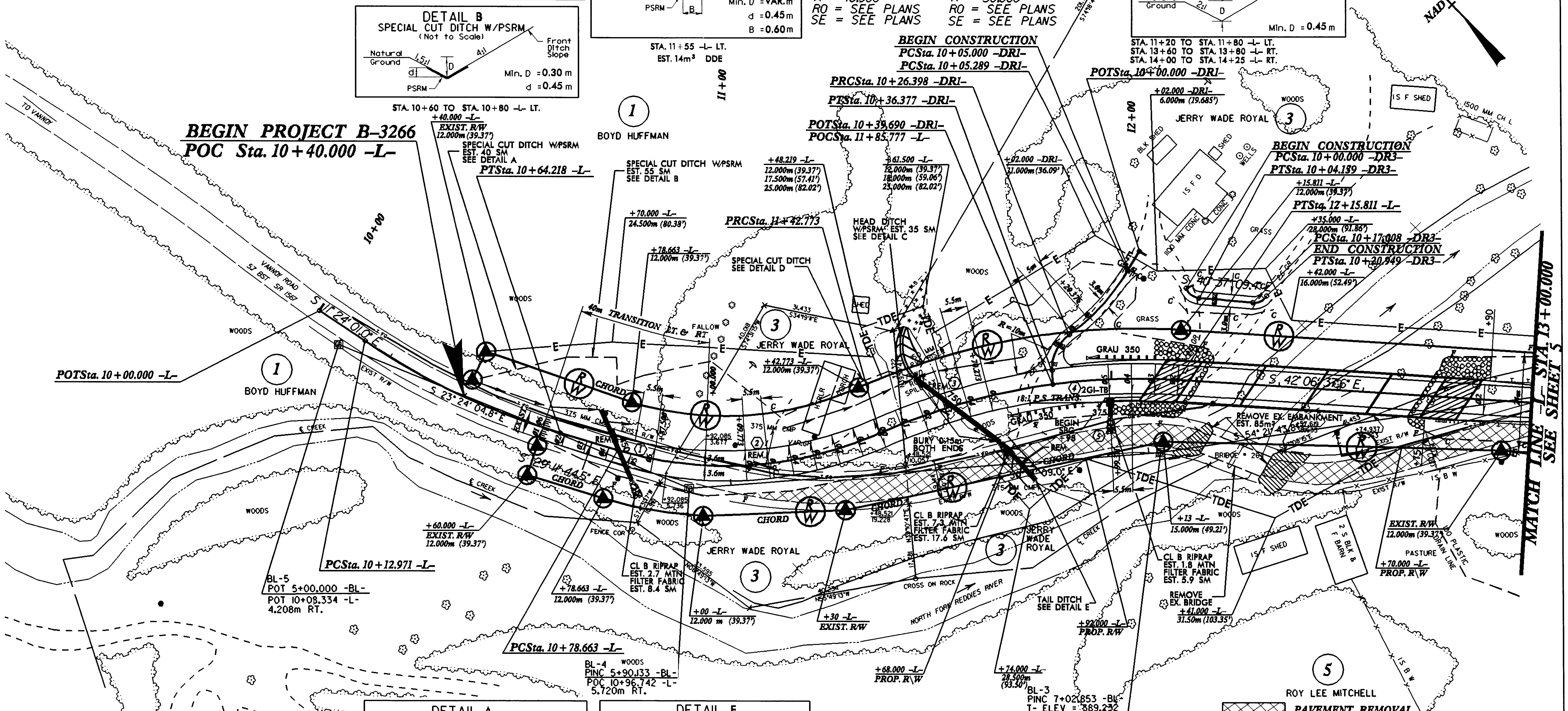
DETAIL A
SPECIAL CUT DITCH W/PSRM (Not to Scale)
Min. D = 0.45 m, d = 0.45 m
STA. 10+40 TO STA. 10+60 -L- LT.

DETAIL B
SPECIAL CUT DITCH W/PSRM (Not to Scale)
Min. D = 0.30 m, d = 0.45 m
STA. 10+60 TO STA. 10+80 -L- LT.

DETAIL C
HEAD DITCH W/PSRM (Not to Scale)
Min. D = VAR. m, d = 0.45 m, B = 0.60 m
STA. 11+55 -L- LT.
EST. 14m³ DDE

DETAIL D
SPECIAL CUT DITCH (Not to Scale)
Min. D = 0.45 m
STA. 11+20 TO STA. 11+80 -L- LT.
STA. 13+60 TO STA. 13+80 -L- RT.
STA. 14+00 TO STA. 14+25 -L- RT.

DETAIL E
TAIL DITCH (Not to Scale)
Min. D = 0.30 m, B = 0.60 m
STA. 11+70 -L- RT.
EST. 31m³ DDE



PAVEMENT REMOVAL

NOTES:

1) SEE SHEET 6 FOR -L- & -DR1- PROFILE.
2) SEE SHEET 7 FOR -DR3- PROFILE.
3) SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS.
4) ALL DRIVEWAY RADII ARE 3m UNLESS NOTED OTHERWISE ON PLANS.

NOTES: 9-23-04 RIGHT OF WAY REVISIONS
1) CHANGE PARCEL NUMBER 03 TO PARCEL NUMBER 04.

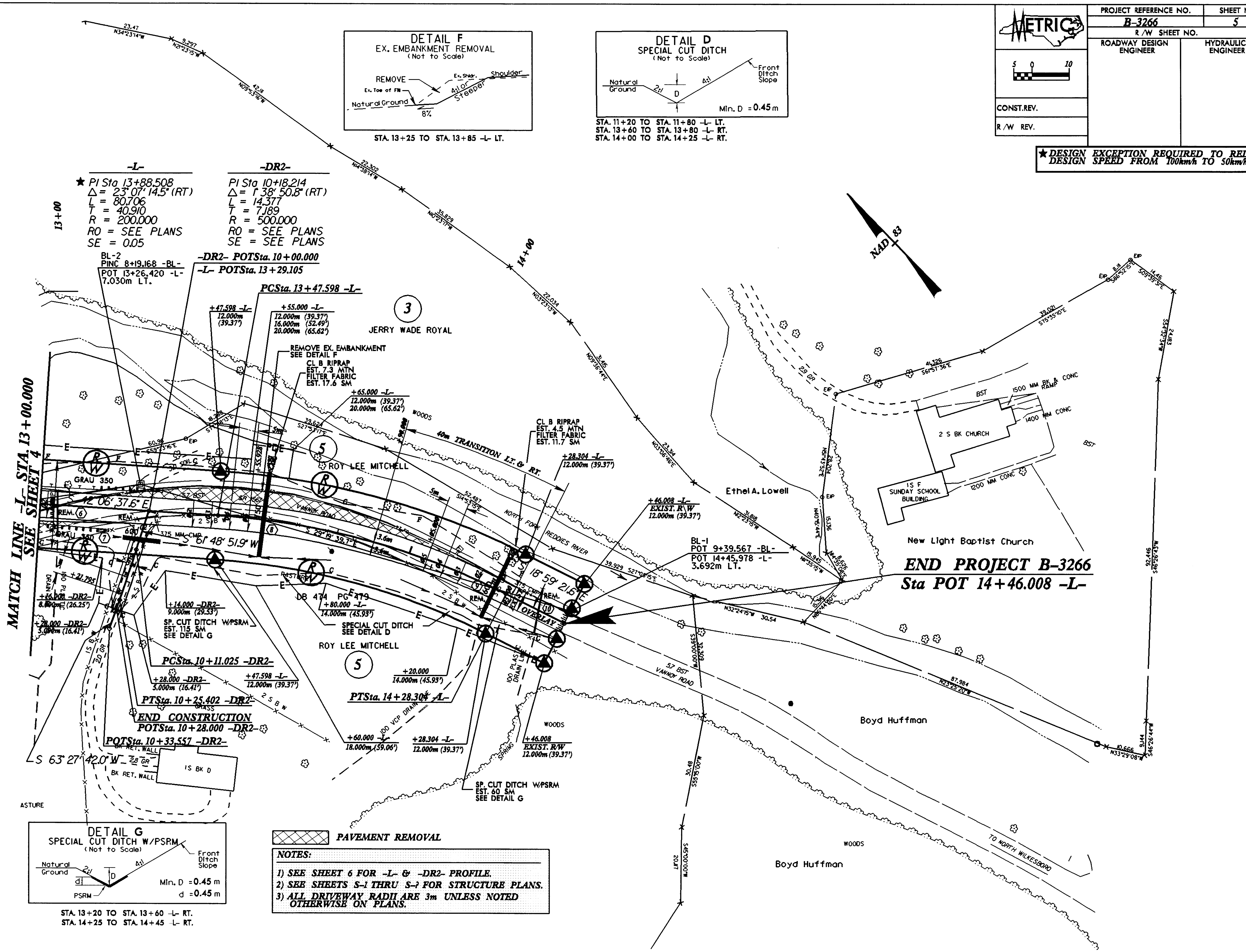
PROJECT REFERENCE NO.	SHEET NO.
B-3266	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

CONST.REV.

R/W REV.

★ DESIGN EXCEPTION REQUIRED TO REDUCE DESIGN SPEED FROM 100km/h TO 50km/h.



PAVEMENT REMOVAL

NOTES:

1) SEE SHEET 6 FOR -L- & -DR2- PROFILE.
2) SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS.
3) ALL DRIVEWAY RADII ARE 3m UNLESS NOTED OTHERWISE ON PLANS.

PROJECT REFERENCE NO. B-3266 — SHEET NO. 6

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

METRIC

CONST. REV.

R/W REV.

DITCH LEGEND

LEFT DITCH — - - -

RIGHT DITCH - - - - -

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 1

DRAINAGE AREA	=	0.91 HA
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	0.125 CMS
DESIGN HW ELEVATION	=	395.04 M
100 YEAR DISCHARGE	=	0.146 CMS
100 YEAR HW ELEVATION	=	395.09 M
OVERTOPPING FREQUENCY	=	200 YRS ±
OVERTOPPING DISCHARGE	=	0.23 CMS
OVERTOPPING ELEVATION	=	395.20 M

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 3

DRAINAGE AREA	=	11.5 HA
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	0.43 CMS
DESIGN HW ELEVATION	=	391.04 M
100 YEAR DISCHARGE	=	0.68 CMS
100 YEAR HW ELEVATION	=	391.17 M
OVERTOPPING FREQUENCY	=	25 YRS ±
OVERTOPPING DISCHARGE	=	0.51 CMS
OVERTOPPING ELEVATION	=	391.10 M

BM-2
RAILROAD SPIKE IN ROOT OF 600 mm SYCAMORE
-L- STA 12+50.518 5.167 m RT
ELEV = 388.742

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	100 CMS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	390.80 M
BASE DISCHARGE	=	150 CMS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	391.33 M
OVERTOPPING DISCHARGE	=	120 CMS
OVERTOPPING FREQUENCY	=	50 YRS
OVERTOPPING ELEVATION	=	390.77 M

ESTIMATED NORMAL WATER SURFACE ELEVATION = 388.05m
DATE OF SURVEY = 7-30-01
WATER SURFACE ELEVATION AT DATE OF SURVEY = 387.72m

★ NOTE: DESIGN EXCEPTION REQUIRED TO REDUCE DESIGN SPEED FROM 100km/h TO 50km/h.

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 8

DRAINAGE AREA	=	3.6 HA
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	0.49 CMS
DESIGN HW ELEVATION	=	388.83 M
100 YEAR DISCHARGE	=	0.58 CMS
100 YEAR HW ELEVATION	=	388.91 M
OVERTOPPING FREQUENCY	=	100 YRS ±
OVERTOPPING DISCHARGE	=	0.58 CMS
OVERTOPPING ELEVATION	=	388.91 M

PI = 11+60.000
EL = 390.530 m
VC = 100 m
★K = 15

PI = 13+00.000
EL = 390.960 m
VC = 60 m
★K = 22

PI = 13+50.000
EL = 389.732 m
VC = 40 m
★K = 13

533mm CORED SLAB
3 SPANS @ 15m 1 SPAN @ 13m
SKEW 120°00'00"
℄ STA. 12+48.000 -L-

BM-1
RAILROAD SPIKE IN BASE OF 450 mm RED MAPLE
BEARING S 68 38'45.51" E DIST. 9.715
TO -L- STA. 10+60.000 ELEV= 389.245

NOTES:
SEE SHEETS 4 AND 5 FOR -L- PLAN VIEW
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

-L-

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 4

DRAINAGE AREA	=	3.6 HA
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	0.49 CMS
DESIGN HW ELEVATION	=	388.54 M
100 YEAR DISCHARGE	=	0.58 CMS
100 YEAR HW ELEVATION	=	388.63 M
OVERTOPPING FREQUENCY	=	200 YRS ±
OVERTOPPING DISCHARGE	=	0.51 CMS
OVERTOPPING ELEVATION	=	388.91 M

PI = 14+16.746
EL = 389.234 m
VC = 26 m
★K = 13

PI = 13+85.000
EL = 389.916 m
VC = 30 m
★K = 11

BM-3
RAILROAD SPIKE IN ROOT OF 600 mm TWIN BIRCH
BEARING N 42°23'56.33" W DIST. 39.984 RT
TO -L- 14+30.000 ELEV= 387.728

NOTES:
SEE SHEET 5 FOR -L- PLAN VIEW

-DR1-

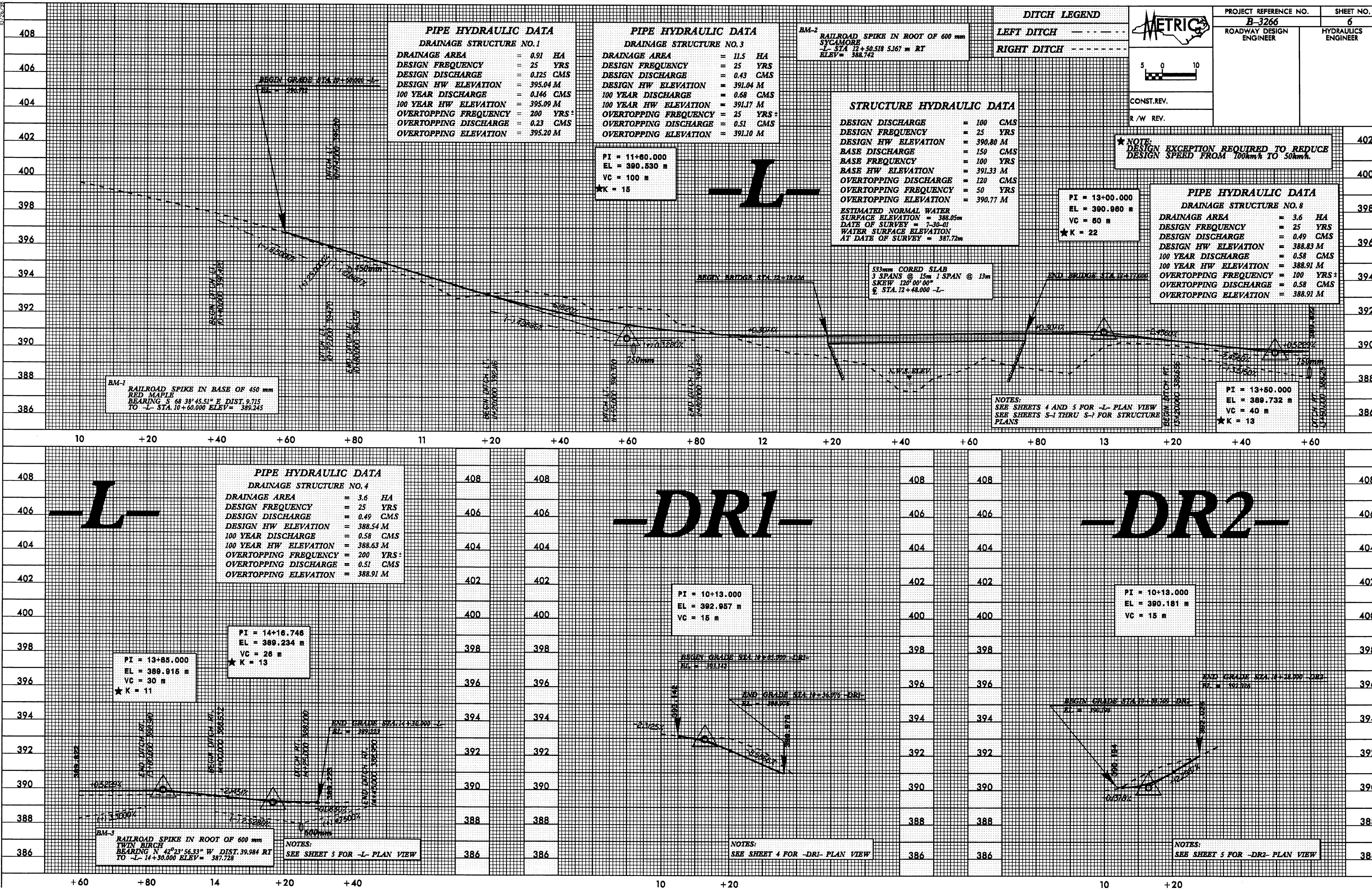
PI = 10+13.000
EL = 392.957 m
VC = 15 m

NOTES:
SEE SHEET 4 FOR -DR1- PLAN VIEW

-DR2-

PI = 10+13.000
EL = 390.181 m
VC = 15 m

NOTES:
SEE SHEET 5 FOR -DR2- PLAN VIEW



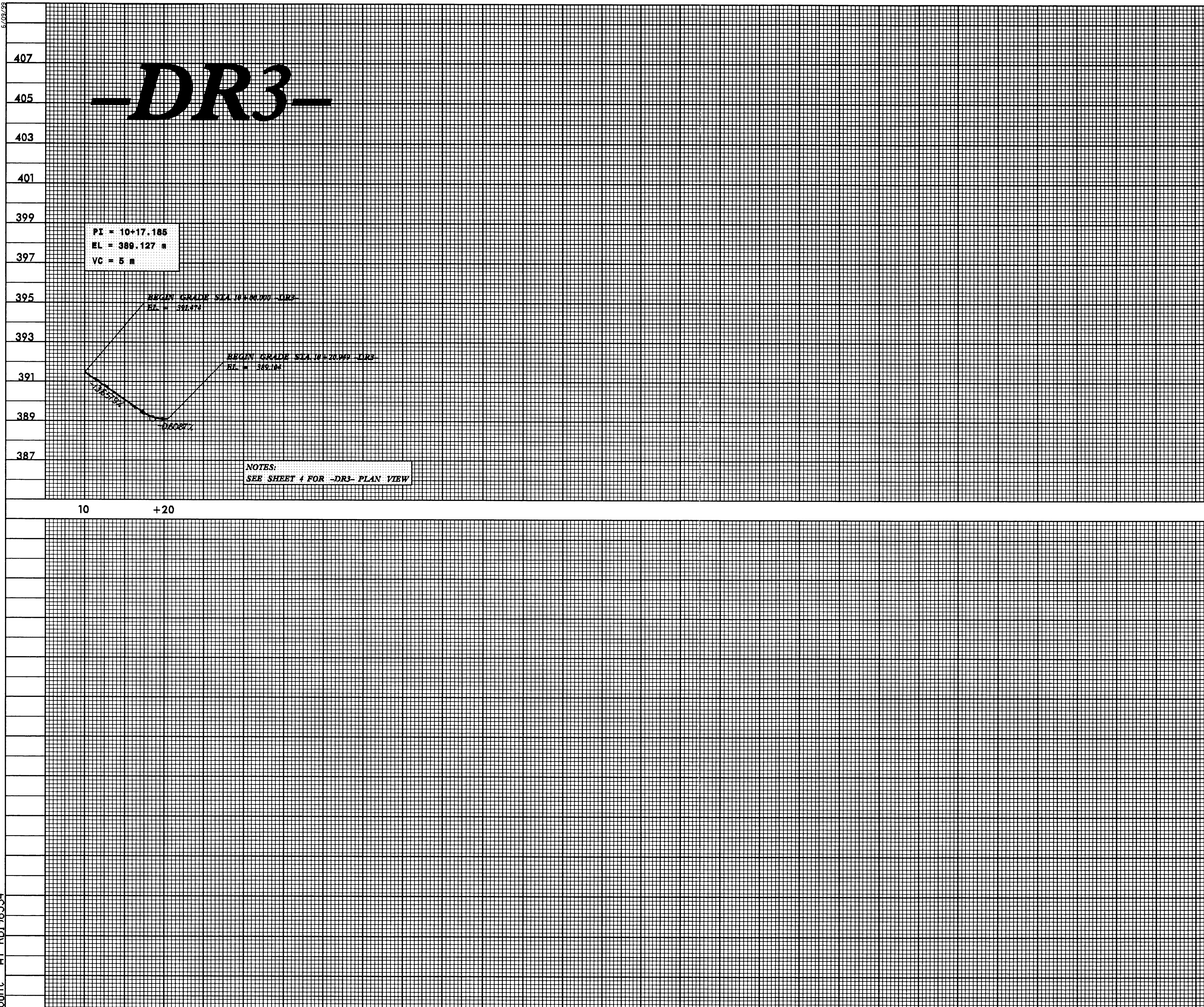
PROJECT REFERENCE NO.	SHEET NO.
B-3266	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

CONST.REV.

R/W REV.

-DR3-



NOTES:
SEE SHEET 4 FOR -DR3- PLAN VIEW

Wilkes County
Bridge No. 264, on SR 1567
Over North Fork Reddies River
Federal Aid Project MABRZ-1567(1)
State Project 8.2761001
TIP Project B-3266

CATEGORICAL EXCLUSION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

AND

N.C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

APPROVED:

11-9-01
Date

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

11/15/01
Date

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

Wilkes County
Bridge No. 264, on SR 1567
Over North Fork Reddies River
Federal Aid Project MABRZ-1567(1)
State Project 8.2761001
TIP Project B-3266

CATEGORICAL EXCLUSION

Documentation Prepared in Project Development and Environmental Analysis Branch By:

11-5-01
Date

Dennis Pipkin
Dennis Pipkin
Project Planning Engineer

11/5/01
Date

William T. Goodwin Jr.
William T. Goodwin, Jr., P.E., Unit Head
Bridge Replacement Planning Unit

11-9-01
Date

Lubin V. Prevatt
Lubin V. Prevatt, P.E., Assistant Manager
Project Development and Environmental Analysis Branch

ENVIRONMENTAL COMMITMENTS:

Wilkes County
Bridge No. 264, on SR 1567
Over North Fork Reddies River
Federal Aid Project No. MABRZ-1567(1)
State Project 8.2761001
TIP Project B-3266

1. PD&EA Branch (Natural Resources Section), Roadway Design Unit, Roadside Environmental Unit, Hydraulics Unit, Resident Engineer:

Trout county coordination: PD&EA (Natural Resources Section) will coordinate specific requirements with NCWRC and the Corps of Engineers.

A moratorium on any in-water work and on any land disturbance within the 25 foot buffer zone on each side of the stream will be observed during the brown trout spawning season of November 1 through April 1 of any year.

Because the project area is located along DWQ designated Water Supply II and Trout Waters, the NCDOT will also follow Design Standards in Sensitive Watersheds (formerly High Quality Water Guidelines).

2. Roadway Design Unit, Roadside Environmental Unit, Resident Engineer:

Revegetation: The existing bridge and approaches will be removed after the new bridge is completed, and the area will be revegetated with appropriate plant species.

3. PD&EA Branch, Roadway Design Unit, Structure Design Unit, Resident Engineer:

Bridge Demolition: The bridge consists of an asphalt overlay wearing surface on a timber deck on steel I-beams. The abutments and the single pier are reinforced concrete. The asphalt overlay will be removed prior to demolition without dropping into the water. The timber and steel components will be removed without dropping into the water. The abutments are normally out of the water, and thus will be removed without dropping into the water. The center concrete pier will contribute approximately 1.5 cubic yards of fill into the water. During construction, Best Management Practices for Bridge Demolition and Removal will be followed.

Wilkes County
Bridge No. 264, on SR 1567
Over North Fork Reddies River
Federal Aid Project MABRZ-1567(1)
State Project 8.2761001
TIP Project B-3266

I. SUMMARY OF PROJECT:

NCDOT proposes to replace Bridge Number 264, in Wilkes County. Bridge Number 264 carries SR 1567 over North Fork Reddies River, in the north central part of Wilkes County. NCDOT and FHWA classify this action as a Categorical Exclusion, due to the fact that no notable environmental impacts are likely to occur as a result of project construction. NCDOT will replace Bridge No. 264 with a new bridge placed on new alignment approximately 60 feet (18 m) east of the existing bridge (Alternate 1). Traffic will be maintained on the existing bridge during construction.

The new bridge will be approximately 140 feet (43 m) in length, and 30 feet (9.2 m) in overall width. A paved travelway of 24 feet (7.2 m) will be accommodated, with an offset of 3 feet (1 m). The approach roadway will have a 24 foot (7.2 m) travelway, with 4 foot (1.2 m) grassed shoulders on each side. Where guardrail is required, shoulders will be increased by a minimum of 3 feet (1 m). The new structure will be approximately 3 feet (1 m) higher in elevation than the existing elevation. The project will require 1300 feet (396 m) of new work on approach roadways. Total project length will be approximately 1440 feet (439 m).

Initial design indicates that the completed project will provide a design speed of 30 mph (50 km/hr).

NCDOT recommends that Alternate1 be constructed, in order to improve design speed, improve sight distance, to maintain traffic on this road which has no available offsite detour, and to provide for replacement at the most economical cost.

The Division 11 Engineer concurs with the selection of the recommended alternate.

SR 1567 is not designated as a bicycle route, and there is no indication that an unusual number of bicyclists use the road.

The estimated project cost is $1,062,000; including $87,000 for Right-of-Way acquisition and $975,000 for construction. The estimated cost projected by the 2002-2008 Transportation Improvement Program is $465,000.

II. ANTICIPATED DESIGN EXCEPTIONS:

It is anticipated that a design exception for design speed will be necessary for this project. The design speed is expected to be 30 mph (50 km/hr). Local topography and alignment considerations dictate that it is not reasonable to further improve design speed for this road segment.

III. EXISTING CONDITIONS

NCDOT classifies SR 1567 as a Rural Local Route in the Statewide Functional Classification System. The land use of the surrounding area is rural residential.

Near Bridge No. 264, SR 1567 is a two lane, paved facility, 18 feet (5.5 m) in width, with 6 foot (2m) wide or greater grassed shoulders on each side. The existing bridge carries two lanes.

Vertical alignment in both directions is good. Horizontal alignment in both directions is poor.

NCDOT built Bridge No. 264 in 1950. The bridge has an asphalt overlay wearing surface on a timber floor on I-beams (low-water type). The abutments and the single pier are reinforced concrete. The deck of Bridge 264 is 6 feet (2 m) above the stream bed. Water depth in North Fork Reddies River is approximately 2 feet (0.6 m) at the bridge vicinity. Bridge 264 is 52 feet (16 m) long, with an 16.7 foot (5 m) roadway width. Two lanes of traffic are carried and the load limit is posted at 19 tons for single vehicles (SV) and 26 tons for Truck-Tractor Semi-Trailers (TTST).

According to NCDOT Bridge Maintenance records, the bridge's sufficiency rating is 27.5 out of a possible 100.0. The current traffic volume is aproximately 450 vehicles per day (VPD), projected to increase to 700 VPD by the design year. No regulatory speed limit is posted in area, therefore it is assumed to be 55 mph by statute. An advisory speed limit for 35 mph is posted for both bridge approaches.

Traffic Engineering accident records indicate there were no vehicle crashes reported in the vicinity of Bridge No. 264 during a recent three year period. The Transportation Director of Wilkes County Schools indicates that there is one school bus that crosses the bridge four times per day, for a total of 4 trips per day. Road closure would create great difficulty for school transportation.

IV. ALTERNATES:

Two methods of replacing Bridge No. 264 were studied. Both alternates involve a replacement structure consisting of a new bridge 30 feet (9.2 m) in overall width.; Alternate 1 would be approximately 140 feet (43 m) in length, and Alternate 2 would be approximately 180 feet (55 m) in length.

The project alternates were studied as follows:

Alternate One: (recommended) - Replace bridge with a new bridge placed on new alignment approximately 60 feet (18 m) east of the existing bridge. Maintain traffic on the existing bridge during construction.

Alternate Two: Replace the bridge near to its existing location and maintain traffic with a temporary detour structure located to the east of the existing bridge.

The "do-nothing" alternate is not practical, requiring eventual closing of the road as the existing bridge completely deteriorates. The sufficiency rating of the existing bridge is only 27.5 out of 100.0. Rehabilitation of the existing deteriorating bridge is neither practical nor economical.

V. COST ESTIMATE

Estimated project costs of the alternates studied are as follows:

	Alternate 1 (Recommended)	**Alternate 2**
Structure (see note)	$149,000	$364,000
Roadway Approaches	469,000	507,000
Structure Removal	7,000	7,000
Temporary Detour	Not Applicable	79,000
Subtotal	**625,000**	**957,000**
Engineering and Contingencies	125,000	200,000
Miscellaneous & Mobilization	225,000	343,000
Total Construction Cost	**975,000**	**1,500,000**
Right-of-Way and Utilities	87,000	115,000
Total Project Cost	$1,062,000	$1,615,000

Note: The new structure for Alternate 2 is longer than that in Alternate 1.

VII. ENVIRONMENTAL EFFECTS

A. General Environmental Effects

The project is considered to be a "Categorical Exclusion" (CE) due to its limited scope and insubstantial environmental consequences.

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

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from construction of the project. There will be one residential relocation as a result of this project, the residence in the northeast quadrant.

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

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

Construction of the project will not have a significant adverse impact on the floodplain or associated flood hazard. The elevation of the 100-year flood will not be increased by more than 12 inches.

NCDOT expects utility conflicts to be low for a project of this size and magnitude.

There are no known hazardous waste sites in the project area.

B. Architectural & Archaeological Resources

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, & implemented by Advisory Council on Historic Preservation's regulations for compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires that if a federally funded, licensed, or permitted project has an effect on property listed on or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation will be given an opportunity to comment.

Architectural Resources

A meeting was held with The State Historic Preservation Office (SHPO) to evaluate potential effects of the project. The SHPO stated that there are no historic structures located within the area of potential effect (APE) for this project, and recommended that no historic architectural surveys be conducted. Thus, it is concluded that the project will have no effect on historic architectural resources. (See appended SHPO letter.)

Archaeological Resources

The SHPO indicated that there are no known recorded archaeological sites within the area of potential effect, and it is unlikely that any archaeological resources could be affected by the project. Therefore, the SHPO recommended that no archaeological investigation be conducted in connection with this project. Thus, it is concluded that the project will have no effect on archaeological resources. (See appended SHPO letter.)

C. NATURAL SYSTEMS

INTRODUCTION

The following sections are taken from the Natural Resources Technical Report submitted for the proposed project. The Natural Resources Technical Report inventories the natural resources that occur within the proposed right-of-way boundaries and describes the potential impacts of the proposed project.

PHYSICAL RESOURCES

Soil and water resources occurring within the study area are discussed below with respect to possible environmental concerns.

Area and Regional Characteristics

Wilkes County lies within the northwestern portion of the Piedmont and Blue Ridge Mountain physiographic regions of North Carolina. Nearly level and gently sloping flood plains and streambeds characterize the topography of the project vicinity. The project vicinity also contains gently sloping to moderately steep colluvial fans and stream terraces adjacent to the flood plains in the mountain valleys. Streams flow in winding courses through narrow to fairly broad flood plains in the mountains (Tuttle, 1997). The project area is situated along a broad flood plain associated with North Fork Reddies River. The project area's elevation falls between 1240-1279 ft (378.0-390.0 m) above mean sea level (msl) [USGS quadrangle map (Horse Gap), 1968].

One soil unit, Rosman-Reddies complex (0-3 percent slopes, occasionally flooded), occurs within the boundaries of the project. This non-hydric soil complex typically contains hydric soil inclusions or wet spots (U.S. Department of Agriculture, Soil Conservation Service, 1991).

Core samples taken throughout the project area revealed sandy loam textured soils. The soils did not exhibit hydric conditions, such as low chroma colors, in low areas of the flood plain. Therefore, hydric soil indicators, as defined in the 1987 Corps of Engineers Wetland Delineation Manual, were not observed within the project study area.

Water Resources

This section contains information about the water resources likely to be impacted by the project. Water resource information includes physical characteristics, best usage standards, and water quality aspects, along with their relationships to major regional drainage systems.

Waters Impacted and Physical Characteristics

North Fork Reddies River will be the only surface water resource directly impacted by the proposed project (Figure 1). The river is located in sub-basin 030701 of the Yadkin - Pee Dee River Basin. North Fork Reddies River is a tributary to Reddies River, and has its confluence with the river approximately 4 mi (6.5 km) linear stream channel distance downstream of Bridge No. 264.

North Fork Reddies River's bank at Bridge No. 264 measures approximately 27 ft (8.2 m) wide and 2-3 ft (0.6-0.9 m) deep. The stream bed at the same location measures approximately 27 ft (8.2 m) wide and 0.3-1.5 ft (0.1-0.5 m) deep. The river's substrate, which lacked any type of algal growth, consists of silt, sand, cobblestones, stones, and boulders. Water within North Fork Reddies River was clear at the time of the survey.

Best Usage Classification

North Fork Reddies River [index no. 12-40-4], from its source to its confluence with the Reddies River, falls under Water Supply II (WS-II), Trout Waters (Tr) (NCDENR, DWQ, Water Quality Section, Water Quality Stream Classifications for Streams in North Carolina, Yadkin – Pee Dee River Basin; 1 September 1998 Internet update). Water Supply II designates waters used as sources of water supply for drinking, culinary, or food processing purposes. The DWQ designates waters as WS-II for water consumers desiring maximum protection of their water supply where a Water Supply I (WS-I) classification is not feasible. Waters classified under WS-II generally occur within predominately undeveloped watersheds. Trout Waters designates freshwaters protected for natural trout propagation and survival of stocked trout. Other than stream buffer zone requirements under the North Carolina Division of Land Resources, no watershed development restrictions are required for North Carolina waters designated under Tr. The trout classification also affects wastewater discharges (NCDENR, DWQ, Water Quality Section, Surface Freshwater Classifications Used in North Carolina; 15 October 1997 Internet update).

Two other streams within the project vicinity are classified by the DWQ as WS-II, Tr. The first stream, Darnell Creek, flows into North Fork Reddies River approximately 1,250 ft (381 m) linear stream distance upstream of Bridge No. 264. The second stream, Mills Creek, forms its confluence with North Fork Reddies River approximately 3,660 ft (1,116 m) linear stream distance

downstream of Bridge No. 264. **Neither High Quality Waters (HQW), Water Supply I (WS-I: undeveloped watersheds), nor Outstanding Resource Waters (ORW) occur within the project vicinity** (NCDENR, DWQ, Water Quality Section, Water Quality Stream Classifications for Streams in North Carolina, Yadkin – Pee Dee River Basin; 1 September 1998 Internet update).

Public Mountain Trout Waters

The North Carolina Wildlife Resource Commission (NCWRC) administers a state fishery management classification in order to provide public access to fishing on private and public lands. Mountain waters that support brook, brown, and rainbow trout and are open to public fishing are designated and managed as public mountain trout waters by the NCWRC. Unlike DWQ's Trout Waters (Tr) classification, which protects water quality, the NCWRC's Public Mountain Trout Waters classification regulates only fishing activities (NCWRC, 1998-1999 North Carolina Inland Fishing, Hunting, & Trapping Regulations Digest, Mountain Trout; undated Internet update).

Public Mountain Trout Waters are classified for management purposes under Hatchery Supported Waters or Wild Trout Waters. Hatchery Supported Waters are periodically stocked with trout in order to sustain fishing. Wild Trout Waters are high quality waters that sustain trout populations through natural reproduction. In order to meet specific management objectives, the NCWRC categorizes some Hatchery Supported Waters or Wild Trout Waters as Special Regulated Trout Waters. Special Regulated Trout Waters are further classified into the following categories: Catch and Release/Artificial Lures Only, Catch and Release/Artificial Flies Only, Wild Trout/Natural Bait, and Delayed Harvest Waters (NCWRC, 1998-1999 North Carolina Inland Fishing, Hunting, & Trapping Regulations Digest, Mountain Trout; undated Internet update).

Wilkes County contains NCWRC designated Public Mountain Trout Waters. North Fork Reddies River is classified within the project area as Hatchery Supported Waters. Darnell Creek is also designated as Hatchery Supported Waters within the project vicinity (NCWRC, 1998-1999 North Carolina Inland Fishing, Hunting, & Trapping Regulations Digest, Mountain Trout and Special Regulated Trout Waters; undated Internet updates).

Water Quality

The DWQ initiated a whole basin approach to water quality management for the 17 river basins within the state of North Carolina. In order to accomplish this goal, the DWQ collects biological, chemical, and physical data for basinwide assessments and planning.

Benthic Macroinvertebrate Ambient Network

Specific river basins within North Carolina are intensively sampled for benthic macroinvertebrates. The Benthic Macroinvertebrate Ambient Network (BMAN) monitors ambient water quality by sampling at fixed sites for selected benthic macroinvertebrates organisms that are sensitive to water quality conditions.

According to the Draft Basinwide Assessment Report Support Document, Yadkin River Basin (NCDEHNR-DEM, 1997), BMAN monitoring sites are not located within the project vicinity or the Reddies River watershed. The watershed includes the north, middle, and south forks of the Reddies River.

North Carolina Index of Biotic Integrity

The North Carolina Index of Biotic Integrity (NCIBI) is a method for assessing a stream's biological integrity by examining the structure and health of its fish community. The NCIBI summarizes the effects of all classes of factors influencing aquatic faunal communities. The index incorporates information about species richness and composition, trophic composition, fish abundance, and fish condition (NCDEHNR-DEM, 1997).

According to the Draft Basinwide Assessment Report Support Document, Yadkin River Basin (NCDEHNR-DEM, 1997), NCIBI fish community monitoring sites are not located within the project vicinity. However, one NCIBI fish community monitoring site is located within the project region. Located at the intersection of North Fork Reddies River and SR 1501, the NCIBI monitoring site sits approximately 2.9 mi (4.7 km) linear stream distance north of Bridge No. 264. The monitoring site, which was sampled on 22 May 1996, received an NCIBI score of 50 and an NCIBI rating of Good. Rainbow trout (Oncorhynchus mykiss), brown trout (Salmo trutta), and brook trout (Salvelinus fontinalis) were collected at the monitoring site, as well as fantail darter (Etheostoma flabellare), the most abundant fish species at the site. The monitoring site contained a notable absence of piscivores such as smallmouth bass (Micropterus dolomieu) and rock bass (Ambloplotes cavifrons). The site also contained less than expected numbers of darters and intolerant fish species (NCDEHNR-DEM, 1997).

Fish Tissue Analysis

According to the Draft Basinwide Assessment Report Support Document, Yadkin River Basin (NCDEHNR-DEM, 1997), fish tissue monitoring sites are not located within the project vicinity or the Reddies River watershed.

Water Quality Survey

According to the Draft Basinwide Assessment Report Support Document, Yadkin River Basin (NCDEHNR-DEM, 1997), water quality survey sites are not located within the project vicinity or the Reddies River watershed.

Point Source Dischargers

DWQ data obtained through the NC Center for Geographic Information and Analysis lists no facilities that obtained a General NPDES Permit in the project vicinity.

According to DWQ data obtained through the NC Center for Geographic Information and Analysis, non-discharge systems did not obtain NPDES permits within the project vicinity.

Non-Point Source Dischargers

The NCDOT field investigators conducted a visual observation of any potential NPS discharges located within or near the project area. Atmospheric deposition and hydrocarbon and chemical runoff from nearby driveways were identified as potential sources of NPS pollution near the project area. The field investigators did not observe any agriculture, construction, or land clearing activities near the project area.

Summary of Anticipated Water Resource Impacts

Construction activities may result in the following surface water impacts:

- Erosion within the project area, which ultimately leads to increased downstream sedimentation and siltation.
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
- Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.
- Changes in and destabilization of water temperature due to streamside vegetation removal.
- Increased nutrient loading via runoff from exposed construction areas.
- Increased toxic chemical concentrations from highway runoff, construction, and chemical releases.
- Increased potential for hydrocarbon and other toxic chemical releases occurring from construction equipment and other vehicles.
- Alteration of stream discharge due to silt loading and surface and ground water drainage pattern changes.

In addition to environmental impacts within the project area, proposed bridge construction may also impact water resources downstream of the project area, including Reddies River and other sections of North Fork Reddies River. Downstream impacts are difficult to quantify, and depend on numerous factors, including construction techniques, mitigation efforts, weather conditions, and terrestrial and aquatic communities present.

In order to minimize potential impacts to water resources in the project area, the NCDOT's Best Management Practices (BMPs) for the Protection of Surface Waters will be strictly enforced during the project's construction phase. Guidelines for BMPs include minimizing built upon areas and diverting stormwater away from surface water supplies. In addition to the BMPs, revegetating stream banks after grading and limiting in-stream activities further reduce water resource impacts. Because the project area is located along DWQ designated Water Supply II and Trout Waters, the NCDOT will also follow Design Standards in Sensitive Watersheds (formerly High Quality Water Guidelines).

BIOTIC RESOURCES

Biotic resources incorporate aquatic and terrestrial communities with associated wildlife. This section describes biotic communities encountered in the project area.

An asterisk (*) denotes fauna observed during the site visit. Published range distributions and habitat analyses are used in estimating fauna likely to occur within the project area.

Terrestrial Communities

Montane alluvial forest, maintained/disturbed community, and maintained yard comprise the terrestrial communities within the project area. **The project area contains no jurisdictional wetlands.** Community boundaries within the project area are well defined without a significant ecotone situated between them. However, many of the flora and fauna described within a specific biotic community will utilize resources from different communities. For example, faunal species

likely to occur within the project area will exploit all of the project area's communities for shelter, foraging opportunities, or movement corridors.

Montane Alluvial Forest

In general, montane alluvial forests contain alluvial soils and are typically located at stream and river floodplains at moderate to high elevations (Schafale and Weakley, 1990). This project's montane alluvial forest, situated along the western side of SR 1567, comprises most of the west-central and northwestern portion of the project area. North Fork Reddies River flows northwest to southeast through the alluvial forest, and splits the community into two sections along the project area. Over half of the project's alluvial forest lies to the west of Bridge No. 264, with the remaining portion located north-northwest of the bridge. Alternate 1 and Alternate 2 will temporarily and permanently impact this terrestrial community.

Eastern hemlock (Tsuga canadensis), red maple (Acer rubrum), white oak (Quercus alba), and tulip tree (Liriodendron tulipifera) comprise the forest's canopy. Understory species include ironwood (Carpinus caroliniana), American holly (Ilex opaca), tag alder (Alnus serrulata), sourwood (Oxydendrum arboreum), witch-hazel (Hamamelis virginiana), and umbrella tree (Magnolia spp.). Shrubs within the forest include great rhododendron (Rhododendron maximum), Japanese honeysuckle (Lonicera japonica), poison ivy (Toxicodendron radicans), elderberry (Sambucus canadensis) and Hydrangea arborescens. Queen Anne's lace (Daucus carota), Christmas fern (Polystichum acrostichoides), and fescue grasses (Festuca spp.) comprise the herbaceous layer.

Maintained/Disturbed Community

A maintained/disturbed community, situated along the eastern side of SR 1567, comprises most of the central, eastern, and southern portions of the project area impacted by the project. North Fork Reddies River flows northwest to southeast through this community. Alternate 1 and Alternate 2 will permanently and temporarily impact the maintained/disturbed community.

In addition to plant species normally found in a maintained/disturbed community, this project's maintained/disturbed community contains several floral species typically associated with an alluvial community. These alluvial plant species are generally scattered along the margins of North Fork Reddies River. Sycamore (Platanus occidentalis), white pine (Pinus strobus), tulip tree, and black cherry (Prunus serotina) comprise the maintained/disturbed community's canopy. Understory species include tag alder and ironwood. Poison ivy, Japanese honeysuckle, and rose shrubs (Rosa spp.) comprise the shrub layer. Poison ivy also encompasses the vine layer. The herbaceous layer consists of fescue grasses, golden rod (Solidago spp.), wild onion (Allium canadense), and violets (Viola spp.).

Maintained Yard

A maintained yard, situated along the eastern and western sides of SR 1567, comprises the southwestern and northeastern sections of the project area. The community will be temporarily impacted by Alternate 1 and permanently impacted by Alternate 2. Fescue grasses comprise the floral species within this terrestrial community. In order to maintain the yard's appearance, fertilizer and/or herbicide applications may occur in this terrestrial community.

Terrestrial Wildlife

Several species of wildlife inhabit or are likely to inhabit the project area. The following sections list many of these wildlife species.

Lepidopterans

Members of the order Lepidoptera include insects such as moths, skippers, and butterflies. Larval species of Lepidoptera that may be found in the project area include fritillaries (genera Boloria and Speyeria), harvester (Feniseca tarquinius), wild cherry sphinx (Sphinx drupiferarum), imperial moth (Eacles imperialis), and cherry scallop shell moth (Hydria undulata). The larvae of fritillaries inhabit damp and mesic open places and eat mostly violets. Harvester larvae feed on wooly aphids of alders and other trees and shrubs. Early woody bottomlands and streamsides comprise the harvester's habitat. The larvae of wild cherry sphinx utilize cherry trees for food, and hides during most of the day. Imperial moth larvae eat oak, maple, sycamore, sweet gum, and sassafras trees, and inhabit a variety of wooded communities. The larvae of cherry scallop shell moth feeds on and hides in the leaves of cherry trees (Godfrey, 1997).

Amphibians

A variety of amphibian species are likely to occur within the project area's one aquatic and three terrestrial communities. Salamanders commonly found in the communities include the eastern newt (Notophthalmus viridescens), northern dusky salamander (Desmognathus fuscus), mountain dusky salamander (D. ochrophaeus), seal salamander (D. monticola), blackbelly salamander (D. quadramaculatus), pigmy salamander (D. wrighti), two-lined salamander (Eurycea bislineata), three-lined salamander (E. guttolineata), spring salamander (Gyrinophilus porphyriticus), redback salamander (Plethodon cinereus), slimy salamander (P. glutinosus), ravine salamander (P. richmondi), and red salamander (Pseudotriton ruber). Frogs and toads inhabiting the project area may include the American toad (Bufo americanus), Fowler's toad (B. woodhousei), gray treefrog (Hyla chrysoscelis), spring peeper (H. crucifer), upland chorus frog (Pseudacris triseriata), bullfrog (Rana catesbeiana), green frog (R. clamitans), pickerel frog (R. palustris), and wood frog (R. sylvatica) (Martof, et al., 1980).

Reptiles

Numerous reptiles, including turtles, lizards, and snakes, may inhabit the project area. Turtle species inhabiting the project area may include the snapping turtle (Chelydra serpentina) and eastern box turtle (Terrapene carolina). Eastern fence lizard (Sceloporus undalatus), coal skink (Eumeces anthracinus), five-lined skink (E. fasciatus), and broadhead skink (E. laticeps) comprise the four lizards that may inhabit the project area's communities. Finally, several snake species may be found in the project area, including the worm snake (Carphophis amoenus), black racer (Coluber constrictor), ringneck snake (Diadophis punctatus), eastern milk snake (Lampropeltis triangulum), northern water snake (Neridia sipedon), rough green snake (Opheodrys aestivus), queen snake (Regina septemvittata), redbelly snake (Storeria occipitomaculata), eastern garter snake (Thamnophis sirtalis), copperhead (Agkistrodon contortrix), and timber rattlesnake (Crotalus horridus) (Martof, et al., 1980).

Birds

Several avian species are likely to inhabit the project area's communities. The bird species include the mourning dove (Zenaida macroura), black-throated greenwarbler (Dendroica virens), blackburnian warbler (D. fusca), yellow warbler (D. petechia), American redstart (Setophaga ruticilla), tufted titmouse (Parus bicolor), northern cardinal (Cardinalis cardinalis), white-breasted nuthatch (Sitta carolinensis), song sparrow (Melospiza melodia), American crow* (Corvus brachyrhynchos), rufous-sided towhee (Pipilo erythrophthalmus), house wren (Troglodytes aedon), Carolina wren* (Thryothorus lidovicianus), blue jay (Cyanocitta cristata), brown-headed cowbird (Molothrus ater), and common grackle (Quiscalus quiscula) (Peterson, 1980).

Mammals

Mammalian species that may inhabit the communities within the project area include bats, moles and shrews, rodents, and carnivores. The silver-haired bat (Lasionycteris noctivagans), eastern pipistrelle (Pipistrellus subflavus), red bat (Lasiurus borealis), big brown bat (Eptesicus fucus), and little brown bat (Myotis lucifugus) are five bat species that may occur in the project area. Moles and shrews likely to occur within the project's ecological communities include the southeastern shrew (Sorex longirostris), northern short-tailed shrew (Blarina brevicauda), least shrew (Cryptotis parva), hairy-tailed mole (Parascalops breweri), and star-nosed mole (Condylura cristata). Several rodents may inhabit the terrestrial and aquatic communities, including the eastern chipmunk (Tamias striatus), woodchuck (Marmota monax), southern flying squirrel (Glaucomys volans), beaver (Castor canadensis), white-footed mouse (Peromyscus leucopus), hispid cotton rat (Sigmoden hispidus), deer mouse (Peromyscus maniculatus), golden mouse (Ochrotomys nuttalli), house mouse (Mus musculus), meadow vole (Microtus pennsylvanicus), pine vole (M. pinetorum), woodland jumping mouse (Napaeozapus insignis), and meadow jumping mouse (Zapus hudsonius). Raccoon (Procyon lotor), long-tailed weasel (Mustela frenata), red fox (Vulpes fulva), gray fox (Urocyon conereoargenteus), black bear (Ursus americanus), mink (Mustela vison), bobcat (Felis rufus), spotted skunk (Spilogale putorius), and striped skunk (Mephitis mephitis elongata) are carnivores likely to inhabit the project area. Other mammals that may inhabit the project area include the white-tailed deer (Odocoileus virginianus), eastern cottontail (Sylvilagus floridanus), and Virginia opossum (Didelphis virginiana) (Webster, et al., 1985 and Lee, et al., 1982).

Aquatic Communities and Wildlife

One aquatic community, North Fork Reddies River, will be impacted by the proposed project. North Fork Reddies River flows northwest to southeast through the project area. Physical characteristics of the water body and conditions of the water resource influence floral and faunal composition of aquatic communities. Terrestrial communities adjacent to a water resource also greatly influence aquatic communities.

According to A Catalog of the Inland Fishing Waters of North Carolina (Fish, 1969), the section of North Fork Reddies River located within the project area is ecologically classified under Rainbow Trout. Typical stream characteristics of a Rainbow Trout ecological classification include an average width over 10 ft (3.0 m), moderate depth, greater than 5 cubic feet per second (0.1 cubic meter per second) minimum flow, 75° F (24° C) summer water temperature, clear turbidity, and a substrate ranging from sand to boulders. Faunal types that occur in streams classified under Rainbow Trout include rainbow trout, dace, and chubs. In general, the classification describes larger streams with heavy, fast-flowing water.

Fauna associated with the aquatic community includes various vertebrate species. Trout species that may inhabit these waters include rainbow trout (Oncorhynchus mykiss), brook trout (Salvelinus fontinalis), and brown trout (Salmo trutta). Fantail darter (Etheostoma flabellare), tessellated darter (Etheostoma olmstedi), and Piedmont darter (Percina crassa) are three darter species that may inhabit the waters of the project area. Other fish species potentially inhabiting the project area include rosyside dace (Clinostomus funduloides), margined madtom (Noturus insignis), thicklip chub (Hybopsis labrosa), highback chub (H. hypsinotus), bluehead chub (Nocomis leptocephalus), blacknose dace (Rhinichthys atratulus), white sucker (Catostomus commersoni), brown bullhead (Ictalurus nebulosus), redbreast sunfish (Lepomis auritus), smallmouth bass (Micropterus dolomieui), redlip shiner (Notropis chalybaeus), fieryblack shiner (N. pyrrhomelas), and creek chub (Semotilus atromaculatus) (Menhenick, 1991 and NCDEHNR-DEM, 1997).

Summary of Anticipated Biotic Resource Impacts

Construction of the subject project will have various impacts on the aforementioned biotic resources. Any construction related activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies impacts to the natural resources in terms of area impacted and ecosystems affected. This section also discusses temporary and permanent impacts.

Terrestrial Impacts

Project construction will permanently and/or temporarily impact the project area's terrestrial communities due to clearing and paving activities. Table 1 summarizes the project's estimated permanent and temporary impact areas. Calculated impacts to terrestrial communities reflect the relative abundance of each community present in the study area. Estimated impacts are derived from the project lengths as described previously along with the proposed right-of-way width of 60 ft (18 m). However, project construction often does not require the entire right-of-way. Consequently, actual terrestrial community impacts may be considerably less than the impacts in Table 1.

Replacing Bridge No. 264, as proposed under Alternate 1, will result in permanent (i.e., irreversible) ecological impacts to the montane alluvial forest and maintained/disturbed community. All three of the terrestrial communities located within the project area will also be temporarily impacted under Alternate 2. These impacts are temporary because the area impacted by the detour bridge will be restored back to its original condition once construction of Bridge No. 264 is completed. Replacing the bridge under Alternate 1 will result in permanent and temporary impacts to all three terrestrial communities. Once construction of the new bridge is completed, the existing bridge used as a detour will be removed. Table 1 reflects the temporary impacts associated with removing the existing bridge under Alternate 1.

Alternate 1 will result in 0.32 ac (0.13 ha) of permanent impacts and 0.03 ac (0.01 ha) of temporary impacts to the project area's three terrestrial communities. Permanent terrestrial impacts associated with Alternate 2 total 0.05 ac (0.02 ha). Temporary terrestrial impacts under Alternate 2 equal 0.30 ac (0.12 ha). Alternate 1 permanently impacts considerably more terrestrial area than Alternate 2 because this alternate will be constructed on new location. Consequently, Alternate 2 is the least environmentally damaging alternative.

TABLE 1. Anticipated Impacts to Terrestrial Communities

Community	Permanent Impacts Alternate 1	Temporary Impacts Alternate 1	Permanent Impacts Alternate 2	Temporary Impacts Alternate 2
Montane Alluvial Forest	0.01 (0.03)	0.01 (0.02)	0.01 (0.02)	0.01 (0.03)
Maintained/Disturbed	0.01 (0.02)	0.09 (0.21)	0.10 (0.24)	0.00 (0.00)*
Maintained Yard	----	0.03 (0.07)	0.03 (0.07)	----
Totals	**0.02 (0.05)**	**0.12 (0.30)**	**0.14 (0.33)**	**0.01 (0.03)**

Notes: - Impact values cited in acres (hectares).
- Hectare and acre values for a specific community impact may not equate due to rounding of significant figures.
- Total impacts may not equate to the combined individual community impacts due to rounding of significant figures.
- Dashed line (----) means that a community does not exist under a particular impact.
- Asterisk (*) denotes approximately 75 square feet of temporary impacts.

Plant communities found within the proposed project area serve as nesting and sheltering habitat for various types of wildlife. Replacing Bridge No. 264 will reduce habitat for many faunal species, thereby diminishing faunal numbers. Reduced habitat will also displace some wildlife further away from the road. However, impacts to fauna are anticipated to be minimal because of the project's limited size and scope. Unpaved areas modified by construction will become road shoulders containing early successional habitat for certain wildlife. Furthermore, animals temporarily displaced by construction activities will repopulate areas suitable for those species.

Aquatic impacts

Reducing riparian canopy removal, limiting in-stream construction, revegetating exposed soil immediately following grading activities, and strictly adhering to BMPs and design standards in sensitive waters can minimize impacts to aquatic communities.

Bridge construction activities include channeling and scouring a stream's substrate and placing fill material along the project site. These activities often impact aquatic systems by enhancing the likelihood of siltation, erosion, and sedimentation.

The removal of streamside vegetation along the construction site also impacts the aquatic system. Removing streamside vegetation increases direct sunlight penetration, which ultimately elevates water temperatures within the stream. An increase in stream water temperatures often stresses or reduces the population of aquatic organisms.

In addition to environmental impacts within the project area, bridge construction proposed under Alternate 1 and Alternate 2 might also impact aquatic communities downstream of the project area, including Reddies River and other sections of North Fork Reddies River. Downstream aquatic impacts are difficult to quantify, and depend on numerous factors, including construction techniques, mitigation efforts, weather conditions, and terrestrial and aquatic communities present.

JURISDICTIONAL TOPICS

This section provides descriptions, inventories, and impact analysis pertinent to two important issues, waters of the United States and rare and protected species.

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). 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).

Characteristics of Wetlands and Surface Waters

The NCDOT field investigators examined potential jurisdictional wetland communities pursuant to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. Based upon the results of the field investigation, **the project area contains no jurisdictional wetlands**.

North Fork Reddies River is considered a jurisdictional surface water under Section 404 of the Clean Water Act. Bridge construction may result in jurisdictional impacts to the project area's aquatic community. Under Alternate 1, approximately 85 linear ft (26 linear m) of North Fork Reddies River falls within the right-of-way of the permanent bridge, while 50 linear ft (15 linear m) of the river falls within the right-of-way of the temporary bridge. Under Alternate 2, approximately 80 linear ft (24 linear m) of river falls within the right-of-way of the permanent bridge, while 55 linear ft (17 linear m) of North Fork Reddies River falls under the right-of-way of the temporary bridge. Estimated jurisdictional stream impacts are derived from the project lengths as described previously, along with the proposed right-of-way width of 60 ft (18 m). However, project construction often does not require the entire right-of-way. Consequently, actual jurisdictional stream impacts may be considerably less than the impacts presented above.

Permits

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. Nationwide Permit No. 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 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 project's impacts on the waters of the United States will likely require a NWP 23.

Clean Water Act §401 authorizes states to determine whether activities permitted by the federal government comply with state water quality standards. 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). Water Quality Certification No. 3107, which corresponds to NWP 23, will likely be required for the project's impacts to wetlands and waters.

The USACE will also require concurrence with the Wildlife Resources Commission before authorizing a NWP No. 23 for this project. Concurrence is required under a Regional Condition in the Wilmington District for all NWPs in trout counties.

Compensatory Mitigation

Compensatory wetland or stream mitigation will probably not be required for the project. Estimated unavoidable stream impacts under Alternate 1 and Alternate 2 fall below compensatory mitigation levels required by the regulatory agencies. Compensatory mitigation for wetlands will not be required because jurisdictional wetlands do not exist within the project area. The regulatory agencies will ultimately provide final permit and mitigation decisions for the project.

Rare and 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 co-exist with human activities. Federal law (under the provisions of the Endangered Species Act (ESA) of 1973, as amended) requires that any action likely to adversely affect a species classified as federally protected be subject to review by the FWS. Other species may receive additional protection under separate state laws.

Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the 1973 ESA, as amended. As of March 22, 2001, the FWS lists one federally-protected species for Wilkes County. Table 2 outlines the one species. A brief description of the species' characteristics and habitat follows the table.

Table 2. Federally-Protected Species for Wilkes County

COMMON NAME	SCIENTIFIC NAME	STATUS
Bog turtle	Clemmys muhlenbergii	T(S/A)

Note for federally-protected species:

"**T(S/A)** denotes **Threatened Due to Similarity of Appearance**, and is defined as a species that is threatened due to similarity of appearance with other rare species. Even though these species are listed for their protection, they are not biologically endangered or threatened and are not subject to consultation under the Endangered Species Act (ESA) §7.

Clemmys muhlenbergii (Bog turtle) **T(S/A)**
Animal Family: Emydidae
Date Listed: 01 May 1997

The bog turtle is North Carolina's smallest turtle, measuring 3 to 4 in (7 to 10 cm) in length. It has a dark brown carapace and a black plastron. The bright orange or yellow blotch on each side of the head and neck is a readily identifiable characteristic. The bog turtle inhabits damp grassy fields, bogs and marshes in the mountains and western piedmont.

The proposed project will not impact the bog turtle because its habitat does not exist within the project area. Also, a review of the NHP database maps of rare species and unique habitats on 10 December 1998 revealed no records of the bog turtle within the project vicinity.

The bog turtle is listed as T(S/A). This designation is due to the bog turtle's similarity of appearance to another rare species currently listed for protection. Species designated under T(S/A) are not subject to Section 7 consultation. Therefore, a biological conclusion for this species is not required.

Federal Species of Concern

Federal Species of Concern (FSC) are not afforded federal protection under the ESA and are not subject to any of its provisions, including Sections 7 and 9, until they are formerly proposed or listed as Threatened or Endangered. Federal Species of Concern are defined as those species that may or may not be listed in the future. These species were formally candidate species, or species under consideration for listing for which there was insufficient information to support a listing of Endangered, Threatened, Proposed Endangered (PE), and Proposed Threatened (PT). Organisms listed as Endangered, Threatened, or Special Concern (SC) by the NHP's List of Rare Plants of North Carolina and List of Rare Animals of North Carolina are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979. The NHP also tracks and lists Significantly Rare (SR) species as FSC. North Carolina provides no legal state protection for species classified under Significantly Rare (Amoroso, 1997 and LeGrand, et al., 1997).

The NHP's North Carolina Plant Watch List and North Carolina Animal Watch List supplement the Lists of Rare Plants and Animals of North Carolina. Species listed under the Plant and Animal Watch Lists are still considered FSC, even though current information does not justify placement on the main FSC list as Endangered, Threatened, Special Concern, or Significantly Rare. The Plant Watch List includes plant species that are rare or otherwise threatened with serious decline. Floral species placed on the Watch List fall into one of seven watch categories (W1-W7). The Animal Watch List includes animal species that are rare or uncommon, not well-studied, or otherwise threatened with serious decline. Faunal species placed on the Watch List fall into one of five watch categories (W1-W5). The NHP maintains paper files of these plant and animal species, but does not include them in its map and computer files (Amoroso, 1997 and LeGrand, et al., 1997).

Table 3 lists the FSC, including species on the Plant and Animal Watch Lists, along with the species state status or watch category, and the existence of suitable habitat for each species in the project area. As of March 22, 2001, the FWS lists three FSC for Wilkes County. This species list is provided for informational purposes only. The status of these species may be upgraded in the future.

Table 3. Federal Species of Concern for Wilkes County

Common Name	Scientific Name	State Status	Habitat
Cerulean warbler	Dendroica cerulea	SR	Yes
Diana fritillary butterfly	Speyeria diana	SR	Yes
butternut	Juglans cinerea	W5 (plant)	Yes

1) **Significantly Rare (SR)** refers to a plant or animal species which has not been listed by the North Carolina Wildlife Resources Commission as an E, T, or SC species, but which exists in the state in small numbers and has been determined by the NHP to need monitoring. Significantly Rare species include "peripheral" species, whereby North Carolina lies at the periphery of the species' range. The designation also includes marine and estuarine fishes identified as "Vulnerable" by the North Carolina State Museum of Biological Sciences.

2) **Watch Category 5 (W5)** refers to a plant species that is rare because of severe decline. Watch Category 5 includes species which have declined sharply in North Carolina, but which do not appear to warrant site-specific monitoring. Most species in this category have undergone declines of over 50 percent (in many cases over 90 percent) from their pre-Columbian status. Since many of these species were once abundant or even dominant in parts of North Carolina, they may still be fairly common or frequently encountered, despite the strong decline. If current trends continue, however, many of these species will be threatened with extirpation in all or a major part of their ranges in North Carolina.

All three FSC in Wilkes County may inhabit the project area. Cerulean warbler (Dendroica cerulea) resides in mature hardwood forests along steep slopes and coves in mountains. Diana fritillary butterfly (Speyeria diana) occurs along rich woods and adjacent edges and openings. The butterfly utilizes violet species as host plants. Finally, butternut (Juglans cinerea) inhabits cove forests and rich woods (Amoroso, 1997 and LeGrand, et al., 1997).

A review of the NHP database maps of rare species and unique habitats on 10 December 1998 revealed no records of the cerulean warbler or Diana fritillary butterfly within the project vicinity.

D. Air Quality and Traffic Noise

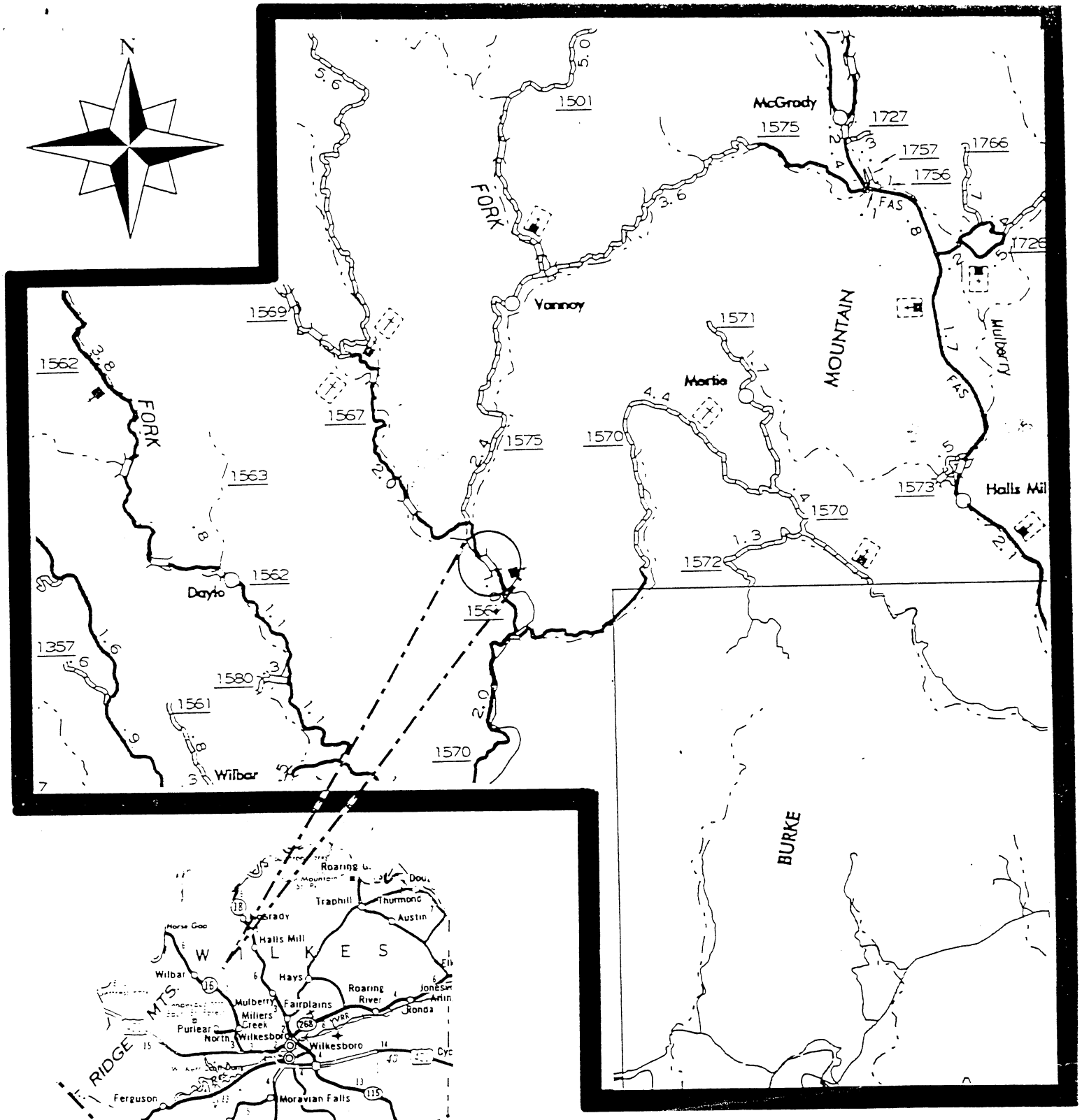
This project is an air quality "neutral" project, thus it is not required to be included in the regional emissions analysis (if applicable) and a project level CO analysis is not required.

If the project disposes of vegetation by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520.

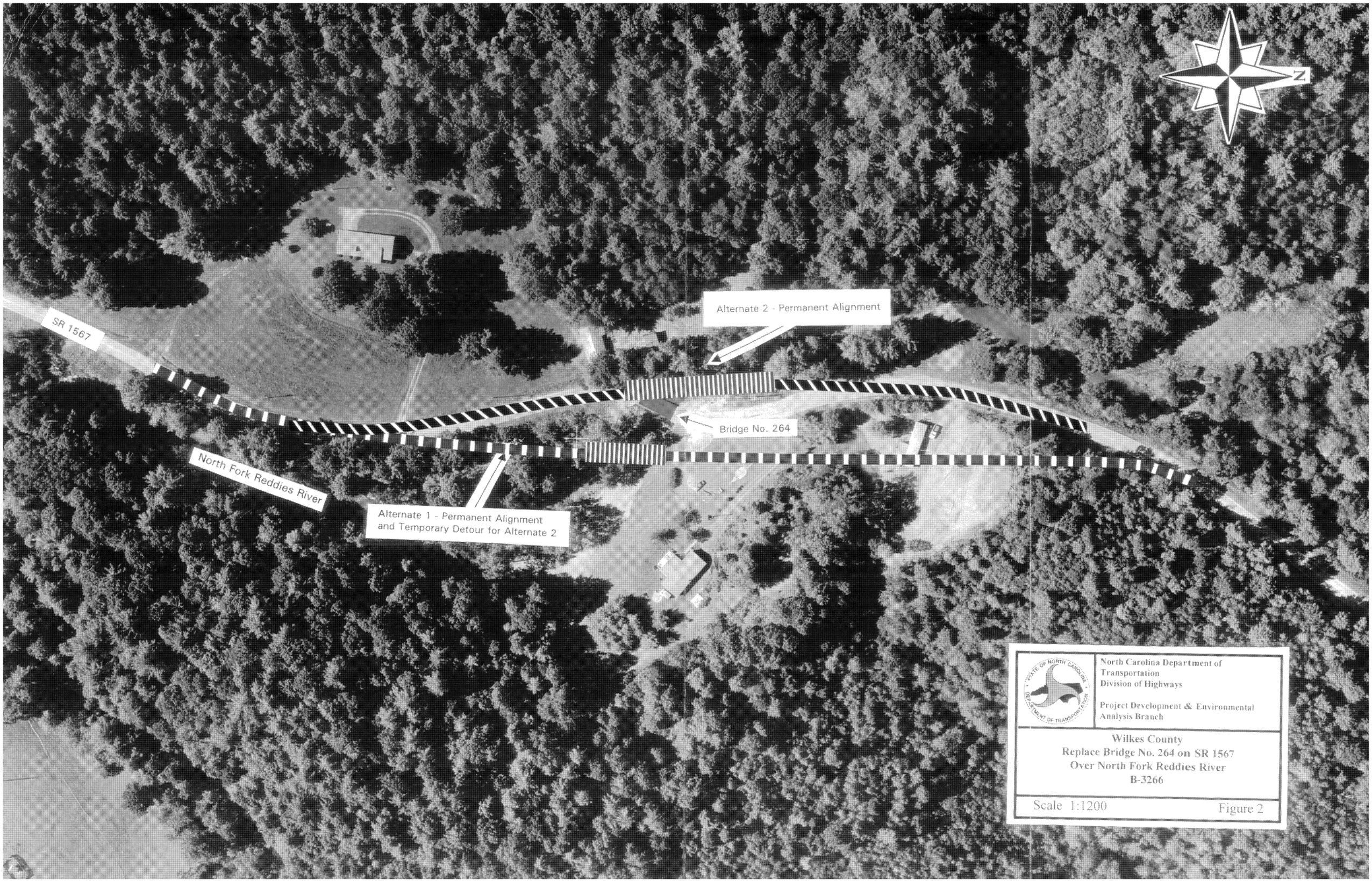
The project will not substantially increase traffic volumes. Therefore, it will have no substantial impact on noise levels. Temporary noise increases may occur during construction.

E. Farmland

The Farmland Protection Policy Act of 1981 requires that all federal agencies or their representatives, to consider the impact of land acquisition and construction projects on prime and important farmland soils. These soils are determined by the US Natural Resources Conservation Service (NRCS) based on criteria such as potential crop yield and possible level of input of economic resources. The project will result in the conversion of a small amount of land but the area to be converted is void of agricultural uses. Therefore, no further consideration of impacts to farmland is required



	North Carolina Department of Transportation Division of Highways Project Development & Environmental Analysis Branch
Wilkes County Replace Bridge No. 264 on SR 1567 Over North Fork Reddies River B-3266	
Figure 1	



North Carolina Department of Transportation
Division of Highways

Project Development & Environmental Analysis Branch

Wilkes County
Replace Bridge No. 264 on SR 1567
Over North Fork Reddies River
B-3266

Scale 1:1200 Figure 2

Looking north across
Bridge No. 264

Looking south across
Bridge No. 264

North Carolina Department of
Transportation
Division of Highways

Project Development & Environmental
Analysis Branch

Wilkes County
Replace Bridge No. 264 on SR 1567
Over North Fork Reddies River
B-3266

Figure 3

B-3266

RELOCATION REPORT

North Carolina Department of Transportation

[X] E.I.S. [ ] CORRIDOR [ ] DESIGN

PROJECT:	8.2761001	COUNTY	Wilkes	Alternate 1 of 1 Alternate	
I.D. NO.:	B-3266	F.A. PROJECT	(F. A. NO. Unassigned)		
DESCRIPTION OF PROJECT:	Replacement of Bridge No. 264 on SR-1567 over North Fork Reddies River				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	O	1	1	0
Businesses	0	0	0	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
1	0	0	0	0

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affect by displacement?
X		3. Will business services still be available after project?
	X	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
		6. Source for available housing (list).
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X	13. Will there be a problem of housing within financial means?
	X	14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? 12

VALUE OF DWELLING

Owners		Tenants	
0-20M	0	$ 0-150	0
20-40M	0	150-250	1
40-70M	0	250-400	0
70-100M	0	400-600	0
100 UP	0	600 UP	0
TOTAL	0		1

DSS DWELLING AVAILABLE

For Sale		For Rent	
0-20M	0	$ 0-150	0
20-40M	0	150-250	5
40-70M	0	250-400	15
70-100M	0	400-600	0
100 UP	0	600 UP	0
	0		20

REMARKS (Respond by Number)

3. Will not be disrupted by project.

6. Local newspaper and multiple listing Real Estate Guide.

8. As necessary in accordance with State Law.

11. Through North Wilkesboro Housing Authority.

12. From information sources, local newspaper ads and multiple listing Real Estate Guide, it is felt that adequate DSS Housing will be available during relocation period.

Harold B. Bowles — Right of Way Agent

May 7, 2001 — Date

D.R. Vogler for J. D. Thompson — Approved by

5/09/01 — Date

Form 15.4 Revised 10/00

Original & 1 Copy: State Relocation Agent
2 Copy Division Right of Way Office

North Carolina Department of Cultural Resources

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

Division of Archives and History
Jeffrey J. Crow, Director

May 13, 1998

Nicholas L. Graf
Division Administrator
Federal Highway Administration
Department of Transportation
310 New Bern Avenue
Raleigh, N.C. 27601-1442

Re: Bridge 264 on SR 1567 over North Fork Reddies River, Wilkes County, B-3266, Federal Aid Project MABRZ-1567(1), State Project 8.2761001, ER 98-8643

Dear Mr. Graf:

On April 29, 1998, Debbie Bevin of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

Based upon our review of the photographs and the information discussed at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources, we are aware of no historic structures located within the area of potential effect. We recommend that no historic 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 construction. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

Having provided this information, we look forward to receipt of either a Categorical Exclusion or Environmental Assessment which indicates how NCDOT addressed our comments.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966 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.

Sincerely,

David Brook/w

David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: H. F. Vick
B. Church
T. Padgett

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Jeff Ingham, Project Planning Engineer
Planning and Environmental Branch, NCDOT

FROM: Joe H. Mickey, Jr. Western Piedmont Region Coordinator
Habitat Conservation Program

DATE: May 8, 1998

SUBJECT: Scoping comments for the replacement of Bridge No. 264 (B-3266) on SR 1567 over the North Fork Reddies River, Wilkes County

This correspondence responds to a request by you for our review and comments on the above referenced project. The North Fork Reddies River is designated by the North Carolina Wildlife Resources Commission as Public Mountain Trout Water. This section of river is managed as Hatchery Supported, receiving spring and summer stockings of brook, brown and rainbow trout. Also, some wild brown trout inhabit this section of river.

Since project plans have not been finalized, we offer the following general recommendations during this scoping phase of the project for minimizing adverse impacts to aquatic resources:

1. The existing bridge should be replaced with another spanning structure to maintain fish passage and minimize disturbance to stream substrate.

2. Instream work and land disturbance within the 25-foot wide buffer zone are prohibited during the brown trout spawning season of November 1 through April 1 to protect the egg and fry stages of trout.

3. If concrete will be used, work must be accomplished so that wet concrete does not contact stream water. This will lessen the chance of altering the stream's water chemistry and causing a fish kill.

4. Heavy equipment should be operated from the bank rather than in the stream channel in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.

5. Stringent erosion control measures should be installed where soil is disturbed and maintained until project completion.

6. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

Thank you for the opportunity to review and comment during the early stages of this project. If you have any questions regarding these comments, please contact me at 336/366-2982.