STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 17, 2006

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

ATTENTION: Mr. John T. Thomas, Jr.
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide Permit 33 Application** for the replacement of Bridge No. 28 on NC 801 over Withrow Creek, Rowan County. Federal Project No. BRSTP-0801(3), WBS No. 33597.1.1, State Project No. 8.1632201, T.I.P. No. B-4255: Division 9.

Please see the enclosed copies of the Categorical Exclusion (CE), Pre-construction Notification (PCN), permit drawings, and design plans for the subject project. The North Carolina Department of Transportation (NCDOT) proposes to replace the 151-foot Bridge No. 28 over Withrow Creek with a new 3 span bridge approximately 165-feet in length. The new structure will be a 3-span box beam consisting of 1 span at 55-feet, 1 span at 75-feet, and 1 span at 35-feet. The bridge will be built utilizing top-down construction. A temporary causeway will provide access for construction of the center (75 foot) span section of the new bridge. A temporary onsite detour located east of the bridge will maintain traffic.

IMPACTS TO WATERS OF THE UNITED STATES

The project is located in the Yadkin River Basin (sub-basin 03-07-06) in Rowan County. This area is part of Hydrologic Cataloging Unit 03040102 of the South Atlantic-Gulf Coast Region. Withrow Creek is the only water resource in the project area. The project will result in temporary surface water impacts of 42 linear feet (0.008 acres) to Withrow Creek from the placement of a causeway. The causeway will be used to set the center span of 75 feet which spans the creek. There are no permanent impacts. Also, a temporary onsite detour will be located

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

TELEPHONE: 919-715-1500
FAX: 919-715-1501
WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD.
PARKER LINCOLN BUILDING, SUITE 168
RALEIGH NC 27604

east of the bridge to maintain traffic during construction. The detour will span the creek and will not result in any jurisdictional impacts.

Withrow Creek is a perennial stream, approximately 30 feet wide and 1 foot deep at NC 801. The substrate is composed primarily of sand. Withrow Creek has been assigned Stream Index Number 12-108-21-3 (8/1/98) by the N.C Division of Water Quality. Withrow Creek has a best usage classification of C. Best Management Practices for Protection of Surface Waters will be implemented.

No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply (II), waters occur within 1.0 mile of the study corridor. Withrow Creek is not listed on the 2002 List of impaired waters [Section 303(d)] for the Yadkin Basin. Listed waters do not meet water quality standards or have impaired uses.

Utility Impacts

Portions of an existing 8" diameter water line, located near the bridge end bents on both sides of the creek, will be relocated. However, it will not be necessary to replace either the 16-inch diameter casing or the water line that crosses over the creek. There will be no jurisdictional impacts due to the relocation of portions of the water line.

There will be power poles set temporarily within the construction easement on the eastern side of the bridge to allow for the construction of the new bridge. There will be no jurisdictional impacts due to the placement of the power poles.

Bridge Demolition

Existing Bridge No. 28 is a 4-span structure with an overall length of 151-feet. The average span length is 37.5-feet. Bridge No. 28 has a clear roadway width of 24-feet. The superstructure consists of a reinforced concrete deck with concrete rails on a substructure of timber piles with concrete caps and spill through abutments. There is potential that components of the bridge deck and rails may be dropped into waters of the United States during construction causing 56 cubic yards of fill to be temporarily placed into Waters of the United States. All guidelines for bridge demolition and removal will be followed in addition to Best Management Practices for the Protection of Surface Waters.

Restoration Plan

Following construction of Bridge No. 28, the onsite detour and all construction materials will be removed. The impact area associated with the bridge is expected to recover naturally, since the natural streambed and plant material will not be removed. NCDOT does not propose any additional planting in this area. Class 1 riprap and filter fabric will be used for bank stabilization. Pre-project elevations will be restored. NCDOT will restore the stream to its pre-project contours.

Schedule: The project calls for letting of July 18, 2006 with a date of availability of August 29, 2006. It is expected that the contractor will choose to start construction in August.

Removal and Disposal Plan: The contractor will be required to submit a reclamation for the removal of and disposal of all material off-site at an upland location. The contractor will use

excavation equipment for removal of any earthen material. Heavy-duty trucks, dozers, cranes, and various other pieces of mechanical equipment necessary for construction of roadways and bridges will be used on site. All material placed in the stream will be removed from the stream at that time. The contractor will have the option of reusing any of the materials that the engineer deems suitable in the construction of the project. After the erosion control devices are no longer needed, all temporary materials will become the property of the contractor.

MITIGATION OPTIONS

Despite the minimization strategies employed for the proposed project, the resulting temporary surface water impacts will be 42 linear feet (0.008 acres). Consequently, the project will not require compensatory mitigation, but avoidance and minimization practices will be implemented.

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

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

Avoidance/Minimization:

- The proposed project includes complete bridging of Withrow Creek with no bents in the water, unlike the existing bridge. Reducing the number of bents in the water will allow for improved stream flow that will maintain the current water quality, aquatic habitat, and flow regime.
- The new bridge will be built in the same location as the existing bridge.
- No deck drains that would drain directly into Withrow Creek will be placed on the bridge.
- Stormwater will be directed to grass lined ditches.
- The design of the new bridge is such that backwater elevation will not encroach the current 100-year floodplain or modify flood characteristics.
- Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of stringent erosion control methods and use of Best Management Practices (BMPs).

Mitigation:

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in jurisdictional waters of the US and that the proposed action includes all practicable methods to avoid and/or minimize jurisdictional stream impacts that may result from such use. Project impacts are temporary. There are no permanent impacts. Therefore, no mitigation is proposed.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the United States Fish and Wildlife Service (USFWS) lists two federally protected species for Rowan County, the bald eagle (*Haliaeetus leucocephalus*) and Schweinitz's sunflower (*Helianthus schweinitzii*).

Field surveys were conducted on September 19, 2005 for both species. Although appropriate habitat is present within the project right-of-way limits in the form of regularly maintained roadside shoulders, field or pasture edges, and utility easements, no individuals of *Helianthus schweinitzii* were observed during the September 2005 survey. A search of the North Carolina Natural Heritage Program, updated on March 31, 2005, revealed no occurrences of this species within 1 mile of the proposed project. Therefore, it can be concluded that the proposed project will have a Biological Conclusion of **"No Effect"** for Schweinitz's sunflower.

The project area was also surveyed for bald eagle. No water bodies large enough to support this species occur within 1 mile of the project area. No nests or eagles were seen. Therefore, it can be concluded that the proposed project will have a Biological Conclusion of **"No Effect"** for bald eagle.

Table 1. Species Under Federal Protection in Rowan County

Common Name	Scientific Name	Federal Status	Habitat	Biological Conclusion
Bald Eagle	*Haliaeetus leucocephalus*	T	No	No Effect
Schweinitz's Sunflower	*Helianthus schweinitzii*	E	Yes	No Effect

REGULATORY APPROVALS

Section 404 Permit: Application is hereby made for the Department of Army Section 404 for the issuance of a Nationwide Permit 33 authorizing for the above-described activities and the use of a temporary causeway in the stream for bridge construction.

Section 401 Permit: We also hereby request a 401 General Water Quality Certification (WQC) 3366. The NCDOT will adhere to all general conditions of these WQCs. Therefore, written concurrence from the NCDWQ is not required. In accordance with 15A NCAC 2H 0.0501(a) and 15A NCAC 2B 0.200 we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, as notification.

A copy of this permit application will be posted on the NCDOT Website at: http://www.ncdot.org/doh/preconstruct/pe/. If you have any questions or need additional information please call Ms. Deanna Riffey at (919) 715-1409.

Sincerely,

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

w/attachment

Mr. John Hennessy, NCDWQ (2 Copies)
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick, USFWS
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. S. P. Ivey, P.E., Division Engineer
Ms. Diane Hampton, P.E. , DEO

w/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Elmo Vance, PDEA Project Planning Engineer

Office Use Only: Form Version March 05

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

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

I. Processing

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

2. Nationwide, Regional or General Permit Number(s) Requested: NW33

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

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

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

II. Applicant Information

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

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

III. Project Information

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

1. Name of project: Replacement of Bridge 28 on NC 801 over Withrow Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4255

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

4. Location
   County: Rowan Nearest Town: Salisbury
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): From 70 travel south on NC 801 (Barber Junction Rd.) for approximately .75 miles

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 35.7078°N 80.6422°W

6. Property size (acres): 1.98 acres

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

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

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The project area consists of a mixture forest, agriculture and private residences

10. Describe the overall project in detail, including the type of equipment to be used:
Bridge No. 28 will be replaced on existing location. A temporary causeway will be constructed for use during construction of the bridge. Heavy duty excavation equipment will be used such as trucks, dozers, cranes and other various equipment necessary for roadway construction. An onsite detour will be used to maintain traffic.

11. Explain the purpose of the proposed work: The bridge is functionally obselete

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. NA

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.
NA

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

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

1. Provide a written description of the proposed impacts: see cover letter

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

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

3. List the total acreage (estimated) of all existing wetlands on the property: 0 acres

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

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	Withrow Creek	Temporary	Perennial	30	42 (temp)	.008 (temp)
Total Stream Impact (by length and acreage)					42	.008

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

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

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

Stream Impact (acres):	.008
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	.008
Total Stream Impact (linear feet):	42 (temp)

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

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

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. Please refer to the cover letter page 3

VIII. Mitigation

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

freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

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

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

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

   Compensatory mitigation is not needed. The project only has temporary impacts.

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

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

IX. Environmental Documentation (required by DWQ)

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

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

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

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

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

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

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

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

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

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. No mitigation is required

XI. Stormwater (required by DWQ)

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

XII. Sewage Disposal (required by DWQ)

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

XIII. Violations (required by DWQ)

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

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

XIV. Cumulative Impacts (required by DWQ)

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

XV. Other Circumstances (Optional):

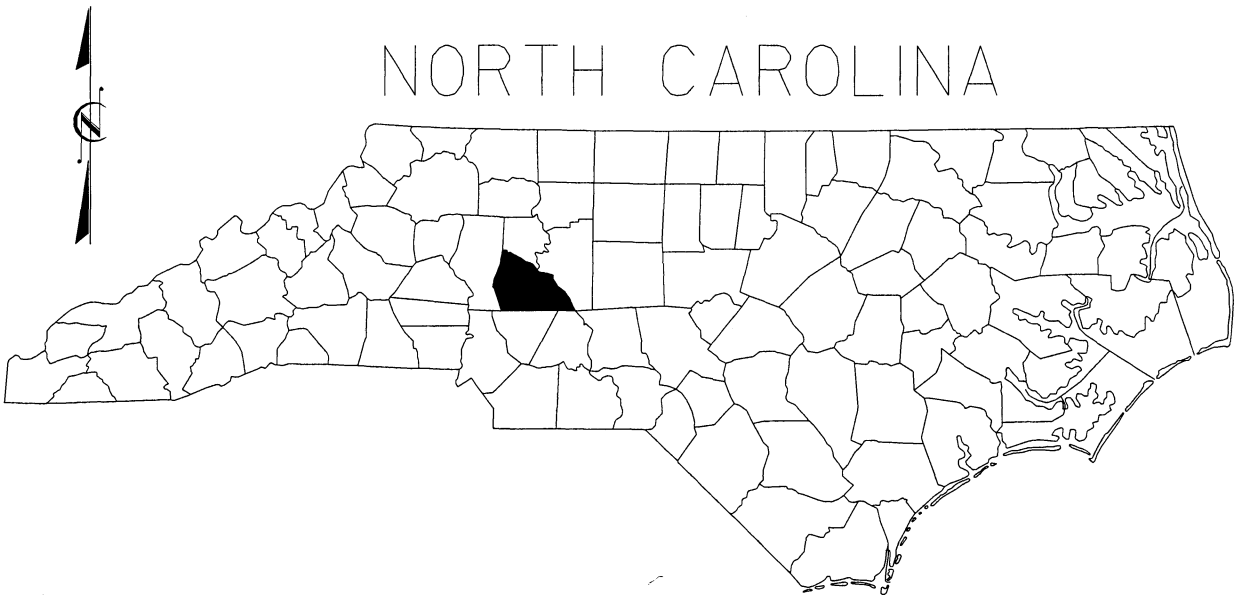
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g.,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

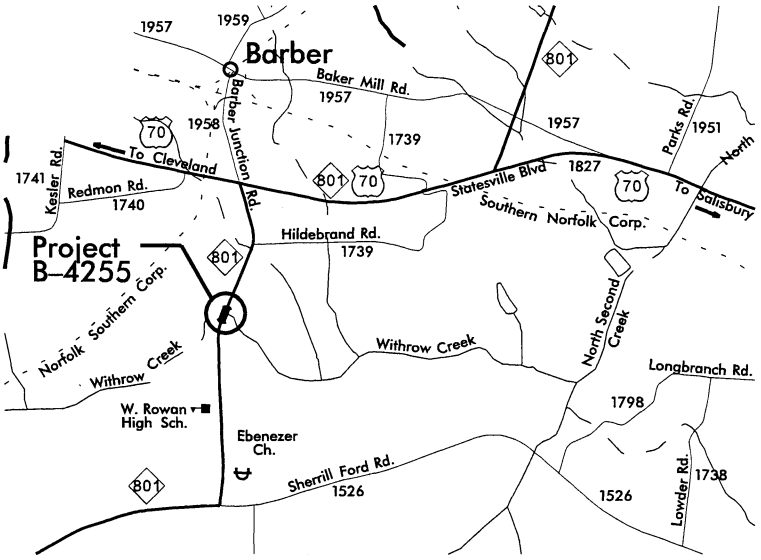
None

2/20/06

Applicant/Agent's Signature **Date**

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





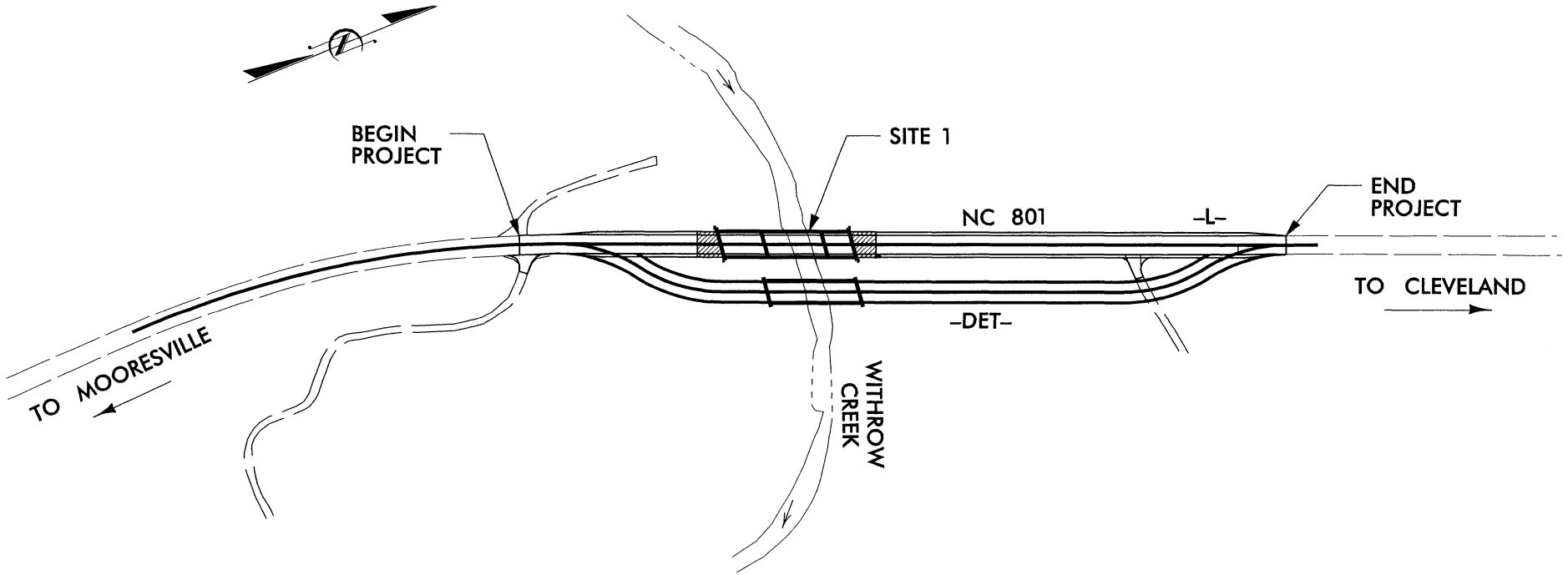
(NOT TO SCALE)

VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
ROWAN COUNTY
PROJECT: 33597.1.1 (B-4255)
BRIDGE NO. 28 OVER
WITHROW CREEK AND
APPROACHES ON NC 801

SHEET 1 OF 10 4/8/05



SITE MAP

NOT TO SCALE

NCDOT

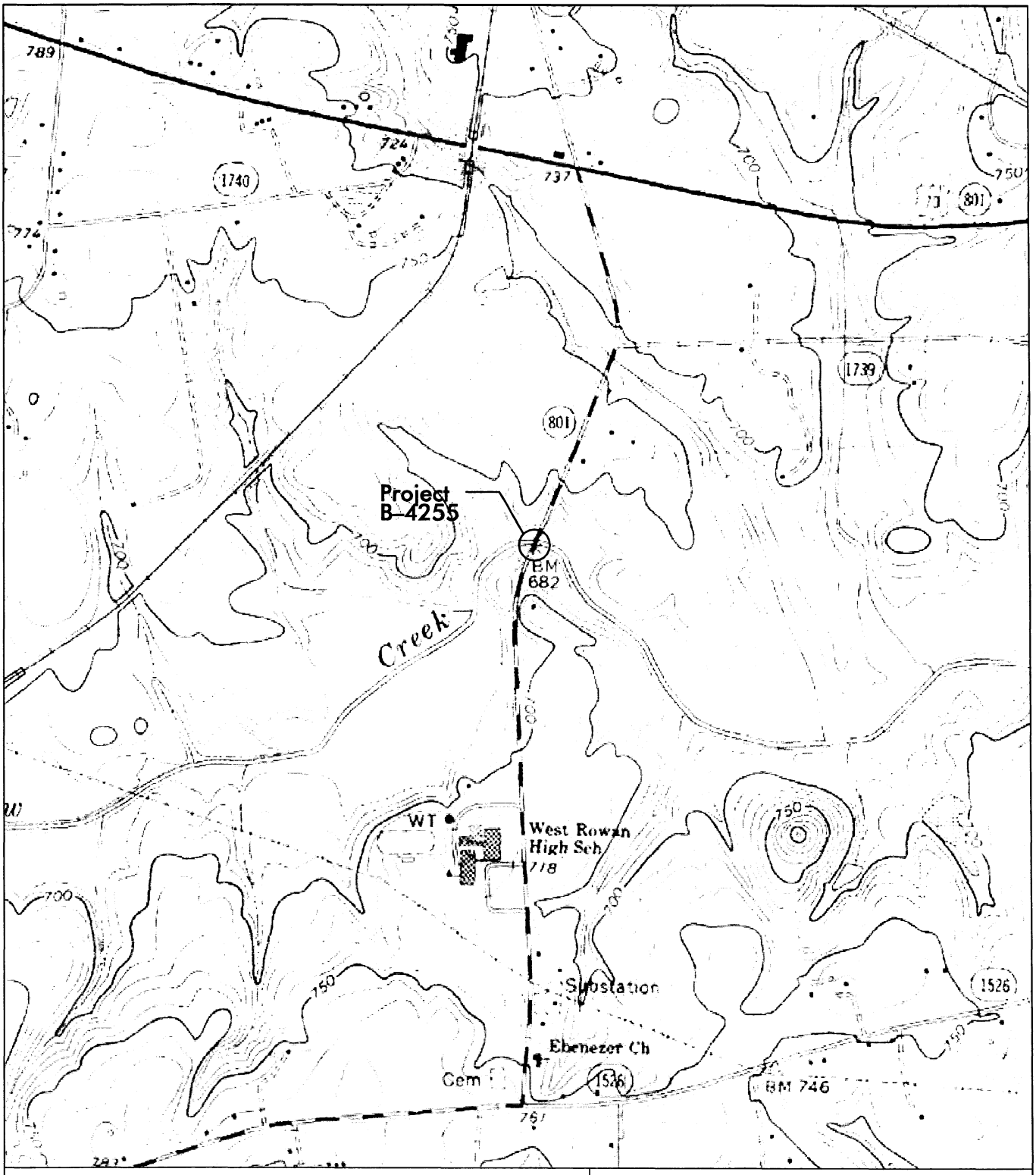
DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 33597.1.1 (B-4255)

BRIDGE NO. 28 OVER
WITHROW CREEK AND
APPROACHES ON NC 801

SHEET 2 OF 10 4/8/05



TOPO MAP

SCALE: 1" : 1500'

NCDOT

DIVISION OF HIGHWAYS
ROWAN COUNTY
PROJECT: 33597.1.1 (B-4255)
BRIDGE NO. 28 OVER
WITHROW CREEK AND
APPROACHES ON NC 801

SHEET 3 **OF** 10 **4/8/05**

NO IMPACTS WERE FOUND ON THIS SHEET

NC GRID NAD 83

MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
B-4255	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ROWAN COUNTY, NC
BRIDGE 28 ON NC 801
OVER WITHROW CREEK
4/8/05

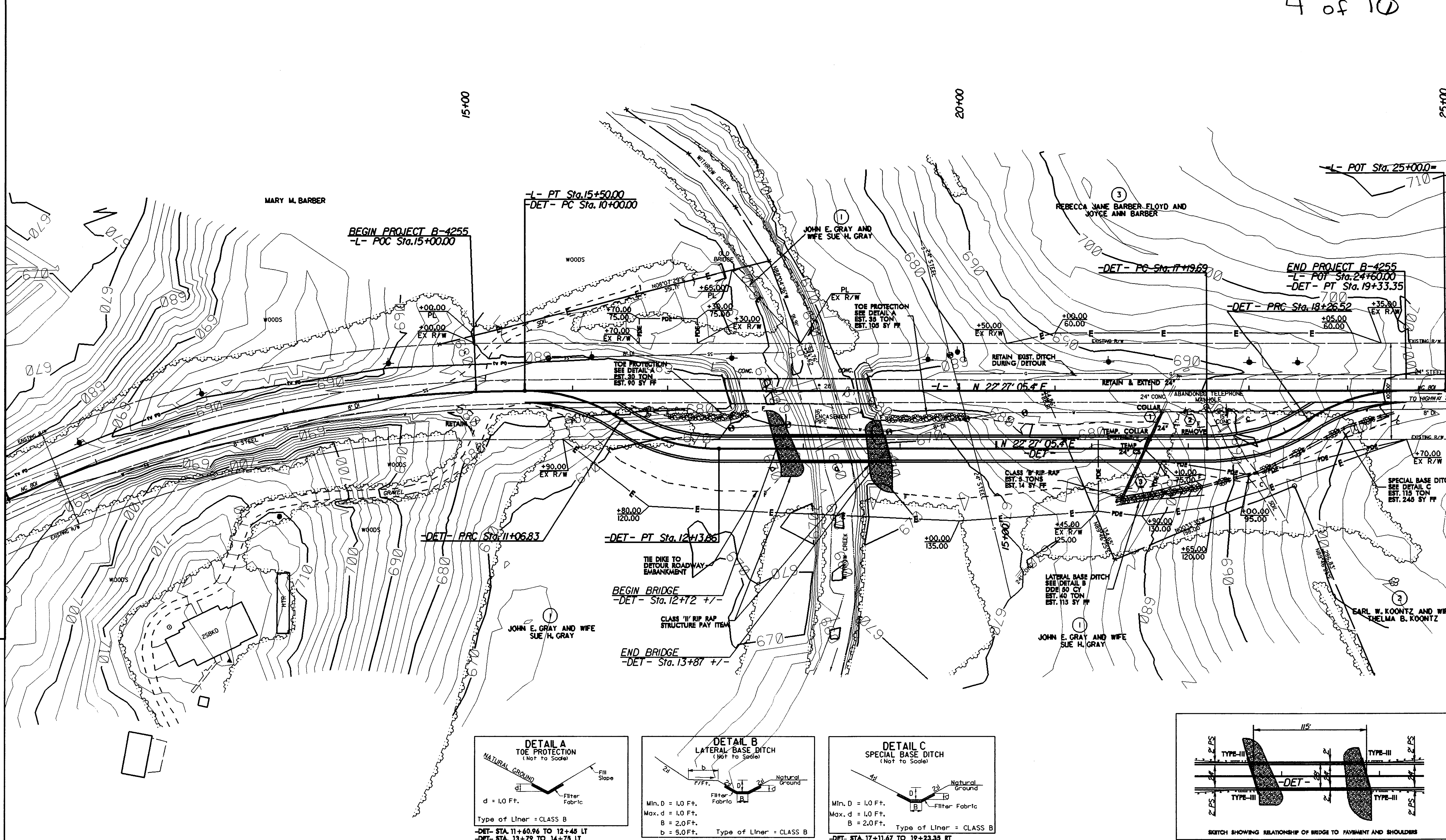
ENGLISH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

RIGHT OF WAY REVISION 4/13/05
REVISED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL NO. 1 TO ALLOW FOR CONSTRUCTION OF HAUL ROAD NECESSARY TO CONSTRUCT PROPOSED BRIDGE.

FOR -DET- PROFILE SEE SHEET 5



MARY M. BARBER
BEGIN PROJECT B-4255
-L- POC Sta.15+00.00
-L- PT Sta.15+50.00
-DET- PC Sta.10+00.00
JOHN E. GRAY AND WIFE SUE H. GRAY
WITHROW CREEK
REBECCA JANE BARBER FLOYD AND JOYCE ANN BARBER
-L- POT Sta.25+00.00
END PROJECT B-4255
-L- POT Sta.24+60.00
-DET- PT Sta.19+33.35
-DET- PC Sta.17+19.69
-DET- PRC Sta.18+26.52
TOE PROTECTION SEE DETAIL A EST. 35 TON EST. 105 SY FF
TOE PROTECTION SEE DETAIL A EST. 30 TON EST. 90 SY FF
RETAIN EXIST. DITCH DURING DETOUR
RETAIN & EXTEND 24"
N 22° 27' 05.4" E
-DET-
CLASS 'B' RIP-RAP EST. 5 TONS EST. 14 SY FF
SPECIAL BASE DITCH SEE DETAIL C EST. 115 TON EST. 245 SY FF
-DET- PRC Sta.11+06.83
-DET- PT Sta.12+13.86
TIE DIKE TO DETOUR ROADWAY EMBANKMENT
BEGIN BRIDGE -DET- Sta.12+72 +/-
CLASS 'II' RIP RAP STRUCTURE PAY ITEM
END BRIDGE -DET- Sta.13+87 +/-
LATERAL BASE DITCH SEE DETAIL B DDE 50 CY EST. 40 TON EST. 113 SY FF
JOHN E. GRAY AND WIFE SUE H. GRAY
EARL W. KOONTZ AND WIFE THELMA B. KOONTZ
15+00
20+00
25+00
DETAIL A TOE PROTECTION (Not to Scale)
Natural Ground
Fill Slope
Filter Fabric
d = 1.0 Ft.
Type of Liner = CLASS B
-DET- STA. 11+60.96 TO 12+45 LT
-DET- STA. 13+79 TO 14+75 LT
DETAIL B LATERAL BASE DITCH (Not to Scale)
Natural Ground
Filter Fabric
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
Type of Liner = CLASS B
-DET- STA. 16+25 TO 17+11.67 RT
DETAIL C SPECIAL BASE DITCH (Not to Scale)
Natural Ground
Filter Fabric
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = CLASS B
-DET- STA. 17+11.67 TO 19+23.35 RT
115'
TYPE-III
-DET-
SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS

NO IMPACTS WERE FOUND ON THIS SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-4255	2-B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

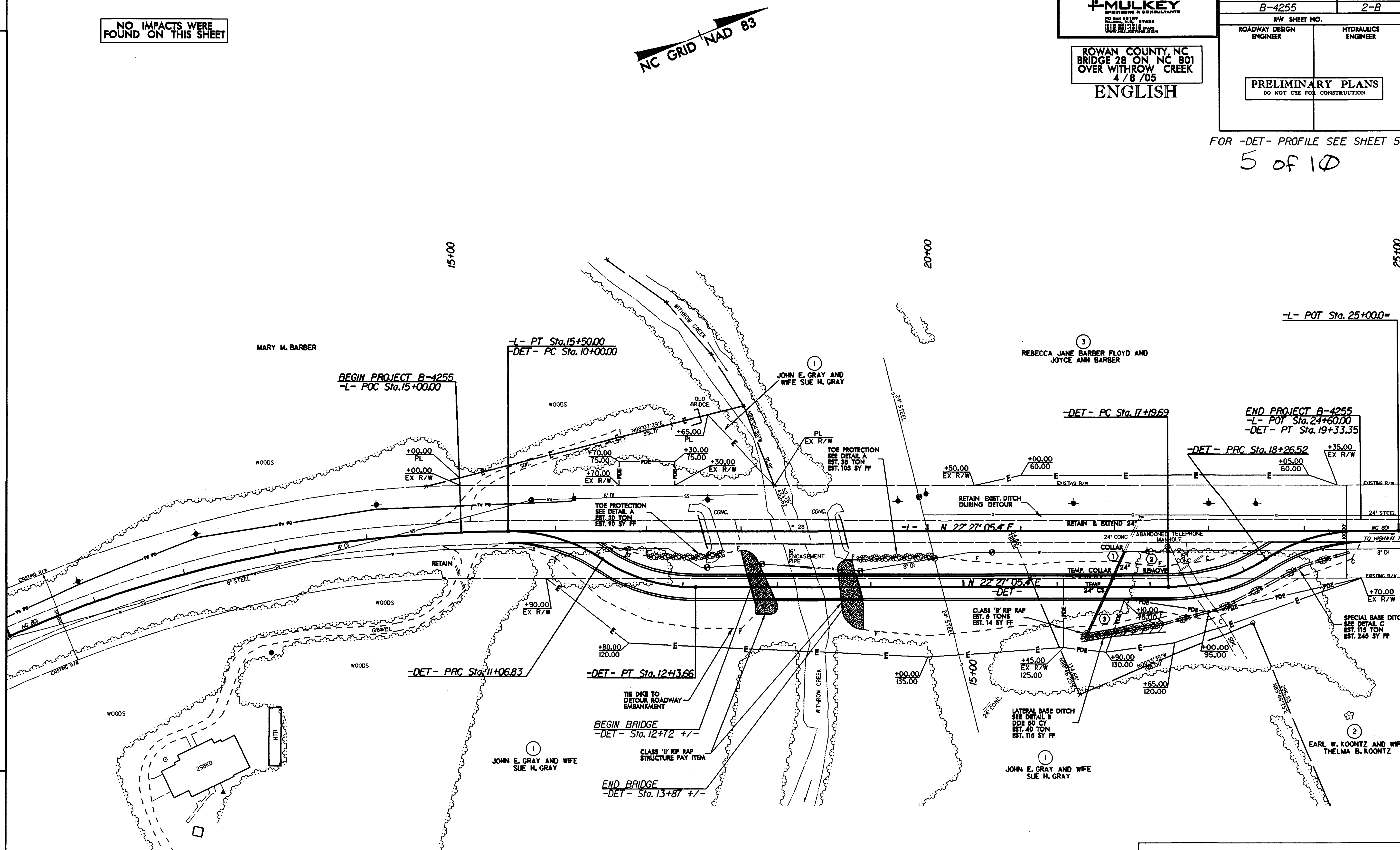
ROWAN COUNTY, NC
BRIDGE 28 ON NC 801
OVER WITHROW CREEK
4/8/05

ENGLISH

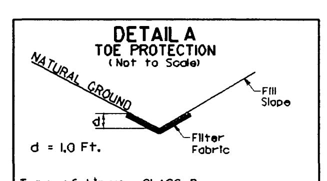
REVISIONS

RIGHT OF WAY REVISION 4/13/05
REVISED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL NO. 1 TO ALLOW FOR CONSTRUCTION OF HAUL ROAD NECESSARY TO CONSTRUCT PROPOSED BRIDGE.

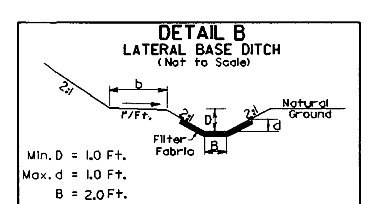
FOR -DET- PROFILE SEE SHEET 5



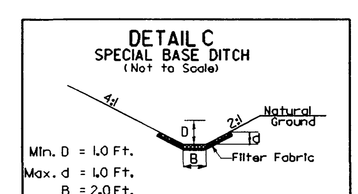
NC GRID NAD 83
15+00
20+00
25+00
MARY M. BARBER
WOODS
BEGIN PROJECT B-4255
-L- POC Sta.15+00.00
-L- PT Sta.15+50.00
-DET- PC Sta.10+00.00
WITHROW CREEK
OLD BRIDGE
JOHN E. GRAY AND WIFE SUE H. GRAY
REBECCA JANE BARBER FLOYD AND JOYCE ANN BARBER
-L- POT Sta. 25+00.0=
-DET- PC Sta. 17+19.69
END PROJECT B-4255
-L- POT Sta.24+60.00
-DET- PT Sta.19+33.35
-DET- PRC Sta.18+26.52
TOE PROTECTION SEE DETAIL A EST. 35 TON EST. 105 SY FF
TOE PROTECTION SEE DETAIL A EST. 30 TON EST. 90 SY FF
RETAIN EXIST. DITCH DURING DETOUR
RETAIN & EXTEND 24"
ABANDONED TELEPHONE MANHOLE
-L- N 22° 27' 05.4" E
N 22° 27' 05.4" E -DET-
CLASS 'B' RIP RAP EST. 5 TONS EST. 14 SY FF
SPECIAL BASE DITCH SEE DETAIL C EST. 115 TON EST. 245 SY FF
-DET- PRC Sta.11+06.83
-DET- PT Sta.12+13.66
TIE DIKE TO DETOUR ROADWAY EMBANKMENT
BEGIN BRIDGE -DET- Sta.12+72 +/-
CLASS 'II' RIP RAP STRUCTURE PAY ITEM
END BRIDGE -DET- Sta.13+87 +/-
LATERAL BASE DITCH SEE DETAIL B DDE 50 CY EST. 40 TON EST. 115 SY FF
JOHN E. GRAY AND WIFE SUE H. GRAY
EARL W. KOONTZ AND WIFE THELMA B. KOONTZ
NC 801
TO HIGHWAY 70



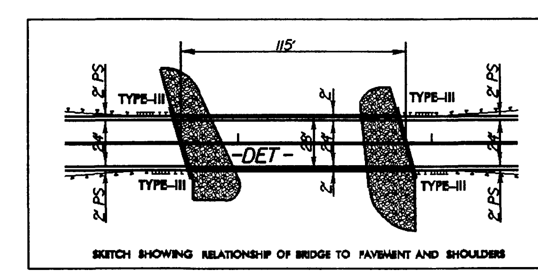
-DET- STA. 11+60.96 TO 12+45 LT
-DET- STA. 13+79 TO 14+75 LT



-DET- STA. 16+25 TO 17+11.67 RT



-DET- STA. 17+11.67 TO 19+23.35 RT



SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS

PROJECT REFERENCE NO.	SHEET NO.
B-4255	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

ROWAN COUNTY, NC
BRIDGE 28 ON NC 801
OVER WITHROW CREEK
4 /8 /05

ENGLISH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 5

6 of 10

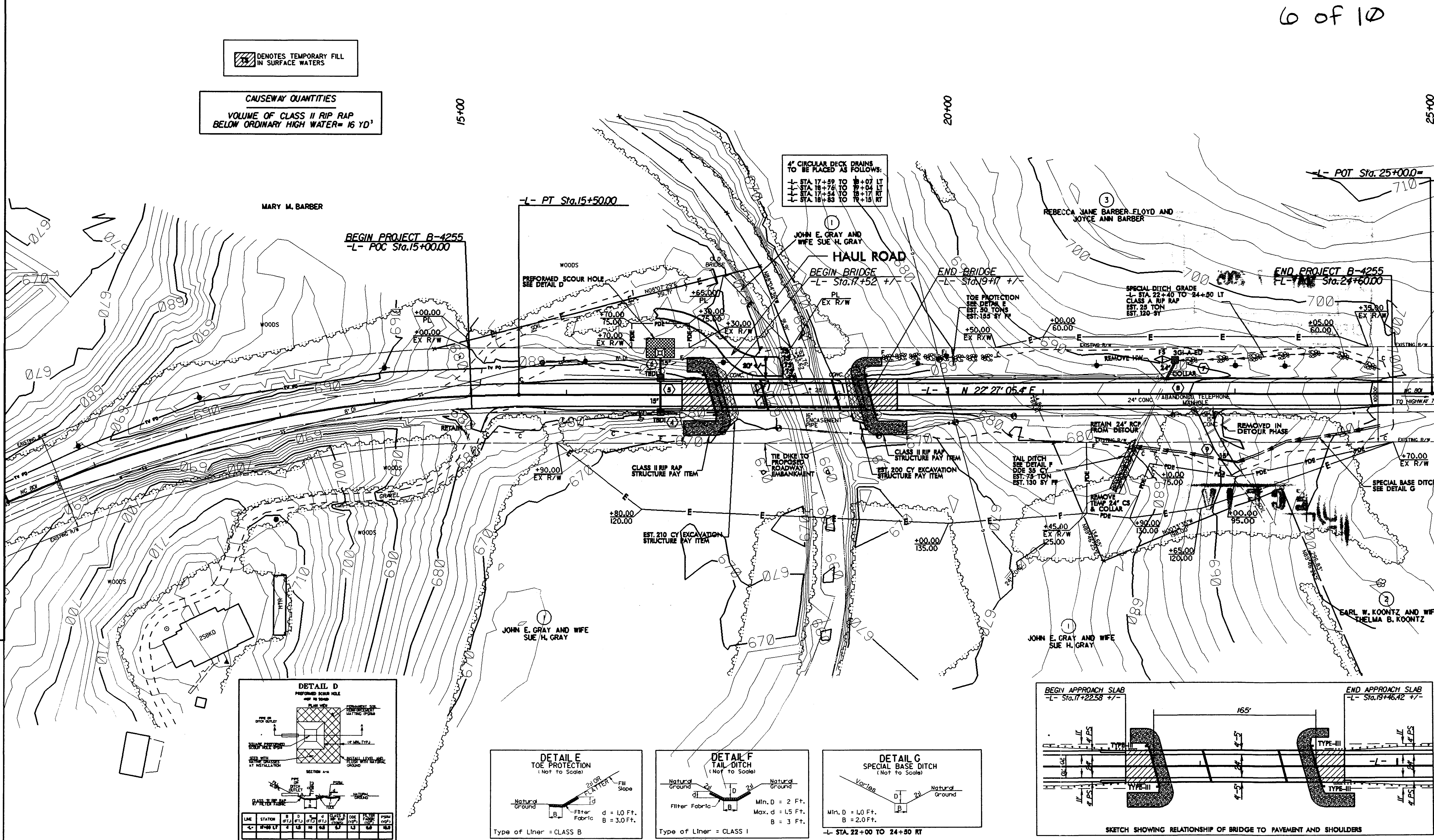
REVISIONS

RIGHT OF WAY REVISION 4/13/05
REVISED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL NO. 1 TO ALLOW FOR CONSTRUCTION OF HAUL ROAD NECESSARY TO CONSTRUCT PROPOSED BRIDGE.

DENOTES TEMPORARY FILL IN SURFACE WATERS

CAUSEWAY QUANTITIES

VOLUME OF CLASS II RIP RAP BELOW ORDINARY HIGH WATER= 16 YD³



NC GRID NAD 83
MARY M. BARBER
BEGIN PROJECT B-4255
-L- POC Sta.15+00.00
-L- PT Sta.15+50.00
PREFORMED SCOUR HOLE SEE DETAIL D
WOODS
JOHN E. GRAY AND WIFE SUE H. GRAY
HAUL ROAD
BEGIN BRIDGE -L- Sta.17+52 +/-
END BRIDGE -L- Sta.19+17 +/-
4" CIRCULAR DECK DRAINS TO BE PLACED AS FOLLOWS:
-L- STA. 17+59 TO 18+07 LT
-L- STA. 18+76 TO 19+04 LT
-L- STA. 17+54 TO 18+17 RT
-L- STA. 18+83 TO 19+15 RT
REBECCA JANE BARBER FLOYD AND JOYCE ANN BARBER
-L- POT Sta.25+00.00
END PROJECT B-4255
TOE PROTECTION SEE DETAIL E EST. 50 TONS EST. 155 SY FF
SPECIAL DITCH GRADE -L- STA. 22+40 TO 24+50 LT CLASS A RIP RAP EST. 25 TON EST. 120 SY
-L- N 22° 27' 05.4" E
ABANDONED TELEPHONE MANHOLE
CLASS II RIP RAP STRUCTURE PAY ITEM
TIE DIKE TO PROPOSED ROADWAY EMBANKMENT
CLASS II RIP RAP STRUCTURE PAY ITEM
EST. 200 CY EXCAVATION STRUCTURE PAY ITEM
EST. 210 CY EXCAVATION STRUCTURE PAY ITEM
RETAIN 24" RCP FROM DETOUR
REMOVED IN DETOUR PHASE
TAIL DITCH SEE DETAIL F DDE 35 CY EST. 75 TON EST. 130 SY FF
REMOVE TEMP 24" CS & COLLAR
SPECIAL BASE DITCH SEE DETAIL G
EARL W. KOONTZ AND WIFE THELMA B. KOONTZ
15+00
20+00
25+00
DETAIL D
PREFORMED SCOUR HOLE
DETAIL E
TOE PROTECTION
(Not to Scale)
Type of Liner = CLASS B
d = 1.0 Ft.
B = 3.0 Ft.
-L- STA. 19+30 TO 20+40 LT
DETAIL F
TAIL DITCH
(Not to Scale)
Min. D = 2 Ft.
Max. d = 1.5 Ft.
B = 3 Ft.
Type of Liner = CLASS I
-L- STA. 22+00 RT
DETAIL G
SPECIAL BASE DITCH
(Not to Scale)
Min. D = 1.0 Ft.
B = 2.0 Ft.
-L- STA. 22+00 TO 24+50 RT
BEGIN APPROACH SLAB -L- Sta.17+22.58 +/-
END APPROACH SLAB -L- Sta.19+46.42 +/-
165'
TYPE-III
SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS

MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
B-4255	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ROWAN COUNTY, NC
BRIDGE 28 ON NC 801
OVER WITHROW CREEK
4 /8 /05
ENGLISH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

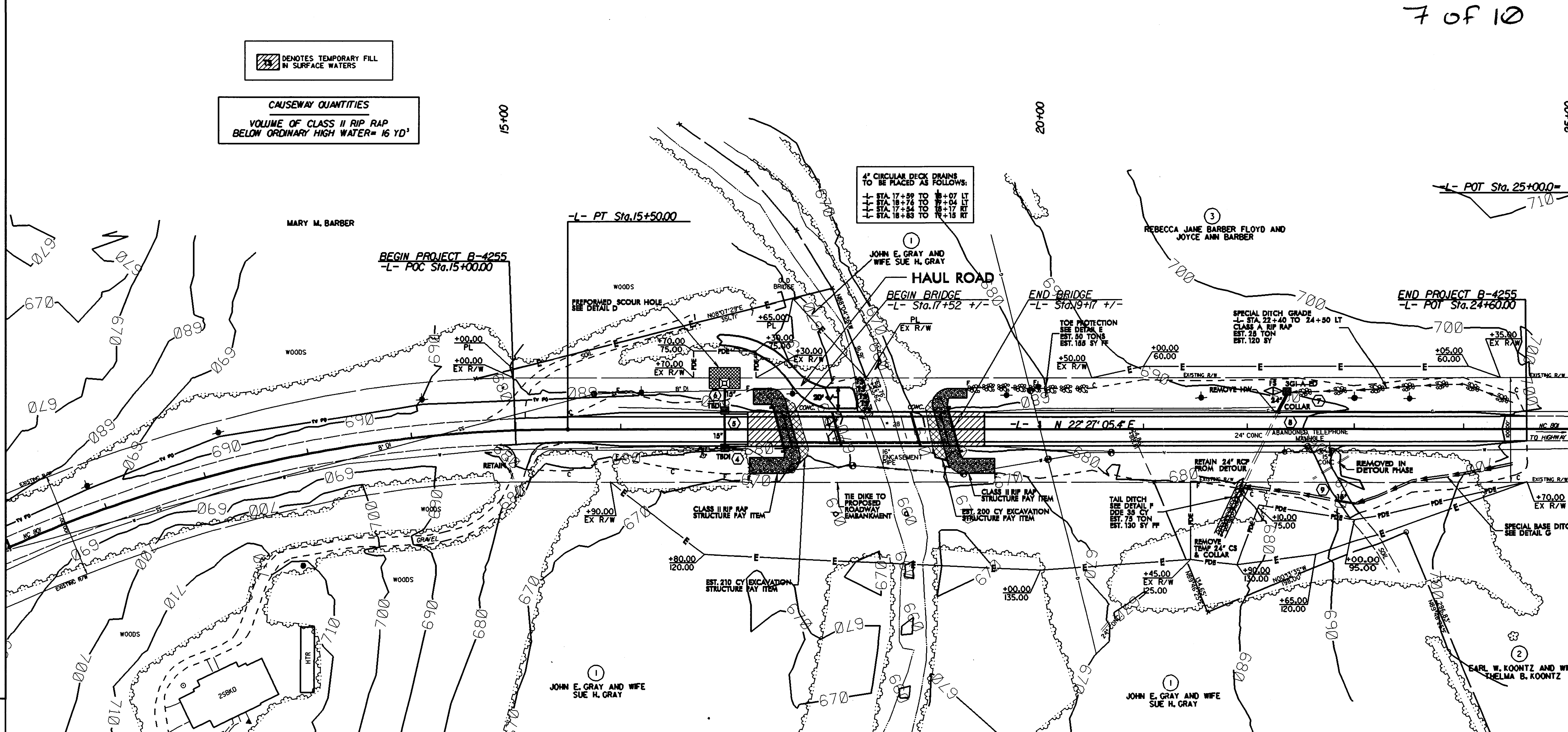
FOR -L- PROFILE SEE SHEET 5

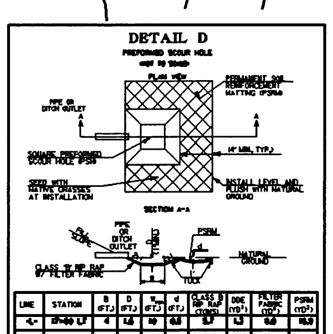
REVISIONS

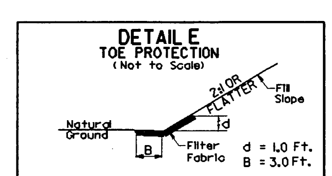
RIGHT OF WAY REVISION 4/13/05
REVISED TEMPORARY CONSTRUCTION EASEMENT ON PARCEL NO. 1 TO ALLOW FOR CONSTRUCTION OF HAUL ROAD NECESSARY TO CONSTRUCT PROPOSED BRIDGE.

DENOTES TEMPORARY FILL IN SURFACE WATERS

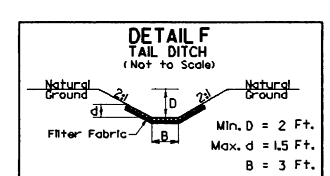
CAUSEWAY QUANTITIES
VOLUME OF CLASS II RIP RAP BELOW ORDINARY HIGH WATER= 16 YD³



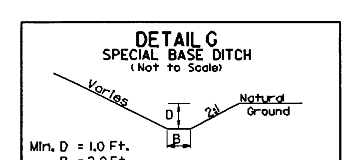




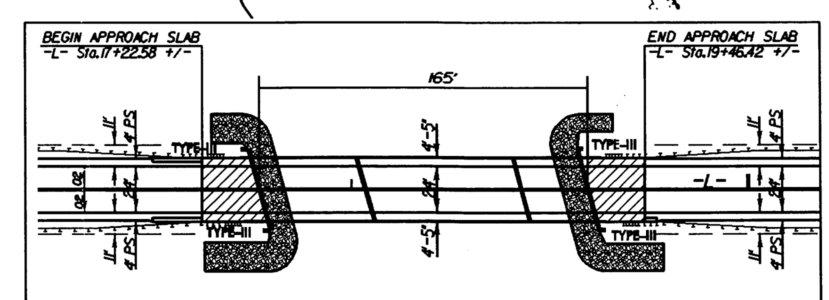
-L- STA. 19+30 TO 20+40 LT



-L- STA. 22+00 RT



-L- STA. 22+00 TO 24+50 RT



SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS

PROJECT REFERENCE NO.	SHEET NO.
B-4255	5

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8 of 10

MULKEY ENGINEERS & CONSULTANTS

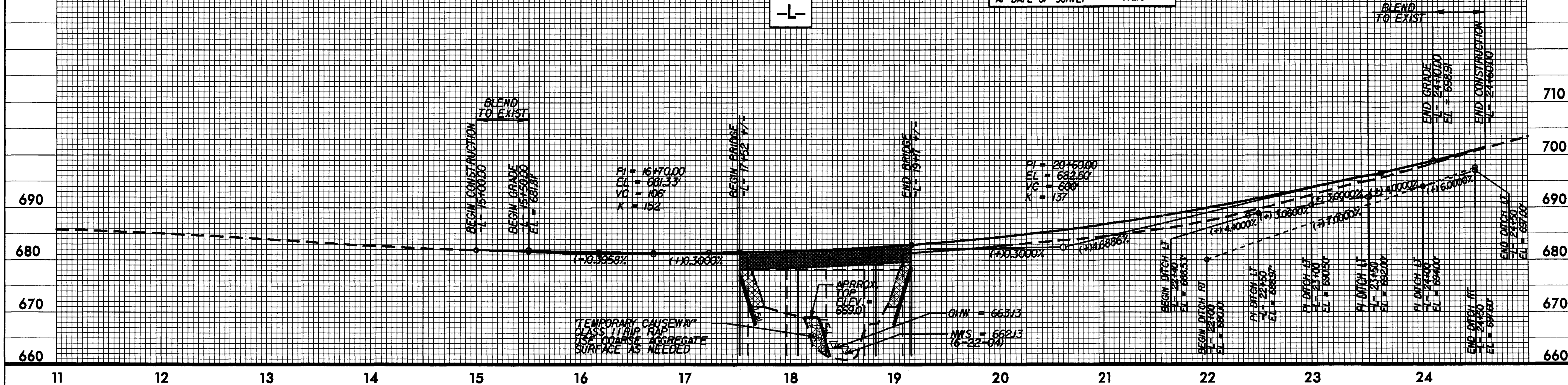
-BL- 2
EL = 685.69'
18" REBAR WITH CAP

-BL- 3
EL = 680.64'
18" REBAR WITH CAP

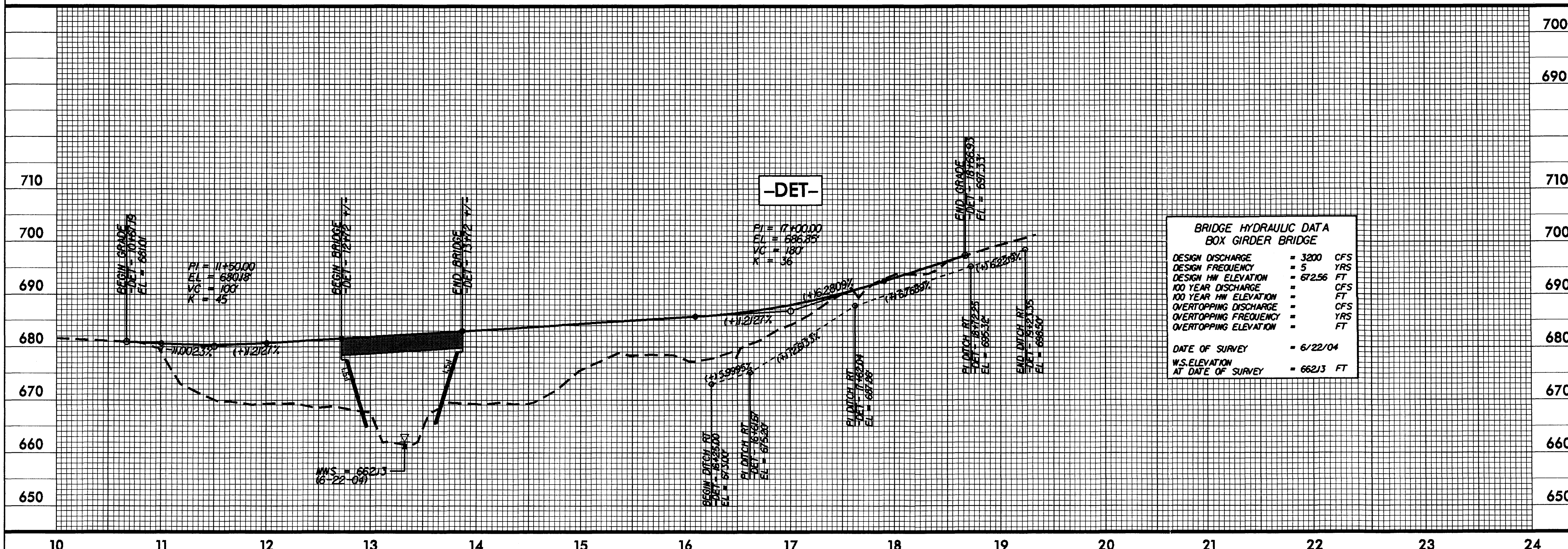
BM-2 EL = 689.62'
N=716845 E=1512855
-BL- STA 30+32 10' RT
-L- STA 22+66.88 102.3843' RT
RAILROAD SPIKE SET IN BASE OF 24" OAK TREE.

BRIDGE HYDRAULIC DATA
BOX GIRDER BRIDGE

DESIGN DISCHARGE	= 6800	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 675.19	FT
100 YEAR DISCHARGE	= 8100	CFS
100 YEAR HW ELEVATION	= 675.93	FT
OVERTOPPING DISCHARGE	= 18400	CFS
OVERTOPPING FREQUENCY	= 500 +	YRS
OVERTOPPING ELEVATION	= 681.38	FT
DATE OF SURVEY	= 6/22/04	
W.S. ELEVATION AT DATE OF SURVEY	= 662.13	FT



-L-
BLEND TO EXIST
BEGIN CONSTRUCTION -L- 15+00.00
BEGIN GRADE -L- 15+50.00 EL = 681.81'
PI = 16+70.00
EL = 681.33'
VC = 106'
K = 152
(-)0.3958%
(+)0.3000%
BEGIN BRIDGE -L- 17+52 +/-
END BRIDGE -L- 19+17 +/-
APPROX. TOP ELEV. = 669.0
"TEMPORARY CAUSEWAY" CLASS II RIP RAP USE COARSE AGGREGATE SURFACE AS NEEDED
OHW = 663.13
NWS = 662.13 (6-22-04)
PI = 20+60.00
EL = 682.50'
VC = 600'
K = 137
(+)0.3000%
(+)4.6886%
(+)4.4000%
(+)3.0600%
(+)3.0000%
(+)7.0000%
(+)4.0000%
(+)6.0000%
BEGIN DITCH LT -L- 22+40 EL = 686.53'
BEGIN DITCH RT -L- 22+00 EL = 680.10
PI DITCH LT -L- 22+50 EL = 688.97'
PI DITCH LT -L- 23+00 EL = 690.50'
PI DITCH LT -L- 23+50 EL = 692.00'
PI DITCH LT -L- 24+00 EL = 694.00'
END DITCH RT -L- 24+50 EL = 697.60'
END DITCH LT -L- 24+50 EL = 697.00'
END GRADE -L- 24+10.00 EL = 698.91
END CONSTRUCTION -L- 24+60.00
660
670
680
690
700
710
11
12
13
14
15
16
17
18
19
20
21
22
23
24



-DET-
BEGIN GRADE -DET- 10+67.19 EL = 681.01
PI = 11+50.00
EL = 680.18'
VC = 100'
K = 45
(-)1.0023%
(+)1.2127%
BEGIN BRIDGE -DET- 12+72 +/-
END BRIDGE -DET- 13+72 +/-
1.5:1
NWS = 662.13 (6-22-04)
PI = 17+00.00
EL = 686.85'
VC = 180'
K = 36
(+)1.2127%
(+)6.2809%
(+)6.7689%
(+)5.9995%
(+)7.2633%
(+)6.2219%
END GRADE -DET- 18+66.93 EL = 697.33'
BEGIN DITCH RT -DET- 16+25.00 EL = 673.00'
PI DITCH RT -DET- 16+61.57 EL = 675.20'
PI DITCH RT -DET- 17+62.04 EL = 687.88'
PI DITCH RT -DET- 18+72.25 EL = 695.32'
END DITCH RT -DET- 19+21.55 EL = 698.50'
650
660
670
680
690
700
710
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

BRIDGE HYDRAULIC DATA
BOX GIRDER BRIDGE

DESIGN DISCHARGE	= 3200	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 672.56	FT
100 YEAR DISCHARGE	=	CFS
100 YEAR HW ELEVATION	=	FT
OVERTOPPING DISCHARGE	=	CFS
OVERTOPPING FREQUENCY	=	YRS
OVERTOPPING ELEVATION	=	FT
DATE OF SURVEY	= 6/22/04	
W.S. ELEVATION AT DATE OF SURVEY	= 662.13	FT

PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
1	John E. Gray & Wife	7655 NC Hwy 801 Mt. Ulla, NC 28125
2	Earl W. Koontz & Wife	7285 NC Hwy 801 Salisbury, NC 28147
2	Rebecca Jane Barber Floyd & Joyce Ann Barber	

NCDOT

DIVISION OF HIGHWAYS

ROWAN COUNTY

PROJECT: 33597.1.1 (B-4255)

BRIDGE NO. 28 OVER

WITHROW CREEK AND

APPROACHES ON NC 801

SHEET 9 OF 10 4/8/05

WETLAND PERMIT IMPACT SUMMARY

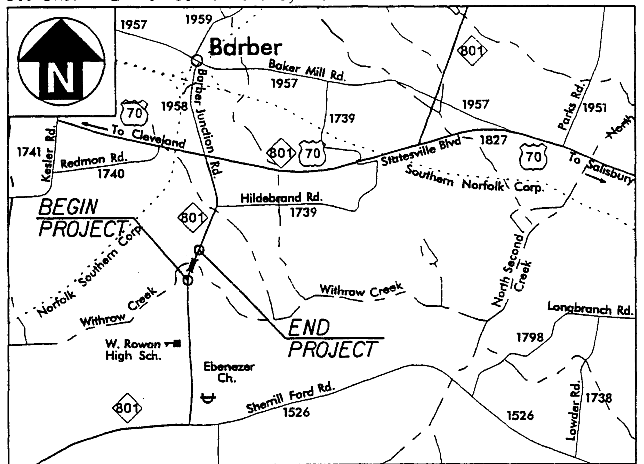
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	18+35 -L- +/-	1@55',1@75',1@35'	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0
		33" Box Girder										
1	13+30 -DET- +/-	115' Temp. Detour	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0
		Bridge										
1	18+00 -L- +/- LT.	Temp. Causeway	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0	42	0
TOTALS:			0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.0	42.0	0.0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ROWAN COUNTY
WBS - 33597.1.1 (B-4255)

SHEET 10 of 10 4/8/2005

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



VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROWAN COUNTY

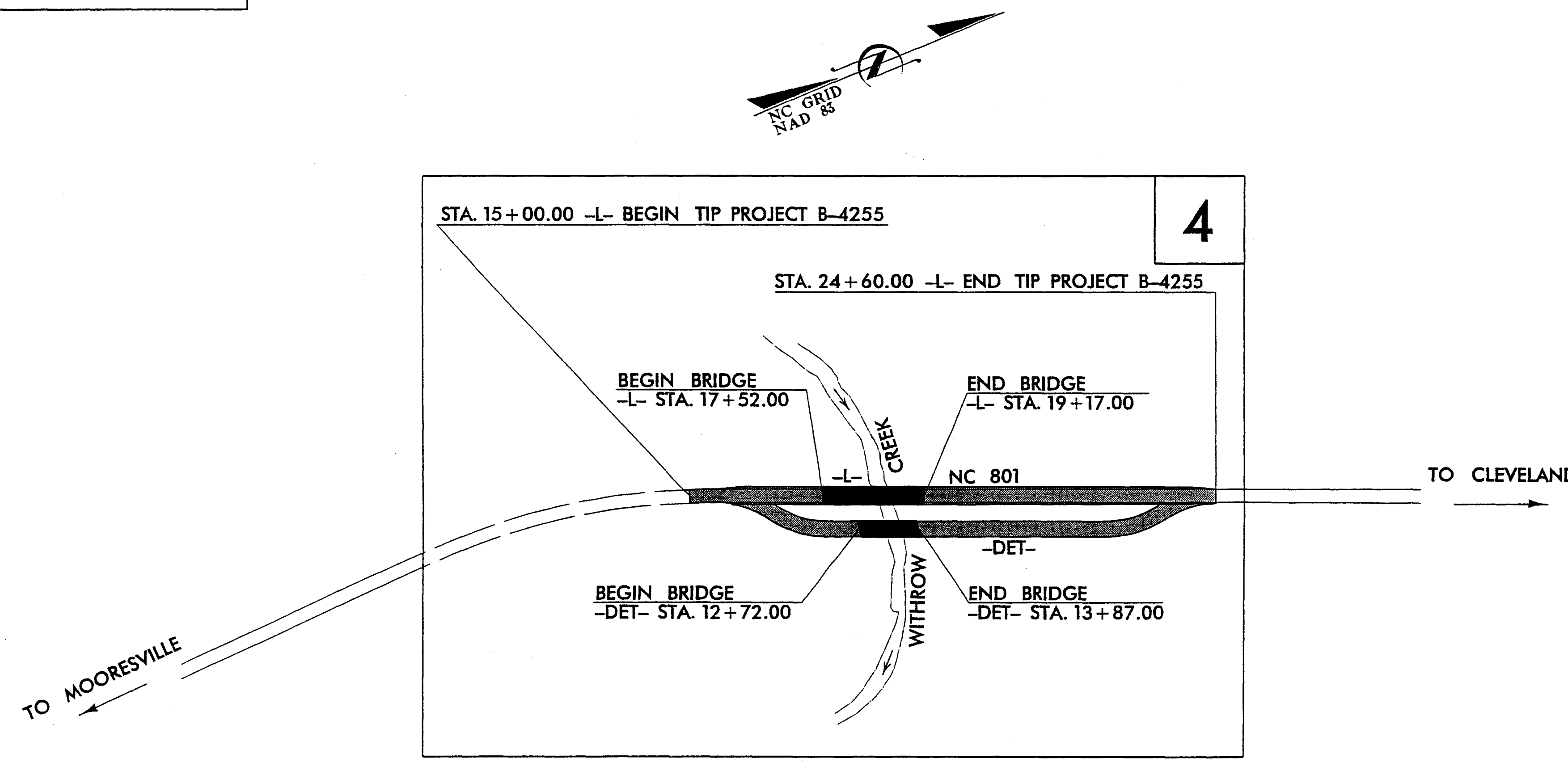
LOCATION: BRIDGE NO. 28 OVER WITHROW CREEK ON NC 801

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4255	1	

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
33597.1.1	BRSTP-0801(3)	P.E.
33597.2.1	BRSTP-0801(3)	ROW, UTL
33597.3.1	BRSTP-0801(7)	CONST

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TIP PROJECT: B-4255

CONTRACT: C201474

MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 5,700
ADT 2026 = 10,300
DHV = 12 %
D = 55 %
T = 9 % *
V = 60 MPH
* TTST 3% DUAL 6%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4255 =	0.151	MILES
LENGTH STRUCTURE TIP PROJECT B-4255 =	0.031	MILES
TOTAL LENGTH STATE TIP PROJECT B-4255 =	0.182	MILES

Prepared in the Office of:
MULKEY
ENGINEERS & CONSULTANTS
FOR THE NORTH CAROLINA DEPT. OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 18, 2005

LETTING DATE: JULY 18, 2006

TIM JORDAN, PE
MULKEY E & C PROJECT MANAGER

DAVID BOCKER, PE
MULKEY E & C HYDRAULICS ENGINEER

NCDOT CONTACT: CATHY HOUSER, PE

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. APPROX. 11" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE WEDGING DETAIL)

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

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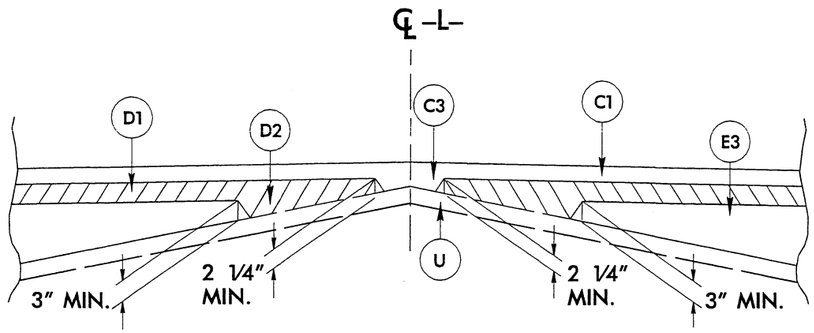
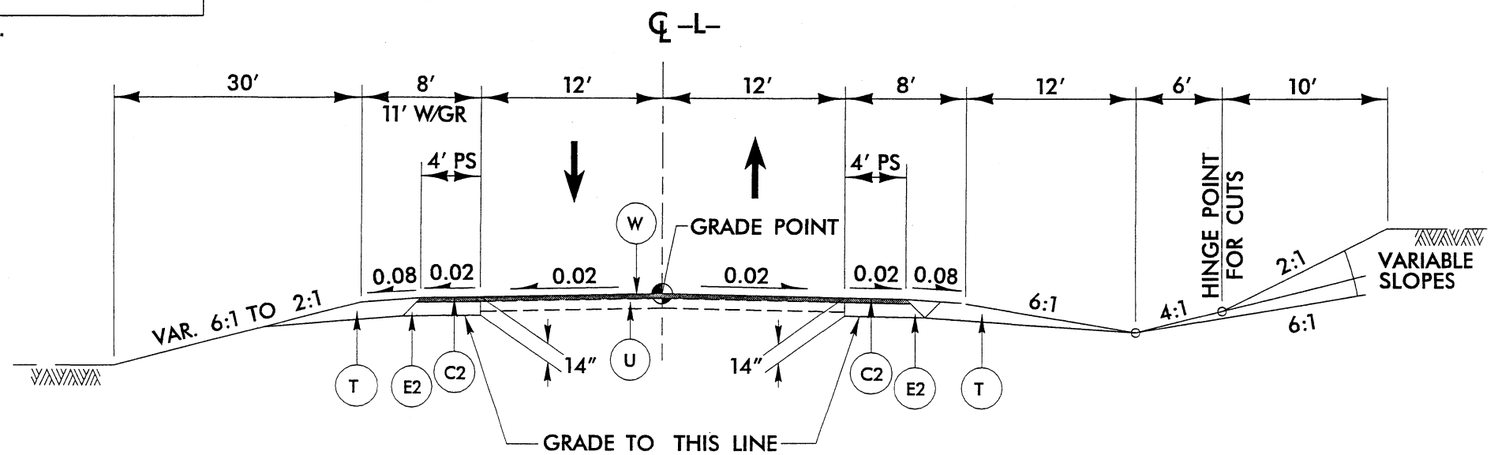
PROJECT REFERENCE NO.	SHEET NO.
B-4255	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DETAIL SHOWING METHOD OF WEDGING

USE IN CONJUCTION WITH TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
AT THE FOLLOWING LOCATIONS

–L– STA. 15+00.00 TO STA. 16+90.00
–L– STA. 23+75.00 TO STA. 24+60.00

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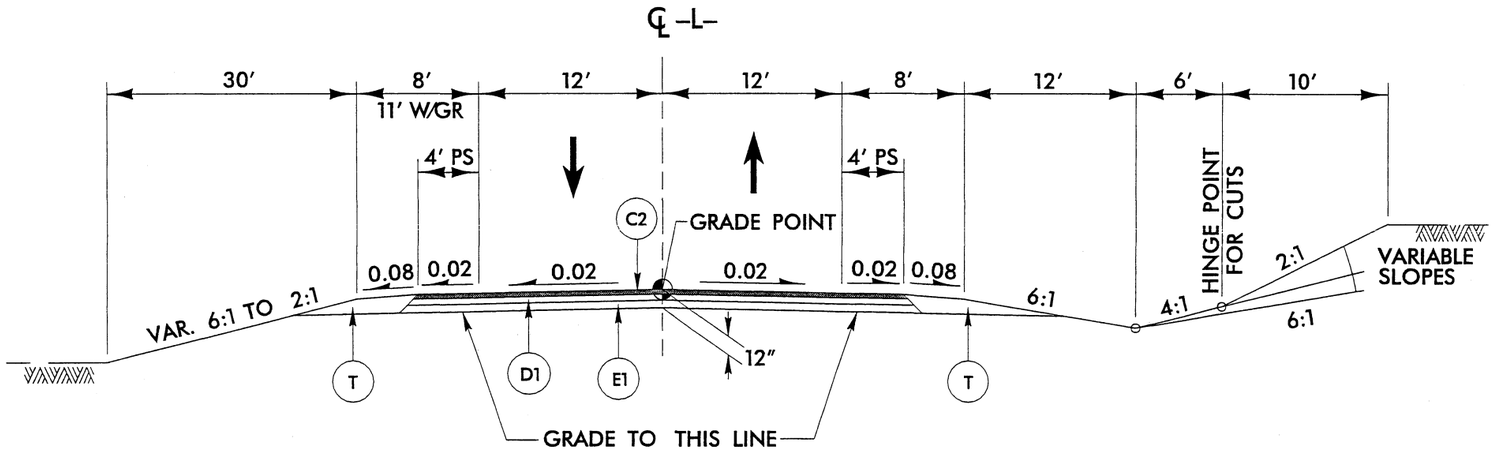
PROJECT REFERENCE NO.	SHEET NO.
B-4255	2-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

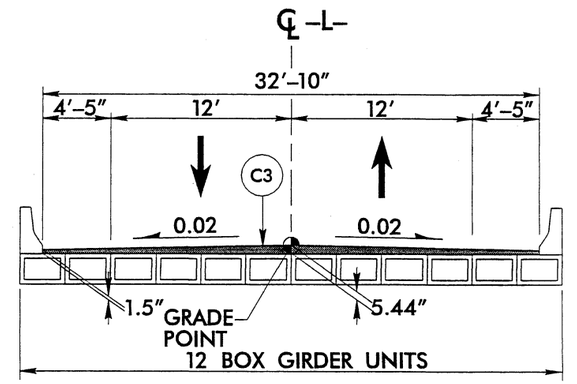
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 2

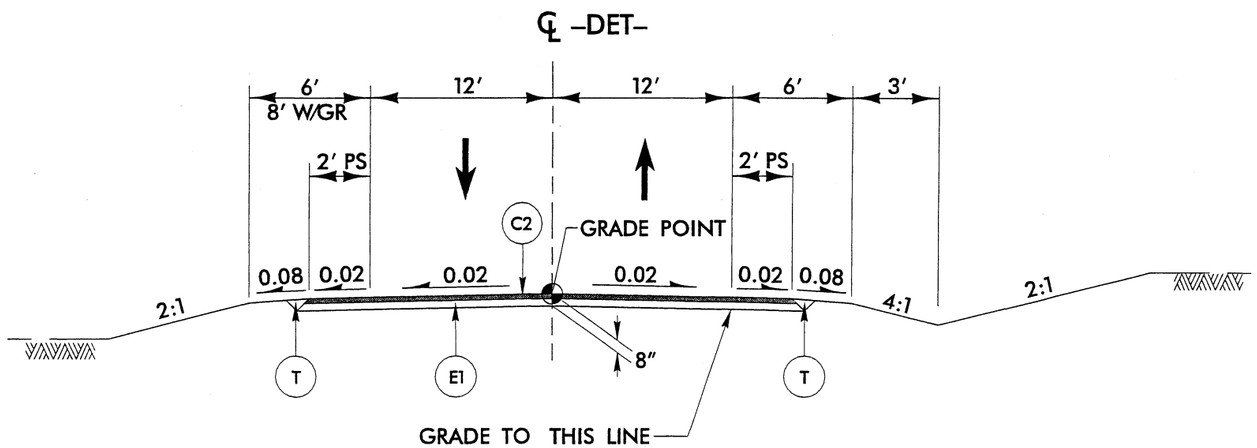
USE TYPICAL SECTION NO. 2
AT THE FOLLOWING LOCATIONS

–L– STA. 16+90.00 TO STA. 17+52.00 (BEGIN BRIDGE)
–L– STA. 19+17.00 (END BRIDGE) TO STA. 23+75.00



DETAIL OF BOX GIRDER BRIDGE

–L– STA. 17+52.00 TO STA. 19+17.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
AT THE FOLLOWING LOCATIONS

–DET– STA. 10+67.19 TO STA. 12+72.00 (BEGIN BRIDGE)
–DET– STA. 13+87.00 (END BRIDGE) TO STA. 18+66.93

C2	3 " S9.5B
C3	VAR. S9.5B
D1	4" 119.0B
E1	5 " B25.0B
T	EARTH

NO IMPACTS WERE FOUND ON THIS SHEET

NC GRID NAD 83

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PROJECT REFERENCE NO.	SHEET NO.
B-4255	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

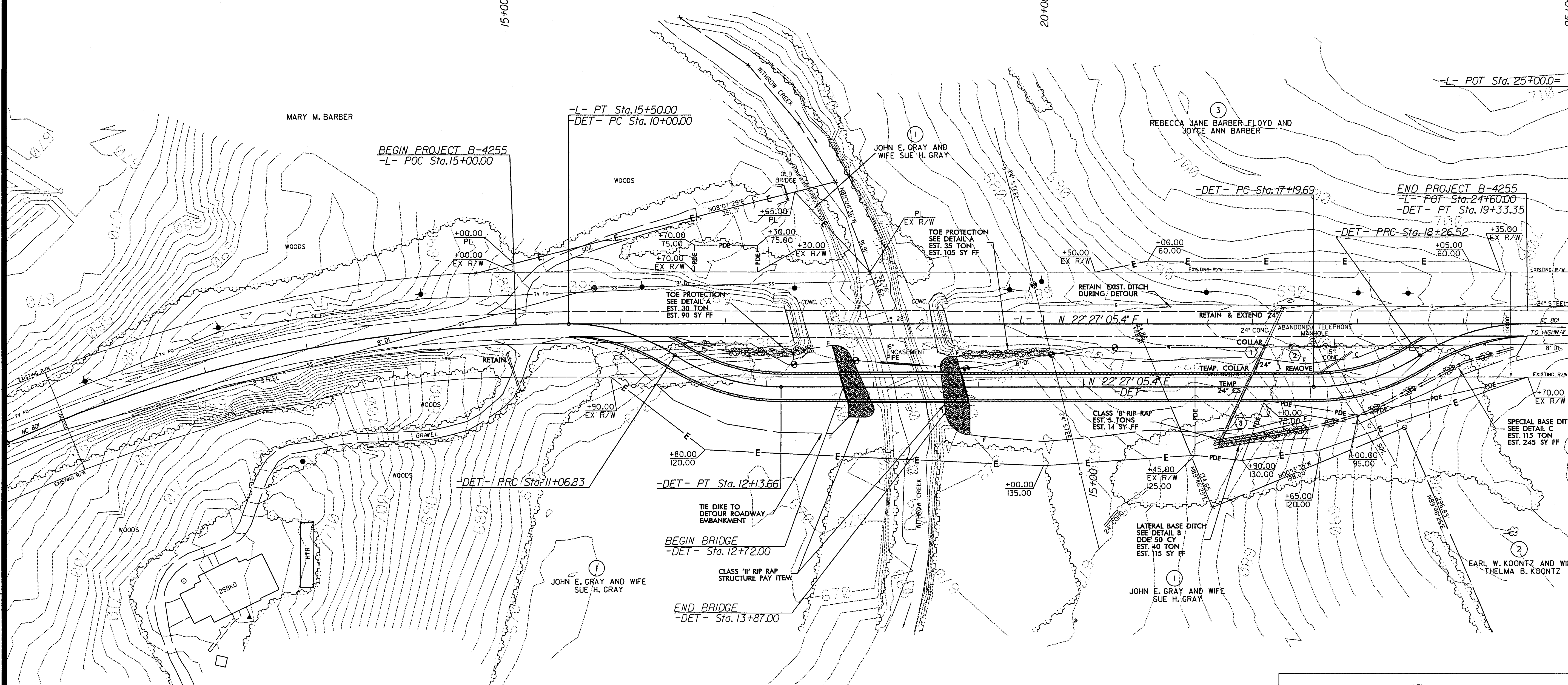
ROWAN COUNTY, NC
BRIDGE 28 ON NC 801
OVER WITHROW CREEK
4 /8 /05

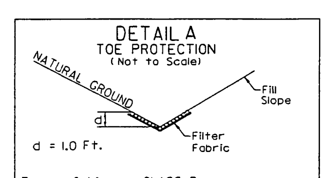
ENGLISH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

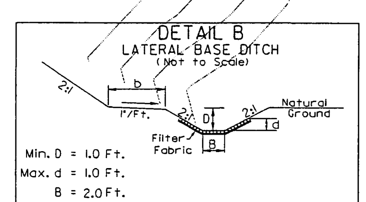
FOR -DET- PROFILE SEE SHEET 5

REVISIONS

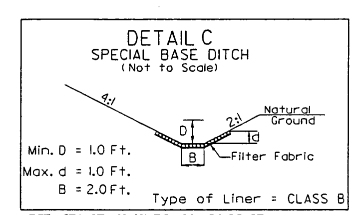

15+00
20+00
25+00
MARY M. BARBER
BEGIN PROJECT B-4255
-L- POC Sta.15+00.00
-L- PT Sta.15+50.00
-DET- PC Sta. 10+00.00
JOHN E. GRAY AND WIFE SUE H. GRAY
REBECCA JANE BARBER FLOYD AND JOYCE ANN BARBER
-L- POT Sta. 25+00.0=
END PROJECT B-4255
-L- POT Sta.24+60.00
-DET- PT Sta. 19+33.35
-DET- PC Sta. 17+19.69
-DET- PRC Sta. 18+26.52
WITHROW CREEK
TOE PROTECTION SEE DETAIL A EST. 35 TON EST. 105 SY FF
TOE PROTECTION SEE DETAIL A EST. 30 TON EST. 90 SY FF
RETAIN EXIST. DITCH DURING DETOUR
-L- N 22°27' 05.4" E
N 22°27' 05.4" E -DET-
RETAIN & EXTEND 24"
ABANDONED TELEPHONE MANHOLE
TEMP. COLLAR
REMOVE
CLASS 'B' RIP-RAP EST. 5 TONS EST. 14 SY FF
SPECIAL BASE DITCH SEE DETAIL C EST. 115 TON EST. 245 SY FF
-DET- PRC Sta. 11+06.83
-DET- PT Sta. 12+13.66
TIE DIKE TO DETOUR ROADWAY EMBANKMENT
BEGIN BRIDGE -DET- Sta. 12+72.00
CLASS 'II' RIP RAP STRUCTURE PAY ITEM
END BRIDGE -DET- Sta. 13+87.00
LATERAL BASE DITCH SEE DETAIL B DDE 50 CY EST. 40 TON EST. 115 SY FF
EARL W. KOONTZ AND WIFE THELMA B. KOONTZ
WOODS
NC 801
TO HIGHWAY 70



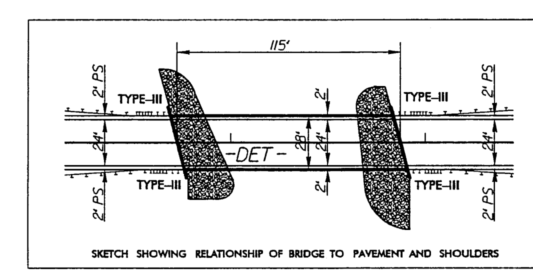
-DET- STA. 11+60.96 TO 12+45 LT
-DET- STA. 13+79 TO 14+75 LT



-DET- STA. 16+25 TO 17+11.67 RT



-DET- STA. 17+11.67 TO 19+23.35 RT



SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS

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NO IMPACTS WERE FOUND ON THIS SHEET

NC GRID NAD 83

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ROWAN COUNTY, NC
BRIDGE 28 ON NC 801
OVER WITHROW CREEK
4/8/05

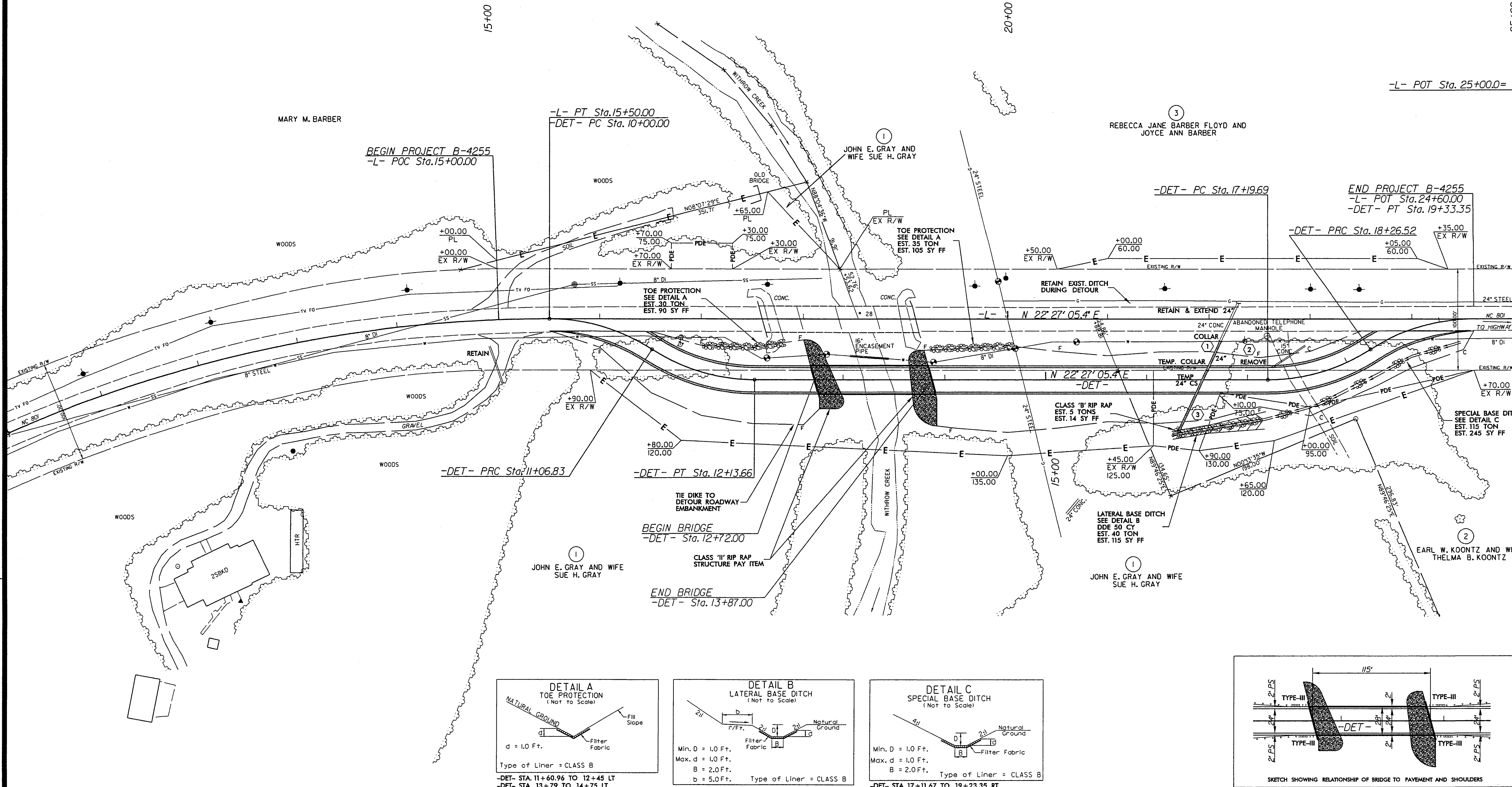
ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
B-4255	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -DET- PROFILE SEE SHEET 5

REVISIONS



MARY M. BARBER
BEGIN PROJECT B-4255
-L- POC Sta.15+00.00
-L- PT Sta.15+50.00
-DET- PC Sta.10+00.00
JOHN E. GRAY AND WIFE SUE H. GRAY
REBECCA JANE BARBER FLOYD AND JOYCE ANN BARBER
-L- POT Sta. 25+00.0=
-DET- PC Sta. 17+19.69
END PROJECT B-4255
-L- POT Sta.24+60.00
-DET- PT Sta. 19+33.35
-DET- PRC Sta. 18+26.52
TOE PROTECTION SEE DETAIL A EST. 35 TON EST. 105 SY FF
TOE PROTECTION SEE DETAIL A EST. 30 TON EST. 90 SY FF
RETAIN EXIST. DITCH DURING DETOUR
RETAIN & EXTEND 24"
ABANDONED TELEPHONE MANHOLE
-L- N 22° 27' 05.4" E
N 22° 27' 05.4" E -DET-
CLASS 'B' RIP RAP EST. 5 TONS EST. 14 SY FF
SPECIAL BASE DITCH SEE DETAIL C EST. 115 TON EST. 245 SY FF
-DET- PRC Sta. 11+06.83
-DET- PT Sta. 12+13.66
TIE DIKE TO DETOUR ROADWAY EMBANKMENT
BEGIN BRIDGE -DET- Sta. 12+72.00
CLASS 'II' RIP RAP STRUCTURE PAY ITEM
END BRIDGE -DET- Sta. 13+87.00
LATERAL BASE DITCH SEE DETAIL B DDE 50 CY EST. 40 TON EST. 115 SY FF
EARL W. KOONTZ AND WIFE THELMA B. KOONTZ
WITHROW CREEK
WOODS
15+00
20+00
25+00
DETAIL A TOE PROTECTION (Not to Scale)
d = 1.0 Ft.
Type of Liner = CLASS B
-DET- STA. 11+60.96 TO 12+45 LT
-DET- STA. 13+79 TO 14+75 LT
DETAIL B LATERAL BASE DITCH (Not to Scale)
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
Type of Liner = CLASS B
-DET- STA. 16+25 TO 17+11.67 RT
DETAIL C SPECIAL BASE DITCH (Not to Scale)
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = CLASS B
-DET- STA. 17+11.67 TO 19+23.35 RT
SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS

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PROJECT REFERENCE NO.	SHEET NO.
B-4255	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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ROWAN COUNTY, NC
BRIDGE 28 ON NC 801
OVER WITHROW CREEK
4 /8 /05

ENGLISH

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

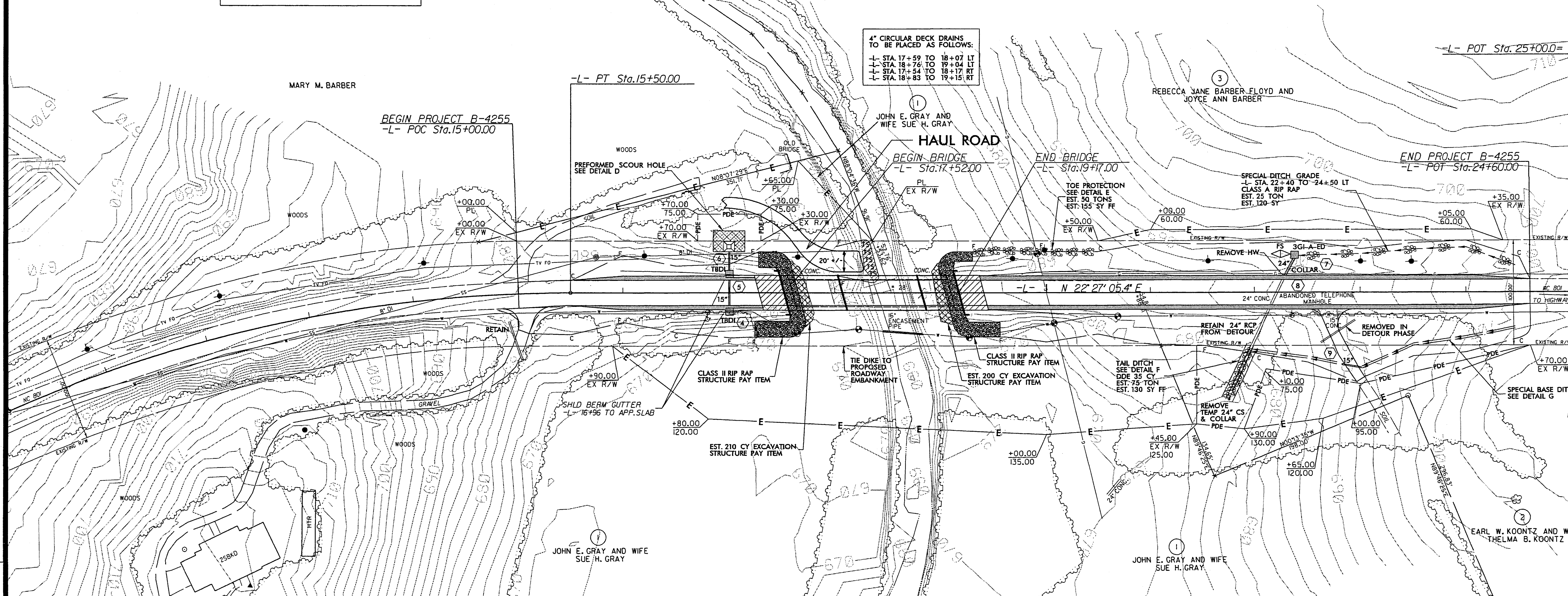
FOR -L- PROFILE SEE SHEET 5

NC GRID NAD 83

DENOTES TEMPORARY FILL IN SURFACE WATERS

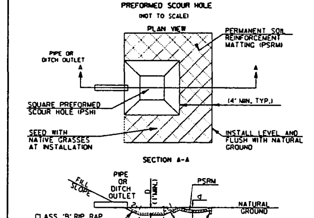
CAUSEWAY QUANTITIES

VOLUME OF CLASS II RIP RAP
BELOW ORDINARY HIGH WATER= 16 YD^3



DETAIL D

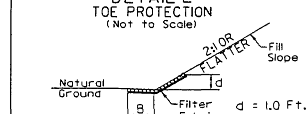
PREFORMED SCOUR HOLE
(NOT TO SCALE)



LINE	STATION	B (FT.)	D (FT.)	W_{PSRM} (FT.)	d (FT.)	CLASS B RIP RAP (TONS)	DDE (YD^3)	FILTER FABRIC (YD^2)	PSRM (YD^2)
-L-	17+00 LT	4	1.5	10	0.5	5.7	1.3	8.0	18.9

DETAIL E

TOE PROTECTION
(Not to Scale)

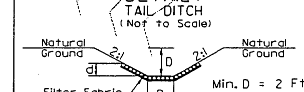


Type of Liner = CLASS B

-L- STA. 19+30 TO 20+40 LT

DETAIL F

TAIL DITCH
(Not to Scale)

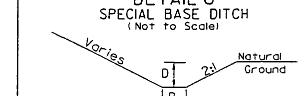


Type of Liner = CLASS I

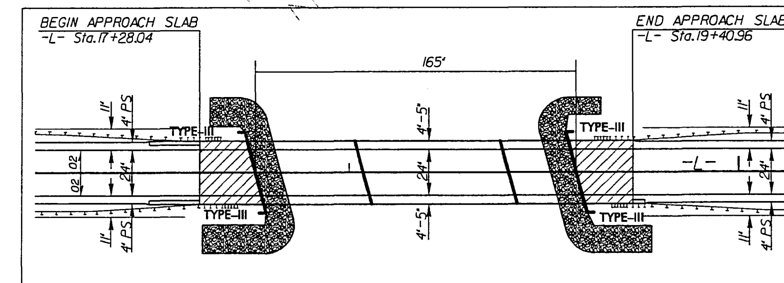
-L- STA. 22+00 RT

DETAIL G

SPECIAL BASE DITCH
(Not to Scale)



-L- STA. 22+00 TO 24+50 RT



SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
B-4255	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ROWAN COUNTY, NC
BRIDGE 28 ON NC 801
OVER WITHROW CREEK
4 / 8 /05
ENGLISH

FOR -L- PROFILE SEE SHEET 5

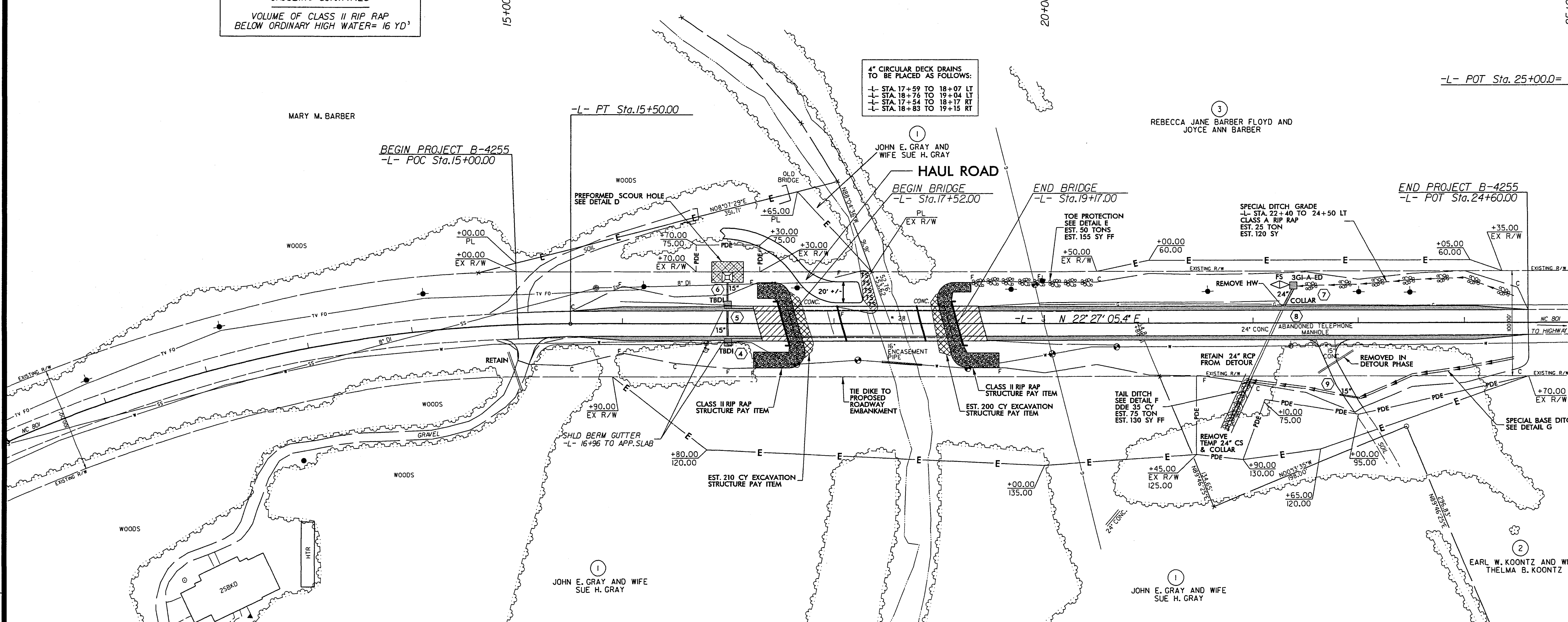
REVISIONS

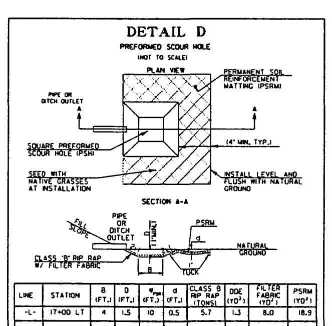
NC GRID NAD 83

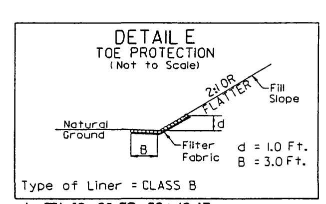
DENOTES TEMPORARY FILL IN SURFACE WATERS

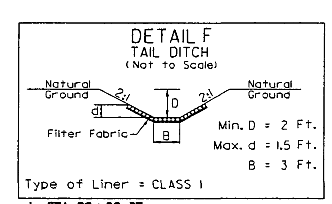
CAUSEWAY QUANTITIES

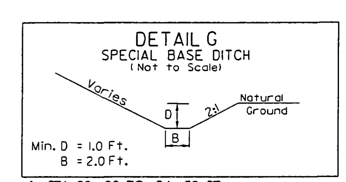
VOLUME OF CLASS II RIP RAP BELOW ORDINARY HIGH WATER= 16 YD^3

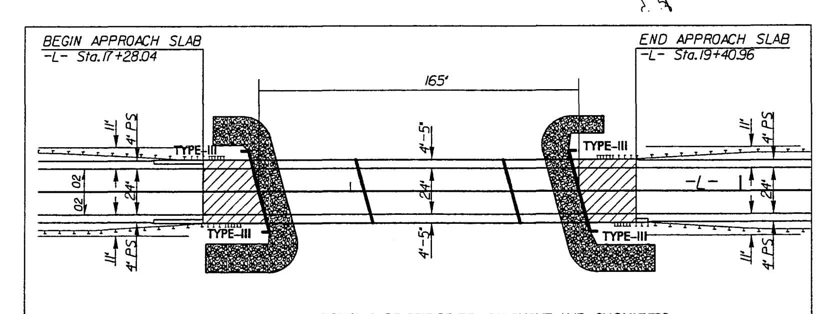












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-BL- 2
EL = 685.69'
18" REBAR WITH CAP

-BL- 3
EL = 680.64'
18" REBAR WITH CAP

BM-2 EL = 689.62'
N=716845 E=1512855
-BL- STA 30+32 101' RT
-L- STA 22+66.88 102.3843' RT
RAILROAD SPIKE SET IN BASE
OF 24" OAK TREE.

BRIDGE HYDRAULIC DATA
BOX GIRDER BRIDGE

DESIGN DISCHARGE	= 6800	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 675.19	FT
100 YEAR DISCHARGE	= 8100	CFS
100 YEAR HW ELEVATION	= 675.93	FT
OVERTOPPING DISCHARGE	= 18400	CFS
OVERTOPPING FREQUENCY	= 500 +	YRS
OVERTOPPING ELEVATION	= 681.38	FT
DATE OF SURVEY	= 6/22/04	
W.S.ELEVATION AT DATE OF SURVEY	= 662.13	FT

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PROJECT REFERENCE NO.	SHEET NO.
B-4255	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BEGIN CONSTRUCTION
-L- 15+40.00

BLEND
TO EXIST

BEGIN GRADE
-L- 15+50.00
EL = 681.81'

PI = 16+70.00
EL = 681.33'
VC = 106'
K = 152

BEGIN BRIDGE
-L- 17+52.00

END BRIDGE
-L- 19+17.00

PI = 20+60.00
EL = 682.50'
VC = 600'
K = 137

(-)0.3958%
(+)0.3000%
(+)0.3000%
(+)4.6886%
(+)4.4000%
(+)3.0600%
(+)3.0000%
(+)4.0000%
(+)6.0000%
(+)7.0000%

APPROX. TOP ELEV = 669.0

1.5:1

"TEMPORARY CAUSEWAY"
CLASS II RIP RAP
USE COARSE AGGREGATE
SURFACE AS NEEDED

OHW = 663.13
NWS = 662.13
(6-22-04)

BLEND
TO EXIST

END GRADE
-L- 24+10.00
EL = 698.91

END CONSTRUCTION
-L- 24+60.00

BEGIN DITCH LT
-L- 22+40
EL = 688.53'

BEGIN DITCH RT
-L- 22+40
EL = 689.01'

PI DITCH LT
-L- 22+50
EL = 688.97'

PI DITCH LT
-L- 23+00
EL = 690.50'

PI DITCH LT
-L- 23+50
EL = 692.00'

PI DITCH LT
-L- 24+00
EL = 694.00'

END DITCH LT
-L- 24+50
EL = 697.00'

END DITCH RT
-L- 24+50
EL = 697.60'

-DET-

BEGIN GRADE
-DET- 10+67.19
EL = 681.01'

PI = 11+50.00
EL = 680.18'
VC = 100'
K = 45

BEGIN BRIDGE
-DET- 12+72.00

END BRIDGE
-DET- 13+87.00

PI = 17+00.00
EL = 686.85'
VC = 180'
K = 36

(-)11.0023%
(+)11.2127%
(+)11.2127%
(+)6.2809%
(+)6.7689%
(+)12.6133%
(+)5.9995%
(+)6.2219%

1.5:1
1.5:1

NWS = 662.13
(6-22-04)

BEGIN DITCH RT
-DET- 16+25.00
EL = 673.00'

PI DITCH RT
-DET- 16+61.67
EL = 675.20'

PI DITCH RT
-DET- 17+62.04
EL = 687.86'

PI DITCH RT
-DET- 17+72.25
EL = 695.32'

END GRADE
-DET- 18+66.93
EL = 697.33'

END DITCH RT
-DET- 19+23.35
EL = 698.50'

BRIDGE HYDRAULIC DATA
BOX GIRDER BRIDGE

DESIGN DISCHARGE	= 3200	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 672.56	FT
100 YEAR DISCHARGE	=	CFS
100 YEAR HW ELEVATION	=	FT
OVERTOPPING DISCHARGE	=	CFS
OVERTOPPING FREQUENCY	=	YRS
OVERTOPPING ELEVATION	=	FT
DATE OF SURVEY	= 6/22/04	
W.S.ELEVATION AT DATE OF SURVEY	= 662.13	FT

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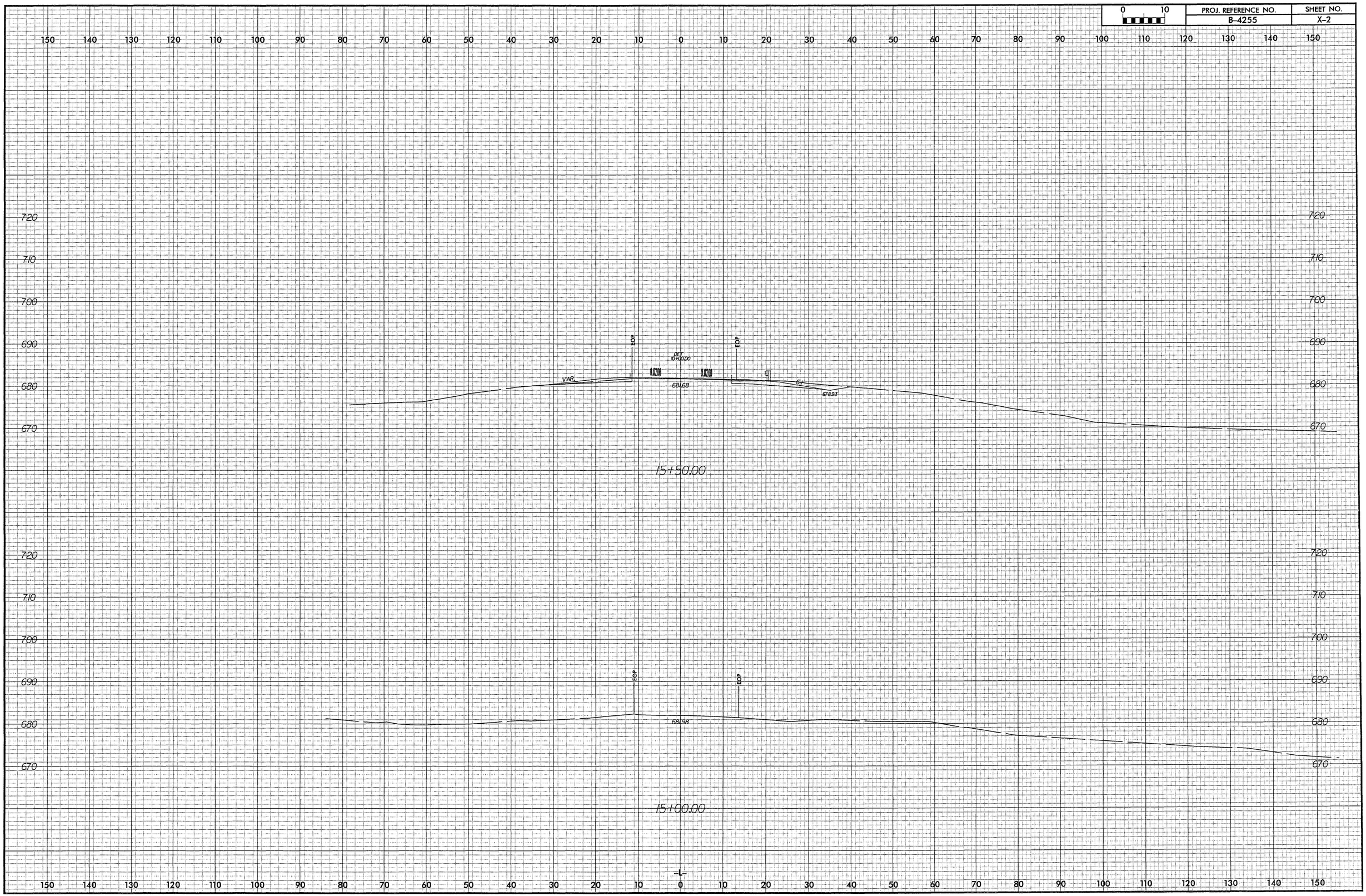
0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4255	X-2



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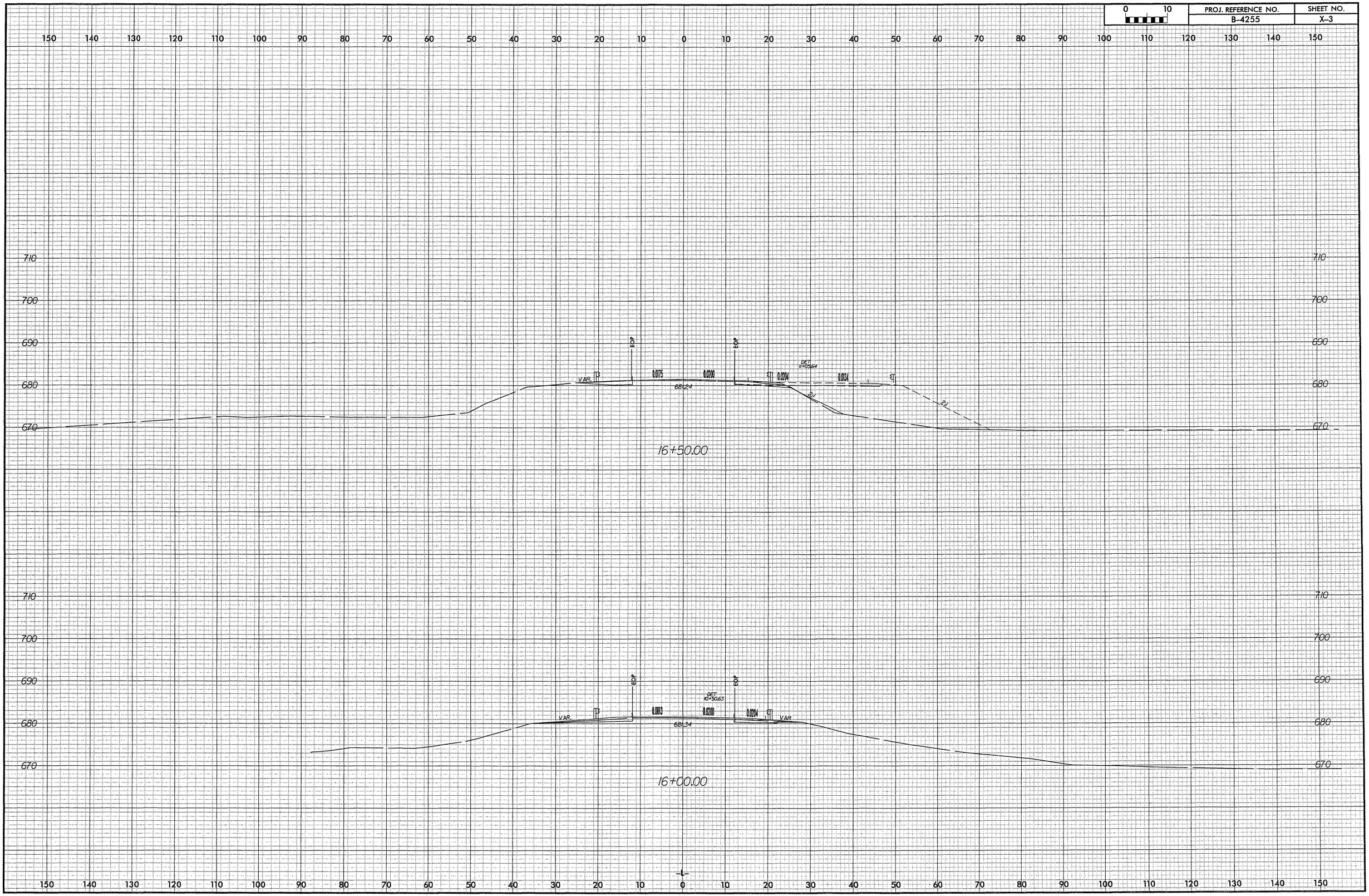
	B-4255	X-3



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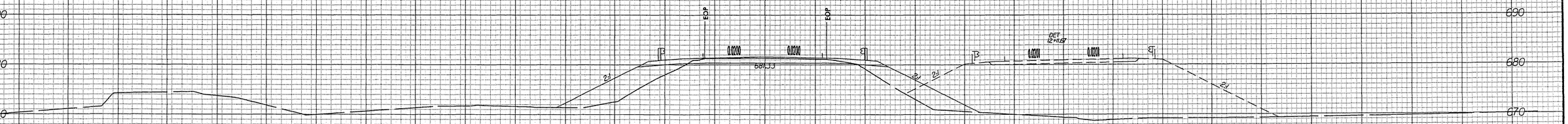
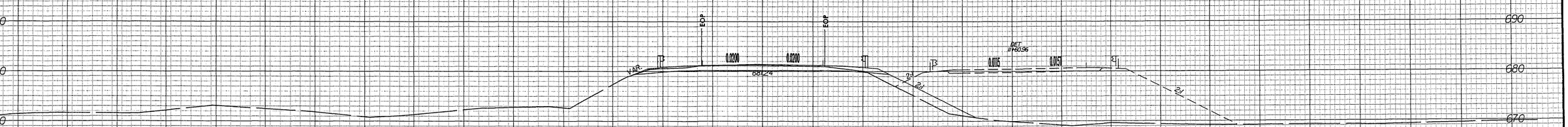
	B-4255	X-4

BEGIN BRIDGE –L– STA. 17+52.00



17+50.00



17+00.00

–L–

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4255	X-5

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

710
700
690
680
670

EOP
EOP
0.0200
0.0200
681.88
2%
2%
DET 14+11.67
0.0200
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2%

19+50.00

END BRIDGE –L– STA. 19+17.00

END BRIDGE –DET– STA. 13+87.00

680
670

0.0200
0.0200
674.87
DET 13+61.67
0.0200
0.0200

19+00.00

680
670

0.0200
0.0200
DET 13+11.67
0.0200
0.0200

680
670
660

661.93

18+50.00

BEGIN BRIDGE –DET– STA. 13+87.00

680
670

0.0200
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DET 12+61.67
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2%
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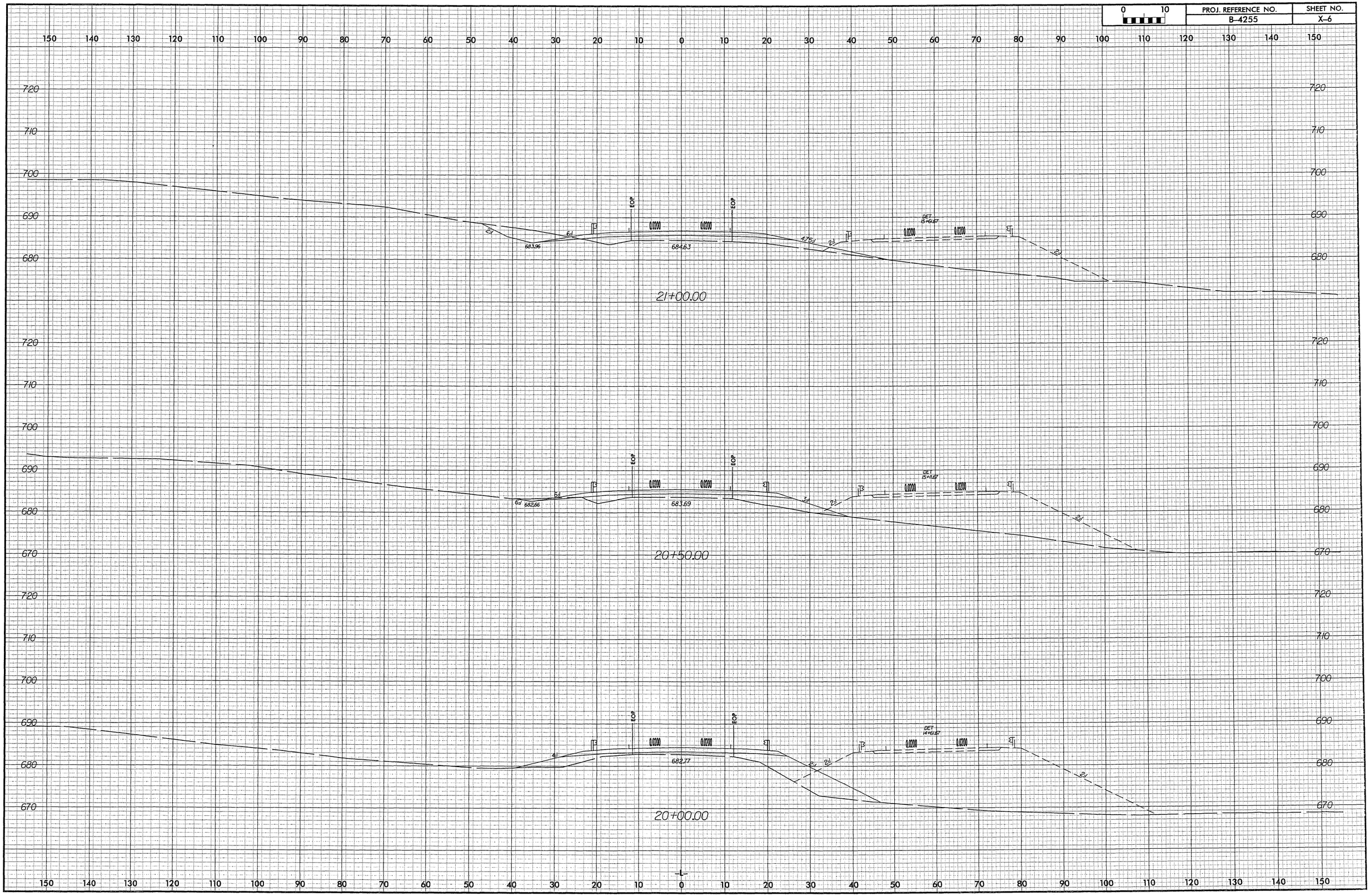
18+00.00

–L–

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4255	X-6



0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4255	X-7

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

720 710 700 690 680

EOP EOP

0.0200 0.0200

4:1 6:1 5.42:1 2:1

688.97 689.34 683.60 681.51

DET 17+41.82

22+50.00

720 710 700 690 680

EOP EOP

0.0200 0.0200

2:1 6:1 7.75:1 3:1 2:1

687.11 687.56 680.10 675.20

DET 16+91.67

22+00.00

720 710 700 690 680

EOP EOP

0.0200 0.0200

2:1 6:1 7.59:1 3:1 2:1

685.45 685.84

DET 16+11.84

21+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4255	X-8

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

730 720 710 700 690 680

EOP EOP

0.0200 0.0200 0.0022 0.0404 0.0335

6:1 6:1

4:1 692.00 695.11 690.60 691.51

DET 18+45.96

23+50.00

730 720 710 700 690 680

EOP EOP

0.0200 0.0200 VAR. 0.0336 0.0477 0.0085

6:1 4:1 692.44 689.71 4:1

DET 17+62.04

4:1 690.59 687.10 687.86

23+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4255	X-9

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

710
730
720
710
700
690

EOP
EOP
DET
24+97.30
703.52

25+00.00

710
730
720
710
700
690

EOP
EOP
DET
19+23.35
0.0200
0.0200
V
R
4:1
697.00
700.74
698.50
6:1
697.60

24+50.00

730
720
710
700
690

EOP
EOP
DET
18+72.25
0.0200
0.0200
0.0200
6:1
4:1
694.00
697.89
6:1
695.32
694.10

24+00.00

-L-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

NC 801 (Bear Poplar Road)
Bridge No. 28 Over Withrow Creek
Rowan County
Federal-Aid Project No. BRSTP-0801(3)
State Project No. 8.1632201
T.I.P. No. B-4255

CATEGORICAL EXCLUSION

AND

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

3/10/04
DATE

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

3/10/04
DATE

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

NC 801 (Bear Poplar Road)
Bridge No. 28 Over Withrow Creek
Rowan County
Federal-Aid Project No. BRSTP-0801(3)
State Project No. 8.1632201
T.I.P. No. B-4255

CATEGORICAL EXCLUSION

AND

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL

March 2004

Document Prepared by:
Mulkey Engineers and Consultants
Cary, North Carolina 27611

3-3-04
Date

J. A. Bissett, Jr., PE
Branch Manager

3-3-04
Date

Pamela R. Williams
Project Manager

For the North Carolina Department of Transportation

Elmo Vance
Project Manager
Consultant Engineering Unit

PROJECT COMMITMENTS

NC 801 (Bear Poplar Road)
Bridge No. 28 Over Withrow Creek
Rowan County
Federal-Aid Project No. BRSTP-0801(3)
State Project No. 8.1632201
T.I.P. No. B-4255

In addition to the standard Nationwide Permit No. 23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for the Protection of Surface Waters, Design Standards for Sensitive Watersheds, Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

The following measures will be carried out for the replacement of Bridge No. 28:

Structure Design

Deck drainage will not be allowed to discharge directly into Withrow Creek.

NC 801 (Bear Poplar Road)
Bridge No. 28 Over Withrow Creek
Rowan County
Federal-Aid Project No. BRSTP-0801(3)
State Project No. 8.1632201
T.I.P. No. B-4255

Introduction

The replacement of Bridge No. 28 is included in the North Carolina Department of Transportation (NCDOT) 2004-2010 Transportation Improvement Program (TIP) and in the Federal-aid Bridge Replacement Program. The location of the bridge is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a federal "Categorical Exclusion."

I. Purpose and Need

The NCDOT Bridge Maintenance Unit's records indicate that Bridge No. 28 has a sufficiency rating of 49.6 out of a possible 100 for a new structure. The bridge is considered functionally obsolete. The replacement of this inadequate structure will result in safer, more efficient traffic operations.

II. Existing Conditions

Bridge No. 28 is located on NC 801 (Bear Poplar Road) over Withrow Creek in Rowan County. The project is approximately 9 miles (14.5 kilometers) west of the town of Salisbury, 0.3 miles (0.48 kilometers) south of the junction of NC 801 and SR 1739. Barber Farm, a historic property listed on the National Register of Historic Places, is located on the northwest side of Bridge No. 28.

The existing bridge is a four-span structure with an overall length of 151 feet (46 meters). The average span length is 37.5 feet (11.4 meters). Bridge No. 28 has a clear roadway width of 24 feet (7.2 meters). It was constructed in 1948. The bridge consists of a reinforced concrete superstructure with concrete rails on a substructure of timber piles with concrete caps and spill through abutments. Bridge No. 28 has a posted weight limit of 33 tons (29.9 metric tons) for single vehicles, and legal gross weight for truck-tractor semi-trailers (TTST).

The approach roadway consists of two 10-foot (3.0-meter) travel lanes with 5-foot (1.5-meter) grass shoulders. No utilities are attached to Bridge No. 28. Aerial power lines and a natural gas pipeline run parallel to NC 801 on the west side. A 6-inch (15-centimeter) diameter wastewater treatment discharge pipe is located on the west side of NC 801, approximately 30 feet (9.2 meters) from the bridge. A buried fiber optics cable and an 8-inch (20.3-centimeter) water line are located parallel to the roadway on the east side. It is anticipated that utility impacts will be low.

NC 801 is a two-lane facility classified as a rural major collector in the statewide functional classification system. NC 801 has a posted speed limit of 55 miles per hour (90 kilometers per hour) in the vicinity of Bridge No. 28. Land use in the project area is generally agricultural and woodlands. West Rowan High School is located approximately 0.57 miles (0.92 kilometers) south of the project on NC 801.

The 2004 estimated average daily traffic (ADT) is 5,200 vehicles per day (VPD). The projected ADT for design year 2030 is 11,200 VPD. The percentages of truck traffic are 6% duals and 3% truck-tractor semi-trailers.

C. Alternatives Eliminated from Further Study

The "do-nothing" alternative will eventually necessitate removal of the existing structure and closure of NC 801. This is not desirable due to the service provided by NC 801.

Investigation of the existing structure by the NCDOT Bridge Maintenance Unit indicates that the bridge cannot be rehabilitated due to the deteriorated condition.

Replacement of the bridge at its existing location with an off-site detour along SR 1743, US 70, and NC 801; or NC 801, SR 1526, SR 1728, US 70, and NC 801, for a distance ranging from 8.0 to 9.3 miles (12.9 to 15 kilometers) was considered. This alternative is not desirable because of the increased time and expense that would be incurred by the Rowan County-Salisbury School System in rerouting the 30 daily bus trips crossing the bridge, and the increased response time for emergency medical services.

D. Preferred Alternative

Alternative B, replacing Bridge No. 28 at the existing location using a temporary on-site detour located just east of the bridge, is the preferred alternative. This alternative was selected because it minimizes impacts to a historic property in the project area and provides continuous service along NC 801.

The Division Construction Engineer concurs with Alternative B as the preferred alternative.

E. Anticipated Design Exceptions

A design exception is not anticipated for this project.

IV. Estimated Cost

The estimated costs of the bridge replacement, based on current prices, are as follows:

Table 1. Construction Cost Estimate

	Alternatives	
	A	B (Preferred)
Structure Removal	$ 35,330.00	$ 35,330.00
Proposed Structure	372,000.00	372,000.00
Temporary Detour Structure	134,550.00	134,550.00
Temporary Detour Approaches	67,880.00	83,000.00
Roadway Approaches	237,130.00	265,880.00
Traffic Control	13,600.00	13,600.00
Miscellaneous and Mobilization	224,660.00	244,400.00
Engineering Contingencies	164,850.00	201,240.00
ROW/Const. Easements/Utilities	80,400.00	101,000.00
TOTAL	**$ 1,330,400.00**	**$ 1,451,000.00**

The estimated cost of the project as shown in the 2004-2010 Transportation Improvement Program is $1,190,000, including $90,000 for right-of-way, $900,000 for construction and $200,000 in prior years.

Chewacla loam, 0-2% slope (ChA) is a very deep, somewhat poorly drained hydric soil found on floodplains along streams and drainageways in the Piedmont region. Permeability is moderate with frequent flooding and depth to the seasonal high water table is 0.5 to 1.5 feet (0.15 to 0.45 meters) below the surface. Chewacla soils contain hydric inclusions.

Enon fine sandy loam, 8-15% slope (EnC) is a very deep, well-drained soil found on narrow ridged and side slopes in the Piedmont. Bedrock depth is typically greater than 5 feet (1.5 meters). This soil has slow permeability and high shrink-swell potential.

Poindexter-Mocksville complex, 15-25% slope (PxD) is an equally proportioned combination of the Poindexter and Mocksville series with steep slopes. Both soil series are found along very narrow ridges and side slopes in the Piedmont and are relatively well-drained and moderately permeable. Depth to the seasonal high water table is greater than 6 feet (1.8 meters) below the surface. The main limitations of this soil are related to steep slope and potential for erosion.

Zion-Enon complex, 8-15% slope (ZeC) is a combination of the Zion and Enon series commonly found on narrow ridges and side slopes in Piedmont uplands. They are moderately to very deep, well-drained, and have slow to moderately slow permeability. Depth to the seasonal water table is greater than 6 feet (1.8 meters), with no flooding. The limitations of this soil are related to moderate slopes and slow permeability.

C. Water Resources

1. Waters Impacted

The project study area is located within sub-basin 03-07-06 of the Yadkin-Pee Dee River Basin (DWQ 2002) and is part of USGS Hydrologic Unit No. 03040102 (USGS 1974). Bridge No. 28 on NC 801 crosses Withrow Creek, a tributary to Second Creek, which drains into the South Yadkin River. Withrow Creek has been assigned Stream Index Number (SIN) 12-108-21-3 by the DWQ from its source to its confluence with Second Creek (DENR 1998). No other streams or tributaries occur within the project study area. No jurisdictional wetlands are located within the project study area.

2. Water Resource Characteristics

Withrow Creek originates at its confluence with South Fork Withrow Creek and runs approximately 10 miles (16 kilometers) to its confluence with Second Creek, east of the project study area. The creek's drainage area is approximately 45.1 square miles (72.6 square kilometers). At NC 801, the creek is approximately 30 feet (9 meters) wide and one foot (0.3 meter) deep. The substrate is composed primarily of sand. A 6-inch (15 centimeter) wastewater treatment plant discharge pipe is located approximately 30 feet (9.1 meters) west (upstream) of the project.

a. Benthic Macroinvertebrate Monitoring System Rating

One method used by DWQ to monitor water quality is long-term monitoring of macroinvertebrates. The closest benthic monitoring station, B-30, on Withrow Creek is located on SR 1547 approximately 4.0 miles (6.4 kilometers) upstream of the project study area. This monitoring station received a bio-classification of Good-Fair in 1996 and 2001 (DWQ 2002).

include: the use of dikes, berms, silt basins, and other containment measures to control runoff and the elimination of construction staging areas in floodplains and adjacent waterways. Disturbed sites will be revegetated with herbaceous cover after any temporary construction impacts. If revegetation is required along stream banks, tall fescue (*Festuca elatior* var. *arundinacea*) would not be considered appropriate for use.

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

6. Impacts Related to Bridge Demolition and Removal

Section 402-2 of NCDOT's Standard Specifications for Roads and Structures is labeled "Removal of Existing Structure." This section outlines restrictions and Best Management Practices for Bridge Demolition and Removal (BMP-BDRs), as well as guidelines for calculating maximum potential fill in the creek resulting from demolition. The superstructure of Bridge No. 28 consists of reinforced concrete rails and deck. The substructure is composed of reinforced concrete caps on timber piles. The bridge consists of four spans totaling 151 feet (46.1 meters) in length, with a total width of 25.3 feet (7.7 meters). The potential exists for the concrete deck and caps to be dropped into Waters of the United States during demolition and removal. Although no fill is anticipated from removal, total maximum temporary fill associated with the removal of Bridge No. 28 is approximately 56 cubic yards (51.2 cubic meters).

With respect to bridge demolition guidelines, this project would be classified as a Case 3. This requires no special restrictions for in-water work other than those outlined in *Best Management Practices for Protection of Surface Waters*. This conclusion is based upon agency comments, and classification of waters within the project area.

D. Biotic Resources

1. Plant Communities

Four distinct plant communities occur within the project study area: disturbed/maintained, floodplain forest, upland forest, and agriculture. Distribution and composition of plant communities throughout the project study area reflect landscape-level variations in topography, soils, hydrology, and past and present land use practices. When appropriate, the plant community names have been adopted and modified from the NHP classification system (Schafale and Weakley, 1990) and the descriptions written to reflect local variations within the project study area. The characteristics of each plant community are summarized below.

Table 2. Anticipated Impacts to Terrestrial and Aquatic Communities (acres/hectares)

Bridge No. 28 Alternatives	Disturbed/ Maintained acre/hectare	Floodplain Forest acre/hectare	Upland Forest acre/hectare	Agriculture acre/hectare	Aquatic Community acre/hectare
A	0.84/0.34	0.20/0.08	0.34/0.14	0.19/.08	0.02/0.008
B	0.57/0.23	0.36/0.14	0.40/0.16	0.29/.12	0.02/0.008

- Terrestrial impacts were calculated to the pavement.
- Aquatic impacts were calculated by using the length times the additional width of the proposed bridge over water.
- Actual impacts may be less than those indicated. Calculations shown represent a worst-case scenario.

3. Terrestrial Wildlife

The project study area was visually surveyed for signs of terrestrial and aquatic wildlife. Maintained/Disturbed communities adjacent to forested tracts provide rich ecotones for foraging, while the forests provide additional forage and cover. Common mammals and birds associated with the plant communities in the project area include least shrew (*Cryptotis parva*), southern short-tailed shrew (*Blarina carolinensis*), raccoon (*Procyon lotor*), gray squirrel (*Sciurus carolinensis*), white-tailed deer (*Odocoileus virginianus*), Virginia opossum (*Didelphis virginiana*), northern mockingbird (*Mimus polyglottos*), northern cardinal (*Cardinalis cardinalis*), Carolina chickadee (*Poecile carolinensis*), tufted titmouse (*Baeolophus bicolor*), European starling (*Sturnus vulgaris*), and common grackle (*Quiscalus quisula*). The agricultural community provides habitat for mourning dove (*Zenaida macroura*) and bobwhite (*Colinus virginianus*).

4. Aquatic Wildlife Communities

Withrow Creek, a jurisdictional stream channel, provides the only aquatic community in the study area. Limited surveys through visual observation of the aquatic habitat were conducted, but no aquatic species were observed. Dragonflies, damselflies, and snails (*Elimia* spp.) were observed in the project study area.

5. Anticipated Impacts to Biotic Communities

a. Terrestrial Communities

The replacement of Bridge No. 28 is expected to involve minor impacts to the terrestrial communities located within the project study area. Impacts resulting from bridge replacement are generally limited to narrow strips adjacent to the existing bridge structure and roadway approach segments. The use of on-site detours will result in temporary impacts to terrestrial communities adjacent to the Withrow Creek. The area of the plant communities within the project study area is presented in Table 2; however, actual impacts will be limited to the designed right-of-way and permitted construction limits. Due to the anticipated limited encroachment on natural communities, the proposed bridge replacement will not result in substantial loss or displacement of known terrestrial wildlife populations. Wildlife movement corridors will not be substantially impacted by the proposed project. Wildlife known to utilize the project study area are generally acclimated to fragmented landscapes.

2. Permits

a. Section 404 of the Clean Water Act

In accordance with provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344), a permit will be required from the USACE for the discharge of dredged or fill material into "Waters of the United States." No jurisdictional wetlands will be impacted by the preferred alternative. Potential impacts to surface waters may be avoided if bridge demolition does not result in material falling into surface waters.

The proposed project will be processed as a Categorical Exclusion (CE) under FHWA guidelines. Nationwide Permit (NWP) #23 (33 CFR 330.5(a)(23)) is typically issued by the USACE for CEs due to their expected minimal impacts. It is anticipated that this project will fall under NWP 23.

b. Section 401 Water Quality Certification

This project will require a Section 401 Water Quality General Certification from the DWQ. Section 401 of the Clean Water Act requires that the state issue or deny water quality certification for any federally permitted or licensed activity that may result in a discharge into Waters of the United States. Written concurrence from DWQ is not required unless one or more standard conditions of this certification cannot be met.

c. Bridge Demolition and Removal

If no practical alternative exists to remove the current bridge other than to drop it into the water, prior to removal of debris off-site, fill related to demolition procedures will need to be considered during the permitting process. A worst-case scenario should be assumed with the understanding that if there is any other practical method available, the bridge will not be dropped into the water. Permitting should be coordinated such that any permit needed for bridge construction should also address issues related to bridge demolition. Since the deck and substructure are composed of concrete and steel, there is potential for components of the bridge to be dropped into "Waters of the United States" during bridge removal.

3. Mitigation

No impacts to jurisdictional wetlands are anticipated as a result of the proposed bridge replacement project. Project construction cannot be accomplished without infringing upon jurisdictional surface waters. These impacts are expected to be temporary in nature, with no permanent placement of fill within the stream. No modifications to the stream channel are proposed.

The preferred alternative, Alternative B, minimizes permanent impacts to Withrow Creek and its floodplain by replacing Bridge No. 28 at the existing location. Utilization of BMPs in the design and construction of the replacement bridge will also minimize impacts. An off-site detour to further minimize impacts was considered but not chosen due to hardship placed upon the Rowan County-Salisbury School System.

Compensatory mitigation is not proposed for this project due to the limited nature of the anticipated project impacts. Temporary impacts to floodplains associated with construction activities will be mitigated by replanting disturbed areas with native species and through removal of temporary fill material upon project completion. Fill or alteration of more than 150 linear feet (45.8 linear meters) of stream channel or 0.10 acre (0.04 hectares) of wetlands may require compensatory mitigation in

(5 to 17.8 centimeters) in width, lance-shaped and usually opposite, with upper leaves alternate. Leaves feel like felt on the underside and rough, like sandpaper, on the upper surface. Flowers are yellow composites, and generally smaller than other sunflowers in North America. Flowering and fruiting occur mid-September to frost. This plant grows in clearings and along the edges of upland woods, thickets, and pastures. It is also found along roadsides, power line clearings, old pastures, and woodland openings. It prefers full sunlight to partial shade.

Biological Conclusion: May Affect - Not Likely to Adversely Affect

Potential habitat for Schweinitz's sunflower occurs along roadsides, power line rights-of-way, and field edges throughout the project area. The project study area was evaluated for potential Schweinitz's sunflower habitat and extensive field surveys were performed in September 2001, which is during the flowering time for the species. No populations were found within the project study area. The NHP's database of rare species and unique habitats was reviewed on May 9, 2003. No populations of this species have been reported in the project area. Therefore, the proposed project is not expected to result in an adverse impact to this species.

2. Federal Species of Concern

The February 25, 2003 USFWS list of federally-protected species includes a category of species designated as "Federal Species of Concern" (FSC). The FSC designation provides no federal protection under the ESA for the species listed. The presence of potential suitable habitat (Amoroso and Finnegan 2002, LeGrand, et al. 2001) within the project study area has been evaluated for the FSC listed for Rowan County. This data is summarized in Table 4.

Table 4. Federal Species of Concern for Rowan County

Common Name	Scientific Name	NC Status	Habitat Present?
Carolina Darter	*Etheostoma collis collis*	SC	Yes
Georgia aster	*Aster georgianus**	T	Yes
Heller's trefoil	*Lotus helleri*	C	Yes
Robust redhorse	*Moxostoma robustum*	SR (PE)	No
Virginia quillwort	*Isoetes virginica*	C	Yes

Notes:
*This is a federally listed C1 taxon, a taxon under consideration for official listing for which there is sufficient information to support listing.
Threatened (T) - any native or once-native species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
Special Concern (SC) – any species which requires monitoring but may be collected and sold under specific regulations.
Candidate (C) – any species which are likely to merit listing as E or T if present land use trends continue.
Significantly Rare (SR) – species which are rare in NC but more common elsewhere.
Proposed Endangered (PE) – species formally proposed for listing as Endangered.

VII. SECTION 4 (f) RESOURCES

Section 4(f) of the Department of Transportation Act of 1966, as amended, states in part "The Secretary may approve a transportation project or program requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land of a historic site of national, state, or local significance (as determined by the Federal, State or local officials having jurisdiction over the park, recreation area, refuge, or site) only if –

(1) there is no prudent and feasible alternative to using that land; and

(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use."

Since it is anticipated that the proposed project will require the use of property from a National Register eligible historic resource, the Barber Farm, a Programmatic Section 4(f) Evaluation is required. See Section XI for Programmatic Section 4(f) Evaluation.

VIII. Environmental Effects

The project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.

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

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

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

No adverse impact on families or communities is anticipated. Right-of-way acquisition will be limited. No relocatees are expected with implementation of the proposed alternative.

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

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

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

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime and important farmland soils by all land acquisition and construction projects.

X. Agency Comments

North Carolina Department of Environment and Natural Resources - Division of Water Quality

Comments: "DWQ prefers that the bridge be replaced with a bridge, particularly if a Categorical Exclusion document is being used... Storm water should be directed to grass-lined ditches, vegetated buffers or other pre-treatment method before entering the stream."

Response: The preferred alternative involves replacing the bridge with a new bridge in the existing location, using a temporary on-site detour during construction. Storm water will be directed to grass-lined ditches. No deck drains will be placed on the bridge which would drain directly into Withrow Creek.

XI. Programmatic Section 4(f) Evaluation

Part 23 CFR 771.135 Section 4(f) (49 U.S.C. 303) states that "The Administrator may not approve the use of land from a significant publicly owned public park, recreation area, or wildlife and waterfowl refuge, or any significant historic site unless a determination is made that:

(i) There is no feasible and prudent alternative to the use of land from the property; and
(ii) The action includes all possible planning to minimize harm to the property resulting from such use."

Three alternatives, which will avoid impact to the historical property, were evaluated in this document. The following alternatives, which avoid use of the historic site, have been fully evaluated: (1) do nothing; (2) improve the highway without using the adjacent historic site; (3) build the replacement structure on new location without using the historic site. These alternatives were not found to be feasible and prudent.

No Build Alternative: The No Build or "Do-Nothing" alternative is not considered feasible and prudent because the bridge will eventually deteriorate beyond repair and necessitate closure of the bridge. This is not prudent due to the traffic service provided by NC 801.

Rehabilitation of the Existing Bridge: This alternative is not considered to be feasible and prudent due to the age and deteriorated condition of the existing bridge. In addition, the existing bridge deck provides only 24 feet (7.2 meter) roadway clearance and is functionally obsolete. The NCDOT Bridge Policy requires a minimum clear roadway width of 32 feet (10.4 meter) based on the traffic volumes and design speed.

Replacement of Bridge No. 28 on New Location: Replacing Bridge No. 28 downstream of the existing location will impact additional farmland, introduce additional curves in the alignment and increase cost. Therefore, this alternative is not considered feasible or prudent.

In accordance with the criteria set forth in the Federal Register December 23, 1986, the following Programmatic Section 4(f) for Minor Involvements with Historic Sites evaluation was prepared:

NORTH CAROLINA DIVISION
FINAL NATIONWIDE SECTION 4(f) EVALUATION AND APPROVAL
FOR FEDERALLY-AIDED HIGHWAY PROJECTS WITH MINOR INVOLVEMENTS WITH HISTORIC SITES

F. A. Project **BRSTP-0801(3)**

State Project **8.1632201**

T. I. P. No. **B-4255**

DESCRIPTION:

Replacement of Bridge No. 28 on NC 801 (Bear Poplar Road) over Withrow Creek in Rowan County.

		YES	NO
1.	Is the proposed project designed to improve the operational characteristics, safety, and/or physical condition of the existing highway facility on essentially the same alignment?	X	☐
2.	Is the project on new location?	☐	X
3.	Is the historic site adjacent to the existing highway?	X	☐
4.	Does the project require the removal or alteration of historic buildings, structures, or objects?	☐	X
5.	Does the project disturb or remove archaeological resources which are important to preserve in place rather than to recover for archaeological research?	☐	X
6.	a. Is the impact on the Section 4(f) site considered minor (i.e. no effect, no adverse effect)?	X	☐
	b. If the project is determined to have "no adverse effect" on the historic site, does the Advisory Council on Historic Preservation object to the determination of "no adverse effect"?	☐	X
7.	Has the SHPO agreed, in writing, with the assessment of impacts and the proposed mitigation?	X	☐
8.	Does the project require the preparation of an EIS?	☐	X

		Yes	No
3.	Build an improved facility on new location without using the historic site.	X	☐

(a) An alternate on new location would result in: (circle, as appropriate)

(i) a project which does not solve the existing problems

or (ii) substantial social, environmental, or economic impacts

or (iii) a substantial increase in project cost or engineering difficulties

and (iv) such impacts, costs, or difficulties of truly unusual or unique or extraordinary magnitude

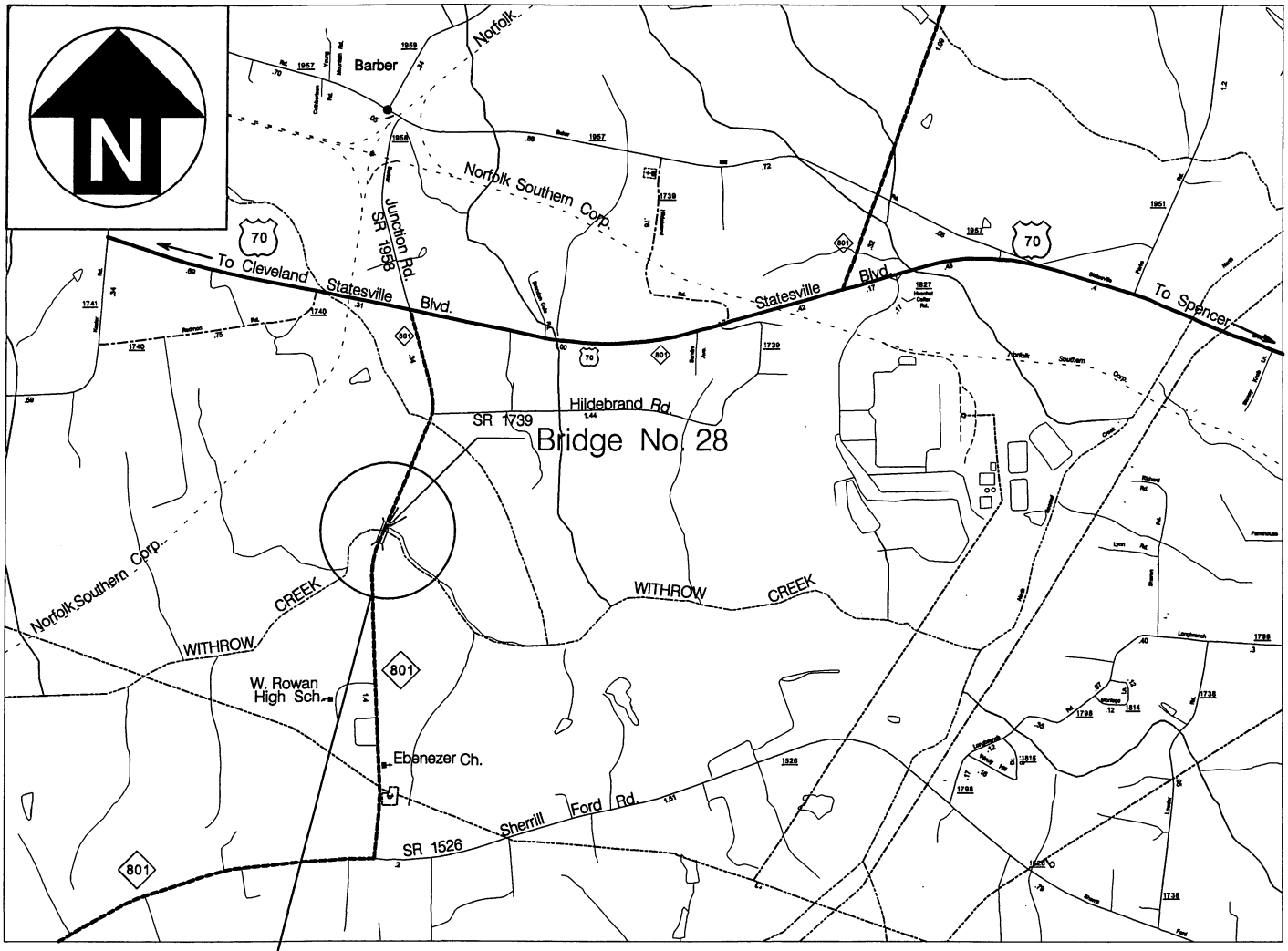
MINIMIZATION OF HARM

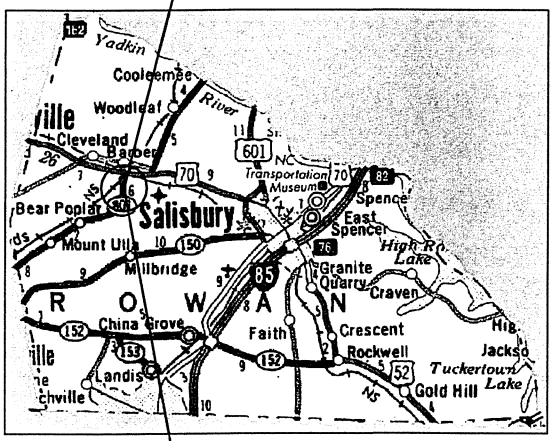
		Yes	No
1.	The project includes all possible planning to minimize harm necessary to preserve the historic integrity of the site.	X	☐
2.	Measures to minimize harm have been agreed to, in accordance with 36 CFR Part 800, by the FHWA, the SHPO, and as appropriate, the ACHP.	X	☐

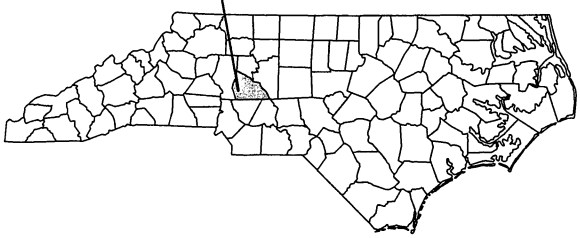
3. Specific measures to minimize harm are described as follows:

Utilization of a temporary detour on the east side of Bridge No. 28.

Note: Any response in a box requires additional information prior to approval. Consult Nationwide 4(f) evaluation.



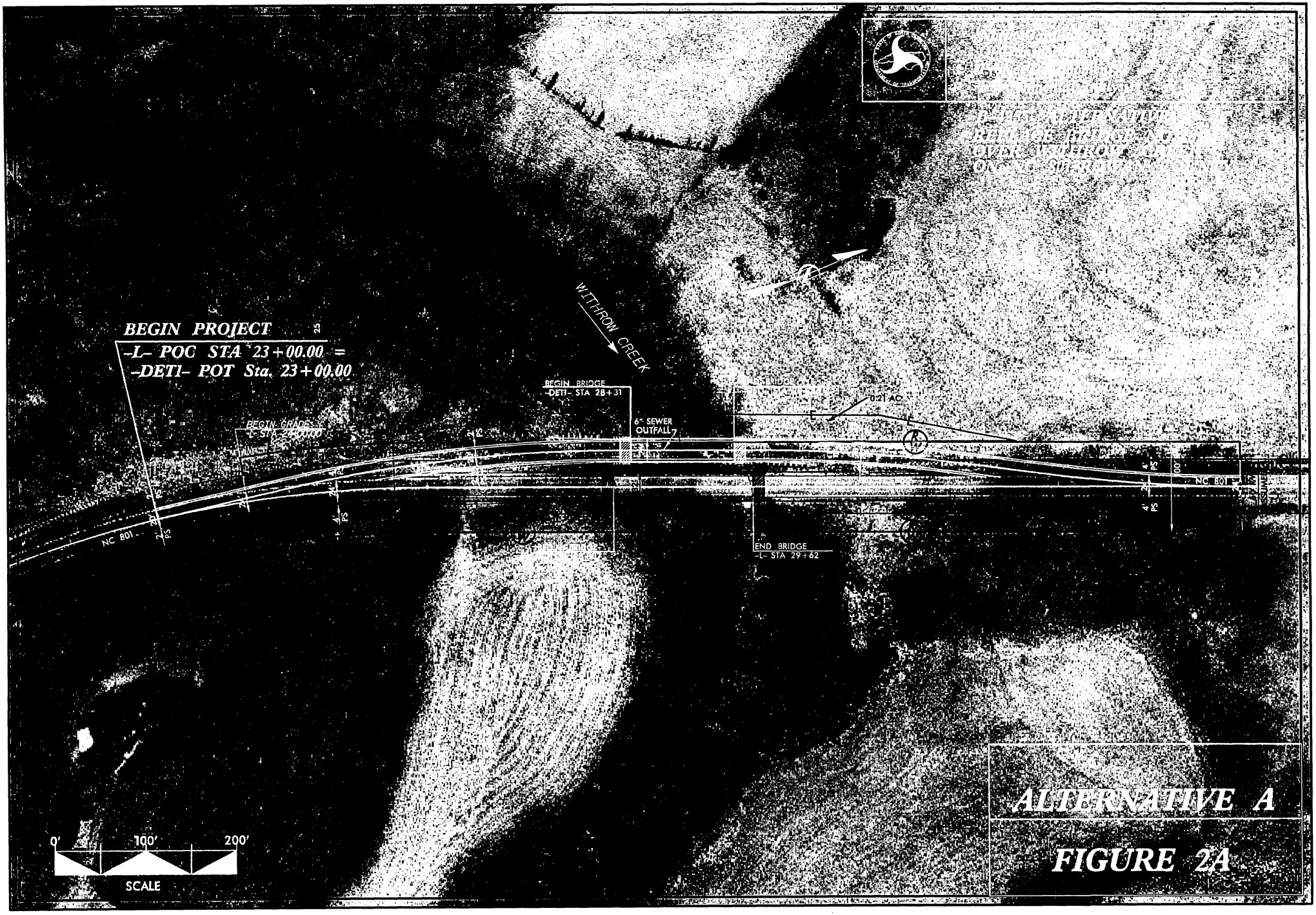


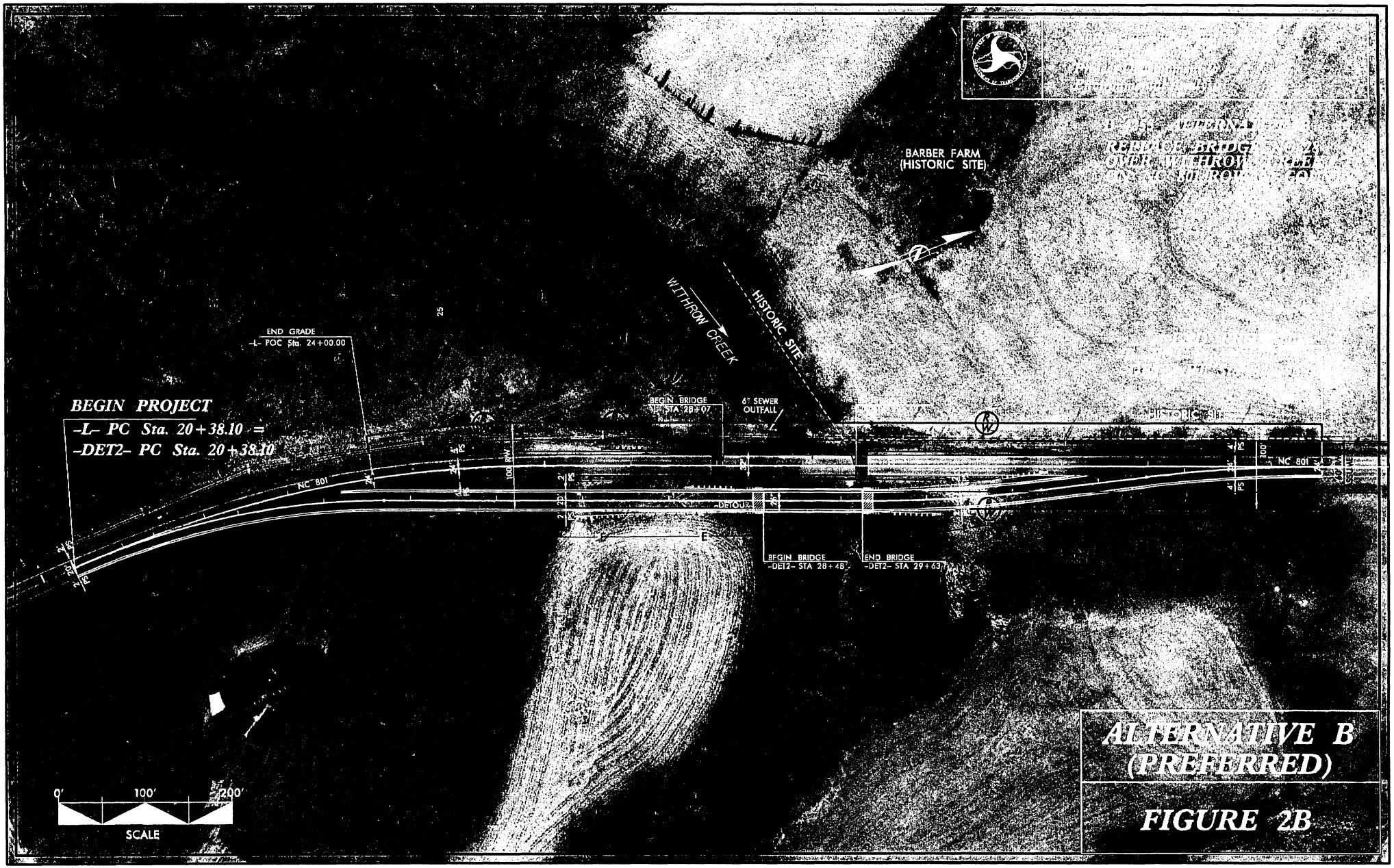


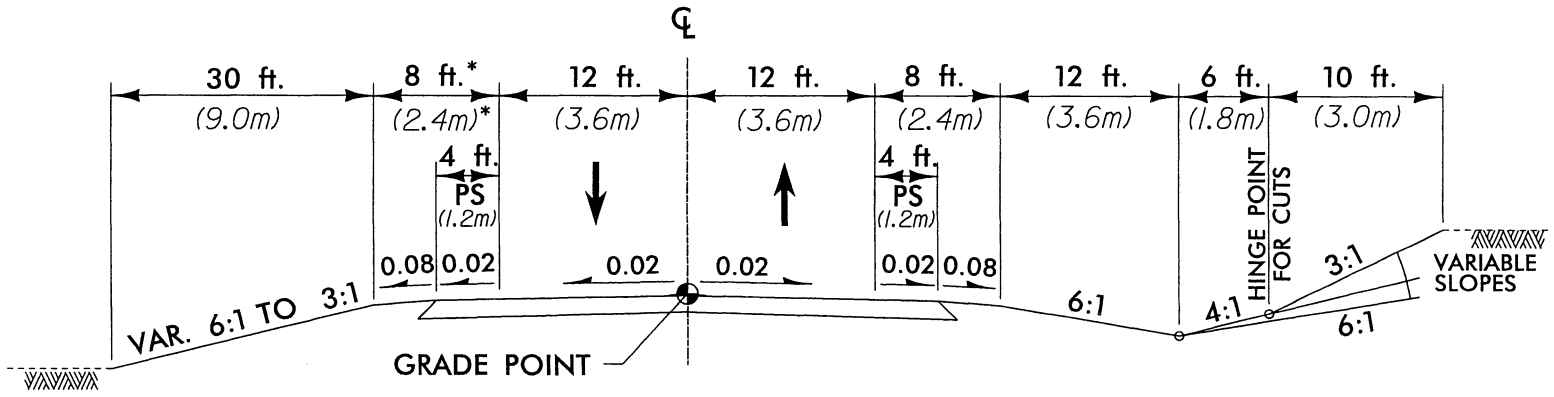
North Carolina Department of Transportation
Project Development & Environmental Analysis

ROWAN COUNTY
BRIDGE NO. 28 ON NC 801
OVER
WITHROW CREEK
B-4255

FIGURE 1

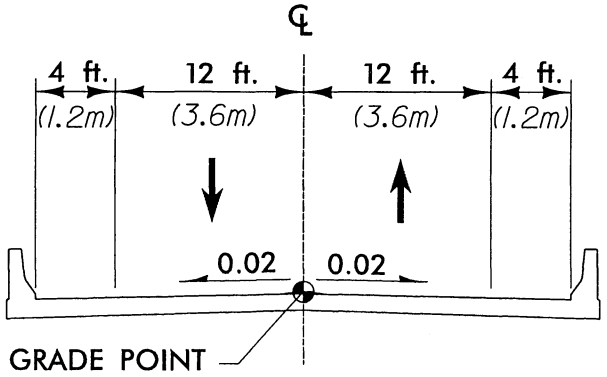

BEGIN PROJECT
-L- POC STA 23+00.00 =
-DETI- POT Sta. 23+00.00
WITHROW CREEK
BEGIN BRIDGE
-DETI- STA 28+31
6" SEWER
OUTFALL
0.21 AC
END BRIDGE
-L- STA 29+62
NC 801
0'
100'
200'
SCALE
ALTERNATIVE A
FIGURE 2A


BARBER FARM
(HISTORIC SITE)
WITHROW CREEK
HISTORIC SITE
END GRADE
-L- POC Sta. 24+00.00
BEGIN PROJECT
-L- PC Sta. 20+38.10 =
-DET2- PC Sta. 20+38.10
BEGIN BRIDGE
-L- STA 28+07
6" SEWER
OUTFALL
NC 801
-DETOUR-
BEGIN BRIDGE
-DET2- STA 28+48
END BRIDGE
-DET2- STA 29+63
0'
100'
200'
SCALE
ALTERNATIVE B
(PREFERRED)
FIGURE 2B



TYPICAL APPROACH SECTION
(PROPOSED)

* 11 ft. (3.3m) WHEN GUARDRAIL IS WARRANTED



TYPICAL BRIDGE SECTION
(PROPOSED)

TRAFFIC DATA

(EXISTING YR.) 2004 ADT = 5,200 LOS C
(CONST. YR.) 2005 ADT = 5,400 LOS D
(DESIGN YR.) 2030 ADT = 11,200 LOS D
DUAL 6%
TTST 3%

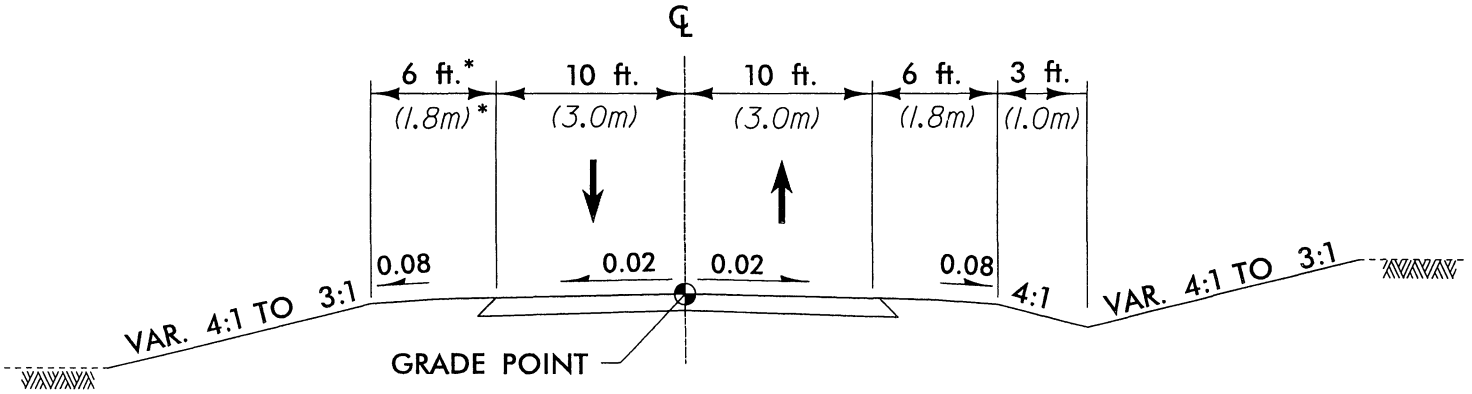
FUNCTIONAL CLASSIFICATION :
MAJOR COLLECTOR – RURAL

North Carolina Department Of Transportation
Project Development & Environmental Analysis

NC 801
BRIDGE NO. 28 OVER WITHROW CREEK
ROWAN COUNTY
TIP NO: B–4255

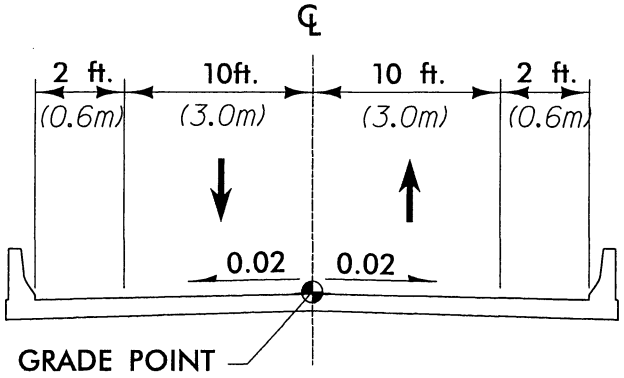
FIGURE 3

101402



TYPICAL APPROACH SECTION
(DETOUR)

* 10 ft. (3.0m) WHEN GUARDRAIL IS WARRANTED



TYPICAL BRIDGE SECTION
(DETOUR)

TRAFFIC DATA

(EXISTING YR.) 2004 ADT = 5,200 LOS C
(CONST. YR.) 2005 ADT = 5,400 LOS D
(DESIGN YR.) 2030 ADT = 11,200 LOS D
DUAL 6%
TTST 3%

FUNCTIONAL CLASSIFICATION :
MAJOR COLLECTOR – RURAL

North Carolina Department
Of Transportation
Project Development &
Environmental Analysis

NC 801
BRIDGE NO. 28 OVER WITHROW CREEK
ROWAN COUNTY
TIP NO: B–4255

FIGURE 3A

10/14/02

Looking South

Looking North

Figure 4

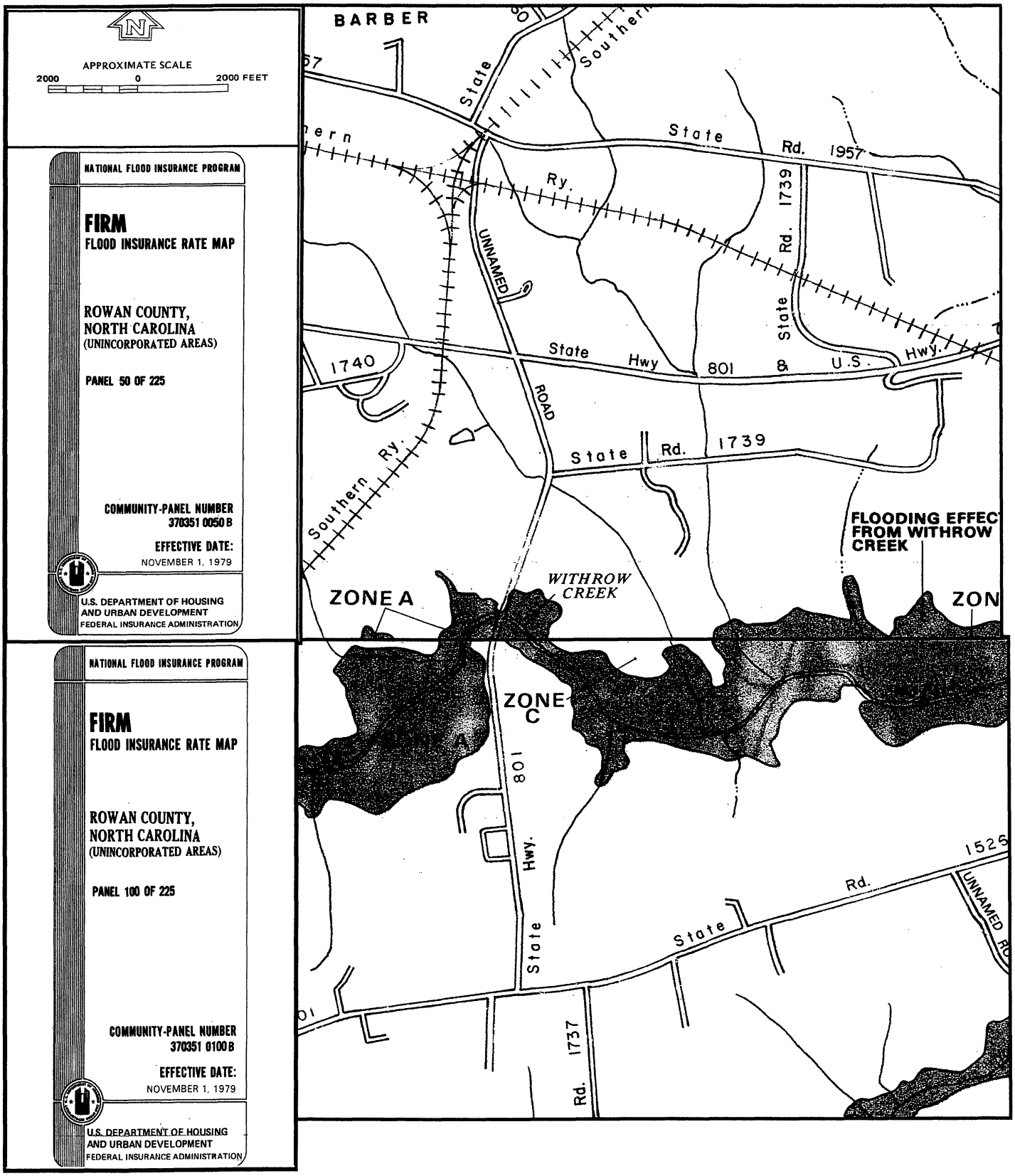
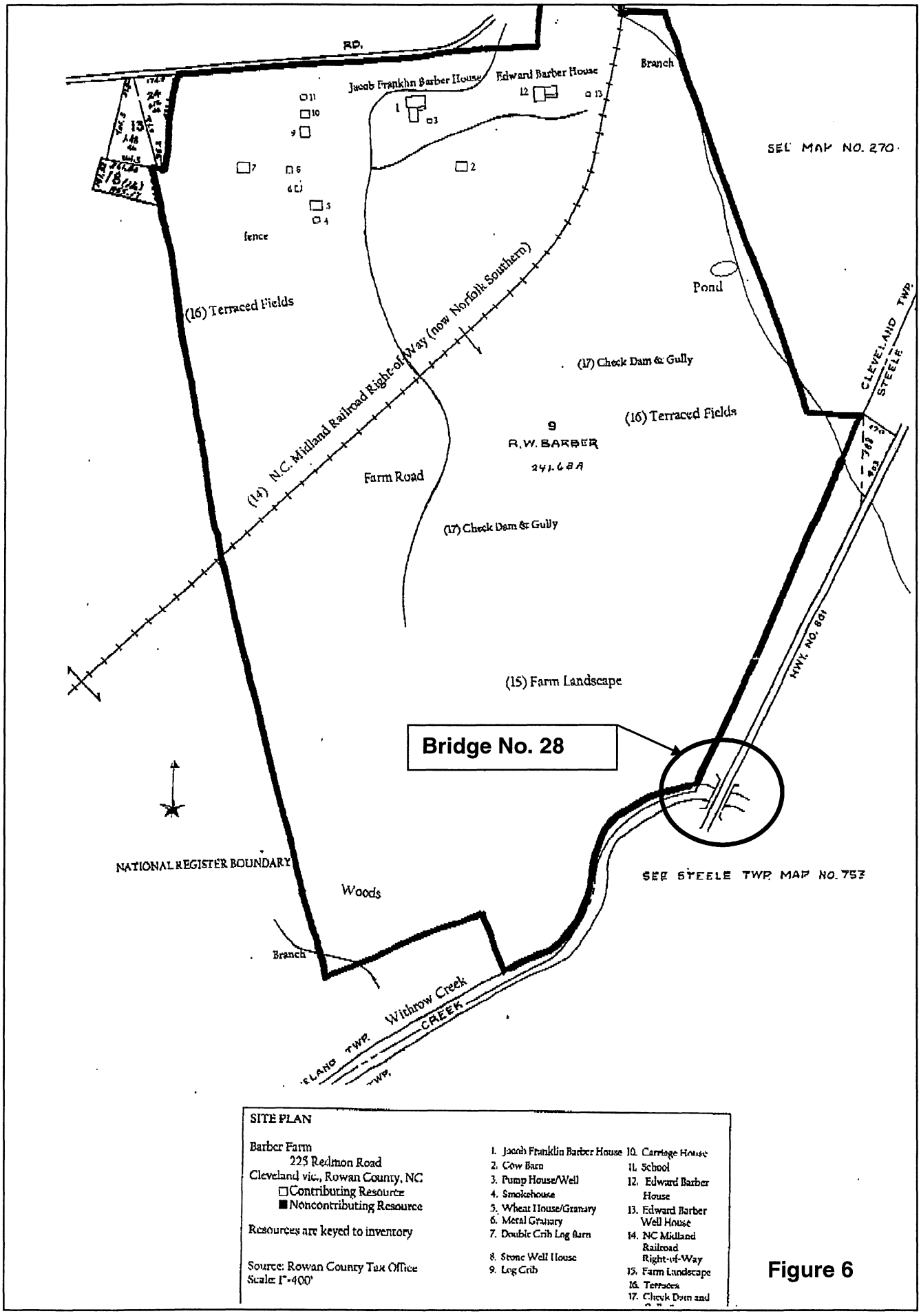

APPROXIMATE SCALE
2000 0 2000 FEET
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
ROWAN COUNTY,
NORTH CAROLINA
(UNINCORPORATED AREAS)
PANEL 50 OF 225
COMMUNITY-PANEL NUMBER
370351 0050 B
EFFECTIVE DATE:
NOVEMBER 1, 1979
U.S. DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
ROWAN COUNTY,
NORTH CAROLINA
(UNINCORPORATED AREAS)
PANEL 100 OF 225
COMMUNITY-PANEL NUMBER
370351 0100 B
EFFECTIVE DATE:
NOVEMBER 1, 1979
U.S. DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION
BARBER
State
Southern
State Rd. 1957
Ry.
UNNAMED
State Rd. 1739
State Hwy. 801 & U.S. Hwy.
1740
ROAD
State Rd. 1739
Southern Ry.
FLOODING EFFEC
FROM WITHROW
CREEK
WITHROW
CREEK
ZONE A
ZONE
C
801
Hwy.
State
State
Rd.
1525
UNNAMED RO
Rd. 1737

FIGURE 5



SITE PLAN

Barber Farm
225 Redmon Road
Cleveland vic., Rowan County, NC
□Contributing Resource
■Noncontributing Resource

Resources are keyed to inventory

Source: Rowan County Tax Office
Scale: 1"=400'

1. Jacob Franklin Barber House
2. Cow Barn
3. Pump House/Well
4. Smokehouse
5. Wheat House/Granary
6. Metal Granary
7. Double Crib Log Barn
8. Stone Well House
9. Log Crib
10. Carriage House
11. School
12. Edward Barber House
13. Edward Barber Well House
14. NC Midland Railroad Right-of-Way
15. Farm Landscape
16. Terraces
17. Check Dam and

Figure 6

APPENDIX

B-4255

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

July 11, 2003

Mr. Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Thorpe:

Subject: Endangered Species Concurrence for Three Bridge Replacements in North Carolina--B-4103, Bridge No. 416 on SR 2550 over Beaver Dam Creek, Davidson County; B-4255, Bridge No. 28 on NC 801 over Withrow Creek, Rowan County; and B-4282, Bridge No. 54 on NC 66 over Pinch Gut Creek, Stokes County

As requested by Mulkey Inc., engineers and consultants for the North Carolina Department of Transportation, we have reviewed the natural resources information and biological conclusions for federally protected species for the subject projects. We provide the following comments in accordance with the provisions of section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act), and the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e).

B-4103 (Log Number 4-2-03-332)

According to the information provided, three federally listed species in Davidson County were considered. These include the endangered Schweinitz's sunflower (*Helianthus schweinitzii*), the threatened bald eagle (*Haliaeetus leucocephalus)*, and the threatened (due to similarity of appearance) bog turtle (*Clemmys muhlenbergii*). The report considered these species and concluded that there would be "no effect" on the bald eagle, Schweinitz's sunflower, or bog turtle. Given the results of the field survey, we concur with the conclusion of "no effect" for the Schweinitz's sunflower and bog turtle. In view of this, we believe the requirements under section 7(c) of the Act are fulfilled regarding this species. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this

spinymussel has been found only in the main stem of the Dan River, other native freshwater mussels have been found in Big Creek. Given the difficulty of surveying for the James spinymussel and the relative lack of surveys in Big Creek, we strongly recommend an additional mussel survey from the end of the previous survey downstream to Big Creek prior to project construction. Similarly, the small-anthered bittercress, while not located in surveys conducted in 2002, could have relocated to the project site from an upstream location during recent high flows. We also strongly recommend that a preconstruction survey (at the appropriate time of year) be conducted for this species. At this time we cannot concur with a conclusion of "no effect" for the James spinymussel or small-anthered bittercress and recommend further surveys as described above.

If you have questions about these comments, please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. In any future correspondence concerning these projects, please reference the log numbers assigned with our comments about each of the three projects.

Sincerely,

Brian P. Cole
State Supervisor

cc:
Mr. Eric Alsmeyer, U.S. Army Corps of Engineers, Raleigh Regulatory Field Office, 6508 Falls of the Neuse Road, Suite 120, Raleigh, NC 27615
Ms. Marla J. Chambers, Highway Projects Coordinator, North Carolina Wildlife Resources Commission, 12275 Swift Road, Oakboro, NC 28129
Ms. Cynthia Van Der Wiele, North Carolina Department of Environment and Natural Resources Division of Water Quality, Wetlands Section, 1621 Mail Service Center, Raleigh, NC 27699-1621

Bridge Number	Project Number	County
No. 416	B - 4103	Davidson County
No. 28	B - 4255	Rowan County
No. 54	B - 4282	Stokes County

Group II - These projects have the potential to affect fishery resources and their associated habitat for which NOAA Fisheries has stewardship responsibility:

Bridge Number	Project Number	County
No. 12	B - 1382	Sampson County
No. 26	B - 1382	Sampson County
No. 72	B - 4031	Brunswick County
No. 24	B - 4214	Onslow County
No. 21	B - 4223	Pender County

Bridges 12, 26, 21 and 24 are located in the Cape Fear and New River basins and in areas which provide habitat for anadromous fishery resources including American shad and river herring. Bridges 72 and 24 are located in areas with brackish to saline waters that also support estuarine dependent fishery resources such as spot, Atlantic croaker, and blue crab. In addition, these projects may affect **Essential Fish Habitat** for Federally managed species such as red drum and shrimp which are managed by the South Atlantic Fishery Management Council, and summer flounder which is managed by the Mid-Atlantic Fishery Management Council. Accordingly, we recommend that an Essential Fish Habitat Assessment be included in any environmental document for these projects.

Spawning and nursery habitat for anadromous and estuarine fishes may be adversely impacted by these projects unless measures to avoid and minimize impacts to waters and wetlands are included in the project plans. Therefore, NOAA Fisheries may recommend against Department of the Army authorization of these projects under Nationwide Permit 23 unless the following recommendations are incorporated.

1. Following impact avoidance and minimization, unavoidable wetland losses shall be offset through implementation of a compensatory mitigation plan that has been approved by the Corps of Engineers and in consultation with NOAA Fisheries.

2. All construction activities in waters and associated wetlands shall utilize techniques that avoid and minimize adverse impacts to those systems and their associated flora and fauna

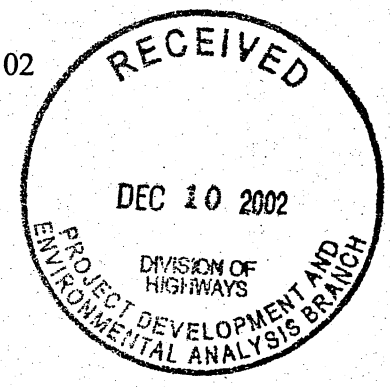
Bill Goodwin
B-4255

U.S. Department of Transportation
United States Coast Guard

Commander
United States Coast Guard
Atlantic Area

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: (Aowb)
Phone: (757)398-6587

16590
03 DEC 02



Mr. Gregory J. Thorpe, Ph. D.
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Thorpe:

This is in response to your letter dated October 24, 2002 requesting the Coast Guard to review the proposed projects to replace the following nine bridges: Black River Over Flow, Black River, Jenny's Branch, Beaver Dam Creek, New River, Stone Creek, N.E. Cape Fear River, [redacted] and Pinch Gut Creek all located throughout North Carolina.

The Coast Guard Authorization Act of 1982 exempts bridge projects from Coast Guard bridge permits when the bridge project crosses nontidal waters which are not used, susceptible to use in their natural condition, or susceptible to use by reasonable improvement as a means to transport interstate commerce. Such conditions for some of these waterways were confirmed in a telephone conversation on November 27, 2002. Due to this, the bridge projects on Beaver Dam, [redacted], and Pinch Gut Creeks and Black River Over Flow are exempt, [redacted]

Black River, Jenny's Branch, and Stone Creek are subject to tidal influence and thus considered legally navigable for Bridge Administration purposes. But these waterways also meet the criteria for advance approval waterways outlined in Title 33, Code of Federal Regulations, Section 115.70. Advance approval waterways are those that are navigable in law, but not actually navigated by other than small boats. The Commandant of the Coast Guard has given his advance approval to the construction of bridges across such waterways; therefore, an individual permit will not be required for these projects either.

Further information is required to assess the bridge replacement projects over the New River and the North East Cape Fear River. Such information as, is the waterway affected by lunar tides? Is there any commercial navigation? What types and sizes of boats operate on the waterway? Bridge Permits may be required based on the answers to these questions. If a permit is required, a higher level of environmental review will also be required.

The fact that Coast Guard permits are not required for some of these projects does not relieve you of the responsibility for compliance with the requirements of any other Federal, State, or

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

Alan W. Klimek, P.E. Director
Division of Water Quality

November 25, 2002

MEMORANDUM

TO: John Wadsworth, P.E.
NCDOT, Project Development & Environmental Analysis

FROM: Cynthia F. Van Der Wiele, NCDOT Coordinator cvdw

SUBJECT: Scoping Comments for Bridge Replacement Projects: B-4103 Davidson Co., B-4255 Rowan Co., and B-4282 Stokes Co.

This letter is in response to your request for comments on the above-referenced projects.

The NC Division of Water Quality staff has the following recommendations:

1. B-4103 Bridge No. 416 over Beaver Dam Creek on SR 2550 in Davidson County
- The bridge should be replaced with a bridge structure and designed as a single span with *no piers* in the stream.
- Storm water management should be designed as a closed system. Storm water shall be designed to be carried across the bridge (no deck drains over the stream) and diverted through grass-lined ditches, vegetated buffers or directed to a storm water collection device prior to entering North Fork New River.
- Use *Sedimentation and Erosion Control Guidelines for Sensitive Watersheds* [15A NCAC 4B .0124; see http://ncrules.state.nc.us/ncadministrativ_/title15aenviron_/chapter04sedime_/default.htm] prior to any ground-disturbing activities to minimize impacts to downstream aquatic resources.
- NCDOT must comply with water supply watershed buffer requirements.
- Use BMPs for bridge demolition and removal, Case 1 (9-20-99 NCDOT policy; see http://www.ncdot.org/planning/pe/bmp.pdf).

2. B-4255 Bridge No. 28 over Withrow Creek on NC 801 in Rowan County
- DWQ prefers that the bridge be replaced with a bridge, particularly if a Categorical Exclusion document is being used (otherwise it should be processed as a FONSI under NEPA requirements).
- Storm water should be directed to grass-lined ditches, vegetated buffers or other pre-treatment method before entering the stream.

3. B-4282 Bridge No. 54 over Pinch Gut Creek on NC 66 in Stokes County
- The bridge should be replaced with a bridge structure and designed as a single span with *no piers* in the stream.
- Storm water management should be designed as a closed system. Storm water shall be designed to be carried across the bridge (no deck drains over the stream) and diverted through grass-lined ditches, vegetated buffers or directed to a storm water collection device prior to entering North Fork New River.
- Use BMPs for bridge demolition and removal, Case 1 (9-20-99 NCDOT policy; see http://www.ncdot.org/planning/pe/bmp.pdf).

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

December 4, 2002

MEMORANDUM

TO: Gregory J. Thorpe, Ph.D.
NCDOT, Project Development & Environmental Analysis

FROM: Cynthia F. Van Der Wiele, NCDOT Coordinator

SUBJECT: Scoping Comments for Bridge Replacement Projects: B-4103 Davidson Co., B-4255 Rowan Co., and B-4282 Stokes Co.

This letter is in response to your request for comments on the above-referenced projects.

The NC Division of Water Quality staff has the following recommendations:

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- Use *Sedimentation and Erosion Control Guidelines for Sensitive Watersheds* [15A NCAC 4B .0124; see http://ncrules.state.nc.us/ncadministrativ_/title15aenviron_/chapter04sedime_/default.htm] prior to any ground-disturbing activities to minimize impacts to downstream aquatic resources.
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3. B-4282 Bridge No. 54 over Pinch Gut Creek on NC 66 in Stokes County
- The bridge should be replaced with a bridge structure and designed as a single span with *no piers* in the stream.
- Storm water management should be designed as a closed system. Storm water shall be designed to be carried across the bridge (no deck drains over the stream) and diverted through grass-lined ditches, vegetated buffers or directed to a storm water collection device prior to entering North Fork New River.
- Use BMPs for bridge demolition and removal, Case 1 (9-20-99 NCDOT policy; see http://www.ncdot.org/planning/pe/bmp.pdf).

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

MEMORANDUM

TO: JohnWadsworth, P.E., Project Planning Engineer
Project Development and Environmental Analysis Branch, NCDOT

FROM: Marla Chambers, Highway Projects Coordinator Marla Chambers
Habitat Conservation Program, NCWRC

DATE: December 17, 2002

SUBJECT: North Carolina Department of Transportation (NCDOT) request for comments on Bridge Replacement Projects B-4103 (Davidson County), B-4255 (Rowan County) and B-4282 (Stokes County).

North Carolina Department of Transportation (NCDOT) is requesting comments from the North Carolina Wildlife Resources Commission (NCWRC) on three bridge replacement projects. Staff biologists have reviewed the information provided and have the following preliminary comments. Our comments are provided in accordance with certain provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

NCWRC has previously submitted scoping comments on these three bridge replacement projects. The comments, dated May 8, 2002, are attached and remain appropriate; however, we offer the following additional comments on the B-4103 project.

Bridge No. 416 on SR 2550 (Badin Lake Road) in Davidson County crosses over Beaverdam Creek, at the headwaters of an arm of Badin Lake which is managed by Yadkin, Inc. under a Federal Energy Regulatory Commission (FERC) permit. NCDOT should coordinate with Yadkin, Inc. to ensure compliance with their Shoreline Management Plan and Bald Eagle Management Plan. Bald eagles (*Haliaeetus leucocephalus*) (Federal and State Threatened), are found along Badin Lake and other lakes on the Yadkin/Pee Dee River system, both upstream and downstream of the project area. The Beaverdam Creek/Grassy Fork Creek Significant Natural Heritage Area is upstream of the project area, where a number of heartleaf plantain observations

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 733-3633 ext. 281 • Fax: (919) 715-7643

H
-4255

North Carolina Wildlife Resources Commission

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

TO: William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement & Environmental Analysis Branch

FROM: Ron Linville, Habitat Conservation Coordinator
Habitat Conservation Program

DATE: May 8, 2002

SUBJECT: NCDOT Bridge Replacements:
Davidson County – Bridge No. 416, SR2550, Beaverdam Creek, B-4103
Rowan County – Bridge No. 28, NC801, Withrow Creek[redacted]
Stokes County – Bridge No. 54, NC66, Pinchgut Creek, B-4282

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Our standard recommendations for bridge replacement projects of this scope are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.

2. Bridge deck drains should not discharge directly into the stream.

3. Live concrete should not be allowed to contact the water in or entering into the stream.

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

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for aquatic life and fish passage. Generally, the culvert or pipe invert should be buried at least 1 foot below the natural streambed (measured from the natural thalweg depth). If multiple barrels are required, barrels other than the base flow barrel(s) should be placed on or near stream bankfull or floodplain bench elevation (similar to Lyonsfield design). These should be reconnected to floodplain benches as appropriate. This may be accomplished by utilizing sills on the upstream and downstream ends to restrict or divert flow to the base flow barrel(s). Silled barrels should be filled with sediment so as not to cause noxious or mosquito breeding conditions. Sufficient water depth should be provided in the base flow barrel(s) during low flows to accommodate fish movement. If culverts are longer than 40-50 linear feet, alternating or notched baffles should be installed in a manner that mimics existing stream pattern. This should enhance aquatic life passage: 1) by depositing sediments in the barrel, 2) by maintaining channel depth and flow regimes, and 3) by providing resting places for fish and other aquatic organisms. In essence, base flow barrel(s) should provide a continuum of water depth and channel width without substantial modifications of velocity.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.

3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment. Widening the stream channel must be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

4. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be professionally designed, sized, and installed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be utilized as mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. Davidson County – Bridge No. 416, SR2550, Beaverdam Creek, B-4103 YELLOW/RED LIGHT. Biologists indicate that a bridge is preferred. Potential for wetland and stream impacts at this location due to width of stream.

Federal Aid # **8.1632201** *TIP #* **B-4255** *County*: **Rowan**

CONCURRENCE FORM FOR ASSESSMENT OF EFFECTS

Project Description: Replace Bridge No. 28 on NC 801 over Withrow Creek

On 9/2/2003, representatives of the

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

Reviewed the subject project and agreed

- [ ] There are no effects on the National Register-listed property/properties located within the project's area of potential effect and listed on the reverse.
- [ ] There are no effects on the National Register-eligible property/properties located within the project's area of potential effect and listed on the reverse.
- [x] There is an effect on the National Register-listed property/properties located within the project's area of potential effect. The property/properties and the effect(s) are listed on the reverse.
- [ ] There is an effect on the National Register-eligible property/properties located within the project's area of potential effect. The property/properties and effect(s) are listed on the reverse.

Signed:

Mary Pope Furr — Sept. 2, 2003
Representative, NCDOT — Date

KWHA — 9/2/03
FHWA, for the Division Administrator, or other Federal Agency — Date

[signature] — 9/2/03
Representative, HPO — Date

Renee Gledhill-Earley — 9/2/03
State Historic Preservation Officer — Date

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

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

Division of Historical Resources

December 19, 2003

MEMORANDUM

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

FROM: David Brook for David Brook

SUBJECT: Replace Bridge No. 28 on NC 801 over Withrow Creek, TIP No. B-4255, Rowan County, ER02-8576

Thank you for transmitting the archaeological survey report, in a letter of November 18, 2003.

The letter and report state that no archaeological sites were discovered in the proposed project area. We concur with the recommendation that no additional archaeological work is needed.

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

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

cc: FHWA
Matt Wilkerson, NCDOT

Rowan-Salisbury Schools
Transportation Department
Jim Christy, Director
Telephone 704-639-3051 Fax 704-639-3108

July 17, 2001

Mr. Davis Moore
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Moore:

Per your request for information regarding bus travel on Highway 801 near West Rowan High School, I submit to you the following information:

- Buses cross this bridge approximately 30 times each school day (3 for Cleveland Elementary, 14 for West Rowan Middle, 9 for West Rowan High School and 4 EC buses). This figure does not include activity trips.
- Rerouting to circumvent this bridge would have some buses detour to travel Bear Poplar Road and Redmon Road and others to detour to Barringer Road and Sherrills Ford Road.
- For approximately ½ the fleet to make this adjustment to travel Bear Poplar and Redmon Roads the mileage for round trip would be 141 miles per day with an additional 16-20 minutes for each bus route.
- For ½ the fleet to make adjustments to travel Barringer and Sherrills Ford Rd the mileage for round trip would be 72 miles per day with an additional 8–10 minutes.
- The total round trip mileage for this adjustment would be 38,440 miles for 180 days of school.
- Average of 15 minutes to re-route for 30 trips x 180 school days = 1,350 hours additional pay to the drivers.

As you can see to reroute the buses for 8-12 months around this bridge replacement would be a significant burden to the Rowan-Salisbury Schools Transportation Department. It would greatly affect the high school for classroom activity trips and sports trips. It would also affect the community in attendance of extra-curricular events at the high school.

2724 Old Concord Road, Salisbury, NC 28146

PE

Subject: Withrow Creek Bridge on NC-801
Date: Mon, 11 Mar 2002 14:35:13 -0500
From: Wayne Ashworth <ashworthw@co.rowan.nc.us>
To: Dmoore@dot.state.nc.us

Mr. Moore:

This will confirm our phone conversation(s) regarding the replacement of Bridge 28 over NC-801 in Rowan County, Federal Aid Project No. BRSTP-0801(3), State Project No. 8.1632201, TIP No. B-4255.

Rowan County Emergency Services ambulances will have additional difficulties of getting to locations in the area of the work and our response times will be slightly increased.

These delays, we feel, are manageable, and we will be able to work with the construction project as proposed. Please advise me in advance of the road closing so that we may inform all the emergency responders in this area and make alternate response plans.

Sincerely,
Wayne~

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Wayne Ashworth, Director of Emergency Services
Rowan County North Carolina
PO Box 2166, Salisbury, NC 28145 USA
Telephone: 704.638.0911 X300 - FAX: 704.633.7503
ashworthw@co.rowan.nc.us [ICQ 3062057]

http://www.co.rowan.nc.us/es/