STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

April 24, 2008

Mr. Richard Spencer
U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1890
Wilmington, NC 28402-1890

Dear Sir:

Subject: **Application for Section 404 Nationwide 23 and 33 Permits** for the Replacement of Bridge No. 10 over Waccamaw River Overflow on NC 130; Columbus County; TIP Project B-4078; Federal Aid Project No. BRSTP-130(4). WBS Element 33440.1.1.

Please find enclosed permit drawings and roadway plans for the above referenced project proposed by the North Carolina Department of Transportation (NCDOT). A Categorical Exclusion (CE) was completed for this project on April 11, 2006, and distributed shortly thereafter. Additional copies are available upon request. The NCDOT proposes to replace existing Bridge No. 10 over Waccamaw River Overflow on NC 130 in Columbus County. The project involves replacement of the existing functionally obsolete and structurally deficient 76-foot bridge and approaches with a new 133-foot bridge and approaches. The new bridge will feature two 12-foot lanes with 7-foot 5-inch offsets. The west approach will be approximately 287 feet long and the east approach will be approximately 230 feet long. Proposed permanent impacts include 0.07 acre of riverine wetland impacts. Traffic will be detoured on-site during construction.

Impacts to Water of the United States

General Description: The project is located in the Lumber River Basin (Hydrologic Unit 03040203). A best usage classification of "C Sw" has been assigned to Gum Swamp from which the overflow canal originates [DWQ Index # 15-17-1-12-3]. Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project area. Gum Swamp is not designated as a North Carolina Natural or Scenic River, or as a National Wild and Scenic River. Additionally, Gum Swamp is not listed on the Final 2006 303(d) list of impaired waters.

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Permanent Impacts: As stated above, proposed permanent impacts consist of 0.02 acre of fill and 0.05 acre of mechanized clearing in riverine wetlands. The total amount of proposed impacts to jurisdictional wetlands is 0.07 acre.

Temporary Impacts: There is 0.37 acre of impacts to riverine wetlands proposed for this project. Of these impacts, 0.33 acre of fill is due to the on-site detour. Additional proposed temporary impacts to wetlands of 0.04 acres of temporary fill in wetlands in the hand clearing areas for the installation of erosion control measures, including some or all of the following: Temporary Silt Fence, Special Sediment Control Fence, and Temporary Rock Silt Checks.

Hand Clearing: There will be 0.16 acre of hand clearing in riverine wetlands.

Utility Impacts: Brunswick EMC will place three temporary poles along the detour for the duration of construction. Only one pole will impact a wetland and it is within the temporary fill line. Upon completion of the project, Brunswick EMC will reinstall their facilities in the original alignment.

Bridge Demolition: The superstructure for Bridge No. 10 is composed of a reinforced concrete floor on continuous I-beams and the substructure consists of timber piles with timber caps. It is likely that all components can be removed without any appreciable debris falling into the water. Best Management Practices for Bridge Demolition and Removal will be implemented.

Avoidance and Minimization

Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States". Due to the presence of surface waters and wetlands within the project area, avoidance of all impacts is not possible. The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts. Minimization measures were incorporated as part of the project design. These included:

- The bridge will be lengthened by 56 feet.
- Top-down construction will be utilized.
- NCDOT is also minimizing impacts to surface waters by utilizing longer spans with fewer bents than the existing bridge.
- 3:1 slopes were used in jurisdictional areas.

Mitigation

The proposed project will have permanent impacts to riverine wetlands totaling 0.07 acre and less than 0.01 acre to surface water. Due to the minimal amount of permanent impacts to jurisdictional resources, NCDOT is not proposing compensatory mitigation.

Federally Protected Species

As of January 31, 2008, the US Fish and Wildlife Service (USFWS) lists seven federally protected species for Columbus County. The biological conclusions are "No Effect".

Federally Protected Species for Columbus County

Common Name	Scientific Name	Status	Habitat	Conclusion
Red-cockaded woodpecker	*Picoides borealis*	E	No	No Effect
Wood stork	*Mycteria americana*	E	No	No Effect
American alligator	*Alligator mississippiensis*	T(S/A)	Yes	N/A
Shortnose sturgeon	*Acipenser brevirostrum*	E	No	No Effect
Waccamaw silverside	*Menidia extensa*	T	No	No Effect
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	E	No	No Effect
Cooley's meadowrue	*Thalictrum cooleyi*	E	No	No Effect

Bald Eagle

The bald eagle was delisted as of August 8, 2007 and is no longer protected by the Endangered Species Act. It is, however, protected under the Bald and Golden Eagle Protection Act. No nests or individuals were observed within 660 feet of the project area.

Project Schedule

The project has a scheduled let of December 16, 2008 with a review date of November 4, 2008.

Regulatory Approvals

Section 404 Permit: Most aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by Nationwide Permits 23. We are also requesting the issuance of a Nationwide Permit 33 for the temporary fill due to the installation of erosion control measures. (72 CFR; 11092-11198, March 12, 2007).

Section 401 Permit: We anticipate 401 General Certification numbers 3701 and 3688 will apply to this project. The NCDOT will adhere to all standard conditions of the aforementioned certifications. Therefore, we are not requesting written concurrence. In accordance with 15A NCAC 2H, Section .0500(a), we are providing two copies of this application to the NCDWQ for their review.

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

If you have any questions or need additional information, please contact Chris Underwood at (919) 715-1451.

Sincerely,

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

W/attachment:
Mr. Brian Wrenn, NCDWQ (2 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Ms. Jeanne Hardy, NCDMF

W/o attachment:
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. Terry Gibson, P.E., Division 6 Engineer
Mr. Jim Rerko, Division 6 Environmental Officer
Mr. Scott McLendon, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Vince Rhea, P.E., PDEA

Office Use Only: Form Version March 05

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

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

I. Processing

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

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

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

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

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

II. Applicant Information

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

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

III. Project Information

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

1. Name of project: Replacement of Bridge No. 10 on NC 130 over Waccamaw River Overflow

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4078

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

4. Location
   County: Columbus Nearest Town: Whiteville
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): From Whiteville go south on NC 130 to Bridge No. 10.

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): 34.1246 °N 78.5763 °W

6. Property size (acres): N/A

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

8. River Basin: Lumber
   (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: Rural

10. Describe the overall project in detail, including the type of equipment to be used: Replacing a structurally deficient bridge using top-down construction. An on-site detour will be utilized. Standard road building equipment will be used.

11. Explain the purpose of the proposed work: To replace a structurally deficient bridge.

IV. Prior Project History

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

V. Future Project Plans

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

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

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

1. Provide a written description of the proposed impacts: 0.07 acre of permanent wetland impacts, 0.33 acre of temporary fill in wetlands, and 0.16 acre of hand clearing.

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)
Bridge	Fill	Riverine	Yes	0	0.02
	Mechanized clearing	Riverine	Yes	0	0.05
	Temporary Fill	Rinerine	Yes	0	0.33
Total Wetland Impact (acres)					0.40

3. List the total acreage (estimated) of all existing wetlands on the property: ~1

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)
On Summary	Gum Swamp	bent	perennial	50	N/A	0.01
Total Stream Impact (by length and acreage)						

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

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

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

Stream Impact (acres):	0.01
Wetland Impact (acres):	0.40
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	0.41
Total Stream Impact (linear feet):	0

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

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

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.
   NCDOT does not propose mitigation for this project.

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

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

IX. Environmental Documentation (required by DWQ)

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

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

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

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

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

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

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

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		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. N/A_____

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. Impervious acreage will not appreciably increase as a result of the bridge construction.

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.
No wastewater will be generated from the implementation of the proposed project.

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:
N/A

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).

E. L. Fuller 4.23.08

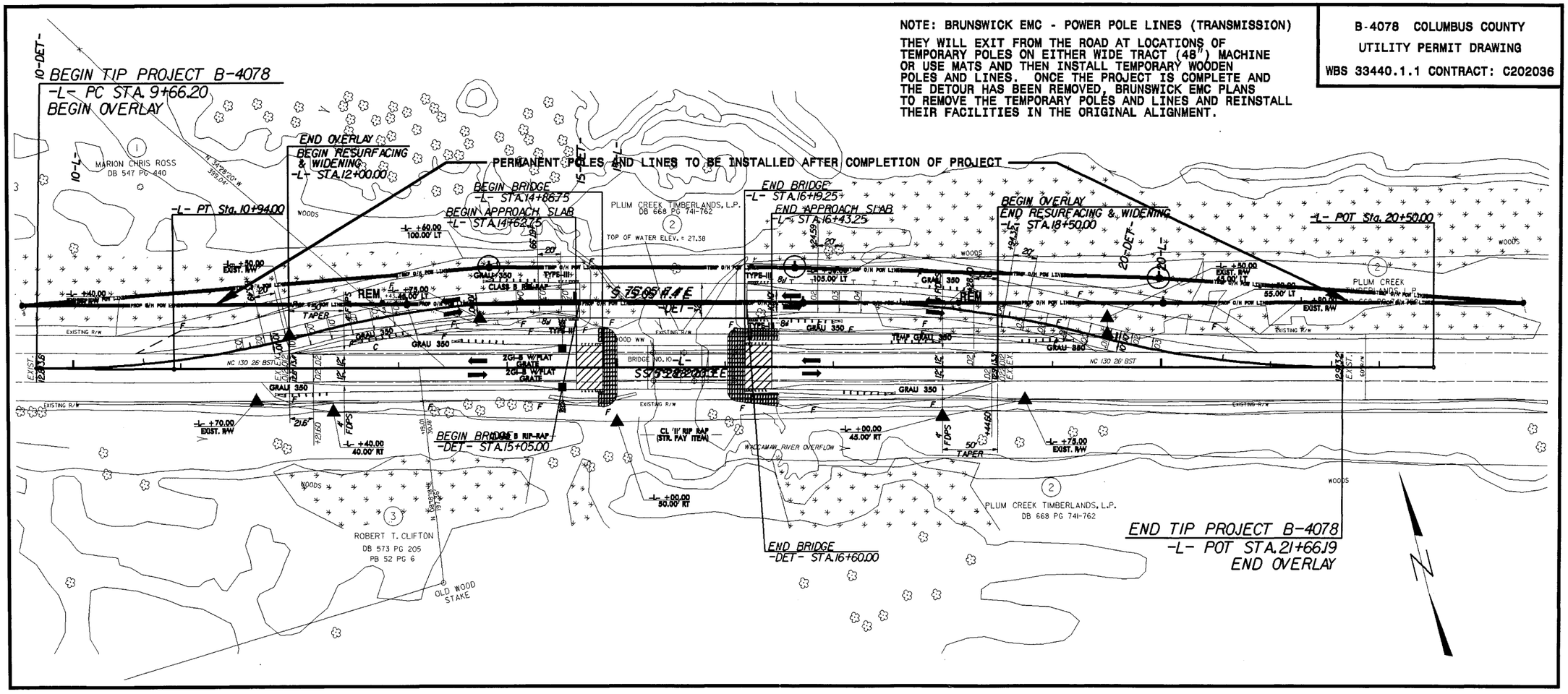
Applicant/Agent's Signature **Date**
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

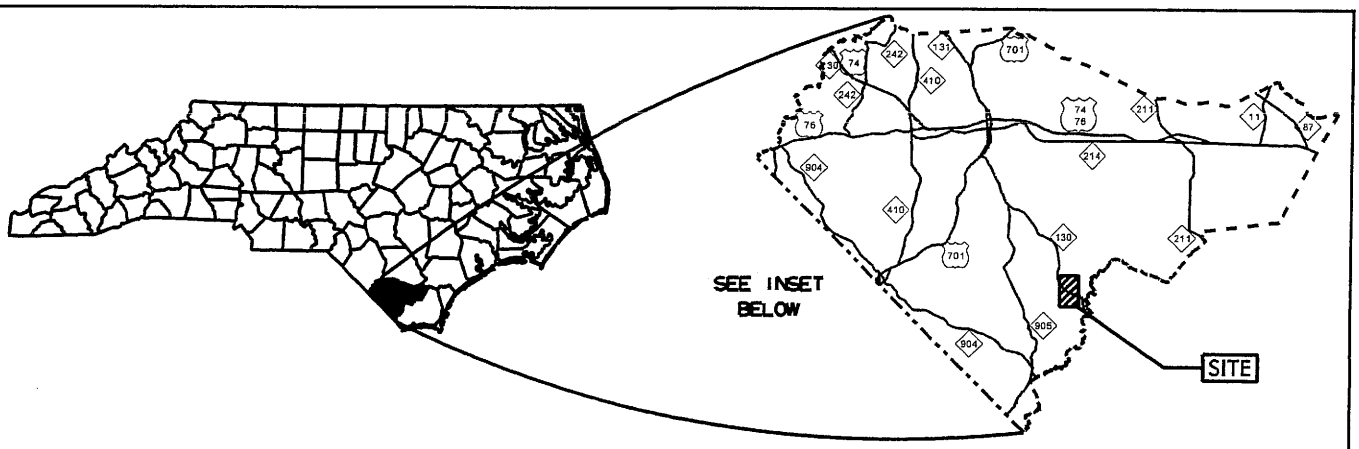
Utility
Permit Drawing
Sheet 1 of 1

NOTE: BRUNSWICK EMC - POWER POLE LINES (TRANSMISSION)

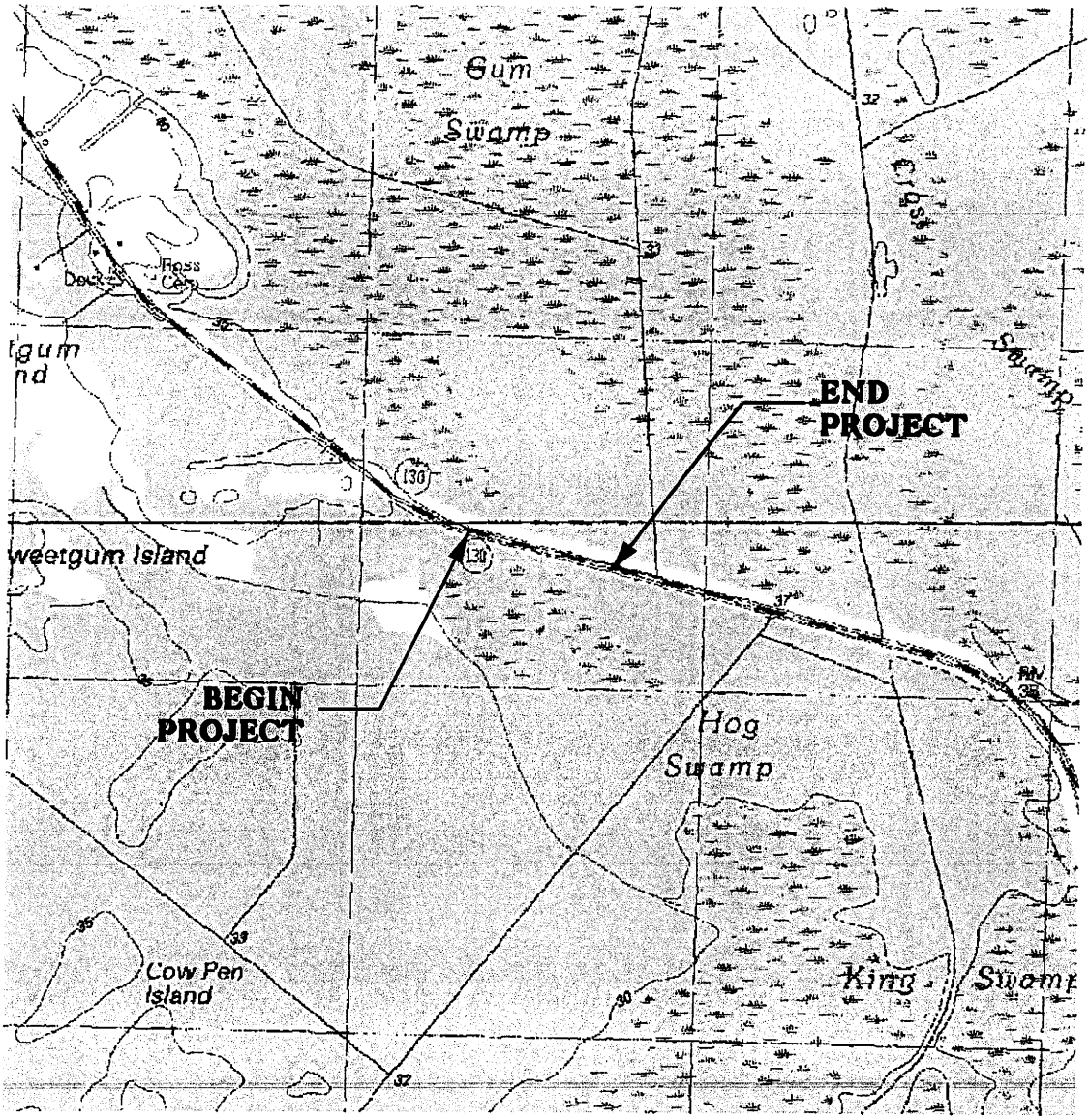
THEY WILL EXIT FROM THE ROAD AT LOCATIONS OF TEMPORARY POLES ON EITHER WIDE TRACT (48") MACHINE OR USE MATS AND THEN INSTALL TEMPORARY WOODEN POLES AND LINES. ONCE THE PROJECT IS COMPLETE AND THE DETOUR HAS BEEN REMOVED, BRUNSWICK EMC PLANS TO REMOVE THE TEMPORARY POLES AND LINES AND REINSTALL THEIR FACILITIES IN THE ORIGINAL ALIGNMENT.

B-4078 COLUMBUS COUNTY
UTILITY PERMIT DRAWING
WBS 33440.1.1 CONTRACT: C202036





COLUMBUS COUNTY



WETLAND/STREAM IMPACTS
VICINITY MAP

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

COLUMBUS COUNTY

PROJECT:33440.1.1 (B-4078)
BRIDGE NO. 10 OVER
WACCAMAW RIVER OVERFLOW
ON NC 130

SHEET ___ OF ___ **2/20/08**

Permit Drawing

09/08/99

TIP PROJECT: B-4078

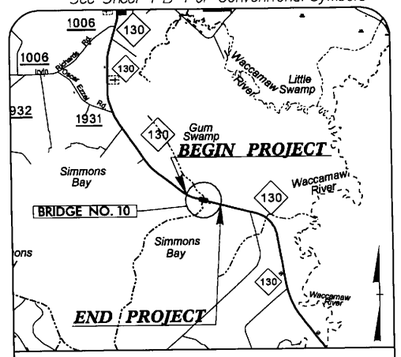
CONTRACT:

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4078	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33440.1.1	BRSTP-0130 (4)	PE
33440.2.1	BRSTP-0130 (4)	R/W & UTIL.

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



VICINITY MAP

(THIS PROJECT IS NOT INCLUDED WITHIN ANY MUNICIPAL BOUNDARIES)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

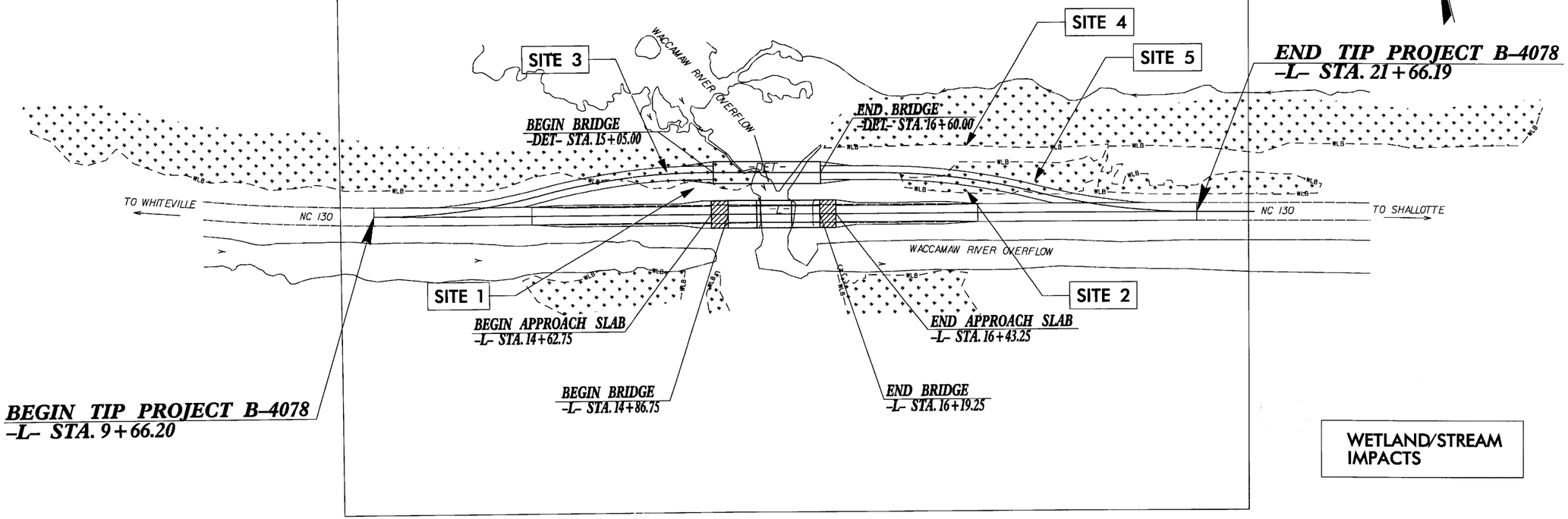
COLUMBUS COUNTY

LOCATION: BRIDGE NO. 10 OVER WACCAMAW RIVER OVERFLOW ON NC 130

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

R/W PLANS
Permit Drawing
Sheet 2 of 11

4



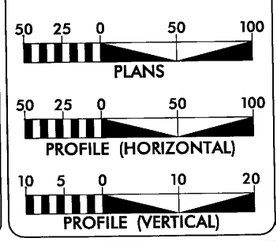
WETLAND/STREAM IMPACTS

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

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2008 = 5,000
ADT 2028 = 9,000
DHV = 10 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST 4% + DUALS 3%
FUNC. CLASS = RURAL MINOR ARTERIAL

PROJECT LENGTH

Length Roadway TIP Project B-4078 = 0.202 Miles
Length Structure TIP Project B-4078 = 0.025 Miles
Total Length TIP Project B-4078 = 0.227 Miles

Prepared in the Office of:
THE LPA GROUP TRANSPORTATION CONSULTANTS
THE LPA GROUP of North Carolina, p.a.
5000 Falls of Neuse Rd., Suite 304
Raleigh, North Carolina 27609

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DEC. 21, 2007

LETTING DATE: DEC. 16, 2008

JEANNE K. RICHTER, P.E.
PROJECT ENGINEER

JODY L. COLE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

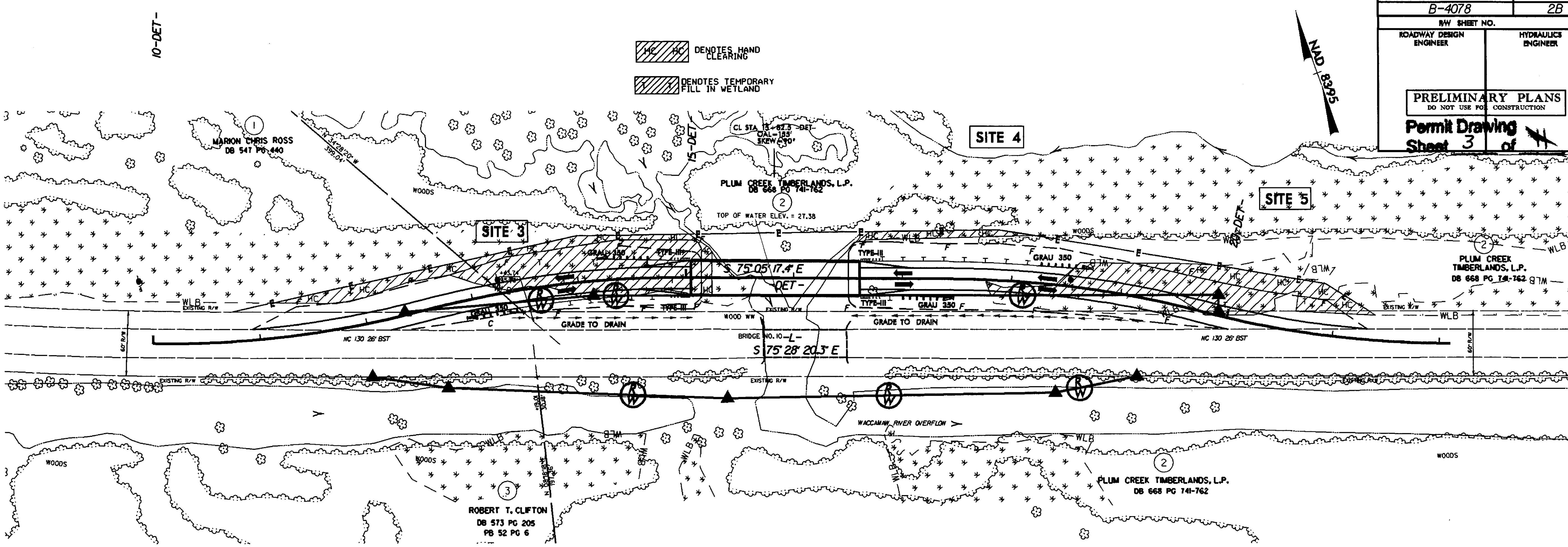
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER *P.E.*

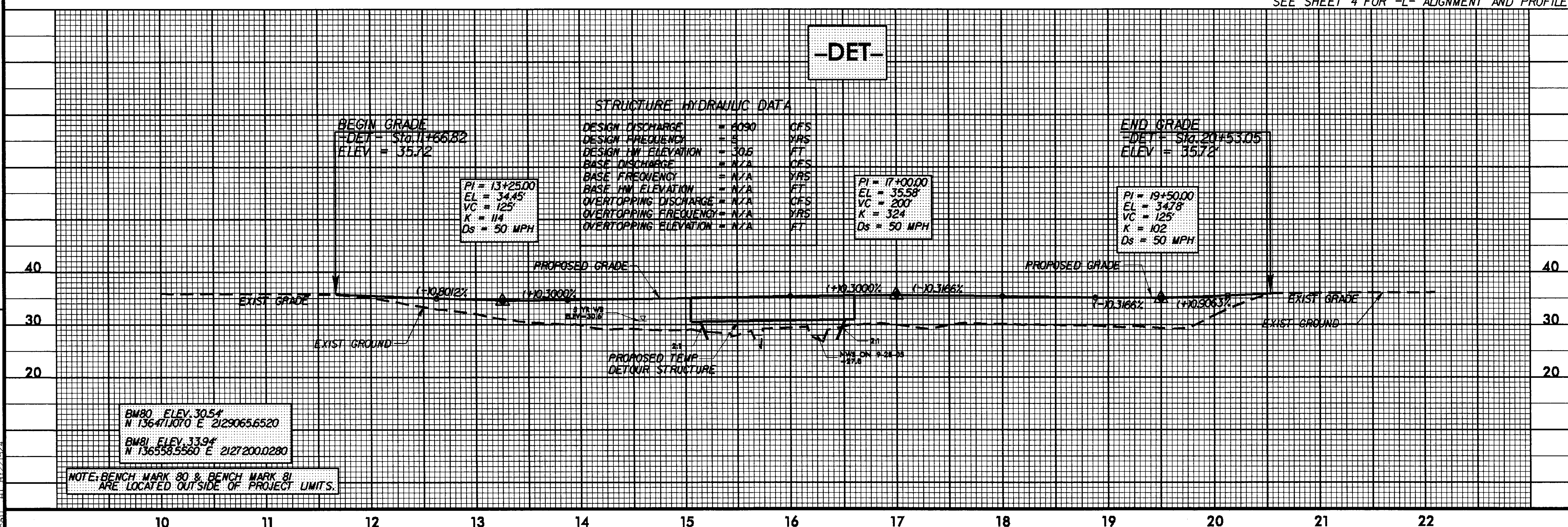
PROJECT REFERENCE NO.	SHEET NO.
B-4078	2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 3 of



SEE SHEET 4 FOR -L- ALIGNMENT AND PROFILE



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 6090	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 30.6	FT
BASE DISCHARGE	= N/A	CFS
BASE FREQUENCY	= N/A	YRS
BASE HW ELEVATION	= N/A	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING ELEVATION	= N/A	FT

REVISIONS

12-MAR-2008 13:14

PROJECT REFERENCE NO.	SHEET NO.
B-4078	2B

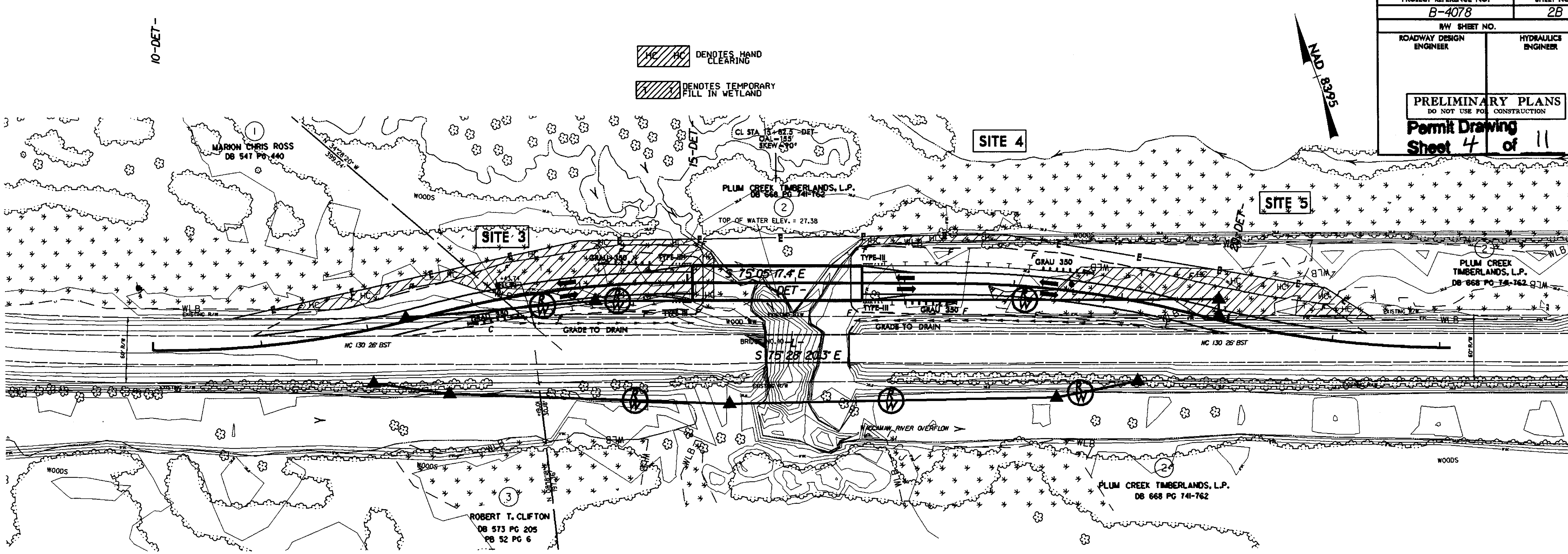
R/W SHEET NO.

ROADWAY DESIGN ENGINEER

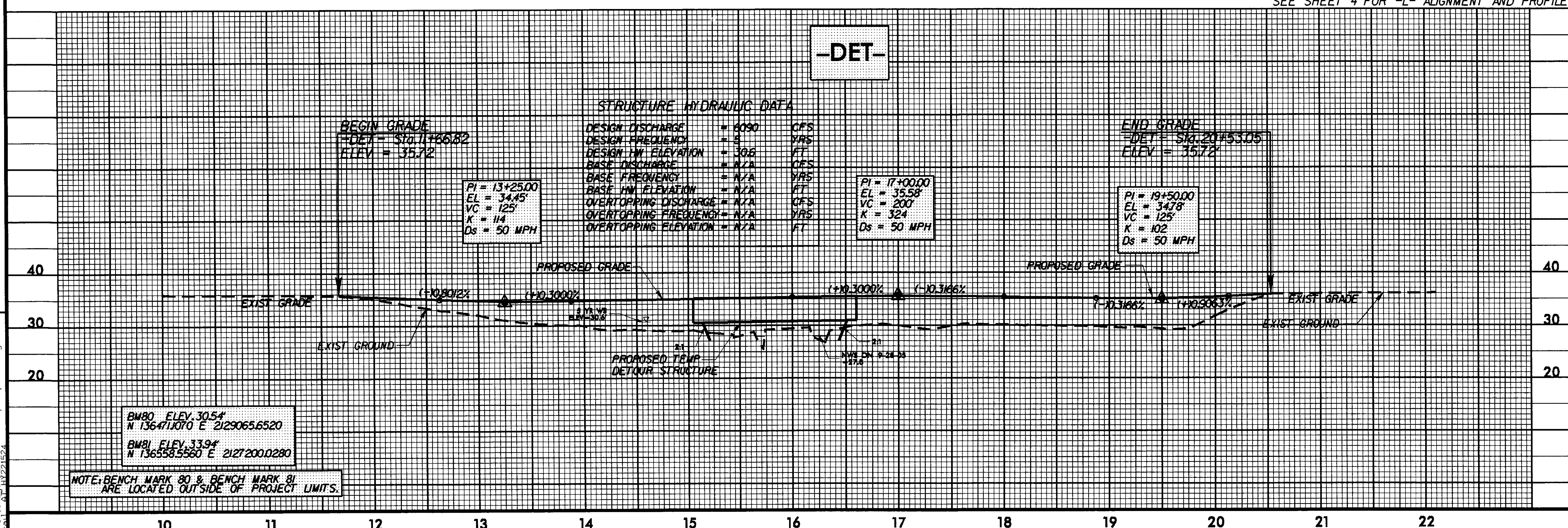
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 4 **of** 11



SEE SHEET 4 FOR -L- ALIGNMENT AND PROFILE



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 6090	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 30.6	FT
BASE DISCHARGE	= N/A	CFS
BASE FREQUENCY	= N/A	YRS
BASE HW ELEVATION	= N/A	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING ELEVATION	= N/A	FT

REVISIONS

8/17/99

12-MAR-2008 13:14

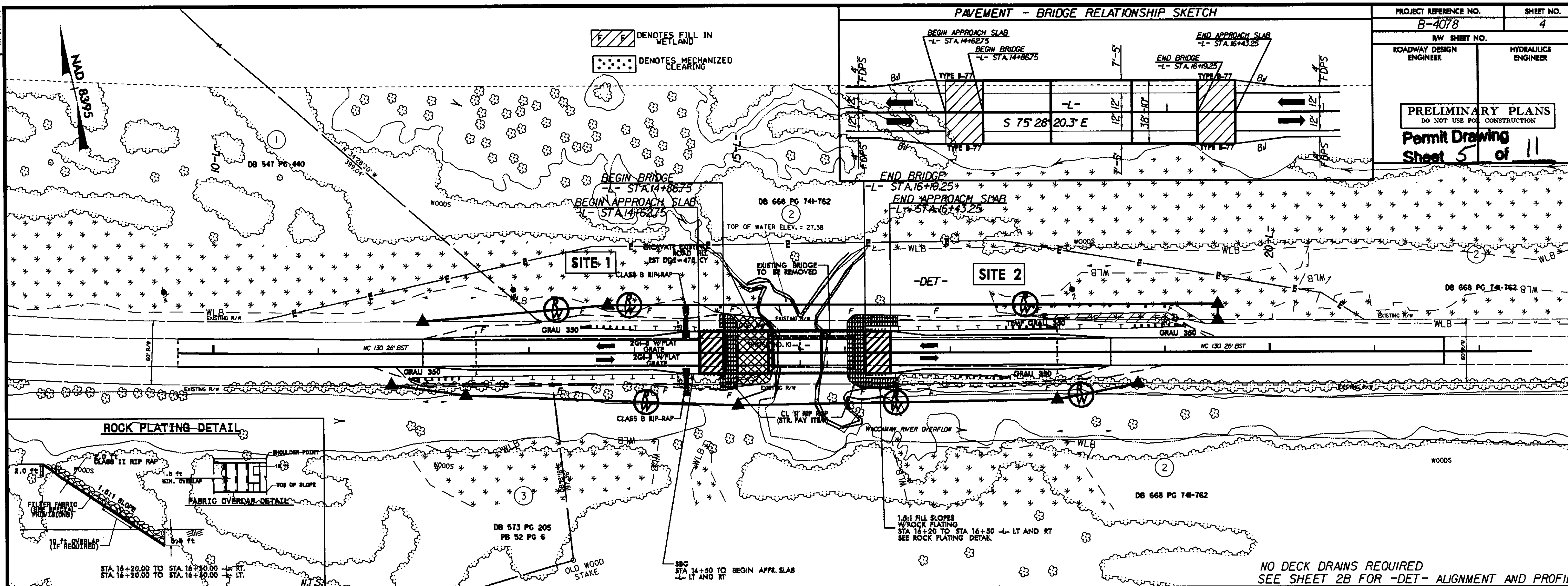
PROJECT REFERENCE NO.	SHEET NO.
B-4078	4

R/W SHEET NO.

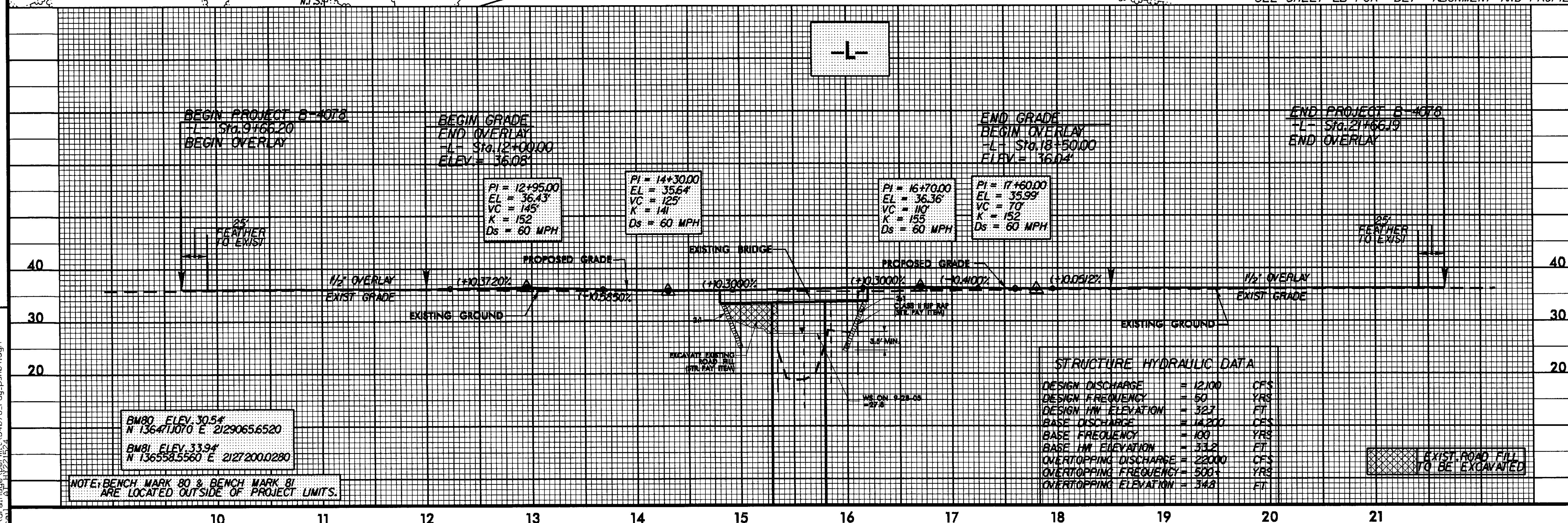
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 5 of 11



PAVEMENT - BRIDGE RELATIONSHIP SKETCH
BEGIN APPROACH SLAB -L- STA.14+62.75
BEGIN BRIDGE -L- STA.14+86.75
END APPROACH SLAB -L- STA.16+43.25
END BRIDGE -L- STA.16+19.25
S 75° 28' 20.3" E
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
NAD 83/95
DB 547 PG 440
WOODS
BEGIN BRIDGE -L- STA.14+86.75
BEGIN APPROACH SLAB -L- STA.14+62.75
DB 668 PG 741-762
TOP OF WATER ELEV. = 27.38
END BRIDGE -L- STA.16+19.25
END APPROACH SLAB -L- STA.16+43.25
SITE 1
SITE 2
-DET-
EXISTING BRIDGE TO BE REMOVED
CLASS B RIP-RAP
NC 130 26' BST
GRAU 350
WACCAMAW RIVER OVERFLOW
ROCK PLATING DETAIL
CLASS II RIP RAP
FILTER FABRIC
FABRIC OVERLAP DETAIL
STA. 16+20.00 TO STA. 16+50.00 -L- RT.
STA. 16+20.00 TO STA. 16+40.00 -L- LT.
N.T.S.
DB 573 PG 205
PB 52 PG 6
OLD WOOD STAKE
SBG STA 14+50 TO BEGIN APPR. SLAB -L- LT AND RT
1.5:1 FILL SLOPES W/ROCK PLATING STA 16+20 TO STA 16+50 -L- LT AND RT SEE ROCK PLATING DETAIL
DB 668 PG 741-762
NO DECK DRAINS REQUIRED
SEE SHEET 2B FOR -DET- ALIGNMENT AND PROFILE
REVISIONS



-L-
BEGIN PROJECT B-4078
-L- Sta.9+66.20
BEGIN OVERLAY
BEGIN GRADE
END OVERLAY
-L- Sta.12+00.00
ELEV.= 36.08'
END GRADE
BEGIN OVERLAY
-L- Sta.18+50.00
ELEV.= 36.04'
END PROJECT B-4078
-L- Sta.21+66.19
END OVERLAY
PI = 12+95.00
EL = 36.43'
VC = 145'
K = 152
Ds = 60 MPH
PI = 14+30.00
EL = 35.64'
VC = 125'
K = 141
Ds = 60 MPH
PI = 16+70.00
EL = 36.36'
VC = 110'
K = 155
Ds = 60 MPH
PI = 17+60.00
EL = 35.99'
VC = 70'
K = 152
Ds = 60 MPH
25' FEATHER TO EXIST
1½" OVERLAY
EXIST GRADE
PROPOSED GRADE
EXISTING GROUND
EXISTING BRIDGE
EXCAVATE EXISTING ROAD FILL (STR. PAY ITEM)
CLASS II RIP RAP (STR. PAY ITEM)
EXIST. ROAD FILL TO BE EXCAVATED
40
30
20
10
11
12
13
14
15
16
17
18
19
20
21

BM80 ELEV.30.54'
N 136471.1070 E 2129065.6520

BM81 ELEV.33.94'
N 136558.5560 E 2127200.0280

NOTE: BENCH MARK 80 & BENCH MARK 81 ARE LOCATED OUTSIDE OF PROJECT LIMITS.

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 12,100	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 32.7	FT
BASE DISCHARGE	= 14,200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 33.2	FT
OVERTOPPING DISCHARGE	= 22000	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 34.8	FT

8/17/99
12-MAR-2008 14:25

PROJECT REFERENCE NO.	SHEET NO.
B-4078	4
NW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing Sheet 16 of 11

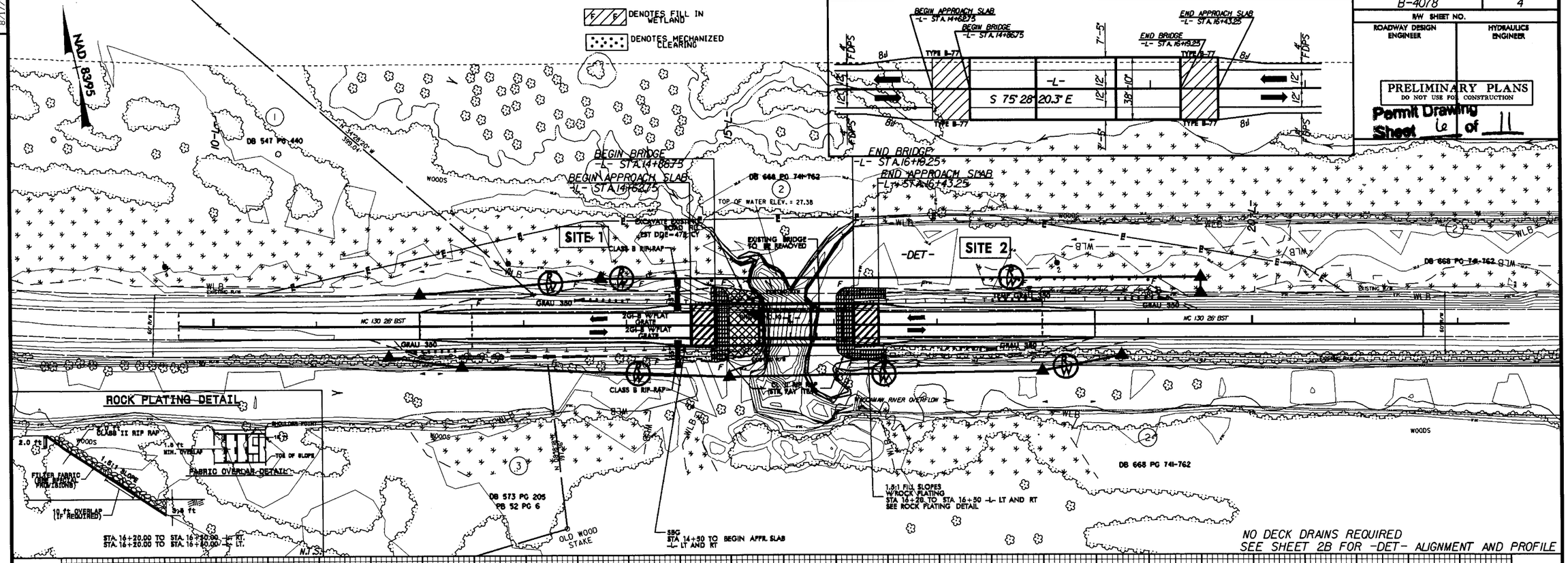
REVISIONS 8/17/99

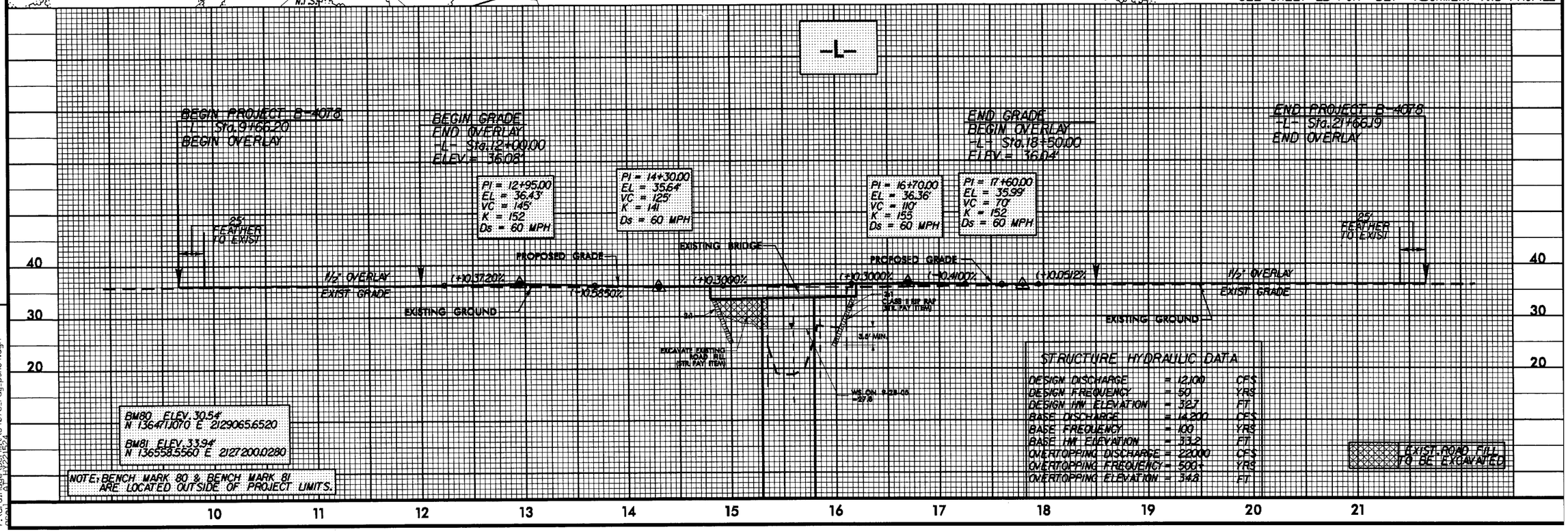
NAD 83/95

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PAVEMENT - BRIDGE RELATIONSHIP SKETCH





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r:\drainage\projects\b4078_rdy_psh04.dgn
roadway user 1.02.04

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
B-4078	X-4

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 7 of 11

SITE 3

SITE 1

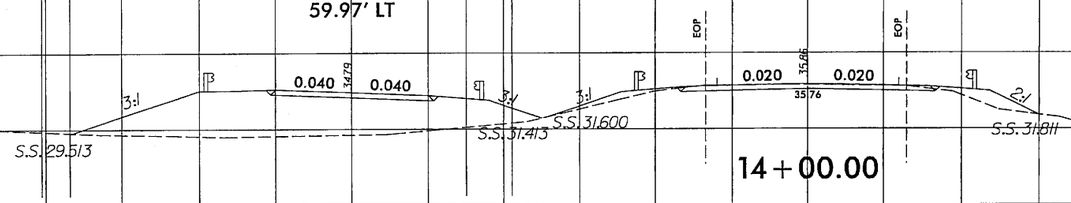
HAND CLEARING

TEMP FILL IN WETLAND

MECHANIZED CLEARING

–DET– 14+38.38

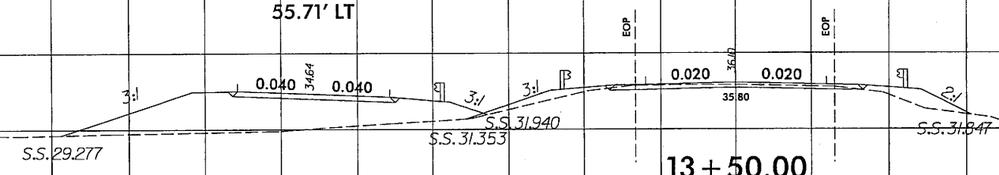
59.97' LT



14+00.00

–DET– 13+87.65

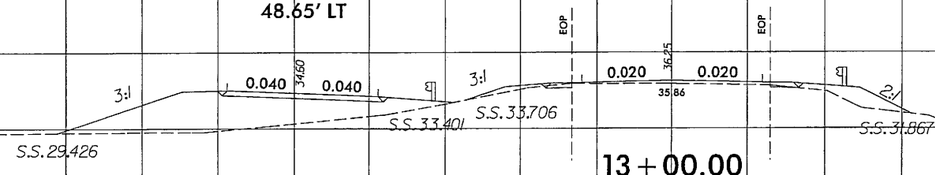
55.71' LT



13+50.00

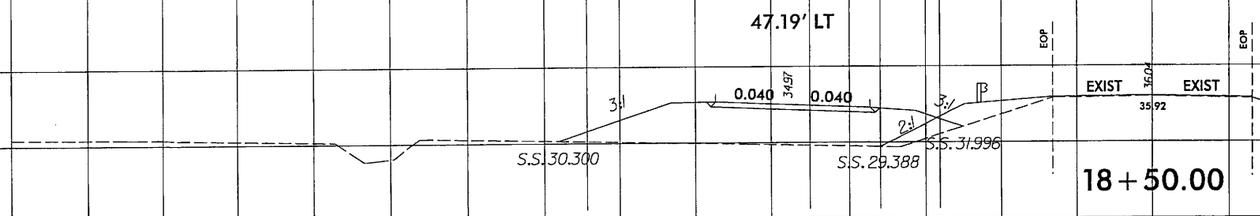
–DET– 13+36.60

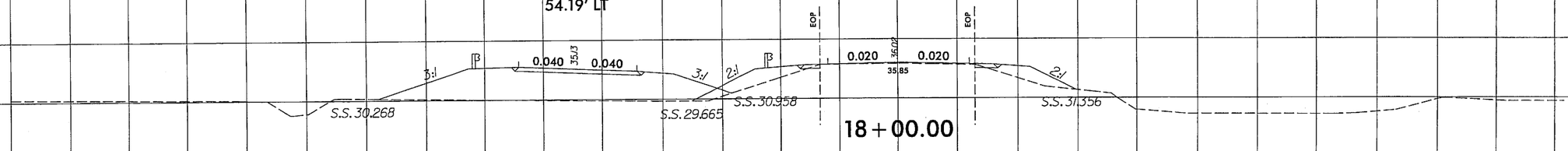
48.65' LT

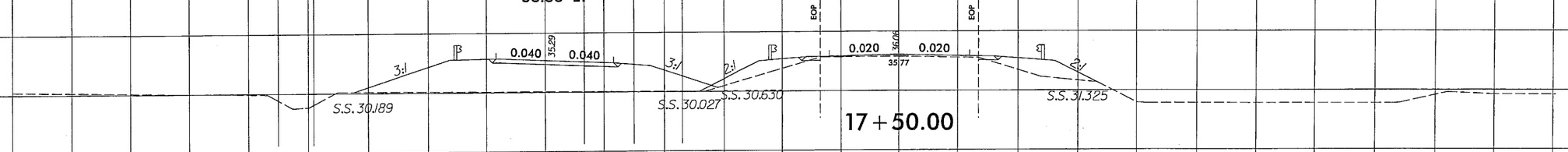


13+00.00

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$SESSION$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$







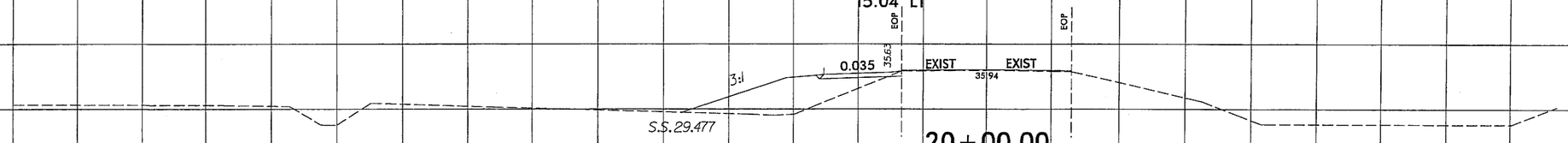
8/23/99

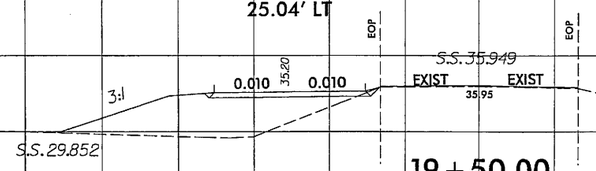
PROJ. REFERENCE NO.	SHEET NO.
B-4078	X-7

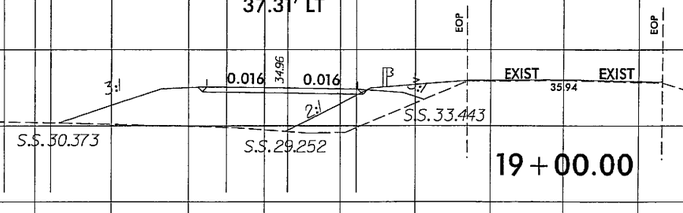
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 8 of 11

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







8/23/99

PROJ. REFERENCE NO.	SHEET NO.
B-4078	X-8

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 9 of 11

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

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	MARION CHRIS ROSS	14370 NEW BRITTION HWY. E. NAKINA, NC 28455
2	PLUM CREEK TIMBERLANDS, LP	987 GRISWOLDVILLE MACON, GA 31217

NCDOT

DIVISION OF HIGHWAYS

COLUMBUS COUNTY

PROJECT: 33440.1.1 (B-4078)
BRIDGE NO. 10 ON OVER
WACCAMAW RIVER OVERFLOW
ON NC 130

SHEET OF 2/20/08

Permit Drawing
Sheet 10 of 11

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			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	14+63-15+06 -L- LT	BRIDGE				0.01						
2	12+19-15+95 -L- LT	BRIDGE	0.02			0.04						
3	11+16-15+25 -DET-	DET BRIDGE		0.20			0.08					
4	16+58-18+16 -DET- LT	DET BRIDGE					0.02					
5	17+77-21+39 -DET-	DET BRIDGE		0.13			0.06					
TOTALS:			0.02	0.33	0.00	0.05	0.16	0.00	0.00	0	0	0

0.04 acres of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures.

Per Structures, 2 sq. ft. impacts for piles in stream

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

COLUMBUS COUNTY

PROJECT: 33440.1.1 (B-4078)

Permit Drawing

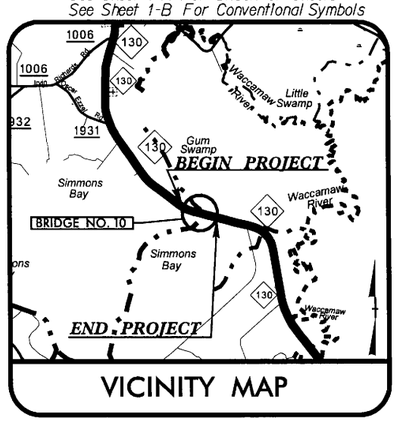
SHEET Sheet 11 of 17 March-08

ATN Revised 3/31/05

TIP PROJECT: B-4078

CONTRACT:

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



VICINITY MAP

(THIS PROJECT IS NOT INCLUDED WITHIN ANY MUNICIPAL BOUNDARIES)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

COLUMBUS COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4078	1	

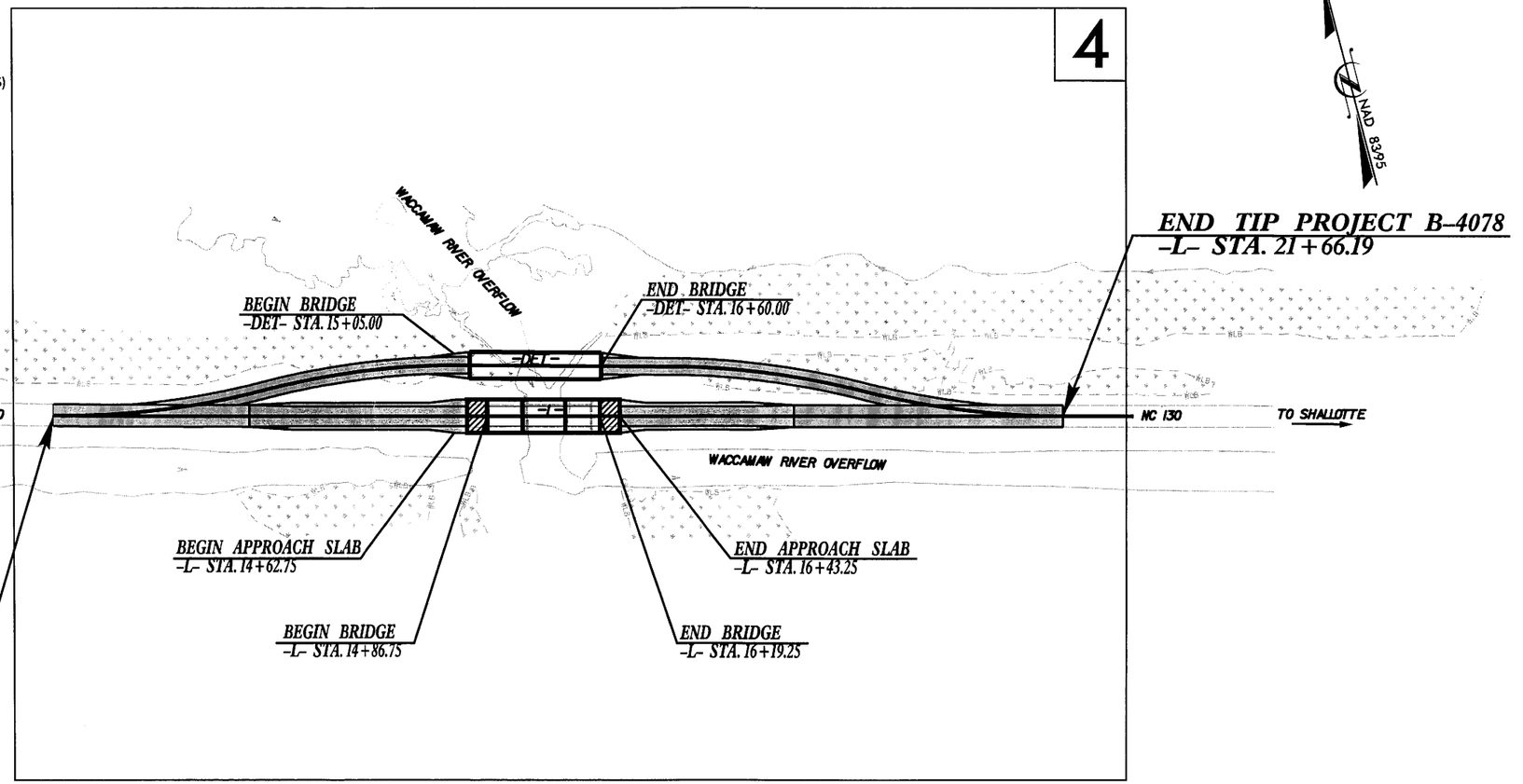
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33440.1.1	BRSTP-0130 (4)	PE
33440.2.1	BRSTP-0130 (4)	R/W & UTIL.
33440.3.1	BRSTP-0130 (4)	CONST.

R/W PLANS

LOCATION: BRIDGE NO. 10 OVER WACCAMAW RIVER OVERFLOW ON NC 130

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

4



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

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 5,000
ADT 2028 = 9,000
DHV = 10 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST 4% + DUALS 3%
FUNC. CLASS = RURAL MINOR ARTERIAL

PROJECT LENGTH

Length Roadway TIP Project B-4078 = 0.202 Miles

Length Structure TIP Project B-4078 = 0.025 Miles

Total Length TIP Project B-4078 = 0.227 Miles

Prepared In the Office of:
THE LPA GROUP TRANSPORTATION CONSULTANTS
THE LPA GROUP of North Carolina, p.a.
5000 Falls of Neuse Rd., Suite 304
Raleigh, North Carolina 27609

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DEC. 21, 2007

LETTING DATE: DEC. 16, 2008

JEANNE K. RICHTER, P.E.
PROJECT ENGINEER

JODY L. COLE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY DESIGN ENGINEER P.E.

3/15/26

PROJECT REFERENCE NO.	SHEET NO.
B-4078	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

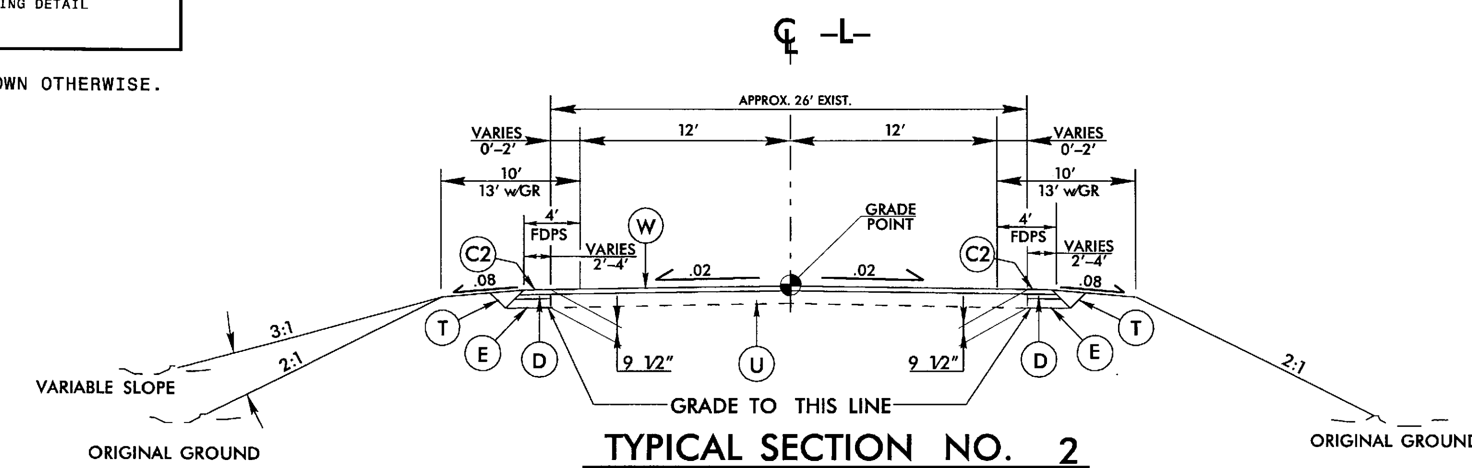
PROJECT REFERENCE NO.	B-4078	SHEET NO.	2
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

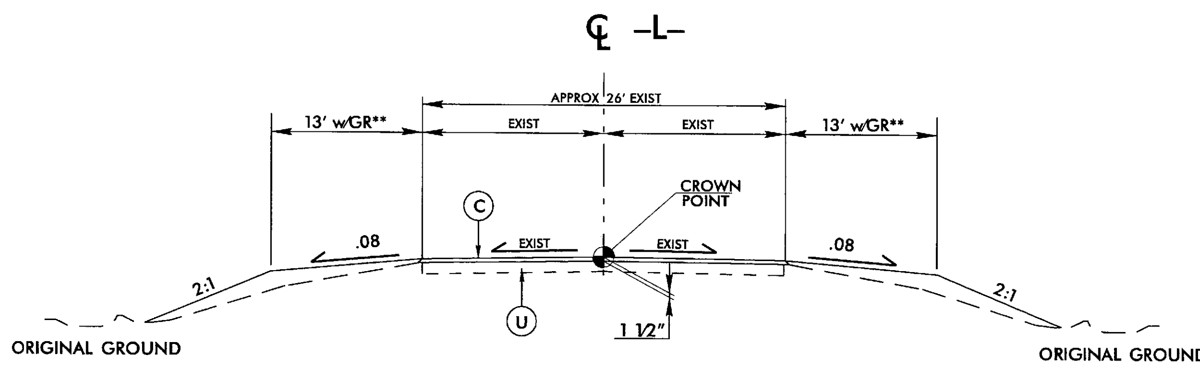
A	VAR. DEPTH PORTLAND CEMENT CONCRETE PAVEMENT.	E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN ONE LAYER.	E1	PROP. VAR. DEPTH ASPHALT 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.
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD. IN ONE LAYER.	J	PROP. 8" AGGREGATE BASE COURSE.
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.	P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
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 2" IN DEPTH.	T	EARTH MATERIAL.
D	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D1	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 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET 2A)

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



TYPICAL SECTION NO. 2

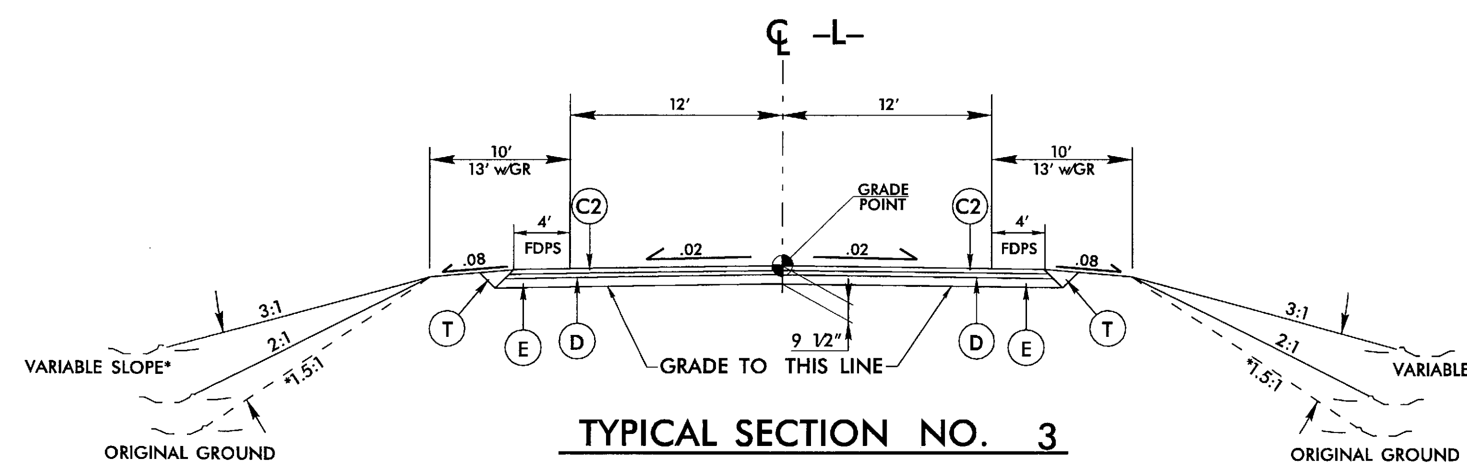
-L- STA. 12+00.00 TO STA. 13+50.00
-L- STA. 17+50.00 TO STA. 18+50.00



TYPICAL SECTION NO. 1

-L- STA. 9+66.20 TO STA. 12+00.00
-L- STA. 18+50.00 TO STA. 21+66.19

* GRADE SHOULDER FOR GUARDRAIL PLACEMENT. SEE PLAN FOR LOCATIONS.



TYPICAL SECTION NO. 3

-L- STA. 13+50.00 TO STA. 14+86.75 (BEGIN BRIDGE)
-L- STA. 16+19.25 (END BRIDGE) TO STA. 17+50.00

* MAXIMUM SLOPE CAN BE INCREASED TO 1.5:1 IN ROCK PLATING LOCATIONS ONLY. SEE ROCK PLATING DETAIL ON SHEET 4 FOR LIMITS.

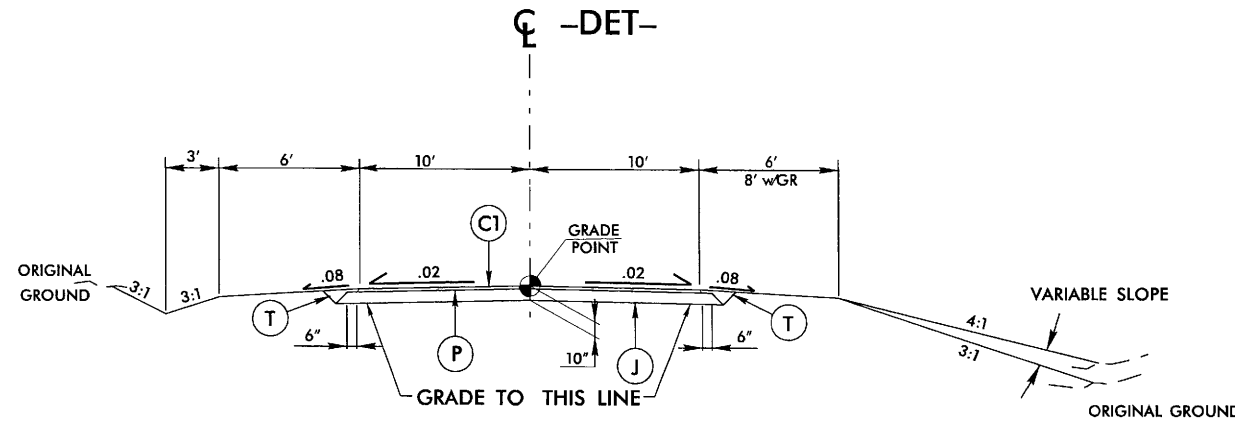
PROJECT REFERENCE NO.	SHEET NO.
B-4078	2A

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

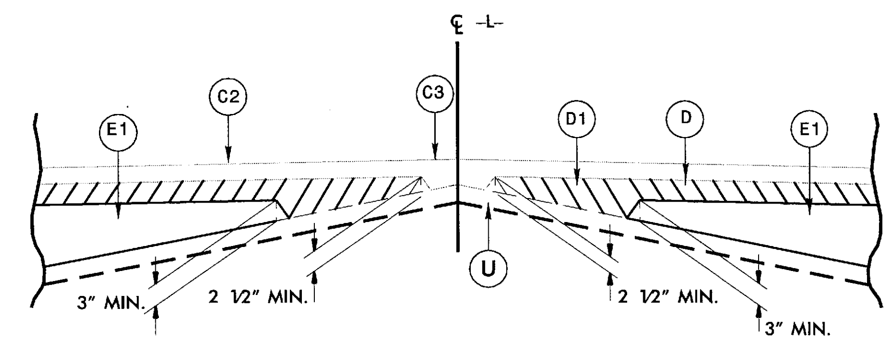
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
A	VAR. PCCP
C	1½" S9.5B
C1	2 " S9.5B
C2	3 " S9.5B
C3	VAR. S9.5B
D	2½" I19.0B
D1	VAR. I19.0B
E	4" B25.0B
E1	VAR. B25.0B
J	8" ABC
P	.35 PRIME COAT
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

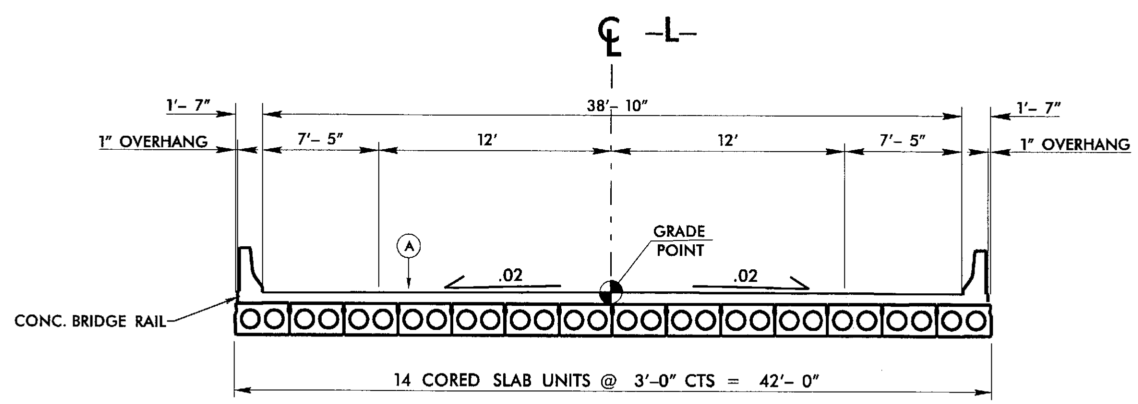


TYPICAL SECTION NO. 4

-DET- STA. 11+66.61 TO STA. 15+05.00 (BEGIN BRIDGE)
-DET- STA. 16+60.00 (END BRIDGE) TO STA. 20+53.05



Detail Showing Method of Wedging



TYPICAL SECTION NO. 5

-L- STA. 14+86.75 (BEGIN BRIDGE) TO STA. 16+19.25 (END BRIDGE)

PROJECT REFERENCE NO.	SHEET NO.
B-4078	2B

RW SHEET NO.

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

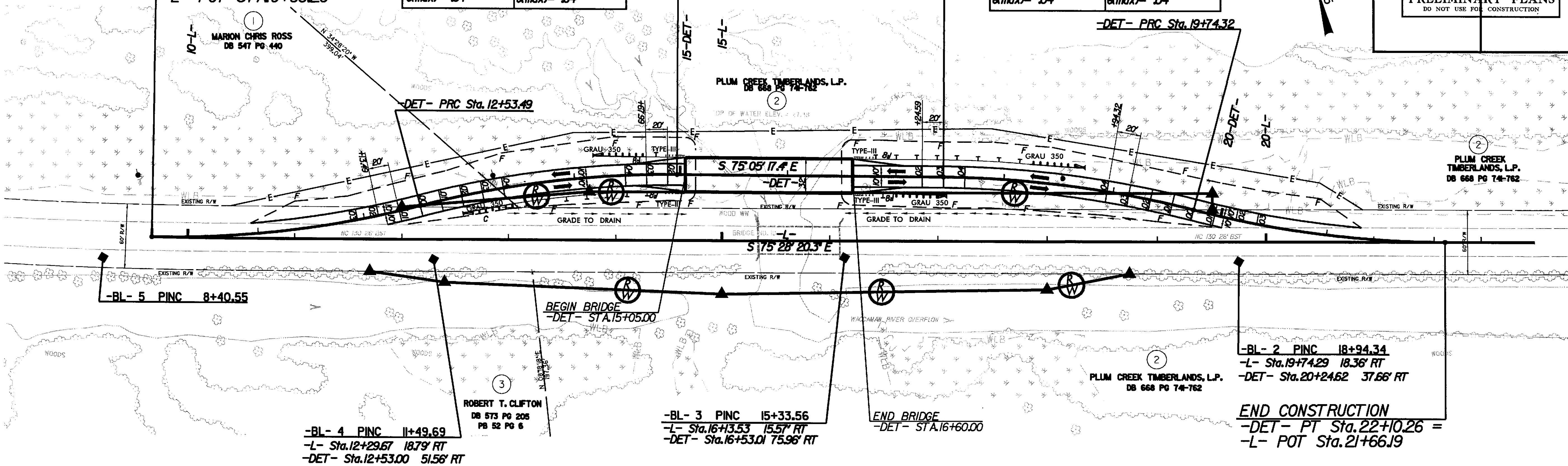
REVISIONS

-DET-

PI Sta 11+27.54	PI Sta 13+75.95
Δ = 15° 4' 04.9" (LT)	Δ = 15° 03' 59.2" (RT)
D = 6° 11' 14.8"	D = 6° 11' 14.8"
L = 253.49'	L = 243.50'
T = 127.54'	T = 122.46'
R = 926.00'	R = 926.00'
DS= 50 MPH	DS= 50 MPH
e(max)= .04	e(max)= .04

-DET-

PI Sta 18+60.05	PI Sta 20+92.93
Δ = 14° 12' 52.2" (RT)	Δ = 14° 35' 55.1" (LT)
D = 6° 11' 14.8"	D = 6° 11' 14.8"
L = 229.73'	L = 235.94'
T = 115.46'	T = 118.61'
R = 926.00'	R = 926.00'
DS= 50 MPH	DS= 50 MPH
e(max)= .04	e(max)= .04



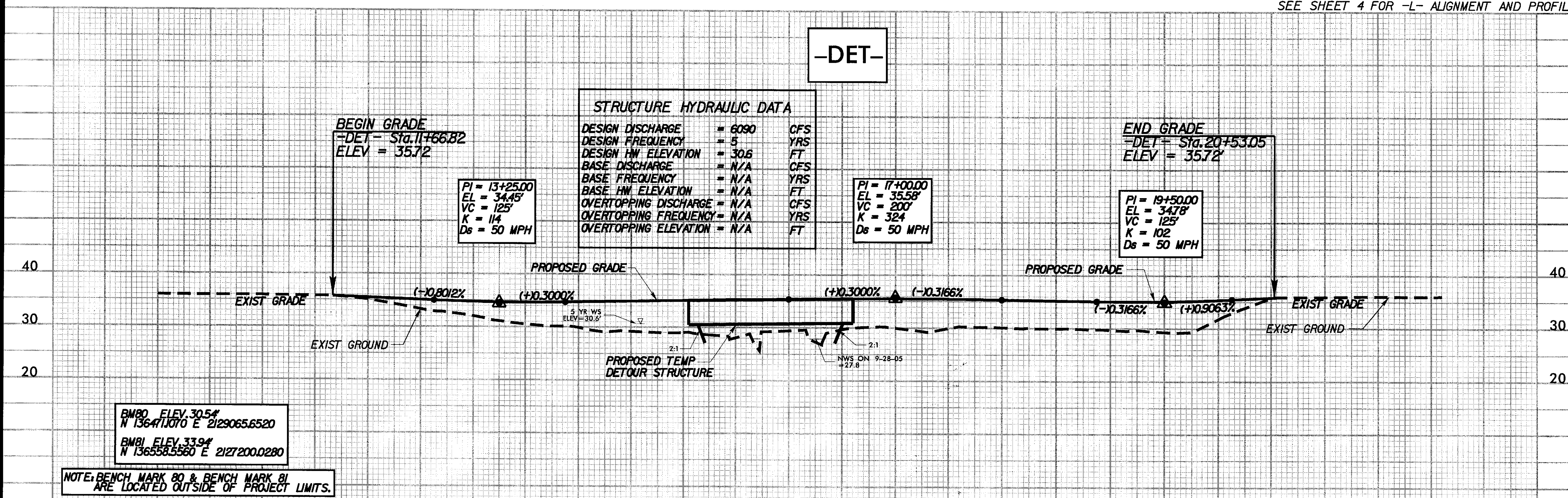
NAD 83/95
BEGIN CONSTRUCTION
-DET- PC STA.10+00.00 =
-L- POT STA.9+66.20
10-DET-
10-L-
MARION CHRIS ROSS
DB 547 PG 440
-DET- PT Sta. 14+96.99
-DET- PC Sta. 17+44.59
-DET- PRC Sta. 19+74.32
-DET- PRC Sta. 12+53.49
15-DET-
15-L-
PLUM CREEK TIMBERLANDS, L.P.
DB 668 PG 741-762
20-DET-
20-L-
S 75° 05' 17.4" E
-DET-
GRADE TO DRAIN
GRAU 350
TYPE-III
EXISTING R/W
WOODS
-L-
S 75° 28' 20.3" E
-BL- 5 PINC 8+40.55
BEGIN BRIDGE
-DET- STA.15+05.00
WACCAMAW RIVER OVERFLOW
ROBERT T. CLIFTON
DB 573 PG 205
PB 52 PG 6
-BL- 4 PINC 11+49.69
-L- Sta.12+29.67 18.79' RT
-DET- Sta.12+53.00 51.56' RT
-BL- 3 PINC 15+33.56
-L- Sta.16+13.53 15.57' RT
-DET- Sta.16+53.01 75.96' RT
END BRIDGE
-DET- STA.16+60.00
-BL- 2 PINC 18+94.34
-L- Sta.19+74.29 18.36' RT
-DET- Sta.20+24.62 37.66' RT
END CONSTRUCTION
-DET- PT Sta.22+10.26 =
-L- POT Sta.21+66.19

SEE SHEET 4 FOR -L- ALIGNMENT AND PROFILE

-DET-

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 6090	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 30.6	FT
BASE DISCHARGE	= N/A	CFS
BASE FREQUENCY	= N/A	YRS
BASE HW ELEVATION	= N/A	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING ELEVATION	= N/A	FT



BEGIN GRADE
-DET- Sta.11+66.82
ELEV = 35.72
PI = 13+25.00
EL = 34.45'
VC = 125'
K = 114
Ds = 50 MPH
PI = 17+00.00
EL = 35.58'
VC = 200'
K = 324
Ds = 50 MPH
PI = 19+50.00
EL = 34.78'
VC = 125'
K = 102
Ds = 50 MPH
END GRADE
-DET- Sta.20+53.05
ELEV = 35.72'
PROPOSED GRADE
EXIST GRADE
EXIST GROUND
(-)0.8012%
(+)0.3000%
(+)0.3000%
(-)0.3166%
(-)0.3166%
(+)0.9063%
5 YR WS ELEV = 30.6'
PROPOSED TEMP DETOUR STRUCTURE
NWS ON 9-28-05 +27.8
2:1
40
30
20
10
11
12
13
14
15
16
17
18
19
20
21
22

BM80 ELEV.30.54'
N 136471.1070 E 2129065.6520

BM81 ELEV.33.94'
N 136558.5560 E 2127200.0280

NOTE: BENCH MARK 80 & BENCH MARK 81 ARE LOCATED OUTSIDE OF PROJECT LIMITS.

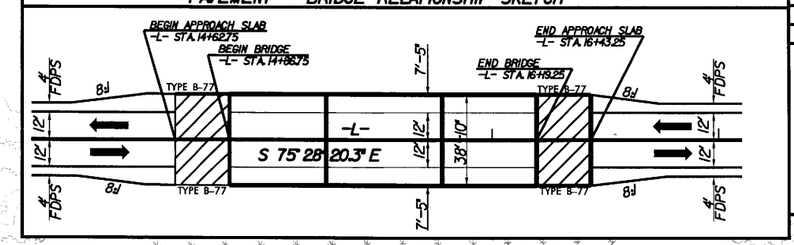
PROJECT REFERENCE NO.	SHEET NO.
B-4078	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS 8/17/99

NAD 83/95

PAVEMENT - BRIDGE RELATIONSHIP SKETCH



BEGIN TIP PROJECT B-4078
-L- PC STA. 9+66.20
BEGIN OVERLAY

-L-
PI Sta 10+30.10
Δ = 1° 00' 08.3" (LT)
D = 0° 47' 03.4"
L = 127.80'
T = 63.90'
R = 7,305.50'
DS = 60 MPH
e(max) = EXIST

-L- PT Sta. 10+94.00

END OVERLAY
BEGIN RESURFACING & WIDENING
-L- STA. 12+00.00

(1) MARION CHRIS ROSS
DB 547 PG 440

N 34°26'20" W
398.04'

PLUM CREEK TIMBERLANDS, L.P.
DB 668 PG 74-762

(2)

-L- +60.00
100.00' LT

-L- +50.00
EXIST. R/W

-L- +40.00
EXIST. R/W

-L- +75.00
45.00' LT

50' TAPER

CLASS B RIP-RAP

EXISTING BRIDGE TO BE REMOVED

S 75° 05' 17.4" E

-DET-

-L- +50.00
105.00' LT

GRAU 350

2GI-B W/FLAT GRATE
2GI-B W/FLAT GRATE

S 75° 28' 20.3" E

TEMP GRAU 350

-L- +70.00
EXIST. R/W

-L- +40.00
40.00' RT

CLASS B RIP-RAP

CL 'II' RIP RAP (STR. PAY ITEM)

-L- +00.00
45.00' RT

-L- +00.00
50.00' RT

50' TAPER

-L- +75.00
EXIST. R/W

BEGIN OVERLAY
END RESURFACING & WIDENING
-L- STA. 18+50.00

-L- POT Sta. 20+50.00

-L- +50.00
EXIST. R/W
45.00' LT

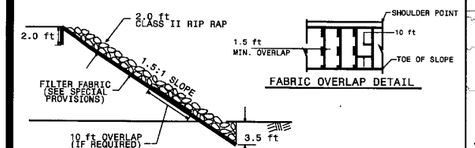
-L- +50.00
55.00' LT

-L- +90.00
EXIST. R/W

(2) PLUM CREEK TIMBERLANDS, L.P.
DB 668 PG 74-762

-BL- 5 PINC 8+40.55

ROCK PLATING DETAIL



STA. 16+20.00 TO STA. 16+50.00 -L- RT.
STA. 16+20.00 TO STA. 16+50.00 -L- LT.

N.T.S.

(3) ROBERT T. CLIFTON
DB 573 PG 205
PB 52 PG 6

-BL- 4 PINC 11+49.69
-L- Sta. 12+29.67 18.79' RT
-DET- Sta. 12+53.00 51.56' RT

-BL- 3 PINC 15+33.56
-L- Sta. 16+13.53 15.57' RT
-DET- Sta. 16+53.01 75.96' RT

SBG
STA. 14+50 TO BEGIN APPR. SLAB
-L- LT AND RT

1.5:1 FILL SLOPES W/ROCK PLATING
STA. 16+20 TO STA. 16+50 -L- LT AND RT
SEE ROCK PLATING DETAIL

(2) PLUM CREEK TIMBERLANDS, L.P.
DB 668 PG 74-762

-BL- 2 PINC 18+94.34
-L- Sta. 19+74.29 18.36' RT
-DET- Sta. 20+24.62 37.66' RT

END TIP PROJECT B-4078
-L- POT STA. 21+66.19
END OVERLAY

NO DECK DRAINS REQUIRED
SEE SHEET 2B FOR -DET- ALIGNMENT AND PROFILE

-L-

BEGIN PROJECT B-4078
-L- Sta. 9+66.20
BEGIN OVERLAY

BEGIN GRADE
END OVERLAY
-L- Sta. 12+00.00
ELEV.= 36.08'

END GRADE
BEGIN OVERLAY
-L- Sta. 18+50.00
ELEV.= 36.04'

END PROJECT B-4078
-L- Sta. 21+66.19
END OVERLAY

PI = 12+95.00
EL = 36.43'
VC = 145'
K = 152
Ds = 60 MPH

PI = 14+30.00
EL = 35.64'
VC = 125'
K = 141
Ds = 60 MPH

15+53.3 -L-
1@40', 1@50', 1@40'
21" CORED SLAB
SKEW = 90°

PI = 16+70.00
EL = 36.36'
VC = 110'
K = 155
Ds = 60 MPH

PI = 17+60.00
EL = 35.99'
VC = 70'
K = 152
Ds = 60 MPH

25' FEATHER TO EXIST

PROPOSED GRADE

EXISTING BRIDGE

(+)0.3720%
(-)0.5850%
(+)0.3000%
(+)0.3000%
(-)0.4100%
(+)0.0512%

1½" OVERLAY EXIST GRADE

EXISTING GROUND

2:1 CLASS II RIP RAP (STR. PAY ITEM)

3.5' MIN.

EXCAVATE EXISTING ROAD FILL (STR. PAY ITEM)

WS ON 9-28-05
27.8

40
30
20

10 11 12 13 14 15 16 17 18 19 20 21

BM80 ELEV. 30.54'
N 136471.0070 E 2129065.6520

BM81 ELEV. 33.94'
N 136558.5560 E 2127200.0280

NOTE: BENCH MARK 80 & BENCH MARK 81 ARE LOCATED OUTSIDE OF PROJECT LIMITS.

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 12,100	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 32.7	FT
BASE DISCHARGE	= 14,200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 33.2	FT
OVERTOPPING DISCHARGE	= 22000	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 34.8	FT

EXIST. ROAD FILL TO BE EXCAVATED

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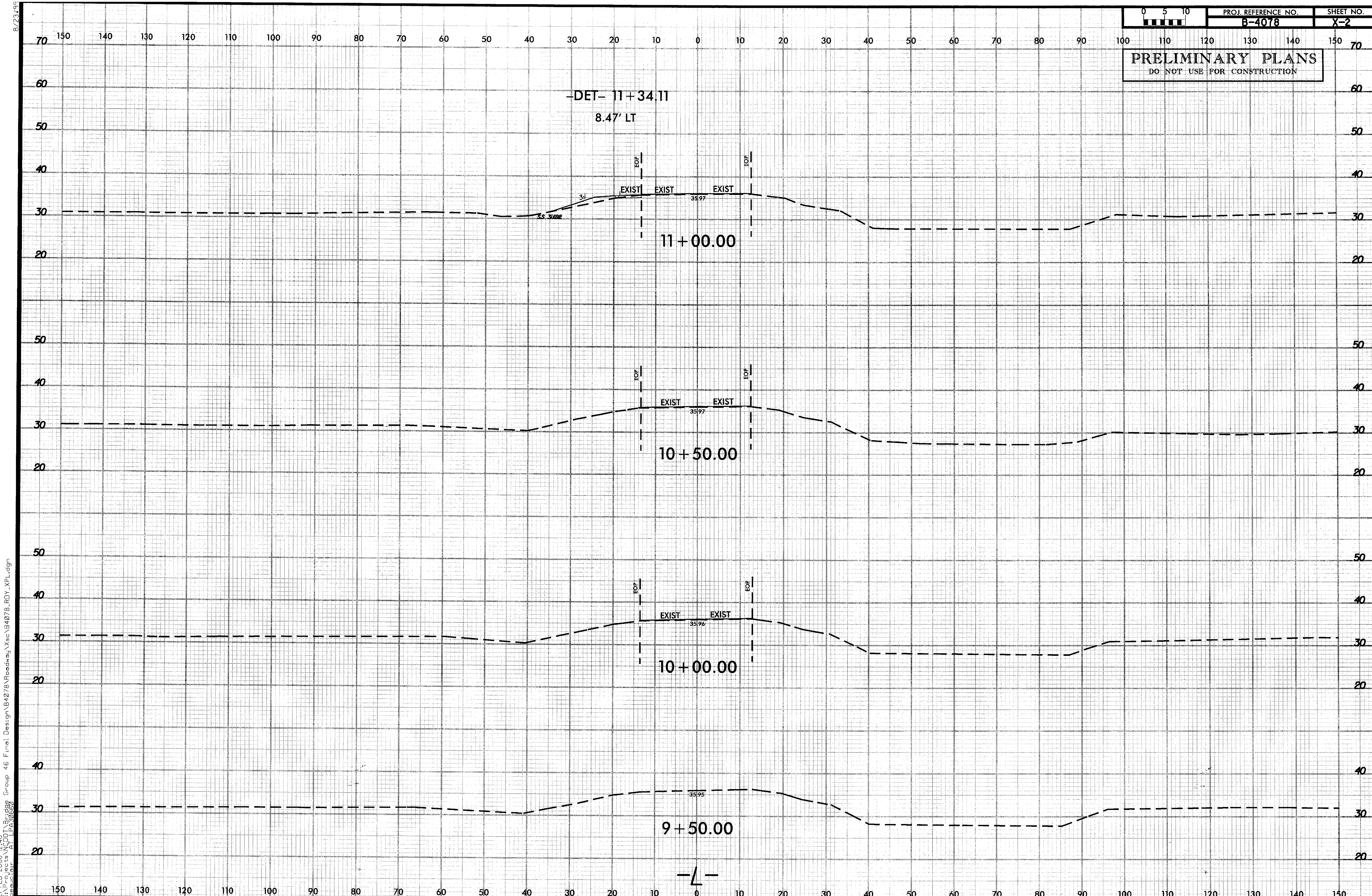
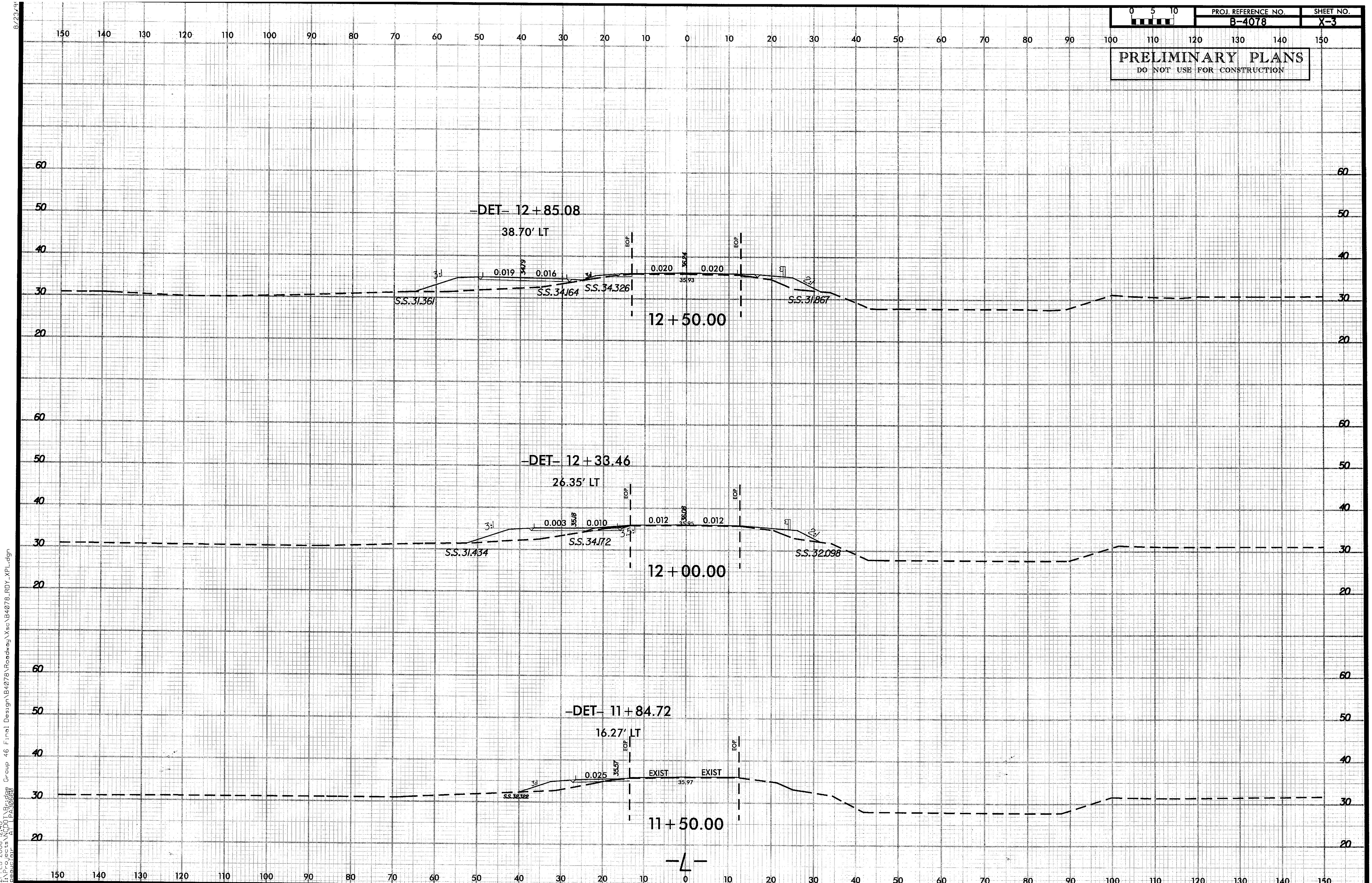
PROJ. REFERENCE NO.	SHEET NO.
B-4078	X-2

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PROJ. REFERENCE NO.	SHEET NO.
B-4078	X-3

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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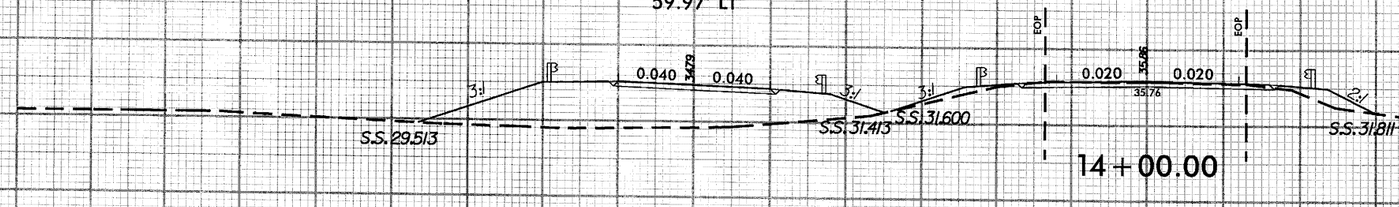
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4078	X-4

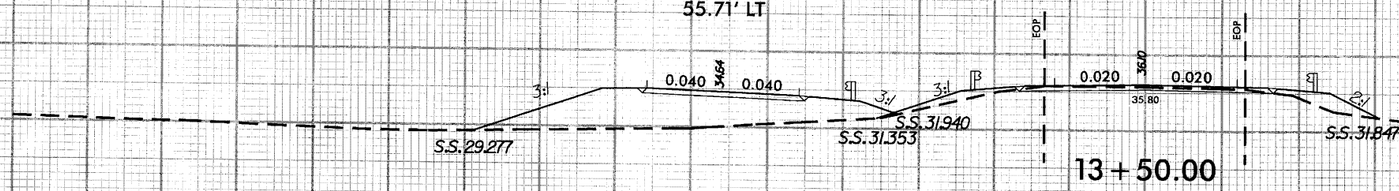
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET- 14+38.38
59.97' LT



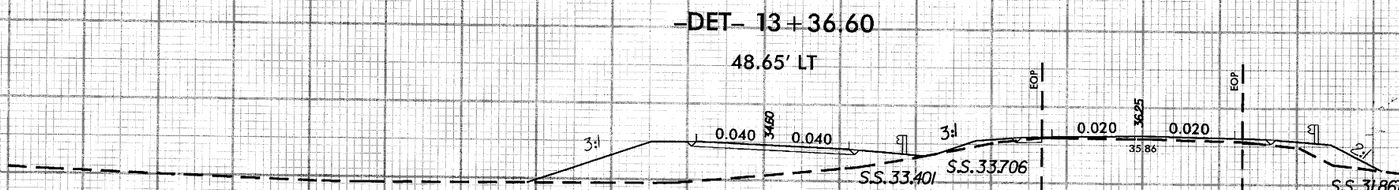
14+00.00

-DET- 13+87.65
55.71' LT



13+50.00

-DET- 13+36.60
48.65' LT

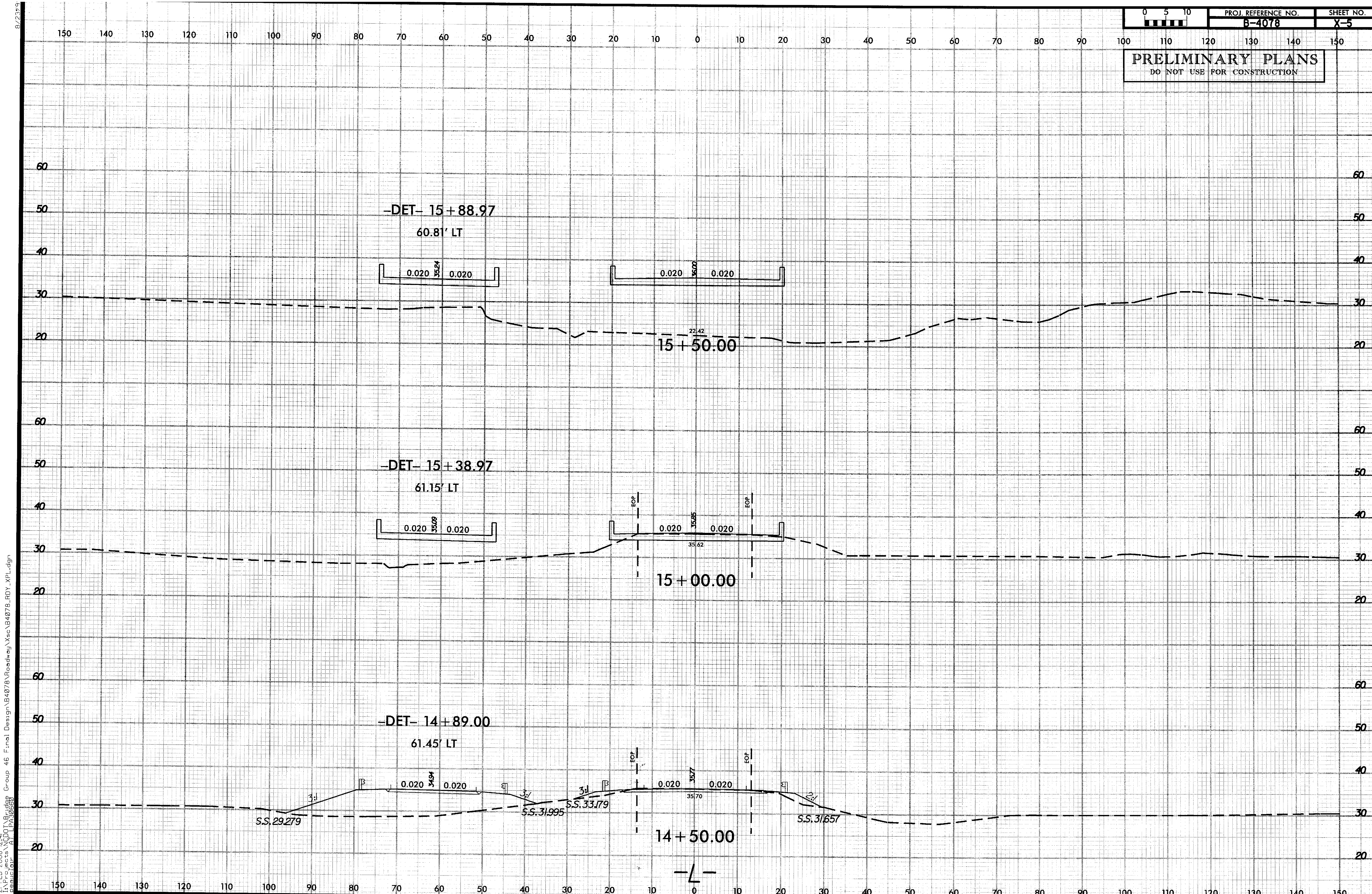


13+00.00

-L-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4078	X-5

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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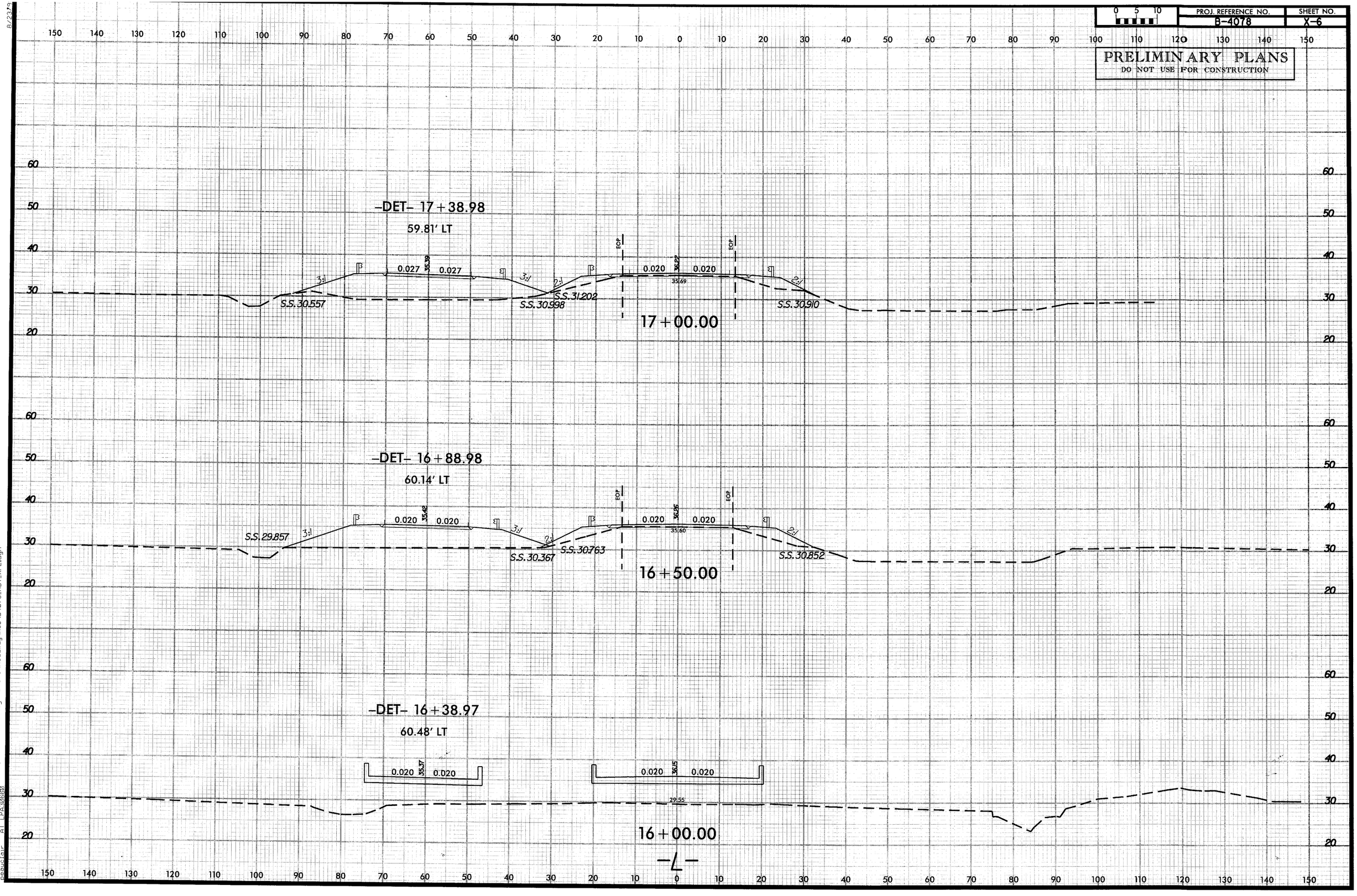
beauclair AT LPA30660

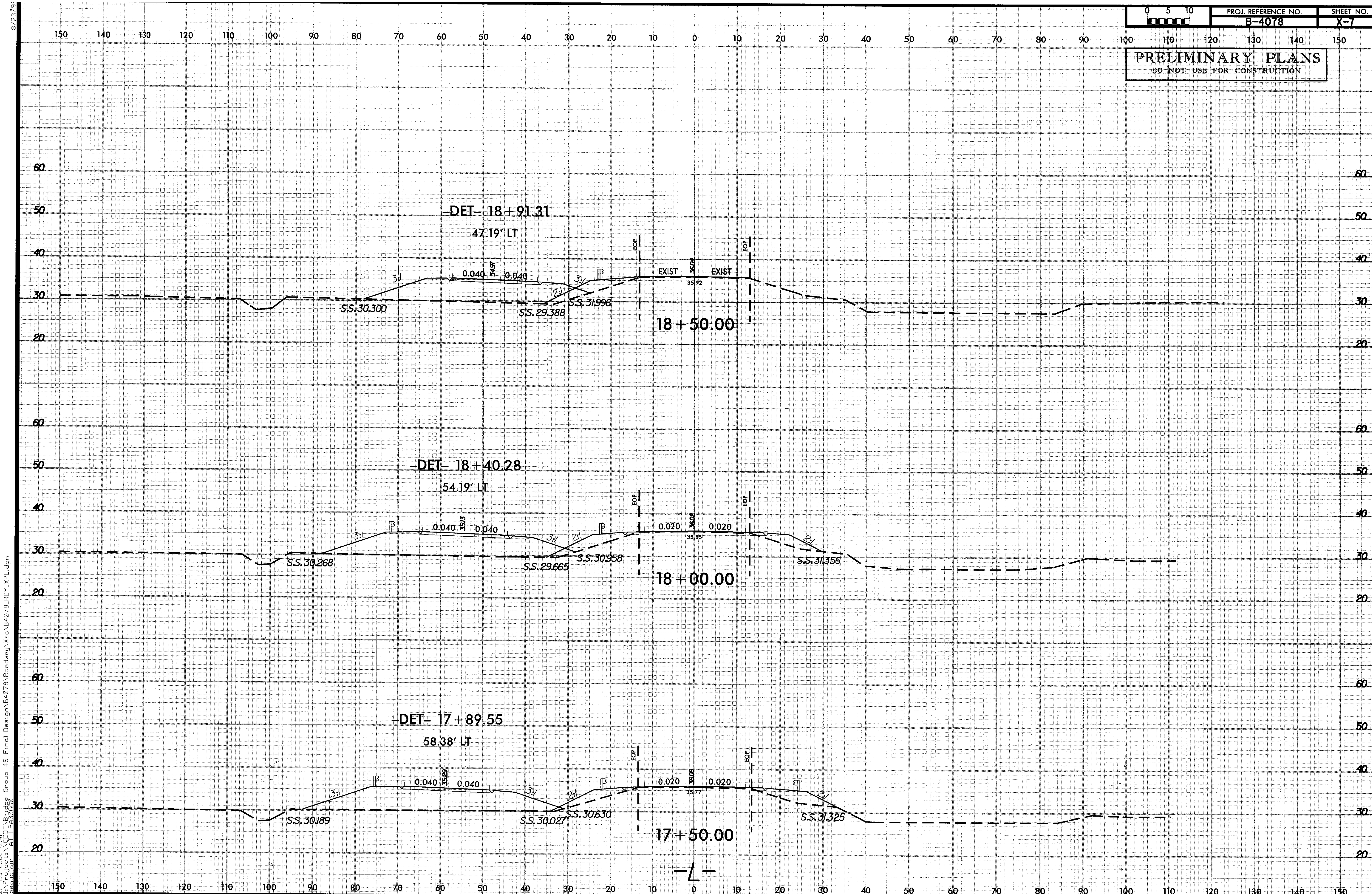
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4078	X-6

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PROJ. REFERENCE NO.	SHEET NO.
B-4078	X-7

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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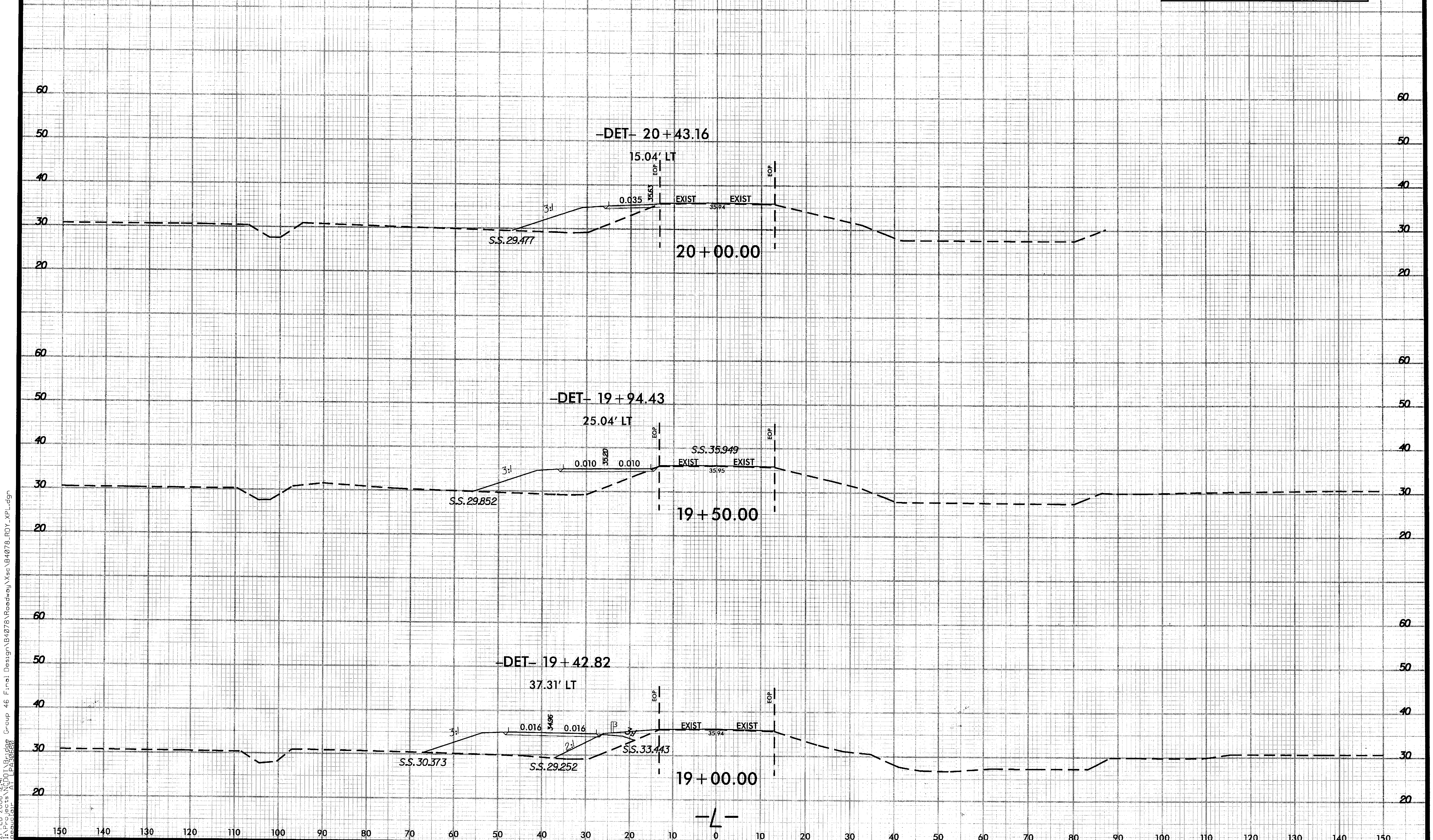
PROJ. REFERENCE NO.	SHEET NO.
B-4078	X-8

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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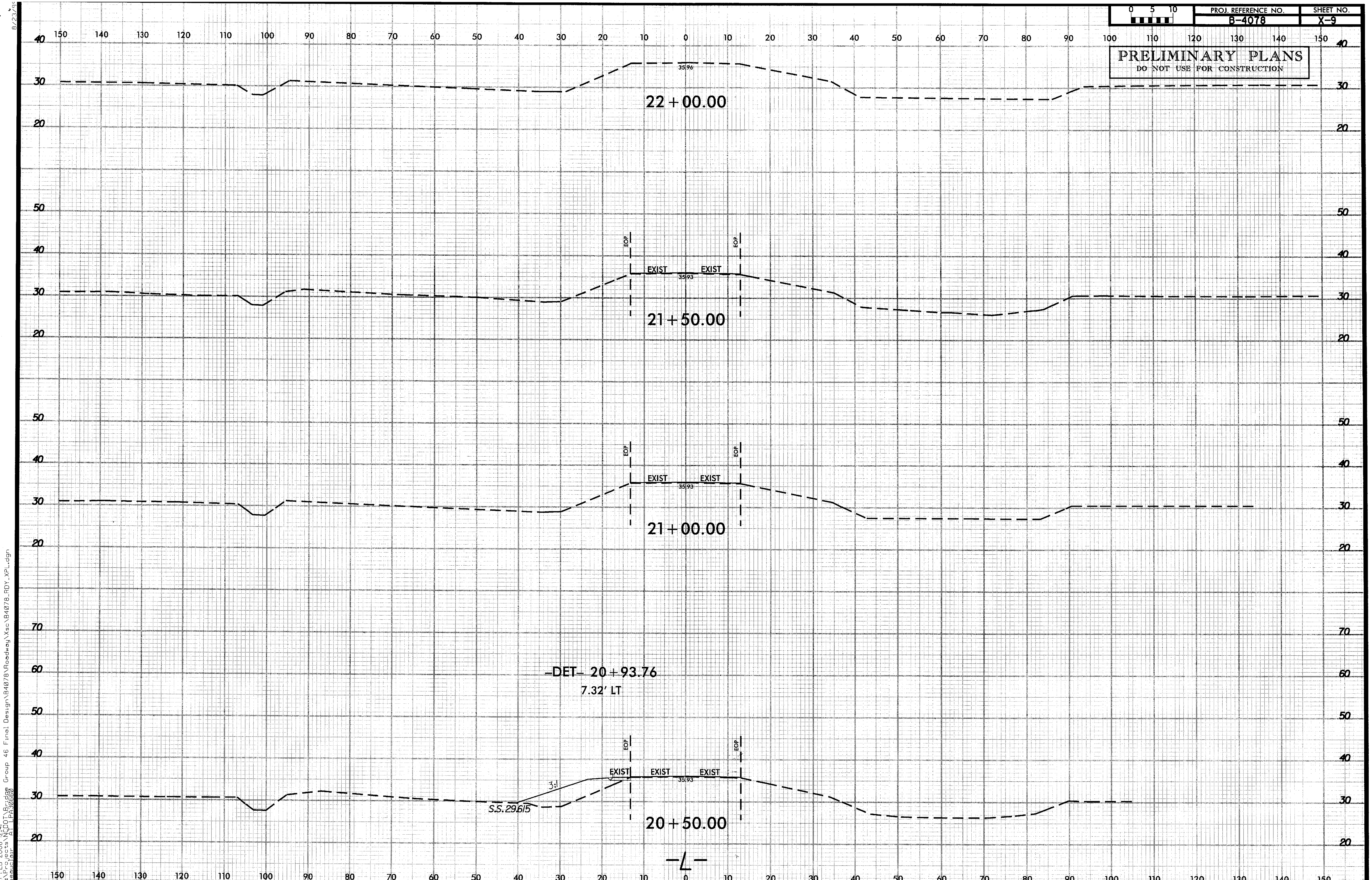


PROJ. REFERENCE NO.
B-4078
SHEET NO.
X-9
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
22 + 00.00
21 + 50.00
21 + 00.00
-DET- 20 + 93.76
7.32' LT
20 + 50.00
EOP
EXIST
35.96
35.93
3:1
S.S. 29.615
-L-

NC 130
Bridge No. 10 Over Waccamaw River Overflow
Columbus County
Federal-Aid Project No. BRSTP-130(4)
State Project No. 8.1432001
WBS No. 33440.1.1
TIP No. B-4078

Categorical Exclusion
United States Department of Transportation
Federal Highway Administration
And
North Carolina Department of Transportation

Approved:

4/11/06
Date

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

4/11/06
Date

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

NC 130
Bridge No. 10 Over Waccamaw River Overflow
Columbus County
Federal-Aid Project No. BRSTP-130(4)
State Project No. 8.1432001
WBS No. 33440.1.1
TIP No. B-4078

Categorical Exclusion

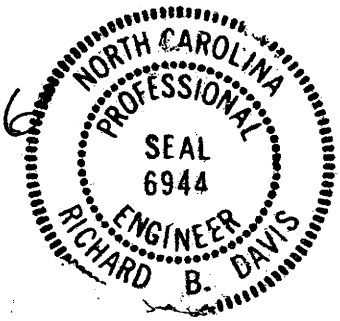
April 2006

Document Prepared by:

THE LPA GROUP OF NORTH CAROLINA, P.A.

4/6/06

Richard B. Davis, P.E.
Project Manager



For the North Carolina Department of Transportation

Vincent J. Rhea, P.E.
Project Development Engineer

PROJECT COMMITMENTS

NC 130
Bridge No. 10 Over Waccamaw River Overflow
Columbus County
Federal-Aid Project No. BRSTP-130(4)
State Project No. 8.1432001
WBS No. 33440.1.1
TIP No. B-4078

In addition to the standard Nationwide Permit #23 and #33 Conditions, the General Nationwide Permit Conditions, Section 404 Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for the Protection of Surface Waters, NCDOT's Guidelines for Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification would all apply to the proposed bridge replacement project. There are no special commitments associated with the proposed replacement of Bridge No. 10.

NC 130
Bridge No. 10 Over Waccamaw River Overflow
Columbus County
Federal-Aid Project No. BRSTP-130(4)
State Project No. 8.1432001
WBS No. 33440.1.1
TIP No. B-4078

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Bridge No. 10 Over Waccamaw River Overflow
Columbus County
Federal-Aid Project No. BRSTP-130(4)
State Project No. 8.1432001
WBS No. 33440.1.1
TIP No. B-4078

INTRODUCTION: The replacement of Bridge No. 10 is included in the North Carolina Department of Transportation (NCDOT) 2006-2012 Transportation Improvement Program and in the Federal-Aid Bridge Replacement Program. The location is shown on 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 records indicate that the bridge has a sufficiency rating of 7.0 out of a possible 100 for a new structure. The bridge is considered to be functionally obsolete and structurally deficient. The replacement of this inadequate structure would result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

The project is located in Columbus County on NC 130 approximately 1.7 miles southeast of the junction of NC 130 and SR 1931 (Figure 1). The surrounding land use includes forest, wetlands, residential properties, and agricultural properties.

Bridge No. 10 was constructed in 1938 and currently has a posted weight limit of 32 tons for single vehicles and the legal limit applies for truck tractors with semi trailers (TTST). The overall length of this three span bridge is 76.25 feet, and it has a bed to crown height of 17.0 ft. The bridge has a clear roadway width of 25.8 feet and carries two travel lanes. Bridge No. 10 has a reinforced concrete floor on continuous I-beams supported by a substructure consisting of timber piles with timber caps. Crutch bents have been added to the structure for additional support.

In the vicinity of the bridge, NC 130 is a 20-foot, two-lane roadway with 6-foot unpaved shoulders. The existing bridge is in a horizontal tangent and is skewed 90 degrees to the roadway. Both approaches are in tangent with good sight distances. The vertical grade is flat in both approaches with no apparent sag. The speed limit is posted at 55 miles per hour (mph), and NC 130 is classified as a Rural Minor Arterial in the Statewide Functional Classification System.

The current (2006) traffic volume of 4600 vehicles per day (vpd) is expected to increase to 8400 vpd by the year 2025. These volumes include 3 percent dual tired vehicles and 4 percent TTSTs.

Two crashes were reported in the vicinity of the bridge during a recent three-year period. One of the crashes resulted in a non-fatal injury, and the other was property damage only.

There are no utilities attached directly to the structure; however there are overhead power transmission lines along the north side of NC 130.

Two school buses cross the bridge a total of four times daily. In a letter dated September 6, 2002, the Director of Transportation for the Columbus County/Whiteville City Schools stated that there are no alternative routes available, and that without an on-site detour, the students would have to walk or have their parents transport them to the closest turnaround or intersection. The letter is attached in the Appendix.

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

A letter dated August 31, 2004 was sent to Columbus County Emergency Management soliciting comments on the possible alternatives for the proposed bridge replacement. No response was received regarding which alternative Emergency Management would prefer.

III. ALTERNATIVES

A. Project Description

The proposed project consists of replacing Bridge No. 10, on NC 130, over an unnamed Waccamaw River overflow with a wider and safer structure that would lead to safer and more efficient traffic operations in the area.

Based on a preliminary hydraulic analysis and in conjunction with a field reconnaissance of the site, the proposed replacement structure for Bridge No. 10 was determined to be a 170-foot long bridge. The replacement bridge would provide a clear roadway width of 40 feet, carrying two 12-foot wide travel lanes with 8-foot offsets (Figure 3B).

The roadway approaches would provide two 12-foot travel lanes, 4-foot paved shoulders, and a total shoulder width of 8 feet (Figure 3A). The roadway grade would be approximately the same as the existing roadway. The design speed of the approaches is 60 mph, and the posted speed limit would be 55 mph.

B. Build Alternatives

There are currently two alternatives being studied for the replacement of Bridge No. 10, which are outlined below:

Alternative 1

Alternative 1 would replace the existing bridge with a new structure constructed in the same location as the existing bridge (Figures 2A, 2B, 2C, and 2D). Alternative 1 would utilize a temporary on-site detour on the north side of the existing bridge to maintain traffic flow during construction. Permanent approach work would extend approximately 170 feet west of the bridge and approximately 370 feet east of the bridge for a total length (including the bridge) of 710 feet. The detour structure would be located approximately 50 feet, centerline to centerline, north of the existing bridge and would provide a clear roadway width of 30 feet, carrying two 12-foot-wide travel lanes with 3-foot offsets. The detour roadway approaches would provide two 12-foot wide travel lanes with 8-foot unpaved shoulders (Figure 3A). The design speed for the detour approaches is 50 mph, and the posted speed limit would be 45 mph. The total length of the temporary detour would be approximately 1,000 feet.

Alternative 2

Alternative 2 would replace the existing bridge with a new structure constructed in the same location as the existing bridge (Figure 2A). Alternative 2 would utilize a temporary on-site detour on the south side of the existing bridge to maintain traffic flow during construction. Due to the location of a canal along the south side of the highway, a desirable site for a detour could not be found. The options consisted of crossing the canal twice with a long detour and extensive wetland impacts or constructing a shorter detour close to the existing highway over the canal. The second option was chosen for study. The studied detour structure would be located approximately 45 feet, centerline to centerline, south of the existing bridge, providing a clear roadway width of 30 feet and carrying two 12-foot wide travel lanes with 3-foot offsets. Permanent approach work would extend approximately 170 feet west of the bridge and approximately 370 feet east of the bridge for a total length (including the bridge) of 710 feet. The detour roadway approaches would provide two 12-foot wide travel lanes with 8-foot unpaved shoulders (Figure 3A). The design speed for the detour approaches is 50 mph, and the posted speed limit would be 45 mph. The total length of the temporary detour would be approximately 1,200 feet.

C. Alternatives Eliminated from Further Study

The "Do-Nothing" Alternative was eliminated from further study because the existing bridge is considered to be functionally obsolete and structurally deficient. Over time the bridge would continue to deteriorate, and this would eventually lead to the closing of the bridge. Due to daily traffic flow considerations and the lack of a useable alternative route, this is not an option.

The alternative of utilizing an off-site detour to maintain traffic during construction was considered (Figure 1). The off-site detour would utilize SR 1928 (Dock Road), SR 1933 (Kingtown Road N.W.), and SR 1326 (Old King Road N.W.) as a detour route. This off-site detour would be approximately 16.3 miles long and would cross five bridges and one pipe culvert. Bridge Numbers 26, 29, 32, and 33 are in Columbus County, and Bridge Number 88 is in Brunswick County. None of these five bridges have posted weight limits. Routing the additional traffic volume and large trucks now using NC 130 over these secondary roads would accelerate their deterioration if they were not upgraded to carry the additional traffic load. With an additional travel time of 16 minutes over the expected detour period of eight months, the delay for this off-site detour is considered to be unacceptable under NCDOT guidelines.

D. Preferred Alternative

Alternative 1, replacing the bridge in its existing location utilizing a temporary on-site detour to the north was selected as the Preferred Alternative. Alternative 1 was selected because there is not an acceptable off-site detour available, and Alternative 1 minimizes temporary impacts to natural resources. The plan sheets for the Preferred Alternative are included in Figures 2B, 2C, and 2D.

IV. ESTIMATED COSTS

The estimated for each alternative, based in current dollars, are shown below:

Table 1. Estimated Project Costs

	ALT 1 (Preferred Alternative)	ALT 2
Roadway Approaches	$402,600	$390,900
Proposed New Bridge	$374,000	$374,000
Temporary Structure	$84,000	$84,000
Structure Removal	$21,280	$21,280
Misc. & Mobilization	$252,120	$247,820
Engineering & Contingencies	$166,000	$182,000
Total Construction Costs	**$1,300,000**	**$1,300,000**
Right of Way and Utilities	$23,550	$3,450
Total Project Cost	**$1,323,550**	**$1,303,450**

The estimated cost of the project as shown in the 2006-2012 NCDOT Transportation Improvement Program is $1,825,000 including $150,000 spent in prior years, $25,000 for right-of-way and $1,650,000 for construction.

V. NATURAL RESOURCES

A. Methodology

Published information and resources were collected prior to the field investigation. Information sources used to prepare this report included the following:

- United States Geological Survey (USGS) 7.5-minute quadrangle maps (Old Dock, NC 1990, Nakina, NC 1990, Pireway, NC 1990, and Freeland, NC 1990)
- NCDOT aerial photograph of the project area (2001)
- Soil maps and descriptions of the soils found in the project area [Columbus County Soil Survey, Natural Resources Conservation Service (NRCS) 1990]
- North Carolina Department of Environment and Natural Resources (NCDENR), North Carolina Division of Water Quality (DWQ) basin-wide assessment information (DWQ 2002)
- United States Fish and Wildlife Service (USFWS) list of protected and candidate species (USFWS 2003)
- North Carolina Natural Heritage Program (NHP) files of rare species and unique habitats (NHP 2004)

Water resources information was obtained from publications posted on the World Wide Web by DWQ.

The USFWS provided a list of threatened and endangered species known to occur in Columbus County on December 30, 2003 (updated March 14, 2006), prior to the field investigation. Information concerning species under state protection was obtained from the NHP database of rare species and unique habitats. The NHP database was consulted to determine if known protected species occurrences were present in the coverage area of the USGS Old Dock/Freeland quadrangle prior to field investigation. NHP files were reviewed for known locations of listed species and significant natural areas on March 29, 2004.

A field investigation was conducted within the project study area by THE LPA GROUP of North Carolina, p.a. (LPA) biologists from February 4 to February 5, 2004. The project vicinity is an area extending 0.5-mile from the study area. The study area for B-4078 extends approximately 900 feet west of the existing bridge and approximately 1,100 feet east of the existing bridge (approximately 0.4 miles) and encompasses a 250-foot wide corridor centered along the existing centerline of NC 130.

Water resources were identified, and their physical characteristics were recorded. For the purposes of this study, a habitat assessment was performed within the project study area. Plant communities and associated wildlife were identification of using a variety of observation techniques, including active searching, visual observations, and identifying characteristic signs of wildlife (sounds, tracks, scats, and burrows). Terrestrial community classifications generally follow Schafale and Weakley (1990), where appropriate; and plant nomenclature follows Radford *et al.* (1968). Biotic communities were mapped using sub-meter accuracy Global Positioning System (GPS) equipment and aerial photography of the project site. Vertebrate nomenclature follows Potter *et al.* (1980), Martof *et al.* (1980), the American Ornithologists' Union (2001), and Webster *et al.* (1991).

Jurisdictional areas were identified using the three-parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) established in the *U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual* (Environmental Laboratory 1987). The boundaries of the jurisdictional areas were flagged and mapped in the field using sub-meter accuracy GPS equipment. Jurisdictional wetland areas were characterized according to the classification scheme established by Cowardin *et al.* (1979).

B. Physiography and Soils

The project study area is located within the Coastal Plain physiographic province of North Carolina. The topography of the study area is nearly level to gently sloping. The elevation in the project area ranges from approximately 30 to 35 feet above mean sea level (USGS 1990). The surrounding land use includes forest, wetlands, residential properties, and agricultural properties.

According to the Columbus County Soil Survey General Soils Map, the project study area is located within an area mapped as Johnston-Meggett-Muckalee soil association (NRCS 1990). Soil associations contain one or more detailed map units and occupy a unique natural landscape. Detailed map units are named for the major soil series within the unit, but may contain minor inclusions of other soil series. The soil survey describes Johnston-Meggett-Muckalee soil association as nearly level, very poorly drained and poorly drained soils that have a loamy surface layer and loamy and sandy underlying material or have a loamy surface layer and a loamy and clayey subsoil. They occur on floodplains and low terraces.

There are four detailed map unit types that occur within the project study area, including:

- Grifton fine sandy loam, (*Typic Ochraqualfs*);
- Johns fine sandy loam, (*Aquic Hapludults*);
- Lumbee fine sandy loam, (*Typic Ochraquults*); and,
- Muckalee sandy loam, (*Typic Fluvaquents*).

Grifton fine sandy loam, Lumbee fine sandy loam, and Muckalee sandy loam are listed as hydric soils in Columbus County (USDA 1993). Johns fine sandy loam is not listed as hydric, but has hydric inclusions of Lumbee soils in depressions (USDA 1993).

C. Water Resources

1. Waters Impacted

The project study area is located in the 03-07-57 sub-basin of the Lumber River Basin (DWQ 2004a), and is part of USGS hydrologic unit 03040203 (EPA 2004). Two water bodies, consisting of an overflow canal for the Waccamaw River on the north side of NC 130 that intersects with another canal located south of, and parallel to, NC 130 are located within the study area. North of the study area the overflow canal originates in Gum Swamp (according to USGS maps). The overflow canal then meets another unnamed canal south of the project area at the bridge site and flows south into Gore Creek. The canals do not appear on USGS maps, nor does the Department of Natural Resources Division of Water Quality list them as water bodies. Therefore, there is no Stream Index Number (SIN) associated with the overflow canals. Gum Swamp, however, has been assigned the SIN 15-17-1-12-3 by the DWQ (DWQ 2004b).

2. Water Resource Characteristics

A beaver dam was present in the northern canal at the edge of the power line easement, and the channel was inundated. However, the canal, from the dam to the intersection with the southern canal, appears to exhibit perennial flow. At the time of the field investigation the water was fairly clear, and had a fast paced flow over the sandy substrate. The southern canal also exhibited perennial flow in a well-defined channel located parallel to NC 130. The canals are man-made channels and have altered the hydrology of the adjacent wetlands. The canals would provide warm water habitat for aquatic wildlife. At the time of the field investigation, areas of the southern canal bed were dry with a narrow channel (approximately three to four feet wide) cut in the canal bed. No scour was observed at the bridge, and water depth at the bridge was estimated to be 8 to 11 feet. The channel width of the canal at the bridge site is approximately 45 feet, with a bankfull width of approximately 50 feet. The banks are approximately three to six feet high (from the bed to top of the bank) and consist of spoil from the man-made canal (bank height varies due to large amount of disturbance/spoil piles). At the bridge there is a deep pool where flow from the upstream side of the bridge converges with the man-made canal on the downstream side of the bridge. This pool is approximately 8 to 11 feet deep. There are also shallow runs in the man-made canals that are approximately one to two feet deep. Because the canals are man-made, they cannot be assigned to a particular Rosgen stream type (based on visual observations) (SRI 2005).

2.1 Best Usage and Water Quality Classification

Gum Swamp has been assigned a Best Usage Classification of C Sw (DWQ 2004b). The C indicates fresh waters that support aquatic life propagation and survival, fishing,

wildlife, secondary recreation, and agriculture. Secondary recreation would include wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental matter. There are also no restrictions on watershed development or types of discharges (DWQ 2004c). Point source discharges of treated wastewater are permitted in these waters, pursuant to Rules .0104 and .0211 of 15A North Carolina Administrative Code (NCAC) 2B; local programs to control non-point source and stormwater discharge of pollution are required. The supplemental classification Sw refers to Swamp Waters; which have low velocities, low pH, and low dissolved oxygen (DWQ 2004c).

There are no Outstanding Resource Waters (ORW), High Quality Waters (HQW), or Sensitive Water Supply Watershed (WS-I or WS-II) waters within three miles up or downstream of the study area (DWQ 2004b). The Waccamaw River overflow canals and Gum Swamp are not designated as North Carolina Natural and Scenic Rivers, or National Wild and Scenic Rivers (NPS 2004).

2.2 Macroinvertebrate Monitoring

There are two basinwide sampling stations near the study area, which are both on the Waccamaw River. One station is at NC 130, approximately three miles southeast of the study area; and the other station is at NC 904, approximately seven miles southwest of the study area (DWQ 2003a). The Waccamaw River was sampled at NC 130 on July 17, 2001 by DWQ and received a rating of Good. The NC 904 site on the Waccamaw River was also sampled on July 17, 2001 by DWQ and also received a rating of Good (DWQ 2003b).

2.3 North Carolina Index of Biotic Integrity

Fish sampling stations are located in the sub-basin. However, the DWQ is currently revising their rating methods for fish communities, and these stations have not yet been rated (DWQ 2003b).

2.4 Section 303(d) Waters

Because none of the water bodies within the study area is monitored by DWQ, there is insufficient data to determine the use support status of these waters. However, the Waccamaw River, which is the ultimate receiving water body for waters that flow through the study area, is included on the DWQ's 303d list of impaired streams (DWQ 2004d).

2.5 Permitted Dischargers

There are no permitted discharges directly in the project area. However, two occur within a five-mile radius of the study area. One is located approximately two miles to the north (upstream) of the study area. The other permitted discharge is located approximately five miles southeast (downstream) of the study area (DWQ 2003a).

2.6 Non-Point Source Discharges

LPA biologists reviewed aerial photography and conducted a limited visual observation of potential NPS discharges located within and near the project study area. Atmospheric deposition from passing vehicles was identified as a potential source of NPS pollution near the project study area.

3. Anticipated Impacts to Water Resources

Short term impacts to water quality, such as sedimentation and turbidity, may occur during construction related activities. Impacts from sedimentation and erosion would be minimized during construction by the use of a stringent erosion control schedule and the use of Best Management Practices (BMPs). The contractor would follow contract specifications pertaining to erosion control measures, as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled "Control of Erosion, Siltation, and Pollution" pursuant to NCDOT's *Standard Specifications for Roads and Structures.* These measures 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. Additional measures that can be taken to avoid water quality impacts are to keep heavy equipment out of the channels, keep staging areas out of wetlands, and to also keep live concrete out of the channels. After construction activities are completed, abandoned approaches associated with the existing structure and/or temporary detours would be removed and revegetated in accordance with NCDOT guidelines.

Other impacts to water quality that are anticipated as a result of this project include changes in water temperature due to more exposure to sunlight (from the removal of vegetation beside the canals), increased shade due to construction of new structures, and changes in stormwater flows due to changes in the amount of impervious surface adjacent to the stream channel. However, due to the limited amount of overall change in the surrounding areas, impacts are expected to be temporary in nature.

Waters within the study area have been assigned a Best Usage Classification of C Sw, which falls into the category of a Case III stream according to BMPs for Demolition and Removal (BMPs-BDRs). A Case III stream has no special restrictions other than those outlined in Best Management Practices for Protection of Surface Waters.

3.1 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 BMP-BDRs and details guidelines for calculating maximum potential fill in the creek resulting from demolition. These standards would be followed during the replacement of Bridge No. 10.

There is the potential for the superstructure of the bridge to fall into Waters of the United States during demolition and removal of Bridge No.10. The superstructure consists of a

reinforced concrete deck on I-beams, with a weather surface, and concrete curbs. The maximum (worst case) amount of fill resulting from demolition activities would be approximately 68.4 cubic yards of fill.

D. Biotic Resources

Terrestrial and aquatic communities are included in the description of biotic resources. Systems described in the following sections refer to the dominant flora and fauna observed in each community during the field investigation. Descriptions of the terrestrial systems are presented in the context of plant community classifications. These classifications follow Schafale and Weakly (1990) where possible. Representative faunal species that are likely to occur in these habitats (based on published range distributions) are also cited. Scientific nomenclature and common names are used for the floral and faunal species described. Subsequent references to the same species are by the common name only. Fauna observed and/or heard (in the case of bird species) during field investigations are denoted with an asterisk (*).

1. Plant Communities

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. The presence of NC 130 and forestry practices have resulted in the present vegetation patterns. Three terrestrial plant communities occur within the project study area: disturbed-maintained communities, mesic pine flatwoods, and coastal plan small stream swamp (blackwater subtype). A description of each community type follows.

1.1 Disturbed-Maintained Communities

This community includes types of habitat that have recently been or are currently being impacted by human disturbance including regularly maintained road shoulders, spoil piles, and a power-line right-of-way. Photographs of these communities can be found in Appendix A. For the purposes of this report only the flora of the power-line right of way and road shoulders have been included in a more simplified "disturbed-maintained" community. The majority of these habitats are kept in a low-growing or early successional state.

The dominant species observed within the disturbed-maintained community include bracken fern (*Pteridium aquilinum*), broom sedge (*Andropogon virginicus*), St. Johns wort (*Hypericum fasciculatum*), sweetgum seedlings (*Liquidambar styraciflua*), loblolly pine seedlings (*Pinus taeda*), wax myrtle (*Myrica cerifera*), *Rubus* sp., and groundsel tree (*Baccharis halimifolia*).

2.1 Terrestrial Wildlife

Bird species observed or likely to occur in the study area such species as the American robin* (*Turdus migratorius*), American crow* (*Corvus brachyrhynchos*), Carolina chickadee* (*Parus carolinensis*), brown thrasher* (*Toxostoma rufum*), catbird* (*Dumetella carolinensis*), rufous-sided towhee* (*Pipilo erythrophthalmus*), pileated woodpecker* (*Dryocopus pileatus*), yellow bellied sapsucker (*Sphyrapicus varius*), blue jay (*Cyanocitta cristata*), tufted titmouse (*Parus bicolor*), and the golden crowned kinglet (*Regulus satrapa*).

Mammals observed or likely to occur in the study area include such species as the Eastern cottontail (*Sylvilagus floridanus*), white-tailed deer* (*Odocoileus virginianus*) raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), gray squirrel (*Sciurus carolinensis*), beaver* (*Castor canadensis*), and the striped skunk (*Mephitis mephitis*).

Terrestrial reptiles observed or likely to occur in the study area include such species as the eastern garter snake* (*Thamnophis sirtalis*), green anole* (*Anolis carolinensis*), black rat snake (*Elaphe obsoleta*), milk snake (*Lampropeltis triangulum*), Eastern box turtle (*Terrapene carolina*), and the common king snake (*Lampropeltis getulus*).

Terrestrial amphibians likely to occur in the study area include such species as the mud salamander (*Pseudotriton montamus*), northern cricket frog (*Acris crepitans*), American toad (*Bufo americanus*), and the four-toed salamander (*Hemidactylum scutatum*).

3. Aquatic Community

The aquatic community consists of the canals and associated inundated wetlands. A visual survey of the stream and wetlands was conducted to document the aquatic communities. No aquatic vegetation was observed in the canals during the field assessment. Vegetation found in the wetland community is described in Section 3.1.3.

3.1 Aquatic Wildlife

Fish species expected to occur in drainages within the project vicinity include the mosquito fish (*Gambusia affinis*), creek chub (*Semotilus atromaculatus*), and the redbreast sunfish (*Lepomis auritus*).

Aquatic reptiles observed or expected to occur in the study area include such species as the snapping turtle (*Chelydra serpintina*), slider (*Trachemys scripta*), mud snake* (*Farancia abacura*), and the banded water snake (*Nerodia fasciata*).

No aquatic amphibians were observed in the study area. Species expected to occur in the study area include dwarf mudpuppy (*Necturus punctatus*), bull frog (*Rana catesbeiana*), and pickerel frog (*Rana palustris*).

Suitable habitat exists in the study area to support the wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), and the great blue heron* (*Ardea herodias*).

A survey of aquatic invertebrates was not completed for this project; however, a partial shell from a freshwater mussel (*Elliptio* sp.) was found adjacent to the canal on the south side of NC 130.

4. Anticipated Impacts to Biotic Communities

Impacts to terrestrial and aquatic communities associated with the replacement of the existing bridge and related detours are discussed in the following sections.

4.1 Terrestrial Communities

Terrestrial communities located within the study area total 8.74 acres (see Table 2). These areas are based on an approximately 1,980-foot long study area with a width of approximately 250 feet, situated on the centerline of existing NC 130.

Table 2. Terrestrial Communities Occurring within the B-4078 Study Area

Plant Community	**Area Occupied by Community (acres)**	**Potential Impacts (acres)**			
		ALT 1 (Preferred Alternative)		**ALT 2**	
		Perm.	**Temp.**	**Perm.**	**Temp.**
Wetlands	2.31	0.03	0.47	0.03	0.03
Mesic Pine Flatwoods	1.37	None	None	None	0.01
Disturbed-Maintained	4.92	0.39	1.18	0.39	0.95
Spoil Pile	0.14	None	None	None	None
Total (acres)	**8.74**	0.42	1.65	0.42	0.99
Total Impacts per Alt. (acres)		**2.07**		**1.41**	
Percent of Total Area		**24.0%**		**16.0%**	
Perm. - Permanent Impacts **Temp. - Temporary Impacts**					

Impacts to wildlife resulting from the proposed project would be minimal due to the limited amount of habitat that would be impacted. Permanent impacts would be confined to the existing road shoulders and minimal fill in the adjacent wetlands.

4.2 Wetland Communities

Temporary impacts include those impacts that would result from demolition of the existing bridge and construction of the replacement bridge and temporary on-site detour (see Table 3). Alternative 1, the Preferred Alternative (temporary on-site detour to the north) would result in 0.47 acres of temporary impacts to Waters of the United States. Alternative 2 (temporary on-site detour to the south) would result in 0.58 acres of temporary impacts to Waters of the United States (which includes the 0.03-acre of temporary wetland impacts and the 0.55-acre of temporary canal impacts). BMPs would be employed by the construction contractor to first avoid and then minimize impacts to Waters of the United States. Erosion and sedimentation would be controlled by implementation of a Sediment and Erosion Control Plan during construction. Any areas of Waters of the United States that are temporarily impacted would be restored to their original condition following completion of the disturbance activity.

Permanent impacts to Waters of the United States are those impacts that occur in areas within the construction limits (see Table 3). Improvement to the bridge approaches (Alternatives 1 [Preferred] and 2) would result in the placement of 0.03 acres of clean fill material in wetlands adjacent to the existing road shoulders. The existing bridge is 76 feet long and is on timber piles. The proposed replacement structure is a 110-foot long bridge.

Table 3. Anticipated Impacts to Waters of the United States

Jurisdictional Areas	**ALT. 1 (Preferred Alternative)**		**ALT. 2**	
	Perm.	**Temp.**	**Perm.**	**Temp.**
Wetland A	None	None	None	None
Wetland B	0.03	0.47	0.03	0.03
Total (acres)	0.03	0.47	0.03	0.03
Total Wetland Impacts (acres)	**0.50**		**0.06**	
Canal Impacts (acres)	None	None	None	0.55
Canal Impacts (linear ft)	None	None	None	583.7
Stream Impacts (acres)	None	None	None	None
Stream Impacts (linear ft)	None	None	None	None
Total Stream Impacts (linear feet) for Alt.	**No Impact**		**583.7**	
Perm. - Permanent Impacts **Temp. - Temporary Impacts**				

4.3 Aquatic Communities

Permanent impacts to water resources would be limited to filling 0.03 acres of wetlands adjacent to the existing roadway for improvements to the bridge approaches. Therefore, impacts to aquatic communities would be minimal.

Temporary impacts to aquatic organisms may result from increased sedimentation during construction. Aquatic invertebrates would likely drift downstream during and after construction to recolonize the disturbed area once it has been stabilized. Sediments have the potential to affect fish and other aquatic life in several ways, including the clogging and abrading of gills and other respiratory surfaces, affecting the habitat by filling wetlands, and altering water chemistry. Increased sedimentation may also cause decreased light penetration through an increase in turbidity. NCDOT's BMPs for the protection of surface waters would be enforced to reduce impacts during demolition and construction phases.

E. Special Topics

1. Waters of the United States

1.1 Wetlands

Jurisdictional wetlands in the project study area are palustrine in nature, as defined in Cowardin et al. (1979). Palustrine systems include all non-tidal wetlands dominated by trees, shrubs, persistent emergents, and emergent mosses and all wetlands where salinity due to ocean-derived salts is below 0.5% (Cowardin et al. 1979). Wetland A is a forested wetland dominated by broad-leaved vegetation and is seasonally flooded, giving it a Cowardin classification of PFO1C. Wetland B is a scrub-shrub wetland dominated by broad-leaved vegetation and is saturated, giving it a Cowardin classification of PSS1B.

1.2 Jurisdictional Streams

The Waccamaw River overflow is a canal with a well-defined channel and is classified as Waters of the United States. Based on a review of USGS topographic map, the Soil Survey for Columbus County, and on-site GPS mapping there are approximately 1,749.5 linear feet of canal within the project study area. Alternative 2 would temporarily impact 583.7 linear feet of a man-made canal that exhibits perennial characteristics.

2. Permits and Certifications

The following federal and state permits and certifications would be required prior to beginning construction.

2.1 Section 404

In accordance with provisions of Section 404 of the CWA (33 U.S.C. 1344), a permit would be required from the USACE for the discharge of dredged or fill material into Waters of the United States. Because the project is being documented as a Categorical Exclusion, it is expected that the project would qualify for a Nationwide Permit 23, which apples to approved Categorical Exclusions. In addition, a Nationwide Permit 33; which applies to temporary construction, access, and dewatering may be required if temporary construction is required that is not described in the Categorical Exclusion.

2.2 Water Quality Certification

Section 401 of the CWA requires that the state issue a Water Quality Certification (WQC) for any federally permitted or licensed activity that may result in a discharge into Waters of the United States. Section 401 Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. Issuance of a 401 Certification from the DWQ is a prerequisite to the issuance of a Section 404 permit. If the general conditions of the corresponding WQC will be met, written concurrence from DWQ will not be required.

3.0 Mitigation

Mitigation has been defined in NEPA regulations to include efforts which a) avoid; b) minimize; c) rectify; d) reduce or eliminate; or e) compensate for adverse impacts to the environment [40 Code of Federal Regulations (CFR) 1508.20 (a-e)].

Federal Highway Administration policy stresses that all practicable measures should be taken to avoid or minimize impacts to wetlands that would be affected by federally funded highway construction. A sequencing (step-down) procedure is recommended in the event that avoidance is impossible. Mitigation employed outside of the highway right-of-way must be reviewed and approved on a case-by-case basis.

Avoidance – Wetlands and Waters of the United States are present along both sides of the proposed project. Because the project involves replacement of an existing structure, it may not be possible to avoid all impacts to adjacent wetlands caused by improvements to the existing bridge approaches and replacement of bridge piers. Impacts can be avoided to streams and wetlands with the incorporation of an environmentally sensitive design. Impacts to jurisdictional surface waters can be avoided by bridging the stream channel, avoiding construction in the stream channel, and avoiding deposition of fill material in the stream channel during construction. Additionally wetland impacts can be avoided by selecting an alignment or temporary detour that avoids wetlands when possible.

Minimization – Impacts to the adjacent wetlands would be minimized by using 3:1 fill slopes through wetlands, and no lateral ditches would be constructed in wetlands. Selecting an alignment or temporary detour that has lower impacts than other alternatives

available can also be used to reduce wetland impacts. The selection of Alternative 1 as the Preferred Alternative minimizes impacts due to temporary construction when compared to Alternative 2. Alternative 2 would involve filling the canal due to longitudinal impacts from them temporary road approaches. Stream impacts can be minimized by designing support structures that avoid open water habitats whenever possible. Utilization of BMPs would be required of the contractor to further minimize wetland impacts.

Compensatory mitigation – According to the conditions of the Nationwide Permit, the USACE would determine if the impacts are minimal and would at the same time determine if compensatory mitigation is required. Temporary impacts to Waters of the United States would be considered permanent by the USACE until areas are restored to their original condition. The restoration is subject to approval by the USACE. Both alternatives would impact wetlands; therefore, wetland mitigation may be required by the USACE for the bridge replacement project. Alternative 2 is the only alternative that would impact streams in the study area. Alternative 2 would impact 583.7 linear feet of a man-made canal that exhibits perennial characteristics; therefore, stream mitigation would be required if this alternative is selected. Final mitigation decision rests with the USACE.

F. Protected Species

Some populations of plants and animals are declining either as a result of natural forces or of their difficulty competing with humans for resources. Rare and protected species listed for Columbus County and likely impacts to these species as a result of the proposed project are discussed in the following sections.

1. Species Under Federal Protection

Species with the federal classification of Endangered (E), Threatened (T), or officially proposed (P) for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Eight federally protected species are listed for Columbus County (USFWS database dated March 7, 2002, Columbus County List updated March 14, 2006). See Table 4.

Table 4. Federally Protected Species Listed for Columbus County, NC

Common Name	Scientific Name	Federal Status*	Biological Conclusion
Vertebrates			
Bald Eagle	*Haliaeetus leucocephalus*	T(P/D)	No Effect
Red cockaded woodpecker	*Picoides borealis*	E	No Effect
Wood stork	*Mycteria americana*	E	No Effect
American alligator	*Alligator mississippiensis*	T(S/A)	Not Applicable
Shortnose sturgeon	*Acipenser brevirostrum*	E	No Effect
Waccamaw silverside	*Menidia extensa*	T	No Effect
Vascular Plants			
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	E**	No Effect
Cooley's meadowrue	*Thalictrum cooleyi*	E	No Effect

*E - Endangered, T - Threatened, T(S/A) - Threatened due to similarity of appearance, T(P/D) - Threatened Proposed for delisting, **Historic record (last observed over 50 years ago).

Bald Eagle (*Haliaeetus leucocephalus)*
Adult bald eagles have a white head, white tail, and a large yellow bill, with the rest of its plumage being dark in color. Immature bald eagles are dark with light splotching on the body, underwing coverts, flight feathers, and tail base. The bird averages 31 to 37 inches in length with a 70 to 90 inch wingspan.

Breeding areas are normally within 2.5 miles of coastal areas, bays, rivers, lakes, or other bodies of water that can provide them with their main food sources; fish, waterfowl and seabirds. Manmade reservoirs provide an excellent habitat for bald eagles (TPW 2004). Bald eagles prefer roosts in conifers or other sheltered sites in the winter, it would typically select large accessible trees for roosting areas. However, in some areas it is common to see eagles roosting in both coniferous and deciduous trees. Eagles avoid areas with nearby human activity (boat traffic, pedestrians) and development (buildings). Nest sites are usually in tall trees or on cliffs near water. The bald eagle would nest in a variety of trees including, pine, spruce, fir, cottonwood, oak, poplar, and beech. Ground nesting has been reported on the Aleutian Islands in Alaska, in Canada's Northwest Territories, and in Ohio, Michigan, and Texas. Nests located on cliffs and rock pinnacles have been reported historically in California, Kansas, Nevada, New Mexico and Utah, but currently are known to occur only in Alaska and Arizona. Nests are usually re-used and enlarged every year. They can reach 20 feet in diameter and weigh up to 4,000 pounds (FWS 1999).

Based on a review of NHP records, there are no documented occurrences of bald eagle within a three-mile radius of the project study area.

BIOLOGICAL CONCLUSION: No Effect
According to the NHP elemental occurrence database records, there are no known occurrences of bald eagle in the project vicinity. There are no large open waters near the project study area that could be used for nesting, or foraging habitat by the bald eagle. The proposed project would have No Effect on this federally threatened species.

Analysis Details –
Methodology: Analysis of the possible presence of and potential impacts to the bald eagle was conducted using an evaluation of existing information, and an assessment of the habitat requirements. Additionally, the NHP elemental occurrence database was consulted on March 29, 2004.

Red-cockaded woodpecker (RCW) (*Picoides borealis*)
The RCW is a cardinal sized, seven to eight inch long, black and white woodpecker with a black cap on its head. It has a ladder pattern on its back and large white cheeks, which are unique among woodpeckers in its range (Audubon 2004). It is distinguished by two red streaks on each side of the black cap, which are referred to as cockades. They are normally only visible on adult males (NWF 2004).

Nesting habitat for the RCW is made up of large open pine stands (pine flatwoods and pine dominated savannas) that are typically at least 80 years of age with little or no mid-story. This habitat is often maintained naturally by fires that occur as a result of lightning strikes. Foraging habitat is comprised of open pine or mixed pine/hardwood stands 30 years of age or older (Henry 1989). Nests are typically constructed 33 to 43 feet off of the ground in live pines that have been infected with red-heart disease. These nests can sometimes take several years to construct and are often reused. The RCW constructs resin wells below the opening to the nest to create a sticky coating on the bark of the tree; this coating protects the nest from predators such as rat snakes. The sticky coating has a shiny appearance, which allows the nest cavities to be easily seen from the ground. Red-cockaded woodpeckers forage in a wide variety of pine species and especially favor areas that contain large trees due to the large surface area of loose bark. They feed on adults, larvae, and eggs of arthropods, especially ants and termites, that they find by flaking bark from the tree (Audubon 2004).

Based on a review of NHP records, there are no documented occurrences of the red-cockaded woodpecker within a three-mile radius of the project area.

BIOLOGICAL CONCLUSION: No Effect
According to the NHP element occurrence database records, there are no known occurrences of the red-cockaded woodpecker in the project vicinity. There are no mature pine-dominated stands that could be used for nesting or foraging habitat by the red-cockaded woodpecker. Also, no cavity trees were observed within a 0.5-mile radius of the study area. The proposed project would have No Effect on this federally endangered species.

Analysis Details –
Methodology: Analysis of the possible presence of and potential impacts to the red-cockaded woodpecker was conducted using an evaluation of existing information, and an assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

Wood Stork (*Mycteria americana*)
Wood storks are large, long legged wading birds that can grow up to 50 inches tall with a wingspan of 60 to 65 inches. Their plumage is white except for black primaries and secondaries and a short black tail. The head and neck are largely unfeathered and dark gray in color. The bill is black, thick at the base, and slightly decurved. Immature birds are a dingy gray color and have yellowish bills (FWS 2003).

The wood stork's habitat consists of freshwater and brackish wetlands, with nesting areas in cypress or mangrove swamps. They feed in freshwater marshes, narrow tidal creeks, or flooded tidal pools, with attractive feeding sites being depressions in marshes or swamps where fish become concentrated during periods of falling water levels (FWS 2003).

Based on a review of NHP records there are no documented occurrences of wood stork within a three-mile radius of the project study area.

BIOLOGICAL CONCLUSION: No Effect
According to the NHP element occurrence database records, there are no known occurrences of the wood stork in the project vicinity. There are no cypress or mangrove swamps used for nesting by the wood stork within the project study area. Also, freshwater marshes, narrow tidal creeks, flooded tidal pools, and depressions in marshes or swamps used by the wood stork for foraging is not present within the project study area. The proposed project would have No Effect on this federally endangered species.

Analysis Details –
Methodology: Analysis of the possible presence of and potential impacts to the wood stork was conducted using an evaluation of existing information, and an assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

American Alligator (*Alligator mississippiensis*)
The American alligator is listed as Threatened due to its similarity in appearance to other protected crocodilians. However, no other crocodilians occur within the state of North Carolina. Adult males typically reach 13 to 15 feet in length, and females reach lengths of just under 10 feet (FLMNH 2002).

American alligators can be found in a variety of estuarine aquatic habitats including swamp forests, marshes, large streams, canals, ponds, and lakes (Martof *et al.* 1980). Juveniles prey upon a wide variety of small invertebrates, particularly insects, and small

fish and frogs. As they grow larger, their dietary range increases to include consequently larger prey. Eventually, large adults can overcome nearly all aquatic and terrestrial prey that comes within range, but their diet primarily consists of fish, turtles, relatively small mammals, birds, and reptiles including small alligators (FLMNH 2002).

Based on a review of NHP records, there are no documented occurrences of the American alligator within a three-mile radius of the project area.

BIOLOGICAL CONCLUSION: Not Applicable

Analysis Details –
Methodology: Analysis of the possible presence of and potential impacts to the American alligator was conducted using an evaluation of existing information, and an assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

Shortnose Sturgeon (*Acipenser brevirostrum*)
The shortnose sturgeon is a large fish with a heterocercal tail, short shovel-shaped (bluntly V-shaped) snout (not upturned at tip), and large fleshy barbels. The shortnose sturgeon also has a ventral mouth, large bony scutes on the head, back, and sides (paler than adjacent skin). The anal fin origin is beneath the dorsal fin origin, and is dark brown to black above, light brown to yellow on lower sides, white below; and grows to 43 inches (NatureServe 2003a). The shortnose sturgeon can weigh up to 50 pounds (FishBase 2004).

The shortnose sturgeon inhabits rivers, lakes, estuaries (usually most abundant in estuaries), and bays. Additionally, the shortnose sturgeon will occasionally enter the open sea (FishBase 2004), and would usually stay within a few miles of land while at sea (NatureServe 2003a). The shortnose sturgeon may spend most of the year near the saltwater/freshwater interface, but moves into freshwater to spawn (FWS 2003c). These fishes reportedly prefer deep pools with soft substrates and vegetated bottoms, but individuals may vary in preference for various water depths and substrate types (NatureServe 2003a).

Based on a review of NHP records, there are no documented occurrences of shortnose sturgeon within a three-mile radius of the project area.

BIOLOGICAL CONCLUSION: No Effect
According to the NHP element occurrence database records, there are no known occurrences of the shortnose sturgeon in the project vicinity. Brackish or salt water used by the shortnose sturgeon for foraging is not present within the project study area. Also, the deep freshwater pools utilized by the shortnose sturgeon for spawning, are not present within the project study area. The proposed project would have No Effect on this federally endangered species.

Analysis Details –
Methodology: Analysis of the possible presence of and potential impacts to the shortnose sturgeon was conducted using an evaluation of existing information, and an assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

Waccamaw Silverside (*Menidia extensa*)
The Waccamaw silverside, also known as skipjack or glass minnow, is a small 2.5-inch, slender, almost transparent fish with a silver stripe along each side. Its body is laterally compressed, its eyes are large, and its jaw is angled sharply upward (FWS 2003d).

The Waccamaw silverside is endemic to Lake Waccamaw in Columbus County. It has also been seen in the Waccamaw River during periods of high water, but it is not a permanent species of the Waccamaw River (NatureServe 2003c). The USFWS has designated Lake Waccamaw and a 0.4-mile section of Big Creek from Lake Waccamaw to SR 1947 as the silverside's critical habitat. The Waccamaw silverside only inhabits open areas of the lake in schools over shallow and dark-bottomed areas (FWS 2003d).

Based on a review of NHP records, there are no documented occurrences of Waccamaw silverside within a three-mile radius of the project study area.

BIOLOGICAL CONCLUSION: No Effect
Lake Waccamaw is located approximately 10 miles north of the study area, and no known occurrences of this species have been reported by the NHP within the project vicinity. The USFWS has designated Lake Waccamaw and a 0.4-mile section of Big Creek, from Lake Waccamaw to SR 1947, as the silverside's critical habitat. These areas are not located within the project study area. Therefore, the proposed project would have No Effect on this federally threatened species.

Analysis Details-
Methodology: Analysis of the possible presence of and potential impacts to the Waccamaw silverside was conducted using an evaluation of existing information, and an assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

Rough-leaved Loosestrife (*Lysimachia asperulaefolia*)
Rough-leaved loosestrife is an erect, rhizomatous, perennial herb that grows to one to two feet in height. It has whorls of three to four leaves that encircle its stem at intervals below a yellow inflorescence. Blooming occurs from mid-May through June. Fruiting occurs from July to October (FWS 2003b).

Rough-leaved loosestrife generally occurs on acidic, moist to seasonally saturated sands and on acidic, shallow organic soils overlaying sand. It also grows on shallow, poorly drained deep peat soils of low pocosins and Carolina bays (US Army 2003). Rough-leaved loosestrife occurs most often along the ecotone between longleaf pine uplands and

pond pine pocosins (areas of dense shrub and vine growth usually on a wet, peaty, poorly drained soil) (FWS 2003b). Rough-leaved loosestrife has also been found in ecotones between pocosins and longleaf pine savanna, longleaf pine flatwoods, sandhills seeps, and pond and lake margins (US Army 2003).

Based on a review of NHP records, there are no documented occurrences of rough-leaved loosestrife within a three-mile radius of the project study area.

BIOLOGICAL CONCLUSION: No Effect
According to the NHP element occurrence database records, there are no known occurrences of the rough-leaved loosestrife in the project vicinity. There are no Carolina bays or pocosins that could support rough-leaved loosestrife within the project study area. The proposed project would have No Effect on this federally endangered species.

Analysis Details -
Methodology: Analysis of the possible presence of and potential impacts to the rough-leaved loosestrife was conducted using an evaluation of existing information, and an assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

Cooley's Meadowrue (*Thalictrum cooleyi*)
Cooley's meadowrue is a perennial herb that grows from an underground rhizome, with stems typically that reach three feet in height. However, on recently burned sites, stems have been known to reach 6.5 feet in height. Under ideal conditions in full sun the stems are erect. However, in shade they are lax and may trail along the ground and lean on other plants. The species has green lance shaped leaflets less than 0.8 inches long, occurring in groups of three, with both basal and stem leaves present on the plant (FWS 2003a). Loose clusters of flowers are borne in June. The flowers lack petals, but the sepals are white, pale yellow, or pale green with lavender filaments (NatureServe 2003d). The fruits of Cooley's meadowrue mature in August or September and remain on the plant until October (FWS 2003a).

Cooley's meadowrue grows in sunny, moist places such as open, savanna-like forest edges and clearings, wet savannas over calcareous clays, and ecotones between wet savannas and non-riverine swamp forests with soils that are basic, sandy loams (NatureServe 2003d). It grows along fireplow lines, roadside ditches, woodland clearings, and power line rights-of-way, and needs some type of disturbance to maintain its open habitat (FWS 2003a). Cooley's meadowrue occupies a rare hydrological niche, where soil is moist to saturated, but water does not stand above the soil surface (FWS 1994). Plants often found growing with Cooley's meadowrue include tulip poplar (*Liriodendron tulipifera*), bald cypress, and/or Atlantic white cedar (*Chamaecyparis thyoides*) (NatureServe 2003d). The presence or absence of pond pine is a good indicator of whether Cooley's meadowrue habitat is present; if pond pine is present the habitat is not suitable for Cooley's meadowrue (FWS 1994). Cooley's meadowrue is typically found on Grifton soils, but has been know to occur on Foreston, Muckalee, Torhunta, and

Woodington soils. Cooley's meadowrue prefers circumneutral sandy loams, fine sandy loams, or loamy fine sands.

NHP records do not indicate any occurrences of Cooley's meadowrue within a three-mile radius of the project area.

BIOLOGICAL CONCLUSION: No Effect
According to the NHP element occurrence database records, there are no known occurrences of the Cooley's meadowrue in the project vicinity. The savanna-like wetland habitat necessary to support Cooley's meadowrue was not observed in the project study area. In addition, Cooley's meadowrue occupies a specialized hydrological niche, where soils must be saturated or moist, but not inundated. Wetlands under the power-lines in the project study area do not exhibit this hydrologic regime. Wetlands in the project study area are frequently inundated due to beaver activity in the onsite canals and frequent backwater flooding from the Waccamaw River. The presence of pond pine is also a good indicator of whether suitable Cooley's meadowrue habitat is present. According to the recovery plan, if pond pine is present the habitat is not suitable for Cooley's meadowrue. Pond pine is one of the dominant tree species throughout the project study area, which indicates that the project study area is not suitable habitat for Cooley's meadowrue. According to the recovery plan, Cooley's meadowrue requires a circumneutral soil and is typically found on Grifton soils, but has been known to occur on Foreston, Muckalee, Torhunta, and Woodington soils. According to the Soil Survey of Columbus County, the majority of the wetland areas within the study area are mapped as Johns and Lumbee fine sandy loam. According to soil descriptions in the soil survey the Johns and Lumbee series are not circumneutral, and would be too acidic to support Cooley's meadowrue. Areas mapped as Grifton and Muckalee soils in the project study are dominated by dense undergrowth and do not contain the open habitat necessary to support Cooley's meadowrue. Additionally, most of these areas mapped as Grifton soil are former wetlands that have been drained by the large canals that cross the study area. Due to a lack of suitable habitat within the study area, the proposed project would have No Effect on this federally endangered species.

Analysis Details –
Methodology: Analysis of the possible presence of and potential impacts to the Cooley's meadowrue was conducted using an evaluation of existing information, and an assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

4.4.2 Federal Species of Concern

Federal Species of Concern (FSC) are those plant and animal species that may or may not be listed in the future. These species are not legally protected under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered.

Table 5 includes FSC listed for Columbus County (updated March 14, 2006) and their state classifications obtained form the NHP database. Species that are listed as endangered (E), Threatened (T), or Special Concern (SC) on the NHP list of Rare Plant and Animal Species are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979. However, the level of protection given to state-listed species does not apply to NCDOT activities.

Table 5. Federal Species of Concern (FSC) Listed for Columbus County, NC

Common Name	*Scientific Name*	*State Status*	*Potential Habitat*
Vertebrates			
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	T	Yes
Southeastern myotis	*Myotis austroriparius*	SC**	Yes
Bachman's sparrow	*Aimophila aestivalis*	SC**	No
Henslow's sparrow	*Ammodramus henslowii*	SR	No
American eel	*Anguilla rostrata*	#	Yes
Broadtail madtom	*Noturus* sp. 1	SC#	Yes
Mimic glass lizard	*Ophisaurus mimicus*	SC~	No
Carolina pygmy sunfish	*Elassoma boehlkei*	T	Yes
Waccamaw darter	*Etheostoma perlongum*	T#	No
Waccamaw killfish- Lake Waccamaw population	*Fundulus waccamensis pop 1*	SC	No
Invertebrates			
Waccamaw lance pearlymussel	*Elliptio sp. 5*	#	No
Waccamaw spike	*Elliptio waccamawensis*	T	No
Yellow lampmussel	*Lampsilis cariosa*	E**	No
Waccamaw fatmucket	*Lampsilis fullerkati*	T	No
Savannah lilliput	*Toxolasma pullus*	E	No
Cape Fear threetooth	*Triodopsis soelneri*	T	No
Pee Dee lotic crayfish	*Procambarus lepidodactylus*	#	Yes
Townes' clubtail	*Stylurus townesi*	SR**	No
Hessel's hairstreak	*Callophyrs hesseli*	#	Yes
Vascular Plants			
Savanna indigo-bush	*Amorpha Georgiana var confusa*	T	Yes
Chapman's three-awn	*Aristida simpliciflora*	#	No
Chapman's sedge	*Carex chapmanii*	#	Yes
Venus flytrap	*Dionaea muscipula*	SR-L, SC	No
Harper's fimbry	*Fimbristylis perpusilla*	T	No
A St. Johns Wort	*Hypericum* sp. 2	#	Yes
Long beach seedbox	*Ludwigia brevipes*	#	No
Raven's seedbox	*Ludwigia ravenii*	#	Yes
Carolina bogmint	*Macbridea caroliniana*	T	Yes
Savannah cowbane	*Oxypolis ternata*	#	No
Carolina grass-of-parnassus	*Parnassia caroliniana*		Yes
Large-leaved grass-of-parnassus	*Parnassia grandifolia*	T	No
Pineland plantain	*Plantago sparsiflora*	E	Yes

Swamp forest beaksedge	*Rhynchospora decurrens*	SR-P~	No
Grassleaf arrowhead	*Sagittaria weatherbiana*	SR-T	Yes
Spring-flowering goldenrod	*Solidago verna*	SR-L	No
Wireleaf dropseed	*Sporobolus teretifolius sensu stricto*	T	No
Carolina asphodel	*Tofieldia glabra*	#	Yes

E - Endangered, T - Threatened, SR - Significantly Rare, SC - Special Concern, SR-T - Rare throughout its range,
SR-L – Range is limited to NC and adjacent states, SR-P – Periphery of its range in NC.
*No longer tracked by NCNHP, **Occurs on NCNHP list but not on USFWS list, #Not listed as a FSC on NCNHP list,
^Obscure record, ~Historic record (last observed over 50 years ago)

NHP records were reviewed to determine the known locations of FSC within the project vicinity. NHP records indicate seven occurrences of FSC species within a three-mile radius of the project study area. Harper's fimby occurred twice, approximately 2.75 miles southeast and 2.5 miles south of the project study area, and is listed as current by NHP (occurrence less than 20 years old). The Waccamaw spike occurred approximately three miles southeast of the project study area, and is listed as current by NHP. Swamp forest beaksedge occurred twice, approximately three miles south and three miles north of the project study area, and is listed as current by the NHP. The Carolina pygmy sunfish occurred approximately three miles northeast of the project study area, and is listed as obscure by the NHP (date of occurrence is unknown). The mimic glass lizard occurred approximately three miles north of the project study area, and is listed as historic by NHP (occurrence greater than 20 years old).

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having effects on properties listed in or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

B. Historic Architecture

In a memorandum dated June 30, 2004 the State Historic Preservation Office (SHPO) concurred that no historic resources would be affected by the proposed project. A copy of the memorandum is included in the Appendix.

C. Archaeology

The State Historic Preservation Office, in a memorandum dated March 2, 2004 recommended that "no archaeological investigation be conducted in connection with this project." A copy of the SHPO memorandum is included in the Appendix.

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 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 or 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."

No publicly owned parks or recreational facilities, wildlife and waterfowl refuges, or historic sites of national, state, or local significance would be impacted as a result of proposed project. The proposed project would not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

VIII. ENVIRONMENTAL EFFECTS

The project is expected to have a positive effect on transportation and the surrounding community. The replacement of the inadequate bridge would result in safer and more efficient traffic operations.

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

Replacement of Bridge No. 10 would not have a negative effect on the quality of the human or the natural environment.

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

No adverse impact on families or the community is expected. Right-of-way acquisition would be limited; no relocatees are expected with the 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 review was conducted to determine the whether minority or low income populations would receive disproportionately high and adverse human health and environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low-income populations.

No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area. There would be some temporary inconvenience to local travel due to construction activities.

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

This project has been coordinated with the United States Department of Agriculture, Natural Resources Conservation Service (NRCS). The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland for all land acquisition and construction projects. Soils were identified within a 0.5-mile radius of the project area, and checked to see if they were classified as prime, unique, or of state or local importance. Four of the identified soils were on the NRCS list, *Important Farmlands of North Carolina, May 1998*. Soils in which all areas are considered prime farmland included, Nakina Fine Sandy Loam (Nk). Soils in which only drained areas are considered prime farmland included, Lumbee Fine Sandy Loam (Lu), Johns Fine Sandy Loam (Jo), and Grifton Fine Sandy Loam (Gt). If impacts to these soils occur as a result of the proposed project, they are expected to be limited in nature.

No adverse effects to air quality are anticipated from this project. This project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis, and a project level CO analysis is not required.

The project is located in Columbus County, which has been determined to comply with the National Ambient Air Quality Standards. The proposed project is located in an attainment area; therefore, 40 CFR Parts 51 and 93 are not applicable. This project is not anticipated to create and adverse effects on the air quality of this attainment area.

If vegetation or wood debris are disposed of by open burning, it shall be done in accordance with applicable local laws and regulations of the North Carolina Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520 and the 1990 Clean Air Act Amendments and the National Environmental Policy Act. This evaluation completes the assessments for air quality, and no additional reports are required.

Ambient noise levels may increase during the construction of this project; however this increase would be only temporary and usually confined to daylight hours. There should

be no notable change in traffic volumes after the project is complete. Therefore, this project would have no adverse effect on existing noise levels. Noise receptors in the project area would not be impacted by this project. This evaluation completes the assessment requirements for highway noise set forth in 23 CFR Part 722. No additional reports are required.

A "Geo-Environmental Impact Evaluation" was conducted by the NCDOT at the project site to identify any properties that may contain hazardous waste materials and result in future environmental liability if acquired. These hazards include, underground storage tanks (USTs), hazardous waste sites, regulated landfills, unregulated dumpsites, and any other site or materials that are considered hazardous. A field reconnaissance survey, a file search of appropriate environmental agencies, and a Geographical Information System (GIS) were used to identify any known problem sites along the proposed project alignment. The field reconnaissance survey yielded no anticipated UST sites within the project area. A GIS analysis of the project corridor showed no regulated landfills, or unregulated dumpsites were within the project limits. GIS analysis and field reconnaissance found no potential RCRA or CERCLA sites within the project limits. Based on field reconnaissance and a records search there should be no contamination issues for the B-4078 project.

Columbus County is a participant in the Federal Flood Insurance Program. The bridge is located within a Detailed Study Area. The new structure will be designed to match or lower the existing 100-year storm elevation upstream of the roadway. Since the proposed replacement for Bridge No. 10 would be a structure similar in waterway opening size, it is not anticipated that it would have significant adverse impact on the existing floodplain or floodway, and it would not raise the floodplain levels. The Federal Emergency Management Agency, Flood Insurance Rate Map (FIRM) for the project study area is attached.

Based on the above discussion, it is concluded that no substantial environmental impacts would result from the replacement of Bridge No. 10.

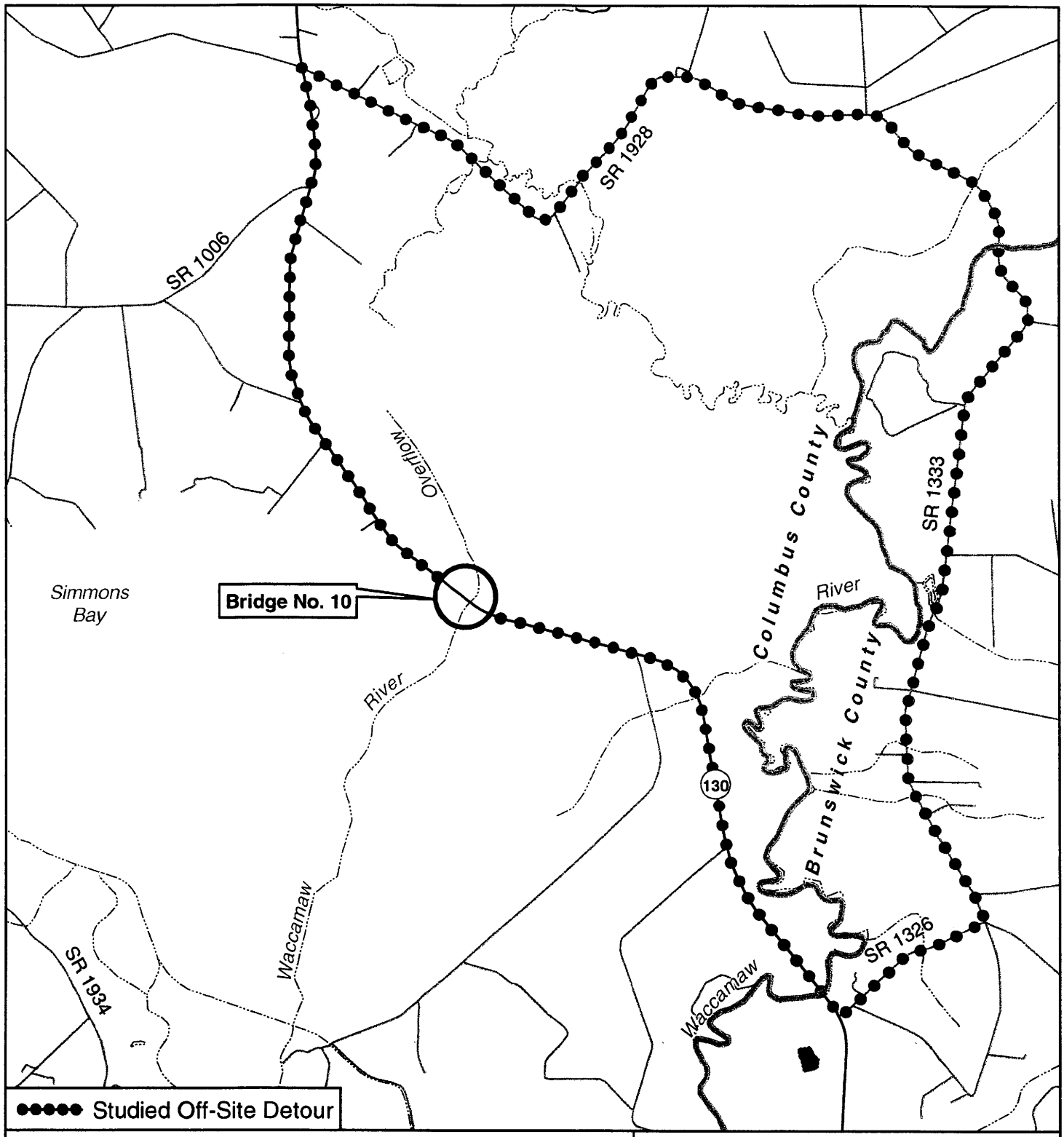
IX. PUBLIC INVOLVEMENT

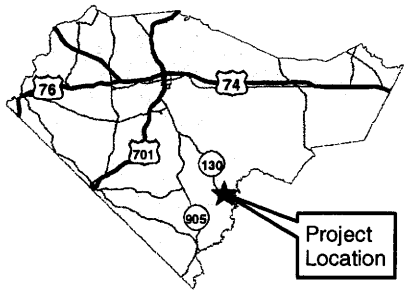
Newsletters describing the proposed bridge replacement project were sent to local residents. The newsletters give the public an opportunity to comment on the possible alternatives for the proposed bridge replacement.

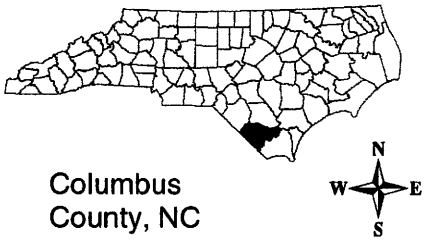
X. AGENCY COMMENTS

Comments on the proposed project were requested from federal, state and local agencies. Several agencies have commented upon the proposed bridge alignment. These comments have been considered during the environmental and design process and are included in the Appendix.

FIGURES







Columbus
County, NC

0 4,000
Feet

North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

NC 130
Replace Bridge No. 10
Over Waccamaw River Overflow
Columbus County
B-4078

PROJECT VICINITY MAP | Figure 1

ALTERNATIVE
(Preferred Alternative)
Temporary On-Site Detour

ALTERNATIVE 1 and 2
Replace with Bridge

BRIDGE NO. 10

ALTERNATIVE 2
Temporary On-Site Detour

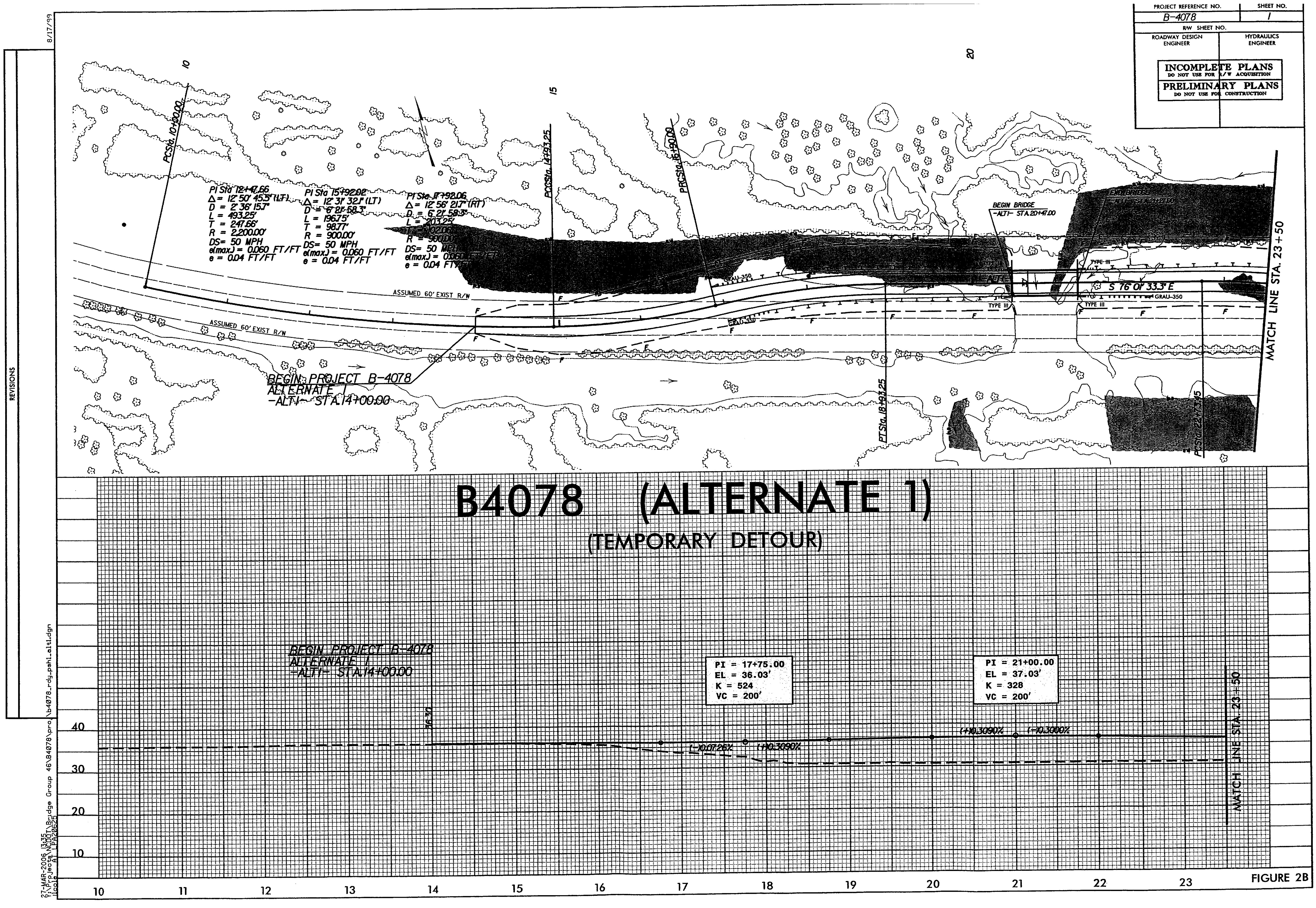
50' 0 50'
GRAPHIC SCALE 1" = 150'

North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

N.C. 130
Replace Bridge No. 10
Over Waccamaw River Overflow
Columbus County
B-4078

SCALE: 1"= 150'

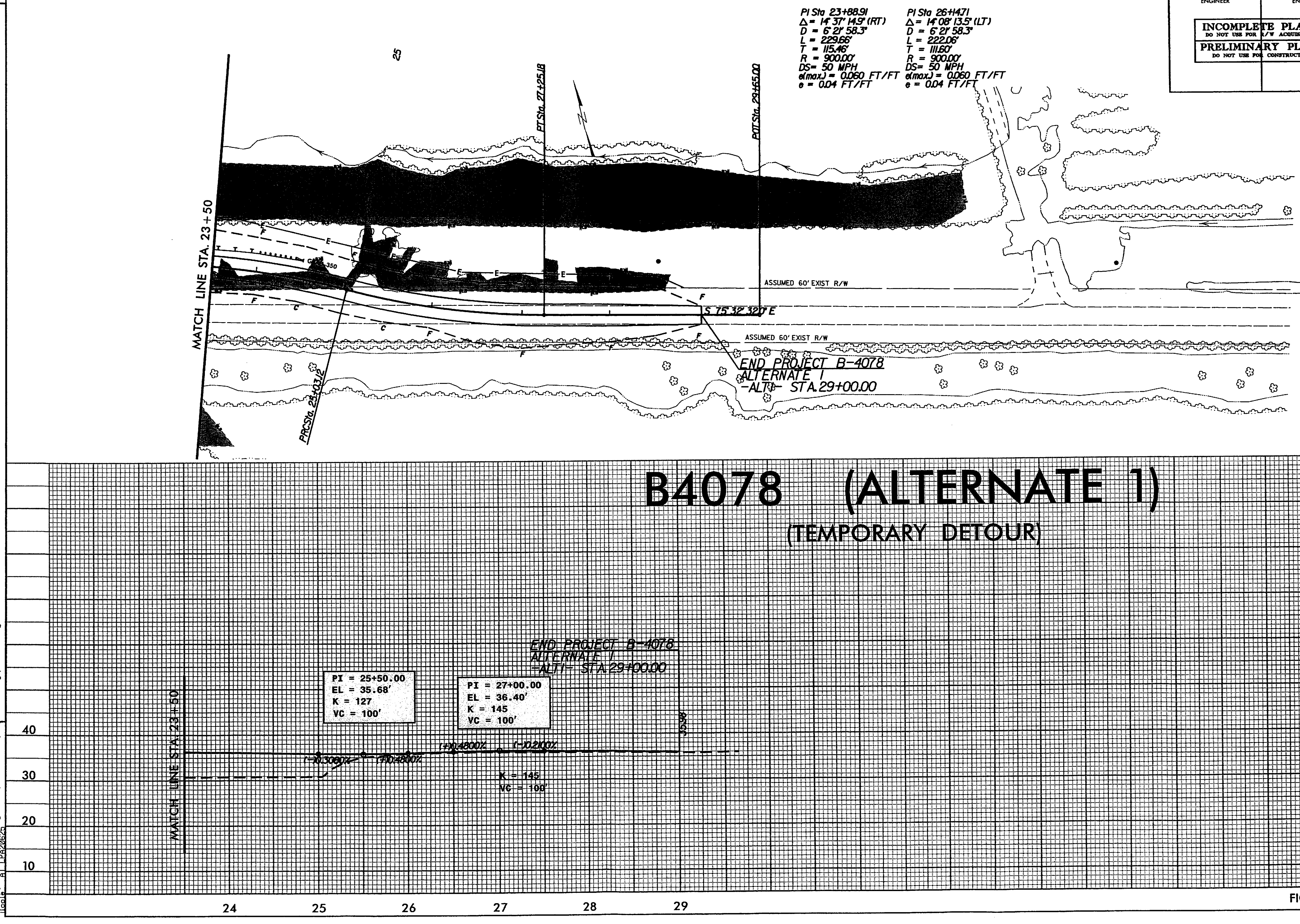
Figure 2A


PROJECT REFERENCE NO. B-4078
SHEET NO. 1
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
PI Sta 12+47.66
Δ= 12° 50' 45.5" (LT)
D = 2° 36' 15.7"
L = 493.25'
T = 247.66'
R = 2,200.00'
DS= 50 MPH
e(max.) = 0.060 FT/FT
e = 0.04 FT/FT
PI Sta 15+92.92
Δ= 12° 31' 32.1" (LT)
D = 6° 21' 58.3"
L = 196.75'
T = 98.77'
R = 900.00'
DS= 50 MPH
e(max.) = 0.060 FT/FT
e = 0.04 FT/FT
ASSUMED 60' EXIST R/W
BEGIN PROJECT B-4078
ALTERNATE 1
-ALT1- STA.14+00.00
BEGIN BRIDGE
-ALT1- STA.20+47.00
S 76° 01' 33.3" E
GRAU-350
TYPE III
MATCH LINE STA. 23+50
B4078 (ALTERNATE 1)
(TEMPORARY DETOUR)
PI = 17+75.00
EL = 36.03'
K = 524
VC = 200'
PI = 21+00.00
EL = 37.03'
K = 328
VC = 200'
(+)0.3090%
(+)0.3000%
(-)0.0726%
FIGURE 2B

PROJECT REFERENCE NO.	SHEET NO.
B-4078	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PI Sta 23+88.91
Δ = 14° 37' 14.9" (RT)
D = 6° 21' 58.3"
L = 229.66'
T = 115.46'
R = 900.00'
DS= 50 MPH
e(max.) = 0.060 FT/FT
e = 0.04 FT/FT
PI Sta 26+14.71
Δ = 14° 08' 13.5" (LT)
D = 6° 21' 58.3"
L = 222.06'
T = 111.60'
R = 900.00'
DS= 50 MPH
e(max.) = 0.060 FT/FT
e = 0.04 FT/FT
MATCH LINE STA. 23+50
PT Sta. 27+25.18
POT Sta. 29+65.00
PRC Sta. 25+03.12
ASSUMED 60' EXIST R/W
S 75° 32' 32.0" E
END PROJECT B-4078
ALTERNATE 1
-ALT1- STA.29+00.00
PI = 25+50.00
EL = 35.68'
K = 127
VC = 100'
PI = 27+00.00
EL = 36.40'
K = 145
VC = 100'
(+)0.4800%
(-)0.2100%
(-)0.3080%
(+)0.4800%
K = 145
VC = 100'
40
30
20
10
24
25
26
27
28
29

B4078 (ALTERNATE 1)

(TEMPORARY DETOUR)

REVISIONS

8/17/99

27-MAR-2006 16:56
I:\Projects\NC001\Bridge Group 46\B4078\pro\b4078_rdy_psh2_alt1.dgn

FIGURE 2C

PROJECT REFERENCE NO.	SHEET NO.
B-4078	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

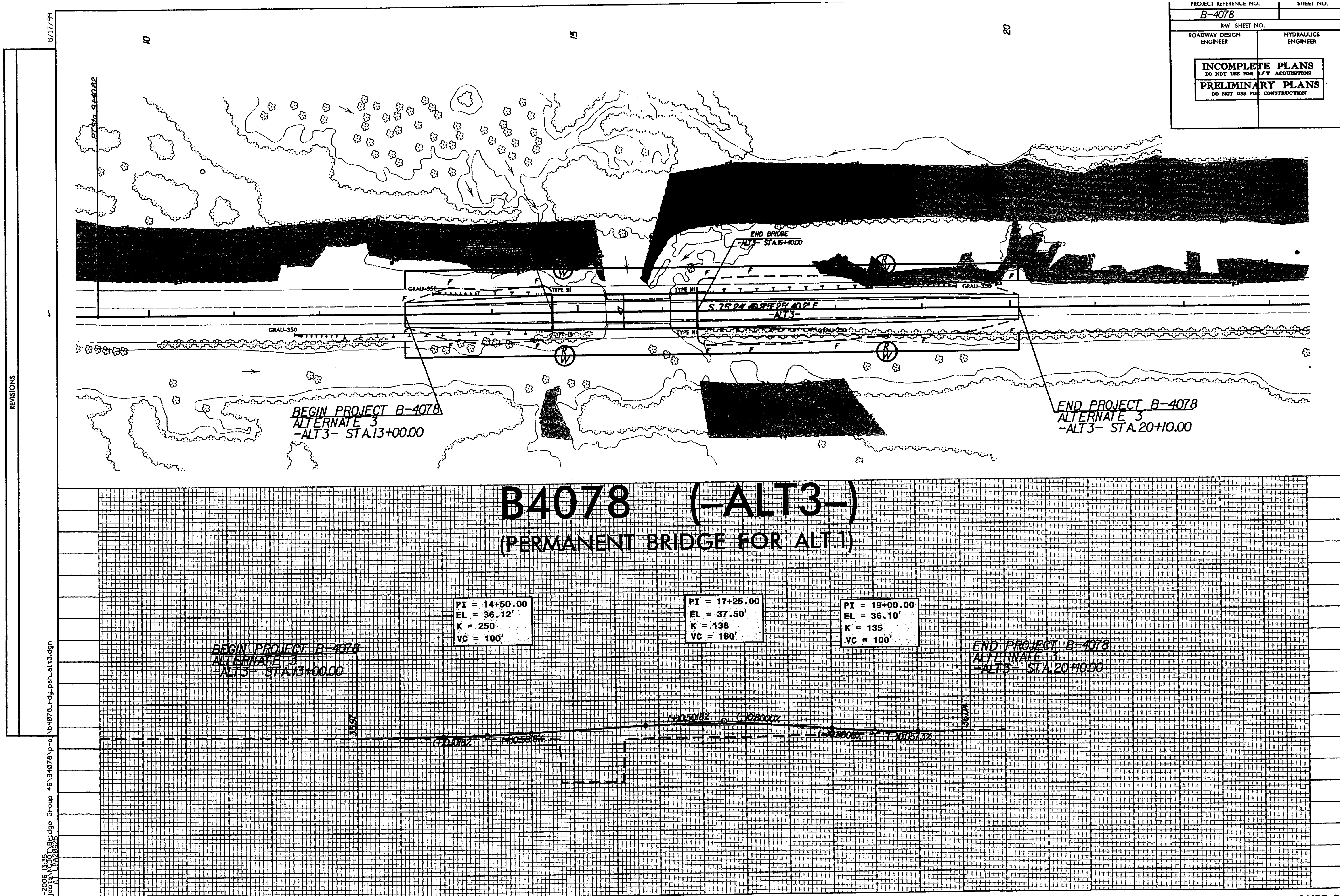
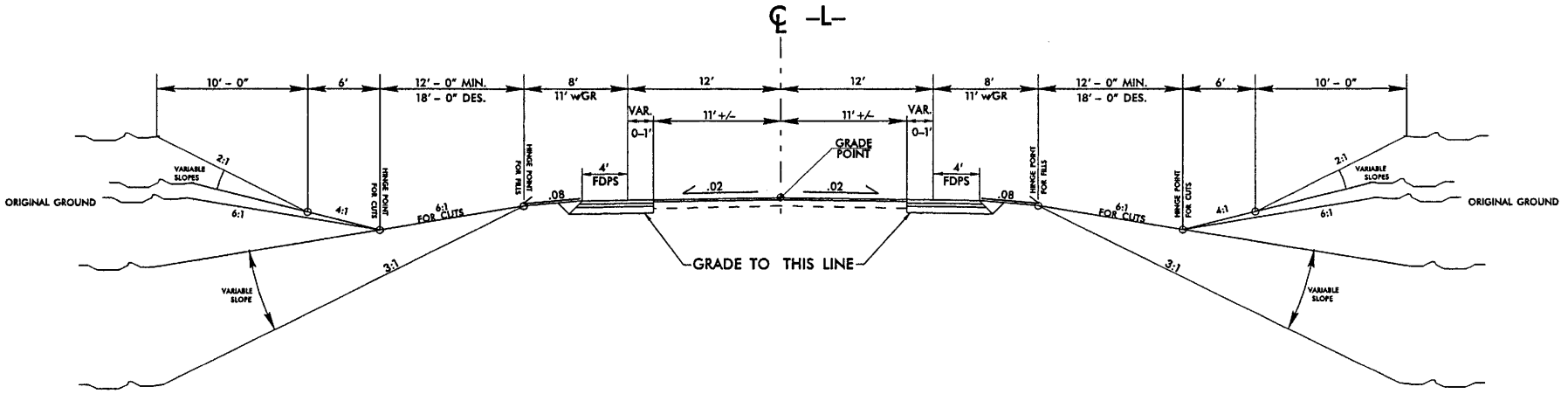
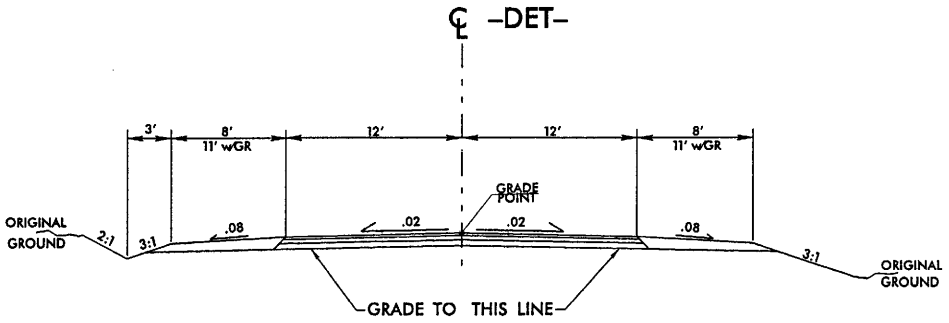


FIGURE 2D



TYPICAL SECTION NO. 1



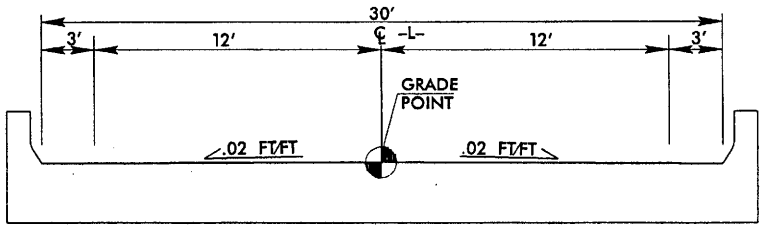
TYPICAL SECTION NO. 2

North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

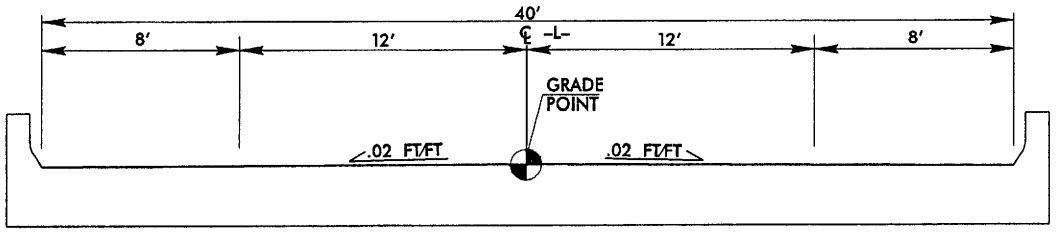
N.C. 130
Replace Bridge No. 10
Over Waccamaw River Overflow
Columbus County
B–4078

NOT TO SCALE

Figure 3A



TYPICAL TEMPORARY BRIDGE SECTION



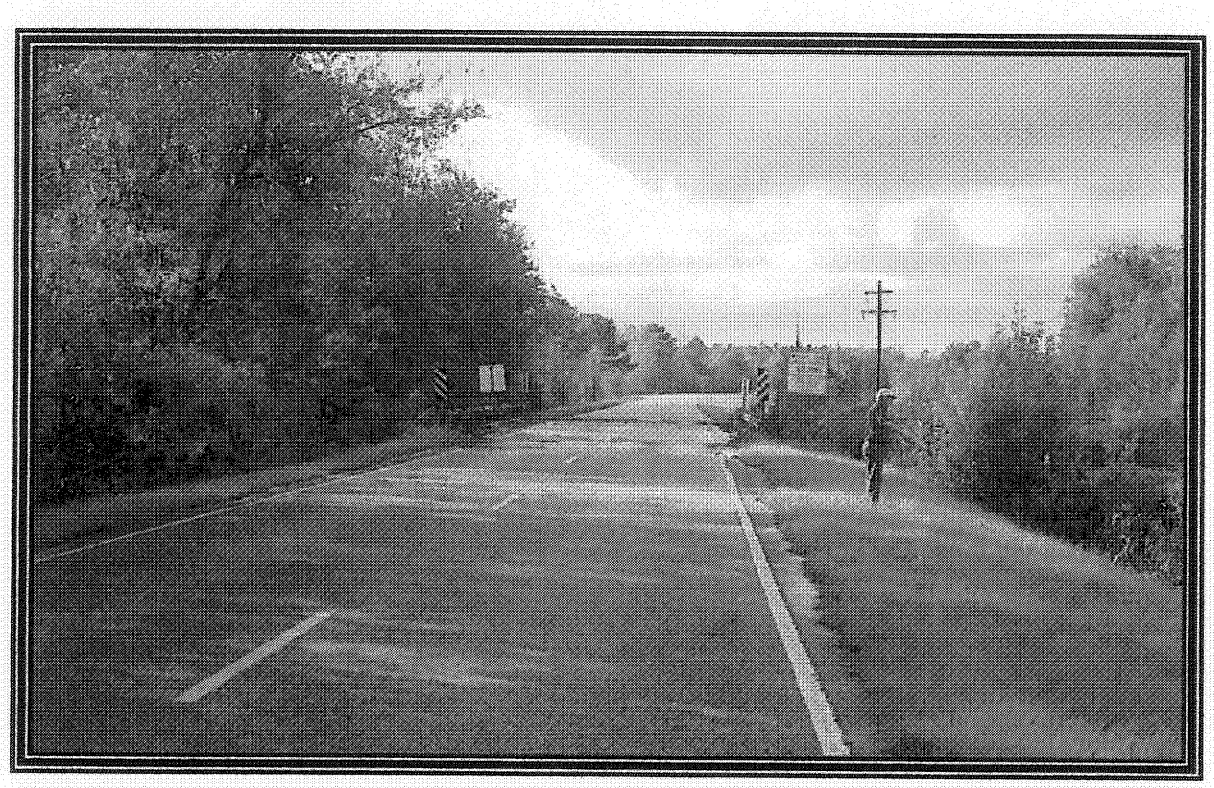
TYPICAL BRIDGE SECTION

North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

N.C. 130
Replace Bridge No. 10
Over Waccamaw River Overflow
Columbus County
B-4078

NOT TO SCALE

Figure 3B

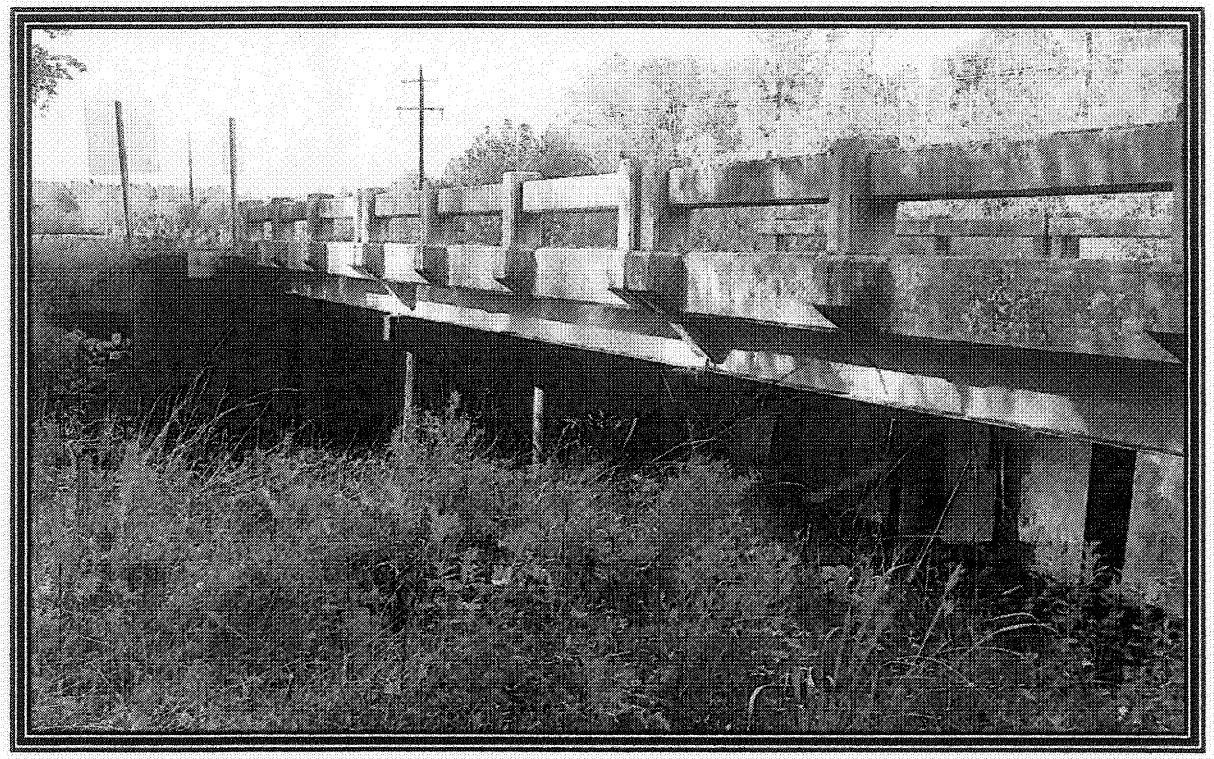


COLUMBUS COUNTY BRIDGE No. 10 B-4078

Looking West on NC 130

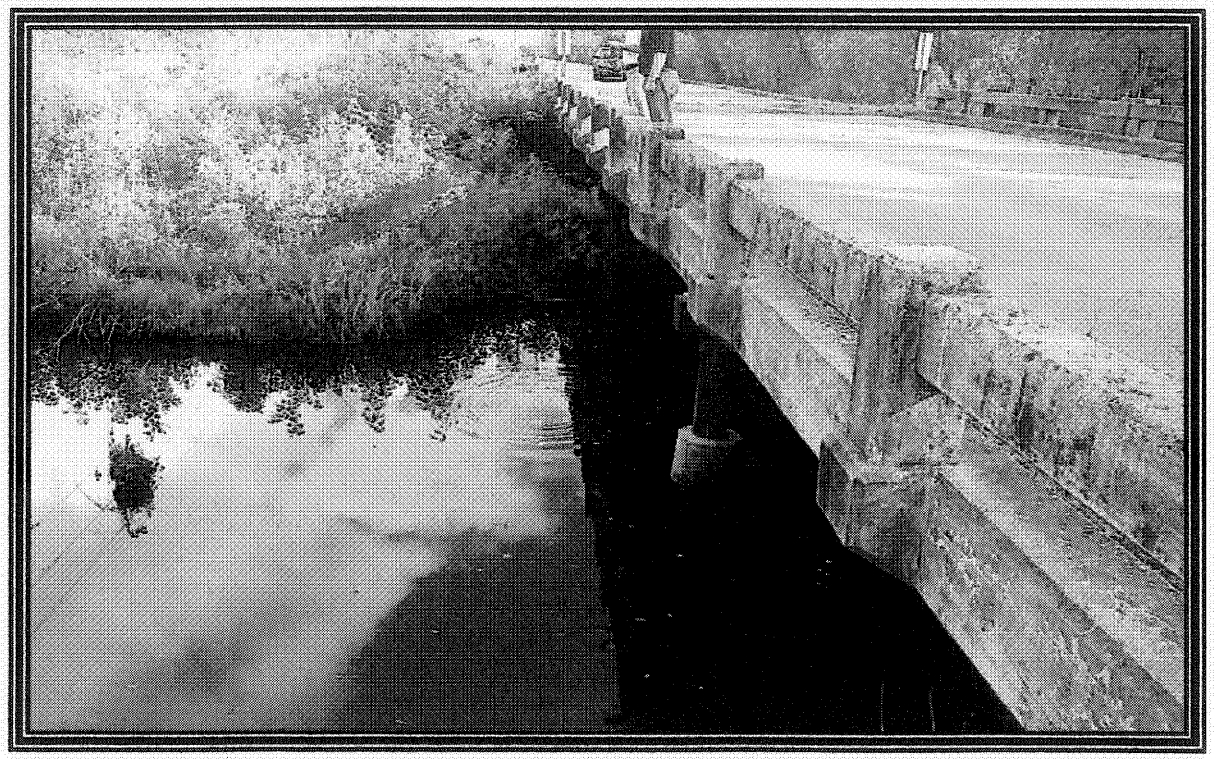
Looking East on NC 130

FIGURE 4A



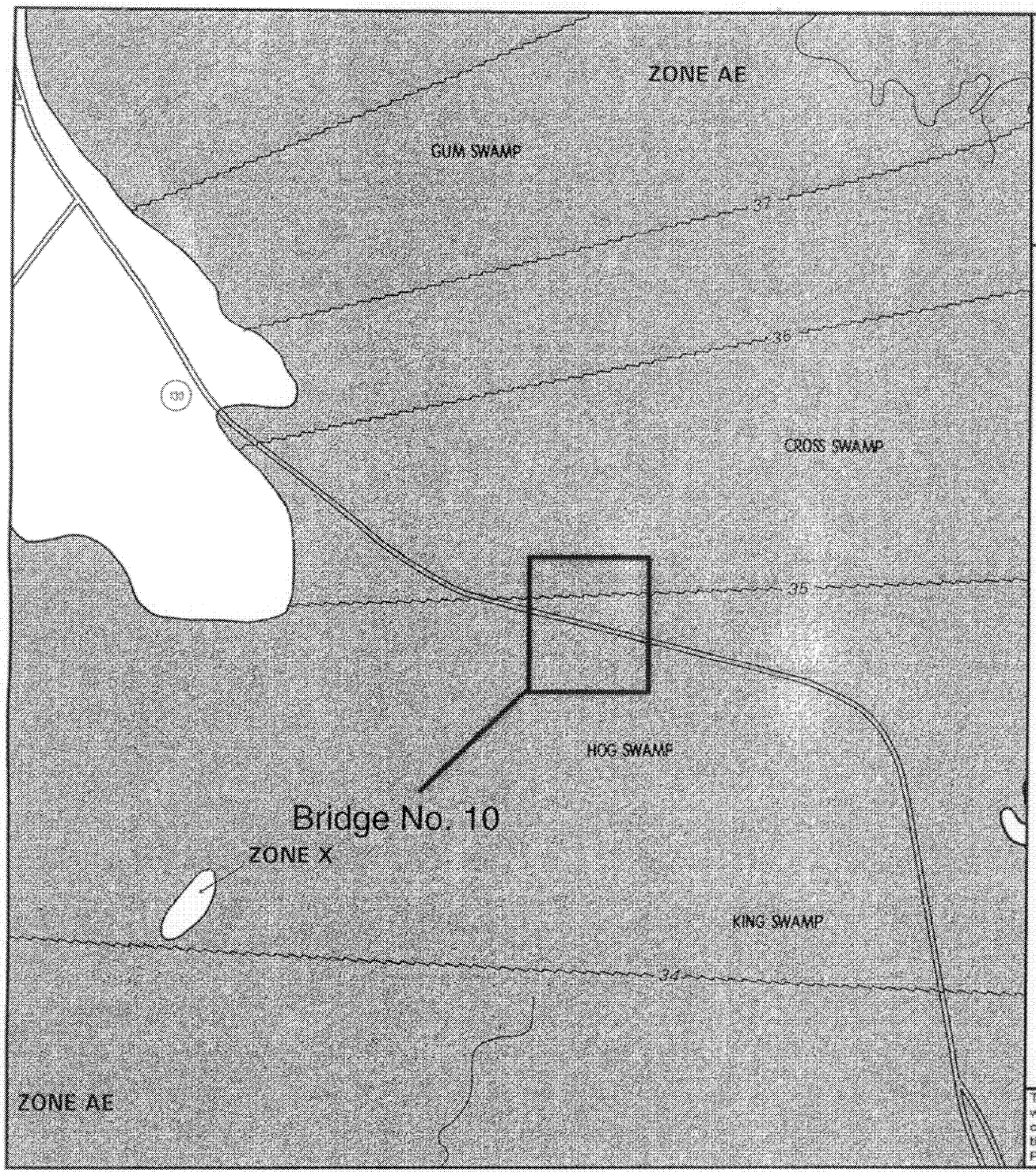
COLUMBUS COUNTY BRIDGE No. 10 B-4078

Looking at the South Side of Bridge No. 10



Looking at the North Side of Bridge No. 10

FIGURE 4B



N

APPROXIMATE SCALE IN FEET

2000 0 2000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

COLUMBUS COUNTY,
NORTH CAROLINA
(UNINCORPORATED AREAS)

PANEL 275 OF 350

COMMUNITY–PANEL NUMBER:
370305 0275 B
EFFECTIVE DATE:
JUNE 3, 1991

Federal Emergency Management Agency

Figure 5

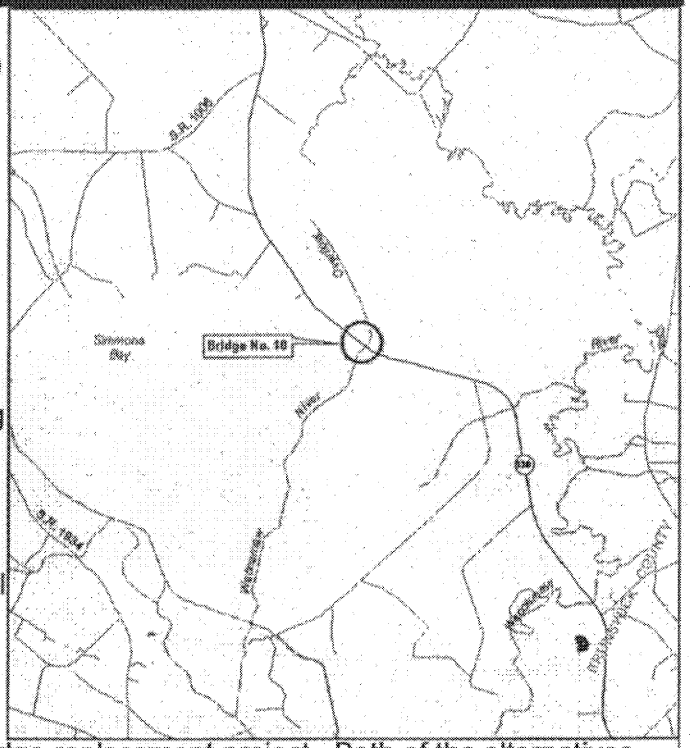
APPENDIX

Newsletter

NCDOT
T.I.P. B-4078

Volume I, Issue I

Proposed Replacement of Bridge No. 10 over Waccamaw River Overflow on NC 130



This newsletter is published by the North Carolina Department of Transportation to provide information on the status of the proposed replacement of the bridge over Waccamaw River overflow on NC 130 illustrated in the vicinity map to the right. The proposed project is needed to improve safety due the deteriorated condition of the existing bridge.

PROJECT SCHEDULE

The acquisition of right-of-way is scheduled for federal fiscal year (FFY) 2006, with construction in FFY 2007.

PROJECT DESCRIPTION

Two (2) alternatives have been studied for the proposed bridge replacement project. Both of the alternatives propose to replace the bridge in its existing location. Alternative 1 would maintain traffic with an on-site detour on the upstream (north) side of the bridge during construction. Alternative 2 would maintain traffic with an on-site detour on the downstream (south) side of the existing bridge during construction. Alternative 1 has been recommended as the preferred alternative because it minimizes environmental impacts and costs.

NCDOT WELCOMES CITIZEN INPUT

Public involvement is an important part of the planning process. The North Carolina Department of Transportation is committed to ensuring all issues of concern to the public are addressed and considered before any final decisions are made. If you have any questions or comments concerning the project, please feel free to contact the study team members below:

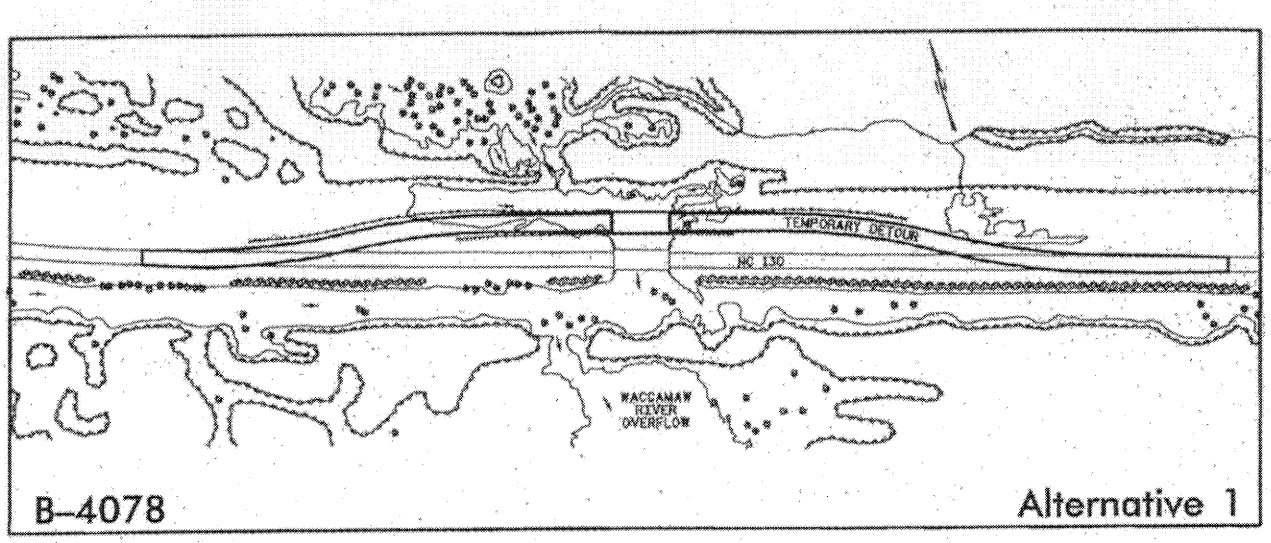
Mr. Vincent J. Rhea, PE
Project Manager
NCDOT-PDEA
1548 Mail Service Center
Raleigh, NC 27699-1548
(919) 733-7844 ext. 261
vrhea@dot.state.nc.us

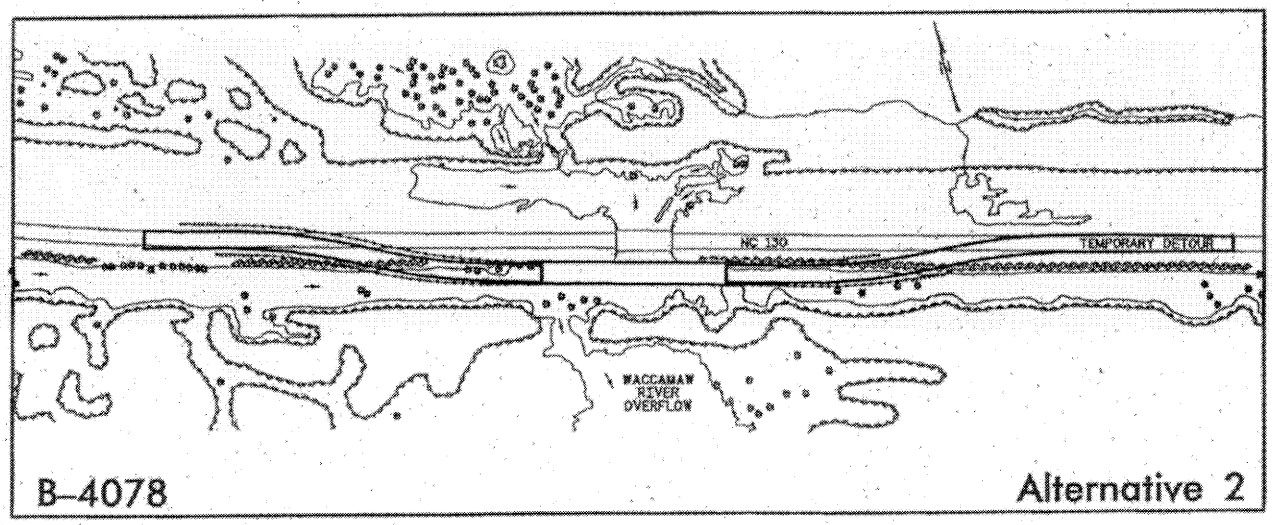
Mr. Richard Davis
Project Manager
The LPA GROUP of North Carolina, P.A.
4904 Professional Ct., Suite 201
Raleigh, NC 27609
(919) 954-1244
rdavis@lpagroup.com

NCDOT
T.I.P. B-4078

North Carolina Department of Transportation
Project Development & Environmental Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

Postal Customer





United States Department of the Interior

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

December 30, 2003

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

Dear Dr. Thorpe:

This letter is in response to your request for comments from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of the proposed replacement of Bridge No. 10 on NC 130 over Waccamaw River Overflow, Columbus County, North Carolina (TIP No. B-4078). These comments provide scoping information in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

For bridge replacement projects, the Service recommends the following general conservation measures to avoid or minimize environmental impacts to fish and wildlife resources:

1. Wetland, forest and designated riparian buffer impacts should be avoided and minimized to the maximum extent practical;

2. If unavoidable wetland impacts are proposed, every effort should be made to identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity via conservation easements, land trusts or by other means should be explored at the outset;

3. Off-site detours should be used rather than construction of temporary, on-site bridges. For projects requiring an on-site detour in wetlands or open water, such detours should be aligned along the side of the existing structure which has the least and/or least quality of fish and wildlife habitat. At the completion of construction, the detour area should be entirely removed and the impacted areas be planted with appropriate vegetation, including trees if necessary;

4. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons. In waterways that may serve as travel corridors for

fish, in-water work should be avoided during moratorium periods associated with migration, spawning and sensitive pre-adult life stages. The general moratorium period for anadromous fish is February 15 - June 30;

5. New bridges should be long enough to allow for sufficient wildlife passage along stream corridors;

6. Best Management Practices (BMP) for Protection of Surface Waters should be implemented;

7. Bridge designs should include provisions for roadbed and deck drainage to flow through a vegetated buffer prior to reaching the affected stream. This buffer should be large enough to alleviate any potential effects from run-off of storm water and pollutants;

8. The bridge designs should not alter the natural stream and stream-bank morphology or impede fish passage. To the extent possible, piers and bents should be placed outside the bank-full width of the stream;

9. Bridges and approaches should be designed to avoid any fill that will result in damming or constriction of the channel or flood plain. If spanning the flood plain is not feasible, culverts should be installed in the flood plain portion of the approach to restore some of the hydrological functions of the flood plain and reduce high velocities of flood waters within the affected area.

There are six federally threatened or endangered species listed for Columbus County: the shortnose sturgeon (*Acipenser brevirostrum*), American alligator (*Alligator mississippiensis*), Waccamaw silverside (*Menidia extensa*), red-cockaded woodpecker (*Picoides borealis*), rough-leaved loosestrife (*Lysimachia asperulaefolia*) and Cooley's meadowrue (*Thalictrum cooleyi*). Although the North Carolina Natural Heritage Program (NCNHP) database does not indicate any known occurrences of these species near the project vicinity, use of the NCNHP data should not be substituted for actual field surveys if suitable habitat occurs near the project site. The NCNHP database only indicates the presence of known occurrences of federally protected species and does not necessarily mean that such species are not present. It may simply mean that the area has not been surveyed. Information about the habitats in which these species are often found is provided on our web site, http://endangered.fws.gov/ . If suitable habitat occurs within the project vicinity for any of the listed species, surveys should be conducted to determine presence or absence of the species. All survey documentation must include survey methodologies and results.

We reserve the right to review any federal permits that may be required for this project, at the public notice stage. Therefore, it is important that resource agency coordination occur early in the planning process in order to resolve any conflicts that may arise and minimize delays in project implementation. In addition to the above guidance, we recommend that the environmental documentation for this project include the following in sufficient detail to facilitate a thorough review of the action:

1. A clearly defined and detailed purpose and need for the proposed project;

2. A description of the proposed action with an analysis of all alternatives being considered, including the "no action" alternative;

3. A description of the fish and wildlife resources, and their habitats, within the project impact area that may be directly or indirectly affected;

4. The extent and acreage of waters of the U.S., including wetlands, that are to be impacted by filling, dredging, clearing, ditching, or draining. Acres of wetland impact should be differentiated by habitat type based on the wetland classification scheme of the National Wetlands Inventory (NWI). Wetland boundaries should be determined by using the 1987 Corps of Engineers Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers;

5. The anticipated environmental impacts, both temporary and permanent, that would be likely to occur as a direct result of the proposed project. The assessment should also include the extent to which the proposed project would result in secondary impacts to natural resources, and how this and similar projects contribute to cumulative adverse effects;

6. Design features and construction techniques which would be employed to avoid or minimize the fragmentation or direct loss of wildlife habitat and waters of the US;

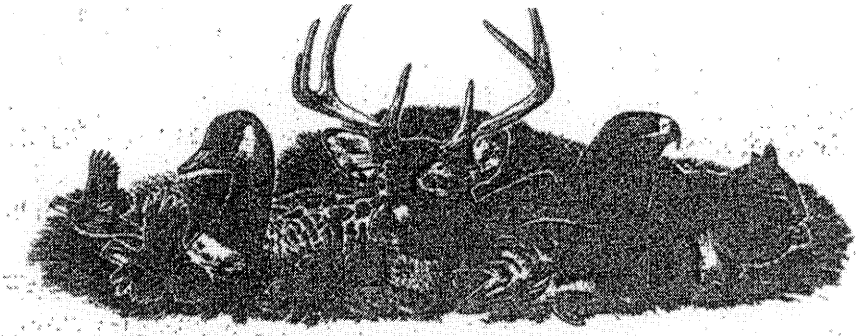
7. If unavoidable wetland impacts are proposed, project planning should include a detailed compensatory mitigation plan for offsetting the unavoidable impacts.

The Service appreciates the opportunity to comment on this project. Please continue to advise us during the progression of the planning process, including your official determination of the impacts of this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520, ext. 32.

Sincerely,

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

cc: Richard Spencer, USACE, Wilmington, NC
David Franklin, USACE, Wilmington, NC
Beth Barnes, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC



North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Vincent J. Rhea
Project Development and Environmental Analysis Branch, NCDOT

FROM: Travis Wilson, Highway Project Coordinator
Habitat Conservation Program

DATE: February 5, 2004

SUBJECT: NCDOT Bridge Replacements in Johnston, Moore, Montgomery, Brunswick, Bladen, Cumberland, Scotland, and Columbus counties. TIP Nos. B-4165, B-4207, B-4204, B-4030, B-4029, B-4092, B-4274, B-4080, and B-4078.

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.

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

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the steam underneath the bridge.

7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.

8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Hal Bain should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.

9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.

10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.

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

13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.

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

15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

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. B-4165, Johnston County, Bridge No. 89 over Sassarixa Swamp on SR 1162. We recommend replacing this bridge with a bridge. Standard recommendations apply.

2. B-4207, Moore County, Bridge No. 43 over McLendons Creek on NC 22-24-27. We recommend replacing this bridge with a bridge. McLendons Creek contains habitat suitable for the federally endangered Cape Fear shiner, a survey should be conducted to determine the presence or absence of this species. Standard recommendations apply.

3. B-4204, Montgomery County, Bridge No. 28 over Rock Creek on NC 109. We recommend replacing this bridge with a bridge. Standard recommendations apply.

4. B-4030, Brunswick County, Bridge No. 9 over Bear Branch on NC 103. We recommend replacing this bridge with a bridge. Standard recommendations apply.

5. B-4029, Bladen County, Bridge No. 8 over canal on NC 210. We recommend replacing this bridge with a bridge. Standard recommendations apply.

6. B-4092, Cumberland County, Bridge No. 80 over Little Rockfish Creek on SR 1108. We recommend replacing this bridge with a bridge. A significant fishery for sunfish exists at this site, therefore we request in in-water work moratorium for sunfish from April 1 to June 30. Standard recommendations apply.

7. B-4274, Scotland County, Bridge No. 14 over Big Shoe Heel Creek on NC 144. We recommend replacing this bridge with a bridge. A significant fishery for sunfish exists at this site, therefore we request in in-water work moratorium for sunfish from April 1 to June 30.. Standard recommendations apply.

8. B-4080, Columbus County, Bridge No. 148 over Pine Log Swamp on SR 1437. We recommend replacing this bridge with a bridge. Standard recommendations apply.

9. B-4078, Columbus County, Bridge No. 10 over Waccamaw River Overflow on NC 130. We recommend replacing this bridge with a bridge. Standard recommendations apply.

NCDOT should routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. Restoring previously disturbed floodplain benches should narrow and deepen streams previously widened and shallowed during initial bridge installation. NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks and reduce habitat fragmentation.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (919) 528-9886. Thank you for the opportunity to review and comment on these projects.

Cc: Gary Jordan, U.S. Fish and Wildlife Service, Raleigh

North Carolina Department of Cultural Resources
State Historic Preservation Office

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

Division of Historical Resources
David L. S. Brook, Director

March 2, 2004

MEMORANDUM

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

FROM: David Brook DBS for David Brook

SUBJECT: Bridge No. 10 over Waccamaw River Overlow, NC 130, B-4078, Columbus County, ER03-3638

Thank you for your letter of December 8, 2003, concerning the above project.

We are unable to comment on the potential effect of this project on historical/architectural resources until we receive further information. Please forward a United States Geological Survey (USGS) quadrangle for the appropriate location to us indicating the project limits and the Area of Potential Effects (APE).

If there are any structures on or immediately adjacent to the project area which appear to be more than fifty years old, please provide photographs of them, keyed to the map.

There are no known archaeological sites within the proposed project area. Based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for conclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

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

Thank you for your cooperation and consideration. If you have questions concerning the above comment, 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: Mary Pope Furr, NCDOT
Matt Wilkerson, NCDOT

North Carolina Department of Cultural Resources
State Historic Preservation Office

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

Division of Historical Resources
David L. S. Brook, Director

June 30, 2004

MEMORANDUM

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

FROM: David Brook RSE for David Brook

SUBJECT: NC 130, Bridge No. 10 over Waccamaw River Overflow, B-4078, Columbus County, ER03-3638

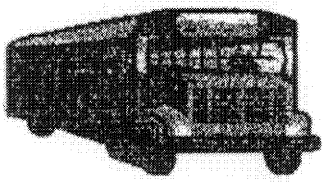
Thank you for your memorandum of May 6, 2004, concerning the above project.

We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed.

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

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

cc: Mary Pope Furr



Columbus County/Whiteville City School Bus Garage
1231 Chadbourn Hwy, Whiteville, NC 28472
Phone # (910) 642-2586 Fax # (910) 641-0875

To: Dr. J. David Edwards, Ph.D., Section Chief
School Planning, Department of Public Instruction

From: Jimmie Hewett, Director of Transportation

Date: December 19, 2003

Re: Information on Replacement of Bridge # 148 & 10.

Bridge No 148 on SR 1437 over Pine Log Swamp: This bridge is in the Whiteville City School District and based on the information we received for the 2003-2004 school year there are four buses that cross this bridge. They each cross twice, once in the morning and once in the afternoon. This replacement would be handled by rerouting the buses.

Bridge No. 10 on NC 130 over Waccamaw River Overflow: This bridge is in the Old Dock Elementary and South Columbus High School Districts. Based on the information we received for the 2003-2004 school year, there are two buses that cross this bridge for a total of four times daily. They both cross once in the morning and once in the afternoon. In this case the students will have to walk or have their parents transport them to the closest turnaround or intersection. There is no alternate route.

I hope this information is helpful to you. If you have any questions, please give me a call.

klg