



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 23, 2009

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

Mr. Stephen Lane
N. C. Dept. of Env. and Natural Resources
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

Dear Sirs:

Subject: **Application for Nationwide Permits 12, 23, & 33, & CAMA Major Development Permit Request** for the Replacement of Bridge No. 9 over Bear Branch on NC 130 in Brunswick County; TIP Project B-4030; Federal Aid Project No. BRSTP-130(3); State Project No.8.1231801; Debit \$400.00 from WBS 33397.1.1.

Please find enclosed PCN, permit drawings, roadway plans, landowner receipts, a copy of the state stormwater permit, EEP acceptance letter, and CAMA MP forms 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 18, 2006, and distributed shortly thereafter. Additional copies are available upon request. The NCDOT proposes to replace existing Bridge No. 9 over Bear Branch on NC 130 in Brunswick County. The project involves replacement of the existing functionally obsolete and structurally deficient 41.25-foot bridge and approaches with a new 120-foot bridge and approaches. The new bridge will feature two 12-foot lanes with a 7.5-foot offsets. The west approach will be approximately 420 feet long and the east approach will be approximately 310 feet long. Proposed permanent impacts are 0.43 acre of riparian wetland impacts for fill, excavation, and mechanized clearing. Traffic will be detoured on-site during construction.

Regulatory Approvals

Section 404 Permit: All 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 Permit 23. We are also requesting the issuance of a Nationwide Permit 33 for the temporary fill due to the installation of an on-site detour bridge. (72 CFR; 11092-11198, March 12, 2007).

Section 401 Permit: We anticipate 401 General Certification numbers 3699, 3701, and 3688 will apply to this project. The NCDOT will adhere to all standard conditions of the aforementioned certifications, and therefore is requesting written concurrence from the North Carolina Department of Environmental and Natural Resources, Division of Water Quality. Therefore, in accordance with 15A NCAC 2H, Section

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

.0500(a), we are providing five copies of this application to the NCDWQ for their review and approval. Authorization to debit the \$400 Permit Application Fee from WBS Element 33397.1.1 is hereby given.

CAMA Permit: NCDOT requests that the proposed work be authorized under a Coastal Area Management Act Major Development Permit. The landowner receipts are attached. NCDOT has received a stormwater permit for this project.

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 (5 copies)
Mr. Steve Sollod, NCDCM

W/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Ms. Anne Deaton, NCDMF
Mr. Vince Rhea, P.E., Planning Engineer
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. H. Allen Pope, P.E., Division 3 Engineer
Mr. Mason Herndon, Division 3 Environmental Officer
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT External Audit Branch

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:

<input checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Riparian or Watershed Buffer Rules
<input type="checkbox"/> Section 10 Permit	<input type="checkbox"/> Isolated Wetland Permit from DWQ
<input checked="" type="checkbox"/> 401 Water Quality Certification	<input type="checkbox"/> Express 401 Water Quality Certification
2. Nationwide, Regional or General Permit Number(s) Requested: 12, 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: Bridge 9 on NC 130 over Bear Branch
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4030
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Brunswick Nearest Town: Ash
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers/names, landmarks, etc.): Take NC 130 north out of Ash and Bridge 9 is the last crossing before the Waccamaw River
5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
Decimal Degrees (6 digits minimum): 78 32' 38" °N 34 04' 41" °W
6. Property size (acres): N/A
7. Name of nearest receiving body of water: Waccamaw River (C;SW; SIN 15-(1))
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: Mostly forested wetland and agriculture with a small amount of residential

10. Describe the overall project in detail, including the type of equipment to be used: NCDOT will be replacing bridge 9 in place with a longer, wider and safer bridge. The approaches will be widened and resurfaced and lengthened. An on-site detour will be utilized. Common road building and bridge 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. State Stormwater Permit # SW8 080713 issued 7/18/08. There is also a jurisdictional determination being considered by the USACE.

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: For the new bridge there will be 0.21 acre of permanent fill, 0.08 acre of excavation, and 0.11 acre of mechanized clearing to riparian wetlands for the new bridge. There will be 0.05 acre of mechanized clearing in riparian wetlands for the detour bridge and 0.33 acre of temporary fill in riparian wetlands.
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	permanent fill	forested wetland	yes	0	0.21
Bridge	excavation	forested wetland	yes	0	0.08
Bridge	mechanized clearing	forested wetland	yes	0	0.11
Detour Bridge	mechanized clearing	forested wetland	yes	0	0.05
Detour Bridge	temporary fill	forested wetland	yes	0	0.33
Total Wetland Impact (acres)					0.78

3. List the total acreage (estimated) of all existing wetlands on the property: ~ 2 acres
4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
3	Bear Branch		P			
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):	0.78
Open Water Impact (acres):	0.0
Total Impact to Waters of the U.S. (acres)	0.78
Total Stream Impact (linear feet):	

7. Isolated Waters

Do any isolated waters exist on the property? ☐ Yes ☒ No

Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

8. Pond Creation

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

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

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

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

Current land use in the vicinity of the pond:

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

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. 3:1 slopes were used in jurisdictional areas. The bridge will be lengthened from 41.25' to 120'. Bents were eliminated. Top-down construction will be used.

VIII. Mitigation

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

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

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

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

N/A

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

Amount of stream mitigation requested (linear feet): N/A

Amount of buffer mitigation requested (square feet): N/A
 Amount of Riparian wetland mitigation requested (acres): 0.45
 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. _____
- _____
- _____

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. A stormwater permit is included with this package.

XII. Sewage Disposal (required by DWQ)

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

N/A

XIII. Violations (required by DWQ)

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

Yes ☐ No ☒

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

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒

If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at <http://h2o.enr.state.nc.us/ncwetlands>. If no, please provide a short narrative description: _____

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).

Brunswick County has the following species listed by the US Fish and Wildlife Service as of 1/31/08: Eastern cougar (E), West Indian manatee (E), Piping plover (T), Wood stork (E), Red-cockaded woodpecker (E), American alligator (T S/A), Loggerhead turtle (T), Green turtle (T), Leatherback turtle (E), Kemp's ridley sea turtle (E), Shortnose sturgeon (E), Seabeach amaranth(T), Rough-leaved loosestrife (E), & Cooley's meadowrue (E). Each biological conclusion is "No Effect". The Bald eagle is protected under the Bald & Golden Eagle Protection Act. There is no habitat within 660 feet of the study area.



Applicant/Agent's Signature

1-21-09

Date

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

APPLICATION for Major Development Permit

(last revised 12/27/06)



North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information

Business Name North Carolina Department Of Transportation		Project Name (if applicable) B-4030	
Applicant 1: First Name Gregory	MI J.	Last Name Thorpe	
Applicant 2: First Name	MI	Last Name	
<i>If additional applicants, please attach an additional page(s) with names listed.</i>			
Mailing Address 1598 Mail Service Center		PO Box	City Raleigh
		State NC	
ZIP 27699	Country USA	Phone No. 919 - 715 - 1334 ext.	FAX No. 919 - 715 - 5501
Street Address (if different from above)		City	State
		ZIP -	
Email			

2. Agent/Contractor Information

Business Name			
Agent/ Contractor 1: First Name	MI	Last Name	
Agent/ Contractor 2: First Name	MI	Last Name	
Mailing Address		PO Box	City
		State	
ZIP		Phone No. 1 - - ext.	Phone No. 2 - - ext.
FAX No.	Contractor #		
Street Address (if different from above)		City	State
		ZIP -	
Email			

<Form continues on back>

3. Project Location

County (can be multiple) Brunswick		Street Address Bridge No. 9		State Rd. # NC 130
Subdivision Name N/a		City	State	Zip -
Phone No. N/A - - ext.		Lot No.(s) (if many, attach additional page with list) N/A, , , ,		
a. In which NC river basin is the project located? Waccamaw		b. Name of body of water nearest to proposed project Bear Branch		
c. Is the water body identified in (b) above, natural or manmade? <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Manmade <input type="checkbox"/> Unknown		d. Name the closest major water body to the proposed project site. Bear Branch		
e. Is proposed work within city limits or planning jurisdiction? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		f. If applicable, list the planning jurisdiction or city limit the proposed work falls within.		

4. Site Description

a. Total length of shoreline on the tract (ft.) 323 ft.	b. Size of entire tract (sq.ft.) 152,740 (3.5 Acres)
c. Size of individual lot(s) N/A, (If many lot sizes, please attach additional page with a list)	d. Approximate elevation of tract above NHW (normal high water) or NWL (normal water level) Elev.=33 ft <input type="checkbox"/> NHW or <input checked="" type="checkbox"/> NWL
e. Vegetation on tract Within the existing right of way: trumpet vine, virginia creeper, goldenrod, red maple seedlings, ragweed, pokeweed, dog fennel, grasses and clover. Within the wetland areas: red maple, black gum, sweet gum, green ash, laurel oak, giant cane, netted chain fern, and green briar. Within the Mesic Mixed Hardwood, red maple, black gum, American holly, sweet gum, laurel oak, sweet bay, green ash, netted chain fern, possum haw and green briar.	
f. Man-made features and uses now on tract NC 130, two-lane paved roadway	
g. Identify and describe the existing land uses <u>adjacent</u> to the proposed project site. Wooded wetlands	
h. How does local government zone the tract? NCDOT Right of Way	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
j. Is the proposed activity part of an urban waterfront redevelopment proposal? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA If yes, by whom?	
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	

<Form continues on next page>

m. (i) Are there wetlands on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
(ii) Are there coastal wetlands on the site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? (Attach documentation, if available)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

n. Describe existing wastewater treatment facilities.

N/A

o. Describe existing drinking water supply source.

N/A

p. Describe existing storm water management or treatment systems.

None

5. Activities and Impacts

a. Will the project be for commercial, public, or private use?

☐ Commercial ☒ Public/Government☐ Private/Community

b. Give a brief description of purpose, use, and daily operations of the project when complete.

The NCDOT Bridge Maintenance Unit records indicate the existing bridge has a sufficiency rating of 4.0 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.

c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored.

Typical highway construction equipment such as cranes, paving machines and motor graders will be used to construct the new bridge and approach roadway. All equipment will be stored within the highway right of way and outside any environmentally sensitive areas.

d. List all development activities you propose.

Replace Bridge No. 9 over Bear branch on NC 130

e. Are the proposed activities maintenance of an existing project, new work, or both?

Replacement of existing bridge

f. What is the approximate total disturbed land area resulting from the proposed project?

3.5

☐ Sq.Ft or ☒ Acres

g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?

☒ Yes ☐ No ☐ NA

h. Describe location and type of existing and proposed discharges to waters of the state.

A roadside ditch currently exists along the left side of the roadway from Sta. 17+15 -L- to beyond the end of the project. This ditch will be replaced with a grass swale constructed at the same elevation as the existing ditch. One grated inlet is proposed at the end of the bridge which will drain into the swale before entering Bear Branch.

i. Will wastewater or stormwater be discharged into a wetland?

☒ Yes ☐ No ☐ NA

If yes, will this discharged water be of the same salinity as the receiving water?

☒ Yes ☐ No ☐ NA

j. Is there any mitigation proposed?

☒ Yes ☐ No ☐ NA

If yes, attach a mitigation proposal.

<Form continues on back>

6. Additional Information

In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.

a. A project narrative.

b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.

c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.
e. The appropriate application fee. Check or money order made payable to DENR.
f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management. Name See Attached Sheet Phone No. Address Name Phone No. Address Name Phone No. Address
g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates. State stormwater permit # SW8 080713
h. Signed consultant or agent authorization form, if applicable.
i. Wetland delineation, if necessary.
j. A signed AEC hazard notice for projects in oceanfront and inlet areas. <i>(Must be signed by property owner)</i>
k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date 1-21-09 Print Name E. L. Lusk
Signature E. L. Lusk

Please indicate application attachments pertaining to your proposed project.

- ☒ DCM MP-2 Excavation and Fill Information ☒ DCM MP-5 Bridges and Culverts
☐ DCM MP-3 Upland Development
☐ DCM MP-4 Structures Information

EXCAVATION and FILL**(Except for bridges and culverts)**

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

Describe below the purpose of proposed excavation and/or fill activities. **All values should be given in feet.**

	Access Channel (NLW or NWL)	Canal	Boat Basin	Boat Ramp	Rock Groin	Rock Breakwater	Other (excluding shoreline stabilization)
Length	25						
Width	7						
Avg. Existing Depth	4.5				NA	NA	
Final Project Depth	4.5				NA	NA	

1. EXCAVATION☐ This section not applicable

- a. Amount of material to be excavated from below NHW or NWL in cubic yards.
15
- b. Type of material to be excavated.
Native Soil
- c. (i) Does the area to be excavated include coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐ CW ☐ SAV ☐ SB ☒ WL 6000 ☐ None
(ii) Describe the purpose of the excavation in these areas:
excavation required to replace an existing ditch
- d. High-ground excavation in cubic yards.
520

2. DISPOSAL OF EXCAVATED MATERIAL☐ This section not applicable

- a. Location of disposal area.
Per Division/Contractor after Let
- b. Dimensions of disposal area.
- c. (i) Do you claim title to disposal area?
☐ Yes ☐ No ☒ NA
(ii) If no, attach a letter granting permission from the owner.
- d. (i) Will a disposal area be available for future maintenance?
☐ Yes ☐ No ☐ NA
(ii) If yes, where?
- e. (i) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐ CW ☐ SAV ☐ SB ☐ WL ☐ None
(ii) Describe the purpose of disposal in these areas:
- f. (i) Does the disposal include any area in the water?
☐ Yes ☐ No ☐ NA
(ii) If yes, how much water area is affected?

3. SHORELINE STABILIZATION☒ This section not applicable

(If development is a wood groin, use MP-4 – Structures)

Form DCM MP-2 (Excavation and Fill, Page 2 of 2)

- a. Type of shoreline stabilization:
☐ Bulkhead ☒ Riprap ☐ Breakwater/Sill ☐ Other: _____
- b. Length: _____
Width: _____
- c. Average distance waterward of NHW or NWL: _____
- d. Maximum distance waterward of NHW or NWL: _____
- e. Type of stabilization material:
Class I riprap
- f. (i) Has there been shoreline erosion during preceding 12 months?
☐ Yes ☒ No ☐ NA
(ii) If yes, state amount of erosion and source of erosion amount information.
- g. Number of square feet of fill to be placed below water level.
Bulkhead backfill _____ Riprap _____
Breakwater/Sill _____ Other _____
- h. Type of fill material.
Class I riprap
- i. Source of fill material.
Per contractor

4. OTHER FILL ACTIVITIES

(Excluding Shoreline Stabilization)

☒ This section not applicable

- a. (i) Will fill material be brought to the site? ☐ Yes ☐ No ☐ NA
If yes,
(ii) Amount of material to be placed in the water _____
(iii) Dimensions of fill area _____
(iv) Purpose of fill _____
- b. (i) Will fill material be placed in coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐ CW _____ ☐ SAV _____ ☐ SB _____
☐ WL _____ ☐ None _____
(ii) Describe the purpose of the fill in these areas: _____

5. GENERAL

- a. How will excavated or fill material be kept on site and erosion controlled?
Per standard erosion control practices (ie silt fence, ditch checks, and/or check dams)
- b. What type of construction equipment will be used (e.g., dragline, backhoe, or hydraulic dredge)?
- c. (i) Will navigational aids be required as a result of the project?
☐ Yes ☒ No ☐ NA
(ii) If yes, explain what type and how they will be implemented.
- d. (i) Will wetlands be crossed in transporting equipment to project site? ☐ Yes ☒ No ☐ NA
(ii) If yes, explain steps that will be taken to avoid or minimize environmental impacts.

Applicant Signature

Date

B-4030

Project Name

North Carolina Department of Transportation

Applicant Name

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES☐ This section not applicable

- a. Is the proposed bridge:
☐ Commercial ☒ Public/Government ☐ Private/Community
- b. Water body to be crossed by bridge:
 Bear Branch
- c. Type of bridge (construction material):
 Cored Slab
- d. Water depth at the proposed crossing at NLW or NWL:
 6.7 ft
- e. (i) Will proposed bridge replace an existing bridge? ☒ Yes ☐ No
 If yes,
 (ii) Length of existing bridge: 41 ft
 (iii) Width of existing bridge: 31 ft
 (iv) Navigation clearance underneath existing bridge: 5.6 ft
 (v) Will all, or a part of, the existing bridge be removed?
 (Explain) All of the existing bridge will be removed
- f. (i) Will proposed bridge replace an existing culvert? ☐ Yes ☒ No
 If yes,
 (ii) Length of existing culvert: _____
 (iii) Width of existing culvert: _____
 (iv) Height of the top of the existing culvert above the NHW or NWL: _____
 (v) Will all, or a part of, the existing culvert be removed?
 (Explain)
- g. Length of proposed bridge: 120 ft
- h. Width of proposed bridge: 40 ft
- i. Will the proposed bridge affect existing water flow? ☐ Yes ☒ No
 If yes, explain:
- j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☒ Yes ☐ No
 If yes, explain: Increase by removing existing bent.
- k. Navigation clearance underneath proposed bridge: 5.6 ft
- l. Have you contacted the U.S. Coast Guard concerning their approval? ☐ Yes ☒ No
 If yes, explain:
- m. Will the proposed bridge cross wetlands containing no navigable waters? ☐ Yes ☒ No
 If yes, explain:
- n. Height of proposed bridge above wetlands: 5 ft

2. CULVERTS☒ This section not applicable

- a. Number of culverts proposed: _____
- b. Water body in which the culvert is to be placed:

< Form continues on back >

- c. Type of culvert (construction material):

Form DCM MP-5 (Bridges and Culverts, Page 2 of 4)

d. (i) Will proposed culvert replace an existing bridge?

☐ Yes ☐ No

If yes,

(ii) Length of existing bridge: _____

(iii) Width of existing bridge: _____

(iv) Navigation clearance underneath existing bridge: _____

(v) Will all, or a part of, the existing bridge be removed?
(Explain)

f. Length of proposed culvert: _____

h. Height of the top of the proposed culvert above the NHW or NWL.

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐ Yes ☐ No

If yes, explain:

e. (i) Will proposed culvert replace an existing culvert?

☐ Yes ☐ No

If yes,

(ii) Length of existing culvert(s): _____

(iii) Width of existing culvert(s): _____

(iv) Height of the top of the existing culvert above the NHW or NWL: _____

(v) Will all, or a part of, the existing culvert be removed?
(Explain)

g. Width of proposed culvert: _____

i. Depth of culvert to be buried below existing bottom contour.

k. Will the proposed culvert affect existing water flow?

☐ Yes ☐ No

If yes, explain:

3. EXCAVATION and FILL

☐ This section not applicable

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☐ Yes ☒ No

If yes,

(ii) Avg. length of area to be excavated: _____

(iii) Avg. width of area to be excavated: _____

(iv) Avg. depth of area to be excavated: _____

(v) Amount of material to be excavated in cubic yards: _____

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐ CW _____ ☐ SAV _____ ☐ SB _____

☐ WL _____ ☒ None

(ii) Describe the purpose of the excavation in these areas:

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☒ Yes ☐ No

If yes,

(ii) Avg. length of area to be excavated: 58.5 ft

(iii) Avg. width of area to be excavated: 60 ft

(iv) Avg. depth of area to be excavated: 4.0 ft

(v) Amount of material to be excavated in cubic yards: 520

Form DCM MP-5 (Bridges and Culverts, Page 3 of 4)

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: _____

(ii) Dimensions of the spoil disposal area: _____

(iii) Do you claim title to the disposal area? ☐ Yes ☐ No (If no, attach a letter granting permission from the owner.)

(iv) Will the disposal area be available for future maintenance? ☐ Yes ☐ No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐ CW ☐ SAV ☐ WL ☐ SB ☐ None

If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ☐ Yes ☐ No

If yes, give dimensions if different from (ii) above.

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d above) to be placed below NHW or NWL? ☐ Yes ☒ No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill: _____

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐ CW _____ ☐ SAV _____ ☐ SB _____

☐ WL _____ ☒ None

(ii) Describe the purpose of the excavation in these areas:

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d above) to be placed on high-ground? ☒ Yes ☐ No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill: Temporary on-site detour

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☐ Yes ☒ No

If yes, explain:

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

b. Will the proposed project require the construction of any temporary detour structures? ☒ Yes ☐ No

If yes, explain: Temporary on-site detour bridge

< Form continues on back >

c. Will the proposed project require any work channels?

☐ Yes ☒ No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

This will be left to the discretion of the contractor and/or Division

Form DCM MP-5 (Bridges and Culverts, Page 4 of 4)

- e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Cranes, backhoe, trucks

- f. Will wetlands be crossed in transporting equipment to project site?

☒ Yes ☐ No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

impacts limited to 5 ft. beyond footprint.

- g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☒ Yes ☐ No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

Date

1-21-09

Project Name

B-4030

Applicant Name

NCDOT

Applicant Signature

E. L. Lucke



December 16, 2008

Ms. Jennifer Frye
U. S. Army Corps of Engineers
Wilmington Regulatory Field Office
Post Office Box 1890
Wilmington, North Carolina 28402-1890

Dear Ms. Frye:

Subject: EEP Mitigation Acceptance Letter:

**B-4030, Replace Bridge Number 9 over Bear Branch on NC 130;
Lumber River Basin (Cataloging Unit 03040206); Southern Outer
Coastal Plain (SOCP) Eco-Region**

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the riparian wetland compensatory mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request dated December 15, 2008, riparian wetland mitigation from EEP is required for 0.45 acre of riparian wetland impacts.

Mitigation associated with this project will be provided in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers fully executed on March 8, 2007 (Tri-Party MOA). EEP commits to implement sufficient riparian wetland mitigation up to 0.90 riparian wetland credits to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

A handwritten signature in black ink that reads "James B. Stanfill Jr" in a cursive script.

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: B-4030

Restoring... Enhancing... Protecting Our State

North Carolina Ecosystem Enhancement Program, 1652 Mail Service Center, Raleigh, NC 27699-1652 / 919-715-0476 / www.nceep.net





December 16, 2008

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

**B-4030, Replace Bridge Number 9 over Bear Branch on NC 130,
Brunswick County**

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the riparian wetland mitigation for the subject project. Based on the information supplied by you dated December 15, 2008, the impacts are located in CU 03040206 of the Lumber River Basin in the Southern Outer Coastal Plain (SOCP) Eco-Region, and are as follows:

Riparian Wetland: 0.45 acre

EEP commits to implementing sufficient compensatory riparian wetland mitigation credits to offset the impacts associated with this project by the end of the MOA Year in which this project is permitted, in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, fully executed on March 8, 2007. If the above referenced wetland impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

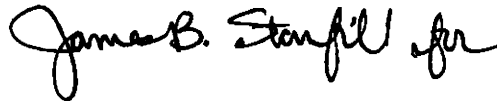
Restoring... Enhancing... Protecting Our State

North Carolina Ecosystem Enhancement Program, 1652 Mail Service Center, Raleigh, NC 27699-1652 / 919-715-0476 / www.nceep.net



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

Sincerely,

A handwritten signature in black ink, appearing to read "James B. Stanfil for".

William D. Gilmore, P.E.
EEP Director

cc: Ms. Jennifer Frye, USACE – Wilmington Regulatory Field Office
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: B-4030



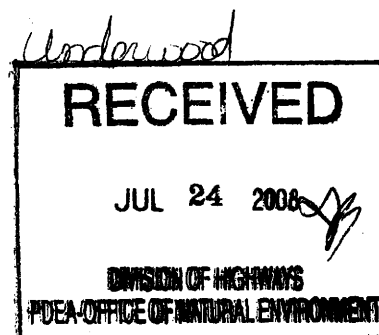
Michael F. Easley, Governor

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

Coleen H. Sullins Director
Division of Water Quality

July 18, 2008

Gregory J. Thorpe, Director
PDEA Unit
1548 Mail Service Center
Raleigh, NC 27699-1548



**Subject: Permit No. SW8 080713
B-4030 Bridge No. 9 over Bear Branch on NC 130
NDDOT Project Number: 33397.1.1
Other Stormwater Permit
Linear Public Road / Bridge Project
Brunswick County**

Dear Mr. Thorpe:

The Wilmington Regional Office received a complete Stormwater Management Permit Application for B-4030 Bridge No. 9 over Bear Branch on NC 130 on July 3, 2008. Staff review of the plans and specifications has determined that the project, as proposed, will comply with the Stormwater Regulations set forth in Title 15A NCAC 2H .1000. We are forwarding Permit No. SW8 080713 dated July 18, 2008, for the construction of the subject project.

This permit shall be effective from the date of issuance until rescinded and shall be subject to the conditions and limitations as specified therein.

If any parts, requirements, or limitations contained in this permit are unacceptable, you have the right to request an adjudicatory hearing upon written request within Sixty (60) days following receipt of this permit. This request must be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, P.O. Drawer 27447, Raleigh, NC 27611-7447. Unless such demands are made this permit shall be final and binding.

If you have any questions, or need additional information concerning this matter, please contact either me or Rhonda Hall at (910) 796-7215.

Sincerely,

Edward Beck
Regional Supervisor
Surface Water Protection Section

ENB/rbh: S:\WQS\STORMWATER\PERMIT\080713.jul08
cc: David L. Thomas, P.E., NCDOT
Brunswick County Building Inspections
Rhonda Hall
Wilmington Regional Office
Central Files

One
North Carolina
Naturally

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WATER QUALITY
STATE STORMWATER MANAGEMENT PERMIT
OTHER PERMIT

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations

PERMISSION IS HEREBY GRANTED TO

NCDOT

B-4030 Bridge No. 9 over Bear Branch on NC 130

NC 130, Brunswick County

FOR THE

construction of a public road / bridge in compliance with the provisions of 15A NCAC 2H .1000 (hereafter referred to as the "*stormwater rules*") and the approved stormwater management plans and specifications, and other supporting data as attached and on file with and approved by the Division of Water Quality and considered a part of this permit.

The Permit shall be effective from the date of issuance until rescinded and shall be subject to the following specific conditions and limitations:

I. DESIGN STANDARDS

1. The runoff from the impervious surfaces has been directed away from surface waters as much as possible.
2. The amount of built-upon area has been minimized as much as possible.
3. Best Management Practices are employed which minimize water quality impacts.
4. Approved plans and specifications for projects covered by this permit are incorporated by reference and are enforceable parts of the permit.
5. Vegetated roadside ditches are 3:1 slopes or flatter.

II. SCHEDULE OF COMPLIANCE

1. The permittee shall at all times provide adequate erosion control measures in conformance with the approved Erosion Control Plan.
2. The Director may notify the permittee when the permitted site does not meet one or more of the minimum requirements of the permit. Within the time frame specified in the notice, the permittee shall submit a written time schedule to the Director for modifying the site to meet minimum requirements. The permittee shall provide copies of revised plans and certification in writing to the Director that the changes have been made.
3. The permittee shall submit all information requested by the Director or his representative within the time frame specified in the written information request.

4. The permittee shall submit to the Director and shall have received approval for revised plans, specifications, and calculations prior to construction for the following items:
 - a. Major revisions to the approved plans, such as road realignment, deletion of any proposed BMP, changes to the drainage area or scope of the project, etc.
 - b. Project name change.
 - c. Redesign of, addition to, or deletion of the approved amount of built-upon area, regardless of size.
 - d. Alteration of the proposed drainage.
5. The Director may determine that other revisions to the project should require a modification to the permit.

III. GENERAL CONDITIONS

1. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to an enforcement action by the Division of Water Quality, in accordance with North Carolina General Statutes 143-215.6A to 143-215.6C.
2. The permit issued shall continue in force and effect until revoked or terminated.
3. The permit may be modified, revoked and reissued or terminated for cause. The filing of a request for a permit modification, revocation and reissuance, or termination does not stay any permit condition.
4. The issuance of this permit does not prohibit the Director from reopening and modifying the permit, revoking and reissuing the permit, or terminating the permit as allowed by the laws, rules, and regulations contained in Title 15A of the North Carolina Administrative Code, Subchapter 2H.1000; and North Carolina General Statute 143-215.1 et. al.
5. The permit is not transferable to any person except after notice to and approval by the Director. The Director may require modification or revocation and reissuance of the permit to change the name and incorporate such other requirements as may be necessary. A formal permit request must be submitted to the Division of Water Quality accompanied by the appropriate fee, documentation from both parties involved, and other supporting materials as may be appropriate. The approval of this request will be considered on its merits, and may or may not be approved. The permittee is responsible for compliance with the terms and conditions of this permit until such time as the Director approves the transfer.
6. The issuance of this permit does not preclude the Permittee from complying with any and all statutes, rules, regulations, or ordinances which may be imposed by other government agencies (local, state and federal) which have jurisdiction.
7. The permittee shall notify the Division of any name, ownership or mailing address changes within 30 days.

Permit issued this, the 18th day of July, 2008

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION



for Coleen H. Sullins, Director

Division of Water Quality

By Authority of the Environmental Management Commission

OFFICE USE ONLY		
Date Received	Fee Paid	Permit Number
7-3-00	505.00 ELECTIONIC DEBIT TRANSFER	508080713

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

STORMWATER MANAGEMENT PERMIT APPLICATION FORM

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
LINEAR ROADWAY PROJECT

This form may be photocopied for use as an original.

DWQ Stormwater Management Plan Review:

A complete stormwater management plan submittal includes this application form, a supplement form for each BMP proposed (see Section V), design calculations, and plans and specifications showing all road and BMP details.

I. PROJECT INFORMATION

NCDOT Project Number: 33397.1.1 County: Brunswick

Project Name: B-4030 Bridge No. 9 over Bear Branch on NC 130

Project Location: NC 130 in Brunswick County

Contact Person: NCDOT Phone: (919) 250-4100 Fax: (919) 250-4108

Receiving Stream Name: Bear Branch River Basin: Waccamaw LBR57 Class: C SWP (15-117)

Proposed linear feet of project: 1500 feet

Proposed Structural BMP and Road Station (attach a list of station and BMP type if more room is needed):

Grass Swale 17+15 to 20+50 -L- LT

Type of proposed project: (check all that apply):

☐ New ☐ Widening ☐ 2 lane* ☐ 4 lane* ☐ Curb and Gutter ☒ Bridge Replacement

☐ Other (Describe) _____

*2 lane and 4 lane imply that roadside ditches are used unless Curb and Gutter is also checked.

II. REQUIRED ITEMS CHECKLIST

Initial in the space provided below to indicate the following design requirements have been met and supporting documentation is attached. Supporting documentation shall, at a minimum, consist of a brief narrative description including (1) the scope of the project, (2) how the items below are met, (3) how the proposed best management practices minimize water quality impacts, and (4) any significant constraints and/or justification for not meeting a, b, c and d to the maximum extent practicable.

Designer's Initials

- JS a. The amount of impervious surface has been minimized as much as possible.
- JS b. The runoff from the impervious areas has been diverted away from surface waters as much as possible.
- JS c. Best Management Practices are employed which minimize water quality impacts.
- JS d. Vegetated roadside ditches are 3:1 slope or flatter.

III. OPERATION AND MAINTENANCE AGREEMENT

I acknowledge and agree by my initials below that the North Carolina Department of Transportation is responsible for the implementation of the four maintenance items listed. I agree to notify DWQ of any operational problems with the BMP's that would impact water quality or prior to making any changes to the system or responsible party.

Maintenance Engineer's Initials

- DT a. BMP's shall be inspected and maintained in good working order.
DT b. Eroded areas shall be repaired and reseeded as needed.
DT c. Stormwater collection systems, including piping, inlets, and outlets, shall be maintained to insure proper functioning.

Maintenance Engineer's Name: DAVID L. THOMAS, P.E.
Title: DIVISION MAINTENANCE ENGINEER

IV. APPLICATION CERTIFICATION

I, (print or type name) Phil Harris of PDEA-NEU Branch, certify that the information included on this permit application form is, to the best of my knowledge, correct and that the project will be constructed in conformance with the approved plans and that the proposed project complies with the requirements of 15A NCAC 2H .1000.

Title: NEU UNIT HEAD
Address: 1548 Mail Service Center
Signature: Phil Harris Date: 6/23/08

V. SUPPLEMENT FORMS

The applicable state stormwater management permit supplement form(s) listed below must be submitted for each BMP specified for this project. Contact the Stormwater and General Permits Unit at (919) 733-5083 for the status and availability of these forms.

Form SWU-102	Wet Detention Basin Supplement
Form SWU-103	Infiltration Basin Supplement
Form SWU-104	Low Density Supplement
Form SWU-105	Curb Outlet System Supplement
Form SWU-106	Off-Site System Supplement
Form SWU-107	Underground Infiltration Trench Supplement
Form SWU-108	Neuse River Basin Supplement
Form SWU-109	Innovative Best Management Practice Supplement
Form SWU-110	Extended Dry Detention Basin Supplement

State Project No. 33397.1.1
TIP Project No. B-4030
Brunswick County, NC
Replacement of Bridge No. 9 over Bear Branch on NC 130

STORMWATER MANAGEMENT PLAN

Prepared by:
Sungate Design Group, PA
915 Jones Franklin Road
Raleigh, NC 27606

PROJECT INVOLVEMENT

The proposed project is 1500 feet (0.284 miles) in length and will replace bridge number 9 over Bear Branch on NC 130 in Brunswick County. The existing two span, 41 foot bridge will be replaced with a three span, 120 foot bridge in the existing location. NC 130 will be a two lane facility with a two foot paved shoulder and six foot grass shoulder. An on-site detour is required to maintain traffic during construction. An 85 foot bridge will be utilized for the temporary detour structure.

A review of the Environmental Assessment and Environmental Sensitivity Maps indicates that the project is not located in Water Supply Watershed.

BEST MANAGEMENT PRACTICES (BMPs)

The project is located in Brunswick County and is entirely within the drainage basin of the Waccamaw River. Brunswick County is listed as one of 20 coastal counties protected by the Coastal Area Management Act (CAMA). This classification requires that stormwater runoff be diverted away from surface waters and treated to the maximum extent practicable.

A grass swale will be utilized from station 17+15 to 20+50 along the left side of the roadway. This swale will direct roadway runoff to Bear Branch. The swale is located in a wetland; however, a roadway ditch currently exists in this same area. The proposed swale is set at an elevation that matches the existing ditch and is on a 0% grade.

No deck drains are proposed on the bridge thereby avoiding any direct discharge of stormwater into Bear Branch.

DESIGN DETAILS

Design detail for the grass swale is shown on the Roadway Design plans.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 23, 2009

Ross Jewel
745 Holly Hills Rd.
Sylva, NC 28779

Dear Landowner:

The North Carolina Department of Transportation is planning to replace bridge number 9 on NC 130 over Bear Branch in Brunswick County. The project will replace the existing bridge with a 120-foot long bridge. The additional length will allow for the replacement of a substandard structure as well as improve the existing floodplain. This project crosses an Area of Environmental Concern, as defined by the North Carolina Division of Coastal Management (DCM), and must be approved by the DCM under provisions of the Coastal Area Management Act (CAMA). One of the prerequisites to this approval is that adjacent riparian landowners be given an opportunity to comment on the proposal. A permit application, vicinity map and site drawings are enclosed for your review.

The attached form is submitted to ensure that you have an opportunity to comment on the proposal. The work planned is depicted in the attached drawing. If you have no objections to the proposal, please return the form with your response within 30 days to this office. If you do have objections to the project, please forward your comments to:

Mr. Stephen Lane
N.C. Division of Coastal Management
400 Commerce Ave.
Morehead City, NC 28557

Thank you for your cooperation.

Sincerely,

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

Enclosures

cc: Stephen Lane, NCDCM
Vince Rhea, PE, NCDOT
File B-4030

ADJACENT RIPARIAN LANDOWNER STATEMENT

(Brunswick County: Replace Bridge No. 9 over Bear Branch; TIP B-4030)

General Statutes and Division of Coastal Management Major Development Permit approval procedures require that riparian landowners with property adjoining a proposed development in an Area of Environmental Concern (AEC) be given thirty (30) days in which to comment on the proposed development. This form allows the adjacent riparian landowner to express either: (1) that he objects to the project; or, (2) that he does not object and desires to waive his/her right to the 30-day period so that the processing of the application can progress more rapidly. Of course, the adjacent riparian landowner need not sign this form at all if he/she so chooses.

I, _____, am an adjacent riparian property owner and am aware of the North Carolina Department of Transportation's plans for replacing bridge number 9 over Bear Branch in Brunswick County, North Carolina. I am further aware that this work will occur in one or more Areas of Environmental Concern and therefore will require authorization from the Division of Coastal Management in accordance with the Coastal Area Management Act (CAMA).

_____ I have no objection to the project as presently proposed and hereby waive that right of objection as provided in General Statute 113-229

_____ I have objections to the project as presently proposed and my comments are attached.

Signature of Adjacent Riparian Landowner

Date

Phone Number with Area Code



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 23, 2009

Wesley E. King
4872 Whiteville Road NW
Ash, NC 28420

Dear Landowner:

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Mr. Stephen Lane
N.C. Division of Coastal Management
400 Commerce Ave.
Morehead City, NC 28557

Thank you for your cooperation.

Sincerely,

for E. R. Lusk

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

Enclosures

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Phone Number with Area Code



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 23, 2009

Ralph C. King
4780 Whiteville Road NW
Ash, NC 28420

Dear Landowner:

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Mr. Stephen Lane
N.C. Division of Coastal Management
400 Commerce Ave.
Morehead City, NC 28557

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Sincerely,

E. J. Thorpe

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

Enclosures

cc: Stephen Lane, NCDCM
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File B-4030

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(Brunswick County: Replace Bridge No. 9 over Bear Branch; TIP B-4030)

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Signature of Adjacent Riparian Landowner

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 23, 2009

Willie R. Warren
4968 Whiteville Road NW
Ash, NC 28420

Dear Landowner:

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I, _____, am an adjacent riparian property owner and am aware of the North Carolina Department of Transportation's plans for replacing bridge number 9 over Bear Branch in Brunswick County, North Carolina. I am further aware that this work will occur in one or more Areas of Environmental Concern and therefore will require authorization from the Division of Coastal Management in accordance with the Coastal Area Management Act (CAMA).

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_____ I have objections to the project as presently proposed and my comments are attached

Signature of Adjacent Riparian Landowner

Date


Phone Number with Area Code

NC 130
Bridge No. 9 Over Bear Branch
Brunswick County
Federal-Aid Project No. BRSTP-130(3)
State Project No. 8.1231801
WBS No. 33397.1.1
TIP No. B-4030

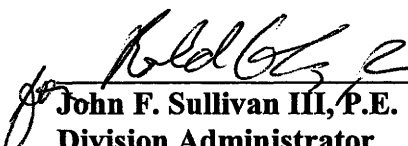
Categorical Exclusion
United States Department of Transportation
Federal Highway Administration
And
North Carolina Department of Transportation

Approved:

4/18/06
Date


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

4/18/06
Date


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

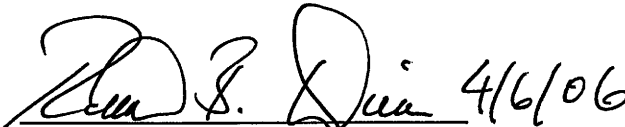
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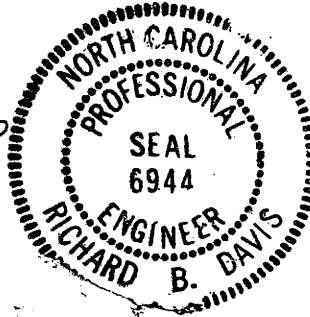
Categorical Exclusion

April 2006

Document Prepared by:

THE LPA GROUP OF NORTH CAROLINA, P.A.


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. 9 Over Bear Branch
Brunswick County
Federal-Aid Project No. BRSTP-130(3)
State Project No. 8.1231801
WBS No. 33397.1.1
TIP No. B-4030**

In addition to the standard Nationwide Permit #23 and #33 Conditions, the General Nationwide Permit Conditions, Section 404 Conditions, Regional Conditions, State Consistency Conditions, the North Carolina Department of Transportation's (NCDOT) 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, the following special commitments have been agreed to by NCDOT:

Coastal Area Management Act (CAMA)

The North Carolina Division of Coastal Management (DCM) lists Brunswick County, NC as a CAMA county. Therefore, a CAMA permit would be required for impacts to Waters of the United States, including wetlands.

State Stormwater Management Permit

Since the proposed project is in a coastal county and would require a CAMA permit, a State Stormwater Management permit will also be required.

**NC 130
Bridge No. 9 Over Bear Branch
Brunswick County
Federal-Aid Project No. BRSTP-130(3)
State Project No. 8.1231801
WBS No. 33397.1.1
TIP No. B-4030**

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**NC 130
Bridge No. 9 Over Bear Branch
Brunswick County
Federal-Aid Project No. BRSTP-130(3)
State Project No. 8.1231801
WBS No. 33397.1.1
TIP No. B-4030**

INTRODUCTION: The replacement of Bridge No. 9 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 the bridge has a sufficiency rating of 4.0 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 Brunswick County on NC 130 approximately 1.1 miles south of the junction of SR 1326 (Figure 1). The surrounding land use includes, residential properties, active agricultural fields, forested areas, wetlands, and a power-line right of way.

Bridge No. 9 was constructed in 1939 and does not currently have a posted weight limit. The overall length of the two span bridge is 41.25 feet, with a bed to crown height of 15.1 feet. It has a clear roadway width of 25.4 feet carrying two travel lanes. Bridge No. 9 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 24-foot, two-lane roadway with 2-foot paved shoulders and a total shoulder width of 8 feet. The existing bridge is in a horizontal tangent and is skewed 90 degrees to the roadway. The west approach has a curve beginning approximately 250 to 300 feet from the end of the bridge. The east approach has a long tangent of 1000 feet or more. Both approaches have good sight distances. The west vertical grade falls toward the bridge and continues to a sag located approximately 100 feet from the east end of the bridge. The speed limit is posted at 55 miles per hour

(mph). NC 130 is classified as a Rural Minor Arterial in the Statewide Functional Classification System.

The current (2006) traffic volume of 4500 vehicles per day (vpd) is expected to increase to 7300 vpd by the year 2025. These volumes include 3 percent dual tired vehicles and 4 percent TTSTs.

One crash was reported in the vicinity of the bridge during a recent three-year period. The crash resulted in property damage only.

There are no utilities attached directly to the structure; however there are overhead power transmission lines along the south side of NC 130, and underground telephone and cable lines (overhead at the bridge) along the north side of NC 130.

There are three school buses that cross the bridge for a total of six times daily. The Transportation Director for the Brunswick County Schools stated that with their current routes, they would not have any problems if it were determined that road closure were necessary (see letter in 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.

In a letter dated September 10, 2004 Brunswick County Emergency Services stated preference for an on-site detour, as the off-site detour would add 12 to 13 minutes to response times (see letter in Appendix).

III. ALTERNATIVES

A. Project Description

The proposed project would consist of replacing Bridge No. 9, on NC 130, over Bear Branch, with a wider and safer structure that would lead to safer and more efficient traffic operations in the area.

Based on preliminary hydraulic analysis that was conducted in conjunction with a field reconnaissance of the site, the proposed replacement structure for Bridge No. 9 would be a 100-foot long bridge. The proposed 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, 2-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 roadway approaches is 60 mph with a posted speed limit of 55 mph.

B. Build Alternatives

Four alternatives were studied for the replacement of Bridge No. 8, 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, 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 435 feet west of the bridge and approximately 315 feet east of the bridge for a total length (including the bridge) of 850 feet. The detour structure would consist of two 84-inch diameter corrugated steel pipes. The detour would be located approximately 40 feet, centerline to centerline, north of the existing bridge. The detour approaches would provide two 12-foot wide travel lanes with 8-foot unpaved shoulders (Figure 3A). The design speed of the detour approaches is 50 mph, and the posted speed limit would be 45 mph. The total length of the temporary detour is 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 bridge to maintain traffic flow during construction. Permanent approach work would extend approximately 435 feet west of the bridge and approximately 315 feet east of the bridge for a total length (including the bridge) of 850 feet. The detour structure would consist of two 84-inch diameter corrugated steel pipes. The detour would be located approximately 45 feet, centerline to centerline, south of the existing bridge. The detour approaches would provide two 12-foot wide travel lanes with 8-foot unpaved shoulders (Figure 3A). The design speed of the detour approaches is 50 mph, and the posted speed limit would be 45 mph. The total length of the temporary detour is approximately 1,000 feet.

Alternative 3

Alternative 3 would replace the existing bridge with a new structure constructed in the same location as the existing bridge (Figures 2A and 2D). Alternative 3 would utilize an off-site detour to maintain traffic during construction (Figure 1). The off-site detour would utilize SR 1326 (Old King Road N.W.), SR 1333 (Project Road N.W./Kingtown Road N.W.), and SR 1328 (Simmons Road N.W.) as a potential detour route. This detour route is approximately 7.0 miles long and would cross one bridge (Bridge No. 197) and one pipe culvert. Bridge No. 197 has a posted weight limit of 20 tons for single vehicles and 29 tons for TTSTs, which would make the detour route unsuitable for some trucks currently using NC 130. Routing additional traffic and trucks from NC 130 over these secondary roads would require widening and resurfacing the existing pavement. With an additional travel time of 12 minutes over the expected detour period of six to eight

months, the delay for this off-site detour is considered to be justifiable from a traffic operations standpoint under NCDOT guidelines. Brunswick County Emergency Services stated that the best option for emergency services is to keep a lane open through the construction process. They estimated that the proposed off-site detour would add 12-13 minutes to each emergency response.

Alternative 4

With Alternative 4, NC 130 would be permanently realigned approximately 45 feet centerline to centerline south of the existing bridge, utilizing the existing bridge to maintain traffic flow during construction (Figure 2). Permanent approach work would extend approximately 1,100 feet west of the bridge and approximately 900 feet east of the bridge for a total length of 2,000 feet.

C. Alternatives Eliminated from Further Study

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

D. Preferred Alternative

Alternative 1, replacing the bridge in its existing location and utilizing a temporary on-site detour to the north is the preferred alternative. Alternative 1 was selected because it is the least costly alternative and has lower environmental impacts than the other alternatives that provide an on-site detour. Alternative 3, which has an off-site detour, was not selected because of the posted bridge, the cost of upgrading the secondary roads, and the impact on emergency response times. The plan sheets for the Preferred Alternative are included in Figures 2B, 2C, and 2D.

IV. ESTIMATED COSTS

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

Table 1. Estimated Project Costs

	ALT 1 (Preferred Alternative)	ALT 2	ALT 3	ALT 4
Roadway Approaches	\$460,200	\$517,100	\$122,900	\$531,650
Proposed New Bridge	\$297,500	\$297,500	\$293,250	\$293,250
Temporary Structure	\$28,800	\$24,000	\$0	\$0
Structure Removal	\$12,000	\$12,000	\$12,000	\$12,000
Off-site Detour Improvements	\$0	\$0	\$875,000	\$0
Misc. & Mobilization	\$257,500	\$283,400	\$100,850	\$284,100
Engineering & Contingencies	\$144,000	\$166,000	\$71,000	\$179,000
Total Construction Costs	\$1,200,000	\$1,300,000	\$1,475,000	\$1,300,000
Right of Way and Utilities	\$24,900	\$35,000	\$6,200	\$43,200
Total Project Cost	\$1,224,900	\$1,335,000	\$1,481,200	\$1,343,200

The estimated cost of the project as shown in the 2006-2012 NCDOT Transportation Improvement Program is \$1,215,000 including \$100,000 spent in prior years, \$40,000 for right-of-way and \$1,075,000 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 (Exum, 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 (soil map provided for the study area by the Natural Resources Conservation Service)
- 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

Water resources information was obtained from publications posted on the Internet by North Carolina Department of Environment and Natural Resources (NCDENR), Division of Water Quality.

The USFWS provided a list of threatened and endangered species known to occur in Brunswick 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. NHP files were reviewed for known locations of species on state or federal lists and locations of 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 on June 9, 2004. The project vicinity is an area extending 0.5-mile from the study area. The study area for B-4030 extends approximately 1,000 feet west of the existing bridge and approximately 1,000 feet east of the existing bridge (approximately 0.4 miles), and encompasses a 200-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 their associated wildlife were identified 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), Rhode *et al.* (1994), 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 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 a 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 can be characterized as nearly level to gently sloping. The elevation is approximately 30 feet above mean sea level (USGS 1990). Surrounding land uses include agricultural, residential, and forested lands.

There is currently not a published soil survey available for Brunswick County; however, NRCS did provide individual soil maps for the study area.

There are five soil series mapped within the project study area which include:

- Goldsboro fine sandy loam (*Aquic Paleudults*), 0 to 2 percent slopes;
- Lynchburg fine sandy loam (*Aeric Paleaquults*);
- Norfolk loamy fine sand (*Typic Kandiudults*), 2 to 6 percent slopes;
- Muckalee loam (*Typic Fluvaquents*); and,
- Rains fine sandy loam (*Typic Paleaquults*).

Lynchburg fine sandy loam has hydric inclusions (Rains) in depressions and along poorly defined drainage ways. Norfolk loamy fine sand, 2 to 6 percent slopes has hydric inclusions (Muckalee) in depressions. Muckalee loam and Rains fine sandy loam are both listed as hydric in Brunswick County (USDA 1993).

C. Water Resources

1.0 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 the USGS hydrologic unit 03040203 (EPA 2004). The study area includes of one main body of water, Bear Branch, which originates east of the study area and flows west into the Waccamaw River. Bear Branch has been assigned Stream Index Numbers (SINs) 15-5 and 15-11 (DWQ 2004b).

2.0 Water Resource Characteristics

Bear Branch is a perennial stream with a slow flow over a silt, muck, and sand substrate. Water clarity at the time of the site inspection was poor and the water was tannic. Bear Branch would provide a warm water habitat. There is a well-defined stream channel, which appears to have been channelized due to the presence of large spoil piles on the edge of the banks. No scour was observed at the bridge, and water depth at the bridge is estimated from seven to nine feet. The channel width of Bear Branch is approximately 35 feet, with a bankfull width of approximately 45 feet. Due to ditching and stream spoil piles on the stream the banks are steep (near vertical in some places) and are approximately 10 to 15 feet in height from the bed to the top of the bank. The channel is very straight and the study area encompasses a slow moving run approximately seven to nine feet deep. A Rosgen analysis was not performed on Bear Branch. However based on visual observations of stream morphology the stream was assigned the stream type A5 (SRI 2005).

2.1 Best Usage and Water Quality Classification

Bear Branch has been assigned the 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 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 designation 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 Watersheds (WS-I or WS-II) waters within three miles up or downstream of the study area (DWQ 2004b). Bear Branch is not designated as a North Carolina Natural and Scenic River, nor as a National Wild and Scenic River (NPS 2004).

2.2 Macroinvertebrate Monitoring

There is one basinwide monitoring station approximately two miles north of the study area, at NC 130 on the Waccamaw River (DWQ 2003a), this site was sampled by DWQ on July 17, 2001 and received a rating of Good (DWQ 2003a).

2.3 North Carolina Index of Biotic Integrity

There are fish sampling stations located in the sub-basin; however the DWQ is revising their rating methods for fish communities; therefore, they are not currently rated (DWQ 2003b).

2.4 Section 303(d) Waters

None of the water resources within the project study area are designated as biologically impaired water bodies regulated under the provisions of the Clean Water Act (CWA) §303(d) (DWQ 2004d).

2.5 Permitted Dischargers

There is one permitted discharge within a five-mile radius of the study area. Located approximately one mile east, upstream of the study area and discharges directly into Bear Branch (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, fertilizers, herbicides, and insecticides from nearby residential roadways and agriculture were identified as potential sources of NPS pollution near the project study area. A ditch parallel to NC 130 receives agricultural, residential, and roadway drainage and discharges directly into Bear Branch.

3.0 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 could be taken to avoid water quality impacts would include keeping heavy equipment out of the channel, keeping staging areas out of wetlands, and also keeping live concrete out of the channel. After construction activities were completed, abandoned approaches associated with the existing structure and/or temporary detours would be removed and revegetated accordance with NCDOT guidelines.

Other impacts to water quality that would be anticipated as a result of this project include: changes in water temperature due to more exposure to sunlight (from the removal of streamside vegetation), 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 would be 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 BMP-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 Best Management Practices for Bridge Demolition and Removal (BMP-BDRs), as well as guidelines for calculating maximum potential fill in the creek resulting from demolition. These standards would be followed during the replacement of Bridge No. 9.

There is the potential that the superstructure could be dropped into Waters of the United States during demolition and removal of Bridge No. 9. The superstructure consists of a reinforced concrete floor on continuous I-beams with an all weather surface, and concrete curbs. The maximum (worst case) temporary fill associated with demolition activities would be approximately 36.1 cubic yards.

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 (*).

1.0 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, agriculture, development, and forestry practices have resulted in the present vegetation patterns. Three, terrestrial plant communities occur within the study area: a disturbed-maintained community, mesic mixed hardwood forest (coastal plain subtype), and wetland communities. A description of each community type follows.

1.1 Disturbed-Maintained Communities

Disturbed areas within the project study area have been combined into one general community type, described as a “disturbed-maintained community”. This community includes types of habitat that have recently been or currently are impacted by human disturbance including regularly maintained road shoulders, maintained residential lawns, an active tobacco field, and a power-line right of way. The majority of these habitats are kept in a low-growing or early successional state.

The dominant species of the disturbed-maintained community includes: cypress vine (*Ipomoea quamoclit*), trumpet vine (*Campsis radicans*), Virginia creeper (*Parthenocissus quinquefolia*), Brazilian Vervain (*Verbena brasiliensis*), goldenrod (*Solidago altissima*), red maple (*Acer rubrum*) seedlings, ragweed (*Ambrosia artemisiifolia*), nightshade (*Solanum* sp.), pokeweed (*Phytolaccaceae americana*), dog fennel (*Eupatorium capillifolium*), grasses, and clover (*Trifolium* sp.).

1.2 Mesic Mixed Hardwood Forest (Coastal Plain Subtype)

This forest type is found throughout the coastal plain in mesic upland areas protected from fire and primarily occurs on north-facing river bluffs and ravine slopes. Less common occurrences can be found in upland flats or islands surrounded by peatland or swamp communities. This forest type occurs on various moist upland soils. There are two upland areas in the project study area split by NC 130. These areas consist of

predominately hardwood forest adjacent to floodplain wetlands of Bear Branch and to the disturbed-maintained communities in the study area. These areas are former wetlands that have had their hydrology altered by the channelization of Bear Branch. The dominant tree species in the canopy of the forested area include: red maple, black gum (*Nyssa sylvatica*), American holly, (*Ilex opaca*) and sweet gum. Dominant understory/shrub species observed include: green ash (*Fraxinus pennsylvanica*), laurel oak (*Quercus laurifolia*), and sweet bay (*Magnolia virginiana*). Dominant species observed in the herbaceous layer include: netted chain fern (*Woodwardia aerolata*), and possum haw (*Viburnum nudum*). The dominant species of woody vine in the study area is green briar (*Smilax* sp.). Additional species observed include: loblolly pine, and bald cypress (*Taxodium distichum*).

1.3 Wetland Communities

There are four wetland areas in the study area, Wetland A, B, C and D. Wetlands A and B consist predominately of hardwood forest in the floodplain of Bear Branch. Wetlands C and D are in the power line right of way and consist predominately of low-growing wetland species.

The dominant tree species in the canopies in Wetland A and B include: red maple, black gum, sweet gum, green ash, and laurel oak. Dominant understory/shrub species observed include: American holly and sweet bay. Dominant species observed in the herbaceous layer include: giant cane (*Arundinaria gigantea*), netted chain fern, and *Virburnum nudum*. The dominant species of woody vine in the study area is green briar. Additional species observed included bald cypress and loblolly pine. This community can be classified as Coastal Plain Bottomland Hardwoods (Brownwater Subtype) by Schafale and Weakly (1990).

The dominant herbaceous species observed Wetland C and D (power line right of way) include: alligator weed (*Alternanthera philoxeroides*), sensitive fern (*Onoclea sensibilis*), button bush (*Cephalanthus occidentalis*), willow oak saplings (*Quercus phellos*), false wood nettle (*Boehmeria cylindrica*), leather flower (*Clematis crispa*), lizard's tail (*Saururus cernuus*), climbing hemp (*Mikania scandens*), parrot feather (*Myriophyllum brasiliense*), *Iris* sp., *Juncus* sp., and wool grass (*Scirpus cyperinus*). Since this area is mowed on a regular basis and is not a natural state and a Schafale and Weakly classification cannot be applied.

2.0 Wildlife

The study area was visually surveyed for signs of terrestrial and aquatic wildlife. Little wildlife was observed during the field investigation. Fauna likely to occur in the study area based on published ranges are included.

2.1 Terrestrial Wildlife

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

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

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

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

3.0 Aquatic Community

The aquatic communities consist of organisms in the stream channel 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 stream channel during the field assessment. Vegetation found in the wetland community is described in Section 1.3, *Wetland Communities*.

3.1 Aquatic Wildlife

Fish species expected to occur in drainages within the project vicinity include 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 snapping turtle (*Chelydra serpentina*), yellowbelly slider* (*Trachemys scripta*), mud snake (*Farancia abacura*), and 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 wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), and great blue heron* (*Ardea herodias*). Also, beaver* (*Castor canadensis*) utilizes the forested wetland, as evidenced by the presence of gnawed tree trunks within the study area.

4.0 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

Plant communities located within the study area total 8.42 acres (Table 2). These areas are based on a 1,875-foot long study area with a width of approximately 200 feet, situated on the centerline of existing NC 130. Impacts to terrestrial communities were calculated using the cut/fill limits from the preliminary design. 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.

Table 2. Terrestrial Communities Occurring within the B-4030 Study Area

Plant Community	Area (acres)	Potential Impacts (acres)							
		ALT 1 (Preferred Alternative)		ALT 2		ALT 3		ALT 4	
		Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.
Wetlands	1.62	0.13	0.43	0.13	0.55	0.13	No	0.78	No
Mesic Mixed Harwood	0.26	No	0.04	No	No	No	No	No	No
Agricultural Field	0.70	No	0.05	No	0.06	No	No	0.10	No
Disturbed-Maintained	5.84	0.41	0.67	0.41	0.61	0.41	No	1.29	No
Total (acres)	8.42	0.54	1.19	0.54	1.22	0.54	No	2.17	No
Total for ALT (acres)		1.73		1.76		0.54		2.17	
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. Although some loss of habitat immediately adjacent to the existing road shoulders would result, these areas are of limited value to the wildlife that may utilize them.

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 detour (Table 3). Alternative 1, the Preferred Alternative (temporary on-site detour) would result in 0.50 acres of temporary impacts (which includes the 0.43-acre of wetland impacts and the 0.07-acre or temporary impacts from the pipes) to Waters of the United States. This would be due to the installation of two 84-inch diameter corrugated steel pipes into the stream channel to maintain flow during construction of the new bridge. The temporary fill and metal pipes would be removed upon completion of the bridge replacement and the ground would be restored to its original elevation. Alternative 2 (temporary on-site detour) would result in 0.55 acres of temporary impacts to Waters of the United States. Alternative 3 (off-site detour) and Alternative 4 (realignment) would not result in temporary 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 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 where clearing would occur or areas would be permanently filled or excavated (Table 3). Permanent impacts to water resources associated with the replacement of the Bridge No. 9 in its current location (Alternatives 1 [Preferred], 2, and 3) would be limited to 0.13 acres. The realignment of the bridge to the south would impact 0.78 acres of water resources. Fill would be placed in floodplain wetlands adjacent to the existing roadway for improvements to the bridge approaches. The existing bridge is 41.25 feet long and on timber piles, the proposed replacement structure would be a 100-foot long bridge.

Table 3. Anticipated Impacts to Waters of the United States

Jurisdictional Areas	ALT. 1 (Preferred Alternative)		ALT. 2		ALT. 3		ALT. 4	
	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.
Wetland A	0.04	0.30	0.04	No	0.04	No	No	No
Wetland B	0.03	0.12	0.03	No	0.03	No	No	No
Wetland C	0.05	0.01	0.05	0.30	0.05	No	0.45	No
Wetland D	0.01	No	0.01	0.25	0.01	No	0.33	No
Total (acres)	0.13	0.43	0.13	0.55	0.13	No	0.78	No
Total Wetland Impacts (acres)	0.56		0.68		0.13		0.78	
Stream Impacts (acres)	No	0.07	No	No	No	No	No	No
Stream Impacts (linear feet)	No	82	No	No	No	No	No	No
Total Stream Impacts (linear feet)	82.1		No Impact		No Impact		No Impact	
Perm. - Permanent Impacts Temp. - Temporary Impacts								

4.3 Aquatic Communities

Permanent impacts to water resources would be limited to 0.13 acres of fill material for an on-site detour or 0.78 acres of fill material for a realignment. Fill would be placed in floodplain 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 construction and 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, reducing the amount of available habitat due to the filling of wetlands, and altering water chemistry. Increased sedimentation may also cause decreased light penetration through an increase in turbidity. NCDOT's Best Management Practices (BMPs) for the protection of surface waters would be enforced to reduce impacts during demolition and construction phases.

E. Special Topics

1.0 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, emergent mosses and all wetlands where salinity due to ocean-derived salts is below 0.5% (Cowardin et al. 1979). Wetlands A and B are dominated by broad-leaved vegetation and are seasonally flooded, giving them a Cowardin classification of PFO1C. Wetlands C and D are dominated by persistent emergents giving them a Cowardin classification of PEM1C.

1.2 Jurisdictional Streams

Bear Branch is located within the study area, and flows in a well-defined channel. Bear Branch is a perennial stream, which by definition is classified as Waters of the United States. Based on a review of the USGS topographic map, the soil survey, and on-site GPS mapping there are approximately 201 linear feet of stream within the project study corridor. Alternative 1 (Preferred Alternative) would temporarily impact 82.1 linear feet of stream. The others alternatives would not result in stream impacts.

2.0 Permits and Certifications

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

2.1 Coastal Area Management Act (CAMA)

The North Carolina Division of Coastal Management (DCM) lists Brunswick County as a CAMA county. In accordance with CAMA a permit would be required for the bridge replacement project. This project would likely require a CAMA Major Permit (DCM-MP-5), because the project would involve filling and construction in public trust waters and wetlands within an Area of Environmental Concern (AEC). A project requires a CAMA permit when it is in one of the 20 counties covered by CAMA, is considered "development" under CAMA, is in, or affects AEC established by the Coastal Resources Commission (CRC), and the project does not qualify for an exemption. Development includes such activities as dredging or filling coastal wetlands or waters, and construction of marinas, piers, docks, bulkheads, oceanfront structures and roads. AECs are the foundation of the CRC's permitting program for coastal development. An AEC is an area of natural importance; it may be easily destroyed by erosion or flooding; or it may have environmental, social, economic or aesthetic values that make it valuable to our state. The CRC classifies areas as AECs to protect them from uncontrolled development, which may cause irreversible damage to property, public health or the environment.

2.2 State Stormwater Management Permit

The State Stormwater Management Program was established in the late 1980's under the authority of the North Carolina Environmental Management Commission (EMC) and North Carolina General Statute 143-214.7. This program, codified in 15A NCAC 2H .1000, affects development activities that require a CAMA major permit within the 20 coastal counties of North Carolina. The State Stormwater Management Program requires developments to protect these sensitive waters by maintaining a low density of impervious surfaces, maintaining vegetative buffers, and transporting runoff through vegetative conveyances. Low density development thresholds vary from 12-30% impervious surface depending on the classification of the receiving stream. If low density design criteria cannot be met, then high density development requires the installation of structural best management practices to collect and treat stormwater runoff from the project. Since the proposed bridge replacement project is located within a coastal county, a State Stormwater Management Permit will be required.

2.3 Section 404

In accordance with provisions of Section 404 of the CWA (33 United States Code [USC] 1344), a permit would be required from the USACE for the discharge of dredged or fill material into Waters of the United States. As the project is being documented as a Categorical Exclusion, it is expected that the project would qualify for a Nationwide Permit 23, which applies to approved Categorical Exclusions. In addition, a Nationwide Permit 33, which applies to temporary construction, access, and dewatering would be required if temporary construction is required that is not described in the Categorical Exclusion. The realignment of the road (Alternative 4) could require the use of Nationwide Permit 14 for linear transportation projects.

2.4 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 Water 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 the 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 which 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. Wetland impacts can be avoided by selecting an alignment or temporary detour to avoid impacts when possible.

Minimization – Impacts to the adjacent wetlands would be minimized by using 3:1 fill slopes through wetlands on temporary construction, and no lateral ditches would be constructed in wetlands. Alternative 1 was selected as the Preferred Alternative. Alternative 1 has less wetland impacts than other alternatives with temporary on-site detours or realignment. Only Alternative 3, which utilizes an off-site detour had less wetland impacts. Alternative 3 was eliminated because it has a posted bridge that cannot carry some of the truck traffic currently using NC 130, the high cost of upgrading the secondary roads to handle the additional traffic, and the impact on emergency response times. 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 also 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. Per the conditions of the Nationwide Permit, if the roadway is realigned, the abandoned bridge approaches must be removed and area must be reestablished as wetland. All four of the alternatives would impact wetlands; therefore, wetland mitigation may be required by the USACE for the bridge replacement project. Alternative 1 (Preferred Alternative) would impact 82.1 linear feet of Bear Branch; therefore, stream mitigation may be required if this alternative is selected. Alternatives 2, 3, and 4 would not require stream mitigation. Final mitigation decision rests with the USACE.

F. Protected Species

Rare and protected species listed for Brunswick County, and potential impacts to these species as a result of the proposed project are discussed in the following sections.

1.0 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.*). Fifteen federally protected species are listed for Brunswick County (USFWS database dated March 7, 2002, Brunswick County List updated March 14, 2006) (Table 4).

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

Common Name	Scientific Name	Status*	Biological Conclusion
Vertebrates			
Eastern cougar	<i>Puma concolor cougar</i>	E	No Effect
West Indian manatee	<i>Trichechus manatus</i>	E	No Effect
Piping plover	<i>Charadrius melodus</i>	T	No Effect
Bald eagle	<i>Haliaeetus leucocephalus</i>	T (PD)	No Effect
Wood stork	<i>Mycteria americana</i>	E	No Effect
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	No Effect
American alligator	<i>Alligator Mississippiensis</i>	T(S/A)	Not Applicable
Loggerhead	<i>Caretta caretta</i>	T	No Effect
Green turtle	<i>Chelonia mydas</i>	T	No Effect
Leatherback	<i>Dermochelys coriacea</i>	E	No Effect
Atlantic ridley (Kemp's ridley sea turtle)	<i>Lepidochelys kempii</i>	E	No Effect
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	E	No Effect
Vascular Plants			
Seabeach amaranth	<i>Amaranthus pumilus</i>	T	No Effect
Rough-leaved loosestrife	<i>Lysimachia asperulaefolia</i>	E	No Effect
Cooley's meadowrue	<i>Thalictrum cooleyi</i>	E	No Effect
<p>*E - Endangered, T - Threatened, T(S/A) - Threatened due to similarity of appearance, T(PD) - Threatened Proposed Delisting Source: USFWS database dated March 7, 2002, updated March 14, 2006. Web Address: http://nc-es.fws.gov/es/countyfr.html</p>			

Eastern Cougar (*Puma concolor cougar*)

The eastern cougar is a large, unspotted, long-tailed cat. Its legs and body are a uniform fulvous or tawny hue, its belly is pale reddish or reddish-white, and the inside of the ears are light colored with blackish color behind the ears (FWS 2003b). Male eastern cougars have been known to reach lengths of nine feet (NatureServe 2003c). The main food source of cougars is normally deer, however they also will feed on small mammals, turkeys, or domestic livestock (FWS 2003b).

No preference for specific habitat types has been noted; the primary need is apparently for a large wilderness area with an adequate food supply. Male cougars of other subspecies have been observed to occupy a range of 25 or more square miles, and females have been observed with a range from 5 to 20 square miles (FWS 2003b).

Based on a review of Natural Heritage Program (NHP) records, there are no documented occurrences of eastern cougar 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 eastern cougar in the project vicinity. There are no extensive forested habitats within the project study area that could support the eastern cougar. 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 eastern cougar 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.

West Indian Manatee (*Trichechus manatus*)

The manatee is a large aquatic mammal that is gray or brown in color and averages 10 feet in length and weighs an average of 1,000 pounds. They have no hind limbs, their forelimbs are modified as flippers, and their tails are flattened horizontally and rounded. The manatee's body is covered with sparse hairs, and it has stiff whiskers on its muzzle (FWS 2003k).

The manatee's habitat consists of both fresh and salt water from five feet to less than 20 feet in depth. They can be found in canals, rivers, estuarine habitats, and salt-water bays, according the FWS they have been found as far as four miles off the Florida coast. Manatees will consume any aquatic vegetation available (may consume 4 to 9 percent of their body weight in food a day), and will even eat shoreline vegetation (FWS 2003k). Manatees also seem not to be able to tolerate waters less than 68 degrees Fahrenheit for long periods of time (NatureServe 2003e).

Based on a review of NHP records, there are no documented occurrences of West Indian manatees 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 West Indian manatee in the project vicinity. The large amount of aquatic vegetation (a West Indian manatee may consume 40 to 90 pounds of food per day) needed to support the West Indian manatee 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 West Indian manatee was conducted as an evaluation of existing information, and assessment of the habitat requirements. Additionally, the NHP element occurrence database was consulted on March 29, 2004.

Piping Plover (*Charadrius melodus*)

The piping plover is a small, stocky shorebird resembling a sandpiper. Piping plovers nest along the sandy beaches of the Atlantic Coast, the gravelly shorelines of the Great Lakes, and on river sandbars and alkali wetlands throughout the Great Plains region (FWS 2003g).

Since the piping plover only occurs on the coastal beaches of North Carolina it would not be impacted by the project, because the proposed project area is approximately 20 linear miles north of the Atlantic Coast in Brunswick County.

Based on a review of NHP records, there are no documented occurrences of piping plover within three miles of the project study area.

BIOLOGICAL CONCLUSION: No Effect

According to the NHP element occurrence database records, there are no known occurrences of piping plover in the project vicinity. The coastal habitat needed to support the piping plover is not present within the project study area. 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 piping plover 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.

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 (NatureServe 2003b).

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 (NatureServe 2003b). Manmade reservoirs provide an excellent habitat for bald eagles (TPW 2004). The eagle preferably roosts in conifers or other sheltered sites in the winter, and it will 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. Nest sites are usually in tall trees or on cliffs near water. The Bald Eagle will nest in a variety of trees including, pines, spruce, firs, cottonwoods, oaks, poplars, 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 (NatureServe 2003b). 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 element 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 (proposed for delisting) 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 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 2003L).

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 2003I).

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.

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 the 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. There 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.

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).

NHP records indicate an occurrence of an American alligator within a three-mile radius of the project study area. An American alligator occurred approximately 1.25 miles south west of the project study area in the Waccamaw River in June of 1978. This record is listed as historic by NHP, due to it occurring over 20 years ago.

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.

Loggerhead (*Caretta caretta*)

The loggerhead turtle has a large head, blunt jaws, reddish brown carapace and flippers, and a yellow plastron. The carapace has five or more costals with the first touching the nuchal, and there are three large inframarginal scutes on the bridges between the plastron and carapace. The average loggerhead weighs approximately 200 pounds; however there have been loggerhead specimens that have weighed approximately 1,000 pounds. (FWS 2003f).

The loggerhead can be found in a variety of habitats from hundreds of miles out to sea, to inshore areas such as bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers. Nesting occurs on open beaches or along narrow bays that have suitable soils (FWS 2003f).

Based on a review of NHP records, there are no documented occurrences of loggerhead turtles 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 loggerhead in the project vicinity. The open ocean, inshore areas such as bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers used for foraging by the loggerhead is not present within the project study area. Also, the open beach and narrow bay habitat used for nesting is not present within the project study area. 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 loggerhead 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.

Green Turtle (*Chelonia mydas*)

The green turtle grows to an average of 4 feet in length and 440 pounds in weight. It has a heart-shaped shell, small head, and single-clawed flippers. The green turtle varies in color (FWS 2003c).

The green turtle is found in tropical and temperate seas and oceans, inside bays, reefs, and inlets (FWS 2003c). Since the green turtle is an ocean species it would not be impacted by the project, because the project area is 20 miles north of the Atlantic coast.

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

BIOLOGICAL CONCLUSION: No Effect

According to NHP element occurrence database records, there are no known occurrences of green turtle in the project vicinity. The tropical and temperate seas and oceans, bays, reefs, and inlets needed to support the green turtle are not present within the project study area. 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 green turtle 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.

Leatherback (*Dermochelys coriacea*)

The leatherback is the largest of all turtles, with an average length of 61 inches (approximately 5 feet) and an average weight of 640 to 1300 pounds. The leatherback's back, head, and neck are dark brown or black in color, with white or yellow blotches (FWS 2003e).

The leatherback is an open ocean species that will sometimes occupy shallow bays, estuaries and even river mouths (FWS 2003e). Since the leatherback is an open ocean species it would not be impacted by the project, because the project is approximately 20 miles north of the Atlantic Coast.

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

BIOLOGICAL CONCLUSION: No Effect

According to NHP element occurrence database records, there are no known occurrences of leatherback in the project vicinity. The open ocean, shallow bay, estuary, and river mouth habitats needed to support the leatherback 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 leatherback 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.

Atlantic Ridley (*Lepidochelys kempii*)

The Atlantic ridley is a small to medium sea turtle with a very broad heart shaped shell. The upper shell is dark gray or gray-brown to olive green and the lower shell is white or yellow (FWS 2003d).

The Atlantic ridley prefers a habitat of shallow coastal waters with shorelines of red mangrove (FWS 2003d). Since the Atlantic ridley is an ocean species it would not be impacted by the project, because the project area is approximately 20 miles north of the Atlantic Coast.

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

BIOLOGICAL CONCLUSION: No Effect

According to NHP element occurrence database records, there are no known occurrences of Atlantic ridley in the project vicinity. The shallow coastal waters

with shorelines of red mangrove needed to support the Atlantic ridley 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 Atlantic ridley 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, which can weigh up to 50 pounds and reach lengths of 43 inches (FishBase 2004). It has a heterocercal tail, short shovel-shaped (bluntly V-shaped) snout (not upturned at tip), with large fleshy barbels. It has a ventral mouth, with large bony scutes on the head, back, and sides (paler than adjacent skin). The anal fin origin is beneath the dorsal fin origin. The color of the back is dark brown to black, with light brown to yellow lower sides, and white a stomach (NatureServe 2003a).

The shortnose sturgeon inhabits rivers, lakes, estuaries (usually most abundant in estuaries), and bays; occasionally enters the open sea (Fishbase 2004), and will usually stay within a few miles of land while at sea (NatureServe 2003a). The shortnose sturgeon may spend most of the year in brackish or saltwater moving into freshwater to spawn (FWS 2003j). 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 study area.

BIOLOGICAL CONCLUSION: No Effect

Suitable habitat for the shortnose sturgeon is not present in the project study area, and no specimens were observed in the study area during the field survey. The NCDOT contacted Mr. Fritz Rohde of the N.C. Division of Marine Fisheries who concluded that suitable habitat is not present within the study area. Although the shortnose sturgeon has been documented to occur within Brunswick County, no known occurrences have been reported by the NHP within the project vicinity. Because suitable habitat is not present (deep freshwater pools with soft substrates) within the project study area, the proposed project will have No Effect on this federally listed 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.

Seabeach Amaranth (*Amaranthus pumilus*)

Seabeach amaranth, as the name implies, is an annual plant found on Atlantic Ocean beaches. Seabeach amaranth occurs on barrier island beaches, where its primary habitat consists of over wash flats at accreting ends of islands and lower foredunes and upper strands of non-eroding beaches (FWS 2003i).

Since the seabeach amaranth is only found on Atlantic Ocean beaches, it would not be impacted by the project, because the proposed project area is approximately 20 miles north of the Atlantic Coast in Brunswick County.

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

BIOLOGICAL CONCLUSION: No Effect

According to NHP element occurrence database records, there are no known occurrences of seabeach amaranth in the project vicinity. The Atlantic Ocean beach habitat needed to support seabeach amaranth is not present within the project study area. 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 seabeach amaranth 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, with whorls of three to four leaves that encircle the stem at intervals, below a yellow inflorescence. Blooming occurs from mid-May through June. Fruiting occurs from July to October (FWS 2003h).

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 areas of dense shrub and vine growth usually on a wet, peaty, poorly drained soil) (FWS 2003h). 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 area.

BIOLOGICAL CONCLUSION: No Effect

According to NHP element occurrence database records, there are no known occurrences of 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 of 3 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 0.75 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 fireflow lines, roadside ditches, woodland clearings, and power-line rights-of-way, and needs some type of disturbance (man-made or natural) to maintain its open habitat (FWS 2003a). Plants often found growing with the meadowrue include tulip poplar growing with cypress and/or Atlantic white cedar (NatureServe2003d).

Based on a review of NHP records, there are no documented occurrences of Cooley's meadowrue within a three-mile radius of the project study area.

BIOLOGICAL CONCLUSION: No Effect

According to NHP element occurrence database records, there are no known occurrences of Cooley's meadowrue in the project vicinity. While suitable habitat is possibly present within the project study area, no specimens were observed during field surveys. A meandering pedestrian transect survey (with transects providing 100% visual coverage of suitable habitat) was completed for areas that appeared to be suitable habitat, during the bloom period on June 9, 2004. 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.

2.0 Federal Species of Concern

The March 7, 2002 FWS list for Brunswick County (updated March 14, 2006) also includes a category of species designated as “Federal Species of Concern” (FSC). The FSC designation provides no federal protection under the ESA for the species listed. The presence of potential suitable habitat within the project study area has been evaluated for the following FSC species listed for Brunswick County is shown in Table 5.

Table 5: Federal Species of Concern (FSC) Listed for Brunswick County, NC

Common Name	Scientific Name	State Status*	Potential Habitat
Vertebrates			
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	T*	Yes
Bachman's sparrow	<i>Aimophila aestivalis</i>	SC	No
Henslow's sparrow	<i>Ammodramus henslowii</i>	SR**	Yes
American eel	<i>Anguilla rostrata</i>	SC	Yes
Black throated green warbler	<i>Dendroica virens waynei</i>	SR	Yes
Broadtail madtom	<i>Noturus</i> sp. cf. <i>letacanthus</i>	SC	Yes
Eastern painted bunting	<i>Passerina ciris ciris</i>	SR*	Yes
Southern hognose snake	<i>Heterodon simus</i>	SC*	No
Mimic glass lizard	<i>Ophisaurus mimicus</i>	SC	No
Northern pinesnake	<i>Pituophis melanoleucus melanoleucus</i>	SC*	No
Carolina gopher frog	<i>Rana capito capito</i>	T	No
Carolina pygmy sunfish	<i>Elassoma boehlkei</i>	T	No
Invertebrates			
Waccamaw spike	<i>Elliptio waccamawensis</i>	T	Yes
Greenfield rams-horn	<i>Helisoma eucosmum</i>	E	No
Magnificent rams-horn	<i>Planorbella magnifica</i>	E	No
Cape fear threetooth	<i>Triodopsis soelneri</i>	T	No
Buchholz's dart moth	<i>Agrotis</i> sp 1 nr <i>buchholzi</i>	SR	No
Arogos skipper	<i>Atrytone arogos arogos</i>	SR^	No
Venus flytrap cutworm moth	<i>Hemipachnobia subporphyrea</i>	SR^	No
Rare skipper	<i>Problema bulenta</i>	SR	No
Carter's noctuid moth	<i>Spartiniphaga carterae</i>	SR^	No
Hessel's Hairstreak	<i>Callophrys hesseli</i>	#	Yes
Loammi skipper	<i>Atrytonopsis loammi</i>	SR	Yes
Non-Vascular Plants			
Savanna campylopus	<i>Campylopus carolinae</i>	SR-T*	No

Table 5: Federal Species of Concern (FSC) for Brunswick County, NC (Continued)

Common Name	Scientific Name	State Status*	Potential Habitat
Vascular Plants			
Savanna onion	<i>Allium sp 1</i>	SR-L	No
Savanna indigo-bush	<i>Amorpha georgiana var confusa</i>	T	Yes
Chapman's three-awn	<i>Aristida simpliciflora</i>	SR-T	Yes
Purple-disk honeycomb-head	<i>Balduina atropurpurea</i>	SR-T*	No
Chapman's sedge	<i>Carex chapmanii</i>	#	Yes
Venus flytrap	<i>Dionaea muscipula</i>	SR-L, SC	No
Dwarf burhead	<i>Echinodorus parvulus</i>	SR-T	No
Harper's fimbry	<i>Fimbristylis perpusilla</i>	T	No
A St. Johns wort	<i>Hypericum sp. 2</i>	#	Yes
A quillwort	<i>Isoetes microvela</i>	SR-L	No
Pondspice	<i>Litsea aestivalis</i>	SR-T	No
Long beach seedbox	<i>Ludwigia brevipes</i>	SR-T	Yes
Raven's seedbox	<i>Ludwigia ravenii</i>	SR-T~	Yes
Carolina bogmint	<i>Macbridea caroliniana</i>	T	No
Loose watermilfoil	<i>Myriophyllum laxum</i>	T	No
Savanna cowbane	<i>Oxypolis ternata</i>	#	No
Large-leaved grass of parnassus	<i>Parnassia grandifolia</i>	T**	No
Carolina grass of parnassus	<i>Parnassia caroliniana</i>	#	No
Pineland plantain	<i>Plantago sparsiflora</i>	E	No
Carolina bishopweed	<i>Ptilimnium sp. 1</i>	SR-L	No
Awed meadow- beauty	<i>Rhexia aristosa</i>	T	No
Swamp forest beaksedge	<i>Rhynchospora decurrens</i>	E*	No
Coastal beaksedge	<i>Rhynchospora pleiantha</i>	SR-T	No
Thorne's beaksedge	<i>Rhynchospora thornei</i>	E	No
Grassleaf arrowhead	<i>Sagittaria weatherbiana</i>	SR-T	Yes
Tough bumelia	<i>Sideroxylon tenax</i>	SR-P	No
Carolina goldenrod	<i>Solidago pulchra</i>	E	Yes
Spring-flowering goldenrod	<i>Solidago verna</i>	SR-L	No
Coastal goldenrod	<i>Solidago villosicarpa</i>	E*	No
Wireleaf dropseed	<i>Sporobolus teretifolius sensu stricto</i>	T	No
Pickering's dawnflower	<i>Stylisma pickeringii var. pickeringii</i>	E	No
Carolina asphodel	<i>Tofieldia glabra</i>	#	No
Dune bluecurls	<i>Trichostema sp 1</i>	SR-L	No
Carolina atamasco lily	<i>Zephyranthes sp 1</i>	SR-L	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 NHP, ** - Occurs on NHP list but not on USFWS list, # - Not listed as a FSC on NHP 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 document two occurrences of FSC within a three-mile radius of

the project area. An occurrence of Carolina bogmint approximately three miles southwest of the project study area and an occurrence of the Carolina pygmy sunfish approximately two miles south of the project study area. Both of these records are listed as current by the NHP, meaning that they have occurred within the last 20 years.

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 stated that they are aware of no historic resources 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 affect transportation and the community. The replacement of an inadequate bridge will 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. 9 would not have a negative effect on the quality of the human or the natural environment.

This project is not in conflict with any land use 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 relocations 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 inconvenience to local travel due to construction activities on NC 130.

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.

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 have state or local importance. Ten of the eleven soils identified were on the NRCS list, *Important Farmlands of North Carolina, May 1998*. Soils in which all areas are considered prime farmland included: Goldsboro fine sandy loam (GoA), 0 to 2 percent slopes; and Norfolk loamy sand, 2 to 6 percent slopes (NoB). Soils in which only drained areas are considered prime farmland included: Lynchburg fine sandy loam (Ly); Rains fine sandy loam (Ra); Pantego mucky loam (Pn); Lumbee fine sandy loam (Lu); Grifton fine sandy loam (Gt); and Johns fine sandy loam (Jo). Soils in which all areas are considered farmland of statewide importance included; Foreston loamy sand (Fo); and Baymeade fine sand, 1 to 6 percent slopes (BaB). If impacts occur 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 Brunswick 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 any 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, no contamination issues are anticipated for the B-4030 project.

Brunswick County is a participant in the Federal Flood Insurance Program. The bridge is located within an Approximate Study Area. The new structure should be designed to match or lower the existing 100-year storm elevation upstream of the roadway. Since the proposed replacement for Bridge No. 9 would be a structure similar in waterway opening size, it is not anticipated that it would have any significant adverse impact on the existing floodplain, and it would not raise 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. 9.

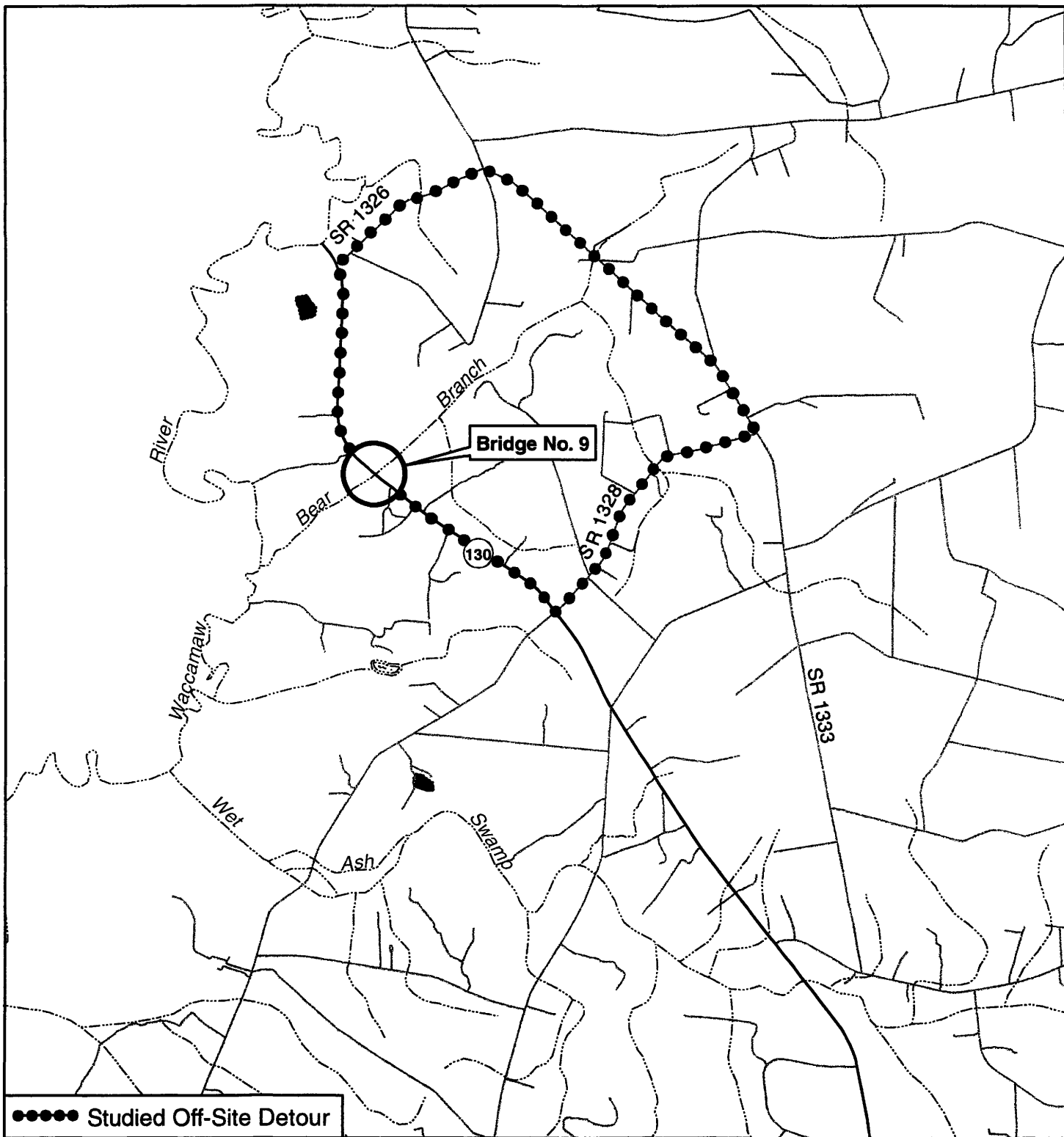
IX. PUBLIC INVOLVEMENT

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. No comments were received.

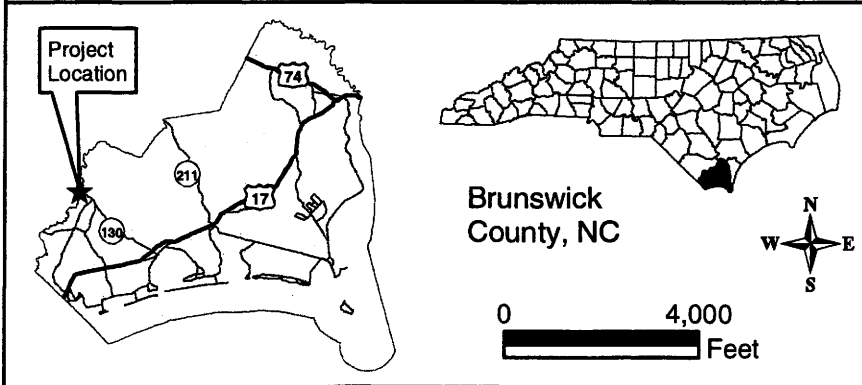
X. AGENCY COMMENTS


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



..... Studied Off-Site Detour



 North Carolina Department of Transportation Project Development and Environmental Analysis Branch	
NC 130 Replace Bridge No. 9 Over Bear Branch Brunswick County B-4030	
PROJECT VICINITY MAP	Figure 1



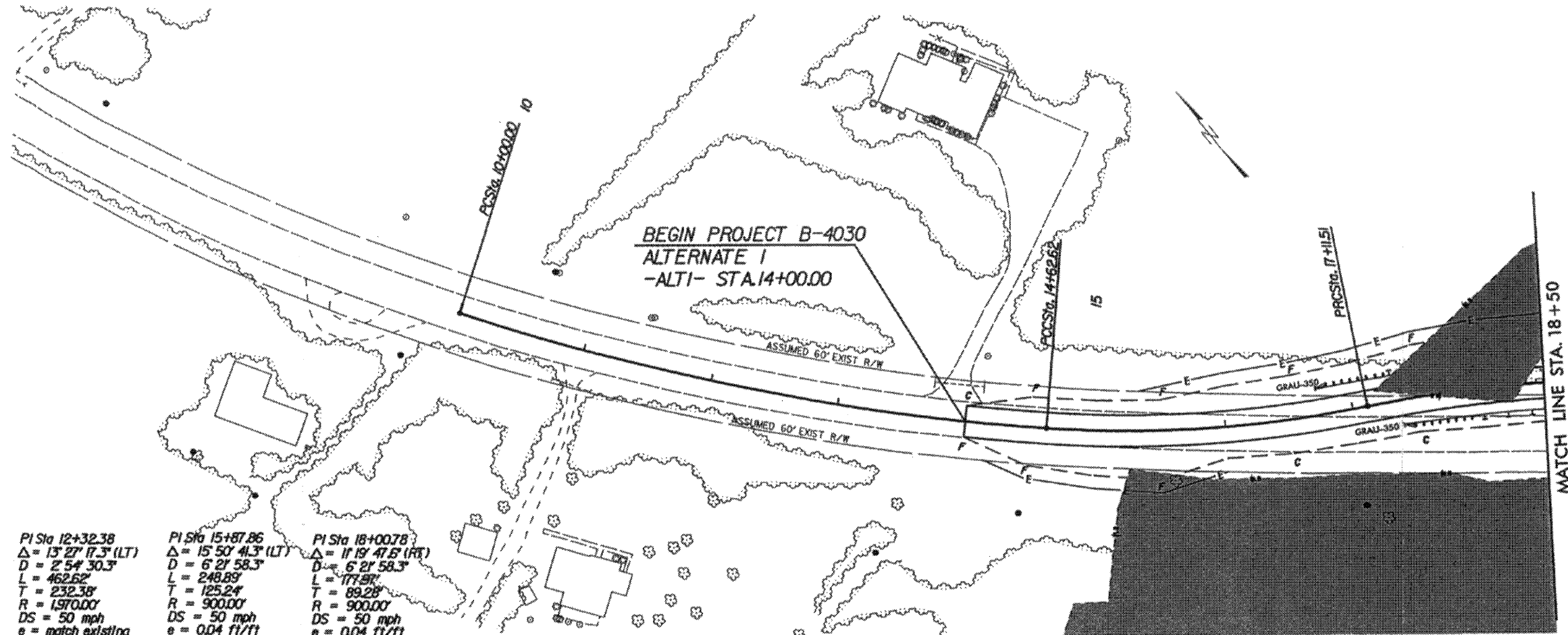
North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

N.C. 130
Replace Bridge No. 9
Over Bear Branch
Brunswick County
B-4030

SCALE: 1" = 150'

Figure 2A

PROJECT REFERENCE NO. B-4030	SHEET NO. 1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



B4030 (ALTERNATE 1) **(TEMPORARY DETOUR)**

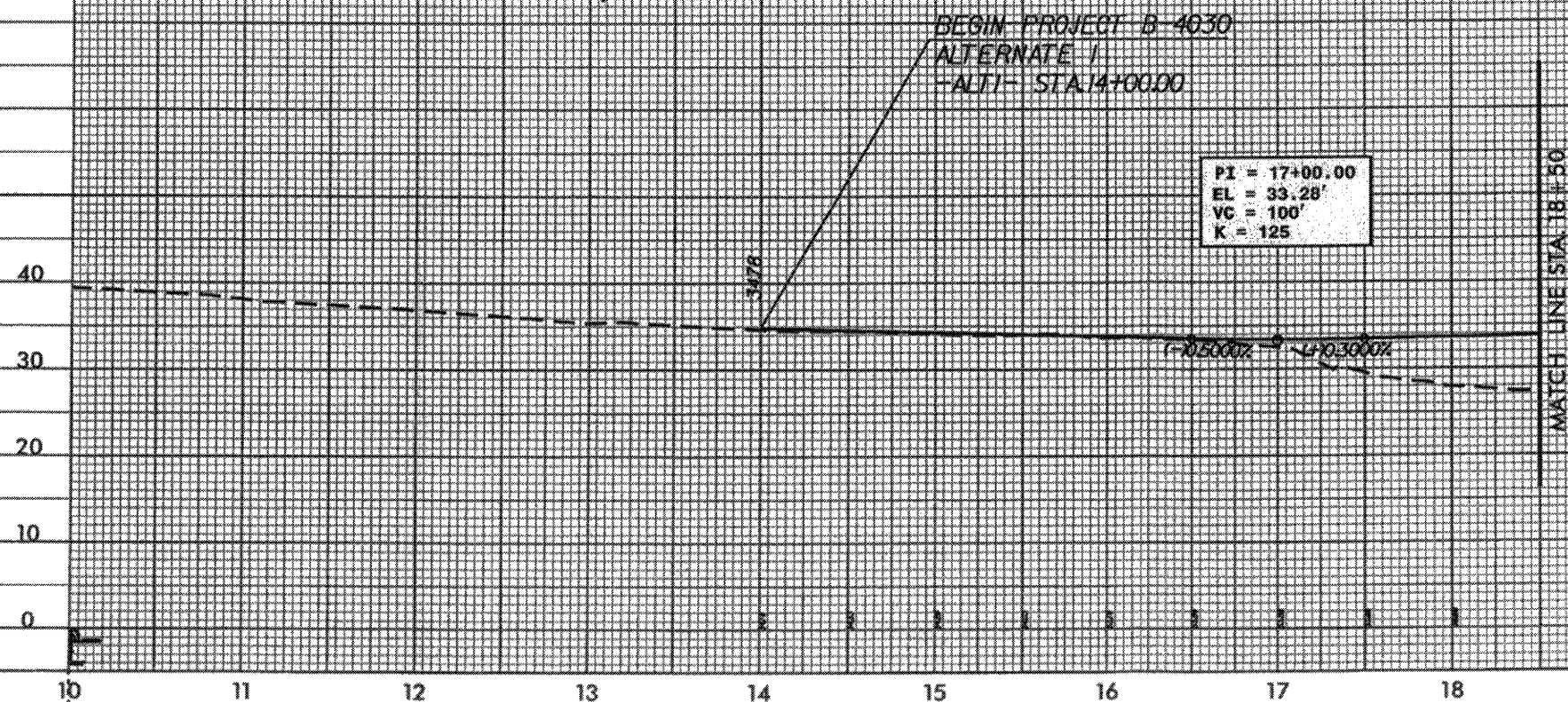


FIGURE 2B

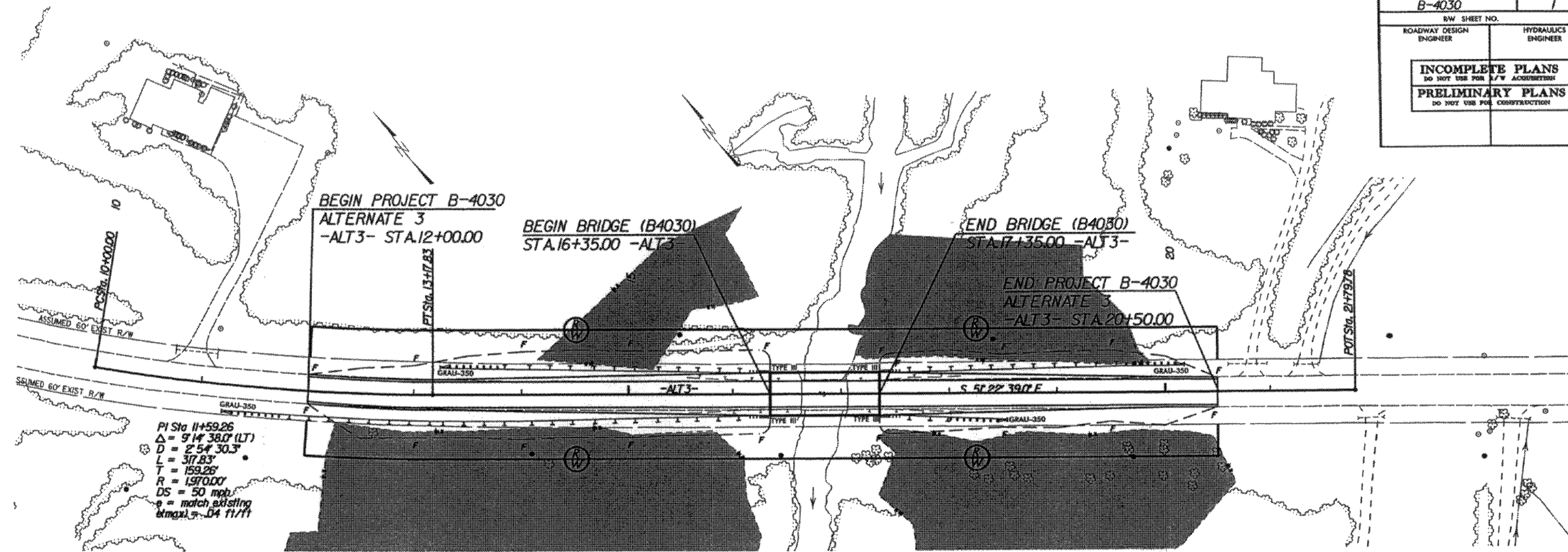


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C:\projects\W001\B-ridge Group 46\B4638\proj\B4638_rdy.clt\psh2.dgn
11:01:10 AM PA2M525



8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4030	1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/V ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



B4030 (ALTERNATE 3)

(PERMANENT BRIDGE FOR ALT.1 & ALT.2)

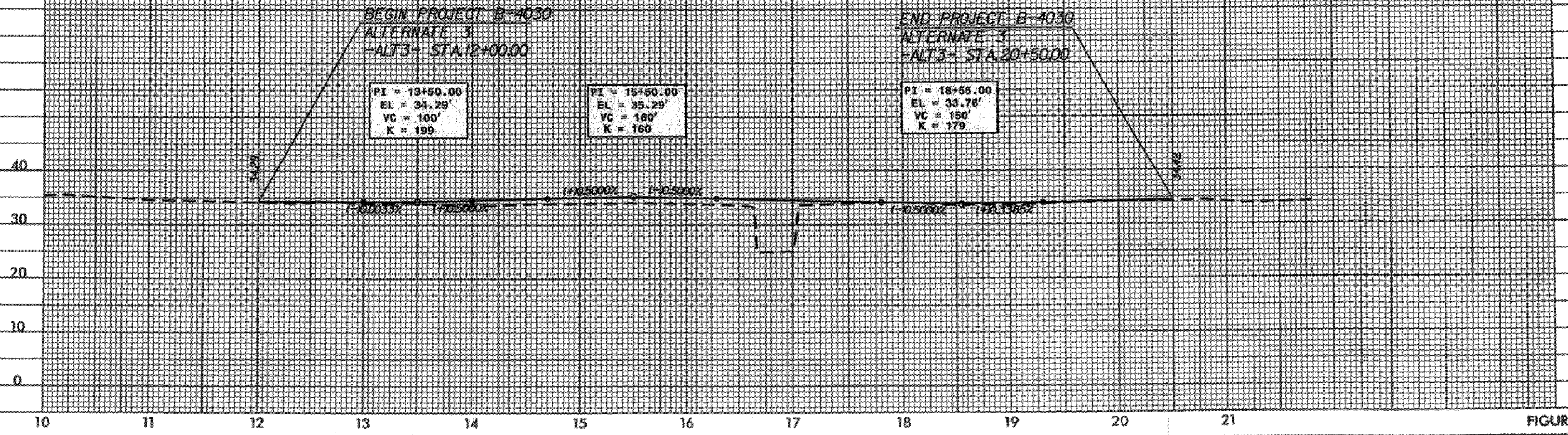
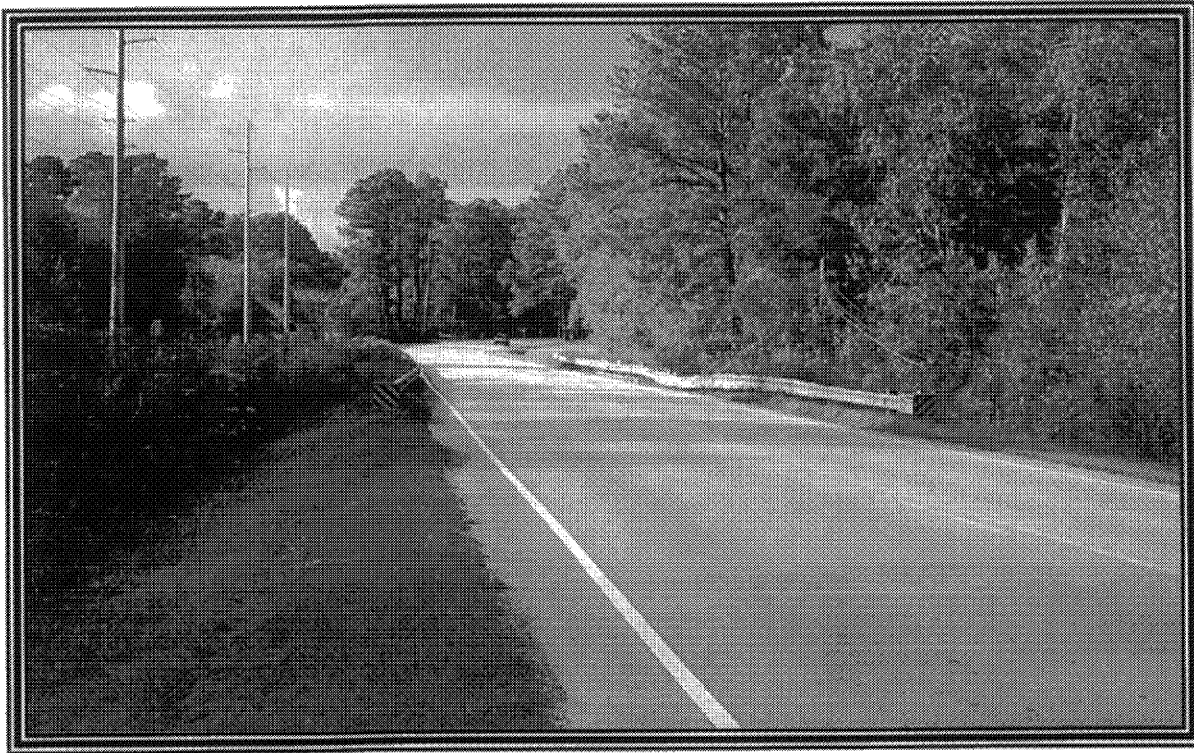
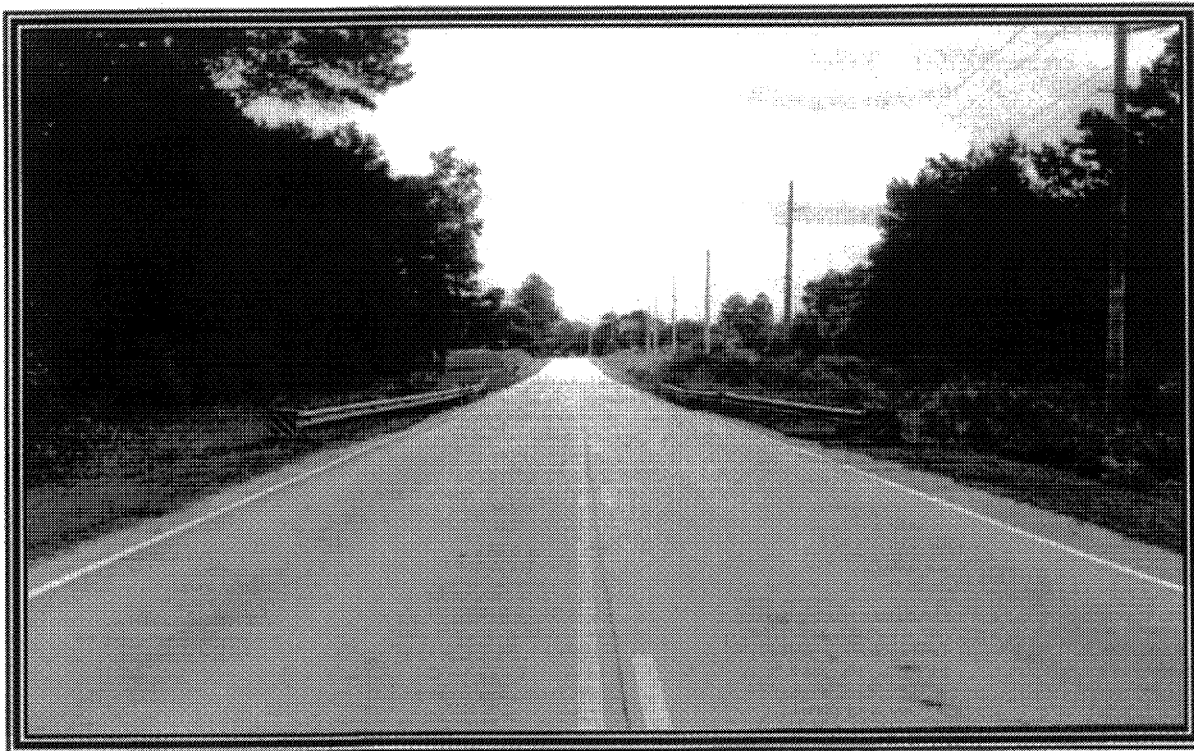


FIGURE 2D



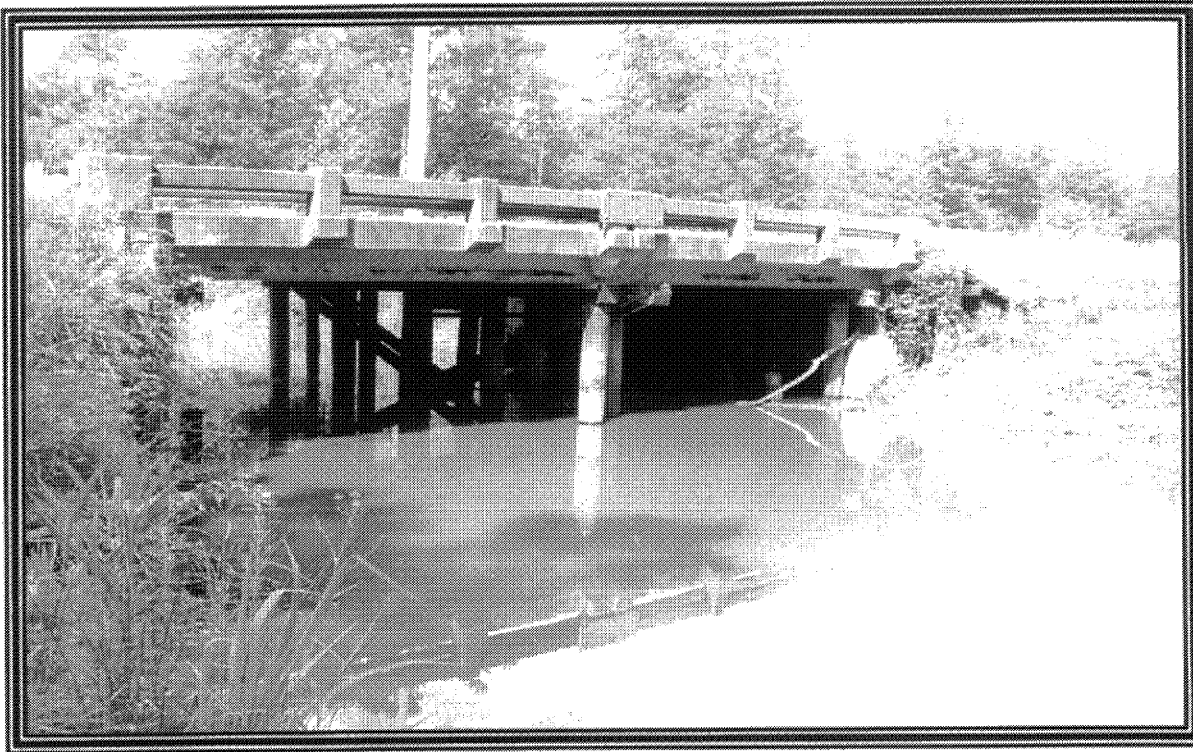
**BRUNSWICK
COUNTY
BRIDGE No. 9
B-4030**

**Looking West
on NC 130**



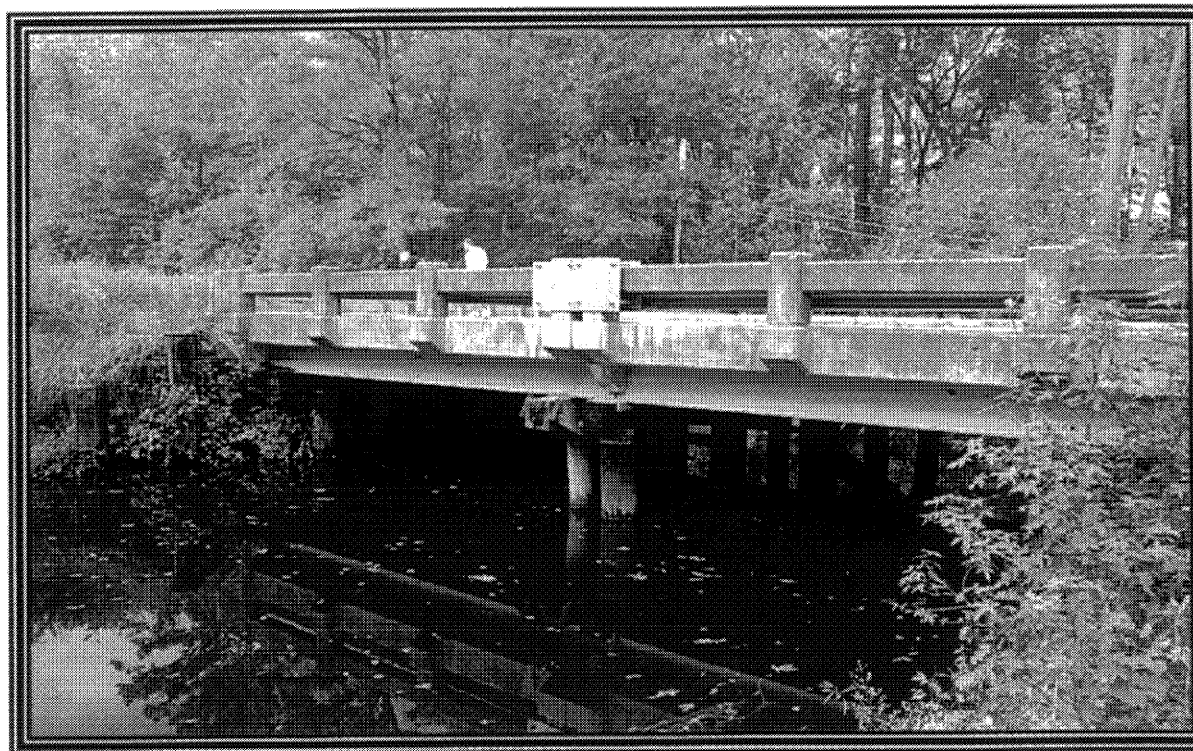
**Looking East
on NC 130**

FIGURE 4A



**BRUNSWICK
COUNTY
BRIDGE No. 9
B-4030**

**Looking at the
South Side of
Bridge No. 9**



**Looking at the
North Side of
Bridge No.9**

FIGURE 4B



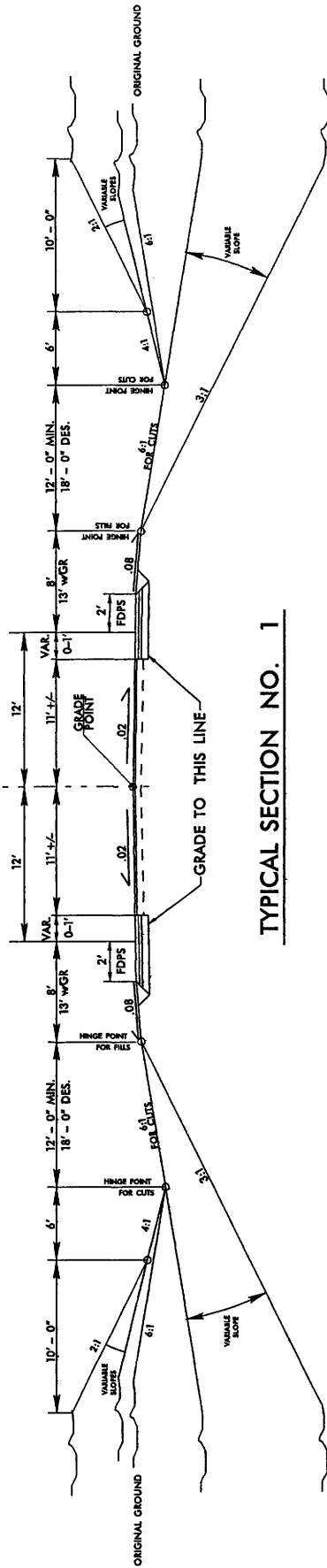
**BRUNSWICK
COUNTY
BRIDGE No. 9
B-4030**

**Looking
Upstream at
Bear Branch**



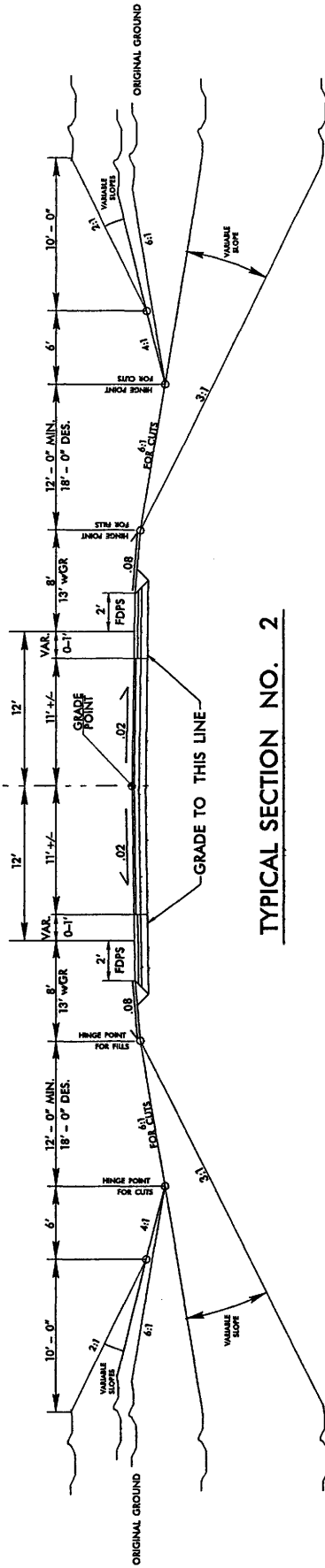
**Looking
Downstream at
Bear Branch**

CL-



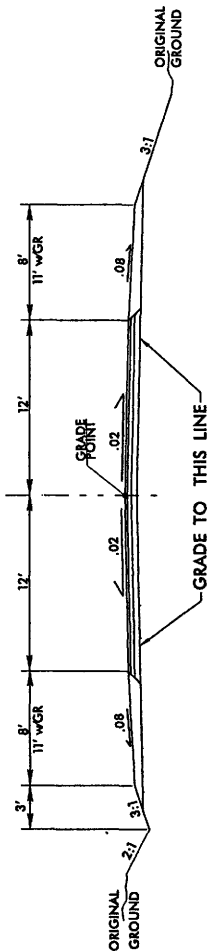
TYPICAL SECTION NO. 1

CL-



TYPICAL SECTION NO. 2

CL-



TYPICAL SECTION NO. 3

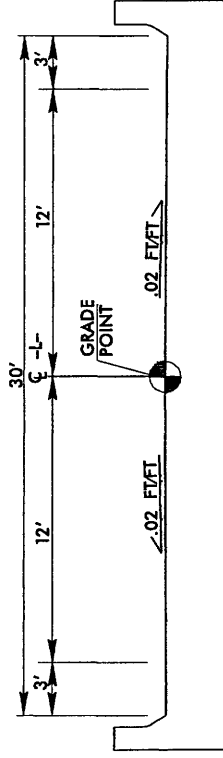


North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

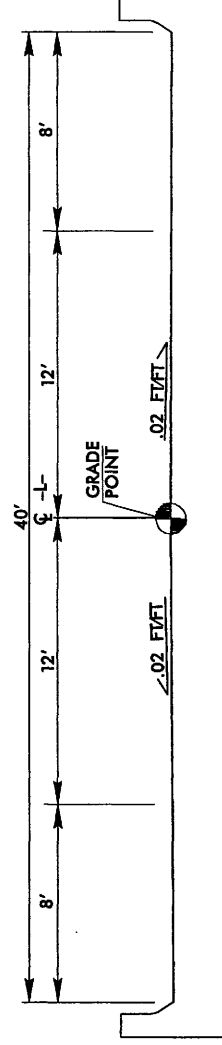
N.C. 130
Replace Bridge No. 9 Over Bear Branch
Brunswick County
B-4030

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. 9 Over Bear Branch
Brunswick County
B-4030

NOT TO SCALE

Figure 3B

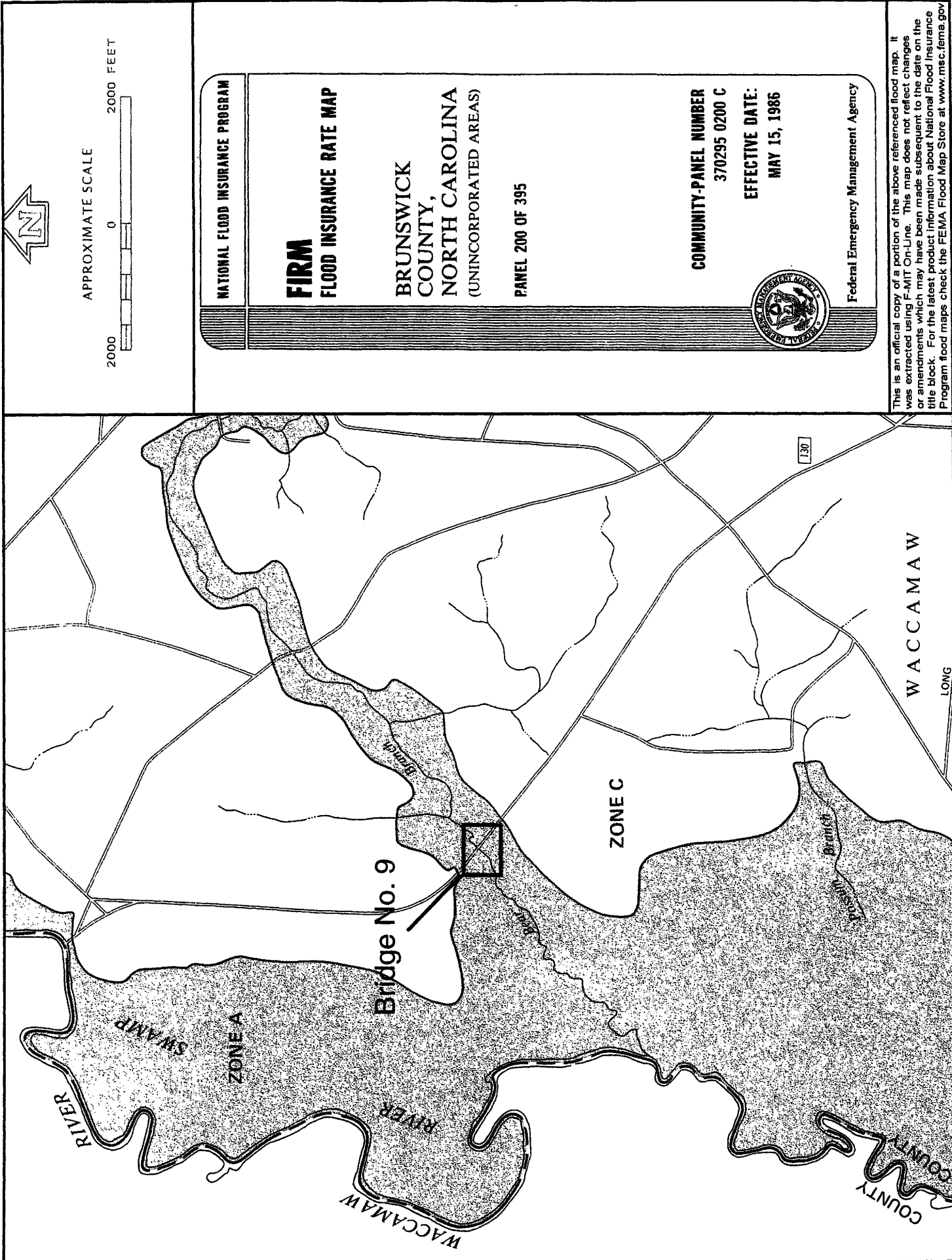


FIGURE 5

APPENDIX



Newsletter

NCDOT
T.I.P. B-4030

Volume I, Issue I

Proposed Replacement of Bridge No. 9 over Bear Branch on NC 130

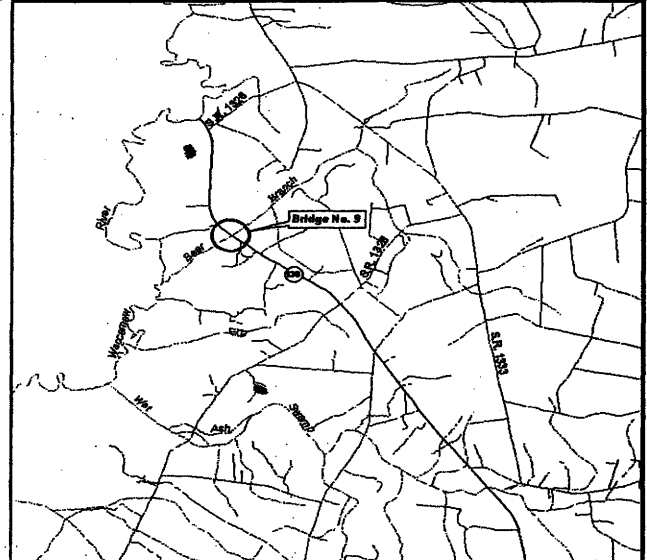
This newsletter is published by the North Carolina Department of Transportation to provide information on the status of the proposed replacement of the bridge over Bear Branch on NC 130 illustrated in the vicinity map to the right. The proposed project is needed to improve safety due to the deteriorated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

Four (4) alternatives have been studied for the proposed bridge replacement. Alternative 1 proposes 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 also proposes to replace the bridge in its existing location. Alternative 2 would maintain traffic with an on-site detour on the downstream (south) side of the bridge during construction. Alternative 3 would replace the bridge in its existing location and utilize an off-site detour during construction. The off-site detour for Alternative 3 would use the route of NC 130 to SR 1326 (Old King Road Nw) to SR 1333 (Project Road Nw) to SR 1328 (Simmons Road Nw) and back to NC 130. Alternative 4 proposes to realign NC 130 and construct a new bridge on the downstream (south) side of the existing bridge. Alternative 4 would utilize the existing bridge to maintain traffic during construction. Please see the figures shown on the back of this newsletter. Alternative 1 has been recommended as the preferred alternative. It has less wetland impacts than Alternatives 2 and 4, and the off-site detour is not suitable to handle NC 130 traffic during the construction of the new bridge.



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

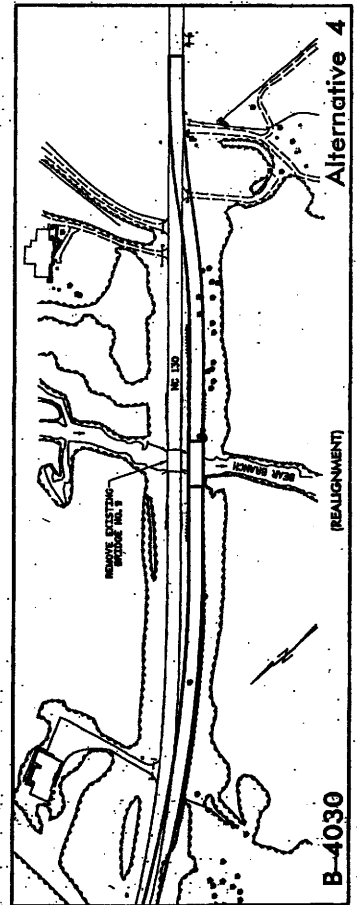
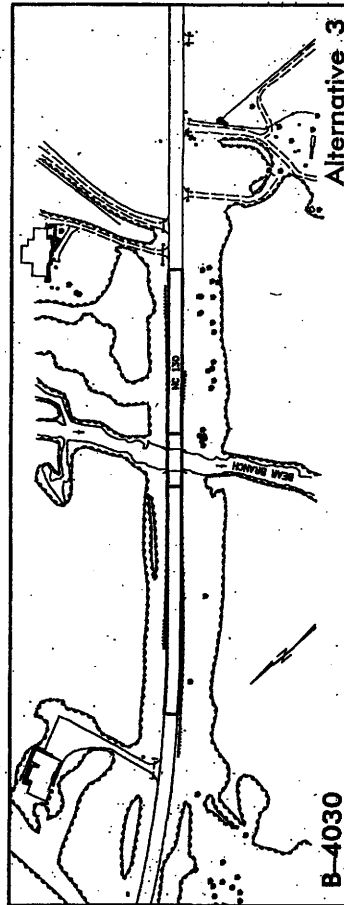
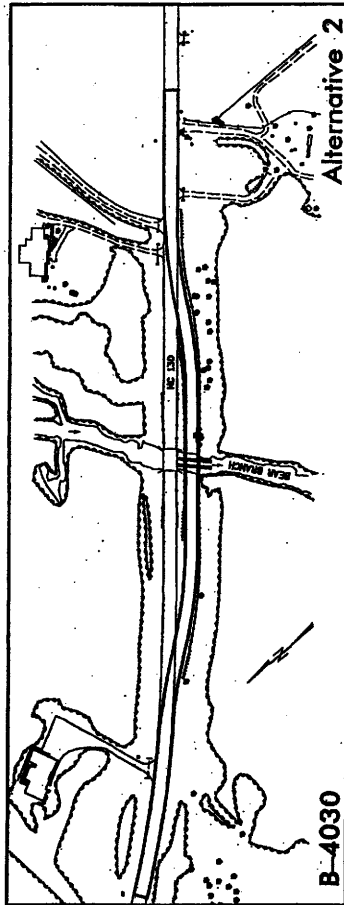
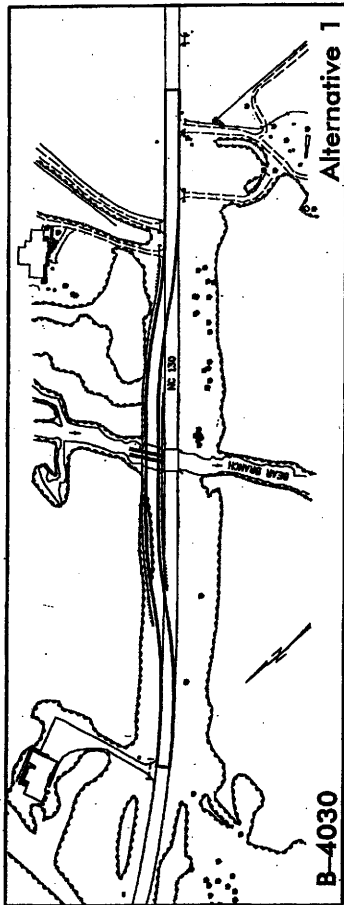
Mr. Richard Davis
Project Manager
The LPA GROUP of North Carolina, P.A.
4904 Professional Ct., Suite 201
Raleigh, NC 27609
(919) 954-1244
rdavis@lpagroup.com



NCDOT
T.I.P. B-4030

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

Postal Customer



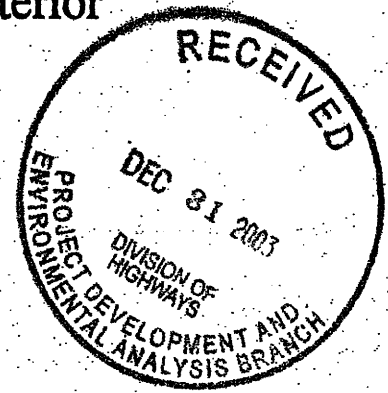


United States Department of the Interior

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. 9 on NC 130 over Bear Branch, Brunswick County, North Carolina (TIP No. B-4030). 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.

Enclosed with this letter is a list of federally threatened and endangered species for Brunswick County. With the exception of an occurrence of the American alligator (*Alligator mississippiensis*) approximately 1.2 miles away from the project site, the North Carolina Natural Heritage Program (NCNHP) database does not indicate any known occurrences of the other species near the project vicinity. However, 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.

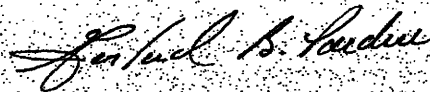
We reserve the right to review any federal permits that may be required for this project, at the public notice stage. Therefore, it is important that resource agency coordination occur early in the planning process in order to resolve any conflicts that may arise and minimize delays in project implementation. 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

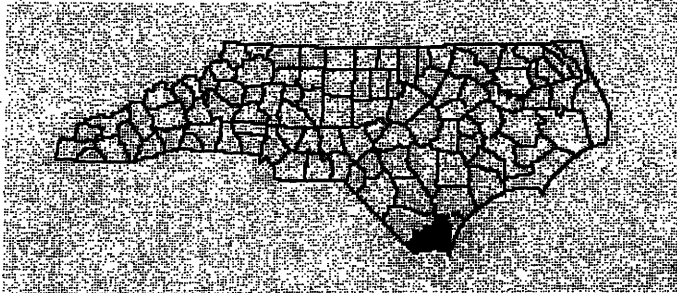
enclosure:

cc: Dave Timpy, USACE, Wilmington, NC
David Franklin, USACE, Wilmington, NC
John Hennessy, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

Updated: 02/05/2003

U.S. Fish & Wildlife Service

BRUNSWICK COUNTY



Critical Habitat Designation:

Piping Plover, *Charadrius melodus* - Critical Habitat designation in Federal Register 66:36038-36136, for a description of the primary constituent elements essential for the conservation of wintering piping plovers within the designated units. This document also contains a map and a description of each designated unit.

Common Name	Scientific name	Status
Vertebrates		
<u>American alligator</u>	<i>Alligator mississippiensis</i>	T(S/A)
Bachman's sparrow	<i>Aimophila aestivalis</i>	FSC
<u>Bald eagle</u>	<i>Haliaeetus leucocephalus</i>	Threatened(Proposed for delisting)
Carolina gopher frog	<i>Rana capito capito</i>	FSC
Carolina pygmy sunfish	<i>Elassoma boehlkei</i>	FSC
<u>Eastern cougar</u>	<i>Puma concolor cougar</i>	Endangered
Eastern Henslow's sparrow	<i>Ammodramus henslowii</i>	FSC
Eastern painted bunting	<i>Passerina ciris ciris</i>	FSC*
<u>Green sea turtle</u>	<i>Chelonia mydas</i>	Threatened
<u>Kemp's ridley sea turtle</u>	<i>Lepidochelys kempii</i>	Endangered

<u>Leatherback sea turtle</u>	<i>Dermochelys coriacea</i>	Endangered
<u>Loggerhead sea turtle</u>	<i>Caretta caretta</i>	Threatened
<u>West Indian Manatee</u>	<i>Trichechus manatus</i>	Endangered
Mimic glass lizard	<i>Ophisaurus mimicus</i>	FSC
Northern pine snake	<i>Pituophis melanoleucus melanoleucus</i>	FSC*
<u>Piping Plover</u>	<i>Charadrius melodus</i>	Threatened
Rafinesque's big-eared bat	<i>Corynorhinus (=Plecotus) rafinesquii</i>	FSC*
<u>Red-cockaded woodpecker</u>	<i>Picoides borealis</i>	Endangered
<u>Shortnose sturgeon</u>	<i>Acipenser brevirostrum</i>	Endangered
Southern hognose snake	<i>Heterodon simus</i>	FSC*
<u>Wood stork</u>	<i>Mycteria americana</i>	Endangered

Invertebrates

Arogos skipper	<i>Atrytone arogos arogos</i>	FSC***
Buchholz's dart moth	<i>Agrotis buchholzi</i>	FSC
Cape Fear threetooth	<i>Triodopsis soelneri</i>	FSC
Carter's noctuid moth	<i>Spartiniphaga carterae</i>	FSC
Greenfield ramshorn	<i>Helisoma eucosmium</i>	FSC
Magnificent ramshorn	<i>Planorbella magnifica</i>	FSC
Rare skipper	<i>Problema bulenta</i>	FSC
Venus flytrap cutworm moth	<i>Hemipachnobia subporphyrea subporphyrea</i>	FSC
Waccamaw spike	<i>Elliptio waccamawensis</i>	FSC

Vascular Plants

A quillwort	<i>Isoetes microvela</i>	FSC
Awed meadow-beauty	<i>Rhexia aristosa</i>	FSC
Carolina asphodel	<i>Tofieldia glabra</i>	FSC
"Carolina" atamasco lily	<i>Zephyranthes sp. 1</i>	FSC
"Carolina" bishopweed	<i>Ptilimnium sp. 1</i>	FSC
Carolina bogmint	<i>Machridea caroliniana</i>	FSC
Carolina goldenrod	<i>Solidago pulchra</i>	FSC
Carolina grass-of-parnassus	<i>Parnassia caroliniana</i>	FSC
Chapman's sedge	<i>Carex chapmanii</i>	FSC
Chapman's three-awn	<i>Aristida simpliciflora</i>	FSC

Coastal beaksedge	<i>Rhynchospora pleiantha</i>	FSC
Coastal goldenrod	<i>Solidago villosicarpa</i>	FSC*
Cooley's meadowrue	<i>Thalictrum cooleyi</i>	Endangered
"Dune bluecurls"	<i>Trichostema sp. 1</i>	FSC
Dwarf burhead	<i>Echinodorus parvulus</i>	FSC
Harper's fimbry	<i>Fimbristylis perpusilla</i>	FSC
Honeycomb head	<i>Balduina atropurpurea</i>	FSC
Long beach seedbox	<i>Ludwigia brevipes</i>	FSC
Loose watermilfoil	<i>Myriophyllum laxum</i>	FSC
Pineland plantain	<i>Plantago sparsiflora</i>	FSC
Pondspice	<i>Litsea aestivalis</i>	FSC
Rough-leaved loosestrife	<i>Lysimachia asperulaefolia</i>	Endangered
Savanna cowbane	<i>Oxypolis ternata</i>	FSC
Savanna indigo-bush	<i>Amorpha georgiana var. confusa</i>	FSC
"Savanna" onion	<i>Allium sp 1</i>	FSC
Seabeach amaranth	<i>Amaranthus pumilus</i>	Threatened
Spring-flowering goldenrod	<i>Solidago verna</i>	FSC
Swamp Forest beaksedge	<i>Rhynchospora decurrens</i>	FSC*
Thorne's beaksedge	<i>Rhynchospora thornei</i>	FSC
Tough bumelia	<i>Sideroxylon tenax</i>	FSC
Venus flytrap	<i>Dionaea muscipula</i>	FSC
Wireleaf dropseed	<i>Sporobolus teretifolius sensus stricto</i>	FSC
Nonvascular Plants		
Savanna campylopus	<i>Campylopus carolinae</i>	FSC*

KEY:

Status	Definition
Endangered -	A taxon "in danger of extinction throughout all or a significant portion of its range."
Threatened -	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
Proposed -	A taxon proposed for official listing as endangered or threatened.

- C1 -** A taxon under consideration for official listing for which there is sufficient information to support listing.
- FSC -** A Federal species of concern--a species that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing).
- T(S/A) -** Threatened due to similarity of appearance (e.g., American alligator)--a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.
- EXP -** A taxon that is listed as experimental (either essential or nonessential). Experimental, nonessential endangered species (e.g., red wolf) are treated as threatened on public land, for consultation purposes, and as species proposed for listing on private land.

Species with 1, 2, 3, or 4 asterisks behind them indicate historic, obscure, or incidental records.

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

**Obscure record - the date and/or location of observation is uncertain.

***Incidental/migrant record - the species was observed outside of its normal range or habitat.

****Historic record - obscure and incidental record.

For additional information regarding this Web page, contact Carolyn Wells, in Asheville, NC, at carolyn_wells@fws.gov

Visit the North Carolina ES Homepage

Visit the U.S. Fish and Wildlife Service Home Page

Keywords={same keywords listed above - used for search tools}



REPLY TO
ATTENTION OF:

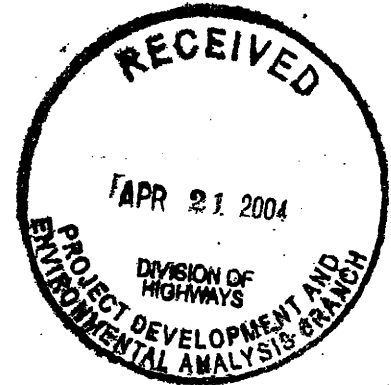
DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

APR 21 2004
DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

April 19, 2004

Regulatory Division

Action ID: 200400422; Tip Project No. B-4030



Dr. Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA
N.C. Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

Reference your letter dated December 8, 2003 requesting our scoping comments on TIP Project No. B-4030, Bridge No. 9 over Bear Branch, Brunswick County, North Carolina.

Based on the information provided in the referenced letter and recent field inspections conducted on January 4, 2004 by this office, this project may impact jurisdictional wetlands. Department of the Army (DA) permit authorization, pursuant to Section 404 of the Clean Water Act of 1977, as amended, will be required for the discharge of excavated or fill material in waters of the United States or any adjacent wetlands in conjunction with these projects, including disposal of construction debris. Specific permit requirements will depend on design of the projects, extent of fill work within the waters of the United States, including wetlands, construction methods, and other factors.

Although this project may qualify as a Categorical Exclusion, to qualify for nationwide permit authorization under Nationwide Permit #23, the project planning report should contain sufficient information to document that the proposed activity does not have more than a minimal individual or cumulative impact on the aquatic environment. All activities, including utility relocations, temporary construction, access, and dewatering activities, should be included in the project planning report. Our experience has shown that replacing bridges with culverts often results in sufficient adverse impacts to consider the work as having more than minimal impacts on the aquatic environment. Accordingly, the following items need to be addressed in the project planning report:

a. The report should contain the amount of permanent and temporary impacts to waters and wetlands as well as a description of the type of habitat that will be affected by the proposed project. In addition, the report should provide an estimate of the linear feet of adverse impacts to streams resulting from construction of the project. The project planning report should also provide accurate estimates of wetland and stream impacts based on preliminary project design and USACE verified wetland delineations. To date, this office has not verified the jurisdictional wetland delineations for this project.

b. Off-site detours are always preferable to on-site (temporary) detours in wetlands. If an on-site detour is the recommended action, justification should be provided that demonstrates that alternatives with lower wetland impacts are not practicable. On-site detours, unless constructed on a spanning structure or on a previous detour that was used in a past construction activity, can cause permanent wetland impacts due to sediment consolidation resulting from the on-site detour itself and associated heavy equipment. Substantial sediment consolidation in wetland systems may in turn cause fragmentation of the wetland and impair the ecological and hydrologic functions of the wetland. Thus, on-site detours constructed in wetlands can result in more than minimal wetland impacts. These types of wetland impacts will be considered as permanent wetland impacts. Please note that an on-site detour constructed on a spanning structure can potentially avoid permanent wetland impacts and should be considered whenever an on-site detour is the recommended action. If a spanning structure is not feasible, the existence of a previous on-site detour on the site that was used in previous construction activities should be investigated. This area should be used for an approved on-site detour whenever possible to minimize wetland impacts.

For proposed projects and associated on-site detours that cause minimal losses of wetlands, an approved wetland restoration and monitoring plan will be required prior to issuance of a DA nationwide or Regional general permit. For proposed projects and associated on-site detours that cause substantial wetland losses, an individual DA permit and a compensatory mitigation proposal for the unavoidable wetland impacts may be required.

In view of our concerns related to on-site detours constructed in wetlands, a cursory determination was made on the potential for sediment consolidation due to an on-site detour at the proposed project site. Based on this inspection, potential for sediment consolidation in wetlands exists along most of the project site. Therefore, it is recommended that a geotechnical evaluation be conducted to estimate the magnitude of sediment consolidation that can occur due to an on-site detour and the amount of undercutting that may be necessary. The results of this evaluation should be provided in the project planning report. Based on our field inspections, we strongly recommend that geotechnical evaluations be conducted at the proposed project site.

Information provided in the referenced letter indicated that your office is studying three alternatives for this project. Alternative 1 and 2 include replacing the existing bridge with a new bridge of the same length, location, and elevation. Alternative 1

includes an onsite detour located on the north side and Alternative 2 includes an onsite detour located on the south side of the existing bridge. Alternative 3 would propose to realign NC 130 to the south of the existing bridge and utilize the existing bridge during construction. At this time, we cannot offer a recommendation for an alternative without additional information regarding the proposed project and the associated wetland and stream impacts. However, based on our field inspection it is recommended that the wetlands on this site be avoided and an offsite detour be proposed for this project. It appears that a reasonable offsite detour route could consist of SR 1326 and SR 1328 located east and west of the proposed project.

c. Project commitments should include the removal of all temporary fills from waters and wetlands and "time-of-year" restrictions on in-stream work if recommended by the NC Wildlife Resources Commission, NC Division of Marine Fisheries, or the NOAA Marine Fisheries Service. The moratorium dates for in-water construction work have been coordinated with the resource agencies and established since August 2002. To assist with your planning efforts for this project, we have attached the established list of moratorium dates.

d. All undercut material from the construction of temporary detours must be stockpiled on an upland site and later used to restore the wetlands that existed on the site.

f. The project planning report should address all permanent and temporary wetland and stream impacts associated with utility activities associated with this project.

e. All restored areas should be planted with endemic vegetation including trees, if appropriate. For projects proposing a temporary on-site detour in wetlands, the entire detour area, including any previous detour from past construction activities, should be removed in its entirety. It is also recommended that the future construction contract for this proposed project allow for adequate time to complete this work in a timely and satisfactory manner.

f. If a bridge is proposed to be replaced with a culvert, NCDOT must demonstrate that the work will not result in more than minimal impacts on the aquatic environment, specifically addressing the passage of aquatic life including anadromous fish. The work must also not alter the stream hydraulics and create flooding of adjacent properties or result in unstable stream banks. In addition, the report should address the impacts that the culvert would have on recreational navigation.

g. The report should discuss and recommend bridge demolition methods and shall include the impacts of bridge demolition and debris removal in addition to the impacts of constructing the bridge. The report should also incorporate the bridge demolition policy recommendations pursuant to the NCDOT policy entitled "Bridge Demolition and Removal in Waters of the United States" dated September 20, 1999.

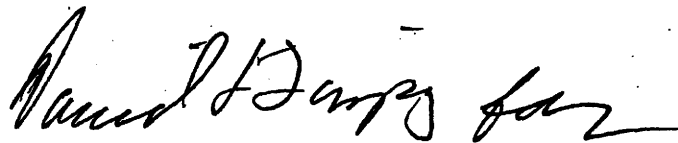
h. Lengthening existing bridges can often benefit the ecological and hydrological functions of the associated wetlands and streams. In addition, longer and higher bridges would also enhance the existing crossing for wildlife passage thereby creating a safer roadway. Most bridge approaches are connected to earthen causeways that were built over wetlands and streams. Replacing these causeways with longer and higher bridges would allow previously impacted wetlands to be restored and wildlife passage enhanced. In an effort to encourage this type of work, mitigation credit for wetland restoration activities can be provided to offset the added costs of lengthening an existing bridge. Based on our recent field inspections, an existing causeway does exist at the project site and lengthening and raising the existing bridge should be considered for reasons described above.

i. All work related to Federal Endangered Species as required by Section 7 of the Endangered Species Act including copies of all correspondence and meeting minutes with the NOAA Marine Fisheries Service and the US Fish and Wildlife Service associated with the subject projects should be coordinated with this office. Failure to do so could lead to a delay in your project.

j. Based on the information provided and our recent field investigation of the referenced project site, the apparent level of wetland impacts and scope may warrant coordination pursuant to the integrated Section 404/NEPA-merger agreement.

Should you have any questions please call Mr. David L. Timpy at the Wilmington Field Office at 910-251-4634.

Sincerely,



E. David Franklin
Chief, NCDOT Team

Enclosure

Copies Furnished (without enclosure):

Mr. John Dorney
NCDENR-DWQ
Wetlands Section
1650 Mail Service Center
Raleigh, NC 27699-1621

Mr. Travis Wilson
Highway Coordinator
North Carolina Wildlife Resources Commission
1141 I-85 Service Road
Creedmoor, North Carolina 27522

Mr. Gary Jordan
United States Fish & Wildlife Service
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Ron Sechler
National Marine Fisheries Service
Pivers Island
Beaufort, North Carolina 28516

Mr. Allen Pope, PE
North Carolina Department of Transportation
Division 3
124 Division Drive
Wilmington, North Carolina 28401

August 12, 2002

<u>SPECIES/TYPE</u>	<u>MORATORIUM DATES</u>	<u>PRIMARY AGENCY</u>
STURGEON	FEB 1 – JUN 30	NMFS
OTHER ANADROMOUS FISH	FEB 15 – JUN 30	NMFS
SPOTFIN CHUB	MAY 15 – AUG 31	USFWS
CAPE FEAR SHINER	SECTION 7 CONSULTATION	USFWS
EASTERN SUNFISH	APR 1 – JUN 30	NCWRC
WESTERN SUNFISH	MAY 1 – JUN 30	NCWRC
RAINBOW TROUT	JAN 1 – APR 15	NCWRC
BROOK OR BROWN TROUT	OCT 15 – APR 15	NCWRC
PRIMARY NURSERY AREAS	FEB 15 – SEP 30	NMFS/NCDMF
SEA TURTLE (NESTING AREAS)	MAY 1 – NOV 15	USFWS
PIPING PLOVER (NESTING AREAS)	APR 1 – JUL 15	USFWS
MANATEE (IN-WATER WORK)	JUN – OCT	USFWS
MUSSELS	SECTION 7 CONSULTATION	USFWS

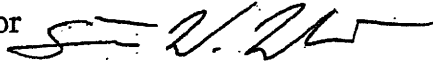


☒ North Carolina Wildlife Resources Commission ☒

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.

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 stream 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:

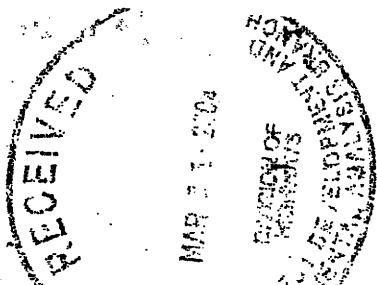
1. B-4165, Johnston County, Bridge No. 89 over Sassarixa Swamp on SR 1162. We recommend replacing this bridge with a bridge. Standard recommendations apply.
2. B-4207, Moore County, Bridge No. 43 over McLendons Creek on NC 22-24-27. We recommend replacing this bridge with a bridge. McLendons Creek contains 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-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-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
Bisbeth C. Evans, Secretary
Jeffrey L. Crow, Deputy Secretary
Office of Archives and History

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

March 2, 2004

CITIZENS PARTICIPATION
RECEIVED

MAR 11 2004

MEMORANDUM

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

FROM: David Brook *for David Brook*

SUBJECT: Bridge No. 9 over Bear Branch, NC 130, B-4030, Brunswick County, ER03-3639

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

www.hpo.dcr.state.nc.us

ADMINISTRATION
RESTORATION

Location
507 N. Blount St, Raleigh, NC
515 N. Blount St, Raleigh, NC

Mailing Address
4617 Mail Service Center, Raleigh, NC 27699-4617
4617 Mail Service Center, Raleigh, NC 27699-4617
4617 Mail Service Center, Raleigh, NC 27699-4617

Telephone/Fax
(919) 733-4763 • 733-8653
(919) 733-6547 • 715-4801
(919) 733-4763 • 715-4801



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 *for David Brook*

SUBJECT: NC 130, Bridge No. 9 over Bear Branch, B-4030, Brunswick County,
ER03-3639

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

www.hpo.dcr.state.nc.us

ADMINISTRATION
RESTORATION
SURVEY & PLANNING

Location
507 N. Blount St, Raleigh, NC
515 N. Blount St, Raleigh, NC
515 N. Blount St, Raleigh, NC

Mailing Address
4617 Mail Service Center, Raleigh, NC 27699-4617
4617 Mail Service Center, Raleigh, NC 27699-4617
4617 Mail Service Center, Raleigh, NC 27699-4617

Telephone/Fax
(919) 733-4763 • 733-8653
(919) 733-6547 • 715-4801
(919) 733-4763 • 715-4801

Received
4/1/03
Letter of the Day



DON MCCURLEY, TRANSPORTATION DIRECTOR
CURTIS 'BUDDY' FREEMAN, ROUTE SUPERVISOR
BOBBY TAYLOR, SHOP FOREMAN
FELICIA S. STANLEY, DATA MANAGER/AA
SHARON ELWOOD, TIMS COORDINATOR
TERESA FIKE, TIMS OPERATOR
JOYCE COX, SAFETY COORDINATOR
TIM PHELPS, PARTS MANAGER

MEMORANDUM

TO: William T. Goodwin, Jr. PE
Project Development & Environmental Analysis Branch

FROM: Don McCurley *DM*
Transportation Director, Brunswick County Schools

SUBJECT: Replacement of Bridge No. 9 on NC 130 over Bear Branch, Brunswick County
Federal Aid Project No. BRSTP-130(3)
State Project No. 8.1231801, TIP No. B-4030

In response to your request on the subject mentioned above, we currently have 3 buses that cross Bridge No. 9, twice a day.

At this time, our bus routes would not have any problems should DOT decide that road closure is necessary. However, bus stop locations may change by the time construction begins. Should this happen, I am sure that we will be able to work together to create/locate a safe turn around for our buses.

If you have any questions, please contact me at 910-253-2880.

Brunswick County Schools - Transportation Department
"Driving Our Future"
199 Sessions Drive - 35 Referendum Drive
Bolivia, North Carolina 28422
Telephone - 910-253-2880 FAX - 910-253-8676

Brunswick County

EMERGENCY SERVICES

SEP 14 2004
RECEIVED

(910) 253-4376
(910) 253-5383
PHONE



(910) 253-4451
FAX

September 10, 2004

Mr. Edward J. Smail
The LPA Group of North Carolina, P.A.
4904 Professional Court
Suite 201
Raleigh, NC 27609

Dear Mr. Smail:

Thank you for your letter dated August 31, 2004, in which you requested our input concerning the replacement of a bridge over Bear Branch on NC130. As you may already be aware, this section of Brunswick County is very much rural. Normal response times for County EMS can take extended periods of time to reach out-lying areas. The best option for emergency response traffic would be to have an emergency lane available during the construction process.

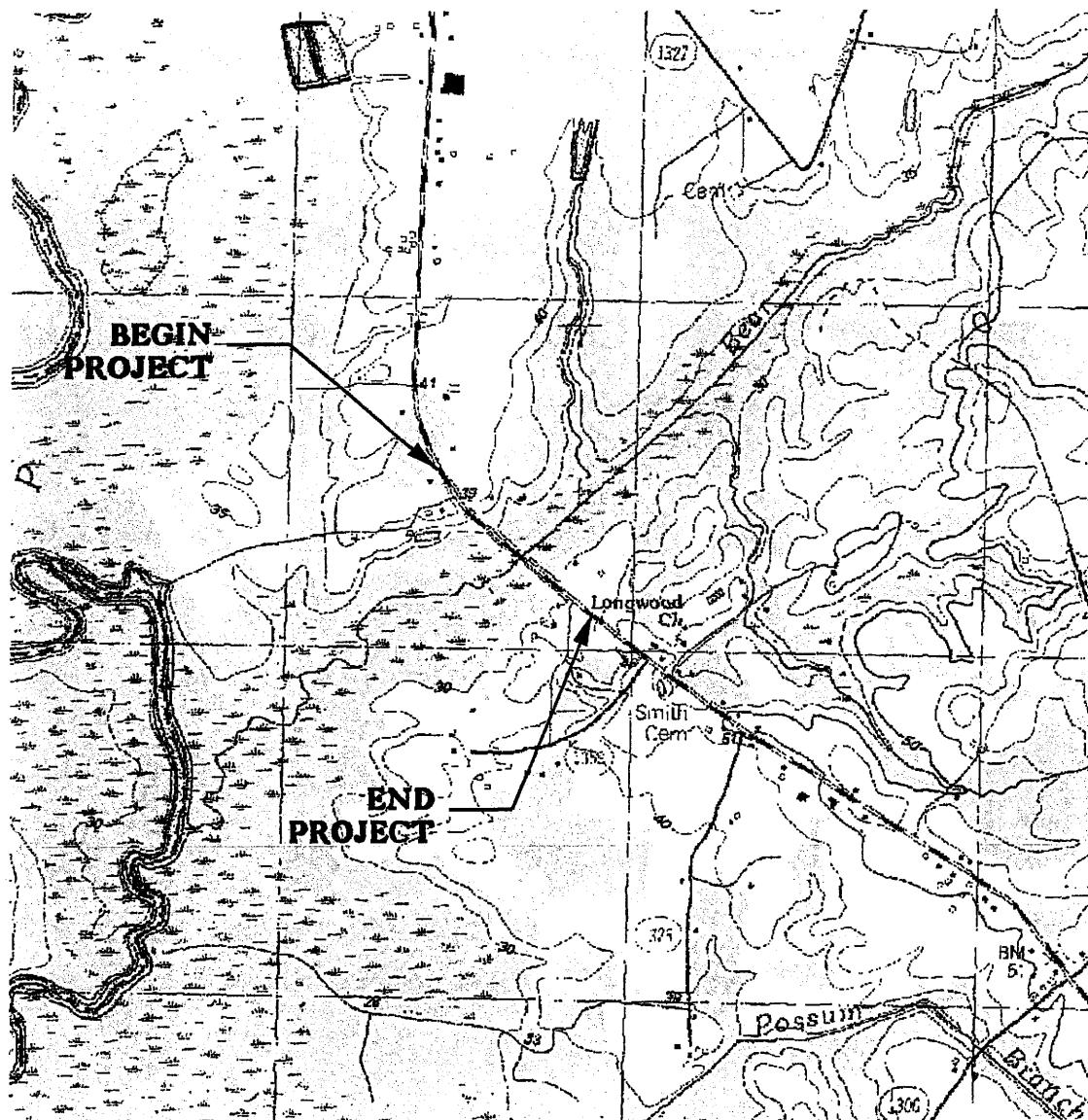
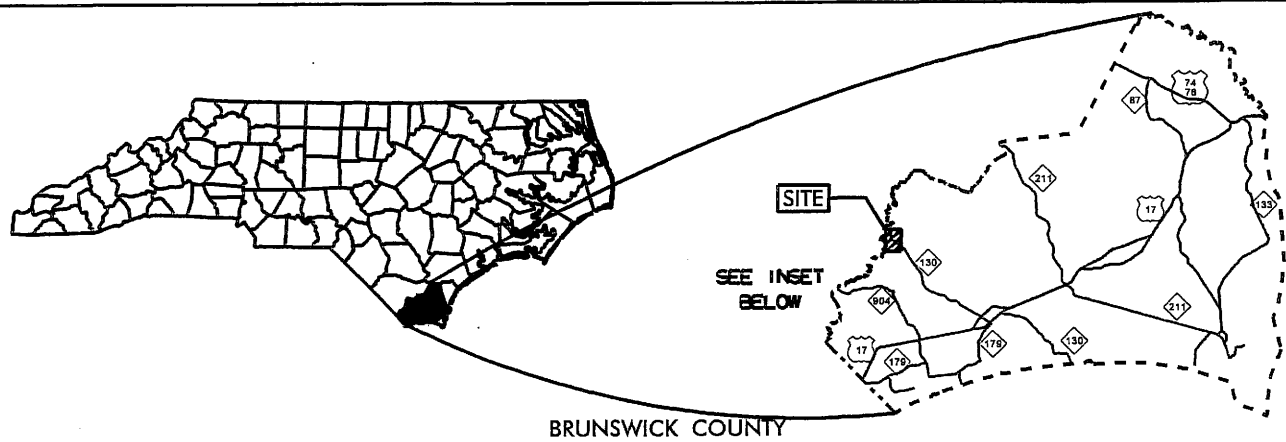
If an emergency lane is not an available option, then the recommended detour route appears to be the next best. By selecting this option, the increase in response times for medical, police, and fire will certainly impact this area of the county. From the attached map it appears that the detour route will consist of approximately 6.6 miles. At a speed of 45 mph this would add 12-13 minutes to each response.

We are very concerned about our road structure within Brunswick County and welcome the opportunity for future improvements. Again, thank you for allowing our office to comment on recommended detour options. Should you have any questions please feel free to contact me at 910-253-4376.

Best Regards,

Randy Thompson
Emergency Services Director

P.O. BOX 249 / BOLIVIA, NC 28422
3325 OLD OCEAN HIGHWAY
BUILDING C



WETLAND/STREAM IMPACTS
VICINITY MAP

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 33397.1.1 (B-4030)
BRIDGE NO. 9 OVER
BEAR BRANCH ON NC 130

SHEET ____ OF ____

1/29/08

Permit Drawing
Sheet 1 of 74

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS					
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	14+12-15+33 -L- LT	Fill	0.04									
2	12+19-15+95 -L- RT	Fill	0.08			0.06						
3	17+29-19+82 -L- LT	Fill	0.07		0.08							
	17+10 -L- LT	Bank Stabilization						<0.01		22		
4	17+29-20+09 -L- RT	Fill	0.02		<.01	0.05						
5	17+26-19+21 -DET-	Fill		0.13		0.02						
6	20+19-22+66 -DET-	Fill		0.20		0.03						
TOTALS:			0.21	0.33	0.08	0.16	0.00	0.00	0.00	22	0	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY
PROJECT: 33397.1.1 (B-4030)

ATN Revised 3/31/05

SHEET

12/5/2008

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	RALPH C. KING ET UX	4780 WHITEVILLE RD NW ASH, NC 28420
2	WESLEY E. KING ET UX	4872 WHITEVILLE RD NW ASH, NC 28420
3	ROSS JEWEL ET AL	745 HOLLY HILLS ROAD SLYVA, NC 28779
4	WILLIE R. WARREN ET UX	4968 WHITEVILLE RD NW ASH, NC 28420

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 33397.1.1 (B-4030)

BRIDGE NO. 9 ON OVER

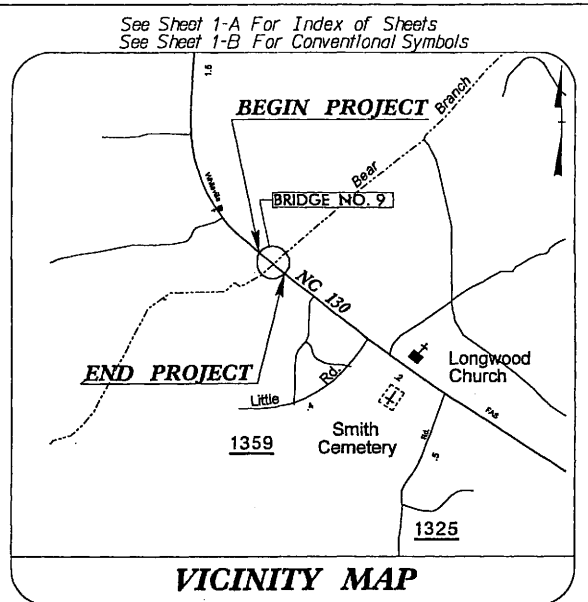
BEAR BRANCH ON NC 130

04/28/99

05-DEC-2008 08:46
P:\hydraulic\permits\drawings\ncdot\A1\HY24577

TIP PROJECT: B-4030

CONTRACT:



(THIS PROJECT IS NOT INCLUDED WITHIN ANY MUNICIPAL BOUNDARIES)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY

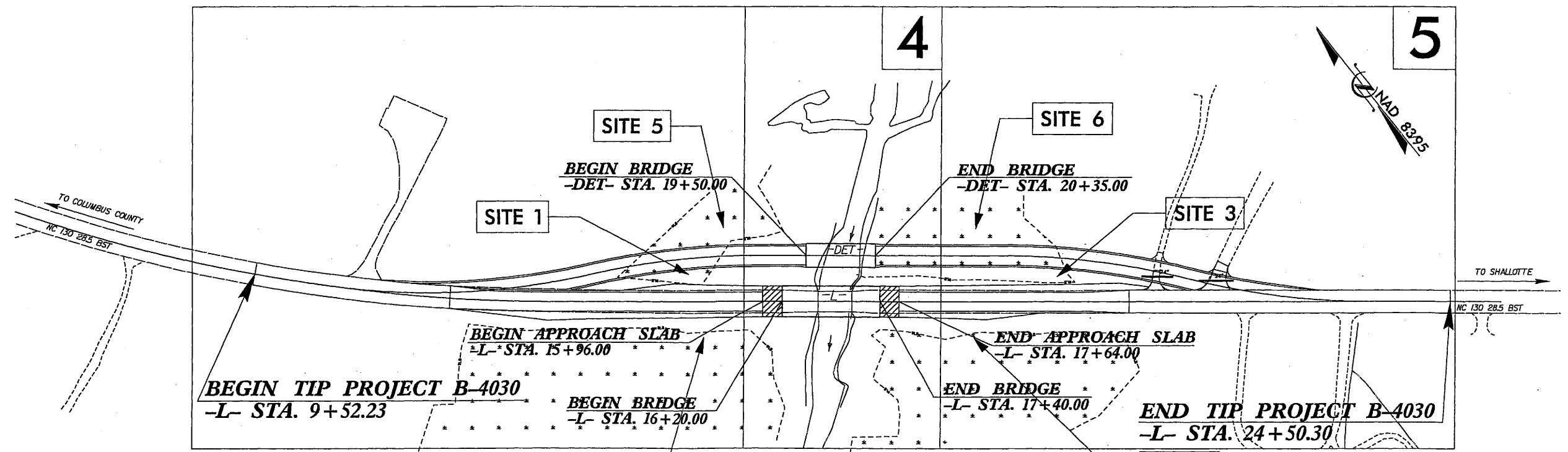
LOCATION: BRIDGE NO.9 OVER BEAR BRANCH ON NC 130
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT EXPERIENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4030	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33397.1.1	BRSTP-130 (3)	PE	
33397.2.1	BRSTP-130 (3)	RW+UTIL.	

RW PLANS

Permit Drawing
Sheet 4 of 14

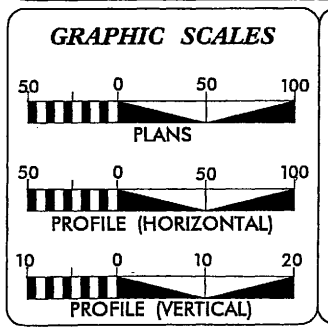
WETLAND/STREAM IMPACTS



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

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2008 =	4800
ADT 2028 =	7750
DHV =	9 %
D =	55%
T =	7 % *
V =	60 MPH
* TTST	4% DUAL 3%
FUNC. CLASS =	RURAL MINOR ARTERIAL

PROJECT LENGTH

Length Roadway Tip Project B-4030 =	0.261 Miles
Length Structure Tip Project B-4030 =	0.023 Miles
Total Length Tip Project B-4030 =	0.284 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:
JANUARY 18, 2008

LETTING DATE:
JANUARY 20, 2009

Jeanne K. Richter, P.E.
PROJECT ENGINEER

Jody L. Cole
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

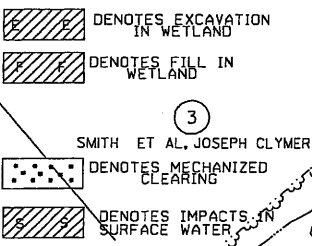
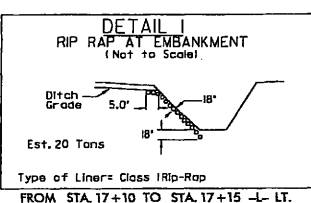
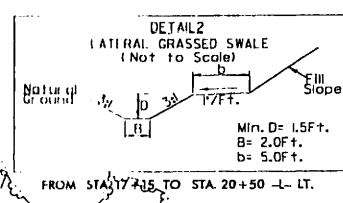
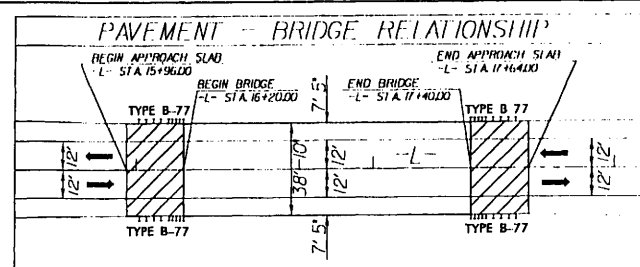
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER P.E.

8/17/99



PROJECT REFERENCE NO. **B-4030** SHEET NO. **4**

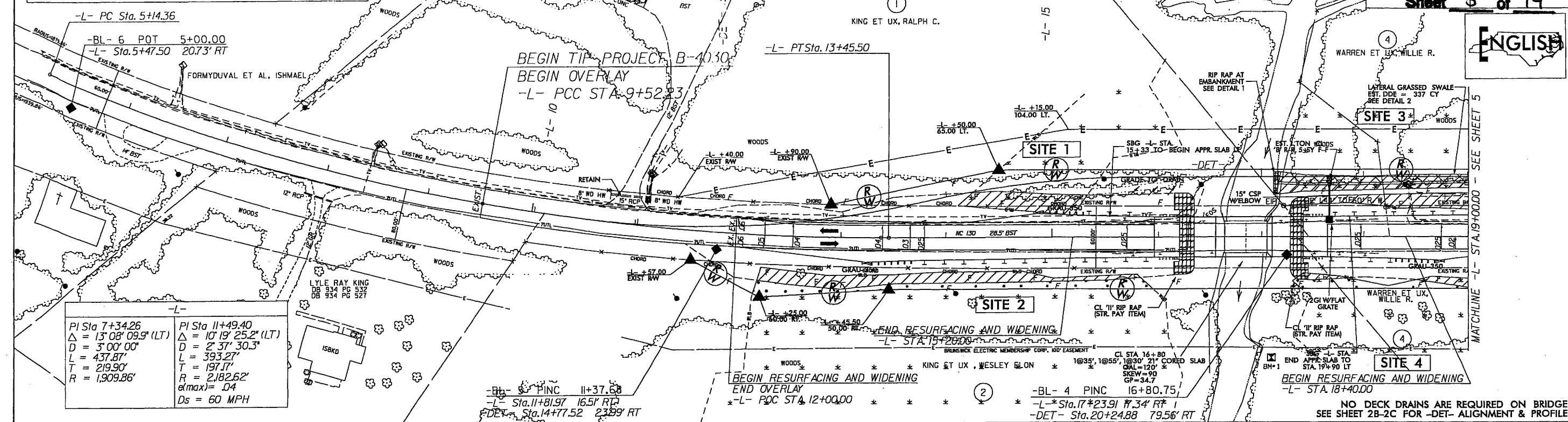
R/W SHEET NO. **4**

ROADWAY DESIGN ENGINEER **SMITH ET AL, JOSEPH CLYMER** HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet **5** of **14**

ENGLISH



PI STA 7+34.26

$\Delta = 13' 08' 09.9''$ (LT)	$\Delta = 10' 19' 25.2''$ (LT)
$D = 3' 00' 00''$	$D = 2' 37' 30.3''$
$L = 437.87'$	$L = 393.27'$
$T = 219.90'$	$T = 197.17'$
$R = 1,909.86'$	$R = 2,182.62'$
	$\alpha(\max) = .04$
	$Ds = 60$ MPH

BEGIN PROJECT B-4030
-L- Sta. 9+52.23
BEGIN OVERLAY

BEGIN RESURFACING AND WIDENING
END OVERLAY
-L- PCC STA 12+00.00

-BL- 4 PINC 16+80.75
-L- Sta. 17+23.91 77.34' RT
-DET- Sta. 20+24.88 79.56' RT

NO DECK DRAINS ARE REQUIRED ON BRIDGE
SEE SHEET 28-2C FOR -DET- ALIGNMENT & PROFILE

DITCH LEGEND

LEFT DITCH	
EXIST. ROAD FILL TO BE EXCAVATED	

BM* 1 ELEV. 34.04'
N 1194154337 E 2138265.9027
-BL- STA 16+68 100' RT.
-L- STA 17+09.41 116.79' RT.
-DET- STA 20+10.11 174.79' RT.

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	1000 CFS
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	29.5 FT
BASE DISCHARGE	=	1210 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	29.8 FT
OVERTOPPING DISCHARGE	=	2000+ CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	33.5 FT

BEGIN PROJECT B-4030
-L- Sta. 9+52.23
BEGIN OVERLAY

BEGIN GRADE
END OVERLAY
-L- Sta. 12+00.00
ELEV. = 34.27'

PI = 13+50.00
EL = 34.04'
VC = 110'
K = 230
Ds = 60 MPH

PI = 14+60.00
EL = 34.40'
VC = 110'
K = 76
Ds = 60 MPH

PI = 17+85.00
EL = 33.43'
VC = 120'
K = 148
Ds = 60 MPH

PI = 19+10.00
EL = 34.06'
VC = 123'
K = 152
Ds = 60 MPH

50' FEATHER TO EXIST.

2" OVERLAY
EXISTING GRADE

PROPOSED GRADE
EXISTING GROUND

EXIST. BRIDGE TO BE REMOVED
PROPOSED GRADE

EXCAVATE EXISTING ROAD FILL
NWSE & WS ON 9-28-05
=25.4

EXCAVATE EXISTING ROAD FILL
BEG LATERAL GRASS SWALE
STA 17+20.00 ELEV. = 24.99' LT

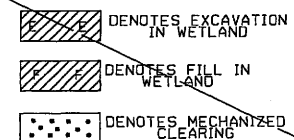
PI = 19+00.00
EL = 25.17'

REVISIONS

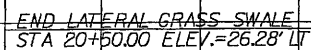
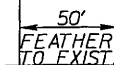
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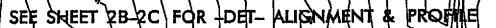
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DITCH LEGEND	
LEFT DITCH	-----



Permit Drawing
Sheet 8 of 14

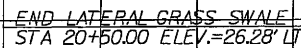


LEFT DITCH

END GRADE	
BEGIN OVERLAY	
-L- Sta. 20+50.00	
ELEV. = 33.87	

PI =	20+10.00
EL =	33.76'
VC =	77'
K =	136
Ds =	60 MPH

50'
FEATHER
TO EXIST



8/17/99



-DET-
PI Sta 15+14.10
 $\Delta = 20^\circ 39' 41.5''$ (LT)
D = 6' 11" 14.8"
L = 333.93'
T = 168.80'
R = 926.00'
a(max) = EXISTING
Ds = 50 MPH

-DET-
PI Sta 17+83.43
 $\Delta = 12^\circ 50' 23.2''$ (RT)
D = 6' 11" 14.8"
L = 207.51'
T = 104.19'
R = 926.00'
a(max) = .04
Ds = 50 MPH

..... DENOTES MECHANIZED CLEARING
/// DENOTES TEMPORARY FILL IN WETLAND
SMITH ET AL, JOSEPH CLYMER

PROJECT REFERENCE NO.
B-4030

SHEET NO.
2B

RW SHEET NO.

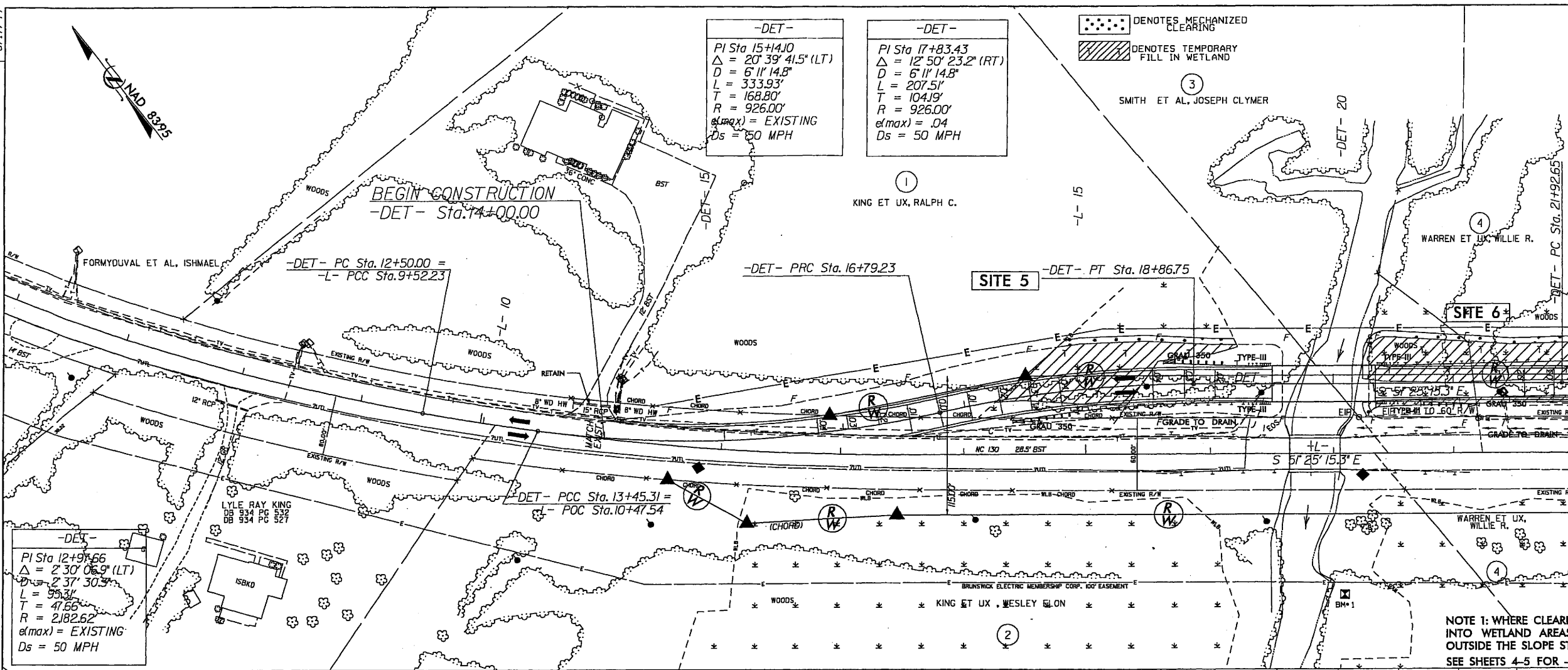
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 9 of 14

ENGLISH



-DET-
PI Sta 12+97.66
 $\Delta = 2^\circ 30' 06.9''$ (LT)
D = 2' 37" 30.3"
L = 95.31'
T = 47.66'
R = 2182.62'
a(max) = EXISTING
Ds = 50 MPH

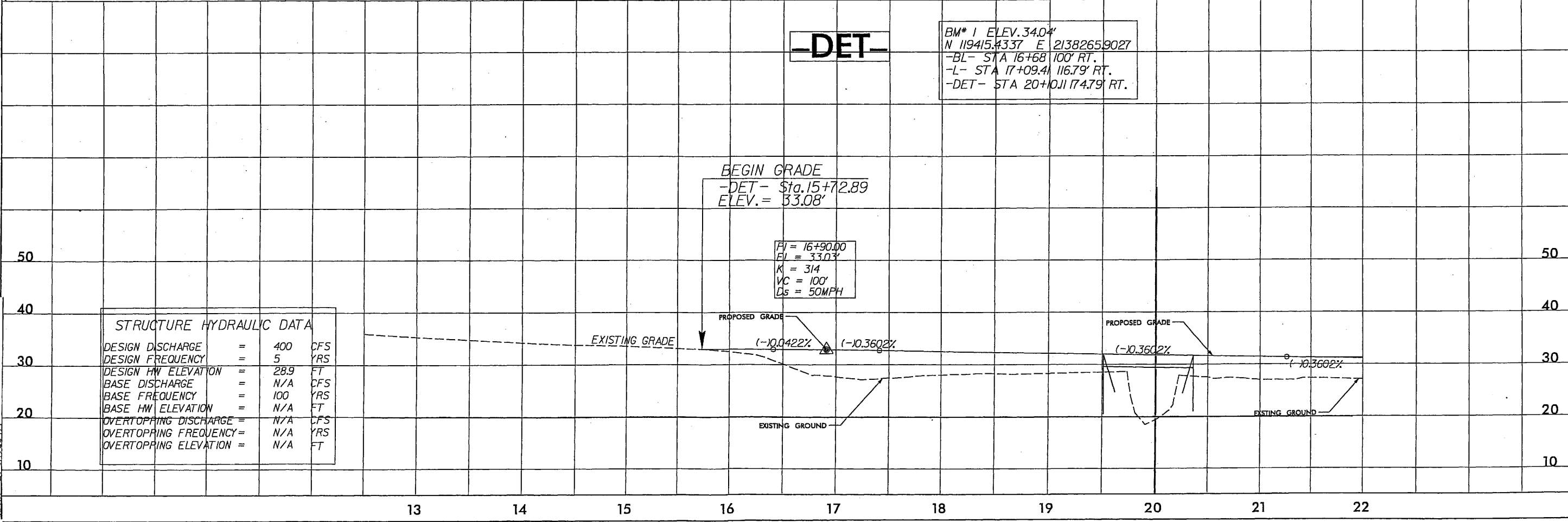
NOTE 1: WHERE CLEARING AND GRUBBING OPERATIONS EXTEND INTO WETLAND AREAS THIS ACTIVITY WILL BE LIMITED TO 5' OUTSIDE THE SLOPE STAKES (PARCELS 1,3 AND 4).
SEE SHEETS 4-5 FOR -L- ALIGNMENT & PROFILE

-DET-
BM* 1 ELEV. 34.04'
N 119415.4337 E 2138265.9027
-BL- STA 16+68 100' RT.
-L- STA 17+09.41 116.79' RT.
-DET- STA 20+10.11 174.79' RT.

STRUCTURE HYDRAULIC DATA			
DESIGN DISCHARGE	=	400	CFS
DESIGN FREQUENCY	=	5	YRS
DESIGN HW ELEVATION	=	28.9	FT
BASE DISCHARGE	=	N/A	CFS
BASE FREQUENCY	=	100	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. 15+72.89
ELEV. = 33.08'

PI = 16+90.00
EI = 33.03'
K = 314
VC = 100'
Ds = 50MPH

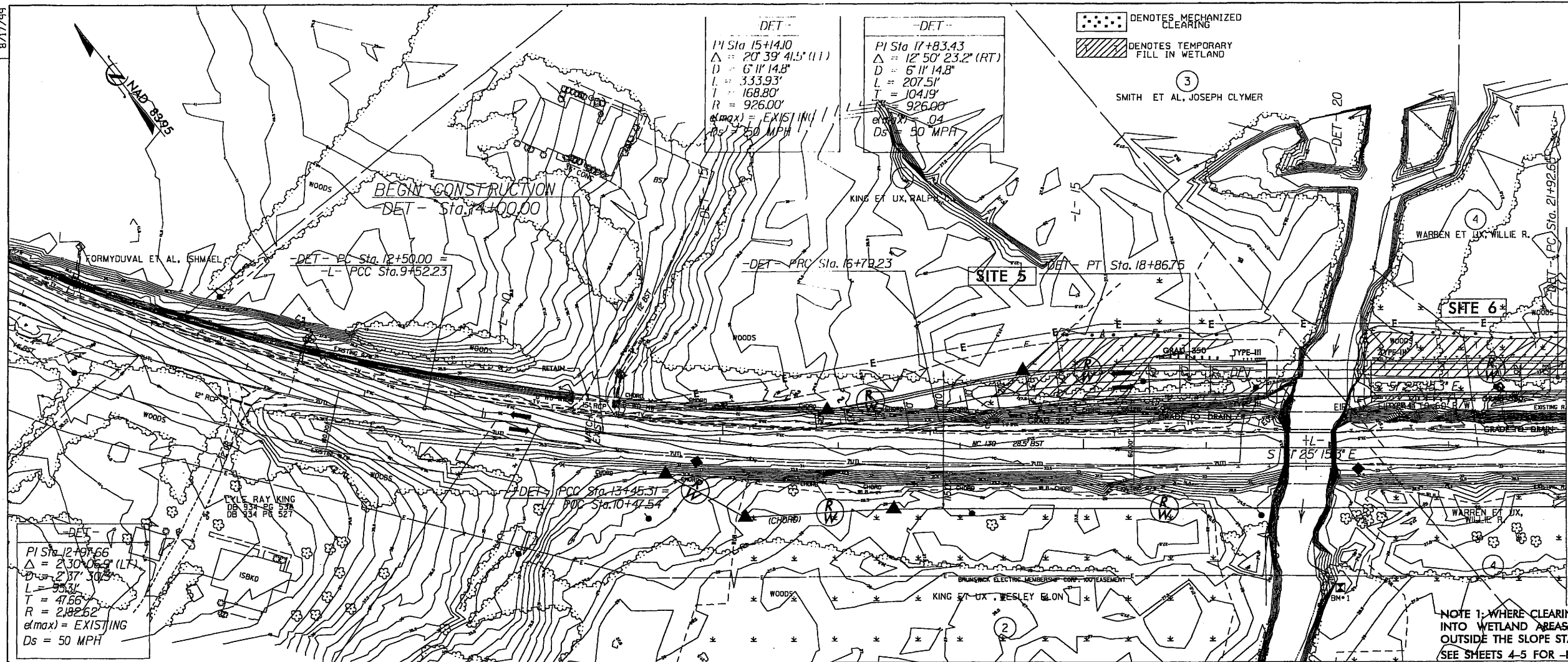


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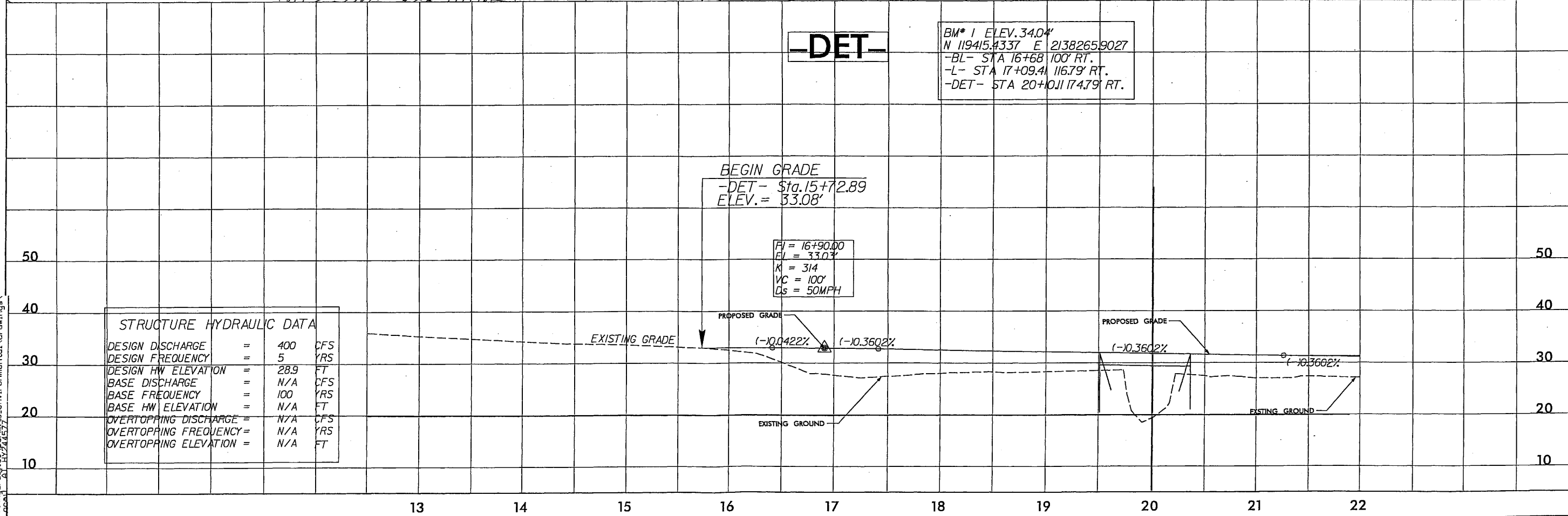
8/17/99

REVISIONS

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PROJECT REFERENCE NO. B-4030
SHEET NO. 2B
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 10 of 14



8/17/99

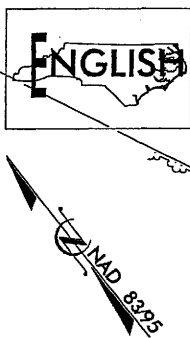
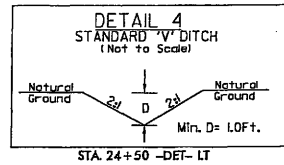
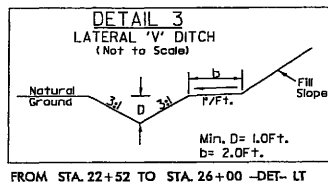
REVISIONS

..... DENOTES MECHANIZED CLEARING
/// DENOTES TEMPORARY FILL IN WETLAND

-DET-

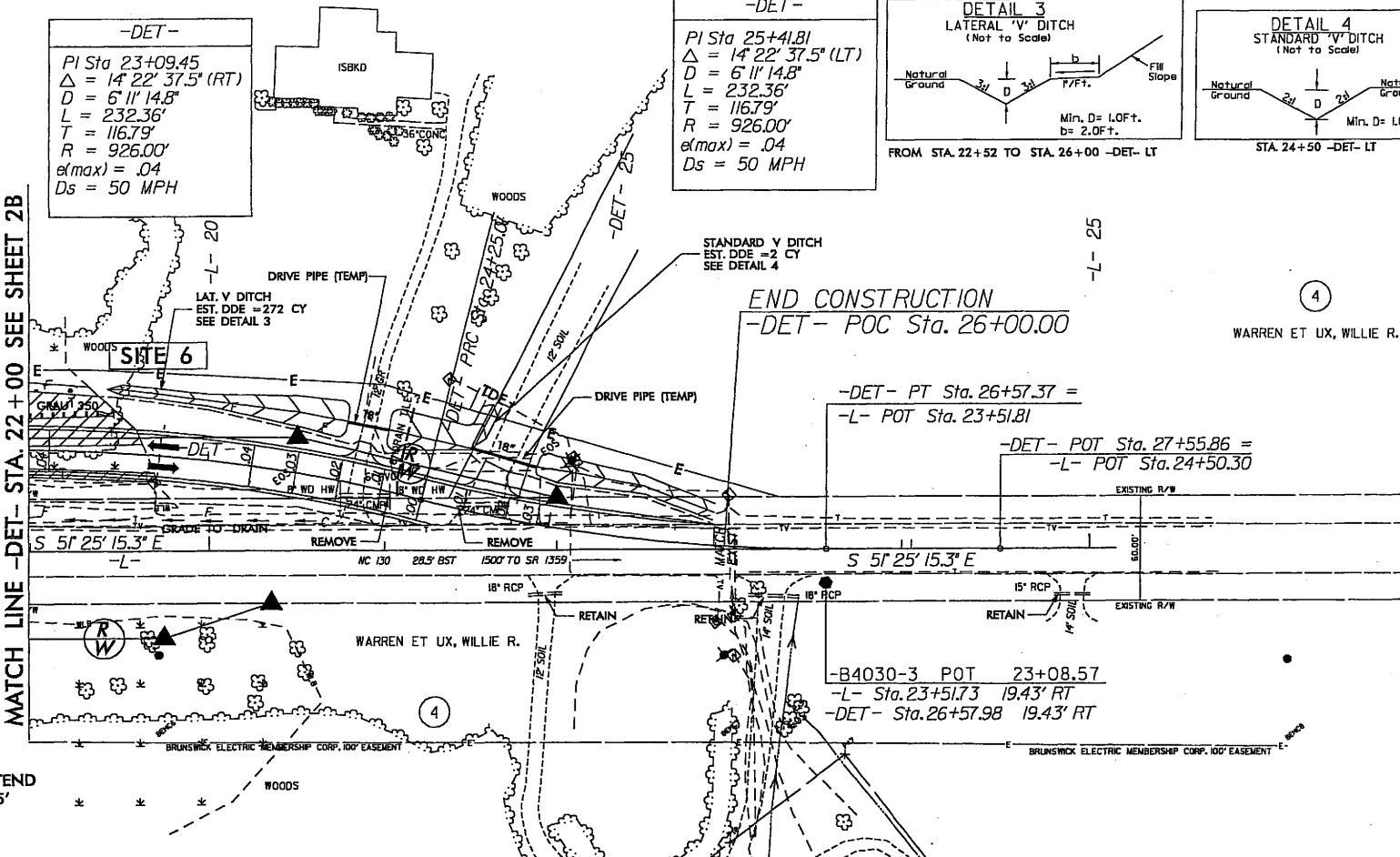
-DET-
PI Sta 23+09.45
 $\Delta = 14' 22' 37.5" (RT)$
 $D = 6' 11' 14.8"$
 $L = 232.36'$
 $T = 116.79'$
 $R = 926.00'$
 $a(max) = .04$
 $Ds = 50 MPH$

-DET-
PI Sta 25+41.81
 $\Delta = 14' 22' 37.5" (LT)$
 $D = 6' 11' 14.8"$
 $L = 232.36'$
 $T = 116.79'$
 $R = 926.00'$
 $a(max) = .04$
 $Ds = 50 MPH$



PROJECT REFERENCE NO. B-4030	SHEET NO. 2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 11 of 14	

MATCH LINE -DET- STA. 22+00 SEE SHEET 2B



NOTE 1: WHERE CLEARING AND GRUBBING OPERATIONS EXTEND INTO WETLAND AREAS THIS ACTIVITY WILL BE LIMITED TO 5' OUTSIDE THE SLOPE STAKES (PARCELS 1,3 AND 4).
SEE SHEETS 4-5 FOR -L- ALIGNMENT & PROFILE

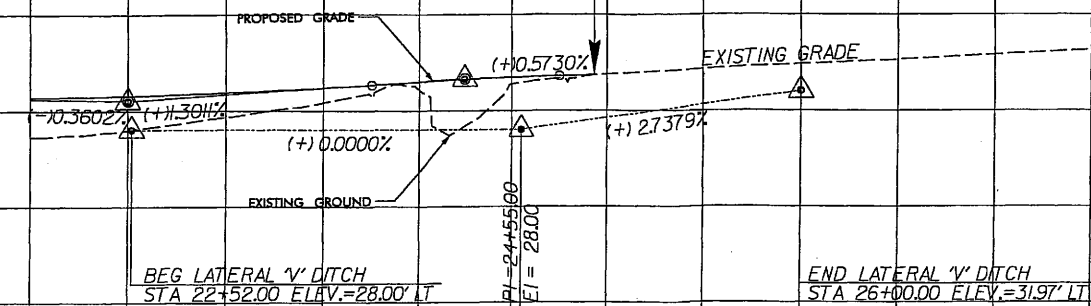
DITCH LEGEND
LEFT DITCH

-DET-

END GRADE
-DET- Sta. 24+93.10
ELEV. = 33.68'

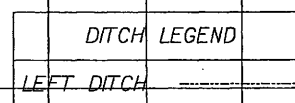
PI = 22+50.00
EL = 31.01'
VC = 250'
K = 150
Ds = 50MPH

PI = 24+25.00
EL = 33.29'
VC = 100'
K = 137
Ds = 50MPH

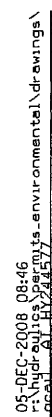


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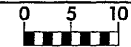
Permit Drawing
Sheet 12 of 14



-DET-



8/23/99

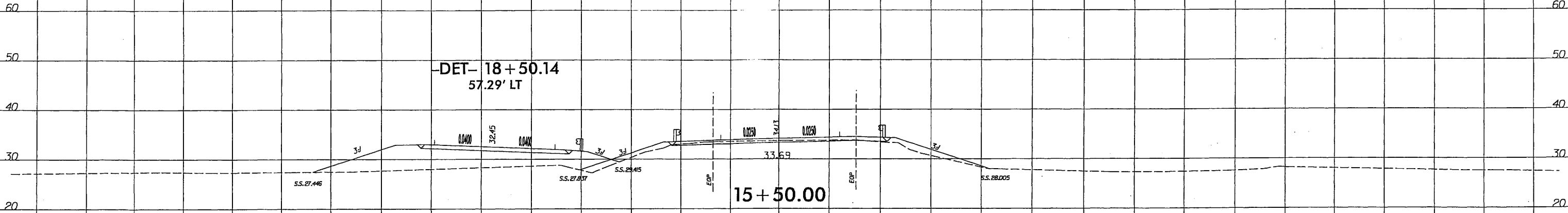


PROJ. REFERENCE NO.
B-4030

SHEET NO.
X-5

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

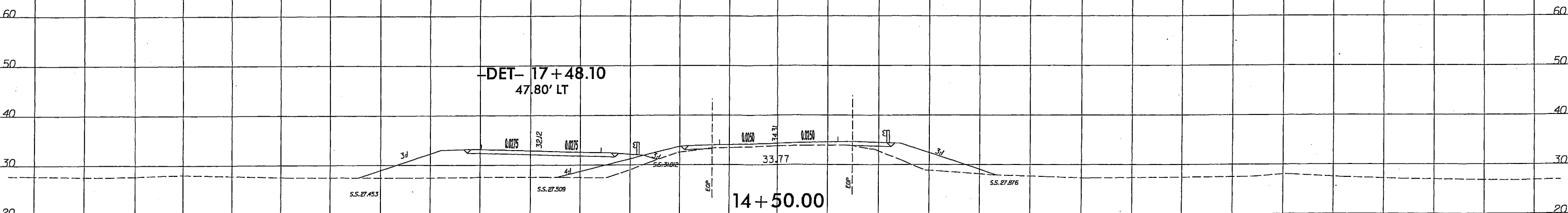
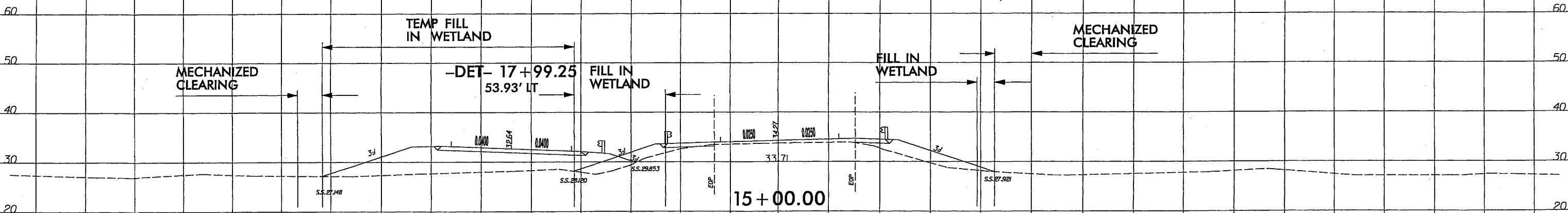
Permit Drawing
Sheet 13 of 14



SITE 5

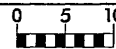
SITE 1

SITE 2



05 DEC 2008 08:46
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8/23/99



PROJ. REFERENCE NO.
B-4030

SHEET NO.
X-8

Permit Drawing
Sheet 14 of 14

-DET- 23 + 02.62
51.58' LT

20 + 00.00

-DET- 22 + 51.63
56.15' LT

19 + 50.00

SITE 6

SITE 3

SITE 4

MECHANIZED
CLEARING

EXCAVATION

TEMP FILL
IN WETLAND
-DET- 22 + 00.83
57.96' LT

TEMP FILL
IN WETLAND

FILL IN
WETLAND

FILL IN
WETLAND

MECHANIZED
CLEARING

19 + 00.00

05-DEC-2008 08:46
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**NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS**

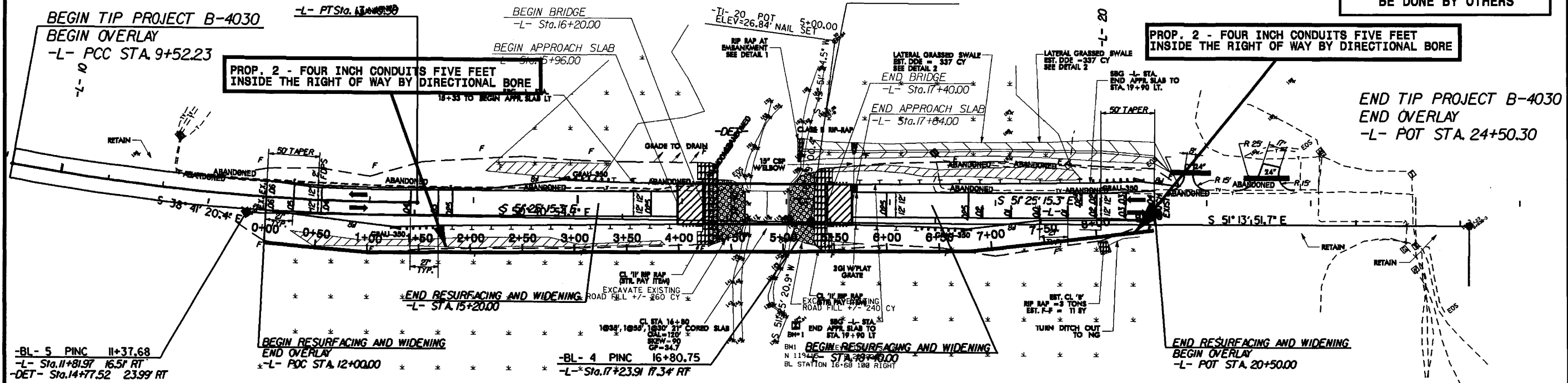
BRUNSWICK COUNTY

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

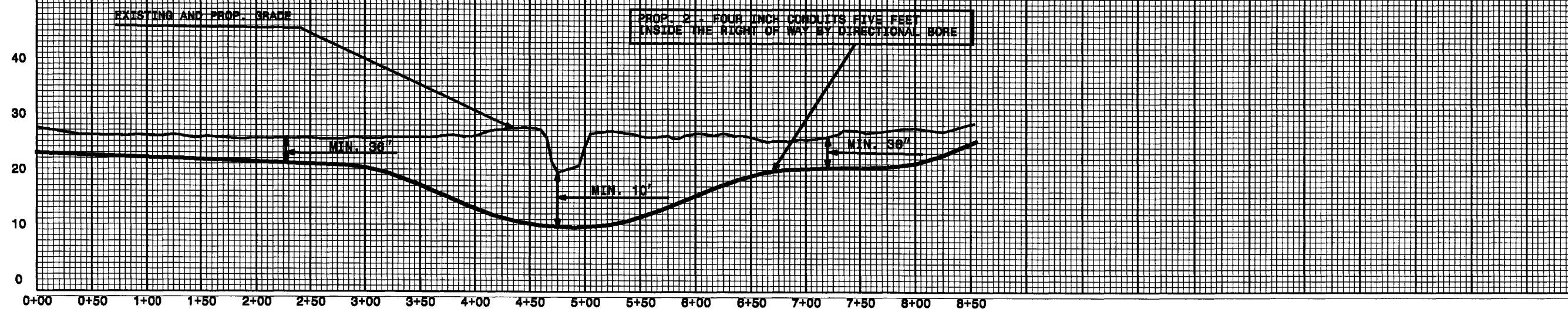


UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS



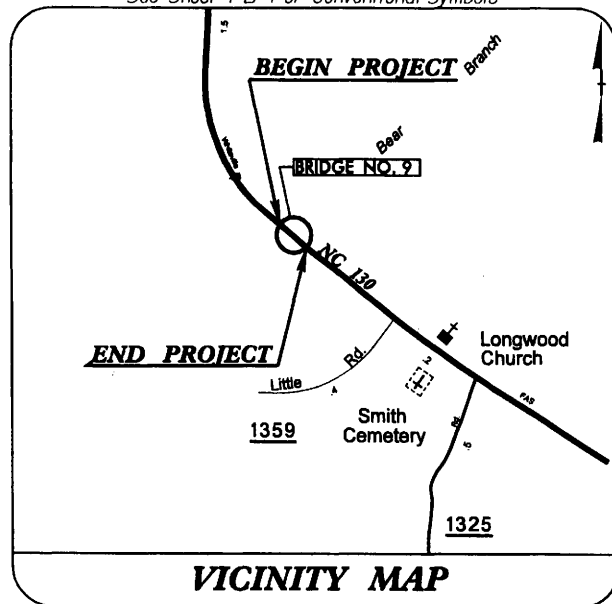
PROP. DIRECTIONAL BORE (TEL. CONDUIT)



TIP PROJECT: B-4030

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

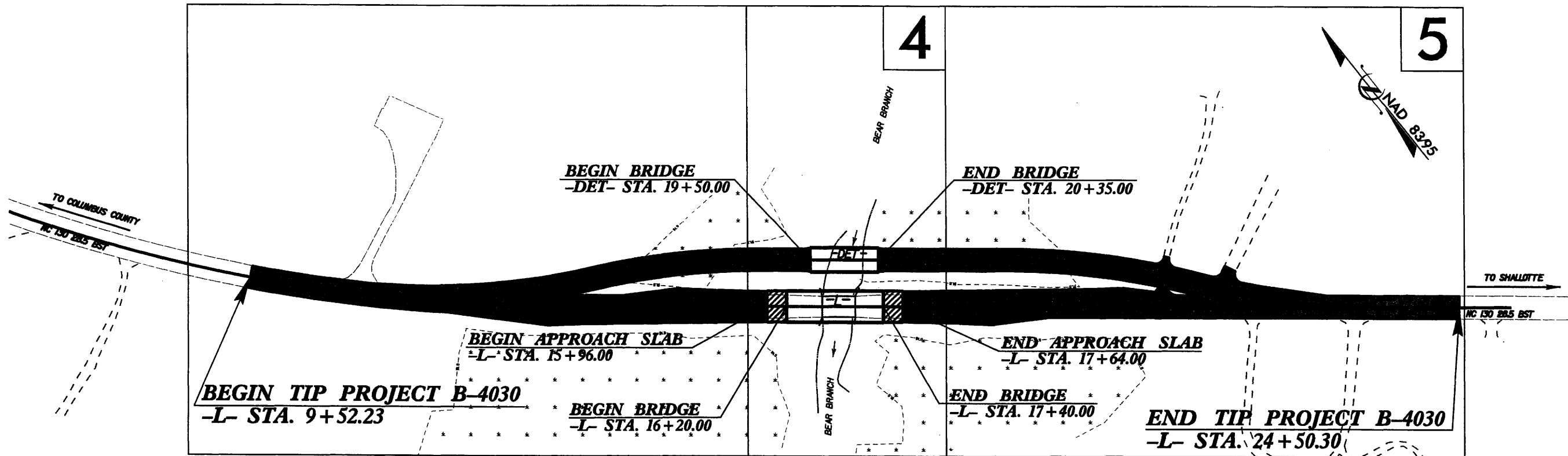
BRUNSWICK COUNTY

LOCATION: BRIDGE NO.9 OVER BEAR BRANCH ON NC 130

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4030	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33397.1.1	BRSTP-130 (3)	PE	
33397.2.1	BRSTP-130 (3)	RW+UTIL.	

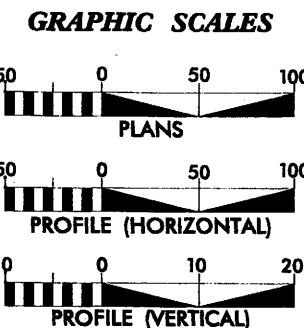
RW PLANS



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

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2008 =	4800
ADT 2028 =	7750
DHV =	9 %
D =	55%
T =	7 % *
V =	60 MPH
* TTST 4% DUAL 3%	
FUNC CLASS =	RURAL MINOR ARTERIAL

PROJECT LENGTH

Length Roadway Tip Project B-4030 =	0.261 Miles
Length Structure Tip Project B-4030 =	0.023 Miles
Total Length Tip Project B-4030 =	0.284 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: JANUARY 18, 2008	Jeanne K. Richter, P.E. PROJECT ENGINEER
LETTING DATE: JANUARY 20, 2009	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.
-------------------------------	------

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.
B-4030

SHEET NO.
1-B

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	-----
Property Monument	ECM
Parcel/Sequence Number	(23)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	-o-o-o-
Proposed Chain Link Fence	-□-□-□-
Proposed Barbed Wire Fence	-◇-◇-◇-
Existing Wetland Boundary	-NLB-
Proposed Wetland Boundary	-NLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
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	-----
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Wheel Chair Ramp	(WCR)
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	XXXX

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	⊙
Storm Sewer	-S-

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊙
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	⊕
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	⊙
Telephone Booth	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	⊕
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	⊙
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	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	⊕
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:

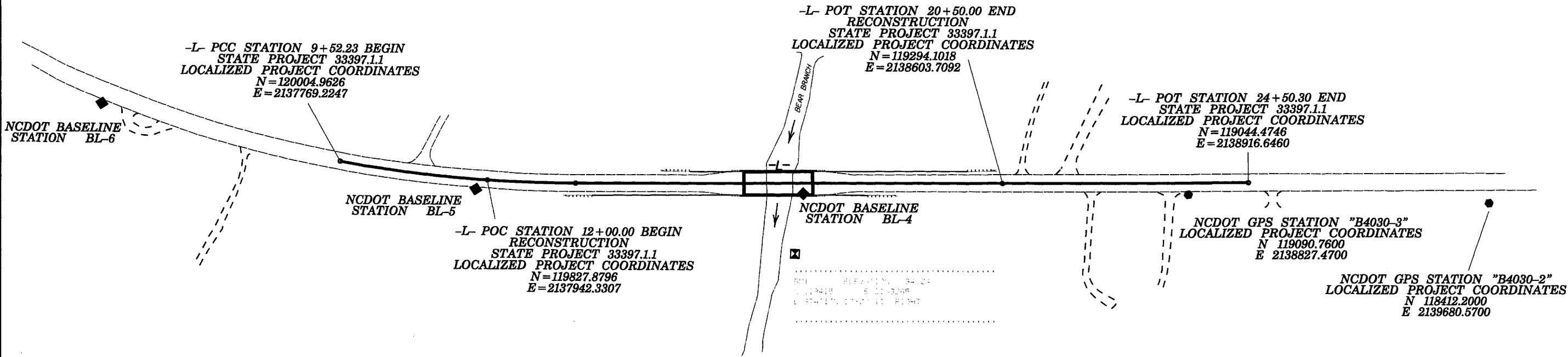
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	-UTL-
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

SURVEY CONTROL SHEET B-4030

PROJECT REFERENCE NO.	SHEET NO.
B-4030	1C
Location and Surveys	

DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
THE NCDOT LOCATION AND SURVEYS UNIT FOR PROJECT B-4030-1
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING 119044.4746 EASTING 2138916.6460
THE AVERAGE CONVERSION GRID FACTOR USED ON THIS PROJECT
WAS 1.0000000000000000
THE NAD 83 STATE PLANE GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
B-4030-1 TO B-4030-2 STATION POC 9452.02 IS
1.49110 36° 4' 1.338 45"
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 83

NAD 83



CONTROL DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION	U. STATION	OFFSET
BL-6	BL-6		120004.9626	2137769.2247	40.76	OUTSIDE PROJECT LIMITS	
BL-5	BL-5		119827.8796	2137942.3307	34.40	11+51.77	26.70 W
BL-4	BL-4		119294.1018	2138603.7092	32.57	17+23.91	27.75 W
B-4030-3	B-4030-3		119090.7600	2138827.4700	34.23	24+51.70	18.43 W
B-4030-2	B-4030-2		118412.2000	2139680.5700	45.05	OUTSIDE PROJECT LIMITS	

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/)
THE FILES TO BE FOUND ARE AS FOLLOWS:
TIP B4030_LS_CONTROL_060811.TXT
SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
Ⓢ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

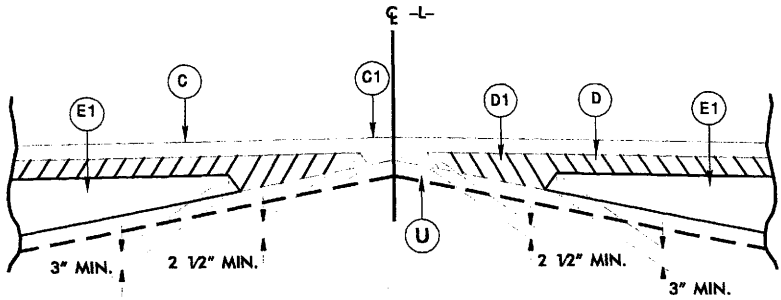
NOTE: DRAWING NOT TO SCALE

3: FEB-2008 9:40:3
1: Project: 110011 Bridge Group 46 Final Design: B-4030-Roadway Proj: B-4030.1 S. H. dgm
1: 1/22/2008

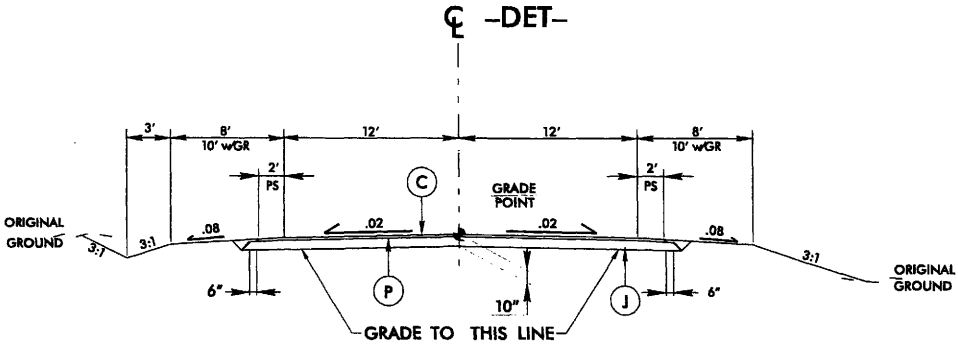
PAVEMENT SCHEDULE	
A	5½" PORTLAND CEMENT CONCRETE PAVEMENT.
C	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C1	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
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.
E	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
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.
J	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R	SHOULDER BERM CUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL BELOW)

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

PROJECT REFERENCE NO.	SHEET NO.
B-4030	2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	

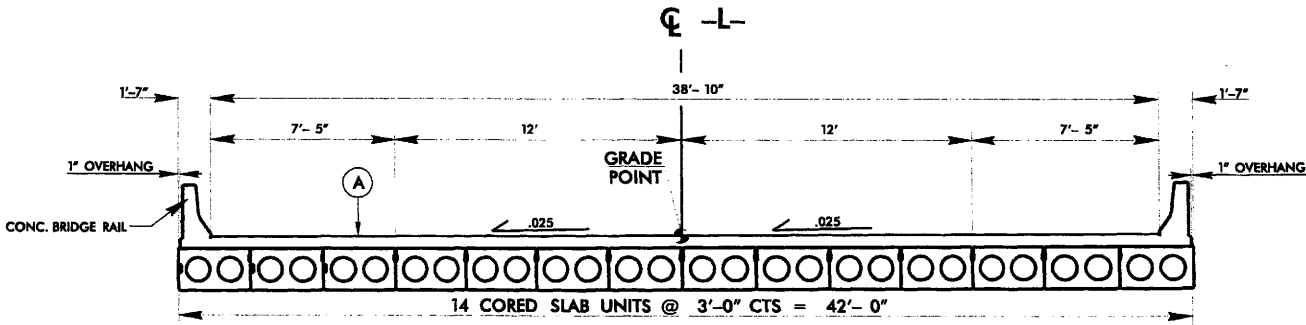


Detail Showing Method of Wedging



TYPICAL SECTION NO. 4

-DET- STA. 15+72.89 TO STA. 19+50.00 (BEGIN BRIDGE)
-DET- STA. 20+35.00 (END BRIDGE) TO STA. 24+93.10



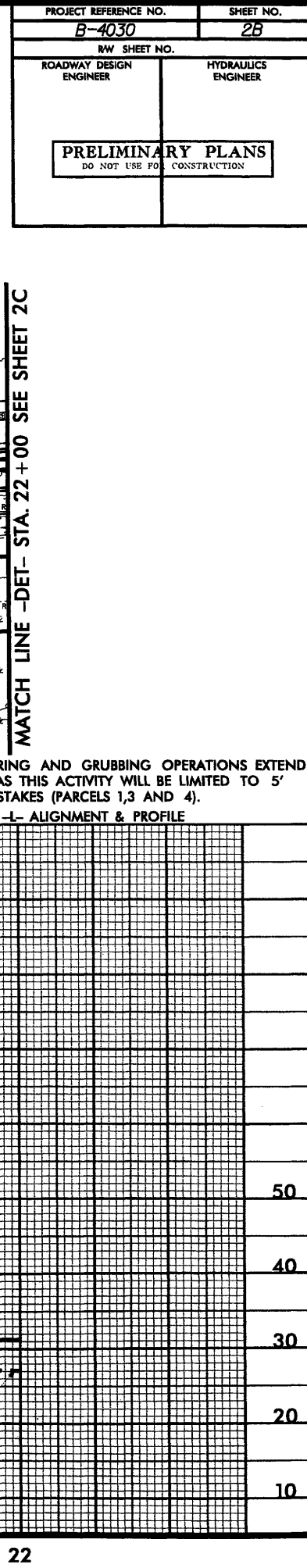
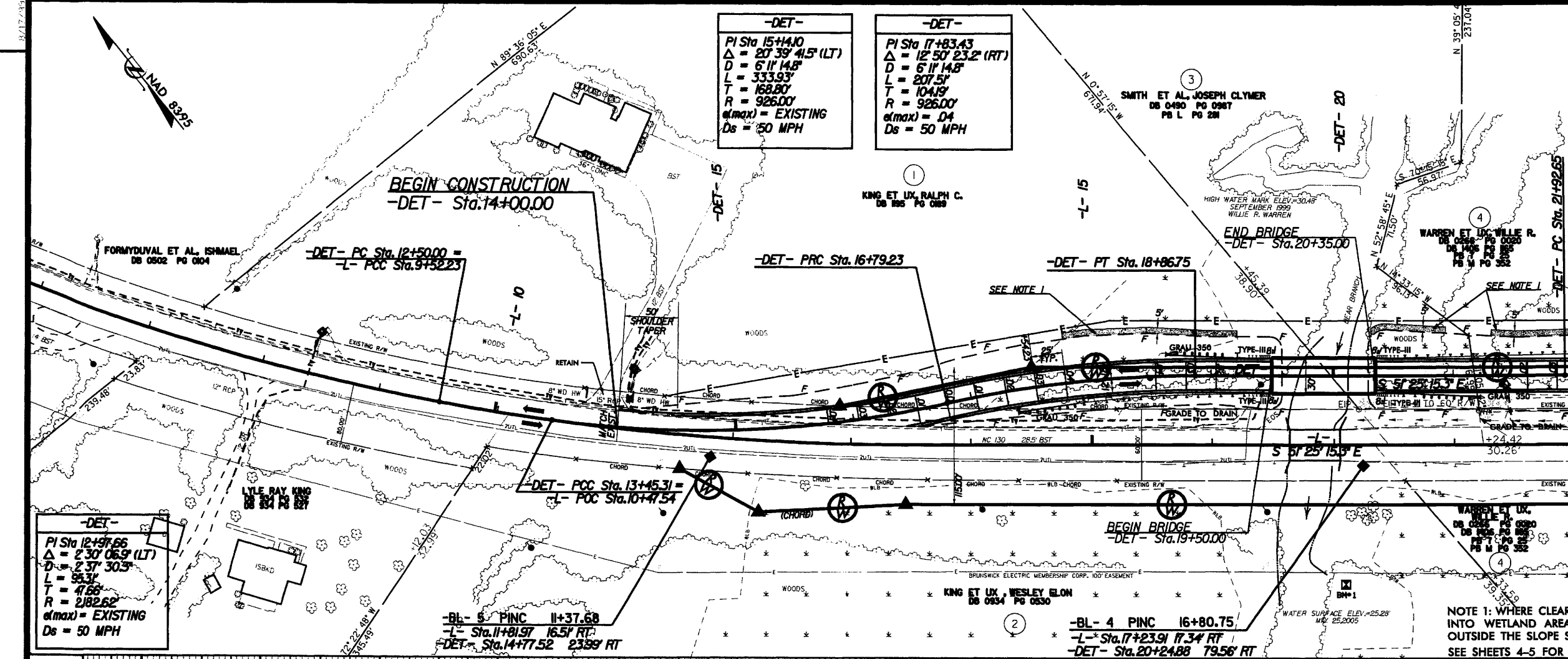
TYPICAL BRIDGE SECTION NO. 5

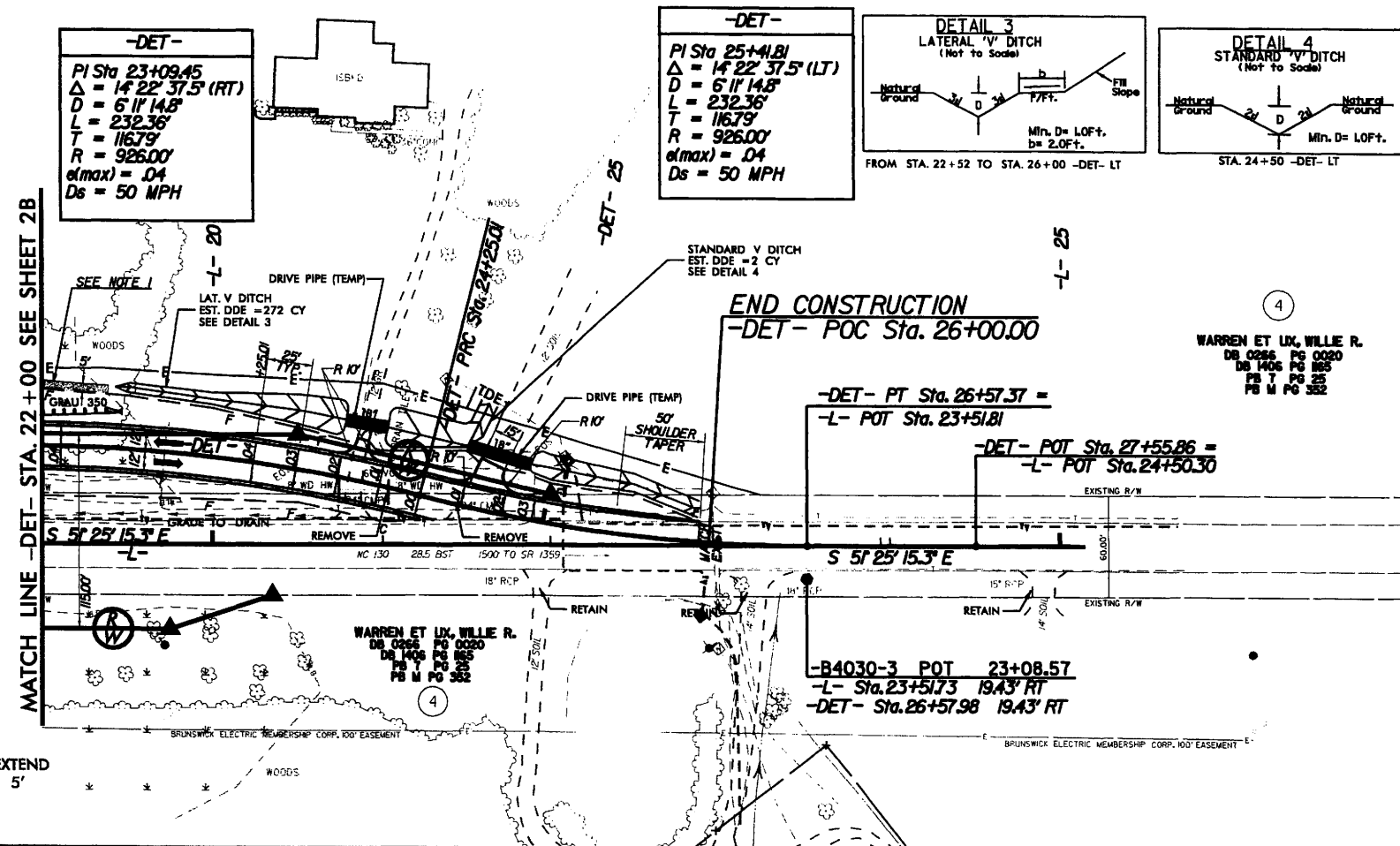
-L- STA. 16+20.00 (BEGIN BRIDGE) TO STA. 17+40.00 (END BRIDGE)

DATE: 10/12/00
BY: [Signature]
PROJECT: B-4030
SHEET: 2A

REVISIONS

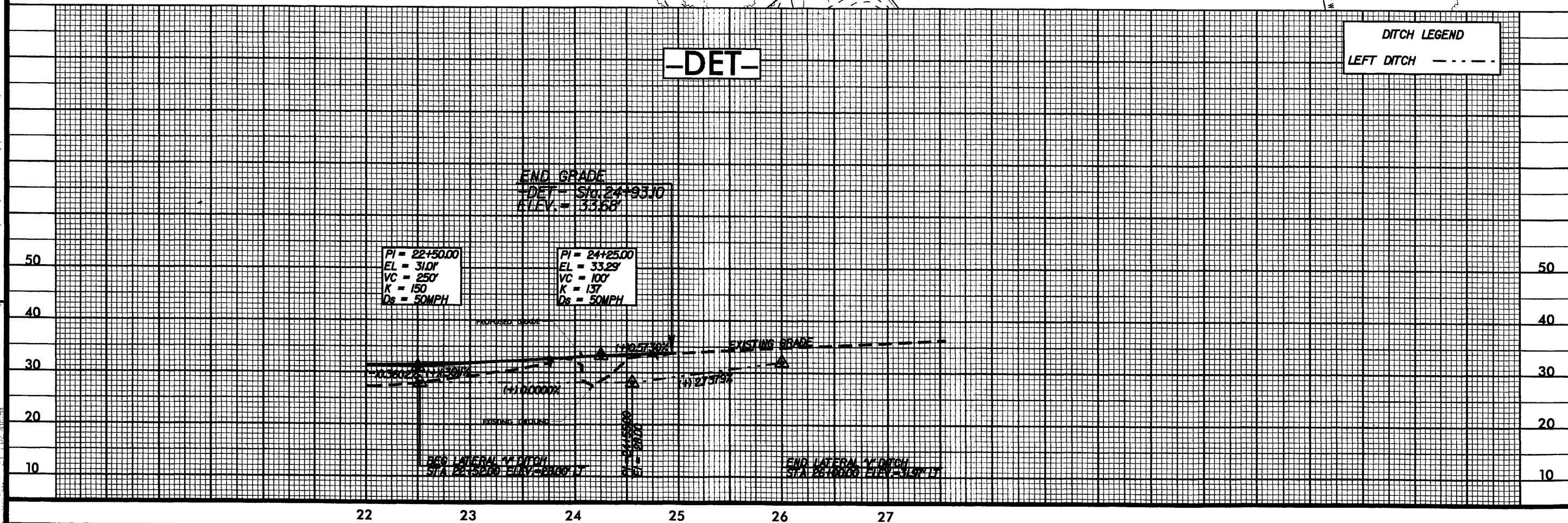
1. ELEV. 2008.10.03
2. PROJECT NO. 10001
3. PROJECT NO. 10001
4. PROJECT NO. 10001
5. PROJECT NO. 10001
6. PROJECT NO. 10001
7. PROJECT NO. 10001
8. PROJECT NO. 10001
9. PROJECT NO. 10001
10. PROJECT NO. 10001
11. PROJECT NO. 10001
12. PROJECT NO. 10001
13. PROJECT NO. 10001
14. PROJECT NO. 10001
15. PROJECT NO. 10001
16. PROJECT NO. 10001
17. PROJECT NO. 10001
18. PROJECT NO. 10001
19. PROJECT NO. 10001
20. PROJECT NO. 10001
21. PROJECT NO. 10001
22. PROJECT NO. 10001





NOTE 1: WHERE CLEARING AND GRUBBING OPERATIONS EXTEND INTO WETLAND AREAS THIS ACTIVITY WILL BE LIMITED TO 5' OUTSIDE THE SLOPE STAKES (PARCELS 1,3 AND 4).

SEE SHEETS 4-5 FOR -L- ALIGNMENT & PROFILE



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + 25%	BORROW	WASTE
PHASE I					
-DET- 14+00.00 TO 19+50.00 (BEGIN BRIDGE)	31		2,870	2,839	
-DET- 20+35.00 (END BRIDGE) TO 26+00.00	26		2,586	2,560	
SUBTOTAL	57		5,456	5,399	
PHASE II					
-L- 12+00.00 TO 16+20.00 (BEGIN BRIDGE)	68		1,244	1,176	
-L- 17+40.00 (END BRIDGE) TO 20+50.00	64		1,021	957	
SUBTOTAL	132		2,265	2,133	
PHASE III (-L- /W-DET- REMOVAL)					
-L- 11+50.00 TO 16+49.30 (BEGIN BRIDGE)	2,125				2,125
-L- 17+34.30 (END BRIDGE) TO 22+50.00	1,834				1,834
SUBTOTAL	3,959				3,959
TOTALS	4,148		7,721	7,532	3,959
PROJECT TOTALS	4,148		7,721	7,532	3,959
EST. 5% FOR REPLACING TOPSOIL ON ON BORROW PIT				377	
GRAND TOTALS	4,148			7,909	
SAY	4,200			8,000	

EST. DDE = 620 C.Y.
EST. UNDERCUT EXCAVATION = 300 C.Y.
EST. SELECT GRANULAR MATERIAL = 200 C.Y.

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

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

$PI = 19+10.00$
 $EL = 34.06'$
 $VC = 123'$
 $K = 152$
 $D_s = 60 \text{ MPH}$

Approximate quantities only. Unclassified excavation, fine grading, clearing and grubbing, borrow excavation and removal of existing pavement will be paid for at the lump sum price for "Grading".

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJ. REFERENCE NO
B-4030

SHEET NO.
X-1

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

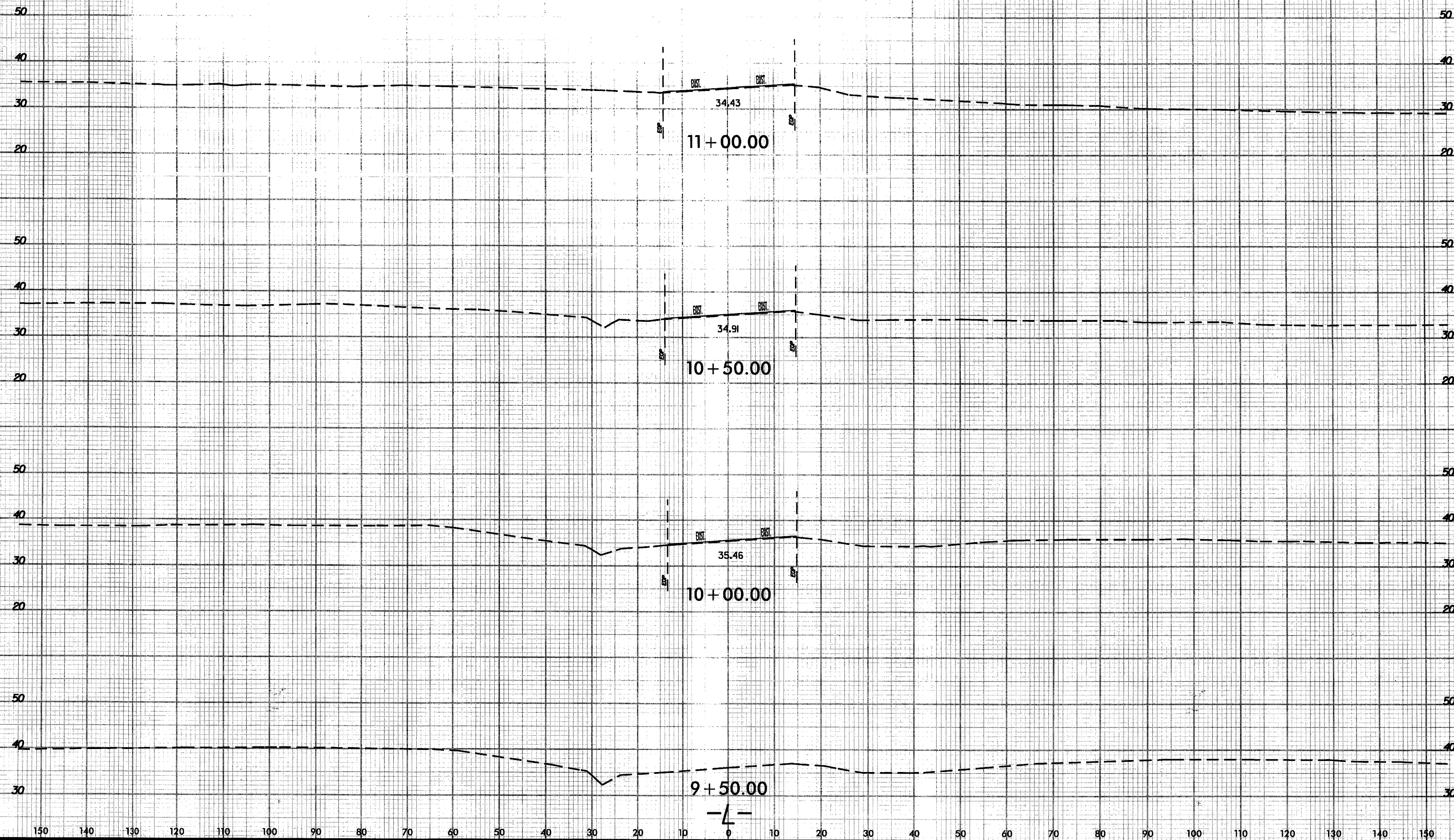
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8/23/99



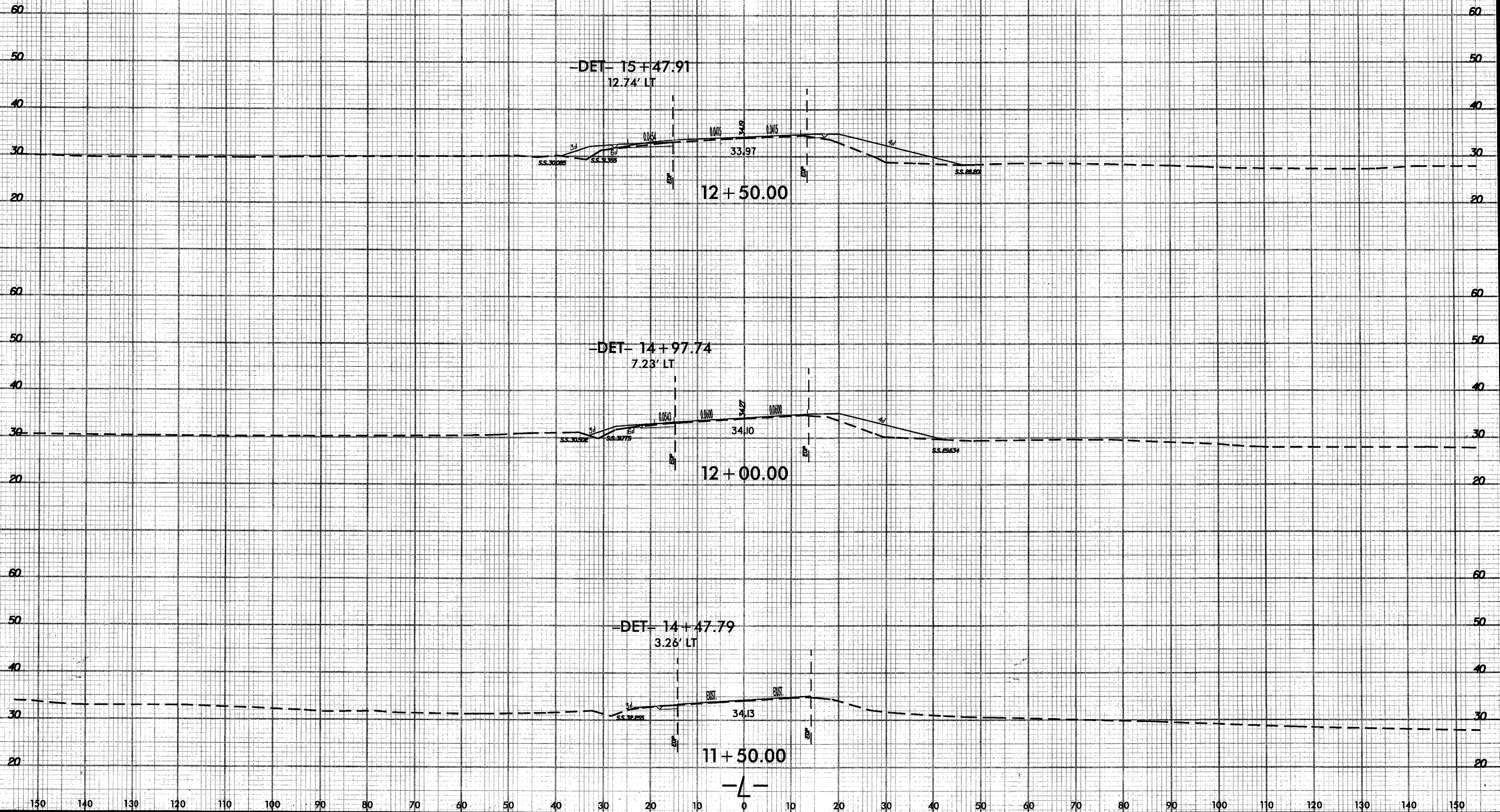
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B-4030	X-2

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



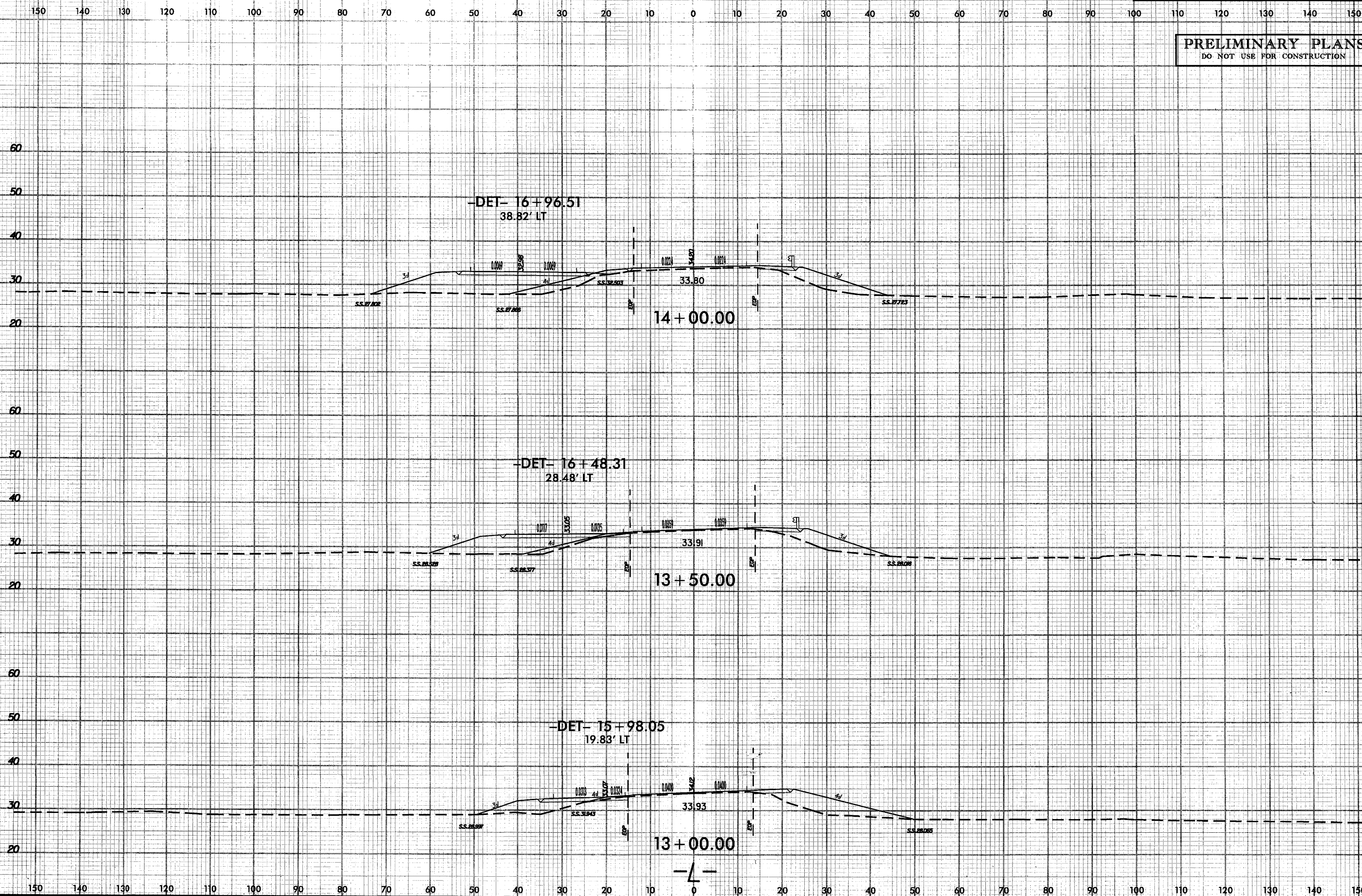
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



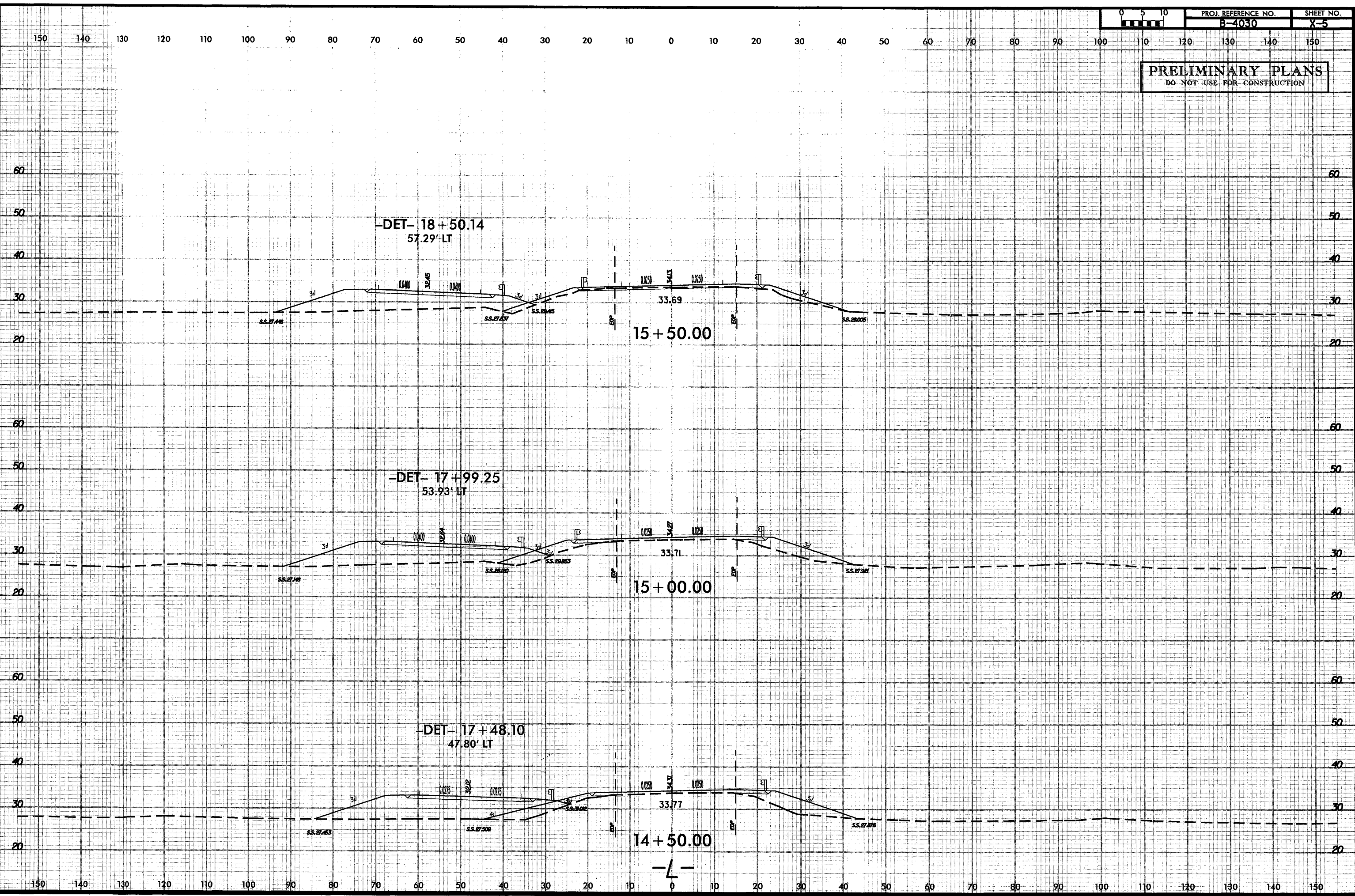
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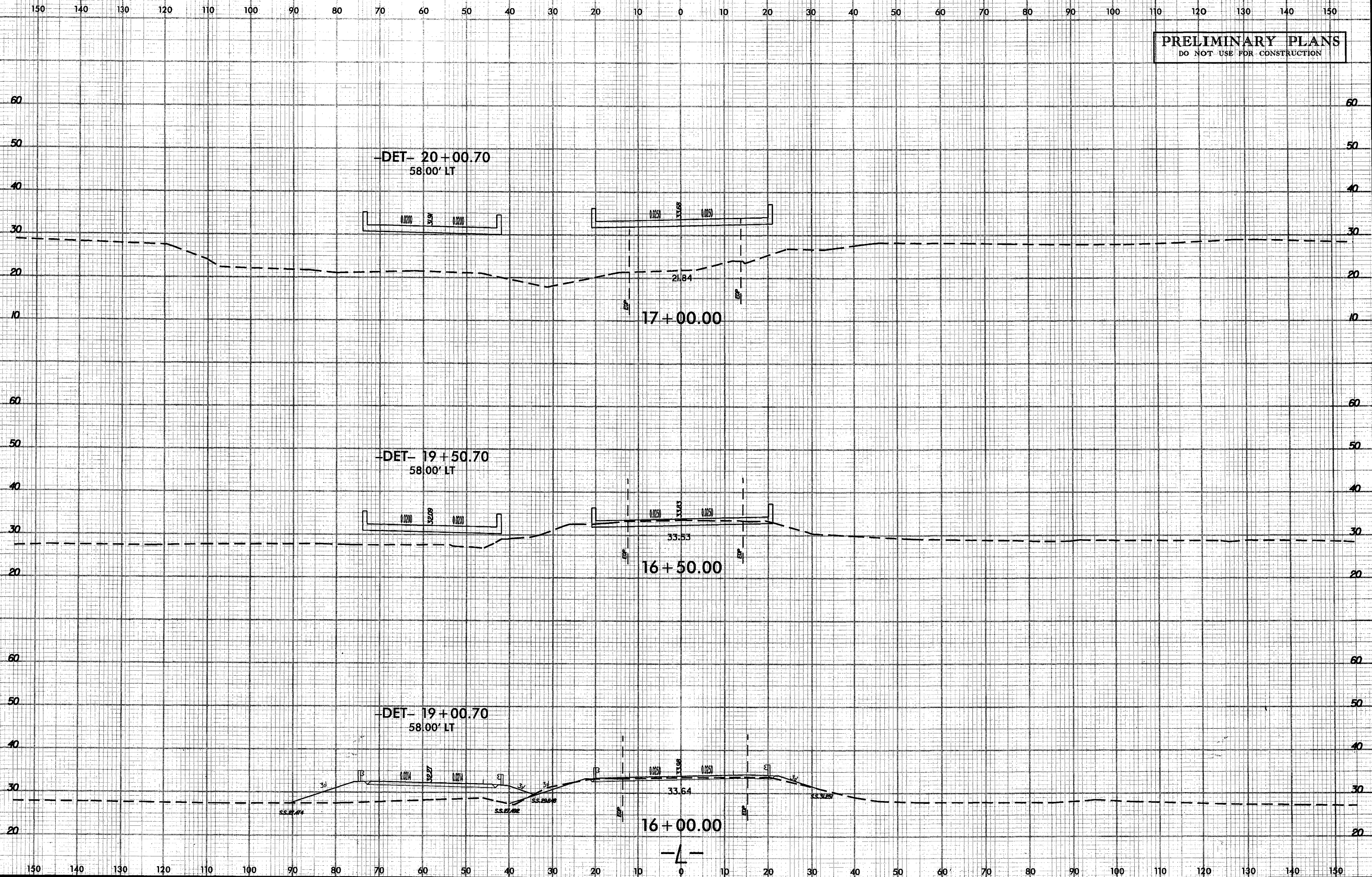


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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/23/99

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

60 60

50 50

40 40

30 30

20 20

60 60

50 50

40 40

30 30

20 20

60 60

50 50

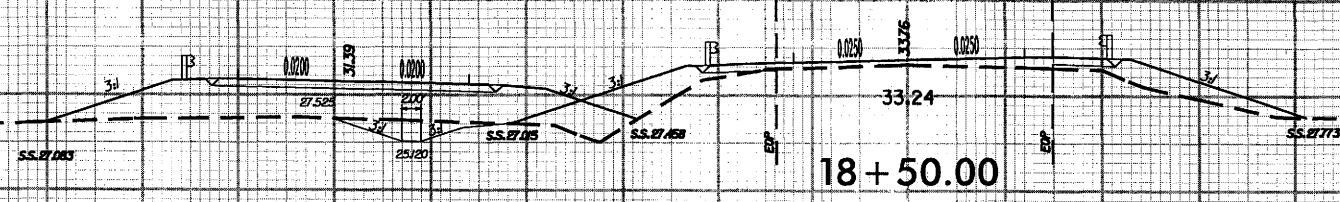
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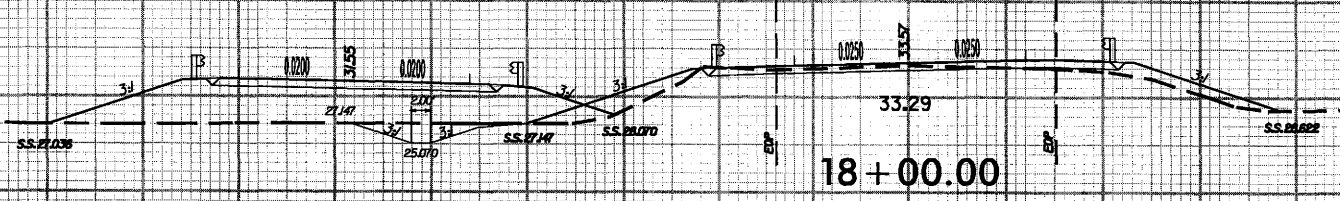
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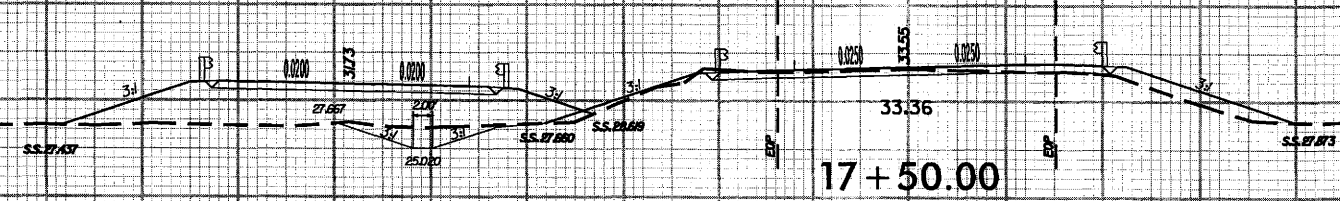
-DET- 21+50.70
58:00' LT

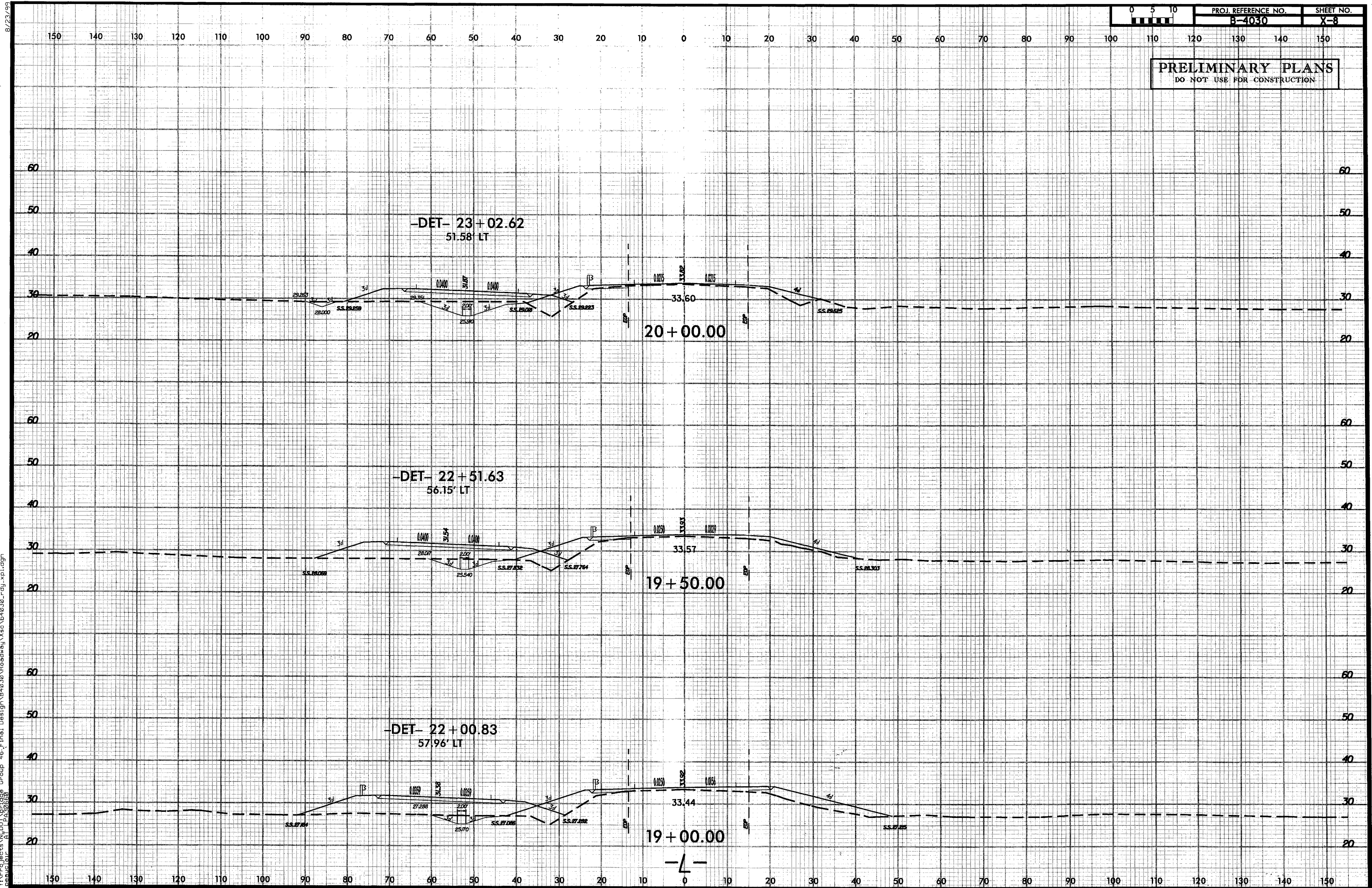


-DET- 21+00.70
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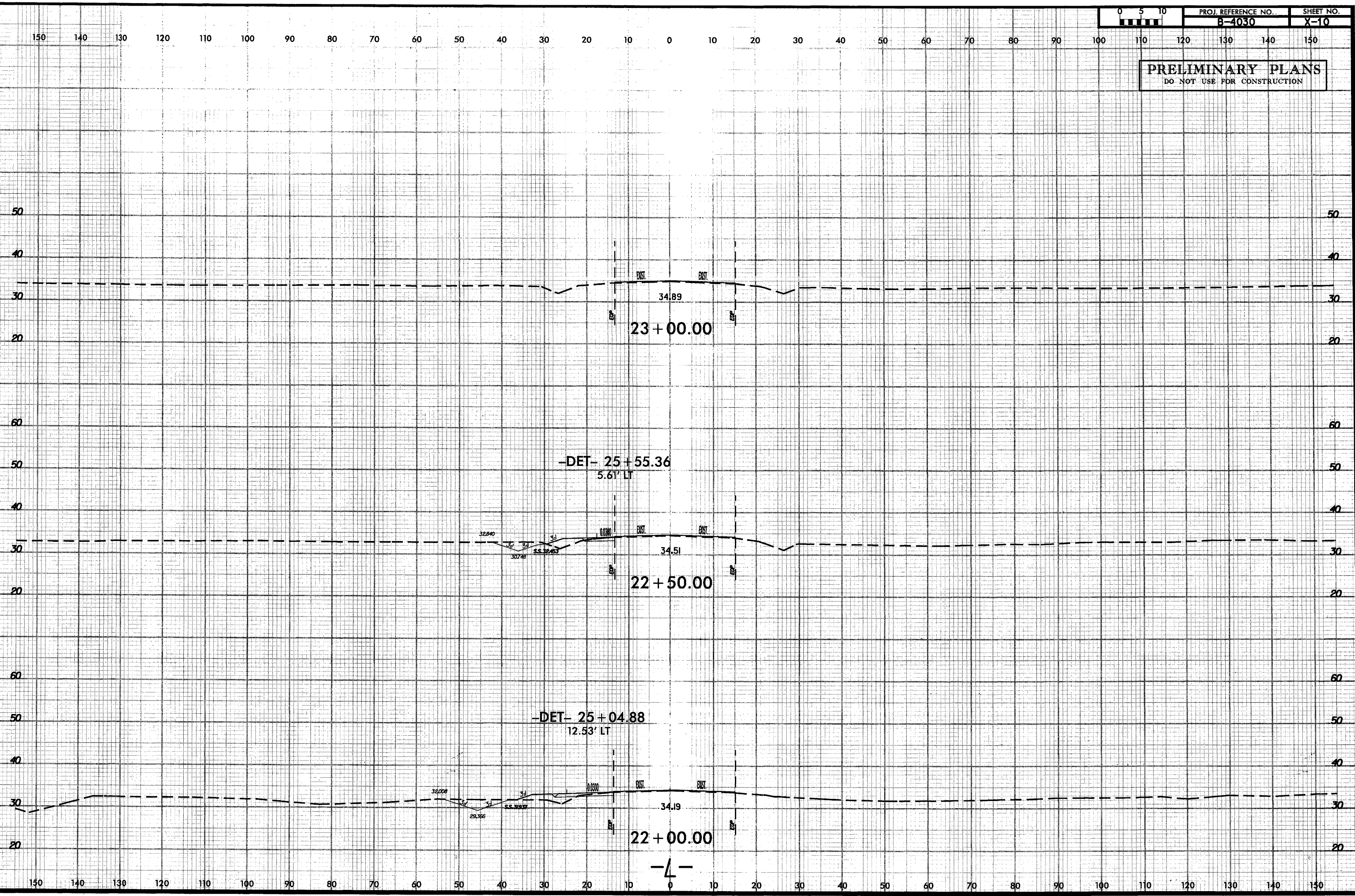
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LPA30658

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-4-

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24/06/09

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

