STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI
SECRETARY

March 30, 2010

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

ATTENTION: Thomas Steffens
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 404 Nationwide Permits 23 and 33, Section 401 Water Quality Certification, and Tar-Pamlico Riparian Buffer Authorization** for the proposed replacement of Bridge No. 11 on SR 1001 (Justice Branch Rd.) over Jacket Swamp (or Burnt Coat Swamp), Halifax County. TIP No. B-4133; Federal Aid Project No. BRSTP-1001(26); State Project No. 8.2301601; Debit $240.00 from WBS 33486.1.1.

Please find enclosed the PCN form, permit drawings, and half-size plan sheets for the above referenced project. A Categorical Exclusion (CE) was completed for this project in December 2007, and distributed shortly thereafter. Additional copies will be made available upon request. The North Carolina Department of Transportation (NCDOT) proposes to replace existing Bridge No. 11 on SR 1001 over Jacket Swamp in Halifax County. The project involves replacement of the existing 91-foot structure with a 174-foot long bridge in approximately the same location. There will be 0.09 acre of permanent impacts to riparian wetlands resulting from fill and mechanized clearing on this project, as well as 3,725 sq. ft. of riparian buffer impacts.

The let date for this project is August 16, 2011; however, the let date may advance as additional funds become available.

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 a Nationwide Permit 23 (72 CFR; 11092-11198, March 12, 2007).

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

TELEPHONE: 919-431-2000
FAX: 919-431-2001

WEBSITE: WWW.NCDOT.ORG

LOCATION:
4701 Atlantic Ave.
Suite 116
Raleigh, NC 27604

Section 401 Water Quality Certification: We anticipate 401 General Certification number 3701 will apply to this project. All general conditions of the Water Quality Certification will be met. NCDOT is providing five copies of this application to the NCDWQ for their review and approval. Authorization to debit the $240 Permit Application Fee from WBS Element 33486.1.1 is hereby given.

Tar-Pamlico Riparian Buffer Authorization: NCDOT requests that the NC Division of Water Quality review this application and issue a written approval for a Tar-Pamlico Riparian Buffer Authorization.

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

Thank you for your time and assistance with this project. Please contact Amy James at aejames@ncdot.gov or (919) 431-6756 if you have any questions or need additional information.

Sincerely,

E. L. Lusk

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

CC:
W/attachment
Mr. Brian Wrenn, NCDWQ (5 copies)

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. Tracy Walter, PDEA
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Richard E. Greene, P.E., Division 4 Engineer
Mr. Chad Coggins, Division 4 Environmental Officer

Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit ☐ Section 10 Permit	
1b. Specify Nationwide Permit (NWP) number: 23 33	or General Permit (GP) number:	
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes	☒ No

1d. Type(s) of approval sought from the DWQ (check all that apply):

☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit

☐ 401 Water Quality Certification – Express ☒ Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.		☐ Yes ☒ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.		☐ Yes ☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?		☐ Yes ☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge no. 11 over Jacket (or Burnt Coat) Swamp on SR 1001 (Justice Branch Rd.)
2b. County:	Halifax
2c. Nearest municipality / town:	Enfield
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-4133

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 431-6756
3g. Fax no.:	(919) 431-2002
3h. Email address:	aejames@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	*not applicable*
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	*not applicable*
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 36.195339 (DD.DDDDDD)	Longitude: - 77.675148 (-DD.DDDDDD)
1c. Property size:	0.6 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Jacket Swamp	
2b. Water Quality Classification of nearest receiving water:	C Sw NSW	
2c. River basin:	Tar Pamlico	
3. Project Description		
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Communities found on the site include early successional shrubland, mixed pine-hardwood forest, and freshwater marsh; the main land uses in the project vicinity include low density residential, agriculture and managed timberland.		
3b. List the total estimated acreage of all existing wetlands on the property: 5.8 acres (in NRTR study area)		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 680 linear feet (in NRTR study area)		
3d. Explain the purpose of the proposed project: To replace a structurally deficient and functionally obsolete bridge.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 91-foot bridge with a 174-foot, 3-span 21' cored slab bridge on the existing alignment with an off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	☒ Yes	☐ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary ☒ Final	
4c. If yes, who delineated the jurisdictional areas? Name (if known): Worth Calfee (field re-verification)	Agency/Consultant Company: EcoScience (original) Other: for NCDOT	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. This project was re-delineated in 2007 by NCDOT personnel and field re-verified on 9/11/07 w/William Wescott (USACE Action ID 200220750). While this re-delineation was approved in the field, no tear sheet was ever issued.		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes	☒ No ☐ Unknown
5b. If yes, explain in detail according to "help file" instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes	☒ No
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

☒ Wetlands ☒ Streams - tributaries ☒ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 1 ☒ P ☐ T	Fill		☒ Yes ☐ No	☒ Corps ☐ DWQ	0.01
Site 2 ☒ P ☐ T	Mech. clearing		☒ Yes ☐ No	☒ Corps ☐ DWQ	0.08
Site 3 ☒ P ☐ T	Excavation		☒ Yes ☐ No	☒ Corps ☐ DWQ	<0.01
Site 4 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	0.09 Permanent 0.0 Temporary

2h. Comments: Treated as one site on the wetland impact summary. Excavation in wetlands is needed under the bridge to open up area for the proposed new structure.

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	X Perm X Temp

3i. Comments: There will be <0.01 acre of permanent surface water impacts for two drilled piers at bent 1 and <0.01 acre (39 linear feet) of temporary surface water impacts due to a proposed temporary workpad (rock causeway) to install bent 1.

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
			4f. Total open water impacts	X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
	5f. Total							

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?	☐ Neuse ☐ Catawba	☒ Tar-Pamlico ☐ Randleman	☐ Other:

6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☒ P ☐ T	Road Crossing	Jacket Swamp	☐ Yes ☒ No	839	873
B2 ☒ P ☐ T	Bridge	Jacket Swamp	☐ Yes ☒ No	1,526	487
B3 ☐ P ☐ T			☐ Yes ☐ No		
			6h. **Total buffer impacts**	2,365	1,360

6i. Comments:

D. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.

The proposed bridge is 83 feet longer than the existing bridge; the proposed bridge will be at approximately the same grade as the existing structure; 3:1 fill slopes where practicable; and the implementation of Design Standards in Sensitive Watersheds.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.

NCDOT Best Management Practices for Bridge Demolition, Removal and Construction will be followed, as well as those for Sedimentation and Erosion Control; and the utilization of an off-site detour.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☐ Yes ☒ No If no, explain: Compensatory mitigation not proposed due to minimal permanent impacts.
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

3b. Credits Purchased (attach receipt and letter)	Type	Quantity

3c. Comments:

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.	☐ Yes
4b. Stream mitigation requested:	linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

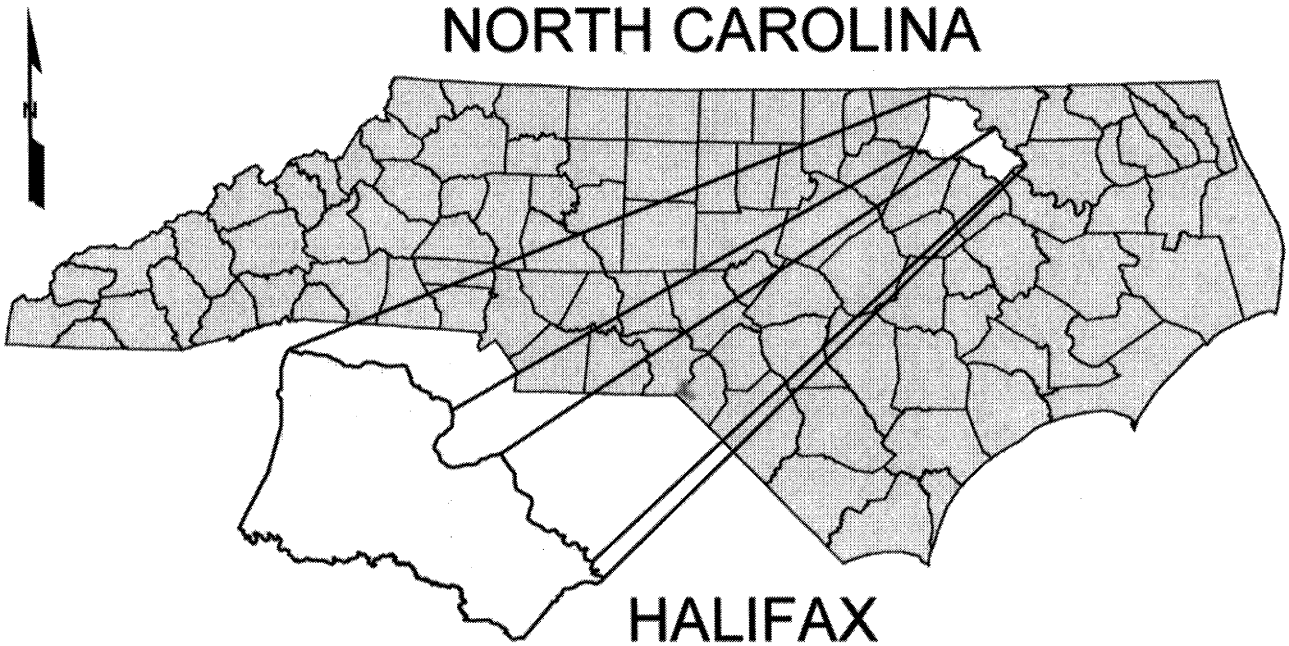
6. **Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ**				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?			☐ Yes	☒ No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).				
6h. Comments:				

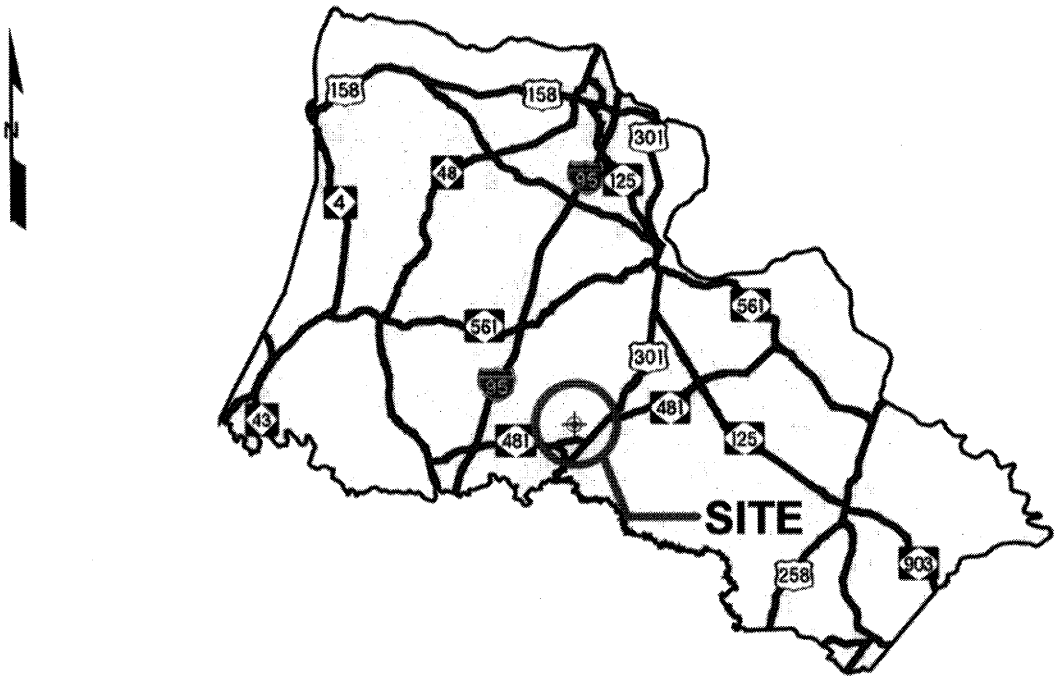
E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☒ Yes ☐ No
1b. If yes, then is a diffuse flow plan included? If no, explain why. Comments: see attached permit drawings.	☒ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☐ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements? **N/A**	☐ Yes ☐ No
5b. Have all of the 401 Unit submittal requirements been met? **N/A**	☐ Yes ☐ No

F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes	☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes	☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes	☐ No
2. Violations (DWQ Requirement)		
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes	☒ No
2b. Is this an after-the-fact permit application?	☐ Yes	☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):		
3. Cumulative Impacts (DWQ Requirement)		
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No	
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.		
4. Sewage Disposal (DWQ Requirement)		
4a. 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. not applicable		

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☐ Yes	☒ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☒ Yes	☐ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☒ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NHP, USFWS, NCDOT field surveys		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E. L. Luck Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	3.29.10 Date





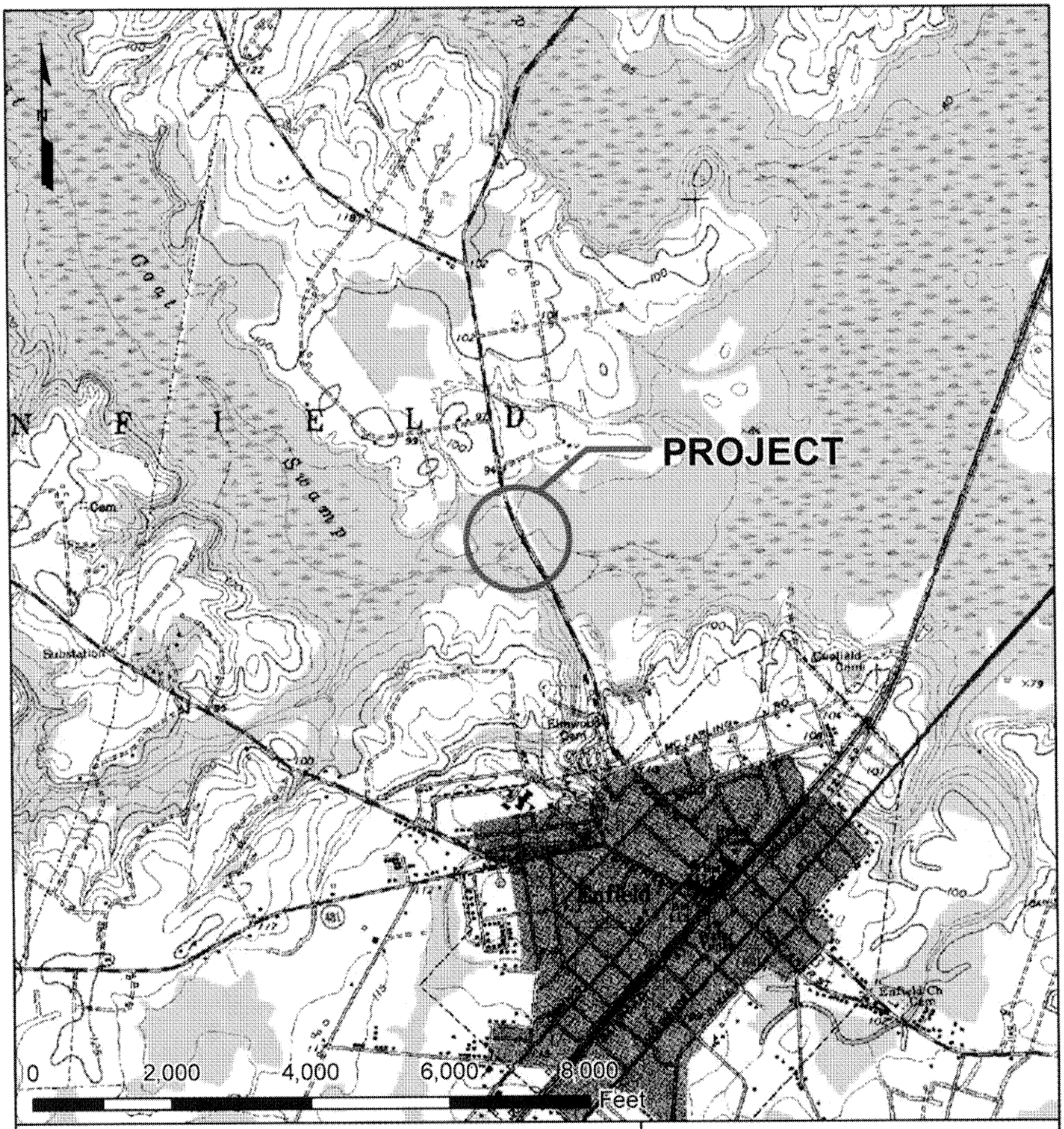
VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
HALIFAX COUNTY
PROJECT: 33486.1.1 (B-4133)
BRIDGE NO. 11
OVER JACKET SWAMP ON SR 1001

AUGUST 2009

Permit Drawing
Sheet 1 of 13



1 inch equals 2,000 feet

LOCATION

NCDOT

DIVISION OF HIGHWAYS
HALIFAX COUNTY
PROJECT: 33486.1.1 (B-4133)
BRIDGE NO. 11
OVER JACKET SWAMP ON SR 1001

AUGUST 2009

Source: USGS 7.5 Minute Quadrangle, Enfield, NC

Permit Drawing
Sheet 2 of 13

STORMWATER MANAGEMENT PLAN

Project: 33486.1.1, TIP No. B-4133 August 5, 2009
Halifax County
Hydraulics Project Engineer: Matthew L. Cook P.E. (RKK Engineers)
Bill Zerman, P.E. (NCDOT Hydraulics Unit)

ROADWAY DESCRIPTION

The project consists of replacing the bridge over the Burnt Coat Swamp (aka Jacket Swamp, bridge #11) on SR 1001 (Justice Branch Rd.) and improving the roadway bridge approaches. The project is in Halifax County. The overall length of the project is approximately 0.142 mi. The existing SR 1001 will remain two lanes in each direction with open shoulder. Proposed typical sections consist of 11'+/- lanes. The project will be in standard right-of-way, not controlled access. The project drainage system consists of grated inlets and associated pipe systems. There are no stormwater ditches/swales.

ENVIRONMENTAL DESCRIPTION

The project is located in the Tar-Pamlico River Basin. Therefore, it is subject to North Carolina Department of Environment and Natural Resources (NCDENR) rules and regulations concerning stream buffers and filtration. Burnt Coat Swamp is classified as C, Sw, NSW, as described in the NCDENR Division of Water Quality "Redbook". Class C designates freshwater for secondary recreation, fishing, and aquatic life. Sw designates swamp waters. NSW stands for Nutrient Sensitive Waters. These are waters that are subject to the growth of macroscopic or microscopic vegetation, which requires limits on nutrient inputs. There are wetlands impacted by the project. Wetlands run the length of the project on both sides of the road as well as on an island just downstream of the bridge. Wetland impacts have been kept to a minimum by limiting to no cut sections through wetlands and maintaining 3:1 slopes adjacent to the wetlands. There is only one jurisdictional stream with impacts to buffers (Burnt Coat Swamp). Impacts have been kept to a minimum in these areas also by limiting to no cut sections through buffers and maintaining 3:1 slopes adjacent to the sensitive areas.

BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

The primary goal of Best Management Practices (BMPs) is to prevent degradation of the state's surface waters by the location, construction and operation of the highway system. BMPs are activities, practices and procedures taken to prevent or reduce stormwater pollution. The BMPs that will be used on this project to reduce stormwater impacts are preformed scour holes.

PREFORMED SCOUR HOLES

The PSH is used at the outlet of a pipe or end of a ditch to minimize the velocity exiting the system in question. The area at the outlet is excavated according to the size of the pipe, and then lined with riprap and filter fabric. The area around the excavation is also slightly excavated to a lesser degree and is lined with Permanent Soil Reinforcement Matting

(PSRM). The depression and riprap absorb energy from the outlet and allow the drainage to leave the PSH as sheet flow at a lower velocity. PSH's are only used for flows equal to or less than that of a 18" pipe (13 cfs).
The following is a list of PSHs used on the project:

Sta. 25+11 –L- RT	Sta. 27+90 –L- RT
Q10=0.45 cfs	Q10=0.67 cfs
V10=0.18 ft/s	V10=0.22 ft/s

MAJOR STRUCTURES

The bridge affects the wetlands in the vicinity. Due to construction of the bridge, hand clearing will be required as well as excavation due to the area under the bridge. However, there are no deck drains over wetland areas.

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 26+70.5	Roadway / Bridge	0.01		<0.01	0.08	0.01					
TOTALS:			0.01		<0.01	0.08	0.01					

<0.01 acre of permanent surface water impacts for two drilled piers at bent 1

<0.01 acre or 39 LF of temporary surface water impacts for a temporary workpad (rock causeway) for pier installation

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

HALIFAX COUNTY
PROJECT: 33486.1.1 (B-4133)

2/2010

ATN Revised 3/31/05

Permit Drawing
Sheet 4 of 13

BUFFER IMPACTS SUMMARY

		WETLANDS IN BUFFER	
Site	Station	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	-L- 26+70.5	1643	568
		1643	568

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

HALIFAX COUNTY
PROJECT: 33486.1.1 (B-4133)

8/2009

R:\2-misc\Hydro\Permit\wetlandinbuffer.xls

Permit Drawing
Sheet 5 of 13

PROP. NO.	PROPERTY OWNER`S NAME	PROPERTY OWNER`S ADDRESS
1	Robert F. Mann	C/O Frances Pittman; 6115 S. Tudeley Ave., Norfolk, VA 23508
2	Frank N. Branch	3804 Flat Rock Dr., Battleboro, NC 27809
4	Hugh B. Sherrod, Jr.	17586 Hawks View Dr., Fort Mill, SC 29707

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

HALIFAX COUNTY
PROJECT: 33486.1.1 (B-4133)

8/2009

R:/z-misc/Hydro/permit/WetProp.xls

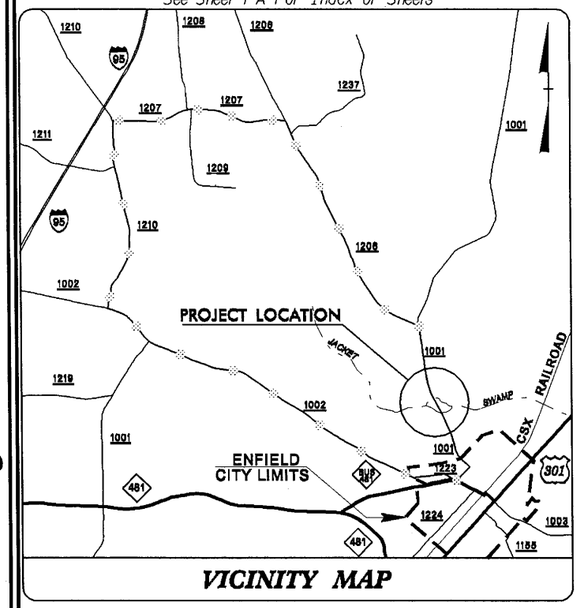
Permit Drawing
Sheet 6 **of** 13

09/08/09

TIP PROJECT: B-4133

CONTRACT: C202437

See Sheet 1-A For Index of Sheets



VICINITY MAP

OFF-SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

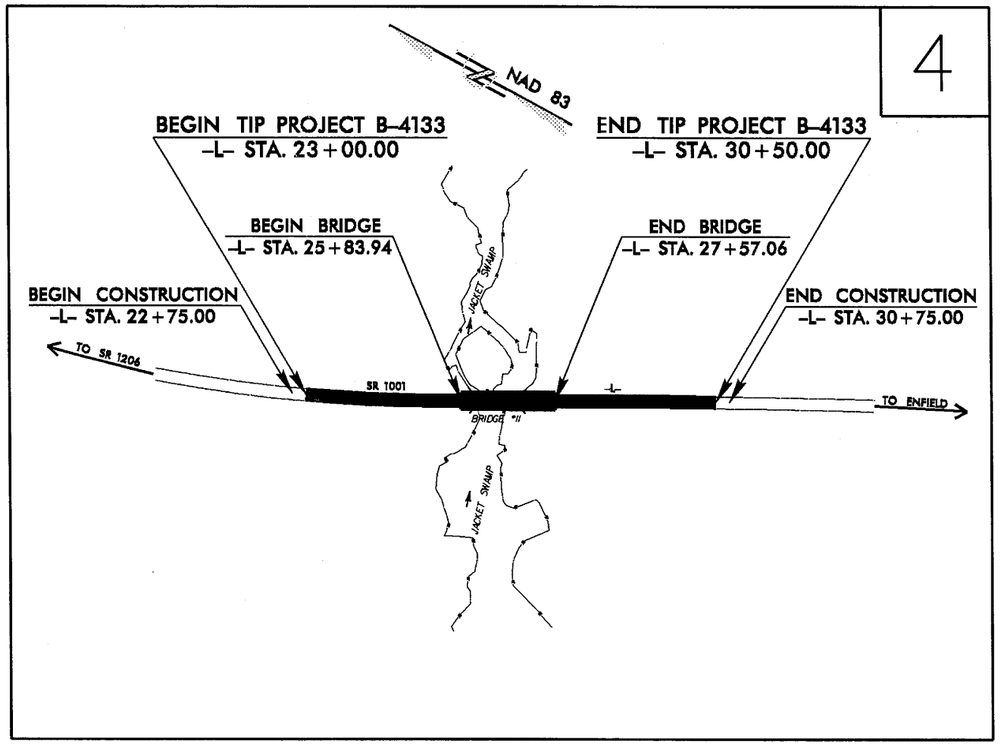
HALIFAX COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4133	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33486.1.1	BRSTP-1001(26)	PE
33486.2.1	BRSTP-1001(26)	R/W, UTIL.

LOCATION: BRIDGE NO. 11 OVER JACKET SWAMP ON SR 1001

TYPE OF WORK: WETLAND AND STREAM PERMIT DRAWING



NOTE: METHOD OF CLEARING III

NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 775 VPD
ADT 2030 = 1300 VPD
DHV = 11 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST 3 % DUAL 4 %
FUNC. CLASS = COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4133 = 0.109 MI
LENGTH STRUCTURE TIP PROJECT B-4133 = 0.033 MI
TOTAL LENGTH TIP PROJECT B-4133 = 0.142 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 14, 2009

LETTING DATE: JANUARY 18, 2011

JAMES A. SPEER, P.E.
PROJECT ENGINEER

NYA K. BOAYUE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

Permit Drawing
Sheet 2 of 13

17-AUG-2009 10:34
r:\hydraulics\permits_environmental\drawings\b4133_rdy_tsh.dgn
my name is earl

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-4133	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

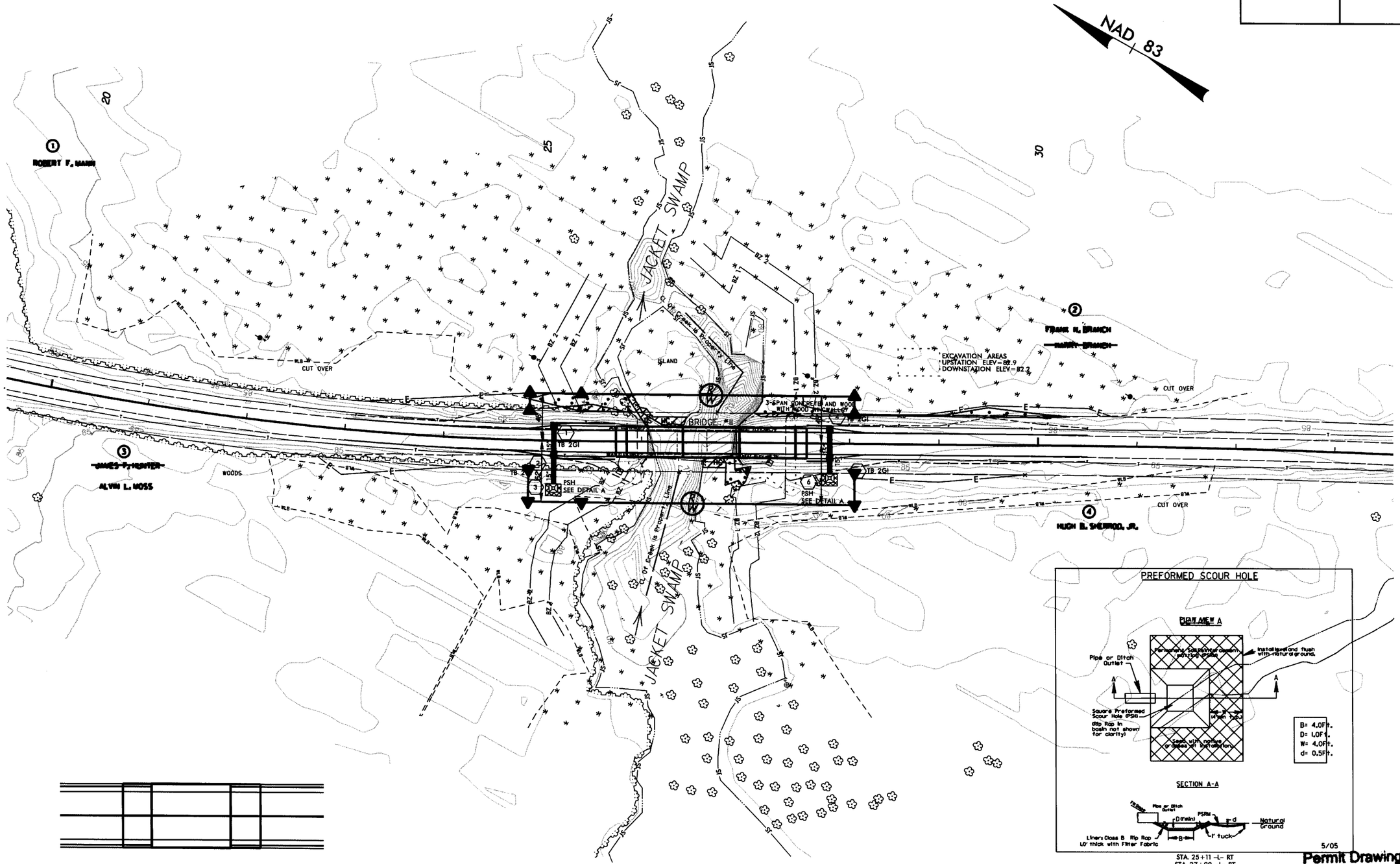
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

F/F DENOTES FILL IN WETLAND
FS/FS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
E/E DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
HC/HC DENOTES HAND CLEARING

PROPOSED SHOULDER BERM GUTTER
STA 25+09.0 TO 25+85.0 LT & RT
STA 27+56.0 TO 27+92.0 LT & RT

NAD 83



PREFORMED SCOUR HOLE

PLAN VIEW A

SECTION A-A

5/05

STA. 25+11 -L- RT
STA. 27+90 -L- RT

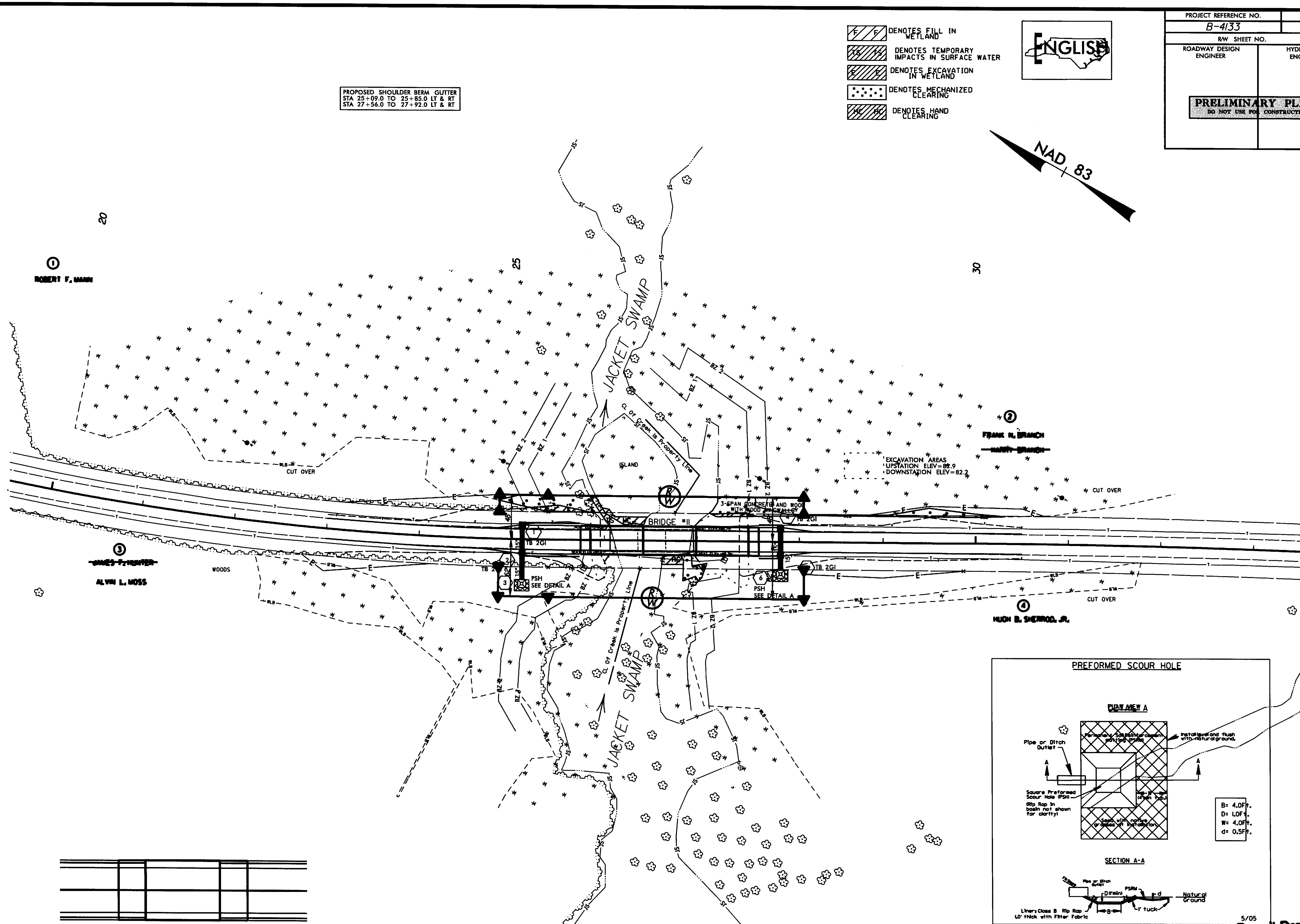
Permit Drawing Sheet 8 of 13

NOTE: SEE SHEET NO. 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS
TRAFFIC IS TO BE MAINTAINED WITH AN OFF SITE DETOUR

08\03\09 09:23:13
r:\hydraulics\permit\b-4133_hyd_prm_watcon_04.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4133	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DENOTES FILL IN WETLAND
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES HAND CLEARING
ENGLISH
NAD 83
PROPOSED SHOULDER BERM GUTTER
STA 25+09.0 TO 25+85.0 LT & RT
STA 27+56.0 TO 27+92.0 LT & RT
ROBERT F. MANN
FRANK H. BRANCH
ALVIN L. MOSS
HUGH B. SHERROD, JR.
JACKET SWAMP
ISLAND
CL Of Creek Is Property Line
BRIDGE #11
3-SPAN CONCRETE AND WOOD WITH WOOD ENDWALLS
EXCAVATION AREAS
UPSTATION ELEV=82.9
DOWNSTATION ELEV=82.2
CUT OVER
WOODS
PSH
SEE DETAIL A
TB 2GI
PREFORMED SCOUR HOLE
PLAN VIEW A
Pipe or Ditch Outlet
Permanent Soil Reinforcement Matting (PSRM)
Install level and flush with natural ground.
Square Preformed Scour Hole (PSH)
(Rip Rap in basin not shown for clarity)
Seed with native grasses at installation.
B= 4.0Ft.
D= 1.0Ft.
W= 4.0Ft.
d= 0.5Ft.
SECTION A-A
Natural Ground
Liner: Class B Rip Rap 1.0' thick with Filter Fabric
1' tuck
5/05

STA. 25+11 -L- RT
STA. 27+90 -L- RT

Permit Drawing
Sheet 9 of 13

NOTE: SEE SHEET NO. 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS
TRAFFIC IS TO BE MAINTAINED WITH AN OFF SITE DETOUR

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4133	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 85.6	FT
BASE DISCHARGE	= 3510	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 87.5	FT
OVERTOPPING DISCHARGE	= 3650	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 85.8	FT
NORMAL WATER SURFACE ELEVATION	= 78.3	FT
DATE OF SURVEY	= 09/07	
W.S. ELEVATION AT DATE OF SURVEY	= 78.3	FT

-L-

END RESURFACING
BEGIN GRADE
-L- STA. 24+00.00
EL. = 87.30'

BEGIN RESURFACING
-L- STA. 23+00.00
EL. = 86.90'

PI = 26+50.00
EL = 88.45'
VC = 200'
K = 161

BEGIN RESURFACING
END GRADE
-L- STA. 29+00.00
EL. = 86.50'

END RESURFACING
-L- STA. 30+50.00
EL. = 85.97'

BRIDGE ℄ STA. 26+70.50 -L-
ELEV. = 88.10
SKEW = 90°
PROPOSED (3 @ 57'); 21" PRESTRESSED CONCRETE CORED SLAB

(+)0.4600% (−)0.7800%

UNCLASSIFIED STRUCTURE EXCAVATION

BM • 2 R/R SPIKE IN BASE OF 24" GUM
-L- STA. 24+51.02 35.17' RT.
N 892718.691 E 2390842.937 ELEV. = 87.59'

90 80 70 60 50

20 21 22 23 24 25 26 27 28 29 30 31 32 33 34

RDY
2000.000000
50

Permit Drawing
Sheet 10 of 13

SEE SHEET 4 FOR -L- DESIGN

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mrook

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
B-4133	X-1

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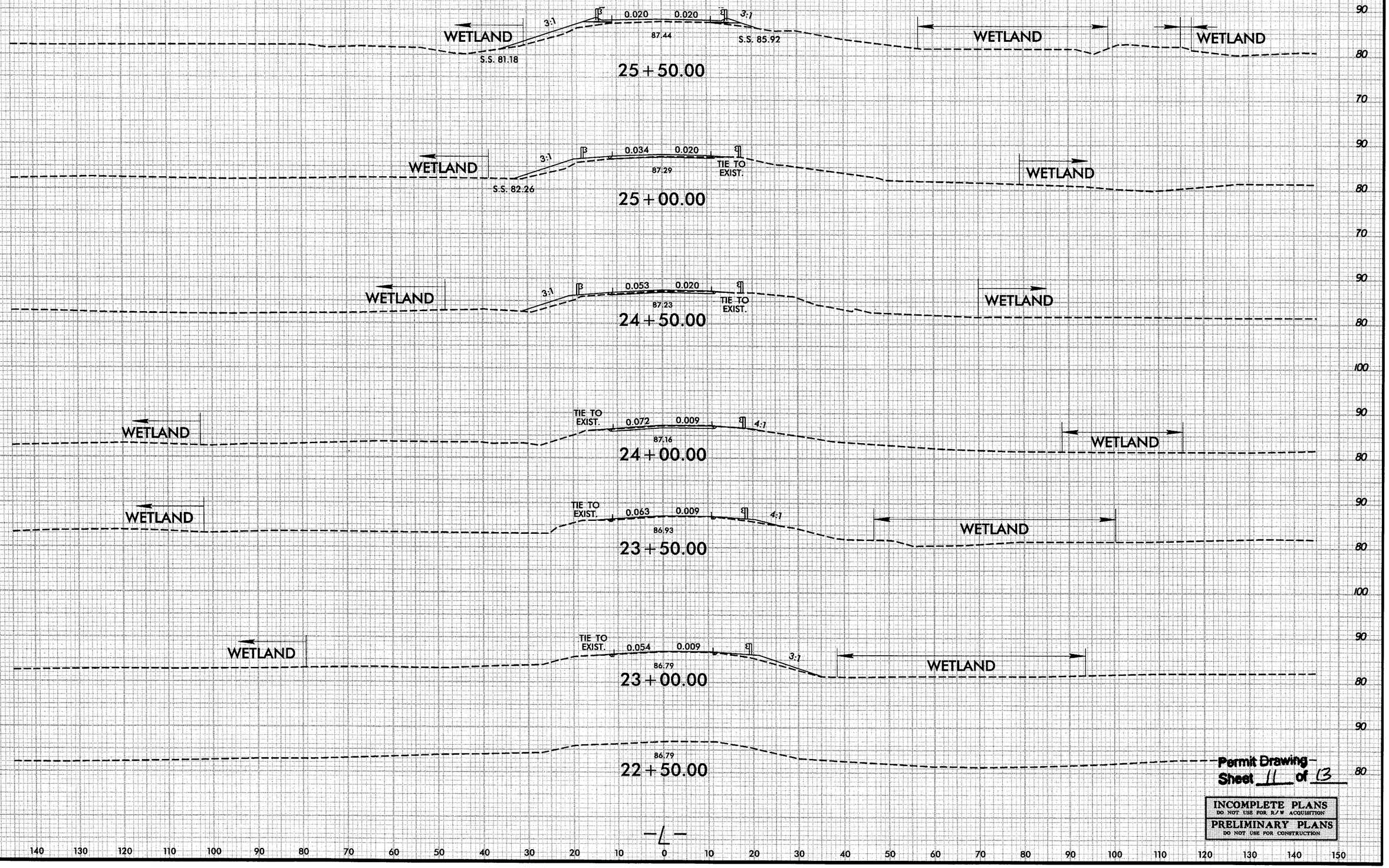

Permit Drawing
Sheet 11 of 13

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

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r:\Roadway\Xsc\b-4133_rdy_xpl.dgn
mcook

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4133	X-2

EXCAVATION
WETLAND
3:1
0.020
0.020
3:1
S.S. 86.66
87.44
S.S. 85.60
WETLAND

27+50.00

EXCAVATION
WETLAND
0.020
0.020
87.58
EXCAVATION
WETLAND

27+24.00

EXCAVATION
0.020
0.020
87.83
WETLAND
WETLAND
WETLAND

27+00.00

0.020
0.020
WETLAND
77.82
WETLAND

26+50.00

EXCAVATION
0.020
0.020
UNCLASSIFIED STRUCTURE EXCAVATION
87.76
WETLAND
WETLAND

26+00.00

WETLAND
WETLAND
WETLAND
EXCAVATION
3:1
0.020
0.020
3:1
87.66
S.S. 82.75
S.S. 85.71
WETLAND

25+79.00

-L-

Permit Drawing
Sheet 12 of 13

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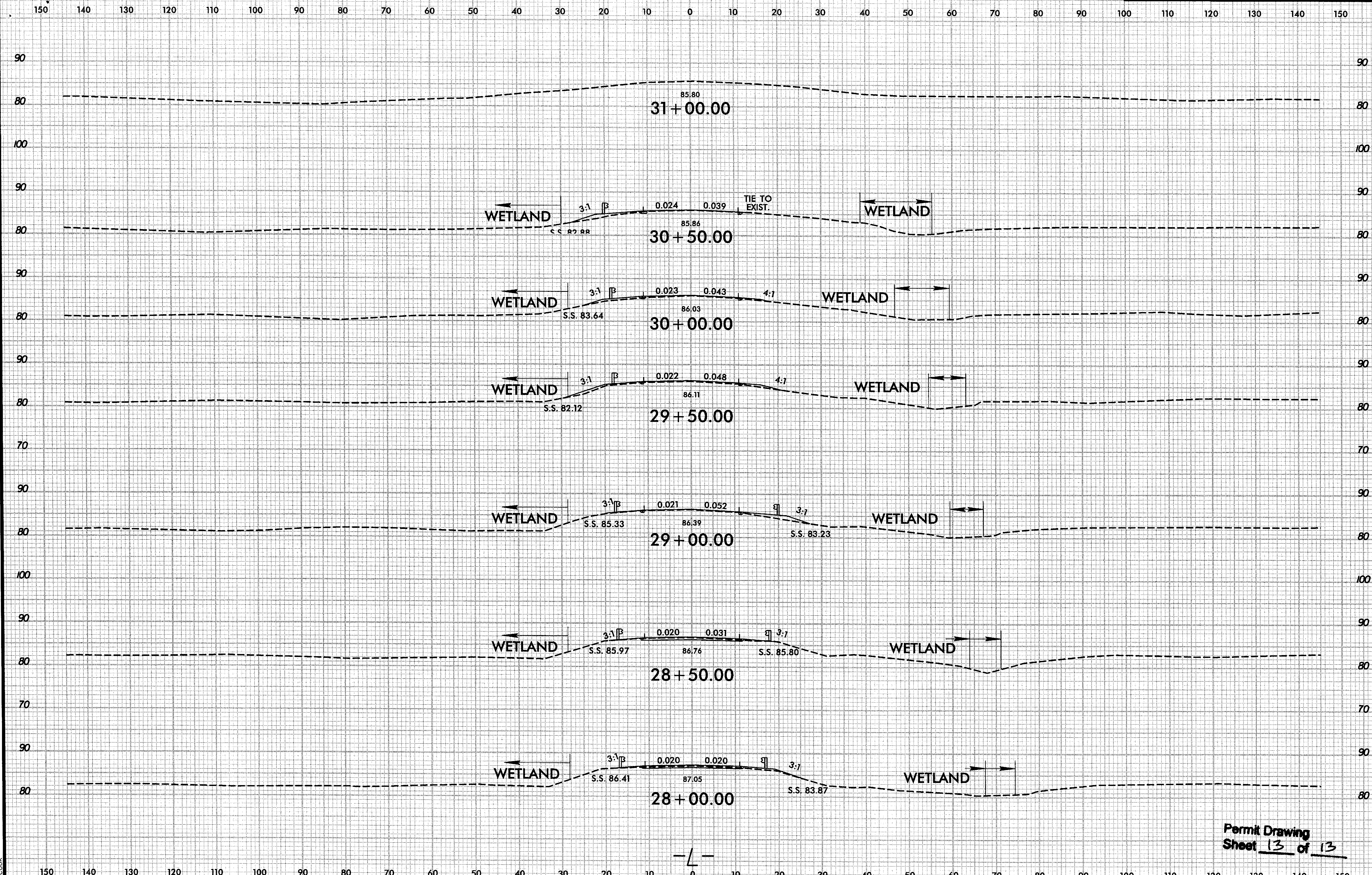
mcook

PROJ. REFERENCE NO.	SHEET NO.
B-4133	X-3



8/23/99

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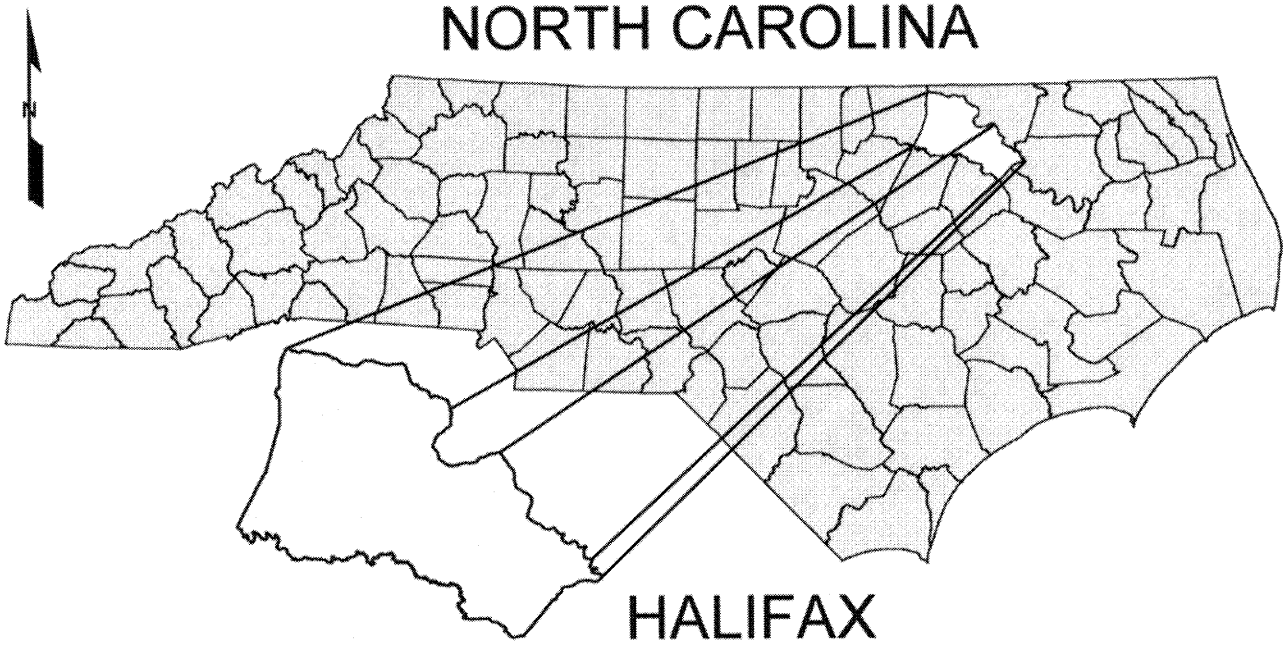
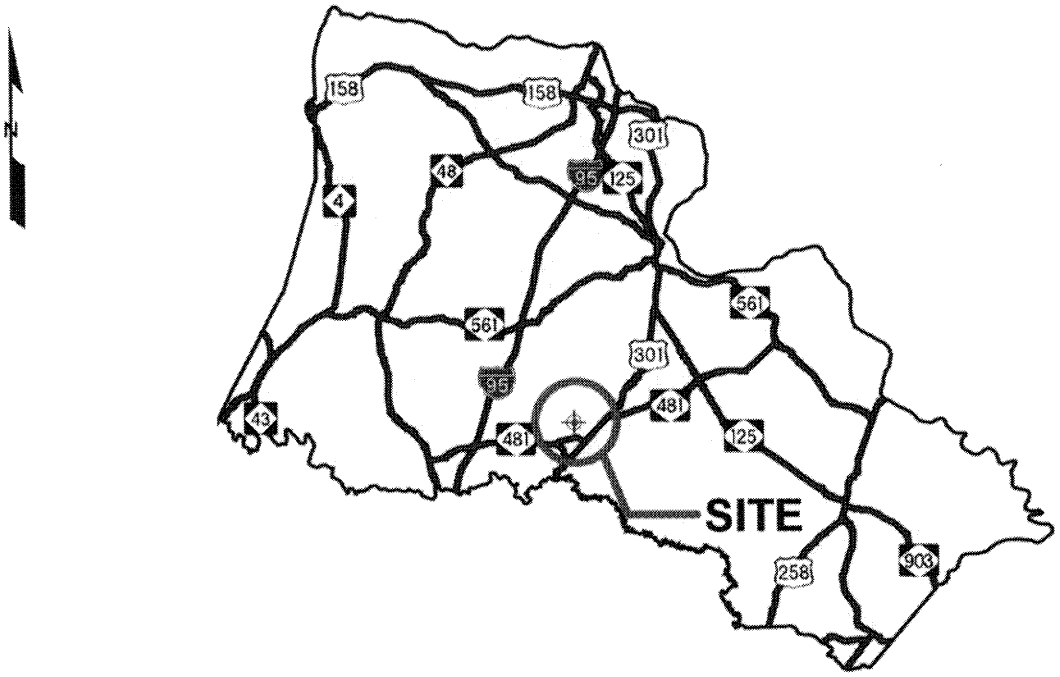




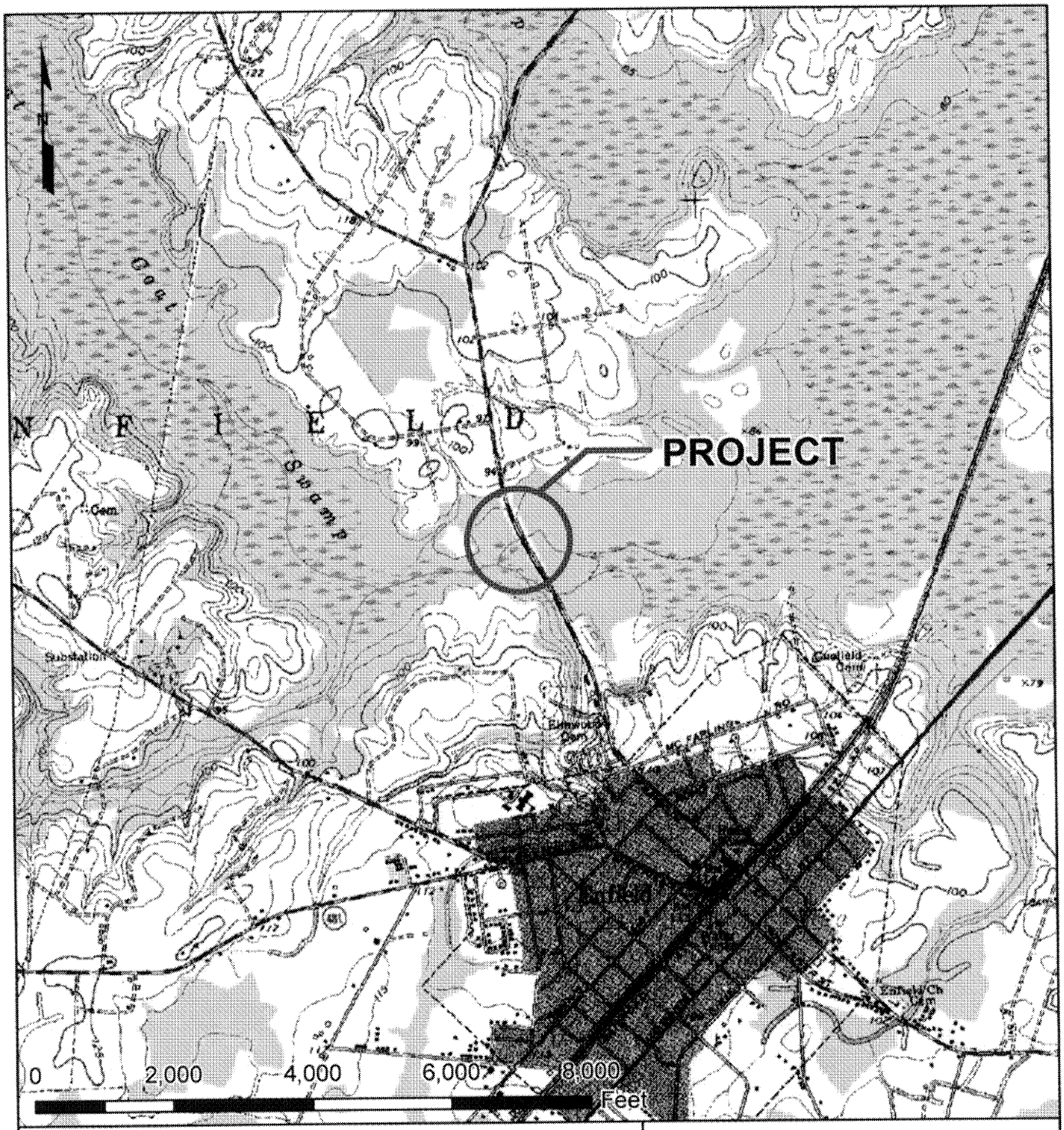
VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
HALIFAX COUNTY
PROJECT: 33486.1.1 (B-4133)
BRIDGE NO. 11
OVER JACKET SWAMP ON SR 1001

AUGUST 2009

Buffer Drawing
Sheet 1 of 12



1 inch equals 2,000 feet

LOCATION

NCDOT

DIVISION OF HIGHWAYS
HALIFAX COUNTY
PROJECT: 33486.1.1 (B-4133)
BRIDGE NO. 11
OVER JACKET SWAMP ON SR 1001

AUGUST 2009

Source: USGS 7.5 Minute Quadrangle, Enfield, NC

Buffer Drawing
Sheet 2 of 12

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	BRIDGE	-L- 26+70.5	X			839	873	1712					
				X		1526	487	2013					
TOTAL:						2365	1360	3725	0	0	0		

For the road crossing, there will be a total of 54 linear feet of buffer impacts

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

HALIFAX COUNTY
PROJECT: 33486.1.1 (B-4133)

8/2009

BUFFER IMPACTS SUMMARY

		WETLANDS IN BUFFER	
Site	Station	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	-L- 26+70.5	1643	568
		1643	568

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

HALIFAX COUNTY
PROJECT: 33486.1.1 (B-4133)

8/2009

R:\Z-misc\Hydro\Permit\wetlandbuffer.xls

Buffer Drawing
Sheet 4 of 12

PROP. NO.	PROPERTY OWNER`S NAME	PROPERTY OWNER`S ADDRESS
1	Robert F. Mann	C/O Frances Pittman; 6115 S. Tudeley Ave., Norfolk, VA 23508
2	Frank N. Branch	3804 Flat Rock Dr., Battleboro, NC 27809
3	Alvin L. Moss	154 Camping Creek Rd., Franklinton, NC 27525
4	Hugh B. Sherrod, Jr.	17586 Hawks View Dr., Fort Mill, SC 29707

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

HALIFAX COUNTY
PROJECT: 33486.1.1 (B-4133)

8/2009

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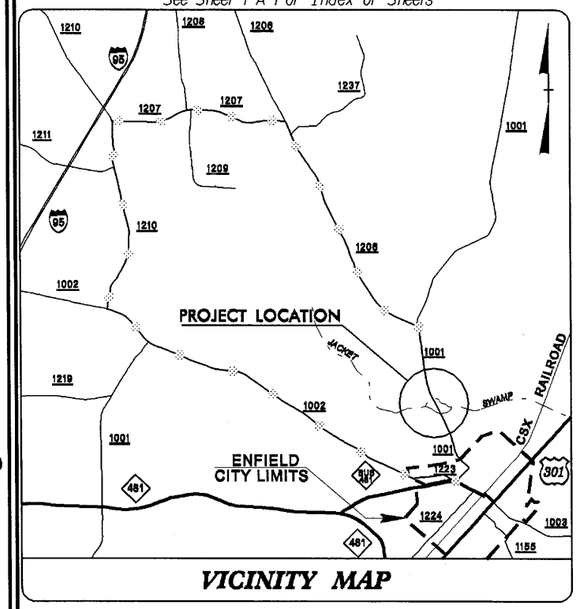
09/08/99

TIP PROJECT: B-4133

CONTRACT: C202437

See Sheet 1-A For Index of Sheets



VICINITY MAP

OFF-SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

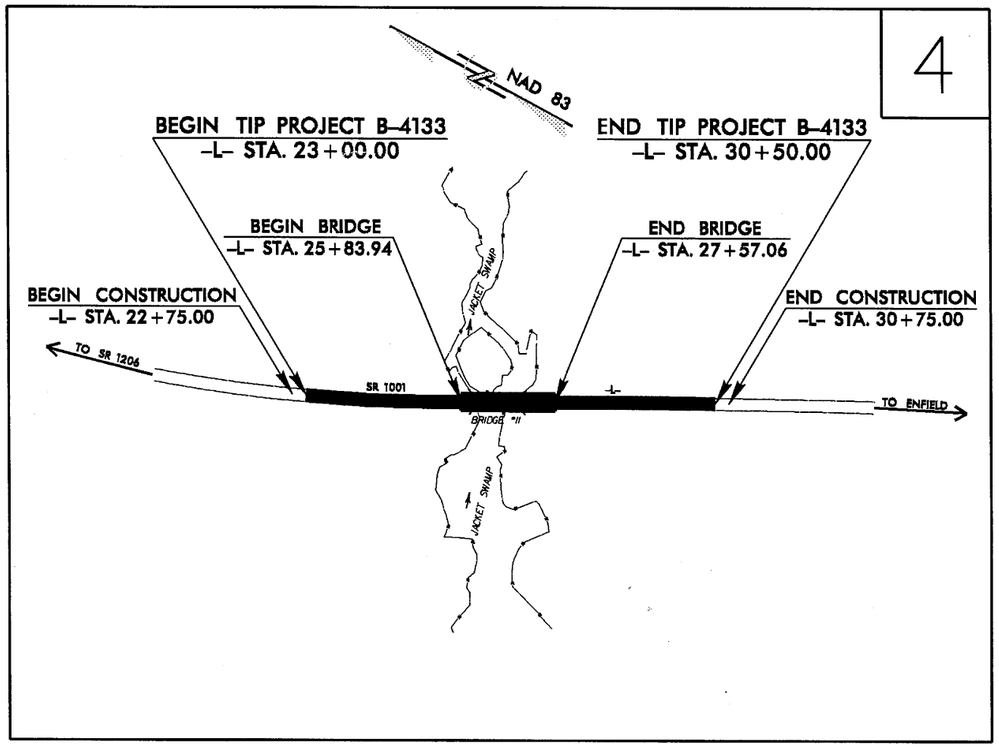
HALIFAX COUNTY

LOCATION: BRIDGE NO. 11 OVER JACKET SWAMP ON SR 1001

TYPE OF WORK: BUFFER PERMIT DRAWING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4133	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33486.1.1	BRSTP-1001(26)	PE
33486.2.1	BRSTP-1001(26)	R/W, UTIL.



NOTE: METHOD OF CLEARING III

NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

Buffer Drawing
Sheet _____ of _____

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 775 VPD
ADT 2030 = 1300 VPD
DHV = 11 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST 3 % DUAL 4 %
FUNC. CLASS = COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4133 = 0.109 MI
LENGTH STRUCTURE TIP PROJECT B-4133 = 0.033 MI
TOTAL LENGTH TIP PROJECT B-4133 = 0.142 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 14, 2009

LETTING DATE: JANUARY 18, 2011

JAMES A. SPEER, P.E.
PROJECT ENGINEER

NYA K. BOAYUE, P.E.
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.

Buffer Drawing
Sheet 10 of 12

17-AUG-2009 10:33
r:\hydraulics\permits_environmental\drawings\b4133_rdy_tsh.dgn
my name is earl

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-4133	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

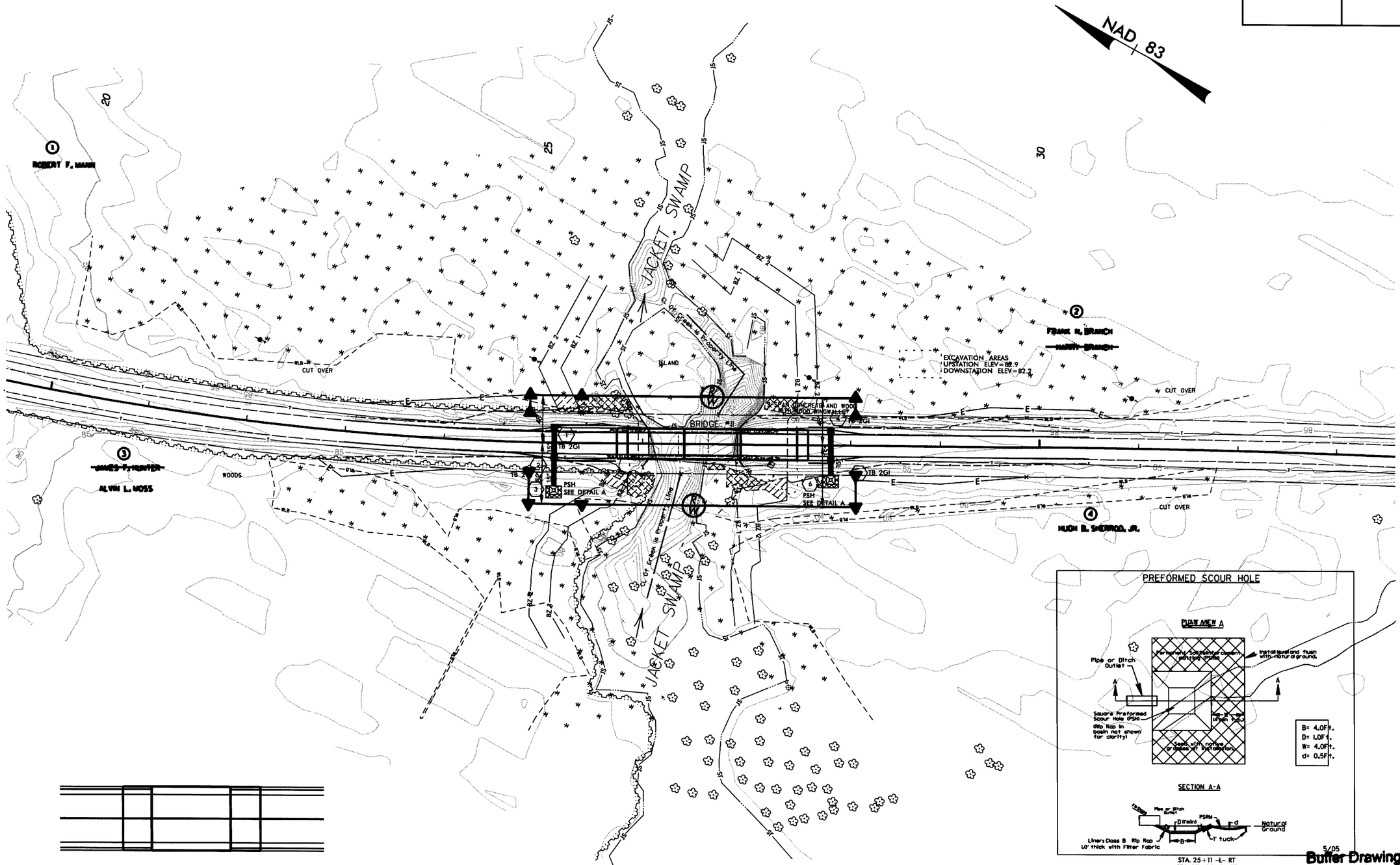
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2

ENGLISH

PROPOSED SHOULDER BERM GUTTER
STA 25+09.0 TO 25+85.0 LT & RT
STA 27+56.0 TO 27+92.0 LT & RT

NAD 83



5/05

Buffer Drawing
Sheet 7 of 12

NOTE: SEE SHEET NO. 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS
TRAFFIC IS TO BE MAINTAINED WITH AN OFF SITE DETOUR

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8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-4133	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

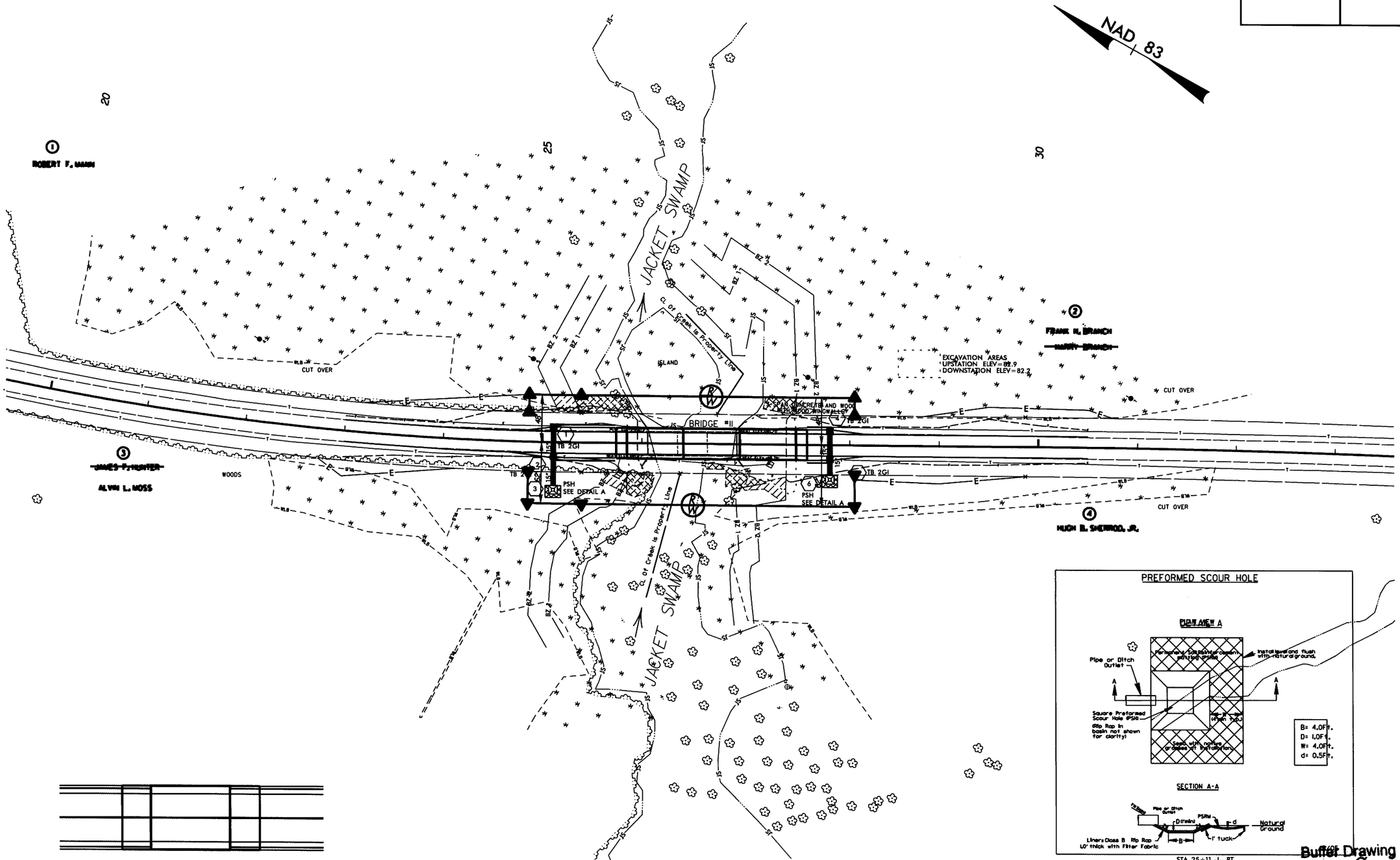
ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

ENGLISH

PROPOSED SHOULDER BERM GUTTER
STA 25+09.0 TO 25+85.0 LT & RT
STA 27+56.0 TO 27+92.0 LT & RT

NAD 83



STA. 25+11 -L- RT
STA. 27+90 -L- RT

Buffet Drawing
Sheet 8 of 12

NOTE: SEE SHEET NO. 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS
TRAFFIC IS TO BE MAINTAINED WITH AN OFF SITE DETOUR

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mcook

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4133	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 85.6	FT
BASE DISCHARGE	= 3510	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 87.5	FT
OVERTOPPING DISCHARGE	= 3650	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 85.8	FT
NORMAL WATER SURFACE ELEVATION	= 78.3	FT
DATE OF SURVEY	= 09/07	
W.S. ELEVATION AT DATE OF SURVEY	= 78.3	FT

-L-

END RESURFACING
BEGIN GRADE
-L- STA. 24+00.00
EL. = 87.30'

BEGIN RESURFACING
-L- STA. 23+00.00
EL. = 86.90'

PI = 26+50.00
EL = 88.45'
VC = 200'
K = 161

BRIDGE ℄ STA. 26+70.50 -L-
ELEV. = 88.10
SKEW = 90°
PROPOSED (3 @ 57'); 21" PRESTRESSED CONCRETE CORED SLAB

BEGIN RESURFACING
END GRADE
-L- STA. 29+00.00
EL. = 86.50'

END RESURFACING
-L- STA. 30+50.00
EL. = 85.97'

(+)0.4600%

(−)0.7800%

UNCLASSIFIED STRUCTURE EXCAVATION

BM # 2 R/R SPIKE IN BASE OF 24" GUM
-L- STA. 24+51.02 351' RT.
N 892718.691 E 2390842.937 ELEV. = 87.59'

90 80 70 60 50

20 21 22 23 24 25 26 27 28 29 30 31 32 33 34

RDY
2000.000000
10
50

Buffer Drawing
Sheet 9 of 12

SEE SHEET 4 FOR -L- DESIGN

08\03\09 09:26:26
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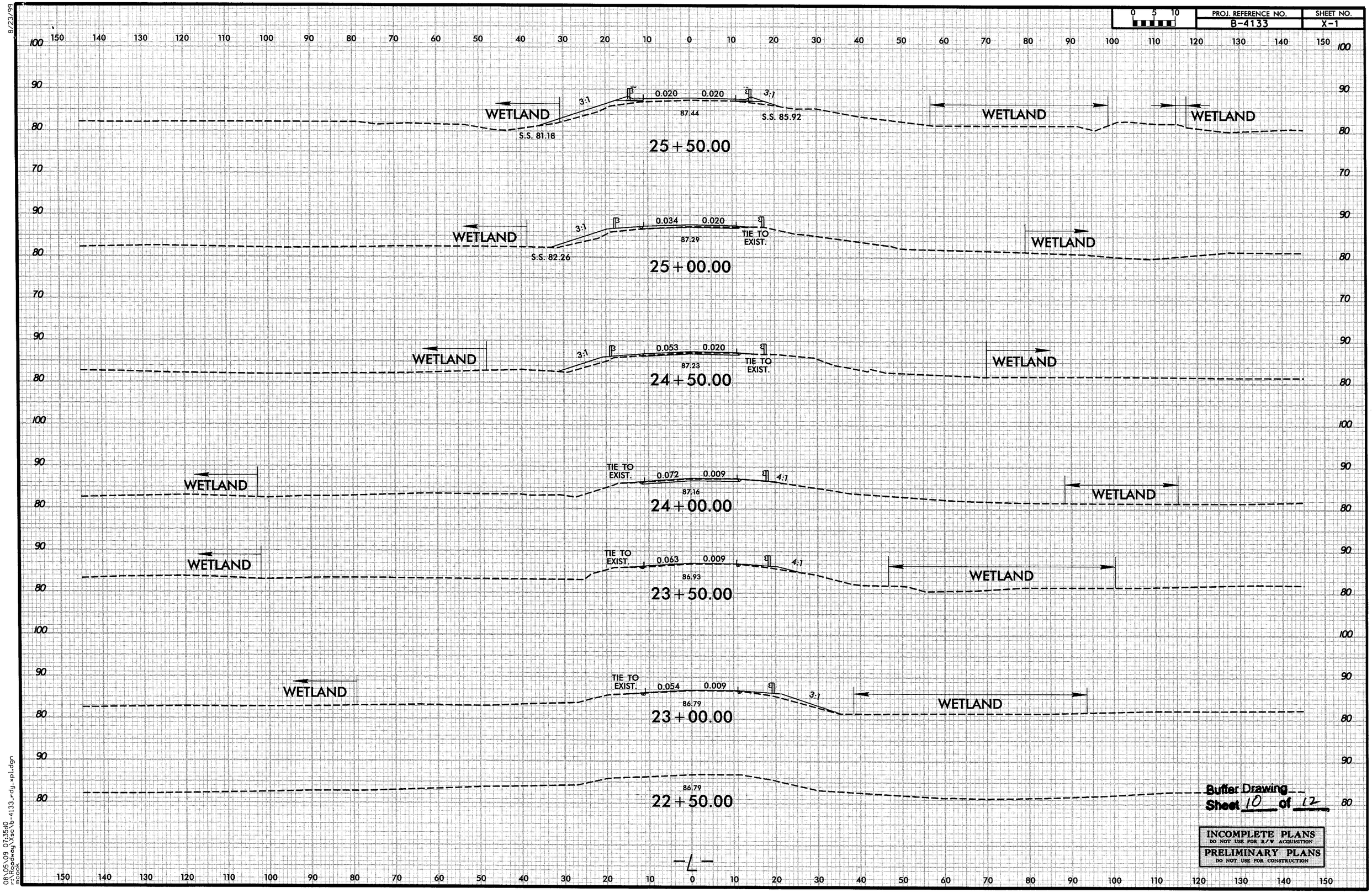
mmoss

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4133	X-1



Buffer Drawing
Sheet 10 of 12

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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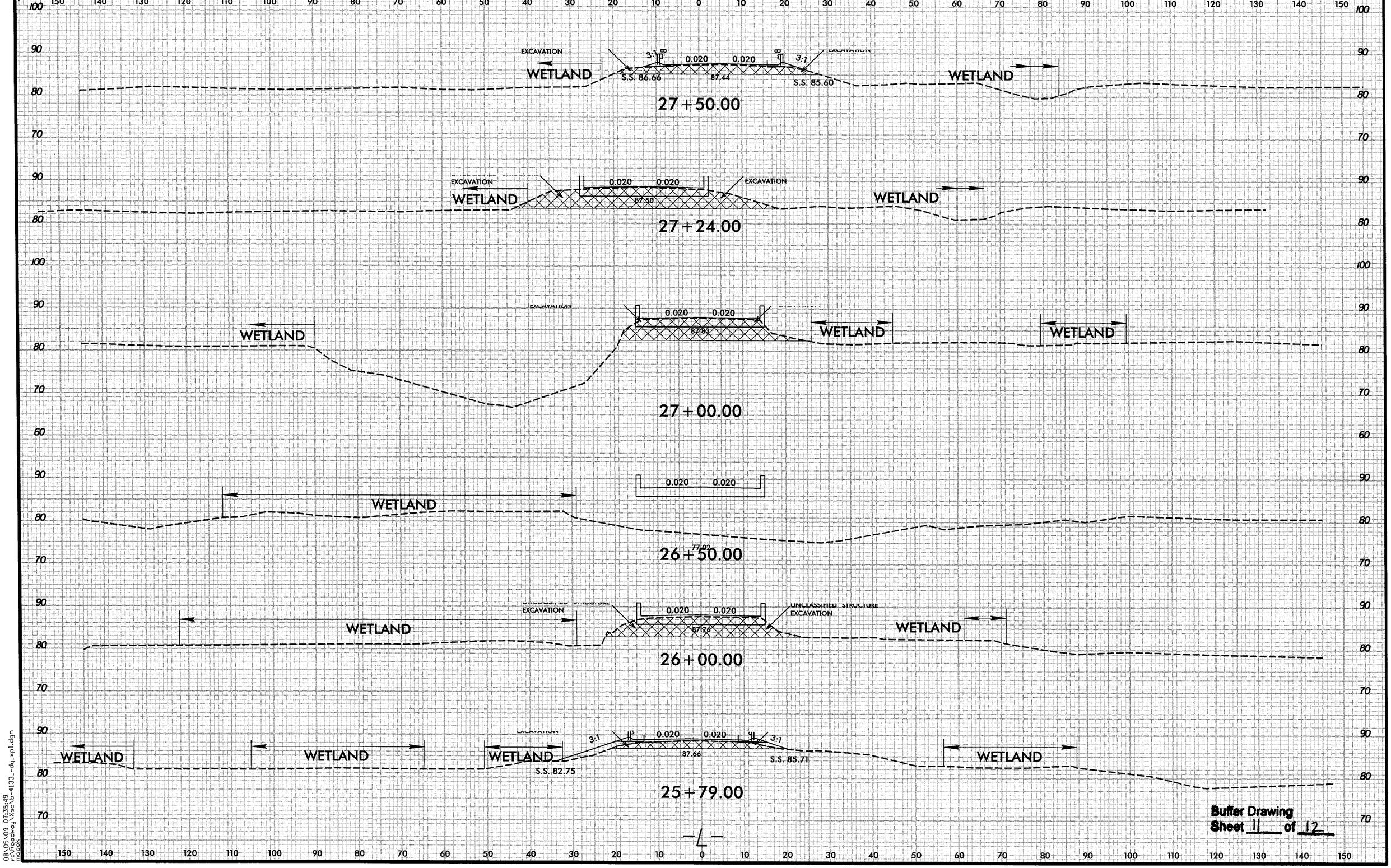
mcook

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4133	X-2



Buffer Drawing
Sheet 11 of 12

-L-

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mcook

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4133	X-3

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

90 80 100 90 80 90 80 70

85.80
31+00.00

WETLAND 3:1 β 0.024 0.039 TIE TO EXIST. WETLAND
S.S. 82.88
85.86
30+50.00

WETLAND 3:1 β 0.023 0.043 4:1 WETLAND
S.S. 83.64
86.03
30+00.00

WETLAND 3:1 β 0.022 0.048 4:1 WETLAND
S.S. 82.12
86.11
29+50.00

90 80 100 90 80 70 90 80

WETLAND 3:1 β 0.021 0.052 ℄ 3:1 WETLAND
S.S. 85.33
86.39
S.S. 83.23
29+00.00

WETLAND 3:1 β 0.020 0.031 ℄ 3:1 WETLAND
S.S. 85.97
86.76
S.S. 85.80
28+50.00

WETLAND 3:1 β 0.020 0.020 ℄ 3:1 WETLAND
S.S. 86.41
87.05
S.S. 83.87
28+00.00

90 80 70 90 80

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

-L-

Buffer Drawing
Sheet 12 of 12

08\05\09 07:36:41
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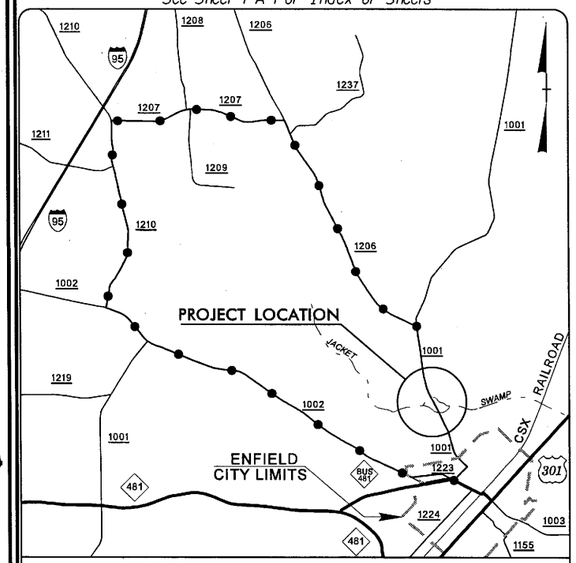
mcook

09/08/99

TIP PROJECT: B-4133

CONTRACT: C202437

See Sheet 1-A For Index of Sheets



VICINITY MAP

OFF-SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

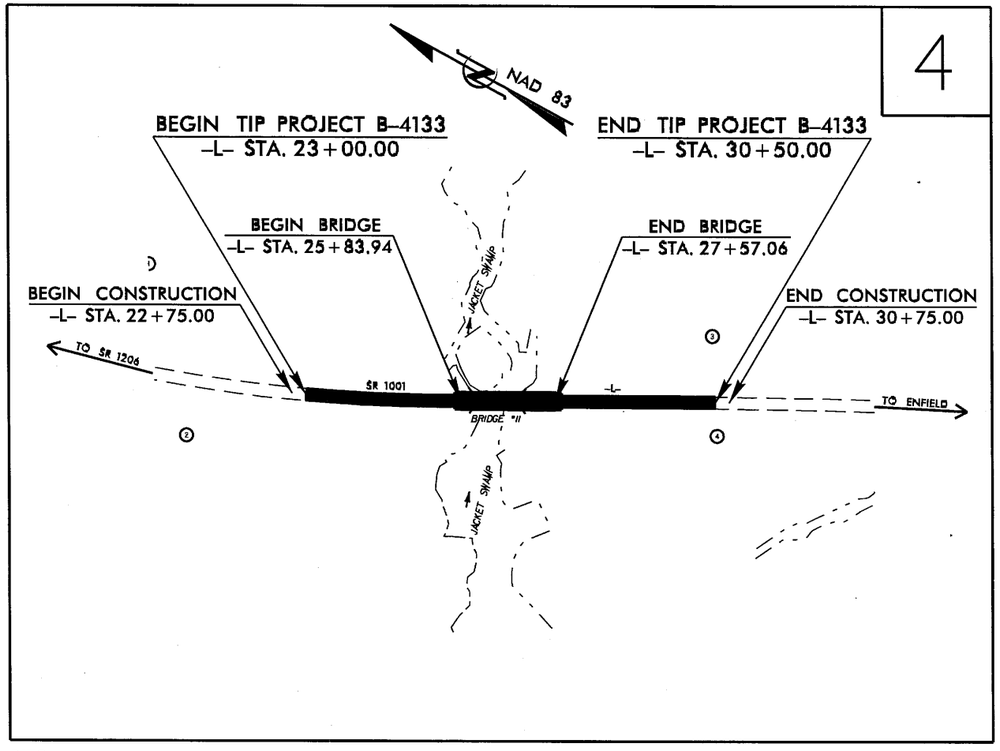
HALIFAX COUNTY

LOCATION: BRIDGE NO. 11 OVER JACKET SWAMP ON SR 1001

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4133	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33486.1.1	BRSTP-1001(26)	PE	
33486.2.1	BRSTP-1001(26)	R/W, UTIL.	

4



NOTE: METHOD OF CLEARING III

NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 775 VPD
ADT 2030 = 1300 VPD
DHV = 11 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST 3 % DUAL 4 %
FUNC. CLASS = COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4133 = 0.109 MI
LENGTH STRUCTURE TIP PROJECT B-4133 = 0.033 MI
TOTAL LENGTH TIP PROJECT B-4133 = 0.142 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 14, 2009

LETTING DATE: JANUARY 18, 2011

JAMES A. SPEER, P.E.
PROJECT ENGINEER

NYA K. BOAYUE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

30-JUL-2009 08:00
r:\roadway\proj\b4133_rdy_tsh.dgn
my name is earl

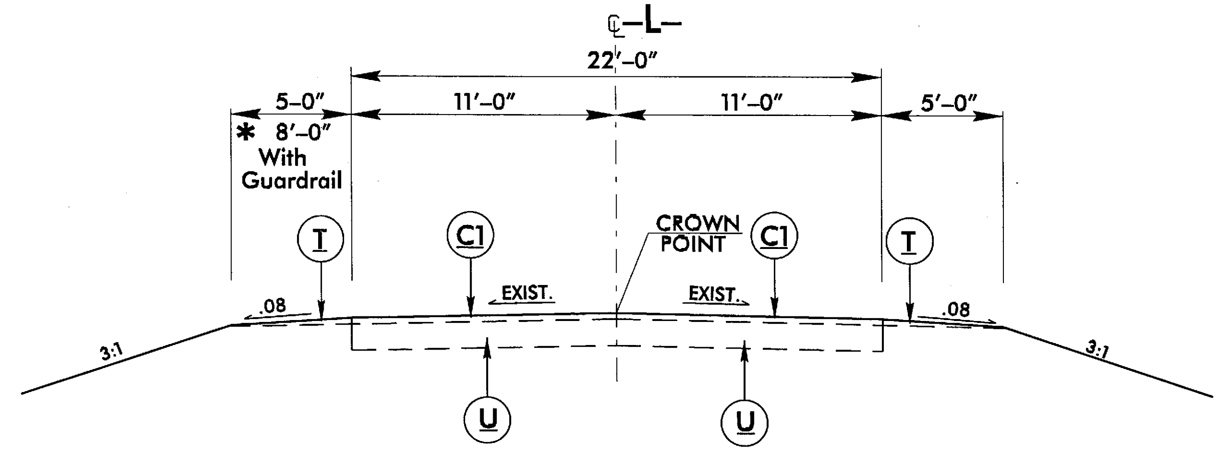
PROJECT REFERENCE NO.	SHEET NO.
B-4133	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

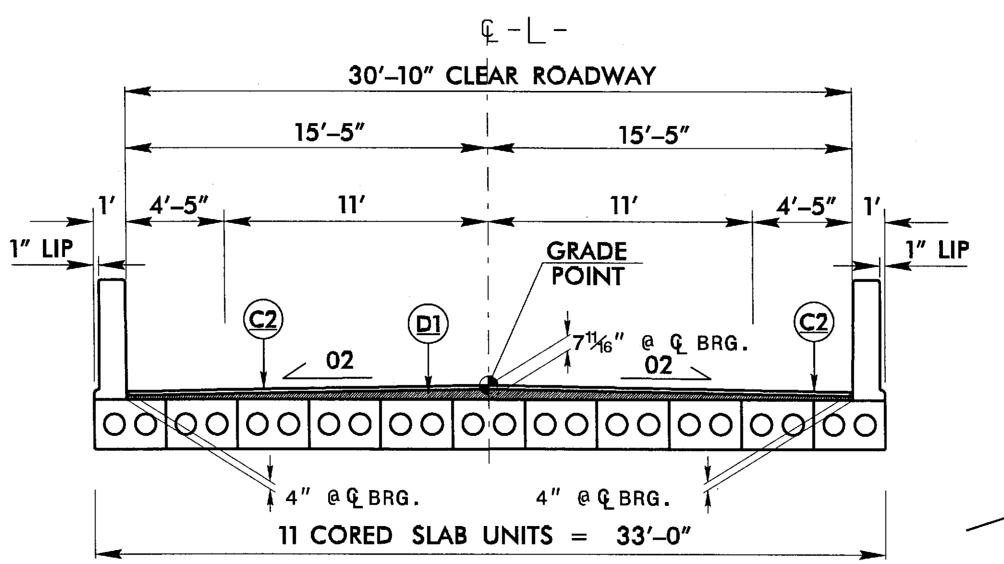
C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C3	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
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 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
T_	EARTH MATERIAL.
U_	EXISTING PAVEMENT.

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



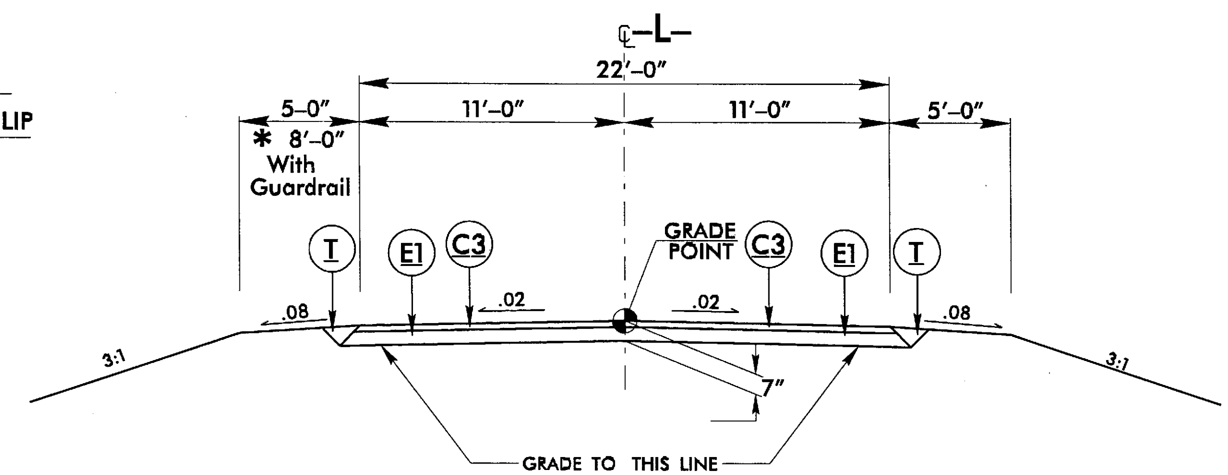
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA. 23+00.00 to -L- STA. 24+00.00
-L- STA. 29+00.00 to -L- STA. 30+50.00



TYPICAL SECTION ON STRUCTURE

BEGIN BRIDGE -L- STA. 25+83.94 TO END BRIDGE -L- STA. 27+57.06

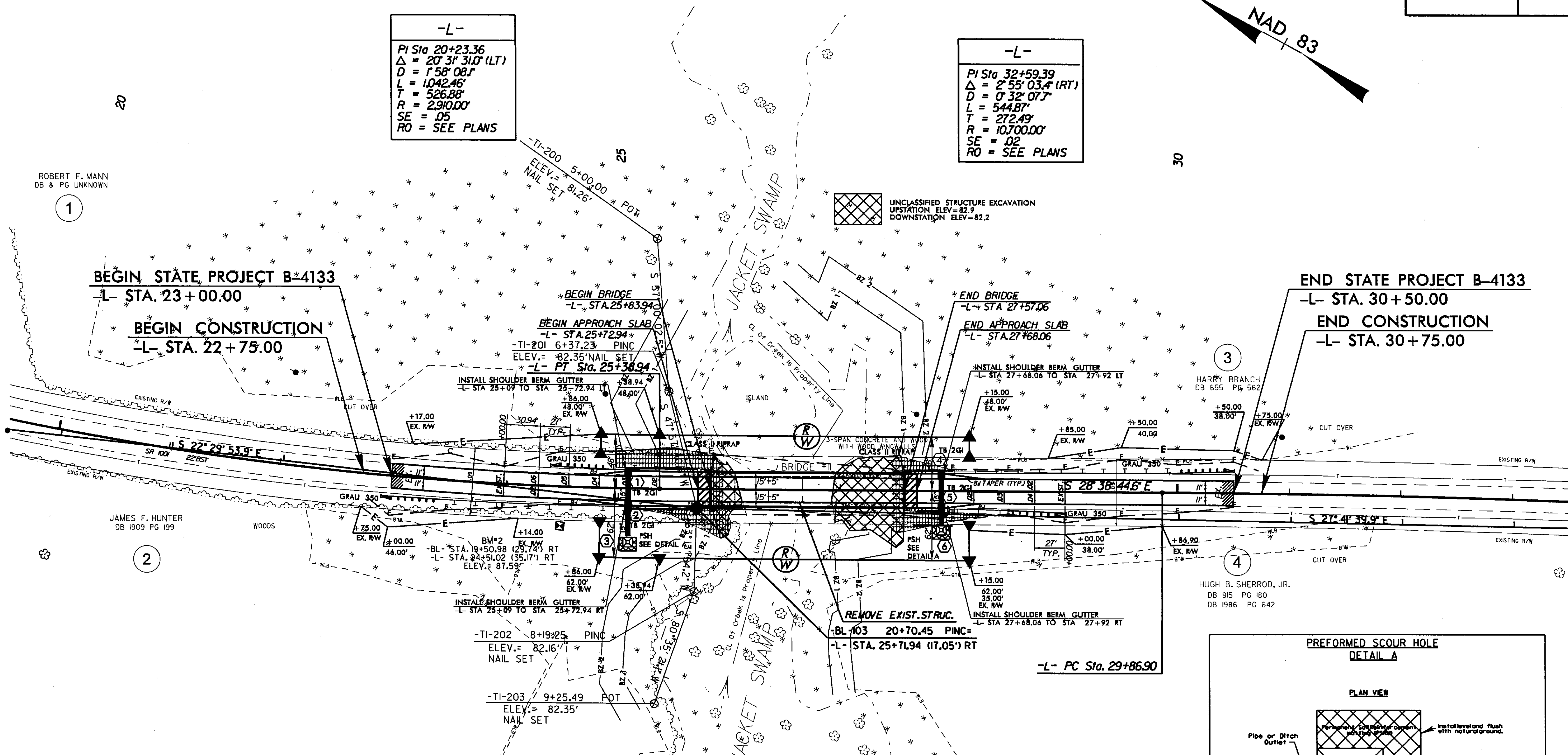


TYPICAL SECTION NO. 2

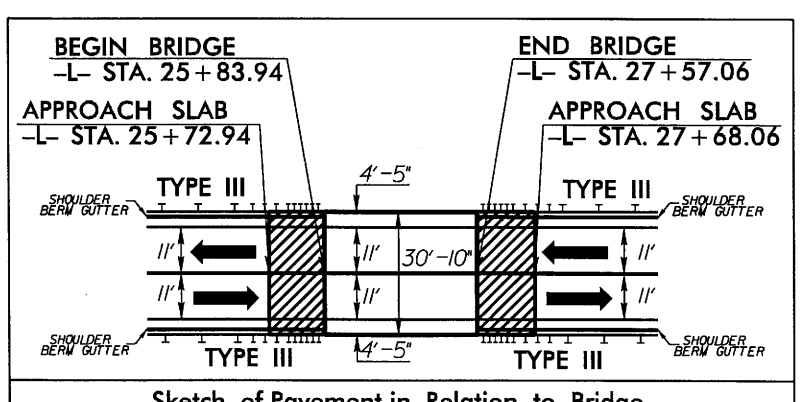
USE TYPICAL SECTION NO. 2
-L- STA. 24+00.00 TO -L- STA. 25+83.94(BEG. BRIDGE)
-L- STA. 27+57.06(END BRIDGE) TO -L- STA. 29+00.00

PROJECT REFERENCE NO.	SHEET NO.
B-4133	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

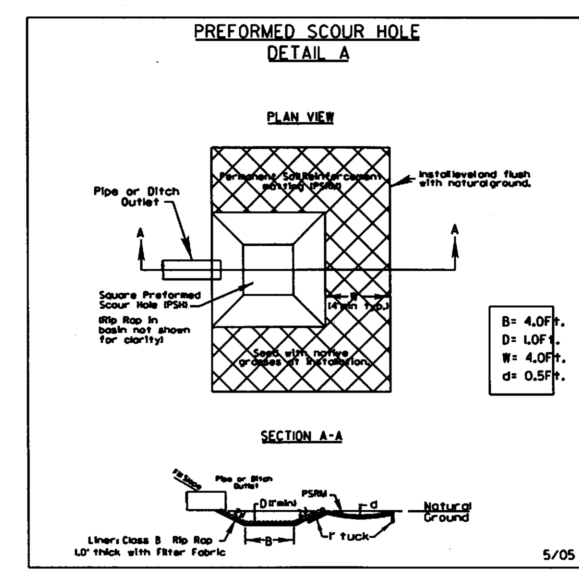
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NAD 83
-L-
PI Sta 20+23.36
Δ = 20° 31' 31.0" (LT)
D = 1° 58' 08.1"
L = 1,042.46'
T = 526.88'
R = 2,910.00'
SE = .05
RO = SEE PLANS
-L-
PI Sta 32+59.39
Δ = 2° 55' 03.4" (RT)
D = 0° 32' 07.7"
L = 544.87'
T = 272.49'
R = 10,700.00'
SE = .02
RO = SEE PLANS
ROBERT F. MANN
DB & PG UNKNOWN
UNCLASSIFIED STRUCTURE EXCAVATION
UPSTATION ELEV=82.9
DOWNSTATION ELEV=82.2
JACKET SWAMP
BEGIN STATE PROJECT B-4133
-L- STA. 23+00.00
BEGIN CONSTRUCTION
-L- STA. 22+75.00
END STATE PROJECT B-4133
-L- STA. 30+50.00
END CONSTRUCTION
-L- STA. 30+75.00
BEGIN BRIDGE
-L- STA.25+83.94
BEGIN APPROACH SLAB
-L- STA.25+72.94
END BRIDGE
-L- STA 27+57.06
END APPROACH SLAB
-L- STA.27+68.06
-TI-200 5+00.00 POT
ELEV.= 81.26'
NAIL SET
-TI-201 6+37.23 PINC
ELEV.= 82.35' NAIL SET
-L- PT Sta. 25+38.94
INSTALL SHOULDER BERM GUTTER
-L- STA 25+09 TO STA 25+72.94 LT
INSTALL SHOULDER BERM GUTTER
-L- STA 27+68.06 TO STA 27+92 LT
HARRY BRANCH
DB 655 PG 562
S 22° 29' 53.9" E
S 28° 38' 44.6" E
S 27° 41' 39.9" E
BRIDGE
CLASS II RIPRAP
3-SPAN CONCRETE AND WOOD WITH WOOD WINGWALLS
JAMES F. HUNTER
DB 1909 PG 199
WOODS
BM#2
-BL- STA. 19+50.98 (29.74') RT
-L- STA. 24+51.02 (35.17') RT
ELEV.= 87.59'
PSH
SEE DETAIL A
INSTALL SHOULDER BERM GUTTER
-L- STA 25+09 TO STA 25+72.94 RT
-TI-202 8+19.25 PINC
ELEV.= 82.16'
NAIL SET
-TI-203 9+25.49 POT
ELEV.= 82.35'
NAIL SET
REMOVE EXIST. STRUC.
-BL-103 20+70.45 PINC=
-L- STA. 25+71.94 (17.05') RT
INSTALL SHOULDER BERM GUTTER
-L- STA 27+68.06 TO STA 27+92 RT
HUGH B. SHERROD, JR.
DB 915 PG 180
DB 1986 PG 642
-L- PC Sta. 29+86.90
CUT OVER
EXISTING R/W
ISLAND
CL of Creek is Property Line



Sketch of Pavement in Relation to Bridge



STA. 25+11 -L- RT
STA. 27+90 -L- RT

NOTE: SEE SHEET NO. 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS
TRAFFIC IS TO BE MAINTAINED WITH AN OFF SITE DETOUR

REVISIONS

8/17/99

30-JUL-2009 08:00

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4133	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 84.4	FT
BASE DISCHARGE	= 3510	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 85.8	FT
OVERTOPPING DISCHARGE	= 3800	CFS
OVERTOPPING FREQUENCY	= 100±	YRS
OVERTOPPING ELEVATION	= 85.8	FT
NORMAL WATER SURFACE ELEVATION	= 78.3	FT
DATE OF SURVEY	= 09/07	
W.S. ELEVATION AT DATE OF SURVEY	= 78.3	FT

-L-

END RESURFACING
BEGIN GRADE
-L- STA. 24+00.00
EL. = 87.30'

BEGIN RESURFACING
-L- STA. 23+00.00
EL. = 86.90'

PI = 26+50.00
EL = 88.45'
VC = 200'
K = 161

BEGIN RESURFACING
END GRADE
-L- STA. 29+00.00
EL. = 86.50'

END RESURFACING
-L- STA. 30+50.00
EL. = 85.97'

BRIDGE ℄ STA. 26+70.50 -L-
ELEV. = 88.10
SKEW = 90°
PROPOSED 11 @ 58'-0¾"; 1 @ 57'; 1 @ 58'-0¾"; 21" PRESTRESSED CONCRETE CORED SLAB

-L- PROFILE GRADE

UNCLASSIFIED STRUCTURE EXCAVATION

BM # 2 R/R SPIKE IN BASE OF 24" GUM
-L- STA. 24+51.02 35.17' RT.
N 892718.691 E 2390842.937 ELEV. = 87.59'

SEE SHEET 4 FOR -L- DESIGN

90 80 70 60 50

20 21 22 23 24 25 26 27 28 29 30 31 32 33 34

30-JUL-2009 08:00
c:\projects\4133_rdy_pf1.dgn