



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

July 28, 2014

U. S. Army Corps of Engineers
Regulatory Field Office
331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

ATTN: Mr. David Bailey
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 14 and 401 Water Quality Certification** for the replacement of Bridge No. 97 on SR 1925 (Worsham Mill Road) over Wolf Island Creek in Rockingham County, North Carolina. Federal Aid Project No. BRZ-1925(2).
TIP No. B-4803.

Debit \$240.00 from WBS Element 38573.1.1.

Please find enclosed the Pre-Construction Notification (PCN) form, USFWS concurrence letter, Preliminary Jurisdictional Form, stormwater management plan, permit drawings, and design plans for the above referenced project. For impact totals, please see the PCN.

The proposed let date for the project is January 20, 2015 with a review date of December 2, 2014. However, the let date may advance as additional funds become available.

A copy of this permit application will be posted on the NCDOT Website at <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>, under *Quick Links > Permit Applications*. A copy of the CE is also available at the above website address under *Quick Links > Environmental Documents*.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jason Dilday at jldilday@ncdot.gov or (919) 707-6111.

Sincerely,

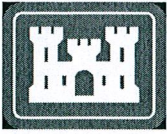
Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Unit

cc: NCDOT Permit Application Standard Distribution List

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-707-6000
FAX: 919-212-5785
WEBSITE: NCDOT.GOV

LOCATION:
CENTURY CENTER, BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610



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: 14 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 97 over Wolf Island Creek on SR 1925 (Worsham Mill Road)
2b. County:	Rockingham
2c. Nearest municipality / town:	Ruffin
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no:	B-4803

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	<i>not applicable</i>
3c. Responsible Party (for LLC if applicable):	<i>not applicable</i>
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6111
3g. Fax no.:	(919) 212-5785
3h. Email address:	jldilday@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	<i>not applicable</i>
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:	<i>not applicable</i>
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):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 36.456619 (DD.DDDDDD) Longitude: - 79.569765 (-DD.DDDDDD)
1c. Property size:	4.6 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Wolf Island Creek
2b. Water Quality Classification of nearest receiving water:	C
2c. River basin:	Roanoke
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: Forest communities, agriculture, historic mill site, minor residential development	
3b. List the total estimated acreage of all existing wetlands on the property: 0.01 acre	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 1262 linear feet	
3d. Explain the purpose of the proposed project: To replace a structurally deficient bridge.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a four span, 171-foot bridge with a two span, 195-foot bridge on a new alignment. Traffic will be maintained on the existing roadway structure and serve as an on-site detour. The new bridge will be built north (downstream) of the existing bridge. Improvements to the approach roadways will be required for a distance of approximately 480 feet to the northwest and 950 feet to the southeast of the structure. 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):	Agency/Consultant Company: Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.	
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			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 2 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 3 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 1 ☐ P ☐ T Utility Impacts			☐ Yes ☐ No	☐ Corps ☐ DWQ	
2g. Total wetland impacts					

2h. Comments:

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	Bank Stabilization	Wolf Island Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	27	111
Site 1 ☐ P ☒ T	Causeway	Wolf Island Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	27	36
Site 2 ☐ P ☒ T	Causeway	UT to Wolf Island Creek	☐ PER ☒ INT	☒ Corps ☐ DWQ	1	43
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
3h. Total stream and tributary impacts						111 Perm 79 Temp

3i. Comments: Impact of pier placement = 24 sq. ft. Causeway to UT to Wolf Island Creek will consist of 24" pipe overtopped with riprap. Causeways will be constructed by first applying a sheet of geotextile fabric before riprap is applied. After construction, the fabric will be unpinning at the toe and removed, removing the riprap at the same time. All banks, with exception of areas of bank stabilization, will be returned to their previous state.

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				0 Permanent 0 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	Excavat ed	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: Jordan	
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			☐ Yes ☐ No						
B2 ☐ P ☐ T			☐ Yes ☐ No						
B3 ☐ P ☐ T			☐ Yes ☐ No						
6h. Total buffer impacts					0				
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. See Stormwater Management Plan. The existing 4 span bridge will be replaced with a 2 span structure. The new bridge will be constructed parallel to the existing bridge which will allow traffic to be maintained on the existing bridge. Riprap pads will be used at pipe outlets. Riprap bank stabilization will be used where ditches tie into Wolf Island Creek. Wetlands in the project vicinity have been avoided.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. Best Management Practices for Surface Waters will be used during all phases of construction.		
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	
	☐ 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:	0 linear feet	
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold	
4d. Buffer mitigation requested (DWQ only):	0 square feet	
4e. Riparian wetland mitigation requested:	0 acres	
4f. Non-riparian wetland mitigation requested:	0 acres	
4g. Coastal (tidal) wetland mitigation requested:	0 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.

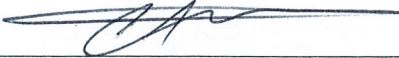
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1				
Zone 2				
6f. Total buffer mitigation required:				

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: Project not within a buffered basin.	☐ 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.	
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 ☐ HWQ ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No NA
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☒ Yes ☐ No
5b. Have all of the 401 Unit submittal requirements been met?	☒ 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? N.C. Natural Heritage Program database; USFWS-Raleigh Field Office website; biological surveys for protected species listed for Rockingham County, which include the Roanoke logperch, James spiny mussel and smooth cone flower. Biological Conclusions of "No Effect" were rendered for the James spiny mussel and smooth cone flower. Though habitat is present for the James spiny mussel, no freshwater mussels of any species were found in Wolf Island Creek. No further surveys were required for the James spiny mussel. Habitat for smooth cone flower exists, but a survey conducted of the study area on 6/6/2012 resulted in no specimens being found. A Biological Conclusion of "May Affect, Not Likely to Adversely Affect" was rendered for the Roanoke logperch. Informal Section 7 consultation was conducted with USFWS and concurrence was received on July 14, 2014.		
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 Project designed to avoid impacts to historic property.		
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		
Richard W. Hancock, P.E. Applicant/Agent's Printed Name	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	7-28-14 Date



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

July 14, 2014

Richard W. Hancock, P.E.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Hancock:

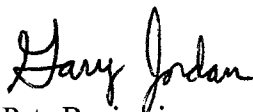
This letter is in response to your letter of July 9, 2014 which provided the U.S. Fish and Wildlife Service (Service) with the biological conclusion of the North Carolina Department of Transportation that the replacement of Bridge No. 97 on SR 1925 over Wolf Island Creek in Rockingham County (TIP No. B-4803) may affect, but is not likely to adversely affect the federally endangered Roanoke logperch (*Percina rex*). These comments are provided in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to information provided, fish surveys were conducted at the project site on May 13, 2014 and April 21, 2009. The surveys extended 100 meters upstream and 400 meters downstream of SR 1925. No Roanoke logperches were observed and habitat quality for the species was marginal. However, the Roanoke logperch has been identified 6.2 miles downstream.

Based on the fish survey results and other available information, the Service concurs with your conclusion that the proposed bridge replacement may affect, but is not likely to adversely affect the Roanoke logperch. We believe that the requirements of Section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under Section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,


for Pete Benjamin
Field Supervisor

Electronic copy:

David Bailey, USACE, Wake Forest, NC
Travis Wilson, NCWRC, Creedmoor, NC
Felix Davila, FHWA, Raleigh, NC

ATTACHMENT A
PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

- A. **REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):** _____
- B. **NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:**
North Carolina Department of Transportation
MSC 1598, Raleigh NC 27699
- C. **DISTRICT OFFICE, FILE NAME, AND NUMBER:**
.
- D. **PROJECT LOCATION(S) AND BACKGROUND INFORMATION:**
B-4803, Replacement of Bridge No. 97 on SR 1925 over Wolf Island Creek, Rockingham County

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: NC County/parish/borough: Rockingham City: Ruffin

Center coordinates of site (lat/long in degree decimal format):

Lat. 36.45662 °N; Long. -79.56977 °W.
(xx.xxxxx) (-xx.xxxxx)

Universal Transverse Mercator: Z: Select E: N:

Name of nearest waterbody: Wolf Island Creek

Identify (estimate) amount of waters in the review area:

Non-wetland waters:

230 linear feet: 0.5-27 width (ft) and/or _____ acres.

Cowardin Class: Palustrine

Stream Flow: Perennial (Wolf Island Creek, SA) Intermittent (SB)

Wetlands: _____ acres.

Cowardin Class: _____

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: _____

Non-Tidal: _____

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date: _____

☐ Field Determination. Date(s): _____

**SUPPORTING DATA. Data reviewed for preliminary JD
(check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):**

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: permit drawings, design plans, field sketch

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: _____

☐ Corps navigable waters' study: _____

☐ U.S. Geological Survey Hydrologic Atlas: _____

☐ USGS NHD data

☐ USGS 8 and 12 digit HUC maps

☐ U.S. Geological Survey map(s). Cite scale & quad name: _____

☐ USDA Natural Resources Conservation Service Soil Survey.
Citation: _____

☐ National wetlands inventory map(s). Cite name: _____

☐ State/Local wetland inventory map(s): _____

☐ FEMA/FIRM maps: _____

☐ 100-year Floodplain Elevation is: _____
(National Geodetic Vertical Datum of 1929)

☐ Photographs: ☐ Aerial (Name & Date): _____ or
☐ Other (Name & Date): _____

☐ Previous determination(s). File no. and date of response letter: _____

☐ Other information (please specify): _____

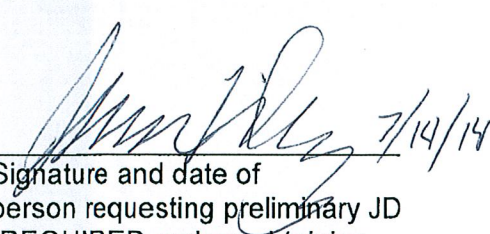
1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

This preliminary JD finds that there "*may be*" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

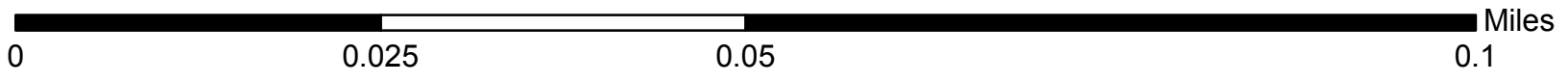
IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and date of
Regulatory Project Manager
(REQUIRED)

 7/14/14

Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

[illegible]



SA

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date: 2 June 2009	Project: B-4803	Latitude:
Evaluator: Neil Medina, Melissa Miller	Site: Wolf Island Creek	Longitude:
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30 26.5	County: Rockingham	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 11)				
	Absent	Weak	Moderate	Strong
1 ^a . Continuous bed and bank	0	1	2	3
2. Sinuosity	0	1	2	3
3. In-channel structure: riffle-pool sequence	0	1	2	3
4. Soil texture or stream substrate sorting	0	1	2	3
5. Active/relic floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Braided channel	0	1	2	3
8. Recent alluvial deposits	0	1	2	3
9 ^a . Natural levees	0	1	2	3
10. Headcuts	0	1	2	3
11. Grade controls	0	0.5	1	1.5
12. Natural valley or drainageway	0	0.5	1	1.5
13. Second or greater order channel on <u>existing</u> USGS or NRCS map or other documented evidence.	No = 0		Yes = 3	

^a Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 8)				
14. Groundwater flow/discharge	0	1	2	3
15. Water in channel and > 48 hrs since rain, <u>or</u> Water in channel -- dry or growing season	0	1	2	3
16. Leaf litter	1.5	1	0.5	0
17. Sediment on plants or debris	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	No = 0		Yes = 1.5	

C. Biology (Subtotal = 7.5)				
20 ^b . Fibrous roots in channel	3	2	1	0
21 ^b . Rooted plants in channel	3	2	1	0
22. Crayfish	0	0.5	1	1.5
23. Bivalves	0	1	2	3
24. Fish	0	0.5	1	1.5
25. Amphibians	0	0.5	1	1.5
26. Macroinvertebrates (note diversity and abundance)	0	0.5	1	1.5
27. Filamentous algae; periphyton	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0	0.5	1	1.5
29 ^b . Wetland plants in streambed	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

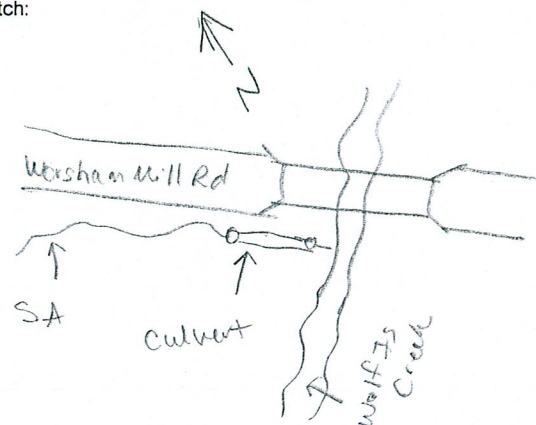
^b Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Sketch:

perennial

caddis, chironomids



USACE AID# _____

DWQ # _____

Site # _____ (indicate on attached map)



STREAM QUALITY ASSESSMENT WORKSHEET



Provide the following information for the stream reach under assessment:

1. Applicant's name: NC DOT
2. Evaluator's name: Melissa Miller, Neil Modlin
3. Date of evaluation: 2 June 2009
4. Time of evaluation: 1:00 PM
5. Name of stream: SA
6. River basin: Roanoke
7. Approximate drainage area: _____
8. Stream order: 1st
9. Length of reach evaluated: ~600'
10. County: Rockingham
11. Site coordinates (if known): prefer in decimal degrees.
12. Subdivision name (if any): _____
- Latitude (ex. 34.872312): _____ Longitude (ex. -77.556611): _____
- Method location determined (circle): GPS Topo Sheet Ortho (Aerial) Photo/GIS Other GIS Other _____
13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location):
West of W.I.C. and South of Worsham Mill Road
14. Proposed channel work (if any): _____
15. Recent weather conditions: hot and sunny; no rain past 48 hrs
16. Site conditions at time of visit: hot and sunny
17. Identify any special waterway classifications known: _____ Section 10 _____ Tidal Waters _____ Essential Fisheries Habitat
_____ Trout Waters _____ Outstanding Resource Waters _____ Nutrient Sensitive Waters _____ Water Supply Watershed _____ (I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area: _____
19. Does channel appear on USGS quad map? YES NO
20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: _____ % Residential _____ % Commercial _____ % Industrial _____ % Agricultural
90 % Forested 10 % Cleared / Logged _____ % Other (_____)
22. Bankfull width: 1 meter
23. Bank height (from bed to top of bank): .5 meter
24. Channel slope down center of stream: _____ Flat (0 to 2%) ☒ Gentle (2 to 4%) _____ Moderate (4 to 10%) _____ Steep (>10%)
25. Channel sinuosity: _____ Straight _____ Occasional bends ☒ Frequent meander _____ Very sinuous _____ Braided channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 50.5Comments: perennial

Evaluator's Signature

Melissa MillerDate 6/2/09

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

SA

STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	1
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	3
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	2
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3
	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	1
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	2
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	0
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	3
	10	Sediment input (extensive deposition = 0; little or no sediment = max points)	0-5	0-4	0-4	3
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	2
STABILITY	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3
	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	4
	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3
	15	Impact by agriculture, livestock, or timber production (substantial impact = 0; no evidence = max points)	0-5	0-4	0-5	2
HABITAT	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	1
	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1
	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	5
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	2
BIOLOGY	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	2
	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1
	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						50.5

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date: 6-2-09	Project: B-4803	Latitude:
Evaluator: CLGregory	Site: SB	Longitude:
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30 24.75	County: Rockingham	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 9)				
	Absent	Weak	Moderate	Strong
1 ^a . Continuous bed and bank	0	1	(2)	3
2. Sinuosity	0	1	(2)	3
3. In-channel structure: riffle-pool sequence	0	(1)	2	3
4. Soil texture or stream substrate sorting	0	(1)	2	3
5. Active/relic floodplain	0	1	(2)	3
6. Depositional bars or benches	0	(1)	2	3
7. Braided channel	(0)	1	2	3
8. Recent alluvial deposits	(0)	1	2	3
9 ^a . Natural levees	(0)	1	2	3
10. Headcuts	(0)	1	2	3
11. Grade controls	(0)	0.5	1	1.5
12. Natural valley or drainageway Mill	(0)	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	No = 0		Yes = 3	

^a Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.5)				
14. Groundwater flow/discharge	0	1	(2)	3
15. Water in channel and > 48 hrs since rain, <u>or</u> Water in channel -- dry or growing season	0	1	(2)	3
16. Leaf litter	(1.5)	1	0.5	0
17. Sediment on plants or debris	(0)	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	0	(0.5)	1	1.5
19. Hydric soils (redoximorphic features) present?	No = 0		Yes = 1.5	

C. Biology (Subtotal = 8.25)				
20 ^b . Fibrous roots in channel	(3)	2	1	0
21 ^b . Rooted plants in channel	3	(2)	1	0
22. Crayfish	0	(0.5)	1	1.5
23. Bivalves	(0)	1	2	3
24. Fish	(0)	0.5	1	1.5
25. Amphibians	0	(0.5)	1	1.5
26. Macroinvertebrates (note diversity and abundance)	(0)	0.5	1	1.5
27. Filamentous algae; periphyton	0	(1)	2	3
28. Iron oxidizing bacteria/fungus.	0	(0.5)	1	1.5
29 ^b . Wetland plants in streambed Impatiens	FAC = 0.5; FACW = (0.75); OBL = 1.5 SAV = 2.0; Other = 0			

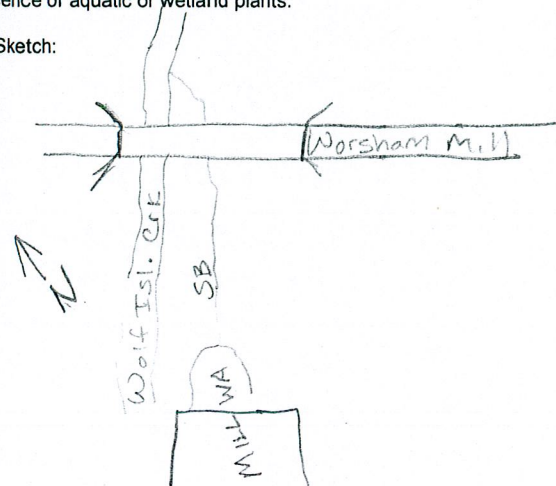
^b Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Sketch:

intermittent

No mitigation required?



SB

USACE AID# _____ DWQ # _____ Site # _____ (indicate on attached map)



STREAM QUALITY ASSESSMENT WORKSHEET



Provide the following information for the stream reach under assessment:

1. Applicant's name: NC DOT
2. Evaluator's name: Cheryl Gregory
3. Date of evaluation: 6/2/09
4. Time of evaluation: 1:45 PM
5. Name of stream: SB
6. River basin: Roanoke
7. Approximate drainage area: _____
8. Stream order: 0-1
9. Length of reach evaluated: 100'
10. County: Rockingham
11. Site coordinates (if known): prefer in decimal degrees.
12. Subdivision name (if any): _____
- Latitude (ex. 34.872312): _____ Longitude (ex. -77.556611): _____
- Method location determined (circle): GPS ☐ Topo Sheet ☐ Ortho (Aerial) Photo/GIS ☐ Other GIS ☐ Other _____
13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location):
east of bridge @ Mill to Wolf Isl. Creek
14. Proposed channel work (if any): _____
15. Recent weather conditions: no rain past 48 hours
16. Site conditions at time of visit: Sunny, clear, hot
17. Identify any special waterway classifications known: ☐ Section 10 ☐ Tidal Waters ☐ Essential Fisheries Habitat
☐ Trout Waters ☐ Outstanding Resource Waters ☐ Nutrient Sensitive Waters ☐ Water Supply Watershed (I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area: _____
19. Does channel appear on USGS quad map? YES NO
20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: _____ % Residential _____ % Commercial _____ % Industrial _____ % Agricultural
100% Forested _____ % Cleared / Logged _____ % Other (_____)
22. Bankfull width: 1/2 - 1'
23. Bank height (from bed to top of bank): 1/2 - 1'
24. Channel slope down center of stream: ☒ Flat (0 to 2%) ☒ Gentle (2 to 4%) ☐ Moderate (4 to 10%) ☐ Steep (>10%)
25. Channel sinuosity: ☐ Straight ☒ Occasional bends ☐ Frequent meander ☐ Very sinuous ☐ Braided channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 57 Comments: man-made channel for the
mill. Drains wetland WA

Intermittent ; no mitigation required?

Evaluator's Signature [Signature] Date 6/2/09

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET

5B

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	3
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	1
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	3
	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	4
	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	2
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	1
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	4
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	3
	10	Sediment input (extensive deposition = 0; little or no sediment = max points)	0-5	0-4	0-4	3
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	2
STABILITY	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	2
	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3
	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3
	15	Impact by agriculture, livestock, or timber production (substantial impact = 0; no evidence = max points)	0-5	0-4	0-5	3
HABITAT	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	2
	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	3
	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	4
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	2
BIOLOGY	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2
	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	4
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						57

* These characteristics are not assessed in coastal streams.



**Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS**

(Version 1.2; Released September 2011)

Project/TIP No.: B-4803

County(ies): Rockingham

Page 1 of 3

General Project Information

Project No.:		B-4803		Project Type:		Bridge Replacement		Date:		3/18/2014	
NCDOT Contact:		Jay Twisdale, Jr. P.E.		Contractor / Designer:		Parsons Brinckerhoff					
	Address:	1590 Mail Service Center Raleigh, NC 27699-1590			Address:	121 West Trade Street, Suite 1950 Charlotte, NC 28202					
	Phone:	919-707-6700			Phone:	704-342-5403					
	Email:	jtwisdale@ncdot.gov			Email:	dauber@pbworld.com					
City/Town:		Ruffin		County(ies):		Rockingham					
River Basin(s):		Roanoke		CAMA County?		No					
Primary Receiving Water:		Wolf Island Creek		NCDWQ Stream Index No.:		22-48					
NCDWQ Surface Water Classification for Primary Receiving Water			Primary:	Class C							
			Supplemental:	None							
Other Stream Classification:		None									
303(d) Impairments:		None									
Buffer Rules in Effect		N/A									

Project Description

Project Length (lin. Miles or feet):	0.303 miles	Surrounding Land Use:	Agricultural and rural residential, with forested areas along stream corridors
	Proposed Project		Existing Site
Project Built-Up Area (ac.)	1.12 ac.		0.79 ac.
Typical Cross Section Description:	2-11' lanes w/ 4' paved shoulders		2-9' lanes w/ 6' grass shoulders
Average Daily Traffic (veh/hr/day):	Design/Future: 1300 (2030)	Existing:	1000 (2009)

General Project Narrative:

The project B-4803 consists of constructing a new bridge, 195 long, to replace the existing bridge #97 in Rockingham County on SR-1925 over Wolf Island Creek. The project creates a surface water impact by adding bank stabilization to Wolf Island Creek. The project drainage systems consist of grated inlets with associated pipe systems, and riprap pads and ditches at pipe outlets.

Impacts have been minimized by using riprap pads at pipe outlets and riprap bank stabilization where the ditches tie in with Wolf Island Creek. There are wetlands in the project vicinity but they are not impacted by the design.

References

B-4803 Natural Resources Technical Report, July 2009

B-4803 Natural Resources Technical Report, July 2009



(Version 1.2; Released September 2011)

3

[illegible]

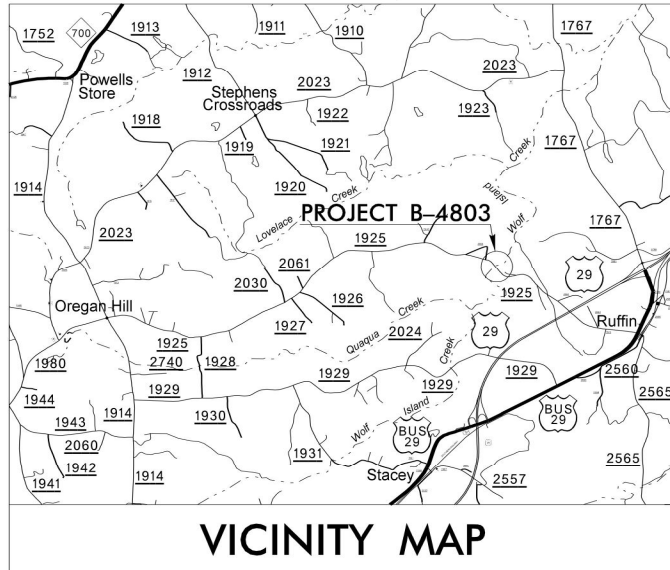
Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox (2008), NCDOT Standard Details, or FHWA HEC-14 (July 2006), been met and verified, as applicable? If No, provide further explanation of why design criteria was not met.

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), NCDOT Standard Details, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

09/28/99

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

LOCATION: BRIDGE NO. 97 ON SR 1925 (WORSHAM MILL RD.)
OVER WOLF ISLAND CREEK

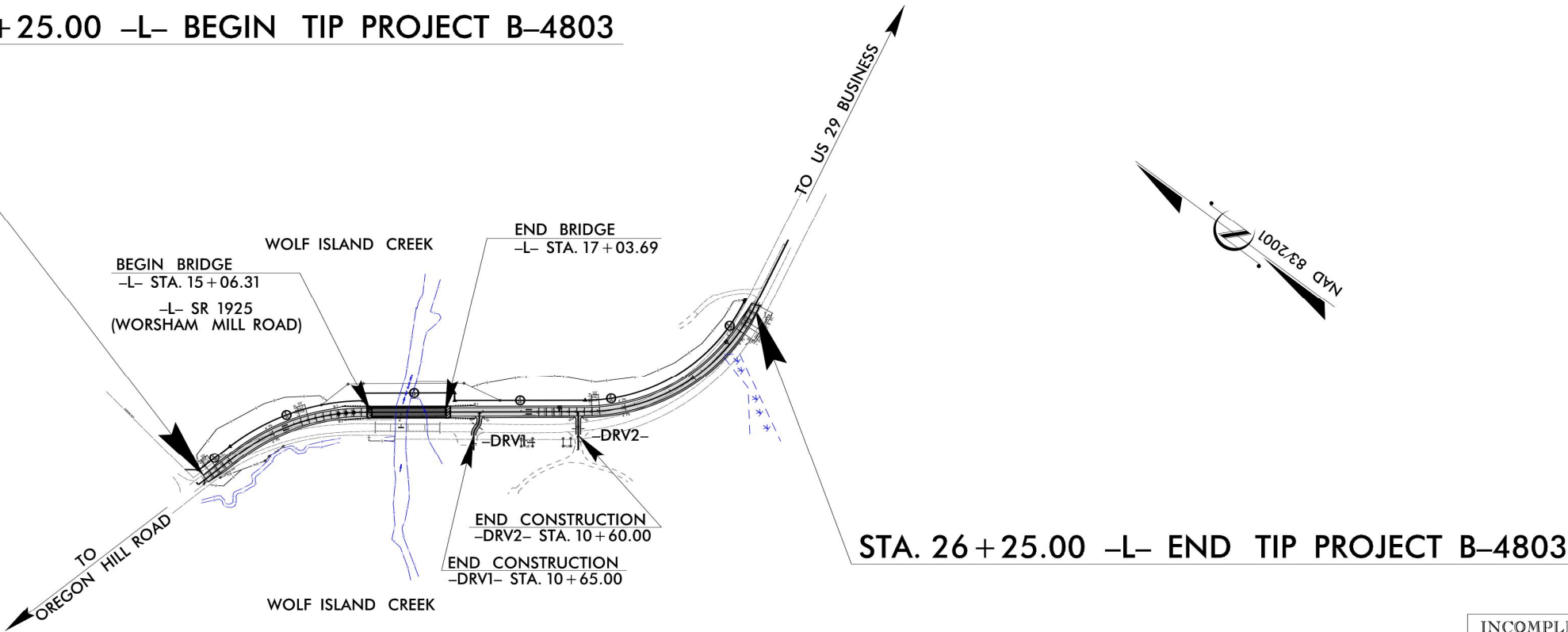
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4803	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38573.1.1	BRZ-1925(2)	PE	
38573.2.FD1	BRZ-1925(2)	R/W & UTILITIES	

PERMIT DRAWING
SHEET 1 OF 6

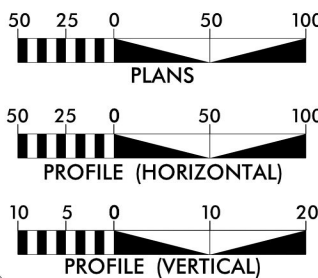
SURFACE WATER AND WETLANDS IMPACTS PERMIT

STA. 10 + 25.00 -L- BEGIN TIP PROJECT B-4803



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2015 = 1069
ADT 2035 = 1300
DHV = 10 %
D = 60 %
T = 4 % *
V = 40 MPH
* TTST 1% DUAL 3%
FUNC CLASS = MINOR COLLECTOR
"SUB-REGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4803 = 0.266 MILES
LENGTH STRUCTURE TIP PROJECT B-4803 = 0.037 MILES
TOTAL LENGTH OF TIP PROJECT B-4803 = 0.303 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 17, 2014

LETTING DATE:
JANUARY 20, 2015

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: P.E.



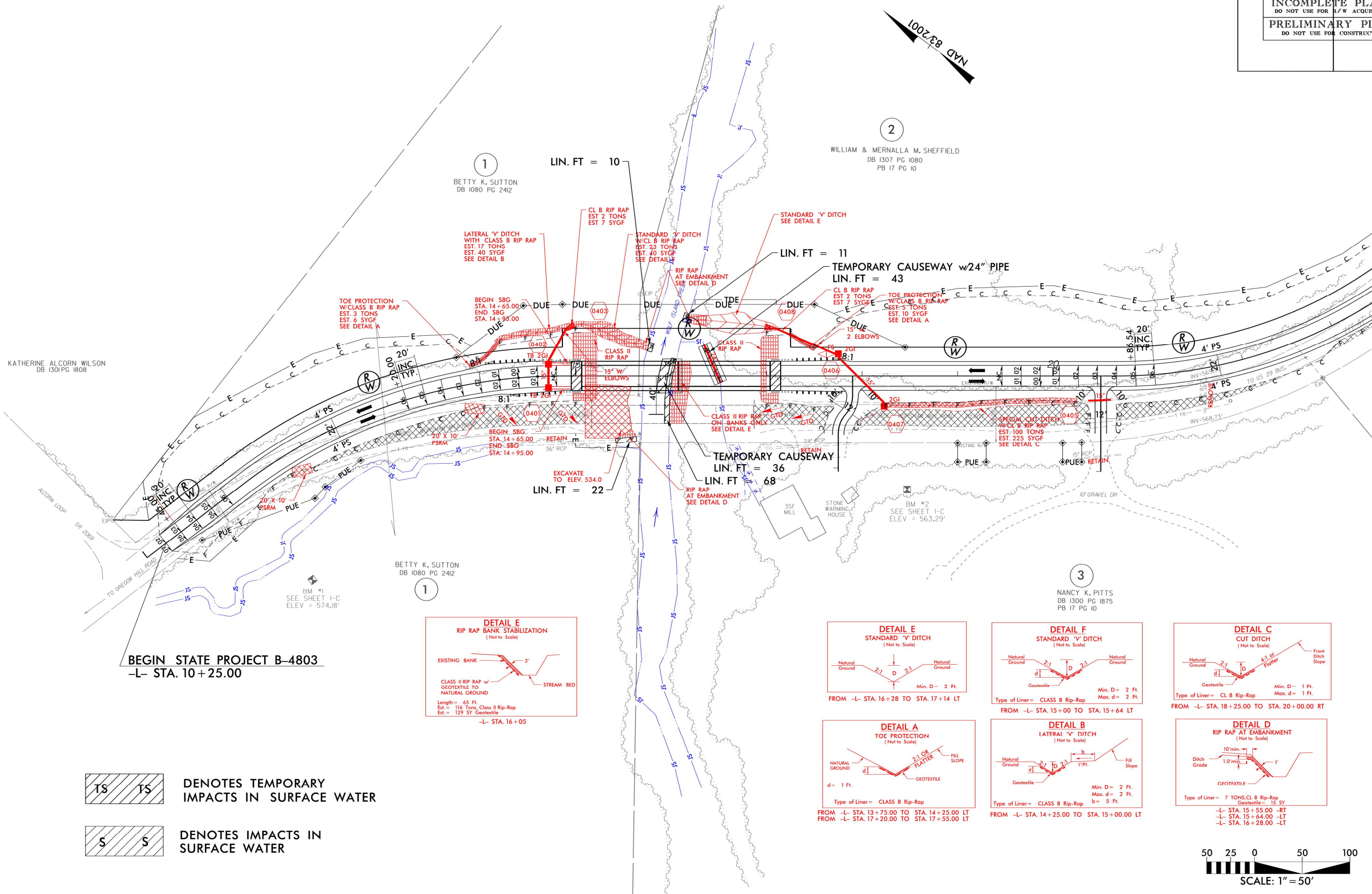
TIP PROJECT: B-4803

CONTRACT:

SYTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$USURNAME\$\$\$\$\$

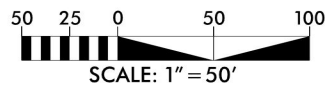
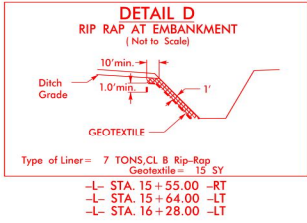
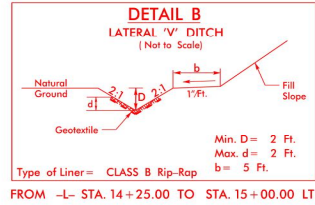
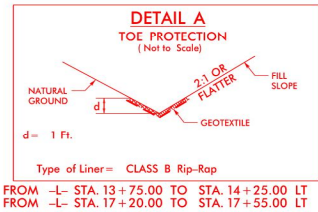
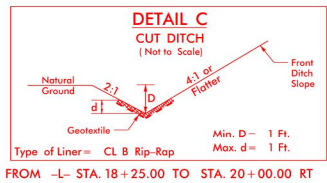
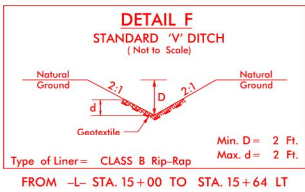
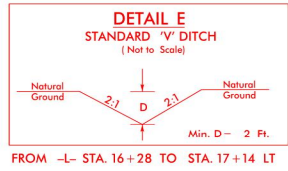
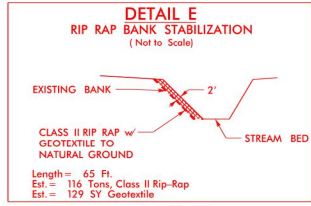
PERMIT DRAWING
SHEET 2 OF 6

PROJECT REFERENCE NO.	SHEET NO.
B-4803	3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



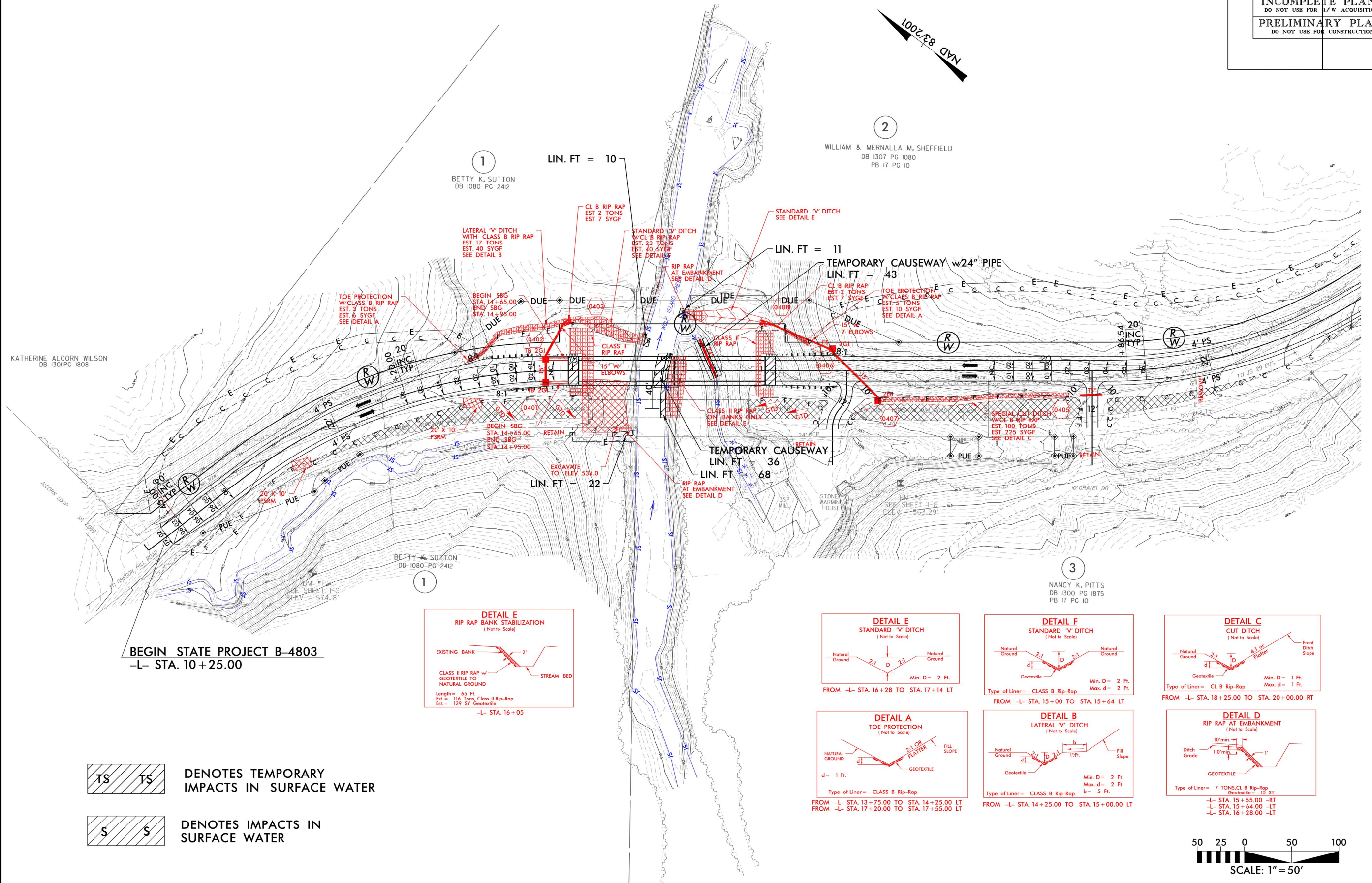
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER



PERMIT DRAWING
SHEET 3 OF 6

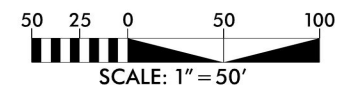
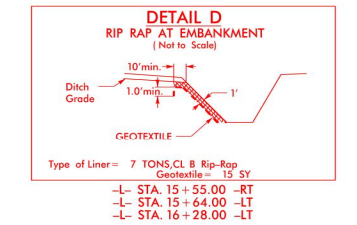
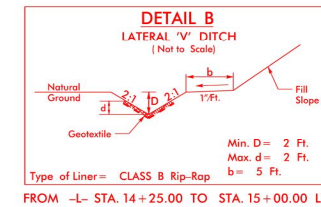
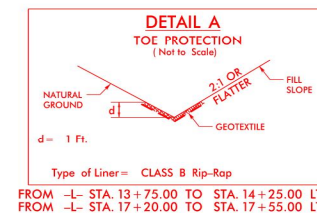
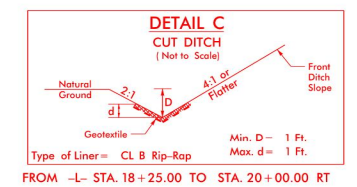
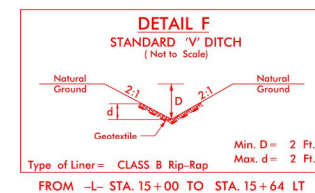
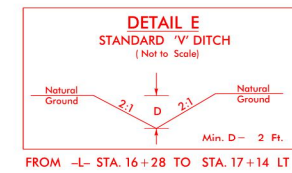
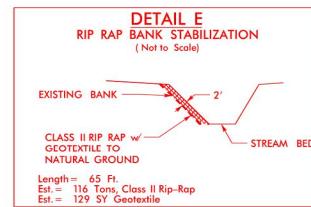
PROJECT REFERENCE NO.	SHEET NO.
B-4803	3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



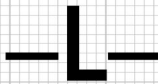
DENOTES IMPACTS IN
SURFACE WATER



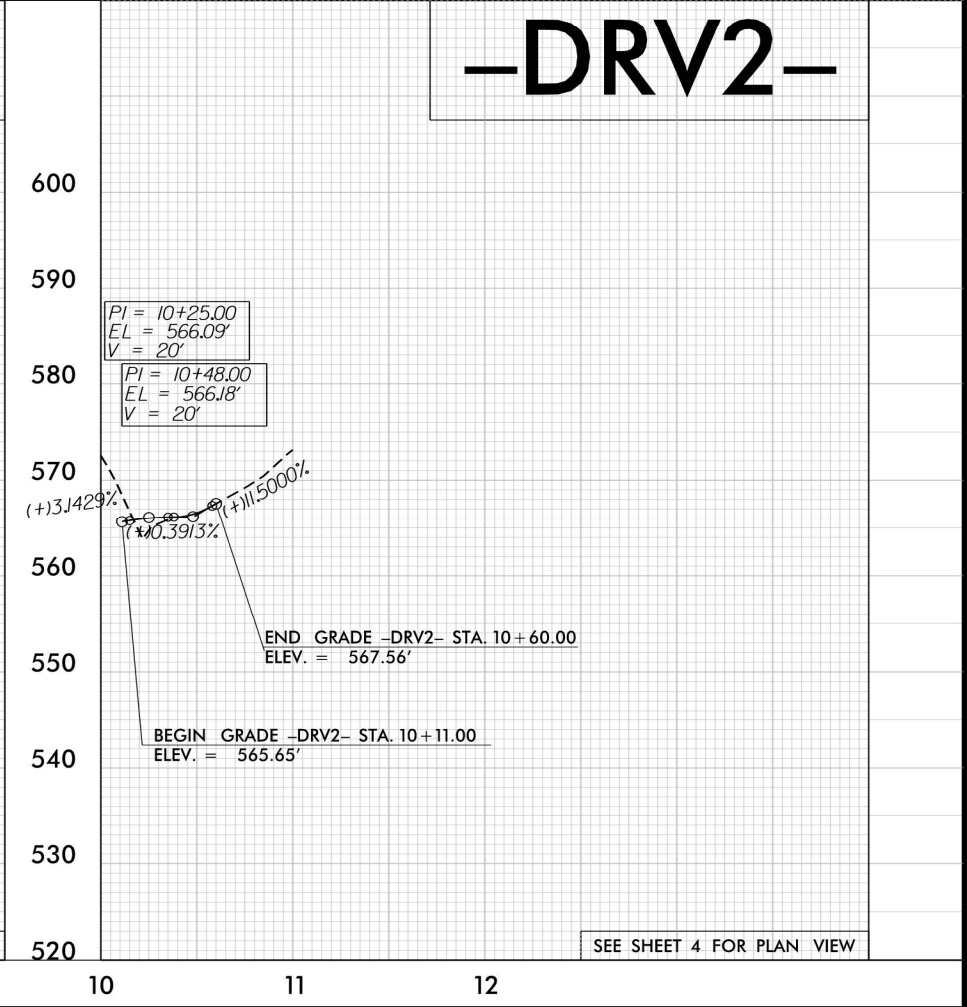
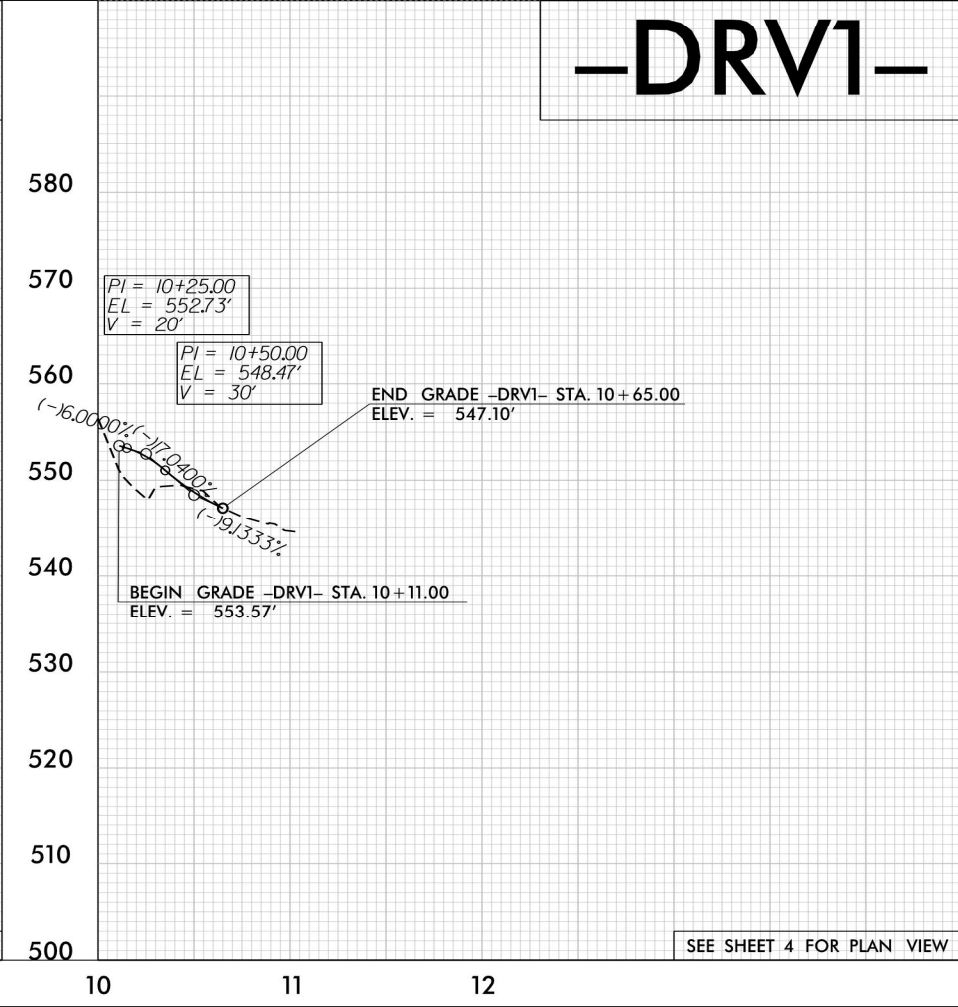
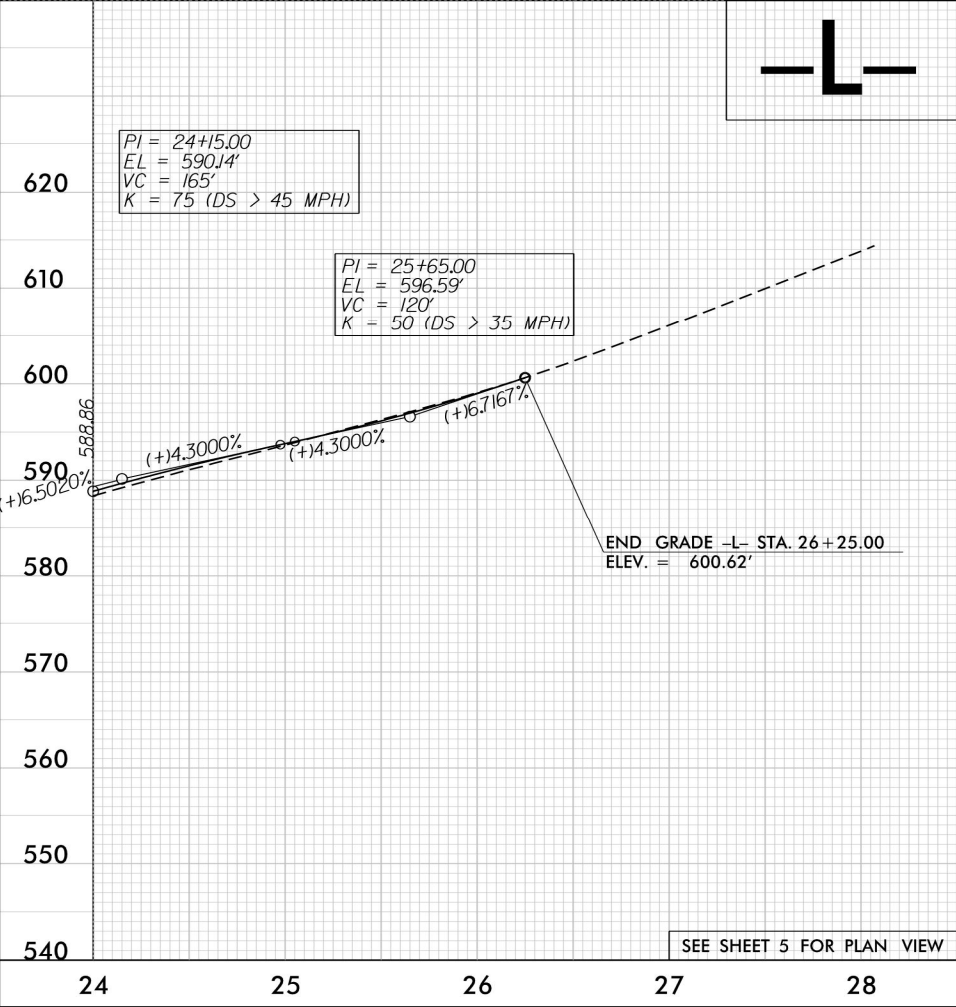
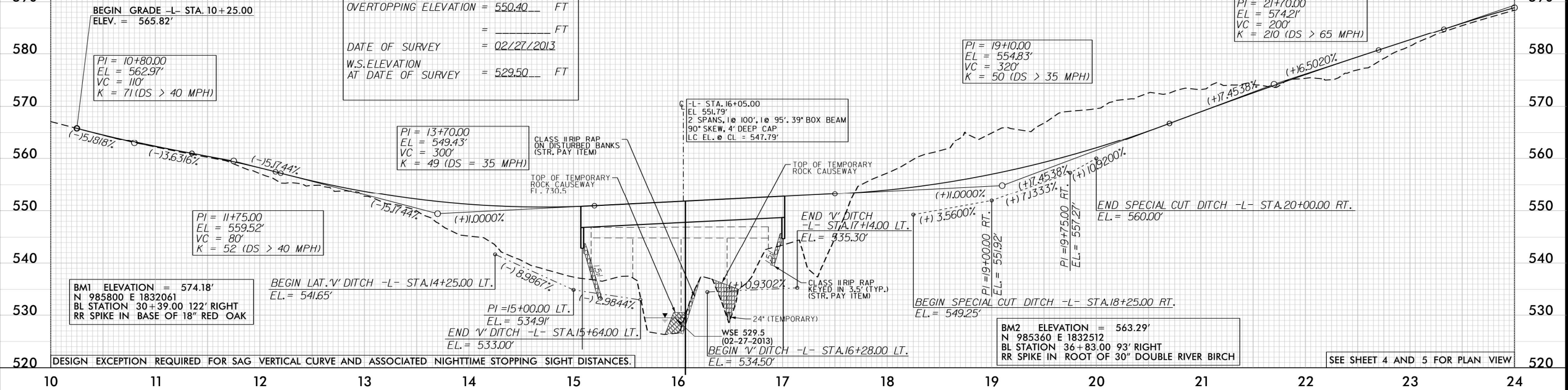
5/28/94

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 4500	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 540.80	FT
BASE DISCHARGE	= 6715	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 542.72	FT
OVERTOPPING DISCHARGE	= 18700	CFS
OVERTOPPING FREQUENCY	= 500±	YRS
OVERTOPPING ELEVATION	= 550.40	FT
	=	FT
DATE OF SURVEY	= 02/27/2013	
W.S.ELEVATION AT DATE OF SURVEY	= 529.50	FT

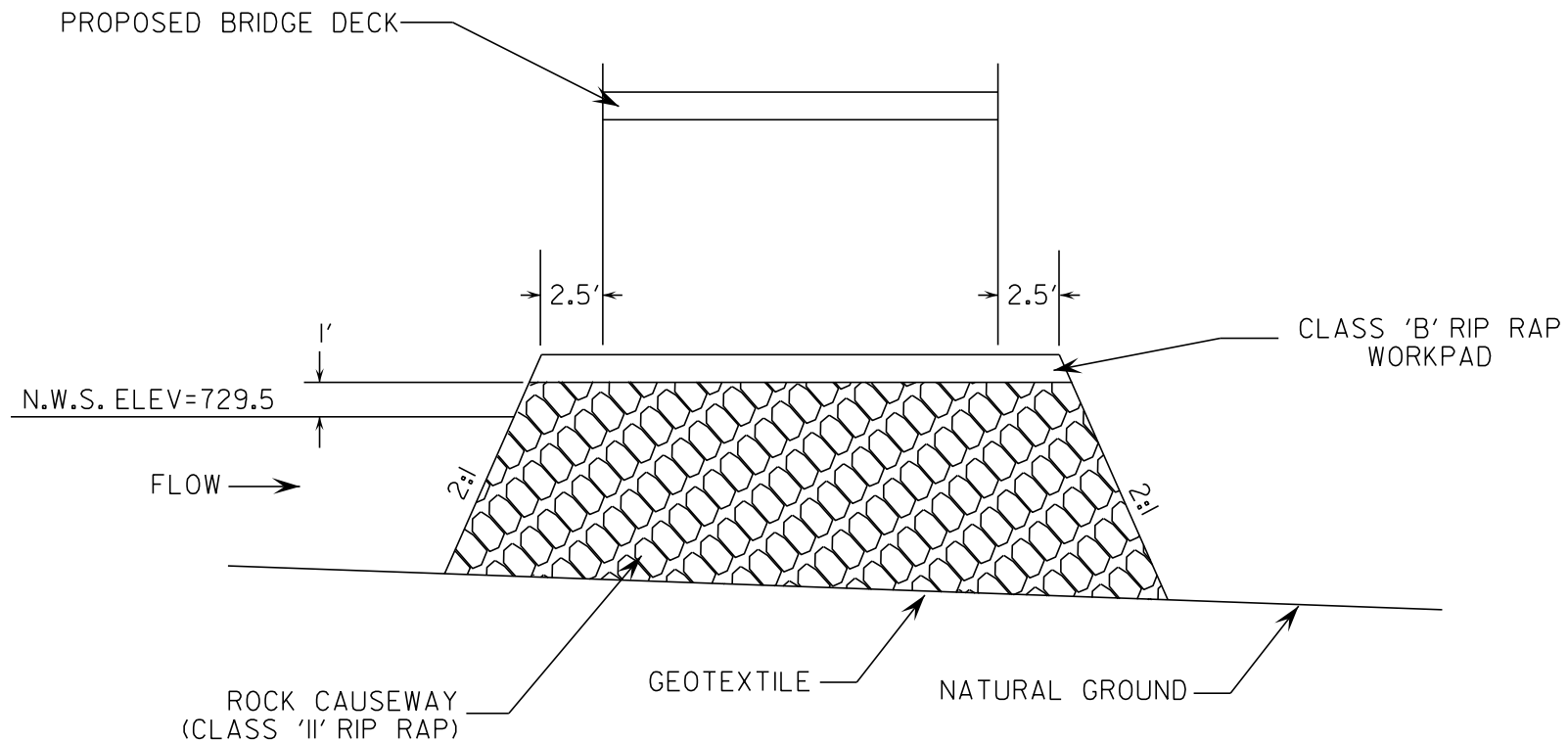
PERMIT DRAWING
SHEET 4 OF 6



PROJECT REFERENCE NO.	SHEET NO.
B-4803	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



TEMPORARY ROCK CAUSEWAY (NOT TO SCALE)



QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP= 68 yds³
AREA OF CLASS II RIP RAP= 0.02 ac
Estimate 96 Tons Class 'II' Rip Rap
Estimate 43 Tons Class 'B' Rip Rap

N.C. DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

PROJECT: 38573.1.1 (B-4803)
BRIDGE NO. 97
OVER WOLF ISLAND CREEK
ON SR 1925

SHEET 5 OF 6

3/18/14

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)
	-L- STA. 15+70 LT	Bank Stabilization						<0.01		10		
	-L- STA. 16+05	Bank Stabilization						<0.01		68		
	-L- STA. 16+10 LT	Bank Stabilization						<0.01		11		
	-L- STA. 15+55 RT	Bank Stabilization						<0.01		22		
	-L- STA. 16+05	Causeway							0.02		36	
	-L- STA. 16+49	Causeway							<0.01		43	
TOTALS:								0.01	0.03	111	79	

24sf of Bent 1 is within the ordinary high water mark of the stream

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 ROCKINGHAMCOUNTY
 WBS - 38573.1.1 (B-4803)

SHEET
 6 of 6
 3/18/2014

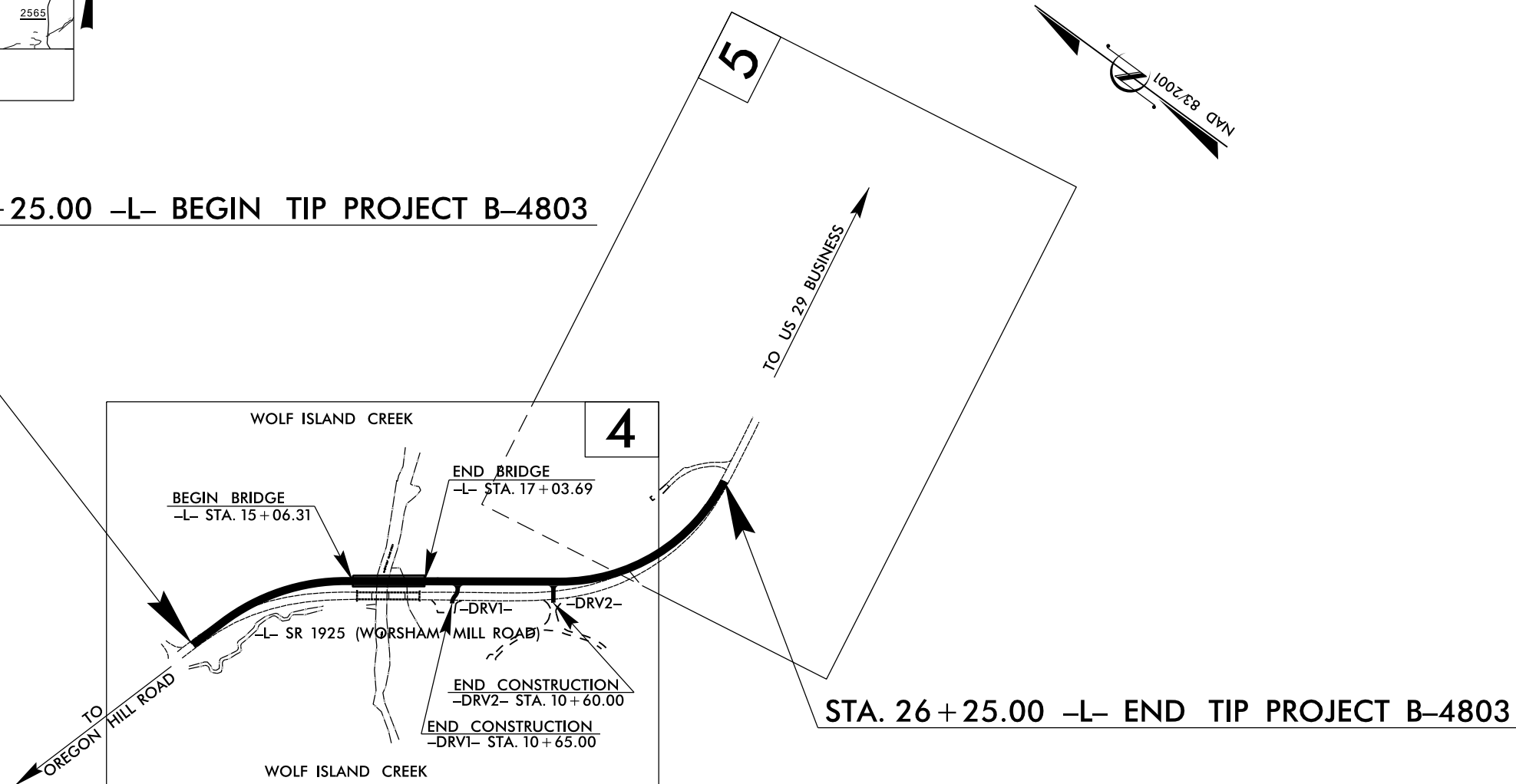
CONTRACT:

A black and white vicinity map showing a network of roads and geographical features. The map is oriented with North at the top. Key locations include Stephens Crossroads at the top center, Oregon Hill to the west, and Stacey at the bottom center. A prominent road runs diagonally from the top left towards the bottom right. Another road runs horizontally across the middle. A third road runs vertically on the right side. A fourth road runs horizontally at the bottom. A fifth road runs diagonally from the bottom left towards the top right. A sixth road runs diagonally from the top right towards the bottom left. A seventh road runs diagonally from the top center towards the bottom right. A eighth road runs diagonally from the top center towards the bottom left. A ninth road runs diagonally from the top center towards the bottom right. A tenth road runs diagonally from the top center towards the bottom left. A circled 'X' marks a specific location on the map, labeled 'PROJECT B-4803'. Various place names and landmarks are labeled, including Powells Store, Stephens Crossroads, Oregon Hill, Stacey, and Ruffin. Numerous numbers are scattered across the map, likely representing road numbers or coordinates. The map is titled 'VICINITY MAP' at the bottom.

ROCKINGHAM COUNTY

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

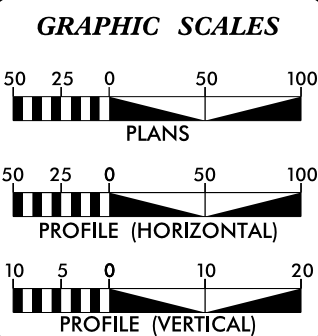
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4803	1	
STATE PROJ.NO.	F.A.PROJ.NO.	DESCRIPTION	
38573.1.1	BRZ-1925(2)	PE	
38573.2.FD1	BRZ-1925(2)	R/W & UTILITIES	



STA. 26+25.00 -L- END TIP PROJECT B-4803

DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED, SAG VERTICAL CURVES, AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCES.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PREPARED TO THE LIMITS ESTABLISHED BY METHOD II.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2015 = 1069
ADT 2035 = 1300
DHV = 10 %
D = 60 %
T = 4 % *
V = 40 MPH

* TTST 1% DUAL 3%
FUNC CLASS=MINOR COLLECTOR
"SUB-REGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4803 = 0.266 MILES
LENGTH STRUCTURE TIP PROJECT B-4803 = 0.037 MILES
TOTAL LENGTH OF TIP PROJECT B-4803 = 0.303 MILES

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

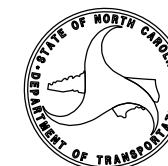
RIGHT OF WAY DATE:
JANUARY 28, 2014

LETTING DATE:
JANUARY 20, 2015

HYDRAULICS ENGINEER

**ROADWAY DESIGN
ENGINEER**

SIGNATURE: _____ *P.E.* _____



Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----x-----
Property Monument	□ ECM
Parcel/Sequence Number	123
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-----MLB-----
Proposed Wetland Boundary	-----MLB-----
Existing Endangered Animal Boundary	-----EAB-----
Existing Endangered Plant Boundary	-----EPB-----
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□ †
Building	□
School	□ ↑
Church	□ +
Dam	-----

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	----- R W
Proposed Right of Way Line with Iron Pin and Cap Marker	----- R W
Proposed Right of Way Line with Concrete or Granite R/W Marker	----- R W
Proposed Control of Access Line with Concrete C/A Marker	----- C A
Existing Control of Access	----- C A
Proposed Control of Access	----- C A
Existing Easement Line	-----E-----
Proposed Temporary Construction Easement	-----E-----
Proposed Temporary Drainage Easement	-----TDE-----
Proposed Permanent Drainage Easement	-----PDE-----
Proposed Permanent Drainage / Utility Easement	-----DUE-----
Proposed Permanent Utility Easement	-----PUE-----
Proposed Temporary Utility Easement	-----TUE-----
Proposed Aerial Utility Easement	-----AUE-----

Proposed Permanent Easement with Iron Pin and Cap Marker	◆
--	---

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----C-----
Proposed Slope Stakes Fill	-----F-----
Proposed Curb Ramp	----- CR
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	----- S
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 H
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	----- H H
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	----- H H
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-----

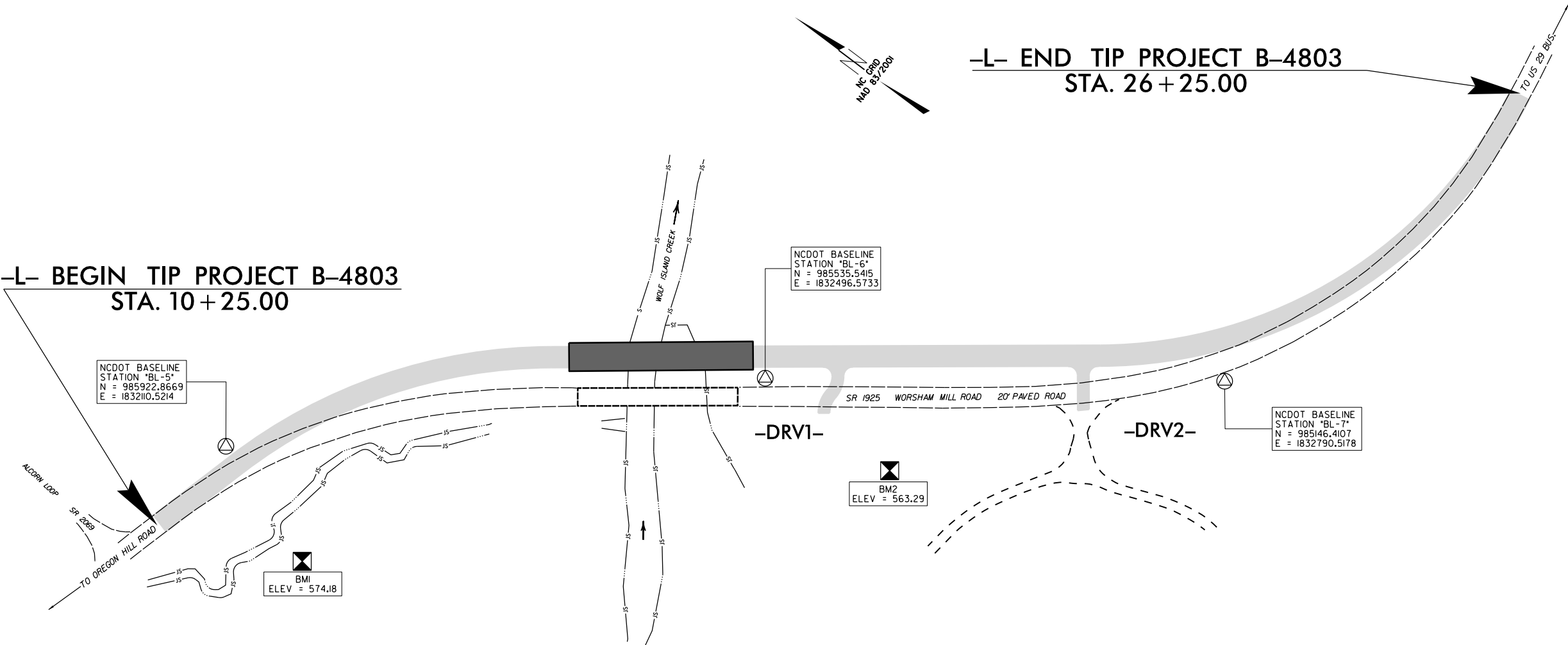
MISCELLANEOUS:

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

12/01/2005

B-4803 SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-4803	1-C
Location and Surveys	



NOTES

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOI.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)
THE FILES TO BE FOUND ARE AS FOLLOWS:
b4803_ls_control.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 NGS ONLINE POSITIONING SERVICE (OPUS)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4803-2" WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF NORTHING: 986,204.799(±) EASTING: 1,830,242.481(±) ELEVATION: 648.69' (±)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000684801
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4803-2" TO -L- STATION 10+25.00 IS S81°36'54"E 1,775.64'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BASELINE DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4803-1		986483.9760	1829734.0470	647.86	OUTSIDE PROJECT LIMITS	
2	B4803-2		986204.7990	1830242.4810	648.69	OUTSIDE PROJECT LIMITS	
3	BL-3		986186.5293	1830643.5040	654.52	OUTSIDE PROJECT LIMITS	
4	BL-4		986201.8259	1831114.5814	639.17	OUTSIDE PROJECT LIMITS	
5	BL-5		985922.8669	1832110.5214	560.38	11+38.32	7.84 LT
6	BL-6		985535.5415	1832496.5733	546.83	16+98.18	25.66 RT
7	BL-7		985146.4107	1832790.5178	575.02	21+78.25	38.89 RT

BENCHMARK DATA

BM1 ELEVATION = 574.18
N 985800 E 1832061
BL STATION 30+39.00 122 RIGHT
RR SPIKE IN BASE OF 18" RED OAK
BM2 ELEVATION = 563.29
N 985360 E 1832512
BL STATION 36+83.00 93 RIGHT
RR SPIKE IN ROOT OF 30" DOUBLE RIVER
BIRCH

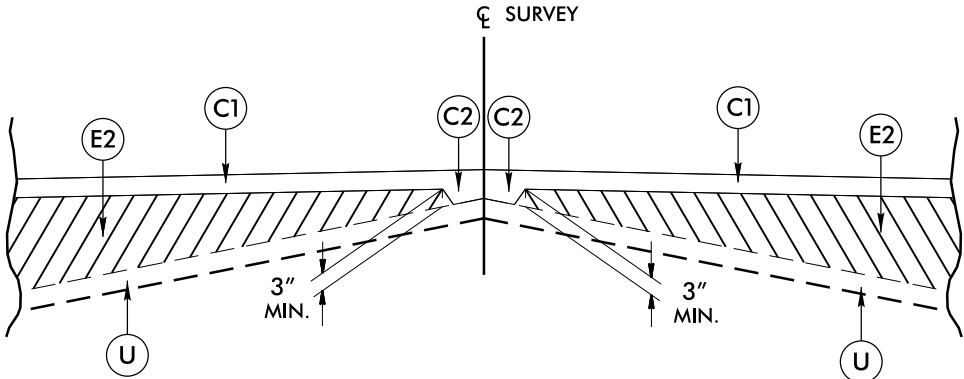
NOTE: DRAWING NOT TO SCALE

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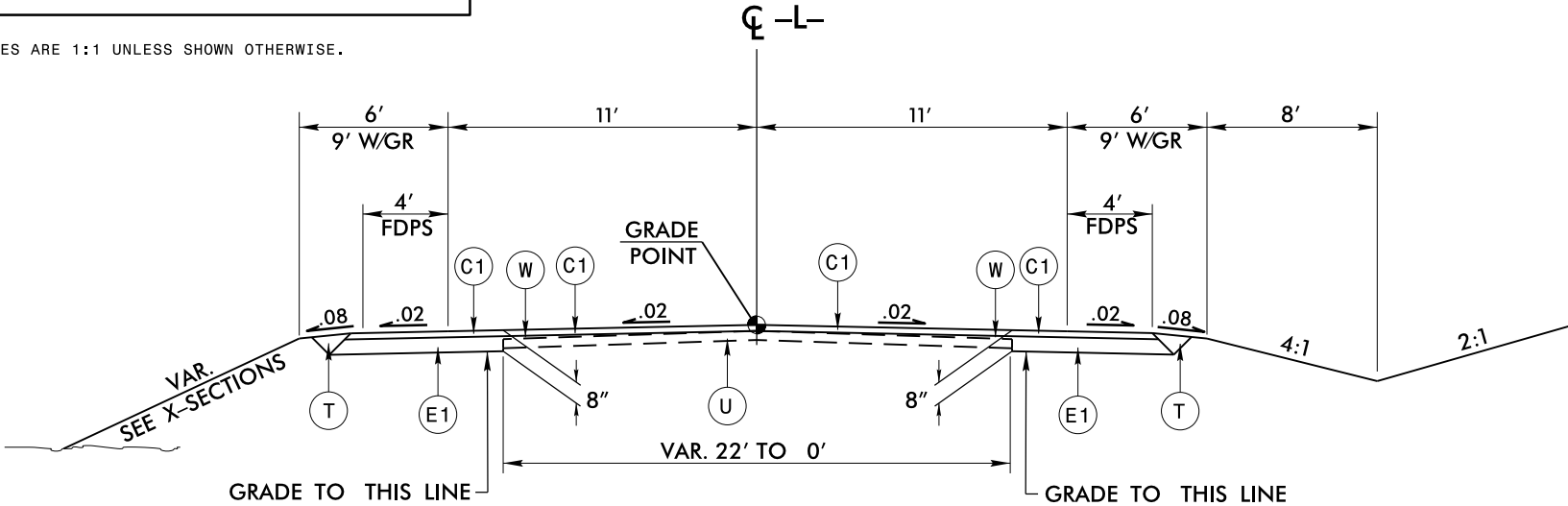
6/2/99

PAVEMENT SCHEDULE	
C1	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.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	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. 6" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

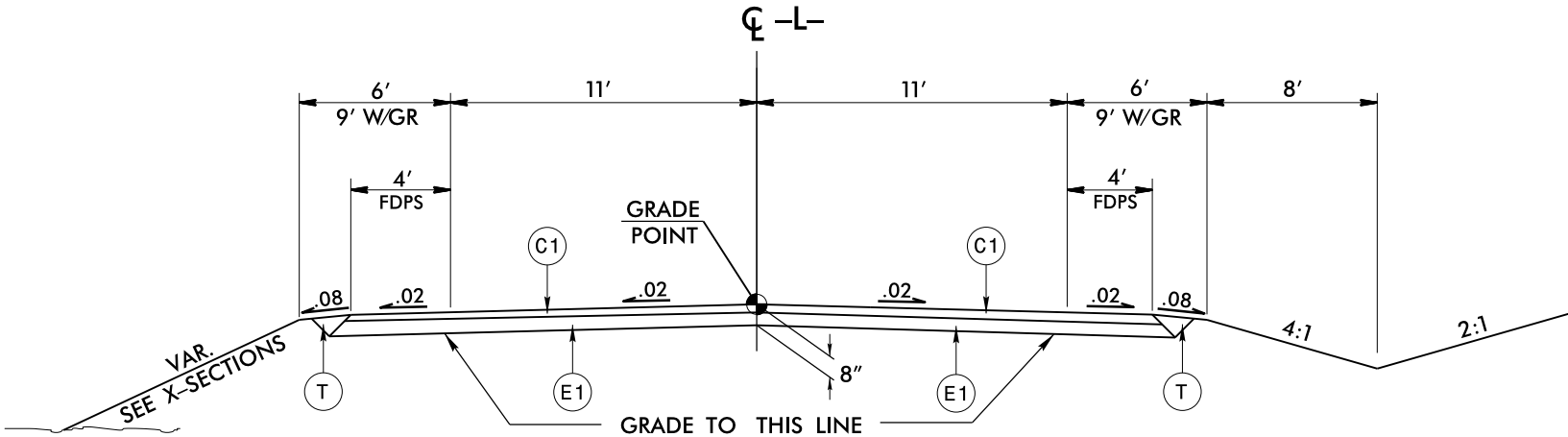
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging



TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2

PROJECT REFERENCE NO.	SHEET NO.
B-4803	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

USE TYPICAL SECTION NO. 1 AS FOLLOWS

- L- STA 10+25.00 TO STA 12+00.00
- L- STA 21+91.00 TO STA 25+75.00

NOTE: MILLING REQUIRED FOR PAVEMENT TIE-IN

- L- STA. 10+25.00 TO STA. 11+50.00
- L- STA. 25+00.00 TO STA. 26+25.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING

- L- STA. 25+75.00 TO STA. 26+25.00

USE TYPICAL SECTION NO. 2 AS FOLLOWS

- L- STA 12+00.00 TO STA 15+06.31 (BEGIN BRIDGE)
- L- STA 17+03.69 (END BRIDGE) TO STA 21+91.00



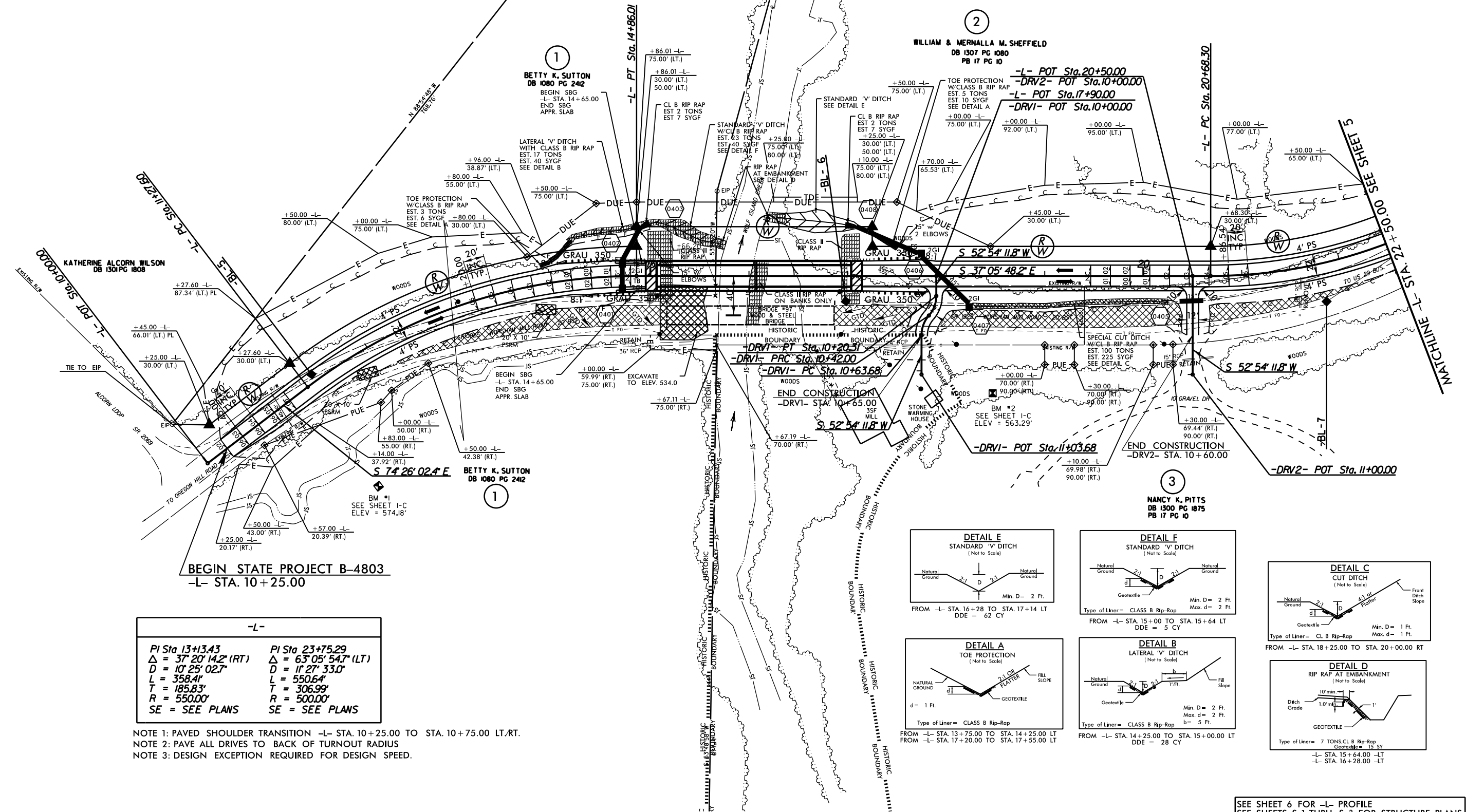
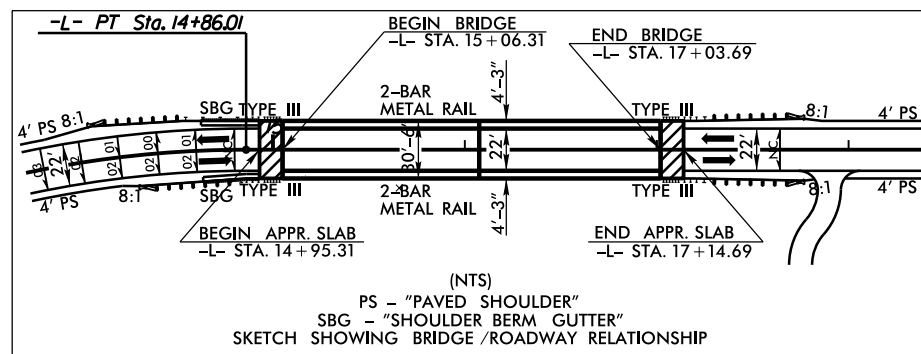
The diagram illustrates the cross-section of a bridge deck with the following dimensions and features:

- Overall Width:** 33' (indicated by a dimension line at the top).
- Deck Width:** 30'-6" (indicated by a dimension line below the overall width).
- Side Overhangs:** 1'-3" on both the left and right sides.
- Internal Spacing:**
 - 4'-3" from the left edge to the first bearing.
 - 11' between the two main bearings.
 - 4'-3" from the second bearing to the right edge.
- Bearings:** Two main bearings are shown, each with a width of 4.75" @ CL BEARING.
- Grade Point:** A central point labeled "GRADE POINT" with a downward arrow, indicating a dip in the deck.
- Structural Details:**
 - Two "2-BAR METAL RAIL" sections are shown on the left and right sides.
 - Two "W" (web) sections are shown, each with a width of 8.5" @ CL BEARING.
 - Two "C1" (chord) sections are shown, each with a width of 4.75" @ CL BEARING.
 - Two ".02" (flange) sections are shown, each with a width of 4.75" @ CL BEARING.

TYPICAL SECTION NO. 4

NOTE: SR 1925 (WORSHAM MILL RD.) IS A DESIGNATED BICYCLE ROUTE, NC 4.

PROJECT REFERENCE NO.		SHEET NO.	
B-4803		2-A	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
PAVEMENT SCHEDULE			
C1	2½" TYPE SF9.5A		
C2	VAR. TYPE SF9.5A		
E1	5½" TYPE B25.0B		
E2	VAR. TYPE B25.0B		
J	6" AGGREGATE BASE COURSE.		
T	EARTH MATERIAL.		
U	EXISTING PAVEMENT		
W	VAR. DEPTH WEDGING		



SEE SHEET 6 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-2 FOR STRUCTURE PLANS

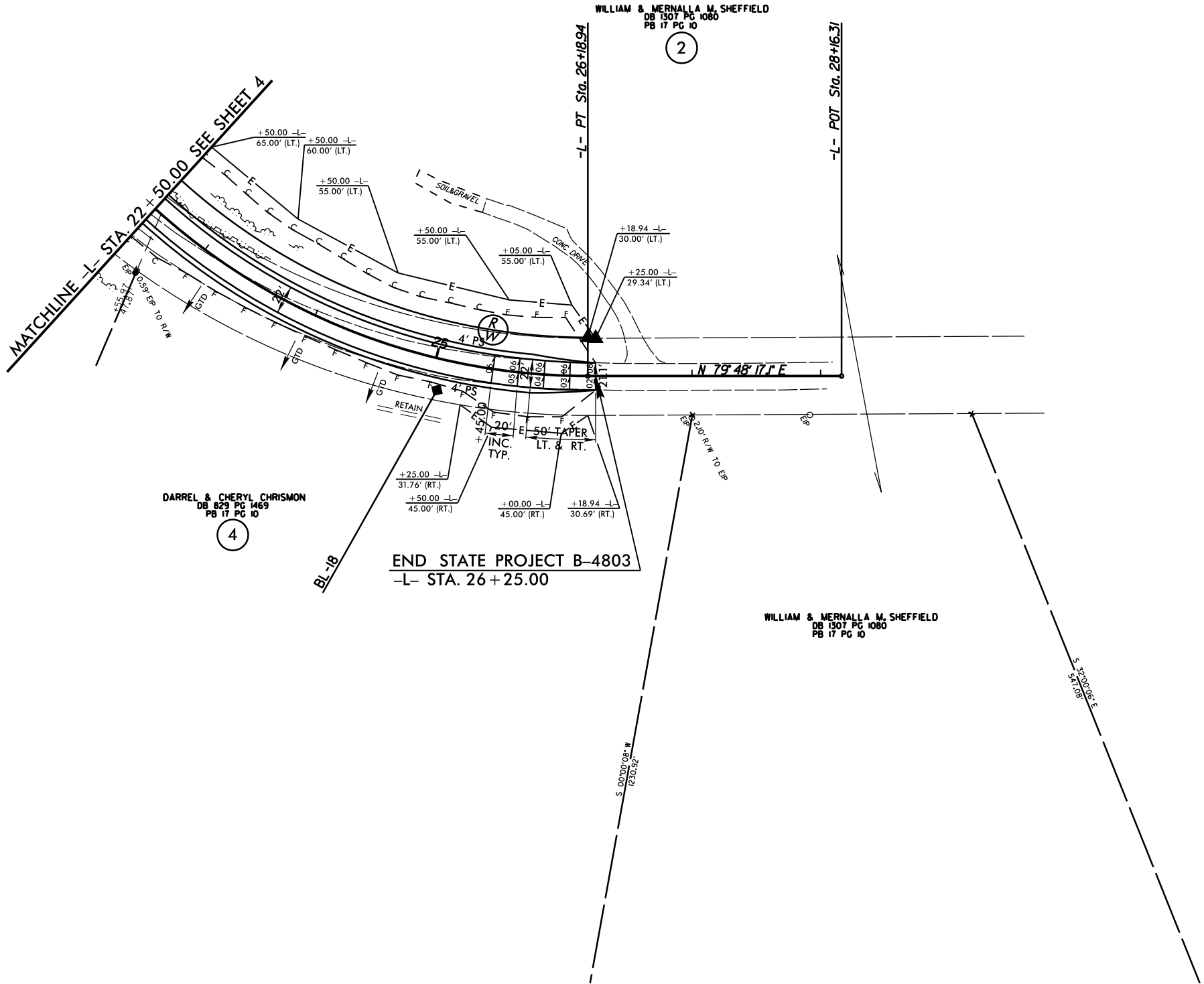
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REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
B-4803	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-L-
PI Sta 23+75.29 $\Delta = 63^{\circ}05'54.7"$ (LT) $D = 11^{\circ}27'33.0"$ $L = 550.64'$ $T = 306.99'$ $R = 500.00'$ SE = SEE PLANS



NOTE 1: PAVED SHOULDER TRANSITION -L- STA. 25+75.00 TO STA. 26+25.00 LT/RT.
NOTE 2: DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED.

SEE SHEET 6 FOR -L- PROFILE

