Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

February 12, 2016

U. S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTN: Mr. Steve Kichefski
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 23 and 33 and Section 401 Water Quality Certification** for the proposed replacement of Bridge No. 55 over Lance Creek on SR 1557 in Watauga County, Federal Aid Project No. BRZ-1557(2), Division 11, TIP No. B-5118, Debit $240 from WBS 42256.1.1.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 55 over Lance Creek with a 37' long, single-span cored slab bridge on the existing alignment. Traffic will be maintained during construction via an off-site detour. Additionally, there will be an onsite detour for emergency vehicles only.

As a result of the bridge replacement, there will be 52 linear feet of permanent stream impacts and 0.01 acre (16 linear feet) of temporary stream impacts. The temporary impacts result from the excavation of the bridge bents and the keyed in rip rap that will be buried upon bridge completion. The permanent impacts result from subsequent rip rap fill along the edge of the stream near where the old bents were removed.

Please see enclosed copies of the Pre-Construction Notification (PCN), DMS acceptance letter, stormwater management plan, permit drawings and design plans for the above-referenced project. The Programmatic Categorical Exclusion (PCE) was completed on June 27, 2014 and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of June 21, 2016 and a review date of May 3, 2016; however, the let date may advance as additional funding becomes available.

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: http://connect.ncdot.gov/resources/Environmental. If you have any questions or need additional information, please call Erin Cheely at (919) 707-6108.

Sincerely,

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

cc:
NCDOT Permit Application Standard Distribution List

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 55 over Lance Creek on SR 1557
2b. County:	Watauga
2c. Nearest municipality / town:	Foscoe
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-5118

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) 707-6108
3g. Fax no.:	(919) 212-5785
3h. Email address:	ekcheely@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: 36.17313 (DD.DDDDDD)	Longitude: - 81.73958 (-DD.DDDDDD)
1c. Property size:	1.25 acre	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Lance Creek	
2b. Water Quality Classification of nearest receiving water:	C; Tr	
2c. River basin:	Watauga	
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: The land use within the vicinity of the project consists of about 80% forest land, 15% developed or disturbed lands (roadsides and residential areas), and 5% cultivated land (agricultural fields and pastures).		
3b. List the total estimated acreage of all existing wetlands on the property: 0		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 570		
3d. Explain the purpose of the proposed project: The purpose of this project is to replace a structurally deficient (sufficiency rating of 12.5 of 100 and structural evaluation appraisal of 3 of 9) and functionally obsolete bridge (deck geometry rating 2 of 9).		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 26-foot single-span bridge with a 37-foot single-span bridge on the existing alignment as well as constructing a temporary on-site detour for emergency vehicles only. All other traffic will be detoured off-site during construction. 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: Only perennial streams within project study area.	☐ 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): Kris Dramby	Agency/Consultant Company: NCDOT Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. See 4a above. NCDOT is requesting PJD with permit.		
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	
				2g. **Total wetland impacts**	0 Permanent 0 Temporary

2h. Comments: No wetlands within project footprint.

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	Fill (rip rap)	Lance Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	15	52
Site 1 ☐ P ☒ T	Excavation	Lance Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	15	16 (0.01 ac)
Site 2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
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**		52 Perm 16 Temp (0.01 ac Temp)

3i. Comments: Temporary impacts are associated with the excavation necessary to remove the existing bents. The permanent impacts are due to rip rap fill that will be keyed-in.

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: No open water within construction limits.

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			☐ Yes ☐ No		
B2 ☐ P ☐ T			☐ Yes ☐ No		
B3 ☐ P ☐ T			☐ Yes ☐ No		
		6h. **Total buffer impacts**			
6i. Comments: This project is not located within a protected buffer area.					

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 replacement bridge will be on the same alignment as the existing bridge. Best Management Practices (BMPs) will be used on this project to minimize stormwater impacts.

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

Traffic will be maintained via an off-site detour during construction with the exception of emergency traffic that will be allowed to use a temporary on-site detour. Design Standards in Sensitive Watersheds (DSSW) will be utilized during construction to attempt to reduce the stormwater impacts to the receiving streams due to erosion and runoff to the maximum extent possible. The NC Wildlife Resources Commission (NCWRC) originally requested a trout moratorium on in-water work from October 15th to April 15th. In consideration of the function of the golf course and local needs, NCWRC was willing to waive the early part of the moratorium in anticipation that Design Standards for Sensitive Watersheds will be well maintained during construction. The trout moratorium on in-water work will be from Jan 1st to April 15th.

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 * Total stream impacts requiring USACE mitigation = 52' (no mitigation required by DEQ due to impacts <150') If no, explain:
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:	52 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 acre
4f. Non-riparian wetland mitigation requested:	0 acres
4g. Coastal (tidal) wetland mitigation requested:	0 acres

4h. Comments: The NCDOT does not propose mitigation for the 16 linear feet (0.01 acre) of temporary stream impacts. These impacts do not require permanent fill in the stream bed and, therefore, under Section 404 of the Clean Water Act, do not constitute Loss of Waters of the U.S. and are not subject to compensatory mitigation.

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:**			

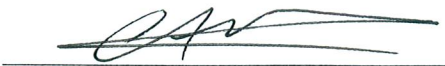
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).

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 not, explain why. Comments: If required from 1a, see attached buffer 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 N/A
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

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: Programmatic Categorical Exclusion (PCE) approved 6/27/14	☒ 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? As of July 24, 2015, there are nine federally listed species for Watauga County. Of the nine species, eight of them have no habitat present within the project area. The remaining species is the Northern long-eared bat (NLEB). Screenings and/or surveys have been conducted for the recently listed NLEB and concurrence will be requested as soon as a memo is prepared with the results of the screening/survey. It is anticipated that the biological conclusion for this species will be "May Affect, Not Likely to Adversely Affect" and that concurrence from USFWS will be obtained prior to the June 2016 let date (the need for concurrence may change when the new 4(d) rule goes into effect on February 16, 2016).		
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		

for 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.)	2-12-2016 Date

Environmental Quality

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

November 5, 2015

Mr. Richard W. Hancock, P.E.
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Hancock:

Subject: Mitigation Acceptance Letter:

B-5118, Replace Bridge 55 on SR 1557 over a Creek, Watauga County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on November 5, 2015, the impacts are located in CU 06010103 of the Watauga River basin in the Northern Mountains (NM) Eco-Region, and are as follows:

Watauga 06010103 NM	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	52.0	0	0	0	0	0	0	0

*Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This impact and associated mitigation need were under projected by the NCDOT in the 2015 impact data. DMS will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill
Credit Management Supervisor

cc: Mr. Andy Williams, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NCDWR
File: B-5118

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: B-5118 **County(ies):** Watauga

General Project Information

Project No.:	B-5118		**Project Type:**	Bridge Replacement		**Date:**	9/8/2015
NCDOT Contact:	Paul Atkinson, PE		**Contractor / Designer:**		Rachel Evans, PE		
Address:	1020 Birch Ridge Drive Raleigh, NC 27610		**Address:**		1020 Birch Ridge Drive Raleigh, NC 27610		
Phone:	919-707-6707		**Phone:**		919-707-6719		
Email:			**Email:**				
City/Town:	Boone		**County(ies):**	Watauga			
River Basin(s):	Watauga		**CAMA County?**	No			
Primary Receiving Water:	Lance Creek		**NCDWQ Stream Index No.:**		8-8-(2)		
NCDWQ Surface Water Classification for Primary Receiving Water		**Primary:**	Class C				
		Supplemental:	Trout Waters (Tr)		High Quality Waters (HQW)		
Other Stream Classification:	None						
303(d) Impairments:	None						
Buffer Rules in Effect	N/A						

Project Description

Project Length (lin. Miles or feet):	0.066 mi.	**Surrounding Land Use:**	rural, wooded, residential, golf course

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	ac.	ac.
Typical Cross Section Description:	30' ROAD SHOULDER SECTION; 2- 11' LANES, 4' TO 7' SHOULDERS. 33' BRIDGE OUT TO OUT; 29.4' CLEAR ROADWAY; 2- 11' LANES, 3.7' SHOULDERS.	18' ROAD SHOULDER SECTION. EXISTING BRIDGE: 2 LANE, 19.25' CLEAR ROADWAY, 20.16' BRIDGE OUT TO OUT.
Average Daily Traffic (veh/hr/day):	Design/Future: ADT 2035= 2500	Existing: ADT 2013= 1654

General Project Narrative:

Replace existing 1@25'7", timber floor on I-beams bridge with a 1@35', 21" cored slab bridge at existing location. Off-site detour required. This project has a storm drainage system collecting a small amount of bridge/road discharge which will be dissipated by a rip rap pad. This project also has a storm drainage system collecting a small amount of road discharge which is treated in a grass lined ditch before entering the drainage system and discharging into Lance Creek. There are no wetlands associated with this project.

References

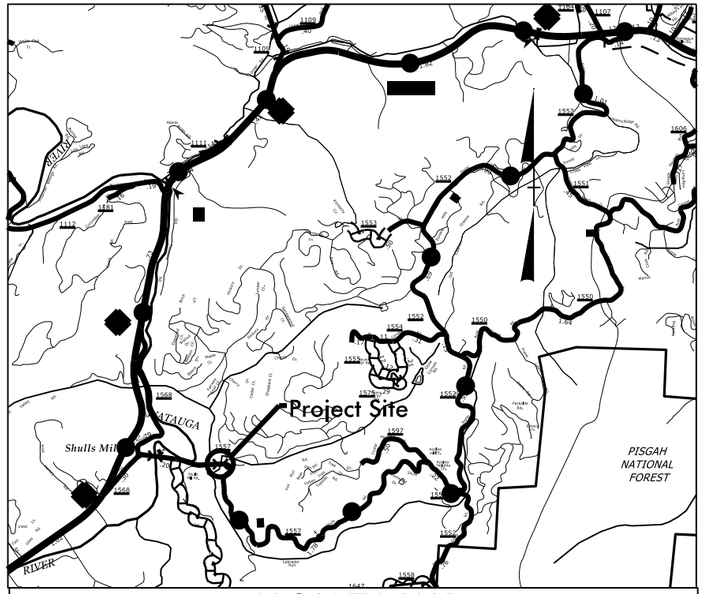
09/26/99

TIP PROJECT: B-5118

CONTRACT:

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

See Sheet 1-A For Index of Sheets



VICINITY MAP

OFFSITE DETOUR.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

LOCATION: BRIDGE #55 OVER LANCE CREEK ON SR 1557 (SHULLS MILL RD.)

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

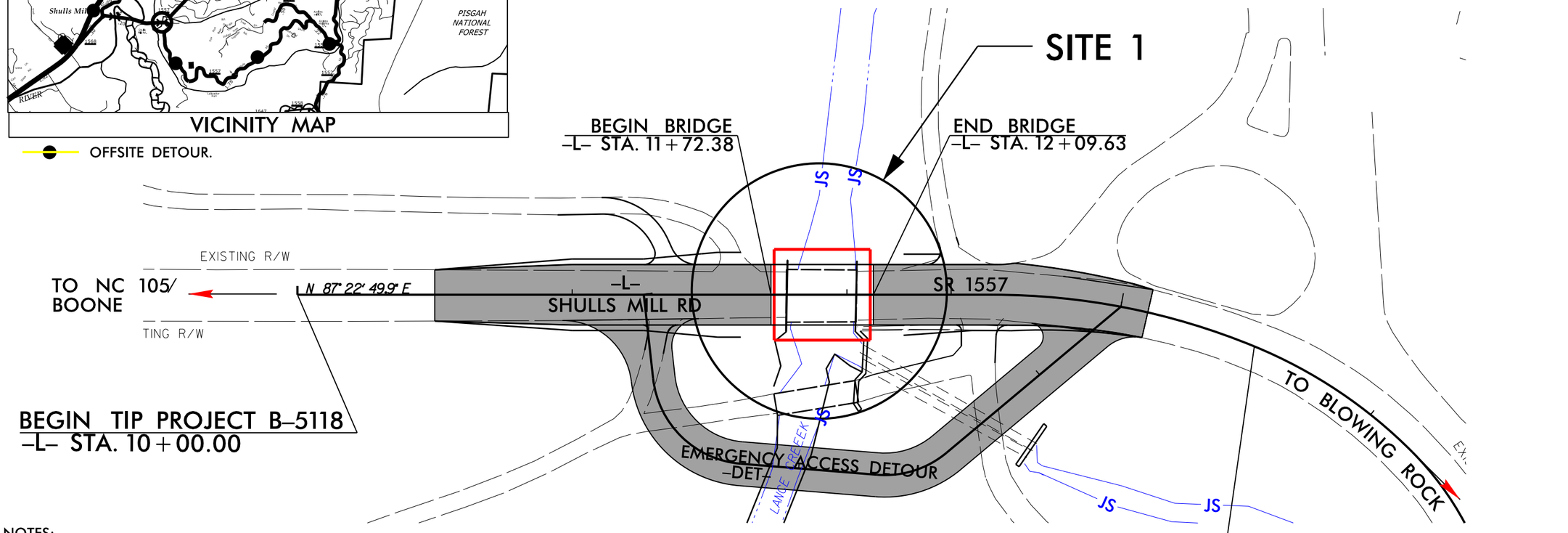
WETLAND AND STREAM IMPACTS

ENGLISH

PERMIT DRAWING SHEET 1 OF 6

NC GRID
NAD 83/CORS96

STATE	STATE PROJECT REFERENCE NO.		SHEET NO.	TOTAL SHEETS
N.C.	B-5118		1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION		
42256.1.1	BRZ-1557(2)	P.E.		
42256.2.FD1	BRZ-1557(2)	R/W		
42256.2.FDU1	BRZ-1557(2)	UTIL		
42256.3.FD1	BRZ-1557(2)	CONST.		



BEGIN TIP PROJECT B-5118
-L- STA. 10+00.00

END TIP PROJECT B-5118
-L- STA. 13+50.00

NOTES:
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
TRAFFIC IS TO BE MAINTAINED WITH AN OFFSITE DETOUR.
LOCAL EMERGENCY VEHICLE ACCESS DETOUR ONSITE.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

DESIGN DATA

ADT 2014 = 1692
ADT 2035 = 2500
DHV = 12 %
D = 55 %
T = 5 % *
V = 40 MPH
* TTST =1% DUAL 4%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT BRZ-1557(2) = 0.059 MI
LENGTH STRUCTURE F.A. PROJECT BRZ-1557(2) = 0.007 MI
TOTAL LENGTH F.A. PROJECT BRZ-1557(2) = 0.066 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 17, 2014

LETTING DATE:
JUNE 21, 2016
BRIDGE CLOSURE AVAILABILITY
NOVEMBER 1, 2016

JASON MOORE, PE
PROJECT ENGINEER

JEANIE TYSON
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

PROJECT REFERENCE NO.	SHEET NO.
B-5118	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 2 OF 6

ENGLISH

NAD 83

REVISIONS

5/14/99

R/W REVISION: ADDED PROPOSED TEMPORARY UTILITY EASEMENT FROM –L– STA. 10+40.93 TO 17+22.59 RT. ADJUSTED PROPOSED TEMPORARY CONSTRUCTION EASEMENT FROM –L– STA. 10+88.40 TO 11+30.69 RT. EXTENDED ALIGNMENT FOR LOCATION OF PROPOSED TEMPORARY UTILITY RELOCATION. — SEC 03/03/15

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

IMPACTS IN SURFACE WATER

HE CLUB,INC

(1)

REMOVE EXISTING BRIDGE AND EXCAVATE TO N.G.

FLAT GRATE TB 2GI–D

CLASS I RIP RAP

SITE 1

–L– POT STA. 10+00.00
BEGIN TIP PROJECT B–5118

FLAT GRATE TB 2GI–D

(1)
HE CLUB,INC

15" RCP–III

CL B RIP RAP
EST 1 TON
GEOTEXTILE
EST 5 SY

TEMP. IMPACTS IN SURFACE WATER

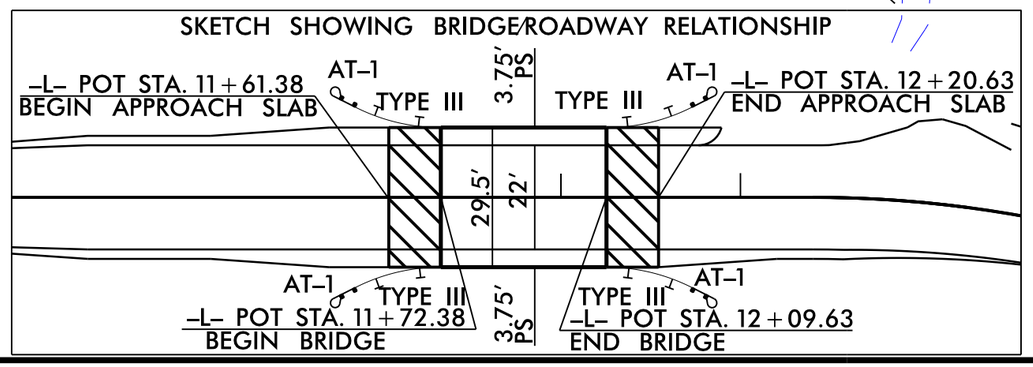
EXTEND PROP. BRIDGE WINGWALL TO FORM PROP. HW AROUND EX. 2@36"CPP AND TIE TO EX. WALL; SHORTEN EX. PIPES AS NEEDED

JB W/MH

2GI–D

–L– POC STA. 13+50.00
END TIP PROJECT B–5118

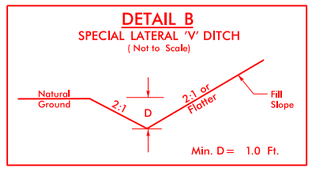
SKETCH SHOWING BRIDGE/ROADWAY RELATIONSHIP



NOTE: NO IMPACTS DUE TO PROP. DETOUR

NOTE: FOR COMPLETE VIEW OF PROPOSED TEMPORARY UTILITY EASEMENT LIMITS, SEE SHEET 4A.

DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



–L– STA. 12+60 TO STA. 13+25 RT

–PROP. DETOUR ACCESS FOR EMERGENCY VEHICLES. FOR DETAILS SEE SHEET 5.

SEE SHEET 6 FOR PROFILE
SEE SHEET S–1 THRU S–?? FOR STRUCTURE PLANS

$$$$$$$SYSTIME$$$$$$
$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5118	4
R/W SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 3 OF 6

ENGLISH

NAD 83

REVISIONS

R/W REVISION: ADDED PROPOSED TEMPORARY UTILITY EASEMENT FROM –L– STA. 10+40.93 TO 17+22.59 RT. ADJUSTED PROPOSED TEMPORARY CONSTRUCTION EASEMENT FROM –L– STA. 10+88.40 TO 11+30.69 RT. EXTENDED ALIGNMENT FOR LOCATION OF PROPOSED TEMPORARY UTILITY RELOCATION. — SEC 03/03/15

5/14/99

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

IMPACTS IN SURFACE WATER

HE CLUB,INC

1

REMOVE EXISTING BRIDGE AND EXCAVATE TO N.G.

FLAT GRATE TB 2GI–D

CLASS I RIP RAP

SITE 1

48" ROCK WALL

36" ROCK WALL

ROCK SIGN

GUARD HOUSE

BST PARKING

GATE

ROCK STEPS

ROCK CURB

JB W/MH

BST GOLF CART PATH

EXISTING R/W

SHULLS MILL RD SR 1557 19' BST

–L– POT STA. 10+00.00
BEGIN TIP PROJECT B–5118

4" HDPE

6" HDPE

BRIDGE #55 TIMBER STEEL

ROCK HW

CONC HW

36" RCP

LANDE CREEK

PDE

TDE

GTD RET.

2GI–D

FLAT GRATE TB 2GI–D

15" RCP–III

CL B RIP RAP
EST 1 TON
GEOTEXTILE
EST 5 SY

TEMP. IMPACTS IN SURFACE WATER

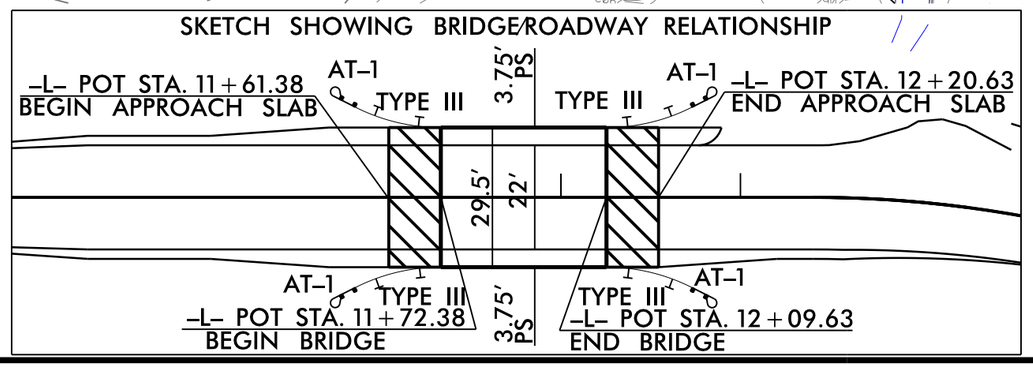
EXTEND PROP. BRIDGE WINGWALL TO FORM PROP. HW AROUND EX. 2@36"CPP AND TIE TO EX. WALL; SHORTEN EX. PIPES AS NEEDED

–L– POC STA. 13+50.00
END TIP PROJECT B–5118

6" BST CURB

EXISTING R/W

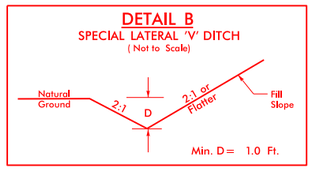
SKETCH SHOWING BRIDGE/ROADWAY RELATIONSHIP



NOTE: NO IMPACTS DUE TO PROP. DETOUR

NOTE: FOR COMPLETE VIEW OF PROPOSED TEMPORARY UTILITY EASEMENT LIMITS, SEE SHEET 4A.

DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

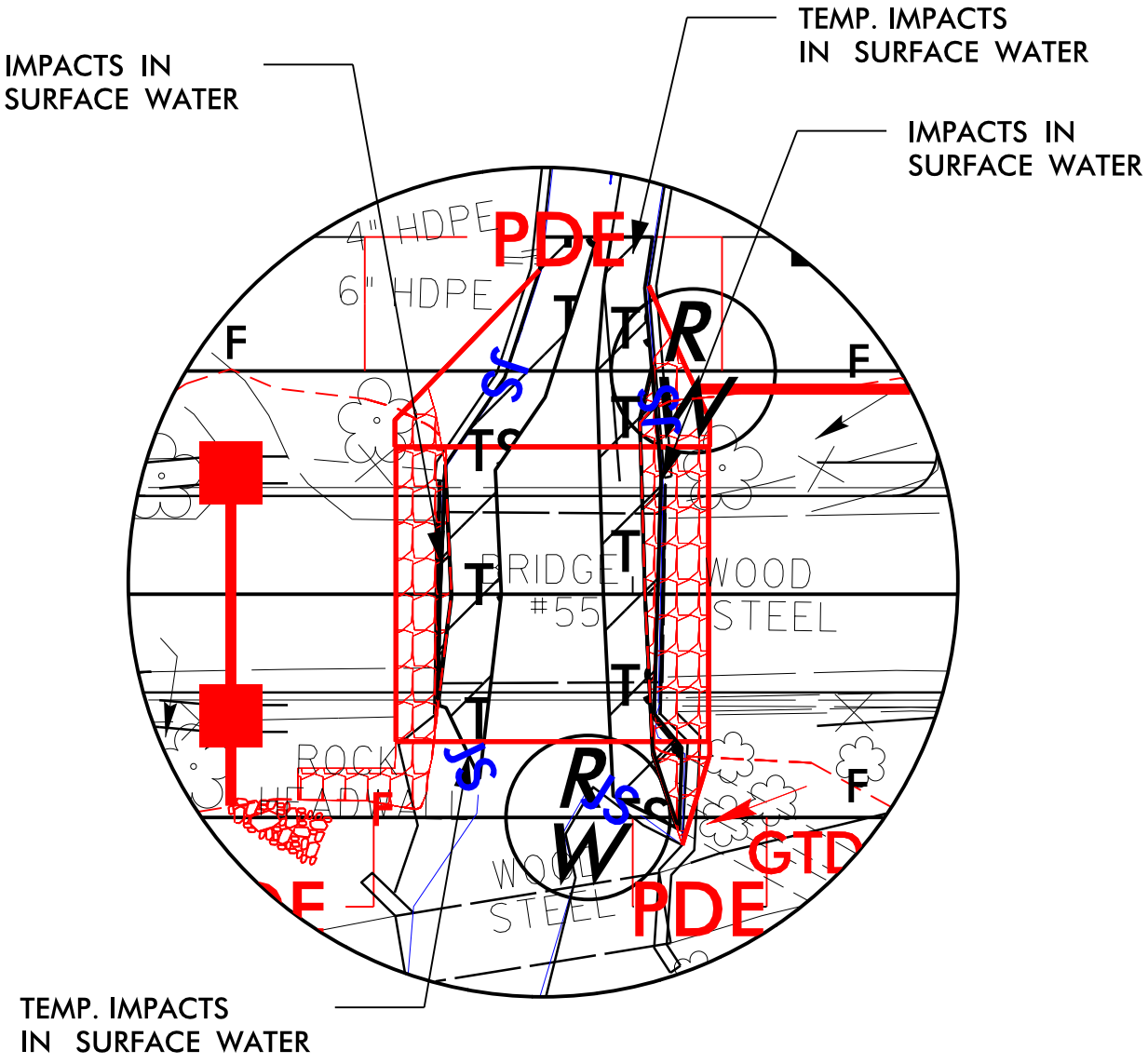


–L– STA. 12+60 TO STA. 13+25 RT

– PROP. DETOUR ACCESS FOR EMERGENCY VEHICLES. FOR DETAILS SEE SHEET 5.

SEE SHEET 6 FOR PROFILE
SEE SHEET S–1 THRU S–?? FOR STRUCTURE PLANS

$$$$$$$SYSTIME$$$$$$
$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$



TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

ENGLISH

SITE 1 ENLARGEMENT

20' 0' 20'

1" = 20'

NCDOT

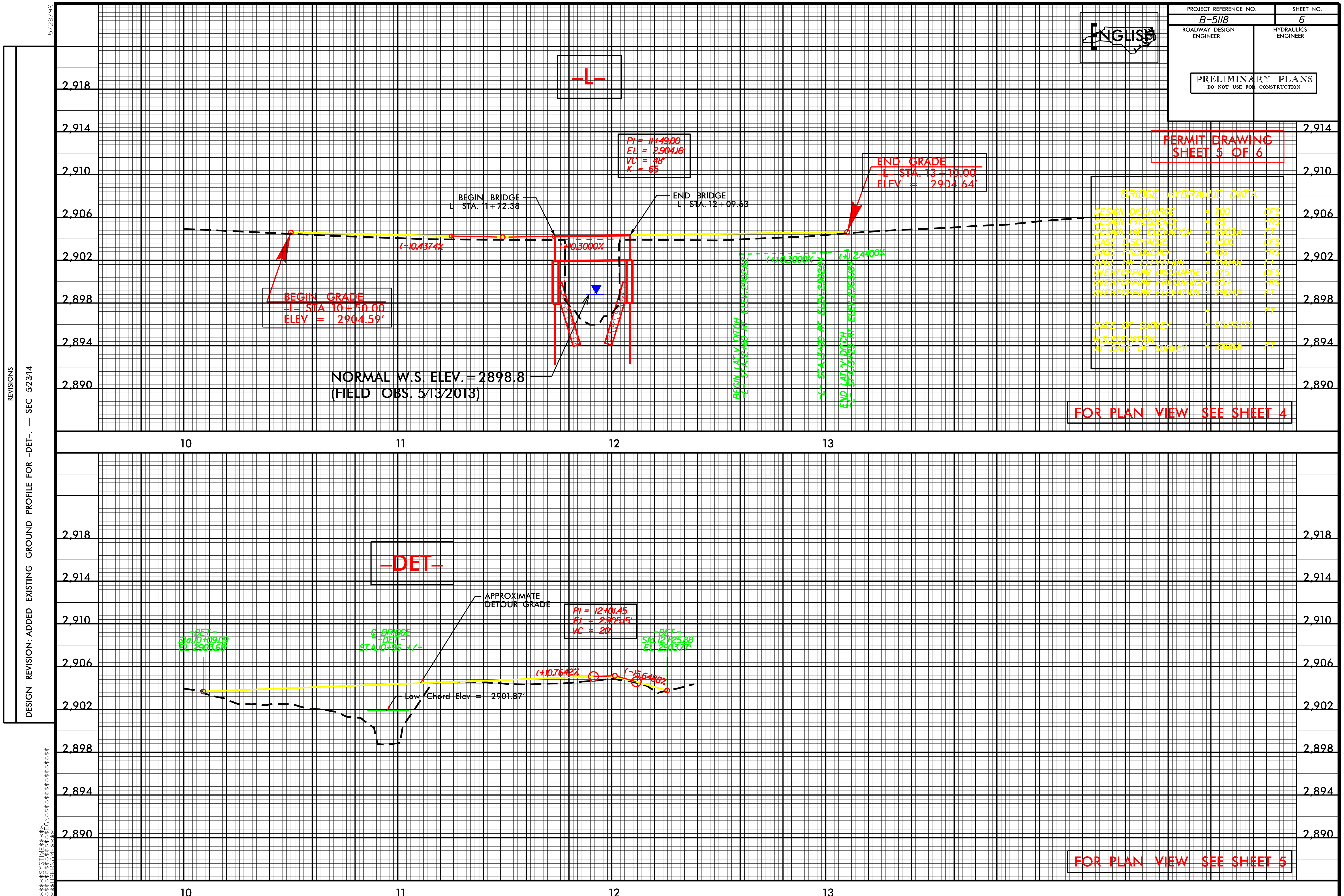
DIVISION OF HIGHWAYS

WATAUGA COUNTY

PROJECT: 42256.1.1 (B-5118)

BRIDGE #55 OVER LANCE CREEK ON SR 1557 (SHULLS MILL RD)

SHEET 4 OF 6 09/08/15


PROJECT REFERENCE NO. B-5118
SHEET NO. 6
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
PERMIT DRAWING
SHEET 5 OF 6
-L-
PI = 11+49.00
EL = 2,904.16'
VC = 48'
K = 65
BEGIN BRIDGE
-L- STA. 11+72.38
END BRIDGE
-L- STA. 12+09.63
BEGIN GRADE
-L- STA. 10+50.00
ELEV = 2904.59'
END GRADE
-L- STA. 13+10.00
ELEV = 2904.64'
(-)0.4374%
(+)0.3000%
(+) 0.3000%
(+) 2.4400%
NORMAL W.S. ELEV. = 2898.8
(FIELD OBS. 5/13/2013)
BEGIN LAT. V DITCH -L- STA.12+60 RT ELEV.2902.82
-L- STA.13+00 RT ELEV.2902.94
END LAT. V DITCH -L- STA.13+25 RT ELEV.2903.184
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 700 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 2903.4 FT
BASE DISCHARGE = 1,000 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 2904.9 FT
OVERTOPPING DISCHARGE = 775 CFS
OVERTOPPING FREQUENCY = 25+ YRS
OVERTOPPING ELEVATION = 2904.2 FT
= FT
DATE OF SURVEY = 05/13/13
W.S. ELEVATION AT DATE OF SURVEY = 2898.8 FT
FOR PLAN VIEW SEE SHEET 4
-DET-
APPROXIMATE DETOUR GRADE
PI = 12+01.45
EL = 2,905.15'
VC = 20'
-DET- Sta.10+09.09 EL 2903.68'
℄ BRIDGE -DET- STA.10+96 +/-
-DET- Sta.12+25.88 EL 2903.77'
(+)0.7642%
(-)5.6488%
Low Chord Elev = 2901.87'
FOR PLAN VIEW SEE SHEET 5
2,918
2,914
2,910
2,906
2,902
2,898
2,894
2,890
10
11
12
13
REVISIONS
DESIGN REVISION: ADDED EXISTING GROUND PROFILE FOR -DET-. — SEC 5/23/14
5/28/99

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- STA 11+79 TO	CORED SLAB BRIDGE						< 0.01	0.01	52	16	
	-L- STA 12+05											
TOTALS:								< 0.01	0.01	52	16	0

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
9/8/2015
WATAUGA COUNTY
BRIDGE 55 ON SR 1557
OVER LANCE CREEK
SHEET 6 OF 6

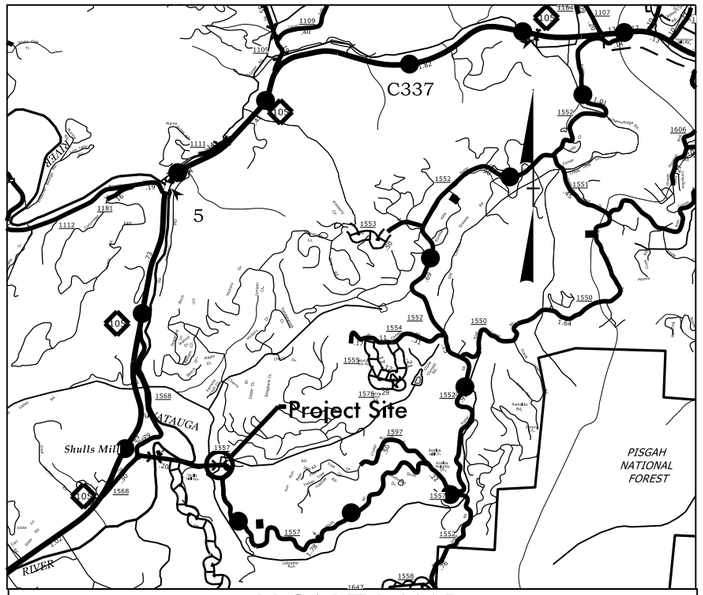
Revised 2013 10 24

09/08/99

TIP PROJECT: B-5118

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

OFFSITE DETOUR.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

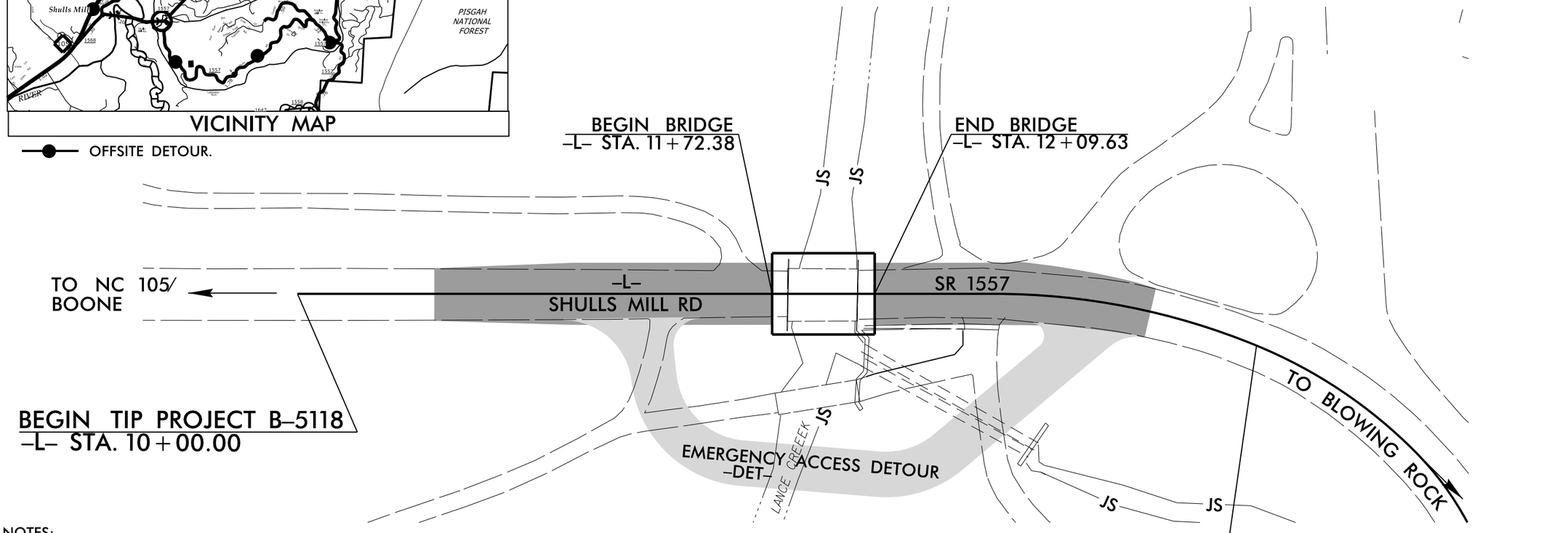
LOCATION: BRIDGE #55 OVER LANCE CREEK ON SR 1557 (SHULLS MILL RD.)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5118	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42256.1.1	BRZ-1557(2)	P.E.
42256.2.FD1	BRZ-1557(2)	R/W
42256.2.FDU1	BRZ-1557(2)	UTIL
42256.3.FD1	BRZ-1557(2)	CONST.

NC GRID
NAD 83/CORS96



NOTES:
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
TRAFFIC IS TO BE MAINTAINED WITH AN OFFSITE DETOUR.
LOCAL EMERGENCY VEHICLE ACCESS DETOUR ONSITE.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS 20 10 0 20 40

PROFILE (HORIZONTAL) 20 10 0 20 40

PROFILE (VERTICAL) 4 2 0 4 8

DESIGN DATA

ADT 2014 = 1692
ADT 2035 = 2500
DHV = 12 %
D = 55 %
T = 5 % *
V = 40 MPH
* TTST = 1% DUAL 4%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT BRZ-1557(2) = 0.059 MI
LENGTH STRUCTURE F.A. PROJECT BRZ-1557(2) = 0.007 MI
TOTAL LENGTH F.A. PROJECT BRZ-1557(2) = 0.066 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 17, 2014

LETTING DATE:
JUNE 21, 2016
BRIDGE CLOSURE AVAILABILITY
NOVEMBER 1, 2016

JASON MOORE, PE
PROJECT ENGINEER

JEANIE TYSON
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

03-AUG-2015 12:32
R:\Roadway\Proj\B5118_Rdy_tsh.dgn
$$$$USERNAME$$$$

12/05/11

PROJECT REFERENCE NO.	SHEET NO.
B-5118	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- 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 — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line

- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

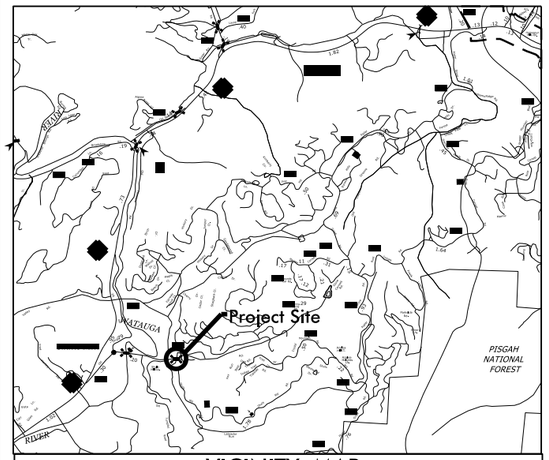
MISCELLANEOUS:

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

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
42256.1.1	1C
Location and Surveys	

SURVEY CONTROL SHEET B–5118



VICINITY MAP

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
B51182	GPS B5118-2	893039.0702	1190921.7815	2906.34	OUTSIDE PROJECT LIMITS	
BL3	BL-3	893092.6960	1191508.3921	2904.04	12+26.20	12.42 LT
BL4	BL-4	892905.6247	1191739.2989	2907.39	OUTSIDE PROJECT LIMITS	

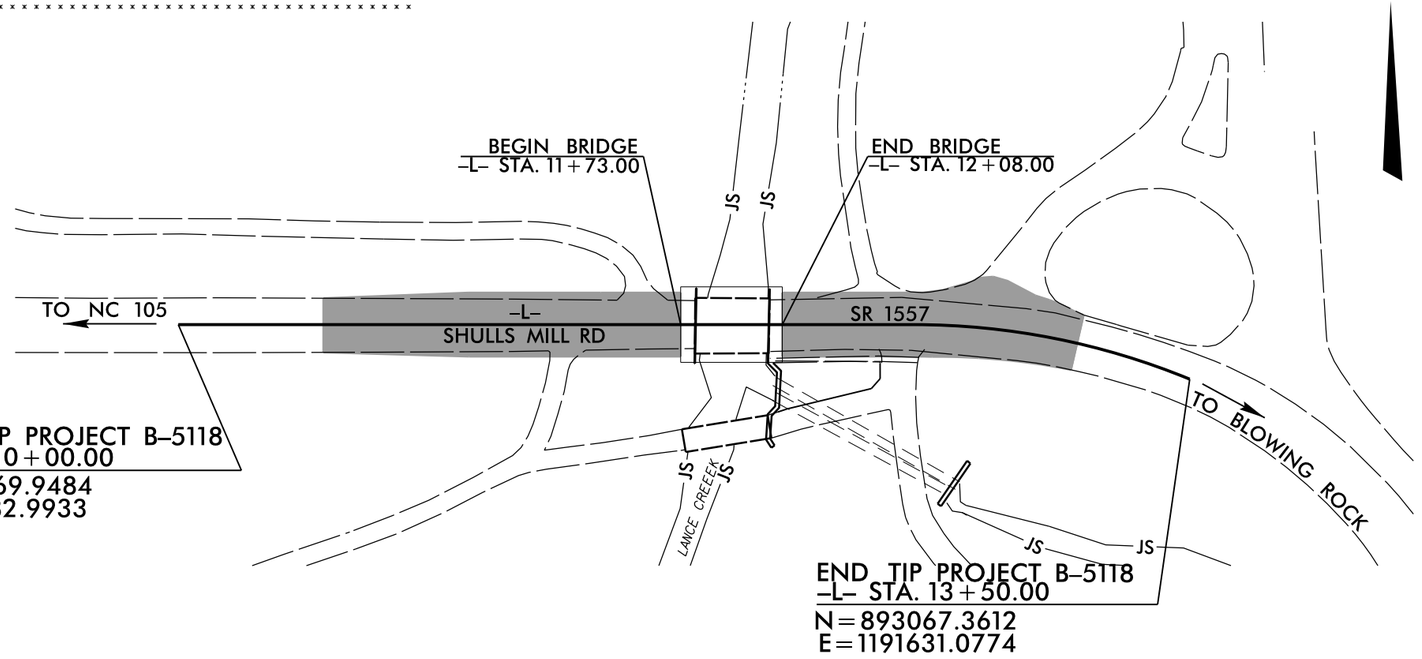
****
BM#1 ELEVATION = 2908.19
N 892924 E 1191745
OUTSIDE PROJECT LIMITS
CHISELED SQUARE IN SE HEADWALL OVER CREEK
****

NC GRID
NAD 83/CORS96

NC DOT GPS STATION B5118–1
LOCALIZED PROJECT COORDINATES
N=893268.4839
E=1189945.0029

NC DOT GPS STATION B5118–2
LOCALIZED PROJECT COORDINATES
N=893039.0702
E=1190921.7815

BEGIN TIP PROJECT B–5118
–L– STA. 10+00.00
N=893069.9484
E=1191282.9933



END TIP PROJECT B–5118
–L– STA. 13+50.00
N=893067.3612
E=1191631.0774

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5118-2" WITH NAD 83/CORS96 STATE PLANE GRID COORDINATES OF NORTHING: 893039.0702(ft) EASTING: 1190921.7815(ft) ELEVATION: 2906.34(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999867817
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5118-2" TO -L- STATION 10+00.00 IS N 85°06'50" E 362.53
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/*

   THE FILES TO BE FOUND ARE AS FOLLOWS: B5118_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.
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

03-AUG-2015 12:32
R:\Location\Surveys\b5118_ls_lc.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5118	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

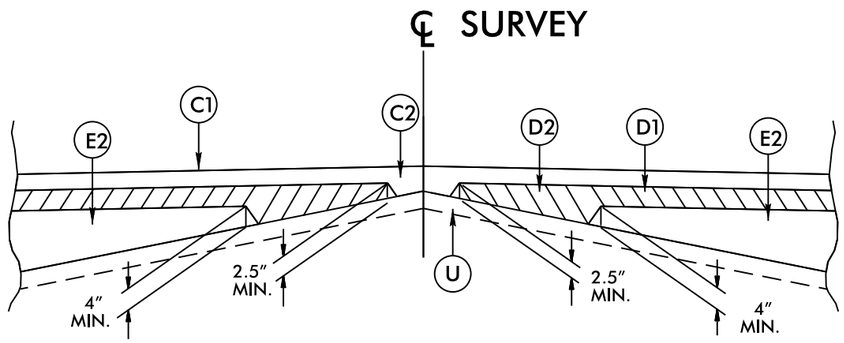
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

6/2/99

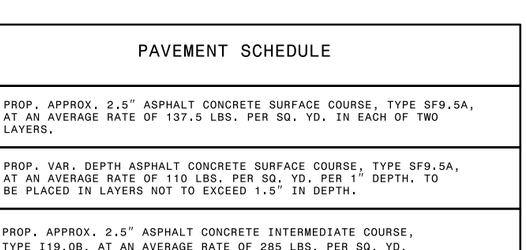
DESIGN REVISION: ADDED TYPICAL FOR DETOUR ALIGNMENT. — SEC 5/23/14

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5" 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 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 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 4" 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 (SEC STANDARD WEDGING DETAIL).

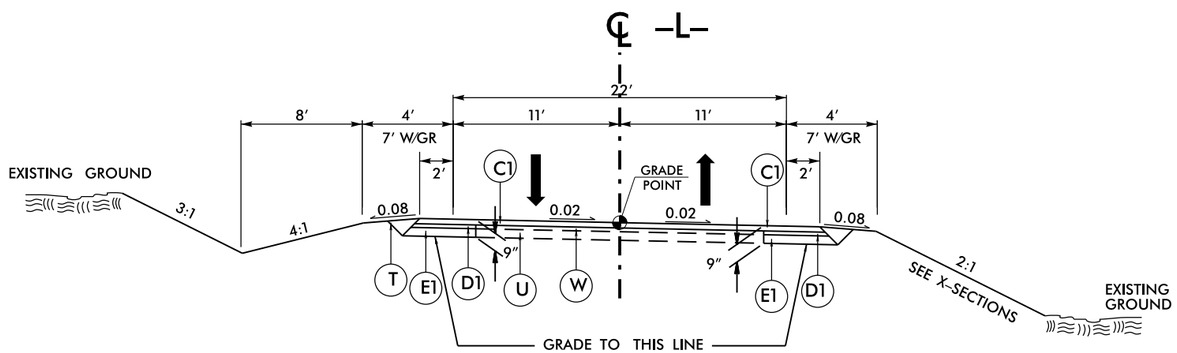
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging

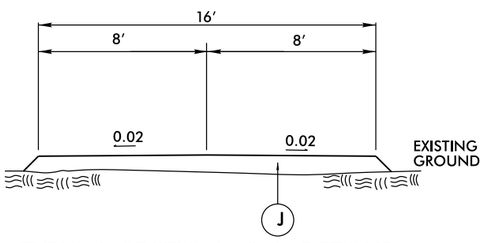


TYPICAL SECTION ON STRUCTURE
–L– STA. 11+72.38 TO 12+09.63

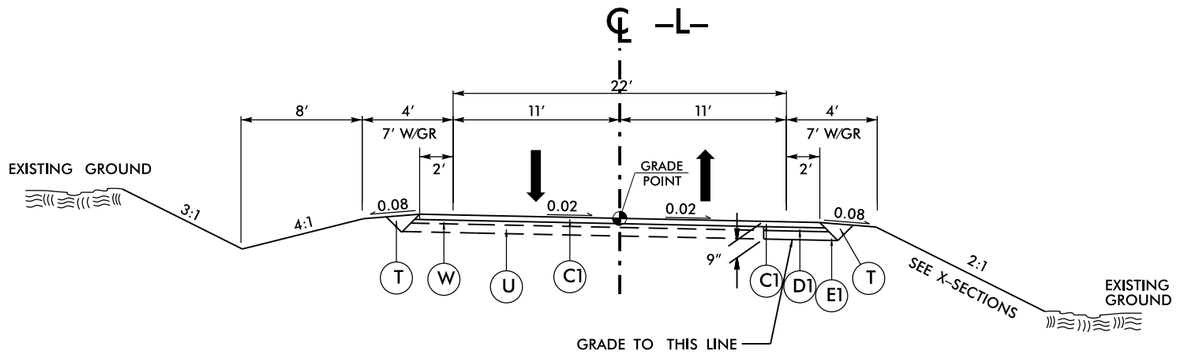


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
–L– STA. 10+50.00 TO 11+72.38 (BEGIN BRIDGE)
–L– STA. 12+09.63 (END BRIDGE) TO 12+55.13



TYPICAL SECTION ON DETOUR
–DET– STA. 10+09.09 TO 12+25.88
(FOR EMERGENCY VEHICLES ONLY)



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
–L– STA. 12+55.13 TO 13+10.00

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PROJECT REFERENCE NO.	SHEET NO.
B-5118	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

REVISIONS

R/W REVISION: ADDED PROPOSED TEMPORARY UTILITY EASEMENT FROM –L– STA. 10+40.93 TO 17+22.59 RT. ADJUSTED PROPOSED TEMPORARY CONSTRUCTION EASEMENT FROM –L– STA. 10+88.40 TO 11+30.69 RT. EXTENDED ALIGNMENT FOR LOCATION OF PROPOSED TEMPORARY UTILITY RELOCATION. — SEC 03/03/15 5/14/99

–L–

PI Sta 13+02.63	PI Sta 13+86.07	PI Sta 14+71.53	PI Sta 15+99.10	PI Sta 17+85.84
Δ = 22° 20' 57.0" (RT)	Δ = 22° 49' 01.2" (RT)	Δ = 49° 49' 21.3" (RT)	Δ = 50° 37' 01.0" (RT)	Δ = 49° 24' 17.1" (LT)
D = 22° 55' 05.9"	D = 32° 44' 25.6"	D = 52° 05' 13.5"	D = 40° 55' 32.0"	D = 52° 05' 13.5"
L = 97.52'	L = 69.69'	L = 95.65'	L = 123.68'	L = 94.85'
T = 49.39'	T = 35.31'	T = 51.09'	T = 66.20'	T = 50.60'
R = 250.00'	R = 175.00'	R = 110.00'	R = 140.00'	R = 110.00'
e = SEE PLANS				

10+00

BEG. SBG
–L– STA. 11+47 LT

CLASS I RIP RAP

EXTEND PROP. BRIDGE WINGWALL TO TIE TO EX. WALL

EXTEND PROP. BRIDGE WINGWALL TO FORM PROP. HW AROUND PROP. 15"RCP AND TIE TO EX. WALL

(1) HE CLUB,INC DB 689 PG 322 DB 689 PG 290

REMOVE EXISTING BRIDGE AND EXCAVATE TO N.G.

0401 FLAT GRATE TB 2GI-D

50' TAPER LT. & RT.

N 87° 22' 49.9" E

–L– POT STA. 10+00.00
BEGIN TIP PROJECT B-5118

0402 FLAT GRATE TB 2GI-D

0403

0404 2GI-D

0405 JB W/MH COVER

0406

SPECIAL LATERAL 'V' DITCH SEE DETAIL B

NOTE: SYS 0404-0406 PIPED THROUGH PROP BRIDGE WINGWALL TO ACHIEVE 1' DEPTH IN PROP DITCH; ROADWAY DRAINAGE IS TREATED IN GRASS LINED DITCH BEFORE ENTERING THE SYSTEM AND OUTLETTING INTO THE STREAM.

15" RCP-III
CL B RIP RAP
EST 1 TON
GEOTEXTILE
EST 5 SY

BEG. SBG
–L– STA. 11+47 RT

REM. EX. HW

EXTEND PROP. BRIDGE WINGWALL TO FORM PROP. HW AROUND EX. 2@36"CPP AND TIE TO EX. WALL; SHORTEN EX. PIPES AS NEEDED

–L– POC STA. 13+50.00
END TIP PROJECT B-5118

PCC Sta. 13+50.76

PCC Sta. 14+20.45

–L– PC Sta. 12+53.24

PT Sta. 15+16.10

SKETCH SHOWING BRIDGE/ROADWAY RELATIONSHIP

–L– POT STA. 11+61.38
BEGIN APPROACH SLAB

–L– POT STA. 12+20.63
END APPROACH SLAB

AT-1 TYPE III

3.75' PS

29.5' 22'

NC

00 01 02 Q2 Q3

–L– POT STA. 11+72.38
BEGIN BRIDGE

–L– POT STA. 12+09.63
END BRIDGE

NOTE: FOR COMPLETE VIEW OF PROPOSED TEMPORARY UTILITY EASEMENT LIMITS, SEE SHEET 4A.

DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground — 2:1 — D — 2:1 or Flatter — Fill Slope

Min. D= 1.0 Ft.

–L– STA. 12+60 TO STA. 13+25 RT

PROP. DETOUR ACCESS FOR EMERGENCY VEHICLES. FOR DETAILS SEE SHEET 5.

SEE SHEET 6 FOR PROFILE
SEE SHEET S-1 THRU S-?? FOR STRUCTURE PLANS

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PROJECT REFERENCE NO.	SHEET NO.
B-5118	4A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

R/W REVISION: ADDED PROPOSED TEMPORARY UTILITY EASEMENT FROM –L– STA. 10+40.93 TO 17+22.59 RT. ADJUSTED PROPOSED TEMPORARY CONSTRUCTION EASEMENT FROM –L– STA. 10+88.40 TO 11+30.69 RT. EXTENDED ALIGNMENT FOR LOCATION OF PROPOSED TEMPORARY UTILITY RELOCATION. — SEC 03/03/15 5/14/99

NAD 83

–L– POT STA. 10+00.00
BEGIN TIP PROJECT B-5118

N 87° 22' 49.9" E

SHULLS MILL RD SR 1557 18' BST

EXISTING R/W

2 RAIL WOOD

MAPLE

WHITE PINE

BRIDGE #65 WOOD STEEL

ROCK HEADWALL

CONC HW

ROCK HW

6" C900

3" PVC POWER AND SECURITY LINES

3" PVC

4" PVC

2" PVC

6" HDPE

6" PVC — W —

ROCK WALL

36" ROCK WALL

-BL- 3 PINC

ROCK STEPS

ROCK CURB

GUARD HOUSE

GATE

GRASS

BST GOLF CART PATH

LANE CREEK

WILLOW

bunker

GOLF COURSE GREEN

WHITE PINES

6" BST CURB

12' WOOD FENCE

ROCK CURB

EXISTING R/W

24.00'

22.00'

PCC Sta. 13+50.76

PCC Sta. 14+20.45

–L– POC STA. 13+50.00
END TIP PROJECT B-5118

–L– PC Sta. 12+53.24

PT Sta. 15+16.10

PC Sta. 15+32.90

PT Sta. 16+56.58

TO BLUE RIDGE PARKWAY

AZALEA STREET

12' BST

14' BST

+50.00 11.97' 20.00' 40.00'

+45.00 20.00' 25.00'

+50.00 11.82' 20.00' 28.00'

+40.93 46.23'

+09.23 20.00'

+88.40 28.00'

+97.25 56.74'

+45.00 20.00' 25.00' 35.00'

+53.85 35.00'

+30.69 87.00'

+00.00 25.00' 35.00'

+71.00 25.00' 35.00'

+49.00 20.00' 28.00' 87.00'

+15.00 25.00' 35.00'

+35.00 20.00' 25.00'

+53.24 20.00' 28.00'

+10.00 25.00' 40.00'

+50.00 25.00' 33.00' 40.00'

+53.24 20.00' 33.00'

+70.00 11.39' 20.00' 33.00'

+95.58 11.04' 20.00'

+71.00 13.01' 20.00' 28.00'

+10.00 12.81' 20.00' 28.00'

+91.60 5.58' EX R/W

+22.58 6.15' EX R/W

END CONSTRUCTION
–L– POT STA. 17+25.00

S 52° 59' 10.4" W

S 22° 09' 4" W

NOTE: ALL LINES DEPICTED AS LEVEL 'B' TELEPHONE CONDUIT ARE 3" PVC PRIVATE CONDUIT OWNED BY HOUNDS EAR. CONDUIT CONTAINS POWER, FIBER OPTIC AND/OR CAT-5 CABLE FOR SECURITY ACCESS AND CAMERAS.

HE CLUB, INC
DB 689 PG 322
DB 689 PG 290

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PROJECT REFERENCE NO.	SHEET NO.
B-5118	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

R/W REVISION: EXTENDED ALIGNMENT FOR LOCATION OF PROPOSED TEMPORARY UTILITY RELOCATION. — SEC 030315

5/14/99

EMERGENCY ACCESS DETOUR

10+00

HE CLUB,INC
DB 689 PG 322
DB 689 PG 290

-L- POT Sta. 11+26.07
-DET- POT Sta. 10+00.00

RHODODENDRONS
BST GOLF CART PATH
2 RAIL WOOD
EXISTING R/W
T FO
SHULLS MILL RD SR 1557 19' BST
MAPLE
WHITE PINE
R=25'
PC Sta. 10+30.64
6" C900 W
3" PVC POWER AND SECURITY LINES
TC
BST GOLF CART PATH
0510
tee
4" PVC
HE CLUB,INC
DB 689 PG 322
DB 689 PG 290
PT Sta. 10+78.91
PROP 30' x 16' TEMP BRIDGE –
FOR EMERGENCY VEHICLES ONLY

6" PVC W
4" HDPE
6" HDPE
ROCK WALL 6" C900
ROCK WALL
ROCK WALL BST
JS
S10+00
S 58° 52' E
BRIDGE #65
WOOD STEEL
ROCK HEADWALL
R=10'
R=15'
CL B RIP RAP
S 87° 59' 40.0" E
0511
3" PVC
PC Sta. 11+28.67
PT Sta. 11+55.88

GRASS
MAPLE
RHODODENDRON
48" ROCK WALL
RHODODENDRON
CEDARS
HEMLOCK
ROCK SIGN
GRASS
36" ROCK WALL
RHODODENDRON
-BL- 3 PINC
ROCK STEPS
2 RAIL WOOD
HEMLOCKS
ROCK CURB
GATE
GUARD HOUSE
BST PARKING
BST
ROCK CURB
SIGN
LT
S
GR
6
5
12" WOOD FENCE
EXISTING R/W
ROCK CURB
24.00'
22.00'
CTD
R=15'
WHITE PINES
6" C900 W
PCC Sta. 13+50.76
PCC Sta. 14+20.45
WHITE PINE
4" PVC
BST GOLF CART PATH
-L- PC Sta. 12+53.24
2" PVC W
PINE
WHITE PINE
3" PVC
-L- POT Sta. 13+00.00
-DET- POT Sta. 12+38.58
EXISTING R/W
RHODODEND
6" BST CURB
GATE
2 RAIL

-DET-

PI Sta 10+59.50	PI Sta 11+43.01
△ = 79° 01' 04.8" (LT)	△ = 44° 32' 47.8" (LT)
D = 163° 42' 08.0"	D = 163° 42' 08.0"
L = 48.27'	L = 27.21'
T = 28.86'	T = 14.34'
R = 35.00'	R = 35.00'

SEE SHEET 4 FOR R/W AND EASEMENTS
SEE SHEET 6 FOR PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
B-5118	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28/99

REVISIONS

DESIGN REVISION: ADDED EXISTING GROUND PROFILE FOR –DET–. — SEC 5/23/14

–L–

PI = 11+49.00
EL = 2,904.16'
VC = 48'
K = 65

BEGIN BRIDGE
–L– STA. 11 + 72.38

END BRIDGE
–L– STA. 12 + 09.63

END GRADE
–L– STA. 13 + 10.00
ELEV = 2904.64'

BEGIN GRADE
–L– STA. 10 + 50.00
ELEV = 2904.59'

(–)0.43743%

(+)0.30000%

(+)0.30000%

(+) 2.44000%

BEGIN LAT. V. DITCH
–L– STA. 12+60 RT. ELEV. 2902.82'

END LAT. V. DITCH
–L– STA. 13+25 RT. ELEV. 2903.84'

NORMAL W.S. ELEV. = 2898.8
(FIELD OBS. 5/13/2013)

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2903.4	FT
BASE DISCHARGE	= 1,000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2904.9	FT
OVERTOPPING DISCHARGE	= 775	CFS
OVERTOPPING FREQUENCY	= 25+	YRS
OVERTOPPING ELEVATION	= 2904.2	FT
	=	FT
DATE OF SURVEY	= 05/13/13	
W.S. ELEVATION AT DATE OF SURVEY	= 2898.8	FT

FOR PLAN VIEW SEE SHEET 4

2,918 / 2,914 / 2,910 / 2,906 / 2,902 / 2,898 / 2,894 / 2,890

10 11 12 13

–DET–

APPROXIMATE DETOUR GRADE

PI = 12+01.45
EL = 2,905.15'
VC = 20'

–DET–
Sta. 10+09.09
EL 2903.58

℄ BRIDGE
–DET–
STA. 10+96 +/–

–DET–
Sta. 12+25.88
EL 2903.77'

(+)0.76412%

(–)5.64482%

Low Chord Elev = 2901.87'

FOR PLAN VIEW SEE SHEET 5

2,918 / 2,914 / 2,910 / 2,906 / 2,902 / 2,898 / 2,894 / 2,890

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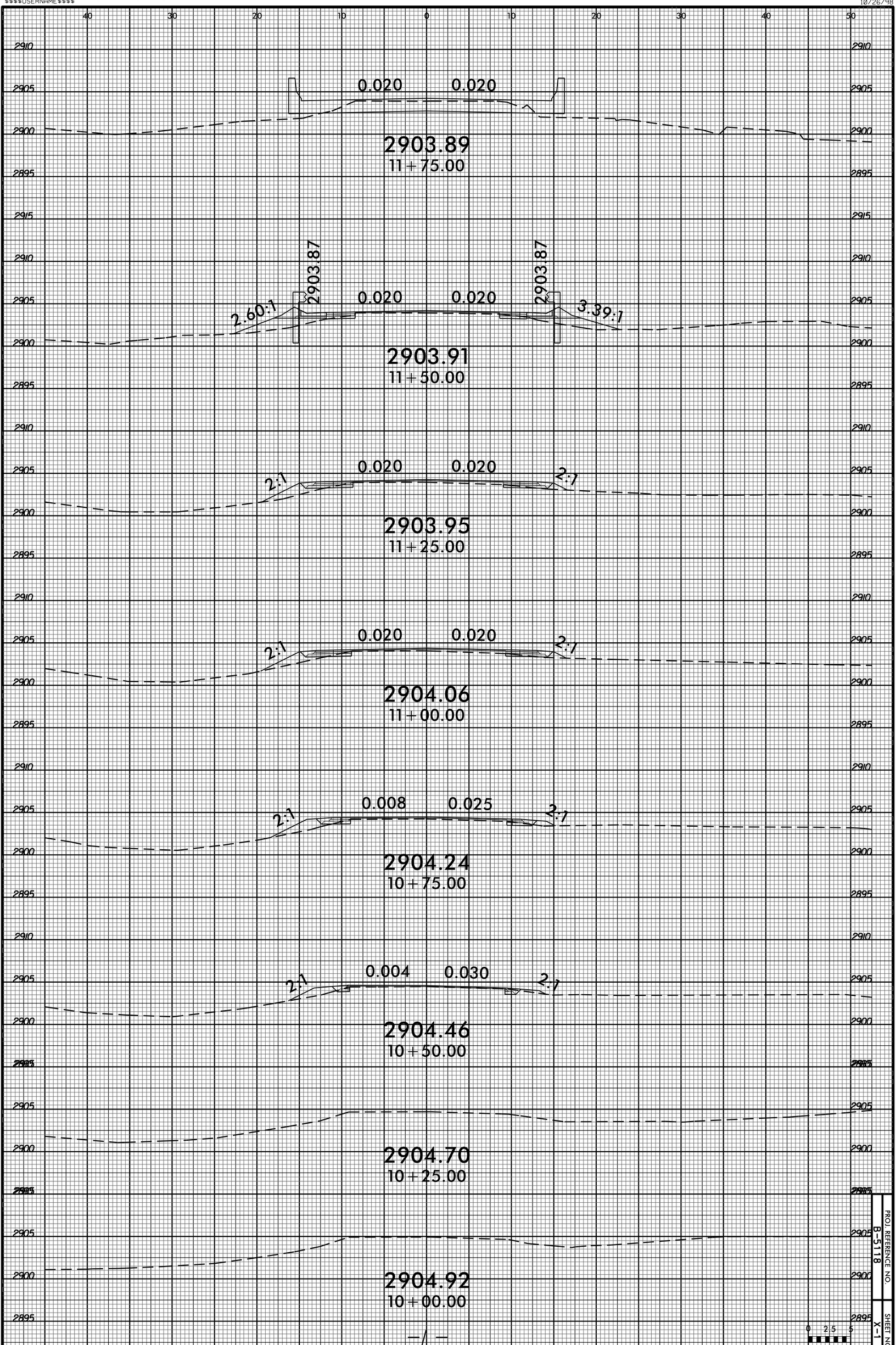
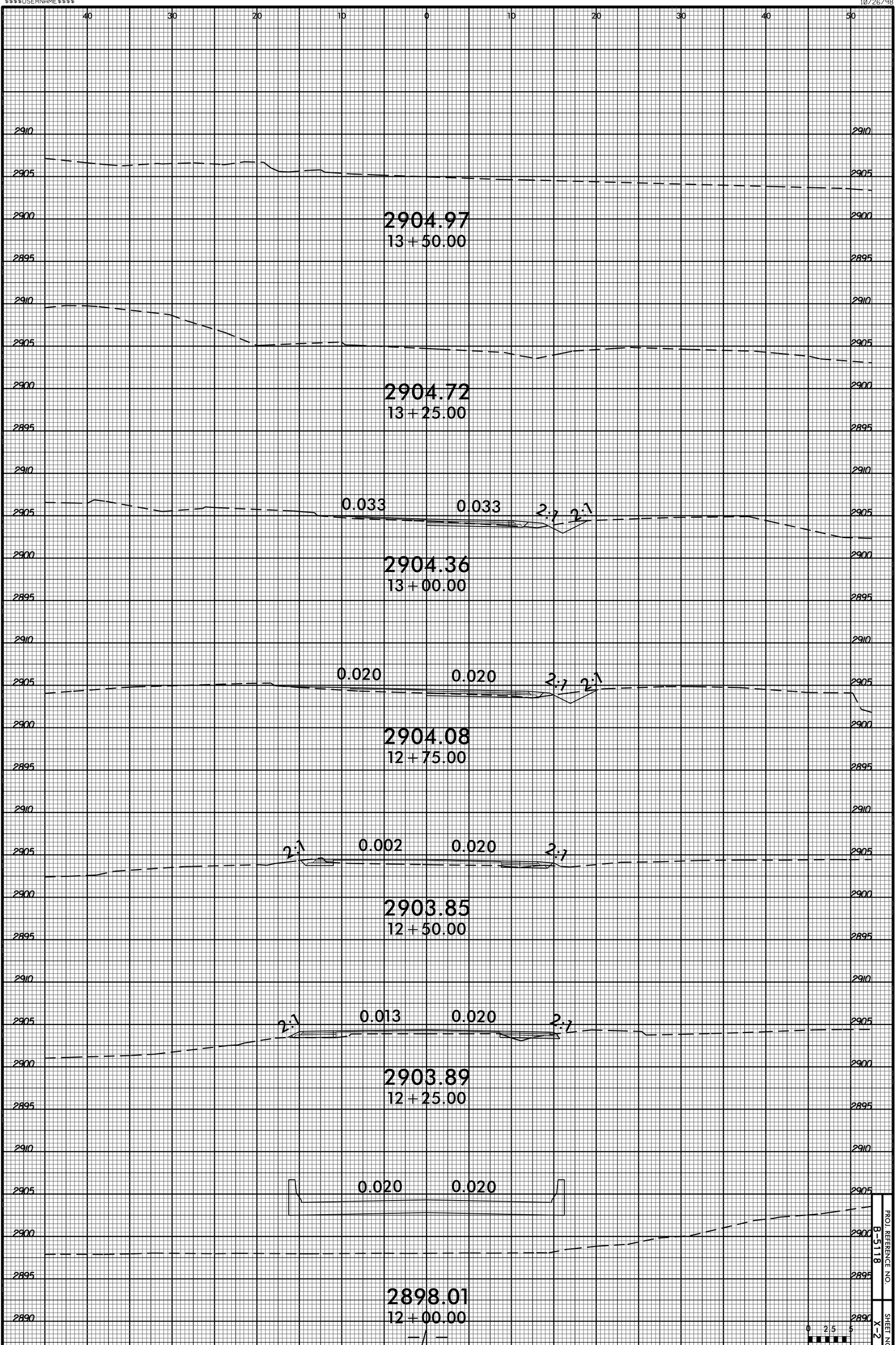


PROJ. REFERENCE NO.
B-5118

SHEET NO.
X-1

0 2.5 5



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SHEET NO.
X-2