



PAT McCRORY  
Governor

NICHOLAS J. TENNYSON  
Secretary

November 15, 2016

N.C. Dept. of Environmental Quality  
Division of Water Resources  
1617 Mail Service Center  
Raleigh, NC 27699-1617

ATTN: Rob Ridings  
NCDOT Coordinator

Subject: **Application for Section 401 Water Quality Certification, and Neuse Buffer Authorization** for the Proposed Replacement of Bridge No. 11 over Mill Creek on SR 1201 (Richardson Bridge Rd.) in Johnston County, North Carolina; TIP No. B-4771; Federal Aid Project No. BRZ-1200(6); Debit \$240 from WBS No. 38543.1.1

Dear Sir,

The North Carolina Department of Transportation (NCDOT) proposes to replace the existing 161-foot bridge no. 16 with a 175-foot bridge, on the existing alignment. Traffic will be maintained on an offsite detour during construction.

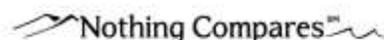
Please see enclosed copies of the Pre-Construction Notification (PCN), permit drawings, stormwater management plan, utility narrative, and design plans for the above referenced project.

This project calls for a letting date of May 16, 2017 and a review date of March 28, 2017. The project schedule may be advanced if funding becomes available.

### **Regulatory Approvals**

Section 404 Permit: The project's environmental documentation was processed as a Categorical Exclusion. However, we anticipate that the bridge replacement, including all approach work will be authorized under a Section 404 Nationwide Permit (NWP) 3 (Maintenance) in accordance with Section 404 of the Clean Water Act (33 U.S.C. 1344). We are not requesting written approval from the U.S. Army Corps of Engineers, but are providing this application to them as a notice of use of NWP 3.

Section 401 Permit: We anticipate 401 General Certification number 3883 will apply to this project. NCDOT is requesting written concurrence from the North Carolina Department of Environmental Quality, Division of Water Resources.



Neuse River Buffer Rule Authorization: NCDOT requests that the proposed work be authorized under the Neuse River Buffer rules. Authorization to debit the \$240 Permit Application Fee from WBS Element 38543.1.1 is hereby given.

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 Programmatic Categorical Exclusion (PCE) was completed for this project in May 2016. A copy of the PCE 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 Gordon Cashin at either [gcashin@ncdot.gov](mailto:gcashin@ncdot.gov) or (919) 707-6107.

Sincerely,



for Philip S. Harris III, P.E., C.P.M, Manager  
Natural Environment Section

cc: NCDOT Permit Application Standard Distribution List



Office Use Only:  
 Corps action ID no. \_\_\_\_\_  
 DWQ project no. \_\_\_\_\_  
 Form Version 1.4 January 2009

## Pre-Construction Notification (PCN) Form

### A. Applicant Information

#### 1. Processing

1a. Type(s) of approval sought from the Corps:	<input type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 3 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply):		
<input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <span style="margin-left: 100px;"><input type="checkbox"/> Non-404 Jurisdictional General Permit</span> <input type="checkbox"/> 401 Water Quality Certification – Express <span style="margin-left: 100px;"><input checked="" type="checkbox"/> Riparian Buffer Authorization</span>		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	For the record only for Corps Permit: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

#### 2. Project Information

2a. Name of project:	Replacement of Bridge No. 11 over Mill Creek on SR 1201
2b. County:	Johnston
2c. Nearest municipality / town:	Four Oaks
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	B-4771

#### 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) 707-6107
3g. Fax no.:	(919) 212-5785
3h. Email address:	gcashin@ncdot.gov

<b>4. Applicant Information (if different from owner)</b>	
4a. Applicant is:	<input type="checkbox"/> Agent <input type="checkbox"/> 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:	
<b>5. Agent/Consultant Information (if applicable)</b>	
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>B. Project Information and Prior Project History</b>	
<b>1. Property Identification</b>	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 35.341866 (DD.DDDDDD) Longitude: - 78.216246 (-DD.DDDDDD)
1c. Property size:	7.1 acres
<b>2. Surface Waters</b>	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Mill Creek
2b. Water Quality Classification of nearest receiving water:	C, NSW
2c. River basin:	Neuse
<b>3. Project Description</b>	
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 study area includes the existing roadway and bridge and adjacent rural land.	
3b. List the total estimated acreage of all existing wetlands on the property: 0.9 acres (from Table 6 in NRTR)	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 434 feet (from Table 5 in the NRTR)	
3d. Explain the purpose of the proposed project: To replace a deteriorated bridge	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 161-foot bridge with a 175-foot bridge on the existing alignment with an off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.	
<b>4. Jurisdictional Determinations</b>	
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:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input type="checkbox"/> 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.	
<b>5. Project History</b>	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
5b. If yes, explain in detail according to "help file" instructions.	
<b>6. Future Project Plans</b>	
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6b. If yes, explain.	

<b>C. Proposed Impacts Inventory</b>						
<b>1. Impacts Summary</b>						
1a. Which sections were completed below for your project (check all that apply):						
<input checked="" type="checkbox"/> Wetlands		<input checked="" type="checkbox"/> Streams - tributaries		<input checked="" type="checkbox"/> Buffers		
<input type="checkbox"/> Open Waters		<input type="checkbox"/> Pond Construction				
<b>2. Wetland Impacts</b>						
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	2f. Area of impact (acres)	
Site 1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
<b>2g. Total wetland impacts</b>						
2h. Comments: There will be <0.01 ac of hand clearing. See Wetland Permit Impact Summary sheet for details						
<b>3. Stream Impacts</b>						
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 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
<b>3h. Total stream and tributary impacts</b>						
3i. Comments: Mill Creek, Interior bents impact <0.01 acre						

**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 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
<b>4f. Total open water impacts</b>				

4g. Comments:

**5. Pond or Lake Construction**

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

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

5g. Comments:

5h. Is a dam high hazard permit required?	<input type="checkbox"/> Yes <input type="checkbox"/> 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?		<input checked="" type="checkbox"/> Neuse <input type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Other: <input type="checkbox"/> Catawba <input type="checkbox"/> Randleman			
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 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Bridge	Mill Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	3,766	1,021
B1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Roadway Construction	Mill Creek	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		292
U1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
U2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No		
<b>6h. Total buffer impacts</b>				3,766	1,313
6i. Comments: *See Buffer Impact Summary sheet					

<b>D. Impact Justification and Mitigation</b>		
<b>1. Avoidance and Minimization</b>		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. Wetland impacts were reduced through design refinements. Design Standards in Sensitive Watersheds will be followed during construction.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. Best Management Practices for Construction and Maintenance Activities will be used.		
<b>2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State</b>		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Types of impacts proposed do not require compensatory mitigation.	
2b. If yes, mitigation is required by (check all that apply):	<input type="checkbox"/> DWQ <input type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input type="checkbox"/> Payment to in-lieu fee program <input type="checkbox"/> Permittee Responsible Mitigation	
<b>3. Complete if Using a Mitigation Bank</b>		
3a. Name of Mitigation Bank: not applicable		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
<b>4. Complete if Making a Payment to In-lieu Fee Program</b>		
4a. Approval letter from in-lieu fee program is attached.	<input type="checkbox"/> Yes	
4b. Stream mitigation requested:	linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> cold	
4d. Buffer mitigation requested (DWQ only):	square feet	
4e. Riparian wetland mitigation requested:		
4f. Non-riparian wetland mitigation requested:	acres	
4g. Coastal (tidal) wetland mitigation requested:	acres	
4h. Comments:		
<b>5. Complete if Using a Permittee Responsible Mitigation Plan</b>		
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	
<b>6f. Total buffer mitigation required:</b>				

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:

<b>E. Stormwater Management and Diffuse Flow Plan (required by DWQ)</b>	
<b>1. Diffuse Flow Plan</b>	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: See attached buffer permit drawings.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>2. Stormwater Management Plan</b>	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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?	<input type="checkbox"/> Certified Local Government <input type="checkbox"/> DWQ Stormwater Program <input checked="" type="checkbox"/> DWQ 401 Unit
<b>3. Certified Local Government Stormwater Review</b>	
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):	<input type="checkbox"/> Phase II <input type="checkbox"/> NSW <input type="checkbox"/> USMP <input type="checkbox"/> Water Supply Watershed <input type="checkbox"/> Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>4. DWQ Stormwater Program Review</b>	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Coastal counties <input type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <input type="checkbox"/> Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A
<b>5. DWQ 401 Unit Stormwater Review</b>	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A
5b. Have all of the 401 Unit submittal requirements been met?	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A

<b>F. Supplementary Information</b>	
<b>1. Environmental Documentation (DWQ Requirement)</b>	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>2. Violations (DWQ Requirement)</b>	
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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2b. Is this an after-the-fact permit application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
<b>3. Cumulative Impacts (DWQ Requirement)</b>	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.	
<b>4. Sewage Disposal (DWQ Requirement)</b>	
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	

<b>5. Endangered Species and Designated Critical Habitat (Corps Requirement)</b>		
5a. Will this project occur in or near an area with federally protected species or habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input type="checkbox"/> Raleigh	<input type="checkbox"/> Asheville
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS website, field surveys. All species No Effect.		
<b>6. Essential Fish Habitat (Corps Requirement)</b>		
6a. Will this project occur in or near an area designated as essential fish habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
<b>7. Historic or Prehistoric Cultural Resources (Corps Requirement)</b>		
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)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
<b>8. Flood Zone Designation (Corps Requirement)</b>		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> 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 <u>Philip S. Harris III, P.E.</u> Applicant/Agent's Printed Name	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	<u>11-15-2016</u> Date



**North Carolina Department of Transportation**  
**Highway Stormwater Program**  
**STORMWATER MANAGEMENT PLAN**  
 FOR NCDOT PROJECTS



(Version 2.06; Released June 2016)

**WBS Element:** 38543.1.1      **TIP No.:** B-4771      **County(ies):** Johnston      **Page** 1 **of** 1

**General Project Information**

<b>WBS Element:</b>	38543.1.1	<b>TIP Number:</b>	B-4771	<b>Project Type:</b>	Bridge Replacement	<b>Date:</b>	9/20/2016
<b>NCDOT Contact:</b>	Paul Atkinson, PE			<b>Contractor / Designer:</b>	TGS Engineers (David B. Petty, PE)		
	<b>Address:</b>	1590 Mail Service Center Raleigh, NC 27699-1590			<b>Address:</b>	706 Hillsborough Street Suite 200 Raleigh, NC 27603	
	<b>Phone:</b>	919-707-6707			<b>Phone:</b>	919-773-8887 (Ext. 104)	
	<b>Email:</b>	patkinson@ncdot.gov			<b>Email:</b>	dpetty@tgsengineers.com	
<b>City/Town:</b>	Four Oaks			<b>County(ies):</b>	Johnston		
<b>River Basin(s):</b>	Neuse			<b>CAMA County?</b>	No		
<b>Wetlands within Project Limits?</b>	Yes						

**Project Description**

<b>Project Length (lin. miles or feet):</b>	500 ft.	<b>Surrounding Land Use:</b>	Forest, Cropland, Rural Residential					
	<b>Proposed Project</b>			<b>Existing Site</b>				
<b>Project Built-Up Area (ac.)</b>	0.3	ac.	0.3	ac.				
<b>Typical Cross Section Description:</b>	Two 12' wide paved travel lanes w/ shoulders paved to face of guardrails (varies 0' to 5') and 3' wide grassed shoulders behind guardrail. Outside of guardrails are 3' wide grassed shoulders and 3(H):1(V) to 12.5(H):1(V) grassed side slopes.			Two 12' wide paved travel lanes with 2' to 4' wide grassed shoulders and grassed side slopes ranging from about 4(H):1(V) to 3(H):1(V).				
<b>Annual Avg Daily Traffic (veh/hr/day):</b>	<b>Design/Future:</b>	618	<b>Year:</b>	2037	<b>Existing:</b>	441	<b>Year:</b>	2017

**General Project Narrative:**  
**(Description of Minimization of Water Quality Impacts)**

Replacement of Bridge No. 500011 on SR 1201 (Richardson Bridge Road) over Mill Creek (Moorewood Pond) in Johnston County southeast of Four Oaks, NC. Proposed 175' long by 33' wide triple-span bridge to replace existing 161' long by 25' wide quadruple-span bridge. The proposed grade is about 0.5' above existing ground in the vicinity of the bridge. The proposed bridge will have no direct discharge into the water or buffers. Stormwater runoff on the existing bridge discharges directly into the water for the full length of the bridge. Stormwater runoff from the proposed bridge is to flow to two (2) proposed drop inlets at the north approach and to two (2) proposed drop inlets at the south approach. Discharge from the pipe outlets will be attenuated on riprap pads outside of the buffer zones and be fully diffused by the existing topographic conditions before sheet flowing toward the buffer zones. Deck drains will not be installed. Stormwater runoff will be discharged at minimum practicable slopes, yielding minimum velocities. Hand clearing in wetlands within proposed right of way due to bridge replacement.

**Waterbody Information**

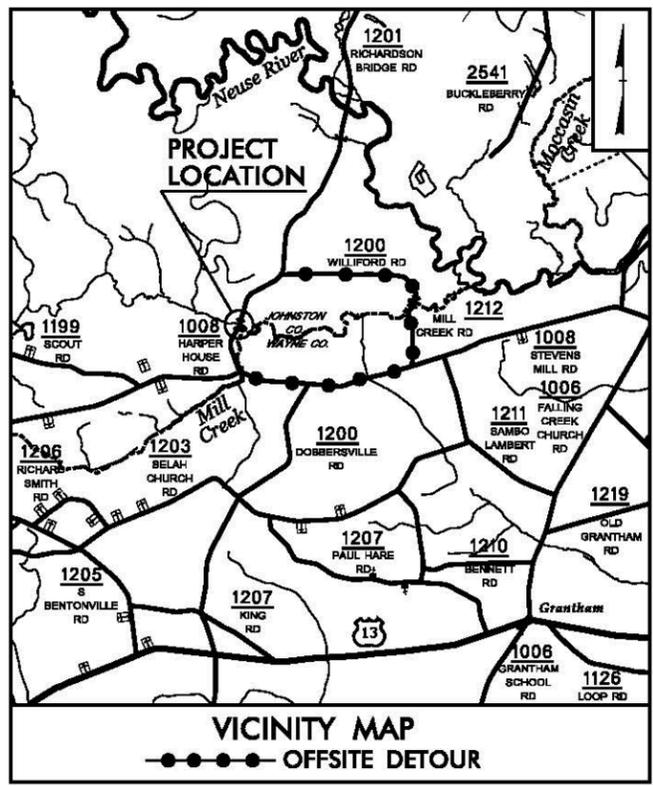
<b>Surface Water Body (1):</b>	Mill Creek (Moorewood Pond)		<b>NCDWR Stream Index No.:</b>	27-52-(1)			
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>	Class C					
	<b>Supplemental Classification:</b>	Nutrient Sensitive Waters (NSW)					
<b>Other Stream Classification:</b>	None						
<b>Impairments:</b>	None						
<b>Aquatic T&amp;E Species?</b>	No	<b>Comments:</b>					
<b>NRTR Stream ID:</b>	N/A		<b>Buffer Rules in Effect:</b>		Neuse		
<b>Project Includes Bridge Spanning Water Body?</b>	Yes	<b>Deck Drains Discharge Over Buffer?</b>	No	<b>Dissipator Pads Provided in Buffer?</b>		No	
<b>Deck Drains Discharge Over Water Body?</b>	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

09/05/14

TIP PROJECT: B-4771

CONTRACT: C203903

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



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**JOHNSTON COUNTY**

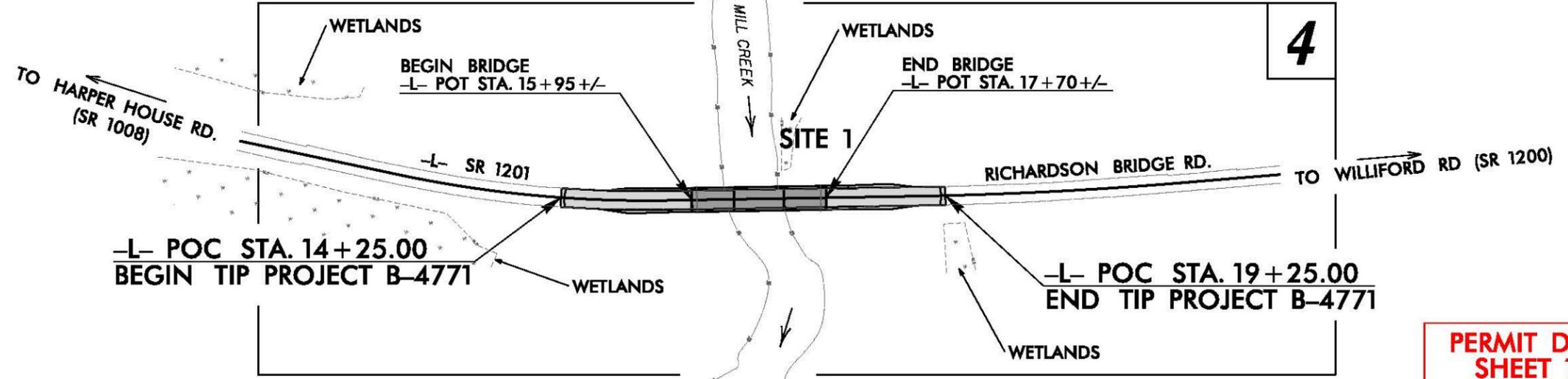
LOCATION: REPLACE BRIDGE #11 OVER MILL CREEK  
ON SR 1201 (RICHARDSON BRIDGE RD.)

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING

**PERMIT DRAWINGS**  
**STREAM AND WETLAND IMPACTS**  
**DUE TO ROADWAY/BRIDGE**  
**OCTOBER 14, 2016**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4771	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38543.1.1	BRZ-1200(6)	PE	
38543.2.1		RW, UTL.	

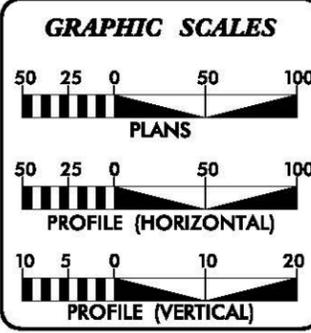
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



**PERMIT DRAWING**  
**SHEET 1 OF 5**

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.  
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION



**DESIGN DATA**

ADT 2017 =	441
ADT 2037 =	618
K =	11 %
D =	55 %
T =	13 % *
V =	60 MPH
* (TTST 4% + DUAL 9%)	
FUNCT CLASS = MINOR COLLECTOR	
SUB-REGIONAL TIER DESIGN	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4771	=	0.062 mile +/-
LENGTH STRUCTURES TIP PROJECT B-4771	=	0.033 mile +/-
TOTAL LENGTH TIP PROJECT B-4771	=	0.095 mile +/-

Prepared For:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC, 27610

By:  
TGS ENGINEERS  
706 HILLSBOROUGH ST  
SUITE 200  
RALEIGH, NC 27603

PH (919) 773-8887  
CORP. LICENSE NO.: C-0275

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
OCTOBER 21, 2016

LETTING DATE:  
MAY 16, 2017

BURKE EVANS, PE  
PROJECT ENGINEER

TRAVIS COOK, EI  
PROJECT DESIGN ENGINEER

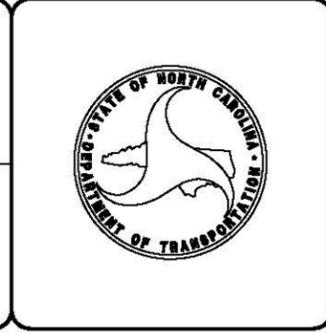
GARY LOVERING, PE  
PROJECT ENGINEER  
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.



10/14/2016 X:\NCDOT\B-4771\Hydraulics\PERMITS\Environmental\Drawings\B-4771\Hyd.prm\_wet\_tsh.dgn User:rsrjchard



**WETLAND IMPACTS**

Hand Clearing  
in Wetlands

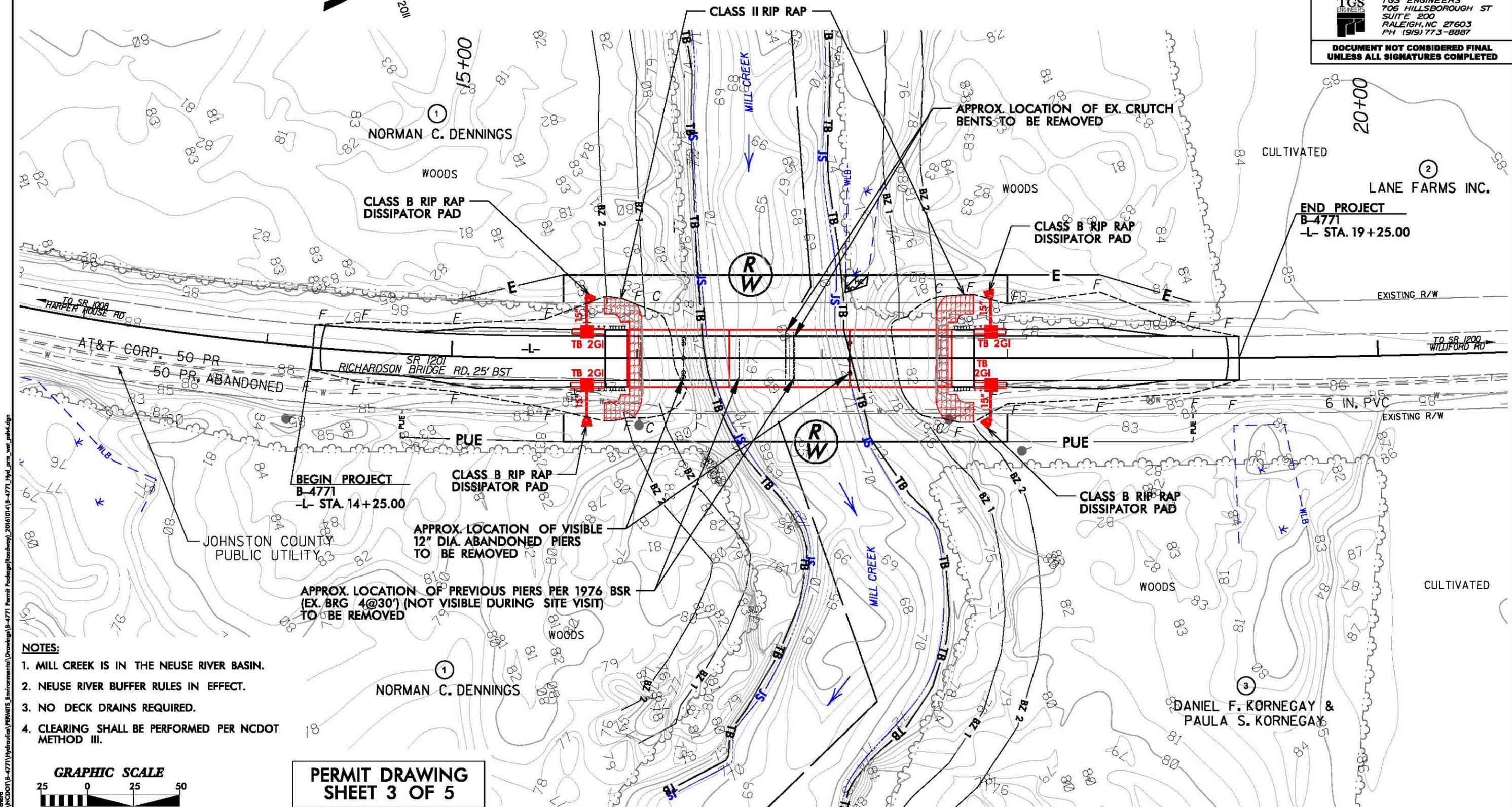
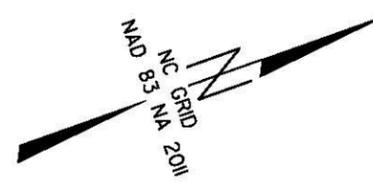


EXISTING BRIDGE DIMENSIONS 161' X 25' (QUADRUPLE-SPAN), 90 DEG. SKEW  
PROPOSED BRIDGE DIMENSIONS 175' X 33' (TRIPLE-SPAN), 90 DEG. SKEW  
TOTAL PROJECT LENGTH - 500'

**PERMIT DRAWINGS  
FOR B-4771  
JOHNSTON COUNTY  
BRIDGE #500011**

PROJECT REFERENCE NO. B-4771	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>TGS ENGINEERS</b> 706 HILLSBOROUGH ST SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**STREAM AND WETLAND IMPACTS**



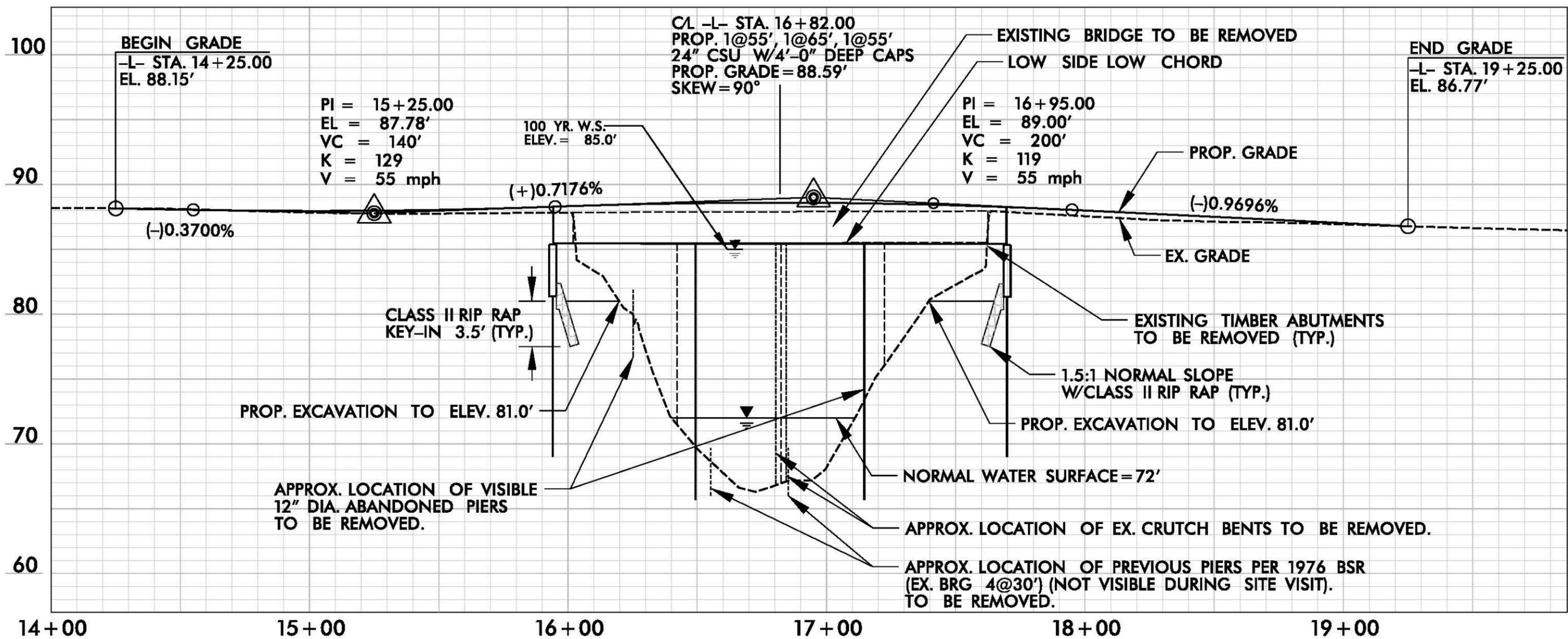
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- NOTES:**
1. MILL CREEK IS IN THE NEUSE RIVER BASIN.
  2. NEUSE RIVER BUFFER RULES IN EFFECT.
  3. NO DECK DRAINS REQUIRED.
  4. CLEARING SHALL BE PERFORMED PER NCDOT METHOD III.



**PERMIT DRAWING  
SHEET 3 OF 5**

9/26/2016  
 legay  
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**STRUCTURE HYDRAULIC DATA**

DESIGN DISCHARGE	= 5,600	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 83.9	FT
BASE DISCHARGE	= 8,100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 85.0	FT
OVERTOPPING DISCHARGE	= 8,000	CFS
OVERTOPPING FREQUENCY	= 50+	YRS
OVERTOPPING ELEVATION	= 84.8*	FT

\*OVERTOPPING ELEVATION REPRESENTS LOWEST TOPO ELEV. THAT ALLOWS WATER TO GET TO LOWER WOODS LINE ELEVATIONS (2000' NORTH OF BRIDGE).

**PROFILE**

**PERMIT DRAWING SHEET 4 OF 5**

**PERMIT DRAWINGS  
 FOR B-4771  
 JOHNSTON COUNTY  
 BRIDGE #500011**

**NCDOT**  
 DIVISION OF HIGHWAYS  
 JOHNSTON COUNTY  
 PROJECT: 38543.1.1 (B-4771)  
 REPLACEMENT OF BRIDGE NO. 500011  
 ON SR 1201 (RICHARDSON BRIDGE RD)  
 OVER MILL CREEK

**WETLAND PERMIT IMPACT SUMMARY**

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	17+12 LT to 17+25 LT	Roadway/Bridge					< 0.01					
<b>TOTALS*:</b>							< 0.01			0	0	0

\*Rounded totals are sum of actual impacts

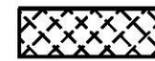
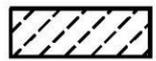
NOTES:  
 <0.01 acres of Permanent SW impacts for both interior bents at 16+50 & 17+15.

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 9/20/2016  
 JOHNSTON  
 PROJECT: 38543.1.1 (B-4771)  
  
 SHEET 5 OF 5



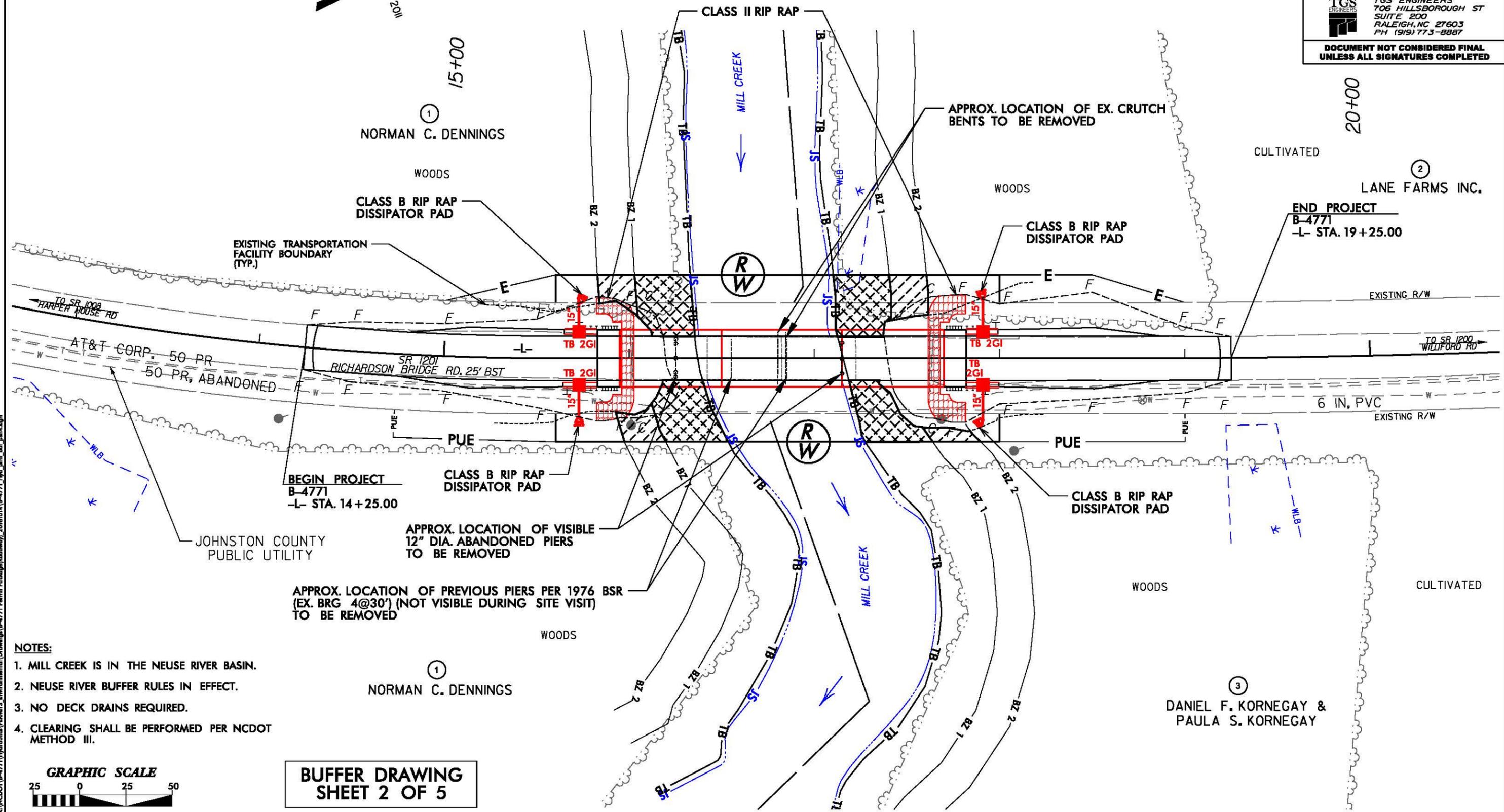
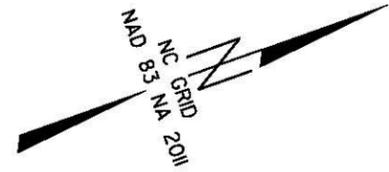
**PERMIT DRAWINGS  
FOR B-4771  
JOHNSTON COUNTY  
BRIDGE #500011**

PROJECT REFERENCE NO. B-4771	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH ST SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

Buffer Zone (BZ) Impacts	
Area of Allowable Impacts within BZ1	Area of Allowable Impacts within BZ2
	

EXISTING BRIDGE DIMENSIONS 161' X 25' (QUADRUPLE-SPAN), 90 DEG. SKEW  
 PROPOSED BRIDGE DIMENSIONS 175' X 33' (TRIPLE-SPAN), 90 DEG. SKEW  
 TOTAL PROJECT LENGTH - 500'

**BUFFER IMPACTS**



**BEGIN PROJECT**  
B-4771  
-L- STA. 14+25.00

**END PROJECT**  
B-4771  
-L- STA. 19+25.00

**APPROX. LOCATION OF PREVIOUS PIERS PER 1976 BSR (EX. BRG 4@30') (NOT VISIBLE DURING SITE VISIT) TO BE REMOVED**

**APPROX. LOCATION OF VISIBLE 12" DIA. ABANDONED PIERS TO BE REMOVED**

- NOTES:**
- MILL CREEK IS IN THE NEUSE RIVER BASIN.
  - NEUSE RIVER BUFFER RULES IN EFFECT.
  - NO DECK DRAINS REQUIRED.
  - CLEARING SHALL BE PERFORMED PER NCDOT METHOD III.



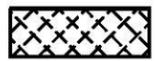
**BUFFER DRAWING  
SHEET 2 OF 5**

**DANIEL F. KORNEGAY &  
PAULA S. KORNEGAY**

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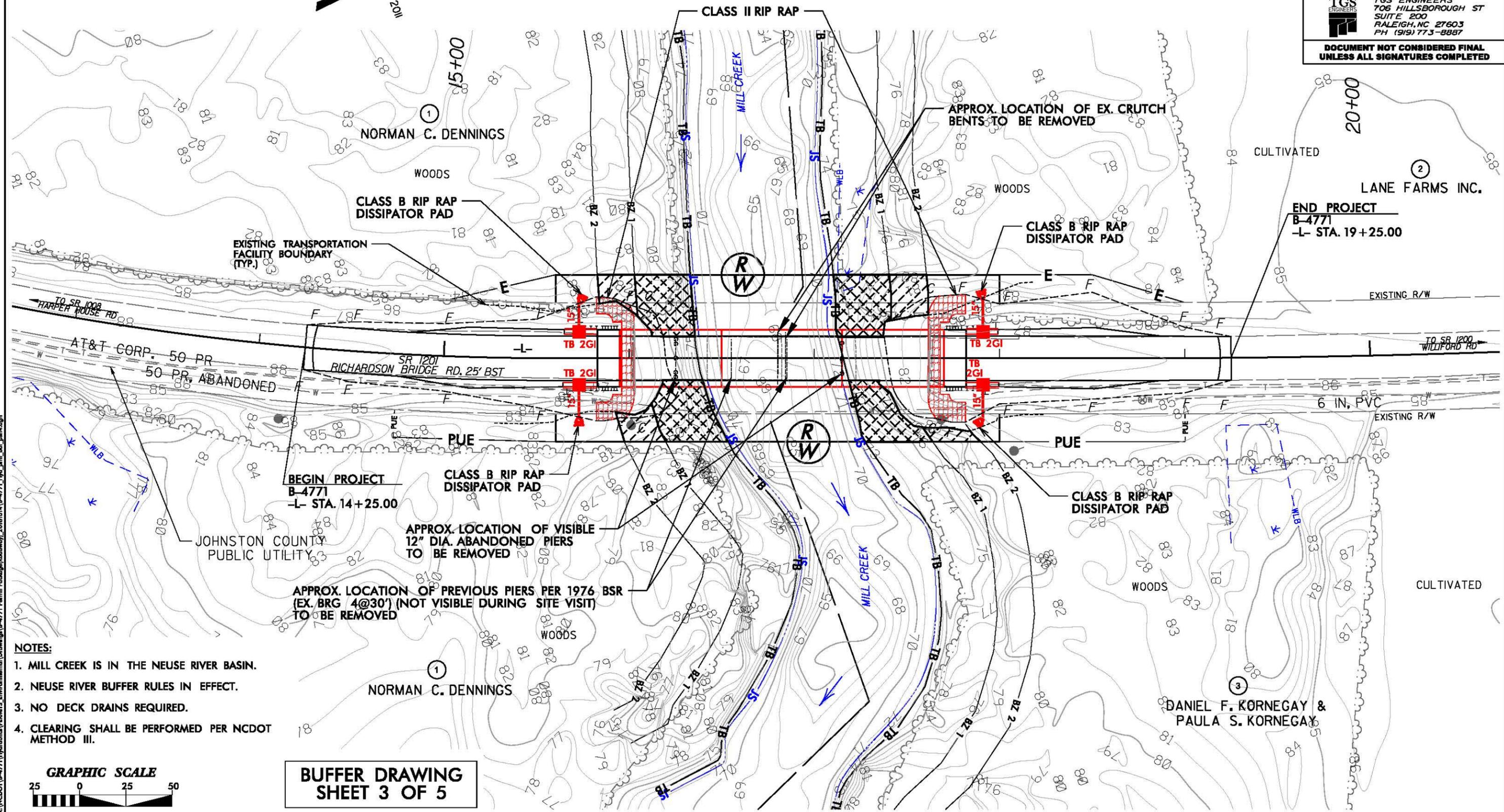
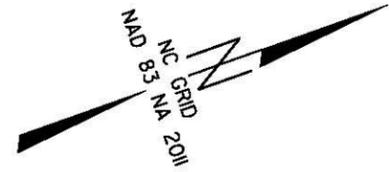
# PERMIT DRAWINGS FOR B-4771 JOHNSTON COUNTY BRIDGE #500011

PROJECT REFERENCE NO. B-4771	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH ST SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

Buffer Zone (BZ) Impacts	
Area of Allowable Impacts within BZ1	Area of Allowable Impacts within BZ2
	

EXISTING BRIDGE DIMENSIONS 161' X 25' (QUADRUPLE-SPAN), 90 DEG. SKEW  
 PROPOSED BRIDGE DIMENSIONS 175' X 33' (TRIPLE-SPAN), 90 DEG. SKEW  
 TOTAL PROJECT LENGTH - 500'

## BUFFER IMPACTS



- NOTES:**
- MILL CREEK IS IN THE NEUSE RIVER BASIN.
  - NEUSE RIVER BUFFER RULES IN EFFECT.
  - NO DECK DRAINS REQUIRED.
  - CLEARING SHALL BE PERFORMED PER NCDOT METHOD III.



**BUFFER DRAWING  
SHEET 3 OF 5**

10/14/2016  
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 B-4771\_Hyd\_perm\_buf\_psh4.dgn 10/14/2016 4:23:53 PM TGS

### BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft <sup>2</sup> )	ZONE 2 (ft <sup>2</sup> )
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft <sup>2</sup> )	ZONE 2 (ft <sup>2</sup> )	TOTAL (ft <sup>2</sup> )	ZONE 1 (ft <sup>2</sup> )	ZONE 2 (ft <sup>2</sup> )	TOTAL (ft <sup>2</sup> )		
1	Bridge	L 15+95 to 17+70		X		3766	1021	4787					
1	Roadway	L 15+83 to 17+90	X				292	292					
<b>TOTAL:</b>						3766.0	1313.0	5079.0	0.0	0.0	0.0		

NOTES:

N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS

JOHNSTON COUNTY  
PROJECT: 38543.1.1 (B-4771)

10/14/2016  
SHEET 4 OF 5



09/05/99

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**JOHNSTON COUNTY**

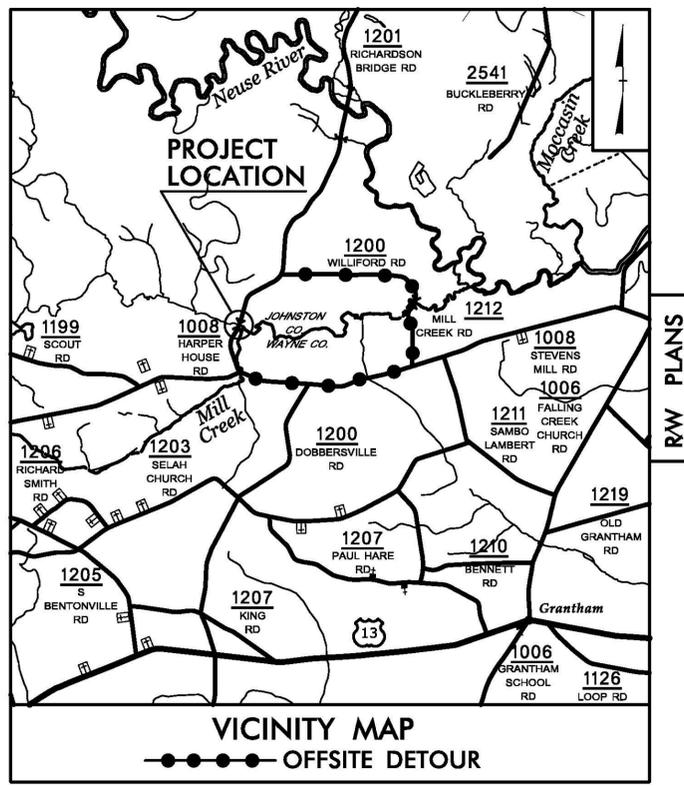
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4771	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38543.1.1	BRZ-1200(6)	PE	
38543.2.1		RW, UTL.	

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

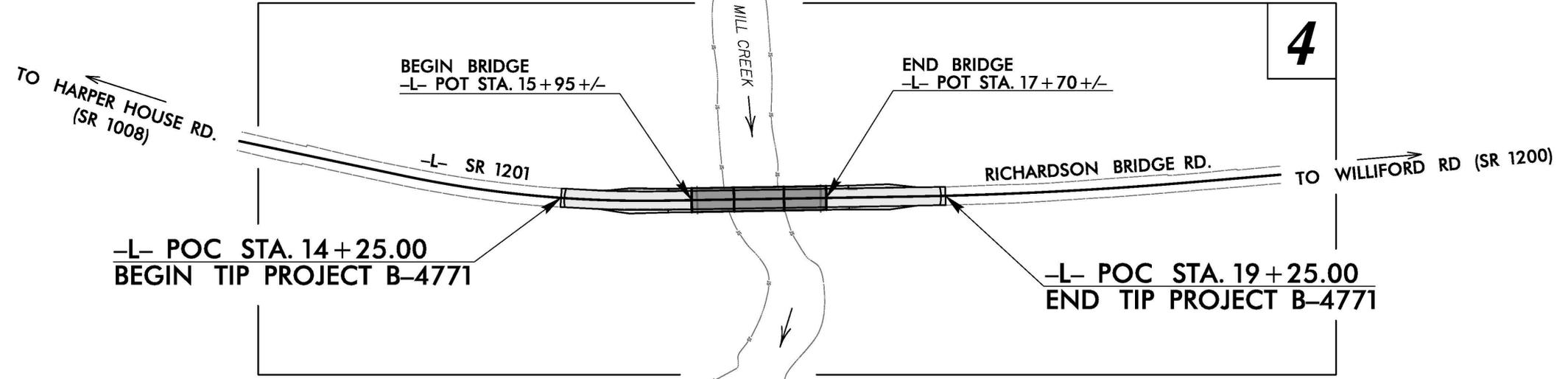
LOCATION: REPLACE BRIDGE #11 OVER MILL CREEK  
ON SR 1201 (RICHARDSON BRIDGE RD.)

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING

TIP PROJECT: B-4771

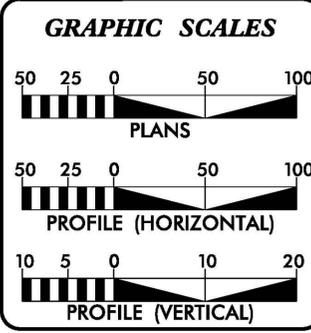


RAW PLANS



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.  
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

CONTRACT: C203903



**DESIGN DATA**

ADT 2017 =	441
ADT 2037 =	618
K =	11 %
D =	55 %
T =	13 % *
V =	60 MPH

\* (TTST 4% + DUAL 9%)  
FUNCT CLASS = MINOR COLLECTOR  
SUB-REGIONAL TIER DESIGN

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4771	=	0.062 mile +/-
LENGTH STRUCTURES TIP PROJECT B-4771	=	0.033 mile +/-
TOTAL LENGTH TIP PROJECT B-4771	=	0.095 mile +/-

Prepared For:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC, 27610

By:  
TGS ENGINEERS  
706 HILLSBOROUGH ST  
SUITE 200  
RALEIGH, NC 27603

PH (919) 773-8887  
CORP. LICENSE NO.: C-0275

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
OCTOBER 26, 2016

LETTING DATE:  
MAY 16, 2017

BURKE EVANS, PE  
PROJECT ENGINEER

TRAVIS COOK, EI  
PROJECT DESIGN ENGINEER

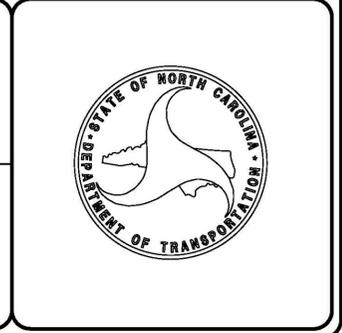
GARY LOVERING, PE  
PROJECT ENGINEER  
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.



10/26/2016  
X:\ncdot\B-4771\roadway\proj\B-4771\_Rdy\_TSH.dgn  
User:bevans

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

*Note: Not to Scale* \*S.U.E. = *Subsurface Utility Engineering*

04/05/15

### BOUNDARIES AND PROPERTY:

State Line	_____
County Line	_____
Township Line	_____
City Line	_____
Reservation Line	_____
Property Line	_____
Existing Iron Pin	○ <sub>IP</sub>
Property Corner	_____
Property Monument	□ <sub>ECM</sub>
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	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
Known Contamination Area: Soil	-X-X-
Potential Contamination Area: Soil	-X-X-
Known Contamination Area: Water	-X-X-
Potential Contamination Area: Water	-X-X-
Contaminated Site: Known or Potential	☠ ☡

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ <sub>S</sub>
Well	○ <sub>W</sub>
Small Mine	⊗
Foundation	□
Area Outline	□
Cemetery	□ <sub>+</sub>
Building	□ <sub>+</sub>
School	□ <sub>+</sub>
Church	□ <sub>+</sub>
Dam	_____

### HYDROLOGY:

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

### RAILROADS:

Standard Gauge	_____
RR Signal Milepost	○ <sub>MILEPOST 35</sub>
Switch	□ <sub>SWITCH</sub>
RR Abandoned	_____
RR Dismantled	_____

### RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	_____
Proposed Right of Way Line	_____
Proposed Right of Way Line with Iron Pin and Cap Marker	_____
Proposed Right of Way Line with Concrete or Granite RW Marker	_____
Proposed Control of Access Line with Concrete CA Marker	_____
Existing Control of Access	_____
Proposed Control of Access	_____
Existing Easement Line	_____
Proposed Temporary Construction Easement	_____
Proposed Temporary Drainage Easement	_____
Proposed Permanent Drainage Easement	_____
Proposed Permanent Drainage / Utility Easement	_____
Proposed Permanent Utility Easement	_____
Proposed Temporary Utility Easement	_____
Proposed Aerial Utility Easement	_____
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	○ <sub>CR</sub>
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	_____

### EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	_____
Bridge Wing Wall, Head Wall and End Wall	_____
MINOR:	
Head and End Wall	_____
Pipe Culvert	_____
Footbridge	_____
Drainage Box: Catch Basin, DI or JB	□ <sub>CB</sub>
Paved Ditch Gutter	_____
Storm Sewer Manhole	○ <sub>S</sub>
Storm Sewer	_____

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ <sub>P</sub>
Power Line Tower	□ <sub>X</sub>
Power Transformer	□ <sub>X</sub>
U/G Power Cable Hand Hole	_____
H-Frame Pole	_____
U/G Power Line LOS B (S.U.E.*)	_____
U/G Power Line LOS C (S.U.E.*)	_____
U/G Power Line LOS D (S.U.E.*)	_____

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ <sub>T</sub>
Telephone Pedestal	□ <sub>T</sub>
Telephone Cell Tower	_____
U/G Telephone Cable Hand Hole	_____
U/G Telephone Cable LOS B (S.U.E.*)	_____
U/G Telephone Cable LOS C (S.U.E.*)	_____
U/G Telephone Cable LOS D (S.U.E.*)	_____
U/G Telephone Conduit LOS B (S.U.E.*)	_____
U/G Telephone Conduit LOS C (S.U.E.*)	_____
U/G Telephone Conduit LOS D (S.U.E.*)	_____
U/G Fiber Optics Cable LOS B (S.U.E.*)	_____
U/G Fiber Optics Cable LOS C (S.U.E.*)	_____
U/G Fiber Optics Cable LOS D (S.U.E.*)	_____

### WATER:

Water Manhole	○ <sub>W</sub>
Water Meter	○
Water Valve	⊗
Water Hydrant	○ <sub>W</sub>
U/G Water Line LOS B (S.U.E.*)	_____
U/G Water Line LOS C (S.U.E.*)	_____
U/G Water Line LOS D (S.U.E.*)	_____
Above Ground Water Line	_____

### TV:

TV Pedestal	□ <sub>T</sub>
TV Tower	⊗
U/G TV Cable Hand Hole	_____
U/G TV Cable LOS B (S.U.E.*)	_____
U/G TV Cable LOS C (S.U.E.*)	_____
U/G TV Cable LOS D (S.U.E.*)	_____
U/G Fiber Optic Cable LOS B (S.U.E.*)	_____
U/G Fiber Optic Cable LOS C (S.U.E.*)	_____
U/G Fiber Optic Cable LOS D (S.U.E.*)	_____

### GAS:

Gas Valve	◇
Gas Meter	◇
U/G Gas Line LOS B (S.U.E.*)	_____
U/G Gas Line LOS C (S.U.E.*)	_____
U/G Gas Line LOS D (S.U.E.*)	_____
Above Ground Gas Line	_____

### SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	_____
Above Ground Sanitary Sewer	_____
SS Forced Main Line LOS B (S.U.E.*)	_____
SS Forced Main Line LOS C (S.U.E.*)	_____
SS Forced Main Line LOS D (S.U.E.*)	_____

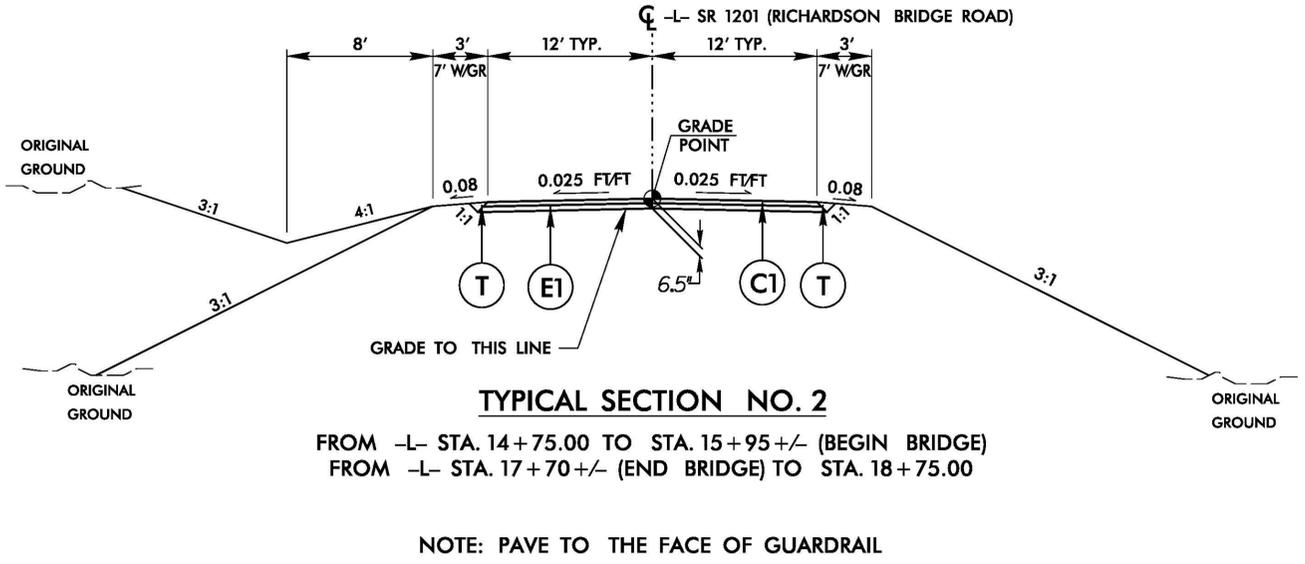
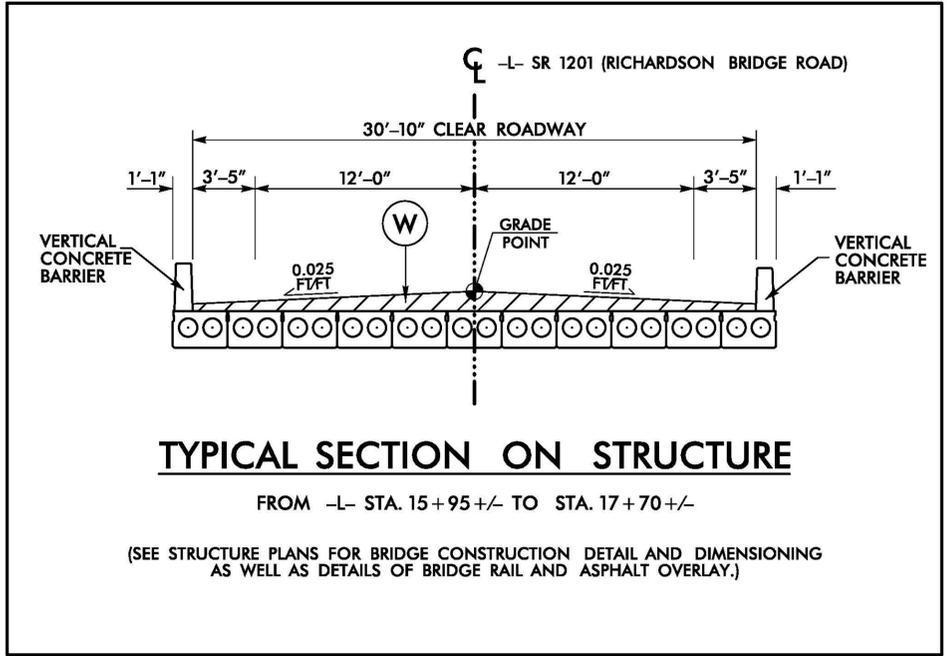
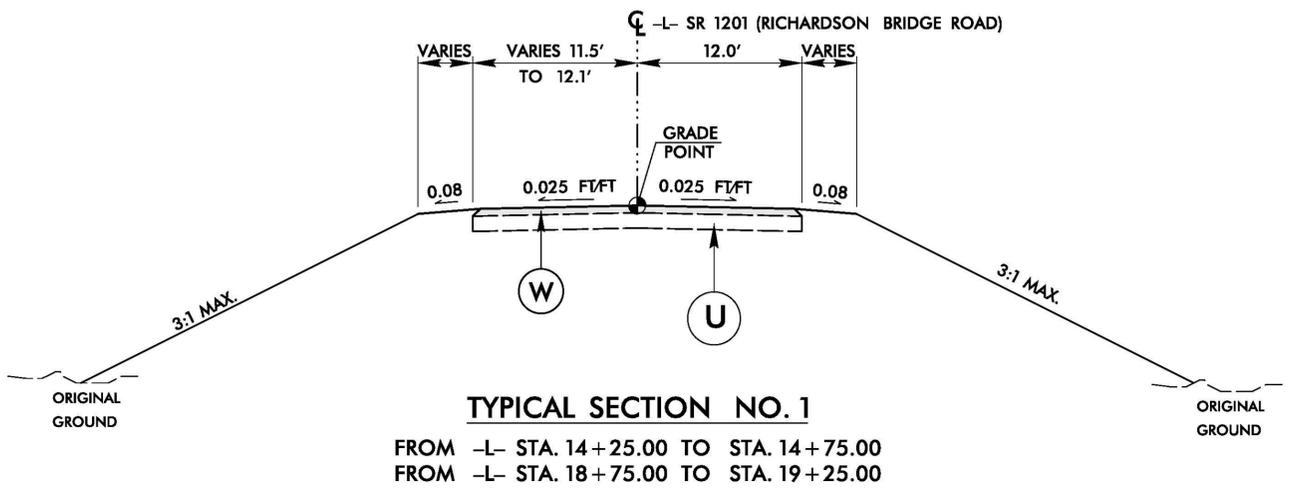
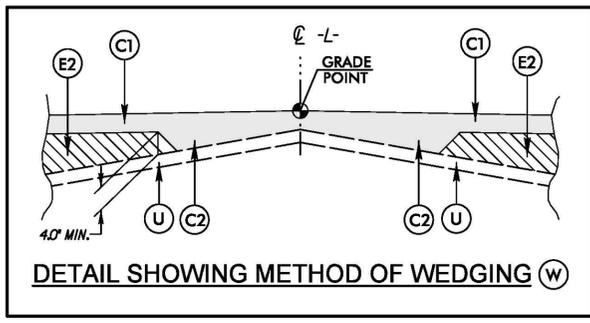
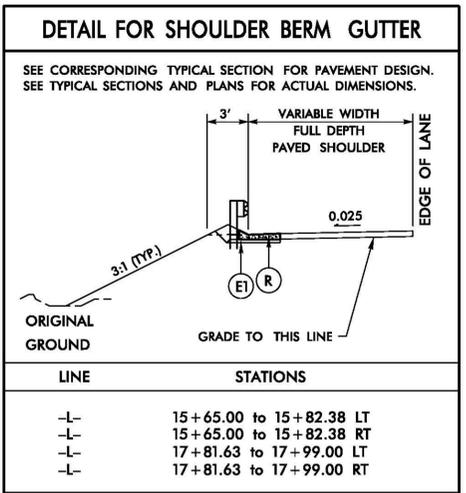
### MISCELLANEOUS:

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

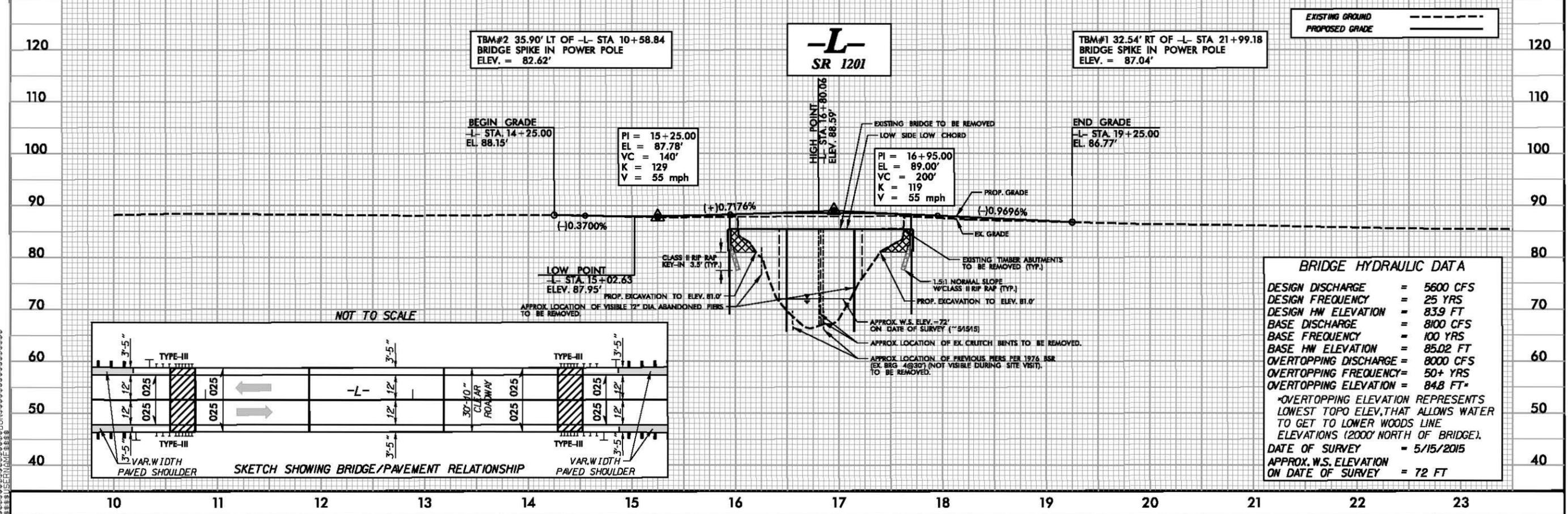
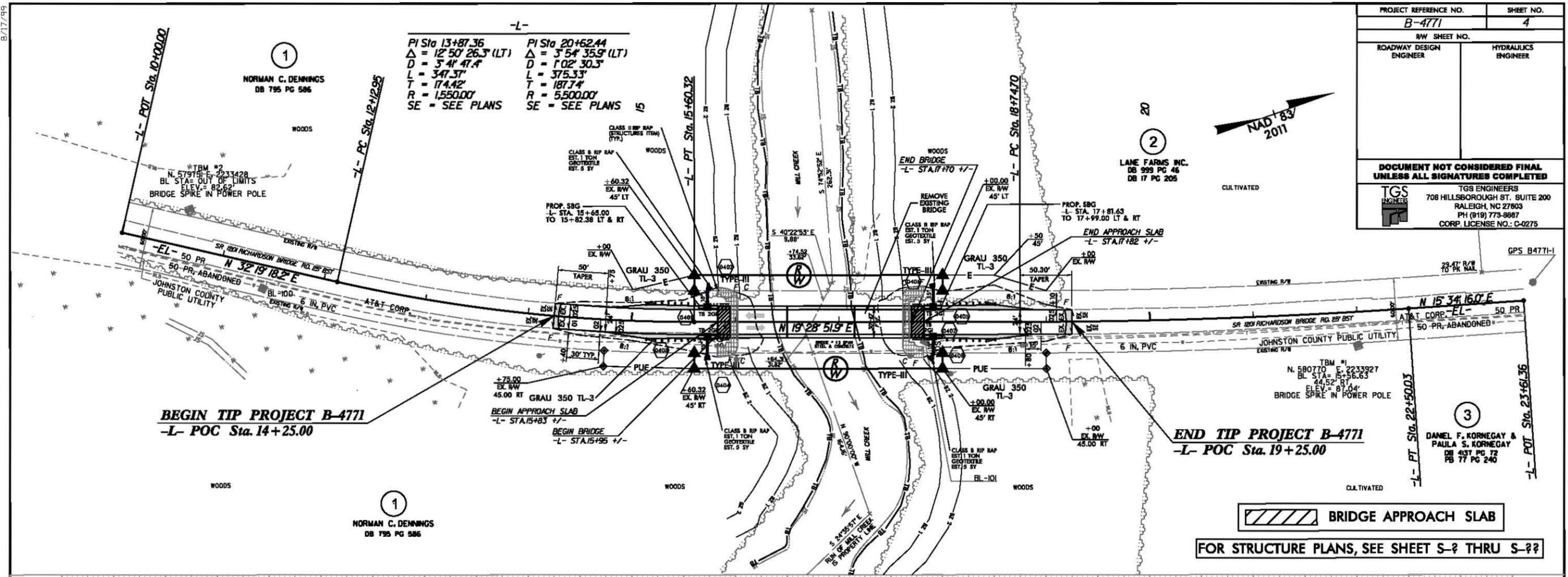
PROJECT REFERENCE NO. <b>B-4771</b>	SHEET NO. <b>2A-1</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN: OCTOBER 2, 2015	
<b>C1</b>	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS PER SQUARE YARD IN EACH OF TWO LAYERS.
<b>C2</b>	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS PER SQUARE YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.0" OR GREATER THAN 1.5" IN DEPTH.
<b>E1</b>	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS PER SQUARE YARD.
<b>E2</b>	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS PER SQUARE YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 4.0" OR GREATER THAN 5.5" IN DEPTH.
<b>R</b>	CONCRETE SHOULDER BERM GUTTER
<b>T</b>	EARTH MATERIAL
<b>U</b>	EXISTING PAVEMENT
<b>W</b>	WEDGING (VARIABLE DEPTH ASPHALT PAVEMENT, SEE DETAIL ON THIS SHEET)

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



PROJECT REFERENCE NO.	SHEET NO.
B-4771	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
TGS ENGINEERS 708 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

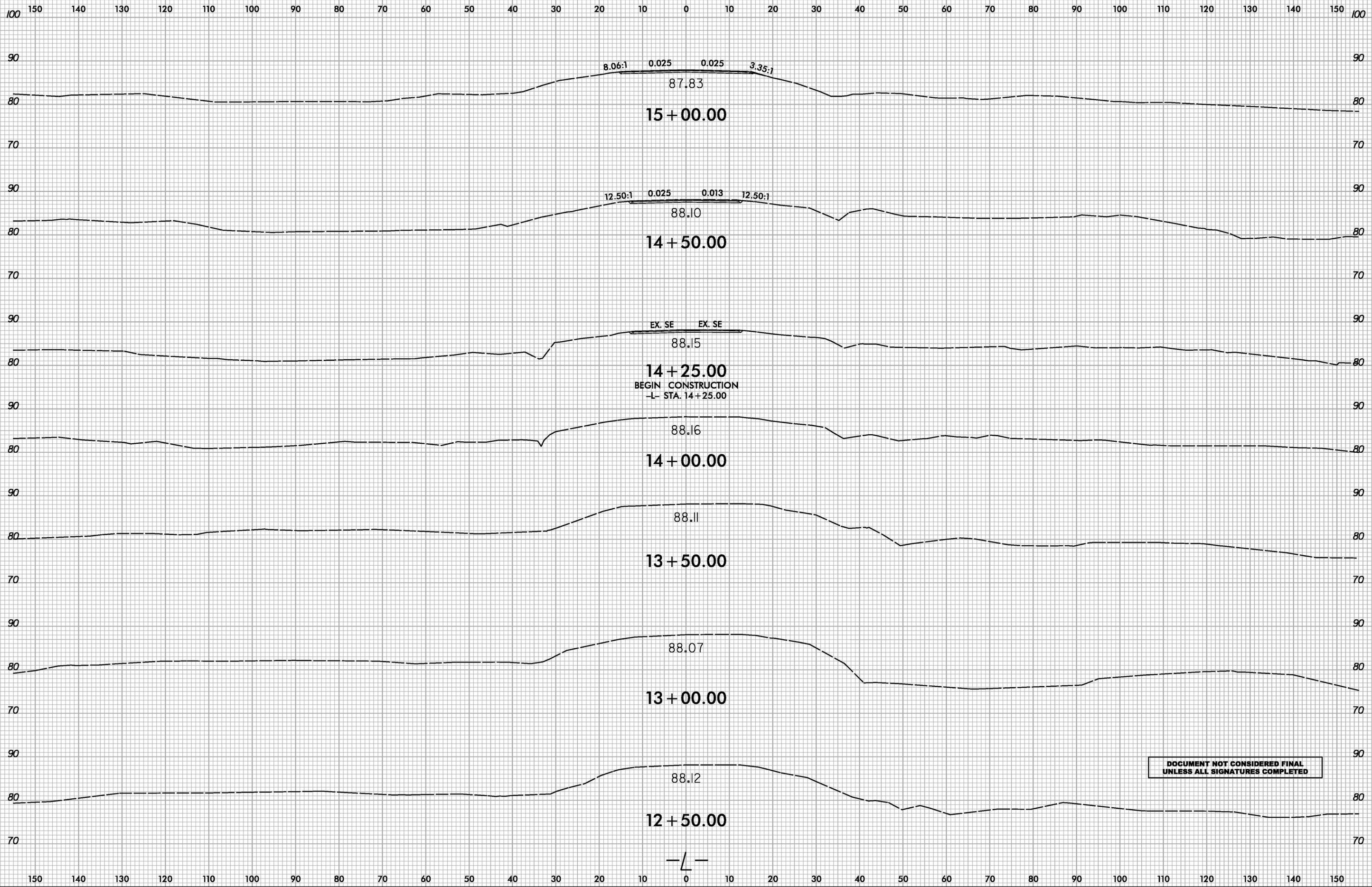


8/23/99



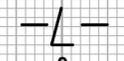
PROJ. REFERENCE NO.  
B-4771

SHEET NO.  
X-1



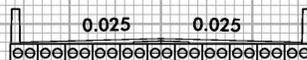
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

10/10/2016  
X:\ncdot\B-4771\roadway\corr.dormodeling\B-4771\_RDY\_XPL.dgn  
User:ldw@ncs



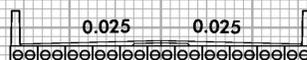
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END BRIDGE  
-L- STA. 17+70.00 +/-



82.26

17+50.00



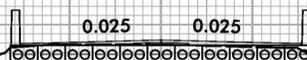
68.18

17+00.00



69.62

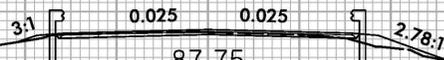
16+50.00



87.84

16+00.00

BEGIN BRIDGE  
-L- STA. 15+95.00 +/-



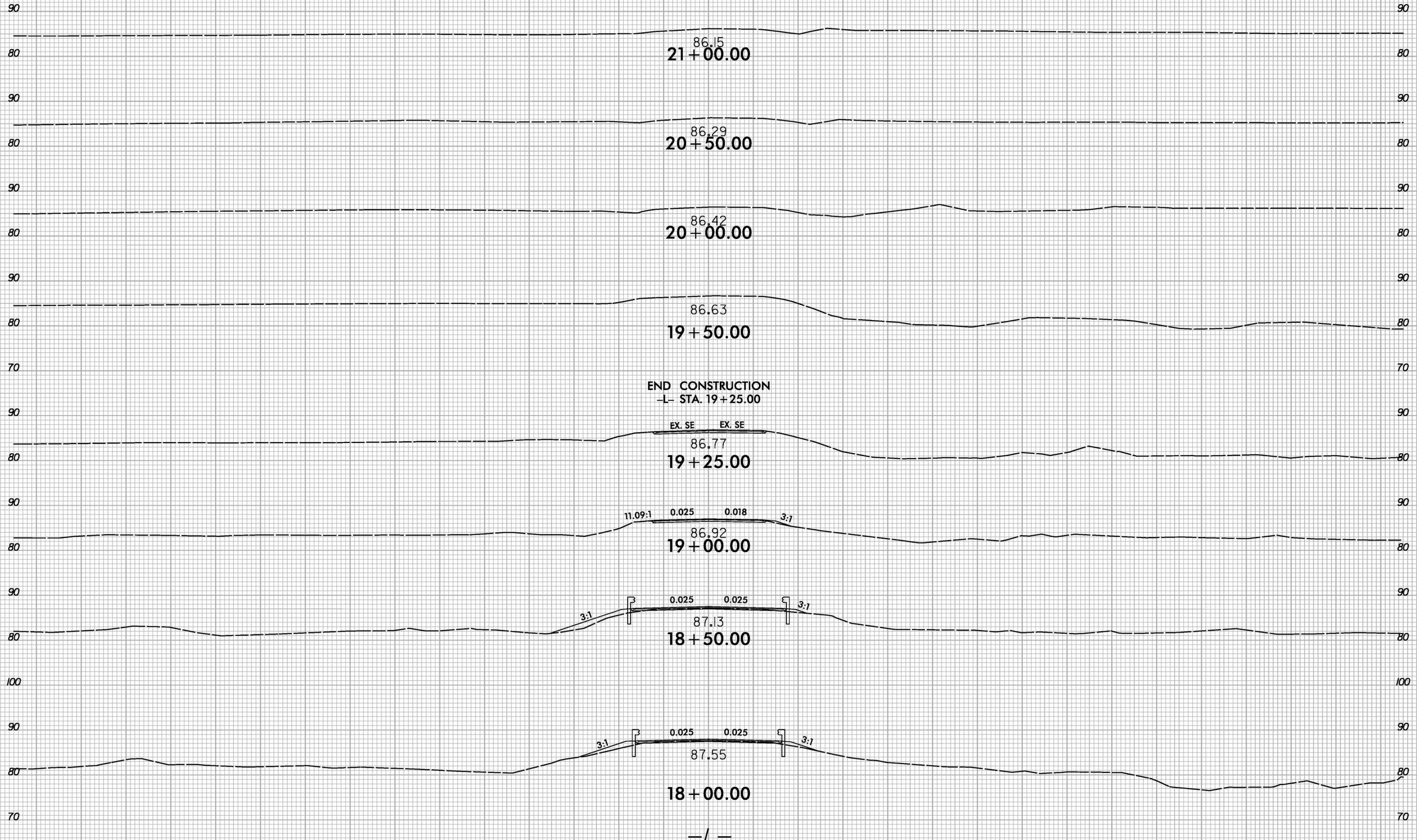
87.75

15+50.00

-L-

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

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



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