STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

July 25, 2017

N.C. Division of Water Resources
Wilmington Regional Office
127 Cardinal Drive Ext.
Wilmington, NC 28405

Attention: Joanne Steenhuis
NCDOT Coordinator

Subject: **Application for 401 Water Quality Certification and Notice of Use of Section 404 Nationwide Permit 3** for the replacement of Bridge No. 246 on SR 1718 over Black River in Harnett County. TIP No. B-5704. Debit $240 from WBS 45658.1.1.

Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace Harnett County Bridge No. 246 on SR 1718 (Erwin Road) over Black River. The purpose of this letter is to request approval of a Section 401 Water Quality Certification. In addition to this cover letter, this application package includes: Pre-Construction Notification (PCN) form, stormwater management plan, permit drawings, and roadway plans.

This project calls for a let date of January 16, 2016 and a review date of November 28, 2017.

Impacts to Jurisdictional Resources

The project will have no permanent surface water impacts. Proposed permanent wetland impacts are 0.08 acre.

Section 401: We are requesting a Section 401 Water Quality Certification from NCDWR and are providing this application for their approval. Authorization to debit the $240 Permit Application Fee from WBS Element 45658.1.1 is hereby given.

Section 404: As currently designed, this activity does not require written approval under USACE Nationwide 3 Permit.

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 March 2017. A copy of the PCE is also available at the above website address under Quick Links > Environmental Documents.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENT ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 212-5785
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Gordon Cashin at or (919) 707-6107.

Sincerely,

for Philip S. Harris III, P.E., CPM, Unit Head
Environmental Analysis Unit

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:	☐ Section 404 Permit ☐ 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?	☐ Yes	☒ No
1d. Type(s) of approval sought from the DWQ (check all that apply): ☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit ☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No	For the record only for Corps Permit: ☒ Yes ☐ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	☐ Yes	☒ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☐ Yes	☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes	☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge No. 246 on SR 1718 over Black River
2b. County:	Harnett
2c. Nearest municipality / town:	Dunn
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-5704

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) 707-6107
3g. Fax no.:	(919) 212-5785
3h. Email address:	gcashin@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: 35.315216	Longitude: -78.643246
1c. Property size:	7 acres	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Black River	
2b. Water Quality Classification of nearest receiving water:	C, Sw	
2c. River basin:	Cape Fear	
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 study area includes residential and forestland.		
3b. List the total estimated acreage of all existing wetlands on the property: 1.02 acres (from Table 6 of the 2013 NRTR)		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 250 feet (from Table 5 of the 2013 NRTR)		
3d. Explain the purpose of the proposed project: To replace a structurally deficient bridge.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing an existing bridge. Standard roadbuilding equipment will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	☐ Yes	☒ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary	☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): Chris Manley	Agency/Consultant Company: NCDOT Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes	☒ No ☐ Unknown
5b. If yes, explain in detail according to “help file” instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes	☒ No
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

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

☒ Wetlands ☐ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

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

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction	2f. Area of impact (acres)
Site 1 ☒ P ☐ T	Fill	Bottomland Hardwood	☒ Yes ☐ No	☒ Corps ☐ DWQ	Perm. 0.08
Site 2 ☒ P ☐ T	Fill	Bottomland Hardwood	☒ Yes ☐ No	☒ Corps ☐ DWQ	Perm. <0.01
Site 3 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	Perm 0.08

2h. Comments: There will be 0.03 ac of hand clearing in wetlands. Additionally, there will be 0.01 acre of temporary fill in wetlands in the hand clearing areas for erosion control measures, including temporary silt fence and/or Special Sediment Control Fence.

3. Stream Impacts

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

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

3i. Comments:

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				
O1 ☐ P ☐ T				
			4f. Total open water impacts	

4g. Comments:

5. Pond or Lake Construction

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

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

5g. Comments:

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

6. Buffer Impacts (for DWQ)

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

6a. Project is in which protected basin?			☐ Neuse ☐ Catawba ☐ Tar-Pamlico ☐ Randleman ☐ Other:		
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☐ P ☐ T			☐ Yes ☐ No		
B7 ☐ P ☐ T			☐ Yes ☐ No		
U1* ☐ P ☐ T			☐ Yes ☐ No		
U2* ☐ P ☐ T			☐ Yes ☐ No		
			6h. **Total buffer impacts**		
6i. Comments: .					

D. Impact Justification and Mitigation

1. Avoidance and Minimization

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

The existing bridge 246 is a 3-span, 114' long bridge. The proposed bridge is a 3-span 130' long cored slab bridge. The proposed bridge will remove bents from the water. No deck drains were used. The bridge will have 2 drop inlets at the downgrade end of the approach slab to collect deck drainage with a single outlet to the downstream side of the bridge. 3:1 slopes are used where practicable to minimize impacts.

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 adhered to during construction.

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

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

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

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

3c. Comments:

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

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

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

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

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

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments:	☐ 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:	☒ 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? USFWS website, NHP GIS data, and field surveys.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

for Philip S. Harris III, P.E. Applicant/Agent's Printed Name	Colin Mellor Digitally signed by Colin Mellor DN: cn=Colin Mellor, o=NCDOT, ou=NES, email=cmellor@ncdot.gov, c=US Date: 2017.07.25 07:49:38 -04'00' Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	07-25-2017 Date

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.06; Released June 2016)

WBS Element: 45658.1.1 **TIP No.:** B-5704 **County(ies):** Harnett

General Project Information

WBS Element:	45658.1.1	**TIP Number:**	B-5704	**Project Type:**	Bridge Replacement	**Date:**	5/16/2017
NCDOT Contact:	Paul Atkinson			**Contractor / Designer:**	Richard Bollinger, PE		
Address:	1020 Birch Ridge Rd. Raleigh, NC 27610			**Address:**	8601 Six Forks Road, Suite 260 Raleigh, NC 27615		
Phone:	919-707-6707			**Phone:**	919-926-4105		
Email:	patkinson@ncdot.gov			**Email:**	Richard.Bollinger@rsandh.com		
City/Town:	Erwin / Dunn			**County(ies):**	Harnett		
River Basin(s):	Cape Fear			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	702 ft.	**Surrounding Land Use:**	Woods, Residential, Towns

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	0.5 ac.	0.4 ac.
Typical Cross Section Description:	Two 11' lanes with 6' (9' with guardrail) shoulders on the approach, and two 11' lanes with a 4'-11" shoulder and a 5'-6" sidewalk (LT) and a 4'-2.5" shoulder (RT) on the bridge.	Two 11' lanes with variable shoulders on the approach, and two 11' lanes with 2' shoulders on the bridge.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 10063 Year: 2038	Existing: 6973 Year: 2018

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

This is a bridge replacement project. Existing bridge 246 is a 3 span, 114' long bridge. Proposed bridge 246 is a 3 span, 130' long cored slab bridge. The proposed bridge will remove bents from the water.

No deck drains were used on the bridge replacement. The bridge will have 2 drop inlets at the downgrade end of the approach slab to collect deck drainage with a single outlet to the downstream side of the bridge. 3:1 fill slopes are used where practicable to minimize impacts.

NCDOT will attempt to avoid and minimize impacts to streams and wetlands to the greatest extent practicable during project design.

Waterbody Information

Surface Water Body (1):	Black River	**NCDWR Stream Index No.:**	18-68-12-1
NCDWR Surface Water Classification for Water Body	**Primary Classification:**	Class C	
	Supplemental Classification:	Swamp Waters (Sw)	
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?	No Comments:		
NRTR Stream ID:	Black River	**Buffer Rules in Effect:**	N/A

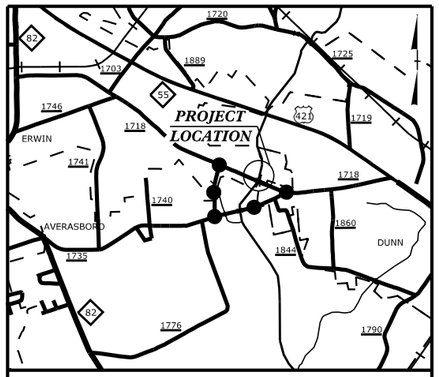
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**Dissipator Pads Provided in Buffer?**	No
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

09/08/99

TIP PROJECT: B-5704

CONTRACT:

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



DETOUR

VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5704	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45658.1.1	BRSTP-1718(8)	PE
45658.2.1		ROW, UTIL

PERMIT DRAWING
SHEET 1 OF 8

LOCATION: REPLACE BRIDGE 246 OVER BLACK RIVER ON SR 1718 (ERWIN ROAD)

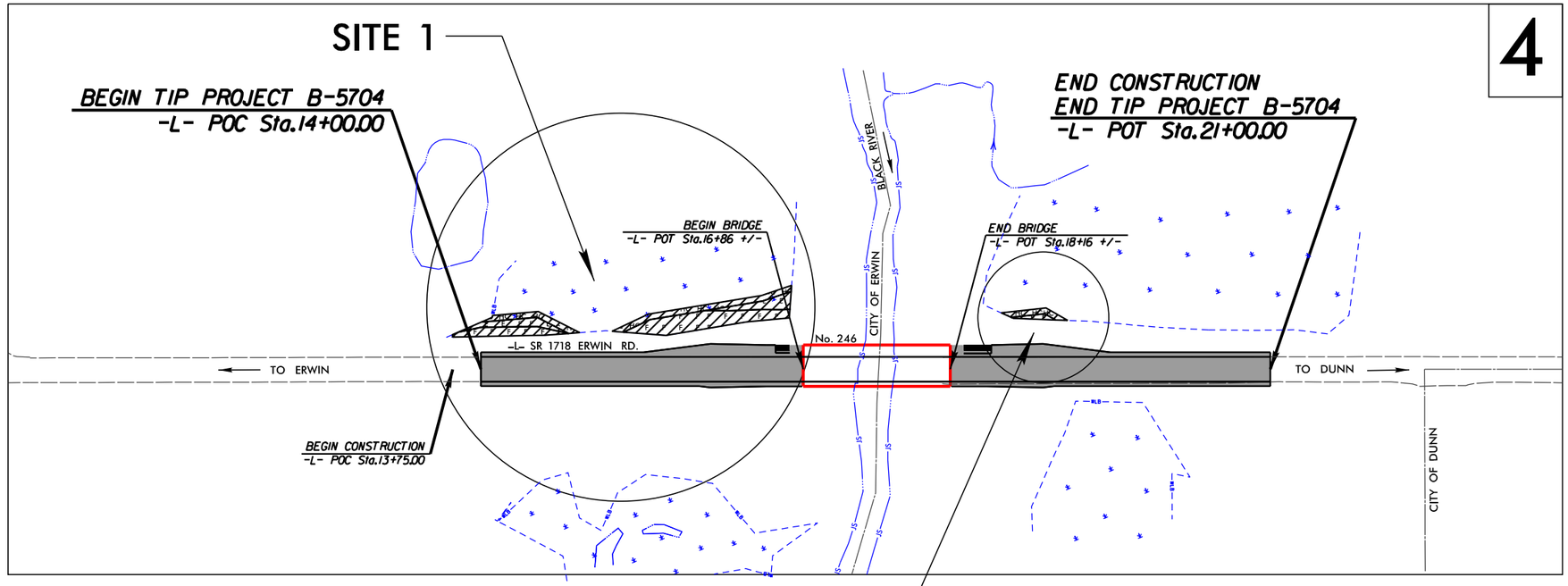
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

WETLAND AND SURFACE WATER IMPACTS PERMIT

NAD 83/NA 2011

4

SITE 1



SITE 2

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ERWIN.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 6973
ADT 2038 = 10063
K = 9 %
D = 55 %
T = 3 % *
V = 50 MPH
*(TTST=1% + DUAL=2%)
FUNC CLASS = COLLECTOR
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5704	=	0.108 MILE
LENGTH STRUCTURE TIP PROJECT B-5704	=	0.025 MILE
TOTAL LENGTH TIP PROJECT B-5704	=	0.133 MILE

PLANS PREPARED BY:

RS&H

8601 SIX FORKS RD, SUITE 260
RALEIGH, NC 27615
919-926-4100

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 20, 2017

LETTING DATE: JANUARY 16, 2018

JENNIFER FARINO, PE
PROJECT ENGINEER

JARED BOND, PE
PROJECT DESIGN ENGINEER

TATIA L. WHITE, PE, PLS
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

6/19/2017
R:\Hydraulics\PERMITS_Environmental\Drawings\B5704_hyd_prm_1_tsh.dgn
11:33:43 AM

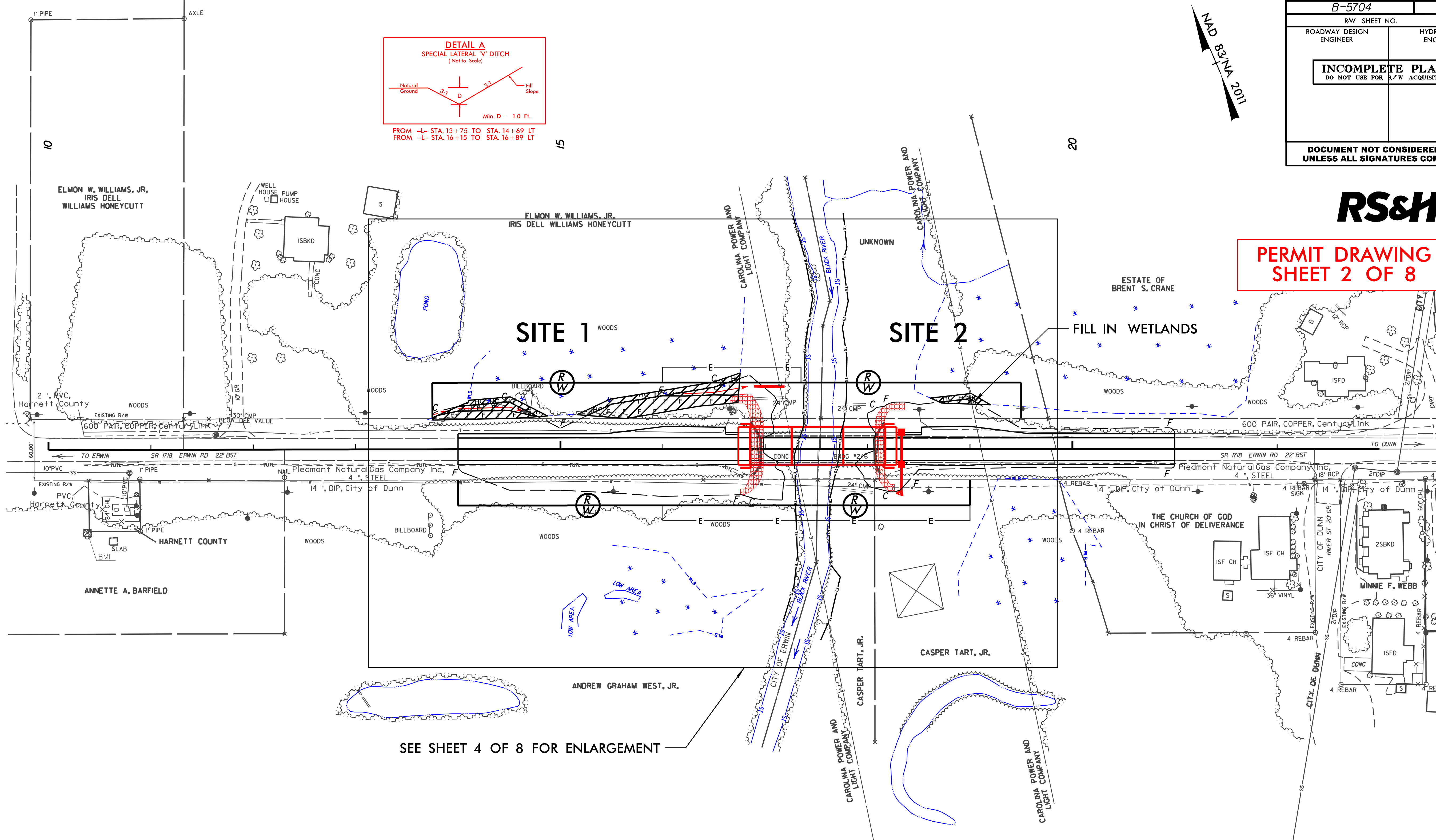
PROJECT REFERENCE NO.	SHEET NO.
B-5704	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 2 OF 8



Symbol	Meaning
E E	DENOTES EXCAVATION IN WETLAND
F F	DENOTES FILL IN WETLAND
HC HC	DENOTES HAND CLEARING

100' 0' 100' 200' 300'

REVISIONS

8/17/99

6/19/2017
R:\Hydraulics\PERMITS_Environmental\Drawings\B5704_hyd_prm_2.psh.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5704	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

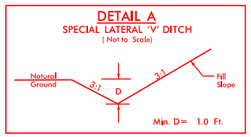
RS&H

PERMIT DRAWING SHEET 3 OF 8

NAD 83/NA 2011

REVISIONS 8/17/99

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



FROM -L- STA. 13+75 TO STA. 14+69 LT
FROM -L- STA. 16+15 TO STA. 16+89 LT

SITE 1

SITE 2

FILL IN WETLANDS

SEE SHEET 5 OF 8 FOR ENLARGEMENT

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

100′ 0′ 100′ 200′ 300′

6/19/2017
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PROJECT REFERENCE NO.	SHEET NO.
B-5704	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING SHEET 4 OF 8

SITE 1

SITE 2

FILL IN WETLANDS

WOODS

POND

CAROLINA POWER & LIGHT COMP

BLACK RIVER

UNKNOWN

NAD 83/NA 2011

BILLBOARD

WLB

24" CMP

CONC

BRDG #246

CB

15" RCP-IV

TB 2GI

ELBOW

15"

EST 1 TON CL B RIP RAP

EST 5 SY GEOTEXTILE

LOW AREA

ERWIN

CASPER IARI, JR.

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

20' 0' 20' 40' 60'

REVISIONS 8/17/99

6/9/2017
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PROJECT REFERENCE NO.	SHEET NO.
B-5704	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 5 OF 8

SITE 1

SITE 2

FILL IN WETLANDS

WOODS

POND

BILLBOARD

CAROLINA POWER & LIGHT COMP

BLACK RIVER

UNKNOWN

NAD 83/NA 2011

24" CMP

CONC

BRDG #246

CB

15" RCP-IV

TB 2GI

ELBOW

15"

EST 1 TON
CL B RIP RAP
EST 5 SY
GEOTEXTILE

LOW AREA

WLB

E E	DENOTES EXCAVATION IN WETLAND
F F	DENOTES FILL IN WETLAND
HC HC	DENOTES HAND CLEARING

20' 0' 20' 40' 60'

CASPER TARR, JR.

REVISIONS

8/17/99

6/9/2017
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5704	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 6 OF 8

-L-

STRUCTURE HYDRAULIC DATA

DRAINAGE AREA	= 42.5	SQ. MI.
DESIGN DISCHARGE	= 2400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 164.4	FT
BASE DISCHARGE	= 3500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 165.8	FT
OVERTOPPING DISCHARGE	= 8190	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 169.1	FT

BRIDGE STA. = 17+51.00 -L-
1@40' 21" CORED SLAB, 1@50' 21" CORED SLAB,
1@40' 21" CORED SLAB
WITH 4' END BENT CAPS
SKEW = 90°
℄ ELEV. = 172.08'

PI = 16+00.00
EL = 172.53'
VC = 150'
K = 98

PI = 20+00.00
EL = 171.33'
VC = 200'
K = 333

BEGIN PROPOSED GRADE
-L- STA. 14+00.00
ELEV. = 170.06'

BEGIN BRIDGE
-L- STA. 16+84.75

END BRIDGE
-L- STA. 18+17.25

END PROPOSED GRADE
-L- STA. 21+00.00
ELEV. = 171.63'

(+)1.2350%
(-)0.3000%
(-)0.3000%
(+)0.3000%

STRUCTURE EXCAVATION TO ELEV. 161.1' (STRUCTURE PAY ITEM)
NWS ELEV. = 155.4' ±

STRUCTURE EXCAVATION TO ELEV. 162.8' (STRUCTURE PAY ITEM)
CLASS "II" AND "B" RIP RAP (STRUCTURE PAY ITEM)

(-)0.1064%
BEGIN DITCH GRADE
-L- STA. 13+75 LT
EL = 162.20'
END DITCH GRADE
-L- STA. 14+69 LT
EL = 162.10'

(-)2.8378%
BEGIN DITCH GRADE
-L- STA. 16+15 LT
EL = 162.10'
END DITCH GRADE
-L- STA. 16+89 LT
EL = 160.00'

BM #1
RAILROAD SPIKE IN 13" PINE
-L- STA 10+38.00 81' RIGHT
ELEV. = 168.04'

LEFT DITCH -·-·-·-·-

180 170 160 150 140 130 120 110 100 90 80 70

10 11 12 13 14 15 16 17 18 19 20 21 22 23

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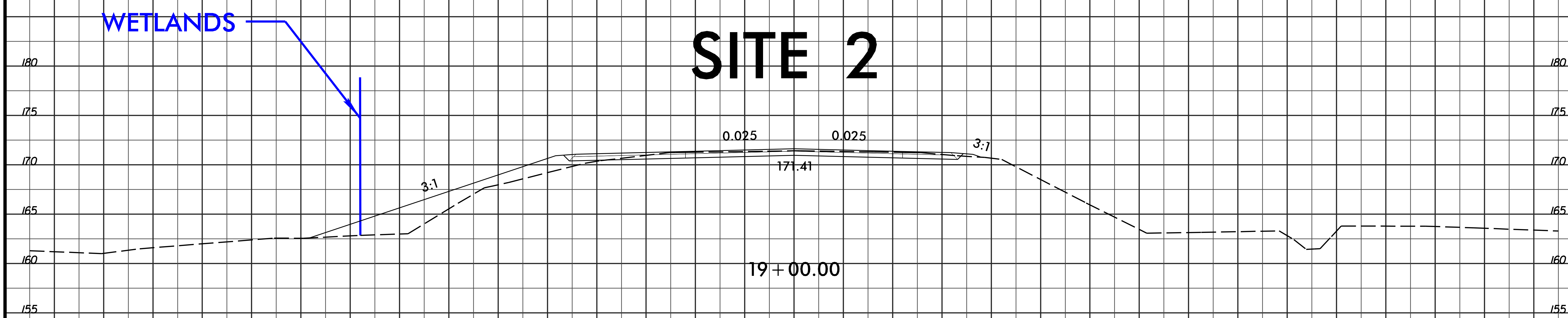
PROJ. REFERENCE NO.	SHEET NO.
B5704	X-1

RS&H

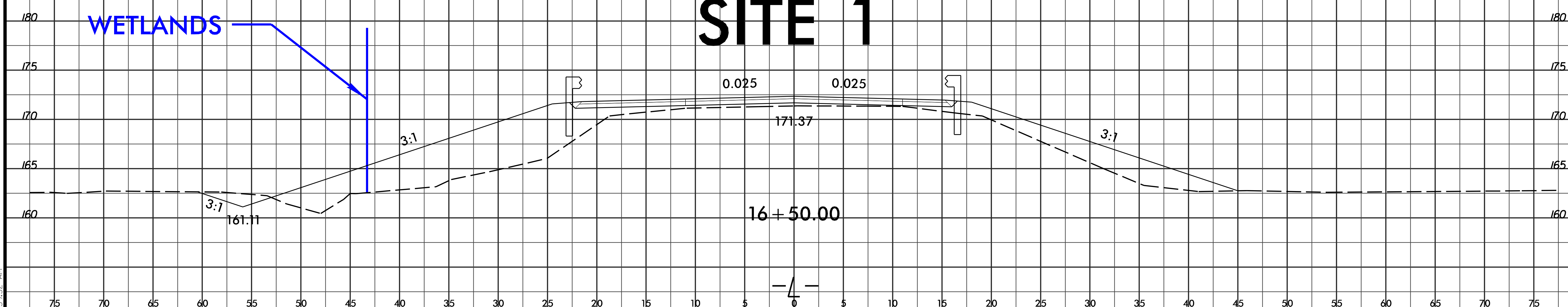
PERMIT DRAWING
SHEET 7 OF 8

WETLAND IMPACTS

SITE 2



SITE 1



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6/19/2017
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WETLAND AND SURACE WATER IMPACTS 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- 13+70 to 16+75 LT	Roadway Embankment	0.06		0.02		0.03					
2	-L- 18+61 to 19+20 LT	Roadway Embankment	< 0.01				< 0.01					
TOTALS*:			0.06		0.02		0.03			0	0	0

*Rounded totals are sum of actual impacts

NOTES:

0.01 acre of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures.

Revised 2016 09 09

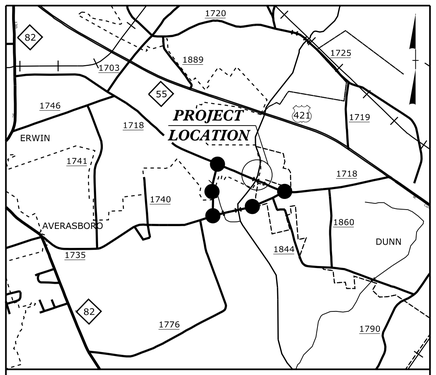
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
6/20/2017
Harnett County
B-5704
45658.1.1

09/08/99

TIP PROJECT: 17BP.6.R.89

CONTRACT:

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



DETOUR

VICINITY MAP

ROW PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.6.R.89	1	

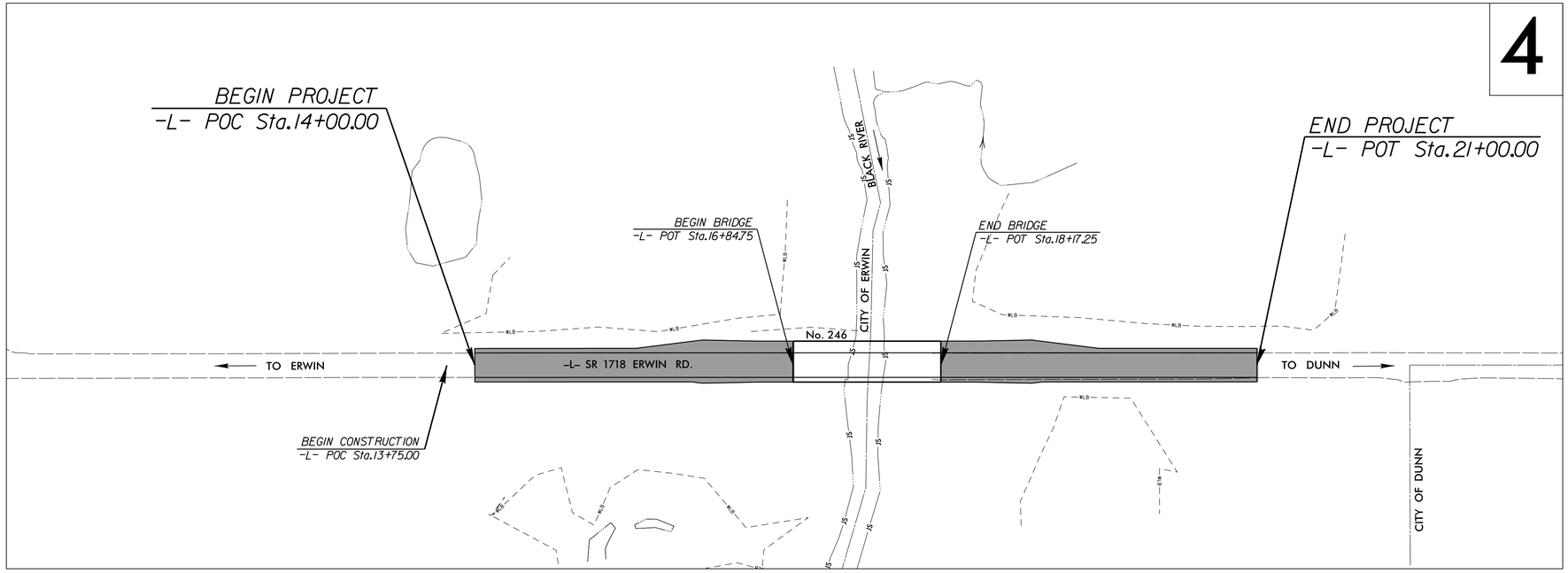
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45658.1.1	BRSTP-1718(8)	PE
17BP.6.R.89		ROW, UTIL

LOCATION: REPLACE BRIDGE 246 OVER BLACK RIVER ON SR 1718 (ERWIN ROAD)

TYPE OF WORK: GRADING, DRAINAGE, AND STRUCTURE

NAD 83/NA 2011

4



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ERWIN.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II "MODIFIED" W/ HAND CLEARING ONLY.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 6973
ADT 2038 = 10063
K = 9 %
D = 55 %
T = 3 % *
V = 50 MPH
*(TTST=1% + DUAL=2%)
FUNC CLASS = COLLECTOR
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17.BP.6.R.89 = 0.108 MILE
LENGTH STRUCTURE PROJECT 17.BP.6.R.89 = 0.025 MILE
TOTAL LENGTH PROJECT 17.BP.6.R.89 = 0.133 MILE

PLANS PREPARED BY:

RS&H
8601 SIX FORKS RD, SUITE 260
RALEIGH, NC 27615
919-926-4100

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 20, 2017

LETTING DATE:
JANUARY 16, 2018

JENNIFER FARINO, PE
PROJECT ENGINEER

JARED BOND, PE
PROJECT DESIGN ENGINEER

CHRISTY W. HUFF, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
17BP.6.R.89	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed 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
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

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 & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

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
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (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
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?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 LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
17BP.6.R.89	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

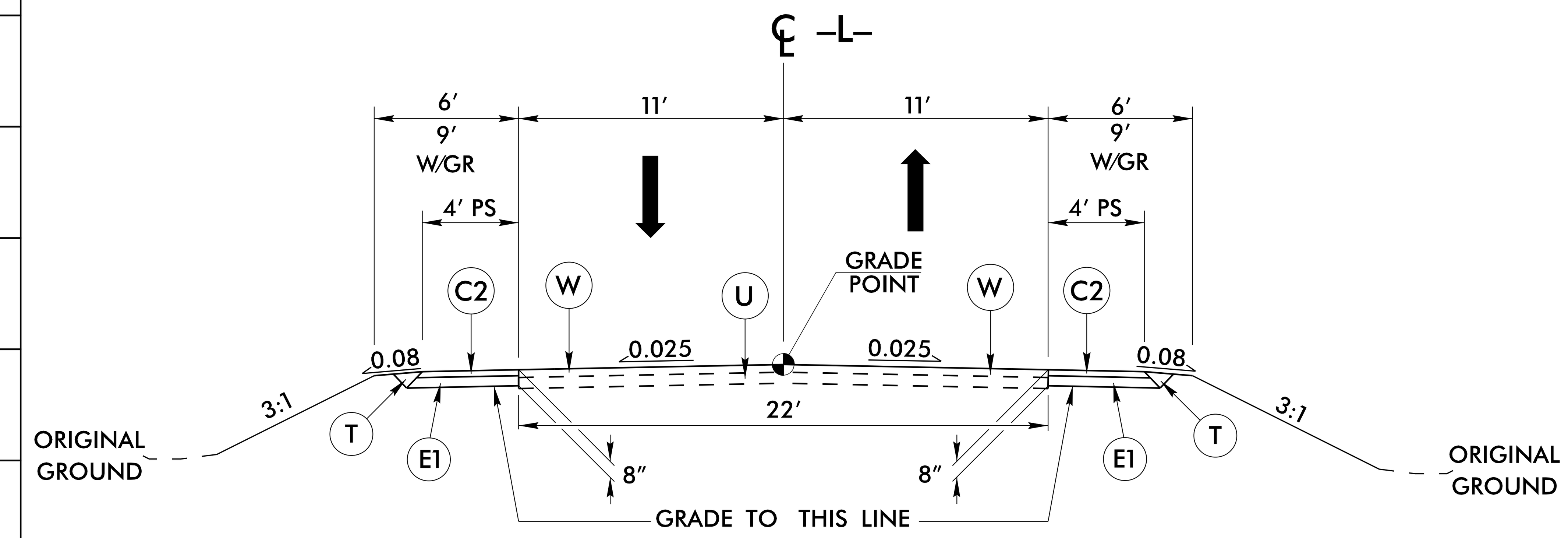
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

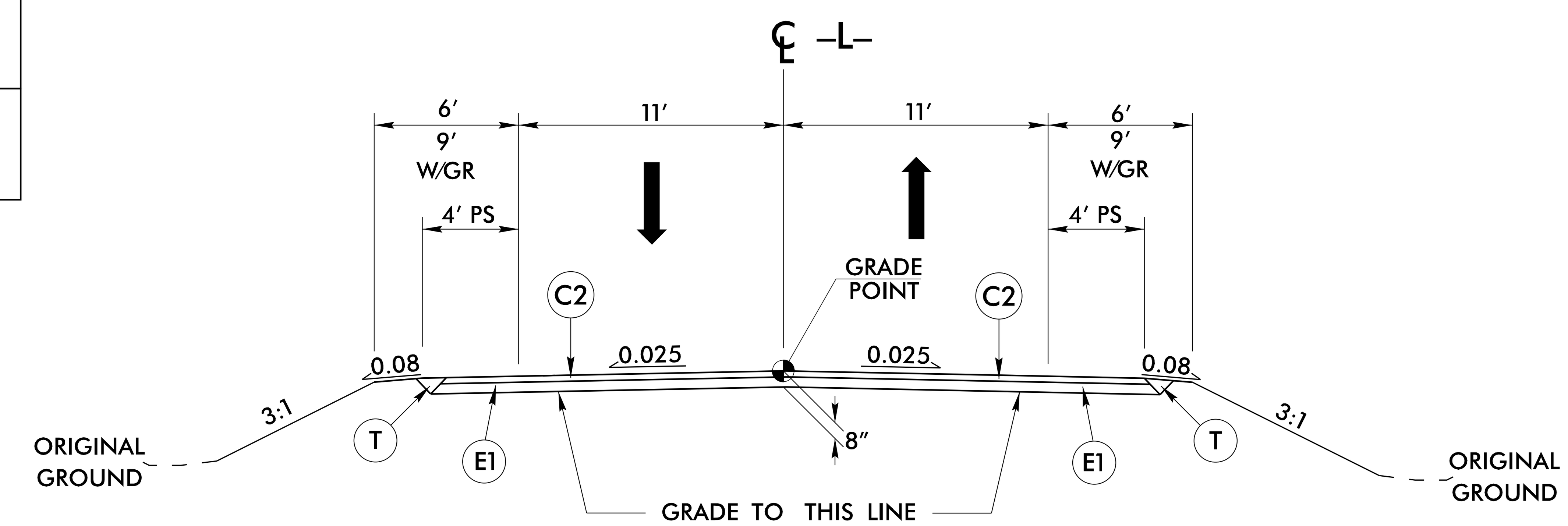
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT (0" TO 1½")
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE: ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE



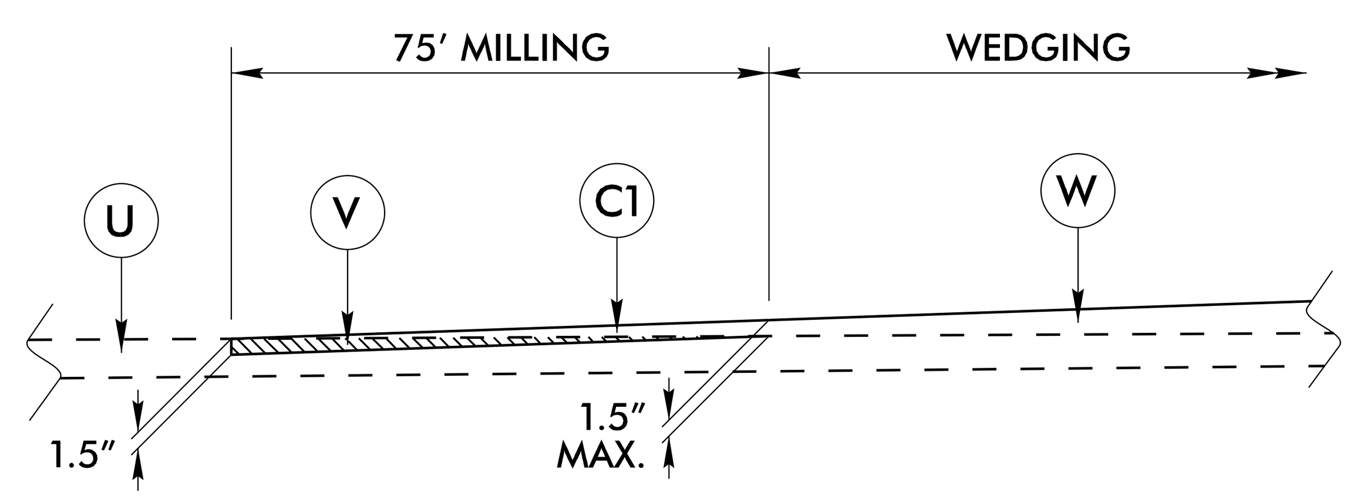
TYPICAL SECTION NO. 1
*SEE DETAIL FOR LIMITS OF MILLING

USE TYPICAL SECTION NO. 1
-L- STA. 14+00.00 TO -L- STA. 15+30.00
-L- STA. 20+25.00 TO -L- STA. 21+00.00



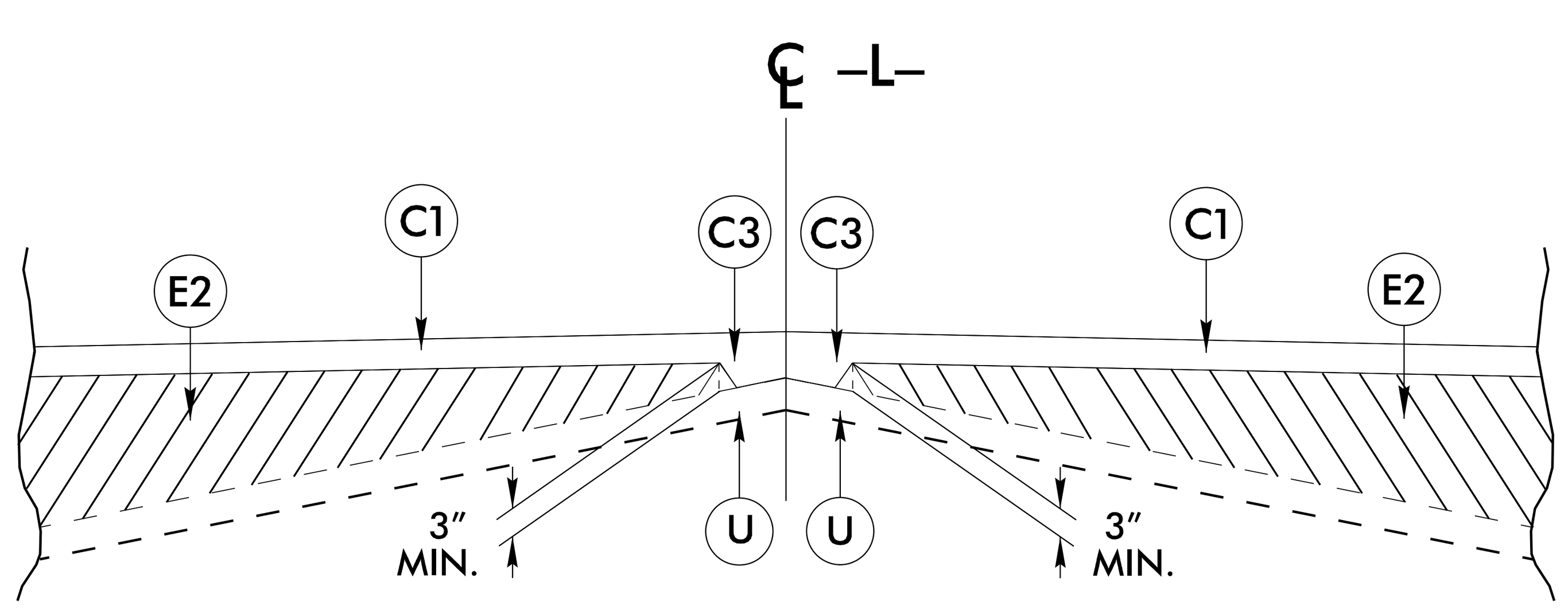
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA. 15+30.00 TO -L- STA. 16+84.75 (BEGIN BRIDGE)
-L- STA. 18+17.25 (END BRIDGE) TO -L- STA. 20+25.00

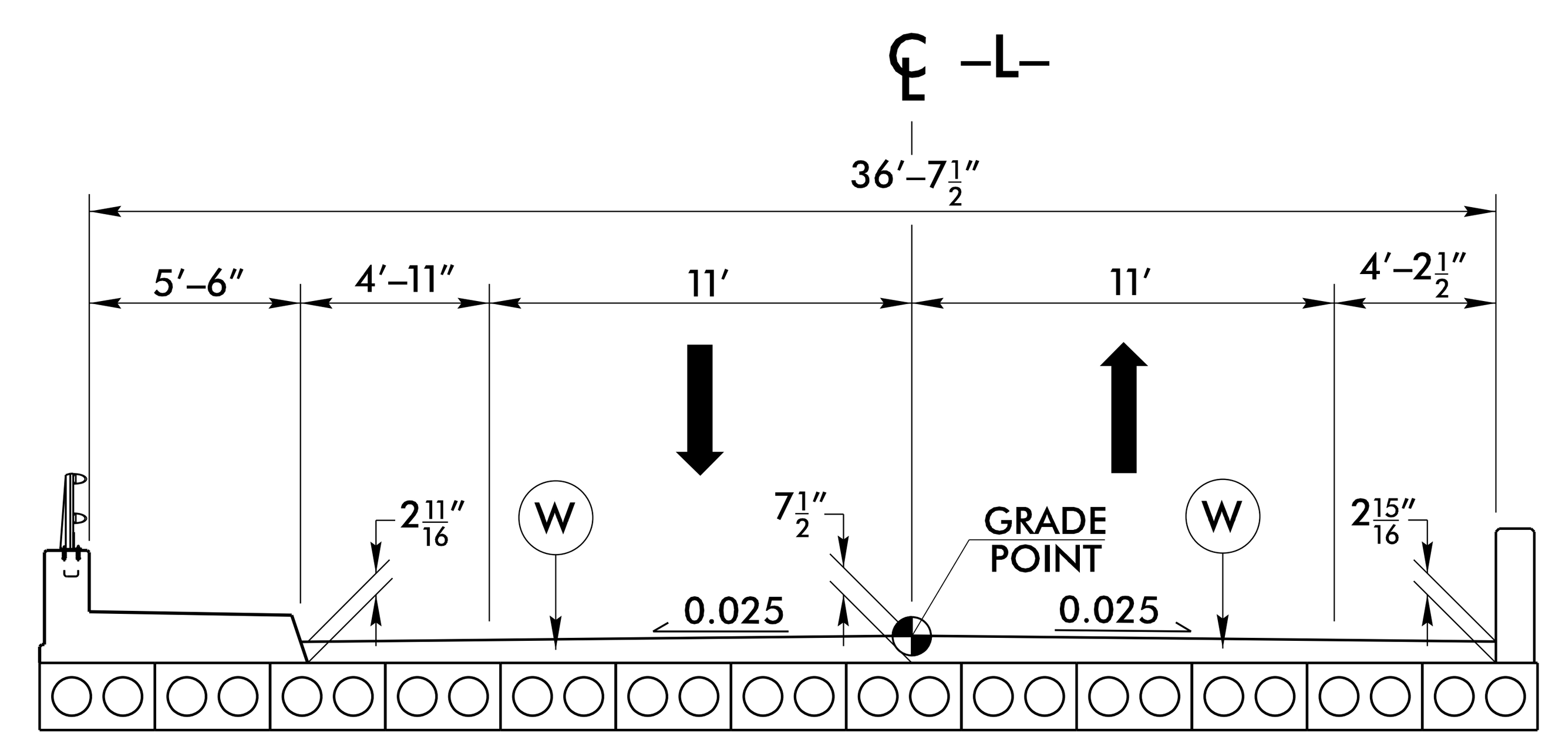


DETAIL OF MILLING AT PAVEMENT TIE-INS

*USE DETAIL
-L- STA. 14+00.00 TO -L- STA. 14+75.00
-L- STA. 20+25.00 TO -L- STA. 21+00.00



STANDARD WEDGING DETAIL



13 - 21" CORED SLAB UNITS

TYPICAL SECTION ON STRUCTURE

USE TYPICAL SECTION ON STRUCTURE
-L- STA. 16+84.75 (BEGIN BRIDGE) TO -L- STA. 18+17.25 (END BRIDGE)

6/2/99

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PROJECT REFERENCE NO.	SHEET NO.
17BP.6.R.89	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

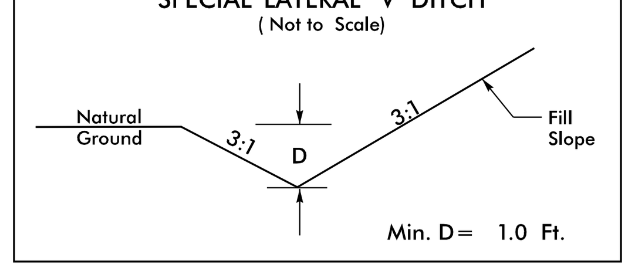
NAD 83/NA 2011

-L- CURVE DATA

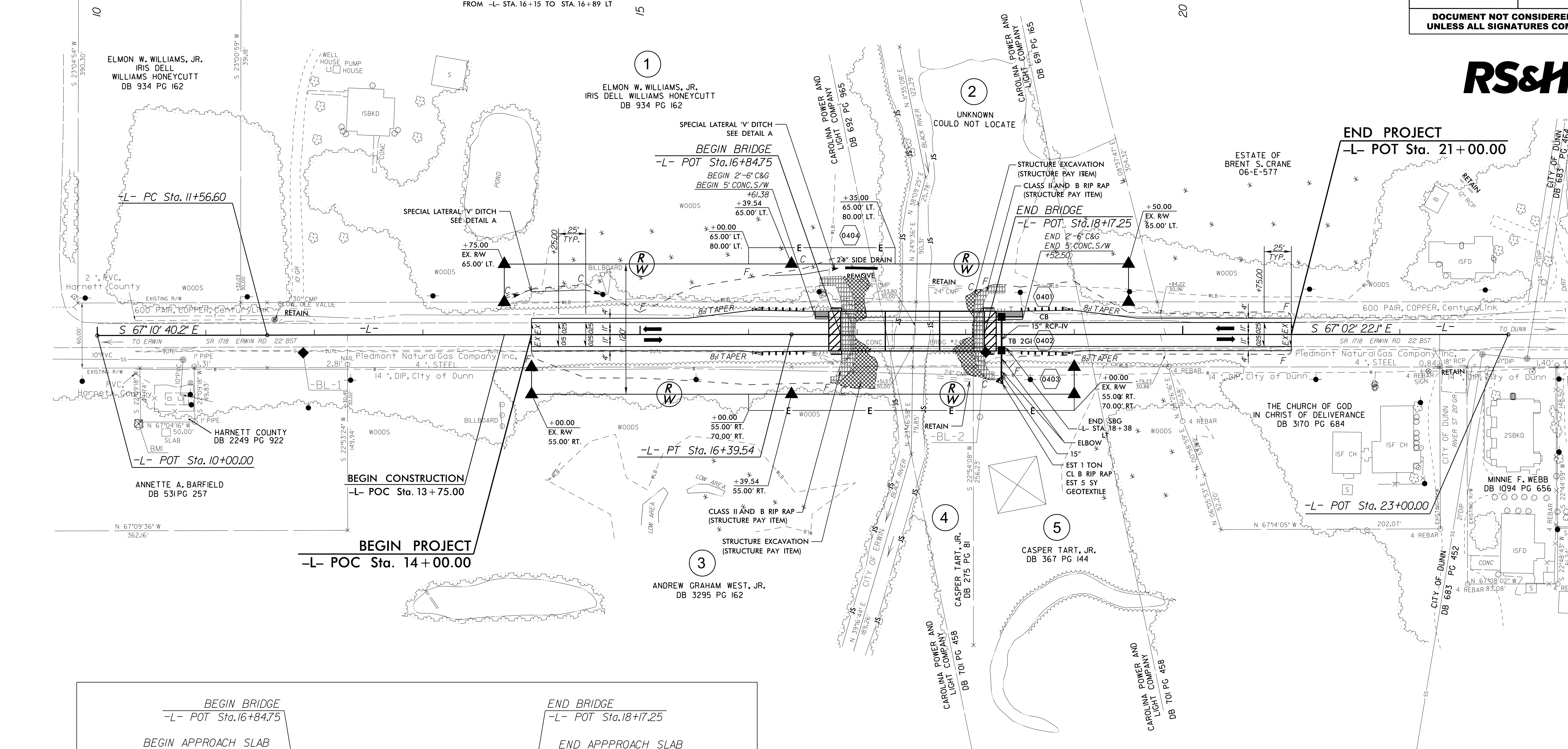
PI Sta 13+98.07
Δ = 0° 08' 18.1" (RT)
D = 0° 01' 43.1"
L = 482.94'
T = 241.47'
R = 200,000.00'
SE = 0.025
RO = SEE PLANS

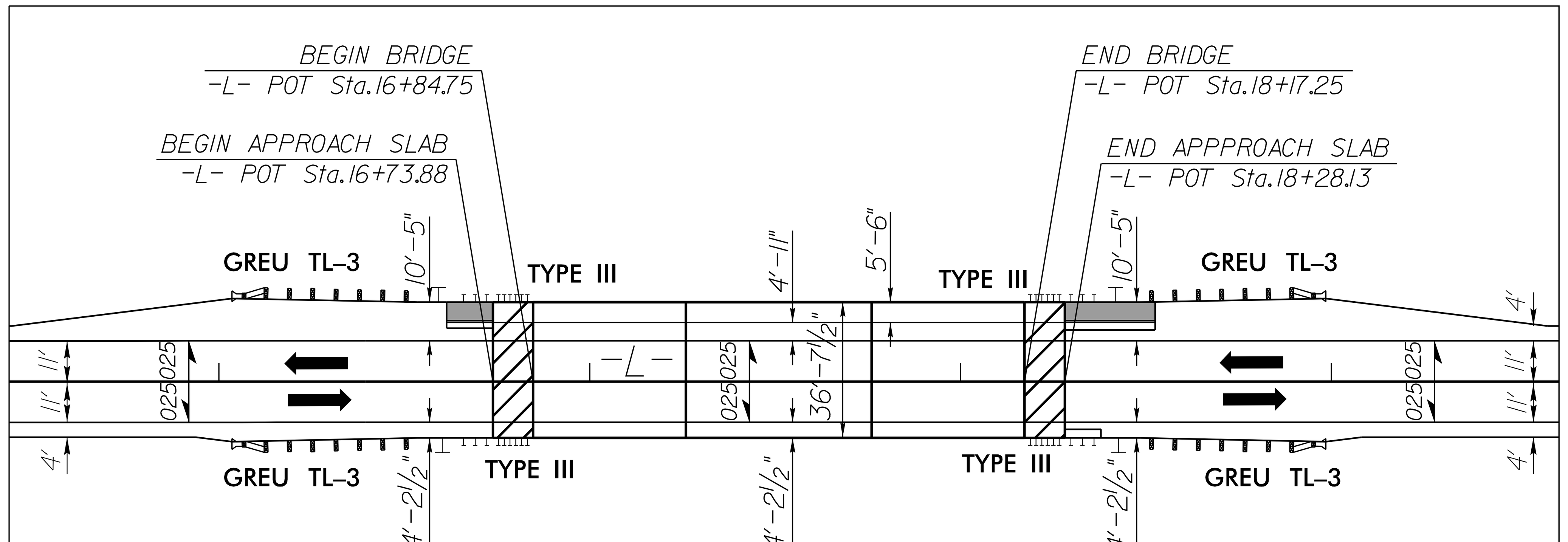
DETAIL A

SPECIAL LATERAL 'V' DITCH (Not to Scale)



FROM -L- STA. 13+75 TO STA. 14+69 LT
FROM -L- STA. 16+15 TO STA. 16+89 LT





SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP N.T.S.

FOR -L- PROFILE, SEE SHEET NO. 5
FOR STRUCTURE PLANS, SEE SHEETS S1-1 THRU S1-?

REVISIONS

8/17/99

13-JUN-2017 16:03
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