STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

DANIEL H. JOHNSON
SECRETARY

October 31, 2025

US Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28805

ATTN: Ms. Lori Beckwith
NCDOT Coordinator

NC Division of Water Resources
Transportation Permitting Branch-Asheville Office
2090 U.S. 70 Highway
Swannanoa, NC 28778-8211

ATTN: Ms. Amy Annino
NCDOT Coordinator

Subject: **Request for Permit Modification of Section 404 Individual Permit, Section 10, and 401 Individual Water Quality Certification** for the proposed I-26 Asheville Connector, From I-40 east of SR 1224, to US 19/23 near the Broadway St Interchange; Federal Aid Project No. NHF-26-1(53), Division 13. TIP No. I-2513. Debit $810 from WBS 34165.1.2.

References: (1) Sections 404 & 10 Individual Permit, Action ID No. SAW-2004-9986803, issued February 6, 2024; (2) Section 401 Water Quality Certification No. 006377, NCDWR Project No. 20231008, issued October 30, 2023; (3) Modified Biological Opinion USFWS Service Log #02-252, issued May 12, 2025.

Dear Madams:

The purpose of this letter is to request modification of the United States Army Corps of Engineers (USACE) Section 404 Individual Permit, Action ID No. SAW-2004-9986803 and associated North Carolina Division of Water Resources (NCDWR) Section 401 Water Quality Certification No. 006377 for the subject project, due to completion of final designs for I-2513 sections B & D: I-240 / I-26 from north of SR 3548 (Haywood Road) to SR 1781 (Broadway Street); and from SR 1517 (Hill Street) to SR 1781 (Broadway Street).

As you are aware, the I-26 Connector project is an interstate freeway project that would connect I-26 in southwestern Asheville to US 19-23-70 in northwest Asheville and have a total length of approximately 7 miles. The I-26 Connector would extend I-26 from I-40 to US 19-23-70 and would allow for the eventual designation of I-26 from Charleston, South Carolina, to Johnson City, Tennessee, once a remaining section from the north end of this project to Mars Hill, North Carolina, is completed. The I-26 Connector would upgrade and widen I-240 from I-40 to Patton Avenue and then cross the French Broad River as a new freeway to US 19-23-70 slightly south of the Broadway interchange.

Optimization and Refinement Summary

I-2513 B & D were let via the Department's Design Build (DB) mechanism. During the Best and Final Offer phase, the Department developed and included a new process called Optimization and Refinement (O & R). The O & R process required DB Teams to submit proposals aimed at optimizing and refining the project to ultimately reduce costs after the award. This collaborative effort focused on reducing project scope and

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1000 BIRCH RIDGE DRIVE
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expenses while allowing for the incorporation of innovative designs without impacting the best-value DB Team's design process or schedule. The O&R process began with a Charrette held on June 18-19, 2024 followed by a stakeholder meeting on August 27, 2024. At the conclusion of the O & R period, a new contract amount was agreed upon, and work on the final design and construction commenced. A public information meeting was coordinated by NCDOT Public Involvement following the completion of the O & R phase, to present the completed concepts and preliminary plans to the public.

Please see the enclosed revised Division of Mitigation Services (DMS) mitigation acceptance letter, 4B and 4C Concurrence Meeting minutes for I-2513 B & D, State Stormwater Management Plan (SMP), I-2513 B & D final permit drawings, design plans, 2025 Integrated Plan for Communications, Construction/Demolition, and River User Safety, and I-2513 B & D Construction Causeway Responses for the above referenced project.

2025 Integrated Plan for Communications, Construction/Demolition, and River User Safety

The 2025 Integrated Plan for Communications, Construction/Demolition, and River User Safety (Integrated Plan) provides a combined update to the previous versions of the 2023 Strategic Communications Plan and the Bridge Construction and Demolition Plan, primarily focusing on the current design for I-2513 Sections B & D. As provided in the Integrated Plan, temporary causeways in the French Broad River will be required during construction of the new structures over the river. A document (I-2513 B & D Construction Causeway Responses) providing additional details and explanation of the need for the causeways was requested by the USACE during the 4C Concurrence Meeting.

MERGER INFORMATION

In compliance with the NEPA/404 Merger Process, the following Concurrence Meetings were held for I- 2513 B & D: 4B (June 18, 2025) and 4C (September 10, 2025).

NEPA DOCUMENT STATUS

A Final EIS (FEIS) was prepared for the project and signed on January 9, 2020, an FEIS Reevaluation Document was signed on May, 23, 2023, and a Record of Decision (ROD) was signed on May 26, 2023.

Copies of these documents can be found on the NCDOT Website: https://www.ncdot.gov/projects/asheville-i-26connector/Pages/project-documents.aspx

An FEIS Reevaluation Document is currently being developed for I-2513 B & D.

Project Commitments

As a result of NEPA documentation, Section 7 of the ESA, as well as multiple other inputs, the NCDOT has developed a detailed list of project commitments related to various topics. Due to the number of commitments and responsibilities across different sections of the project, the Department has converted the list of commitments to a spreadsheet to assist with assignments, status, and overall tracking. A copy of the spreadsheet will be updated monthly and posted on the NCDOT Connect website.

RESOURCE STATUS

Waters within the project area are located in the French Broad River Basin (HUC 06010105). There are no Trout waters or Outstanding Resource Waters (ORW) or High-Quality Waters (HQW) within the project area. No Water Supply Watersheds (WS-I or WS-II) occur within 1.0 mile of the project area.

Wetland and stream determinations were conducted using the field delineation method outlined in the 1987 Corps of Engineers Wetland Delineation Manual. These determinations were initially verified in 2003 and 2010. Lori Beckwith of USACE and Kevin Mitchell of NCDWR field reverified the wetlands and streams on January 20, 2020. To complete final design, the project area was expanded at several locations resulting in the need for additional field evaluations. Previously identified resources were expanded and new features were found. The information presented with this permit modification request includes these changes where proposed impacts are required.

IMPACTS TO WATERS OF THE U.S.

Tables 1 and 2 summarize wetland and stream impacts for I-2513 AA, AB, AC, B&D, & C. Tables 3 and 4 provide additional detailed proposed impacts to jurisdictional resources for I-2513 B & D. Site numbers correspond with the permit (hydraulic) drawings included in this application. The stream and wetland nomenclature correspond to the 2019 PJD package with the exception of new features added as mentioned above.

Summary of Wetland Impacts per Section

The total and projected wetland impacts, broken down by section, are presented in Table 1. The updated impact values for I-2513 B & D are based on final design, which were previously permitted based on preliminary design. The updated values are bolded.

The total acreage of wetland impacts for **I-2513 B & D** increased from 0.04 to 0.193 from preliminary design to final design. The increase in proposed impacts resulted from additional impacts to wetlands not anticipated during preliminary design (pipe slip lining) as well as new wetlands in the expanded study areas.

There are no proposed changes to permitted wetland impacts for **I-2513 AA, AB, AC or preliminary impacts for I-2513 C**.

Table 1. Summary of Wetland Impacts per Section

Section	Design Stage	Wetland Impact area (ac)		Impacts requiring Mitigation (ac)
		Permitted	Final Design	
I-2513 AA & AB	Final	0.01	0.01	0.01
I-2513 AC	Final	1.10	1.10	1.10
I-2513 C	Preliminary	0.07*	--	0.07
I-2513 B & D	**Final**	0.04	**0.193**	**0.193**

**-Based on preliminary design, no impacts were authorized for construction.*

Summary of Stream Impacts per Section

The total and projected stream impacts, broken down by section, are presented in Table 2. The updated impact values for I-2513 B&D are based on final design, which were previously permitted based on preliminary design. The updated values are bolded.

The total linear footage of stream impacts for **I-2513 B & D** decreased from 2,960 during preliminary design to to 2,245 at final design.

There are no proposed changes to permitted stream impacts for **I-2513 AA, AB, AC** or preliminary impacts for **I-2513 C**.

Table 2. Summary of Stream Impacts per Section

Section	Design Stage	Permanent Stream Impact (lf)		Temporary Stream Impact (lf)		Impacts Requiring ACOE Mitigation (lf)
		Permitted	Final	Permitted	Final	
I-2513 AA & AB	Final	920	920	171	171	880
I-2513 AC	Final	860	860	224	224	776
I-2513 C	Preliminary	1,685*	--	331*	--	
I-2513 B & D	**Final**	2,960*	**2,245**	--*	**2,465**	**1,721**

**-Based on preliminary design, no impacts were authorized for construction.*

Table 3. I-2513 B & D Wetland Impacts (acres)

Permit Site	NRTR Site	NC WAM Classification	Permanent Fill in Wetlands	Excavation in Wetlands	Mechanized Clearing	Temporary Fill in Wetlands	Impact Description
2	WC, WC2	Headwater Forest	0.029	--	--	--	Roadway Fill
3	WF, WF2	Headwater Forest	0.104	--	--	--	Roadway Fill
5	WBA	Headwater Forest	0.045	--	--	--	Roadway Fill
9	WAK	Headwater Forest	0.009	--	--	--	Bank Stabilization
12	WBB	Seep	0.003	0.003	--	--	Roadway Fill/Channel Change
14	WBD	Headwater Forest	--	--	--	0.031	Pipe Lining
20	WBC	Headwater Forest	--	--	--	0.005	Pipe Lining
Total Wetland Impacts:			**0.190**	**0.003**	--	**0.036**	
Total Wetland Impacts Requested from DMS:			**0.193**				

Table 4. I-2513 B & D Stream Impacts (linear feet)

Permit Site	Stream Name/ PJD-ID	Status/ Class	Permanent		Temp. Channel Impacts	USACE Required Mitigation	NCDWR Required Mitigation	Impacts Description
			Channel Impacts	Bank Stab.				
1	UT to Smith Mill Creek SG	Perennial C	551	112	91	551	551	On the right side of -LB- Stream SG will be relocated into a Channel Change lined with Class II Riprap and a new 66" pipe. On the left side of -LB- Strem SG will be impacted by bank stabilization from four different pipe outlets (66" W.S. into a Standard Base Ditch, 54" RCP, 54" W.S., and 15" CSP). Additionally, Stream SG is being impacted by the removal of an existing 60" CMP that is being replaced with a Standard Base Ditch lined with Class II Riprap.
2	UT to Smith Mill Creek SU	Intermittent C	410	--	12	410	--	Stream SU will be relocated into a new 48" Welded Steel pipe.
4	Smith Mill Creek SR	Perennial C	18	39	46	18	--	Stream SR will be impacted in three separate locations. On the right side of -Y7-, Stream SR will be impacted by bank stabilization used at the outlet of a 36" CSP. Also on the right side of -Y7-, Stream SR will be impacted by a proposed channel tie-in and bank stabilization at the inlet of the existing (3) @ 9'x9' RCBC that is being retained.

Permit Site	Stream Name/ PJD-ID	Status/ Class	Permanent		Temp. Channel Impacts	USACE Required Mitigation	NCDWR Required Mitigation	Impacts Description
			Channel Impacts	Bank Stab.				
								On the left side of -Y7-, Stream SR will be impacted by bank stabilization used at the outlet of a 36" RCP near the outlet of the existing RCBC.
5	UT to Smith Mill Creek SS	Intermittent C	43	--	--	43	--	Stream SS will be impacted by the loss of upstream drainage as roadway fill will eliminate the wetland upstream of Stream SS and cut off the flow path to Stream SS. Upstream drainage will be conveyed in a Standard Base Ditch lined with Class I Riprap.
6	Smith Mill Creek SR	Perennial C	41	65	1,528	41	--	Stream SR will be impacted by bank stabilization at the outlet of proposed ditches at six locations. Stream SR will be impacted by bank stabilization at the outlet of proposed pipes (24" CSP and 15" CSP) at two locations. Stream SR will be impacted by the removal of small cart or foot bridges at three locations. Stream SR will be impacted by the removal of existing (3) @ 54" CMP and restoring the channel, which will be lined with Coir Fiber Matting, to tie to existing channel dimensions. Additionally, impacts were accounted for along Stream SR for the entire reach within the right of way (outside of the areas already mentioned) in case any issues arise during construction and improvements need to be made along Stream SR.
7	French Broad River SA	Perennial B	6	85	461	6	--	Stream SA will be impacted by bank stabilization at the outlet of proposed pipes (36" WSP, 66" WSP, and 66" WSP) at three locations. Additionally, Stream SA will be impacted by the causeways required to construct the three separate bridges over the French Broad River (Stream SA).
8	UT to French Broad River SO	Perennial B	27	--	--	27	--	Stream SO will be relocated into a Channel Change lined with Class I Riprap and a new 66" WSP.
9	UT to French SM	Intermittent B	--	33	7	--	--	Stream SM will be relocated into a new 48" WSP.
10	UT to French Broad River SL	Intermittent B	101	--	11	101	--	Stream SL will be relocated into a Channel Change lined with Class I Riprap and a new 48" WSP.

Permit Site	Stream Name/ PJD-ID	Status/ Class	Permanent		Temp. Channel Impacts	USACE Required Mitigation	NCDWR Required Mitigation	Impacts Description
			Channel Impacts	Bank Stab.				
11	UT to French Broad River SI	Perennial B	415	12	22	415	415	Stream SI will be relocated into a new 48" WSP on the right side of -LB-. Additionally, on the right side of -LB-, Stream SI will be impacted by bank stabilization at the outlet of a proposed Special Lateral Base Ditch. On the left side of -LB-, Stream SI will be impacted by the new proposed 54" WSP extending beyond the limits of the existing pipe and a proposed Channel Change lined with Class I Riprap.
12	UT to French Broad River SK	Perennial B	75	--	10	75	--	Stream SK will be relocated into a Channel Change lined with Class I Riprap and a new 48" WSP.
13	UT to French Broad River SJ	Perennial B	--	10	24	--	--	Stream SJ will be impacted by bank stabilization used at the outlet of an 18" CSP.
14	UT to French Broad River SAU	Perennial B	--	--	43	--	--	Stream SAU will be impacted by the equipment required for pipe lining operations to line the existing 42" CMP that is being retained.
15	UT to French Broad River SAV	Perennial B	--	12	28	--	--	Stream SAV will be impacted by bank stabilization used at the outlet of proposed pipes (24" CSP and 18" CSP) at two locations. Additionally, Stream SAV will be impacted by the equipment required for pipe lining operations to line the existing 60" CMP that is being retained.
16	UT to French Broad River SBB	Intermittent B	--	21	--	--	--	Stream SBB will be impacted by the replacement of the existing 30" CMP with a 48" WSP upstream and the addition of a riprap outlet pad at the outlet of the new pipe in Stream SBB.
17	French Broad River (SA)	Perennial B		20	22	--	--	Stream SA will be impacted by bank stabilization at the outlet of proposed 48" WSP

Permit Site	Stream Name/ PJD-ID	Status/ Class	Permanent		Temp. Channel Impacts	USACE Required Mitigation	NCDWR Required Mitigation	Impacts Description
			Channel Impacts	Bank Stab.				
18	French Broad River (SA)	Perennial B	--	34	30	--	--	Stream SA will be impacted by bank stabilization at the outlet of proposed (2) @ 42" WSP.
19	French Broad River SA	Perennial B	--	48	29	--	--	Stream SA will be impacted by bank stabilization at the outlet of proposed (2) @ 30" WSP combined with an existing 24" RCP.
20	UT to French Broad River ST	Perennial B	--	12	29	--	--	Stream ST will be impacted by bank stabilization used at the outlet of a 15" CSP. Additionally, Stream ST will be impacted by the equipment required for pipe lining operations to line the existing 48" CMP that is being retained.
21	Emma Branch SP	Perennial C	34	21	60	34	--	Stream SP will be impacted by bank stabilization used at the outlet of a 15" CSP. Stream SP will also be impacted by the removal of small cart or foot bridges at two locations.
22	UT to French Broad River SBC	Intermittent B	--	--	12	--	--	Stream SBC will be impacted by the equipment required for pipe lining operations to line the existing 48" CMP that is being retained.
Total Stream Impacts:			1,721	524	2,465	1,721	966	
Total Permanent Impacts			2,245					
Total Stream Impact Requested from DMS:						1,721		

Utility Impacts

There will be no impacts to jurisdictional resources related to utility relocations for I-2513 B & D.

FEDERALLY PROTECTED SPECIES

Formal Section 7 Consultation has been completed for the entire I-2513 project. The US Fish and Wildlife Service (USFWS) issued a Biological Opinion (BO) (USFWS Log #02-252) dated June 19, 2020, noting their concurrence with the Effects Determinations provided in the Biological Assessment, dated

October 2019. The USFWS issued a Biological Opinion and Conference Opinion Addendum on December 14, 2023. A Modified Biological Opinion was issued on May 12, 2025. The requirements under Section 7 of the Endangered Species Act have been fulfilled. NCDOT is currently coordinating with the USFWS on revising measures included in the 2020 BO due to final design construction methodology.

CULTURAL RESOURCES

Archaeological Resources
I-2513 B & D will not impact any known archaeological sites.

Historic Architectural Resources
Pursuant to Section 106 of the National Historic Preservation Act, the State Historic Preservation Office (HPO) concurred with NCDOT's determination that I-2513 B & D will have no adverse effect upon the following properties identified in or near the Area of Potential Effects (APE) that are already listed in or eligible for the National Register of Historic Places (NRHP): Baker Building, the Montford Hills Historic District, and the Haywood Street United Methodist Church. The HPO concurred with the determination that the project will have no adverse effect upon the following properties provided the environmental commitments stipulated in a Memorandum of Agreement (MOA) are fulfilled: the Asheville School, West Asheville/Aycock School Historic District, Freeman House, the William Worley House, and the Great Smoky Mountain Park Bridge (Buncombe County Bridge No. 323).

The Selected Alternative will have an adverse effect on Riverside Cemetery within the Montford Area Historic District.

FEMA COMPLIANCE

The project has been coordinated with appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state, and local floodway regulations. Coordination will continue as needed prior to commencement of construction.

MITIGATION OPTIONS

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages, and minimization measures were incorporated as part of the project design, several of which are presented below.

Avoidance and Minimization

- Design Standards in Sensitive Watersheds will be adhered to where applicable for stormwater treatment and to minimize erosion.
- Drainage has been designed so that no pipes discharge into wetlands.
- 2:1 side slopes have been used throughout the project in order to minimize impacts in areas with wetlands and streams.
- No new box culverts will be constructed. Any existing box culverts that are currently buried will be retained as such. As discussed during the 4B Concurrence Meeting, new cross pipes will not be buried due to steep slopes, length of crossings, number of drainage boxes along the crossing
- Grassed shoulders and ditches with vegetated liner were used throughout the project where possible, however this is limited due to steep slopes.

- Existing flow patterns and outfalls were maintained to the maximum extent practical to limit discharge increases to any particular area.

- Permit Site 6 includes temporary impacts for the entire reach of Smith Mill Creek (SR) however only the localized impact areas have been hatched on the permit drawings. Impacts during construction will be confined to those specific localized areas however if an issue arise outside a hatched area, work could continue without the need for a permit modification request. NCDOT inspectors, Division Environmental staff, and/or RK&K staff would review the need and if deemed reasonable, allow the work to proceed. Notifications of such additions could be provided to the USACE and NCDWR periodically to ensure their awareness.

- Additional avoidance and minimization measures are listed in the Stormwater Management Plan.

Compensation

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable as described above. Table 5 summarizes the wetland and stream impacts for each section and summarizes the mitigation requirements for the project.

Table 5. I-2513AA & AB,AC,C, B & D Mitigation Summary

HUC	Project Section/ Design Level	ACOE Required Mitigation (lf)	DWR Required Mitigation (lf)	Wetland Mitigation (ac)
06010105	I-2513AA,AB (Final Design)	880	--	0.01
06010105	I-2513AC (Final Design)	776	--	1.10
06010105	I-2513C (Preliminary Design)	1,685	--	0.07
06010105	I-2513B & D (Final Design)	**1,721**	**966**	**0.193**
I-2513AA & AB,AC,C,B & D Total Mitigation:		**5,062**	**966**	**1.373**

Permanent stream and wetland impacts are proposed to be mitigated at a ratio of 2:1 with credits acquired from DMS.

REGULATORY APPROVALS

NCDOT requests to modify the referenced permits for this project. Application is hereby made for modification of the USACE Individual Section 404, USACE Section 10 Permit, and the NCDWR Section 401 Individual Water Quality Certification.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jeff Hemphill at jhemphill@ncdot.gov or (919) 707-6126. A copy of this modification request and distribution list will also be posted on the NCDOT website at: https://xfer.services.ncdot.gov/pdea/EnvironmentalPermits/.

Sincerely,

for Michael Turchy
Environmental Coordination and Permitting Group Leader
Environmental Analysis Unit

Enclosures

Supplemental Information Form

Project Submittal Interim Form

Updated December 4, 2023

*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

Project Type: *

- ○ For the Record Only (Courtesy Copy)
- ○ New Project
- ◉ Modification/New Project with Existing ID
- ○ More Information Response
- ○ Other Agency Comments
- ○ Pre-Application Submittal
- ○ Re-Issuance\Renewal Request
- ○ Stream or Buffer Appeal

Is this application for a project associated with emergency response/repairs from Hurricane Helene impacts to your project or property? *

○ Yes ◉ No

Project Contact Information

Name:

Erin Cheely

Who is submitting the information?

Email Address: *

ekcheely@ncdot.gov

Project Information

Existing ID #: *

20231008

20170001 (no dashes)

Existing Version: *

3

1

Project Name: *

I-2513 Asheville Connector

Is this a public transportation project? *

◉ Yes ○ No

Is this a DOT project? *

◉ Yes ○ No

Is the project located within a NC DCM Area of Environmental Concern (AEC)? *

○ Yes ◉ No ○ Unknown

Does this project involve maintenance dredging funded by the Shallow Draft Navigation Channel Dredging and Aquatic Weed Fund, electric generation projects located at an existing or former electric generating facility, or involve the distribution or transmission of energy or fuel, including natural gas, diesel, petroleum, or electricity? *

○ Yes ◉ No

Is this project connected with ARPA funding? *

○ Yes ◉ No

TIP#:	**WBS#:**
I-2513	34165.1.2 (Applies to DOT projects only)

County (ies) *

Buncombe

Please upload all files that need to be submited.

Click the upload button or drag and drop files here to attach document

I-2513 2025-10-31 Phased Modification Application Package.pdf 63.3MB

Only pdf or kmz files are accepted.

Describe the attachments or add comments:

Phased modification for Final Design of I-2513 sections B and D.

*

☑ By checking the box and signing box below, I certify that:

- I, the project proponent, hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief.
- I, the project proponent, hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.
- I agree that submission of this online form is a “transaction” subject to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the online form.

Signature: *

Erin K. Cheely

Submittal Date: 10/31/2025

I-2513 B & D Mitigation

JOSH STEIN
Governor
D. REID WILSON
Secretary
MARC RECKTENWALD
Director

NORTH CAROLINA
Environmental Quality

November 3, 2025

Ms. Erin Cheely
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Ms. Cheely:

Subject: Mitigation Acceptance Letter:

I-2513B and I-2513D, I-26 (Asheville Connector) from SR 3548 (Haywood Road) to SR 1781 (Broadway Street), Buncombe County

The purpose of this letter is to notify you that the North Carolina Department of Environmental Quality – Division of Mitigation Services (NCDEQ-DMS) will provide the mitigation for the subject project. Based on the information received from you on November 3, 2025, the impacts are located in CU 06010105 of the French Broad River basin in the Southern Mountains (SM) Eco-Region, and are as follows:

French Broad 06010105	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres/square feet)	0	1,721.000	0	0.193	0	0	0	0

This mitigation acceptance letter replaces the mitigation acceptance letter issued on May 22 and August 15, 2023. NCDEQ – DMS commits to implementing sufficient compensatory mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from NCDEQ-DMS.

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

Sincerely,

Elizabeth Harmon

Elizabeth A. Harmon
DMS NCDOT ILF Coordinator

cc: Ms. Loretta Beckwith, USACE – Raleigh
Ms. Amy Annino, NCDWR
Mr. Brad Chilton, NCDOT – EAU
File: I-2513B & D

I-2513 B & D 4B Meeting Minutes

I-2513B&D Concurrence Point 4B Meeting

Date: June 18, 2025
Location: CCA Structures Conference Room
Time: 1:00PM
Attendees:

Hannah Headrick – NCDOT
John Jamison – NCDOT (Teams)
Todd Lapham – NCDOT
Carlas Sharpless – NCDOT (Teams)
Yates Allen – NCDOT (Teams)
Jennifer Parish – NCDOT (Teams)
Daniell Bagley – NCDOT (Teams)
Scott Jones – USACE (Teams)
Lori Beckwith – USACE (Teams)
Holland Youngman – FWS (Teams)
David Moyar – JV (Teams)
Byron Holden – RK&K
Jeremy Keene – RK&K
Pete Stafford – RK&K (Teams)
Chris Rivenbark – RK&K
Vidya Mohandas – WSP
Kase Schalois – WSP
Chris Lewis – TGS (Teams)
Edwin Fenner – NCDOT
Marissa Cox – NCDOT
Brook Anderson – NCDOT (Teams)
Nathaniel Moneyham – NCDOT (Teams)
Jeffrey Hemphill – NCDOT (Teams)
Christine Farrell – NCDOT (Teams)
Michael Turchy – ECAP
Amy Annino – NCDEQ (Teams)
Victoria Fowler – TranSystems (Teams)
David McHenry – NC Wildlife (Teams)
Matthew Payne – JV
Eleni Riggs – RK&K
Matt Cook – RK&K
Sarah Conner – RK&K (Teams)
John Williams – RK&K (Teams)
Shane Sharpe – WSP (Teams)
Jay Twisdale – TGS (Teams)

The Hydraulic Review was held in order to reach compliance on Merger Concurrence Point 4B, further known in the minutes as 4B, for I-2513B&D, I-26 / I-240 in Buncombe County. The following items were discussed and conclusions reached:

Marissa Cox kicked off the 4B meeting with introductions. In person and virtual attendees were noted and introduced. Ms. Cox then turned the meeting over to the design build team (DB Team). Matthew Cook introduced the DB Team for the project which is a joint venture team of Archer Western/Wright Brothers (contractors) with RK&K and WSP as the design team. The title sheet was shared which showed the division of the project between RK&K (Section 1) and WSP (Section 2).

This project does currently have a preliminary permit in hand, dated July 2023. The DB Team will be preparing a permit modification request to be submitted to the agencies by NCDOT once the Merger Concurrence Point 4C meeting is held and the plans / impacts are completed. The plan for the permit modification request would be to keep the same permit site numbers as the preliminary permit and then add new numbers for the additional sites.

Current Timeline

- 25% Roadway design approved for both sections.
- Hydraulic design for both sections is currently under review anticipating approval in early July.
- BSR/CSR's still under design.
- 4C meeting scheduled for September 10, 2025, at 8:00 AM.
- Coordination with the I-2513A&C team is ongoing.

Design Revisions since the Preliminary Permit was issued

- Mr. Cook shared a PDF which showed the preliminary design which was used for the preliminary permit and the current design.
- Summary of revisions:
    - Tightened bridges over the French Broad River
    - Added a loop to Patton Ave. in the interchange
    - Extended work on the west end of Patton Ave. up to Florida Ave.
    - No work on Broadway or Reed Creek, other than outletting a 15" pipe.
- Mr. Cook provided a brief description of the process since the preliminary permit was issued which included the pursuit work with the design optimizations to save money and schedule durations, the project going Best and Final Offer (BAFO) since the bids were more than 10% larger than the NCDOT estimate, the design charrette to generate cost saving ideas, the Optimization &Refinement period to further evaluate the ideas generated in the charrette and implement the designs to reduce the total project cost, and the final design that we are currently working on.
- Holland Youngman asked for a date when the design officially changed to I-26 going over Patton Ave. since the preliminary design had I-26 under Patton Ave. January 2025 was determined to be the official date for that change.
- Due to these design revisions, the original study area with jurisdictional features provided by NCDOT did not cover the limits of the project. Mr. Cook shared a map that noted the areas where additional environmental surveys were needed.
    - RK&K Natural Resources was contracted by NCDOT to complete the surveys for the new boundary under a separate contract.
    - Additional streams, tributaries, and wetlands were found, and the limits of existing jurisdictional features were extended to the new boundary.

Review of Plan Sheets

Mr. Cook kicked off the review of the 4B plan sheets, starting with the ditch detail sheets. (Note: permit site numbers below correspond to the original permit site number in the preliminary permit.)

Plan Sheet 4

- No impacts due to I-2513B&D on this sheet.
- The I-2513B&D team has ongoing coordination with the I-2513A&C team for the design overlap but cannot comment on their merger/design status.

Plan Sheet 5

- There are no jurisdictional features or impacts on this sheet.

Plan Sheet 6

- Tributary TBI was identified by RK&K since the preliminary permit.
    - This new site will be designated as Site 16 in the permit modification request.
    - It will be carried by a proposed 2GI and 30" PP pipe.
    - It will be a total take.
- Tributary TBI was identified by RK&K since the preliminary permit.
    - This new site will be designated as Site 17 in the permit modification request.
    - It will be completely covered by roadway fill so it will be a total take.
- Stream SG is Permit Site 1 in the preliminary permit.
    - SG is currently fed by an existing 48" CMP.
    - Most of the stream will be covered by roadway fill so a channel change (Detail BG) has been proposed to realign the stream.
        - The proposed channel change has a 5' base and 3' depth and will be lined with Class II riprap.
    - SG will be a total take on the right side of the roadway.

Plan Sheet 7

- Tributary TBJ and stream SG (right side) continue on to sheet 7.
- Stream SG was carried under I-26 by an existing 54" CMP. The proposed design is now carrying SG under I-26 in a 72" WS pipe that has been buried 1' due to it being jurisdictional.

- Mr. Cook asked if burying this pipe would be required since the pipe slope is greater than 3% and the pipe is 335' in length.
    - Dave McHenry did not see an issue with it not being buried since headcutting wouldn't be an issue due to the riprap lined channel.
    - Lori Beckwith and Amy Annino agreed that it did not need to be buried.
- Stream SG (Permit Site 1) continues on the left side of the roadway.
    - There will be various spots with impacts along the left side at the outlets of pipes where bank stabilization has been added. At these locations, bank stabilization will be taken down to the channel bed elevation but will have no riprap in the channel.
    - It was noted that some of these outlet points will be revised to better align with existing swales/discharge points. Additionally, drop structures may be used/added, to minimize the velocities at the outfalls.
    - There is a sanitary sewer line adjacent to stream SG, and RK&K is coordinating with the utility design team to determine if there are any conflicts and work on resolutions if conflicts are found.
- Tributary TBH was identified by RK&K since the preliminary permit.
    - There are no proposed impacts to TBH so a new site number is not needed.
- Tributary TBK was identified by RK&K since the preliminary permit.
    - This new site will be designated as Site 18 in the permit modification request.
    - It will be completely covered by roadway fill so it will be a total take.
    - It will be carried by a proposed 54" WS pipe into a storm drain system.
    - Proposed design does not impact the historic boundary that is adjacent to tributary TBK.

Plan Sheet 8

- Stream SG (Permit Site 1) continues on the left side of the roadway.
    - SG originally flowed into an existing 60" CMP which tied into the side of the existing box culvert.
    - This pipe was undersized and it was determined that the best way to replace it was to ditch SG to the entrance of the existing box culvert.
        - The proposed ditch (Detail BL) has a 6' base, 3' depth, and 4.7% slope. The ditch is proposed to be lined with Class II riprap.
- Stream SU is Permit Site 2 in the preliminary permit.
    - SU is currently carried by an existing 30" RCP. The proposed design is now carrying SU in a 54" WS pipe that has been buried 1' due to it being jurisdictional.
        - Mr. Cook asked if burying this pipe would be required since the pipe slope is greater than 3% and the pipe is 574' in length.
            - Dave McHenry and Lori Beckwith did not see an issue with it not being buried.
    - Stream SU is not a total take since the stream continues beyond the study boundary.
- Wetland WC/WC2 were identified by RK&K since the preliminary permit.
    - Since these new wetlands are adjacent to stream SU, Mr. Cook asked if they could be added to Permit Site 2 and everyone agreed to this.
    - Wetland WC is a total take since it is completely under the proposed fill slope.
    - Mr. Cook asked if wetland WC2 should also be a total take or not since only about 50% is under the fill slope.
        - Ms. Beckwith said that it could be done either way. If NCDOT wanted to consider it a partial take, NCDOT would have to monitor the site. Mr. Cook replied that it would be most conservative to consider it a total take so that is how RK&K will proceed.
- Wetland WF/WF2 is Permit Site 3 in the preliminary permit.
    - This site is completely covered by roadway fill so it will be a total take.
- Tributary TBG was identified by RK&K since the preliminary permit.
    - There are no proposed impacts to TBG so a new site number is not needed.
- Tributary TBF was identified by RK&K since the preliminary permit.
    - This new site will be designated as Site 19 in the permit modification request.
    - The storm drain system that feeds this tributary is proposed to be removed, and there is roadway fill/bridge abutments covering the tributary so this will be considered a total take.
- Stream SS is Permit Site 5 in the preliminary permit.

- SS is currently fed by tributary TBE and wetland WBA. Both the tributary and the wetland will be covered by roadway fill, so even though a large portion of stream SS is not covered by roadway fill, it will be considered a total take due to loss of hydraulic viability.

- Tributary TBE was identified by RK&K since the preliminary permit.
  - This new site will be designated as Site 20 in the permit modification request.
  - It will be completely covered by roadway fill so it will be a total take.
- Wetland WBA was identified by RK&K since the preliminary permit.
  - This new wetland is adjacent to stream SS, so Mr. Cook proposed to add it to Permit Site 5 and everyone agreed to this.
  - This site is completely covered by roadway fill so it will be a total take.
- Stream SR is Smith Mill Creek and is Permit Site 6 in the preliminary permit.
  - There are currently 5 permanent stream impact locations and 4 temporary stream impact locations along stream SR.
    - There are several ditches that tie to stream SR and the current design is to use bank stabilization (Detail BJ) to dissipate the discharge at these outfall locations.
    - Where possible, ditches will be re-aligned to outlet more in line with the flow of Smith Mill Creek.
    - Current design proposes to remove the existing 3@54" pipes along Smith Mill Creek, under Holiday Inn Drive, and restore the channel by matching the existing stream SR dimensions and slope.
      - Dave McHenry mentioned that coir fiber matting should be used for stability in this proposed channel
  - Mr. Cook brought to everyone's attention that there are a few proposed bridge piers that will be within 10' of the top of banks, with a couple being in the bank.
    - It was noted that there are approximately 290 piers on this project and the design team has done the best that they could to avoid impacts to the stream with the piers but there were some locations where it was unavoidable, especially as stream SR winds under and parallel to some of the bridges.
    - Specific locations were noted along stream SR and SP and everyone was in agreement that the best course of action would be to go ahead and add impacts for bank stabilization in areas where the pier is within 10' of the bank just to make sure it is covered in the future if the bank becomes de-stabilized during construction.
      - Ms. Beckwith noted that this was fine as long as the stabilization didn't de-stabilize the banks or channels, especially in the smaller streams.
  - Mr. Cook noted that there are several "localized impacts" along Smith Mill Creek, stream SR, and was wondering if the preference would be to permit them as individual impacts or add temporary impacts to the whole reach.
    - Michael Turchy noted that if there were impacts for the whole reach, the contractor would be covered should they need to do any work outside of the localized locations.
    - It was also argued that permitting the whole reach might mean that unnecessary work or impacts might occur since it would be allowable.
    - Chris Rivenbark suggested that temporary impact lengths be included in the permit modification for the whole reach but only the localized impact areas would be hatched in the permit drawings. That way, the contractor would know to stay within those localized areas but if something came up at a location between the localized areas, it would be permitted so work could be done to stabilize the area.
      - Ms. Beckwith asked who would make the determination that work needs to be done beyond the localized areas?
        - Mr. Cook noted that RK&K would have an engineer on site periodically and could assist NCDOT and the agencies in determining if additional work was needed.
      - No final decision was made but this seemed like a reasonable solution for most agencies.
        - The USACE is fine with this.

Plan Sheet 9

- Stream SR, Smith Mill Creek, continues on to sheet 9.
  - There are currently an additional 2 permanent and 2 temporary stream impact locations along SR on this sheet.

- Tributary TBC was identified by RK&K since the preliminary permit.
    - There are no proposed impacts to TBC so a new site number is not needed.
- Tributary TBA was identified by RK&K since the preliminary permit.
    - There are no proposed impacts to TBA so a new site number is not needed.
- Stream SBA was identified by RK&K since the preliminary permit.
    - There are no proposed impacts to SBA so a new site number is not needed.
- Pond PBA was identified by RK&K since the preliminary permit.
    - There are no proposed impacts to PBA so a new site number is not needed.
- Stream SP, Emma Branch, was previously identified but did not have any anticipated impacts so it did not have a site number in the preliminary permit.
    - This new site will be designated as Site 21 in the permit modification.
    - There is a proposed 15" CSP that outfalls on the bank. Bank stabilization (Detail BJ) is proposed to dissipate the flow.
    - Existing concrete foot bridge over stream SP is proposed to be removed, creating a temporary impact.
    - Additionally, there are proposed piers that may be within the 10' from the top of banks that was previously discussed so additional bank stabilization may be required for that.
        - RK&K Structures Group is currently working on optimizing their design so there is a possibility that the pier locations could change and would no longer be within the impact area.
- Stream SA, French Broad River, is Permit Site 7 in the preliminary permit.
    - Proposed design has bridges for I-26, I-240 EB and I-240 WB over stream SA. Due to the length and orientation of the bridges, piers had to be placed in the stream, as well as, within 10' of the top of banks.
        - RK&K Structures Group did their best to minimize the stream impacts with the piers and, when possible, aligned the piers between the bridges.
    - In addition to the stream impacts from the bridge piers, there are a couple of locations where proposed pipes outlet on the bank of stream SA and bank stabilization has been added to dissipate flow, creating an impact to the stream.
    - The first draft of the proposed drainage had a proposed 48" WS pipe tying to an existing 42" CM pipe. This has since been revised to carry the proposed 48" WS pipe all the way to the outlet at the French Broad River.
- Stream SO is Permit Site 8 in the preliminary permit.
    - SO is currently carried by an existing 66" CMP. The proposed design is now carrying SO in a 66" WS pipe.
        - Despite this being a jurisdictional stream, the proposed 66" WS pipe is not buried. The proposed 66" WS pipe is part of a storm drainage system that flows through three drainage boxes and takes two 90 degrees turns before discharging.
            - It was agreed that this pipe did not need to be buried.
- The design team had received a comment about using the NC-SELDM Catalog, a tool for helping determine stormwater treatment goals for project sections, for these bridges and Mr. Cook confirmed with Brook Anderson that SELDM is generally used in the planning phase and the design has progressed far enough that it would not be needed.

Plan Sheet 10

- Stream SA, French Broad River, extends onto sheet 10 but there are no impacts on this sheet.
- Stream SM is permit site 9 in the preliminary permit.
    - SM is currently carried by an existing 42" CMP. The proposed design is now carrying SM in a 48" WS pipe.
        - Despite this being a jurisdictional stream, the proposed 48" WS pipe is not buried. The proposed 48" WS pipe is part of a storm drainage system that flows through seven drainage boxes and is approximately 622' long before discharging.
            - It was agreed that this pipe did not need to be buried.
- Wetland WAK was identified by RK&K since the preliminary permit.
    - Since this new wetland is adjacent to stream SM, Mr. Cook asked if it could be added to Permit Site 9 and everyone agreed to this.
    - Wetland WAK is a total take.
- Stream SL is permit site 10 in the preliminary permit.
    - SL is currently carried by an existing 36" CMP. The proposed design is now carrying SL in a 48" WS pipe.

        - Despite this being a jurisdictional stream, the proposed 48" WS pipe is not buried. The proposed 48" WS pipe is part of a storm drainage system that flows through four drainage boxes and is approximately 541' long before discharging.
            - It was agreed that this pipe did not need to be buried.
- Stream SBB was identified by RK&K since the preliminary permit.
    - This new site will be designated as Site 22 in the permit modification request.
    - Stream SBB was fed by an existing 30" CMP. It will now be fed by a proposed 42" WS pipe.
    - Stream SBB is impacted by the outfall riprap protection for the proposed 42" WS pipe and will not be a total take.
    - There will be no impact to stream SA, French Broad River, as a result of the impacts to stream SBB.
- Tributary TAB was identified by RK&K since the preliminary permit.
    - This new site will be designated as Site 23 in the permit modification request.
    - Tributary TAB will be picked up in an open throat catch basin and will be carried by a proposed 30" CS pipe into a storm drain system.
        - Pipes in the storm drain system will not be buried since there are 11 inlets and approximately 787' of pipe before discharging.
            - It was agreed that this pipe did not need to be buried.

Plan Sheet 11

- Stream SA, French Broad River, extends onto sheet 11 but there are no impacts on this sheet.
- Stream SI is permit site 11 in the preliminary permit.
    - SI is currently carried by an existing 42" CMP. The proposed design is now carrying SI in a 48" WS pipe.
        - Despite this being a jurisdictional stream, the proposed 48" WS pipe is not buried. The proposed 48" WS pipe is part of a storm drainage system that flows through seven drainage boxes and is approximately 495' long before discharging.
    - On the downstream end of the proposed storm drainage system, SI will be carried in a proposed riprap lined channel with Class I riprap (both the banks and bottom of channel), a 3' base width and 2.5' depth. The slope of the proposed channel is 0.42%.
        - The channel is necessary on this end due to the elevation requirements of the drainage system to get under the existing railroad tracks.
- Tributary TAC was identified by RK&K since the preliminary permit.
    - There are no proposed impacts to TAC so a new site number is not needed.

Plan Sheet 12

- Stream SA, French Broad River, extends onto sheet 12.
    - Since it is so far away from the Site 7 impacts in the preliminary permit, it was decided that this impact should get a new site number.
    - This new site will be designated as Site 24 in the permit modification request.
    - The impact to stream SA is due to the riprap outlet pad required for the outfall of two proposed 42" WS pipes.
- Tributary TAD was identified by RK&K since the preliminary permit.
    - There are no proposed impacts to TAD so a new site number is not needed.
- Tributary TAE was identified by RK&K since the preliminary permit.
    - This new site will be designated as Site 25 in the permit modification request.
    - Tributary TAE will be picked up in an open throat catch basin and will be carried by a proposed 30" WS pipe into a storm drain system.
        - Pipes in the storm drain system will not be buried since there are four inlets and approximately 281' of pipe before discharging.
            - It was agreed that this pipe did not need to be buried.
- Stream SK is permit site 12 in the preliminary permit.
    - SK is currently carried by an existing 48" CMP. The proposed design is now carrying SK in a 48" WS pipe.
        - Despite this being a jurisdictional stream, the proposed 48" WS pipe is not buried. The proposed 48" WS pipe is part of a storm drainage system that flows through six drainage boxes and is approximately 497' long before discharging.

- It was agreed that this pipe did not need to be buried.

- Wetland WBB was identified by RK&K since the preliminary permit.
  - Since this new wetland is adjacent to stream SK, Mr. Cook asked if it could be added to Permit Site 12 and everyone agreed to this.
  - It was agreed that wetland WBB will be a total take.

Plan Sheet 13

- Stream SK extends onto sheet 13 but there are no impacts on this sheet.
- Tributary TBL was identified by RK&K since the preliminary permit.
  - This new site will be designated as Site 26 in the permit modification request.
  - Tributary TBL will be carried by a proposed 36" WS pipe into a storm drain system.
    - Pipes in the storm drain system will not be buried since there are seven inlets and approximately 740' of pipe before discharging.
      - It was agreed that this pipe did not need to be buried.
- Stream SA, French Broad River, extends onto sheet 13.
  - Since it is away from the previous impacts it was decided that this impact should get a new site number.
  - This new site will be designated as Site 28 in the permit modification request.
  - The impact to stream SA is due to the riprap outlet pad required for the outfall of a proposed 42" WS pipe and existing 24" CMP.
- Tributary TAA was identified by RK&K since the preliminary permit.
  - This new site will be designated as Site 27 in the permit modification request.
  - The upstream portion of tributary TAA was fed by an existing 30" CMP that is being removed.
  - The remaining downstream portion is fed by an existing 24" CMP that is to remain.
- Stream SJ, Reed Creek, is Permit Site 13 in the preliminary permit for I-2513B.
  - This is the upstream portion of Reed Creek prior to it entering the existing four cell box culvert under Riverside Drive.
  - There are no proposed impacts to this portion of stream SJ
- Stream SJ, Reed Creek, is permit site 1 in the preliminary permit for I-2513D
  - Since this is the only site in the I-2513D section, Mr. Cook requested that this site be added to the I-2513B section and be renumbered to Site 13.
    - It was agreed to include this site in the I-2513B section.
  - The existing culvert is no longer being extended, as it was in the preliminary permit, so the only impact is due to adding riprap at the outlet of a proposed 18" RC pipe that is carrying storm drainage from Riverside Drive.

Plan Sheet 14

- Stream SA, French Broad River, extends onto sheet 14 but there are no impacts on this sheet.
- Stream SAV is permit site 15 in the preliminary permit.
  - SAV is currently carried by an existing 60" CMP. The proposed design is retaining this existing 60" CMP. A pipe investigation will determine if a liner is required in this existing pipe.
    - Since the existing pipe is being retained, the pipe will not be buried.
  - There will be impacts where a proposed 24" and 18" pipe are tying down to stream SAV using riprap outlet pads.
- Stream SBC was identified by RK&K since the preliminary permit.
  - There are no proposed impacts to SBC so a new site number is not needed.
- Stream ST was identified by RK&K since the preliminary permit.
  - This new site will be designated as Site 29 in the permit modification request.
  - Stream ST will be impacted by the outlet of a proposed 15" CSP and the riprap outlet pad associated with that.
- Wetland WBC was identified by RK&K since the preliminary permit.
  - There are no proposed impacts to WBC so a new site number is not needed.

Plan Sheet 15

- Stream SAU is Permit Site 2 in the preliminary permit.
  - There are no proposed impacts to stream SAU.
- Wetland WBD was identified by RK&K since the preliminary permit.

- There are no proposed impacts to WBD so a new site number is not needed.

Plan Sheet 16

- There are no jurisdictional features or impacts on this sheet.

Plan Sheet 17

- Stream SR, Smith Mill Creek, is Permit Site 4 in the preliminary permit.
  - This is the downstream portion of Smith Mill Creek at the outlet of the existing three cell box culvert under Patton Avenue.
  - There is a proposed impact for riprap bank stabilization at the outlet of a proposed 36" CSP adjacent to the box culvert outlet.
- There is an additional impact upstream of the existing box culvert where a proposed 36" CSP discharges onto bank stabilization along stream SR.
  - It was agreed that this impact would be added to Site 4.
- It was discussed that there is an impact on stream SR that can't be seen very well on any sheet where stream SG ties into stream SR with a proposed base ditch (Detail BL). This impact occurs between sheet 8 and sheet 17 and an inset on sheet 8 was added.

Plan Sheet 18

- Stream SA, French Broad River, extends onto sheet 18 but there are no impacts on this sheet.

River Safety Plan

- Mr. Rivenbark stated that a draft update of the current River Safety Plan has been completed using examples provided by NCDOT.
  - Mr. Turchy advised forwarding the draft River Safety Plan to Ms. Beckwith for her review as soon as possible.

Project Commitments

- Mr. Cook began by noting that the current commitments spreadsheet has 313 commitments listed but he has reduced that down to 175 by eliminating duplicates and removing items that have already been addressed.
  - Mr. Cook shared the spreadsheet that has been shared between the design team and NCDOT listing all the commitments and their current status.
- Ms. Cox brought to everyone's attention that there needs to be coordination with the lighting for under the I-26 bridge over Patton Avenue.
  - Make sure that Greg Hall is involved.
- Ms. Beckwith requested that the design build team assemble an Avoidance and Minimization document for all the commitments, as it made compliance for the I-4400/I-4700 project easier, but it is up to NCDOT if this document will be needed
  - Follow up conversations will be needed to determine what is needed to complete this document.
- Ms. Beckwith discussed how important the Bridge Construction and Demolition (C&D) Plan is for the permit modification. The draft C&D plans that she reviewed for the Phase 1 application required work and she noted that she would be happy to review the plan prior to NCDOT requesting a permit modification.
  - Additionally, Ms. Beckwith noted that information regarding causeways and other C&D related issues will be necessary for the 4C meeting.

Field Meeting

- Mr. Cook asked if a field meeting would be needed and Ms. Beckwith decided it would not be necessary for her to see this project but if others want to have it, that would be fine. No one else noted that they needed a field meeting.

Additional Discussion

- No additional items were discussed.

The meeting adjourned.

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I-2513 B & D 4C Meeting Minutes

I-2513B&D Concurrence Point 4C Meeting

Date: September 10, 2025
Location: CCA Technical Services Conference Room
Time: 8:00 AM
Attendees:

Hannah Headrick – NCDOT	Edwin Fenner – NCDOT
John Jamison – NCDOT	Solomon Mengesha – NCDOT (Teams)
Todd Lapham – NCDOT (Teams)	Brook Anderson – NCDOT
Carlas Sharpless – NCDOT	Nathaniel Moneyham – NCDOT (Teams)
Yates Allen – NCDOT (Teams)	Jeffrey Hemphill – NCDOT (Teams)
Susan Locklear – NCDWR	Michael Turchy – NCDOT
Amy Annino – NCDWR (Teams)	Lori Beckwith – USACE (Teams)
Victoria Fowler – GFT (Teams)	Holland Youngman – USFWS (Teams)
David McHenry – NCWRC (Teams)	Matthew Payne – JV (Teams)
David Moyar – JV	Byron Holden – RK&K (Teams)
Eleni Riggs – RK&K	Jeremy Keene – RK&K (Teams)
Matt Cook – RK&K	Pete Stafford – RK&K (Teams)
Chris Rivenbark – RK&K	Vidya Mohandas – WSP
Garrett Little – WSP	Kase Schalois – WSP
Jay Twisdale – TGS (Teams)	Randy Henegar – TGS (Teams)

Introductions

An interagency meeting was held to review the permit drawings in order to reach compliance on Merger Concurrence Point 4C, further known in the minutes as 4C, for I-2513B&D, I-26 / I-240 in Buncombe County. The following items were discussed and conclusions reached:

In person and virtual attendees were noted and introduced and the meeting was turned over to the design build team (DB Team). Matthew Cook introduced the DB Team for the project which is a joint venture team of Archer Western/Wright Brothers (contractors) with RK&K and WSP as the design team.

- **Project Description**
  - Matt Cook explained that this project started with procurement and upon award to the DB Team went through an Optimization and Refinement (O&R) process to get the design to the point that it is at today.
  - Mr. Cook explained that RK&K is responsible for the design on Section 1 (west side up to French Broad River) and WSP is doing the design for Section 2 (east of the French Broad River).
- **Preliminary Permit**
  - Mr. Cook explained that the Preliminary Permit for the entire I-2513 corridor was received in July of 2023 and that the DB Project is for the B and D sections.
  - Lori Beckwith clarified that a Preliminary Permit was issued and each design section is responsible to complete a permit modification request for their section.
  - Per the 4B meeting, the preliminary site numbers were retained and then additional site numbers were added sequentially, as necessary.
- **Footprint Reduction**
  - Mr. Cook showed a map depicting the preliminary layout of the project with an overlay of the current design. He explained how during the procurement process, the DB Team reduced the overall footprint of the project.
- **Environmental Corridor**

- Mr. Cook explained how the original study area with jurisdictional features provided by NCDOT did not cover the limits of the project. He shared a map which noted the areas where additional environmental surveys were needed.
    - RK&K Natural Resources was contracted by NCDOT to complete the surveys for the new boundary under a separate contract.

- **FEMA Floodplain**
    - Mr. Cook used the NC Flood Risk Information System (FRIS) to show how most of the project along the French Broad River is within the 100-year floodplain and how the DB Team is constricted by a railroad on one side and Riverside Drive on the other side. It was also noted that the project is within the floodplain of Smith Mill Creek and Emma Branch.
- **Design Update**
    - 25% Roadway Plans and Redline Drainage Plans have both been approved by NCDOT.
    - All BSR's and CSR's have been submitted at this time and are in various stages of review or approval.
    - Right of Way Plans for both sections have now been submitted.
    - Utility design is underway but will be a continuous process. At this time, no impacts are anticipated but if that changes, the DB Team will notify NCDOT and agencies immediately.
    - Susan Locklear asked about using the NC-SELDM Catalog.
        - Mr. Cook stated that we discussed this during the 4B Meeting and it was determined that the design has progressed far enough that it would not be needed. He deferred to Brook Anderson to confirm this.
        - Ms. Anderson confirmed that SELDM is generally used in the planning phase and would not be required for this project.
        - Ms. Locklear requested that a note be added to the General Summary of the Stormwater Management Plan to explain this so there are no questions in the future.
- **A/C Coordination**
    - Mr. Cook noted that coordination with the I-2513AC project team is on-going and there are bi-weekly coordination meetings.

Section 1 – 4C Permit Drawings

Mr. Cook kicked off the review of the 4C permit drawings, starting with the ditch detail sheets.

Permit Drawing 4 of 81

- **Site 16 - TBI:** New site from preliminary permit.
- There are 0.005 acres of Permanent Surface Water Impacts.
- Mr. Cook noted that only acreage was calculated and not linear feet for this impact due to the "T" designation.
    - Ms. Beckwith asked why it was done that way.
    - Chris Rivenbark stated that the "T" designated streams are considered JS non-mitigable.
    - Ms. Beckwith said that in the mountains if there is an OHW mark then it is typically at least intermittent and then would be scored that way.
        - If they have been scored as ephemeral then they will be removed from the plans since they are not JS.
        - The "T" streams can be removed from the plans.
        - Sites will be re-numbered, as needed.
        - Remove impact hatching and change JS linestyle so that it is no longer shown as JS.
        - The agencies requested copies of the NCDWQ SWIT forms.
    - Amy Annino stated that if they are ephemeral then they should be removed.
- **Site 17 - TBJ:** New site from preliminary permit that will now be removed.
- **Site 1 – SG:** Total take on right side of project with 556 ft and 0.064 acres of Permanent Surface Water Impacts.

Permit Drawing 6 of 81

- **Site 1 – SG:** continuation from drawing 4 of 81
    - New channel being diverted into a proposed 66".
    - Individual impacts for each location on SG on left side of project.

        - Bank Stabilization at outlet of Standard Base Ditch
            - 49 ft and 0.008 acres of Permanent Surface Water Impacts.
            - 20 ft and 0.003 acres of Temporary Surface Water Impacts.
        - Bank Stabilization at outlet of 54" RCP
            - 25 ft and 0.004 acres of Permanent Surface Water Impacts.
            - 20 ft and 0.004 acres of Temporary Surface Water Impacts.
            - Ms. Locklear asked if the outlet could be moved back closer to the existing outlet and discharge into the existing swale.
                - Mr. Cook said that that was considered during the design but there was concern with headcutting so that option was not used.
        - Bank Stabilization at outlet of 54" WSP
            - 29 ft and 0.005 acres of Permanent Surface Water Impacts.
            - 20 ft and 0.003 acres of Temporary Surface Water Impacts.
- **Site 18 – TBK:** New site from preliminary permit that will now be removed.

Permit Drawing 9 of 81

- **Site 1 – SG:** continuation from drawing 6 of 81.
    - Bank Stabilization at outlet of 15" CSP.
        - 9 ft and 0.002 acres of Permanent Surface Water Impacts.
        - 21 ft and 0.004 acres of Temporary Surface Water Impacts.
    - Replacing 60" RCP with base ditch due to HW/D concerns
        - 3 ft and 0.001 acres of Permanent Surface Water Impacts.
        - 10 ft and 0.002 acres of Temporary Surface Water Impacts.
- **Site 4 – SR:** shown in Inset 8A.
    - Impacts from Bank Stabilization at Channel Change tie-in to Smith Mill Creek following the removal of the existing 60" RCP.
        - 21 ft and 0.005 acres of Permanent Surface Water Impacts.
        - 10 ft and 0.003 acres of Temporary Surface Water Impacts.
- **Site 2 – SU/WC/WC2:** WC and WC2 are new from the preliminary permit and were added to Site 2 per 4B meeting.
    - Stream SU
        - 410 ft and 0.026 acres of Permanent Surface Water Impacts.
        - 12 ft and 0.001 acres of Temporary Surface Water Impacts.
    - Wetland WC/WC2
        - 0.029 acres of Fill in Wetlands.
        - Impact summary table shows quantities for a total take of the wetlands but hatching impacts are only shown to right of way line, per discussion during 4B.
        - Ms. Beckwith asked for clarification on this and Mr. Cook explained further. Impact quantities cover the entire wetland but hatching does not. This was done so that the contractor does not think that they can work beyond the right of way line.
- **Site 3 – WF/WF2:** total takes due to roadway fill.
    - 0.104 acres of Fill in Wetlands.

Permit Drawing 11 of 81

- **Site 6 – SR:** working upstream to downstream
    - Bank Stabilization at Standard Base Ditch tie-in to Smith Mill Creek.
        - 8 ft and 0.002 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.006 acres of Temporary Surface Water Impacts.
    - Bank Stabilization at Standard Base Ditch tie-in to Smith Mill Creek
        - 15 ft and 0.005 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.006 acres of Temporary Surface Water Impacts.
        - Ms. Locklear asked about re-aligning the ditch so that it is perpendicular to Smith Mill Creek, as requested during the 4B meeting.
            - Mr. Cook pointed out that the interior bents prevent this ditch from being re-aligned but, in general, the design tried to adhere to this request from the 4B meeting.

        - Ms. Locklear also asked about adding riprap bank stabilization on the opposite side of the channel, similar to what was done at Site 1.
            - Mr. Cook said that the wider channel in this area made it so the riprap on the opposite side of the channel wasn't warranted.
    - Removal of (3) @ 54" CMP and proposed Channel Change which will be returning the channel to existing dimensions with coir fiber matting.
        - Upstream – 21 ft and 0.019 acres of Temporary Surface Water Impacts.
        - Downstream – 40 ft and 0.016 acres of Temporary Surface Water Impacts.
    - Bank Stabilization at Standard Base Ditch tie-in to Smith Mill Creek.
        - 15 ft and 0.005 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.006 acres of Temporary Surface Water Impacts.
    - Bank Stabilization at Standard Base Ditch tie-in to Smith Mill Creek.
        - 8 ft and 0.002 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.006 acres of Temporary Surface Water Impacts.
    - Cart/Foot Bridge Removal
        - 33 ft and 0.011 acres of Temporary Surface Water Impacts.
        - Mr. Cook noted that the removal of the Cart/Foot Bridges was currently being shown with only temporary impacts and asked if the agencies would prefer to show it with permanent impacts in case riprap is needed to stabilize the banks after removal.
            - Ms. Beckwith replied that it could be handled in the field and the contractor would have to ask if they need to put riprap on the banks to stabilize.
    - Bank Stabilization at Standard Base Ditch tie-in to Smith Mill Creek.
        - 20 ft and 0.005 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.006 acres of Temporary Surface Water Impacts.
    - Cart/Foot Bridge Removal
        - 26 ft and 0.007 acres of Temporary Surface Water Impacts.
    - Cart/Foot Bridge Removal
        - 27 ft and 0.006 acres of Temporary Surface Water Impacts.
    - Bank Stabilization at Standard Base Ditch tie-in to Smith Mill Creek.
        - 17 ft and 0.004 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.006 acres of Temporary Surface Water Impacts.
    - Site 6 has temporary impacts permitted for the whole channel from right of way to right of way.
        - 1221 ft and 0.413 acres of Temporary Surface Water Impacts.
        - Ms. Beckwith stated that was fine and that it would need to be clearly explained in the permit modification.
        - Ms. Annino asked about what types of impacts might be anticipated in those areas.
            - Types of impacts include dewatering, bank stabilization, temporary trestle bridge, etc.
            - These impacts would need to be communicated to agencies as they arise on site.
        - Ms. Beckwith asked about a person on site approving these "impacts" as was mentioned in the 4B meeting.
            - NCDOT inspectors, Division Environmental staff, and/or RK&K staff would review the need, and if deemed reasonable, allow the work to proceed.
            - Notifications of such additions could be provided to the USACE and NCDWR periodically to ensure their awareness.
- **Site 19 – TBF:** New site from preliminary permit that will now be removed.
- **Site 5 – SS and WBA:** impacts from roadway fill
    - Wetland WBA
        - 0.045 acres of Fill in Wetlands.
    - Stream SS (impacted since wetland upstream is being filled so channel is no longer being fed)
        - 43 ft and 0.005 acres of Permanent Surface Water Impacts.
- **Site 20 – TBE:** New site from preliminary permit that will now be removed.
- Mr. Cook noted that all proposed columns are outside of the top of banks though some may be within 5-10 ft of the top of bank.

- If pipe profiles are to be removed due to "T" streams coming out, it may be easier to leave a blank sheet with a "This Sheet Intentionally Left Blank" note rather than re-numbering all permit drawing sheets.
    - There were no issues with this.
    - Mr. Cook flipped through all the profile sheets but there were no comments on any of those sheets.

Permit Drawing 27 of 81

- **Site 6 – SR:** continuation from drawings 9 and 11 of 81.
    - Bank Stabilization at outlet of 24" CSP.
        - 12 ft and 0.003 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.006 acres of Temporary Surface Water Impacts.
    - Bank Stabilization at outlet of 15" CSP.
        - 11 ft and 0.006 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.011 acres of Temporary Surface Water Impacts.
- TBA and TBC will be gone but had no impacts. PBA is a pond with no impacts.
- **Site 21 – SP:** Preliminary Permit did not have any impacts on Stream SP – Emma Branch.
    - Cart/Foot Bridge Removal
        - Per comments on the Redline Drainage Plans, riprap was added here for bank stabilization upon removal of the bridge.
            - Jay Twisdale confirmed that this comments was made since this bridge seemed more substantial than some of the others and it was thought that the riprap would be necessary once the bridge was removed.
        - Current design shows 55 ft and 0.019 acres of Temporary Surface Water Impacts.
            - Due to the addition of riprap bank stabilization, impacts will be updated to Permanent Surface Water Impacts.
    - Foot Bridge Removal - Upstream
        - 20 ft and 0.005 acres of Temporary Surface Water Impacts.
    - Bank Stabilization at outlet of 15" CSP.
        - 9 ft and 0.003 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.007 acres of Temporary Surface Water Impacts.
- **Site 7 – SA:** All impacts other than causeway
    - Bank Stabilization at outlet of 66" WSP.
        - 36 ft and 0.008 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.004 acres of Temporary Surface Water Impacts.
        - Dave McHenry asked if the ditch between the 2 @ 54" pipes and 1 @ 66" pipe could be lined with coir fiber matting.
            - Mr. Cook replied that could be done.
    - Bank Stabilization at outlet of 54" WSP.
        - 36 ft and 0.008 acres of Permanent Surface Water Impacts.
        - 32 ft and 0.006 acres of Temporary Surface Water Impacts.
    - Bank Stabilization at outlet of 36" WSP (excludes all causeway impacts).
        - 19 ft and 0.005 acres of Permanent Surface Water Impacts.
        - 20 ft and 0.004 acres of Temporary Surface Water Impacts.
- **Site 7 – SA:** Causeway construction
    - Mr. Cook noted that the entire footprint under the bridge (excluding a proposed 36" WSP outlet, bank stabilization, and interior bents) was accounted for as temporary stream impacts in the drawings. The impacts were reduced from 197,700 sq. ft. in the preliminary permit to 136,125 sq. ft. as currently shown in the 4C permit drawing set.
    - Permit Drawing 29 of 81 – Per project commitments, no geotextile fabric shown under the workpad, will have jersey barrier at the base of workpad that is not shown in the detail.
    - Goal of the contractor is to minimize impacts to the channel by not leaving the riprap in for the life of construction.
        - Drill the trestle foundations due to rock (top down is not viable)
            - Only 3 week time frame (approx.)

- David Moyar pointed out that it wouldn't be completely reduced to 14% for 3 weeks, as the farthest span is built, the rock will be removed and they will continue to work that way

- Mr. Cook stepped through all phases of the causeway plans (Permit Drawings 30 thru 40 of 81)
  - It was noted that the contractor would need to drill the foundations for the trestle bridge due to rock and wouldn't be able to do top down construction. Because of this, there is a short duration of time that will have more than 50% of the channel blocked (worst case is 86% blocked or 14% open). Mr. Cook noted that in the commitments, it was stated that "potential additional restrictions of the channel may be necessary for short durations…".
    - Mr. Cook stated that the approximate timeframe for blocking more than 50% of the channel would be about 3 weeks.
    - Mr. Moyar pointed out that it wouldn't be reduced to 14% for the full 3 weeks. After the farthest foundations are drilled, the causeway rock from that span would be removed. Then the next pier foundations will be drilled followed by removing the causeway rock from that span. It will take approximately 1 week to drill the foundations and remove the rock from 1 span.
  - Ms. Beckwith asked about commitment to restrict more than 50% of the channel for short durations.
    - Mr. Rivenbark pulled out the commitment from the Addendum BO and original Demolition and Construction (D&C) plan.
      - Ms. Beckwith pointed out that this is in the BO and is not in a permit, so it doesn't mean that more than 50% restriction of river flow will be authorized.
    - Ms. Beckwith said that the draft D&C plan she reviewed when the application for Phase 1 was submitted needed a lot of work.
    - Ms. Beckwith asked if we really couldn't keep it open to 50% and Mr. Cook assured her that it wasn't possible with all the constraints.
      - Ms. Beckwith asked about lowering the causeway height and allowing the water to flow over, which was done on a previous project (I-4700), but Mr. Cook stated that wouldn't work too well at this location since the water height is so low to start with.
        - Mr. Moyar was also concerned with water quality while having water flow on the construction equipment located on the causeway.
          - Ms. Beckwith noted that both the USACE and DWR approved that for the I-4700 project and that the contractor just needed to take additional precautions.
      - Ms. Beckwith stated that the DB team will need a detailed explanation (white paper) to respond to everything that was in her email (sent to various agencies and NCDOT on 9/9/2025 and forwarded to Mr. Rivenbark by Michael Turchy that same day) and they will review but there is no guarantee that this will get approved. Ms. Beckwith also requested that NCDOT to respond to WRC's comment in the chat box regarding elevations up and downstream of the causeway, since Dave McHenry had to leave the meeting early.
    - Ms. Annino asked if the DB team could provide information about time of year for installing the causeways and the typical flow rates at that time of year.
      - Mr. Cook said that we don't have enough data to adequately address that.
    - Holland Youngman had similar questions and concerns as Ms. Beckwith and Ms. Annino.
      - Are there studies or information that shows how this 80% blockage will affect the river users?

        - Could the DB team provide hydraulic plan and scenarios for how different situations would be handled (i.e. if a significant storm event was predicted to occur during the restricted channel time period).
        - Mr. Cook stated that the team has not put this through a model yet but we can provide a summary to address some of these questions once that has occurred.
    - Mr. Cook then went back to show the railroad constraint on west side which limits access to the river to the east side only.
    - Ms. Beckwith stated that safety and recreation are two of the biggest USACE concerns. What will happen to someone floating the river? What will the water be like in this restricted area? Could the contractor commit to not working if there is a rainfall in the forecast.
    - The question was asked if NCDOT can shut down river traffic for a month? Mr. Turchy noted that USACE did not let them close the river to recreational use for I-40 Pigeon River so that is probably not an option here.
    - Ms. Annino asked about submitting the River Usage Plan.
        - Mr. Rivenbark stated that the plan is combined River Usage Plan and D&C and is in draft form under review by NCDOT.
    - Ms. Beckwith noted that signage is a big thing in these plans.
    - Ms. Youngman asked about the water surface elevations and velocities during the various blockages and asked that those numbers be included in the White Paper that is developed.
    - Mr. Cook noted that the 10-year storm already overtops the causeway so the area/velocity is not constricted during most storm events
    - Ms. Beckwith's final comment was that she can't approve the plan at this time but will look at the information that we provide and will review with her supervisor.
    - Mr. Cook asked if 4C concurrence can be reached even if the causeway restriction isn't fully resolved. Ms. Beckwith defaulted to NCDOT and Mr. Turchy said that it could be with the understanding that the causeway plans and details were not approved by the Merger Team at this time.
    - Ms. Locklear asked about concerns with the RR coordination since it is parallel to the river on the west side, and Mr. Moyar mentioned that the DB team has been meeting with the RR and started that coordination process.
- **Site 8 – SO:** 66" WS, not buried per 4B meeting
    - Bank Stabilization
        - 27 ft and 0.003 acres of Permanent Surface Water Impacts.
- Mr. Cook went through the pipe profiles applicable to the permit drawing sheet and there were no comments.

Section 2 – 4C Permit Drawings

Permit Drawing 48 of 81

- **Site 9 – SM and WAK:** Roadway Fill and 48" WS, not buried.
    - Stream SM – Bank Stabilization
        - 33 ft and 0.002 acres of Permanent Surface Water Impacts.
        - 7 ft and 0.001 acres of Temporary Surface Water Impacts.
    - Wetland WAK – Roadway Fill
        - Total take
        - Not originally listing in NRTR so added to Site 9 per 4B meeting.
        - 0.009 acres of Fill in Wetlands
- **Site 10 – SL:** Channel Change into 48" WSP, not buried.
    - 101 ft and 0.009 acres of Permanent Surface Water Impacts.
    - 11 ft and 0.001 acres of Temporary Surface Water Impacts.
- **Site 23 – TAB:** New site from preliminary permit that will now be removed.

- **Site 22 – SBB:** not a total take due to the temp impacts at the end of the riprap.
    - Ms. Annino was questioning the current conditions and if there is a defined channel now.
    - Mr. Rivenbark stated that this site scored as intermittent.
    - It was decided that if riprap is not needed to go all the way to the river, then don't extend and keep the temporary impact.
        - 21 ft and 0.001 acres of Permanent Surface Water Impacts.
        - 0.001 acres of Temporary Surface Water Impacts.

Permit Drawing 55 of 81

- TAC had no impacts but will be removed.
- **Site 11 – SI:** Proposed 54" WSP, not buried, with Channel Change at outlet.
    - The channel change had to be extended more than what was shown at 4B due to elevations and stability.
    - Ms. Annino asked about the channel change not lining up with the JS lines in plan view.
        - Vidya Mohandas stated that the JS didn't line up with the contours but that the channel change lines up with the surveyed channel inverts.
        - Mr. Cook stated that we can adjust the JS line to match the existing contours
    - Bank Stabilization on right side of project.
        - 12 ft and 0.001 acres of Permanent Surface Water Impacts.
        - 10 ft and 0.001 acres of Temporary Surface Water Impacts.
    - Roadway Fill on right side of project.
        - 100 ft and 0.009 acres of Permanent Surface Water Impacts.
    - Channel Change on left side of project.
        - 326 ft and 0.022 acres of Permanent Surface Water Impacts.
        - 11 ft and 0.001 acres of Temporary Surface Water Impacts.

Permit Drawing 60 of 81

- TAC had no impacts but will be removed.
- **Site 25 – TAE:** New site from preliminary permit that will now be removed.
- **Site 12 – SK and WBB:** Roadway Fill and Channel Change into 48" WSP.
    - Stream SK
        - 75 ft and 0.008 acres of Permanent Surface Water Impacts.
        - 10 ft and 0.001 acres of Temporary Surface Water Impacts.
    - Wetland WBB
        - Total take
        - Not originally listing in NRTR so added to Site 12 per 4B meeting.
        - 0.003 acres of Fill in Wetlands
        - 0.003 acres of Excavation in Wetlands
- **Site 24 – SA:** riprap extends to FBR so we do have an impact there.
    - New site number per the 4B meeting.
    - Bank Stabilization
        - 34 ft and 0.011 acres of Permanent Surface Water Impacts.
        - 30 ft and 0.009 acres of Temporary Surface Water Impacts.

Permit Drawing 64 of 81

- **Site 12 – SK:** continuation from drawing 60 of 81.
- **Site 26 – TBL:** New site from preliminary permit that will now be removed.
- **Site 27 – TAA:** New site from preliminary permit that will now be removed.
- **Site 28 – SA:** (2) – 30" WSP under railroad.
    - Continuing to work with the RR due to cover issues at this location.
    - Constrained by French Broad River, Railroad and several utilities.
    - New site number per the 4B meeting.
    - Bank Stabilization along French Broad River
        - 48 ft and 0.015 acres of Permanent Surface Water Impacts.
        - 29 ft and 0.008 acres of Temporary Surface Water Impacts.
- **Site 13 – SJ:** this was site 1 in I-2513D and was renumbered per 4B meeting.

- No impacts due to culvert extension only for the pipe tying into the channel.
- Bank Stabilization at 18" CSP outlet.
  - 10 ft and 0.003 acres of Permanent Surface Water Impacts.
  - 24 ft and 0.007 acres of Temporary Surface Water Impacts.

Permit Drawing 67 of 81

- **Site 29 – ST and WBC:** Bank Stabilization and Pipe Lining
  - New site number from the preliminary permit.
  - Pipe lining for the existing 48" CMP required by the RFP.
    - Assumed 20' x 40' work area for pipe lining.
  - Stream ST
    - Bank Stabilization
      - 12 ft and 0.001 acres of Permanent Surface Water Impacts.
    - Pipe Lining
      - 29 ft and 0.001 acres of Temporary Surface Water Impacts.
  - Wetland WBC
    - Not originally listing in NRTR so added to Site 29 per 4B meeting.
    - Not a total take and impacts are considered temporary.
    - 0.005 acres of Temporary Fill in Wetlands.
- **Site 30 – SBC:** Impact due to pipe lining.
  - New site number from the preliminary permit.
  - Pipe Lining
    - 12 ft and 0.001 acres of Temporary Surface Water Impacts.
- **Site 15 – SAV:** Bank Stabilization and Pipe Lining
  - This is the 60" that is mentioned in some of the commitments.
  - Pipe lining for the existing 60" CMP required by the RFP.
    - Assumed 20' x 40' work area for pipe lining.
    - 28 ft and 0.002 acres of Temporary Surface Water Impacts.
  - Bank stabilization due to pipes tying into the channel.
    - 12 ft and 0.001 acres of Permanent Surface Water Impacts.
- Ms. Locklear asked about the direct discharge into the culvert at bottom of the page and was wondering if it was possible to put a 2GI or OTCB on top of the culvert and discharge some of the other pipes into the open area to allow for infiltration.
    - Ms. Anderson mentioned that the 42" would be difficult to pick back up in a box.
    - Mr. Cook noted that this is near a public housing area and would want to limit access to open pipes/boxes.

Permit Drawing 72 of 81

- **Site 14 – SAU and WBD:** Impacts due to pipe lining.
  - Did not have impacts previously but needed to add them due to pipe lining.
  - Assumed 20' x 40' work area for pipe lining.
  - Stream SAU
    - 43 ft and 0.003 acres of Temporary Surface Water Impacts.
  - Wetland WBD
    - Not originally listing in NRTR so added to Site 14 per 4B meeting.
    - 0.031 acres of Temporary Fill in Wetlands.

Permit Drawing 76 of 81

- Upstream of the area that we previously looked at on Permit Drawing Sheet 9 of 81
- **Site 4 – SR:** Working upstream to downstream
  - Bank Stabilization at outlet of 36" CSP.
    - 20 ft and 0.007 acres of Permanent Surface Water Impacts.
    - 20 ft and 0.007 acres of Temporary Surface Water Impacts.
  - Site at culvert inlet was previously discussed
  - Bank Stabilization at outlet of 36" RCP at existing culvert outlet.
    - Received a comment to remove the impact since it is technically away from the JS.

- Left the impact in place due to a concern that the “bank/bench” may get washed out and want to include the impact just to be safe.

Strategic Communication Plan

- Includes the River Usage Plan and Demolition & Construction (D&C) Plan.
- Mr. Rivenbark asked Ms. Beckwith if she would like to see this before the permit modification is submitted.
    - Ms. Beckwith asked if this is in relation to the causeway or just in general and Mr. Rivenbark stated that it was for both.
    - Mr. Rivenbark asked if we could reference the Strategic Communication Plan in the White Paper that was requested in reference to the causeways and channel blockage (discussed above) and Ms. Beckwith said that she would be happy to review the Strategic Communication Plan prior to NCDOT submitting the permit modification request in an effort to avoid or minimize delays once the modification request is submitted.
- Mr. Cook mentioned that he talked to contractor during a break and they thought they could look to install the causeway/trestle bridge during the winter months to minimize the impacts to the river users.

Additional Discussion

- No additional items were discussed.

The meeting adjourned.

Following the meeting, the USFWS and the USACE each sent a summary email to NCDOT (USFWS on 9/10 and USACE on 9/11). Those emails are included in the following pages.

Eleni Riggs

From: Beckwith, Loretta A CIV USARMY CESAW (USA) <Loretta.A.Beckwith@usace.army.mil>
Sent: Thursday, September 11, 2025 3:05 PM
To: Youngman, Holland J; Matthew Cook; Fenner, Edwin F
Cc: david.mchenry@ncwildlife.gov; Cox, Marissa R; Weatherford, Morgan D; Annino, Amy; Locklear, Susan P; Allen, Yates; Anderson, Brook E; Sharpless, Carlas R; Turchy, Michael A; Hemphill, Jeffrey L; Hemphill, Jeffrey L; Chris Rivenbark; Jones, M Scott (Scott) CIV USARMY CESAW (USA)
Subject: RE: [EXTERNAL] WRC questions on I-2513 B/D - CP 4C

Hello,

In response to Holland's email, below is a list of information that I requested during the meeting yesterday. Please note that this is a general list, as we discussed many details during the meeting, so I would ask NCDOT and those responsible for responding to the requests made during the meeting to refer to the recording and their notes to capture all the details.

- During the meeting, I requested a narrative/paper that addresses the following:
  - The compelling reason(s) why more than 50% of the river flow needs to be restricted.
  - Why restricting more than 50% of the river flow can't be avoided.
  - Provide information to the agencies that demonstrates that restriction of more than 50% of the river flow at any one time wouldn't cause adverse effects to the river, aquatic life, and recreation.
  - A response to Dave McHenry's comment/question in the chat re elevations up and downstream of the causeway.
  - Since river user safety is a large part of recreation, I asked NCDOT to provide the bridge construction and demolition (C&D) plan, river users plan, and communication plan, with the understanding that these may be combined into one or two documents (I'm not sure what the final product(s) will look like). I asked that the causeway phasing be shown in the bridge C&D plan with a narrative. This narrative would explain how long each phase would be expected to remain in place, etc. While there was some back and forth about when these plans would be ready, I noted that we would need a lot of this information to review the causeway issue; ideally, the plans would be included in this narrative.

Also, I've mentioned this during previous meetings for I-2513, and in conversations with/emails to Jeff and Michael (ECAP), especially while reviewing the initial application for Phase 1, but I'm not sure if everyone has heard this since it seems like a lot of people have changed over the years, so here it is again - since I haven't seen the final bridge C&D, river users, and communications plans for this project, I don't know how much detail they go into. Hopefully, these plans have the same level of detail about the same topics (if they apply to the I-2513 project) that the plans for the I-4700 project did, as the agencies (primarily USACE, USFWS, and DWR) and NCDOT put a lot of effort over a number of years to work out the information that was necessary for a successful review and evaluation of the application for that project.

Please let me know if you have any questions.

Regards,

Lori

Lori Beckwith
Regulatory Project Manager
U.S. Army Corps of Engineers
Wilmington District
WRDA / Transportation Branch
828-230-0483

From: Youngman, Holland J <holland_youngman@fws.gov>
Sent: Wednesday, September 10, 2025 12:02 PM
To: Matthew Cook <mcook@rkk.com>; Fenner, Edwin F <effenner@ncdot.gov>
Cc: david.mchenry@ncwildlife.gov; Cox, Marissa R <mrcox2@ncdot.gov>; Weatherford, Morgan D <mdweatherford@ncdot.gov>; Beckwith, Loretta A CIV USARMY CESAW (USA) <Loretta.A.Beckwith@usace.army.mil>; Annino, Amy <amy.annino@deq.nc.gov>; Locklear, Susan P <Susan.Locklear@deq.nc.gov>; Allen, Yates <ryallen@ncdot.gov>; Anderson, Brook E <beanderson1@ncdot.gov>; Sharpless, Carlas R <crsharpless@ncdot.gov>
Subject: [Non-DoD Source] Re: [EXTERNAL] WRC questions on I-2513 B/D - CP 4C

Thanks all for the Merger meeting today. Lori, Dave, and Amy - I'm putting together a list of the items we'd requested while discussing the causeway P1A. Thinking it may be helpful to list it out to ensure that the items we need to see are covered. Hoping it's helpful for those compiling and providing the info. Please add what I missed!

- Narrative explaining:
  - [Briefly] why this causeway configuration is the only way to construct the trestle bridge.
  - Time of year for causeway construction is unknown - so, could occur during summer rainy season.
  - Phasing of 86% NWS blockage and successive blockage %s as work progresses.
  - Explanation of anticipated hydraulic conditions, such as increased water surface levels and velocity, from high flow events - during >50% blockage of river.
  - What level of rain/high flow event would result in overtopping of the causeway.
  - Whether scour is expected from high flow events.
  - How river safety will be handled.
- Any supporting figures and/or reports, etc. that help to depict these topics.

Best,

Holland Youngman
(she/her)
Wildlife Biologist
U.S. Fish and Wildlife Service
Asheville Ecological Services Field Office
160 Zillicoa Street, Asheville, North Carolina, 28801
Cell: 828-575-3920

From: Youngman, Holland J <holland_youngman@fws.gov>
Sent: Tuesday, September 9, 2025 5:25 PM
To: McHenry, David G <david.mchenry@ncwildlife.gov>; Matthew Cook <mcook@rkk.com>; Fenner, Edwin F <effenner@ncdot.gov>

Cc: Cox, Marissa R <mrcox2@ncdot.gov>; Weatherford, Morgan D <mdweatherford@ncdot.gov>; loretta.a.beckwith@usace.army.mil <loretta.a.beckwith@usace.army.mil>; Annino, Amy <amy.annino@deq.nc.gov>; Locklear, Susan P <Susan.Locklear@deq.nc.gov>; Allen, Yates <ryallen@ncdot.gov>; Anderson, Brook E <beanderson1@ncdot.gov>; Sharpless, Carlas R <crsharpless@ncdot.gov>
Subject: Re: [EXTERNAL] WRC questions on I-2513 B/D - CP 4C

Pardon the late addition, I've just returned from 2 weeks of leave. A rushed review prior to tomorrow morning's meeting - Qs as follows:

-Causeway Phase 1A - PDF ps. 35 and 36, Permit Drawing Sheets 30 and 31 - showing 14.1% of river flow open. Is this a "short duration" restriction that will be coordinated further with FWS and COE? How long is it expected to be in place? And similar concerns to what Dave proposed re. anticipated hydraulic conditions.

-Causeway Phase4 - PDF ps. 43 and 44, permit sheets 38 and 39 - 51.2% is barely over that 50% limit. Concern for precision of actual construction and not blocking >50%.

Thank you,

Holland Youngman
(she/her)
Wildlife Biologist
U.S. Fish and Wildlife Service
Asheville Ecological Services Field Office
160 Zillicoa Street, Asheville, North Carolina, 28801
Cell: 828-575-3920

From: McHenry, David G <david.mchenry@ncwildlife.gov>
Sent: Monday, September 8, 2025 2:47 PM
To: Matthew Cook <mcook@rkk.com>; Fenner, Edwin F <effenner@ncdot.gov>
Cc: Cox, Marissa R <mrcox2@ncdot.gov>; Weatherford, Morgan D <mdweatherford@ncdot.gov>; Youngman, Holland J <holland_youngman@fws.gov>; loretta.a.beckwith@usace.army.mil <loretta.a.beckwith@usace.army.mil>; Annino, Amy <amy.annino@deq.nc.gov>; Locklear, Susan P <Susan.Locklear@deq.nc.gov>; Allen, Yates <ryallen@ncdot.gov>; Anderson, Brook E <beanderson1@ncdot.gov>; Sharpless, Carlas R <crsharpless@ncdot.gov>
Subject: [EXTERNAL] WRC questions on I-2513 B/D - CP 4C

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

I will be able to remotely attend the meeting till around 0930 but then promptly need to duck out for a field meeting.

While reviewing the permit plans a few questions/comments arose, and I'll try to bring them up in the meeting:

1. Phase 1A causeway. What are the anticipated hydraulic conditions that would generate? We recommend considering velocity increases and water drops over discharges for effects on river users/boaters. Theoretically, if lateral scour occurs on west bank, how might that be addressed?

2. Detail Y for the flat stream between sites 7 and 8 shows no lining but we recommend coir at least, even though channel is almost flat.
3. AE and AF channel change details now show complete armoring with geotextile underlayment (e.g. Sheet 14 Y36 ~sta 8 site? and sites 11 and 24). The channel slopes look low-moderate but maybe there's scour anticipated(?). We recommend at least avoiding the geotextile underlayment on the stream beds if you must have it for the banks. The fabric often seems to impede rock embedment during construction.

Thanks

Dave McHenry
NCWRC Western DOT Coordinator
828-476-1966, david.mchenry@ncwildlife.gov

-----Original Appointment-----
From: Headrick, Hannah S <hsheadrick@ncdot.gov>
Sent: Thursday, March 20, 2025 1:45 PM
To: Headrick, Hannah S; Fenner, Edwin F; Jamison, John; Cox, Marissa R; Sharpless, Carlas R; Lapham, Todd D; Anderson, Brook E; loretta.a.beckwith@usace.army.mil; Clarence.Coleman@dot.gov; Annino, Amy; somerville.amanetta@epa.gov; holland_youngman@fws.gov; scott.jones@usace.army.mil; Allyson.conner@usda.gov; david.mchenry@ncwildlife.org; Gledhill-earley, Renee; Locklear, Susan P; Ferrante, Lindsay; Moneyham, Nathaniel S; Cannon, Steven L; Merithew, Brendan W; yallen@ncdot.gov; Stutts, David S; Parish, Jennifer S; Cheely, Erin K; Hemphill, Jeffrey L; Paugh, Leilani Y; Wilkerson, Matt T; mfurr@ncdot.gov; Mumford (KCA), Glenn W; Clark, Shane C; Ritacco, Timothy J; Jackson (Mott MacDonald), Donna; mpayne@walshgroup.com; mcook@rkk.com; vidya.mohandas@wsp.com; Weatherford, Morgan D; Southerly, Chris; Mengesha, Solomon
Cc: Glenn Mumford; Moyar, Jr, David; Sundermeyer, Chelly (FHWA); Sharpe, Shane; Chase, Kimberly R
Subject: I-2513 B/D - CP 4C
When: Wednesday, September 10, 2025 8:00 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: DOT CCA Technical Services Conf. Room Col. C11 (Cap 30); DOT INTERAGENCY MEETING CALENDAR

If you have any project-related questions while reviewing the meeting materials, please contact the NCDOT Project Manager, Edwin Fenner. You may also want to cc FHWA (Clarence Coleman) and USACE (Lori Beckwith), as they are also leading the Merger process.

The 4C packet can be found on its Connect site (https://connect.ncdot.gov/site/preconstruction/division/div13/I-2513BD/Project%20Development/I2513BD_4C_SMP%20and%20Permit%20Drawings.pdf) and on the XFER site (https://xfer.services.ncdot.gov/pdea/MergerMeetings/I-2513/I2513BD_4C_SMP%20and%20Permit%20Drawings.pdf).

The purpose of **Concurrence Point (CP) 4C** is to allow the Merger Team to review the Permit Drawings (which includes the Buffer Permit Drawings, if applicable) before the drawings are submitted with the permit application(s).
For additional information and guidance on the Merger Process, please refer to the 2023 NEPA/404 Merger Process Update.

I-2513 B & D Permit Drawings

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.02; Released April 23, 2024)

WBS Element: 34165.3.GV2 **TIP/Proj No:** I-2513B&D **County(ies):** Buncombe

General Project Information

WBS Element:	34165.3.GV2	**TIP Number:**	I-2513B&D	**Project Type:**	Other	**Date:**	8/4/2025
NCDOT Contact:	Solomon Mengesha			**Contractor / Designer:**	JV; Archer Wright / RK&K / WSP: Eleni Riggs, PE		
	Address: Alternative Delivery 1020 Birch Ridge Drive Raleigh, NC 27610				**Address:** 8601 Six Forks Road Forum 1, Suite 700 Raleigh, NC 27615		
	Phone: 919-707-6616				**Phone:** 919-878-9560		
	Email: smengesha@ncdot.gov				**Email:** eriggs@rkk.com		
City/Town:	Asheville, NC			**County(ies):**	Buncombe		
River Basin(s):	French Broad			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	2.985 miles	**Surrounding Land Use:**	Commercial and residential		
	Proposed Project			**Existing Site**	
Project Built-Upon Area (ac.)	122.6	ac.		77.9	ac.
Typical Cross Section Description:	A typical cross-section includes (3) 12-foot lanes in either direction with a minimum 23-foot paved median (minimum 10-foot inside shoulders). Outside shoulders are 12-15 feet.			A typical cross-section includes (2) approximately 12-foot lanes in either direction with an approximately 16.5-foot paved median (approximately 6.5-foot inside shoulders). Outside shoulders are approximately 10 feet.	
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 126,800	Year:	2045	Existing: 93,650	Year: 2025

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

The design-build project, I-2513B&D, improves the existing I-240 and I-26 corridor from south of Haywood Road to south of NC 251/SR 1781 (Broadway Street) as well as improve SR 1477 (Riverside Drive) from SR 1517 (Hill Street) to NC 251 (Broadway Street). The project will construct a 55 mph facility with a re-configured interchange between I-240, I-26 and SR 3548 (Patton Avenue). The project adds 12 new bridge locations, eliminates one bridge and reconstructs one bridge. The beginning of the project ties into the I-2513A&C project south of the Haywood Road interchange.

Design Minimizations for wetlands and streams include:

1. Steepening of roadway fill slopes within jurisdictional areas.
2. Stormwater was designed to avoid direct discharge into jurisdictional features to the maximum extent practicable.
3. Stormwater design velocities entering jurisdictional features have been reduced to be non-erosive (less than 2 fps).
4. Open shoulder sections were maximized to promote sheet flow from the roadway.
5. Diffuse flow provided at outlets that do not have a well defined outfall.

I-2513B&D has (13) major crossings consisting of (11) bridges over French Broad River, Smith Mill Creek and Emma Branch and (2) existing reinforced concrete box culverts that are being retained. Drainage outfalls along the project have been analyzed to verify stability and countersunk Class I & Class II riprap pads or riprap lined ditches have been incorporated at the outlet of jurisdictional crossings. Bank stabilization with Class I riprap keyed into the bank has been proposed at several outfall locations to provide stability along the banks. Due to topography and site constraints, stormwater detention basins are not anticipated at this time along the project corridor.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.02; Released April 23, 2024)

WBS Element:	34165.3.GV2	TIP/Proj No.:	I-2513B&D	County(ies):	Buncombe	Page	2	of	5

General Project Information

Waterbody Information

Surface Water Body (1):	UT1B to Smith Mill Creek		**NCDWR Stream Index No.:**	6-79			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?		Comments:					
NRTR Stream ID:	SG			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	No	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(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)							

Surface Water Body (2):	UT2B to Smith Mill Creek		**NCDWR Stream Index No.:**	6-79			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?		Comments:					
NRTR Stream ID:	SU			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(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)							

Surface Water Body (3):	Smith Mill Creek		**NCDWR Stream Index No.:**	6-79			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?		Comments:					
NRTR Stream ID:	SR			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
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)							

WBS Element: 34165.3.GV2 **TIP No.:** I-2513B&D **County(ies):** Buncombe

Additional Waterbody Information

Surface Water Body (4):	UT3B to Smith Mill Creek		**NCDWR Stream Index No.:**	6-79	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SS			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(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)					

Surface Water Body (5):	UT4B to Smith Mill Creek [Emma Branch]		**NCDWR Stream Index No.:**	6-79-2	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SP			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
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)					

Surface Water Body (6):	French Broad River		**NCDWR Stream Index No.:**	6-(54.75)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class B		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	fecal coliform				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SA			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
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)					

Surface Water Body (7):	UT3B to French Broad River		**NCDWR Stream Index No.:**	6-(54.75)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class B		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SO			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(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)					

WBS Element: 34165.3.GV2 **TIP No.:** I-2513B&D **County(ies):** Buncombe

Additional Waterbody Information

Surface Water Body (8):	UT6B to French Broad River		**NCDWR Stream Index No.:**	6-(54.75)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class B		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SM			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(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)					

Surface Water Body (9):	UT5B to French Broad River		**NCDWR Stream Index No.:**	6-(54.75)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class B		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SL			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(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)					

Surface Water Body (10):	UT2B to French Broad River		**NCDWR Stream Index No.:**	6-(54.75)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class B		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SI			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(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)					

Surface Water Body (11):	UT4B to French Broad River		**NCDWR Stream Index No.:**	6-(54.75)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class B		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SK			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(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)					

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.02; Released April 23, 2024)

WBS Element: 34165.3.GV2 **TIP No.:** I-2513B&D **County(ies):** Buncombe

Additional Waterbody Information

Surface Water Body (12):	Reed Creek		**NCDWR Stream Index No.:**	6-80		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:						
Aquatic T&E Species?		Comments:				
NRTR Stream ID:	SJ			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(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)						

Surface Water Body (13):	UT7B to French Broad		**NCDWR Stream Index No.:**	6-(54.75)		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class B			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?		Comments:				
NRTR Stream ID:	ST			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(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)						

Surface Water Body (14):			**NCDWR Stream Index No.:**			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**				
		Supplemental Classification:				
Other Stream Classification:						
Impairments:						
Aquatic T&E Species?		Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**		
Project Includes Bridge Spanning Water Body?		**Deck Drains Discharge Over Buffer?**		**Dissipator Pads Provided in Buffer?**		
Deck Drains Discharge Over Water Body?		(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)						

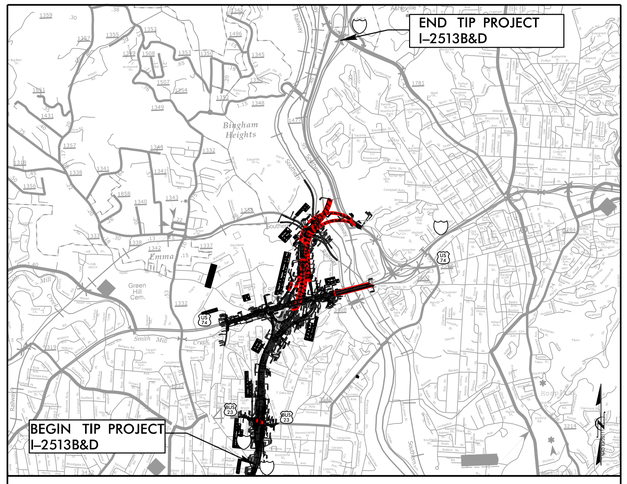
Surface Water Body (15):			**NCDWR Stream Index No.:**			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**				
		Supplemental Classification:				
Other Stream Classification:						
Impairments:						
Aquatic T&E Species?		Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**		
Project Includes Bridge Spanning Water Body?		**Deck Drains Discharge Over Buffer?**		**Dissipator Pads Provided in Buffer?**		
Deck Drains Discharge Over Water Body?		(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: I-2513B&D

CONTRACT: C204953

See Sheet 1A & 1B For Proposed Design Criteria
See Sheet 1C For Legend



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513B&D	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34165.3.GV2	3416501	PE
34165.3.GV3	3416501	PE

LOCATION: *I-26/I-240 FROM SOUTH OF HAYWOOD RD TO SOUTH OF NC 251/SR 1781 (BROADWAY STREET) AND SR 1477 (RIVERSIDE DRIVE) FROM SR 1517 (HILL STREET) TO NC 251 (BROADWAY STREET)*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, LIGHTING, SIGNING, ITS, CULVERTS & STRUCTURES*

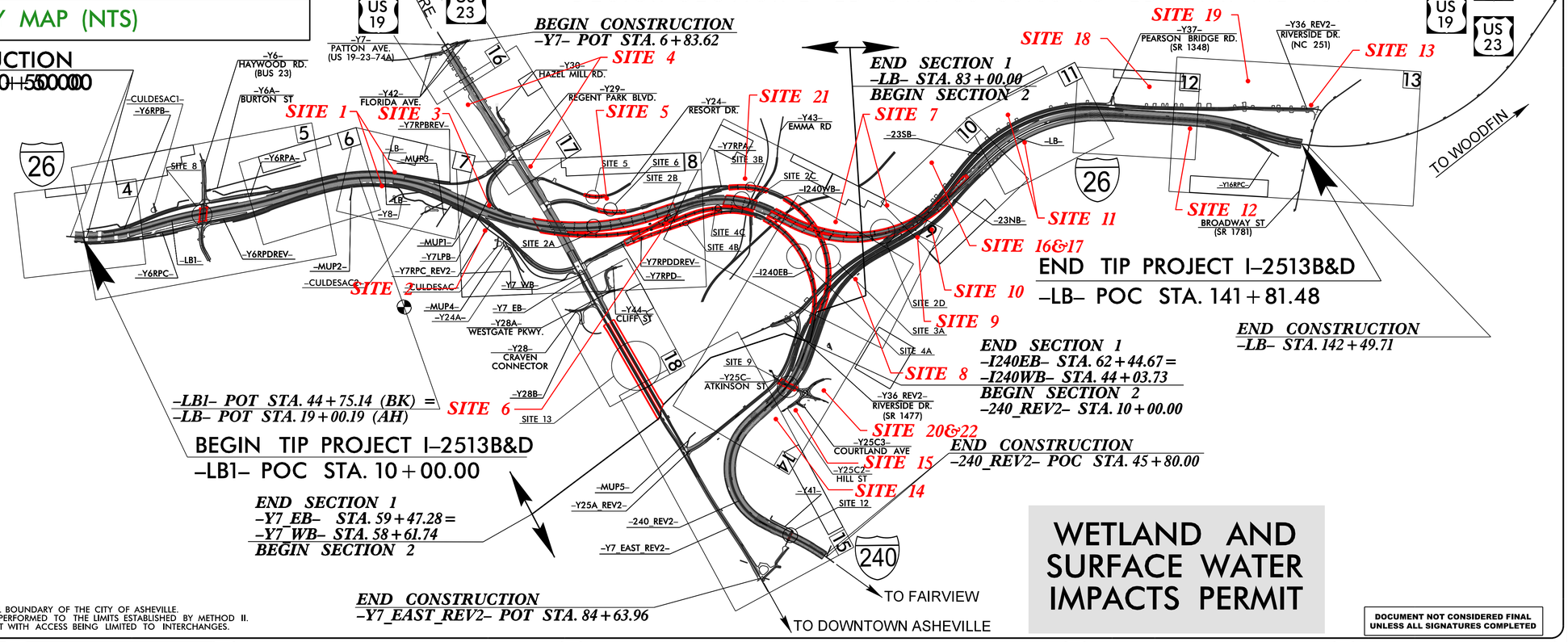
DESIGN SECTION 1 -LB1- STA. 10+00.00 TO -LB1- 44+75.14 BK =
-LB- 19+00.19 AH TO -LB- 83+00.00

DESIGN SECTION 2 -LB- STA. 83+00.00 TO -LB- STA. 142+49.71

NAD 83/NA 2011

PERMIT DRAWING
SHEET 1 OF 85

BEGIN CONSTRUCTION
-LB1- POC STA. 80+56.00



NOTES:
1. THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF THE CITY OF ASHEVILLE.
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

WETLAND AND SURFACE WATER IMPACTS PERMIT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2025 = 93,650
ADT 2045 = 126,800
K = 8%
D = 55%
T = 6%*
V = 60 MPH

FUNC CLASS: INTERSTATE
* (TTST 3% + DUALS 3%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-2513B&D.....2.117 MILES
LENGTH STRUCTURE TIP PROJECT I-2513B&D.....0.909 MILES
TOTAL LENGTH TIP PROJECT I-2513B&D.....3.026 MILES

NCDOT CONTACT

EDWIN FENNER, P.E.
ALTERNATIVE DELIVERY PROJECT ENGINEER

PLANS PREPARED BY:

RK&K — RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS ROAD, FORUM 1, SUITE 700
RALEIGH, NORTH CAROLINA 27615-3960
NC LICENSE NO. F-0112

WSP — *1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203 NC LIC NO. F-0165*

2024 STANDARD SPECIFICATIONS

MIKE MERRITT, P.E.
PROJECT ENGINEER

LETTING DATE:
FEBRUARY 20, 2024

BYRON HOLDEN, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

10/22/2025
c:\pwworking\rkkpw01\eleni.riggs\dms99125\2513BD_hyd_TSH.dgn
eriggs

8/17/99

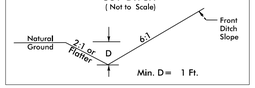
PROJECT REFERENCE NO.	SHEET NO.
	2D–1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

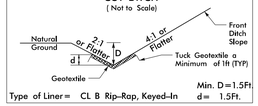
PERMIT DRAWING
SHEET 2 OF 85

DETAIL A
CUT DITCH
(Not to Scale)



FROM –240– STA. 21+24 TO STA. 23+50 LT
–240– STA. 23+50 TO STA. 26+50 LT
–240– STA. 24+50 TO STA. 28+00 LT
–240– STA. 32+75 TO STA. 36+00 LT

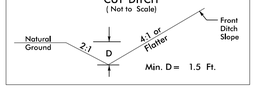
DETAIL B
CUT DITCH
(Not to Scale)



Type of Liner= CL B Rip–Rap, Keyed–In

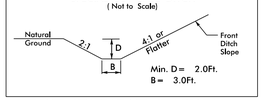
–Y7RPA– STA. 11+89 TO STA. 15+23 RT
–240– STA. 28+50 TO STA. 38+50 RT

DETAIL C
CUT DITCH
(Not to Scale)



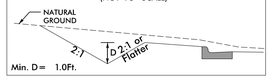
–Y7RPC_REV2– STA. 27+50 TO STA. 30+50 LT
–240– STA. 22+50 TO STA. 23+50 RT
–Y25A– STA. 16+00 TO STA. 17+50 LT
–Y7_EAST– STA. 78+39 TO STA. 79+50 RT

DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)



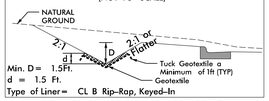
–240– STA. 21+50 TO STA. 27+50 RT

DETAIL E
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



–Y7– STA. 20+00 TO STA. 21+50 LT
–Y28– STA. 10+50 TO STA. 13+40 RT
–LB– STA. 88+00 TO STA. 89+90 RT
–LB– STA. 89+90 TO STA. 91+71 RT
–Y36– STA. 11+40 TO STA. 12+00 RT
–Y36– STA. 12+00 TO STA. 13+50 RT

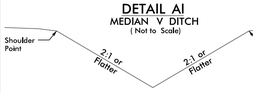
DETAIL F
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



Type of Liner= CL B Rip–Rap, Keyed–In

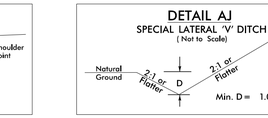
–Y7– STA. 19+50 TO STA. 20+00 LT
–Y24– STA. 22+50 TO STA. 23+50 LT
–Y36– STA. 11+04 TO STA. 11+40 RT

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



–23NB– STA. 30+50 TO STA. 32+00 RT
–23NB– STA. 32+00 TO STA. 36+72 RT
–23NB– STA. 36+72 TO STA. 37+83 RT
–Y36– STA. 15+00 TO STA. 16+27 RT
–Y7_EB– STA. 62+00 TO STA. 66+00 RT
–240– STA. 17+00 TO STA. 19+73 RT
–Y25A– STA. 13+50 TO STA. 16+00 LT

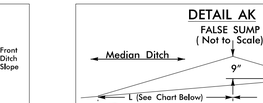
DETAIL H
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= CL B Rip–Rap, Keyed–In d= 1.0Ft.

–Y25A– STA. 32+00 TO STA. 33+37 RT

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



–240– STA. 11+00 TO STA. 14+00 LT

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

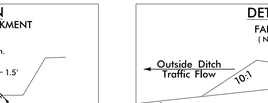
Type of Liner= CL B Rip–Rap, Keyed–In d= 2.0Ft.

–240– STA. 19+73 TO STA. 22+50 RT

DETAIL K
SPECIAL 'V' DITCH
(Not to Scale)

NOT USED

DETAIL L
SPECIAL BASE DITCH
(Not to Scale)



–LB– STA. 131+75 TO STA. 132+50 LT
–LB– STA. 106+73 TO STA. 107+00 RT
–LB– STA. 127+00 TO STA. 127+73 RT
–LB– STA. 127+73 TO STA. 128+50 RT

DETAIL M
SPECIAL BASE DITCH
(Not to Scale)

Type of Liner= CL B Rip–Rap, Keyed–In

–240_REV2– STA. 28+50 TO STA. 38+50 RT

DETAIL N
SPECIAL BASE DITCH
(Not to Scale)

Type of Liner= CL 1 Rip–Rap, Keyed–In

–240– STA. 21+50 TO STA. 23+50 RT

DETAIL O
LATERAL BASE DITCH
(Not to Scale)

Type of Liner= CL B Rip–Rap, Keyed–In

–Y7_EAST– STA. 73+50 TO STA. 77+50 RT

DETAIL P
SPECIAL BASE DITCH
(Not to Scale)

Type of Liner= CL B Rip–Rap, Keyed–In

–240– STA. 10+50 TO STA. 11+00 RT

DETAIL Q
BERM BASE DITCH
(Not to Scale)

Type of Liner= CL B Rip–Rap, Keyed–In

–LB– STA. 98+50 TO STA. 99+00 RT

DETAIL R
BERM BASE DITCH
(Not to Scale)

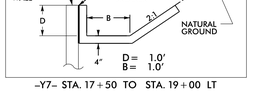
Type of Liner= CL I Rip–Rap, Keyed–In

–LB– STA. 97+00 TO STA. 98+50 RT

DETAIL S
BERM BASE DITCH
(Not to Scale)

–LB– STA. 112+00 TO STA. 113+50 RT
–LB– STA. 113+50 TO STA. 114+50 RT
–LB– STA. 114+50 TO STA. 116+50 RT

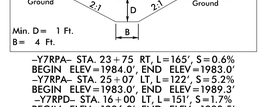
DETAIL T
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip–Rap, Keyed–In

–Y7– STA. 12+50 TO STA. 14+50 LT; D&d=2.5'
–LB– STA. 102+50 TO STA. 103+00 RT; D&d=1.0'
–LB– STA. 119+00 TO STA. 119+50 RT; D&d=1.0'

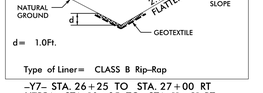
DETAIL U
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip–Rap, Keyed–In

–LB– STA. 103+00 TO STA. 104+80 RT

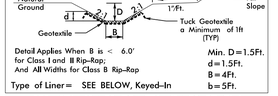
DETAIL V
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip–Rap, Keyed–In

–LB– STA. 116+50 TO STA. 117+50 RT

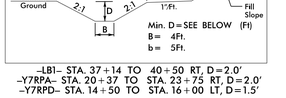
DETAIL W
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip–Rap, Keyed–In

–LB– STA. 117+50 TO STA. 119+00 RT
–LB– STA. 125+50 TO STA. 127+00 RT

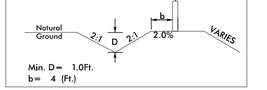
DETAIL X
BERM 'V' DITCH
(Not to Scale)



Type of Liner= Class B Rip–Rap, Keyed–In

–LB– STA. 101+50 TO STA. 102+50 RT

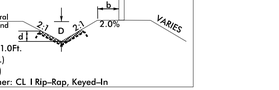
DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Coir Fiber Matting

–Y36– STA. 24+74 TO STA. 24+83 LT
BEGIN ELEV=1959.69', END ELEV=1959.40'
S=0.10%, L=289'

DETAIL Z
STANDARD BASE DITCH
(Not to Scale)



–240– STA. 27+50 TO STA. 28+26 RT
BEGIN ELEV=2045.18', END ELEV=2043.60'
S=0.85%, L=186'

DETAIL AA
STANDARD BASE DITCH
(Not to Scale)

Type of Liner=CL B Rip–Rap, Keyed–In

–Y7_EB– STA. 66+80 RT, L=500', S=4.80%
BEGIN ELEV=2080.00', END ELEV=2056.00'

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)

Type of Liner= CL I Rip–Rap, Keyed–In

–Y24– STA. 18+96 LT, L=40', S=6.3%
BEGIN ELEV=1990.0', END ELEV=1992.5'
–Y7– STA. 25+00 LT, L=240', S=3.75%
BEGIN ELEV=2000.0', END ELEV=2009.0'
–Y7– STA. 25+00 LT, L=169', S=11.8%
BEGIN ELEV=2000.0', END ELEV=2020.0'
–Y36– STA. 12+00 RT, L=149', S=6.01%
BEGIN ELEV=1980.00', END ELEV=1971.05'

DETAIL AD
CHANNEL CHANGE
(Not to Scale)

Type of Liner= CL I Rip–Rap, Keyed–In

–23NB– STA. 41+00 RT, L=30', S=23.0%
BEGIN ELEV=1993.00, END ELEV=1986.10
–23NB– STA. 29+30 RT, L=15', S=3.43%
BEGIN ELEV=1970.15, END ELEV=1969.65

DETAIL AE
CHANNEL CHANGE
(Not to Scale)

Type of Liner= CL I Rip–Rap, Keyed–In

–Y36– STA. 18+14 TO STA. 18+32 LT
BEGIN ELEV=1961.56, END ELEV=1960.00
S=0.42%, L=370'

DETAIL AF
CHANNEL CHANGE
(Not to Scale)

Type of Liner= Class I Rip–Rap, Keyed–In

–LB– STA. 127+70 TO STA. 127+85 RT
BEGIN ELEV=1986.63, END ELEV=1985.50
S=3.53%, L=32'
–LB– STA. 122+65 TO STA. 122+55 LT
BEGIN ELEV=1956.53, END ELEV=1954.95
S=1.48%, L=107'
–LB– STA. 106+40 TO STA. 106+47 LT
BEGIN ELEV=1960.19, END ELEV=1959.51,
S=0.36%, L=190'

DETAIL AG
LATERAL 'V' DITCH BEHIND RETAINING WALL
(Not to Scale)

–LB– STA. 90+50 TO STA. 91+36 RT

DETAIL AH
LATERAL 'V' DITCH BEHIND RETAINING WALL
(Not to Scale)

–LB– STA. 89+44 TO STA. 90+50 RT

DETAIL AI
MEDIAN V DITCH
(Not to Scale)

–LB– STA. 69+50 TO STA. 71+00 RT
–Y24– STA. 16+00 TO STA. 16+50 RT
–Y7RPC_REV2– STA. 27+50 TO STA. 32+50 RT
–LB– STA. 111+00 TO STA. 112+75 MED
–LB– STA. 112+75 TO STA. 141+50 MED

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

–23SB– STA. 89+50 TO STA. 93+95 RT
–23SB– STA. 93+95 TO STA. 96+27 RT
–23SB– STA. 96+27 TO STA. 98+00 RT
–240– STA. 14+00 TO STA. 15+00 RT
–240– STA. 16+50 TO STA. 17+43 RT

DETAIL AK
FALSE SUMP
(Not to Scale)

S=Ditch Slope

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

–LB– STA. 113+84 M
–LB– STA. 117+30 M
–LB– STA. 119+35 M
–LB– STA. 122+83 M
–LB– STA. 127+45 M
–LB– STA. 129+85 M
–LB– STA. 132+86 M
–LB– STA. 134+34 M
–LB– STA. 137+34 M
–LB– STA. 139+35 M

DETAIL AM
TOE PROTECTION
(Not to Scale)

Type of Liner= CLASS I Rip–Rap

–Y24– STA. 19+50 TO STA. 22+50 LT, d=2.0'
–LB– STA. 105+00 TO STA. 106+60 RT, d=1.0'
–LB– STA. 127+03 TO STA. 127+47 RT, d=1.0'
–Y7_EAST_REV2– STA. 80+00 TO STA. 82+00 RT, d=1.0'
–Y25A_REV2– STA. 28+20 TO STA. 29+90 LT, d=1.0'
–Y7_EB– STA. 65+90 TO STA. 67+00 LT, d=1.0'
–Y7_WB– STA. 61+17 TO STA. 63+41 LT, d=1.0'
–23NB– STA. 18+65 TO STA. 19+65 RT, d=1.0'

DETAIL AN
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= CL I Rip–Rap, Keyed–In

–Y25C2– STA. 11+45 LT
–Y25C2– STA. 15+96 LT
–Y25C2– STA. 16+08 LT
–23NB– STA. 38+87 RT
–23NB– STA. 38+95 RT
–Y36_REV2– STA. 86+96 LT
–LB– STA. 106+69 RT

DETAIL AO
FALSE SUMP
(Not to Scale)

–240– STA. 21+13 LT
–240– STA. 23+38 LT
–240– STA. 24+00 RT
–240– STA. 24+90 LT
–240– STA. 26+38 LT
–240– STA. 28+46 RT
–240– STA. 32+63 LT
–240– STA. 34+38 LT
–240– STA. 36+13 LT
–Y7_WB– STA. 68+06 LT
–Y7_EB– STA. 61+89 RT
–Y36– STA. 16+40 RT
–LB– STA. 104+93 RT
–LB– STA. 127+06 RT

DETAIL AP
LATERAL 'V' DITCH
(Not to Scale)

–Y7– STA. 70+00 TO STA. 77+50 LT

DETAIL AQ
CONCRETE DITCH
BEHIND RETAINING WALL
(Not to Scale)

–Y7– STA. 17+50 TO STA. 19+00 LT

DETAIL AR
STANDARD BASE DITCH
(Not to Scale)

–Y7RPA– STA. 23+75 RT, L=165', S=0.6%
BEGIN ELEV=1984.0', END ELEV=1983.0'
–Y7RPA– STA. 25+07 LT, L=122', S=5.2%
BEGIN ELEV=1983.0', END ELEV=1989.3'
–Y7RPD– STA. 16+00 LT, L=151', S=1.7%
BEGIN ELEV=1986.0', END ELEV=1983.5'

DETAIL AS
TOE PROTECTION
(Not to Scale)

Type of Liner= CLASS B Rip–Rap

–Y7– STA. 26+25 TO STA. 27+00 RT
–Y7RPA– STA. 10+35 TO STA. 11+81 RT
–Y7RPD– STA. 12+00 TO STA. 12+50 LT
–Y7RPD– STA. 13+00 TO STA. 16+85 RT
–MUP1– STA. 45+11 TO STA. 47+32 RT

DETAIL AT
LATERAL BASE DITCH
(Not to Scale)

Type of Liner= SEE BELOW, Keyed–In

–LB1– STA. 40+50 TO STA. 41+50 RT, CL I
–Y7RPA– STA. 15+23 TO STA. 19+88 RT, CL I
–Y7RPA– STA. 19+88 TO STA. 20+37 RT, CL B
–Y7– STA. 29+00 TO –Y7EB– STA. 37+72 RT, CL I

DETAIL AU
LATERAL BASE DITCH
(Not to Scale)

–LB1– STA. 37+14 TO 40+50 RT, D=2.0'
–Y7RPA– STA. 20+37 TO STA. 23+75 RT, D=2.0'
–Y7RPD– STA. 14+50 TO STA. 16+00 LT, D=1.5'

DETAIL AV
NOISE WALL 'V' DITCH
(Not to Scale)

–Y6RPA– STA. 23+10.50 TO STA. 26+00.00 RT
–MUP1– STA. 13+20.67 TO STA. 15+34.23 RT
–MUP1– STA. 16+88.97 TO STA. 17+91.97 RT
–MUP1– STA. 18+43.33 TO STA. 19+45.33 RT
–MUP1– STA. 33+81.03 TO STA. 34+28.88 RT
–MUP1– STA. 35+24.56 TO STA. 36+67.98 RT
–MUP1– STA. 38+59.01 TO STA. 39+07.14 RT
–MUP1– STA. 39+07.14 TO STA. 40+04.27 RT

DETAIL AW
NOISE WALL 'V' DITCH
(Not to Scale)

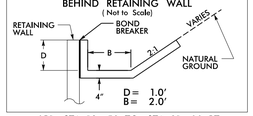
Type of Liner: CL I Rip–Rap, Keyed–In

–LB1– STA. 41+00 TO STA. 42+00 LT
–LB1– STA. 43+00 TO STA. 44+75 LT
–LB– STA. 19+00 TO STA. 21+50 LT
–MUP1– STA. 15+85.84 TO STA. 16+88.97 RT
–Y6RPA– STA. 11+15.95 TO STA. 17+19.40 RT, *D&d=1.5
–Y6RPA– STA. 17+52.37 TO STA. 18+68.38 RT

10/17/2025
c:\pwworking\rkk\production\dms99125\125138D_HYD_DITCH DETAIL_COMBINED.dgn
mgeorge

8/17/99

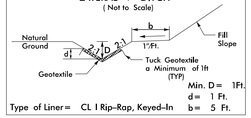
DETAIL AX
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)



D= 1.0'
B= 2.0'

–LB1– STA. 18+50 TO STA. 21+00 RT
–LB1– STA. 22+00 TO STA. 24+50 LT
–LB1– STA. 26+00 TO STA. 29+00 LT
–LB1– STA. 28+50 TO STA. 30+00 RT
–LB1– STA. 29+50 TO STA. 30+50 LT
–MUP1– STA. 12+80.57 TO STA. 13+20 RT
–Y43– STA. 17+58 TO STA. 18+50 RT
–Y43– STA. 20+61 TO STA. 21+40 RT

DETAIL AY
LATERAL 'V' DITCH
(Not to Scale)

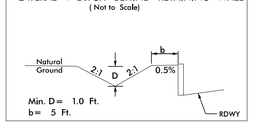


Min. D= 1Ft.
d= 1 Ft.
b= 5 Ft.

Type of Liner= CL I Rip–Rap, Keyed–In

–LB1– STA. 10+00 TO STA. 12+50 RT

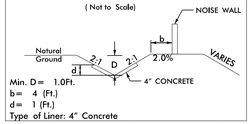
DETAIL AZ
LATERAL 'V' DITCH BEHIND RETAINING WALL
(Not to Scale)



Min. D= 1.0 Ft.
b= 5 Ft.

–LB1– STA. 21+50 TO STA. 24+75 LT
–LB1– STA. 26+00 TO STA. 29+00 LT
–LB1– STA. 21+43 TO STA. 24+15 RT
–LB1– STA. 25+50 TO STA. 28+00 RT

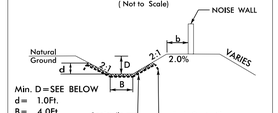
DETAIL BA
NOISE WALL 'V' DITCH
(Not to Scale)



Min. D= 1.0Ft.
b= 4 (Ft.)
d= 1 (Ft.)
Type of Liner: 4" Concrete

–Y6RPA– STA. 17+19.40 TO STA. 17+52.37 RT
–MUP1– STA. 34+28.88 TO STA. 35+24.56 RT
–MUP1– STA. 36+67.98 TO STA. 38+59.01 RT
–MUP1– STA. 40+04.27 TO STA. 41+02.72 RT
–MUP1– STA. 43+02.59 TO STA. 44+55.54 RT

DETAIL BB
NOISE WALL BASE DITCH
(Not to Scale)

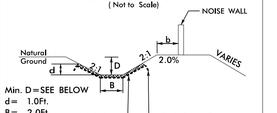


Min. D=SEE BELOW
d= 1.0Ft.
B= 4.0Ft.
b= 4.0Ft.

Type of Liner= SEE BELOW, Keyed–In

–LB1– STA. 42+00 TO STA. 43+00 LT, CL I, D=1 FT
–MUP1– STA. 41+57 TO STA. 43+03 RT, CL B, D=1 FT

DETAIL BC
NOISE WALL BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
d= 1.0Ft.
B= 2.0Ft.
b= 4.0Ft.

Type of Liner= CL I Rip–Rap, Keyed–In

–LB– STA. 21+50 TO STA. 23+00 LT, D=1 FT

DETAIL BD
STANDARD BASE DITCH
(Not to Scale)

Detail Applies When B is = 6.0' for Class I and II Rip–Rap; And All Widths for Class B Rip–Rap

Min. D=1Ft.
d=1Ft.
B=4Ft.

Type of Liner= CL B Rip–Rap, Keyed–In

–LB– STA. 57+72 RT, L=134', S=11.4%
BEGIN ELEV=1980.0', END ELEV=1995.3'
–Y24– STA. 16+50 LT, L=23', S=7.4%
BEGIN ELEV=1993.7', END ELEV=1992.0'

DETAIL BE
SPECIAL CUT BASE DITCH
(Not to Scale)

Min. D= SEE BELOW
d= 1.5 Ft.
B= 4 Ft.

Type of Liner= CL I Rip–Rap, Keyed–In

–LB1– STA. 41+50 TO STA. 43+50 RT, D=1.5'

DETAIL BF
SPECIAL 'V' DITCH
(Not to Scale)

Min. D= 1 Ft.

–MUP2– STA. 10+35 TO STA. 11+50 RT

DETAIL BG
CHANNEL CHANGE
(Not to Scale)

Min. D= 3 Ft.
d= 3 Ft.
B= 5 Ft.
b= 5 Ft.

Type of Liner= CL II RIP–RAP, Keyed–In

–LB1– STA. 43+98 TO STA. 44+75 RT
–LB– STA. 19+00 TO STA. 22+82 RT

DETAIL BH
STANDARD BASE DITCH
(Not to Scale)

Detail Applies When B is = 6.0' for Class I and II Rip–Rap; And All Widths for Class B Rip–Rap

Min. D= 3Ft.
d= 3 Ft.
B= 5 Ft.

Type of Liner= CL I Rip–Rap, Keyed–In

–LB– STA. 25+12 LT, L=17', S=1.76%
BEGIN ELEV=2014.30', END ELEV=2014.00'
–LB– STA. 36+41 LT, L=64', S=0.87%
BEGIN ELEV=2000.56', END ELEV=2000.0'

DETAIL BI
LATERAL 'V' DITCH
(Not to Scale)

Min. D= 1.5 Ft.
b= 5 Ft.

–LB– STA. 40+00 TO STA. 43+39 RT

DETAIL BJ
BANK STABILIZATION
(Not to Scale)

Type of Liner= SEE BELOW TONS,CL I Rip–Rap, Keyed–In

–LB– STA. 25+00 TO STA. 25+40 LT, 14 TONS
–LB– STA. 52+53 TO STA. 52+61 LT, 2.1 TONS
–LB– STA. 66+66 TO STA. 67+00, 7 TONS
–LB– STA. 66+87 TO STA. 66+97 LT, 4.4 TONS
–Y7RPA– STA. 25+44 TO STA. 25+51 RT, 1.6 TONS
–Y7RPBREV– STA. 19+94 TO STA. 20+05 LT, 5.5 TONS
–Y7RPDREV– STA. 22+14 TO STA. 22+02 RT, 5.3 TONS
–Y7RPDREV– STA. 25+92 TO STA. 25+99 RT, 4.4 TONS
–Y7– STA. 14+50 TO STA. 14+60 RT, 5.1 TONS
–Y7– STA. 24+72 TO STA. 24+78 LT, 2.7 TONS
–Y24– STA. 16+60 TO STA. 16+67 LT, 0.9 TONS

DETAIL BK
STANDARD BASE DITCH
(Not to Scale)

Min. D=3 Ft.
d=3 Ft.
B=8 Ft.

Type of Liner= CL I Rip–Rap, Keyed–In

–LB– STA. 36+34 LT, L=50', S=0.88%
BEGIN ELEV=2001.00', END ELEV=2000.56'

DETAIL BL
STANDARD BASE DITCH
(Not to Scale)

Min. D=3.5 Ft.
d=3.5 Ft.
B=6 Ft.

Type of Liner= CL II Rip–Rap, Keyed–In

–Y7RPBREV– STA. 20+35 LT, L=123', S=2.28%
BEGIN ELEV=1999.3', END ELEV=1996.5'

DETAIL BM
BANK STABILIZATION
(Not to Scale)

Type of Liner= SEE BELOW TONS,CL II Rip–Rap, Keyed–In

–LB– STA. 73+43 TO STA. 73+58 LT, 9.0 TONS

STREAM PLUG DETAIL AL
NOT TO SCALE

NOTES:
1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
5) INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
6) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.

–23NB– STA. 38+80 RT
–23NB– STA. 47+87 RT
–23NB– STA. 40+90 RT

PROJECT REFERENCE NO.	SHEET NO.
	2D–2
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

PERMIT DRAWING SHEET 3 OF 85

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mgregory

8/17/99

PERMIT DRAWING
SHEET 4 OF 85

ENGLISH

50 0 50 100
SCALE

25 0 25 50
SCALE FOR INSET

S S SURFACE WATER IMPACTS

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEE SHEET 5

MATCHLINE –LB1– STA. 33+50.00

MATCHLINE –LB– STA. 19+50.00

SEE SHEET 7

BURTON ST.

20+00

15+00

35+00

40+00

25+00

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S STOKELY

J & JACKSON

SARAH WINFREE

MICHAEL NAPELITANO

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HEATHER L. MACEY

ELIZABESH SESHA COLEMAN

SARAH M K & JOORDAN E TAGER

CITY OF ASHEVILLE

MOUNTAIN REALTY LLC

SITE 1

SG

NOISE WALL V DITCH w/CL I RIPRAP SEE DETAIL AW

NOISE WALL V DITCH LINED WITH CONCRETE SEE DETAIL BA

NOISE WALL BASE DITCH w/CL I RIPRAP SEE DETAIL BB

TB 2GI-ST

2GIA-WSF SP DET

2GIA-WSS

2GIB-NSS

2GIB-NSF

2GIA-WSF

2GIA-NSF

2GIB-WSF

30" PP*

24" PP*

36" PP*

18" PP*

15" PP*

42" PP*

18" RCP-III

15" RCP-III

30" W.S.

24" W.S.

15" W.S.

18" W.G

REMOVE 13' 30" RCP

REMOVE EXIST. SYSTEM BOXES AND PLUG & FILL PIPES w/FF

REMOVE

PLUG & FILL w/FF

REMOVE EXIST. STRUCTURES

36" CSP

30" CSP

24" RCP

42" RCP

GRADE to DRAIN

DIRECT FLOW FROM MISSING 15" CMP TO PROPOSED 2GI

15 TONS CL I RIP RAP w/30 S.Y. GEO FAB

2 TONS CL B RIP RAP w/7 SY GEO FAB

LATERAL BASE DITCH SEE DETAIL AU

SPECIAL CUT BASE DITCH w/CL I RIPRAP SEE DETAIL BE

SPECIAL CUT DITCH SEE DETAIL BF

CHANNEL CHANGE w/CL II RIPRAP SEE DETAIL BG

SEE INSET A

NOISE WALL V DITCH w/CL I RIPRAP SEE DETAIL AV

INSET A

CITY OF ASHEVILLE

WILMINGTON ST.

FOR –LB1–/–LB– PROFILE SEE SHTS. 19 & 20
FOR –Y6RPA– PROFILE SEE SHT. 47
FOR –Y6RPDREV– PROFILE SEE SHT. 50
FOR –MUP1– PROFILE SEE SHT. 73
FOR –MUP2– PROFILE SEE SHT. 74

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PERMIT DRAWING
SHEET 5 OF 85

ENGLISH

50 0 50 100
SCALE

25 0 25 50
SCALE FOR INSET

S S SURFACE WATER IMPACTS

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –LB1– STA. 33+50.00 SEE SHEET 5

MATCHLINE –LB– STA. 19+50.00 SEE SHEET 7

BURTON ST.

20+00 15+00 35+00 40+00 25+00

ASHEVILLE CITY BOARD OF EDUCATION

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RENPRO, LLC

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HEATHER L. MACEY

ELIZABETH SESHA COLEMAN

SARAH M K & JOORDAN E TAGER

WILMINGTON ST

NOISE WALL V DITCH w/CL I RIPRAP SEE DETAIL AW

NOISE WALL V DITCH LINED WITH CONCRETE SEE DETAIL BA

NOISE WALL BASE DITCH w/CL I RIPRAP SEE DETAIL BB

NOISE WALL V DITCH w/CL II RIPRAP SEE DETAIL BG

REMOVE 13' 30" RCP

REMOVE EXIST. SYSTEM BOXES AND PLUG & FILL PIPES w/FF

PLUG & FILL w/FF

REMOVE EXIST. STRUCTURES

REMOVE

GRADE to DRAIN

DIRECT FLOW FROM MISSING 15" CMP TO PROPOSED 2GI

15 TONS CL I RIP RAP w/30 S.Y. GEO FAB

2 TONS CL B RIP RAP w/7 SY GEO FAB

LATERAL BASE DITCH SEE DETAIL AU

SPECIAL CUT BASE DITCH w/CL I RIPRAP SEE DETAIL BE

SPECIAL CUT DITCH SEE DETAIL BF

SEE INSET A CHANNEL CHANGE w/CL II RIPRAP SEE DETAIL BG

SG

SITE 1

INSET A

FOR –LB1–/–LB– PROFILE SEE SHTS. 19 & 20
FOR –Y6RPA– PROFILE SEE SHT. 47
FOR –Y6RPDREV– PROFILE SEE SHT. 50
FOR –MUP1– PROFILE SEE SHT. 73
FOR –MUP2– PROFILE SEE SHT. 74

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 6 OF 85

ENGLISH

50 0 50 100
SCALE

25 0 25 50
SCALE FOR INSET

S S SURFACE WATER IMPACTS

TS TS TEMPORARY SURFACE WATER IMPACTS

NAD 83/2011

INSET 8A

INSET 7A

INSET A

INSET D

INSET B

INSET C

SG

SITE 1

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

MATCHLINE –LB– STA. 19+50.00 SEE SHEET 6

MATCHLINE –LB– STA. 32+00.00 SEE SHEET 8

FOR –LB– PROFILE SEE SHT. 20
FOR –Y7RPBREV– PROFILE SEE SHT. 53
FOR –Y7RPC_REV2– PROFILE SEE SHT. 54
FOR –CULDESAC2– PROFILE SEE SHT. 75
FOR –CULDESAC3– PROFILE SEE SHT. 75
FOR –MUP1– PROFILE SEE SHTS. 73 & 74
FOR –MUP3– PROFILE SEE SHT. 75

C.G. Worley House
Historic Property

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 7 OF 85

ENGLISH

50 0 50 100
SCALE

25 0 25 50
SCALE FOR INSET

S S SURFACE WATER IMPACTS

TS TS TEMPORARY SURFACE WATER IMPACTS

NAD 83/2011

INSET 8A

INSET 7A

INSET A

INSET B

INSET C

SG
SITE 1

MATCHLINE –LB– STA. 19+50.00 SEE SHEET 6

MATCHLINE –LB– STA. 32+00.00 SEE SHEET 8

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

NOISE WALL BASE DITCH w/CL I RIPRAP SEE DETAIL BC

NOISE WALL V DITCH w/CL I RIPRAP SEE DETAIL AW

CLASS I RIPRAP BANK STABILIZATION SEE DETAIL BJ

REMOVE CONC 2 TONS CL B RIPRAP DITCH w/7 SY GEOFAB

33 TONS CL I RIPRAP w/62 SY GEOFAB ON BANKS ONLY

STANDARD BASE DITCH w/CL I RIPRAP SEE DETAIL BH

PIPES NOT CONNECTED

NOISE WALL V DITCH w/CONCRETE LINER SEE DETAIL BA

NOISE WALL V DITCH SEE DETAIL AV

CHANNEL CHANGE w/CL II RIPRAP SEE DETAIL BG

NOISE WALL BASE DITCH w/ CL B RIPRAP SEE DETAIL BB

FOR –LB– PROFILE SEE SHT. 20
FOR –Y7RPBREV– PROFILE SEE SHT. 53
FOR –Y7RPC REV2– PROFILE SEE SHT. 54
FOR –CULDESAC2– PROFILE SEE SHT. 75
FOR –CULDESAC3– PROFILE SEE SHT. 75
FOR –MUP1– PROFILE SEE SHTS. 73 & 74
FOR –MUP3– PROFILE SEE SHT. 75

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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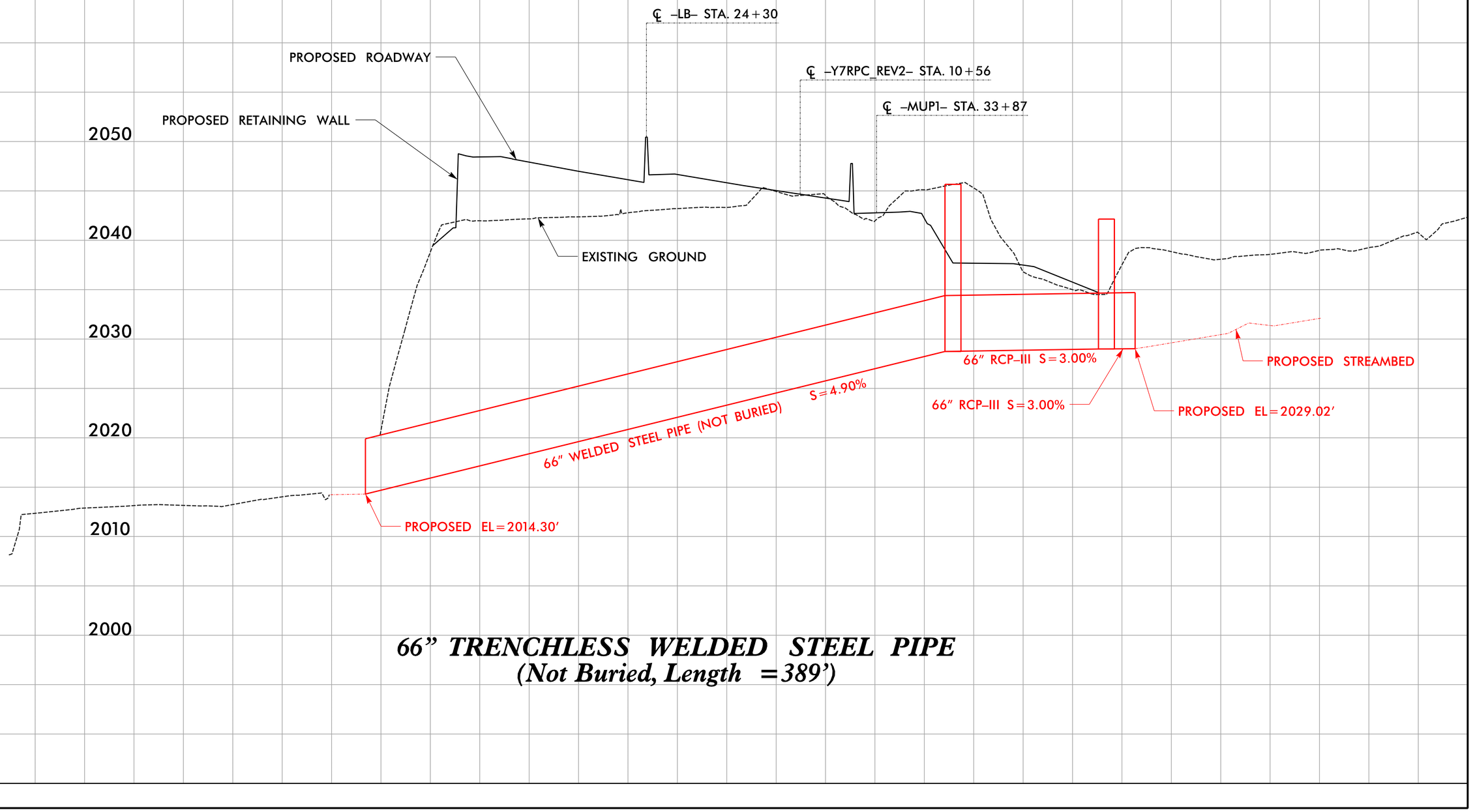
PERMIT DRAWING SHEET 8 OF 85

SITE 1
–LB– STA. 24+30



66" TRENCHLESS WELDED STEEL PIPE
(Not Buried, Length =389')

10/17/2025
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PERMIT DRAWING
SHEET 9 OF 85

ENGLISH

100 0 100 200
SCALE

50 0 50 100
SCALE FOR INSETS

S/S SURFACE WATER IMPACTS
TS/TS TEMPORARY SURFACE WATER IMPACTS
F/F FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-2513B.0	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEE INSET 8A

MATCHLINE –Y7PBREV– STA. 29+00.00 SEE SHEET 17

MATCHLINE –LB– STA. 32+00.00 SEE SHEET 7

INSET 8A

SR
SITE 4

MATCHLINE –Y7– STA. 26+00.00 SEE SHEET 17

SITE 1
SG

SITE 3
WF
SU
WF2

SITE 2
SU

WC
WC2

SEE INSET A
SEE INSET B
SEE INSET C

C.G. Worley House Historic Property

INSET A
INSET B
INSET C

SITE 6
SR

SITE 5
SS
WBA

SITE 6
SR

MATCHLINE –Y7YRPA– STA. 15+00.00

MATCHLINE –LB– STA. 12+00.00 SEE SHEET 9

MATCHLINE –Y7YRDREV– STA. 24+50.00

SR
SITE 6

SEE INSET, PERMIT SHEET 11 OF 85

MATCHLINE –Y7EB– & –Y7WB– STA. 41+00.00 SEE SHEET 18

MATCHLINE –Y44– STA. 12+00.00 SEE SHEET 18

FOR –LB– PROFILE SEE SHTS. 20, 21, 22 & 23
FOR –I240EB– PROFILE SEE SHTS. 32 & 33
FOR –I240WB– PROFILE SEE SHT. 36
FOR –Y7– PROFILE SEE SHT. 57
FOR –Y7 WB– PROFILE SEE SHT. 58
FOR –Y7 EB– PROFILE SEE SHT. 60
FOR –Y7RPA– PROFILE SEE SHT. 52
FOR –Y7RPBREV– PROFILE SEE SHT. 53
FOR –Y7LPB– PROFILE SEE SHT. 53
FOR –Y7RPC_REV2– PROFILE SEE SHT. 54
FOR –Y7RPD– PROFILE SEE SHT. 55
FOR –Y7RPDDREV– PROFILE SEE SHT. 56
FOR –Y24– PROFILE SEE SHT. 63
FOR –Y44– PROFILE SEE SHT. 72
FOR –CULDESAC– PROFILE SEE SHT. 75
FOR –MUP1– PROFILE SEE SHT. 74
FOR –MUP4– PROFILE SEE SHT. 75

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PERMIT DRAWING
SHEET 10 OF 85

ENGLISH

SCALE
100 0 100 200

SCALE FOR INSETS
50 0 50 100

S / S — SURFACE WATER IMPACTS
TS / TS — TEMPORARY SURFACE WATER IMPACTS
F / F — FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-2513B.0	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

SEE INSET 8A

INSET 8A

SR
SITE 4

MATCHLINE
–L8– STA. 32+00.00
SEE SHEET 7

MATCHLINE
–Y7PREV– STA. 20+00.00
SEE SHEET 17

MATCHLINE
–Y7– STA. 26+00.00
SEE SHEET 17

SG
SITE 1

SITE 3
WF
SU
WF2

SEE INSET

SITE 2
SU

WC

WC2

C.G. Worley House Historic Property

SEE INSET A

SEE INSET B

SITE 6
SR

SITE 5
SS
WBA

SR

SITE 6

MATCHLINE
–Y7RPA– STA. 15+00.00

MATCHLINE
–L8– STA. 12+00.00
SEE SHEET 9

MATCHLINE
–Y7RPDREV– STA. 24+50.00

SR
SITE 6

SEE INSET,
PERMIT SHEET 11 OF 85

MATCHLINE
–Y7EB– & –Y7WB–
STA. 41+00.00
SEE SHEET 18

MATCHLINE
–Y44– STA. 12+00.00
SEE SHEET 18

INSET A

INSET B

INSET C

FOR –L8– PROFILE SEE SHTS. 20, 21, 22 & 23
FOR –I240EB– PROFILE SEE SHTS. 32 & 33
FOR –I240WB– PROFILE SEE SHT. 36
FOR –Y7– PROFILE SEE SHT. 57
FOR –Y7 WB– PROFILE SEE SHT. 58
FOR –Y7 TB– PROFILE SEE SHT. 60
FOR –Y7RPA– PROFILE SEE SHT. 52
FOR –Y7RPBREV– PROFILE SEE SHT. 53
FOR –Y7LPB– PROFILE SEE SHT. 53
FOR –Y7RPC REV2– PROFILE SEE SHT. 54
FOR –Y7RPD– PROFILE SEE SHT. 55
FOR –Y7RPDDREV– PROFILE SEE SHT. 56
FOR –Y24–: PROFILE SEE SHT. 63
FOR –Y44–: PROFILE SEE SHT. 72
FOR –CULDESAC– PROFILE SEE SHT. 75
FOR –MUP1– PROFILE SEE SHT. 74
FOR –MUP4– PROFILE SEE SHT. 75

GRAPHIC SCALE
50 25 0 50 100
PLANS

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	--
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

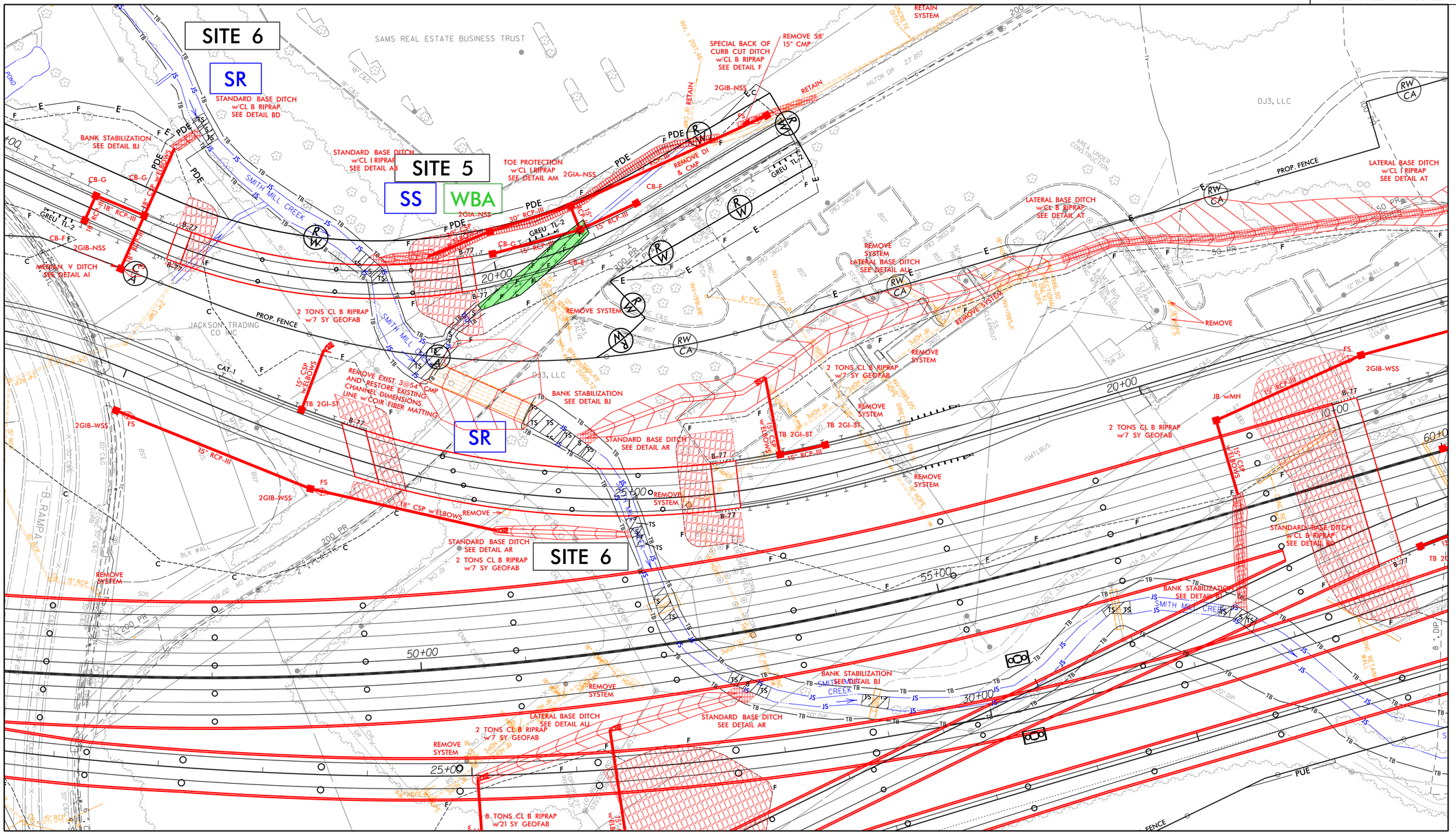
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 11 OF 85

ENGLISH

50 0 50 100
SCALE

S S SURFACE WATER IMPACTS
TS TS TEMPORARY SURFACE WATER IMPACTS
F F FILL IN WETLAND



INSET FROM PERMIT SHEETS 9 & 10 OF 85

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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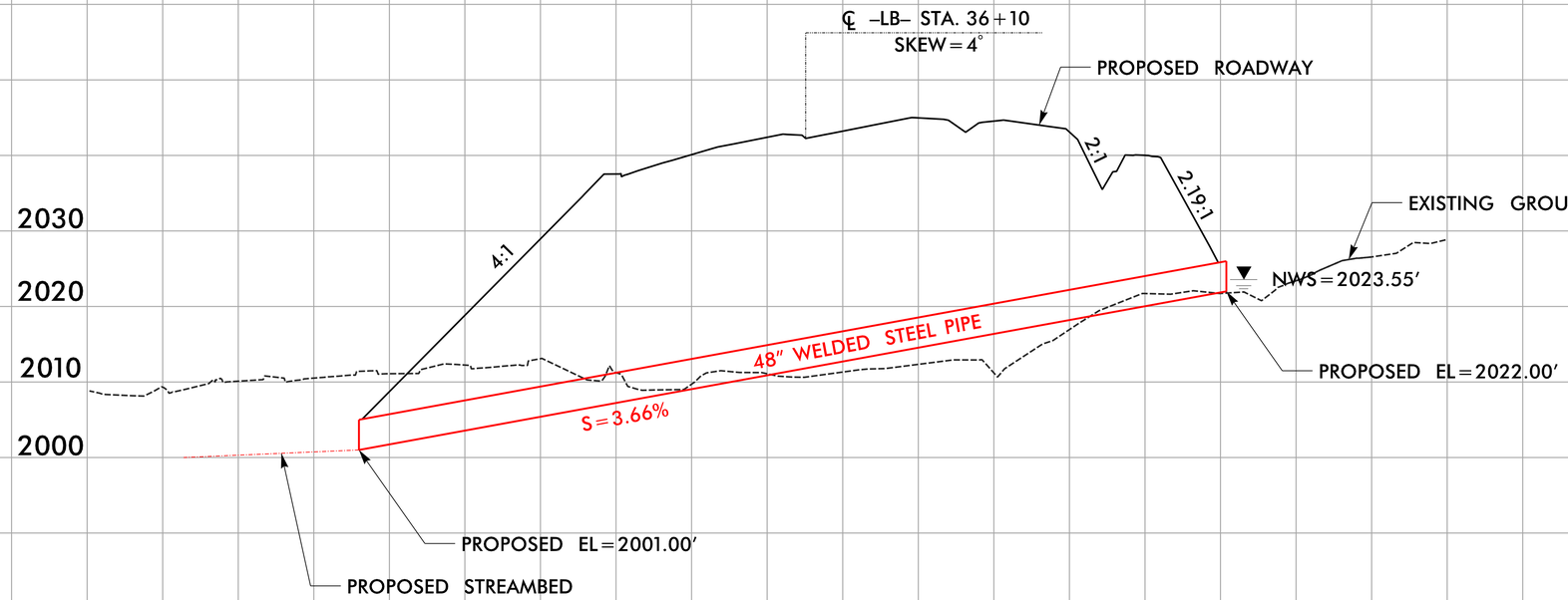
PERMIT DRAWING
SHEET 12 OF 85

SITE 2
–LB– STA. 36+10 +/–



48" TRENCHLESS WELDED STEEL PIPE
(Not Buried, Length = 574')

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-LB-

BRIDGE SITE 2A

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 13 OF 85

BRIDGE HYDRAULIC DATA - 2A

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S. ELEVATION AT DATE OF SURVEY	=	1,981.6	FT

PIPE HYDRAULIC DATA

48" WSP @ -LB- STA. 36+10

DRAINAGE AREA	= 20.6	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 86.7	CFS
DESIGN HW ELEVATION	= 2026.64	FT
100 YEAR DISCHARGE	= 86.7	CFS
100 YEAR HW ELEVATION	= 2026.64	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 358	CFS
OVERTOPPING ELEVATION	= 2055.55	FT

PI = 27+90.00
EL = 2,030.00'
VC = 1,225'
K = 153
V = 64 MPH

PI = 44+50.00
EL = 2,096.40'
VC = 1,210'
K = 151
V = 60 MPH

END GRADE POINT TRANSITION
-LB- STA. 41+00.00

BEGIN GRADE POINT TRANSITION
-LB- STA. 38+70.00

BEGIN BRIDGE
-LB- STA. 41+72.35

BRIDGE DIVERGES
-LB- STA. 45+56.04=
-I240EB- STA. 20+01.85

(+)4.0000%

(-)4.0000%

PROPOSED GRADE

SITE 2

BEGIN LAT.V DITCH RT.
-LB- STA. 40+00.00
EL=2053.09

(-)11.5162%

EXISTING GROUND

HP STEEL PILES

2:1

17' MIN.

MUP

-Y7-
(PATTON AVE)

END LAT.V DITCH RT.
-LB- STA. 43+39.00
EL=2047.95

48" WSP

2,150 2,140 2,130 2,120 2,110 2,100 2,090 2,080 2,070 2,060 2,050 2,040 2,030 2,020 2,010 2,000 1,990 1,980 1,970 1,960 1,950

33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00

FOR -I240EB- PROFILE SEE SHT. 27

FOR -LB- & -I240EB- PLAN SEE SHT. 8

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-LB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 14 OF 85

BRIDGE SITE 2A

BRIDGE HYDRAULIC DATA - 2A

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S. ELEVATION AT DATE OF SURVEY	=	1,981.6	FT

PROPOSED GRADE

(-)4.0000%

PI = 44+50.00
EL = 2,096.40'
VC = 1,210'
K = 151
V = 60 MPH

BRIDGES MERGE
-LB- STA. 58+26.20=
-Y7RPD- STA. 22+64.42

END BRIDGE
-LB- STA. 59+10.68

PI = 62+15.00
EL = 2,025.80'
VC = 850'
K = 137
V = 60 MPH

EXISTING GROUND

2:1

HP STEEL PILES

SMITH MILL CREEK

NWS = 1981.6'

SITE 6

FOR -Y7RPD- PROFILE SEE SHT. 50

FOR -LB- & -Y7RPD- PLAN SEE SHT. 8

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-I240EB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 15 OF 85

BRIDGE SITE 4C

BRIDGE HYDRAULIC DATA - 4C

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S. ELEVATION AT DATE OF SURVEY	=	1,971.2	FT

-LB-
PI = 44+50.00
EL = 2,096.40'
VC = 1,210'
K = 151
V = 60 MPH

-I240EB- Sta. 10+00.00=
-LB- Sta. 35+63.81 (47.5' RT)

CONTROLLED BY -LB-

BEGIN BRIDGE
-I240EB- Sta. 16+53.59

SEE SHEET 21
FOR -LB- GRADE

BRIDGE DIVERGES
-LB- STA. 45+56.04=
-I240EB- STA. 20+01.85

BEGIN GRADE
-I240EB- Sta. 20+33.83
EL = 2,087.42

PROPOSED GRADE

(-)0.8299%

17' MIN.

MUP

-Y7-
(PATTON AVE)

EXISTING GROUND

2,140
2,130
2,120
2,110
2,100
2,090
2,080
2,070
2,060
2,050
2,040
2,030
2,020
2,010
2,000
1,990
1,980
1,970
1,960
1,950
1,940

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

FOR -I240EB- & -LB- PLAN SEE SHT. 8

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BRIDGE SITE 4C

-I240EB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 16 OF 85

BRIDGE HYDRAULIC DATA - 4C

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S. ELEVATION AT DATE OF SURVEY	=	1,971.2	FT

SITE 6

SITE 6

PROPOSED GRADE

(-)10.8299%

(-)14.9771%

18' MIN.

PI = 31+40.00
EL = 2,078.24'
VC = 350'
K = 85
V = 50 MPH

-Y7RPD-

INVERTED TEE STRADDLE BENT

EXISTING GROUND

SMITH MILL CREEK

2,140
2,130
2,120
2,110
2,100
2,090
2,080
2,070
2,060
2,050
2,040
2,030
2,020
2,010
2,000
1,990
1,980
1,970
1,960
1,950
1,940

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

FOR -I240EB- PLAN SEE SHTS. 8 & 9

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-I240EB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 17 OF 85

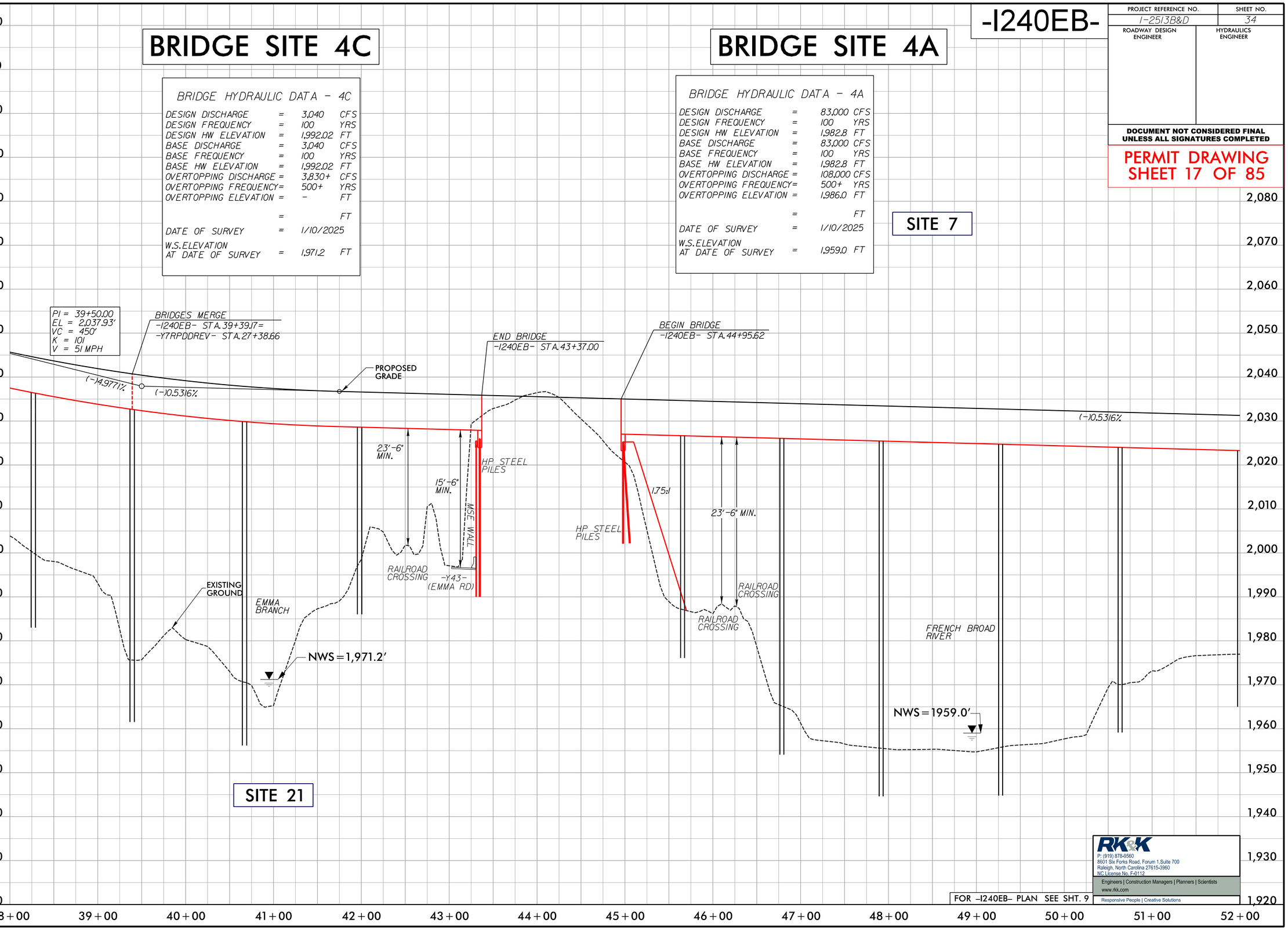
BRIDGE SITE 4C

BRIDGE HYDRAULIC DATA - 4C			
DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,971.2	FT

BRIDGE SITE 4A

BRIDGE HYDRAULIC DATA - 4A			
DESIGN DISCHARGE	=	83,000	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,982.8	FT
BASE DISCHARGE	=	83,000	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,982.8	FT
OVERTOPPING DISCHARGE	=	108,000	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	1,986.0	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,959.0	FT

SITE 7



SITE 21

FOR -I240EB- PLAN SEE SHT. 9

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BRIDGE SITE 2B

BRIDGE SITE 4C

BRIDGE SITE 2A

-Y7RPD-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 18 OF 85

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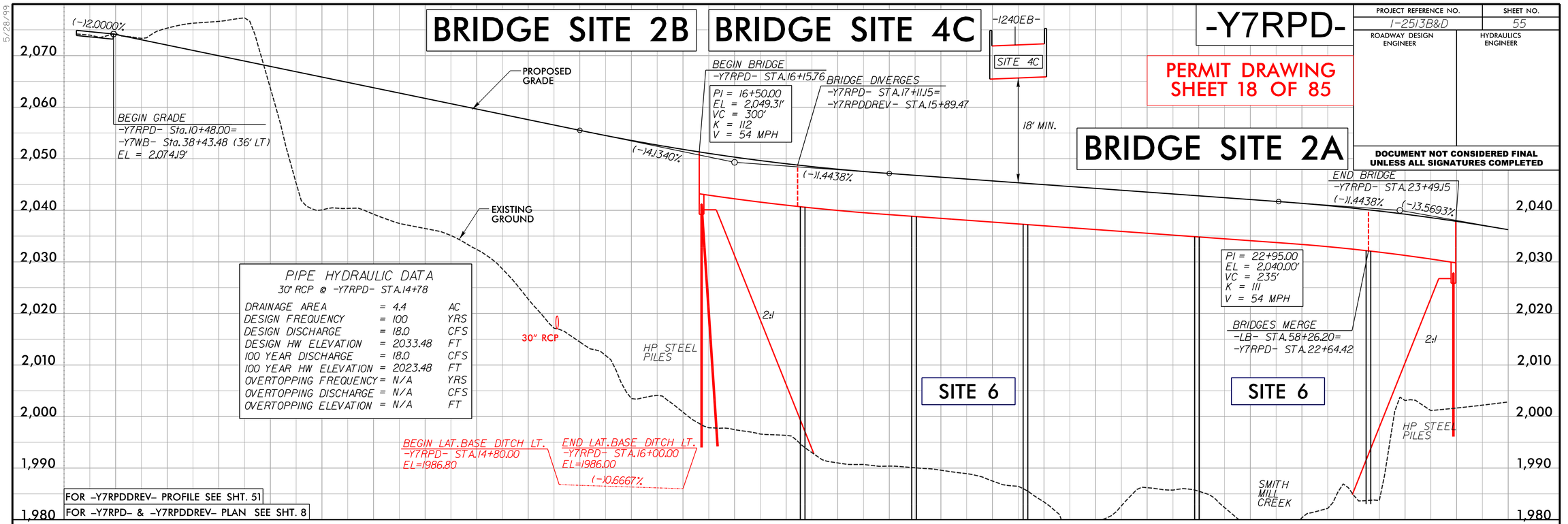
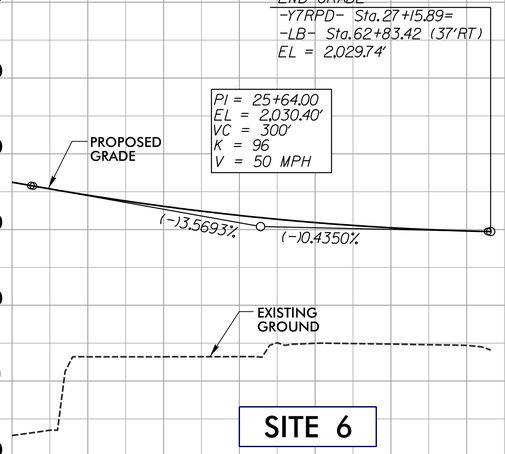


PIPE HYDRAULIC DATA
30" RCP @ -Y7RPD- STA.14+78

DRAINAGE AREA	= 4.4	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 18.0	CFS
DESIGN HW ELEVATION	= 2033.48	FT
100 YEAR DISCHARGE	= 18.0	CFS
100 YEAR HW ELEVATION	= 2023.48	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

FOR -Y7RPDDREV- PROFILE SEE SHT. 51

FOR -Y7RPD- & -Y7RPDDREV- PLAN SEE SHT. 8



BRIDGE HYDRAULIC DATA - 2B

DESIGN DISCHARGE	= 3,040	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 1,992.02	FT
BASE DISCHARGE	= 3,040	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1,992.02	FT
OVERTOPPING DISCHARGE	= 3,830+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= -	FT
	=	FT
DATE OF SURVEY	= 1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	= 1,975.9	FT

BRIDGE HYDRAULIC DATA - 4C

DESIGN DISCHARGE	= 3,040	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 1,992.02	FT
BASE DISCHARGE	= 3,040	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1,992.02	FT
OVERTOPPING DISCHARGE	= 3,830+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= -	FT
	=	FT
DATE OF SURVEY	= 1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	= 1,971.2	FT

BRIDGE HYDRAULIC DATA - 2A

DESIGN DISCHARGE	= 3,040	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 1,992.02	FT
BASE DISCHARGE	= 3,040	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1,992.02	FT
OVERTOPPING DISCHARGE	= 3,830+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= -	FT
	=	FT
DATE OF SURVEY	= 1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	= 1,981.6	FT

FOR -Y7RPD- PLAN SEE SHTS. 8 & 9

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	56
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y7RPDDREV-

PERMIT DRAWING SHEET 19 OF 85

BRIDGE SITE 2B

BRIDGE SITE 4B

SEE SHEET 55 FOR -Y7RPD- GRADE

CONTROLLED BY -Y7RPD-

BRIDGE DIVERGES
-Y7RPD- STA.17+11.14=
-Y7RPDDREV- STA.15+89.47

BEGIN GRADE
-Y7RPDDREV- Sta.15+94.89
EL = 2,047.79'

BEGIN BRIDGE
-Y7RPDDREV- Sta. 14+95.08

-Y7RPD-
PI = 16+50.00
EL = 2,049.31'
VC = 300'
K = 117
V = 55 MPH

PI = 16+95.00
EL = 2,045.30'
VC = 190'
K = 97
V = 50 MPH

PROPOSED GRADE

(-)2.4938%

(-)0.5351%

(-)0.5351%

SITE 2B

2d

HP STEEL PILES

EXISTING GROUND

SITE 6

SMITH MILL CREEK

BRIDGE HYDRAULIC DATA - 2B

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,975.9	FT

FOR -Y7RPDDREV- & -Y7RPD- PLAN SEE SHT. 8

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

2,070 2,060 2,050 2,040 2,030 2,020 2,010 2,000 1,990 1,980

PI = 26+30.00
EL = 2,040.29'
VC = 185'
K = 125
V = 55 MPH

END GRADE
-Y7RPDDREV- Sta.27+34.05
EL = 2,038.20'

END BRIDGE
-Y7RPDDREV- Sta.31+30.66

SEE SHEET 34 FOR -I240EB- GRADE

CONTROLLED BY -I240EB-

PROPOSED GRADE

(-)0.5351%

(-)0.5351%

(-)2.0167%

BRIDGES MERGE
-I240EB- STA.39+39.17=
-Y7RPDDREV- STA.27+38.66

-I240EB-
PI = 39+50.00
EL = 2,037.93'
VC = 450'
K = 101
V = 51 MPH

23'-6" MIN.

15'-6" MIN.

HP STEEL PILES

MSE WALL

RAILROAD CROSSING

-Y43- (EMMA RD)

SITE 6

SITE 21

NWS =1972.2'

SMITH MILL CREEK

EXISTING GROUND

EMMA BRANCH

NWS=1,971.2'

BRIDGE SITE 4C

FOR -Y7RPDDREV- & -I240EB- PLAN SEE SHTS. 8 & 9

24 25 26 27 28 29 30 31 32

-Y7RPDDREV-

-Y7-

BEGIN CONSTRUCTION BEGIN GRADE
-Y7- Sta. 6+83.62
EL = 2,030.76'

PROPOSED GRADE

(+)0.4781%

EXISTING GROUND

BRIDGE HYDRAULIC DATA - 4C

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,971.2	FT

BRIDGE HYDRAULIC DATA - 4B

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,972.2	FT

FOR -Y7- PLAN SEE SHT. 16

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2,070 2,060 2,050 2,040 2,030 2,020 2,010 2,000 1,990 1,980

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kking

5/28/99

-Y7-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 20 OF 85

END BERM BASE DITCH LT.
-Y7- STA.14+50.00
EL=2056.23

BEGIN BERM BASE DITCH LT.
-Y7- STA.12+50.00
EL=2041.72

(+)7.2500%

PROPOSED GRADE

EXISTING GROUND

(+)0.4781%

PI = 17+30.00
EL = 2,035.76'
VC = 650'
K = 285
V = 72 MPH

(+)0.4781%

(-)1.8000%

BEGIN SP.BACK OF CURB DITCH LT.
-Y7- STA.19+50.00
EL=2036.00

(-)14.0000%

PI=20+00.00 LT.
EL=2029.00

(-)12.0000%

PI = 24+40.00
EL = 2,022.98'
VC = 465'
K = 80
V = 45mph

(-)1.8000%

END SP.BACK OF CURB DITCH LT.
-Y7- STA.21+50.00
EL=2026.00

FOR -Y7- PLAN SEE SHTS. 16 & 17

2,080 2,070 2,060 2,050 2,040 2,030 2,020 2,010 2,000 1,990

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

BRIDGE SITE 2A

-Y7-

BRIDGE HYDRAULIC DATA - 2A

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,981.6	FT

SITE 4

-I240EB-

-LB-

END GRADE
-Y7- Sta. 36+40.20=
-Y7EB- POT Sta.36+40.27 (50.75' RT)=
-Y7WB- POT Sta.36+40.25 (26.75' LT)
EL = 2,070.50'

17' MIN.

(+)4.0454%

(+)3.6895%

PROPOSED GRADE

-Y7- STA.36+40.20
-Y7EB- STA.36+40.27
EL=2069.10

(+)4.4703%

PI = 33+50.00
EL = 2,059.79'
VC = 230'
K = 646
V > 80 MPH

PI = 24+40.00
EL = 2,022.98'
VC = 465'
K = 80
V = 45mph

(+)4.0454%

(-)1.8000%

EXISTING GROUND

BEGIN LAT.BASE DITCH RT.
-Y7- STA.29+00.00
EL=2029.50

FOR -Y7- PLAN SEE SHTS. 8 & 17

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2,090 2,080 2,070 2,060 2,050 2,040 2,030 2,020 2,010 2,000

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

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5/28/99

BRIDGE SITE 5

SITE 19 | SITE 6 | SITE 5 | SITE 20

-Y24-

PERMIT DRAWING
SHEET 21 OF 85

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	63
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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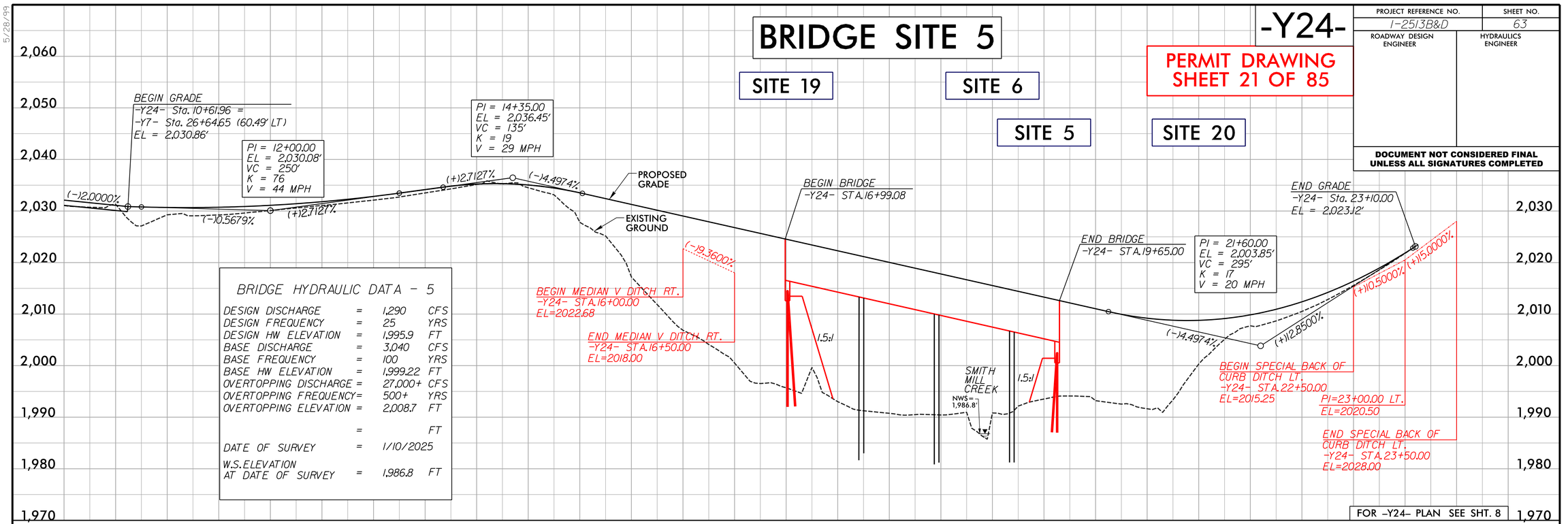

BRIDGE HYDRAULIC DATA - 5

DESIGN DISCHARGE	=	1,290	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	1,995.9	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,999.22	FT
OVERTOPPING DISCHARGE	=	27,000+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	2,008.7	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,986.8	FT

FOR -Y24- PLAN SEE SHT. 8

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-Y7RPA-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 22 OF 85

BRIDGE SITE 3B

-Y7RPA- Sta.10+00.00=
-I240WB- Sta.18+12.58 (12.0' LT)

CONTROLLED BY -I240WB-

END BRIDGE
BEGIN GRADE
-Y7RPA- Sta. 11+07.36 =
-I240WB- Sta.17+05.00 (17.42' LT)
EL = 2,040.50'

(-)1.2000%
(-)0.6123%
(-)0.6123%
(-)4.2534%
(-)12.5699%
(-)16.4806%
(-)17.9065%
(-)14.2534%
(+)3.9326%
(-)17.8078%
(-)17.8550%
(-)3.6496%
(-)0.5923%

PI = 12+00.00
EL = 2,039.39'
VC = 180'
K = 306
V > 80 MPH

PI = 14+50.00
EL = 2,037.86'
VC = 310'
K = 85
V = 50 MPH

PI = 22+85.00
EL = 2,002.34'
VC = 1,000'
K = 122
V = 56 MPH

EXISTING GROUND

PROPOSED GRADE

BEGIN CUT DITCH RT.
-Y7RPA- STA.11+89.23
EL=2037.42

PI=14+11.81 RT.
EL=2031.70

END CUT DITCH RT.
BEGIN LAT.BASE DITCH RT.
-Y7RPA- STA.15+22.91
EL=2024.50

PI=18+88.43 RT.
EL=1995.60

PI=19+88.03 RT.
EL=1987.80

PI=19+38.38 RT.
EL=1991.70

END LAT.BASE DITCH RT.
BEGIN LAT.BASE DITCH RT.
-Y7RPA- STA.20+37.35
EL=1986.00

PI=23+75.03 RT.
EL=1984.00

FOR -I240WB- PROFILE SEE SHT. 31 | FOR -Y7RPA- & -I240WB- PLAN SEE SHTS. 8 & 9

BRIDGE HYDRAULIC DATA - 3B

DESIGN DISCHARGE	=	1,030 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,988.0 FT
BASE DISCHARGE	=	1,030 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,988.0 FT
OVERTOPPING DISCHARGE	=	140,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	2,035.1 FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S.ELEVATION AT DATE OF SURVEY	=	1,979.2 FT

BRIDGE SITE 6

END GRADE
-Y7RPA- Sta. 33+77.96=
-Y7- Sta. 30+17.39 (50.75' LT)
EL = 2,045.32'

(+)2.0000%
(+)3.9326%

BEGIN BRIDGE
-Y7RPA- STA.24+19.00

END BRIDGE
-Y7RPA- STA.27+46.50

PI = 22+85.00
EL = 2,002.34'
VC = 1,000'
K = 122
V = 56 MPH

SITE 6

2:1

1.5:1

(+)9.0000%

(-)0.6062%

EXISTING GROUND

PROPOSED GRADE

NWS=1,982.3'
(1/10/2025)

END LAT.BASE DITCH RT.
-Y7RPA- STA.25+40.00
EL=1983.00

BRIDGE HYDRAULIC DATA - 6

DESIGN DISCHARGE	=	3,040 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,995.80 FT
BASE DISCHARGE	=	3,040 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,995.80 FT
OVERTOPPING DISCHARGE	=	31,500+ CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	2,012.6 FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S.ELEVATION AT DATE OF SURVEY	=	1,982.3 FT

FOR -Y7RPA- PLAN SEE SHT. 8

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-Y7RPA-

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-Y43-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	72
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 23 OF 85

BRIDGE SITE 4C

BRIDGE SITE 2C

BRIDGE SITE 3B

SITE 6

BRIDGE HYDRAULIC DATA - 4C

DESIGN DISCHARGE	=	3,040	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,992.02	FT
BASE DISCHARGE	=	3,040	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,992.02	FT
OVERTOPPING DISCHARGE	=	3,830+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	-	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,971.2	FT

BRIDGE HYDRAULIC DATA - 2C

DESIGN DISCHARGE	=	1,030	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,982.3	FT
BASE DISCHARGE	=	1,030	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,982.3	FT
OVERTOPPING DISCHARGE	=	140,000	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	2,035.1	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,970.4	FT

BRIDGE HYDRAULIC DATA - 3B

DESIGN DISCHARGE	=	1,030	CFS
DESIGN FREQUENCY	=	100	YRS
DESIGN HW ELEVATION	=	1,988.0	FT
BASE DISCHARGE	=	1,030	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1,988.0	FT
OVERTOPPING DISCHARGE	=	140,000	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	2,035.1	FT
	=		FT
DATE OF SURVEY	=	1/10/2025	
W.S.ELEVATION AT DATE OF SURVEY	=	1,979.2	FT

-Y7RPDDREV-
-I240EB-
-LB-
-I240WB-
15'-6" MIN.
15'-6" MIN.
15'-6" MIN.
EXISTING GROUND
END MILL & OVERLAY -Y43- Sta. 26+60.00
BEGIN MILL & OVERLAY -Y43- Sta. 15+40.00
EXISTING JURISDICTIONAL STREAM

2,050 2,040 2,030 2,020 2,010 2,000 1,990 1,980 1,970 1,960

15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00

FOR -Y43- PLAN SEE SHT. 9

-Y44-

2,110 2,100 2,090 2,080 2,070 2,060 2,050 2,040 2,030 2,020

BEGIN GRADE
-Y44- Sta. 10+12.00=
-Y28A- Sta. 11+63.88 (12.0' LT)
EL = 2,069.78'

PI = 11+25.00
EL = 2,075.43'
VC = 200'
K = 29
V = 35 MPH

PI = 12+85.00
EL = 2,072.45'
VC = 110'
K = 50
V = 35 MPH

END GRADE
-Y44- Sta. 13+85.00
EL = 2,072.78'

PROPOSED GRADE
(+)5.0042%
(-)1.8600%
(+)0.3250%

10+00 11+00 12+00 13+00 14+00

FOR -Y44- PLAN SEE SHT. 8 & 18

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6/23/16

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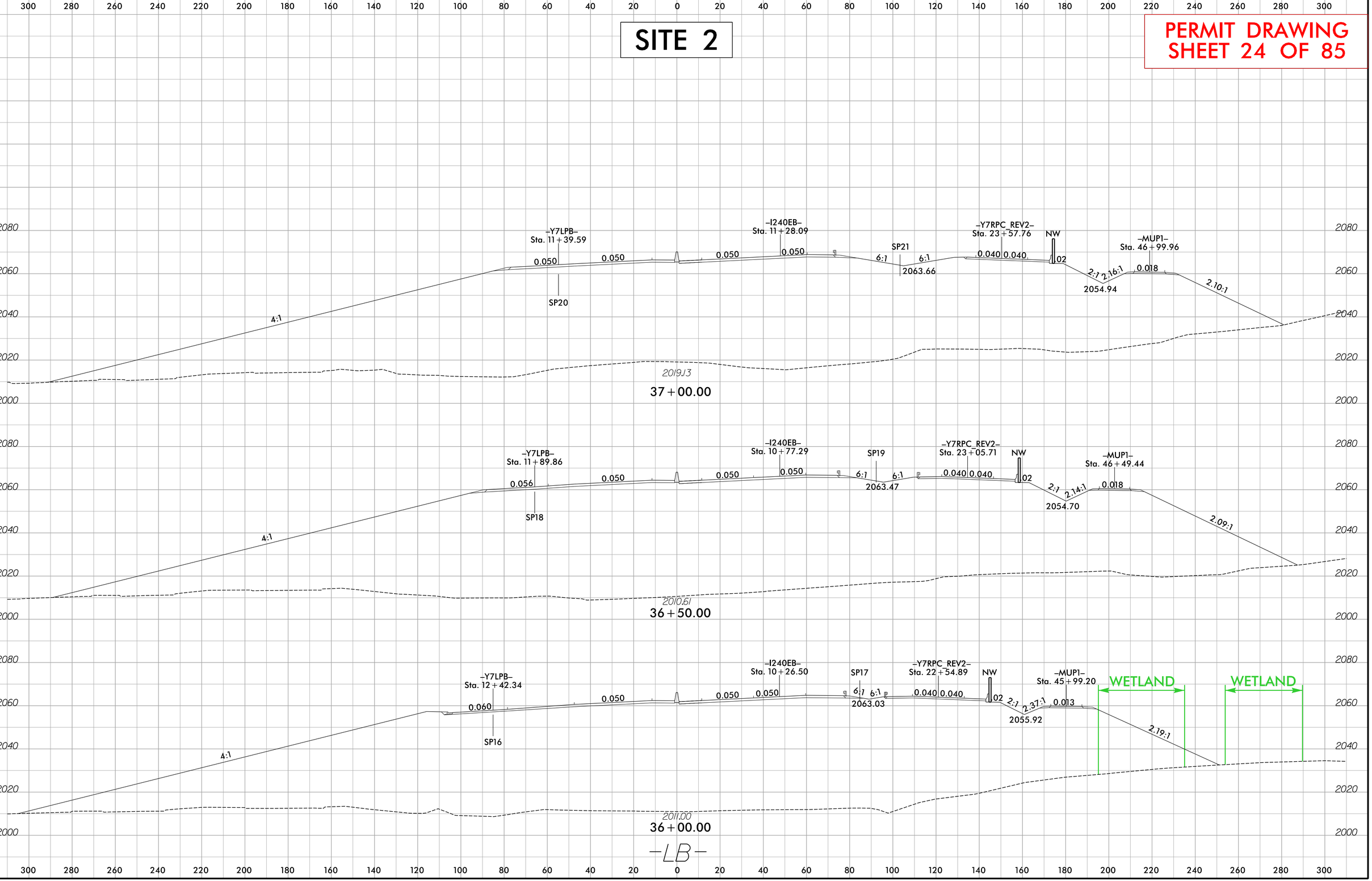
	I-2513B&D	X-28

SITE 2

PERMIT DRAWING
SHEET 24 OF 85



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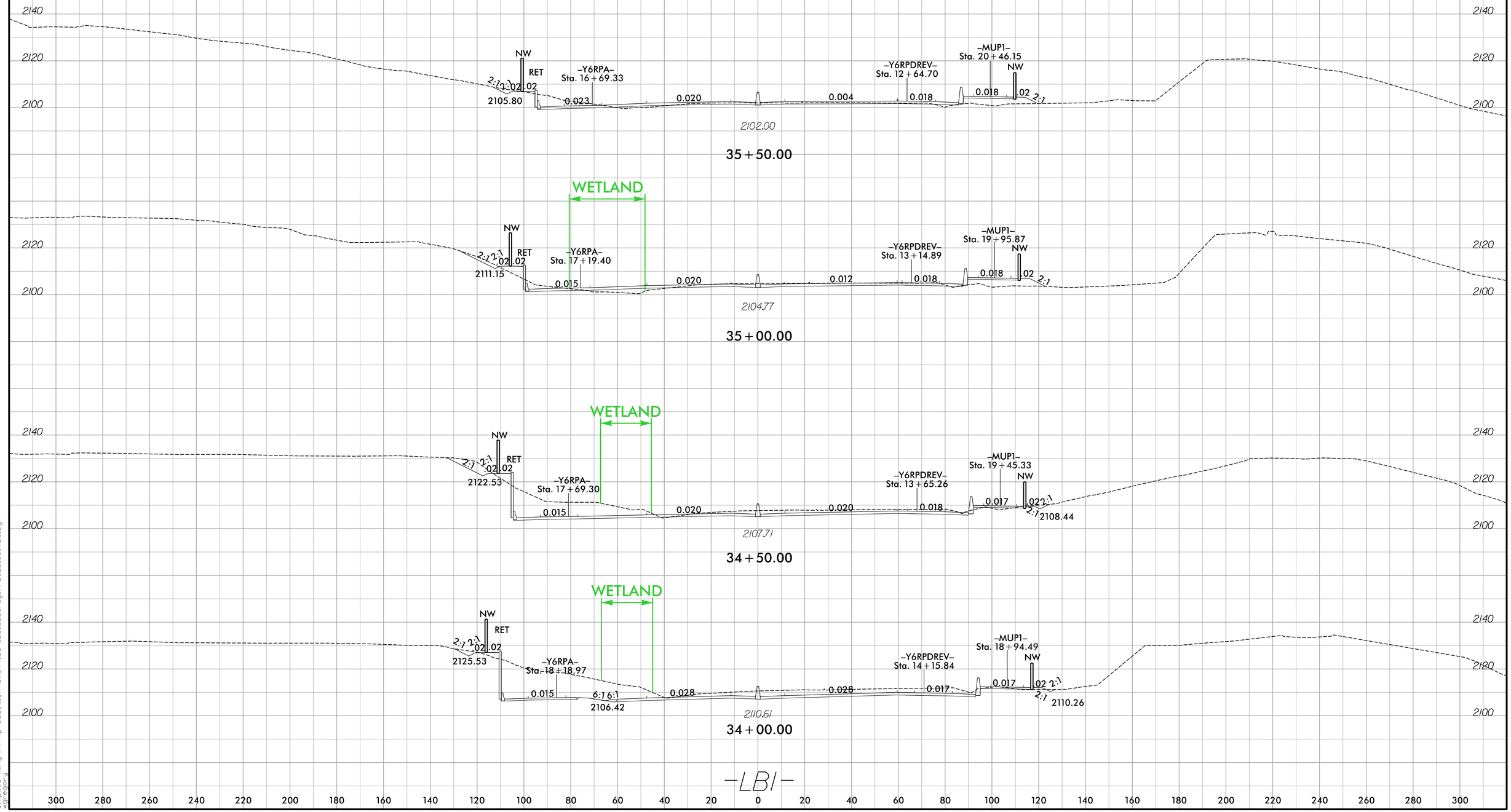
	I-2513B&D	X-11

SITE 3

PERMIT DRAWING
SHEET 25 OF 85



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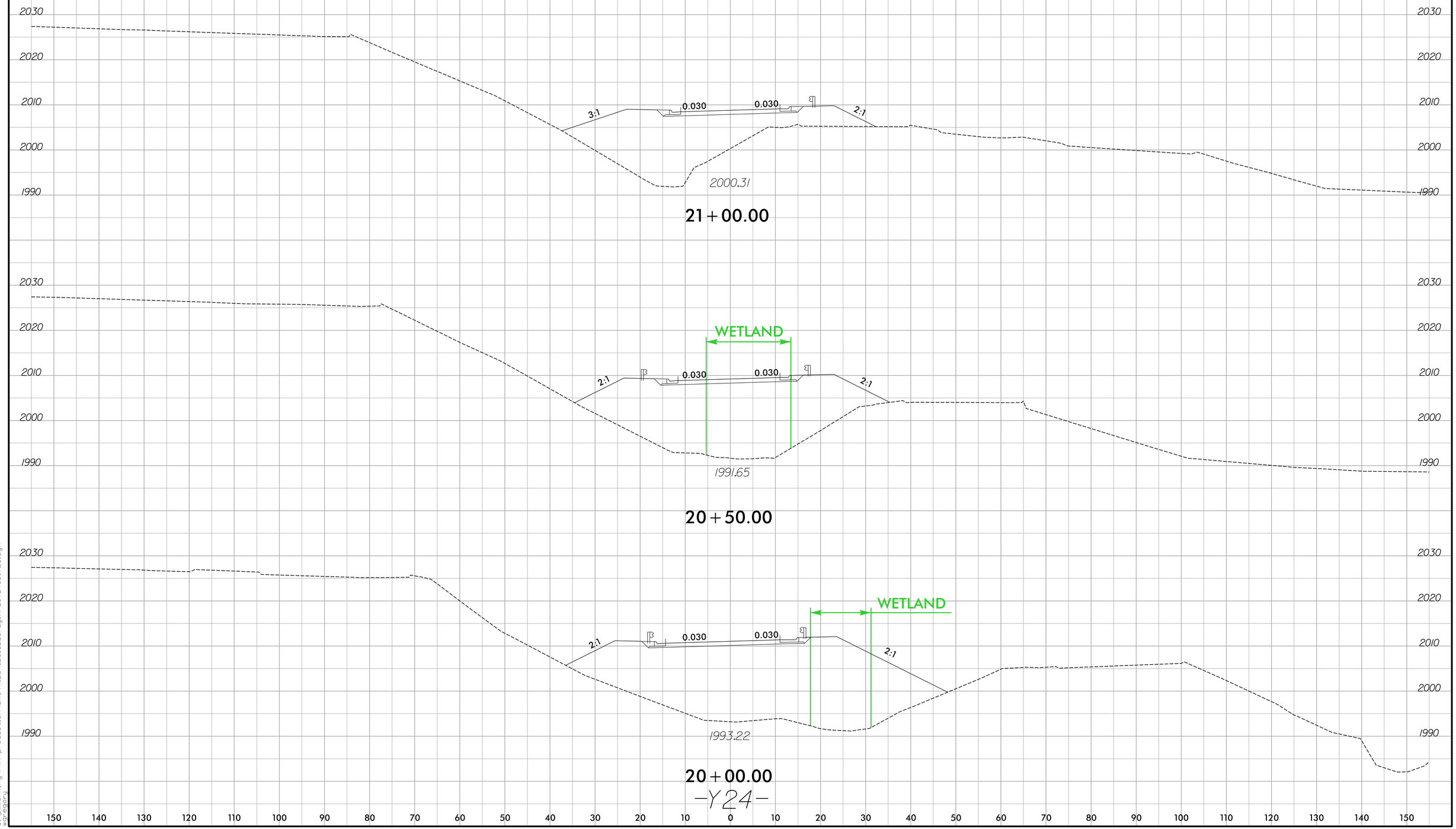
	I-2513B&D	X-186

PERMIT DRAWING
SHEET 26 OF 85

SITE 5



PROJECT REFERENCE NO.	SHEET NO.
I-2513B.0	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

PERMIT DRAWING
SHEET 27 OF 85

ENGLISH

100 0 100 200
SCALE

S S SURFACE WATER IMPACTS

TS TS TEMPORARY SURFACE WATER IMPACTS

NAD 83 2011

SITE 21 SP SBA PBA

SITE 6 SR

SITE 7 SA

SITE 8 SO

-L- STA. 89+00.00 SEE SHEET 10

MATCHLINE -Y7RPA- STA. 15+00.00

MATCHLINE -L8- STA. 62+00.00 SEE SHEET 8

MATCHLINE -Y7RPDDREV- STA. 24+50.00

MATCHLINE -23NB- STA. 27+80.00 SEE SHEET 14

MATCHLINE -1240EB- STA. 53+00.00 SEE SHEET 14

FOR CAUSEWAY PLAN AND DETAILS, SEE PERMIT DRAWING SHEETS 29 TO 40

Montford Area Historic District

INSET A

INSET B

INSET C

INSET D

INSET E

FOR –L8– PROFILE SEE SHT. 23, 24 & 25
FOR –1240EB– PROFILE SEE SHTS. 33, 34 & 35
FOR –1240WB– PROFILE SEE SHTS. 36 & 37
FOR –23NB– PROFILE SEE SHTS. 42 & 43
FOR –23SB– PROFILE SEE SHTS. 44, 45 & 46
FOR –Y7RPA– PROFILE SEE SHT. 52
FOR –Y7RPD– PROFILE SEE SHT. 55
FOR –Y7RPDDREV– PROFILE SEE SHT. 56
FOR –Y36 REV2– PROFILE SEE SHT. 68
FOR –Y43– PROFILE SEE SHT. 72

GRAPHIC SCALE
50 25 0 50 100
PLANS

wsp
1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203
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PERMIT DRAWING
SHEET 28 OF 85

ENGLISH

100 0 100 200
SCALE

S S SURFACE WATER IMPACTS

TS TS TEMPORARY SURFACE WATER IMPACTS

PROJECT REFERENCE NO.	SHEET NO.
I-2513B.0	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

NAD 83 (2011)

-LB- STA. 89+00.00 SEE SHEET 10

MATCHLINE

SA
SITE 7

SBA

PBA

SITE 21

SP

SA
SITE 7

SEE INSET D

SEE INSET A

SEE INSET B

SEE INSET E

SITE 8 SO

Montford Area
Historic District

MATCHLINE -Y7RPA- STA. 15+00.00

-LB- STA 62+00.00 SEE SHEET 8

MATCHLINE -Y7RPDDREV- STA. 24+30.00

SP

SR

SITE 6

FOR CAUSEWAY PLAN AND DETAILS, SEE PERMIT DRAWING SHEETS 29 TO 40

Freeman House
Historic Property

MATCHLINE -Z240EB- STA. 53+00.00 SEE SHEET 14

MATCHLINE -23NB- STA. 27+80.00 SEE SHEET 14

MODEL 11148-11147

INSET A

INSET B

INSET C

INSET D

INSET E

FOR -LB- PROFILE SEE SHT. 23, 24 & 25
FOR -Z240EB- PROFILE SEE SHTS. 33, 34 & 35
FOR -Z240WB- PROFILE SEE SHTS. 36 & 37
FOR -23NB- PROFILE SEE SHTS. 42 & 43
FOR -23SB- PROFILE SEE SHTS. 44, 45 & 46
FOR -Y7RPA- PROFILE SEE SHT. 52
FOR -Y7RPD- PROFILE SEE SHT. 55
FOR -Y7RPDDREV- PROFILE SEE SHT. 56
FOR -Y43- PROFILE SEE SHT. 72
FOR -Y36_REV2- PROFILE SEE SHT. 68

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PROJECT REFERENCE NO.	SHEET NO.
R/W SHEET NO.	

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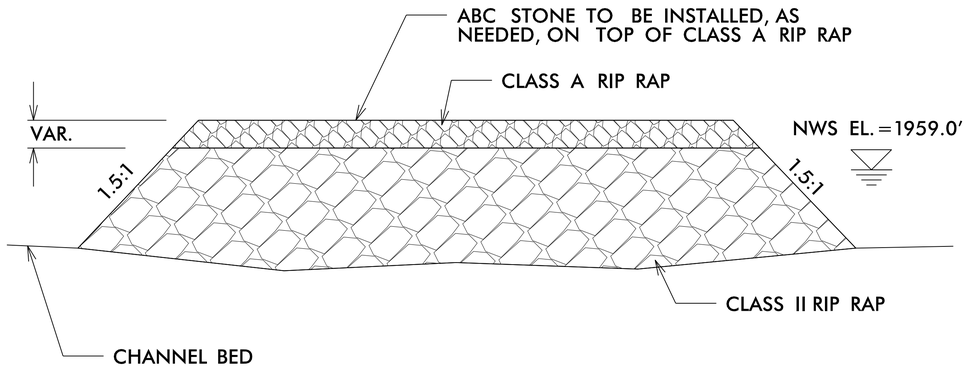
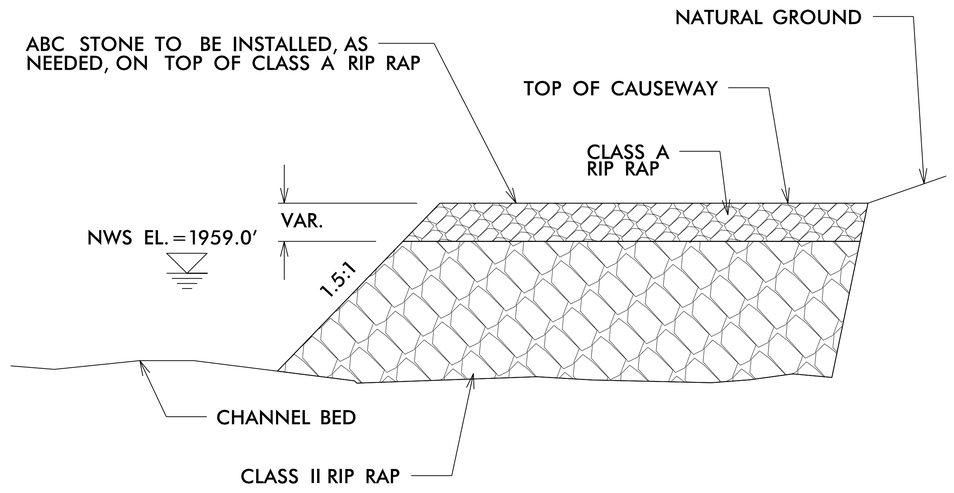
PERMIT DRAWING
SHEET 29 OF 85

TEMPORARY WORK PAD DETAIL

NOT TO SCALE





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PERMIT DRAWING
SHEET 30 OF 85

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

185'-6"

293'-7"

209'-10"

320'-1"

FRENCH BROAD RIVER

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

1963

1963

1963

1963

4A-84

20L-84

20R-84

218

MSD EASEMENT

FRENCH BROAD RIVER

PLAN VIEW
NTS

Approximate Duration of Causeway Phase = 5 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - P1A

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 2 OF 7 REV: 0

AUGUST 20, 2020

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PERMIT DRAWING
SHEET 31 OF 85

AUGUST 20, 2020

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

183'-8"

291'-8"

FRENCH BROAD RIVER

TEMP. IMPACT FOR
TRESTLE FOUNDATIONS

64'-6"

95'-7"

1963

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

320'-1"

255'-6"

FRENCH BROAD RIVER

MSD EASEMENT

PLAN VIEW
NTS

Approximate Duration of Causeway Phase = 1 Week

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - P1B

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 1 OF 7 REV: 0

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 32 OF 85

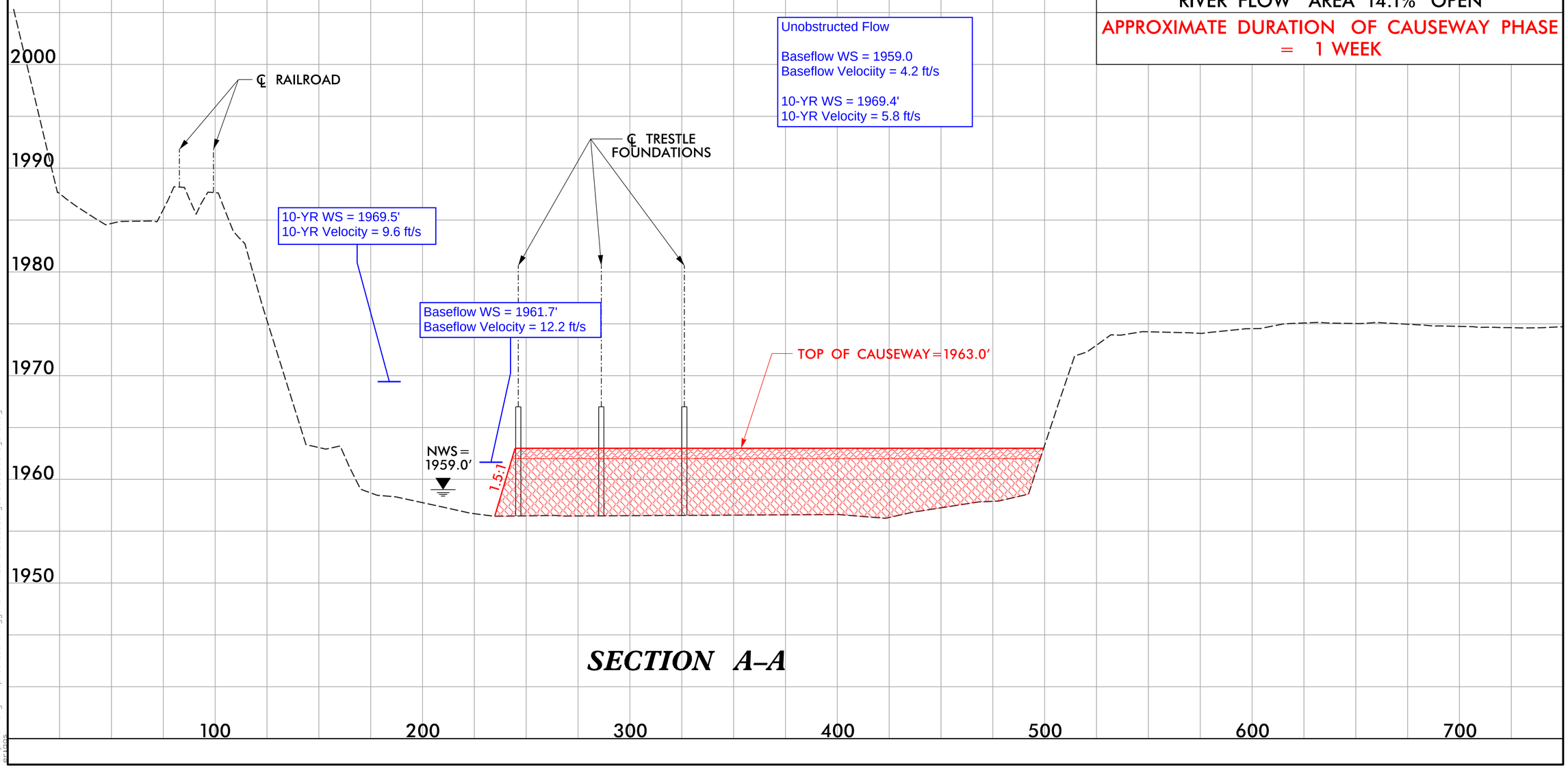
PHASE 1B

TEMPORARY CAUSEWAY TO CONSTRUCT FOUNDATIONS FOR TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 93.5 SF
BLOCKED AREA BELOW NWS = 571.9 SF

RIVER FLOW AREA 14.1% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 1 WEEK



SECTION A–A

10/9/2025
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PERMIT DRAWING
SHEET 33 OF 85

AUGUST 20, 2020

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NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

183'-7"

291'-8"

FRENCH BROAD RIVER

TRESTLE FOUNDATIONS
INSTALLED IN PHASE B

TEMP. IMPACT FOR
TRESTLE FOUNDATIONS

106'-9"

53'-1"

1963

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

320'-1"

213'-5"

FRENCH BROAD RIVER

MSD EASEMENT

PLAN VIEW
NTS

A

A

Approximate Duration of Causeway Phase = 1 Week

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR.	ARCHER-WRIGHT JV

CAUSEWAY - P1C

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 1 OF 7 REV: 0

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 34 OF 85

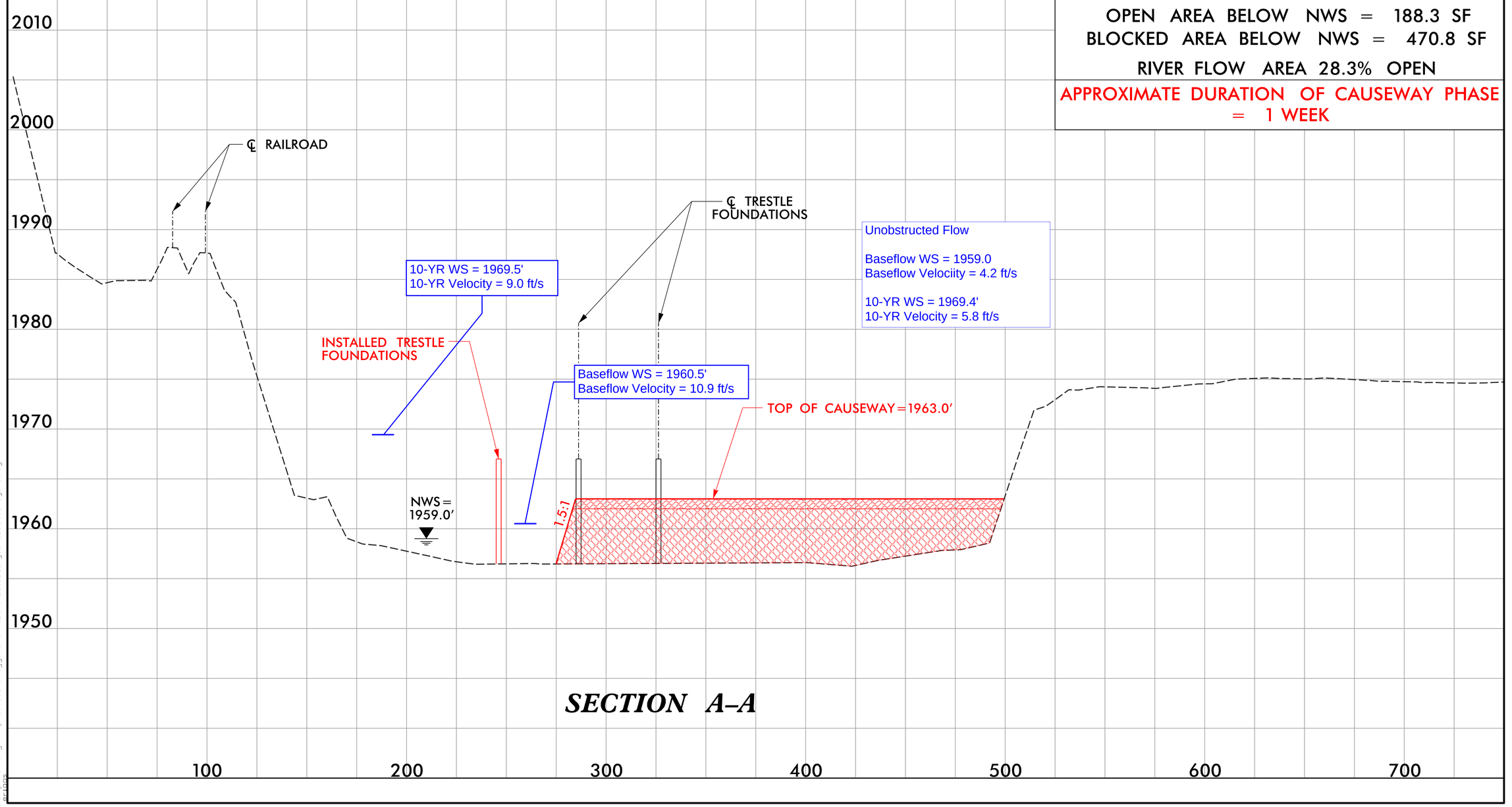
PHASE 1C

TEMPORARY CAUSEWAY TO CONSTRUCT FOUNDATIONS FOR TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 188.3 SF
BLOCKED AREA BELOW NWS = 470.8 SF

RIVER FLOW AREA 28.3% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 1 WEEK



SECTION A–A

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PERMIT DRAWING
SHEET 35 OF 85

AUGUST 20, 2020

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A

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

184'-0"

292'-1"

FRENCH BROAD RIVER

TRESTLE FOUNDATIONS
INSTALLED IN PHASES 1B-1C

147'-0"

TEMP. IMPACT FOR
TRESTLE FOUNDATIONS

13'-10"

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

1963

3A-B4

2DL-B4

2DR-B4

218

4A-B4

320'-1"

173'-1"

FRENCH BROAD RIVER

MSD EASEMENT

PLAN VIEW
NTS

A

Approximate Duration of Causeway Phase = 1 Week

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - P1D

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 1 OF 7 REV: 0

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 36 OF 85

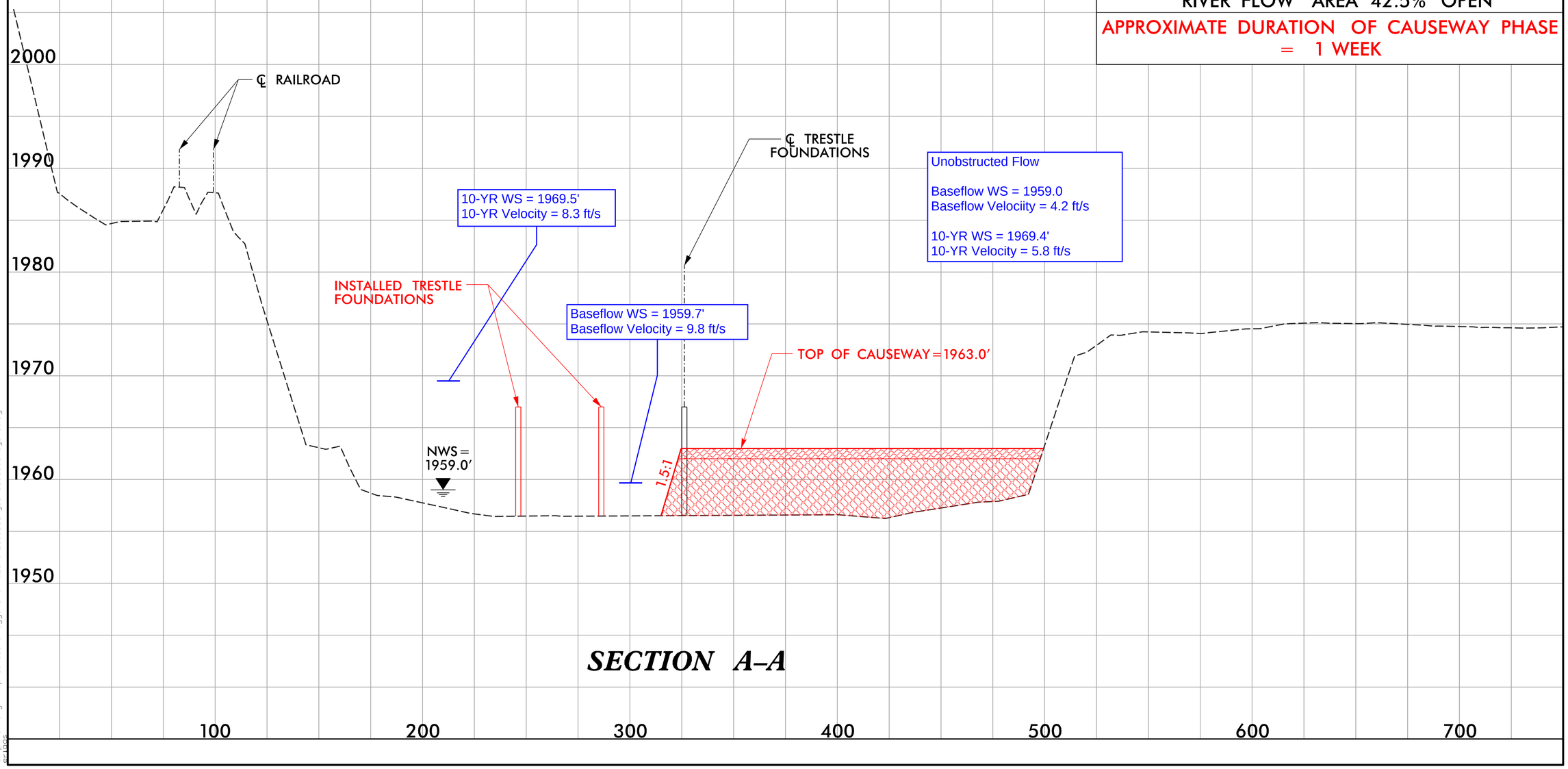
PHASE 1D

TEMPORARY CAUSEWAY TO CONSTRUCT FOUNDATIONS FOR TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 282.5 SF
BLOCKED AREA BELOW NWS = 370.3 SF

RIVER FLOW AREA 42.5% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 1 WEEK



SECTION A–A

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PERMIT DRAWING
SHEET 37 OF 85

AUGUST 20, 2020

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A

NORFOLK SOUTHERN RAILWAY

3A-EB1

EDGE OF WATER
(TYP)

185'-6"

293'-7"

FRENCH BROAD RIVER

TRESTLE FOUNDATIONS
INSTALLED IN PHASES 1B-1D

TRESTLE FOUNDATION
INSTALL IN PHASE 2A

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

183'-2"

320'-1"

FRENCH BROAD RIVER

1963

3A-B4

2GL-B4

2GR-B4

4A-B4

218

MSD EASEMENT

PLAN VIEW
NTS

A

Approximate Duration of Causeway Phase = 3 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - 2

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 2 OF 7 REV: 0

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 38 OF 85

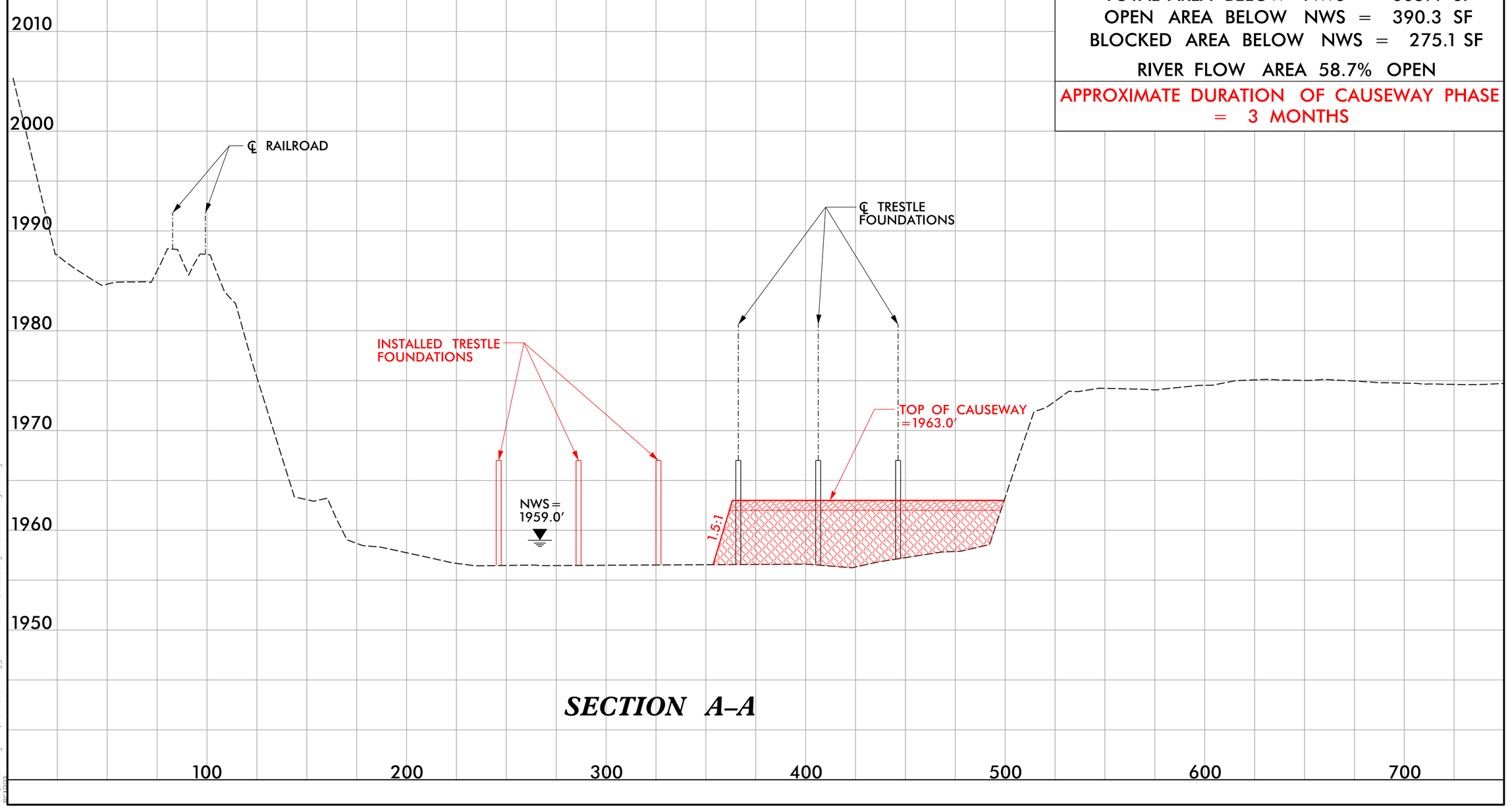
PHASE 2

TEMPORARY CAUSEWAY TO CONSTRUCT FOUNDATIONS FOR TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 390.3 SF
BLOCKED AREA BELOW NWS = 275.1 SF

RIVER FLOW AREA 58.7% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 3 MONTHS



SECTION A–A

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PERMIT DRAWING
SHEET 39 OF 85

AUGUST 20, 2020

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

181'-5"

293'-7"

FRENCH BROAD RIVER

COMPLETE SUBSTRUCTURE BEFORE
ROCK IS REMOVED

REMOVE LOWER CAUSEWAY AND
INSTALL TRESTLE SPANS

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

TOP OF TRESTLE BRIDGE
ELEV: 1971

1971

1963

20R-B4

20L-B4

3A-B4

2@

4A-B4

TOP OF CAUSEWAY
ELEV: 1971

FRENCH BROAD RIVER

20L-B5

3A-B5

20R-B5

4A-B5

MSD EASEMENT

PLAN VIEW
NTS

Approximate Duration of Causeway Phase = 2 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - 3

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 3 OF 7 REV: 0

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PERMIT DRAWING
SHEET 40 OF 85

AUGUST 20, 2020

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NORFOLK SOUTHERN RAILWAY

FRENCH BROAD RIVER

EDGE OF WATER
(TYP)

TOP OF CAUSEWAY
ELEV: 1965

TOE OF 1.5:1
CAUSEWAY SLOPE

TOP OF CAUSEWAY
ELEV: 1971

MSD EASEMENT

1965

1971

297'-6"

204'-7"

319'-7"

200'-0"

PLAN VIEW
NTS

Approximate Duration of Causeway Phase = 10 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR.	ARCHER-WRIGHT JV

CAUSEWAY - P4

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 4 OF 7 REV: 0

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 41 OF 85

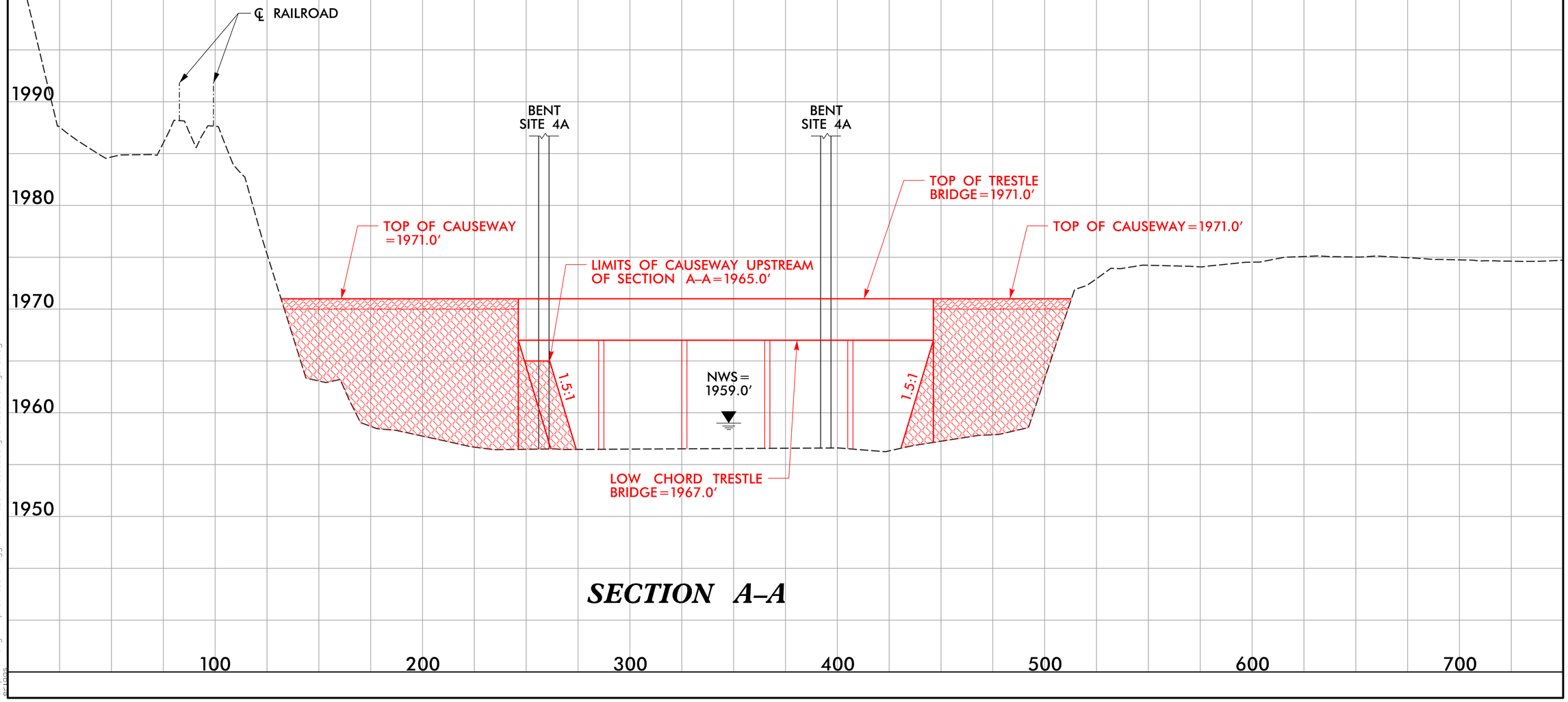
PHASE 4

TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 361.6 SF
BLOCKED AREA BELOW NWS = 303.8 SF

RIVER FLOW AREA 54.3% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 10 MONTHS



SECTION A–A

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SHEET 42 OF 85

AUGUST 20, 2020

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NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

FRENCH BROAD RIVER

306'-5"

215'-3"

140'

170'

FBR-4

1971

TOP OF CAUSEWAY
ELEV: 1971

TOE OF 1.5:1
CAUSEWAY SLOPE

FRENCH BROAD RIVER

TOP OF CAUSEWAY
ELEV: 1971

MSD EASEMENT

PLAN VIEW
NTS

Approximate Duration of Causeway Phase = 3 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - P5

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 5 OF 7 REV: 0

PERMIT DRAWING
SHEET 43 OF 85

AUGUST 20, 2020

B

NORFOLK SOUTHERN RAILWAY

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

FBR-4

FRENCH BROAD RIVER

306'-2"

141'-0"

TEMP. IMPACT FOR
GIRDER ERECTION

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

TOP OF CAUSEWAY
ELEV: 1971

TOE OF 1.5:1
CAUSEWAY SLOPE

FBR-3

FBR-2

FRENCH BROAD RIVER

TOP OF CAUSEWAY
ELEV: 1971

MSD EASEMENT

PLAN VIEW
NTS

B

Approximate Duration of
Causeway Phase = 2 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR.	ARCHER-WRIGHT JV

CAUSEWAY - P6

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 6 OF 7 REV: 0

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 44 OF 85

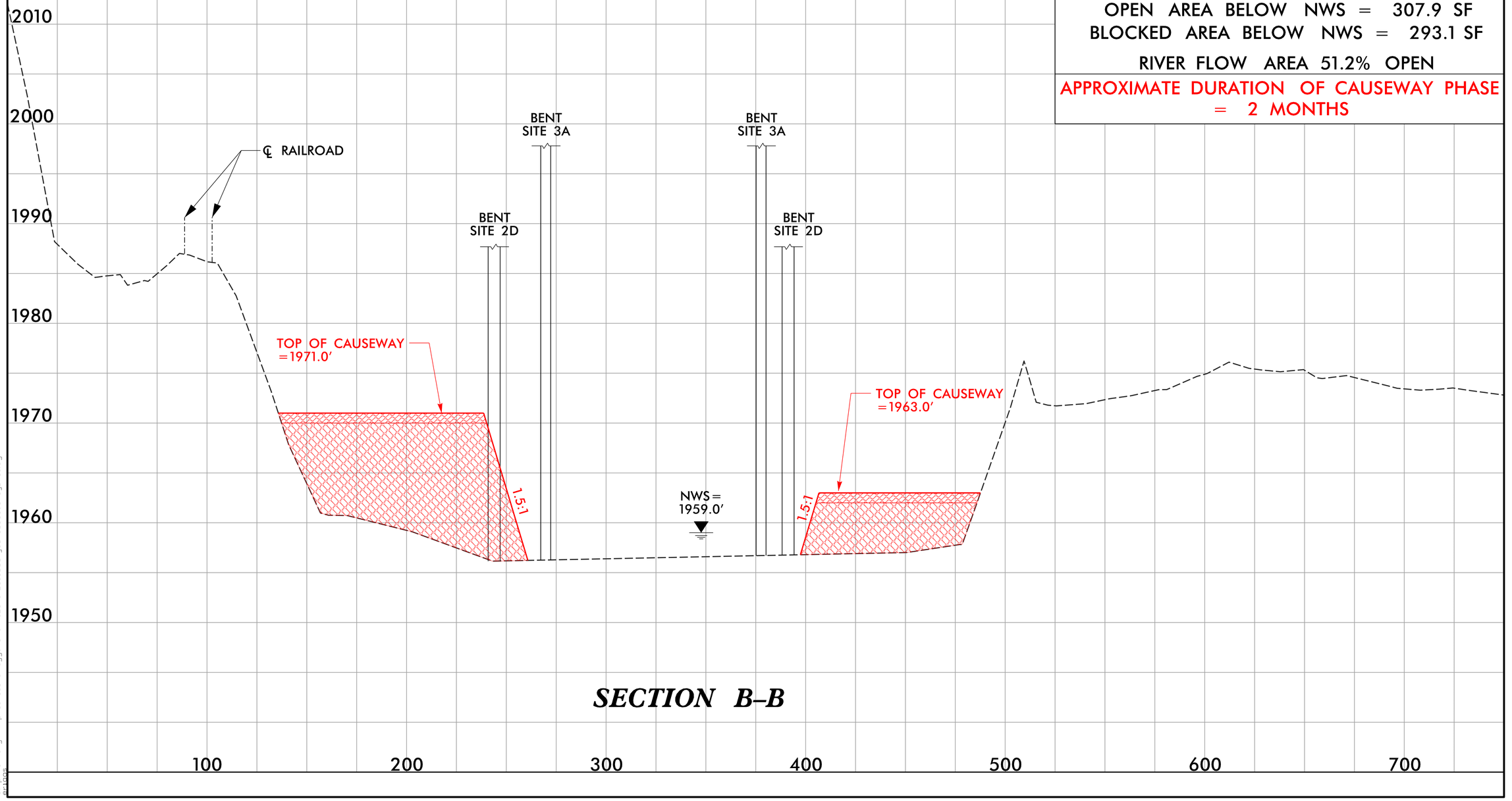
PHASE 6

PARALLEL CAUSEWAYS

TOTAL AREA BELOW NWS = 601.0 SF
OPEN AREA BELOW NWS = 307.9 SF
BLOCKED AREA BELOW NWS = 293.1 SF

RIVER FLOW AREA 51.2% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 2 MONTHS



SECTION B–B

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PERMIT DRAWING
SHEET 45 OF 85

AUGUST 20, 2020

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NORFOLK SOUTHERN RAILWAY

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

FRENCH BROAD RIVER

192'-4"

309'-8"

FBR-2

FBR-3

FBR-4

TOP OF CAUSEWAY
ELEV: 1971

TOE OF 1.5:1
CAUSEWAY SLOPE

1971

70'

95'

75'

MSD EASEMENT

EDGE OF WATER
(TYP)

FRENCH BROAD RIVER

20' MSD EASEMENT PG 227

PLAN VIEW
NTS

Approximate Duration of Causeway Phase = 3 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR.	ARCHER-WRIGHT JV

CAUSEWAY - P7

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 7 OF 7 REV: 0

5/14/99

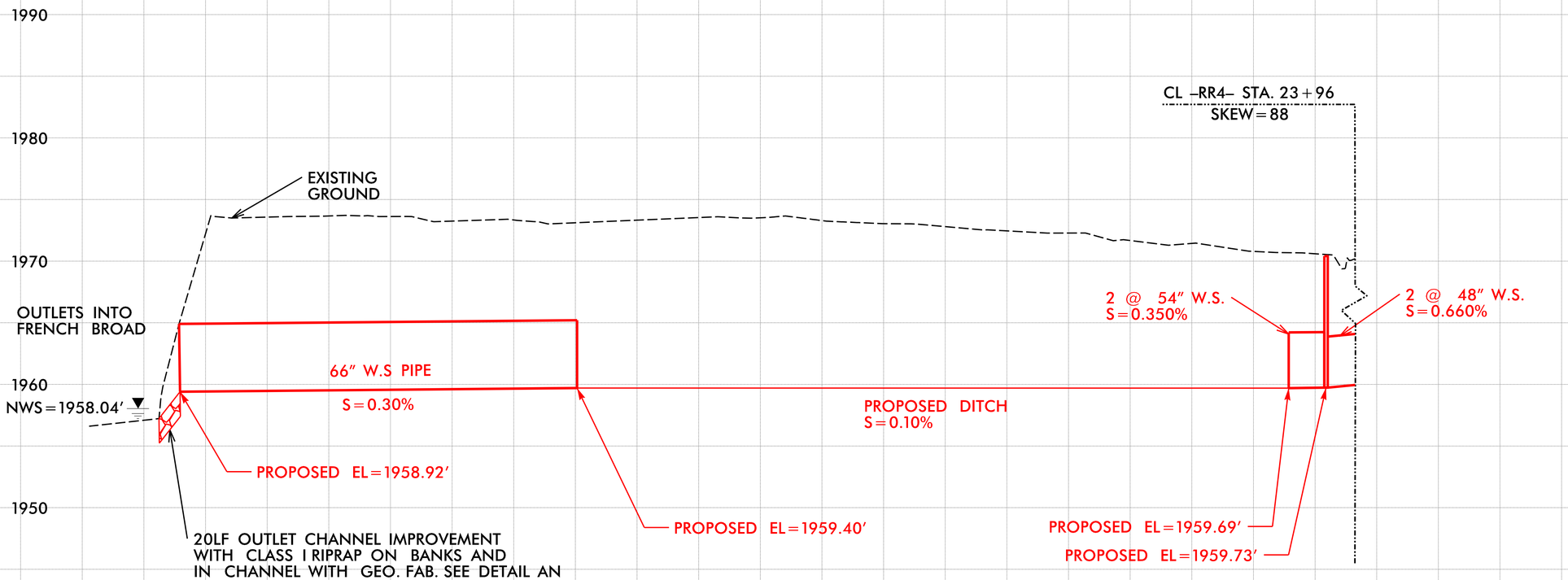
PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 46 OF 85

SITE 7
–RR4– STA. 23+97



66" RC PIPE
(NOT BURIED, LENGTH =161')

10/6/2025
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dkase

5/14/99

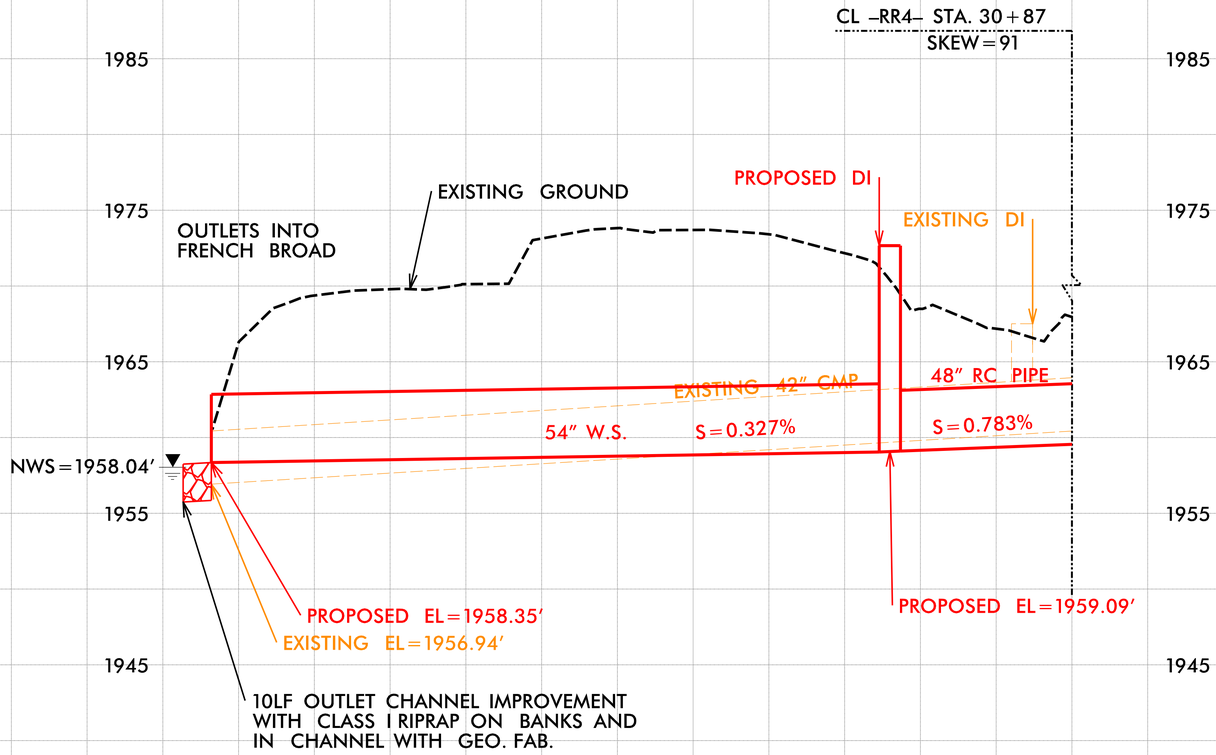
PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 47 OF 85

SITE 7
–RR4– STA. 30+87



54" W.S. PIPE
(NOT BURIED, LENGTH =224')

10/16/2025
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USER:kkp

5/14/99

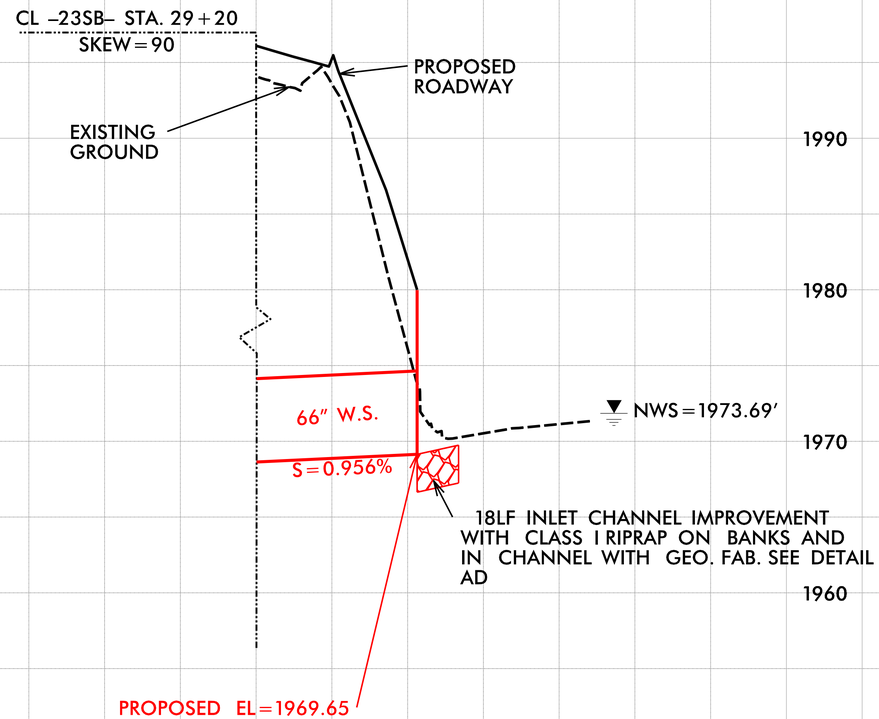
PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 48 OF 85

SITE 8
–23SB– STA. 29 + 20



66" W.S. PIPE
(NOT BURIED, LENGTH = 135')

10/16/2025
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USER:kkpw01

5/28/99

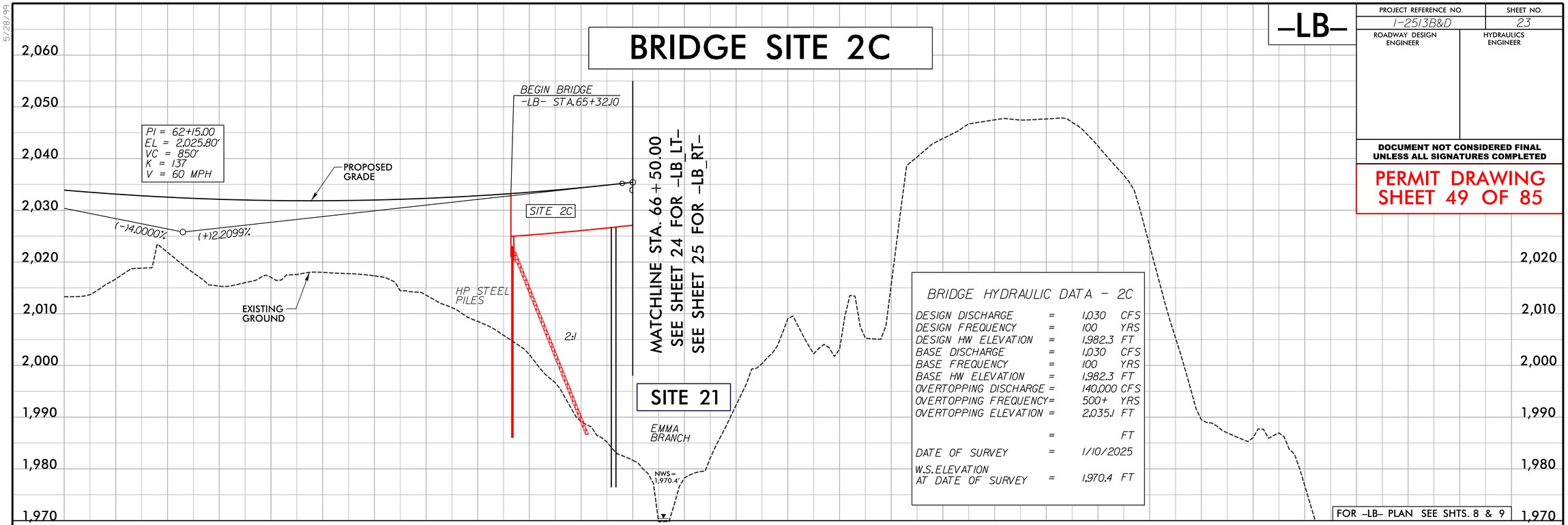
BRIDGE SITE 2C

–LB–

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 49 OF 85



BRIDGE HYDRAULIC DATA – 2C

DESIGN DISCHARGE	=	1,030 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,982.3 FT
BASE DISCHARGE	=	1,030 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,982.3 FT
OVERTOPPING DISCHARGE	=	140,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	2,035.1 FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S. ELEVATION AT DATE OF SURVEY	=	1,970.4 FT

FOR –LB– PLAN SEE SHTS. 8 & 9

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P: (919) 878-9560
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Raleigh, North Carolina 27615-3960
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5/28/99

BRIDGE SITE 2C, 2D

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

–LB_LT–

PERMIT DRAWING SHEET 50 OF 85

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE STA. 66+50.00
SEE SHEET 23 FOR –LB–

BRIDGE HYDRAULIC DATA – 2C

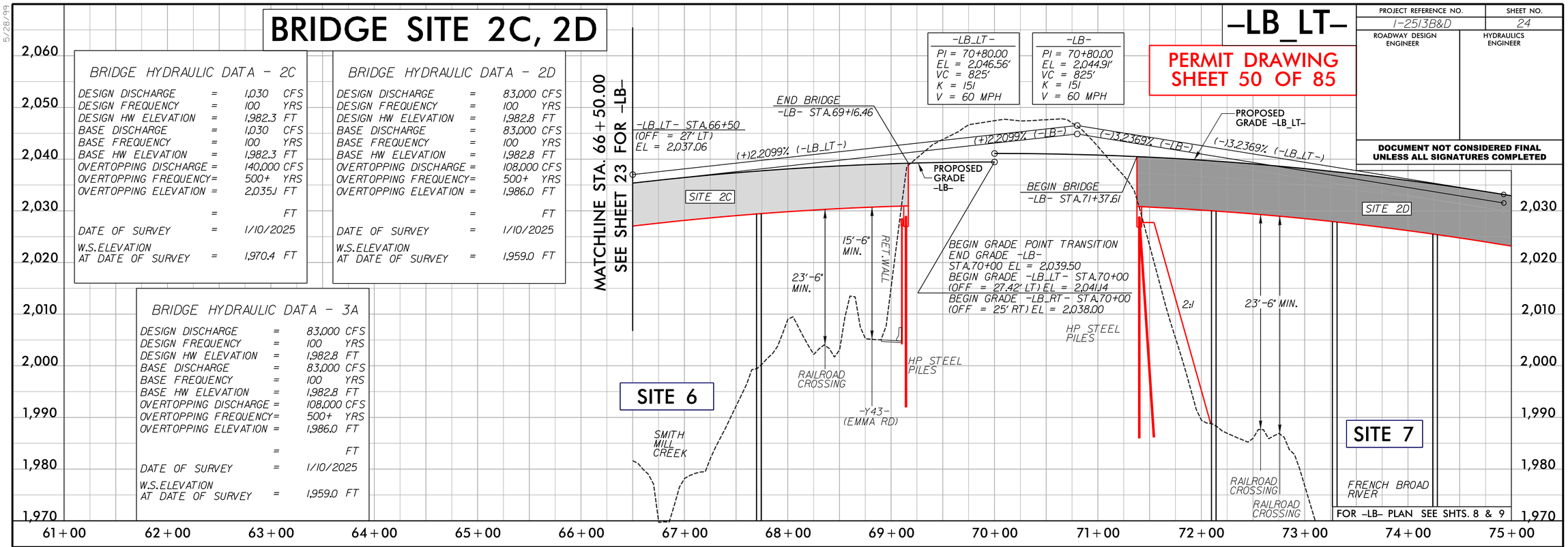
DESIGN DISCHARGE	=	1,030 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,982.3 FT
BASE DISCHARGE	=	1,030 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,982.3 FT
OVERTOPPING DISCHARGE	=	140,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	2,035.1 FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S.ELEVATION AT DATE OF SURVEY	=	1,970.4 FT

BRIDGE HYDRAULIC DATA – 2D

DESIGN DISCHARGE	=	83,000 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,982.8 FT
BASE DISCHARGE	=	83,000 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,982.8 FT
OVERTOPPING DISCHARGE	=	108,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	1,986.0 FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S.ELEVATION AT DATE OF SURVEY	=	1,959.0 FT

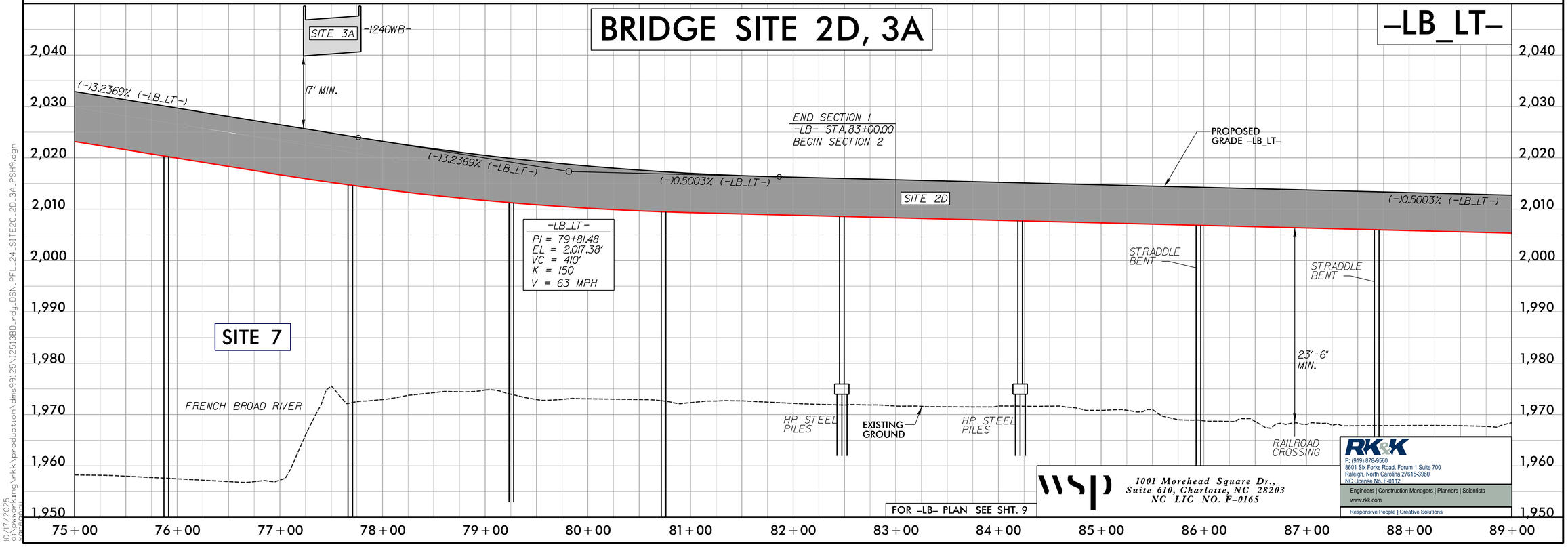
BRIDGE HYDRAULIC DATA – 3A

DESIGN DISCHARGE	=	83,000 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,982.8 FT
BASE DISCHARGE	=	83,000 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,982.8 FT
OVERTOPPING DISCHARGE	=	108,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	1,986.0 FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S.ELEVATION AT DATE OF SURVEY	=	1,959.0 FT



BRIDGE SITE 2D, 3A

–LB_LT–



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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 51 OF 85

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BRIDGE HYDRAULIC DATA - 2C

DESIGN DISCHARGE	=	1,030 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,982.3 FT
BASE DISCHARGE	=	1,030 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,982.3 FT
OVERTOPPING DISCHARGE	=	140,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	2,035.1 FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S. ELEVATION AT DATE OF SURVEY	=	1,970.4 FT

BRIDGE HYDRAULIC DATA - 2D

DESIGN DISCHARGE	=	83,000 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,982.8 FT
BASE DISCHARGE	=	83,000 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,982.8 FT
OVERTOPPING DISCHARGE	=	108,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	1,986.0 FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S. ELEVATION AT DATE OF SURVEY	=	1,959.0 FT

BRIDGE HYDRAULIC DATA - 3A

DESIGN DISCHARGE	=	83,000 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,982.8 FT
BASE DISCHARGE	=	83,000 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,982.8 FT
OVERTOPPING DISCHARGE	=	108,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	1,986.0 FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S. ELEVATION AT DATE OF SURVEY	=	1,959.0 FT

BRIDGE SITE 2C, 2D

-LB_RT-

MATCHLINE STA. 66+50.00
SEE SHEET 23 FOR -LB-

-LB-
PI = 70+80.00
EL = 2,044.91'
VC = 825'
K = 151
V = 60 MPH

-LB_RT-
PI = 70+80.00
EL = 2,043.41'
VC = 825'
K = 151
V = 60 MPH

END BRIDGE
-LB- STA.69+16.46

(+)2.2099% (-LB-)

(-)3.2369% (-LB-)

(+)2.2099% (-LB_RT-)

PROPOSED GRADE -LB-

BEGIN BRIDGE
-LB- STA.71+37.61

SITE 2C

SITE 2D

(-)3.2369% (-LB_RT-)

PROPOSED GRADE -LB_RT-

-LB_RT- STA.66+50
(OFF = 25' RT)
EL = 2,033.91

23'-6" MIN.

15'-6" MIN.

RET. WALL

BEGIN GRADE POINT TRANSITION
END GRADE -LB-
STA.70+00 EL = 2,039.50
BEGIN GRADE -LB_LT- STA.70+00
(OFF = 27.42' LT) EL = 2,041.14
BEGIN GRADE -LB_RT- STA.70+00
(OFF = 25' RT) EL = 2,038.00

HP STEEL PILES

2:1

23'-6" MIN.

RAILROAD CROSSING

-Y43-
(EMMA RD)

SITE 6

SITE 7

SMITH MILL CREEK

RAILROAD CROSSING

FRENCH BROAD RIVER

FOR -LB- PLAN SEE SHTS. 8 & 9

61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 75+00

2,060 2,050 2,040 2,030 2,020 2,010 2,000 1,990 1,980 1,970

BRIDGE SITE 2D, 3A

-LB_RT-

SITE 3A

-I240WB-

17' MIN.

END SECTION 1
-LB- STA.83+00.00
BEGIN SECTION 2

PROPOSED GRADE -LB_RT-

(-)3.2369% (-LB_RT-)

(-)0.5003%

(-)0.5003% (-LB_RT-)

(-)0.5003% (-LB_RT-)

SITE 2D

-LB_RT-
PI = 78+12.75
EL = 2,019.70'
VC = 410'
K = 150
V = 63 MPH

STRADDLE BENT

STRADDLE BENT

23'-6" MIN.

SITE 7

FRENCH BROAD RIVER

HP STEEL PILES

EXISTING GROUND

HP STEEL PILES

RAILROAD CROSSING

(-)0.3000%

BEGIN SPECIAL CUT 'V' DITCH
STA. -LB- 88+00 (RT)
ELEV = 1968.02'

FOR -LB- PLAN SEE SHT. 9

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75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00

2,040 2,030 2,020 2,010 2,000 1,990 1,980 1,970 1,960 1,950

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5/28/99

-I240EB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 52 OF 85

BRIDGE SITE 4A

BRIDGE HYDRAULIC DATA - 4A

DESIGN DISCHARGE	=	83,000 CFS
DESIGN FREQUENCY	=	100 YRS
DESIGN HW ELEVATION	=	1,982.8 FT
BASE DISCHARGE	=	83,000 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1,982.8 FT
OVERTOPPING DISCHARGE	=	108,000 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	1,986.0 FT
	=	FT
DATE OF SURVEY	=	1/10/2025
W.S. ELEVATION AT DATE OF SURVEY	=	1,959.0 FT

PI = 55+40.00
EL = 2,029.48'
VC = 200'
K = 355
V = 78 MPH

(-)0.5316%

(-)1.0952%

PROPOSED GRADE

END BRIDGE
-I240EB- STA. 59+90.62

END GRADE & END SECTION 1
BEGIN SECTION 2
-I240EB- Sta. 62+44.67=
-240_REV2_LT - Sta. 10+00.00 (23.5' RT)
EL = 2,021.76'

17' MIN.

17' MIN.

23'-6" MIN.

MSE WALL

-23SB-

EXISTING GROUND

RAILROAD CROSSING

-Y36_REV2-
(RIVERSIDE DR)

2,120 2,110 2,100 2,090 2,080 2,070 2,060 2,050 2,040 2,030 2,020 2,010 2,000 1,990 1,980 1,970 1,960 1,950 1,940 1,930 1,920

52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00

FOR -I240EB- PLAN SEE SHTS. 9 & 14

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*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

SA

SITE 17

CLASS I RIPRAP EST. 29 TONS

SBB SITE 16

SEE INSET C SHEET 55 OF 85

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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PERMIT DRAWING SHEET 53 OF 85

NAD 83/2011

MATCHLINE –LB– STA. 89+00.00 SEE SHEET 9

MATCHLINE –LB– STA. 102+50.00 SEE SHEET 11

RIVERSIDE PARTNERS LLC

ADVANCED ACQUISITION PARCEL BY NCDOT

CAROLINA MORANCE INC.

CAPE FOX RAVILLA LLC

RIVERSIDE DR LLC

CAROLINA MORANCE INC.

RETAIN AND LINE PER THE CONTRACT PAGE 322

SEE INSET B SHEET 55 OF 85

SL

SITE 10

WAK SM

SITE 9

SEE INSET A SHEET 55 OF 85

LATERAL V DITCH SEE DETAIL AH LINE WITH CLASS B RIPRAP EST 15 TONS EST 13 SY

RIP RAP AT EMBANKMENT CLASS I RIP RAP EST. 4 TONS EST. 6 SYCF SEE DETAIL AN

CHANNEL CHANGE SEE DETAIL AD LINE WITH CLASS I RIPRAP EST 38 TONS EST 54 SY

STREAM PLUG SEE DETAIL AL FILL IN EXISTING STREAM

SPECIAL LATERAL V DITCH SEE DETAIL AJ

TRENCHLESS INSTALLATION 48" W.S.

FRANCHISE INSTALLATION

BERM V DITCH SEE DETAIL X LINE WITH CLASS B RIPRAP EST 22 TONS EST 40 SY

BERM BASE DITCH SEE DETAIL Q LINE WITH CLASS B RIPRAP EST 10 TONS EST 17 SY

BERM BASE DITCH SEE DETAIL R LINE WITH CLASS I RIPRAP EST 40 TONS EST 52 SY

LUKE A WITHROW

STEPHANIE M SWICEGOOD-BELL & JEFFERSON E BELL

Montford Area Historic District

ENGLISH

SCALE 50 0 50 100

TS/TS TEMPORARY SURFACE WATER IMPACTS

S/S SURFACE WATER IMPACTS

F/F FILL IN WETLAND

FOR –LB– PROFILE SEE SHT. 26 & 27
FOR –23NB– PROFILE SEE SHT. 43
FOR –23SB– PROFILE SEE SHT. 45
FOR –Y36_REV2– PROFILE SEE SHTS. 68 & 69
FOR –MUP8– PROFILE SEE SHT. 62

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8/17/99

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	10

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

PERMIT DRAWING
SHEET 54 OF 85

NAD 83/2011

SA

SITE 17

CLASS I RIPRAP EST. 29 TONS

SBB SITE 16

SEE INSET C SHEET 55 OF 85

SL

SITE 10

SEE INSET B SHEET 55 OF 85

WAK SM

SITE 9

SEE INSET A SHEET 55 OF 85

–LB– STA. 89+00.00 SEE SHEET 9

MATCHLINE –LB– STA. 102+50.00 SEE SHEET 11

RETAIN AND LINE PER THE CONTRACT PAGE 322

ADVANCED ACQUISITION PARCEL BY NCDOT

RIVERSIDE PARTNERS LLC

CAROLINA MORANCE INC.

CAPE FOX RAVILLA LLC

RIVERSIDE DR LLC

BUILDING DISTURBED ISFBUS

CHANNEL CHANGE SEE DETAIL AD LINE WITH CLASS I RIPRAP EST 38 TONS EST 54 SY

STREAM PLUG SEE DETAIL AI FILL IN EXISTING STREAM

LATERAL V DITCH SEE DETAIL AG

RIP RAP AT EMBANKMENT CLASS I RIP RAP EST 4 TONS EST 9 SYSY SEE DETAIL AN

BERM V DITCH SEE DETAIL X LINE WITH CLASS B RIPRAP EST 23 TONS EST 40 SY

BERM BASE DITCH SEE DETAIL R LINE WITH CLASS I RIPRAP EST 48 TONS EST 52 SY

BERM BASE DITCH SEE DETAIL Q LINE WITH CLASS B RIPRAP EST 9 TONS EST 17 SY

SPECIAL LATERAL V DITCH SEE DETAIL AJ

TRENCHLESS INSTALLATION 48" W.S.

18 CSP w/ELBOWS

OTCB

SCALE 50 0 50 100

ENGLISH

TS TS TEMPORARY SURFACE WATER IMPACTS

S S SURFACE WATER IMPACTS

F F FILL IN WETLAND

Montford Area Historic District

FOR –LB– PROFILE SEE SHT. 26 & 27
FOR –23NB– PROFILE SEE SHT. 43
FOR –23SB– PROFILE SEE SHT. 45
FOR –Y36 REV2– PROFILE SEE SHTS. 68 & 69
FOR –MUP8– PROFILE SEE SHT. 62

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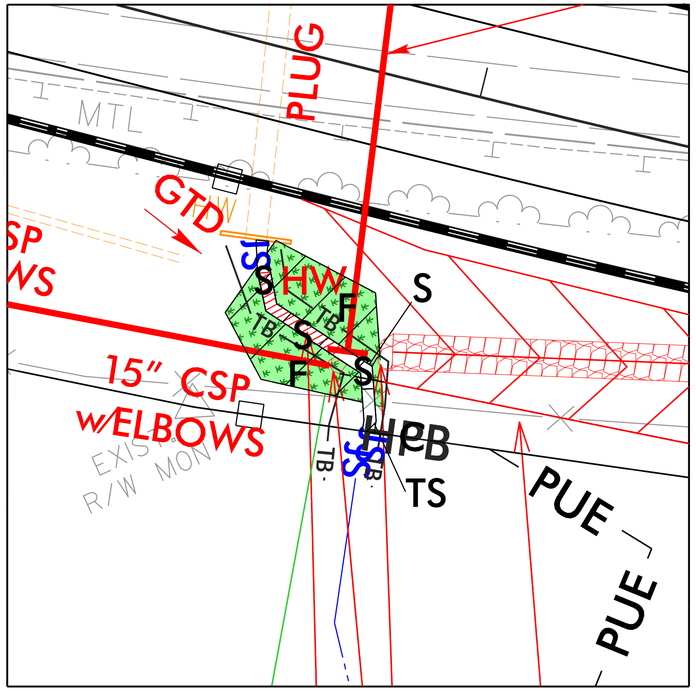
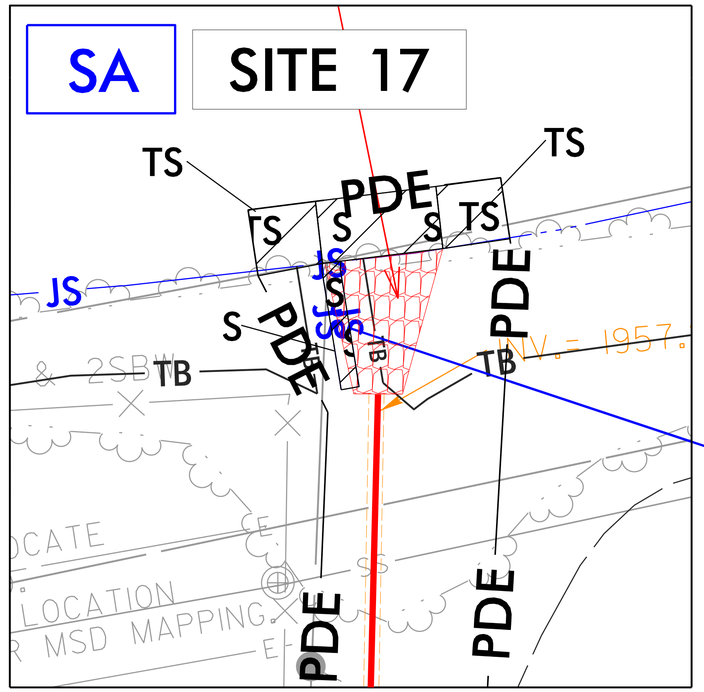


INSET A

SITE 9

WAK

SM



PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	10A

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

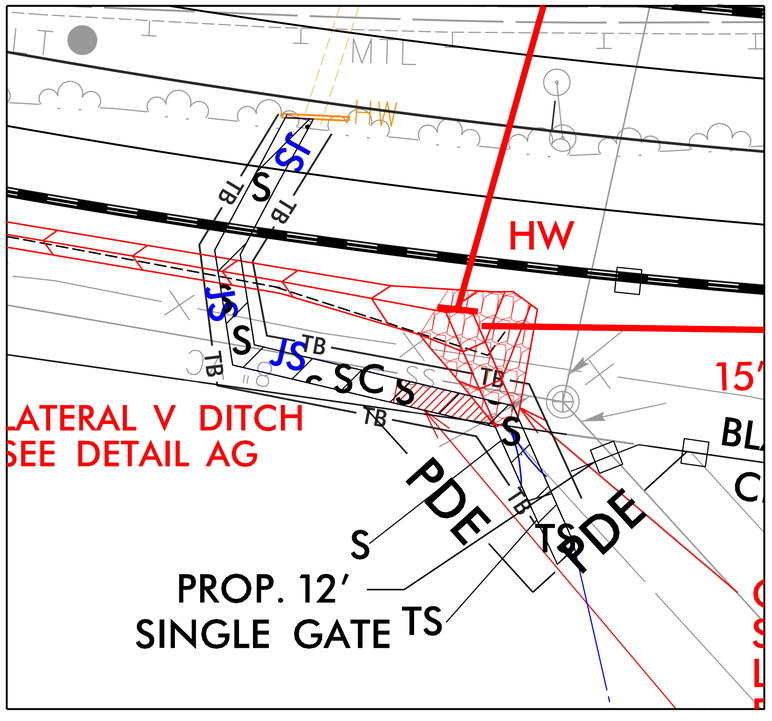
PERMIT DRAWING
SHEET 55 OF 85

INSET C

SITE 16

SBB

NAD 83/2011



INSET B

SITE 10

SL

ENGLISH

F — FILL IN WETLAND

S — SURFACE WATER IMPACTS

TS — TEMPORARY SURFACE WATER IMPACTS

25 0 25 50

SCALE

10/16/2025
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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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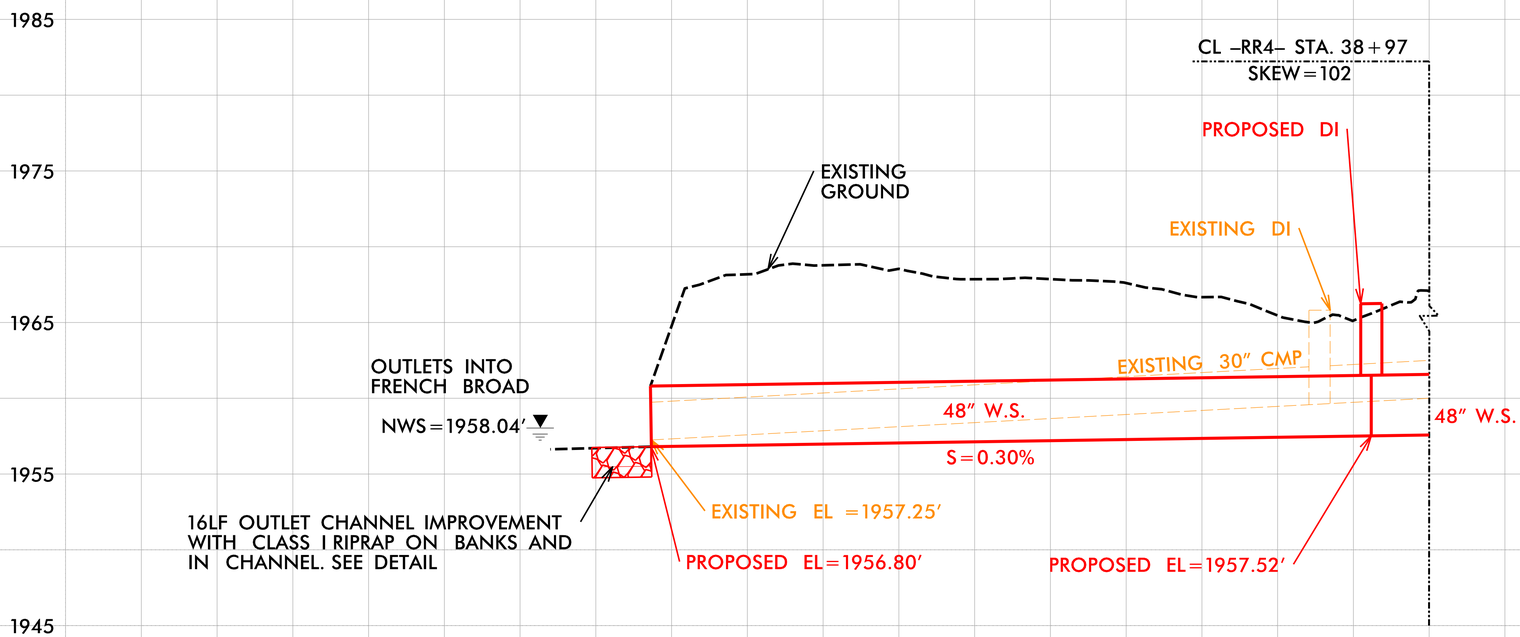
PERMIT DRAWING
SHEET 56 OF 85

SITE 16 & 17
–RR4– STA. 38+97



48" W.S. PIPE
(NOT BURIED, LENGTH =237')

10/16/2025
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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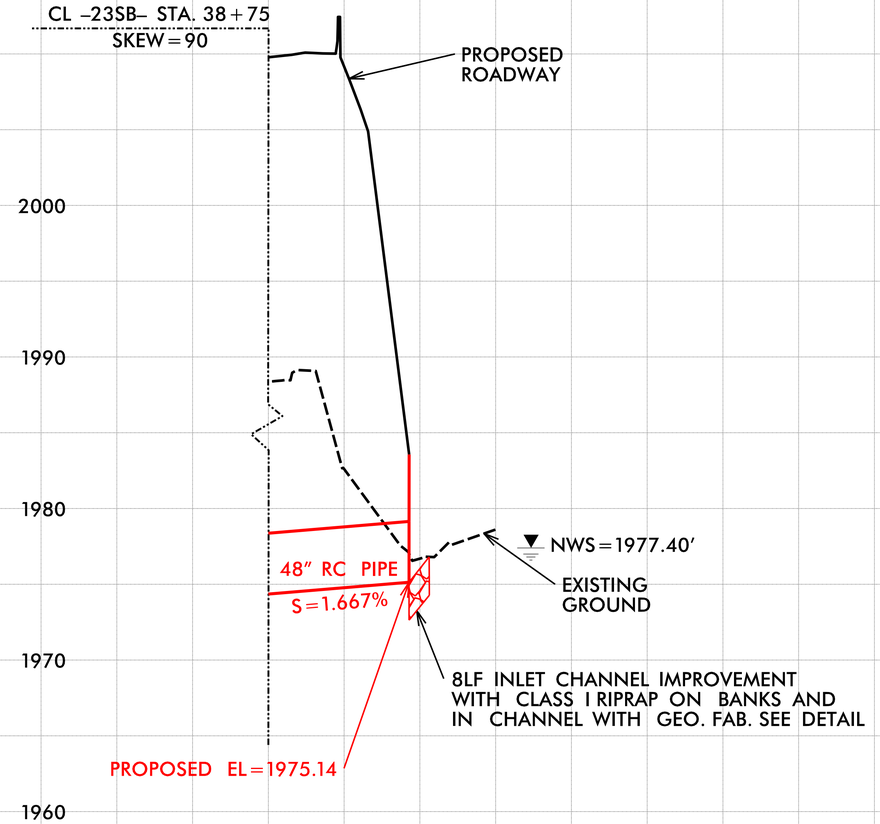
PERMIT DRAWING
SHEET 57 OF 85

SITE 9
–23SB– STA. 38+75



48" W.S. PIPE
(NOT BURIED, LENGTH =65')

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5/14/99

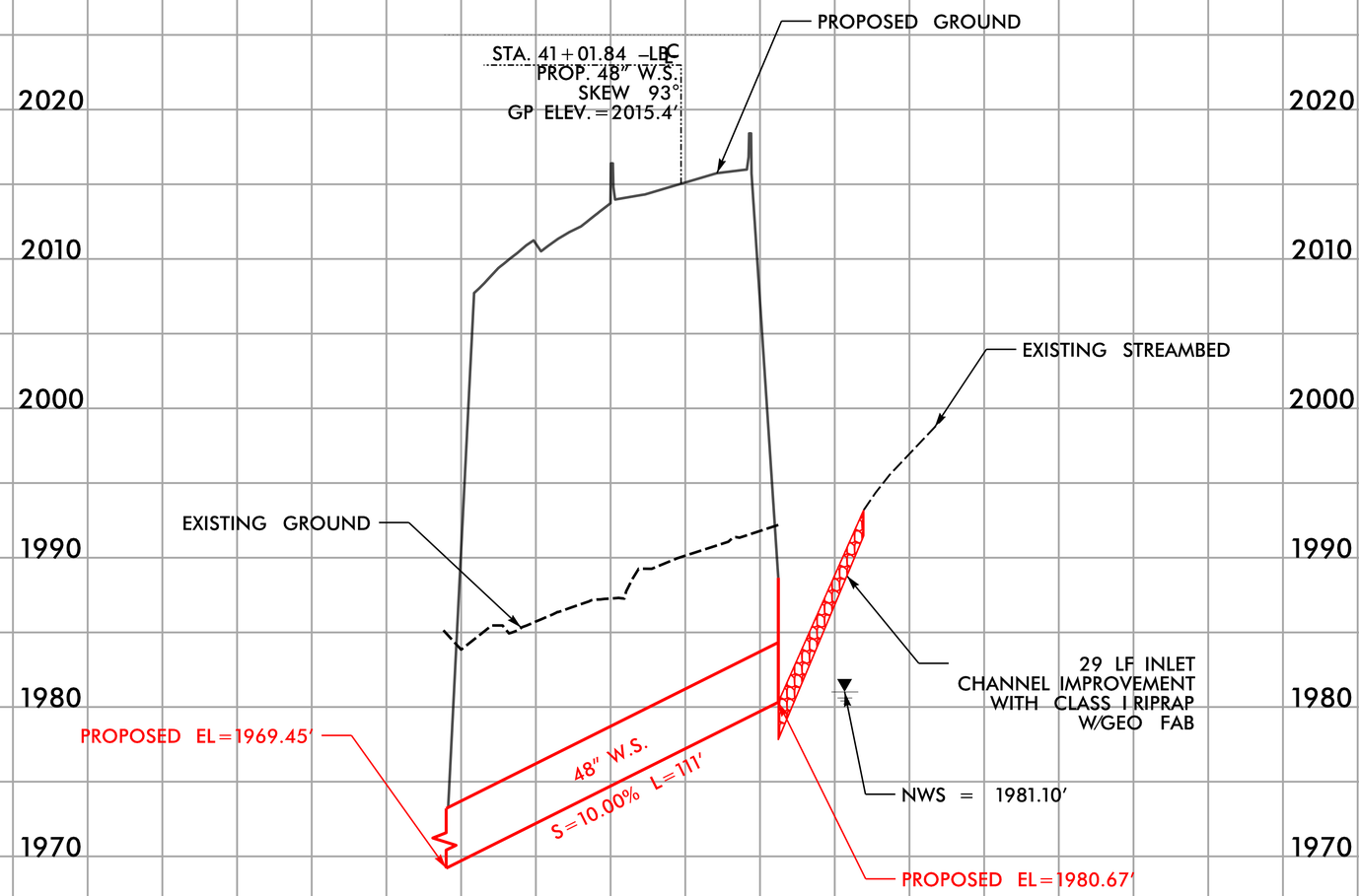
PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 58 OF 85

SITE 10
–23NB– STA. 41+01.84



48" W.S. PIPE
(NOT BURIED, LENGTH=111')

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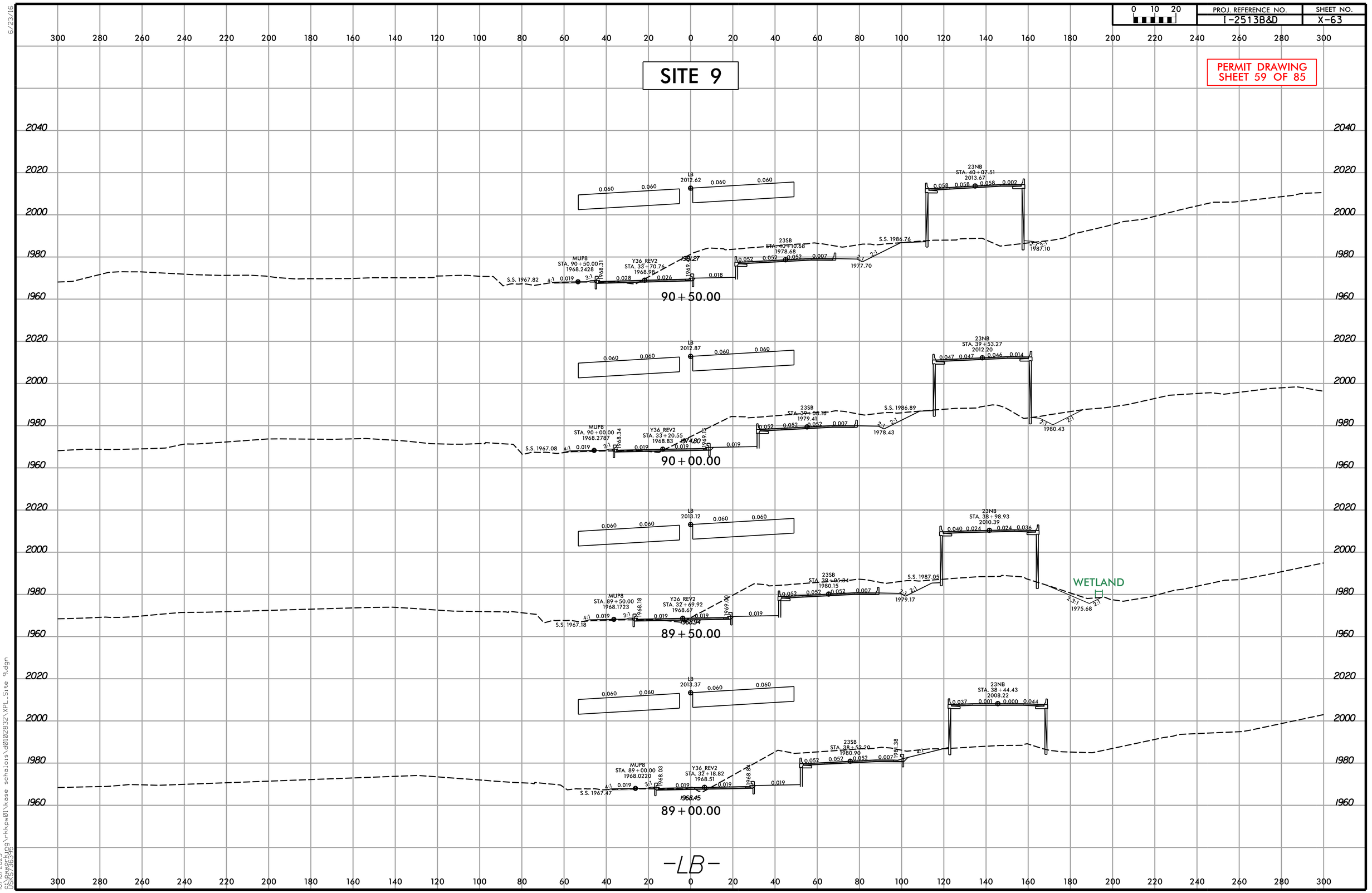
PERMIT DRAWING
SHEET 59 OF 85

SITE 9



6/23/16
10/6/2025
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USKS736345

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

SA

SITE 11

SI

SEE INSET A SHEET 62 OF 85

SEE INSET B SHEET 62 OF 85

MATCHLINE –LB– STA. 102+50.00 SEE SHEET 10

MATCHLINE –LB– STA. 116+00.00 SEE SHEET 12

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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PERMIT DRAWING SHEET 60 OF 85

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FOR –LB– PROFILE SEE SHT. 26, 27, 28 & 29
FOR –23SB– PROFILE SEE SHTS. 45 & 46
FOR –Y36_REV2– PROFILE SEE SHT. 69

ENGLISH

SCALE 50 0 50 100

TEMPORARY SURFACE WATER IMPACTS

SURFACE WATER IMPACTS

REVISIONS

8/17/99

10/16/2025
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*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

SA

SITE 11

SI

SEE INSET A SHEET 62 OF 85

SEE INSET B SHEET 62 OF 85

MATCHLINE –LB– STA. 102+50.00 SEE SHEET 10

MATCHLINE –LB– STA. 116+00.00 SEE SHEET 12

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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SHEET 61 OF 85

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FOR –LB– PROFILE SEE SHT. 26, 27, 28 & 29
FOR –23SB– PROFILE SEE SHTS. 45 & 46
FOR –Y36_REV2– PROFILE SEE SHT. 69

ENGLISH

SCALE 50 0 50 100

TS TEMPORARY SURFACE WATER IMPACTS

S SURFACE WATER IMPACTS

REVISIONS 8/17/99

10/16/2025
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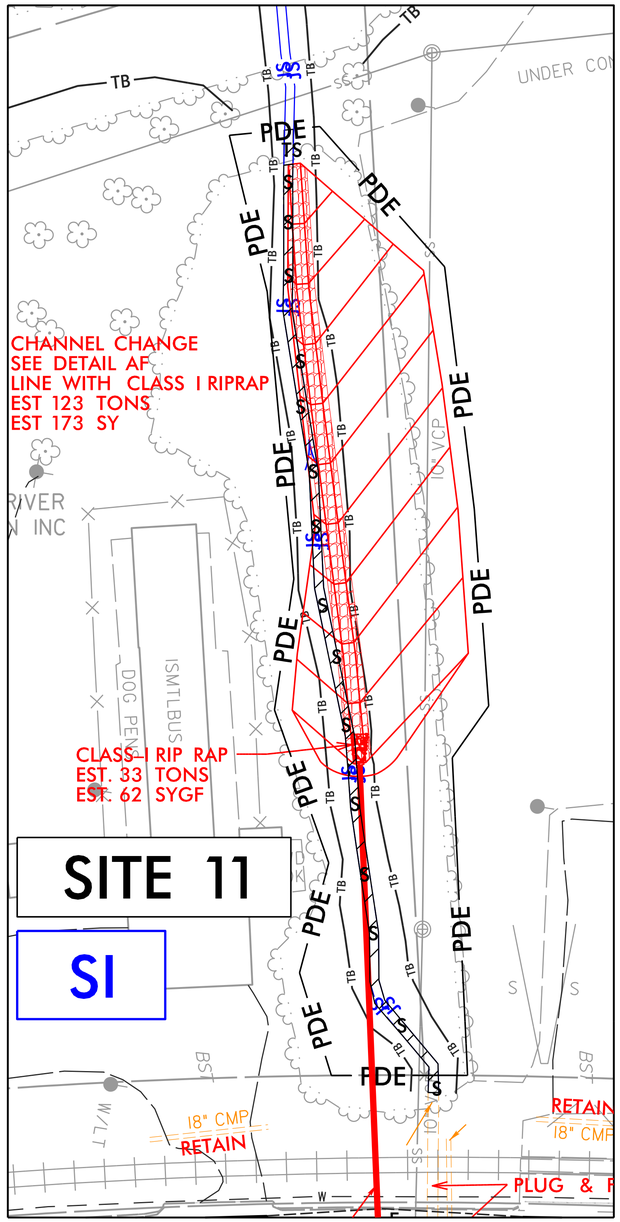
8/17/99

REVISIONS

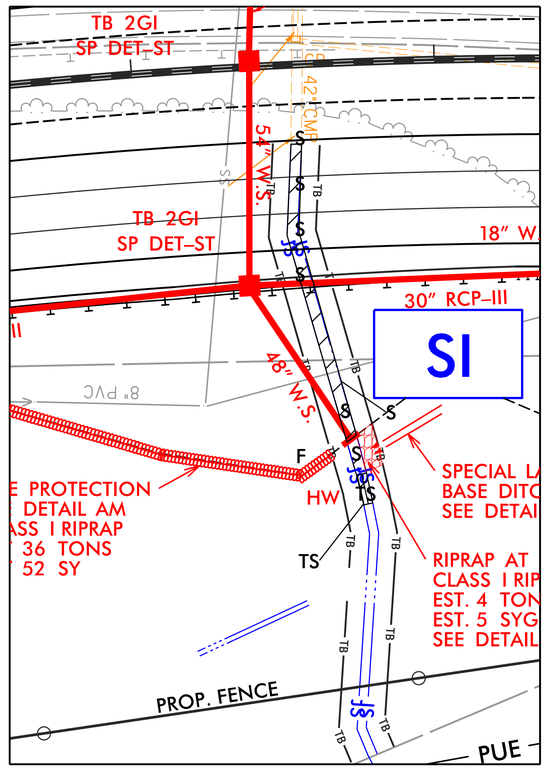
SITE 11

INSET A



SITE 11

INSET B



ENGLISH

25 0 25 50
SCALE

TS TEMPORARY SURFACE WATER IMPACTS

S SURFACE WATER IMPACTS

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	IIA
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

PERMIT DRAWING
SHEET 62 OF 85

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5/14/99

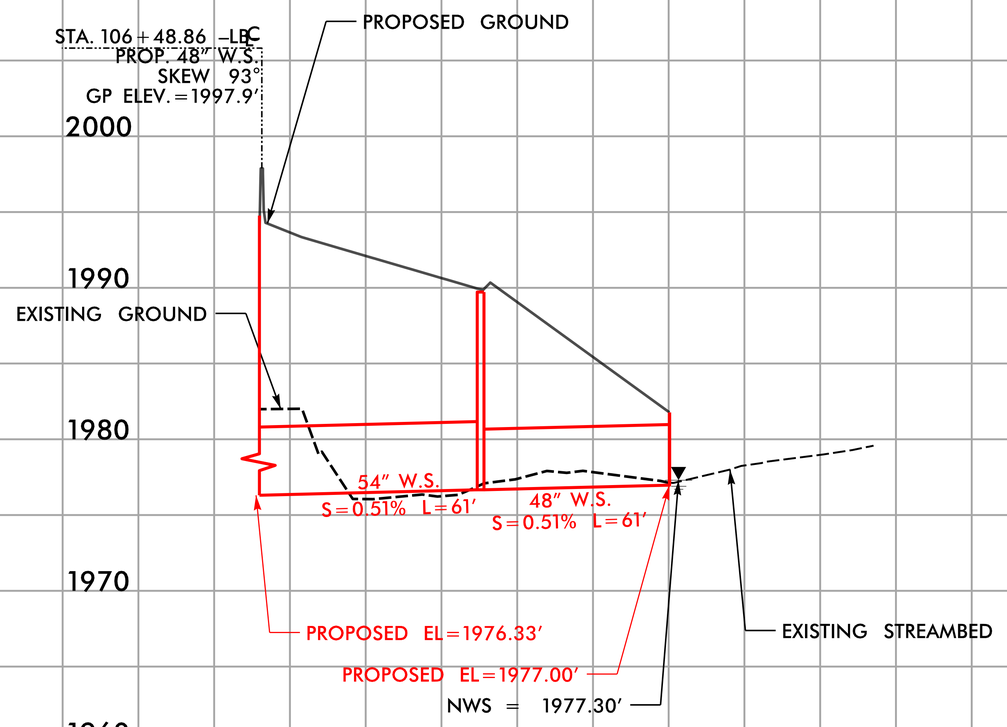
PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 63 OF 85

SITE 11 INLET
–LB– STA. 106+48.86



48" W.S. PIPE
(NOT BURIED, LENGTH = 61')

10/16/2025
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USER: kase

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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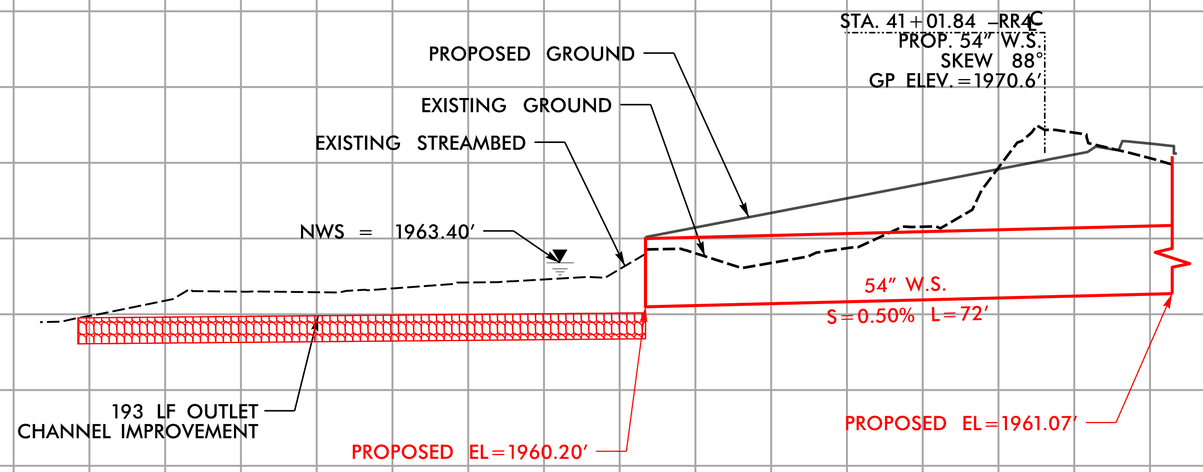
PERMIT DRAWING
SHEET 64 OF 85

SITE 11 OUTLET
–RR4– STA. 49+75.78



54" W.S. PIPE
(NOT BURIED, LENGTH = 72')

10/16/2025
C:\Users\rkpw01\kase scholars\d0102832\I-2513BD_hyd_profile_SITE11_INLET & OUTLET_psh11.dgn
USKY 16.05

8/17/99

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	12
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

PERMIT DRAWING SHEET 65 OF 85

INSET A

INSET B

SA

SITE 18

SITE 12

SK

WBB

SEE INSET A

SEE INSET B

MATCHLINE –LB– STA. 116+00.00 SEE SHEET 11

MATCHLINE –LB– STA. 128+25.00 SEE SHEET 13

CITY OF ASHEVILLE

JAY AND S PROPERTIES, LLC

RIVER PIRATE INVESTMENTS, LLC

RIVERLINK, INC.

NORFOLK SOUTHERN RR

SOUTHERN RR R/W

FRENCH BROAD RIVER

BURNICE WAYNE DAVIS

CHRISTOPHER J. PETERSON

AGIOUA, LLC

JOHANN DOELLGAST & SHAUN McCULLOM

MITB HOLDINGS COMPANY LLC

CAITLIN G & JONATHAN R SLOOP

JOHN TAYLOR & BRIANA BENKOCZY ESSICK

JAG & ASSOCIATES CONSTRUCTION INC

KATHERINE & MICHAEL ROBERT JOHNSON JR

56 HIBRITTEN, LLC

TERESA S BEEMAN ROGER A STEPHENSON

PEARSON BRIDGE RD

RIVERSIDE DR.

HIBRITTEN DR.

FERGUSON

Hills

Hibritten Dr.

(Boundary Expansion)

Historic District

ENGLISH

SCALE 50 0 50 100

SCALE FOR INSETS 25 0 25 50

TS TS TEMPORARY SURFACE WATER IMPACTS

S S SURFACE WATER IMPACTS

T T TEMPORARY FILL IN WETLAND

E E WETLAND EXCAVATION

FOR –LB– PROFILE SEE SHTS. 28, 29 & 30
FOR –23SB– PROFILE SEE SHT. 46
FOR –Y36_REV2– PROFILE SEE SHTS. 69 & 70
FOR –Y37– PROFILE SEE SHT. 71

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kase.jenkins

8/17/99

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	12
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

PERMIT DRAWING SHEET 66 OF 85

NAD 83/2011

INSET A

INSET B

SITE 18

SITE 12

SA

SK

WBB

MATCHLINE –LB– STA. 116+00.00 SEE SHEET 11

MATCHLINE –LB– STA. 128+25.00 SEE SHEET 13

SEE INSET A

SEE INSET B

FRENCH BROAD RIVER

RIVERSIDE DR.

RIVERLINK, INC.

CITY OF ASHEVILLE

JAY AND S PROPERTIES, LLC

RIVER PIRATE INVESTMENTS, LLC

BURNICE WAYNE DAVIS

CHRISTOPHER J. PETERSON

AGIOUA, LLC

JOHANN DOELGAST & SHAUN MCCULLOM

JOHN TAYLOR & BRIANA BENKOCZ ESSICK

JONATHAN R. SLOOP

MTDS HOLDINGS COMPANY LLC

JAG & ASSOCIATES CONSTRUCTION INC

KATHERINE A. MICHAEL ROBERT JOHNSON JR

TERESA BOEHME TOCCI & STEPHENSON

CLASS I RIP RAP EST. 30 TONS

CHANNEL CHANGE SEE DETAIL AF LINE WITH CLASS I RIPRAP EST. 60 TONS EST. 85 SY

CLASS I RIP RAP EST. 20 TONS EST. 39 SYCF

TRENCHLESS INSTALLATION 42" WELDED STEEL

TRENCHLESS INSTALLATION 48" WELDED STEEL

PLUG & FF

REMOVE

MEDIAN V DITCH SEE DETAIL AI

FALSE SUMP SEE DETAIL AP

BERM BASE DITCH SEE DETAIL Y LINE WITH CLASS I RIPRAP EST. 20 TONS EST. 25 SY

BERM BASE DITCH SEE DETAIL W/ FF LINE WITH EST. 60 TON EST. 110 SY

BERM V DITCH SEE DETAIL S

TOE PROTECTION SEE DETAIL AM CLASS I RIPRAP EST. 14 TONS EST. 21 SY

LINE WITH CLASS B RIPRAP EST. 30 TONS EST. 51 SY

CLASS B RIPRAP EST. 2 TONS EST. 7 SYCF

SPECIAL LATERAL BASE DITCH SEE DETAIL L

CHANNEL CHANGE SEE DETAIL AF LINE WITH CLASS I RIPRAP EST. 20 TONS EST. 28 SY

CLEAN AND MAINTAIN/REPLACE CONCRETE LINING IN DITCH

FUTURE I-26 EBL 24" CONC

FUTURE I-26 WBL CONC

I-26 EB/US HWY 19/23 36' BST

F-26 WB/US HWY 19/23 36' BST

NC 251 RIVERSIDE DR 40' BST

165+00

70+00

120+00

125+00

ENGLISH

SCALE 50 0 50 100

SCALE FOR INSETS 25 0 25 50

TS TS TEMPORARY SURFACE WATER IMPACTS

S S SURFACE WATER IMPACTS

F F TEMPORARY FILL IN WETLAND

E E WETLAND EXCAVATION

Hills
Hibriten Dr.
(Boundary Expansion)
Historic District

FOR –LB– PROFILE SEE SHTS. 28, 29 & 30
FOR –23SB– PROFILE SEE SHT. 46
FOR –Y36_REV2– PROFILE SEE SHTS. 69 & 70
FOR –Y37– PROFILE SEE SHT. 71

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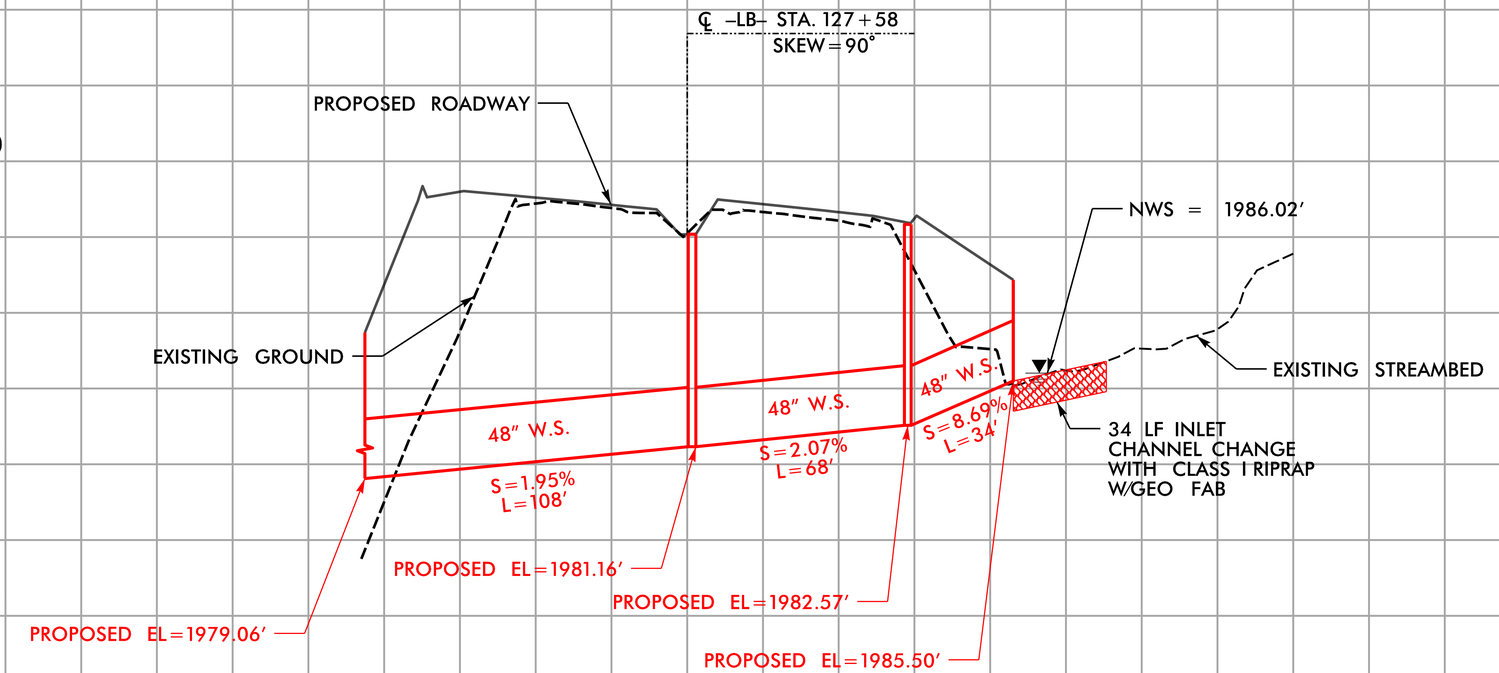
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 67 OF 85

SITE 12
–LB– STA. 127 + 58



48” TRENCHLESS WELDED STEEL PIPE
(NOT BURIED, LENGTH = 34’)

10/16/2025
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USER: kase

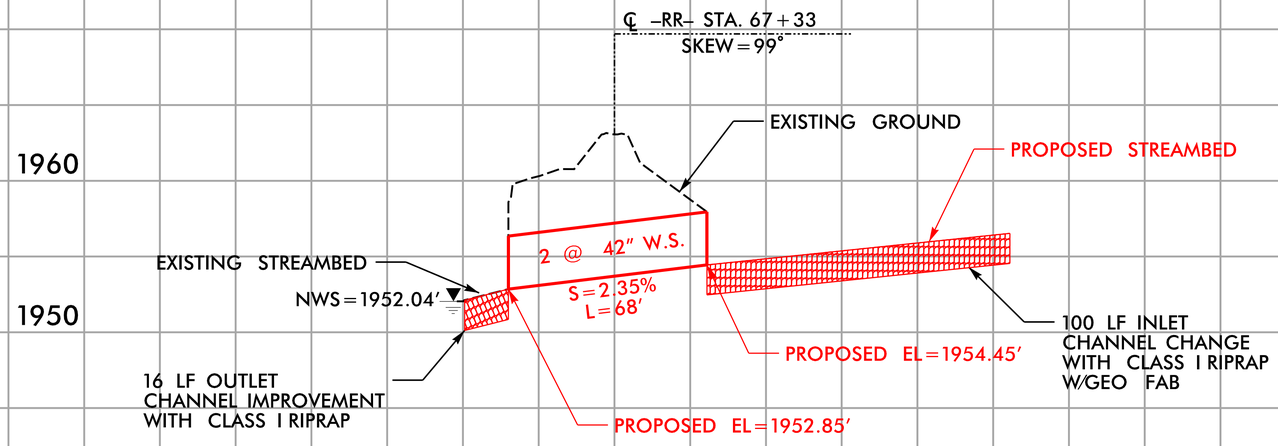
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 68 OF 85

SITE 18
–RR– STA. 67+33



2 @ 42" TRENCHLESS WELDED STEEL (NOT BURIED, LENGTH = 68')

10/16/2025
c:\powerking\rkkp01\kase schalois\d0102832\I2513BD_hyd_profile_SITE24_pshl2.dgn
USER: kase

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

MATCHLINE -LB- STA. 128+25.00 SEE SHEET 12

SITE 19 SEE INSET A

SITE 13 SEE INSET B

SITE 12

SA

SJ

SK

INSET A

INSET B

CLASS-I RIP RAP EST. 46 TONS

RETAIN SYSTEM

RETAIN EXISTING ROOF DRAIN AND UNDERGROUND SYSTEM

TRENCHLESS INSTALLATION 30" W.S.

TRENCHLESS INSTALLATION 36" WELDED STEEL

RIVERSIDE DR

BROADWAY

BROADWAY AVENUE

RAMP STUDIOS LLC

RAT PACK LLC

J. CARY MONROE REVOCABLE TRUST J CARY MONROE TRUSTEE

B. B. GRANGER, INC.

WESCO REAL ESTATE III, LLC

UNC ASHEVILLE FOUNDATION RIVERSIDE PROPERTY LLC

SPRINKLE CREEK VENTURES, INC.

82 RIVERSIDE DRIVE LLC

HOUSING AUTHORITY OF THE CITY OF ASHEVILLE

NORTH CAROLINA STATE HIGHWAY COMMISSION

STATE EMPLOYEES CREDIT UNION

STATE OF NORTH CAROLINA

BEEMAN STEPHENSON

ENGLISH

SCALE 50 0 50 100

SCALE FOR INSETS 25 0 25 50

TEMPORARY SURFACE WATER IMPACTS

SURFACE WATER IMPACTS

NAD 83/2011

PROJECT REFERENCE NO. I-2513BD

SHEET NO. 13

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 69 OF 85

FOR -LB-: PROFILE SEE SHT. 30
FOR -LB_TIE_LT-: PROFILE SEE SHT. 31
FOR -LB_TIE_RT-: PROFILE SEE SHT. 31
FOR -Y1ARPC-: PROFILE SEE SHT. 67
FOR -Y12A_RDY2-: PROFILE SEE SHT. 70

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*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

SITE 19

SEE INSET A

SA

SEE INSET B

SJ

SITE 13

MATCHLINE –LB– STA. 128+25.00 SEE SHEET 12

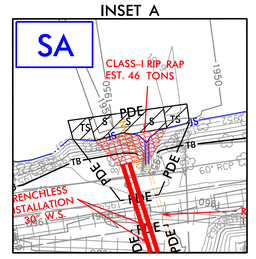
SK

SITE 12

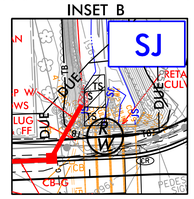
SITE 13

SJ

INSET A



INSET B



SCALE

SCALE FOR INSETS

TS TEMPORARY SURFACE WATER IMPACTS

S SURFACE WATER IMPACTS

FOR –LB– PROFILE SEE SHT. 30
FOR –LB_TIE_LT– PROFILE SEE SHT. 31
FOR –LB_TIE_RT– PROFILE SEE SHT. 31
FOR –Y12RPC– PROFILE SEE SHT. 62
FOR –Y36_REVD– PROFILE SEE SHT. 70

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PROJECT REFERENCE NO. I-2513BD

SHEET NO. 13

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 70 OF 85

NAD 83 2011

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PROJECT REFERENCE NO.	SHEET NO.
I-2513BD	14
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

PERMIT DRAWING SHEET 71 OF 85

FOR –I240EB– PROFILE SEE SHT. 35
FOR –I240WB– PROFILE SEE SHTS. 37 & 38
FOR –240_REV2_LT– PROFILE SEE SHT. 39
FOR –240_REV2_RT– PROFILE SEE SHT. 39
FOR –23NB– PROFILE SEE SHT. 42
FOR –23SB– PROFILE SEE SHT. 44
FOR –Y25A_REV2– PROFILE SEE SHT. 64
FOR –Y25C_RAB– PROFILE SEE SHT. 64
FOR –Y25C– PROFILE SEE SHT. 65
FOR –Y25C2– PROFILE SEE SHT. 65
FOR –Y25C3– PROFILE SEE SHT. 65
FOR –Y36_REV2– PROFILE SEE SHT. 68

NAD 83/2011

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

MATCHLINE –23NB– STA. 27+80.00 SEE SHEET 9

MATCHLINE –240_REV2– STA. 19+00.00 SEE SHEET 15

MATCHLINE –I240EB– STA. 53+00.00 SEE SHEET 9

SITE 20 | SITE 22 | SITE 15

WBC | SBC | ST | SAV | SA

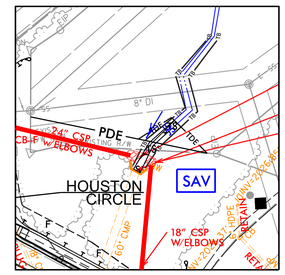
SEE INSET A | SEE INSET B

539 FROM GIS: Youngblood and Sarah Haske DB 6121 PG 0197

538 FROM GIS: Youngblood and Sarah Haske DB 6121 PG 0200

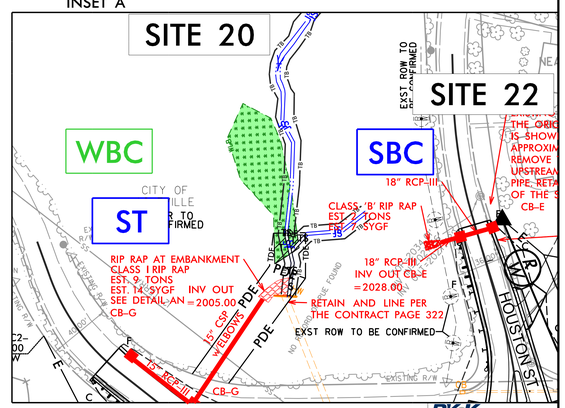
CITY OF ASHEVILLE | SOUTHERN STATES COOPERATION INC | TERRIS EURY | BARREN C & MARIE ANDERS | BG LANDLORD LLC | THE HOUSING AUTHORITY OF THE CITY OF ASHEVILLE | DUKE ENERGY PROGRESS LLC | RIVERSIDE DR | PATTON AVE | HOUSTON CIRCLE | HOUSTON ST | PATTON AVE EXTENSION

INSET B



SITE 15

INSET A



ENGLISH

SCALE: 50 0 50 100

SCALE FOR INSETS: 25 0 25 50

TEMPORARY SURFACE WATER IMPACTS

SURFACE WATER IMPACTS

TEMPORARY FILL IN WETLAND

WSP
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NC LIC NO. F-0165

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B0	14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 72 OF 85

NAD 83 2011

FROM GIS: Youngblood and Sarah Haske DB 6121 PG 0197

FROM GIS: Youngblood and Sarah Haske DB 6121 PG 0200

FOR –I240EB– PROFILE SEE SHT. 35
FOR –I240WB– PROFILE SEE SHTS. 37 & 38
FOR –240 REV2 LT– PROFILE SEE SHT. 39
FOR –240 REV2 RT– PROFILE SEE SHT. 39
FOR –23NB– PROFILE SEE SHT. 42
FOR –23SB– PROFILE SEE SHT. 44
FOR –Y25A REV2– PROFILE SEE SHT. 64
FOR –Y25C RAB– PROFILE SEE SHT. 64
FOR –Y25C– PROFILE SEE SHT. 65
FOR –Y25C2– PROFILE SEE SHT. 65
FOR –Y25C3– PROFILE SEE SHT. 65
FOR –Y36 REV2– PROFILE SEE SHT. 68

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

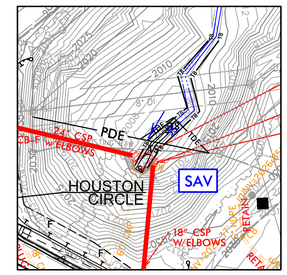
SITE 20
SITE 22
SITE 15
WBC
SBC
ST
SAV
SA
SEE INSET A
SEE INSET B

MATCHLINE –23NB– STA. 27+80.00 SEE SHEET 9

MATCHLINE –I240EB– STA. 53+00.00 SEE SHEET 9

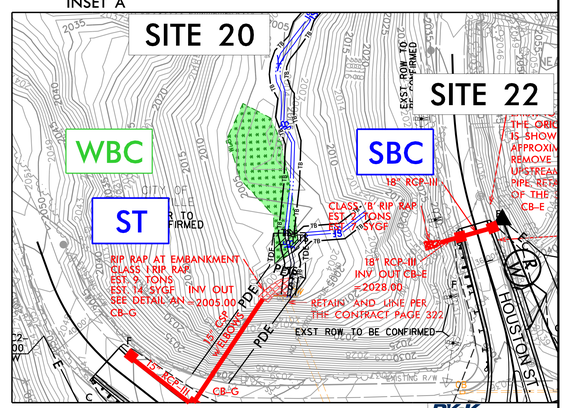
MATCHLINE –240 REV2– STA. 19+00.00 SEE SHEET 15

INSET B



SITE 15

INSET A



ENGLISH

SCALE: 50 0 50 100

SCALE FOR INSETS: 25 0 25 50

TEMPORARY SURFACE WATER IMPACTS

SURFACE WATER IMPACTS

TEMPORARY FILL IN WETLAND

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12/27/2023

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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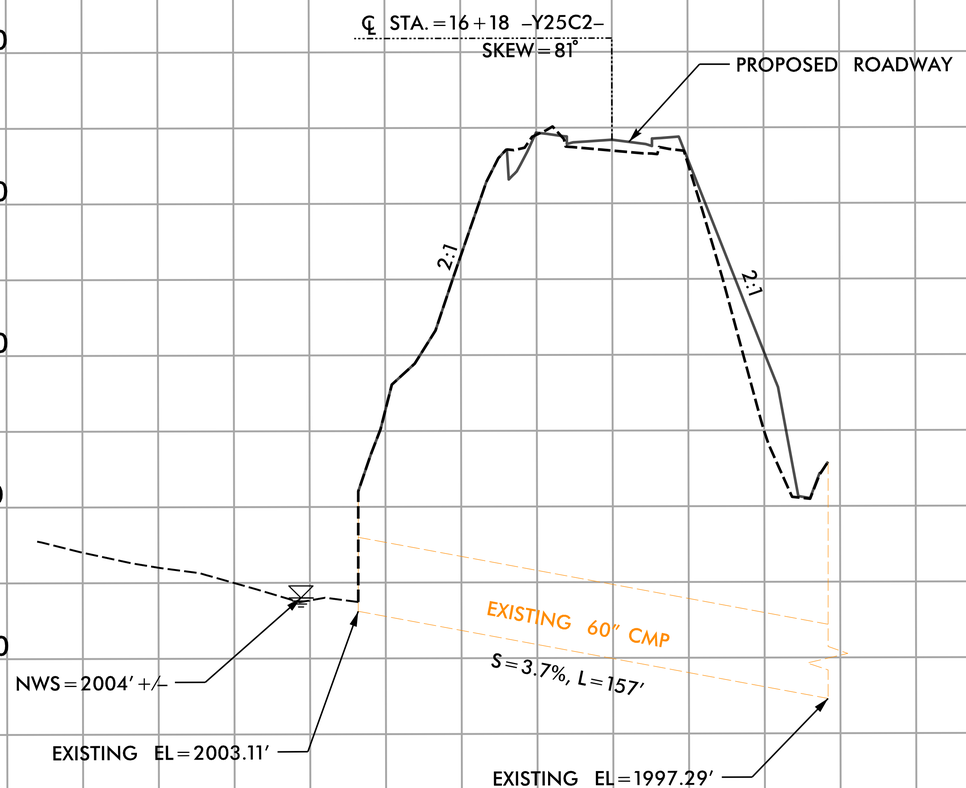
PERMIT DRAWING
SHEET 73 OF 85

SITE 15
–Y25C2– STA. 16+18



RETAIN EXISTING 60" CMP
(NOT BURIED, LENGTH = 157')

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USER:rkase

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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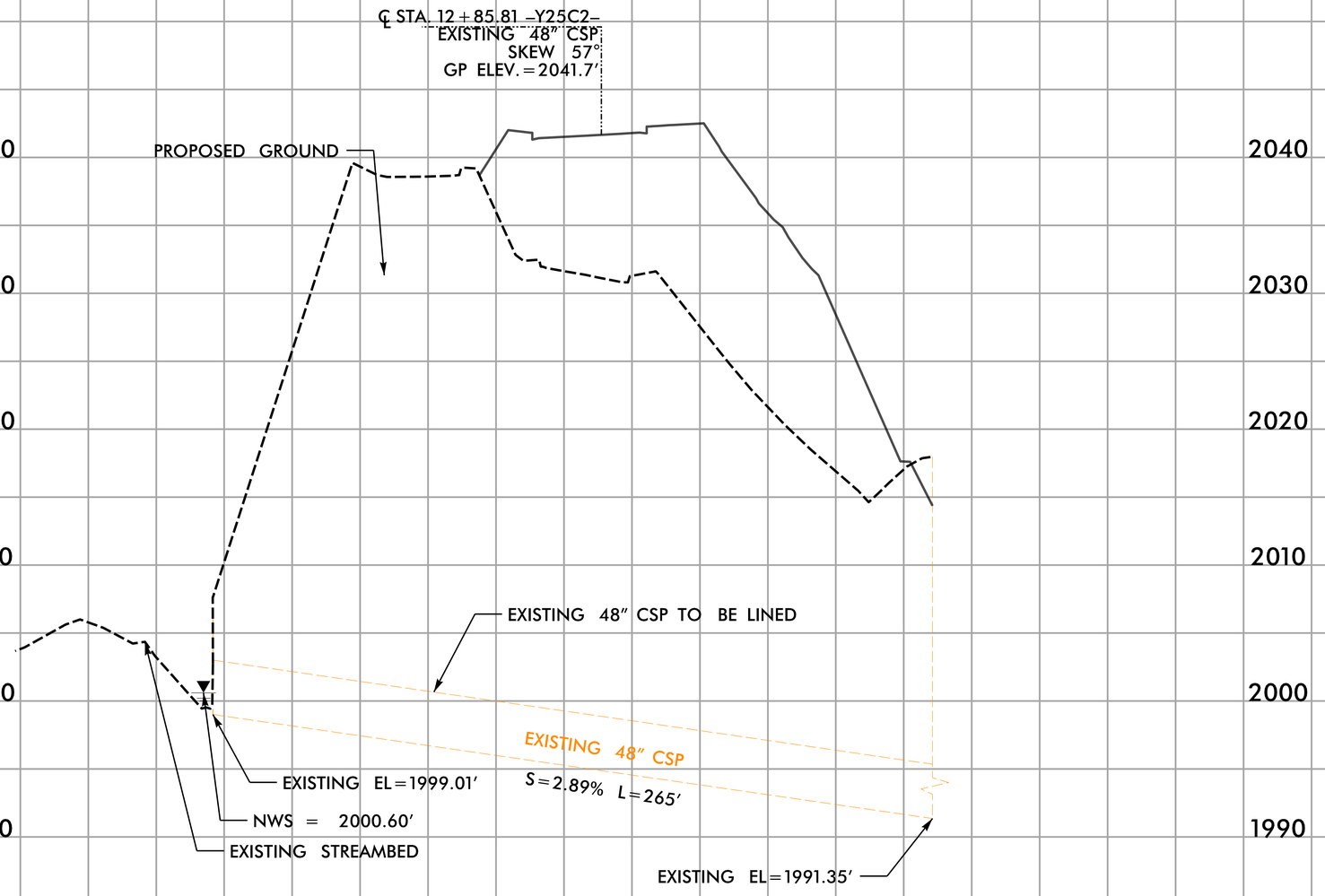
PERMIT DRAWING
SHEET 74 OF 85

SITE 20 & 22
–Y25C2– STA. 12+85.81



EXISTING 48" W.S. PIPE
(NOT BURIED, LENGTH=265')

10/22/2025
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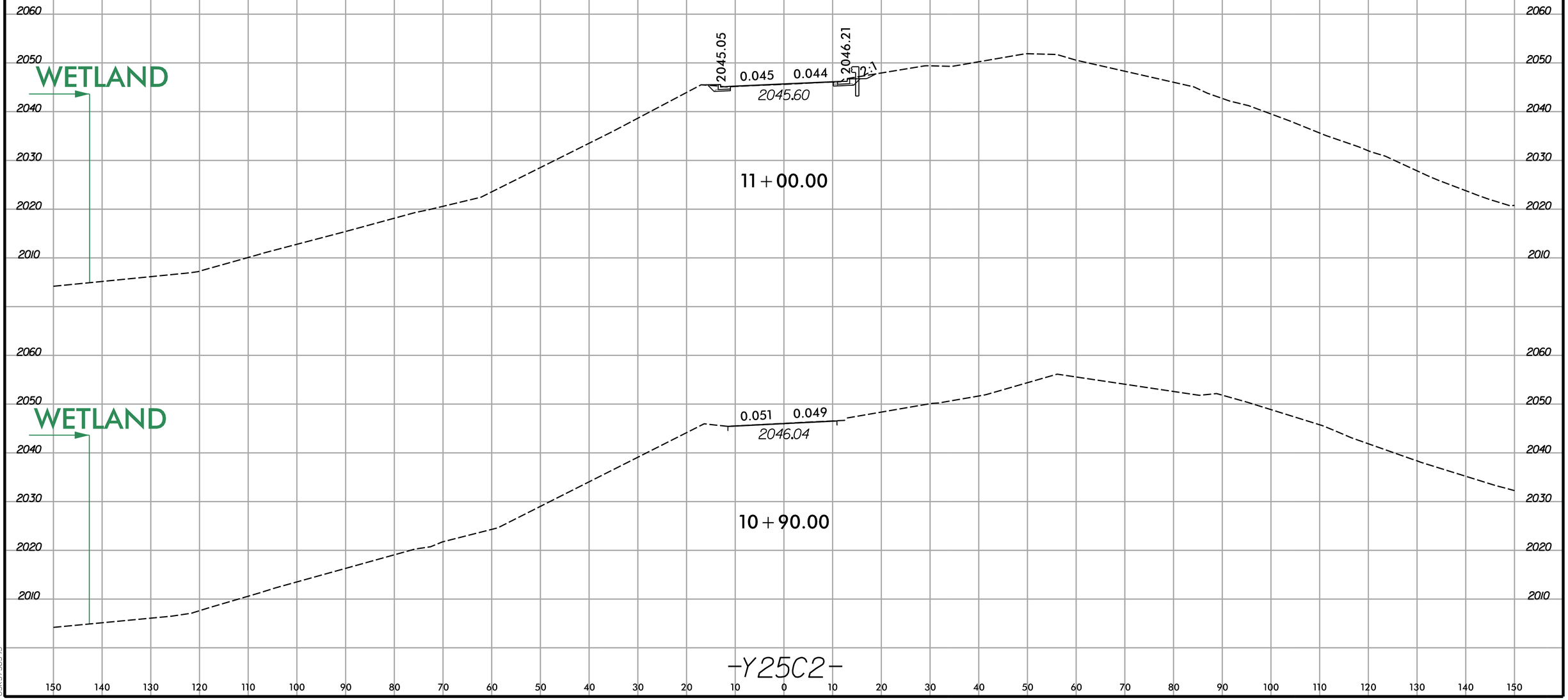
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-2513B&D	X-232

SITE 20 & 22

PERMIT DRAWING
SHEET 75 OF 85



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PROJECT REFERENCE NO.	SHEET NO.
I-2513BD	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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SHEET 76 OF 85

MATCHLINE –Y7EB– STA. 55+20.00 SEE SHEET 18

MATCHLINE –240_REV2– STA. 19+00.00 SEE SHEET 14

SEE INSET A

INSET A

WBD SAU
SITE 14

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

Buncombe County Bridge # 323 Historic

Haywood Street United Methodist Church Historic

Whiteford G. Smith House Historic

RETAIN AND LINE PER THE CONTRACT PAGE 322

ENGLISH

SCALE
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SCALE FOR INSETS
25 0 25 50

TEMPORARY SURFACE WATER IMPACTS

TEMPORARY FILL IN WETLAND

FOR –240_REV2_LT– PROFILE SEE SHTS. 39, 40 & 41
FOR –240_REV2_RT– PROFILE SEE SHTS. 39, 40 & 41
FOR –23HB– PROFILE SEE SHT. 42
FOR –23SB– PROFILE SEE SHT. 44
FOR –Y7_WB– PROFILE SEE SHTS. 58 & 59
FOR –Y7_EB– PROFILE SEE SHTS. 60 & 61
FOR –Y7_EAST REV2– PROFILE SEE SHT. 61
FOR –Y25A_REV2– PROFILE SEE SHT. 64
FOR –Y41– PROFILE SEE SHT. 71
FOR –MUP7– PROFILE SEE SHT. 62

wsp
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NC LIC NO. P-0165

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3921 Sir Flora Road, Forum 1 Suite 700
Raleigh, North Carolina 27615-5965
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MATCHLINE –240_REV2– STA. 19+00.00 SEE SHEET 14

MATCHLINE –Y7EB– STA. 55+20.00 SEE SHEET 18

INSET A

SEE INSET A

WBD SAU

SITE 14

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED CLOSED DRAINAGE SYSTEMS

Buncombe County Bridge # 323 Historic

Haywood Street United Methodist Church Historic

Whiteford G. Smith House Historic

PROJECT REFERENCE NO. I-2513BD | SHEET NO. 15

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PERMIT DRAWING
SHEET 77 OF 85

NAD 83/2011

ENGLISH

SCALE 50 0 50 100

SCALE FOR INSETS 25 0 25 50

TEMPORARY SURFACE WATER IMPACTS

TEMPORARY FILL IN WETLAND

FOR –240_REV2_LT– PROFILE SEE SHTS. 39, 40 & 41
FOR –240_REV2_RT– PROFILE SEE SHTS. 39, 40 & 41
FOR –23NB– PROFILE SEE SHT. 42
FOR –23SB– PROFILE SEE SHT. 44
FOR –Y7_WB– PROFILE SEE SHTS. 58 & 59
FOR –Y7_EB– PROFILE SEE SHTS. 60 & 61
FOR –Y7_EAST_REV2– PROFILE SEE SHT. 61
FOR –Y25A_REV2– PROFILE SEE SHT. 64
FOR –Y4I– PROFILE SEE SHT. 71
FOR –MUP7– PROFILE SEE SHT. 62

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 78 OF 85

SITE 14
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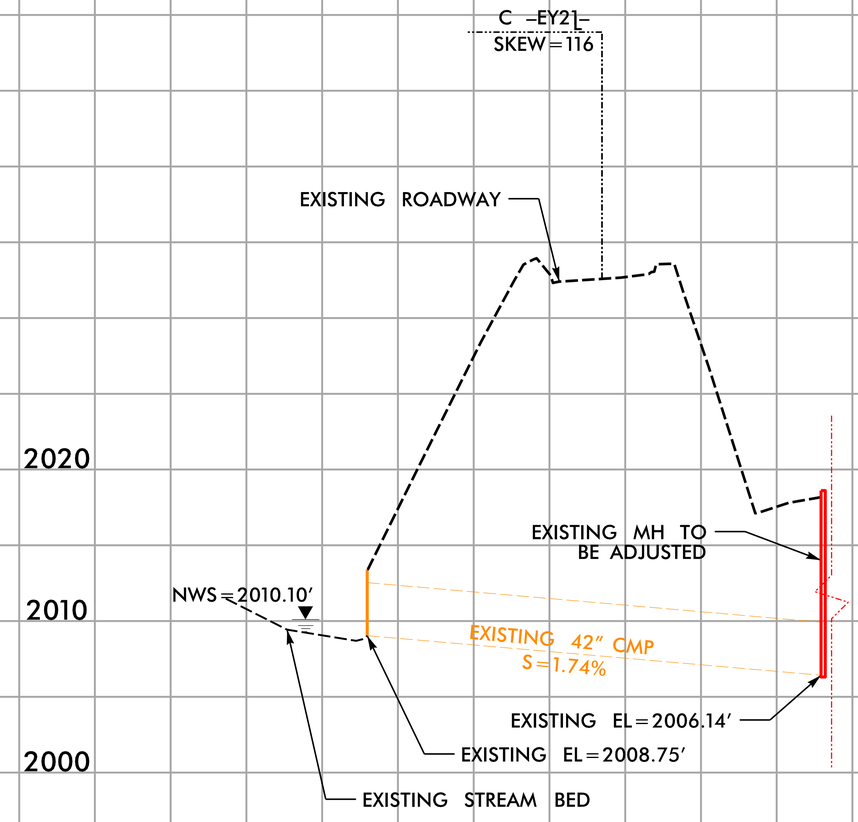

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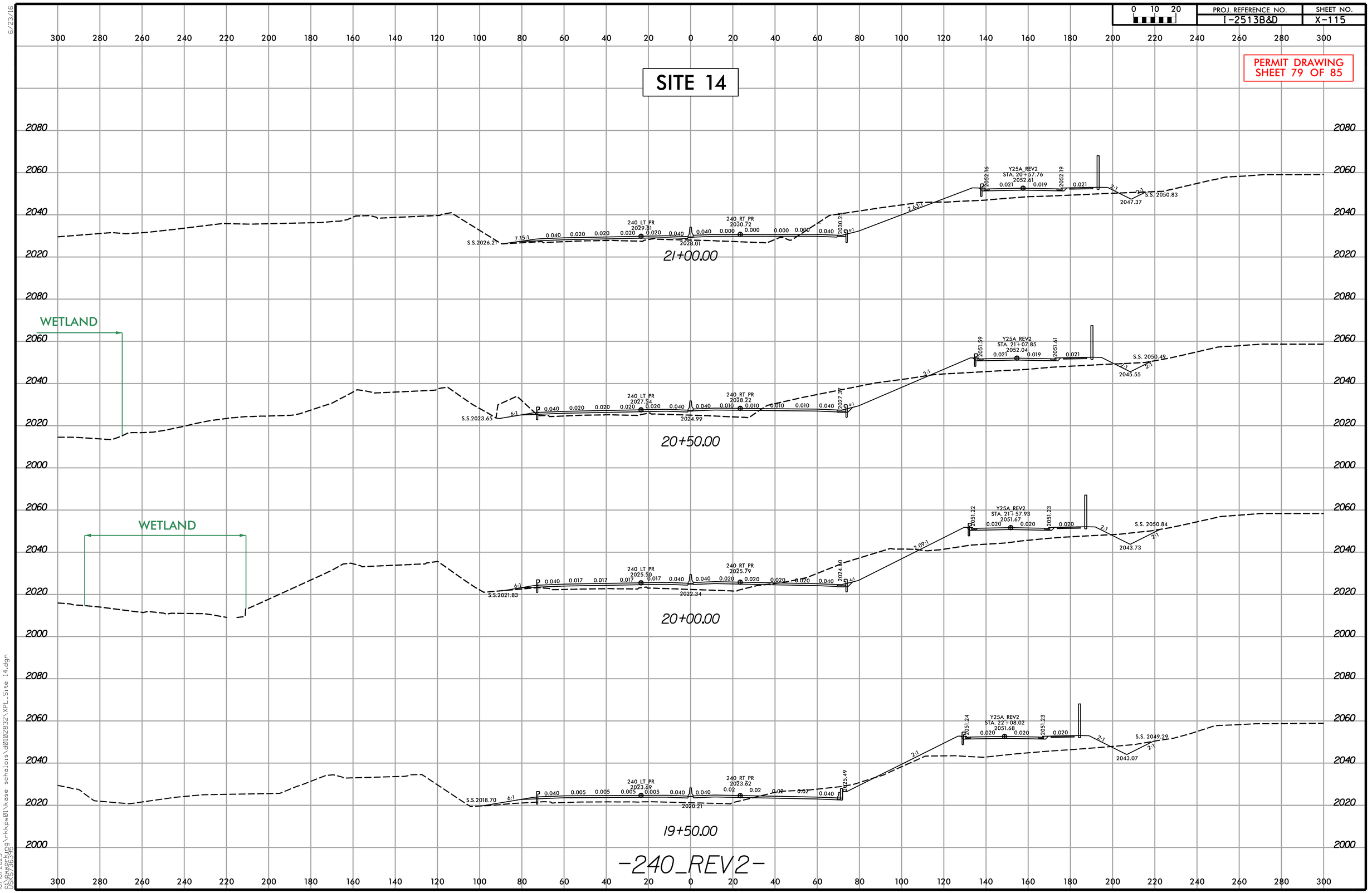
PERMIT DRAWING
SHEET 79 OF 85

SITE 14



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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 80 OF 85

[ENGLISH]

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SCALE

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SCALE FOR INSET

SURFACE WATER IMPACTS

TEMPORARY SURFACE WATER IMPACTS

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

INSET A

INSET B

NAD 83/2011

SITE 4

SR

SEE INSET A

SEE INSET B

MATCHLINE –Y7– STA. 12+00.00 SEE SHEET 16

MATCHLINE –Y7– STA. 26+00.00 SEE SHEET 8

MATCHLINE –Y7RPBREV– STA. 22+00.00 SEE SHEET 8

MATCHLINE INSET 8A

FOR –Y7RPBREV– PROFILE SEE SHT. 53
FOR –Y7LPB– PROFILE SEE SHT. 53
FOR –Y7– PROFILE SEE SHT. 57
FOR –Y29– PROFILE SEE SHT. 67
FOR –Y30– PROFILE SEE SHT. 67
FOR INTERSECTION DETAILS
SEE SHTS. 2B–04 THRU 2B–05

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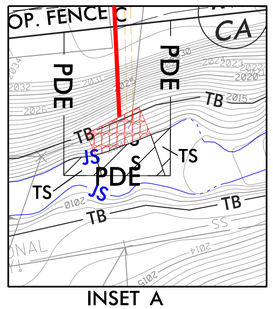
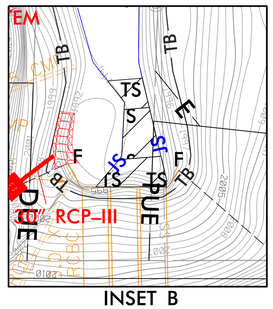


INSET A



INSET B

*SEALED PIPE WITH RESILIENT CONNECTORS AT EACH END OF PROPOSED PIPE WITHIN CLOSED DRAINAGE SYSTEM

PERMIT DRAWING
SHEET 81 OF 85

ENGLISH

50 0 50 100
SCALE

25 0 25 50
SCALE FOR INSET

S S SURFACE WATER IMPACTS

TS TS TEMPORARY SURFACE WATER IMPACTS

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE –Y7– STA. 12+00.00 SEE SHEET 16

MATCHLINE –Y7– STA. 26+00.00 SEE SHEET 8

MATCHLINE –Y7RPBREV– STA. 22+00.00 SEE SHEET 8

MATCHLINE INSET 8A

SITE 4

SR

SEE INSET A

SEE INSET B

BANK STABILIZATION SEE DETAIL BJ

FOR –Y7RPBREV– PROFILE SEE SHT. 53
FOR –Y7LPB– PROFILE SEE SHT. 53
FOR –Y7– PROFILE SEE SHT. 57
FOR –Y29– PROFILE SEE SHT. 67
FOR –Y30– PROFILE SEE SHT. 67
FOR INTERSECTION DETAILS
SEE SHTS. 2B–04 THRU 2B–05

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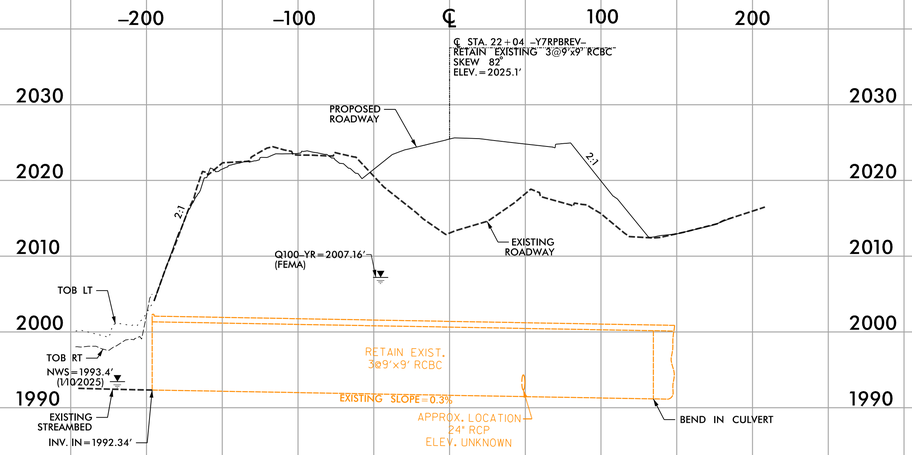
PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

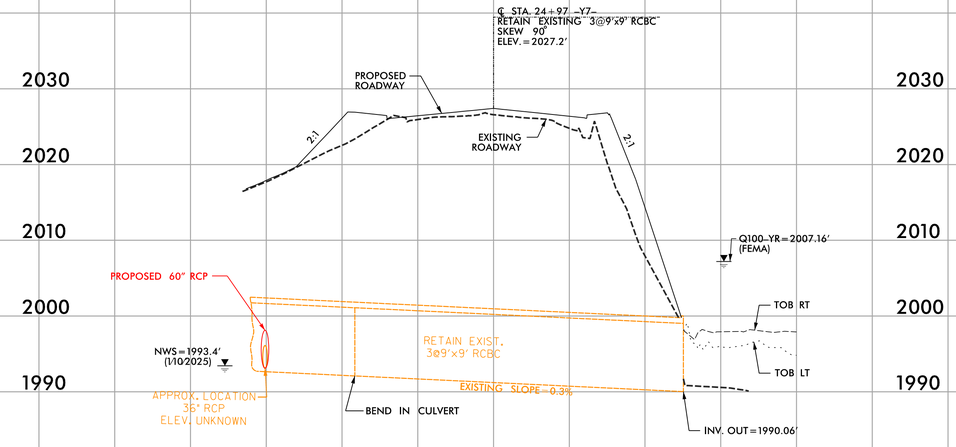
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 82 OF 85

SITE 4
–Y7– STA. 25+00



PROFILE ALONG CULVERT –Y7RPBREV–



PROFILE ALONG CULVERT –Y7–

RETAIN EXISTING 3@8'x11' RCBC
(Length=678')

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WETLAND AND SURFACE WATER IMPACTS 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	-MUP1- 28+85 to 33+81 RT	Channel Change (SG)						0.063		548		
1	-Y7RPBREV- 10+35 to 11+03 LT	Bank Stabilization (SG)						0.008	0.003	49	20	
1	-Y7RPBREV- 13+47 to 13+92 LT	Bank Stabilization (SG)						0.004	0.004	25	20	
1	-Y7RPBREV- 17+24 to 17+76 LT	Bank Stabilization (SG)						0.005	0.003	29	20	
1	-Y7RPBREV- 19+82 to 20+17 LT	Bank Stabilization (SG)						0.002	0.004	9	21	
1	-Y7RPBREV- 20+17 to 20+33 LT	Ditch (SG)						0.001	0.002	3	10	
2	-LB- 35+48 to 36+21	Roadway Fill (SU, WC, WC2)	0.029					0.026	0.001	410	12	
3	-LB- 33+59 to 25+70 LT	Roadway Fill (WF, WF2)	0.104									
5	-Y24- 19+48 to 20+96	Roadway Fill (SS, WBA)	0.045					0.005		43		
6	-Y24- 16+58 to 16+86 LT	Bank Stabilization / Ditch Tie-In (SR)						0.002	0.006	8	20	
6	-Y24- 18+65 to 18+88 LT	Bank Stabilization / Ditch Tie-In (SR)						0.005	0.006	15	20	
6	-Y24- 19+19 to 19+32 RT	Channel Change / Pipe Removal (SR)							0.019		21	
6	-Y7RPA- 25+68 to 26+06 RT	Channel Change / Pipe Removal (SR)							0.016		40	
6	-Y7RPA- 25+38 to 25+68 RT	Bank Stabilization / Ditch Tie-In (SR)						0.005	0.006	15	20	
6	-Y7RPA- 24+88 to 24+97 LT	Bank Stabilization / Ditch Tie-In (SR)						0.002	0.006	8	20	
6	-LB- 52+35 to 52+44 LT	Bridge Removal (SR)							0.011		33	
6	-LB- 52+90 to 53+24 RT	Bank Stabilization / Ditch Tie-In (SR)						0.005	0.006	20	20	
6	-LB- 54+08 to 54+31 RT	Bridge Removal (SR)							0.007		26	
6	-LB- 56+47 to 56+72 RT	Bridge Removal (SR)							0.006		27	
6	-LB- 57+53 to 57+81 RT	Bank Stabilization / Ditch Tie-In (SR)						0.004	0.006	17	20	
6	-Y7RPDDREV- 25+71 to 26+02 RT	Bank Stabilization / Pipe Tie-In (SR)						0.003	0.006	12	20	
6	-Y43- 15+87 to 16+10 LT	Bank Stabilization / Pipe Tie-In(SR)						0.006	0.011	11	20	
6	-Y24- 18+45 LT to -Y7RPDDREV- 26+84 RT	Construction Access (SR)							0.413		1221	
SHEET TOTALS*:			**0.178**	**0.000**	**0.000**	**0.000**	**0.000**	**0.146**	**0.542**	**1222**	**1631**	**0**

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
OCTOBER 23, 2025
BUNCOMBE
I-2513B&D

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
21	-Y43- 19+70 to 20+08 LT	Bridge Removal / Bank Stabilization (SP)						0.016	0.007	46	20	
21	-Y43- 20+29 to 20+50 LT	Bank Stabilization / Pipe Tie-In (SP)						0.003	0.007	9	20	
21	-Y43- 22+24 to 22+44 LT	Bridge Removal (SP)							0.005		20	
7	-LB- 73+47 to 73+65 LT	Bank Stabilization / Pipe Tie-In (SA)						0.005	0.004	19	20	
7	-LB- 73+39 to 77+07	Bridge Construction and Causeway (SA)							3.113		389	
7	Y36_REV2 24+60 to 25+06 LT	Bank stabilization (SA)						0.008	0.004	36	20	
7	Y36_REV2 31+00 to 31+75 LT	Bank stabilization (SA)						0.008	0.006	36	32	
8	23NB 29+21 to 29+46 RT	Channel change (SO)						0.003		27		
9	23NB 38+68 to 38+96 RT	5" CSP /48" WS/Bank Stabilization (SM, WAK	0.009					0.002	0.001	33	7	
10	23NB 40+55 to 40+04 RT	Channel change (SL)						0.009	0.001	101	11	
11	Y36_REV2 49+82 to 50+28 LT	Channel change (SI)						0.022	0.001	315	12	
11	LB 106+49 to 106+70 RT	Roadway fill (SI)						0.009		100		
11	LB 106+66 to 106+75 RT	Bank stabilization (SI)						0.001	0.001	12	10	
16	Y36_REV2 39+91 to 40+29 LT	Structure/Bank stabilization (SBB)						0.001	0.001	21		
17	Y36_REV2 39+90 to 40+32 LT	Bank stabilization (SA)						0.005	0.005	20	22	
12	LB 127+68 to 128+02 RT	Roadway fill/Channel change (SK, WBB)	0.003		0.003			0.008	0.001	75	10	
18	Y36_REV2 66+80 to 67+50 LT	Bank stabilization (SA)						0.011	0.009	34	30	
13	Y36_REV2 87+98 to 87+12 LT	Bank stabilization - SJ						0.003	0.007	10	24	
19	Y36_REV2 79+03 to 79+69 LT	Bank stabilization (SA)						0.015	0.008	48	29	
15	-Y25C2- 16+01 to 16+05 LT	Bank stabilization (SAV)						0.001		12		
15	-Y25C2- 16+02 to 16+12 LT	Pipe Lining (SAV)							0.002		28	
20	Y25C2 11+23 to 11+42 LT	Bank stabilization (ST)						0.001		12		
20	Y25C2 11+39 to 11+40 LT	Pipe Lining (ST, WBC)		0.005					0.001		29	
22	Y25C2 11+39 to 11+40 LT	Pipe Lining (SBC)							0.001		12	
14	240_REV2 19+85 to 20+24 LT	Pipe Lining (WBD, SAU)		0.031					0.003		43	
SHEET TOTALS*:			**0.012**	**0.036**	**0.003**	**0.000**	**0.000**	**0.131**	**3.188**	**966**	**788**	**0**

*Rounded totals are sum of actual impacts

NOTES:

Site 6 Construction Access: includes all areas between the individual impact areas along Smith Mill Creek. Not shown in the permit drawings.

Bridge Site 4A: 6 columns @ 5' diameter = 118 sf

Bridge Site 2D: 11 columns @ 5' diameter = 216 sf

Bridge Site 3A: 7 columns @ 6' diameter = 198 sf

Total Surface Water Impacts from Bridge Columns = 532 sf = 0.012 acres (not included in Temporary Surface Water Impacts for Site 7 Bridge Construction)

WETLAND AND SURFACE WATER IMPACTS 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)
4	-Y7- 14+37 to 14+76 RT	Bank Stabilization / Pipe Tie-In (SR)						0.005	0.003	20	16	
4	-Y7- 20+80 to 21+09 RT	Bank Stabilization / Channel Tie (SR)						0.005	0.003	21	10	
4	-Y7- 24+86 to 25+09 LT	Bank Stabilization (SR)						0.004	0.006	16	20	
SHEET TOTALS*:			**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.014**	**0.012**	**57**	**46**	**0**
TOTALS for SHEET 83:			0.178	0.000	0.000	0.000	0.000	0.146	0.542	1222	1631	0
TOTALS for SHEET 84:			0.012	0.036	0.003	0.000	0.000	0.131	3.188	966	788	0
TOTALS for SHEET 85:			0.000	0.000	0.000	0.000	0.000	0.014	0.012	57	46	0
GRAND TOTAL FOR PROJECT:			**0.190**	**0.036**	**0.003**	**0.000**	**0.000**	**0.291**	**3.742**	**2245**	**2465**	**0**

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
OCTOBER 23, 2025
BUNCOMBE
I-2513B&D

I-2513 B & D Integrated Plan for Communications, Construction/ Demolition, and River User Safety

INTEGRATED PLAN FOR COMMUNICATIONS, CONSTRUCTION/DEMOLITION, AND RIVER USER SAFETY FOR THE I-26 ASHEVILLE CONNECTOR FROM I-40 TO US 19/23/70 NORTH OF ASHEVILLE IN BUNCOMBE COUNTY, NORTH CAROLINA

STIP I-2513

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PRELIMINARY AND SUBJECT TO CHANGE

OCTOBER 2025

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Flooding **23**

RSP Review **23**

Appendix **24**

I-26 CONNECTOR PROJECT OVERVIEW

The I-26 Connector project is an interstate freeway project that would connect I-26 in southwestern Asheville to US 19-23-70 in northwest Asheville and have a total length of approximately 7 miles. The I-26 Connector would extend I-26 from I-40 to US 19-23-70 and would allow for the eventual designation of I-26 from Charleston, South Carolina, to Johnson City, Tennessee, once a remaining section from the north end of this project to Mars Hill, North Carolina, is completed. The I-26 Connector would upgrade and widen I-240 from I-40 to Patton Avenue and then cross the French Broad River as a new freeway to US 19-23-70 slightly south of the Broadway interchange.

The project is broken into four sections. The Selected Alternative for the I-26 Connector Project includes Section C – Alternative F-1, Section A – Widening Alternative, and Section B – Alternative 4-B. The 2026-2035 NCDOT STIP further divides Section A into three sub-sections: AA – East of SR 1224 (Monte Vista Road) to pavement joint west of SR 3412 (Sand Hill Road), AB – I-40 / US 19 / US 23 (Smokey Park Highway) interchanges, and AC – North of I-40 to SR 3548 (Haywood Road). Additionally, a portion of Section B that includes improvements to Riverside Drive from Hill Street to Broadway Street is identified as Section D.

The French Broad River, Hominy Creek, Emma Branch, and Smith Mill Creek are bridged by existing and proposed roadways and lie within an area occupied by four federally protected species: gray bat (*Myotis grisescens*), Appalachian elktoe (*Alasmidonta raveneliana*), northern long-eared bat (*Myotis septentrionalis*), and Indiana bat (*Myotis sodalis*); as well as a species proposed for federal listing, the tricolored bat (*Perimyotis subflaus,* PESU) and an At-Risk Species little brown bat (*Myotis lucifugus*. For the purposes of securing compliance with Section 7 of the Endangered Species Act and preparing a Biological Assessment (BA) for review by the US Fish and Wildlife Service (USFWS), the NCDOT evaluated the various constraints associated with construction of new bridges, the replacement of existing bridges, and the expansion of roadways and impervious surfaces within the I-2513 project. NCDOT has coordinated with the US Army Corps of Engineers (USACE), USFWS, the Federal Highway Administration (FHWA), NC Division of Water Resources (NCDWR), and the NC Wildlife Resources Commission (NCWRC) to gain input on the considerations and likely construction methods.

NCDOT has identified that the two existing bridges over the French Broad River carrying I-40 will likely be replaced, as will three bridges carrying I-40 over the French Broad River and four bridges carrying I-240 over Hominy Creek. Twelve new bridges carrying I-240, I-240 ramps, and I-26 will be constructed on new location. (Note: these bridges may be identified separately; however, may be a part of a larger structure crossing multiple water bodies). Preliminary designs were used to establish potential impacts in a "worst- case scenario" given the current designs at the time. Sections B&D have been let as a design-build project, and as such, the final designs differ from those previously provided as preliminary.

This document provides a combined update to the previous versions of the Strategic Communications Plan and the Bridge Construction and Demolition Plan, and was created to cover the entire I-2513 project though primarily focuses on the current design for I-2513 Sections B&D. The likely structure type, possible construction and demolition staging, and the additional challenges associated with construction and demolition as currently known for Sections A&C are provided. Information presented for Section C is based on the preliminary designs that were utilized during project development, but as additional constructability details develop this document will be revised, as appropriate.

Features of Section C - Alternative F-1 include:

- Maintaining the existing I-26/I-40/I-240 interchange configuration and adding a loop and a ramp to provide for the missing movements.
- Reconstruction of I-40/US 19/23/74A (Smoky Park Highway) interchange, except Ramp A utilizing existing configuration, but realigning ramps on the north of I-40.
- I-40/NC 191 (Brevard Road) interchange maintains existing configuration.
- Full access to NC 191 (Brevard Road) along I-40 eastbound and westbound for traffic coming to and from I-26 and I-240.

Features of Section A – I-240 Widening Alternative include:

- Construct Ramp A at US 19/23 (Smokey Park Highway).
- Improves I-40 between the I-26/I-40/I-240 interchange and US 19/23 (Smokey Park Highway).
- Reconstruct the I-26/I-240 and NC 191 (Brevard Road) interchange to a diamond interchange that eliminates I- 26 eastbound/I-240 westbound exit to NC 191 (Brevard Road).
- Upgrades the existing I-26/I-240 and SR 3556 (Amboy Road) interchange to a full interchange with a conventional diamond configuration.
- Extend SR 3556 (Amboy Road) over I-26/I-240 and continue parallel with I-26/I-240 to the existing intersection of NC 191 (Brevard Road).

Features of Section B - Alternative 4-B include:

- Upgrades the existing I-26/I-240 and US 19-23 Business (Haywood Road) interchange to a tight urban diamond interchange (TUDI) configuration.
- Upgrades the existing I-240 interchange with US 19/23/74A (Patton Avenue) to accommodate the connection for the new location portion of I-26.
- Crosses over the Crowne Plaza Resort golf course.
- Creates three new crossings over the French Broad River, to the north of the existing Captain Jeff Bowen Bridges. Two bridges would carry I-240 traffic, with the third carrying I-26.
- Separates I-240 traffic from Patton Avenue traffic across the Captain Jeff Bowen Bridges and includes construction on I-240 east of the French Broad River.

Features of Section D – Riverside Drive

- Upgrades include one 11-foot lane in each direction, one five-foot bicycle lane in each direction, and a 10-foot multi-use path on the west side of the roadway.
- Construct a buffer to the bicycle lane and add a concrete sidewalk to the east side of Riverside Drive, between the US 19/23 southbound retaining wall.

The project is needed to address traffic capacity problems along the existing I-240 corridor (future I-26), across the Captain Jeff Bowen Bridges to US 19/23/70. Presently numerous areas do not meet interstate design standards and cannot be designated I-26 without being improved. The project would improve

traffic flow, address substandard roadway features, and provide an interstate roadway through West Asheville for the I-26 Corridor.

As part of STIP Project I-2513, the project creates three new crossings over the French Broad River, to the north of the existing Captain Jeff Bowen Bridges (Section B). Construction of the spans will include a "safe passage lane" for river users to use during construction. Construction activities that require work to be done from the top of the bridge, such as setting girders, are expected to occur at night.

GOALS OF THE STRATEGIC COMMUNICATIONS PLAN

- Implement a diversified communication and outreach strategy in coordination with the City of Asheville, Buncombe County, N.C. Department of Parks and Recreation, RiverLink and other stakeholders that will relay the purpose of the I-26 Connector project as an integral part of the project. It will help ensure that river users and businesses dependent on the river understand the river will be open during construction with an area of safe passage for river users.
- Identify stakeholders using or benefiting from the French Broad River and understand their unique needs and concerns regarding river use during construction/demolition of the I-26 Connector.
- Inform citizens of NCDOT's efforts to avoid and minimize disruptions to the river during construction/demolition.
- Provide thorough, up-to-date information regarding project progress and milestones throughout the life of the project.
- Provide information regarding river conditions at the I-26 Connector and any events that may cause a closure (e.g. flooding, overhead construction).
- Provide safety messaging similar to Work Zone Safety campaigns during construction. Remind I-26 and I-240 motorists of the purpose, need and benefits of the project.
- Use various social media platforms to engage the community in two-way dialogue regarding the project's impacts, benefits and progress.
- Encourage river users to "know before you go" with X, Facebook, TIMS, 511, etc.

Targeted Audiences

Targeted audiences may include, but are not limited to the following:

- Motorists
- Tourists
- Medical Facilities
- Property owners along the River
- Biltmore Estate

River users including:

- Individual paddlers/ paddling groups
- Paddling/tubing/fly fishing businesses
- River outfitters

Government officials:

- Asheville City Council
- Buncombe County Commissioners
- Buncombe County Parks and Recreation
- I-26 Connector Working Group
- Land of Sky Regional Council
- NC Department of Parks and Recreation
- NC Wildlife Resources Commission

Civic groups:

- RiverLink
- MountainTrue
- Asheville Greenworks
- Clean Water for NC
- Trout Unlimited
- Sierra Club – WNC Chapter
- American Whitewater

Implementation Strategies and Tactics

- Develop a construction safety plan for river users that includes signage and river markers to alert river users to the safe passage lane.
- Identify specific stakeholders and partner with RiverLink in contacting the parties.
- Provide opportunities for small group meetings with identified stakeholders. The meetings will include a brief, targeted presentation tailored to the NCDOT identified concerns of the group and provide an opportunity for questions and answers.
- Update and maintain the comprehensive project website, https://www.ncdot.gov/projects/asheville-i-26- connector
- Issue news releases as needed regarding project schedule, progress, impacts, and milestones.
- Provided a station regarding bridge construction at the Design Public Meeting held in November 2018. Include river businesses and property owners along the river in the mailing list.
- Place notification signs at public input locations upstream of the I-26 Connector through Buncombe County. Coordinate with NCWRC (https://www.ncwildlife.gov/boating/boating-access-areas) and NCDPR to update their information.
- Provide notification information to identified stakeholders.
- Continue to coordinate with RiverLink. A meeting was held with the group in November, 2018 which helped identify communication channels. Ongoing coordination may take place to update river users of the river status.
- Coordinate strategic social media campaigns.
- Use an established X feed for the project to keep the public informed of project progress, construction activities and project-related events. The postings will consist of specific information about the project, information about alternative routes, photos and videos of crews working efficiently, and any good news about the project. This effort will also include updates to river users regarding current and anticipated conditions on the rivers.
- Collaborate with project field personnel to document the progress of the project by posting photos to the department's Instagram, Pinterest and Flickr accounts. Links to the photos will be posted on X, Facebook and used in news releases.
- It is the responsibility of the NCDOT Division 13 project engineer office in charge of the project to update the Transportation Information Management System of all parts of the project that will affect motorists, such as a lane or road closures, temporary detours, etc. as they come up on the project schedule. Once posted on the NCDOT website in the Traveler Information section (where it remains until that closure or detour is over), and automatically generates a feed for the NCDOT X account that covers this area of the state, as well as for our 511 travel phone system.
- The project engineer office also has the responsibility of informing the NCDOT public relations officer of updates. The communications officer and the project engineer office decide whether they justify a news release. If it isn't something that would be sent as a full news release, the communications office or project engineer can send a brief email note to local recipients or post to social media each of these updates.
- It is also possible to arrange for the project engineer to send a weekly briefing to the public relations officer and local recipients — if project parameters are going to change week to week — with a look ahead of what is planned the following week, so the information can be distributed on a more local level than we are capable of doing through our traditional news release distribution system.
- All these steps are flexible and can be adjusted to the requirements of the construction.

Communication Channels

- Television stations — WLOS (ABC), WYFF (NBC), WMYA, WSPA (CBS), WYCW (CW), WHNS (FOX), WETP (PBS), WUNE (PBS)
- FM Radio Stations — Asheville: WCQS, WLFA, WOXL, WKSF, WTMT, WRES, WMYI, WSFM, WPVM, and WMIT ; Biltmore Forest: WOXL
- Newspapers — Asheville Citizen-Times, Mountain Xpress, and Biltmore Beacon
- Websites, blogs
- City government offices
- Libraries
- Local businesses
- West Asheville Business Association
- I-26 Connector Working Group

Required Resources

- Public Relations Officer employed by NCDOT, managed by the Communications Office, and located in the Division 13 Office in Asheville
- Community-based, on-the-ground local marketing and communications specialist
- Responsible for development, coordination and integration of communications including local social media efforts and traditional media marketing
- Partners with local media to promote awareness and ensure project understanding

Timeline for Implementation

- Fall 2018-Initiate Stakeholder Outreach
- The project team will continue to work with RiverLink, as done (or currently planned) on the I-4400/I-4700 project, to coordinate with the users. At the meeting the project team will give a short presentation summarizing the project and the safety plan for river users during the construction of bridges over the French Broad River.
- Hold Small Group Stakeholder Meetings: After identifying prominent businesses and other stakeholders that rely on access to the river, the project team will plan up to two meetings to gather input from stakeholders about the use of the river and how construction around the river will affect their operations. The project team plans to coordinate with stakeholder groups as well as locally distribute invitations to the meetings. The project team attended a meeting with RiverLink (11/14/2018) to identify and discuss the river user methods and common practices. The purpose of this meeting was to gather input from the public and other river users.

  November 2018-Held Design Public Hearing and included station to address French Broad River bridge construction concerns.

  February 2020-Final Environmental Impact Statement approved May 2023-Record of Decision approved.

  2024 – Design-Build Let
  Now through project construction-Regularly update stakeholders and public regarding progress, conditions of the river, etc.

STRUCTURES

I-40 over the French Broad River (Section C: FBR-1)

EXISTING

The existing two bridges carry I-40 utilizing eight spans. The bridges are approximately 575 feet long each and have a clear space between them of approximately 35 feet. Each structure has spread footings. The river is approximately 235 feet wide at this location. It is estimated that five bents are located in the waterway.

PROPOSED

The project is still in the preliminary design phase, therefore detailed bridge drawings are not currently available. The bridge pair is expected to be replaced in place by one bridge using three bents, each within the water. Property to the east is owned by the Biltmore Estate and is not available for use during construction. Each side of the river, beneath the bridge, has a greenway trail. Access to the site can be made by moving goods within the right-of-way of the existing roadway. Property to the west includes a power line right-of-way that may be utilized also. Access will occur parallel to the existing roadway, within the right-of-way. Areas adjacent to the bridges will be cleared to the right-of-way limits; however, this area would need to be cleared as part of typical construction process for this project.

For the purposes of establishing a "worst-case scenario" of impacts at this location, a 25x25-foot spread footing has been used for estimates because it covers more square footage of the river bottom. Using the basic estimate for a "worst case" spread footings may cover as much as 6,600 square feet in the river. Drilled shafts may also be used, but the construction method will ultimately be decided during final design. An uneven span arrangement will allow for avoidance of existing foundations, thereby limiting the river disturbance.

The current bridge foundations exist within the waterway of the French Broad River. During construction, the existing piers will be either removed or cut below water level. To accomplish this, causeways may need to be constructed that, for short durations, cover more than 50 percent of the river. It is estimated that causeways will be used to demolish the existing bridges and to build the new substructure, totaling up to 36,600 square feet coverage (temporary fill) of the riverbed. Further discussion of causeways can be found later in this document.

I-40 over Hominy Creek (Section C: HC-1, HC-2, HC-5, HC-6)

EXISTING

I-40 crosses Hominy Creek in two locations: over Upper Hominy Creek and over Lower Hominy Creek. The existing pair of bridges carrying I-40 eastbound and I-40 westbound over Lower Hominy Creek (HC-5) includes five spans each and are approximately 357 and 345 feet long, respectively. The existing bridges have two bents adjacent to the water's edge currently. The structures have spread footings and the creek is approximately 50 feet wide at this location. The I-40 bridges crossing Upper Hominy Creek are adjacent to the I-26/I-40 interchange. The pair have 3 spans each. The I-40 eastbound bridge (HC-1) is 180 feet long while the westbound bridge (HC-2) is approximately 170 feet long. They currently each have three bents each, none of which are in the water, and are expected to be replaced in kind. The creek is approximately 50 feet wide at this location also.

PROPOSED

The project is still in the preliminary design phase, so detailed bridge drawings are not currently available. The existing bridges carrying I-40 across Lower Hominy Creek (HC-5) will be replaced by a single bridge in the same location. It is estimated that the bridge will have a total of five spans and one to two bents will be located at the water's edge. Causeways for demolition are anticipated, covering 825 square feet of creek bed, but none are anticipated for construction. No more than 50 percent of the width of the river will be blocked by the causeways at any point during demolition or construction.

The I-40 ramp to NC 191 will be constructed on new location (HC-6). No bents are expected to be located in the water at this location; the bridge is expected to span the creek and no causeways will be needed.

Access to the site may be available via the existing right-of-way. Additional access may be necessary via Hominy Creek Road; however this serves as a main access for the Buncombe County Transfer Station and will likely require an agreement with the county so as not to block access. Parallel access roads may need to be constructed adjacent to the roadway on the west bank, however the area where they may be constructed will be cleared during construction.

The pair of Upper Hominy Creek bridges carrying I-40 eastbound (HC-1) and I-40 (HC-2) westbound east of the I-40/I-26/I-240 interchange are also called for replacement. No new bents are expected in the water. No causeways are anticipated for demolition or construction of these bridges. Access to the site is available via the NCDOT right-of-way on both sides of the creek, and phased construction is expected.

I-26 over Hominy Creek (Section C: HC-3, HC-4; Section AC: HC-7)

EXISTING

I-26 crosses Upper Hominy Creek just west of Bear Creek Road (HC-3, HC-4), then it crosses Lower Hominy Creek near Brevard Road (HC-7). The existing pair of bridges over Upper Hominy Creek have 3 spans each. The bridge carrying the eastbound lanes is 170 feet long and the bridge carrying the westbound lanes is 200 feet long. The bridge pair over Lower Hominy Creek utilize 3 spans with continuous girders. They are 300 feet (eastbound) and 330 feet long (westbound). The creek is approximately 50 feet wide at both of these locations along Hominy Creek. The bridges spanning Lower Hominy Creek also span another, potentially historic, bridge. The historic bridge currently functions as a footbridge for greenway traffic and is closed to vehicles. This bridge has a single bent in the waterway of Hominy Creek and is in disrepair.

PROPOSED

The bridges over Upper Hominy Creek are expected to be replaced in kind, but widened to accommodate 3 lanes of traffic each. No bents are expected to be placed in the water at this location, and no causeways are anticipated for construction. The bents can currently be reached from land, so causeways needed during demolition would be minimal, if even needed at all. The bridges can be accessed via existing right-of-way in this vicinity.

The bridges over Lower Hominy Creek (HC-7) will be replaced with bridge structure that span the creek resulting in no bents in the stream. No causeways will be required for construction or demolition for these structures.

I-40/I-240 Smith Mill Creek and Emma Branch Bridges (Section B: SMC-1, SMC-2, SMC-3, SMC-4, SMC-5, SMC-6, SMC-7, SMC-8, SMC-9, EB-1, EB-2, EB-3, EB-4)

EXISTING

No bridges exist in the project construction area along Smith Mill Creek and Emma Branch. One existing culvert, carrying Resort Drive, will be removed as part of the project.

PROPOSED

Three bridges and associated ramps are proposed to cross the French Broad River north of existing I-26 (described below). In addition to crossing the French Broad River, the proposed structure will cross Smith Mill Creek and Emma Branch at 13 locations. No bridge bents are expected to be constructed within the waterway of Smith Mill Creek or other waterways. No causeways are anticipated for the Smith Mill Creek and Emma Branch bridges.

Access to the bridge construction site will be obtained by purchasing right-of-way. Construction activities associated with the structures are expected to occur wholly within the right-of-way. SR 1338 (Emma Road) crosses the alignment and may be needed for construction traffic. Special considerations may need to be taken to accommodate residences along Emma Road. Additionally, the alignment crosses the Norfolk Southern rail corridor and coordination with the rail will be necessary.

I-26/I-240 Bridges over the French Broad River (Section B: FBR-2, FBR-3, FBR-4)

EXISTING

There are no existing bridges carrying vehicle traffic over the French Broad River downstream of the Captain Jeff Bowen Bridges within the project study area. The project includes new location bridges to carry I-26 and I-240 over the French Broad River. A railroad bridge crosses the French Broad River upstream of the proposed new bridge crossing.

PROPOSED

Three bridges are proposed to cross the French Broad River north of existing I-26. The Captain Jeff Bowen Bridges that carry existing I-26/I-240/Patton Avenue over the river are to remain in place. The three new bridges include one bridge to carry I-26 (FBR-3), and two flyover bridges to carry I-240 eastbound (FBR- 2) and westbound (FBR-4). The I-26 bridge is expected to be wide enough to carry four lanes of traffic in each direction, though only two through-lanes will be utilized. Additional space is necessary for shoulders and auxiliary lanes. Analyzing a "worst-case scenario" the footing size estimates for these bridges in the French Broad River are 380 square feet (FBR-2), 143 square feet (FBR-3), and 300 square feet (FBR-4), for a total of 13,125 square feet.

The two flyover bridges carrying I-240 eastbound and westbound are expected to have similar span lengths to the I-26 bridges. These two bridges will each be smaller than the I-26 bridge. They are expected to be approximately two lanes wide each.

These three bridges will require causeways during construction. Access to the crossing site is limited due to the railroad bridge to the west of the river.

Limited access may be available via Emma Road from the west, and by way of right-of-way from the south. "Top-down" construction will be considered as a viable construction method to reduce the access

requirements needed, but the decision on the method used will be made during final design development. Construction activities originating from the east bank of the river will utilize acquired right-of-way for staging and construction. Construction time in the river shall be reduced as much as possible, and causeways will remain in place for as short of a period as practicable.

Detailed construction methods and timelines/phasing are being developed during the final design process.

DEMOLITION AND CONSTRUCTION ACTIVITIES AND METHODS

At the time of this writing, Smith Mill Creek (Section B) has been proposed to be included on the 2022 303(d) list for North Carolina. Design Standards for Sensitive Waters (DSSW) will be used within one mile of the French Broad River and Environmentally Sensitive Areas will apply within 50 feet of the river to mitigate the amount of sediment and erosion that enters the French Broad River Environmentally Sensitive Areas (ESAs) require a 50-foot buffer. USFWS and USACE will have the opportunity to review the design of the SEC measures prior to construction. The NCDOT Design-Build Team will provide USFWS with the sediment and erosion control plan and allow 15 days for review upon acknowledgement of receipt of notice. A revegetation and monitoring plan shall be developed for the bridges once the project is complete.

Causeways

Due to the length of the bridges and the location of the existing and proposed interior bents, causeways will be required to provide construction access for some of the bridges. For the purposes of this report, causeway sizes are estimated based on the width of the bridge and the location of the bridge bents. The size, width, and length of the causeways will vary depending on the construction activities taking place. Causeways will be removed from the river when possible. With the exception of Section B French Broad River crossings discussed below, causeways will not restrict more than 50% of the river or stream flow of the other crossings of the French Broad River and Hominy Creek unless agreed upon by USACE and USFWS.

Specific Detail for Section B

Temporary causeways are needed to install work trestles in order to facilitate the construction of bridges (FBR-2, FBR-3, FBR-4) crossing the French Broad River. Interior bents span the river including 46 concrete drilled shafts supporting 14 interior bents for 5 bridges. The construction access constraints limit the ability to construct these elements from the river banks. Additionally, the river topography is constrained due to elevation on the west bank of the river along with two railroad tracks. All construction access will be from the eastern river bank and centered around a single transverse crossing with upstream and downstream causeway fingers. In order to construct the temporary work trestle needed for the new bridges, the flow of the French Broad River will be restricted to less than 50% during a period of approximately three weeks.

Causeways will be constructed along each side of the river in stages mirroring the construction of the bridge. The design of the causeways has been refined to maximize the free flow area of the river at all times. The phasing and construction sequencing will always maintain the central flow channel through the work bridge providing five (5) 39 feet spans with at least 8 feet of vertical clearance from the water's surface. At the location of the main transverse crossing, the French Broad River is approximately 320 feet wide. The work bridge spans a minimum of 160 feet and is connected on each end by a rock causeway on the eastern bank as the primary causeway entrance, and to the west bank as the causeway

terminus accessing fingers.

Causeway size will be reduced to the extent practicable during each phase of the construction, and the contractor will be required to use clean stone for the causeway material to minimize additional sediment input to the river. There are currently ten phases proposed in consideration of the various construction activities required. Each activity will optimize the causeway as efficiently as possible to minimize the durations of each phase.

The table below summarizes the anticipated sizes of the causeways in the river needed to perform demolition and construction of the bridges. Additionally, updated data for Section B & AC is included along with an explanation for the change. Figures illustrating causeway phasing for Section B are provided in the appendix.

TABLE 1. BRIDGE CONSTRUCTION CROSSINGS AND CAUSEWAY SIZE ESTIMATES

Crossing ID	Existing/ New Bridge	Section	Road Carried	Waterbody	Causeway 1 Size[a]	Causeway 2 Size[a]	Causeway 3 Size[a]	Demolition Causeway Size[a]	Total Causeway Area (ft^2) [a]	Updated Construction Causeway Area (ft^2)	Updated Demolition Causeway Size	Updated Combined Total Causeway Area (ft^2)	Reason For Change
HC-1	Existing	C	I-40 EB	Hominy Creek	0	0	0	N/A	0	0	N/A	0	--
HC-2	Existing	C	I-40 WB	Hominy Creek	0	0	0	N/A	0	0	N/A	0	--
HC-3	Existing	C	I-26 NB/I-240NB	Hominy Creek	0	0	0	N/A	0	0	N/A	0	--
HC-4	Existing	C	I-26 SB/I-240 SB	Hominy Creek	0	0	0	N/A	0	0	N/A	0	--
HC-5	Existing	C	I-40	Hominy Creek	0	0	0	55X15	825	0	55X15	825	--
FBR-1	Existing	C	I-40	French Broad River	200X90	100X90	0	60X160	36,600	27,000	60X160	36,600	--
HC-6	New	C	I-40 RAMP TO 191	Hominy Creek	0	0	0	N/A	0	0	N/A	0	--
HC-7	Existing	AC	I-26/I-240 NB AND SB	Hominy Creek	0	0	0	35X35	1,225	0	N/A	0	Reduced due to further design
NONE	Existing	C	NC 191	Hominy Creek	0	0	0	N/A	0	0	N/A	0	--
SMC-1	New	B	RESORT DRIVE	Smith Mill Creek	0	0	0	N/A	0	0	N/A	0	--
SMC-2	New	B	I-240 RAMPS	Smith Mill Creek	0	0	0	N/A	0	0	N/A	0	--
SMC-3	New	B	I-26	Smith Mill Creek	0	0	0	N/A	0	0	N/A	0	--
SMC-4	New	B	I-240 RAMPS	Smith Mill Creek	0	0	0	N/A	0	0	N/A	0	--
SMC-5	New	B	I-26	Smith Mill Creek	0	0	0	N/A	0	0	N/A	0	--
SMC-6	New	B	I-240/I-26 RAMPS	Smith Mill Creek	0	0	0	N/A	0	0	N/A	0	--
SMC-7	New	B	I-240 RAMPS	Smith Mill Creek	0	0	0	N/A	0	0	N/A	0	--
SMC-8	New	B	I-240 RAMPS	Smith Mill Creek	0	0	0	N/A	0	0	N/A	0	--
SMC-9	New	B	I-240 RAMPS	Smith Mill Creek	0	0	0	N/A	0	0	N/A	0	--
EB-1	New	B	I-240 RAMPS	Emma Branch	0	0	0	N/A	0	0	N/A	0	--
EB-2	New	B	I-26	Emma Branch	0	0	0	N/A	0	0	N/A	0	--
EB-3	New	B	I-240/I-26 RAMPS	Emma Branch	0	0	0	N/A	0	0	N/A	0	--
EB-4	New	B	I-240 RAMPS	Emma Branch	0	0	0	N/A	0	0	N/A	0	--
FBR-2	New	B	I-240 EB	French Broad River	350X130	260X60	150X80	N/A	73,100	136,125	N/A	136,125	Reduced due to further design
FBR-3	New	B	I-26 EB/WB	French Broad River	300X90	350X130	0	N/A	72,500		N/A		Reduced due to further design
FBR-4	New	B	I-240 WB	French Broad River	100X80	490X90	0	N/A	52,100		N/A		Reduced due to further design
				TOTALS					**236,350** [a]	**163,125**		**173,550**	

[a] Causeway size is an estimated length times width in feet based on the 2018 preliminary designs and coordination with NCDOT Division 13 on 12/18/2018.

Access Roads

Generally, construction locations will be reached using existing roadways where possible and temporary access roads may be constructed to physically restricted locations. Access roads will be constructed where no existing right-of-way is available for use. The construction of the flyover bridges over the French Broad River will likely require the use of access roads due to vertical height restrictions near the site, and the constricted access due to the railroad line on the west bank of the French Broad River. Additional bridge-specific access road considerations are discussed above.

Construction Lighting

As part of its evaluation, NCDOT also took into consideration the time of day when construction and demolition may take place. It was determined that some work would likely need to be completed at night. These activities may include setting girders, drilling shafts, concrete pours, deck concrete pours, beam setting, construction material(s) stockpiling, and traffic shifts. The amount and type of lighting for all activities will be minimized to the extent possible. All lights will be directed towards the work area and will not shine out over any waterways and no nighttime lighting directed away from the work area will be permitted within 50 feet of the French Broad River, Hominy Creek, Emma Branch, or Smith Mill Creek between March 15 and November 15. Below is a list of some construction operations that may occur at night, as well as the likelihood and/or circumstances under which the operation may occur. Lighting considerations for each night operation are also included.

- Causeway construction – Will occur – Access road and causeway construction and removal may take place at night throughout the life of the project. This will allow the contractor to utilize the lower traffic volume to access the site. Installing the access roads and causeways at night allows longer-term operations to be constructed during daylight hours. Due to the easier site access the contractor may be able to construct the access roads and causeways more quickly. Lighting for this operation will likely consist of one to two light plants that will be used to directly light up the construction area. Care will be taken to not shine light directly out into the river or into the adjacent forest.
- Drilled shafts – Possible – This is dependent upon construction schedule, contract, and availability of the concrete plant.
    - Lighting for this operation will be at water level. Lights on the drill rig will be used, and one light plant may be used if needed. Only the active work area (where the hole is currently being drilled) will be lit. No lights will be shining down from the bridge deck during this operation.
- Concrete pours during hot weather – Will occur – Night pours of concrete are required during hot weather to achieve the proper cure. These pours may include elements such as bent caps, end bents, and barrier rail wall.
    - The use of lights for this operation will be minimal, because these will be small-area and short-duration (six hours or less) pours. Lights will generally be set up on the causeway, shining upward at the bridge member being poured. Small lights, such as headlamps, will be used on the structure. There will be pump truck and concrete trucks with headlights either on the bridge deck or on the causeway.
- Deck concrete pours from May to November (summer) – Will occur – Deck concrete pours are generally larger, more complex, and more time consuming than other types of concrete pours.
    - Of all potential night time operations, this will be the operation with the most lighting. The majority of lighting will be at bridge deck level, with lights shining toward the bridge rather than down toward the river. Any lighting that shines down toward the river or adjacent woods will be indirect and minimal.

- Headlights on concrete delivery trucks will also be used.

- Beam setting – Will occur – Setting beams at night is required due to the volume of daytime traffic and the need to maintain traffic.
  - Cranes sitting on either of the causeways or on the new or existing bridges will be used to set the beams for the new bridges. There will be a light plant on the structure where the truck with the beams is parked, either on the new or existing structure. These lights will be shining toward the truck. There will also be lights shinning toward each structure where the beam ends sit.
  - It is difficult to determine if the lights will be placed on the causeway shining up toward the structure, or on the bridge deck shining down. This decision will need to be made on site at the time of the activity.
- Traffic shifts – Will occur – Traffic shifts will be necessary to construct the new bridges on existing location. These shifts will occur at night and be of short duration, and will likely require minimal lighting on the bridge. All other activities with traffic shifts will occur beyond the end bents of the bridge and will not be part of the work on the bridge or in the area of the river.

  There are other operations that may occur at night; however, this would be evaluated after phasing and final design. The previously listed operations are not operations that occur on a regular schedule.

Demolition of Existing Structures

With the exception of Section B (discussed below), demolition of the existing bridges, including superstructure and interior bents, will occur in conjunction with the construction of the new bridges. The phases will be staggered to allow for traffic to be maintained during construction. It is anticipated that for existing bridges, traffic will be rerouted to accommodate construction.

Removal of the existing bridges shall be performed in a manner that prevents debris from falling into the water. The Contractor shall remove the bridges and submit plans for demolition in accordance with Article 402-2 of the Standard Specifications. However, if bridge material inadvertently ends up in the river, it will be removed.

The USFWS, USACE, NCDWR, and NCWRC will be notified two weeks prior to the start of bridge demolition, so they may have a representative on-site during that stage of the project if they choose to.

Specific Detail for Section B

Demolition of existing structures is anticipated at three locations for I-2513 Sections B. The Haywood Road interchange bridge over I-26, Patton Avenue (Bowen Bridges) partial demolition, and existing Patton Avenue bridge over I-26/I-240. The Haywood Road bridge demolition occurs after the construction of the new replacement structure on an adjacent alignment. The contractor will utilize standard construction and safety practices for removals. Deck removal will likely occur at night under lane closures in order to minimize falling debris on the traveling public on I-26 below. Substructure demolition will occur in protected construction areas and will not impact the traveling public. Work on the existing bridge of Patton Avenue over I-26 will occur after the traffic switch of I-26 mainline traffic onto the new I-26 bridge over French Broad River. Demolition will be performed in stages to facilitate traffic shifts on Patton Avenue. There will be no traffic below the structure. Partial demolition on the existing Patton Avenue bridges over the French Broad River (Bowen Bridges) includes removal of the pedestrian structure on the north side of the bridge, and removal and replacement of the existing exterior barriers on the north and south bridges. Demolition will occur over the French Broad River as well as Riverside Road and Emma Road below. All work will be performed from the deck of the existing bridge or with the use of overhanging equipment for access. Falsework will be utilized below the removals as a working platform and physical barrier to prevent debris from falling below.

Bridge Summary

The total area anticipated to be covered by causeways in all Waters of the US for new bridge construction and bridge replacements is 163,125 square feet, all of which will be in the French Broad River. The footing totals for the French Broad River resulting from I-2513 Sections B & D is 532 square feet.

HYDRAULICS

A review of flood map data of the study area and bridge vicinities indicates there are several residential and commercial structures that are currently located in the 100-year floodplain. During the construction of the proposed bridges, where causeways are used, they will create a temporary constriction in the flow of the river that will cause the upstream water surface elevation (WSE) to rise. The extent of the rise will be determined once the causeway phasing and bridge construction phasing is determined during final design. If the final design minimizes the number of bridge bents located in the waterways, the potential for debris to become lodged and the potential for a WSE rise as a result is lessened. Dangers to river users will also be lessened. Strides shall be made to minimize the number of bents in streams.

Analysis

Hydraulic analysis of the French Broad River will be performed in conjunction with final design. Impacts will be modeled using the USACE Hydrologic Engineering Center's River Analysis System (HEC-RAS) and the Bureau of Reclamation SRH-2D modeling software may be used for other I-2513 Sections. Per the USACE website, HEC-RAS "allows the user to perform one-dimensional steady flow, one-dimensional steady flow, and one- and two-dimensional unsteady flow calculations, sediment transport/mobile bed calculations, and water temperature/water quality modeling." Per the SRH-2D manual, "Sedimentation and River Hydraulics-Two-Dimensions (SRH-2D), is a two-dimensional (2D), depth-averaged, hydraulic and sediment transport mobile-bed model for simulating shallow waterways." For this project, models are under development to guide final design. The proposed designs and construction phasing will be input into the models and storm return periods will be run that will represent conditions during flood events along the French Broad River. Using the Flood Risk Information System (FRIS) database provided by the North Carolina Emergency Management (NCEM) and the Flood Inundation Mapping Alert Network (FIMAN) data, impacts to properties can be estimated, if present.

Specific Detail for Section B & D

Hydraulic analysis of the French Broad River will be performed in conjunction with final design. Impacts will be modeled using the USACE HEC-RAS for I-2513 B & D. The Design Build team is currently working on the analysis which when completed will be provided to NCDOT for review before ultimately being submitted to NC Floodplain Management for approval. This process will take approximately two-three months before it is finalized. Information pertaining to the FEMA compliance will be provided to the USACE and USFWS once available.

Stormwater and Erosion Control

Access roads, if needed, will use Design Standards for Sensitive Waters (DSSW) to mitigate the amount of sediment and erosion control material that enters the French Broad River, Smith Mill Creek, or Hominy Creek. The NCDOT Design-Build Team will provide USFWS with the sediment and erosion control plan and allow 15 days for review upon acknowledgement of receipt of notice. Roadway and bridge construction will be in accordance with appropriate permitting and stormwater plans.

Sediment and Erosion control plans are required to be in place prior to any ground disturbance. When needed, combinations of erosion control measures will be used to ensure protective measures are being implemented.

NCDOT is working with the US Geological Survey to install/monitor gages along the French Broad River to collect continuous streamflow, precipitation, and water-quality (temperature, conductance, and turbidity) data. The baseline information can be used to compare to water quality in the river during construction.

Deck Drainage

NCDOT makes every attempt to eliminate direct deck drainage into water bodies whenever federally protected aquatic species or sensitive habitats are present. It is anticipated that direct drainage into the French Broad River can be avoided by conveying runoff via the deck over water. Overland discharge via deck drains will provide treatment through vegetative conveyance or other stormwater BMPs.

AVOIDANCE AND MINIMIZATION

Project commitments have been developed through project development, design, and permitting. Due to the number of commitments, they have been consolidated into one spreadsheet that among other information, provides: the commitment, the source of the commitment, section applicability, responsible unit, and status. The project commitments spreadsheet will be made available for access.

RIVER USER SAFETY

Because the French Broad River, Hominy Creek, and Smith Mill Creek are regularly used for recreation, they cannot be closed for the life of construction. NCDOT shall commit to providing a safe passage lane for users of the French Broad River, Hominy Creek, and Smith Mill Creek. To do so, NCDOT shall employ safety measures, including catchment devices on overhead structures to prevent material from falling on river users. In addition, floating navigational aids will be used to guide river users to the safe passage lane and away from the causeways/construction zone. For new bridges, most work is expected to take place during the day. NCDOT will work with river users, businesses, and recreational river and civic groups to insure public notification of the temporary closures.

The safe passage lane for river users will be located in a portion of the river away from the causeways for the majority of the life of the project. NCDOT shall use a floating navigational aid to guide river users to the safe passage lane.

NCDOT shall commit to including a containment system on the overhead structures to prevent material from falling on river or greenway users, or in the water. NCDOT shall place steady-state red lights that are solar-powered on the causeway to alert river users to its location. Generators will not be used to provide power. These lights will be atop permanent structures, such as a pole, on each causeway for the duration of the project. The contractor will be responsible for maintaining these lights at all times during construction, replacing them as necessary.

It is expected that there will be times when the river, creeks or greenways must be closed for the safety of recreational users due to the type of work being done (e.g. setting girders, removal of bent caps). These closures are not expected to last more than two days and are expected to occur predominantly at night. Care will be taken to not close the waterways or greenways during known peak user times, particularly the Memorial Day, Fourth of July, and Labor Day weekends. During major storm events, portage will be provided while the work trestle is in place.

SPECIFIC DETAIL FOR SECTION B

Signage

Signage for Sections B will be installed and maintained by Archer Wright Joint Venture (AWJV), both upstream and downstream of the I-26 and I-240 Bridges to alert river users to construction. These signs will note that the last public pull out is at is Craven Street Boating Access Area, located 0.58 mile upstream of the of the bridge.

These signs will be placed at the following locations; all are public with the exception of the privately owned launches marked with an asterisk (*). Additional private locations may be utilized with permission of the owner.

French Broad River Warning Sign Locations:

- Pearson Bridge River Access, 704 NC-251, Asheville, NC
- Craven Street Bridge Boating Access Area, 192 Riverside Dr, Asheville, NC
- River Arts District Steps, 119 Riverside Dr, Asheville, NC
- Jean Webb Park, 86 Riverside Dr, Asheville, NC
- Amboy Riverfront Park, 180 Amboy Rd, Asheville, NC
- Hominy Creek River Park, 220 Hominy Creek Rd, Asheville, NC
- Bent Creek River Park, 1610 Brevard Rd, Asheville, NC
- Corcoran Paige River Park, 9 Pinner Rd, Arden, NC
- Glen Bridge River Park, 77 Pinner Rd, Arden, NC
- Westfeldt Park, 83 Old Fanning Bridge Rd, Mills River NC
- Mills River Park, 124 Town Center Dr, Mills River, NC
- Horse Shoe River Access Park, 5437 Brevard Rd, Horse Shoe, NC
- Blantyre Park, 120 Grove Bridge Rd, Hendersonville, NC
- Penrose Boat Ramp, 500 Crab Creek Rd, Penrose, NC
- Pisgah Forest River Access, 3520 Wilson Rd, Pisgah Forest, NC
- Hap Simpson Park, 666 Greenville Hwy, Brevard, NC
- *Hannah Ford Campground-Headwaters Outfitters, 1017 Green Rd, Brevard, NC
- Island Ford River Access, 2753 Island Ford Rd, Brevard, NC
- Lyons Mountain River Access, Lyons Mountain Rd, Brevard, NC
- Champion Park River Access, Old Turnpike Rd, Rosman, NC
- *Headwaters Outfitters, 25 Parkway Rd, Rosman, NC

River Warning Signs to be utilized for the information of FBR users (at a minimum) are illustrated as follows:

The sign example shown above is for illustrative purposes and will be revised to display I-2513 B&D information.

- Additional *Warning* or *Danger Do-Not-Enter* signage will be installed by AWJV on the causeway to warn river users away from potential construction related hazards and to prevent river users from using the causeway as a stopping point.

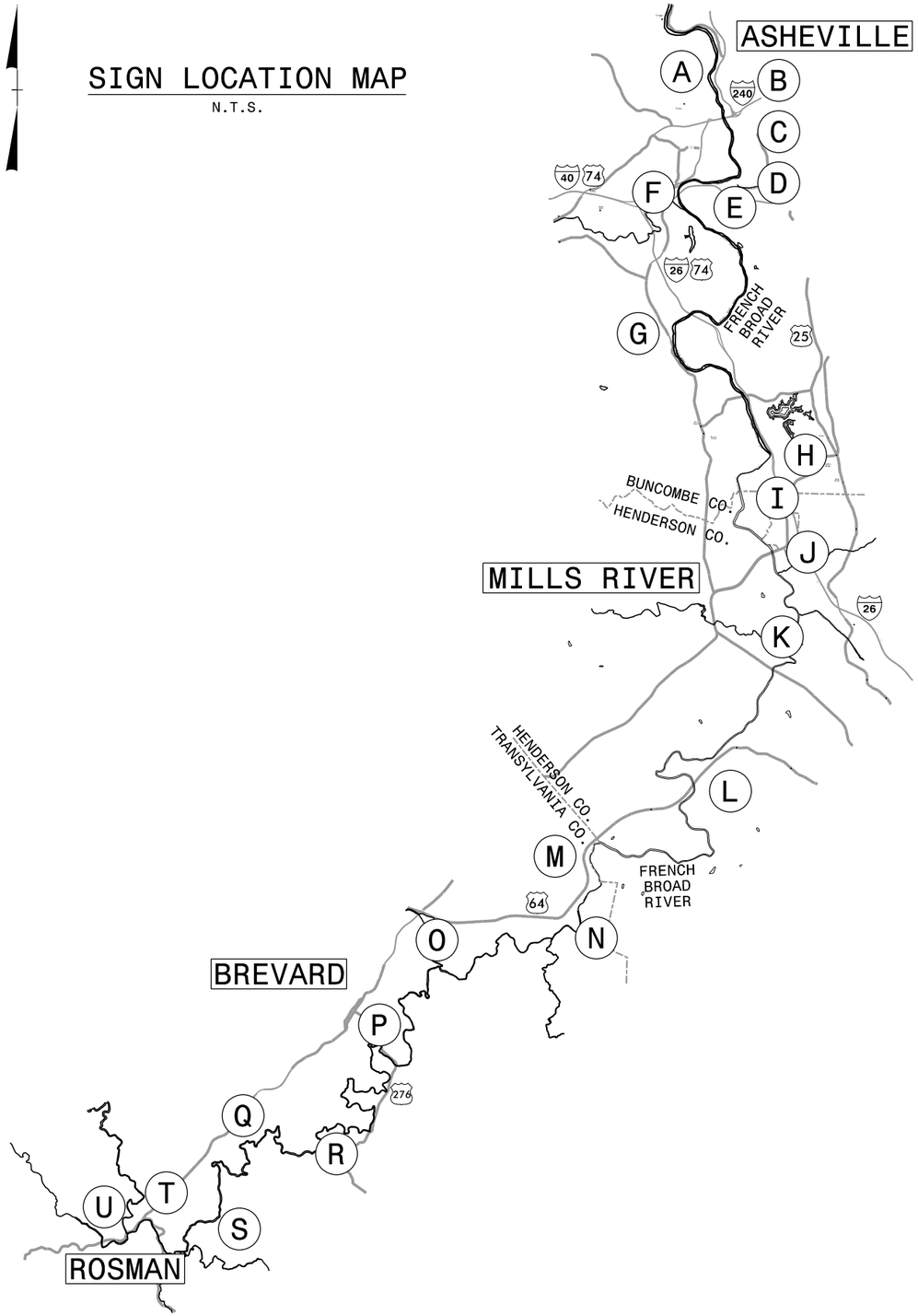
- Should work activities require closure of the river in the causeway during construction activities (e.g., girder placement, demolition activities, etc.), additional floating signage (similar to the below illustration) will be installed by AWJV to warn users of hazards and direct to nearest pull-out.

Refer to the NCDOT I-2513 B&D French Broad River Warning Sign Locations figure on the following page.

PROJ. REFERENCE NO.	SHEET NO.
I-2513B&D	

SIGN LOCATION MAP

N.T.S.



LOCATION	FACILITY	ADDRESS	LAT/LONG
A	Pearson Bridge River Access	704 NC-251 Asheville, NC	35.60888° N 82.57812° W
B	Craven Street Bridge Boating Access Area	192 Riverside Dr Asheville, NC	35.58928° N 82.57107° W
C	River Arts District Steps	119 Riverside Dr Asheville, NC	35.58794° N 82.57008° W
D	Jean Webb Park	86 Riverside Dr Asheville, NC	35.58638° N 82.56818° W
E	Amboy Riverfront Park	180 Amboy Rd Asheville, NC	35.56730° N 82.56913° W
F	Hominy Creek River Park	220 Hominy Creek Rd Asheville, NC	35.55470° N 82.59097° W
G	Bent Creek River Park	1610 Brevard Rd Asheville, NC	35.50140° N 82.59312° W
H	Corcoran Paige River Park	9 Pinner Rd Arden, NC	35.45479° N 82.54695° W
I	Glen Bridge River Park	77 Pinner Rd Arden, NC	35.45065° N 82.55566° W
J	Westfeldt Park	83 Old Fanning Bridge Rd Mills River, NC	35.42207° N 82.54171° W
K	Mills River Park	124 Town Center Dr Mills River, NC	35.38785° N 82.54944° W
L	Horse Shoe River Access Park	5437 Brevard Rd Horse Shoe, NC	35.32892° N 82.57509° W
M	Blantyre Park	120 Grove Bridge Rd Hendersonville, NC	35.29911° N 82.62229° W
N	Penrose Boat Ramp	500 Crab Creek Rd Penrose, NC	35.26957° N 82.63670° W
O	Pisgah Forest River Access	3520 Wilson Rd Pisgah Forest, NC	35.25134° N 82.69944° W
P	Hap Simpson Park	666 Greenville Hwy Brevard, NC	35.21814° N 82.71989° W
Q	Hannah Ford Campground - Headwaters Outfitters	1017 Green Rd Brevard, NC	35.18490° N 82.77418° W
R	Island Ford River Access	2753 Island Ford Rd Brevard, NC	35.17811° N 82.75524° W
S	Lyons Mountain River Access	Lyons Mountain Rd Brevard, NC	35.14940° N 82.79954° W
T	Champion Park River Access	Old Turnpike Rd Rosman, NC	35.14588° N 82.82642° W
U	Headwaters Outfitters	25 Parkway Rd Rosman, NC	35.14361° N 82.83920° W

RK&K
P: (919) 878-9560
8601 Six Forks Road, Forum 1, Suite 700
Raleigh, North Carolina 27615-3960
NC License No. F-0112
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

FRENCH BROAD RIVER WARNING SIGN LOCATIONS

7/3/2025
\\rkk.com\fs\Cloud\GIS\Data\NC\Working\JLB\JonB_Working\Projects\NC\I-2513BD\River Access\I2513BD_FB_WarnSigns.dgn
default

River Navigational Markers/Aids

- Steady-state "red" solar powered navigational lights erected by NCDOT on the causeway to alert river users shall be maintained in good working order during construction activities by AWJV.
- Navigation rope buoys will be utilized by AWJV in addition to signage prescribed above to mark and direct river traffic around hazardous construction work areas/activities.
- Rope buoys will be completely filled with urethane foam or other materials to prevent potential failure (i.e., sinking) which meet or exceed *United States Coast Guard* requirements.
- Rope buoys will be effectively secured against accidental or intentional displacement.
- Placement of rope buoys shall be pre-approved by AWJV Construction Management and the AWJV Health, Safety, and Environmental (HSE) department.

Monitors/Flaggers

- AWJV will provide trained monitors/flaggers to control river user access to hazardous construction work area/activities as needed.
- One or more monitors/flaggers will be staged upstream as needed to stop river use at limited times when working over the river via communications of handheld radios.
- AWJV monitors/flaggers shall be trained in Swiftwater/Flood Rescue (per NFPA 1670 or equivalent) to assist those river users that may be in distress when navigating the FBR through the causeway.
    - **Note:** At a minimum, trained monitors/flaggers shall participate in two emergency drills annually involving the rescue of a distress boater(s). The emergency drills shall be planned and executed by the AWJV HSE department.

Working Over Water

- AWJV shall erect a catchment device on the overhead structure from South of Old River Road to the opposite side of the FBR to prevent material from falling on river users, equestrians, bicyclists, or in the water.
- The catchment device shall be cleaned of debris and inspected by the responsible AWJV Construction Management on a daily/shift basis prior to the initiation of any work activity that day/shift. Any deficient conditions shall be brought to the immediate attention of the AWJV Construction Manager for repairs or replacement. Daily inspections shall be documented on the applicable Safety Task Assignment (STA). All Fall Protection will meet the criteria of the AWJV Site Safety Plan.

Boat/Skiff and Ring Buoys

- AWJV will provide a boat/skiff for emergency rescue operations, equipped with paddle or oars, four (4) adult and four (4) child life preservers, and a reach extension device.
    - **Note:** When utilized, the boat/skiff shall be manned by a minimum of two AWJV trained boater operators.
- If warranted by strong current conditions, the boat/skiff will be outfitted with motor.
- A safety line may be connected between the boat/skiff and a structural member capable of maintaining the position of the boat/skiff.

- Under all conditions, the boat/skiff must be located such that it is available for immediate use if an emergency arises. It will be kept secured and all pertinent personnel will be able to access as necessary. This will be discussed / implemented during morning meetings and all personnel will be privy to immediate needs during working operations
- Ring buoys (four total) will be strategically located on each side of the river both upstream and downstream of the causeway during construction activities. Each ring buoy shall be equipped at least 90-feet (27.4 m) of rescue line (and throw bag).
- Prior to use each day/shift, both the rescue boat/skiff and ring buoys will receive a visual daily inspection by the assigned personnel to ensure all rescue equipment is in good working condition. All deficiencies shall be brought to the attention of the AWJV HSE department. Inspections shall be documented on the associated STA.
- Both the rescue boat/skiff and ring buoys will receive a documented weekly inspection by the AWJV HSE department to ensure all rescue is in good working condition. Deficient items will be immediately taken out of service and repaired or replaced.

Spill Control

- Spill containment kits will be procured and strategically placed by AWJV where potential spill hazards into the FBR exist, i.e., cranes, heavy equipment, drill rigs, etc.
- Kits will be of sufficient size and type for the hazard being mitigated/cleaned up.
- Documented monthly inspections shall be conducted by the AWJV HSE department.
- All unplanned and/or uncontrolled spills of hazardous materials into the FBR shall be immediately reported to the AWJV Project Management Team, AWJV HSE, and NCDOT.
- Spill response personnel shall be appropriately trained by AWJV.

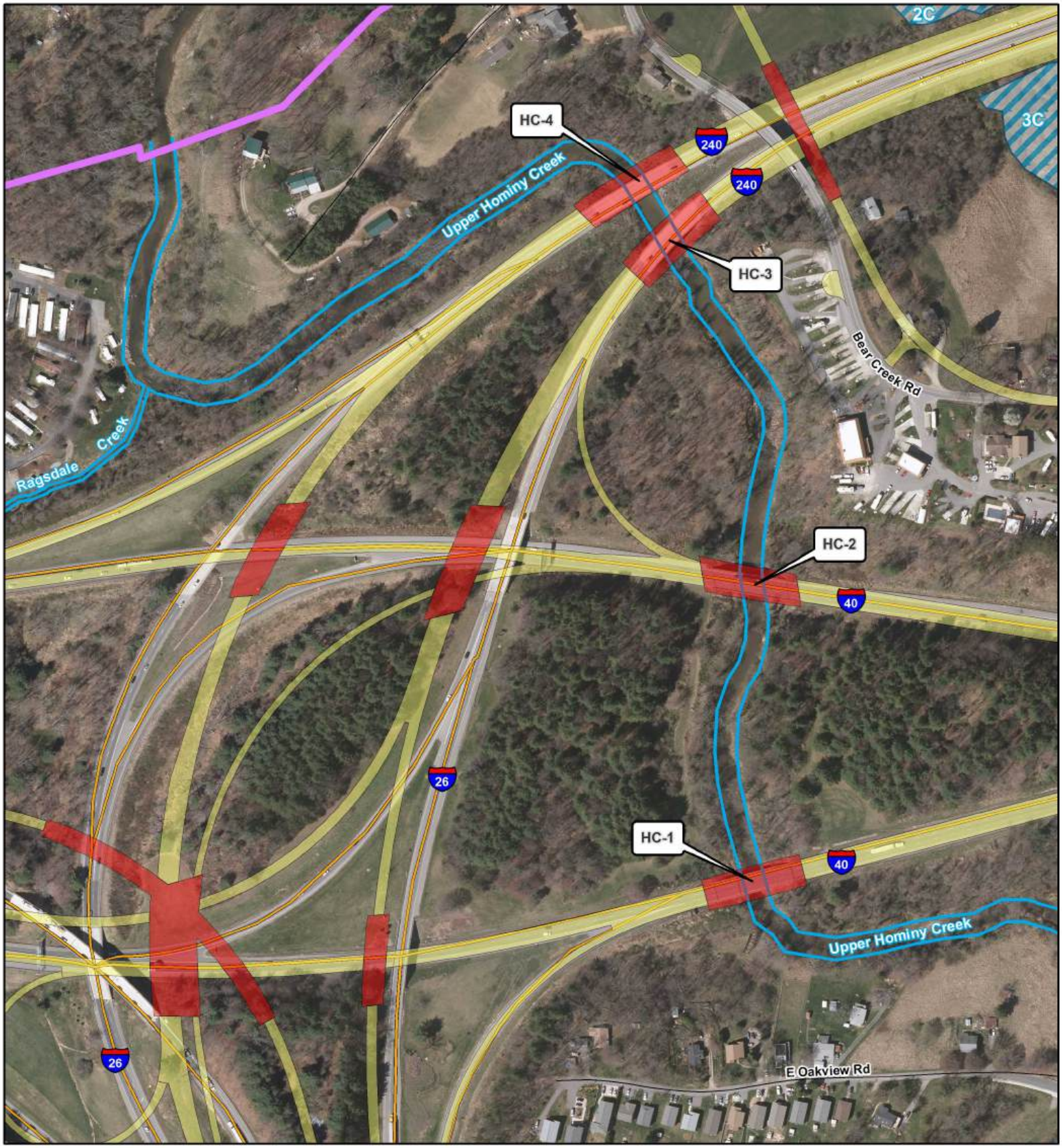
Flooding

- Any equipment on the causeways will be removed any time the water level is expected to rise to a point where the equipment could be flooded or during periods of long-term inactivity (two or more consecutive weeks). The only exception to this measure is that the drill rig and crane may be left in place for periods of inactivity; however, they must also be removed if the water level is expected to rise to a point where the drill rig and crane could be flooded.
- Once the water has returned to normal levels, an inspection of the causeway and surrounding areas shall be performed by AWJV Project Management, Construction Management, and HSE for new hazards as a result of the flooding. All new hazards shall be mitigated and/or controlled before resuming construction activities.

RSP Review

- The RSP shall be reviewed (at a minimum) annually and revised accordingly by the AWJV Project Management Team and HSE department for effectiveness in both process development and implementation. The review shall be documented and ensure that all deficient conditions and opportunities for improvement are identified and addressed.

Appendix



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

I-26 Asheville Connector

TIP Project I-2513

Buncombe County, NC

Legend

- Action Area
- HC-1 Crossing
- Proposed Bridge
- Proposed Roadway
- Delineated Wetland
- Delineated Stream
- Interstate
- US Route
- NC Route
- Major Road
- Local Road

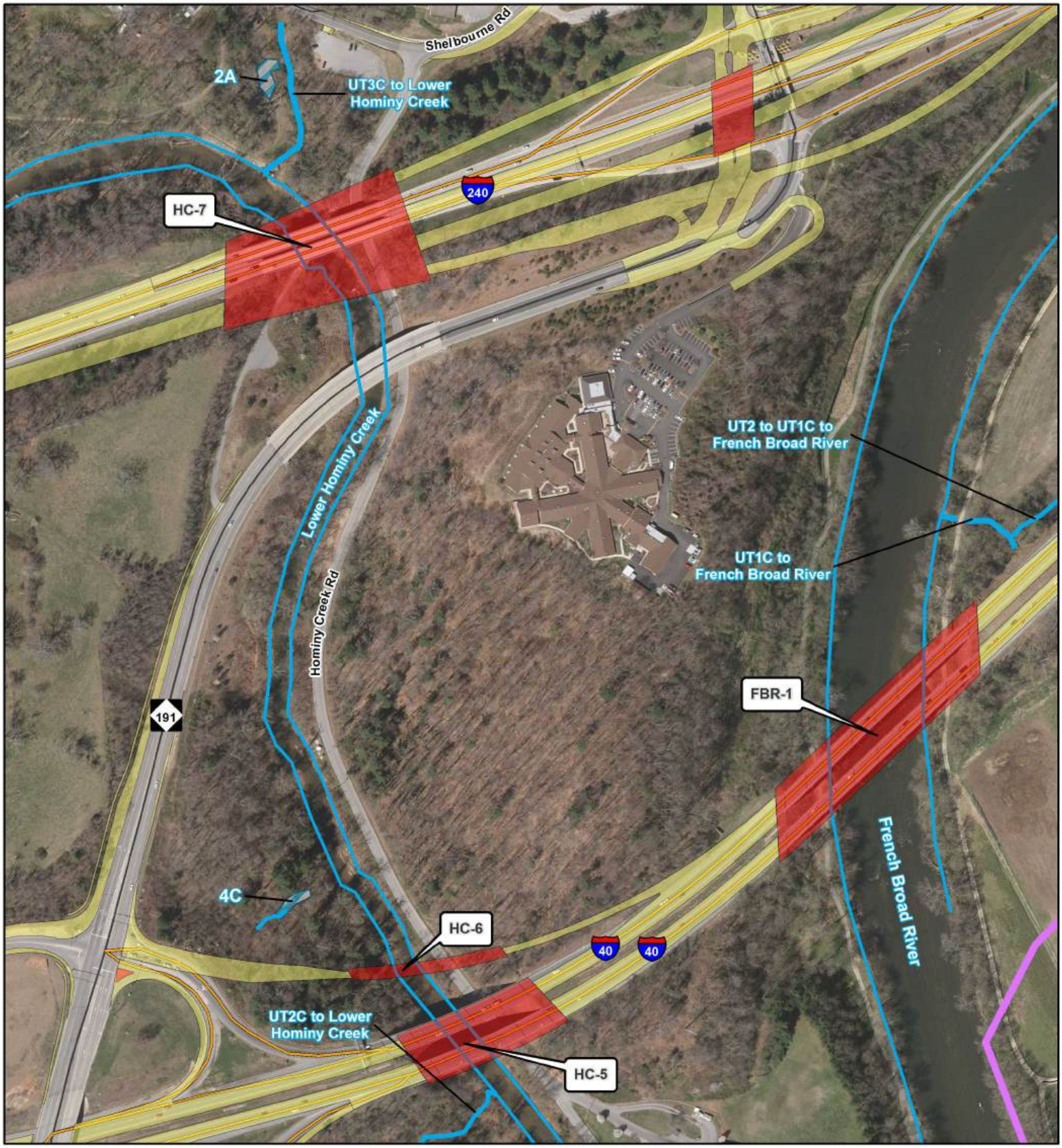
0 150 300 600 Feet

1 in = 300 ft

Figure 1A

Crossing Locations

Source: NC OneMap, CALYX Engineers and Consultants
Map Date: 2/20/2019



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

I-26 Asheville Connector

TIP Project I-2513

Buncombe County, NC

Legend

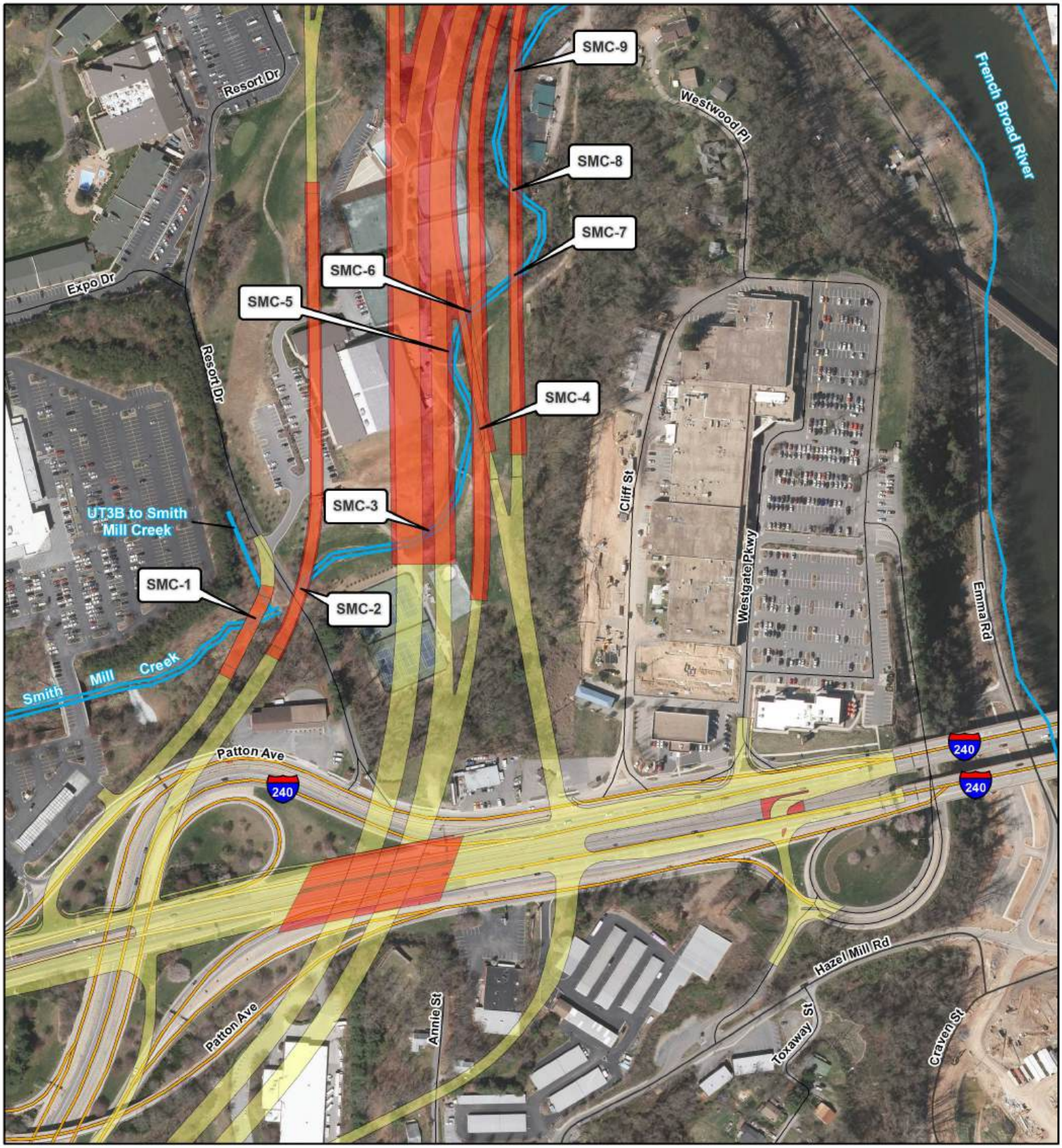
- Action Area
- HC-1 Crossing
- Proposed Bridge
- Proposed Roadway
- Delineated Wetland
- Delineated Stream
- Interstate
- US Route
- NC Route
- Major Road
- Local Road

0 150 300 600 Feet

1 in = 300 ft

Figure 1B
Crossing Locations

Source: NC OneMap, CALYX Engineers and Consultants
Map Date: 2/20/2019



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

I-26 Asheville Connector

TIP Project I-2513

Buncombe County, NC

Legend

- Action Area
- HC-1 Crossing
- Proposed Bridge
- Proposed Roadway
- Delineated Wetland
- Delineated Stream
- Interstate
- US Route
- NC Route
- Major Road
- Local Road

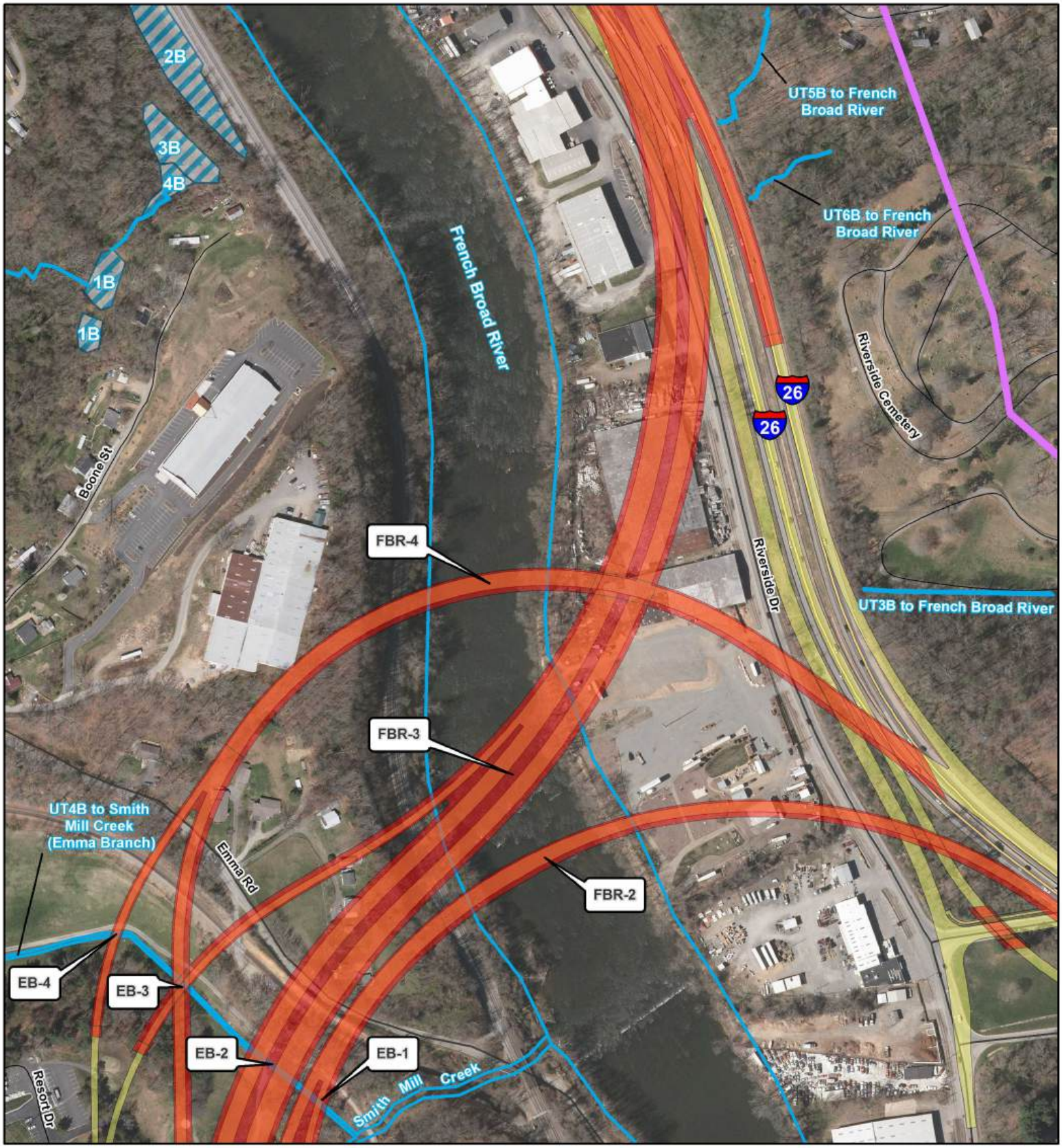
N

0 150 300 600 Feet

1 in = 300 ft

Figure 1C
Crossing Locations

Source: NC OneMap, CALYX Engineers and Consultants
Map Date: 2/20/2019



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

I-26 Asheville Connector

TIP Project I-2513

Buncombe County, NC

Legend

- Action Area
- HC-1 Crossing
- Proposed Bridge
- Proposed Roadway
- Delineated Wetland
- Delineated Stream
- Interstate
- US Route
- NC Route
- Major Road
- Local Road

0 150 300 600 Feet

1 in = 300 ft

Figure 1D

Crossing Locations

Source: NC OneMap, CALYX Engineers and Consultants
Map Date: 2/20/2019

Submitted 10/17/2025

PERMIT DRAWING
SHEET 30 OF 85

AUGUST 20, 2020

C:\Users\cody.jett\Desktop\Autocad\1 - NC - Autocad\1. I-26 Connector\Causeway\224099 - River Work - Rev6.dwg

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

185'-6"

293'-7"

FRENCH BROAD RIVER

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

209'-10"

320'-1"

1963

1963

1963

1963

4A-84

20L-84

20R-84

218

FRENCH BROAD RIVER

MSD EASEMENT

PLAN VIEW
NTS

Approximate Duration of Causeway Phase = 5 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - P1A

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 2 OF 7 REV: 0

Submitted 10/17/2025

PERMIT DRAWING
SHEET 31 OF 85

AUGUST 20, 2020

C:\Users\cody.jett\Desktop\Autocad\1 - NC - Autocad\1. I-26 Connector\Causeway\224099 - River Work - Rev6.dwg

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

FRENCH BROAD RIVER

183'-8"

291'-8"

64'-6"

95'-7"

TEMP. IMPACT FOR
TRESTLE FOUNDATIONS

1963

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

320'-1"

255'-6"

FRENCH BROAD RIVER

MSD EASEMENT

PLAN VIEW
NTS

A

A

Approximate Duration of Causeway Phase = 1 Week

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - P1B

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 1 OF 7 REV: 0

Submitted 10/17/2025

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 32 OF 85

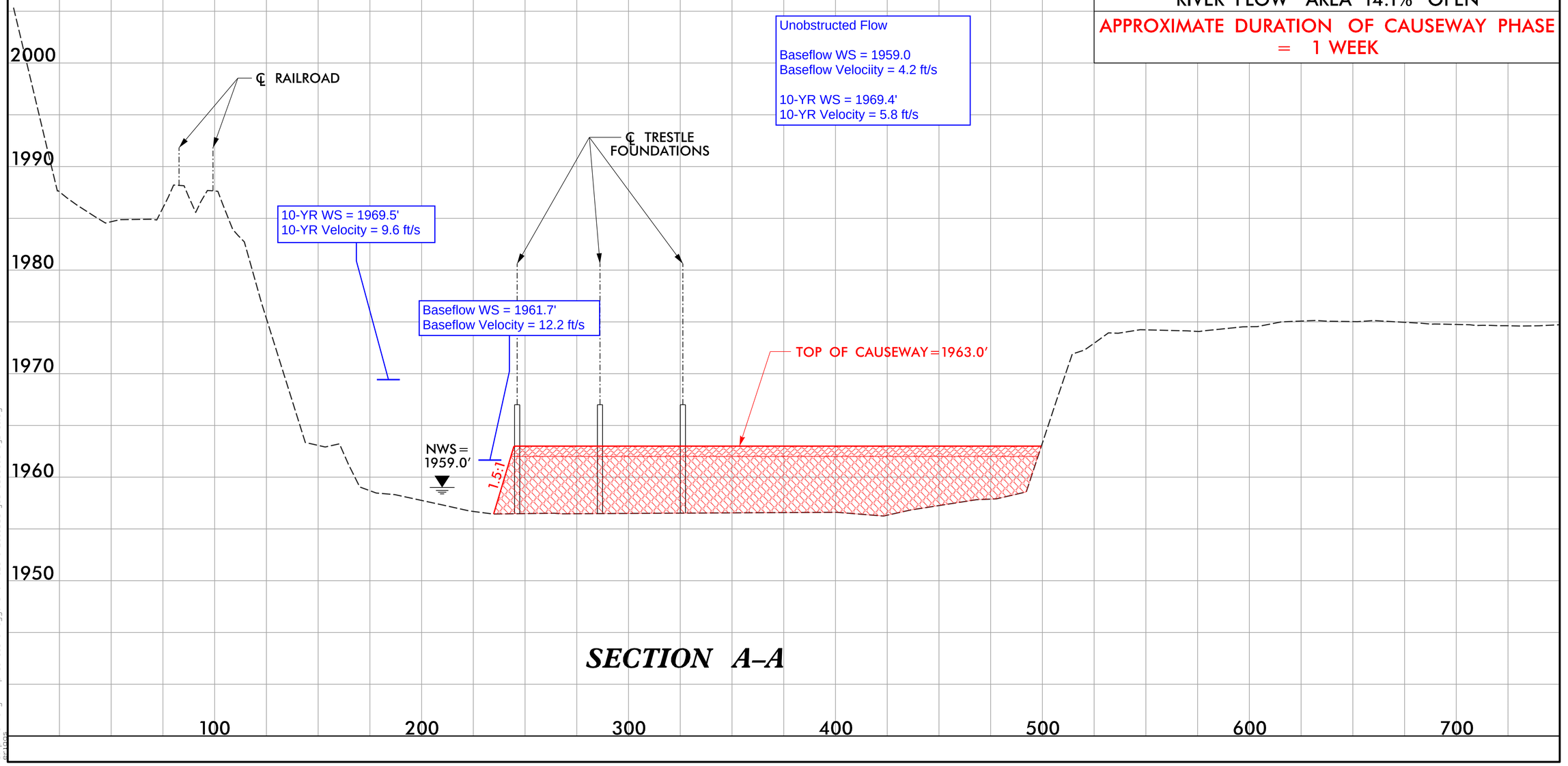
PHASE 1B

TEMPORARY CAUSEWAY TO CONSTRUCT FOUNDATIONS FOR TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 93.5 SF
BLOCKED AREA BELOW NWS = 571.9 SF

RIVER FLOW AREA 14.1% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 1 WEEK



SECTION A–A

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NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

FRENCH BROAD RIVER

TRESTLE FOUNDATIONS
INSTALLED IN PHASE B

TEMP. IMPACT FOR
TRESTLE FOUNDATIONS

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

106'-9"

53'-1"

183'-7"

291'-8"

320'-1"

213'-5"

1963

3A-B4

2DL-B4

2DR-B4

4A-B4

218

MSD EASEMENT

PLAN VIEW
NTS

A

Approximate Duration of Causeway Phase = 1 Week

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR.	ARCHER-WRIGHT JV

CAUSEWAY - P1C

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 1 OF 7 REV: 0

Submitted 10/17/2025

5/14/99

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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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SHEET 34 OF 85

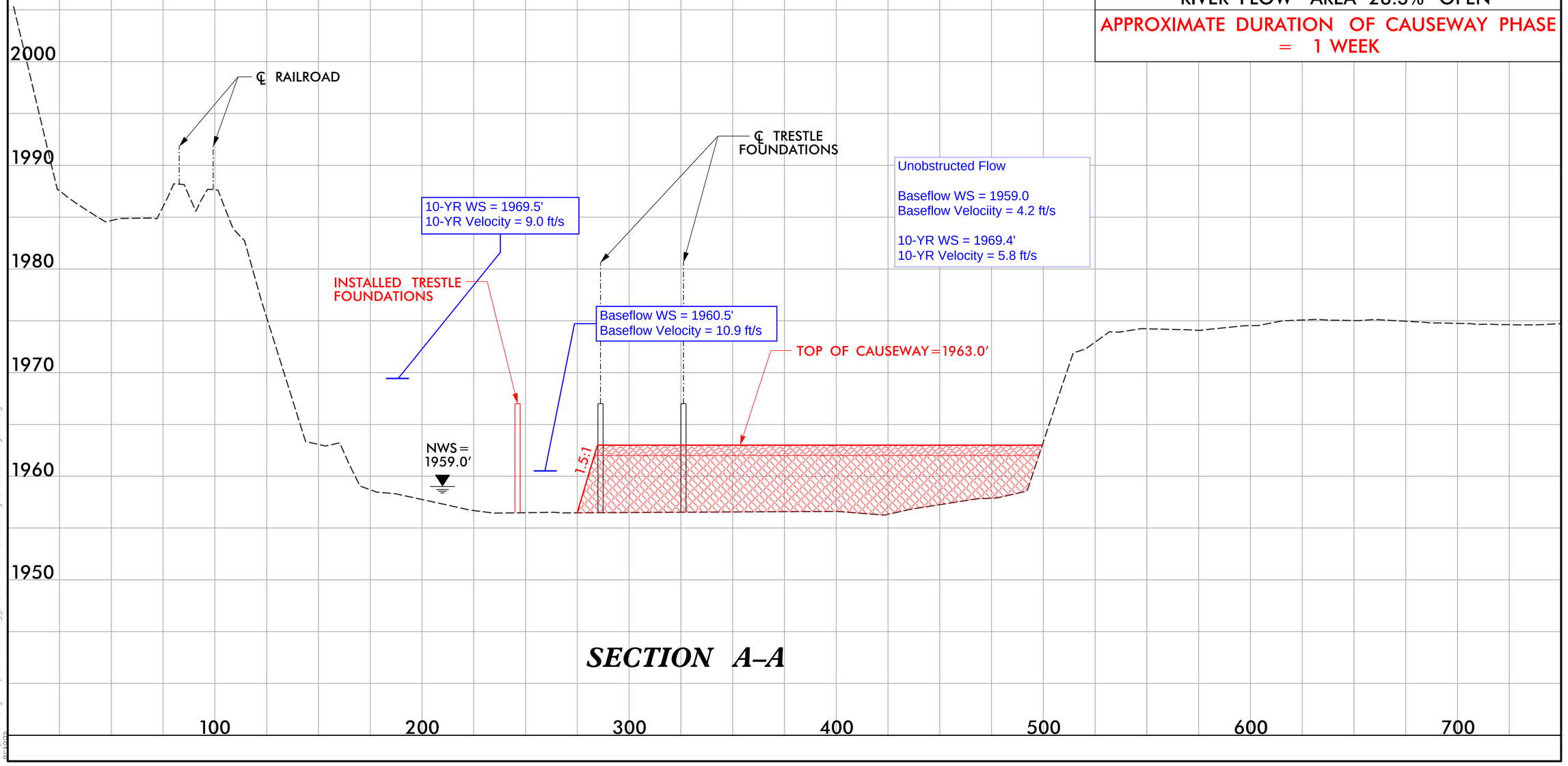
PHASE 1C

TEMPORARY CAUSEWAY TO CONSTRUCT FOUNDATIONS FOR TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 188.3 SF
BLOCKED AREA BELOW NWS = 470.8 SF

RIVER FLOW AREA 28.3% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 1 WEEK



SECTION A–A

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A

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

184'-0"

292'-1"

FRENCH BROAD RIVER

TRESTLE FOUNDATIONS
INSTALLED IN PHASES 1B-1C

147'-0"

TEMP. IMPACT FOR
TRESTLE FOUNDATIONS

13'-10"

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

1963

3A-EB1

20L-B4

20R-B4

4A-B4

218

320'-1"

173'-1"

FRENCH BROAD RIVER

MSD EASEMENT

PLAN VIEW
NTS

A

Approximate Duration of Causeway Phase = 1 Week

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - P1D

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 1 OF 7

REV: 0

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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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SHEET 36 OF 85

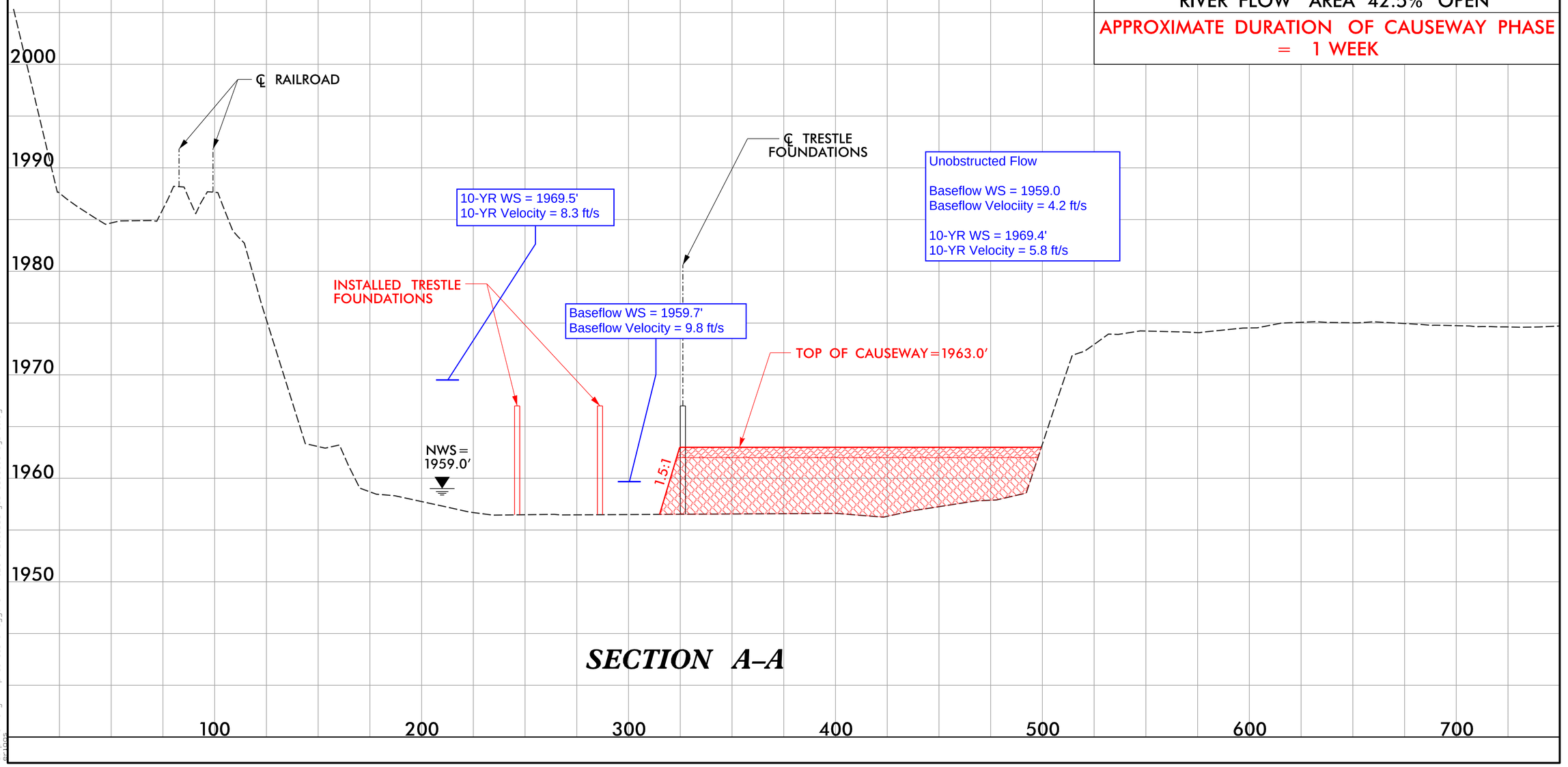
PHASE 1D

TEMPORARY CAUSEWAY TO CONSTRUCT FOUNDATIONS FOR TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 282.5 SF
BLOCKED AREA BELOW NWS = 370.3 SF

RIVER FLOW AREA 42.5% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 1 WEEK



SECTION A–A

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A

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

185'-6"

293'-7"

FRENCH BROAD RIVER

TRESTLE FOUNDATIONS
INSTALLED IN PHASES 1B-1D

TRESTLE FOUNDATION
INSTALL IN PHASE 2A

TOP OF CAUSEWAY
ELEV: 1963

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

183'-2"

320'-1"

FRENCH BROAD RIVER

MSD EASEMENT

PLAN VIEW
NTS

A

Approximate Duration of Causeway Phase = 3 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - 2

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 2 OF 7 REV: 0

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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SHEET 38 OF 85

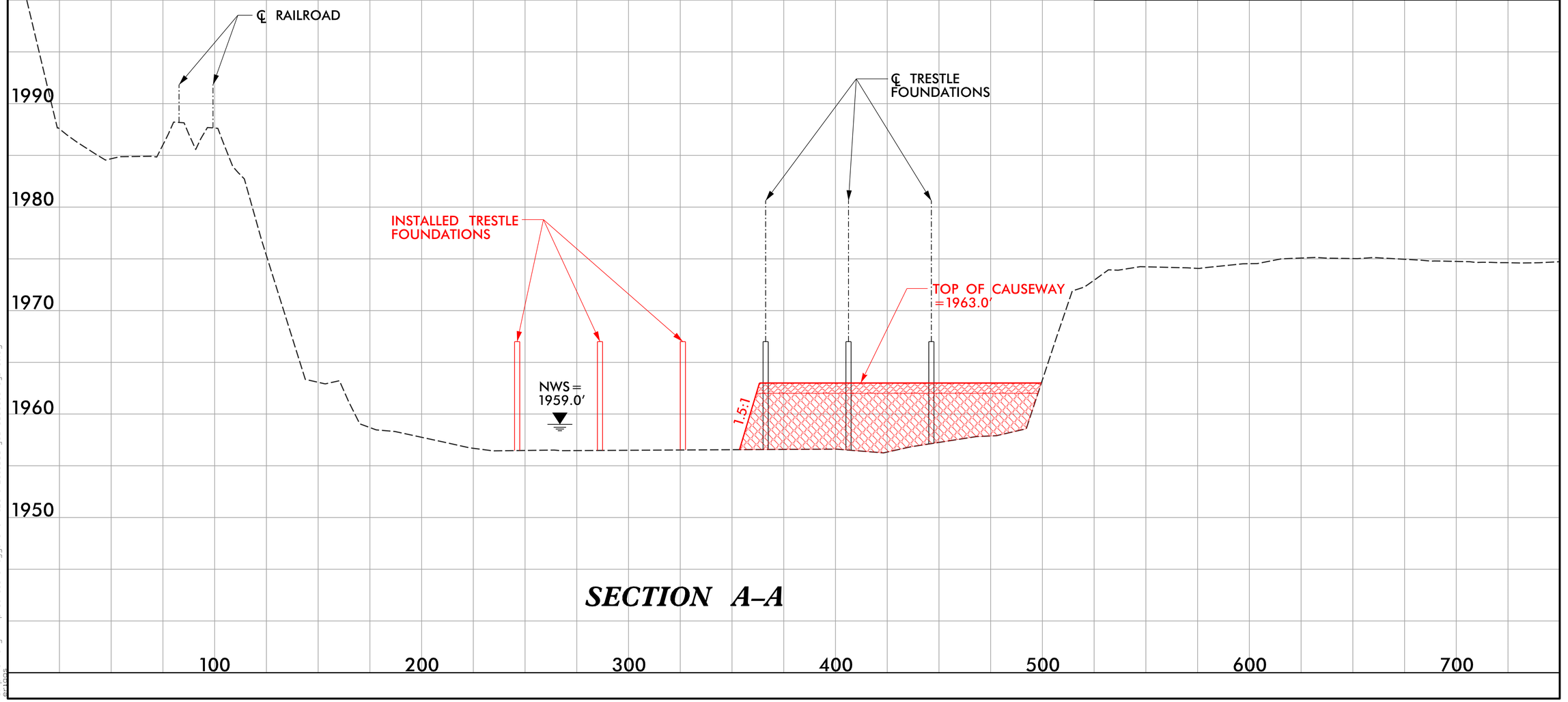
PHASE 2

TEMPORARY CAUSEWAY TO CONSTRUCT FOUNDATIONS FOR TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 390.3 SF
BLOCKED AREA BELOW NWS = 275.1 SF

RIVER FLOW AREA 58.7% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 3 MONTHS



SECTION A–A

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SHEET 39 OF 85

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NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

181'-5"

293'-7"

FRENCH BROAD RIVER

COMPLETE SUBSTRUCTURE BEFORE
ROCK IS REMOVED

TOP OF CAUSEWAY
ELEV: 1963

REMOVE LOWER CAUSEWAY AND
INSTALL TRESTLE SPANS

TOE OF 1.5:1
CAUSEWAY SLOPE

EDGE OF WATER
(TYP)

TOP OF TRESTLE BRIDGE
ELEV: 1971

1971

1963

20R-B4

20L-B5

3A-B5

20R-B5

4A-B4

4A-B5

TOP OF CAUSEWAY
ELEV: 1971

FRENCH BROAD RIVER

MSD EASEMENT

PLAN VIEW
NTS

Approximate Duration of Causeway Phase = 2 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - 3

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

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SHEET 40 OF 85

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A

NORFOLK SOUTHERN RAILWAY

1965

1971

1965

1965

1965

1965

1965

1971

1971

1965

1965

1965

1965

1965

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5/14/99

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I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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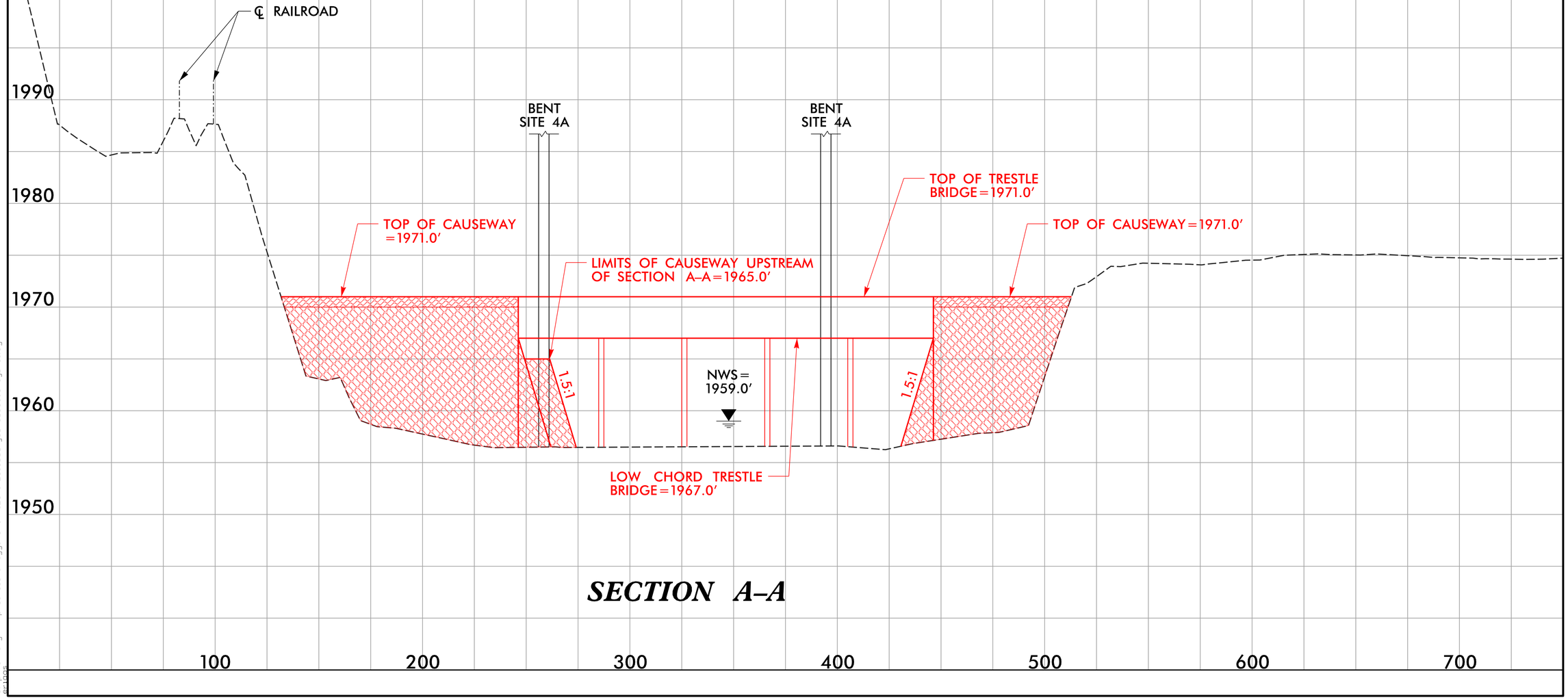
PERMIT DRAWING
SHEET 41 OF 85

PHASE 4

TRESTLE BRIDGE

TOTAL AREA BELOW NWS = 665.4 SF
OPEN AREA BELOW NWS = 361.6 SF
BLOCKED AREA BELOW NWS = 303.8 SF
RIVER FLOW AREA 54.3% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 10 MONTHS



SECTION A–A

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SHEET 42 OF 85

AUGUST 20, 2020

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NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

FRENCH BROAD RIVER

306'-5"

215'-3"

140'

170'

1971

FBR-4

TOP OF CAUSEWAY
ELEV: 1971

TOE OF 1.5:1
CAUSEWAY SLOPE

FRENCH BROAD RIVER

TOP OF CAUSEWAY
ELEV: 1971

EDGE OF WATER
(TYP)

MSD EASEMENT

PLAN VIEW
NTS

Approximate Duration of Causeway Phase = 3 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR	ARCHER-WRIGHT JV

CAUSEWAY - P5

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

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SHEET 43 OF 85

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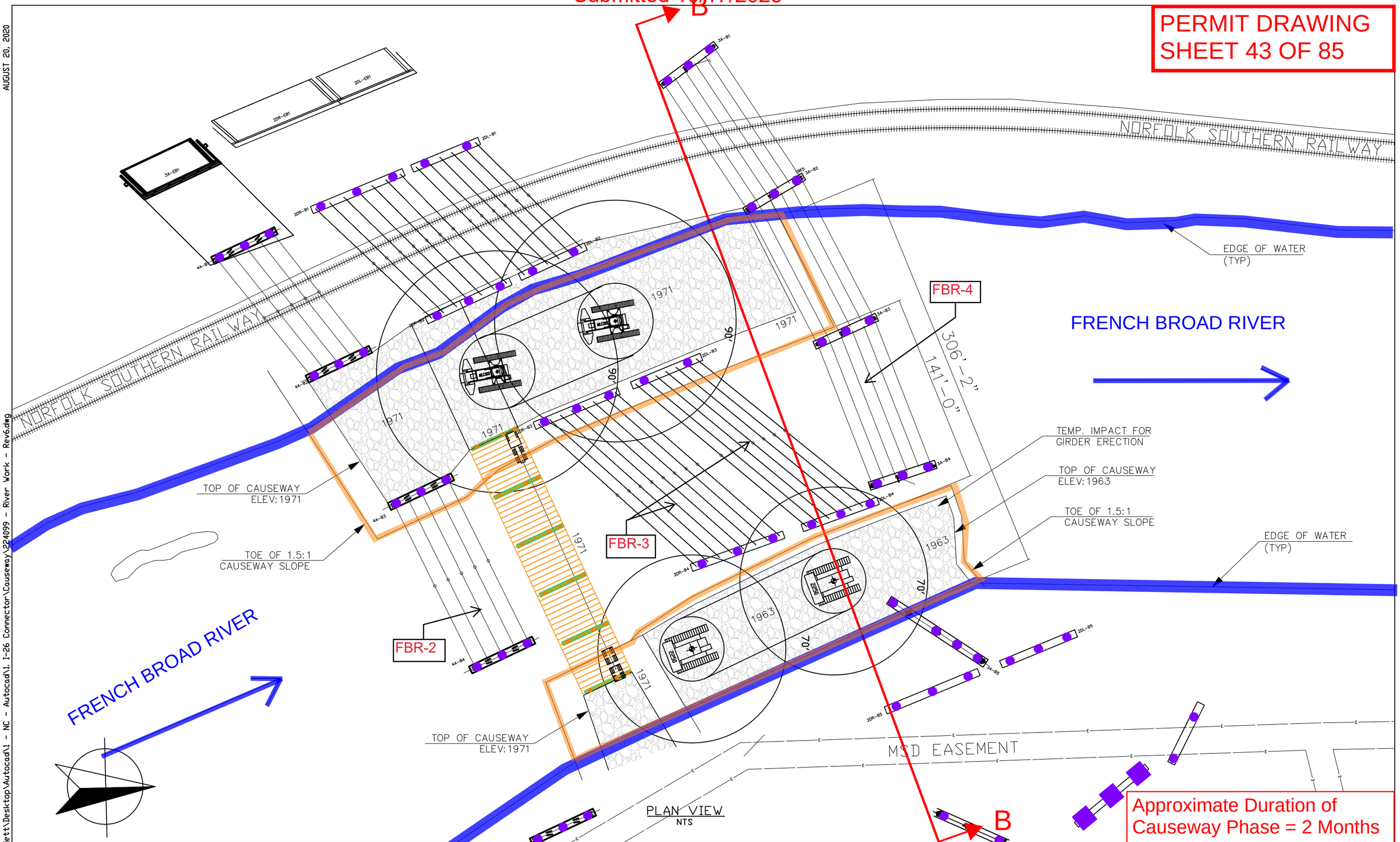


PLAN VIEW
NTS

Approximate Duration of
Causeway Phase = 2 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR.	ARCHER-WRIGHT JV

CAUSEWAY - P6

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
ASHEVILLE I-26 CONNECTOR

DWG NO: 6 OF 7 REV: 0

Submitted 10/17/2025

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 44 OF 85

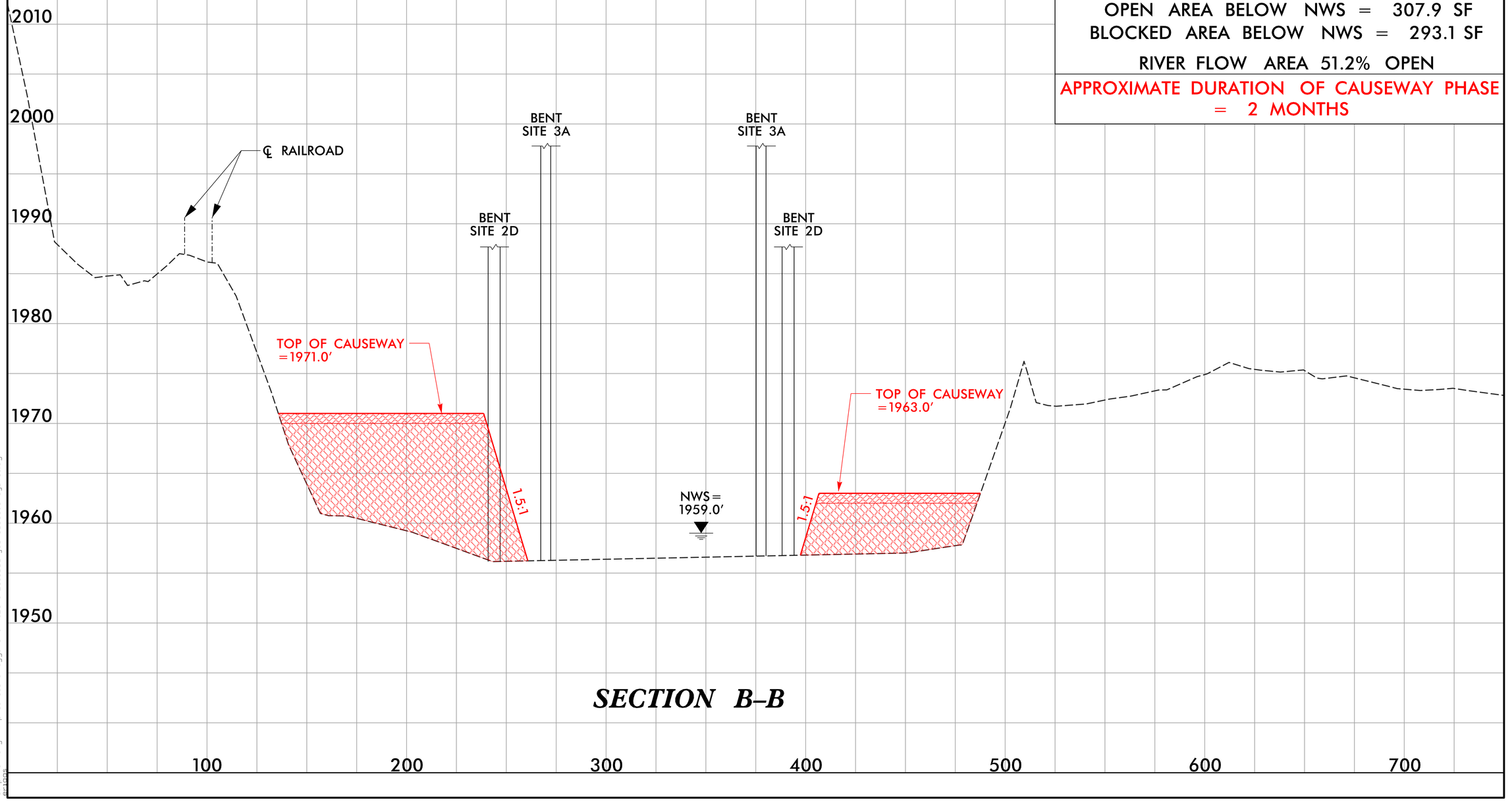
PHASE 6

PARALLEL CAUSEWAYS

TOTAL AREA BELOW NWS = 601.0 SF
OPEN AREA BELOW NWS = 307.9 SF
BLOCKED AREA BELOW NWS = 293.1 SF

RIVER FLOW AREA 51.2% OPEN

APPROXIMATE DURATION OF CAUSEWAY PHASE = 2 MONTHS



SECTION B–B

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SHEET 45 OF 85

AUGUST 20, 2020

NORFOLK SOUTHERN RAILWAY

NORFOLK SOUTHERN RAILWAY

EDGE OF WATER
(TYP)

FRENCH BROAD RIVER

192'-4"

309'-8"

FBR-4

FBR-3

FBR-2

TOP OF CAUSEWAY
ELEV: 1971

1971

95'

70'

70'

70'

EDGE OF WATER
(TYP)

FRENCH BROAD RIVER

TOE OF 1.5:1
CAUSEWAY SLOPE

MSD EASEMENT

PLAN VIEW
NTS

Approximate Duration of Causeway Phase = 3 Months

ISSUE	REVISIONS		
	-	-	-

SCALE	NTS
DRAWN	WCJ
CHECKED	JTH
DATE	
OWNER	NCDOT
GEN.CONTR.	ARCHER-WRIGHT JV

CAUSEWAY - P7

ARCHER-WRIGHT JV
554 RIVERSIDE DRIVE
ASHEVILLE, NC 28801

NC DEPARTMENT OF TRANSPORTATION
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DWG NO: 7 OF 7 REV: 0

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I-2513 B & D Construction Causeway Responses

October 8, 2025
I-2513 B&D Temporary Causeways: Responses to Agencies' Questions.

This summary provides responses received from the regulatory and resource agencies related to the temporary causeway needed to install the work trestles to construct the new bridges over the French Broad River. Questions received were grouped by topic, however individual responses are provided in line with the original question.

General Questions

1. *What are the compelling reasons why more than 50% of the river flow needs to be restricted?*
   Archer Wright Joint Venture (AWJV) has evaluated river access options and made several considerations for mitigating impacts to the French Broad River. The topography for river access is the first restriction. Elevation from the west side of the French Broad is approximately 30' to 40' above normal water with slopes 1.5:1 or steeper, primarily of rock and railroad ballast. Additionally, equipment access on the west side of the French Broad River from south of the project is restricted by the active railroad track and existing railroad bridge along Emma Road. Low and wide clearance under the railroad bridge is a physical barrier to providing the necessary construction equipment from the west side of the river. North of the project location there is no viable public access to traverse the river along the west bank.

2. *Why can't the restriction of more than 50% of the river flow be avoided?*
   Limited to east side construction access, our team has elected to utilize a rock causeway that will restrict the river flow temporarily in order to install an elevated trestle. The French Broad River in the area of the project has shallow rock. The elevated trestle requires pilings to be drilled into the rock. The equipment required to drill in rock requires a solid foundation, which has been determined to be the rock causeway. The AWJV team will place causeway material to the minimum lateral dimension necessary to safely install the elevated trestle foundation at the extreme west of the trestle alignment. Upon pile installation, causeway materials will be removed east to the next pile location. This sequence will continue until all trestle foundations are installed. The French Broad River depth does not provide sufficient clearance for use of floating barges or other temporary platform for this installation. This methodology ensures that equipment can safely ingress and egress from the river in case of a flood event; provides a safe platform for construction operations; and limits the duration of maximum river flow blockage.

3. *Can you provide information to agencies demonstrating that restricting more than 50% of the river flow at any one time will not cause adverse effects to the river, aquatic life, or recreation?*
   Impacts to aquatic life will be temporary. The rip rap will be removed and footprints will be restored to preconstruction elevations.

Water surface elevations and velocities for each phase of the causeway have been added to the causeway exhibits for the baseflow and 10-year storm discharges. Additionally, the unobstructed flow and velocities have been shown on the exhibits for comparison purposes. The duration for each phase has also been noted on the exhibits to indicate the limited time impact of the phase.

4. *How do you respond to Dave McHenry's comment/question in the chat regarding elevations upstream and downstream of the causeway?*
   We were unable to access Dave's question from the 4C Meeting. Depending on what he asked, we may be able to provide elevation information related to the causeway.

5. *Why is this causeway configuration the only viable option for constructing the trestle bridge?*
   It is anticipated that each trestle bent pile installation is scheduled to be completed within a 5 day period, including the removal of causeway materials. Each trestle span is 40'. Within a 15 day work period the causeway blockage would result in greater than 50% flow. Beyond this timeframe, phasing for causeways and temporary work platforms will provide at least 50% flow for the duration of work for all river sections in the work zone.

6. *What time of year is planned for causeway construction, and could this coincide with the summer rainy season?*
   The schedule has not been finalized and AWJV is evaluating performing the work in late April of 2026, however this is subject to change. We understand the time of year concerns and will make every effort to begin causeway work prior to the start of the rainy season and river user's annual season however we cannot commit to doing so.

7. *How will river user safety be handled during construction?*
   This is detailed in the I-2513 Draft 2025 Strategic Communications Plan.

8. *Can you provide any supporting figures and/or reports that depict these topics?*
   Water surface elevations and velocities for each phase of the causeway has been added to the causeway exhibits for the baseflow and 10-year storm discharges. Additionally, the unobstructed flow and velocities have been shown on the exhibits for comparison purposes. The duration for each phase has also been noted on the exhibits to indicate the limited time impact of the phase.

Construction Plans and Coordination

9. *Has NCDOT provided the bridge construction and demolition (C&D) plan, river users plan, and communication plan?*
   The I-2513 Draft 2025 Strategic Communications Plan, which updates and combines the bridge construction and demolition (C&D) plan and river users plan, is currently being reviewed by the USACE.

10. *Will the causeway phasing be shown in the bridge C&D plan and will a narrative be included explaining the expected duration of each phase?*
    The draft causeway phasing plans will be replaced with the updated phasing plans included with this summary. The expected duration has been added to each phase's plansheet.

11. *How will this information be coordinated with FWS and COE for review of the causeway issue?*
    This document along with the update causeway plans are being provided to the agencies.

Hydraulic and Environmental Impacts

12. *What are the anticipated hydraulic conditions (e.g., increased water surface levels and velocity) during high flow events when more than 50% of the river is blocked?*
    Water surface elevations and velocities for each phase of the causeway have been added to the causeway exhibits for the baseflow and 10-year storm discharges. Additionally, the unobstructed flow and velocities have been shown on the exhibits for comparison purposes. The duration for each phase has also been noted on the exhibits to indicate the limited time impact of the phase.

13. *What level of rainfall or high flow event would result in overtopping of the causeway?*
    Baseflow is estimated to be approximately 4,150 cfs. The causeway overtops with a discharge of 4,785 cfs during the most constrictive causeway phase. All causeway phases overtop during the 10-year storm as noted on the exhibits.

14. *Is scour expected from high flow events?*
    The causeway is overtopped in relatively low storm events (less than 10-year). It is not anticipated that the causeway will contribute additional scour issues than what the river would experience on its own. Additionally, there was minimal scour during Hurricane Helene with record discharges due to the elevation of the rock in the river so we do not anticipate scour occurring due to the increased velocities while the causeway is in place.

15. *How will successive percentages of river flow blockage (e.g., 86% NWS blockage and subsequent phases) be phased and managed as work progresses?*
    AWJV will utilize survey equipment to verify that the dimensions of the causeway maintain the required 50% river flow and that the causeway is constructed in accordance with the details provided in the drawings provided. Additionally, supplemental drawings have been provided to illustrate the subsequent phases of causeway construction during the temporary blockage period, when more than 50% of the river flow will be obstructed.

Causeway Phase-Specific Questions

16. For **Causeway Phase 1A** (PDF pages 35–36, Permit Drawing Sheets 30–31), which shows 14.1% of river flow open:

- *Is this a "short duration" restriction?*
  Additional plansheets are included with this report showing subphases for Phase 1 for the construction of the trestle bridge. The 14.1% river flow is associated with Phase 1B which will only be in place for approximately 1 week.

- Will it be coordinated further with FWS and COE?
  We are providing responses to the USFWS, USACE, NCDWR, and NCWRC via this document.

- How long is this phase expected to remain in place?
  There will be a total of 3 weeks of temporary river flow restricted to greater than 50%.
  - Phase 1B – 1 Week (14.1%)
  - Phase 1C – 1 Week (28.3 %)
  - Phase 1D – 1 Week (42.5 %)

- *What are the anticipated hydraulic conditions during this phase?*
  Water surface elevations and velocities for each phase of the causeway has been added to the causeway exhibits for the baseflow and 10-year storm discharges. Additionally, the unobstructed flow and velocities have been shown on the exhibits for comparison purposes. The duration for each phase has also been noted on the exhibits to indicate the limited time impact of the phase.

- *How might lateral scour on the west bank be addressed, if it occurs?*
  Our intent is to avoid lateral scour on the west bank. We are investigating the existing condition of the west bank to determine its current stability. We are also developing a plan to reduce the potential for impacts.

17. For **Causeway Phase 4** (PDF pages 43–44, Permit Sheets 38–39), which shows 51.2% of river flow open:
    Given this is just over the 50% limit, how will precision in actual construction ensure compliance with not exceeding that threshold?
    AWJV will utilize survey equipment to verify that the dimensions of the causeway maintain the required 50% flow and that the structure is constructed in accordance as detailed in the drawings provided.

Stream and Channel Design Details

18. *In **Phase 1A**, what are the anticipated hydraulic conditions, especially regarding velocity increases and water drops? How might these affect river users and boaters?*
    Phase 1 has been divided into subphases as mentioned in previous sections. Changes in water surface levels and velocities are documented on the causeway plansheets. While river velocities increase during the causeway phase, they are not excessive. However, using methods discussed in the 2025 Strategic Communication Plan, in addition to the overall information about the work associated with the project-specifically the new bridges over the French Broad River, additional notifications of the restricted opening will be provided and river users will be encouraged to avoid this part the river while phases 1B, 1C, and 1D are in place.

19. *For **Detail Y** (flat stream between sites 7 and 8), why is there no lining, and could coir be added even though the channel is almost flat?*
    Coir fiber matting can be added to that channel.

20. *In **AE and AF channel change details** (e.g., Sheet 14 Y36, sites 11 and 24), why is there complete armoring with geotextile underlayment, especially on stream beds?*
    No rock is proposed in the stream bed, just along the stream banks.

21. *Could the geotextile underlayment be removed from stream beds to improve rock embedment during construction?*
    Geotextile can be removed where rock is proposed in stream beds for better embedment.