STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

October 4, 2022

Jeffrey R. Duncan, PhD
National Park Service-Southeast Region
Fisheries and Aquatic Resources
535 Chestnut St. Suite 207
Chattanooga, TN 37402
via email: Jeff_Duncan@nps.gov

Christine Farrell
North Carolina Division of Parks & Recreation
109 E. Jones St.
Raleigh, NC 27601
via email: christine.farrell@ncparks.gov

Reference: Replacement of Robeson County Bridge No. 125 on NC 41/72, and Bridge No. 175 on SR 1600 (West 5th Street) over the Lumber River, as part of NCDOT STIP Project No. B-5985 Federal Aid Project No. FA# 0041115

Dr. Duncan/Ms. Farrell:

The North Carolina Department of Transportation (NCDOT), with the Federal Highway Administration (FHWA) as lead agency, proposes to replace Bridge No.'s 125 and 175 in Robeson County, NC. NCDOT Bridge Management Unit records indicate both bridges are structurally deficient. Bridge No. 125 is considered structurally deficient due to a rating of 4 out of 9 for substructure and deck. Bridge No. 175 is considered structurally deficient due to a rating of 4 out of 9 for substructure. Components of both the concrete superstructure and substructure have experienced an increasing degree of deterioration that can no longer be addressed by maintenance activities. Replacement of each bridge will result in safer traffic operations. This project has been approved as a Type II(A) Categorical Exclusion (Attachment A).

Both bridges cross the Lumber River in a section is designated as Wild and Scenic under Section 2(a)(ii) of the national Wild and Scenic Rivers Act and is part of the North Carolina Natural and Scenic River System under the North Carolina Natural and Scenic Rivers Act. This river section is classified as Recreational under both acts.

The replacement structure for Bridge No. 125 will be 295 feet long providing a minimum 40 feet clear deck width. The bridge for Bridge No. 125 will include three 12-foot lanes and 2-foot offsets with a 5-foot 6-inch sidewalk on both sides of the bridge. The bridge length is set by hydraulic requirements. The approach roadway will extend approximately 640 feet from the west end of the new bridge and 245 feet from the east end of the new bridge. The approaches will be widened to include a 36-foot pavement

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL POLICY UNIT
1582 MAIL SERVICE CENTER
RALEIGH, NC 27699-1582

Telephone: 919-707-6253
Fax: 919-250-4224
Customer Service: 1-877-368-4968

Website: ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

width providing three 12-foot lanes. Curb and gutter will be provided on each side with a 10' berm and 5' sidewalk. The roadway will be designed as a Principal Arterial Route with a 40 mile per hour design speed (Attachment B).

The replacement structure for Bridge No. 175 will be a bridge 285 feet long providing a minimum 40 feet clear deck width. The bridge for Bridge No. 175 will include three 12-foot lanes and 2-foot offsets with a 5-foot 6-inch sidewalk on south side of the bridge and 10-foot 6-inch multi use path on the north side of the bridge. The bridge length is is set by hydraulic requirements. The approach roadway will extend 278 feet from the west end of the new bridge and 84 feet from the east end of the new bridge. The approaches will be widened to include a 36-foot pavement width providing three 12-foot lanes. Curb and gutter will be provided on each side with a 15-foot berm on the north side with a 10-foot multi use path and a 10-foot berm with 5-foot sidewalk on the south side. The roadway will be designed as a Major Collector Route with a 40 mile per hour design speed (Attachment B).

In conjunction with coordination efforts for the I-95 Lumber River Bridge replacement approximately 1.6 miles upstream, NCDOT engaged the National Parks Service (NPS) and the North Carolina Division of Parks and Recreation (NCDPR) to coordinate and gain input on proposed Bridges 125 and 175 due to the river's Wild and Scenic classification. Virtual meetings were held in February, March, April, May, and December of 2021. A field meeting was also held in March 2022.

Project Commitments and Benefits

The hydraulic opening of both bridges will be increased by the removal of some existing roadway embankment, ~270 cubic yards at Bridge No. 125 and ~645 cubic yards at Bridge No. 175. Additionally, the number of interior bents will be reduced at both structures (Attachment B).

The current bridge structures both discharge stormwater through deck drains directly into the river and onto floodplain areas. Both proposed structures will take storm water from the bridge deck through appropriate BMPs before discharge into the river. Adjacent roadwork drainage as part of the project will also improve stormwater treatment before it enters the river (Attachment B).

NCDOT will provide painted signage on the upstream and downstream faces of the new bridges labeling the structures so that they can be identified from the river. Upstream and downstream text for Bridge No. 125 – "Lumber River" "NC41/72"; Upstream and downstream text for Bridge No. 175 – "Lumber River" "West 5th Street". Preliminary signage concepts are shown in Attachment C.

During construction, the river will remain open to paddlers to the maximum extent practicable. Signs to warn paddlers will placed upstream and downstream of the work area. Buoys will be placed to guide paddlers safely through the work area (Attachment D). NCDOT reserves the right to close the river to paddle traffic for brief periods (e.g. setting of girders spanning the channel) if needed to prioritize safety.

NCDOT will use native plant species when revegetating the project sites. Typically used species are listed in Attachment E.

Appendix C of Section 7 of the Wild and Scenic Rivers Act outlines the procedure for evaluating projects for their Direct and Adverse Effects. The Registered Landscape Architect sealed survey included here (Attachment F) addresses the questions posed in Appendix C and indicates that the replacement of Robeson County Bridge No.s 125 and 175 will not have any adverse effects on the values for which the Lumber River is designated Wild and Scenic. Reducing the number of bents located in the channel and interior bents in total; increasing

the overall hydraulic opening at both bridges; stabilizing the banks under the bridges; removing remnant piers and existing debris in the channel; and the routing of bridge deck stormwater runoff from both bridges and their adjacent roadway approaches through appropriate structures before discharge onto the floodplain and into the river, contribute to the overall improvement of conditions at the bridge sites enhancing the recreational values of the Lumber River.

The NCDOT believes that the proposed project will not have any adverse effects at either bridge site and therefore this section of the Lumber River's Recreational designation under the Wild and Scenic Rivers Act and the North Carolina Natural and Scenic Rivers Act. We request concurrence of this from the National Parks Service and the NC Department of Parks and Recreation based on the documentation provided.

Please do not hesitate to call (919-707-6139) or email (cmellor@ncdot.gov) me if there are any questions.

Sincerely,

Colin Mellor
Environmental Policy Unit
North Carolina Department of Transportation

Attachments:
A. Categorical Exclusion
B. Design Information – Bridge Survey Reports & Permit Drawing Plans
C. Concept Signage
D. Boater Safety Signage
E. Typical Planting Species
F. Appendix C Evaluation of Direct and Adverse Effects

cc.	Eric Alsmeyer	US Army Corps of Engineers
via email	Brandon Oliver	FHWA
	Hannah Sprinkle	NCDWR

Replacement of Robeson County Bridge No. 125 on NC 41/72,
and Bridge No. 175 on SR 1600 (West 5th Street) over the Lumber River
NCDOT STIP Project No. B-5985
Federal Aid Project No. FA# 0041115

ATTACHMENT A
B-5985 Categorical Exclusion

Type I or II Categorical Exclusion Action Classification Form

STIP Project No.	**B-5985**
WBS Element	**47749.1.1**
Federal Project No.	**0041115**

A. Project Description:

The purpose of this project is to replace Robeson County Bridge No. 770125 on NC 41/72 over Lumber River and Bridge No. 770175 on SR 1600 (West 5th Street) over Lumber River. Bridge No. 770125 is 285 feet long and Bridge No. 770175 is 268 feet long.

The replacement structure for Bridge No. 770125 will be a bridge approximately 295 feet long providing a minimum 40 feet clear deck width. The bridge for Bridge No. 770125 will include three 12-foot lanes and 2-foot offsets with a 5-foot 6-inch sidewalk on both sides of the bridge. The bridge length is based on preliminary design information and is set by hydraulic requirements. The approach roadway will extend approximately 640 feet from the west end of the new bridge and 245 feet from the east end of the new bridge. The approaches will be widened to include a 36-foot pavement width providing three 12-foot lanes. Curb and gutter will be provided on each side with a 10' berm and 5' sidewalk. The roadway will be designed as a Principal Arterial Route with a 40 mile per hour design speed.

The replacement structure for Bridge No. 770175 will be a bridge approximately 285 feet long providing a minimum 40 feet clear deck width. The bridge for Bridge No. 770175 will include three 12-foot lanes and 2-foot offsets with a 5-foot 6-inch sidewalk on south side of the bridge and 10-foot 6-inch multi use path on the north side of the bridge. The bridge length is based on preliminary design information and is set by hydraulic requirements. The approach roadway will extend approximately 278 feet from the west end of the new bridge and 84 feet from the east end of the new bridge. The approaches will be widened to include a 36-foot pavement width providing three 12-foot lanes. Curb and gutter will be provided on each side with a a 15' berm on the north side with a 10' multi use path and a 10' berm with 5' sidewalk on the south side. The roadway will be designed as a Major Collector Route with a 40 mile per hour design speed.

Traffic will be detoured off-site during construction (see Figure 1). The expected construction time is 1.5 years. Bridge No. 770125 will be constructed first, and upon completion, Bridge No. 770175 will begin construction. A section of the detour route along North Waters Street from West 5th Street to NC 41/72 will be milled and resurfaced to improve the detour route.

B. Description of Need and Purpose:

NCDOT Bridge Management Unit records indicate Bridge No. 770125 is considered structurally deficient due to a rating of 4 out of 9 for substructure and deck. Bridge No. 770175 is considered structurally deficient due to a rating of 4 out of 9 for substructure.

Components of both the concrete superstructure and substructure have experienced an increasing degree of deterioration that can no longer be addressed by maintenance activities. Replacement of each bridge will result in safer traffic operations.

C. Categorical Exclusion Action Classification:

Type II(A)

D. Proposed Improvements:

13. Actions described in paragraphs 26, 27, and 28 of Appendix A that do not meet the constraints in 23 CFR 771.117(e)(1-6).

E. Special Project Information:

Estimated Costs:
The estimated costs are as follows:

R/W:	$ 256,000
Util.:	$ 485,000
Const:	$ 10,600,000
Total:	$ 11,341,000

Estimated Traffic:

Bridge No. 770125		Bridge No. 770175	
2022 (Let)	15,200 vpd	2022 (Let)	10,500 vpd
2042 (Design)	17,000 vpd	2042 (Design)	14,200 vpd
TTST	2%	TTST	1%
Dual	4%	Dual	2%

Accidents: Traffic Engineering has evaluated a recent ten-year period for Bridge No. 770125 and found twenty-eight accidents occurring in the vicinity of the project. Most of the accidents are rear end accidents and occur near the intersection of Waters Street and NC 41/72. For Bridge No. 770175 there were thirty- three accidents in the vicinity of the project. Most of the accidents are angle type accidents and occur near the intersection of Waters Street/ SR 1600 (West 5th Street).

Design Exceptions: There are no anticipated design exceptions for this project.

Pedestrian and Bicycle Accommodations:
Neither SR 1600 (West 5th Street) or NC 41/72 are designated as a bicycle route nor are they listed in the STIP as a bicycle project. Temporary pedestrian accommodations will need to be provided in the Transportation Management plan for the project.

There is an existing greenway that parallels the Lumber River to the west. It crosses SR 1600 (West 5th Street) approximately 180' west of existing Bridge No. 770175 and continues south and terminates at NC 41/72 approximately 50' west of Bridge No. 770125. The proposed project will maintain the existing connection to the greenway. In addition, a 10' wide multi use path will be provided on the north side of SR 1600 (West 5th Street). It will tie to the existing greenway/multi use path west of Bridge No. 770175 and will continue across the bridge and will terminate at the SR 1600 (West 5th Street)/Waters Street intersection.

Anticipated Permit or Consultation Requirements:
A Nationwide Permit will likely be required from the U.S. Army Corps of Engineers (USACE) for impacts to "Waters of the United States" resulting from this project. In addition, an NCDWR Section 401 Water Quality General Certification (GC) may be required. The USACE holds the final discretion as to what permit will be required to authorize project construction.

Public Involvement:
A newsletter was sent on 10/20/21 to all property owners affected directly by this project. Property owners were invited to comment. No comments have been received to date.

Recreational Access:
In a response to a start of study letter the N. C. Division of Parks and Recreation requested that "any work done not obstruct recreational users to the river, specifically as a paddle trail". A commitment has been added to the Project Commitments sheet.

F. Project Impact Criteria Checklists:

F2. Ground Disturbing Actions – Type I (Appendix A) & Type II (Appendix B)

Proposed improvement(s) that fit Type I Actions (NCDOT-FHWA CE Programmatic Agreement, Appendix A) including 2, 3, 6, 7, 9, 12, 18, 21, 22 (ground disturbing), 23, 24, 25, 26, 27, 28, &/or 30; &/or Type II Actions (NCDOT-FHWA CE Programmatic Agreement, Appendix B) answer the project impact threshold questions (below) and questions 8 – 31.

- *If any question 1-7 is checked "Yes" then NCDOT certification for FHWA approval is required.*
- *If any question 8-31 is checked "Yes" then additional information will be required for those questions in Section G.*

PROJECT IMPACT THRESHOLDS (FHWA signature required if any of the questions 1-7 are marked "Yes".)		Yes	No
1	Does the project require formal consultation with U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS)?	☐	☑
2	Does the project result in impacts subject to the conditions of the Bald and Golden Eagle Protection Act (BGEPA)?	☐	☑
3	Does the project generate substantial controversy or public opposition, for any reason, following appropriate public involvement?	☐	☑
4	Does the project cause disproportionately high and adverse impacts relative to low-income and/or minority populations?	☐	☑
5	Does the project involve a residential or commercial displacement, or a substantial amount of right of way acquisition?	☐	☑
6	Does the project require an Individual Section 4(f) approval?	☐	☑
7	Does the project include adverse effects that cannot be resolved with a Memorandum of Agreement (MOA) under Section 106 of the National Historic Preservation Act (NHPA) or have an adverse effect on a National Historic Landmark (NHL)?	☐	☑
If any question 8-31 is checked "Yes" then additional information will be required for those questions in Section G.			
Other Considerations		Yes	No
8	Is an Endangered Species Act (ESA) determination unresolved or is the project covered by a Programmatic Agreement under Section 7?	☑	☐
9	Is the project located in anadromous fish spawning waters?	☐	☑

10	Does the project impact waters classified as Outstanding Resource Water (ORW), High Quality Water (HQW), Water Supply Watershed Critical Areas, 303(d) listed impaired water bodies, buffer rules, or Submerged Aquatic Vegetation (SAV)?	☐	☑
11	Does the project impact Waters of the United States in any of the designated mountain trout streams?	☐	☑
12	Does the project require a U.S. Army Corps of Engineers (USACE) Individual Section 404 Permit?	☐	☑
13	Will the project require an easement from a Federal Energy Regulatory Commission (FERC) licensed facility?	☐	☑
Other Considerations for Type I and II Ground Disturbing Actions (continued)		Yes	No
14	Does the project include a Section 106 of the National Historic Preservation Act (NHPA) effects determination other than a No Effect, including archaeological remains?	☑	☐
15	Does the project involve GeoEnvironmental Sites of Concerns such as gas stations, dry cleaners, landfills, etc.?	☑	☐
16	Does the project require work encroaching and adversely affecting a regulatory floodway or work affecting the base floodplain (100-year flood) elevations of a water course or lake, pursuant to Executive Order 11988 and 23 CFR 650 subpart A?	☑	☐
17	Is the project in a Coastal Area Management Act (CAMA) county and substantially affects the coastal zone and/or any Area of Environmental Concern (AEC)?	☐	☑
18	Does the project require a U.S. Coast Guard (USCG) permit?	☐	☑
19	Does the project involve construction activities in, across, or adjacent to a designated Wild and Scenic River present within the project area?	☑	☐
20	Does the project involve Coastal Barrier Resources Act (CBRA) resources?	☐	☑
21	Does the project impact federal lands (e.g. U.S. Forest Service (USFS), USFWS, etc.) or Tribal Lands?	☐	☑
22	Does the project involve any changes in access control or the modification or construction of an interchange on an interstate?	☐	☑
23	Does the project have a permanent adverse effect on local traffic patterns or community cohesiveness?	☐	☑
24	Will maintenance of traffic cause substantial disruption?	☐	☑
25	Is the project inconsistent with the STIP, and where applicable, the Metropolitan Planning Organization's (MPO's) Transportation Improvement Program (TIP)?	☐	☑
26	Does the project require the acquisition of lands under the protection of Section 6(f) of the Land and Water Conservation Act, the Federal Aid in Fish Restoration Act, the Federal Aid in Wildlife Restoration Act, Tennessee Valley Authority (TVA), Tribal Lands, or other unique areas or special lands that were acquired in fee or easement with public-use money and have deed restrictions or covenants on the property?	☐	☑
27	Does the project involve Federal Emergency Management Agency (FEMA) buyout properties under the Hazard Mitigation Grant Program (HMGP)?	☐	☑
28	Does the project include a *de minimis* or programmatic Section 4(f)?	☑	☐
29	Is the project considered a Type I under the NCDOT Noise Policy?	☐	☑
30	Is there prime or important farmland soil impacted by this project as defined by the Farmland Protection Policy Act (FPPA)?	☐	☑
31	Are there other issues that arose during the project development process that affected the project decision?	☐	☑

Additional Documentation as Required from Section F (ONLY for questions marked 'Yes'):

Question 8 – Endangered Species:

The US Fish and Wildlife Service has revised the previous programmatic biological opinion (PBO) in conjunction with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), and NCDOT for the northern long-eared bat (NLEB) (*Myotis septentrionalis*) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. Although this programmatic covers Divisions 1-8, NLEBs are currently only known in 22 counties, but may potentially occur in 8 additional counties within Divisions 1-8. NCDOT, FHWA, and USACE have agreed to two conservation measures which will avoid/minimize mortality of NLEBs. These conservation measures only apply to the 30 current known/potential counties shown on Figure 2 of the PBO at this time. The programmatic determination for NLEB for the NCDOT program is **May Affect, Likely to Adversely Affect**. The PBO will ensure compliance with Section 7 of the Endangered Species Act for ten years (effective through December 31, 2030) for all NCDOT projects with a federal nexus in Divisions 1-8, which includes Robeson County, where B-5985 is located.

Question 14 – Section 106:

A Historic Structures Survey Report was conducted of the project study area in October 2019. Based on the findings the Lumberton Water Treatment Plant is eligible for listing in the National Register of Historic Places. This is located in the Northwest corner of the study area for Bridge No. 770175. Additionally, the NCDOT office located west of North Waters Street between NC 41/72 and SR 1600 (West 5th Street) is a contributing resource in the Lumberton Commercial Historic District. The boundary for the Lumberton Commercial Historic District runs primarily along the east side of North Waters Street.

An Effects meeting was held on 11/18/21 with the State Historic Preservation Office (SHPO) and the U. S. Army Corps of Engineers in attendance. It was determined that the project had a finding of No Adverse Effect and all parties were in concurrence. Commitments have been included in the Project Commitments sheet to comply with this No Adverse Effect determination.

Question 15 – Hazardous Materials:

A Geoenvironmental Impact Evaluation was conducted for the proposed project study area. Upon review of the proposed construction plans, significant earthwork/construction activities are anticipated in the vicinity of two site with potential geoenvironmental impact:

- Strick's Tire 7 Auto – 203 West 2nd Street
- Lee's Auto Sales – 126 West 2nd Street

Further investigation is warranted at these sites to determine the potential for encountering impacted soils during construction of the project. Soil and groundwater assessments will be conducted at each of the UST sites prior to right-of-way acquisition. A project special provision will be provided to direct the contractor to properly manage petroleum contaminated soil that is encountered during construction.

Question 16 – Floodplain:

This project is located in a FEMA Detailed Study. The project will be processed as a MOA Type 1, which means a No-Rise in the 100 year Base Flood elevation, through the North Carolina Floodplain Mapping.

Question 19 – Wild and Scenic River:

This section of the Lumber River has been designated by the National Parks Service as a Wild and Scenic River. According to the guidelines from the National Parks Service the project will need to adhere to the following characteristics:

- Protect and/or enhance free flow and water quality.

- Minimize visual contrast with surrounding landscape by repeating visual elements of line, form, color and texture
- Protect and/or enhance native riparian vegetation
- Maintain and/or improve recreational access
- Protect and enhance all other Outstandingly Remarkable Values (ORVs). These include recreation, fish, wildlife, scenery and botany.

The NCDOT Environmental Analysis Unit and/or the Environmental Policy Unit will coordinate with the National Parks Service during the permitting of the project.

Question 28 – *de minimis* 4(f):

The proposed project will require the acquisition of permanent easements and right of way from the Riverwalk Greenway, which is owned by the City of Lumberton. The Riverwalk Greenway is a publicly-owned recreation area and is open to the general public. The Riverwalk Greenway is protected by Section 4(f) of the USDOT Act of 1966, as amended. Section 4(f) provides that use of publicly owned land of a public park or recreation area or land from a historic site may only be approved if there is a determination that there is no prudent and feasible alternative to the use of the land and the project includes all possible planning to minimize harm to the property, or the project will have a *de minimis* impact on the property.

The proposed project will require the acquisition of approximately 0.01 acre of temporary construction easement, 0.07 acre of permanent drainage easement, 0.87 acre of permanent utility easement and 0.86 acre of right of way from the City of Lumberton. Although the project will require the use of land from the City, the proposed project will maintain access to the Riverwalk Greenway for bicycles and pedestrians once construction is completed. In addition, the project will provide a 10’ wide multi-use path along the north side of SR 1600 (West 5th Street) that will connect to the Riverwalk Greenway and provide additional access. Therefore, the proposed project will have a *de minimis* impact on the Riverwalk Greenway.

A letter describing proposed impacts to land owned by the City was sent to the City of Lumberton to confirm FHWA’s de minimis 4(f) finding. The City of Lumberton responded with their concurrence on October 6, 2021.

G. Project Commitments (attach as Green Sheet to CE Form):

NCDOT PROJECT COMMITMENTS

STIP Project No. **B-5985**
Bridge No. 770125 on NC 41/72 over Lumber River
and Bridge No. 770175 on SR 1600 (West 5th Street) over Lumber River
Robeson County
Federal Aid Project No. 0041115
WBS Element 47749.1.1

NCDOT Hydraulic Unit – FEMA Coordination
The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

NCDOT Division Six Construction, Resident Engineer's Office -FEMA
This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

NCDOT Division Six Construction, Resident Engineer's Office – Offsite Detour
In order to have time to adequately reroute school busses, Robeson County Schools will be contacted at (910) 671-3250 at least one month prior to road closure.

Robeson County Emergency Services will be contacted at (910) 671-6000 Ext. 1400 at least one month prior to road closure to make the necessary temporary reassignments to primary response units.

Hazardous Materials (Division Construction Engineer/Resident Engineer and Right of Way Agent):

All Right of Way Branch procedures regarding the acquisition of contaminated property and any Right of Way Acquisition Recommendations by the City of Raleigh's Geotechnical consultant will be followed. A project special provision will be provided to direct the contractor to properly manage petroleum contaminated soil that is encountered during construction.

A Geoenvironmental Impact Evaluation was conducted for the proposed project study area. Upon review of the proposed construction plans, significant earthwork/construction activities are anticipated in the vicinity of two site with potential geoenvironmental impact:

- Strick's Tire 7 Auto – 203 West 2nd Street
- Lee's Auto Sales – 126 West 2nd Street

Further investigation is warranted at these sites to determine the potential for encountering impacted soils during construction of the project. Soil and groundwater assessments will be conducted at each of the UST sites prior to right-of-way acquisition. A project special provision will be provided to direct the contractor to properly manage petroleum contaminated soil that is encountered during construction.

NCDOT Division Six Construction, Resident Engineer's Office – Division of Parks and Recreation
Recreational access to the Lumber River will be maintained during the construction of both bridges.

NCDOT Environmental Analysis Unit, Environmental Policy Unit – Wild and Scenic River
When the type of permit is determined, the Environmental Analysis unit will coordinate with the National Park Service regarding the Lumber River, which is classified as a Wild and Scenic River.

NCDOT Structure Management Unit – Bridge Design
Based on coordination with the State Historic Preservation Office (SHPO) the following elements will be incorporated into the bridge design.

- The proposed bridge rail for both bridges will be Texas Classic.
- The existing lights on Bridge No. 770125 will be replaced in-kind and lights will be added to Bridge No. 770175 to mimic the existing lighting on Bridge No. 770125.

NCDOT Roadway Design/Program Development- Multi-Use Path
The City of Lumberton requests that a Multi-Use Path be added along the north side of SR 1600 (West 5th Street) from the intersection with the Riverwalk Greenway to the intersection with Waters Street. A cost share agreement will be prepared between NCDOT and the City of Lumberton. The City of Lumberton will pay for a portion of cost for the increase in bridge width due to accommodating the Multi-Use Path. A Multi-Use Path will be included in the design along the north side of the bridge and will extend east of the bridge to Waters Street. The City of Lumberton will participate in the cost of and accept maintenance and liability responsibilities for the new Multi-Use Path. A municipal agreement will be prepared prior to project construction regarding the City of Lumberton's participation in the cost of the Multi-Use Path.

Categorical Exclusion Approval:

STIP Project No.	**B-5985**
WBS Element	**47749.1.1**
Federal Project No.	**0041115**

Prepared By:

9/7/2022
Date

DocuSigned by:
Greg S. Purvis
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Greg S. Purvis, PE, Project Manager
Wetherill Engineering

Prepared For: North Carolina Department of Transportation Structures Management Unit

Reviewed By:

9/8/2022
Date

DocuSigned by:
33883EFFD0F44D3...

Collin Mellor, Eastern Region Team Lead – Environmental Policy Unit
North Carolina Department of Transportation

☑ **Approved**

- If NO grey boxes are checked in Section F (pages 2 and 3), NCDOT approves the Type I or Type II Categorical Exclusion.

☐ **Certified**

- If ANY grey boxes are checked in Section F (pages 2 and 3), NCDOT certifies the Type I or Type II Categorical Exclusion for FHWA approval.
- If classified as Type III Categorical Exclusion.

9/7/2022
Date

DocuSigned by:
Kevin Fischer
ED19A18D98EC496...

Kevin Fischer, PE Assistant State Structures Engineer – Program Management and Field Operations, Structures Management Unit
North Carolina Department of Transportation

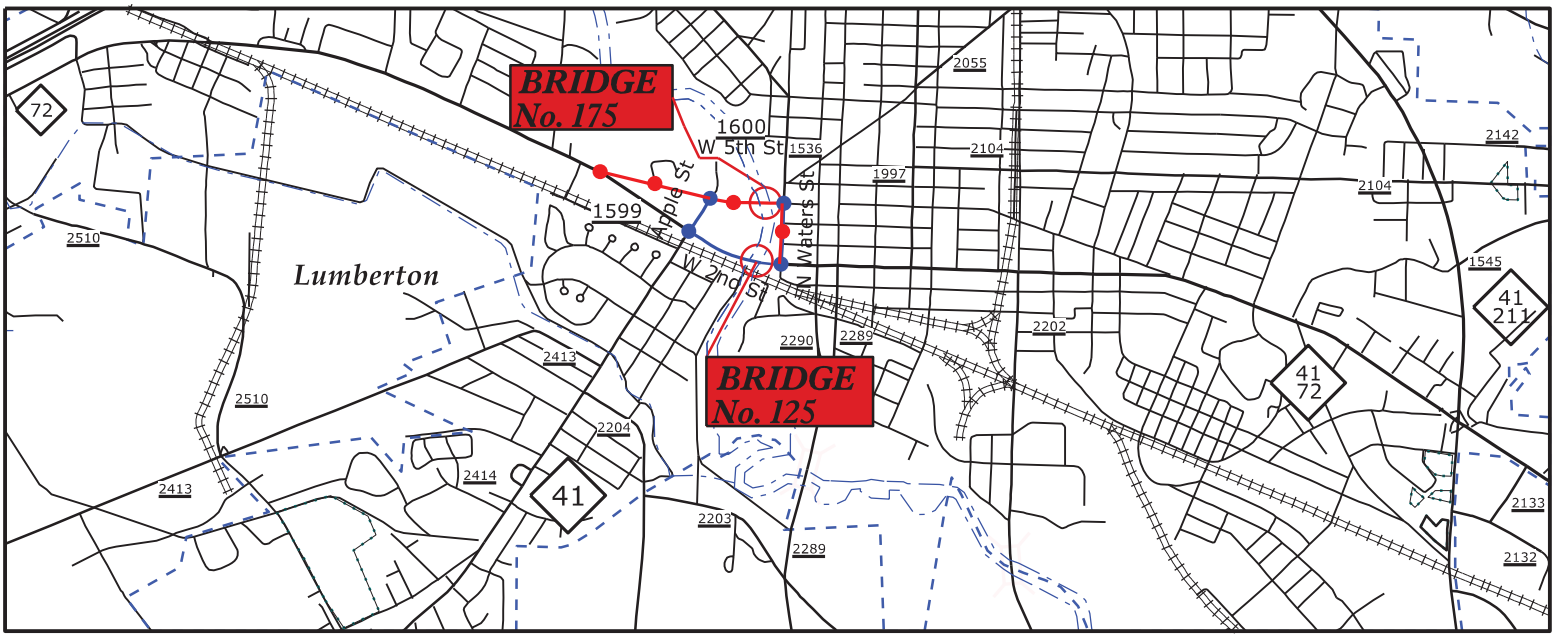
FHWA Approved: For Projects Certified by NCDOT (above), FHWA signature required.

Date

N/A
for John F. Sullivan, III, PE, Division Administrator
Federal Highway Administration

Note: Prior to ROW or Construction authorization, a consultation may be required (please see Section VII of the NCDOT-FHWA CE Programmatic Agreement for more details).

A.



BRIDGE NO. 175 OFF–SITE DETOUR

BRIDGE NO. 125 OFF–SITE DETOUR

B–5985

REPLACE BRIDGE NO. 770125
OVER LUMBER RIVER ON NC 41/NC 72
&
REPLACE BRIDGE NO. 770175
OVER LUMBER RIVER ON SR 1600

ROBESON COUNTY

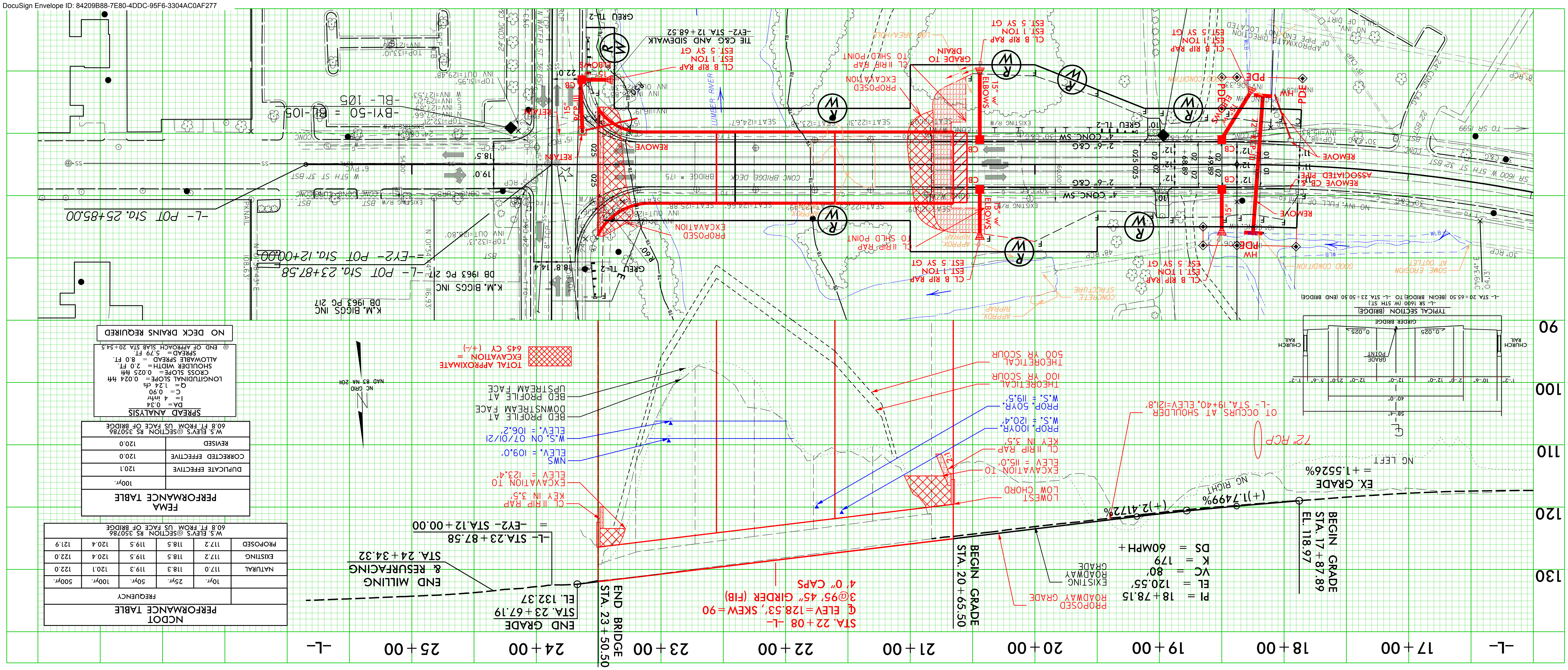
WBS NO. 47749.1.1

NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION 6

VICINITY MAP

Replacement of Robeson County Bridge No. 125 on NC 41/72,
and Bridge No. 175 on SR 1600 (West 5th Street) over the Lumber River
NCDOT STIP Project No. B-5985
Federal Aid Project No. FA# 0041115

ATTACHMENT B
Design Information - Bridge Survey Reports & Permit Drawing Plans



INFORMATION TO BE SHOWN ON PLANS

WS EL. Taken @ River Station 350786

Design: Discharge 13,700 c.f.s. Frequency 50 yr. Elev. 119.5 ft.

Base Flood: Discharge 15,900 c.f.s. Frequency 100 yr. Elev. 120.4 ft.

Overtopping: Discharge 21,100+ c.f.s. Frequency 500+ yr. Elev. 121.8* ft.

*OT OCCURS AT SHOULDER –L– STA. 19+40 ± ELEV=121.8'

ADDITIONAL INFORMATION AND COMPUTATIONS

HYDROLOGY:

USGS REPORT 2009–5158 ** DA=714 SQ. MI., REGION 3 (45.3%), REGION 4 (54.7%)	FEMA MODEL DISCHARGES:*
Q10= 8,850 cfs	D.A.=725.6 SQ. MI.
Q25= 11,500 cfs	Q10= 8,150 cfs
Q50= 13,700 cfs	Q25= 10,700 cfs
Q100= 15,900 cfs	Q50= 12,800 cfs
Q500= 21,100 cfs	Q100= 14,900 cfs
	Q500= 20,200 cfs

* NOTE: FEMA DISCHARGES USED FOR COMPLIANCE
** NOTE: USGS DISCHARGES USED FOR DESIGN
GAGE 02134170 COULD NOT BE USED WITH THE GAGED LOCATION WEIGHTED METHODOLOGY OR UNGAGED NEAR GAGED LOCATION METHODOLOGY SINCE THE GAGE IS NOT PART OF THE SIR 2009–5158 METHODOLOGY.

SCOUR HEC–18, REV. 2012; computations by hand using HEC–RAS ver. 4.1.0 values

CONTRACTION SCOUR (100 YR)

(Live Bed Equations Used):

$Y_2 = Y_1\left[\left(\frac{Q_2}{Q_1}\right)^{6/7}\left(\frac{w_1}{w_2}\right)^{K_1}\right]$ & $Y_s = Y_2 - Y_0$

Y_1 = 18.2' K_1 = 0.69

Q_1 = 12284 cfs Q_2 = 13335 cfs

w_1 = 119.2' w_2 = 139.2'

Y_0 = 11.6' Y_s = 6.0' CHANNEL

CONTRACTION SCOUR (500 YR)

(Live Bed Equations Used):

$Y_2 = Y_1\left[\left(\frac{Q_2}{Q_1}\right)^{6/7}\left(\frac{w_1}{w_2}\right)^{K_1}\right]$ & $Y_s = Y_2 - Y_0$

Y_1 = 19.8' K_1 = 0.69

Q_1 = 16026 cfs Q_2 = 18273 cfs

w_1 = 119.2' w_2 = 139.2'

Y_0 = 12.6' Y_s = 7.4' CHANNEL

LOCAL SCOUR (100 YR)

$Ys_{Pier} = Y_1 [(2.0)(K_1)(K_2)(K_3)(a/Y_1)^{0.65}(Fr_1)^{0.43}]$

$Ys_{Pier} = 18.7 [(2.0)(1.0)(1.0)(1.1)(3.5/18.7)^{0.65}(0.23)^{0.43}] =$ 7.4'

LOCAL SCOUR (500 YR)

$Ys_{Pier} = Y_1 [(2.0)(K_1)(K_2)(K_3)(a/Y_1)^{0.65}(Fr_1)^{0.43}]$

$Ys_{Pier} = 20.0 [(2.0)(1.0)(1.0)(1.1)(3.5/20.0)^{0.65}(0.27)^{0.43}] =$ 8.1'

SITE DATA

Drainage Area 714 SQ. MI. Source USGS QUAD: SOUTHWEST LUMBERTON/STREAMSTATS

River Basin LUMBER Character RESIDENTIAL, WOODED

Stream Classification (Such as Trout, High Quality Water, etc.) CL C; SW; NC NATURAL & SCENIC RIVERS

Data on Existing Structure 1@47.25', 3@47.5', 1@47.75', 1@30.25' RC DECK ON I–BEAMS

E.BTS & INT.BTS: RC CAP/PPC PILES Total Waterway Opening 3951 s.f.

Waterway Opening Below 100yr. WS EL. 2952 s.f.

Debris Potential: Low ..... Moderate X High .....

Data on Structures Up and Down Stream

UPSTREAM: BR #770146 (OAL=380') ON I–95

DOWNSTREAM: BR #770125 (OAL=285') ON NC–41/NC–72

Design Control Elev. MAINTAIN OR IMPROVE EXISTING L.O.S

Gage Station No. 02134170 Period of Records 2000–2021 yrs.

Max. Discharge 17,100 c.f.s. Date SEP. 2018 HURRICANE FLORENCE Frequency 100 YR +

Historical Flood Information:

Date SEP. 2018 Elev. NO OT 119.7' ft. Est. Freq. 100+ yr. Source 02134170 GAGE PEAK STREAMFLOW Period of Knowledge 21 yrs.

Date NO OVERTOPPING Elev. ft. Est. Freq. 100+ yr. Source BRANDON LOVE FLOODPLAIN ADMINISTRATOR Period of Knowledge 20 yrs.

Date ..... Elev. ..... ft. Est. Freq. ..... yr. Source ..... Period of Knowledge ..... yrs.

Historical Scour Info. : General — ft. Contraction — ft. Local — ft.

Channel Slope 0.003 ft/ft Source USGS QUAD Normal Water Surface Elev. 109.0 ft.

Manning's n: Left O.B. 0.032–0.15 Channel 0.035–0.065 Right O.B. 0.032–0.15 Source FIELD OBSERVATION/FIS

Flood Study /Status DETAILED STUDY DATE 12/6/2019 FIRM PANEL #9391 DATE 12/6/2019 Floodway Established? YES

Flood Study 100yr. Discharge 14900 c.f.s. WS Elev.: With Floodway 120.4 ft. Without Floodway 120.1 ft.
@ River Station 350786

DESIGN DATA

Hydrological Method USGS REPORT SIR 2009–5158

Hydraulic Design Method HEC–RAS VER. 4.1.0 PROJ. TITLE: B–5985_LUMBER_RIVER_SR1600_NC41_NC72.PRJ

Floods Evaluated: @ River Station 350786

Freq. (yr.)	Q (c.f.s)	Elev. (ft.)	Backwater (ft.)	Bridge Opening Velocity (f.p.s.)
10	8,850	117.2	0.2	3.9
25	11,500	118.5	0.2	4.4
(DESIGN) 50	13,700	119.5	0.2	4.8
100	15,900	120.4	0.3	5.2
500	21,100	121.9	0.1	6.3

Waterway Opening Provided Below:Design W.S. Elev. 2857 s.f.,100yr W.S. Elev. 3073 s.f.,Total 3785 s.f.,

Average Channel Velocity (Design) 5.2 f.p.s. Average Overbank Velocity (Design) 1.0 f.p.s.

Computed Scour : General — ft. Contraction 100 YR – 6.0 500 YR – 7.4 ft. Local 100 YR – 7.4 500 YR – 8.1 ft.

Is a Floodway Revision Required? MOA TYPE 1 (0.1' MAX DECREASE AT HEC–RAS SECTION 354165)

Stream LUMBER RIVER Struc. Inv. No. 0175 I.D. No. B–5985 Project No. 47749.1.1 PDF File 770175_2021_B–5985_LUMBER_RIVER_SR_1600_NC_41_NC_72.PDF

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT

N. C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

DS TP

I.D. No. B–5985 Project No. 47749.1.1 Proj. Station 22+08 –L–

County ROBESON Bridge Over LUMBER RIVER Bridge Inv. No. 0175

On Highway SR 1600 (W 5TH ST) Between APPLE ST (SR 1599) and N WATER ST (SR 1536)

Recommended Structure 3@95' 45" GIRDER (FIB)
4'–0" DEEP CAP

Recommended Width of Roadway 40'–0" CLEAR BRIDGE WIDTH, 58'–4" OUT–TO–OUT Skew 90°

Recommended Location is (~~Up~~, At, ~~Down~~) Stream from Existing Crossing. AT

Latitude 34.62020 Longitude –79.01065

Statewide Tier ☐ Regional Tier ☒ Sub–Regional Tier ☐

Bench Mark is BM–1 (RR SPIKE IN BASE OF 20" OAK) 32.81' RT OF –L– STA 15+44.48

Northing 316724 Easting 1996085 Elev. 118.49 ft. Datum: NAVD 88

Temporary Crossing OFF–SITE DETOUR

Designed by: HARMINDER SINGH, PE
WETHERILL ENGINEERING

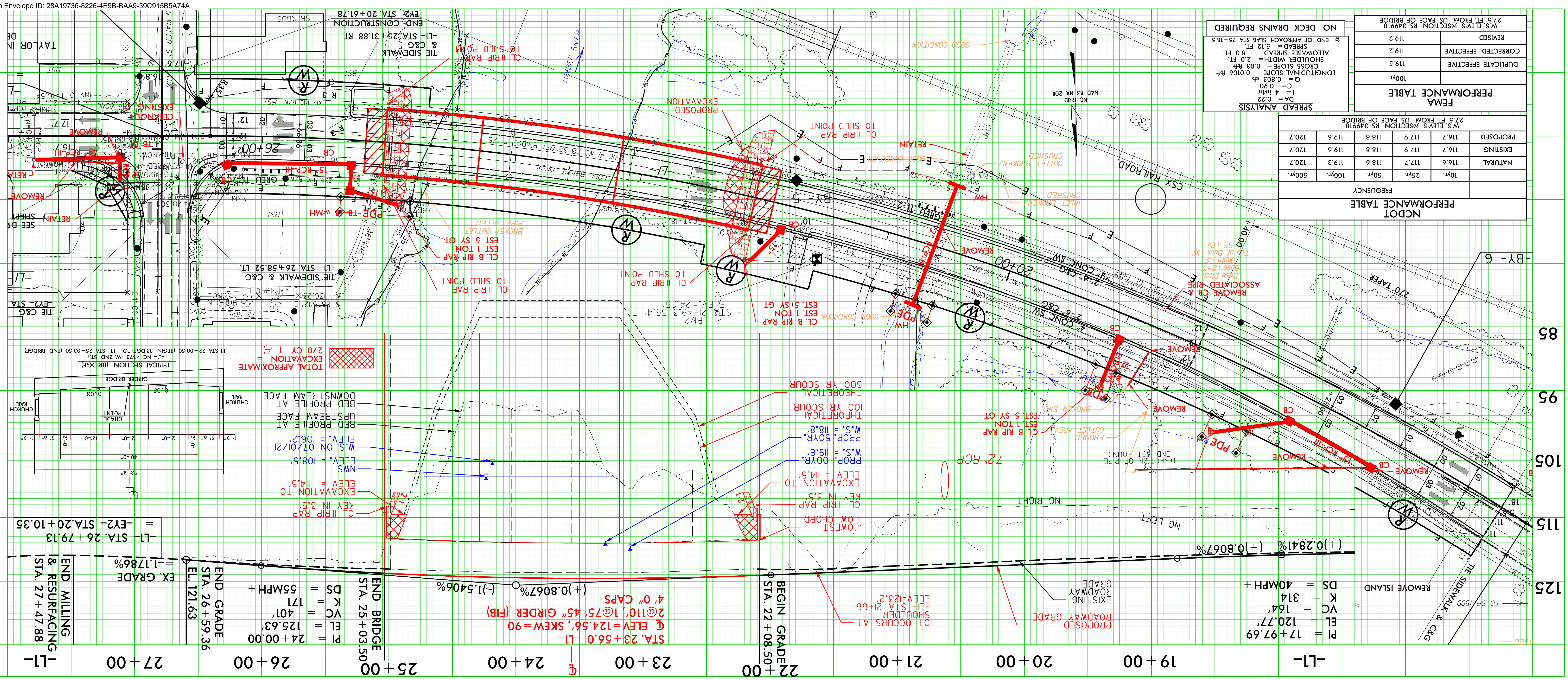
Assisted by: FORREST BROOKS, EI

Project Engineer : KEVIN ALFORD, PE

Reviewed by: DocuSigned by: Frank Fleming ABD4787727EC464...

Date 9/14/2021

NORTH CAROLINA PROFESSIONAL SEAL 044561 ENGINEER HARMINDER SINGH
DocuSigned by: Harminder Singh



NCDOT PERFORMANCE TABLE

	FREQUENCY				
	10yr.	25yr.	50yr.	100yr.	500yr.
NATURAL	116.6	117.7	118.6	119.3	120.7
EXISTING	116.7	117.9	118.8	119.6	120.7
PROPOSED	116.7	117.9	118.8	119.6	120.7

W.S. ELEV'S @SECTION RS 349918 27.5 FT. FROM US FACE OF BRIDGE

FEMA PERFORMANCE TABLE

	100yr.
DUPLICATE EFFECTIVE	119.5
CORRECTED EFFECTIVE	119.2
REVISED	119.2

W.S. ELEV'S @SECTION RS 349918 27.5 FT. FROM US FACE OF BRIDGE

SPREAD ANALYSIS

DA= 0.22
I= 4 in/hr
C= 0.90
Q= 0.803 cfs
LONGITUDINAL SLOPE= 0.0106 ft/ft
CROSS SLOPE= 0.03 ft/ft
SHOULDER WIDTH= 2.0 FT.
ALLOWABLE SPREAD = 8.0 FT.
SPREAD= 5.12 FT.
@ END OF APPROACH SLAB STA 25+18.5

NO DECK DRAINS REQUIRED

INFORMATION TO BE SHOWN ON PLANS

WS EL. Taken @ River Station 349918

Design: Discharge 13,700 c.f.s. Frequency 50 yr. Elev. 118.8 ft.

Base Flood: Discharge 15,900 c.f.s. Frequency 100 yr. Elev. 119.6 ft.

Overtopping: Discharge 21,100+ c.f.s. Frequency 500+ yr. Elev. 123.2* ft.

*OT OCCURS AT SHOULDER –L1– STA 21+66 ±, ELEV=123.2′

ADDITIONAL INFORMATION AND COMPUTATIONS

HYDROLOGY:

USGS RURAL REGRESSION REPORT 2009–5158 **
DA=714 SQ. MI., REGION 3 (45.3%), REGION 4 (54.7%)

Q10= 8,850 cfs
Q25= 11,500 cfs
Q50= 13,700 cfs
Q100= 15,900 cfs
Q500= 21,100 cfs

FEMA MODEL DISCHARGES:*
D.A.=725.6 SQ. MI.
Q10= 8,150 cfs
Q25= 10,700 cfs
Q50= 12,800 cfs
Q100= 14,900 cfs
Q500= 20,200 cfs

* NOTE: FEMA DISCHARGES USED FOR COMPLIANCE
** NOTE: USGS DISCHARGES USED FOR DESIGN

GAGE 02134170 COULD NOT BE USED WITH THE GAGED LOCATION WEIGHTED METHODOLOGY OR UNGAGED NEAR GAGED LOCATION METHODOLOGY SINCE THE GAGE IS NOT PART OF THE SIR 2009–5158 METHODOLOGY.

SCOUR HEC–18, REV. 2012; computations by hand using HEC–RAS ver. 4.1.0 values

CONTRACTION SCOUR (100 YR)

(Live Bed Equations Used):

$Y_2 = Y_1 \left[\left(\frac{Q_2}{Q_1}\right)^{6/7} \left(\frac{w_1}{w_2}\right)^{K_1} \right]$ & $Y_s = Y_2 - Y_0$

$Y_1 = 18.2'$ $K_1 = 0.69$
$Q_1 = 13133$ cfs $Q_2 = 12668$ cfs
$w_1 = 297.9'$ $w_2 = 291.8'$
$Y_0 = 12.1'$ $Y_s = 5.8'$ CHANNEL

CONTRACTION SCOUR (500 YR)

(Live Bed Equations Used):

$Y_2 = Y_1 \left[\left(\frac{Q_2}{Q_1}\right)^{6/7} \left(\frac{w_1}{w_2}\right)^{K_1} \right]$ & $Y_s = Y_2 - Y_0$

$Y_1 = 19.4'$ $K_1 = 0.69$
$Q_1 = 17101$ cfs $Q_2 = 16791$ cfs
$w_1 = 303.8'$ $w_2 = 291.8'$
$Y_0 = 12.1'$ $Y_s = 7.6'$ CHANNEL

LOCAL SCOUR (100 YR)

$Ys_{Pier} = Y_1 [(2.0)(K_1)(K_2)(K_3)(a/Y_1)^{0.65}(Fr_1)^{0.43}]$

$Ys_{Pier} = 17.0 [(2.0)(1.0)(1.0)(1.1)(3.5/17.0)^{0.65}(0.26)^{0.43}] = 7.5'$

LOCAL SCOUR (500 YR)

$Ys_{Pier} = Y_1 [(2.0)(K_1)(K_2)(K_3)(a/Y_1)^{0.65}(Fr_1)^{0.43}]$

$Ys_{Pier} = 18.1 [(2.0)(1.0)(1.0)(1.1)(3.5/18.1)^{0.65}(0.31)^{0.43}] = 8.3'$

SITE DATA

Drainage Area 714 SQ. MI. Source USGS QUAD: SOUTHWEST LUMBERTON/STREAMSTATS

River Basin LUMBER Character RESIDENTIAL, WOODED

Stream Classification (Such as Trout, High Quality Water, etc.) CL C; SW; NC NATURAL & SCENIC RIVERS

Data on Existing Structure 6@47′6″ RC DECK ON CONC. GIRDERS
E.BTS & INT.BTS: RC CAP/PPC PILES Total Waterway Opening 3431 s.f.
Waterway Opening Below 100yr. WS EL. 3428 s.f.

Debris Potential: Low ...... Moderate X High ......

Data on Structures Up and Down Stream
UPSTREAM: BR #770175 (OAL=267.75′) ON SR 1600
DOWNSTREAM: RAILROAD BRIDGE (OAL=352′)

Design Control Elev. MAINTAIN OR IMPROVE ft EXISTING L.O.S

Gage Station No. 02134170 Period of Records 2000–2021 yrs.

Max. Discharge 17,100 c.f.s. Date SEP. 2018 HURRICANE FLORENCE Frequency 100 YR +

Historical Flood Information:

Date SEP. 2018 Elev. 119.7′ NO OT ft. Est. Freq. 100+ yr. Source 02134170 GAGE PEAK STREAMFLOW Period of Knowledge 21 yrs.

Date NO OVERTOPPING Elev. ft. Est. Freq. 100+ yr. Source BRANDON LOVE FLOODPLAIN ADMINISTRATOR Period of Knowledge 20 yrs.

Date ...... Elev. ...... ft. Est. Freq. ...... yr. Source ...... Period of Knowledge ...... yrs.

Historical Scour Info. : General — ft. Contraction — ft. Local — ft.

Channel Slope 0.003 ft/ft Source USGS QUAD Normal Water Surface Elev. 108.5 ft.

Manning's n: Left O.B. 0.032–0.15 Channel 0.035–0.065 Right O.B. 0.032–0.15 Source FIELD OBSERVATION/FIS

Flood Study /Status DETAILED STUDY DATE 12/6/2019 FIRM PANEL #9391 DATE 12/6/2019 Floodway Established? YES

Flood Study 100yr. Discharge 14900 c.f.s. WS Elev.: With Floodway 119.8 ft. Without Floodway 119.5 ft.
@ River Station 349918

DESIGN DATA

Hydrological Method USGS RURAL REGRESSION REPORT SIR 2009–5158

Hydraulic Design Method HEC–RAS VER. 4.1.0 PROJ. TITLE: B–5985_LUMBER_RIVER_SR1600_NC41_NC72.PRJ

Floods Evaluated: @ River Station 349918

Freq. (yr.)	Q (c.f.s)	Elev. (ft.)	Backwater (ft.)	Bridge Opening Velocity (f.p.s.)
10	8,850	116.7	0.1	2.9
25	11,500	117.9	0.2	3.4
(DESIGN) 50	13,700	118.8	0.2	3.9
100	15,900	119.6	0.3	4.5
500	21,100	120.7	0.0	6.0

Waterway Opening Provided Below:Design W.S. Elev. 3525 s.f., 100yr W.S. Elev. 3525 s.f., Total 3525 s.f.,

Average Channel Velocity (Design) 5.5 f.p.s. Average Overbank Velocity (Design) 0.8 f.p.s.

Computed Scour : General — ft. Contraction 100 YR – 5.8 500 YR – 7.6 ft. Local 100 YR – 7.5 500 YR – 8.3 ft.

Is a Floodway Revision Required? MOA TYPE 1 (0.1′ MAX DECREASE AT HEC–RAS SECTION 354165)

Stream LUMBER RIVER Struc. Inv. No. 0125 I.D. No. B–5985 Project No. 47749.1.1 PDF File 770125 2021 B–5985 LUMBER RIVER SR 1600 NC 41 NC72.PDF

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT

N. C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

RALEIGH, N. C.

DS TP

I.D. No. B–5985 Project No. 47749.1.1 Proj. Station 23+56 –L1–

County ROBESON Bridge Over LUMBER RIVER Bridge Inv. No. 0125

On Highway NC 41 /NC 72 Between APPLE ST (SR 1599) and N WATER ST (SR 1536)

Recommended Structure 2@110′, 1@75′ 45″ GIRDER (FIB)
4′–0″ DEEP CAP

Recommended Width of Roadway 40′–0″ CLEAR BRIDGE WIDTH, 53′–4″ OUT–TO–OUT Skew 90°

Recommended Location is (~~Up~~, At, ~~Down~~) Stream from Existing Crossing. AT

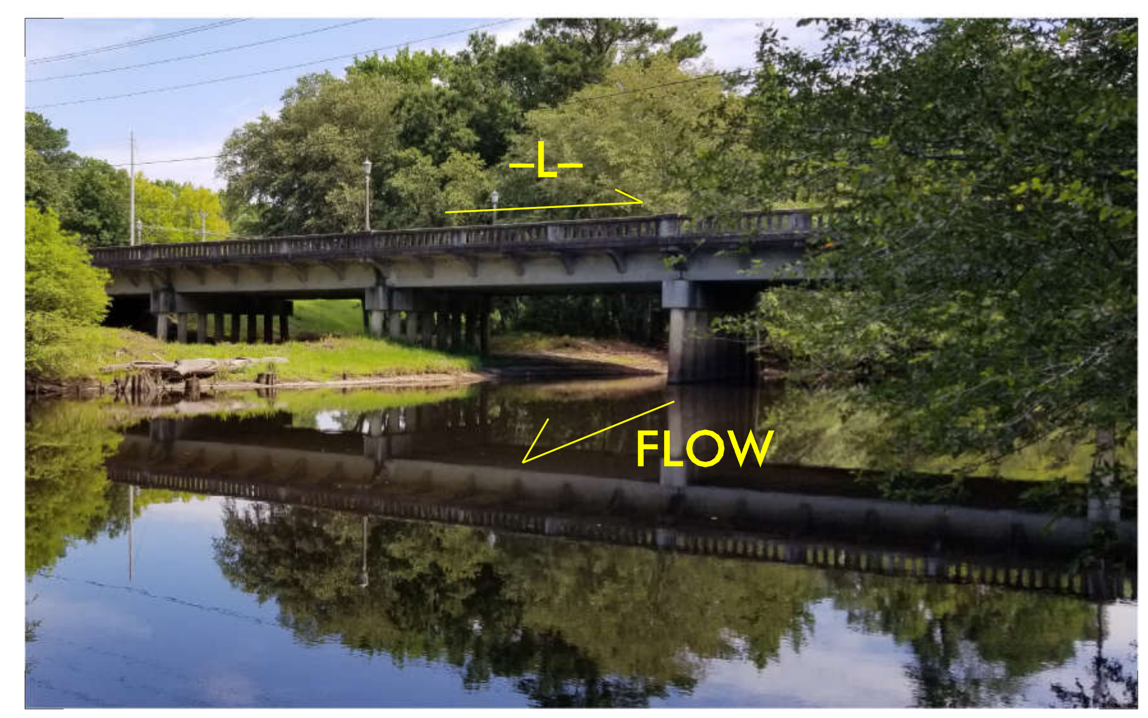
Latitude 34.61803 Longitude –79.01127

Statewide Tier ☐ Regional Tier ☒ Sub–Regional Tier ☐

Bench Mark is BM–2 (RR SPIKE IN BASE OF 10″ PEAR) 35.43′ LT OF –L1– STA 21+49.34

Northing 316000 Easting 1996394 Elev. 124.25 ft. Datum: NAVD 88

Temporary Crossing OFF–SITE DETOUR



WETHERILL ENGINEERING

Designed by: HARMINDER SINGH, PE

Assisted by: FORREST BROOKS, EI

Project Engineer : KEVIN ALFORD, PE

Reviewed by: DocuSigned by: Frank Fleming

Date 9/14/2021

NORTH CAROLINA PROFESSIONAL SEAL 044561 ENGINEER HARMINDER SINGH
DocuSigned by: Harminder Singh

09/08/99

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

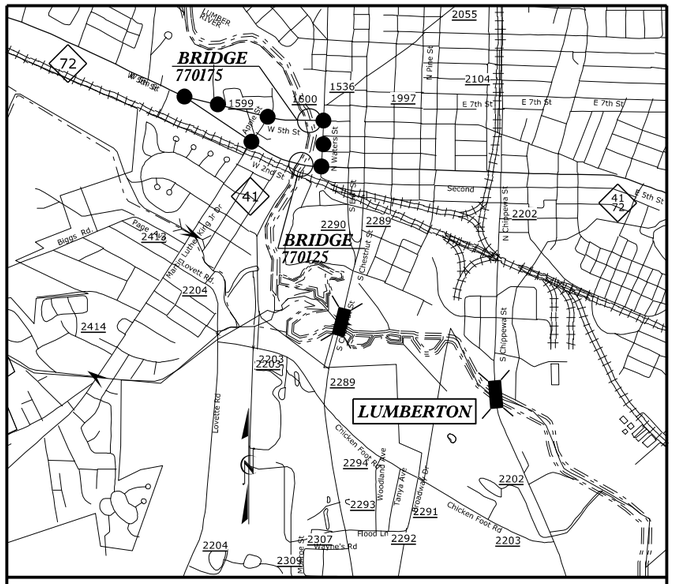
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROBESON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–5985	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
47749.1.1	0041115	PE
47749.2.1	0041115	ROW
47749.2.2	0041115	UTILITY

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F–0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN – BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN – GIS/GPS – CONSTRUCTION OBSERVATION

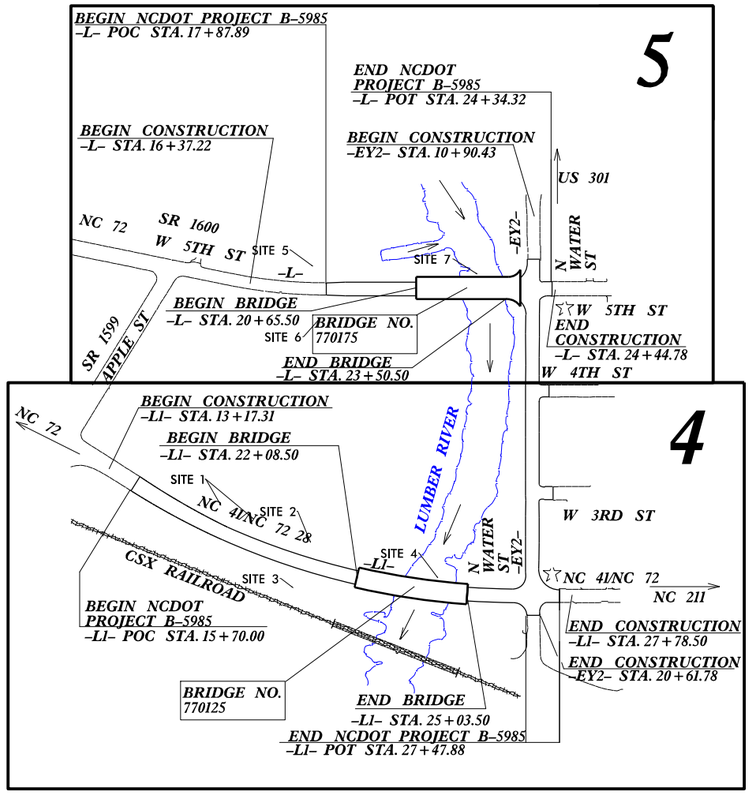


OFF–SITE DETOUR

LOCATION: BRIDGE NO. 770125 OVER LUMBER RIVER ON NC 41/72
& BRIDGE NO. 770175 OVER LUMBER RIVER ON SR 1600

TYPE OF WORK: GRADING, DRAINAGE, SIGNALS, PAVING & STRUCTURES

WETLAND AND SURFACE WATER IMPACTS PERMIT



NAD 83/NA 2011

☆☆ – *EXISTING SIGNAL*

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF LUMBERTON.

BRIDGE #770125
& BRIDGE # 770175

ROW PLANS

PERMIT DRAWING
SHEET 1 OF 11

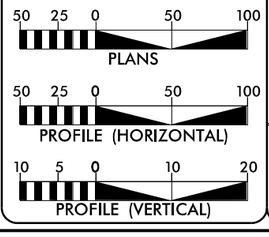
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

PROJECT: B–5985

GRAPHIC SCALES



DESIGN DATA

BRIDGE # 770125	BRIDGE # 770175
ADT 2022 = 15,200	ADT 2022 = 10,500
ADT 2042 = 17,000	ADT 2042 = 14,200
K = 9 %	K = 11 %
D = 55 %	D = 55 %
T = 6 % *	T = 3 % *
V = 40 MPH	V = 40 MPH
* (TTST = 2% + DUAL = 4%)	* (TTST = 1% + DUAL = 2%)
FUNC CLASS = PRINCIPAL ARTERIAL	FUNC CLASS = MAJOR COLLECTOR
REGIONAL TIER	SUB–REGIONAL TIER

PROJECT LENGTH

BRIDGE # 770125
LENGTH ROADWAY PROJECT B–5985 = 0.167 MILES
LENGTH STRUCTURE PROJECT B–5985 = 0.056 MILES
TOTAL LENGTH PROJECT B–5985 = 0.206 MILES

BRIDGE # 770175
LENGTH ROADWAY PROJECT B–5985 = 0.068 MILES
LENGTH STRUCTURE PROJECT B–5985 = 0.054 MILES
TOTAL LENGTH PROJECT B–5985 = 0.122 MILES

NCDOT CONTACT: DAVID STUTTS, PE
PROJECT ENGINEER – PEPROGRAM MGT.

Prepared for:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DRIVE RALEIGH NC, 27610

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 27, 2022

LETTING DATE: DECEMBER 20, 2022

EDWARD G, WETHERILL, PE
PROJECT ENGINEER

GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

3/16/2022
P:\2018\SMU Bridge Replacement Program\B-5985\Hydraulics\Permits Environmental\B-5985_rdy_TSH.dgn
USER: HSingh

8/17/99

REVISIONS

MATCHLINE SHEET 5 –EY2– STA. 15+00.00

PROJECT REFERENCE NO.	SHEET NO.
B-5985	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Liscense No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN – BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN – GIS/GPS – CONSTRUCTION OBSERVATION

PERMIT DRAWING
SHEET 2 OF 11

100' 0' 100'
GRAPHIC SCALE

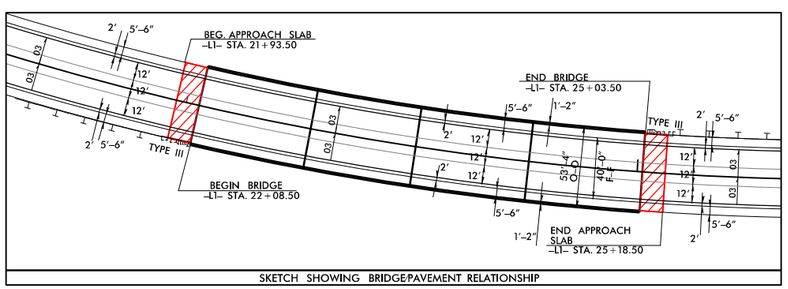
F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

SITE 1 · SITE 2 · SITE 3 · SITE 4

BEGIN NCDOT PROJECT B–5985
–L1– POC STA. 15+70.00

2022 / 2042	N. WATERS ST.		
		2200 / 2900	
	600 / 700		1200 / 1650
15200 / 17000 (–L1–) NC 41/72			15500 / 17700 NC 41/72
	200 / 200	50 / 50	
		600 / 700	
	N. WATERS ST.		



SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NC GRID
NAD 83 NA 2011

END NCDOT PROJECT B–5985
–L1– POT STA. 27+47.88

–L1–
PI Sta 21+09.42
Δ = 32° 49' 41.4" (LT)
D = 3° 00' 00.0"
L = 1,094.27'
T = 562.61'
R = 1,909.86'
SE = .03
RO = SEE PLANS
DS = 40MPH

☆ – *EXISTING SIGNAL*

SEE SHEET 6 FOR –L1– PROFILE
SEE SHEET 7 FOR –EY2– PROFILE

SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

NOTE: ROW STA. OFFSETS ARE TO THE –L1– ALIGNMENT

4/25/2022
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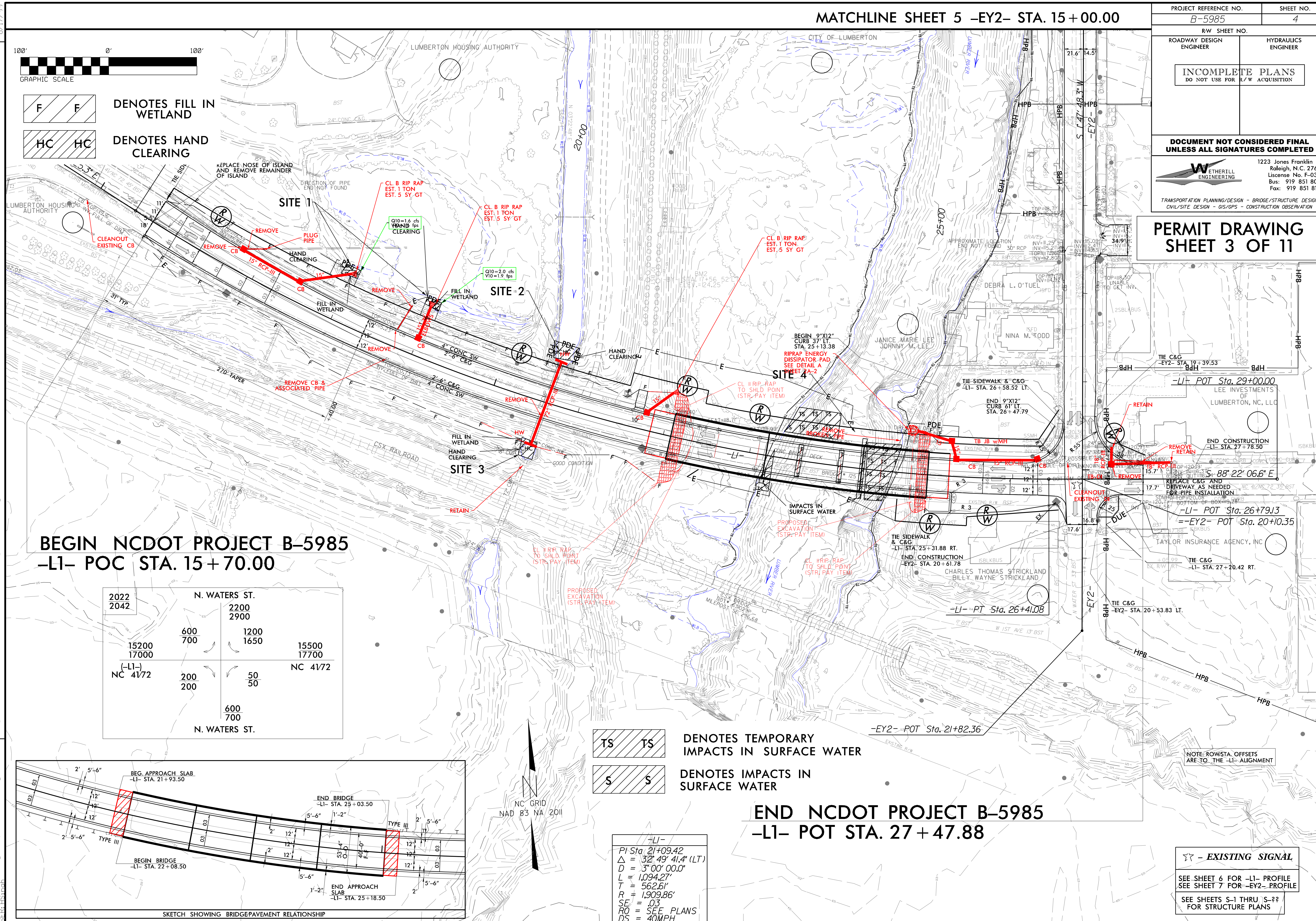
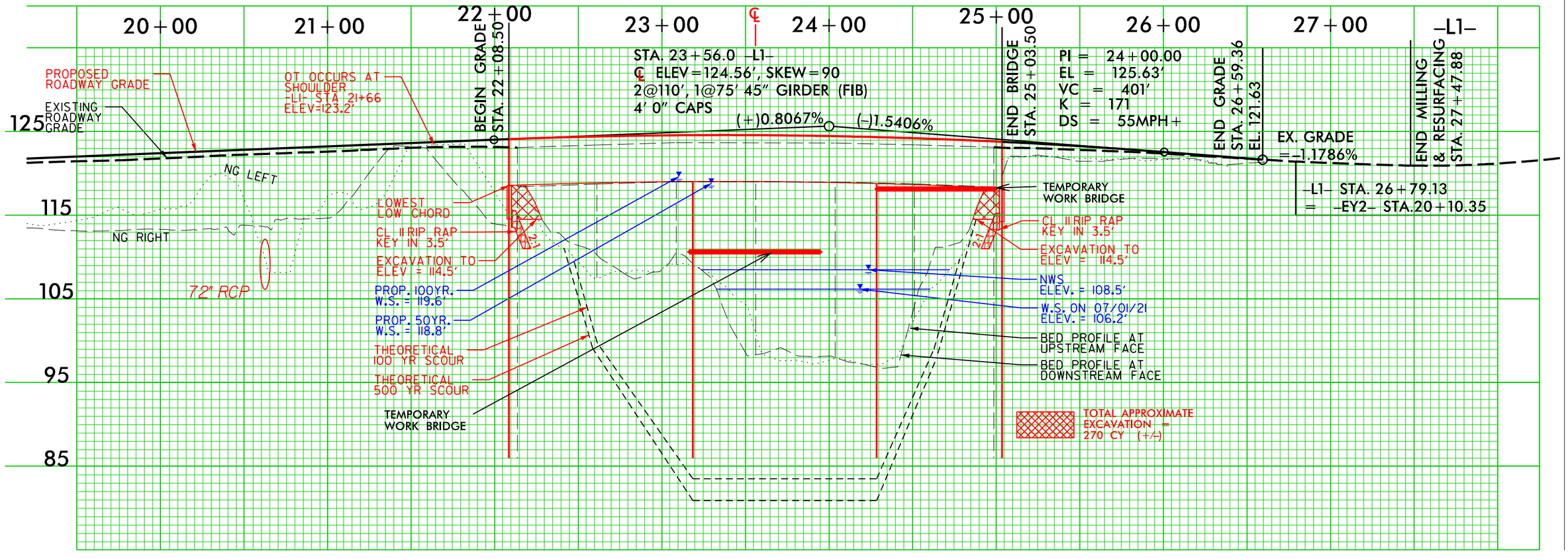
USER: Hsingh



MATCHLINE SHEET 5 -EY2- STA. 15+00.00
PROJECT REFERENCE NO.
B-5985
SHEET NO.
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Liscense No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION
PERMIT DRAWING
SHEET 3 OF 11
GRAPHIC SCALE
100' 0' 100'
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
LUMBERTON HOUSING AUTHORITY
CITY OF LUMBERTON
SITE 1
SITE 2
SITE 3
SITE 4
REPLACE NOSE OF ISLAND AND REMOVE REMAINDER OF ISLAND
CLEANOUT EXISTING CB
REMOVE
PLUG PIPE
HAND CLEARING
FILL IN WETLAND
CL. B RIP RAP EST. 1 TON EST. 5 SY GT
Q10=1.6 cfs V10=1.9 fps
Q10=2.0 cfs V10=1.9 fps
REMOVE CB & ASSOCIATED PIPE
RETAIN
CSX RAILROAD
BEGIN 9"X12" CURB 37' LT. STA. 25+13.38
RIPRAP ENERGY DISSIPATOR PAD SEE DETAIL A SHEET 2A-2
CL. II RIP RAP TO SHLD POINT (STR PAY ITEM)
PROPOSED EXCAVATION (STR PAY ITEM)
IMPACTS IN SURFACE WATER
TIE SIDEWALK & C&G -L1- STA. 26+58.52 LT.
END 9"X12" CURB 61' LT. STA. 26+47.79
TIE SIDEWALK & C&G -L1- STA. 25+31.88 RT.
END CONSTRUCTION -EY2- STA. 20+61.78
DEBRA L. O'TUEL
NINA M. TODD
JANICE MARIE LEE JOHNNY M. LEE
CHARLES THOMAS STRICKLAND BILLY WAYNE STRICKLAND
LEE INVESTMENTS OF LUMBERTON, NC, LLC
TAYLOR INSURANCE AGENCY, INC
TIE C&G -EY2- STA. 19+39.53
-L1- POT Sta. 29+00.00
END CONSTRUCTION -L1- STA. 27+78.50
REPLACE C&G AND DRIVEWAY AS NEEDED FOR PIPE INSTALLATION
S 88° 22' 06.6" E
-L1- POT Sta. 26+79.13 = -EY2- POT Sta. 20+10.35
TIE C&G -L1- STA. 27+20.42 RT.
TIE C&G -EY2- STA. 20+53.83 LT.
-L1- PT Sta. 26+41.08
-EY2- POT Sta. 21+82.36
BEGIN NCDOT PROJECT B-5985
-L1- POC STA. 15+70.00
END NCDOT PROJECT B-5985
-L1- POT STA. 27+47.88
N. WATERS ST.
2022
2042
2200
2900
600
700
1200
1650
15200
17000
15500
17700
(-L1-)
NC 41/72
200
200
50
50
NC 41/72
600
700
N. WATERS ST.
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
NC GRID NAD 83 NA 2011
-L1-
PI Sta 21+09.42
Δ = 32° 49' 41.4" (LT)
D = 3° 00' 00.0"
L = 1,094.27'
T = 562.61'
R = 1,909.86'
SE = .03
RO = SEE PLANS
DS = 40MPH
BEG. APPROACH SLAB -L1- STA. 21+93.50
BEGIN BRIDGE -L1- STA. 22+08.50
END BRIDGE -L1- STA. 25+03.50
END APPROACH SLAB -L1- STA. 25+18.50
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP
NOTE: ROW/STA. OFFSETS ARE TO THE -L1- ALIGNMENT
- EXISTING SIGNAL
SEE SHEET 6 FOR -L1- PROFILE
SEE SHEET 7 FOR -EY2- PROFILE
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS
REVISIONS
8/17/99

PERMIT DRAWING
SHEET 4 OF 11

SITE 4
BR 125



8/23/99

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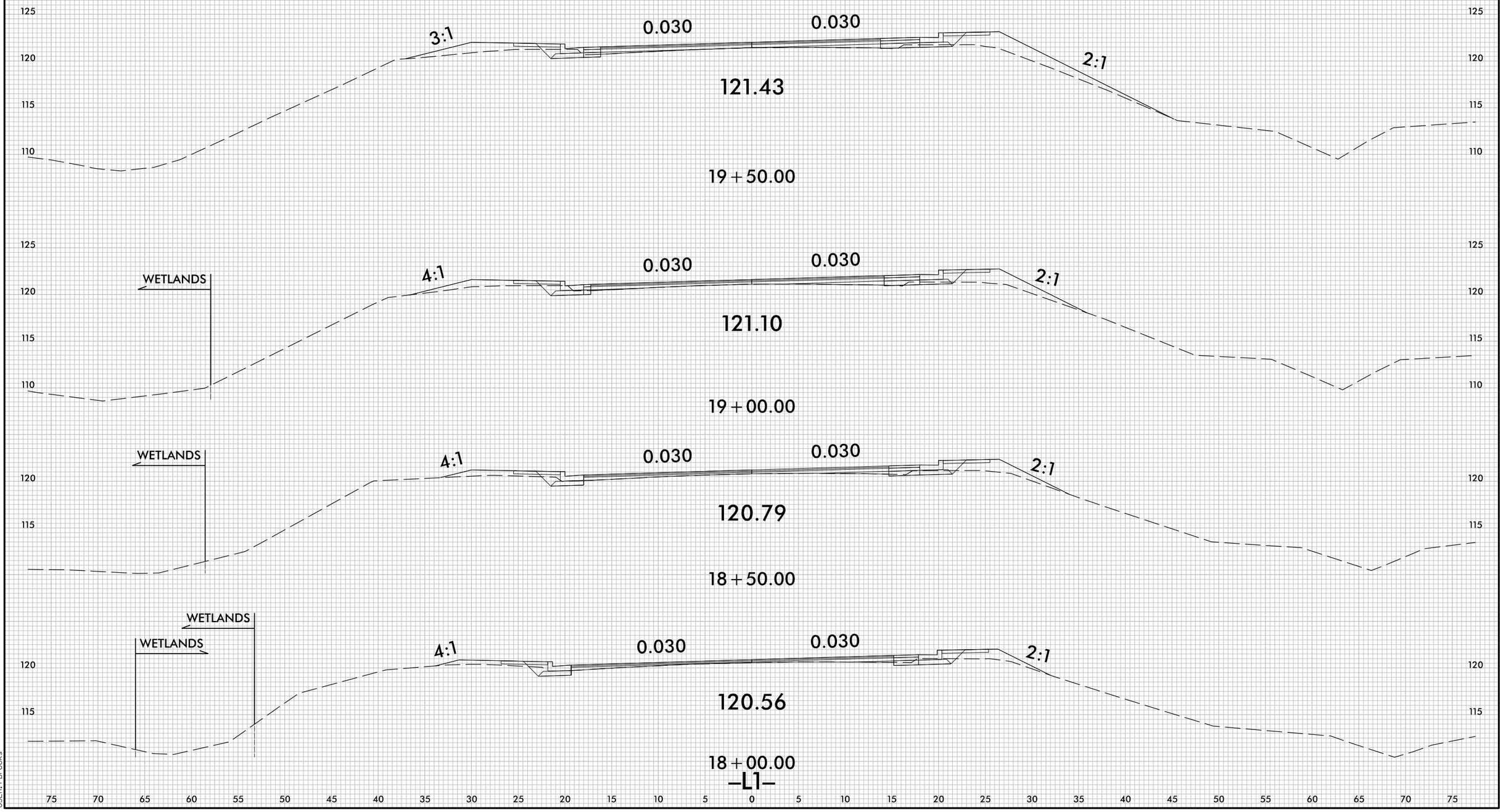
	B–5985	X–2

SITE 1

PERMIT DRAWING
SHEET 5 OF 11



9/28/2021
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USER: Brooks

8/23/99

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	B–5985	X–3

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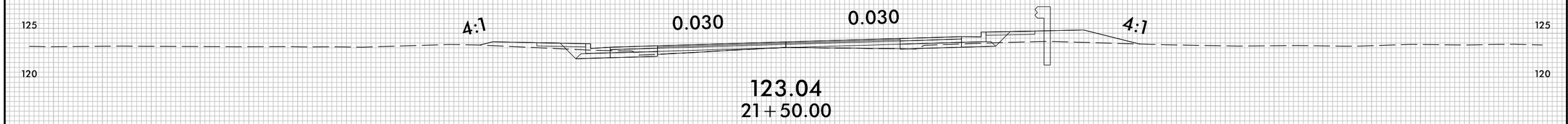
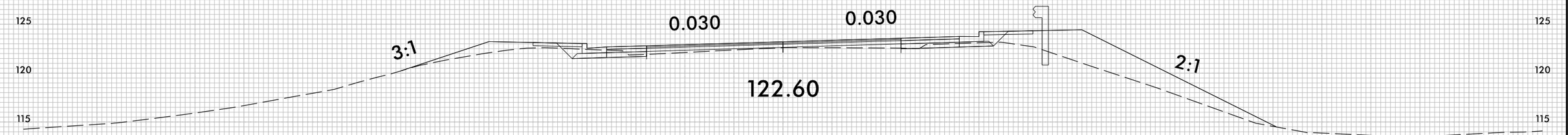
SITE 2

SITE 3

PERMIT DRAWING
SHEET 6 OF 11

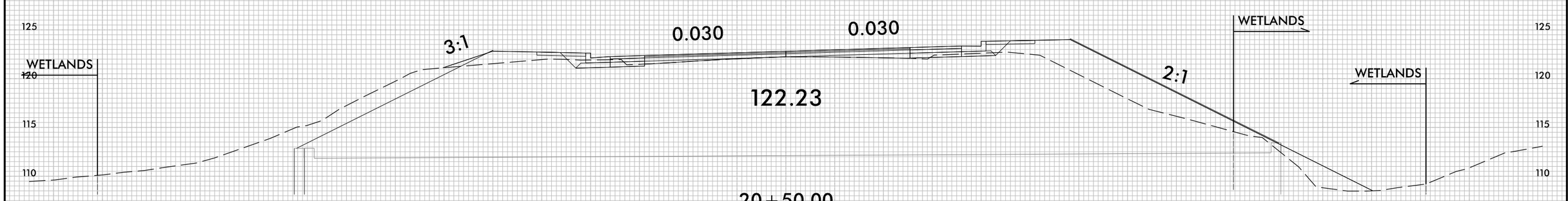


123.04
21+50.00



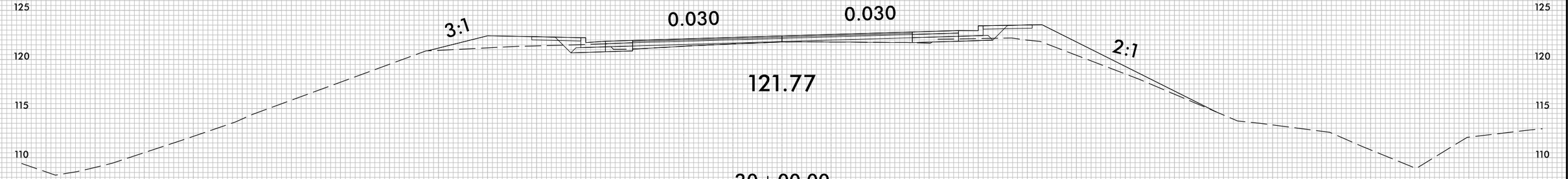
122.60

21+00.00



122.23

20+50.00



121.77

20+00.00

–L1–

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9/28/2021
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USER: PBrooks

PERMIT DRAWING
SHEET 7 OF 11

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Liscense No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO.	SHEET NO.
B-5985	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

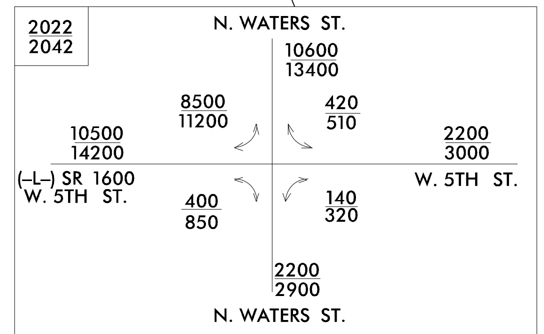
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

100′ 0′ 100′
GRAPHIC SCALE

F F	DENOTES FILL IN WETLAND
HC HC	DENOTES HAND CLEARING
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S S	DENOTES IMPACTS IN SURFACE WATER



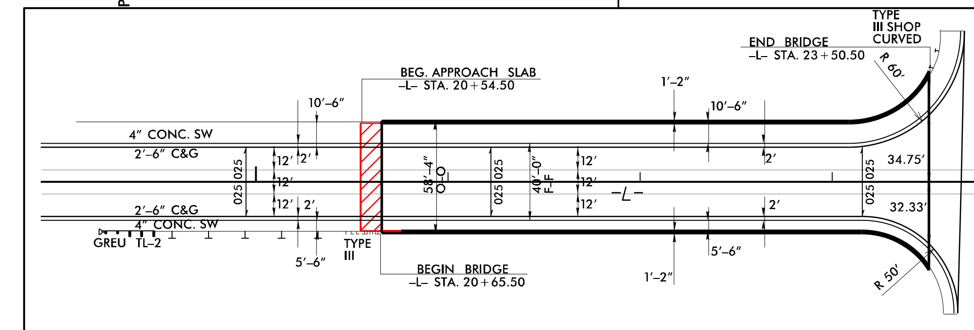
-L-
PI Sta 17+10.16
Δ = 11° 32′ 05.1″ (LT)
D = 4° 30′ 00.0″
L = 256.33′
T = 128.60′
R = 1,273.24′
SE = .025 NC
RO = SEE PLANS
DS = 40MPH

NOTE: ROW/STA. OFFSETS ARE TO THE -L- ALIGNMENT

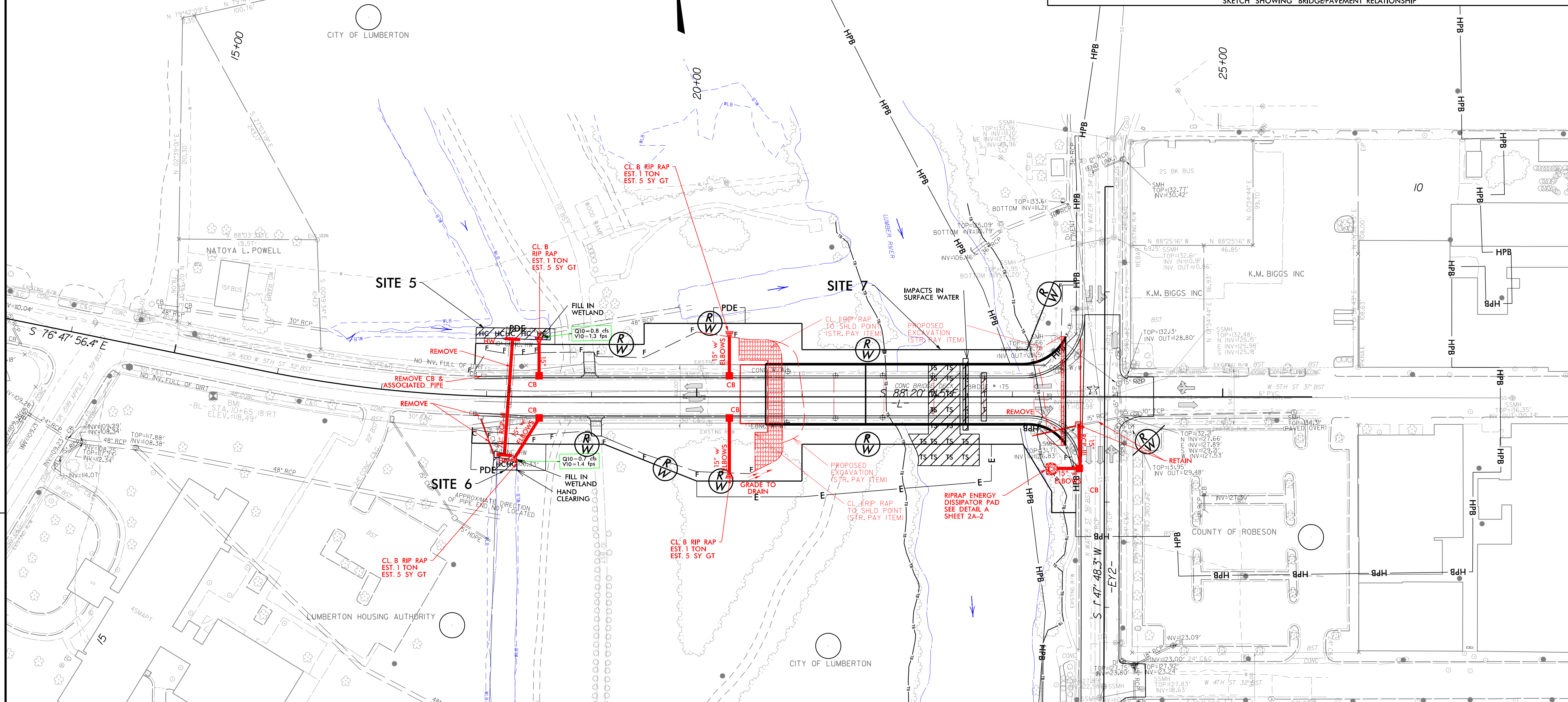
☆ - EXISTING SIGNAL

SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -EY2- PROFILE

SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS



SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP



MATCHLINE SHEET 4 -EY2- STA. 15+00.00

PERMIT DRAWING SHEET 8 OF 11

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO.	SHEET NO.
B-5985	5
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

REVISIONS

8/17/99

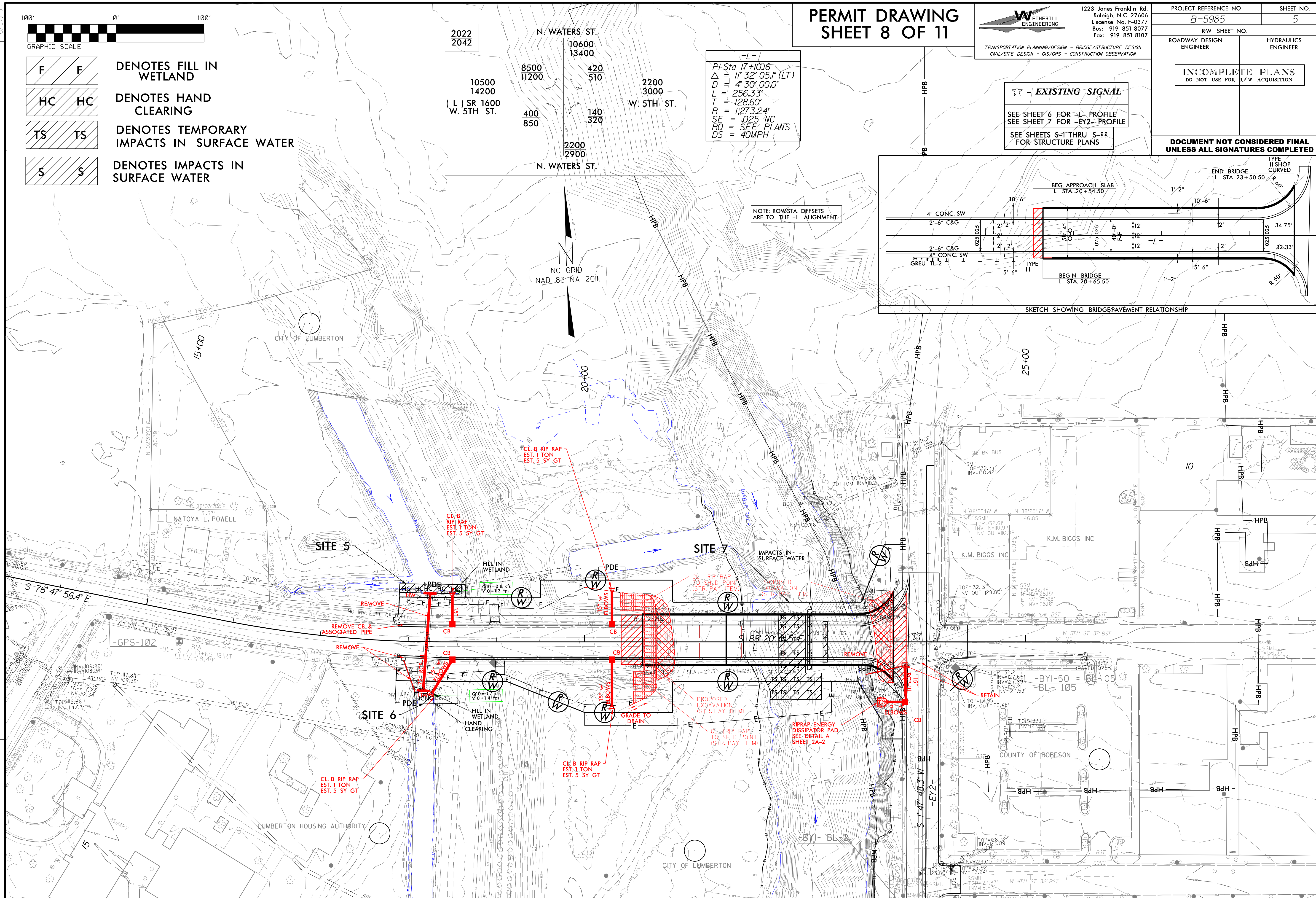
GRAPHIC SCALE 100' 0' 100'

F F — DENOTES FILL IN WETLAND
HC HC — DENOTES HAND CLEARING
TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S S — DENOTES IMPACTS IN SURFACE WATER

-L-
PI Sta 17+10.16
Δ = 11° 32' 05.1" (LT)
D = 4° 30' 00.0"
L = 256.33'
T = 128.60'
R = 1,273.24'
SE = .025 NC
RO = SEE PLANS
DS = 40MPH

☆ – EXISTING SIGNAL
SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -EY2- PROFILE
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

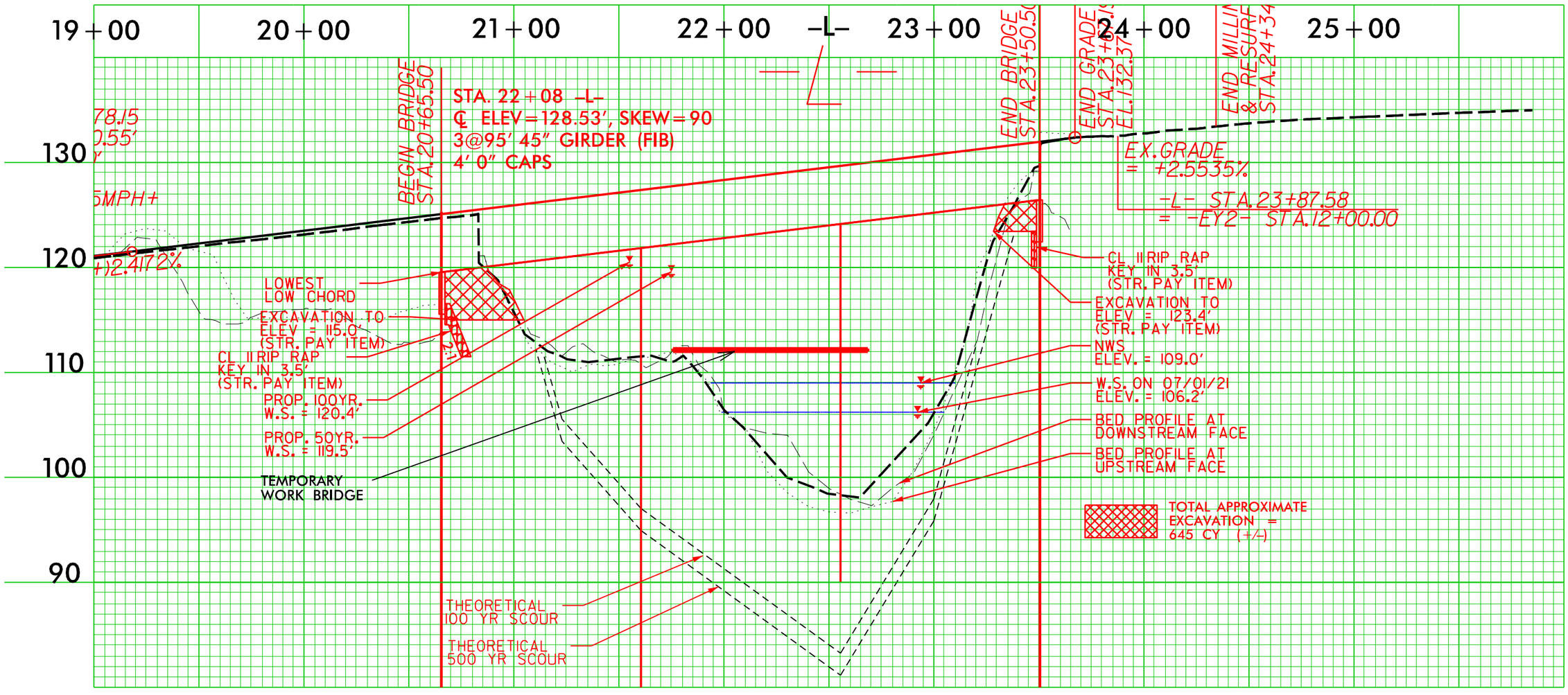
NOTE: ROW/STA. OFFSETS ARE TO THE -L- ALIGNMENT



MATCHLINE SHEET 4 -EY2- STA. 15+00.00

PERMIT DRAWING
SHEET 9 OF 11

SITE 7
BR 175



8/23/99

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	B–5985	X–9

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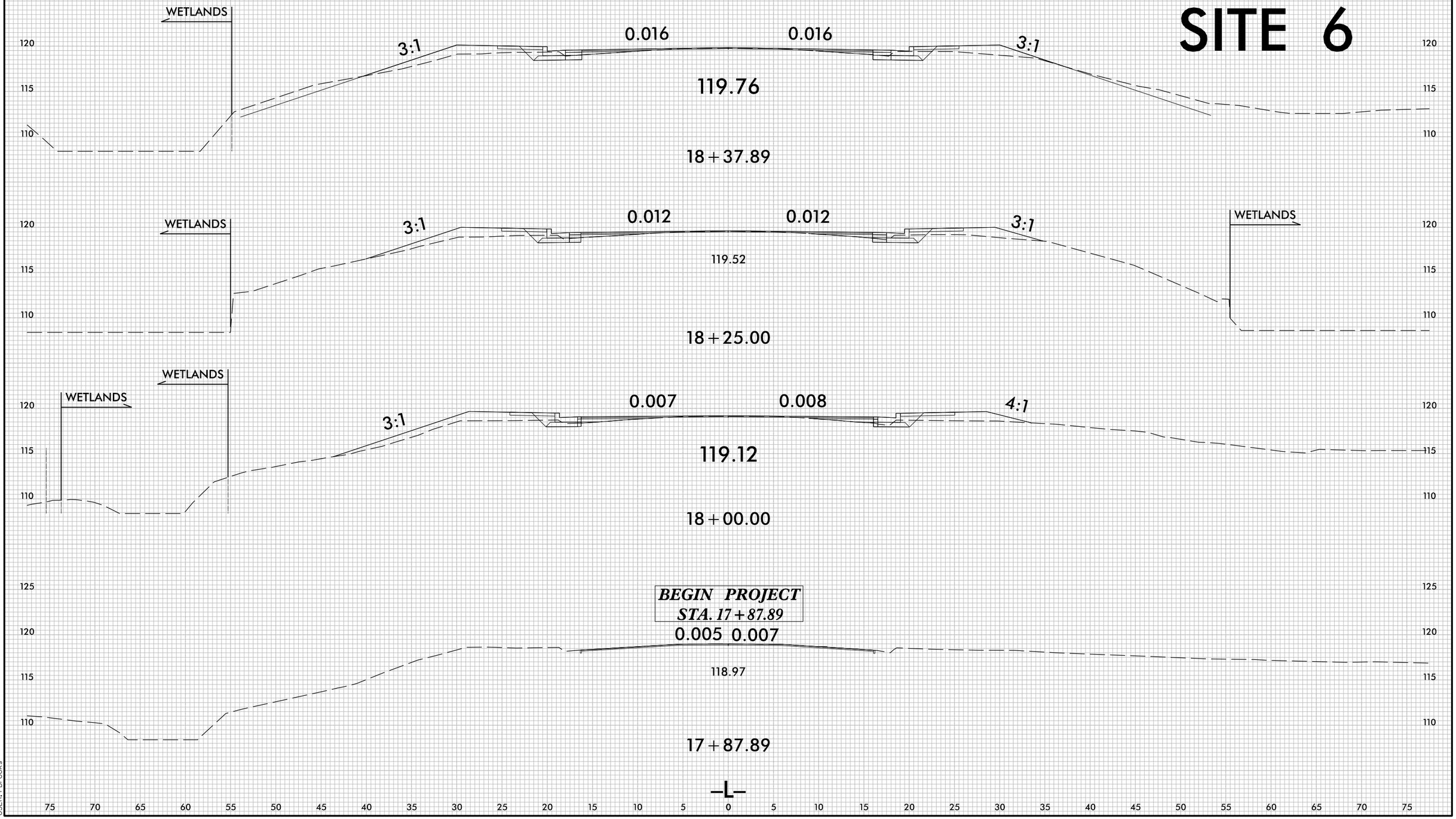
SITE 5

PERMIT DRAWING
SHEET 10 OF 11

SITE 6



9/28/2021
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USER: FBrooks

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L1- 17+88 to 18+08 LT	15" Alt and Riprap outlet	< 0.01				< 0.01					
	-L1- 18+90 to 19+10 LT	15" Alt and Riprap outlet	< 0.01				< 0.01					
2	-L1- 20+52 to 20+80 LT	72" RCP					0.01					
3	-L1- 20+48 to 20+66 RT	72" RCP	< 0.01				< 0.01					
4	-L1- 23+50 to 24+55	BR 125						< 0.01	0.10	62	37	
5	-L- 17+87 to 18+61 LT	72" RCP, 15" Alt	< 0.01				0.02					
6	-L- 18+07 to 18+30 RT	72" RCP, 15" Alt	< 0.01				< 0.01					
7	-L- 22+19 to 22+78	BR 175						< 0.01	0.09	70	46	
TOTALS*:			< 0.01				0.04	0.02	0.19	132	83	0

*Rounded totals are sum of actual impacts

NOTES:
Sites 2 and 6 are both considered Wetland WB

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
4/24/2022
B-5985
SMU BRIDGE REPLACEMENT

Revised 2013 10 24

Please fill out all yellow cells as completely as possible. Use pick lists where provided. For more information on the NCDOT Stormwater Management Plan form, please refer to the document, NCDOT Stormwater Best Management Practices Toolbox (2014).
If the project drains to multiple water bodies, please drag the print area down such that Water Bodies 2 through 6 print on Page 2

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 47749.1.1 **TIP No.:** B-5985 **County(ies):** Robeson **Page** 1 **of** 1

General Project Information

WBS Element:	47749.1.1	**TIP Number:**	B-5985	**Project Type:** Bridge Replacement	**Date:** 3/15/2022
NCDOT Contact:	Gregory W. Price	**Contractor / Designer:**	Wetherill Engineering, Inc. / Harminder Singh, PE		
Address:	PO Box 1150 431 Transportation Drive Fayetteville, NC	**Address:**	1223 Jones Franklin Rd. Raleigh, NC 27606		
Phone:	910-364-0835	**Phone:**	919-851-8077		
Email:	gwprice2@ncdot.gov	**Email:**	hsingh@wetherilleng.com		
City/Town:	N/A	**County(ies):**	Robeson		
River Basin(s):	Lumber	**CAMA County?**	No		
Wetlands within Project Limits?	Yes				

Project Description

Project Length (lin. miles or feet):	0.33	**Surrounding Land Use:**	Residential, Wooded
	Proposed Project		**Existing Site**
Project Built-Upon Area (ac.)	2.1 ac.		1.8 ac.
Typical Cross Section Description:	The proposed section consists of three 12' width lanes. Paved shoulders on bridge approach are 10.5' on SR 1600 and 7.5' on NC 41.		For SR 1600, existing road consists of three 11-12' lanes with sidewalk on both sides. For NC 41, existing road consists of two 12' lanes with sidewalk on both sides.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 17000 (125) / 14200 (175) Year: 2042		Existing: 15200 (125) / 10500 (175) Year: 2022
General Project Narrative: (Description of Minimization of Water Quality Impacts)	The project will replace bridges 770125 and 770175 over the Lumber River. Bridge #125 is 2@110', 1@75' 45" Girder (FIB) with 4' Caps. Bridge #175 is 3@95' 45' Girder (FIB) with 4' Caps. No deck drains will be used on either bridge. On SR1600 and NC41, the existing 72" CMP will be replaced with 72" RCP. All outlets, which will outlet into wetlands, have velocities less than 2.0 fps. Temporary work bridges may block no more than 50% of the stream flow at a give time. Only one temporary bridge may be in place for a given bridge at any one time.		

Waterbody Information

Surface Water Body (1):	Lumber River	**NCDWR Stream Index No.:**	14-(13)		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	Swamp Waters (Sw)		
Other Stream Classification:	NC Natural and Scenic Rivers				
Impairments:	None				
Aquatic T&E Species?	No Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**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)					

Replacement of Robeson County Bridge No. 125 on NC 41/72,
and Bridge No. 175 on SR 1600 (West 5th Street) over the Lumber River
NCDOT STIP Project No. B-5985
Federal Aid Project No. FA# 0041115

ATTACHMENT C
Concept Signage

Project B-5985

Preliminary signage concepts.

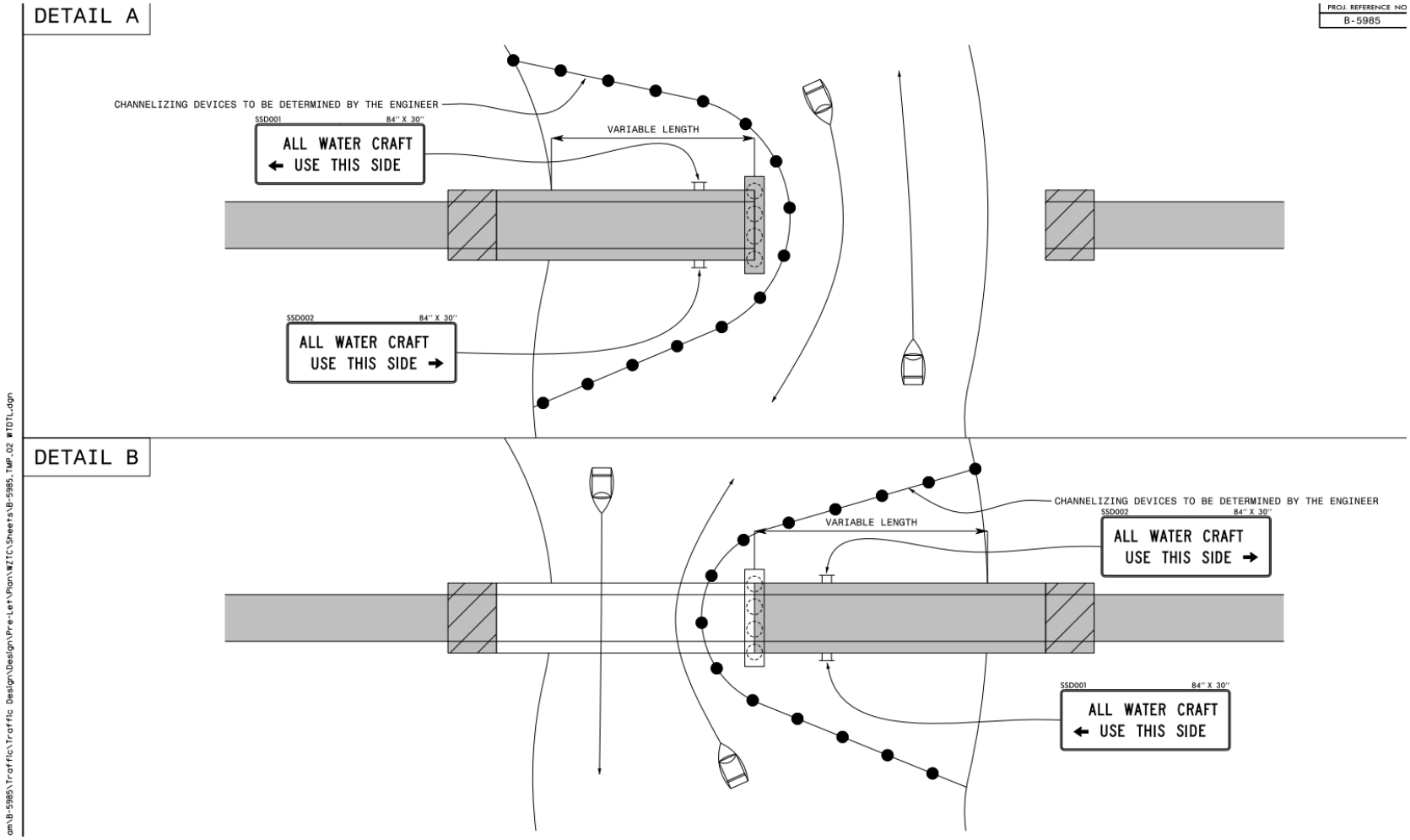
River name and road name to be painted on the upstream and downstream sides of bridge #125 (NC 41/72) and #175 (5th Street) over the Lumber River.

Replacement of Robeson County Bridge No. 125 on NC 41/72,
and Bridge No. 175 on SR 1600 (West 5th Street) over the Lumber River
NCDOT STIP Project No. B-5985
Federal Aid Project No. FA# 0041115

ATTACHMENT D
Boater Safety Signage

B-5985

Proposed sign and buoy configuration to facilitate recreational paddlers on the Lumber River during construction.



Replacement of Robeson County Bridge No. 125 on NC 41/72,
and Bridge No. 175 on SR 1600 (West 5th Street) over the Lumber River
NCDOT STIP Project No. B-5985
Federal Aid Project No. FA# 0041115

ATTACHMENT E
Typical Planting Species

NCDOT Roadside Environmental Unit
B-5985 - Plant Material for Live Stakes and Bareroot Seedlings

Type 1: Live Stakes

Black Willow	*Salix nigra*
Buttonbush	*Cephalanthus occidentalis*

Type 2: Bareroot Seedlings

Baldcypress	*Taxodium distichum*
Overcup Oak	*Quercus lyrata*
Swamp Blackgum (Tupelo)	*Nyssa sylvatica* var. *biflora*
Water Tupelo	*Nyssa aquatica*
Overcup Oak	*Quercus lyrata*

Replacement of Robeson County Bridge No. 125 on NC 41/72,
and Bridge No. 175 on SR 1600 (West 5th Street) over the Lumber River
NCDOT STIP Project No. B-5985
Federal Aid Project No. FA# 0041115

ATTACHMENT F
Appendix C Evaluation of Direct and Adverse Effects

B-5985 Lumber River Bridge Construction

Bridge 770175 on W 5th St (SR-1600) –Robeson County

This document was prepared to supplement NCDOT's Section 404 Permit application for the replacement of the W 5th St. (SR-1600) bridge, No. 770175, in Lumberton under the NCDOT project B-5985 (bridge replacement and improvements between Apple St. and N Water St.) A site visit was conducted on September 28th, 2021, to assess the hydraulics and aesthetics of the bridge site as required by the National Park Service. The project is located at an upstream section of the Lumber River classified as Recreational under Section 7 of the Wild and Scenic Rivers Act.

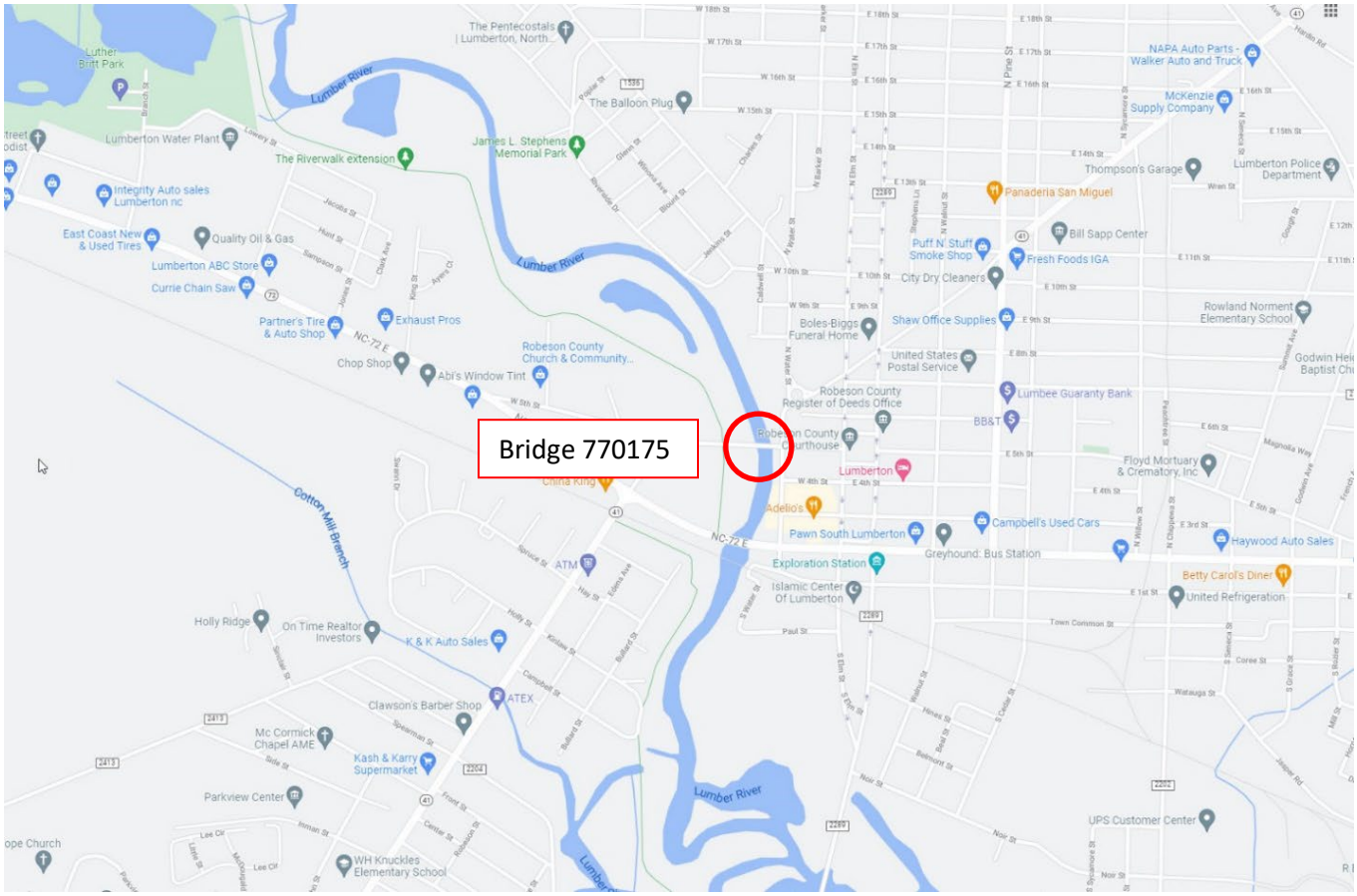


Figure A- Vicinity Map

A) Section 7 Evaluation of Direct and Adverse Effects:

1. Define the Proposed Activity.

The purpose of this project is to replace the existing W 5th St. (SR-1600) bridge, No. 770175, that spans the Lumber River in Lumberton in the same location in which it currently sits between Apple St. and N Water St. The current bridge is 267' 9" in length. The replacement structure will be a bridge 285' 0" in length providing a 40' 0" clear deck width. The new bridge will be a total of 58' 7" wide and will include: three 12' lanes, 2' curb and gutters, a 10' 6" concrete sidewalk on the north side, a 5' 6" concrete sidewalk on the south side, and 1' 3.5" barrier rails. The bridge length is set by hydraulic requirement. The roadway grade of the new structure will be approximately the same as the existing structure.

The substructure of bridge 175 is considered structurally deficient. Components of both the concrete superstructure and substructure have experienced a degree of deterioration that can no longer be addressed by maintenance activities. Replacement of the bridge will result in safer traffic operations.

2. Describe How the Proposed Activity Will Directly Alter Within-Channel Conditions.

The proposed bridge replacement will be in the same approximate location as the existing bridge with the exception that the new bridge will have a slightly wider total width. The construction of the new bridge will require the removal of the 5 existing interior bridge bents, 2 of which are directly in the Lumber River. The 5 bridge bents will be replaced with 2 new interior bents with only one of those being placed directly in the channel which will allow for better overall flow of the river. The existing structural piles will be removed from the waterway increasing the channel cross section area. There are also remnants of previous structures and rip rap that will be removed from the channel underneath and adjacent to the existing bridge. The removal of all piles will be completed in accordance with permit requirements. The removal of these piles and other remnants will improve the overall river navigability, minimize turbidity, proportionally improve flow, and improve aesthetics.

3. Describe How the Proposed Activity Will Directly Alter Riparian and/or Floodplain Conditions.

Construction of the bridge will include one bent directly within the channel and one bent outside the channel just beyond the bridge's west head wall and rip rap slope. This will be one less bent than is currently in the channel. Excavation of the channel's banks will occur on the eastern side of the new bridge. Other excavation will occur inland at the location of the new western bridge end. Total excavation will be approximately 645 total cubic yards. The western end of the bridge will require fill material to be added on both sides of the road within the floodplain for the new bridge approach. This additional material will not be near or directly impact the river channel. Bridge under-slopes will be reduced and covered in rip rap. The rip rap will improve bank stabilization, and it will assist in the alignment of the flood plain channel and deter scouring on the eastern side of the channel. Additionally, there will be no deck drains within the new bridge design. All stormwater runoff will be directed to drain basins just outside the new bridge footprint and released into the surrounding floodplain area. On the southeastern side of the bridge, there will be one new stormwater basin that feeds water directly into a rip rap outlet directly adjacent to the channel. Best practices shall be used to preserve any existing vegetation closest to the riverbank. Overall, the proposed activities will increase and improve riparian and flood plain areas and reduce the impact on the overall natural flow of the river.

4. Describe How the Proposed Activity Will Directly Alter Upland Conditions.

Upland conditions east of the bridge are presently developed (parking areas). Northwest of the bridge, an engineered drainage ditch dominates the floodplain up to the base of the levee and greenway. Southwest of the bridge the floodplain is somewhat vegetated to the base of the levee and greenway. The excavation for the new bridge area is within the footprint of the existing road and bridge. Utilization of existing fill slopes to the western bridge end slopes and retaining walls along the eastern bridge end slopes will limit any additional impacts to adjoining riparian and upland areas.

5. Evaluate and Describe How Changes in On-Site Conditions Can/Will Alter Existing Hydrologic or Biologic Processes.

The channel course at the bridge is relatively straight. Stormwater runoff from the existing bridge and nearby roads flows off the existing pavement and directly into the river and floodplain via deck drains and existing drainage infrastructure along the riverbanks. Remnants of an old structure are present within the channel underneath the existing bridge. With the construction of the new bridge, the channel will be cleaned of any remaining debris and remnants and conditions will be improved. The channel underneath the bridge will be stabilized, have improved flow, and match the downstream cross section conditions. With fewer bents being placed directly in the channel, contraction scour at the bridge will be reduced. Bank stabilization will improve with integration of rip rap at the bridge ends, and stormwater runoff from the bridge will be directed into drain basins at each end of the bridge and channeled onto the floodplain using concrete drainage infrastructure. Improved environmental conditions at the bridge site should in turn benefit biological activity in the immediate area.

6. Estimate the Magnitude and Spatial Extent of Potential Off-Site Changes.

Overhead utilities parallel the existing bridge on both sides, and one set of lines crosses over the bridge diagonally from the southwestern corner to the northeastern corner of the bridge. Additionally, some vegetation removal may be needed on the eastern bridge slope to accommodate the wider bridge footprint. Caution should be used when removing existing vegetation, and disturbance and removal of mature trees should be limited to the utmost extent. Replanting of disturbed species may be needed depending on the extent of removal.

7. Define the Time Scale Over Which Steps 3-6 are Likely to Occur.

Immediate impacts (as described previously) will occur through the first stages of construction. Removal of the existing piles, bridge deck, existing rip rap and old bridge remnants, construction of the new bents/piles, and the stabilization of the bridge ends with new rip-rap should occur within the first 6 months of construction activity. The second stage of project will involve the construction of the bridge deck and roadway. All activities will be completed following stringent permitted conditions. Bridge 175 construction will begin once Bridge 125 is completed and open to traffic. Total construction time for both bridges is anticipated to be 1.5 years.

8. Compare Project Analyses to Management Goals.

No adverse effects to the Lumber River State Park or its management goals are anticipated.

9. Make the Section 7 Determination.

Although there's expected to be some disturbance to the channel during clean-up and excavation work and some minor removal of existing riparian vegetation along the banks of the Lumber River, the overall results of the of the bridge replacement will help to improve the environmental conditions of the river and its recreational qualities. Improved flow and increased cross sectional river area at the bridge site will facilitate greater recreational access and safety. The North Carolina Department of Transportation,

in the application of strict environmental standards, would anticipate improved water quality compared to present conditions.

B) Evaluation of Impacts to the Intrinsic Qualities:

1. Wild/Natural

The presence of bald cypress plant communities is evident along this blackwater coastal river habitat. Although this section of the Lumber River appears to be well protected and naturally enclosed by riparian vegetation, there is a slight visual impact created by the proximity to downtown Lumberton along the east bank. There are obvious signs of development to the east such as views of buildings and traffic through the trees, overhead utility lines, and concrete drainage structures emptying directly into the channel along the banks. Locally managed properties border the channel and provide a point of access for recreational purposes. Foot traffic and human activity in the form of homelessness is evident directly under and adjacent to the existing bridge, and there was an obscene amount of litter present. The existing bridge, bents, and litter are visual eyesores from the banks of the river and disrupts the natural character and viewsheds as you look or travel downstream. Overhead utilities parallel both sides of the bridge, and current vegetation near the bridge is maintained using utility easements. The construction of the new bridge will not greatly impact the natural aspects of the river and nearby vegetative communities. Although the new bridge will be wider, if minimum vegetative disturbance occurs, the impact to the natural habitats should be minimum. The new bridge and updated drainage system will have a positive environmental impact on the river and floodplain through improved channel flow, enhanced riverbank treatment, and modernized stormwater management.

B-5985 Lumber River Bridge Construction

Bridge 770175 on W 5th St (SR-1600) –Robeson County

Figure B – View of the Lumber River underneath the 5th St bridge

Figure C – View of bridge slope treatment and litter underneath the western side 5th St bridge

2. Recreational

Recreational activity in the immediate area includes canoeing and fishing, as well as walking and cycling which occurs on a nearby greenway that runs parallel to the river. Amended channel conditions, such as less bridge bents and a slightly wider channel, will provide for improved movement under the bridge for canoeing. Bridge construction and replacement will have no impact on fishing or greenway activities upstream or downstream.

3. Scenic

The scenic qualities of the native blackwater river habitat are visible both upstream and downstream from the bridge and at ground level at the river's recreational access point northwest of the bridge. There is limited visibility from the western riverbank due to the presence of mature bald cypress and other native flora. The existing bridge is primarily composed of cast concrete beams and piers and has been stained and weathered over time. There are numerous bents inside and outside the channel which creates visual obstructions for recreational users. The replacement of the five existing bridge bents with

two new bents will widen the viewshed and ultimately improve visibility under the bridge. There is also a significant amount of old structural remnants, debris, and litter currently under and near the bridge that detracts from the aesthetic quality of the corridor. Through the replacement of the bridge, these areas will be cleaned up and restored to a more satisfactory condition.

The new bridge will reflect the general construction methods of the present day. The use of modern concrete supports, bridge bents, and bridge decking will contrast with the natural riparian environment, but in turn, it will provide a clean and visually sound structure which can ultimately lead to a heightened sense of security for the users. The scenic impact of the construction project, although adding minimally to the wild and scenic values of the river, will be an improvement upon the conditions and impact of the existing bridge.

Figure D – Upstream view of the Lumber River corridor from the 5th St bridge sidewalk

B-5985 Lumber River Bridge Construction

Bridge 770175 on W 5th St (SR-1600) –Robeson County

Figure F – Downstream view of the Lumber River corridor from the 5th St bridge sidewalk

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SYLVEN K. COOPER

10/08/2021

Sylven Kyle Cooper, PLA
NCDOT- Roadside Environmental Unit
October 8, 2021

B-5985 Lumber River Bridge Construction

Bridge 770125 on NC-41/NC-72–Robeson County

This document was prepared to supplement NCDOT's Section 404 Nationwide Permit application for the replacement of the NC-41/NC72 bridge, No. 770125, in Lumberton under the NCDOT project B-5985 (bridge replacements and improvements between Apple St. and N Water St.) A site visit was conducted on September 28th, 2021, to assess the hydraulics and aesthetics of the bridge site as required by the National Park Service. The project is located at an upstream section of the Lumber River classified as Recreational under Section 7 of the Wild and Scenic Rivers Act.

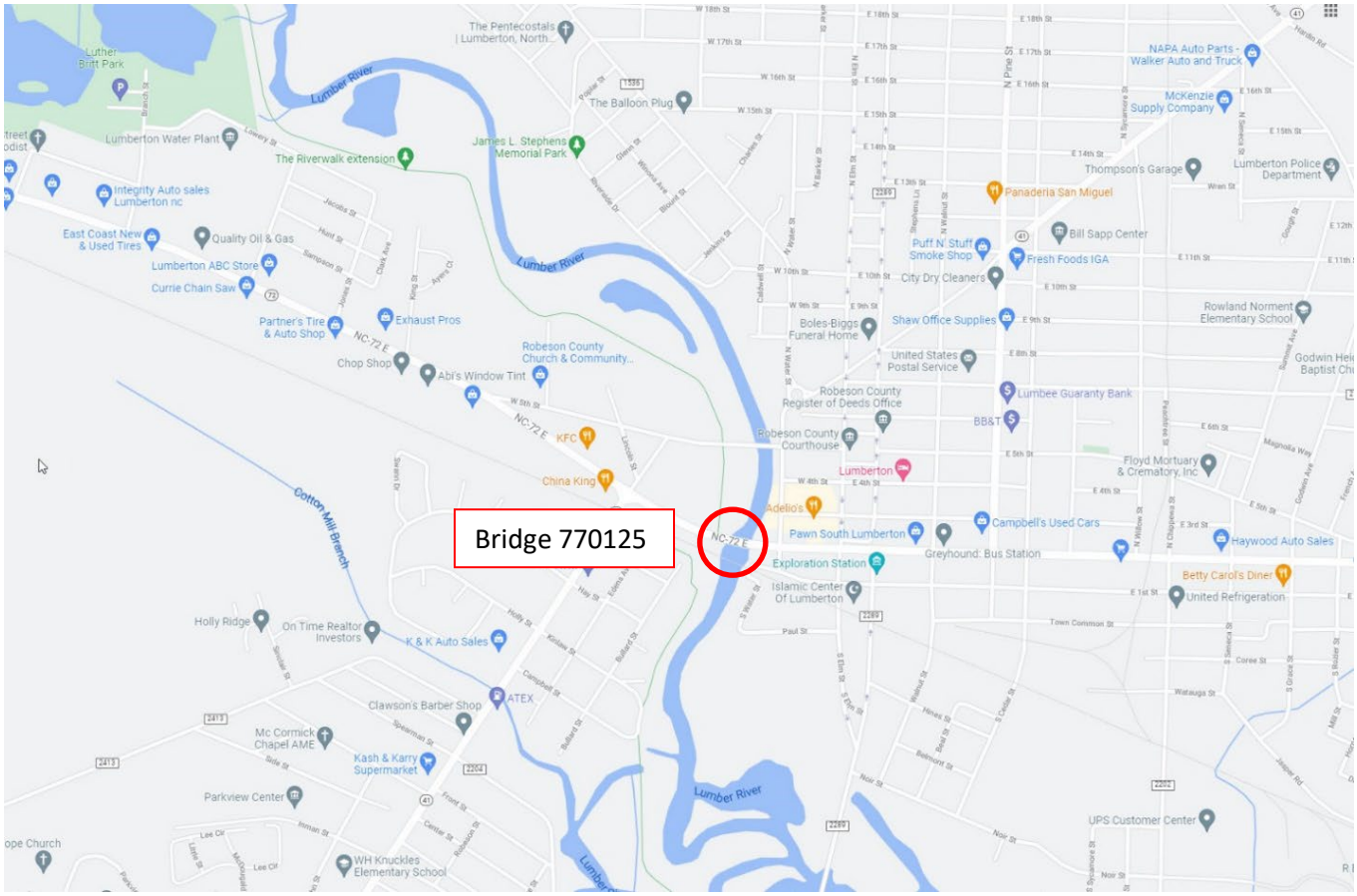

Figure A- Vicinity Map

A) Section 7 Evaluation of Direct and Adverse Effects:

1. Define the Proposed Activity.

The purpose of this project is to replace the existing NC-41/NC-72 bridge, No. 770125, that spans the Lumber River in Lumberton in the same location in which it currently sits between Apple St. and N Water St. The current bridge is 285' 0" in length. The replacement structure will be a bridge 295' 0" in length providing a 40' 0" clear deck width. The new bridge will be a total of 53' 7" wide and will include: three 12' lanes, 2' curb and gutters, a 5' 6" concrete sidewalk on both the north and south sides, and 1' 3.5" barrier rails. The bridge length is set by hydraulic requirement. The roadway grade of the new structure will be approximately the same as the existing structure.

Both the substructure and deck of bridge 125 are considered structurally deficient. Components of both the concrete superstructure and substructure have experienced a degree of deterioration that can no longer be addressed by maintenance activities. Replacement of the bridge will result in safer traffic operations.

2. Describe How the Proposed Activity Will Directly Alter Within-Channel Conditions.

The proposed bridge replacement will be in the same approximate location as the existing bridge with the exception that the new bridge will have a wider total width. The construction of the new bridge will require the removal of the 5 existing bridge interior bents, 3 of which are directly in the Lumber River. The 5 bridge bents will be replaced with 2 new interior bents with only one of those being placed directly in the channel which will allow for better overall flow of the river. The existing structural piles will be removed from the waterway increasing the channel cross section area. There is also rip rap that will be removed from underneath the existing bridge. The removal of the piles will be completed in accordance with permit requirements. The removal of these piles will improve the overall river navigability, minimize turbidity, and proportionally improve flow.

3. Describe How the Proposed Activity Will Directly Alter Riparian and/or Floodplain Conditions.

Construction of the bridge will include one interior bent directly within the channel and one bent outside the channel just beyond the water's edge. This will be two less interior bents than are presently in the channel and three less interior bents total. Excavation inland of the channel's banks will occur on both the eastern and western sides where the new bridge end bents will be placed. Total excavation will be approximately 270 total cubic yards. The western end of the bridge will require fill material to be added on both sides of the road within the floodplain for the new bridge approach. This additional material will not be near or directly impact the river channel. Bridge under-slopes will be covered in rip rap. The rip rap will improve bank stabilization, and it will assist in the alignment of the flood plain channel through the bridge and deter scouring on the eastern side of the channel during future flood events. Additionally, there will be no deck drains within the new bridge design. All stormwater runoff will be directed to drain basins just outside the new bridge footprint and released into the surrounding floodplain area. On the northeastern side of the bridge, there will be one new stormwater basin that feeds water directly into a rip rap outlet directly adjacent to the channel. Best practices shall be used to preserve any existing vegetation closest to the riverbank. Overall, the proposed activities will increase and improve riparian and flood plain areas and reduce the impact on the overall natural flow of the river.

4. Describe How the Proposed Activity Will Directly Alter Upland Conditions.

Upland conditions east of the bridge are presently developed (parking area & Automotive Repair Shop). In the northwest corner of the bridge, mature vegetation exists on the floodplain up to the base of the levee and greenway. Southwest of the bridge uplands is managed land dominated by utility corridors and the railway line located downstream. Proposed excavation areas are within the footprint of the existing road and bridge. Utilization of existing fill slopes to the western bridge end slopes and retaining

walls along the eastern bridge end slopes will limit any additional impacts to adjoining riparian and upland areas.

5. Evaluate and Describe How Changes in On-Site Conditions Can/Will Alter Existing Hydrologic or Biologic Processes.

The channel course at the bridge is relatively straight. Stormwater runoff from the existing bridge and nearby roads flows off the existing pavement and directly into the river and floodplain via deck drains and existing drainage infrastructure along the riverbanks. With the construction of the new bridge, the channel and immediate floodplain will be cleaned of any remaining debris and remnants and conditions will be improved. The channel underneath the bridge will be stabilized and have improved flow. With fewer bents being placed directly in the channel, contraction scour at the bridge will be reduced. Bank stabilization will improve with integration of rip rap at the bridge ends, and stormwater runoff from the bridge will be directed into drain basins at each end of the bridge and channeled onto the floodplain using concrete drainage infrastructure. Improved environmental conditions at the bridge site should in turn benefit biological activity in the immediate area.

6. Estimate the Magnitude and Spatial Extent of Potential Off-Site Changes.

Overhead utilities parallel the existing bridge on the south side, and one set of lines crosses over the road at the western bridge approach. Additionally, some vegetation removal may be needed on the eastern bridge slope to accommodate the wider bridge footprint. Caution should be used when removing existing vegetation, and disturbance and removal of mature trees should be limited to the utmost extent. Replanting of disturbed species may be needed depending on the extent of removal.

7. Define the Time Scale Over Which Steps 3-6 are Likely to Occur.

Bridge construction is expected to take approximately 12 months. Immediate impacts (as described previously) will occur through the first stages of construction. Removal of the existing piles, bridge deck, existing rip rap, construction of the new bents and the stabilization of the bridge end bent slopes with new rip-rap should occur within the first 6 months of construction activity. The second stage of project will involve the construction of the bridge deck and roadway. All activities will be completed following stringent permitted conditions. Construction for the B-5985 project is scheduled to begin in early 2023. Construction time for both bridges 125 and 175 is anticipated to be 1.5 years. Bridge 125 will be constructed first.

8. Compare Project Analyses to Management Goals.

No adverse effects to the Lumber River State Park or its management are anticipated.

9. Make the Section 7 Determination.

Although there's expected to be some disturbance to the channel during construction, clean-up and excavation work and some minor removal of existing riparian vegetation along the banks of the Lumber River, the overall results of the of the bridge replacement will help to improve the environmental conditions of the river and its recreational qualities. Improved flow and increased cross sectional river

area at the bridge site will facilitate greater recreational access and safety. The removal of deck drains and treatment of stormwater runoff from the new bridge as well as he application of strict environmental standards during construction, should lead to improved water quality compared to present conditions.

Evaluation of Impacts to the Intrinsic Qualities:

1. Wild/Natural

The presence of bald cypress plant communities is evident along this blackwater coastal river habitat. Although this section of the Lumber River appears to be well protected and naturally enclosed by riparian vegetation, there is a slight visual impact created by the proximity to downtown Lumberton along the east bank and the railroad bridge south of NC-41/NC-72. There are obvious signs of development to the east such as views of buildings and traffic through the trees, overhead utility lines, and concrete drainage structures emptying directly into the channel along the banks. Locally managed properties border the channel and provide a point of access for recreational purposes. There is not a lot of evidence of foot traffic or human activity outside the presence of a small amount of litter. The railroad bridge is a visual blight from the bridge and the banks of the river and disrupts the natural character and viewsheds as you look or travel downstream. Overhead utilities parallel the east side of the bridge, and current vegetation near the bridge is maintained using utility easements. The construction of the new bridge will not greatly impact the natural aspects of the river and nearby vegetative communities. Although the new bridge will be wider, if minimum vegetative disturbance occurs, the impact to the natural habitats should be minimum. The new bridge and updated drainage system will have a positive environmental impact on the river and floodplain through improved channel flow, enhanced riverbank treatment, and modernized stormwater management.

B-5985 Lumber River Bridge Construction

Bridge 770125 on NC-41/NC-72–Robeson County

Figure B – View underneath the NC-41/NC-72 bridge

Figure C – View of the NC-41/NC-72 bridge from the boat access point on the riverbank southeast of the bridge

2. Recreational

Recreational activity in the immediate area includes canoeing and fishing, as well as walking and cycling which occurs on a nearby greenway that runs parallel to the river. Amended channel conditions, such as less bridge bents and a slightly wider channel, will provide for improved movement under the bridge for canoeing. Bridge construction and replacement will have no impact on fishing or greenway activities upstream or downstream.

3. Scenic

The scenic qualities of the native blackwater river habitat are visible both upstream and downstream from the bridge and at ground level at the river's recreational access point southeast of the bridge. The view of the river to the south is disrupted by a concrete railroad bridge and utility easements. The existing bridge is primarily composed of cast concrete beams and piers and has been stained and weathered over time. There are numerous bents inside and outside the channel which creates visual obstructions for recreational users. The replacement of the five existing interior bridge bents with two

new bents will widen the viewshed and ultimately improve visibility under the bridge. Through the replacement of the bridge, the surrounding areas will be cleaned up and restored to a more satisfactory condition.

The new bridge will reflect the general construction methods of the present day. The use of modern concrete supports, bridge bents, and bridge decking will contrast with the natural riparian environment, but in turn, it will provide a clean and visually sound structure which can ultimately lead to a heightened sense of security for the users. The scenic impact of the construction project, although adding minimally to the wild and scenic values of the river, will be an improvement upon the conditions and impact of the existing bridge.

Figure D – Upstream view of the Lumber River corridor from the NC-41/NC-72 bridge sidewalk

Figure E – Downstream view of the Lumber River corridor from the NC-41/NC-72 bridge sidewalk

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