



US Army Corps  
Of Engineers  
Wilmington District

# PUBLIC NOTICE

Issue Date: January 28, 2015  
Comment Deadline: March 2, 2015  
Corps Action ID Number: SAW-2006-33096  
NC DOT TIP: P-4900 (A and B)

The Wilmington District, Corps of Engineers (Corps) received an application from the North Carolina Department of Transportation (NC DOT), Rail Division seeking Department of the Army authorization to discharge dredged or fill material into waters of the U.S., associated with constructing a single-track connector from the existing north-west CSX Railroad (CSX) "A" Line to the existing east-west CSX "SE" Line north and east of the Town of Pembroke, in Robeson County, North Carolina.

Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at:

<http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram.aspx>

**Applicant:** North Carolina Department of Transportation  
Rail Division  
Attn: Marc L. Hamel  
1553 Mail Service Center  
Raleigh, North Carolina 27699

**AGENT (if applicable):** Axiom Environmental, Inc.  
Attn: Scott G. Davis  
218 Snow Avenue  
Raleigh, North Carolina 27603

## Authority

The Corps evaluates this application and decides whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of the following Statutory Authorities:

- Section 404 of the Clean Water Act (33 U.S.C. 1344)
- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413)

## Location

Directions to Site: From points north, south, and east of the Town of Pembroke, travel on Interstate 95 to Exit 17 and exit onto NC72/NC711 (South Caton Road). Turn right onto NC72/NC711 and travel northwest for approximately 10.1 miles to Union Chapel Road (SR 1563) in the Town of Pembroke. Turn right and travel approximately 0.9 mile to the proposed crossing of the Rail over Union Chapel Road.

From points west of the Town of Pembroke, travel east on Interstate 74 to Exit 200 and exit onto NC/10. Turn left and travel north for approximately 4.9 miles to Union Chapel Road in the Town of Pembroke. Turn left and travel approximately 0.9 mile to the proposed crossing of the Rail over Union Chapel Road.

Project Area (acres): 41.5 acres                      Nearest Town: Pembroke  
Nearest Waterway: Bear Swamp                      River Basin: Lumber 03040203  
Latitude and Longitude: 34.680952 N, -79.175585 W

## Existing Site Conditions

This project lies within the Middle Atlantic Coastal Plain eco-region in the Lumber River Basin (Hydrologic Unit Code 03040203). Terrestrial upland communities in the project study area are represented by three major community types: maintained/disturbed, bottomland hardwood forest, and mixed pine/hardwood forest.

Stream channels within the project study area are classified by the NC DWR as Water Supply IV [water supply watershed (WS-IV)] waters. Jurisdictional features within the P-4900 project study area that will be impacted include three unnamed tributaries (UT's) to Bear Swamp, and six riparian wetlands.

There are no designated High Quality Waters (HQW), Outstanding Resource Waters (ORW), Water Supply I (undeveloped watershed) or II (predominately undeveloped watershed) waters, or waters listed on the 2012 303(d) Final List of Impaired Waters within the project study area or within one mile of the project area.

The project study area is rural in nature, with a number of businesses and two medical facilities located near the intersection of SR 1563 (Union Chapel Road) and Wardell Road. Current land use within the project area is zoned as low density residential and agriculture. The majority of the area is actively farmed or provides pasture for livestock such as cattle. The forested portion of the study area consists of riparian buffers along Bear Swamp and Watering Hole Swamp. Vegetation within the forested area is dominated by loblolly pine (*Pinus taeda*), sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), tulip poplar (*Liriodendron tulipifera*), giant cane (*Arundinaria gigantea*), greenbriar (*Smilax laurifolia*), and Japanese honeysuckle (*Lonicera japonica*).

## **Applicant's Stated Purpose**

The applicant's stated purpose is to provide efficient movement of equipment, supplies, and personnel between the CSX Milan Yard, military facilities at Fort Bragg (Honeycutt Marshalling Yard, Fort Junction), and port facilities at the North Carolina State Port at Wilmington and the Military Ocean Terminal at Sunny Point (MOTSU).

## **Project Description**

The proposed project will involve the preparation for and installation of approximately 2.4 miles of connector track, including a grade-separated crossing at Union Chapel Road (P-4900 A); and the relocation of the existing Jones Road at-grade crossing to eliminate the existing sharp turn adjacent to the rail crossing (P-4900 B). The proposed project will permanently impact approximately 432 linear feet of streams and approximately 2.19 acres of jurisdictional wetlands. In addition, the project will temporarily impact approximately 109 linear feet of streams and 0.03 acre of jurisdictional wetlands. All stream impacts, temporary wetland impacts, and 2.13 acres of permanent wetland impacts are anticipated in conjunction with the P-4900A portion of the project. Permanent wetland impacts anticipated in conjunction with the P-4900B portion of the project total 0.05 acre.

## **Avoidance and Minimization**

The applicant provided the following information in support of efforts to avoid and/or minimize impacts to the aquatic environment: In general, the location of the proposed Rail Connector alignment has been situated just above the outer edge of the Bear Swamp floodplain in order to avoid as many jurisdictional areas as possible while also minimizing the impact on adjacent farmland. Fill slopes have been steepened in areas where stability is not a concern, and Bear Swamp is being crossed by a bridge structure rather than an extension of the double box culverts currently in service under the existing rail.

## **Compensatory Mitigation**

The applicant offered the following compensatory mitigation plan to offset unavoidable functional loss to the aquatic environment: Based upon agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the United States Army Corps of Engineers, Wilmington District" (MOA), it is understood that the North Carolina Ecosystem Enhancement Program (NCEEP) will assume responsibility for satisfying Clean Water Act compensatory mitigation requirements for this project. A total of 600 warm-water stream mitigation credits and 4.38 riparian wetland mitigation credits will be purchased through the NCEEP in-lieu fee program. Permanent impacts to

perennial streams and wetlands will be mitigated at a 2:1 ratio, while permanent impacts to intermittent streams will be mitigated at a 1:1 ratio.

### **Essential Fish Habitat**

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, this Public Notice initiates the Essential Fish Habitat (EFH) consultation requirements. The Corps' initial determination is that the proposed project would not effect EFH or associated fisheries managed by the South Atlantic or Mid Atlantic Fishery Management Councils or the National Marine Fisheries Service.

### **Cultural Resources**

Pursuant to Section 106 of the National Historic Preservation Act of 1966, Appendix C of 33 CFR Part 325, and the 2005 Revised Interim Guidance for Implementing Appendix C, the District Engineer consulted district files and records and the latest published version of the National Register of Historic Places and initially determines that:

- Should historic properties, or properties eligible for inclusion in the National Register, be present within the Corps' permit area; the proposed activity requiring the DA permit (the undertaking) is a type of activity that will have no potential to cause an effect to an historic properties.
- No historic properties, nor properties eligible for inclusion in the National Register, are present within the Corps' permit area; therefore, there will be no historic properties affected. The Corps subsequently requests concurrence from the SHPO (or THPO).
- Properties ineligible for inclusion in the National Register are present within the Corps' permit area; there will be no historic properties affected by the proposed work. The Corps subsequently requests concurrence from the SHPO (or THPO).
- Historic properties, or properties eligible for inclusion in the National Register, are present within the Corps' permit area; however, the undertaking will have no adverse effect on these historic properties. The Corps subsequently requests concurrence from the SHPO (or THPO).
- Historic properties, or properties eligible for inclusion in the National Register, are present within the Corps' permit area; moreover, the undertaking may have an adverse effect on these historic properties. The Corps subsequently initiates consultation with the SHPO (or THPO).
- The proposed work takes place in an area known to have the potential for the presence of prehistoric and historic cultural resources; however, the area has not

been formally surveyed for the presence of cultural resources. No sites eligible for inclusion in the National Register of Historic Places are known to be present in the vicinity of the proposed work. Additional work may be necessary to identify and assess any historic or prehistoric resources that may be present.

The District Engineer's final eligibility and effect determination will be based upon coordination with the SHPO and/or THPO, as appropriate and required, and with full consideration given to the proposed undertaking's potential direct and indirect effects on historic properties within the Corps-identified permit area.

### **Endangered Species**

Pursuant to the Endangered Species Act of 1973, the Corps reviewed the project area, examined all information provided by the applicant and consulted the latest North Carolina Natural Heritage Database. Based on available information:

- The Corps determines that the proposed project would not affect federally listed endangered or threatened species or their formally designated critical habitat.
- The Corps determines that the proposed project may affect federally listed endangered or threatened species or their formally designated critical habitat.  
The Corps initiates consultation under Section 7 of the ESA and will not make a permit decision until the consultation process is complete.
- The Corps is not aware of the presence of species listed as threatened or endangered or their critical habitat formally designated pursuant to the Endangered Species Act of 1973 (ESA) within the project area. The Corps will make a final determination on the effects of the proposed project upon additional review of the project and completion of any necessary biological assessment and/or consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service.

### **Other Required Authorizations**

The Corps forwards this notice and all applicable application materials to the appropriate State agencies for review.

**North Carolina Division of Water Resources (NCDWR):** The Corps will generally not make a final permit decision until the NCDWR issues, denies, or waives the state Certification as required by Section 401 of the Clean Water Act (PL 92-500). The receipt of the application and this public notice, combined with the appropriate application fee, at the NCDWR Central Office in Raleigh constitutes initial receipt of an application for a 401 Certification. A waiver will be deemed to occur if the NCDWR fails to act on this request for certification within sixty days of receipt of a complete application. Additional

information regarding the 401 Certification may be reviewed at the NCDWR Central Office, Transportation Permitting Unit, 512 North Salisbury Street, Raleigh, North Carolina 27604-2260. All persons desiring to make comments regarding the application for a 401 Certification should do so, in writing, by March 2, 2015 to:

NCDWR Central Office  
Attention: Ms. Amy Chapman, Transportation Permitting Unit  
(USPS mailing address): 1617 Mail Service Center, Raleigh, North Carolina  
27699-1617

Or,

(physical address): 512 North Salisbury Street, Raleigh, North Carolina 27604

**North Carolina Division of Coastal Management (NCDCM):**

- The application did not include a certification that the proposed work complies with and would be conducted in a manner that is consistent with the approved North Carolina Coastal Zone Management Program. Pursuant to 33 CFR 325.2 (b)(2) the Corps cannot issue a Department of Army (DA) permit for the proposed work until the applicant submits such a certification to the Corps and the NCDCM, and the NCDCM notifies the Corps that it concurs with the applicant's consistency certification. As the application did not include the consistency certification, the Corps will request, upon receipt, concurrence or objection from the NCDCM.
  
- Based upon all available information, the Corps determines that this application for a Department of Army (DA) permit does not involve an activity which would affect the coastal zone, which is defined by the Coastal Zone Management (CZM) Act (16 U.S.C. § 1453).

**Evaluation**

The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving

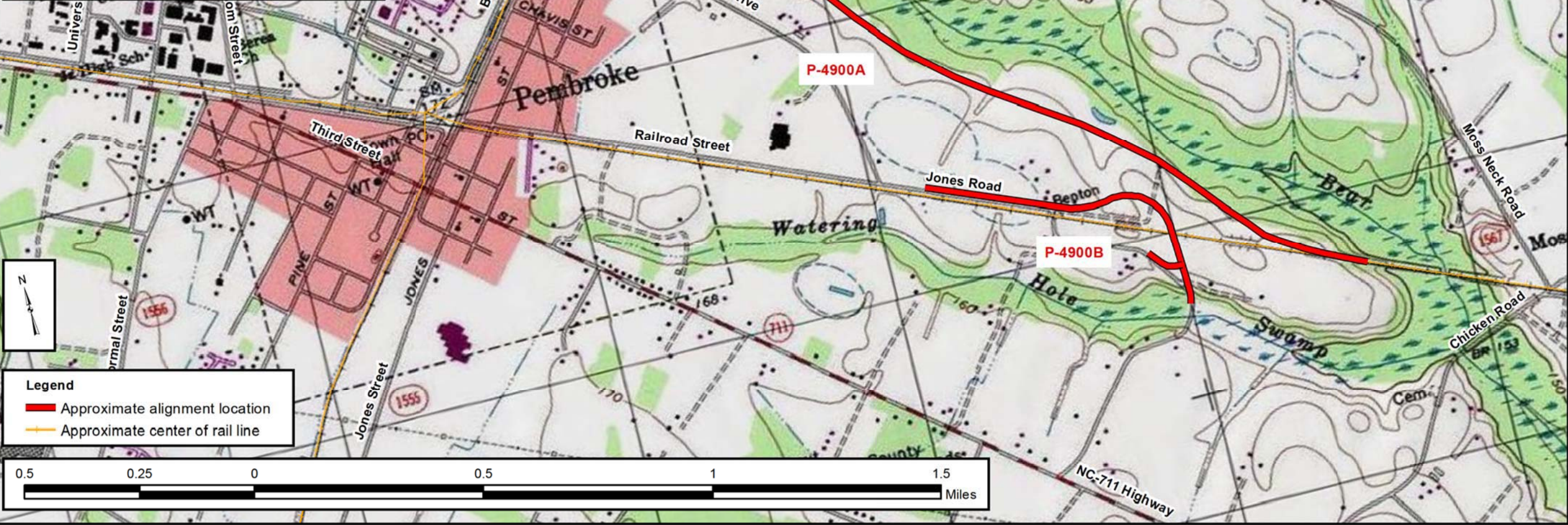
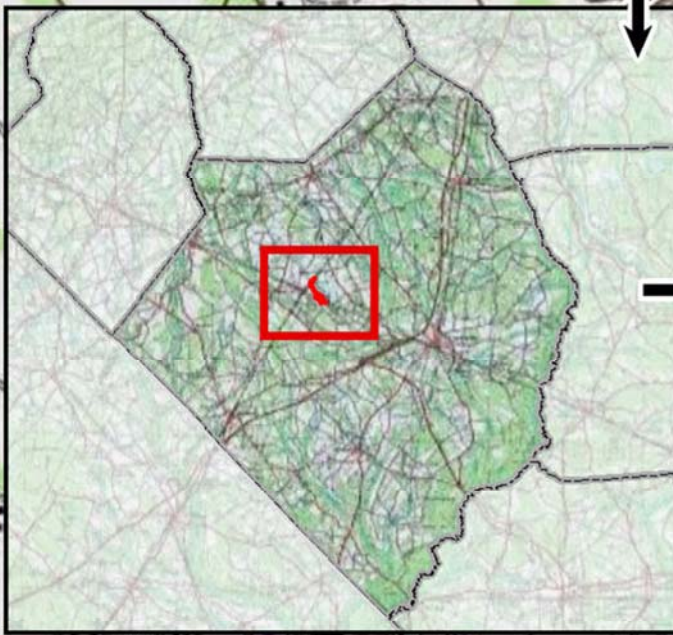
the discharge of dredged or fill materials in waters of the United States, the evaluation of the impact of the activity on the public interest will include application of the Environmental Protection Agency's 404(b)(1) guidelines.

### **Commenting Information**

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials, including any consolidated State Viewpoint or written position of the Governor; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing shall be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

The Corps of Engineers, Wilmington District will receive written comments pertinent to the proposed work, as outlined above, until 5pm, March 2, 2015. Comments should be submitted to Ms. Liz Hair, Wilmington Regulatory Field Office, 69 Darlington Avenue, Wilmington, North Carolina 28403, at (910) 251-4049.



Prepared for:



Project:

**P-4900  
PEMBROKE  
CONNECTOR**

Robeson County, NC

Title:

**PROJECT  
LOCATION**

Notes:

Background imagery:  
Pembroke, NC (2002)  
7.5-minute topographic  
quadrangle provided by  
the U.S. Geological Survey.

Drawn by: SGD

Date: December 2014

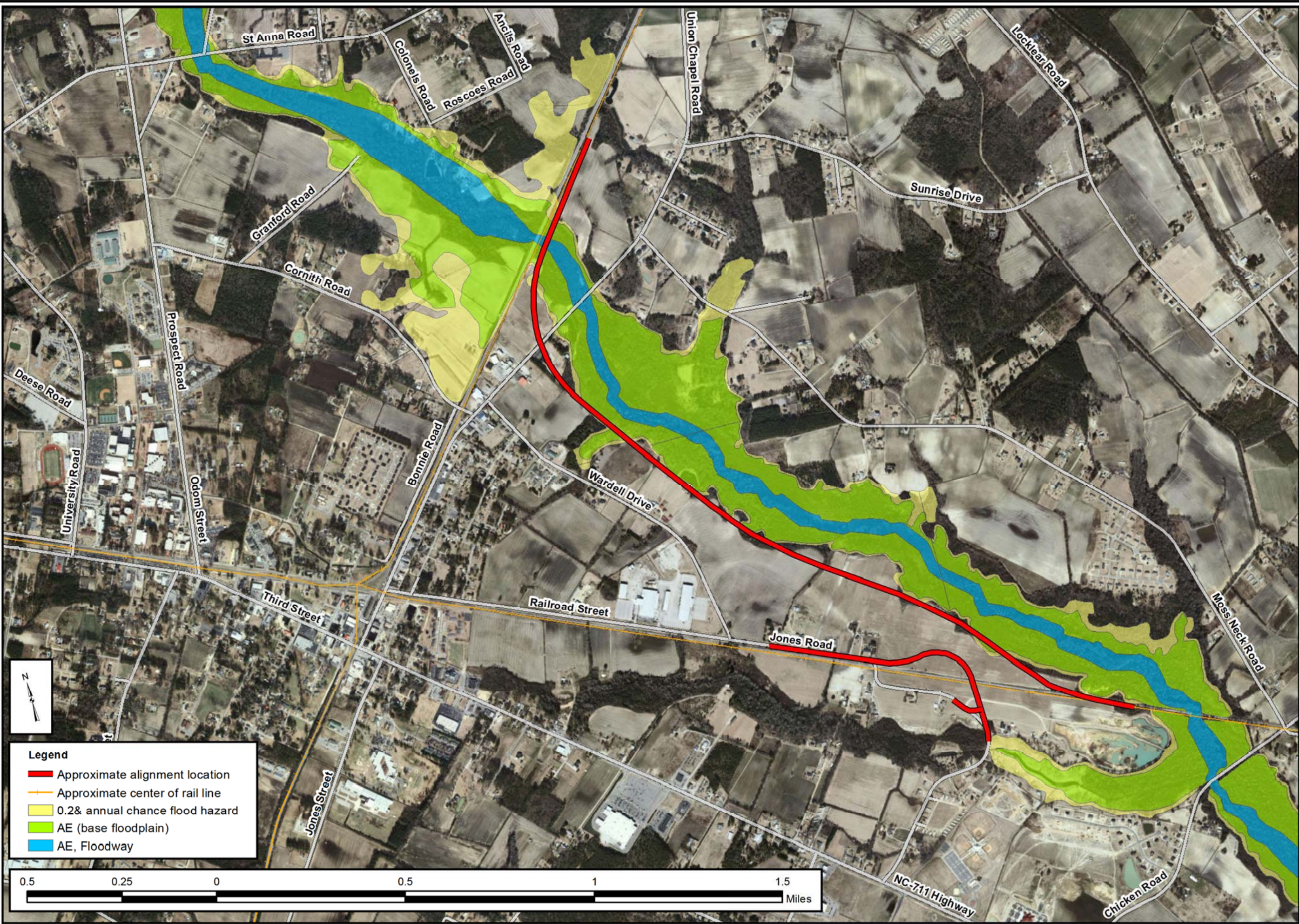
Scale: As Shown

Project No.: 12-020.06e

**FIGURE**

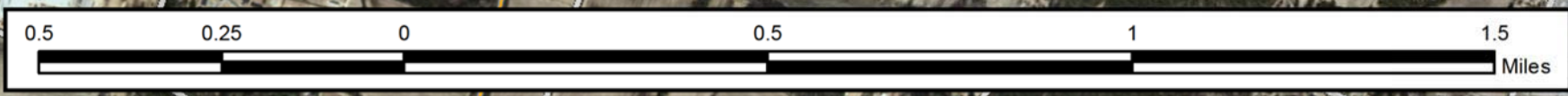
**1**





**Legend**

- Approximate alignment location
- Approximate center of rail line
- 0.2% annual chance flood hazard
- AE (base floodplain)
- AE, Floodway



Prepared for:



Project:

**P-4900  
PEMBROKE  
CONNECTOR**

Robeson County, NC

Title:

**FEMA  
FLOOD  
INSURANCE  
RATE  
MAPPING**

Notes:

1. Background imagery: Pembroke, NC (2002) 7.5-minute topographic quadrangle provided by the U.S. Geological Survey.
2. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Mapping (FIRM) data provided by the NC Floodplain Mapping Program (NCFMP, online).

Drawn by: SGD

Date: December 2014

Scale: 15,000

Project No.: 12-020.06e

FIGURE

2



North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 2.01; Released December 2014)

WBS Element: 41099.1.S3 / 41099. TIP No.: P-4900A/B County(ies): Robeson Page 1 of 2

General Project Information

WBS Element:	41099.1.S3 / 41099.1.S3	TIP Number:	P-4900A/B	Project Type:	New Location	Date:	12/15/2014
NCDOT Contact:	James F. Bridges Jr. PE		Contractor / Designer:	HNTB North Carolina, P.C. / John F. Watson, PE			
Address:	NC Rail Division 862 Capital Blvd. Raleigh, NC 27603		Address:	343 E. Six Forks Road, Suite 200 Raleigh, NC 27609			
	Phone: (919) 707-4716			Phone: (919) 424-0444			
	Email: jfbridges@ncdot.gov			Email: jfwatson@hntb.com			
City/Town:	Pembroke		County(ies):	Robeson			
River Basin(s):	Lumber		CAMA County?	No			
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	2.40	Surrounding Land Use:	Rural Agriculture				
	Proposed Project		Existing Site				
Project Built-Upon Area (ac.)	41.5	ac.	N/A		ac.		
Typical Cross Section Description:	Single track Rail Line with Boulevard Ditches			N/A			

Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	N/A	Year:	Existing:	N/A	Year:
--	----------------	-----	-------	-----------	-----	-------

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

The project P-4900A involves the construction of the Pembroke Connector between the CSX A-Line and SE-Line and P-4900B involves realignment of SR 1571 (Jones Rd.) outside of Pembroke, NC. P-4900A involves two major structures, one bridge over Union Chapel Rd. and one over Bear Swamp. The Bear Swamp Bridge consists of 2 @ 55'-0" 4'-6" pre-stressed box girder units 20' wide with a trestle bent in the center. The bridge is designed with 6" scuppers in the rail that are placed at 6' intervals these scuppers discharge into the surface water or onto the spill through abutments. Also on this project is a 2 @ 7' x 6' RCBC and concrete pipes of varying sizes. The railroad bed will consist of mainly 3:1 fill slopes with 3' boulevard ditches left and right for the majority of the project. The P-4900B project realigns existing SR 1571 (Jones Rd) and consists of a 2- 12' lanes, 8' shoulders, and 'V' ditches with 4:1 front slopes and 3:1 backslopes. All outlets into jurisdictional features were designed to minimize velocities into those features.

Waterbody Information

Surface Water Body (1):	Bear Swamp		NCDWR Stream Index No.:	14-9-(1.5)			
NCDWR Surface Water Classification for Water Body	Primary Classification:		Water Supply IV (WS-IV)				
	Supplemental Classification:		Swamp Waters (Sw)				
Other Stream Classification:	None						
Impairments:	None						
Threatened/Endangered Species?	No	Comments:					
NRTR Stream ID:	N/A		Buffer Rules in Effect:		N/A		
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?		No	
Deck Drains Discharge Over Water Body?	Yes	(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 2.01; Released December 2014)

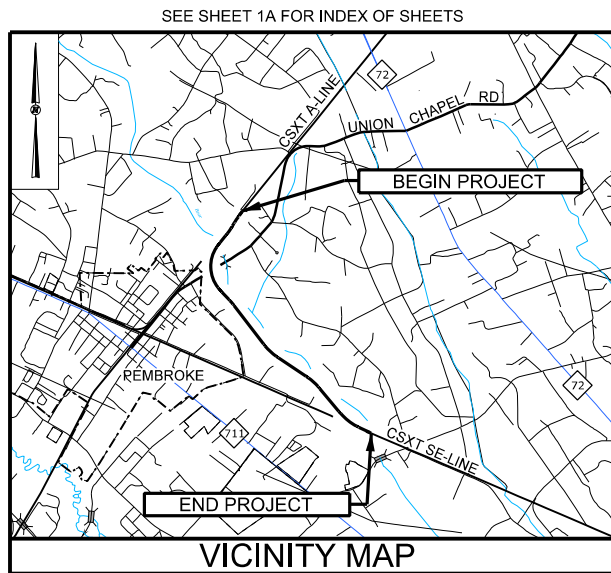
WBS Element: 41099.1.S3 / 41099. TIP No.: P-4900A/B County(ies): Robeson Page 2 of 2

**Additional Waterbody Information**

Surface Water Body (2):	Watering Hole Swamp		NCDWR Stream Index No.:	14-9-2	
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply IV (WS-IV)			
	Supplemental Classification:	Swamp Waters (Sw)			
Other Stream Classification:	None				
Impairments:	None				
Threatened/Endangered Species?	No	Comments:			
NRTR Stream ID:	N/A		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)					

**TIP PROJECT: P-4900A/B**

**CONTRACT: C203632**



STATE OF NORTH CAROLINA  
NCDOT RAIL DIVISION

**ROBESON COUNTY**

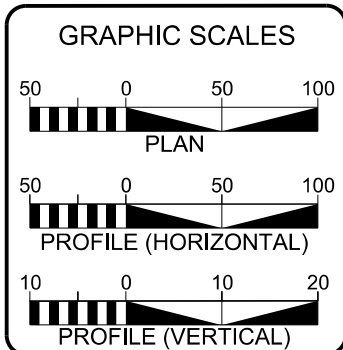
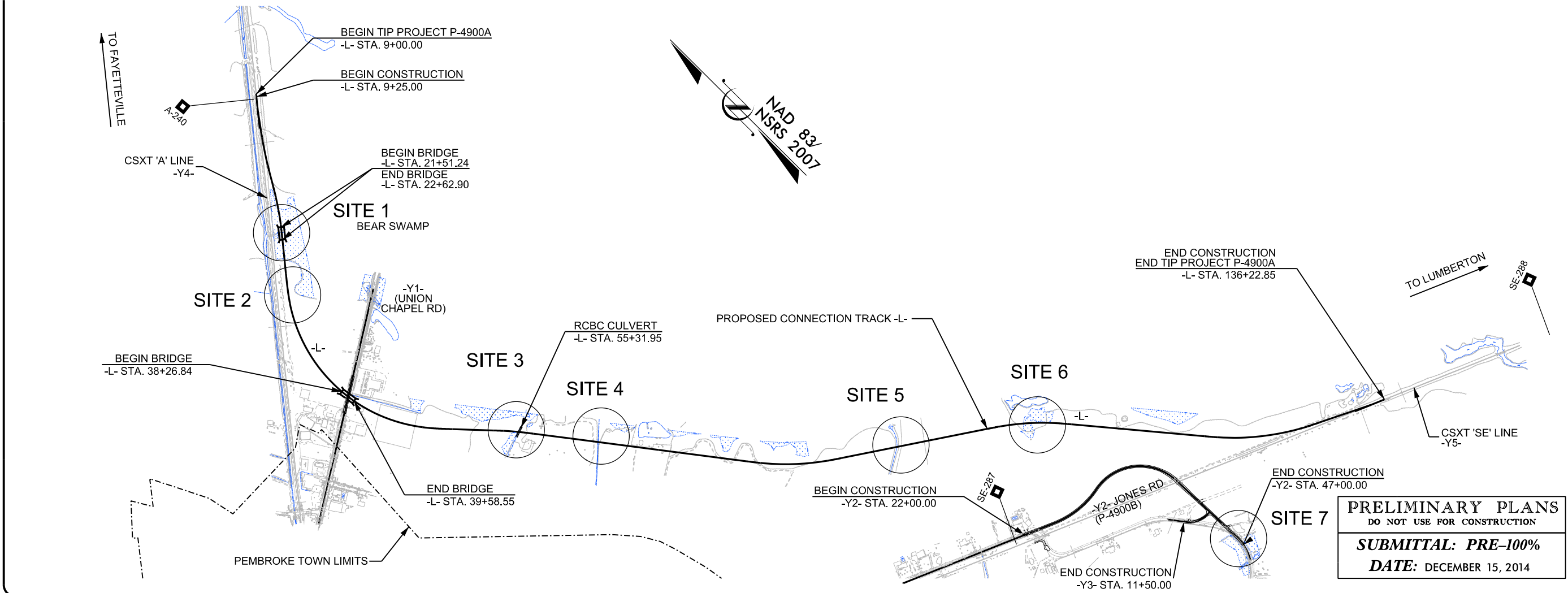
**LOCATION: RAILROAD BYPASS OF PEMBROKE**

**TYPE OF WORK: RAILROAD ROADBED, GRADING, DRAINAGE, STRUCTURES**

**WETLAND AND STREAM IMPACTS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	P-4900A/B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41099.1.S3		P.E. / UTIL P.E. / ROW	
41099.3.S2		CONST./UTIL CONST.	

PERMIT DRAWING  
SHEET 1 OF 25



PROJECT LENGTH	
LENGTH OF RAIL TIP PROJECT	2.358 MILES
LENGTH OF STRUCTURES TIP PROJECT	0.047 MILES
TOTAL LENGTH OF RAIL TIP PROJECT	2.405 MILES
LENGTH OF ROADWAY PROJECT P-4900B	= 0.473
TOTAL LENGTH OF ROADWAY PROJECT P-4900B	= 0.473
NCDOT CONTACT:	BRAD SMYTHE, P.E. NCDOT PROJECT MANAGER

Prepared in the Office of:

**HNTB**  
HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
MAY 30, 2014

LETTING DATE:  
APRIL 21, 2015

COREY VERNIER, P.E.  
RAIL PROJECT ENGINEER

ENRICO ROQUE, P.E.  
ROADWAY PROJECT DESIGN ENGINEER

DAVID HAWKINS, P.E.  
STRUCTURE PROJECT ENGINEER

JAMES BYRD, P.E.  
HYDRAULICS PROJECT ENGINEER

BRAD SMYTHE, P.E.  
NCDOT PROJECT MANAGER

RAIL ENGINEER

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

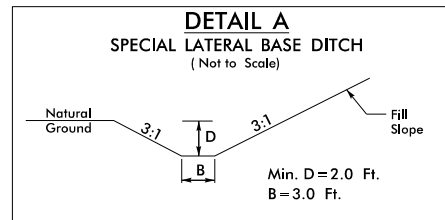
HYDRAULICS ENGINEER

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

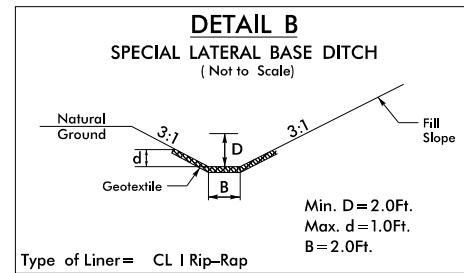
NC DEPARTMENT OF TRANSPORTATION  
**RAIL DIVISION**  
DESIGN AND CONSTRUCTION

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION  
**SUBMITTAL: PRE-100%**  
DATE: DECEMBER 15, 2014

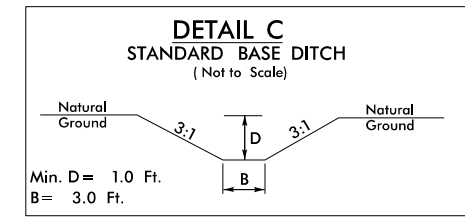
RW SHEET NO.	
RAILROAD DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



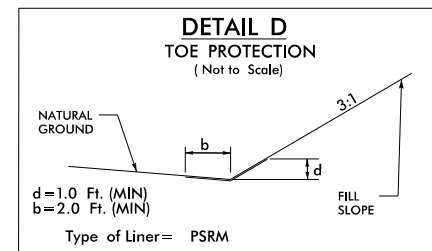
- FROM -L- STA. 9+25 TO STA. 18+00 LT.  
FROM -L- STA. 28+00 TO STA. 34+00 LT.  
FROM -L- STA. 40+00 TO STA. 54+90 RT.  
FROM -L- STA. 46+50 TO STA. 51+00 LT.  
FROM -L- STA. 53+00 TO STA. 55+56 LT.  
FROM -L- STA. 55+56 TO STA. 58+00 LT.  
FROM -L- STA. 58+00 TO STA. 62+64 RT.  
FROM -L- STA. 58+00 TO STA. 62+72 RT.  
FROM -L- STA. 62+72 TO STA. 70+00 RT.  
FROM -L- STA. 63+50 TO STA. 66+44 LT.  
FROM -L- STA. 66+44 TO STA. 73+00 LT.  
FROM -L- STA. 70+00 TO STA. 74+38 RT.  
FROM -L- STA. 73+00 TO STA. 74+38 LT.  
FROM -L- STA. 74+38 TO STA. 76+00 RT.  
FROM -L- STA. 74+38 TO STA. 76+00 LT.  
FROM -L- STA. 76+00 TO STA. 81+02 RT.  
FROM -L- STA. 76+00 TO STA. 81+02 LT.  
FROM -L- STA. 81+02 TO STA. 88+00 RT.  
FROM -L- STA. 82+50 TO STA. 88+00 LT.  
FROM -L- STA. 88+00 TO STA. 90+31 RT.  
FROM -L- STA. 88+00 TO STA. 90+58 LT.  
FROM -L- STA. 90+31 TO STA. 93+00 RT.  
FROM -L- STA. 90+58 TO STA. 96+00 LT.  
FROM -L- STA. 93+00 TO STA. 102+70 RT.  
FROM -L- STA. 96+00 TO STA. 102+00 LT.  
FROM -L- STA. 102+70 TO STA. 109+18 RT.  
FROM -L- STA. 105+50 TO STA. 112+00 LT.  
FROM -L- STA. 109+18 TO STA. 116+29 RT.  
FROM -L- STA. 112+00 TO STA. 116+29 LT.  
FROM -L- STA. 116+29 TO STA. 120+15 RT.  
FROM -L- STA. 116+29 TO STA. 120+00 LT.  
FROM -L- STA. 120+15 TO STA. 122+07 RT.  
FROM -L- STA. 122+07 TO STA. 125+00 RT.  
FROM -L- STA. 125+50 TO STA. 132+00 LT.  
FROM -L- STA. 124+00 TO STA. 128+00 RT.



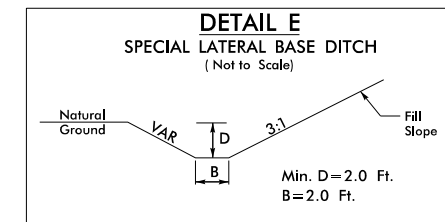
Type of Liner = CL I Rip-Rap  
FROM -L- STA. 24+50 TO STA. 25+50 RT.



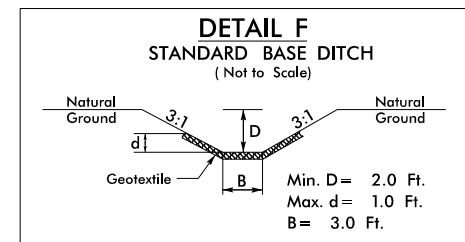
- FROM STA. -L- 18+00 - 19+23 LT.  
FROM STA. -L- 27+72 - 28+00 LT.  
FROM STA. -L- 51+00 - 51+56 LT.  
AT STA. -L- 66+44 LT.  
AT STA. -L- 74+38 LT.  
AT STA. -L- 81+02 LT.  
FROM STA. -L- 82+30 - 82+50 LT.  
FROM STA. -L- 102+00 - 102+46 LT.  
AT STA. -L- 102+70 RT.  
FROM STA. -L- 105+03 - 105+50 LT.  
AT STA. -L- 116+29 LT.  
AT STA. -L- 122+06 LT.  
FROM STA. -L- 132+00 - 132+50 LT.



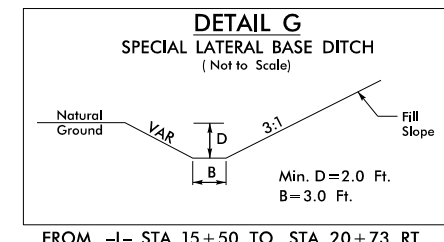
Type of Liner = PSRM  
FROM -L- STA. 55+25 TO STA. 57+00 RT.  
FROM -L- STA. 20+50 TO STA. 21+00 RT.  
FROM -L- STA. 23+12 TO STA. 24+50 RT.



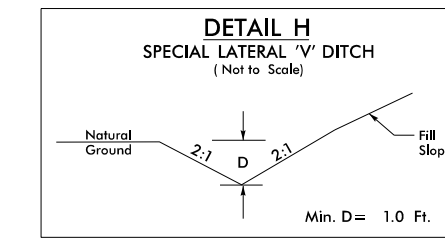
FROM -L- STA. 25+50 TO STA. 34+50 RT.



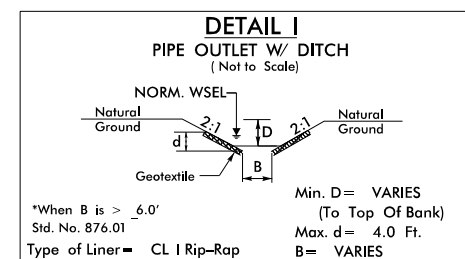
Type of Liner = CL I Rip-Rap  
FROM -L- STA. 132+00 TO STA. 132+50 LT.



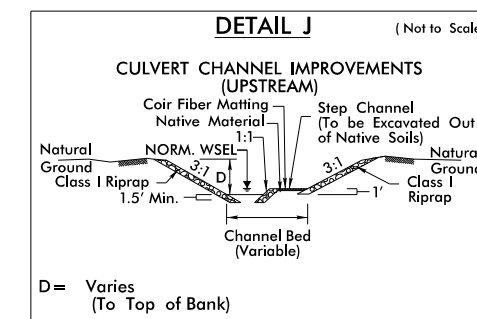
FROM -L- STA. 15+50 TO STA. 20+73 RT.



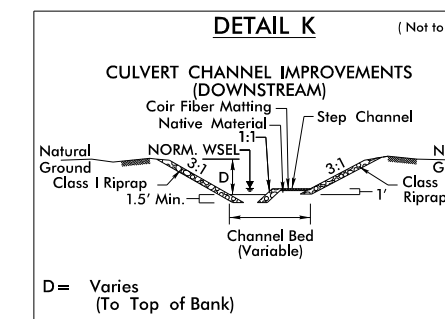
FROM STA. 39+11.6 TO STA. 40+69.19 LT



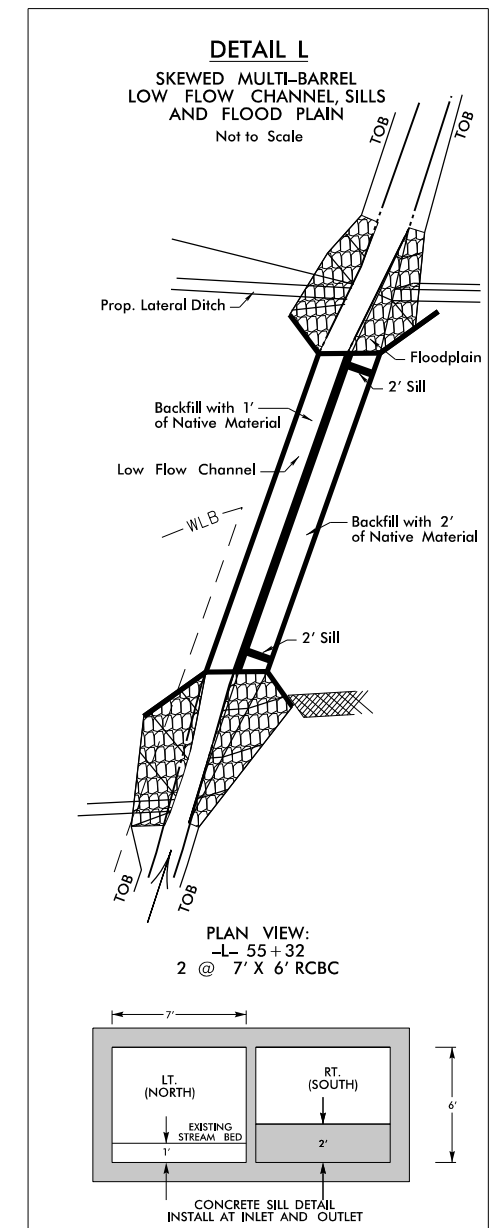
\*When B is > 6.0'  
Std. No. 876.01  
Type of Liner = CL I Rip-Rap  
FROM STA. 62+60 TO STA. 62+76  
FROM STA. 90+14 TO STA. 90+61



D = Varies (To Top of Bank)  
FROM STA. 54+88 TO STA. 55+31



D = Varies (To Top of Bank)  
FROM STA. 55+30 TO STA. 55+66

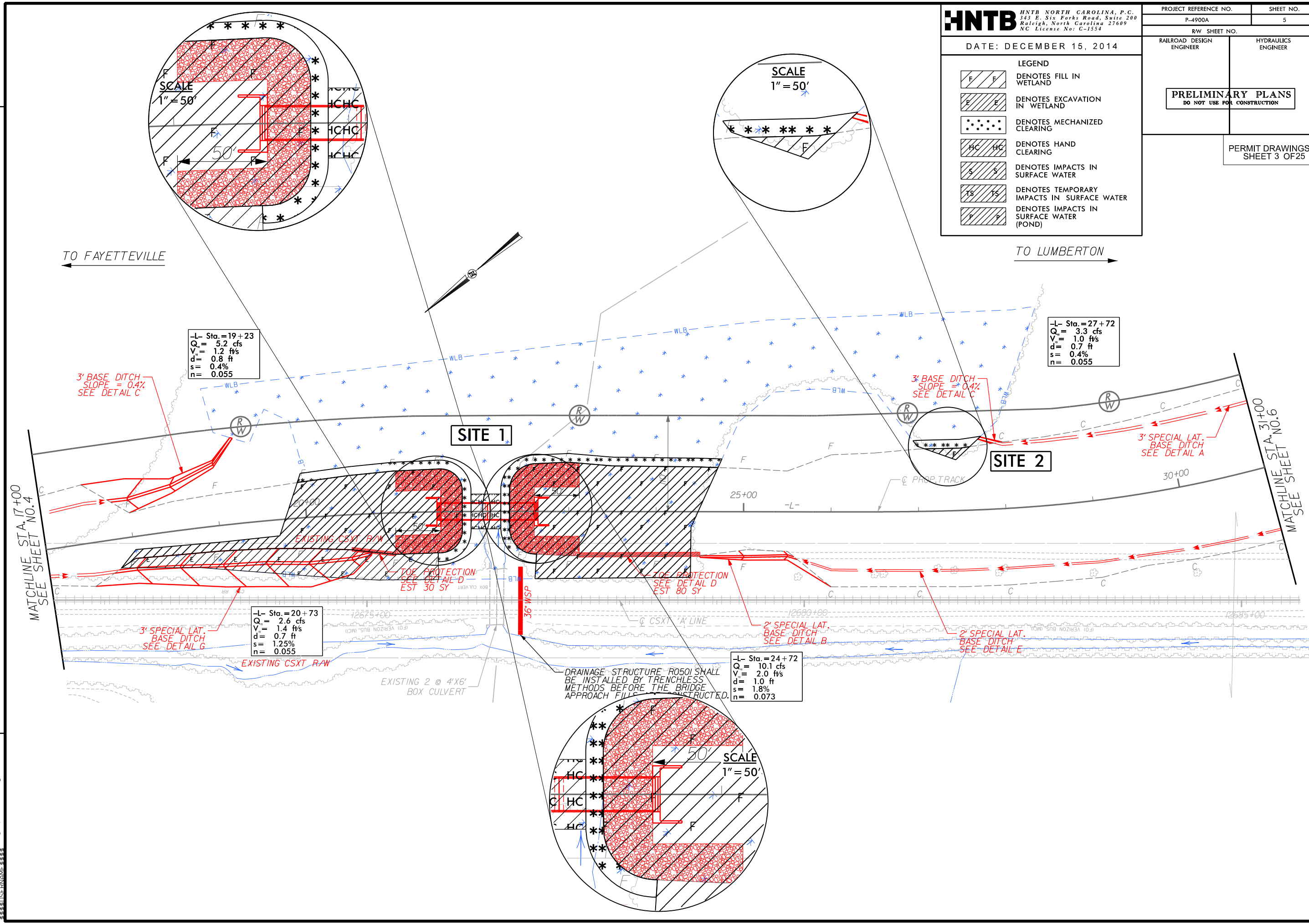
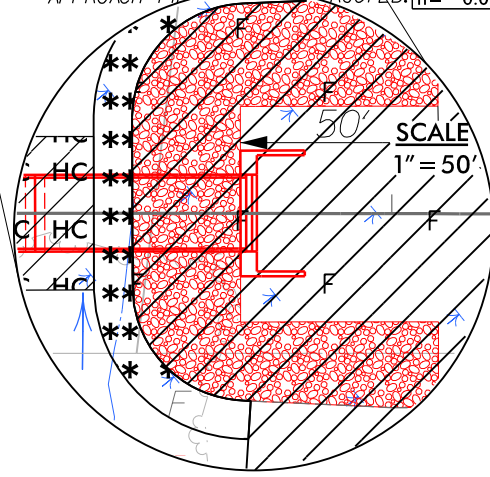
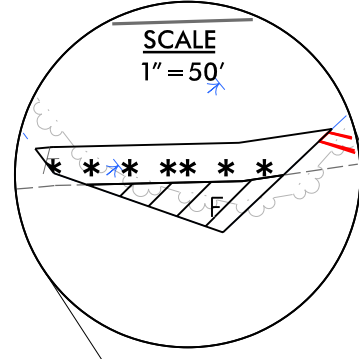
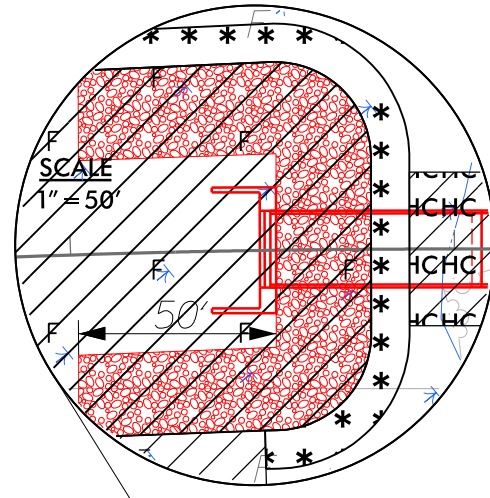


**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS  
 SHEET 3 OF 25

DATE: DECEMBER 15, 2014

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES HAND CLEARING
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)



L- Sta. = 19 + 23  
 $Q = 5.2$  cfs  
 $V = 1.2$  ft/s  
 $d = 0.8$  ft  
 $s = 0.4\%$   
 $n = 0.055$

L- Sta. = 27 + 72  
 $Q = 3.3$  cfs  
 $V = 1.0$  ft/s  
 $d = 0.7$  ft  
 $s = 0.4\%$   
 $n = 0.055$

L- Sta. = 20 + 73  
 $Q = 2.6$  cfs  
 $V = 1.4$  ft/s  
 $d = 0.7$  ft  
 $s = 1.25\%$   
 $n = 0.055$

L- Sta. = 24 + 72  
 $Q = 10.1$  cfs  
 $V = 2.0$  ft/s  
 $d = 1.0$  ft  
 $s = 1.8\%$   
 $n = 0.073$

3' BASE DITCH  
 SLOPE = 0.4%  
 SEE DETAIL C

3' BASE DITCH  
 SLOPE = 0.4%  
 SEE DETAIL C

3' SPECIAL LAT.  
 BASE DITCH  
 SEE DETAIL G

2' SPECIAL LAT.  
 BASE DITCH  
 SEE DETAIL B

2' SPECIAL LAT.  
 BASE DITCH  
 SEE DETAIL E

3' SPECIAL LAT.  
 BASE DITCH  
 SEE DETAIL A

EXISTING 2 @ 4'X6'  
 BOX CULVERT

DRAINAGE STRUCTURE R0501 SHALL  
 BE INSTALLED BY TRENCHLESS  
 METHODS BEFORE THE BRIDGE  
 APPROACH FILLS ARE CONSTRUCTED.

MATCHLINE STA. 17+00  
 SEE SHEET NO. 4

MATCHLINE STA. 31+00  
 SEE SHEET NO. 6

TO FAYETTEVILLE

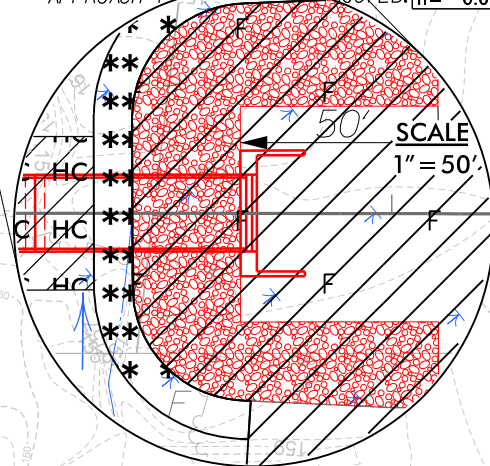
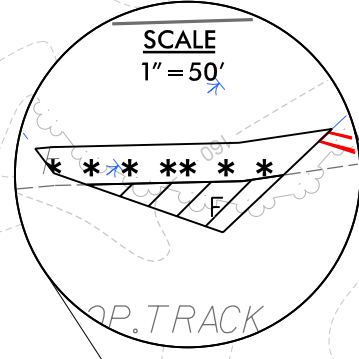
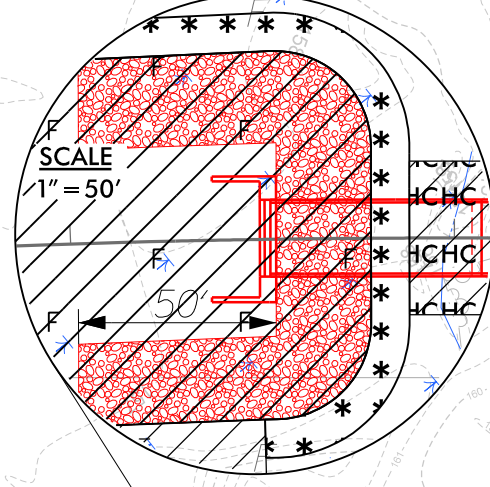
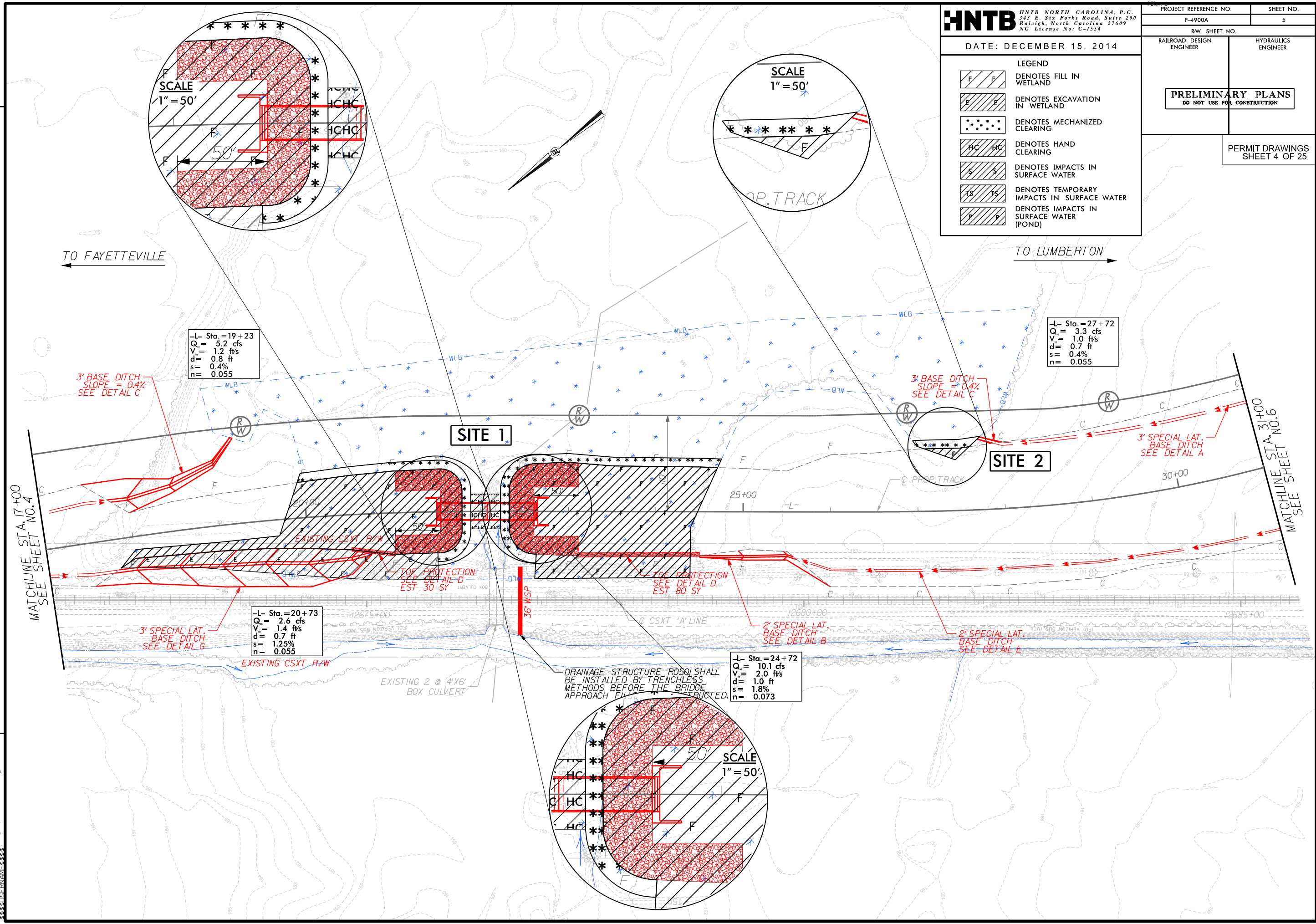
TO LUMBERTON

REVISIONS

DATE: DECEMBER 15, 2014

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES HAND CLEARING
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)

RAILROAD DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
PERMIT DRAWINGS SHEET 4 OF 25	



L- Sta. = 19+23  
 Q = 5.2 cfs  
 V = 1.2 ft/s  
 d = 0.8 ft  
 s = 0.4%  
 n = 0.055

L- Sta. = 27+72  
 Q = 3.3 cfs  
 V = 1.0 ft/s  
 d = 0.7 ft  
 s = 0.4%  
 n = 0.055

L- Sta. = 20+73  
 Q = 2.6 cfs  
 V = 1.4 ft/s  
 d = 0.7 ft  
 s = 1.25%  
 n = 0.055

L- Sta. = 24+72  
 Q = 10.1 cfs  
 V = 2.0 ft/s  
 d = 1.0 ft  
 s = 1.8%  
 n = 0.073

3' BASE DITCH  
 SLOPE = 0.4%  
 SEE DETAIL C

3' BASE DITCH  
 SLOPE = 0.4%  
 SEE DETAIL C

3' SPECIAL LAT.  
 BASE DITCH  
 SEE DETAIL A

3' SPECIAL LAT.  
 BASE DITCH  
 SEE DETAIL G

2' SPECIAL LAT.  
 BASE DITCH  
 SEE DETAIL B

2' SPECIAL LAT.  
 BASE DITCH  
 SEE DETAIL E

TOE PROTECTION  
 SEE DETAIL D  
 EST 30 SY

TOE PROTECTION  
 SEE DETAIL D  
 EST 80 SY

DRAINAGE STRUCTURE (ROSS) SHALL  
 BE INSTALLED BY TRENCHLESS  
 METHODS BEFORE THE BRIDGE  
 APPROACH FILL IS CONSTRUCTED.

EXISTING 2 @ 4'X6'  
 BOX CULVERT

REVISIONS

MATCHLINE STA. 17+00  
 SEE SHEET NO. 4

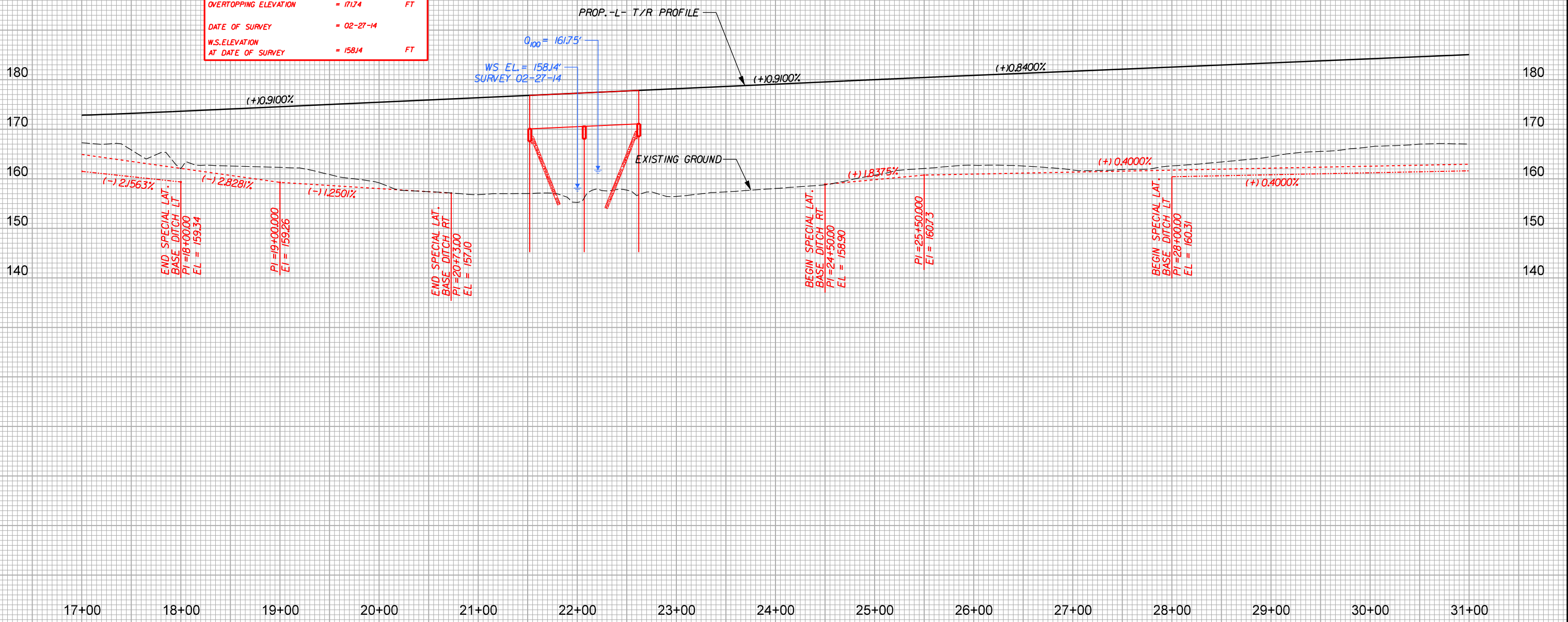
MATCHLINE STA. 31+00  
 SEE SHEET NO. 6

1"=100' HORIZONTAL  
1"=20' VERTICAL

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 1020	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 161.75	FT
BASE DISCHARGE	= 1020	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 161.75	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= >500+	YRS
OVERTOPPING ELEVATION	= 171.74	FT
DATE OF SURVEY	= 02-27-14	
W.S. ELEVATION AT DATE OF SURVEY	= 158.14	FT

SITE 1



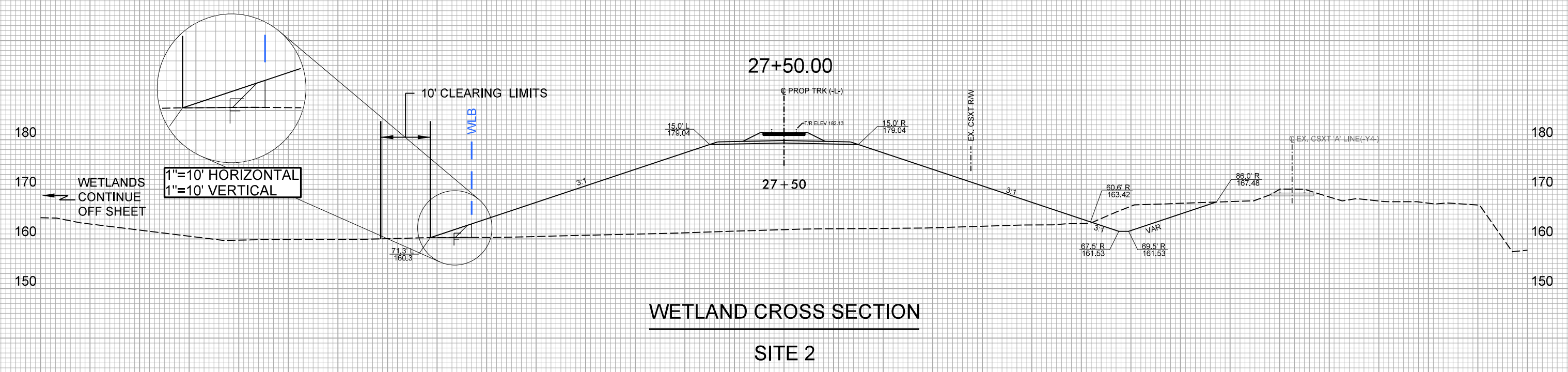
12:31:19 PM C:\Users\jordan\Documents\proj\bridge-hyd\_perm\_XSC.dgn





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

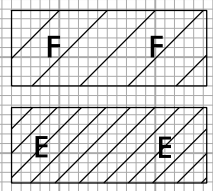
1"=20' HORIZONTAL  
1"=20' VERTICAL



1"=10' HORIZONTAL  
1"=10' VERTICAL

WETLANDS  
CONTINUE  
OFF SHEET

**LEGEND**



DENOTES FILL IN  
WETLAND

DENOTES EXCAVATION  
IN WETLAND

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

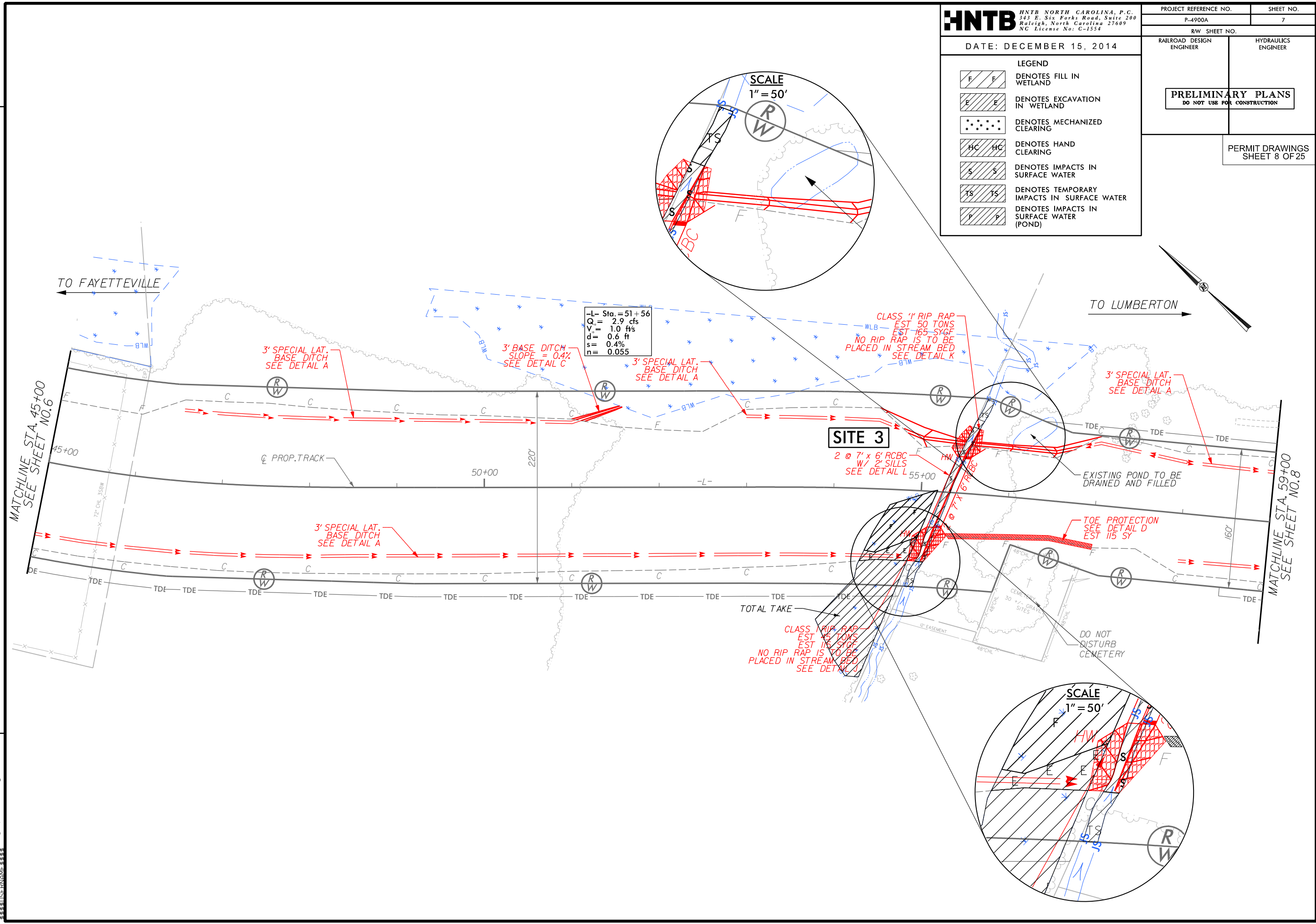
12:30:59 PM  
C:\Users\james\Documents\proj\amb\proj\amb-hyd\_perm\_XSC.dgn

DATE: DECEMBER 15, 2014

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES HAND CLEARING
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)

**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS  
 SHEET 8 OF 25



-L- Sta. = 51+56  
 V = 2.9 cfs  
 Q = 1.0 ft/s  
 d = 0.6 ft  
 s = 0.4%  
 n = 0.055

**SITE 3**

CLASS 1 RIP RAP  
 EST 45 TONS  
 EST 115 SY  
 NO RIP RAP IS TO BE  
 PLACED IN STREAM BED  
 SEE DETAIL J

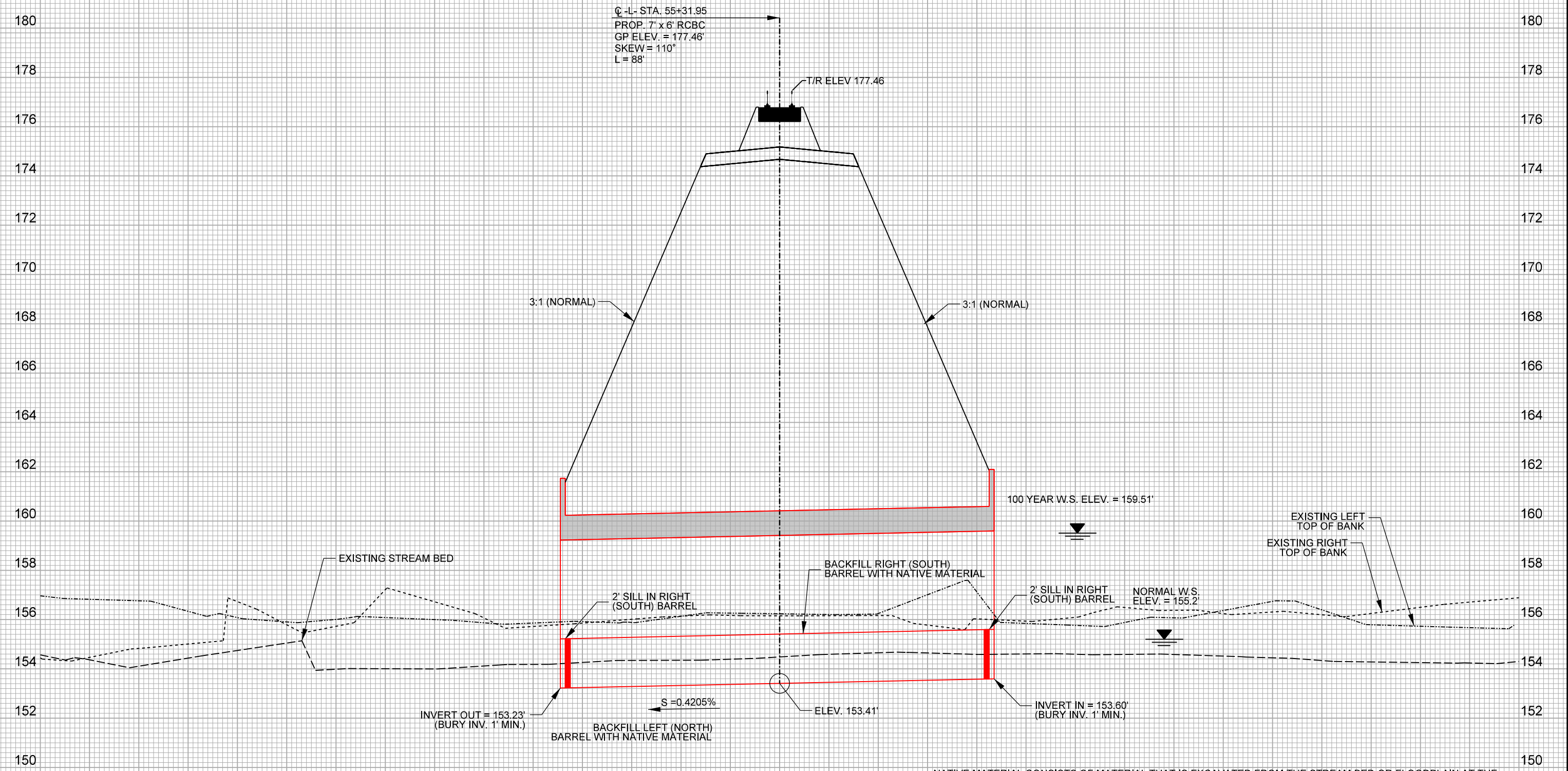
SCALE  
 1" = 50'

REVISIONS



1"=20' HORIZONTAL  
1"=4' VERTICAL

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



CL- STA. 55+31.95  
PROP. 7' x 6' RCBC  
GP ELEV. = 177.46'  
SKEW = 110°  
L = 88'

T/R ELEV 177.46

3:1 (NORMAL)

3:1 (NORMAL)

100 YEAR W.S. ELEV. = 159.51'

EXISTING STREAM BED

BACKFILL RIGHT (SOUTH) BARREL WITH NATIVE MATERIAL

EXISTING LEFT TOP OF BANK  
EXISTING RIGHT TOP OF BANK

2' SILL IN RIGHT (SOUTH) BARREL

2' SILL IN RIGHT (SOUTH) BARREL  
NORMAL W.S. ELEV. = 155.2'

INVERT OUT = 153.23'  
(BURY INV. 1' MIN.)

S = 0.4205%

ELEV. 153.41'

INVERT IN = 153.60'  
(BURY INV. 1' MIN.)

BACKFILL LEFT (NORTH) BARREL WITH NATIVE MATERIAL

PROFILE ALONG STRUCTURE  
SITE 3

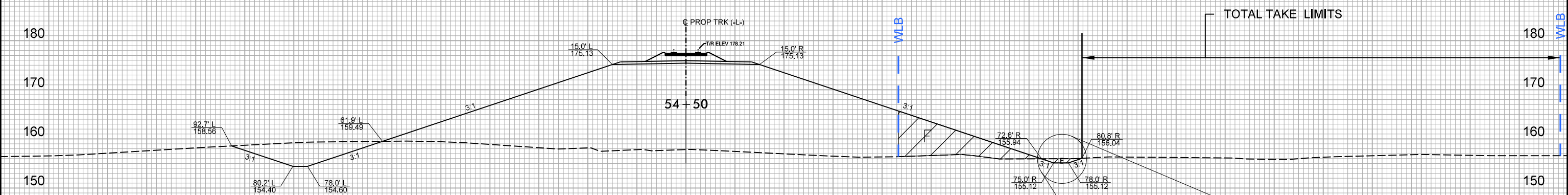
NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

6/12/22 PM 3:53:06 6:12/22 PM 3:53:06 6:12/22 PM 3:53:06

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

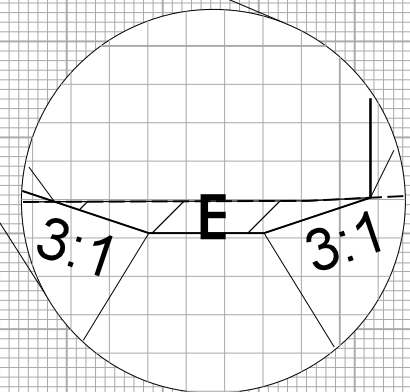
1"=20' HORIZONTAL  
1"=20' VERTICAL

54+50.00



**WETLAND CROSS SECTION**  
**SITE 3**

- LEGEND**
- DENOTES EXCAVATION IN WETLAND
  - DENOTES FILL IN WETLAND



1"=5' HORIZONTAL  
1"=5' VERTICAL

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

12:31:02 PM  
C:\Users\jgambro\OneDrive\Documents\proj\49000\11\110111\110111.dgn

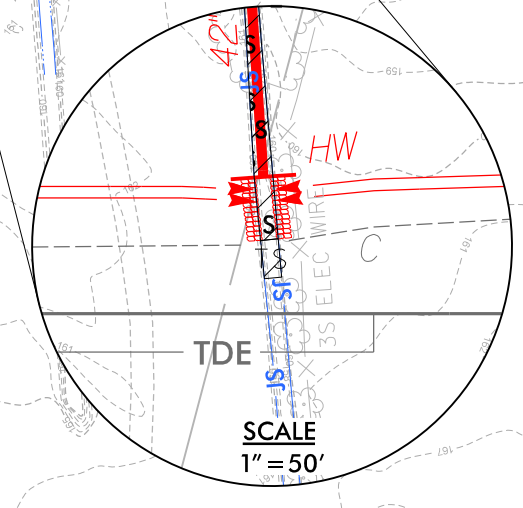
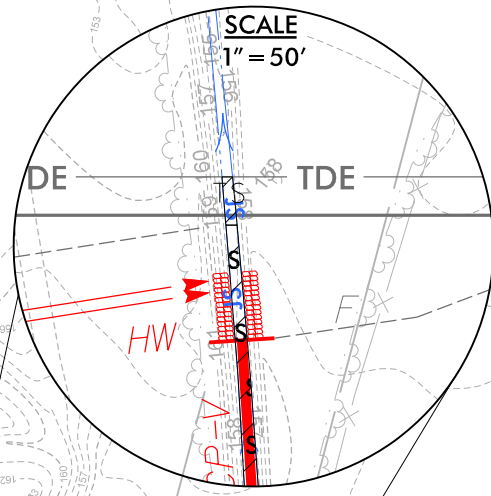
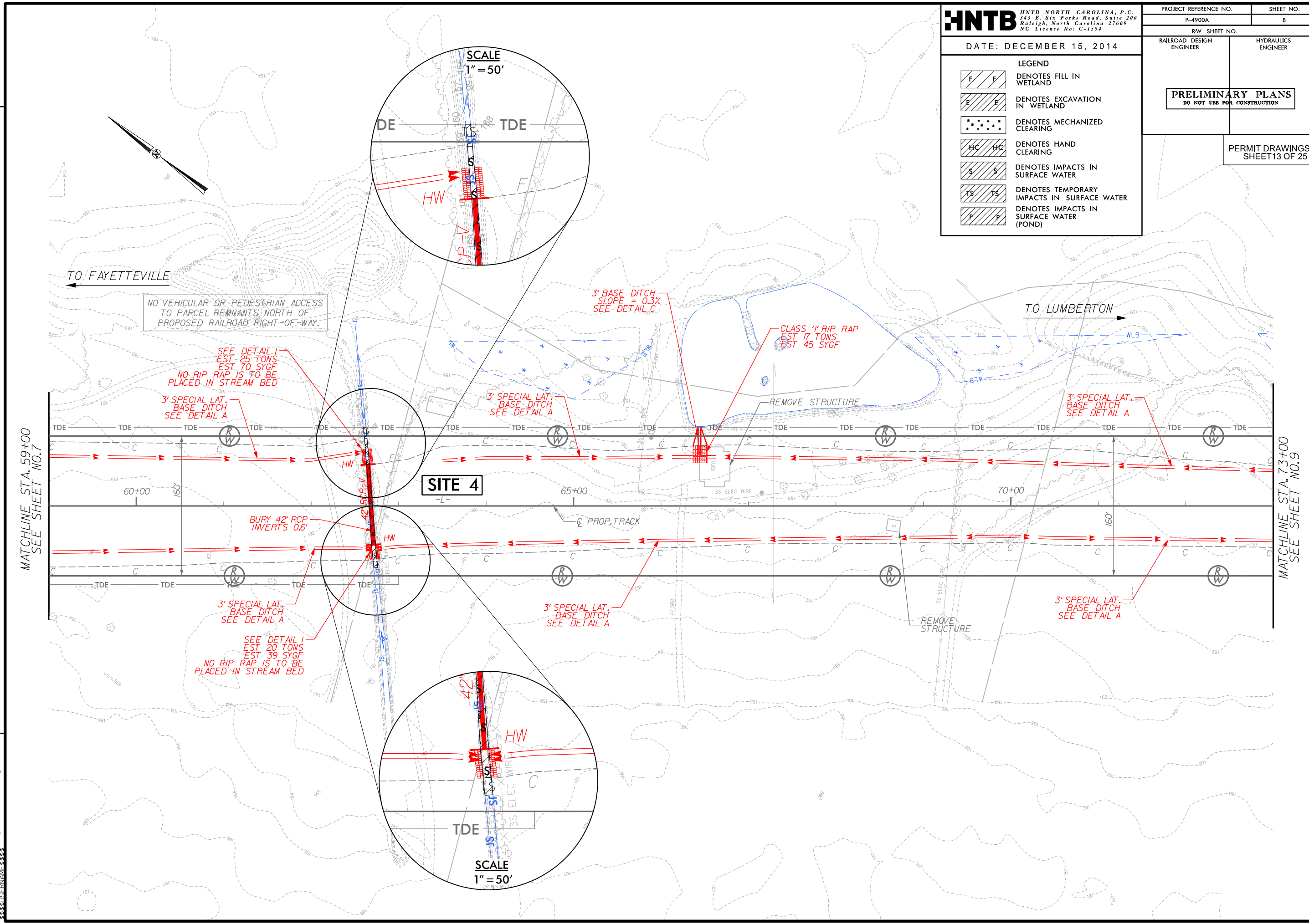


DATE: DECEMBER 15, 2014

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES HAND CLEARING
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)

**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS  
 SHEET 13 OF 25



NO VEHICULAR OR PEDESTRIAN ACCESS TO PARCEL REMNANTS NORTH OF PROPOSED RAILROAD RIGHT-OF-WAY.

SEE DETAIL I  
 EST. 25 TONS  
 EST. 70 SYGF  
 NO RIP RAP IS TO BE PLACED IN STREAM BED

3' SPECIAL LAT. BASE DITCH  
 SEE DETAIL A

3' SPECIAL LAT. BASE DITCH  
 SEE DETAIL A

3' BASE DITCH  
 SLOPE = 0.3%  
 SEE DETAIL C

CLASS 1' RIP RAP  
 EST. 17 TONS  
 EST. 45 SYGF

3' SPECIAL LAT. BASE DITCH  
 SEE DETAIL A

BURY 42" RCP  
 INVERTS 0.6'

3' SPECIAL LAT. BASE DITCH  
 SEE DETAIL A

3' SPECIAL LAT. BASE DITCH  
 SEE DETAIL A

SEE DETAIL I  
 EST. 20 TONS  
 EST. 39 SYGF  
 NO RIP RAP IS TO BE PLACED IN STREAM BED

3' SPECIAL LAT. BASE DITCH  
 SEE DETAIL A

MATCHLINE STA. 59+00  
 SEE SHEET NO. 7

MATCHLINE STA. 73+00  
 SEE SHEET NO. 9

REVISIONS





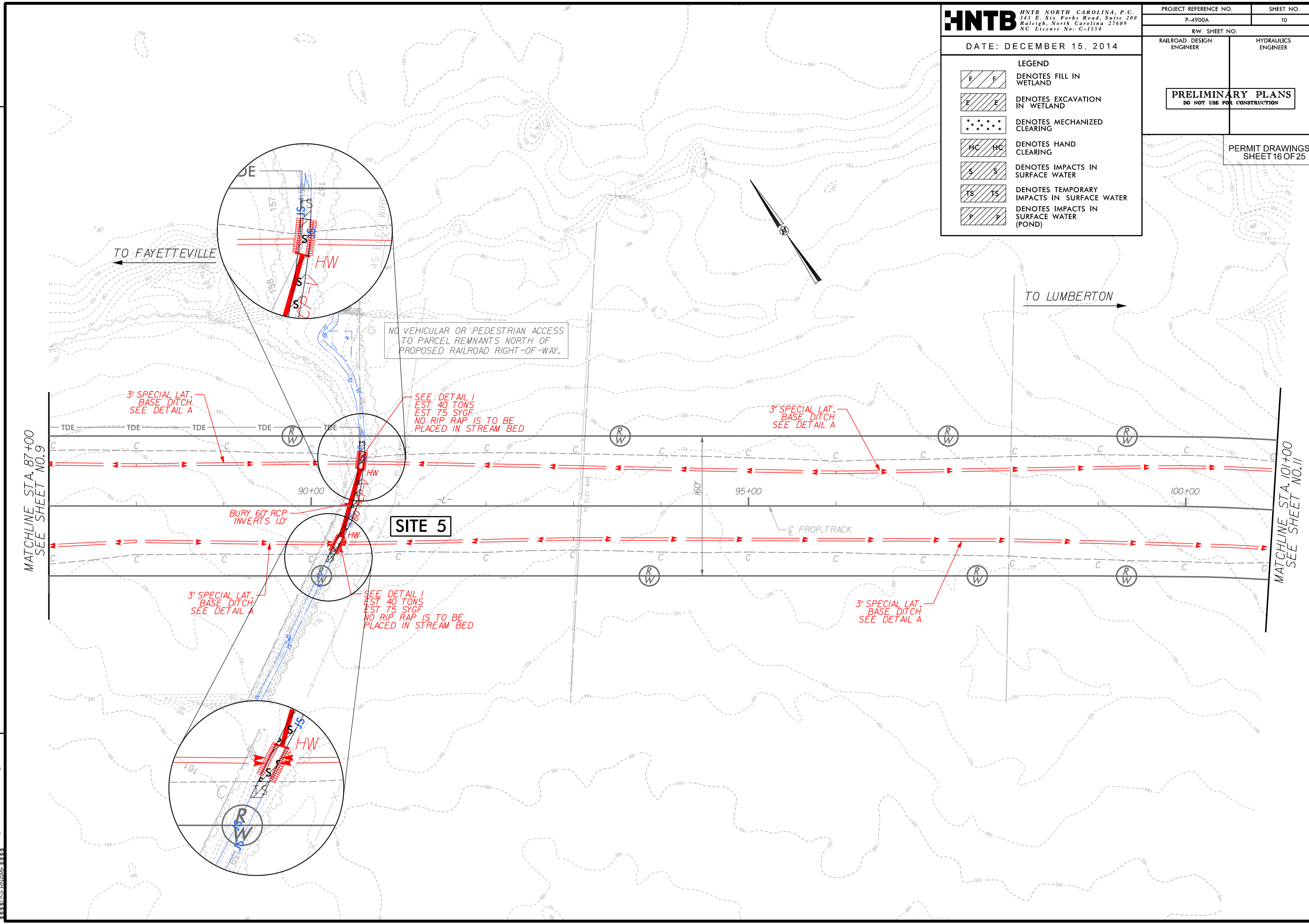


**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS  
 SHEET 16 OF 25

DATE: DECEMBER 15, 2014

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES HAND CLEARING
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)



MATCHLINE STA. 87+00  
SEE SHEET NO.9

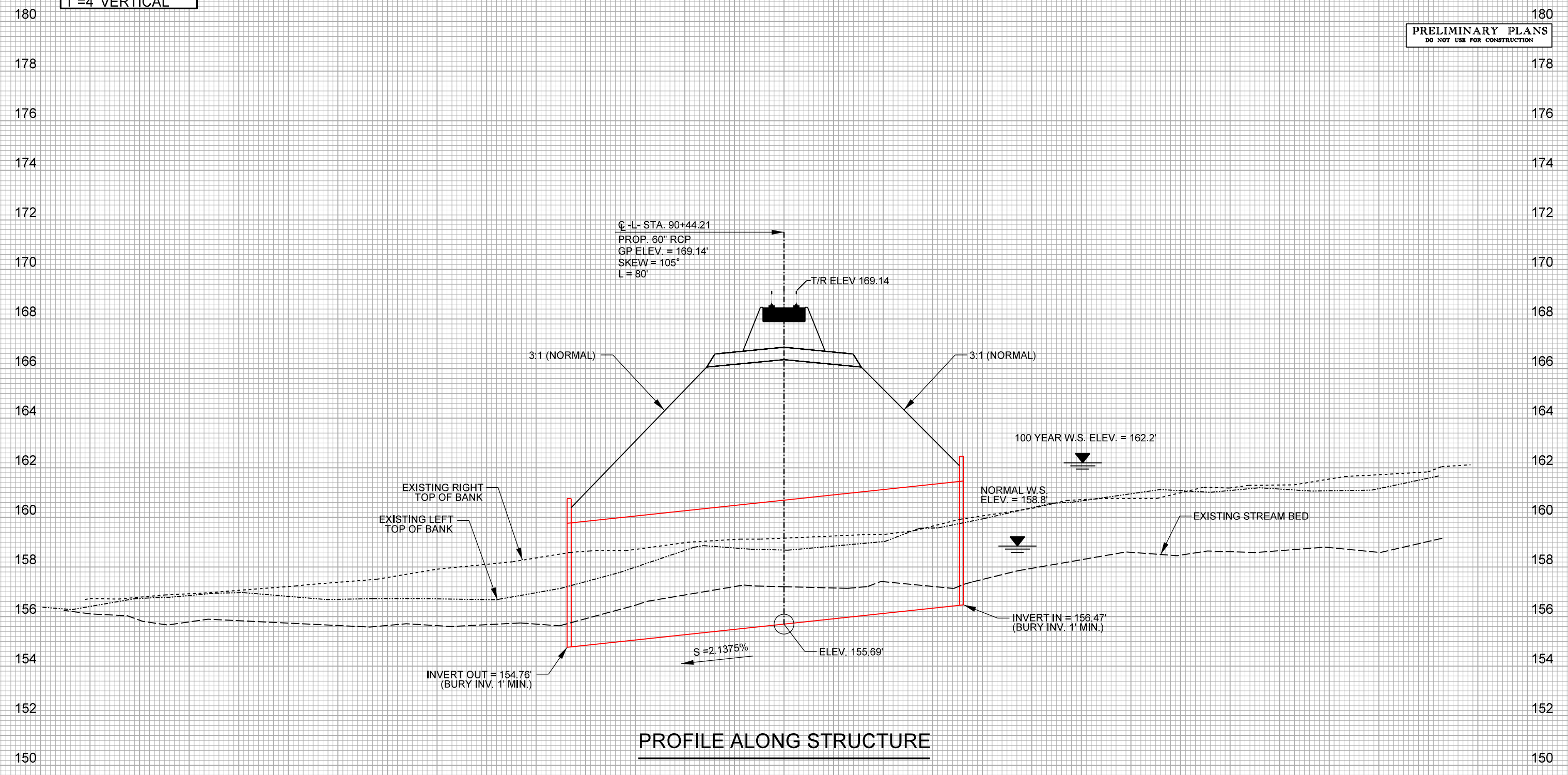
MATCHLINE STA. 101+00  
SEE SHEET NO.11

REVISIONS

12/10/14 PM Pembroke\_hyd\_perm\_Sht10\_B.dgn  
 11:58 AM 11/15/2014

1"=20' HORIZONTAL  
1"=4' VERTICAL

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



PROFILE ALONG STRUCTURE

SITE 5

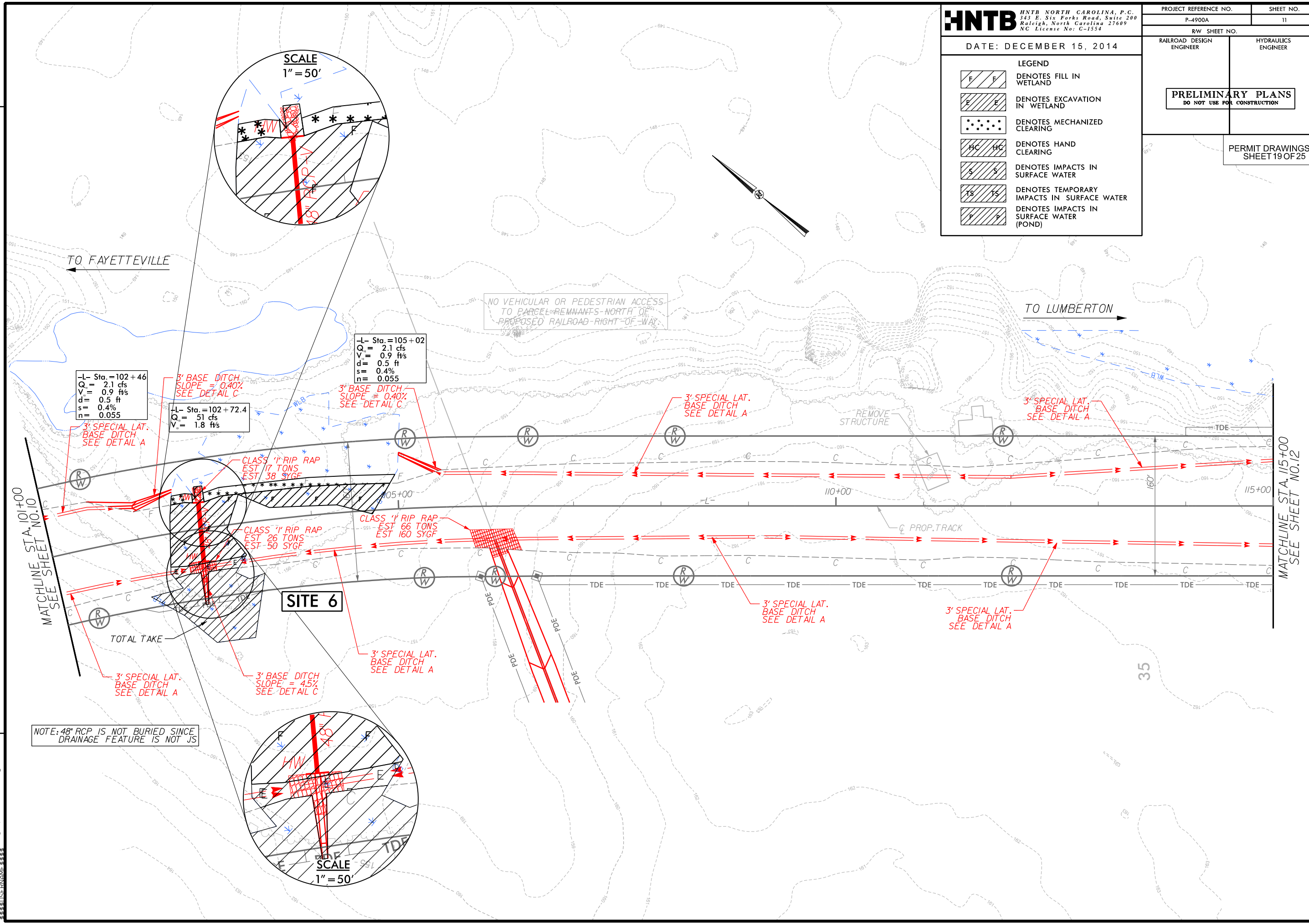
6/12/25 PM 3:53:06 \\p01\work\proj\site\_hyd\_prm\_XSC.dgn



**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS  
 SHEET 19 OF 25

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES HAND CLEARING
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)



L- Sta. = 102+46  
 Q = 2.1 cfs  
 V = 0.9 ft/s  
 d = 0.5 ft  
 s = 0.4%  
 n = 0.055

L- Sta. = 102+72.4  
 Q = 51 cfs  
 V = 1.8 ft/s

L- Sta. = 105+02  
 Q = 2.1 cfs  
 V = 0.9 ft/s  
 d = 0.5 ft  
 s = 0.4%  
 n = 0.055

**SITE 6**

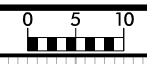
NOTE: 48" RCP IS NOT BURIED SINCE DRAINAGE FEATURE IS NOT JS

12/15/14 PM 2:00 - Pembroke\_hyd\_perm\_Sht11\_B.dgn

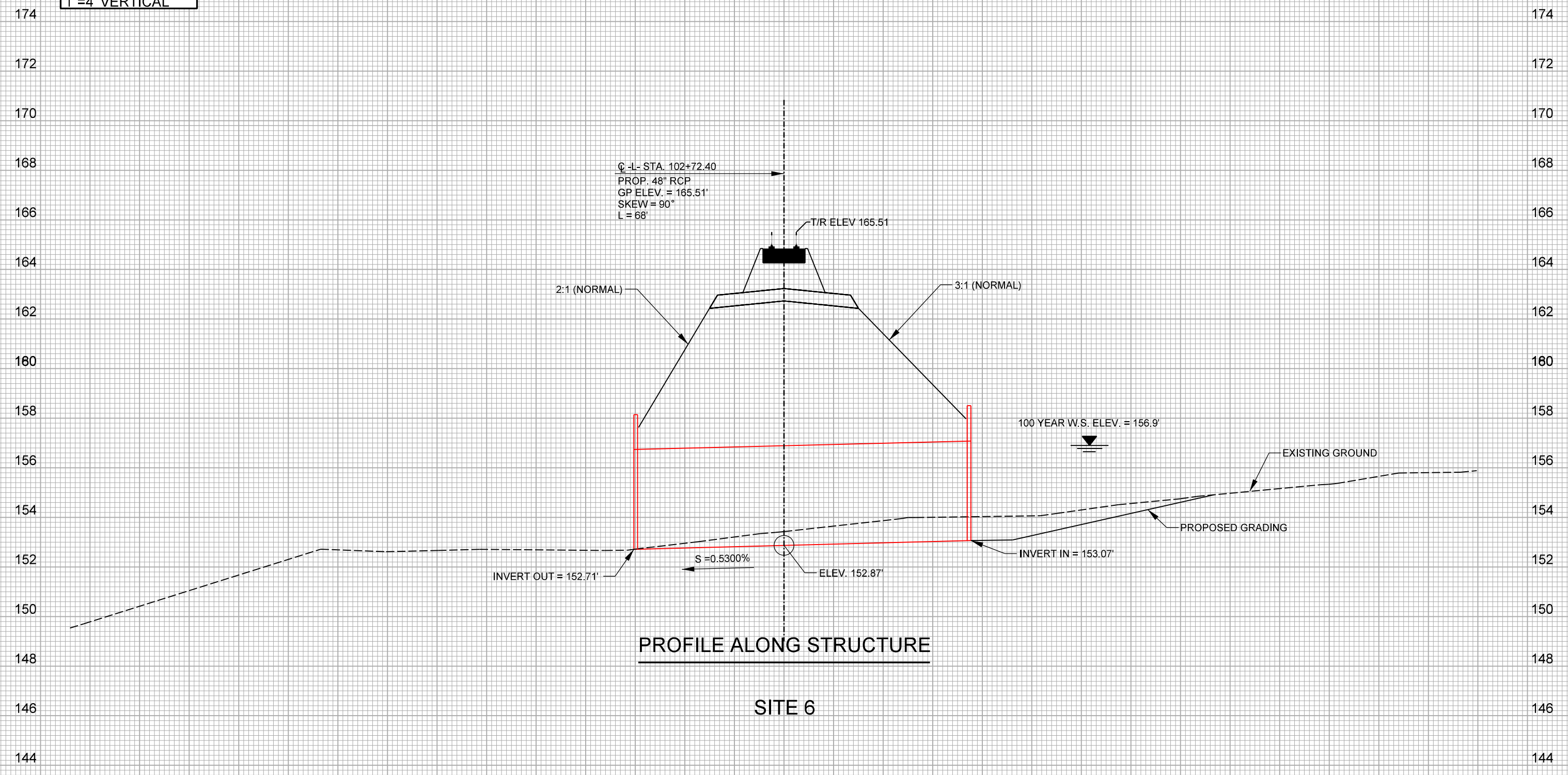
REVISIONS

MATCHLINE STA. 101+00  
 SEE SHEET NO. 10

MATCHLINE STA. 115+00  
 SEE SHEET NO. 12



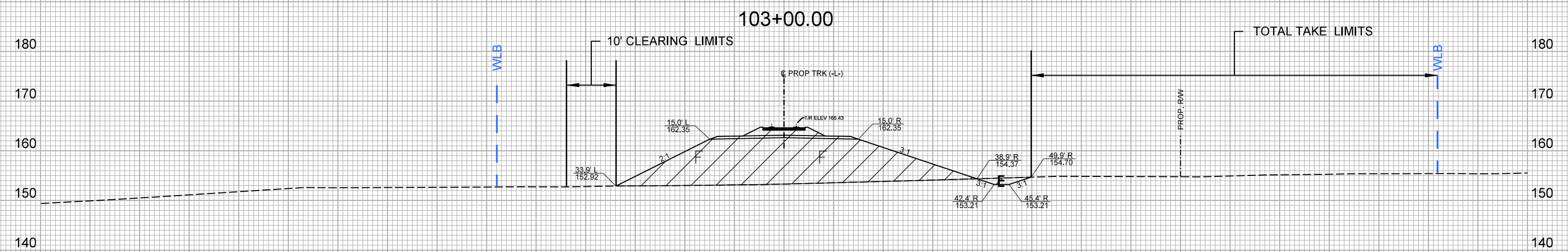
1"=20' HORIZONTAL  
1"=4' VERTICAL



6:25:49 PM  
C:\Users\jordan\OneDrive\Documents\Projects\Site 6\Site 6.dgn

1"=20' HORIZONTAL  
1"=20' VERTICAL

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



**WETLAND CROSS SECTION**  
**SITE 6**

**LEGEND**

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

12:31:12 PM  
C:\Users\jordan\Documents\proj\103+00.00\103+00.00\103+00.00.dwg



DATE: DECEMBER 15, 2014

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES EXCAVATION IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES HAND CLEARING
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER (POND)

RAILROAD DESIGN ENGINEER HYDRAULICS ENGINEER

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS SHEET 22 OF 25

SCALE  
1" = 40'

TO FAYETTEVILLE

TO LUMBERTON

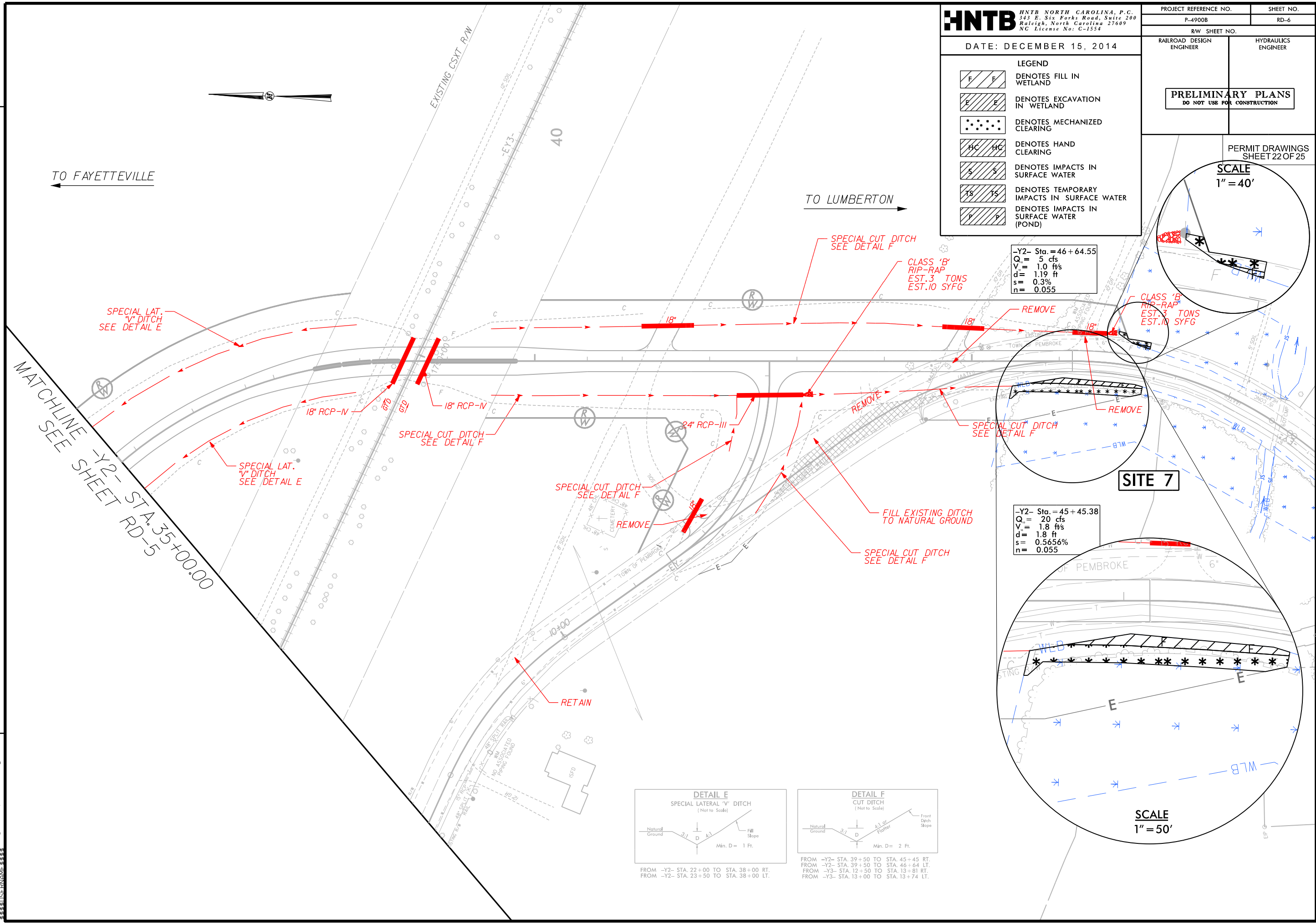
-Y2- Sta. = 46 + 64.55  
 Q = 5 cfs  
 V = 1.0 ft/s  
 d = 1.19 ft  
 s = 0.3%  
 n = 0.055

CLASS 'B' RIP-RAP  
 EST. 3 TONS  
 EST. 10 SYFG

-Y2- Sta. = 45 + 45.38  
 Q = 20 cfs  
 V = 1.8 ft/s  
 d = 1.8 ft  
 s = 0.5656%  
 n = 0.055

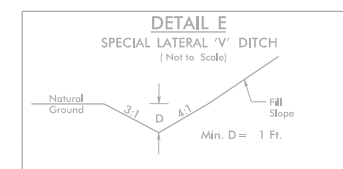
**SITE 7**

SCALE  
1" = 50'

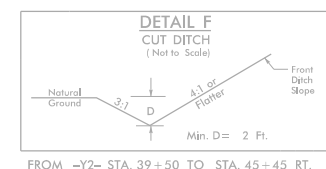


MATCHLINE -Y2- STA. 35+00.00  
 SEE SHEET RD-5

REVISIONS



FROM -Y2- STA. 22+00 TO STA. 38+00 RT.  
 FROM -Y2- STA. 23+50 TO STA. 38+00 LT.



FROM -Y2- STA. 39+50 TO STA. 45+45 RT.  
 FROM -Y2- STA. 39+50 TO STA. 46+64 LT.  
 FROM -Y3- STA. 12+50 TO STA. 13+81 RT.  
 FROM -Y3- STA. 13+00 TO STA. 13+74 LT.

12/22/2014 PM Pembroke\_hyd.RDY\_pr.m\_Sht6.dgn  
 11:58 AM





