



North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 3.00; Released August 2021)

WBS Element: 39970.1.1      TIP/Proj No: I-4759      County(ies): Buncombe      Page 1 of 3

General Project Information

WBS Element:	39970.1.1	TIP Number:	I-4759	Project Type:	Other	Date:	8/3/2023
NCDOT Contact:	Michelle Berry, P.E.			Contractor / Designer:	Jeff Hess, P.E.		
Address:	100 Birch Ridge Drive Raleigh NC 27610			Address:	343 E Six Forks Rd #200, Raleigh, NC 27609		
Phone:	919-707-6719			Phone:	704-208-5363		
Email:	<a href="mailto:mgberry@ncdot.gov">mgberry@ncdot.gov</a>			Email:	<a href="mailto:jhess@hntb.com">jhess@hntb.com</a>		
City/Town:	Candler			County(ies):	Buncombe		
River Basin(s):	French Broad			CAMA County?	No		
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	1.037 (L_REV)	Surrounding Land Use:	Rural residential
	Proposed Project		Existing Site
Project Built-Up Area (ac.)	34.2	ac.	17.9
Typical Cross Section Description:	L (I-40) - 6 12' lane grassed median divided with 12' FDPS on outside and 4' inside Y1 (Liberty Rd) - 4 12' lane with 23' median divided section with 4' FDPS New Location Y1 - 2 12' lanes with 2' FDPS		I-40 - 4 12' lanes with grass divided median and 9' paved shoulders and 4' paved inside Liberty Rd - 2 8' lanes with grassed shoulders
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	76900	Year: 2040
	Existing:	62400	Year: 2020

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

I-4759 involves upgrading existing SR 1228 (Liberty Rd) overpass over I-40 to an interchange facility. The interchange upgrades include realigning and upgrading existing Liberty Rd between SR 1224 (Monte Vista Rd) and the US 19/23 (Smokey Park Highway) and NC 151 (Pisgah Highway) intersection with SR 1220 (Dogwood Rd). There are three named streams within the project limits including Pole Creek, Little Pole Creek, and Young Branch. The following details measures taken to minimize impacts to waters:

General Notes:

- Maintained existing drainage patterns to the maximum extent practical
- Maximized use of vegetated grass side slopes for treatment opportunities
- Used appropriately sized rip rap pads at all pipe and channel outlets. This included providing rip rap embankments for outlets discharging at or near top of banks and providing pipe outlet stabilization for all outlets into jurisdictional features to mitigate for poor existing conditions.

Young Branch

- Steeper side slopes to 1.5:1 along the mainline and Y1LPD next to Young Branch to avoid fill in stream.
- Spanned Young Branch with Y1RPD bridge to avoid piers in channel
- Designed shoulders on the Y1RPD bridge over Young Branch to accommodate spread and avoid deck drains.
- Removal of 48" CMP at existing crossing (Old Liberty Rd on PSH 14) at end DR1 to promote live bed conditions

Pole Creek

- Spanned Pole Creek and provided new location bridge on skew to avoid direct pier impacts to Pole Creek
- Provided 8' shoulder on bridge to accommodate spread and avoid deck drains.

Little Pole Creek

- Steepened side slopes to 1.5:1 to avoid additional impacts to Little Pole Creek



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



(Version 3.00; Released August 2021)

**WBS Element:** 39970.1.1      **TIP/Proj No.:** I-4759      **County(ies):** Buncombe      **Page** 2 **of** 3

**General Project Information**

**Waterbody Information**

<b>Surface Water Body (1):</b>	Little Pole Creek		<b>NCDWR Stream Index No.:</b>	6-76-6-2	
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>		Class C		
	<b>Supplemental Classification:</b>				
<b>Other Stream Classification:</b>					
<b>Impairments:</b>	None				
<b>Aquatic T&amp;E Species?</b>	No	<b>Comments:</b>			
<b>NRTR Stream ID:</b>	LPC		<b>Buffer Rules in Effect:</b>	N/A	
<b>Project Includes Bridge Spanning Water Body?</b>	Yes	<b>Deck Drains Discharge Over Buffer?</b>	N/A		<b>Dissipator Pads Provided in Buffer?</b>
<b>Deck Drains Discharge Over Water Body?</b>	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					
<b>Surface Water Body (2):</b>	Young Branch		<b>NCDWR Stream Index No.:</b>	6-76-6-3	
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>		Class C		
	<b>Supplemental Classification:</b>				
<b>Other Stream Classification:</b>					
<b>Impairments:</b>	None				
<b>Aquatic T&amp;E Species?</b>	No	<b>Comments:</b>			
<b>NRTR Stream ID:</b>	YB		<b>Buffer Rules in Effect:</b>	N/A	
<b>Project Includes Bridge Spanning Water Body?</b>	Yes	<b>Deck Drains Discharge Over Buffer?</b>	N/A		<b>Dissipator Pads Provided in Buffer?</b>
<b>Deck Drains Discharge Over Water Body?</b>	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					
<b>Surface Water Body (3):</b>	UT to Young Branch		<b>NCDWR Stream Index No.:</b>	6-76-6-2	
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>		Class C		
	<b>Supplemental Classification:</b>				
<b>Other Stream Classification:</b>					
<b>Impairments:</b>	None				
<b>Aquatic T&amp;E Species?</b>	No	<b>Comments:</b>			
<b>NRTR Stream ID:</b>	SC, SD, SE, SF, SG, SH		<b>Buffer Rules in Effect:</b>	N/A	
<b>Project Includes Bridge Spanning Water Body?</b>	No	<b>Deck Drains Discharge Over Buffer?</b>	N/A		<b>Dissipator Pads Provided in Buffer?</b>
<b>Deck Drains Discharge Over Water Body?</b>	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					



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



(Version 3.00; Released August 2021)

**WBS Element:** 39970.1.1      **TIP No.:** I-4759      **County(ies):** Buncombe      **Page** 3 **of** 3

**Additional Waterbody Information**

<b>Surface Water Body (4):</b>	UT to Little Pole Creek		<b>NCDWR Stream Index No.:</b>	6-76-6	
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>		Class C		
	<b>Supplemental Classification:</b>				
<b>Other Stream Classification:</b>					
<b>Impairments:</b>	None				
<b>Aquatic T&amp;E Species?</b>	No	<b>Comments:</b>			
<b>NRTR Stream ID:</b>	SB		<b>Buffer Rules in Effect:</b>		
<b>Project Includes Bridge Spanning Water Body?</b>	No	<b>Deck Drains Discharge Over Buffer?</b>	N/A	<b>Dissipator Pads Provided in Buffer?</b>	
<b>Deck Drains Discharge Over Water Body?</b>	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)					

<b>Surface Water Body (5):</b>	Pole Creek		<b>NCDWR Stream Index No.:</b>	6-76-6	
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>		Class C		
	<b>Supplemental Classification:</b>				
<b>Other Stream Classification:</b>					
<b>Impairments:</b>	None				
<b>Aquatic T&amp;E Species?</b>	No	<b>Comments:</b>			
<b>NRTR Stream ID:</b>	PC		<b>Buffer Rules in Effect:</b>		N/A
<b>Project Includes Bridge Spanning Water Body?</b>	Yes	<b>Deck Drains Discharge Over Buffer?</b>	N/A	<b>Dissipator Pads Provided in Buffer?</b>	
<b>Deck Drains Discharge Over Water Body?</b>	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

<b>Surface Water Body (6):</b>	UT to Pole Creek		<b>NCDWR Stream Index No.:</b>	6-76-6-2	
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>		Class C		
	<b>Supplemental Classification:</b>				
<b>Other Stream Classification:</b>					
<b>Impairments:</b>	None				
<b>Aquatic T&amp;E Species?</b>	No	<b>Comments:</b>			
<b>NRTR Stream ID:</b>	SA		<b>Buffer Rules in Effect:</b>		N/A
<b>Project Includes Bridge Spanning Water Body?</b>	Yes	<b>Deck Drains Discharge Over Buffer?</b>	N/A	<b>Dissipator Pads Provided in Buffer?</b>	
<b>Deck Drains Discharge Over Water Body?</b>	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

<b>Surface Water Body (7):</b>	UT to Moore Creek		<b>NCDWR Stream Index No.:</b>	6-76-8	
<b>NCDWR Surface Water Classification for Water Body</b>	<b>Primary Classification:</b>		Class C		
	<b>Supplemental Classification:</b>				
<b>Other Stream Classification:</b>					
<b>Impairments:</b>	None				
<b>Aquatic T&amp;E Species?</b>	No	<b>Comments:</b>			
<b>NRTR Stream ID:</b>	SI		<b>Buffer Rules in Effect:</b>		N/A
<b>Project Includes Bridge Spanning Water Body?</b>	Yes	<b>Deck Drains Discharge Over Buffer?</b>	N/A	<b>Dissipator Pads Provided in Buffer?</b>	
<b>Deck Drains Discharge Over Water Body?</b>	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

**TIP PROJECT: I-4759**

**CONTRACT:**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**BUNCOMBE COUNTY**

**LOCATION: PROPOSED INTERCHANGE ACCESS TO I-40/US-74 AND PROPOSED RELOCATION OF SR 1228 (LIBERTY RD.) BETWEEN US 1923 (SMOKEY PARKWAY HIGHWAY) AND SR 1224 (MONTE VISTA RD.)**

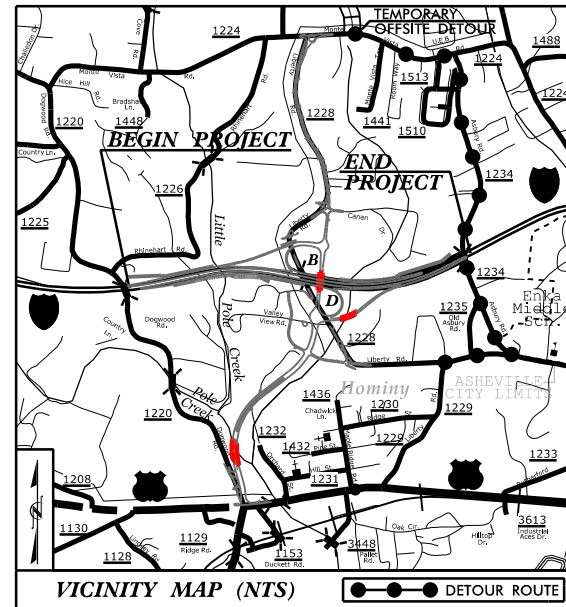
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS & SIGNALS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-4759	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
39970.1.1	STPIMS-040-1(188)42	P. E.	
39970.2.GV1	STPIMS-040-1(188)42	UTILITIES	
39970.2.GV1	STPIMS-040-1(188)42	RIGHT OF WAY	

**PERMIT DRAWING SHEET 1 OF 22**

NAD 83/  
NSRS 2011

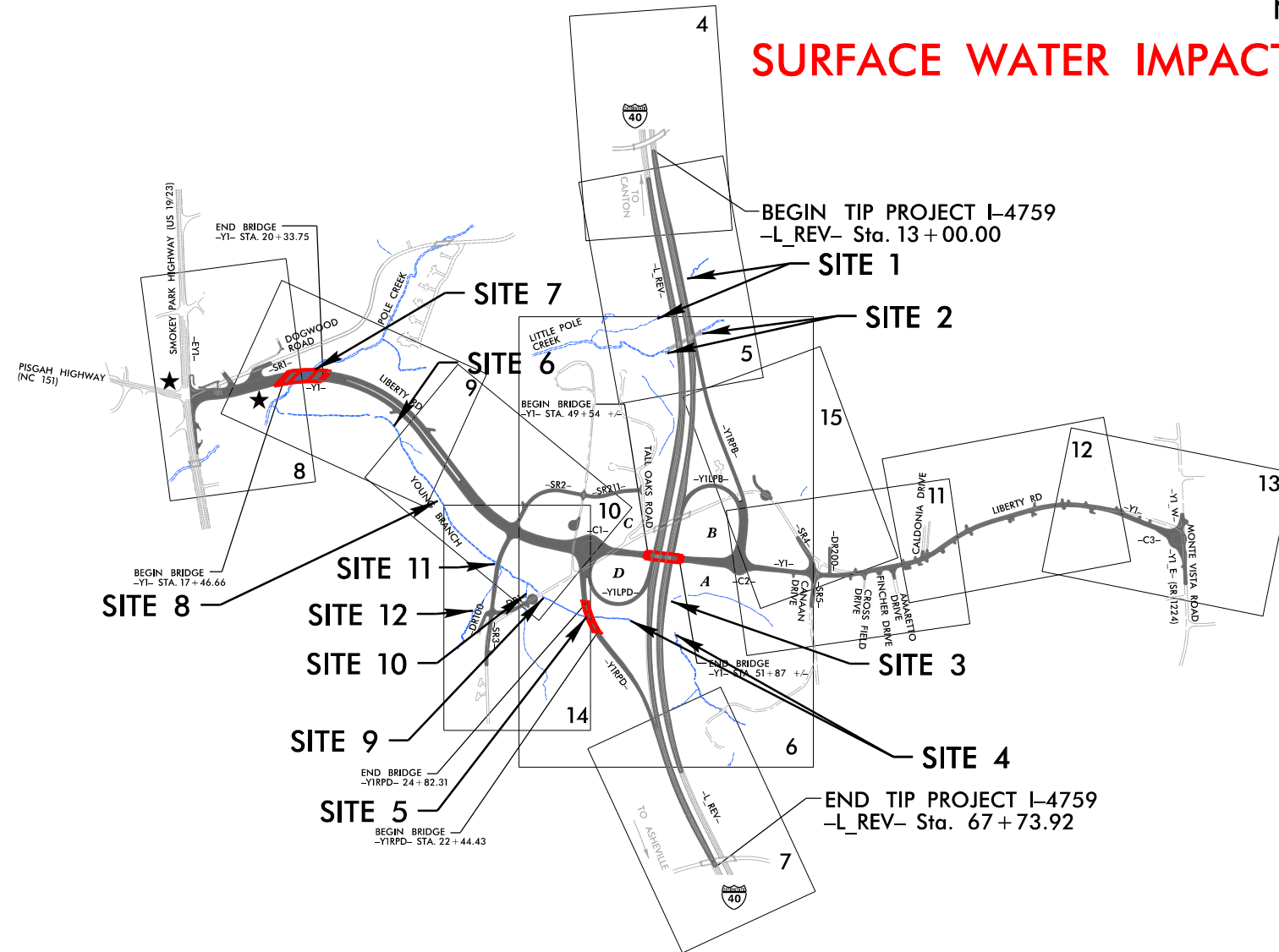
**SURFACE WATER IMPACTS PERMIT**



**MUNICIPAL BOUNDARIES**  
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

**METHOD OF CLEARING**  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

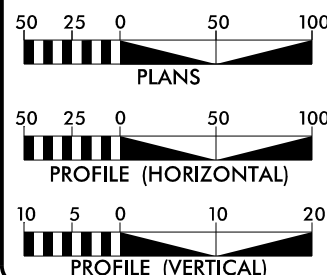
**CONTROL OF ACCESS**  
THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.



★ PROPOSED TRAFFIC SIGNAL

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**  
**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2020 = 62,400  
ADT 2040 = 76,900  
K = 11 %  
D = 60 %  
T = 20 % \*  
V = 70 MPH  
FUNC CLASS = INTERSTATE  
\* TTST = 15% DUAL 5%

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT I-4759 = 1.037 MILES

TOTAL LENGTH OF TIP PROJECT I-4759 = 1.037 MILES

LENGTH BASED ON -L\_REV- CENTERLINE

Prepared In the Office of:

**HNTB**

HNTB NORTH CAROLINA, P.C.  
101 S. Tryon Street, Suite 3610  
Charlotte, North Carolina 28280  
NC License No: C-1554

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
MAY 31, 2019

LETTING DATE:  
JUNE 16, 2026

JOHN J. HESS, P.E.  
PROJECT ENGINEER

DOUGLAS M. WHEATLEY, P.E.  
PROJECT DESIGN ENGINEER

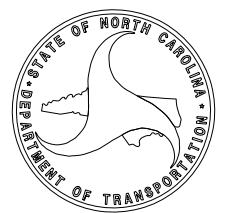
AHMAD AL-SHARAWNEH  
NCDOT PROJECT MANAGER

HYDRAULICS ENGINEER

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

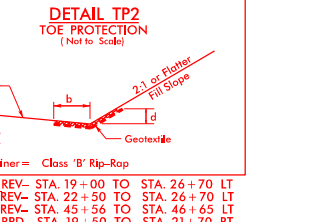
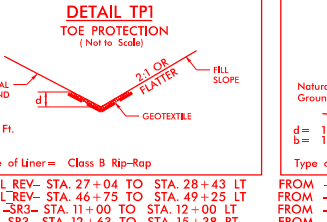
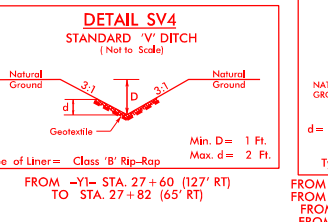
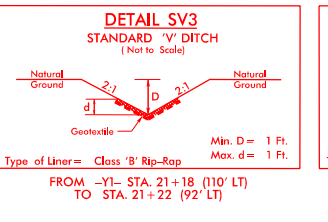
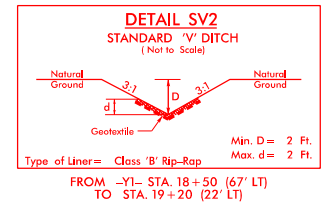
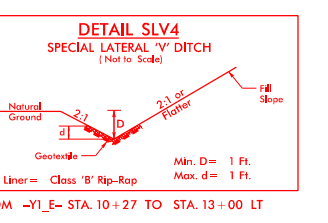
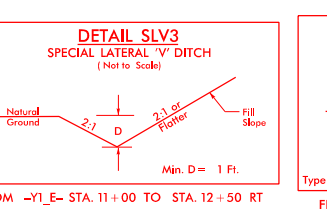
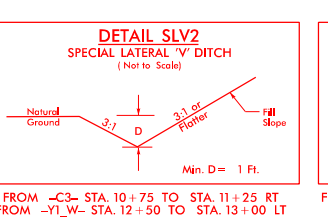
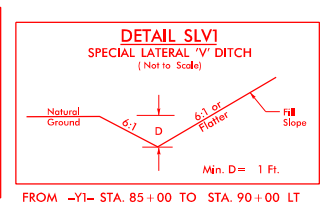
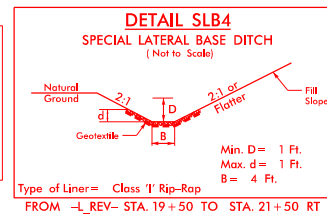
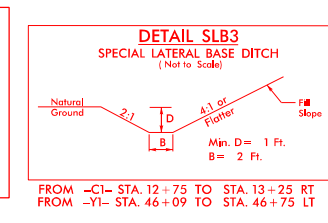
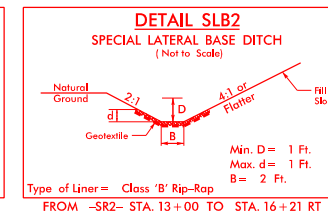
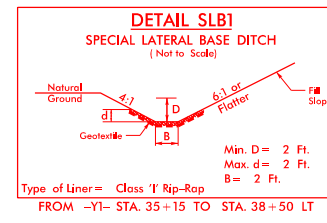
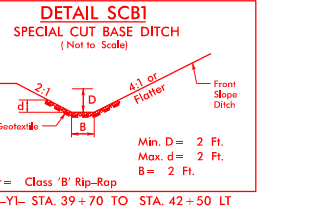
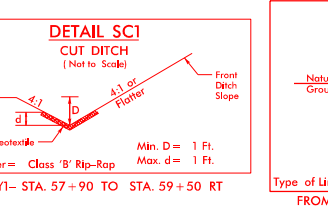
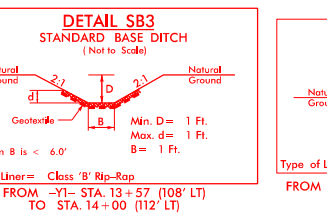
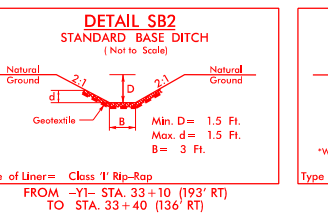
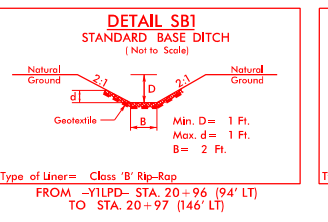
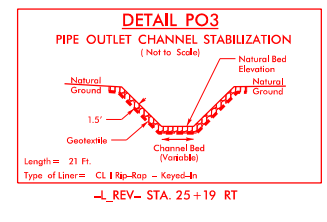
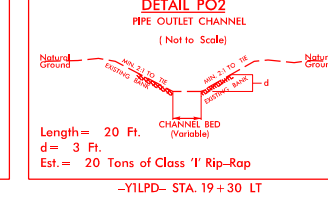
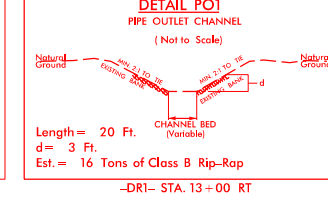
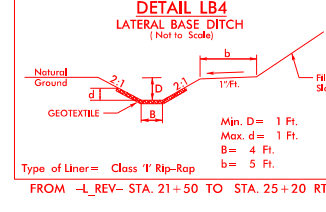
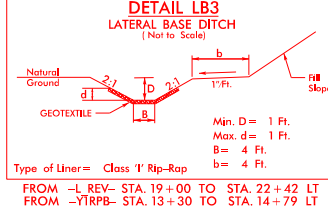
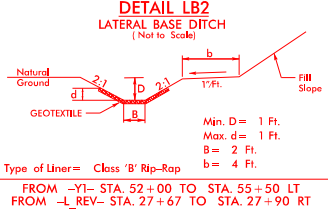
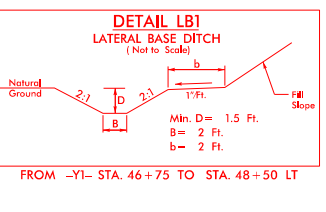
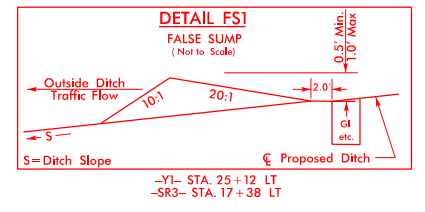
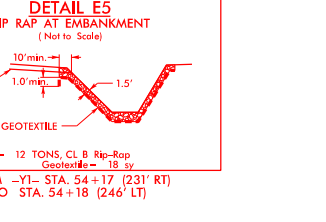
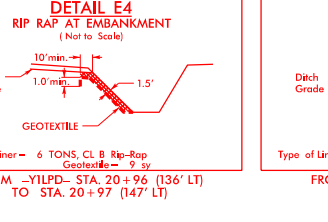
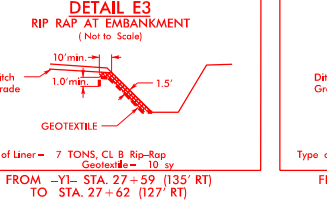
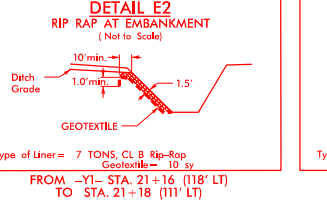
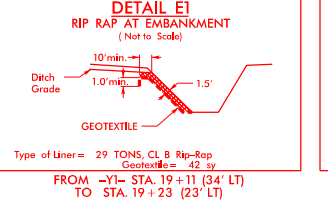
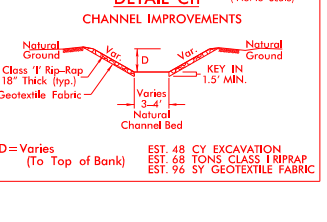
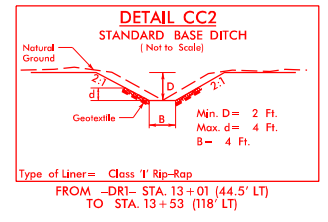
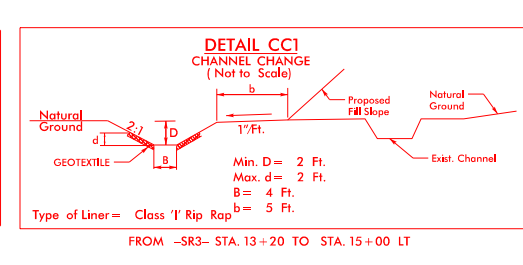
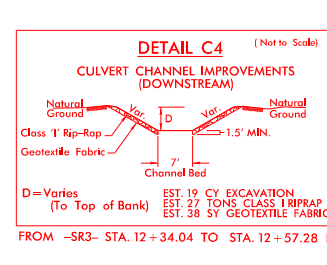
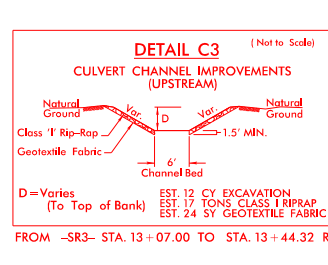
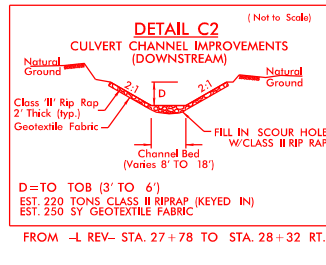
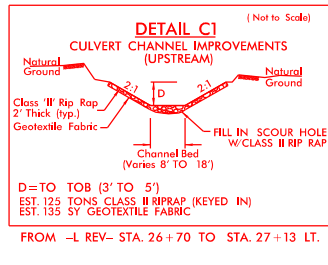
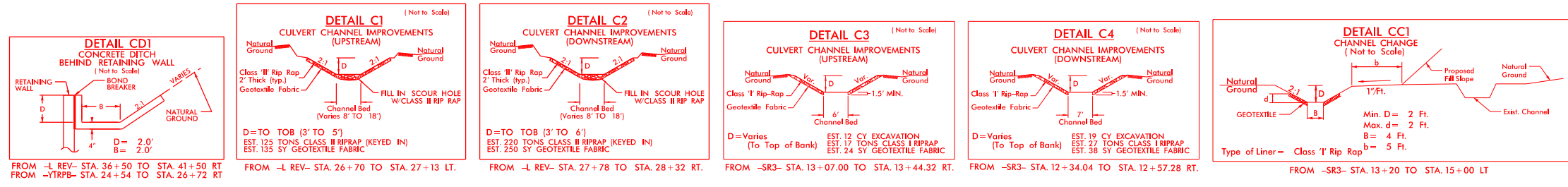
ROADWAY DESIGN ENGINEER

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



PROJECT REFERENCE NO.	SHEET NO.
I-4759	2D-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**PERMIT DRAWING  
SHEET 2 OF 22**



8/17/99

REVISIONS

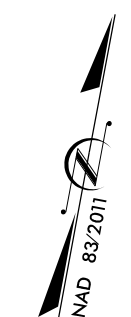
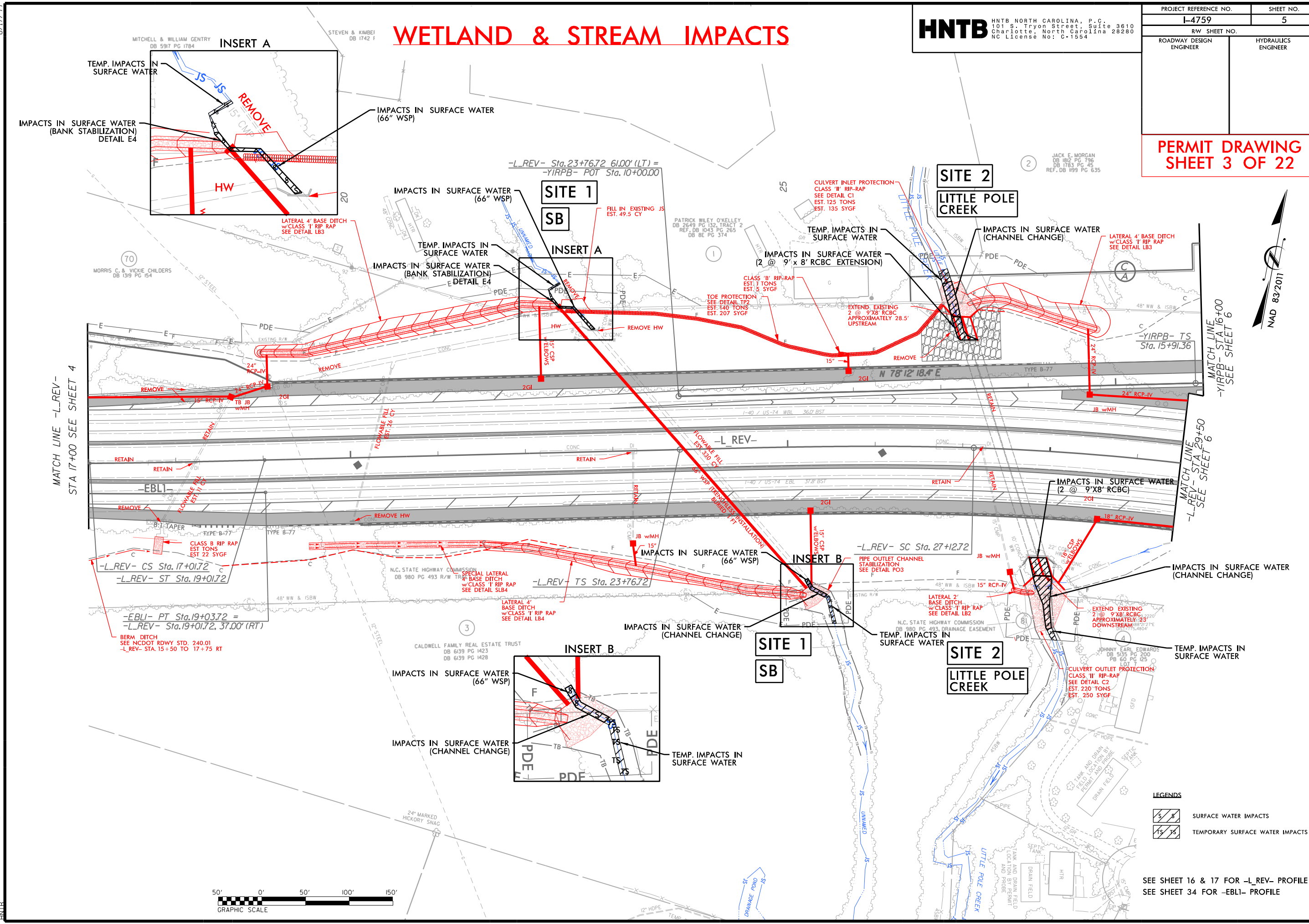
8/17/2003 HYD.pr.m.ditch.detai.dgn

# WETLAND & STREAM IMPACTS

**HNTB** HNTB NORTH CAROLINA, P.C.  
101 S. Tryon Street, Suite 3610  
Charlotte, North Carolina 28280  
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
L-4759	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

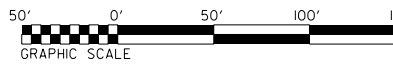
PERMIT DRAWING  
SHEET 3 OF 22



**LEGENDS**

	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS

SEE SHEET 16 & 17 FOR -L-REV- PROFILE  
SEE SHEET 34 FOR -EBL1- PROFILE



8/17/2023 HYD\_PRM\_PSH05.dgn

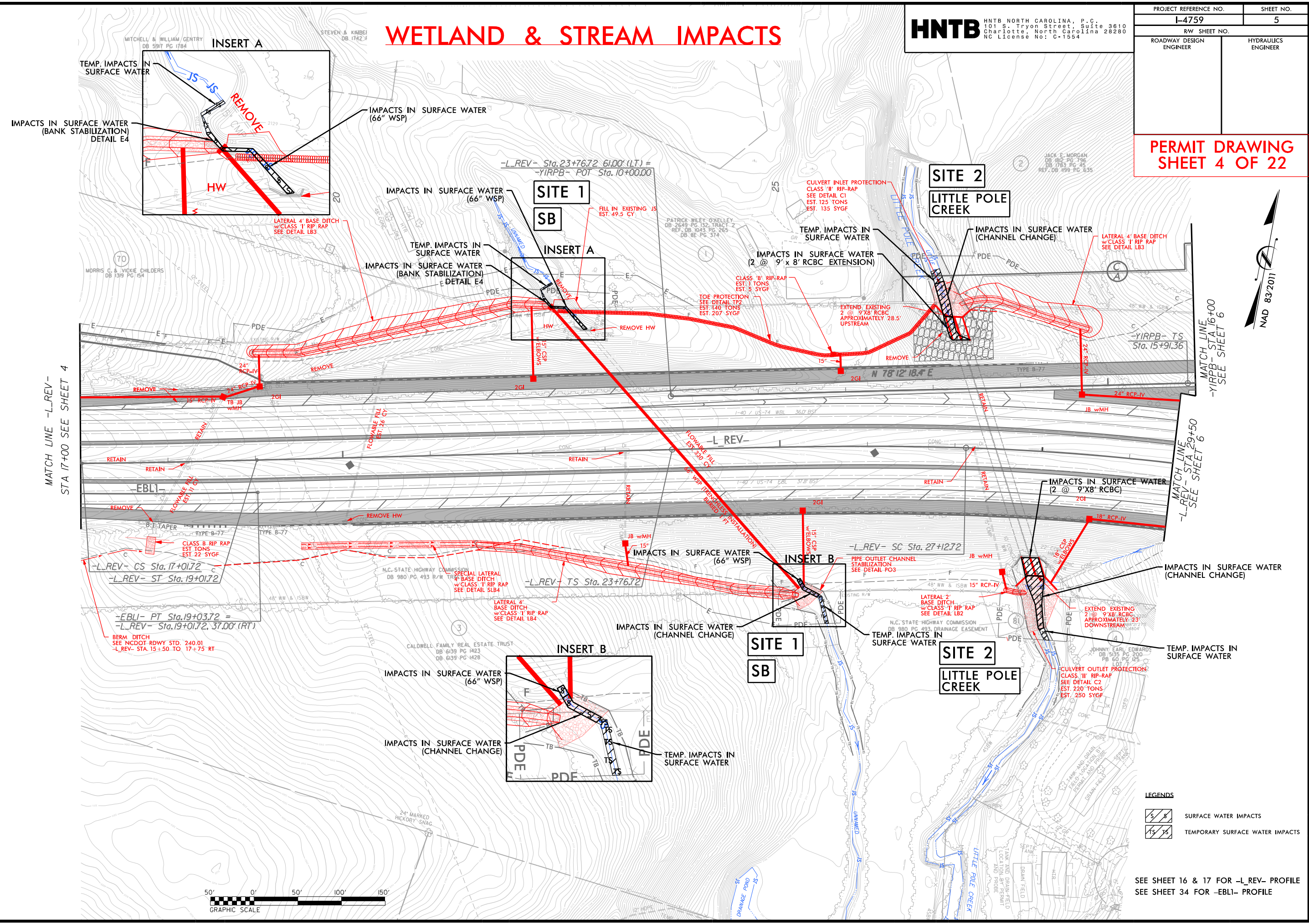
8/17/2023 8:17/99  
8/17/2023 HYD\_PDM\_PSH05.dgn

# WETLAND & STREAM IMPACTS

**HNTB** HNTB NORTH CAROLINA, P.C.  
101 S. Tryon Street, Suite 3610  
Charlotte, North Carolina 28280  
NC License No: C-1554

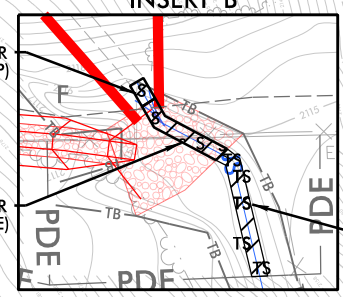
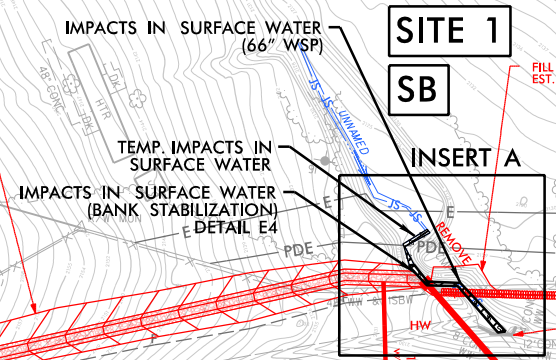
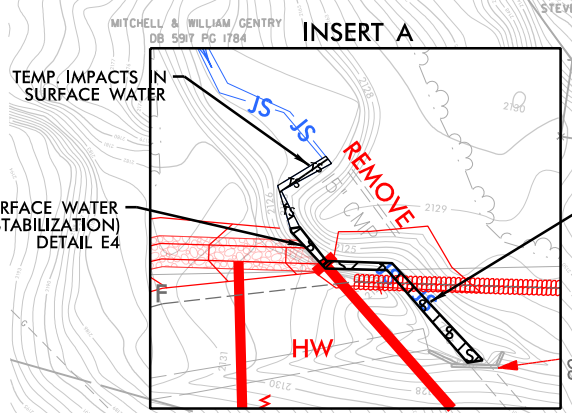
PROJECT REFERENCE NO.	SHEET NO.
L-4759	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**PERMIT DRAWING  
SHEET 4 OF 22**



MATCH LINE -L-REV-  
STA 17+00 SEE SHEET 4

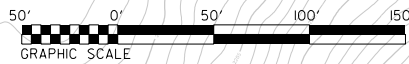
MATCH LINE -L-REV-  
STA 29+50  
-YIRPB- STA 16+00  
SEE SHEET 6



LEGENDS

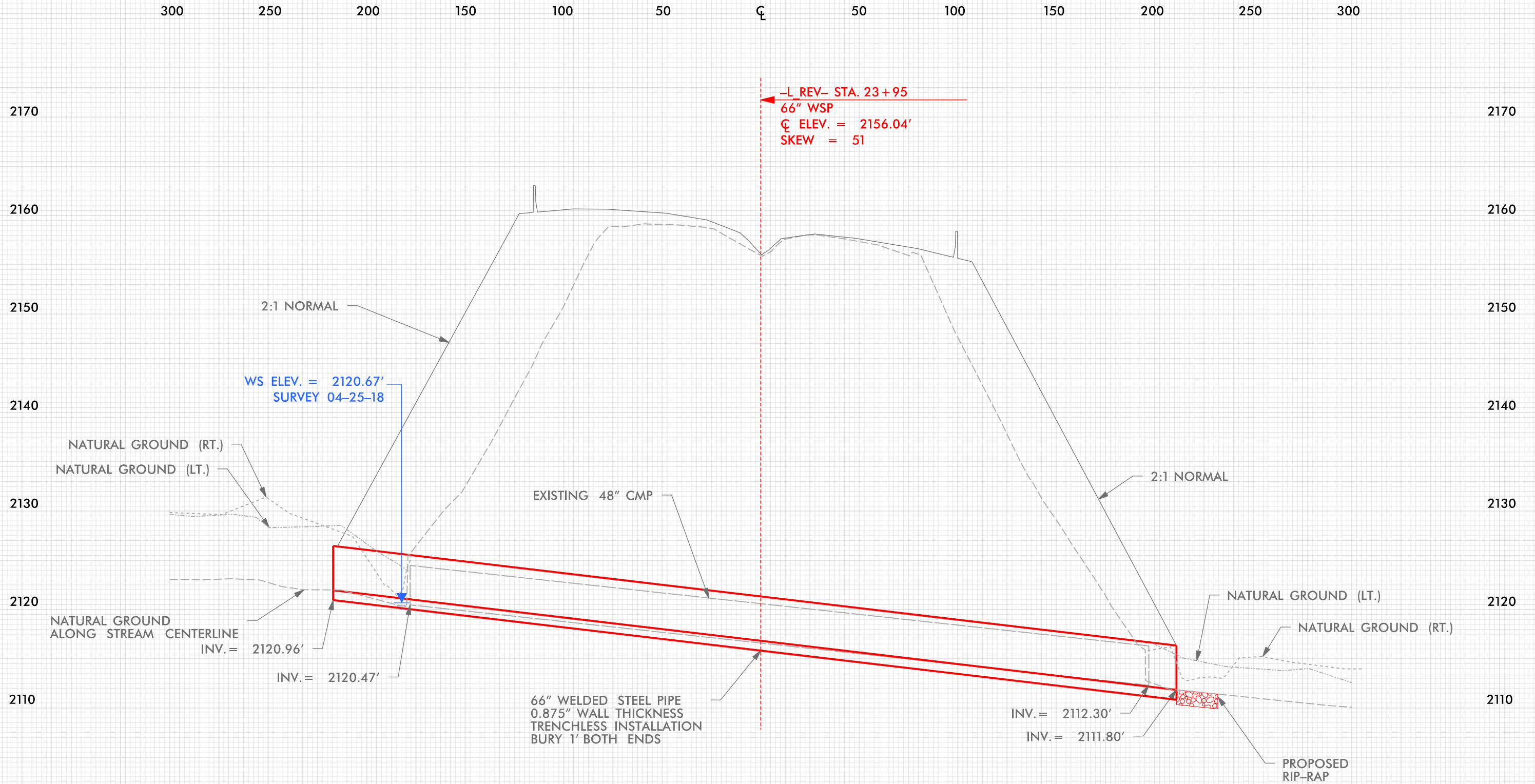
	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS

SEE SHEET 16 & 17 FOR -L-REV- PROFILE  
SEE SHEET 34 FOR -EBL1- PROFILE



3/29/2021

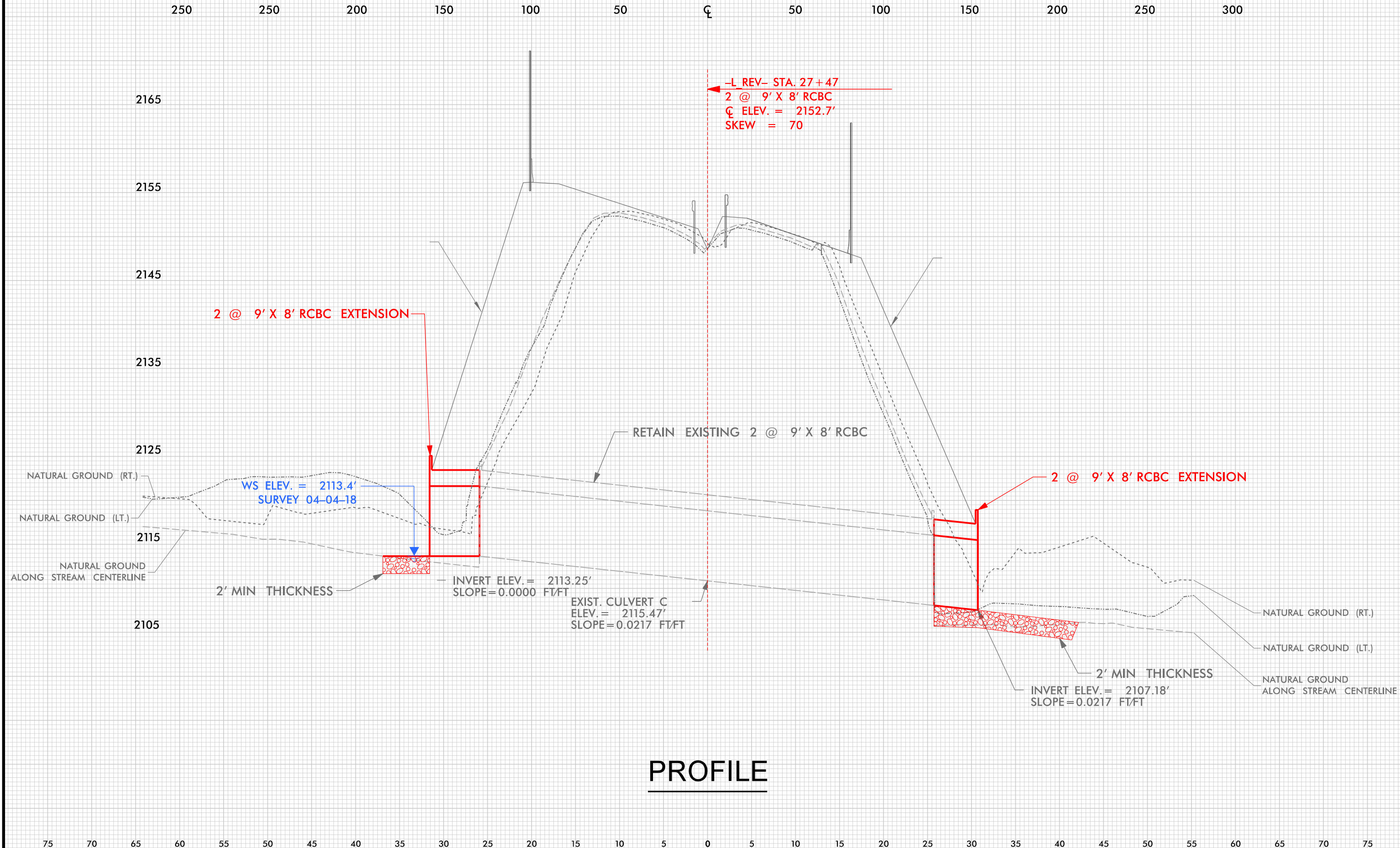
# SITE 1



## PROFILE

3/29/2021

# SITE 2



## PROFILE

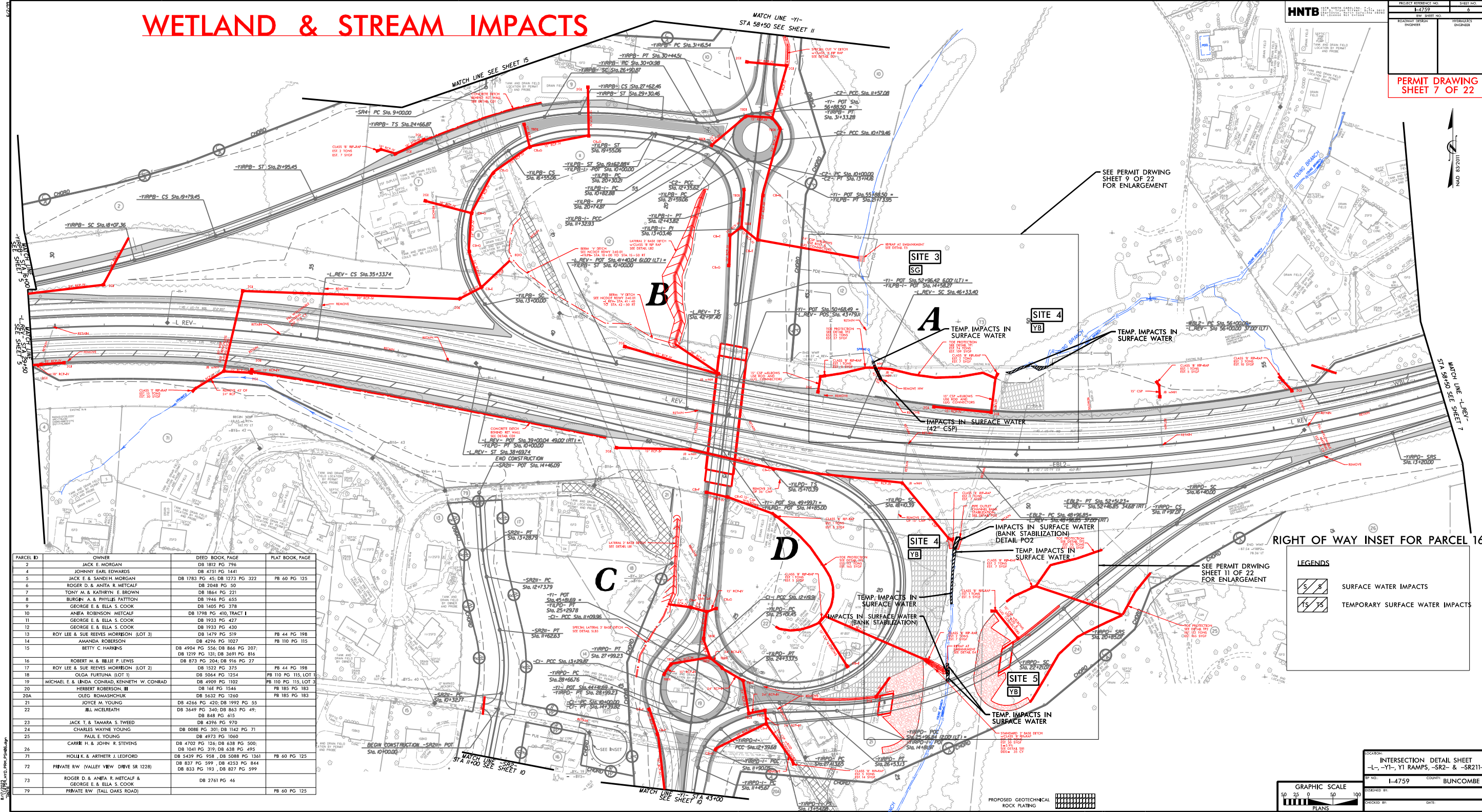
# WETLAND & STREAM IMPACTS

**HNTB**

PROJECT REFERENCE NO. I-4759 SHEET NO. 4

ROADWAY DESIGN ENGINEER

PERMIT DRAWING SHEET 7 OF 22



PARCEL ID	OWNER	DEED BOOK, PAGE	PLAT BOOK, PAGE
2	JACK E. MORGAN	DB 1812 PG 796	
4	JOHNNY EARL EDWARDS	DB 4751 PG 1441	
5	JACK E. & SANDRA MORGAN	DB 1783 PG 45; DB 1273 PG 322	PB 60 PG 125
6	ROGER D. & ANITA R. METCALF	DB 2048 PG 50	
7	TONY M. & KATHRYN E. BROWN	DB 1864 PG 221	
8	BURGIN A. & PHYLLIS PATTON	DB 1946 PG 655	
9	GEORGE E. & ELLA S. COOK	DB 1405 PG 378	
10	ANITA ROBINSON METCALF	DB 1798 PG 410, TRACT 1	
11	GEORGE E. & ELLA S. COOK	DB 1933 PG 227	
12	GEORGE E. & ELLA S. COOK	DB 1933 PG 430	
13	ROY LEE & SUE REEVES MORRISON (LOT 3)	DB 1479 PG 519	PB 44 PG 198
14	AMANDA ROBERSON	DB 4296 PG 1027	PB 110 PG 115
15	BETTY C. HARRIS	DB 4904 PG 556; DB 866 PG 207; DB 1219 PG 131; DB 3691 PG 816	
16	ROBERT M. & BELLIE P. LEWIS	DB 873 PG 204; DB 916 PG 27	PB 44 PG 198
17	ROY LEE & SUE REEVES MORRISON (LOT 2)	DB 1522 PG 375	
18	OLGA FURTUNA (LOT 1)	DB 5064 PG 1254	PB 110 PG 115, LOT 1
19	MICHAEL E. & LINDA CONRAD; KENNETH W. CONRAD	DB 4909 PG 1102	PB 110 PG 115, LOT 3
20	HERBERT ROBERSON, III	DB 146 PG 1544	PB 185 PG 183
20A	OLEG ROMASHCHUK	DB 5632 PG 1240	PB 185 PG 183
21	JOYCE M. YOUNG	DB 4264 PG 420; DB 1992 PG 55	
22	JILL MCELREATH	DB 3649 PG 340; DB 863 PG 49; DB 848 PG 615	
23	JACK T. & TAMARA S. TWEEED	DB 4396 PG 970	
24	CHARLES WAYNE YOUNG	DB 008E PG 301; DB 1142 PG 71	
25	PAUL E. YOUNG	DB 4973 PG 1040	
26	CARRIE H. & JOHN R. STEVENS	DB 4702 PG 126; DB 638 PG 500; DB 1041 PG 319; DB 638 PG 495	
71	HOLLIE K. & ARTHUR J. LEDFORD	DB 5439 PG 958; DB 5088 PG 1361	PB 60 PG 125
72	PRIVATE RW (VALLEY VIEW DRIVE SR 1228)	DB 837 PG 599; DB 4253 PG 844; DB 833 PG 193; DB 827 PG 599	
73	ROGER D. & ANITA R. METCALF & GEORGE E. & ELLA S. COOK	DB 2761 PG 46	
79	PRIVATE RW (TALL OAKS ROAD)		PB 60 PG 125

**LEGENDS**

S/S SURFACE WATER IMPACTS

TS/TS TEMPORARY SURFACE WATER IMPACTS

GRAPHIC SCALE

0 25 50 100

PLANS

LOCATION: INTERSECTION DETAIL SHEET -L-, -YI-, YI RAMPS, -SR2- & -SR211-

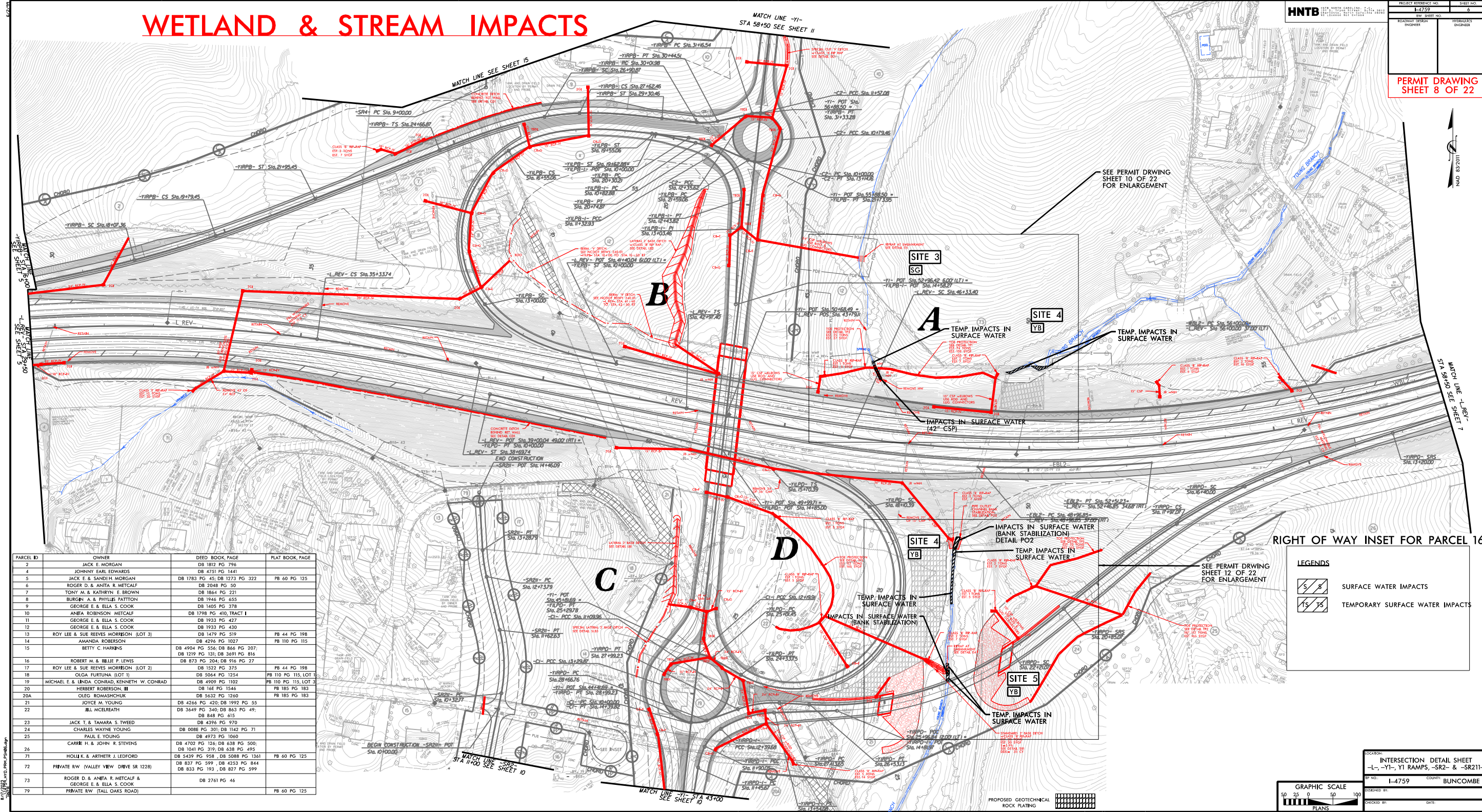
PROJECT NO. I-4759 COUNTY BUNCOMBE

DESIGNED BY: CHECKED BY: DATE:

# WETLAND & STREAM IMPACTS

HNTB  
 PROJECT REFERENCE NO. I-4759  
 SHEET NO. 8  
 ROADWAY DESIGN ENGINEER  
 HYDROLOGIST ENGINEER

PERMIT DRAWING  
 SHEET 8 OF 22



PARCEL ID	OWNER	DEED BOOK, PAGE	PLAT BOOK, PAGE
2	JACK E. MORGAN	DB 1812 PG 796	
4	JOHNNY EARL EDWARDS	DB 4751 PG 1441	
5	JACK E. & SANDRA MORGAN	DB 1783 PG 45, DB 1273 PG 322	PB 60 PG 125
6	ROGER D. & ANITA R. METCALF	DB 2048 PG 50	
7	TONY M. & KATHRYN E. BROWN	DB 1864 PG 221	
8	BURGIN A. & PHYLLIS PATTON	DB 1946 PG 655	
9	GEORGE E. & ELLA S. COOK	DB 1405 PG 378	
10	ANITA ROBINSON METCALF	DB 1798 PG 410, TRACT 1	
11	GEORGE E. & ELLA S. COOK	DB 1933 PG 427	
12	GEORGE E. & ELLA S. COOK	DB 1933 PG 430	
13	ROY LEE & SUE REEVES MORRISON (LOT 3)	DB 1479 PG 519	PB 44 PG 198
14	AMANDA ROBERSON	DB 4296 PG 1027	PB 110 PG 115
15	BETTY C. HARRIS	DB 4904 PG 556, DB 866 PG 207, DB 1219 PG 131, DB 3691 PG 816	
16	ROBERT M. & BELLIE P. LEWIS	DB 873 PG 204, DB 916 PG 27	PB 44 PG 198
17	ROY LEE & SUE REEVES MORRISON (LOT 2)	DB 1522 PG 375	
18	OLGA FURTUNA (LOT 1)	DB 5064 PG 1254	PB 110 PG 115, LOT 3
19	MICHAEL E. & LINDA CONRAD, KENNETH W. CONRAD	DB 4909 PG 1102	PB 185 PG 183
20	HERBERT ROBERSON, III	DB 146 PG 1544	
20A	OLEG ROMASHCHUK	DB 5632 PG 1240	PB 185 PG 183
21	JOYCE M. YOUNG	DB 4264 PG 420, DB 1992 PG 55	
22	JILL MCELREATH	DB 3649 PG 340, DB 863 PG 49, DB 848 PG 615	
23	JACK T. & TAMARA S. TWEEED	DB 4396 PG 970	
24	CHARLES WAYNE YOUNG	DB 008E PG 301, DB 1142 PG 71	
25	PAUL E. YOUNG	DB 4973 PG 1040	
26	CARRIE H. & JOHN R. STEVENS	DB 4702 PG 126, DB 638 PG 500, DB 4041 PG 319, DB 638 PG 495	
71	HOLLIS K. & ARTHUR J. LEDFORD	DB 5439 PG 958, DB 5088 PG 1361	PB 60 PG 125
72	PRIVATE RW (VALLEY VIEW DRIVE SR 1228)	DB 837 PG 599, DB 4253 PG 844, DB 833 PG 193, DB 827 PG 599	
73	ROGER D. & ANITA R. METCALF & GEORGE E. & ELLA S. COOK	DB 2761 PG 46	
79	PRIVATE RW (TALL OAKS ROAD)		PB 60 PG 125

RIGHT OF WAY INSET FOR PARCEL 16

SEE PERMIT DRIVING SHEET 12 OF 22 FOR ENLARGEMENT

SEE PERMIT DRIVING SHEET 10 OF 22 FOR ENLARGEMENT

LEGENDS

- S SURFACE WATER IMPACTS
- TS TEMPORARY SURFACE WATER IMPACTS

GRAPHIC SCALE  
 0 25 50 100  
 FEET

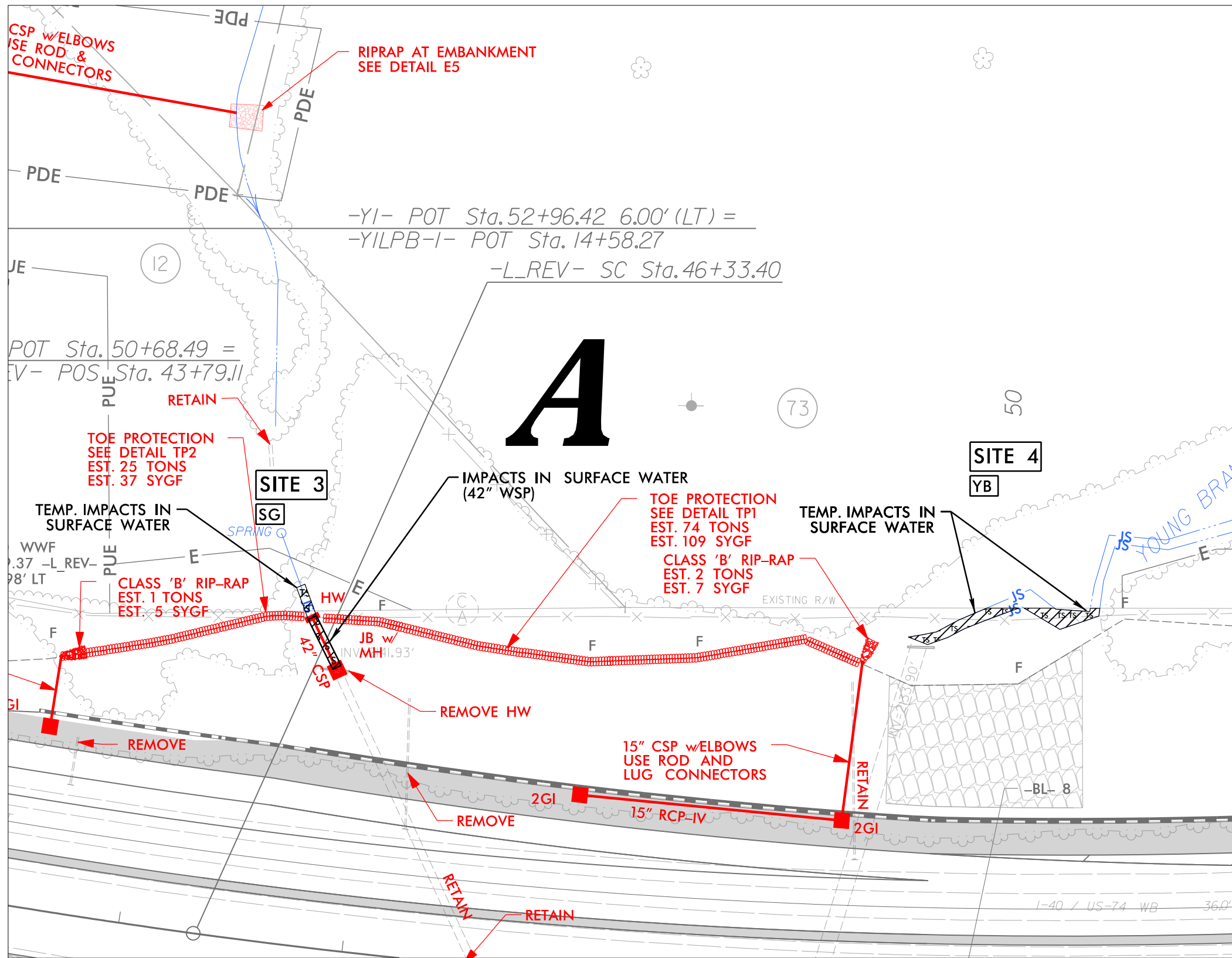
PROPOSED GEOTECHNICAL ROCK PLATING

INTERSECTION DETAIL SHEET  
 -L-, -Y1-, Y1 RAMPS, -SR2- & -SR211-  
 PROJECT NO. I-4759 COUNTY BUNCOMBE  
 DESIGNED BY: DATE:  
 CHECKED BY: DATE:

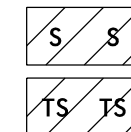
# WETLAND & STREAM IMPACTS

PROJECT REFERENCE NO.	SHEET NO.
1-4759	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING  
SHEET 9 OF 22

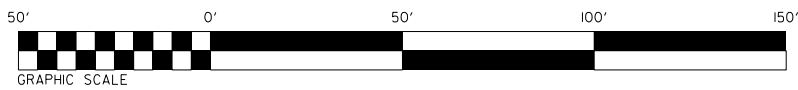


**LEGENDS**



SURFACE WATER IMPACTS

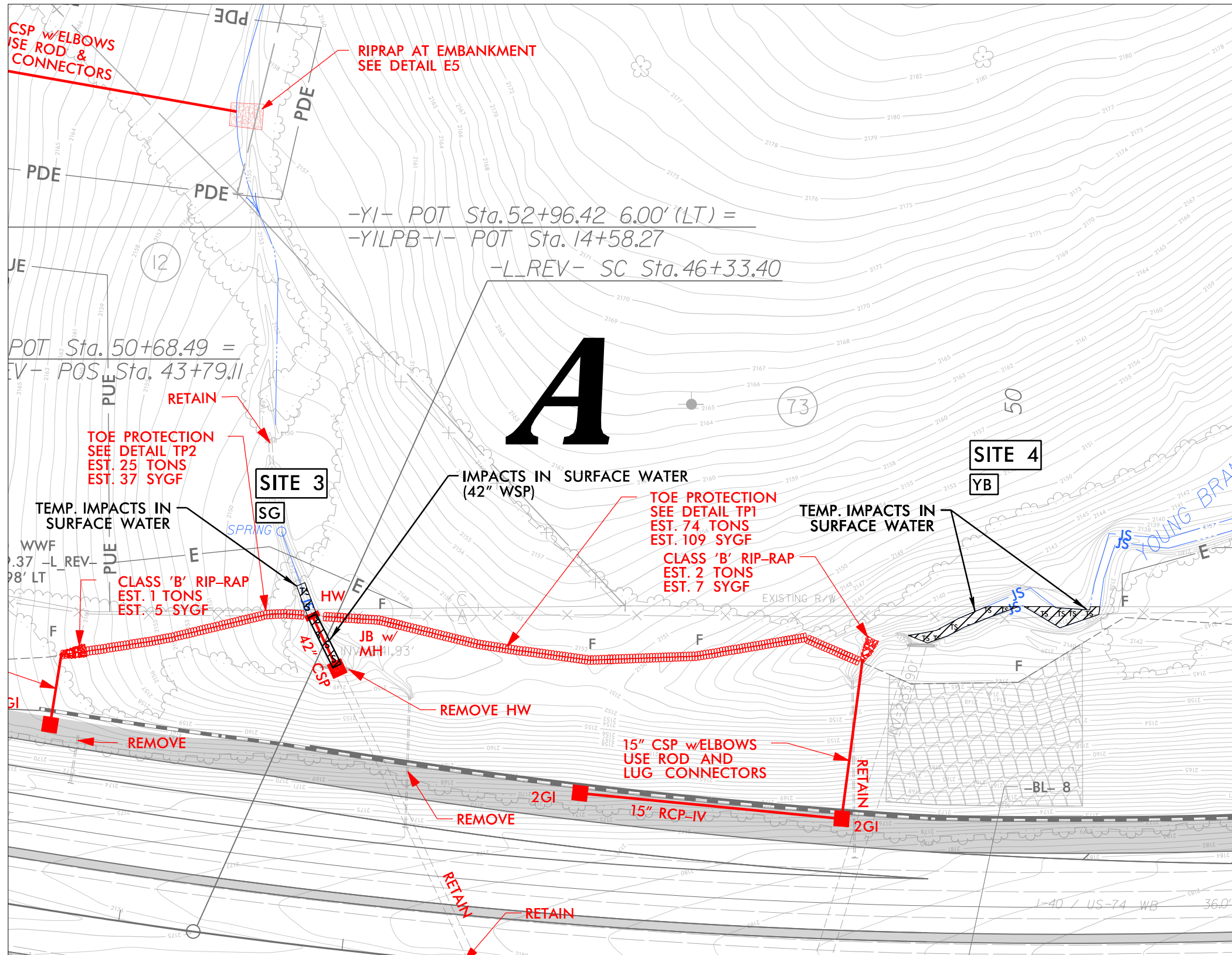
TEMPORARY SURFACE WATER IMPACTS



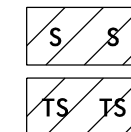
# WETLAND & STREAM IMPACTS

PROJECT REFERENCE NO. 1-4759	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING  
SHEET 10 OF 22

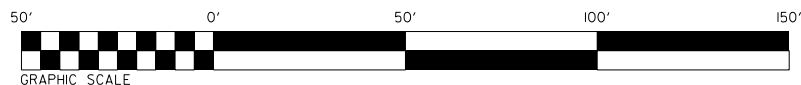


### LEGENDS



**S S** SURFACE WATER IMPACTS

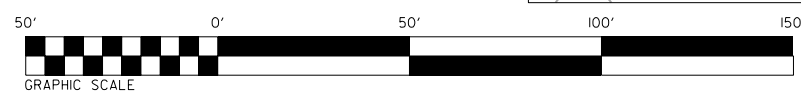
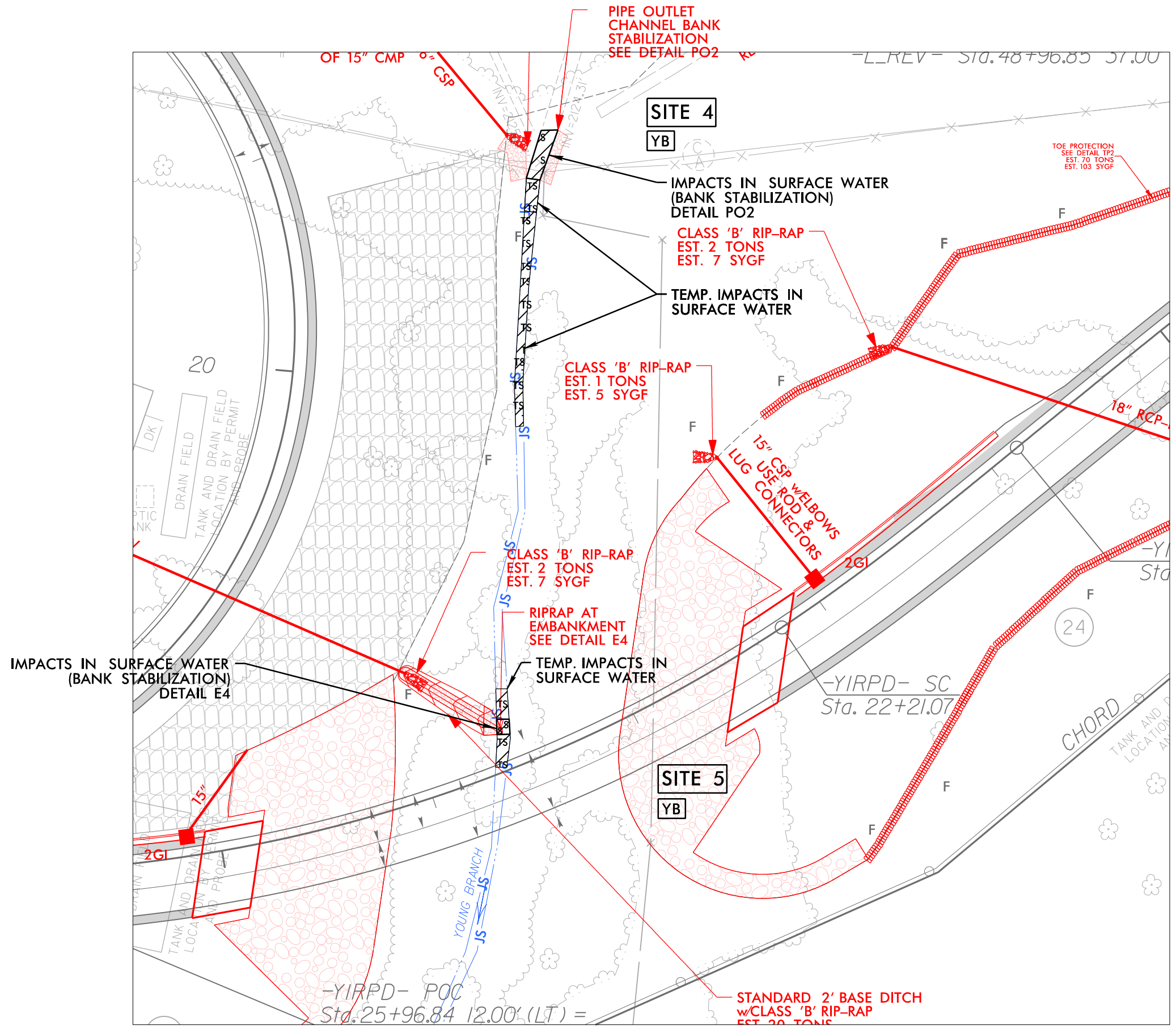
**TS TS** TEMPORARY SURFACE WATER IMPACTS



# WETLAND & STREAM IMPACTS

PROJECT REFERENCE NO. 1-4759	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING  
SHEET 11 OF 22



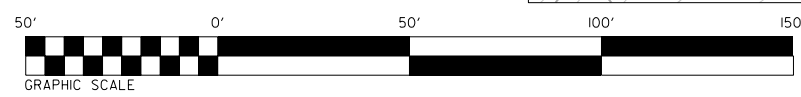
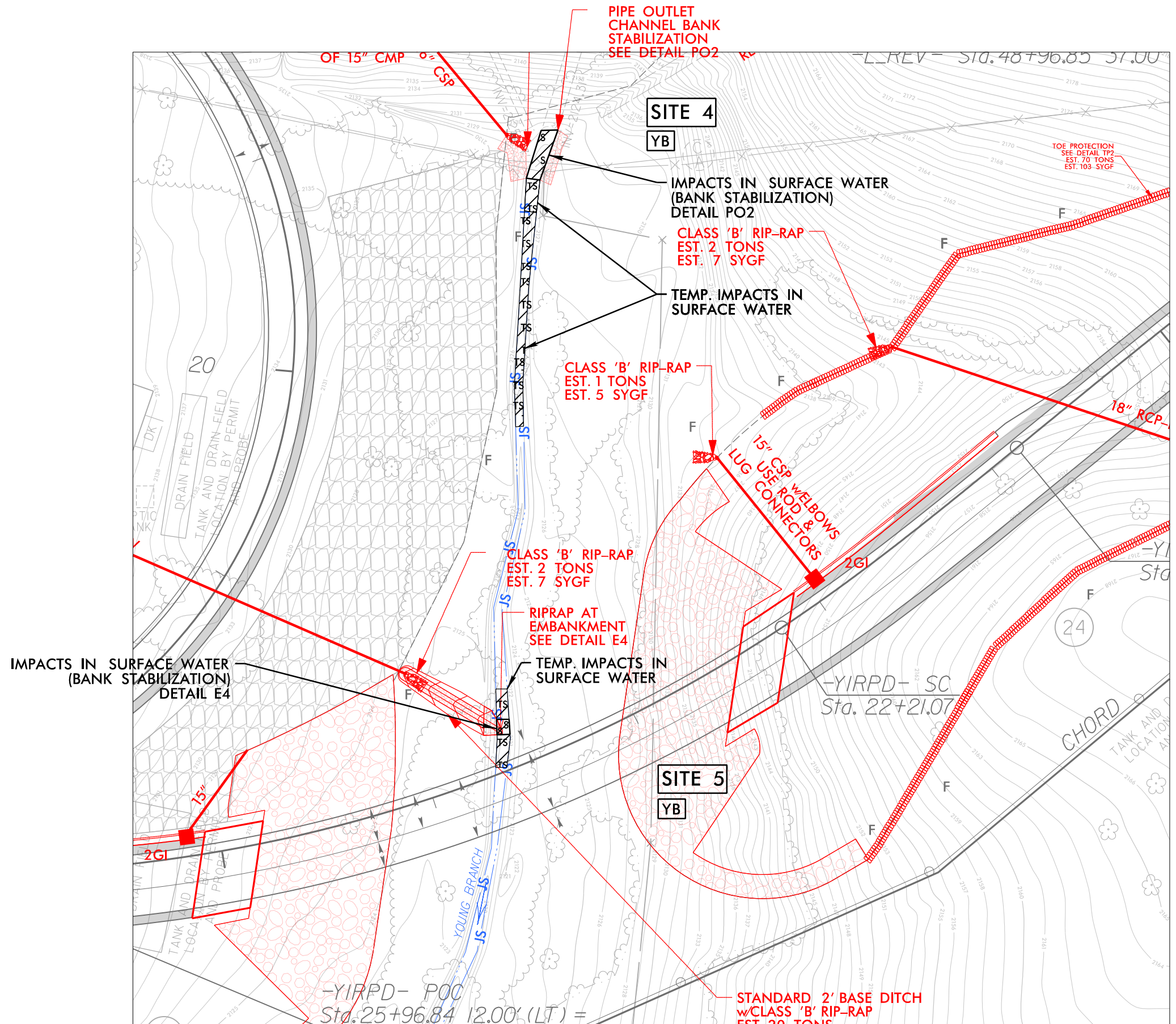
**LEGENDS**

S S	SURFACE WATER IMPACTS
TS TS	TEMPORARY SURFACE WATER IMPACTS

# WETLAND & STREAM IMPACTS

PROJECT REFERENCE NO. 1-4759	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING  
SHEET 12 OF 22

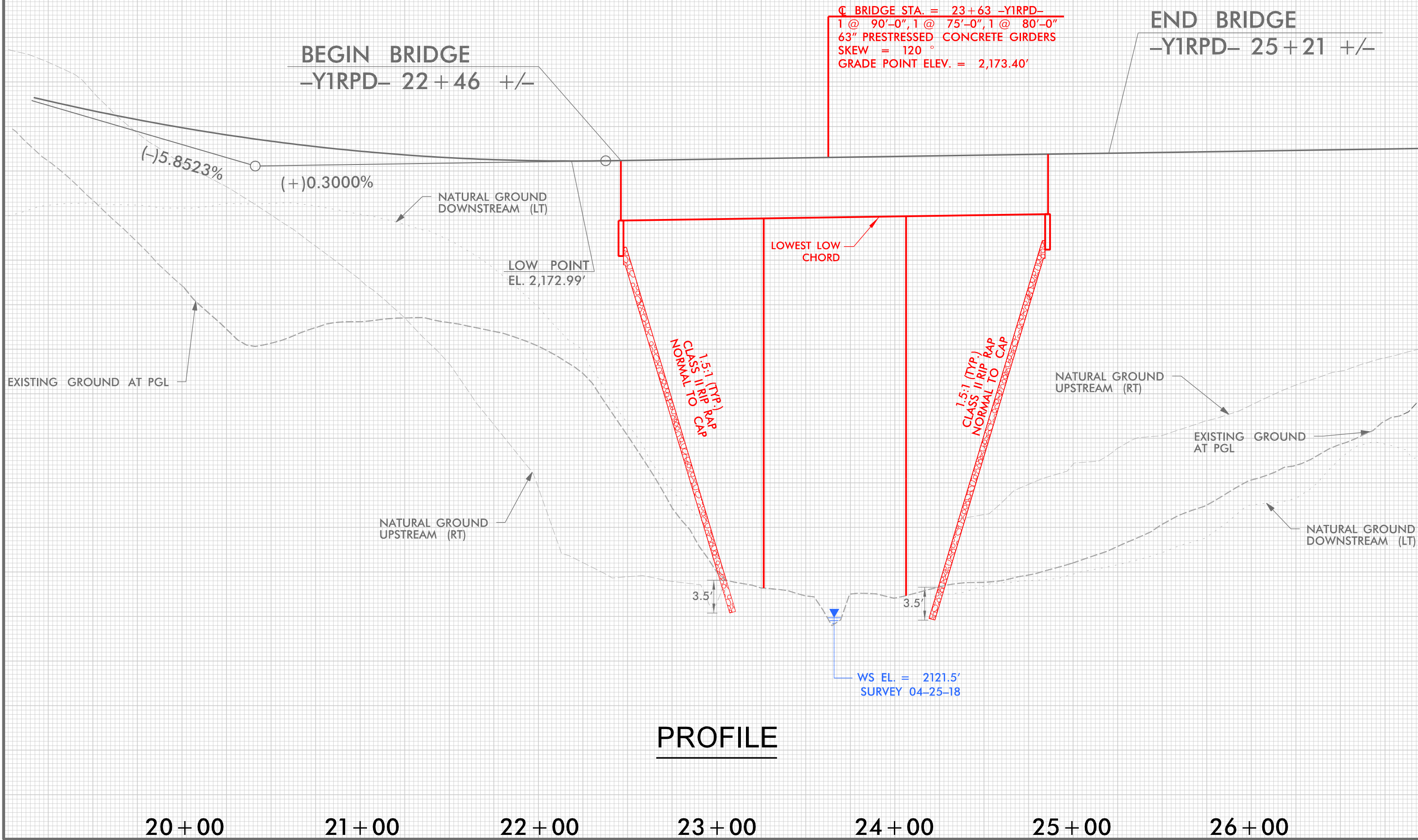


**LEGENDS**

S S	SURFACE WATER IMPACTS
TS TS	TEMPORARY SURFACE WATER IMPACTS

3/29/2021

# SITE 5



## PROFILE

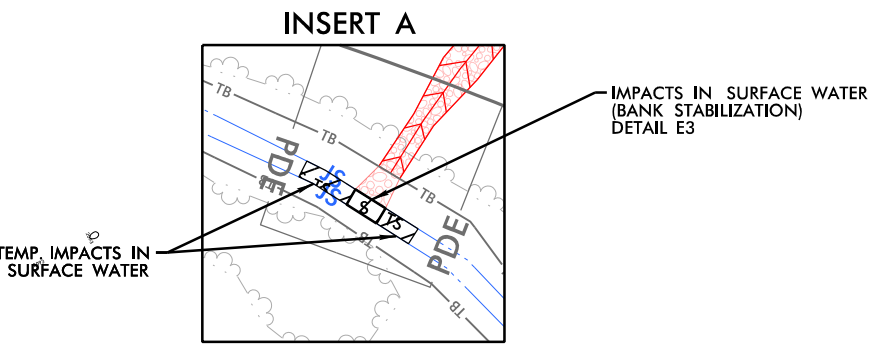
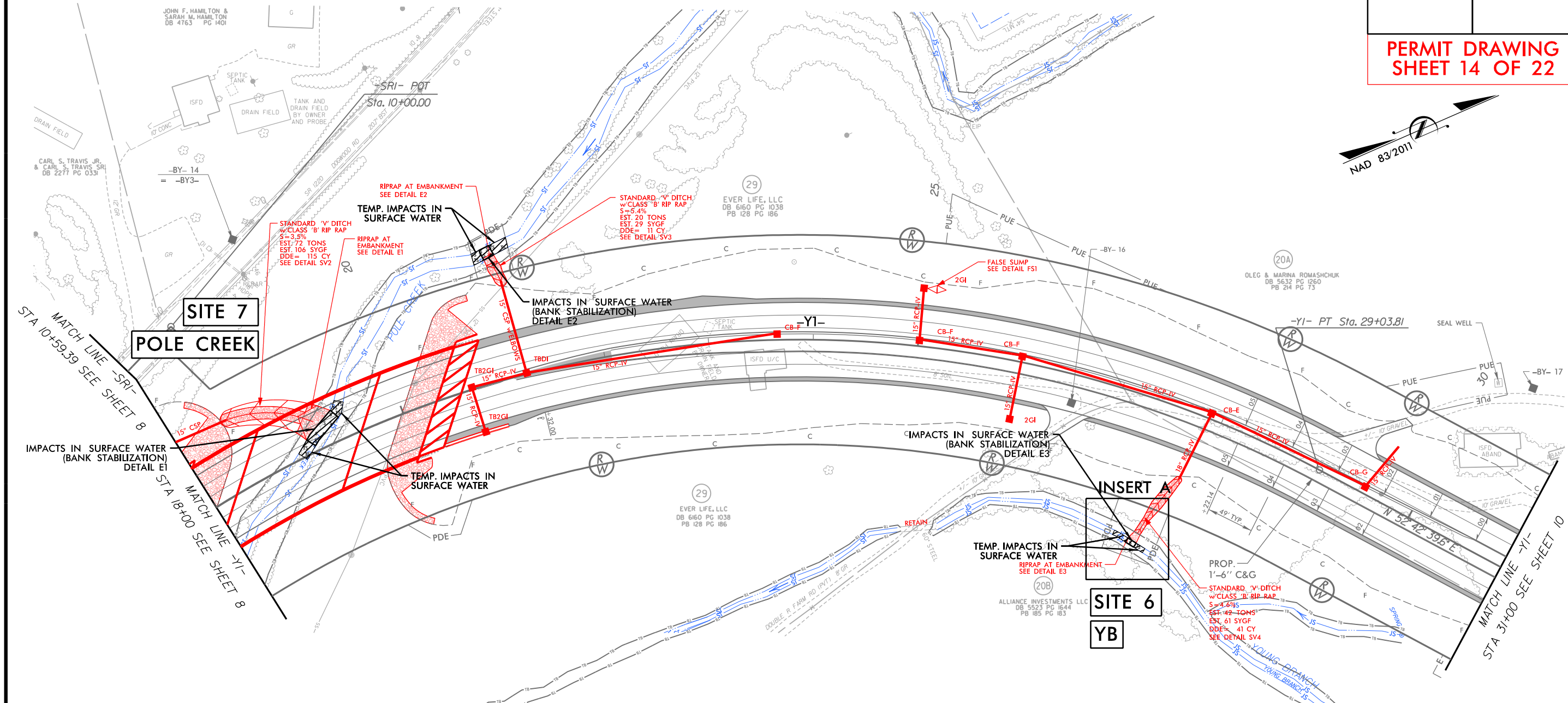
8/17/09

# WETLAND & STREAM IMPACTS

**HNTB** HNTB NORTH CAROLINA, P.C.  
101 S. Tryon Street, Suite 3610  
Charlotte, North Carolina 28280  
NC License No: C-1554

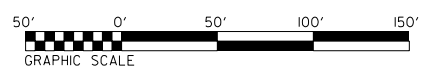
PROJECT REFERENCE NO. <b>I-4759</b>	SHEET NO. <b>9</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**PERMIT DRAWING  
SHEET 14 OF 22**



**LEGENDS**

	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS



8/18/2003 11:42:38 AM HYD\_PRRM\_PSH09.dgn  
HNTB

# WETLAND & STREAM IMPACTS

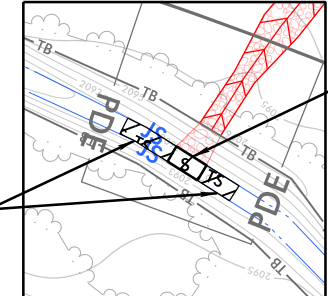
**HNTB** HNTB NORTH CAROLINA, P.C.  
101 S. Tryon Street, Suite 3610  
Charlotte, North Carolina 28280  
NC License No: C-1554

PROJECT REFERENCE NO. <b>I-4759</b>	SHEET NO. <b>9</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**PERMIT DRAWING  
SHEET 15 OF 22**



**INSERT A**

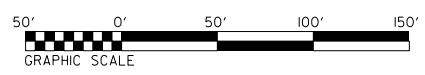


IMPACTS IN SURFACE WATER (BANK STABILIZATION) DETAIL E3

TEMP. IMPACTS IN SURFACE WATER

**LEGENDS**

- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS



3/29/2021

# SITE 7

16+00

17+00

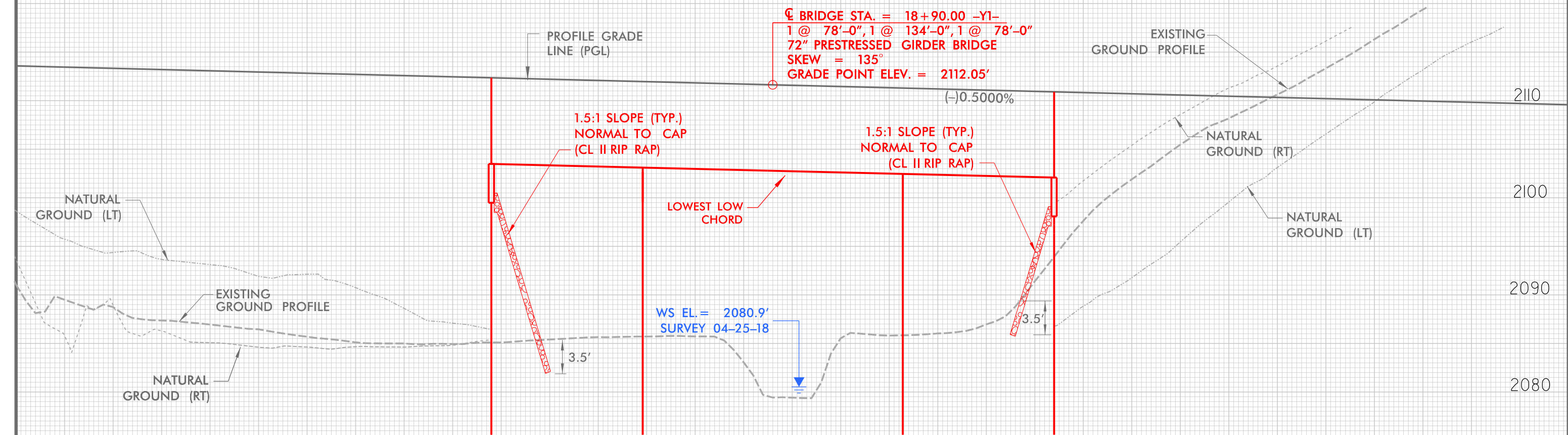
18+00

19+00

20+00

21+00

22+00



CL BRIDGE STA. = 18+90.00 -Y1-  
 1 @ 78'-0", 1 @ 134'-0", 1 @ 78'-0"  
 72" PRESTRESSED GIRDER BRIDGE  
 SKEW = 135°  
 GRADE POINT ELEV. = 2112.05'

PROFILE GRADE  
 LINE (PGL)

EXISTING  
 GROUND PROFILE

1.5:1 SLOPE (TYP.)  
 NORMAL TO CAP  
 (CL II RIP RAP)

1.5:1 SLOPE (TYP.)  
 NORMAL TO CAP  
 (CL II RIP RAP)

LOWEST LOW  
 CHORD

WS EL. = 2080.9'  
 SURVEY 04-25-18

3.5'

3.5'

NATURAL GROUND (LT)

EXISTING GROUND PROFILE

NATURAL GROUND (RT)

NATURAL GROUND (RT)

NATURAL GROUND (LT)

# PROFILE

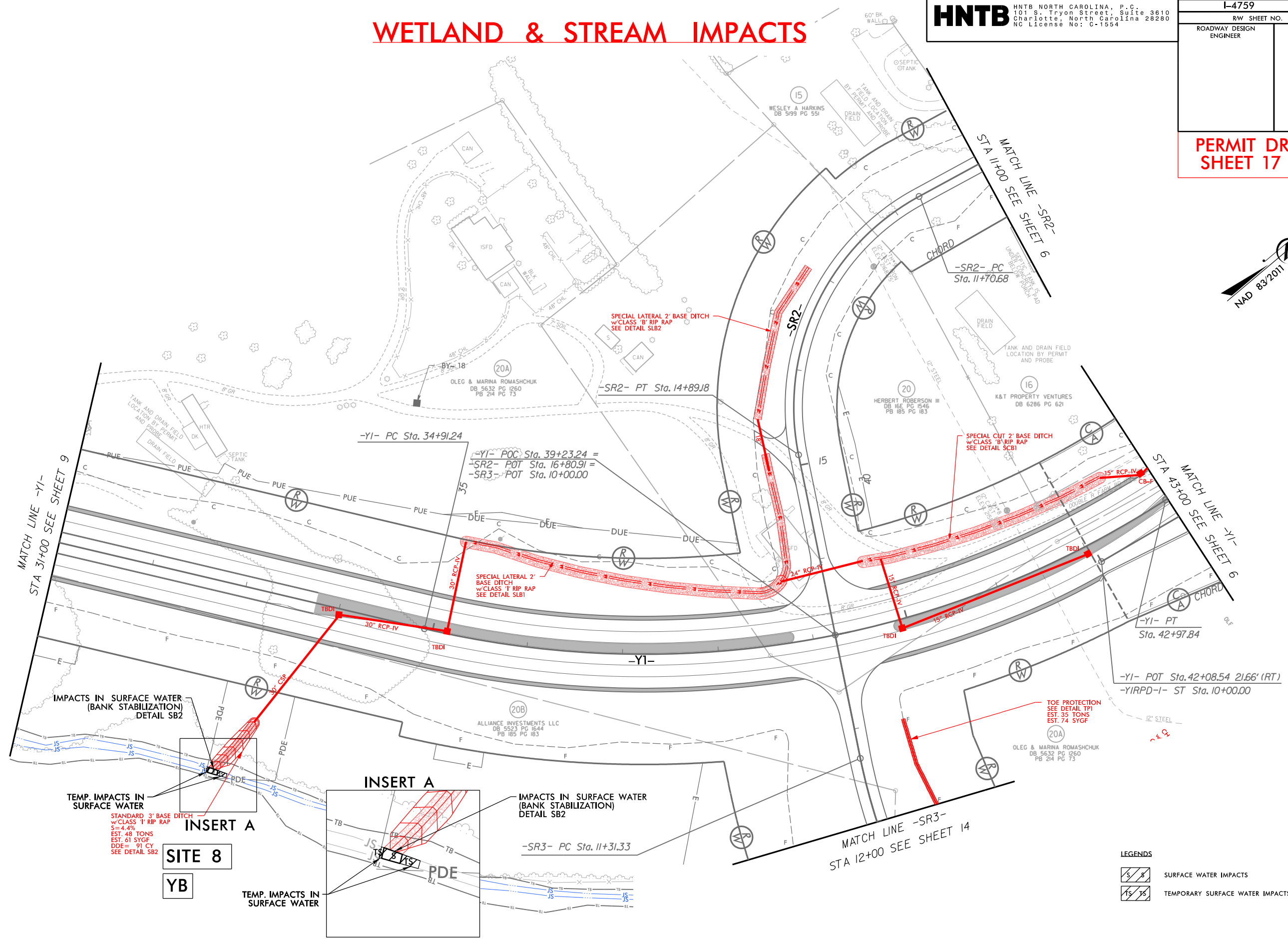
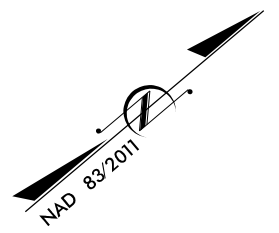
8/17/99

# WETLAND & STREAM IMPACTS

**HNTB** HNTB NORTH CAROLINA, P.C.  
 101 S. Tryon Street, Suite 3610  
 Charlotte, North Carolina 28280  
 NC License No: C-1554

PROJECT REFERENCE NO. <b>L-4759</b>	SHEET NO. <b>10</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**PERMIT DRAWING  
SHEET 17 OF 22**



IMPACTS IN SURFACE WATER  
(BANK STABILIZATION)  
DETAIL SB2

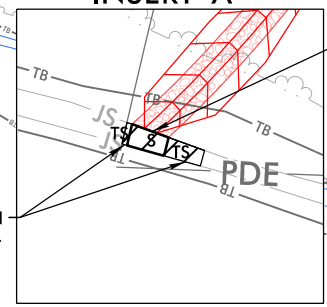
TEMP. IMPACTS IN SURFACE WATER

STANDARD 3' BASE DITCH  
w/CLASS 'I' RIP RAP  
S= 4.4%  
EST. 48 TONS  
EST. 61 SYGF  
DDE= 91 CY  
SEE DETAIL SB2

**SITE 8**

**YB**

**INSERT A**

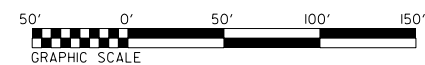


IMPACTS IN SURFACE WATER  
(BANK STABILIZATION)  
DETAIL SB2

TEMP. IMPACTS IN SURFACE WATER

LEGENDS

- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS



8/18/2023 HYD\_PPM\_PSH10.dgn

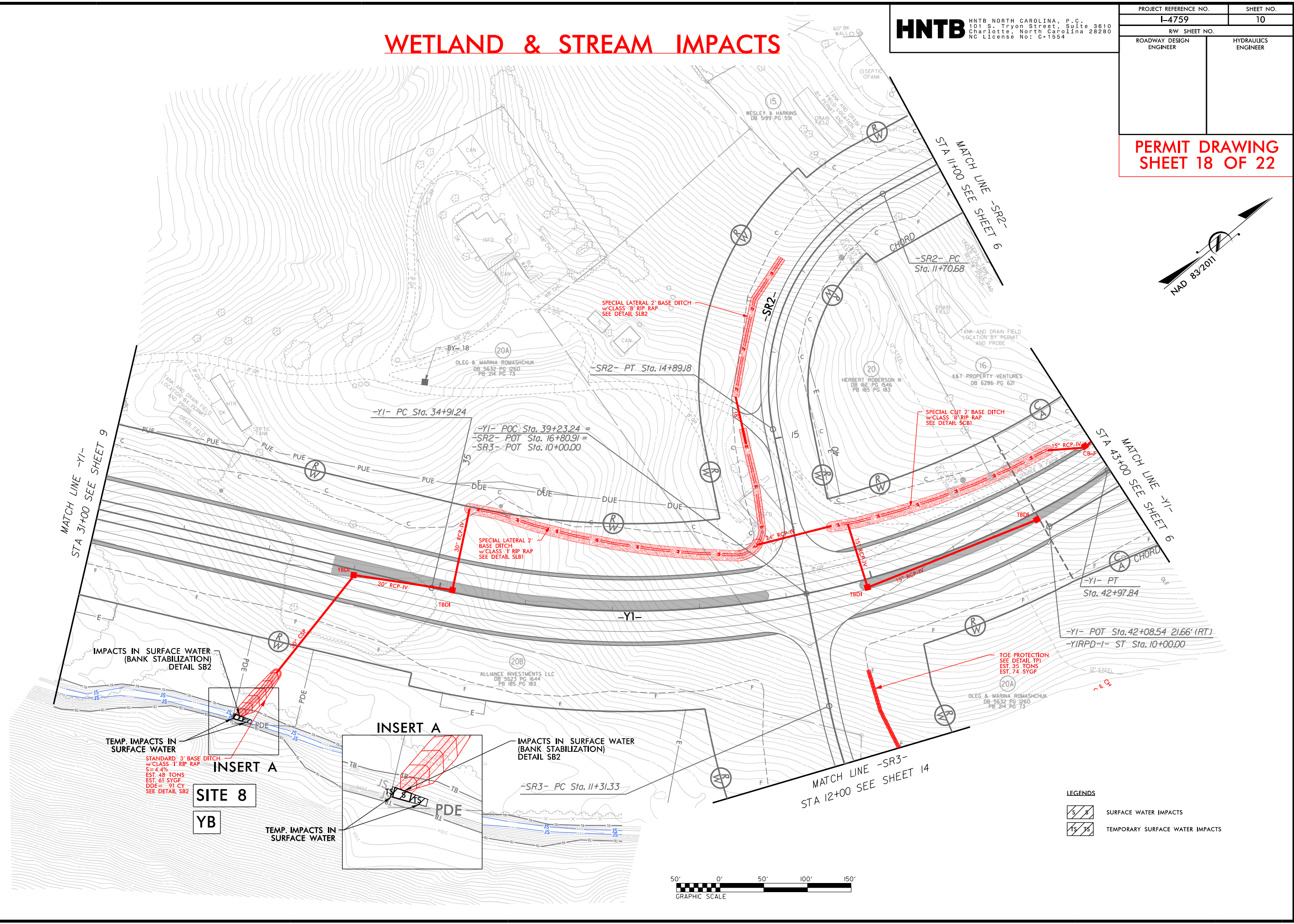
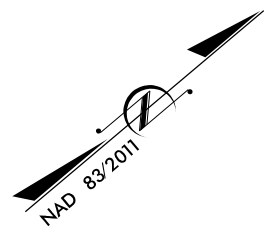
8/17/99

# WETLAND & STREAM IMPACTS

**HNTB** HNTB NORTH CAROLINA, P.C.  
 101 S. Tryon Street, Suite 3610  
 Charlotte, North Carolina 28280  
 NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
L-4759	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**PERMIT DRAWING  
SHEET 18 OF 22**



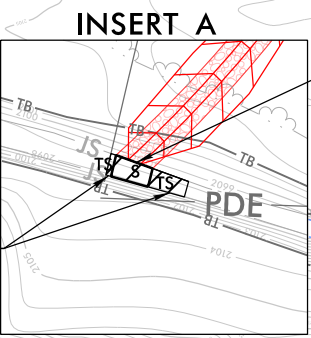
IMPACTS IN SURFACE WATER  
(BANK STABILIZATION)  
DETAIL SB2

TEMP. IMPACTS IN SURFACE WATER

**SITE 8**

**YB**

STANDARD 3' BASE DITCH  
w/CLASS 'I' RIP RAP  
S= 4.4%  
EST. 48 TONS  
EST. 61 SYGF  
DDE = 91 CY  
SEE DETAIL SB2

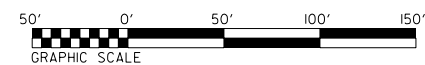


IMPACTS IN SURFACE WATER  
(BANK STABILIZATION)  
DETAIL SB2

TEMP. IMPACTS IN SURFACE WATER

LEGENDS

	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS



8/18/2023 HYD\_PPM\_PSH10.dgn  
HNTB

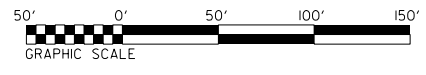
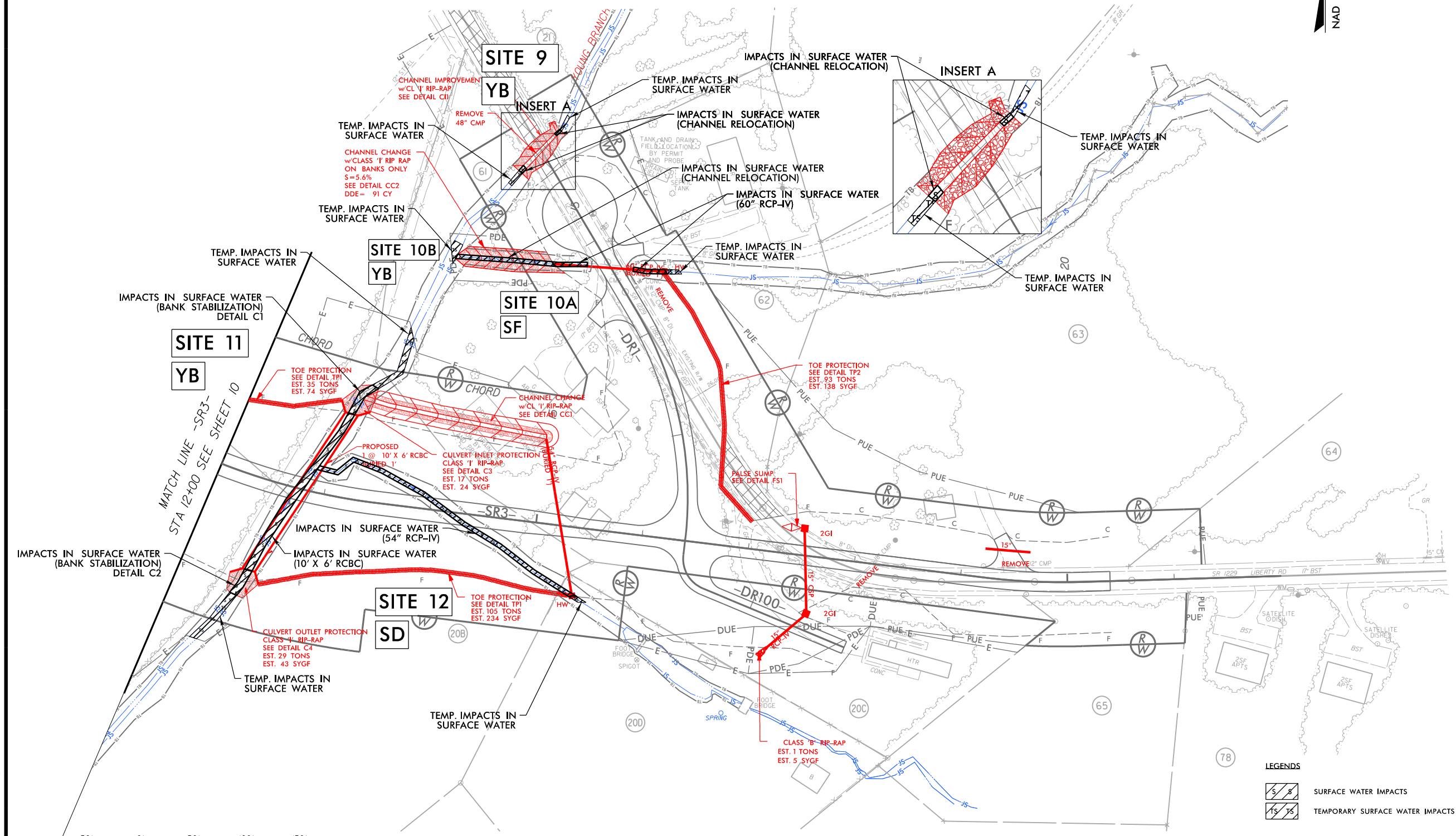
8/17/99

**HNTB** HNTB NORTH CAROLINA, P.C.  
101 S. Tryon Street, Suite 3610  
Charlotte, North Carolina 28280  
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
L-4759	14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# WETLAND & STREAM IMPACTS

**PERMIT DRAWING  
SHEET 19 OF 22**



LEGENDS

	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS

SEE SHEET 29 FOR -SR3- PROFILE  
 SEE SHEET 31 FOR -DR1- & -DR100- PROFILES  
 SEE SHEET 2B-4 FOR INTERSECTION DETAIL  
 SEE SHEET 2B-9 FOR CUL-DE-SAC DETAIL

8/18/2003 14:42:38 HYD\_PRM\_PSH14.dgn

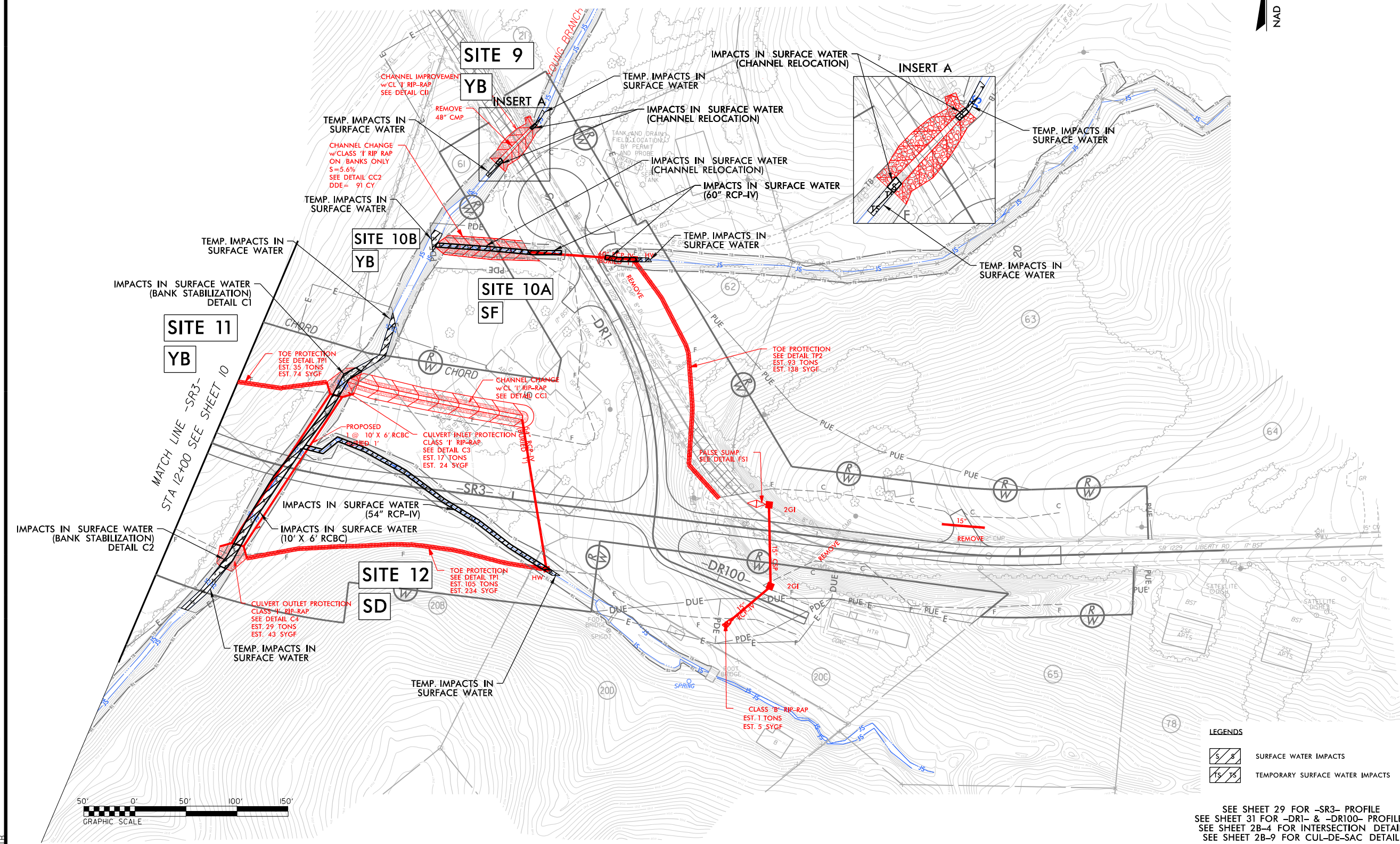
8/17/99

**HNTB** HNTB NORTH CAROLINA, P.C.  
101 S. Tryon Street, Suite 3610  
Charlotte, North Carolina 28280  
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
L-4759	14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# WETLAND & STREAM IMPACTS

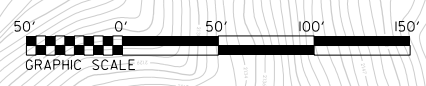
**PERMIT DRAWING  
SHEET 20 OF 22**



LEGENDS

	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS

SEE SHEET 29 FOR -SR3- PROFILE  
 SEE SHEET 31 FOR -DR1- & -DR100- PROFILES  
 SEE SHEET 2B-4 FOR INTERSECTION DETAIL  
 SEE SHEET 2B-9 FOR CUL-DE-SAC DETAIL



8/18/2023 11:47:38 AM HYD\_PRM\_PSH14.dgn

3/29/2021

# SITE 11

-200    -150    -100    -50    0    50    100    150    200

-SR3- STA. 12+79  
1 @ 10' X 6' RCBC  
W/1' SILLS AND INLET BEVEL  
C ELEV. = 2144.1'  
SKEW = 110°

2145

2135

2125

2115

2105

2.16:1  
(2:1 NORMAL)

2.02:1  
(2:1 NORMAL)

Q<sub>100</sub> EL. = 2114.0'  
Q<sub>25</sub> EL. = 2112.7'  
WS EL. = 2108.5'  
SURVEY 04-04-18

NATURAL GROUND  
LEFT BANK

NATURAL GROUND  
RIGHT BANK

EXISTING STREAM BED

EXISTING STREAM BED  
1' SILL AT ENTRANCE

1' SILL AT EXIT

PROP. CULVERT C  
INVERT EL. = 2105.45'  
SLOPE = 0.0063 FT/FT

# PROFILE

**WETLAND AND SURFACE WATER IMPACTS SUMMARY**

Site No.	Stream Name Stream ID	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
				Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	UT to Little Pole Creek / SB	L REV Sta. 22+31 to Sta. 25+24 LT/RT	Proposed 66" WSP						<0.01		57		
		L REV Sta. 22+34 to Sta. 22+43 LT	Bank Stabilization						<0.01	< 0.01	12	26	
		L REV Sta. 25+20 to Sta. 25+50 RT	Channel Change						<0.01	< 0.01	25	34	
2	Little Pole Creek	L REV Sta. 26+83 to Sta. 28+11 LT/RT	Proposed 2 @ 9' X 8' RCBC Extension						0.020		51		
		L REV Sta. 26+69 to Sta. 26+93 LT	Channel Change at inlet of 2 @ 9' X 8' RCBC Extension						<0.01	< 0.01	41	15	
		L REV Sta. 27+89 to Sta. 28+23 RT	Channel Change at outlet of 2 @ 9' X 8' RCBC Extension						0.020	< 0.01	61	15	
3	UT to Young Branch / SG	L REV Sta. 46+601 to Sta. 46+85 LT	Proposed 42" CSP						<0.01	< 0.01	25	15	
4	Young Branch	L REV Sta. 48+57 to Sta. 48+69 RT	Bank Stabilization						<0.01	< 0.01	24	15	
		L REV Sta. 50+24 to Sta. 50+38 LT	Roadway Fill							< 0.01		67	
		Y1LPD Sta. 19+56 to Sta. 20+11 LT	Roadway Fill							< 0.01		99	
5	Young Branch	Y1RPD Sta. 23+57 to Sta. 23+68 RT	Bank Stabilization						<0.01	< 0.01	5	31	
6	Young Branch	Y1 Sta. 27+37 to Sta. 27+75 RT	Bank Stabilization						<0.01	< 0.01	10	24	
7	Pole Creek	Y1 Sta. 21+03 to Sta. 21+30 LT	Standard "V" Ditch						<0.01	< 0.01	11	26	
		Y1 Sta. 18+93 to 19+52 LT/RT	Bank Stabilization						<0.01	< 0.01	36	28	
8	Young Branch	Y1 Sta. 33+04 to Sta. 33+25 RT	Bank Stabilization						<0.01	< 0.01	10	11	
9	Young Branch	DR1 Sta. 13+84 to Sta. 13+88 LT/RT	Channel Relocation						<0.01	< 0.01	10	12	
10A	UT to Young Branch / SF	DR1 Sta. 12+35 to Sta. 13+03 LT/RT	Proposed 60" RCP-IV						<0.01	< 0.01	62	13	
		DR1 Sta. 12+98 to Sta. 13+54 LT	Channel Relocation						<0.01		91		
10B	Young Branch	DR1 Sta. 13+49 to Sta. 13+67 LT	Channel Relocation							< 0.01		20	
11	Young Branch	SR3 Sta. 13+06 to Sta. 13+66 LT	Bank Stabilization at inlet of 10' X 6' RCBC						<0.01	< 0.01	35	67	
		SR3 Sta. 12+49 to Sta. 13+15 LT/RT	Proposed 1 @ 10' X 6' RCBC						0.030		175		
		SR3 Sta. 12+24 to Sta. 12+55 RT	Bank Stabilization at outlet of 10' X 6' RCBC						<0.01	< 0.01	27	56	
12	UT to Young Branch / SD	SR3 Sta. 12+88 to Sta. 15+55 LT/RT	Proposed 54" RCP-IV						0.030	< 0.01	280	11	
TOTALS*:				0.000		0.000	0.000		0.145	0.075	1048	585	

\*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
8/18/2023  
Buncombe  
I-4759