North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.02; Released April 23, 2024)

WBS Element: 48647.1.1 **TIP/Proj No:** U-6187 **County(ies):** Davie

General Project Information

WBS Element:	48647.1.1	**TIP Number:**	U-6187	**Project Type:**	New Location	**Date:**	6/27/2024
NCDOT Contact:	Galen Cail			**Contractor / Designer:**	Reid Robol		
	Address: 1590 Mail Service Center Raleigh, NC 27699-1590			**Address:**	940 Main Campus Dr Ste 500 Raleigh, NC 27606		
	Phone: 919-707-6706			**Phone:**	(919) 754-5005		
	Email: gcail@ncdot.gov			**Email:**	rrobol@vhb.com		
City/Town:	Clemmons, NC			**County(ies):**	Davie		
River Basin(s):	Yadkin-Pee Dee			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	1.184 miles	**Surrounding Land Use:**	rural, forested, rural residential				
	Proposed Project			**Existing Site**			
Project Built-Upon Area (ac.)	22.2	ac.		10.5	ac.		
Typical Cross Section Description:	L - 2 @ 12' lanes w/ 4' FDPS and 6' shoulders, Y1 - 2@12' lanes with 8' shoulders including 4' FDPS with various width raised median and one right turn lane; RPB/RPC/RPD - 1@ 16' lane w/14' and 12' shoulders, LPB - 1@22' lane with 10' and 12' shoulders			L, RPB, LPB, RPC, RPD - new location, NA; Y1: 2@ 12' lanes with grassed shoulders			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	21,200	Year: 2045	Existing:	8,100	Year:	2025

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

U-6187 involves the extention of SR 1630 (Baltimore Road) and construction of an interchange at I-40 on a new alignment. The project includes the extension of an existing 6'x6' RCBC on Smith Creek with a 6'x7' RCBC with sills and buried 1'; and a new location 1@14'x8' RCBC buried 1' with sills on Smith Creek under L. Avoidance and minimization measures (AMMs) have been undertaken throughout development and design of the LEDPA for the U-6187. The following provides a list of avoidance and minimization efforts made on the project:

Jurisdictional Areas

2:1 slopes with guardrails adjacent to wetlands and at pipe crossings to lessen the roadway fill and minimize impacts to streams and wetlands. Shoulder berm gutter is used at high-fill locations to capture and direct runoff at these locations, which will help reduce erosion.

I-40 Interchange

Design of the eastbound I-40 exit ramp as a stop-controlled approach instead of a free-flowing, continuous movement allowed the corner radius to be tightened and eliminated the need for a second parallel southbound lane along Baltimore Road, which reduced the impacts of Baltimore Road extension to wetlands and the Smith Creek crossing south of I-40.

Wetland Impact Minimization

The conceptual drainage layout originally consisted of a single cross pipe and ditching through wetland H near -L- STA. +/-21+00 LT. To minimize impacts to Wetland H, two cross pipes and toe protection have been used for the cross drainage in this area.

Wetland avoidance

The conceptual drainage layout originally consisted of a single Berm Ditch Outlet and cross pipe at approximately -L- 55+00 which concentrated flow and required an outfall ditch to Wetland Q. To minimize impacts to Wetland Q and maintain existing drainage patterns as much as practicable, an additional Berm Ditch Outlet and cross pipe was added at STA. 50+00 which reduced the amount of concentrated flow and allowed systems to discharge without impact to Wetland Q.

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WBS Element:	48647.1.1	TIP/Proj No.:	U-6187	County(ies):	Davie	Page	2	of	2

General Project Information

Waterbody Information

Surface Water Body (1):	Smith Creek		**NCDWR Stream Index No.:**	12-93-1		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	mercury (Hg)	None				
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	Smith Creek, UT to Smith Creek (SA, SB, SD, SH, SI, SJ, SK, SL, SM, SN, SO)			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (2):	Bailey Creek		**NCDWR Stream Index No.:**	12-93-2		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	mercury (Hg)					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	UT to Bailey Creek (SE, SF, SG)			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

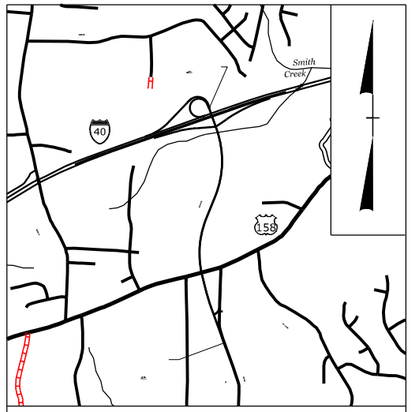
Surface Water Body (3):			**NCDWR Stream Index No.:**			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**				
		Supplemental Classification:				
Other Stream Classification:						
Impairments:						
Aquatic T&E Species?		Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**		
Project Includes Bridge Spanning Water Body?		**Deck Drains Discharge Over Buffer?**		**Dissipator Pads Provided in Buffer?**		
Deck Drains Discharge Over Water Body?		(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

09/08/99

TIP PROJECT: U-6187

CONTRACT: TBD

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



VICINITY MAP (NTS)

RIGHT OF WAY ACQUISITION PLAN SET

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING SHEET 1 OF 35

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-6187	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
48647.1.1		PE
48647.2.2		UTIL.
48647.2.3		R/W
48647.3.1		CONST.

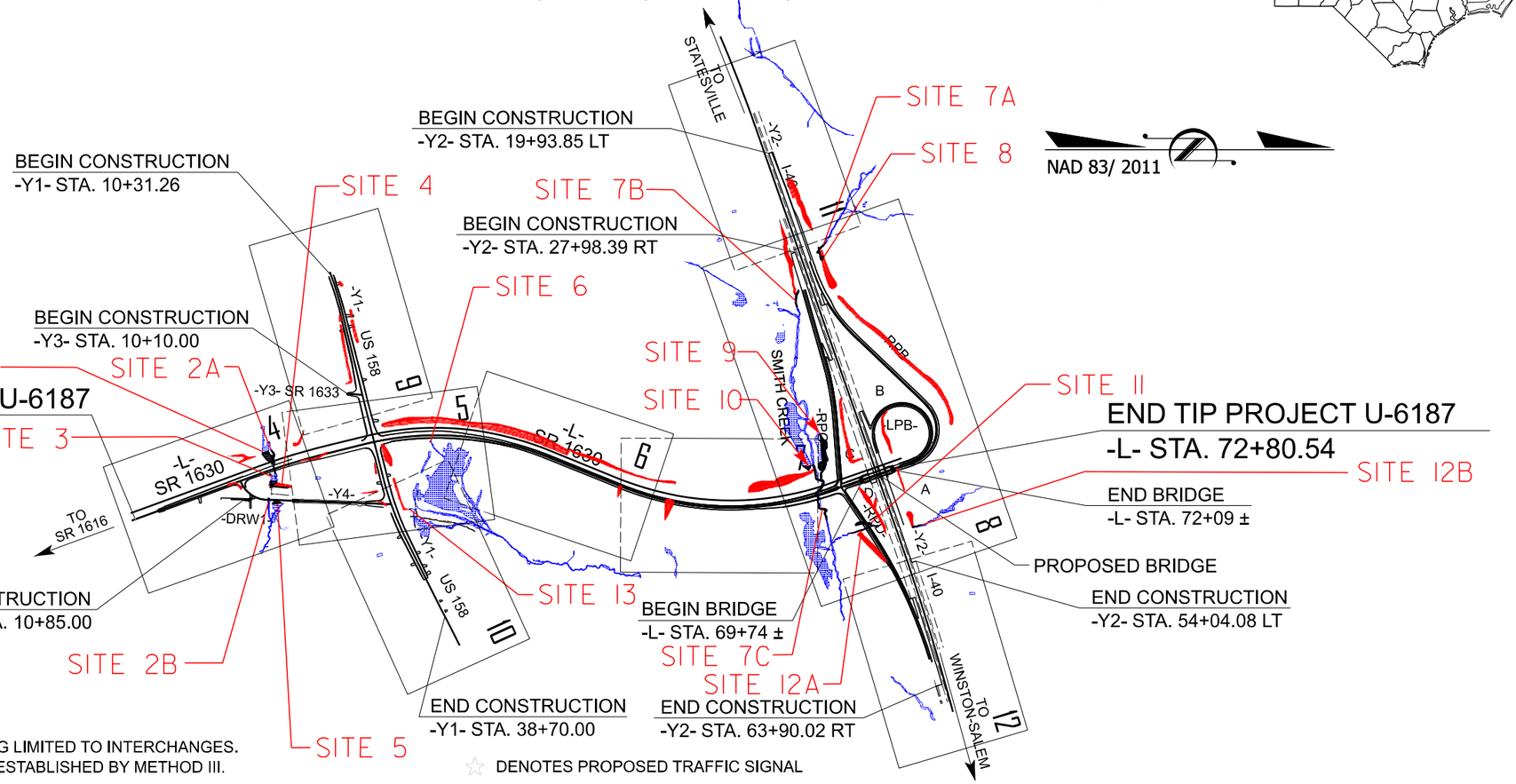
DAVIE COUNTY

LOCATION: *REALIGNMENT AND EXTENSION OF SR 1630 (BALTIMORE ROAD) FROM SOUTH OF US 158 TO A NEW INTERCHANGE AT I-40*

WETLAND AND SURFACE WATER IMPACTS PERMIT

TYPE OF WORK: *GRADING, PAVING, DRAINAGE, AND STRUCTURES*

NAD 83/ 2011



THIS PROJECT IS NOT WITHIN A MUNICIPAL BOUNDARY.
THIS IS A CONTROL OF ACCESS PROJECT WITH ACCESS TO I-40 BEING LIMITED TO INTERCHANGES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

☆ DENOTES PROPOSED TRAFFIC SIGNAL

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2025 = 8,100
ADT 2045 = 21,200
K = 10 %
D = 55 %
T = 8 % *
V = 60 MPH
* TTST =6% DUAL 2%
FUNC CLASS =
MAJOR COLLECTOR
STATE WIDE TIER

PROJECT LENGTH

PROJECT LENGTHS FOR TIP PROJECT U-6187:

LENGTH ROADWAY TIP PROJECT U-6187 = 1.139 MILES

LENGTH STRUCTURES TIP PROJECT U-6187 = 0.045 MILES

TOTAL LENGTH TIP PROJECT U-6187 = 1.184 MILES

NCDOT Contact: RYAN C. NEWCOMB, PE

Prepared in the Office of: vhb — VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 31, 2024

LETTING DATE: OCTOBER 21, 2025

JONATHAN P. SOIKA, P.E.
PROJECT ENGINEER

JERRY B. JAVELLANA, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

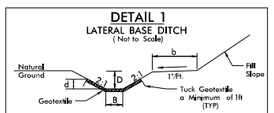
STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

DRAINAGE DETAILS

(NOT TO SCALE)

PERMIT DRAWING
SHEET 2 OF 35

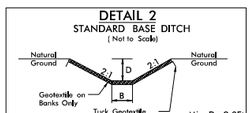
DETAIL 1
LATERAL BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 2.0 Ft.
d = 2.0 Ft.
B = 5.0 Ft.
Type of Liner = Class I Rip-Rap, Keyed-In
b = 5.0 Ft.

FROM STA. 14+92 TO STA. 19+32 –Y1– RT

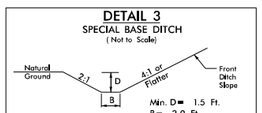
DETAIL 2
STANDARD BASE DITCH
(Not to Scale)



Min. D = 2.0Ft.
B = 5.0 Ft.
Type of Liner = Class I Rip-Rap, Keyed-In

STA. 52+11 –Y2– LT
STA. 20+92 –RPD–LT

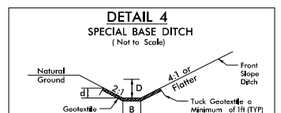
DETAIL 3
SPECIAL BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 2.0 Ft.

FROM STA. 11+50 TO STA. 13+61 –Y1– LT
FROM STA. 13+97 TO STA. 14+38 –Y1– LT
FROM STA. 22+94 TO STA. 25+52 –Y2– LT

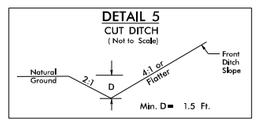
DETAIL 4
SPECIAL BASE DITCH
(Not to Scale)



Min. D = 2.0 Ft.
d = 2.0 Ft.
Type of Liner = Class B Rip-Rap, Keyed-In B = 5.0 Ft.

FROM STA. 14+85 TO STA. 16+43 –Y1– LT

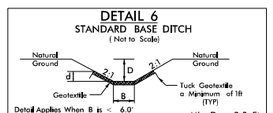
DETAIL 5
CUT DITCH
(Not to Scale)



Min. D = 1.5 Ft.

FROM STA. 14+00 TO STA. 14+57 –Y1– RT

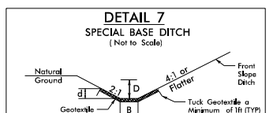
DETAIL 6
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 2.0 Ft.
d = 2.0 Ft.
Type of Liner = Class I Rip-Rap, Keyed-In B = 5.0 Ft.

FROM STA. 10+03 TO STA. 10+43 –Y3– LT

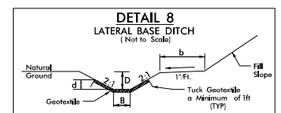
DETAIL 7
SPECIAL BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
d = 1.5 Ft.
Type of Liner = Class B Rip-Rap, Keyed-In B = 3.0 Ft.

FROM STA. 24+73 TO STA. 26+50 –Y1– LT

DETAIL 8
LATERAL BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 2.0 Ft.
d = 2.0 Ft.
B = 4.0 Ft.
Type of Liner = Class B Rip-Rap, Keyed-In b = 5.0 Ft.

FROM STA. 27+66 TO STA. 30+25 –Y1– LT

DETAIL 9
SPECIAL 'V' DITCH
(Not to Scale)

Min. D = 1.5 Ft.

FROM STA. 25+75 TO STA. 26+86 –Y1– RT
FROM STA. 27+20 TO STA. 28+19 –Y1– RT
FROM STA. 20+26 TO STA. 21+59 –Y4– LT
FROM STA. 21+38 TO STA. 22+21 –Y4– RT

DETAIL 10
STANDARD BASE DITCH
(Not to Scale)

Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 2.0Ft.
d = 2.0 Ft.
Type of Liner = Class B Rip-Rap, Keyed-In B = 3.0 Ft.

30+25 –Y1– LT

DETAIL 11
LATERAL BASE DITCH
(Not to Scale)

Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 2.0 Ft.
d = 2.0 Ft.
B = 5.0 Ft.
Type of Liner = Class II Rip-Rap, Keyed-In b = 5.0 Ft.

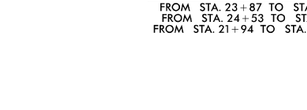
FROM STA. 13+13 TO STA. 14+58 –Y4– LT
FROM STA. 23+90 TO STA. 24+22 –L– LT
FROM STA. 29+01 TO STA. 31+90 –Y2– LT

DETAIL 12
LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1.5 Ft.
d = 1.0 Ft.
Type of Liner = Class B Rip-Rap, Keyed-In b = 5.0 Ft.

FROM STA. 18+00 TO STA. 18+60 –L– RT
FROM STA. 19+34 TO STA. 20+72 –L– LT
FROM STA. 10+49 TO STA. 10+95 –Y4– RT
FROM STA. 21+94 TO STA. 23+98 –RPD– RT

DETAIL 13
BERM BASE DITCH
(Not to Scale)



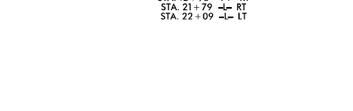
Min. D = 2.0 Ft.
d = 2.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.
Type of Liner = Class I Rip-Rap, Keyed-In

FROM STA. 14+18 TO STA. 27+02 –RPB– LT

DETAIL 14
FALSE SUMP
(Not to Scale)

S = Ditch Slope
℄ Proposed Ditch

DETAIL 15
FALSE SUMP
(Not to Scale)



S = Ditch Slope
℄ Proposed Ditch

DETAIL 16
STANDARD BASE DITCH
(Not to Scale)

Min. D = 1.5 Ft.
B = 2.0 Ft.

FROM STA. 10+90 TO STA. 13+45 –LPB– RT

DETAIL 17
BERM BASE DITCH
(Not to Scale)

Min. D = 1.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

FROM STA. 45+62 TO STA. 54+58 –L– LT
FROM STA. 44+23 TO STA. 45+94 –Y2– LT

DETAIL 18
LATERAL BASE DITCH
(Not to Scale)

Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 2.0 Ft.
d = 2.0 Ft.
B = 3.0 Ft.
Type of Liner = Class B Rip-Rap, Keyed-In b = 5.0 Ft.

FROM STA. 50+98 TO STA. 51+92 –Y2– LT

DETAIL 19
SPECIAL BASE DITCH
(Not to Scale)

Min. D = 1.5 Ft.
B = 4.0 Ft.

FROM STA. 31+00 TO STA. 45+65 –L– LT

DETAIL 20
STANDARD BASE DITCH
(Not to Scale)

Min. D = 1.5 Ft.
B = 4.0 Ft.

AT STA. 50+47 –L– RT
AT STA. 54+41 –L– RT

DETAIL 21
LATERAL BASE DITCH
(Not to Scale)

Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 3.0 Ft.
d = 3.0 Ft.
B = 5.0 Ft.
Type of Liner = Class I Rip-Rap, Keyed-In b = 5.0 Ft.

FROM STA. 60+52 TO STA. 66+19 –L– LT

DETAIL 22
TOE PROTECTION
(Not to Scale)

d = 1.5 Ft.
Type of Liner = Class B Rip-Rap

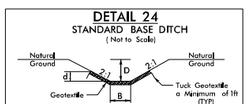
FROM STA. 20+73 TO STA. 22+60 –L– LT
FROM STA. 62+75 TO STA. 64+58 –L– RT

DETAIL 23
TOE PROTECTION
(Not to Scale)

d = 1.5 Ft.
b = 1.5 Ft.
Type of Liner = Class B Rip-Rap

FROM STA. 24+30 TO STA. 25+83 –L– LT
FROM STA. 33+18 TO STA. 33+62 –L– RT
FROM STA. 66+39 TO STA. 66+98 –L– LT
FROM STA. 22+62 TO STA. 24+93 –RPC– RT

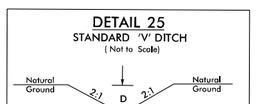
DETAIL 24
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 1.5 Ft.
d = 1.5 Ft.
Type of Liner = Class B Rip-Rap, Keyed-In B = 4.0 Ft.

FROM STA. 26+07 TO STA. 26+50 –Y1– LT

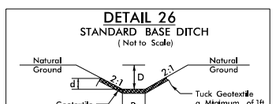
DETAIL 25
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.

FROM STA. 23+87 TO STA. 26+31 –L– RT
FROM STA. 19+70 TO STA. 20+37 –RPD– RT

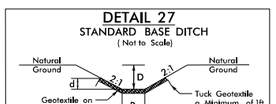
DETAIL 26
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 1.5 Ft.
d = 1.5 Ft.
Type of Liner = Class I Rip-Rap, Keyed-In B = 5.0 Ft.

FROM STA. 18+80 TO STA. 20+09 –L– LT

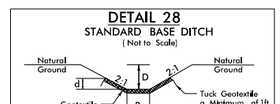
DETAIL 27
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 2.0 Ft.
d = 2.0 Ft.
Type of Liner = Class II Rip-Rap, Keyed-In B = 5.0 Ft.

FROM STA. 13+01 TO STA. 13+13 –Y4– LT

DETAIL 28
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 1.5 Ft.
d = 1.5 Ft.
Type of Liner = Class II Rip-Rap, Keyed-In B = 5.0 Ft.

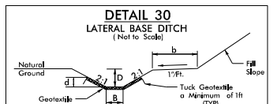
FROM STA. 24+22 TO STA. 24+90 –L– LT

DETAIL 29
LATERAL BASE DITCH
(Not to Scale)

Min. D = 1.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

FROM STA. 17+99 TO STA. 21+02 –RPD– LT

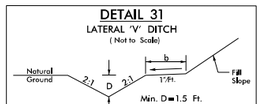
DETAIL 30
LATERAL BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 2.0 Ft.
d = 2.0 Ft.
B = 4.0 Ft.
Type of Liner = Class I Rip-Rap, Keyed-In b = 5.0 Ft.

FROM STA. 26+06 TO STA. 31+66 –Y2– RT

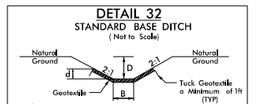
DETAIL 31
LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.
b = 5.0 Ft.

FROM STA. 19+58 TO STA. 24+52 –RPC– LT
FROM STA. 69+19 TO STA. 70+08 –L– LT
FROM STA. 20+37 TO STA. 21+94 –RPD– RT

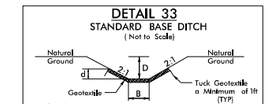
DETAIL 32
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 1.5 Ft.
d = 1.0 Ft.
Type of Liner = Class II Rip-Rap, Keyed-In B = 4.0 Ft.

FROM STA. 25+52 TO STA. 27+38 –Y2– LT

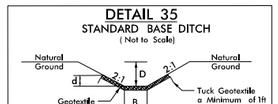
DETAIL 33
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 5.0 Ft.
d = 5.0 Ft.
Type of Liner = Class I Rip-Rap, Keyed-In B = 5.0 Ft.

FROM STA. 20+92 TO STA. 21+29 –RPD– LT

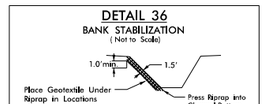
DETAIL 35
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 1.5 Ft.
d = 1.0 Ft.
Type of Liner = Class B Rip-Rap, Keyed-In B = 2.0 Ft.

FROM STA. 23+87 TO STA. 24+53 –L– RT
FROM STA. 24+53 TO STA. 26+31 –L– RT
FROM STA. 21+94 TO STA. 22+57 –RPD– RT

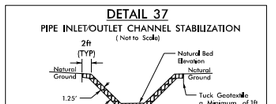
DETAIL 36
BANK STABILIZATION
(Not to Scale)



Type of Liner = CLASS I RIP RAP, Keyed-In

FROM STA. 31+85 TO STA. 32+45 –Y2– RT

DETAIL 37
PIPE INLET-OUTLET CHANNEL STABILIZATION
(Not to Scale)

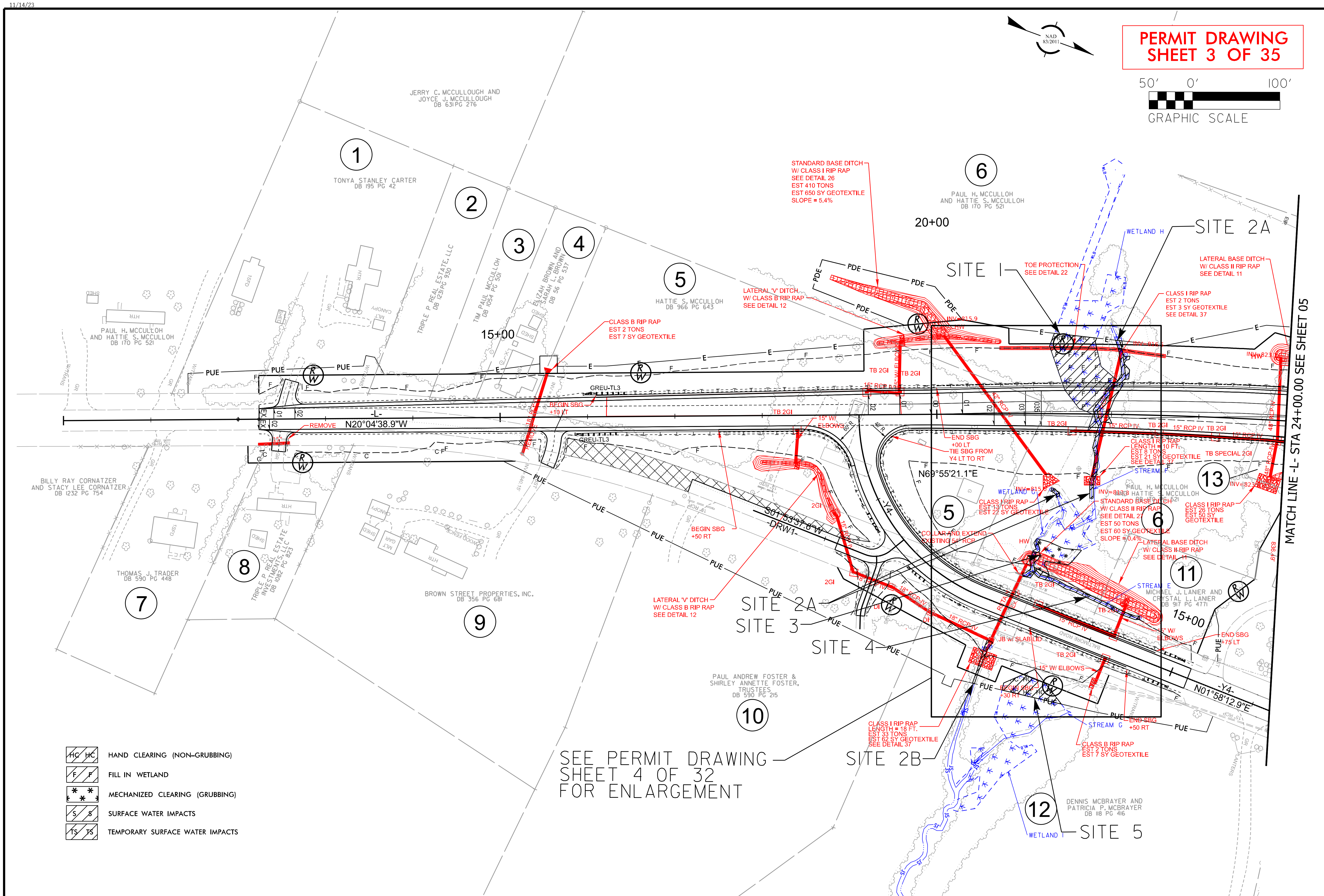


*Place Geotextile Under Riprap in Locations Directed by Engineer

Type of Liner = CL I Rip-Rap - Keyed-In

STA. 12+93 –Y4– RT
STA. 21+79 –L– RT
STA. 22+09 –L– LT

11/14/23


PERMIT DRAWING
SHEET 3 OF 35
50' 0' 100'
GRAPHIC SCALE
NAD 83/2011
SITE 1
SITE 2A
SITE 2B
SITE 3
SITE 4
SITE 5
SEE PERMIT DRAWING SHEET 4 OF 32 FOR ENLARGEMENT
MATCH LINE -L- STA 24+00.00 SEE SHEET 05
JERRY C. MCCULLOUGH AND JOYCE J. MCCULLOUGH DB 631 PG 276
TONYA STANLEY CARTER DB 195 PG 42
TRIPLE P REAL ESTATE, LLC DB 1231 PG 930
TIM PAUL MCCULLOH DB 1054 PG 501
ELIZAH BROWN AND SARAH L. BROWN DB 56 PG 537
HATTIE S. MCCULLOH DB 966 PG 643
PAUL H. MCCULLOH AND HATTIE S. MCCULLOH DB 170 PG 521
BILLY RAY CORNATZER AND STACY LEE CORNATZER DB 1232 PG 754
THOMAS J. TRADER DB 590 PG 448
TRIPLE P REAL ESTATE INVESTMENTS, LLC DB 1082 PG 823
BROWN STREET PROPERTIES, INC. DB 356 PG 681
PAUL ANDREW FOSTER & SHIRLEY ANNETTE FOSTER, TRUSTEES DB 590 PG 215
MICHAEL J. LANIER AND CRYSTAL L. LANIER DB 917 PG 4771
DENNIS MCBRAYER AND PATRICIA P. MCBRAYER DB 118 PG 416
N20°04'38.9"W
N69°55'21.1"E
S01°53'37.6"W
N01°58'12.9"E
15+00
20+00
STANDARD BASE DITCH W/ CLASS I RIP RAP SEE DETAIL 26 EST 410 TONS EST 650 SY GEOTEXTILE SLOPE = 5.4%
LATERAL "V" DITCH W/ CLASS B RIP RAP SEE DETAIL 12
CLASS B RIP RAP EST 2 TONS EST 7 SY GEOTEXTILE
TOE PROTECTION SEE DETAIL 22
LATERAL BASE DITCH W/ CLASS II RIP RAP SEE DETAIL 11
CLASS I RIP RAP EST 2 TONS EST 3 SY GEOTEXTILE SEE DETAIL 37
CLASS I RIP RAP LENGTH = 10 FT. EST 8 TONS EST 21 SY GEOTEXTILE SEE DETAIL 37
CLASS I RIP RAP EST 13 TONS EST 22 SY GEOTEXTILE
STANDARD BASE DITCH W/ CLASS II RIP RAP SEE DETAIL 27 EST 50 TONS EST 60 SY GEOTEXTILE SLOPE = 0.4%
CLASS I RIP RAP EST 26 TONS EST 50 SY GEOTEXTILE
LATERAL BASE DITCH W/ CLASS II RIP RAP SEE DETAIL 11
COLLAR AND EXTEND EXISTING 54" RCP
CLASS I RIP RAP LENGTH = 18 FT. EST 33 TONS EST 62 SY GEOTEXTILE SEE DETAIL 37
CLASS B RIP RAP EST 2 TONS EST 7 SY GEOTEXTILE
BEGIN SBG +10 LT
BEGIN SBG +50 RT
END SBG +00 LT
TIE SBG FROM Y4 LT TO RT
END SBG +75 LT
END SBG +50 RT
REMOVE
WETLAND H
WETLAND G
WETLAND I
STREAM E
STREAM F
STREAM G
HAND CLEARING (NON-GRUBBING)
FILL IN WETLAND
MECHANIZED CLEARING (GRUBBING)
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS

U-6187

2HY2	04

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PREPARED BY
vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

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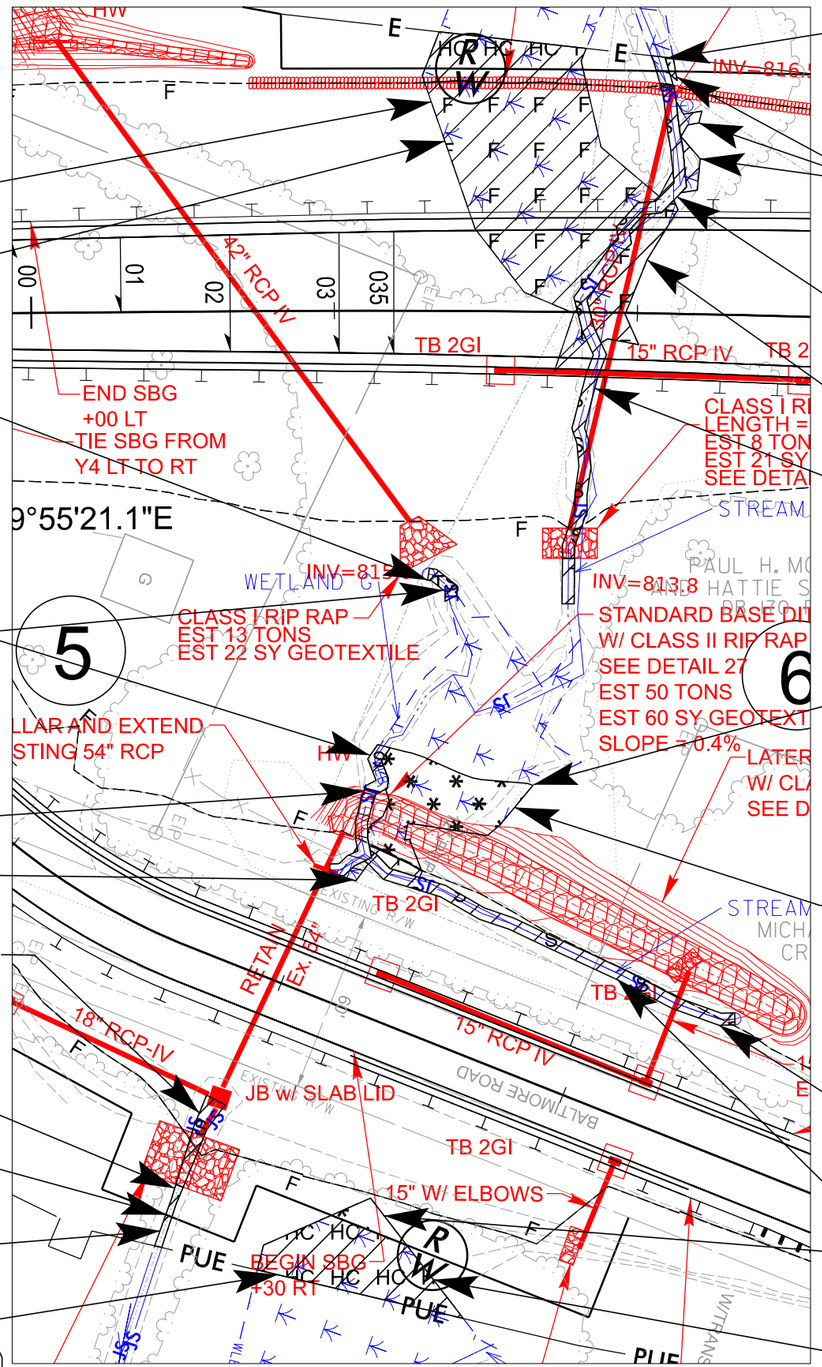
SITES 1, 2A, 2B, 3, 4, AND 5

PERMIT DRAWING SHEET 4 OF 35

25' 0' 50'
INSET GRAPHIC SCALE

- HC HC — HAND CLEARING (NON-GRUBBING)
- F F — FILL IN WETLAND
- * * * — MECHANIZED CLEARING (GRUBBING)
- S S — SURFACE WATER IMPACTS
- TS TS — TEMPORARY SURFACE WATER IMPACTS



11/14/23

PERMIT DRAWING SHEET 5 OF 35

GRAPHIC SCALE 50' 0' 100'

U-6187
2HY2 | 004
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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VHB Engineering NC, P.C. (C-2015)
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Raleigh, NC 27606

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JERRY C. MCCULLOUGH AND JOYCE J. MCCULLOUGH DB 631 PG 276

TONYA STANLEY CARTER DB 195 PG 49

PAUL H. MCCULLOH AND HATTIE S. MCCULLOH DB 170 PG 521

TRIPLE P REAL ESTATE, LLC DB 1231 PG 930

TIM PAUL MCCULLOH DB 1054 PG 501

ELIZAH BROWN AND SARAH L. BROWN DB 86 PG 531

HATTIE S. MCCULLOH DB 966 PG 643

BILLY RAY CORNATZER AND STACY LEE CORNATZER DB 1232 PG 754

THOMAS J. TRADER DB 590 PG 448

TRIPLE P REAL ESTATE INVESTMENTS, LLC DB 1086 PG 823

BROWN STREET PROPERTIES, INC. DB 356 PG 681

PAUL ANDREW FOSTER & SHIRLEY ANNETTE FOSTER, TRUSTEES DB 590 PG 215

DENNIS MCBRAYER AND PATRICIA P. MCBRAYER DB 118 PG 416

MICHAEL J. LANIER AND CRYSTAL L. LANIER DB 917 PG 471

SITE 1
SITE 2A
SITE 2B
SITE 3
SITE 4
SITE 5

STANDARD BASE DITCH W/ CLASS I RIP RAP SEE DETAIL 26 EST 410 TONS EST 650 SY GEOTEXTILE SLOPE = 5.4%

LATERAL 'V' DITCH W/ CLASS B RIP RAP SEE DETAIL 12

CLASS B RIP RAP EST 2 TONS EST 7 SY GEOTEXTILE

TOE PROTECTION SEE DETAIL 22

LATERAL BASE DITCH W/ CLASS II RIP RAP SEE DETAIL 11

CLASS I RIP RAP EST 2 TONS EST 3 SY GEOTEXTILE SEE DETAIL 37

CLASS I RIP RAP LENGTH = 10 FT. EST 5.6 TONS EST 31 SY GEOTEXTILE SEE DETAIL 27

CLASS I RIP RAP EST 13 TONS EST 22 SY GEOTEXTILE

STANDARD BASE DITCH W/ CLASS II RIP RAP SEE DETAIL 27 EST 50 TONS EST 60 SY GEOTEXTILE SLOPE = 0.4%

CLASS I RIP RAP EST 28 TONS EST 50 SY GEOTEXTILE

CLASS I RIP RAP LENGTH = 18 FT. EST 33 TONS EST 62 SY GEOTEXTILE SEE DETAIL 37

CLASS B RIP RAP EST 2 TONS EST 2 SY GEOTEXTILE

-L- N20°04'38.9"W

-Y4- N69°55'21.1"E

-DRW1- S01°55'37.8"W

-Y4- N01°58'12.9"E

BEGIN SBG +10 LT

END SBG +00 LT TIE SBG FROM Y4 LT TO RT

BEGIN SBG +50 RT

END SBG +50 RT

END SBG +75 LT

REMOVE

COLLAR AND EXTEND EXISTING 60" RCP

15" W/ ELBOWS

15" RCP IV

48" RCP IV

TB 2GI

TB SPECIAL 2GI

SLAB MOT

WETLAND H

WETLAND I

STREAM E

STREAM F

STREAM G

PUE

MATCH LINE -L- STA 24+00.00 SEE SHEET 05

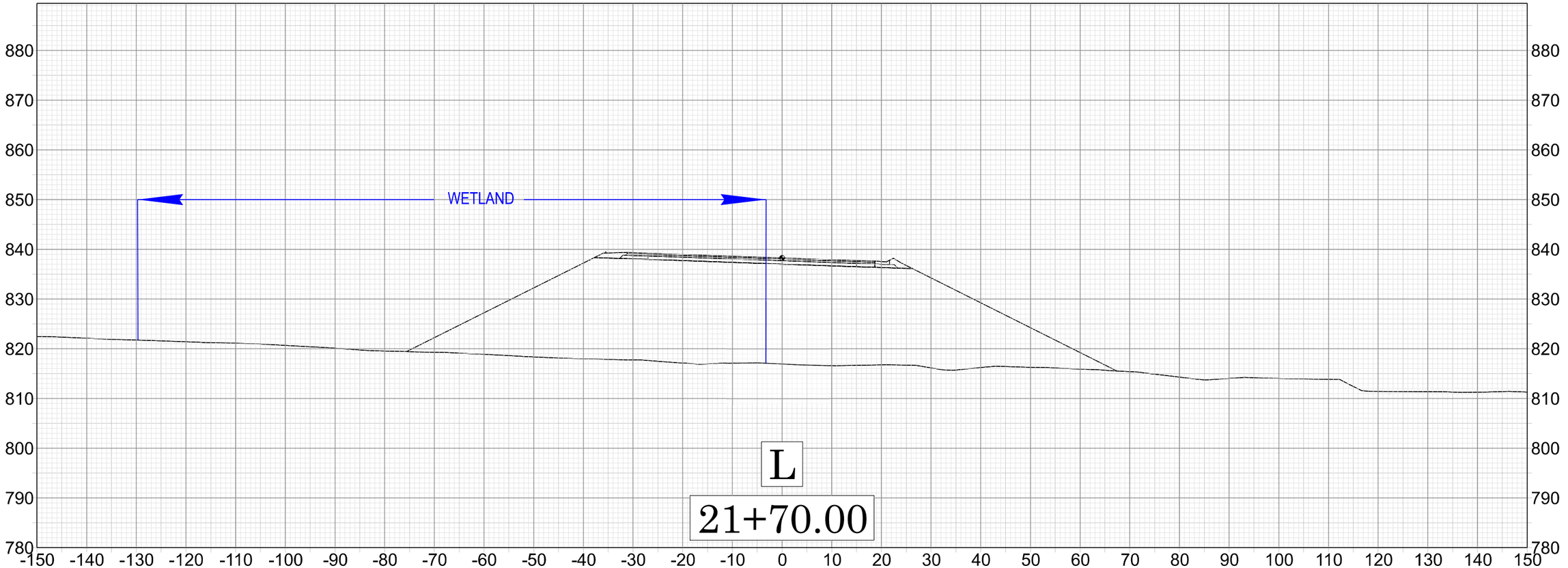
SEE PERMIT DRAWING SHEET 4 OF 32 FOR ENLARGEMENT

HC HAND CLEARING (NON-GRUBBING)
F FILL IN WETLAND
MECHANIZED CLEARING (GRUBBING)
S SURFACE WATER IMPACTS
TS TEMPORARY SURFACE WATER IMPACTS

$$$-USER NAME-$$$ - $$$-DATE-$$$

PERMIT DRAWING
SHEET 6 OF 35

SITE 1



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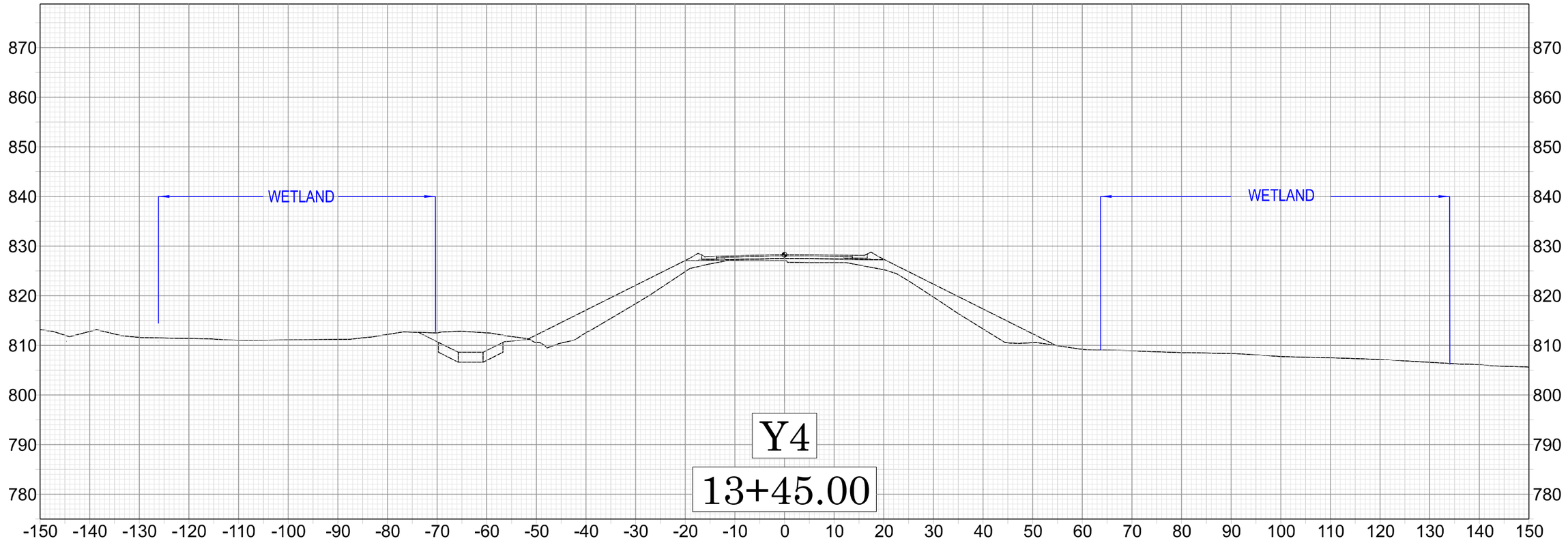
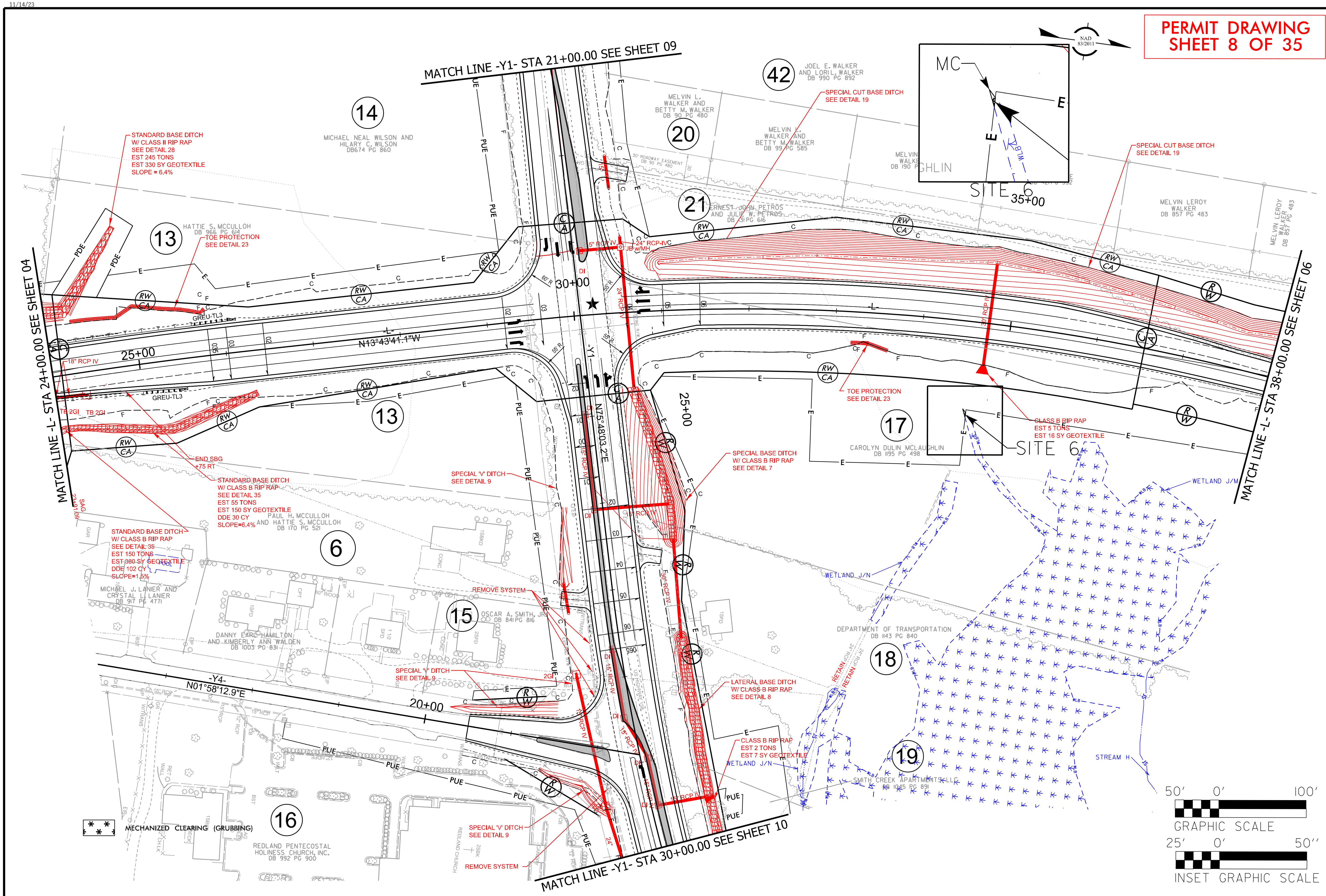
PERMIT DRAWING
SHEET 7 OF 35

SITES 3 & 5



-Y4- U-6187

11/14/23


PERMIT DRAWING
SHEET 8 OF 35
NAD 83/2011
MATCH LINE -Y1- STA 21+00.00 SEE SHEET 09
MATCH LINE -Y1- STA 30+00.00 SEE SHEET 10
MATCH LINE -L- STA 24+00.00 SEE SHEET 04
MATCH LINE -L- STA 38+00.00 SEE SHEET 06
STANDARD BASE DITCH
W/ CLASS II RIP RAP
SEE DETAIL 28
EST 245 TONS
EST 330 SY GEOTEXTILE
SLOPE = 6.4%
MICHAEL NEAL WILSON AND
HILARY C. WILSON
DB674 PG 860
JOEL E. WALKER
AND LORIL. WALKER
DB 990 PG 892
MELVIN L.
WALKER AND
BETTY M. WALKER
DB 90 PG 480
MELVIN L.
WALKER AND
BETTY M. WALKER
DB 99 PG 585
SPECIAL CUT BASE DITCH
SEE DETAIL 19
HATTIE S. MCCULLOH
DB 966 PG 614
TOE PROTECTION
SEE DETAIL 23
ERNEST JOHN PETROS
AND JULIE W. PETROS
MELVIN LEROY
WALKER
DB 857 PG 483
24" RCP-IV
JB W/MH
30+00
25+00
N13°43'41.1"W
18" RCP IV
GREU-TL3
TB 2GI
END SBG
+75 RT
STANDARD BASE DITCH
W/ CLASS B RIP RAP
SEE DETAIL 35
EST 55 TONS
EST 150 SY GEOTEXTILE
DDE 30 CY
SLOPE=6.4%
PAUL H. MCCULLOH
AND HATTIE S. MCCULLOH
DB 170 PG 521
STANDARD BASE DITCH
W/ CLASS B RIP RAP
SEE DETAIL 35
EST 150 TONS
EST 380 SY GEOTEXTILE
DDE 102 CY
SLOPE=1.5%
MICHAEL J. LANIER AND
CRYSTAL L. LANIER
DB 917 PG 477
SPECIAL 'V' DITCH
SEE DETAIL 9
N75°48'03.2"E
25+00
TOE PROTECTION
SEE DETAIL 23
CLASS B RIP RAP
EST 5 TONS
EST 16 SY GEOTEXTILE
SITE 6
CAROLYN DULIN MCLAUGHLIN
DB 1195 PG 498
SPECIAL BASE DITCH
W/ CLASS B RIP RAP
SEE DETAIL 7
WETLAND J/M
WETLAND J/N
REMOVE SYSTEM
OSCAR A. SMITH, JR.
DB 841 PG 816
DANNY EARL HAMILTON
AND KIMBERLY ANN WALDEN
DB 1003 PG 831
DEPARTMENT OF TRANSPORTATION
DB 1143 PG 840
SPECIAL 'V' DITCH
SEE DETAIL 9
-Y4-
N01°58'12.9"E
20+00
LATERAL BASE DITCH
W/ CLASS B RIP RAP
SEE DETAIL 8
CLASS B RIP RAP
EST 2 TONS
EST 7 SY GEOTEXTILE
WETLAND J/N
STREAM H
SMITH CREEK APARTMENTS LLC
DB 1045 PG 891
MECHANIZED CLEARING (GRUBBING)
REDLAND PENTECOSTAL
HOLINESS CHURCH, INC.
DB 992 PG 900
SPECIAL 'V' DITCH
SEE DETAIL 9
REMOVE SYSTEM
MC
SITE 6
35+00
50' 0' 100'
GRAPHIC SCALE
25' 0' 50'
INSET GRAPHIC SCALE

U-6187

2HY2 | 05

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PREPARED BY
vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

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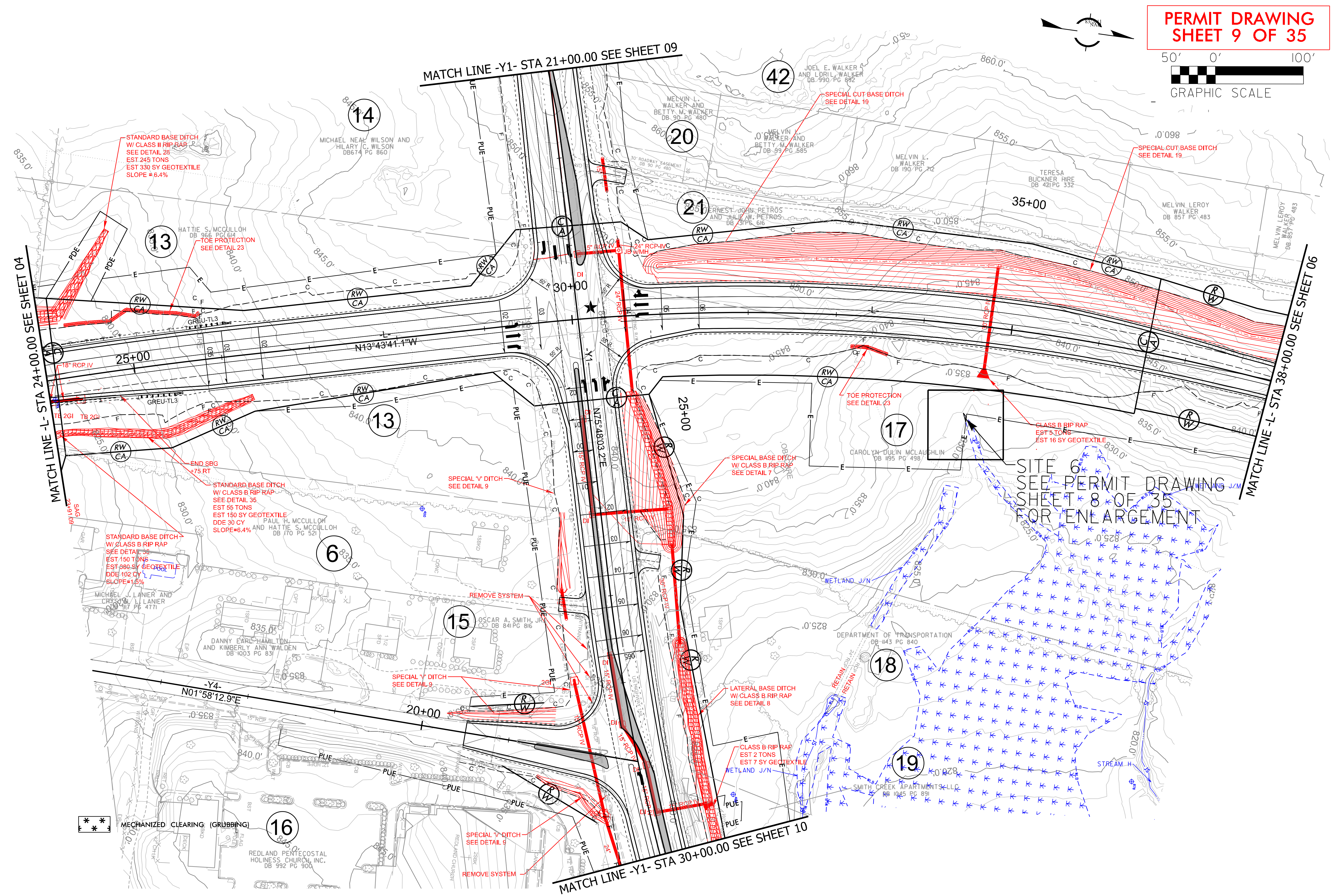
PERMIT DRAWING
SHEET 9 OF 35
50' 0' 100'
GRAPHIC SCALE
MATCH LINE -Y1- STA 21+00.00 SEE SHEET 09
MATCH LINE -L- STA 24+00.00 SEE SHEET 04
MATCH LINE -L- STA 38+00.00 SEE SHEET 06
MATCH LINE -Y1- STA 30+00.00 SEE SHEET 10
STANDARD BASE DITCH
W/ CLASS II RIP RAP
SEE DETAIL 28
EST 245 TONS
EST 330 SY GEOTEXTILE
SLOPE = 6.4%
TOE PROTECTION
SEE DETAIL 23
SPECIAL CUT BASE DITCH
SEE DETAIL 19
JOEL E. WALKER
AND LORI L. WALKER
DB 990 PG 682
MICHAEL NEAL WILSON AND
HILARY C. WILSON
DB674 PG 860
MELVIN L. WALKER AND
BETTY M. WALKER
DB 90 PG 480
MELVIN L. WALKER AND
BETTY M. WALKER
DB 99 PG 585
MELVIN L. WALKER
DB 190 PG 712
TERESA BUCKNER HIRE
DB 421 PG 332
MELVIN LEROY WALKER
DB 857 PG 483
HATTIE S. MCCULLOH
DB 966 PG 614
ERNEST JOHN PETROS
AND JULIE W. PETROS
DB 376 PG 616
24" RCP-IV
JB W/MH
30+00
35+00
25+00
20+00
N13°43'41.1"W
N75°48'03.2"E
N01°58'12.9"E
-Y4-
18" RCP IV
TB 2GI
END SBG
+75 RT
STANDARD BASE DITCH
W/ CLASS B RIP RAP
SEE DETAIL 35
EST 55 TONS
EST 150 SY GEOTEXTILE
DDE 30 CY
SLOPE=6.4%
PAUL H. MCCULLOH
AND HATTIE S. MCCULLOH
DB 170 PG 521
STANDARD BASE DITCH
W/ CLASS B RIP RAP
SEE DETAIL 35
EST 150 TONS
EST 380 SY GEOTEXTILE
DDE 102 CY
SLOPE=1.5%
MICHAEL J. LANIER AND
CRYSTAL L. LANIER
DB 917 PG 4771
SPECIAL 'V' DITCH
SEE DETAIL 9
SPECIAL BASE DITCH
W/ CLASS B RIP RAP
SEE DETAIL 7
TOE PROTECTION
SEE DETAIL 23
CLASS B RIP RAP
EST 5 TONS
EST 16 SY GEOTEXTILE
CAROLYN DULIN MCLAUGHLIN
DB 1195 PG 498
SITE 6
SEE PERMIT DRAWING
SHEET 8 OF 35
FOR ENLARGEMENT
WETLAND J/N
REMOVE SYSTEM
DANNY EARL HAMILTON
AND KIMBERLY ANN WALDEN
DB 1003 PG 831
OSCAR A. SMITH, JR.
DB 841 PG 816
DEPARTMENT OF TRANSPORTATION
DB 1143 PG 840
LATERAL BASE DITCH
W/ CLASS B RIP RAP
SEE DETAIL 8
CLASS B RIP RAP
EST 2 TONS
EST 7 SY GEOTEXTILE
SMITH CREEK APARTMENTS LLC
DB 1045 PG 891
STREAM H
MECHANIZED CLEARING (GRUBBING)
REDLAND PENTECOSTAL
HOLINESS CHURCH, INC.
DB 992 PG 900

U-6187

2HY2	005

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PREPARED BY
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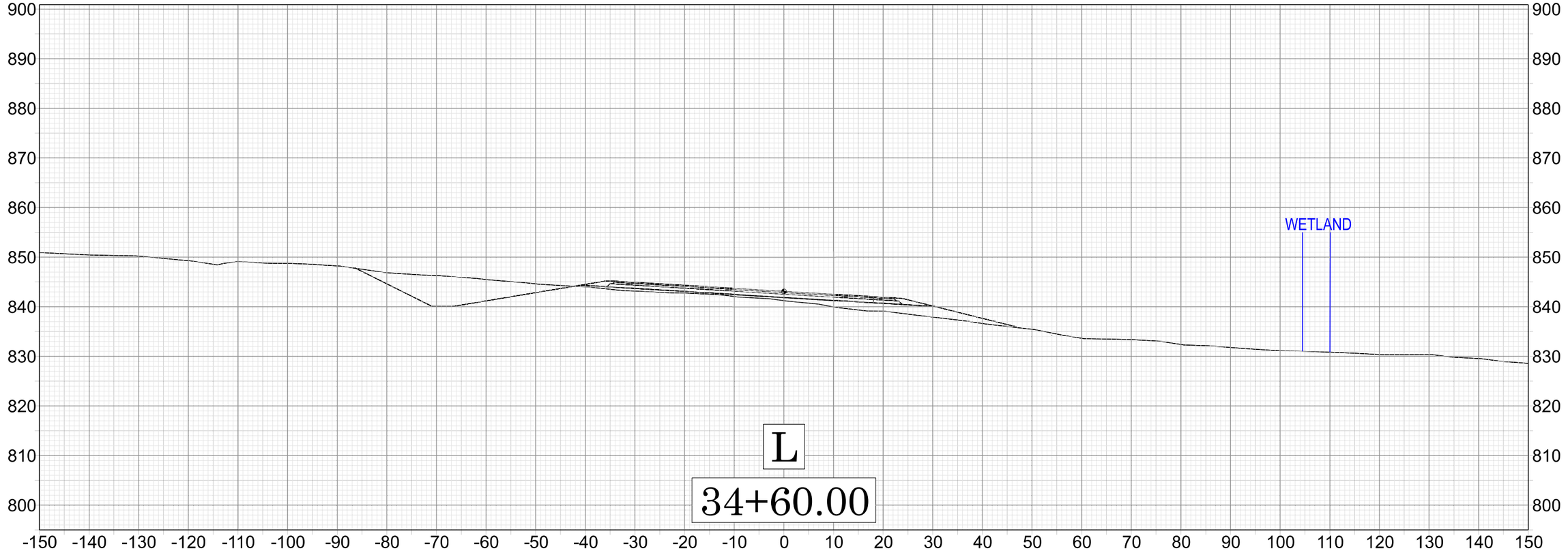
PERMIT DRAWING
SHEET 10 OF 35

SITE 6



-L- U-6187

11/14/23

PERMIT DRAWING
SHEET 11 OF 35

NAD 83/2011

25' 0' 50'
INSET GRAPHIC SCALE

JOEL E. WALKER
AND LORIL. WALKER
DB 990 PG 892

ROBIN DALE
ORRELL
DB 1174 PG 33

ROBIN DALE
ORRELL
DB 1174 PG 33

MELVIN LEROY
WALKER
DB 857 PG 483

21

ERNEST JOHN PETROS
AND JULIE W. PETROS
DB 131 PG 616

CAROLYN DULIN MCLAUGHLIN
DB 1195 PG 498

17

SPECIAL CUT BASE DITCH
SEE DETAIL 19

40+00

45+00

50+00

BERM BASE DITCH
SEE DETAIL 17

BDO

18" W/ ELBOWS

2GI

FS

-L-
N21°59'00.5"E

MATCH LINE -L- STA 38+00.00 SEE SHEET 05

CLASS B RIP RAP
EST 5 TONS
EST 16 SY GEOTEXTILE

CAROLYN DULIN MCLAUGHLIN
DB 1195 PG 498

17

PDE

CLASS B RIP RAP
EST 3 TONS
EST 10 SY GEOTEXTILE

STANDARD BASE DITCH
SEE DETAIL 20
SLOPE=0.3%

CLASS I RIP RAP
EST 26 TONS
EST 50 SY GEOTEXTILE

FGM DEVELOPMENT, LLC
DB 1045 PG 911

23

WETLAND J/N

U-6187
2HY2 | 006

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PREPARED BY

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PERMIT DRAWING
SHEET 12 OF 35

50' 0' 100'
GRAPHIC SCALE

NAD 83/2011

MATCH LINE -L- STA 38+00.00 SEE SHEET 05

MATCH LINE -L- STA 52+00.00 SEE SHEET 07

-L-
N21°59'00.5"E

JOEL E. WALKER AND LORI L. WALKER DB 990 PG 892

ROBIN DALE ORRELL DB 1174 PG 33

MELVIN LEROY WALKER DB 857 PG 483

ERNEST JOHN PETROS AND JULIE W. PETROS DB 131 PG 616

21

CAROLYN DULIN MCLAUGHLIN DB 1195 PG 498

17

23

FGM DEVELOPMENT, LLC DB 1045 PG 911

40+00

45+00

50+00

SPECIAL CUT BASE DITCH
SEE DETAIL 19

BERM BASE DITCH
SEE DETAIL 17

BDO

18" W/ ELBOWS

2GI

FS

PDE

CLASS B RIP RAP
EST 5 TONS
EST 16 SY GEOTEXTILE

CLASS B RIP RAP
EST 3 TONS
EST 10 SY GEOTEXTILE

STANDARD BASE DITCH
SEE DETAIL 20
SLOPE=0.3%

CLASS I RIP RAP
EST 26 TONS
EST 50 SY GEOTEXTILE

WETLAND J/N

OBSCURE

U-6187
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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

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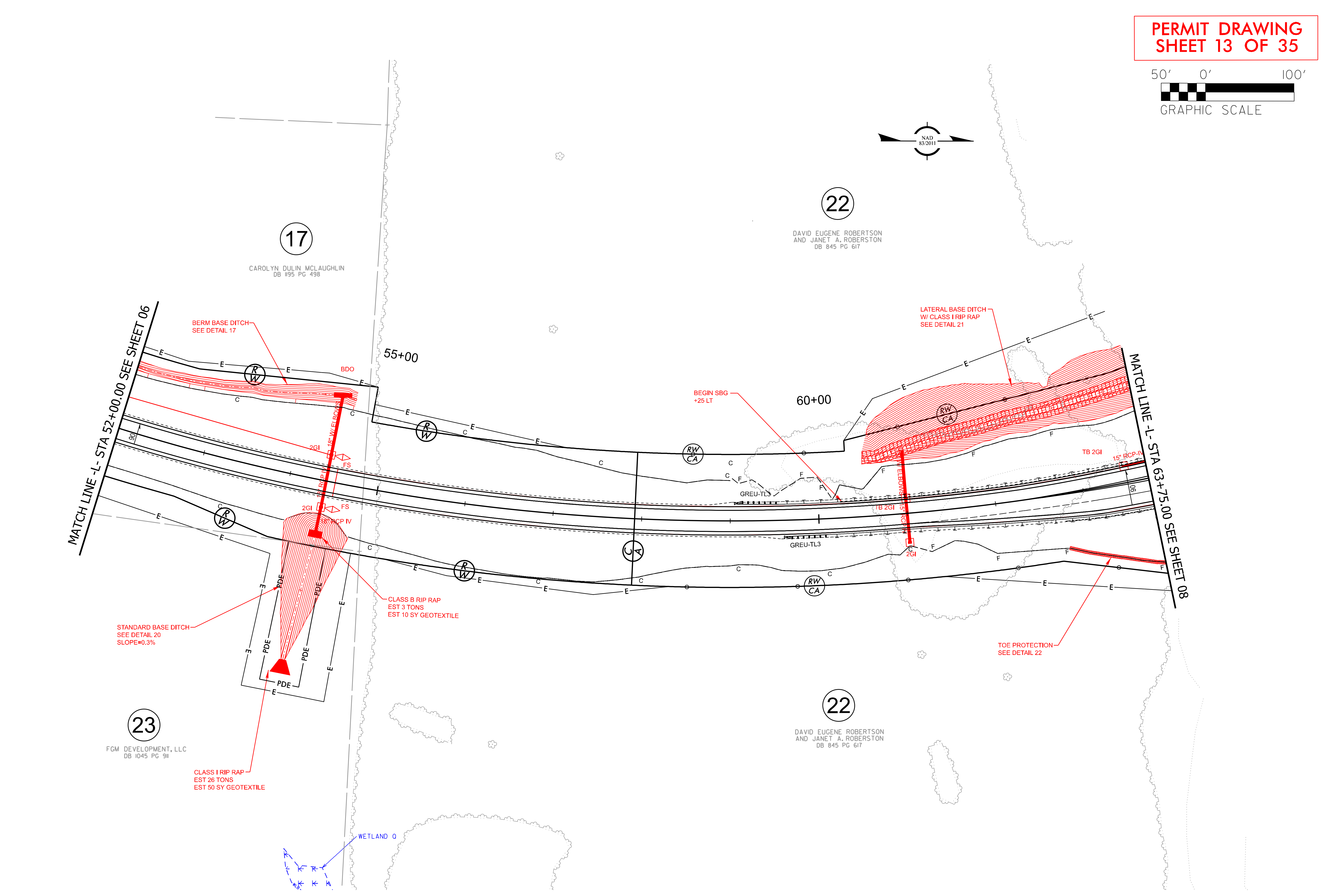
11/14/23

PERMIT DRAWING
SHEET 13 OF 35



50' 0' 100'
GRAPHIC SCALE
NAD 83/2011
17
CAROLYN DULIN MCLAUGHLIN
DB 1195 PG 498
22
DAVID EUGENE ROBERTSON
AND JANET A. ROBERTSON
DB 845 PG 617
23
FGM DEVELOPMENT, LLC
DB 1045 PG 911
MATCH LINE -L- STA 52+00.00 SEE SHEET 06
MATCH LINE -L- STA 63+75.00 SEE SHEET 08
55+00
60+00
BERM BASE DITCH
SEE DETAIL 17
BDO
2GI
FS
15" RCP IV
LATERAL BASE DITCH
W/ CLASS I RIP RAP
SEE DETAIL 21
BEGIN SBG
+25 LT
TB 2GI
GREU-TL3
CLASS B RIP RAP
EST 3 TONS
EST 10 SY GEOTEXTILE
STANDARD BASE DITCH
SEE DETAIL 20
SLOPE=0.3%
PDE
CLASS I RIP RAP
EST 26 TONS
EST 50 SY GEOTEXTILE
TOE PROTECTION
SEE DETAIL 22
WETLAND Q

U-6187

2HY2	007

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PREPARED BY

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

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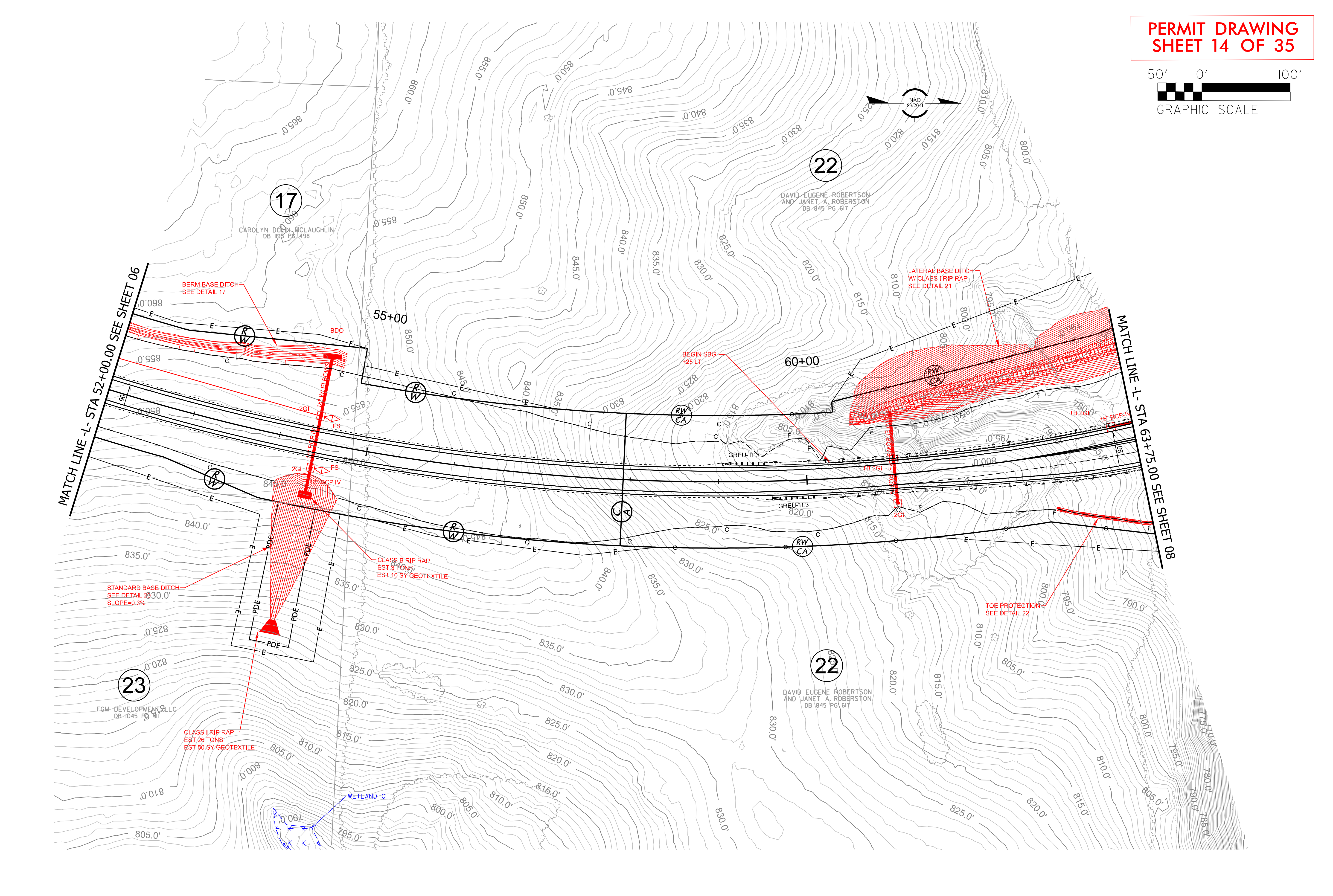
PERMIT DRAWING
SHEET 14 OF 35
50' 0' 100'
GRAPHIC SCALE
NAD 83/2011
MATCH LINE -L- STA 52+00.00 SEE SHEET 06
MATCH LINE -L- STA 63+75.00 SEE SHEET 08
55+00
60+00
17
CAROLYN DULIN MCLAUGHLIN
DB 1195 PG 498
22
DAVID EUGENE ROBERTSON
AND JANET A. ROBERTSON
DB 845 PG 617
23
FGM DEVELOPMENTS LLC
BERM BASE DITCH
SEE DETAIL 17
BDO
2GI
FS
18" RCP IV
STANDARD BASE DITCH
SEE DETAIL 2
SLOPE=0.3%
CLASS B RIP RAP
EST 3 TONS
EST 10 SY GEOTEXTILE
CLASS I RIP RAP
EST 26 TONS
EST 50 SY GEOTEXTILE
WETLAND Q
PDE
BEGIN SBG
+25 LT
GREU-TL3
LATERAL BASE DITCH
W/ CLASS I RIP RAP
SEE DETAIL 21
TB 2GI
15" RCP-IV
TOE PROTECTION
SEE DETAIL 22

U-6187
2HY2 | 007

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

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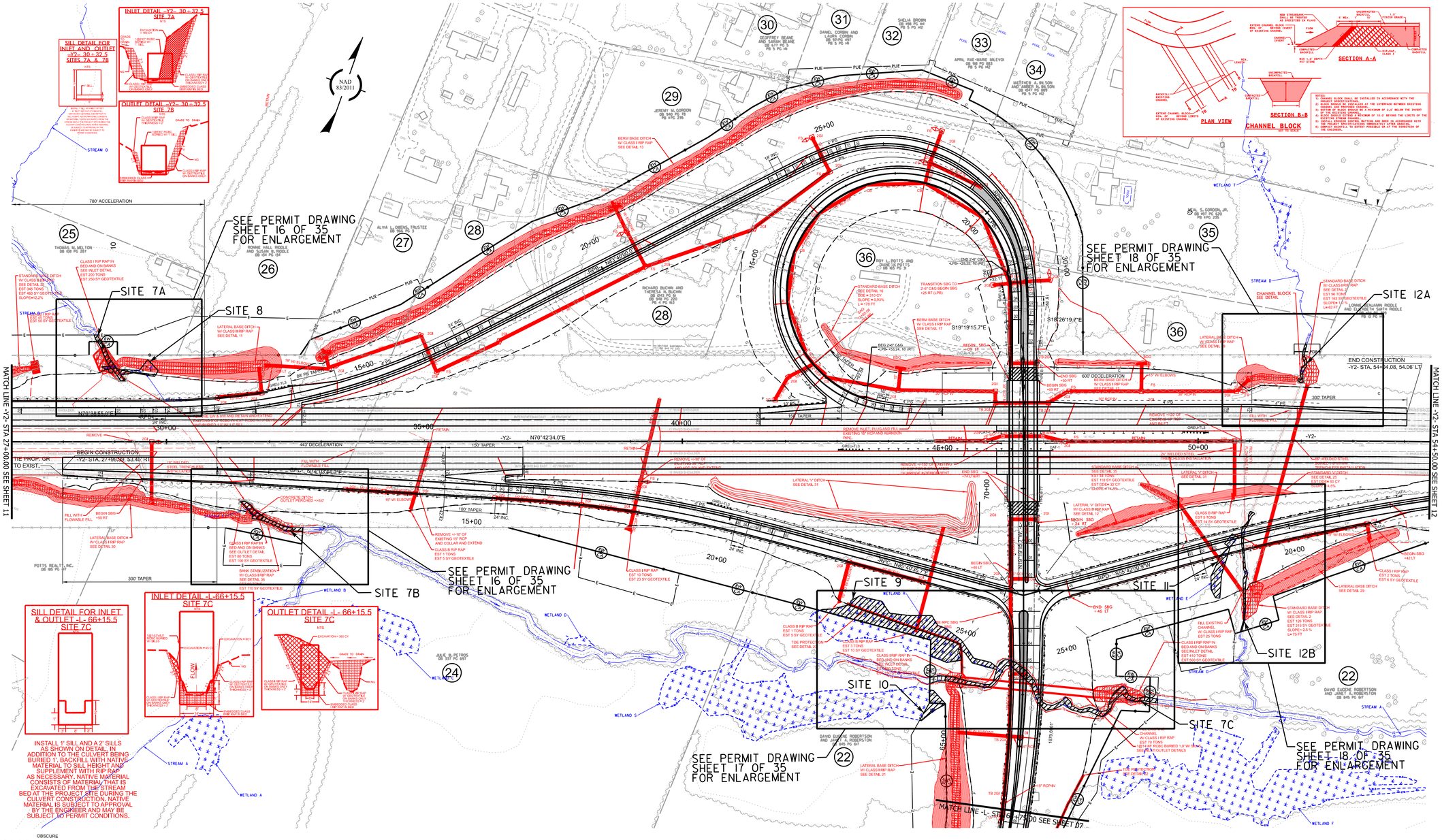
PERMIT DRAWING
SHEET 15 OF 35

NAD 83/2011

50' 0' 100'
GRAPHIC SCALE



INSTALL 1' SILL AND A 2' SILLS AS SHOWN ON DETAIL, IN ADDITION TO THE CULVERT BEING BURIED 1'. BACKFILL WITH NATIVE MATERIAL TO SILL HEIGHT AND SUPPLEMENT WITH RIP RAP AS NECESSARY. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING THE CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

OBSCURE

F F FILL IN WETLAND

✱ ✱ MECHANIZED CLEARING (GRUBBING)

S S SURFACE WATER IMPACTS

TS TS TEMPORARY SURFACE WATER IMPACTS

U-6187

2HY2	008

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

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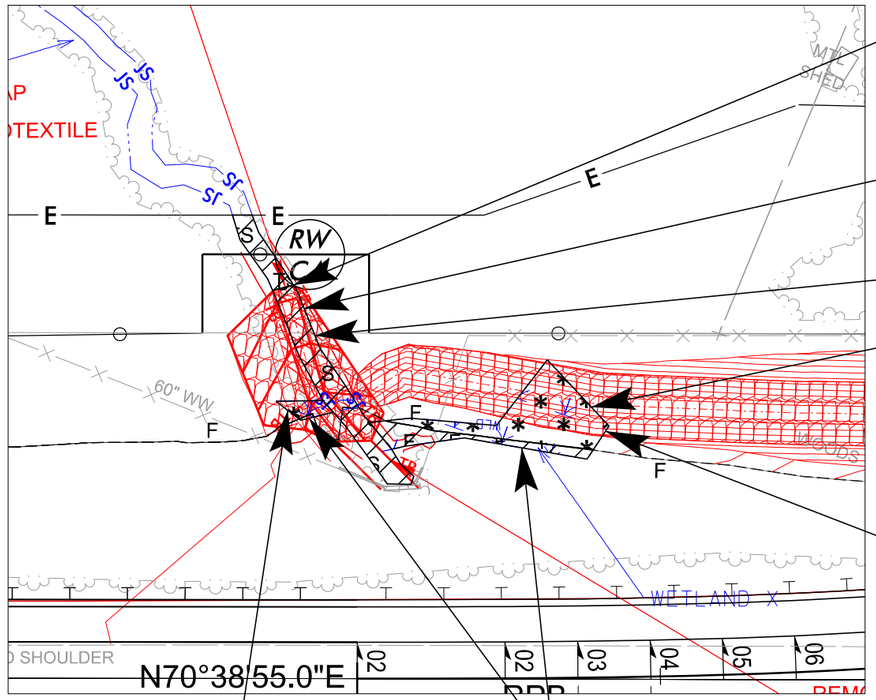
2HY2	008

PERMIT DRAWING
SHEET 16 OF 35

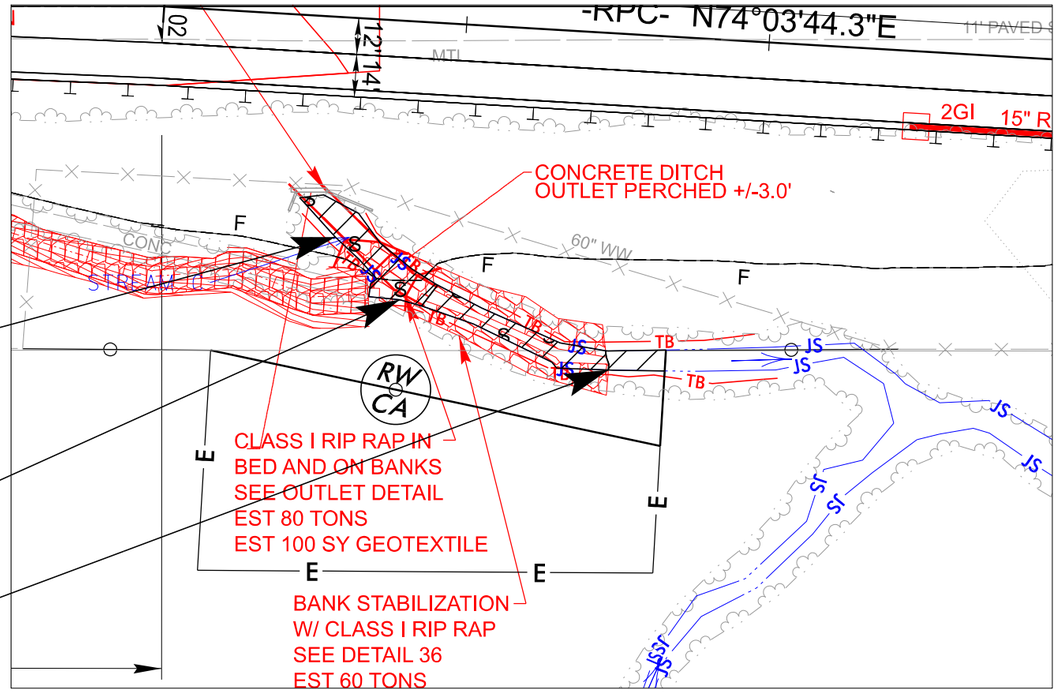
25' 0' 50'
INSET GRAPHIC SCALE

F F FILL IN WETLAND
* * MECHANIZED CLEARING (GRUBBING)
S S SURFACE WATER IMPACTS
TS TS TEMPORARY SURFACE WATER IMPACTS

SITE 7A AND 8



SITE 7B



11/14/23

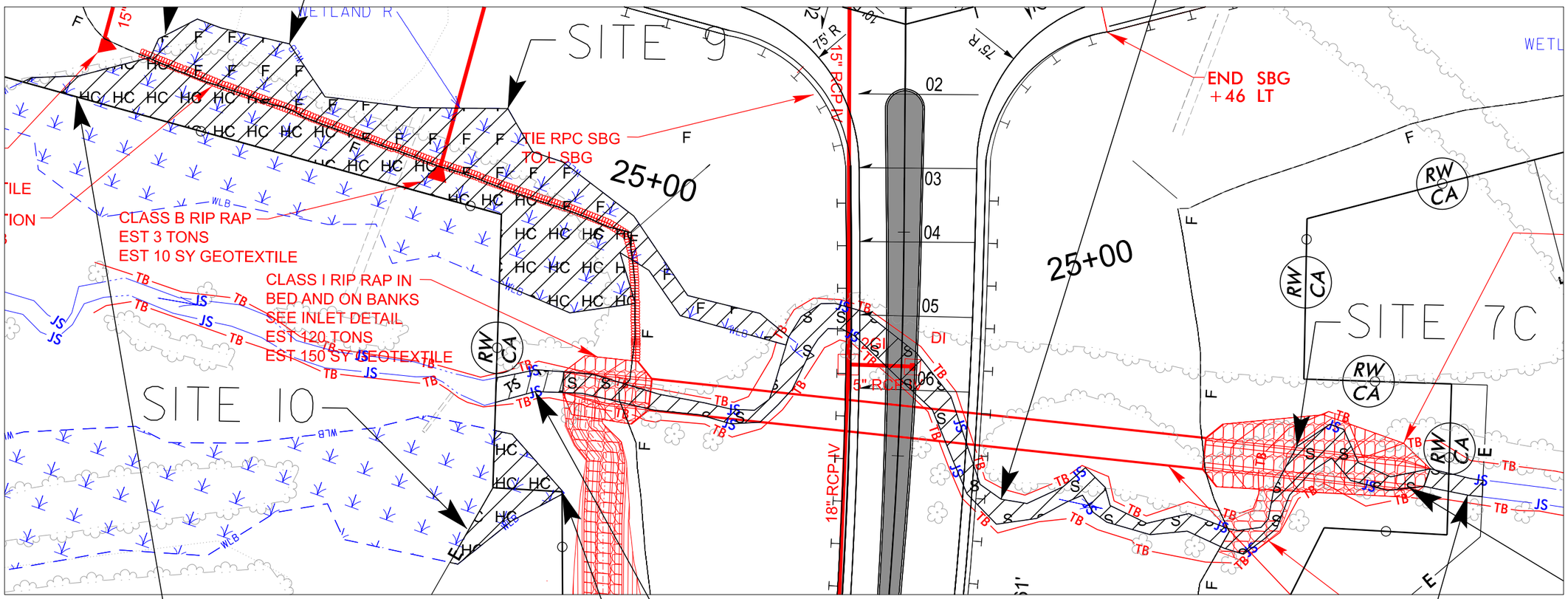
U-6187	
2HY2	008

PERMIT DRAWING
SHEET 17 OF 35

25′ 0′ 50′
INSET GRAPHIC SCALE

HC HC — HAND CLEARING (NON-GRUBBING)
F F — FILL IN WETLAND
S S — SURFACE WATER IMPACTS
TS TS — TEMPORARY SURFACE WATER IMPACTS

SITES 7C, 9, AND 10



11/14/23

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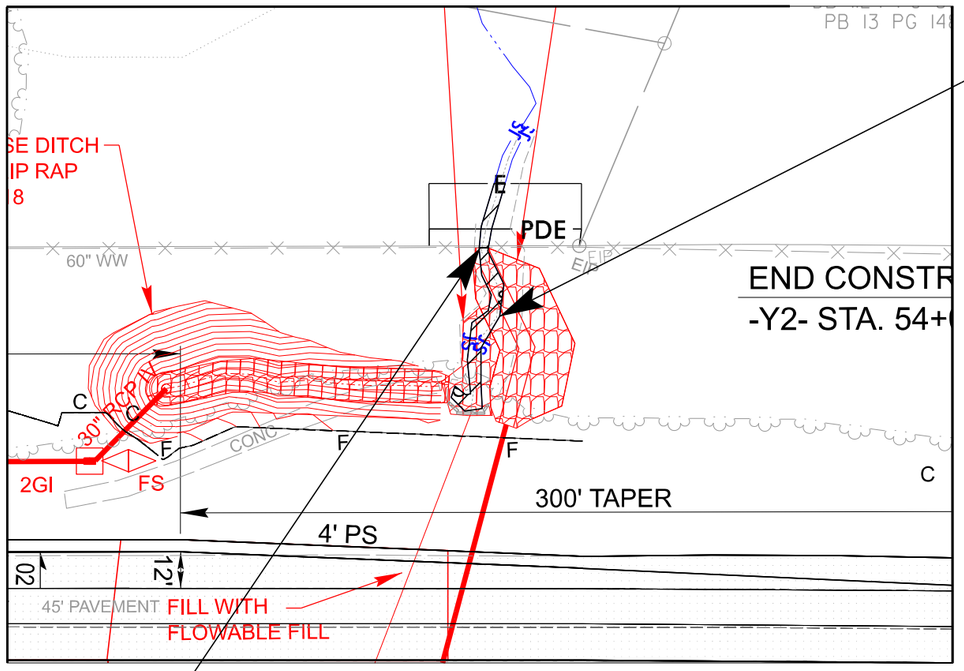
2HY2 | 008

PERMIT DRAWING
SHEET 18 OF 35

25' 0' 50'
INSET GRAPHIC SCALE

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

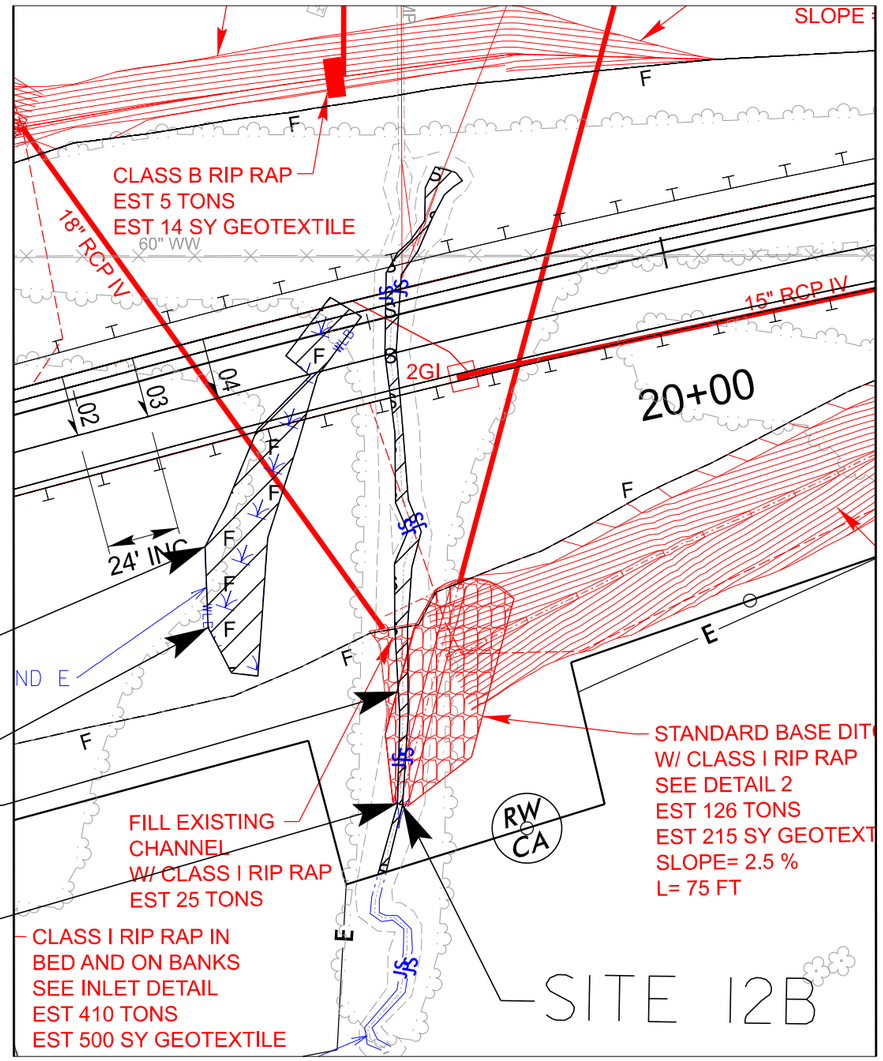
SITE 12A



TEMPORARY SURFACE WATER

SURFACE WATER

SITE 11 AND 12B



FILL

SITE 7C

SURFACE WATER

TEMPORARY SURFACE WATER

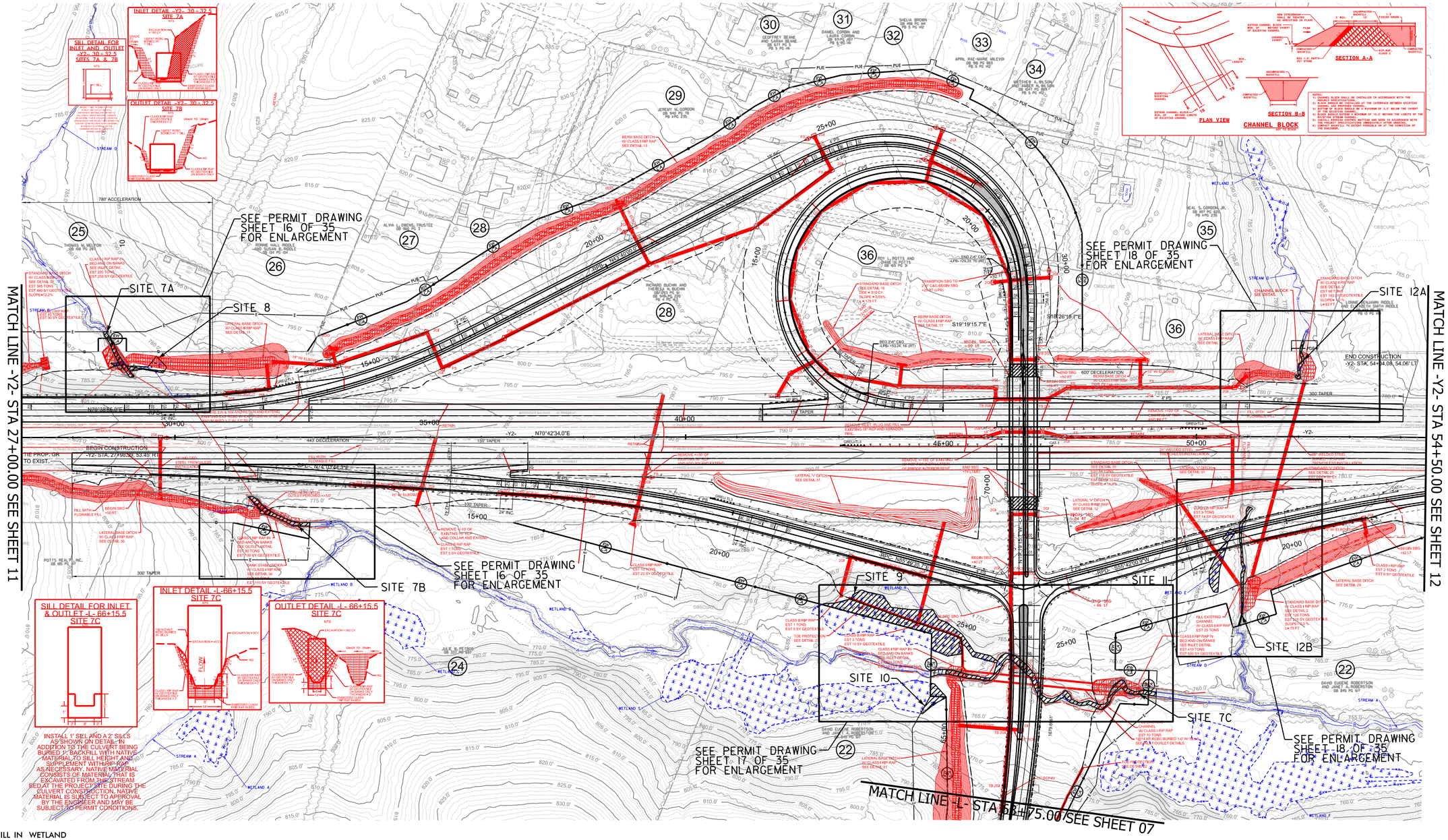
SITE 12B

11/14/23

PERMIT DRAWING SHEET 19 OF 35

NAD 83/2011

50' 0' 100'
GRAPHIC SCALE
25' 0' 50'
INSET GRAPHIC SCALE



FILL IN WETLAND

MECHANIZED CLEARING (GRUBBING)

SURFACE WATER IMPACTS

TEMPORARY SURFACE WATER IMPACTS

U-6187
2HY2 | 008
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PREPARED BY
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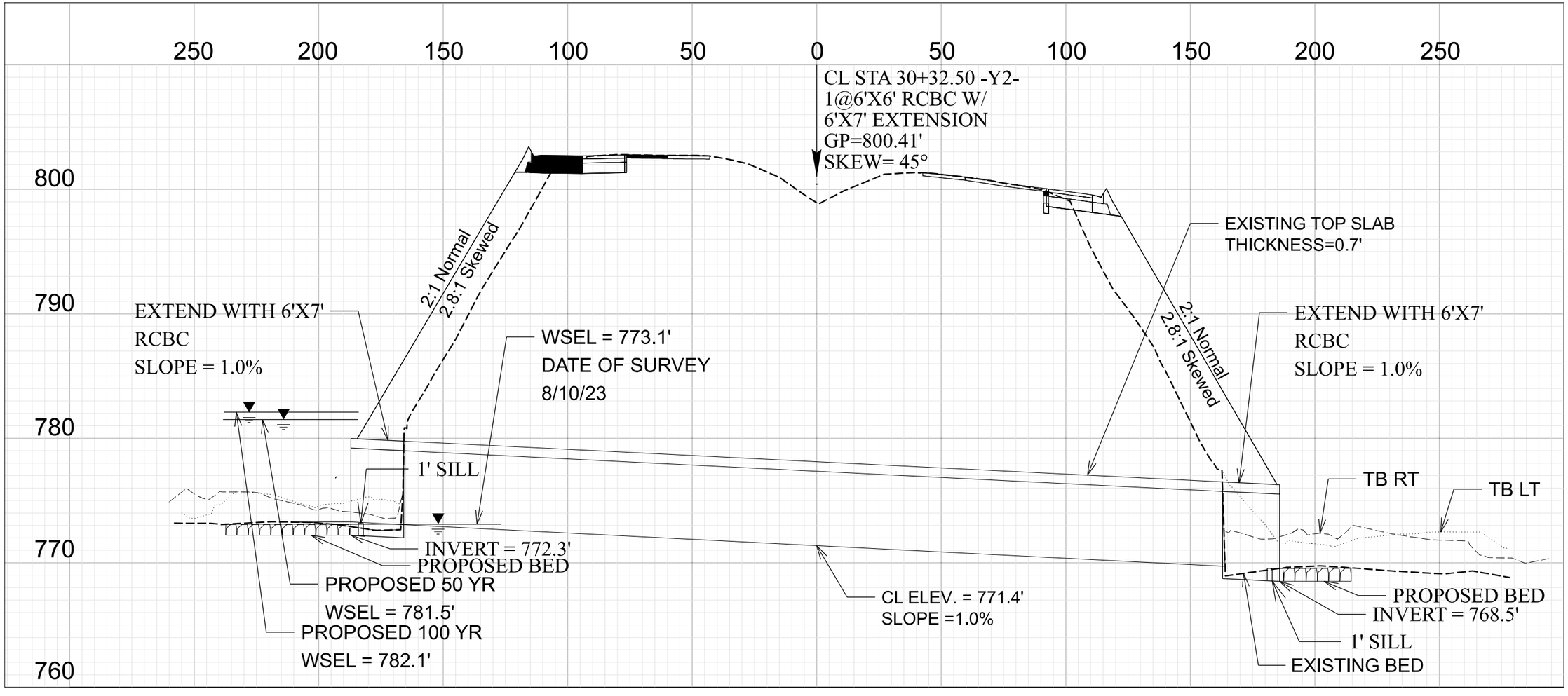
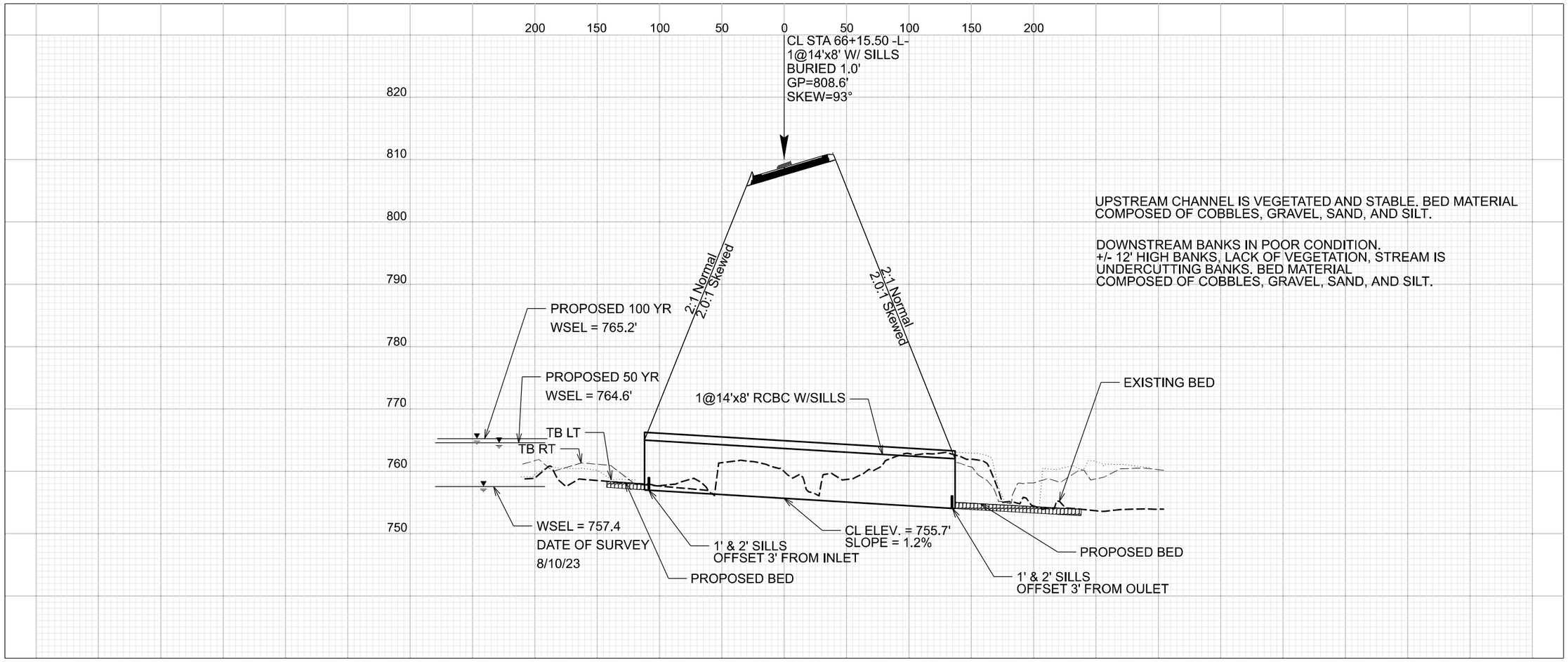
PERMIT DRAWING
SHEET 20 OF 35

SITES 7A, 7B, & 8



PERMIT DRAWING
SHEET 21 OF 35

SITE 7C



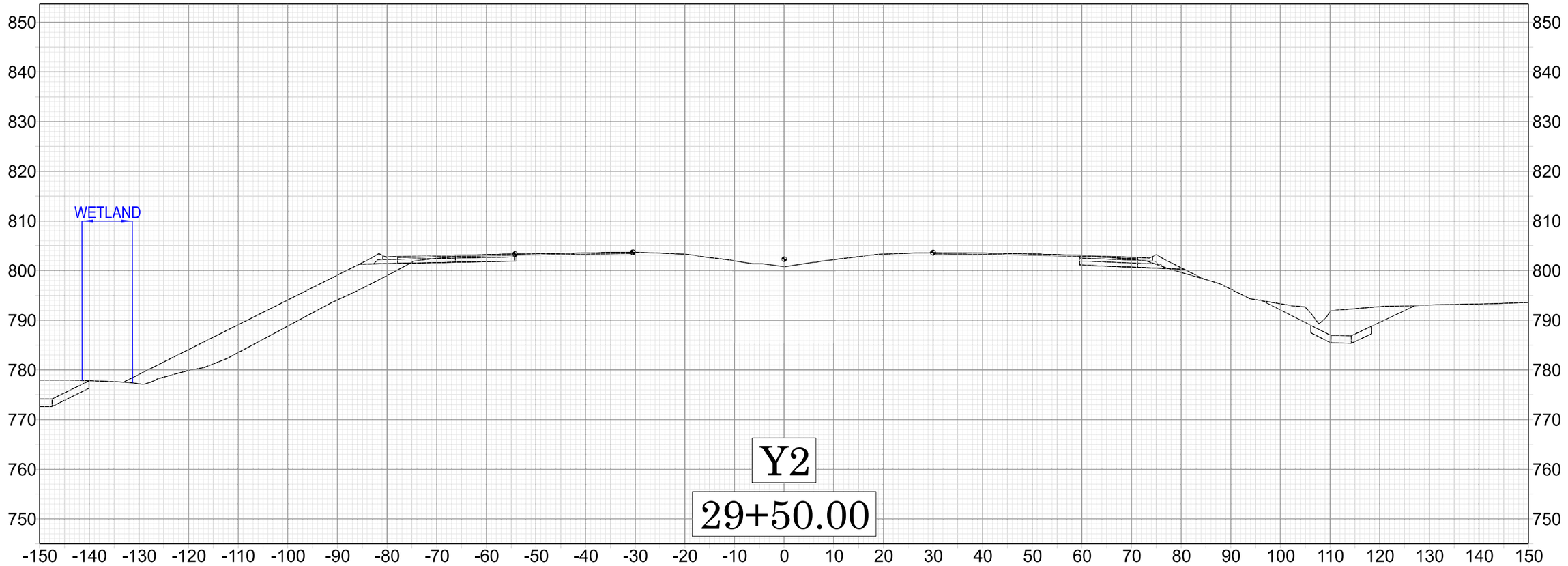
UPSTREAM CHANNEL IS VEGETATED AND STABLE. BED MATERIAL COMPOSED OF COBBLES, GRAVEL, SAND, AND SILT.

DOWNSTREAM BANKS IN POOR CONDITION. +/- 12' HIGH BANKS, LACK OF VEGETATION, STREAM IS UNDERCUTTING BANKS. BED MATERIAL COMPOSED OF COBBLES, GRAVEL, SAND, AND SILT.

-L- U-6187

PERMIT DRAWING
SHEET 22 OF 35

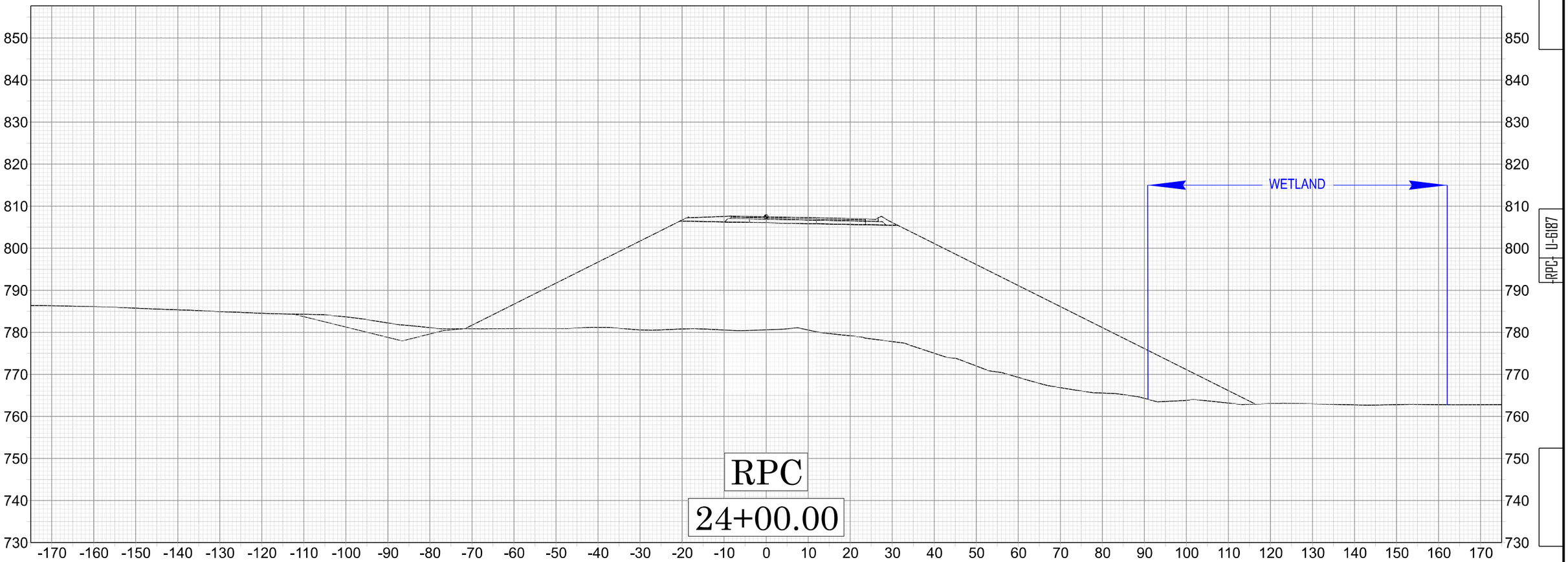
SITE 8



-Y2- U-6187

PERMIT DRAWING
SHEET 23 OF 35

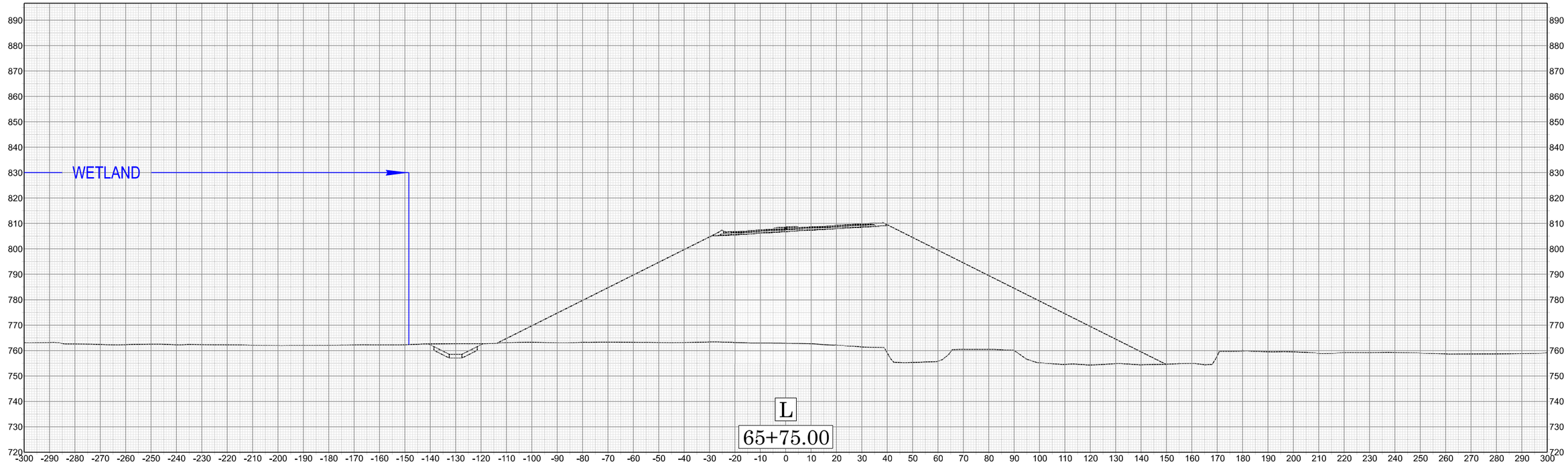
SITE 9



RPC-U-6187

PERMIT DRAWING
SHEET 24 OF 35

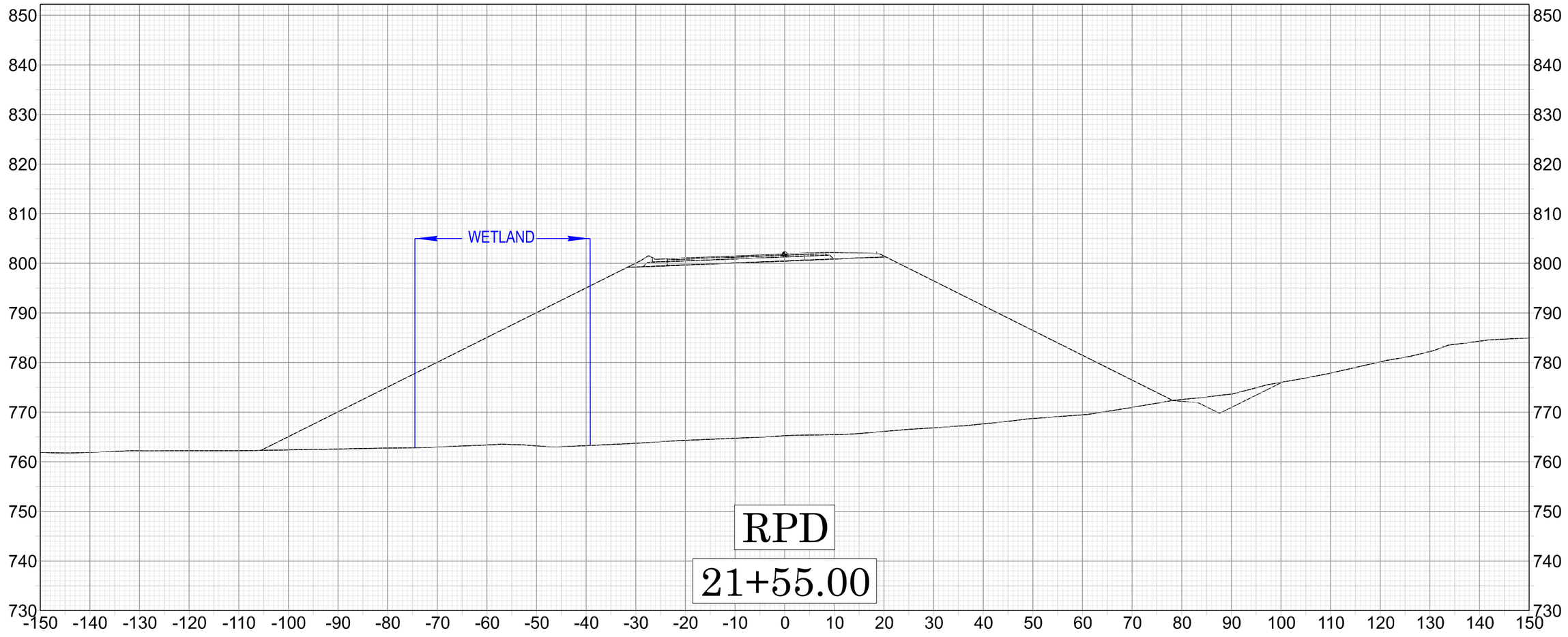
SITE 10



U-6187 -L-

PERMIT DRAWING
SHEET 25 OF 35

SITE 11



RPD LI-6187

11/14/23

Conservation measures for tricolored bats (Perimyotis subflavus) apply to this plansheet only.

PERMIT DRAWING
SHEET 26 OF 35

50' 0' 100'
GRAPHIC SCALE

NAD 83/2011

DENNIS C. MCCULLOH
DB 632 PG 276
PB 13 PG 620

39

PAUL DAVID NISLEY
DB 1246 PG 865

ELIZABETH ANN COOK
DB 1018 PG 819

40

41

MEDFORD BRENT SHOAF
AND CAROLYN HAHN SHOAF
DB 196 PG 691

20+00

42

JOEL E. WALKER
AND LORIL WALKER
DB 990 PG 892

SCOTT S. FERRY AND
LINETTE M. FERRY
DB 967 PG 72
PB 7 PG 235

SPECIAL BASE DITCH
SEE DETAIL 3

SPECIAL BASE DITCH
W/ CLASS B RIP RAP
SEE DETAIL 4

EXISTING R/W

-Y1-

15+00

N69°40'19.3"E

N76°13'00.7"E

EW

PUE

DUE

SPECIAL CUT DITCH
SEE DETAIL 5

1SBK

N02°49'04.8"E

MATCH LINE -Y1- STA 21+00.00 SEE SHEET 05

HELEN LOUISE ARMSWORTHY WILSON
DB 876 PG 784

37

WILLIAM C. ARMSWORTHY AND
PEGGY P. ARMSWORTHY
DB 80 PG 123

38

SPECIAL BASE DITCH
W/ CLASS I RIP RAP
SEE DETAIL 1

6

PAUL H. MCCULLOH
AND HATTIE S. MCCULLOH
DB 170 PG 521

STANDARD BASE DITCH
W/ CLASS I RIP RAP
SEE DETAIL 6
EST 40 TONS
EST 140 SY GEOTEXTILE
SLOPE = 1.2%
L = 52 FT

14

MICHAEL NEAL WILSON AND
HILARY C. WILSON
DB674 PG 860

U-6187
2HY2 | 009

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PREPARED BY

vhb
VHB Engineering NC, P.C. (C-2105)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

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11/14/23

Conservation measures for tricolored bats (Perimyotis subflavus) apply to this plansheet only.

PERMIT DRAWING
SHEET 27 OF 35

50' 0' 100'
GRAPHIC SCALE

NAD 83/2011

MATCH LINE -Y1- STA 21+00.00 SEE SHEET 05

N69°40'19.3"E

N76°19'00.7"E

N02°49'04.8"E

15+00

20+00

SPECIAL BASE DITCH
SEE DETAIL 3

SPECIAL BASE DITCH
W/ CLASS B RIP RAP
SEE DETAIL 4

SPECIAL CUT DITCH
SEE DETAIL 5

SPECIAL BASE DITCH
W/ CLASS I RIP RAP
SEE DETAIL 1

STANDARD BASE DITCH
W/ CLASS I RIP RAP
SEE DETAIL 6
EST 40 TONS
EST 140 SY GEOTEXTILE
SLOPE = 1.2%
L = 52 FT

DENNIS C. MCCULLOH
DB 632 PG 276
PB 13 PG 620

PAUL DAVID NISLEY
DB 1246 PG 865

SCOTT S. FERRY AND
LINETTE M. FERRY
DB 967 PG 72
PB 7 PG 235

ELIZABETH ANN COOK
DB 1018 PG 819

MEDFORD BRENT SHOAF
AND CAROLYN HAHN SHOAF
DB 196 PG 891

JOEL E. WALKER
AND LORI L. WALKER
DB 996 PG 892

HELEN LOUISE ARMSWORTHY WILSON
DB 876 PG 784

WILLIAM C. ARMSWORTHY AND
PEGGY P. ARMSWORTHY
DB 80 PG 123

PAUL H. MCCULLOH
AND HATTIE S. MCCULLOH
DB 170 PG 521

MICHAEL NEAL WILSON AND
HILARY C. WILSON
DB674 PG 860

39 40 41 42 37 38 6 14

U-6187
2HY2 | 009
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

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ROADWAY DESIGN ENGINEER

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PERMIT DRAWING SHEET 28 OF 35

NAD 83/2001

50′ 0′ 100′
GRAPHIC SCALE

25′ 0′ 50′
INSET GRAPHIC SCALE

SITE 13

MATCH LINE -Y1- STA 30+00.00 SEE SHEET 05

19 — SMITH CREEK APARTMENTS, LLC DB 1045 PG 891

43 — JEFFREY BRYAN HARPE AND JOHN LEE HARPE, JR. DB 897 PG 473

45 — NORMAN EUGENE COOK, JR. AND GAYLENE D. COOK DB 981 PG 120

JEFFREY A. NEWMAN DB 1166 PG 300 PB 12 PG 6

44 — RICHARD J. BREMER DB 144 PG 543

DAVID K. CULBRETH AND JUNE L. CULBRETH DB 117 PG 203

TRAVIS C. SMITH DB 167 PG 863

TRAVIS C. SMITH AND REBECCA K. SMITH DB 117 PG 499 DB 87 PG 306

16 — REDLAND PENTECOSTAL HOLINESS CHURCH, INC. DB 7982 PG 900

STANDARD BASE DITCH
W/CLASS B RIP RAP
SEE DETAIL 10
EST 35 TONS
EST 85 SY GEOTEXTILE
SLOPE = 2.0%
L = 35 FT

CLASS B RIP RAP
EST 2 TONS
EST 7 SY GEOTEXTILE

STREAM I
STREAM K
STREAM J
WETLAND K

30" WELDED STEEL TRENCHLESS
INSTALLATION NOT BURIED - SYSTEM UPSTREAM

REMOVE SYSTEM
REMOVE +/-30' OF EXISTING 15" RCP AND COLLAR AND EXTEND
REMOVE SYSTEM

PLUG AND ABANDON

TIE TO EXISTING 12" RCP

RETAIN

35+00
40+00

-Y1-
N63°27'30.4"E
N62°42'48.0"E
N63°01'16.5"E

PUE
DUE

TS TS TEMPORARY SURFACE WATER IMPACTS

U-6187
2HY2 | 010
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY
ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
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11/14/23

PERMIT DRAWING
SHEET 29 OF 35

50′ 0′ 100′
GRAPHIC SCALE

MATCH LINE -Y1- STA 30+00.00 SEE SHEET 05

SITE 13
SEE PERMIT DRAWING
SHEET 28 OF 35
FOR ENLARGEMENT

STANDARD BASE DITCH
W/CLASS B RIP RAP
SEE DETAIL 10
EST 35 TONS
EST 85 SY GEOTEXTILE
SLOPE = 2.0%
L = 38 FT

CLASS B RIP RAP
EST 2 TONS
EST 7 SY GEOTEXTILE

STREAM I
STREAM K
STREAM J
WETLAND K

30" WELDED STEEL TRENCHLESS
INSTALLATION NOT BURIED - SYSTEM UPSTREAM

REMOVE SYSTEM
REMOVE +/-30' OF
EXISTING 15" RCP
AND COLLAR AND EXTEND
REMOVE SYSTEM

PLUG AND ABANDON
TIE TO EXISTING 12" RCP
RETAIN

-Y1-
N63°27'30.4"E
N62°42'48.0"E
N63°01'16.5"E
35+00
40+00

SMITH CREEK APARTMENTS, LLC
DB 1045 PG 891

NORMAN EUGENE COOK, JR.
AND GAYLENE D. COOK
DB 981 PG 120

JEFFREY BRYAN HARPE
AND JOHN LEE HARPE, JR.
DB 897 PG 473

JEFFREY A. NEWMAN
DB 1166 PG 300
PB 10 PG 5

DAVID K. CULBRETH
AND
JUNE L. CULBRETH
DB 117 PG 203

RICHARD J. BREMER
DB 144 PG 543

TRAVIS C. SMITH
DB 167 PG 863

TRAVIS C. SMITH
AND REBECCA K. SMITH
DB 117 PG 499
DB 87 PG 106

REDLAND PENTECOSTAL
HOLINESS CHURCH, INC.
DB 992 PG 900

19 43 45 44 16

TS TS TEMPORARY SURFACE WATER IMPACTS

U-6187	
2HY2	010

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

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HYDRAULICS ENGINEER

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11/14/23

PERMIT DRAWING
SHEET 30 OF 35

50' 0' 100'
GRAPHIC SCALE

300' TAPER
780' ACCELERATION

BEGIN CONSTRUCTION
-Y2- STA. 19+93.85, 53.73' LT

-Y2- N70°42'34.0"E

80' PS TAPER

REMOVE INLET, PLUG AND FILL
EXISTING 15" RCP AND ABANDON
PIPE. MAINTAIN DRAINAGE IN DITCHLINE

REPLACE 8' SEGMENT OF 18" RCP
PIPE VIDEO INSPECTION SHOWS
SEPERATED JOINT +/- 60' FROM
MEDIAN BOX

STANDARD BASE DITCH
W/ CLASS II RIP RAP
SEE DETAIL 32
EST 345 TONS
EST 480 SY GEOTEXTILE
SLOPE=12.2%

SPECIAL BASE DITCH
SEE DETAIL 3

COLLAR AND EXTEND
EXISTING 18" RCP

BEGIN SBG
+75 LT

LATERAL BASE DITCH
W/ CLASS I RIP RAP
SEE DETAIL 30

STREAM N
WETLAND V
WETLAND U

EDNA L. MATTHEWS
DB 147 PG 365

THOMAS M. MELTON
DB 108 PG 287

POTTS REALTY, INC.
DB 185 PG 417

OLD SOIL ROAD

INTERSTATE I-40 EAST 45' PAVEMENT

EAST 45' PAVEMENT

11' PAVED SHOULDER

4' PS

CAT-1

RETAIN

15+00
20+00
25+00

MATCH LINE -Y2- STA 27+00.00 SEE SHEET 08

U-6187
2HY2 | 011
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY
ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
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11/14/23

PERMIT DRAWING SHEET 31 OF 35

GRAPHIC SCALE 50' 0' 100'

BEGIN CONSTRUCTION
-Y2- STA. 19+93.85, 53.73' LT

-Y2- N70°42'34.0"E

300' TAPER

780' ACCELE

80' PS TAPER

REMOVE INLET, PLUG AND FILL EXISTING 15" RCP AND ABANDON PIPE. MAINTAIN DRAINAGE IN DITCHLINE

REPLACE 8' SEGMENT OF 18" RCP PIPE VIDEO INSPECTION SHOWS SEPERATED JOINT +/- 60' FROM MEDIAN BOX

SPECIAL BASE DITCH SEE DETAIL 3

COLLAR AND EXTEND EXISTING 18" RCP

STANDARD BASE DITCH W/ CLASS II RIP RAP SEE DETAIL 32 EST 345 TONS EST 480 SY GEOTEXTILE SLOPE=12.2%

BEGIN SBG +75 LT

LATERAL BASE DITCH W/ CLASS I RIP RAP SEE DETAIL 30

WETLAND V

WETLAND U

STREAM N

OBSCURE

EDNA L. MATTHEWS DB 147 PG 363

THOMAS W. MELTON DB 108 PG 281

POTTS REALTY, INC. DB 185 PG 417

15+00

20+00

25+00

11' PAVED SHOULDER

INTERSTATE 140 EAST 45' PAVEMENT

INTERSTATE 140 WEST 45' PAVEMENT

RETAIN

4' PS

CAT-1

MATCH LINE -Y2- STA 27+00.00 SEE SHEET 08

U-6187	
2HY2	011

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

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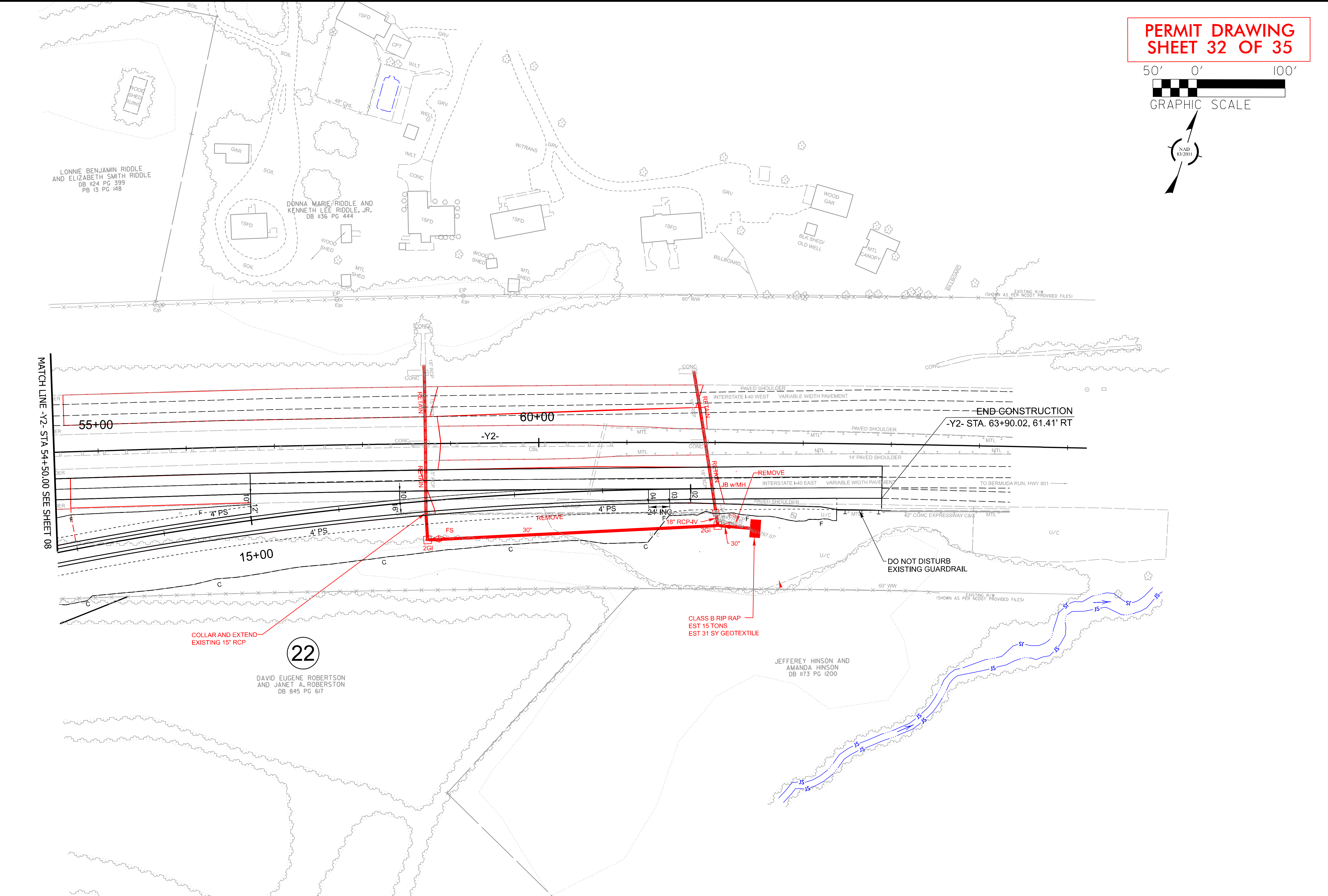
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

$$$-USER NAME-$$$ - $$$-DATE-$$$

11/14/23



PERMIT DRAWING
SHEET 32 OF 35
50' 0' 100'
GRAPHIC SCALE
NAD 83/2011
LONNIE BENJAMIN RIDDLE
AND ELIZABETH SMITH RIDDLE
DB 1124 PG 399
PB 13 PG 148
DONNA MARIE RIDDLE AND
KENNETH LEE RIDDLE, JR.
DB 1136 PG 444
MATCH LINE -Y2- STA 54+50.00 SEE SHEET 08
55+00
60+00
-Y2-
15+00
END CONSTRUCTION
-Y2- STA. 63+90.02, 61.41' RT
INTERSTATE I-40 WEST
VARIABLE WIDTH PAVEMENT
PAVED SHOULDER
14' PAVED SHOULDER
INTERSTATE I-40 EAST
TO BERMUDA RUN, HWY 801
RETAIN
REMOVE
JB w/MH
18" RCP-IV
2GI
FS
30"
4' PS
24' ING
DO NOT DISTURB
EXISTING GUARDRAIL
CLASS B RIP RAP
EST 15 TONS
EST 31 SY GEOTEXTILE
COLLAR AND EXTEND
EXISTING 15" RCP
22
DAVID EUGENE ROBERTSON
AND JANET A. ROBERTSON
DB 845 PG 617
JEFFEREY HINSON AND
AMANDA HINSON
DB 1173 PG 1200
60' WW
EXISTING R/W
(SHOWN AS PER NCDOT PROVIDED FILES)

U-6187

2HY2 | 012

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PREPARED BY

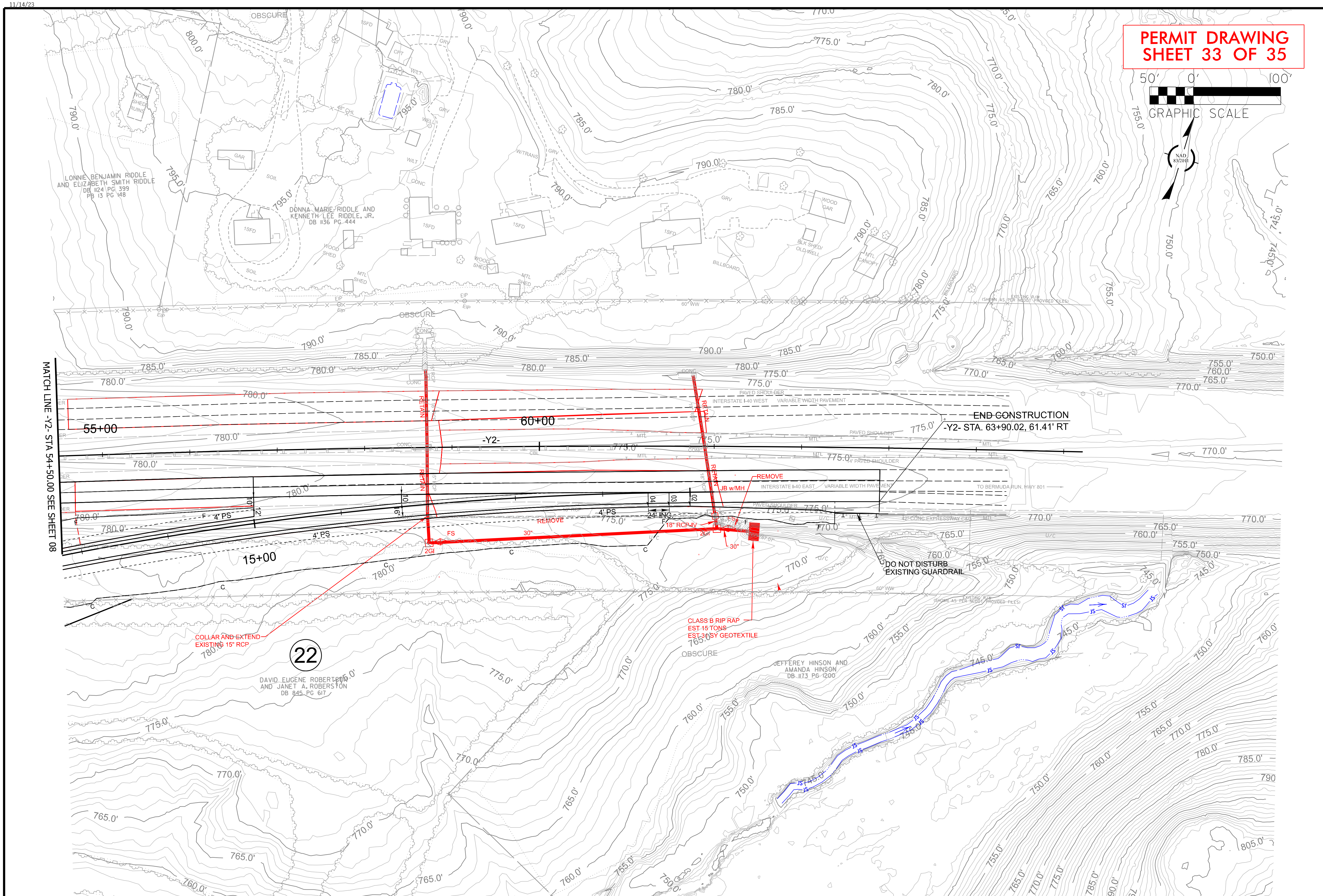
vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

$$$-USER NAME-$$$ - $$$-DATE-$$$

PERMIT DRAWING
SHEET 33 OF 35


GRAPHIC SCALE
50' 0' 100'
NAD 83/2011
MATCH LINE -Y2- STA 54+50.00 SEE SHEET 08
LONNIE BENJAMIN RIDDLE AND ELIZABETH SMITH RIDDLE
DB 1124 PG 399
PB 13 PG 148
DONNA MARIE RIDDLE AND KENNETH LEE RIDDLE, JR.
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END CONSTRUCTION
-Y2- STA. 63+90.02, 61.41' RT
INTERSTATE I-40 WEST
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VARIABLE WIDTH PAVEMENT
PAVED SHOULDER
TO BERMUDA RUN, HWY 801
RETAIN
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18" RCP-IV
30"
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FS
4' PS
24" ING
DO NOT DISTURB
EXISTING GUARDRAIL
CLASS B RIP RAP
EST 15 TONS
EST 30 SY GEOTEXTILE
COLLAR AND EXTEND
EXISTING 15" RCP
22
DAVID EUGENE ROBERTSON AND JANET A. ROBERTSON
DB 845 PG 617
JEFFEREY HINSON AND AMANDA HINSON
DB 1173 PG 1200
OBSCURE

U-6187
2HY2 | 012

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DAVIE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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PRELIMINARY PLANS
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WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	21+29 to 22+20 L LT	Hand Clearing					0.02					
		Roadway Fill	0.09									
2A	20+98 to 22+15 L LT/RT	Temp Impacts to Surface Water							< 0.01		48	
		Roadway Fill						0.02		211		
2B	12+91 to 12+98 Y4 RT	Roadway Fill/54" RCP-IV						< 0.01		31		
		Temp Impacts to Surface Water							< 0.01		11	
		Utility Temp Impacts to SW							< 0.01		11	
3	13+03 to 13+65 Y4 LT	Mechanized Clearing	< 0.01			0.02						
		Fill	< 0.01									
4	13+11 to 14+44 Y4 LT	Roadway Fill/Lateral Base Ditch						0.01		133		
5	13+26 to 13+97 Y4 RT	Mechanized Clearing				< 0.01						
		Utility Hand Clearing					0.03					
6	34+56 to 34+60 L RT	Mechanized Clearing				< 0.01						
7A	28+60 to 29+20 Y2 LT	Channel Stabilization						0.01		76		
		Temp Impacts to Surface Water							< 0.01		28	
SHEET TOTALS*:			0.10			0.03	0.04	0.05	0.01	451	98	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
7/30/2024
DAVIE
U-6187

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
7B	31+43 to 32+64 Y2 RT	Culvert Extension & Proposed Channel Work						0.01		51		
		Bank Stabilization						< 0.01		64		
		Temp Impacts to Surface Water							< 0.01		19	
7C	65+66 to 66+68 L RT/LT	Roadway Fill/Bank Stabilization						0.10		505		
		Temp Impacts to Surface Water							0.01		56	
8	28+74 to 29+84 Y2 LT	Roadway Fill	< 0.01									
		Mechanized Clearing/Base Ditch				0.02						
9	22+15 to 25+75 RPC RT	Roadway Fill	0.13									
		Hand Clearing					0.14					
10	65+37 to 66+03 L LT	Construction Access & EC Devices					0.02					
11	21+02 to 21+77 RPD LT	Roadway Fill	0.04									
12A	51+93 to 52+11 Y2 LT	Proposed Channel Work						< 0.01		56		
		Temp Impacts to Surface Water							< 0.01		22	
12B	20+59 to 21+43 RPD RT/LT	Roadway Fill/Standard Base Ditch						0.02		215		
		Temp Impacts to Surface Water							< 0.01		24	
13	30+38 to 30+44 Y1 LT	Temp Impacts to Surface Water							< 0.01		9	
SHEET TOTALS*:			0.18			0.02	0.16	0.15	0.02	891	130	
TOTALS*:			0.28			0.05	0.20	0.20	0.03	1342	228	

*Rounded totals are sum of actual impacts

NOTES:

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