



North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN  
FOR NCDOT PROJECTS



(Version 2.08; Released April 2018)

WBS Element: 35601.1.R2      TIP No.: R-4463A      County(ies): Craven      Page 1 of 2

General Project Information

WBS Element:	35601.1.R2	TIP Number:	R-4463A	Project Type:	New Location	Date:	12/2/2019
NCDOT Contact:	Paul Atkinson, PE		Contractor / Designer:		Joshua Massrock, PE		
Address:	1000 Birch Ridge Drive Raleigh, NC 27610		Address:	555 Fayetteville Street, Suite 900 Raleigh, NC 27601			
	Phone: (919) 707-6707			Phone: (919) 232-6631			
	Email: patkinson@ncdot.gov			Email: joshua.massrock@hdrinc.com			
City/Town:	New Bern, NC		County(ies):	Craven			
River Basin(s):	Neuse		CAMA County?	Yes			
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	2.3 miles	Surrounding Land Use:	Single family residential / woods				
	Proposed Project		Existing Site				
Project Built-Upon Area (ac.)	34.0	ac.	7.2	ac.			
Typical Cross Section Description:	4 Lane Divided Typical Section: (2) 12 foot travel lanes w/ 10 foot paved shoulders. Variable median width from 30 foot to 46 foot			2 Lane two way Typical Section: 28 foot roadway width			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	38,900	Year:	2040	Existing:	NA (New Locaion)	Year:
General Project Narrative: (Description of Minimization of Water Quality Impacts)	<p><b>Project Description:</b> The proposed project (R-4463A) will complete the extension of NC 43 from US 70 to US 17 in Craven County. The project impacts streams and wetlands that flow toward UT to Hayward Creek via tributaries along the project.</p> <p><b>Impact minimization efforts:</b> The project has been designed to minimize wetland and stream impacts along the project corridor. 3:1 slopes have been implemented in wetland and stream areas in order to minimize impacts. Drainage has been designed to discharge outside of the riparian buffers and avoid direct discharge into wetlands and streams where practical. Additionally, the median width was reduced from 46' to 30' to reduce wetland impacts to permit sites 1, 2 and 3. Impacts resulting from PUEs have been reduced through a design exception allowing PUEs to be located within NCDOT right of way but outside of the controlled access fencing.</p>						

Waterbody Information

Surface Water Body (1):	UT to Hayward Creek		NCDWR Stream Index No.:	27-101-35			
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C				
	Supplemental Classification:		Swamp Waters (Sw)		(NSW)		
Other Stream Classification:							
Impairments:							
Aquatic T&E Species?	Comments:						
NRTR Stream ID:				Buffer Rules in Effect:	Neuse		
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)							



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 Highway Stormwater Program  
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TIP No.: R-4463A

County(ies): Craven

Page 2

of

2

**Swales**

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
15	-Y- 44+84 LT -Y- 46+50 LT	(1)UT to Hayward	2.0	3.0	3.0	1.4	137	166	0.15%	4.0	1.1	5.3	1.1	No	Yes

**Additional Comments**

09/08/19

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**CRAVEN COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4463A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
35601.1.R2		PE	
35601.2.1		ROW/UTIL	
35601.3.1		CONSTRUCTION	

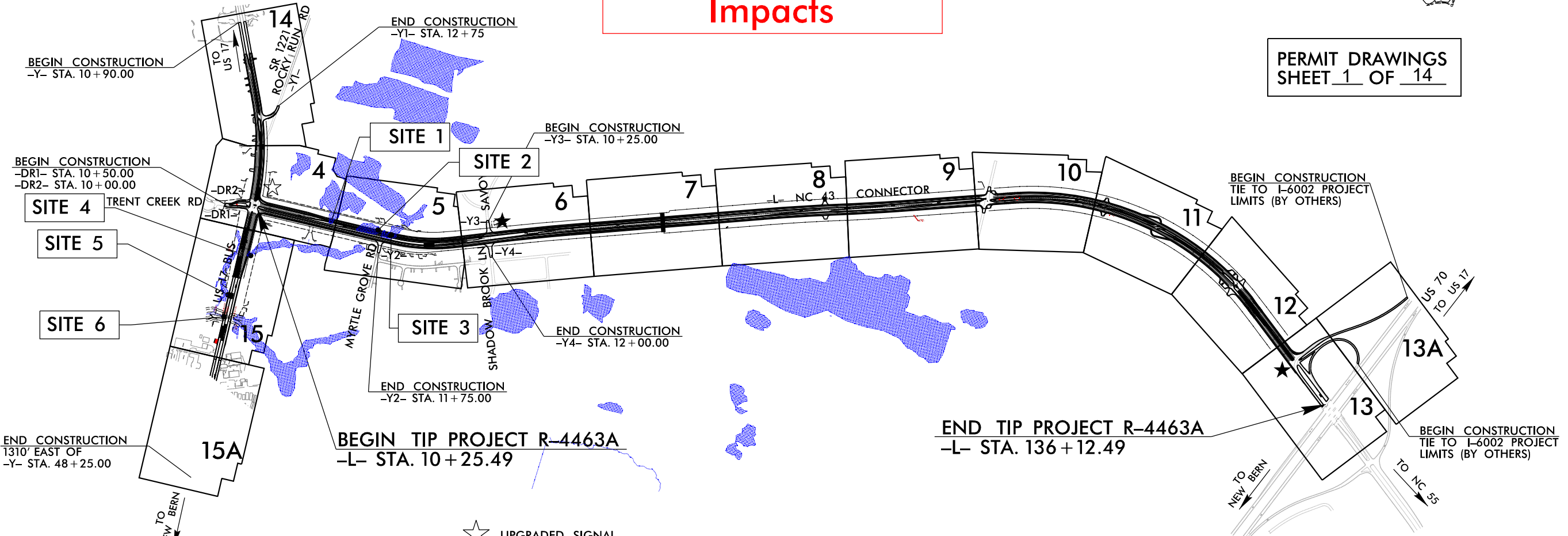
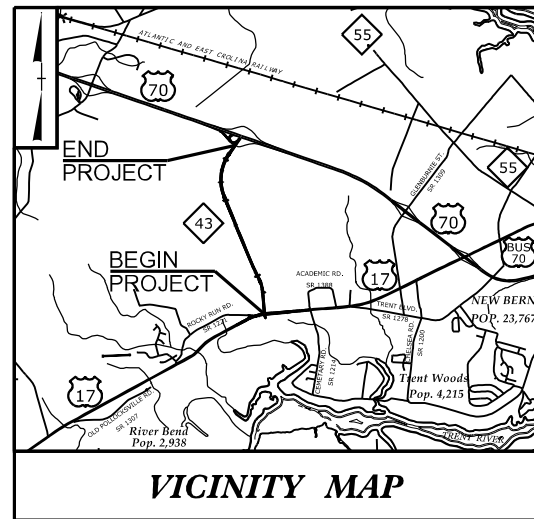


**LOCATION: NC 43 CONNECTOR FROM  
US 17 BUSINESS TO US 70**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE,  
SIGNALS, & CULVERT**

**Wetland & Stream  
Impacts**

PERMIT DRAWINGS  
SHEET 1 OF 14



NOTES:  
THIS PROJECT HAS PARTIALLY CONTROLLED ACCESS WITH  
ACCESS BEING LIMITED TO POINTS SHOWN ON THE PLANS.

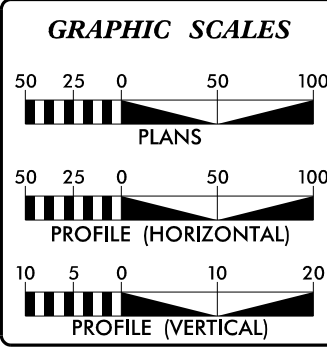
- ☆ UPGRADED SIGNAL
- ★ PROPOSED SIGNAL

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

REVISIONS  
 11/2/2019: PSH 05 PARCEL OWNER NAME CHANGE; PARCEL 32  
 12/22/2019: PSH 05 & PSH 06 CA FENCE LOCATION CHANGE; PARCELS 4 & 8  
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**TIP PROJECT: R-4463A**

**CONTRACT: C204421**



**DESIGN DATA**

ADT 2020 =	20,700
ADT 2040 =	38,900
K =	10 %
D =	55 %
T =	6 % *
V =	60 MPH
(* TTST 4% + DUAL 2%)	
FUNC CLASS =	ARTERIAL
STATEWIDE TIER	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT R-4463A =	2.384 MILES
TOTAL LENGTH TIP PROJECT R-4463A =	2.384 MILES

NCDOT CONTACT: HON YEUNG  
DIVISION 2 - PROJECT ENGINEER

Prepared for the  
North Carolina Department  
of Transportation  
in the office of:

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
OCTOBER 18, 2019

LETTING DATE:  
FEBRUARY 18, 2020

**HDR** HDR Engineering, Inc. of the Carolinas  
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116

PHILLIP E. ROGERS, PE  
PROJECT ENGINEER

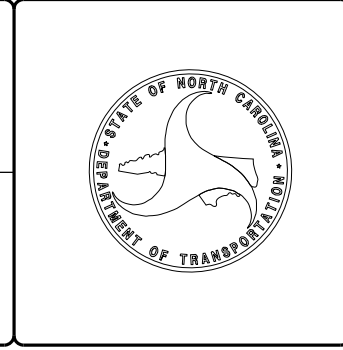
ALEXANDER D. SNIDER, PE  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

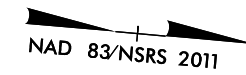
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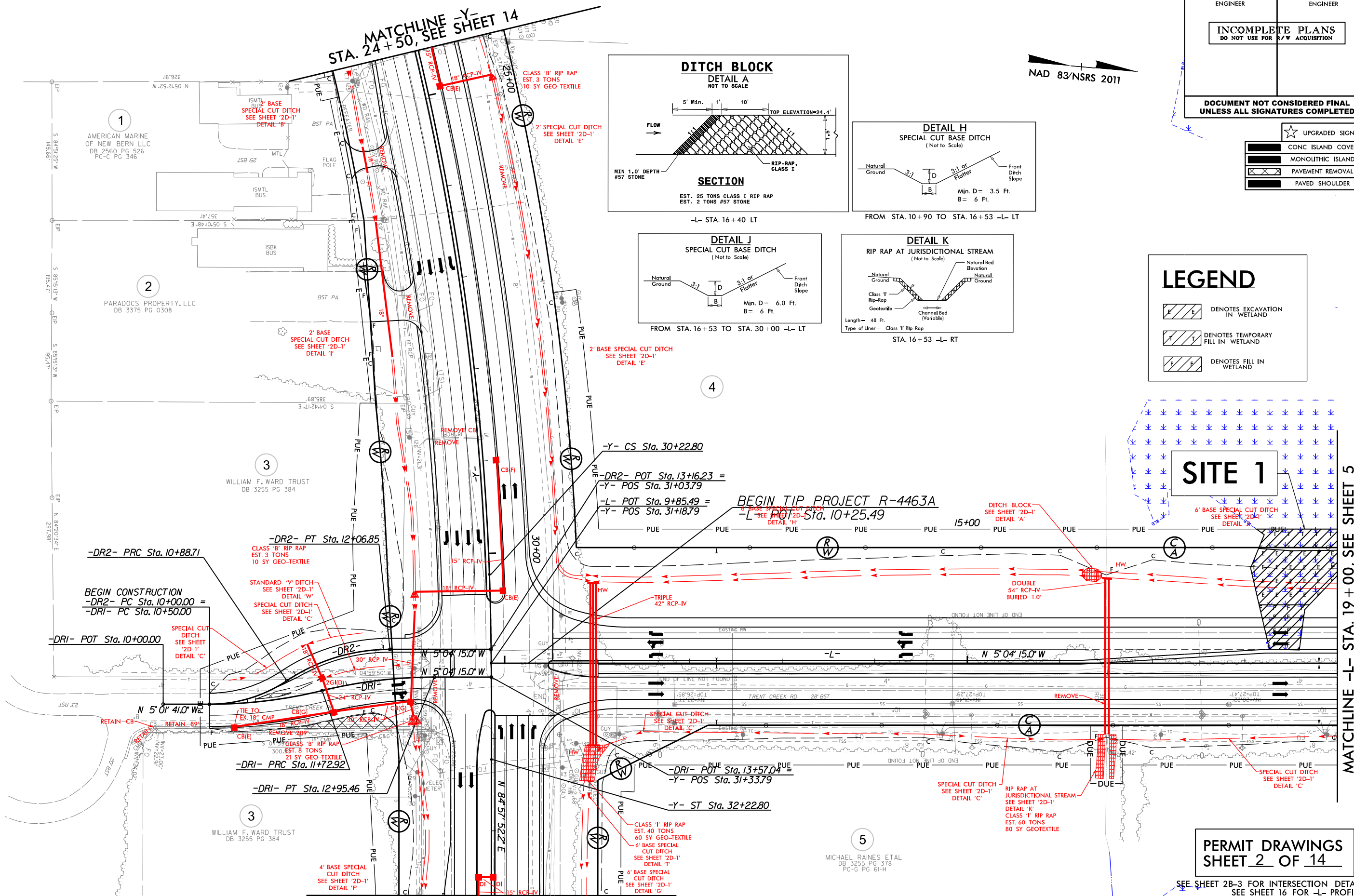
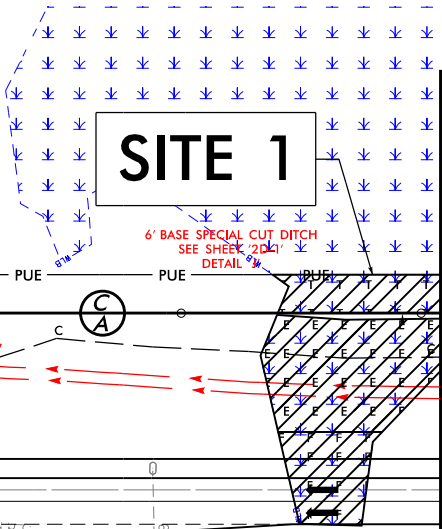
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RW SHEET NO.	
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<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	



★ UPGRADED SIGNAL
■ CONC ISLAND COVER
■ MONOLITHIC ISLAND
■ PAVEMENT REMOVAL
■ PAVED SHOULDER

### LEGEND

	DENOTES EXCAVATION IN WETLAND
	DENOTES TEMPORARY FILL IN WETLAND
	DENOTES FILL IN WETLAND



MATCHLINE -Y- STA. 33+70, SEE SHEET 15

**PERMIT DRAWINGS**  
SHEET 2 OF 14

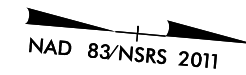
SEE SHEET 2B-3 FOR INTERSECTION DETAIL  
 SEE SHEET 16 FOR -L- PROFILE  
 SEE SHEETS 21 AND 22 FOR -Y- PROFILE  
 SEE SHEET 25 FOR -DRI- PROFILE  
 SEE SHEET 25 FOR -DR2- PROFILE

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REVISIONS

MATCHLINE -L- STA. 19+00, SEE SHEET 5

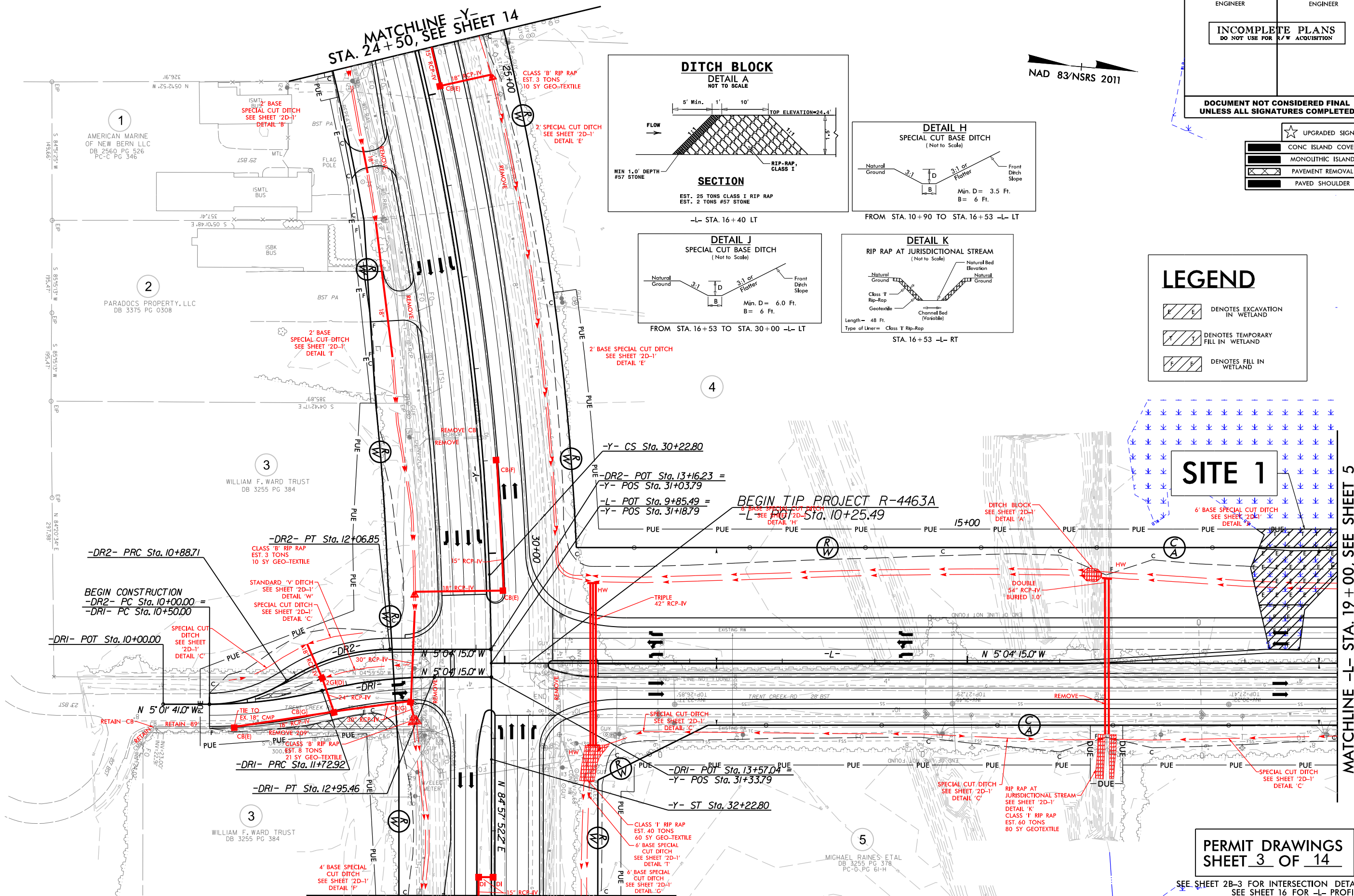
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	



★ UPGRADED SIGNAL
■ CONC ISLAND COVER
■ MONOLITHIC ISLAND
■ PAVEMENT REMOVAL
■ PAVED SHOULDER

### LEGEND

	DENOTES EXCAVATION IN WETLAND
	DENOTES TEMPORARY FILL IN WETLAND
	DENOTES FILL IN WETLAND



MATCHLINE -Y- STA. 33+70, SEE SHEET 15

SEE SHEET 2B-3 FOR INTERSECTION DETAIL  
 SEE SHEET 16 FOR -L- PROFILE  
 SEE SHEETS 21 AND 22 FOR -Y- PROFILE  
 SEE SHEET 25 FOR -DRI- PROFILE  
 SEE SHEET 25 FOR -DR2- PROFILE

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REVISIONS

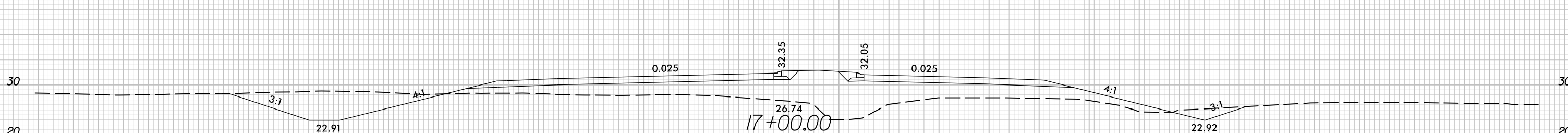
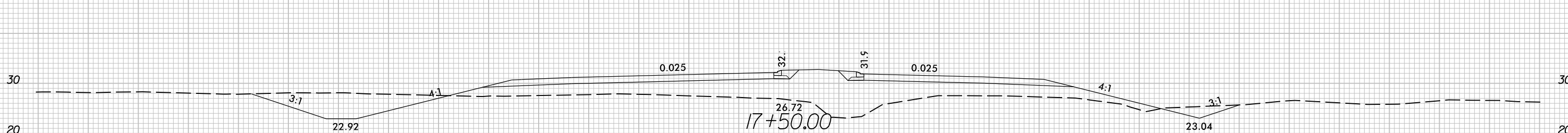
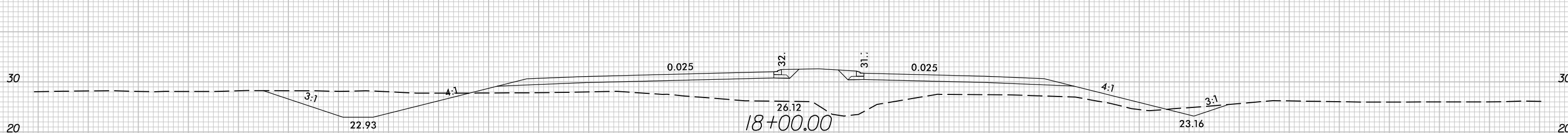
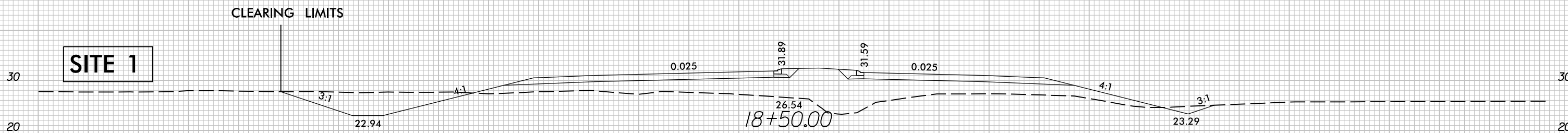
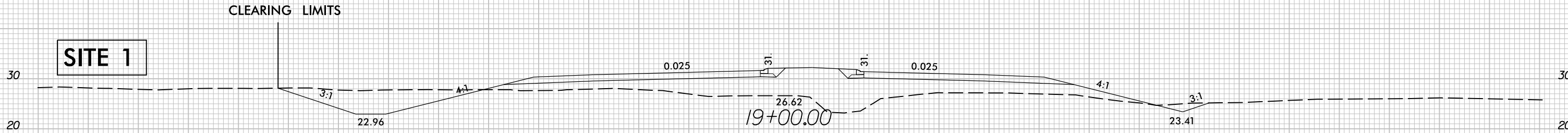
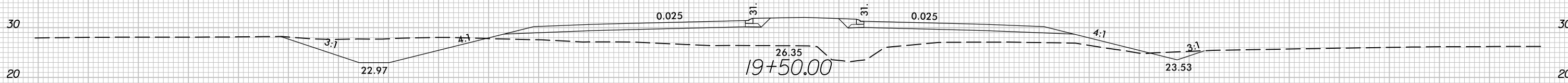
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PROJ. REFERENCE NO. R-4463A SHEET NO. X-4

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PERMIT DRAWINGS SHEET 4 OF 14



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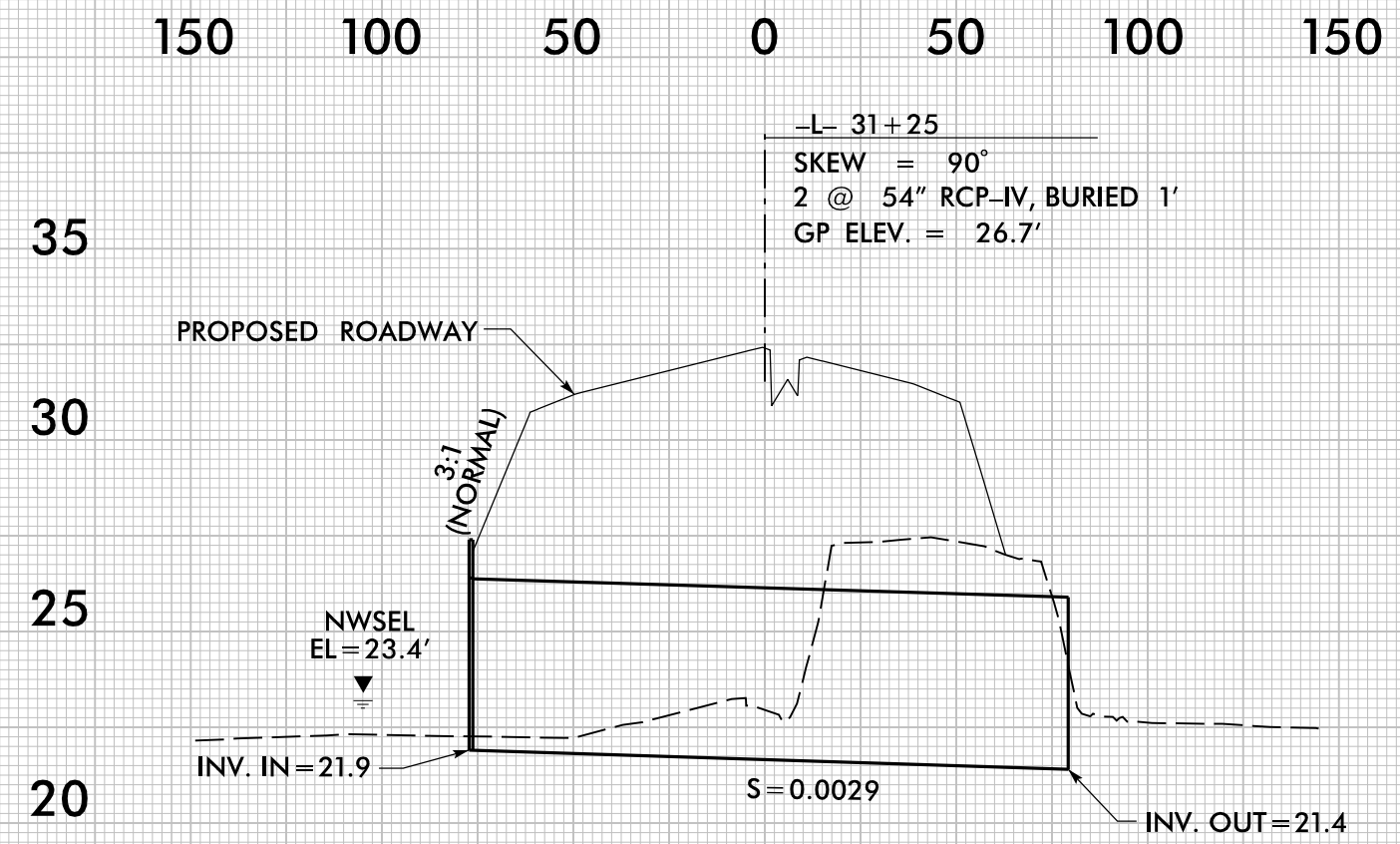
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5/14/99

PROJECT REFERENCE NO. <i>R-4463A</i>	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

SCALE:  
1" = 100' HORIZONTAL  
1" = 25' VERTICAL






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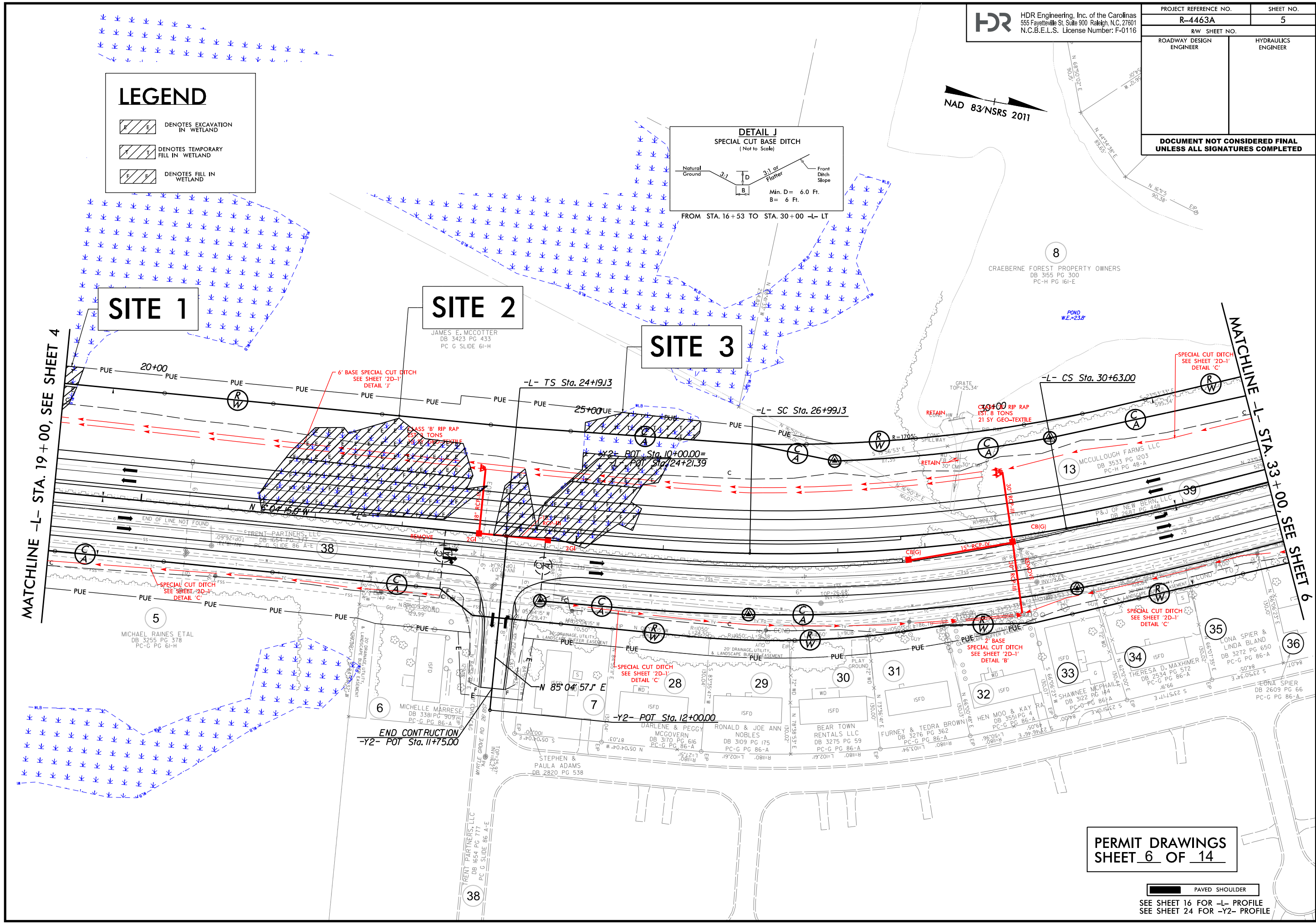
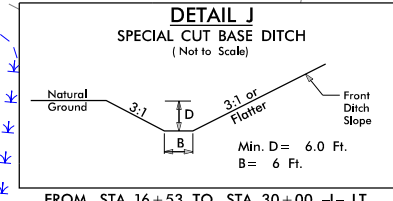
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SHEET 5 OF 14**

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R-4463A.dwg

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<b>R-4463A</b>	<b>5</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

### LEGEND

-  DENOTES EXCAVATION IN WETLAND
-  DENOTES TEMPORARY FILL IN WETLAND
-  DENOTES FILL IN WETLAND



**SITE 1**

**SITE 2**  
 JAMES E. MCCOTTER  
 DB 3423 PG 433  
 PC-G SLIDE 6I-H

**SITE 3**

MATCHLINE -L- STA. 19+00, SEE SHEET 4

MATCHLINE -L- STA. 33+00, SEE SHEET 6

**PERMIT DRAWINGS  
SHEET 6 OF 14**

PAVED SHOULDER  
 SEE SHEET 16 FOR -L- PROFILE  
 SEE SHEET 24 FOR -Y2- PROFILE




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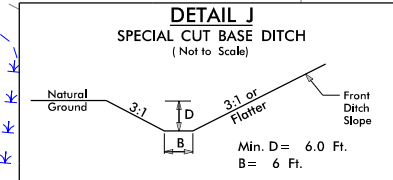
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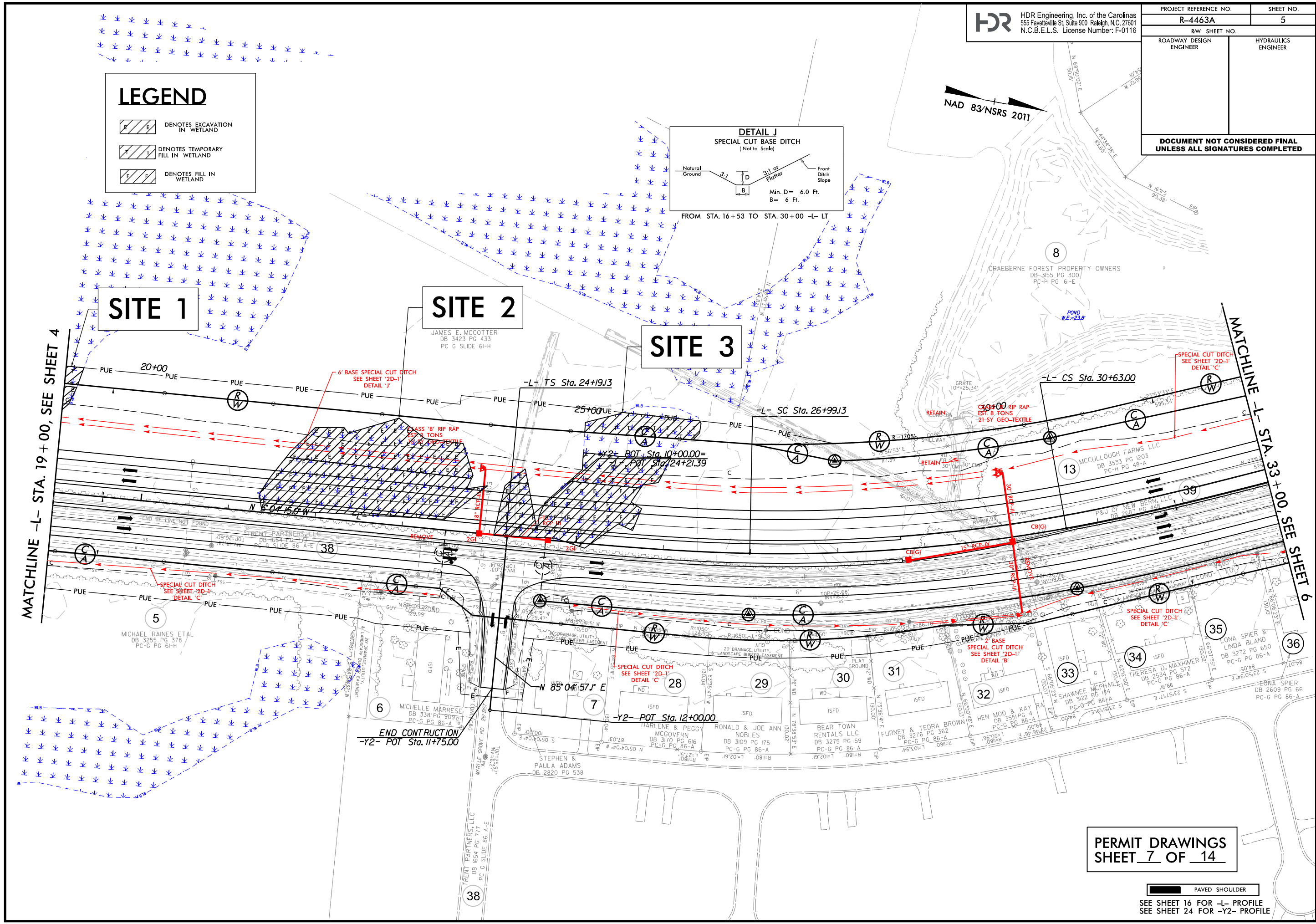
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

### LEGEND

-  DENOTES EXCAVATION IN WETLAND
-  DENOTES TEMPORARY FILL IN WETLAND
-  DENOTES FILL IN WETLAND



FROM STA. 16+53 TO STA. 30+00 -L- LT



**SITE 1**

**SITE 2**  
 JAMES E. MCCOTTER  
 DB 3423 PG 433  
 PC-G SLIDE 6I-H

**SITE 3**

**PERMIT DRAWINGS  
 SHEET 7 OF 14**

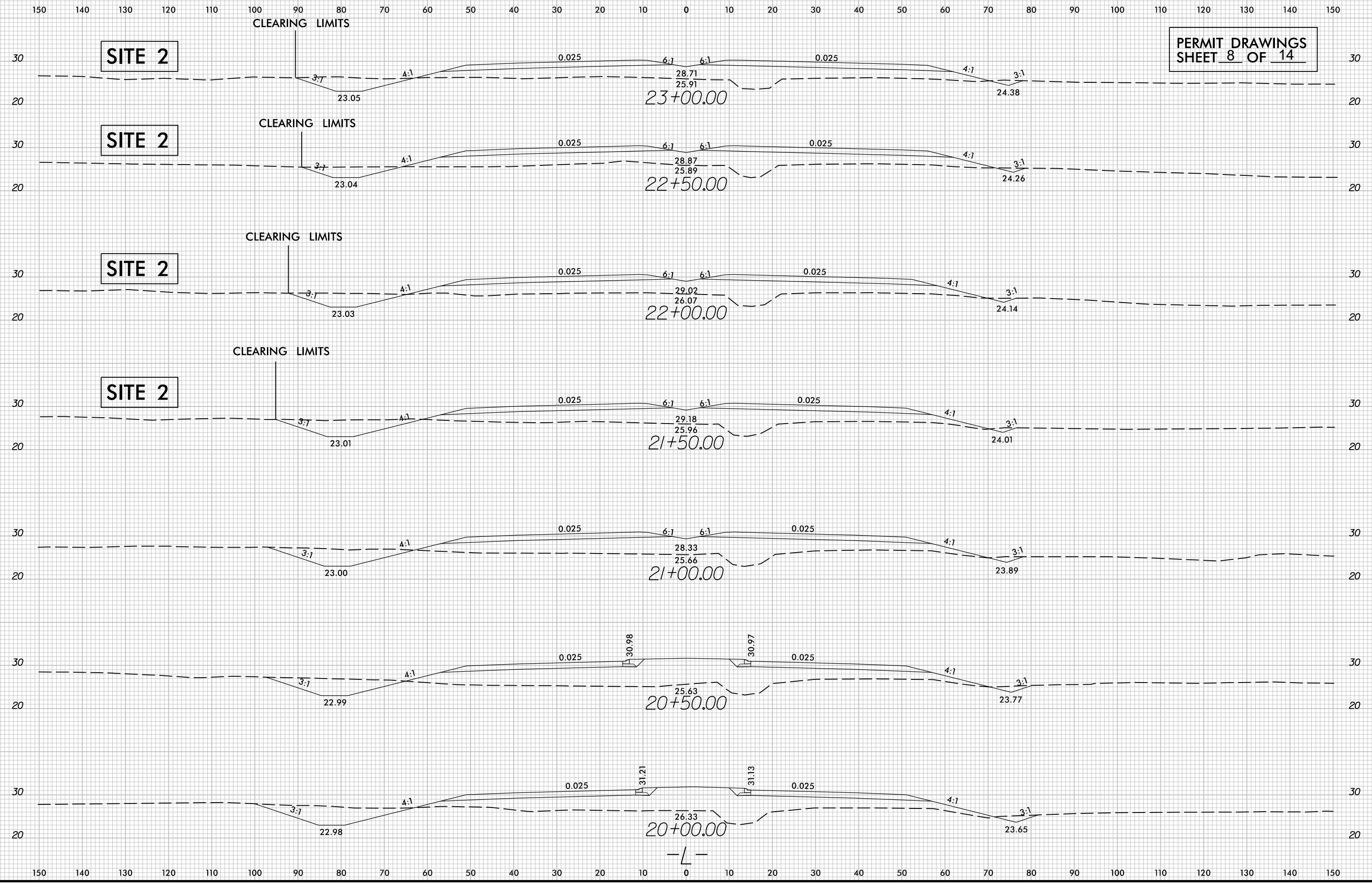
PAVED SHOULDER  
 SEE SHEET 16 FOR -L- PROFILE  
 SEE SHEET 24 FOR -Y2- PROFILE

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8/23/99

SITE 2

PERMIT DRAWINGS  
SHEET 8 OF 14



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8/23/99

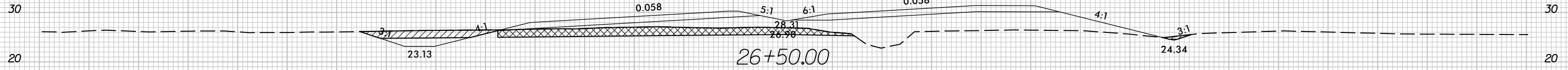


PROJ. REFERENCE NO.  
R-4463A

SHEET NO.  
X-6

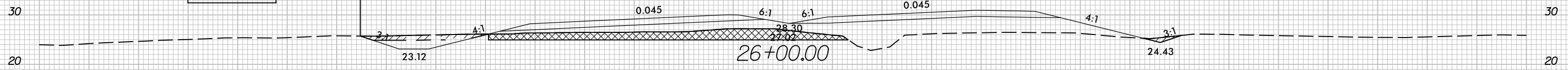
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PERMIT DRAWINGS  
SHEET 9 OF 14



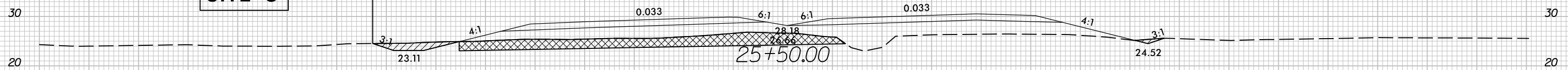
SITE 3

CLEARING LIMITS



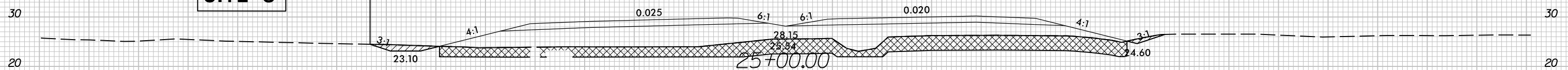
SITE 3

CLEARING LIMITS



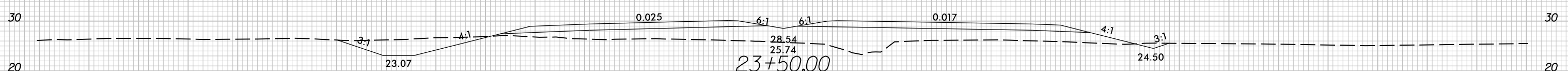
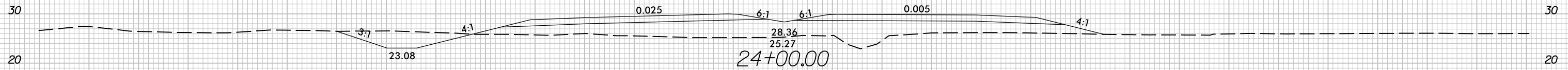
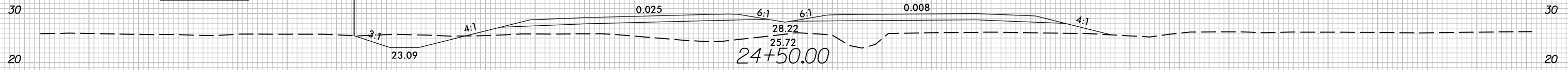
SITE 3

CLEARING LIMITS



SITE 3

CLEARING LIMITS



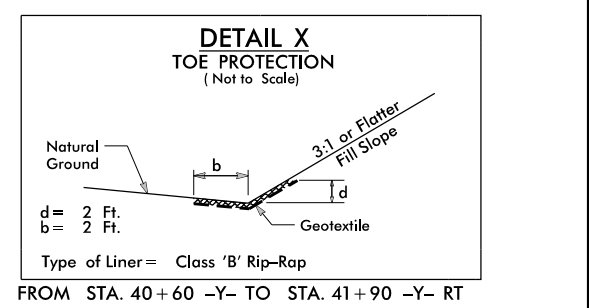
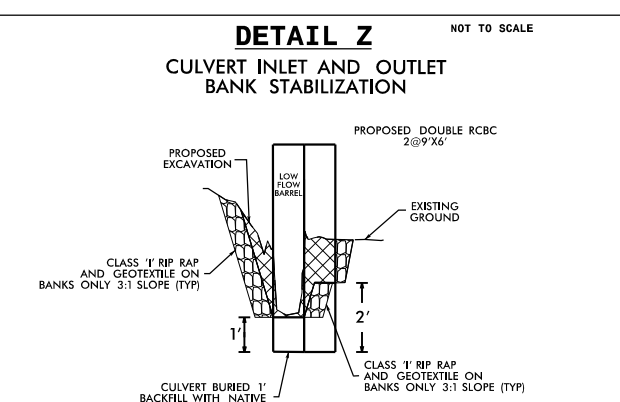
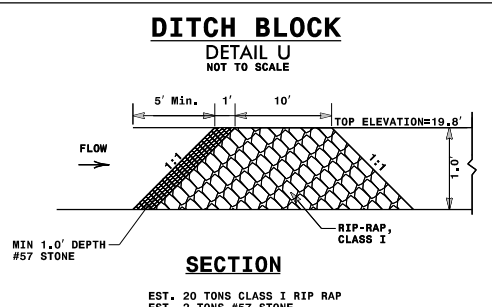
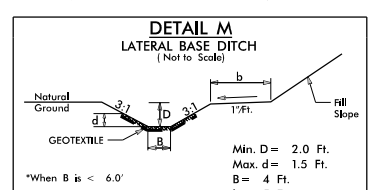
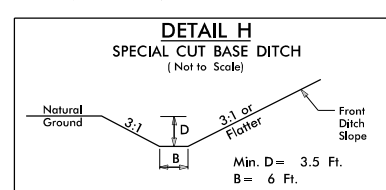
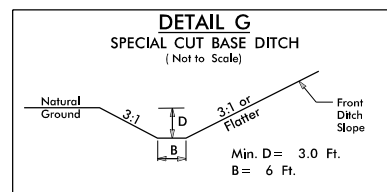
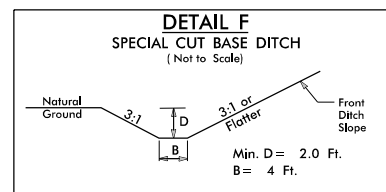
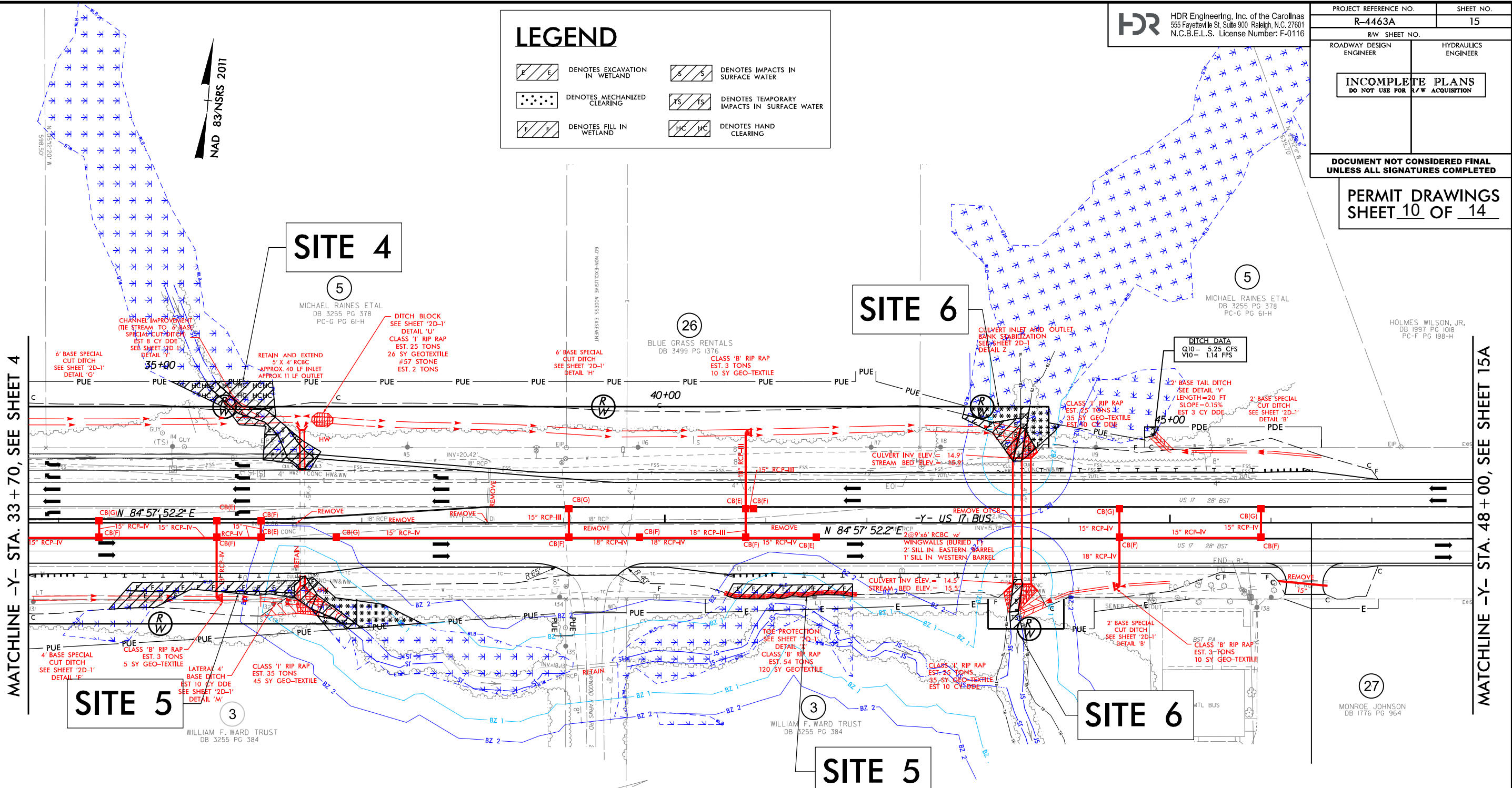
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USER: \_USERNAME\_  
FILE: R4463A\_PRM.XPL.L.dgn  
DATE: 11/6/2019  
TIME: 9:05:05 AM

# LEGEND

- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES HAND CLEARING



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REVISIONS

MATCHLINE -Y- STA. 33+70, SEE SHEET 4

MATCHLINE -Y- STA. 48+00, SEE SHEET 15A

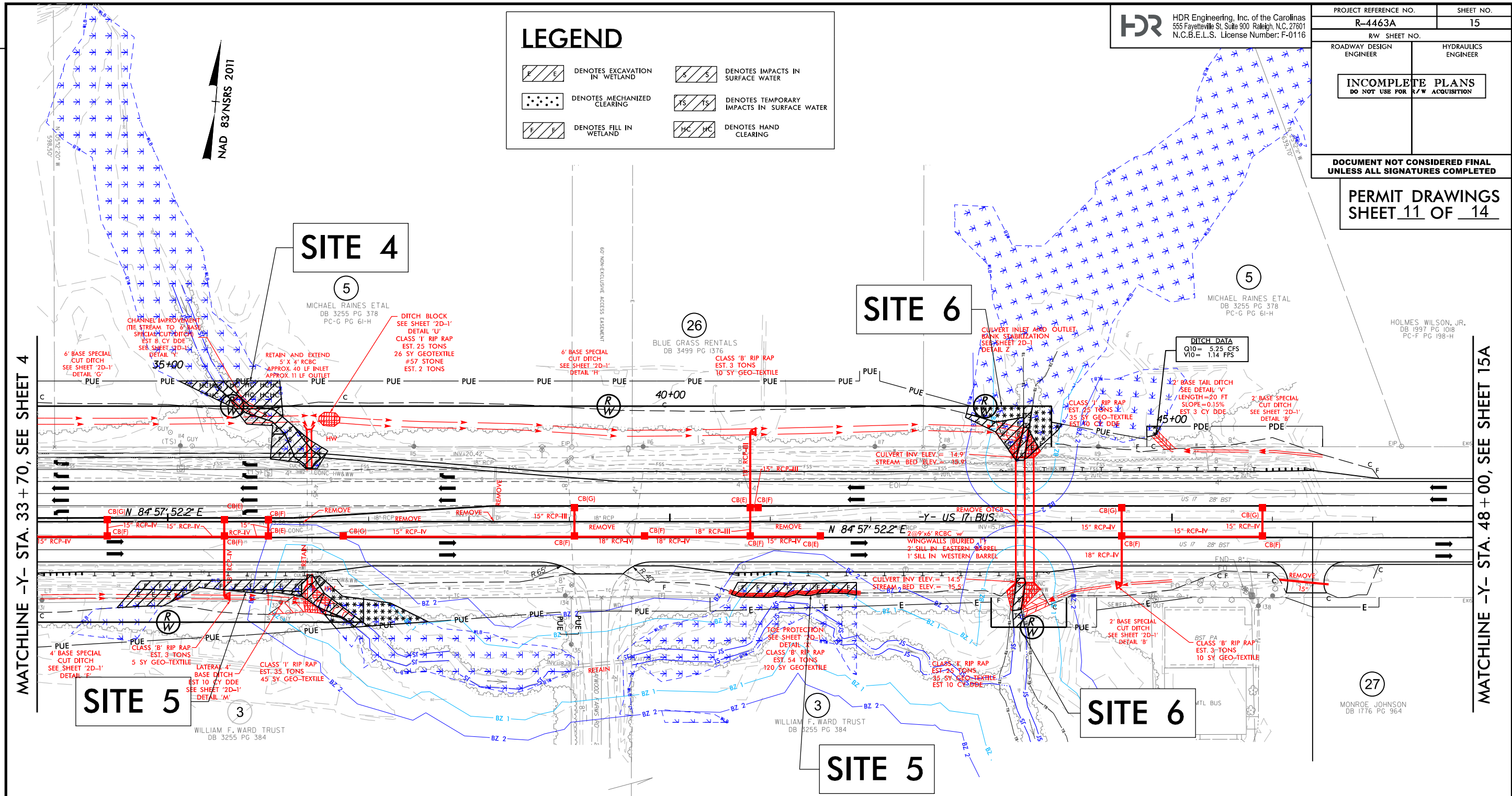
SEE SHEET 28-2 FOR -DET\_EB- & -DET\_WB- PLAN  
 SEE SHEETS 22 & 23 FOR -Y- PROFILE  
 SEE SHEETS C1-1 THRU C1-6 & C2-1 THRU C2-6 FOR CULVERT PLANS

PROJECT REFERENCE NO. <b>R-4463A</b>	SHEET NO. <b>15</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	

**PERMIT DRAWINGS**  
 SHEET 11 OF 14

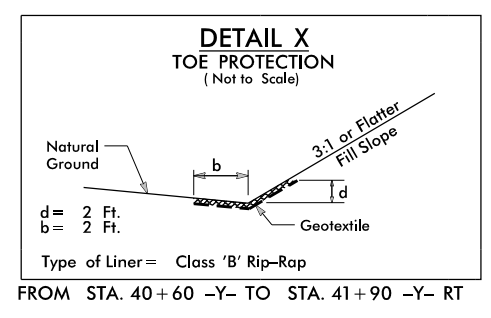
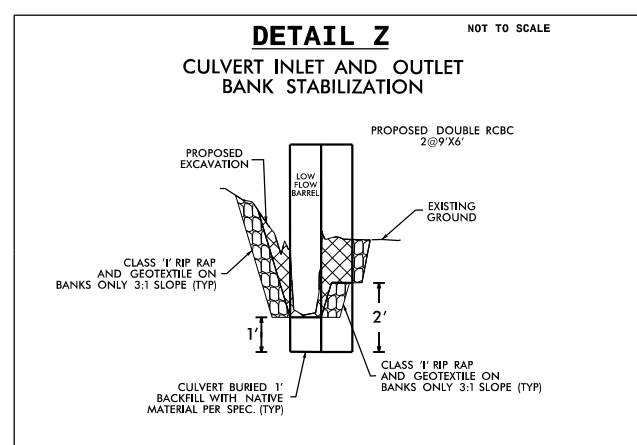
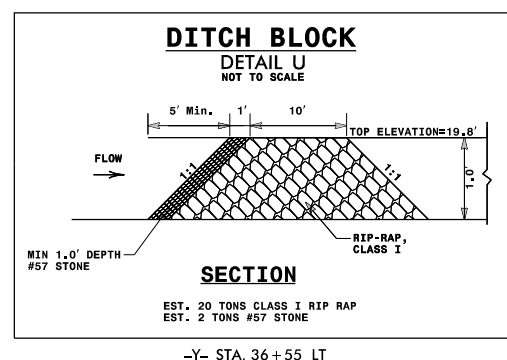
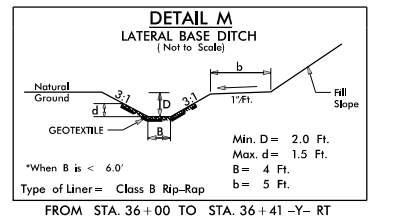
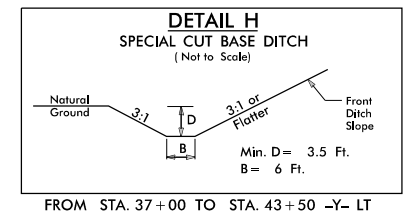
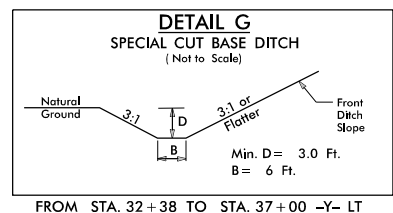
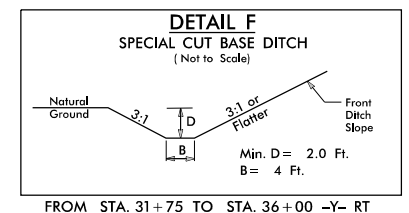
### LEGEND

	DENOTES EXCAVATION IN WETLAND		DENOTES IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES FILL IN WETLAND		DENOTES HAND CLEARING



MATCHLINE -Y- STA. 33+70, SEE SHEET 4

MATCHLINE -Y- STA. 48+00, SEE SHEET 15A

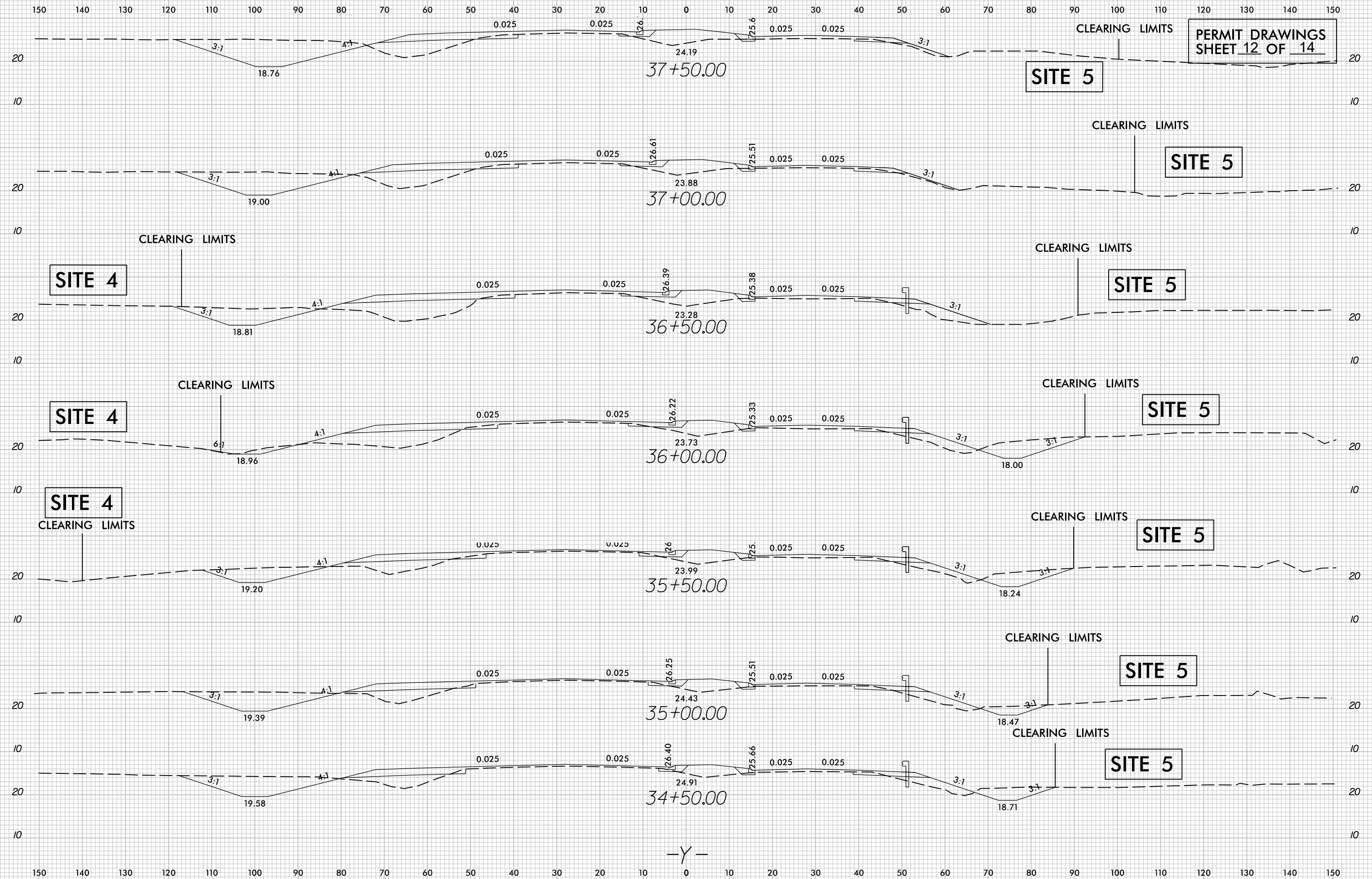


SEE SHEET 2B-2 FOR -DET\_EB- & -DET\_WB- PLAN  
 SEE SHEETS 22 & 23 FOR -Y- PROFILE  
 SEE SHEETS C1-1 THRU C1-6 & C2-1 THRU C2-6 FOR CULVERT PLANS

PLOT DRIVER: NCDOT\_color\_eng\_100.plt  
 USER: JMASSROC  
 DATE: 2/12/2020  
 TIME: 6:06:20 PM  
 FILE: ... \R-4463A\_HYD\_PRM\_PSH.dgn

REVISIONS

8/23/99



PLOT DRIVER: NCDOT\_color\_eng\_100.plt  
 USER: \_USERNAME\_ DATE: 11/6/2019 TIME: 9:47:00 AM  
 FILE: R4463A\_PRM\_XPL\_Y.dgn

5/14/99

PROJECT REFERENCE NO. <i>R-4463A</i>	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

SCALE:  
1" = 100' HORIZONTAL  
1" = 25' VERTICAL

250    200    150    100    50    0    50    100    150    200

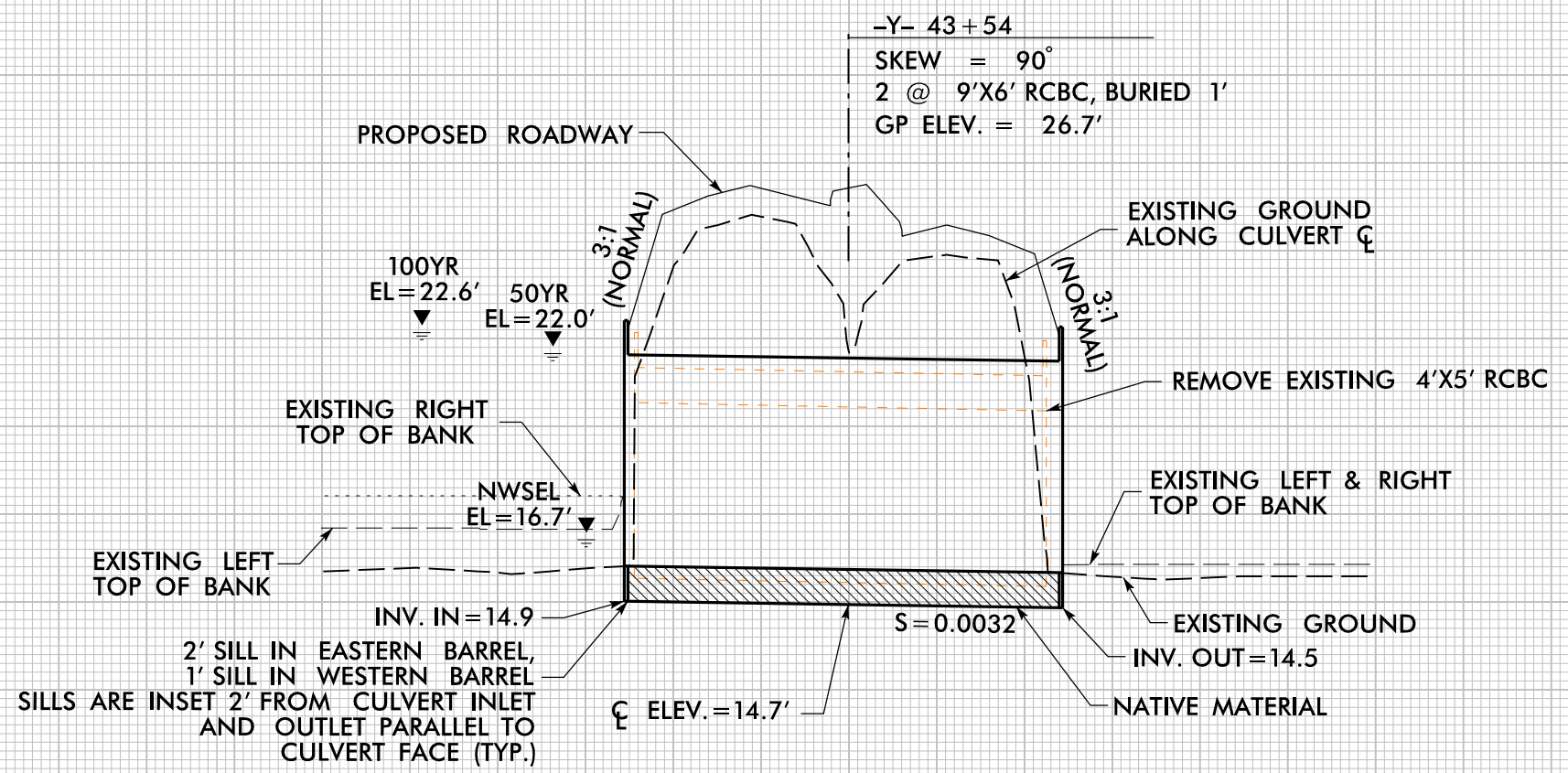
30

25

20

15

10



**PROFILE ALONG CL OF CULVERT**

**PERMIT DRAWING  
SHEET 13 OF 14**

5/14/99 PM Prof.jles.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$

**WETLAND AND SURFACE WATER IMPACTS SUMMARY**

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	18+06 to 19+10 -L- LT	Roadway	0.05		0.12							
		Utility Impacts		0.05								
2	21+34 to 23+93 -L- LT	Roadway	0.29		0.19							
3	24+05 to 26+36 -L- LT	Roadway	0.20		0.08							
		Utility Impacts		0.07								
4	35+11 to 36+60 -Y- LT	5' x 4' RCBC Extension	0.02		< 0.01			0.03	< 0.01	89	42	
		Utility Impacts					0.04					
5	34+50 to 41+86 -Y- RT	Roadway	0.07		0.03	0.04		0.01	< 0.01	9		
		Bank Stabilization								33	40	
6	42+94 to 43+75 -Y- LT	2 @ 9' x 6' RCBC Extension			0.03	0.03		< 0.01		8		
		Bank Stabilization						0.01	< 0.01	58	39	
<b>TOTALS*:</b>			0.62	0.11	0.44	0.08	0.04	0.05	0.02	197	121	0

\*Rounded totals are sum of actual impacts

**NOTES:**

- Temp Fill in wetlands represents temp. excavation for installation of gas lines
- Permit sites 1, 2 & 3 show excavating a new ditch to replace the existing ditch for hydraulic conveyance. Excavation impacts were calculated 20' beyond the slope stake line to account for the lateral drawdown of the wetlands being impacted by the proposed design.

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 12/06/2019  
 CRAVEN COUNTY  
 R-4463A  
 35601.1.1  
 SHEET 14 OF 14