



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

August 1, 2014

Mr. Brad Shaver
U.S. Army Corps of Engineers
Regulatory Field Office
69 Darlington Ave.
Wilmington, NC 28402-1890

Mr. Stephen Lane
N.C. Dept. of Environment and Natural Resources
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

Subject: **Modification Request for the Individual Section 404 and Section 10 Permits, Section 401 Water Quality Certification and CAMA Major Development Permit** for the Wilmington Bypass from US 17 in Brunswick County, north of the NC 87 intersection, to US 421 in New Hanover County. Federal Aid Project Nos. NHF-0017 (96) and STM-0017 (97), Division 3, TIP No. R-2633A&B.
Debit \$475 from WBS Element 34491.1.2

References: Section 404 Individual Permit, issued January 13, 2011 and modified July 9 and August 23, 2013, USACE Action ID SAW-1994-03352
Section 401 Water Quality Certification No. 003842, issued January 13, 2011 and modified May 31, August 19, 2013 and March 26, 2014
CAMA Consistency Concurrence – CD11-003, issued January 14, 2011 and CAMA Major Development Permit, 76-13, issued June 28, 2013 and modified August 22, 2013.
Modification Application Request for Section 404 and Section 10, Section 401 Water Quality Certification and CAMA Major Development Plan, dated March 19, 2014

Dear Sirs:

As you are aware, the North Carolina Department of Transportation (NCDOT) is currently constructing approximately 7.6 miles of fully controlled access freeway on new alignment from north of US 74/76 in Brunswick County, to US 421 in New Hanover County. NCDWR has already modified the Section 401 Water Quality Certification per NCDOT's March 19, 2014 request. Those changes and subsequent permit modification remain valid. We are requesting that the USACE and the DCM modify their respective permits based on the March 19, 2014 request in addition to the revisions provided within this request.

The purpose of this letter is to request modifications of the Section 404 Individual Permit, Section 10 Permit, Section 401 Water Quality Certification and CAMA Major Development Permit due to a change in jurisdictional impacts on Section A, Sites 31 and 32; and Section B Site 3 and Utility Site 2. Enclosed are revised Section A Permit Drawings 7, 8, 90, 91, 92, 93, 94 and 95 of 108, Section B Permit Drawings 2, 3 and 73 of 73 and Utility Drawings 3 and 15 of 15.

R-2633A

Site 31

There is an increase in permanent fill of 0.02 acre of non-riparian wetlands. This is due to a wetland area not being on drawings as a result of a gap in coverage between Section A and Section B. The impact total for this site is now 0.61 acre.

Site 32

There is an increase in permanent fill of 0.02 acre and 0.01 acre of mechanized clearing in non-riparian wetlands. This is due to wetland area not being on drawings as a result of a gap in coverage between Section A and Section B. The impact total for this site is now 4.65 acres.

R-2633B

Site 3

Non-riparian wetland impacts have increased at this site by 0.06 acre. This is due to discrepancy of some wetland area not being on drawings. This is due to wetland area not being on drawings as a result of a gap in coverage between Section A and Section B. The new riparian wetland total for Site 3 is 7.51 acres.

Utility Site 2

The only change to this site is an overall decrease in hand clearing. The contractor needed less room for staging near Station -L-140+00 but increased the width of the hand clearing 40 feet along the length of the pipe for equipment moving. Total net decrease in hand clearing is 0.32 acre for a total of 1.19 acres of hand clearing.

Mitigation

Total increase in non-riparian wetland impacts is 0.11 acre (see attached EEP acceptance letter).

Total non-riparian wetland impacts requiring mitigation are now 56.38 acres.

This project was let in September 2013 and is currently under construction. We respectfully request that these modifications be processed as soon as possible.

REGULATORY APPROVALS

Section 404

Application is hereby made for a modification to the USACE Individual 404 Permit as required for the above-described activities. We also ask that the USACE proceed with processing the permit modification application dated March 19, 2014.

Section 401

Application is hereby made for a modification to the Section 401 Water Quality Certification from the N. C. Division of Water Quality.

CAMA: Application is hereby made for a modification to the Coastal Area Management Act Major Development Permit. Authorization to debit the \$475 Permit Application Fee from WBS Element 34491.1.2 is hereby given. We also ask that the DCM to proceed with processing the permit modification application dated March 19, 2014.

A copy of this permit modification request will be posted on the DOT website at: <https://connect.ncdot.gov/resources/Environmental/Pages>. If you have any questions or need additional information, please contact Rachelle Beauregard at rbeauregard@ncdot.gov or (919) 707-6105.

Sincerely,



for

Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Unit

cc:
NCDOT Permit Application Standard Distribution List.



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Michael Ellison, Director
Ecosystem Enhancement Program

John E. Skvarla, III
Secretary

July 30, 2014

Mr. Richard W. Hancock, P.E.
Manager, Project Development & Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Hancock:

Subject: EEP Mitigation Acceptance Letter:

R-2633A and B, US 17 (Wilmington Bypass) from NC 87 South of Bishop to West of US 421 North of Wilmington, Brunswick and New Hanover Counties

References: USACE 404 Individual Permit issued February 28, 2011 (USACE Action ID 1994-03552) and 404 Individual Permit Modification issued on July 9, 2013

NCDWR 401 Water Quality Certification issued January 13, 2011 (NCDWQ Project ID 2010-0867) and 401 Water Quality Certification modification issued on May 31, 2013

NCDCM Permit issued on June 28, 2013 (NCDCM Project ID 76-13)

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the additional wetland mitigation for the subject project. Based on the information supplied by you on July 29, 2014, the additional wetland impacts are located in CU 03030005 of the Cape Fear River Basin in the Southern Outer Coastal Plain (SOCP) Eco-Region, and are as follows:

Table 1 – Additional Impacts (feet / acres)

Cape Fear 03030005 SOCP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1 (3:1)	Zone 2 (1.5:1)
Impacts (feet/acres)	0	0	0	0	0.11	0	0	0

These impacts and associated mitigation needs were not projected by the NCDOT in the 2014 impact data. EEP is currently providing stream and wetland (riparian and non-riparian) mitigation for the impacts associated with this project located in cataloging unit 03030005 of the Cape Fear River basin as required by the 404 and 401 permits that were issued in 2011 and 2013 and NCDCM CAMA Major permit issued in 2013, as shown in the below table (in mitigation credits):

Mr. Hancock
TIP R-2633A and B Additional
July 30, 2014
Page Two

Table 2 – Current Permitted Impacts and Mitigation Requirements (based on 2011 permits) and Revised Anticipated Impacts (based on March and July 2014 mitigation requests)

Impact Type	Total Permitted Impacts (feet / acre)	Mitigation Provided by EEP per Issued Permits (Credits)	Additional Impact (for approval)	Revised Total Impacts*
Stream	509.0	1,018.0	0	509.0
Riparian Wetland	7.28	14.56	0	7.28
Non-Rip Wetland	56.25	112.50	0.02 (March) / 0.11 (July)	56.38

*Some of the stream and wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details. EEP will provide the amount of mitigation as determined by the regulatory agencies.

This mitigation acceptance letter replaces the mitigation acceptance letters issued on October 20, 2009, October 12, 2010, January 21, 2011, April 23, 2013, and May 30, 2013. EEP has previously made debits for the stream and wetland mitigation requirements to mitigation sites available in the cataloging unit based on the amounts required in the 404 and 401 permits issued in 2011 and 2013 and CAMA Major permit issued in 2013. This mitigation acceptance is in addition to the EEP mitigation acceptance letter issued on March 19, 2014 which is still in effect. Upon issuance of the permit modifications for the project, EEP will make appropriate adjustments to the existing mitigation debits. At this time, no additional stream or riparian wetland mitigation is anticipated to be needed.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,


James B. Stanfill
EEP Asset Management Supervisor

Cc: Mr. Brad Shaver, USACE – Wilmington Regulatory Field Office
Mr. Mason Herndon, NC Division of Water Quality
Mr. Steve Sollod, NC Division of Coastal Management
File: R-2633A and B Revised 3

WETLAND PERMIT IMPACT 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	54+00 -Y1-	Triple 72" RCP	0.14		0.03	0.03		0.11		248		
1 & 33	54+00 -Y1-/24+00 -Y04-	Wetland Mitigation										66
2	77+70 -Y1-	24" RCP	0.17			0.01						
*3**	58+30 -SR2- RT	Waterline/Powerline		0.03			0.02		<0.01		30	
*4**	101+46 -Y1-	Triple 72" RCP	0.31	0.40	0.09	0.09	0.27	0.07		151		
5**	115+18 -Y1-	Triple 72" RCP	0.03		0.11	0.03	0.07	0.10		228		
6	103+61 -SRVD2-	24" RCP	0.13			<0.01						
7	60+15 -NBL- RT	Bank Stabilization						<0.01		16		
7	60+15 -NBL-M	Temp. Crossing							<0.01		70	
8	98+00 -L- LT	Temp. Crossing							<0.01		45	
8	97+27 / 98+26 -L-	Bridge	<0.01				0.12					
8	97+27 / 98+26 -L-	Bank Stabilization						<0.01		40		
9	110+00 -L-	24" RCP	0.23			0.01						
10A	113+92 -L- LT	30" RCP	<0.01			<0.01						
10B	113+92 -L- RT	30" RCP	<0.01			<0.01						
11	120+66 -L-	30" RCP	0.11			0.01						
12	124+84 / 127+20-L-	42" RCP	1.00			0.05						
13	129+52 / 132+63 -L-	24" RCP	0.49			0.02						
14	134+27 / 138+13 -L-	36" RCP	0.73			0.03						
14	134+27 / 138+13 -L-	Bank Stabilization						<0.01		12		
15	140+25 -L-	18" RCP	0.33		0.04	0.01						
16	142+50 -L-	Roadway Fill	0.37			0.02						
17	143+81 -L-	Bridge	0.10			0.01	0.39					
18	164+50 -L- LT	Roadway Fill	0.02			0.01						
19	171+75 -L- RT	Roadway Fill	0.03			0.01						
20	173+59 -L- LT	24" RCP			<0.01	<0.01						
21	181+45 -L-	36" RCP	0.27			0.02						
TOTALS:			4.46	0.43	0.27	0.34	0.87	0.27	<0.01	695	145	66

- Wetland Mitigation includes 0.63 acres of restoration and 2.97 acres of preservation

* Contains impacts due to 30" waterline relocation

** Hand clearing impacts due to powerline.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY
34491.3.GV2 (R-2633AA&AB)

WETLAND PERMIT IMPACT 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)
22	184+08 / 186+27 -L-	Bridge	0.09			0.02	0.17					
22	184+08 / 186+27 -L-	Temp. Crossing		0.10								
23	206+83 / 209+84 -L-	Roadway Fill	0.54			0.03						
24	265+81 / 274+26 -L-	Roadway Fill	3.27	0.02		0.18	0.12					
25	275+89 / 279+03 -L-	Roadway Fill	0.61			0.04						
26	283+43 -L-	36" RCP						0.01		***		
27	280+70 / 293+82 -L-	Roadway Fill	4.56			0.25						
28	304+55 / 316+77 -L-	Roadway Fill	3.52			0.24		0.02		***		
29	329+70 -L-	Bridge	<0.01				0.15					
30	21+97 / 23+48 -RPA1-	Roadway Fill	0.40			0.04						
31	5+29 / 7+09 -LPA1-	Roadway Fill	0.55			0.06						
32	0+00 / 12+98 -LPD1-	Roadway Fill	4.29		0.07	0.29						
33	18+96 / 25+57 -Y04-	Bridge	0.12			0.03	0.39					
34	19+26 / 20+50 -Y5-	Roadway Fill	0.02			0.01						
35**	22+50 -RP_D1-	Roadway Fill	0.16			0.01						
	Campbell Pit Haul Rd	Bank Stabilization						<0.01		4		
TOTALS:			18.15	0.12	0.07	1.20	0.84	0.03	0.00	4	0	0
Totals: Sheet 1 and 2			22.61	0.56	0.34	1.54	1.70	0.30	<0.01	699	145	66

**Site 35 total take includes an additional 0.02 AC of impacted area between -RP_D1- and -L-.

***Tributary waters of the US contain SW impacts but no channel impacts.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY
WBS - 34491.3.GV2 (R-2633AA&AB)

REVISIONS

W-1A (8/24/12): CURB AND GUTTER ELIMINATED FROM STA 20+00 TO 21+00 AT BRIDGE STRUCTURE NOS 2032, 2033, AND 2032. EMBANKMENT ADJUSTMENT ADDED FOR RETAINER WITH BRIDGE PROJECT.

W-1B (8/24/12): CURB AND GUTTER ELIMINATED FROM STA 21+00 TO 22+00 AT BRIDGE STRUCTURE NOS 2132, 2133, AND 2132. EMBANKMENT ADJUSTMENT ADDED FOR RETAINER WITH BRIDGE PROJECT.

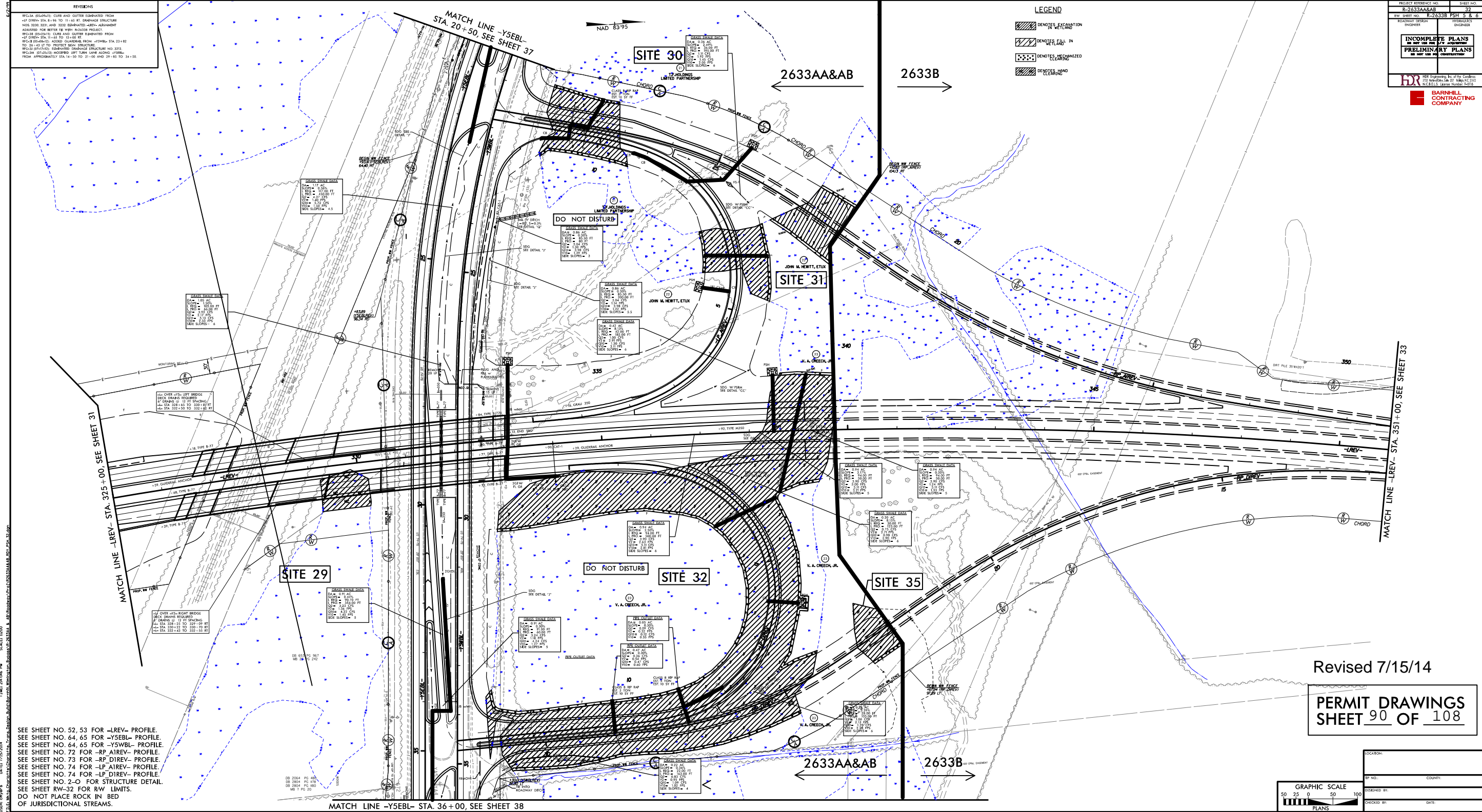
W-1C (8/24/12): ADDED GUARDRAIL FROM STA 23+00 TO 24+00 TO PROTECT BRIDGE STRUCTURE.

W-1D (8/24/12): EMBANKMENT CHANGED FROM STA 25+00 TO 26+00 TO 27+00 TO 28+00 TO 29+00 TO 30+00 TO 31+00 AND 29+85 TO 30+00.

PROJECT REFERENCE NO.	SHEET NO.
R-2633AA&AB	37
ROADWAY DESIGN	HYDROLOGIC ENGINEER
ENGINEER	ENGINEER
INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

LEGEND

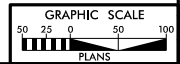
- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN
- DENOTES ORGANIZED
- DENOTES WIND CLEARING



SEE SHEET NO. 52, 53 FOR -LREV- PROFILE.
 SEE SHEET NO. 64, 65 FOR -YSEBL- PROFILE.
 SEE SHEET NO. 64, 65 FOR -YSWB- PROFILE.
 SEE SHEET NO. 72 FOR -RP AIREV- PROFILE.
 SEE SHEET NO. 73 FOR -RP DIREV- PROFILE.
 SEE SHEET NO. 74 FOR -LP AIREV- PROFILE.
 SEE SHEET NO. 74 FOR -LP DIREV- PROFILE.
 SEE SHEET NO. 2-O FOR STRUCTURE DETAIL.
 SEE SHEET RW-32 FOR RW LIMITS.
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

Revised 7/15/14

PERMIT DRAWINGS
SHEET 90 OF 108



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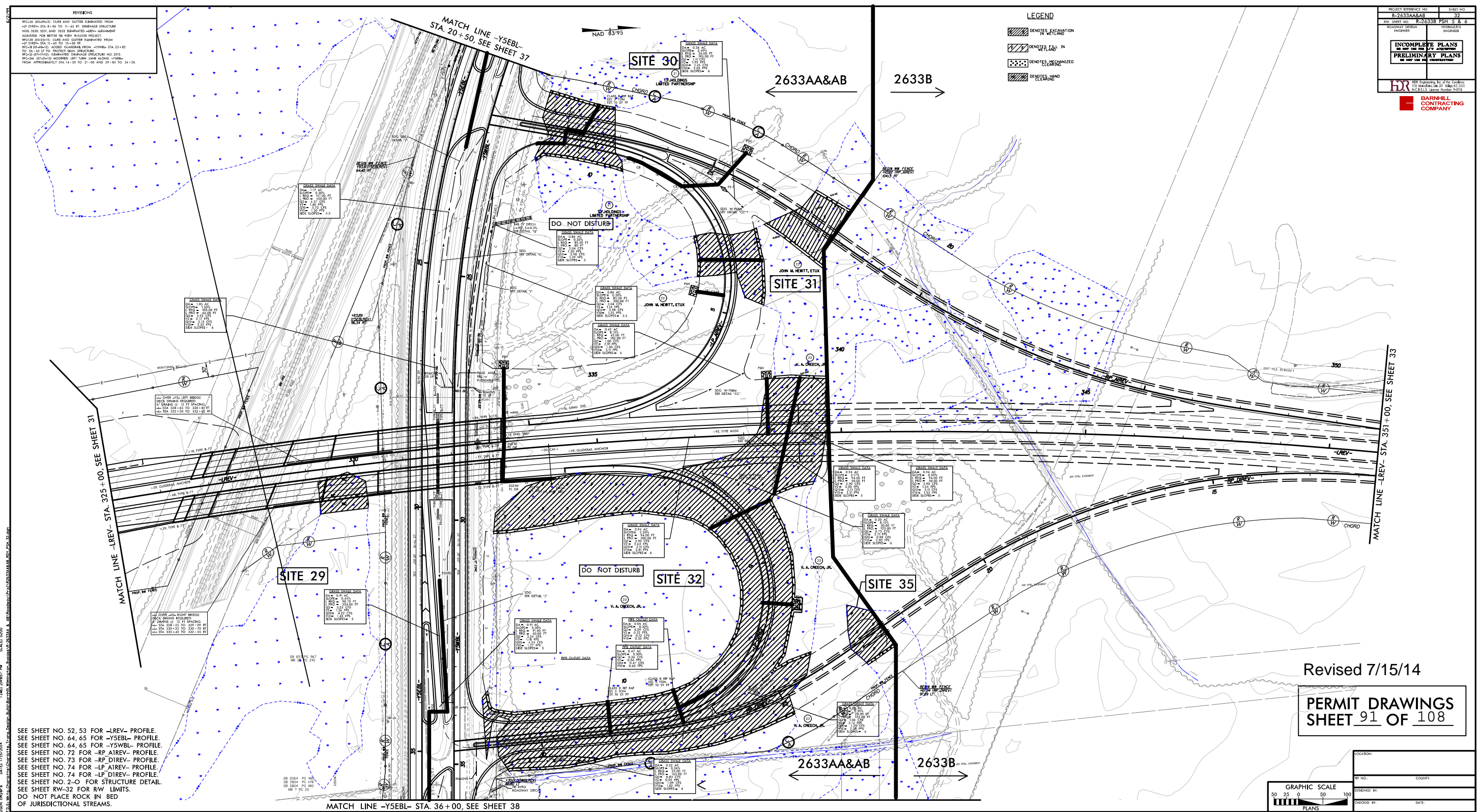
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REVISIONS	
1	WCA (B-2472) CURB AND GUTTER ELIMINATED FROM STA. 20+00 TO 21+00 AT BRIDGE STRUCTURE NOS. 2323, 2324 AND 2325. SEE SHEET 37.
2	WCA (B-2472) CURB AND GUTTER ELIMINATED FROM STA. 21+00 TO 22+00 AT BRIDGE STRUCTURE NOS. 2326, 2327 AND 2328. SEE SHEET 37.
3	WCA (B-2472) ADDED GUARDRAIL FROM STA. 23+00 TO 24+00 AT BRIDGE STRUCTURE NOS. 2329, 2330 AND 2331. SEE SHEET 37.
4	WCA (B-2472) ELIMINATED BRIDGE STRUCTURE NO. 2332 FROM APPROXIMATELY STA. 14+50 TO 21+00 AND 29+85 TO 34+50.

PROJECT REFERENCE NO. E-2633AAAAB	SHEET NO. 32
ROADWAY DESIGN E-2633B PSH 5 & 6	HYDROLOGICAL ENGINEER
INCOMPLETE PLANS	PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION	DO NOT USE FOR CONSTRUCTION
ENR	BARNHILL CONTRACTING COMPANY

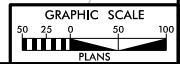
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- [Hatched Pattern] DENOTES FILL IN
- [Dotted Pattern] DENOTES ORGANIZED
- [Hatched Pattern] DENOTES MOUND CLEARING



SEE SHEET NO. 52, 53 FOR -LREV- PROFILE.
 SEE SHEET NO. 64, 65 FOR -YSEBL- PROFILE.
 SEE SHEET NO. 64, 65 FOR -YSWB- PROFILE.
 SEE SHEET NO. 72 FOR -RP AIREV- PROFILE.
 SEE SHEET NO. 73 FOR -RP DIREV- PROFILE.
 SEE SHEET NO. 74 FOR -LIP AIREV- PROFILE.
 SEE SHEET NO. 74 FOR -LIP DIREV- PROFILE.
 SEE SHEET NO. 2-O FOR STRUCTURE DETAIL.
 SEE SHEET RW-32 FOR RW LIMITS.
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

Revised 7/15/14
PERMIT DRAWINGS
SHEET 91 OF 108

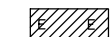
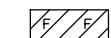
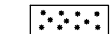


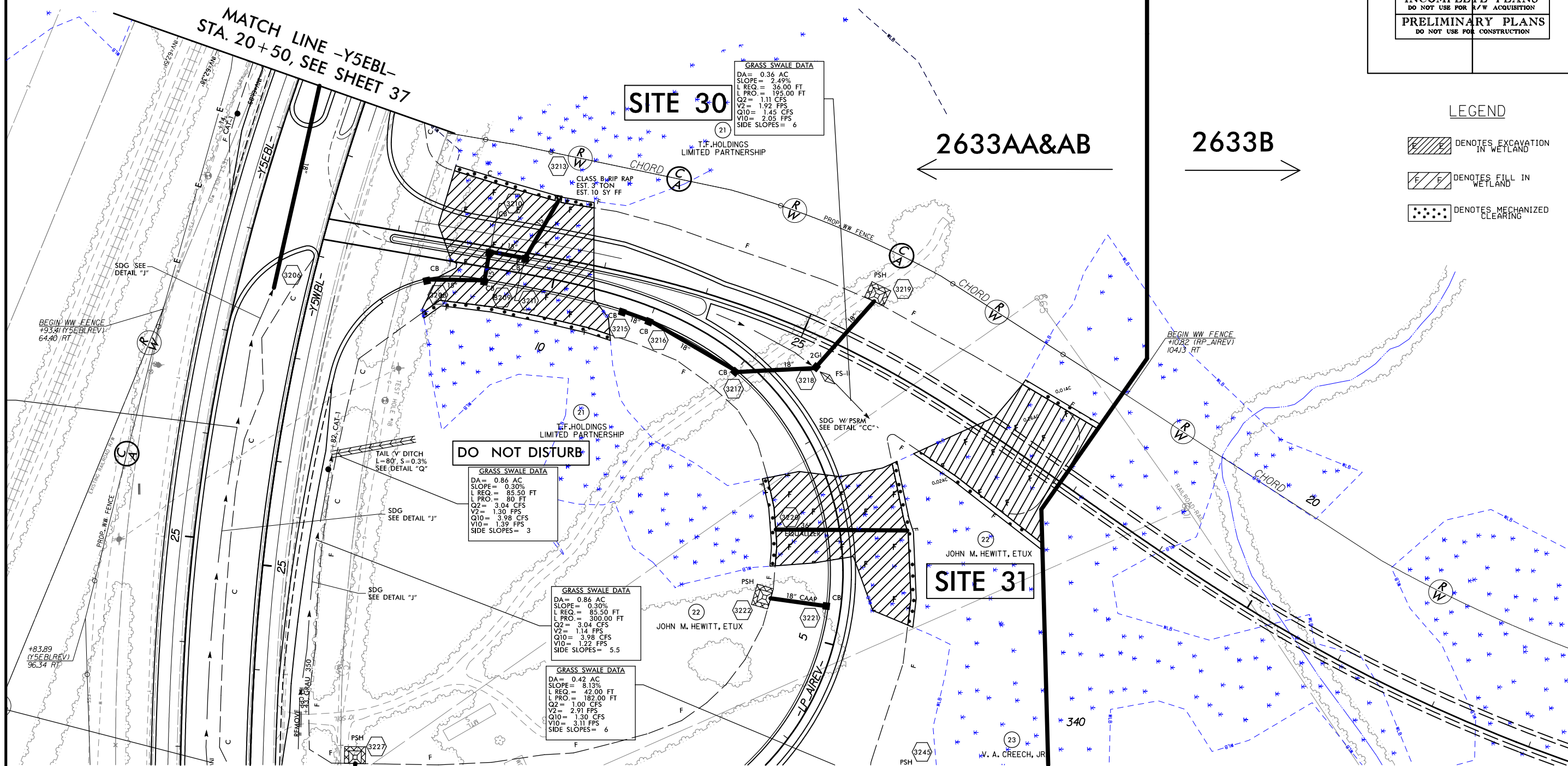
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PERMITS: WCA (B-2472), BRIDGE (B-2473), BRIDGE (B-2474)
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PROJECT REFERENCE NO.	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

LEGEND

-  DENOTES EXCAVATION IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING



Revised 7/15/14

PERMIT DRAWINGS
 SHEET 92 OF 108




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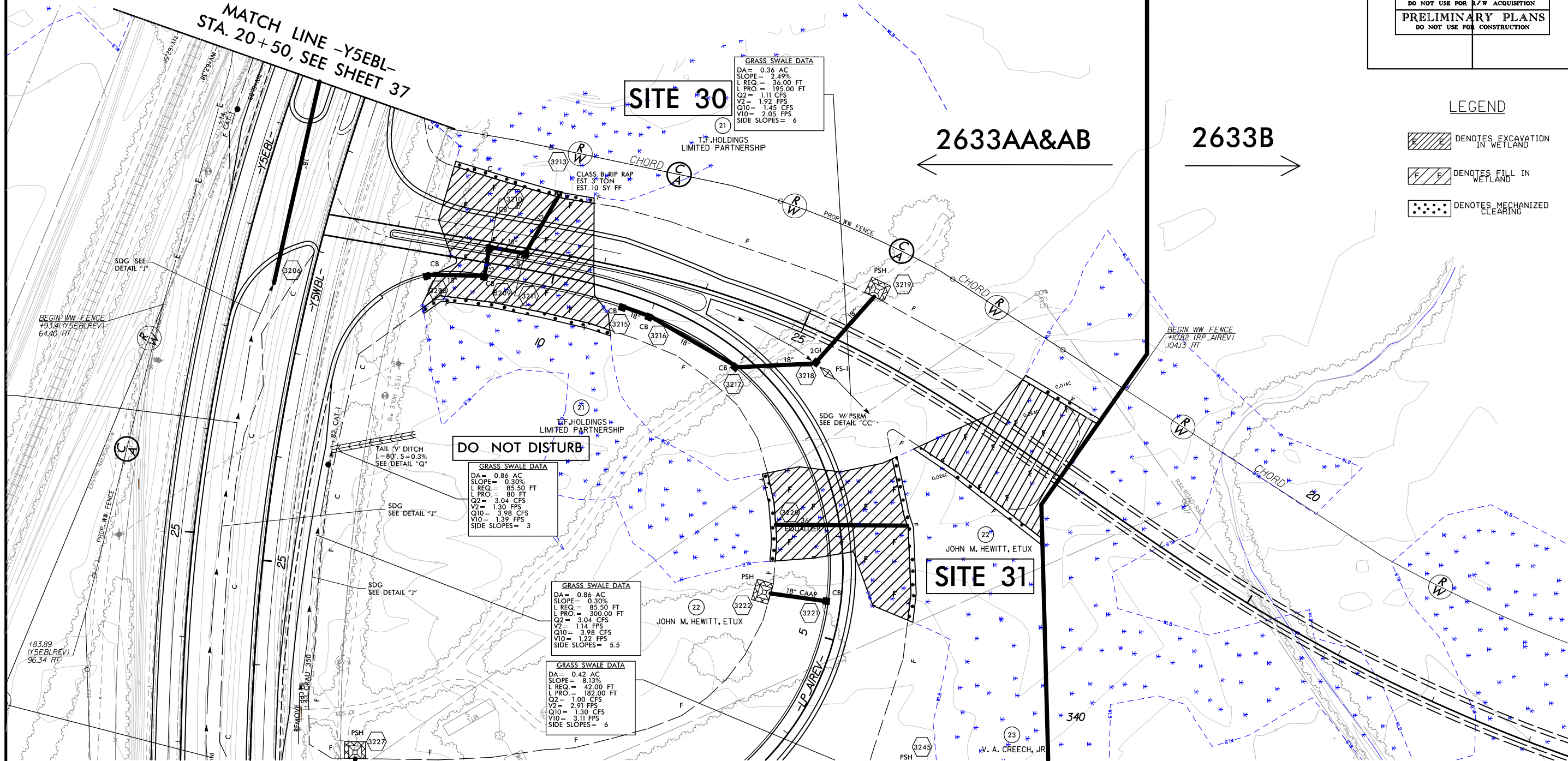
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

BARNHILL CONTRACTING COMPANY

PROJECT REFERENCE NO.	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

LEGEND

-  DENOTES EXCAVATION IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING



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REVISIONS

Revised 7/15/14

PERMIT DRAWINGS
SHEET 93 OF 108

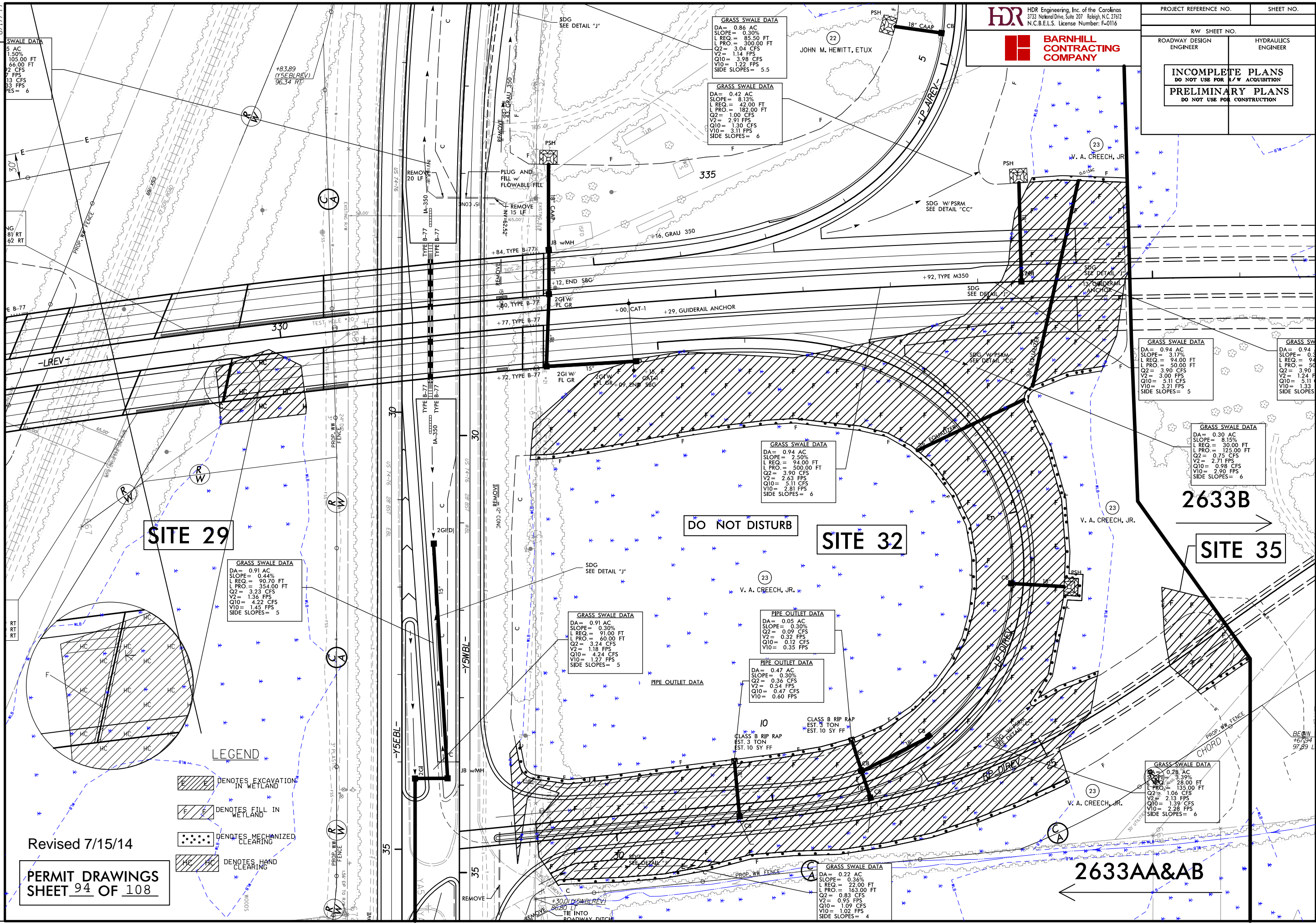
HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

BARNHILL CONTRACTING COMPANY

PROJECT REFERENCE NO.		SHEET NO.	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		

INCOMPLETE PLANS
DO NOT USE FOR ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

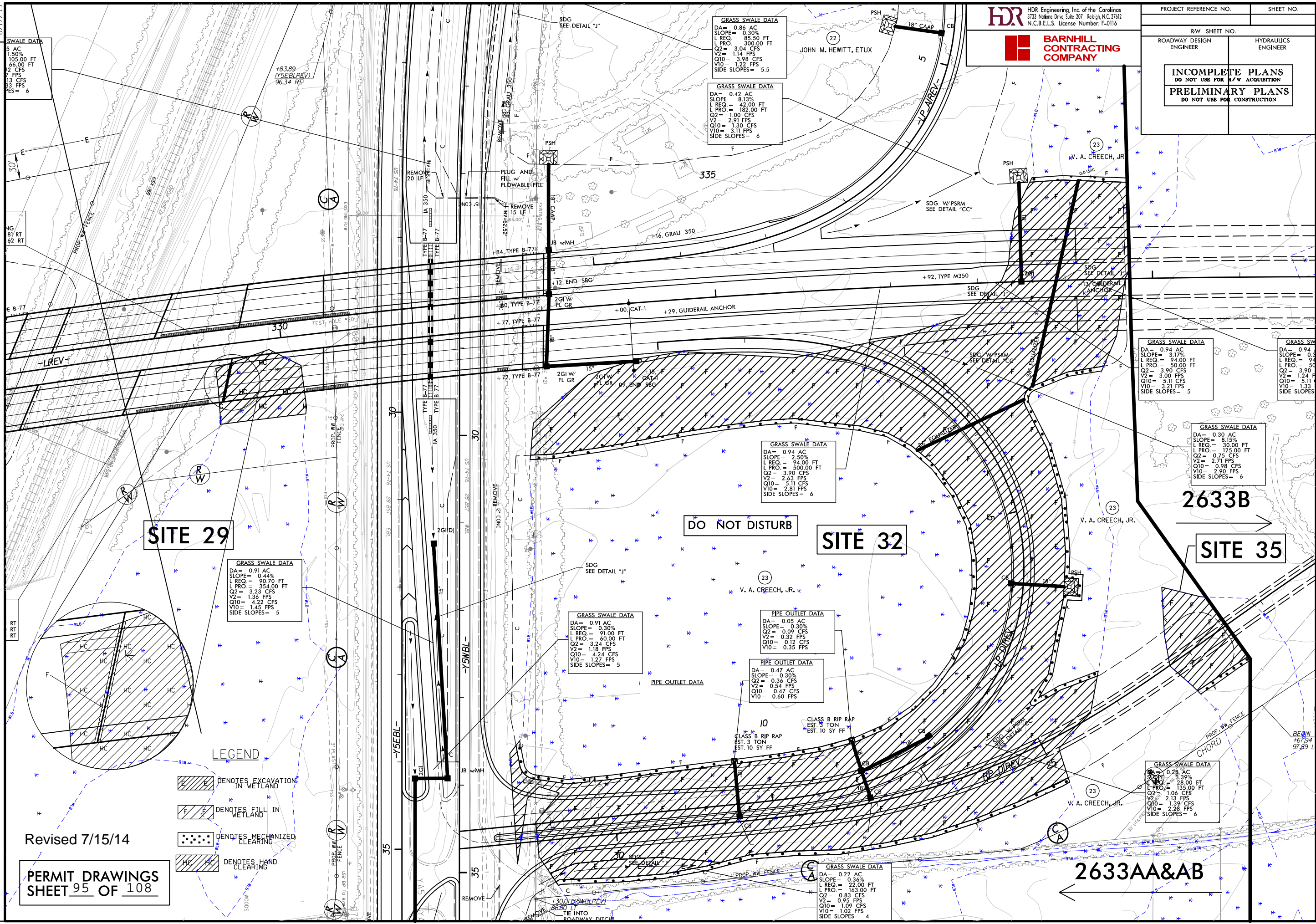


Revised 7/15/14

PERMIT DRAWINGS
SHEET 94 OF 108

REVISIONS

PROJECT REFERENCE NO.		SHEET NO.	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



SWALE DATA
 DA = 5 AC
 SLOPE = 1.50%
 L REQ = 105.00 FT
 L PRO = 66.00 FT
 Q2 = 2 CFS
 Q10 = 13 CFS
 V10 = 83 FPS
 VES = 6

GRASS SWALE DATA
 DA = 0.86 AC
 SLOPE = 0.30%
 L REQ = 85.50 FT
 L PRO = 300.00 FT
 Q2 = 3.04 CFS
 Q10 = 3.98 CFS
 V10 = 1.22 FPS
 SIDE SLOPES = 5.5

GRASS SWALE DATA
 DA = 0.42 AC
 SLOPE = 8.13%
 L REQ = 42.00 FT
 L PRO = 182.00 FT
 Q2 = 1.00 CFS
 Q10 = 1.30 CFS
 V10 = 3.11 FPS
 SIDE SLOPES = 6

GRASS SWALE DATA
 DA = 0.94 AC
 SLOPE = 3.17%
 L REQ = 94.00 FT
 L PRO = 50.00 FT
 Q2 = 3.90 CFS
 Q10 = 5.11 CFS
 V10 = 3.21 FPS
 SIDE SLOPES = 5

GRASS SWALE DATA
 DA = 0.94 AC
 SLOPE = 3.17%
 L REQ = 94.00 FT
 L PRO = 50.00 FT
 Q2 = 3.90 CFS
 Q10 = 5.11 CFS
 V10 = 3.21 FPS
 SIDE SLOPES = 5

GRASS SWALE DATA
 DA = 0.30 AC
 SLOPE = 8.15%
 L REQ = 30.00 FT
 L PRO = 125.00 FT
 Q2 = 0.75 CFS
 Q10 = 0.98 CFS
 V10 = 2.90 FPS
 SIDE SLOPES = 6

GRASS SWALE DATA
 DA = 0.91 AC
 SLOPE = 0.44%
 L REQ = 90.70 FT
 L PRO = 354.00 FT
 Q2 = 3.23 CFS
 Q10 = 4.22 CFS
 V10 = 1.45 FPS
 SIDE SLOPES = 5

GRASS SWALE DATA
 DA = 0.91 AC
 SLOPE = 0.30%
 L REQ = 91.00 FT
 L PRO = 60.00 FT
 Q2 = 3.24 CFS
 Q10 = 4.24 CFS
 V10 = 1.27 FPS
 SIDE SLOPES = 5

PIPE OUTLET DATA
 DA = 0.05 AC
 SLOPE = 0.30%
 Q2 = 0.09 CFS
 Q10 = 0.12 CFS
 V10 = 0.35 FPS

PIPE OUTLET DATA
 DA = 0.47 AC
 SLOPE = 0.30%
 Q2 = 0.36 CFS
 Q10 = 0.47 CFS
 V10 = 0.60 FPS

GRASS SWALE DATA
 DA = 0.28 AC
 SLOPE = 3.39%
 L REQ = 28.00 FT
 L PRO = 135.00 FT
 Q2 = 1.06 CFS
 Q10 = 1.39 CFS
 V10 = 2.28 FPS
 SIDE SLOPES = 6

GRASS SWALE DATA
 DA = 0.22 AC
 SLOPE = 0.36%
 L REQ = 22.00 FT
 L PRO = 163.00 FT
 Q2 = 0.83 CFS
 Q10 = 1.09 CFS
 V10 = 1.09 FPS
 SIDE SLOPES = 4

Revised 7/15/14
PERMIT DRAWINGS
 SHEET 95 OF 108

- LEGEND**
- DENOTES EXCAVATION IN WETLAND
 - DENOTES FILL IN WETLAND
 - DENOTES MECHANIZED CLEARING
 - DENOTES HAND CLEARING

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

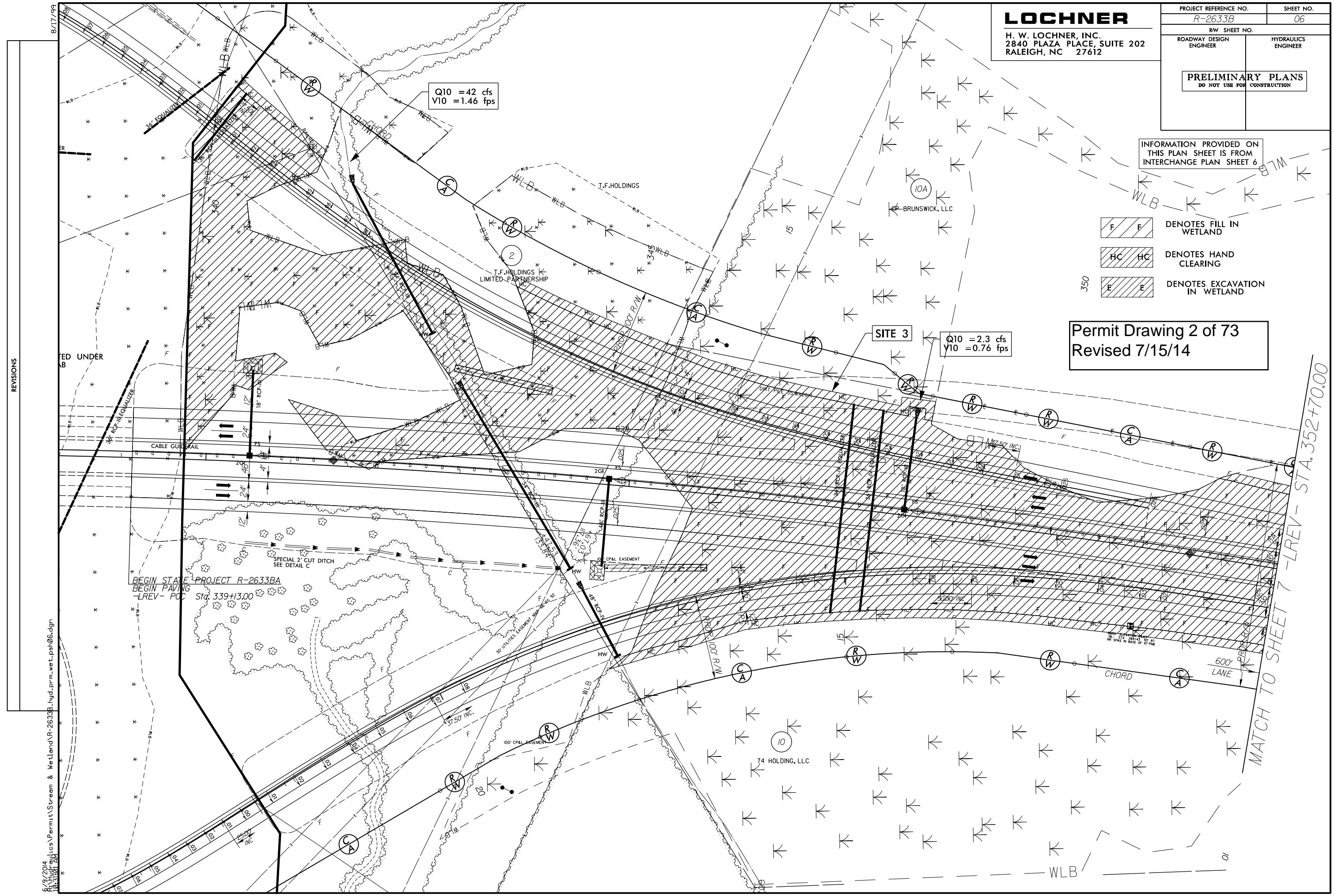
PROJECT REFERENCE NO. R-2633B	SHEET NO. 06
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INFORMATION PROVIDED ON THIS PLAN SHEET IS FROM INTERCHANGE PLAN SHEET 6

- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING
- DENOTES EXCAVATION IN WETLAND

Permit Drawing 2 of 73
Revised 7/15/14



REVISIONS

6/9/2014
H:\projects\Permt\Stream & Wetland\R-2633B-hyd_prm_wet_psh06.dgn

BEGIN STATE PROJECT R-2633BA
BEGIN PAVING
-LREV- POC Sta. 339+13.00

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO. R-2633B	SHEET NO. 06
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INFORMATION PROVIDED ON THIS PLAN SHEET IS FROM INTERCHANGE PLAN SHEET 6

- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING
- DENOTES EXCAVATION IN WETLAND

Permit Drawings 3 of 73
Revised 7/15/14

Q10 = 42 cfs
V10 = 1.46 fps

SITE 3
Q10 = 2.3 cfs
V10 = 0.76 fps

BEGIN STATE PROJECT R-2633BA
BEGIN PAVING
LREV - POC Sta. 339+13.00

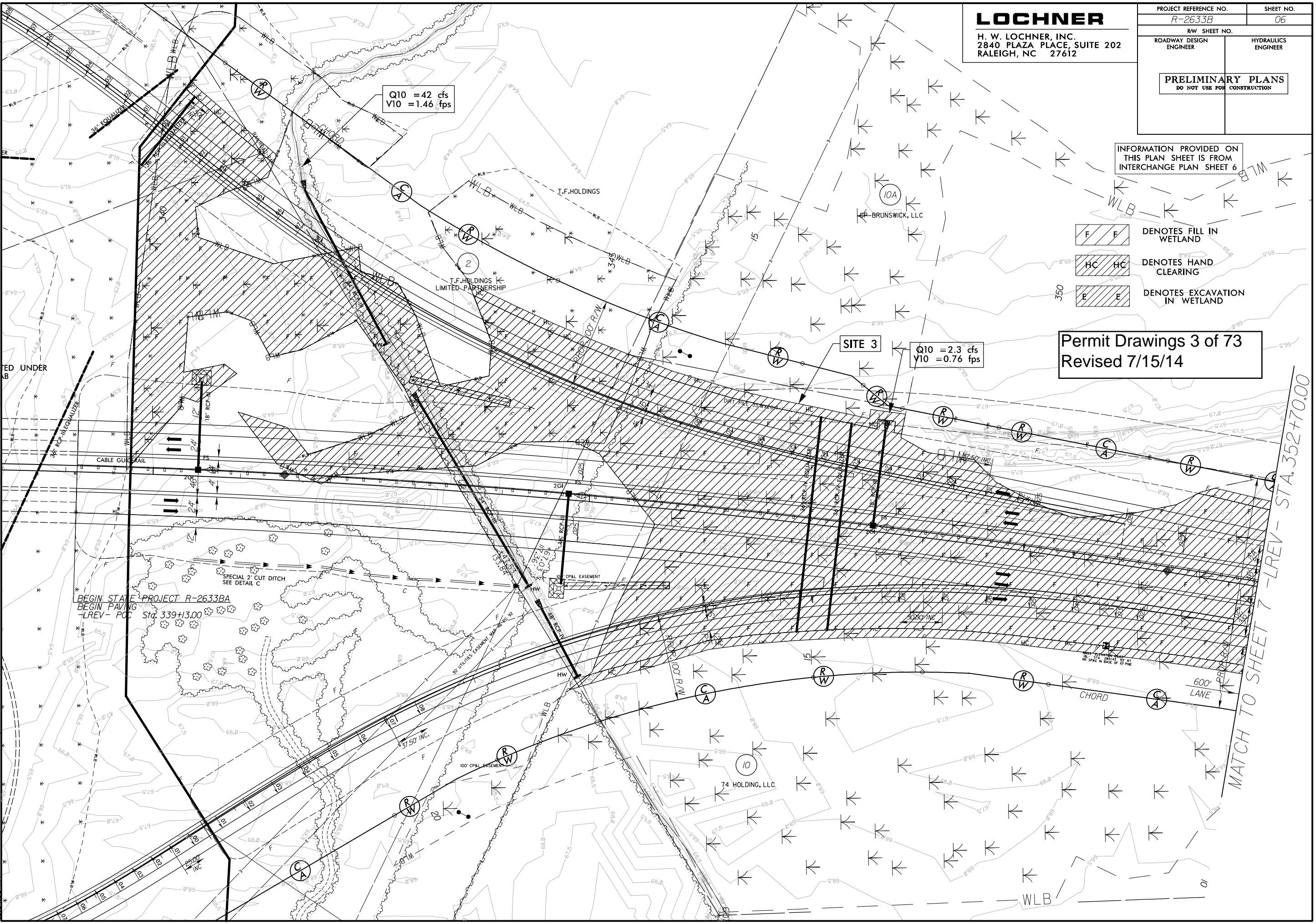
SPECIAL 2' CUT DITCH
SEE DETAIL C

MATCH TO SHEET 7 - LREV - STA. 352+70.00

REVISIONS

6/9/2014
H:\Hydraulics\Permt\Stream & Wetland\R-2633B-hyd_prm-wet_psh06.dgn

8/17/99



WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS						
			404 Permanent Fill In Wetlands (ac)	CAMA Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	404 Hand Clearing in Wetlands (ac)	CAMA 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***	-L- 24+75 Lt.	Roadway Fill													
2***	-L- 37+96 Rt.	Bridge													
3****	-LREV- 339+73 to 358+92	Roadway Fill	7.51			0.03			0.58						
4	-RP D1- 22+60	Deleted due to new JS delineation													
5*	-LREV- 372+74 to -L-85+08	Roadway Fill	1.04						0.12						
6*	-L- 109+28 to 134+54	Roadway Fill	9.72						1.13						
6A**	-L- 138+11 to 140+70	Roadway Fill	0.68												
6B**	-L- 141+20 to 144+29	Roadway Fill	0.41						0.02						
7*	-L- 146+78 to 165+66	Roadway Fill	10.57						0.84						
8	-L 166+60	Deleted due to new JS delineation													
9*	-L- 186+97 to 191+88	Roadway Fill	1.04						0.09						
10	-RP D2- 19+20 Lt.	Deleted due to new JS delineation													
11*	-L- 194+75 to 216+13	Roadway Fill; 3@42"	8.72						0.93	0.07	<0.01	205	20		
12	-L- 230+39 to 242+11	Deleted due to new JS delineation													
13	-L- 256+36 to 265+87	Deleted due to new JS delineation													
14*	-L- 264+32 to 266+94	Bridge					0.03		0.20	<0.01					
		Temp. Work Bridge							0.10						
15*	319+46 to 387+92	Bridge	0.05			*****0.93			10.48	7.79	0.13	0.03			
		Temp. Work Bridge							6.43	4.70					
16*	-L- 399+43 to 400+51	Roadway Fill	0.22												
17****	-Y5-16+25 Rt.	48" RCP													
18****	-Y5-16+25 Lt.	48" RCP													
19*	-Y7- 52+09	Culvert								<0.01	<0.01	5	39		
	-Y7 DET- 16+45	Detour Culvert			0.06				0.03		0.61		90		
20*	-Y8- 47+74 to 49+88	Bridge	<0.01				0.04		0.17						
	-Y8- 48+78 to 49+95	Temp. Work Bridge							0.14						
TOTALS:			39.96			0.06	0.96	0.07	21.25	12.49	0.20	0.63	210	149	0.00

Site 14 See Structures sheet for Bridge Impacts on Cartwheel Branch
 Site 15 Impacts for Permanent Dual Bridges CAMA=0.07 Ac, 404=0.07 Ac, Surface Water=0.0 1Ac; Total=0.15 Ac.
 Site 15 Impacts for Temporary Work Bridge CAMA=0.16 Ac, 404=0.21 Ac, Surface Water=0.0 1 Ac; Total=0.38 Ac.
 * Revised due to new JS Delineation
 ** New Site due to new JS Delineation
 *** Sites 1, 2, 17, and 18 are now permitted with R-2633AA & AB and the impacts are included with that project.
 **** A portion of Site 3 is now permitted with R-2633AA & AB and the impacts are included with that project.
 ***** Temporary Excavation. CAMA=0.41Ac, 404 =0.52 Ac.; Total=0.91 Ac.
 0.75 acres of Temp. Fill in 404 Wetlands in the Hand Clearing areas for Erosion Control Measures

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 BRUNSWICK AND NEW HANOVER COUNTIES
 WBS - 34491.1.2 (R-2633B)
73 of 73
 SHEET

Revised 7/15/14

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Utility Permit Drawing
Sheet 3 of 15
Revised 4/22/14

HC HC DENOTES HAND CLEARING

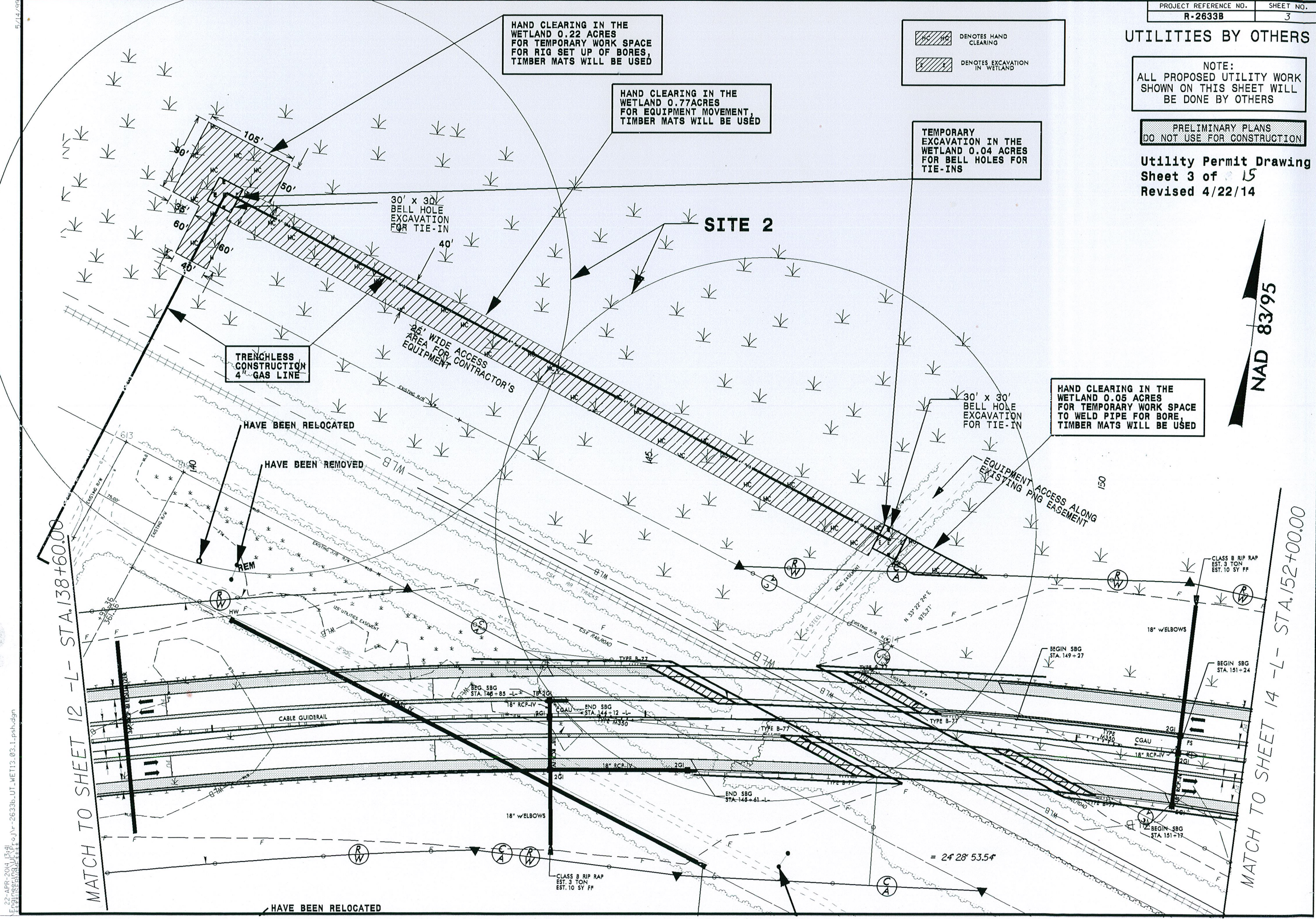
E E DENOTES EXCAVATION IN WETLAND

HAND CLEARING IN THE WETLAND 0.22 ACRES FOR TEMPORARY WORK SPACE FOR RIG SET UP OF BORES, TIMBER MATS WILL BE USED

HAND CLEARING IN THE WETLAND 0.77 ACRES FOR EQUIPMENT MOVEMENT, TIMBER MATS WILL BE USED

TEMPORARY EXCAVATION IN THE WETLAND 0.04 ACRES FOR BELL HOLES FOR TIE-INS

HAND CLEARING IN THE WETLAND 0.05 ACRES FOR TEMPORARY WORK SPACE TO WELD PIPE FOR BORE, TIMBER MATS WILL BE USED



NAD 83/95

MATCH TO SHEET 12 -L- STA.138+60.00

MATCH TO SHEET 14 -L- STA.152+00.00

E:\22-APR-2014 10:41 AM\PROJECTS\26333b\UT-WET13-03.L-psh.dgn

HAVE BEEN RELOCATED

CLASS B RIP RAP EST. 3 TON EST. 10 SY FF

= 24° 28' 53.5"

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS							SURFACE WATER IMPACTS				
			404 Permanent Fill In Wetlands (ac)	CAMA Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	404 Hand Clearing in Wetlands (ac)	CAMA 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	-Y8- 46+60	Prop. O/H Power line						0.15						
	-Y8- 48+58	Prop. Power Pole	<0.01											
	-Y8_ 46+77 ~ 48+10	Prop. Water Line				<0.01*					<0.01*		16	
	-Y8- 46+72 ~ 47+58	Prop. Force Main Sewer				<0.01*								
2	-L- 140+00~141+23	Rig set up of bores 4" gas line						0.22						
	-L- 140+36~140+74	Bell holes for tie-ins 4" gas line				0.02*								
	-L- 142+78~147+63	Equipment Movement						0.77						
	-L- 147+50~147+89	Bell holes for tie-ins 4" gas line				0.02*								
	-L- 147+75~148+80	Weld pipe for bore						0.05						
TOTALS:			<0.01		0.00	0.05	0.00	1.19	0.00	0.00	<0.01	0	16	0.00

* Temporary Excavation
 * Excavation will be set to the side and then place back into the hole.

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 BRUNSWICK AND NEW HANOVER COUNTIES
 WBS - 34491.1.2 (R-2633B)

SHEET *15 of 15*
revised 4/22/14