



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

June 26, 2015

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

ATTN: Mr. Dave Bailey
NCDOT Coordinator

SUBJECT: **Request for Modification to the Section 404 Individual Permit and Section 401 Water Quality Certification** for the proposed Greensboro Eastern Loop from US 70 Relocation to SR 2303 (Lawndale Drive), Guilford County, Division 7. WBS Element No. 34821.1.1, TIP Nos. U-2525B and U-2525C.

REFERENCE: USACE Individual Permit Action ID SAW-2005-21386, dated April 15, 2014.
USACE Individual Permit Modification Action ID SAW-2005-21386, dated October 31, 2014.
USACE Individual Permit Modification Action ID SAW-2005-21386, dated December 4, 2014.
USACE Individual Permit Modification Action ID SAW-2005-21386, dated March 12, 2015.
NCDWR Project No. 20130918, Certification No. 3978, dated February 6, 2014.
NCDWR Project No. 20130918_v2, Modification to Certification No. 3978, dated June 24, 2014.
NCDWR Project No. 20130918_v3, Modification to Certification No. 3978, dated October 15, 2014.
NCDWR Project No. 20130918_v4, Modification to Certification No. 3978, dated December 11, 2014.
NCDWR Project No. 20130918_v5, Modification to Certification No. 3978, dated March 18, 2015.

Dear Sir:

The purpose of this letter is to request a modification to the United States Army Corps of Engineers (USACE) Individual Permit and North Carolina Division of Water Resources Certification for the above referenced project. The NCDOT is submitting for approval proposed piping of two unnamed tributaries (UT) to UT at Camp Herman (Permit Sites 31 and 32A) and additional bank stabilization for Permit Sites 10 and 20A).

One of the UTs to UT at Camp Herman (Permit Site 31) runs immediately adjacent to the existing fill slope for the US 29 southbound lanes. The fill slope at this location is currently 1.5:1 to 1:1 in most locations. The original plan was to propose widening and adding a travel lane to US 29 without moving the existing toe-of-slope (thereby avoiding the stream). However, it was determined that this is not

practical from a construction standpoint (i.e. equipment access, stabilization, attempting to armor the slopes of a near vertical embankment, etc.) nor will it conform to current roadway safety standards (i.e. there is existing guardrail that will need to be replaced with the required amount of recovery area behind it). Therefore NCDOT is proposing to extend the fill slope approximately 16 feet in order to accommodate the additional travel lane, the guardrail, and necessary recovery area, while at the same time creating a more manageable slope that will not suffer from erosion and/or future maintenance issues. In order to achieve this, NCDOT proposes to pipe the existing channel (286 linear feet) under the future, widened slope.

Additionally, this stream has a confluence with another UT to UT at Camp Herman (Permit Site 32A) which is currently piped under US 29. The outlet end of this pipe is significantly perched, creating a waterfall effect. Bank stabilization for this stream was proposed in the original permit. NCDOT now proposes to extend this existing pipe in order to correct the grade/perching issue. This will result in offsetting the 28 linear feet of impact listed for Bank Stabilization with 28 linear feet for pipe extension in the Summary Table (Revised Sheet 92 of 93) for Permit Site 32A.

Additional streambank stabilization will also be necessary for Permit Site 10 (35 additional linear feet, offsetting 14 linear feet of temporary impact) and Permit Site 20A (79 additional linear feet, offsetting 29 linear feet of temporary impact). Please refer to the attached revised sheets 32, 33, 54, 55, 79, and 80 for the revised Permit Sites 10, 20A, 31 and 32A impacts. Table 1 below and the attached revised summary table (Sheets 87-93 of 93) have been revised to reflect these revisions.

Table 1. Revised U-2525B Stream Impacts (Final)

Permit Site No.	Stream Name/JD Packet ID	I/P Flow Status	Impact Type	Permanent Impacts (ft)	Impacts requiring USACE mitigation (ft)	USACE Mitigation Ratio ¹	Impacts requiring NCDWR mitigation (ft)	Temp Impacts (ft)
1	UT to South Buffalo Creek/SAF	P	Fill	1352	1352	2:1	1352	0
		I	Fill	332	332	1:1	0 ³	0
4	UT to South Buffalo Creek/SAE	P	Fill	394	394	2:1	394	153
			BS	98	0 ²	n/a	98	0
5	UT to South Buffalo Creek/SAD	P	Fill	1598	1598	2:1	1598	20
6	UT to South Buffalo Creek/SAG	I	Fill	138	138	1:1	0 ³	10
9	UT to North Buffalo Creek/SAA	P	Fill	462	462	1:1	462	10
9A	UT to North Buffalo Creek/SAJ	I	Fill	84	84	1:1	0 ³	0
10 ⁶	UT to North Buffalo Creek/SZ	P	Fill	212	212	2:1	212	15
			BS	132	0 ²	n/a	132	0
11	UT to North Buffalo Creek/SY	P	BS	18	0 ²	n/a	0 ⁴	0

Table 1. Revised U-2525B Stream Impacts (Final) continued

Permit Site No.	Stream Name/JD Packet ID	I/P Flow Status	Impact Type	Permanent Impacts (ft)	Impacts requiring USACE mitigation (ft)	USACE Mitigation Ratio ¹	Impacts requiring NCDWR mitigation (ft)	Temp Impacts (ft)
12	UT to North Buffalo Creek/SX	P	Fill	286	286	2:1	286	22
			BS	30	0 ²	n/a	30	0
13	UT to North Buffalo Creek/SW	P	Fill	137	137	2:1	0 ⁴	7
			BS	10	0 ²	n/a	0 ⁴	0
		I	Fill	32	0 ⁵	n/a	0 ³	0
14	UT to North Buffalo Creek/SV	I	Fill	347	347	1:1	0 ³	35
			BS	10	0 ²	n/a	10	0
15	UT to North Buffalo Creek/SU	P	Fill	292	292	2:1	292	26
			BS	20	0 ²	n/a	20	0
16	UT to North Buffalo Creek/SS	P	Fill	382	382	1:1	382	43
			BS	12	0 ²	n/a	12	0
17	UT to North Buffalo Creek/SR	I	Fill	51	51	1:1	0 ³	20
18	UT to North Buffalo Creek/SQ	P	Fill	241	241	2:1	241	20
			BS	30	0 ²	n/a	30	0
20	UT to North Buffalo Creek/SL	P	Fill	815	815	2:1	815	49
20A ⁶	UT to North Buffalo Creek/SL	P	Fill	236	236	1:1	236	0
			BS	79	0 ²	n/a	79	0
20B	UT to North Buffalo Creek/SM	P	Fill	29	29	2:1	0 ⁴	0
21	UT to North Buffalo Creek/SI	P	Fill	374	374	2:1	374	10
22A	UT to North Buffalo Creek/SK	I	Fill	142	142	1:1	0 ³	10
			BS	10	0 ²	n/a	0 ³	0
25	UT to North Buffalo Creek/SO	I	Fill	12	12	1:1	0 ³	10
			BS	12	0 ²	n/a	0 ³	0
26	UT to North Buffalo Creek/SI	P	Fill	319	319	2:1	319	11
			BS	12	0 ²	n/a	12	0
27	UT to North Buffalo Creek/SH	I	Fill	215	215	1:1	0 ³	10

Table 1. Revised U-2525B Stream Impacts (Final) continued

Permit Site No.	Stream Name/JD Packet ID	I/P Flow Status	Impact Type	Permanent Impacts (ft)	Impacts requiring USACE mitigation (ft)	USACE Mitigation Ratio ¹	Impacts requiring NCDWR mitigation (ft)	Temp Impacts (ft)
28	UT to North Buffalo Creek/SH	I	Fill	461	461	1:1	0 ³	0
29	UT to UT at Camp Herman/SF	P	Fill	290	290	2:1	290	4
			BS	10	0 ²	n/a	10	0
31 ⁶	UT to UT at Camp Herman /SD	P	Fill	477	477	2:1	477	27
			BS	21	0 ²	n/a	21	0
32A ⁶	UT to UT at Camp Herman/SB	P	Fill	179	179	2:1	179	25
33	UT to UT at Camp Herman/SC	I	Fill	115	115	1:1	0 ³	10
			BS	17	0 ²	n/a	0 ³	0
35	UT to UT at Camp Herman/SF	P	Fill	120	120	2:1	120	17
			BS	10	0 ²	n/a	10	0
36	UT to North Buffalo Creek/SM	P	Fill	101	101	2:1	0 ⁴	21
			BS	10	0 ²	n/a	0 ⁴	0
37	Buffalo Creek	P	Fill	0	0	n/a	0	200
TOTALS (ft)⁶				10,766	10,193		8,483	785

Notes: P = Perennial; I = Intermittent; BS = Bank Stabilization; n/a = not applicable. ¹Determined from USACE during verification site visits on October 10, 2012, December 6, 2012, and January 29, 2013. ²Mitigation for bank stabilization not required by USACE. ³Intermittent streams grandfathered from NCDWR mitigation. ⁴Mitigation not required by NCDWR (less than 150 linear feet of stream). ⁵Stream deemed unimportant by the USACE requiring no mitigation. ⁶Revised on June 22, 2015.

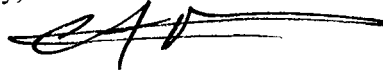
Revised compensatory mitigation requirements from the NC Division of Mitigation Services (DMS) are summarized below in Table 2 for U-2525B. The new permanent stream impacts (314 additional mitigable linear feet) at Permit Sites 31 and 32A will be mitigated at a 2:1 ratio. Compensatory mitigation requirements for U-2525C remains unchanged (see original permit application dated August 26, 2013). Please find attached the revised DMS acceptance letter.

Table 2. Revised U-2525B Required Compensatory Mitigation Summary (Final)

	Stream Impacts in Length (ft)	Riparian Wetland Impacts (ac)
Impacts Requiring Mitigation	10,193	7.55
Onsite Mitigation Credits	2,055	
Total Mitigable Impacts Less Onsite Mitigation	8,138	7.55
Required DMS Mitigation	5,161 @ 2:1	7.53 @ 2:1
	2,977 @ 1:1	0.02 @ 1:1
Total DMS Mitigation	13,299	15.08

A copy of this permit modification application and its distribution list will be posted on the NCDOT website at <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>. Thank you for your time and assistance with this project. Please contact Greg Price at either gwprice@ncdot.gov or (919) 707-6148 if you have any questions or need additional information.

Sincerely,



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

Division of Mitigation Services

Donald R. van der Vaart
Secretary

June 16, 2015

Mr. Richard W. Hancock, P.E., Manager
Project Development and 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:

U-2525B / C, Greensboro Eastern Loop from US 70 Relocation to SR 2303 (Lawndale Drive), Guilford County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream and riparian wetland mitigation for the subject project. Based on the information supplied by you on June 16, 2015, the impacts are located in CU 03030002 of the Cape Fear River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Cape Fear 03030002 CP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	20,784.0	9.95	0	0	0	0

*Some of the stream and wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This mitigation acceptance letter replaces the mitigation acceptance letter issued on September 3 and October 7, 2013 and November 21, 2014. This impact and associated mitigation need were under projected by the NCDOT in the 2014 and 2015 impact data. DMS will commit to implement sufficient compensatory stream and riparian wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

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

Sincerely,

James B. Stanfill
Asset Management Supervisor

cc: Mr. David Bailey, USACE – Raleigh Regulatory Field Office
Mr. Dave Wanucha, Division of Water Resources
Ms. Amy Chapman, Division of Water Resources
File: U-2525B/C Revised 4

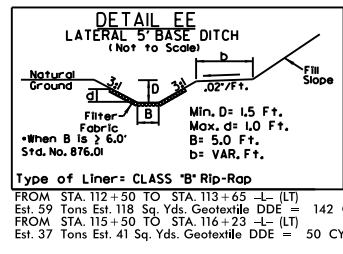
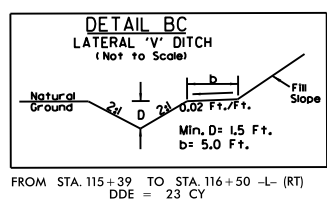
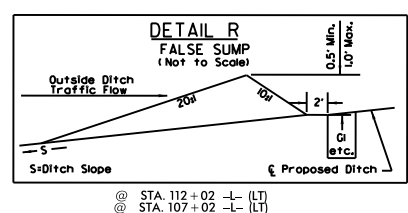
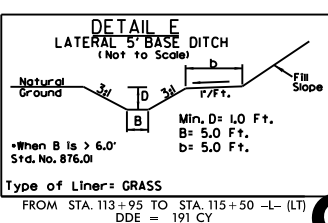
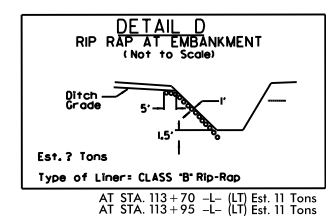
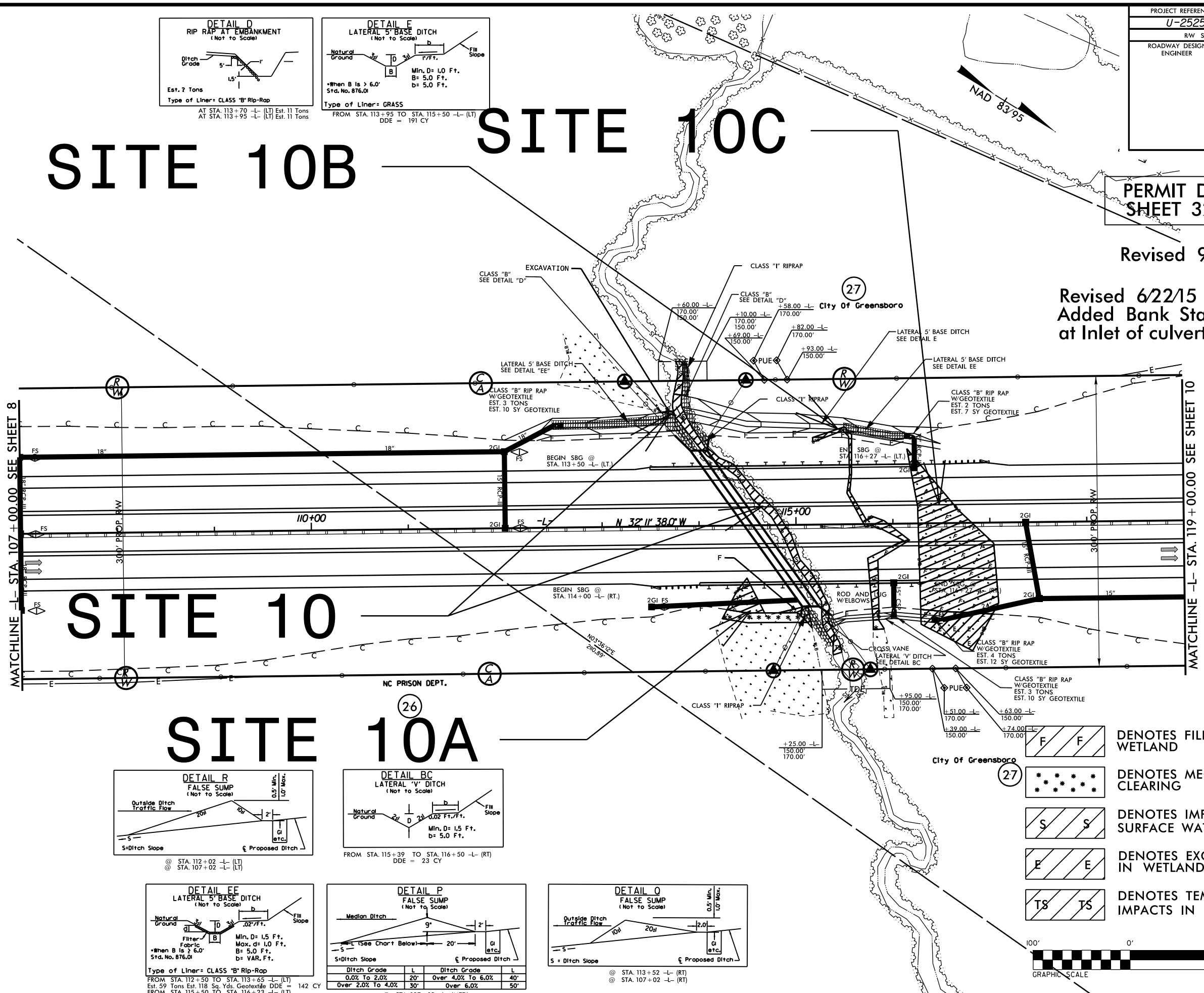
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 10B SITE 10C SITE 10A

**PERMIT DRAWING
SHEET 32 OF 93**

Revised 9/24/13

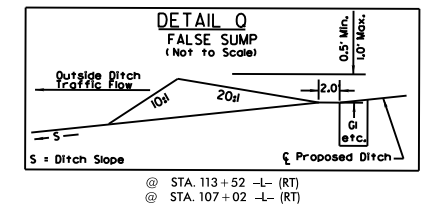
Revised 6/22/15
Added Bank Stabilization
at Inlet of culvert (Site 10)



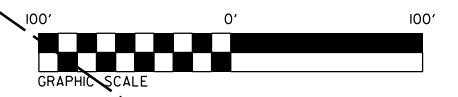
DETAIL P
FALSE SUMP
(Not to Scale)

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

S=Ditch Slope
Proposed Ditch
@ STA. 107+02 -L- (MED)
@ STA. 112+02 -L- (MED)



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



SEE SHEET 43 FOR -L- PROFILE
SEE SHEETS C-6 THRU C-10 FOR CULVERT PLANS

REVISIONS

5/14/99

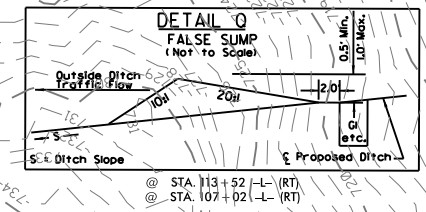
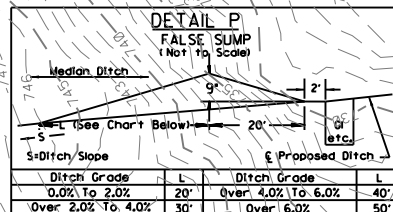
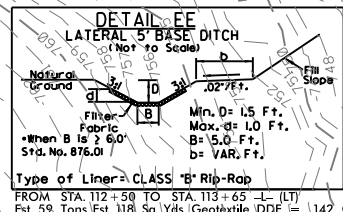
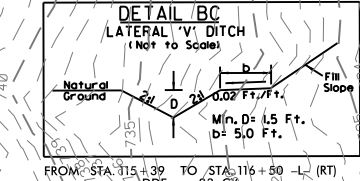
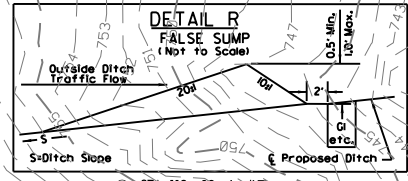
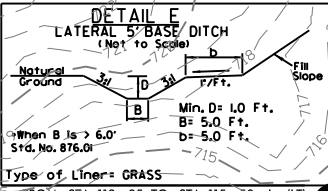
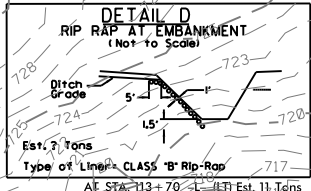
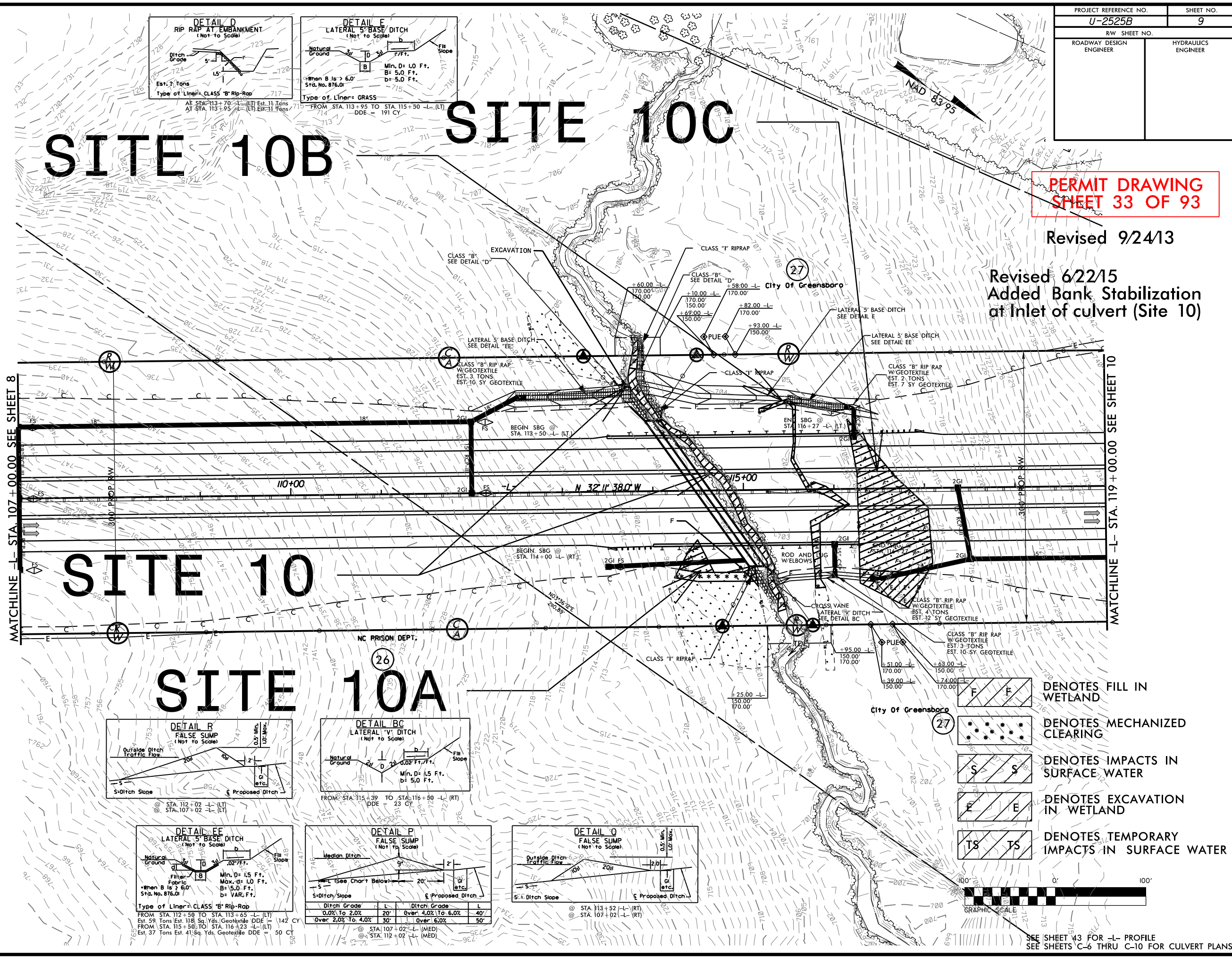
**PERMIT DRAWING
SHEET 33 OF 93**

Revised 9/24/13

Revised 6/22/15
Added Bank Stabilization
at Inlet of culvert (Site 10)

SITE 10B SITE 10C

SITE 10 SITE 10A



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



SEE SHEET 43 FOR -L- PROFILE
SEE SHEETS C-6 THRU C-10 FOR CULVERT PLANS

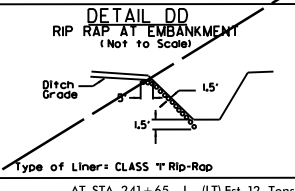
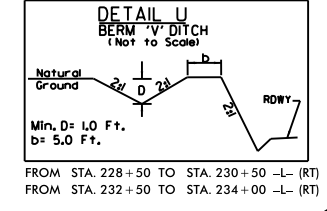
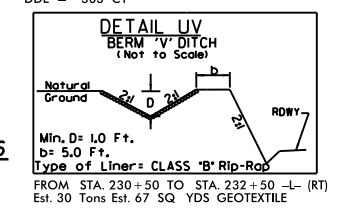
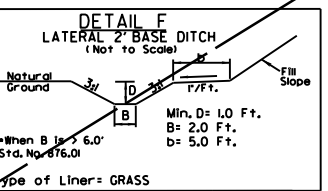
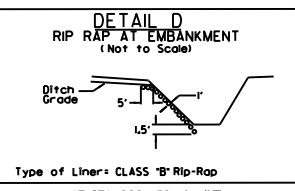
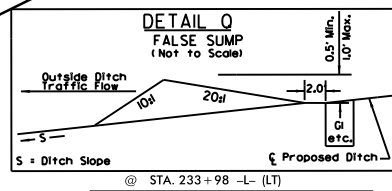
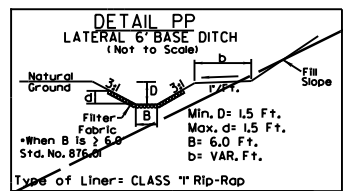
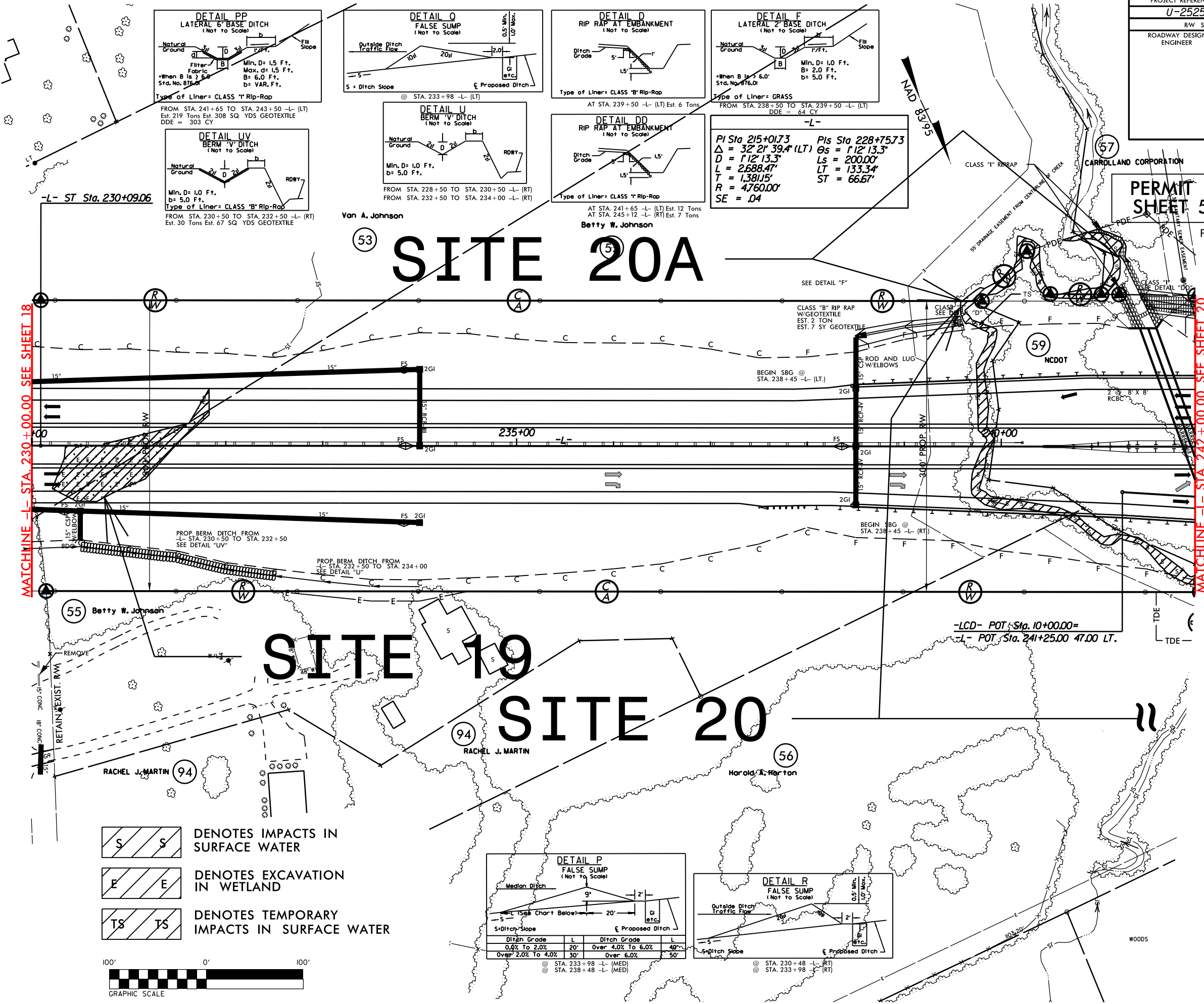
REVISIONS

5/14/99

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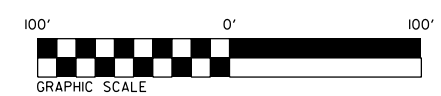
PERMIT DRAWING
SHEET 54 OF 93
Revised 06/22/15



-L-

PI Sta 215+01.73 Pls Sta 228+75.73
 $\Delta = 32' 21" 39.4" (LT)$ $\Theta_s = 1' 12" 13.3"$
 $D = 1' 12" 13.3"$ $L_s = 200.00'$
 $L = 2,688.47'$ $LT = 133.34'$
 $R = 1,381.5'$ $ST = 66.67'$
 $SE = .04$

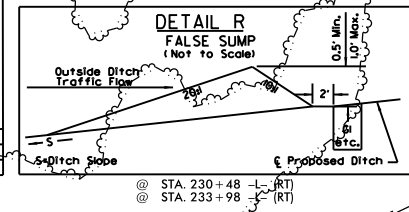
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- DENOTES EXCAVATION IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DETAIL P
FALSE SUMP
(Not to Scale)

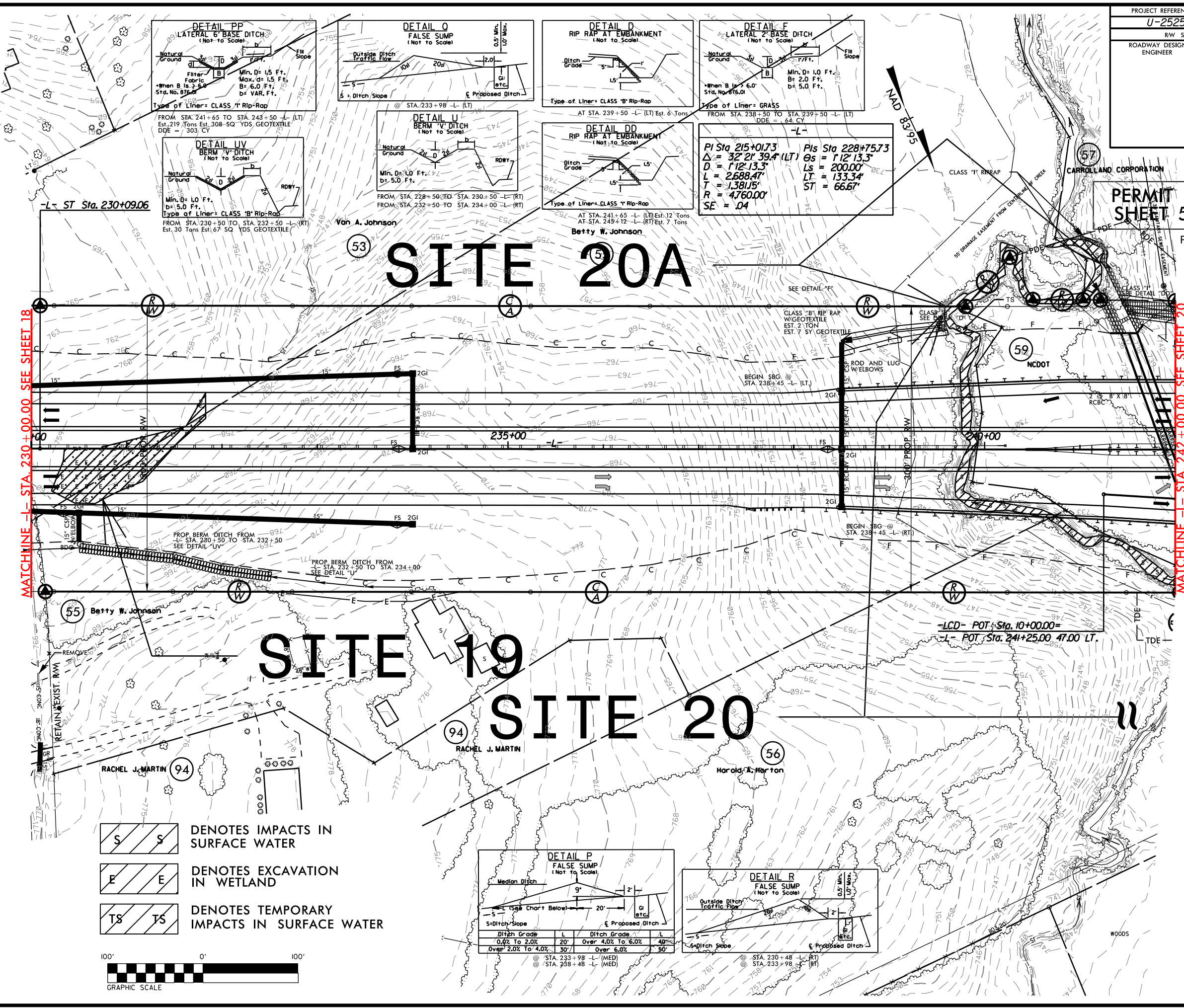
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0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 233+98 -L- (MED)
@ STA. 238+48 -L- (MED)



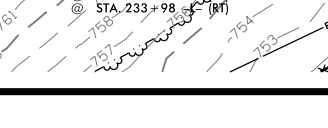
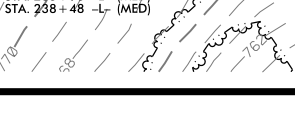
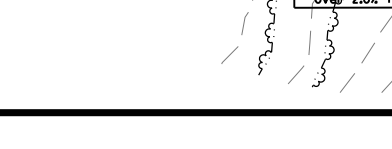
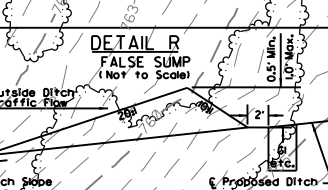
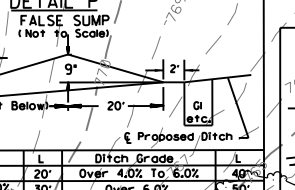
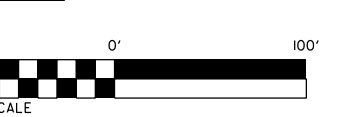
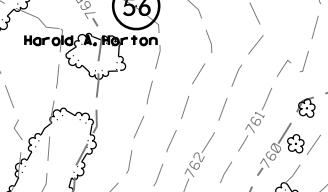
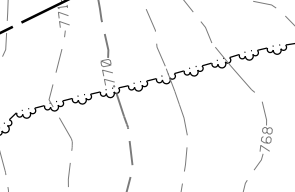
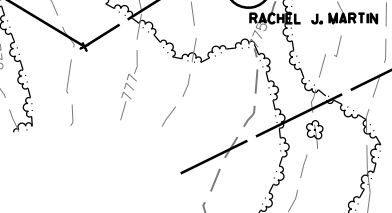
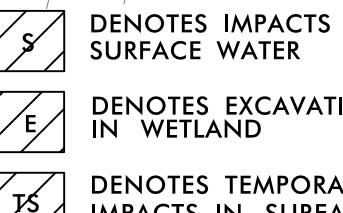
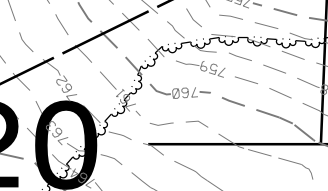
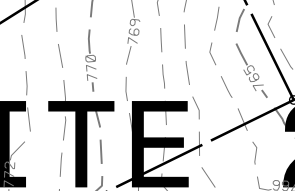
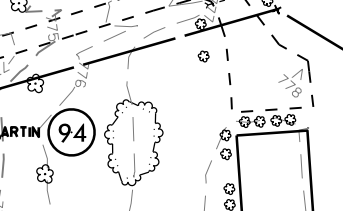
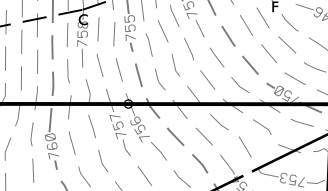
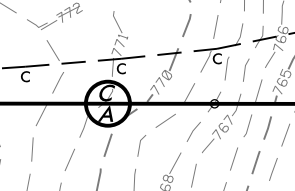
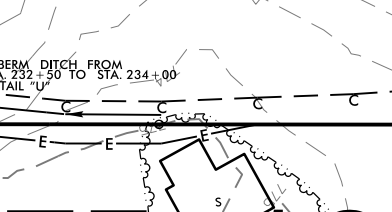
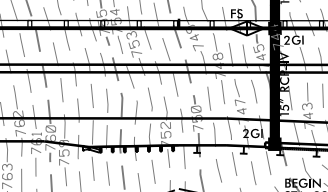
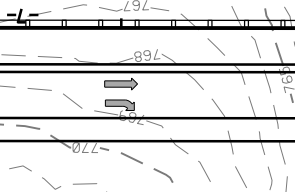
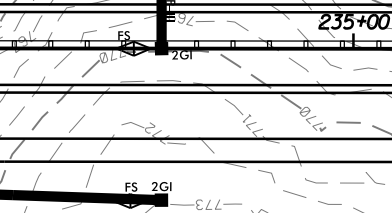
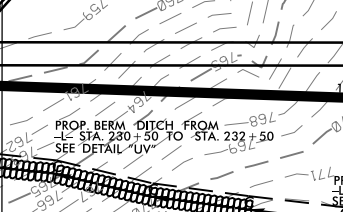
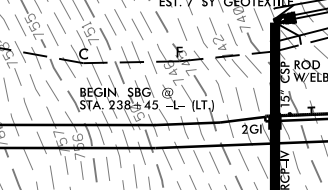
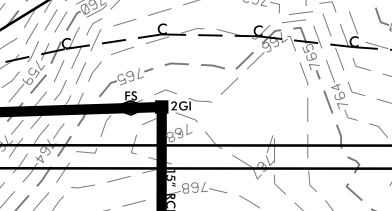
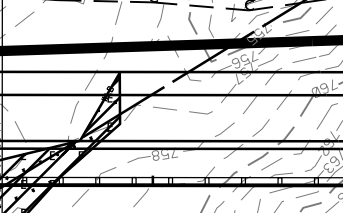
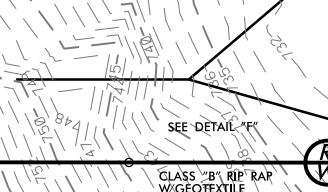
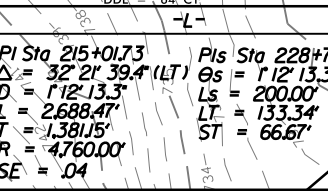
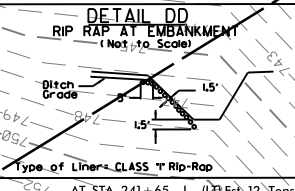
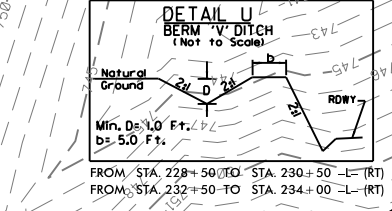
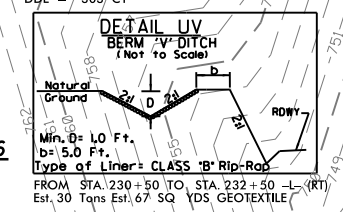
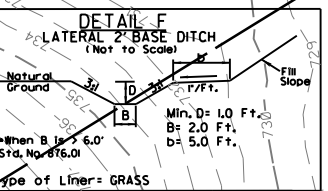
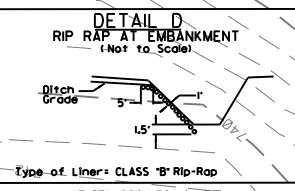
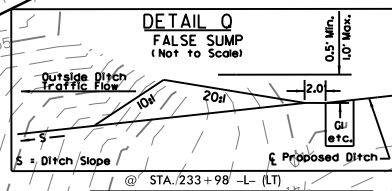
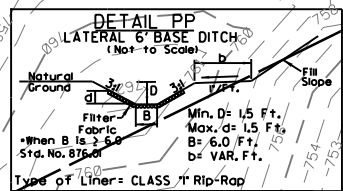
PERMIT DRAWING SHEET 55 OF 93

Revised 06/22/15



MATCHLINE -L- STA. 230+00.00 SEE SHEET 18

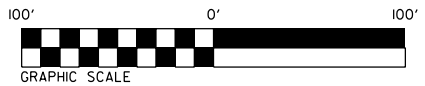
MATCHLINE -L- STA. 242+00.00 SEE SHEET 20



S DENOTES IMPACTS IN SURFACE WATER

E DENOTES EXCAVATION IN WETLAND

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DETAIL P
FALSE SUMP
(Not to Scale)

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

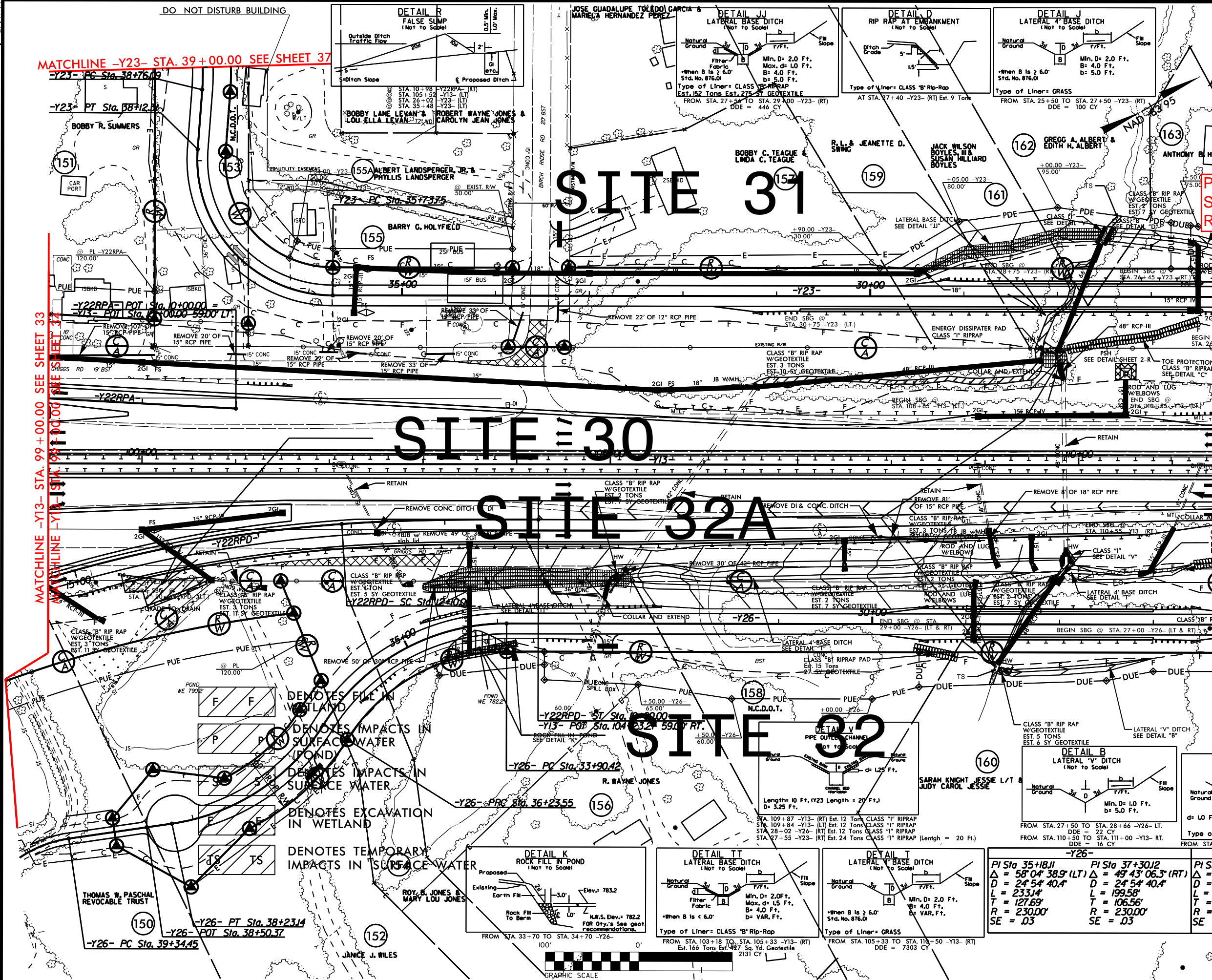
© STA. 233+98 -L- (MED)
© STA. 238+48 -L- (MED)

DETAIL R
FALSE SUMP
(Not to Scale)

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

© STA. 230+48 -L- (RT)
© STA. 233+98 -L- (RT)

5/14/99

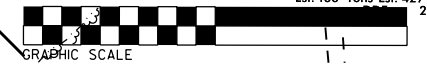


MATCHLINE -Y13- STA. 99+00.00 SEE SHEET 33

MATCHLINE -Y13- STA. 113+00.00 SEE SHEET 35

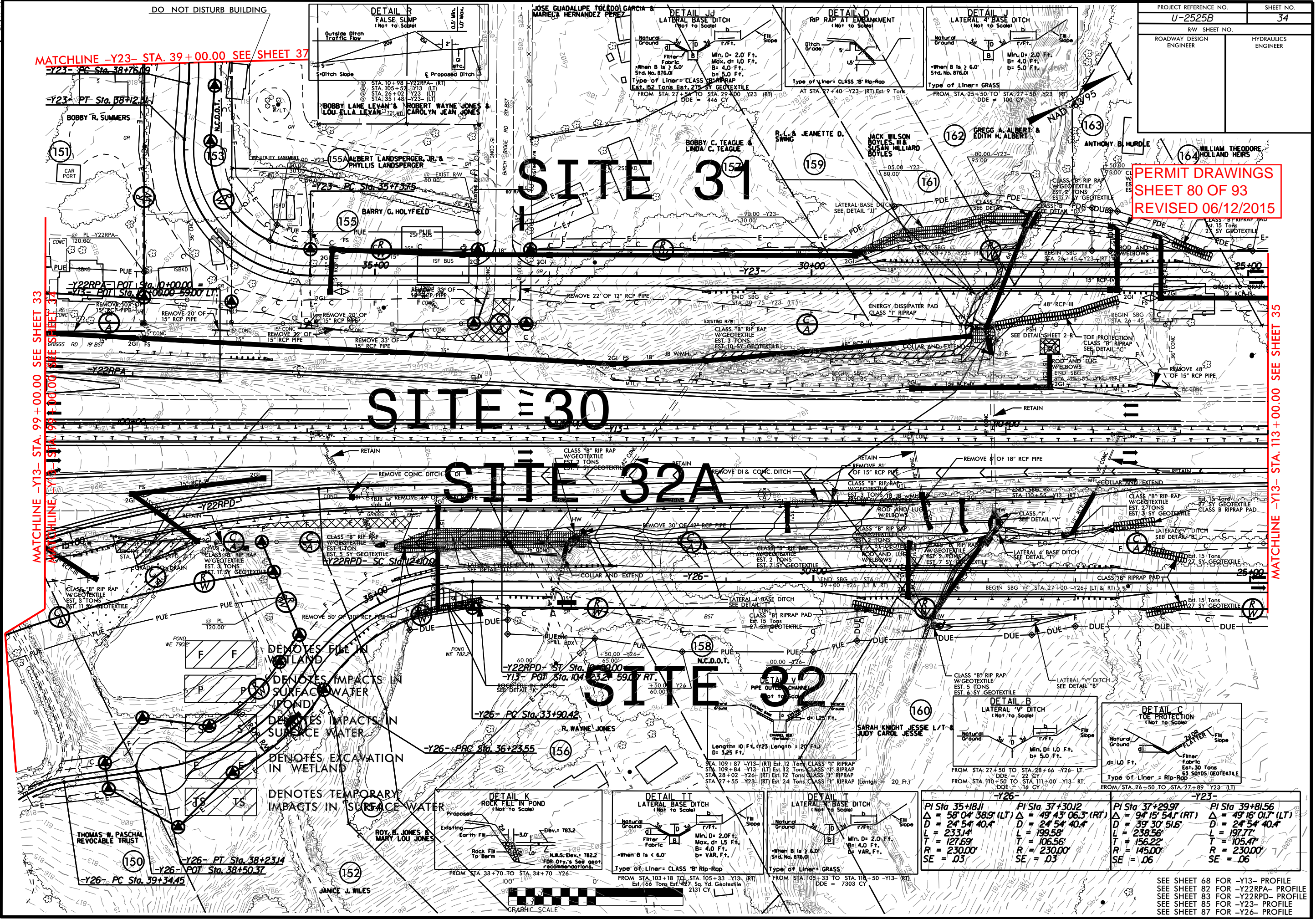
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

-Y26-		-Y23-	
PI Sta 35+18.11	PI Sta 37+30.12	PI Sta 37+29.97	PI Sta 39+81.56
$\Delta = 58' 04" 38.9" (LT)$	$\Delta = 49' 43" 06.3" (RT)$	$\Delta = 94' 15" 54.1" (RT)$	$\Delta = 49' 16" 01.7" (LT)$
$D = 24' 54" 40.4"$	$D = 24' 54" 40.4"$	$D = 39' 30" 51.6"$	$D = 24' 54" 40.4"$
$L = 233.14'$	$L = 199.58'$	$L = 238.56'$	$L = 197.77'$
$T = 127.69'$	$T = 106.56'$	$T = 156.22'$	$T = 105.47'$
$R = 230.00'$	$R = 230.00'$	$R = 145.00'$	$R = 230.00'$
$SE = .03$	$SE = .03$	$SE = .06$	$SE = .06$



SEE SHEET 68 FOR -Y13- PROFILE
 SEE SHEET 82 FOR -Y22RPA- PROFILE
 SEE SHEET 83 FOR -Y22RPD- PROFILE
 SEE SHEET 85 FOR -Y23- PROFILE
 SEE SHEET 87 FOR -Y26- PROFILE

**PERMIT DRAWINGS
SHEET 80 OF 93
REVISED 06/12/2015**



MATCHLINE -Y13- STA. 99+00.00 SEE SHEET 33

MATCHLINE -Y13- STA. 113+00.00 SEE SHEET 35

DENOTES FILL IN WETLAND
 DENOTES IMPACTS IN POND
 DENOTES IMPACTS IN SURFACE WATER
 DENOTES EXCAVATION IN WETLAND
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

-Y26- PI Sta 35+18.11 $\Delta = 58' 04" 38.9"$ (LT) $D = 24' 54" 40.4"$ $L = 233.14'$ $T = 127.69'$ $R = 230.00'$ $SE = .03$	-Y26- PI Sta 37+30.12 $\Delta = 49' 43" 06.3"$ (RT) $D = 24' 54" 40.4"$ $L = 199.58'$ $T = 156.22'$ $R = 230.00'$ $SE = .03$	-Y26- PI Sta 37+29.97 $\Delta = 94' 15" 54.1"$ (RT) $D = 39' 30" 51.6"$ $L = 238.56'$ $T = 105.22'$ $R = 145.00'$ $SE = .06$	-Y23- PI Sta 39+81.56 $\Delta = 49' 16" 01.7"$ (LT) $D = 24' 54" 40.4"$ $L = 197.77'$ $T = 105.47'$ $R = 230.00'$ $SE = .06$
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SEE SHEET 68 FOR -Y13- PROFILE
 SEE SHEET 82 FOR -Y22RPA- PROFILE
 SEE SHEET 83 FOR -Y22RPD- PROFILE
 SEE SHEET 85 FOR -Y23- PROFILE
 SEE SHEET 87 FOR -Y26- PROFILE

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	27+25 -Y3RPA- (RT) TO 47+94 -L- (LT)	30" RCP	0.57		0.04			0.09		1684		
1A	24+84 -Y3RPA- (LT) 12+26 -Y3RPA- (LT)		0.03									
1B	37+76 -L- (LT) TO 38+18 -L- (LT)		0.01									
2	24+84 -Y3RPD- (LT)	24" RCP	0.05			<0.01						
3	38+87 -L- (LT) TO 40+30 -L- (LT)		0.12									
3A	41+86 -L- (RT) TO 43+15 -L- (LT)		0.03									
3B	44+26 -L- (LT) TO 44+86 -L- (LT)		0.02									
3C	46+46 -L- (LT) TO 47+70 -L- (RT)		0.25		0.02	0.02						
SUBTOTALS:			1.08		0.06	0.03		0.09		1684		

**PERMIT DRAWINGS
SHEET 87 OF 93**

NOTE: Rounded totals are based upon sum of actual impacts.
Also, Site 1 has 332 linear feet of intermittent stream at 1:1 mitigation; 1352 linear feet of perennial stream at 2:1 mitigation.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
WBS - 34821.1.1 (U-2525B)

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)
4	48+65 -L-	2 @ 9' X 9' RCBC	0.02					0.10	0.04	394	153	
	Bank Stabilization									98		
5	59+31 -L- (RT) TO	66" RCP, 24" RCP, &						0.09	<0.01	1117	20	
	81+35 -L- (LT)	42" RCP										
	Restoration							0.04		481		1307
5A	66+14 -L- (LT) TO		0.08									
	68+72 -L- (LT)											
5B	70+32 -L- (LT) TO		0.02									
	71+59 -L- (LT)											
6	21+56 -Y4 RPB-(LT) TO		0.03					0.01		138	10	
	22+00 -Y4 RPB- (RT)											
6A	22+11 -RPB-(RT) TO		0.05			<0.01						
	22+75 -RPB-(RT)											
7	77+25 -L-(LT) TO		1.29		0.05	0.03						
	25+57 -RPC-(RT)											
8	93+50 -L- TO		0.83			0.09						
	95+95 -L-(LT)											
SUBTOTALS:			2.32		0.05	0.12		0.24	0.04	2228	183	1307

PERMIT DRAWINGS
SHEET 88 OF 93

Revised 10/15/13

NOTE: Rounded totals are based upon sum of actual impacts.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
WBS - 34821.1.1 (U-2525B)

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)	
8A	33+23 -EY4-				<0.01								
9	95+78 -L- (LT) TO 102+77 -L-(RT)	15" RCP	2.01			0.15		0.03	<0.01	462	10		
9A	101+78 -L- (LT) TO 102+19 -L-(LT)	42" RCP						<0.01		84			
10	113+64 -L- (LT) TO 117+08 -L-(RT) Bank Stabilization	2 @ 7' X 8' RCBC			<0.01			0.03		212	15		
10A	114+23 -L- (RT) TO 115+15 -L-(RT)		0.02			0.02							
10B	115+19 -L- (LT) TO 116+17 -L-(RT)		0.03		<0.01	<0.01							
10C	116+15 -L- (LT) TO 117+08 -L-(RT)		0.25		0.04								
11	123+22 -L-(LT) 127+94 -L-(RT) 123+22 -L- (LT) TO		0.33										
11A	13+02 -Y7-(RT) TO 13+93 -Y7- (RT)	CL II BENT PROTECTION	<0.01							18			
SUBTOTALS:			2.65		0.05	0.17		0.06	<0.01	908	25		

**PERMIT DRAWINGS
SHEET 89 OF 93**

NOTE: Rounded totals are based upon sum of actual impacts.

Revised 11/20/14 SITE 11A CL II BENT PROTECTION
Revised 6/22/15 SITE 10 added bank stabilization

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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WBS - 34821.1.1 (U-2525B)

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)
12	156+90 -L- Bank Stabilization	66" RCP						0.03	<0.01	286	22	
										30		
13	174+72 -L- (RT) Bank Stabilization	DUAL BRIDGES	0.02			0.01		0.01		*169	7	
										10		
14	182+76 -L- Bank Stabilization	48" RCP						0.03	<0.01	347	35	
										10		
15	189+55 -L- Bank Stabilization	60" RCP						0.03	<0.01	292	26	
										20		
16	195+35 -L- Bank Stabilization	66" RCP	<0.01					0.05	<0.01	382	43	
										12		
17	14+26 -Y10A- (RT)	15" RCP						<0.01	<0.01	51	20	
18	218+00 -L- TO 219+51 -L- (RT) POND Bank Stabilization Restoration	2 @ 7' X 8' RCBC	0.03			0.01		0.03	<0.01	241	10	
								0.04		30		
19	230+21 -L- (RT) TO 230+83 -L- (LT)				0.14				<0.01		10	386
20	239+57 -L- (LT) TO 245+33 -L- (RT) Relocation	2 @ 8' X 8' RCBC						0.09	<0.01	520	39	
								0.06	<0.01	295	10	362
SUBTOTALS:			0.05		0.14	0.02		0.46	0.03	2695	222	748

**PERMIT DRAWINGS
SHEET 90 OF 93**

NOTE: Rounded totals are based upon sum of actual impacts.

*SITE 13 - Has 32 feet of non-migitable stream impact.

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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)
20A	239+59 -L- (LT) TO 241+22 -L- (LT) Bank Stabilization							0.04	<0.01	236		
20B	11+05 -LCD- (RT) TO 11+57 -LCD-		0.02					<0.01		29		
21	16+35 -Y13LPD-	24" RCP	0.34			0.04		0.03	<0.01	374	10	
22	17+40 -Y13RPB- (RT) TO 17+81 -Y13RPB- (RT)		0.03									
22A	16+67 -Y13RPB- (LT) TO 17+13 -Y13RPB- (LT) Bank Stabilization	36" RCP	0.02					0.01	<0.01	142	10	
22B	17+21 -Y13RPB- (LT) TO 17+46 -Y13RPB- (LT)		0.01									
23	16+35 -Y4A- (RT)	18" RCP	0.02				<0.01					
24	36+00 -Y4-	36" RCP	0.19				0.02					
25	33+80 -Y11- (RT) Bank Stabilization	24" RCP							<0.01	12	10	
26	29+38 -Y13RPC- Bank Stabilization	60" RCP						0.03	<0.01	319	11	
SUBTOTALS:			0.62			0.04	0.03	0.11	0.01	1225	41	

**PERMIT DRAWINGS
SHEET 91 OF 93**

NOTE: Rounded totals are based upon sum of actual impacts.

SITE 20A requires 1:1 mitigation.
 SITE 23 & 24 Have <0.01 ac. of Temp. Fill in Wetlands in Hand Clearing areas for erosion control measures.
 Revised 6/22/15 - added bank stabilization Site 20A

NC DEPARTMENT OF TRANSPORTATION
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WBS - 34821.1.1 (U-2525B)

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)
27	50+09-LACFLY- (RT)TO 51+53-LACFLY- (LT)	54" RCP	0.10					0.01	<0.01	215	10	
28	31+25 -Y21- (RT) TO 27+81-Y21- (RT) POND	30" RCP						0.03		461		
								0.58				
29	22+88 -Y22RPA- Bank Stabilization	30" RCP & 18" RCP						0.02	<0.01	290 10	4	
30	13+63 -Y22 RPD- TO 15+35 -Y22 RPD-	15" RCP W/ 2GI	0.03		<0.01							
31	16+35 -Y23- Bank Stabilization	66" RCP						0.03	<0.01	477 21	27	
32	34+30 -Y26- (LT)	12" RCP						0.03				
32A	28+37 -Y26-	48" RCP						0.01	<0.01	179	25	
33	22+14 -Y26- Bank Stabilization	48" RCP						0.01	<0.01	115 17	10	
34	16+03 -Y23-	24" RCP	<0.01									
SUBTOTALS:			0.14		<0.01			0.74	<0.01	1785	76	

NOTE: Rounded totals are based upon sum of actual impacts.

**PERMIT DRAWINGS
SHEET 92 OF 93**

Revised 6/22/15 - PERMIT SITE 31 AND
32A

NC DEPARTMENT OF TRANSPORTATION
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GUILFORD COUNTY
WBS - 34821.1.1 (U-2525B)

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)	
35	48+53 -Y23- Bank Stabilization	36" RCP							<0.01	<0.01	120 10	17	
36	18+48 -Y21A- Bank Stabilization	54" RCP	<0.01						<0.01	<0.01	101 10	21	
37		TEMPORARY STREAM CROSSINGS										200	
THIS SHEET SUBTOTALS:			<0.01						<0.01	<0.01	241	238	
SUBTOTALS OF ALL OTHER:			6.86	0.00	0.31	0.38	0.03	1.70	0.09	10525	547	2055	
TOTALS:			6.86	0.00	0.31	0.38	0.03	1.72	0.10	10766	785	2055	

**PERMIT DRAWINGS
SHEET 93 OF 93**

Revised 10/01/14
Revised 11/20/14 SITE 11A CL II BENT PROTECTION
Revised 2/20/15 - PERMIT SITE 37

Revised 6/22/15 - Totals Accordingly

NOTE: Rounded totals are based upon sum of actual impacts.

NC DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GUILFORD COUNTY

WBS - 34821.1.1 (U-2525B)