



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

JAMES H. TROGDON, III  
SECRETARY

November 13, 2019

U. S. Army Corps of Engineers  
Asheville Regulatory Field Office  
151 Patton Avenue, Room 208  
Asheville, NC 28801-5006

N. C. Department of Environmental Quality  
Transportation Permitting Branch  
1617 Mail Service Center  
Raleigh NC 27699-1617

ATTN: Ms. Nicholle Braspenickx  
NCDOT Division 10 Coordinator

Ms. Amy Chapman  
Transportation Permitting Branch Supervisor

Subject: **Request for Modification of Section 404 General Permit No. 198200031 and Section 401 Water Quality Certification, and lifting of Notice of Violation Status** for the Interstate 85 (I-85) widening and interchange improvements from north of NC 73 to north of SR 1280, Cabarrus and Rowan Counties, Divisions 9 and 10. Federal Aid Project No. NHIMF-085-2(61)55, TIP I-3802A.

**Reference:** 1) Section 404 General Permit No. 198200031 (GP 31), Action ID No. SAW-2008-03229, issued July 6, 2015; re-issued January 13, 2017 and January 9, 2018.

2) Section 401 General Water Quality Certification No. 3886, NCDWR Project No. 20150362v.2, issued June 29, 2015; modified March 22, 2016, Project No. 20150362v.3; modified January 30, 2017, Project No. 20150362v.4; modified February 5, 2018, Project No. 20150362v.5.

3) Notice of Violation, NCDWR Project No. 20150362, dated October 22, 2019

Dear Madam:

The North Carolina Department of Transportation (NCDOT) requests modification to the existing General Permit No. 198200031 and associated Water Quality Certification for widening and interchange improvements along I-85 in Cabarrus and Rowan Counties. This project is currently under construction.

Revisions have been made to seventeen impact sites and are discussed in detail below. Two new impact sites are also discussed below (Site 36 and the Troutman waste site).

Previously-authorized permanent stream impacts for the entire project, including all previous permit modifications, totaled 4,241 linear feet, which included 1,006 linear feet of bank stabilization. Previously-authorized temporary stream impacts totaled 674 linear feet. Previously-authorized wetland impacts included 0.34 acre of permanent impacts, no temporary impact, and 0.08 acre of hand clearing.

The revised project impacts total 4,393 linear feet of permanent stream impacts (which includes 854 linear feet of stream bank stabilization impacts), 796 linear feet of temporary stream impacts, 0.34 acre of permanent wetland impacts, 0.01 acre of temporary wetland impacts, and 0.09 acre of hand clearing in wetlands. There are 72 linear feet of permanent stream impacts located in the Troutman waste area that were not included in the Wetland Permit Impact Summary sheets but are included in the total listed above.

This modification will result in 0.01 acre of additional temporary wetland fill impacts, 304 linear feet of additional permanent stream impacts, and 7 linear feet of additional temporary stream impacts. There will be 152 linear feet less stream bank stabilization impacts than previously permitted.

Please see the enclosed revised permit drawings where drainage revisions and/or field changes resulted in changes to permitted impacts. There are two additional impact sites; one (Site 36) is included in the revised permit drawings and the other (Troutman Waste Area Site 1) is shown on the last drawing attached. Permit impact sites where no changes were made to the drainage design or type of impact are not included in the revised permit drawings. All changes to previously permitted impacts and the two additional impact sites are summarized below.

#### Permit Impact Site Modifications (shown in revised permit drawings)

Site 10 (Sheet 15) – The permitted drainage design included a channel change with rip rap only on the banks for stream SDAA. Class I rip rap was installed in the bottom of the channel change for 300 linear feet to provide additional stabilization to address stability concerns. Also, the channel change was shortened by 20 linear feet to make a smoother transition to existing stream channel. Permanent stream impacts were reduced from 666 linear feet to 646 linear feet, which is 20 linear feet of less impacts.

Site 21 (Sheet 36) – The original drainage design attempted to minimize impacts by limiting bank stabilization for stream SCZA to 15 linear feet at the pipe outlet. During construction, the contractor inadvertently cleared an additional 67 linear feet of stream bank, which then required additional bank stabilization. Class I rip rap was later installed in the stream bed for the entire length of the channel to address erosion issues. Permanent stream impacts increased from 210 linear feet to 277 linear feet, which is 67 linear feet of additional impacts. The 15 linear feet of stream bank stabilization impacts from the original design are accounted for in the additional 67 linear feet of permanent stream impacts, therefore stream bank stabilization impacts are reduced to 0 linear feet at this site. Temporary stream impacts were reduced from 20 linear feet to 0 linear feet.

Site 28 (Sheet 28) – To provide additional stabilization, Class II rip rap was placed in the bed of the channel change for stream SFE on the upstream end of the crossing and existing channel bed downstream. Stream bank stabilization impacts decreased from 73 linear feet to 44 linear feet, which is 29 linear feet of less impacts. Permanent stream impacts decreased from 119 linear feet to 116 linear feet, which is 3 linear feet of less impacts. Temporary stream impacts increased from 29 linear feet to 58 linear feet, which is 29 linear feet of additional impacts.

Site 30 (Sheet 29) – The drainage design was revised to allow for maintenance of flow during the installation of a replacement culvert. This required modifying the stream SGA channel at the culvert inlet and an addition of a channel change at the outlet end of the culvert. Permanent stream impacts increased from 44 linear feet to 134 linear feet, which is 90 linear feet of additional impacts. Stream bank stabilization impacts decreased from 71 linear feet to 0 linear feet. Temporary stream impacts increased from 21 linear feet to 25 linear feet, which is 4 linear feet of additional impacts.

Site 31 (Sheet 29) –The drainage design was revised to allow for maintenance of flow during the installation of a replacement culvert. This required modifying the stream SGAD channel at the culvert inlet. Permanent stream impacts increased from 37 linear feet to 116 linear feet, which is 79 linear feet of additional impacts. Temporary stream impacts decreased from 11 linear feet to 5 linear feet, which is 6 linear feet less of impacts.

Site 36 (Sheet 34) –This site has been added to account for impacts resulting from the extension of an existing 36” pipe and installation of Class I rip rap in the stream bed at the pipe outlet. The pipe is located at the edge of the study limits and the stream was not identified in the original Jurisdictional Determination (JD). Permanent stream impacts increased from 0 linear feet to 61 linear feet. Also, a temporary sediment basin was added inadvertently in wetland WYB at the upstream end of the existing pipe crossing, resulting in 0.01 acre of temporary fill wetland impacts.

Troutman Waste Area Site 1 (Last Sheet) – The contractor inadvertently impacted a jurisdictional stream with fill. This was identified by the North Carolina Division of Water Resources (NCDWR) representative during a site visit. A 24” pipe was later installed to maintain flow in the stream. An additional 72 linear feet of permanent stream impacts were created.

#### Additional Permit Impact Site Modifications

Site 1 (Sheet 5) – Stream bank stabilization impacts to stream UTK increased from 15 linear feet to 21 linear feet, which is 6 linear feet of additional impacts.

Site 4 (Sheet 10) – The bank stabilization was extended downstream to stabilize a section of undercut channel bank at the direction of NCDOT Division personnel. Stream bank stabilization impacts to stream SBB increased from 14 linear feet to 30 linear feet, which is 16 linear feet of additional impacts.

Site 12 (Sheet 16) – Field measurements conducted after construction indicated changes in impact quantities. Stream bank stabilization impacts to stream SDA decreased from 22 linear feet to 9 linear feet, which is 13 linear feet of less impacts.

Site 15 (Sheet 18) – Field measurements conducted after construction indicated changes in impact quantities. Permanent stream impacts to stream SDBA were reduced from 83 linear feet to 80 linear feet, which is 3 linear feet less impacts. Stream bank stabilization impacts increased from 20 linear feet to 28 linear feet, which is 8 linear feet of additional impacts.

Site 17 (Sheet 20) – Field measurements conducted after construction indicated changes in impact quantities. Stream bank stabilization impacts stream SED increased from 16 linear feet to 22 linear feet, which is 6 linear feet of additional impacts.

Site 17A (Sheet 21) – Bank stabilization for stream SEA at this location was eliminated at the direction of NCDOT Division personnel due to the presence of natural rock on the existing stream banks. The resulted in a decrease of 8 linear feet of stream bank stabilization impacts.

Site 20 (Sheet 20) – Field measurements conducted after construction indicated changes in impact quantities. Stream bank stabilization impacts to stream SFB were reduced from 22 linear feet to 10 linear feet, which is 12 linear feet of less impacts.

Site 23 (Sheet 37) – Field measurements conducted after construction indicated changes in impact quantities. Permanent stream impacts to stream SYA were reduced from 135 linear feet to 128 linear feet, which is 7 linear feet of less impacts.

Site 25 (Sheet 26) – Field measurements conducted after construction indicated changes in impact quantities. Permanent stream impacts to stream SFC were reduced from 63 linear feet to 46 linear feet, which is 17 linear feet of less impacts.

Site 27 (Sheet 28) – Field measurements conducted after construction indicated changes in impact quantities. Permanent stream impacts to stream SFD were reduced from 70 linear feet to 64 linear feet, which is 6 linear feet of less impacts.

Site 29 (Sheet 29) – Field measurements conducted after construction indicated changes in impact quantities. Permanent stream impacts to stream SGC were reduced from 128 linear feet to 119 linear feet, which is 9 linear feet of less impacts.

Site 32 (Sheet 30) – Field measurements conducted after construction indicated changes in impact quantities. Stream bank stabilization impacts to stream SG-1 were reduced from 106 linear feet to 66 linear feet, which is 40 linear feet of less impacts.

Revised Compensatory Mitigation

The North Carolina Division of Mitigation Services (NCDMS) previously provided compensatory mitigation for 3,048 linear of permanent stream impacts and 0.34 acre of permanent riparian wetland impacts, as referenced in the January 9, 2018 GP 31 re-issued permit from the United States Army Corps of Engineers (USACE) and the February 5, 2018 401 WQC modification from NCDWR.

Of the revised permanent stream impacts totaling 4,393 linear feet for this modification, 854 linear feet are the result of bank stabilization and are not considered loss of waters and therefore do not require mitigation from USACE or NCDWR (see Table 1 attached). As shown in previous permits, an additional 187 linear feet at Site 19 did not require mitigation. Therefore, impacts that require mitigation for this project, now totals 3,352 linear feet of permanent stream impacts. This modification will require additional mitigation of 304 linear feet of streams. There are no additional permanent wetland impacts, therefore no additional wetland mitigation is required.

The 304 linear feet of required stream mitigation will be provided by the NCDMS. NCDOT will forward this acceptance once it is received.

By way of this modification request, NCDOT also requests the lifting of the Notice of Violation for this project.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact me at [maturchy@ncdot.gov](mailto:maturchy@ncdot.gov) or (919) 707-6157.

Sincerely,



*for* Philip S. Harris III, P.E., C.P.M.  
Environmental Analysis Unit Head

cc:  
NCDOT Permit Application Standard Distribution List



Table 1. I-3802A permit sites where revisions have been made to previously permitted impacts and the additional mitigation required.

Permanent Stream Impacts		Previously permitted (lf)	Revised Impacts (lf)	Difference (lf)	Additional Stream Mitigation	
Permit Site	Type				Additional USACE Stream Mitigation Required	Additional NCDWR Stream Mitigation Required
1	Bank Stabilization	15	21	6	0	0
4	Bank Stabilization	14	30	16	0	0
10	Channel Change	666	646	-20	-20	0
12	Bank Stabilization	22	9	-13	0	0
15	Bank Stabilization	20	28	8	0	0
15	Culvert extension and fill	83	80	-3	-3	0
17	Bank Stabilization	16	22	6	0	0
17A	Bank Stabilization	8	0	-8	0	0
20	Bank Stabilization	22	10	-12	0	0
21	Bank Stabilization	15	0	-15	0	0
21	Fill	210	277	67	67	0
23	Fill	135	128	-7	-7	0
25	Channel Change	63	46	-17	-17	0
27	Culvert extension and channel change	70	64	-6	-6	0
28	Bank Stabilization	73	44	-29	0	0
28	Culvert extension and channel change	119	116	-3	-3	0
29	Culvert extension and outfall channel	128	119	-9	-9	0
30	Channel change and riprap	44	134	90	90	0
	Bank Stabilization	71	0	-71	0	0
31	Channel change and riprap	37	116	79	79	0
32	Bank Stabilization	106	66	-40	0	0
36 (new site)	Culvert extension and riprap	0	61	61	61	0
Troutman (new site)	Culvert extension	0	72	72	72	0
	<b>Project Stream Impact Revision</b>			<b>152</b>	<b>304</b>	<b>0</b>
	<b>Total Permanent Stream Impact Revision</b>			<b>304</b>	-	-
	<b>Bank Stabilization Impacts Revision</b>			<b>-152</b>	-	-
Temporary Stream Impacts		Previously permitted (lf)	Revised Impacts (lf)	Difference (lf)		
Permit Site	Type					
21	Temporary Stream Impacts	20	0	-20		
28	Temporary Stream Impacts	29	58	29		
30	Temporary Stream Impacts	21	25	4		
31	Temporary Stream Impacts	11	5	-6		
<b>TOTALS</b>				<b>7</b>		
Temporary Wetland Impacts		Previously permitted (ac)	Revised Impacts (ac)	Difference (ac)		
Permit Site	Type					
36	Temporary fill	<b>0</b>	<b>0.01</b>	<b>0.01</b>		



NORTH CAROLINA  
Environmental Quality

ROY COOPER  
Governor

MICHAEL S. REGAN  
Secretary

TIM BAUMGARTNER  
Director

November 22, 2019

Mr. Philip S. Harris, III, P.E., CPM  
Environmental Analysis Unit  
North Carolina Department of Transportation  
1598 Mail Service Center  
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: DMS Mitigation Acceptance Letter:

**I-3802A and B-5804**, I-85 from NC 73 in Cabarrus County (Exit 55) to Lane Street (Exit 63) and Replace Bridge 56 on SR 2000 (Brantley Road) over Lake Fisher, Cabarrus County

References: USACE 404 General Permit 31 issued July 16, 2015 and Re-issued January 13, 2017 and January 9, 2018 (USACE Action ID 2008-03229)

NCDWR 401 Water Quality Certification issued June 2, 2015 (NCDWR ID 2015-0362)

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the additional compensatory stream mitigation for the subject project. Based on the information supplied by you on September 13, 2019, the impacts are located in CU 03040101 of the Yadkin River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

**Table 1 – Additional Impacts (feet / acres)**

Yadkin 03040105 SP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	304.0	0	0	0	0	0

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

This additional impact and associated mitigation needs were not projected by the NCDOT in the 2019 impact data. DMS is currently providing stream and riparian wetland mitigation for the impacts associated with this project located in cataloging unit 03040105 of the Yadkin River basin as required by the 404 and 401 permits issued in 2015, 2017 and 2018, as shown in the below table (in mitigation credits)



**Table 2 – Current Permitted Impacts and Associated Mitigation Requirements provided by DMS (based on issued permits) and Revised Anticipated Impacts (based on mitigation request)**

Impact Type	Total Permitted Impacts (feet / acre / sq ft)	Mitigation Provided by DMS per Issued Permits (Credits)	Additional Impact (for approval)	Revised Total Impacts*
Stream (warm)	3,048.0	4,886.0	304.0	3,352.0
Riparian Wetland	0.34	0.68	0	0.34

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

**This mitigation acceptance letter replaces the mitigation acceptance letter issued on October 10, 2017, April 13, 2015 and March 12, 2013.** DMS commits to implementing additional sufficient compensatory stream 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  
DMS Asset Management Supervisor

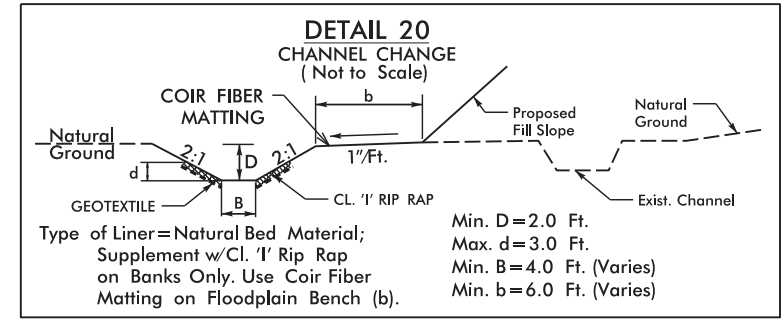
cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office  
Ms. Amy Chapman, Division of Water Resources, Wetlands/401 Unit  
File: I-3802A – B-5804 Additional



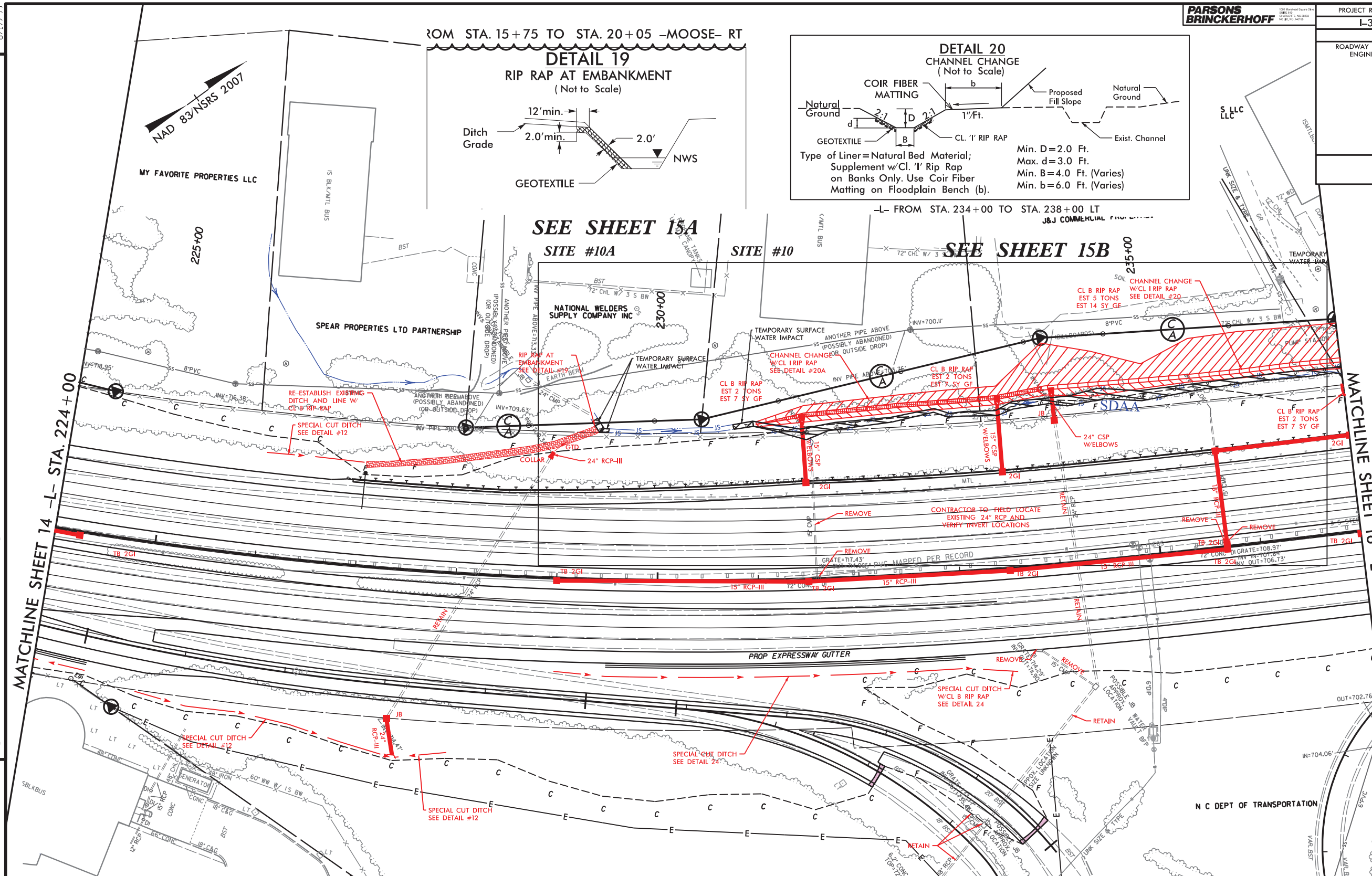




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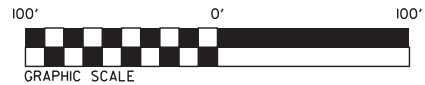


Type of Liner=Natural Bed Material; Supplement w/CL. 1' Rip Rap on Banks Only. Use Coir Fiber Matting on Floodplain Bench (b).  
 Min. D=2.0 Ft.  
 Max. d=3.0 Ft.  
 Min. B=4.0 Ft. (Varies)  
 Min. b=6.0 Ft. (Varies)

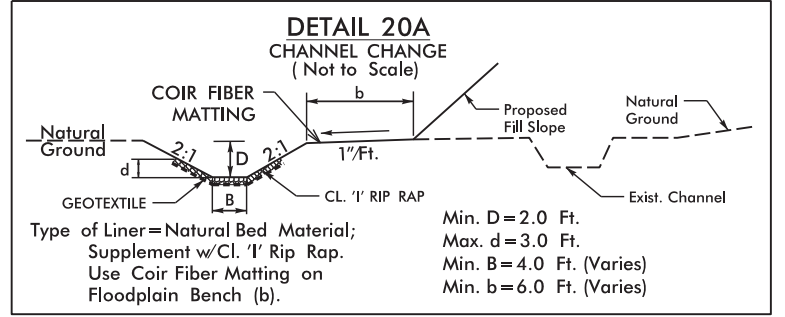


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**MODIFICATION**  
 10/28/2019



**PERMIT DRAWING SHEET 25 OF 128**



Type of Liner=Natural Bed Material; Supplement w/CL. 1' Rip Rap. Use Coir Fiber Matting on Floodplain Bench (b).  
 Min. D=2.0 Ft.  
 Max. d=3.0 Ft.  
 Min. B=4.0 Ft. (Varies)  
 Min. b=6.0 Ft. (Varies)

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REVISIONS

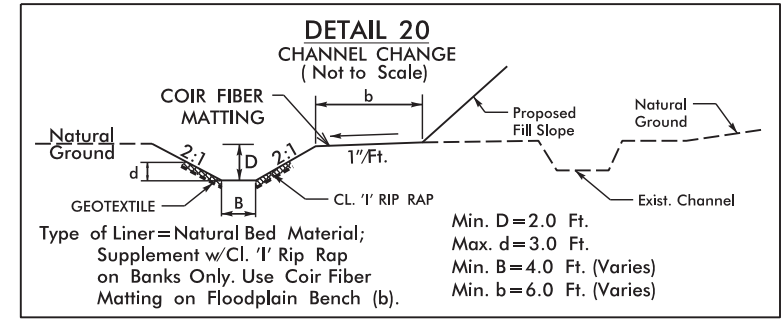
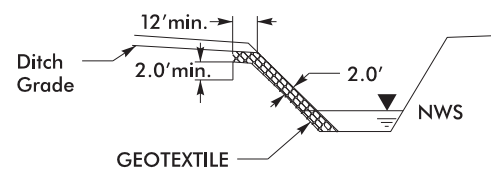
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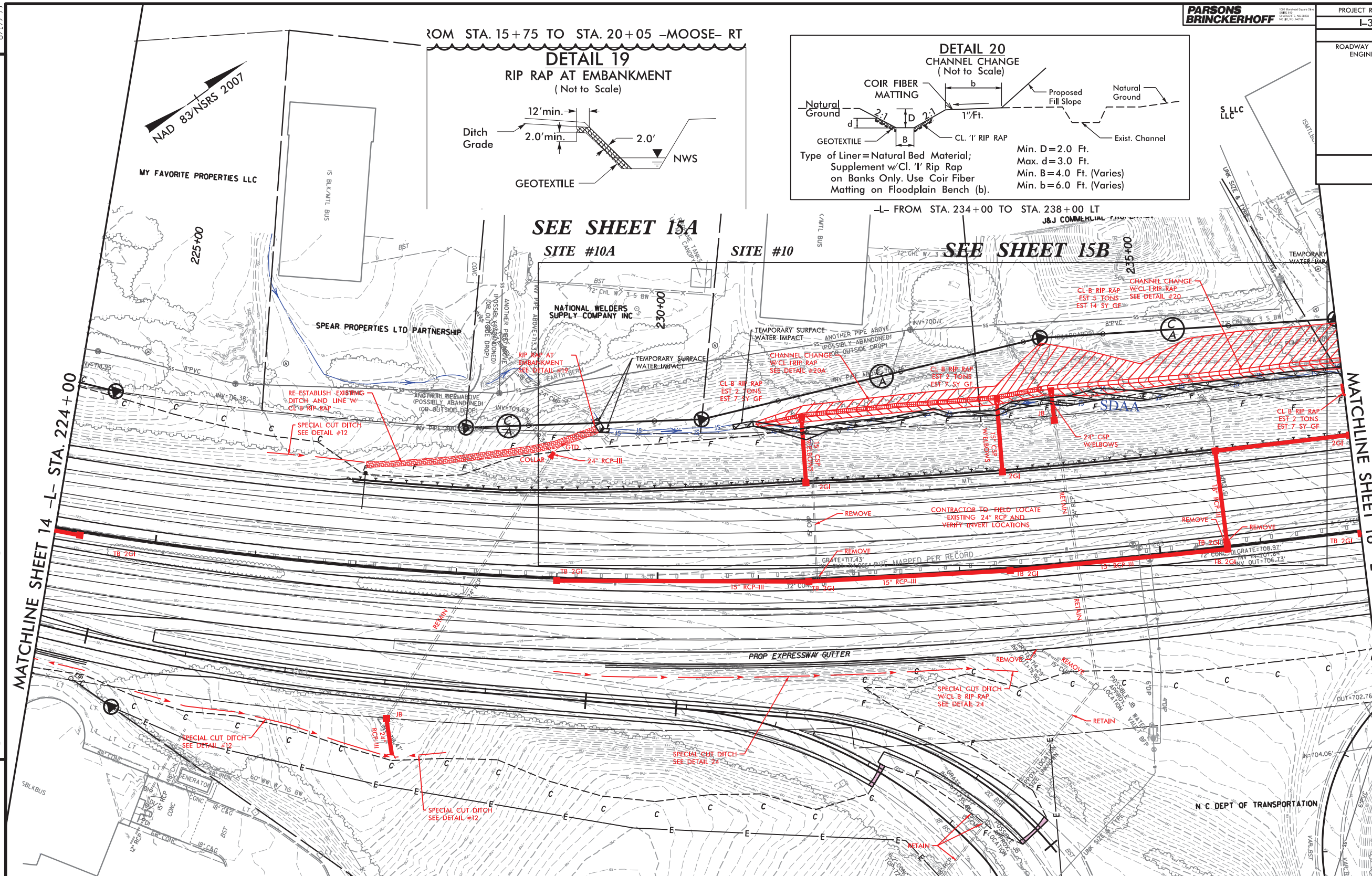
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**DETAIL 19**  
RIP RAP AT EMBANKMENT  
(Not to Scale)



SEE SHEET 15A

SEE SHEET 15B

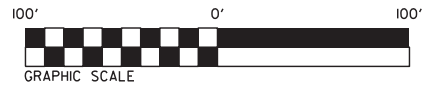


MATCHLINE SHEET 14 -L- STA. 224+00

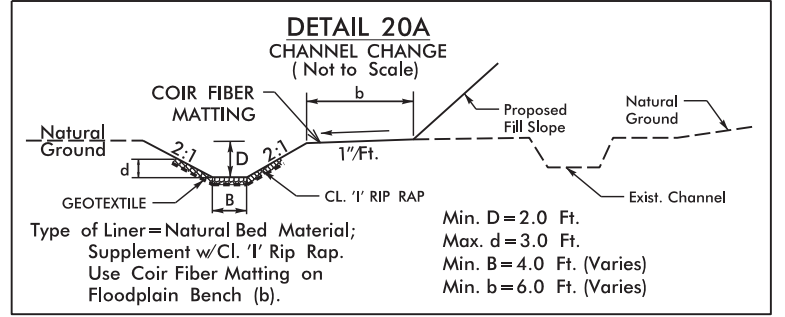
MATCHLINE SHEET 16 -L- STA. 237+00

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**MODIFICATION**  
10/28/2019



PERMIT DRAWING  
SHEET 26 OF 128



-L- FROM STA. 231+00 TO STA. 234+00 LT

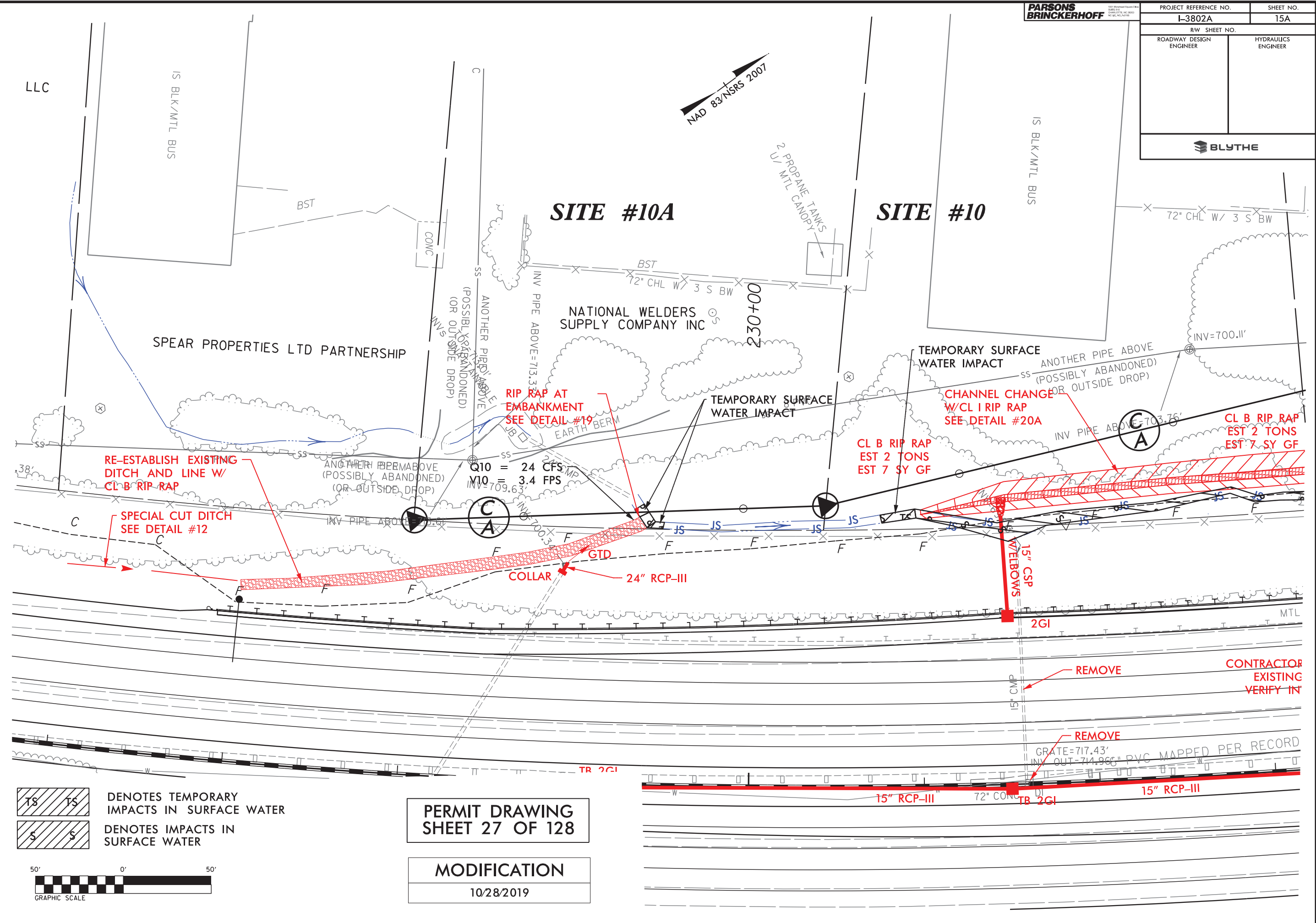
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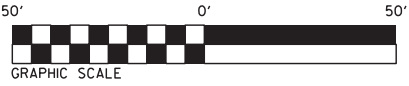


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RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
BLYTHE	

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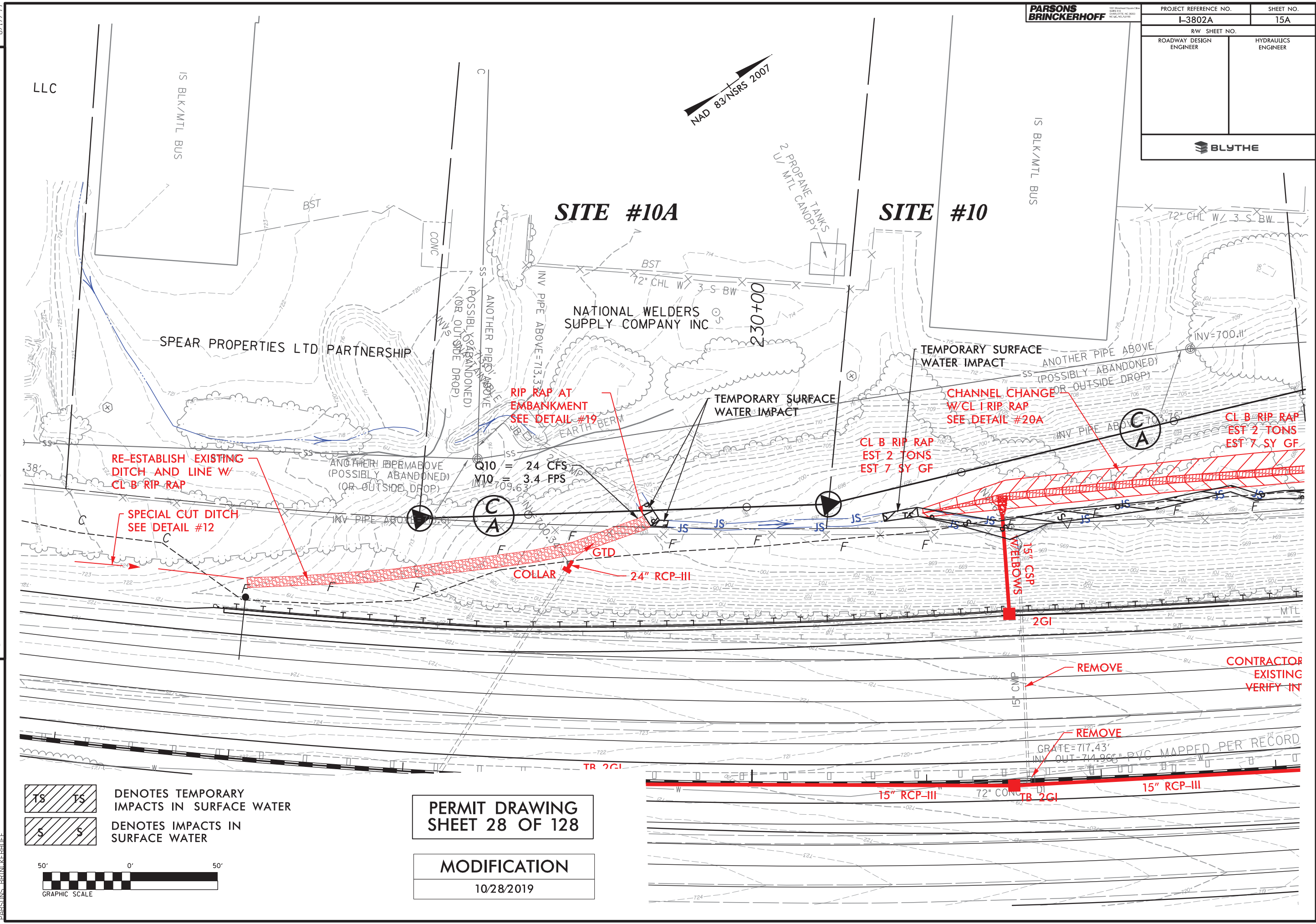


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**SHEET 27 OF 128**  
**MODIFICATION**  
 10/28/2019

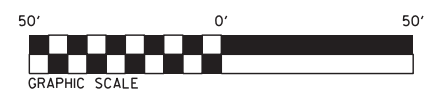
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<b>BLYTHE</b>	



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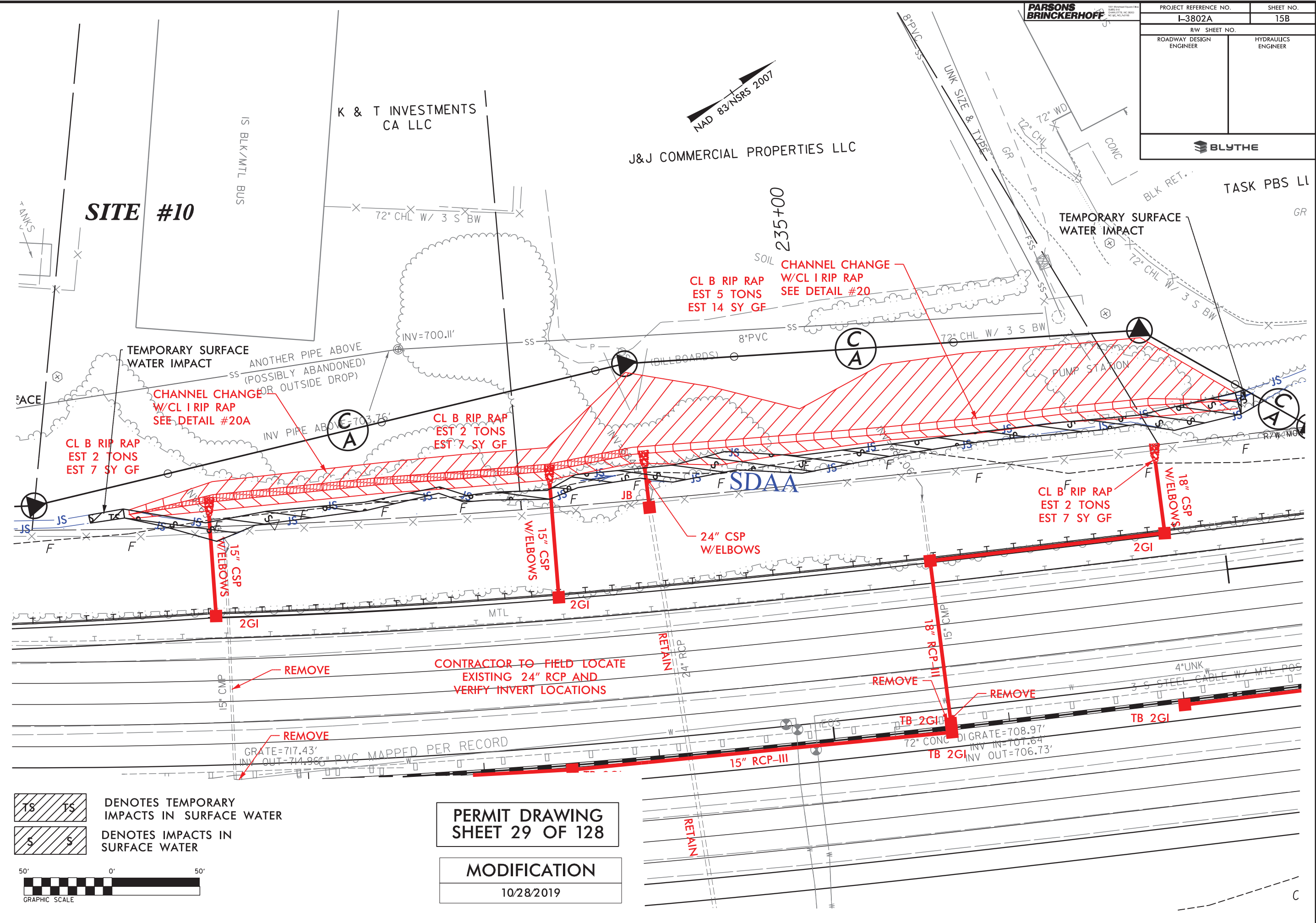
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**SHEET 28 OF 128**  
  
**MODIFICATION**  
 10/28/2019

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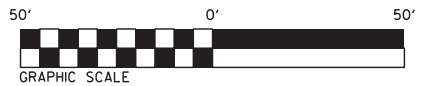
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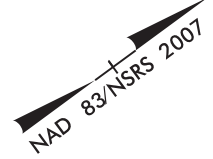


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**PERMIT DRAWING**  
**SHEET 29 OF 128**  
**MODIFICATION**  
 10/28/2019

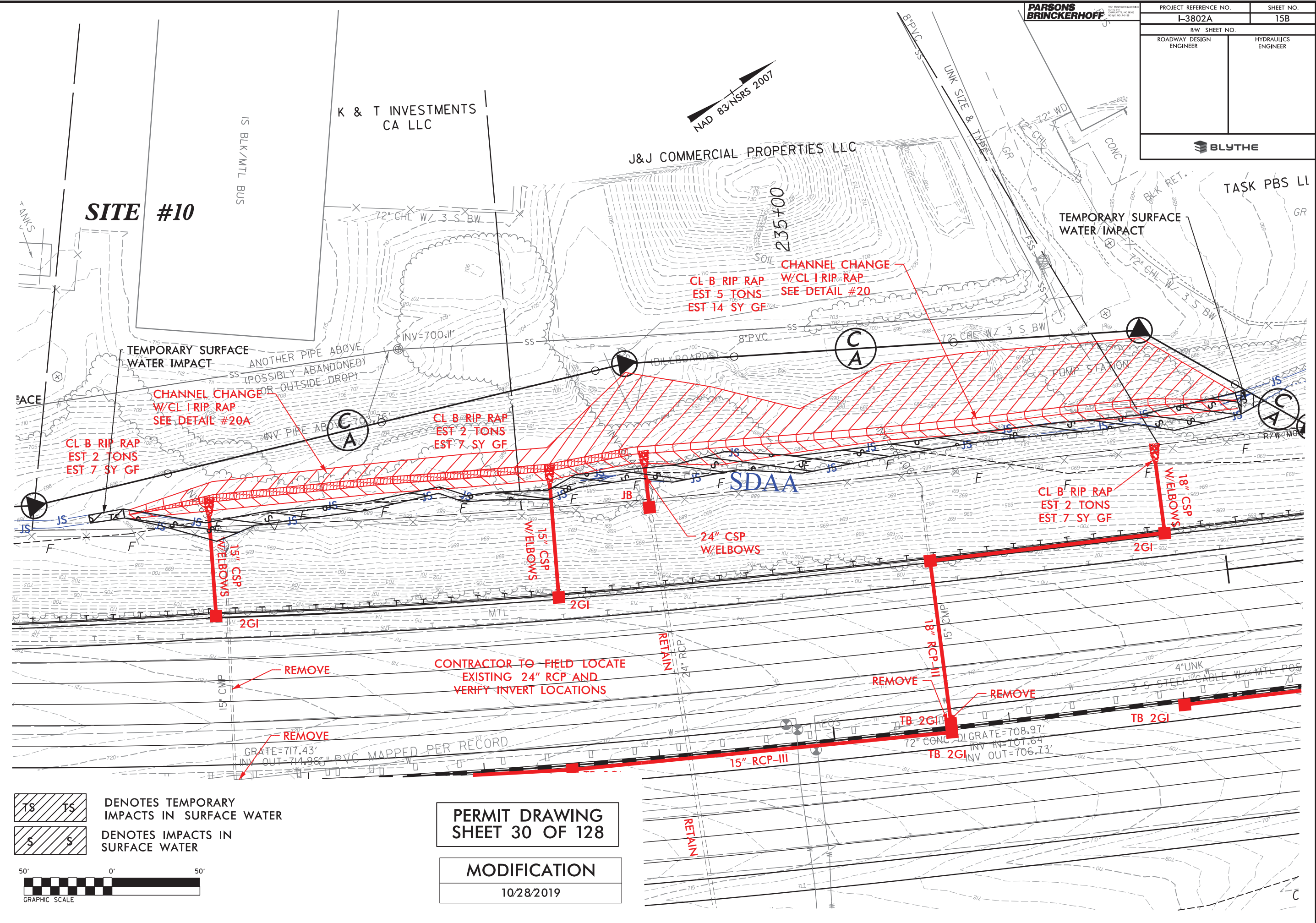


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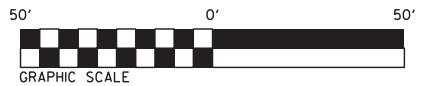
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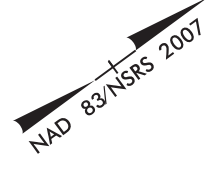


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DENOTES TEMPORARY IMPACTS IN SURFACE WATER  
 DENOTES IMPACTS IN SURFACE WATER



**PERMIT DRAWING**  
**SHEET 30 OF 128**  
**MODIFICATION**  
 10/28/2019



**SITE #10**

K & T INVESTMENTS  
CA LLC

J&J COMMERCIAL PROPERTIES LLC

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TEMPORARY SURFACE  
WATER IMPACT

TEMPORARY SURFACE  
WATER IMPACT

CHANNEL CHANGE  
W/CL I RIP RAP  
EST 5 TONS  
EST 14 SY GF

CHANNEL CHANGE  
W/CL I RIP RAP  
SEE DETAIL #20A

CL B RIP RAP  
EST 2 TONS  
EST 7 SY GF

CL B RIP RAP  
EST 2 TONS  
EST 7 SY GF

CL B RIP RAP  
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EST 7 SY GF

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24\"/>

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REMOVE

CONTRACTOR TO FIELD LOCATE  
EXISTING 24\"/>

REMOVE

REMOVE

REMOVE

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72\"/>

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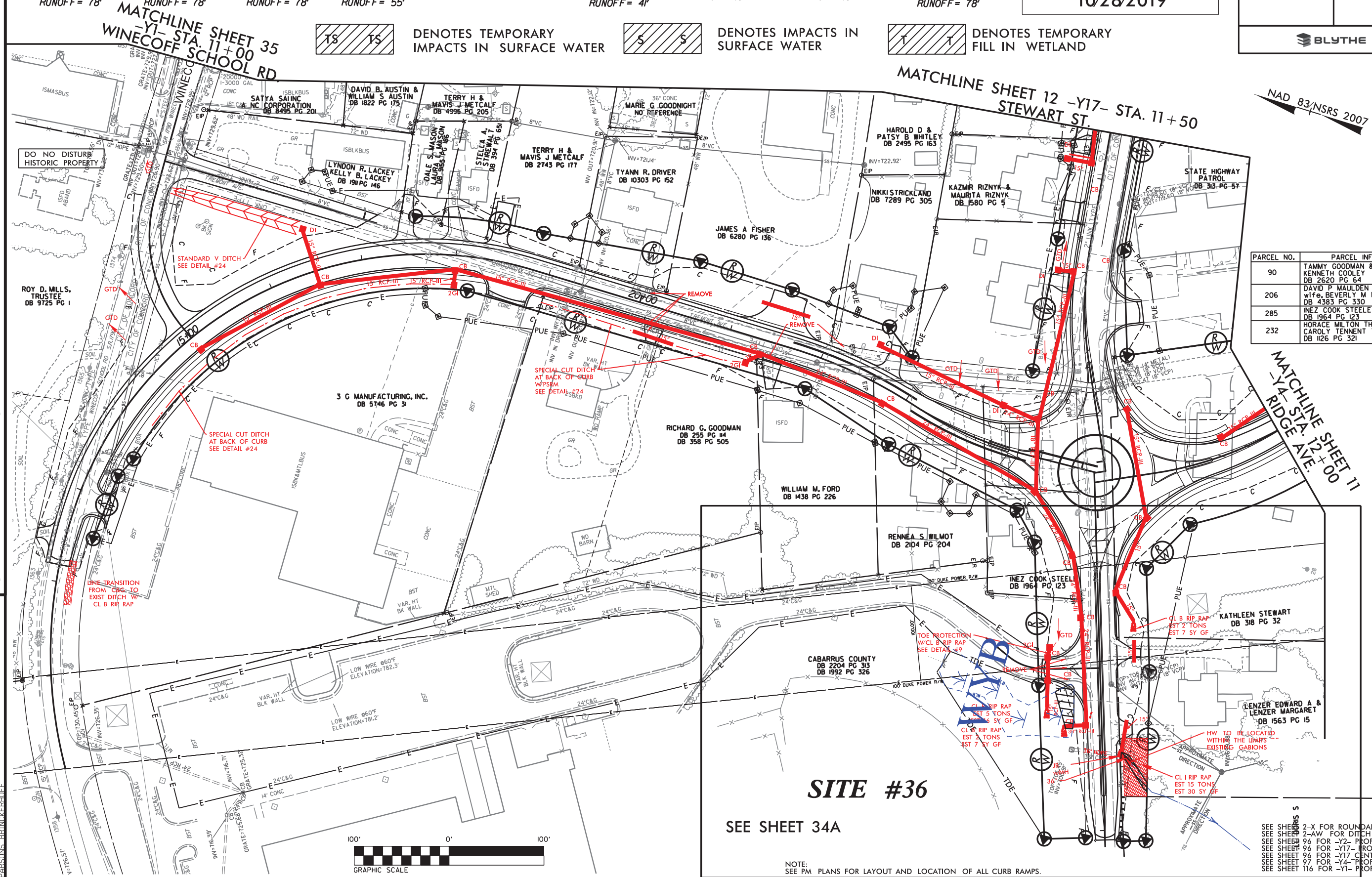


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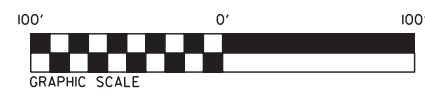


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-Y2-		-Y1-		-Y17-		-Y17DRI-		-Y4-	
PI Sta 11+53.58	PI Sta 16+60.86	PI Sta 22+38.84	PI Sta 23+75.77	PI Sta 13+26.93	PI Sta 13+33.68	PI Sta 13+87.85	PI Sta 14+16.41	PI Sta 14+14.54	
$\Delta = 35^\circ 41' 43.3''$ (RT)	$\Delta = 86^\circ 00' 09.1''$ (RT)	$\Delta = 16^\circ 18' 04.7''$ (RT)	$\Delta = 18^\circ 49' 04.6''$ (LT)	$\Delta = 54^\circ 45' 27.2''$ (LT)	$\Delta = 18^\circ 50' 40.5''$ (LT)	$\Delta = 34^\circ 52' 37.3''$ (LT)	$\Delta = 5^\circ 39' 21.1''$ (LT)	$\Delta = 86^\circ 37' 15.4''$ (LT)	
D = 12' 00' 42.8"	D = 14' 41' 28.4"	D = 11' 27' 33.0"	D = 14' 19' 26.2"	D = 38' 11' 49.9"	D = 14' 57' 35.0"	D = 104' 10' 26.9"	D = 22' 55' 05.9"	D = 15' 26' 37.0"	
L = 297.17'	L = 585.40'	L = 142.26'	L = 131.37'	L = 143.35'	L = 125.97'	L = 33.48'	L = 24.68'	L = 560.89'	
T = 153.58'	T = 363.70'	T = 71.61'	T = 66.28'	T = 77.68'	T = 63.56'	T = 17.28'	T = 12.35'	T = 349.74'	
R = 476.99'	R = 390.00'	R = 500.00'	R = 400.00'	R = 150.00'	R = 383.00'	R = 55.00'	R = 250.00'	R = 371.00'	
DS = 35 MPH	DS = 35 MPH	DS = 35 MPH	DS = 30 MPH	DS = 20 MPH	DS = 40 MPH	DS = 55 MPH	DS = 25 MPH	DS = 30 MPH	
e = 0.04	e = 0.04	e = 0.04	e = 0.03	e = NC	e = 0.04	e = NC	e = NC	e = 0.04	
RUNOFF = 78'	RUNOFF = 78'	RUNOFF = 78'	RUNOFF = 55'		RUNOFF = 41'			RUNOFF = 78'	

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



PARCEL NO.	PARCEL INFO
90	TAMMY GOODMAN & KENNETH COOLEY DB 2620 PG 64
206	DAVID P MAULDEN & wife, BEVERLY M MAULDEN DB 4383 PG 330
285	INEZ COOK STEELE DB 1964 PG 123
232	HORACE MILTON THAMES, JR CAROLY TEANENT THAMES DB 1126 PG 321



SEE SHEET 2-X FOR ROUNDABOUT DETAIL  
SEE SHEET 2-AW FOR DITCH DETAILS  
SEE SHEET 96 FOR -Y2- PROFILE  
SEE SHEET 96 FOR -Y17- PROFILE  
SEE SHEET 97 FOR -Y4- PROFILE  
SEE SHEET 116 FOR -Y1- PROFILE

REVISIONS

10/17/2019 I:\3802A\Hydraulics\PERMITS\_Environmental\Drawings\psh\_wo\_contours\3802a\_rdy\_psh34.dgn  
 PARSONS BRINCKERHOFF

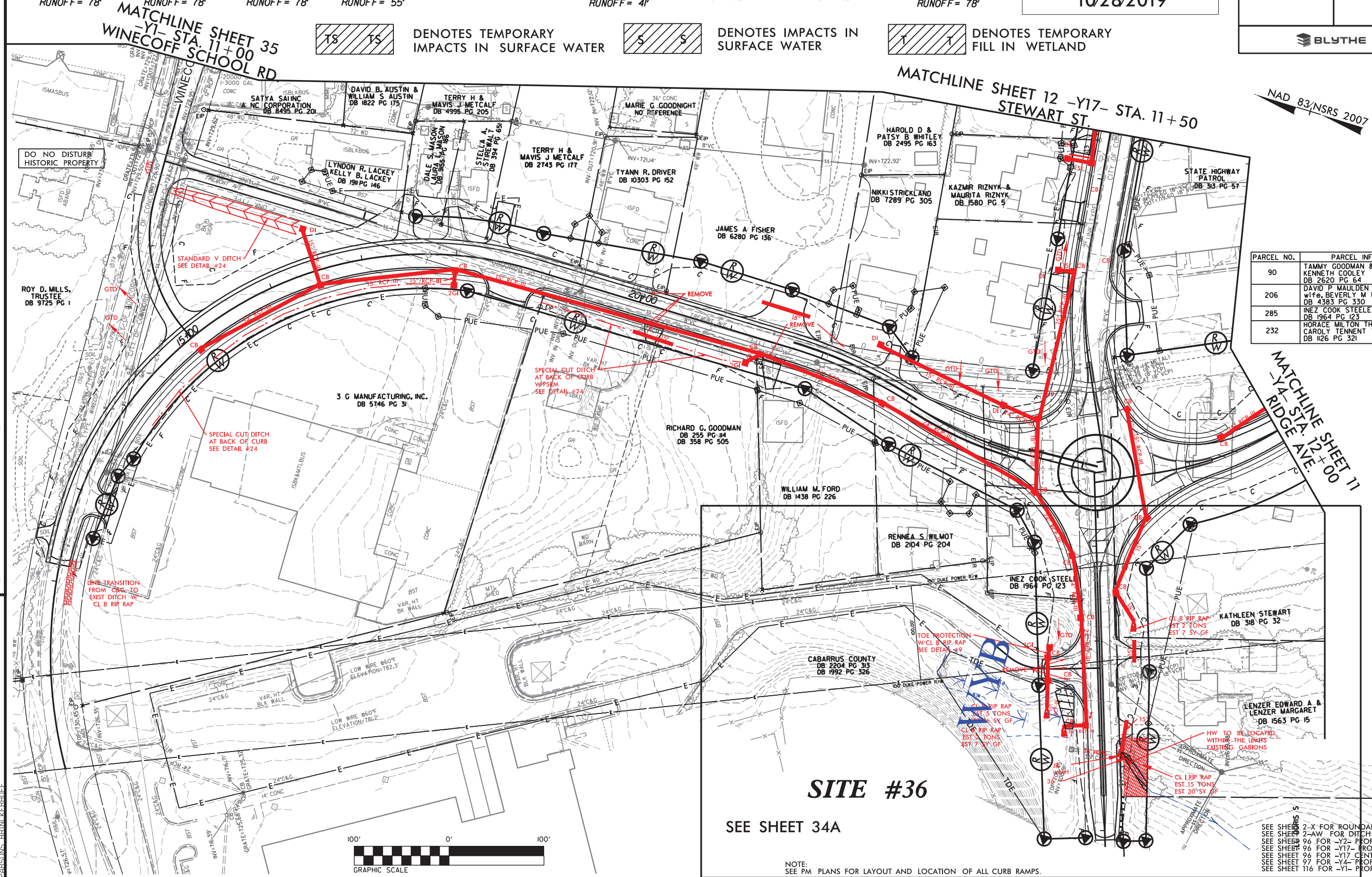


PERMIT DRAWING  
MODIFICATION  
10/28/2019



CURVE DATA					
-Y2-		-Y1-	-Y17-	-Y17DRI-	-Y4-
PI Sta 11+53.58	PI Sta 16+60.86	PI Sta 22+38.84	PI Sta 23+75.77	PI Sta 13+26.93	PI Sta 13+33.68
$\Delta = 35^\circ 41' 43.3" (RT)$	$\Delta = 86^\circ 00' 09.1" (RT)$	$\Delta = 16^\circ 18' 04.7" (RT)$	$\Delta = 18^\circ 49' 04.6" (LT)$	$\Delta = 54^\circ 45' 27.2" (LT)$	$\Delta = 18^\circ 50' 40.5" (LT)$
$D = 12^\circ 00' 42.8"$	$D = 14^\circ 41' 28.4"$	$D = 11^\circ 27' 33.0"$	$D = 14^\circ 19' 26.2"$	$D = 38^\circ 11' 49.9"$	$D = 14^\circ 57' 35.0"$
$L = 297.7'$	$L = 585.40'$	$L = 142.26'$	$L = 131.37'$	$L = 143.35'$	$L = 125.97'$
$T = 153.58'$	$T = 363.70'$	$T = 71.61'$	$T = 66.28'$	$T = 77.68'$	$T = 63.56'$
$R = 476.99'$	$R = 390.00'$	$R = 500.00'$	$R = 400.00'$	$R = 150.00'$	$R = 383.00'$
$DS = 35 MPH$	$DS = 35 MPH$	$DS = 35 MPH$	$DS = 30 MPH$	$DS = 20 MPH$	$DS = 40 MPH$
$e = 0.04$	$e = 0.04$	$e = 0.04$	$e = 0.03$	$e = NC$	$e = 0.04$
$RUNOFF = 78'$	$RUNOFF = 78'$	$RUNOFF = 78'$	$RUNOFF = 55'$	$RUNOFF = 41'$	$RUNOFF = 41'$

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



PARCEL NO.	PARCEL INFO
90	TAMMY GOODMAN & KENNETH COOLEY DB 2620 PG 64
206	DAVID P MAULDEN & wife, BEVERLY M MAULDEN DB 4383 PG 330
285	INEZ COOK STEELE DB 1964 PG 123
232	HORACE MILTON THAMES, JR CAROLY TEANENT THAMES DB 1126 PG 321

**SITE #36**

SEE SHEET 34A

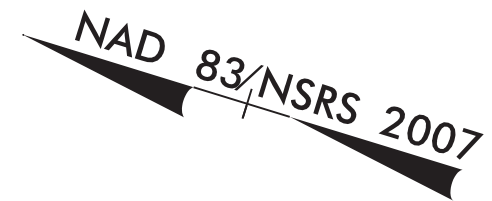
NOTE: SEE PM PLANS FOR LAYOUT AND LOCATION OF ALL CURB RAMPS.

SEE SHEET 2-X FOR ROUNDABOUT DETAIL  
SEE SHEET 2-AW FOR DITCH DETAILS  
SEE SHEET 96 FOR -Y2- PROFILE  
SEE SHEET 96 FOR -Y17- PROFILE  
SEE SHEET 96 FOR -Y17- CENTRAL- PROFILE  
SEE SHEET 97 FOR -Y4- PROFILE  
SEE SHEET 116 FOR -Y1- PROFILE

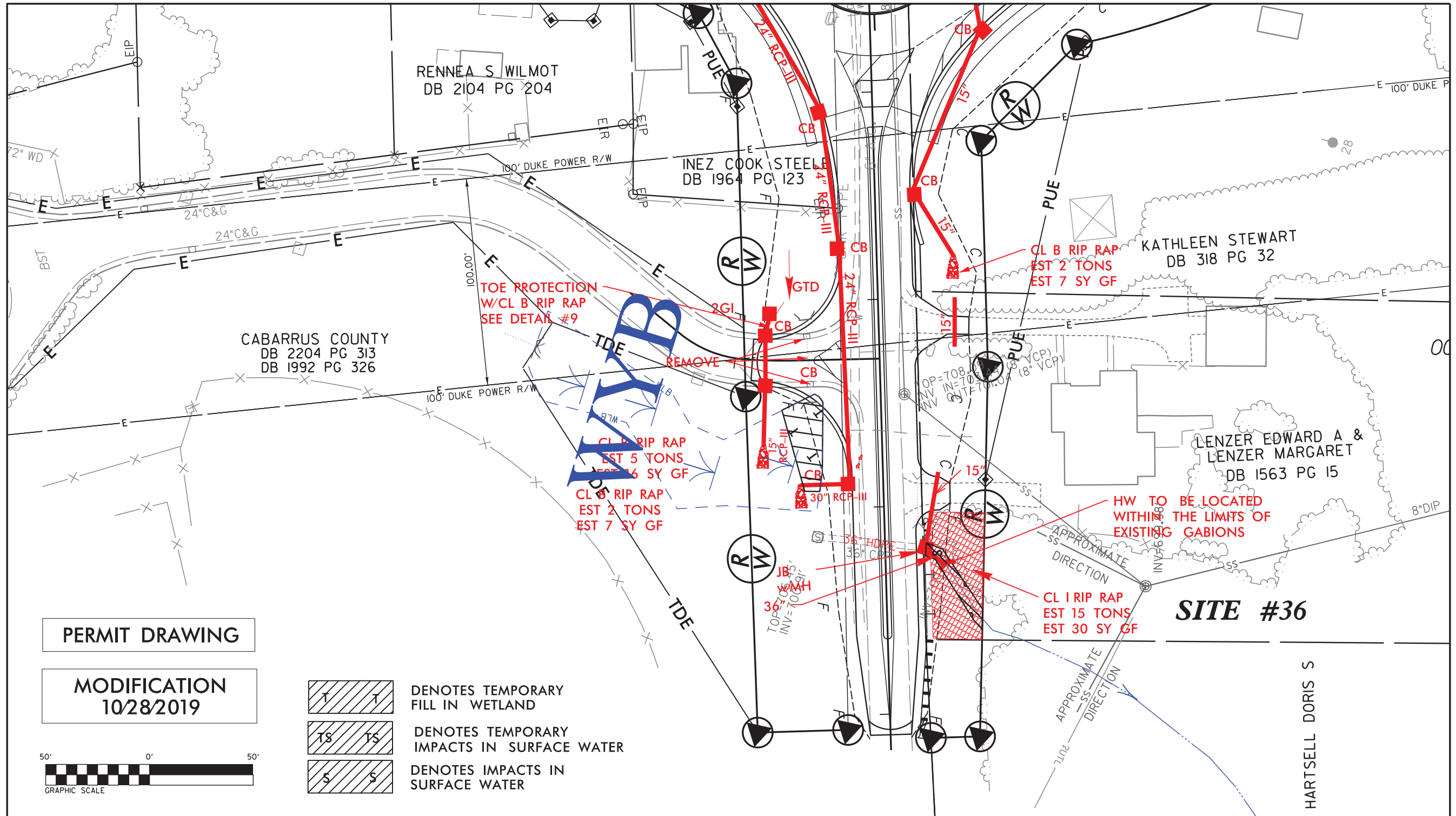
REVISIONS

10/17/2019 I:\3802A\Hydraulics\PERMITS\Environmental\Drawings\psh\_contours\13802a\_r.dwg\_psh34.dgn  
 PARSONS BRINCKERHOFF



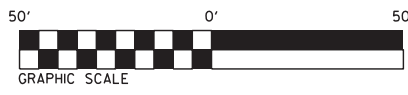


REVISIONS



PERMIT DRAWING

MODIFICATION  
10/28/2019

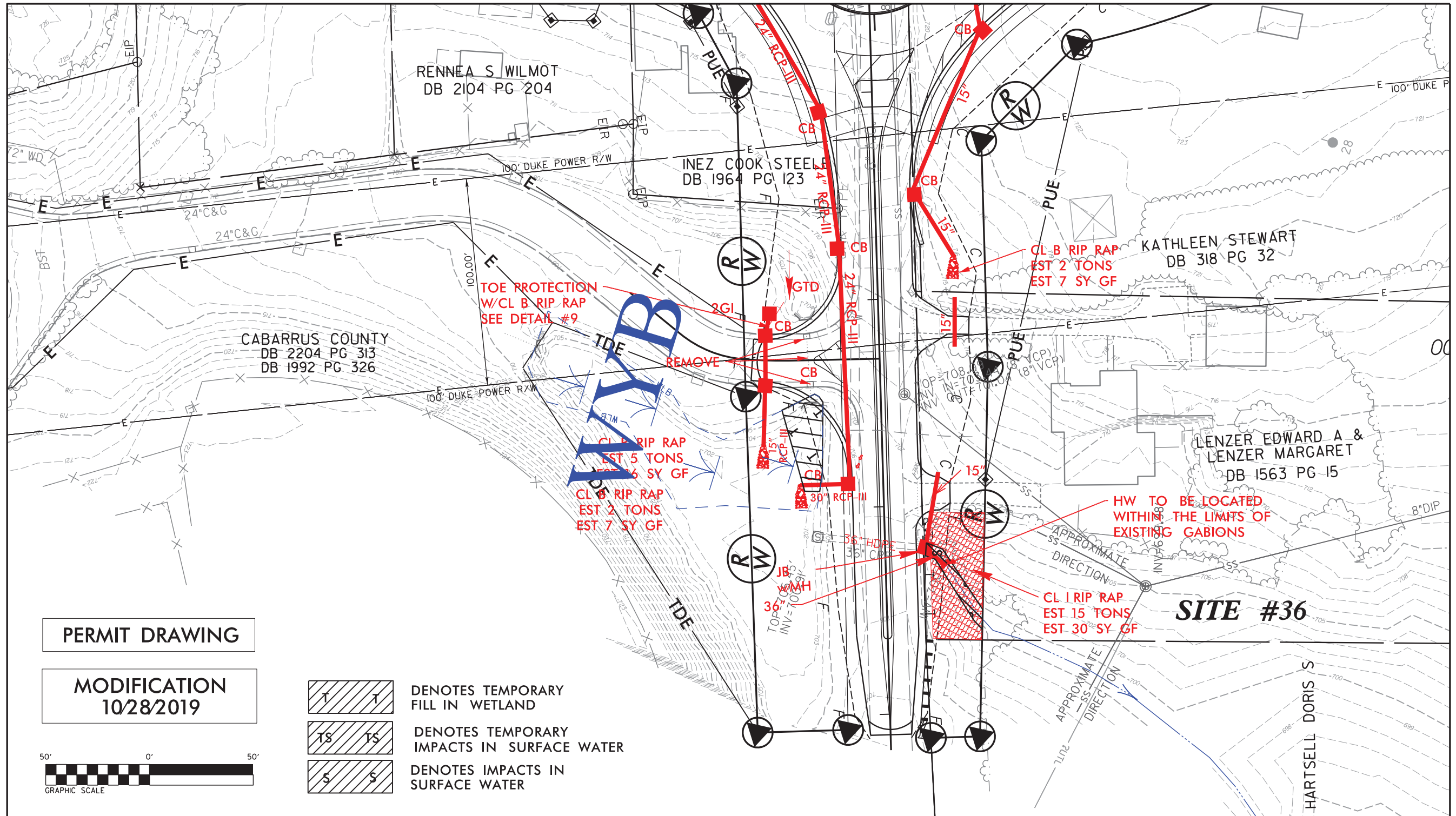


- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER

8/17/99  
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 PARSONS BRINCKERHOFF

NAD 83/NSRS 2007

REVISIONS



PERMIT DRAWING

MODIFICATION  
10/28/2019



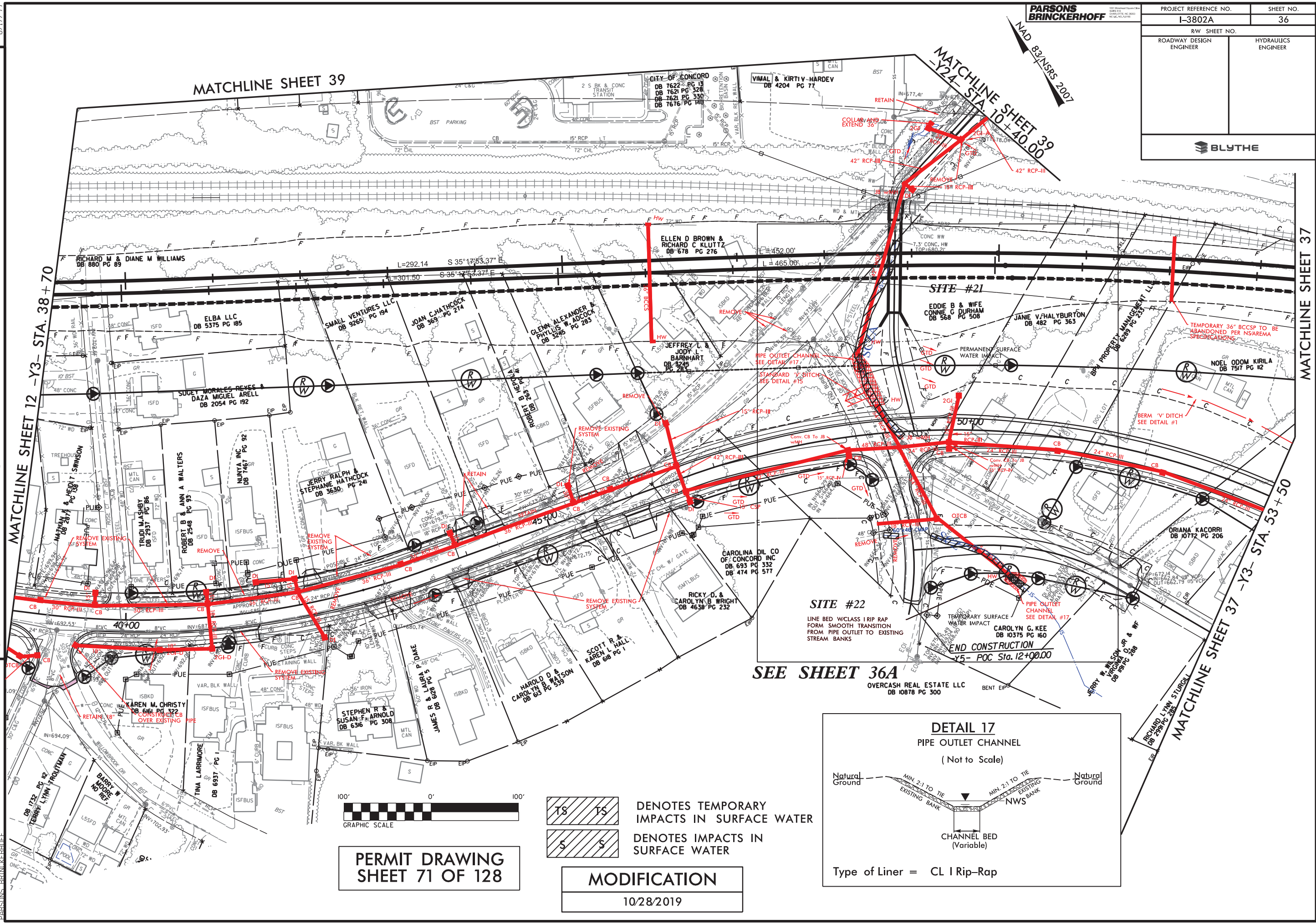
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER

10/17/2019 - I:\3802A\Hydraulics\PERMITS\Environmental\Drawings\psh\_contours\13802a\_r.dwg\_psh34A.dgn  
 8/17/99  
 PARSONS BRINCKERHOFF



PROJECT REFERENCE NO. I-3802A	SHEET NO. 36
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
BLYTHE	

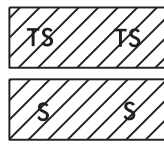
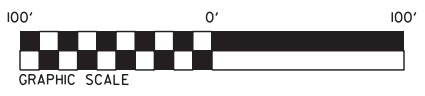
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REVISIONS

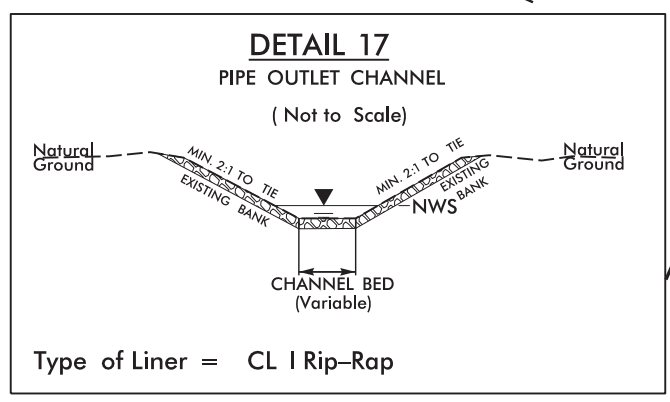
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PARSONS BRINCKERHOFF

**PERMIT DRAWING  
SHEET 71 OF 128**



TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER  
S S DENOTES IMPACTS IN SURFACE WATER

**MODIFICATION**  
10/28/2019



**SEE SHEET 36A**

OVERCASH REAL ESTATE LLC  
DB 10878 PG 300

**END CONSTRUCTION**  
Y5- POC Sta. 12+00.00

**SITE #22**

LINE BED W/CLASS I RIP RAP  
FORM SMOOTH TRANSITION  
FROM PIPE OUTLET TO EXISTING  
STREAM BANKS

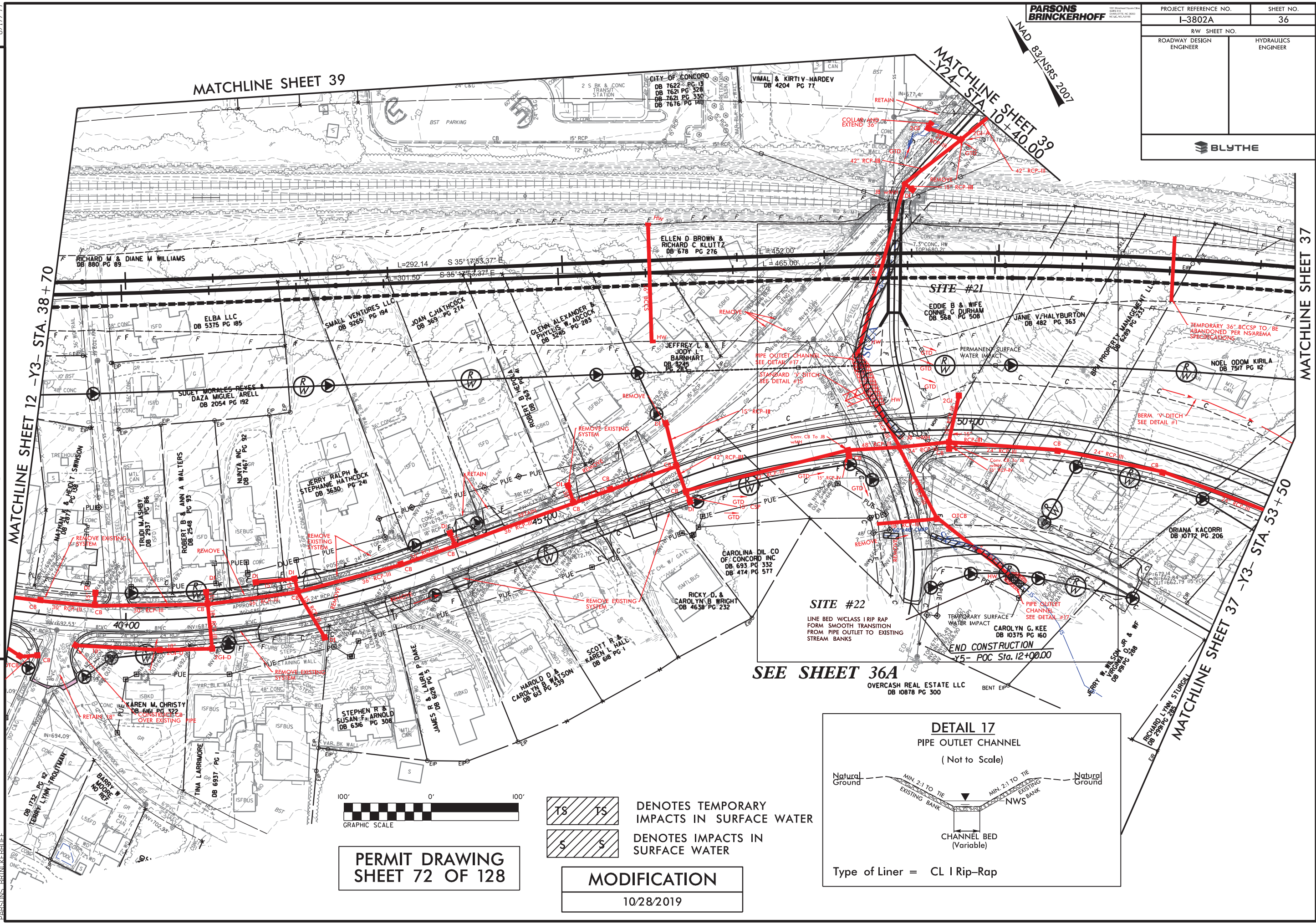
**MATCHLINE SHEET 37**

**MATCHLINE SHEET 12 -Y3- STA. 38+70**

**MATCHLINE SHEET 39**  
-Y2- STA. 10+40.00



PROJECT REFERENCE NO. I-3802A	SHEET NO. 36
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
BLYTHE	



8/17/99  
 10/17/2018  
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 PARSONS BRINCKERHOFF

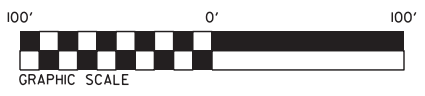
MATCHLINE SHEET 39

MATCHLINE SHEET 39  
-Y24- STA. 10+40.00

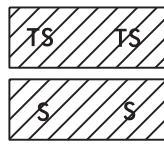
MATCHLINE SHEET 12 -Y3- STA. 38+70

MATCHLINE SHEET 37

MATCHLINE SHEET 37 -Y3- STA. 53+50



PERMIT DRAWING  
SHEET 72 OF 128

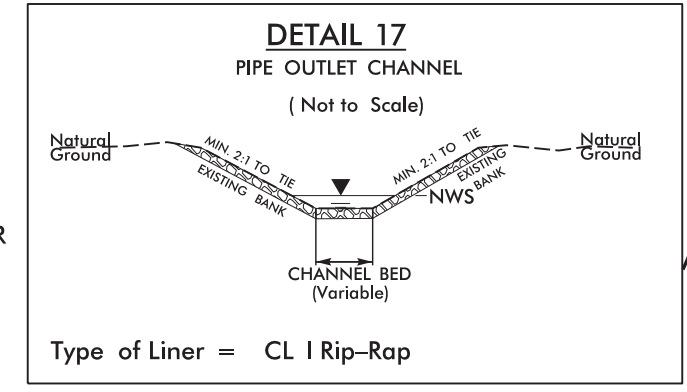


DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN  
SURFACE WATER

MODIFICATION  
10/28/2019

SEE SHEET 36A



SITE #22

LINE BED W/CLASS I RIP RAP  
FORM SMOOTH TRANSITION  
FROM PIPE OUTLET TO EXISTING  
STREAM BANKS

END CONSTRUCTION  
Y5- POC Sta. 12+00.00

TEMPORARY 36" RCCSP TO BE  
ABANDONED PER NSAREMA  
SPECIFICATIONS

BERM 'V' DITCH  
SEE DETAIL #1

PERMANENT SURFACE  
WATER IMPACT

TEMPORARY SURFACE  
WATER IMPACT

PIPE OUTLET  
CHANNEL  
SEE DETAIL #17

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS


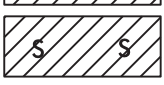
CONV. CB TO JB  
W/MS

CONV. CB TO JB  
W/MS



8/17/99  
1/1/2019  
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PARSONS BRINCKERHOFF

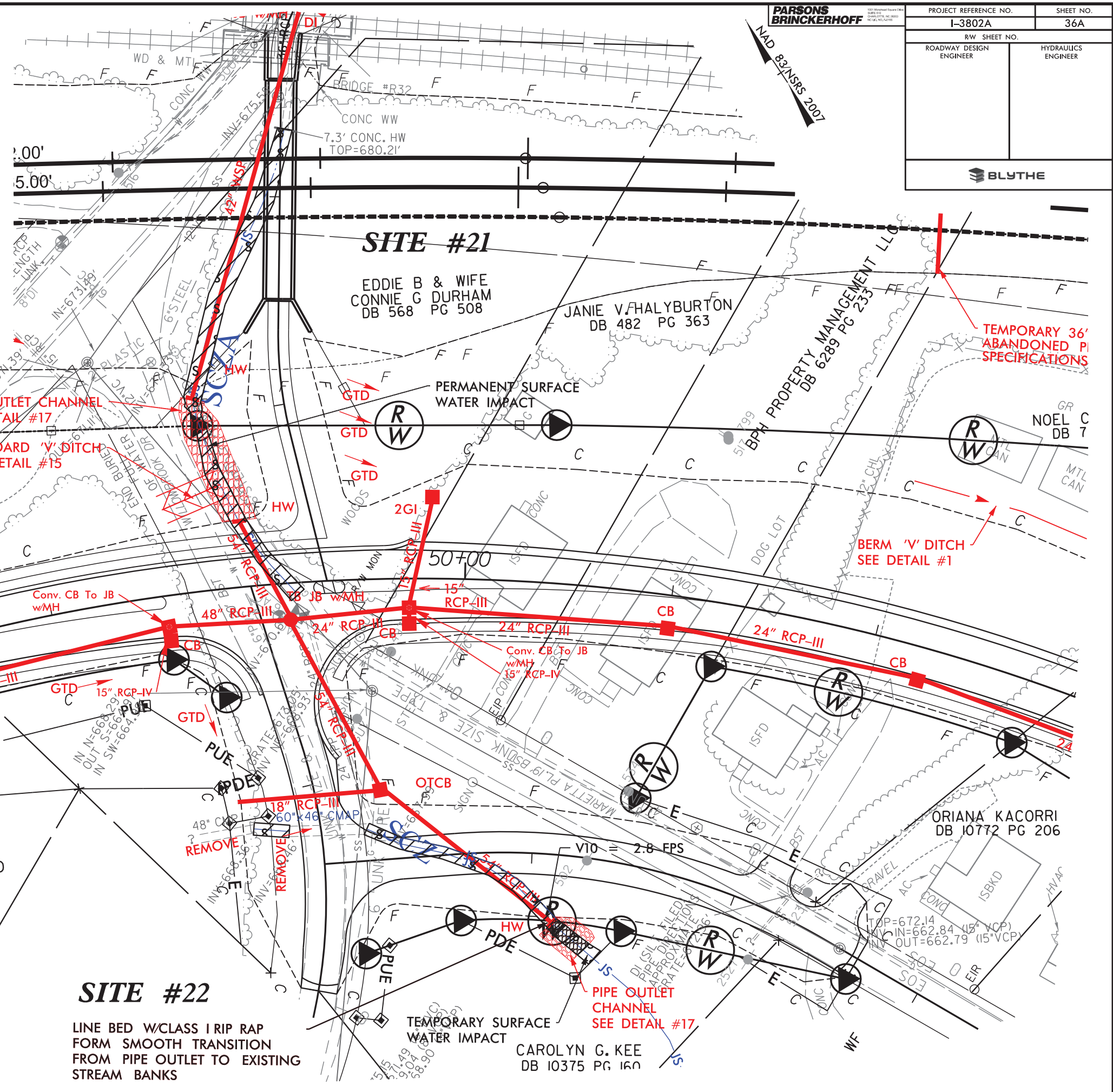
PROJECT REFERENCE NO. I-3802A	SHEET NO. 36A
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
BLYTHE	

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER  
 DENOTES IMPACTS IN SURFACE WATER

**MODIFICATION**  
10/28/2019



**PERMIT DRAWING SHEET 73 OF 128**



REVISIONS

**SITE #22**  
LINE BED W/CLASS I RIP RAP  
FORM SMOOTH TRANSITION  
FROM PIPE OUTLET TO EXISTING  
STREAM BANKS

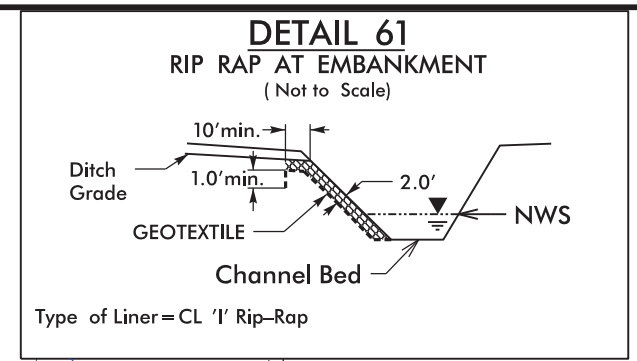
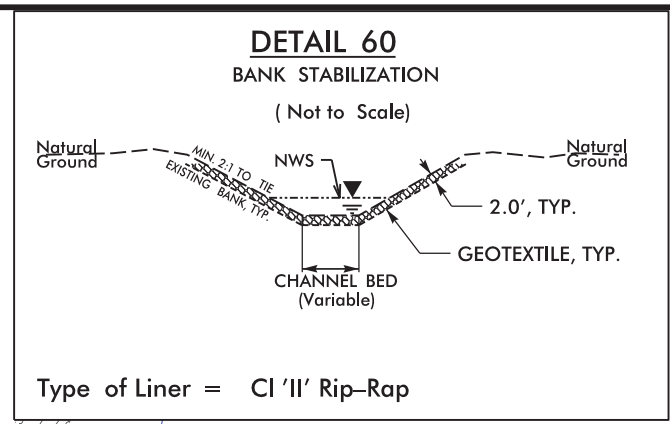
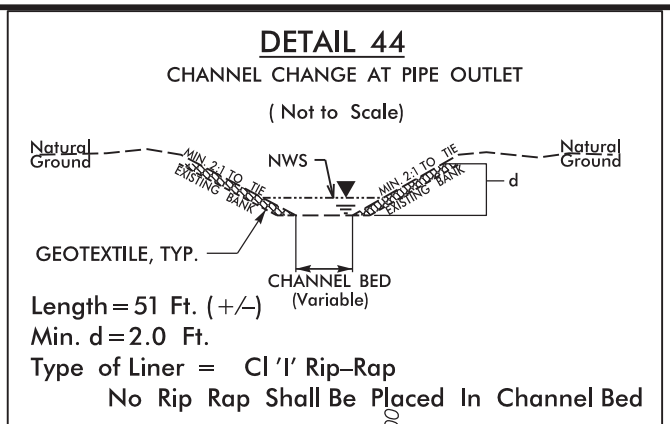
CAROLYN G. KEE  
DB 10375 PG 160



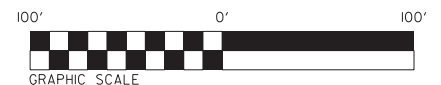
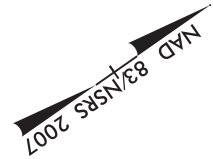




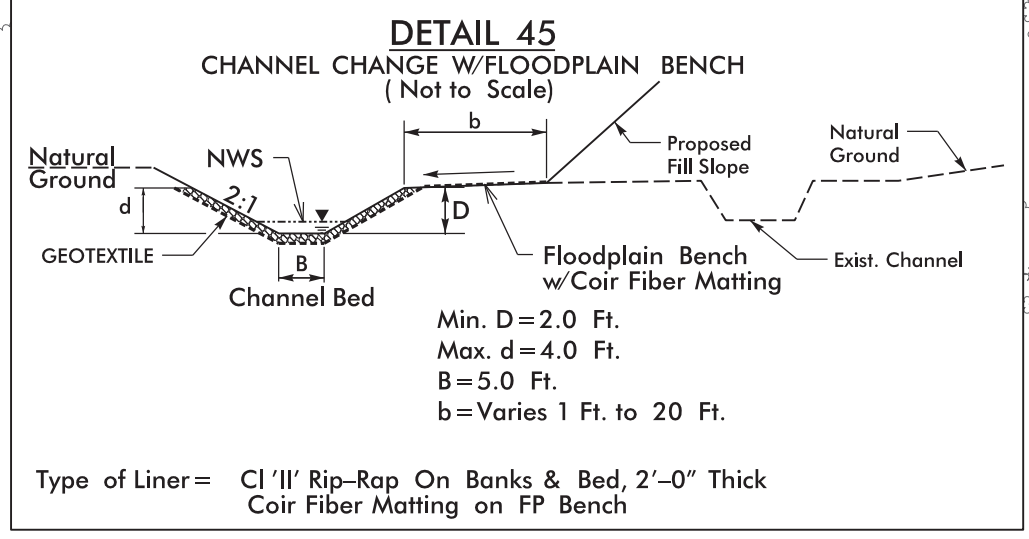
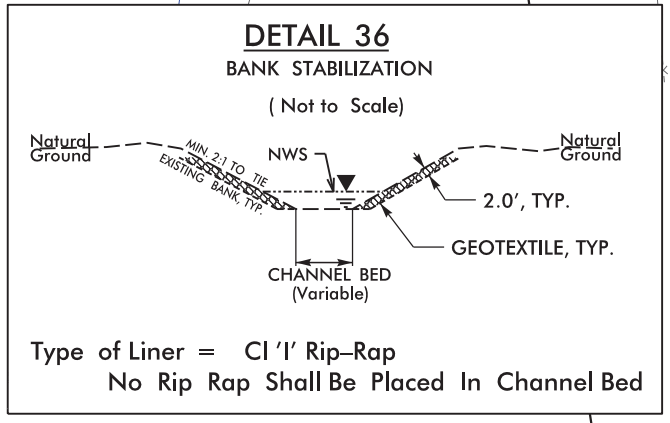
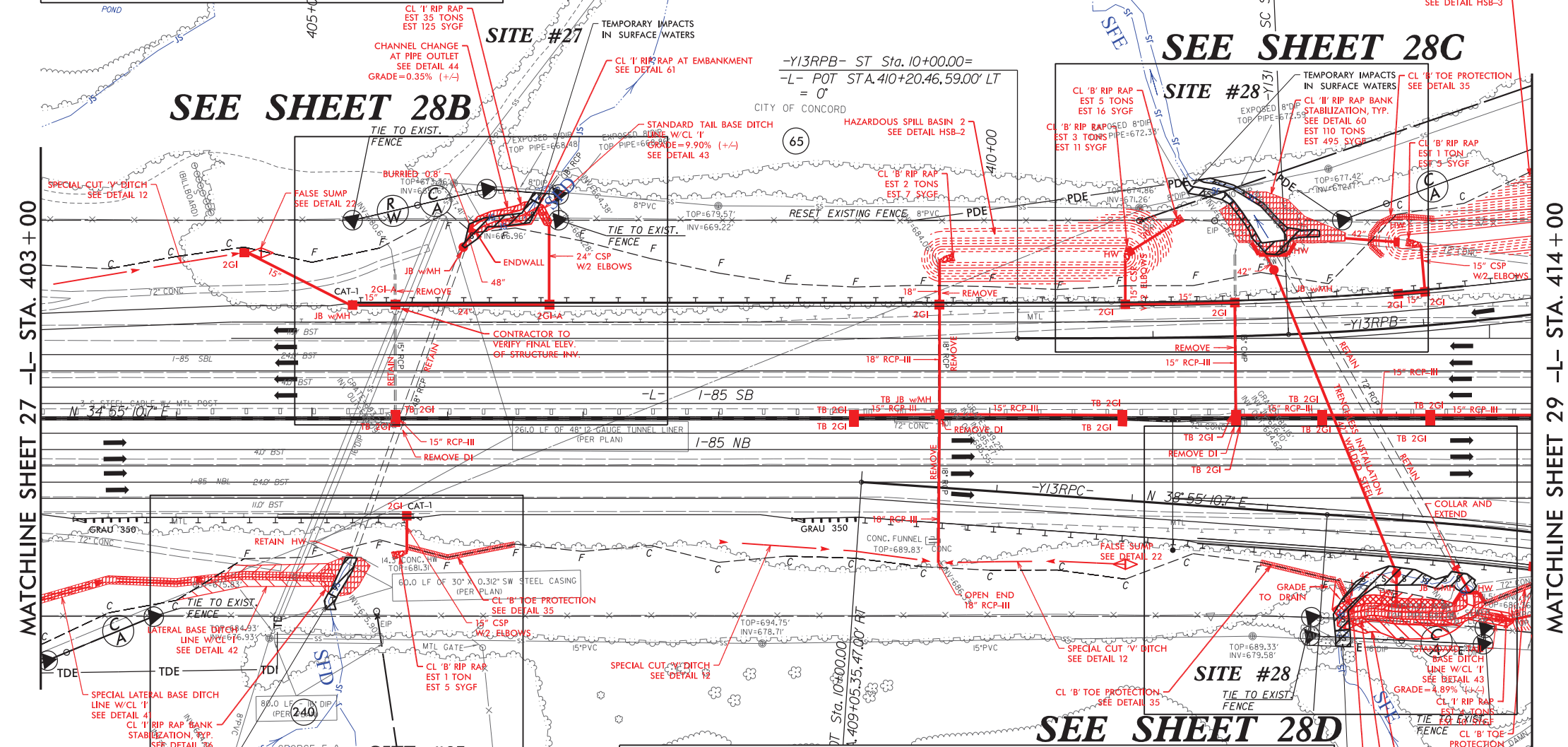
8/17/99



PROJECT REFERENCE NO. I-3802A	SHEET NO. 28
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>BLYTHE PARSONS BRINCKERHOFF</b>	
<b>SEPI</b> ENGINEERING & CONSTRUCTION	
1025 Wade Avenue Raleigh, NC 27605 Tel: 919-789-9977 Fax: 919-789-9591 License: C-2197	



**PERMIT DRAWING**  
SHEET 93 OF 128



DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

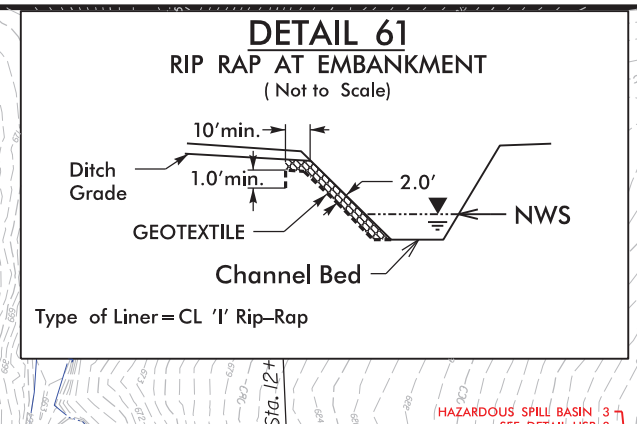
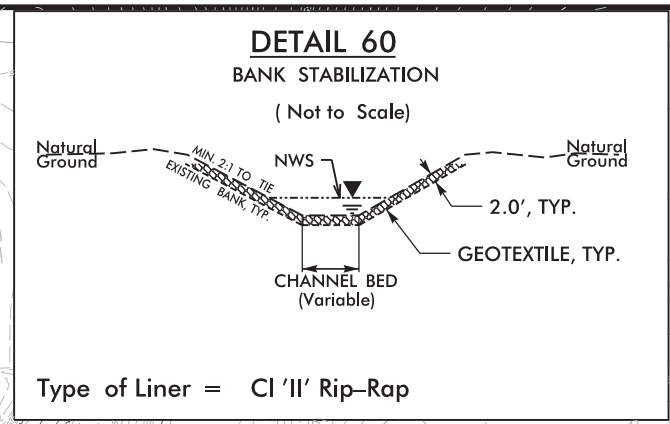
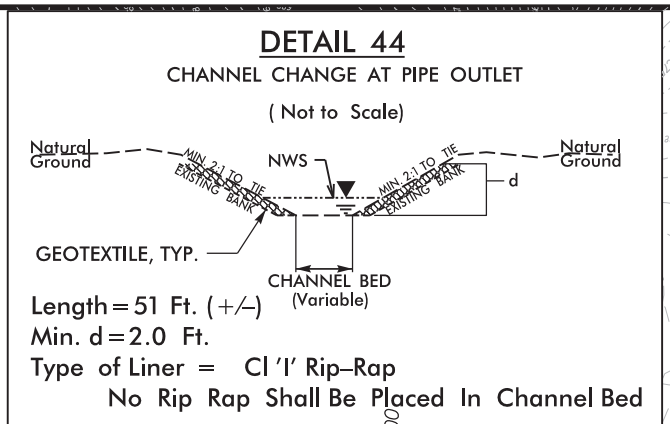
NOTES:  
1. EXISTING PIPE MAY BE RETAINED FOR TEMPORARY DRAINAGE DURING CONSTRUCTION. ONCE PROPOSED DRAINAGE SYSTEM IS INSTALLED AND FUNCTIONING PIPE IS TO BE REMOVED. THE PORTION OF PIPE REMAINING UNDER NEW PAVEMENT IS TO BE PLUGGED AND THE FILLED WITH FLOWABLE FILL.

SEE SHEETS 73 & 74 FOR -LSB- & -LNB- PROFILES  
SEE SHEET 93 FOR -Y13RPB- PROFILE  
SEE SHEET 94 FOR -Y13RPC- PROFILE

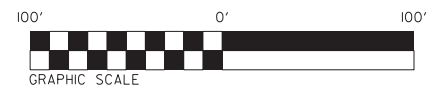
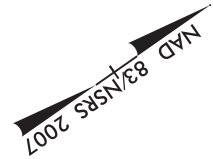
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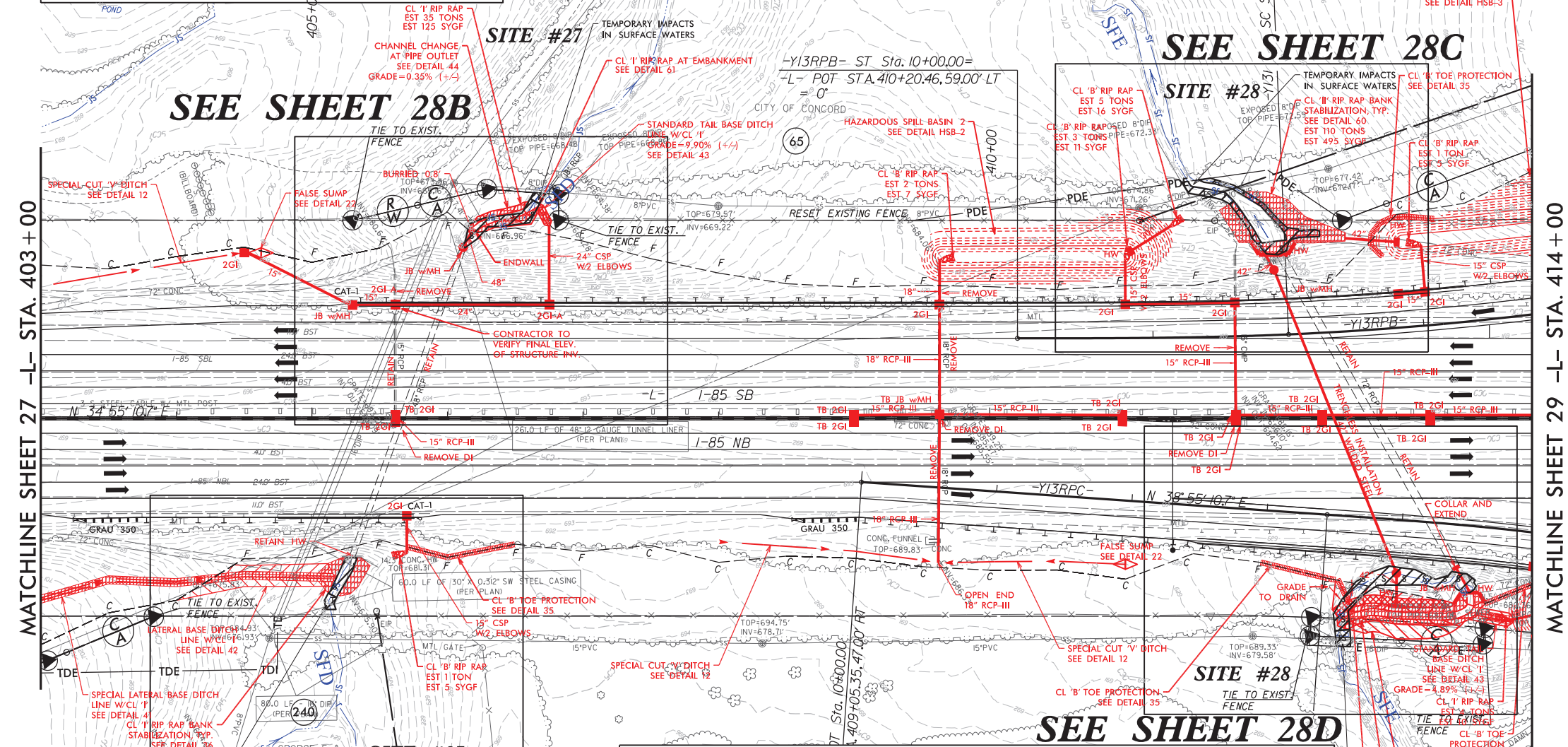
8.17/99



PROJECT REFERENCE NO. I-3802A	SHEET NO. 28
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>BLYTHE PARSONS BRINCKERHOFF</b>	
<b>SEPI</b> ENGINEERING & CONSTRUCTION	
1025 Wade Avenue Raleigh, NC 27605 Tel: 919-789-9977 Fax: 919-789-9591 License: C-2197	

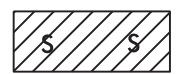


**PERMIT DRAWING**  
**SHEET 94 OF 128**



MATCHLINE SHEET 27 -L- STA. 403+00

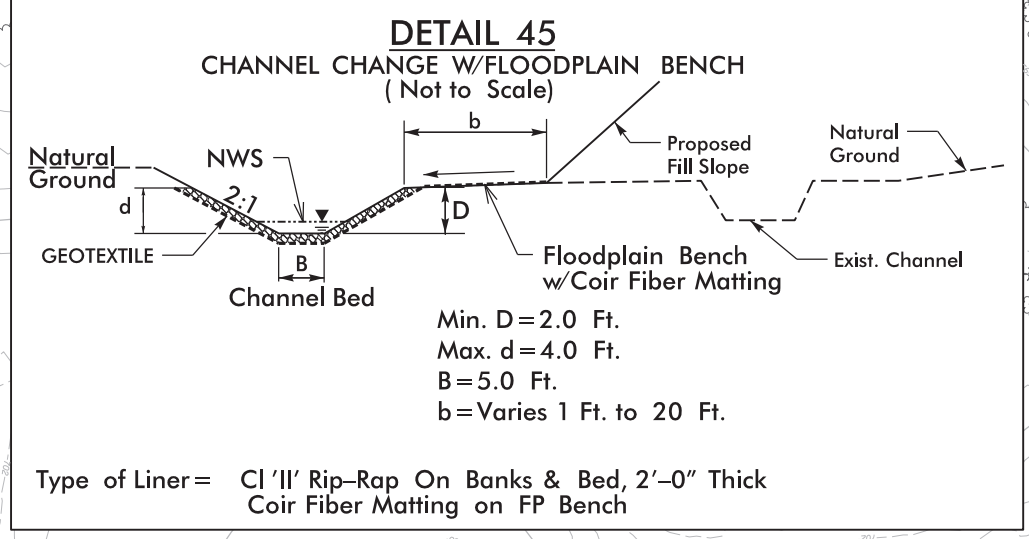
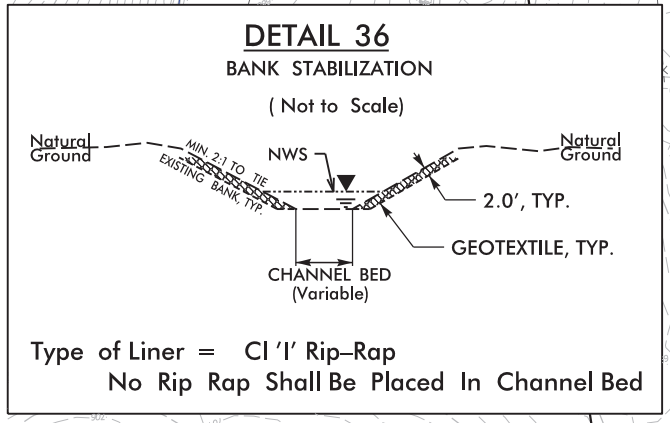
MATCHLINE SHEET 29 -L- STA. 414+00



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



NOTES:  
1. EXISTING PIPE MAY BE RETAINED FOR TEMPORARY DRAINAGE DURING CONSTRUCTION. ONCE PROPOSED DRAINAGE SYSTEM IS INSTALLED AND FUNCTIONING PIPE IS TO BE REMOVED. THE PORTION OF PIPE REMAINING UNDER NEW PAVEMENT IS TO BE PLUGGED AND THE FILLED WITH FLOWABLE FILL.

SEE SHEETS 73 & 74 FOR -LSB- & -LNB- PROFILES  
SEE SHEET 93 FOR -Y13RPB- PROFILE  
SEE SHEET 94 FOR -Y13RPC- PROFILE

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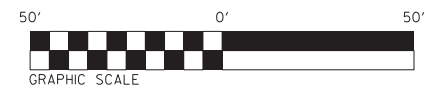
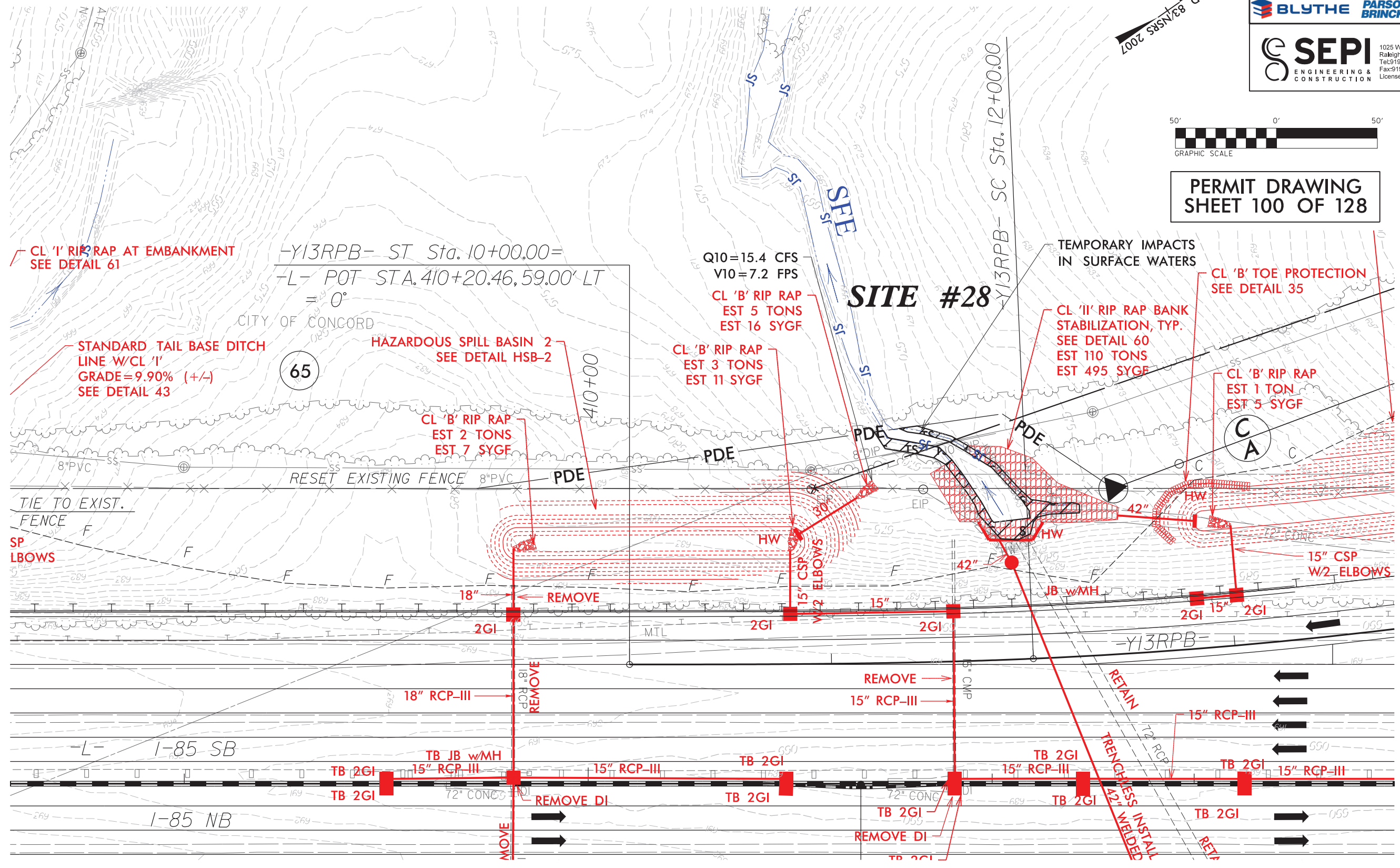




8/17/99

PROJECT REFERENCE NO. I-3802A	SHEET NO. 28C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
1025 Wade Avenue Raleigh, NC 27605 Tel: 919-789-9977 Fax: 919-789-9591 License: C-2197	

DENOTES IMPACTS IN SURFACE WATER  
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



**PERMIT DRAWING**  
**SHEET 100 OF 128**

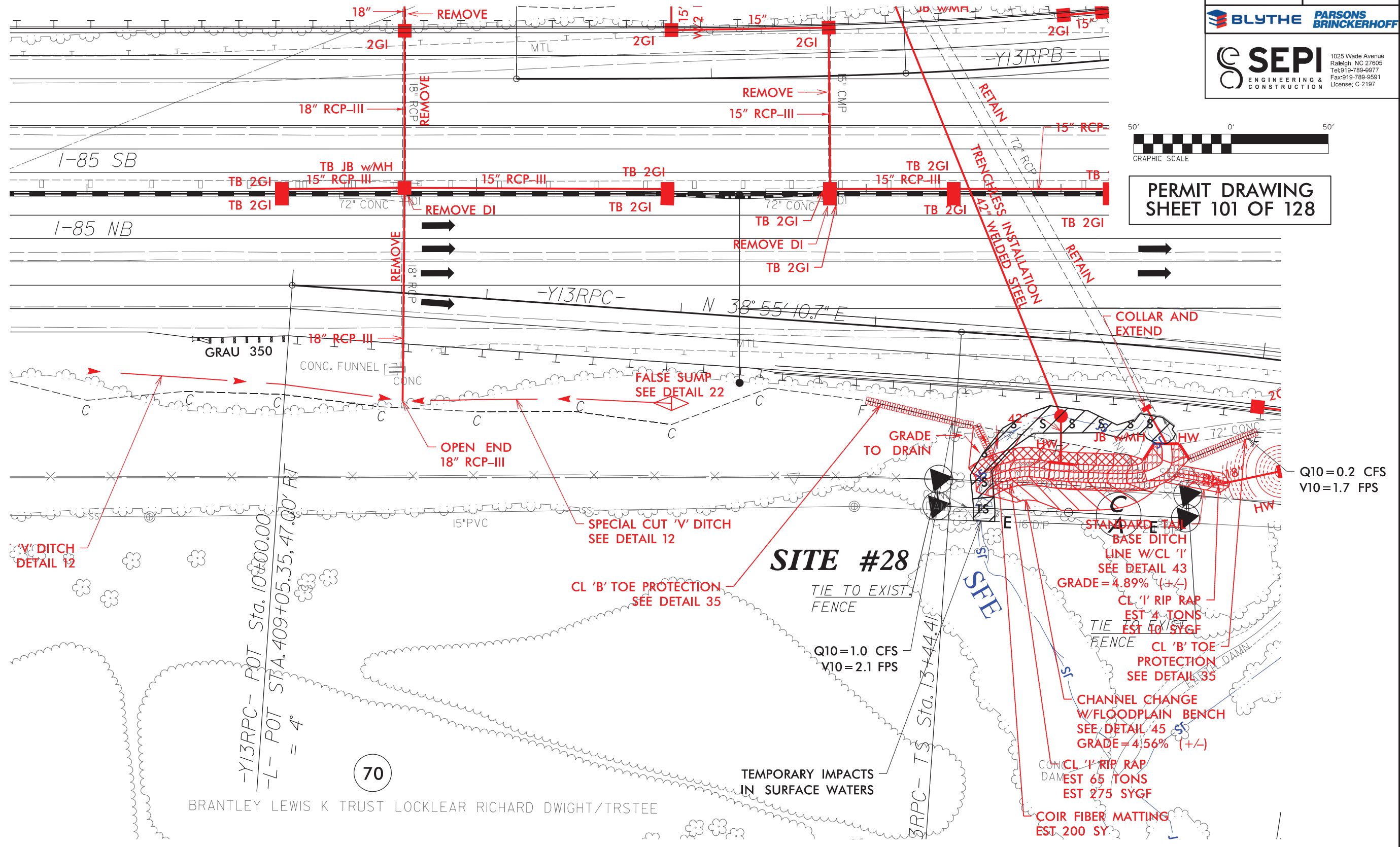
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PROJECT REFERENCE NO. I-3802A	SHEET NO. 28D
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

**BLYTHE PARSONS BRINCKERHOFF**

**SEPI**  
ENGINEERING & CONSTRUCTION  
1025 Wade Avenue  
Raleigh, NC 27605  
Tel: 919-789-9977  
Fax: 919-789-9591  
License: C-2197

DENOTES IMPACTS IN SURFACE WATER      DENOTES TEMPORARY IMPACTS IN SURFACE WATER



**PERMIT DRAWING**  
**SHEET 101 OF 128**

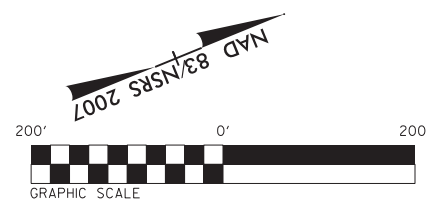
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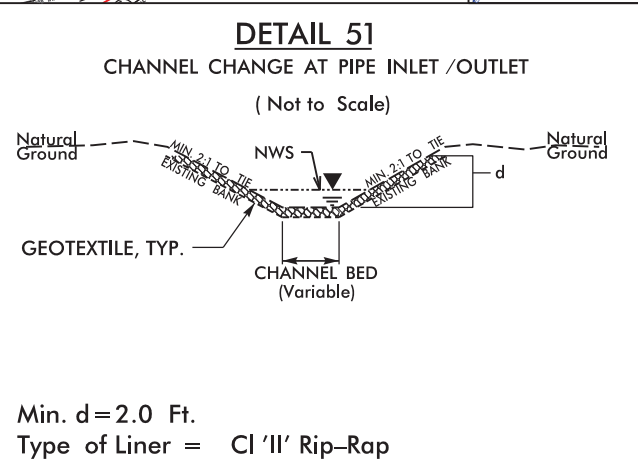
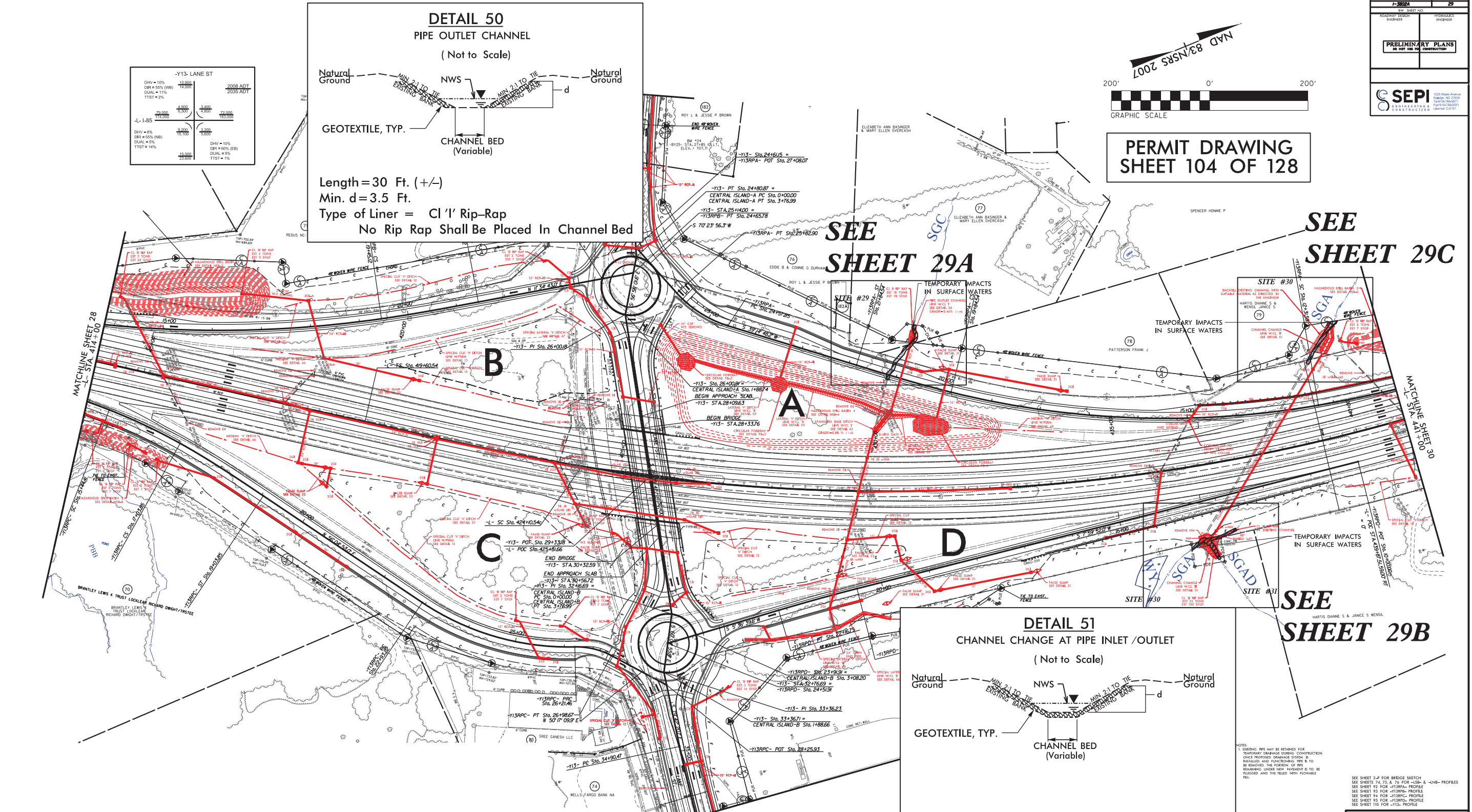
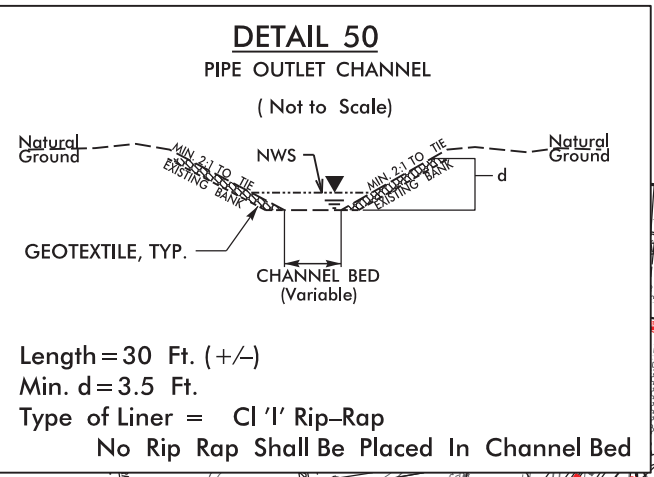


PROJECT REFERENCE NO.	1-3802A
SHEET NO.	104
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b>	
DO NOT USE FOR CONSTRUCTION	



**PERMIT DRAWING**  
**SHEET 104 OF 128**

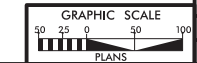
-Y13- LANE ST		2008 ADT	
DIV = 10%	DIR = 50% (WB)	DIR = 11%	DIR = 2%
18,000	4,500	3,400	27,000
172,000	3,300	2,800	183,000
-L- I-85		2008 ADT	
DIV = 10%	DIR = 50% (WB)	DIR = 10%	DIR = 100% (SB)
8,200	3,300	3,300	5,800
15,100	15,100	15,100	15,100
DUAL = 5%	DUAL = 5%	DUAL = 9%	TTST = 1%
18,200	23,900		



**DENOTES IMPACTS IN SURFACE WATER**



**DENOTES TEMPORARY IMPACTS IN SURFACE WATER**



LOCATION:	LANE STREET @ I-85
PROJECT NO.:	1-3802A
COUNTY:	CABARRUS & SOVAN
DESIGNED BY:	###
CHECKED BY:	###
DATE:	04/26/18

1/4" = 20' (Vertical Scale) 1/8" = 10' (Horizontal Scale)

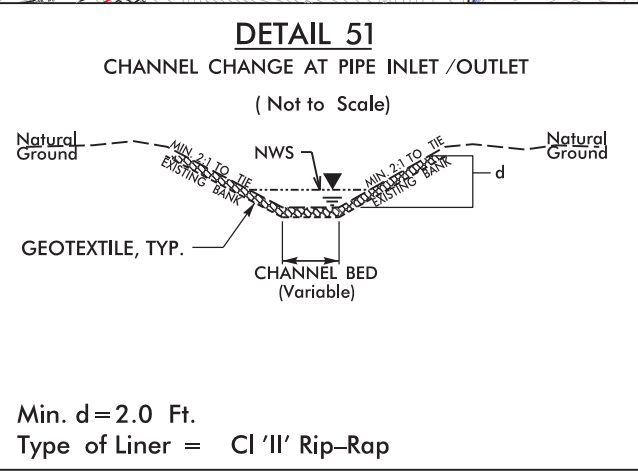
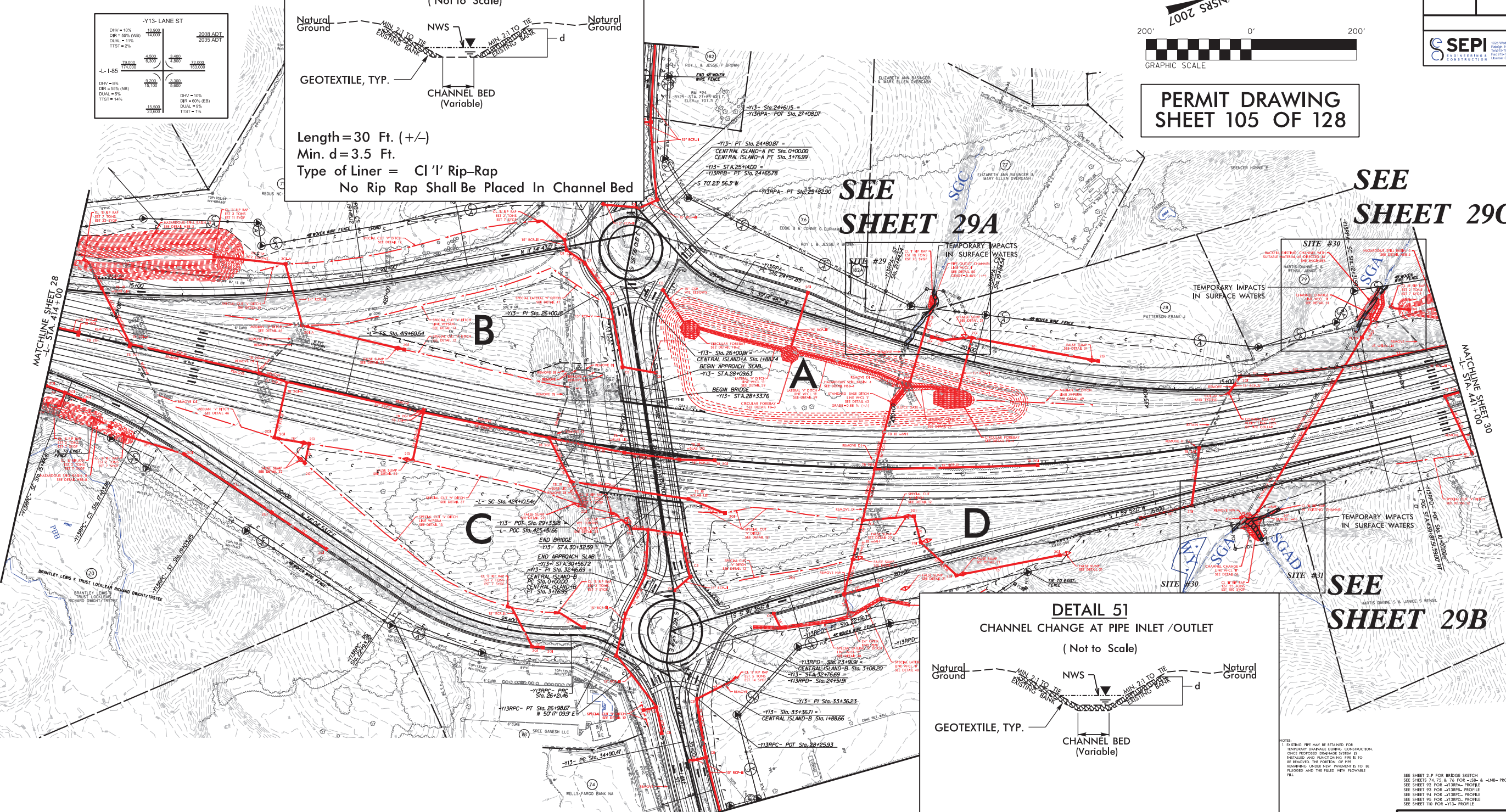
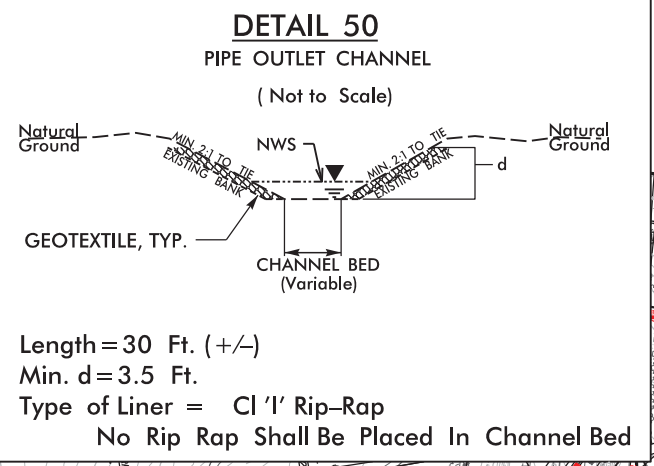




**PERMIT DRAWING**  
**SHEET 105 OF 128**

-Y13- LANE ST

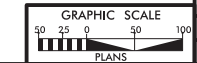
11.000	12.000	2008 ADT
DIV# = 10%	DUAL = 55% (NB)	2035 ADT
TTST = 2%		
75.000	4.500	3.000
172.000	8.300	27.000
		183.000
8.000	3.000	5.000
DIV# = 9%	DUAL = 55% (NB)	DIV# = 10%
DUAL = 5%	DUAL = 9%	DUAL = 9%
18.000	18.000	23.000
23.000		TTST = 1%



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



LOCATION: LANE STREET @ I-85

PROJECT NO.: 1-3802A COUNTY: CABARRUS & SOFAM

DESIGNED BY: [Signature]

CHECKED BY: [Signature]

DATE: 04/26/24

NOTES:  
 1. EXISTING PIPE MAY BE RETAINED FOR TEMPORARY DRAINAGE DURING CONSTRUCTION ONCE PROPOSED DRAINAGE SYSTEM IS INSTALLED AND FUNCTIONING. PIPE IS TO BE REMOVED. THE PORTION OF PIPE REMAINING UNDER NEW BRIDGE IS TO BE PLUGGED AND THE FILL WITH FLOWABLE FILL.  
 SEE SHEET 24P FOR BRIDGE SKETCH  
 SEE SHEETS 74, 75, & 76 FOR -13B- & -13B- PROFILES  
 SEE SHEET 78 FOR -13BPC- PROFILE  
 SEE SHEET 79 FOR -13BPC- PROFILE  
 SEE SHEET 80 FOR -13BPC- PROFILE  
 SEE SHEET 81 FOR -13BPC- PROFILE  
 SEE SHEET 82 FOR -13BPC- PROFILE  
 SEE SHEET 83 FOR -13BPC- PROFILE  
 SEE SHEET 84 FOR -13BPC- PROFILE  
 SEE SHEET 85 FOR -13BPC- PROFILE  
 SEE SHEET 86 FOR -13BPC- PROFILE  
 SEE SHEET 87 FOR -13BPC- PROFILE  
 SEE SHEET 88 FOR -13BPC- PROFILE  
 SEE SHEET 89 FOR -13BPC- PROFILE  
 SEE SHEET 90 FOR -13BPC- PROFILE  
 SEE SHEET 91 FOR -13BPC- PROFILE  
 SEE SHEET 92 FOR -13BPC- PROFILE  
 SEE SHEET 93 FOR -13BPC- PROFILE  
 SEE SHEET 94 FOR -13BPC- PROFILE  
 SEE SHEET 95 FOR -13BPC- PROFILE  
 SEE SHEET 96 FOR -13BPC- PROFILE  
 SEE SHEET 97 FOR -13BPC- PROFILE  
 SEE SHEET 98 FOR -13BPC- PROFILE  
 SEE SHEET 99 FOR -13BPC- PROFILE  
 SEE SHEET 100 FOR -13BPC- PROFILE  
 SEE SHEET 101 FOR -13BPC- PROFILE  
 SEE SHEET 102 FOR -13BPC- PROFILE  
 SEE SHEET 103 FOR -13BPC- PROFILE  
 SEE SHEET 104 FOR -13BPC- PROFILE  
 SEE SHEET 105 FOR -13BPC- PROFILE  
 SEE SHEET 106 FOR -13BPC- PROFILE  
 SEE SHEET 107 FOR -13BPC- PROFILE  
 SEE SHEET 108 FOR -13BPC- PROFILE  
 SEE SHEET 109 FOR -13BPC- PROFILE  
 SEE SHEET 110 FOR -13BPC- PROFILE



8/17/99

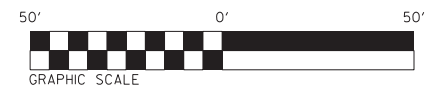
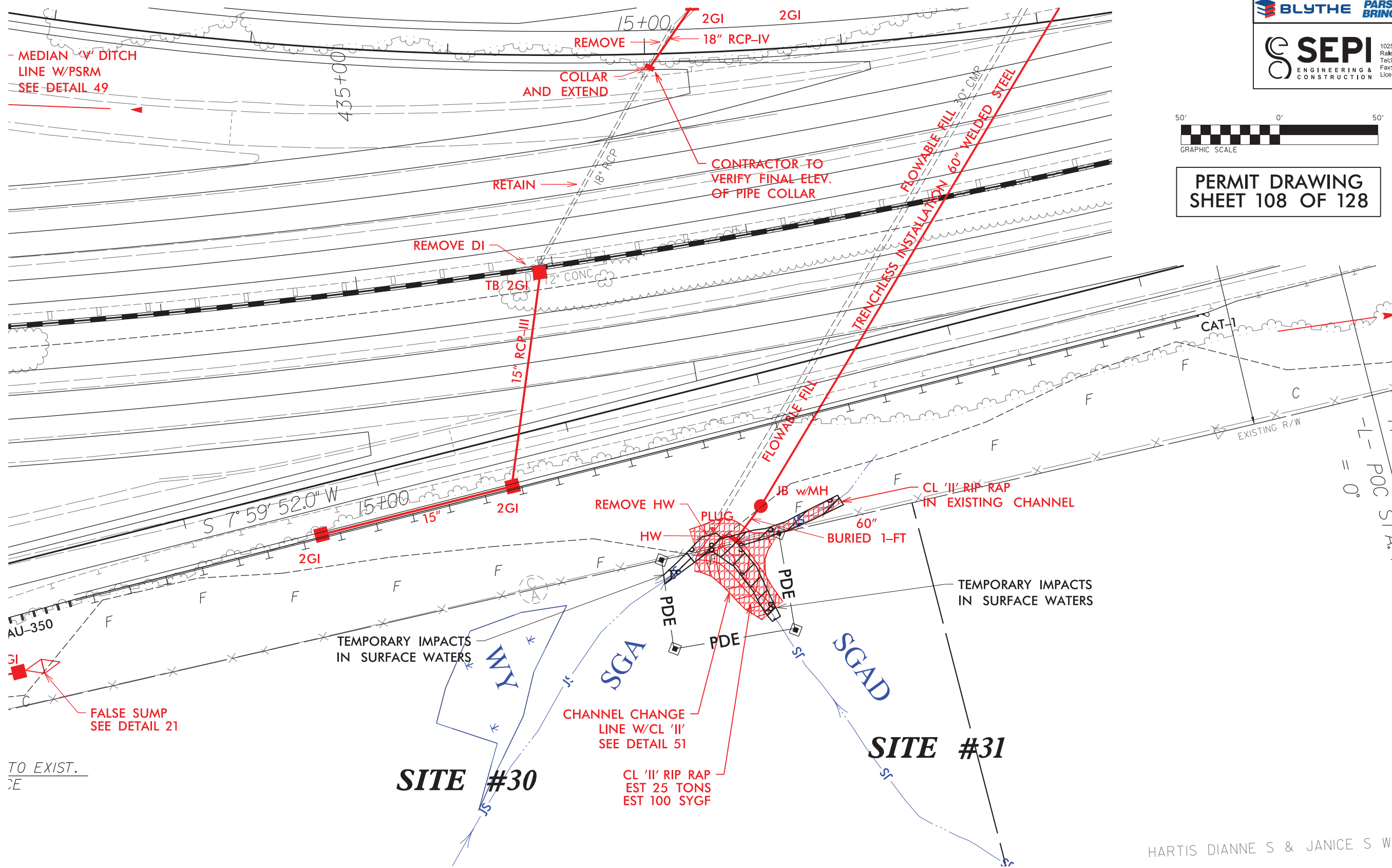
PROJECT REFERENCE NO. <b>I-3802A</b>	SHEET NO. <b>29B</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



**SEPI**  
ENGINEERING & CONSTRUCTION  
1025 Wade Avenue  
Raleigh, NC 27605  
Tel: 919-789-9977  
Fax: 919-789-9591  
License: C-2197



DENOTES IMPACTS IN SURFACE WATER      DENOTES TEMPORARY IMPACTS IN SURFACE WATER



**PERMIT DRAWING**  
**SHEET 108 OF 128**

POC SIM  
= 0°

FALSE SUMP  
SEE DETAIL 21

TO EXIST.  
E

**SITE #30**

**SITE #31**

HARTIS DIANNE S & JANICE S W

11/17/2018 I:\I-3802A\_hyd\_perm\_wet\_108\_psh29B.dgn

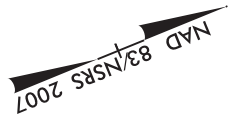
8/17/99  
11/1/2018  
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PROJECT REFERENCE NO. I-3802A	SHEET NO. 29B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

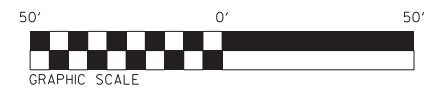
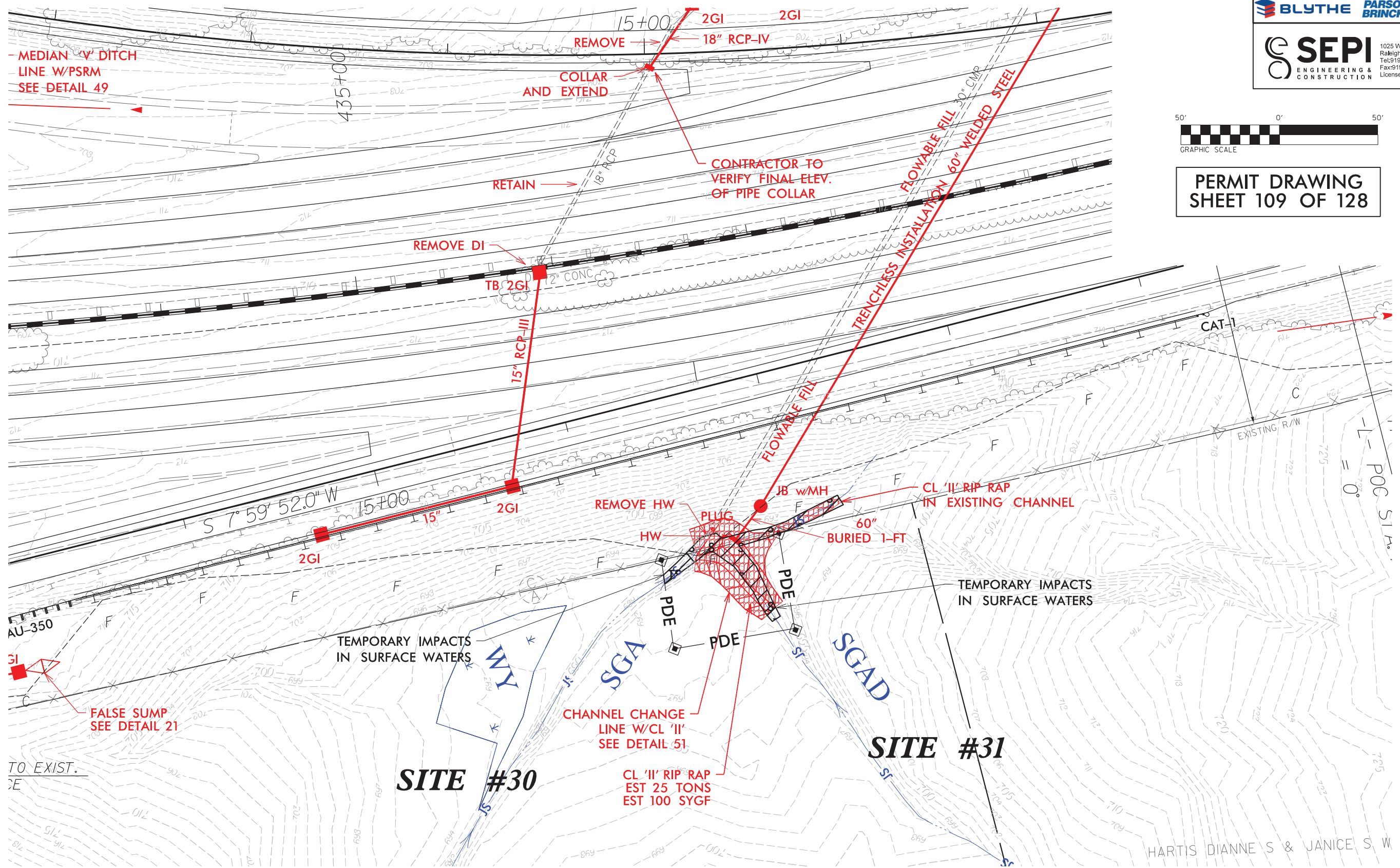
**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION



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License: C-2197



DENOTES IMPACTS IN SURFACE WATER  
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



**PERMIT DRAWING**  
**SHEET 109 OF 128**

**SITE #30**


**SITE #31**

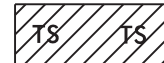
HARTIS DIANNE S & JANICE S W

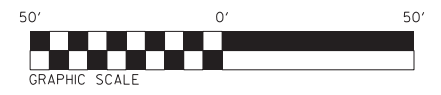
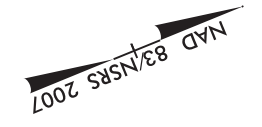


8/17/99  
11/6/2008  
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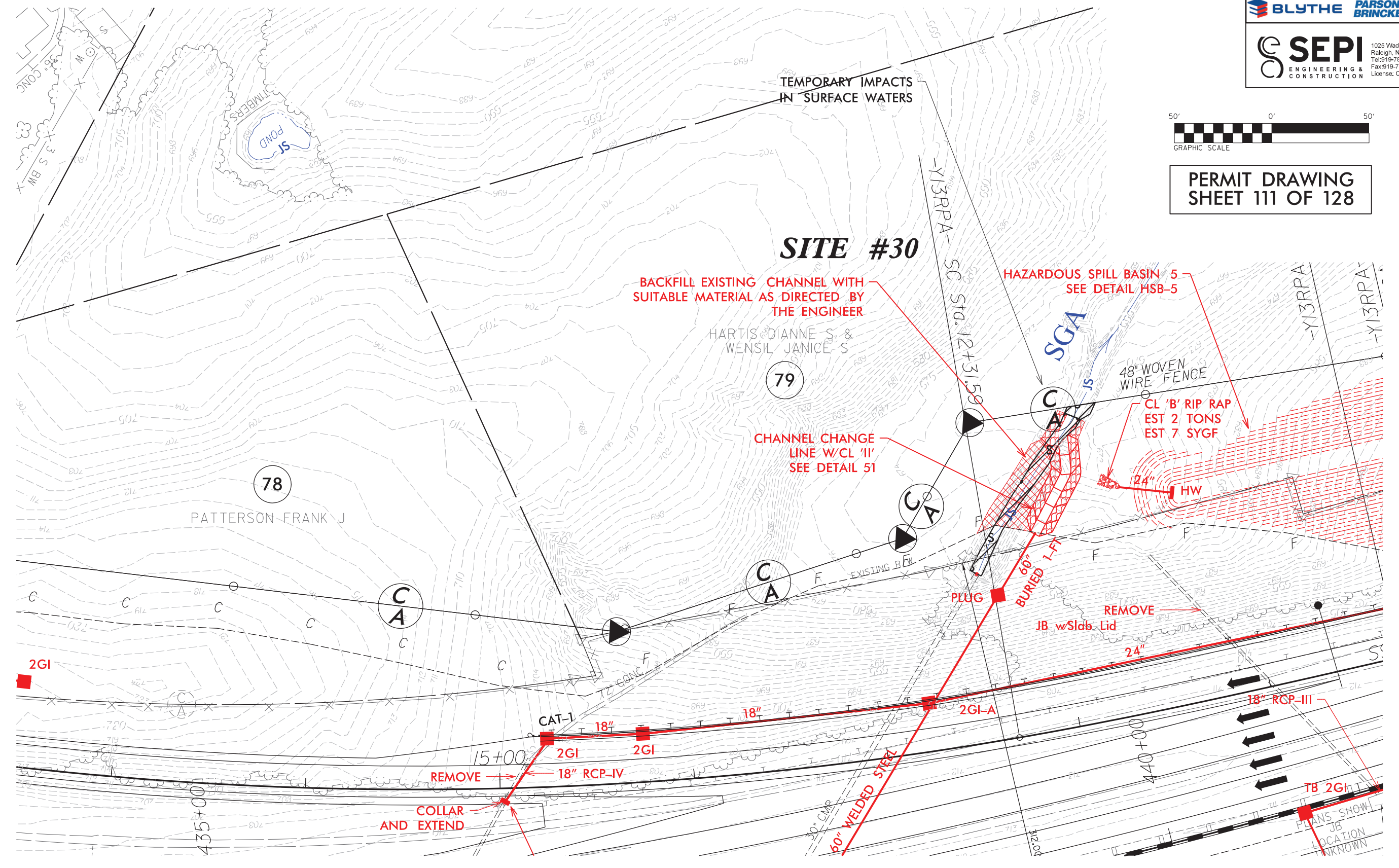
PROJECT REFERENCE NO.	SHEET NO.
I-3802A	29C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>BLYTHE PARSONS BRINCKERHOFF</b>	
<b>SEPI</b> ENGINEERING & CONSTRUCTION	
<small>1025 Wade Avenue Raleigh, NC 27605 Tel: 919-789-9977 Fax: 919-789-9591 License: C-2197</small>	

 DENOTES IMPACTS IN SURFACE WATER

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



**PERMIT DRAWING**  
**SHEET 111 OF 128**



B.17/99

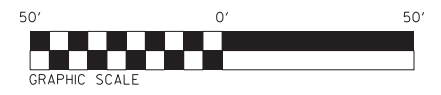
PROJECT REFERENCE NO. <b>I-3802A</b>	SHEET NO. <b>29C</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

**BLYTHE** **PARSONS BRINCKERHOFF**

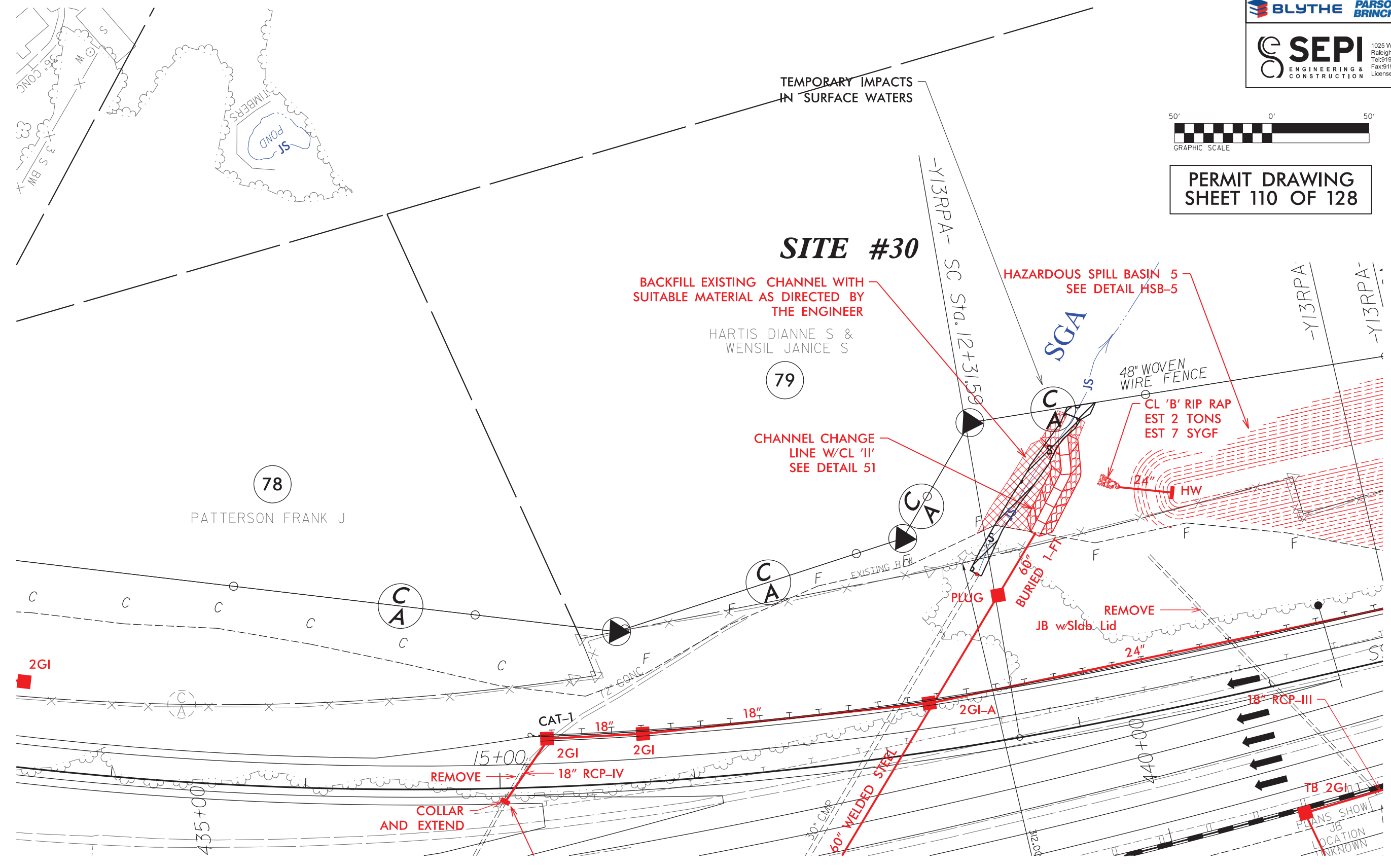
**SEPI**  
ENGINEERING & CONSTRUCTION

1025 Wade Avenue  
Raleigh, NC 27605  
Tel: 919-789-9977  
Fax: 919-789-9591  
License: C-2197

 DENOTES IMPACTS IN SURFACE WATER
  DENOTES TEMPORARY IMPACTS IN SURFACE WATER



**PERMIT DRAWING**  
**SHEET 110 OF 128**



11/6/2018 I:\S\2018\I-3802A\_hyd\_perm\_vet\_110\_psh29C.dgn



All Sediment Traps and Temporary Silt Ditches Shall be Monitored, Maintained and Repaired as Per Project Special Provisions

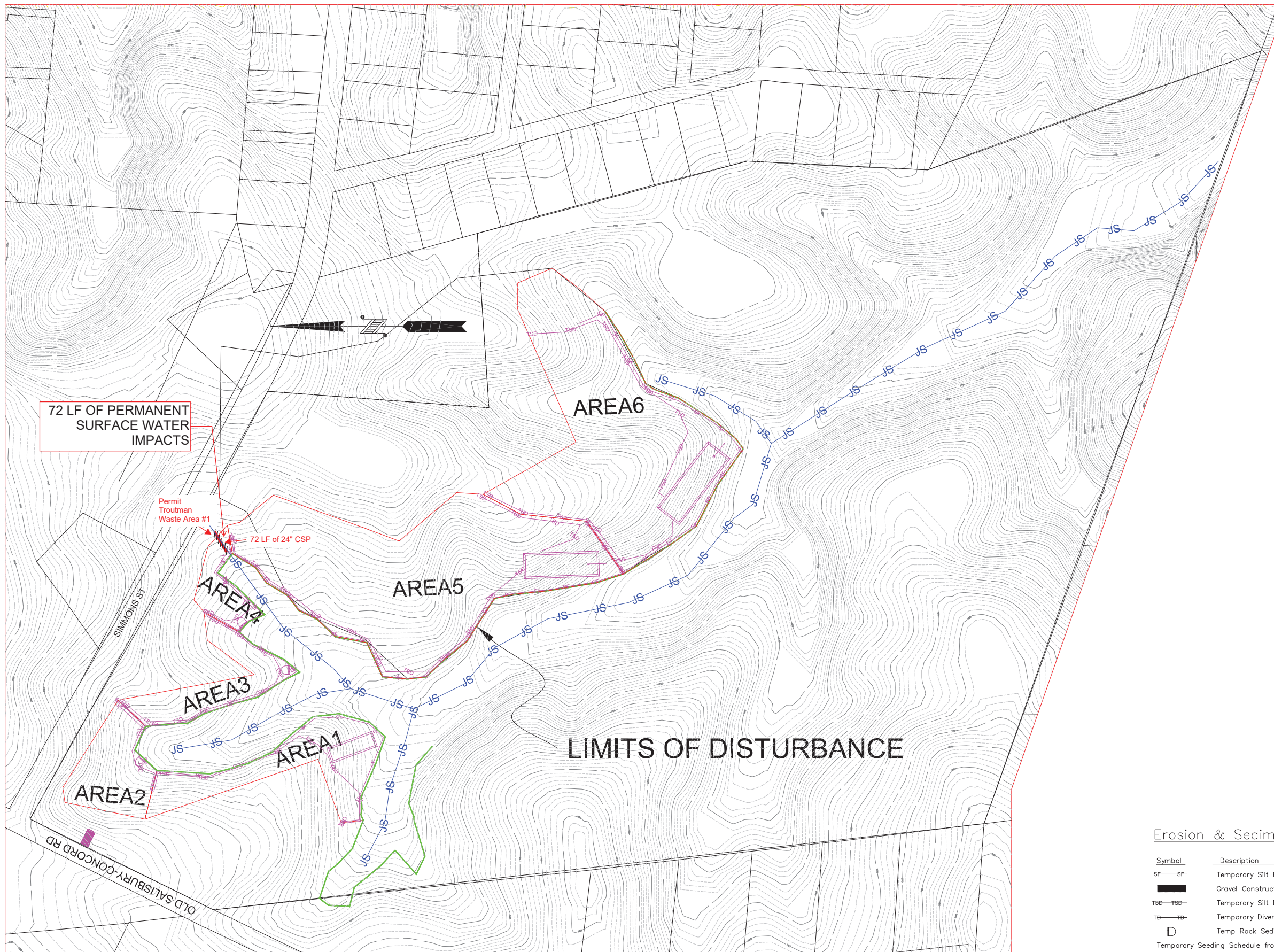
Each Area Shall Be Completed and Seeded Prior to Beginning Work on the Next Area. Flagging Shall be Placed Along Silt Fence Adjacent to Juris. Stream.

# PERMIT DRAWING

## MODIFICATION 10/28/2019

Blythe Construction, Inc.  
2911 N Graham Street  
Charlotte, NC 28231  
(704) 375-8474 (704)375-7814 - Fax

**EXISTING CONDITIONS & EROSION CONTROL**  
Waste Pit for Blythe Construction  
Cabarrus County - I-85 Design Build  
State Project C203328 - TIP I-3208A



72 LF OF PERMANENT SURFACE WATER IMPACTS

Permit Troutman Waste Area #1  
72 LF of 24" CSP

**AREA 1: SILT BASIN TYPE B**  
Drainage area: 2.2 ac  
Disturbed Area: 1.3 ac  
i10=(Tc=5 min) 10 YR: 7.19 in/hr  
Q10= 9.5 cfs  
LTOP:123 ft  
LBASE: 114 ft  
WTOP: 41 ft  
WBASE: 32 ft  
Depth: 3 ft  
Weir Length: 24 ft  
Baffles: 3@31 ft

**AREA 2: TEMP. SEDIMENT DAM B**  
Drainage area: 1.8 ac  
Disturbed Area: 0.98 ac  
i10=(Tc=5 min) 10 YR: 7.19 in/hr  
Q10= 7.8 cfs  
LTOP:111 ft  
LBASE: 102 ft  
WTOP: 37 ft  
WBASE: 28 ft  
Depth: 3 ft  
Weir Length: 4 ft  
Baffles: 3@28 ft

**AREA 3: TEMP. SEDIMENT DAM B**  
Drainage area: 1.4 ac  
Disturbed Area: 0.96 ac  
i10=(Tc=5 min) 10 YR: 7.19 in/hr  
Q10= 6.0 cfs  
LTOP:99 ft  
LBASE: 90 ft  
WTOP: 33 ft  
WBASE: 24 ft  
Depth: 3 ft  
Weir Length: 4 ft  
Baffles: 3@25 ft

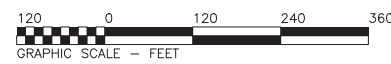
**AREA 4: TEMP. SEDIMENT DAM B**  
Drainage area: 0.9 ac  
Disturbed Area: 0.47 ac  
i10=(Tc=5 min) 10 YR: 7.19 in/hr  
Q10= 3.9 cfs  
LTOP:81 ft  
LBASE: 72 ft  
WTOP: 27 ft  
WBASE: 18 ft  
Depth: 3 ft  
Weir Length: 4 ft  
Baffles: 3@20 ft

**AREA 5: SKIMMER BASIN**  
Drainage area: 7.8 ac  
Disturbed Area: 5.8 ac  
i10=(Tc=5 min) 10 YR: 7.19 in/hr  
Q10= 33.4 cfs  
LTOP: 192 ft  
LBASE: 183 ft  
WTOP: 64 ft  
WBASE: 55 ft  
Depth: 3 ft  
Weir Length: 56 ft  
Skimmer Size: 2.5 in  
Orifice Dia, D: 2.7 in  
Spillway Barrel: 4"  
Baffles: 3@48 ft

**AREA 6: SKIMMER BASIN**  
Drainage area: 9.8 ac  
Disturbed Area: 5.3 ac  
i10=(Tc=5 min) 10 YR: 7.19 in/hr  
Q10= 42.3 cfs  
LTOP: 213 ft  
LBASE: 204 ft  
WTOP: 71 ft  
WBASE: 62 ft  
Depth: 3 ft  
Weir Length: 63 ft  
Skimmer Size: 3.0 in  
Orifice Dia, D: 2.9 in  
Spillway Barrel: 4"  
Baffles: 3@53 ft

### Erosion & Sediment Control Measures Legend

Symbol	Description	Std.#
SF—SF	Temporary Silt Fence	1605.1
Gravel	Gravel Construction Entrance	1607.01
TSB—TSB	Temporary Silt Ditch	1630.03
TB—TB	Temporary Diversion	1630.05
D	Temp Rock Sediment Dam Type-B	1634.02
	Temporary Seeding Schedule from Project Specifications	



Waste Area #3 - Troutman

Designer Level III-B Certification Number: 3008

NO.	DATE	DESCRIPTION
0	02/17/17	Submitted for Review
1	03/22/17	SUBMIT SHEET AREA
2	03/31/17	Revised per NCOT Comments

PROJECT NO.: 670089  
DESIGNED BY: SB  
SURVEYED BY: SB  
DRAWN BY: SB  
DATE: 02/17/2017

# C1.1



**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	83+00 -L-	BANK STABILIZATION						< 0.01	< 0.01	21	10	
2	94+68 -L-	BANK STABILIZATION						0.04	< 0.01	172	20	
3	97+00 -L-	EXTEND EX 30" RCP-III						< 0.01	< 0.01	15	20	
4	157+27 -L-	EXTEND EX 42" RCP-III						< 0.01	< 0.01	7	10	
4	157+25 -L-	BANK STABILIZATION						< 0.01	< 0.01	30	10	
6	193+25 -L-	FILL						0.01		95		
7	193+00 -L-	6' LATERAL BASE DITCH						0.03	< 0.01	140	20	
7A	44+87 -Y7-	REPLACE EXIST. 48" CMP						< 0.01	< 0.01	23	24	
8	195+25 -L-	4' LATERAL BASE DITCH							< 0.01		15	
9	205+50 -L-	BANK STABILIZATION						< 0.01	< 0.01	9	5	
9A	205+50 -L-	BANK STABILIZATION						< 0.01	< 0.01	5	5	
10	230+75 - 237+60 -L-	CHANNEL CHANGE						0.10	< 0.01	646	30	
10A	229+40 -L-	BANK STABILIZATION						< 0.01	< 0.01	7	12	
12	241+00 / 248+00 -L-	BANK STABILIZATION						< 0.01	< 0.01	9	20	
12	241+40 -L-	EXTEND EX 48" RCP-III						< 0.01	< 0.01	25	10	
UC-1	257+45 -L-	6" WATER LINE							0.01		56	
12A	257+45 -L-	BANK STABILIZATION						< 0.01	< 0.01	21	20	
13	267+70 -L-	EXTEND 36" CSP	0.08				0.01					
14	268+45 -L-	18" RCP-III						0.03	< 0.01	106	16	
14	267+00 -L-	FILL	< 0.01				< 0.01	< 0.01		3		
14	267+00 - 267+25 -L-	6' LATERAL BASE DITCH			< 0.01		0.02					
15	269+50 -L-	EXTEND EX 42" CMP						< 0.01		20		
15	269+50 -L-	BANK STABILIZATION						< 0.01	< 0.01	28	4	
15	271+00 -L-	FILL						0.01		60		
SHEET 126 SUBTOTALS*:			0.08		< 0.01		0.03	0.25	0.05	1442	307	0

\*Rounded subtotals are sum of actual impacts

NOTES:

11/2019 Modification Changes Shown in Red.

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 10/31/2019  
 CABARRUS AND ROWAN  
 I-3802A  
 C203328

**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)
16	279+00 -L-	FILL	< 0.01									
17	305+00 -L-	FILL, OTCB					0.01	< 0.01			10	
	306+00 -L-	EXTEND 30" RCP-IV						< 0.01		12		
<b>17</b>	306+00 -L-	BANK STABILIZATION						< 0.01	< 0.01	<b>22</b>	<b>6</b>	
<b>17A</b>	317+76 -L-	BANK STABILIZATION								<b>0</b>		
17B	322+90 -L-	BANK STABILIZATION						< 0.01	< 0.01	6	5	
18	338+00 -L-	BANK STABILIZATION						0.03	< 0.01	185	35	
18	338+00 -L-	BANK STABILIZATION						0.02		30		
18	338+00 -L-	PIER REMOVAL							0.07		125	
19	340+00 -L-	FILL			< 0.01			0.07	< 0.01	356	15	
20	350+50 -L-	EXTEND 54" RCP-III						< 0.01	< 0.01	12	10	
<b>20</b>	352+00 -L-	BANK STABILIZATION						< 0.01	< 0.01	<b>10</b>	10	
21	48+75 -Y3-	FILL						0.04		210	<b>0</b>	
<b>21</b>	48+75 -Y3-	BANK & BED STABILIZATION						0.05		<b>67</b>		
22	50+00 -Y3-	FILL, EXTEND 54" RCP-III						0.02		130		
	50+00 -Y3-	OUTLET PROTECTION						< 0.01	< 0.01	15	10	
<b>23</b>	58+00 -Y3-	FILL	0.10				< 0.01	0.03	0.01	<b>128</b>	65	
23	58+00 -Y3-	BANK STABILIZATION						< 0.01	< 0.01	11	10	
24	16+00 -Y34-	EXTEND 36" RCP-III	< 0.01					0.01	< 0.01	80	10	
<b>36</b>	18+18 -Y17-	EXTEND 36" PIPE						< 0.01		<b>26</b>		
<b>36</b>	18+18 -Y17-	OUTLET PROTECTION						< 0.01		<b>35</b>		
<b>36</b>	17+70 -Y17-	SEDIMENT BASIN		<b>0.01</b>								
SHEET 127 SUBTOTALS*:			0.11	0.01	< 0.01		0.02	0.28	0.10	<b>1335</b>	311	0

\*Rounded subtotals are sum of actual impacts

NOTES:

**11/2019 Modification Changes Shown in Red.**

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 11/5/2019  
 CABARRUS AND ROWAN  
 I-3802A  
 C203328  
 SHEET 127 OF 128



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)
<b>25</b>	388+34 -L-	CHANNEL CHANGE						< 0.01	< 0.01	<b>46</b>	10	
25	388+34 -L-	BANK STABILIZATION						< 0.01		35		
26	388+34 -L-	72" WSP WORK AREA					0.02					
<b>27</b>	405+66 -L-	EXTEND 48" RCP						< 0.01		<b>14</b>		
<b>27</b>	405+66 -L-	CHANNEL CHANGE						< 0.01	< 0.01	<b>50</b>	7	
27	405+66 -L-	BANK STABILIZATION						< 0.01	< 0.01	31	12	
28	412+82 -L-	EXTEND 72" RCP /42" WSP										
<b>28</b>	412+82 -L-	CHANNEL CHANGE & RIPRAP						0.04	< 0.01	<b>116</b>	<b>41</b>	
<b>28</b>	412+82 -L-	BANK STABILIZATION						< 0.01	< 0.01	<b>44</b>	<b>17</b>	
<b>29</b>	20+91 -Y13RPA-	42" RCP						0.01		<b>93</b>		
<b>29</b>	20+91 -Y13RPA-	OUTFALL CHANNEL						< 0.01	< 0.01	<b>26</b>	8	
30	437+82 -L-	48" WSP										
<b>30</b>	437+82 -L-	CHANNEL CHANGE & RIPRAP						0.02	< 0.01	<b>134</b>	<b>25</b>	
<b>30</b>	437+82 -L-	BANK STABILIZATION								<b>0</b>		
<b>31</b>	437+82 -L-	CHANNEL CHANGE						0.02	< 0.01	<b>116</b>	<b>5</b>	
<b>32</b>	449+92 -L-	BANK STABILIZATION						< 0.01	< 0.01	<b>66</b>	23	
33	470+69 / 473+73 -L-	LATERAL BASE DITCH	0.11		0.04		0.02					
34	470+85 / 477+45 -L-	LATERAL BASE DITCH						0.03		427		
34	470+85 / 477+45 -L-	42" ALTERNATE PIPE						0.02		234		
34	470+85 / 477+45 -L-	BANK STABILIZATION						< 0.01		13		
35	478+17 -L-	BANK STABILIZATION						0.02	< 0.01	99	30	
SHEET 126 SUBTOTALS*:			0.08		<0.01		0.03	0.25	0.05	<b>1442</b>	307	0
SHEET 127 SUBTOTALS*:			0.11		< 0.01		0.02	0.28	0.10	<b>1335</b>	<b>311</b>	0
SHEET 128 SUBTOTALS*:			0.11		0.04		0.04	0.20	0.03	<b>1544</b>	<b>178</b>	0
PROJECT TOTALS*:			0.30	<b>0.01</b>	0.04	0.00	0.09	0.74	0.18	<b>4321</b>	<b>796</b>	0

\*Rounded subtotals and totals are sum of actual impacts

NOTES: In addition to the project totals listed above, this permit includes a total of 0.01 acres of Temporary Impacts in Wetlands for Erosion Control Devices per the NCDOT Roadside Environmental Unit.  
**11/2019 Modification Changes Shown in Red.**

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 11/5/2019  
 CABARRUS AND ROWAN  
 I-3802A  
 C203328