



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

July 8, 2020

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

ATTN: Mr. Eric Alsmeyer, NCDOT Regulatory Coordinator

Subject: **Request for Modification to the Regional General Permit Number 31, Section 401 Water Quality Certification, and Neuse Buffer Authorization for Improvements to Existing I-440 Beltline, from south of SR 1313 (Walnut Street) to north of SR 1728 (Wade Avenue), Wake County. WBS 35869.1.2. TIP U-2719**

References: Regional General Permit Number 31 Verification (Action ID: SAW-2012-01414) dated August 21, 2019

401 Water Quality Certification and Neuse Buffer Authorization (DWR Project No. 20190992) dated August 26, 2019; Modification to the Neuse Buffer Authorization (DWR Project No. 20190992 ver 2) dated May 12, 2020

Dear Sir:

The North Carolina Department of Transportation (NCDOT) requests modification to the existing Section 404 Regional General Permit Number 31, Section 401 Water Quality Certification, and Riparian Buffer Authorization for the widening and improving of I-440/US 1 from SR 1313 to SR 1728 (TIP R-2719) in Wake County. This project is currently under construction.

This modification will result in no changes to the previously permitted wetland and open water impacts. The modification results in 6 linear feet (lf) of additional permanent stream fill impacts, a reduction of 11 lf of temporary stream impacts, 50 lf of additional bank stabilization impacts, and an increase of 3,531 square feet (sq ft) of riparian buffer impacts in Zone 1 and a decrease of 36 sq ft in Zone 2. The total project impacts for U-2719 include 1,555 lf of permanent stream impacts, 688 lf of temporary stream impacts, 0.04 ac of permanent wetland impacts, no temporary wetland impacts, no hand clearing in wetlands, and 125,431 sq ft of buffer impacts (84,022 sq ft in Zone 1 and 41,409 sq ft in Zone 2).

Please see the enclosed revised permit drawings and updated impact summary sheets which reflect the changes in impacts as well as the following updated tables and explanation.

Mailing Address:
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ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Explanation of Permit Impact Site Modifications Being Requested

Site 13 (Sheet 17/17B) – Site 13 has a reduction in buffer impacts as a result of changing the PDE for a property owner who wanted to minimize impacts to an existing shed. The decrease in mitigable buffer impacts at Site 13 in Zone 1 is 913 sq ft and 1,569 sq ft in Zone 2. This makes the total allowable impact in Zone 1 7,989 sq ft and Zone 2 is 6,169 sq ft for Site 13.

Site 14 (Sheet 18/18A) – Site 14 has an increase in permanent stream impacts and allowable buffer impacts due to a sewer line which will be bored under I-440. The increase in permanent stream impacts is due to bank stabilization being installed according to the utility recommendations. Bank stabilization impacts result in an additional 35 lf of permanent impact. Buffers will also be impacted by installation of the bank stabilization resulting in an additional 4,075 sq ft of impact in Zone 1 and 1,396 sq ft in Zone 2. This makes the total allowable impact in Zone 1 10,921 sq ft and Zone 2 is 2,780 sq ft for Site 14.

Site 15 (Sheet 18/18A) – Site 15 impacts did not change; however, the design has changed and is visible on the revised drawing.

Site 20 (Sheet 28) – Site 20 impacts changed as a result of the final design of the 14'x7' RCBC in which the culvert length was increased slightly from preliminary plans and a shift in the PDE and easement due to utilities and constructability needs. The culvert length resulted an increase in permanent impacts by 6 lf for the RCBC and by 15 lf for bank stabilization. The temporary impact at this site was reduced by 11 lf. There will be a total of 98 lf of impact due to the RCBC, 65 lf of bank stabilization, and 18 lf of temporary stream impact at Site 20.

Revised Permit Impact Tables

The following tables illustrate the updates to the impacts that were previously provided in the electronic PCN and Modification Request.

Revised U-2719 Jurisdictional Resources Impacts Table

Impact Type	Riparian Wetland Temp./ Perm. (ac)	Non-Riparian Wetland Temp./ Perm. (ac)	Isolated Wetlands (ac)	Ponds (ac)	Stream (lf)		Riparian Buffer (sq. ft.) Zone 1/2
					Perm.	Temp.	
Neuse River Basin (HUC 03020201)	0.0/ 0.04	0.0	0.0	1.25	1,555	688	84,022/ 41,409

Bolded impact amounts represent a change from the 404 (SAW-2012-01414) issued on August 21, 2019 and 401 WQC (20190992) issued August 26, 2019 and Buffer Authorization Modification issued May 12, 2020.

U-2719 Wetland Impacts (No changes)

There are no changes to the wetland impacts from this modification.

U-2719 Open Water (Ponds) Impacts (No changes)

There are no changes to the open water impacts from this modification.

U-2719 Stream Impacts (Revised)

The total permanent stream impact for U-2719 increased from 1,499 lf in the 404/401 Authorizations to 1,555 lf. This modification results in 6 lf of additional permanent stream impact from fill, 55 lf of additional

bank stabilization impact, and a reduction of 11 lf of temporary stream impact due to changes at Permit Sites 14 and 20. See the revised stream impact table below.

Revised U-2719 Stream Impacts Table

Permit Site No.	Stream Name	Perennial (P) or Intermittent (I)	Type of Jurisdiction	Type of Impact	Average Stream Width (feet)	Impact Type	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temporary (ft)
1	SAK	I	Both	Rip Rap at 18” Outlet	3	P/T	7	10
3	SX	P	Both	Culvert Clean Out	13	P/T	9	41
				Bank Stabilization			93	97
4	SW	P	Both	Rip Rap in Stream	10	T	0	112
7	ST	P	Both	Outlet Stabilization	13	P/T	35	50
8	SV	P	Both	Bank Stabilization	4	P	244	0
9	SU	P	Both	Bank Stabilization	4	P	62	0
12	SS	P	Both	Channel Improvement/Bank Stabilization	5	P/T	34	65
13	SR	P	Both	Fill/Outlet Stabilization	18	P/T	117	50
14	SO	P	Both	Roadway Fill/Outlet Stabilization	6	P/T	388	40
				Bank Stabilization			85	70
				Utility-Bank Stabilization			35	0
15	SP	P	Both	30” CSP	8	P	56	10
16	SN	I	Both	36” WSP and 36” CSP	13	P/T	70	24
17	SC	P	Both	8’ x 8’ Culvert Extension/Stab.	8	P/T	97	40
18	SAN	P	Both	Lateral Ditch	8	P/T	31	39
19	SE	I	Both	48” RCP Extension	4	P/T	29	22
20	SW	P	Both	14’ x 7’ RCBC	10	P	98	0
				Bank Stabilization		P/T	65	18
Total Jurisdictional Ditch Impact in Square Feet							0	
Total Permanent Stream Impacts							1,555	
Total Temporary Stream Impacts							688	
Total Stream and Ditch Impacts							2,243	

Bolded impact amounts represent a change from the 404 (SAW-2012-01414) issued on August 21, 2019 and 401 WQC (20190992) issued August 26, 2019 and Buffer Authorization Modification issued May 12, 2020.

U-2719 Riparian Buffer Impacts (Revised)

The riparian buffer impacts for U-2719 increased overall from 121,936 sq ft to 125,431 sq ft. There is a 5,977 sq ft increase in allowable buffer impacts from 65,210 sq ft documented in the most recent buffer modification to 71,187 sq ft. There is a decrease in mitigable buffers resulting from changes in the PDE at Site 13. The original mitigable buffer impact for U-2719 was 56,726 sq ft. The new mitigable buffer

impact for the project is 54,244 sq ft, a reduction of 2,482 sq ft. See the revised riparian buffer impact table below.

Revised U-2719 Riparian Buffer Impacts Table

Site No.	Impact Type	Perm or Temp	Stream name	Buffer mitigation required	Zone 1 impact (ft2)	Zone 2 impact (ft2)
1	Rip Rap at 18" Outlet, allowable	P	SAK	No	1,272	0
3	Culvert Clean Out, allowable	P	SX	No	1,753	212
3	Bank Stabilization, allowable	P	SX	No	3,612	1,923
4	Rip Rap in Stream, allowable	P	SW	No	5,604	4,248
4	Rip Rap in Stream, allowable w/ mitigation	P	SW	Yes	3,711	0
7	Outlet Stabilization 24" CSP, allowable	P	ST	No	408	0
7	Outlet Stabilization 24" CSP, allowable w/ mitigation	P	ST	Yes	1,052	871
9	Bank Stabilization, allowable w/ mitigation	P	SU	Yes	3,931	1,346
12	Channel Imp./Bank Stab., allowable	P	SS	No	6,199	3,968
13	Roadway Fill/Outlet Stabilization, allowable w/ mitigation	P	SR	Yes	7,989	6,169
14	Roadway Fill, allowable	P	SO	No	6,846	1,384
14	Roadway Fill, allowable w/ mitigation	P	SO	Yes	14,827	7,423
14	Utility, allowable	P	SO	No	4,075	1,396
15	30" CSP, allowable	P	SP	No	3,767	3,730
16	36" WSP & 36" CSP, allowable	P	SN	No	3,379	367
16	36" WSP & 36" CSP, allowable w/ mitigation	P	SN	Yes	775	206
17	8'x8' Culvert Extension/Stab., allowable	P	SC	No	3,660	1,592
18	2' Base Lateral Ditch, allowable w/ mitigation	P	SAN	Yes	3,035	2,070
19	48" RCP Extension, allowable	P	SE	No	2,179	926
20	14' x 7' RCBC, allowable	P	SW	No	5,515	3,172
21	Bank Stabilization, allowable w/ mitigation	P	SC	Yes	433	406
Total Allowable Buffer Impact					48,269	22,918
Total Mitigable Buffer Impact					35,753	18,491
TOTAL COMBINED BUFFER IMPACT					84,022	41,409

Bolded impact amounts represent a change from the 404 (SAW-2012-01414) issued on August 21, 2019 and 401 WQC (20190992) issued August 26, 2019 and Buffer Authorization Modification issued May 12, 2020.

Compensatory Mitigation

Currently NCDOT has requested mitigation for U-2719 from NCDMS to cover 860 lf of stream impacts. This amount exceeds the 841 lf of required mitigation by 19 lf. The current Neuse riparian buffer impact request is for 36,666 sq ft of Zone 1 and 20,060 sq ft of Zone 2 impact. This amount exceeds the 35,753 sq ft needed by 913 sq ft for Zone 1 and exceeds the 18,491 sq ft needed by 1,569 sq ft for Zone 2. The following table illustrates the revised compensatory mitigation needs.

Revised U-2719 Proposed Compensatory Mitigation Table

Mitigation Type	Riparian Wetland (ac)	Non-Riparian Wetland (ac)	Isolated Wetlands (ac)	Stream (lf)	Riparian Buffer Calculation (sq. ft.)		Riparian Buffer Total (sq. ft.)
					Zone 1	Zone 2	
Neuse River Basin (HUC 03020201)	0.0	0.0	0.0	841	35,753 $\times 3.0 =$ 107,259	18,491 $\times$ 1.5 = 27,737	134,996

Bolded mitigation amounts represent a change from the 404 (SAW-2012-01414) issued on August 21, 2019, 401 WQC (20190992) issued August 26, 2019 and Buffer Authorization Modification issued May 12, 2020.

The new proposed impact amounts approved by NCDMS for U-2719 were multiplied by the appropriate mitigation ratios to calculate the proposed mitigation amounts in the above table (2:1 for streams and wetlands, 3:1 for Zone 1 riparian buffer impacts, and 1.5:1 for Zone 2 riparian buffer impacts).

Regulatory Approvals

All other proposed impacts remain the same as in our PCN submitted on July 23, 2019 unless approved via the previous modification issued by the NC Division of Water Resources. The Department requests that these revised impacts and the remainder of the previously permitted impacts be issued under the recently approved RGP 31 (effective May 26, 2020).

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jason Dilday at either jldilday@ncdot.gov or (919) 707-6111.

Sincerely,

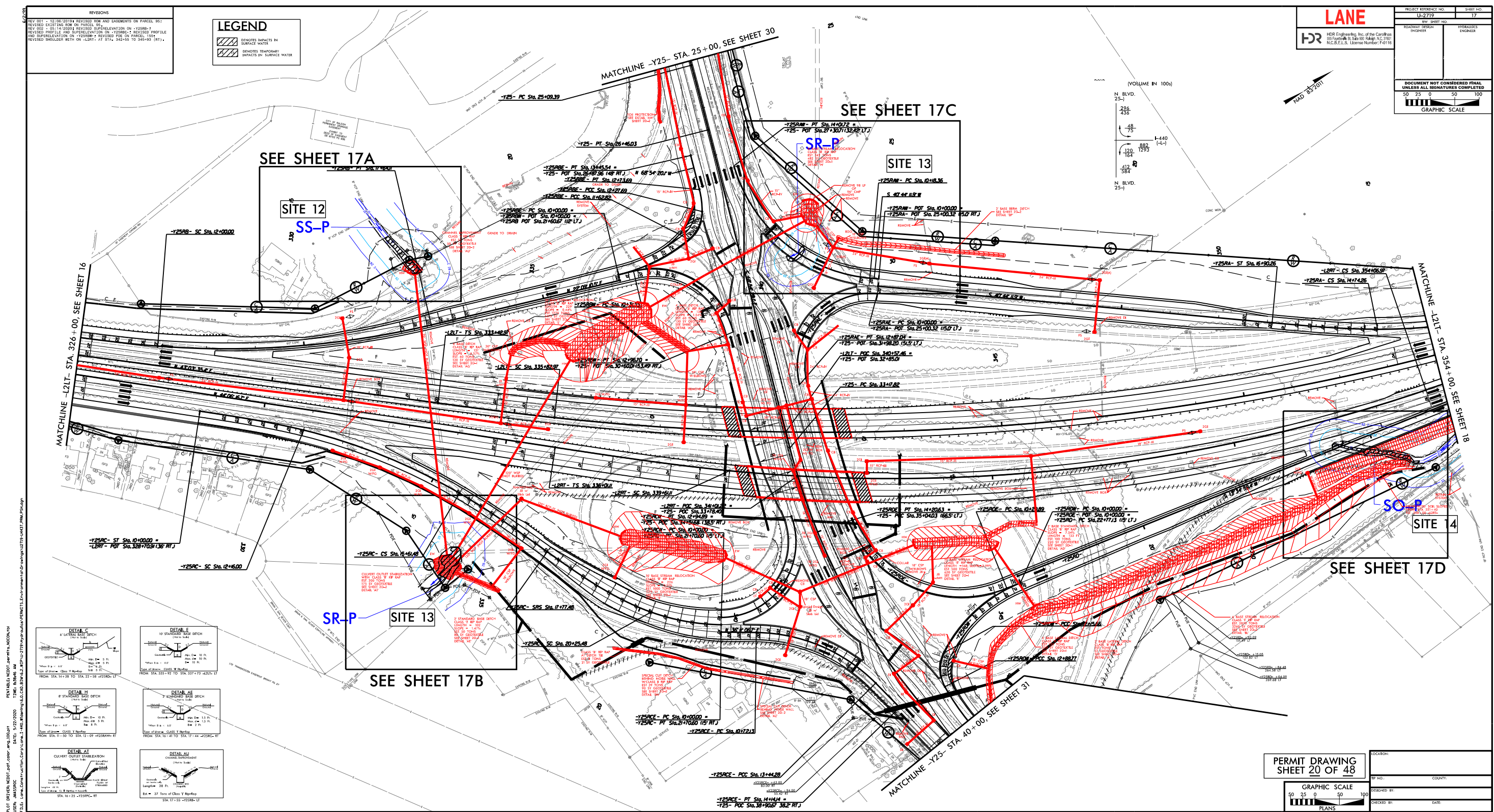
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Mack C. Rivenbark III

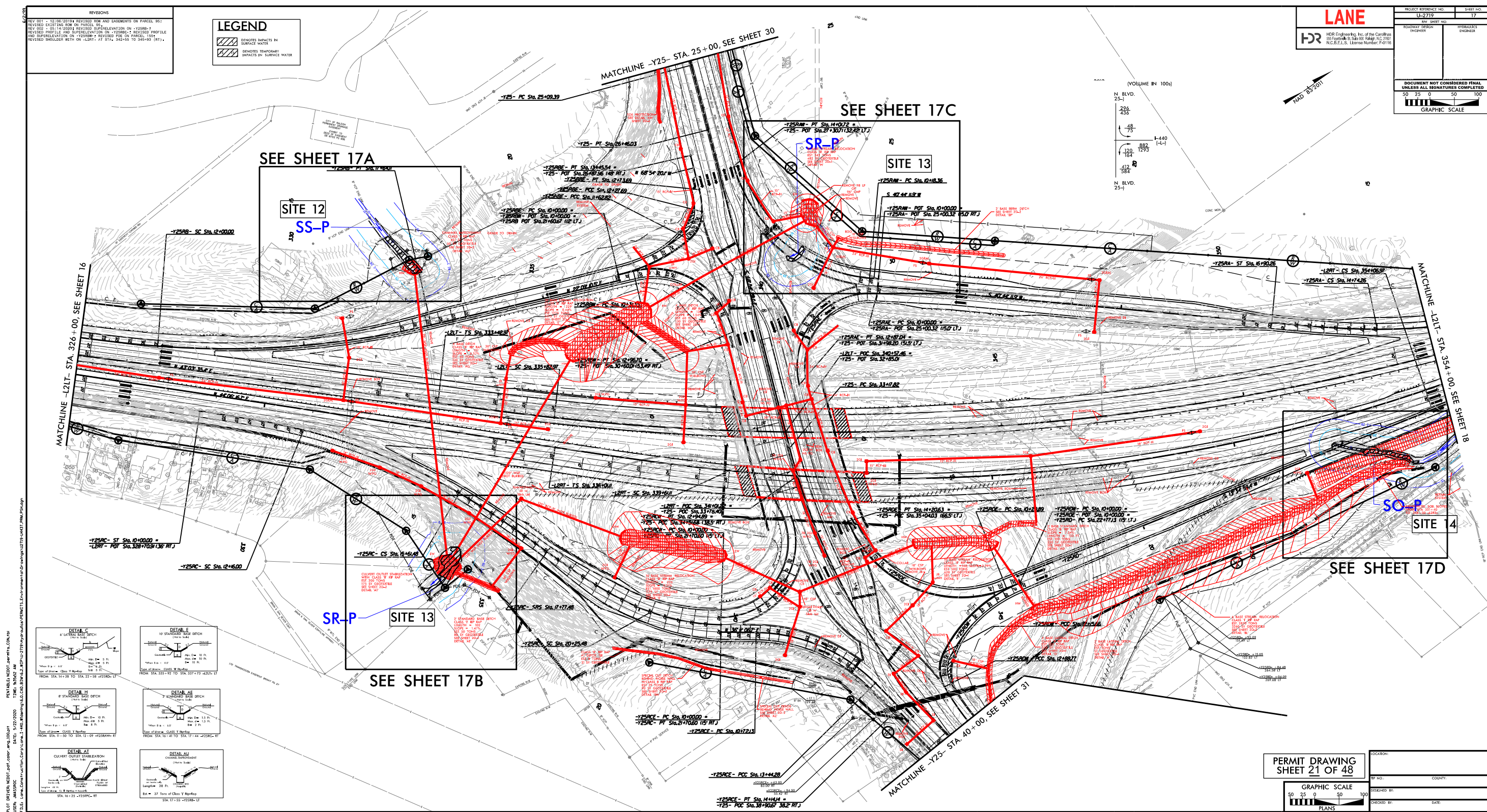
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for Philip S. Harris III, P.E., C.P.M.
Environmental Analysis Unit Head

Revised 7/7/2020



Revised 7/7/2020



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REVISIONS

REV 001	12/06/2019	REVISED ROW AND EASEMENTS ON PARCEL 901
REV 002	05/14/2020	REVISED SUPERELEVATION ON -125RB- REVISED PROFILE AND SUPERELEVATION ON -125RB- AND SUPERELEVATION ON -125RB- REVISED BRIDGE WITH ON -121T- AT STA. 34250 TO 34255 (RT).

LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

LANE

FOR ENGINEERING, INC. OF THE CAROLINAS
355 FAYETTE ST. SUITE 600 RALEIGH, NC 27601
N.C.B.E.L.S. License Number: F-0116

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12-2719	17
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INCHES	FOOT

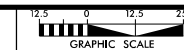
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PERMIT DRAWING
SHEET 21 OF 48

GRAPHIC SCALE
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PLANS

LOCATION:	
TP NO.:	COUNTY:
DESIGNED BY:	
CHECKED BY:	DATE:



LEGEND

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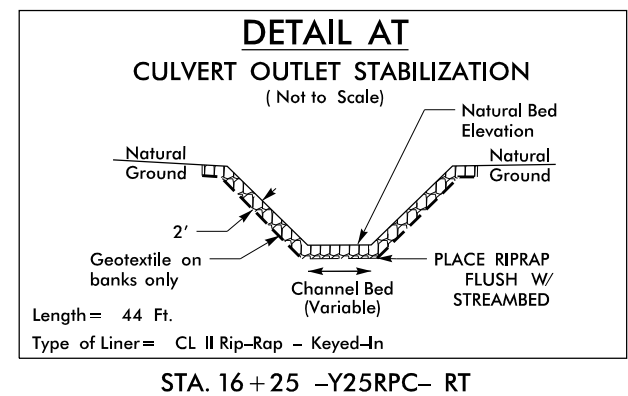
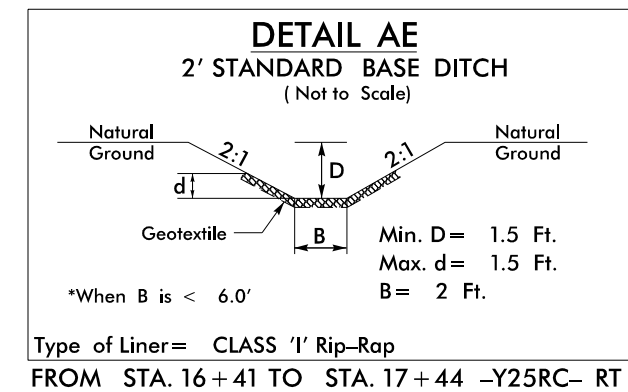
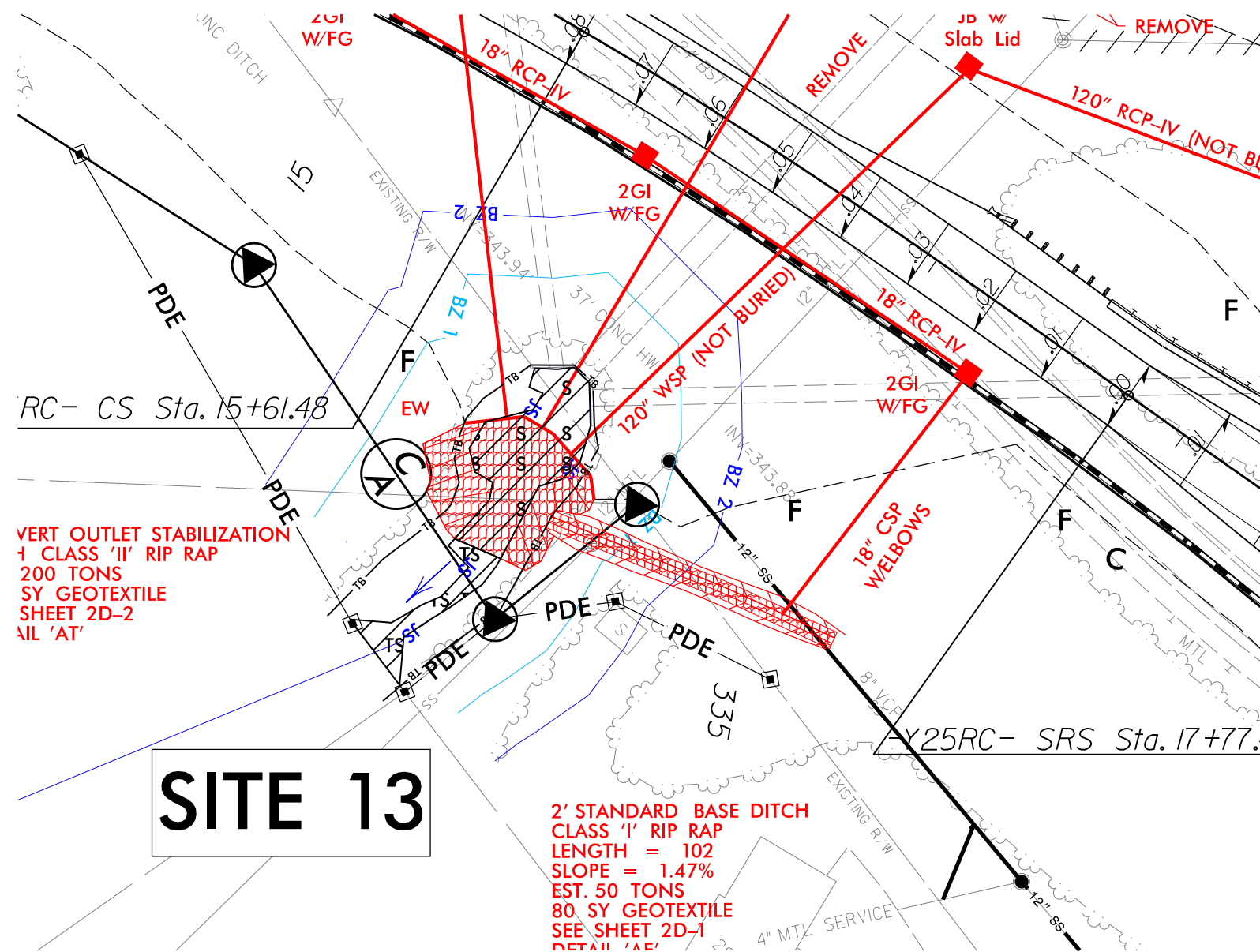
DENOTES IMPACTS IN SURFACE WATER

TS

TS

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.		SHEET NO.	
U-2719		17B	
R/W SHEET NO.			
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LANE			

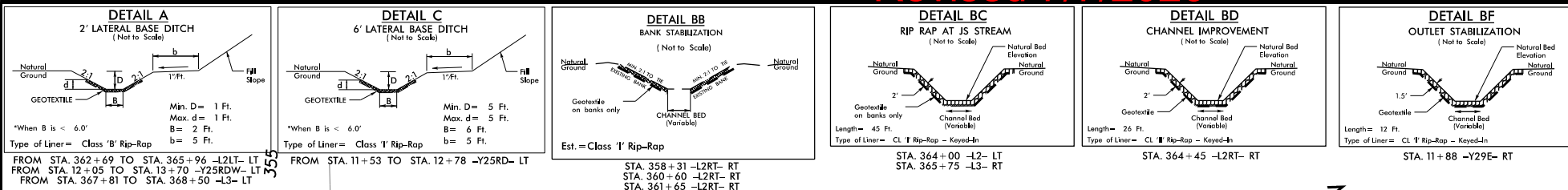


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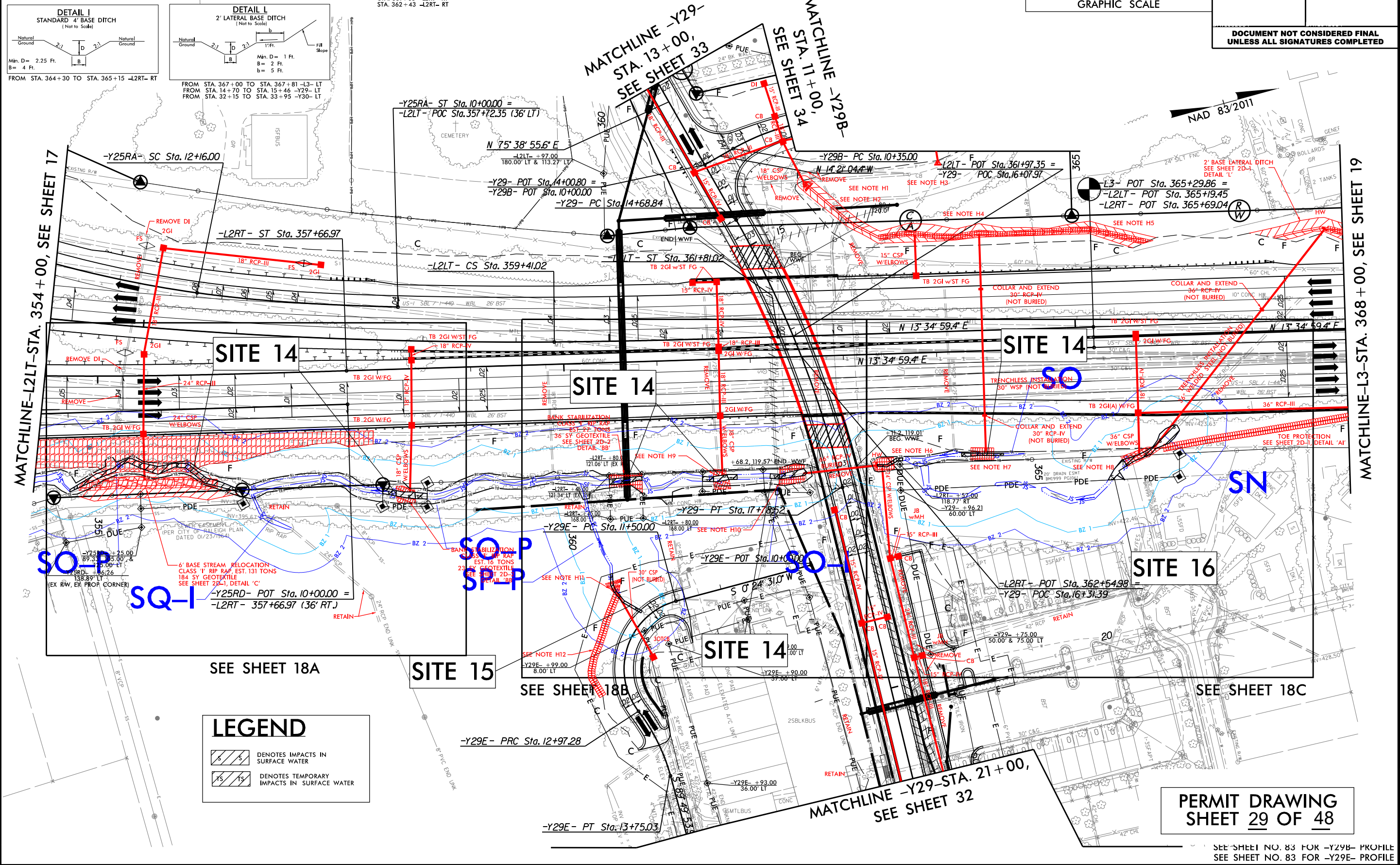
SITE 13

2' STANDARD BASE DITCH
CLASS 'I' RIP RAP
LENGTH = 102
SLOPE = 1.47%
EST. 50 TONS
80 SY GEOTEXTILE
SEE SHEET 2D-1
DETAIL 'AE'

Revised 7/7/2020



PROJECT REFERENCE NO.	SHEET NO.
U-2719	18
R/W SHEET NO.	
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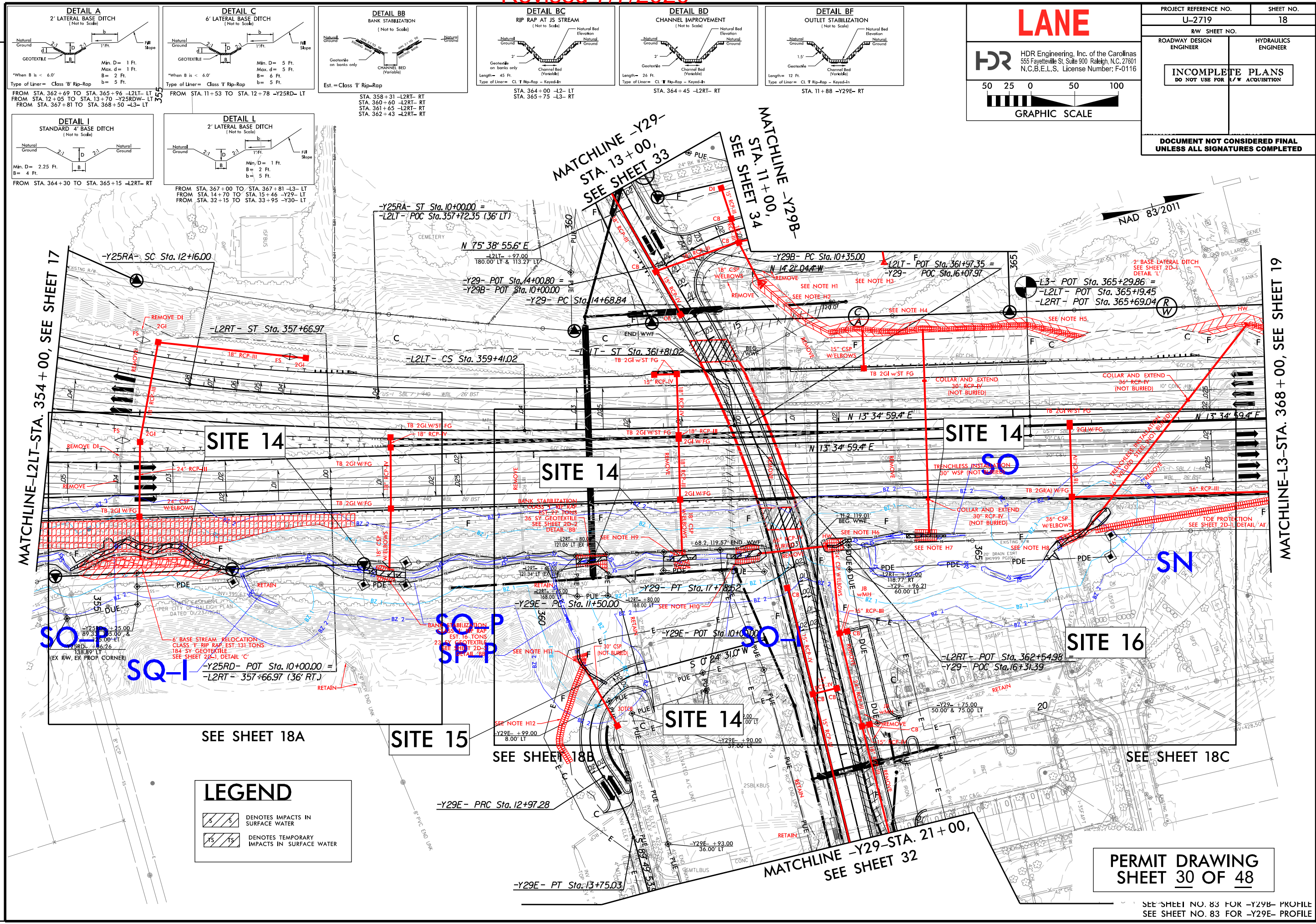
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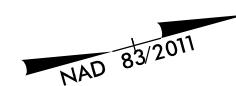
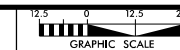
REV 001 - 05/19/2020: ADDED DUE AND PUE, AND REVISED PUE ON PARCEL 112; REVISED EOP FOR -Y29E-; REVISED PDE TO DUE, AND ADDED TCE ON PARCEL 909; SIDEWALK AND DRAINAGE REVISIONS ON -Y29 AND -Y29B- TO AVOID UTILITY CONFLICTS.

REVISIONS

SEE SHEET NO. 83 FOR -Y29B- PROFILE
SEE SHEET NO. 83 FOR -Y29E- PROFILE

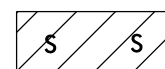
Revised 7/7/2020



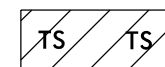


PROJECT REFERENCE NO.		SHEET NO.	
U-2719		18B	
R/W SHEET NO.			
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LEGEND



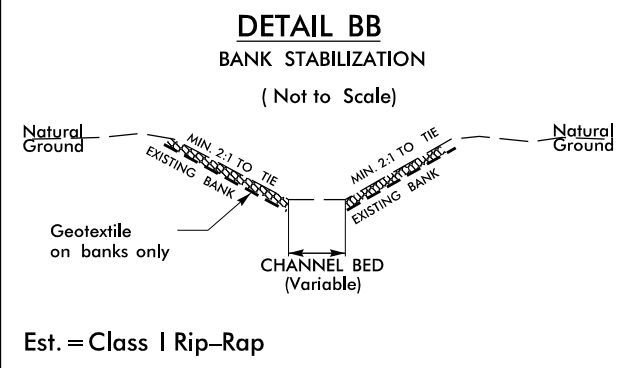
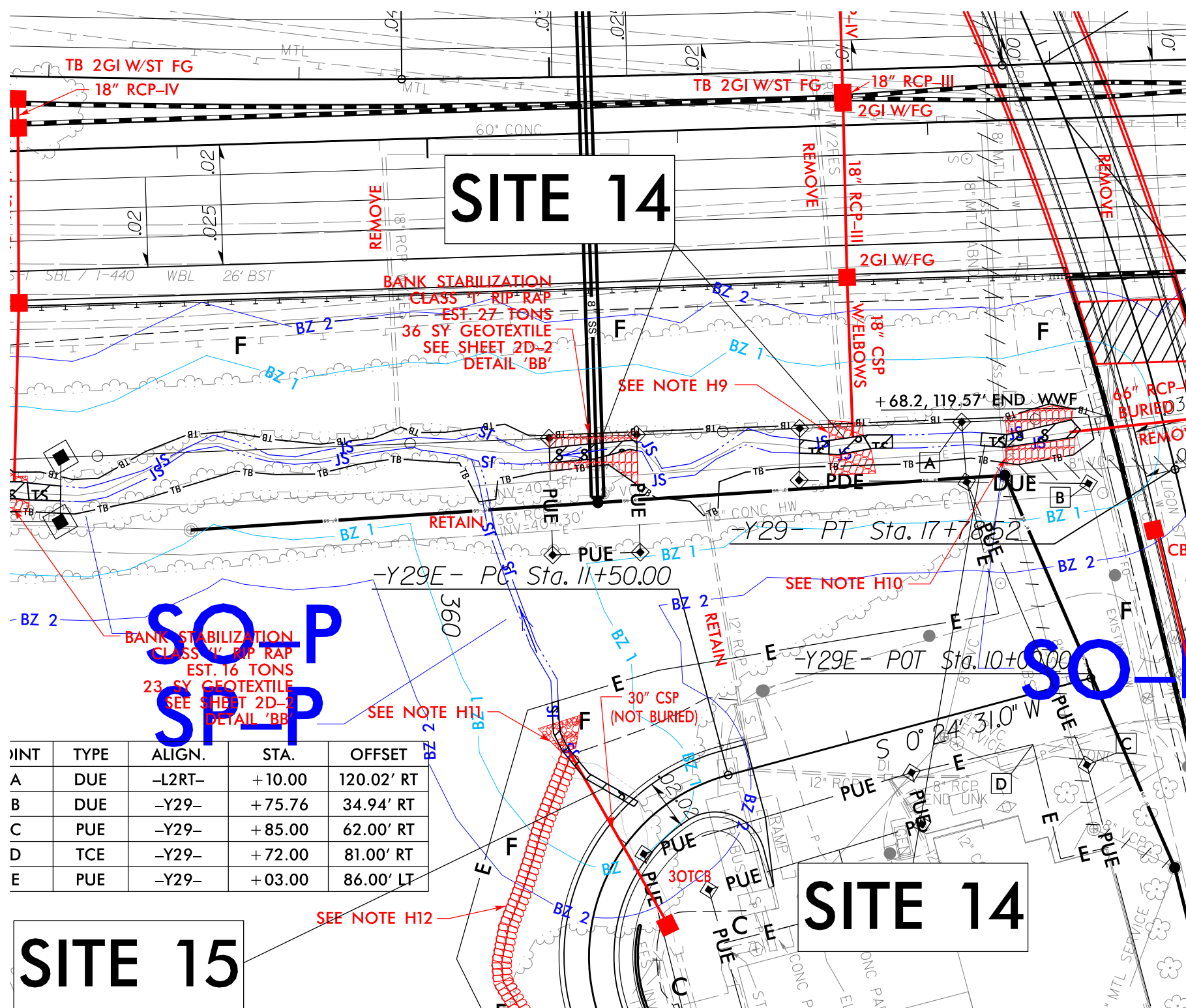
DENOTES IMPACTS IN
SURFACE WATER



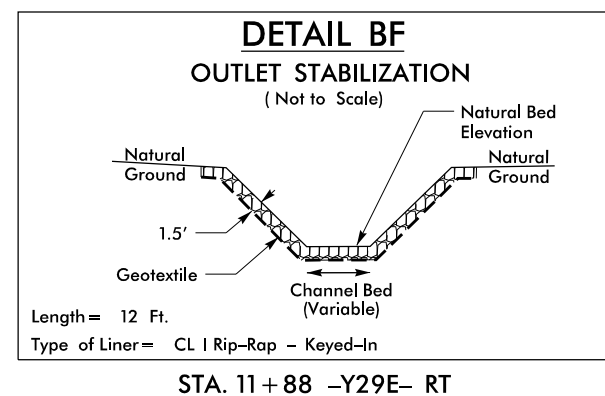
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

SITE 14

SITE 14



FROM STA. 284+90 TO STA. 287+27 -L1- RT
STA. 358+31 -L2RT- RT
STA. 360+60 -L2RT- RT
STA. 361+65 -L2RT- RT
STA. 362+43 -L2RT- RT



POINT	TYPE	ALIGN.	STA.	OFFSET
A	DUE	-L2RT-	+10.00	120.02' RT
B	DUE	-Y29-	+75.76	34.94' RT
C	PUE	-Y29-	+85.00	62.00' RT
D	TCE	-Y29-	+72.00	81.00' RT
E	PUE	-Y29-	+03.00	86.00' LT

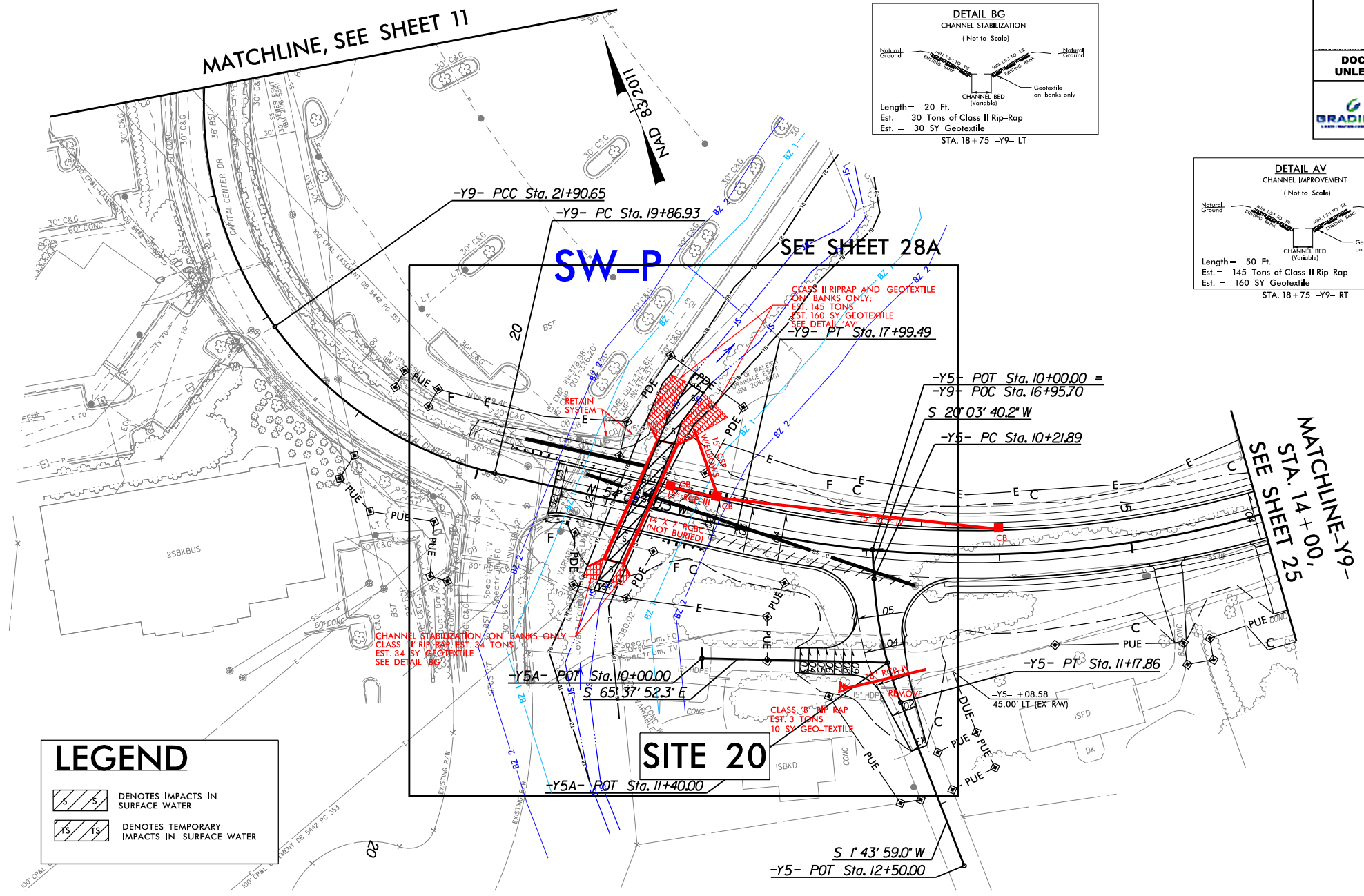
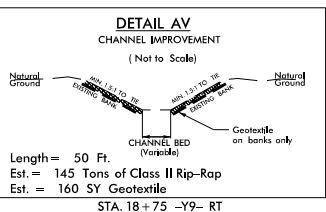
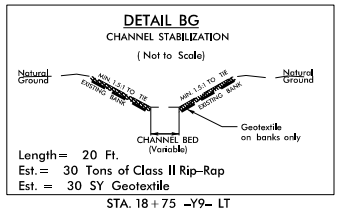
SITE 15

LANE



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PROJECT REFERENCE NO.		SHEET NO.	
U-2719		28	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED  Gradient, PL 1111 127 W. Chatham St., Cary, NC 27611 N.C.B.E.L.S. License Number: P-1875  25 12.5 0 25 50 Feet			



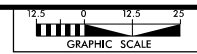
LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REVISIONS

REV. 001 - 05/15/2020: REVISED Y5; ADDED ALIGNMENT Y5A; REMOVED TCE FROM AND ADDED DUE TO PARCEL NO. 19; RENUMBERED PARCEL NO. 21 (RIGHT) TO NO. 21A; REVISED EASEMENT ON PARCEL NO. 3; REVISED RETAINING WALL ON -Y9- (RT) AT PARCEL 1.





PROJECT REFERENCE NO.		SHEET NO.	
U-2719		28A	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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LANE			

LEGEND

- S

S

DENOTES IMPACTS IN SURFACE WATER
- TS

TS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL AV

CHANNEL IMPROVEMENT

(Not to Scale)

Natural Ground

MIN. 1.5:1 TO TIE EXISTING BANK

MIN. 1.5:1 TO TIE EXISTING BANK

Natural Ground

CHANNEL BED (Variable)

Geotextile on banks only

Length = 50 Ft.

Est. = 145 Tons of Class II Rip-Rap

Est. = 160 SY Geotextile

STA. 18 + 75 -Y9- RT

DETAIL BG

CHANNEL STABILIZATION

(Not to Scale)

Natural Ground

MIN. 1.5:1 TO TIE EXISTING BANK

MIN. 1.5:1 TO TIE EXISTING BANK

Natural Ground

CHANNEL BED (Variable)

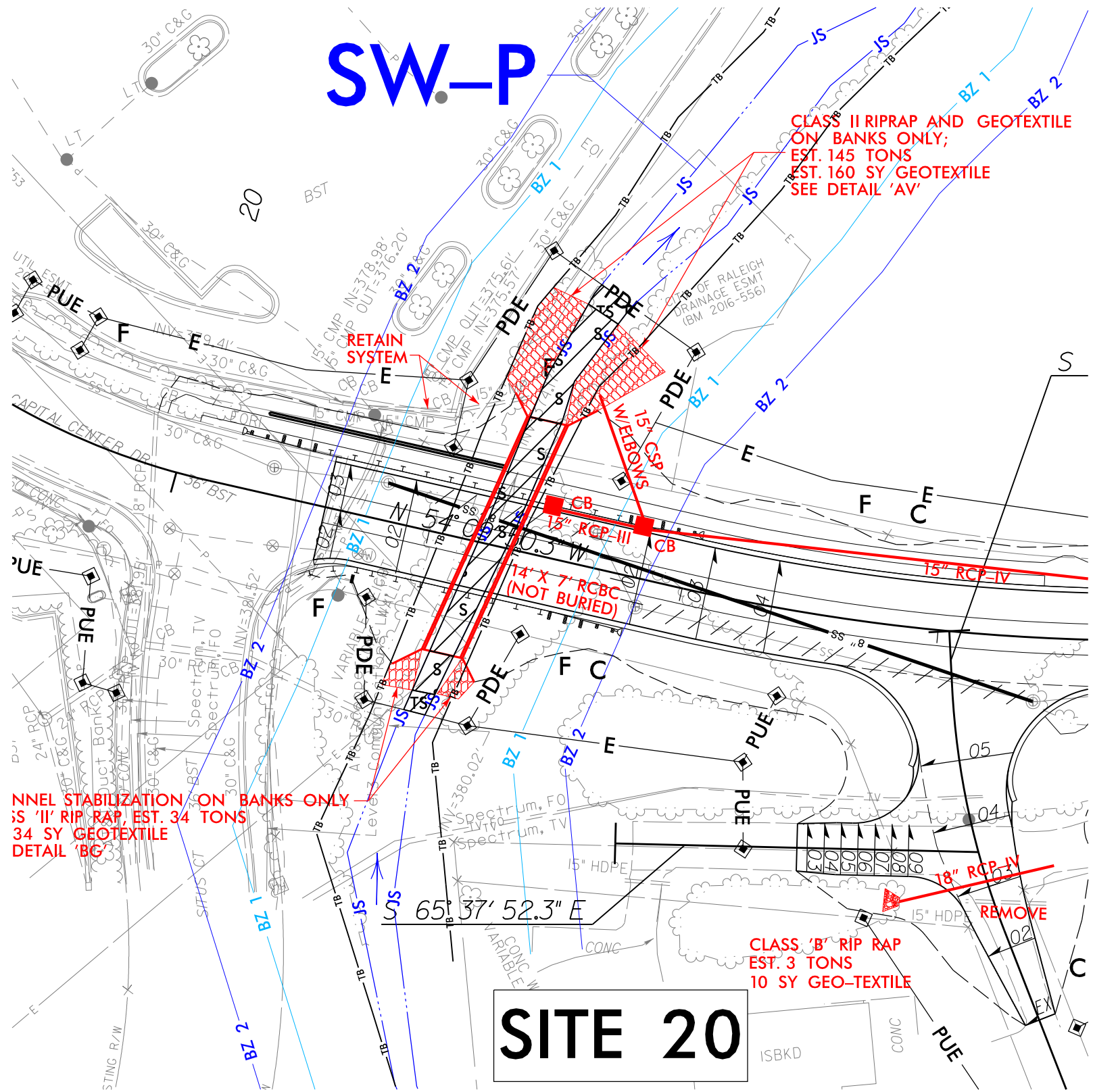
Geotextile on banks only

Length = 20 Ft.

Est. = 34 Tons of Class II Rip-Rap

Est. = 34 SY Geotextile

STA. 18 + 75 -Y9- LT



SITE 20

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WETLAND AND SURACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	SAK - 230+75 -L1A- Lt	Rip Rap at 18" Outlet						< 0.01	< 0.01	7	10	
2	WK - 244+95 -L1A- Lt	Lateral Ditch				0.01						
3	SX - 245+72 -L1A-	Culvert Clean Out						< 0.01	0.03	9	41	
		Bank Stabilization						0.03	0.09	93	97	
4	SW - 41+85 -Y10- Rt	Rip Rap in Stream							0.03		112	
5	OWD - 21+50 -Y10RPA-	Draining/Filling Pond						1.25				
6	WF - 282+90 -L1- Lt	Roadway Fill	< 0.01			0.01						
7	ST - 284+75 -L1- Rt	Outlet Stabilization						0.01	0.02	35	50	
8	***SV - 286+00 -L1- Rt	Bank Stabilization						0.02		244		
9	***SU - 284+50 -L1- Lt	Bank Stabilization						< 0.01		62		
10	WJ - 284+74 -L1- Lt	Stabilization			< 0.01	< 0.01						
11	WI - 285+50 -L1- Lt	Stabilization			< 0.01	< 0.01						
12	SS - 17+50 -Y25RB- Lt	Channel Imp./Bank Stab.						0.01	0.01	34	65	
13	SR -16+20 -Y25RC- Rt	Roadway Fill/Outlet Stab.						0.04	0.01	117	50	
14	**SO - 15+79 -Y25RD-	Roadway Fill/Outlet Stab.						0.05	< 0.01	388	40	
	to 364+68 -L2RT- Rt	Bank Stabilization						0.01	< 0.01	85	70	
	Utilities	Bank Stabilization						< 0.01		35		
15	SP - 11+90 -Y29E-	30" CSP						< 0.01	< 0.01	56	10	
16	SN - 365+75 -L3- Rt	36" WSP & 36" CSP						0.01	< 0.01	70	24	
17	SC - 433+33 -L3-	8' x 8' Culvert Extension/Stab.						0.04	< 0.01	97	40	
18	SAN - 433+00 -L3- Rt	Lateral Ditch						0.01	< 0.01	31	39	
19	SE - 466+00 -L3-	48" RCP Extension						< 0.01	< 0.01	29	22	
20	SW - 18+75 -Y9-	14x7 RCBC						0.02	< 0.01	98		
		Bank Stabilization						0.01	< 0.01	65	18	
TOTALS*:			< 0.01		< 0.01	0.03		1.54	0.23	1555	688	0

*Rounded totals are sum of actual impacts

NOTES:

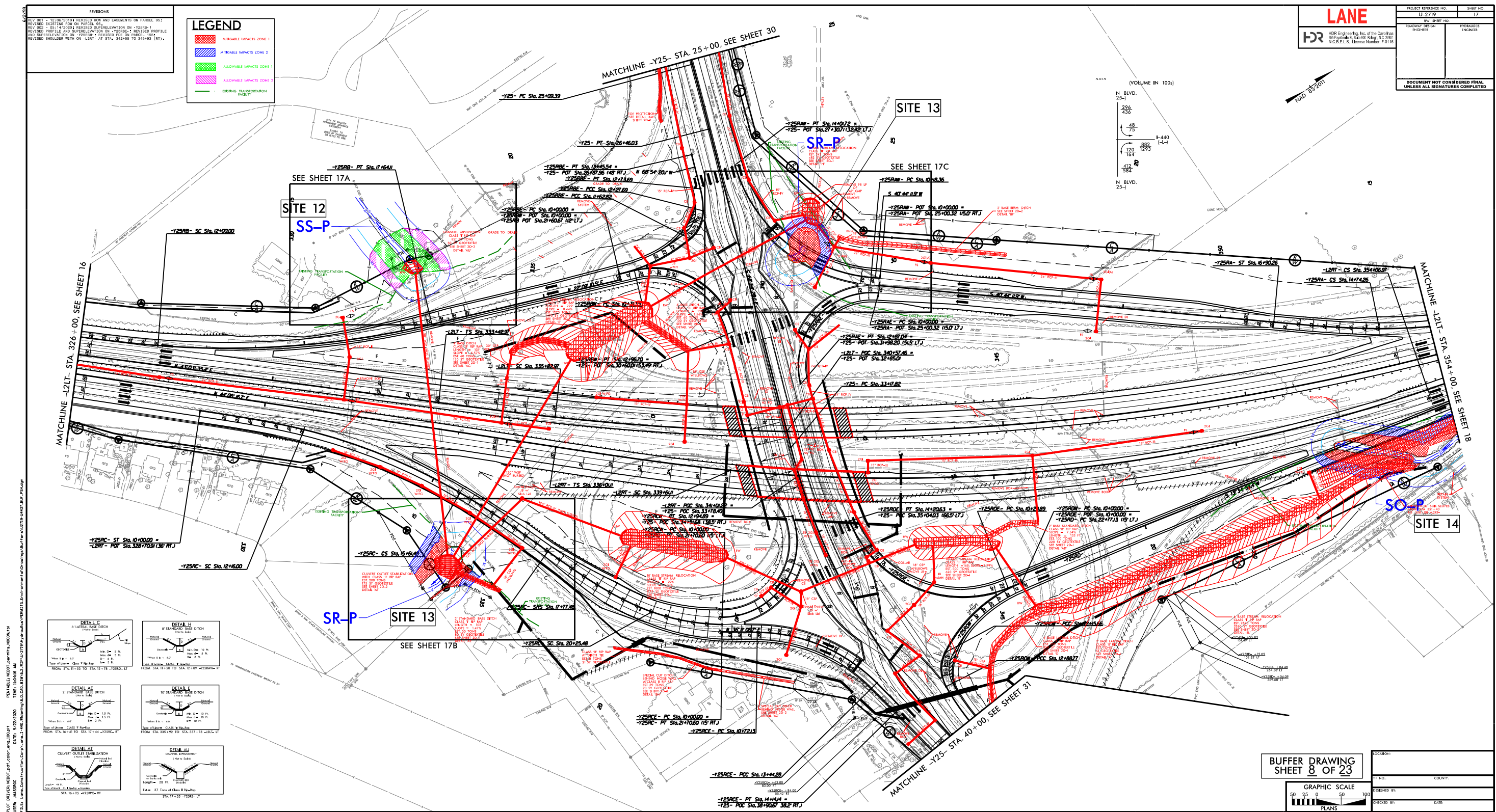
**Stream SO is being daylighted for approx. 825 LF that was previously being piped through a 66" RCP.

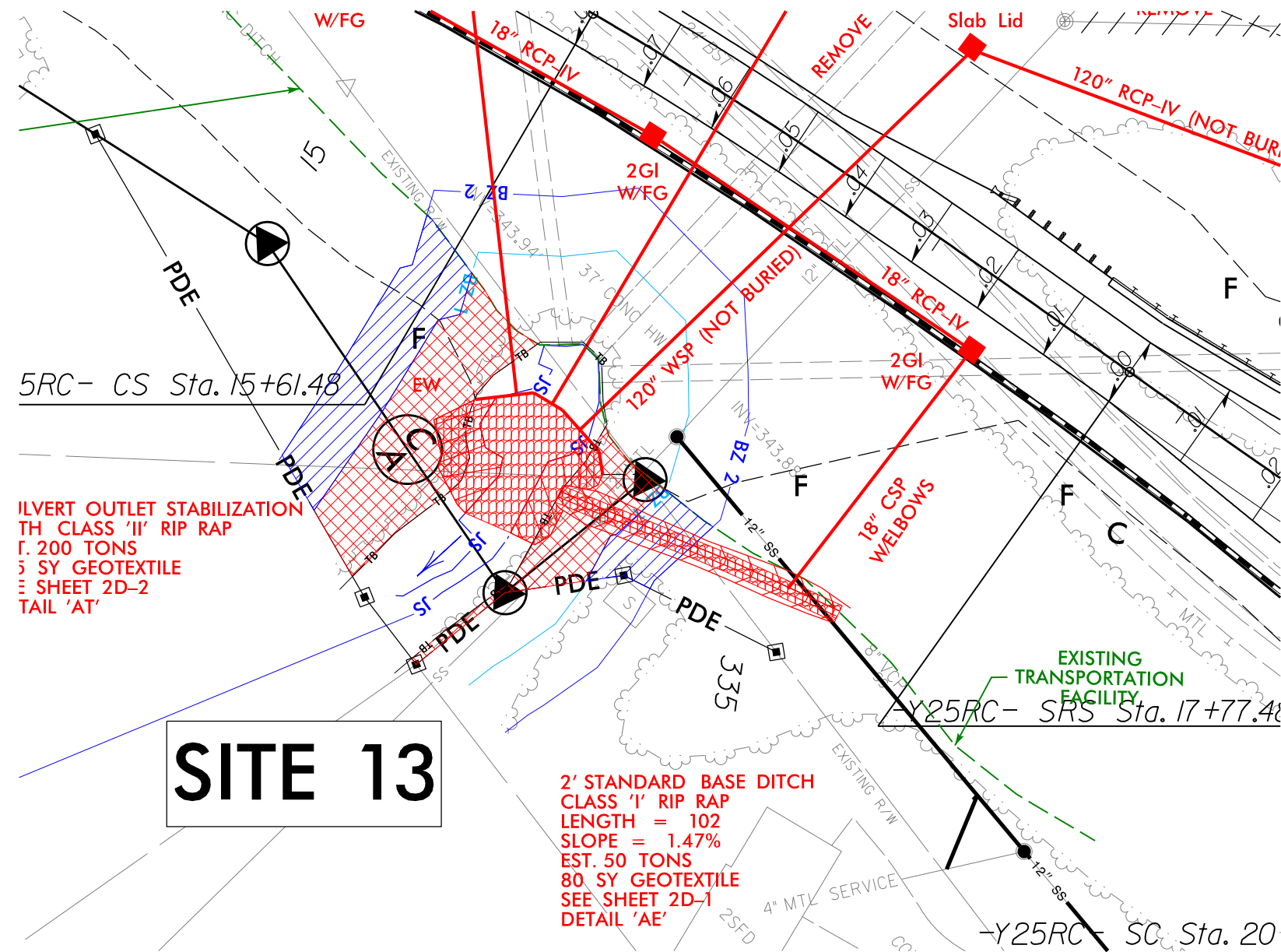
***Streams SV and SU banks are being stabilized due to existing stream erosion along the banks.

NC DEPARTMENT OF TRANSPORTATION
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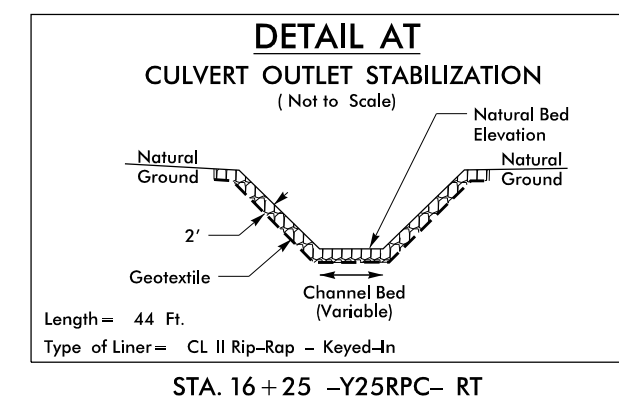
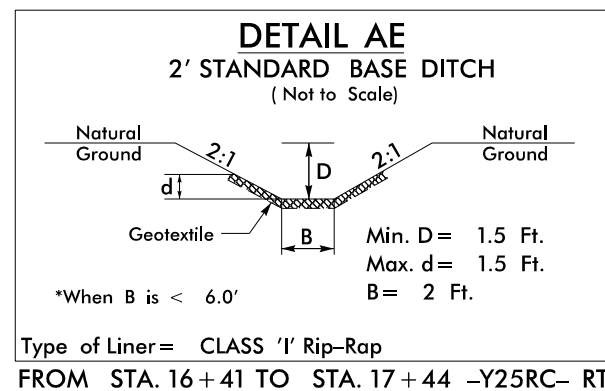


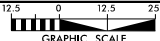


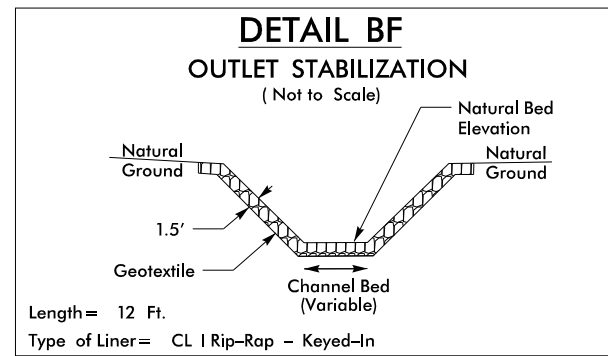
MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

EXISTING TRANSPORTATION FACILITY



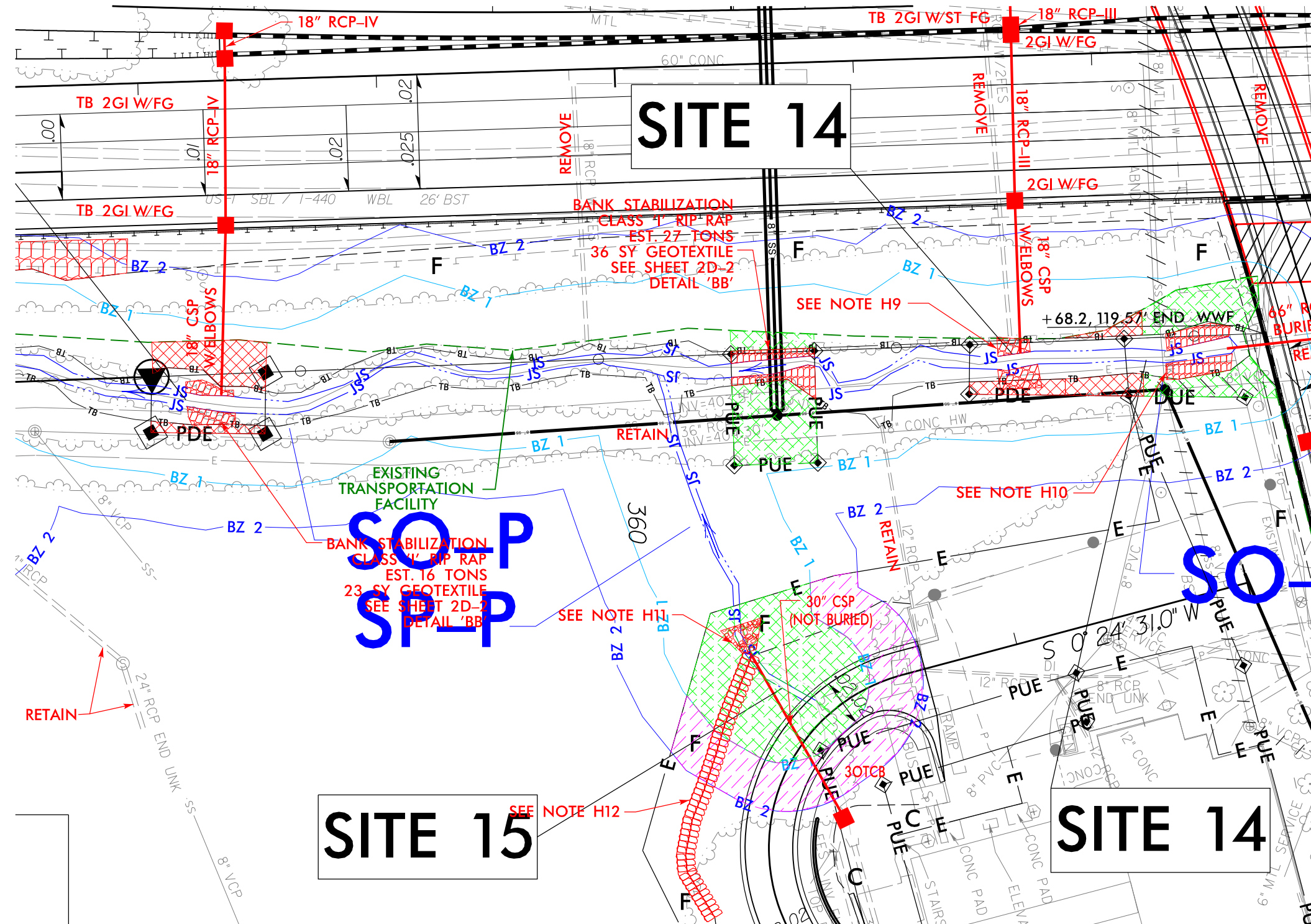
PROJECT REFERENCE NO.	SHEET NO.
U-2719	17B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116
	
	



STA. 360+60 -L2RT- RT
STA. 361+65 -L2RT- RT
STA. 362+43 -L2RT- RT

NAD 83/2011

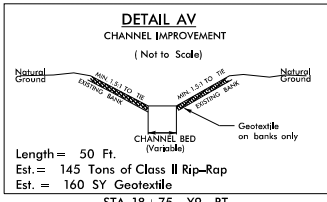
PROJECT REFERENCE NO.	SHEET NO.
U-2719	18A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116
	



LEGEND

-
- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2
- MITIGABLE IMPACTS ZONE 1
- EXISTING TRANSPORTATION FACILITY

**BUFFER DRAWING
SHEET 13 OF 23**



PROJECT REFERENCE NO.		SHEET NO.	
U-2719		28	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED 25 12.5 0 25 50 Gradient, PL  SCALE = 1" = 50' 127 W. Chatham St. Cary, NC 27511 N.C.B.E.L.S. License Number: P-1875			
			

**BUFFER DRAWING
SHEET 20 OF 23**

RIPARIAN BUFFER IMPACTS SUMMARY													
Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)
1	SAK - 230+75 -L1A- Lt	Rip Rap at 18" Outlet	X			1272		1272					
3	SX - 245+72 -L1A-	Culvert Clean Out	X			1753	212	1965					
		Bank Stabilization	X			3612	1923	5535					
4	SW - 41+85 -Y10- Rt	Rip Rap in Stream			X	5604	4248	9852	3711		3711		
6*					X								
7	ST - 284+75 -L1- Rt	Outlet Stabilizaton	X		X	408		408	1052	871	1923		
8**	SV - 286+00 -L1- Rt												
9	SU - 284+50 -L1- Lt	Bank Stabilization			X				3931	1346	5277		
12	SS - 17+50 -Y25RB- Lt	Channel Imp./Bank Stab.	X			6199	3968	10167					
13	SR -16+20 -Y25RC- Rt	Roadway Fill/Outlet Stabilization	X						7989	6169	14158		
14	SO - 15+79 -Y25RD-	Roadway Fill	X		X	6846	1384	8230	14827	7423	22250		
	SO - 360+64 -L2RT-	8" SS				4075	1396	5471					
15	SP - 11+90 -Y29E-	30" CSP	X			3767	3730	7497					
16	SN - 365+75 -L3- Rt	36" WSP & 36" CSP	X		X	3379	367	3746	775	206	981		
17	SC - 433+33 -L3-	8' x 8' Culvert Extension/Stab.	X			3660	1592	5252					
18	SAN - 433+00 -L3- Rt	2' Base Lateral Ditch			X				3035	2070	5105		
19	SE - 466+00 -L3-	48" RCP Extension	X			2179	926	3105					
20	SW - 18+75 -Y9-	14' x 7' RCBC	X			5515	3172	8687					
21	SC - 38+70 -Y35RA- Rt	Bank Stabilization			X				433	406	839		
TOTALS*:						48269	22918	71187	35753	18491	54244	0	0

NOTES:

* POND OWC BUFFER IMPACTS REMOVED DUE TO CITY OF RALEIGH CONTRACT

** SITE 8 BUFFER IMPACTS REMOVED DUE TO UTILITY EASEMENT MAINTENANCE AND 4C DISCUSSION

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

05/26/2020

WAKE COUNTY

U-2719

35869.3.1