

09/28/19

See Sheet 1A For Index of Sheets

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UNION COUNTY

**LOCATION: SR 1316 (REA ROAD EXTENSION)
FROM NC 16 TO SR 1008
(WAXHAW-INDIAN TRAIL ROAD)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES, & SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3467	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
39019.1.1	STP-1316(10)	P.E.	
39019.2.1	STP-1316(10)	RW, UTL.	

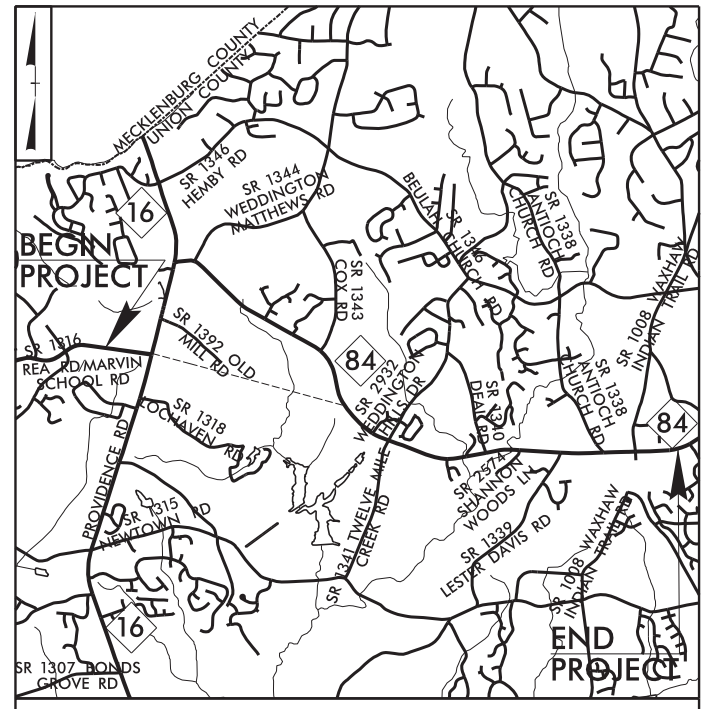


PERMIT DRAWING SHEET 1 OF 27

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

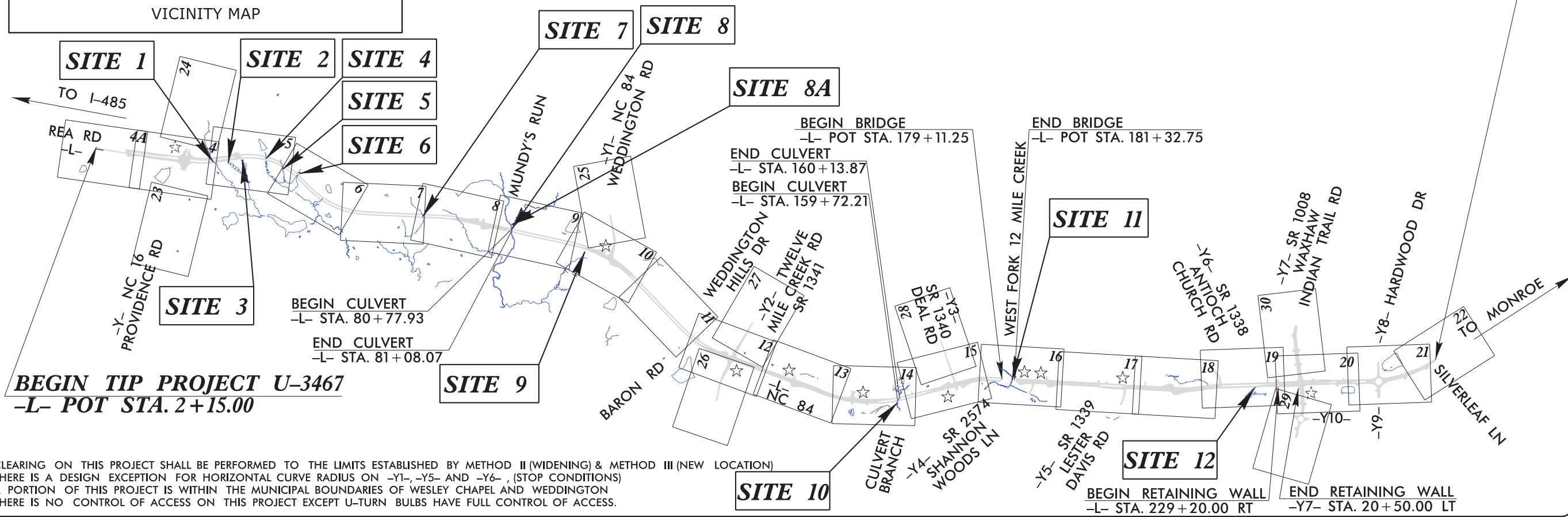
★ UPGRADE EXISTING SIGNAL
★ NEW SIGNAL

TIP PROJECT: U-3467



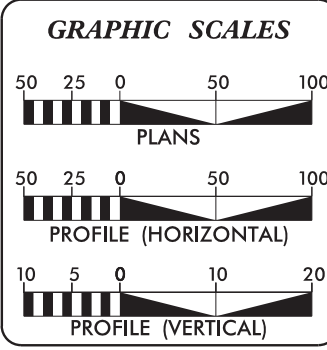
WETLAND AND SURFACE WATER IMPACTS PERMIT

**END TIP PROJECT U-3467
-L- POT STA. 258+50.00**



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II (WIDENING) & METHOD III (NEW LOCATION). THERE IS A DESIGN EXCEPTION FOR HORIZONTAL CURVE RADIUS ON -Y1-, -Y5- AND -Y6-, (STOP CONDITIONS). A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF WESLEY CHAPEL AND WEDDINGTON. THERE IS NO CONTROL OF ACCESS ON THIS PROJECT EXCEPT U-TURN BULBS HAVE FULL CONTROL OF ACCESS.

CONTRACT:



DESIGN DATA

ADT 2019 =	23,608
ADT 2039 =	32,648
DHV =	10 %
D =	60 %
T =	4 % *
V =	50 MPH
* TTST =	1% DUAL 3%
FUNC CLASS =	URBAN MINOR ARTERIAL
	REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3467	=	4.653 MILES
LENGTH STRUCTURES TIP PROJECT U-3467	=	0.035 MILES
TOTAL LENGTH TIP PROJECT U-3467	=	4.688 MILES

Prepared in the Office of:

CALYX
ENGINEERS • CONSULTANTS

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 31, 2018

LETTING DATE: SEPTEMBER 17, 2019

NCDOT CONTACT: BRYAN KEY, PE
CENTRAL PROJECT MANAGER IN TECHNICAL SERVICES

JOHNNY BANKS
CALYX E & C
PROJECT MANAGER

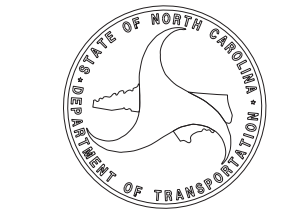
STEPHEN C. BROWDE, PE
CALYX E & C
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



2/18/2019 R:\Hydraulics\PERMITS_Environmental\Drawings\U3467_Hyd.Prj.TSH.dgn abocker

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

**PERMIT DRAWING
SHEET 2 OF 27**

-L-		-Y-	
PI Sta 9+40.81	PI Sta 21+64.93	PI Sta 24+90.39	PI Sta 30+52.85
$\Delta = 0' 27' 39.1''$ (RT)	$\Delta = 16' 14' 32.2''$ (LT)	$\Delta = 1' 40' 31.6''$ (RT)	$\Delta = 0' 28' 53.5''$ (RT)
D = 0' 34' 22.6"	D = 4' 46' 28.7"	D = 0' 47' 36.9"	D = 0' 47' 36.9"
L = 80.44'	L = 340.18'	L = 211.13'	L = 60.68'
T = 40.22'	T = 171.24'	T = 105.57'	T = 30.34'
R = 10,000.00'	R = 1,200.00'	R = 7,220.00'	R = 7,220.00'
SE = NC	SE = NC	SE = NC	SE = NC
V = 50 MPH	V = 50 MPH	V = 50 MPH	V = 50 MPH

NAD 83/NA 2011

KENNETH HOWARD HEMBY ET EL
DB 10 PG 256
PC 1 PG 839

GBENGA ALLUKO
JOYCE ALUKO
DB 5468 PG 70
PC 1 PG 839

MATTHEW ALLEN MILFORD
DANA JEFFERS MILFORD
DB 5478 PG 777
PC 1 PG 839

GBENGA & JOYCE ALUKO
DB 4128 PG 273
PC 1 PG 839

RAJENDRA & RENUKA PATEL
DB 5302 PG 743
PC G PG 194

UNION ELECTRIC MEMBERSHIP CORPORATION
DB 6696 PG 637
PC N PG 184

MATCHLINE -L- STA. 10+50.00
SEE SHEET 4A

MATCHLINE -Y- STA. 32+50.00
SEE SHEET 24

MATCHLINE -L- STA. 23+50.00
SEE SHEET 5

MATCHLINE -Y- STA. 23+00.00
SEE SHEET 23

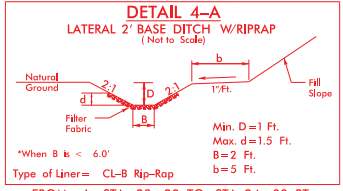
**DO NOT ACQUIRE PARCELS ON SHEETS 4, 5, 23, AND 24
UNTIL U-5769 REVISIONS ARE ADDED**

TRAFFIC DIAGRAM

ADT 2019	ADT 2039	NC 16	22,784	30,704
SR 1316	18,488	23,928	7,944	8,664
			2,780	3,180
			12,376	15,256
			5,328	9,968
			4,380	6,780
		NC 16	21,800	35,600

STREAM & WETLAND IMPACTS

- Denotes impacts in surface water
- Denotes temporary impacts in surface water

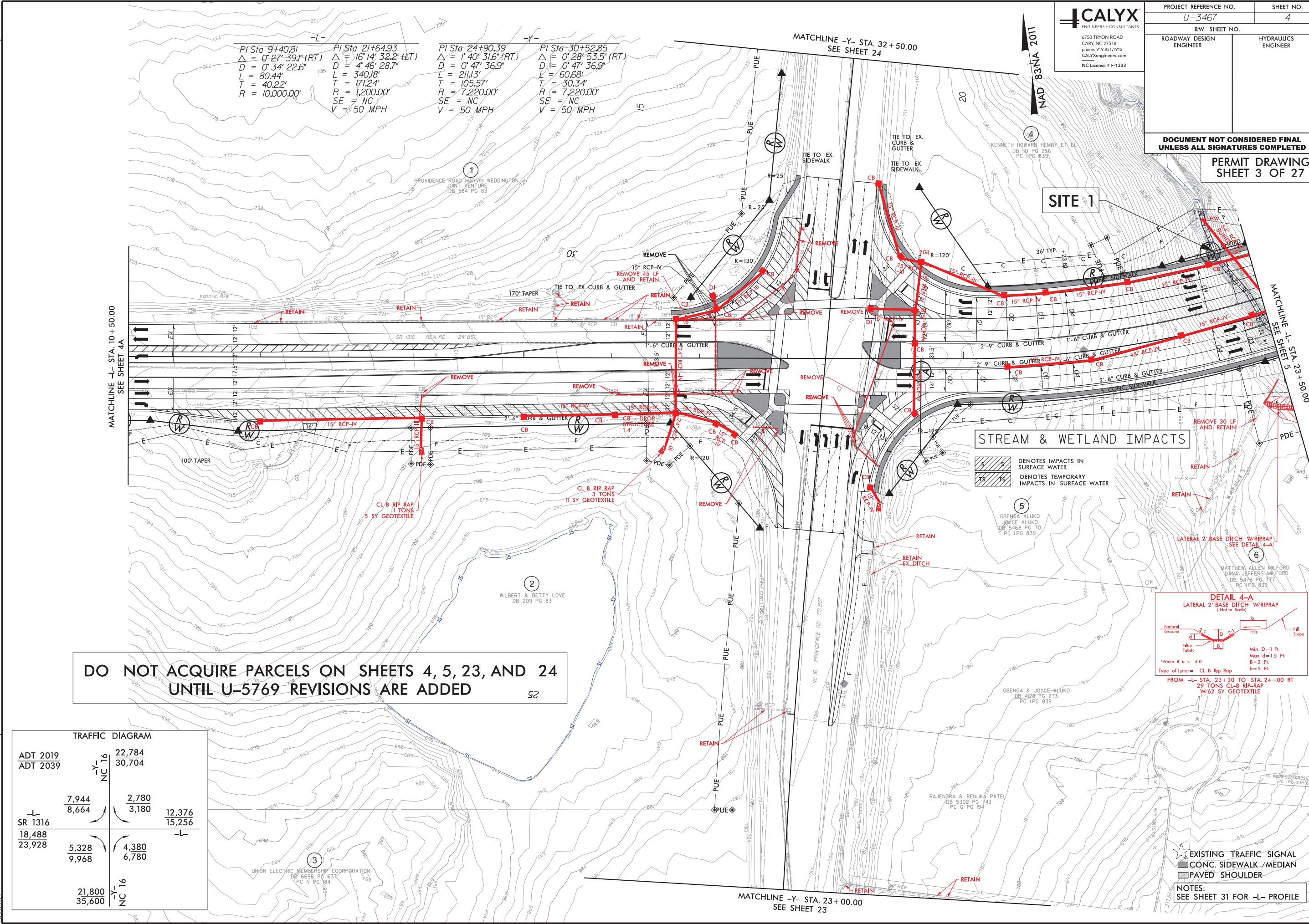


REVISIONS
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 2, 4, AND 5.
 RIGHT OF WAY REVISION - 01/30/2019 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCEL 2.
 RIGHT OF WAY REVISION - 01/30/2019 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCEL 2.
 RIGHT OF WAY REVISION - 01/30/2019 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCEL 2.
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 8/17/99

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

**PERMIT DRAWING
SHEET 3 OF 27**

PI Sta 9+40.81 Δ = 0° 27' 39" (RT) D = 0° 34' 22.6" L = 80.44' T = 40.22' R = 10,000.00'	PI Sta 21+64.93 Δ = 16° 14' 32.2" (LT) D = 4° 46' 28.7" L = 340.18' T = 171.24' R = 1,200.00' SE = NC V = 50 MPH	PI Sta 24+90.39 Δ = 1° 40' 31.6" (RT) D = 0° 47' 36.9" L = 211.13' T = 105.57' R = 7,220.00' SE = NC V = 50 MPH	PI Sta 30+52.85 Δ = 0° 28' 53.5" (RT) D = 0° 47' 36.9" L = 60.68' T = 30.34' R = 7,220.00' SE = NC V = 50 MPH
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**DO NOT ACQUIRE PARCELS ON SHEETS 4, 5, 23, AND 24
UNTIL U-5769 REVISIONS ARE ADDED**

TRAFFIC DIAGRAM

ADT 2019	ADT 2039	-Y- NC 16	22,784	30,704
7,944	2,780			
8,664	3,180			
-L- SR 1316	12,376			
18,488	15,256			
23,928				
5,328	4,380			
9,968	6,780			
		-Y- NC 16		
21,800				
35,600				

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 RIGHT OF WAY REVISION - 01/30/2019 - ADDED PERMANENT UTILITY EASEMENT ON PARCEL 2.
 RIGHT OF WAY REVISION - 01/30/2019 - ADJUSTED CONSTRUCTION EASEMENT ON PARCEL 2.
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 8/17/99

PROJECT REFERENCE NO. U-3467	SHEET NO. 5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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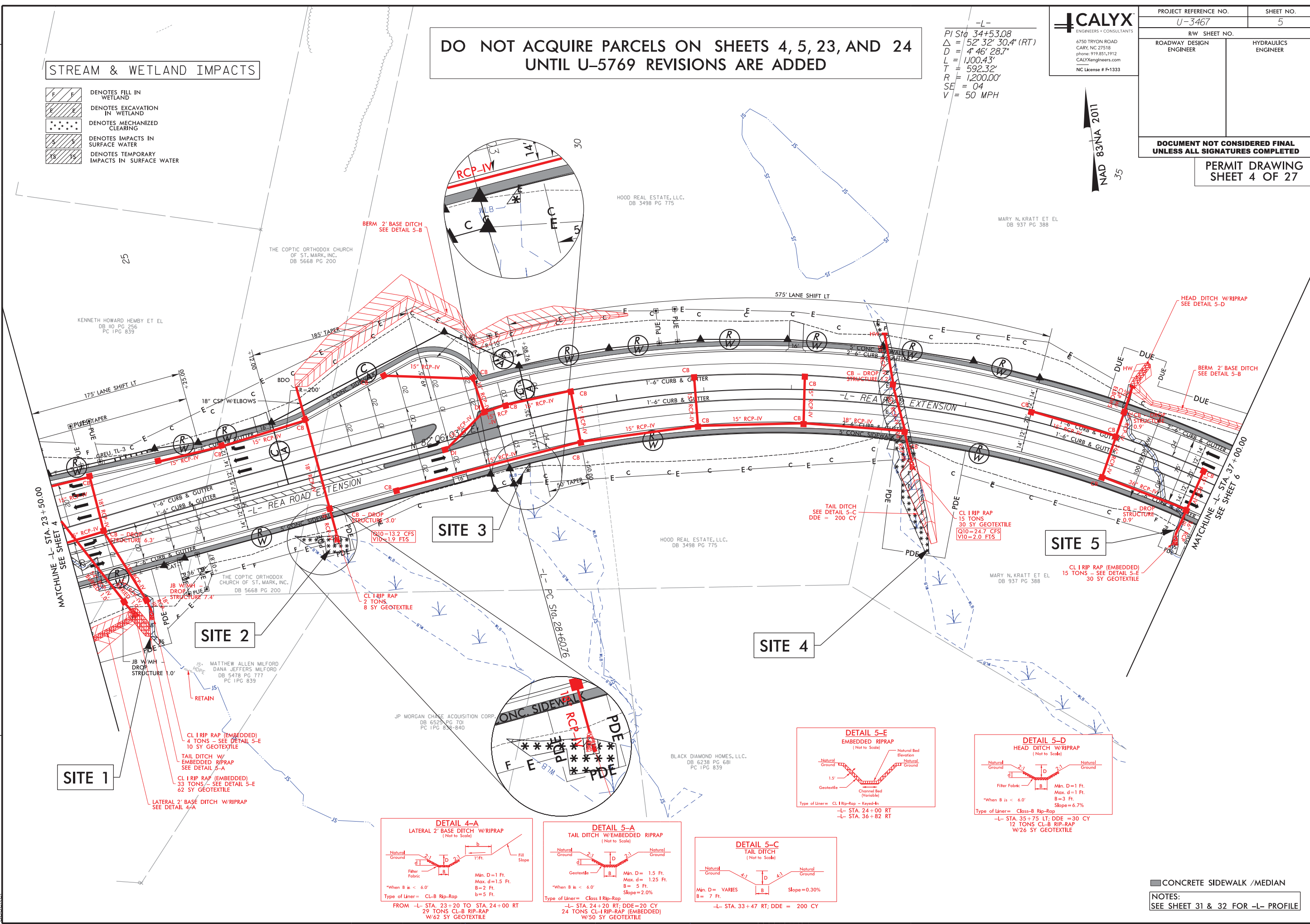
PERMIT DRAWING
SHEET 4 OF 27

**DO NOT ACQUIRE PARCELS ON SHEETS 4, 5, 23, AND 24
UNTIL U-5769 REVISIONS ARE ADDED**

-L-
PI Sta 34+53.08
 $\Delta = 52' 32" 30.4" (RT)$
 $D = 4' 46" 28.7"$
 $L = 1,100.43'$
 $T = 592.32'$
 $R = 1,200.00'$
 $SE = 04$
 $V = 50 MPH$

STREAM & WETLAND IMPACTS

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



REVISIONS
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 4.7 AND 8.
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCEL 8.
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 6.7 AND 8.
 RIGHT OF WAY REVISION - 10/26/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 6.7 AND 8.
 RIGHT OF WAY REVISION - 10/26/2018 - ADJUSTED RIGHT OF WAY ON PARCEL 8.
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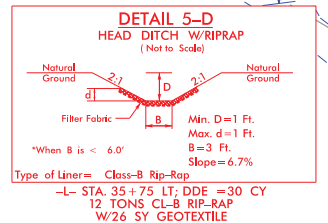
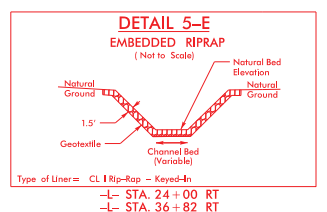
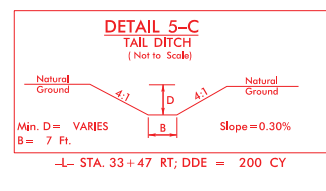
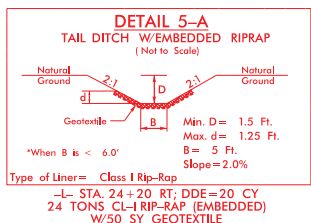
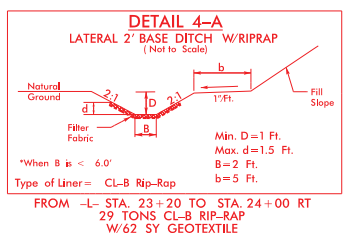
SITE 1

SITE 2

SITE 3

SITE 4

SITE 5



CONCRETE SIDEWALK / MEDIAN
NOTES:
SEE SHEET 31 & 32 FOR -L- PROFILE

PROJECT REFERENCE NO. U-3467	SHEET NO. 5
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

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PERMIT DRAWING
SHEET 5 OF 27

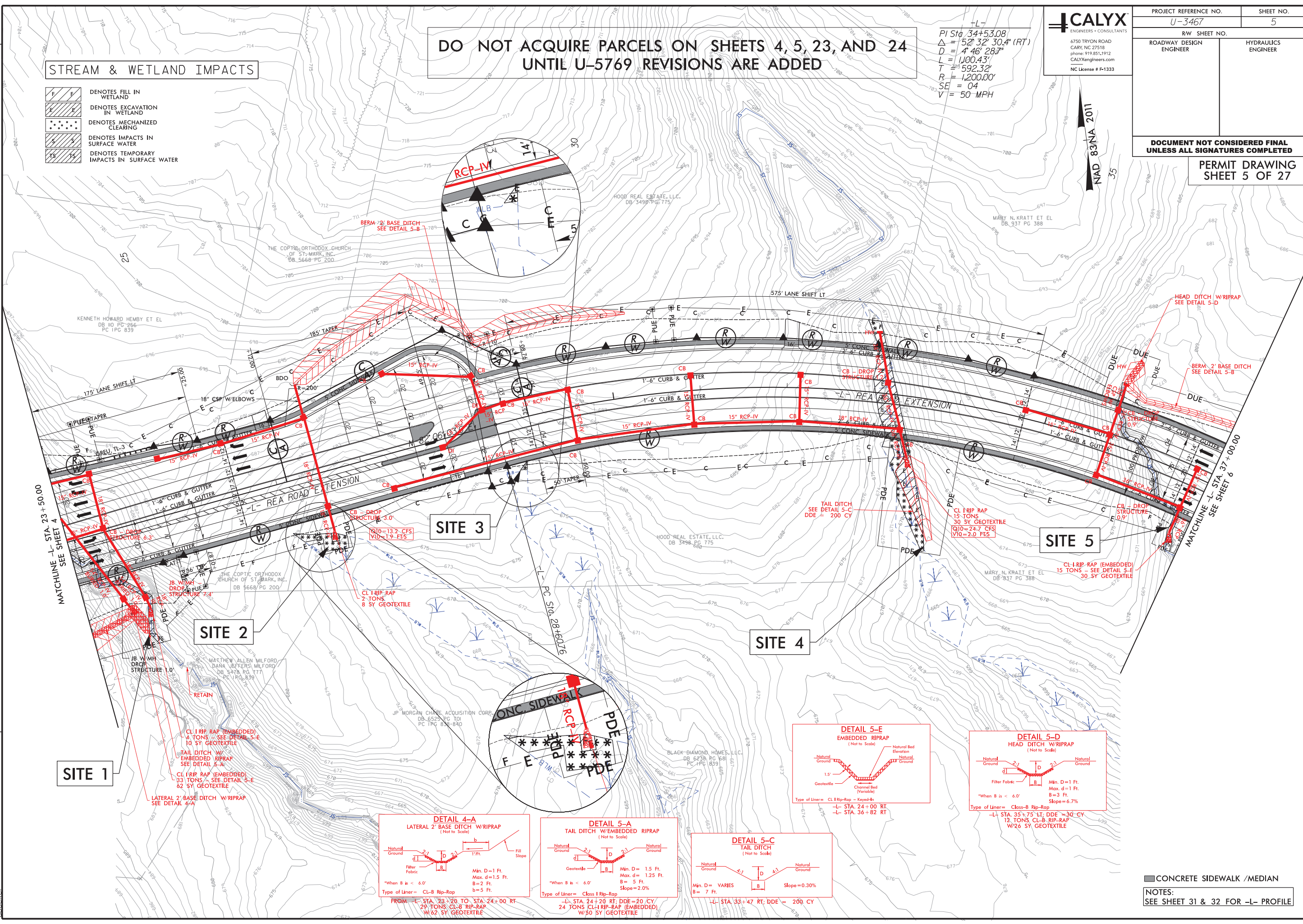
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+L-
PI Sta 34+53.08
 $\Delta = 52^{\circ} 32' 30.4''$ (RT)
D = 4' 46" 28.7"
L = 1100.43'
T = 592.32'
R = 1,200.00'
SE = 04
V = 50 MPH

STREAM & WETLAND IMPACTS

- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING
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 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCEL 8.
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 6.7 AND 8.
 RIGHT OF WAY REVISION - 10/26/2018 - ADJUSTED RIGHT OF WAY ON PARCEL 8.
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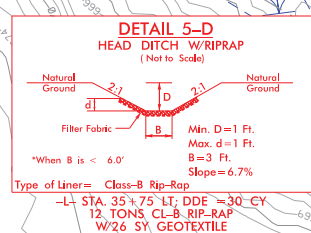
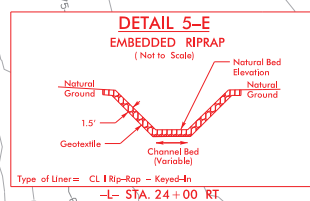
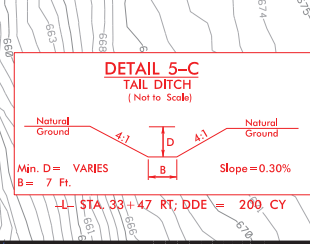
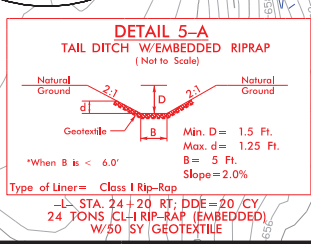
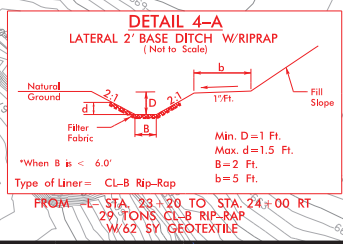
SITE 1

SITE 2

SITE 3

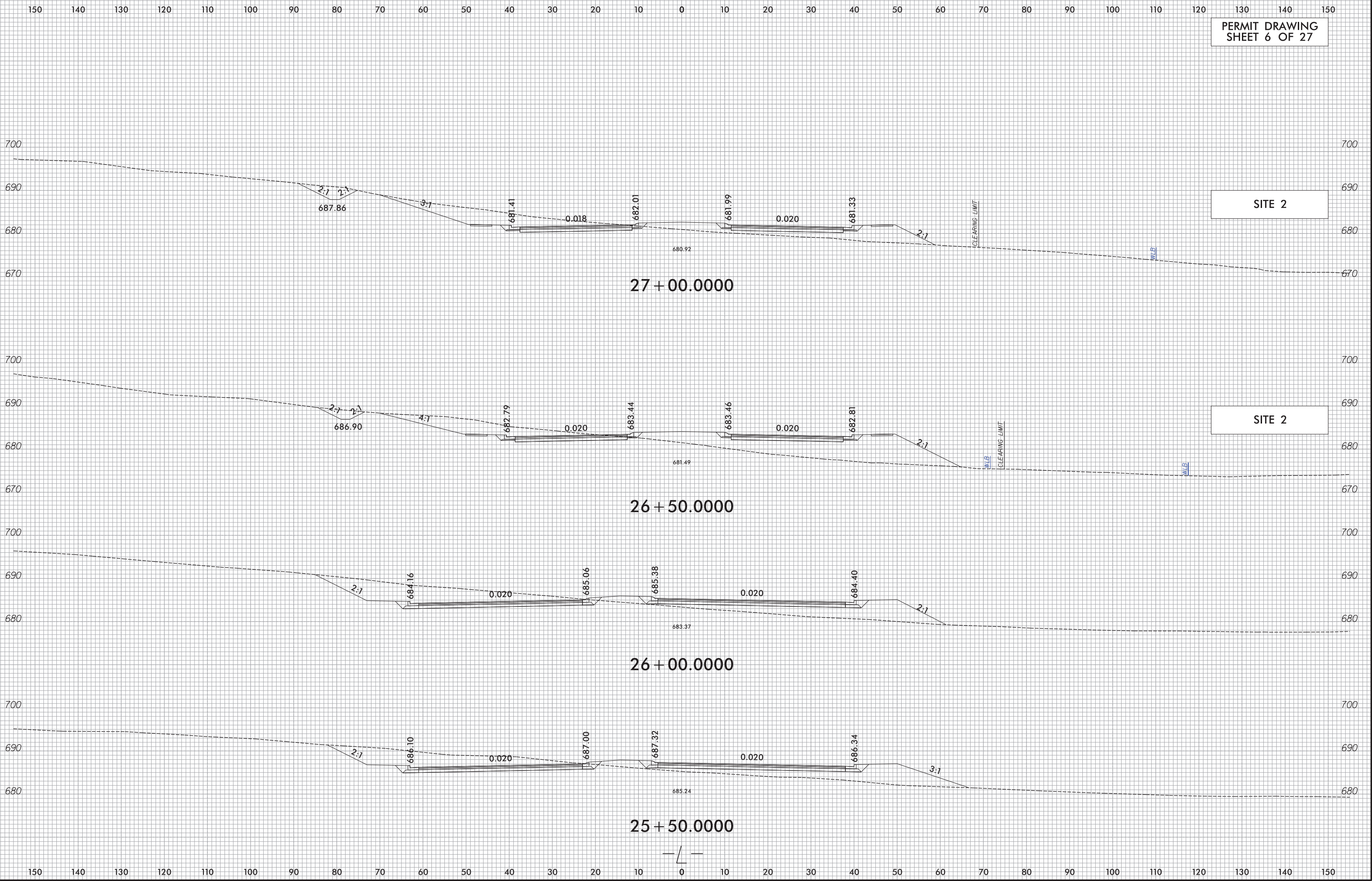
SITE 4

SITE 5



CONCRETE SIDEWALK / MEDIAN
NOTES:
SEE SHEET 31 & 32 FOR -L- PROFILE

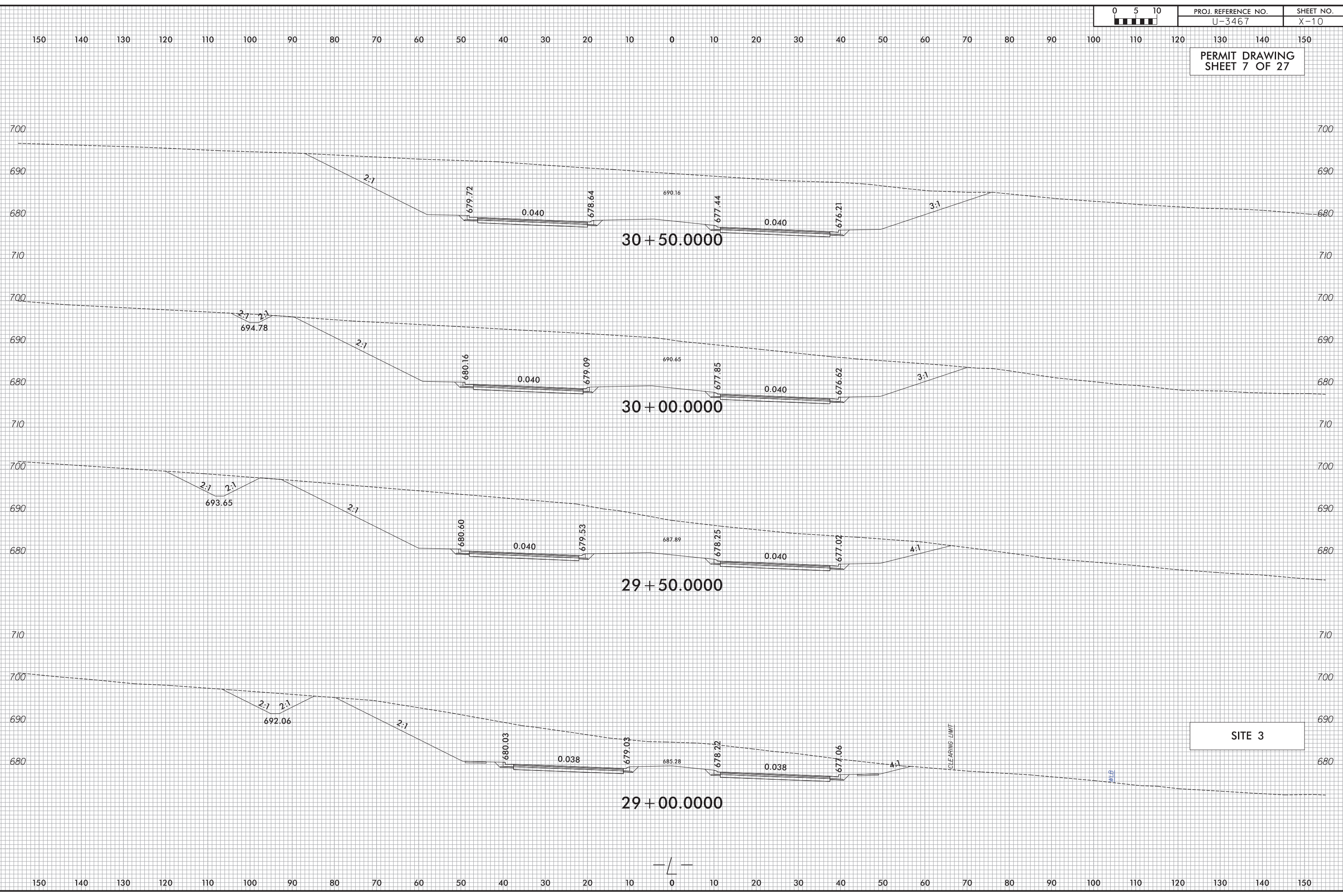
PERMIT DRAWING
SHEET 6 OF 27





PROJ. REFERENCE NO.	SHEET NO.
U-3467	X-10

PERMIT DRAWING
SHEET 7 OF 27



SITE 3

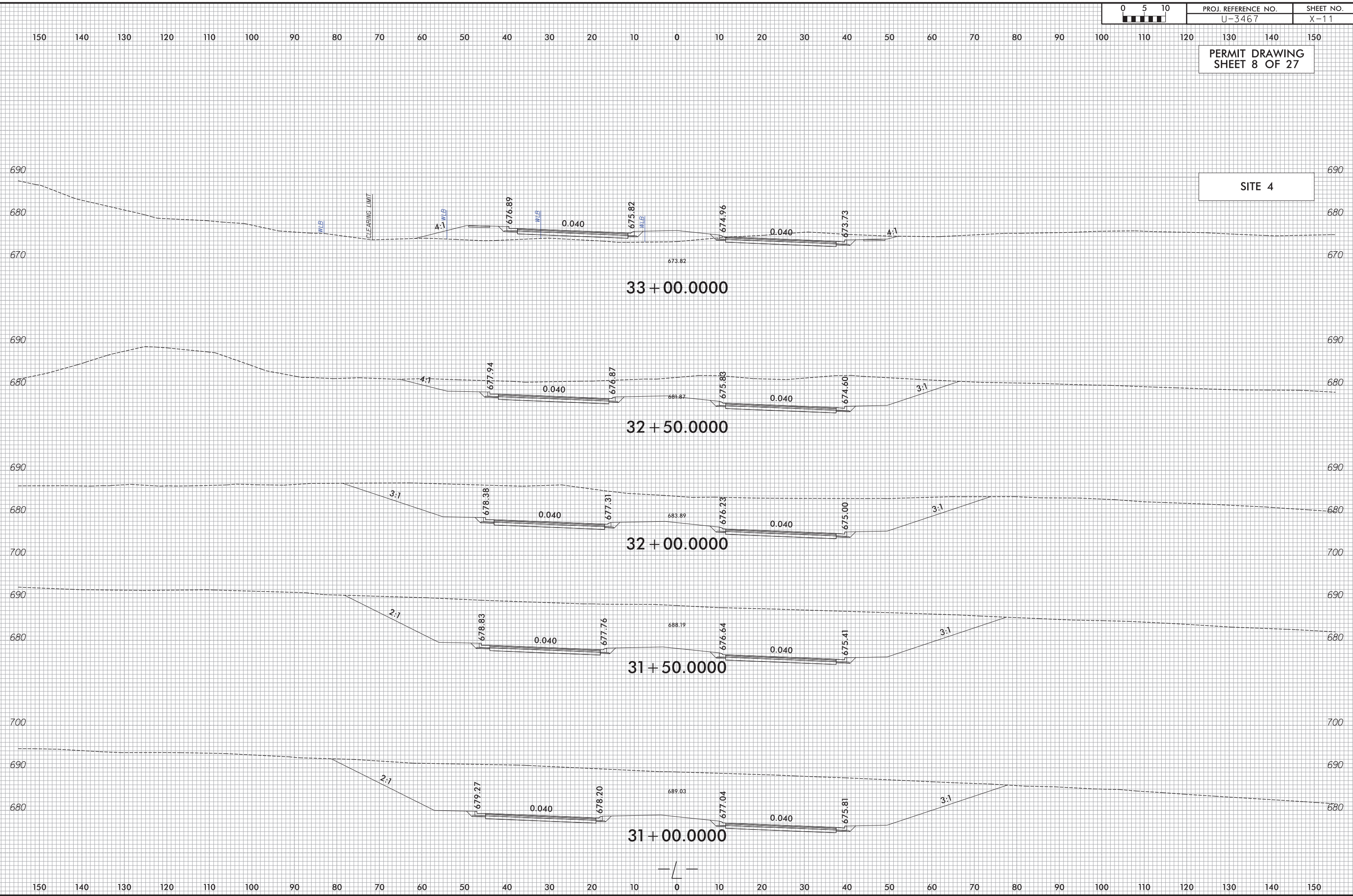
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
U-3467	X-11

PERMIT DRAWING
SHEET 8 OF 27

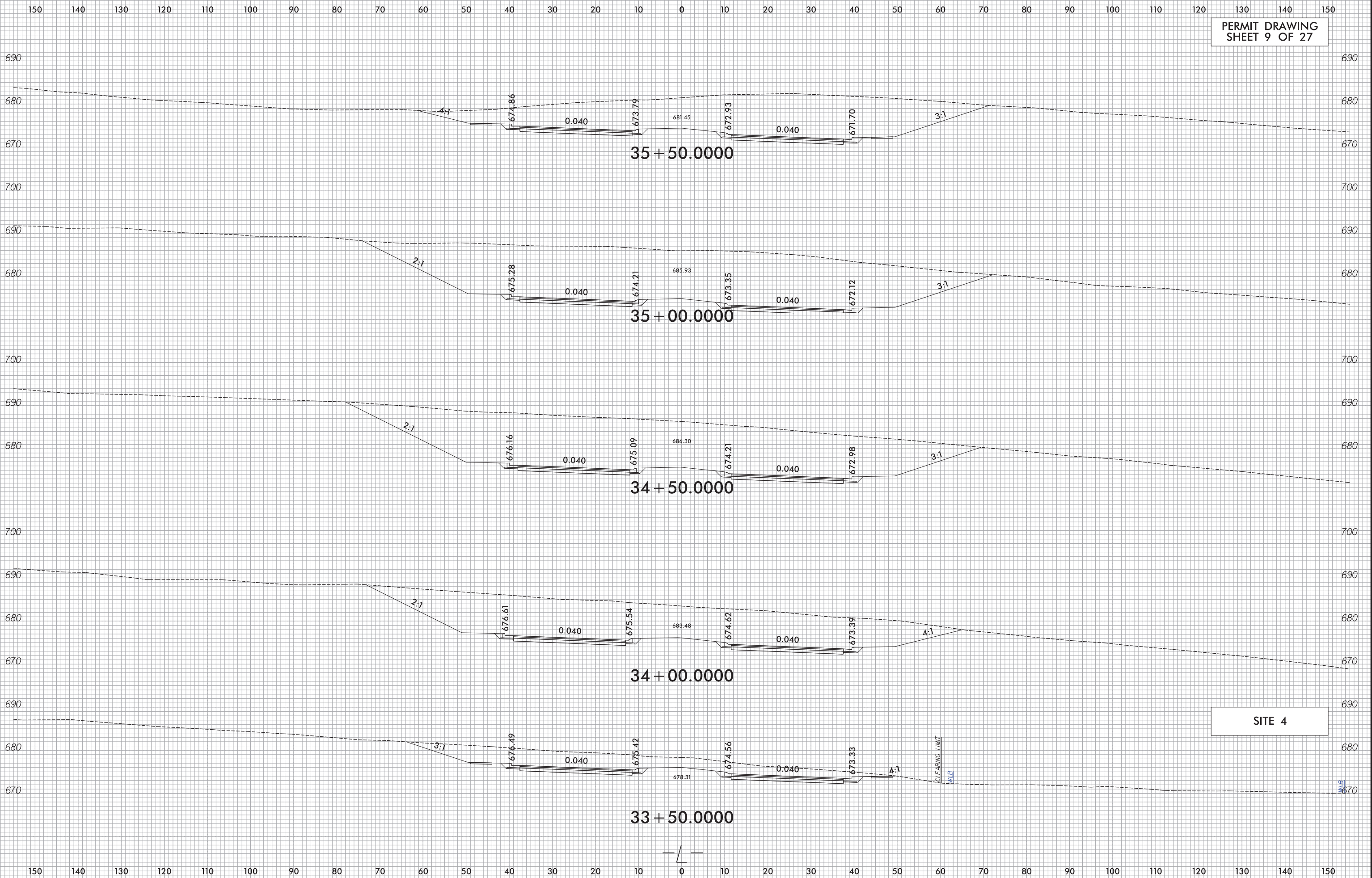
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6/23/16

PERMIT DRAWING
SHEET 9 OF 27



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SITE 4

**DOCUMENT NOT CONSIDERED FINAL
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**PERMIT DRAWING
SHEET 10 OF 27**

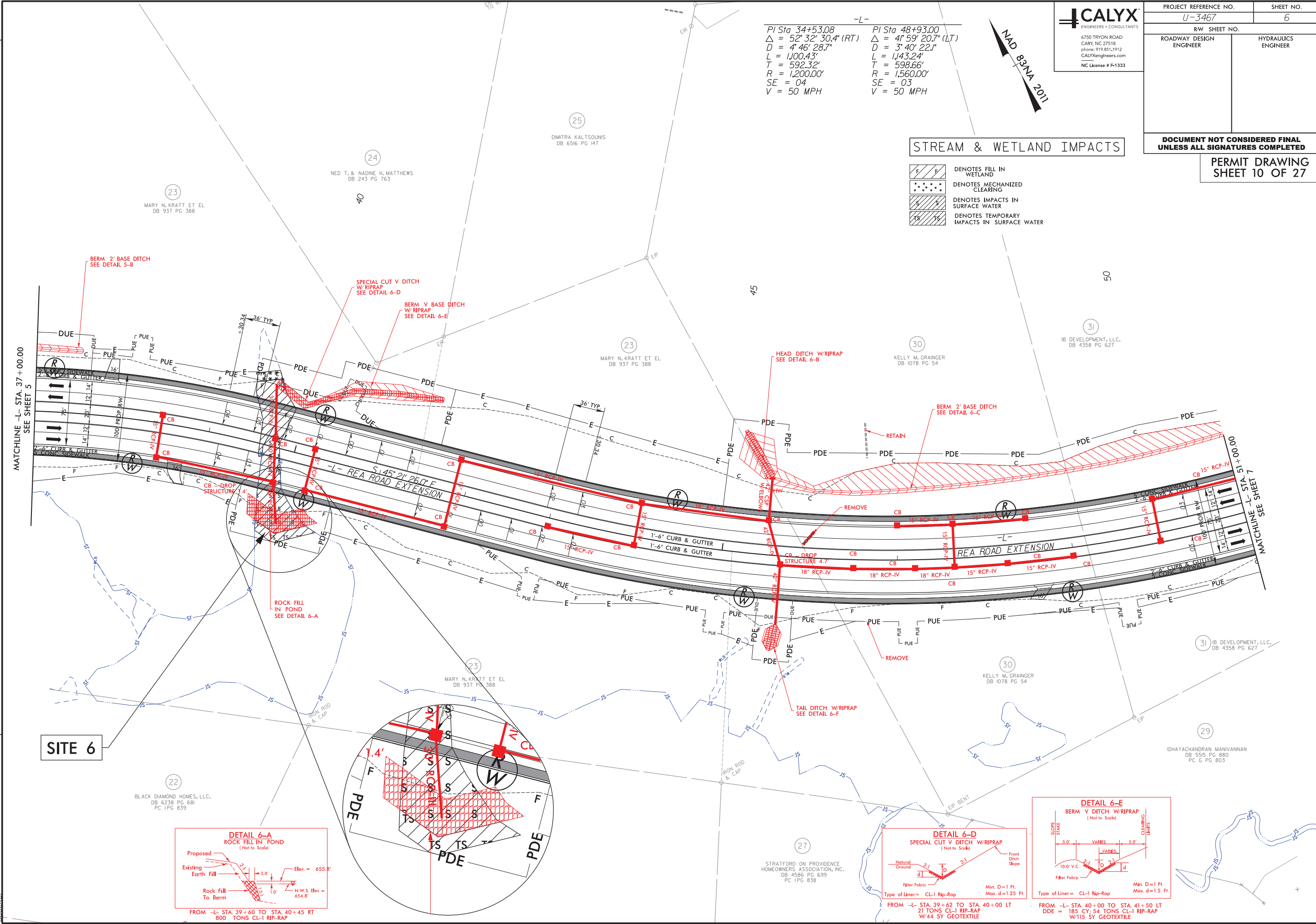
-L-
 PI Sta 34+53.08 PI Sta 48+93.00
 $\Delta = 52' 32" 30.4" (RT)$ $\Delta = 4' 59" 20.7" (LT)$
 $D = 4' 46" 28.7"$ $D = 3' 40" 22.1"$
 $L = 1100.43'$ $L = 1143.24'$
 $T = 592.32'$ $T = 598.66'$
 $R = 1,200.00'$ $R = 1,560.00'$
 $SE = 04$ $SE = 03$
 $V = 50 \text{ MPH}$ $V = 50 \text{ MPH}$



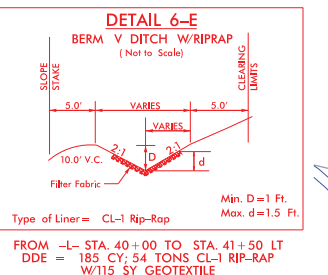
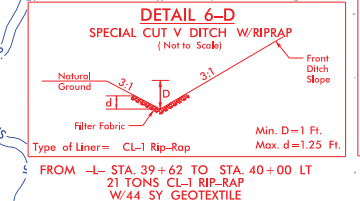
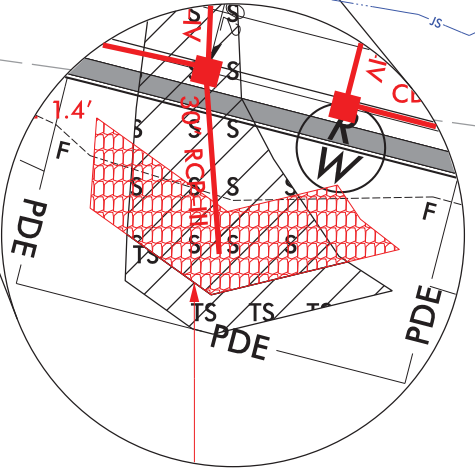
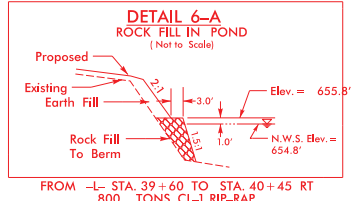
STREAM & WETLAND IMPACTS

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

REVISIONS
 11/07/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 10 AND 11 EASEMENT ON PARCEL 9.
 11/07/2018 - ADJUSTED DUAL UTILITY EASEMENT AND PERMANENT DRAINAGE EASEMENT ON PARCELS 9, 10 AND 11.
 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 9, 10 AND 11.
 2/18/2019 - HYDRAULICS PERMITS (Environmental)\Drawings\J3467_Hyd_Prm_psh_06.dgn



SITE 6



8/17/99

2/18/2019

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 11 OF 27

PI Sta 34+53.08
Δ = 52° 32' 30.4" (RT)
D = 4' 46" 28.7"
L = 1100.43'
T = 592.32'
R = 1,200.00'
SE = 0.4
V = 50 MPH

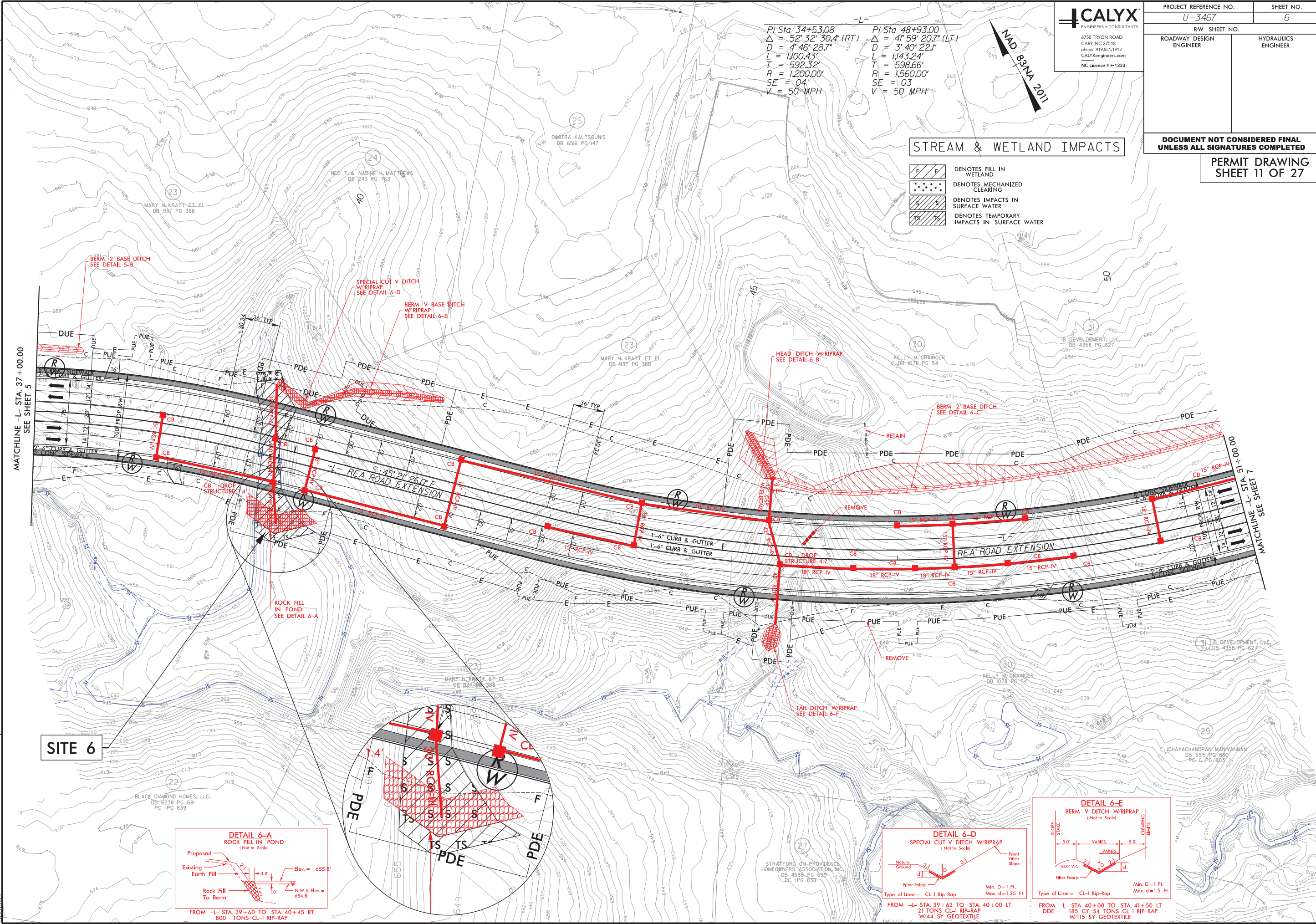
PI Sta 48+93.00
Δ = 41° 59' 20.7" (LT)
D = 3' 40" 22.1"
L = 1,143.24'
T = 598.66'
R = 1,560.00'
SE = 0.3
V = 50 MPH



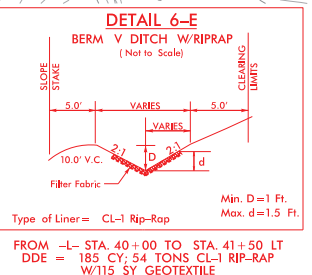
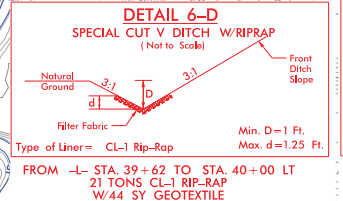
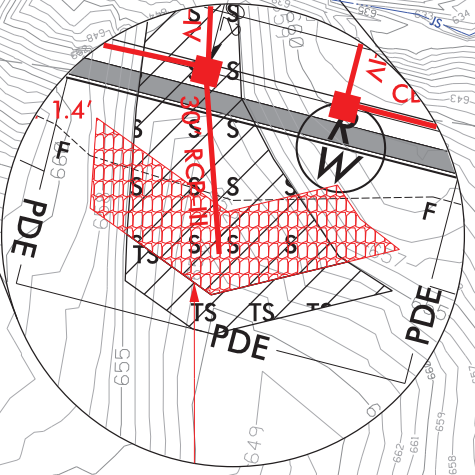
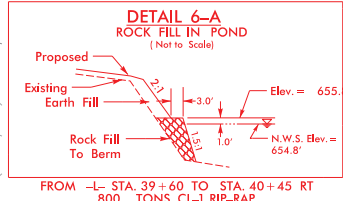
STREAM & WETLAND IMPACTS

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

REVISIONS
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 10 AND 11 AND PERMANENT DRAINAGE EASEMENT ON PARCELS 9, 10 AND 11.
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 9, 10 AND 11.

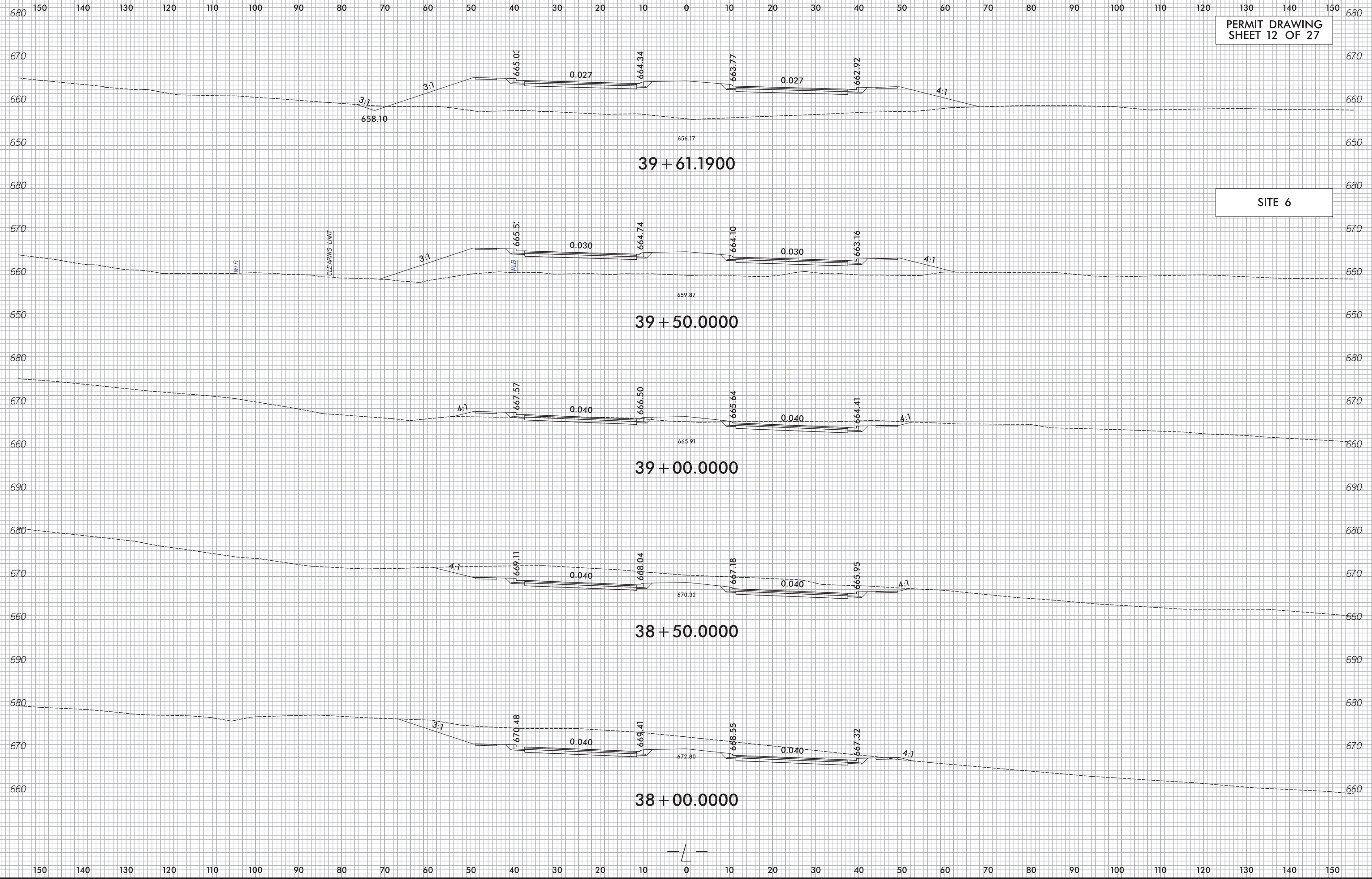


SITE 6



PERMIT DRAWING
SHEET 12 OF 27

SITE 6



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

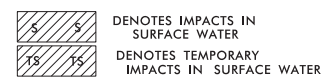
PERMIT DRAWING
SHEET 15 OF 27

-L-
PI Sta 98+94.39
 $\Delta = 33^{\circ} 49' 47.0''$ (RT)
D = 2' 29' 28.0"
L = 1,358.01'
T = 699.45'
R = 2,300.00'
SE = 03
V = 50 MPH

(42)
SUGAR MAGNOLIA WEDDINGTON, LLC.
DB 5890 PG 414
PC L PG 458

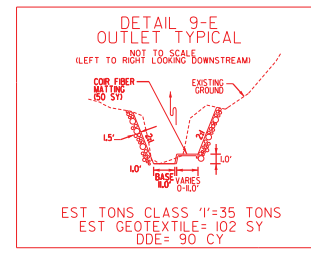
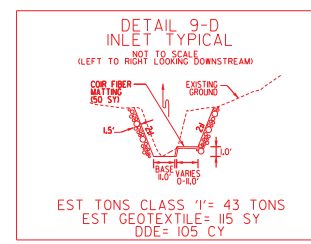
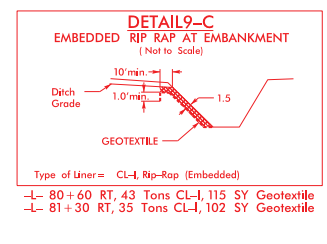
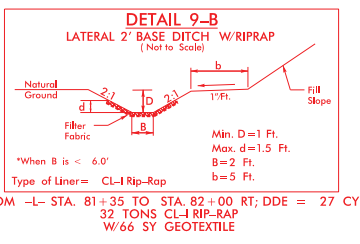
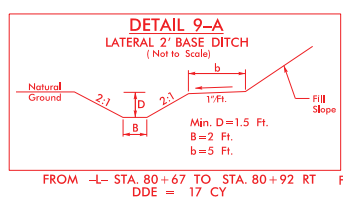
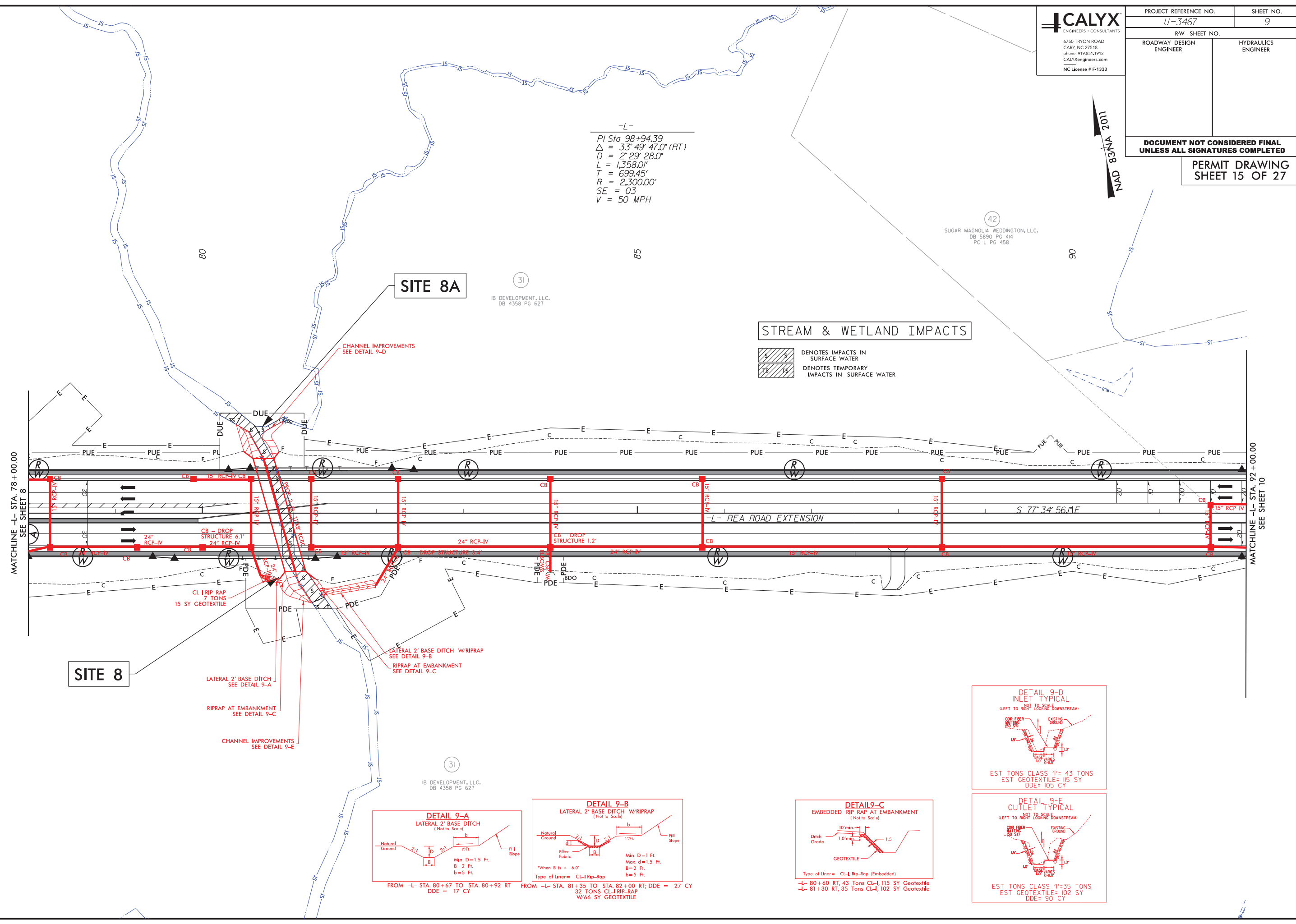
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IB DEVELOPMENT, LLC.
DB 4358 PG 627

STREAM & WETLAND IMPACTS



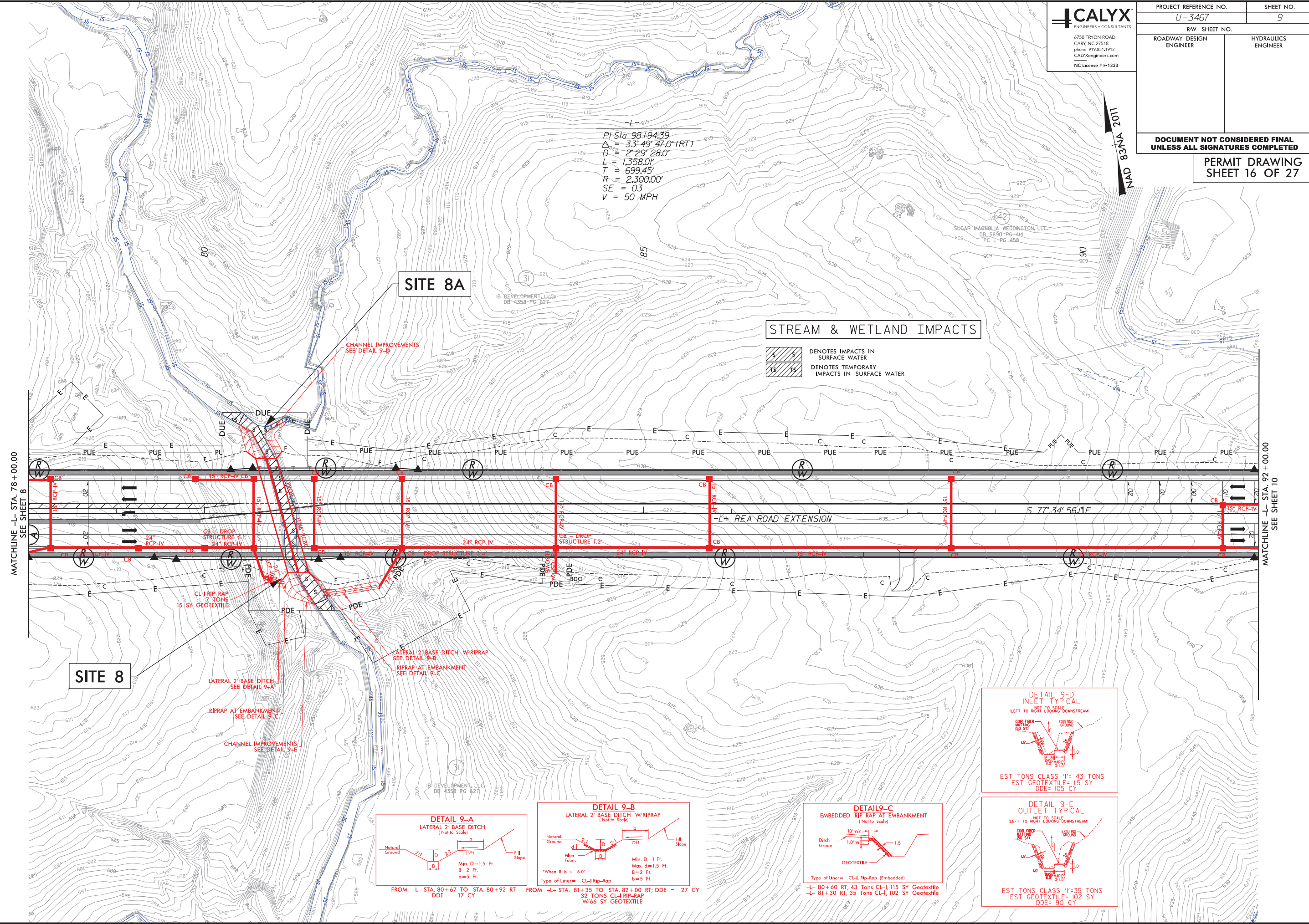
REVISIONS
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCEL II
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT DRAINAGE EASEMENT ON PARCEL II.

2/18/2019
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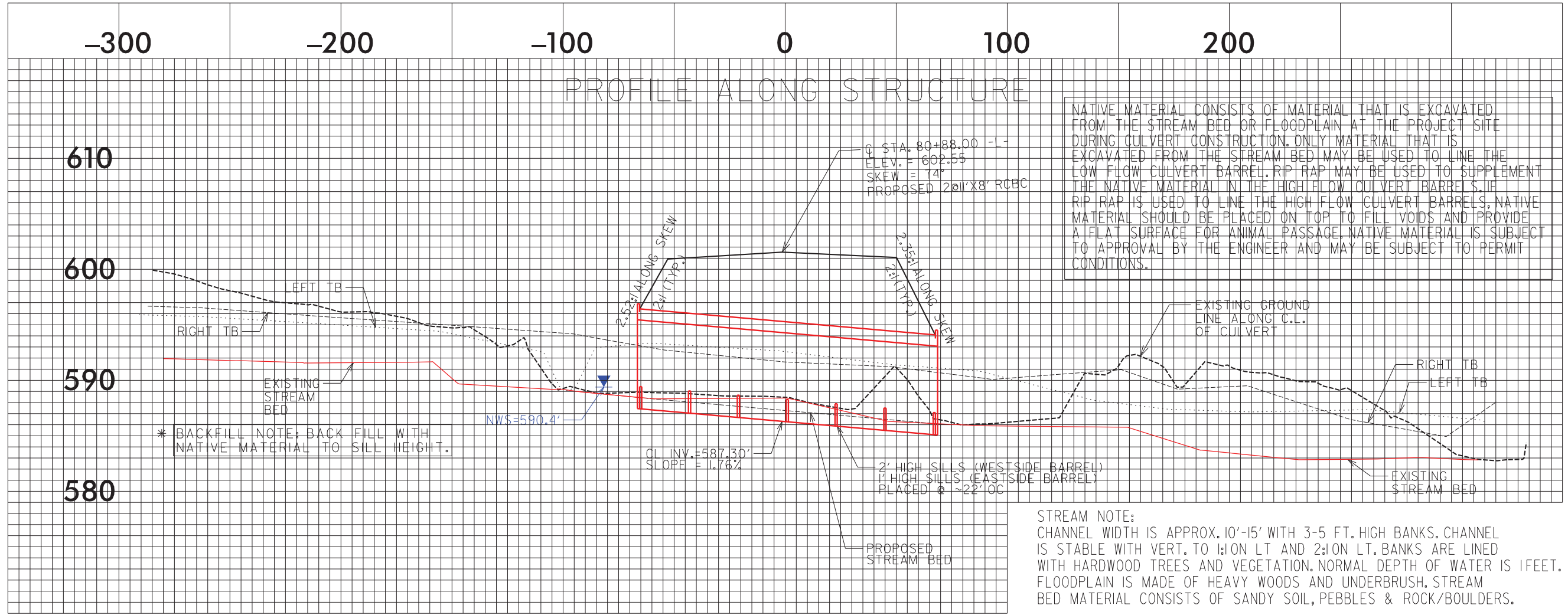
REVISIONS
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCEL II
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT DRAINAGE EASEMENT ON PARCEL II.

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 8/17/99



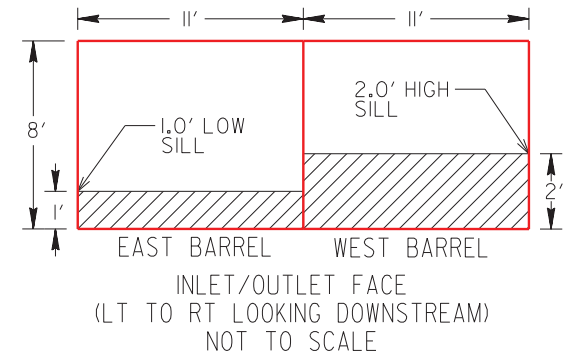
SITE 8

-L- 80+88 - 2 @ 11' x 8' RCBC



NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARRELS. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

STREAM NOTE:
CHANNEL WIDTH IS APPROX. 10'-15' WITH 3-5 FT. HIGH BANKS. CHANNEL IS STABLE WITH VERT. TO 1:1 ON LT AND 2:1 ON RT. BANKS ARE LINED WITH HARDWOOD TREES AND VEGETATION. NORMAL DEPTH OF WATER IS 1 FEET. FLOODPLAIN IS MADE OF HEAVY WOODS AND UNDERBRUSH. STREAM BED MATERIAL CONSISTS OF SANDY SOIL, PEBBLES & ROCK/BOULDERS.



REVISIONS
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 4.7 AND 8.
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 6.7 AND 8.
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 6.7 AND 8.
 2/18/2019
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8/17/99

PROJECT REFERENCE NO. U-3467	SHEET NO. 10
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

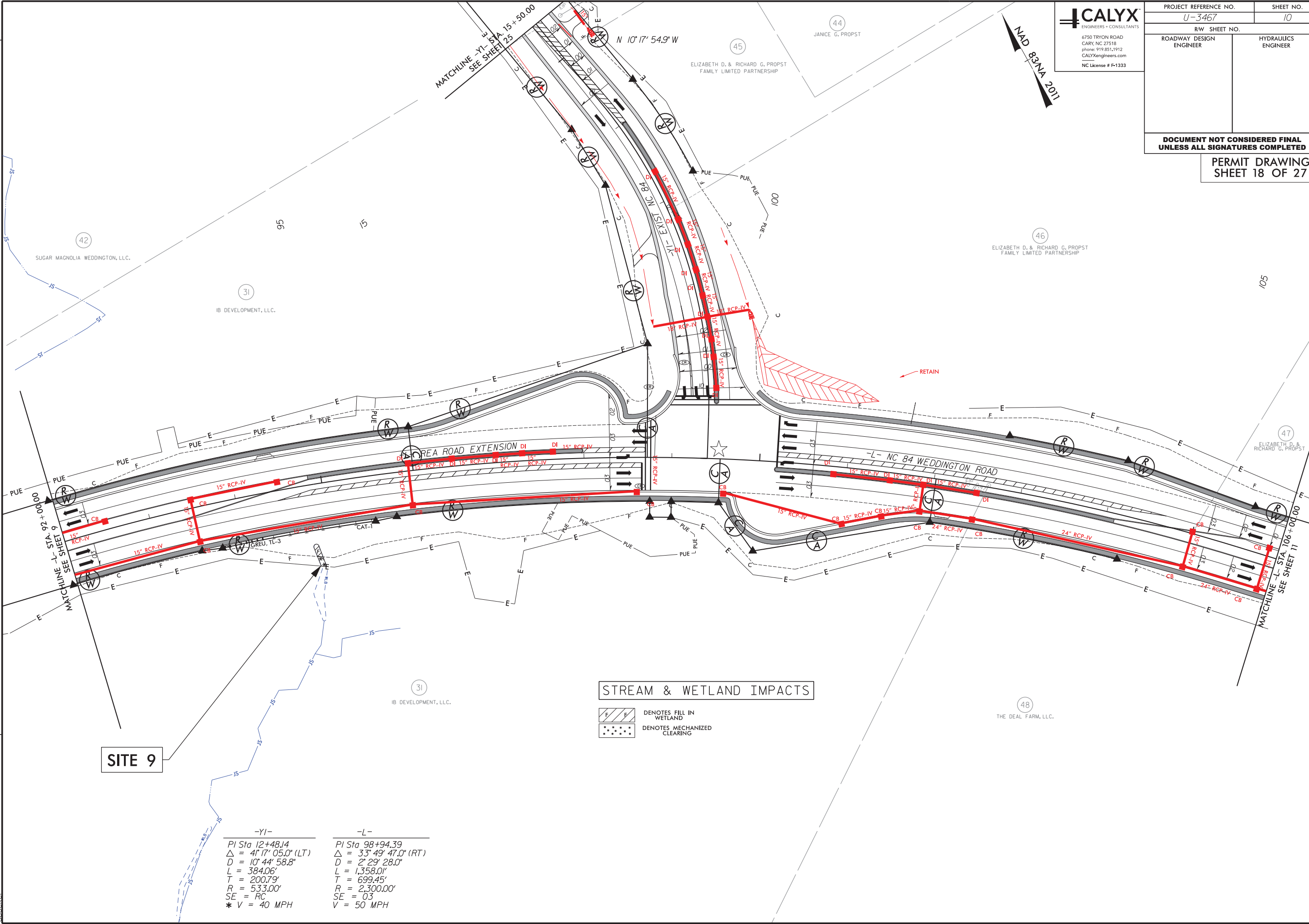
PERMIT DRAWING
SHEET 18 OF 27

46
ELIZABETH D. & RICHARD G. PROPST
FAMILY LIMITED PARTNERSHIP

105

47
ELIZABETH D. & RICHARD G. PROPST
FAMILY LIMITED PARTNERSHIP

48
THE DEAL FARM, LLC.



REVISIONS
 11/07/2018 - ADJUSTED PERMITMENT UTILITY EASEMENT ON PARCELS 10, 11, 18, AND 19.
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION UTILITY EASEMENT ON PARCELS 18 AND 19.
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONTROL OF ACCESS AND RIGHT OF WAY ON PARCEL 11.
 DESIGN REVISION - 11/07/2018 - ADDED U-TURN BULB AT INTERSECTION OF -L- AND -YI-.
 DESIGN REVISION - 10/16/2018 - ADDED U-TURN BULB AT INTERSECTION OF -L- AND -YI-.

SITE 9

STREAM & WETLAND IMPACTS

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

-YI-	-L-
PI Sta 12+48.14	PI Sta 98+94.39
Δ = 41° 17' 05.0" (LT)	Δ = 33° 49' 47.0" (RT)
D = 10' 44' 58.8"	D = 2' 29' 28.0"
L = 384.06'	L = 1,358.01'
T = 200.79'	T = 699.45'
R = 533.00'	R = 2,300.00'
SE = RC	SE = 03
* V = 40 MPH	V = 50 MPH

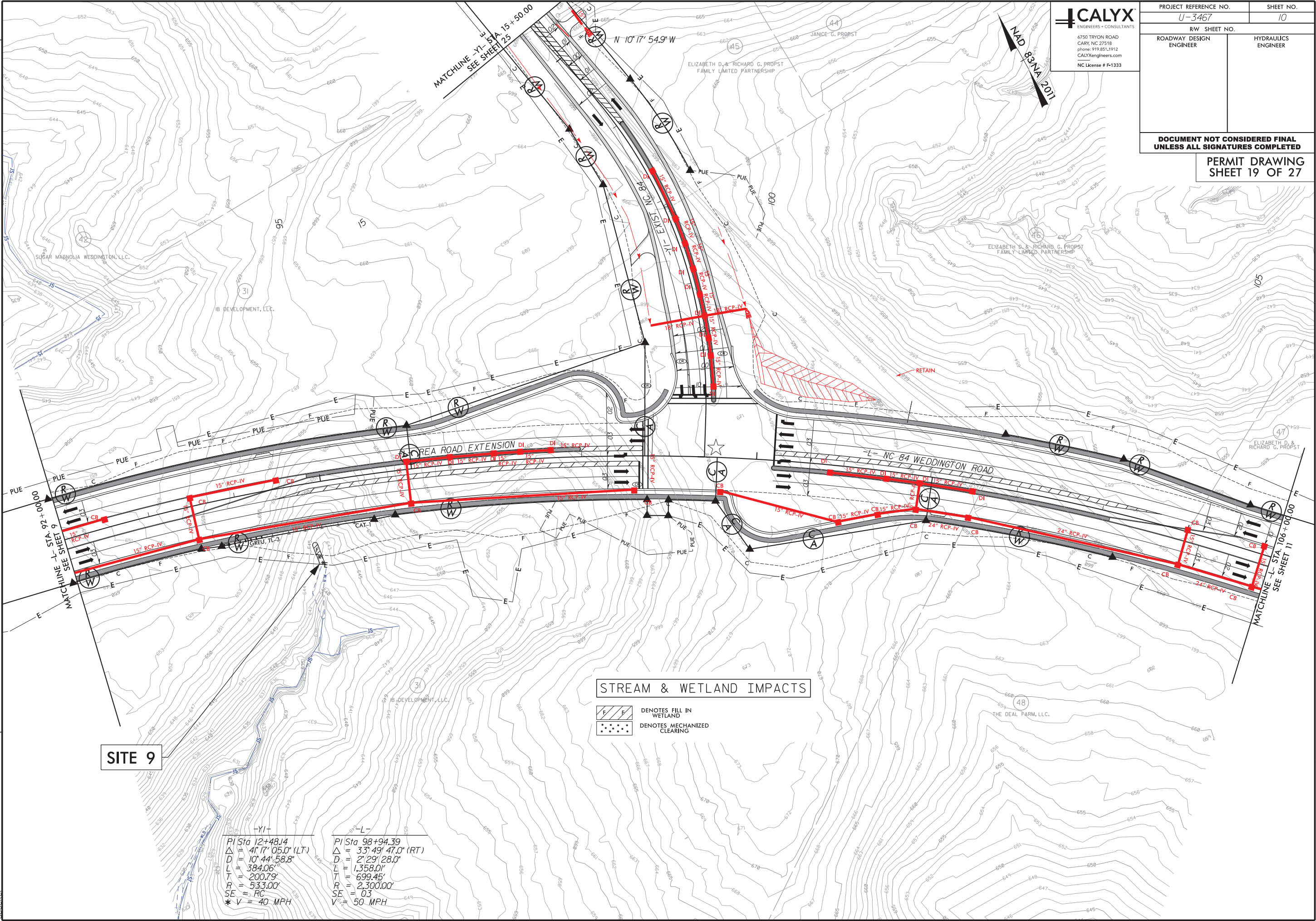
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PROJECT REFERENCE NO. U-3467	SHEET NO. 10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

**PERMIT DRAWING
SHEET 19 OF 27**

REVISIONS
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 10, 11, 18, AND 19.
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 11, 18 AND 19.
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONTROL OF ACCESS AND RIGHT OF WAY ON PARCEL 11.
 DESIGN REVISION - 11/07/2018 - ADDED U-TURN BULB AT INTERSECTION OF -L- AND -YI-.
 DESIGN REVISION - 11/07/2018 - ADDED U-TURN BULB AT INTERSECTION OF -L- AND -YI-.
 DESIGN REVISION - 11/07/2018 - ADDED U-TURN BULB AT INTERSECTION OF -L- AND -YI-.



SITE 9

STREAM & WETLAND IMPACTS

- DENOTES FILL IN
- DENOTES WETLAND
- DENOTES MECHANIZED CLEARING

<p>-YI-</p> <p>PI Sta 12+48.14 $\Delta = 41' 17" 05.0" (LT)$ $D = 10' 44" 58.8"$ $L = 384.06'$ $T = 200.79'$ $R = 533.00'$ $SE = FC$ $*V = 40 MPH$</p>	<p>-L-</p> <p>PI Sta 98+94.39 $\Delta = 33' 49" 47.0" (RT)$ $D = 2' 29" 28.0"$ $L = 1,358.01'$ $T = 699.45'$ $R = 2,300.00'$ $SE = 03$ $V = 50 MPH$</p>
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UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 20 OF 27

TRAFFIC DIAGRAM		
ADT 2019	HIGH SCHOOL	3,992
ADT 2039		4,952
	1,996	1,996
	2,476	2,476
-L-	WEDDINGTON ROAD	-L-
20,316	NC 84	20,316
28,396		28,396

-L-
PI Sta 154+01.53
 $\Delta = 34' 37" 20.2" (LT)$
 $D = 2' 20" 19.0"$
 $L = 1,480.47'$
 $T = 763.61'$
 $R = 2,450.00'$
 $SE = 03$
 $V = 50 MPH$

-DR-
PI Sta 11+84.67
 $\Delta = 36' 35" 45.5" (LT)$
 $D = 57' 17" 44.8"$
 $L = 63.87'$
 $T = 33.07'$
 $R = 100.00'$

NAD 83/NA 2011

REVISIONS

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RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PROPERTY LINES ON PARCELS 49 AND 50. ADDED PARCEL 50A.

RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 42, 45, 46 AND 48.

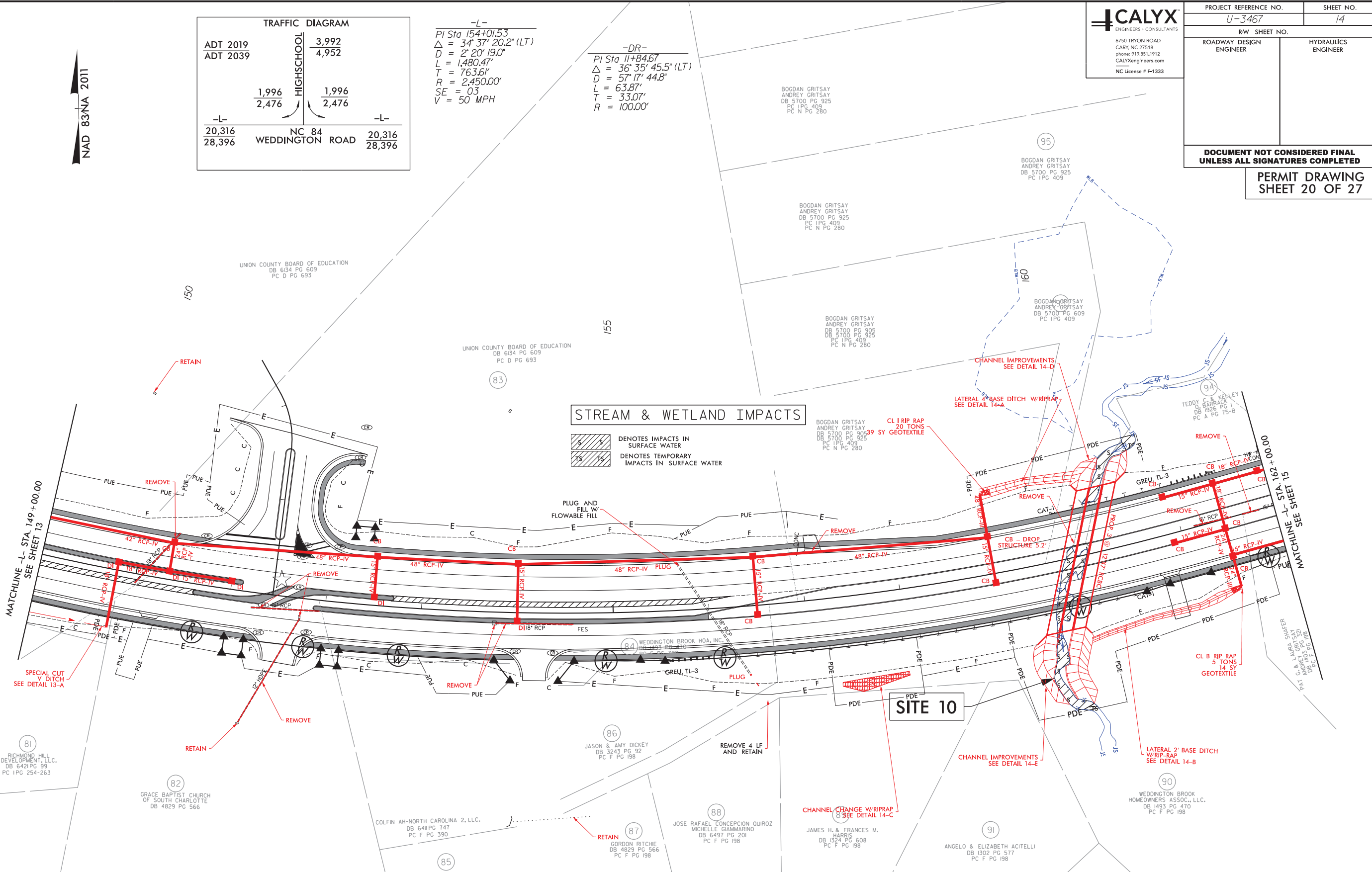
RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 42, 45, 46 AND 48.

RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED ROW ON PARCEL 48.

DESIGN REVISION - 11/07/2018 - MODIFIED EXIT RAMP AT WEDDINGTON HIGH SCHOOL BY REMOVING TURNOUT AND ADDING -DR- ALIGNMENT.

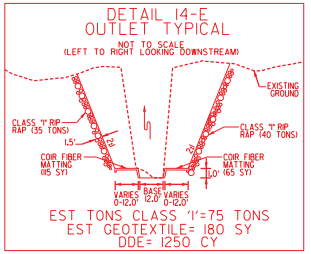
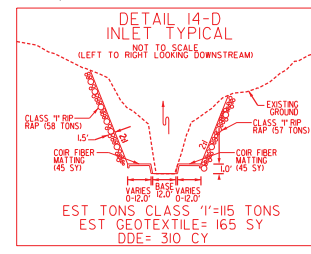
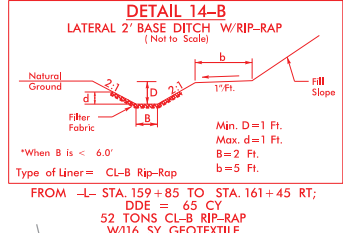
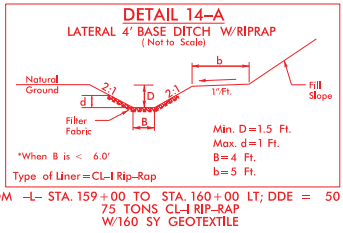
DESIGN REVISION - 11/07/2018 - MODIFIED EXIT RAMP AT WEDDINGTON HIGH SCHOOL BY REMOVING TURNOUT AND ADDING -DR- ALIGNMENT.

DESIGN REVISION - 12/17/2018 - REMOVED TEMPORARY CONSTRUCTION EASEMENT ON PARCELS 52 AND 53. MODIFIED PERMANENT UTILITY EASEMENT ON PARCEL 53.



STREAM & WETLAND IMPACTS

DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

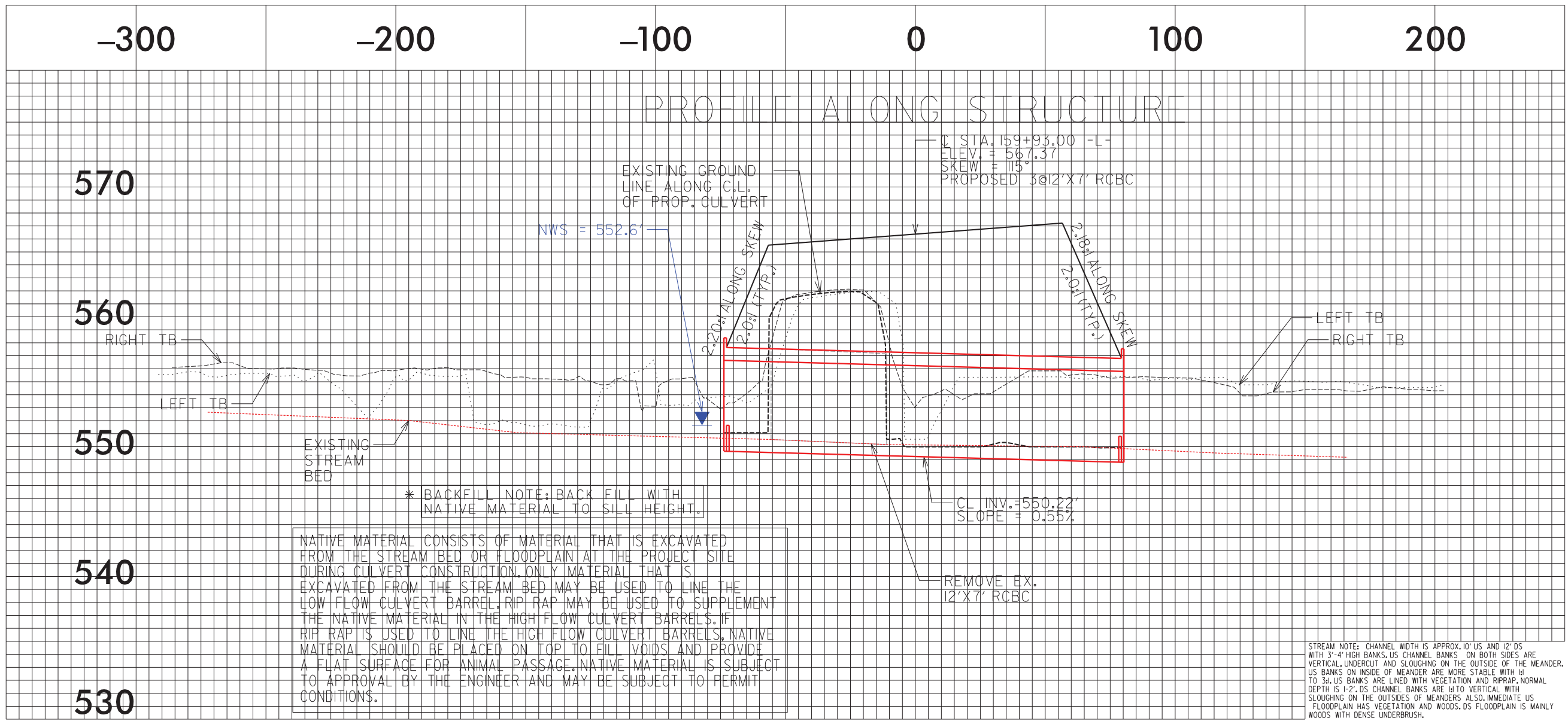


SKYCROFT HOMEOWNERS ASSOCIATION, INC.
DB 4380 PG 514

SITE 10

-L- 159+93 - 3 @ 12' x 7' RCBC

PERMIT DRAWING
SHEET 22 OF 27

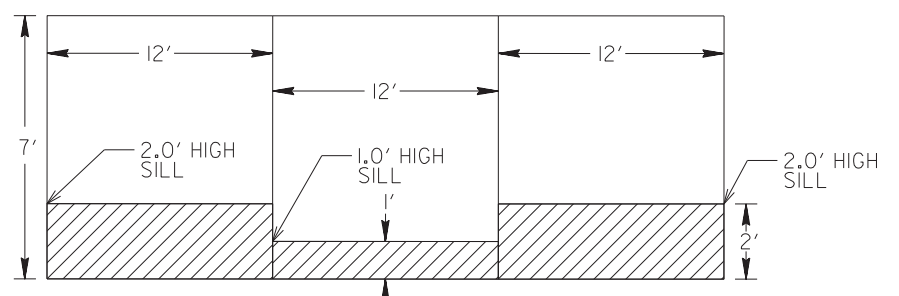


* BACKFILL NOTE: BACK FILL WITH NATIVE MATERIAL TO SILL HEIGHT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARRELS. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

STREAM NOTE: CHANNEL WIDTH IS APPROX. 10' US AND 12' DS WITH 3'-4" HIGH BANKS. US CHANNEL BANKS ON BOTH SIDES ARE VERTICAL, UNDERCUT AND SLOUGHING ON THE OUTSIDE OF THE MEANDER. US BANKS ON INSIDE OF MEANDER ARE MORE STABLE WITH 1:1 TO 3:1 US BANKS ARE LINED WITH VEGETATION AND RIPRAP. NORMAL DEPTH IS 1'-2'. DS CHANNEL BANKS ARE 1:1 TO VERTICAL WITH SLOUGHING ON THE OUTSIDES OF MEANDERS ALSO. IMMEDIATE US FLOODPLAIN HAS VEGETATION AND WOODS. DS FLOODPLAIN IS MAINLY WOODS WITH DENSE UNDERBRUSH.

CULVERT TYPICAL @ INLET/OUTLET FACE (LT TO RT LOOKING DOWNSTREAM) NOT TO SCALE



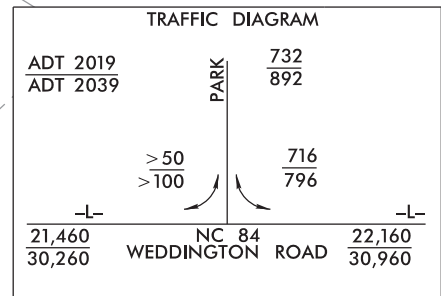
REVISIONS
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 4.7 AND 8.
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 6.7 AND 8.
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 6.7 AND 8.
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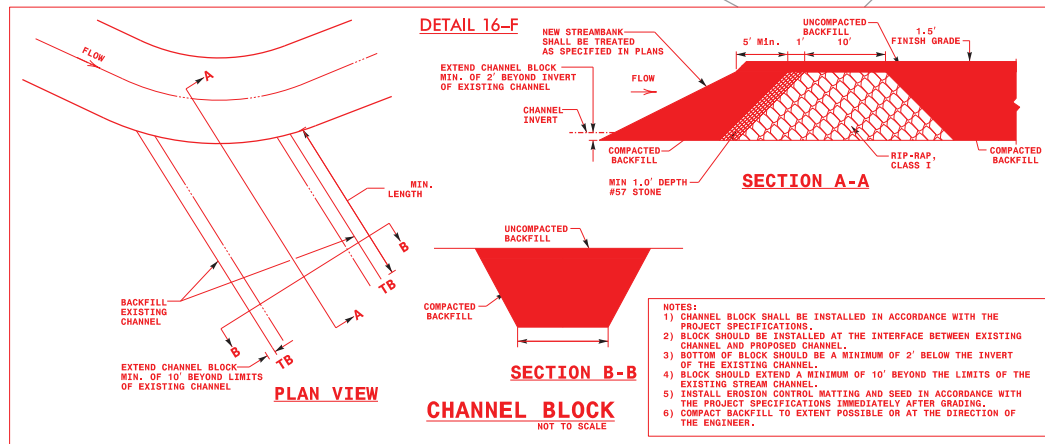
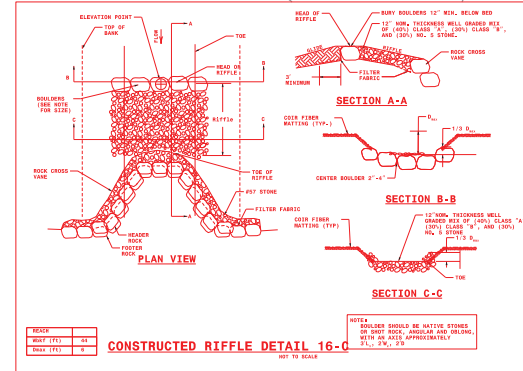
PROJECT REFERENCE NO. U-3467	SHEET NO. 16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 23 OF 27

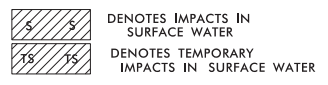


-L-		-Y4-	
PI Sta 175+36.59	PI Sta 10+66.08	PI Sta 12+04.39	
$\Delta = 17^\circ 30' 05.0''$ (RT)	$\Delta = 3^\circ 39' 15.3''$ (LT)	$\Delta = 40^\circ 14' 55.1''$ (LT)	
D = 3' 52' 16.8"	D = 11' 27' 33.0"	D = 22' 55' 05.9"	
L = 452.08'	L = 31.89'	L = 175.62'	
T = 227.81'	T = 15.95'	T = 91.61'	
R = 1,480.00'	R = 500.00'	R = 250.00'	
SE = 03	SE = 04	SE = 04	
V = 50 MPH	V = 30 MPH	V = 30 MPH	

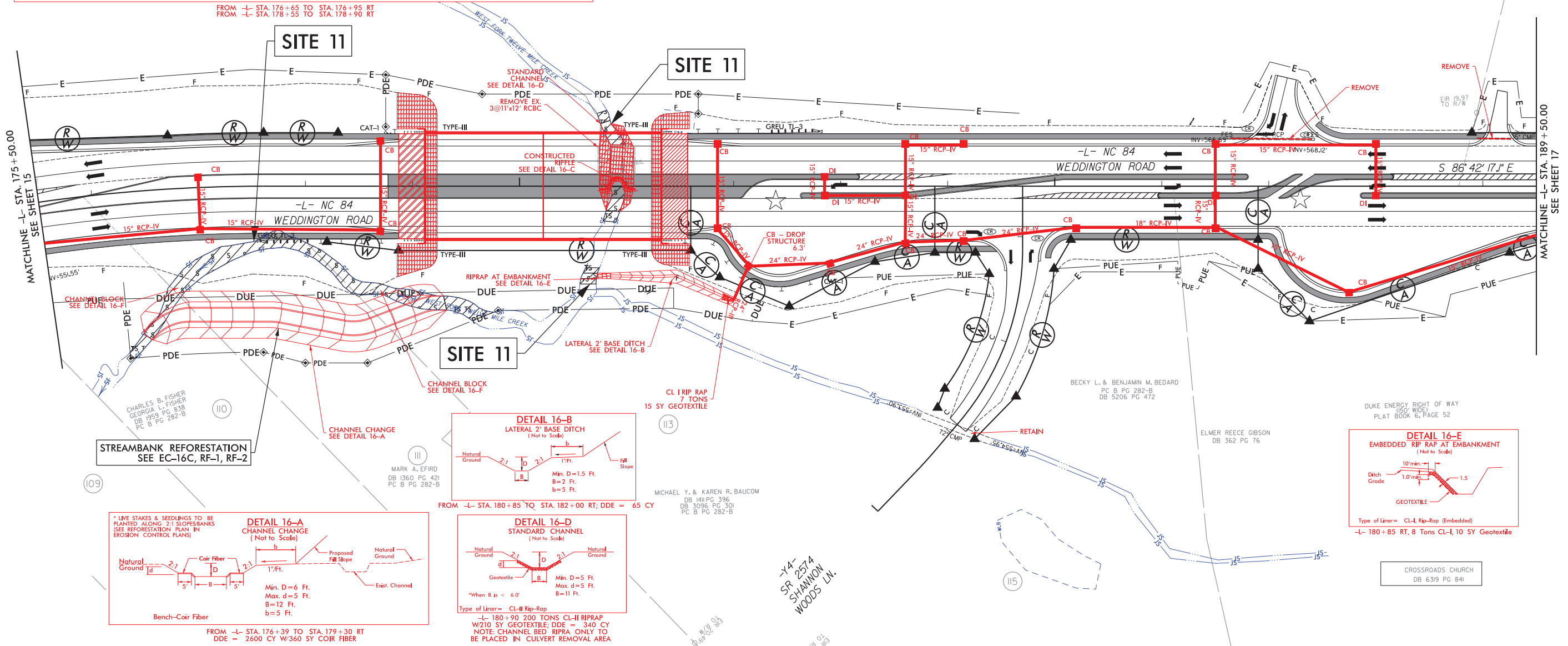


- NOTES:
- 1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 - 2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
 - 3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF 2' BELOW THE INVERT OF THE EXISTING CHANNEL.
 - 4) BLOCK SHOULD EXTEND A MINIMUM OF 10' BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
 - 5) INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
 - 6) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.

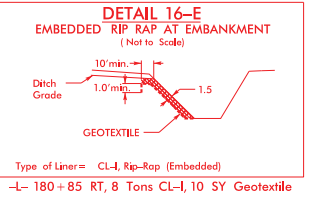
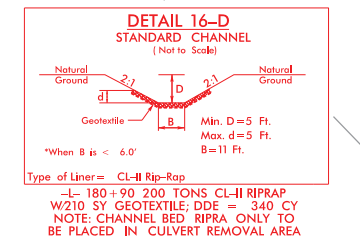
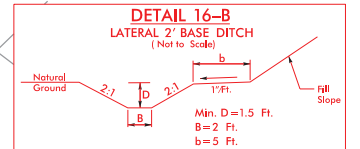
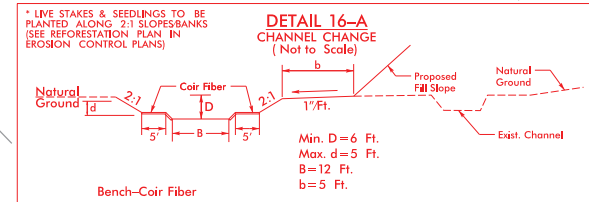
STREAM & WETLAND IMPACTS



REVISIONS
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONTROL OF ACCESS AND RIGHT OF WAY ON PARCELS 67.70 AND 70A.
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT DRAINAGE EASEMENT ON PARCEL 66.
 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED DUAL UTILITY EASEMENT ON PARCEL 70A.
 DESIGN REVISION - 11/07/2018 - MODIFIED U-TURN BULB RT AT INTERSECTION OF -L- AND WESTFORK RUN
 RIGHT OF WAY REVISION - 12/17/2018 - MODIFIED PERMANENT DRAINAGE EASEMENT ON PARCEL 67, MODIFIED PERMANENT UTILITY EASEMENT ON PARCELS 67.69, 70, AND 70A.
 PARCELS 66 AND 67 REMOVED PERMANENT UTILITY EASEMENT ON PARCEL 68, ADDED PERMANENT UTILITY EASEMENT AND DRAINAGE AND UTILITY EASEMENT ON PARCEL 65.



STREAMBANK REFORESTATION
SEE EC-16C, RF-1, RF-2

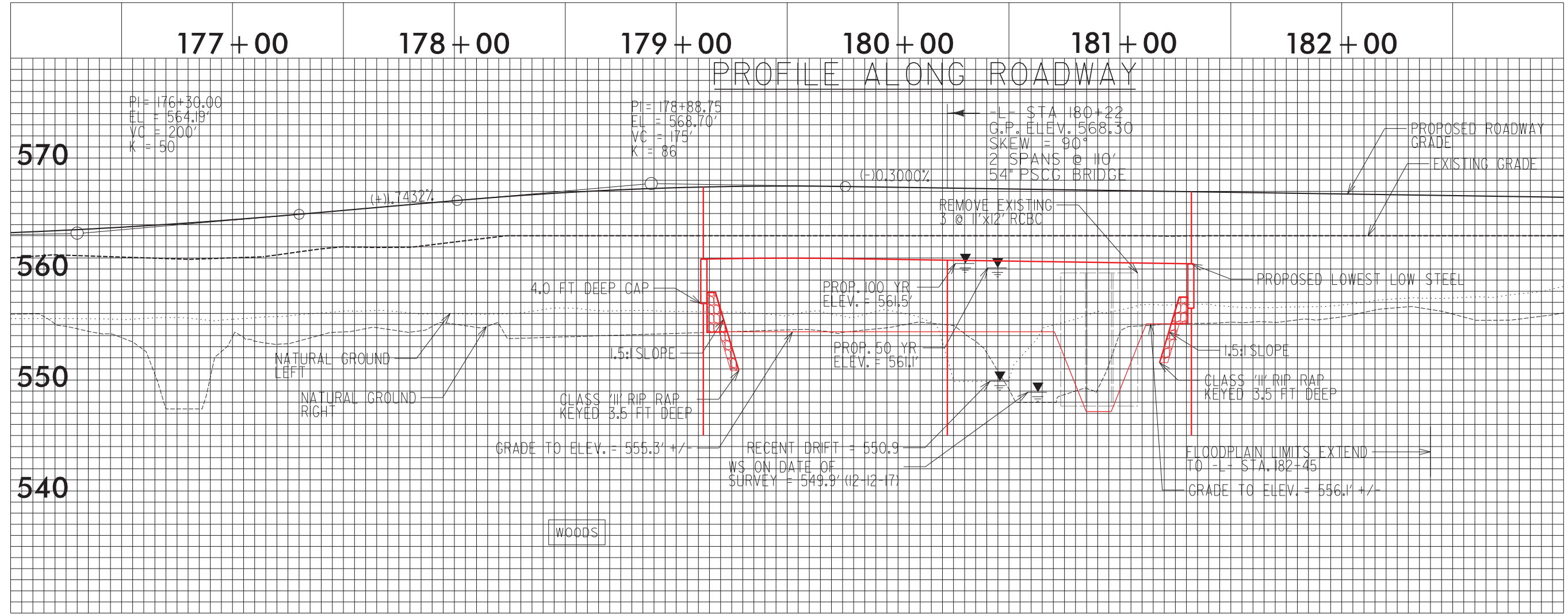


CROSSROADS CHURCH
DB 6319 PG 841

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SITE 11

-L- 180+22 - BRIDGE

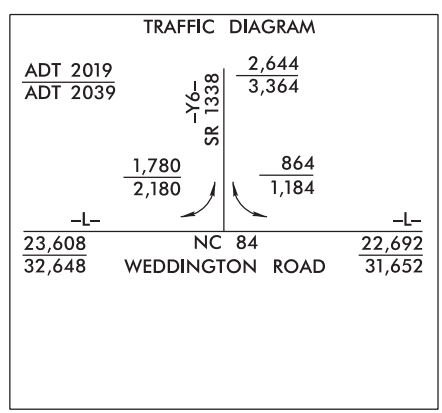


REVISIONS
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 4.7 AND 8.
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCEL 5.
 RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 6.7 AND 8.

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**PERMIT DRAWING
SHEET 26 OF 27**



-Y6-

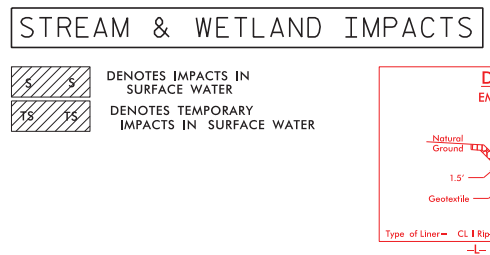
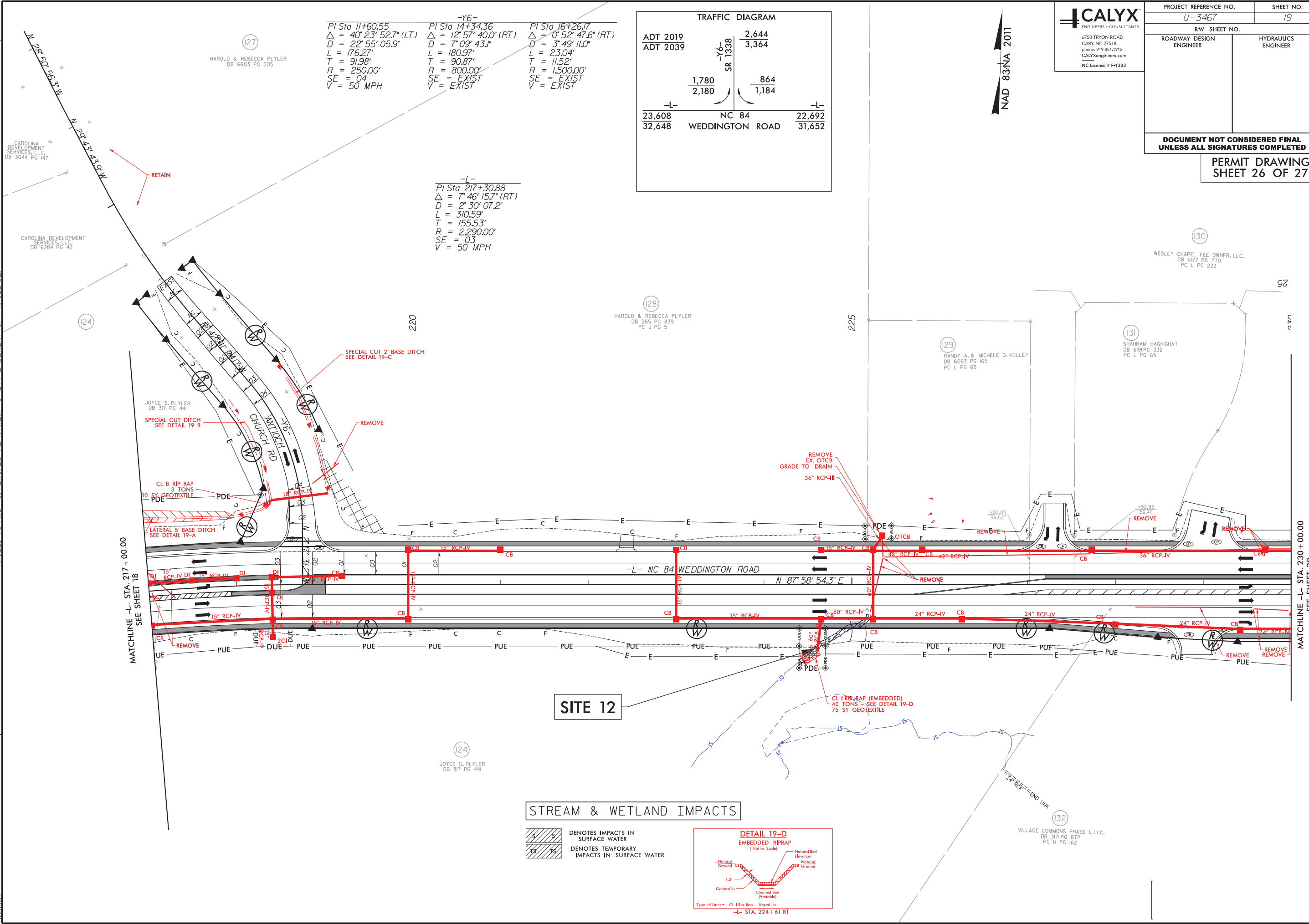
PI Sta 11+60.55 Δ = 40° 23' 52.7" (LT) D = 22° 55' 05.9" L = 176.27' T = 91.98' R = 250.00' SE = 04 V = 50 MPH	PI Sta 14+34.36 Δ = 12° 57' 40.0" (RT) D = 7° 09' 43.1" L = 180.97' T = 90.87' R = 800.00' SE = EXIST V = EXIST	PI Sta 16+26.17 Δ = 0° 52' 47.6" (RT) D = 3° 49' 11.0" L = 23.04' T = 11.52' R = 1,500.00' SE = EXIST V = EXIST
---	--	--

-L-

PI Sta 217+30.88 Δ = 7° 46' 15.7" (RT) D = 2° 30' 07.2" L = 310.59' T = 155.53' R = 2,290.00' SE = 03 V = 50 MPH

REVISIONS

RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 78 AND 84.
RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT DRAINAGE EASEMENT ON PARCELS 76, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

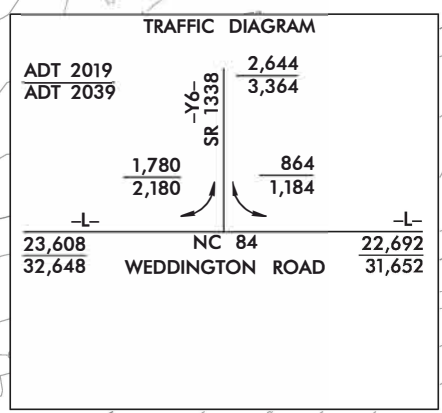


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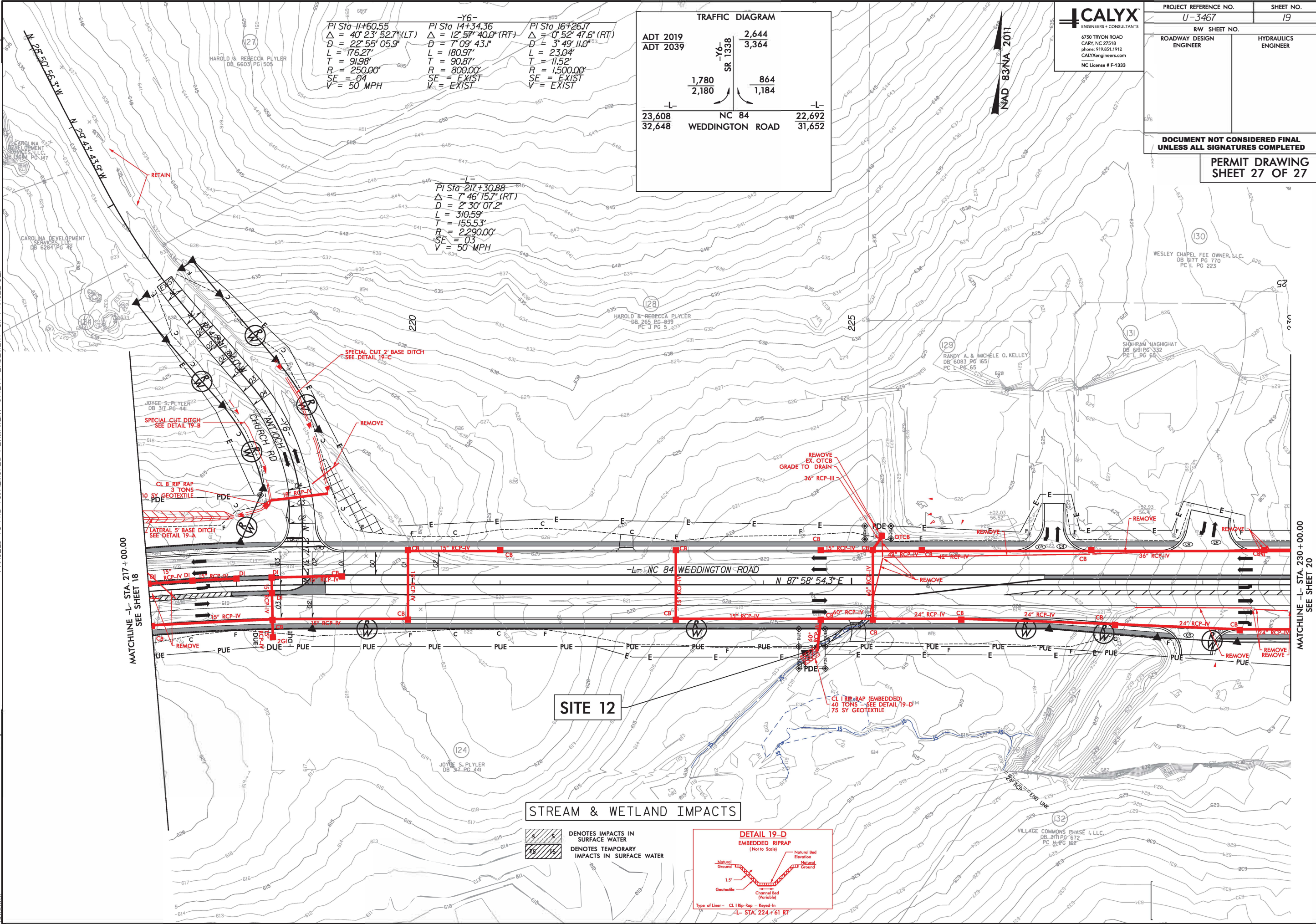
PI Sta 11+60.55 Δ = 40° 23' 52.7" (LT) D = 22° 55' 05.9" L = 176.27' T = 91.98' R = 250.00' SE = 04 V = 50 MPH	PI Sta 14+34.36 Δ = 12° 57' 40.0" (RT) D = 7° 09' 43.1" L = 180.97' T = 90.87' R = 800.00' SE = EXIST V = EXIST	PI Sta 16+26.17 Δ = 0° 52' 47.6" (RT) D = 3° 49' 11.0" L = 23.04' T = 11.52' R = 1,500.00' SE = EXIST V = EXIST
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PI Sta 217+30.88 Δ = 7° 46' 15.7" (RT) D = 2° 30' 07.2" L = 310.59' T = 155.53' R = 2,290.00' SE = 03 V = 50 MPH

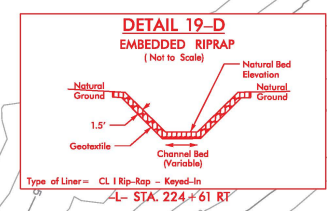
REVISIONS

RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 78 AND 84.
RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT DRAINAGE EASEMENT ON PARCELS 78.
RIGHT OF WAY REVISION - 12/17/2018 - MODIFIED PERMANENT DRAINAGE EASEMENT ON PARCELS 76 AND 79.
RIGHT OF WAY REVISION - 12/17/2018 - MODIFIED PERMANENT DRAINAGE EASEMENT ON PARCELS 76, 82, AND 84.
RIGHT OF WAY REVISION - 12/17/2018 - MODIFIED TEMPORARY CONSTRUCTION EASEMENT ON PARCELS 76, 82, AND 84.
RIGHT OF WAY REVISION - 12/17/2018 - MODIFIED PERMANENT UTILITY EASEMENT AND UTILITY EASEMENT ON PARCELS 76 AND 79.
RIGHT OF WAY REVISION - 12/17/2018 - REMOVED PERMANENT UTILITY EASEMENT ON PARCEL 82.



STREAM & WETLAND IMPACTS

DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



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