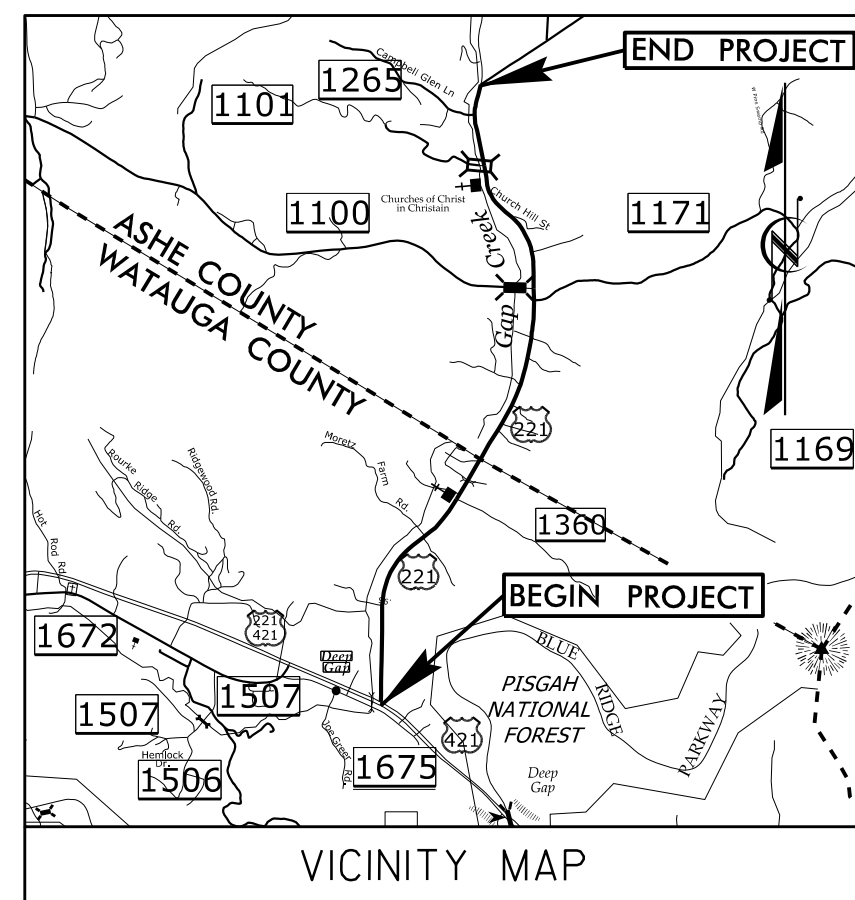


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TIP PROJECT: R-2915A

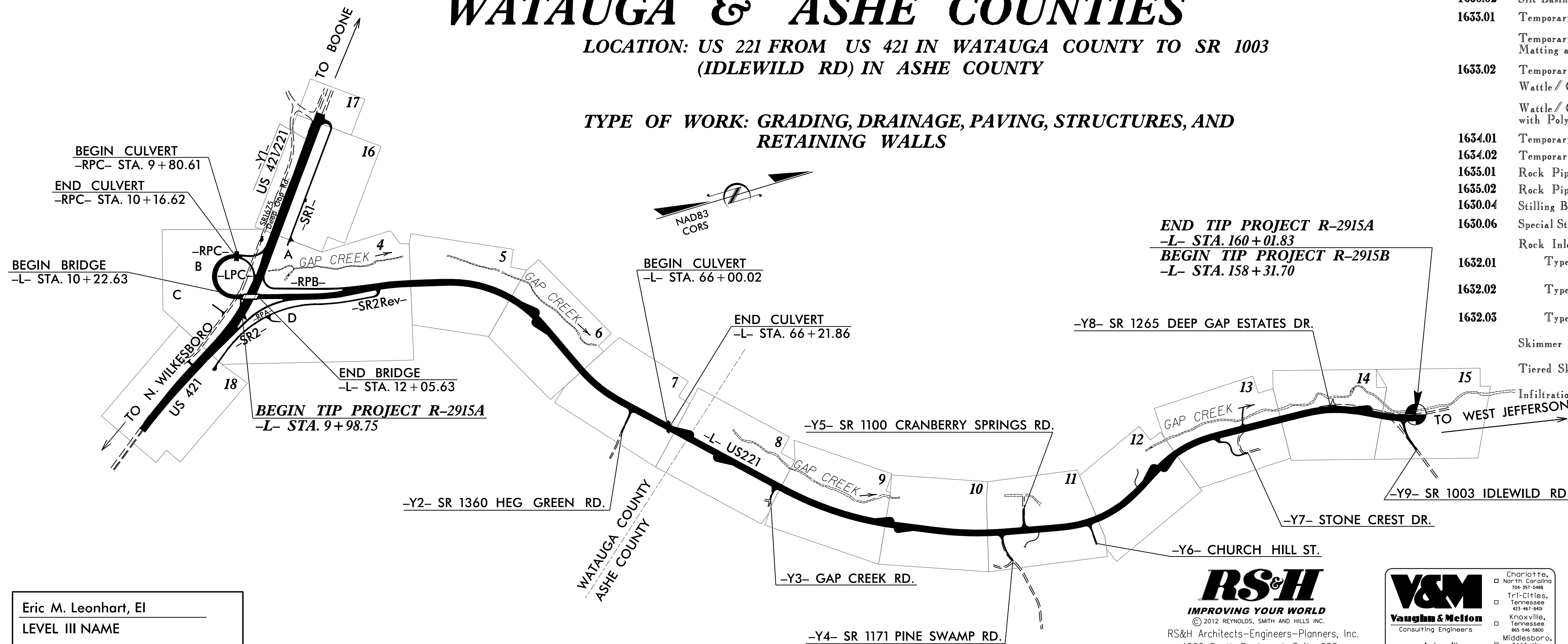


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
**PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL**

WATAUGA & ASHE COUNTIES

LOCATION: US 221 FROM US 421 IN WATAUGA COUNTY TO SR 1003
(IDLEWILD RD) IN ASHE COUNTY

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, AND
RETAINING WALLS



Eric M. Leonhart, EI
LEVEL III NAME

3502
LEVEL III CERTIFICATION NO.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

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Asheville, North Carolina
828-253-2796
Spartanburg, South Carolina
864-574-4775
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THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.

THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.

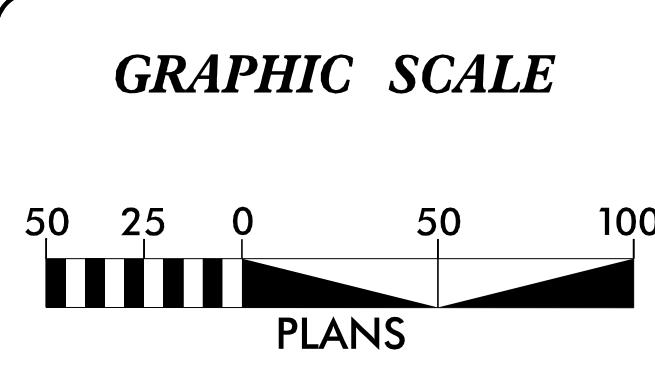
ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT

Refer To E. C. Special Provisions
for Special Considerations.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2915A	EC-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
34518.1.2	STP-0221 (39)	P.E.	
34518.2.FR1	STP-0221 (39)	RW	
34518.2.UFR1	STP-0221 (39)	UTILITIES	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	III III III
1630.02	Silt Basin Type B	III III III
1633.01	Temporary Rock Silt Check Type-A	III III III
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	III III III
1633.02	Temporary Rock Silt Check Type-B	III III III
	Wattle/Coir Fiber Wattle	III III III
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	III III III
1634.01	Temporary Rock Sediment Dam Type-A	III III III
1634.02	Temporary Rock Sediment Dam Type-B	III III III
1635.01	Rock Pipe Inlet Sediment Trap Type-A	III III III
1635.02	Rock Pipe Inlet Sediment Trap Type-B	III III III
1630.04	Stilling Basin	III III III
1630.06	Special Stilling Basin	III III III
	Rock Inlet Sediment Trap:	III III III
1632.01	Type A	III III III
1632.02	Type B	III III III
1632.03	Type C	III III III
	Skimmer Basin	III III III
	Tiered Skimmer Basin	III III III
	Infiltration Basin	III III III



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:
SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

Roadway Standard Drawings

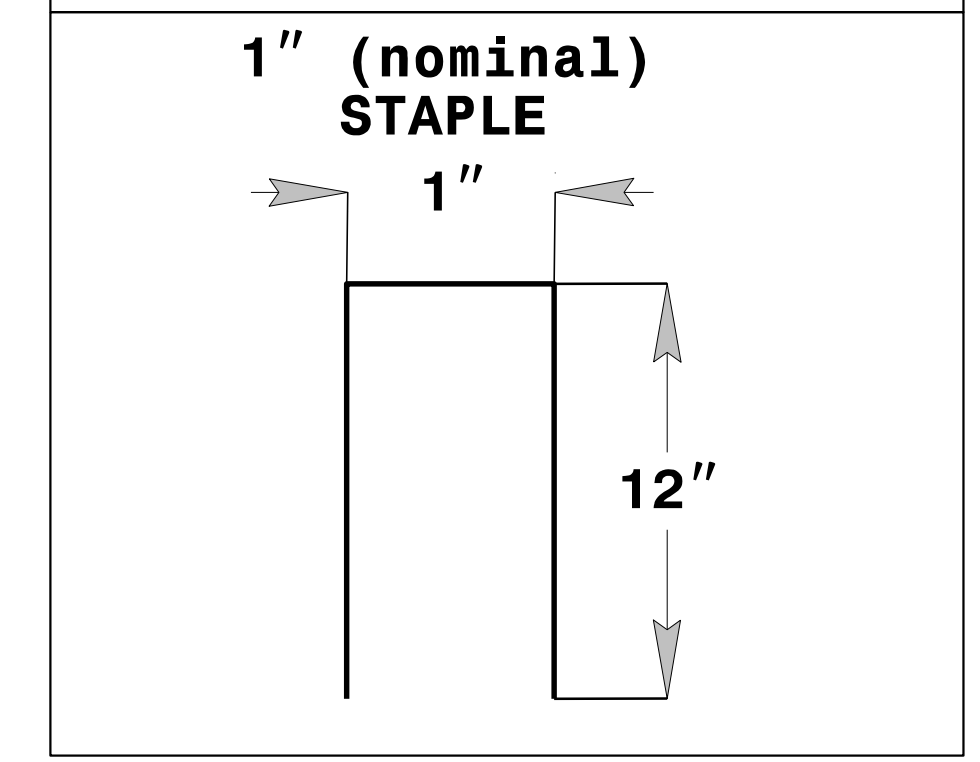
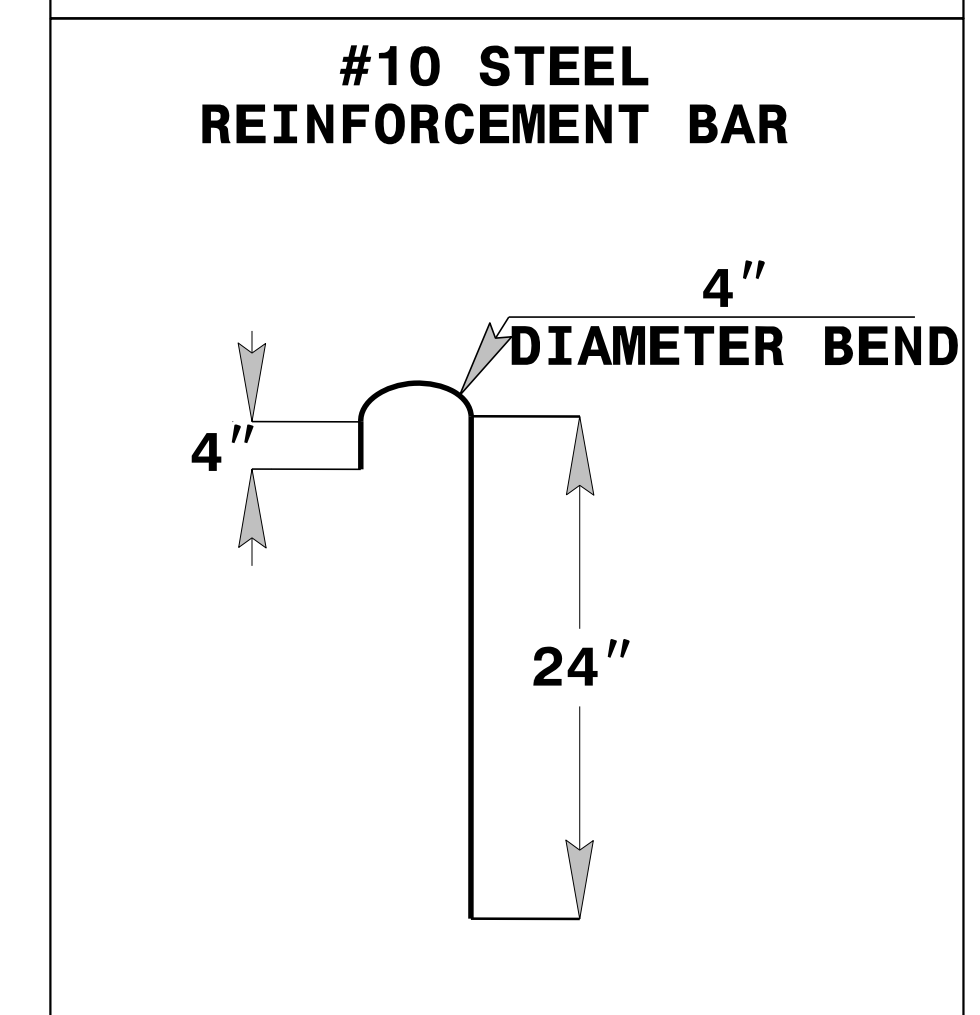
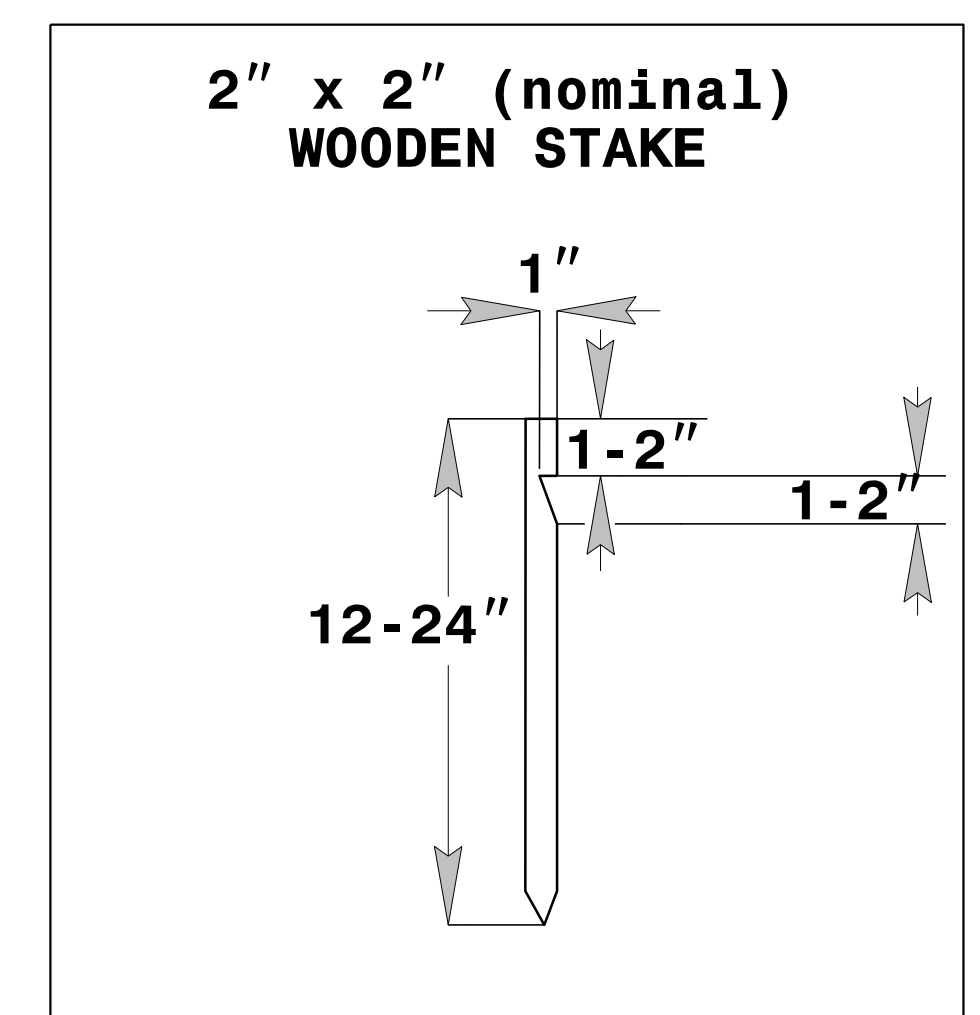
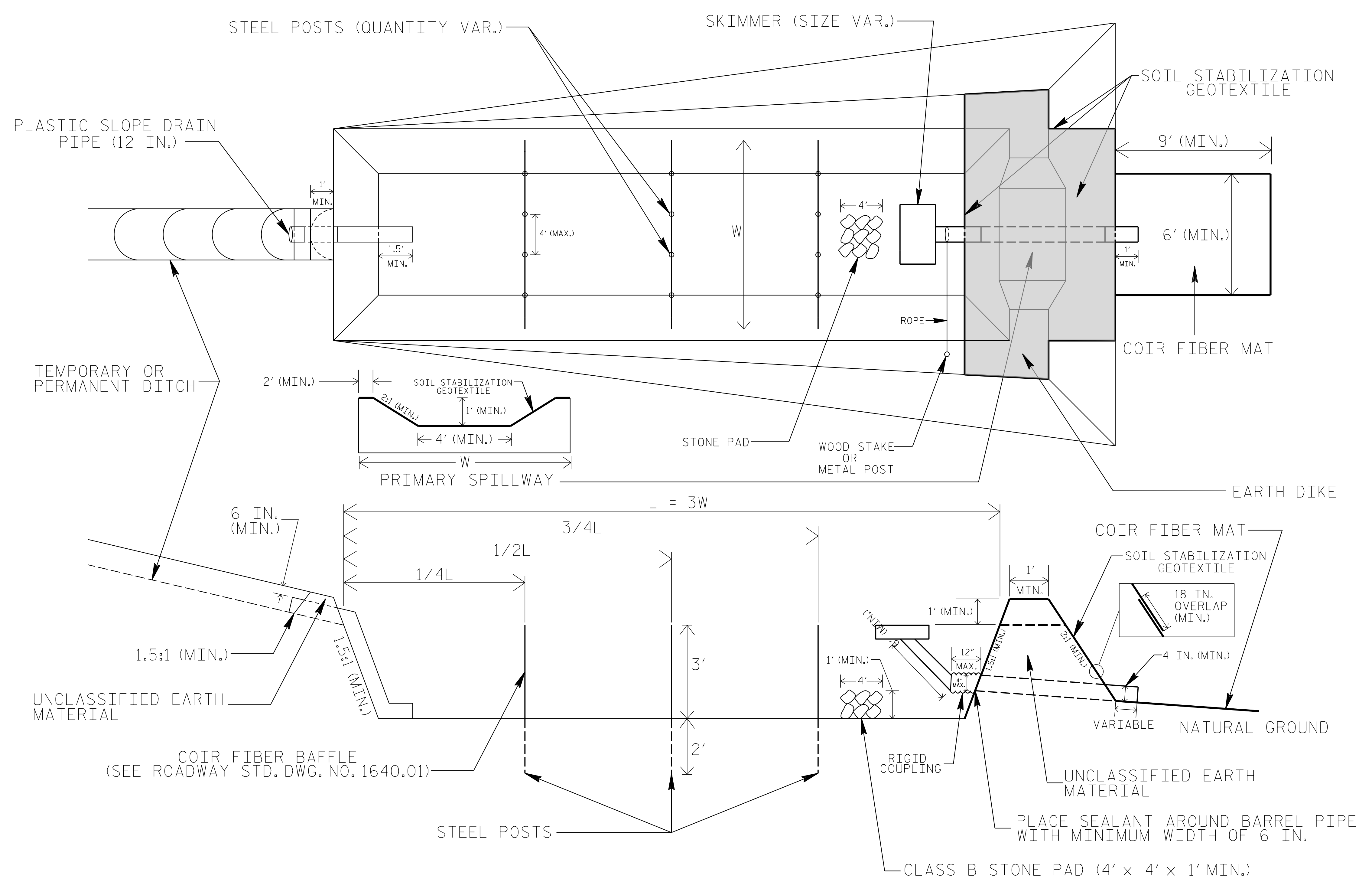
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

6/10/12/RS&H/EC-1.dwg/peh/bl

PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-02
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL



COIR FIBER MAT ANCHOR OPTIONS

NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING $Q/0.4$, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-02A</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

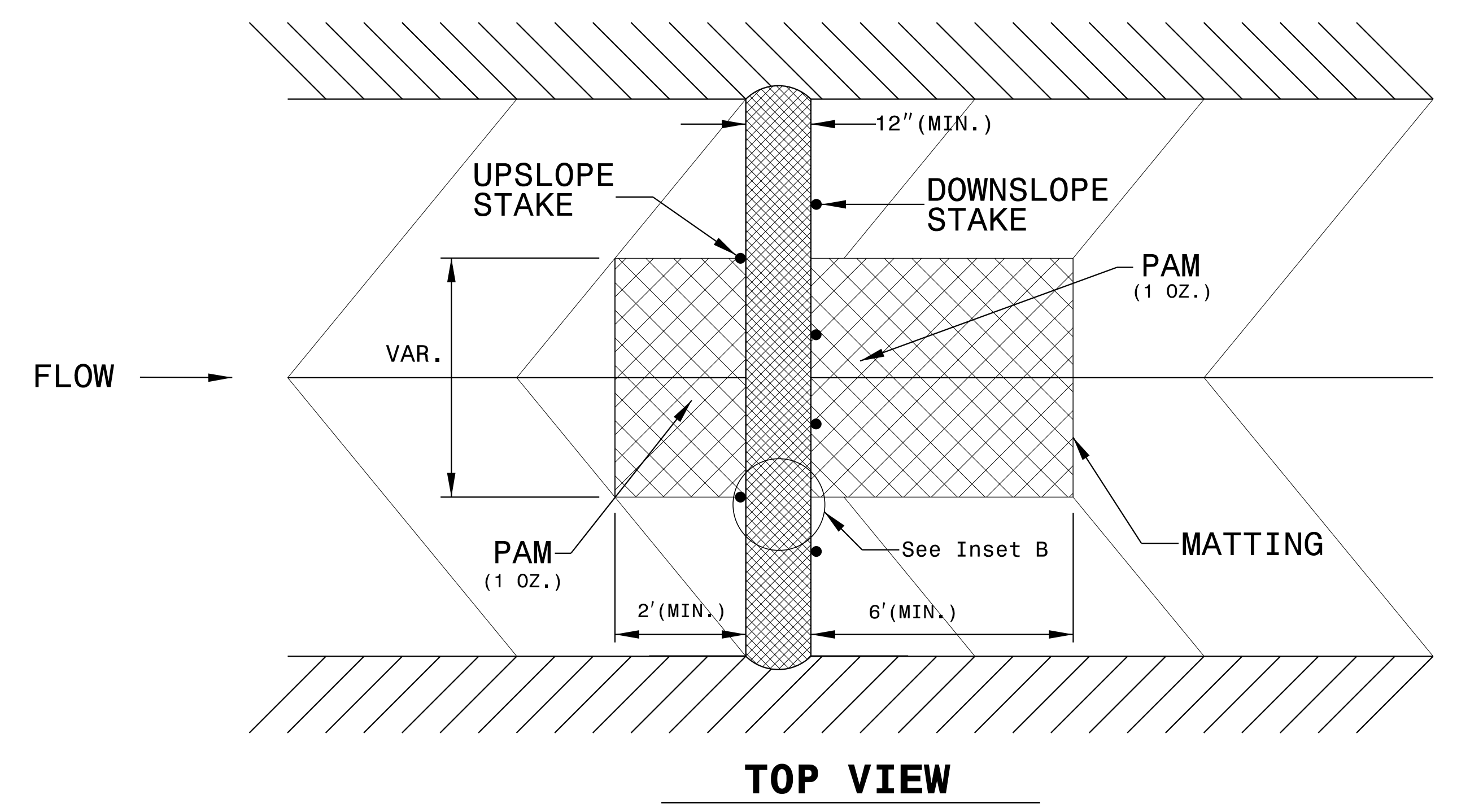
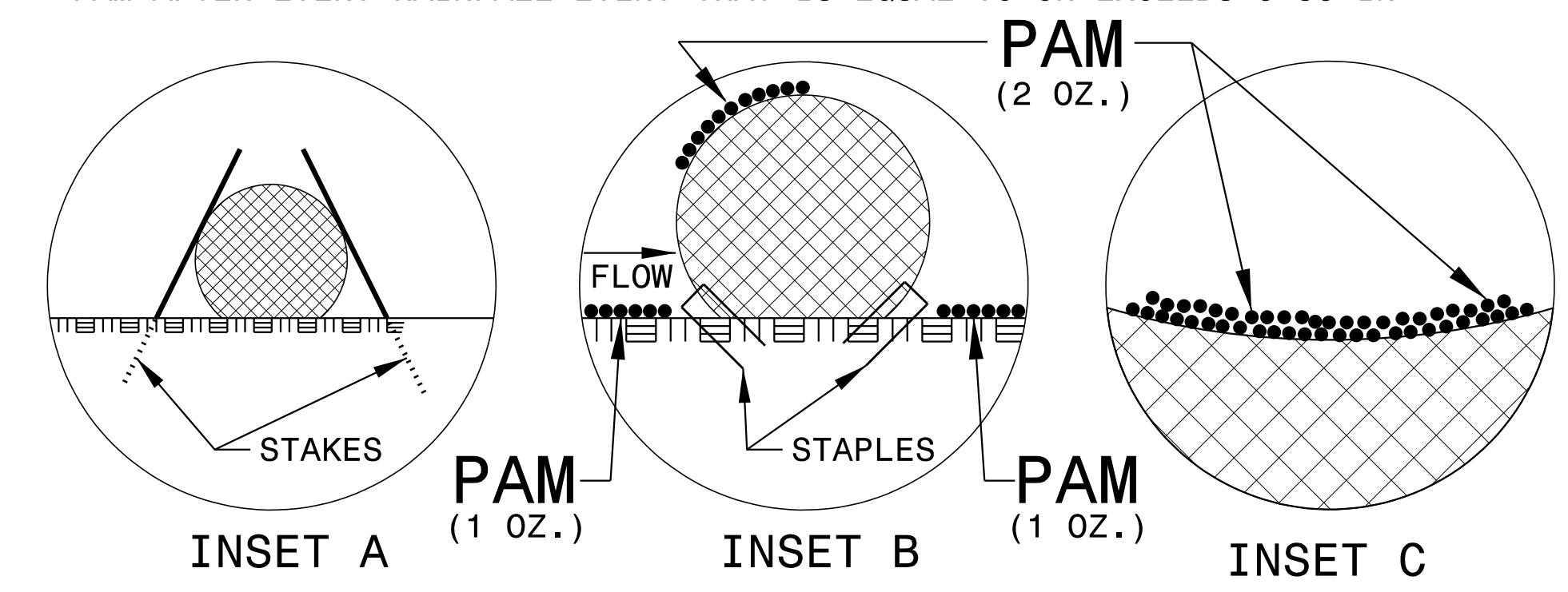
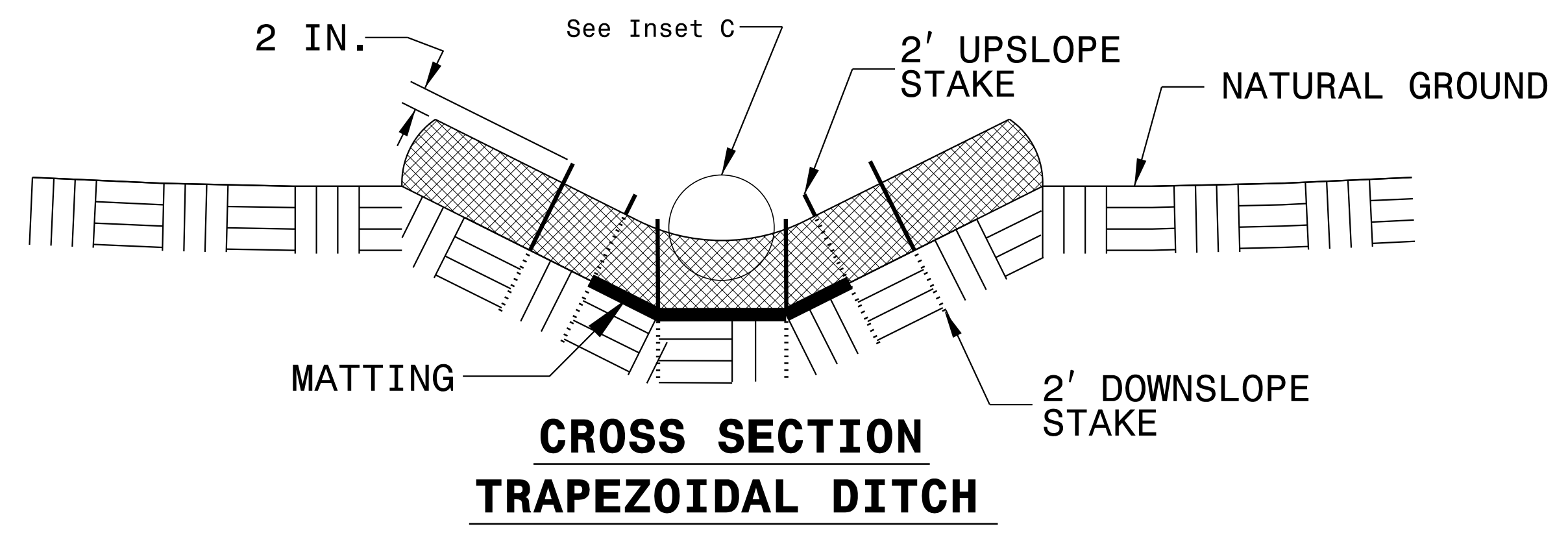
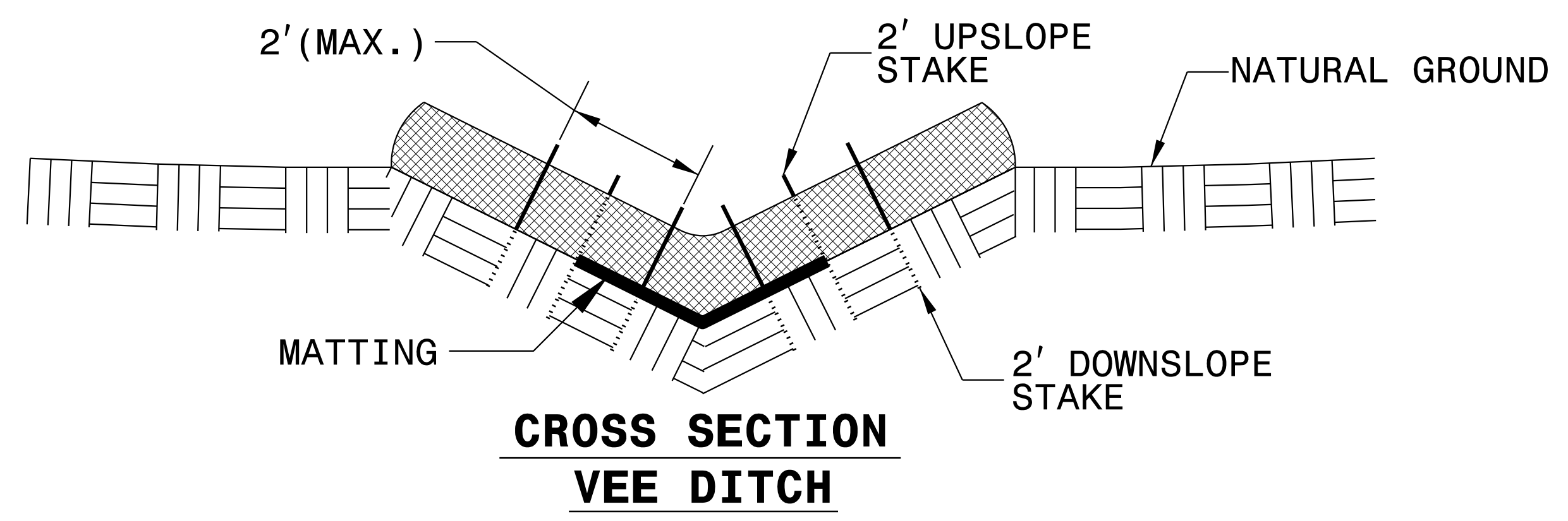
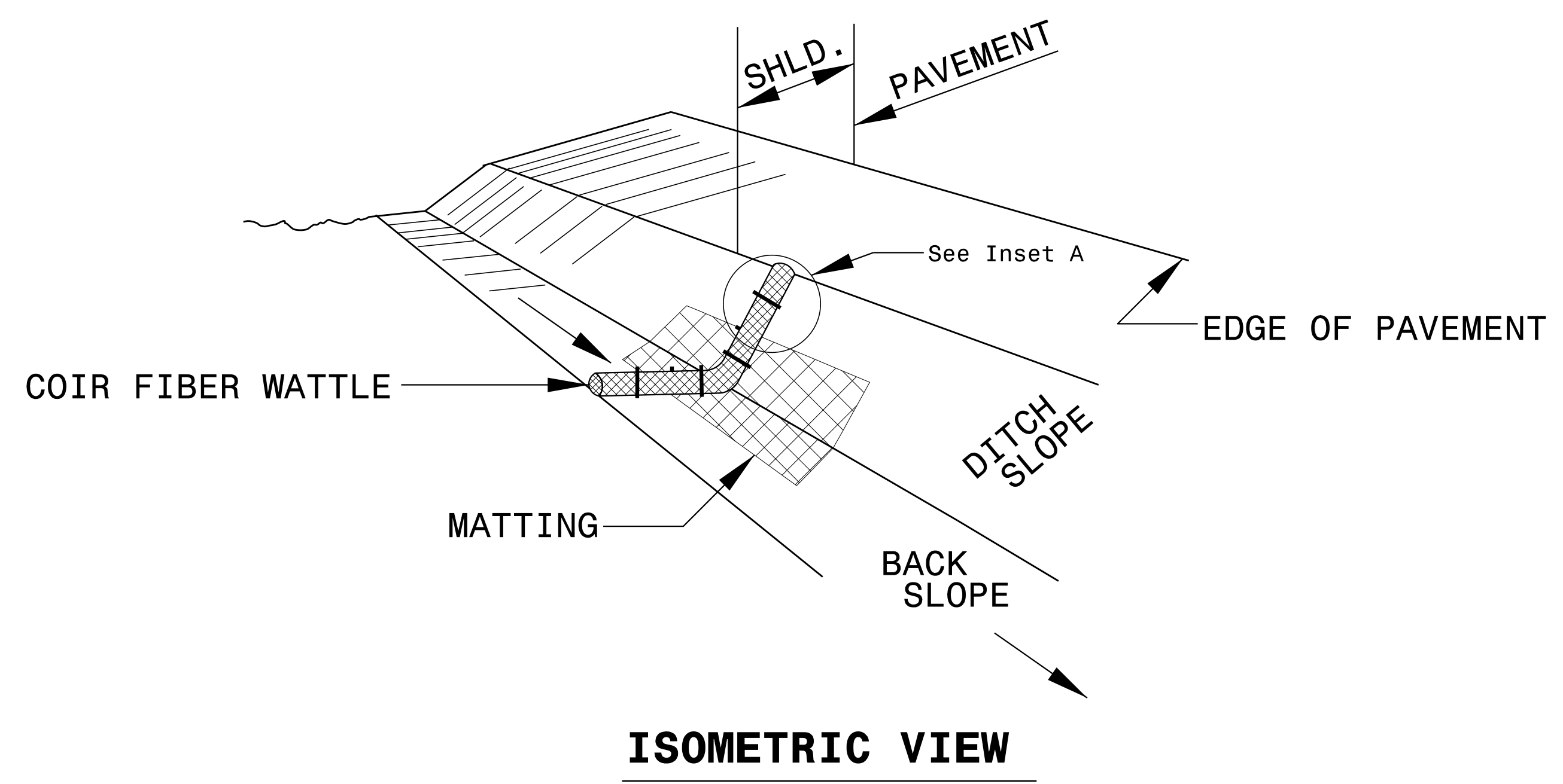
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

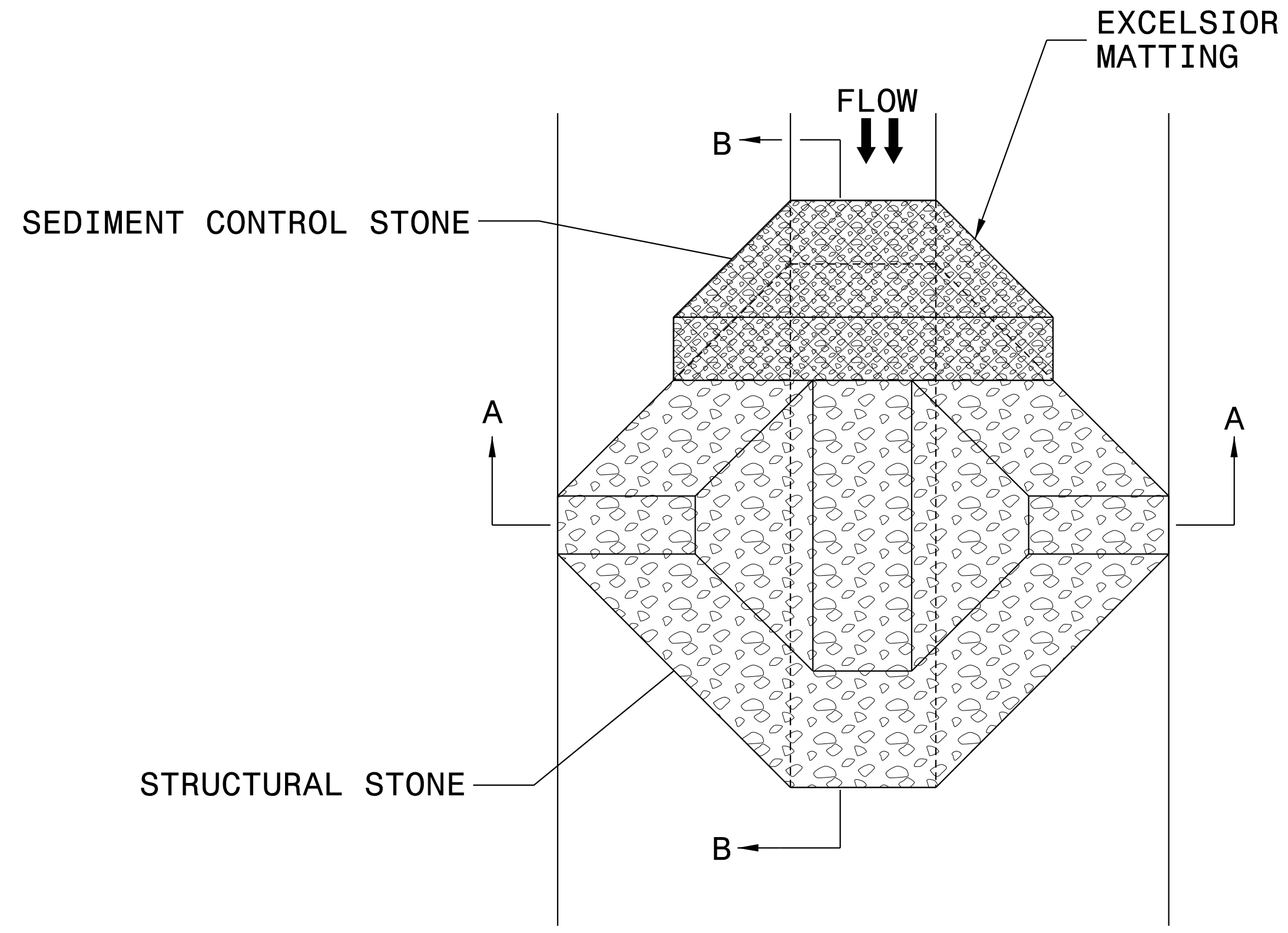
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-02B</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN

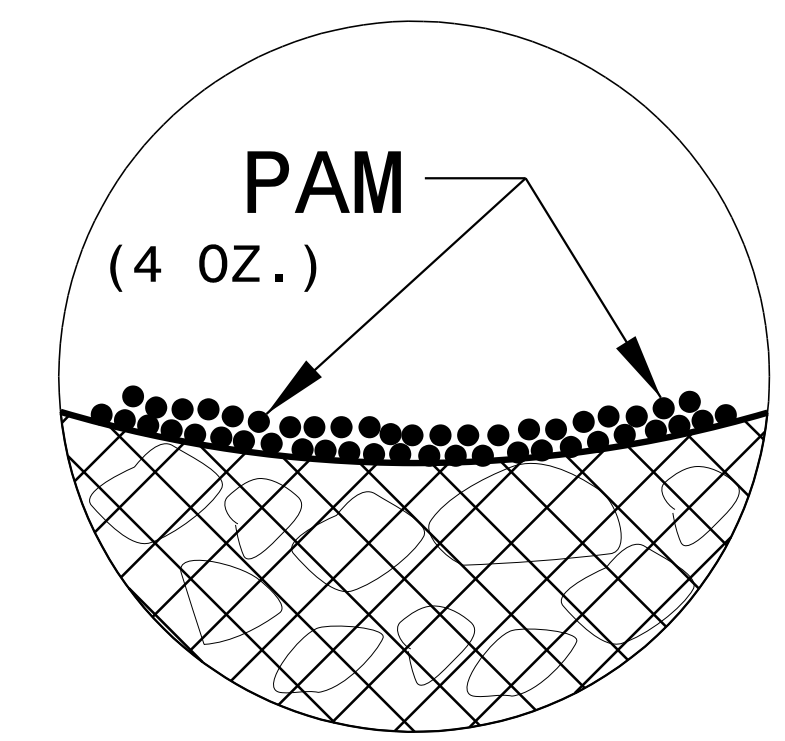
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

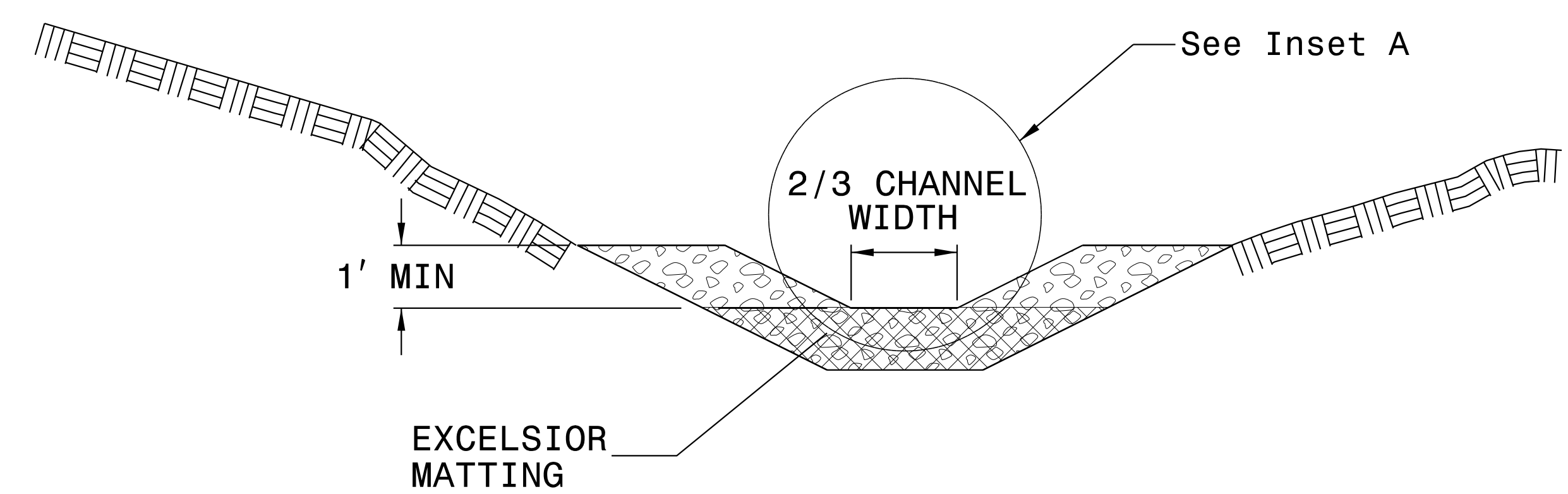
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

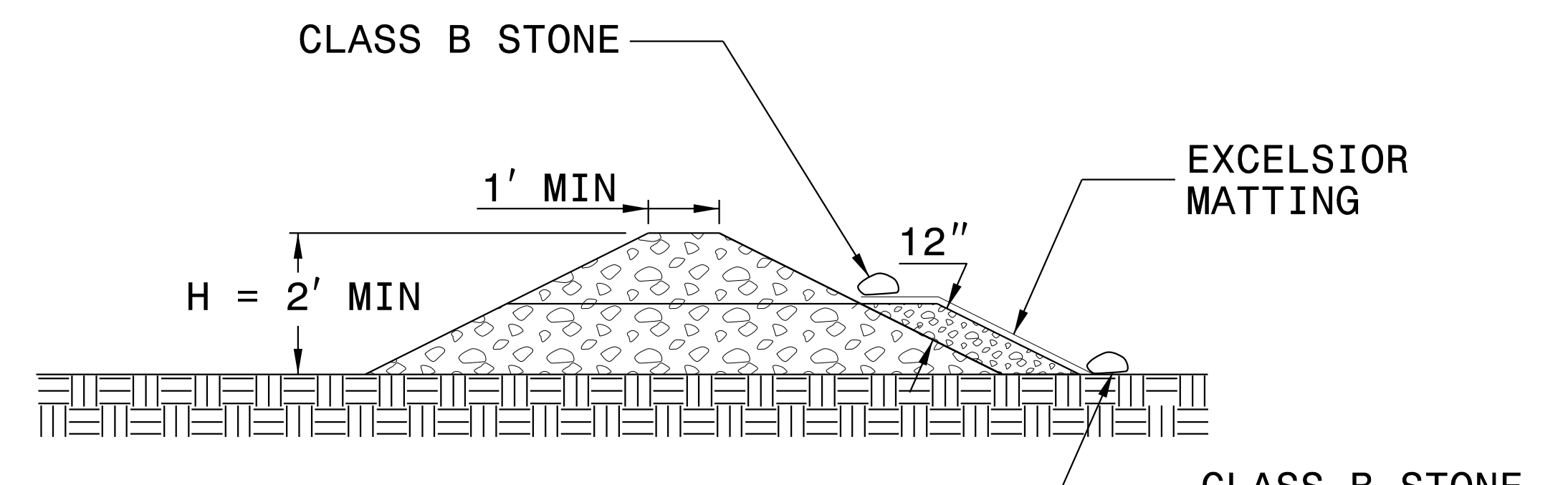
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-03</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-SR2REV-	11+49	17+96	LT	455
4	-SR2REV-	11+49	17+96	RT	590
4	-SR2-	13+19	20+50	LT	650
4	-L-	16+00	21+00	RT	405
4	-L-	18+00	21+50	LT	245
4	-L-	22+00	30+00	RT	395
4	-RPC-	7+50	8+00	RT	60
4	-RPC-	13+95	15+74	RT	165
5	-L-	30+00	42+00	RT	1350
5	-L-	30+00	31+00	LT	115
5	-L-	41+50	42+00	LT	40
6	-L-	42+00	43+50	RT	170
6	-L-	45+50	54+00	RT	955
6	-L-	42+00	43+50	LT	110
6	-L-	46+00	46+50	LT	50
6	-L-	52+50	54+00	LT	155
7	-L-	54+00	54+50	LT	55
7	-L-	54+00	60+50	RT	595
7	-L-	60+00	62+50	LT	285
7	-L-	62+00	67+00	RT	565
8	-L-	67+00	79+50	RT	1055
8	-L-	77+00	79+00	LT	225
9	-L-	81+00	93+50	RT	1365
9	-L-	81+50	83+50	LT	225
9	-L-	84+50	88+50	LT	450
9	-L-	89+50	94+00	LT	225
10	-L-	94+00	106+00	RT	1335
11	-L-	108+50	117+00	RT	955
11	-L-	112+50	114+00	LT	170
11	-L-	116+00	119+00	LT	340

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
11	-L-	118+50	119+00	RT	60
12	-L-	119+00	131+00	RT	1350
12	-L-	119+00	120+00	LT	115
13	-L-	131+00	135+00	RT	455
13	-L-	137+00	144+00	RT	345
14	-L-	144+00	153+00	RT	1015
14	-L-	154+50	156+00	RT	140
15	-L-	156+00	157+50	RT	140
15	-Y9-	11+00	13+00	RT	185
16	-SR1-	12+00	13+50	LT	175
16	-SR1-	12+00	12+50	RT	60
16	-SR1-	14+50	20+50	LT	675
16	-SR1-	21+50	23+00	LT	140
16	-SR1-	24+50	26+50	LT	225
17	-SR1-	11+00	12+00	LT	115
17	-SR1-	11+00	12+00	RT	95
				SUBTOTAL	19,045
				MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER	125,955
				TOTAL	145,000

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

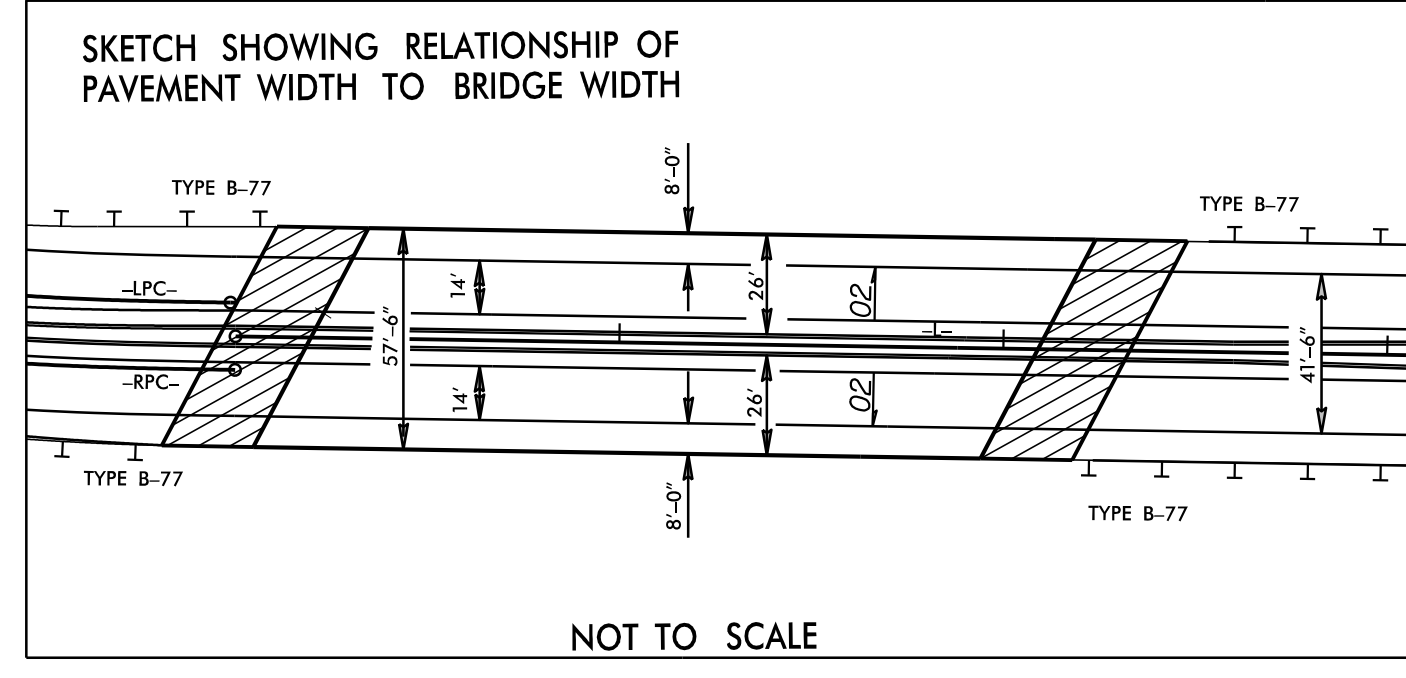
PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-03B</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

20,110	9750	12,110
33,400	16600	20,400
US 421	-Y1-	
		-L-
	2230	US 221
	3800	
YR 2015	12,600	
YR 2035	20,600	

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.



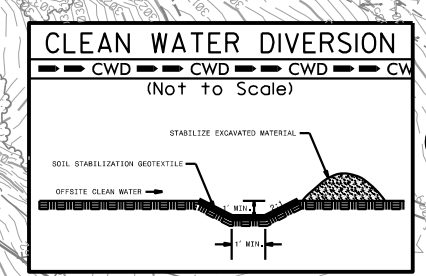
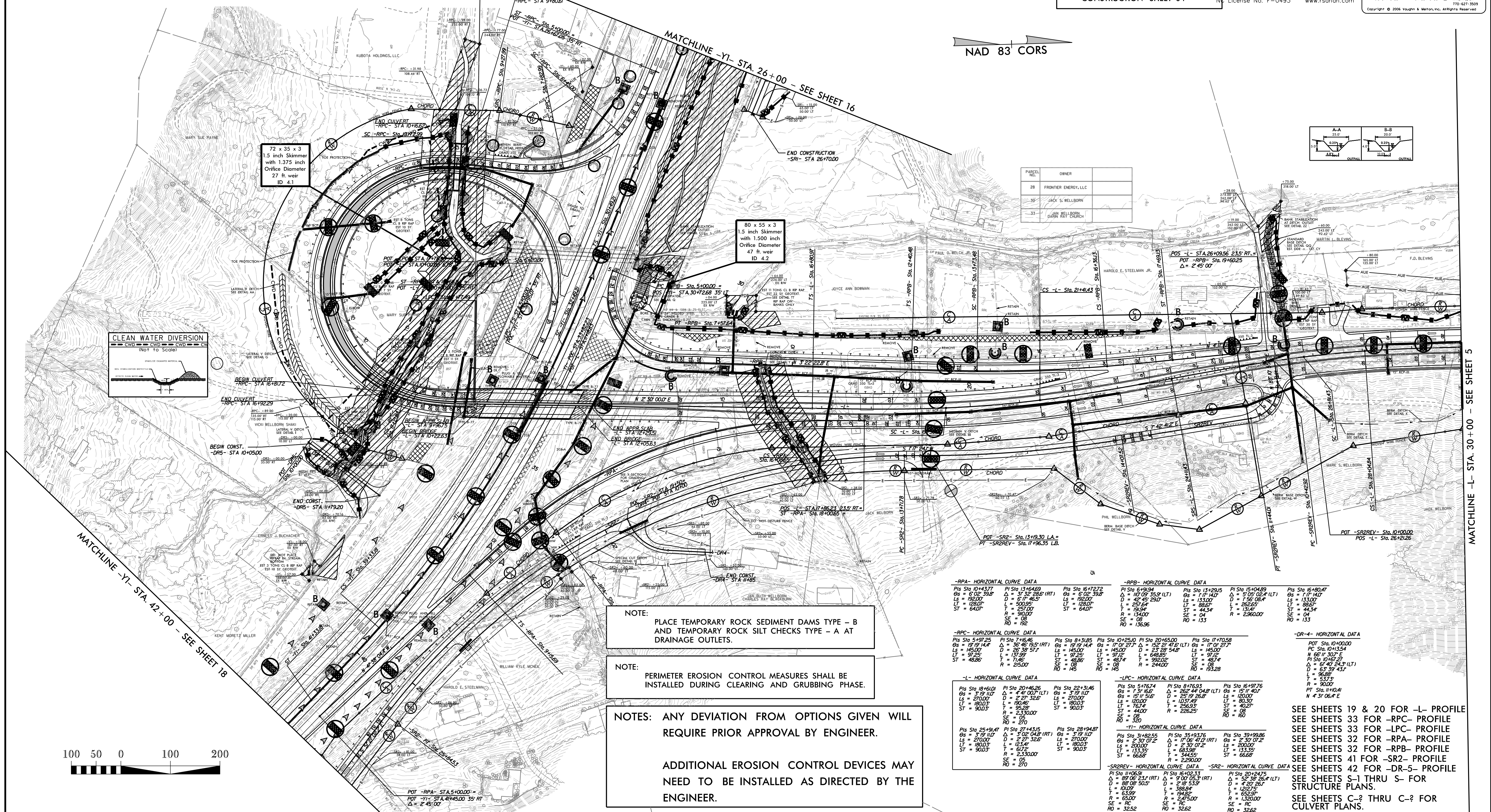
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 04

PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-04/CONST.04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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Atlanta, GA 770-427-3509
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BEGIN TIP PROJECT R-2915A
-L- POT STA. 9+96.75



PARCEL NO.	OWNER
28	FRONTIER ENERGY, LLC
30	JACK S. WELBORN
33	JACK WELBORN DANIEL REY CURVEY

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

-RPA- HORIZONTAL CURVE DATA			
PI Sta 10+413.77	PI Sta 11+459.99	PI Sta 16+727.2	PI Sta 6+936.94
Δ = 6°02'33.8"	Δ = 3°32'28.5" (RT)	Δ = 5°02'35.8"	Δ = 17°01'27.7"
LS = 82.00'	D = 517.465'	LS = 192.00'	LS = 145.00'
LT = 128.00'	L = 128.00'	L = 128.00'	L = 128.00'
ST = 64.00'	ST = 64.00'	ST = 64.00'	ST = 64.00'
SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8
RO = 136.96	RO = 136.96	RO = 136.96	RO = 136.96

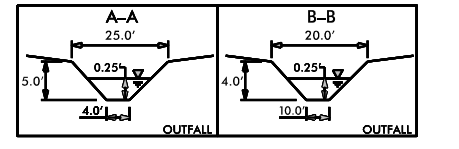


\$DATE\$

MATCHLINE -L- STA. 30+00 - SEE SHEET 5

MATCHLINE -Y1- STA. 42+00 - SEE SHEET 18

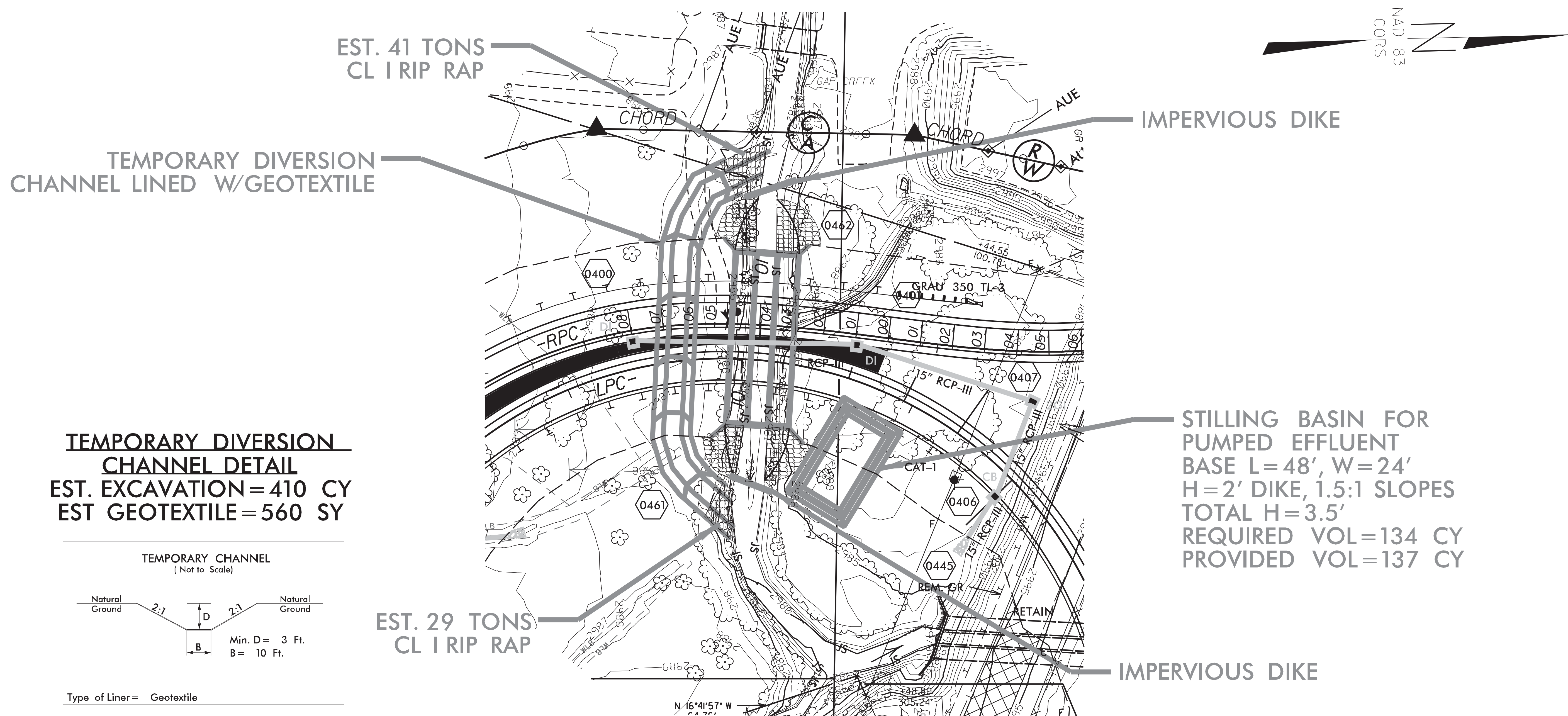
NAD 83 CORS



GAP CREEK CULVERT CONSTRUCTION SEQUENCE -RPC- STA. 9 + 99 -LPC- STA. 9 + 89

PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-04A/CONST. 04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

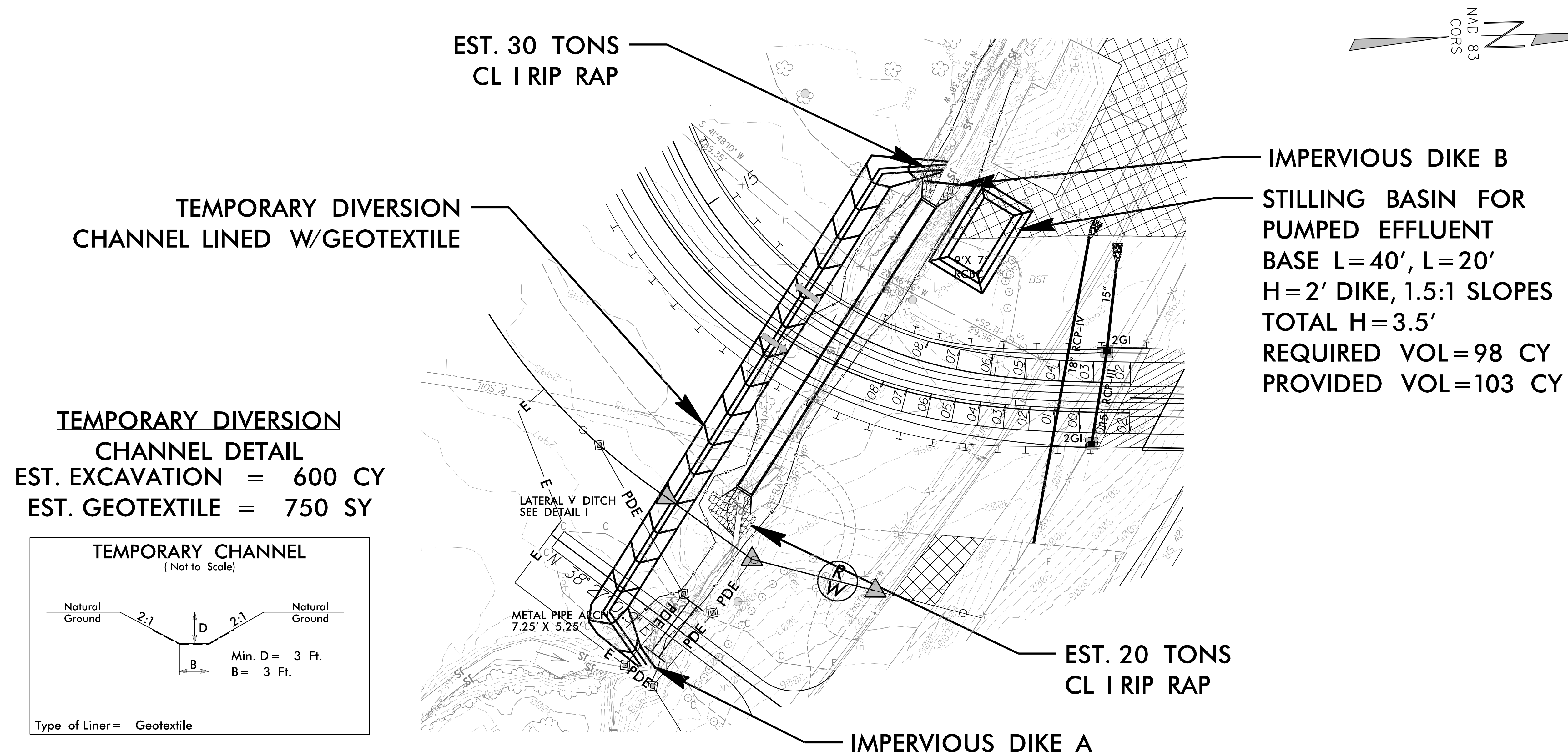
1. CONSTRUCT STILLING BASIN PER NCDOT STANDARD DRAWING 1630.04 TO SIZE SPECIFIED AND AT LOCATION SHOWN.
2. CONSTRUCT IMPERVIOUS DIKES AND TEMPORARY DIVERSION CHANNEL AS SHOWN.
3. DIVERT CHANNEL FLOW THROUGH TEMPORARY DIVERSION CHANNEL.
4. CONSTRUCT PROPOSED CULVERT AND CHANNEL IMPROVEMENTS.
5. REMOVE IMPERVIOUS DIKES AND ALLOW FLOW THROUGH RCBC.
6. REMOVE STILLING BASIN AND FILL TEMPORARY DIVERSION CHANNEL.
7. COMPLETE PROPOSED ROADWAY CONSTRUCTION.

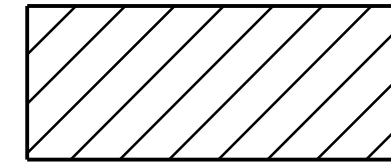


GAP CREEK – TRIBUTARY 2 CULVERT CONSTRUCTION SEQUENCE –RPC– STA. 16 + 87 –LPC– STA. 16 + 10

PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-04B/CONST.04</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

1. CONSTRUCT STILLING BASIN PER NCDOT STANDARD DRAWING 1630.04 TO SIZE SPECIFIED AND AT LOCATION SHOWN.
2. CONSTRUCT IMPERVIOUS DIKES AND TEMPORARY DIVERSION CHANNEL AS SHOWN.
3. DIVERT CHANNEL FLOW THROUGH TEMPORARY DIVERSION CHANNEL.
4. CONSTRUCT PROPOSED CULVERT, METAL PIPE ARCH AND CHANNEL IMPROVEMENTS.
5. REMOVE IMPERVIOUS DIKES AND ALLOW FLOW THROUGH RCB AND METAL PIPE ARCH.
6. REMOVE STILLING BASIN AND FILL TEMPORARY DIVERSION CHANNEL.
7. COMPLETE PROPOSED ROADWAY CONSTRUCTION.





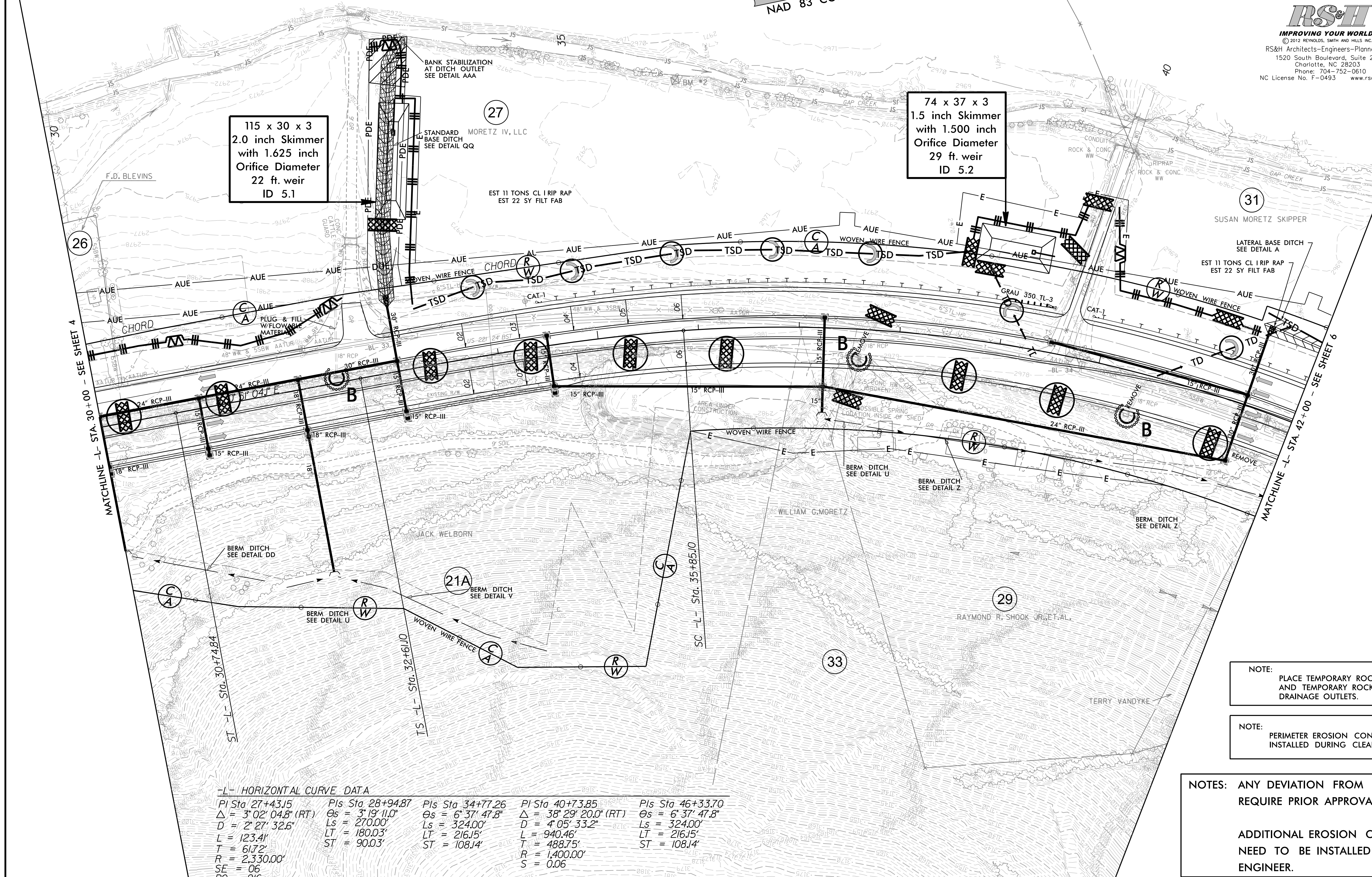
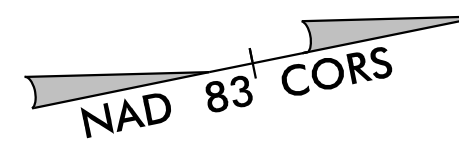
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 05

PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-05/CONST.05
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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828-253-2796
Spartanburg, South Carolina
864-534-6719



NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY
NEED TO BE INSTALLED AS DIRECTED BY THE
ENGINEER.

SEE SHEET 21 FOR -L- PROFILE

-L- HORIZONTAL CURVE DATA

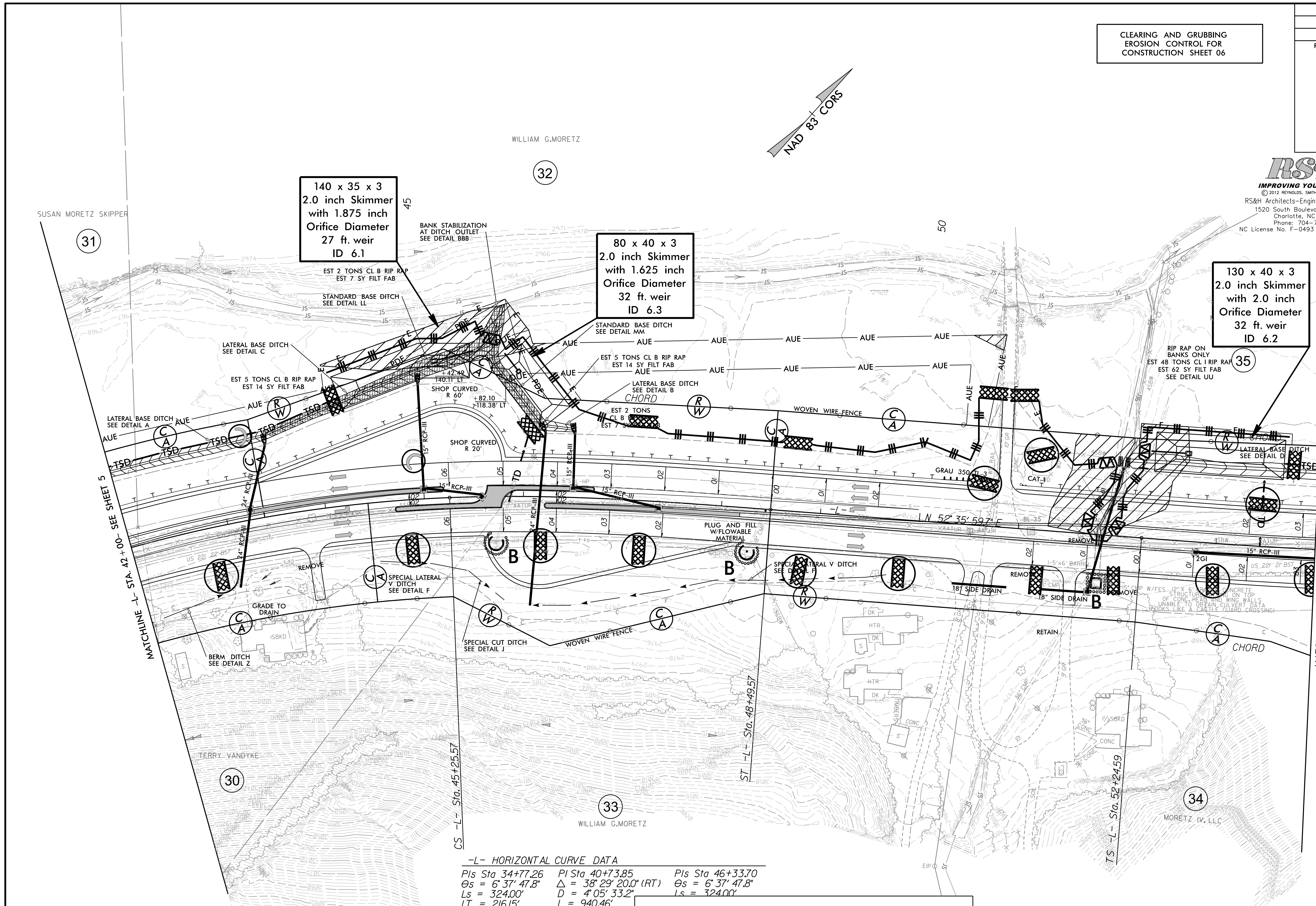
PI Sta 27+43.15	PIs Sta 28+94.87	PIs Sta 34+77.26	PI Sta 40+73.85	PIs Sta 46+33.70
$\Delta = 3^{\circ} 02' 04.8''$ (RT)	$\Theta_s = 3^{\circ} 19' 11.0''$	$\Theta_s = 6^{\circ} 37' 47.8''$	$\Delta = 38^{\circ} 29' 20.0''$ (RT)	$\Theta_s = 6^{\circ} 37' 47.8''$
$D = 2^{\circ} 27' 32.6''$	$L_s = 270.00'$	$L_s = 324.00'$	$D = 4^{\circ} 05' 33.2''$	$L_s = 324.00'$
$L = 123.41'$	$LT = 180.03'$	$LT = 216.15'$	$L = 940.46'$	$LT = 216.15'$
$T = 61.72'$	$ST = 90.03'$	$ST = 108.14'$	$T = 488.75'$	$ST = 108.14'$
$R = 2,330.00'$			$R = 1,400.00'$	
$SE = 06$			$S = 0.06$	
$RO = 216$				

\$DATE\$

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 06

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Spartanburg, South Carolina
864-534-0773



140 x 35 x 3
2.0 inch Skimmer
with 1.875 inch
Orifice Diameter
27 ft. weir
ID 6.1

80 x 40 x 3
2.0 inch Skimmer
with 1.625 inch
Orifice Diameter
32 ft. weir
ID 6.3

130 x 40 x 3
2.0 inch Skimmer
with 2.0 inch
Orifice Diameter
32 ft. weir
ID 6.2

-L- HORIZONTAL CURVE DATA

Pls Sta 34+77.26	Pls Sta 40+73.85	Pls Sta 46+33.70
$\theta_s = 6^\circ 37' 47.8''$	$\Delta = 38^\circ 29' 20.0''$ (RT)	$\theta_s = 6^\circ 37' 47.8''$
$L_s = 324.00'$	$D = 4^\circ 05' 33.2''$	$L_s = 324.00'$
$LT = 216.15'$	$L = 940.46'$	
$ST = 108.14'$	$T = 488.75'$	
	$R = 1,400.00'$	
	$SF = .06$	

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

UNNAMED TRIBUTARY TO GAP CREEK

54" RCP CONSTRUCTION SEQUENCE STA. 51+87 -L-

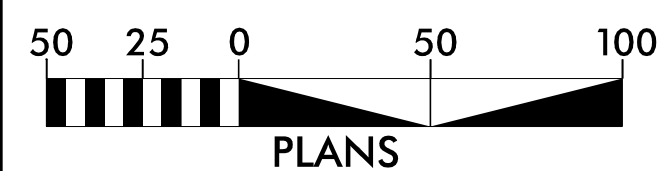
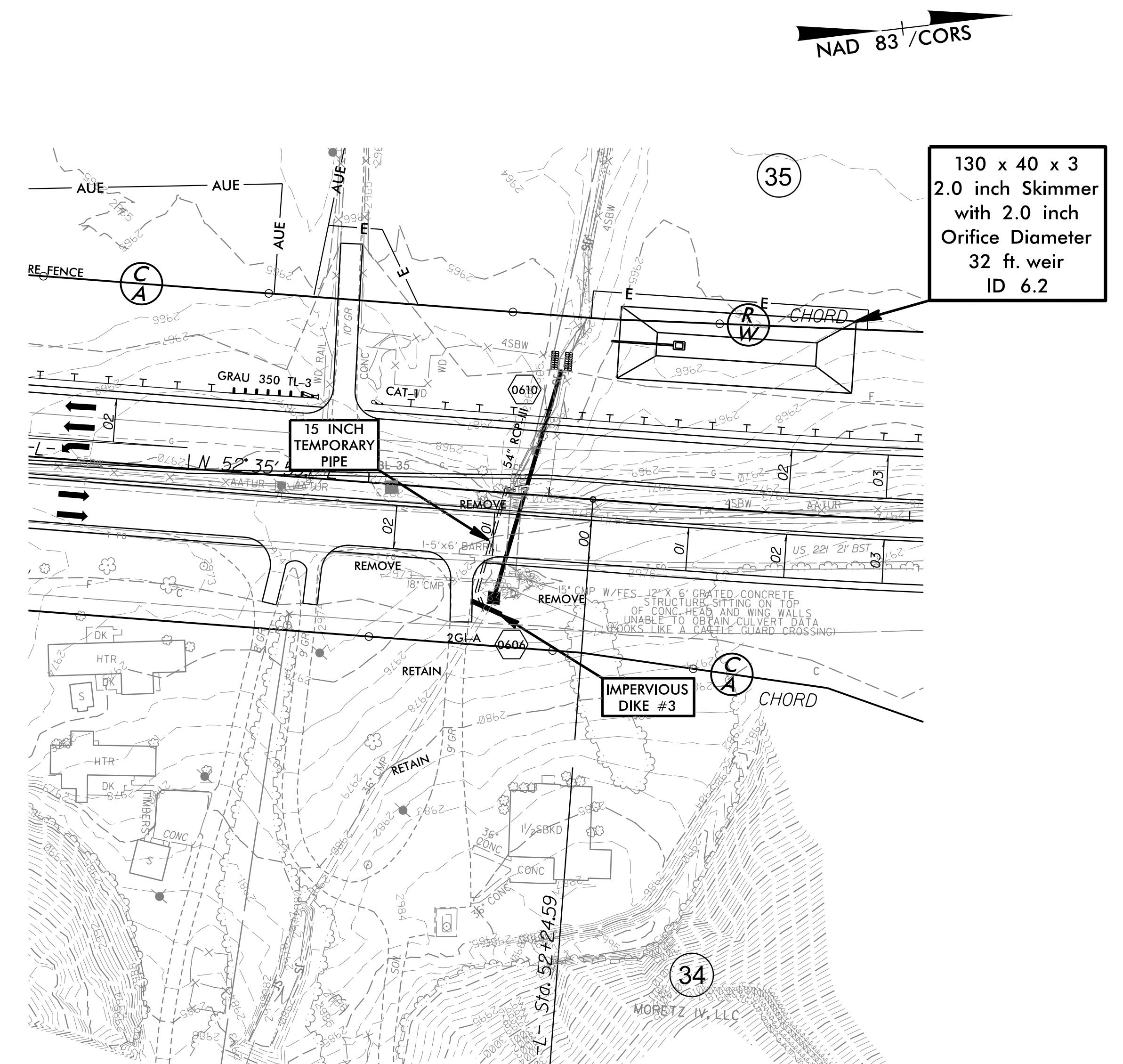
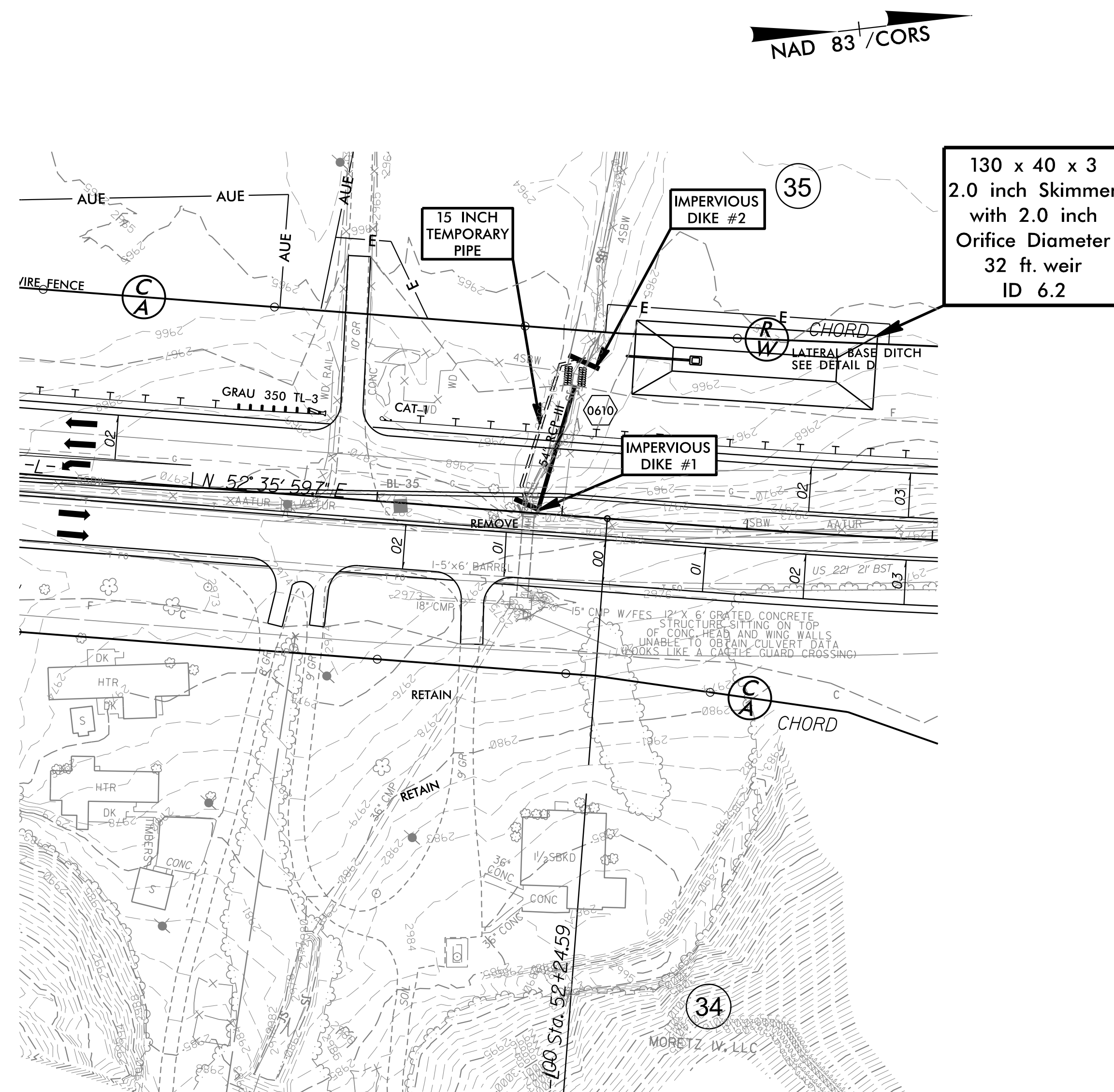
PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-6A/CONST.06
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE I

1. INSTALL IMPERVIOUS DIKES #1, #2 AND TEMPORARY 15" PIPE.
2. UTILIZE SKIMMER BASIN 6.2 FOR DEWATERING.
3. INSTALL +/- 64 FT OF PROPOSED 54" RCP.
4. REMOVE IMPERVIOUS DIKES #1, #2 AND TEMPORARY 15" PIPE AND DIRECT FLOW INTO PROPOSED 54" RCP.
5. CONSTRUCT SOUTH BOUND LANES AND SHIFT TRAFFIC.

PHASE II

1. REMOVE +/-20' OF EXISTING 36" CMP AND INSTALL IMPERVIOUS DIKE #3 AND TEMPORARY 15" PIPE.
2. REMOVE EXISTING 6'X5' BARREL AND 12'X6' GRATED CONCRETE STRUCTURE.
3. CONSTRUCT 2GI 0606 AND REMAINING SECTION OF 54" RCP.
4. REMOVE IMPERVIOUS DIKE #3 AND TEMPORARY 15" PIPE AND CONNECT EXISTING 36" CMP TO 2GI 0606.
5. CONSTRUCT NORTH BOUND LANES.



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 07

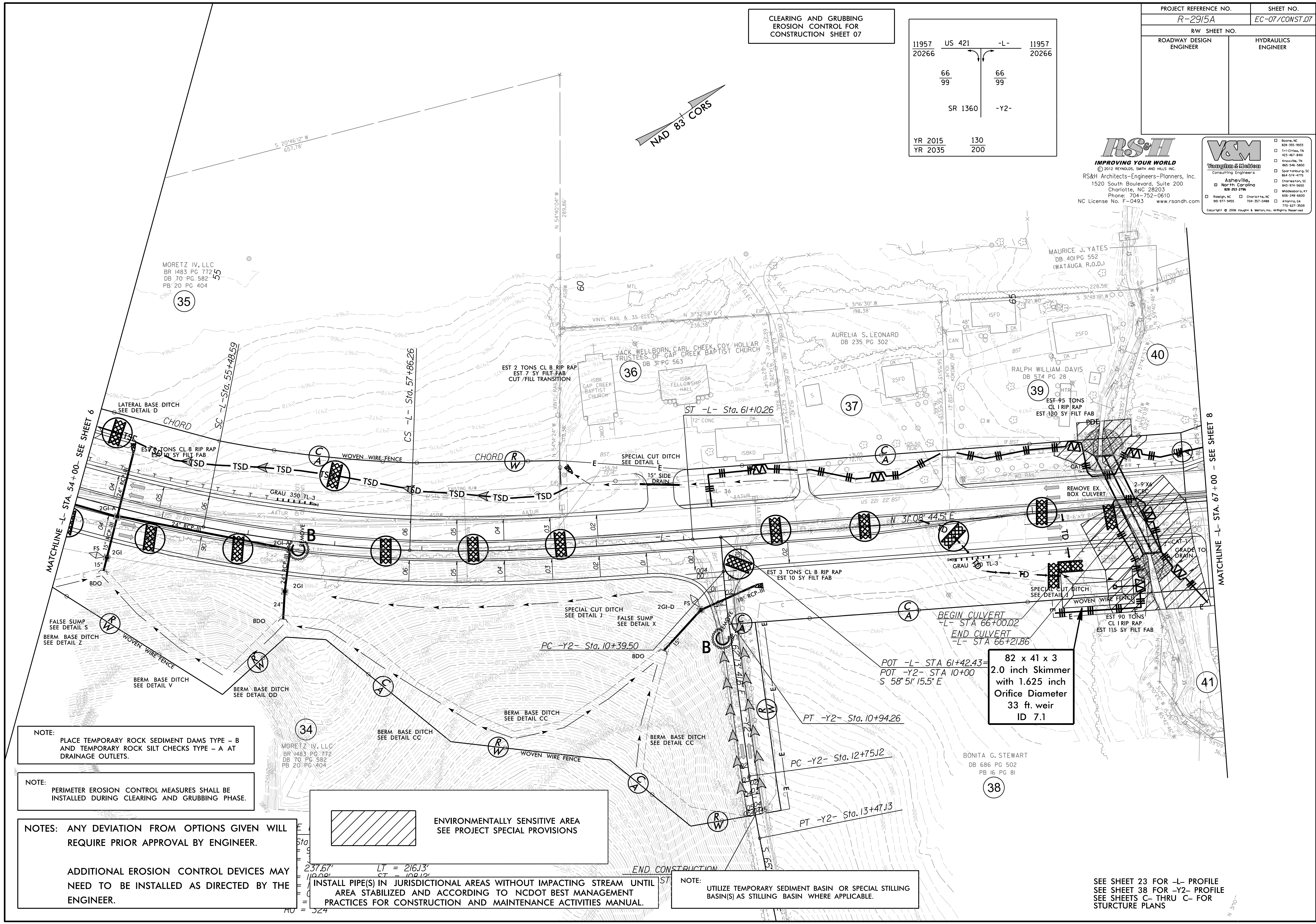
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66 99			66 99
	SR 1360	-Y2-	
YR 2015	130		
YR 2035	200		

PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-07/CONST.07
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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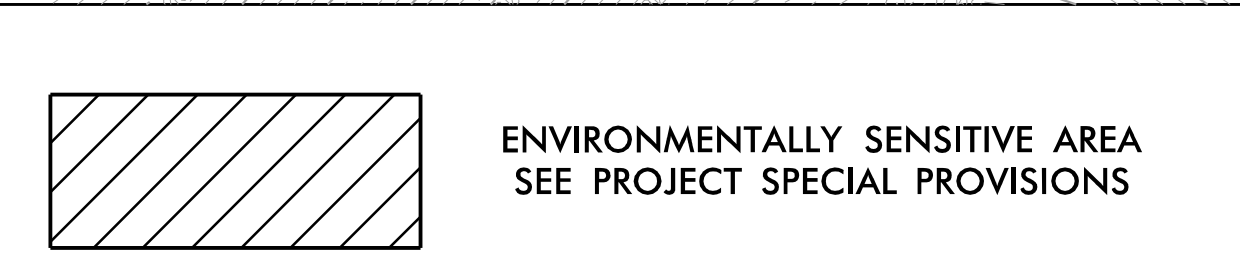


NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY
NEED TO BE INSTALLED AS DIRECTED BY THE
ENGINEER.



INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL
AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT
PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING
BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

82 x 41 x 3
2.0 inch Skimmer
with 1.625 inch
Orifice Diameter
33 ft. weir
ID 7.1

SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 38 FOR -Y2- PROFILE
SEE SHEETS C- THRU C- FOR
STRUCTURE PLANS

\$DATE\$

\$FILE\$

GAP CREEK – TRIBUTARY 1 CULVERT CONSTRUCTION SEQUENCE –L– STA. 66 + 11

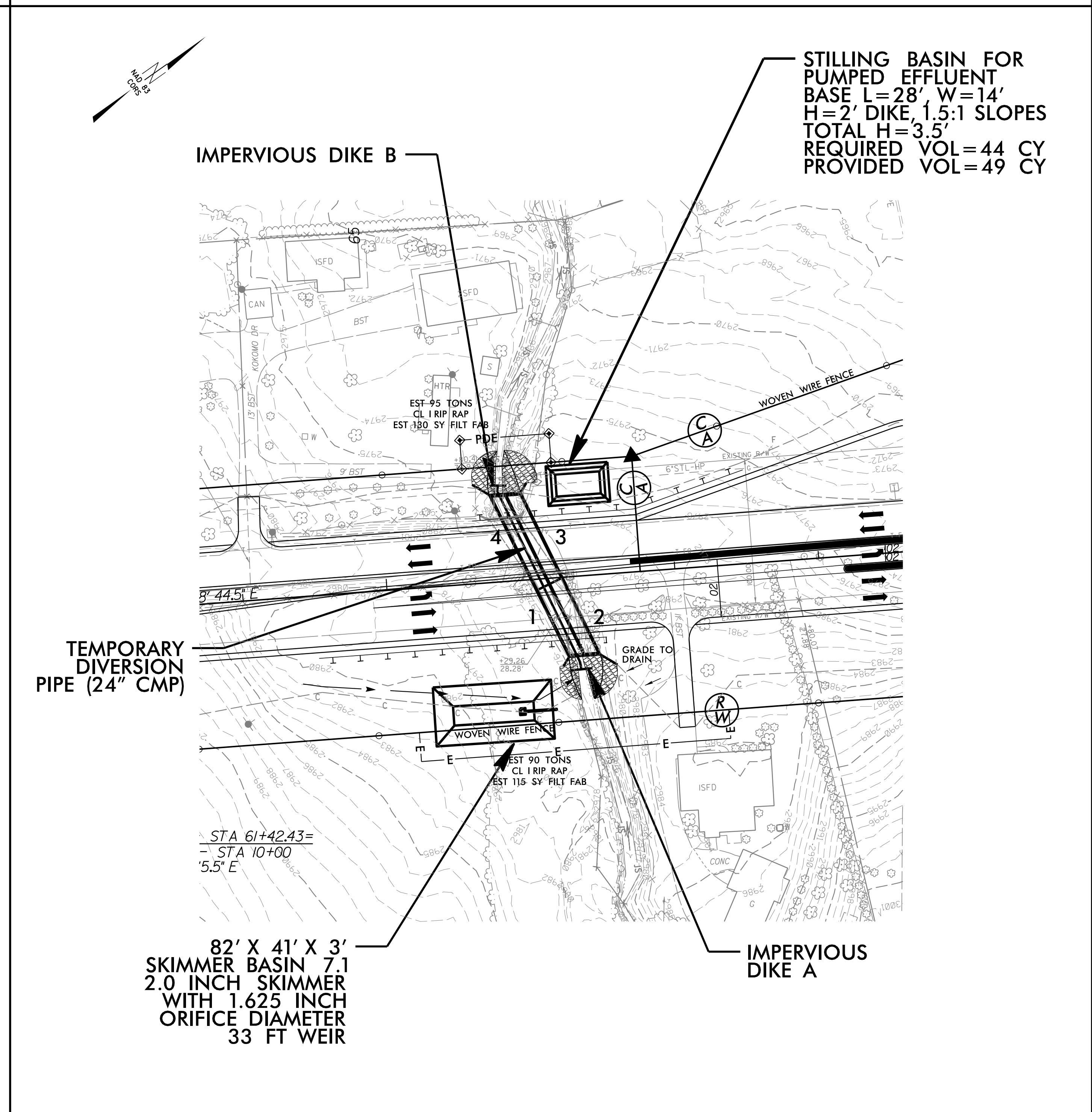
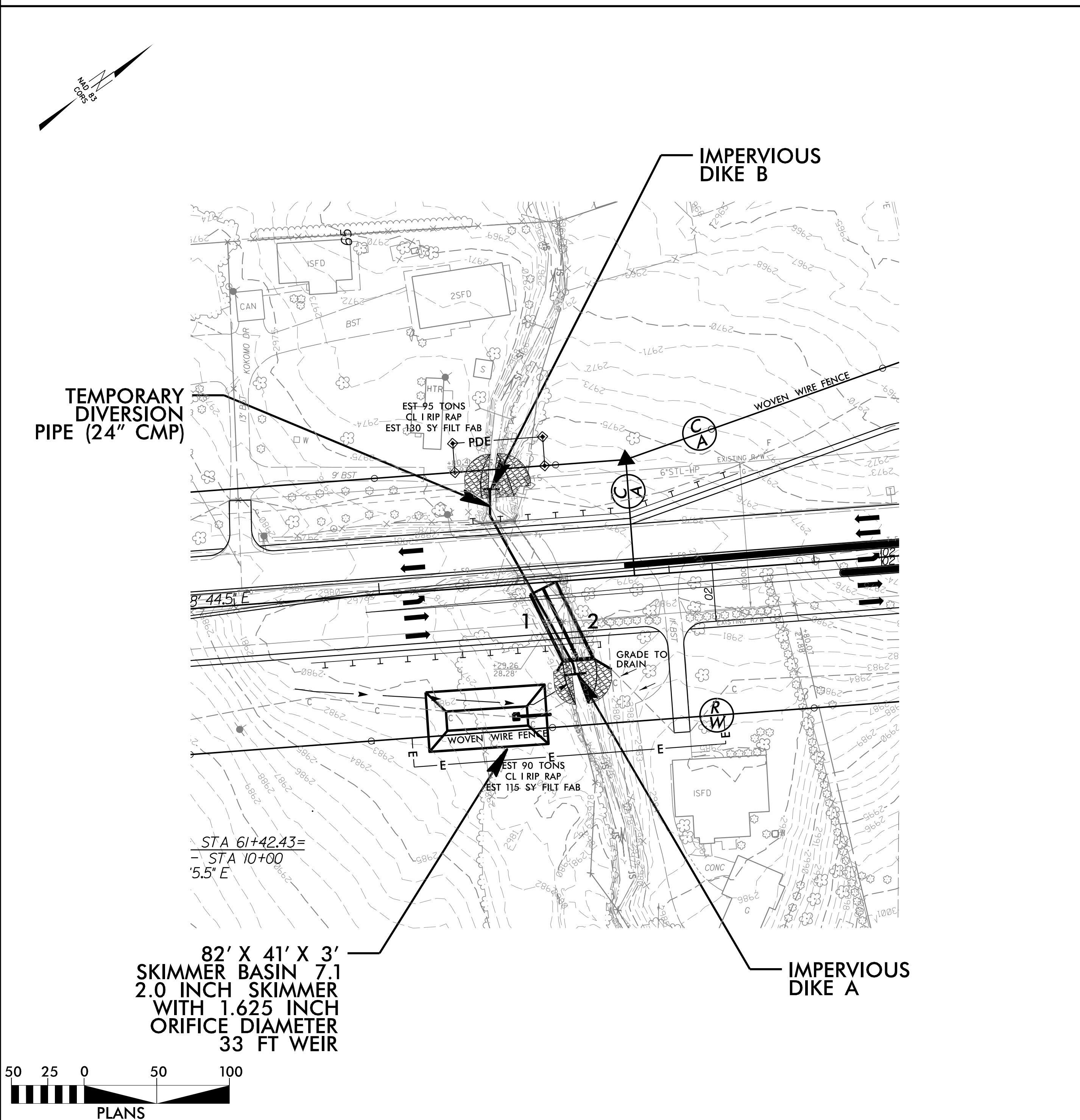
PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-07A/CONST.07</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE I

1. CONSTRUCT SKIMMER BASIN 7.1 TO SIZE SPECIFIED AND AT LOCATION SHOWN, TO BE USED AS STILLING BASIN.
2. CONSTRUCT IMPERVIOUS DIKES AS SHOWN.
3. CONSTRUCT TEMPORARY DIVERSION PIPE AS SHOWN AND DIVERT FLOW THROUGH TEMPORARY DIVERSION PIPE.
4. CONSTRUCT PROPOSED CULVERT SECTIONS 1 AND 2 AS SHOWN.
5. CONSTRUCT ROADWAY OVER PROPOSED CULVERT SECTIONS 1 AND 2 AND DIVERT TRAFFIC ONTO NEWLY CONSTRUCTED ROADWAY.

PHASE II

1. CONSTRUCT STILLING BASIN PER NCDOT STANDARD DRAWING 1630.04 TO SIZE SPECIFIED AND AT LOCATION SHOWN.
2. REMOVE EXISTING CULVERT.
3. ADJUST TEMPORARY DIVERSION PIPE THROUGH PROPOSED CULVERT SECTION 4 AS NECESSARY.
4. CONSTRUCT PROPOSED CULVERT SECTIONS 3 AND 4 AS SHOWN. REMOVE TEMPORARY DIVERSION PIPES AND TEMPORARY DIKES.
5. CONSTRUCT UPSTREAM AND DOWNSTREAM CHANNEL IMPROVEMENTS AND RIP RAP.
6. COMPLETE PROPOSED ROADWAY CONSTRUCTION.



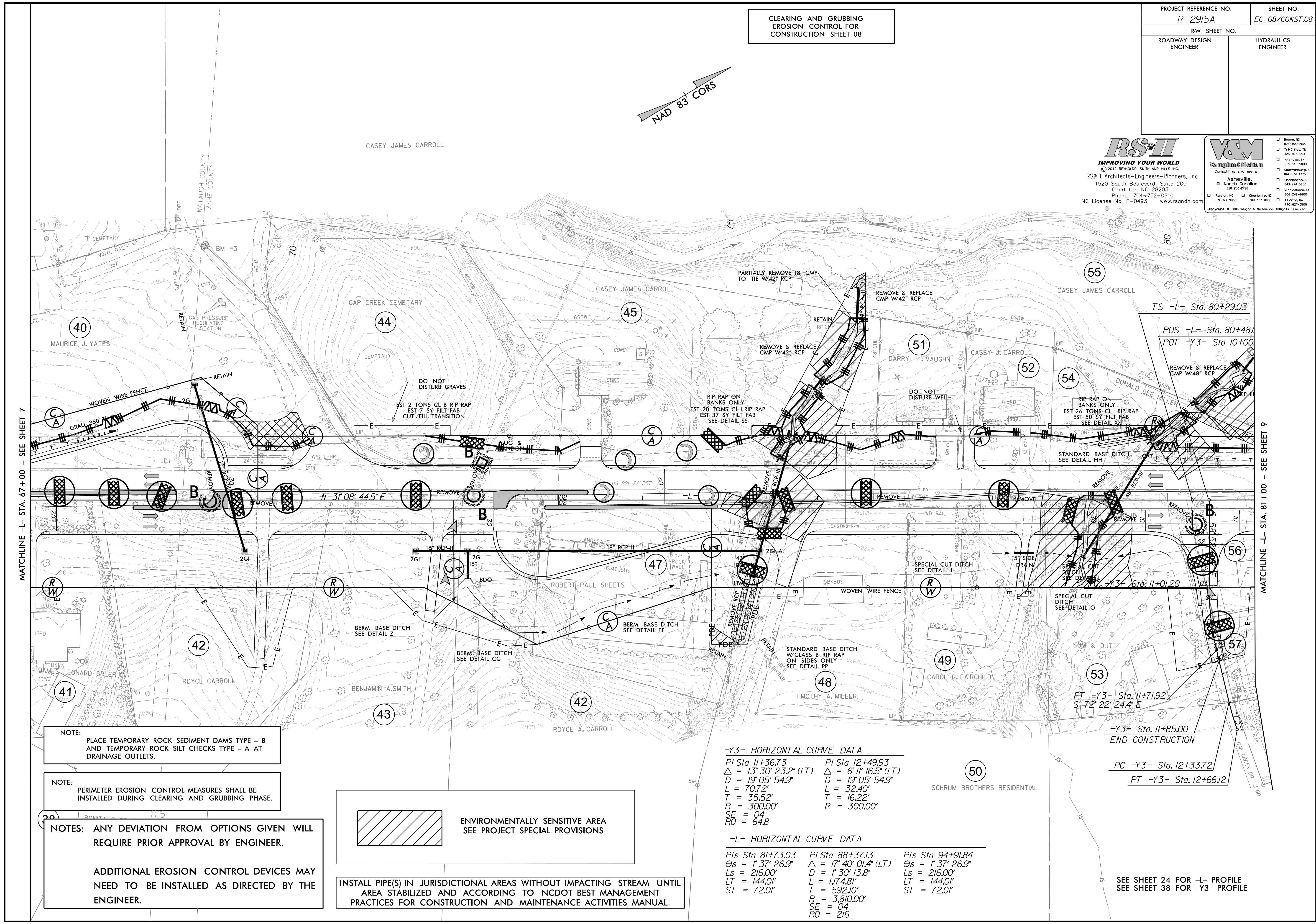
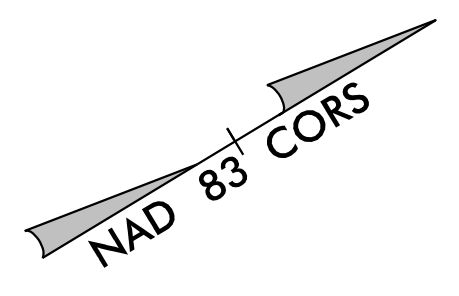
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 08

PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-08/CONST.08</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE -L- STA. 67+00 - SEE SHEET 7

MATCHLINE -L- STA. 81+00 - SEE SHEET 9

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY
NEED TO BE INSTALLED AS DIRECTED BY THE
ENGINEER.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL
AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT
PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

-Y3- HORIZONTAL CURVE DATA

PI Sta 11+36.73	PI Sta 12+49.93
$\Delta s = 13' 30" 23.2" (LT)$	$\Delta = 6' 11" 16.5" (LT)$
$D = 19' 05" 54.9"$	$D = 19' 05" 54.9"$
$L = 70.72'$	$L = 32.40'$
$T = 35.52'$	$T = 16.22'$
$R = 300.00'$	$R = 300.00'$
$SE = 04$	
$RO = 64.8$	

-L- HORIZONTAL CURVE DATA

PIs Sta 81+73.03	PI Sta 88+37.13	PIs Sta 94+91.84
$\Delta s = 1' 37" 26.9"$	$\Delta = 17' 40" 01.4" (LT)$	$\Delta s = 1' 37" 26.9"$
$Ls = 216.00'$	$D = 1' 30" 13.8"$	$Ls = 216.00'$
$LT = 144.01'$	$L = 1,174.81'$	$LT = 144.01'$
$ST = 72.01'$	$T = 592.10'$	$ST = 72.01'$
	$R = 3,810.00'$	
	$SE = 04$	
	$RO = 216$	

PT -Y3- Sta. 11+71.92
 $S = 72' 22" 24.4" E$

-Y3- Sta. 11+85.00
END CONSTRUCTION

PC -Y3- Sta. 12+33.72

PT -Y3- Sta. 12+66.12

\$DATE\$

\$FILE\$

UNNAMED TRIBUTARY TO GAP CREEK

48" RCP CONSTRUCTION SEQUENCE STA. 79+45 -L-

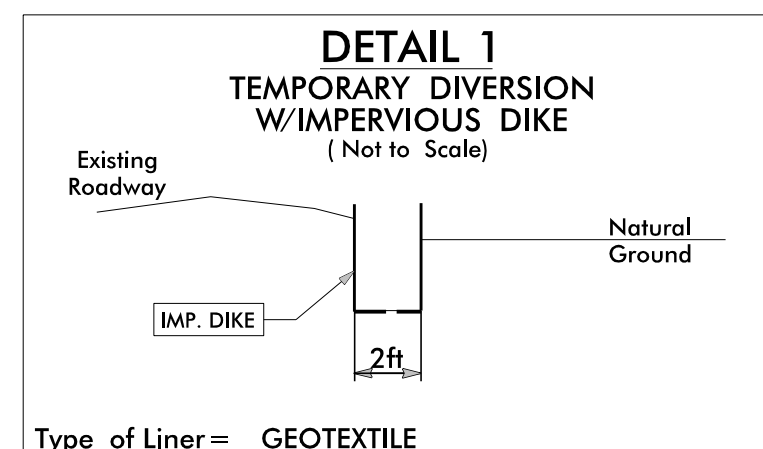
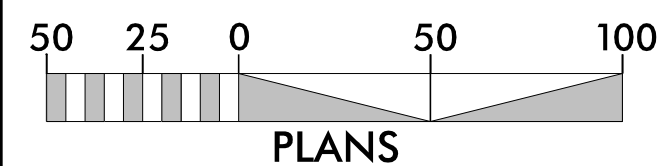
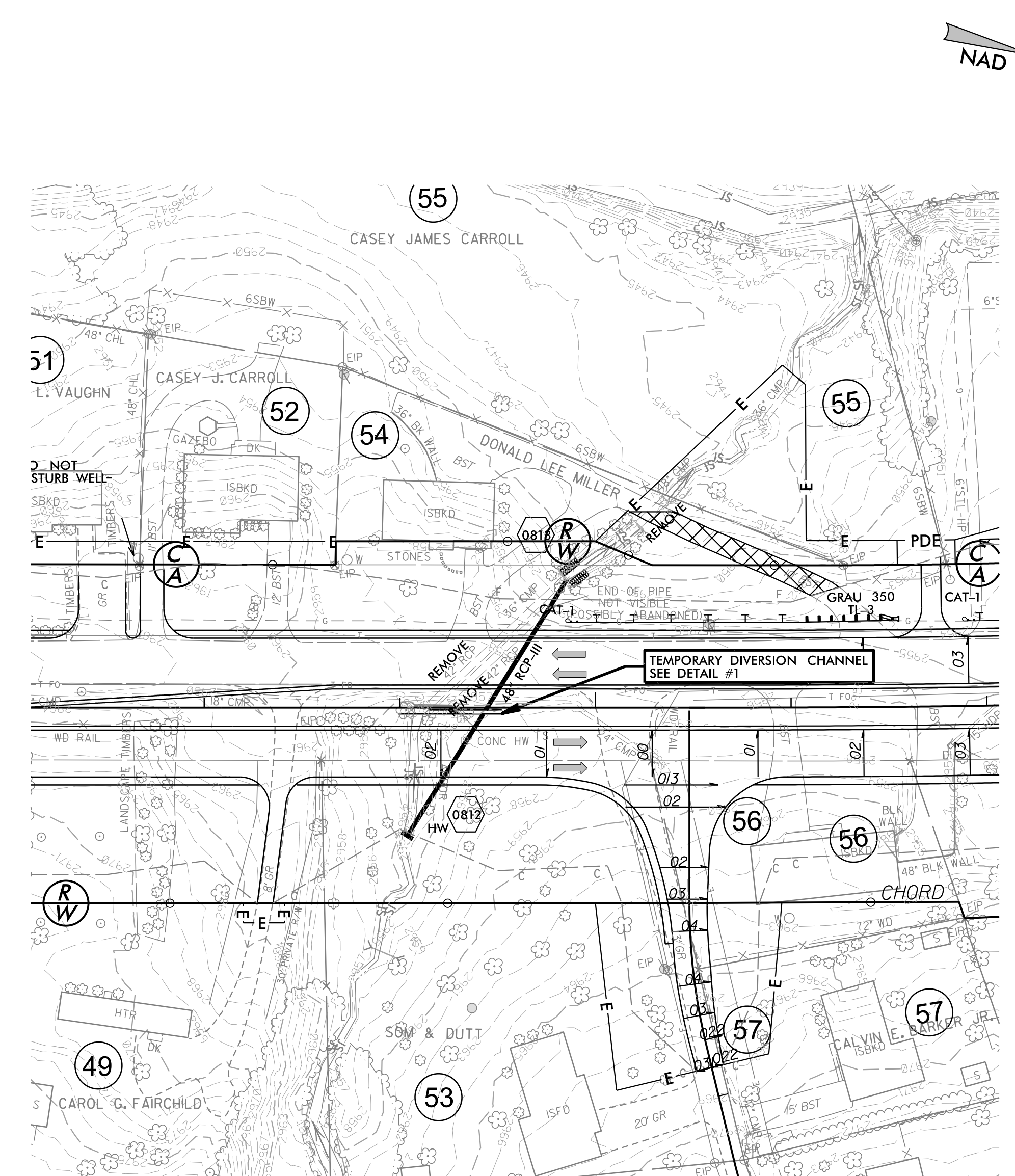
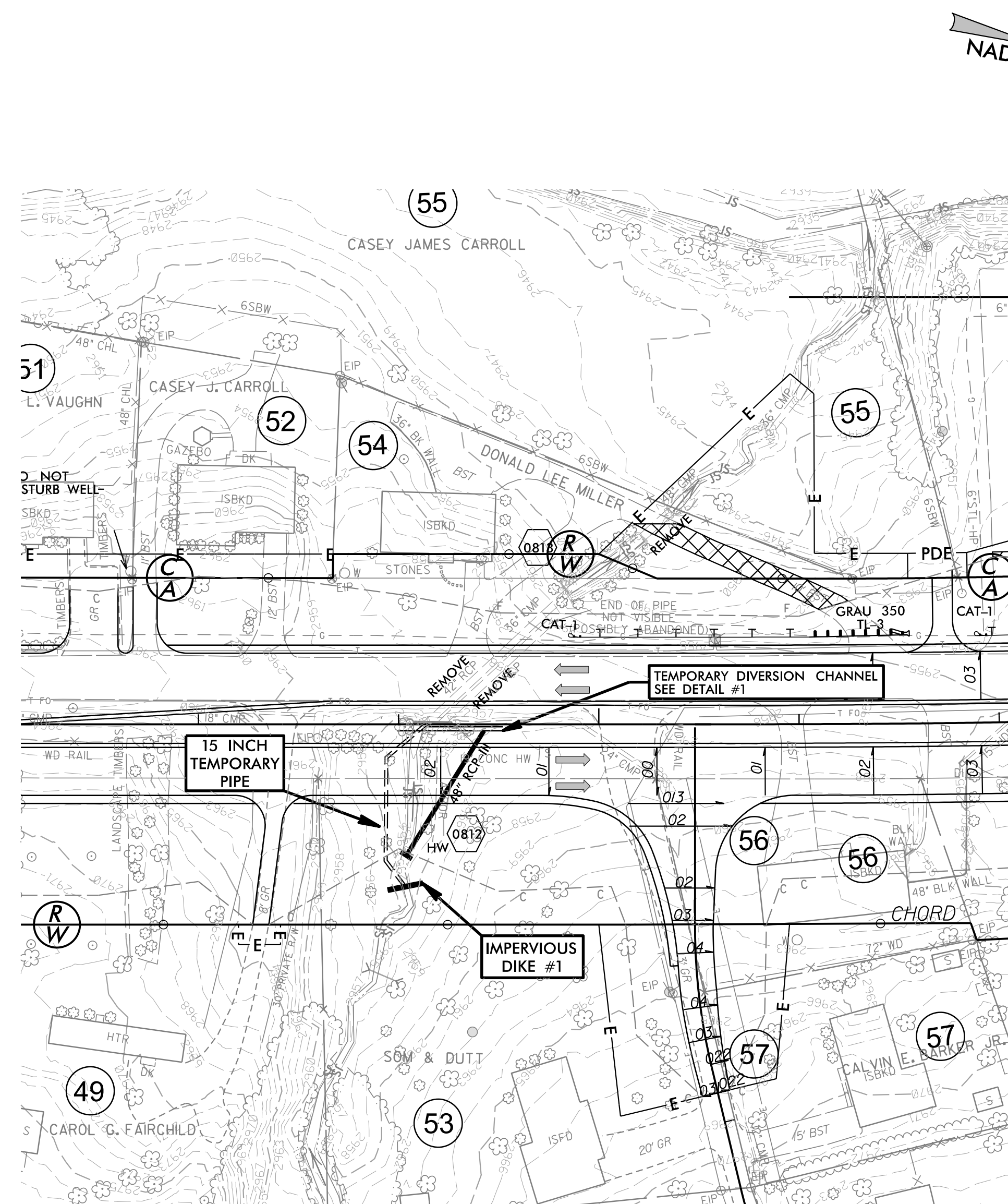
PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-8A/CONST.08
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

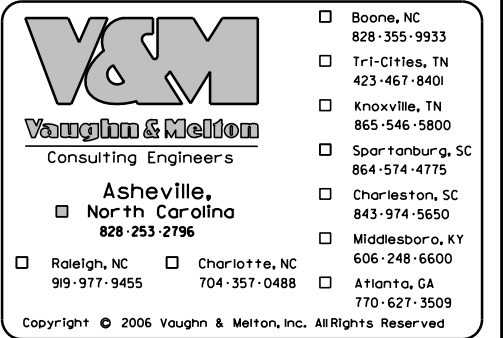
PHASE I

1. INSTALL IMPERVIOUS DIKE #1 AND TEMPORARY 15" PIPE.
2. INSTALL HEADWALL 0812 AND +/- 72 FT OF PROPOSED 48" RCP.
3. CONSTRUCT TEMPORARY DIVERSION CHANNEL, UTILIZING TEMPORARY SHORING AS NECESSARY, FROM END OF PROPOSED 48" RCP TO INLET OF EXISTING 42" RCP.
4. REMOVE IMPERVIOUS DIKE #1, TEMPORARY 15" PIPE AND ALLOW FLOW THROUGH PROPOSED 48" RCP.
5. CONSTRUCT NORTH BOUND LANES AND SHIFT TRAFFIC.

PHASE II

1. INSTALL REMAINING LENGTH OF PROPOSED 48" RCP AND REMOVE EXISTING 42" RCP'S.
2. REMOVE TEMPORARY DIVERSION CHANNEL.
3. CONSTRUCT SOUTH BOUND LANES.





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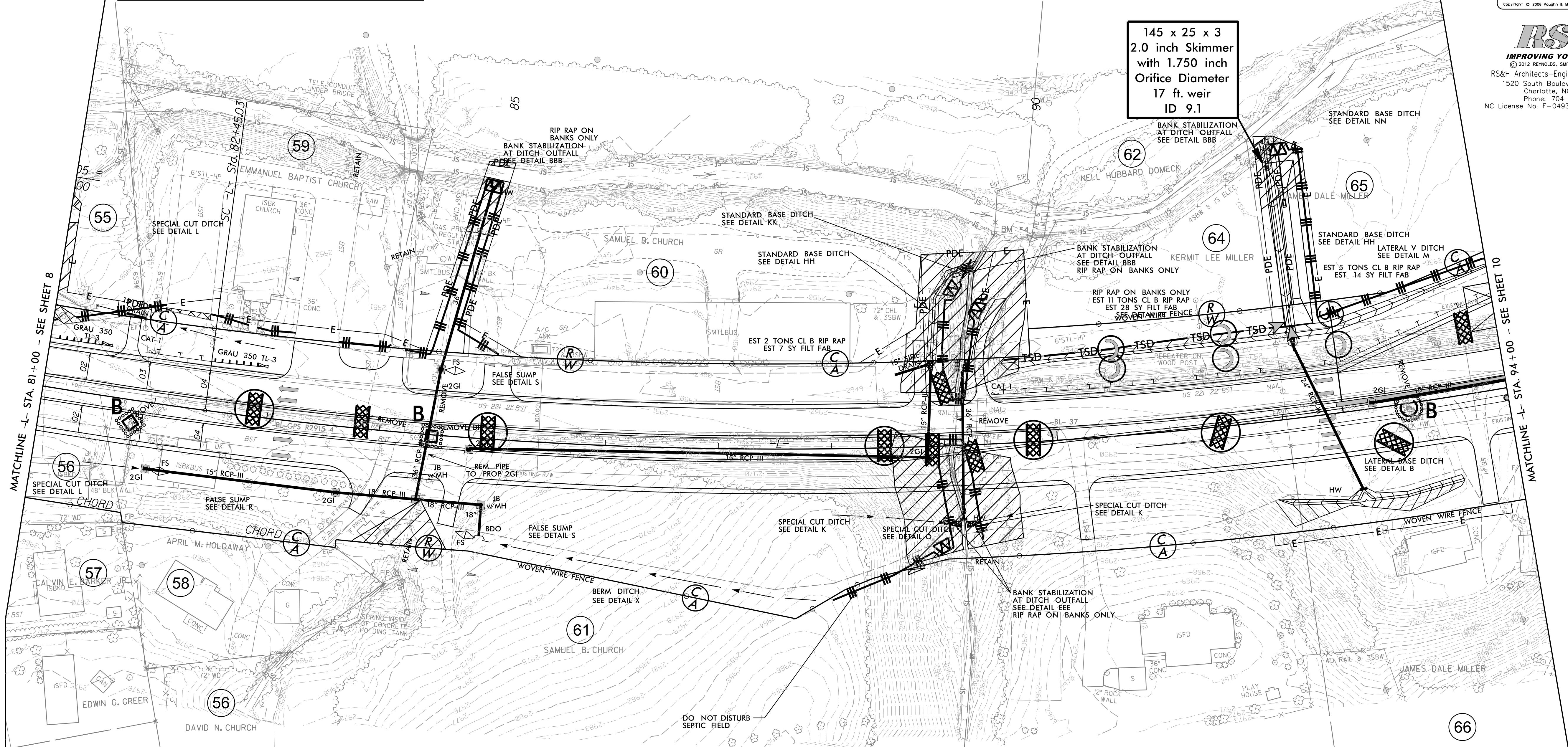
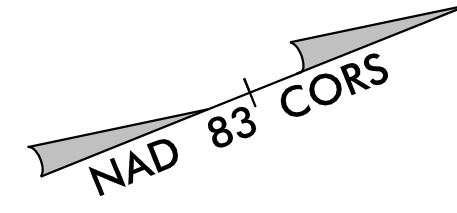
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 09

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.



145 x 25 x 3
2.0 inch Skimmer
with 1.750 inch
Orifice Diameter
17 ft. weir
ID 9.1



-L- HORIZONTAL CURVE DATA

Pis Sta 81+73.03	Pi Sta 88+37.13	Pis Sta 94+91.84
$\theta_s = 1^\circ 37' 26.9''$	$\Delta = 17^\circ 40' 01.4''$ (LT)	$\theta_s = 1^\circ 37' 26.9''$
$L_s = 216.00'$	$D = 1^\circ 30' 13.8''$	$L_s = 216.00'$
$LT = 144.01'$	$L = 1,174.81'$	$LT = 144.01'$
$ST = 72.01'$	$T = 592.10'$	$ST = 72.01'$
	$R = 3,810.00'$	
	$SE = 04$	
	$RO = 216$	

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

\$DATE\$

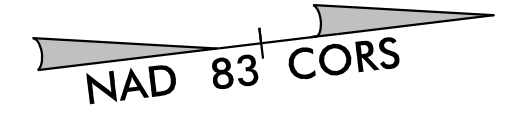
PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-10/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 10

-L- HORIZONTAL CURVE DATA

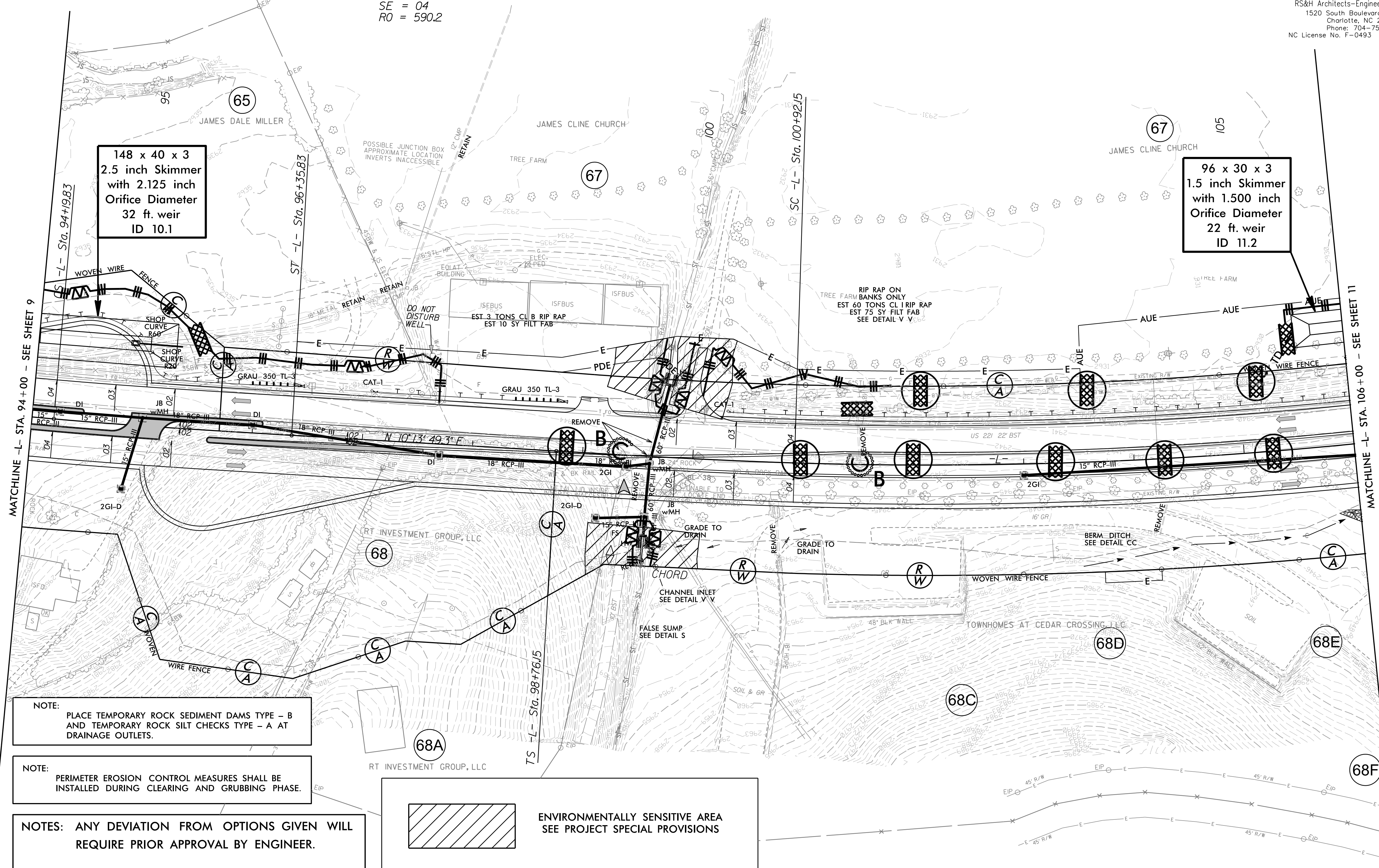
PIs Sta 81+73.03 Os = 1° 37' 26.9" Ls = 216.00' LT = 144.01' ST = 72.01'	PI Sta 88+37.13 Δ = 17° 40' 01.4" (LT) D = 1° 30' 13.8" L = 1174.81' T = 592.10' R = 3,810.00' SE = 04 RO = 1174.8	PIs Sta 94+91.84 Os = 1° 37' 26.9" Ls = 216.00' LT = 144.01' ST = 72.01'
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PIs Sta 100+20.16 Os = 1° 35' 48.8" Ls = 216.00' LT = 144.01' ST = 72.01'	PI Sta 103+87.82 Δ = 8° 43' 36.2" (LT) D = 1° 28' 43.0" L = 590.20' T = 295.67' R = 3,875.00' SE = 04 RO = 590.2	PIs Sta 107+54.36 Os = 1° 35' 48.8" Ls = 216.00' LT = 144.01' ST = 72.01'
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NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY
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ENGINEER.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL
AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT
PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

SEE SHEET 26 FOR -L- PROFILE

\$DATE\$

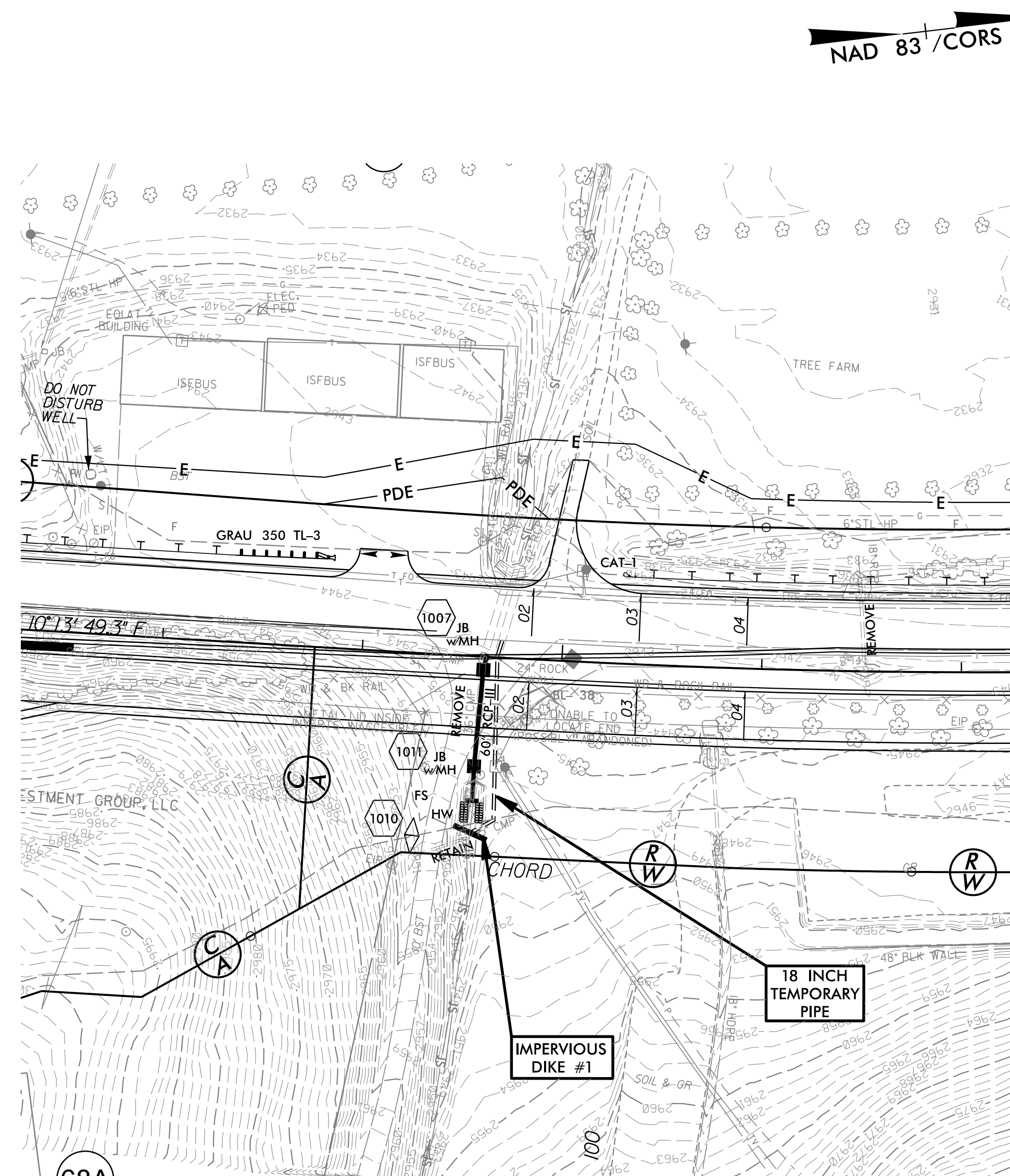
UNNAMED TRIBUTARY TO GAP CREEK

60" RCP CONSTRUCTION SEQUENCE STA. 99+62 -L-

PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-10A/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

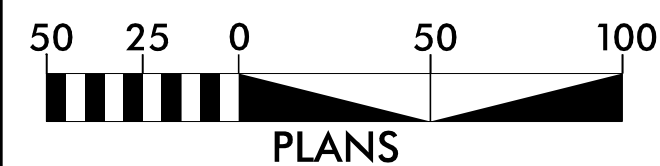
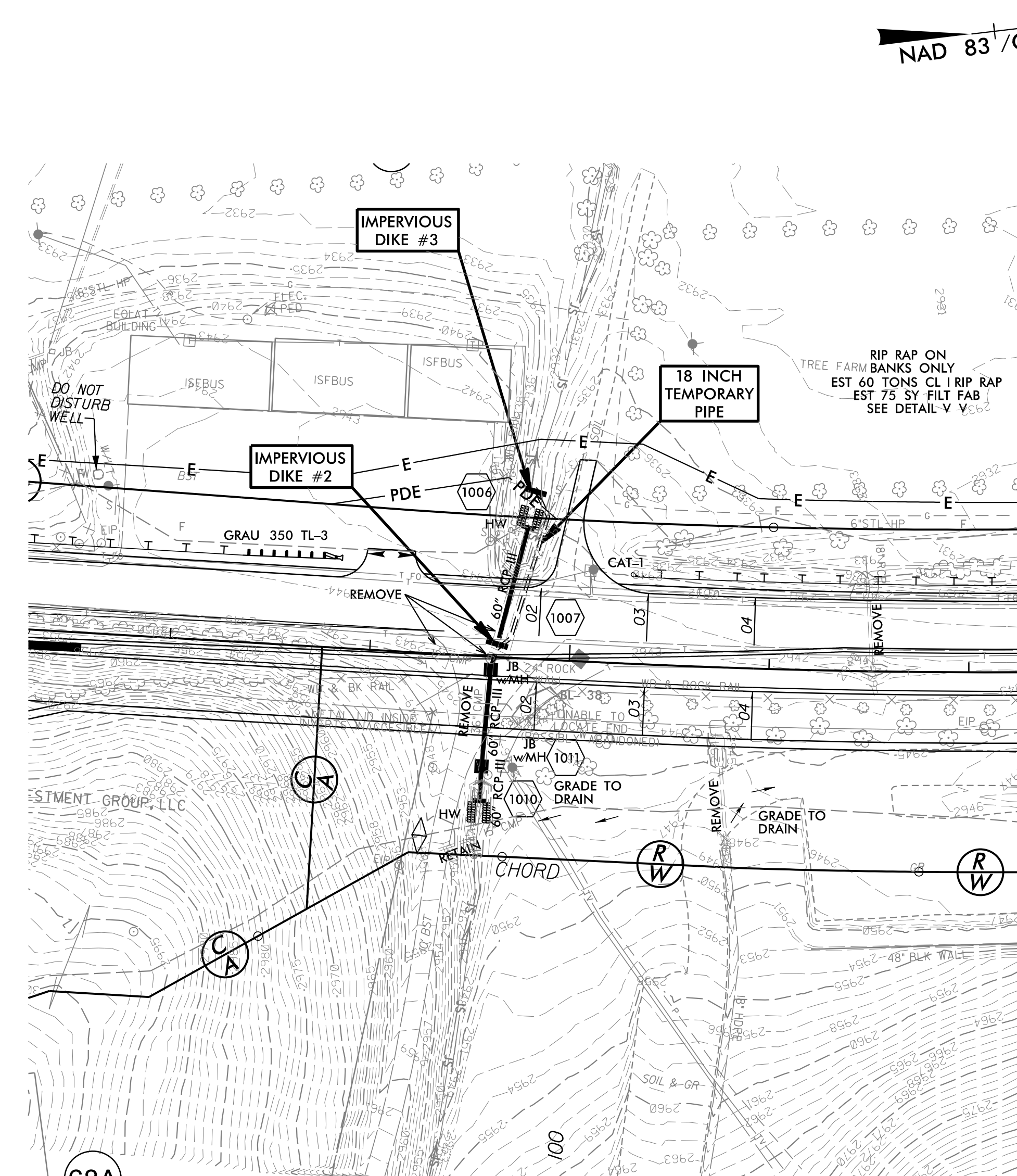
PHASE I

1. INSTALL TEMPORARY 18" PIPE FROM NORTH BARREL OF EXISTING 2@42" RCP TO JUST UPSTREAM OF PROPOSED HW-1010.
2. INSTALL IMPERVIOUS DIKE #1 AND DIVERT FLOW INTO TEMPORARY 18" PIPE.
3. REMOVE EXISTING 36" CMP.
4. CONSTRUCT HW-1010, JB-1011, JB-1007, 60" RCP-III AND SHORT STUB OUT OF JB-1007.
5. REMOVE IMPERVIOUS DIKE AND TEMPORARY 18" PIPE AND DIVERT WATER INTO PROPOSED 60" RCP-III.
6. CONSTRUCT NORTH BOUND LANES AND DIVERT TRAFFIC.



PHASE II

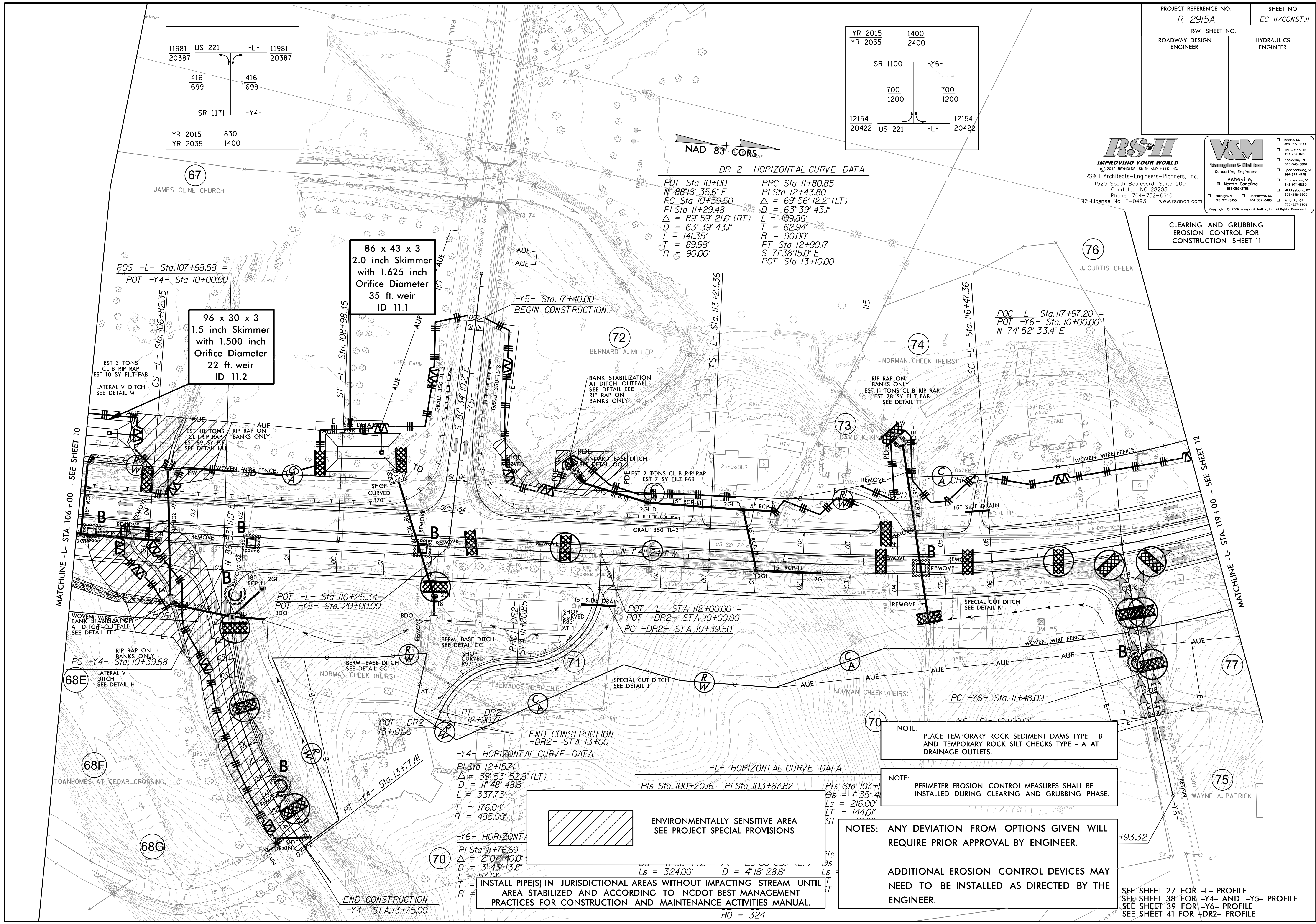
1. REMOVE NORTH BARREL OF EXISTING 2@42" RCP AND INSTALL TEMPORARY 18" PIPE FROM 60" RCP-III STUB OUT TO JUST DOWNSTREAM OF PROPOSED HW-1006.
2. INSTALL IMPERVIOUS DIKE #2, IMPERVIOUS DIKE #3 AND DIVERT FLOW TO TEMPORARY 18" PIPE.
3. REMOVE SOUTH BARREL OF EXISTING 2@42" RCP.
4. CONSTRUCT HW-1006, 60" RCP-III FROM HW-1006 UP TO IMPERVIOUS DIKE #2.
5. REMOVE IMPERVIOUS DIKE #2 AND TEMPORARY 18" PIPE, UTILIZING PUMP AROUND AS NECESSARY.
6. INSTALL REMAINING SECTION OF 60" RCP-III AND CONSTRUCT SOUTH BOUND LANES.



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CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 11



11981	US 221	-L-	11981
20387			20387
416			416
699			699
	SR 1171	-Y4-	
YR 2015	830		
YR 2035	1400		

YR 2015	1400
YR 2035	2400
SR 1100	-Y5-
700	
1200	
12154	US 221
20422	-L-
20422	

-DR-2- HORIZONTAL CURVE DATA

POT Sta 10+00	PRC Sta 11+80.85
N 88°18'35.6" E	PI Sta 12+43.80
PC Sta 10+39.50	Δ = 69°56'12.2" (LT)
PI Sta 11+29.48	D = 63°39'43.1"
Δ = 89°59'21.6" (RT)	L = 109.86'
D = 63°39'43.1"	T = 62.94'
L = 141.35'	R = 90.00'
T = 89.98'	PT Sta 12+90.17
R = 90.00'	S 71°38'15.0" E
	POT Sta 13+10.00

-Y4- HORIZONTAL CURVE DATA

PI Sta 12+15.71
Δ = 39°53'52.8" (LT)
D = 11°48'48.8"
L = 337.73'
T = 176.04'
R = 485.00'

-L- HORIZONTAL CURVE DATA

PIs Sta 100+20.16	PI Sta 103+87.82
Os = 1°35'4"	Ls = 216.00'
Lt = 144.01'	

ENVIRONMENTALLY SENSITIVE AREA
 SEE PROJECT SPECIAL PROVISIONS

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

SEE SHEET 27 FOR -L- PROFILE
 SEE SHEET 38 FOR -Y4- AND -Y5- PROFILE
 SEE SHEET 39 FOR -Y6- PROFILE
 SEE SHEET 41 FOR -DR2- PROFILE

\$DATE\$

\$FILE\$

UNNAMED TRIBUTARY TO GAP CREEK

66" RCP CONSTRUCTION SEQUENCE STA. 107+05 -L-

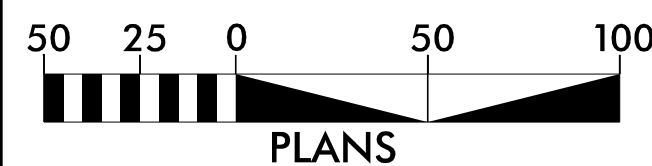
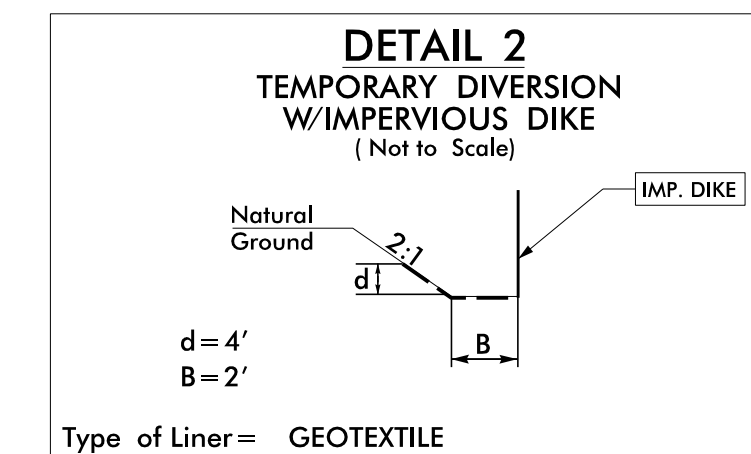
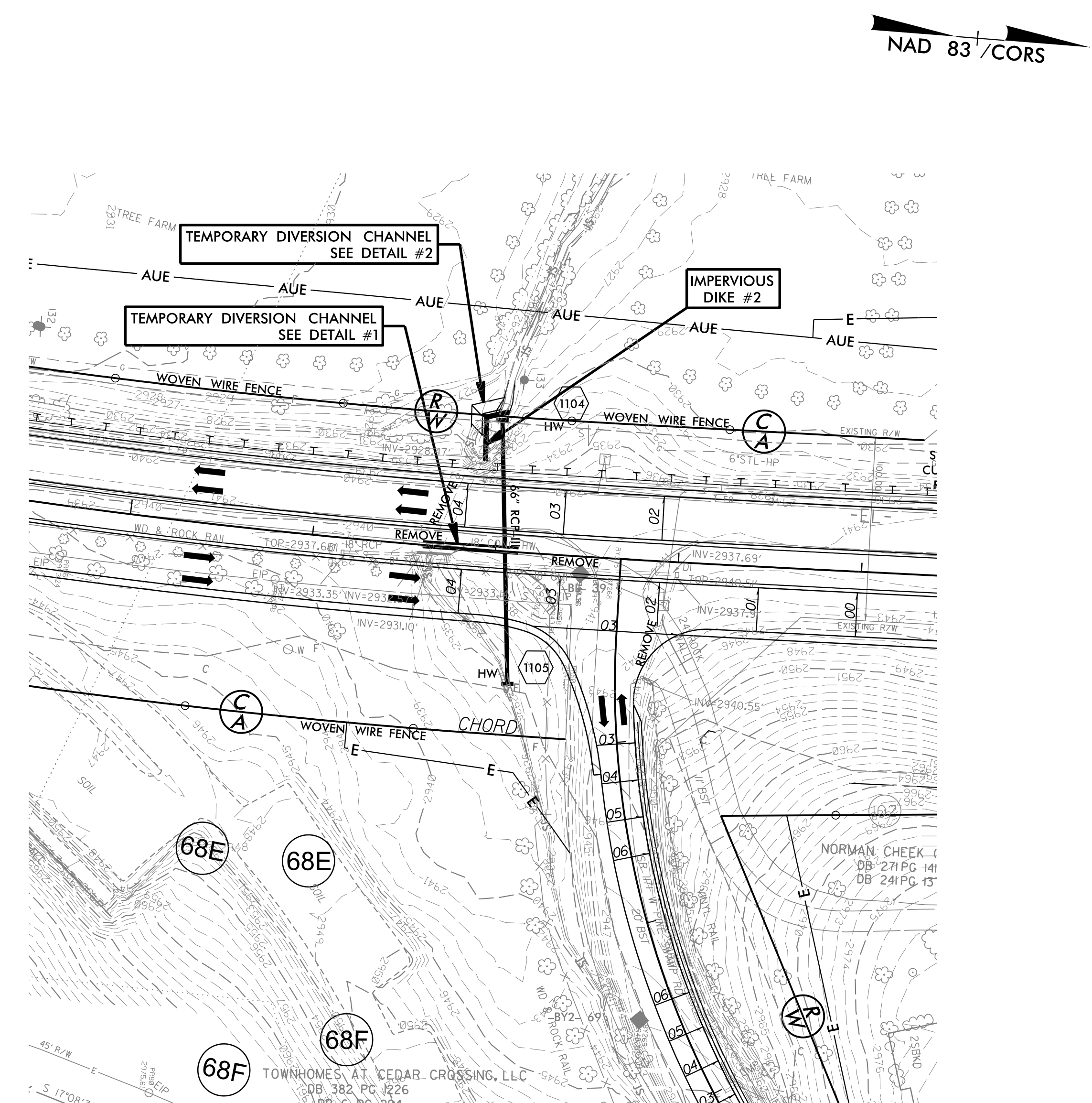
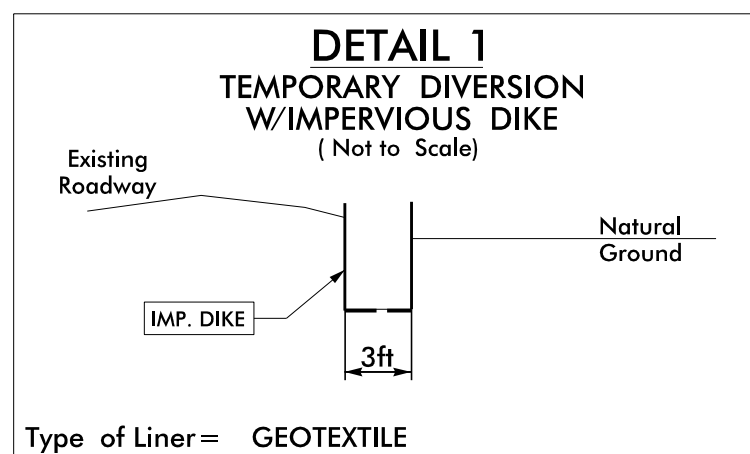
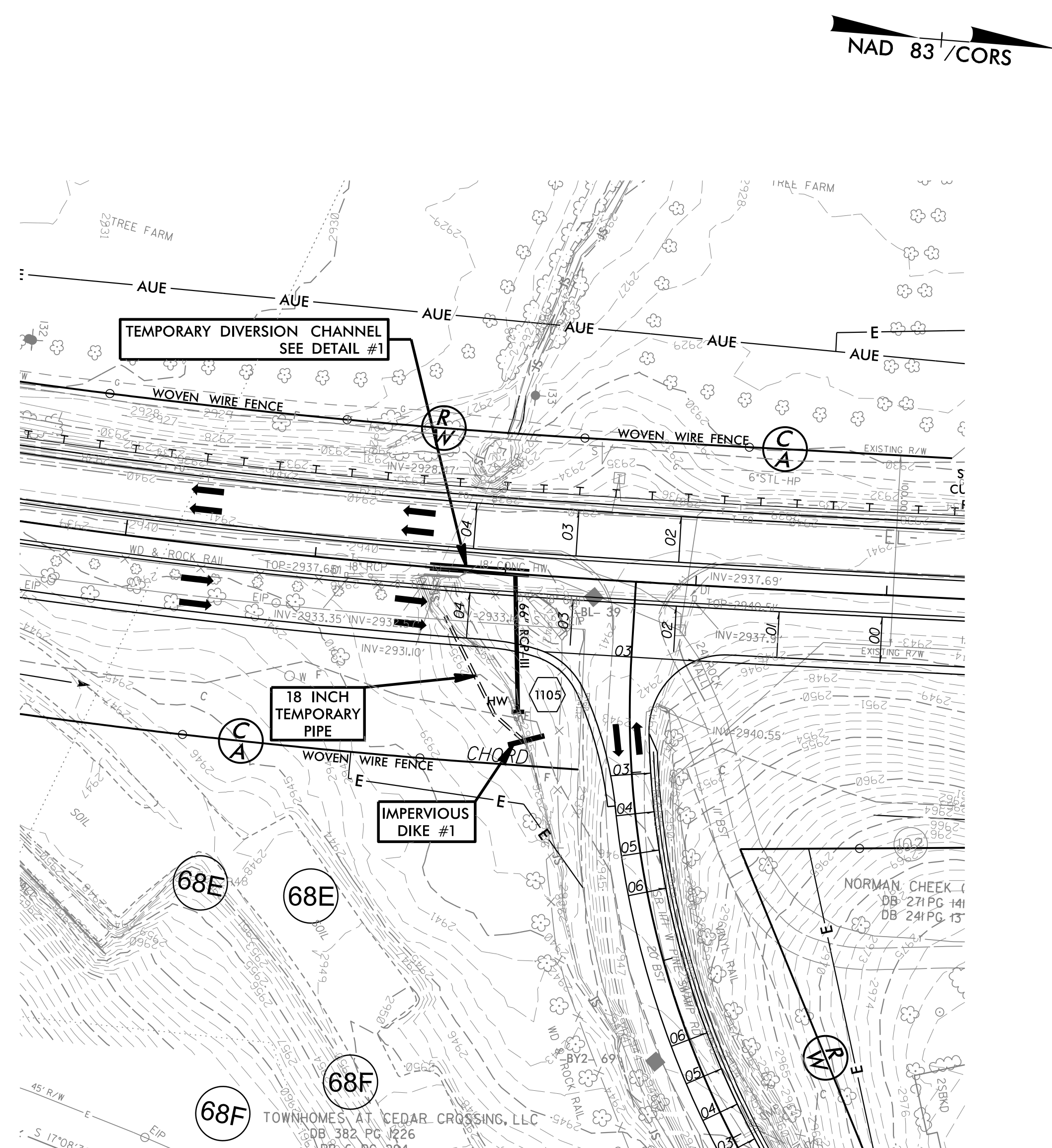
PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-IIA/CONST.II
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE I

1. INSTALL TEMPORARY 18" PIPE AND IMPERVIOUS DIKE #1, DIVERTING FLOW INTO TEMPORARY PIPE.
2. CONSTRUCT HW-1105 AND +/- 72' OF PROPOSED 66" RCP-III.
3. CONSTRUCT TEMPORARY DIVERSION CHANNEL #1, UTILIZING TEMPORARY SHORING AS NECESSARY, AND REMOVE +/- 7' OF EXISTING 66" RCP.
4. REMOVE IMPERVIOUS DIKE #1 AND TEMPORARY 18" PIPE, DIVERTING WATER INTO PROPOSED 66" RCP-III.
5. CONSTRUCT NORTH BOUND LANES AND SHIFT TRAFFIC.

PHASE II

1. INSTALL IMPERVIOUS DIKE #2 AND TEMPORARY DIVERSION CHANNEL #2.
2. CONSTRUCT HW-1104 AND REMAINING SECTION OF PROPOSED 66" RCP-III AND REMOVE TEMPORARY DIVERSION CHANNEL #2 AND IMPERVIOUS DIKE #2.
3. REMOVE TEMPORARY DIVERSION CHANNEL #1 AND EXISTING 66" RCP.

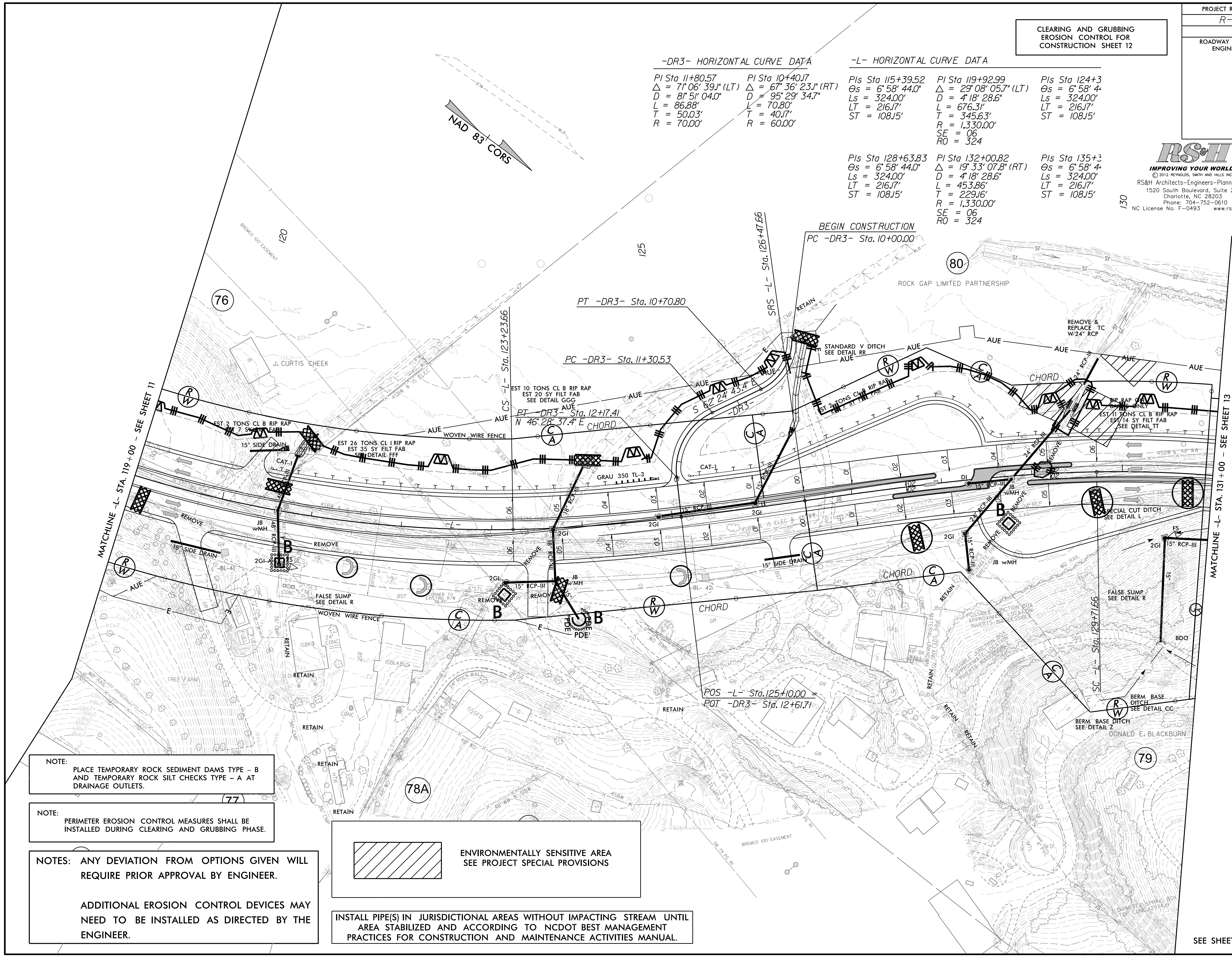


**CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 12**

-DR3- HORIZONTAL CURVE DATA		-L- HORIZONTAL CURVE DATA	
PI Sta 11+80.57	PI Sta 10+40.17	PI Sta 115+39.52	PI Sta 119+92.99
$\Delta = 71^{\circ} 06' 39.1''$ (LT)	$\Delta = 67^{\circ} 36' 23.1''$ (RT)	$\Delta = 6^{\circ} 58' 44.0''$	$\Delta = 29^{\circ} 08' 05.7''$ (LT)
D = 81' 51" 04.0"	D = 95' 29" 34.7"	Ls = 324.00'	D = 4' 18" 28.6"
L = 86.88'	L = 70.80'	LT = 216.17'	L = 676.31'
T = 50.03'	T = 40.17'	ST = 108.15'	T = 345.63'
R = 70.00'	R = 60.00'		R = 1,330.00'
			SE = 06
			RO = 324
		PIs Sta 128+63.83	PIs Sta 132+00.82
		$\Delta = 6^{\circ} 58' 44.0''$	$\Delta = 19^{\circ} 33' 07.8''$ (RT)
		Ls = 324.00'	D = 4' 18" 28.6"
		LT = 216.17'	L = 453.86'
		ST = 108.15'	T = 229.16'
			R = 1,330.00'
			SE = 06
			RO = 324
		PIs Sta 124+3	PIs Sta 135+3
		$\Delta = 6^{\circ} 58' 4''$	$\Delta = 6^{\circ} 58' 4''$
		Ls = 324.00'	Ls = 324.00'
		LT = 216.17'	LT = 216.17'
		ST = 108.15'	ST = 108.15'

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NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

 ENVIRONMENTALLY SENSITIVE AREA SEE PROJECT SPECIAL PROVISIONS

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

\$DATE\$

UNNAMED TRIBUTARY TO GAP CREEK

48" RCP CONSTRUCTION SEQUENCE STA. 120+63 -L-

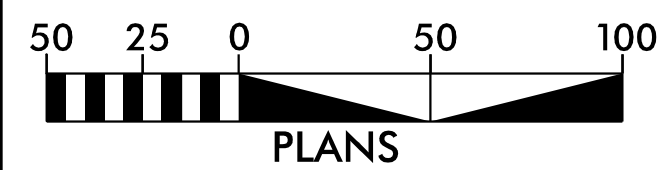
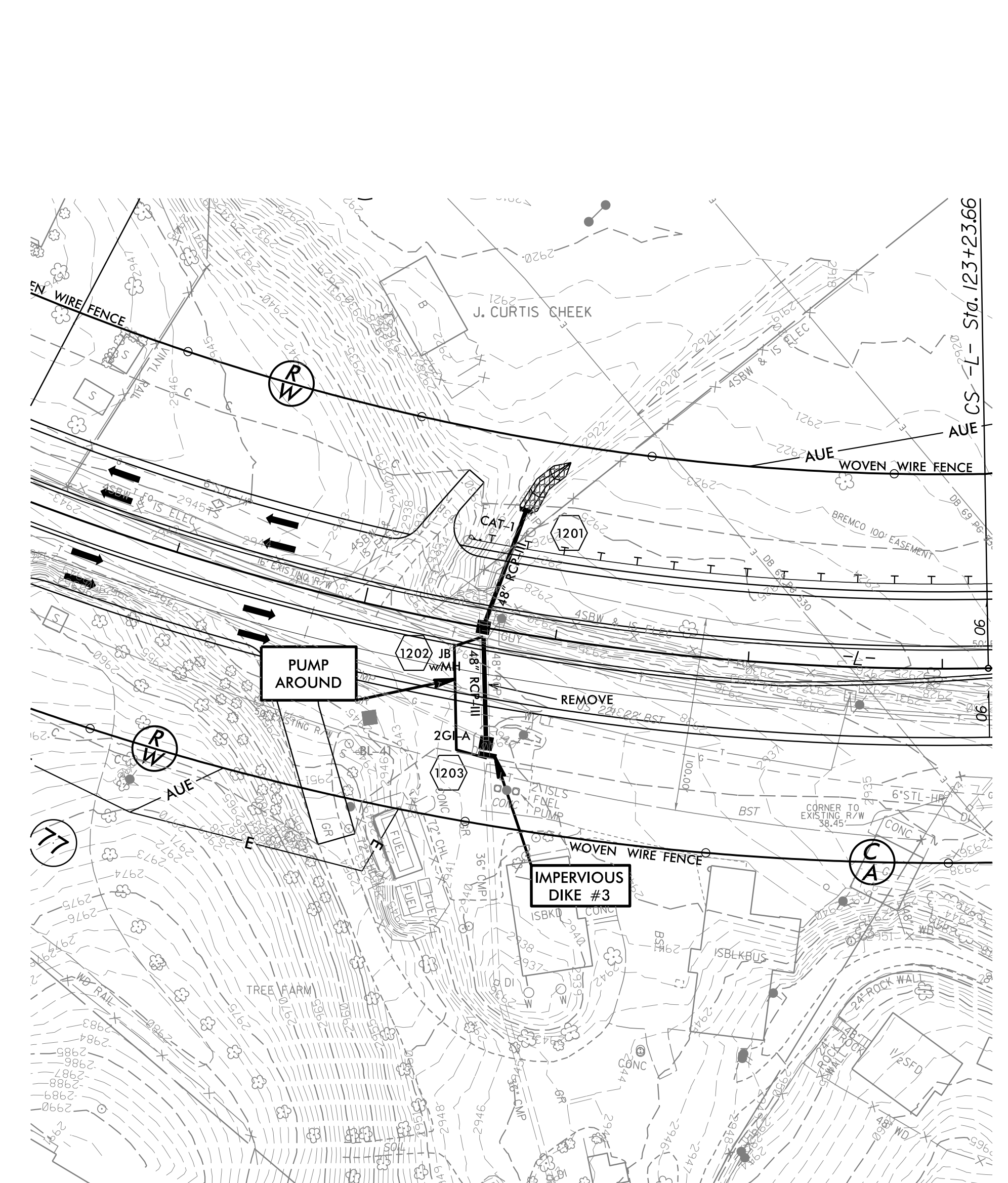
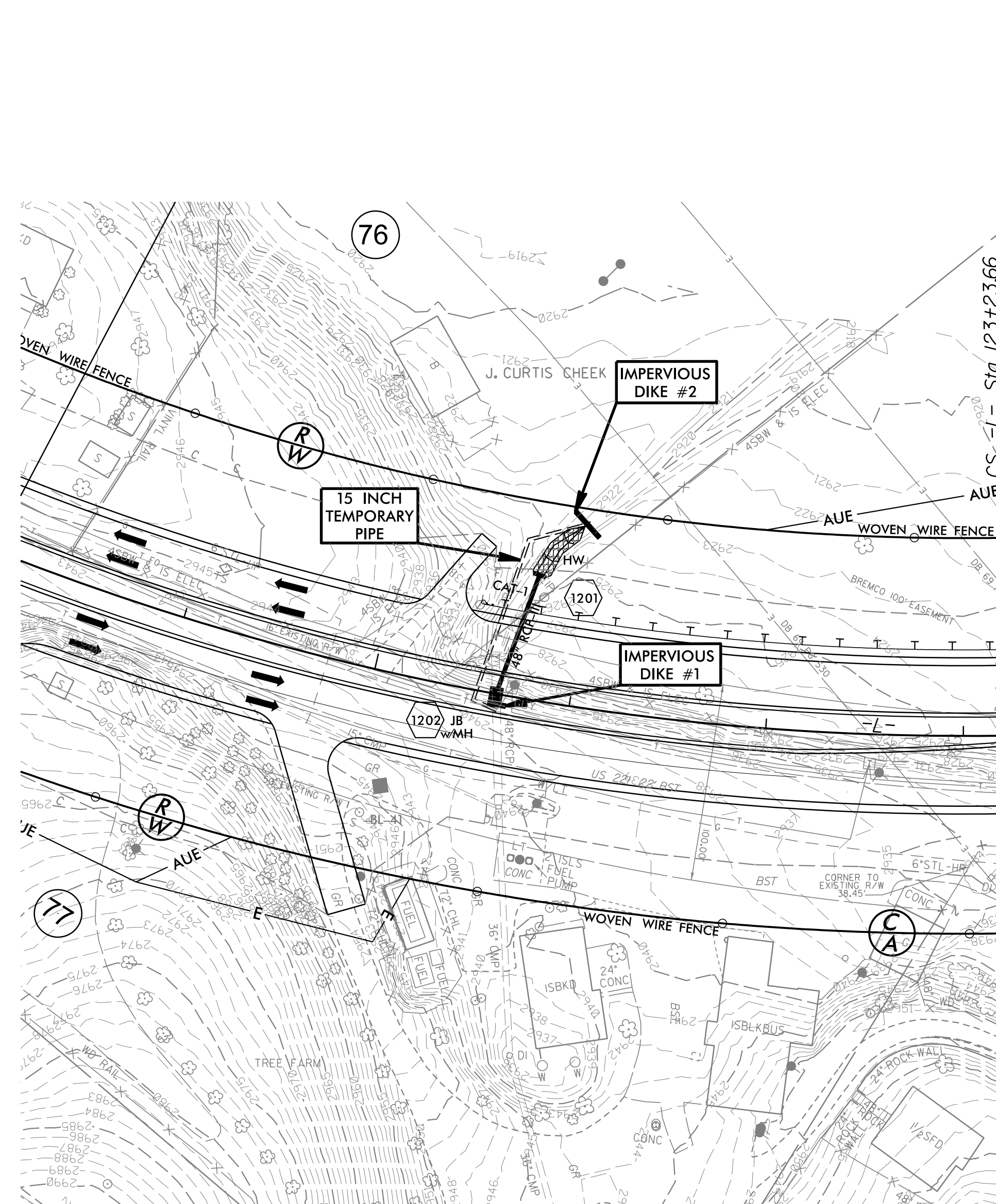
PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-12A/CONST.12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE I

1. REMOVE +/- 25' OF EXISTING 48" RCP AND INSTALL IMPERVIOUS DIKES #1 AND #2 AND TEMPORARY 15" PIPE. UTILIZE SPECIAL STILLING BASIN FOR DEWATERING.
2. INSTALL JB 1202 AND SECTION OF PROPOSED 48" RCP TO HW 1201.
3. REMOVE TEMPORARY 15" PIPE, IMPERVIOUS DIKES #1 AND #2 AND DIRECT FLOW FROM END OF EXISTING 48" RCP INTO JB 1202.
4. CONSTRUCT SOUTH BOUND LANES AND SHIFT TRAFFIC.

PHASE II

1. REMOVE +/- 8 FT OF EXISTING 36" CMP AND INSTALL IMPERVIOUS DIKE #3, UTILIZING PUMP AROUND AS NECESSARY.
2. REMOVE EXISTING DI AND REMAINING SECTION OF EXISTING 48" RCP.
3. INSTALL 2GI-A 1203, REMAINING SECTION OF PROPOSED 48" RCP AND CONNECT EXISTING 36" CMP TO 2GI-A 1203.
4. CONSTRUCT NORTH BOUND LANES.



PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-13/CONST13
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

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-L- HORIZONTAL CURVE DATA

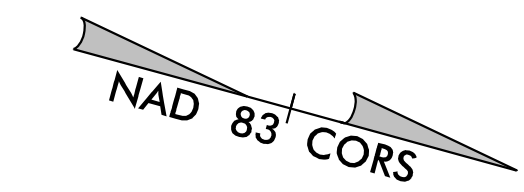
Pls Sta 128+63.83 Δs = 6° 58' 44.0" Ls = 324.00' LT = 216.17' ST = 108.15'	PI Sta 132+00.82 Δ = 19° 33' 07.8" (RT) D = 4° 18' 28.6" L = 453.86' T = 229.16' R = 1,330.00' SE = 06 RO = 324	Pls Sta 135+33.68 Δs = 6° 58' 44.0" Ls = 324.00' LT = 216.17' ST = 108.15'
--	--	--

-Y7- HORIZONTAL CURVE DATA

PI Sta 10+79.52 Δ = 76° 24' 23.8" (LT) D = 114° 35' 29.6" L = 66.68' T = 39.35' R = 50.00' SE = 06 RO = 64.2	PI Sta 12+15.23 Δ = 79° 45' 39.9" (RT) D = 70° 44' 07.9" L = 112.76' T = 67.68' R = 81.00' SE = 06 RO = 64.2	PI Sta 13+78.99 Δ = 96° 16' 39.0" (LT) D = 70° 44' 07.9" L = 136.11' T = 90.40' R = 81.00' SE = 06 RO = 64.2
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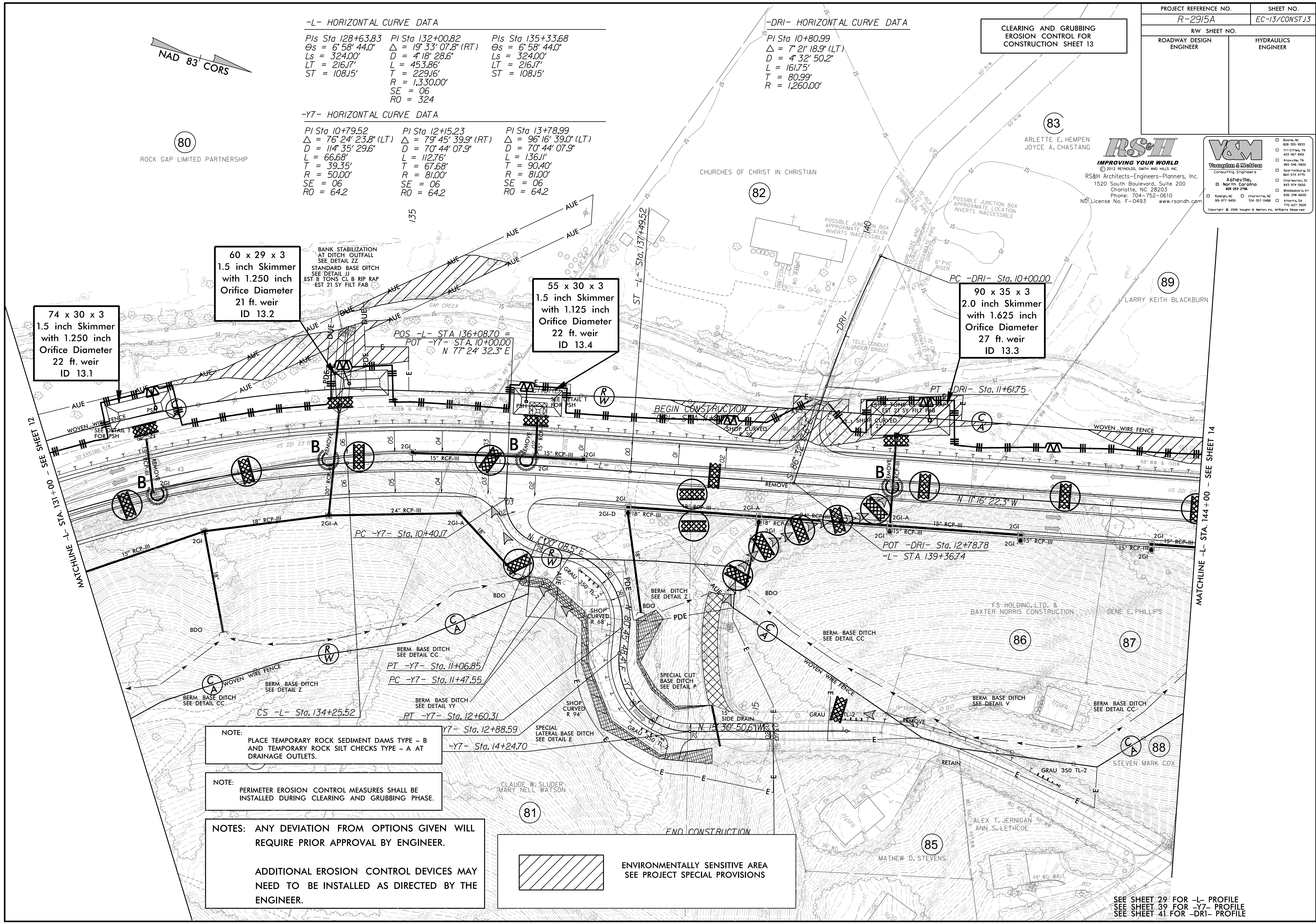
-DRI- HORIZONTAL CURVE DATA

PI Sta 10+80.99 Δ = 7° 21' 18.9" (LT) D = 4° 32' 50.2" L = 161.75' T = 80.99' R = 1,260.00'
--



80
ROCK GAP LIMITED PARTNERSHIP

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 13



74 x 30 x 3
1.5 inch Skimmer
with 1.250 inch
Orifice Diameter
22 ft. weir
ID 13.1

60 x 29 x 3
1.5 inch Skimmer
with 1.250 inch
Orifice Diameter
21 ft. weir
ID 13.2

55 x 30 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
22 ft. weir
ID 13.4

90 x 35 x 3
2.0 inch Skimmer
with 1.625 inch
Orifice Diameter
27 ft. weir
ID 13.3

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY
NEED TO BE INSTALLED AS DIRECTED BY THE
ENGINEER.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

SEE SHEET 29 FOR -L- PROFILE
SEE SHEET 39 FOR -Y7- PROFILE
SEE SHEET 41 FOR -DRI- PROFILE

\$DATE\$
\$FILE\$

PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-14/CONST.14
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

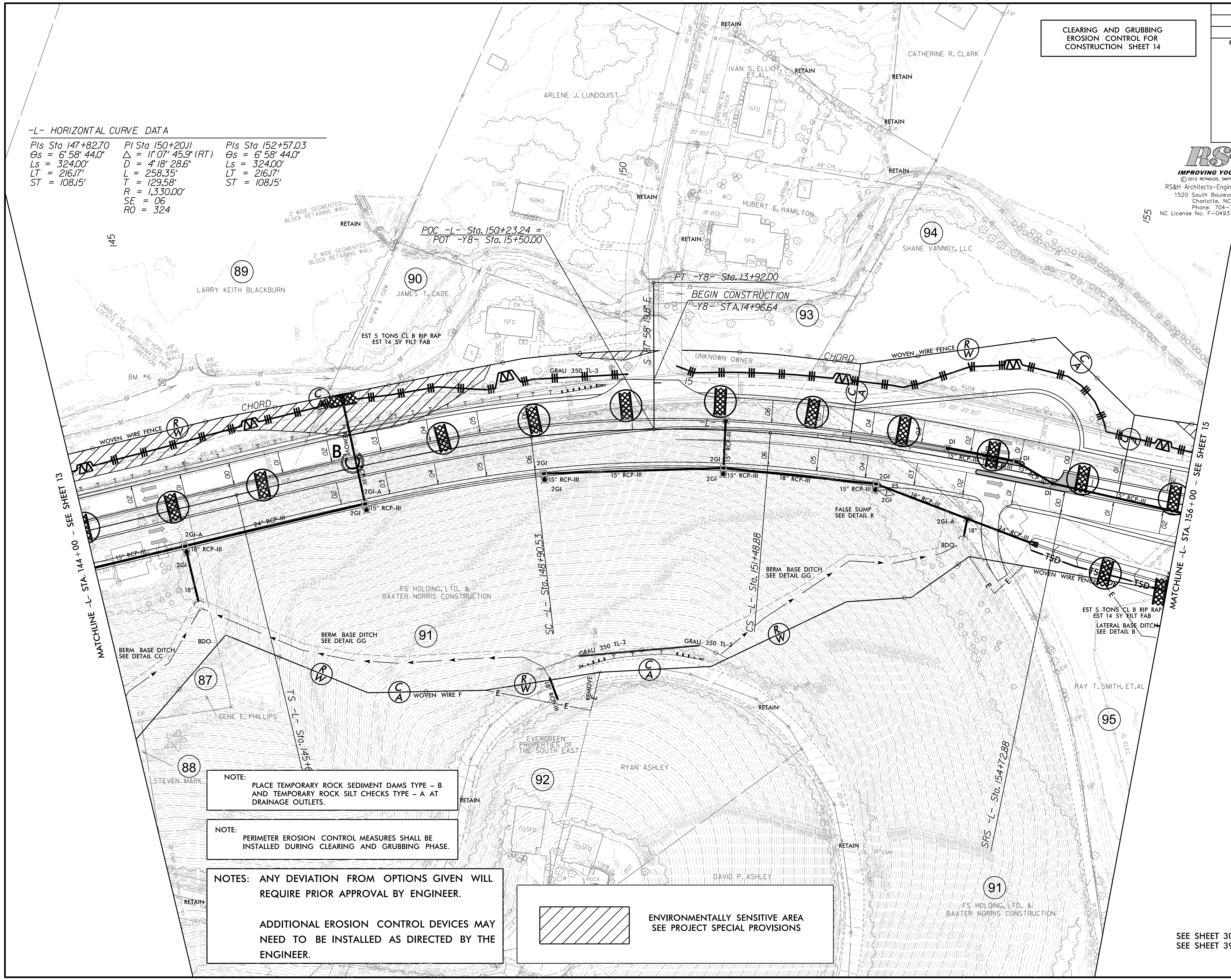
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 14

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-L- HORIZONTAL CURVE DATA

Pls Sta 147+82.70	Pls Sta 150+20.11	Pls Sta 152+57.03
Os = 6°58'44.0"	Δ = 11°07'45.9" (RT)	Os = 6°58'44.0"
Ls = 324.00'	D = 4°18'28.6"	Ls = 324.00'
LT = 216.17'	L = 258.35'	LT = 216.17'
ST = 108.15'	T = 129.58'	ST = 108.15'
	R = 1,330.00'	
	SE = 06	
	RO = 324	



NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

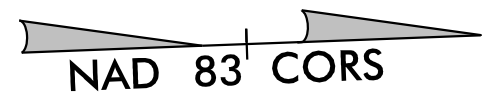
ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

SEE SHEET 30 FOR -L- PROFILE
SEE SHEET 39 FOR -Y8- PROFILE

\$DATE\$

10206 17376	US 221 -L-	12024 20188
175 395		1994 3206
	SR 1003	-Y9-
YR 2015 YR 2035	130 200	



-Y8- HORIZONTAL CURVE DATA

PI Sta 11+73.32
 $\Delta = 37^{\circ} 21' 26.0''$ (LT)
 $D = 28^{\circ} 38' 52.4''$
 $L = 130.40'$
 $T = 67.61'$
 $R = 200.00'$

-Y9- HORIZONTAL CURVE DATA

PI Sta 11+60.32
 $\Delta = 36^{\circ} 35' 02.5''$ (LT)
 $D = 11^{\circ} 48' 48.8''$
 $L = 309.68'$
 $T = 160.32'$
 $R = 485.00'$
 $SE = 06$
 $RO = 124.08$

-L- HORIZONTAL CURVE DATA

PIs Sta 156+89.04	PI Sta 158+99.56	PIs Sta 161+09.99
$\Theta_s = 6^{\circ} 58' 44.0''$	$\Delta = 8^{\circ} 49' 46.3''$ (LT)	$\Theta_s = 6^{\circ} 58' 44.0''$
$L_s = 324.00'$	$D = 4^{\circ} 18' 28.6''$	$L_s = 324.00'$
$LT = 216.17'$	$L = 204.96'$	$LT = 216.17'$
$ST = 108.15'$	$T = 102.68'$	$ST = 108.15'$
	$R = 1,330.00'$	
	$SE = 06$	
	$RO = 204.95$	

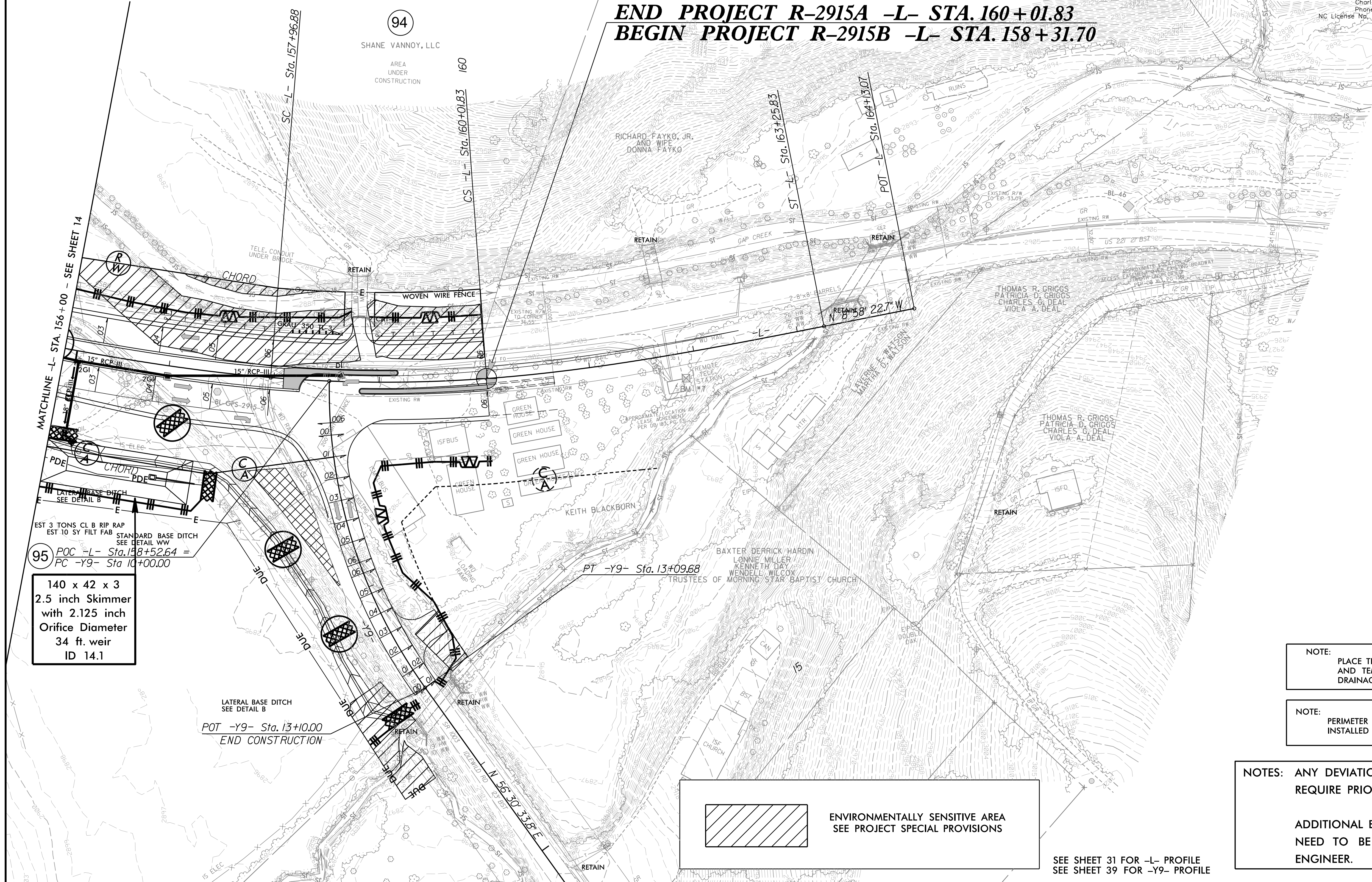
CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 15

PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-15/CONST15</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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END PROJECT R-2915A -L- STA. 160+01.83
BEGIN PROJECT R-2915B -L- STA. 158+31.70



EST 3 TONS CL B RIP RAP
 EST 10 SY FILT FAB STANDARD BASE DITCH
 SEE DETAIL WW
 POC -L- Sta. 158+52.64 =
 PC -Y9- Sta 10+00.00

140 x 42 x 3
 2.5 inch Skimmer
 with 2.125 inch
 Orifice Diameter
 34 ft. weir
 ID 14.1

ENVIRONMENTALLY SENSITIVE AREA
 SEE PROJECT SPECIAL PROVISIONS

SEE SHEET 31 FOR -L- PROFILE
 SEE SHEET 39 FOR -Y9- PROFILE

NOTE:
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
 DRAINAGE OUTLETS.

NOTE:
 PERIMETER EROSION CONTROL MEASURES SHALL BE
 INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
 REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY
 NEED TO BE INSTALLED AS DIRECTED BY THE
 ENGINEER.

PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-16/CONST J6</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 16

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

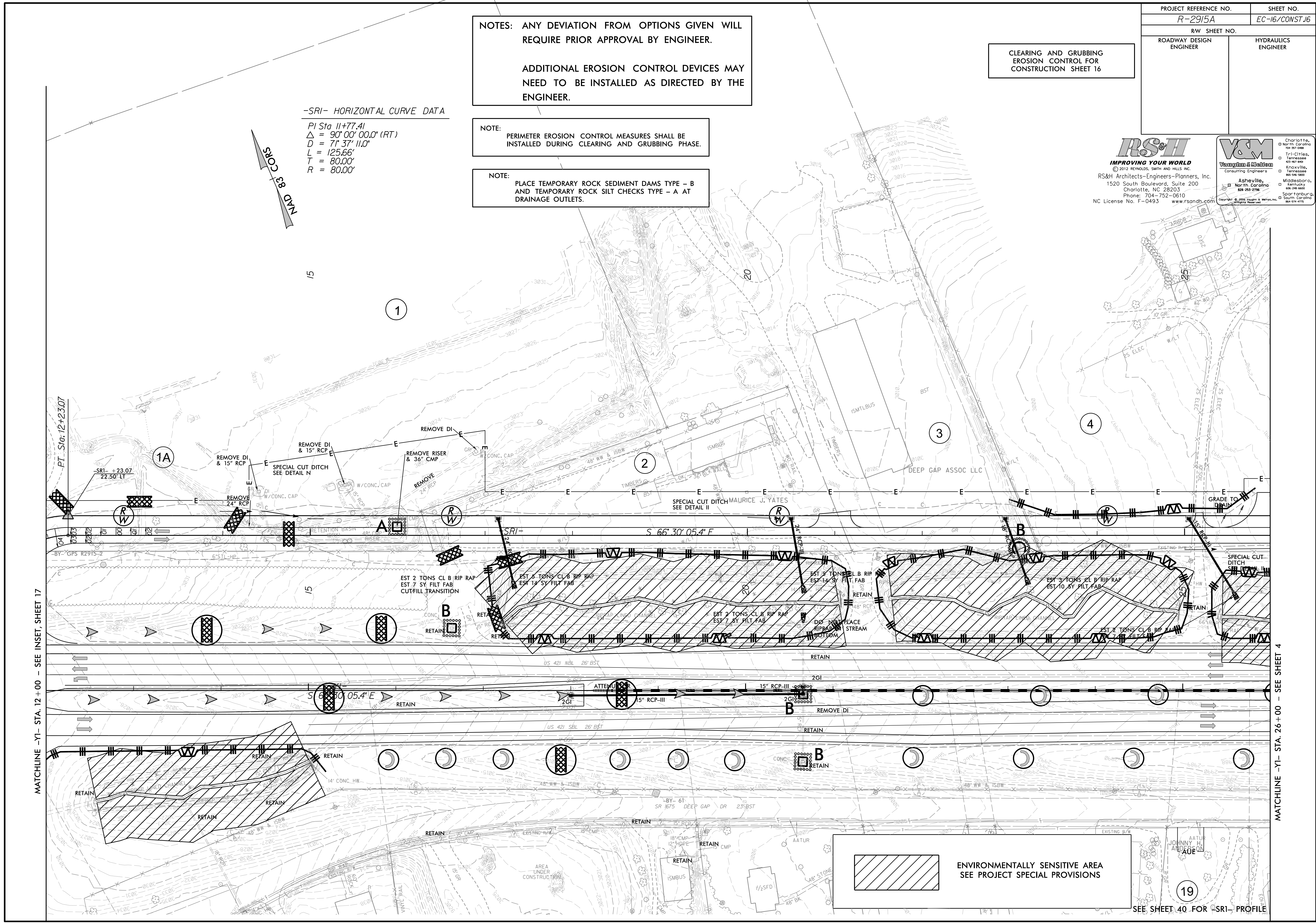
NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

-SRI- HORIZONTAL CURVE DATA
 PI Sta 11+77.41
 $\Delta = 90^{\circ}00'00.0''$ (RT)
 $D = 71^{\circ}37'11.0''$
 $L = 125.66'$
 $T = 80.00'$
 $R = 80.00'$

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MATCHLINE -Y1- STA. 12+00 - SEE INSET, SHEET 17

MATCHLINE -Y1- STA. 26+00 - SEE SHEET 4

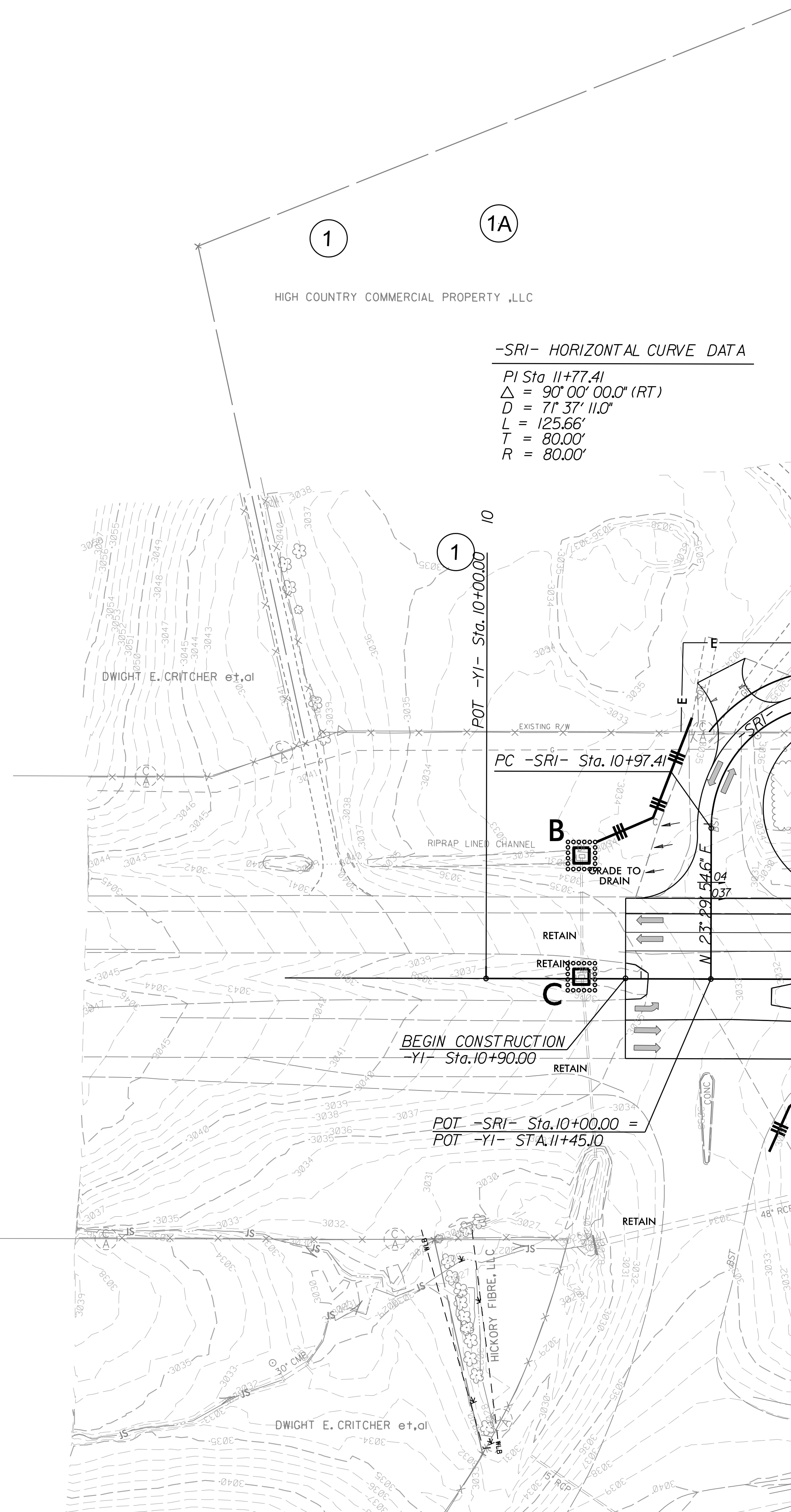
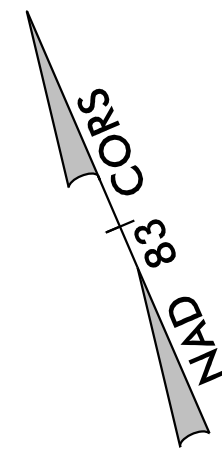
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

SEE SHEET 40 FOR SRI- PROFILE

\$DATE\$
\$FILE\$

0627/14 ROW REV: REVISED PROPERTY LINES AND ADDED PARCEL 1A WITH PROPERTY OWNER AND DEED REFERENCE. - KNW
 0005/15 ROW REV: REVISED ROW AND TCE ON PARCELS 1 AND 1A. - KNW

\$FILE\$
 \$DATE\$



-SRI- HORIZONTAL CURVE DATA

PI Sta 11+77.41
 $\Delta = 90^{\circ} 00' 00.0''$ (RT)
 $D = 71^{\circ} 37' 11.0''$
 $L = 125.66'$
 $T = 80.00'$
 $R = 80.00'$

NOTE:
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
 DRAINAGE OUTLETS.

NOTE:
 PERIMETER EROSION CONTROL MEASURES SHALL BE
 INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
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ADDITIONAL EROSION CONTROL DEVICES MAY
 NEED TO BE INSTALLED AS DIRECTED BY THE
 ENGINEER.

CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 17

PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-17/CONST.17</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE -YI- STA. 12+00 SHEET 16

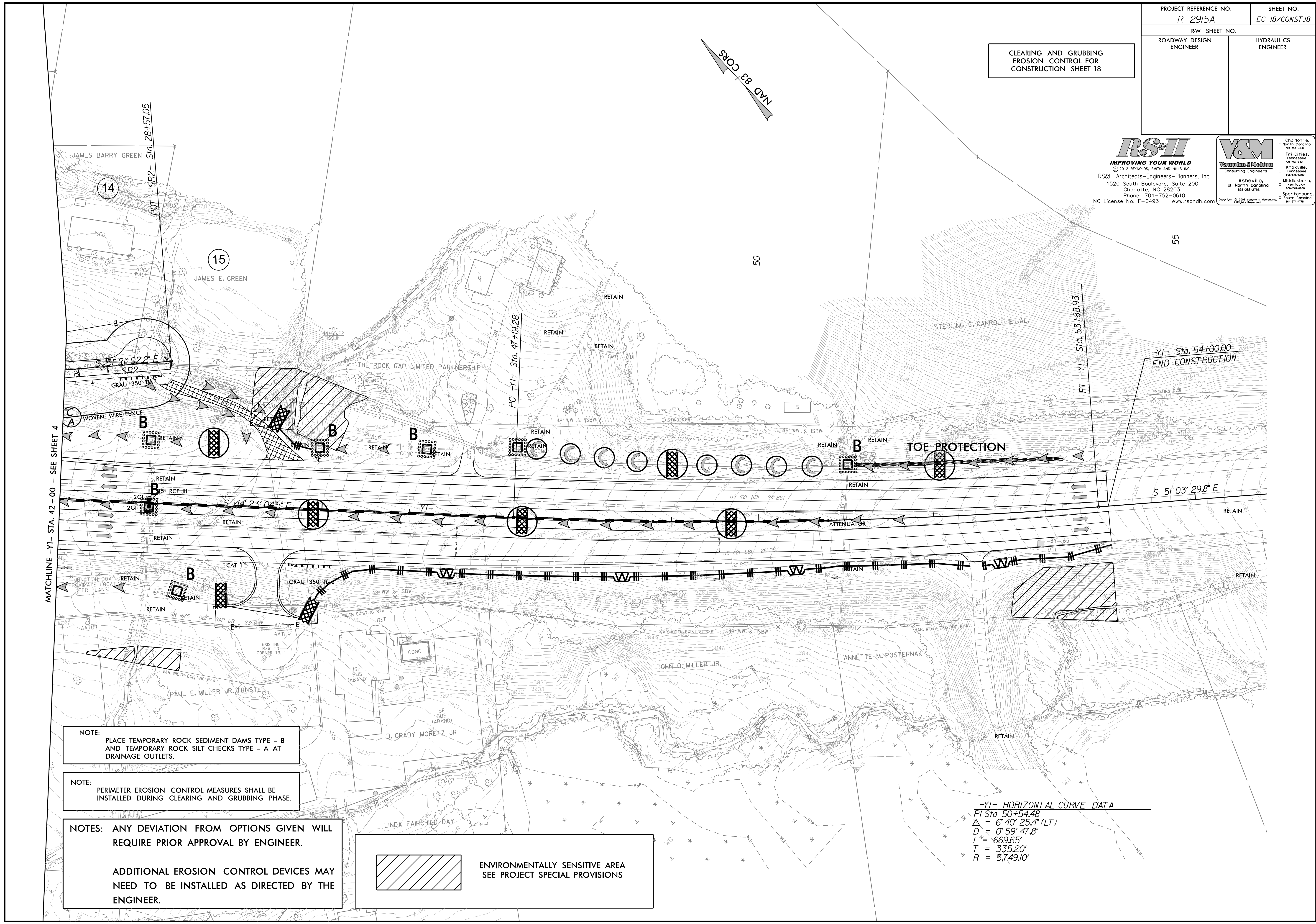
SEE SHEET 41 FOR -YI- PROFILE

PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-18/CONST JB
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 18

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NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY
NEED TO BE INSTALLED AS DIRECTED BY THE
ENGINEER.

 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

-YI- HORIZONTAL CURVE DATA
PI Sta 50+54.48
 $\Delta = 6^\circ 40' 25.4" (LT)$
 $D = 0^\circ 59' 47.8"$
 $L = 669.65'$
 $T = 335.20'$
 $R = 5,749.10'$

\$DATE\$

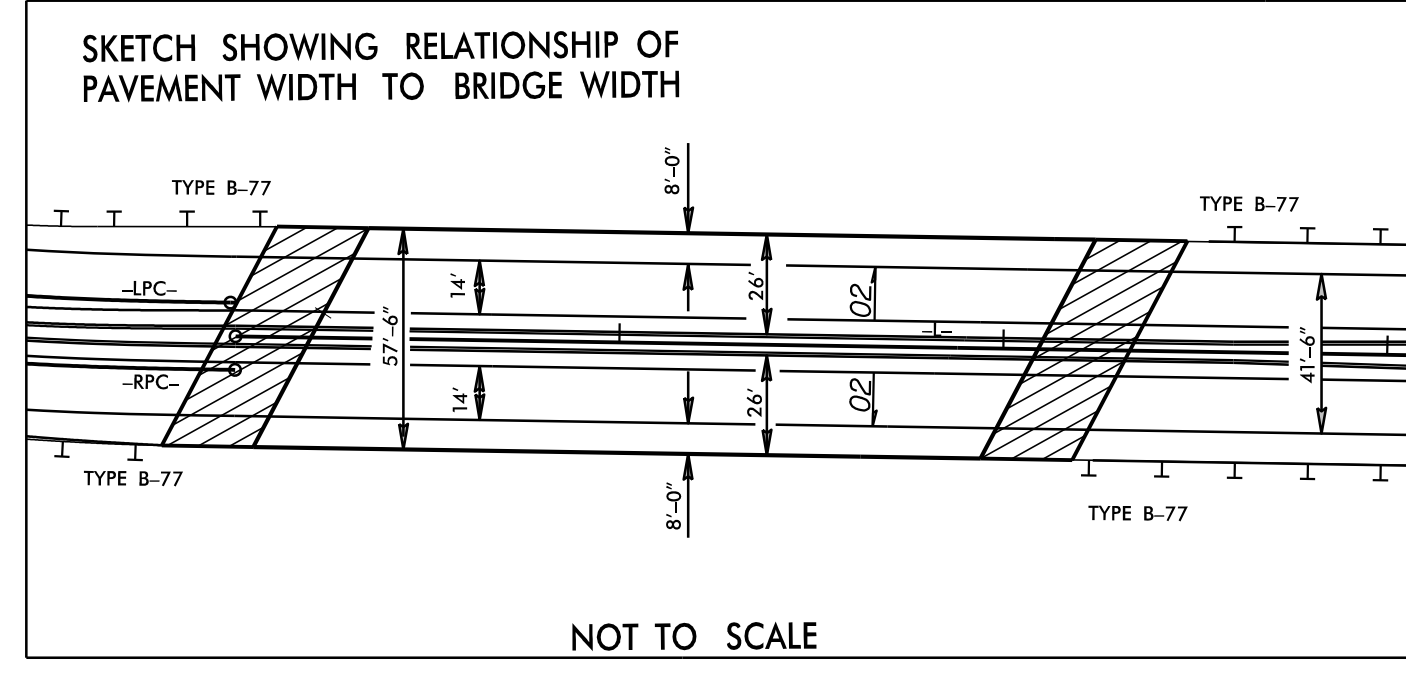
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20,110	9750	12,110
33,400	16600	20,400
US 421	-Y1-	-L-
	2230	US 221
	3800	
YR 2015	12,600	
YR 2035	20,600	

INSTALL MATTING FOR EROSION CONTROL ON SLOPES AS WORK ALLOWS:
 STA 9+00 to STA 18+00 -RPC- RT
 STA 5+00 to STA 18+00 -LPC- LT
 STA 26+00 to STA 42+00 -Y1- RT
 STA 12+00 to STA 42+00 -Y1- LT
 STA 9+00 to STA 15+00 -RPA- LT
 STA 5+00 to STA 20+00 -RPB- LT
 STA 21+38 to STA 30+00 -L- RT
 STA 26+00 to STA 30+00 -L- LT

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

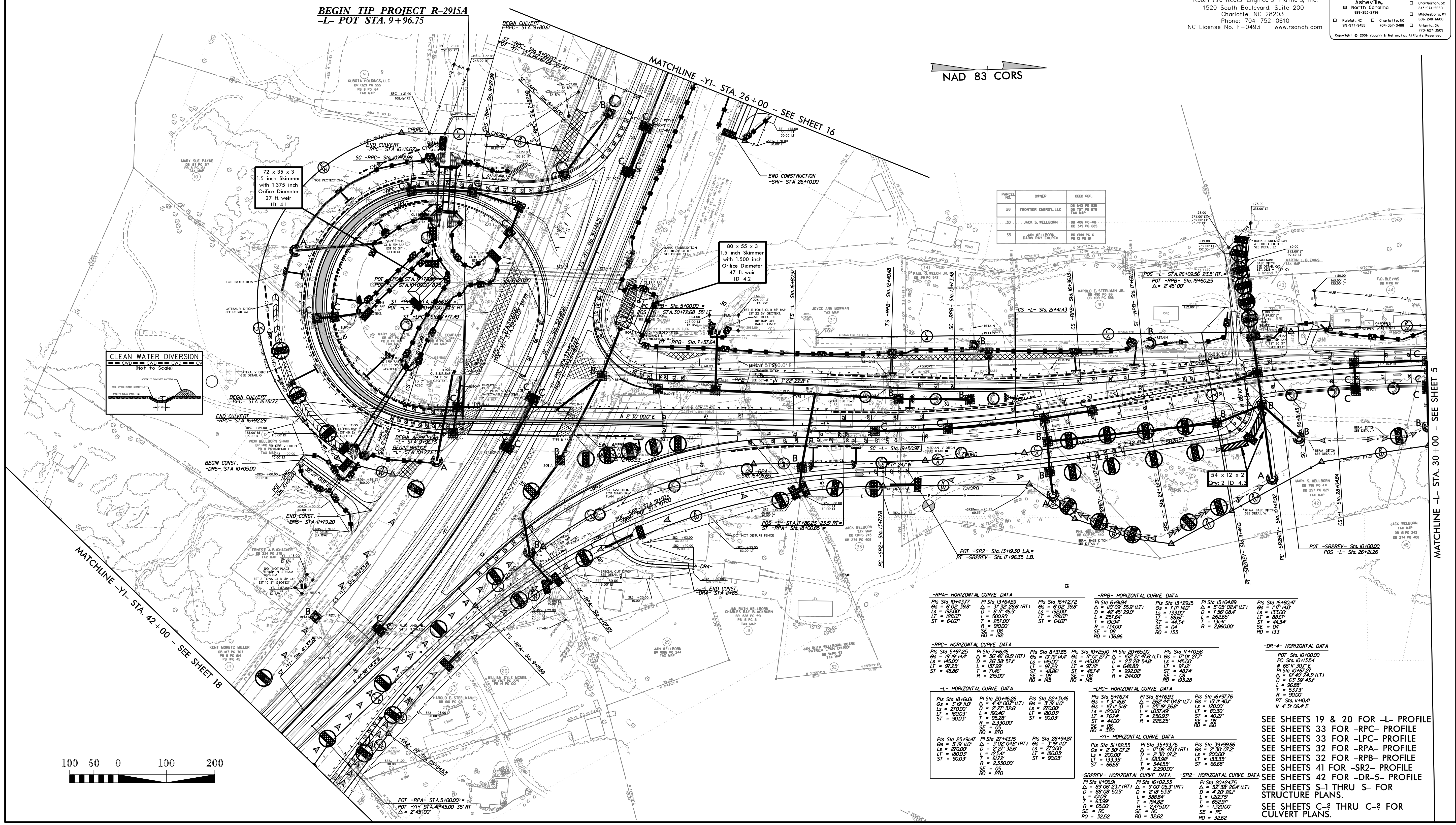


PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-19/CONST.04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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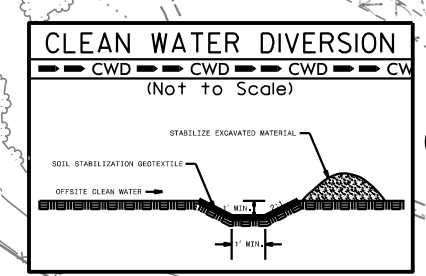
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PARCEL NO.	OWNER	DEED REF.
28	FRONTIER ENERGY, LLC	DB 508 PG 885 DB 707 PG 879 T&M MAP
30	JACK S. WELBORN	DB 406 PG 86 DB 349 PG 845
33	JAN WELBORN DANIEL REY CHURCH	BR 1544 PG 6 PB 13 PG 8

NAD 83 CORS



-RPA- HORIZONTAL CURVE DATA				-RPB- HORIZONTAL CURVE DATA				-RPC- HORIZONTAL CURVE DATA				-L- HORIZONTAL CURVE DATA				-LPC- HORIZONTAL CURVE DATA				-SR2REV- HORIZONTAL CURVE DATA								
PI Sta 10+43.77	PI Sta 13+64.99	PI Sta 16+17.272	PI Sta 16+104.89	PI Sta 16+19.295	PI Sta 17+20.58	PI Sta 16+16.00	PI Sta 17+40.00	PI Sta 5+57.25	PI Sta 7+16.46	PI Sta 10+25.00	PI Sta 20+45.00	PI Sta 17+40.58	PI Sta 16+16.00	PI Sta 17+40.00	PI Sta 16+16.00	PI Sta 17+40.00	PI Sta 16+16.00	PI Sta 17+40.00	PI Sta 16+16.00	PI Sta 17+40.00	PI Sta 16+16.00	PI Sta 17+40.00	PI Sta 16+16.00	PI Sta 17+40.00	PI Sta 16+16.00	PI Sta 17+40.00	PI Sta 16+16.00	PI Sta 17+40.00
OS = 6.02 39.8'	OS = 3.73 28.5' (RT)	OS = 5.02 35.8'	OS = 1.71 14.0'	OS = 5.05 22.4' (LT)	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	OS = 1.00 27.7'	
LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00	LS = 182.00
L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00	L = 120.00
T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00	T = 257.00
SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8	SE = 0.8
R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56	R = 136.56



DATE\$
 \$DATE\$

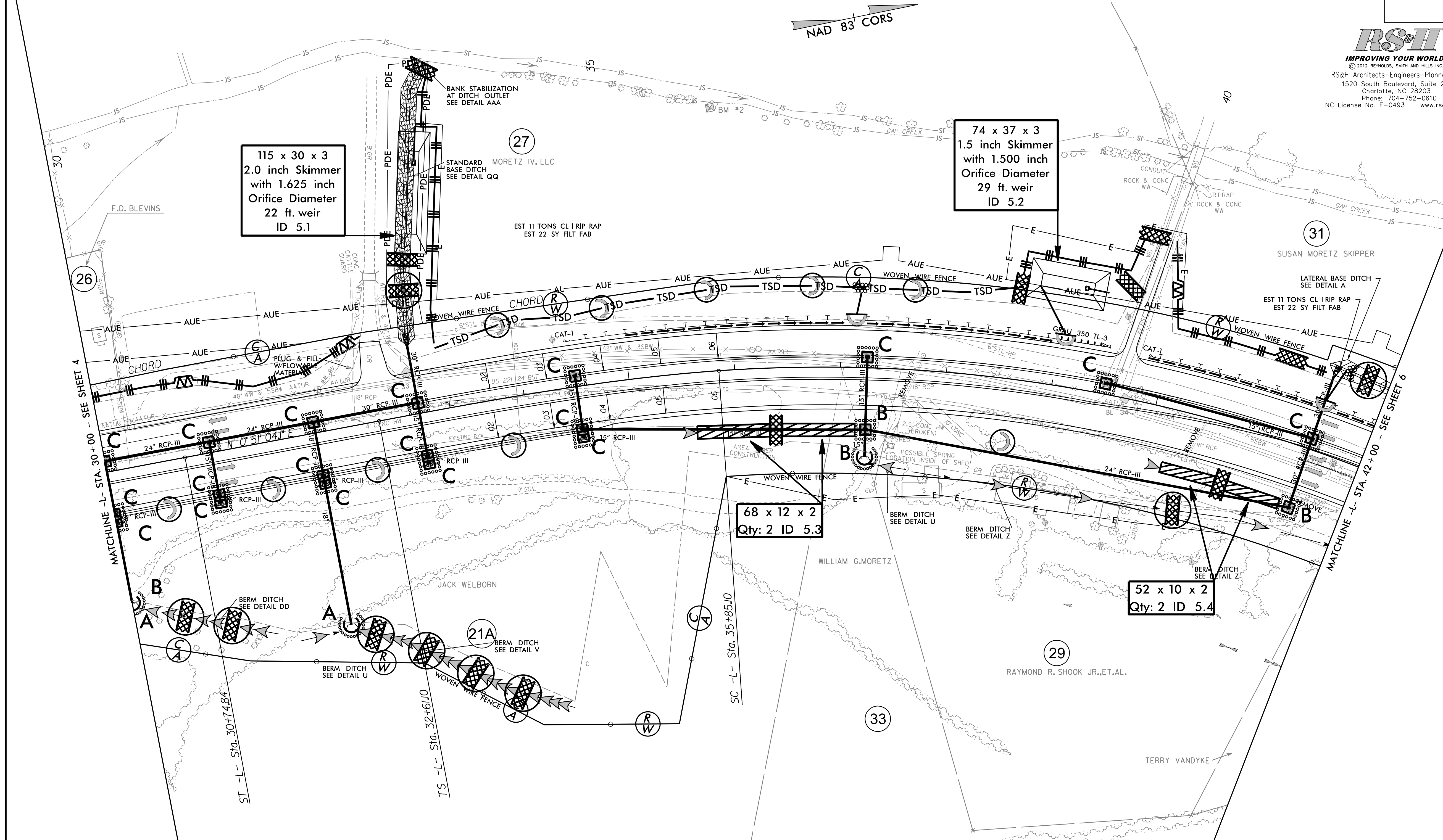
INSTALL MATTING FOR EROSION CONTROL
ON SLOPES AS WORK ALLOWS:
STA 30+00 to STA 35+00 -L- RT
STA 30+00 to STA 42+00 -L- LT

INSTALL MATTING FOR
EROSION CONTROL IN THE
PROPOSED DITCH LINE.

PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-20/CONST.05
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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828-253-2796
Spartanburg, South Carolina
864-534-6773



-L- HORIZONTAL CURVE DATA

PI Sta 27+43.15	PIs Sta 28+94.87	PIs Sta 34+77.26	PI Sta 40+73.85	PIs Sta 46+33.70
$\Delta = 3^{\circ} 02' 04.8''$ (RT)	$\Theta_s = 3^{\circ} 19' 11.0''$	$\Theta_s = 6^{\circ} 37' 47.8''$	$\Delta = 38^{\circ} 29' 20.0''$ (RT)	$\Theta_s = 6^{\circ} 37' 47.8''$
$D = 2^{\circ} 27' 32.6''$	$L_s = 270.00'$	$L_s = 324.00'$	$D = 4^{\circ} 05' 33.2''$	$L_s = 324.00'$
$L = 123.41'$	$LT = 180.03'$	$LT = 216.15'$	$L = 940.46'$	$LT = 216.15'$
$T = 61.72'$	$ST = 90.03'$	$ST = 108.14'$	$T = 488.75'$	$ST = 108.14'$
$R = 2,330.00'$			$R = 1,400.00'$	
$SE = 06$			$S = 0.06$	
$RO = 216$				

SEE SHEET 21 FOR -L- PROFILE

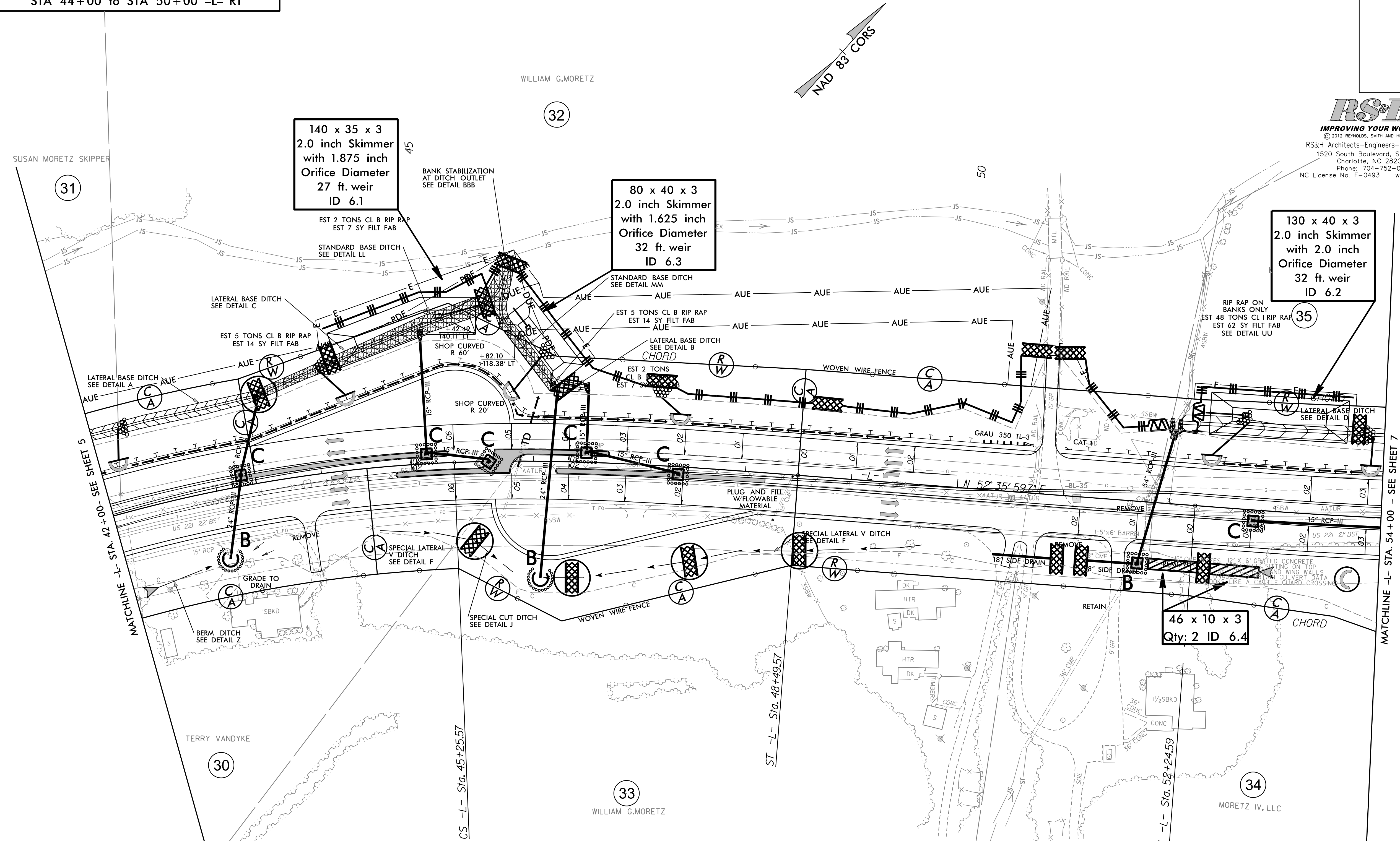
PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-21/CONST.06
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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INSTALL MATTING FOR EROSION CONTROL ON SLOPES AS WORK ALLOWS:
 STA 42+00 to STA 54+00 -L- LT
 STA 44+00 to STA 50+00 -L- RT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.



-L- HORIZONTAL CURVE DATA

Pls Sta 34+77.26 Os = 6' 37' 47.8" Ls = 324.00' LT = 216.15' ST = 108.14'	Pls Sta 40+73.85 Δ = 38' 29' 20.0" (RT) D = 4' 05' 33.2" L = 940.46' T = 488.75' R = 1,400.00' SE = 06 RO = 324	Pls Sta 46+33.70 Os = 6' 37' 47.8" Ls = 324.00' LT = 216.15' ST = 108.14'
Pls Sta 54+40.72 Os = 6' 11' 16.6" Ls = 324.00' LT = 216.13' ST = 108.12'	Pls Sta 56+67.67 Δ = 9' 04' 42.1" (LT) D = 3' 49' 11.0" L = 237.67' T = 119.08' R = 1,500.00' SE = 06 RO = 237.67	Pls Sta 58+94.38 Os = 6' 11' 16.6" Ls = 324.00' LT = 216.13' ST = 108.12'

\$FILE\$
\$DATE\$

SEE SHEET 22 FOR -L- PROFILE

11957 20266	US 421	-L-	11957 20266
66 99		66 99	
	SR 1360	-Y2-	
YR 2015	130		
YR 2035	200		

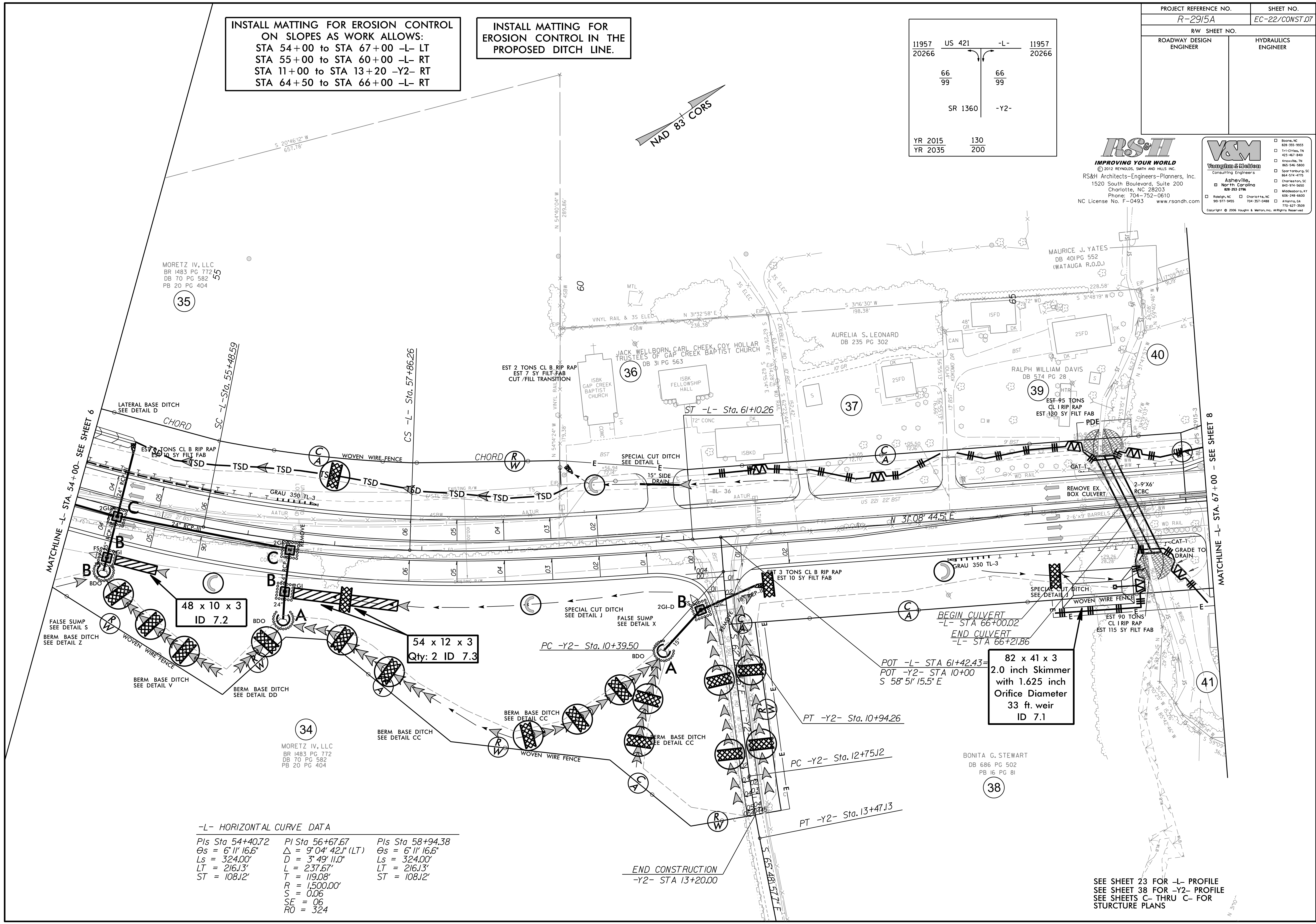
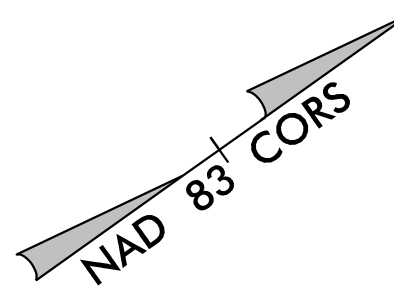
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INSTALL MATTING FOR EROSION CONTROL ON SLOPES AS WORK ALLOWS:
 STA 54+00 to STA 67+00 -L- LT
 STA 55+00 to STA 60+00 -L- RT
 STA 11+00 to STA 13+20 -Y2- RT
 STA 64+50 to STA 66+00 -L- RT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.



-L- HORIZONTAL CURVE DATA

PIs Sta 54+40.72	PI Sta 56+67.67	PIs Sta 58+94.38
$\Theta_s = 6' 11'' 16.6''$	$\Delta = 9' 04'' 42.1'' (LT)$	$\Theta_s = 6' 11'' 16.6''$
$L_s = 324.00'$	$D = 3' 49'' 11.0''$	$L_s = 324.00'$
$LT = 216.13'$	$L = 237.67'$	$LT = 216.13'$
$ST = 108.12'$	$T = 119.08'$	$ST = 108.12'$
	$R = 1,500.00'$	
	$S = 0.06$	
	$SE = 06$	
	$RO = 324$	

SEE SHEET 23 FOR -L- PROFILE
 SEE SHEET 38 FOR -Y2- PROFILE
 SEE SHEETS C- THRU C- FOR
 STRUCTURE PLANS

\$DATE\$

INSTALL MATTING FOR EROSION CONTROL
ON SLOPES AS WORK ALLOWS:
STA 67+00 to STA 77+00 -L- LT
STA 79+00 to STA 81+00 -L- LT

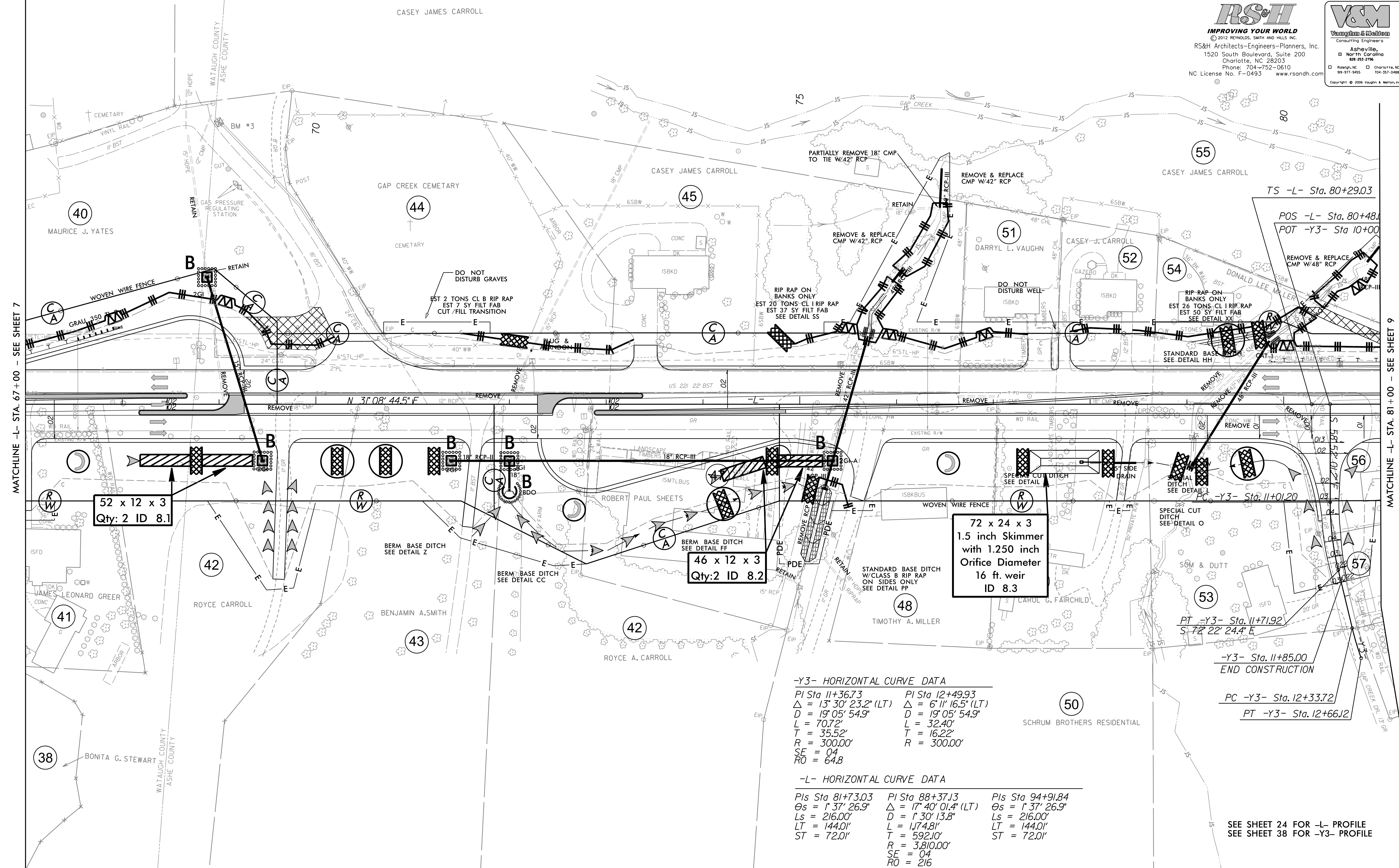
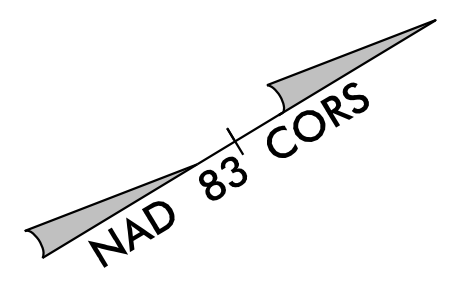
INSTALL MATTING FOR EROSION CONTROL IN THE
PROPOSED DITCH LINE.

PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-23/CONST.08
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE -L- STA. 67+00 - SEE SHEET 7

MATCHLINE -L- STA. 81+00 - SEE SHEET 9

52 x 12 x 3
Qty: 2 ID 8.1

46 x 12 x 3
Qty: 2 ID 8.2

72 x 24 x 3
1.5 inch Skimmer
with 1.250 inch
Orifice Diameter
16 ft. weir
ID 8.3

-Y3- HORIZONTAL CURVE DATA

PI Sta 11+36.73	PI Sta 12+49.93
$\Delta = 13^{\circ} 30' 23.2''$ (LT)	$\Delta = 6^{\circ} 11' 16.5''$ (LT)
$D = 19^{\circ} 05' 54.9''$	$D = 19^{\circ} 05' 54.9''$
$L = 70.72'$	$L = 32.40'$
$T = 35.52'$	$T = 16.22'$
$R = 300.00'$	$R = 300.00'$
$SE = 04$	
$RO = 64.8$	

-L- HORIZONTAL CURVE DATA

PIs Sta 81+73.03	PI Sta 88+37.13	PIs Sta 94+91.84
$\Delta_s = 1^{\circ} 37' 26.9''$	$\Delta = 17^{\circ} 40' 01.4''$ (LT)	$\Delta_s = 1^{\circ} 37' 26.9''$
$L_s = 216.00'$	$D = 1^{\circ} 30' 13.8''$	$L_s = 216.00'$
$LT = 144.01'$	$L = 117.481'$	$LT = 144.01'$
$ST = 72.01'$	$T = 59.210'$	$ST = 72.01'$
	$R = 3,810.00'$	
	$SE = 04$	
	$RO = 216$	

SEE SHEET 24 FOR -L- PROFILE
SEE SHEET 38 FOR -Y3- PROFILE

FILE\$
DATE\$

INSTALL MATTING FOR EROSION CONTROL
ON SLOPES AS WORK ALLOWS:
STA 81+00 to STA 82+00 -L- LT
STA 85+00 to STA 89+00 -L- RT
STA 90+00 to STA 94+00 -L- LT

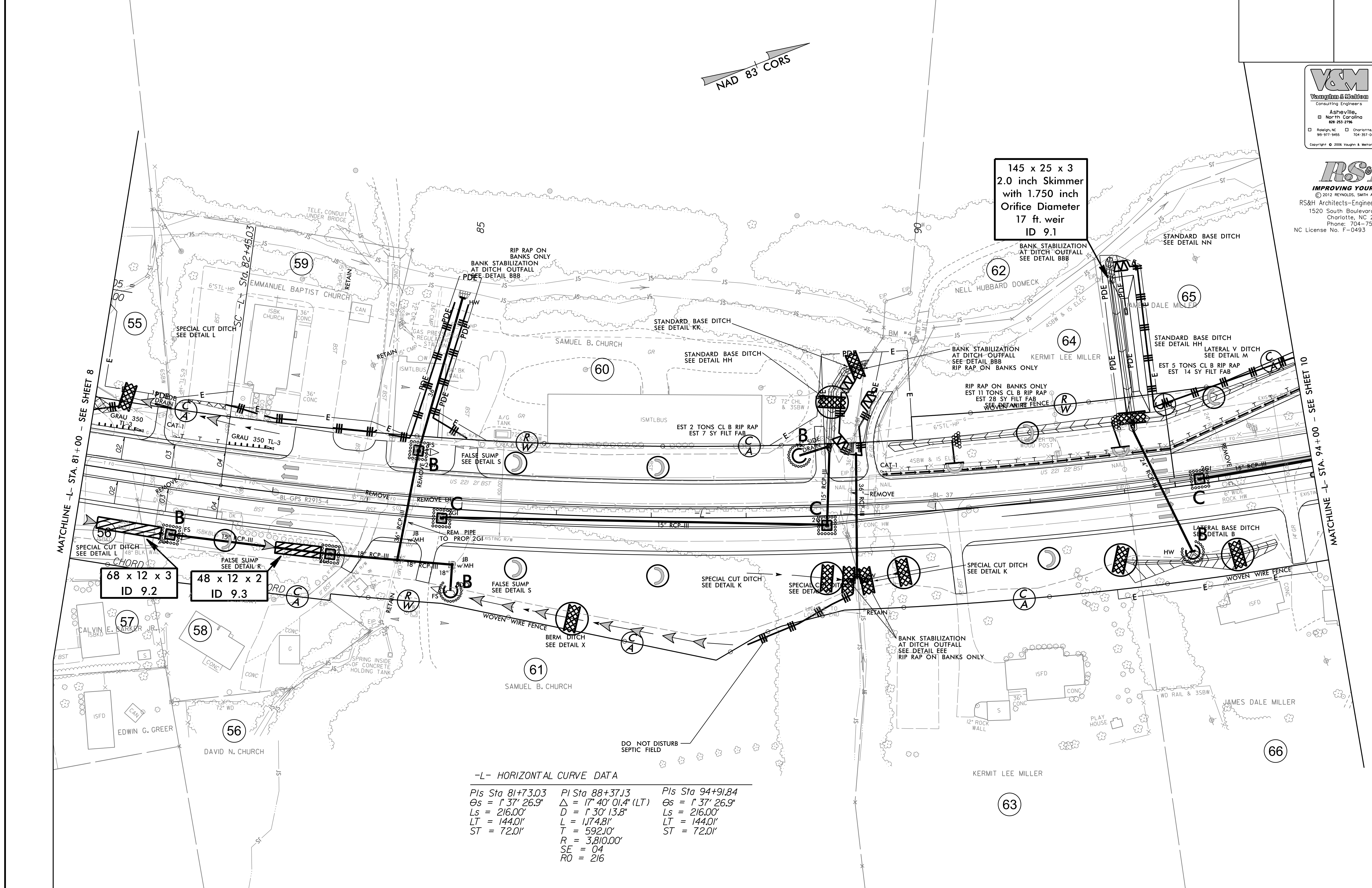
INSTALL MATTING FOR
EROSION CONTROL IN THE
PROPOSED DITCH LINE.

PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-24/CONST.09</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE -L- STA. 81+00 - SEE SHEET 8

MATCHLINE -L- STA. 94+00 - SEE SHEET 10

68 x 12 x 3
ID 9.2

48 x 12 x 2
ID 9.3

145 x 25 x 3
2.0 inch Skimmer
with 1.750 inch
Orifice Diameter
17 ft. weir
ID 9.1

-L- HORIZONTAL CURVE DATA

Pis Sta 81+73.03	Pi Sta 88+37.13	Pis Sta 94+91.84
$\Delta s = 1^\circ 37' 26.9''$	$\Delta = 17^\circ 40' 01.4''$ (LT)	$\Delta s = 1^\circ 37' 26.9''$
$L_s = 216.00'$	$D = 1^\circ 30' 13.8''$	$L_s = 216.00'$
$LT = 144.01'$	$L = 1,174.81'$	$LT = 144.01'$
$ST = 72.01'$	$T = 592.10'$	$ST = 72.01'$
	$R = 3,810.00'$	
	$SE = 04$	
	$RO = 216$	

FILE\$
DATE\$

SEE SHEET 25 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-25/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INSTALL MATTING FOR EROSION CONTROL ON SLOPES AS WORK ALLOWS: STA 94+00 TO STA 106+00 -L- LT

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

$L_s = 216.00'$
 $LT = 144.01'$
 $ST = 72.01'$

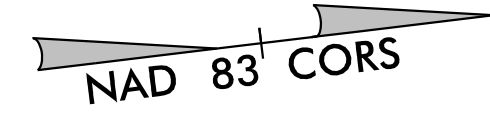
$L_s = 216.00'$
 $LT = 144.01'$
 $ST = 72.01'$

$L_s = 216.00'$
 $LT = 144.01'$
 $ST = 72.01'$

$PI Sta 100+20.16$
 $\Delta = 1^\circ 35' 48.8"$
 $D = 1740.014 (LT)$
 $L = 117$
 $T = 59$
 $R = 3$
 $SE = 1$
 $RO = 1$

$PI Sta 103+87.82$
 $\Delta = 8^\circ 43' 36.2" (LT)$
 $D = 128' 43.0"$
 $L = 590.20'$
 $T = 295.67'$
 $R = 3,875.00'$
 $SE = 04$
 $RO = 590.2$

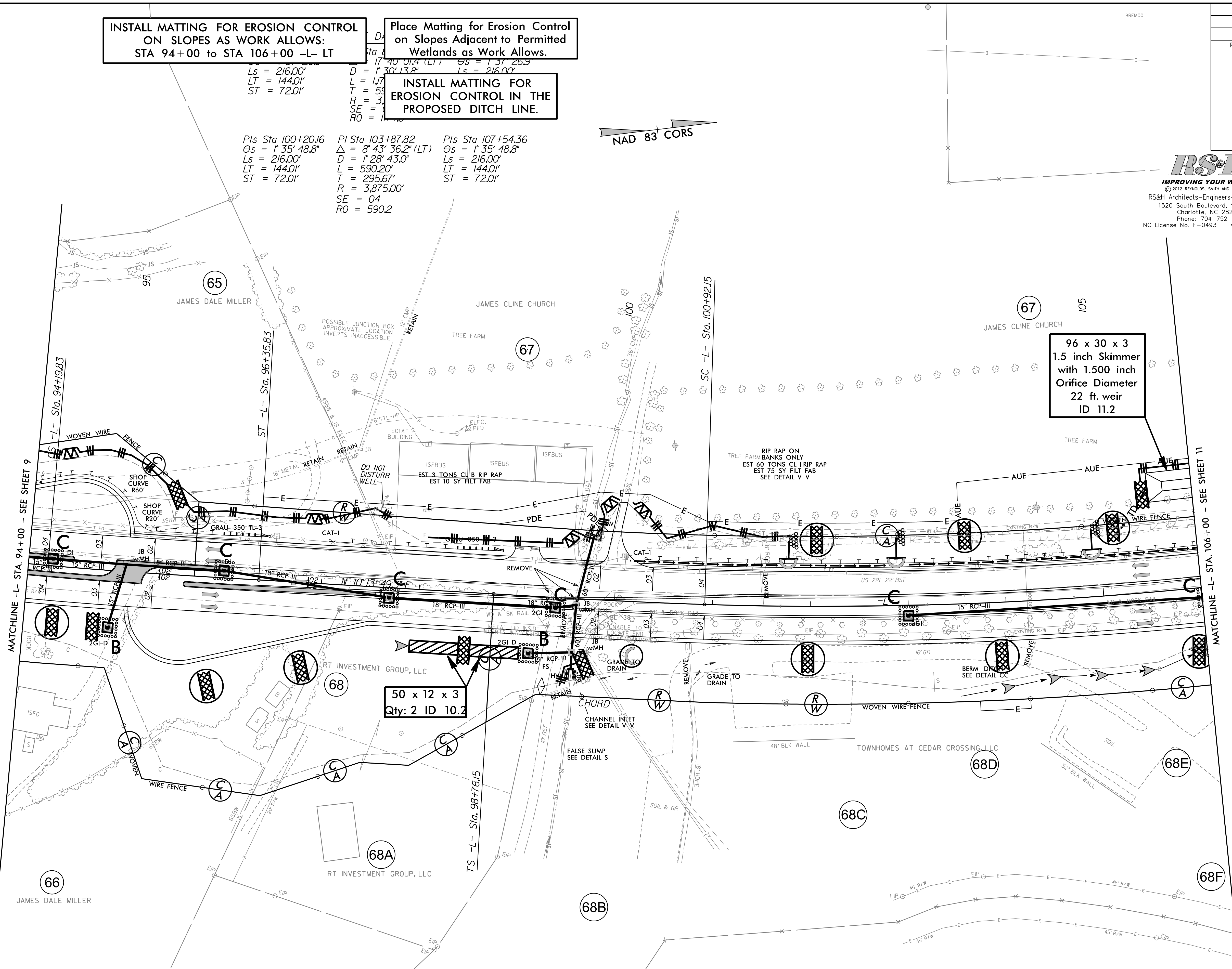
$PI Sta 107+54.36$
 $\Delta = 1^\circ 35' 48.8"$
 $D = 1740.014 (LT)$
 $L = 117$
 $T = 59$
 $R = 3$
 $SE = 1$
 $RO = 1$



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96 x 30 x 3
 1.5 inch Skimmer
 with 1.500 inch
 Orifice Diameter
 22 ft. weir
 ID 11.2

50 x 12 x 3
 Qty: 2 ID 10.2

66 JAMES DALE MILLER

65 JAMES DALE MILLER

67 JAMES CLINE CHURCH

67 JAMES CLINE CHURCH

68 RT INVESTMENT GROUP, LLC

68C TOWNHOMES AT CEDAR CROSSING, LLC

68D

68E

68F

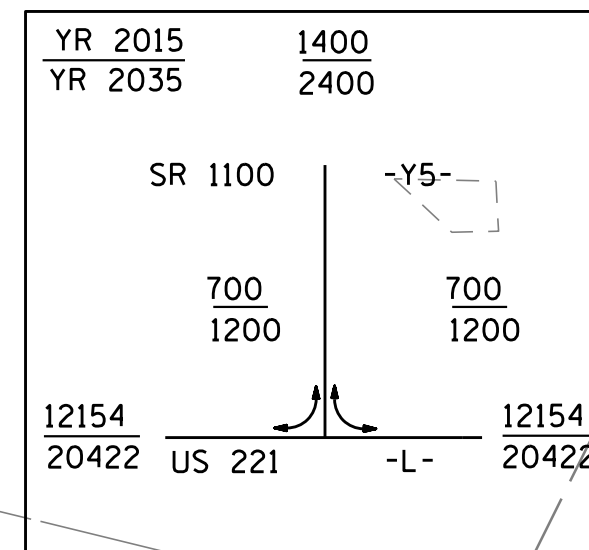
68B

\$DATE\$

SEE SHEET 26 FOR -L- PROFILE

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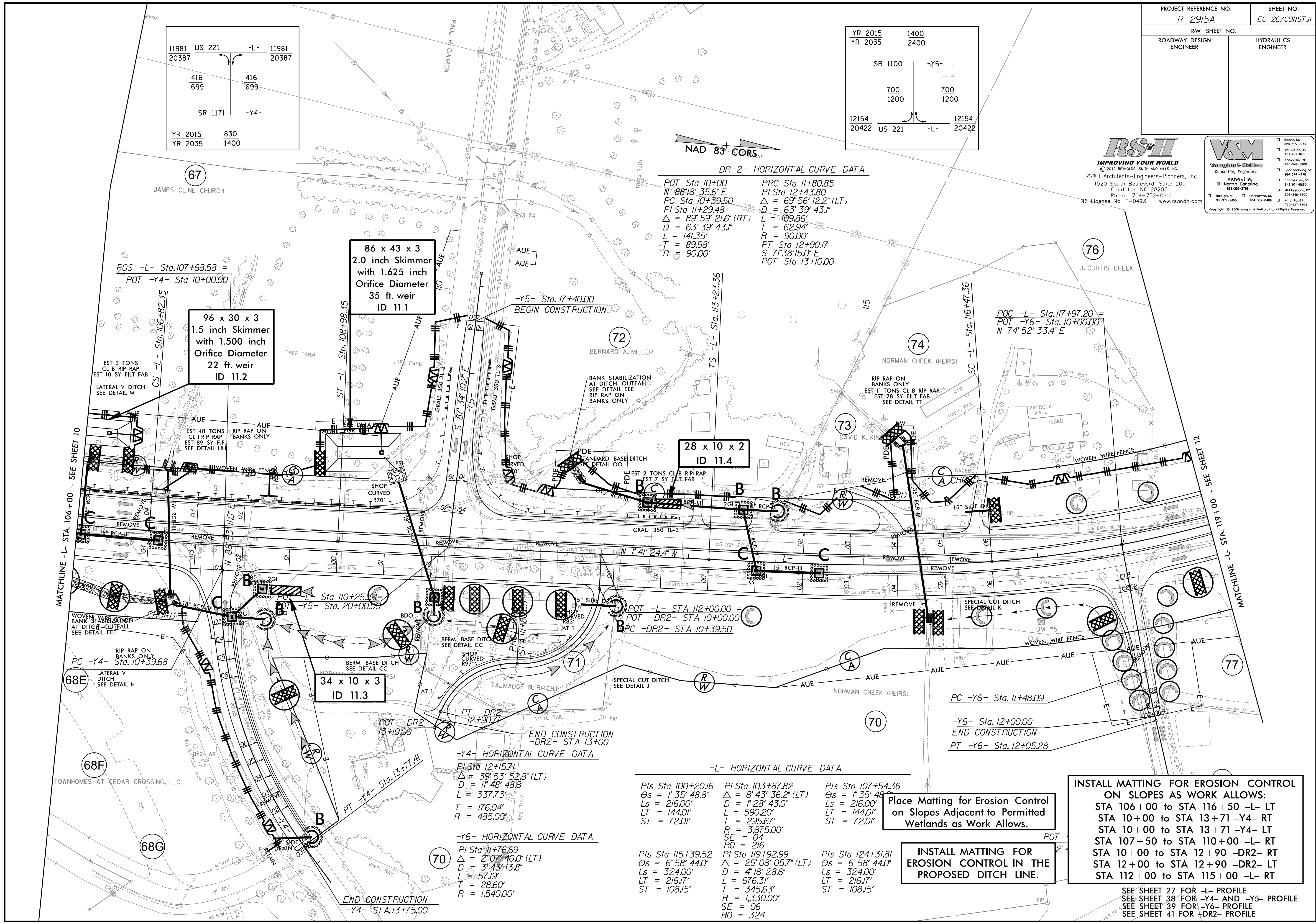
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-DR-2- HORIZONTAL CURVE DATA

POT Sta 10+00	PRC Sta 11+80.85
N 88°18'35.6" E	PI Sta 12+43.80
PC Sta 10+39.50	Δ = 69°56'12.2" (LT)
PI Sta 11+29.48	D = 63°39'43.1"
Δ = 89°59'21.6" (RT)	L = 109.86'
D = 63°39'43.1"	T = 62.94'
L = 141.35'	R = 90.00'
T = 89.98'	PT Sta 12+90.17
R = 90.00'	POT Sta 13+10.00

11981 US 221	-L-	11981
20387		20387
416		416
699		699
SR 1171	-Y4-	
YR 2015		830
YR 2035		1400



POS -L- Sta. 107+68.58 =
 POT -Y4- Sta 10+00.00

96 x 30 x 3
 1.5 inch Skimmer
 with 1.500 inch
 Orifice Diameter
 22 ft. weir
 ID 11.2

86 x 43 x 3
 2.0 inch Skimmer
 with 1.625 inch
 Orifice Diameter
 35 ft. weir
 ID 11.1

28 x 10 x 2
 ID 11.4

34 x 10 x 3
 ID 11.3

-Y4- HORIZONTAL CURVE DATA

PI Sta 12+15.71
Δ = 39°53'52.8" (LT)
D = 1°48'48.8"
L = 337.73'
T = 176.04'
R = 485.00'

-Y6- HORIZONTAL CURVE DATA

PI Sta 11+76.69
Δ = 2°07'40.0" (LT)
D = 3°43'13.8"
L = 57.19'
T = 28.60'
R = 1,540.00'

-L- HORIZONTAL CURVE DATA

PIs Sta 100+20.16	PI Sta 103+87.82	PIs Sta 107+54.36
Os = 1°35'48.8"	Δ = 8°43'36.2" (LT)	Os = 1°35'48.8"
Ls = 216.00'	D = 1°28'43.0"	Ls = 216.00'
LT = 144.01'	L = 590.20'	LT = 144.01'
ST = 72.01'	T = 295.67'	ST = 72.01'
	R = 3,875.00'	
	SE = 04	
	RO = 216	

PIs Sta 115+39.52	PI Sta 119+92.99	PIs Sta 124+31.81
Os = 6°58'44.0"	Δ = 29°08'05.7" (LT)	Os = 6°58'44.0"
Ls = 324.00'	D = 4°18'28.6"	Ls = 324.00'
LT = 216.17'	L = 676.31'	LT = 216.17'
ST = 108.15'	T = 345.63'	ST = 108.15'
	R = 1,330.00'	
	SE = 06	
	RO = 324	

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

INSTALL MATTING FOR EROSION CONTROL ON SLOPES AS WORK ALLOWS:
 STA 106+00 to STA 116+50 -L- LT
 STA 10+00 to STA 13+71 -Y4- RT
 STA 10+00 to STA 13+71 -Y4- LT
 STA 107+50 to STA 110+00 -L- RT
 STA 10+00 to STA 12+90 -DR2- RT
 STA 12+00 to STA 12+90 -DR2- LT
 STA 112+00 to STA 115+00 -L- RT

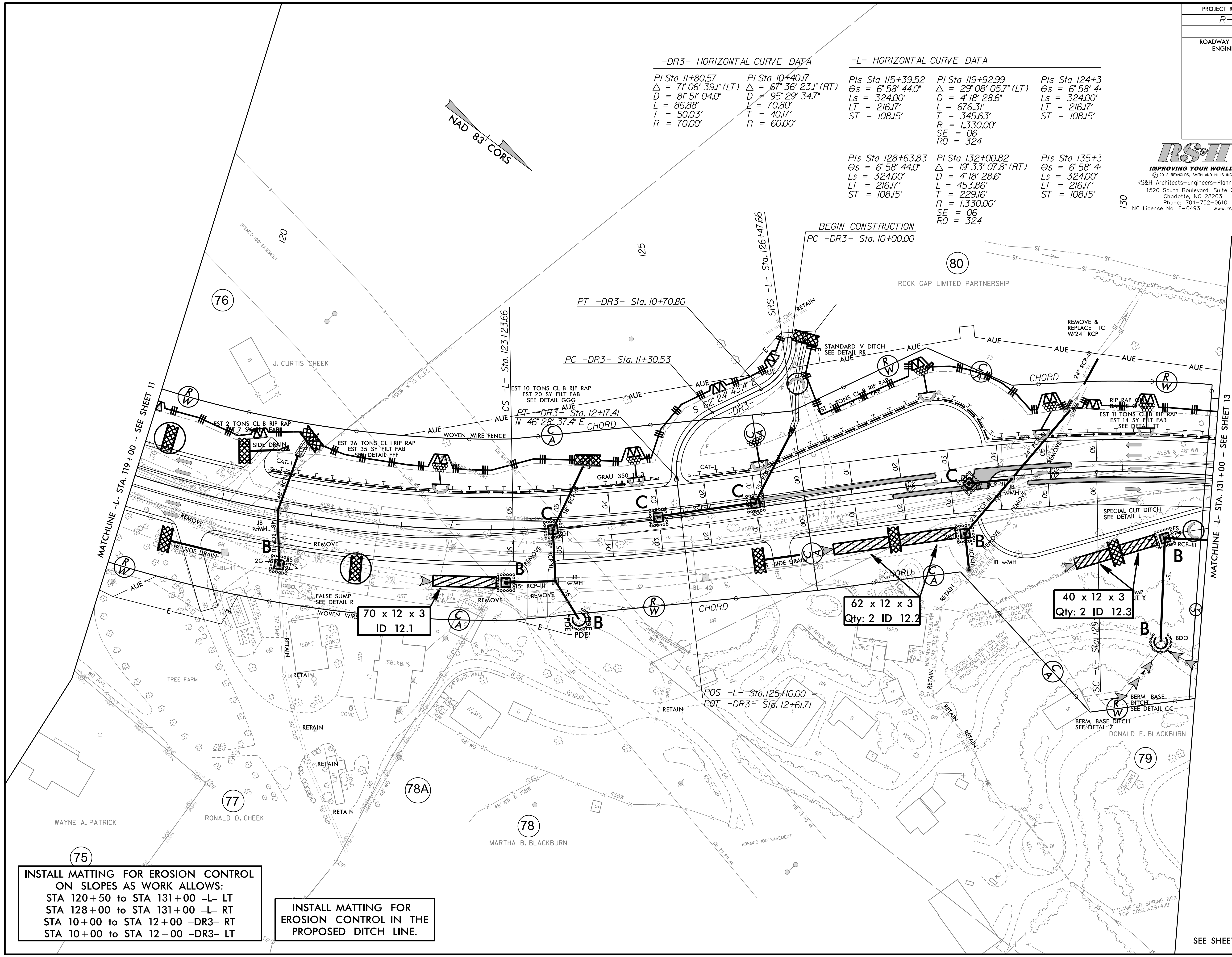
SEE SHEET 27 FOR -L- PROFILE
 SEE SHEET 38 FOR -Y4- AND -Y5- PROFILE
 SEE SHEET 39 FOR -Y6- PROFILE
 SEE SHEET 41 FOR -DR2- PROFILE

DATE: \$
 FILE: \$

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Asheville, North Carolina
828-253-2796

-DR3- HORIZONTAL CURVE DATA		-L- HORIZONTAL CURVE DATA	
PI Sta 11+80.57	PI Sta 10+40.17	PIs Sta 115+39.52	PI Sta 119+92.99
$\Delta = 71^{\circ} 06' 39.1"$ (LT)	$\Delta = 67^{\circ} 36' 23.1"$ (RT)	$\Theta_s = 6^{\circ} 58' 44.0"$	$\Delta = 29^{\circ} 08' 05.7"$ (LT)
D = 81' 51" 04.0"	D = 95' 29" 34.7"	Ls = 324.00'	D = 4' 18" 28.6"
L = 86.88'	L = 70.80'	LT = 216.17'	L = 676.31'
T = 50.03'	T = 40.17'	ST = 108.15'	T = 345.63'
R = 70.00'	R = 60.00'		R = 1,330.00'
			SE = 06
			RO = 324



75

INSTALL MATTING FOR EROSION CONTROL ON SLOPES AS WORK ALLOWS:
 STA 120+50 to STA 131+00 -L- LT
 STA 128+00 to STA 131+00 -L- RT
 STA 10+00 to STA 12+00 -DR3- RT
 STA 10+00 to STA 12+00 -DR3- LT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

70 x 12 x 3
ID 12.1

62 x 12 x 3
Qty: 2 ID 12.2

40 x 12 x 3
Qty: 2 ID 12.3

\$DATE\$

PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-28/CONST.13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-L- HORIZONTAL CURVE DATA

Pls Sta 128+63.83 Δs = 6° 58' 44.0" Ls = 324.00' LT = 216.17' ST = 108.15'	PI Sta 132+00.82 Δ = 19° 33' 07.8" (RT) D = 4° 18' 28.6" L = 453.86' T = 229.16' R = 1,330.00' SE = 06 RO = 324	Pls Sta 135+33.68 Δs = 6° 58' 44.0" Ls = 324.00' LT = 216.17' ST = 108.15'
--	--	--

-DRI- HORIZONTAL CURVE DATA

PI Sta 10+80.99 Δ = 7° 21' 18.9" (LT) D = 4° 32' 50.2" L = 161.75' T = 80.99' R = 1,260.00'
--

-Y7- HORIZONTAL CURVE DATA

PI Sta 10+79.52 Δ = 76° 24' 23.8" (LT) D = 114° 35' 29.6" L = 66.68' T = 39.35' R = 50.00' SE = 06 RO = 64.2	PI Sta 12+15.23 Δ = 79° 45' 39.9" (RT) D = 70° 44' 07.9" L = 112.76' T = 67.68' R = 81.00' SE = 06 RO = 64.2	PI Sta 13+78.99 Δ = 96° 16' 39.0" (LT) D = 70° 44' 07.9" L = 136.11' T = 90.40' R = 81.00' SE = 06 RO = 64.2
---	---	---

(80)
 ROCK GAP LIMITED PARTNERSHIP

(83)
 ARLETTE E. HEMPEN
 JOYCE A. CHASTANG

(89)
 LARRY KEITH BLACKBURN

90 x 35 x 3
 2.0 inch Skimmer
 with 1.625 inch
 Orifice Diameter
 27 ft. weir
 ID 13.3

60 x 29 x 3
 1.5 inch Skimmer
 with 1.250 inch
 Orifice Diameter
 21 ft. weir
 ID 13.2

74 x 30 x 3
 1.5 inch Skimmer
 with 1.250 inch
 Orifice Diameter
 22 ft. weir
 ID 13.1

70 x 12 x 2
 ID 13.6

68 x 12 x 2
 ID 13.7

70 x 12 x 2
 ID 13.5

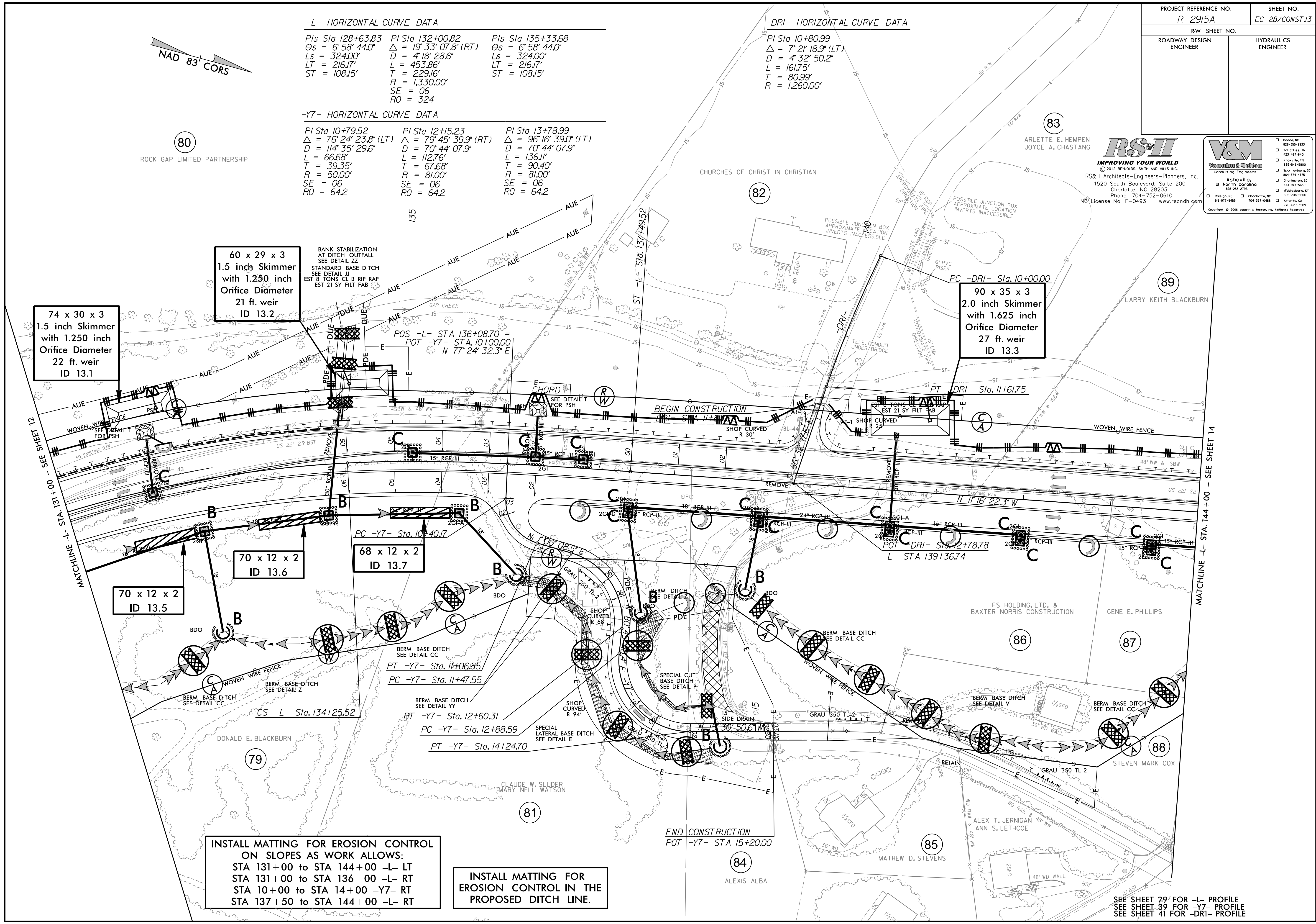
INSTALL MATTING FOR EROSION CONTROL
 ON SLOPES AS WORK ALLOWS:
 STA 131+00 to STA 144+00 -L- LT
 STA 131+00 to STA 136+00 -L- RT
 STA 10+00 to STA 14+00 -Y7- RT
 STA 137+50 to STA 144+00 -L- RT

INSTALL MATTING FOR
 EROSION CONTROL IN THE
 PROPOSED DITCH LINE.

SEE SHEET 29 FOR -L- PROFILE
 SEE SHEET 39 FOR -Y7- PROFILE
 SEE SHEET 41 FOR -DRI- PROFILE

\$DATE\$

\$FILE\$



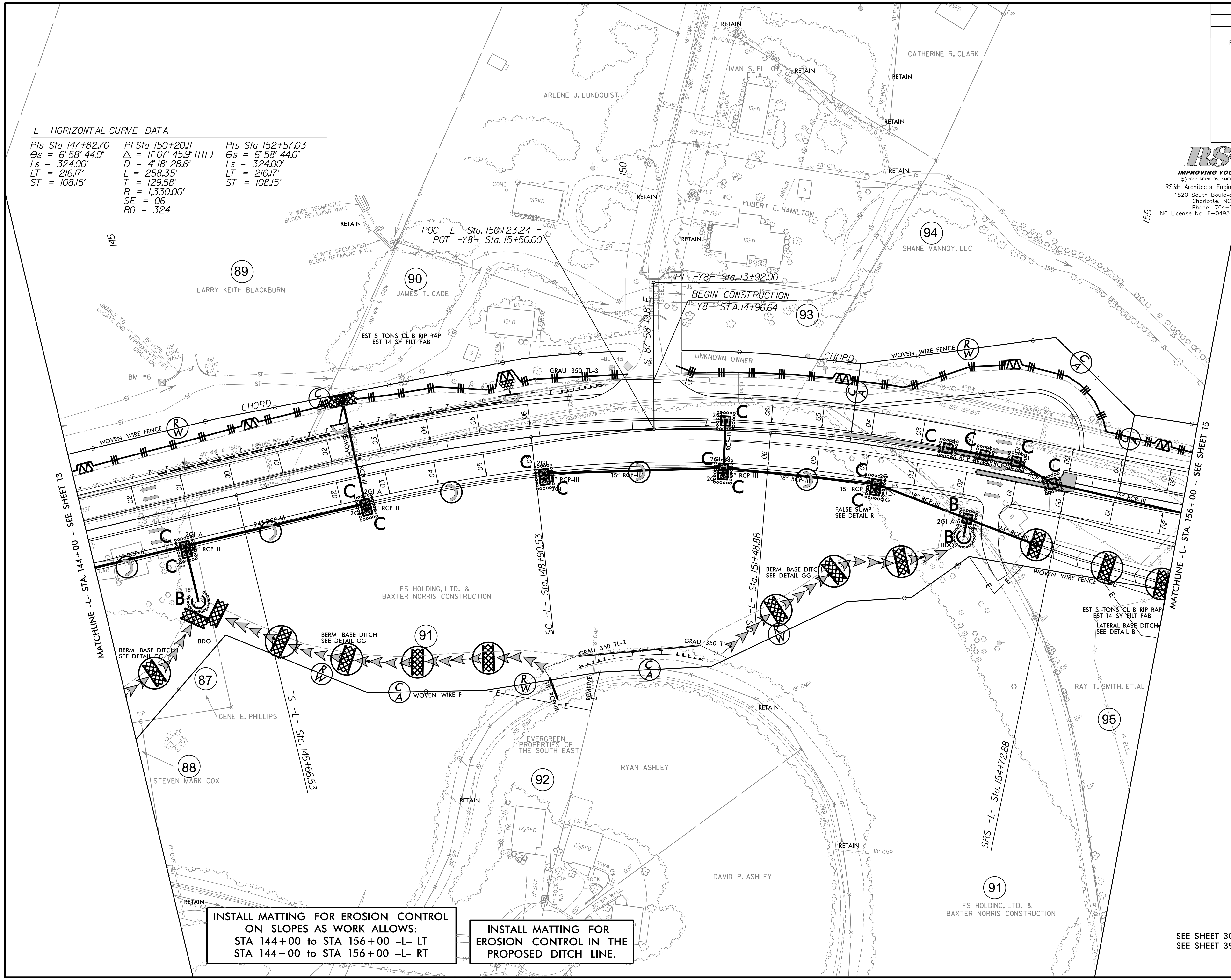
PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-29/CONST.14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-L- HORIZONTAL CURVE DATA

PIs Sta 147+82.70	PI Sta 150+20.11	PIs Sta 152+57.03
$\Delta s = 6'58"44.0"$	$\Delta = 1'07"45.9" (RT)$	$\Delta s = 6'58"44.0"$
$Ls = 324.00'$	$D = 4'18"28.6"$	$Ls = 324.00'$
$LT = 216.17'$	$L = 258.35'$	$LT = 216.17'$
$ST = 108.15'$	$T = 129.58'$	$ST = 108.15'$
	$R = 1,330.00'$	
	$SE = 06$	
	$RO = 324$	



INSTALL MATTING FOR EROSION CONTROL ON SLOPES AS WORK ALLOWS:
 STA 144+00 to STA 156+00 -L- LT
 STA 144+00 to STA 156+00 -L- RT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

SEE SHEET 30 FOR -L- PROFILE
 SEE SHEET 39 FOR -Y8- PROFILE

\$DATE\$

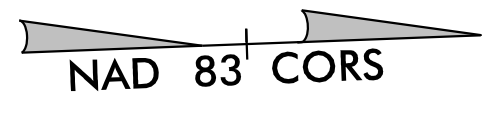
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PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-30/CONST.15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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10206 17376	US 221 -L-	12024 20188
175 395		1994 3206
	SR 1003	-Y9-
YR 2015 YR 2035	130 200	

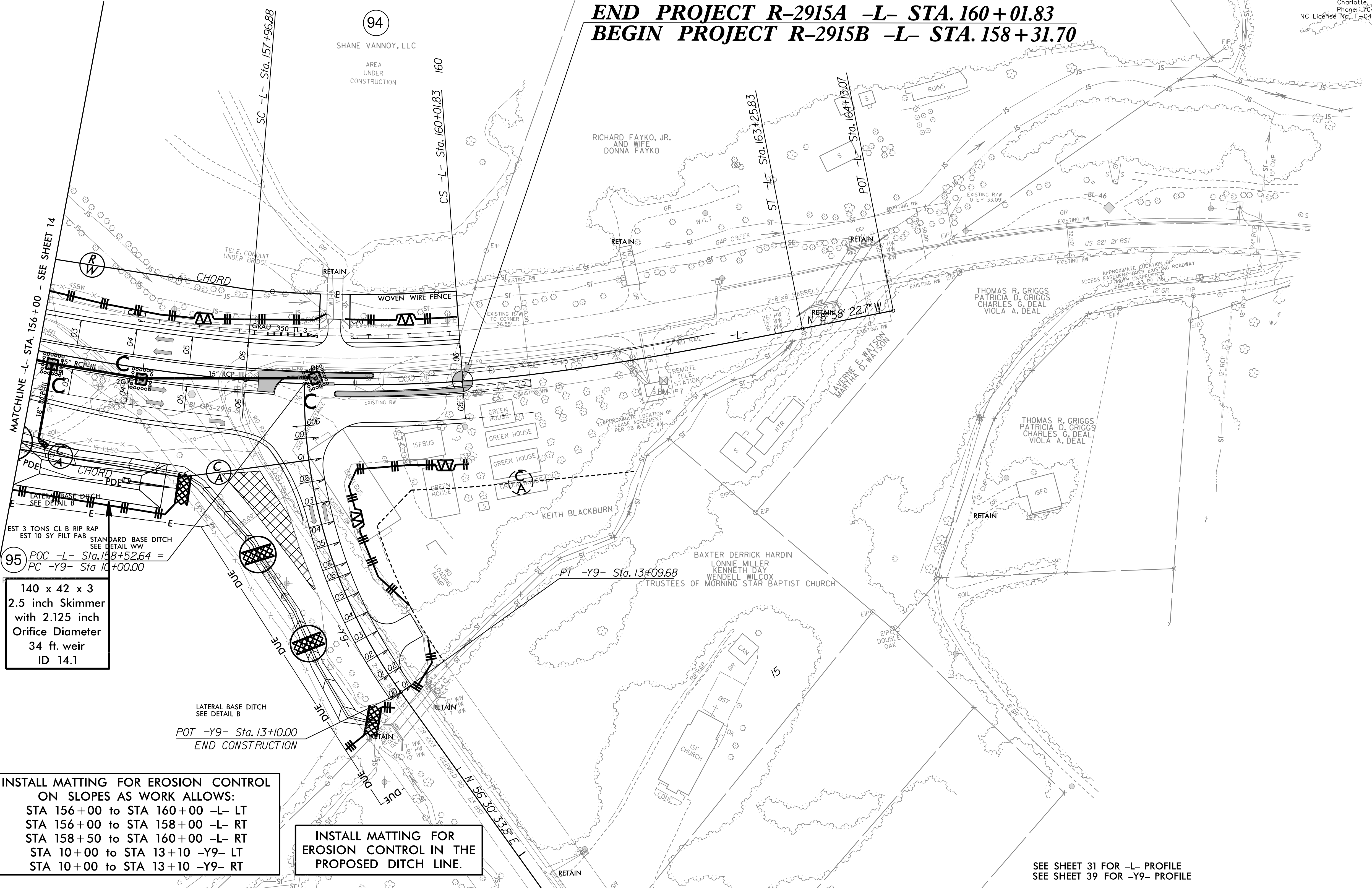


-Y8- HORIZONTAL CURVE DATA
 PI Sta 11+73.32
 $\Delta = 37^\circ 21' 26.0''$ (LT)
 $D = 28^\circ 38' 52.4''$
 $L = 130.40'$
 $T = 67.61'$
 $R = 200.00'$

-Y9- HORIZONTAL CURVE DATA
 PI Sta 11+60.32
 $\Delta = 36^\circ 35' 02.5''$ (LT)
 $D = 1^\circ 48' 48.8''$
 $L = 309.68'$
 $T = 160.32'$
 $R = 485.00'$
 $SE = 06$
 $RO = 124.08$

-L- HORIZONTAL CURVE DATA
 Pls Sta 156+89.04 PI Sta 158+99.56 Pls Sta 161+09.99
 $\Theta_s = 6^\circ 58' 44.0''$ $\Delta = 8^\circ 49' 46.3''$ (LT) $\Theta_s = 6^\circ 58' 44.0''$
 $L_s = 324.00'$ $D = 4^\circ 18' 28.6''$ $L_s = 324.00'$
 $LT = 216.17'$ $T = 204.96'$ $LT = 216.17'$
 $ST = 108.15'$ $T = 102.68'$ $ST = 108.15'$
 $R = 1,330.00'$
 $SE = 06$
 $RO = 204.95$

END PROJECT R-2915A -L- STA. 160+01.83
BEGIN PROJECT R-2915B -L- STA. 158+31.70



EST 3 TONS CL B RIP RAP
 EST 10 SY FILT FAB
 STANDARD BASE DITCH
 SEE DETAIL WW

95 POC -L- Sta. 158+52.64 =
 PC -Y9- Sta 10+00.00

140 x 42 x 3
 2.5 inch Skimmer
 with 2.125 inch
 Orifice Diameter
 34 ft. weir
 ID 14.1

LATERAL BASE DITCH
 SEE DETAIL B

POT -Y9- Sta. 13+10.00
 END CONSTRUCTION

INSTALL MATTING FOR EROSION CONTROL
 ON SLOPES AS WORK ALLOWS:
 STA 156+00 to STA 160+00 -L- LT
 STA 156+00 to STA 158+00 -L- RT
 STA 158+50 to STA 160+00 -L- RT
 STA 10+00 to STA 13+10 -Y9- LT
 STA 10+00 to STA 13+10 -Y9- RT

INSTALL MATTING FOR
 EROSION CONTROL IN THE
 PROPOSED DITCH LINE.

SEE SHEET 31 FOR -L- PROFILE
 SEE SHEET 39 FOR -Y9- PROFILE

PROJECT REFERENCE NO. R-2915A	SHEET NO. EC-31/CONST.16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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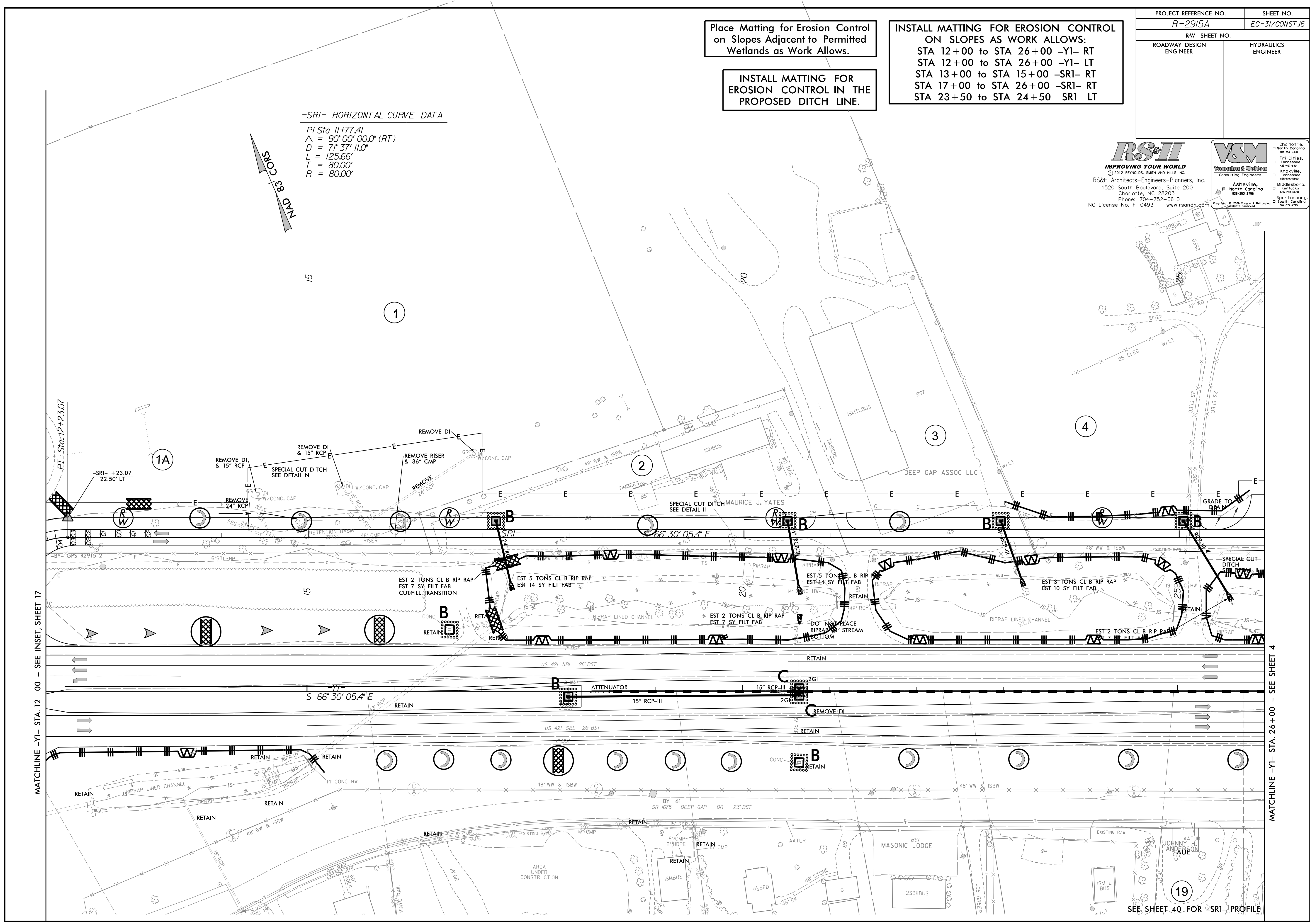
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Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

INSTALL MATTING FOR EROSION CONTROL ON SLOPES AS WORK ALLOWS:
STA 12+00 to STA 26+00 -Y1- RT
STA 12+00 to STA 26+00 -Y1- LT
STA 13+00 to STA 15+00 -SR1- RT
STA 17+00 to STA 26+00 -SR1- RT
STA 23+50 to STA 24+50 -SR1- LT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

-SR1- HORIZONTAL CURVE DATA
PI Sta 11+77.41
 $\Delta = 90^{\circ}00'00.0''$ (RT)
D = 71' 37" 11.0"
L = 125.66'
T = 80.00'
R = 80.00'



MATCHLINE -Y1- STA. 12+00 - SEE INSET, SHEET 17

MATCHLINE -Y1- STA. 26+00 - SEE SHEET 4

SEE SHEET 40 FOR -SR1- PROFILE

\$DATE\$
\$FILE\$

Place Matting for Erosion Control
on Slopes Adjacent to Permitted
Wetlands as Work Allows.

INSTALL MATTING FOR
EROSION CONTROL IN THE
PROPOSED DITCH LINE.

PROJECT REFERENCE NO. <i>R-2915A</i>	SHEET NO. <i>EC-32/CONST.17</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

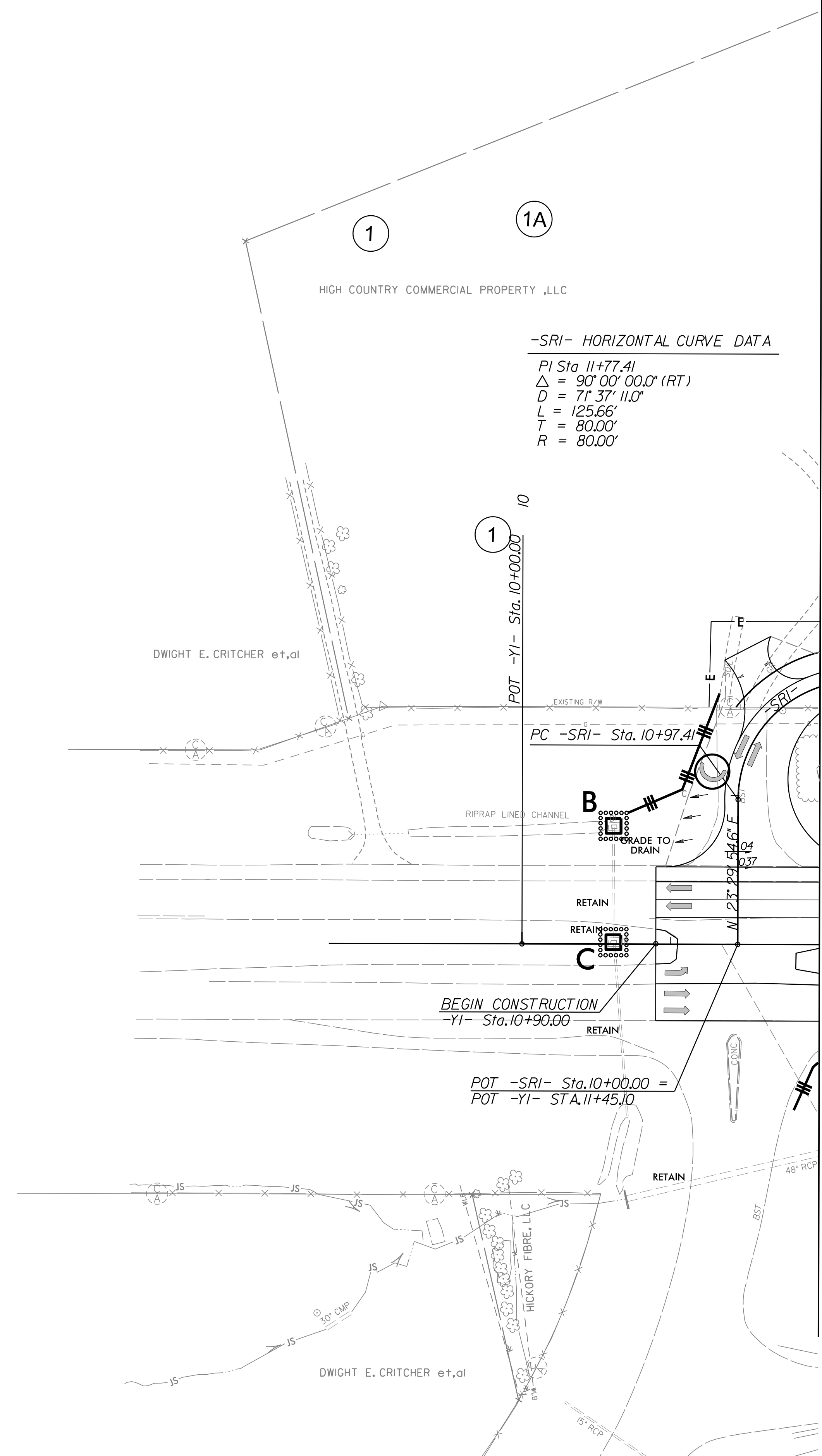
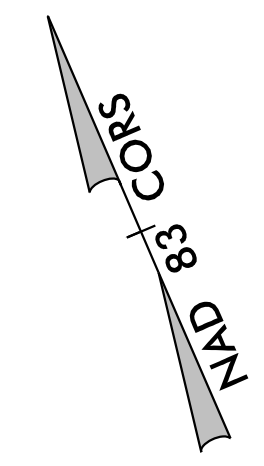
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Middleburg, Kentucky 606-766-8800
Spartanburg, South Carolina 864-534-4700

06/27/14 ROW REV: REVISED PROPERTY LINES AND ADDED PARCEL 1A WITH PROPERTY OWNER AND DEED REFERENCE. - KNW
01/05/15 ROW REV: REVISED ROW AND TCE ON PARCELS 1 AND 1A. - KNW

\$FILE\$
\$DATE\$



-SRI- HORIZONTAL CURVE DATA
 PI Sta 11+77.41
 $\Delta = 90^{\circ}00'00.0''$ (RT)
 $D = 71^{\circ}37'11.0''$
 $L = 125.66'$
 $T = 80.00'$
 $R = 80.00'$

MATCHLINE -YI- STA. 12+00 SHEET 16

SEE SHEET 41 FOR -YI- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2915A	EC-33/CONST JB
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

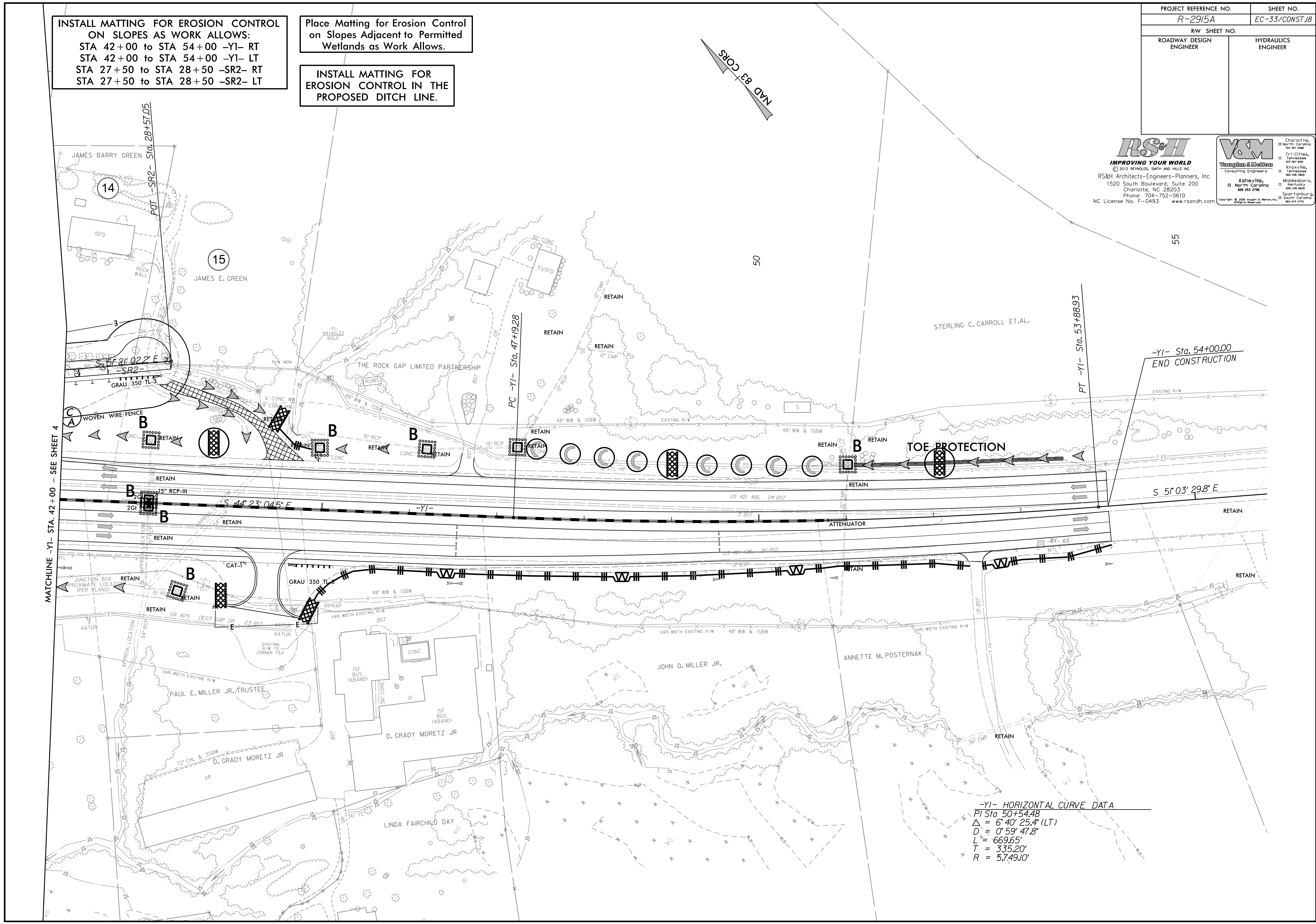
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INSTALL MATTING FOR EROSION CONTROL ON SLOPES AS WORK ALLOWS:
 STA 42+00 to STA 54+00 -Y1- RT
 STA 42+00 to STA 54+00 -Y1- LT
 STA 27+50 to STA 28+50 -SR2- RT
 STA 27+50 to STA 28+50 -SR2- LT

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.



\$FILES\$
\$DATE\$

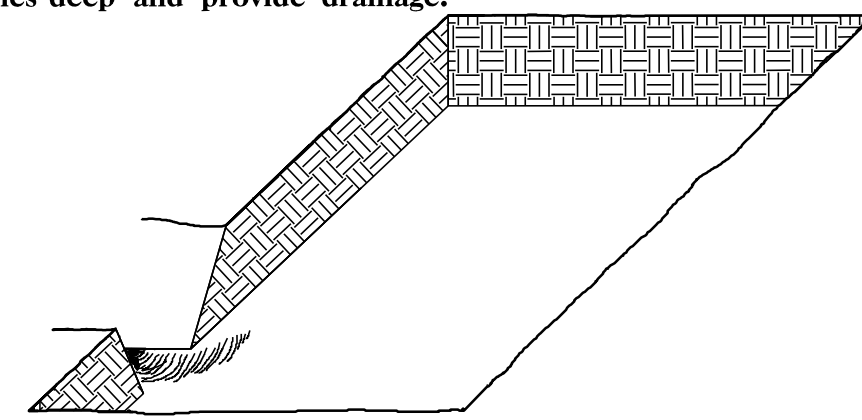
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2915A	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

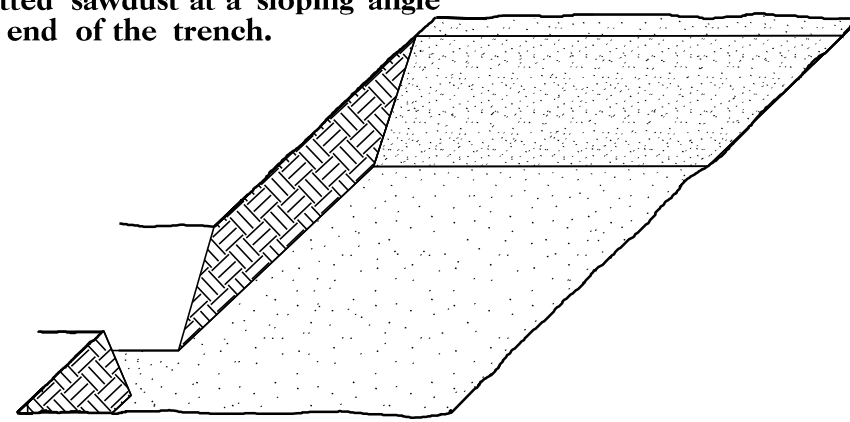
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

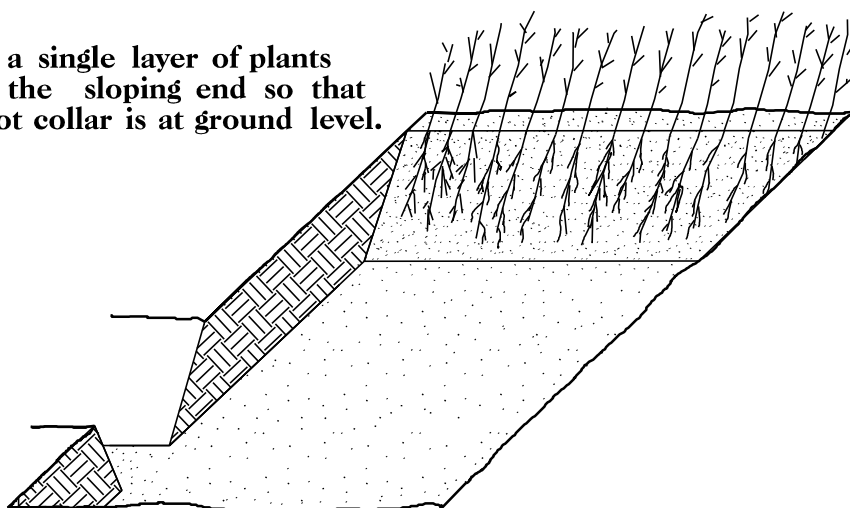
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



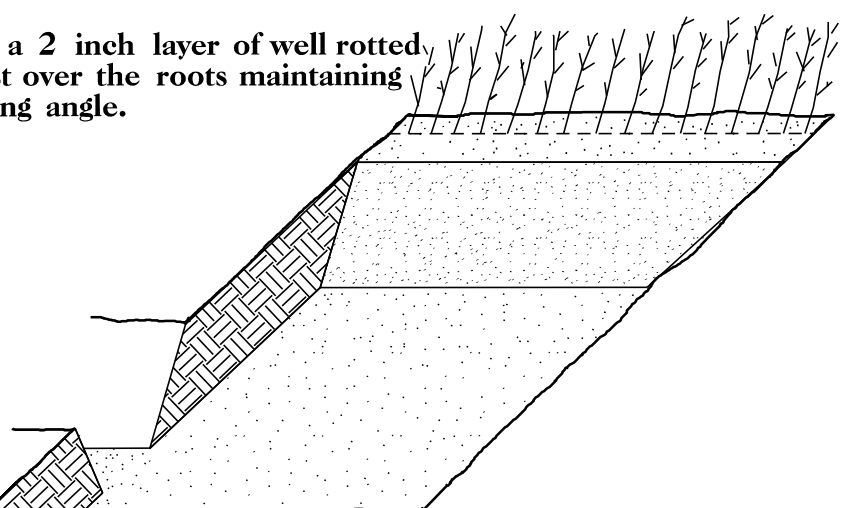
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

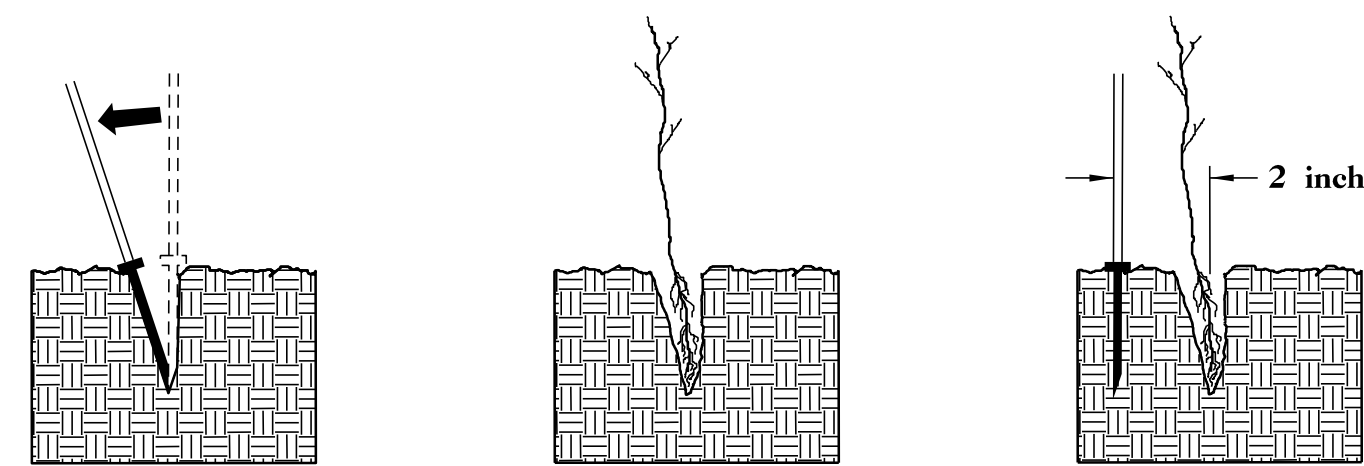


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

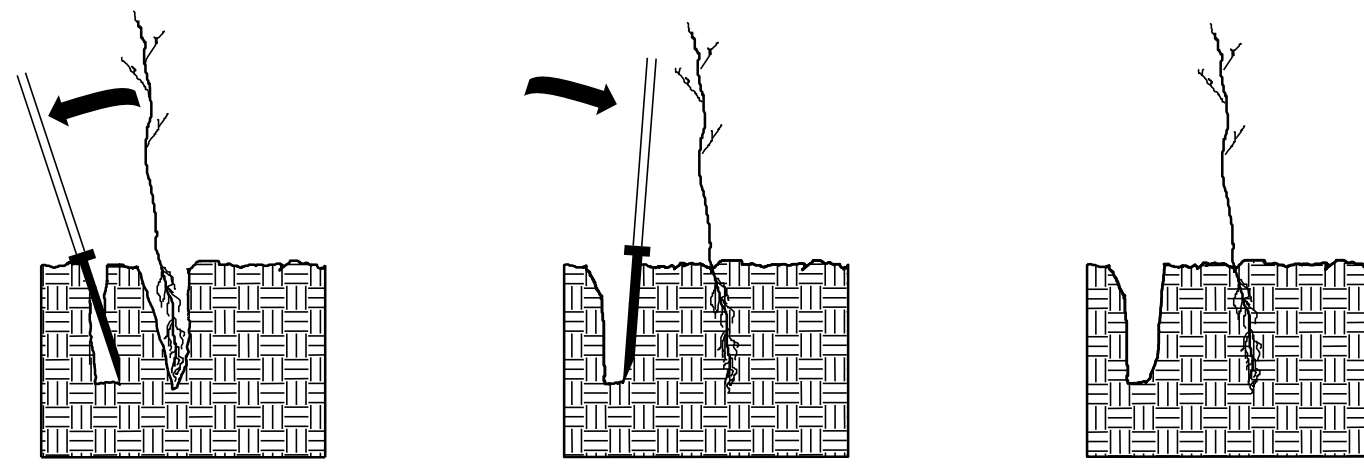


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.
2. Remove planting bar and place seedling at correct depth.
3. Insert planting bar 2 inches toward planter from seedling.



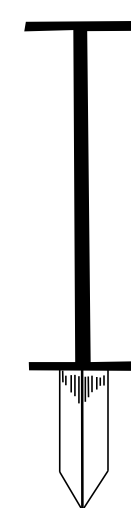
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25%	PRUNUS SEROTINA	BLACK CHERRY	12 in - 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT