

**This electronic collection of documents is provided  
for the convenience of the user  
and is Not a Certified Document –**

**The documents contained herein were originally issued  
and sealed by the individuals whose names and license  
numbers appear on each page, on the dates appearing  
with their signature on that page.**

**This file or an individual page  
shall not be considered a certified document.**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-1015	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

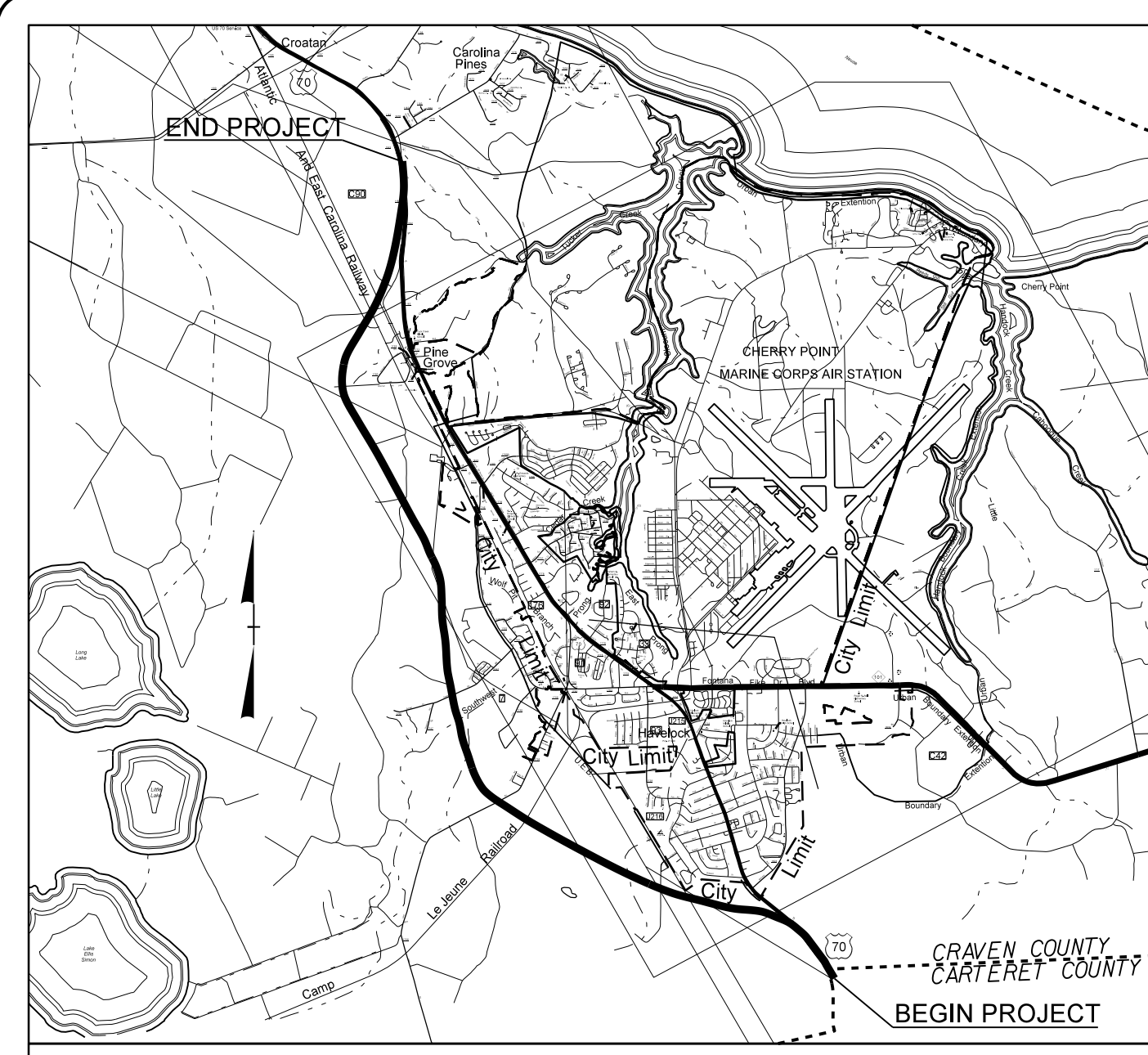
STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
 PLAN FOR PROPOSED  
 HIGHWAY EROSION CONTROL

**CRAVEN & CARTERET COUNTIES**

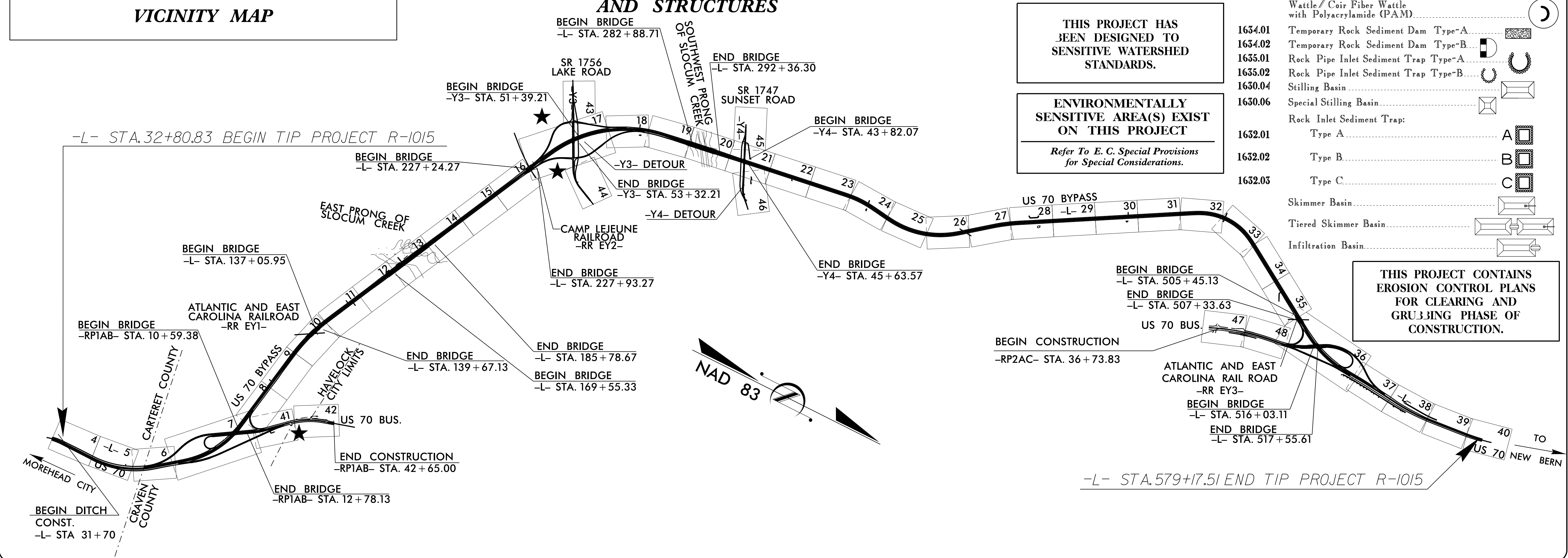
LOCATION: US 70 (HAVELOCK BYPASS) FROM SOUTH OF CARTERET / CRAVEN COUNTY LINE TO SOUTH OF SR 1176, (CAROLINA PINES BLVD.)  
 TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING, CULVERTS

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	~ ~ ~ ~ ~
1622.01	Temporary Berms and Slope Drains	T
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	▨
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	⊗
1633.02	Temporary Rock Silt Check Type-B	▨
	Wattle/Coir Fiber Wattle	⌒
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	⌒
1654.01	Temporary Rock Sediment Dam Type-A	▨
1634.02	Temporary Rock Sediment Dam Type-B	▨
1655.01	Rock Pipe Inlet Sediment Trap Type-A	⌒
1655.02	Rock Pipe Inlet Sediment Trap Type-B	⌒
1650.04	Stilling Basin	▭
1650.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭



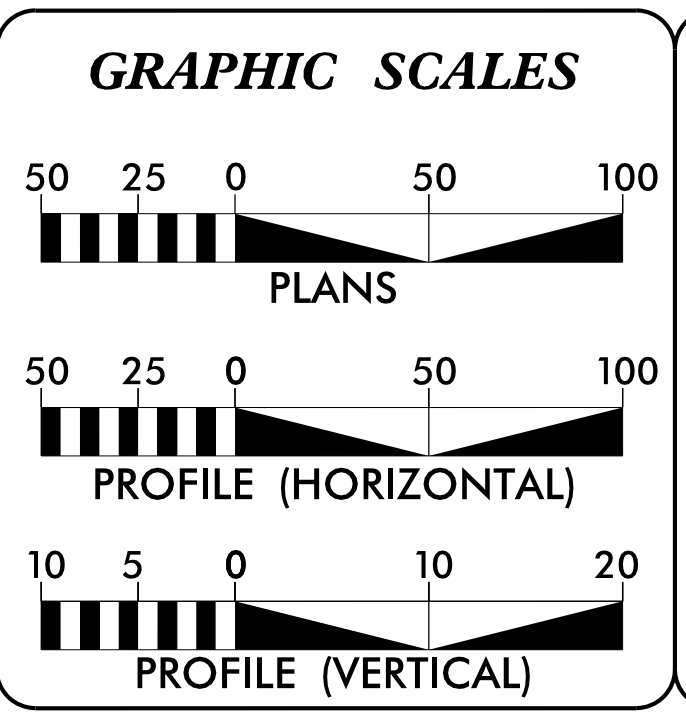
VICINITY MAP



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.

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

Prepared in the Office of:  
**MOFFATT & NICHOL**  
 4700 FALLS OF THE NEUSE ROAD, SUITE 300  
 RALEIGH, NORTH CAROLINA 27609  
 (919)781-4626 PHONE (919)781-4869 FAX

Designed by:  
**JEFFREY L. RECK P.E.** #3585  
 NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:  
**ROADSIDE ENVIRONMENTAL UNIT**  
 1 South Wilmington St.  
 Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:  
**WES CHANDLER, PE**

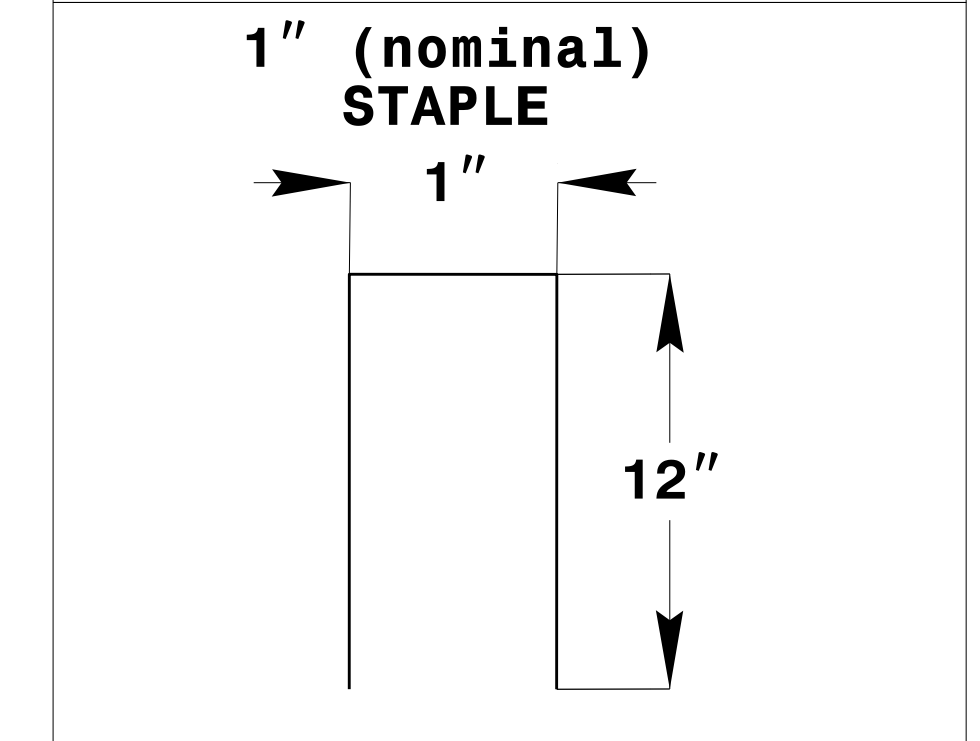
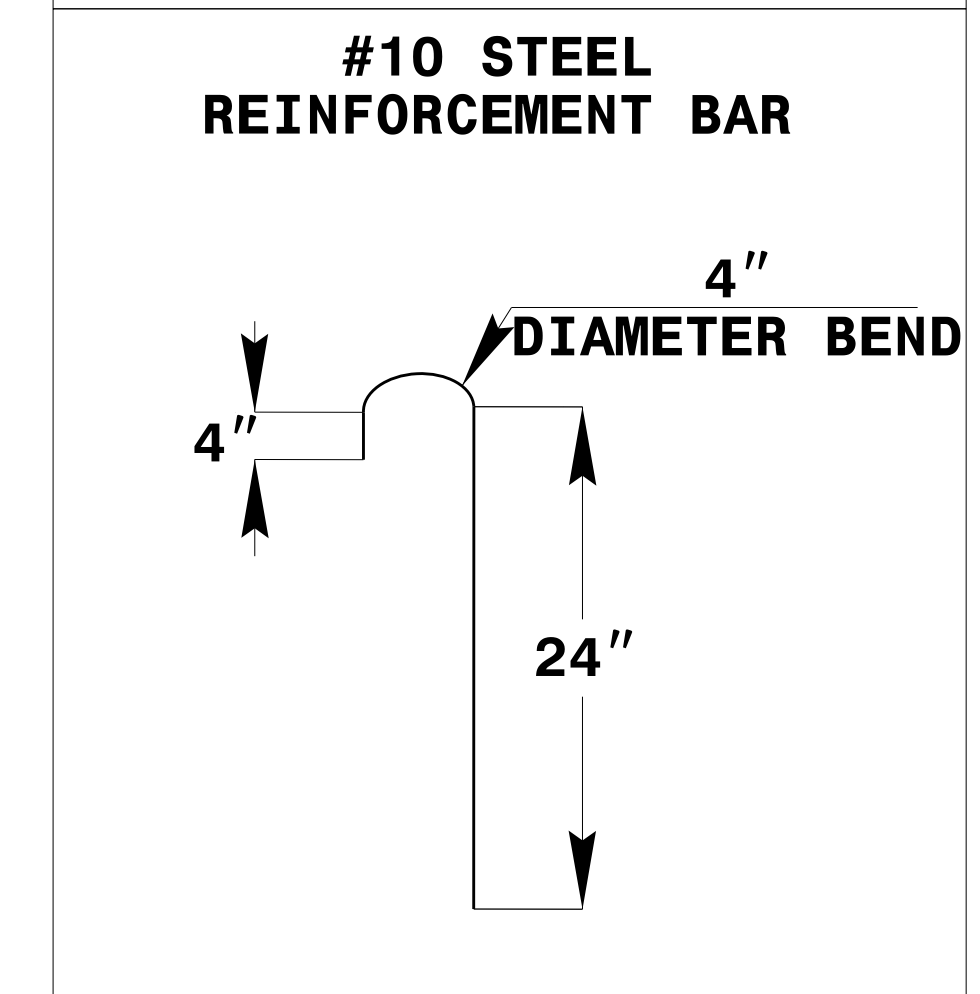
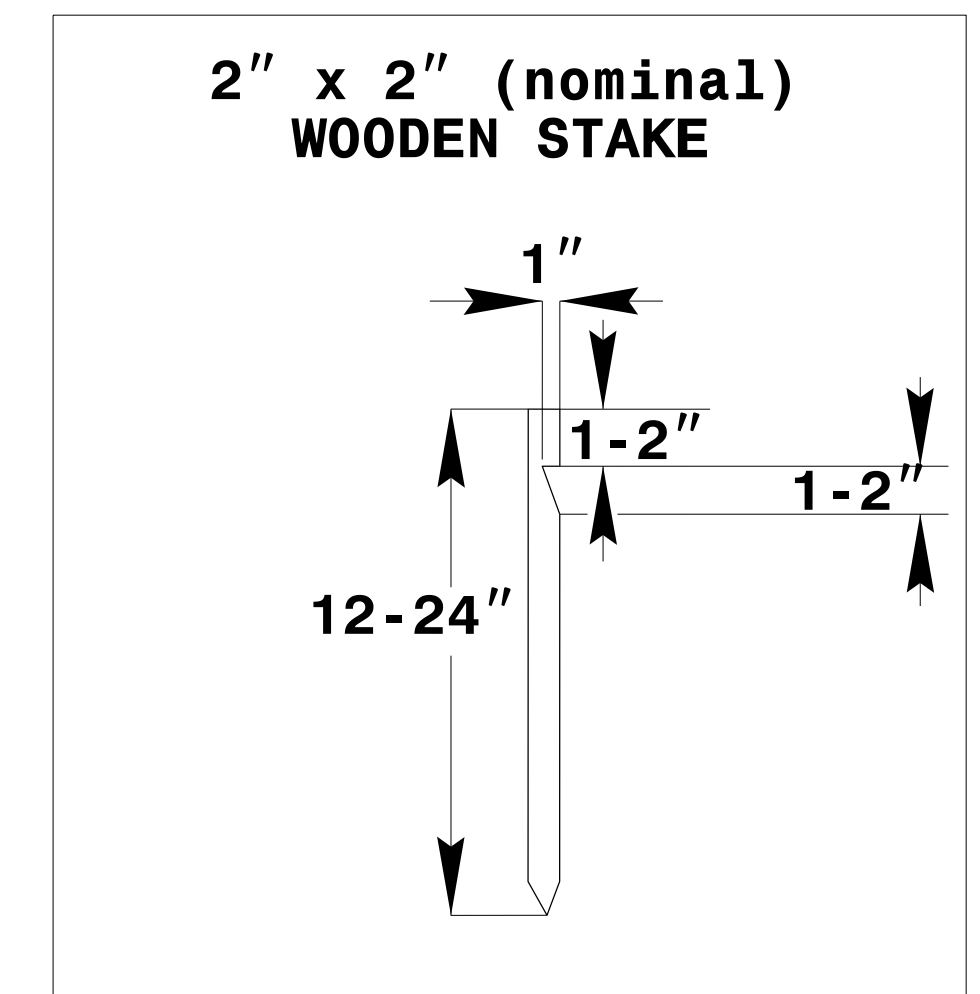
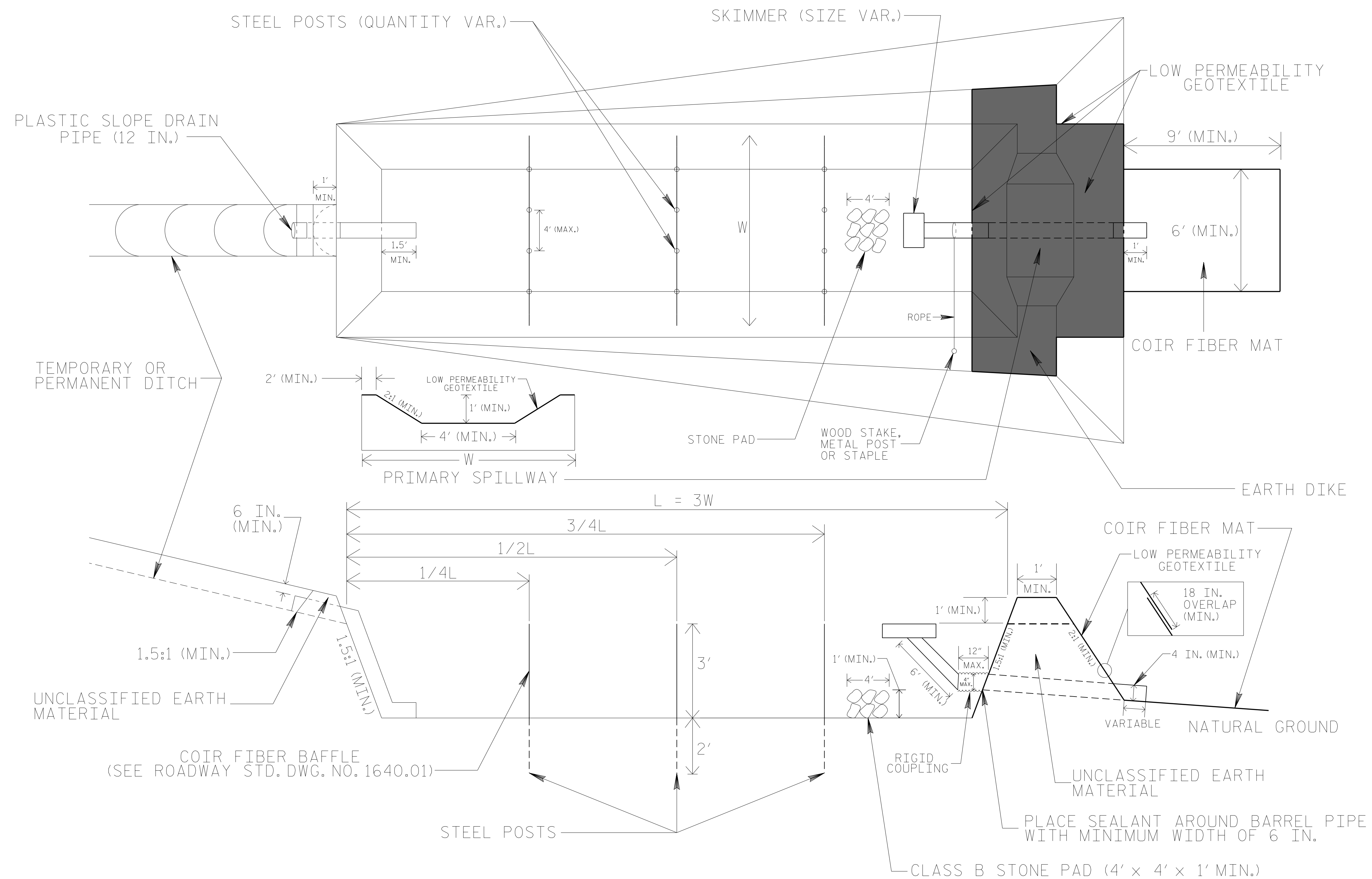
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 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 J
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 J
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type J	1634.02	Temporary Rock Sediment Dam Type J
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 J
1630.05	Temporary Diversion	1640.01	Coir Fiber Jaffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

CONTRACT: C204177  
 TIP PROJECT: R-1015  
 27-NOV-2018 16:26  
 R:\Environment\Design\R-1015\_REU\_EC-01\_PSH\_01\_tsh.dgn  
 nring AT RENV 3/22/24

# SKIMMER BASIN WITH BAFFLES DETAIL (EAST)



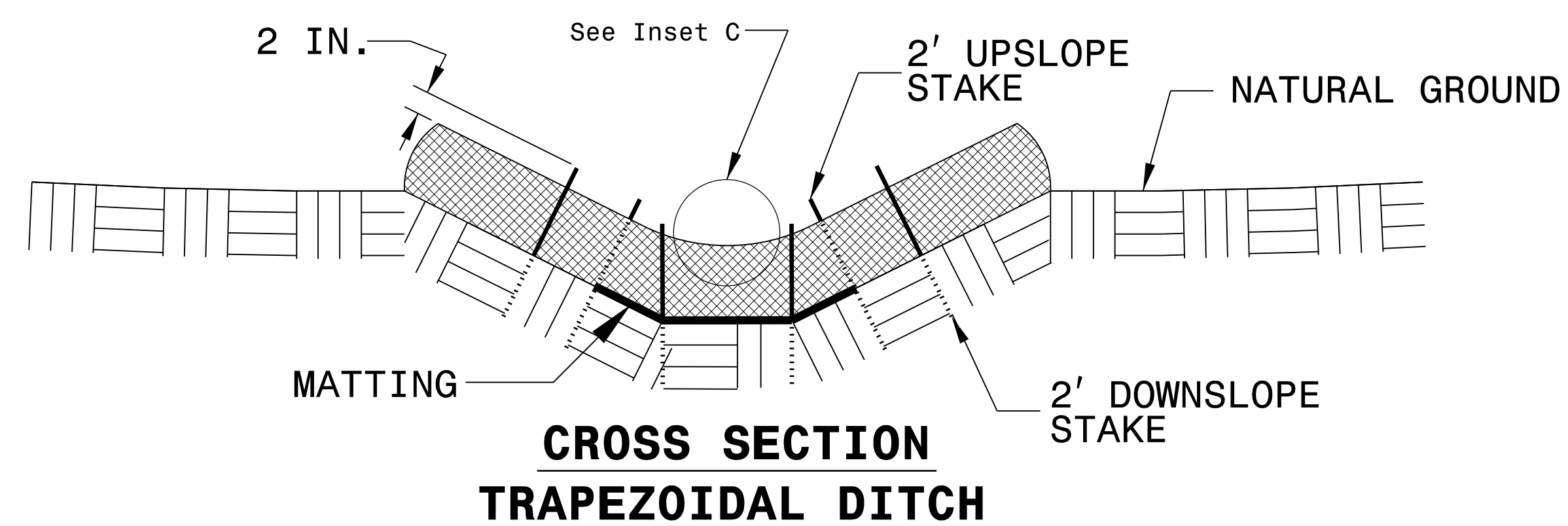
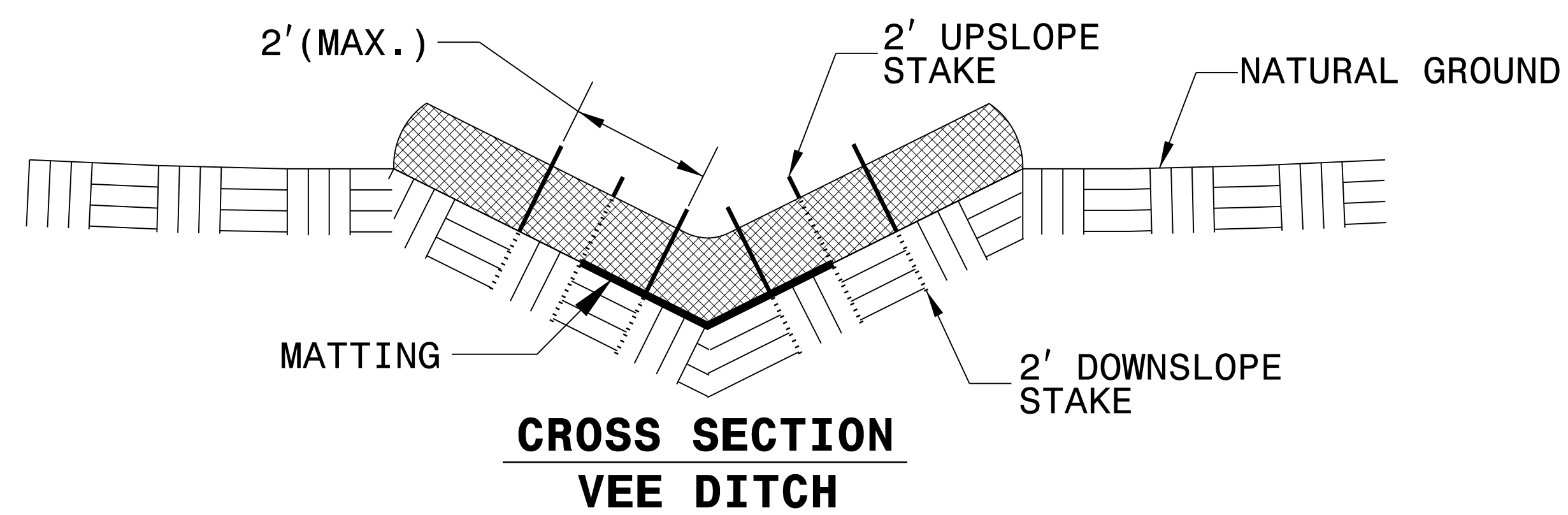
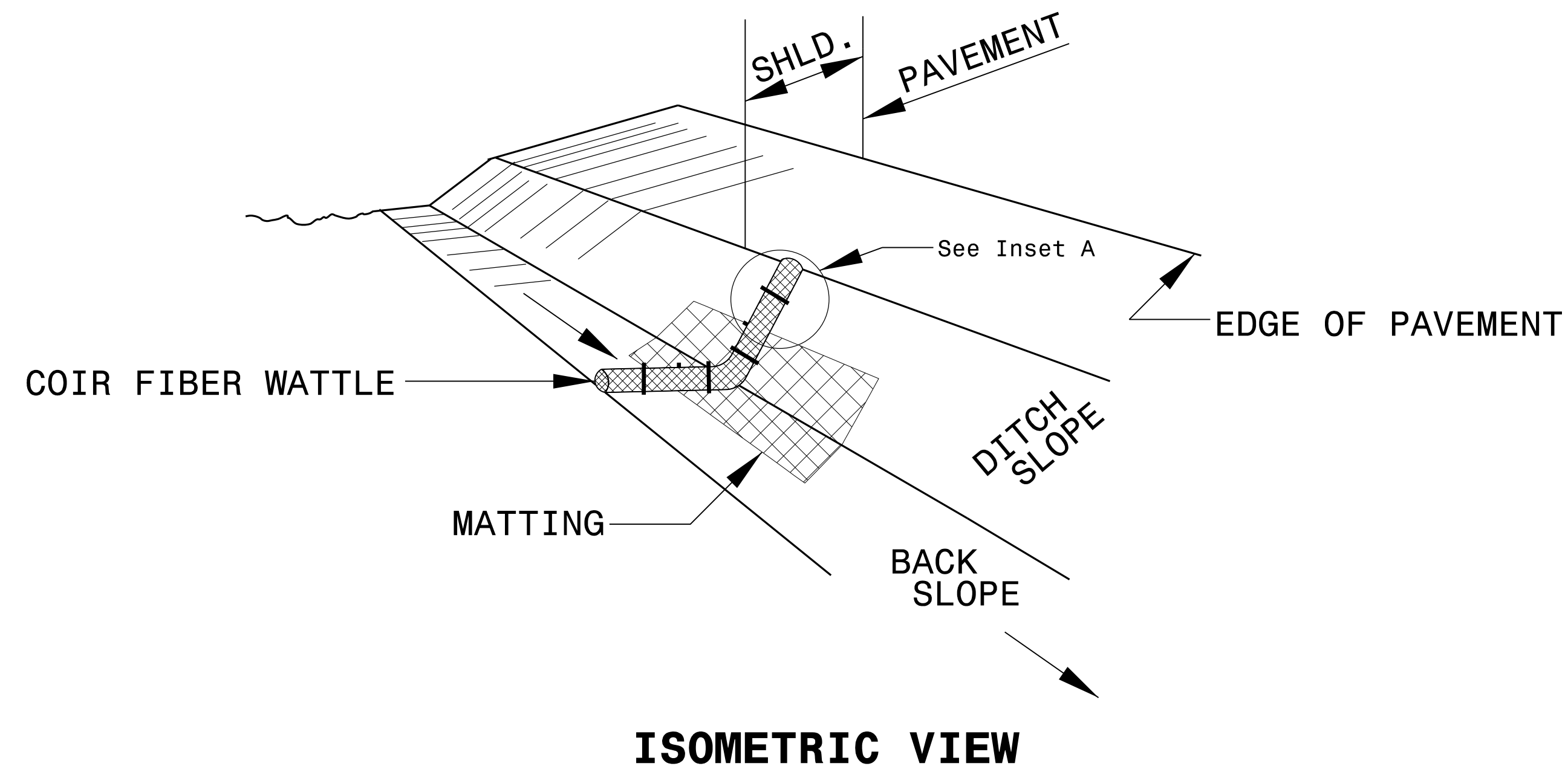
## COIR FIBER MAT ANCHOR OPTIONS

### 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  $Q/0.8$ , 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. LOW PERMEABILITY GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

# 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.

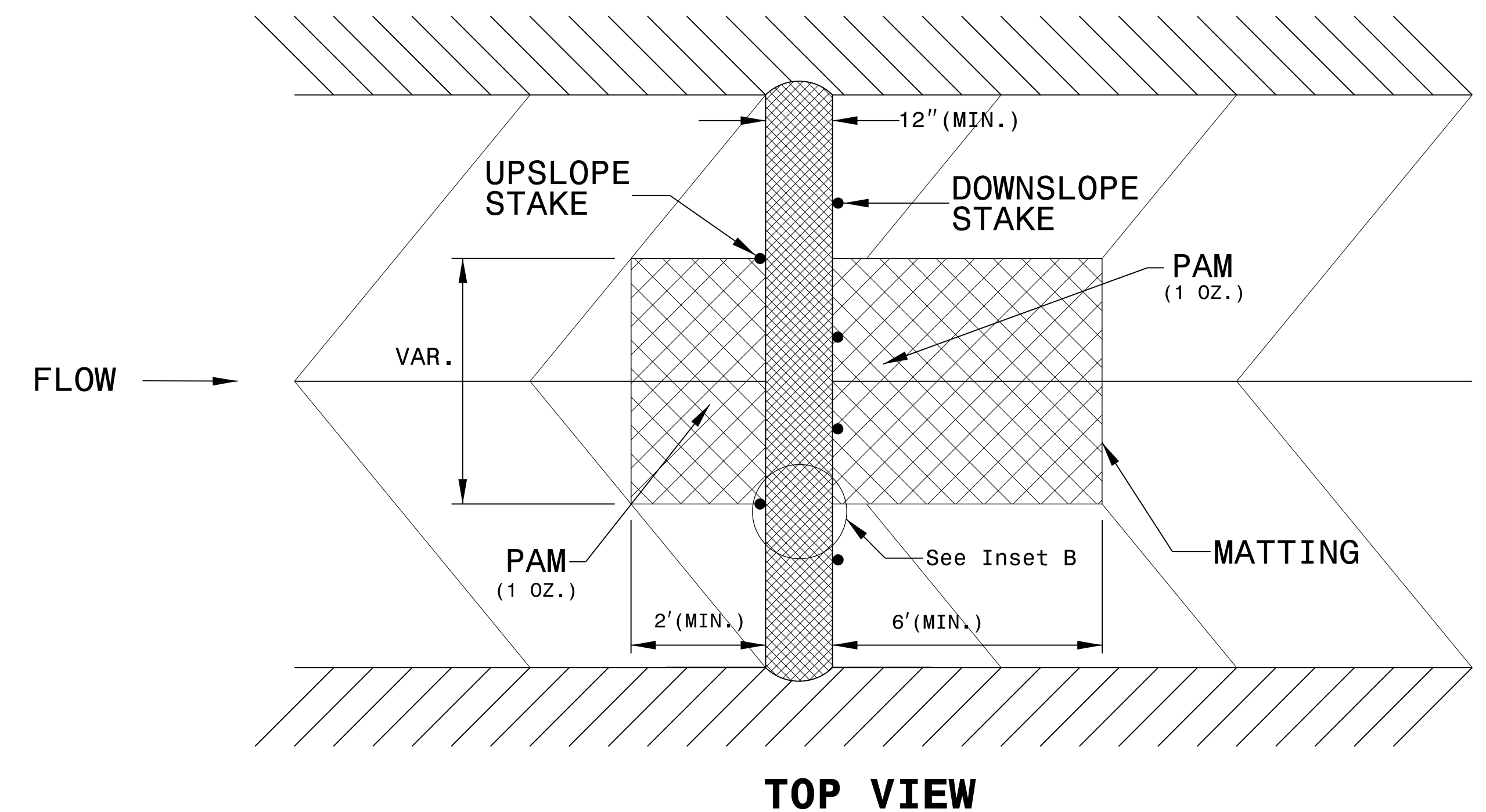
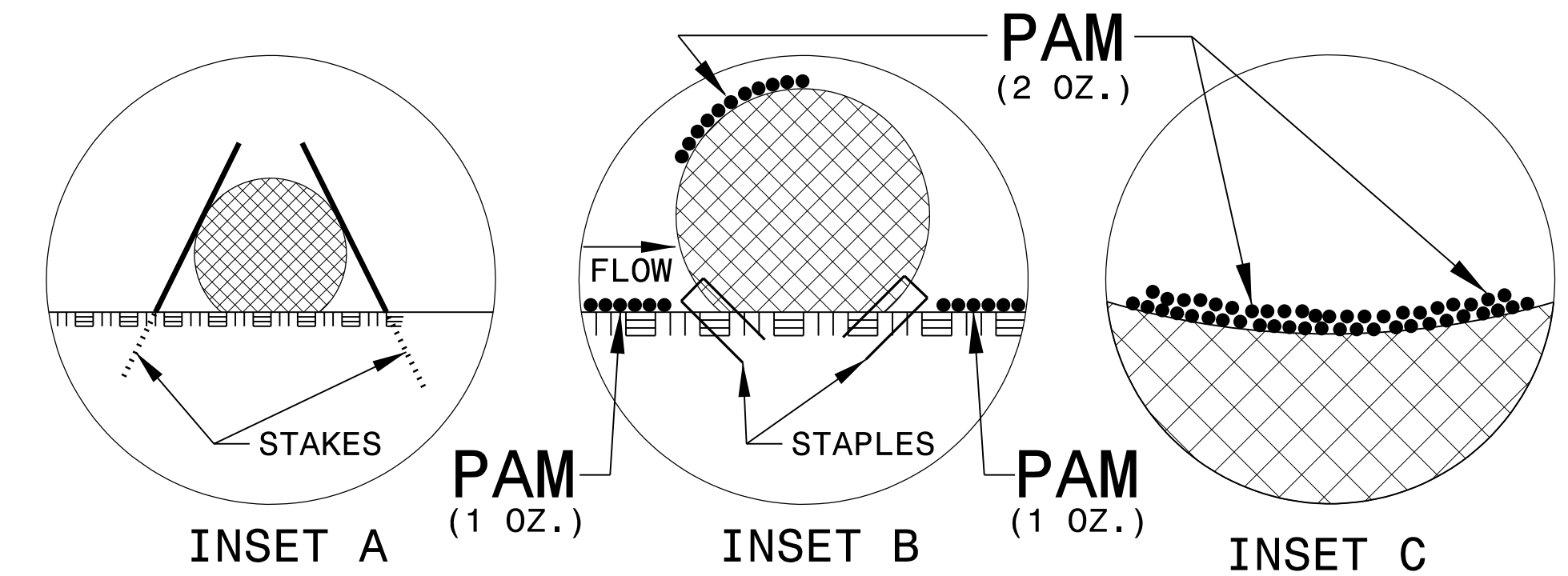
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

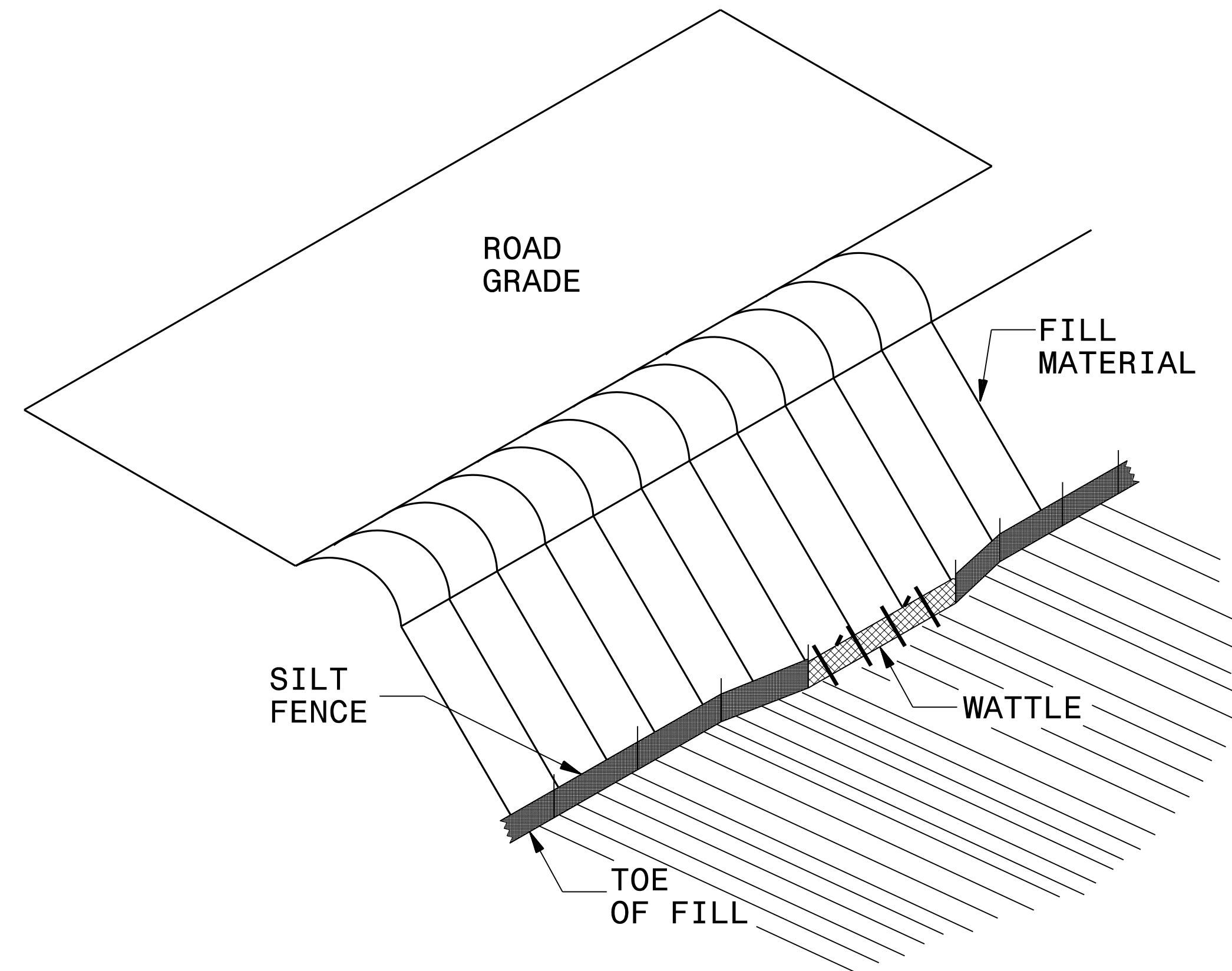
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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.

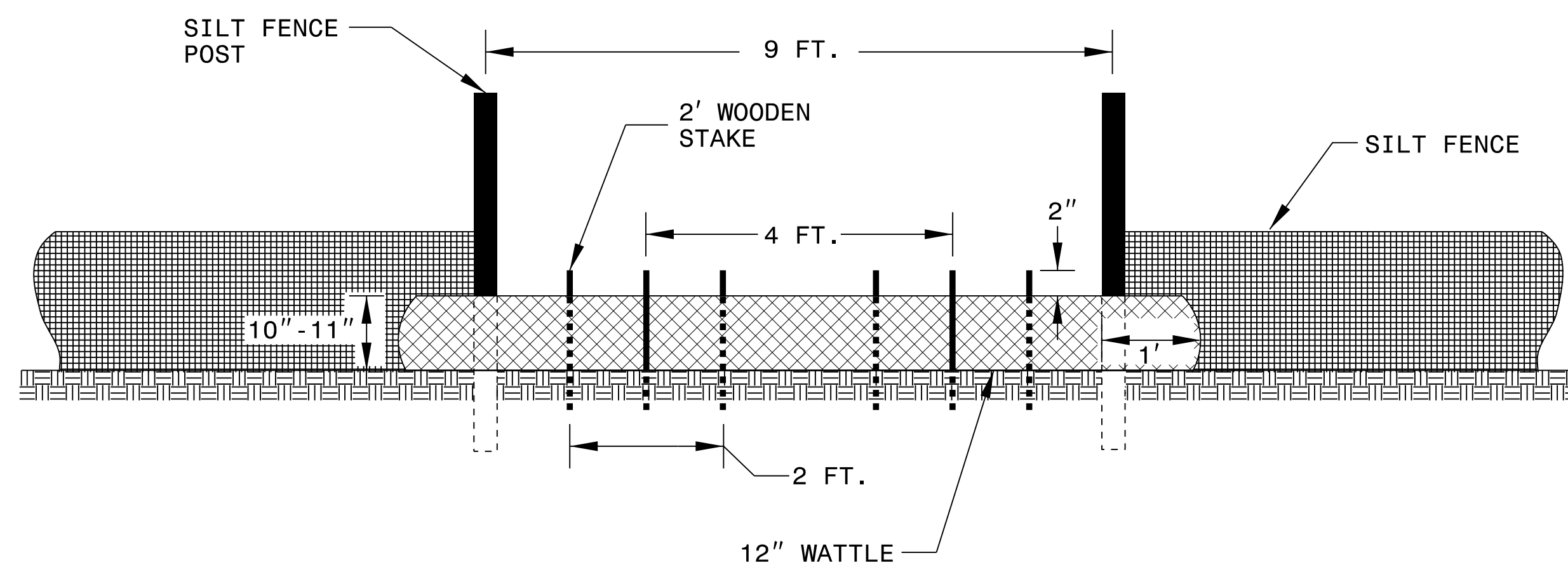
INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



# SILT FENCE COIR FIBER WATTLE BREAK DETAIL



**ISOMETRIC VIEW**



**VIEW FROM SLOPE**

**NOTES:**

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

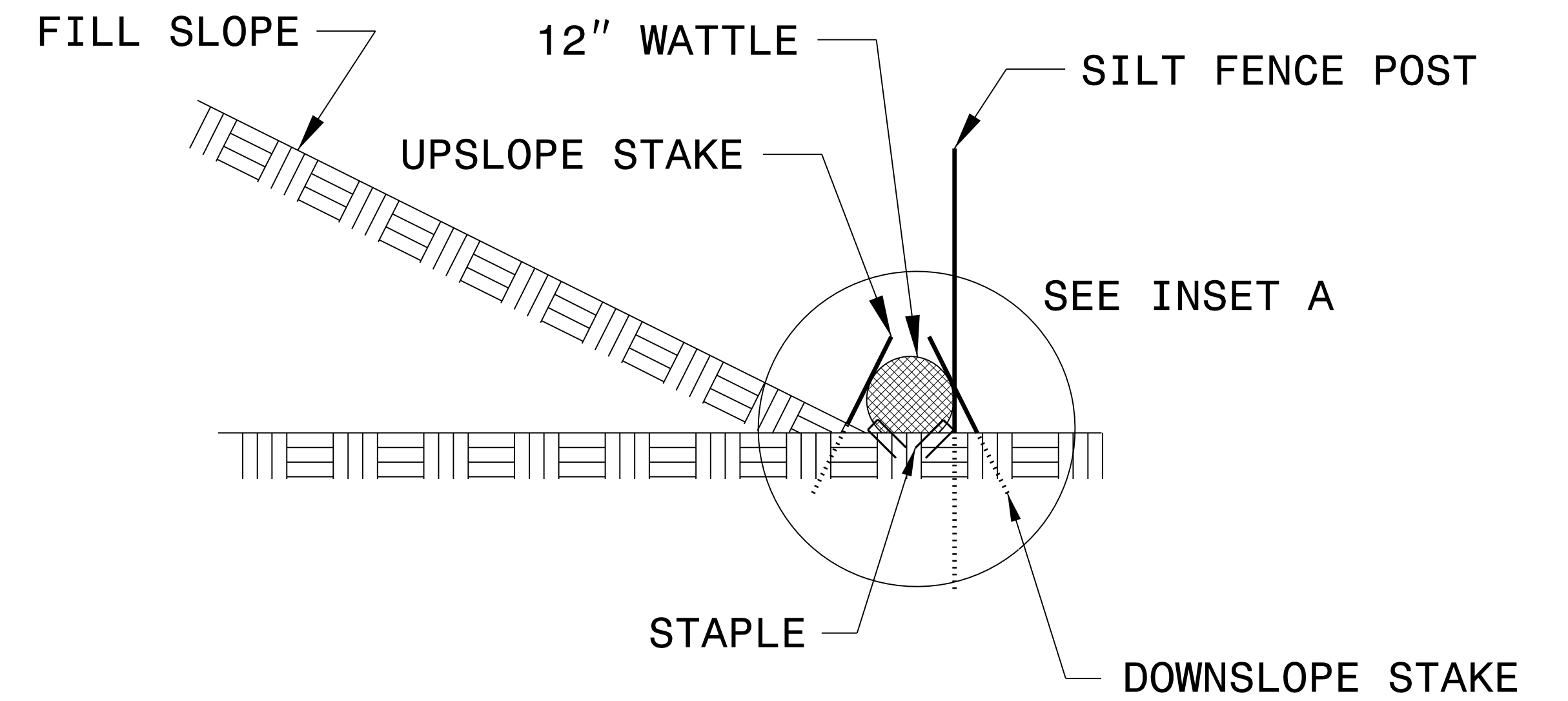
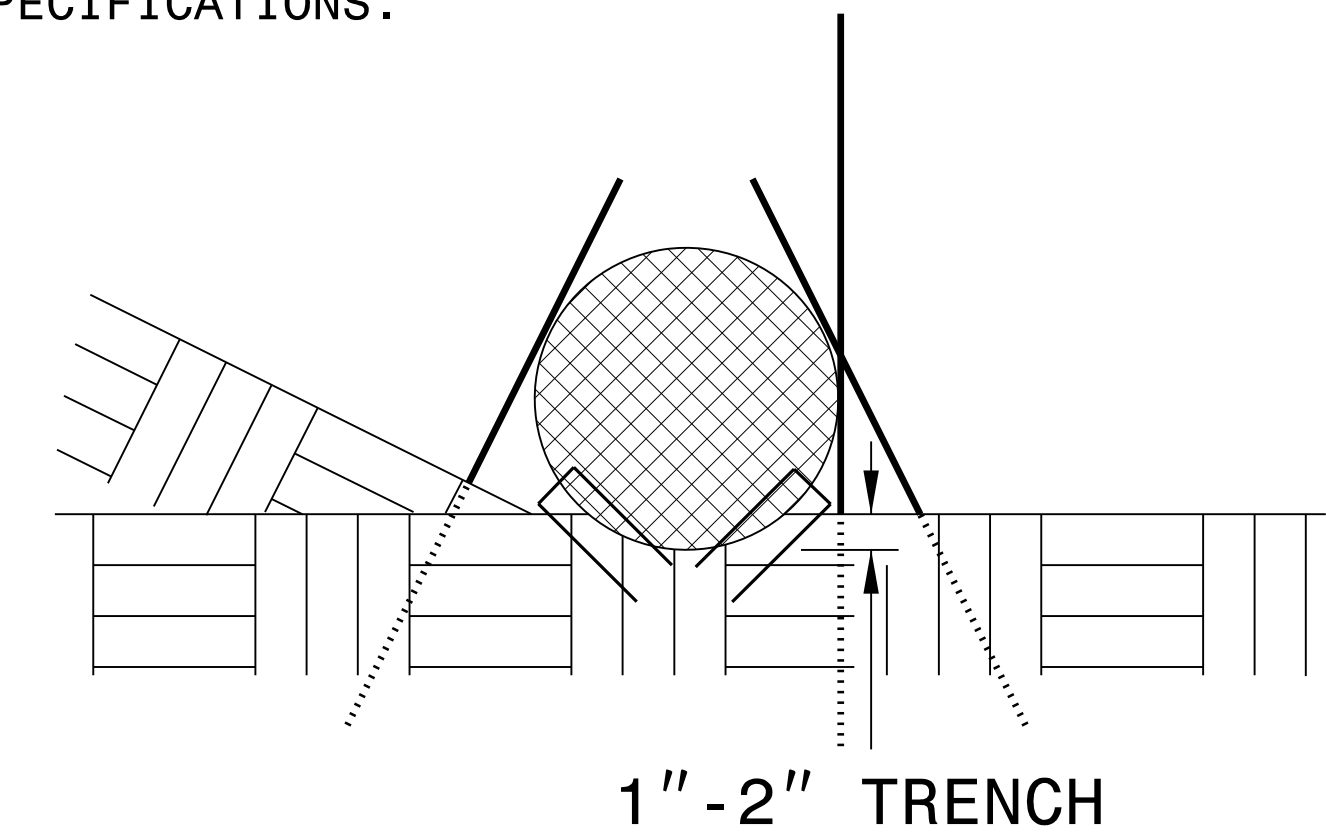
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

**INSET A**

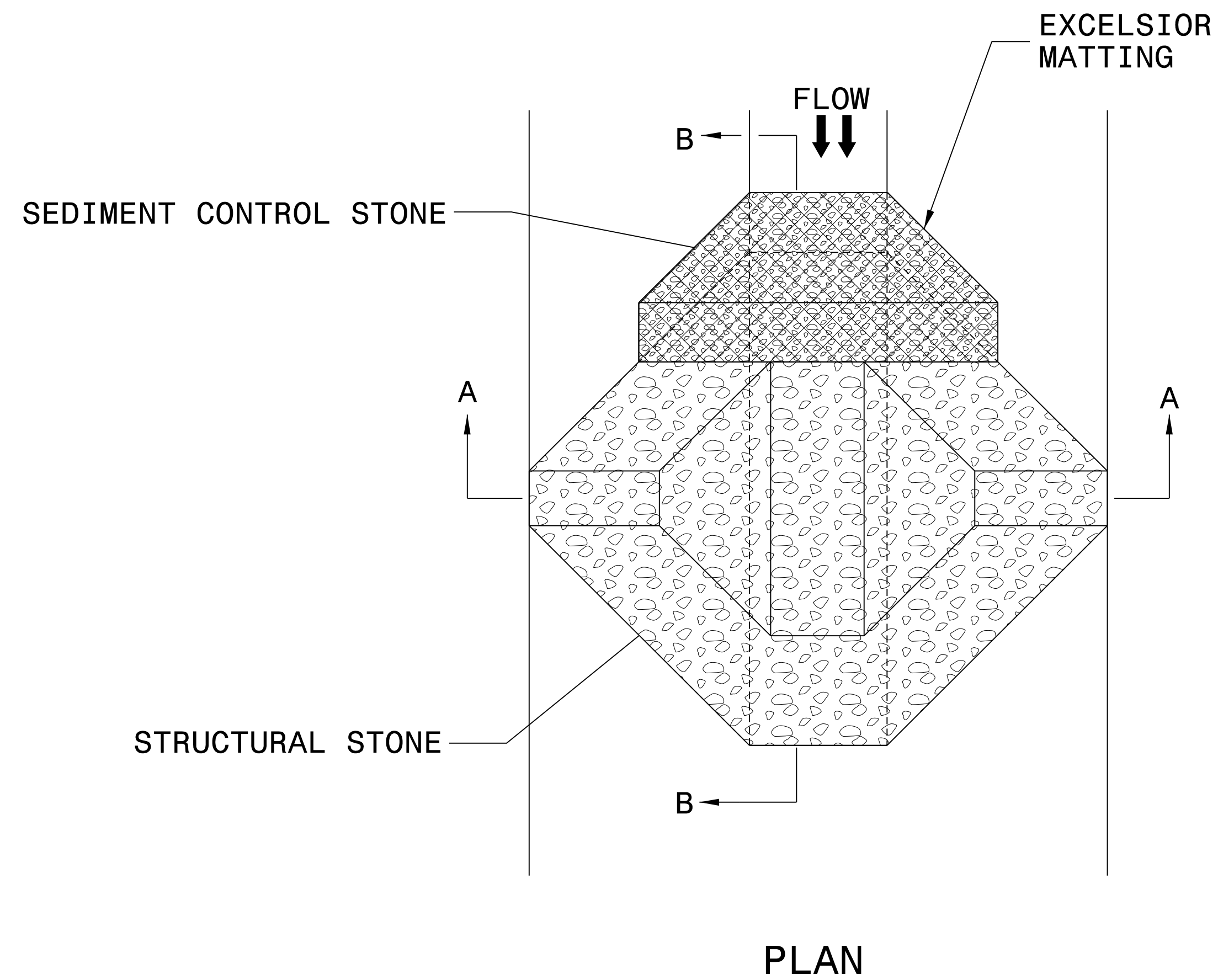


**SIDE VIEW**

NOT TO SCALE

8/17/99  
 I:\7/2008  
 02\RAV\9729-02\CADD\1015\Roadside\1015\_REU\EC-02C\_PSH\_02C.dgn

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



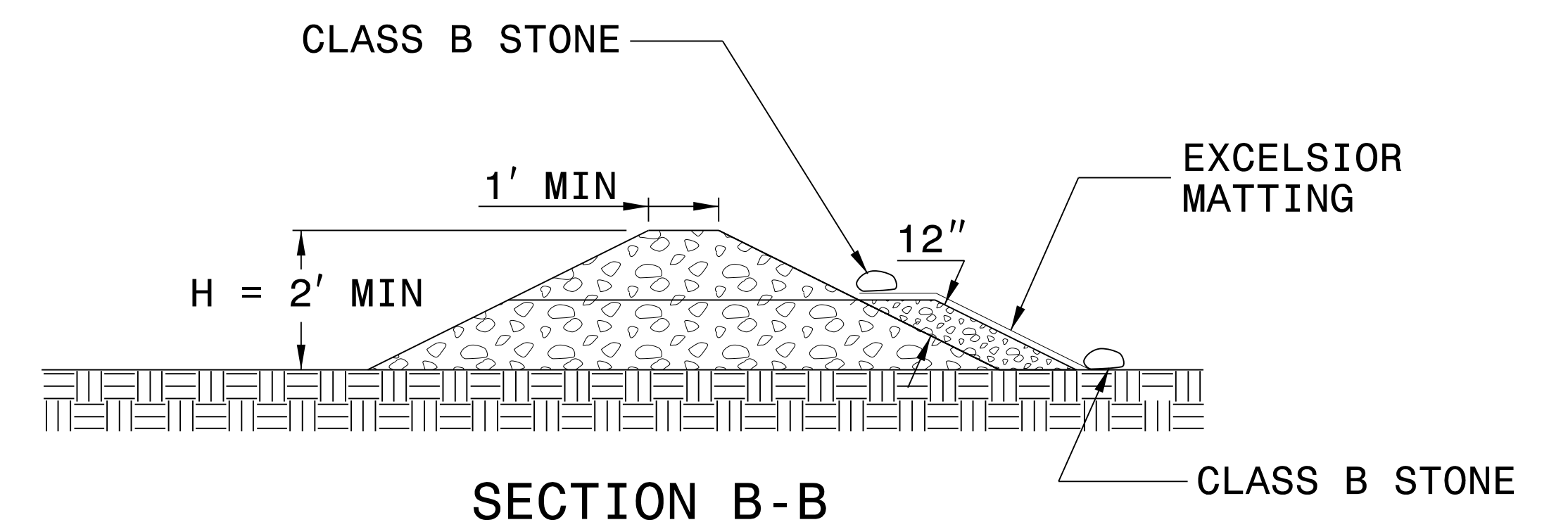
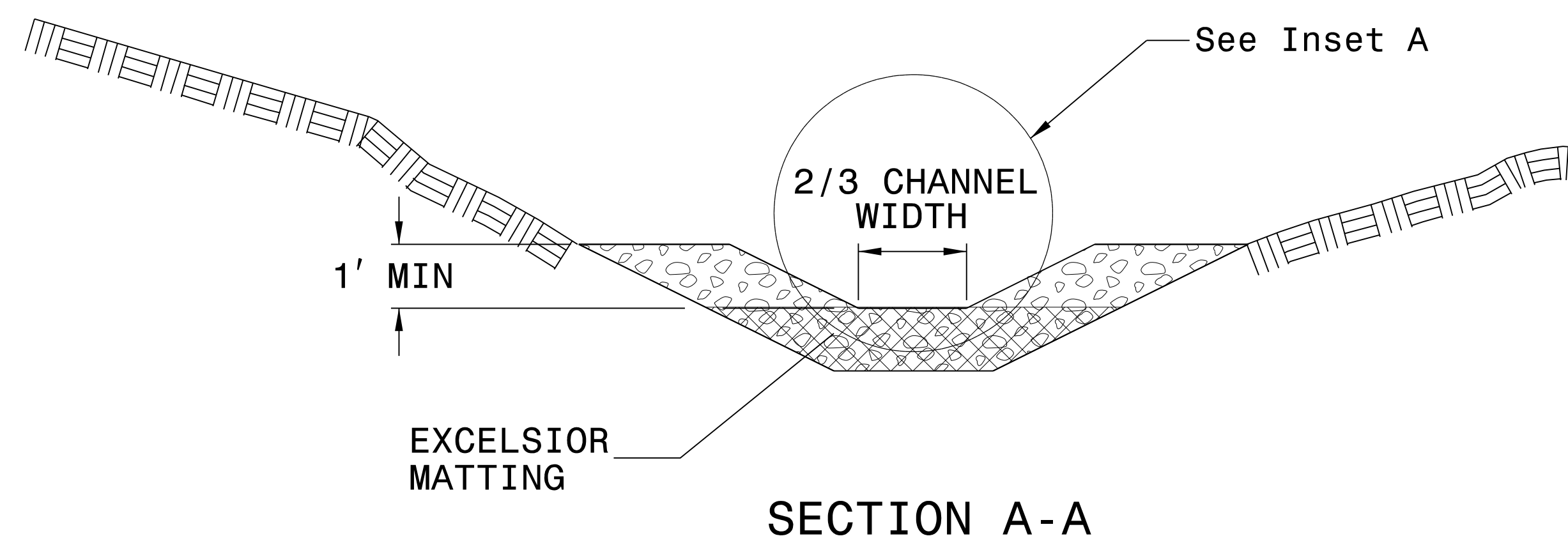
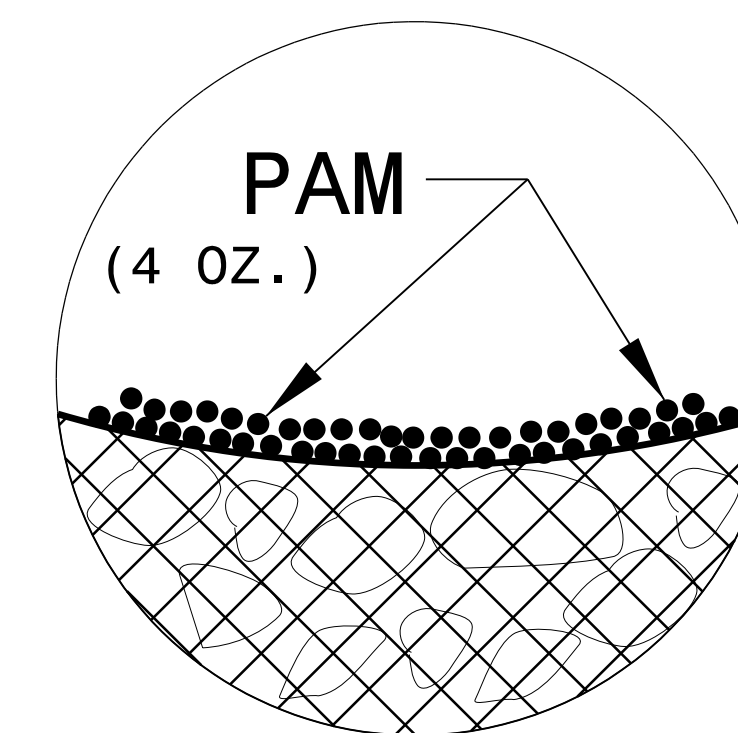
## NOTES:

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.

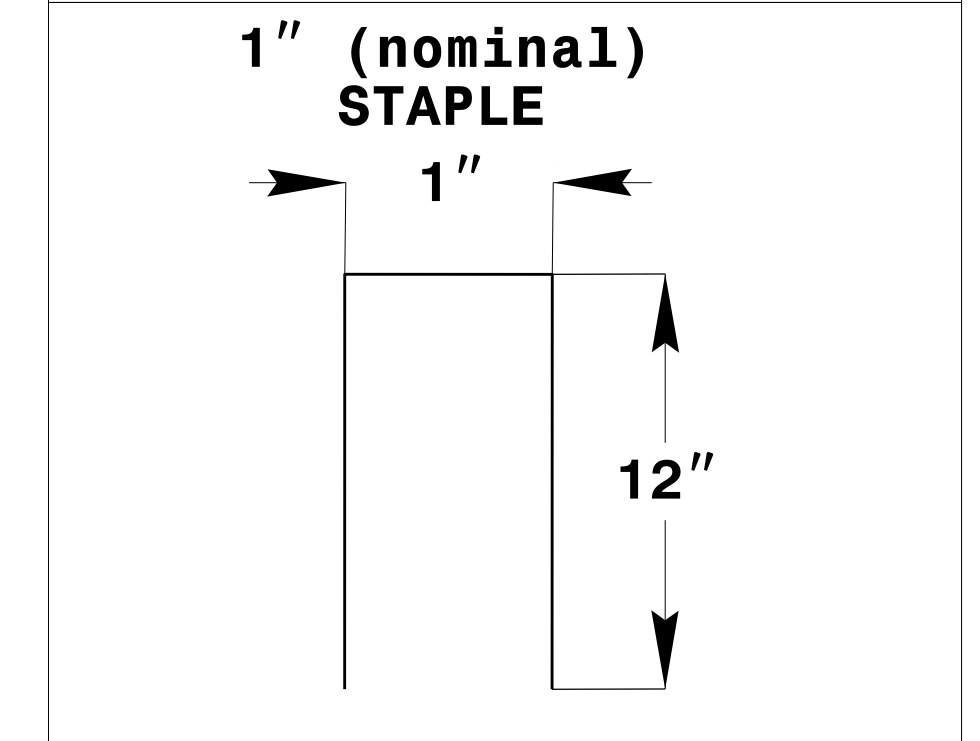
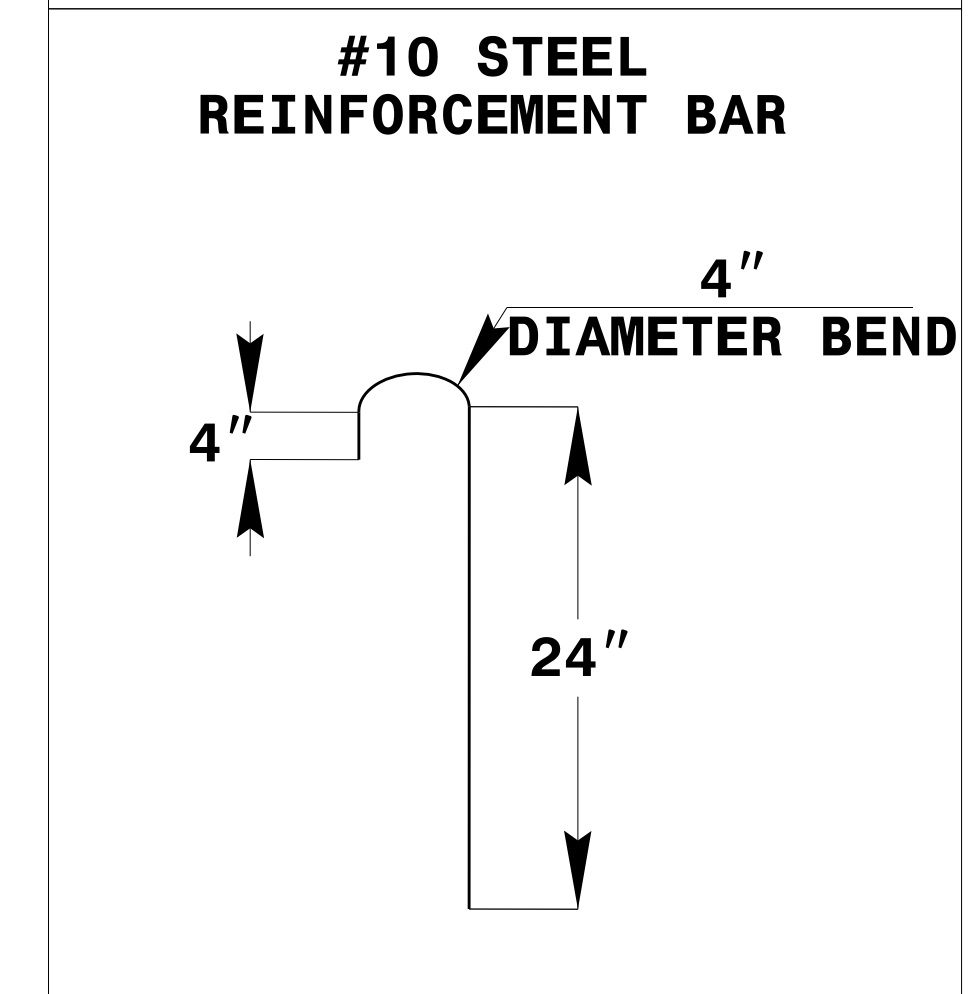
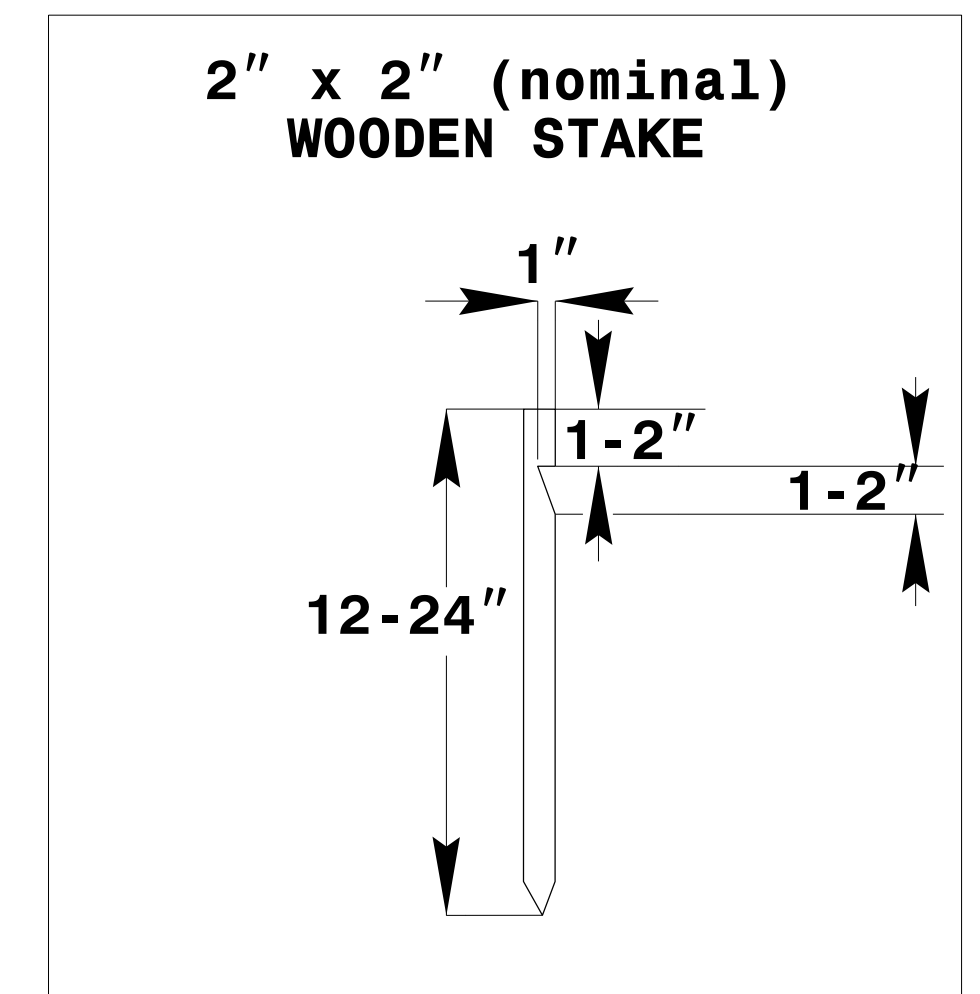
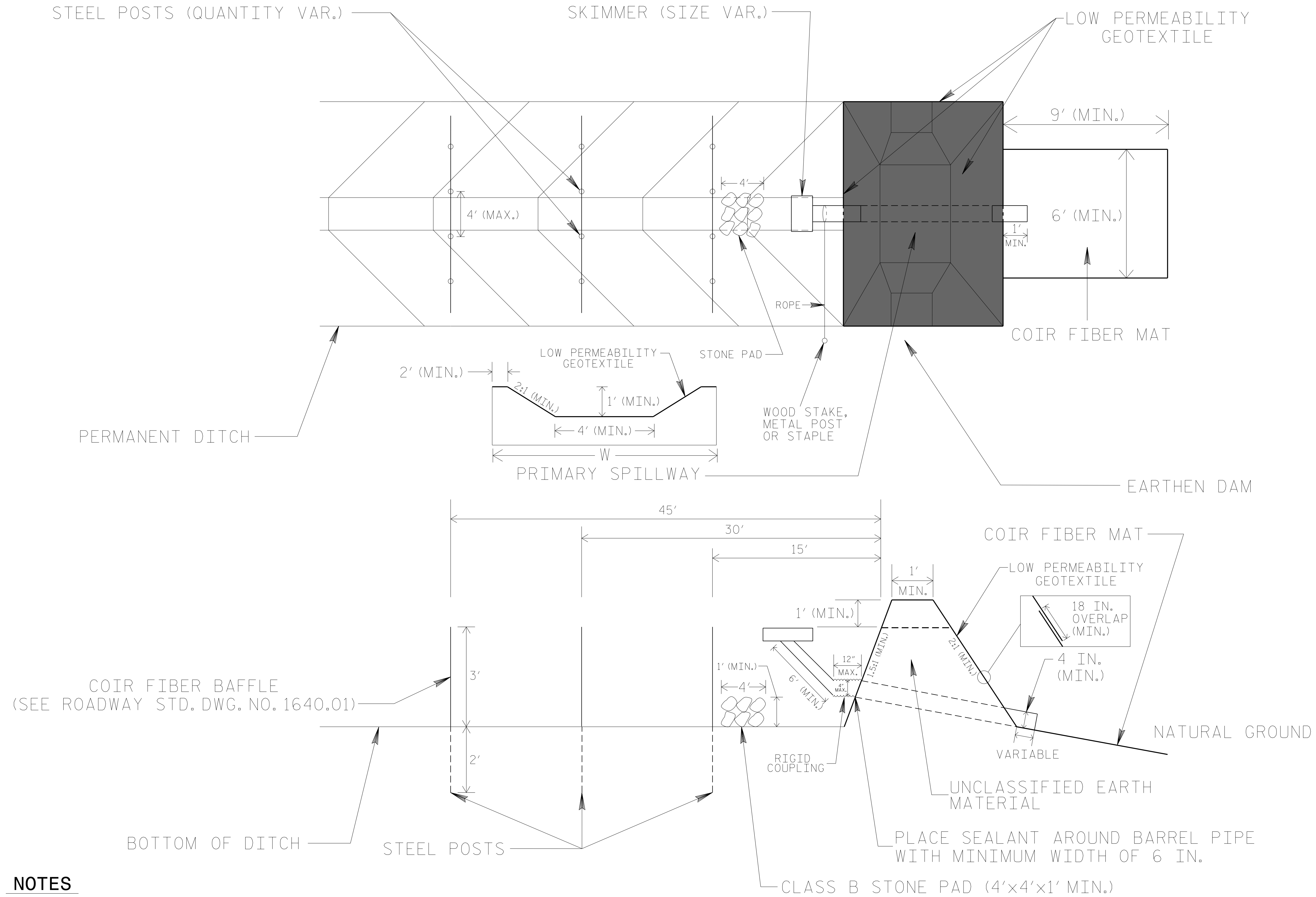
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



NOT TO SCALE



# EARTHEN DAM WITH SKIMMER DETAIL (EAST)



## COIR FIBER MAT ANCHOR OPTIONS

### NOTES

1. LIMIT EARTHEN DAM HEIGHT TO 5 FT.
2. DETERMINE PRIMARY SPILLWAY LENGTH (FT.) USING  $Q/0.8$ , WHERE Q IS FLOW RATE (CFS) INTO BASIN.
3. LOW PERMEABILITY GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

**SOIL STABILIZATION SUMMARY SHEET**

**NATURAL FIBER MESH FOR EROSION CONTROL**

**NATURAL FIBER MESH FOR EROSION CONTROL**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	34+17	35+00	MED	225
7	L	74+26	76+06	RT	320
7	L	77+56	83+00	MED	1,095
7	L	91+12	95+07	MED	795
7	RPIAB	5+46	10+00	MED	890
7	RPIAB	13+50	15+00	MED	255
7	RPICD	0+00	5+02	RT	880
9	L	118+60	128+00	MED	2,520
10	L	128+00	134+32	MED	1,410
10	L	141+50	142+00	MED	135
11	L	142+00	150+50	MED	2,280
12	L	165+23	170+00	RT	505
13	L	170+00	170+50	RT	55
14	L	192+90	198+00	MED	1,365
15	L	198+00	212+00	MED	3,760
16	L	212+00	214+00	MED	540
16	L	223+55	219+40	LT	435
18	L	267+67	268+00	RT	35
19	L	268+00	271+88	RT	405
19	L	269+75	278+50	LT	1,225
21	L	309+00	310+00	RT	70
21	Y4	40+80	43+43	LT	610
21	Y4	40+80	43+50	RT	625
21	Y4	45+26	48+30	RT	810
21	Y4DR	11+35	15+70	LT	970
22	L	310+00	313+25	RT	340
22	L	310+00	319+50	LT	1,780
23	L	330+00	332+50	LT	620
23	L	330+17	335+00	RT	1,750
23	L	332+50	336+35	LT	1,020

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
24	L	342+60	345+56	RT	575
24	L	343+60	344+41	LT	175
24	L	345+25	347+63	LT	635
25	L	352+35	366+00	LT	1,930
26	L	366+00	372+00	LT	1,025
35	L	498+50	505+00	MED	1,740
36	L	509+55	517+00	LT	3,140
36	L	518+07	529+15	MED	3,025
36	L	519+64	520+10	LT	45
36	L	526+50	530+14	RT	515
36	L	527+65	530+90	RT	455
36	RP2CD	9+00	12+05	LT	1,860
36	RP2AC	56+00	58+30	RT	405
36	RP2AC	56+00	77+74	MED	5,130
36	RP2AC	63+00	66+00	RT	1,045
36	RP2AC	72+04	74+75	RT	435
36	RP2C	7+27	8+36	RT	140
37	L	533+50	547+00	MED	1,985
37	L	543+00	547+00	LT	905
38	L	547+00	549+40	LT	545
38	L	555+00	556+50	MED	205
38	L	558+00	559+00	MED	165
38	L	559+00	561+00	LT	565
38	SERVEXT	11+00	14+50	LT	540
38	SERVEXT	16+00	17+80	LT	130
39	L	561+00	573+50	LT	4,800
39	L	563+50	565+50	RT	550
39	L	564+00	570+50	MED	865
41	RPIAB	15+00	22+50	MED	880
41	RPIAB	22+05	29+00	LT	1,875

8/17/99  
11/7/2008  
D:\RAY\9729-02\CA000\1015\Roadside\1015\_REU\_EC-03A\_PSH\_03A.dgn





DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

---



---

## ***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.

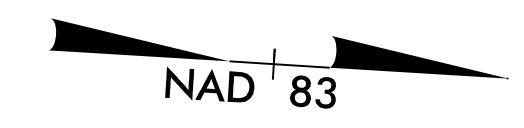
**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 4**

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

NOTE:  
DO NOT PLACE COIR FIBER WATTLES IN DITCHES  
CONTAINING STANDING WATER.

-L-  
PI Sta 33+69.33  
 $\Delta = 17' 46" 26.7" (RT)$   
 $D = 3' 19" 35.2"$   
 $L = 534.33'$   
 $T = 269.33'$   
 $R = 1,722.44'$   
 $SE = 0.08$   
 $RO = 320.00'$   
 $DS = 60 \text{ mph}$

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
DB 336 - PG 9  
DB 336 - PG 72  
7375.2 AC (DEED)

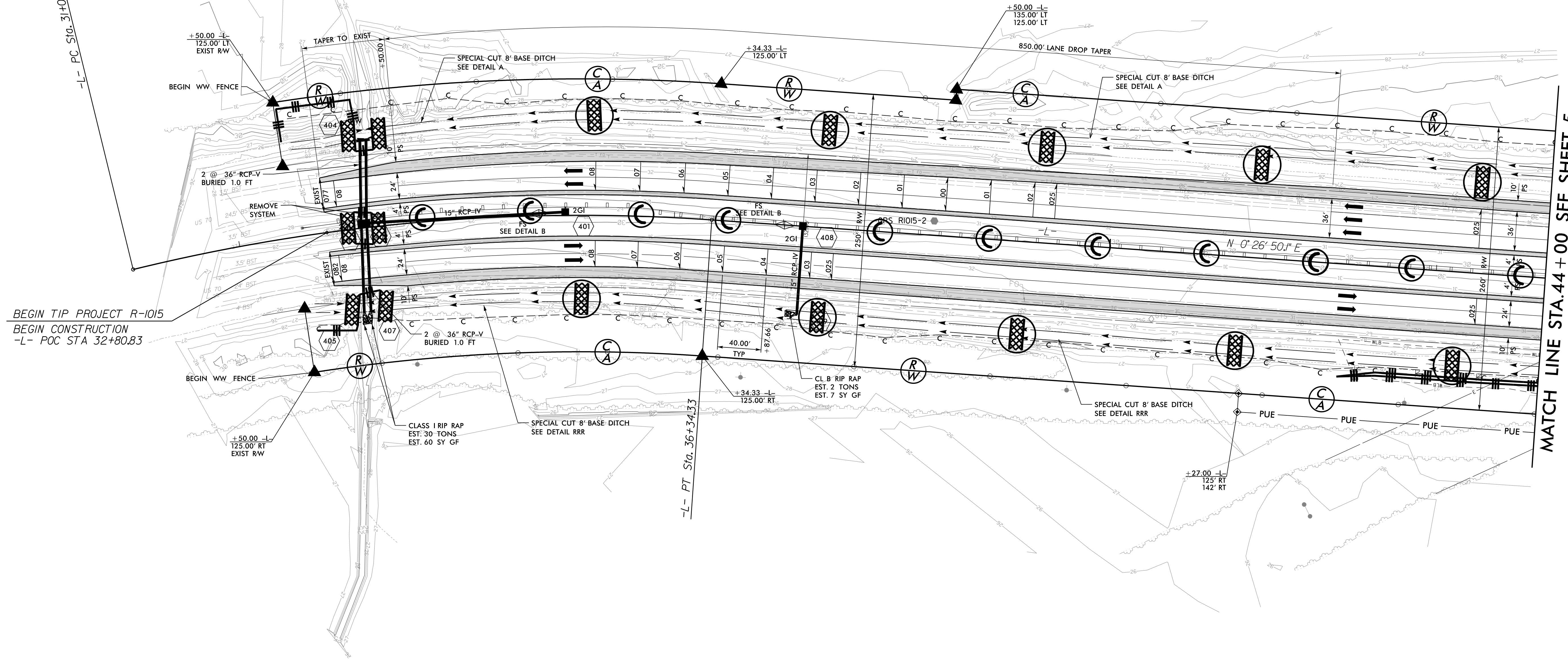


-L- PC Sta. 31+00.00

BEGIN TIP PROJECT R-1015  
BEGIN CONSTRUCTION  
-L- POC STA 32+80.83

-L- PT Sta. 36+34.33

MATCH LINE STA. 44 + 00 SEE SHEET 5



DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
DB 336 - PG 9  
DB 336 - PG 72  
7375.2 AC (DEED)

1

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8.17.99

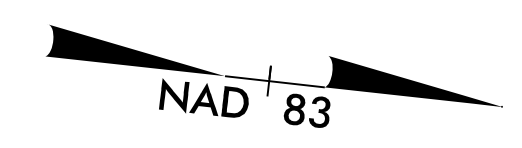
U:\7208\14729-02\CA000\1015\Roadside\1015\_REU\EC-04\_PSH\_04.dgn

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 5**

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

NOTE:  
DO NOT PLACE COIR FIBER WATTLES IN DITCHES  
CONTAINING STANDING WATER.

-L-  
PI Sta 58+21.81  
 $\Delta = 38^{\circ} 01' 15.2''$  (LT)  
D = 1'53'54.5"  
L = 2,002.71'  
T = 1,039.80'  
R = 3,018.00'  
SE = 0.06  
RO = 300.00'  
DS = 65 mph

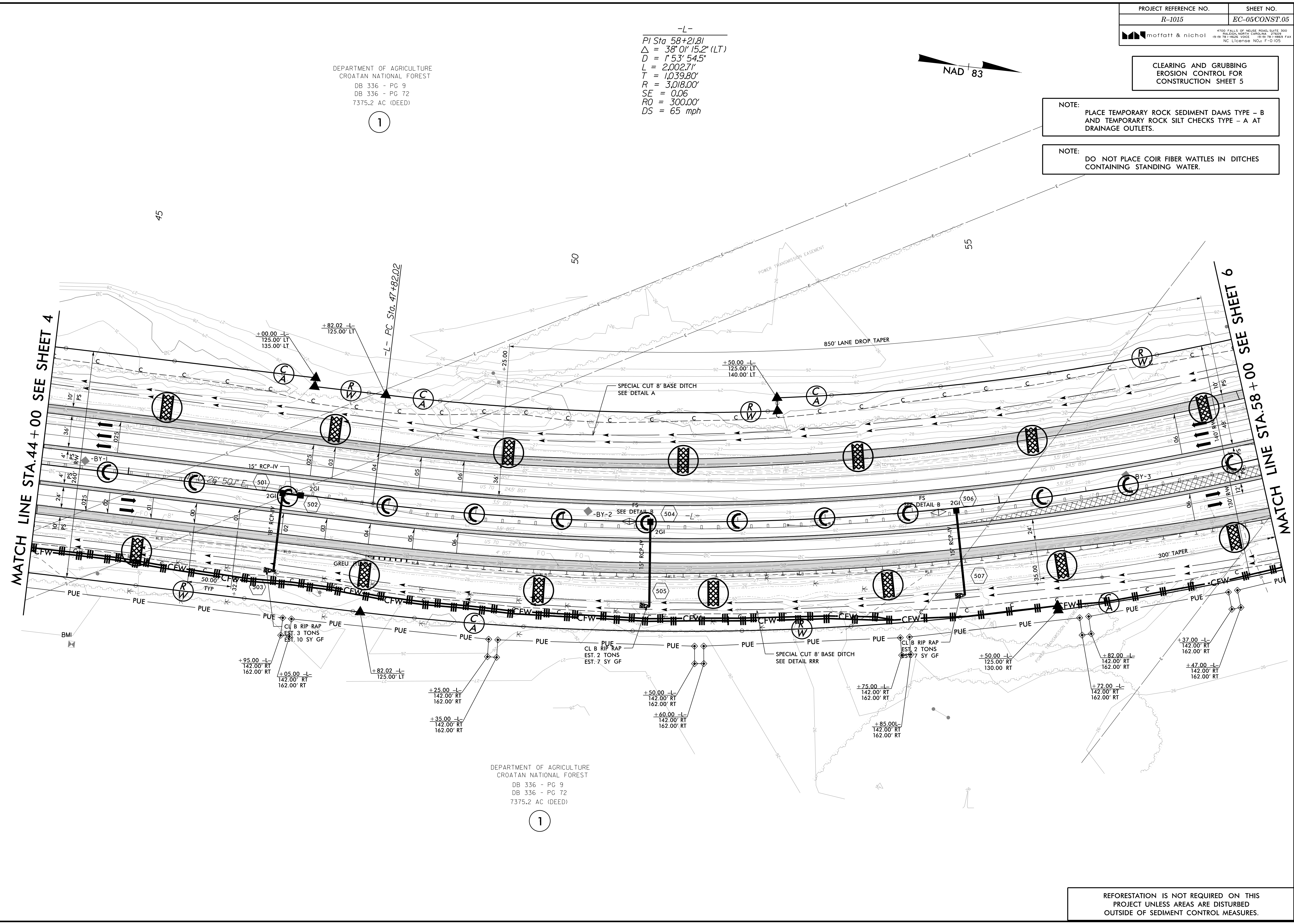


DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
DB 336 - PG 9  
DB 336 - PG 72  
7375.2 AC (DEED)

1

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
DB 336 - PG 9  
DB 336 - PG 72  
7375.2 AC (DEED)

1



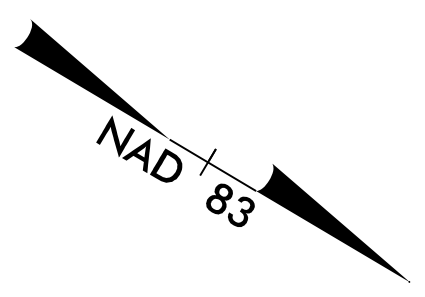
MATCH LINE STA. 44 + 00 SEE SHEET 4

MATCH LINE STA. 58 + 00 SEE SHEET 6

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99  
 I:\7\20\9729-02\CA000\1\015\Roadside\1015\_REU\EC-05\_PSH\_05\_CD.dgn  
 11/7/2008 10:54:29 AM

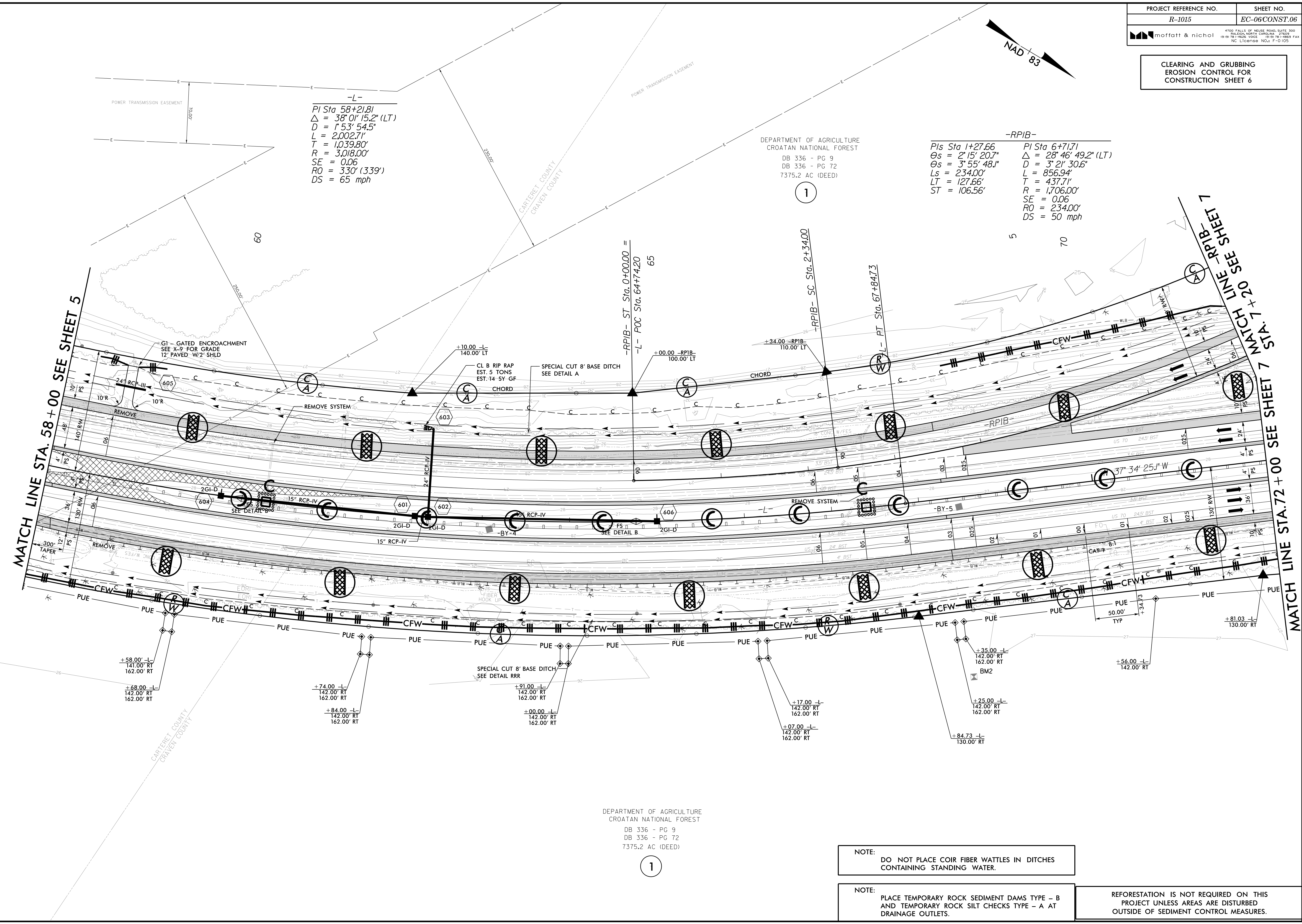
**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 6**



-L-  
 PI Sta 58+21.81  
 $\Delta = 38^{\circ} 01' 15.2''$  (LT)  
 $D = 1^{\circ} 53' 54.5''$   
 $L = 2,002.71'$   
 $T = 1,039.80'$   
 $R = 3,018.00'$   
 $SE = 0.06$   
 $RO = 330' (339')$   
 $DS = 65$  mph

DEPARTMENT OF AGRICULTURE  
 CROATAN NATIONAL FOREST  
 DB 336 - PG 9  
 DB 336 - PG 72  
 7375.2 AC (DEED)

-RPIB-  
 PIs Sta 1+27.66 PI Sta 6+71.71  
 $\Theta_s = 2^{\circ} 15' 20.7''$   $\Delta = 28^{\circ} 46' 49.2''$  (LT)  
 $\Theta_s = 3^{\circ} 55' 48.1''$   $D = 3^{\circ} 21' 30.6''$   
 $L_s = 234.00'$   $L = 856.94'$   
 $LT = 127.66'$   $T = 437.71'$   
 $ST = 106.56'$   $R = 1,706.00'$   
 $SE = 0.06$   
 $RO = 234.00'$   
 $DS = 50$  mph



MATCH LINE STA. 58+00 SEE SHEET 5

MATCH LINE STA. 72+00 SEE SHEET 7  
 MATCH LINE STA. 7+20 SEE SHEET 7  
 MATCH LINE STA. 7+20 SEE SHEET 7

DEPARTMENT OF AGRICULTURE  
 CROATAN NATIONAL FOREST  
 DB 336 - PG 9  
 DB 336 - PG 72  
 7375.2 AC (DEED)

NOTE:  
 DO NOT PLACE COIR FIBER WATTLES IN DITCHES  
 CONTAINING STANDING WATER.

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

REFORESTATION IS NOT REQUIRED ON THIS  
 PROJECT UNLESS AREAS ARE DISTURBED  
 OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99  
 I:\7208\1015\Roadside\1015\_Roadside\1015\_REU\EC-06\_PSH\_06\_CD.dgn  
 10/17/2008 10:57:29 AM

NO.	DESCRIPTION	DATE

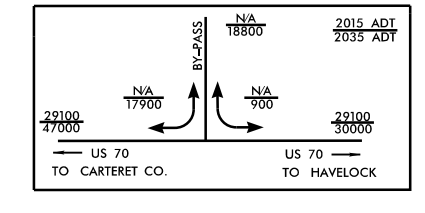
PROJECT REFERENCE NO. 0-1002  
SHEET NO. 02-200CONSTR.02

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 7

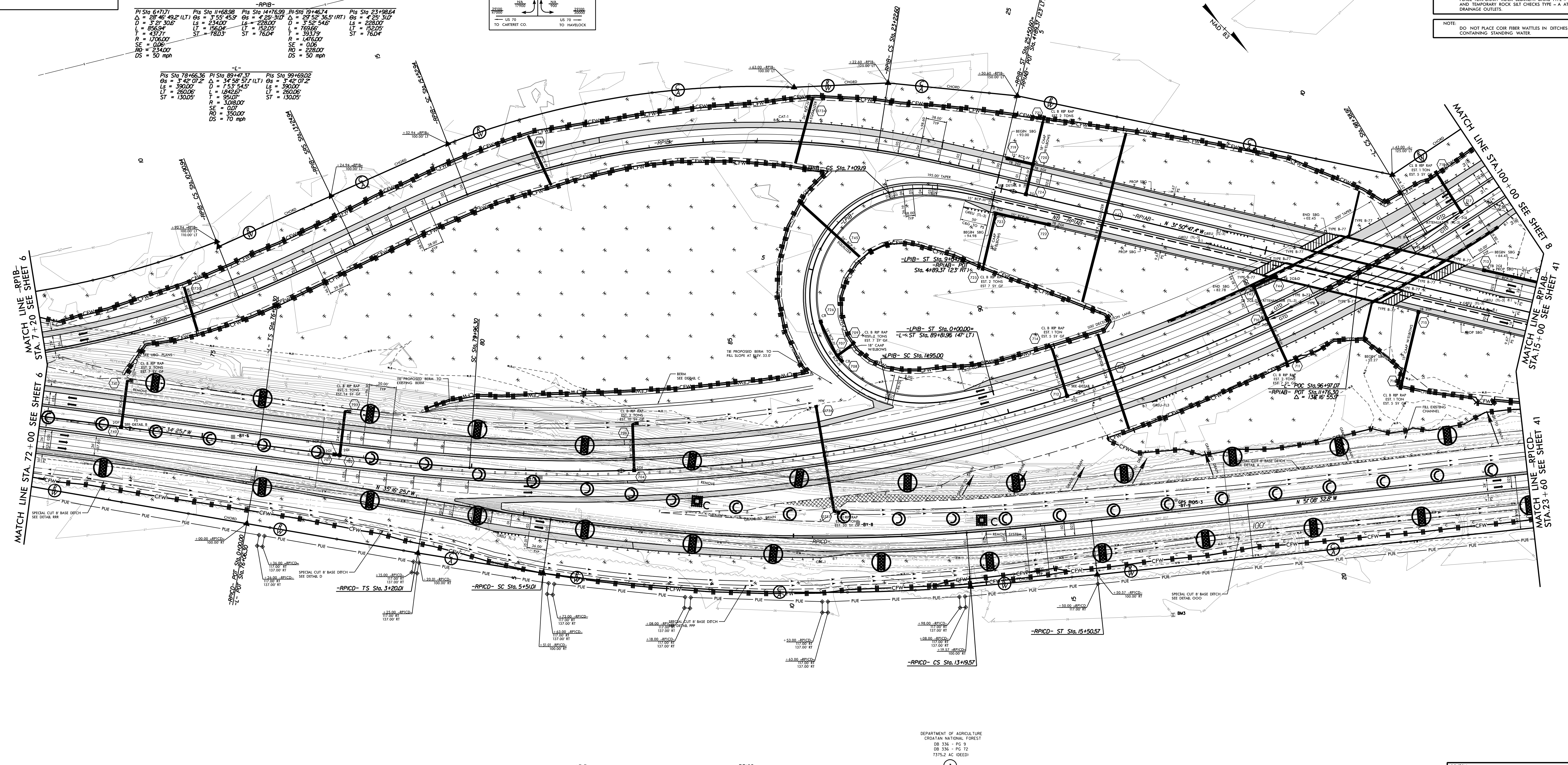
- NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.
- NOTE: DO NOT PLACE COIR FIBER WATTLES IN DITCHES CONTAINING STANDING WATER.

-RP1B-			
PI Sta 6+71.71	PI Sta 11+68.98	PI Sta 14+76.99	PI Sta 19+46.74
Δ = 28° 46' 49.2" (LT)	Δ = 3° 55' 45.9"	Δ = 4° 28' 31.0"	Δ = 29° 52' 36.5" (RT)
D = 379' 30.8"	Ls = 234.00'	Ls = 228.00'	D = 379' 30.8"
L = 856.94'	LT = 156.04'	LT = 152.05'	L = 769.66'
T = 437.71'	ST = 78.03'	ST = 76.04'	T = 393.73'
R = 1765.00'	R = 93.07'	R = 1470.00'	R = 1765.00'
SE = 0.06%	SE = 0.07%	SE = 0.06%	SE = 0.06%
RS = 234.00'	RS = 234.00'	RS = 228.00'	RS = 234.00'
DS = 50 mph	DS = 50 mph	DS = 50 mph	DS = 50 mph

-L-			
PI Sta 78+66.36	PI Sta 89+47.37	PI Sta 99+69.02	
Δ = 3° 42' 07.2"	Δ = 3° 42' 07.2"	Δ = 3° 42' 07.2"	
D = 330.00'	Ls = 153' 54.5"	Ls = 390.00'	
L = 260.00'	LT = 164.26'	LT = 260.00'	
T = 130.00'	ST = 93.07'	ST = 130.00'	
R = 3078.00'	R = 637'	R = 3500.00'	
SE = 0.07%	SE = 0.07%	SE = 0.07%	
RS = 350.00'	RS = 350.00'	RS = 350.00'	
DS = 70 mph	DS = 70 mph	DS = 70 mph	

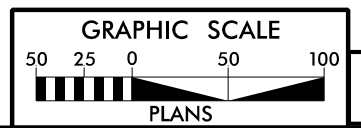


DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
DB 336 - PG 9  
DB 336 - PG 72  
1735.2 AC (DEED)



-LP1B-				-RP1C-			
PI Sta 1+28.02	PI Sta 9+87.76	PI Sta 7+75.74		PI Sta 4+74.02	PI Sta 9+36.75	PI Sta 13+96.57	
Δ = 1° 48' 34.4"	Δ = 1° 48' 34.4"	Δ = 1° 48' 34.4"		Δ = 1° 48' 34.4"	Δ = 1° 48' 34.4"	Δ = 1° 48' 34.4"	
D = 28' 25' 38.8"	D = 28' 25' 38.8"	D = 28' 25' 38.8"		D = 28' 25' 38.8"	D = 28' 25' 38.8"	D = 28' 25' 38.8"	
Ls = 150.00'	Ls = 150.00'	Ls = 150.00'		Ls = 150.00'	Ls = 150.00'	Ls = 150.00'	
LT = 128.02'	LT = 128.02'	LT = 128.02'		LT = 128.02'	LT = 128.02'	LT = 128.02'	
T = 723.76'	T = 723.76'	T = 723.76'		T = 723.76'	T = 723.76'	T = 723.76'	
R = 97.00'	R = 97.00'	R = 97.00'		R = 97.00'	R = 97.00'	R = 97.00'	
SE = 0.07%	SE = 0.07%	SE = 0.07%		SE = 0.07%	SE = 0.07%	SE = 0.07%	
RS = 135.00'	RS = 135.00'	RS = 135.00'		RS = 135.00'	RS = 135.00'	RS = 135.00'	
DS = 25 mph	DS = 25 mph	DS = 25 mph		DS = 25 mph	DS = 25 mph	DS = 25 mph	

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
DB 336 - PG 9  
DB 336 - PG 72  
1735.2 AC (DEED)



RESTORATION IS NOT REQUIRED ON THIS PROJECT UNLESS AREAS ARE DISTURBED OUTSIDE OF SEDIMENT CONTROL MEASURES.

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

DRAWN BY: J. W. HARRIS, P.E., REGISTERED PROFESSIONAL ENGINEER, STATE OF NORTH CAROLINA, LICENSE NO. 10000







**CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 10**

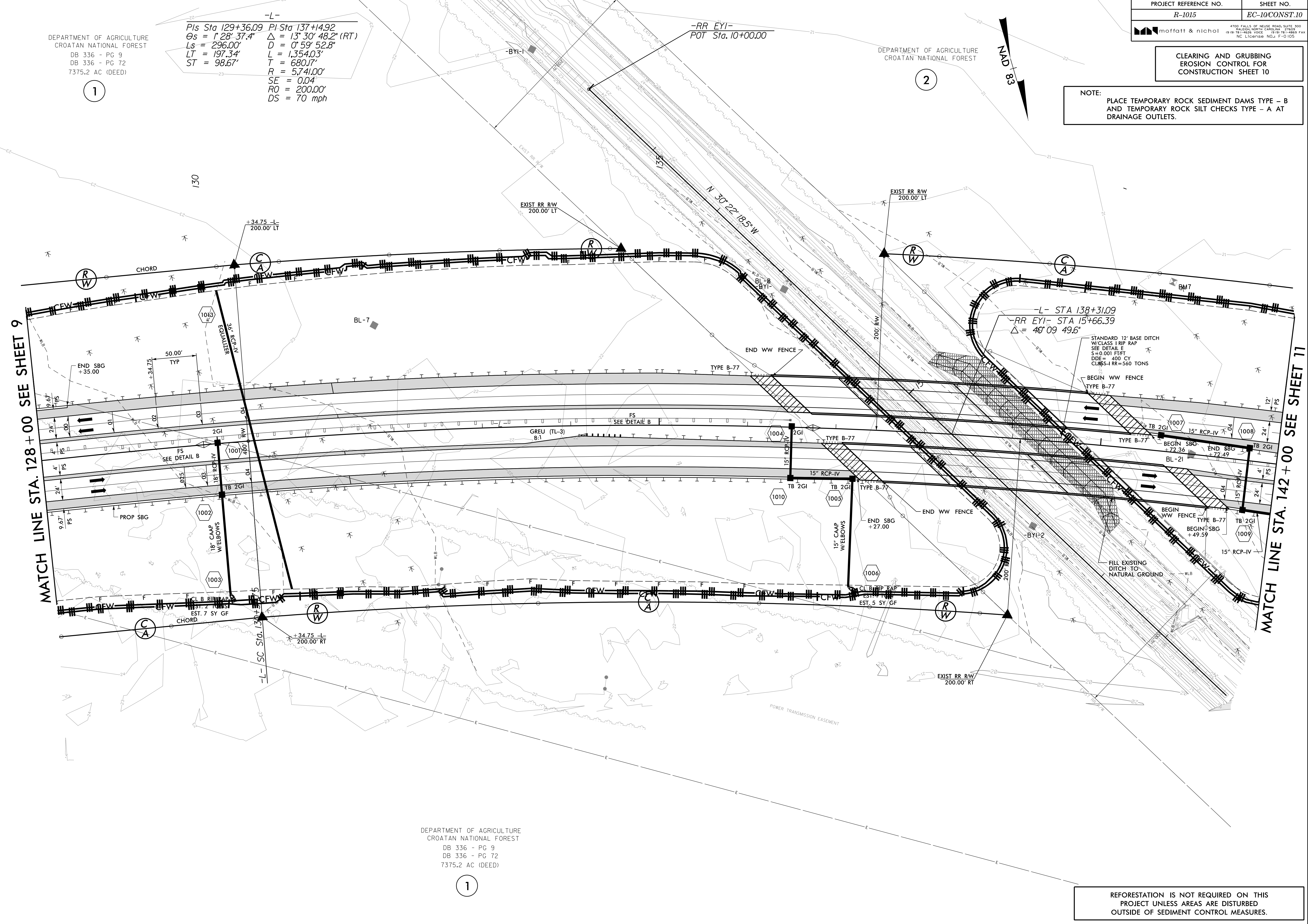
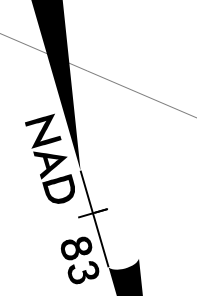
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS - A AT DRAINAGE OUTLETS.

DEPARTMENT OF AGRICULTURE  
 CROATAN NATIONAL FOREST  
 DB 336 - PG 9  
 DB 336 - PG 72  
 7375.2 AC (DEED)

-L-  
 PIs Sta 129+36.09 PI Sta 137+14.92  
 $\Theta_s = 1^{\circ} 28' 37.4''$   $\Delta = 13^{\circ} 30' 48.2''$  (RT)  
 $L_s = 296.00'$   $D = 0^{\circ} 59' 52.8''$   
 $LT = 197.34'$   $L = 1,354.03'$   
 $ST = 98.67'$   $T = 680.17'$   
 $R = 5,741.00'$   
 $SE = 0.04$   
 $RO = 200.00'$   
 $DS = 70$  mph

-RR EYI-  
 POT Sta. 10+00.00

DEPARTMENT OF AGRICULTURE  
 CROATAN NATIONAL FOREST



MATCH LINE STA. 128 + 00 SEE SHEET 9

MATCH LINE STA. 142 + 00 SEE SHEET 11

DEPARTMENT OF AGRICULTURE  
 CROATAN NATIONAL FOREST  
 DB 336 - PG 9  
 DB 336 - PG 72  
 7375.2 AC (DEED)

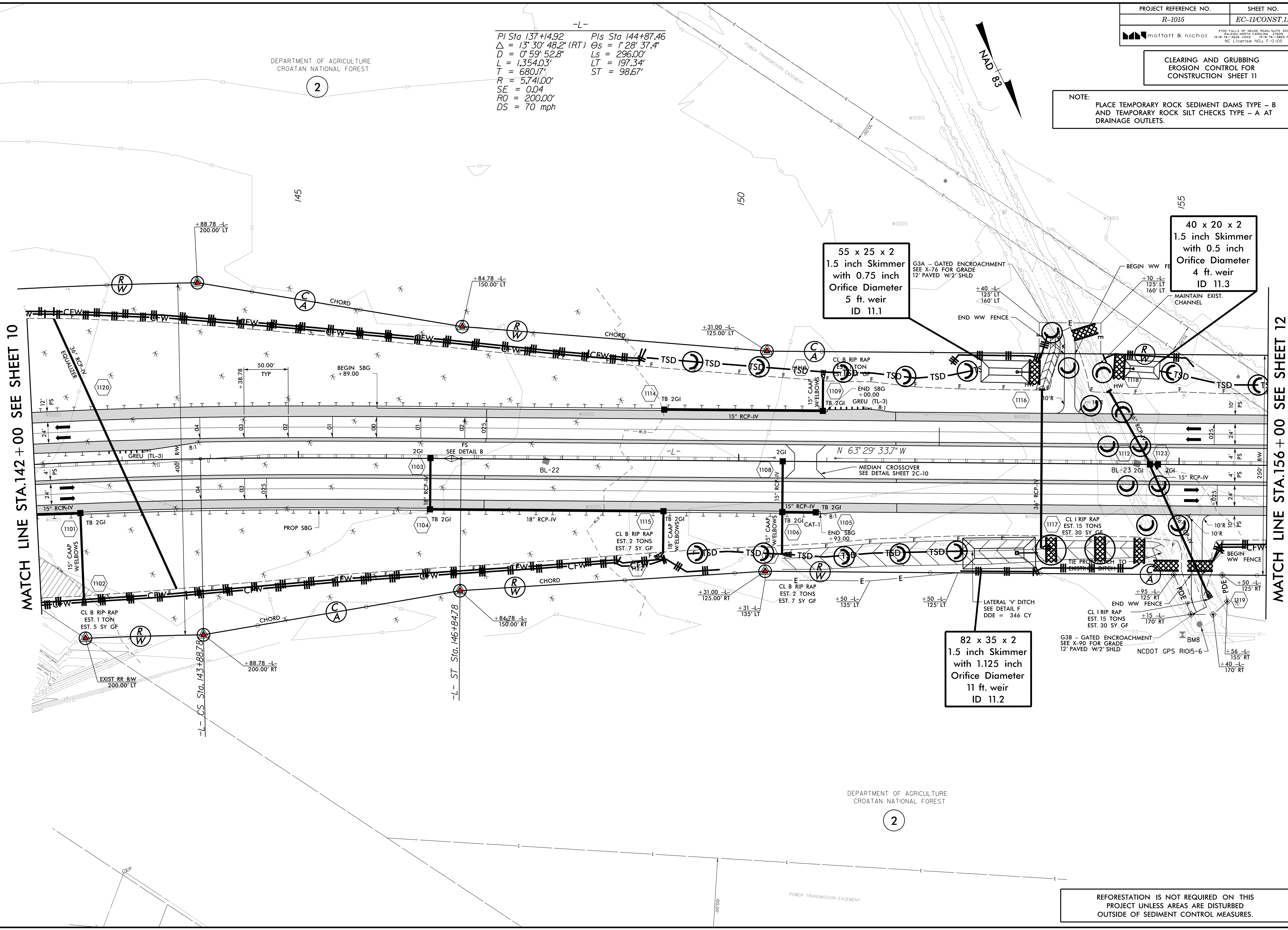
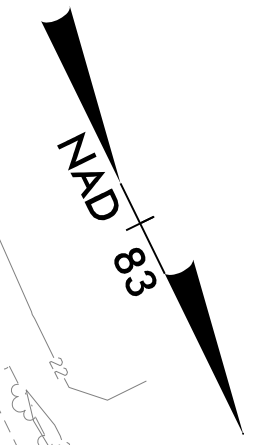
REFORESTATION IS NOT REQUIRED ON THIS PROJECT UNLESS AREAS ARE DISTURBED OUTSIDE OF SEDIMENT CONTROL MEASURES.

11/7/2018 10:17:29-02:CA000\N\1015\Roadside\N-1015\_REU\_EC-10\_PSH\_10.CG.dgn

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 11**

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

-L-  
 PI Sta 137+14.92    Pls Sta 144+87.46  
 $\Delta = 13^{\circ} 30' 48.2''$  (RT)     $\Theta_s = 1^{\circ} 28' 37.4''$   
 $D = 0^{\circ} 59' 52.8''$      $L_s = 296.00'$   
 $L = 1,354.03'$      $LT = 197.34'$   
 $T = 680.17'$      $ST = 98.67'$   
 $R = 5,741.00'$   
 $SE = 0.04$   
 $RO = 200.00'$   
 $DS = 70$  mph



55 x 25 x 2  
 1.5 inch Skimmer  
 with 0.75 inch  
 Orifice Diameter  
 5 ft. weir  
 ID 11.1

40 x 20 x 2  
 1.5 inch Skimmer  
 with 0.5 inch  
 Orifice Diameter  
 4 ft. weir  
 ID 11.3

82 x 35 x 2  
 1.5 inch Skimmer  
 with 1.125 inch  
 Orifice Diameter  
 11 ft. weir  
 ID 11.2

MATCH LINE STA. 142 + 00 SEE SHEET 10

MATCH LINE STA. 156 + 00 SEE SHEET 12

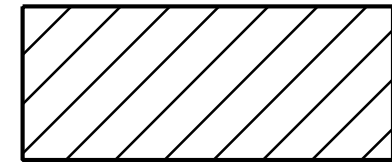
DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

REFORESTATION IS NOT REQUIRED ON THIS PROJECT UNLESS AREAS ARE DISTURBED OUTSIDE OF SEDIMENT CONTROL MEASURES.

3/5/2019  
 D:\1619729-02\CA000\1015\Roadside\VR-1015\_REU\_EC-11\_PSH\_11\_C6.dgn  
 8/17/99

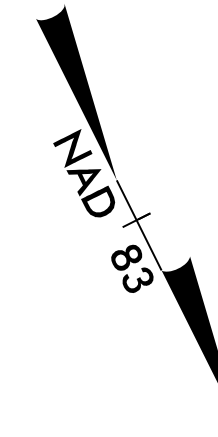
8/17/99



ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

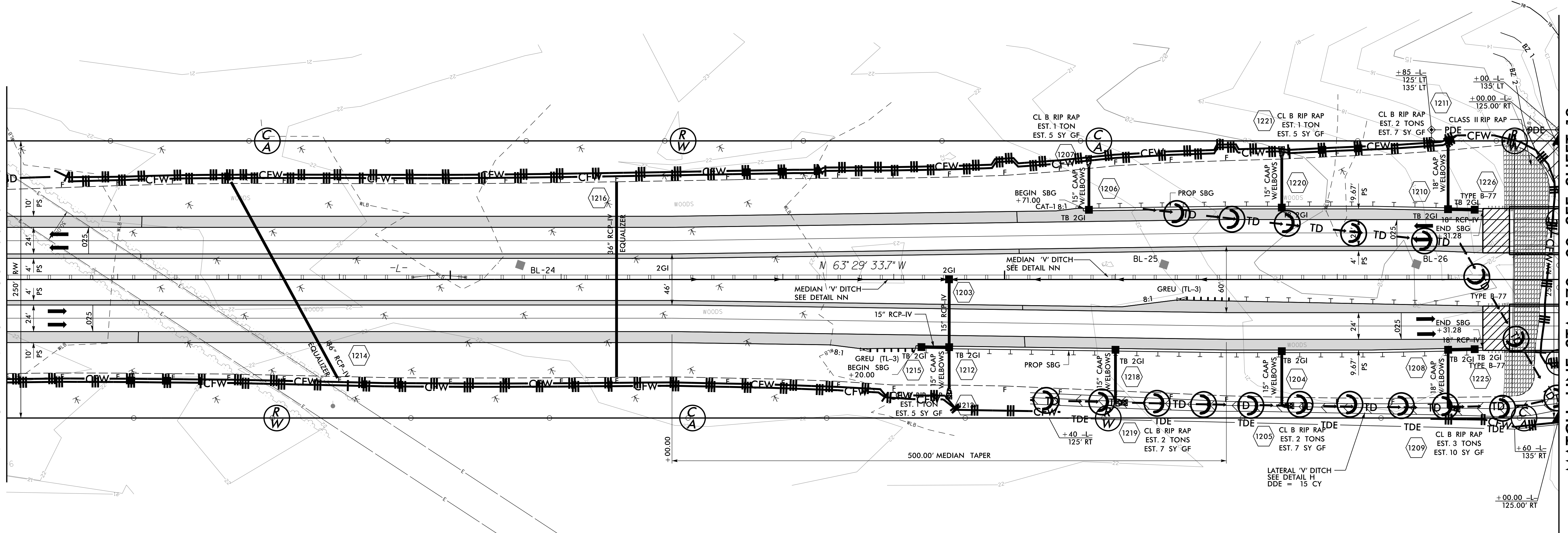


PROJECT REFERENCE NO.	SHEET NO.
R-1015	EC-12CONST.12
<small>4700 FALLS OF NEUSE ROAD, SUITE 300 RALEIGH, NORTH CAROLINA 27609 (919) 781-4626 VOICE (919) 781-4868 FAX NC LICENSE NO. F-10105</small>	

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 12

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

MATCH LINE STA. 156 + 00 SEE SHEET 11



MATCH LINE STA. 170 + 00 SEE SHEET 13

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

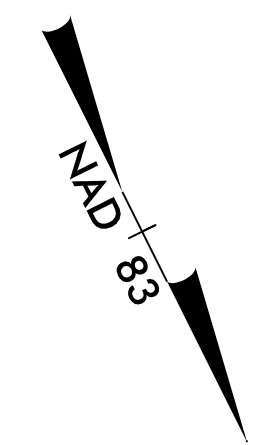
I:\7208  
15763\729-02\CA000\1015\Roadside\NR-1015\_REU\_EC-12\_PSH.12\_CG.dgn

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 13**

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

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2



DAVID T. ROWE, et ux  
JAMES M. STALLINGS, et ux  
DB 1382 - PG 165

3

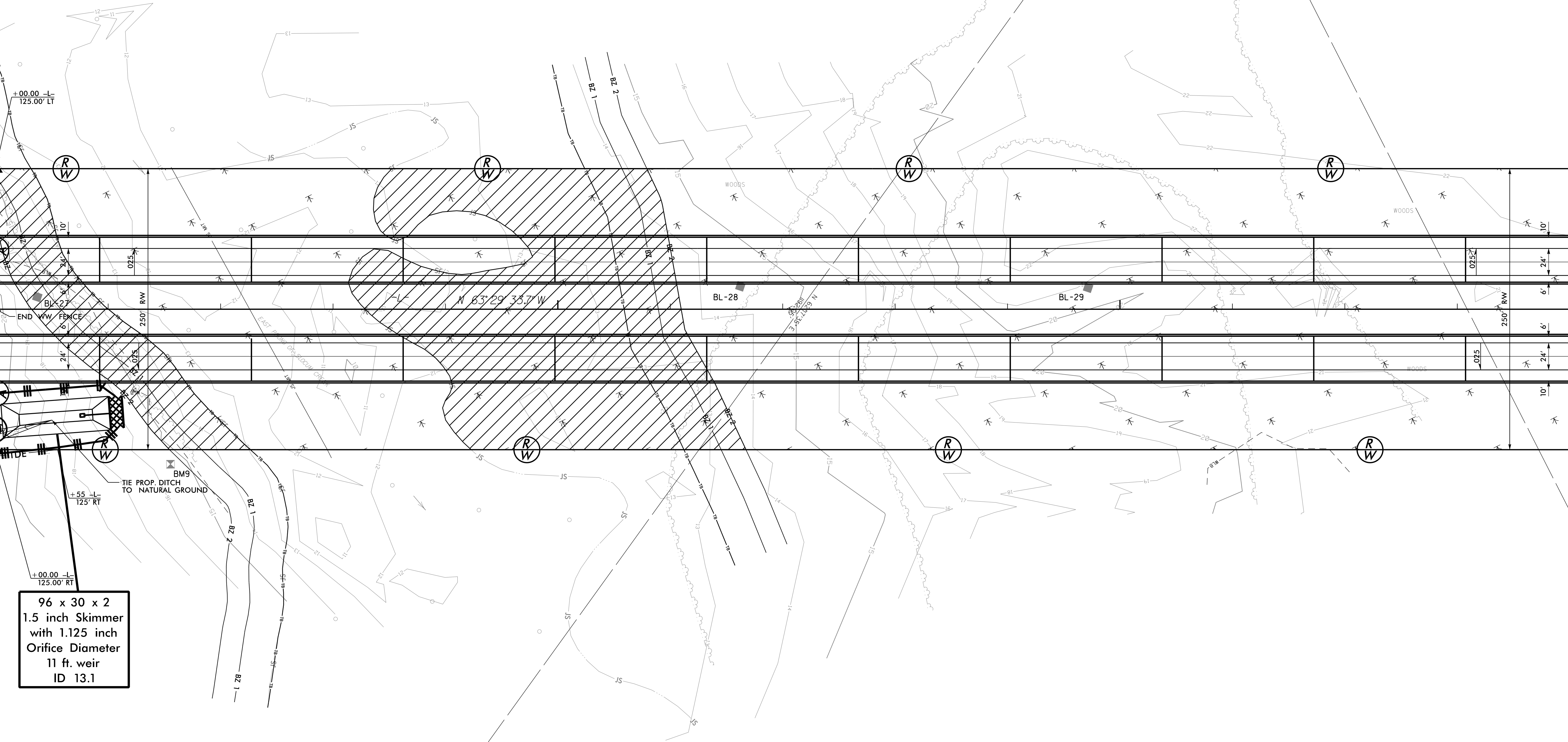
DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

170

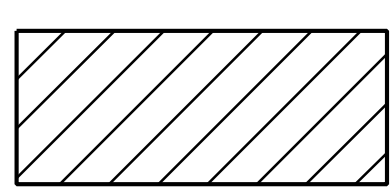
175

MATCH LINE STA.170 + 00 SEE SHEET 12

MATCH LINE STA.184 + 00 SEE SHEET 14



96 x 30 x 2  
1.5 inch Skimmer  
with 1.125 inch  
Orifice Diameter  
11 ft. weir  
ID 13.1



ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

DAVID T. ROWE, et ux  
JAMES M. STALLINGS, et ux  
DB 1382 - PG 165

3

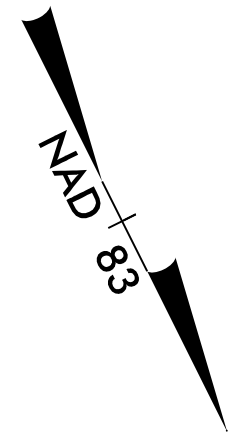
REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99

1/7/2008  
D:\FA\9729-02\CADD\1015\Roadside\1015\_REU\EC-13\_PSH\_13.CG.dgn

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 14**

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

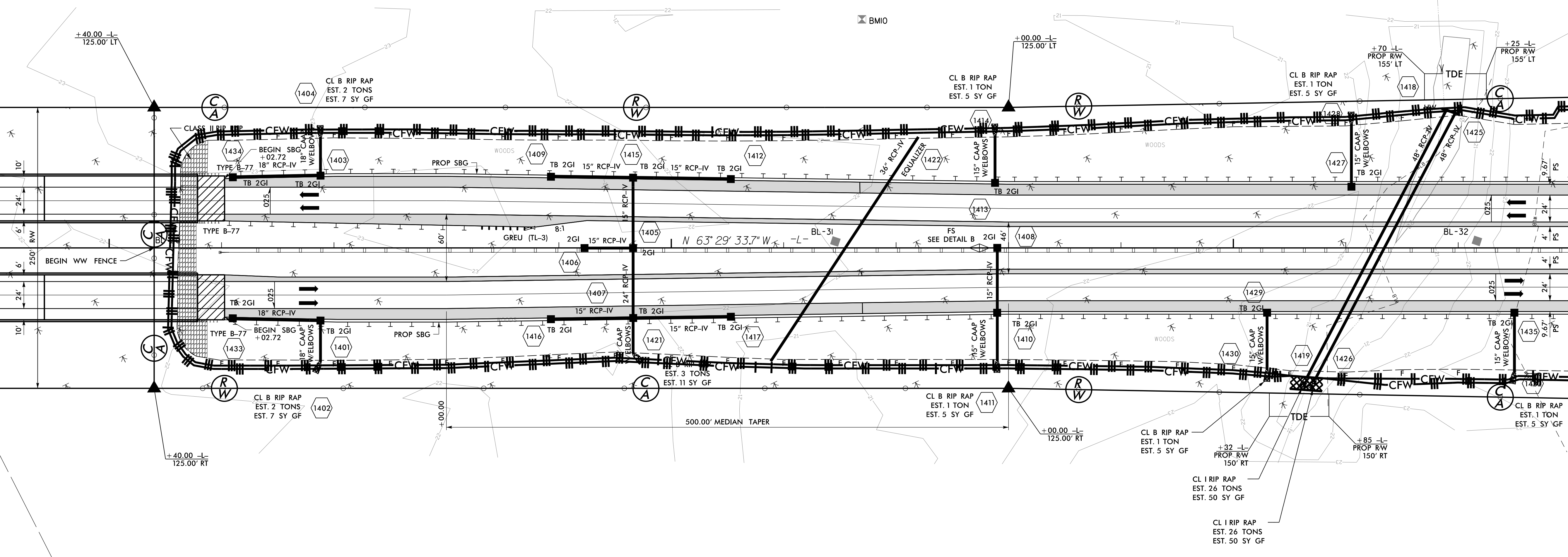


DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

MATCH LINE STA.184+00 SEE SHEET 13

MATCH LINE STA.198+00 SEE SHEET 15



DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99

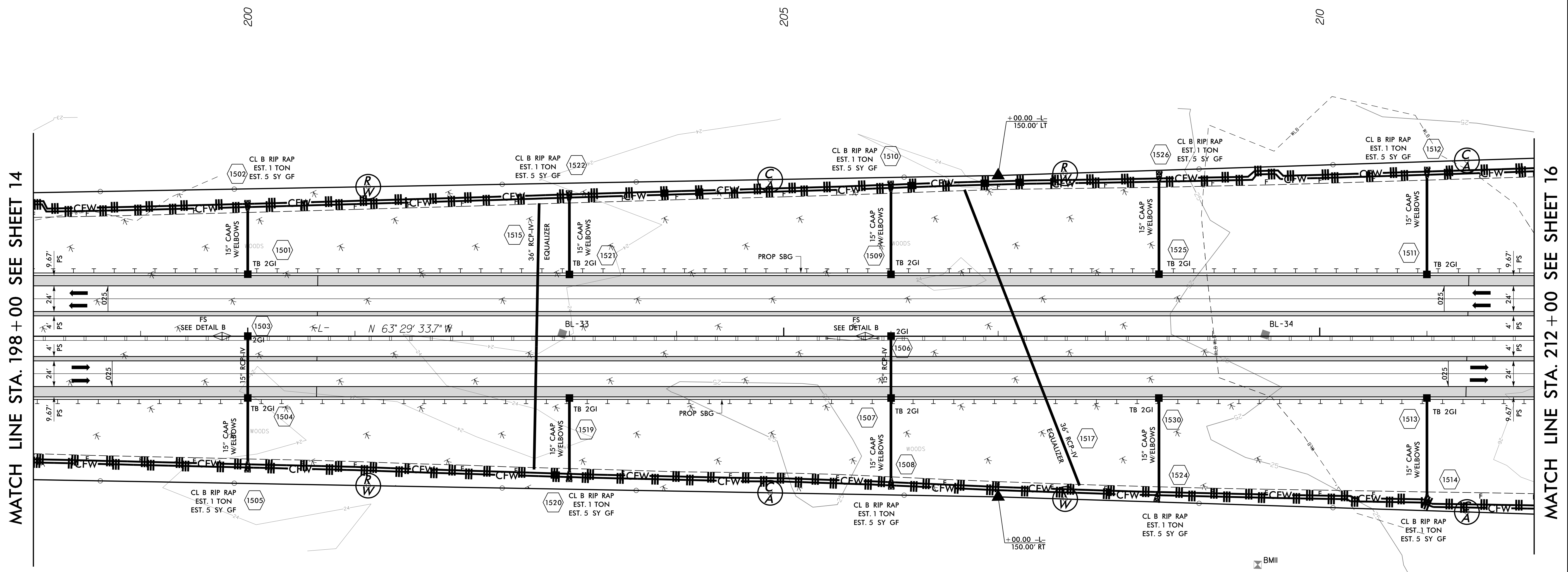
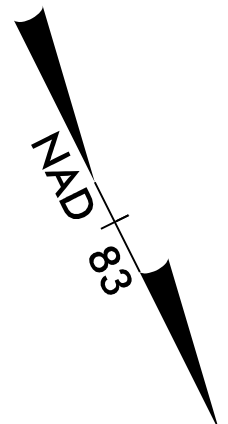
I:\74208\14\FAV\729-02\CA000\1\015\Roadside\1015\_REU\EC-14\_PSH\_14\_CG.dgn

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 15

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

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2



MATCH LINE STA. 198 + 00 SEE SHEET 14

MATCH LINE STA. 212 + 00 SEE SHEET 16

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99

1/7/2008  
D:\FAS\9729-02\CA000\1015\Roadside\1015\_REU\EC-15\_PSH\_15.CG.dgn

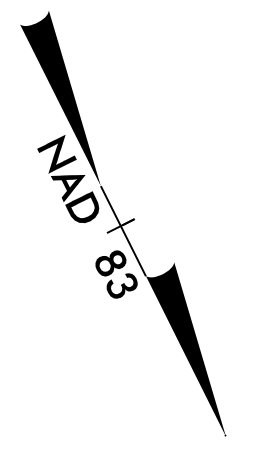


**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 16**

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

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

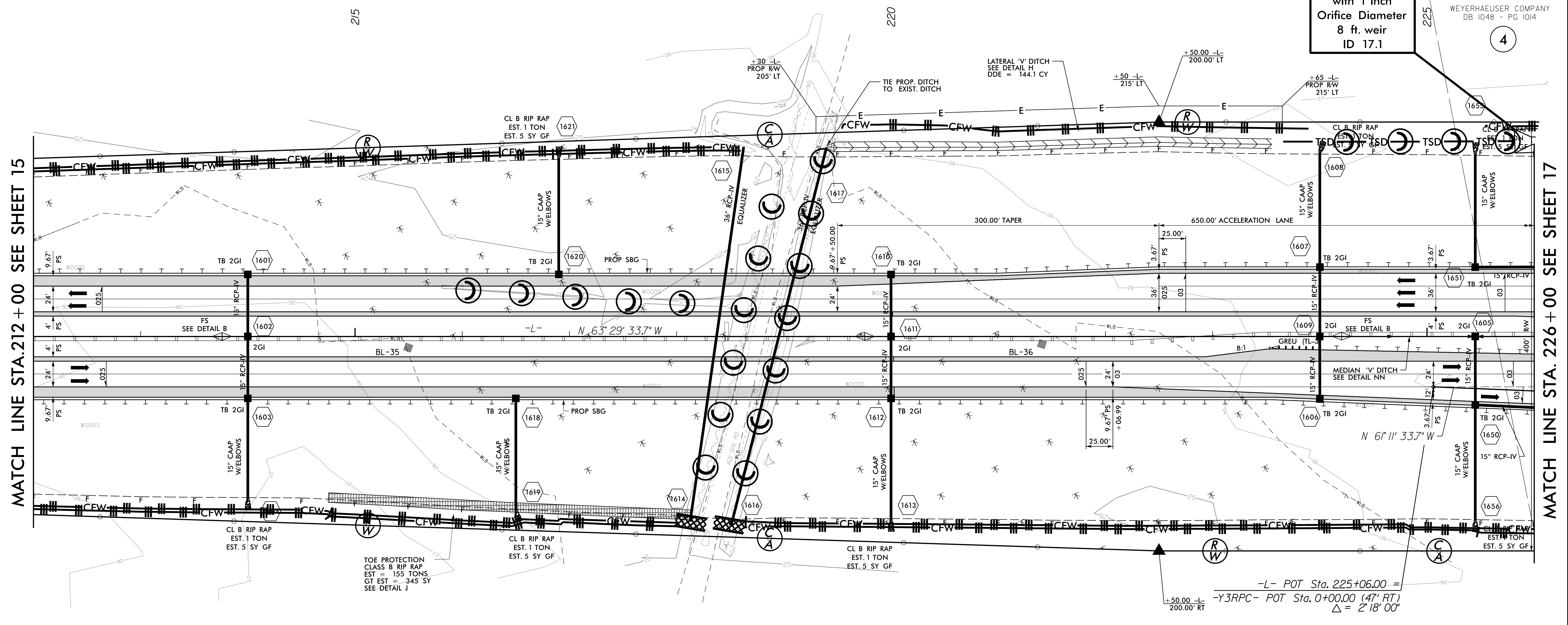
2



98 x 22 x 2  
1.5 inch Skimmer  
with 1 inch  
Orifice Diameter  
8 ft. weir  
ID 17.1

WEYERHAEUSER COMPANY  
DB 1048 - PG 1014

4



MATCH LINE STA. 212 + 00 SEE SHEET 15

MATCH LINE STA. 226 + 00 SEE SHEET 17

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

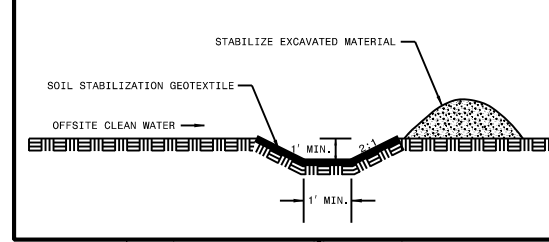
2

REFORESTATION IS NOT REQUIRED ON THIS PROJECT UNLESS AREAS ARE DISTURBED OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99

U:\7208\15729-02\CA000\1015\Roadside\1015\_REU\EC-16\_PSH\_16\_CG.dgn

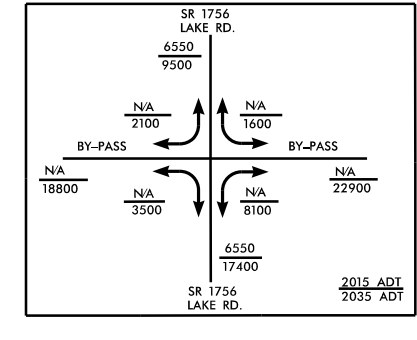
**CLEAN WATER DIVERSION**  
(Not to Scale)



**RIO/SAB-EY2-**  
 PI Sta 19+91.00  
 Δ = 11' 54" 8.47 (LT)  
 D = 0' 59" 32.6"  
 L = 1.05952'  
 T = 5.8074'  
 R = 57.4146'

-L-	-Y3RPA-	-Y3RPB-
PI Sta 236+02.35 Δ = 2' 30" 53.3" LS = 360.00' L = 240.00' ST = 162.00' R = 40.00' SE = 0.00' RO = 250.00' DS = 70 mph	PI Sta 256+33.26 Δ = 49' 58" 05.07 (RT) LS = 2' 54" 40.9" L = 133.33' ST = 66.67' R = 200.00' SE = 0.00' RO = 150.00' DS = 50 mph	PI Sta 12+32.03 Δ = 3' 52" 34.8" LS = 186.00' L = 124.00' ST = 62.00' R = 186.00' SE = 0.00' RO = 150.00' DS = 50 mph

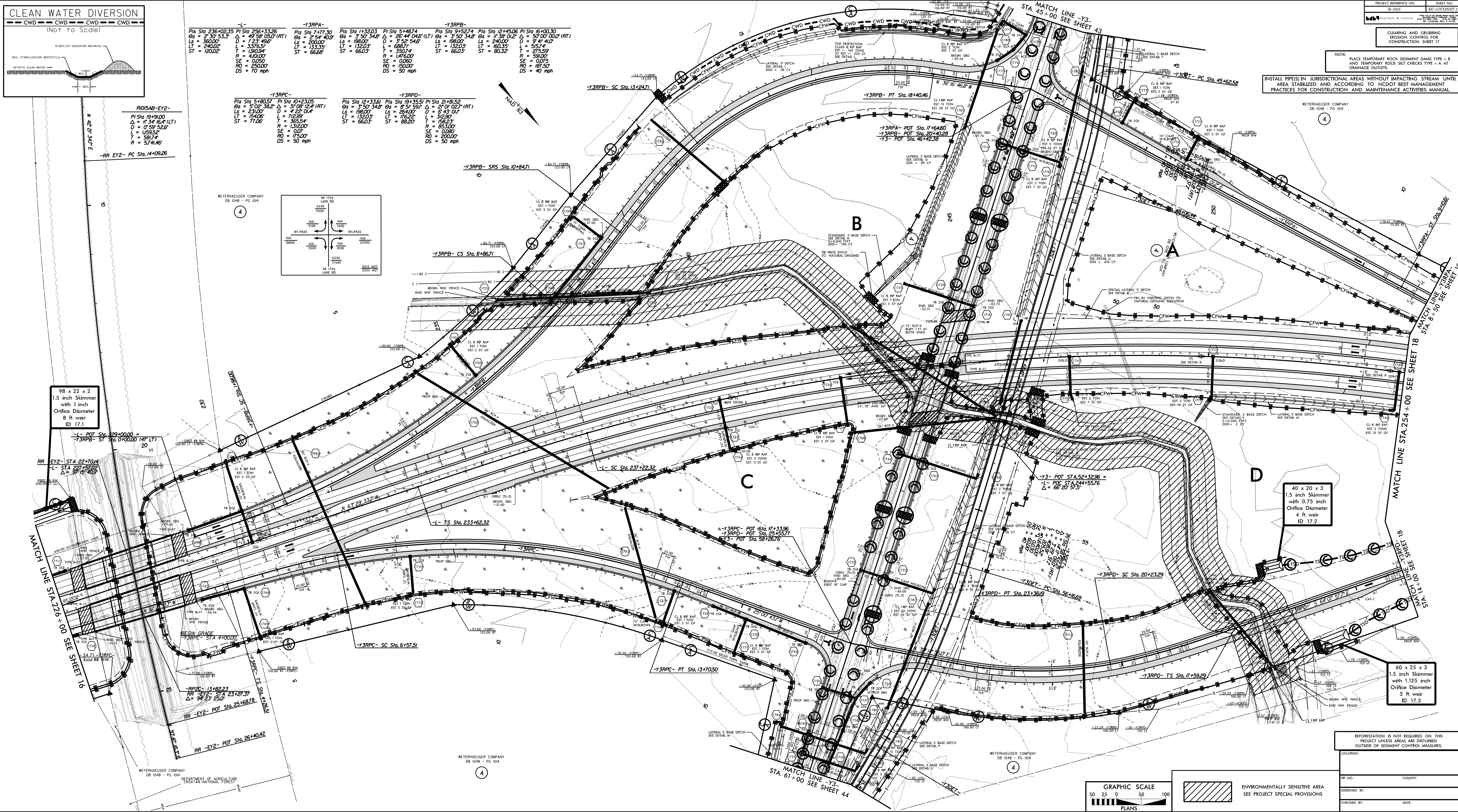
-Y3RPC-	-Y3RPD-
PI Sta 5+80.57 Δ = 3' 02" 36.2" LS = 63.00' L = 15.406' ST = 77.18' R = 132.00' SE = 0.00' RO = 175.00' DS = 50 mph	PI Sta 12+33.61 Δ = 3' 50" 34.8" LS = 186.00' L = 124.00' ST = 62.00' R = 186.00' SE = 0.00' RO = 200.00' DS = 50 mph



98 x 22 x 2  
 1.5 inch Skimmer  
 with 1 inch  
 Orifice Diameter  
 8 ft. weir  
 ID 17.1

40 x 20 x 3  
 1.5 inch Skimmer  
 with 0.75 inch  
 Orifice Diameter  
 4 ft. weir  
 ID 17.2

60 x 25 x 3  
 1.5 inch Skimmer  
 with 1.125 inch  
 Orifice Diameter  
 5 ft. weir  
 ID 17.3



PROJECT REFERENCE NO. 8-1002  
 SHEET NO. EC-1200INF.17

CLEARING AND GRUBBING  
 REGION CONTROL WORK  
 CONSTRUCTION SHEET 17

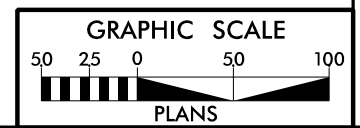
NOTE:  
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
 DRAINAGE OUTLETS.

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

MEYERHAEUSER COMPANY  
 DB 1048 - PG 104

REFORESTATION IS NOT REQUIRED ON THIS  
 PROJECT UNLESS AREAS ARE DISTURBED  
 OUTSIDE OF SEDIMENT CONTROL MEASURES.

LOCATION:	COUNTY:
DESIGNED BY:	CHECKED BY:
DATE:	DATE:



ENVIRONMENTALLY SENSITIVE AREA  
 SEE PROJECT SPECIAL PROVISIONS

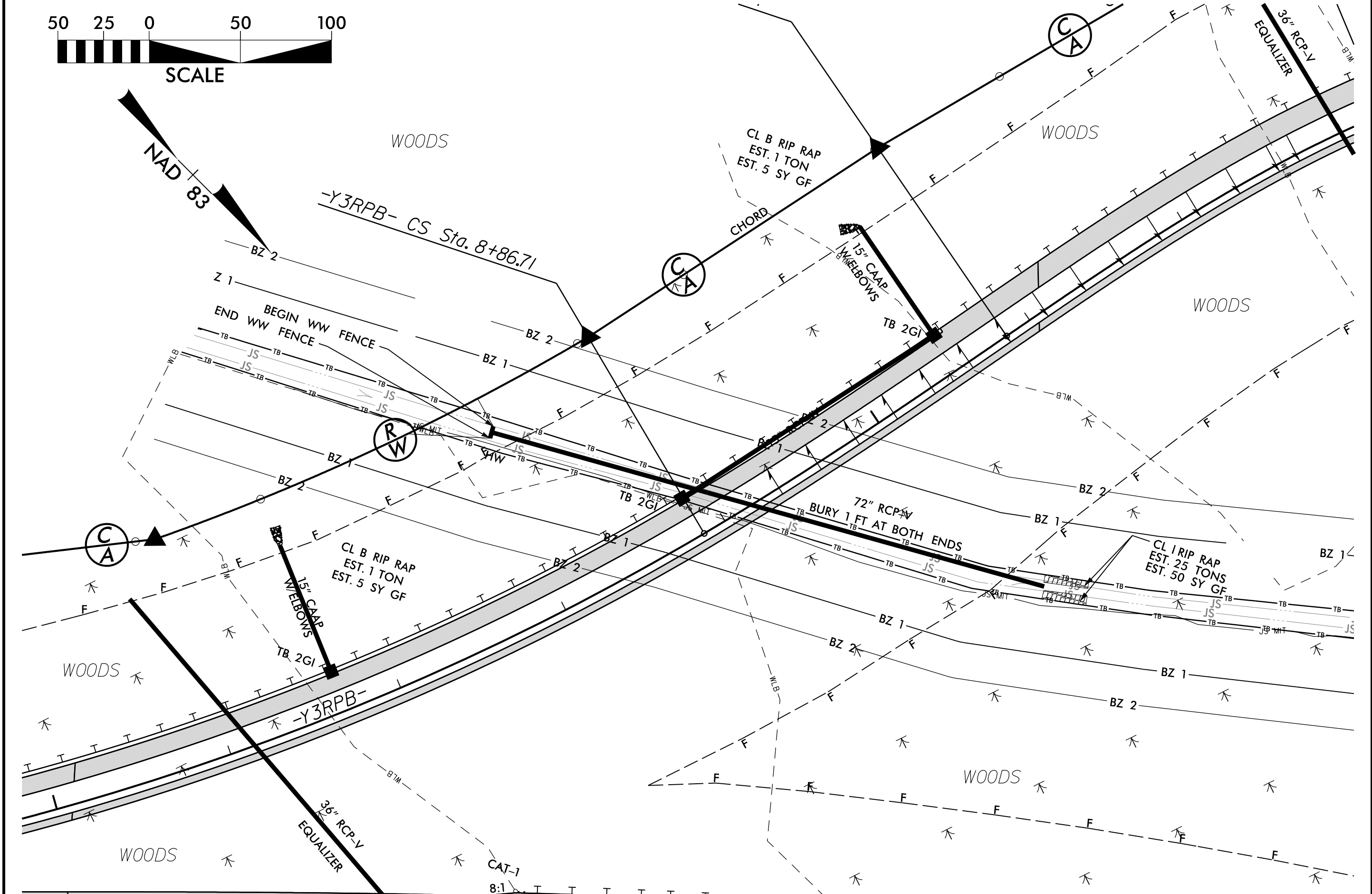
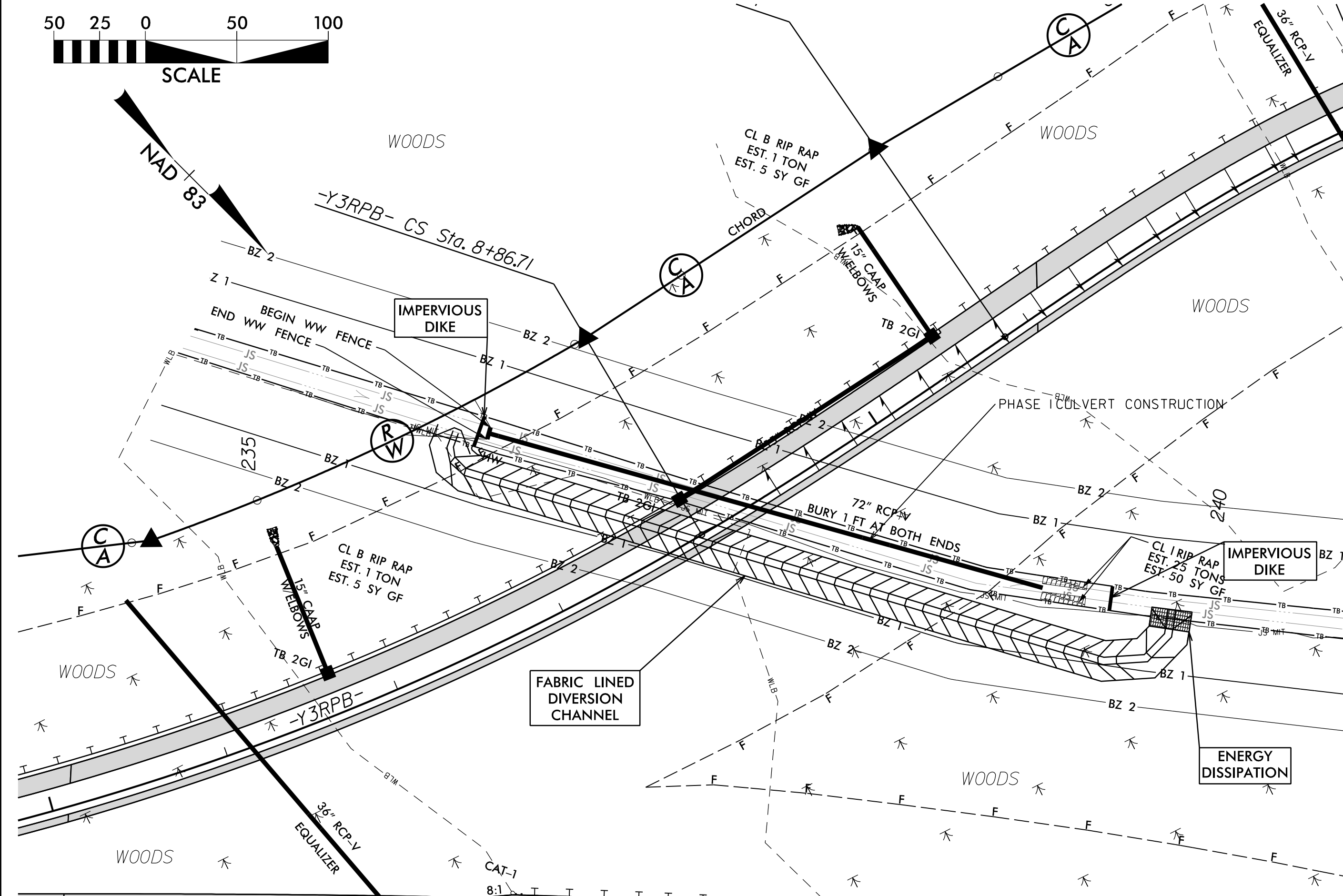
DEPARTMENT OF AGRICULTURE  
 CHRISTIAN NATIONAL FOREST  
 MEYERHAEUSER COMPANY  
 DB 1048 - PG 104

# PIPE CULVERT CONSTRUCTION SEQUENCE

## STA. 8+86 -Y3RPB-

### PHASE I

### PHASE II



#### CULVERT CONSTRUCTION SEQUENCE

1. UTILIZE SPECIAL STILLING BASIN AS NEEDED THROUGHOUT THE PIPE CULVERT CONSTRUCTION.
2. CONSTRUCT 4' WIDE FABRIC LINED DIVERSION CHANNEL WITH 3:1 SIDES. MATCH UPSTREAM & DOWNSTREAM INVERT ELEVATIONS TO STREAM. PLACE CLASS 1 RIPRAP ENERGY DISSIPATOR IN DIVERSION CHANNEL FROM OUTFALL TO 10' UPSTREAM OF OUTFALL.
3. INSTALL IMPERVIOUS DIKES TO A TOP ELEV = 24.0' (UPSTREAM & DOWNSTREAM)
4. CONSTRUCT PROPOSED PIPE CULVERT, INCLUDING HEADWALL, CHANNEL IMPROVEMENTS, AND RIPRAP.

#### CULVERT CONSTRUCTION SEQUENCE

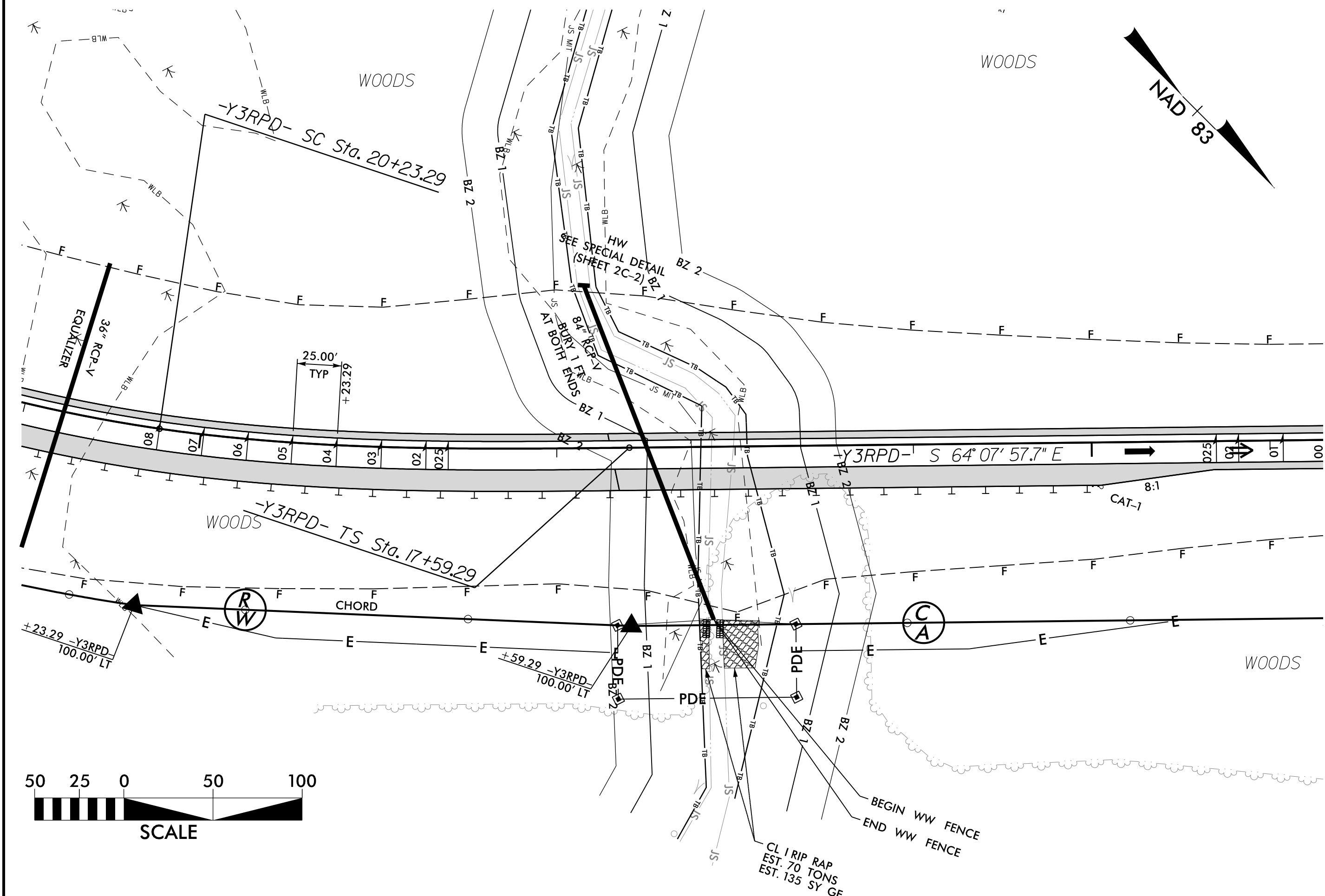
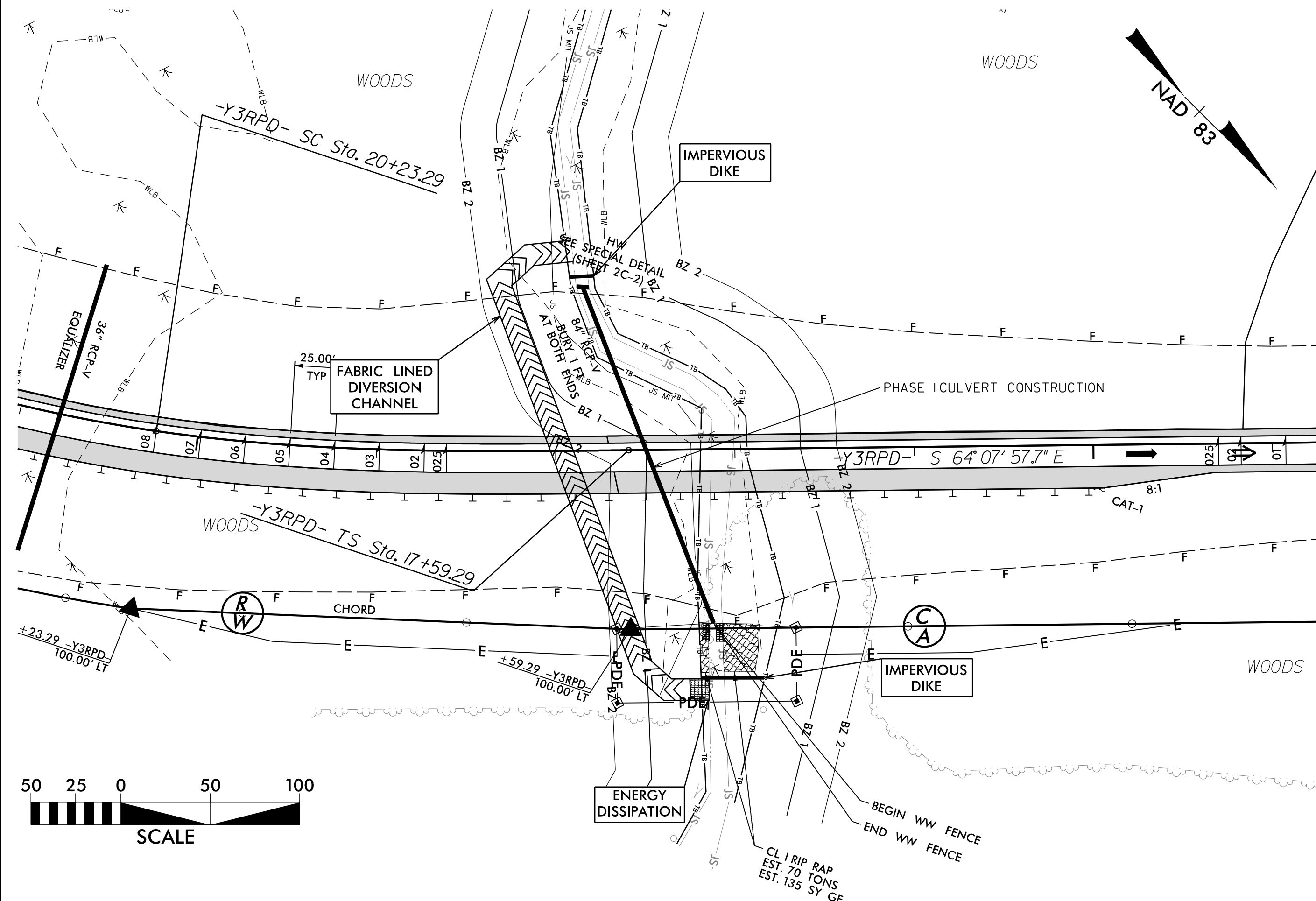
5. REMOVE IMPERVIOUS DIKES AND DIVERT CHANNEL INTO CULVERT.
6. REMOVE THE POLY-FABRIC LINER. BACKFILL DIVERSION CHANNEL WITH NATIVE SOIL.
7. REMOVE SPECIAL STILLING BASIN.
8. COMPLETE CONSTRUCTION OF PROPOSED ROADWAY ALIGNMENT.

# PIPE CULVERT CONSTRUCTION SEQUENCE

## STA. 17+59 -Y3RPD-

### PHASE I

### PHASE II



#### CULVERT CONSTRUCTION SEQUENCE

#### CULVERT CONSTRUCTION SEQUENCE

1. UTILIZE SPECIAL STILLING BASIN AS NEEDED THROUGHOUT THE PIPE CULVERT CONSTRUCTION.
2. CONSTRUCT 4' WIDE FABRIC LINED DIVERSION CHANNEL WITH 3:1 SIDES. MATCH UPSTREAM & DOWNSTREAM INVERT ELEVATIONS TO STREAM. PLACE CLASS 1 RIPRAP ENERGY DISSIPATOR IN DIVERSION CHANNEL FROM OUTFALL TO 10' UPSTREAM OF OUTFALL.
3. INSTALL IMPERVIOUS DIKES TO A TOP ELEV = 24.0' (UPSTREAM & DOWNSTREAM)
4. CONSTRUCT PROPOSED PIPE CULVERT, INCLUDING HEADWALL, CHANNEL IMPROVEMENTS, AND RIPRAP.

5. REMOVE IMPERVIOUS DIKES AND DIVERT CHANNEL INTO CULVERT.
6. REMOVE THE POLY-FABRIC LINER. BACKFILL DIVERSION CHANNEL WITH NATIVE SOIL.
7. REMOVE SPECIAL STILLING BASIN.
8. COMPLETE CONSTRUCTION OF PROPOSED ROADWAY ALIGNMENT.

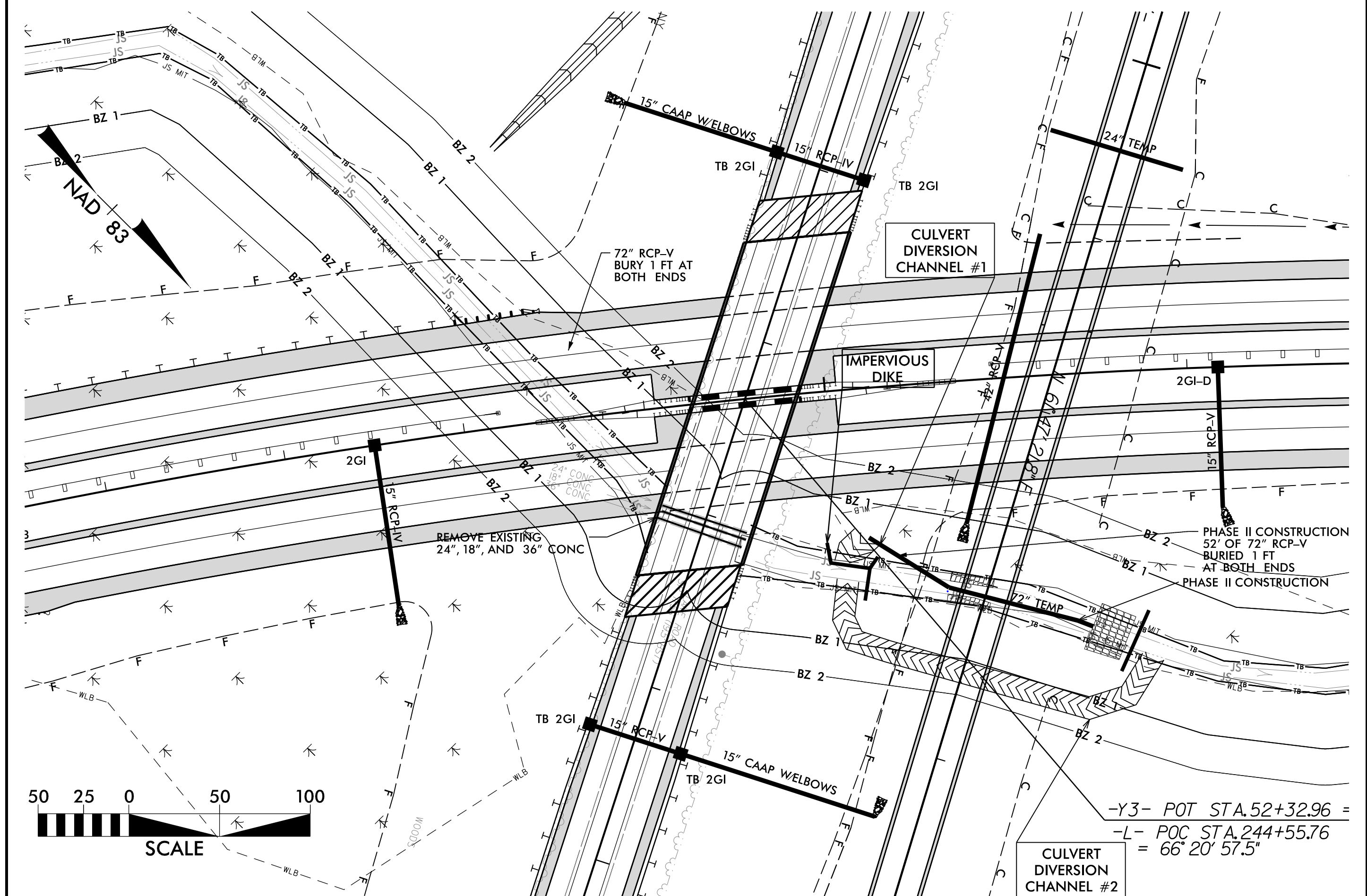
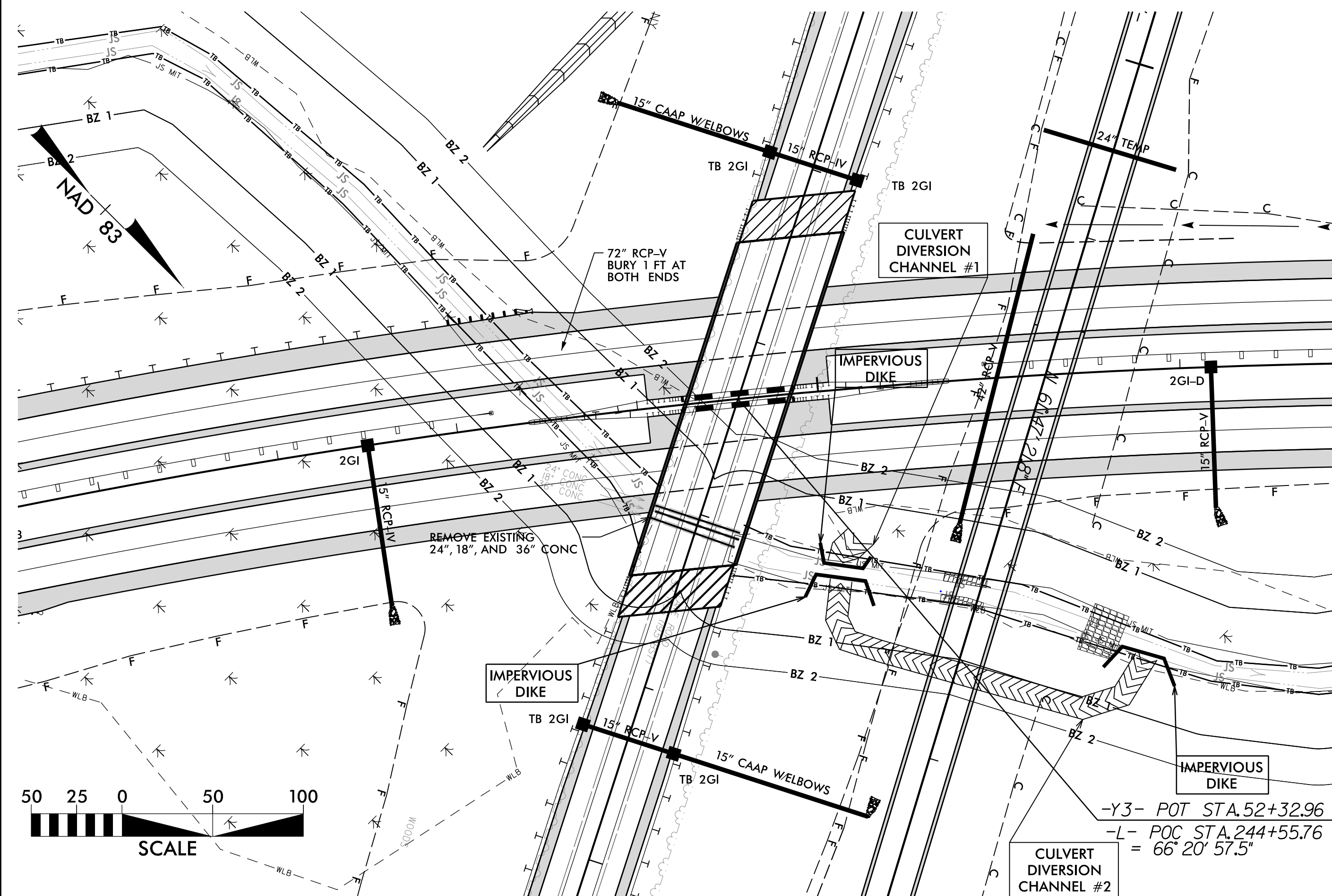
I:\7208\10-17-15\CA000R1015\Roadside\17-1015\_REU\_EC-17B\_PSH\_17B.CG.dgn  
 10/17/2015 9:29:02 AM  
 User: jglover

# PIPE CULVERT CONSTRUCTION SEQUENCE

## STA. 244 + 09 -L-

### PHASE I

### PHASE II



#### CULVERT CONSTRUCTION SEQUENCE

#### CULVERT CONSTRUCTION SEQUENCE

1. UTILIZE SPECIAL STILLING BASIN AS NEEDED THROUGHOUT THE PIPE CULVERT CONSTRUCTION.
2. INSTALL IMPERVIOUS DIKES AS SHOWN.
3. CONSTRUCT CULVERT DIVERSION CHANNELS WITH 2:1 SIDES. FOR CHANNEL #2, MATCH THE UPSTREAM AND DOWNSTREAM ELEVATIONS TO THE STREAM. FOR CHANNEL #1, THE DOWNSTREAM INVERT SHOULD BE 17.2' AND THE UPSTREAM INVERT SHOULD MATCH THE STREAM INVERT ELEVATION.

4. REMOVE THE IMPERVIOUS DIKES BLOCKING CULVERT DIVERSION CHANNEL #2.
5. INSTALL IMPERVIOUS DIKES TO DIVERT FLOW INTO CULVERT DIVERSION CHANNEL #2
6. DRY OUT WORK AREA NEEDED TO CONSTRUCT THE 72" PIPES. PUMPING EFFLUENT INTO SPECIAL STILLING BASINS AS NEEDED.
7. CONSTRUCT THE LAST 52' OF THE PERMANENT 72" RCP-V PIPE AND CONNECT VIA ELBOW TO THE 72" TEMPORARY PIPE. CONSTRUCT THE OUTLET RIP RAP PAD FOR THE TEMPORARY PIPE.

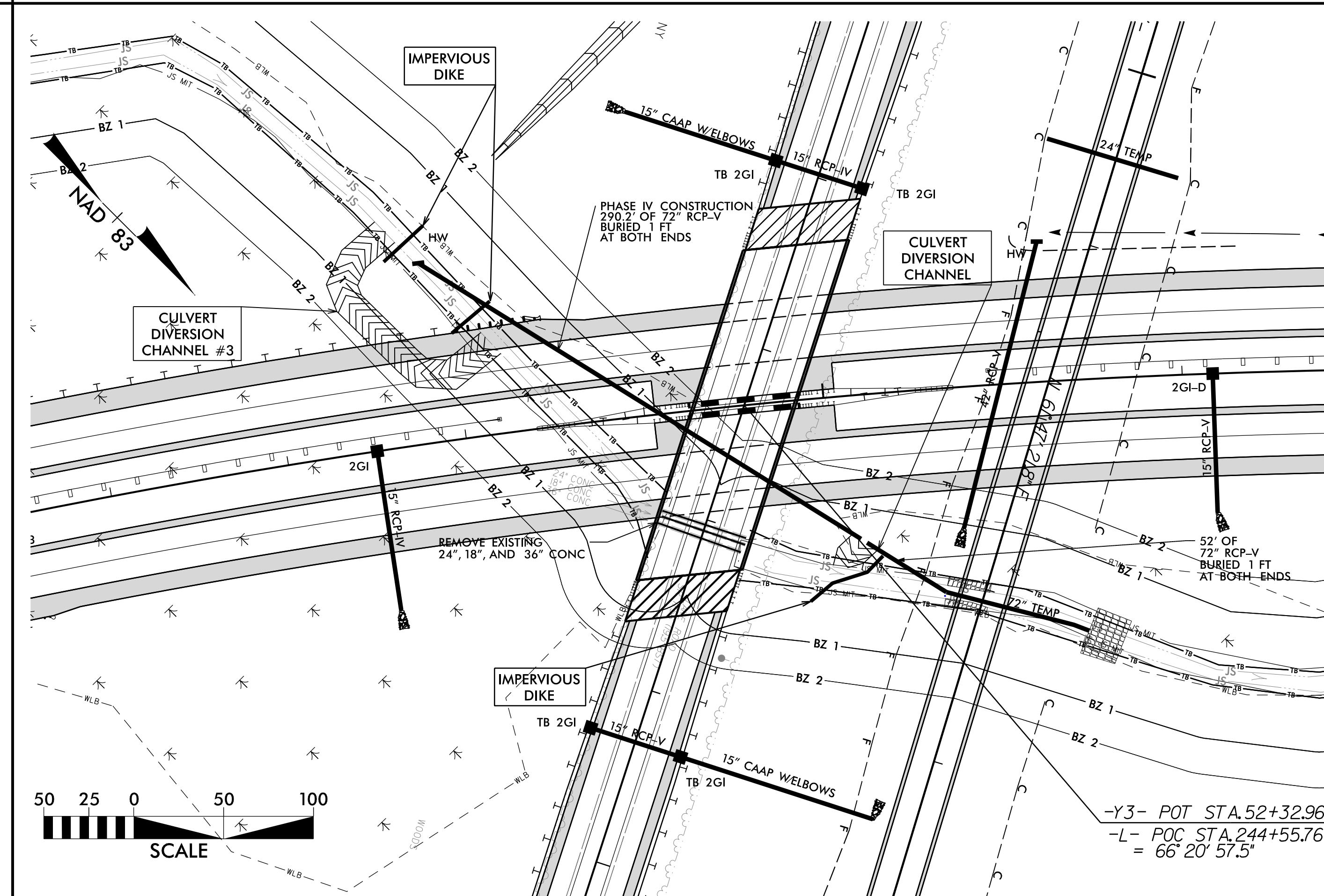
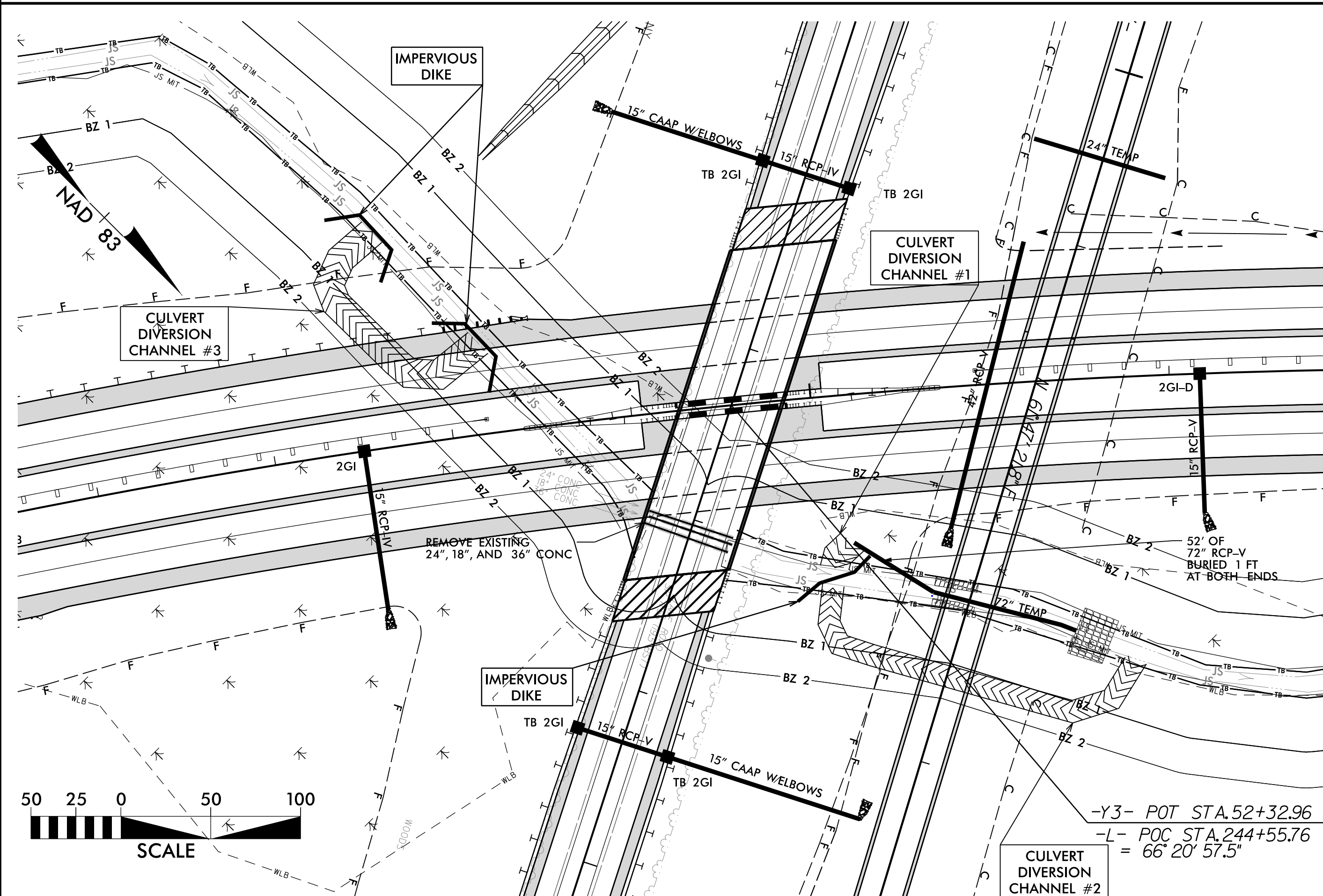
I:\6\2019\10-16-19\1729-02\CA000\171015\Roadside\17-1015\_REU\EC-17C\_PSH\_17C\_CG.dgn

# PIPE CULVERT CONSTRUCTION SEQUENCE

## STA. 244 + 09 -L-

### PHASE III

### PHASE IV



#### CULVERT CONSTRUCTION SEQUENCE

8. REMOVE THE IMPERVIOUS DIKES FROM PHASE II.
9. INSTALL THE IMPERVIOUS DIKES AS SHOWN ON THE PLANS TO DIVERT FLOW INTO CULVERT DIVERSION CHANNEL #1 AND THE PIPES CONSTRUCTED DURING PHASE II. ALSO INSTALL THE IMPERVIOUS DIKES NEAR CULVERT DIVERSION CHANNEL #3.
10. REMOVE CULVERT DIVERSION CHANNEL #1.
11. CONSTRUCT CULVERT DIVERSION CHANNEL #3.
12. COMPLETE THE DETOUR ROADWAY.

#### CULVERT CONSTRUCTION SEQUENCE

13. REMOVE IMPERVIOUS DIKES BLOCKING FLOW IN CULVERT DIVERSION CHANNEL #3.
14. INSTALL IMPERVIOUS DIKES TO DIVERT FLOW INTO CULVERT DIVERSION CHANNEL #3.
15. CONSTRUCT THE HEADWALL AND FIRST 290.2' OF THE 72" RCP-V AS SHOWN ON THE PLANS. DO NOT CONNECT TO THE SECTION OF 72" RCP-V CONSTRUCTED DURING PHASE II.

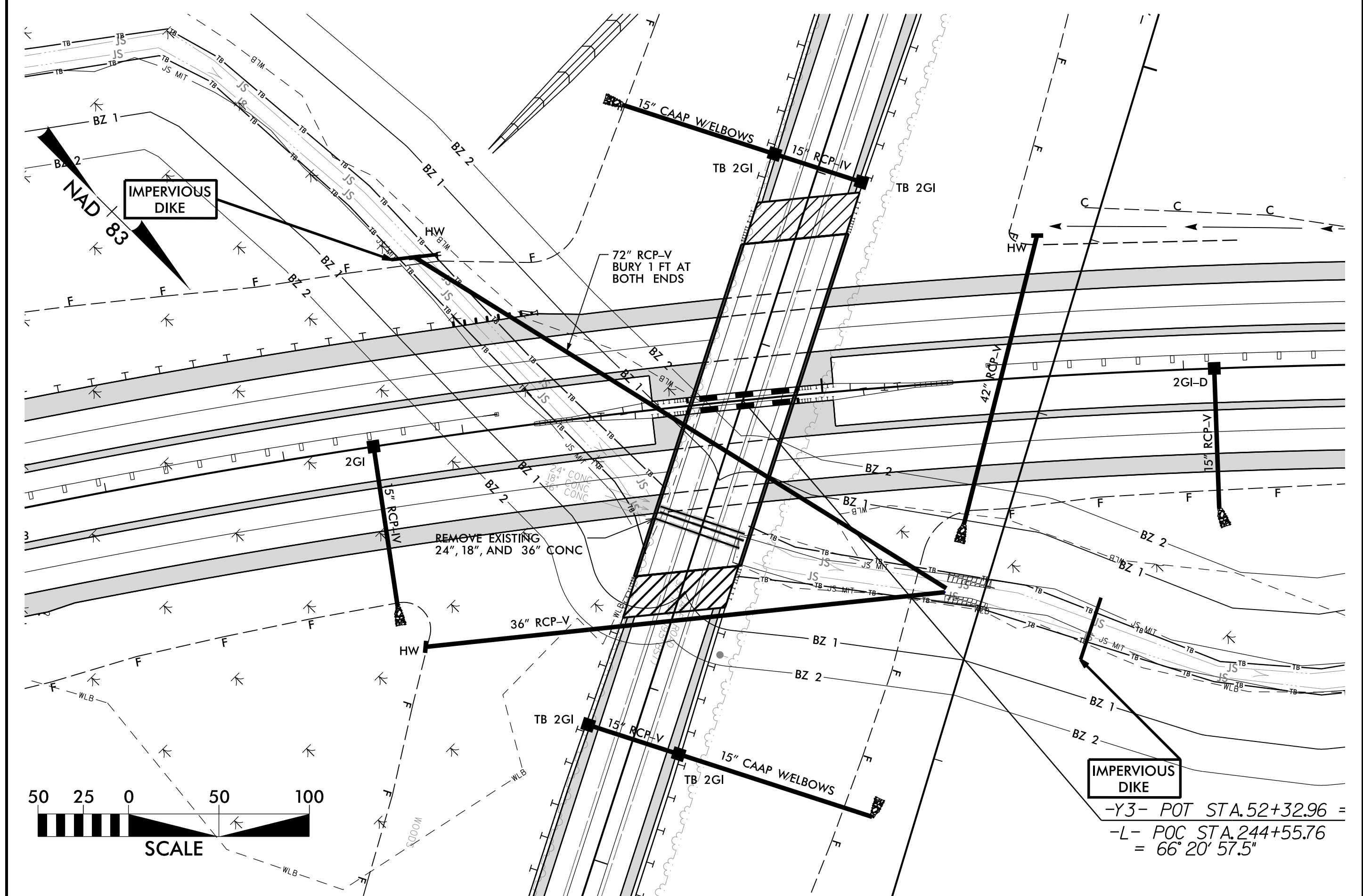
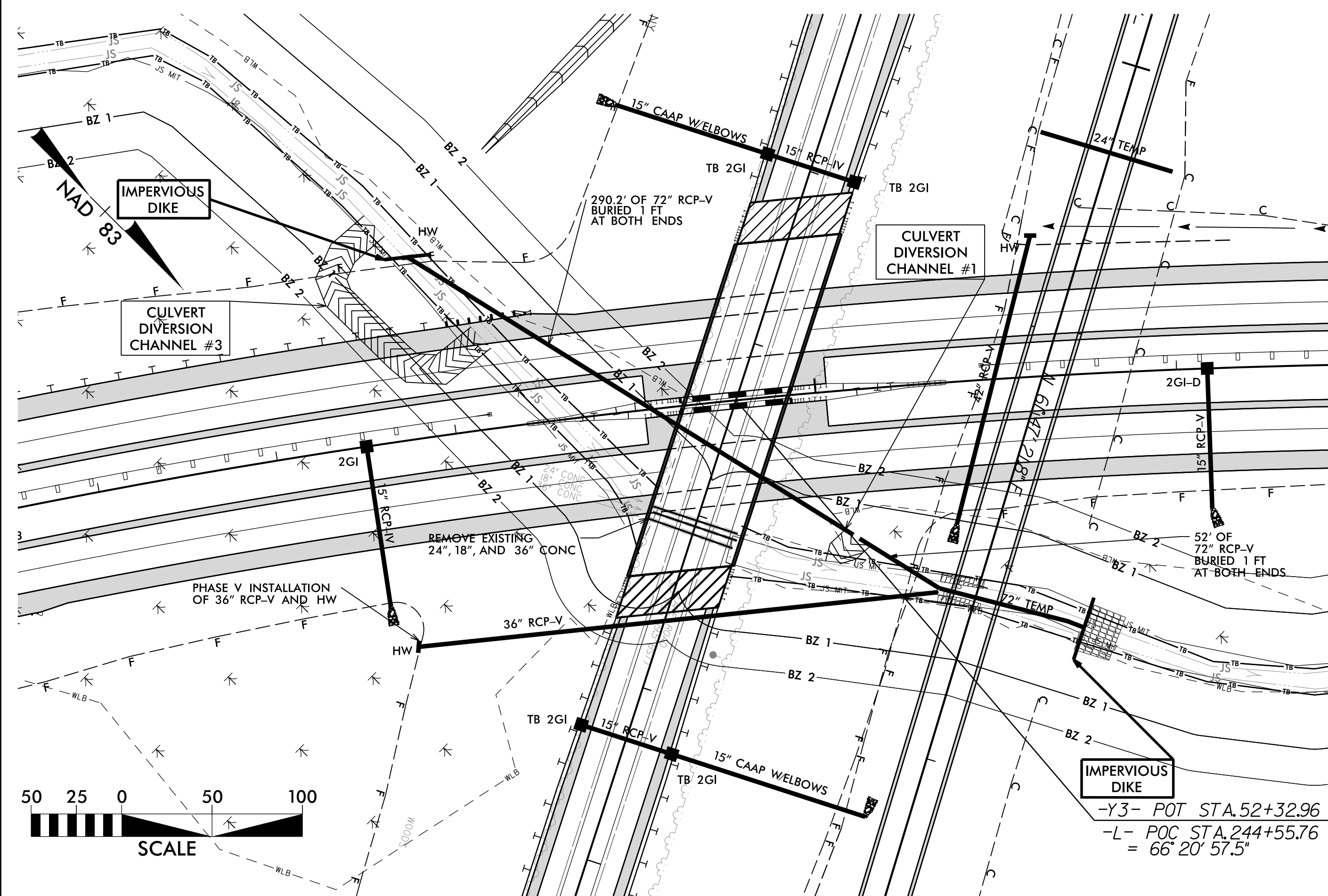
I:\6\2019\05\16\1729-02\CA000\1\015\Roadside\1R-1015\_REU\EC-17D\_PSH\_17D\_CG.dgn  
 1/16/2019 10:56:57 AM 5/29/2019 10:56:57 AM

# PIPE CULVERT CONSTRUCTION SEQUENCE

## STA. 244 + 09 -L-

### PHASE V

### PHASE VI



#### CULVERT CONSTRUCTION SEQUENCE

#### CULVERT CONSTRUCTION SEQUENCE

16. REMOVE THE IMPERVIOUS DIKES FROM PHASE IV TO DIVERT FLOW INTO THE 72" RCP-IV SECTION CONSTRUCTED DURING PHASE IV.
17. REMOVE CULVERT DIVERSION CHANNEL #3.
18. PLACE IMPERVIOUS DIKES AS SHOWN ON PLANS.
19. CONNECT THE SECTIONS OF 72" RCP-IV CONSTRUCTED DURING PHASE II AND IV.
20. REMOVE THE IMPERVIOUS DIKES.
21. REMOVE IMPERVIOUS DIKES THAT WERE DIVERTING FLOW INTO CULVERT DIVERSION CHANNEL #1.
22. REMOVE CULVERT DIVERSION CHANNEL #1.
23. INSTALL 36" RCP-V AND HEADWALL.
24. REMOVE THE EXISTING 18", 24", AND 36" CONCRETE PIPES.
25. COMPLETE THE FINAL ROADWAY.

26. REMOVE THE DETOUR ROADWAY AND DRAINAGE.
27. RECONSTRUCT CHANNEL AND CONSTRUCT RIP RAP PAD AT PIPE OUTLET.
28. PLACE IMPERVIOUS DIKES AS SHOWN ON PLANS.
29. REMOVE THE ELBOW AND 72" TEMPORARY PIPE INSTALLED DURING PHASE II.
30. REMOVE THE IMPERVIOUS DIKES.

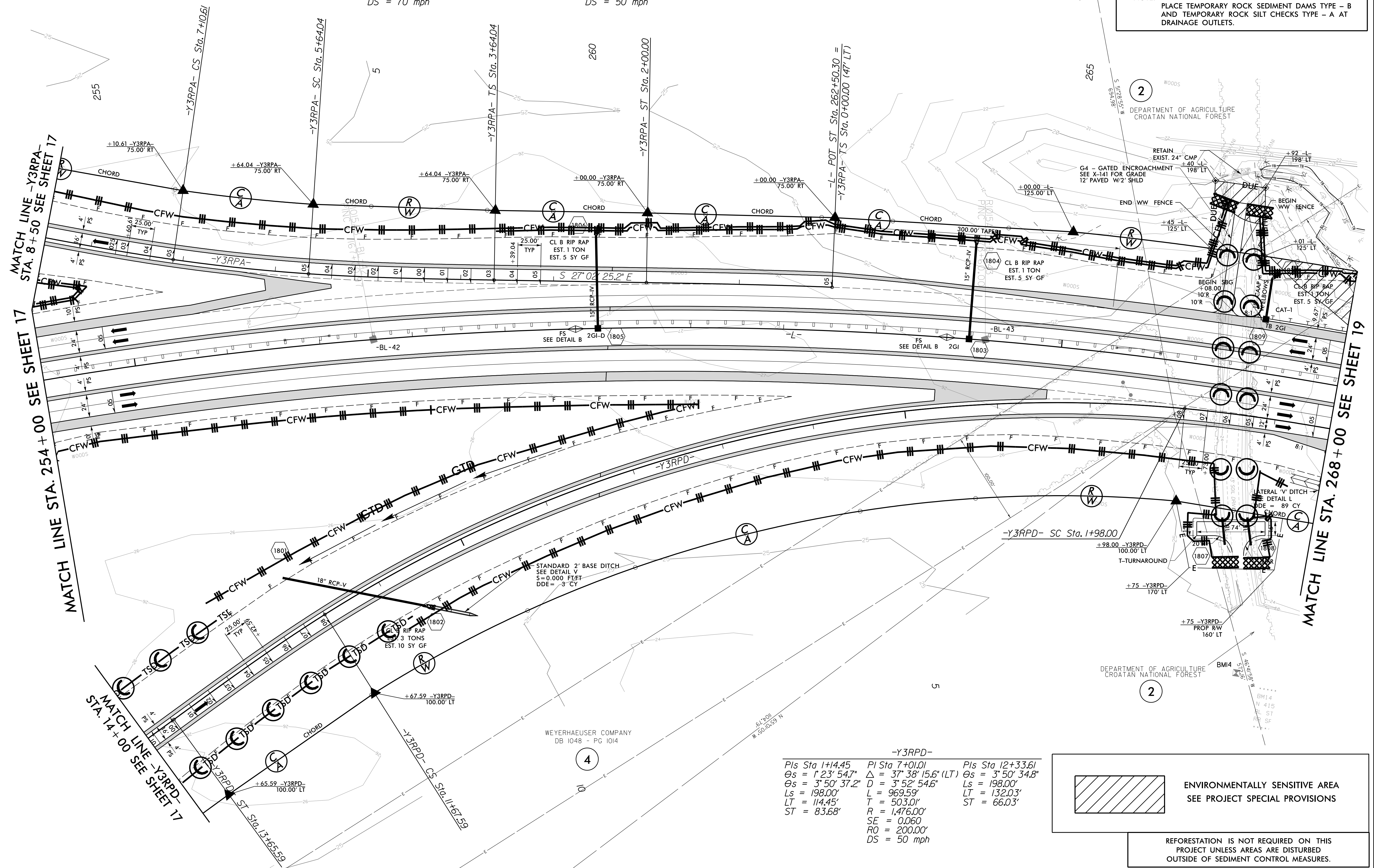
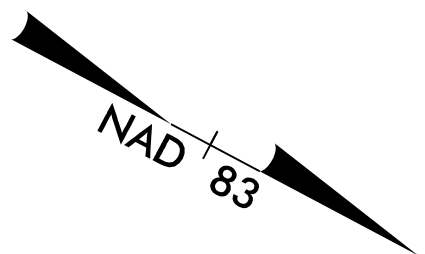
2/5/2019  
 0:16:57  
 29-02-CA0001R1015:Roadside-VR-1015\_REU:EC-17E\_PSH\_17E\_CG.dgn

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 18**

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

-L-			-Y3RPA-		
PIs Sta 236+02.35	PI Sta 256+33.26	PIs Sta 0+66.67	PI Sta 6+37.36	PIs Sta 4+97.39	
$\Theta_s = 2^\circ 30' 53.3''$	$\Delta = 49^\circ 58' 05.0''$ (RT)	$\Theta_s = 1^\circ 22' 52.6''$	$\Delta = 4^\circ 16' 02.1''$ (RT)	$\Theta_s = 2^\circ 54' 40.9''$	
$L_s = 360.00'$	$D = 1^\circ 23' 49.6''$	$L_s = 200.00'$	$D = 2^\circ 54' 40.9''$	$L_s = 200.00'$	
$LT = 240.02'$	$T = 1,910.94'$	$LT = 133.34'$	$L = 146.57'$	$LT = 133.35'$	
$ST = 120.02'$	$R = 4,101.00'$	$ST = 66.67'$	$T = 73.32'$	$ST = 66.68'$	
	$SE = 0.050$		$R = 1,968.00'$		
	$RO = 250.00'$		$SE = 0.060$		
	$DS = 70$ mph		$RO = 125.00'$		
			$DS = 50$ mph		

WEYERHAEUSER COMPANY  
DB 1048 - PG 1014



2  
WOODS  
DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

RETAIN EXIST. 24" CMP  
G4 - GATED ENCROACHMENT  
SEE X-141 FOR GRADE  
12' PAVED W/2' SHLD

BEGIN WW FENCE  
BEGIN SBG  
BEGIN WW FENCE  
BEGIN WW FENCE  
BEGIN WW FENCE

CL B RIP RAP EST. 1 TON EST. 5 SY GF  
CL B RIP RAP EST. 1 TON EST. 5 SY GF  
CL B RIP RAP EST. 1 TON EST. 5 SY GF

LATERAL 'V' DITCH  
DETAIL L  
DDE = 89 CY

T-TURNAROUND  
+98.00 -Y3RPD- 100.00' LT  
+75 -Y3RPD- 170' LT  
+75 -Y3RPD- PROP RW 160' LT

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

BM14  
N 415  
S 101

2

ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

-Y3RPD-		
PIs Sta 1+44.45	PI Sta 7+01.01	PIs Sta 12+33.61
$\Theta_s = 1^\circ 23' 54.7''$	$\Delta = 37^\circ 38' 15.6''$ (LT)	$\Theta_s = 3^\circ 50' 34.8''$
$L_s = 198.00'$	$D = 3^\circ 52' 54.6''$	$L_s = 198.00'$
$LT = 114.45'$	$L = 969.59'$	$LT = 132.03'$
$ST = 83.68'$	$T = 503.01'$	$ST = 66.03'$
	$R = 1,476.00'$	
	$SE = 0.060$	
	$RO = 200.00'$	
	$DS = 50$ mph	

WEYERHAEUSER COMPANY  
DB 1048 - PG 1014

4

8.17.799  
 I:\720\8\17\29-02\CADD\N1015\Roadside\N-1015\_REU\_EC-18\_PSH\_18.CG.dgn  
 1/7/2018 10:57:29 AM

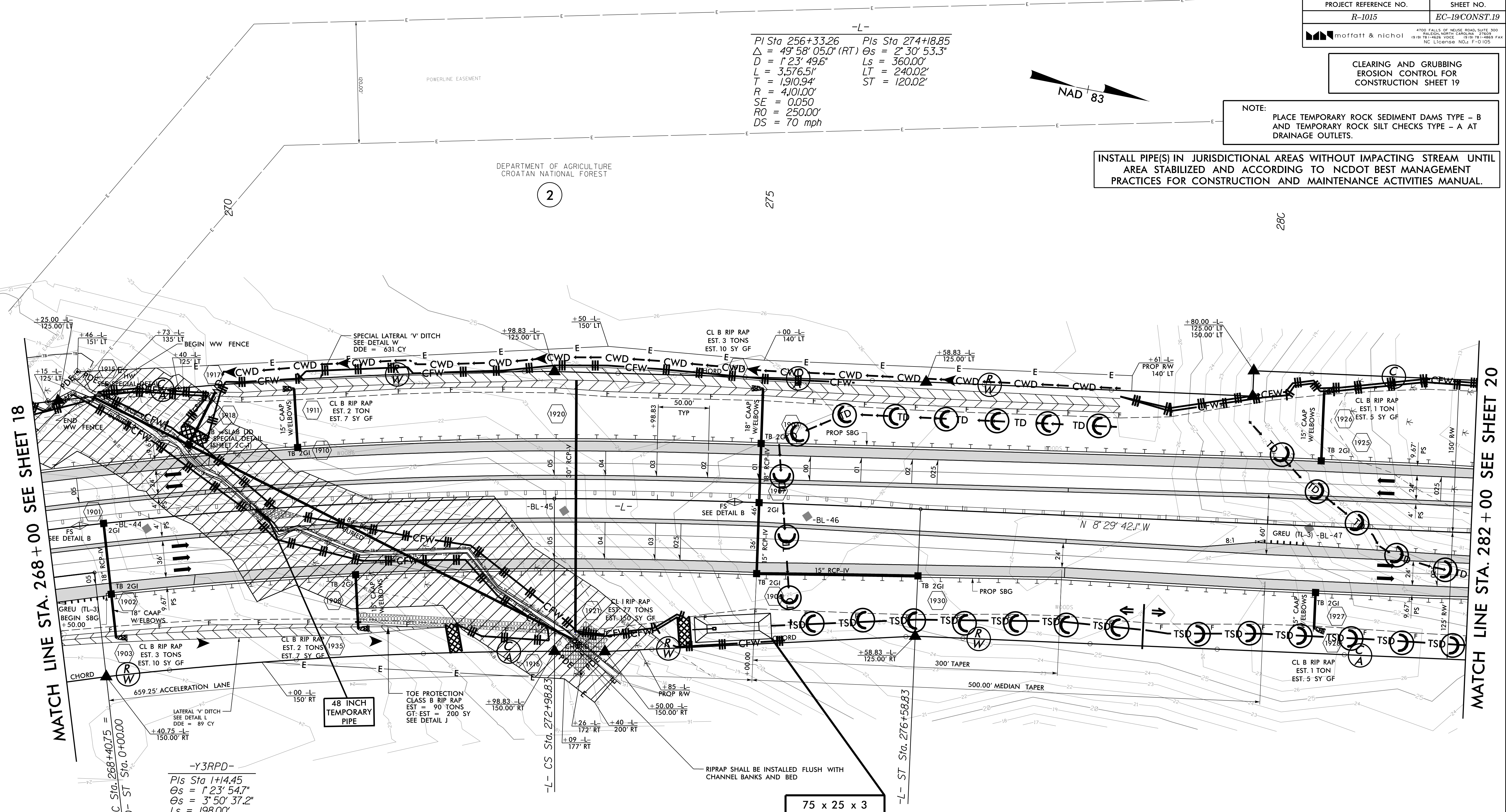
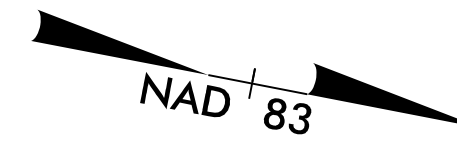


**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 19**

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

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.

-L-  
PI Sta 256+33.26 PIs Sta 274+18.85  
Δ = 49° 58' 05.0" (RT) Θs = 2° 30' 53.3"  
D = 1' 23' 49.6" Ls = 360.00'  
L = 3,576.51' LT = 240.02'  
T = 1,910.94' R = 4,101.00'  
SE = 0.050 ST = 120.02'  
RO = 250.00'  
DS = 70 mph



MATCH LINE STA. 268 + 00 SEE SHEET 18

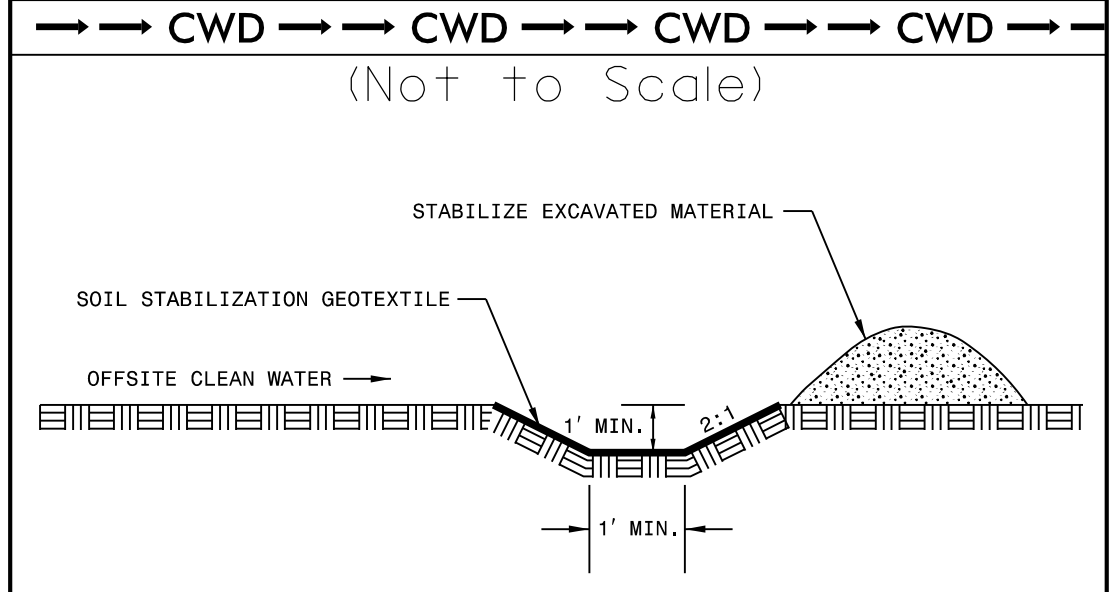
MATCH LINE STA. 282 + 00 SEE SHEET 20

-Y3RPD-  
PIs Sta 1+14.45  
Θs = 1° 23' 54.7"  
Ls = 3' 50' 37.2"  
Ls = 198.00'  
LT = 114.45'  
ST = 83.68'

48 INCH  
TEMPORARY  
PIPE

75 x 25 x 3  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
6 ft. weir  
ID 19.1

**CLEAN WATER DIVERSION**



REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

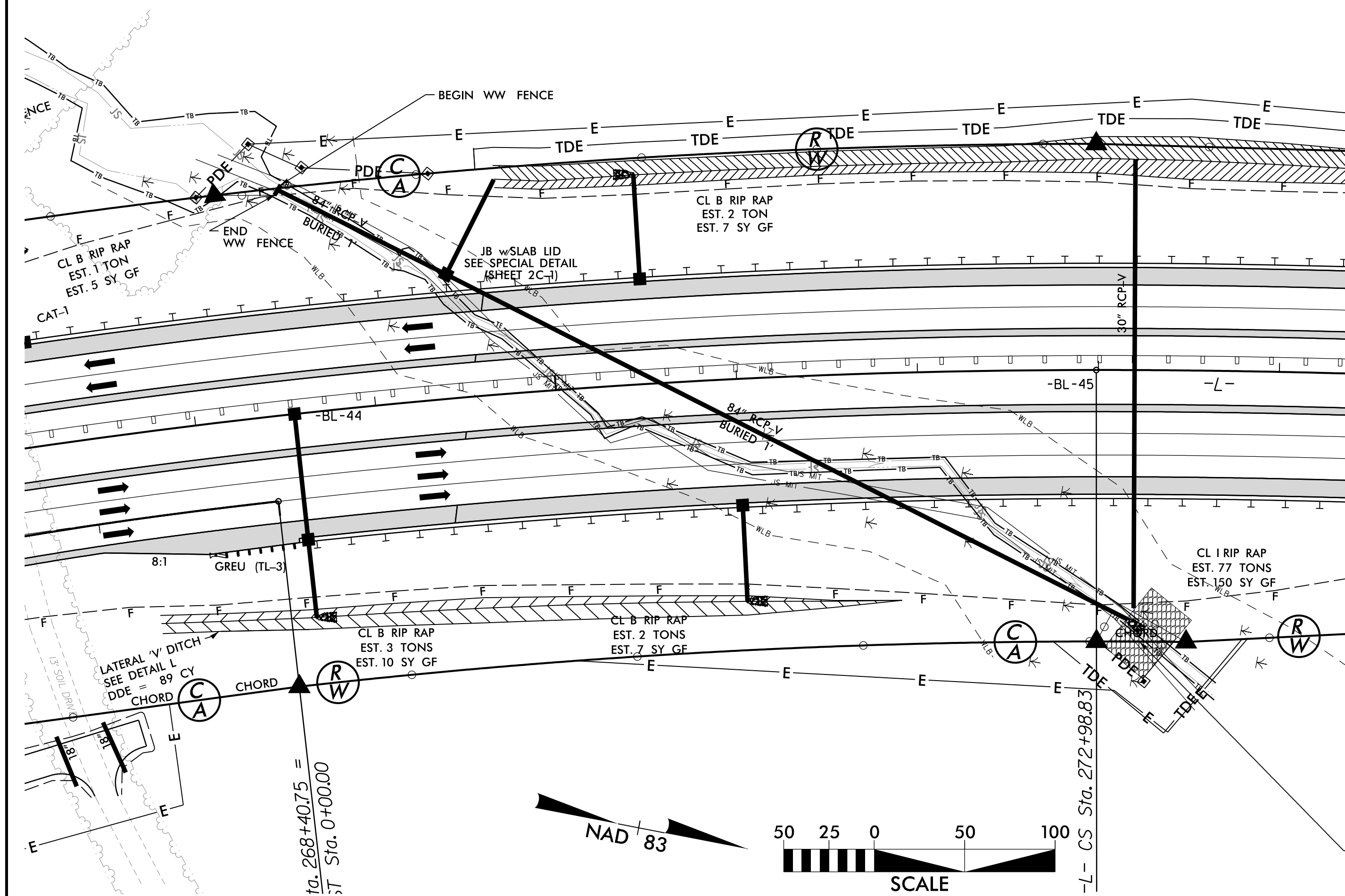
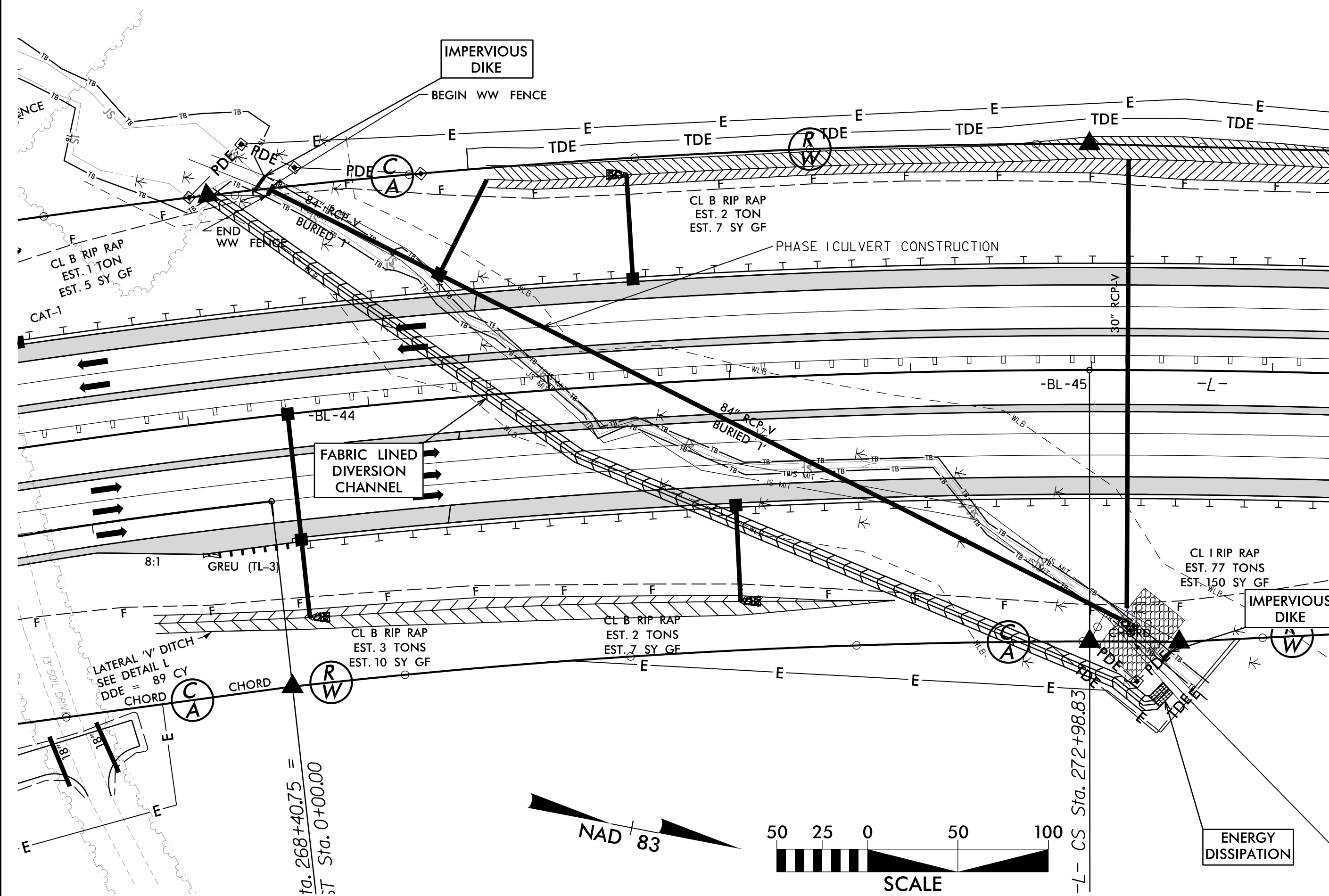
8/17/99  
 I:\7208\14729-02\CA000\1015\Roadside\VR-1015\_REU\EC-19\_PSH\_19\_L.CG.dgn  
 11/7/2008  
 10:46:57 AM  
 10/15/2008  
 10:46:57 AM  
 10/15/2008  
 10:46:57 AM

# PIPE CULVERT CONSTRUCTION SEQUENCE

## STA. 270+00 -L-

### PHASE I

### PHASE II



#### CULVERT CONSTRUCTION SEQUENCE

#### CULVERT CONSTRUCTION SEQUENCE

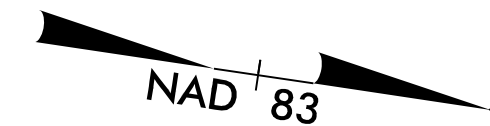
1. UTILIZE SPECIAL STILLING BASIN AS NEEDED THROUGHOUT THE PIPE CULVERT CONSTRUCTION.
2. CONSTRUCT 2' WIDE FABRIC LINED DIVERSION CHANNEL WITH 3:1 SIDES. MATCH UPSTREAM & DOWNSTREAM INVERT ELEVATIONS TO STREAM. PLACE CLASS 1 RIPRAP ENERGY DISSIPATOR IN DIVERSION CHANNEL FROM OUTFALL TO 10' UPSTREAM OF OUTFALL.
3. INSTALL IMPERVIOUS DIKES TO A TOP ELEV = 17.0' (UPSTREAM & DOWNSTREAM)
4. CONSTRUCT PROPOSED PIPE CULVERT, INCLUDING HEADWALL, CHANNEL IMPROVEMENTS, AND RIPRAP.

5. REMOVE IMPERVIOUS DIKES AND DIVERT CHANNEL INTO CULVERT.
6. REMOVE THE POLY-FABRIC LINER. BACKFILL DIVERSION CHANNEL WITH NATIVE SOIL.
7. REMOVE SPECIAL STILLING BASIN.
8. COMPLETE CONSTRUCTION OF PROPOSED ROADWAY ALIGNMENT.

I:\7208\10-19-02\CA000R1015\Roadside\19-1015\_REU\EC-19A\_PSH\_19A\_CG.dgn  
 11/7/2008 10:57:29 AM  
 User: jglover

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 20

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

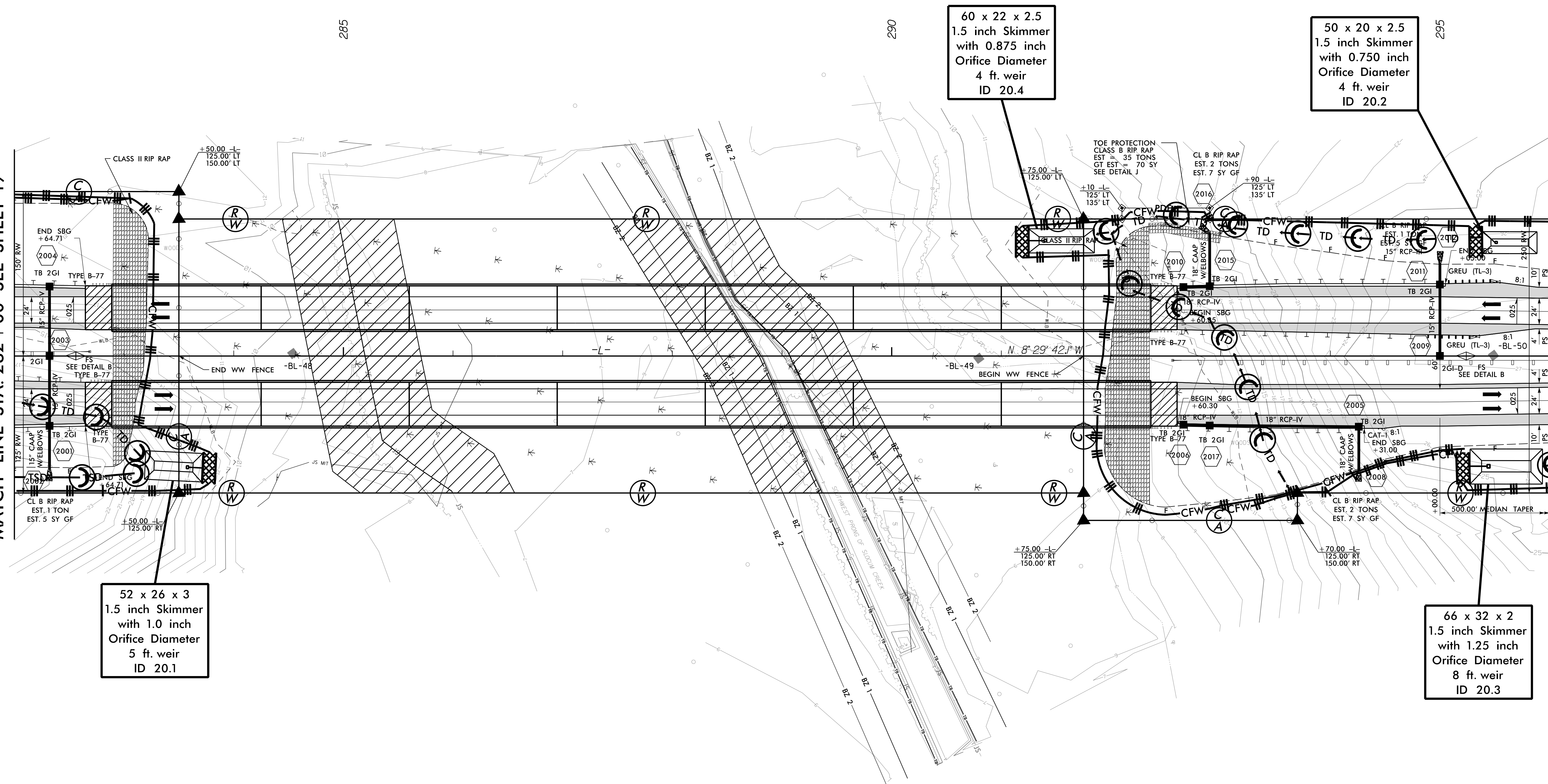


DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

MATCH LINE STA. 282+00 SEE SHEET 19

MATCH LINE STA. 296+00 SEE SHEET 21



60 x 22 x 2.5  
1.5 inch Skimmer  
with 0.875 inch  
Orifice Diameter  
4 ft. weir  
ID 20.4

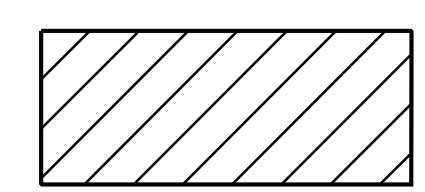
50 x 20 x 2.5  
1.5 inch Skimmer  
with 0.750 inch  
Orifice Diameter  
4 ft. weir  
ID 20.2

52 x 26 x 3  
1.5 inch Skimmer  
with 1.0 inch  
Orifice Diameter  
5 ft. weir  
ID 20.1

66 x 32 x 2  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
8 ft. weir  
ID 20.3

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2



ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

11/7/2008  
 I:\FA\9729-02\CADD\NR1015\Roadside\NR-1015\_REU\EC-20\_PSH\_20\_CD.dgn  
 8/17/99

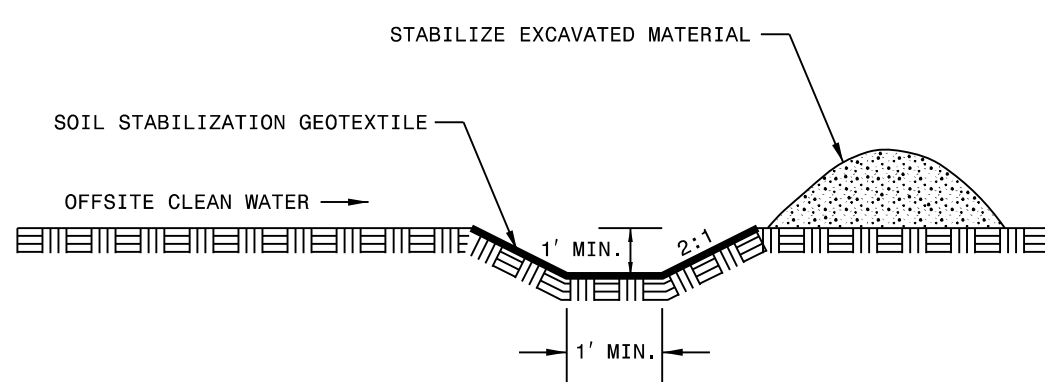


8/17/99

# CLEAN WATER DIVERSION

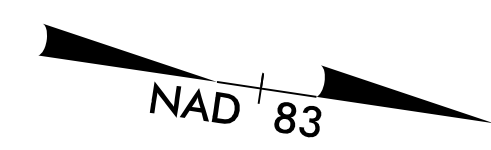
→ CWD → CWD → CWD → CWD →

(Not to Scale)



DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

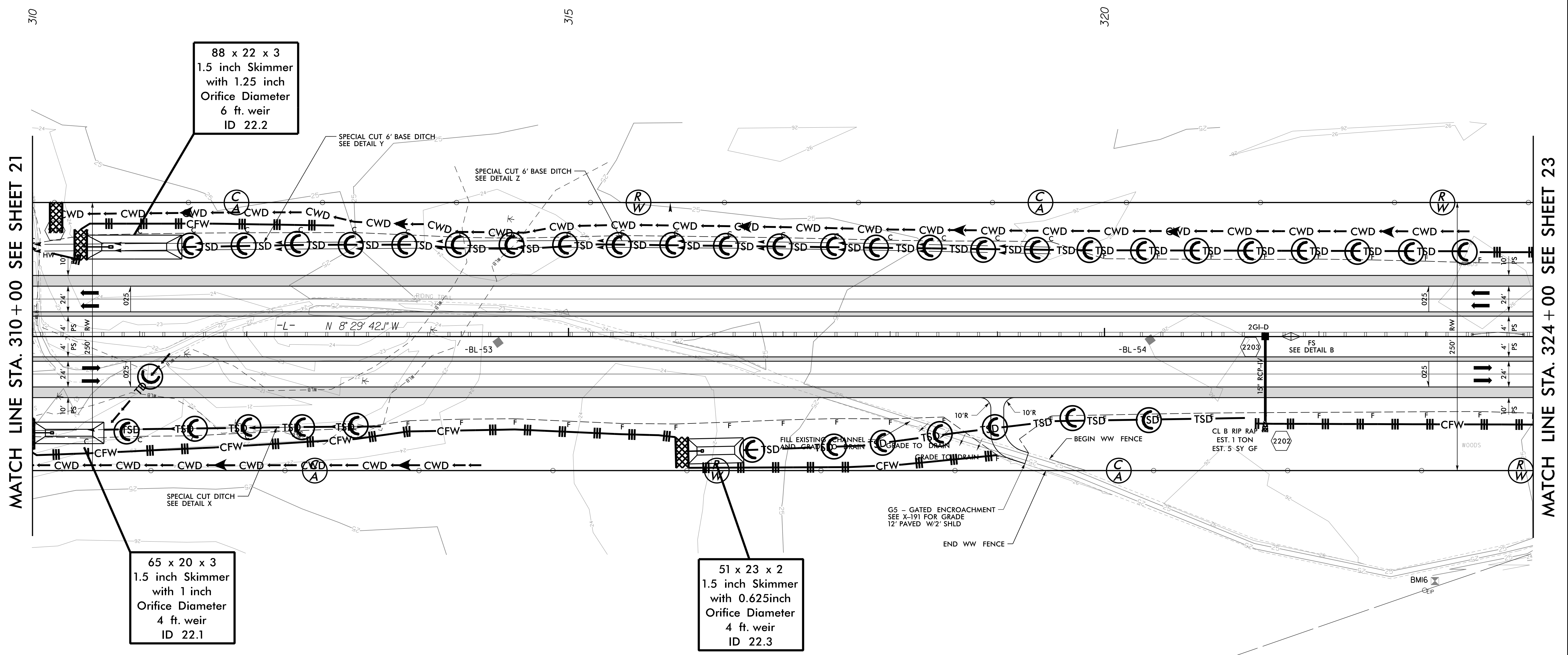
2



PROJECT REFERENCE NO.	SHEET NO.
R-1015	EC-22CONST.22

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 22

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



DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

EDWARD J. CIESZKO (ESTATE)  
DB 1704 - PG 242  
DB 1605 - PG 238

6

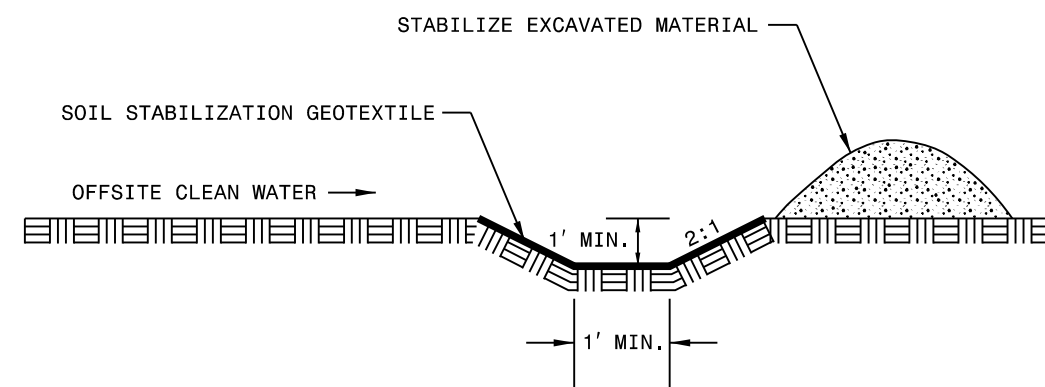
REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

I:\7\2008\10-17-02\CA000\1015\Roadside\1015\_REU\_EC-22\_PSH\_22\_CD.dgn  
 10/17/2008 9:29:02 CA000\1015\Roadside\1015\_REU\_EC-22\_PSH\_22\_CD.dgn

8/17/99

# CLEAN WATER DIVERSION

--- CWD --- CWD --- CWD --- CWD ---  
(Not to Scale)



325

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

-L-  
 Pls Sta 338+17.02  
 $\theta_s = 3^\circ 08' 39.4''$   
 $L_s = 360.00'$   
 $LT = 240.04'$   
 $ST = 120.03'$

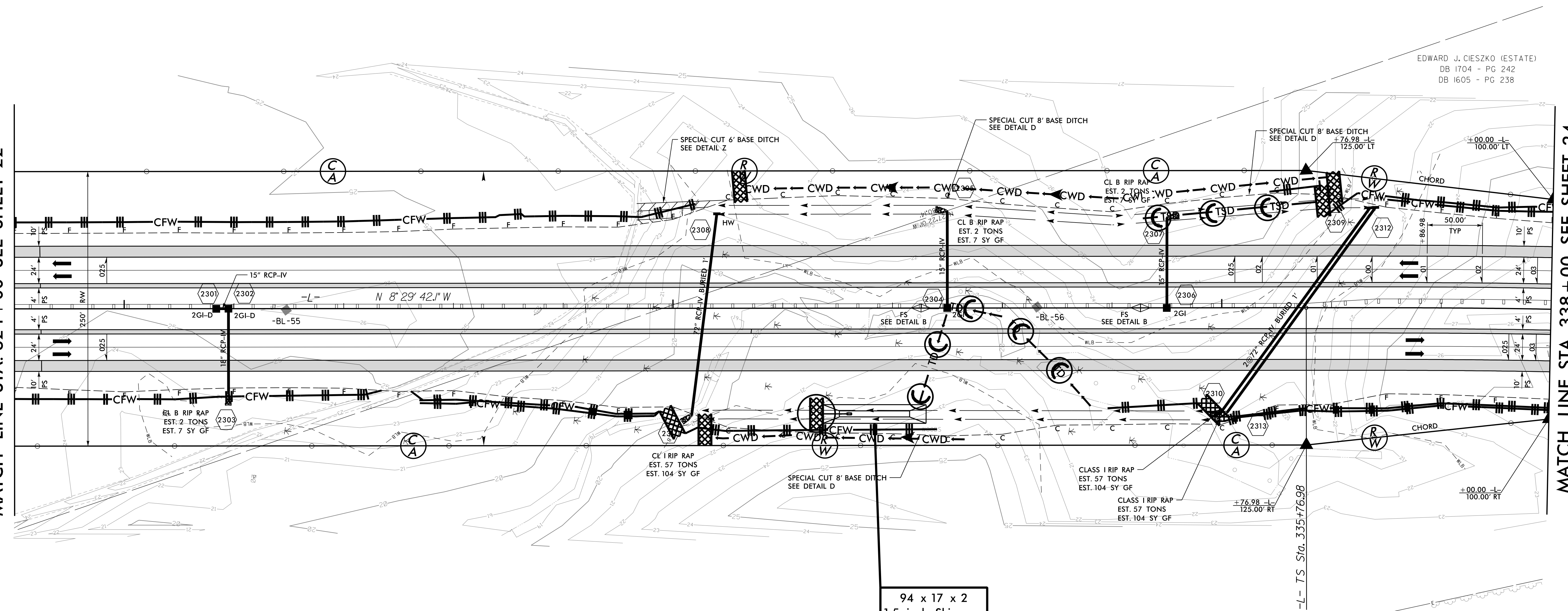


PROJECT REFERENCE NO. R-1015	SHEET NO. EC-23 CONST. 23
<small>4700 FALLS OF NEUSE ROAD, SUITE 300          RALEIGH, NORTH CAROLINA 27609          (919) 781-4626 VOICE (919) 781-4668 FAX          NC LICENSE NO. F-10105</small>	

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 23**

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

MATCH LINE STA. 324 + 00 SEE SHEET 22



EDWARD J. CIESZKO (ESTATE)  
 DB 1704 - PG 242  
 DB 1605 - PG 238

MATCH LINE STA. 338 + 00 SEE SHEET 24

EDWARD J. CIESZKO (ESTATE)  
 DB 1704 - PG 242  
 DB 1605 - PG 238

6

94 x 17 x 2  
 1.5 inch Skimmer  
 with 0.750 inch  
 Orifice Diameter  
 4 ft. weir  
 ID 23.1

REFORESTATION IS NOT REQUIRED ON THIS  
 PROJECT UNLESS AREAS ARE DISTURBED  
 OUTSIDE OF SEDIMENT CONTROL MEASURES.

I:\7\2008\15\FAV\729-02\CA000\1015\Roadside\1015\_REU\EC-23\_PSH\_23\_CD.dgn  
 8/17/99

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 24**

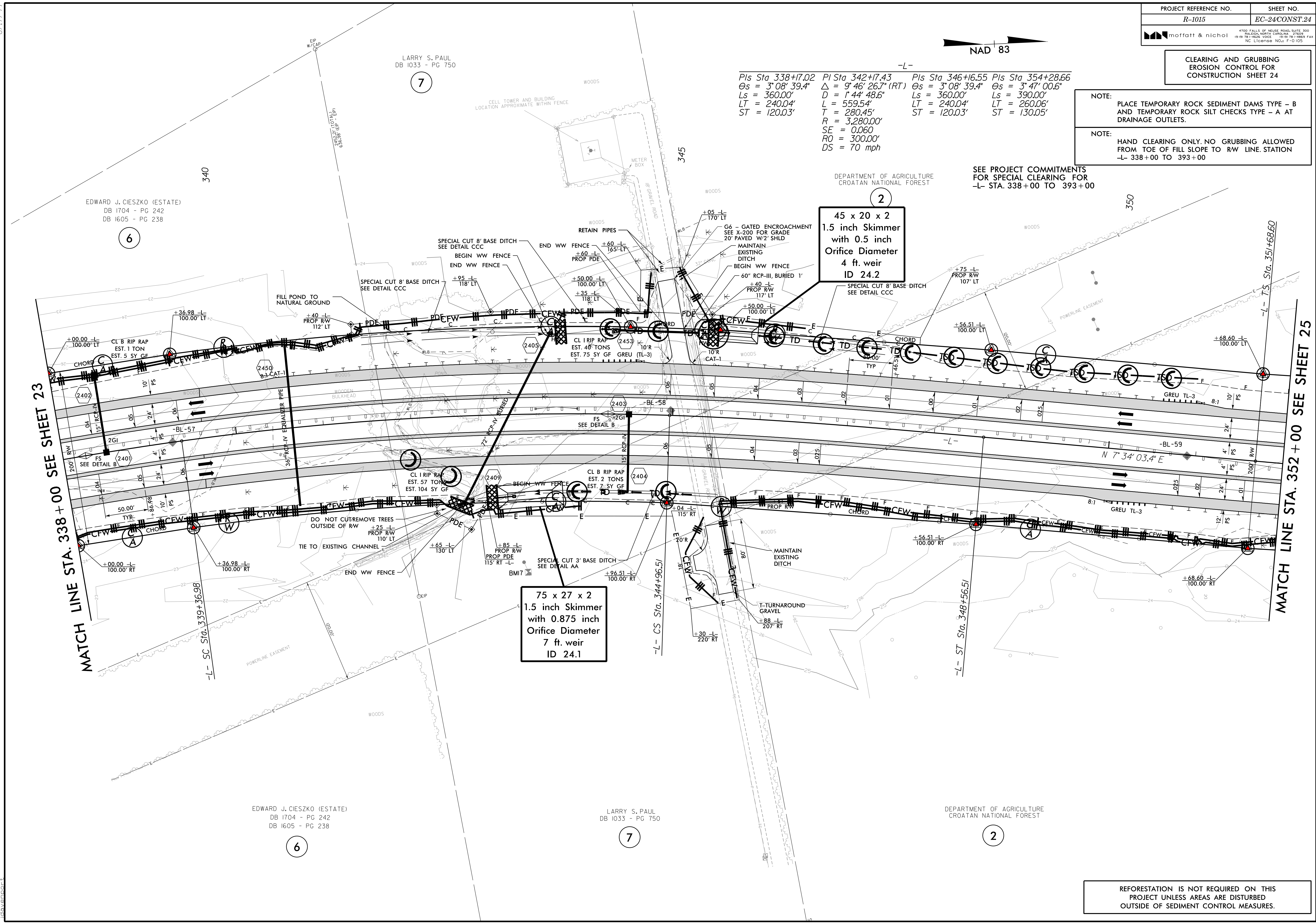
- NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.
- NOTE: HAND CLEARING ONLY. NO GRUBBING ALLOWED FROM TOE OF FILL SLOPE TO RW LINE. STATION -L- 338+00 TO 393+00



-L-

Pls Sta 338+17.02	Pl Sta 342+17.43	Pls Sta 346+16.55	Pls Sta 354+28.66
$\Theta_s = 3^{\circ}08'39.4''$	$\Delta = 9^{\circ}46'26.7''$ (RT)	$\Theta_s = 3^{\circ}08'39.4''$	$\Theta_s = 3^{\circ}47'00.6''$
$L_s = 360.00'$	$D = 1^{\circ}44'48.6''$	$L_s = 360.00'$	$L_s = 390.00'$
$LT = 240.04'$	$L = 559.54'$	$LT = 240.04'$	$LT = 260.06'$
$ST = 120.03'$	$T = 280.45'$	$ST = 120.03'$	$ST = 130.05'$
	$R = 3,280.00'$		
	$SE = 0.060$		
	$RO = 300.00'$		
	$DS = 70$ mph		

SEE PROJECT COMMITMENTS FOR SPECIAL CLEARING FOR -L- STA. 338+00 TO 393+00



**45 x 20 x 2  
1.5 inch Skimmer  
with 0.5 inch  
Orifice Diameter  
4 ft. weir  
ID 24.2**

**75 x 27 x 2  
1.5 inch Skimmer  
with 0.875 inch  
Orifice Diameter  
7 ft. weir  
ID 24.1**

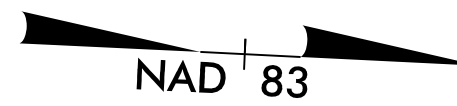
REFORESTATION IS NOT REQUIRED ON THIS PROJECT UNLESS AREAS ARE DISTURBED OUTSIDE OF SEDIMENT CONTROL MEASURES.

8.17.1999  
12/6/2018  
10:56:29-02:CA000\1015\Roadside\1015\_REU\EC-24\_PSH\_24\_CO.dgn

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 25

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

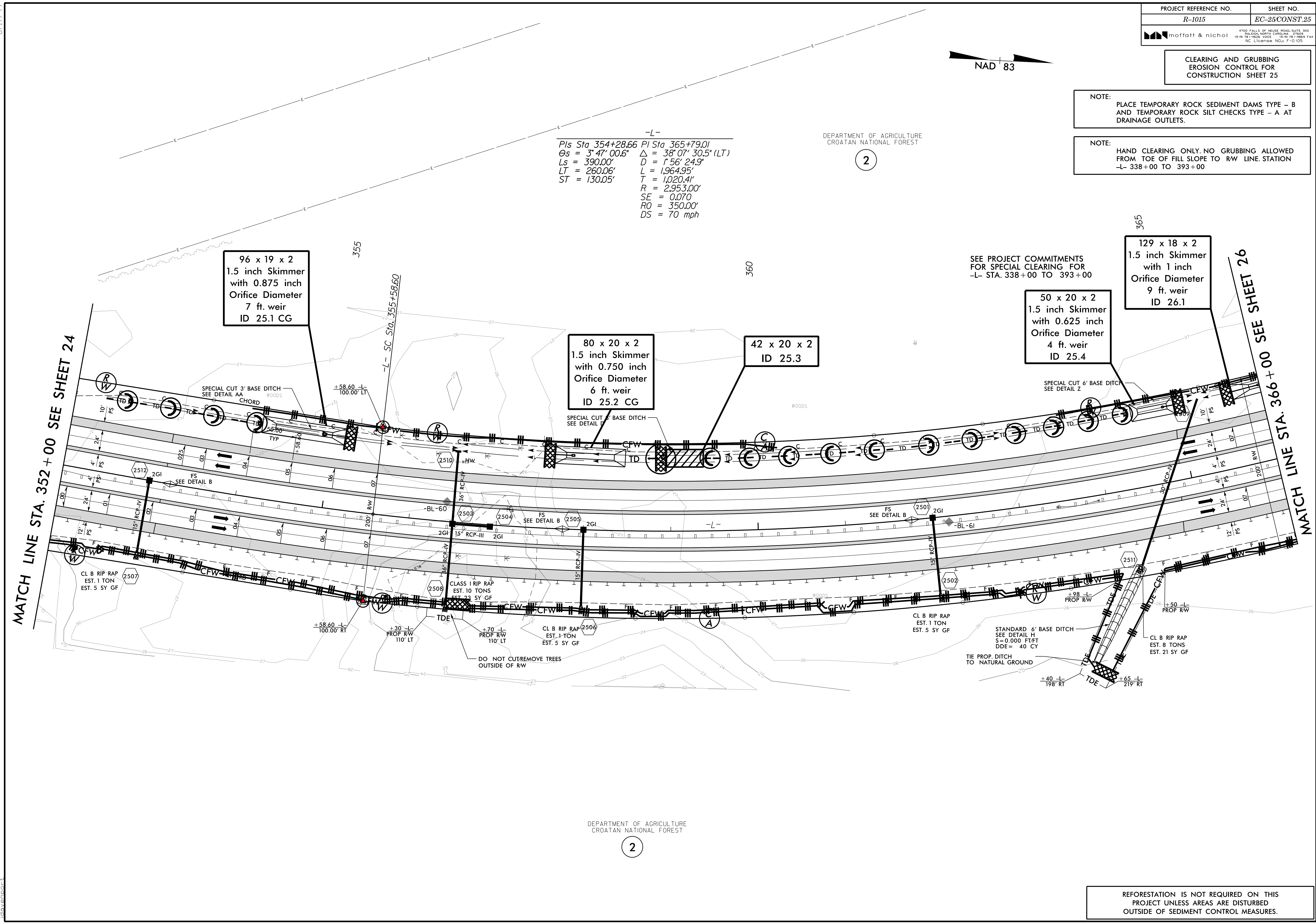
NOTE:  
HAND CLEARING ONLY. NO GRUBBING ALLOWED  
FROM TOE OF FILL SLOPE TO RW LINE. STATION  
-L- 338+00 TO 393+00



-L-  
 PIs Sta 354+28.66 PI Sta 365+79.01  
 Os = 3° 47' 00.6" Δ = 38° 07' 30.5" (LT)  
 Ls = 390.00' D = 1° 56' 24.9"  
 LT = 260.06' L = 1,964.95'  
 ST = 130.05' T = 1,020.41'  
 R = 2,953.00'  
 SE = 0.070  
 RO = 350.00'  
 DS = 70 mph

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2



SEE PROJECT COMMITMENTS  
FOR SPECIAL CLEARING FOR  
-L- STA. 338+00 TO 393+00

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8.17.99  
 12/6/2018  
 10:56:29-02:CA000\1015\Roadside\1015\_REU\EC-25\_PSH\_25\_CD.dgn



**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 27**

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

NOTE: HAND CLEARING ONLY, NO GRUBBING ALLOWED FROM TOE OF FILL SLOPE TO RW LINE, STATION -L- 338+00 TO 393+00



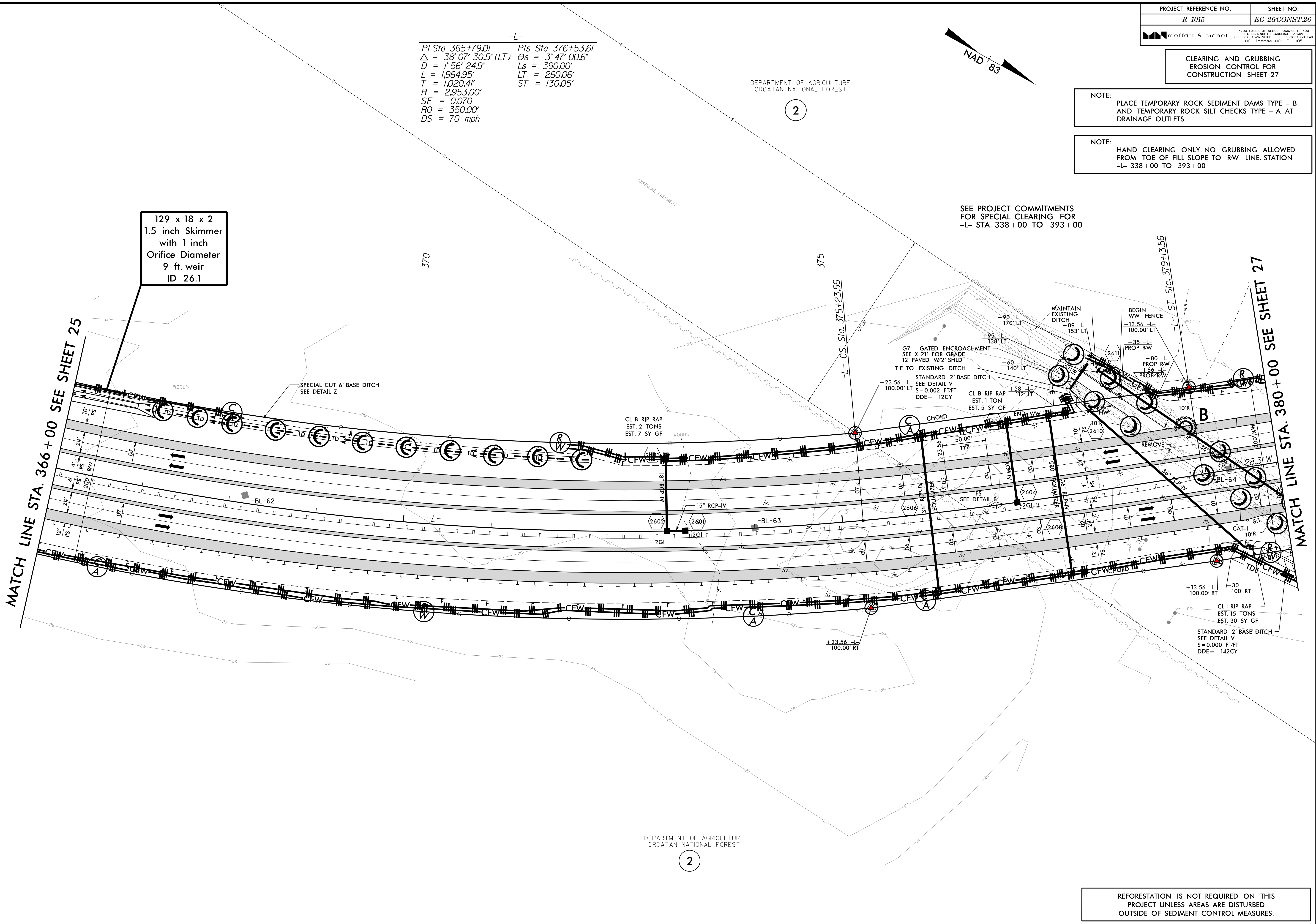
-L-  
 Pls Sta 365+79.01    Pls Sta 376+53.61  
 $\Delta = 38^{\circ} 07' 30.5" (LT)$      $\Theta s = 3^{\circ} 47' 00.6"$   
 $D = 1^{\circ} 56' 24.9"$      $Ls = 390.00'$   
 $L = 1,964.95'$      $LT = 260.06'$   
 $T = 1,020.41'$      $ST = 130.05'$   
 $R = 2,953.00'$   
 $SE = 0.070$   
 $RO = 350.00'$   
 $DS = 70 \text{ mph}$

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

SEE PROJECT COMMITMENTS  
FOR SPECIAL CLEARING FOR  
-L- STA. 338+00 TO 393+00

129 x 18 x 2  
1.5 inch Skimmer  
with 1 inch  
Orifice Diameter  
9 ft. weir  
ID 26.1



DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST

2

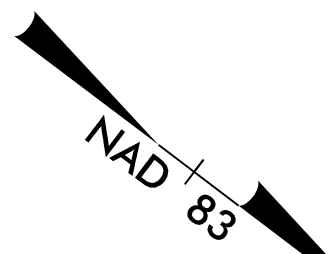
REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99  
 12/6/2018  
 I:\Projects\2018\1015\Roadside\1015\_Roadside\1015\_REU\EC-26\_PSH\_26\_CD.dgn

**CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 27**

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

NOTE: HAND CLEARING ONLY, NO GRUBBING ALLOWED FROM TOE OF FILL SLOPE TO RW LINE, STATION -L- 338+00 TO 393+00



-L-  
 Pls Sta 389+15.83 PI Sta 392+92.64  
 $\theta_s = 1' 26'' 08.8''$   $\Delta = 5' 23'' 33.7''$  (RT)  
 $L_s = 296.00'$   $D = 0' 58'' 12.5''$   
 $LT = 197.34'$   $L = 555.87'$   
 $ST = 98.67'$   $T = 278.14'$   
 $R = 5,906.00'$   
 $SE = 0.040$   
 $RO = 200.00'$   
 $DS = 70$  mph

DEPARTMENT OF AGRICULTURE  
 CROATAN NATIONAL FOREST

2

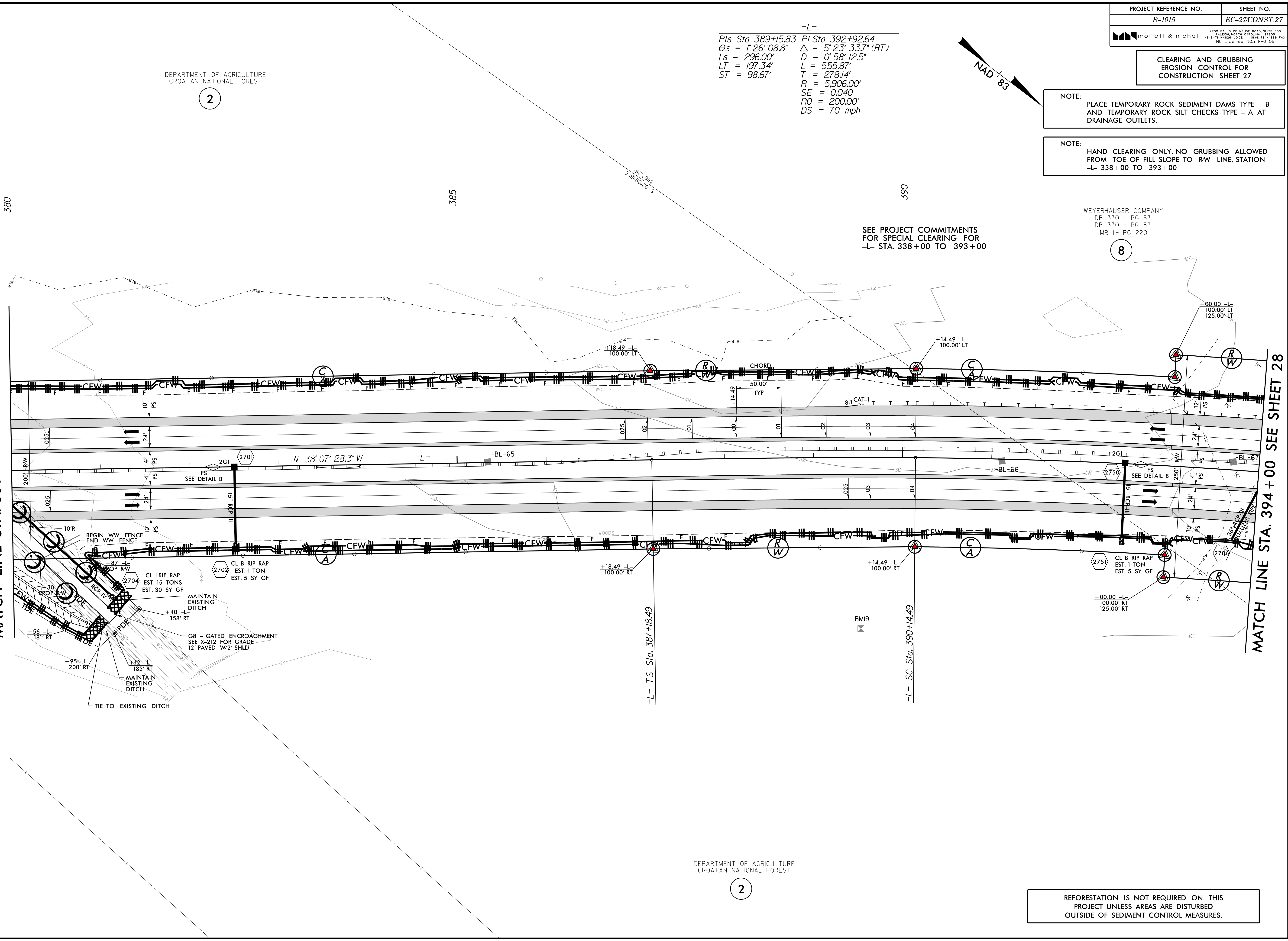
WEYERHAUSER COMPANY  
 DB 370 - PG 53  
 DB 370 - PG 57  
 MB 1 - PG 220

8

SEE PROJECT COMMITMENTS  
 FOR SPECIAL CLEARING FOR  
 -L- STA. 338+00 TO 393+00

MATCH LINE STA. 380+00 SEE SHEET 26

MATCH LINE STA. 394+00 SEE SHEET 28



DEPARTMENT OF AGRICULTURE  
 CROATAN NATIONAL FOREST

2

REFORESTATION IS NOT REQUIRED ON THIS PROJECT UNLESS AREAS ARE DISTURBED OUTSIDE OF SEDIMENT CONTROL MEASURES.

8.17.09

12/6/2018 9:29:02 CA000\RI015\Roadside\NR-1015\_REU\EC-27\_PSH\_27\_CD.dgn

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 28**

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

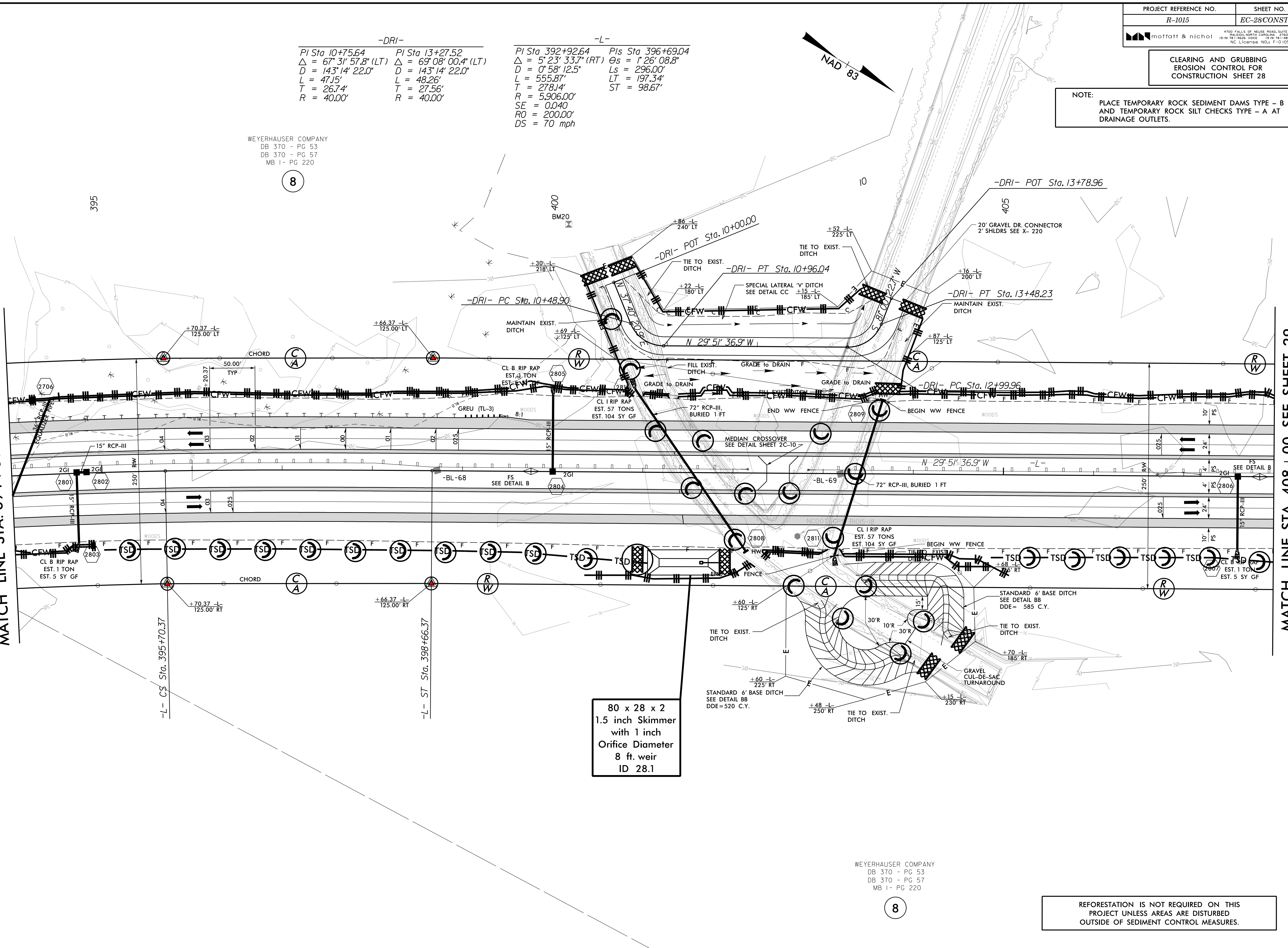
-DRI-		-L-	
PI Sta 10+75.64	PI Sta 13+27.52	PI Sta 392+92.64	PIs Sta 396+69.04
$\Delta = 67^{\circ} 31' 57.8" (LT)$	$\Delta = 69^{\circ} 08' 00.4" (LT)$	$\Delta = 5^{\circ} 23' 33.7" (RT)$	$\Theta_s = 1^{\circ} 26' 08.8"$
$D = 143^{\circ} 14' 22.0"$	$D = 143^{\circ} 14' 22.0"$	$D = 0^{\circ} 58' 12.5"$	$L_s = 296.00'$
$L = 47.15'$	$L = 48.26'$	$L = 555.87'$	$LT = 197.34'$
$T = 26.74'$	$T = 27.56'$	$T = 278.14'$	$ST = 98.67'$
$R = 40.00'$	$R = 40.00'$	$R = 5,906.00'$	
		$SE = 0.040$	
		$RO = 200.00'$	
		$DS = 70 \text{ mph}$	

WEYERHAUSER COMPANY  
DB 370 - PG 53  
DB 370 - PG 57  
MB 1 - PG 220

8

MATCH LINE STA. 394 + 00 SEE SHEET 27

MATCH LINE STA. 408 + 00 SEE SHEET 29



80 x 28 x 2  
1.5 inch Skimmer  
with 1 inch  
Orifice Diameter  
8 ft. weir  
ID 28.1

WEYERHAUSER COMPANY  
DB 370 - PG 53  
DB 370 - PG 57  
MB 1 - PG 220

8

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

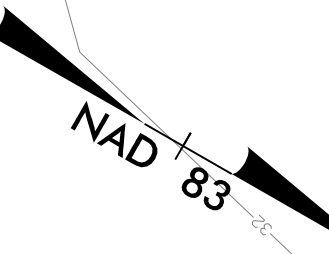
8.17.799  
 3/5/2019  
 D:\1615729-02\CA000\1615\Roadside\VR-1015\_REU\EC-28\_PSH\_28\_CD.dgn  
 10/15/2018 10:15:00 AM  
 1615729-02

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 29**

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

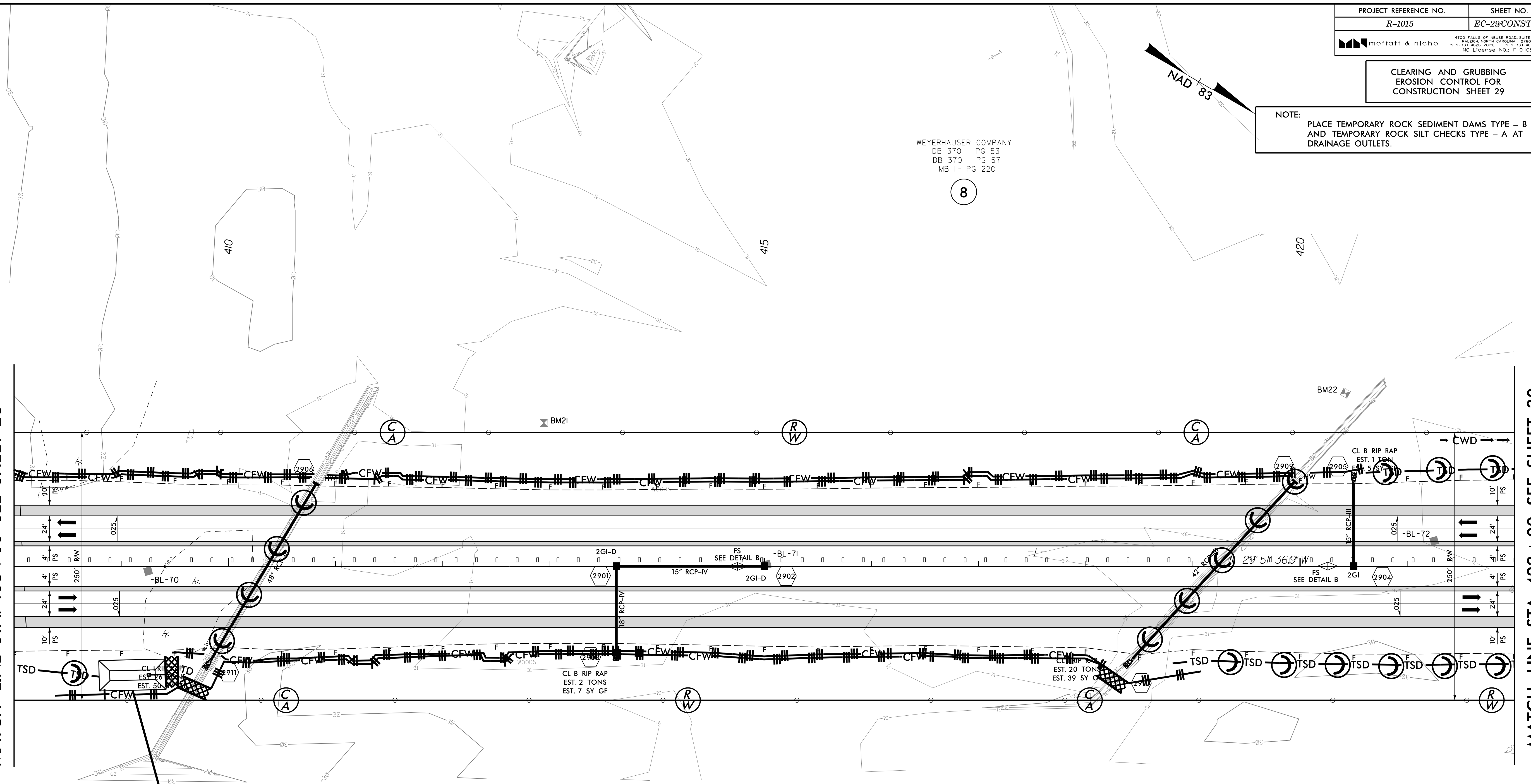
WEYERHAUSER COMPANY  
DB 370 - PG 53  
DB 370 - PG 57  
MB 1 - PG 220

8



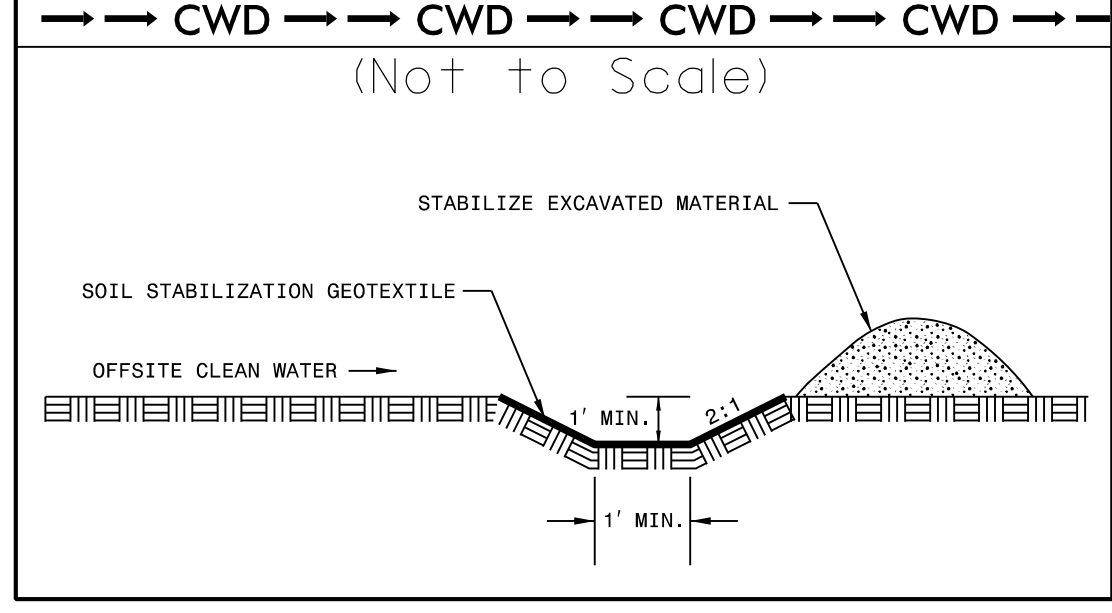
MATCH LINE STA. 408 + 00 SEE SHEET 28

MATCH LINE STA. 422 + 00 SEE SHEET 30



60 x 28 x 2  
1.5 inch Skimmer  
with 0.875 inch  
Orifice Diameter  
6 ft. weir  
ID 29.1

**CLEAN WATER DIVERSION**



REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

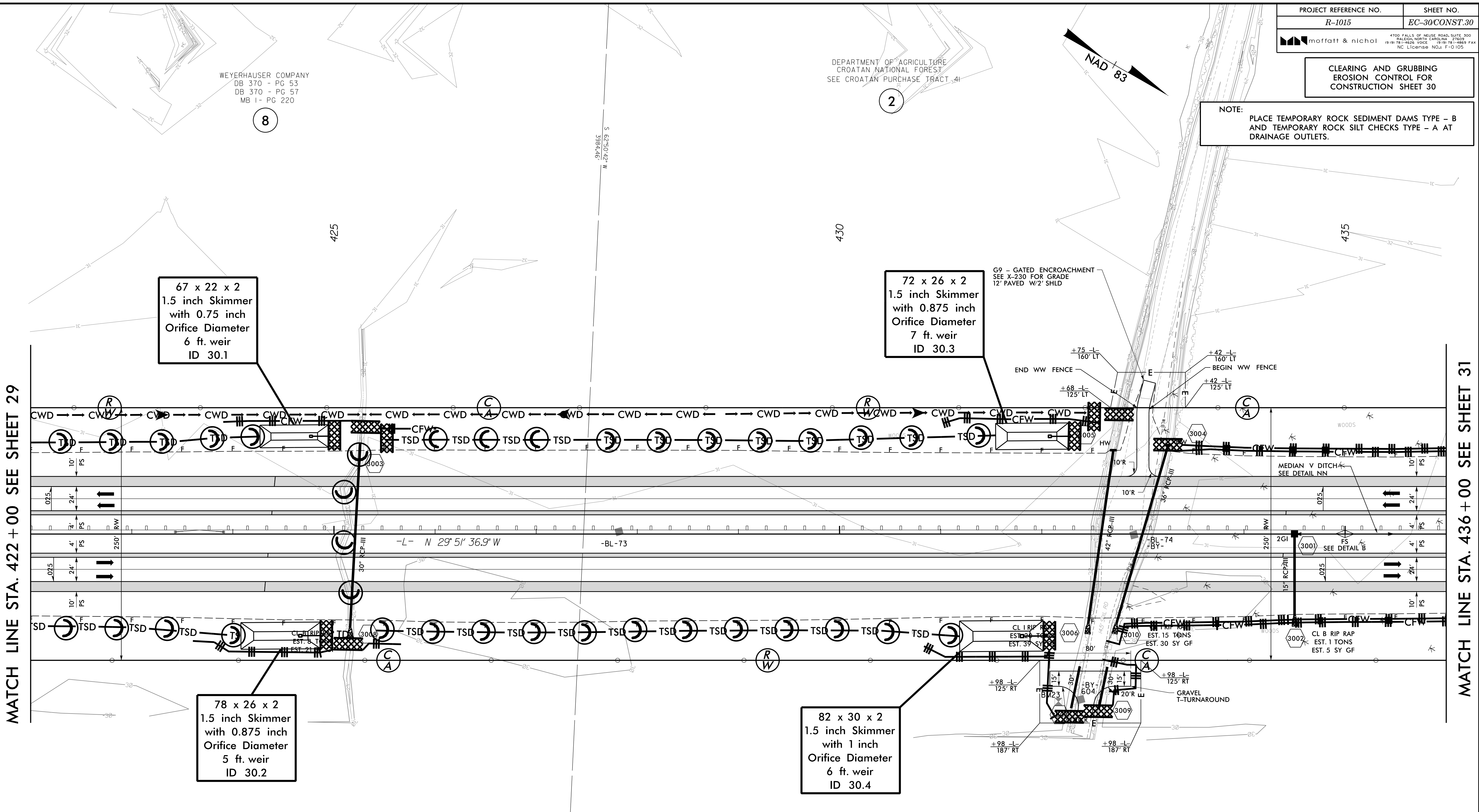
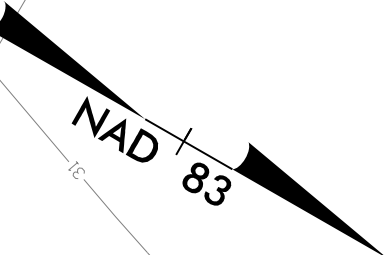
WEYERHAUSER COMPANY  
DB 370 - PG 53  
DB 370 - PG 57  
MB 1 - PG 220

8

8/17/99  
 I:\7208\1015\Roadside\1015\_REU\_EC-29\_PSH\_29.dgn  
 11/7/2008  
 10:54:57 AM  
 10/15/2008  
 10:54:57 AM  
 10/15/2008  
 10:54:57 AM

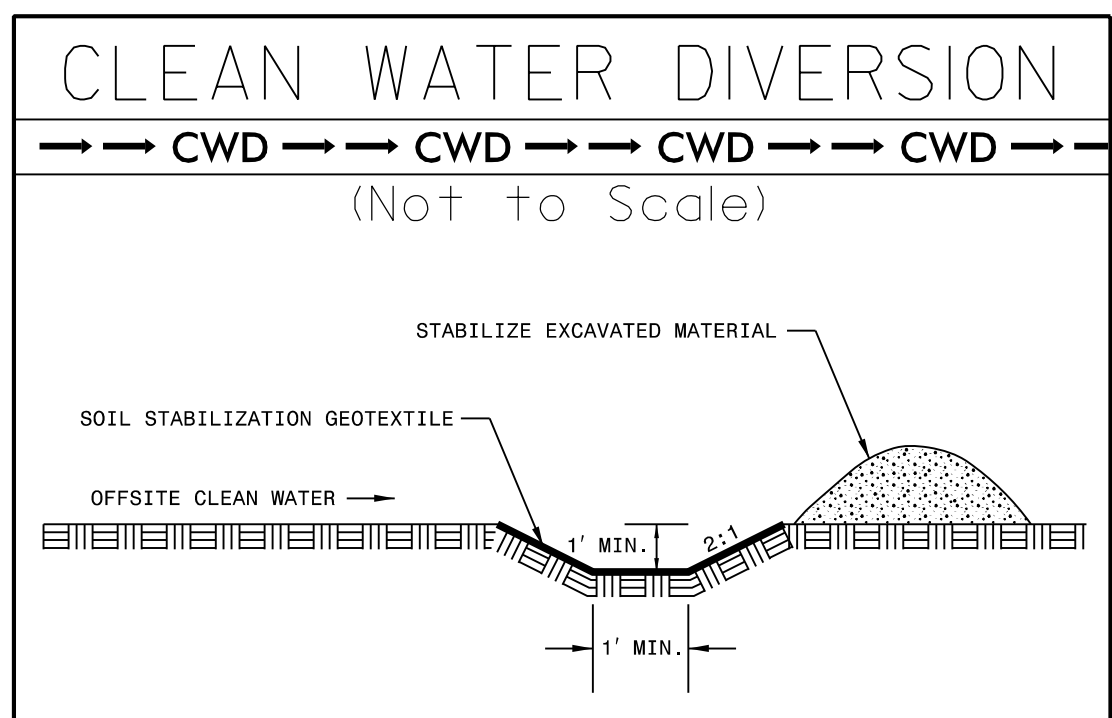
**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 30**

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



MATCH LINE STA. 422 + 00 SEE SHEET 29

MATCH LINE STA. 436 + 00 SEE SHEET 31



REFORESTATION IS NOT REQUIRED ON THIS PROJECT UNLESS AREAS ARE DISTURBED OUTSIDE OF SEDIMENT CONTROL MEASURES.

WEYERHAUSER COMPANY  
DB 370 - PG 53  
DB 370 - PG 57  
MB 1 - PG 220

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
SEE CROATAN PURCHASE TRACT 41

WEYERHAUSER COMPANY  
DB 370 - PG 53  
DB 370 - PG 57  
MB 1 - PG 220

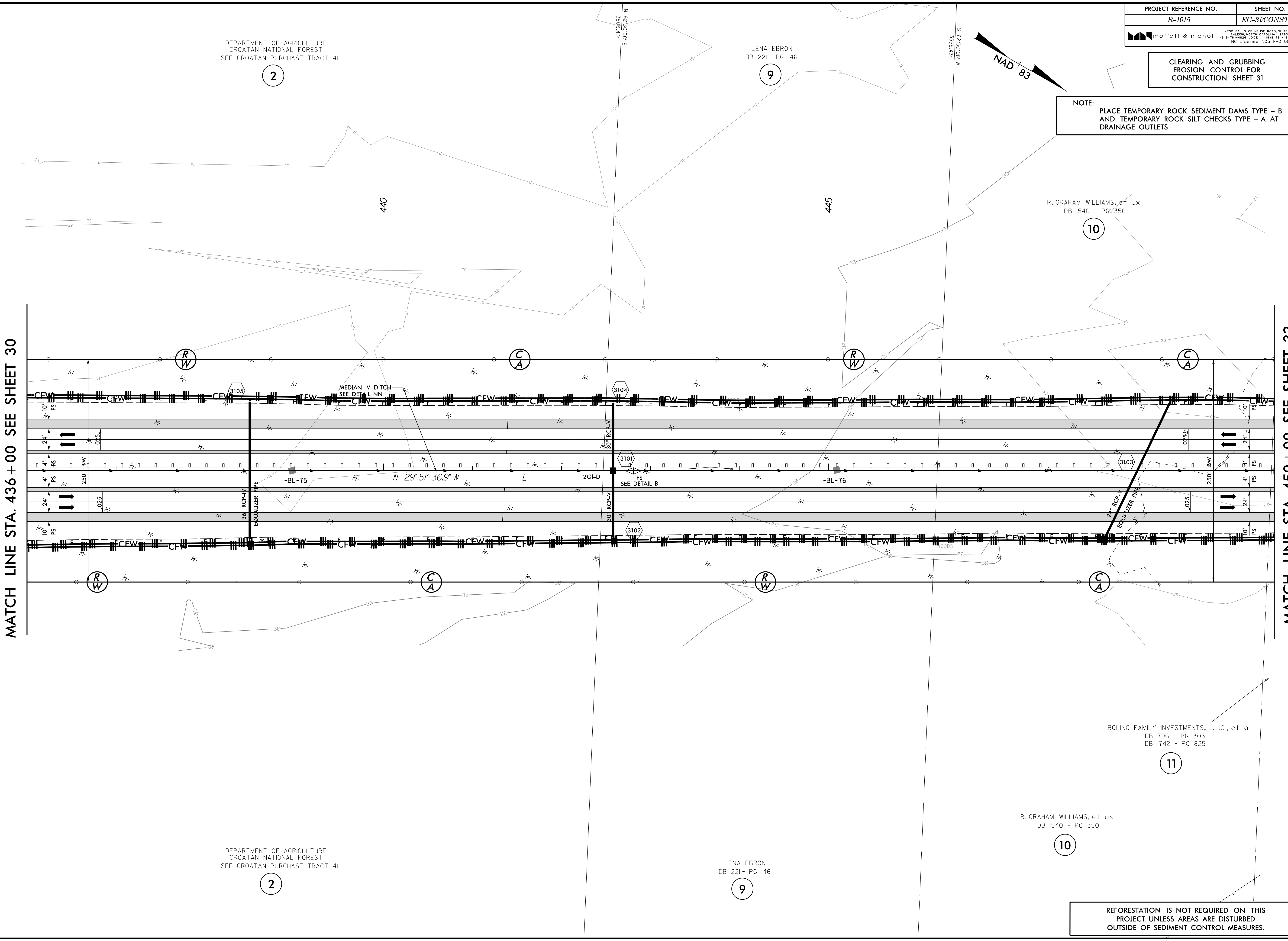
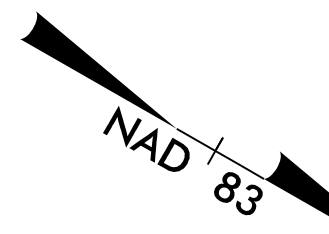
DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
SEE CROATAN PURCHASE TRACT 41

8/17/99

I:\7208\1015\Roadside\1015\_Roadside\1015\_REU\EC-30\_PSH\_30\_CD.dgn

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 31**

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



MATCH LINE STA. 436 + 00 SEE SHEET 30

MATCH LINE STA. 450 + 00 SEE SHEET 32

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
SEE CROATAN PURCHASE TRACT 41

2

LENA EBRO  
DB 221 - PG 146

9

R. GRAHAM WILLIAMS, et ux  
DB 1540 - PG 350

10

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
SEE CROATAN PURCHASE TRACT 41

2

LENA EBRO  
DB 221 - PG 146

9

BOLING FAMILY INVESTMENTS, L.L.C., et al  
DB 796 - PG 303  
DB 1742 - PG 825

11

R. GRAHAM WILLIAMS, et ux  
DB 1540 - PG 350

10

**REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.**

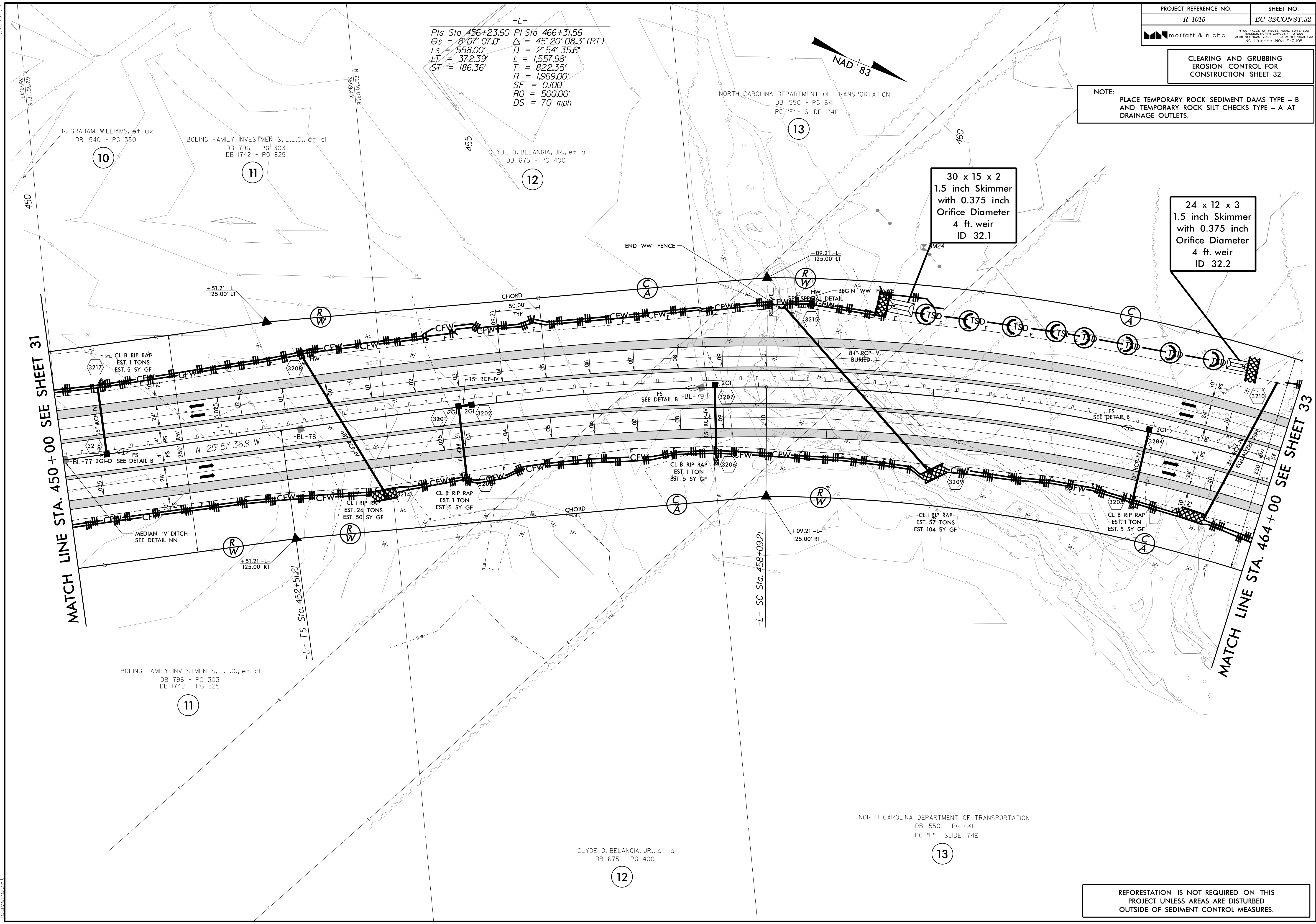
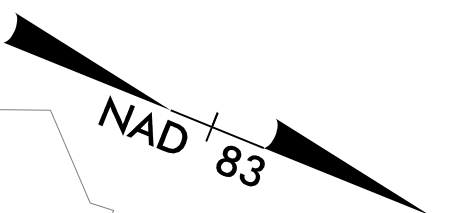
8/17/99

I:\7208\14763\729-02\CA000\1015\Roadside\1015\_REU\EC-31\_PSH\_31.CG.dgn

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 32**

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

-L-  
Pls Sta 456+23.60 PI Sta 466+31.56  
 $\theta_s = 8^{\circ}07'07.0''$   $\Delta = 45^{\circ}20'08.3''$  (RT)  
 $L_s = 558.00'$   $D = 2^{\circ}54'35.6''$   
 $LT = 372.39'$   $L = 1,557.98'$   
 $ST = 186.36'$   $T = 822.35'$   
 $R = 1,969.00'$   
 $SE = 0.00$   
 $RO = 500.00'$   
 $DS = 70$  mph



30 x 15 x 2  
1.5 inch Skimmer  
with 0.375 inch  
Orifice Diameter  
4 ft. weir  
ID 32.1

24 x 12 x 3  
1.5 inch Skimmer  
with 0.375 inch  
Orifice Diameter  
4 ft. weir  
ID 32.2

MATCH LINE STA. 450+00 SEE SHEET 31

MATCH LINE STA. 466+00 SEE SHEET 33

R. GRAHAM WILLIAMS, et ux  
DB 1540 - PG 350

BOLING FAMILY INVESTMENTS, L.L.C., et al  
DB 796 - PG 303  
DB 1742 - PG 825

CLYDE O. BELANGIA, JR., et al  
DB 675 - PG 400

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DB 1550 - PG 641  
PC 'F' - SLIDE 174E

BOLING FAMILY INVESTMENTS, L.L.C., et al  
DB 796 - PG 303  
DB 1742 - PG 825

CLYDE O. BELANGIA, JR., et al  
DB 675 - PG 400

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DB 1550 - PG 641  
PC 'F' - SLIDE 174E

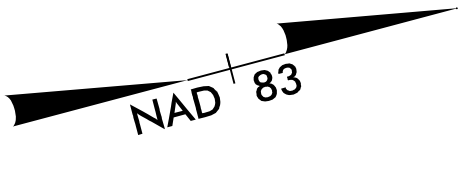
REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8.17.799  
 I:\7208\14763\729-02\CA000\1015\Roadside\NR-1015\_REU\EC-32\_PSH\_32\_CD.dgn  
 1/7/2016 10:45:29 AM

**CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 33**

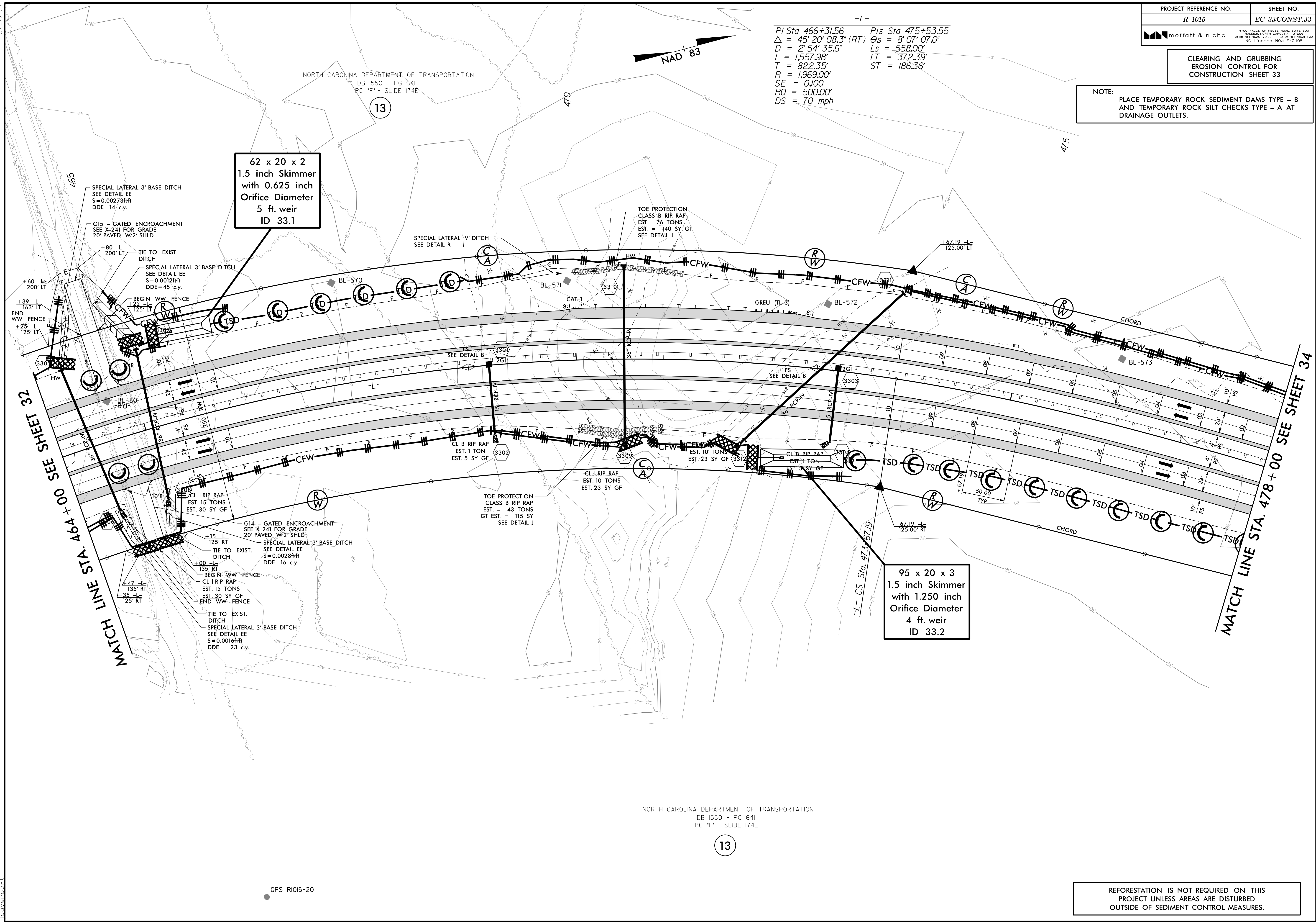
NOTE:  
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
 DRAINAGE OUTLETS.

-L-  
 PI Sta 466+31.56 PIs Sta 475+53.55  
 $\Delta = 45^{\circ} 20' 08.3" (RT)$   $\Theta_s = 8^{\circ} 07' 07.0"$   
 $D = 2^{\circ} 54' 35.6"$   $L_s = 558.00'$   
 $L = 1,557.98'$   $LT = 372.39'$   
 $T = 822.35'$   $ST = 186.36'$   
 $R = 1,969.00'$   
 $SE = 0.100$   
 $RO = 500.00'$   
 $DS = 70 \text{ mph}$



**62 x 20 x 2  
 1.5 inch Skimmer  
 with 0.625 inch  
 Orifice Diameter  
 5 ft. weir  
 ID 33.1**

**95 x 20 x 3  
 1.5 inch Skimmer  
 with 1.250 inch  
 Orifice Diameter  
 4 ft. weir  
 ID 33.2**



MATCH LINE STA. 464 + 00 SEE SHEET 32

MATCH LINE STA. 478 + 00 SEE SHEET 34

REFORESTATION IS NOT REQUIRED ON THIS  
 PROJECT UNLESS AREAS ARE DISTURBED  
 OUTSIDE OF SEDIMENT CONTROL MEASURES.

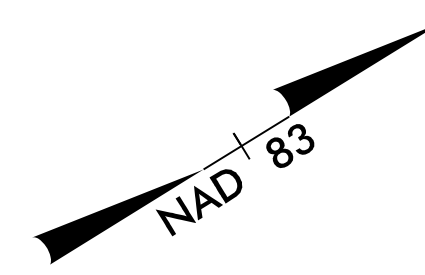
8/17/99  
 I:\7208\1015\Roadside\1015\_Roadside\1015\_REU\EC-33\_PSH\_33\_CD.dgn  
 10/7/2008 10:57:29 AM  
 GPS RI015-20



**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 34**

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

DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
NO DEED REFERENCE  
SEE CROATAN PURCHASE TRACT 16c

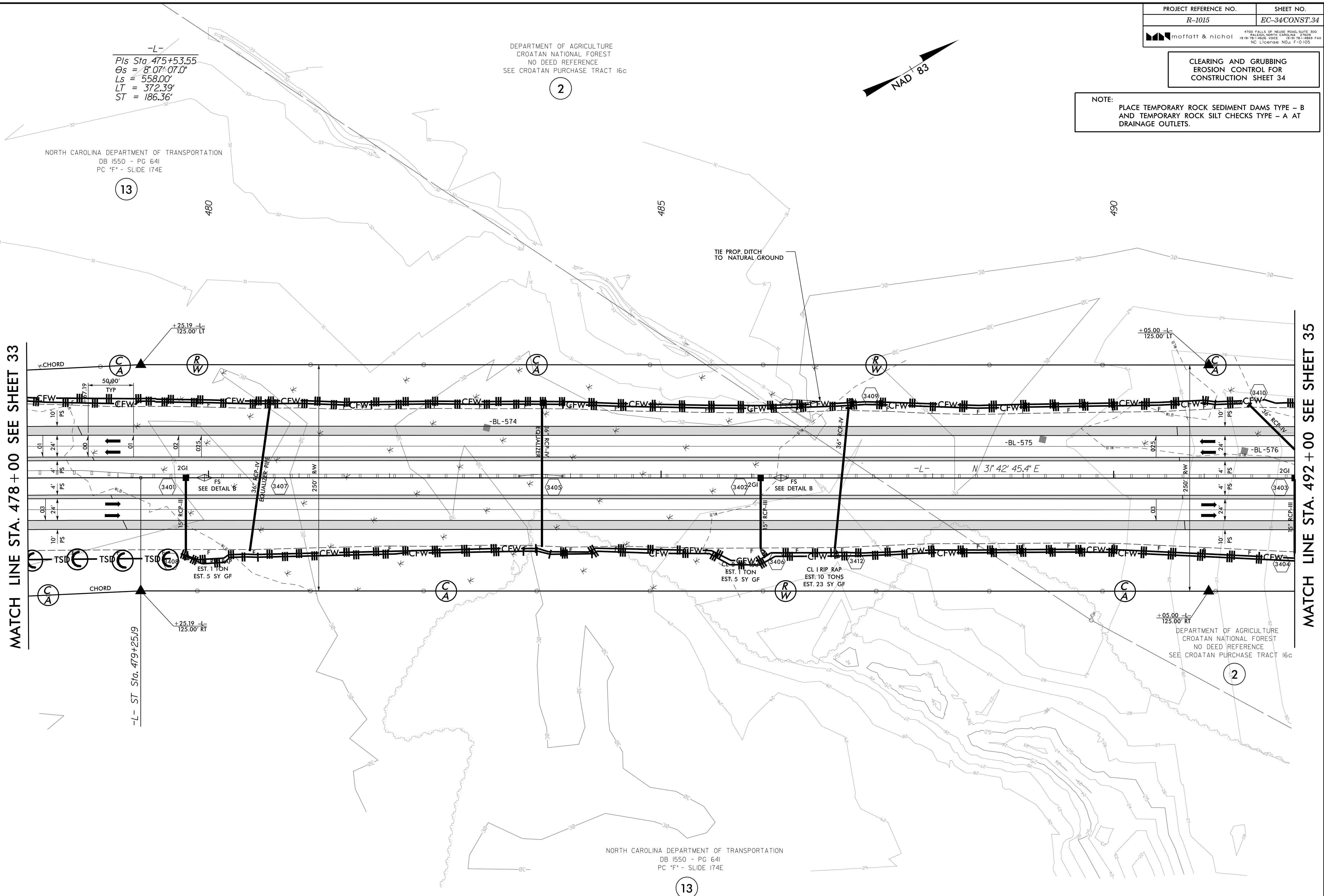


-L-  
Pis Sta 475+53.55  
 $\theta_s = 8^{\circ} 07' 07.0''$   
 $L_s = 558.00'$   
 $LT = 372.39'$   
 $ST = 186.36'$

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DB 1550 - PG 641  
PC 'F' - SLIDE 174E

MATCH LINE STA. 478 + 00 SEE SHEET 33

MATCH LINE STA. 492 + 00 SEE SHEET 35



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DB 1550 - PG 641  
PC 'F' - SLIDE 174E

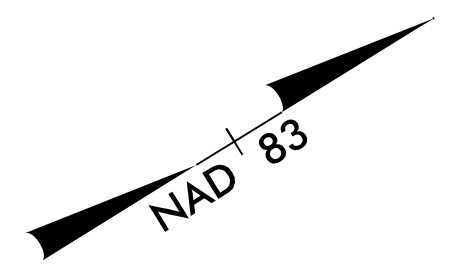
REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99  
 I:\7208\1015\Roadside\1015\_Roadside\1015\_REU\EC-34\_PSH\_34\_CD.dgn  
 11/7/2008  
 10:45:29  
 02:CA000\1015\Roadside\1015\_REU\EC-34\_PSH\_34\_CD.dgn

**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 35**

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

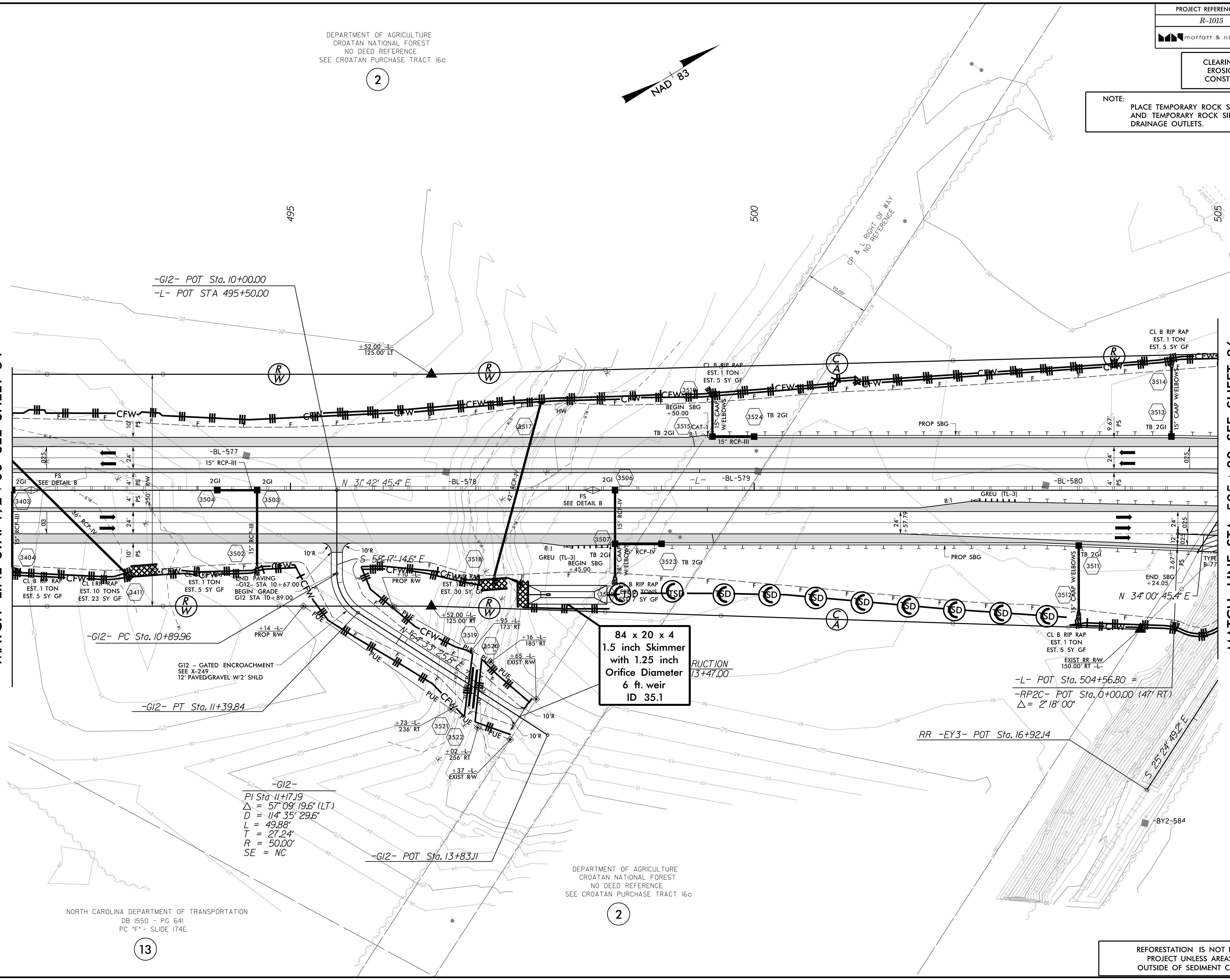
DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
NO DEED REFERENCE  
SEE CROATAN PURCHASE TRACT 16C



2

MATCH LINE STA. 492 + 00 SEE SHEET 34

MATCH LINE STA. 505 + 00 SEE SHEET 36



84 x 20 x 4  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
6 ft. weir  
ID 35.1

-G12-  
PI Sta. 11+17.19  
Δ = 57° 09' 19.6" (LT)  
D = 114' 35" 29.6"  
L = 49.88'  
T = 27.24'  
R = 50.00'  
SE = NC

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DB 1550 - PG 641  
PC \*P\* - SLIDE 174E

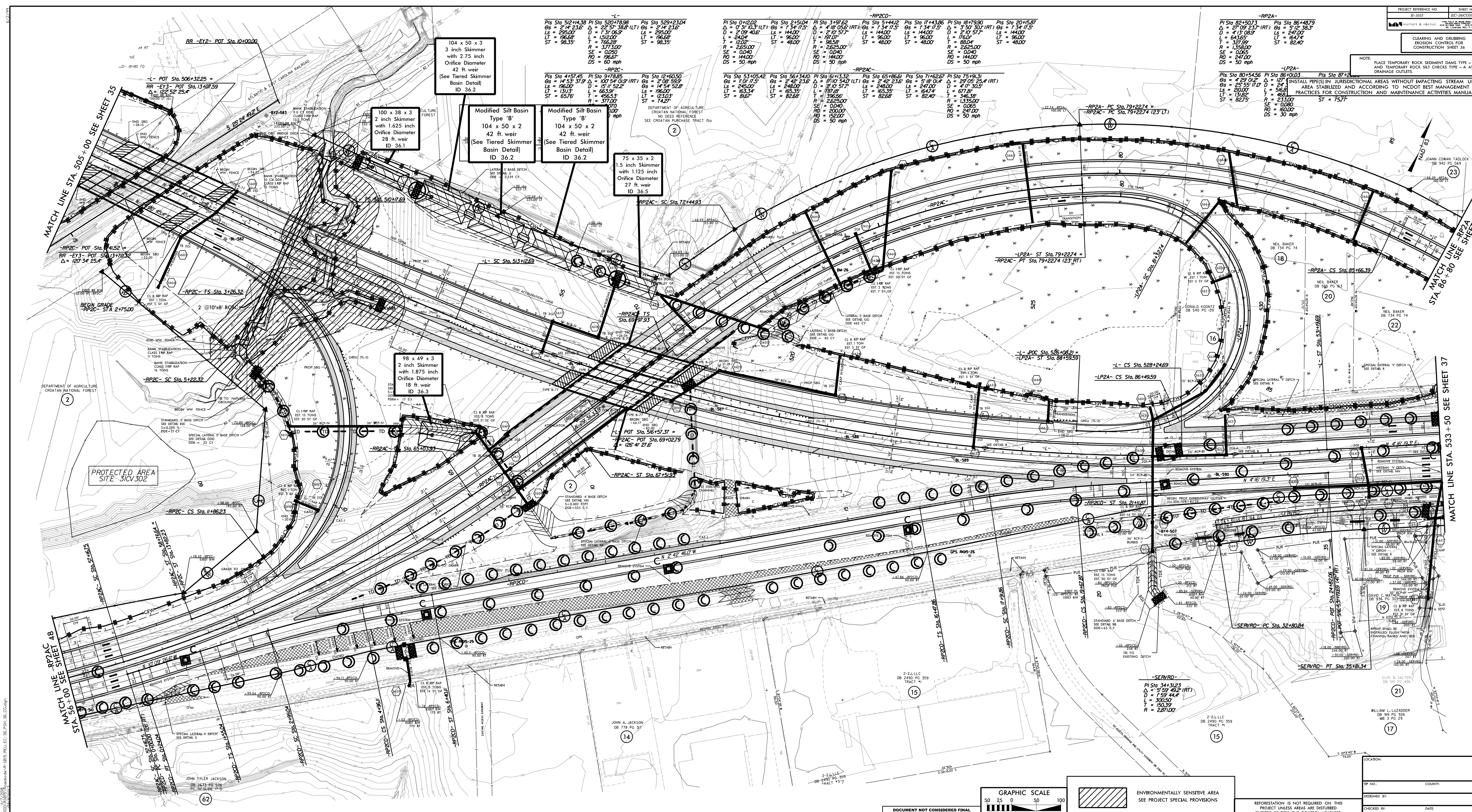
DEPARTMENT OF AGRICULTURE  
CROATAN NATIONAL FOREST  
NO DEED REFERENCE  
SEE CROATAN PURCHASE TRACT 16C

2

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

13

8/17/99  
 I:\7\RA\9729-02\CA000\1015\Roadside\1015\_REU\EC-35\_PSH\_35\_CD.dgn  
 11/7/2008



PROJECT REFERENCE NO. 0-3002 SHEET NO. 36-CONSTR.02

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 36

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE = B AND TEMPORARY ROCK Silt CHECK TYPE = A AT DRAINAGE OUTLETS.

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.

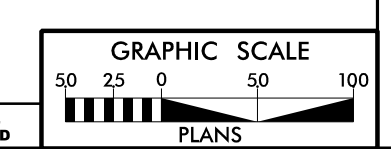
STATIONING: STA. 85+80 SEE SHEET 37

MATCH LINE STA. 505+00 SEE SHEET 35

MATCH LINE STA. 85+80 SEE SHEET 37

MATCH LINE STA. 533+50 SEE SHEET 37

DATE: 12/15/2010



ENVIRONMENTALLY SENSITIVE AREA SEE PROJECT SPECIAL PROVISIONS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RESTORATION IS NOT REQUIRED ON THIS PROJECT UNLESS AREAS ARE DISTURBED OUTSIDE OF SEDIMENT CONTROL MEASURES

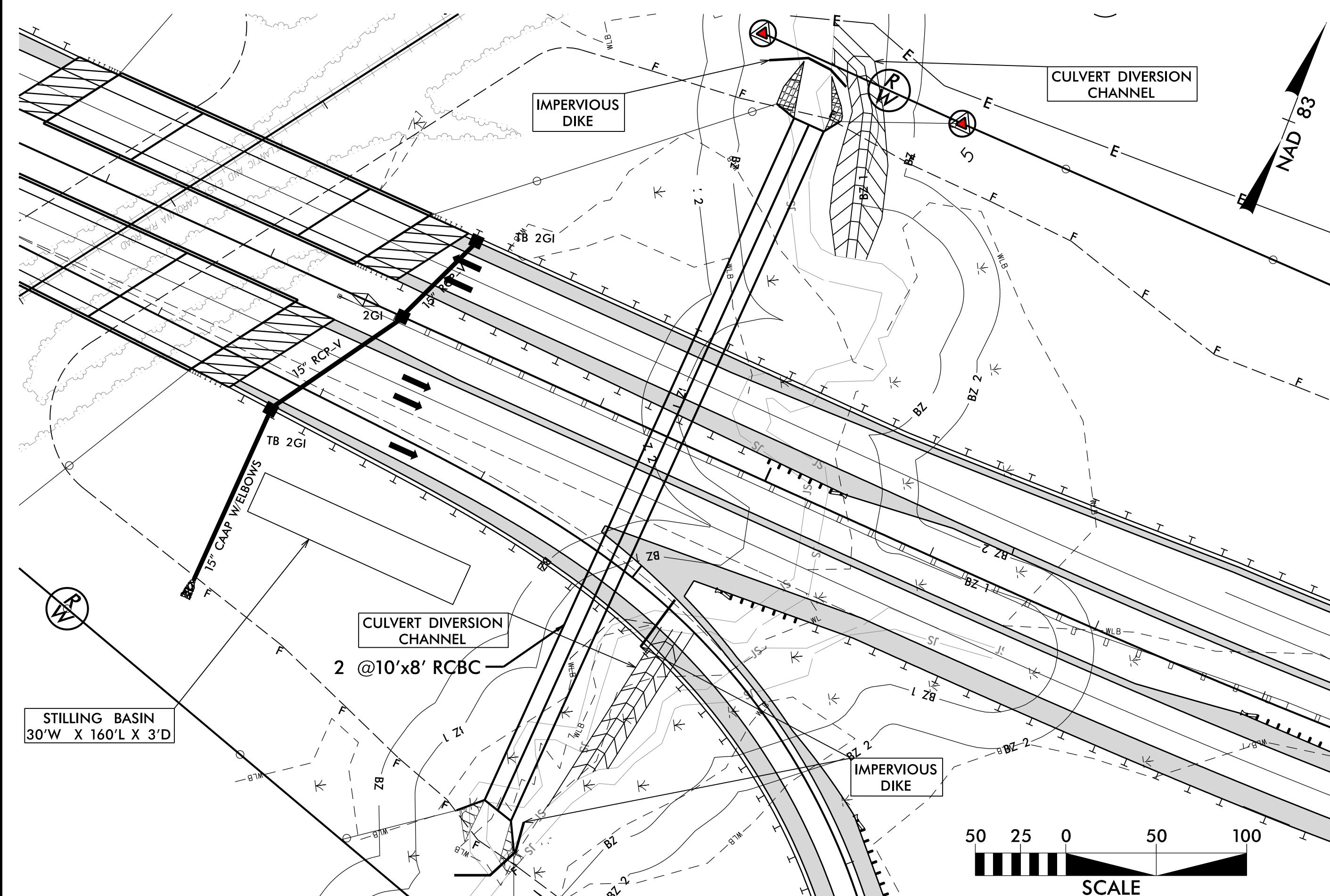
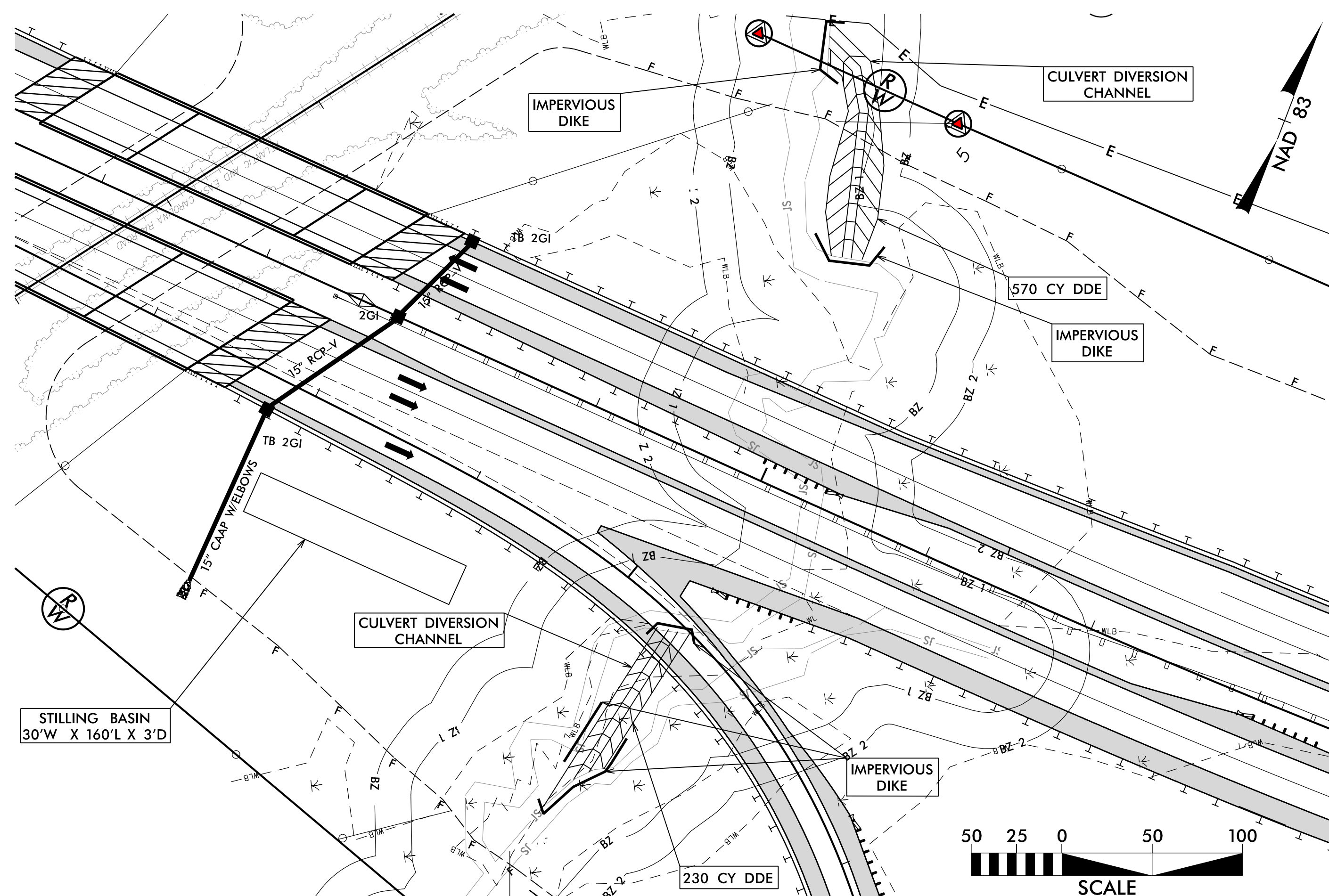
DESIGNED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_

# CULVERT CONSTRUCTION SEQUENCE

## STA. 509 + 41 -L-

### PHASE I

### PHASE II

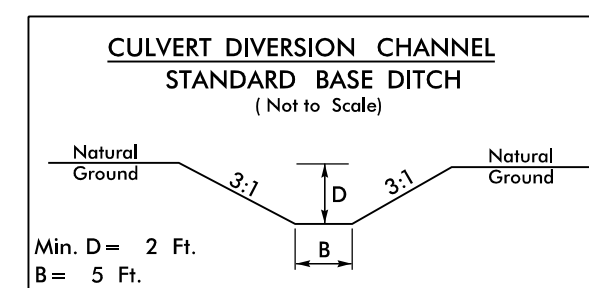


#### CULVERT CONSTRUCTION SEQUENCE

1. INSTALL STILLING BASIN WITH A MINIMUM CAPACITY OF 530 CY.
2. INSTALL IMPERVIOUS DIKES AS SHOWN.
3. DRY OUT WORK AREA NEEDED TO CONSTRUCT THE CULVERT DIVERSION CHANNELS, PUMPING EFFLUENT INTO STILLING BASIN.
4. CONSTRUCT CULVERT DIVERSION CHANNELS.

#### CULVERT CONSTRUCTION SEQUENCE

5. REMOVE IMPERVIOUS DIKES CONSTRUCTED IN PHASE I AND DIVERT FLOW INTO CULVERT DIVERSION CHANNELS BY CONSTRUCTING THE IMPERVIOUS DIKES SHOWN IN PHASE II.
6. DRY OUT WORK AREA NEEDED TO CONSTRUCT THE CULVERT, PUMPING EFFLUENT INTO STILLING BASIN.
7. CONSTRUCT THE TWO CULVERTS.
8. CONSTRUCT THE ARMORING TO THE GREATEST EXTENT PRACTICABLE.

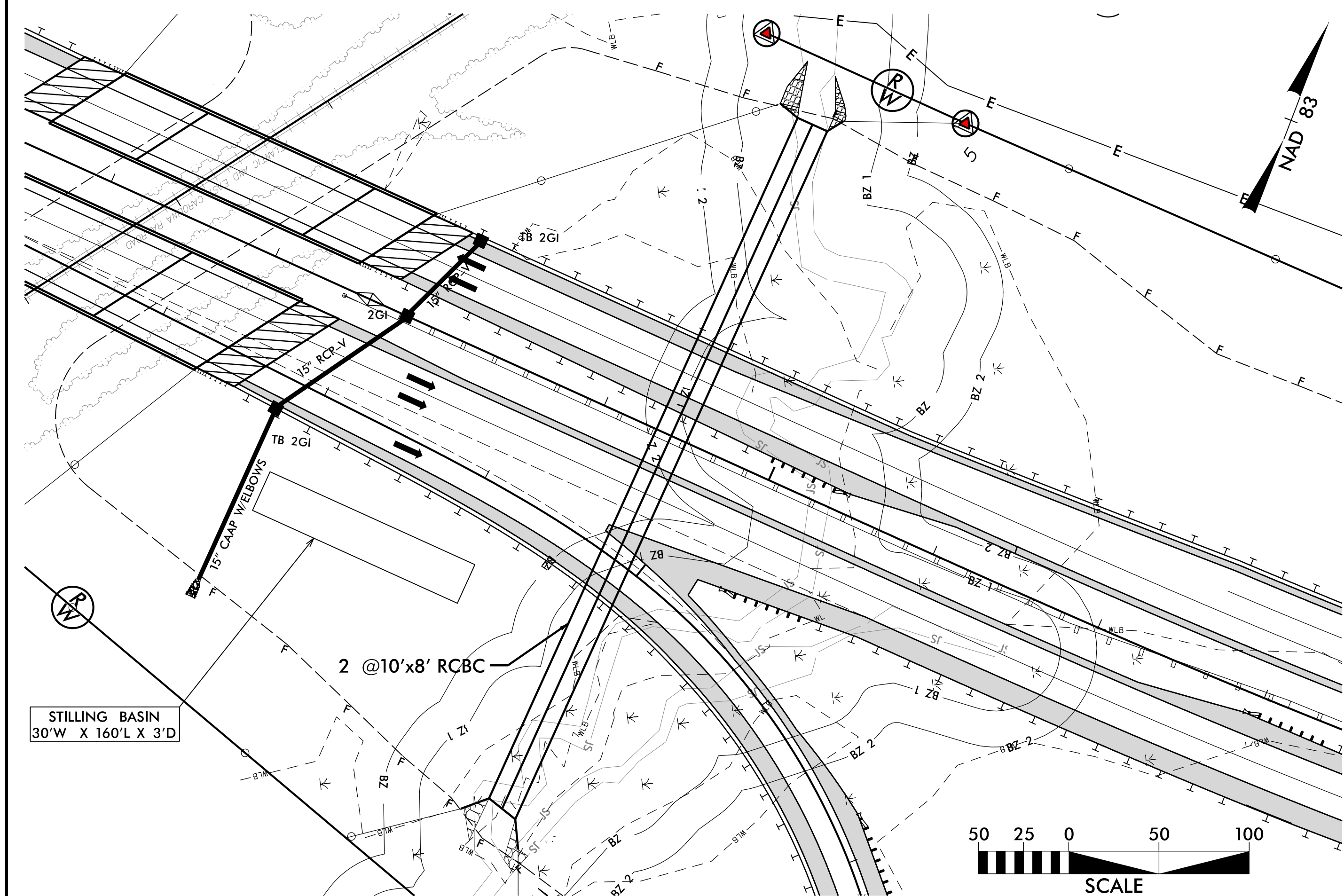
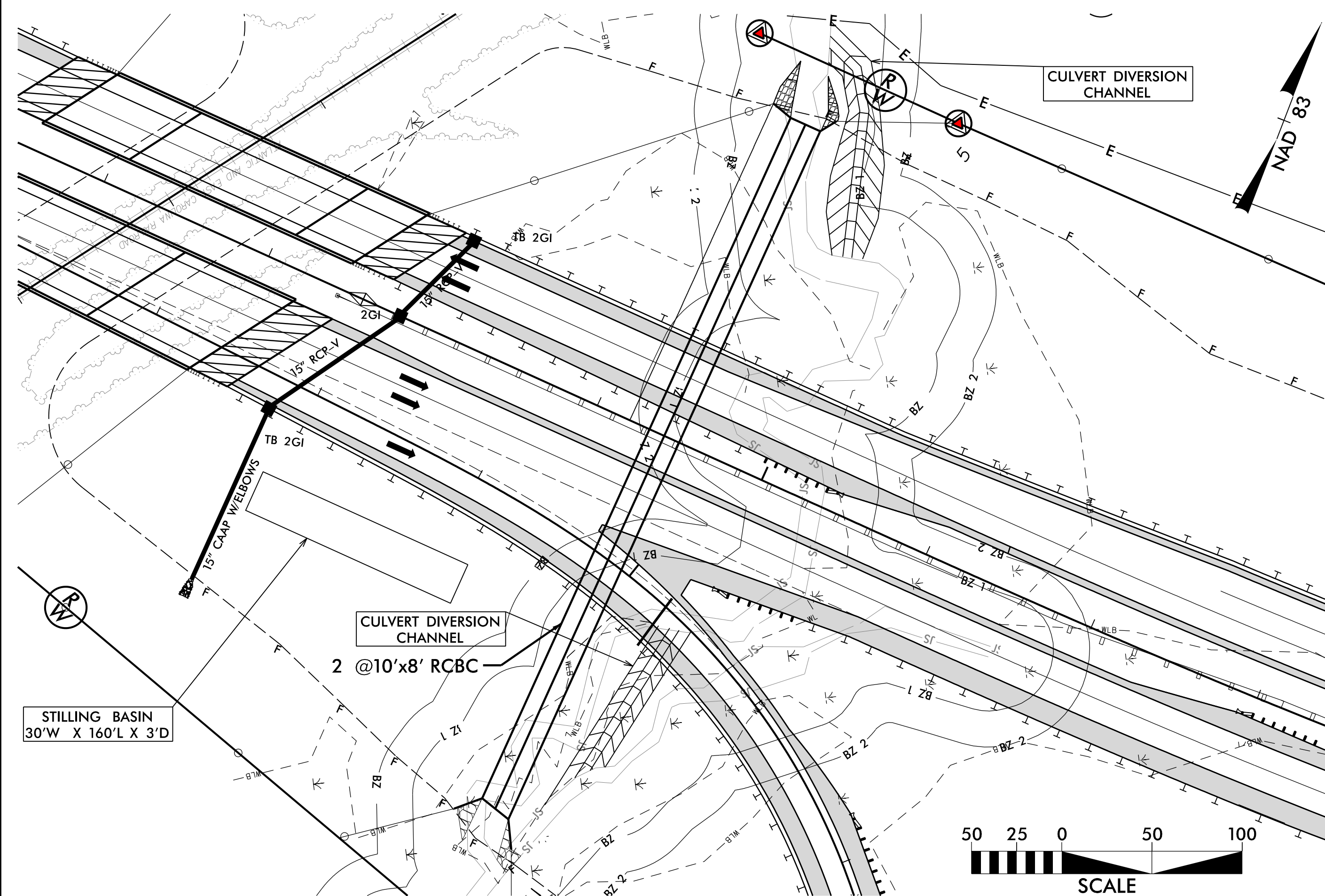


# CULVERT CONSTRUCTION SEQUENCE

## STA. 509 + 41 -L-

### PHASE III

### PHASE IV



#### CULVERT CONSTRUCTION SEQUENCE

9. REMOVE IMPERVIOUS DIKES ALLOWING FLOW INTO THE CULVERT.
10. FINISH ARMORING THE BANKS THAT WERE UNABLE TO BE COMPLETED DURING PHASE II
11. REMOVE CULVERT DIVERSION CHANNELS.

#### CULVERT CONSTRUCTION SEQUENCE

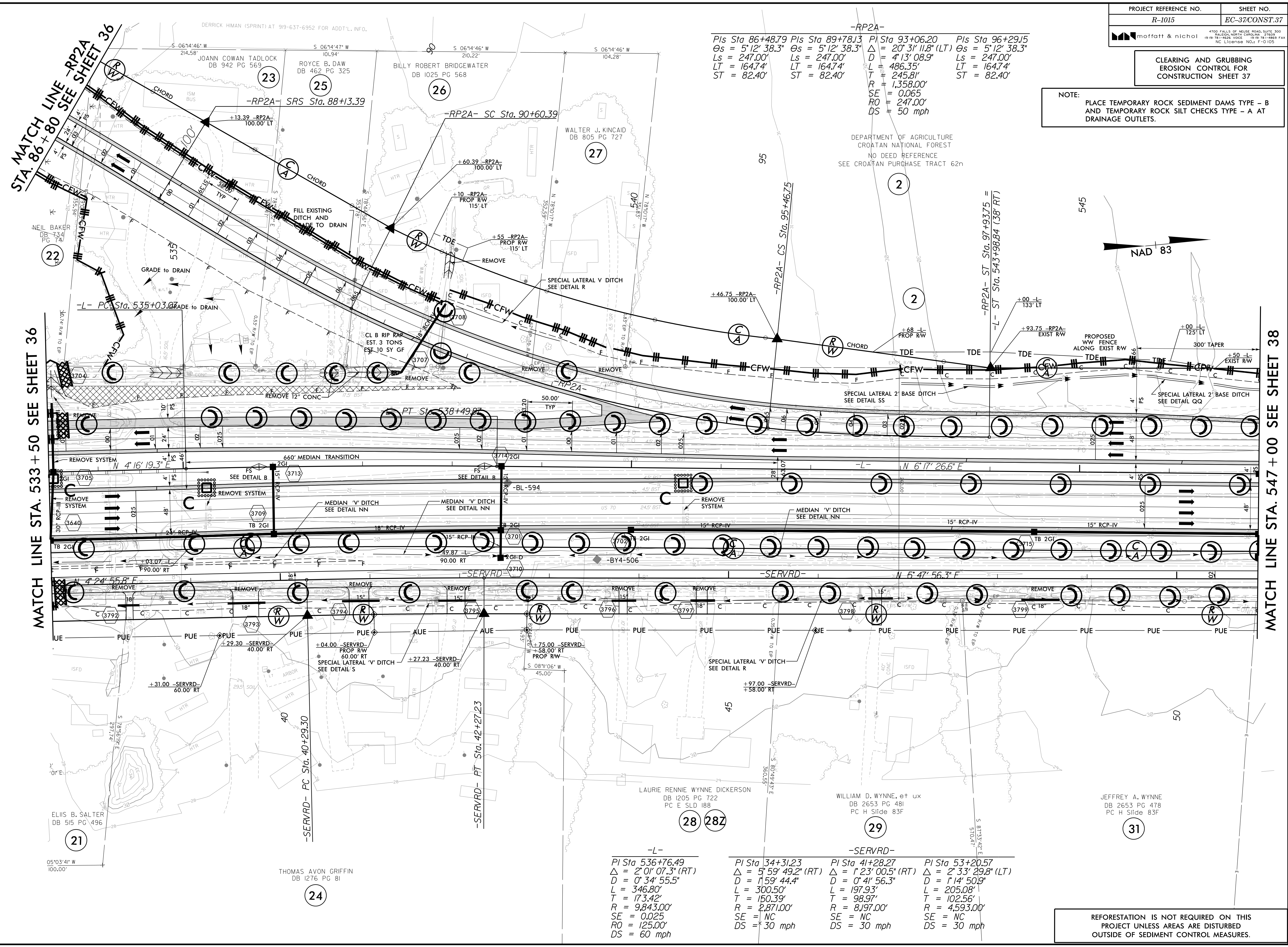
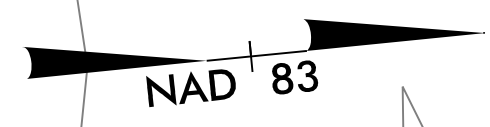
12. REMOVE STILLING BASIN
13. COMPLETE ROADWAY

**CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 37**

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

**-RP2A-**  
 Pls Sta 86+48.79 Pls Sta 89+78.13 Pl Sta 93+06.20 Pls Sta 96+29.15  
 $\Delta s = 5'12"38.3"$   $\Delta s = 5'12"38.3"$   $\Delta = 20'31"11.8" (LT)$   $\Delta s = 5'12"38.3"$   
 $Ls = 247.00'$   $Ls = 247.00'$   $D = 4'13"08.9"$   $Ls = 247.00'$   
 $LT = 164.74'$   $LT = 164.74'$   $L = 486.35'$   $LT = 164.74'$   
 $ST = 82.40'$   $ST = 82.40'$   $T = 245.81'$   $ST = 82.40'$   
 $R = 1,358.00'$   
 $SE = 0.065$   
 $RO = 247.00'$   
 $DS = 50 mph$

DEPARTMENT OF AGRICULTURE  
 CROATAN NATIONAL FOREST  
 NO DEED REFERENCE  
 SEE CROATAN PURCHASE TRACT 62n



**-L-**  
 PI Sta 536+76.49  
 $\Delta = 2'01"07.3" (RT)$   
 $D = 0'34"55.5"$   
 $L = 346.80'$   
 $T = 173.42'$   
 $R = 9,843.00'$   
 $SE = 0.025$   
 $RO = 125.00'$   
 $DS = 60 mph$

**-SERVRD-**  
 PI Sta 34+31.23  
 $\Delta = 5'59"49.2" (RT)$   
 $D = 1'59"44.4"$   
 $L = 300.50'$   
 $T = 150.39'$   
 $R = 2,871.00'$   
 $SE = NC$   
 $DS = 30 mph$

**-SERVRD-**  
 PI Sta 41+28.27  
 $\Delta = 1'23"00.5" (RT)$   
 $D = 0'41"56.3"$   
 $L = 197.93'$   
 $T = 98.97'$   
 $R = 8,197.00'$   
 $SE = NC$   
 $DS = 30 mph$

**-SERVRD-**  
 PI Sta 53+20.57  
 $\Delta = 2'33"29.8" (LT)$   
 $D = 1'14"50.9"$   
 $L = 205.08'$   
 $T = 102.56'$   
 $R = 4,593.00'$   
 $SE = NC$   
 $DS = 30 mph$

REFORESTATION IS NOT REQUIRED ON THIS  
 PROJECT UNLESS AREAS ARE DISTURBED  
 OUTSIDE OF SEDIMENT CONTROL MEASURES.

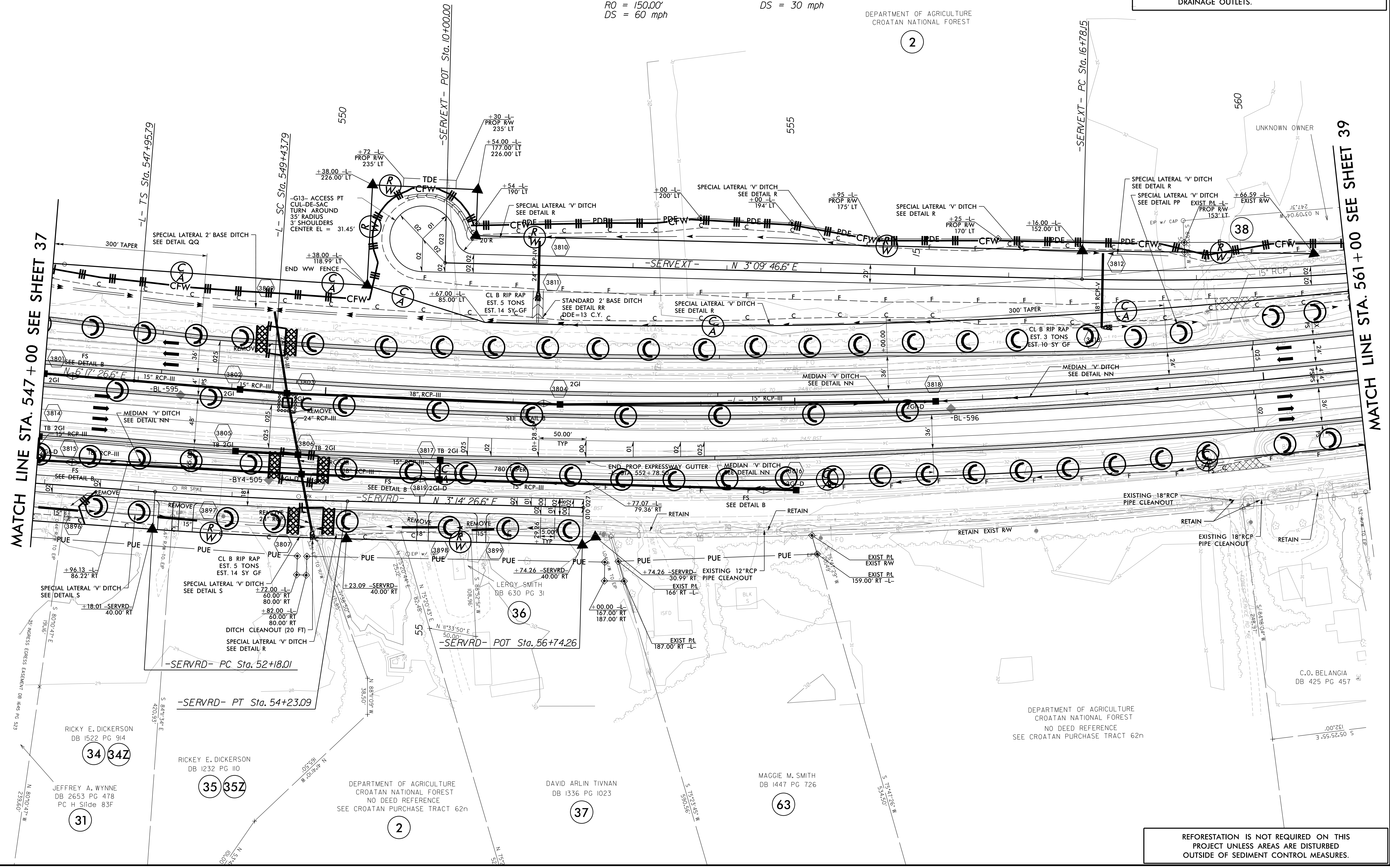
8/17/99  
 I:\7208\929-02\CA000\1015\Roadside\1015\_REU\_EC-37\_PSH\_37\_CD.dgn  
 10/15/99

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 38

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

-L-

PI Sta 548+94.45	PI Sta 555+33.32	-SERVEXT-	PI Sta 18+96.44
$\Delta s = 0^\circ 38' 46.1''$	$\Delta = 10^\circ 16' 02.6''$ (LT)		$\Delta = 8^\circ 19' 25.3''$ (LT)
$Ls = 148.00'$	$D = 0^\circ 52' 23.3''$		$D = 1^\circ 54' 35.5''$
$LT = 98.67'$	$L = 1,175.91'$		$L = 435.83'$
$ST = 49.33'$	$T = 589.53'$		$T = 218.30'$
	$R = 6,562.00'$		$R = 3,000.00'$
	$SE = 0.025$		$SE = NC$
	$RO = 150.00'$		$DS = 30$ mph
	$DS = 60$ mph		



REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99  
 I:\7208\1015\Roadside\1015\_Roadside\1015\_REU\_EC-38\_PSH\_38\_CD.dgn  
 1/7/2008 10:57:29 AM

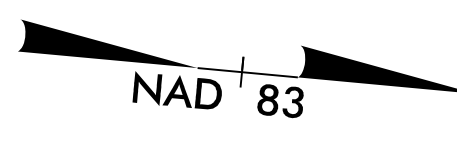
**CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 39**

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

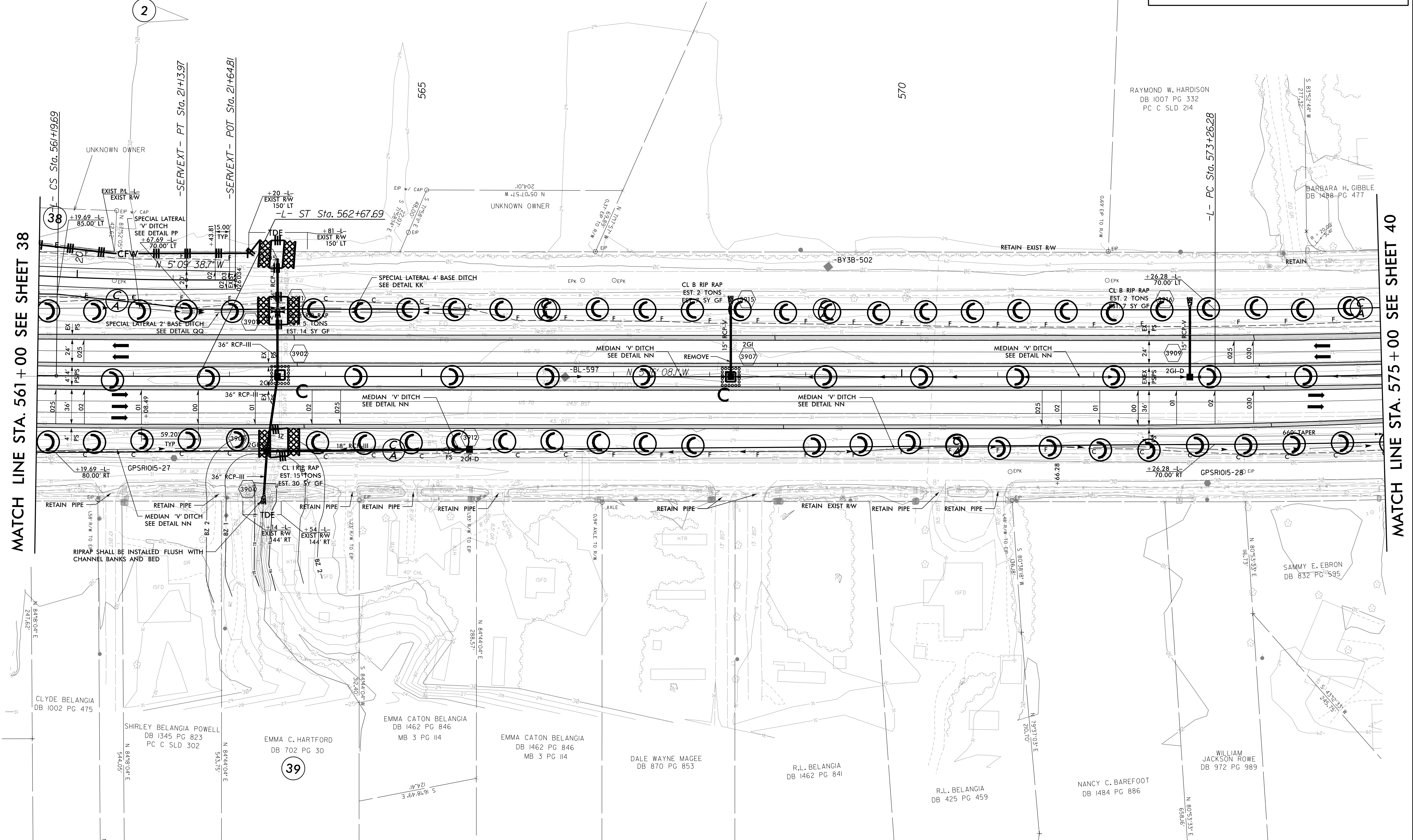
**-L-**  
 PI Sta 555+33.32 Δ = 10° 16' 02.6" (LT)  
 D = 0° 52' 23.3" L = 1,175.91'  
 T = 589.53' R = 6,562.00'  
 SE = 0.025 RO = 148.00'  
 DS = 60 mph

**-SERVEXT-**  
 PI Sta 561+69.03 Δs = 0° 38' 46.1"  
 Ls = 148.00' LT = 98.67'  
 ST = 49.33'

**-SERVEXT-**  
 PI Sta 18+96.44 Δ = 8° 19' 25.3" (LT)  
 D = 1° 54' 35.5" L = 435.83'  
 T = 218.30' R = 3,000.00'  
 SE = NC DS = 30 mph



DEPARTMENT OF AGRICULTURE  
 CROATAN NATIONAL FOREST  
 NO DEED REFERENCE  
 SEE CROATAN PURCHASE TRACT 62n



REFORESTATION IS NOT REQUIRED ON THIS PROJECT UNLESS AREAS ARE DISTURBED OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99  
 I:\72008\1015\Roadside\1015\_Roadside\1015\_REU\EC-39\_PSH\_39\_CO.dgn  
 11/7/2008 10:54:29 AM  
 1015\_Roadside\1015\_Roadside\1015\_REU\EC-39\_PSH\_39\_CO.dgn

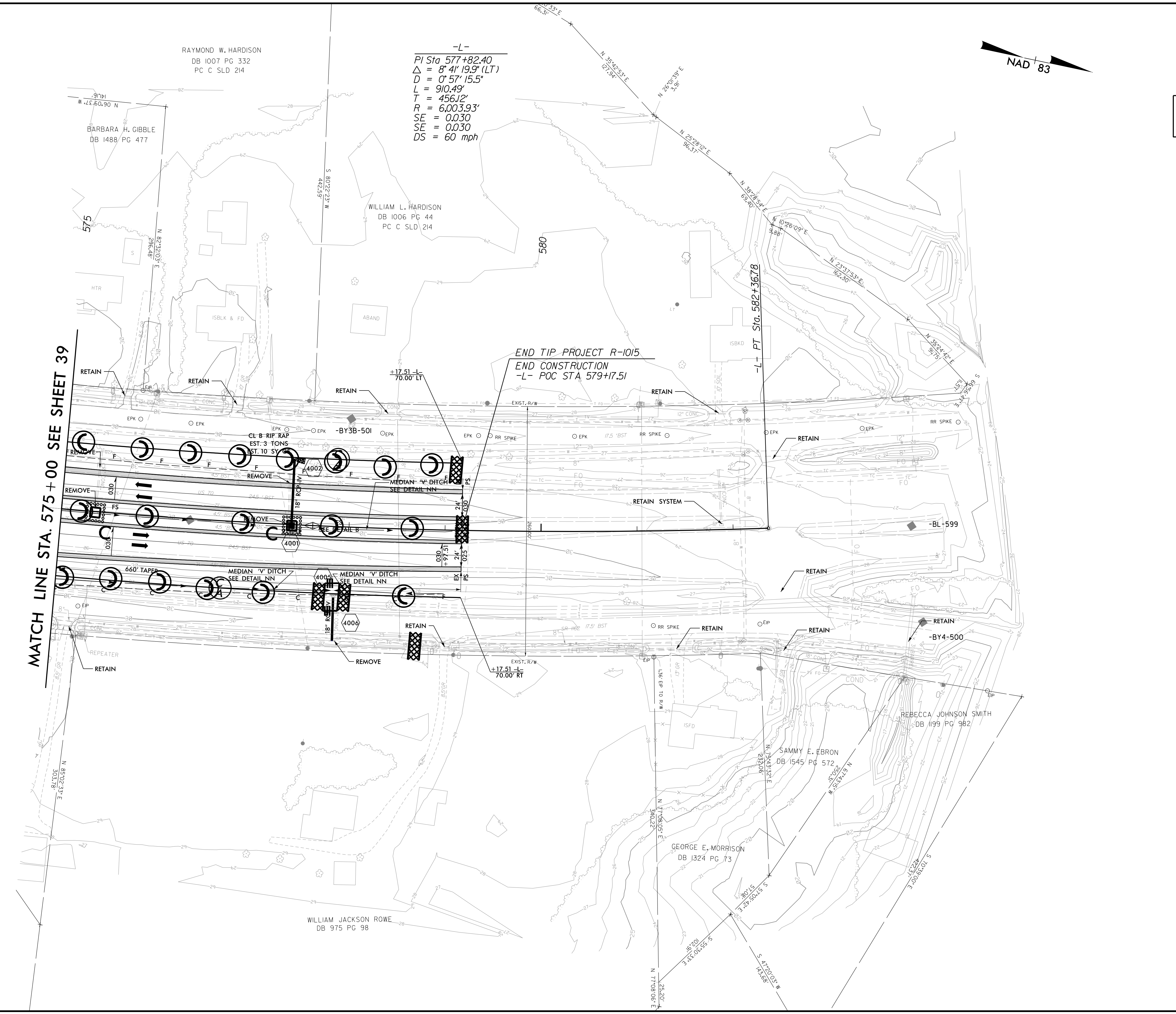


CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 40

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

REFORESTATION IS NOT REQUIRED ON THIS  
PROJECT UNLESS AREAS ARE DISTURBED  
OUTSIDE OF SEDIMENT CONTROL MEASURES.

8/17/99  
 I:\7208\15729-02\CADD\1015\Roadside\R-1015\_REU\EC-40\_PSH\_40\_C0.dgn



MATCH LINE STA. 575+00 SEE SHEET 39

END TIP PROJECT R-1015  
END CONSTRUCTION  
-L- POC STA 579+17.51

-L- PT Sta. 582+36.78