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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2814C	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34506.2FR7	STP-0401(249)	P.E.	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

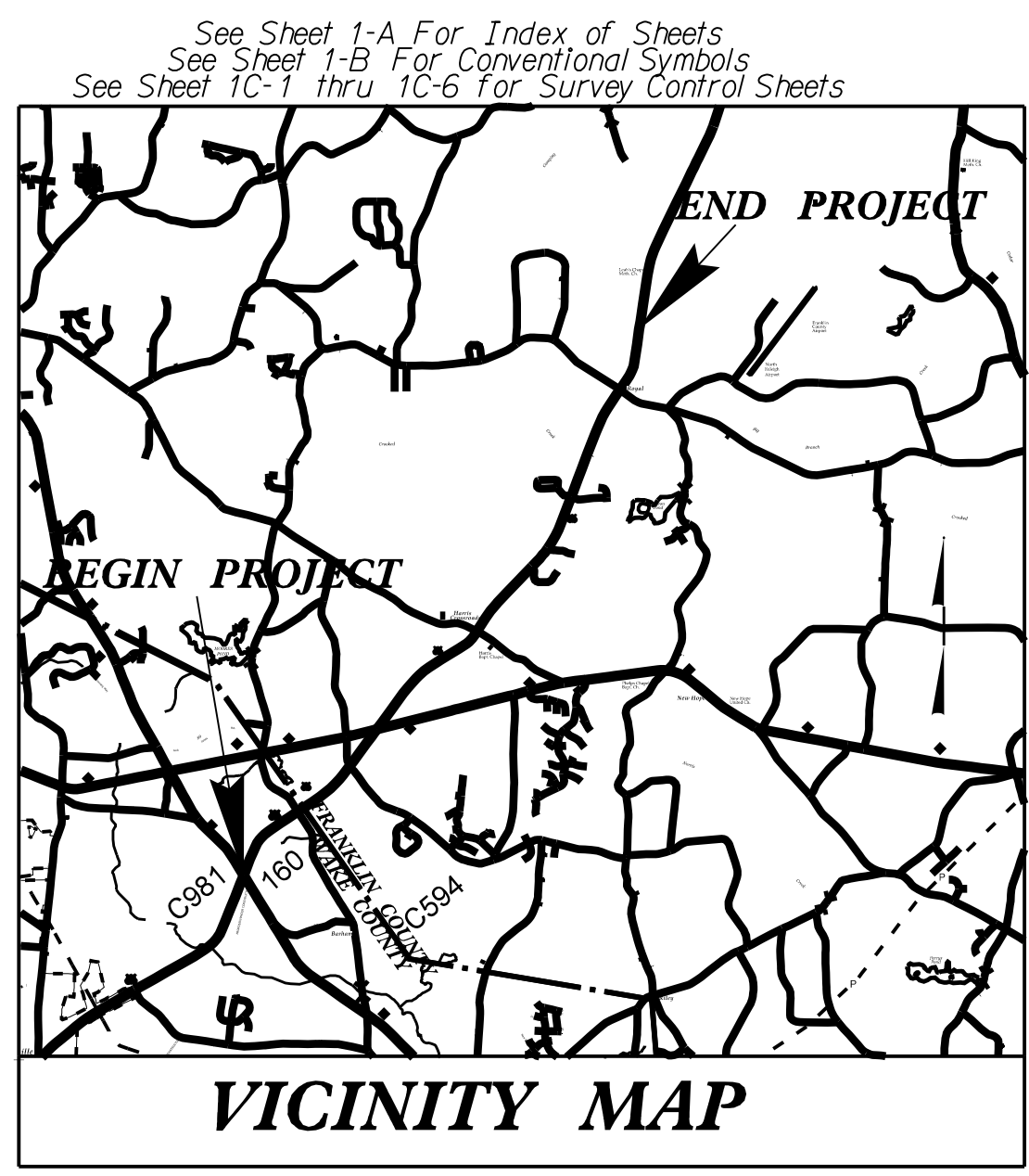
PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

WAKE & FRANKLIN COUNTIES

LOCATION: US 401 FROM NC 96 TO NORTH OD SR 1103  
(FAT ROCK CHURCH RD/CLIFTON POND RD)

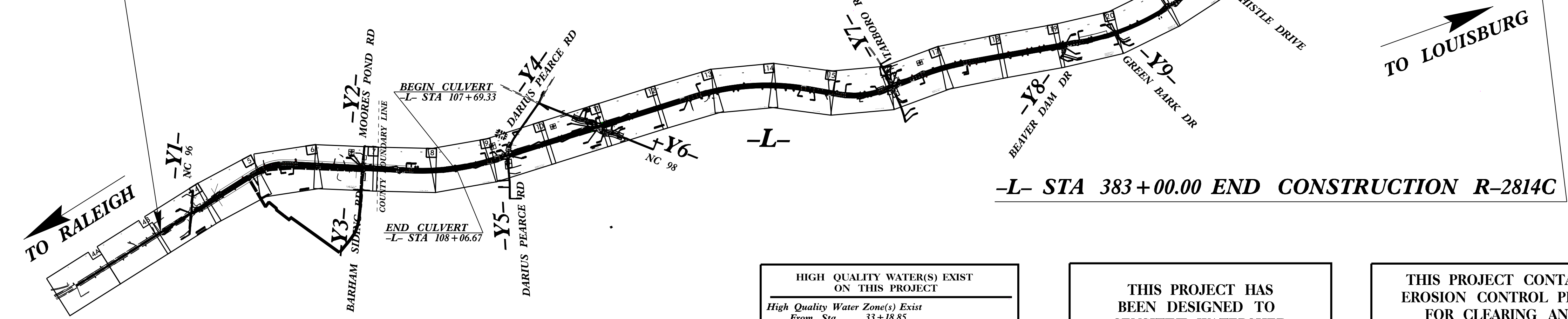
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB  
AND GUTTER, CULERTS, AND SIGNALS

-L- STA 381+40.55 END TIP PROJECT R-2814C

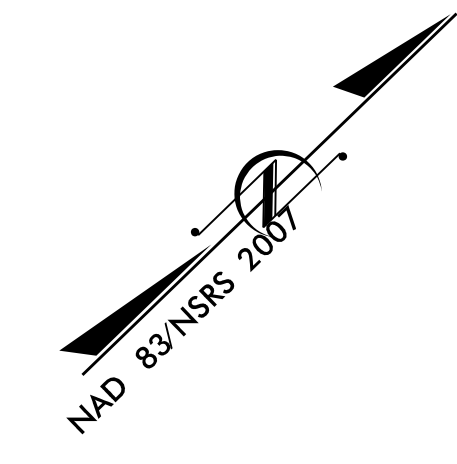


VICINITY MAP

-L- STA 33+18.85 BEGIN TIP PROJECT R-2814C



-L- STA 383+00.00 END CONSTRUCTION R-2814C



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:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	III III III
	Tiered Skimmer Basin	III III III
	Infiltration Basin	III III III
	Safety Fence	III III III
	Flagging	III III III
	Earthen Dam with Skimmer	III III III

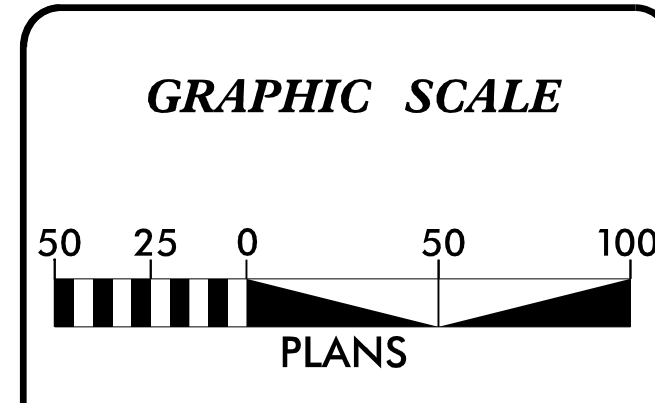
THIS IS A FULL AND PARTIAL CONTROL OF ACCESS PROJECT WITH ACCESS POINTS SHOWN ON THE PLANS.  
THIS PROJECT IS NOT WITHIN THE LIMITS OF MUNICIPAL BOUNDARIES.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT  
High Quality Water Zone(s) Exist  
From Sta. 33+18.85  
to Sta. 209+50  
Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT  
Refer To E. C. Special Provisions for Special Considerations.



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 ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared by:  
**HDR** HDR Engineering, Inc. of the Carolinas  
555 Fayetteville St., Suite 900 Raleigh, NC 27601  
N.C.B.E.L.S. License Number: F-0116  
**2018 STANDARD SPECIFICATIONS**  
Designed by:  
**Wyatt D. Yelverton PE, CPESC 3609**  
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:  
**Jeff Walston PE, CPESC, CPSWQ**

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 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	1633.01 Temporary Rock Silt Check Type A
1630.02 Silt Basin Type B	1634.01 Temporary Rock Sediment Dam Type A
1630.03 Temporary Silt Ditch	1634.02 Temporary Rock Sediment Dam Type B
1630.04 Stilling Basin	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.05 Temporary Diversion	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.06 Special Stilling Basin	1640.01 Coir Fiber Baffle
1631.01 Matting Installation	1645.01 Temporary Stream Crossing

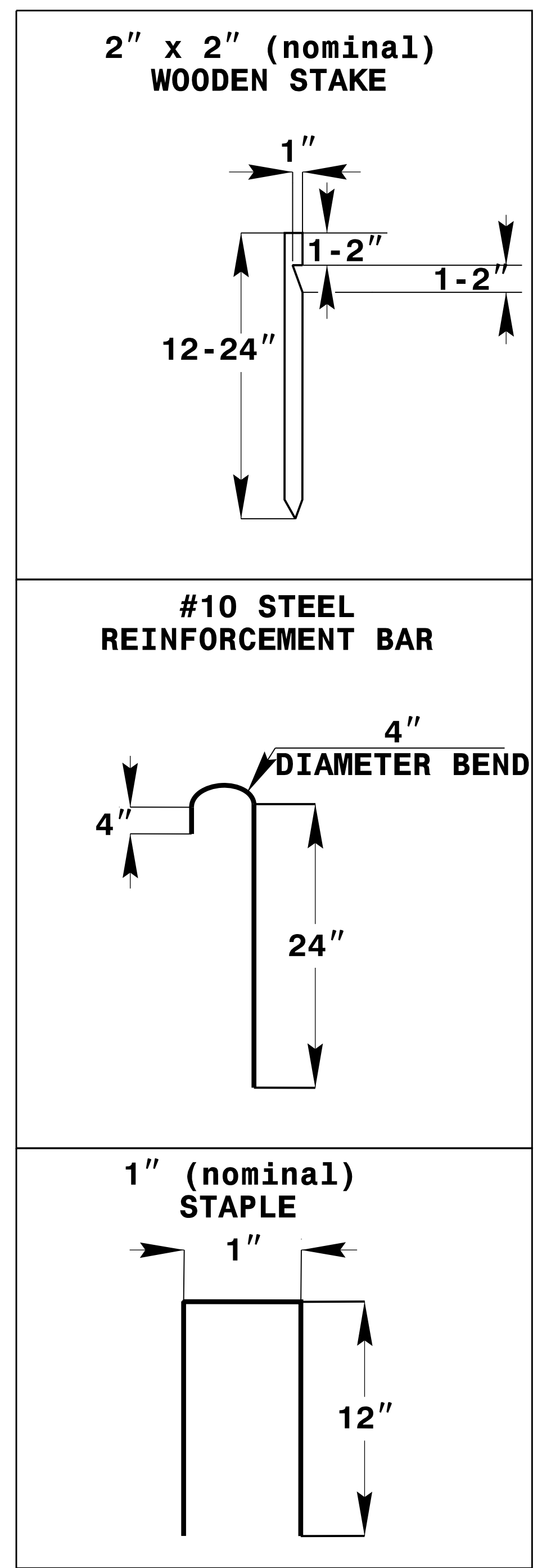
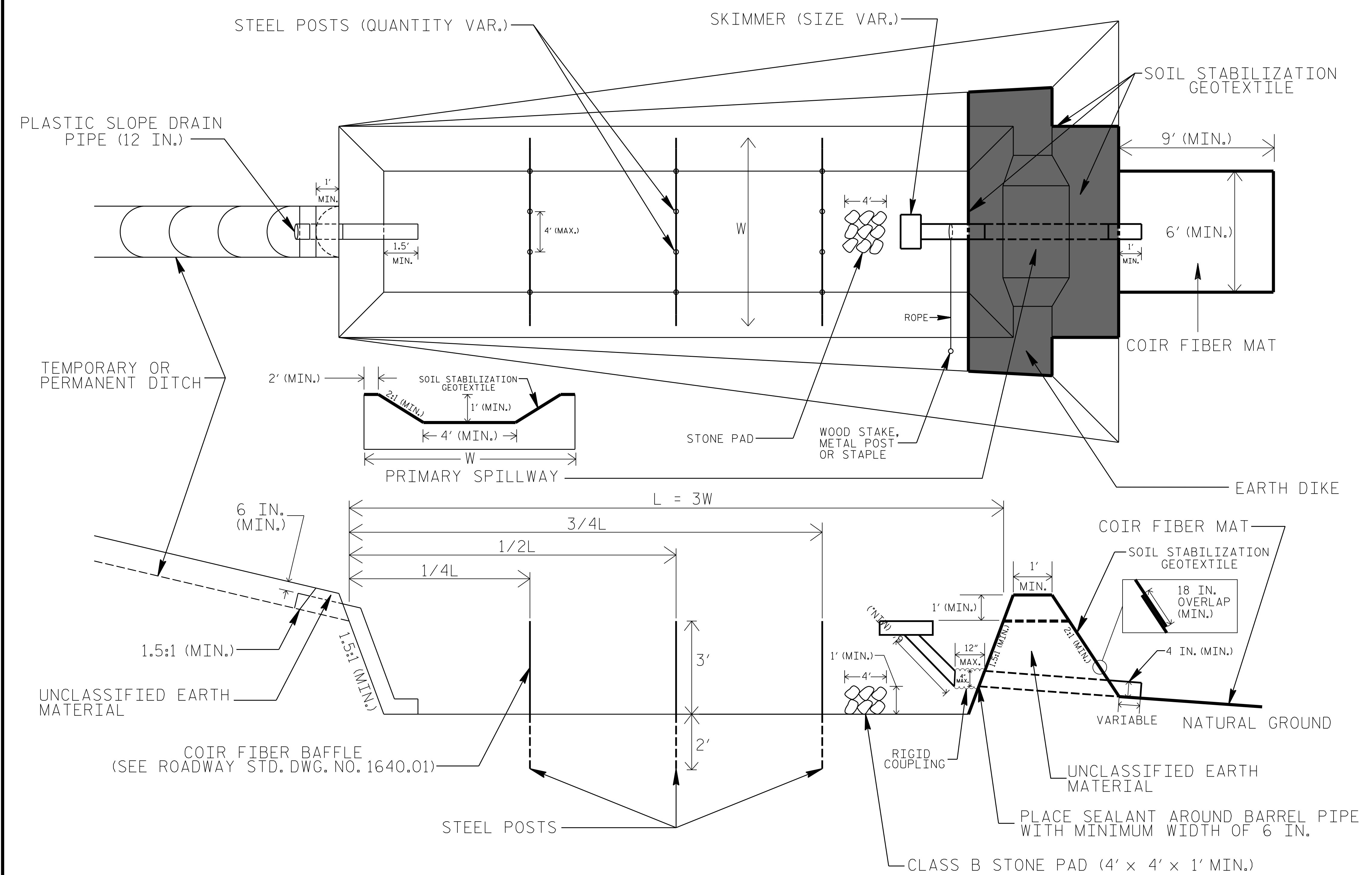
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DATE: 4/6/2018  
TIME: 10:46:00 AM

TIP PROJECT: R-2814C



PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# SKIMMER BASIN WITH BAFFLES DETAIL



## NOTES

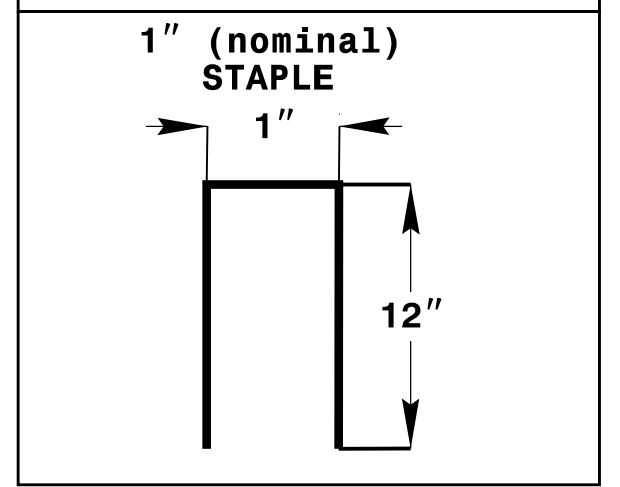
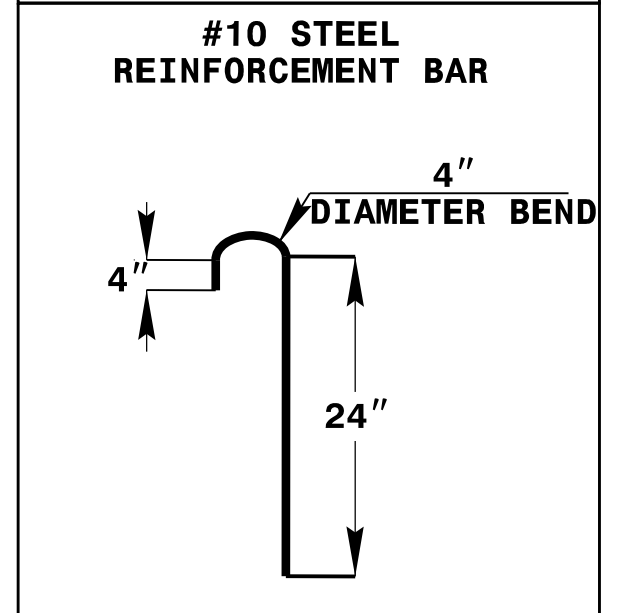
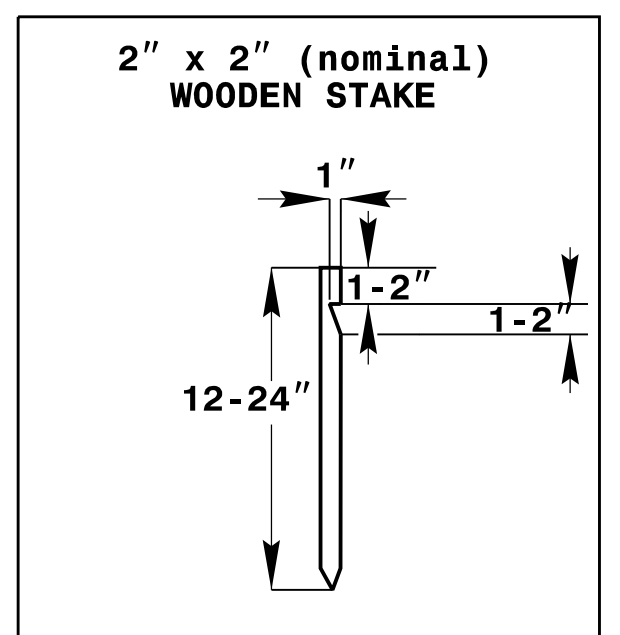
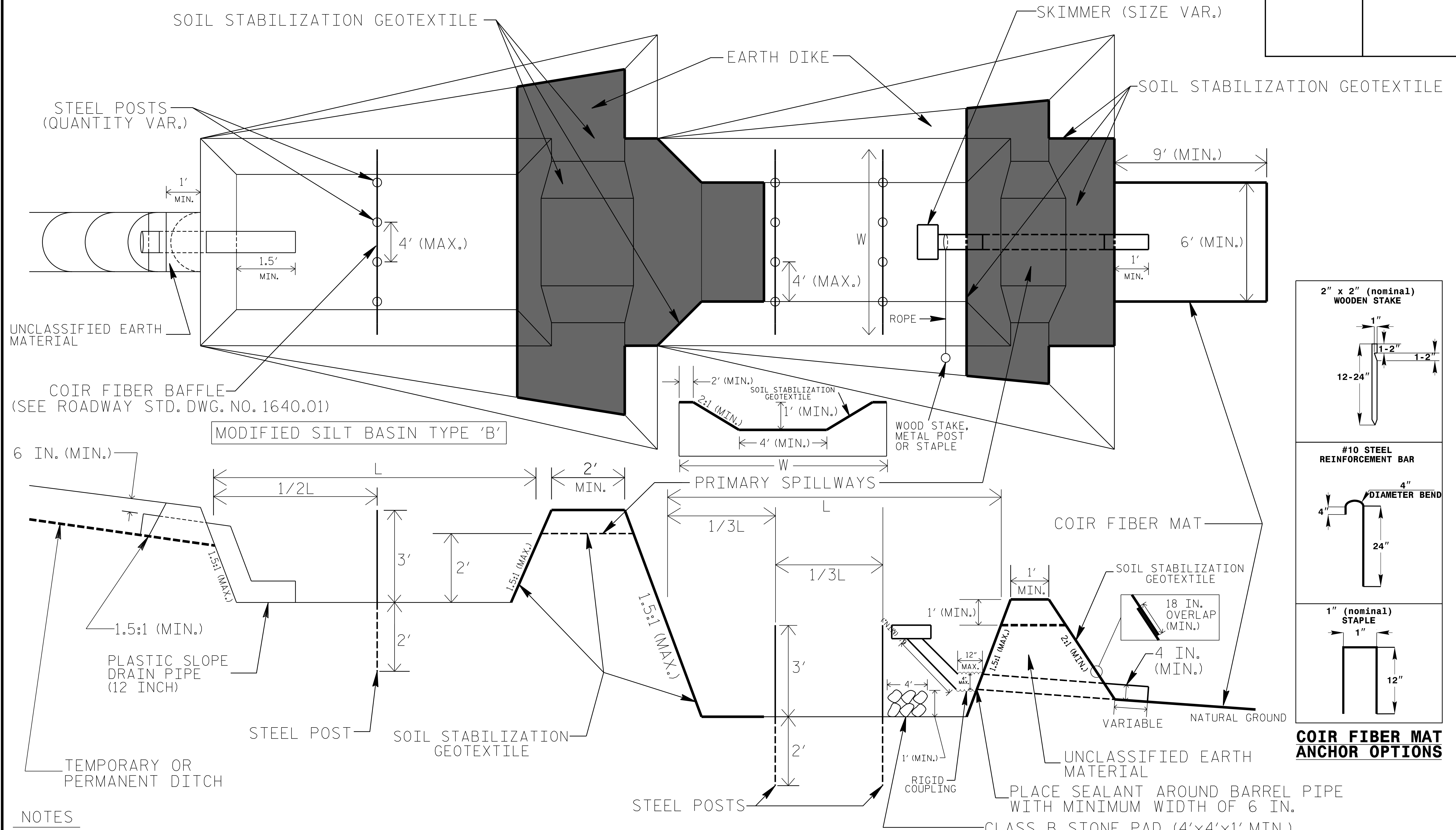
1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING  $Q/0.8$ , WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

# TIERED SKIMMER BASIN DETAIL

HDR Engineering, Inc. of the Carolinas  
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. <b>R-2814C</b>	SHEET NO. <b>EC-2A</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER




**COIR FIBER MAT ANCHOR OPTIONS**

**NOTES**

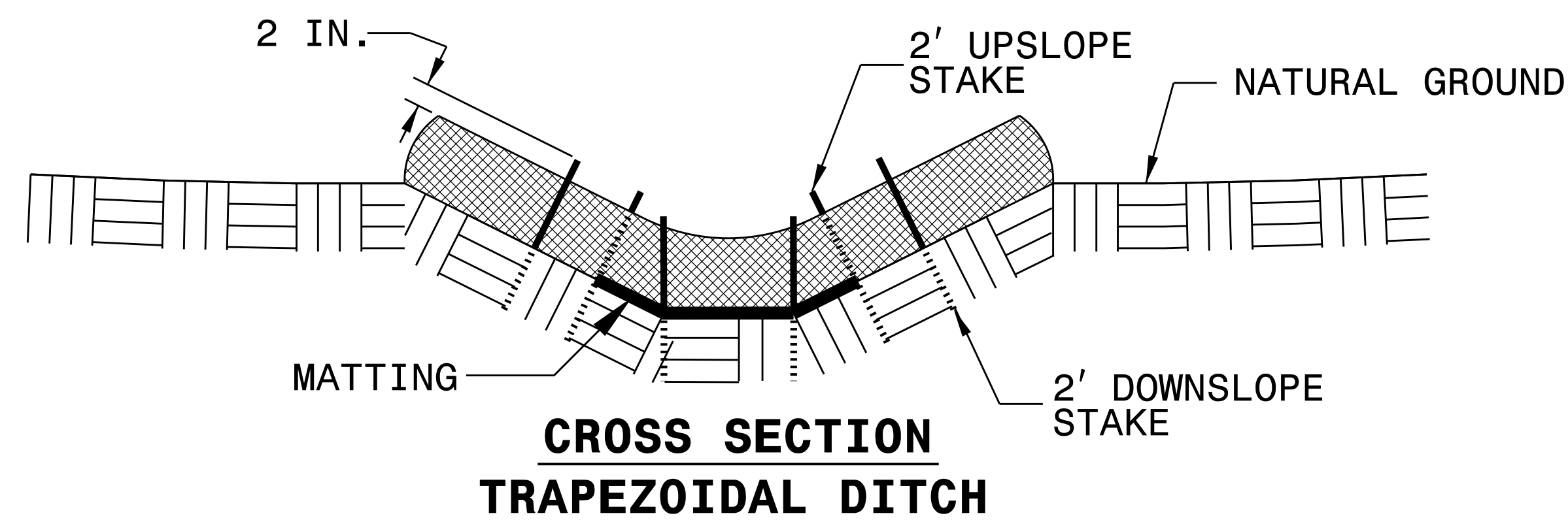
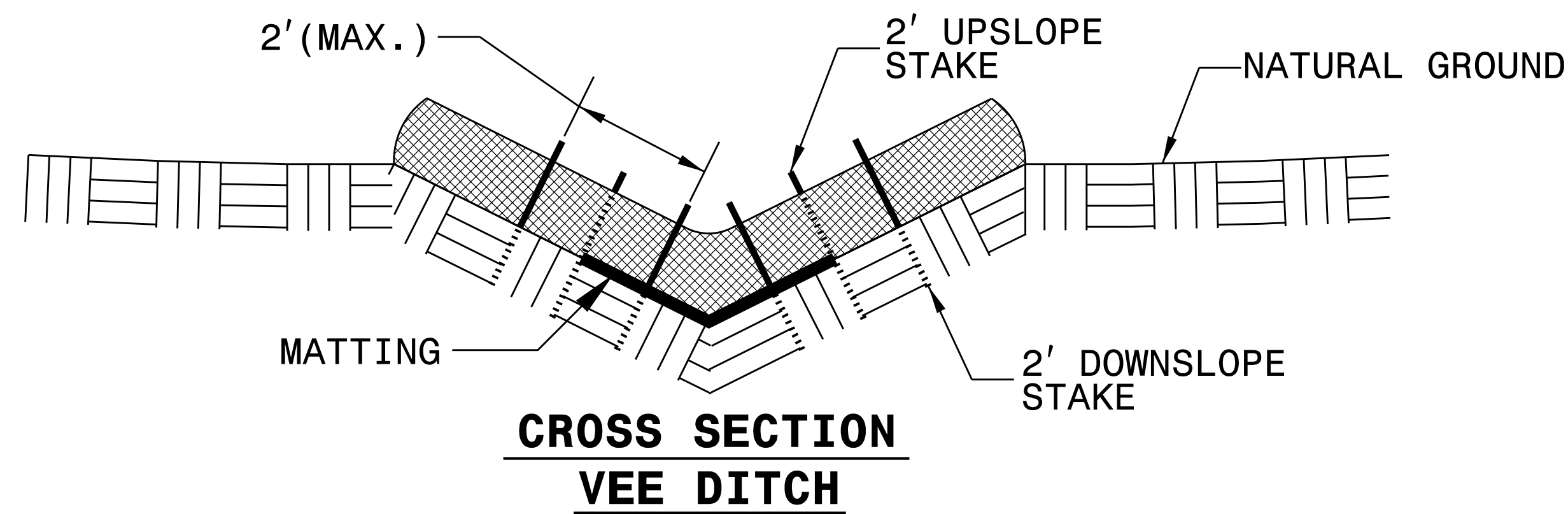
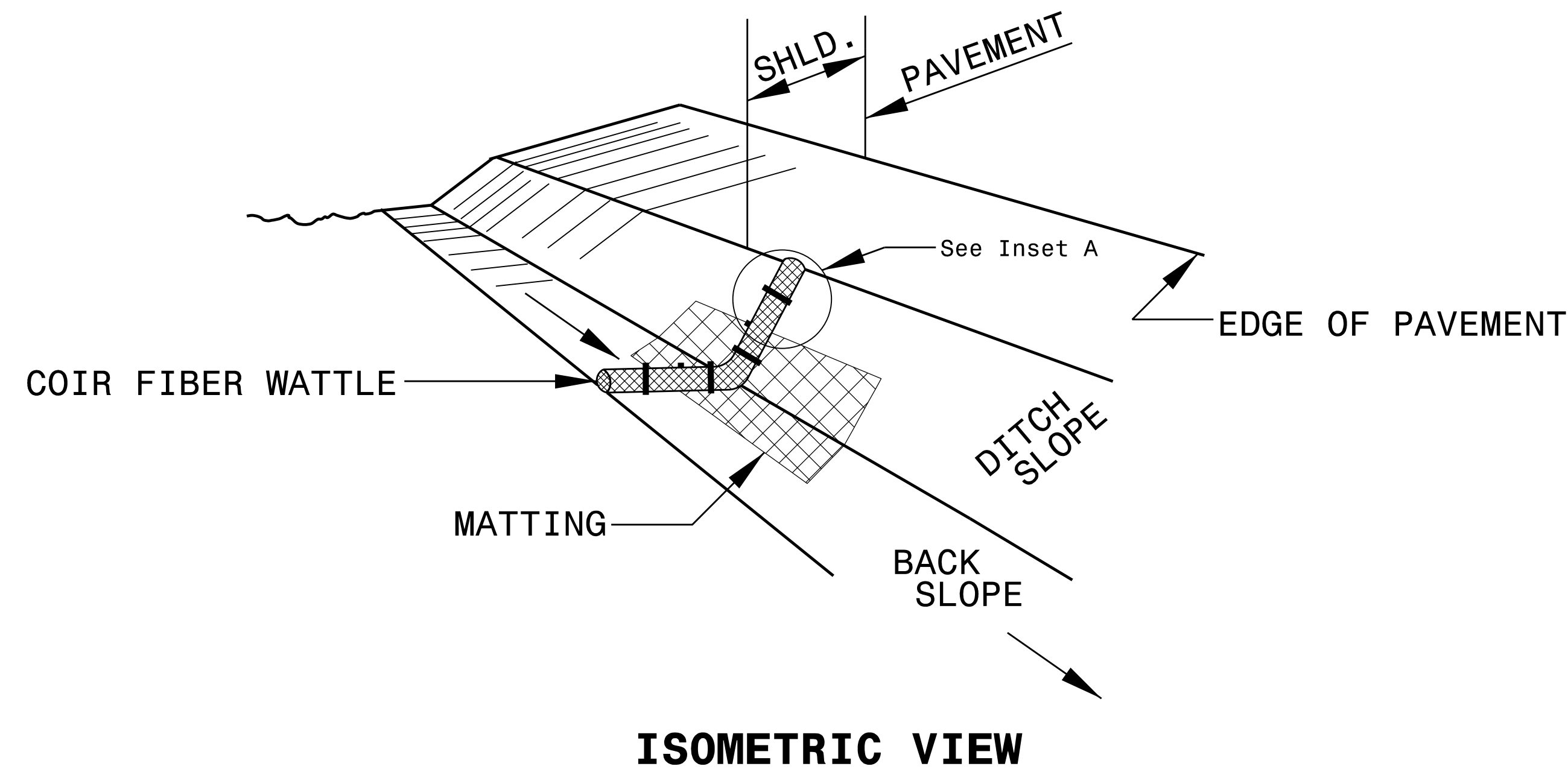
1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES OF BASINS.
2. LIMIT HEIGHT OF EARTH DIKES TO 5 FT.
3. ADDITIONAL MODIFIED SILT BASINS TYPE 'B' MAY BE NEEDED DEPENDING ON SLOPE.
4. FOR BASIN DEPTHS OF 3FT., THE MINIMUM BASIN WIDTHS SHALL BE 9 FT.
5. DETERMINE PRIMARY SPILLWAY WEIR LENGTHS (FT.) USING  $Q/0.8$ , WHERE Q IS FLOW RATE (CFS) INTO UPPER BASIN.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAYS SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE



PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-2B</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

# COIR FIBER WATTLE 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.

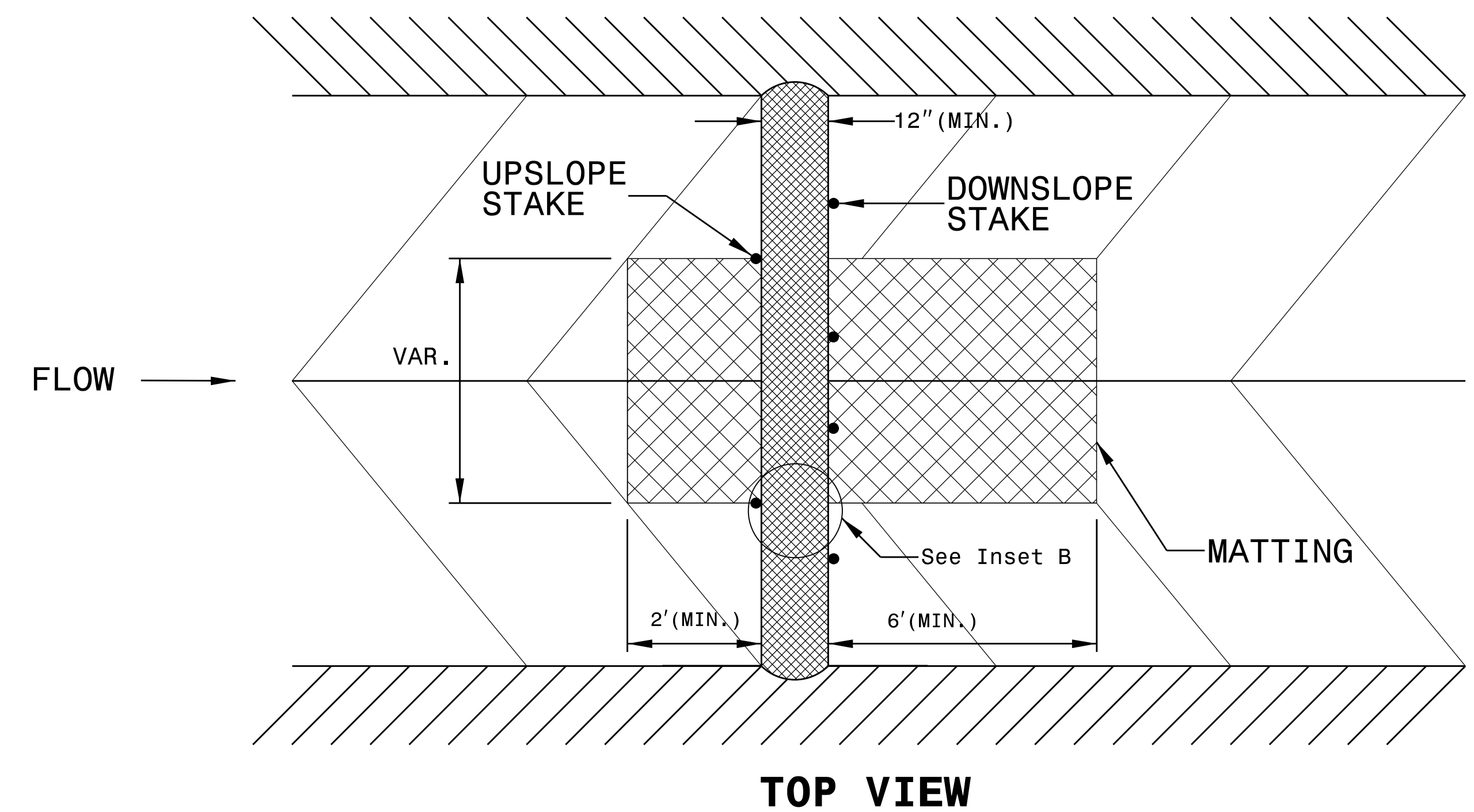
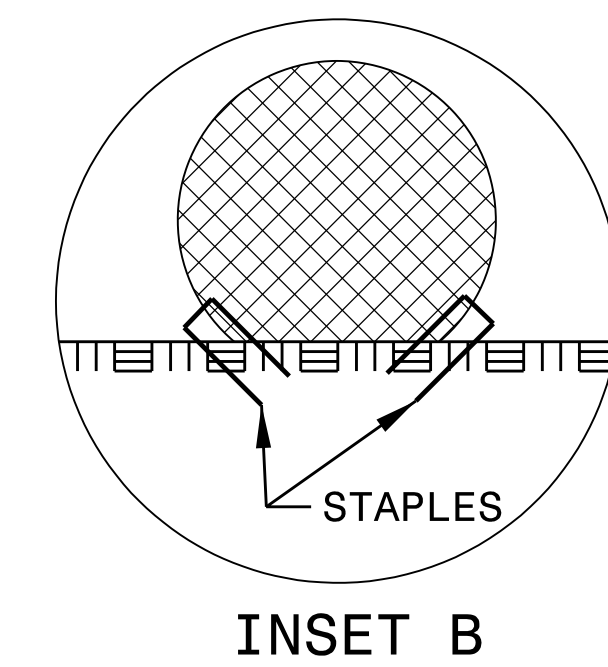
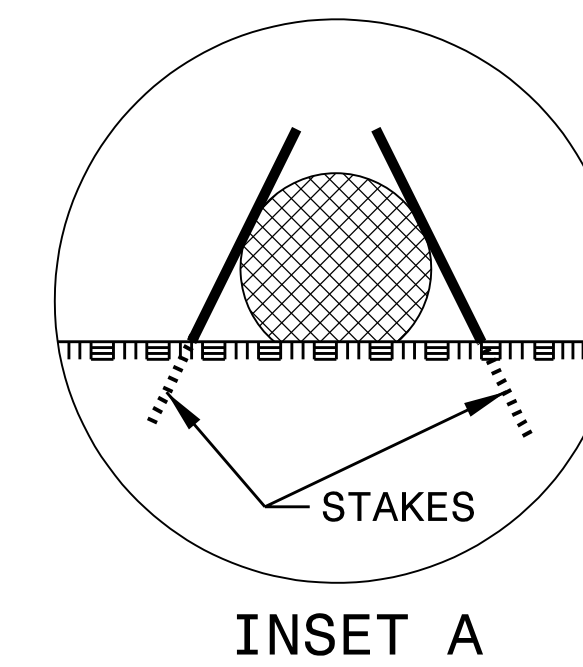
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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.



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PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-2C</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

# 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.

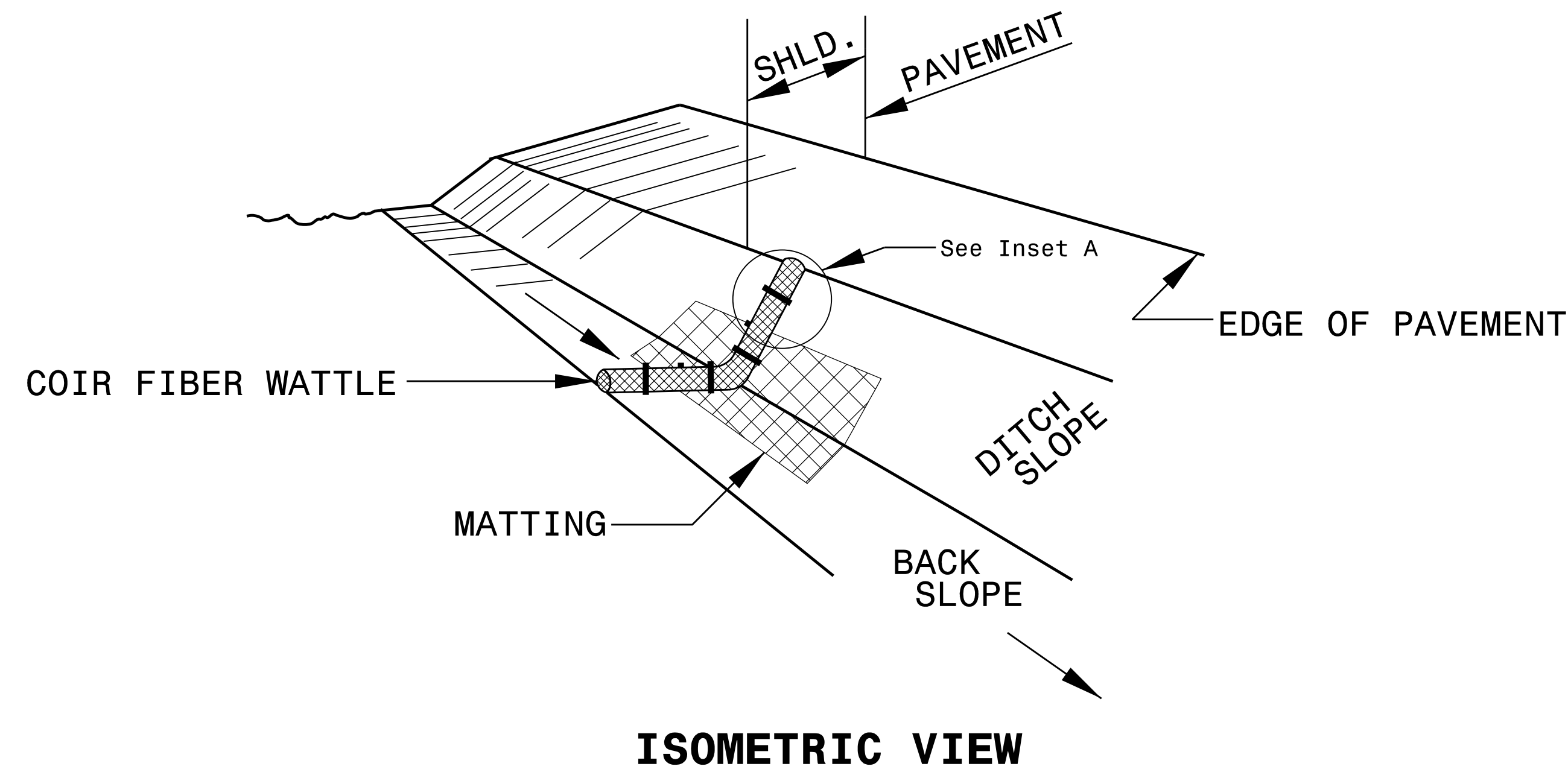
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

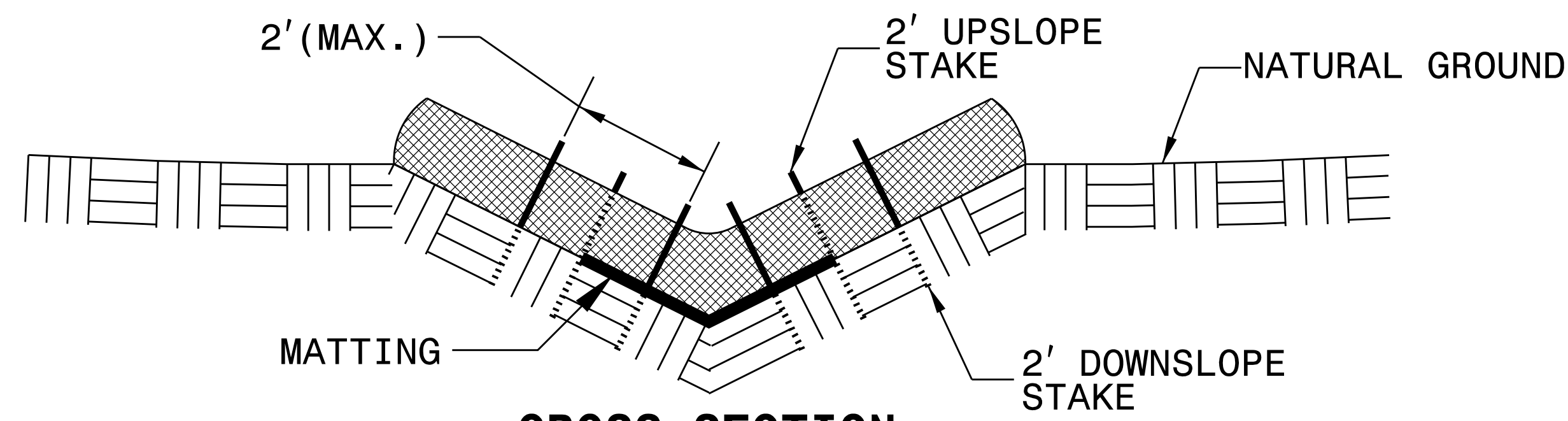
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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.

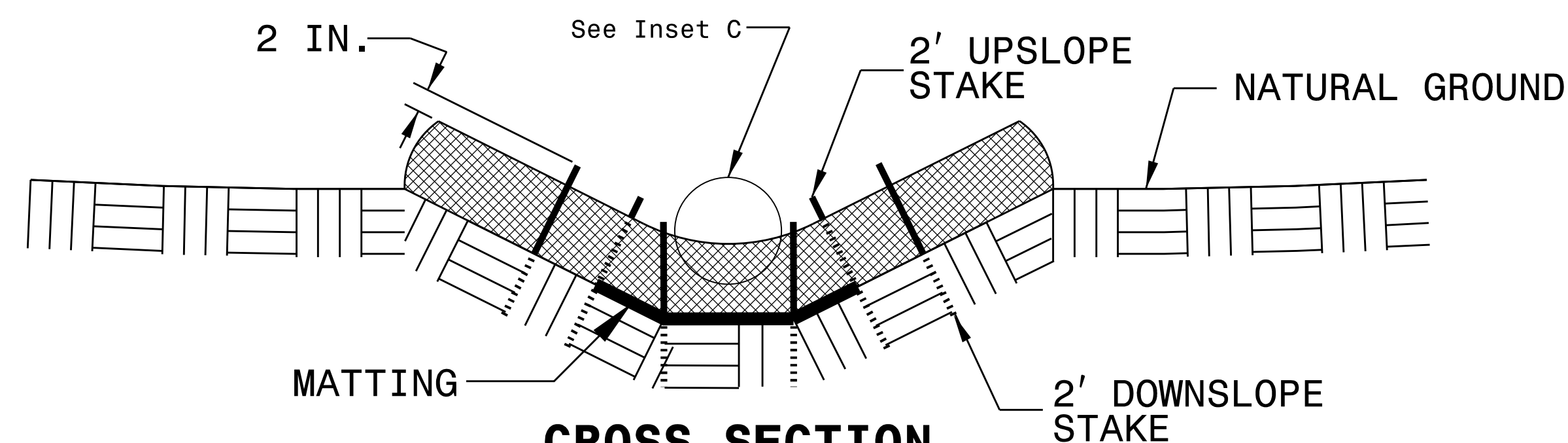
INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



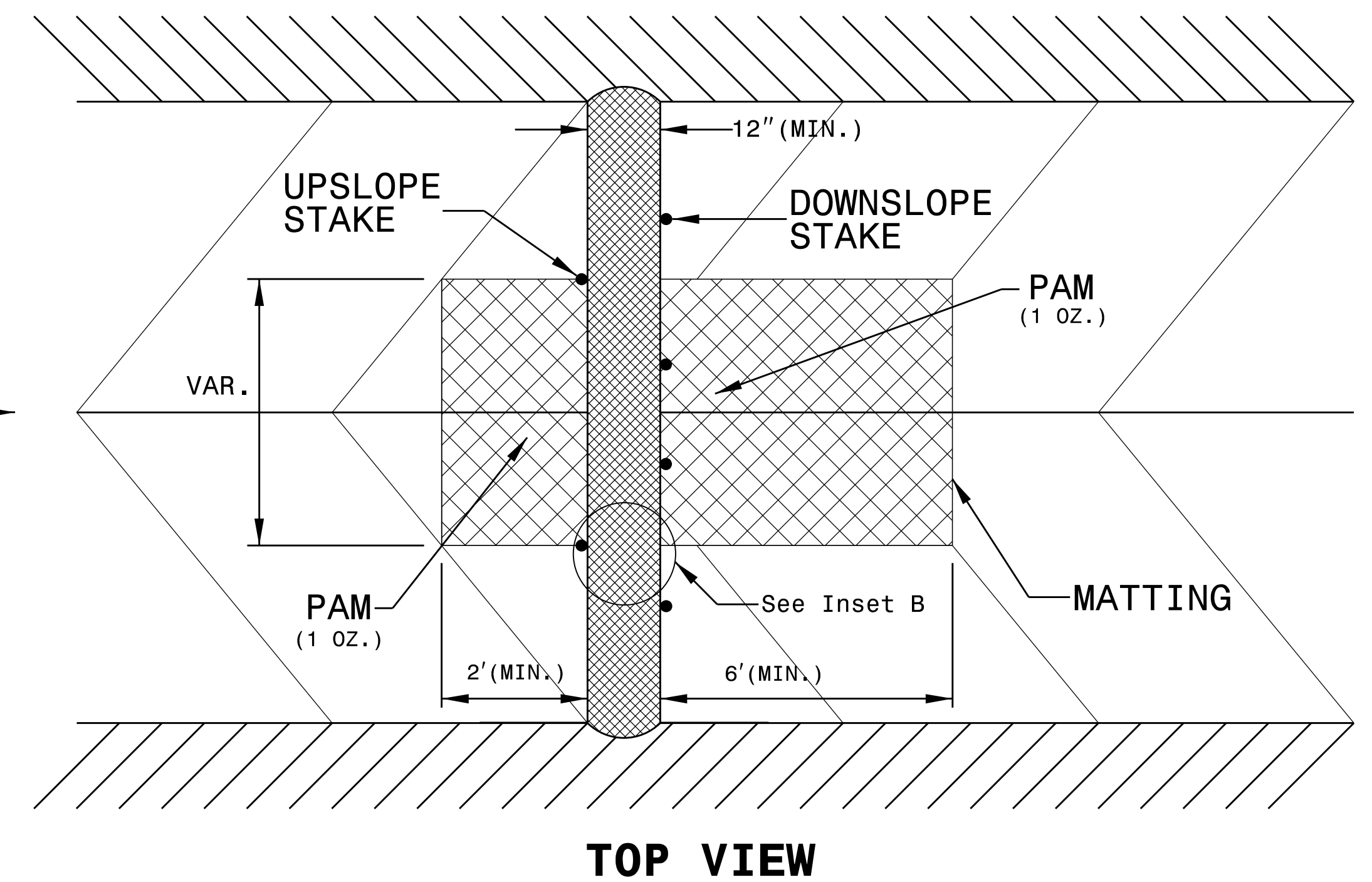
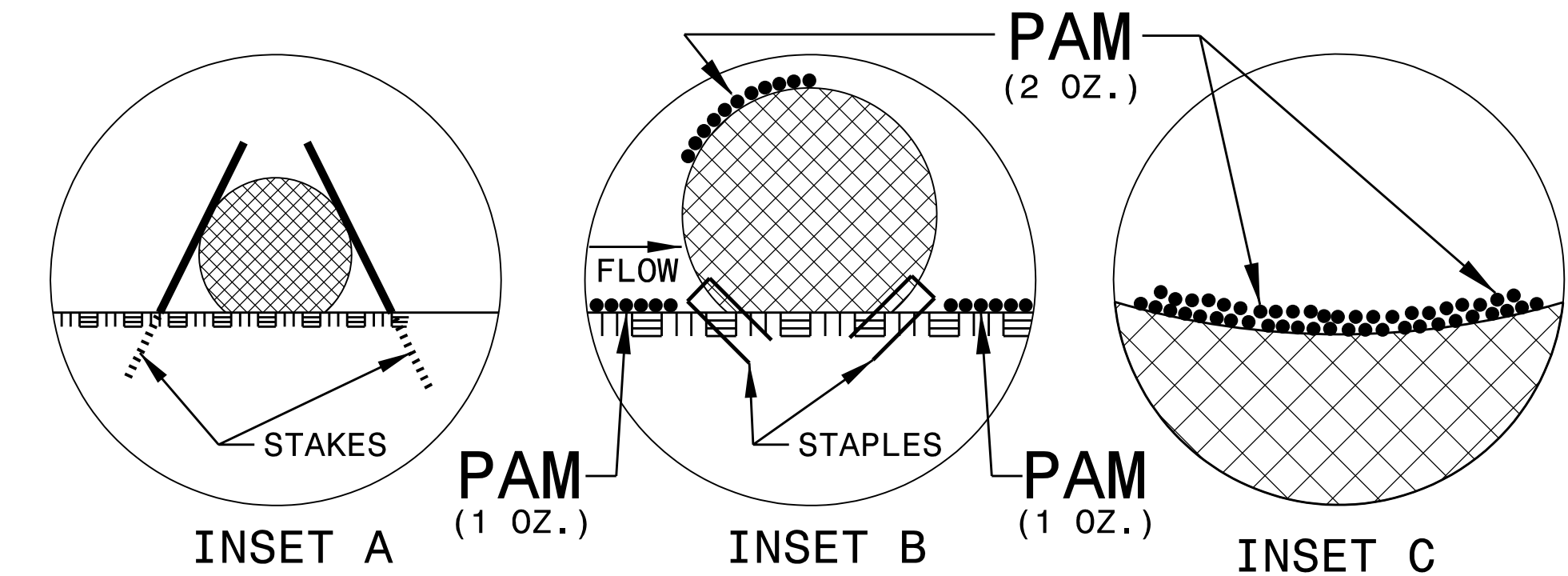
**ISOMETRIC VIEW**



**CROSS SECTION VEE DITCH**




**CROSS SECTION TRAPEZOIDAL DITCH**

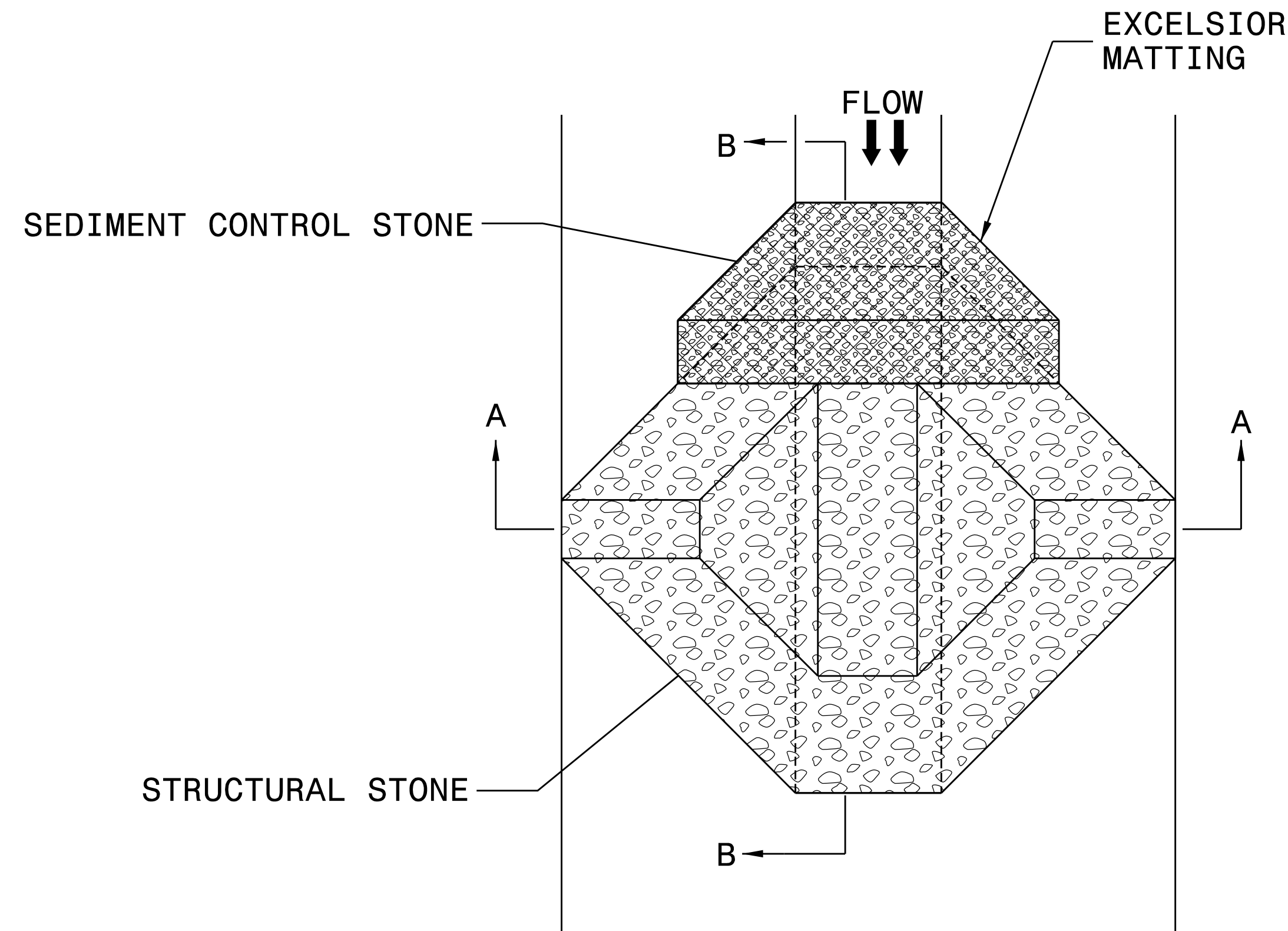


**TOP VIEW**

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

PROJECT REFERENCE NO. R-2814C	SHEET NO. EC-2D
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



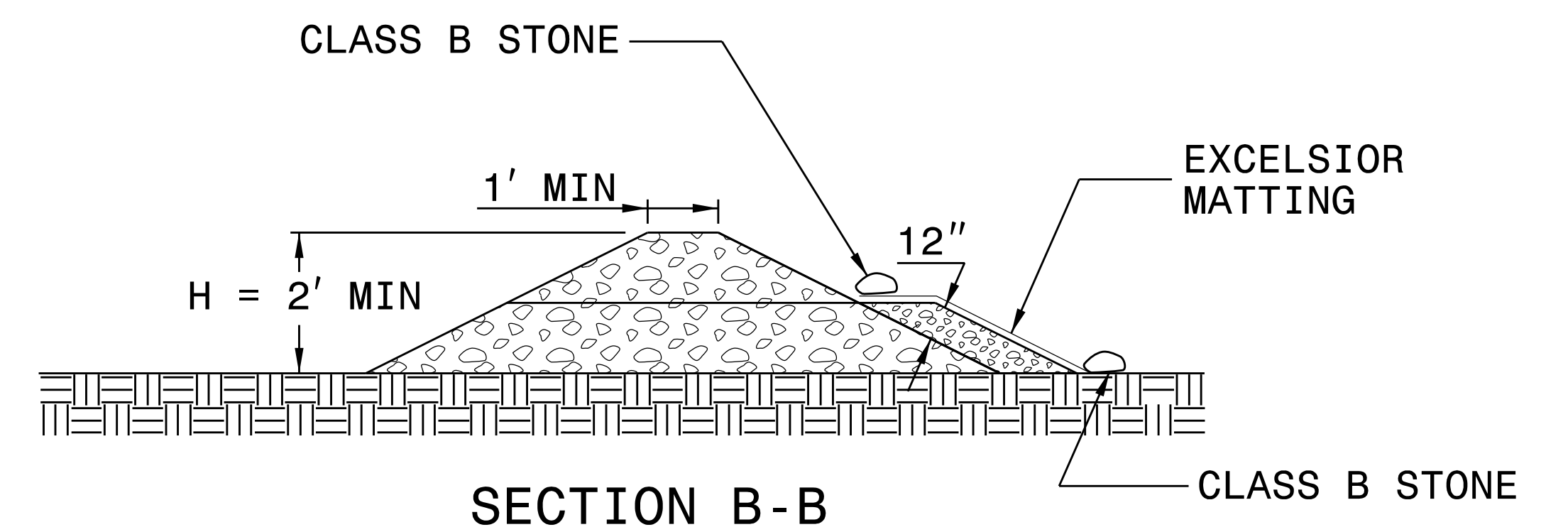
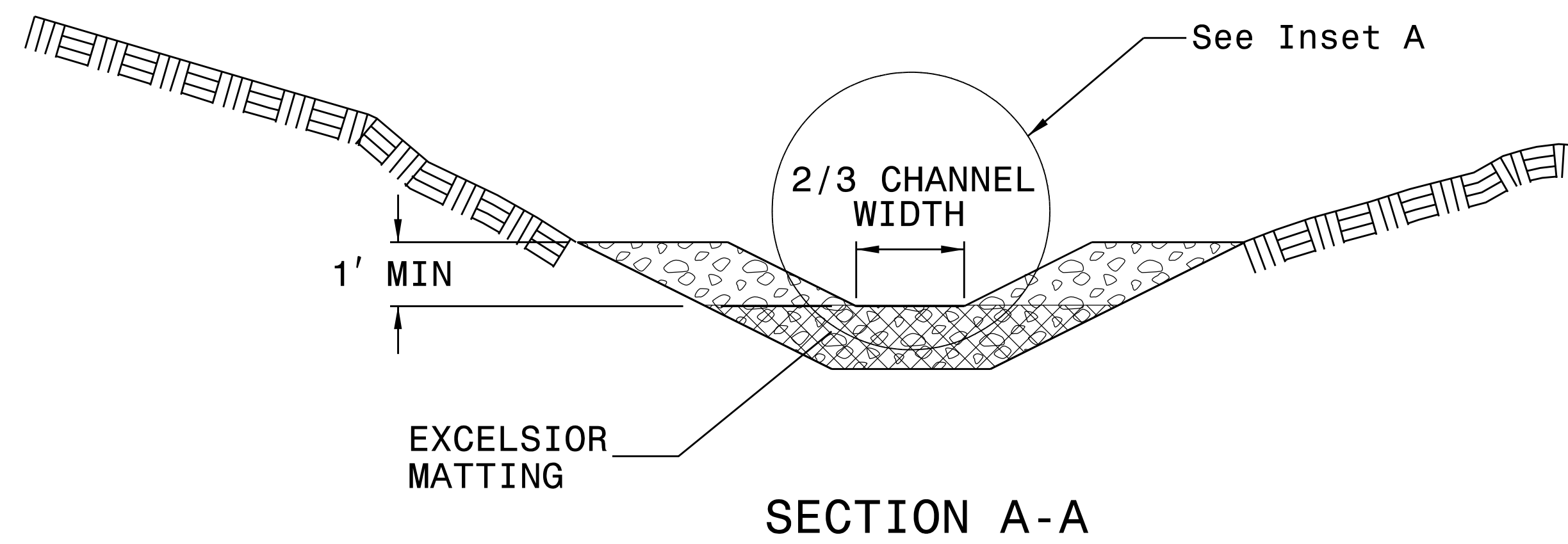
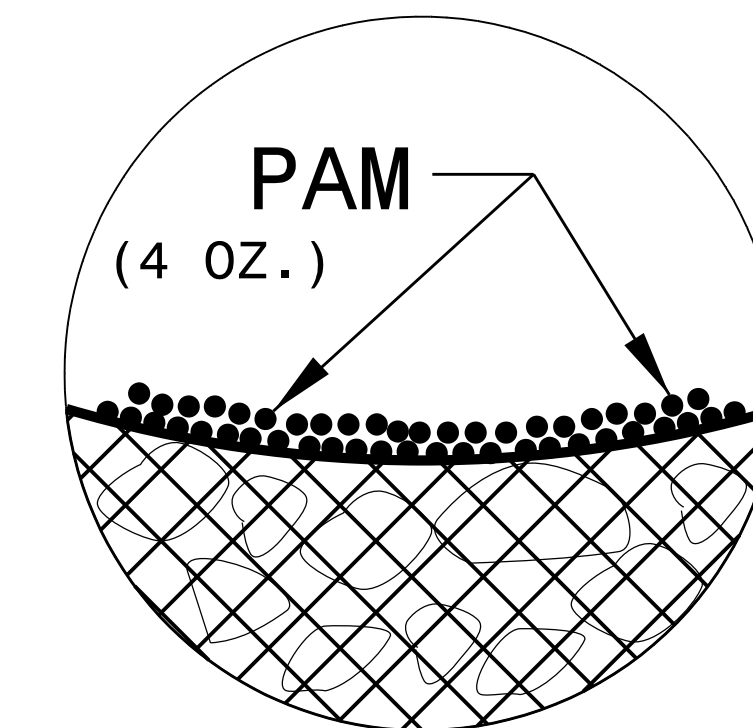
## NOTES:

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

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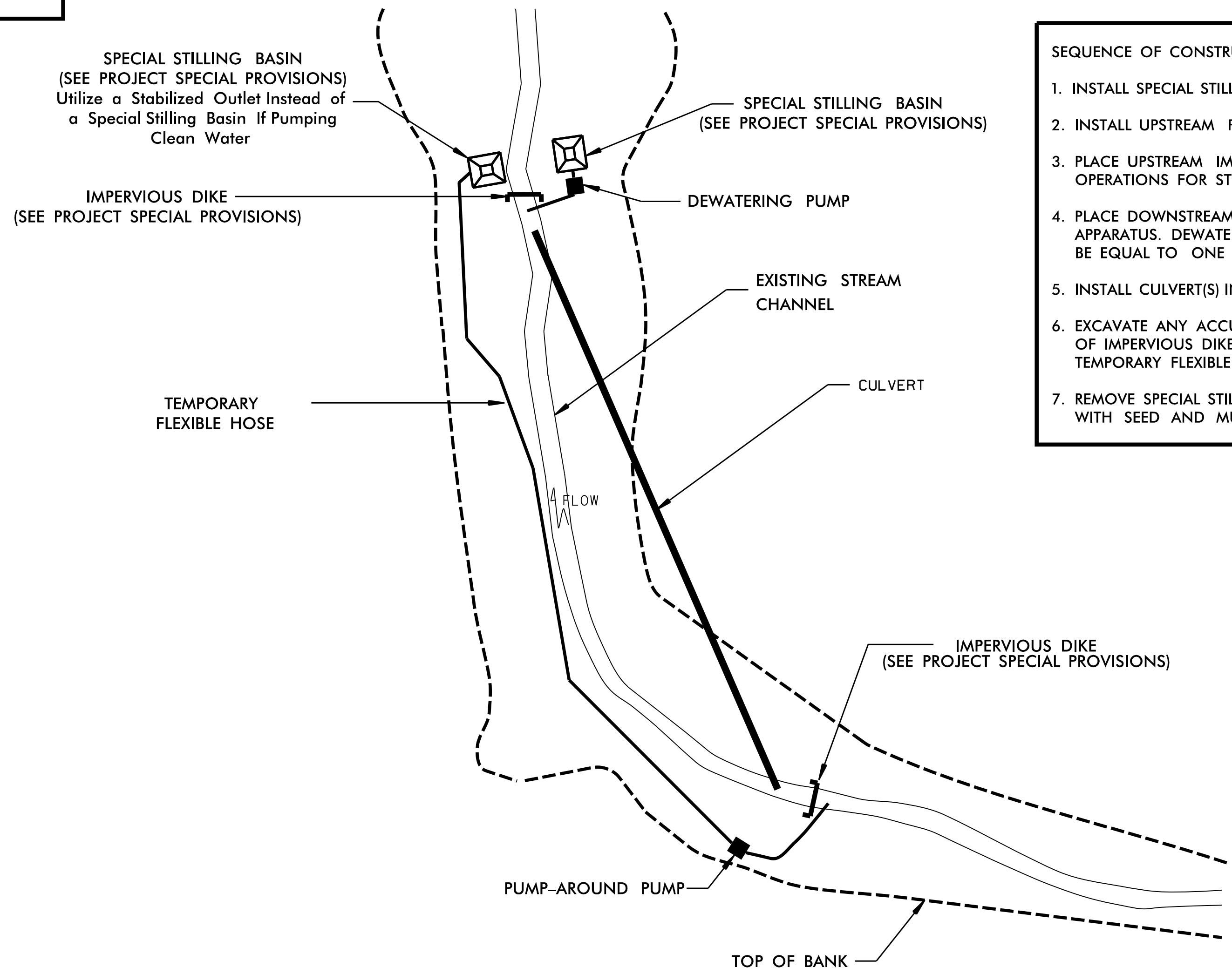


PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-2E</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

# PUMP-AROUND OPERATION

**NOTES:**

- 1) All excavation shall be performed in only dry or isolated areas of the work zone.
- 2) Impervious dikes are to be used to isolate work from stream flow when necessary.
- 3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
- 4) Pumps and hoses shall be of sufficient size to dewater the work area.



**SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA**


1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

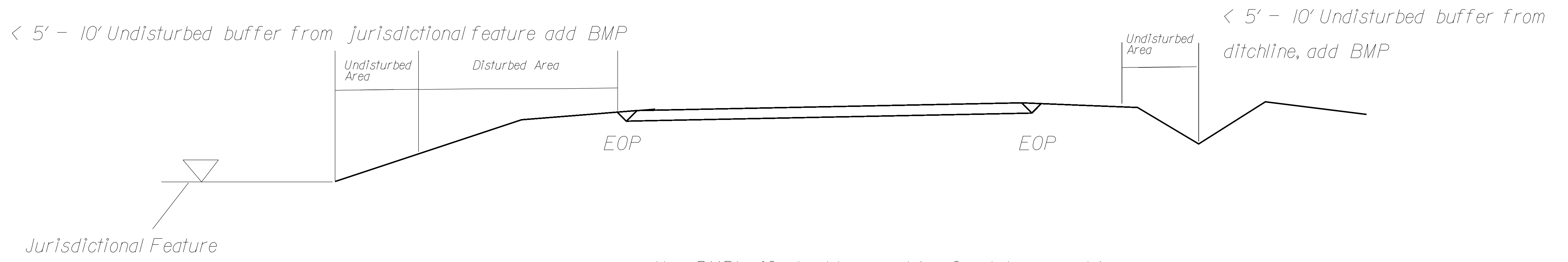
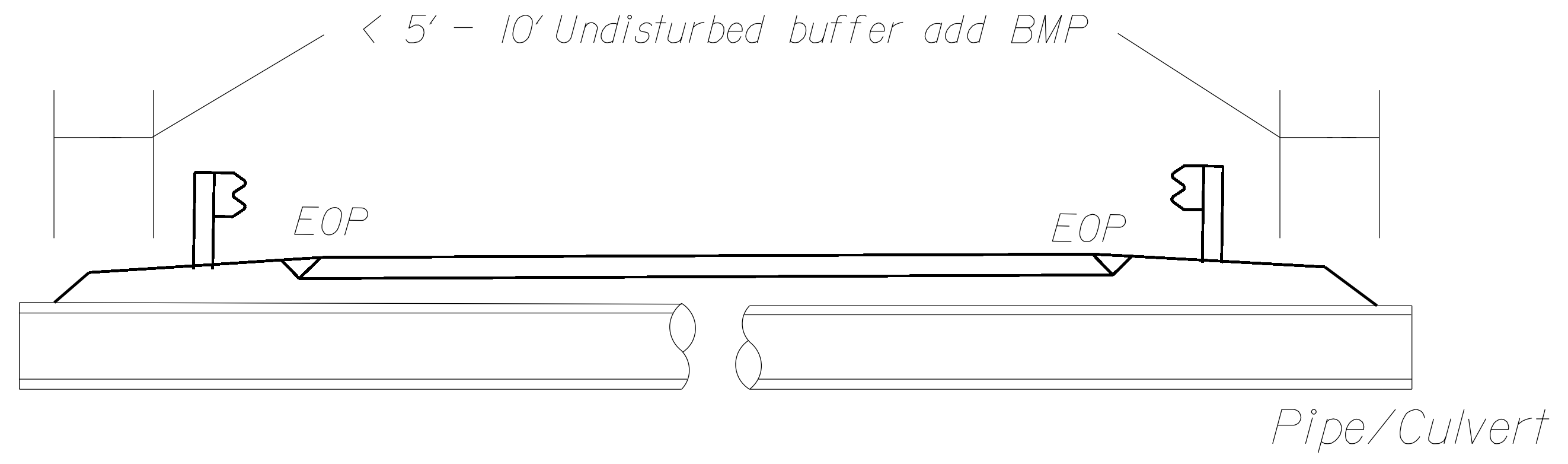
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NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

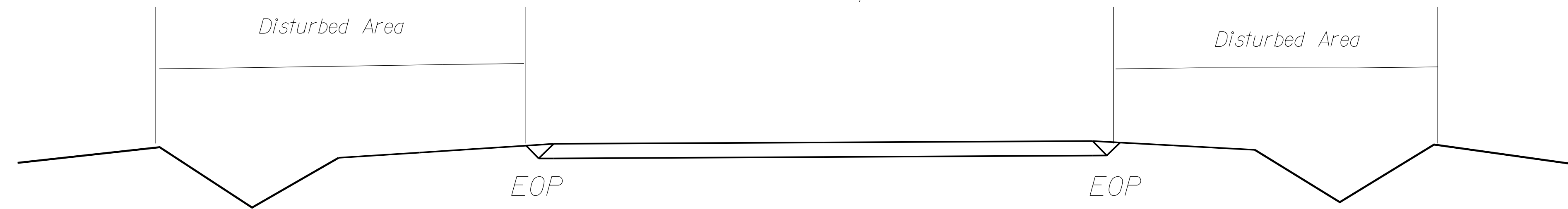
BMP Options: Wattle or Silt Fence

# EROSION CONTROL DETAIL FOR RESURFACING

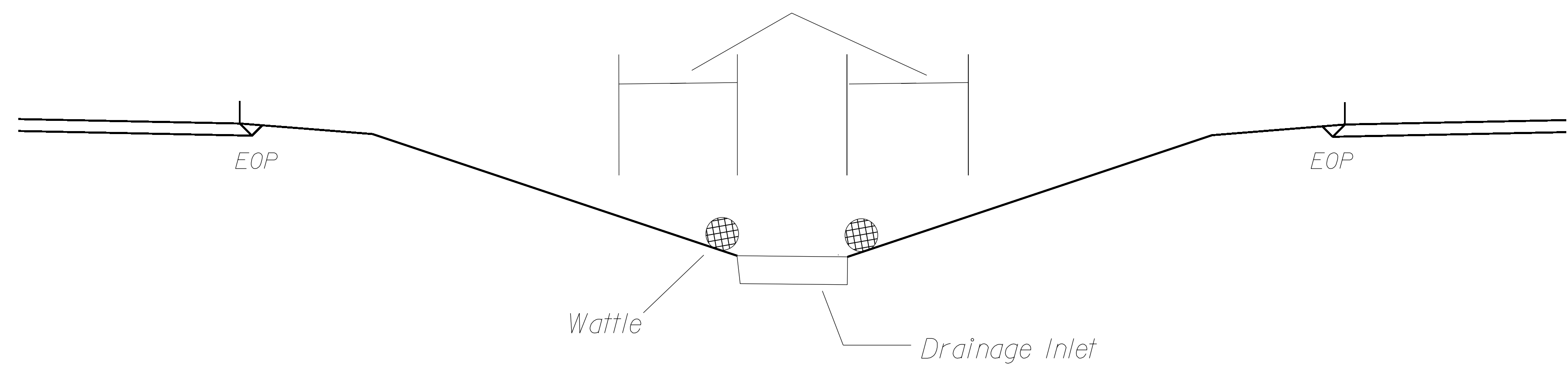
PROJECT REFERENCE NO. R-2814C	SHEET NO. EC-2F
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed



< 5' - 10' Undisturbed buffer from inlet, add wattle



NOT TO SCALE





DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

**HDR** HDR Engineering, Inc. of the Carolinas  
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**SOIL STABILIZATION SUMMARY SHEET**

**MATTING IN DITCHES**

**MATTING IN DITCHES**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	35+62	33+50	RT	195
4	-L-	43+50	43+00	RT	50
4	-L-	45+34	43+50	RT	210
5	-L-	46+50	45+34	RT	135
5	-L-	47+50	46+50	RT	160
5	-L-	50+00	47+50	RT	345
5	-L-	52+00	50+42	RT	215
5	-L-	53+50	52+00	RT	205
5	-L-	54+98	53+50	RT	205
5	-L-	55+50	54+90	M	180
5	-L-	47+50	46+37	LT	455
5	-L-	49+00	47+50	LT	425
5	-L-	50+50	49+00	LT	340
5	-L-	55+76	50+50	LT	1670
5	-L-	56+50	55+76	LT	170
5	-L-	58+90	56+50	LT	545
6	-L-	61+00	59+50	LT	140
6	-L-	63+50	61+50	RT	470
6	-L-	65+00	64+50	RT	35
6	-L-	67+50	66+00	RT	310
6	-L-	71+50	67+50	RT	35
6	-L-	70+50	70+50	RT	35
6	-L-	73+00	71+50	RT	305
6	-L-	75+50	73+00	RT	405
6	-L-	76+00	75+50	RT	70
6	-L-	67+24	64+73	M	840
6	-L-	69+11	67+24	M	680
6	-L-	70+00	69+11	M	335
6	-L-	70+74	70+50	M	85
6	-L-	75+00	70+74	M	1600

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
6	-L-	62+50	61+50	LT	185
6	-L-	68+87	67+50	LT	315
6	-L-	73+50	69+50	LT	900
6	-L-	74+00	73+50	LT	50
7	-L-	77+50	76+57	RT	95
7	-L-	83+50	77+50	RT	1610
7	-L-	84+50	83+50	RT	205
7	-L-	85+64	84+50	RT	275
7	-L-	87+00	86+50	RT	130
7	-L-	77+00	76+57	M	70
7	-L-	84+50	77+00	M	1305
7	-L-	76+40	74+00	LT	1035
7	-L-	77+37	76+40	LT	385
7	-L-	79+00	77+37	LT	370
7	-L-	80+00	79+00	LT	140
7	-L-	81+00	80+00	LT	95
7	-L-	81+50	80+50	LT	160
7	-L-	86+90	86+33	LT	105
7	-L-	87+50	86+90	LT	145
7	-Y2-	14+00	12+80	LT	40
8	-L-	89+95	89+00	RT	175
8	-L-	91+00	89+95	RT	220
8	-L-	92+00	91+00	RT	295
8	-L-	94+50	92+00	RT	775
8	-L-	95+00	94+50	RT	155
8	-L-	97+50	95+00	RT	900
8	-L-	100+00	97+50	RT	845
8	-L-	102+76	100+00	RT	930
8	-L-	98+00	96+50	M	525
8	-L-	102+00	98+00	M	1500



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

HDR HDR Engineering, Inc. of the Carolinas  
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-3B</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**SOIL STABILIZATION SUMMARY SHEET**

**MATTING IN DITCHES**

**MATTING IN DITCHES**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
8	-L-	89+95	88+50	LT	570
8	-L-	91+50	89+95	LT	530
8	-L-	93+37	91+50	LT	465
8	-L-	103+00	101+50	LT	115
9	-L-	105+00	104+00	RT	160
9	-L-	105+50	105+00	RT	35
9	-L-	107+00	105+50	RT	105
9	-L-	107+60	107+00	RT	45
9	-L-	111+60	111+10	RT	70
9	-L-	112+50	111+60	RT	145
9	-L-	113+50	112+50	RT	205
9	-L-	114+50	113+50	RT	340
9	-L-	115+50	114+50	RT	340
9	-L-	106+50	102+00	M	1750
9	-L-	109+47	106+50	M	1155
9	-L-	112+00	109+47	M	985
9	-L-	114+00	113+50	M	85
9	-L-	103+84	103+00	LT	120
9	-L-	110+72	110+00	LT	45
9	-L-	112+70	110+72	LT	425
9	-L-	114+50	112+70	LT	710
10	-L-	118+00	115+50	RT	845
10	-L-	120+00	118+00	RT	675
10	-L-	124+19	121+50	RT	1060
10	-L-	126+51	126+51	RT	20
10	-L-	129+50	128+50	RT	115
10	-L-	131+50	129+50	RT	675
10	-L-	128+50	127+00	M	255
10	-L-	118+50	115+50	LT	760
10	-L-	120+00	118+50	LT	465

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
10	-L-	120+50	120+00	LT	75
10	-L-	120+89	120+50	LT	40
10	-L-	126+63	124+50	LT	720
10	-L-	126+63	126+63	LT	10
10	-L-	127+00	126+63	LT	50
10	-L-	128+50	127+00	LT	255
10	-L-	129+50	128+50	LT	155
10	-L-	132+00	129+50	LT	705
11	-L-	134+75	133+00	RT	370
11	-L-	137+35	137+25	RT	20
11	-L-	138+50	137+35	RT	235
11	-L-	140+00	138+50	RT	510
11	-L-	140+64	140+00	RT	235
11	-L-	142+50	140+64	RT	610
11	-L-	135+00	132+00	LT	980
11	-L-	136+50	136+00	LT	35
11	-L-	136+90	136+50	LT	30
11	-L-	140+64	140+15	LT	140
11	-L-	142+00	140+64	LT	385
12	-L-	148+50	147+50	RT	295
12	-L-	149+50	148+50	RT	180
12	-L-	155+30	153+50	RT	425
12	-L-	156+00	155+30	RT	180
12	-L-	151+00	145+00	M	805
12	-L-	152+00	145+00	LT	2165
12	-L-	153+50	152+00	LT	510
12	-L-	154+05	153+50	LT	200
12	-L-	155+33	154+05	LT	605
12	-L-	158+68	155+33	LT	1170
13	-L-	161+69	159+50	RT	440



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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555 Fayetteville St, Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-3C</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**SOIL STABILIZATION SUMMARY SHEET**

**MATTING IN DITCHES**

**MATTING IN DITCHES**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
13	-L-	161+69	161+69	RT	130
13	-L-	162+50	161+69	RT	130
13	-L-	169+00	168+50	RT	80
13	-L-	169+68	169+00	RT	170
13	-L-	171+00	169+68	RT	415
13	-L-	173+00	171+00	RT	700
13	-L-	162+00	157+00	M	1875
13	-L-	169+90	167+67	M	840
13	-L-	176+00	169+90	M	2290
13	-L-	158+95	158+68	LT	55
13	-L-	161+63	158+95	LT	905
13	-L-	162+85	161+63	LT	440
13	-L-	163+40	162+85	LT	190
13	-L-	164+50	163+40	LT	340
13	-L-	167+25	164+50	LT	1025
13	-L-	167+95	167+25	LT	65
13	-L-	172+50	171+00	LT	185
14	-L-	175+20	173+00	RT	885
14	-L-	176+50	175+20	RT	260
14	-L-	178+50	176+50	RT	520
14	-L-	181+00	178+50	RT	665
14	-L-	181+50	181+00	RT	110
14	-L-	182+50	181+50	RT	215
14	-L-	185+50	182+50	RT	980
14	-L-	187+66	185+50	RT	730
14	-L-	189+17	187+66	RT	495
14	-L-	176+30	176+00	M	115
14	-L-	185+00	176+30	M	3260
14	-L-	189+17	185+00	M	1620
14	-L-	176+20	174+50	LT	470

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
14	-L-	179+00	176+20	LT	755
14	-L-	179+84	179+00	LT	210
14	-L-	181+50	179+84	LT	610
14	-L-	184+50	183+50	LT	285
14	-L-	185+20	184+50	LT	205
14	-L-	188+00	185+20	LT	630
15	-L-	189+57	189+17	RT	135
15	-L-	190+20	189+57	RT	220
15	-L-	192+14	190+20	RT	655
15	-L-	197+00	193+50	RT	1175
15	-L-	199+77	199+11	RT	85
15	-L-	199+97	199+77	RT	35
15	-L-	200+50	199+97	RT	85
15	-L-	202+50	200+50	RT	215
15	-L-	189+57	189+17	M	160
15	-L-	193+00	189+57	M	1335
15	-L-	197+00	193+00	M	1450
15	-L-	201+50	199+03	M	830
15	-L-	189+00	188+00	LT	150
15	-L-	189+40	189+00	LT	75
15	-L-	190+00	189+40	LT	205
15	-L-	191+50	190+00	LT	795
15	-L-	193+00	191+50	LT	610
15	-L-	195+50	193+00	LT	845
15	-L-	199+03	195+50	LT	1590
15	-L-	200+00	199+03	LT	230
15	-L-	201+00	200+00	LT	170
16	-L-	205+80	205+80	RT	15
16	-L-	211+50	210+50	RT	160
16	-L-	213+00	211+50	RT	465



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-3D</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**SOIL STABILIZATION SUMMARY SHEET**

**MATTING IN DITCHES**

**MATTING IN DITCHES**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
16	-L-	215+30	213+00	RT	930
16	-L-	204+00	201+50	M	1005
16	-L-	206+00	204+00	M	600
16	-L-	207+00	206+00	M	320
16	-L-	202+50	202+00	LT	150
16	-L-	204+00	202+50	LT	380
16	-L-	205+50	204+00	LT	270
16	-L-	206+00	205+50	LT	30
16	-L-	206+50	206+00	LT	40
16	-L-	207+50	206+50	LT	95
16	-L-	208+50	207+50	LT	185
16	-L-	212+00	208+50	LT	705
16	-L-	214+55	212+00	LT	480
17	-L-	216+75	216+75	RT	25
17	-L-	227+00	223+00	RT	1460
17	-L-	228+00	227+00	RT	250
17	-L-	228+20	228+00	RT	20
17	-L-	223+50	217+00	M	710
17	-L-	229+64	224+50	M	1730
17	-L-	218+50	217+00	LT	270
17	-L-	223+00	218+50	LT	1770
17	-L-	223+50	223+00	LT	70
17	-L-	226+50	223+50	LT	845
17	-L-	228+00	226+50	LT	240
17	-L-	229+60	228+00	LT	280
18	-L-	230+00	229+50	RT	140
18	-L-	232+50	231+50	RT	205
18	-L-	232+73	232+50	RT	35
18	-L-	232+73	232+73	RT	15
18	-L-	234+00	232+73	RT	160

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
18	-L-	235+60	234+00	RT	505
18	-L-	238+50	235+60	RT	900
18	-L-	230+05	229+64	M	160
18	-L-	234+00	230+05	M	1485
18	-L-	235+62	234+00	M	620
18	-L-	239+25	235+62	M	1225
18	-L-	243+00	239+25	M	1410
18	-L-	233+60	232+00	LT	475
18	-L-	234+50	233+60	LT	205
18	-L-	235+65	234+50	LT	185
18	-L-	242+00	240+00	LT	270
19	-L-	247+00	244+50	RT	285
19	-L-	247+50	247+00	RT	110
19	-L-	250+00	248+20	RT	650
19	-L-	252+50	250+00	RT	900
19	-L-	254+00	252+50	RT	540
19	-L-	256+50	254+00	RT	955
19	-L-	257+00	256+50	RT	120
19	-L-	248+35	243+00	M	2005
19	-L-	251+50	248+35	M	1185
19	-L-	256+00	251+50	M	1885
19	-L-	244+50	242+00	LT	510
19	-L-	246+00	244+50	LT	255
19	-L-	251+00	248+50	LT	340
19	-L-	252+50	251+00	LT	295
19	-L-	254+50	252+50	LT	675
19	-L-	255+50	254+50	LT	240
19	-L-	257+50	255+50	LT	620
20	-L-	258+64	257+00	RT	535
20	-L-	261+05	258+64	RT	595



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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555 Fayetteville St., Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.		SHEET NO.
R-2814C		EC-3E
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

**SOIL STABILIZATION SUMMARY SHEET**

**MATTING IN DITCHES**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
20	-L-	265+00	261+05	RT	900
20	-L-	260+00	257+50	M	505
20	-L-	261+10	260+00	M	250
20	-L-	262+00	261+10	M	290
20	-L-	259+50	258+50	LT	200
20	-L-	261+13	259+50	LT	460
20	-L-	263+00	261+13	LT	380
20	-L-	266+00	265+00	LT	125
20	-L-	267+50	266+00	LT	160
21	-L-	278+92	276+50	RT	370
21	-L-	281+00	278+92	RT	605
21	-L-	282+50	281+00	RT	375
21	-L-	277+00	276+50	LT	60
21	-L-	278+25	277+00	LT	185
21	-L-	278+75	278+25	LT	70
21	-L-	279+50	278+75	LT	75
21	-L-	279+60	279+60	LT	10
22	-L-	290+00	289+50	RT	60
22	-L-	290+50	290+00	RT	50
22	-L-	295+50	295+00	RT	35
22	-L-	292+00	291+00	LT	225
22	-L-	293+00	292+00	LT	155
23	-L-	305+50	305+00	RT	85
23	-L-	307+50	306+50	RT	145
23	-L-	310+50	309+50	RT	95
23	-L-	312+57	312+57	RT	10
23	-L-	308+50	307+00	LT	340
23	-L-	310+00	309+50	LT	30
23	-L-	313+50	310+00	LT	190
24	-L-	322+50	321+50	RT	55

**MATTING IN DITCHES**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
24	-L-	324+00	323+50	RT	105
24	-L-	328+00	324+50	RT	210
25	-L-	328+50	328+00	RT	30
25	-L-	340+50	339+50	RT	60
26	-L-	341+50	340+50	RT	60
26	-L-	343+00	341+50	RT	90
26	-L-	343+60	343+00	RT	145
26	-L-	344+65	343+60	RT	350
26	-L-	347+50	345+00	RT	570
26	-L-	348+00	347+50	RT	105
27	-L-	357+55	357+55	LT	15
27	-Y11-	16+12	16+12	RT	20
28	-L-	377+50	372+00	RT	500
28	-L-	373+25	373+25	LT	15
			TOTAL		127,460 SY
			TOTAL FOR DITCHES		127,460 SY
			TOTAL FOR SLOPES		31,281 SY
			MISC. MATTING TO BE INSTALLED AS DIRECTED BY ENGINEER		87,225 SY
			SUBTOTAL		245,966 SY
			SAY		246,000 SY

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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555 Fayetteville St, Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-3F</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.



PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-4CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**HDR** HDR Engineering, Inc. of the Carolinas  
 555 Fayetteville St, Suite 900, Raleigh, N.C. 27601  
 N.C.B.E.L.S. License Number: F-0116

CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 4

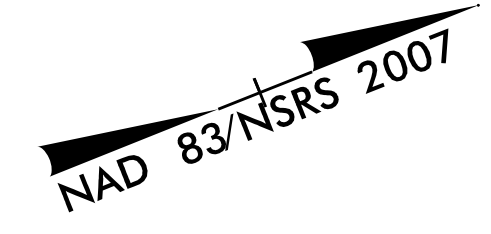
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NOTE:  
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
 DRAINAGE OUTLETS.

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

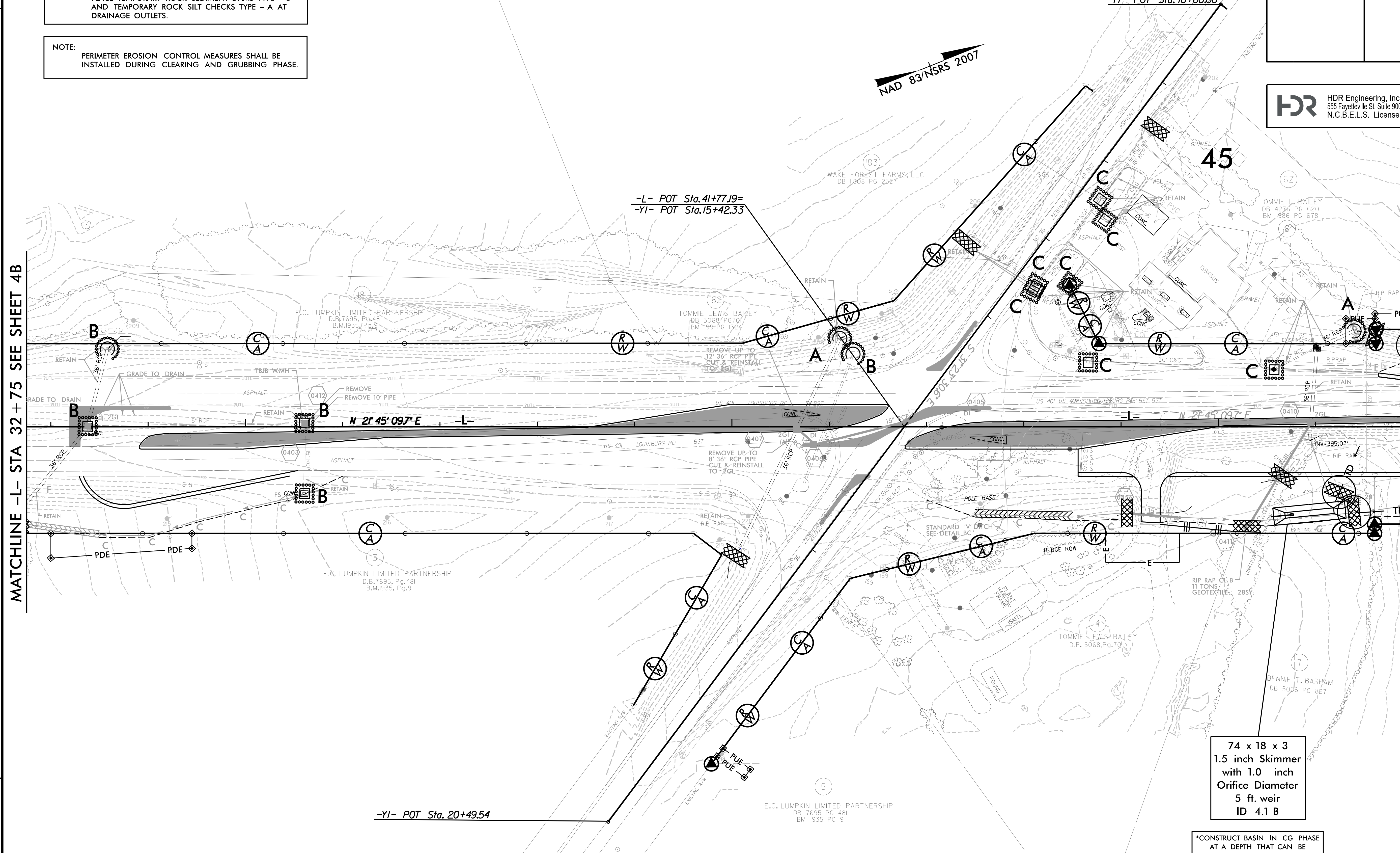
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45



MATCHLINE -L- STA 32+75 SEE SHEET 4B

MATCHLINE -L- STA 47+00 SEE SHEET 5



74 x 18 x 3  
 1.5 inch Skimmer  
 with 1.0 inch  
 Orifice Diameter  
 5 ft. weir  
 ID 4.1 B

\*CONSTRUCT BASIN IN CG PHASE  
 AT A DEPTH THAT CAN BE  
 UTILIZED FOR CG AND FINAL  
 PHASES OF CONSTRUCTION.

REVISIONS

8/17/99

4/6/2018  
 11:27:45 AM  
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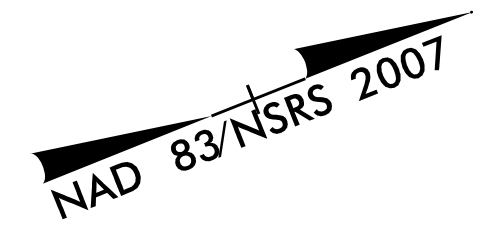
8/17/99

RESURFACING ONLY ON THIS SHEET (PART OF R-2814B). INSTALL INLET PROTECTION AS NEEDED.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4A

10

15



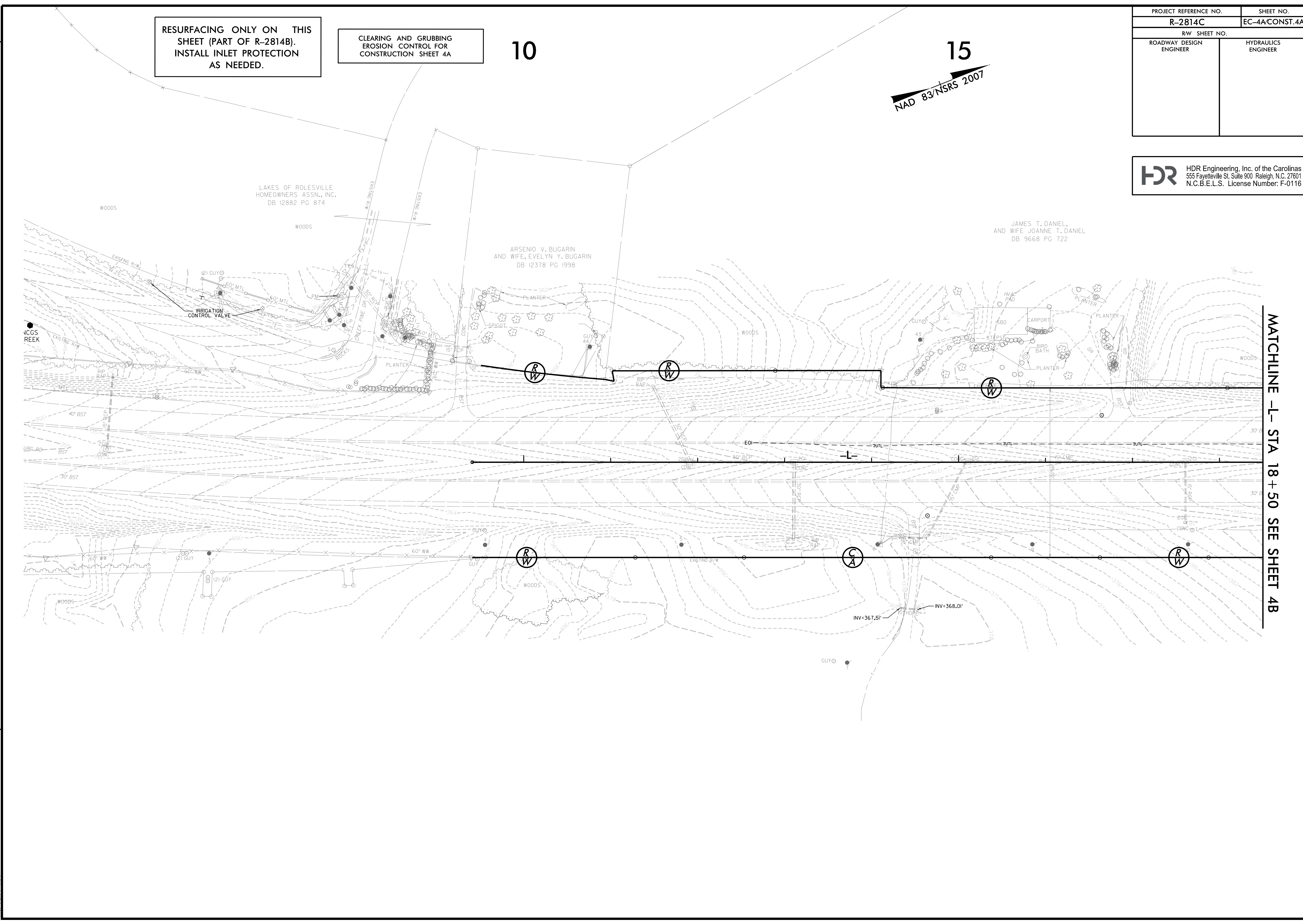
PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-4A/CONST.4A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**HDR** HDR Engineering, Inc. of the Carolinas  
 555 Fayetteville St, Suite 900, Raleigh, N.C. 27601  
 N.C.B.E.L.S. License Number: F-0116

LAKE OF ROLESVILLE HOMEOWNERS ASSN., INC. DB 12882 PG 874

ARSENIO V. BUGARIN AND WIFE, EVELYN Y. BUGARIN DB 12378 PG 1998

JAMES T. DANIEL AND WIFE JOANNE T. DANIEL DB 9668 PG 722



REVISIONS

4/6/2018  
 R-2814C.EC.PSH.dgn  
 11:27:54 AM



8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-4B/CONST.4B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**HDR** HDR Engineering, Inc. of the Carolinas  
 555 Fayetteville St, Suite 900, Raleigh, N.C. 27601  
 N.C.B.E.L.S. License Number: F-0116

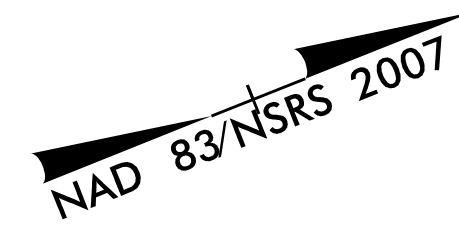
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RESURFACING ONLY ON THIS SHEET (PART OF R-2814B).  
 INSTALL INLET PROTECTION AS NEEDED.

25

CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 4B

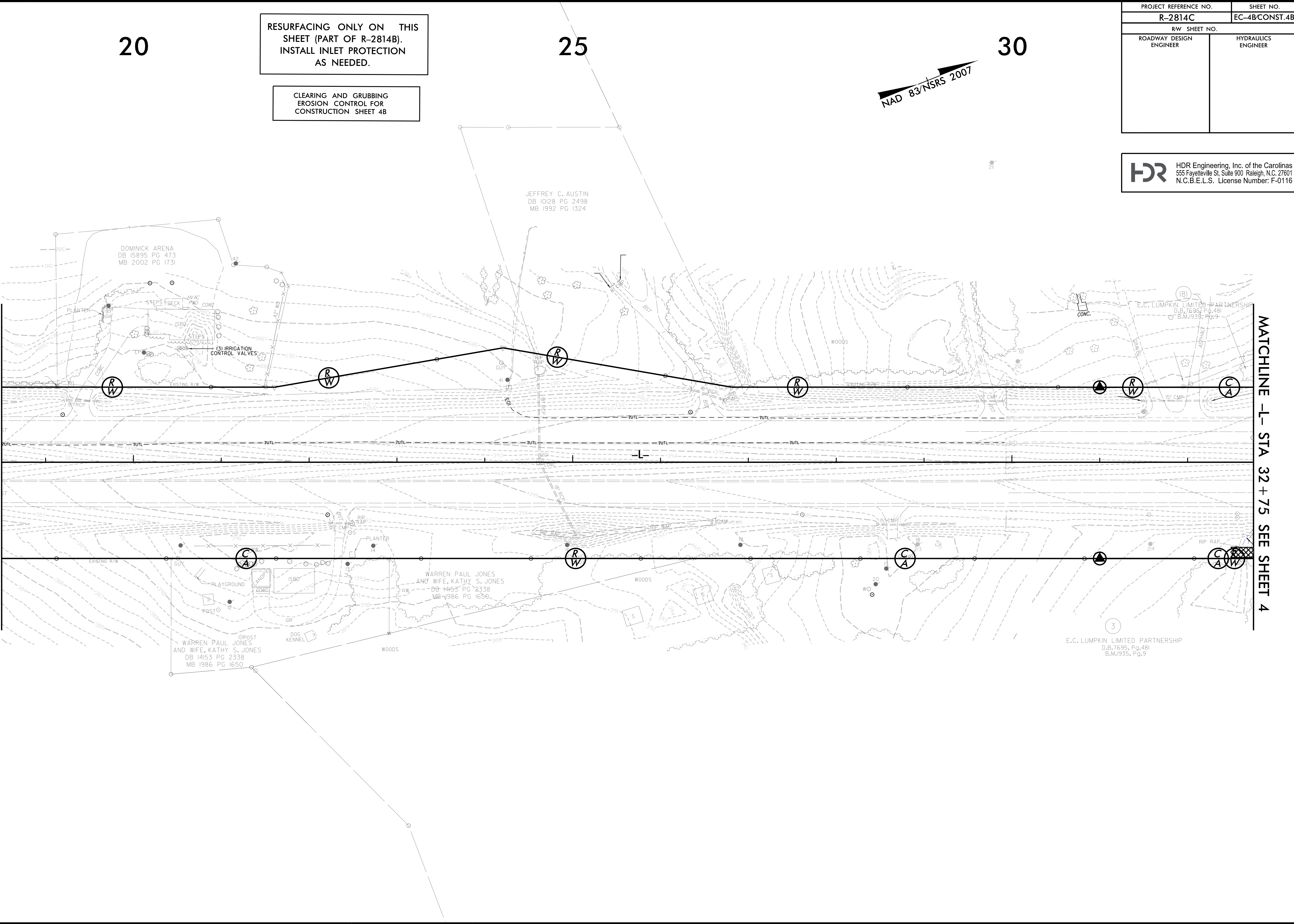
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MATCHLINE -L- STA 18+50 SEE SHEET 4A

MATCHLINE -L- STA 32+75 SEE SHEET 4

REVISIONS



4/6/2018  
 11:24:02 AM  
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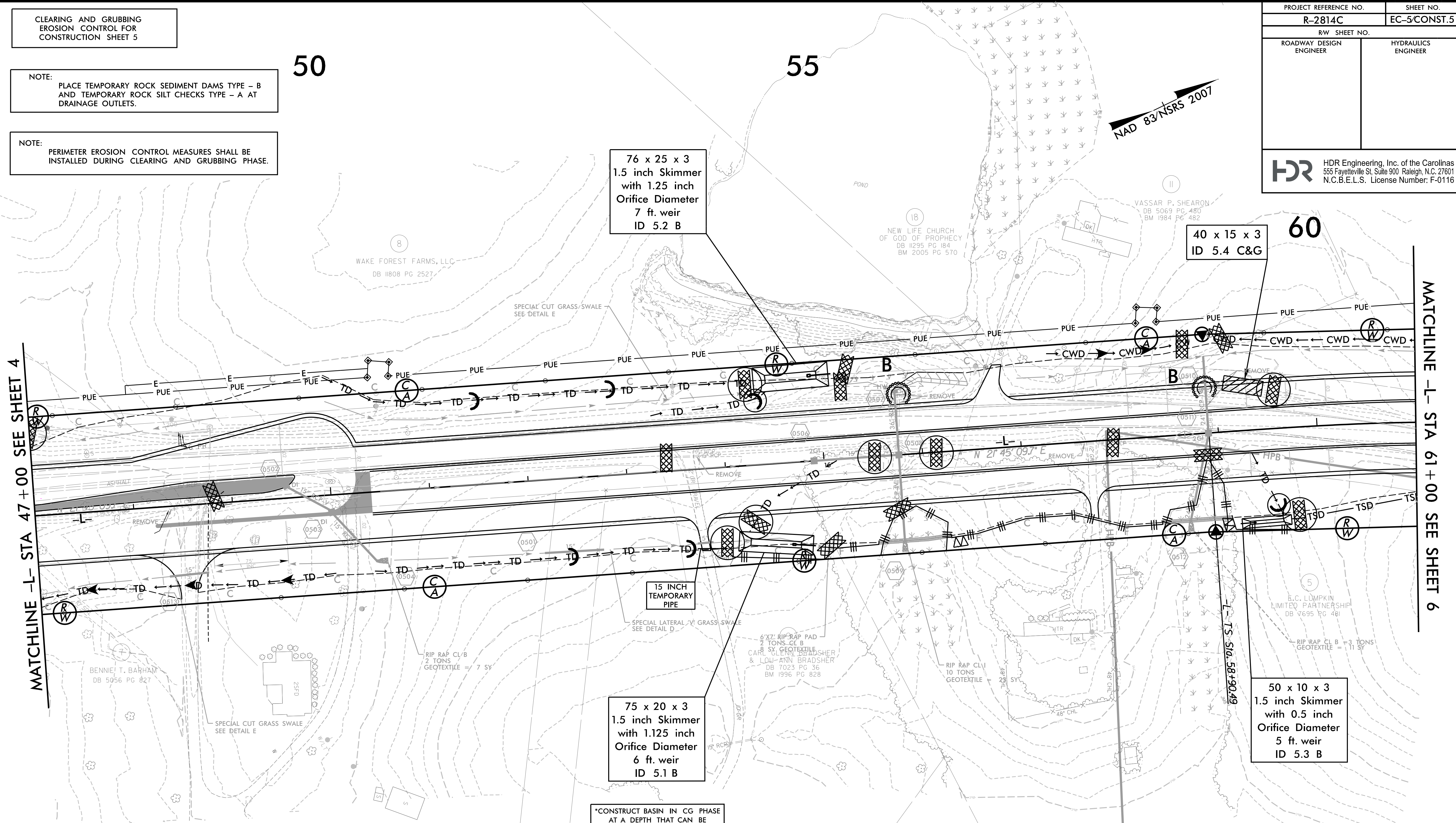
**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 5**

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

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

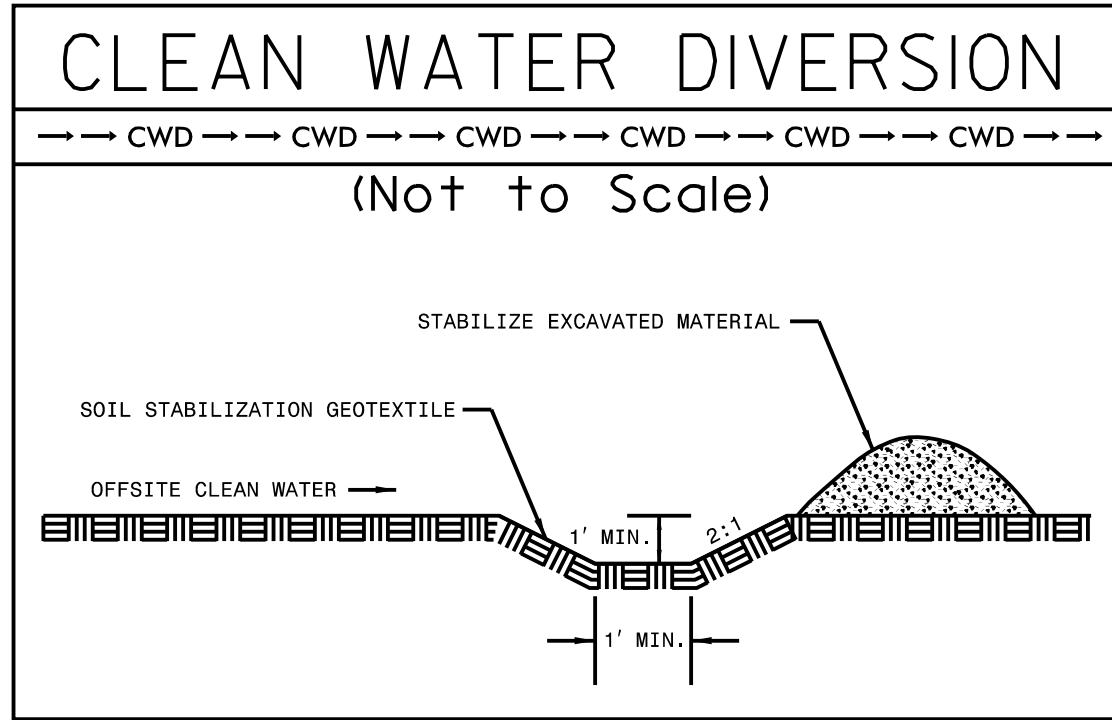
PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-5/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**HDR** HDR Engineering, Inc. of the Carolinas  
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601  
N.C.B.E.L.S. License Number: F-0116



MATCHLINE -L- STA 47+00 SEE SHEET 4

MATCHLINE -L- STA 61+00 SEE SHEET 6




\*CONSTRUCT BASIN IN CG PHASE  
AT A DEPTH THAT CAN BE  
UTILIZED FOR CG AND FINAL  
PHASES OF CONSTRUCTION.

RIGHT OF WAY REVISION 10-16-15 EAD,  
Parcel 5 - Parcel 5 PUE revised for anchors

4/6/2018  
N2814C.EC.P5H.dgn  
11:28:05 AM



PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-6CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

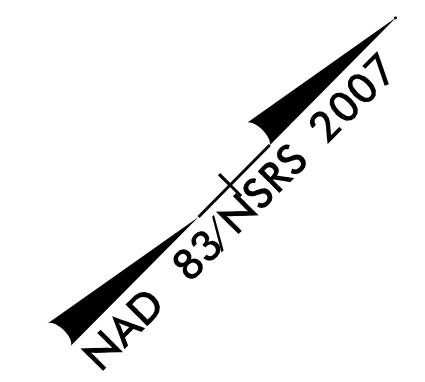
**CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 6**

**65**

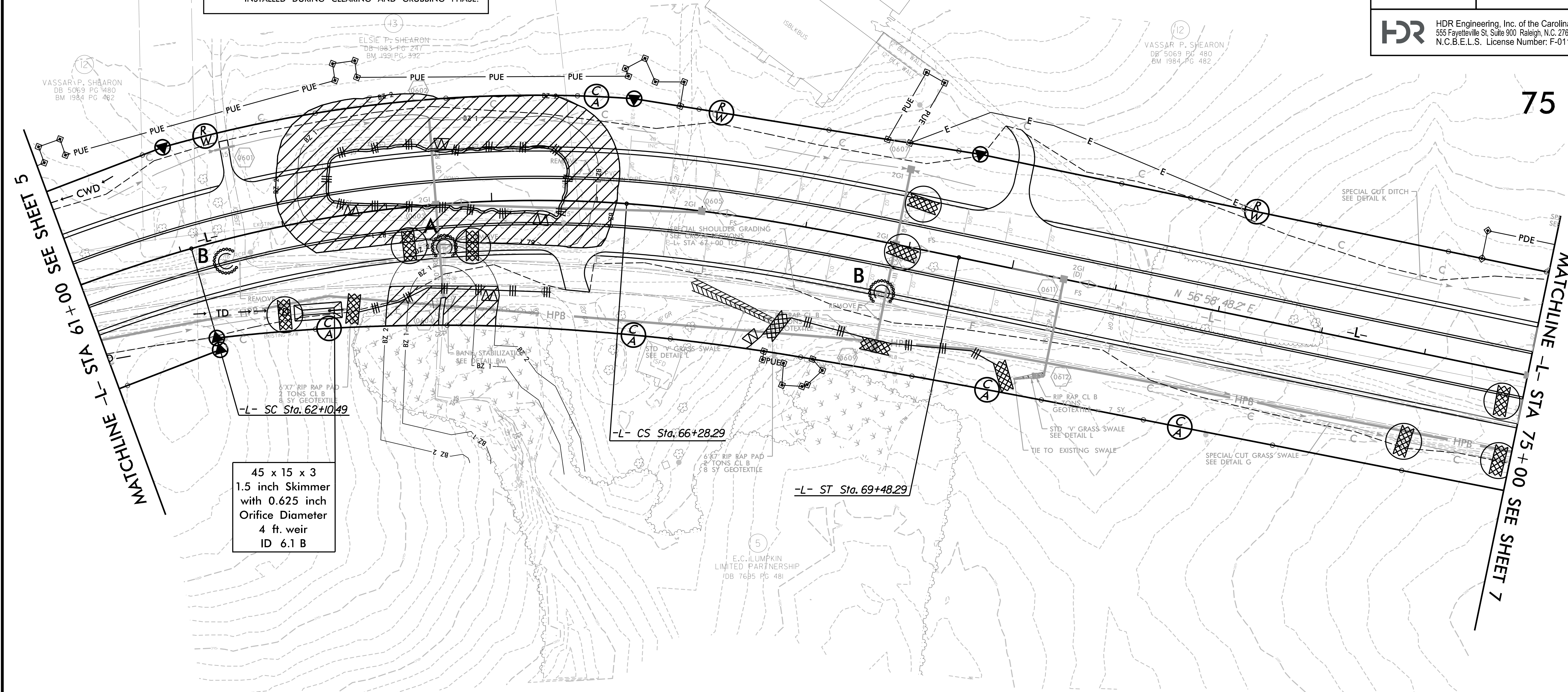
NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.

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

**70**

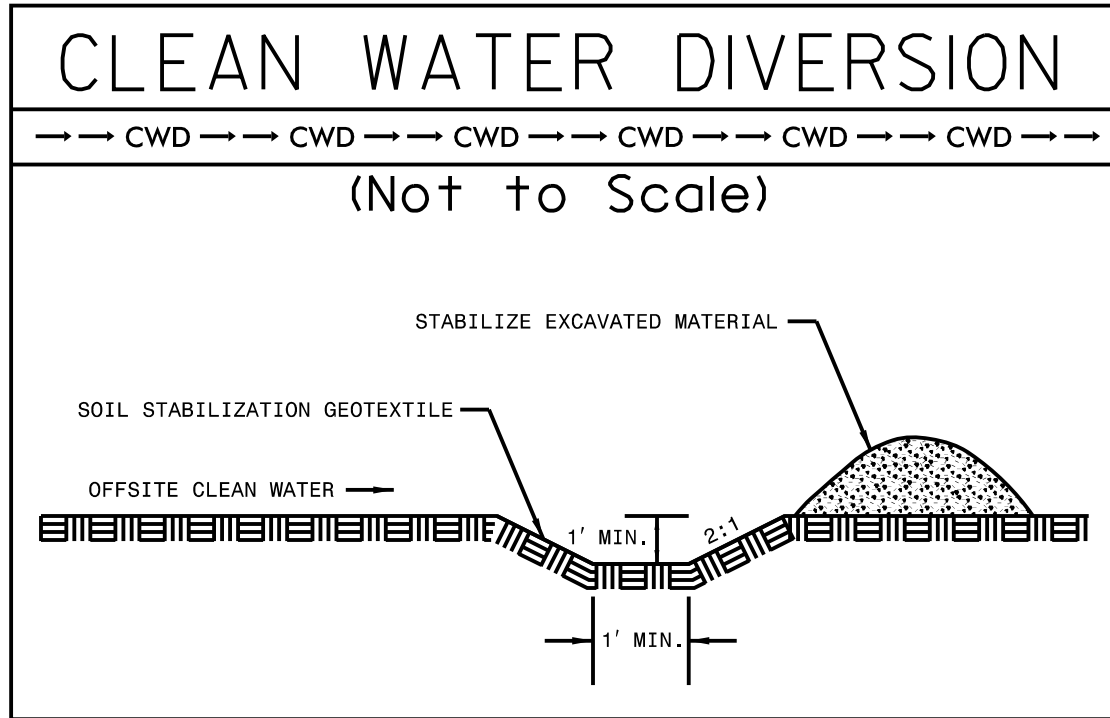


**75**



45 x 15 x 3  
1.5 inch Skimmer  
with 0.625 inch  
Orifice Diameter  
4 ft. weir  
ID 6.1 B

 ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS



REVISIONS


RIGHT OF WAY REVISION 10-16-15, E.A.C.  
Parcel 5 PUE revised for anchors

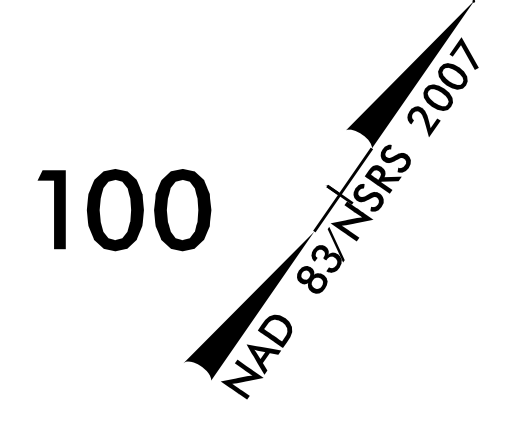
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PROJECT REFERENCE NO.		SHEET NO.	
R-2814C		EC-8CONSTR	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			



90

95

100

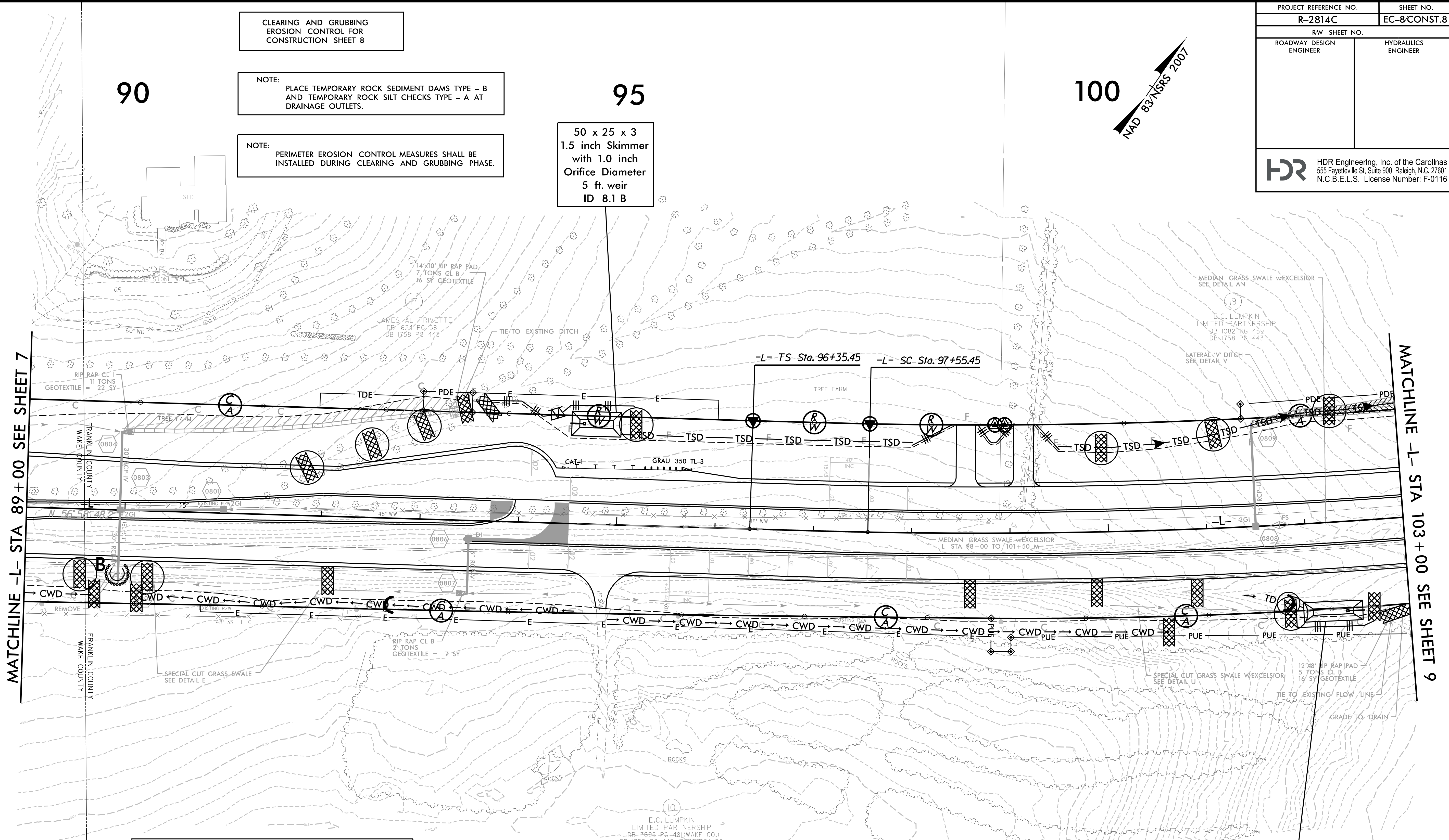
CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 8

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.

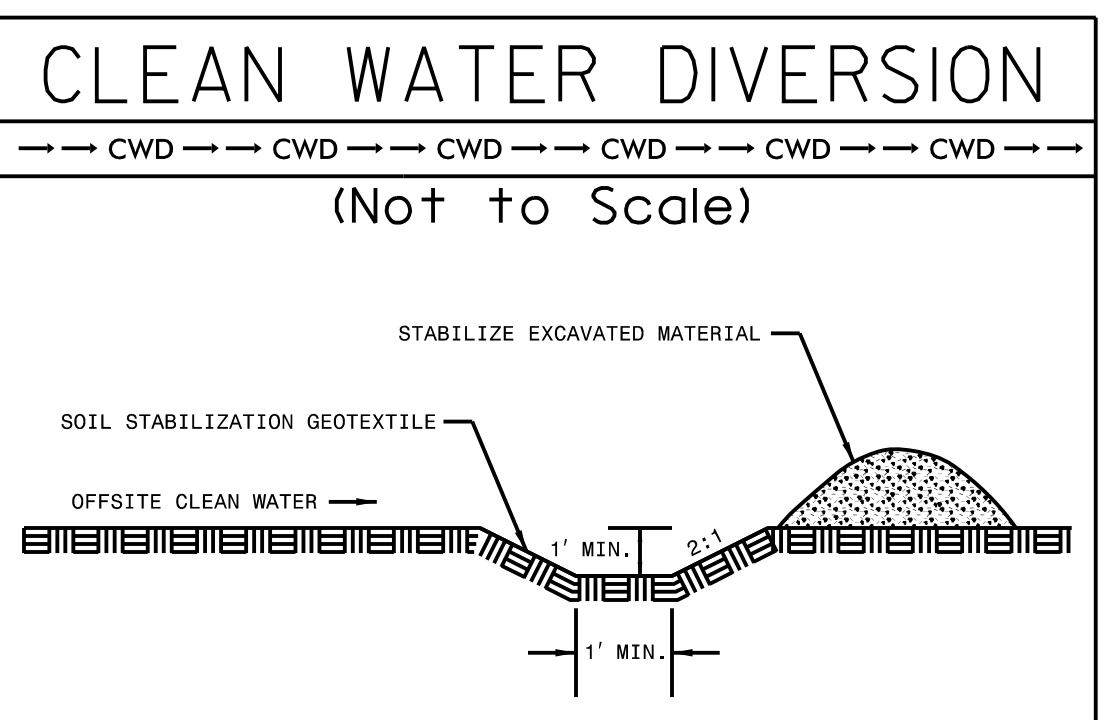
50 x 25 x 3  
1.5 inch Skimmer  
with 1.0 inch  
Orifice Diameter  
5 ft. weir  
ID 8.1 B

60 x 20 x 2  
1.5 inch Skimmer  
with 1.0 inch  
Orifice Diameter  
5 ft. weir  
ID 8.2 B



MATCHLINE -L- STA 89+00 SEE SHEET 7


MATCHLINE -L- STA 103+00 SEE SHEET 9



REVISIONS  
 RIGHT OF WAY REVISION 06-13-16 E.A.O.  
 Parcel 17 - Shifted Driveway and Driveway Access Point from -L- Sta. 87+97 LT to -L- Sta. 98+55 LT

4/6/2018  
 11:24:32 AM  
 C:\E.C. PSH.dgn



PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-9/CONST.9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION 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.

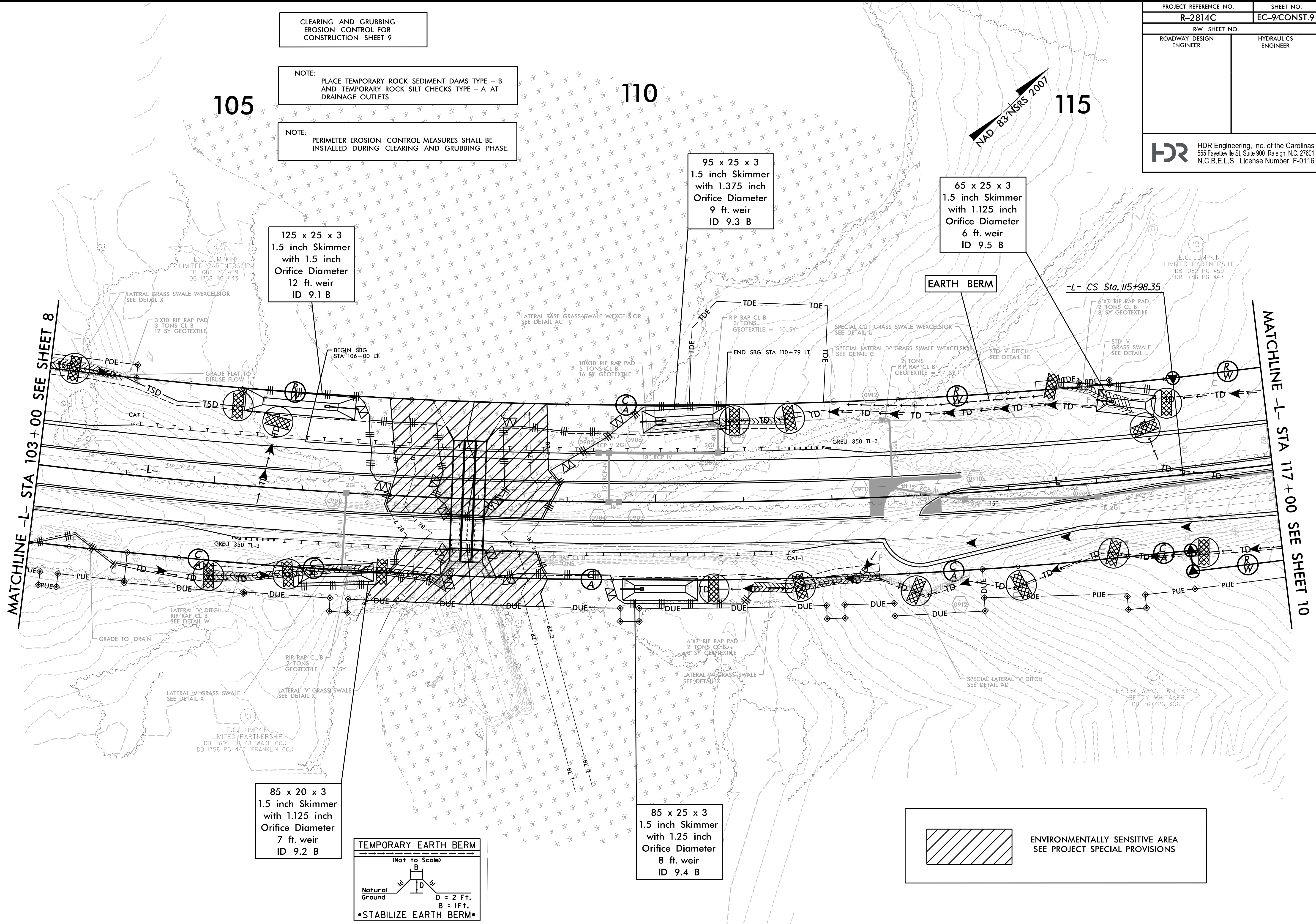
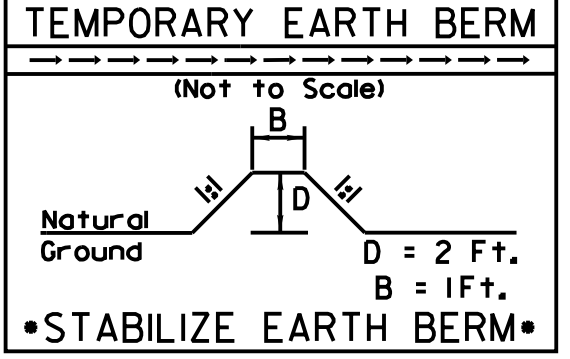
125 x 25 x 3  
1.5 inch Skimmer  
with 1.5 inch  
Orifice Diameter  
12 ft. weir  
ID 9.1 B

95 x 25 x 3  
1.5 inch Skimmer  
with 1.375 inch  
Orifice Diameter  
9 ft. weir  
ID 9.3 B

65 x 25 x 3  
1.5 inch Skimmer  
with 1.125 inch  
Orifice Diameter  
6 ft. weir  
ID 9.5 B

85 x 20 x 3  
1.5 inch Skimmer  
with 1.125 inch  
Orifice Diameter  
7 ft. weir  
ID 9.2 B

85 x 25 x 3  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
8 ft. weir  
ID 9.4 B



REVISIONS

RIGHT OF WAY REVISION 07-16-15 EAD; Parcel 20 - Separated Parcel 20 into two - parcels 20 and 20A

4/6/2018  
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11:28:40 AM

8/17/99

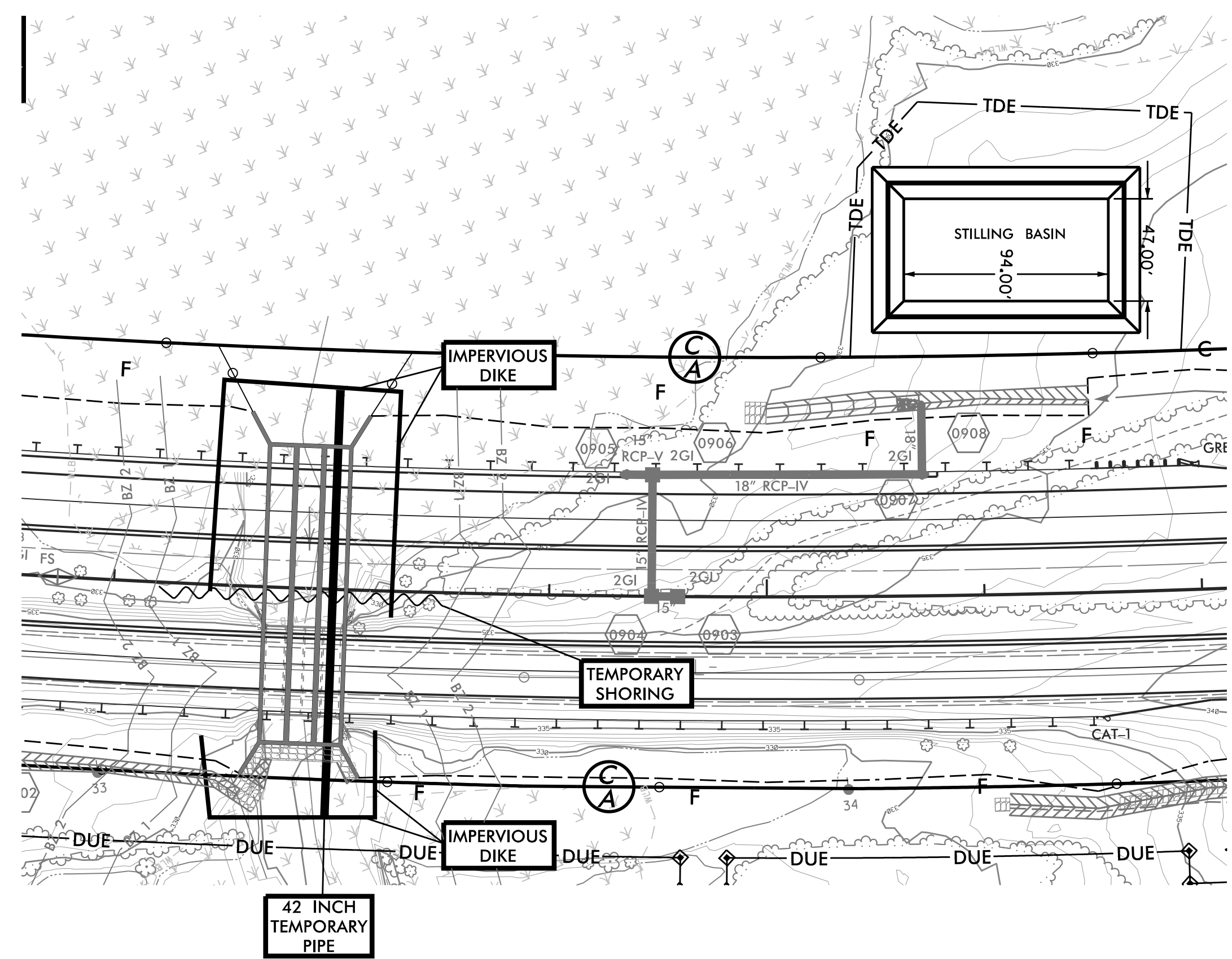


# 12'X11' RCBC CULVERT CONSTRUCTION SEQUENCE STA. 107+88 -L-

PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-9A/CONST.9</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
HDR HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

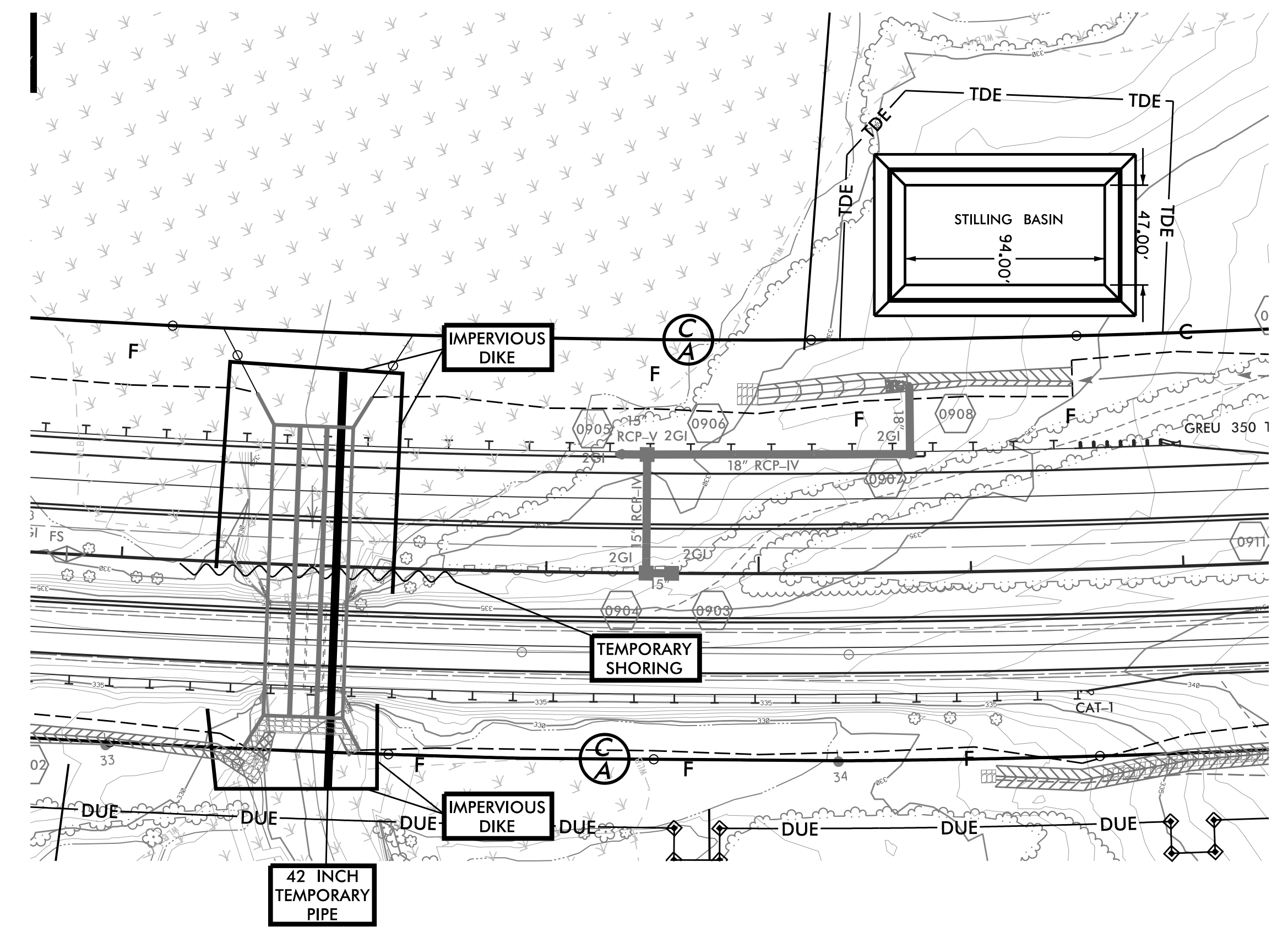
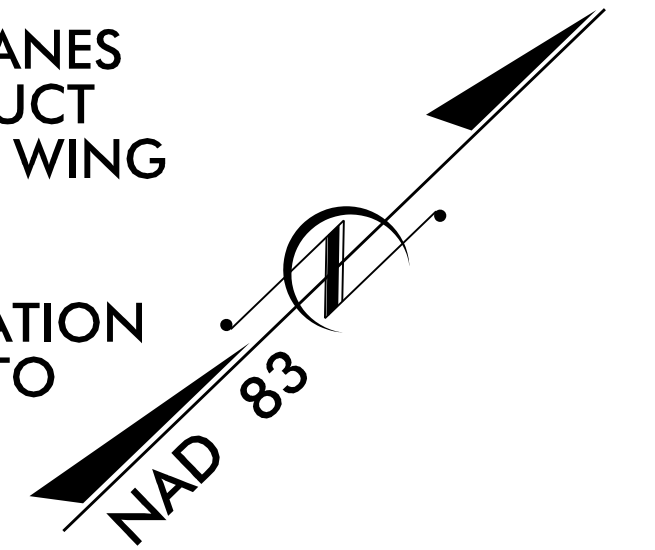
## PHASE I

1. CONSTRUCT SEDIMENT CONTROL DEVICES, INCLUDING TEMPORARY STILLING BASIN (1050 CUBIC YARDS MINIMUM)
2. INSTALL A 42" MIN. TEMPORARY DIVERSION PIPE AND TEMPORARY IMPERVIOUS DIKES UPSTREAM AND DOWNSTREAM OF THE PROPOSED 3@12'X11' RCBC
3. CONSTRUCT THREE BARRELS OF PROPOSED CULVERT AND WING WALLS TO THE UPSTREAM END OF THE PROPOSED CULVERT
4. CONSTRUCT TEMPORARY SHORING AND BUILD SOUTHBOUND LANES




## PHASE II

1. DIVERT THE TRAFFIC ONTO NEWLY CONSTRUCTED SOUTHBOUND LANES
2. REMOVE EXISTING 4@8'X10' RCBC AND WING WALLS AND CONSTRUCT THE REMAINING PORTION OF THE PROPOSED 3@12'X11' RCBC AND WING WALLS
3. PLACE RIP RAP AT OUTLET END OF CULVERT
4. BUILD NORTHBOUND LANES. SHIFT TRAFFIC INTO FINAL CONFIGURATION
5. REMOVE THE TEMPORARY DIVERSION PIPES AND IMPERVIOUS DIKES TO ESTABLISH THE FLOW THROUGH NEWLY CONSTRUCTED CULVERT
6. REMOVE EROSION CONTROL DEVICES



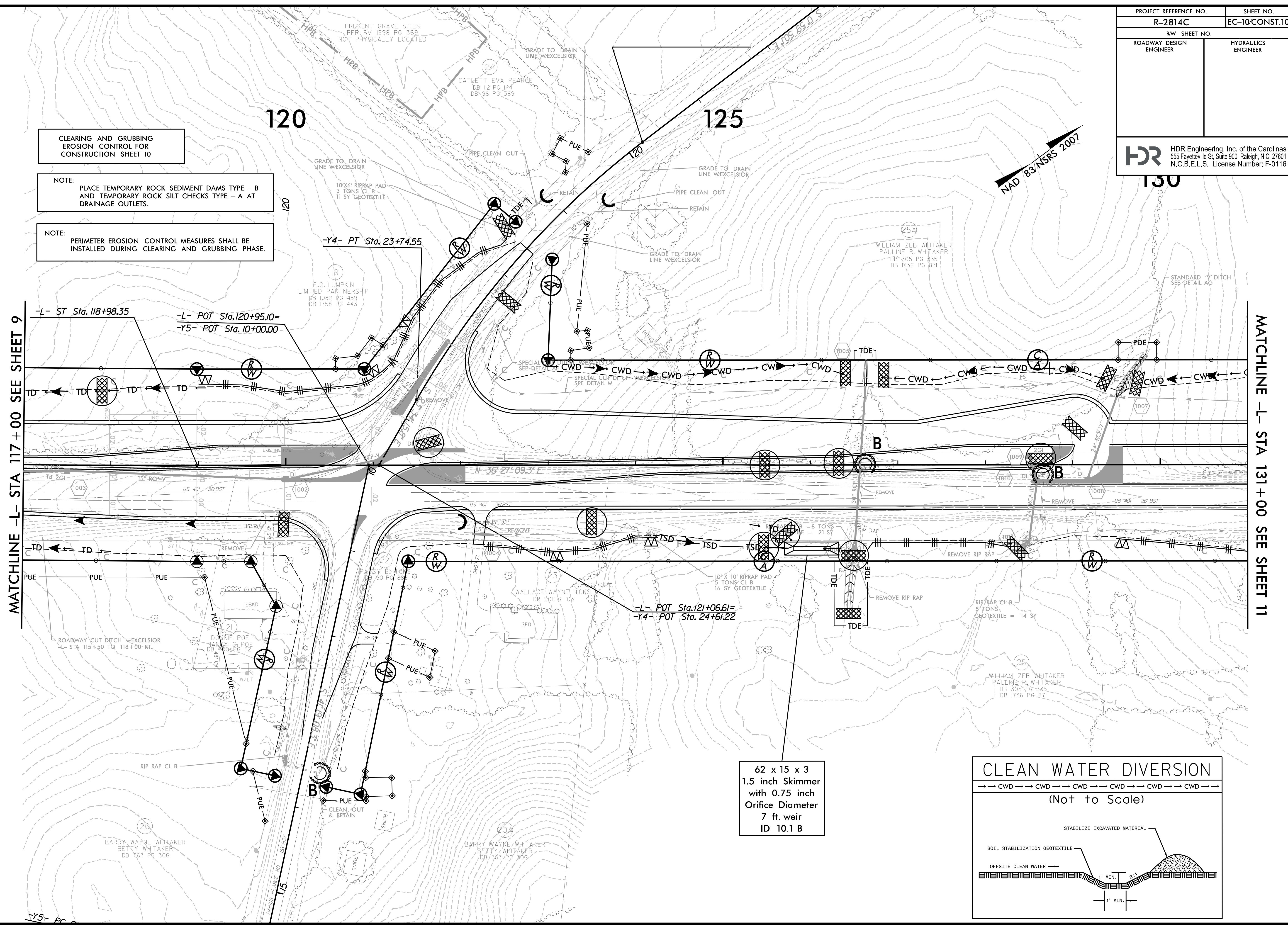


PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-10CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 10

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

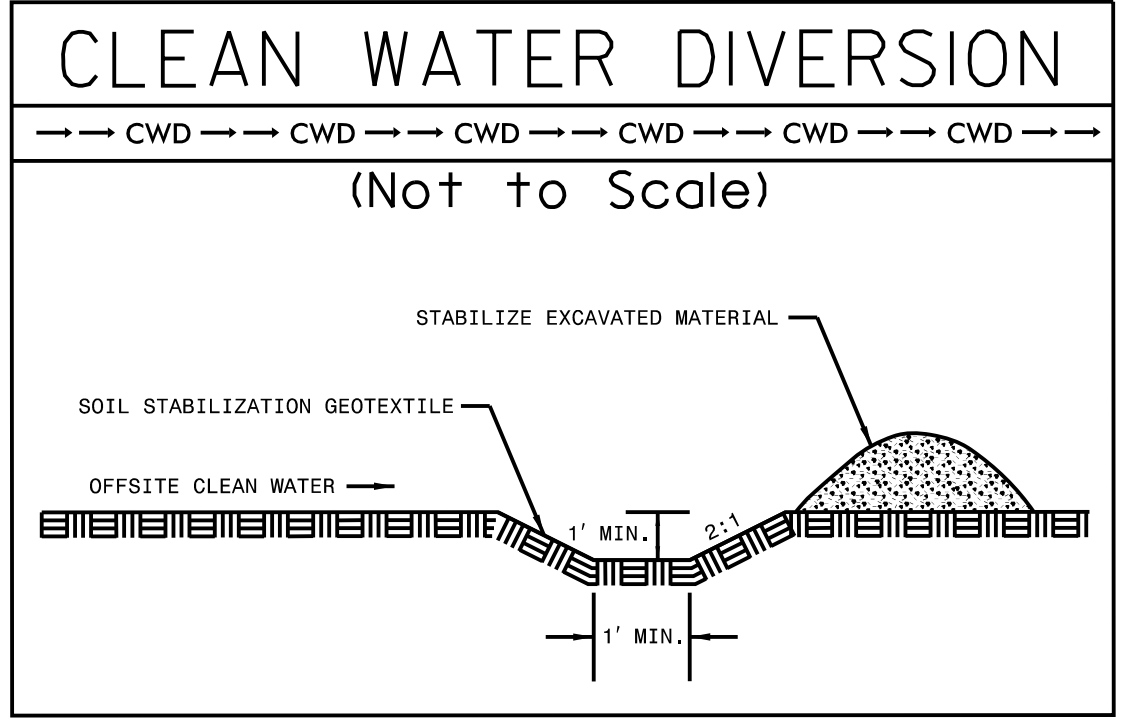
NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.



MATCHLINE -L- STA 117+00 SEE SHEET 9

MATCHLINE -L- STA 131+00 SEE SHEET 11

62 x 15 x 3  
1.5 inch Skimmer  
with 0.75 inch  
Orifice Diameter  
7 ft. weir  
ID 10.1 B




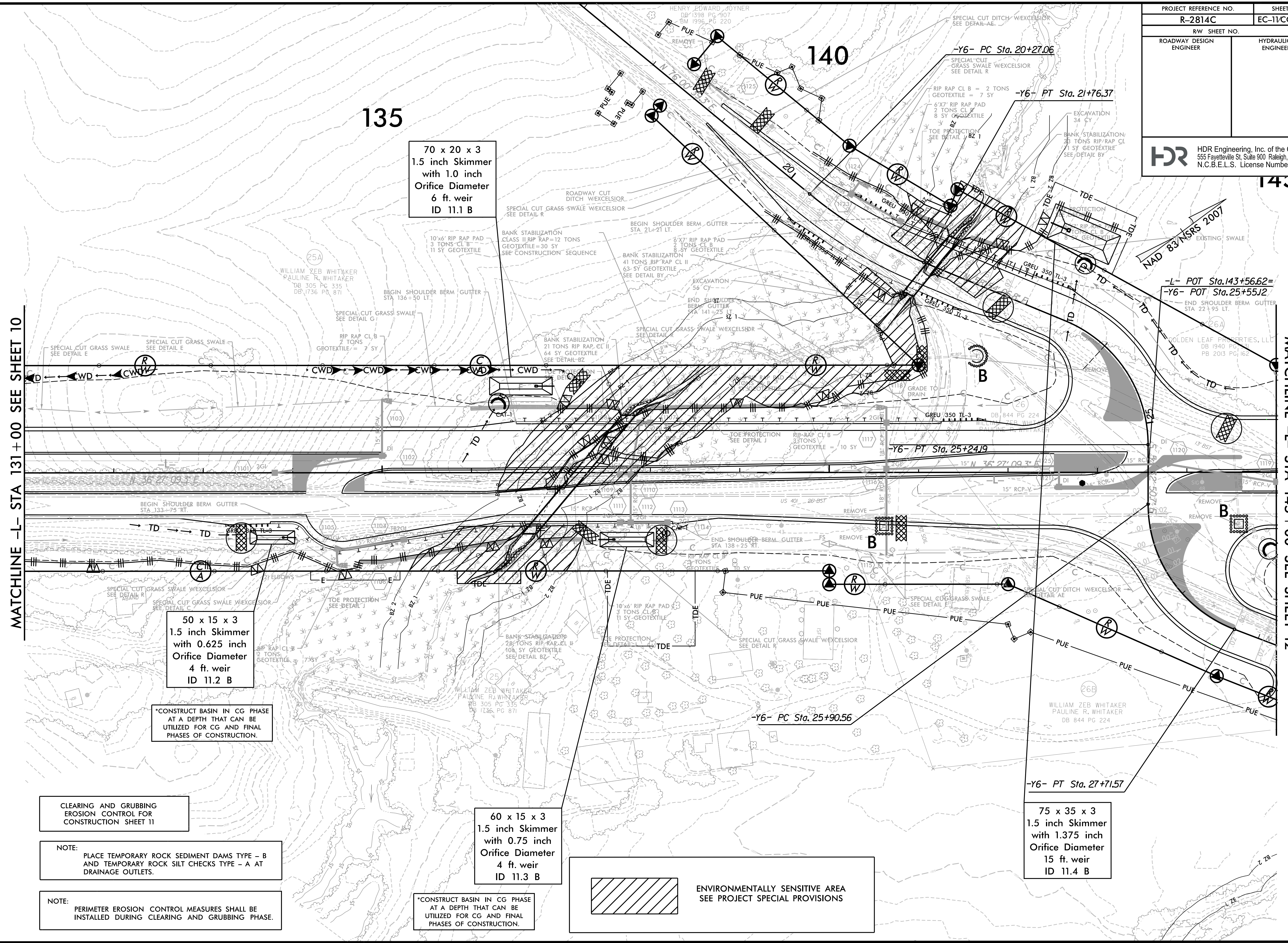
REVISIONS

RIGHT OF WAY REVISION 10-1-15 EAD:  
Parcel 25 - Changed Parcel number to 25A on Parcel 25 located left of US 401

4/6/2018  
11:24:43 AM  
R-2814C.EC.PSH.dgn



PROJECT REFERENCE NO. <b>R-2814C</b>	SHEET NO. <b>EC-11/CONST.11</b>
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 <b>HDR</b> HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



70 x 20 x 3  
1.5 inch Skimmer  
with 1.0 inch  
Orifice Diameter  
6 ft. weir  
ID 11.1 B

50 x 15 x 3  
1.5 inch Skimmer  
with 0.625 inch  
Orifice Diameter  
4 ft. weir  
ID 11.2 B

60 x 15 x 3  
1.5 inch Skimmer  
with 0.75 inch  
Orifice Diameter  
4 ft. weir  
ID 11.3 B

75 x 35 x 3  
1.5 inch Skimmer  
with 1.375 inch  
Orifice Diameter  
15 ft. weir  
ID 11.4 B

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.

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

CONSTRUCT BASIN IN CG PHASE  
AT A DEPTH THAT CAN BE  
UTILIZED FOR CG AND FINAL  
PHASES OF CONSTRUCTION.

 ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

RIGHT OF WAY REVISION 10-1-15 EAD:  
Parcel 25 - Changed Parcel Number to 26B  
Parcel 26 - Changed Parcel Number to 26A and Property owner name to Golden Leaf Properties, LLC DB 1940 PG 531

4/6/2018  
R-2814C.EC.PSH.dgn  
11:28:56 AM


MATCHLINE -L- STA 131+00 SEE SHEET 10

MATCHLINE -L- STA 145+00 SEE SHEET 12

8/17/19

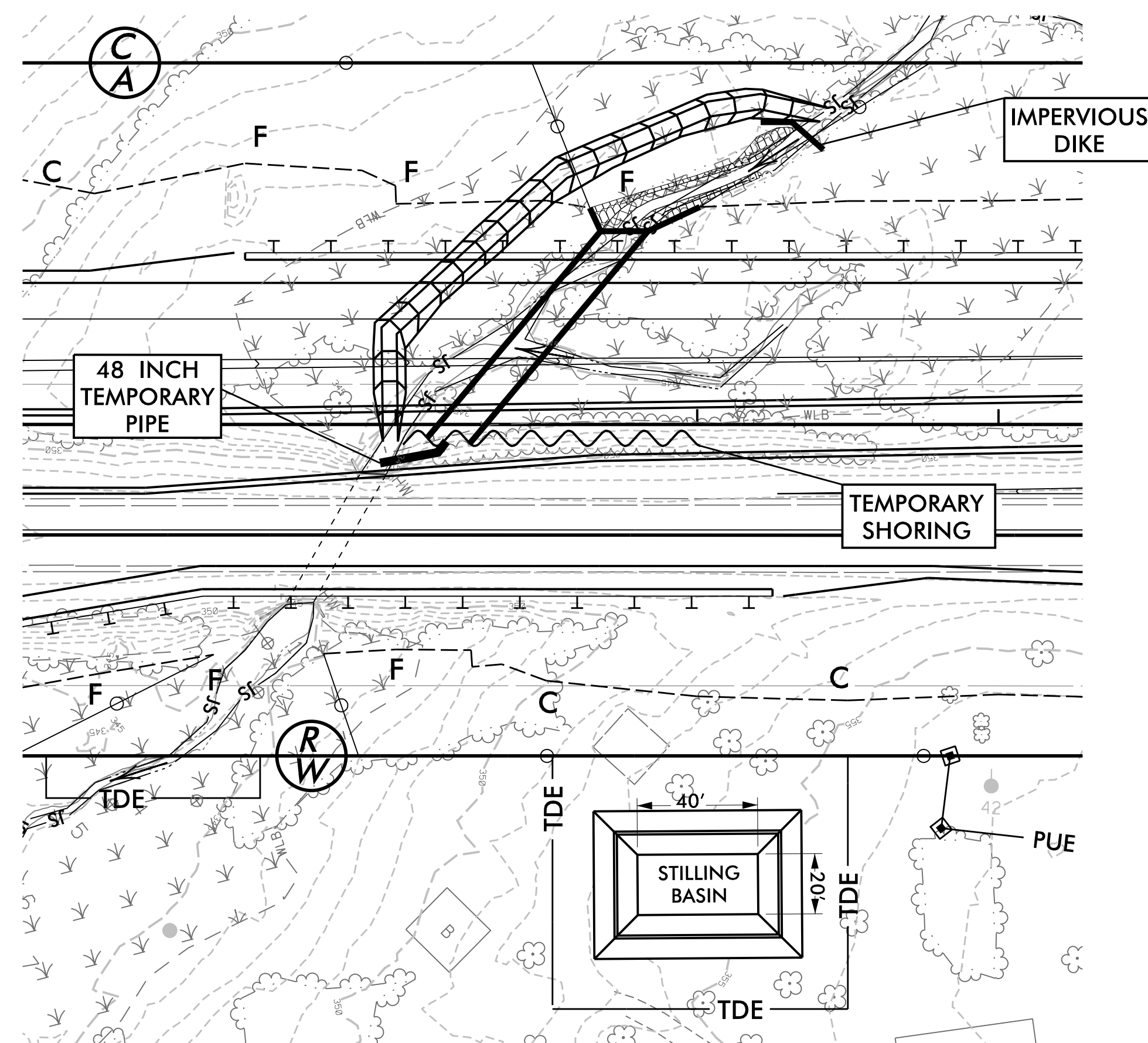


# 12'X7' RCBC CULVERT CONSTRUCTION SEQUENCE STA. 137+10 -L-

PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-IIA/CONST.II</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

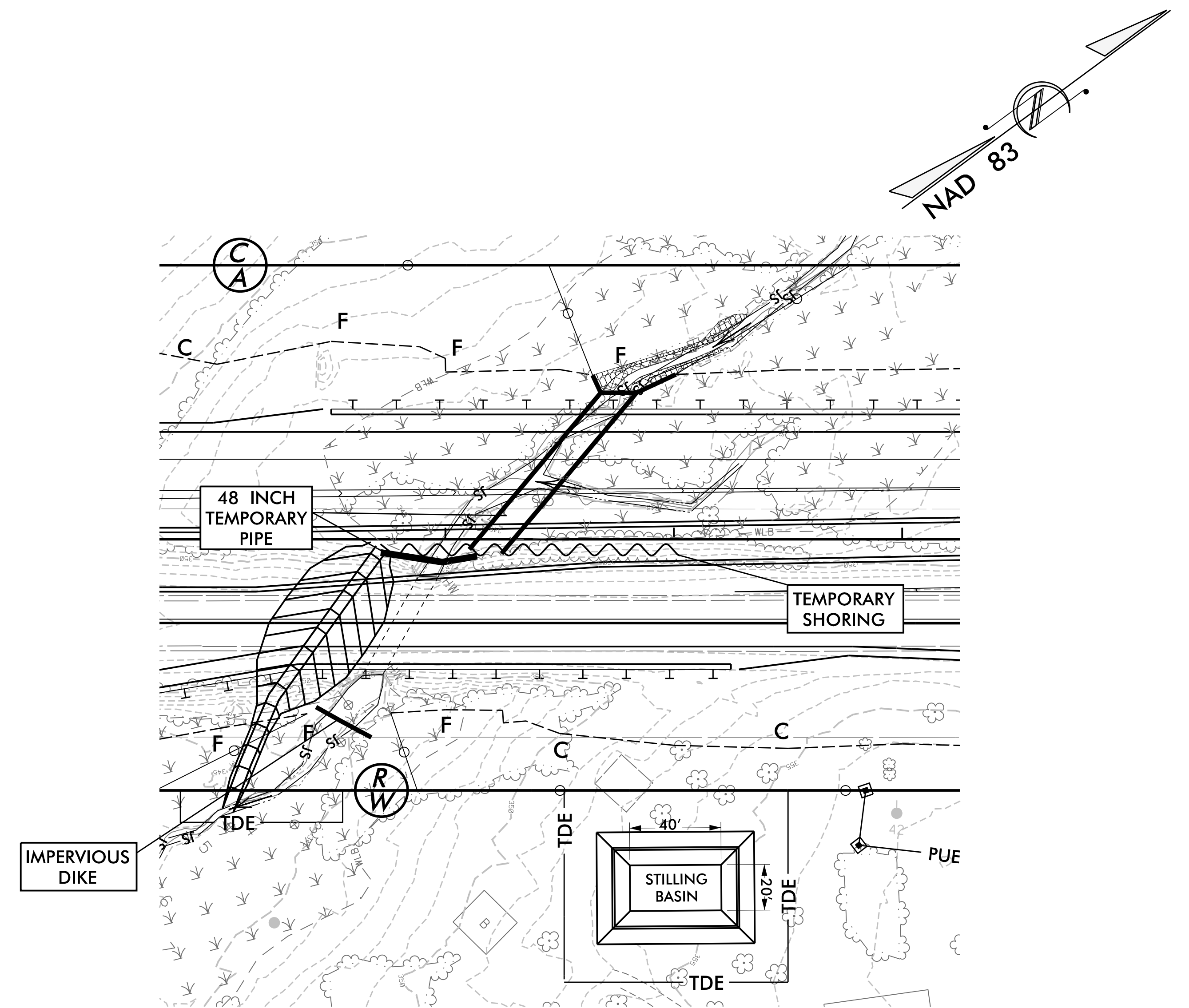
## PHASE I

1. CONSTRUCT SEDIMENT CONTROL DEVICES INCLUDING TEMPORARY STILLING BASIN (230 CUBIC YARDS MINIMUM)
2. CONSTRUCT DIVERSION CHANNEL (5' BASE WIDTH, 2:1 SIDE SLOPES, LINED WITH GEOTEXTILE FABRIC) AND TIE TO UPSTREAM SIDE OF EXISTING CULVERT.
3. CONSTRUCT PORTION OF PROPOSED CULVERT UNDER SOUTHBOUND LANES AND UPSTREAM WING WALLS AND INSTALL RIP RAP ON UPSTREAM BANKS. USE PUMP-AROUND OPERATION AS NEEDED TO DE-WATER WORK ZONE.
4. DIRECT FLOW THROUGH NEWLY CONSTRUCTED PORTION OF CULVERT. USE IMPERVIOUS DIKES AND 48" TEMPORARY PIPE TO DIRECT FLOW FROM DOWNSTREAM END OF NEWLY CONSTRUCTED PORTION OF CULVERT TO UPSTREAM END OF EXISTING CULVERT.
5. FILL IN CHANNEL DIVERSION AND BUILD SOUTHBOUND LANES OVER NEWLY CONSTRUCTED PORTION OF CULVERT.




## PHASE II

1. DIVERT THE TRAFFIC ONTO NEWLY CONSTRUCTED SOUTHBOUND LANES
2. CONSTRUCT DIVERSION CHANNEL (5' BASE WIDTH, 2:1 SIDE SLOPES, LINED WITH GEOTEXTILE FABRIC).
3. DIRECT FLOW FROM UPSTREAM PORTION OF NEWLY CONSTRUCTED CULVERT TO DIVERSION CHANNEL USING 48" TEMPORARY PIPE.
4. REMOVE EXISTING 8'X5' RCBC AND WING WALLS.



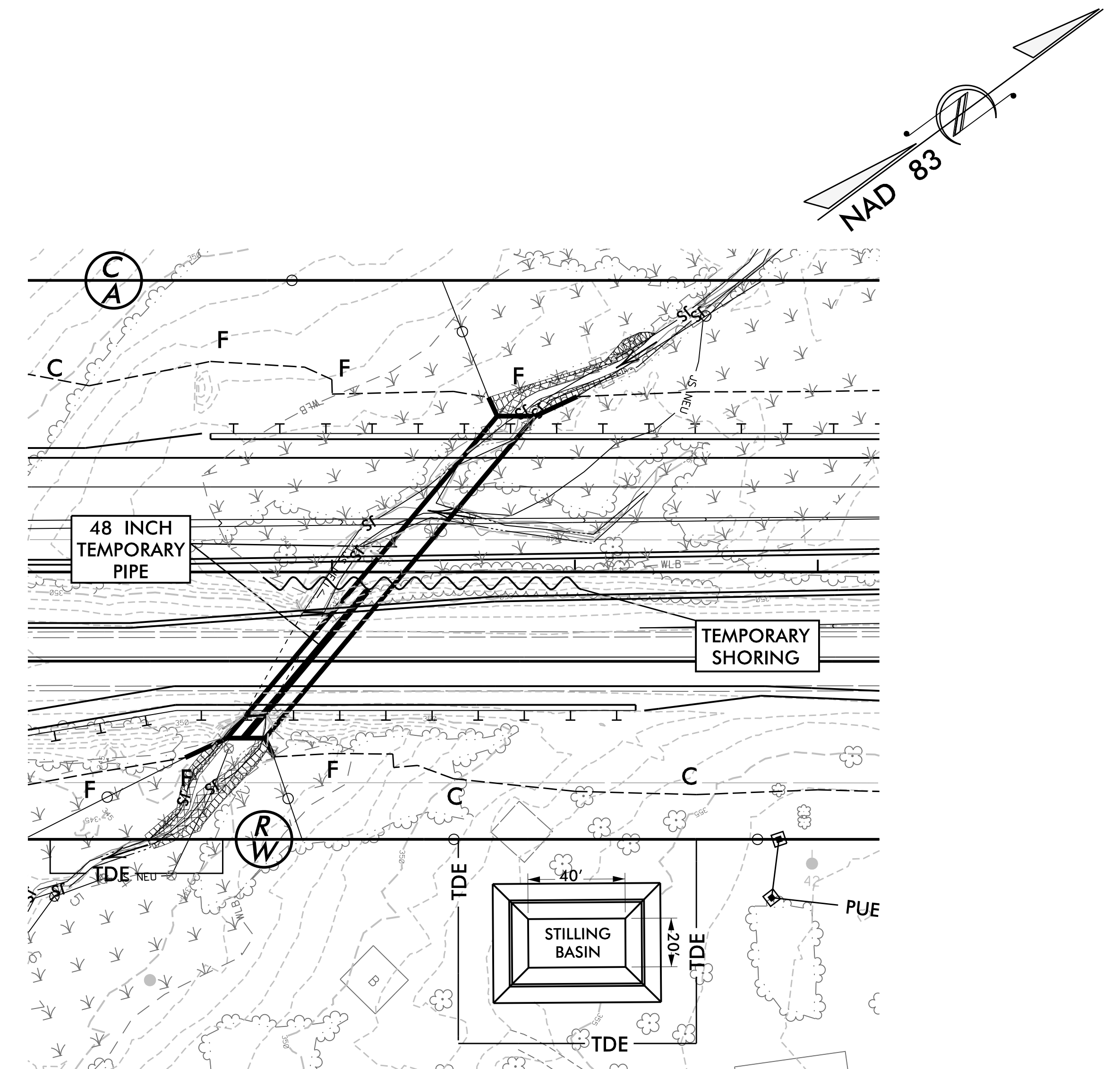


# 12'X7' RCBC CULVERT CONSTRUCTION SEQUENCE STA. 137+10 -L-

PROJECT REFERENCE NO. <i>R-2814C</i>		SHEET NO. <i>EC-11B/CONST.II</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			


## PHASE III

1. CONSTRUCT THE BOTTOM SLAB OF THE PROPOSED 12'X7'RCBC UNDER NORTHBOUND LANES AND MOVE THE 48" TEMP. PIPE TO THIS PROPOSED RCBC.
4. CONSTRUCT REMAINING PORTION OF THE PROPOSED RCBC WITH WING WALLS
5. CONSTRUCT BANK STABILIZATION AND INSTALL RIP RAP DOWNSTREAM
6. REMOVE THE TEMPORARY DIVERSION PIPES AND IMPERVIOUS DIKES TO ESTABLISH THE FLOW THROUGH NEWLY CONSTRUCTED CULVERT
7. BUILD NORTHBOUND LANES AND MOVE TRAFFIC INTO FINAL CONFIGURE
8. REMOVE EROSION CONTROL DEVICES

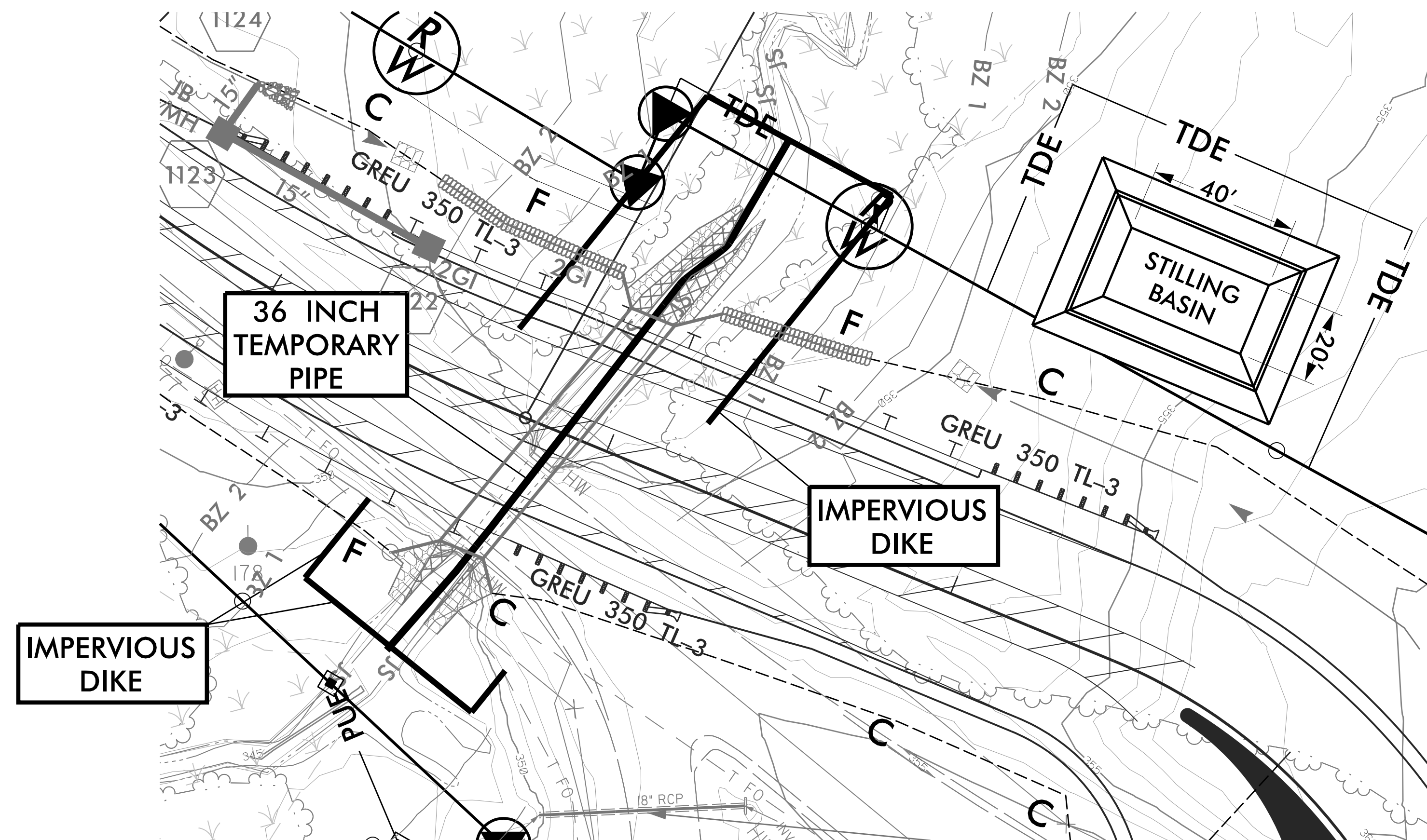
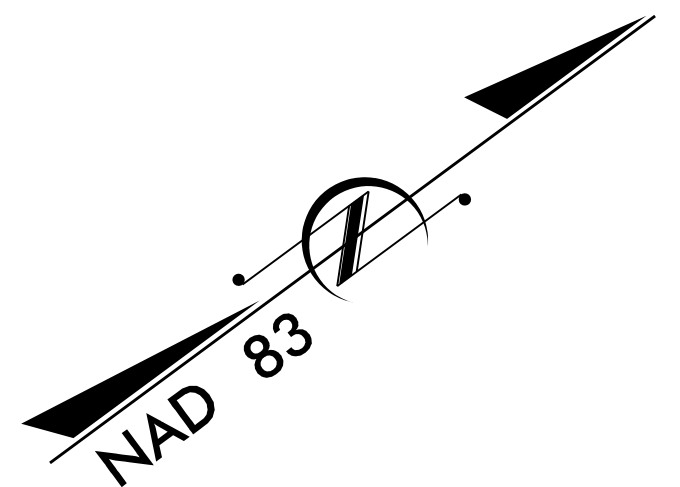





# 12'X7' RCBC CULVERT CONSTRUCTION SEQUENCE STA. 21+86 -Y6-

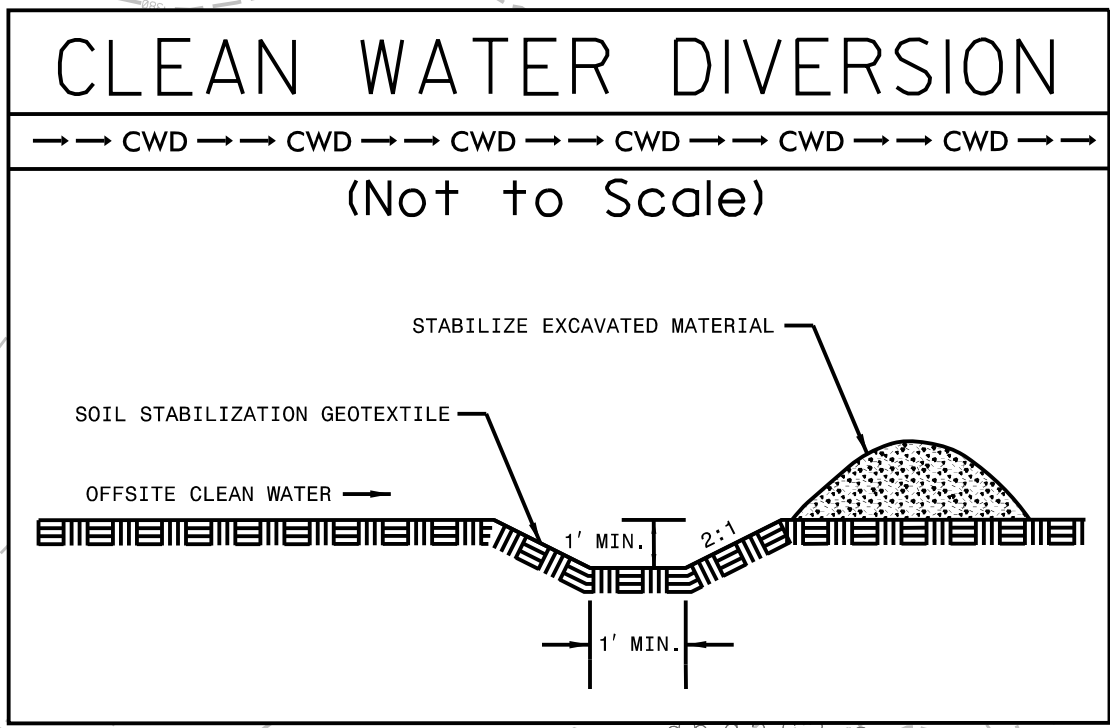
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

1. CLOSE THE ROAD
2. CONSTRUCT SEDIMENT CONTROL DEVICES, INCLUDING TEMPORARY STILLING BASIN (210 CUBIC YARDS MINIMUM)
3. INSTALL A 36" MIN. TEMPORARY DIVERSION PIPE AND TEMPORARY IMPERVIOUS DIKES UPSTREAM & DOWNSTREAM OF THE PROPOSED 12'X7' RCBC AS SHOWN ON THE PLAN
4. REMOVE EXISTING 6'X5' RCBC & WING WALLS
5. CONSTRUCT THE PROPOSED 12'X7' RCBC WITH WING WALLS
6. CONSTRUCT BANK STABILIZATION & INSTALL RIPRAP UPSTREAM & DOWNSTREAM
7. REMOVE THE TEMPORARY DIVERSION PIPES AND IMPERVIOUS DIKES TO ESTABLISH THE FLOW THROUGH NEWLY CONSTRUCTED CULVERT
8. REMOVE EROSION CONTROL DEVICES
9. BUILD THE ROAD & OPEN FOR TRAFFIC





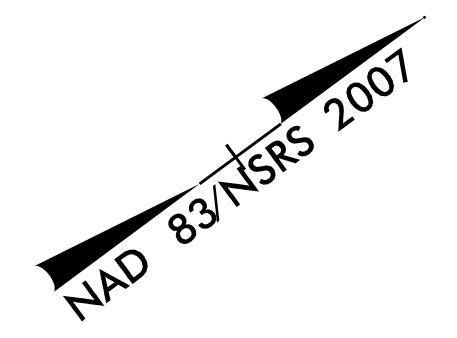
PROJECT REFERENCE NO. R-2814C	SHEET NO. EC-12/CONST.12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



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.

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



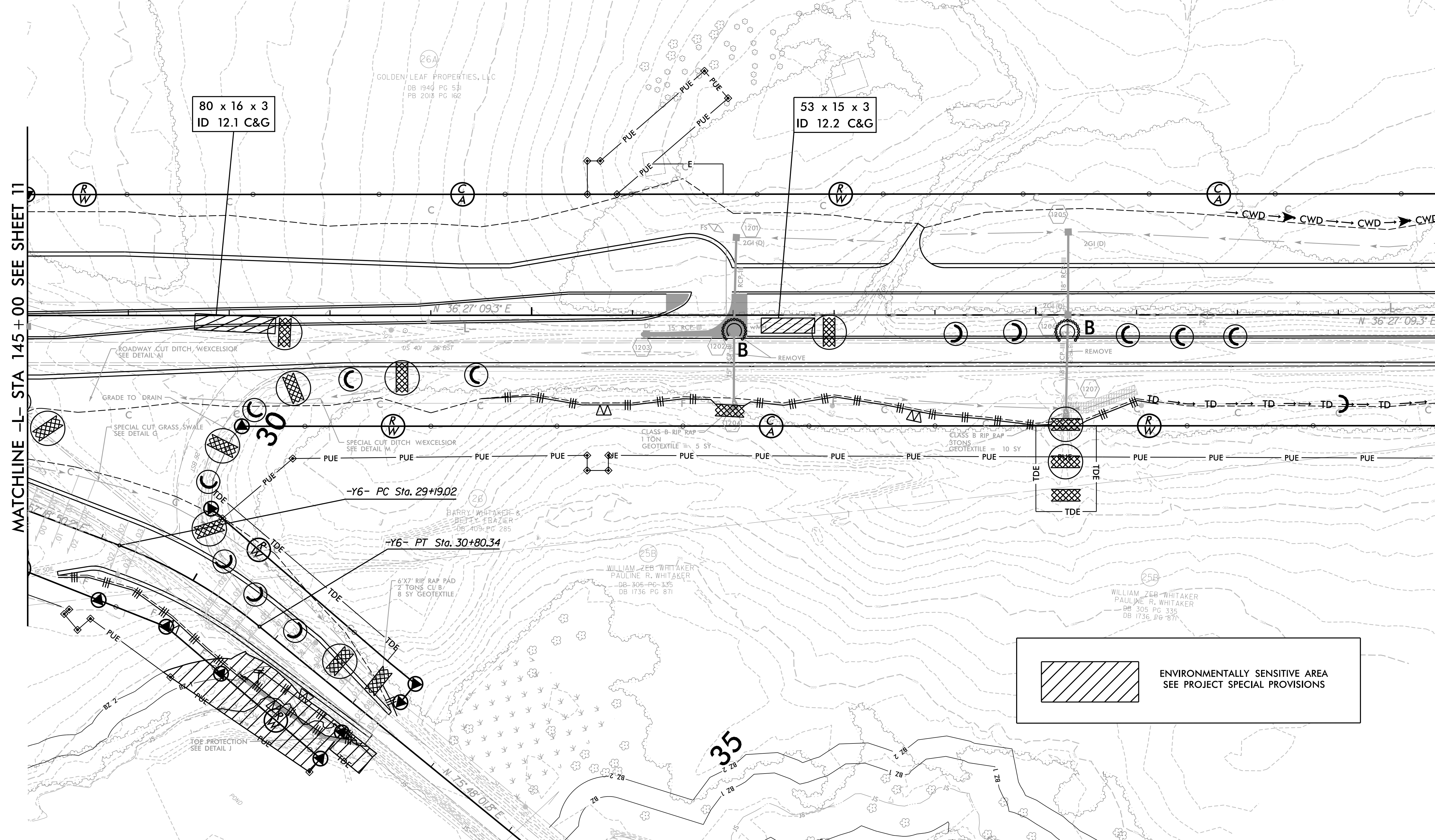
145

150

155

MATCHLINE -L- STA 145+00 SEE SHEET 11

MATCHLINE -L- STA 159+00 SEE SHEET 13



80 x 16 x 3  
ID 12.1 C&G

53 x 15 x 3  
ID 12.2 C&G

 ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS


REVISIONS

Right of Way Revision 10-1-15 EAD:  
Parcel 25 - Changed Parcel number to 25B

4/6/2018  
R-2814C.EC.PSH.dgn  
11:21:07 AM

8/17/99



PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-13/CONST.13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

160

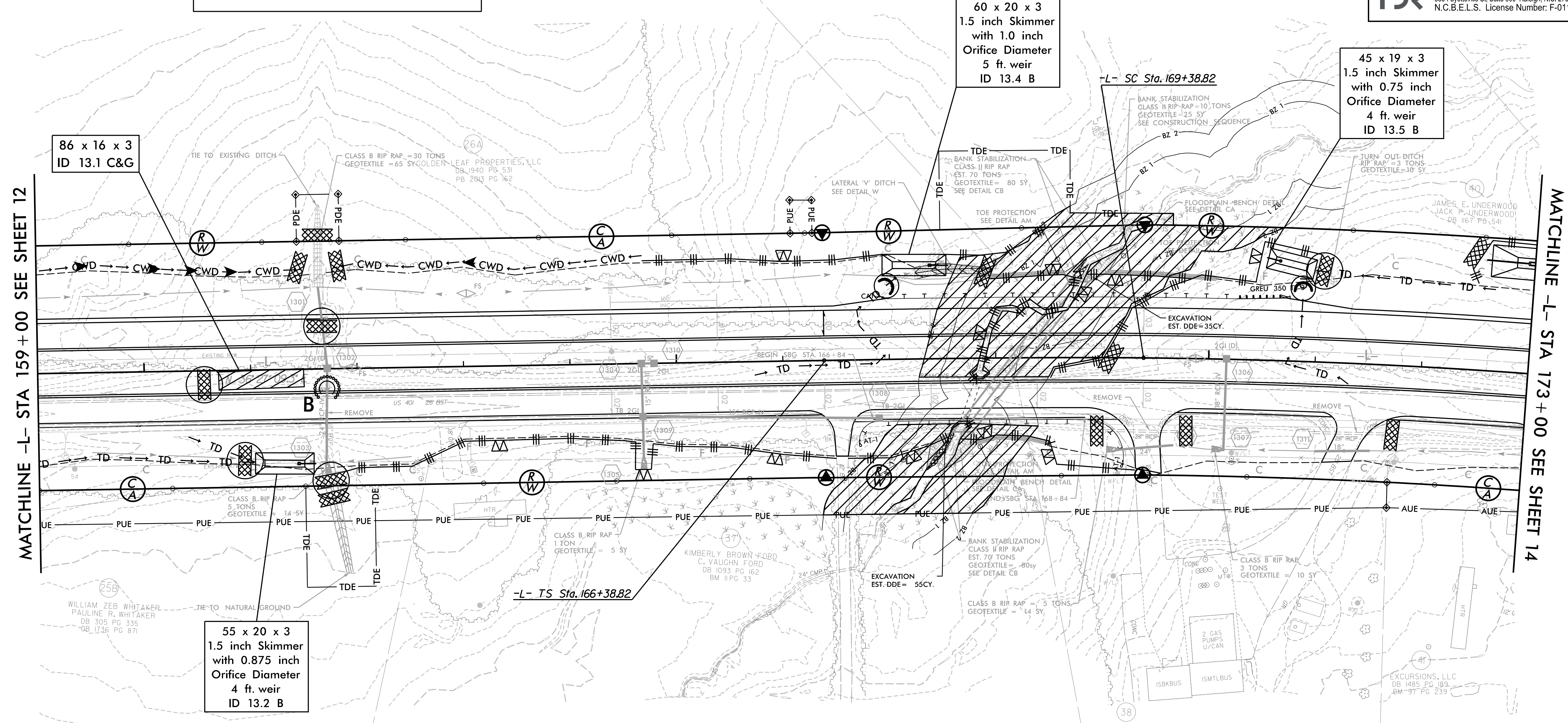
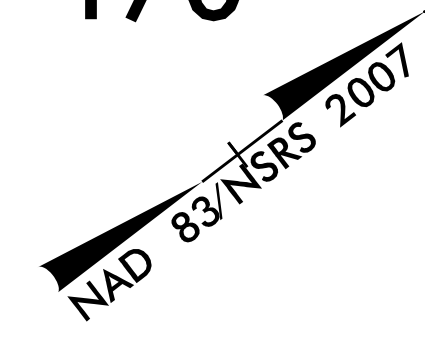
165

170

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.

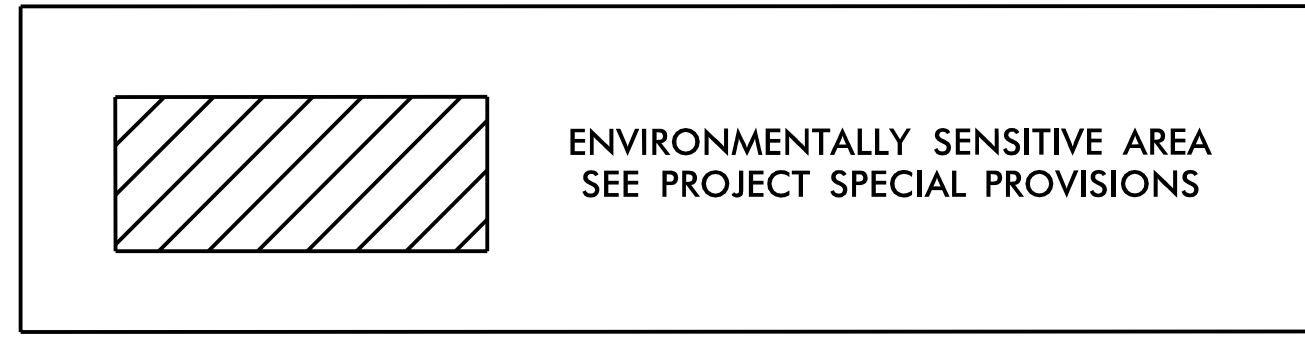
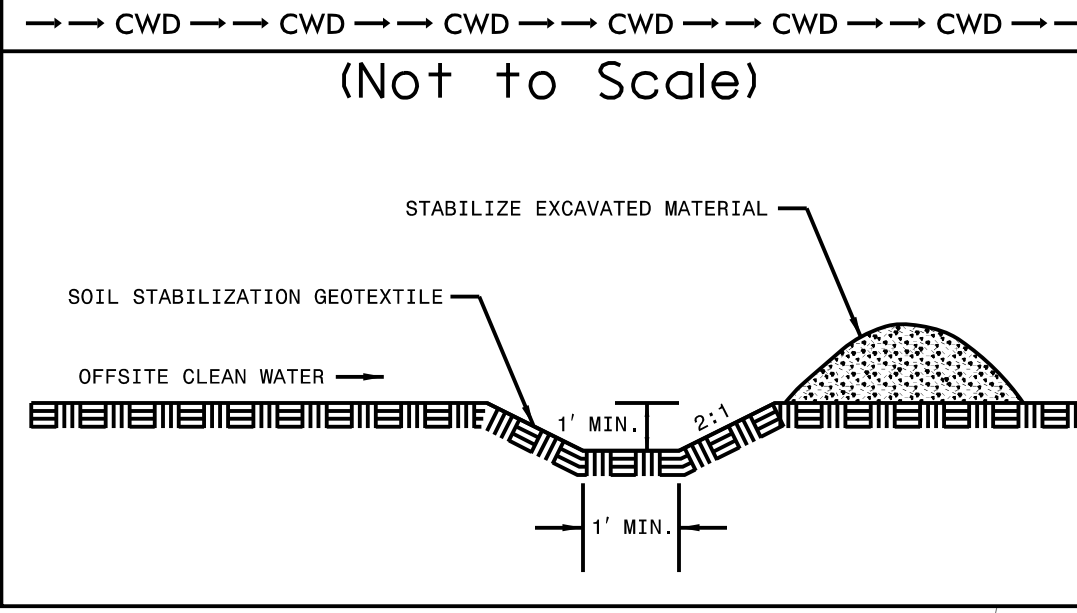
NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.



MATCHLINE -L- STA 159+00 SEE SHEET 12

MATCHLINE -L- STA 173+00 SEE SHEET 14

**CLEAN WATER DIVERSION**




REVISIONS  
Right of Way Revision 03-14-16 EAD, Parcel 41 - Removed PUE and replaced with AUE.

4/6/2018  
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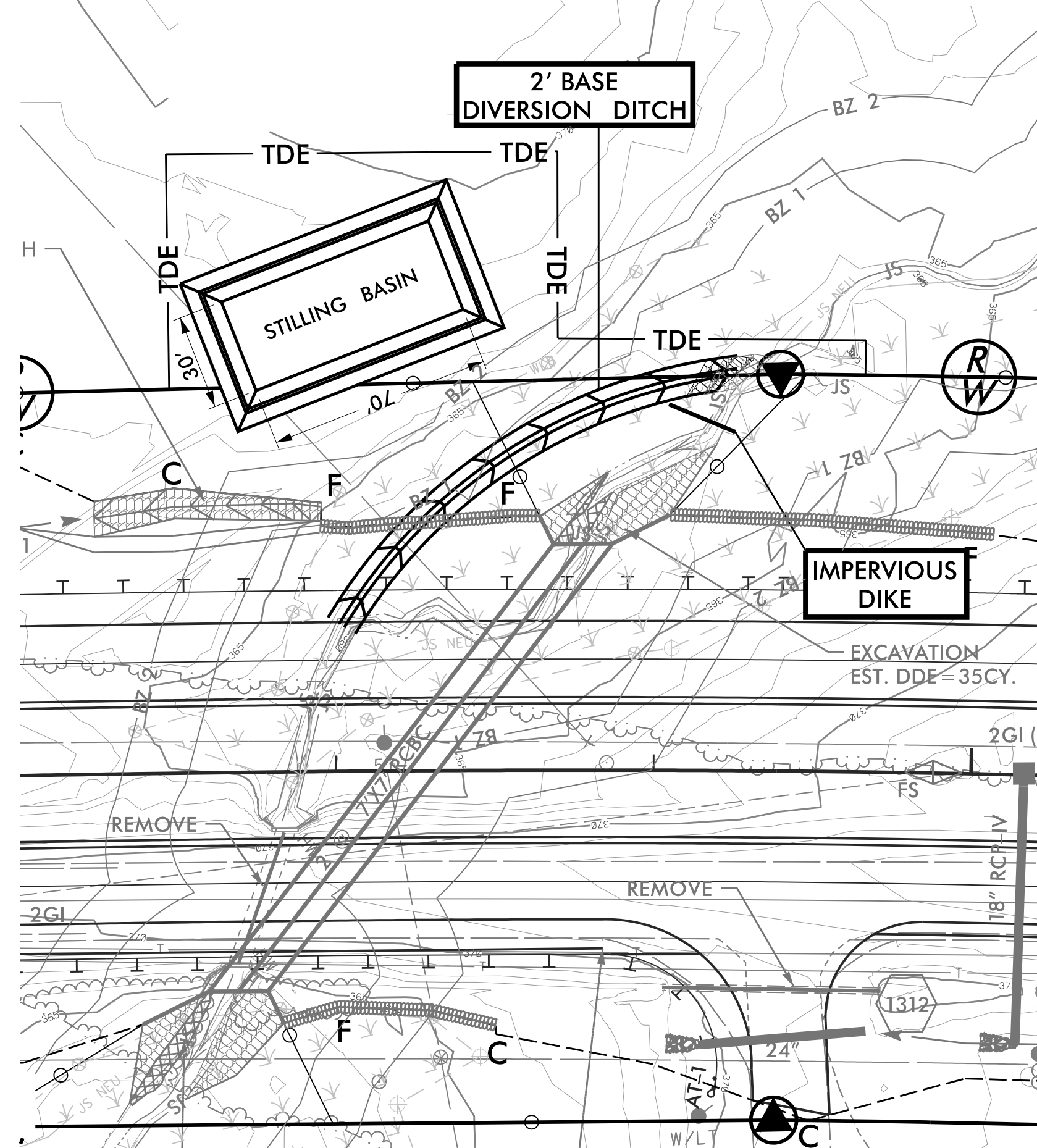
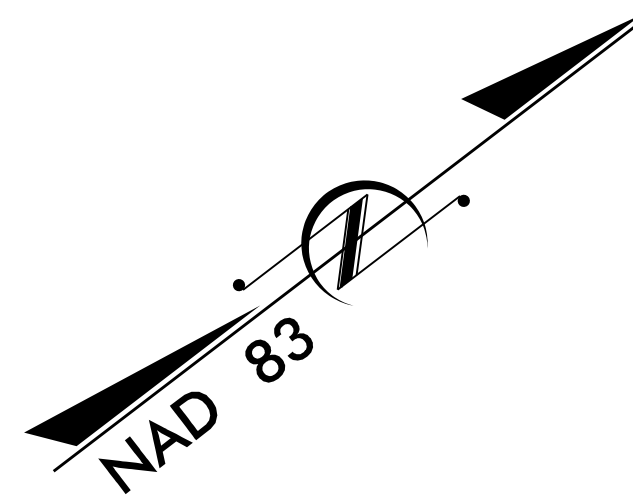
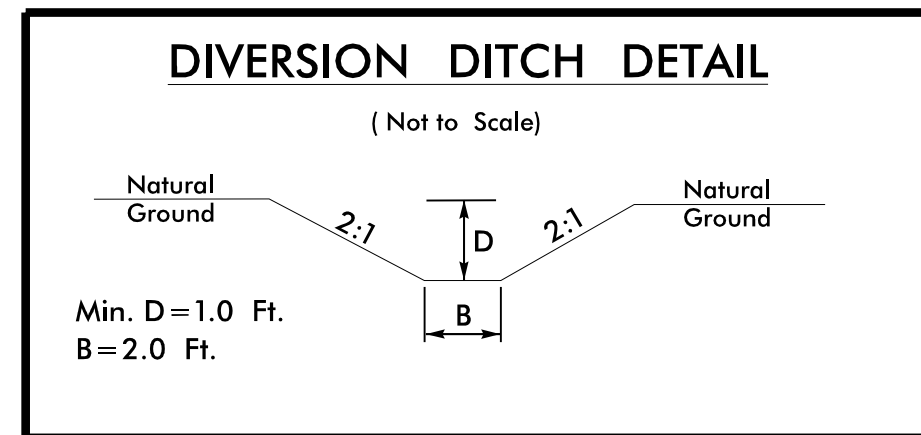


# 7'X7' RCBC CULVERT CONSTRUCTION SEQUENCE STA. 168+21 -L-

PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-13A/CONSTJ3</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

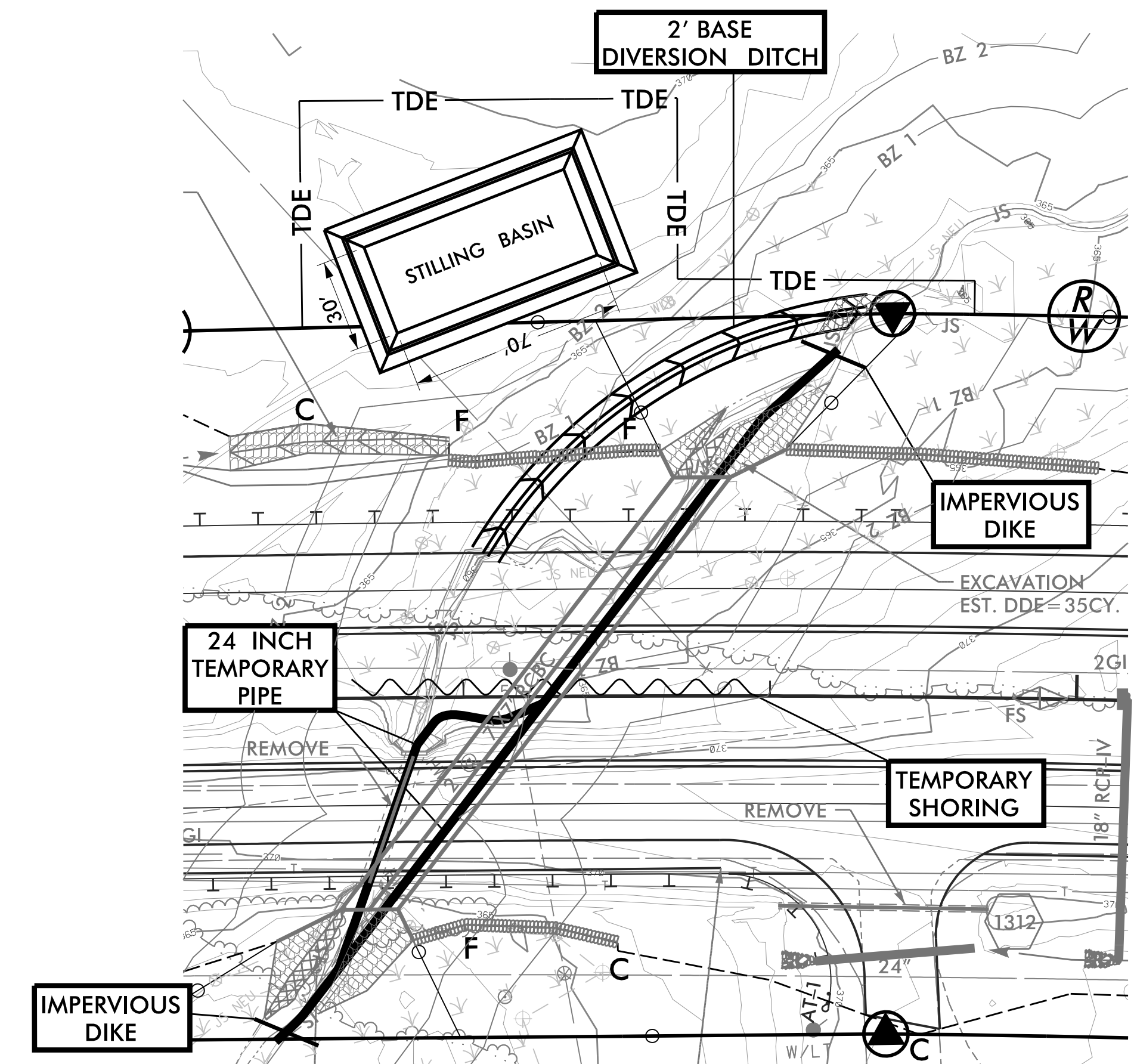
## PHASE I

1. CONSTRUCT SEDIMENT CONTROL DEVICES, INCLUDING TEMPORARY STILLING BASIN (160 CUBIC YARDS MINIMUM)
2. CONSTRUCT 2' BASE DIVERSION DITCH (UPSTREAM)
3. INSTALL IMPERVIOUS DIKE (UPSTREAM) AND DIVERT FLOW
4. CONSTRUCT APPROXIMATELY 100' OF PROPOSED RCBC UNDER SOUTHBOUND LANES, INCLUDING WING WALLS, SILLS, AND BANK STABILIZATION



## PHASE II

1. INSTALL 24" MINIMUM TEMPORARY DIVERSION PIPE THROUGH THE CONSTRUCTED CULVERT UNDER SOUTHBOUND LANES, DISCHARGING INTO EXISTING RCBC AS SHOWN ON THE PLAN
2. FILL TEMPORARY DIVERSION DITCH WITH CLASS-II RIP RAP AT UPSTREAM END AS BANK STABILIZATION AND NATIVE MATERIAL IN REMAINING DITCH TO FILL SLOPE
3. INSTALL SHORING
4. BUILD SOUTHBOUND LANES
5. DIVERT TRAFFIC ONTO NEWLY CONSTRUCTED SOUTHBOUND LANES
6. INSTALL IMPERVIOUS DIKE (DOWNSTREAM) AND EXTEND TEMPORARY 24" PIPE THROUGH THE EXISTING CULVERT AS SHOWN ON THE PLAN
7. DIVERT THE FLOW THROUGH THIS DIVERSION PIPE AND REMOVE EXISTING CULVERT
8. EXCAVATE FOR AND COMPLETE CONSTRUCTION OF BOTTOM SLABS OF PROPOSED RCBC UNDER NORTHBOUND LANES
9. MOVE 24" TEMPORARY DIVERSION PIPE THROUGH EXISTING RCBC TO PROPOSED RCBC UNDER NORTHBOUND LANES AND COMPLETE CONSTRUCTION OF PROPOSED SOUTHBOUND LANES, INCLUDING WING WALLS AND SILLS
10. CONSTRUCT BANK STABILIZATION AND INSTALL RIP RAP UPSTREAM AND DOWNSTREAM
11. REMOVE EROSION CONTROL DEVICES.




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 USER: wyeiver+  
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 TIME: 2:40:11 PM  
 DATE: 4/6/2018







PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-15/CONST.15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 15

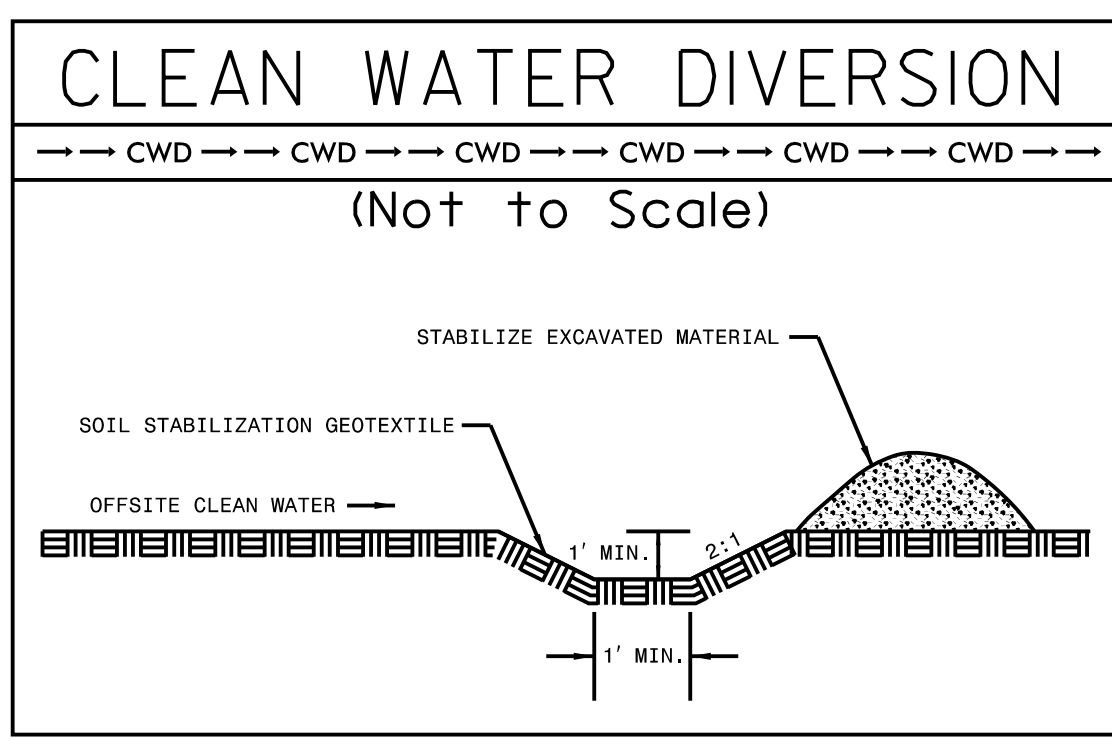
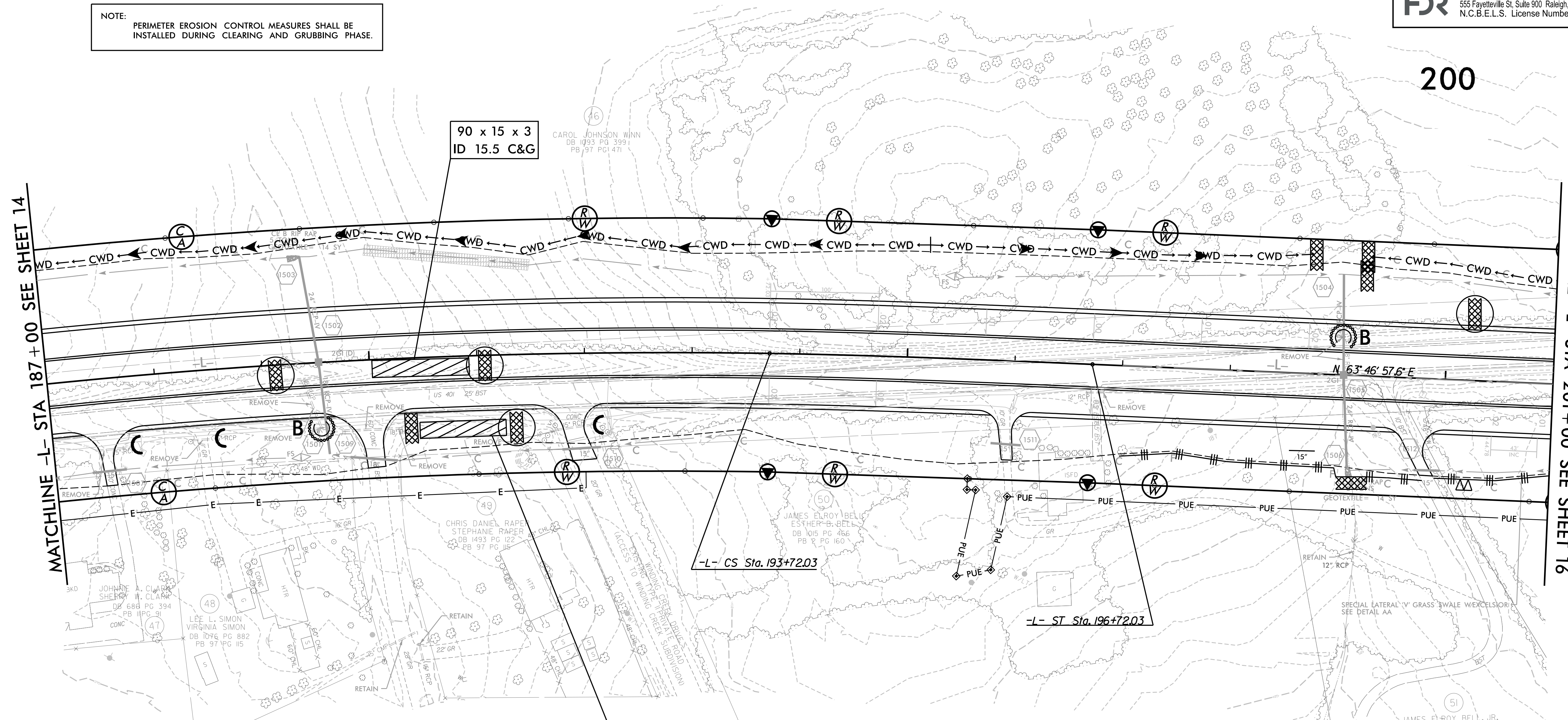
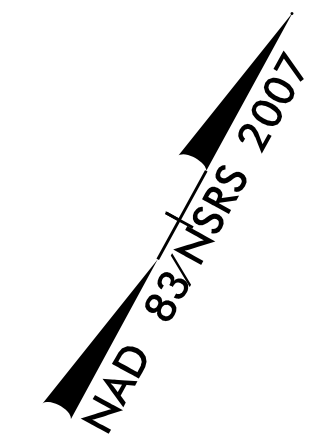
190

195

200

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.




REVISIONS

RIGHT OF WAY REVISION 07-30-15 BDK:  
Parcel 50 - PUE revised for pole and overhead lines

8/17/99

4/6/2018  
11:24:42 AM  
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PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-16/CONST.16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 16

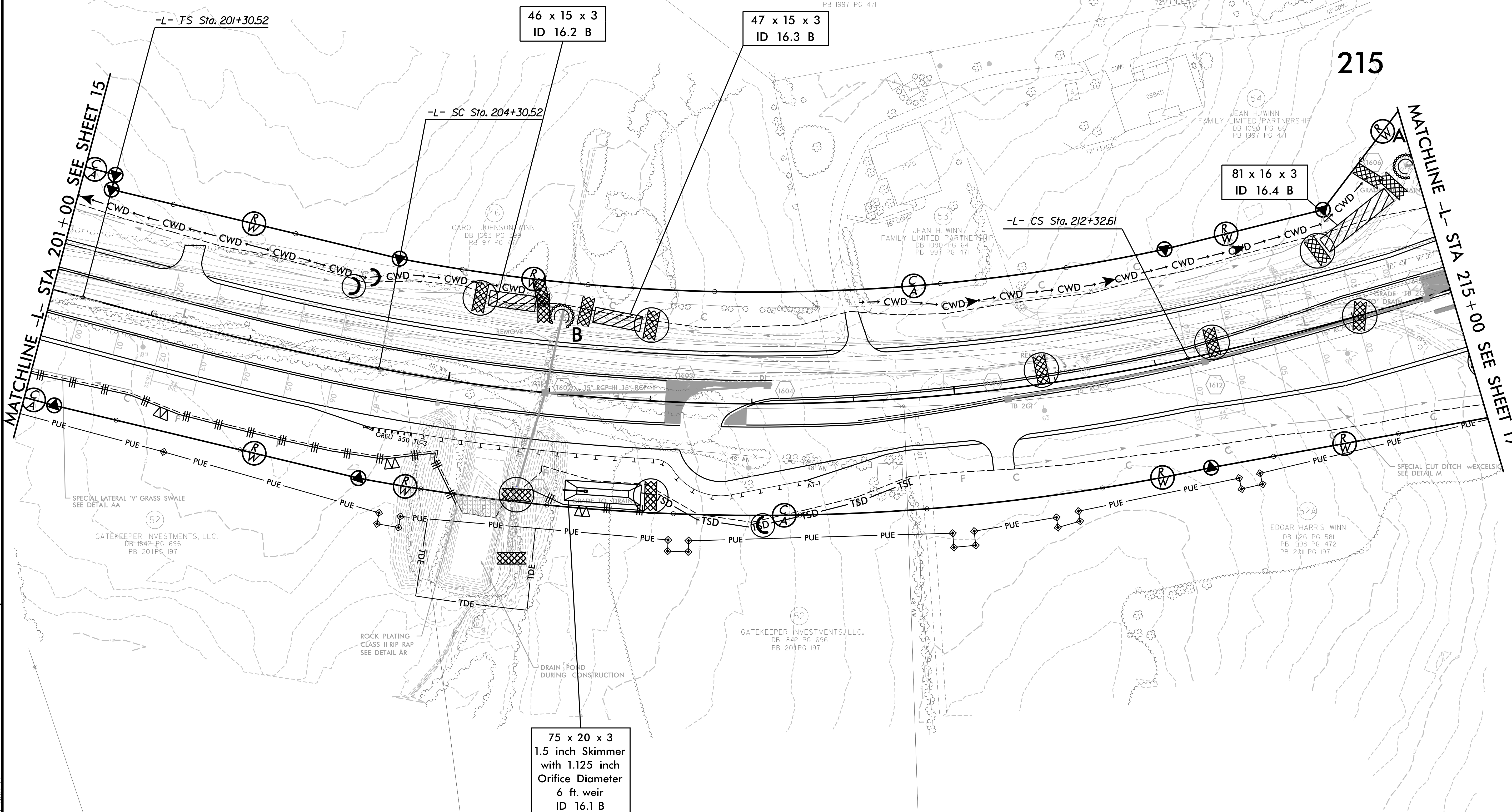
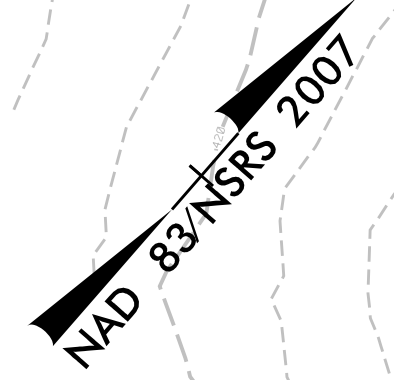
NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.

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

205

210

215




REVISIONS

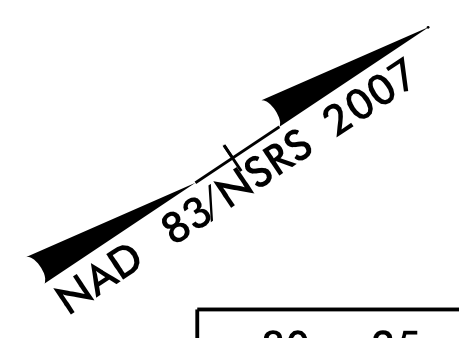
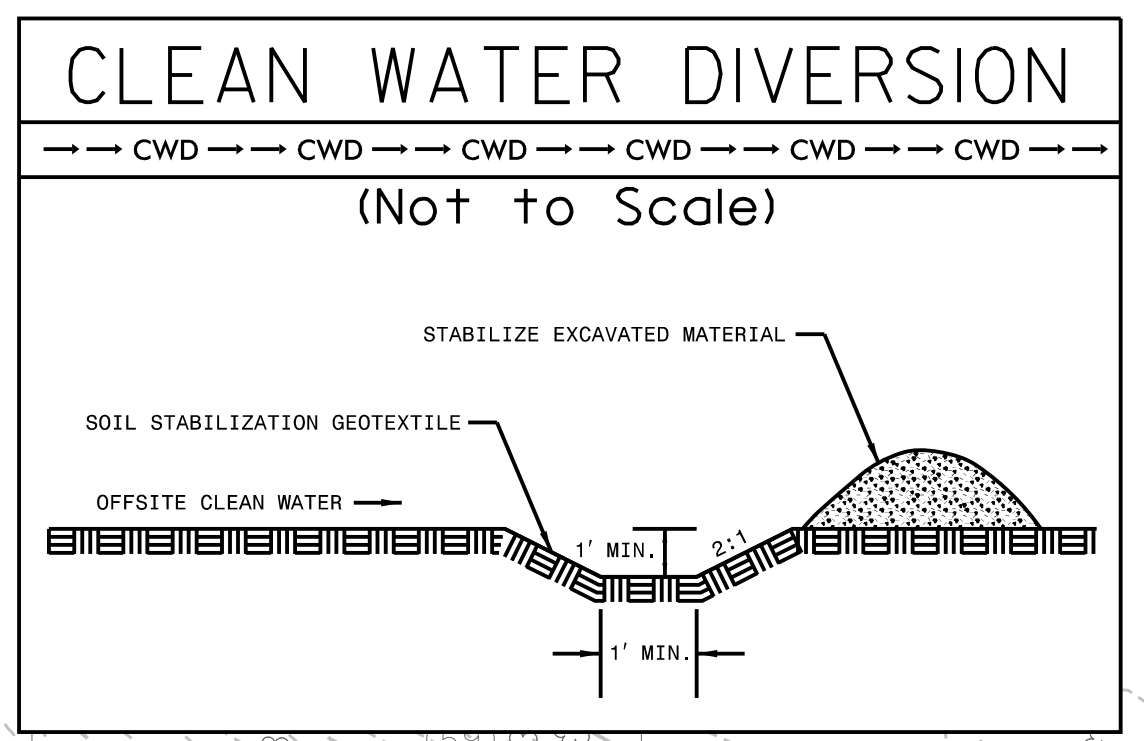
Right of Way Revision 6-02-16 EAD:  
Parcel 52 - Added Driveway Access Point  
Parcel 52A - Shifted Driveway Access Point and Driveway.

4/6/2018  
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11:24:33 AM

8/17/99

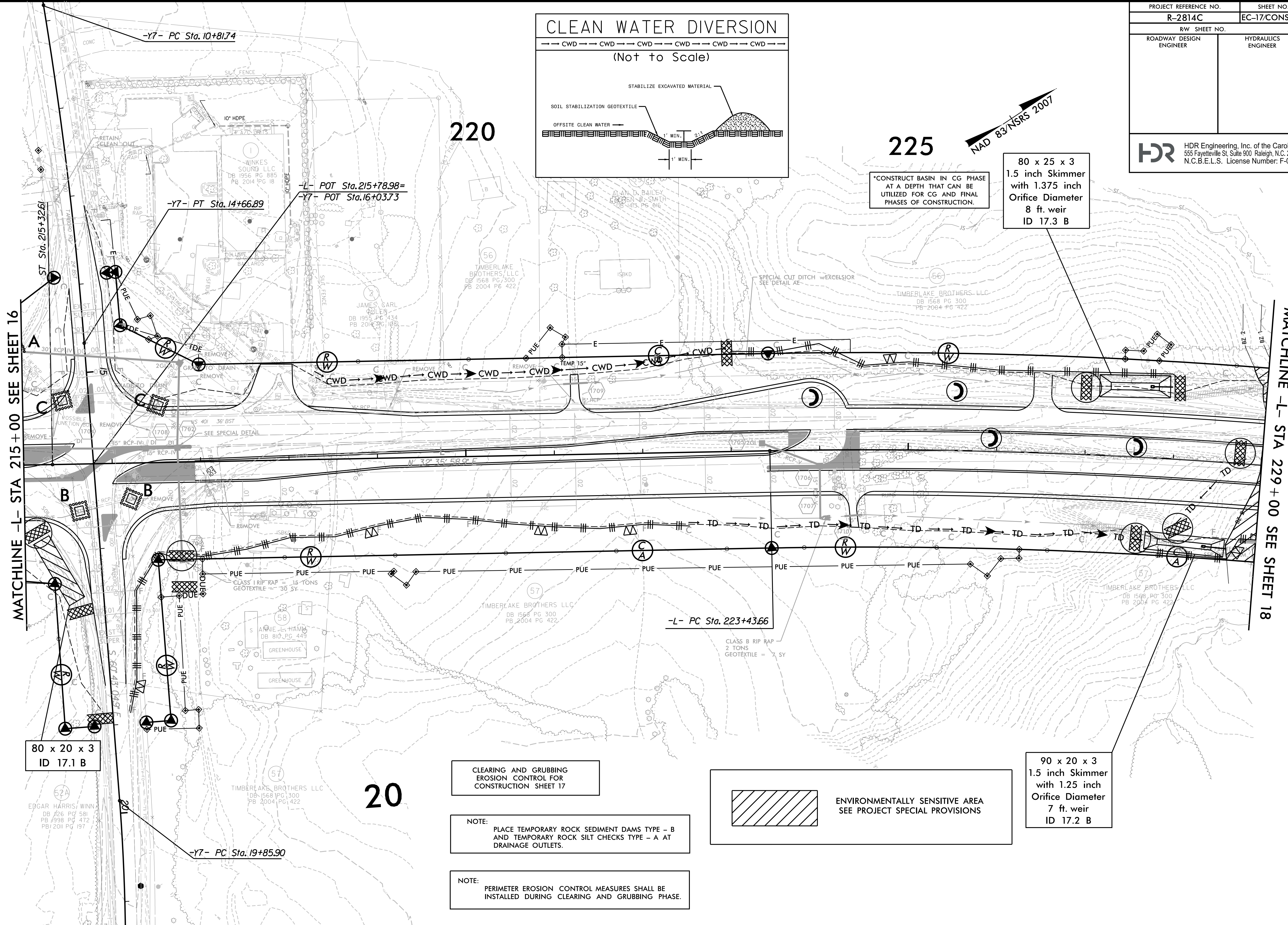


PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-17/CONST.17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



\*CONSTRUCT BASIN IN CG PHASE AT A DEPTH THAT CAN BE UTILIZED FOR CG AND FINAL PHASES OF CONSTRUCTION.

80 x 25 x 3  
1.5 inch Skimmer  
with 1.375 inch  
Orifice Diameter  
8 ft. weir  
ID 17.3 B



MATCHLINE -L- STA 215 + 00 SEE SHEET 16

MATCHLINE -L- STA 229 + 00 SEE SHEET 18

80 x 20 x 3  
ID 17.1 B

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 17

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

90 x 20 x 3  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
7 ft. weir  
ID 17.2 B


Right of Way Revision 10-26-15 EAD:  
Parcel 52B - Changed Parcel number to 52A

REVISIONS

4/6/2018  
R-2814C.EC.PSH.dgn  
11:38:03 AM

8/17/99

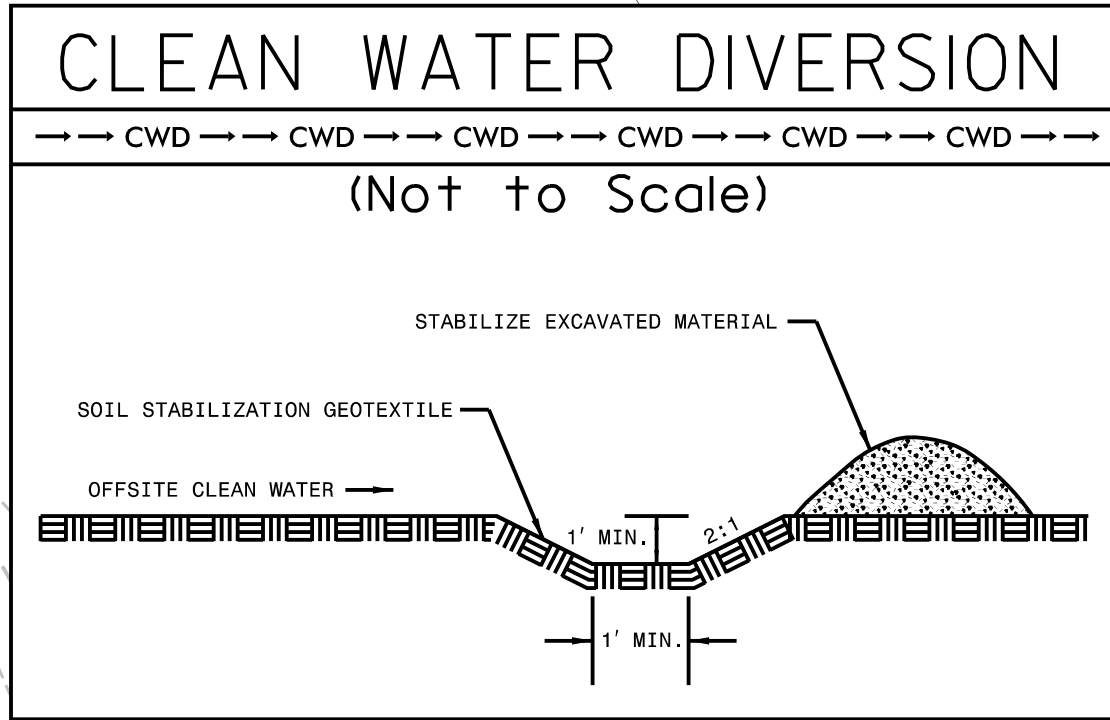


PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-18/CONST.18
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

230

235

240



65 x 20 x 3  
1.5 inch Skimmer  
with 1.0 inch  
Orifice Diameter  
5 ft. weir  
ID 18.4 B

50 x 15 x 3  
1.5 inch Skimmer  
with 0.625 inch  
Orifice Diameter  
4 ft. weir  
ID 18.5 B

60 x 20 x 3  
1.5 inch Skimmer  
with 1.0 inch  
Orifice Diameter  
5 ft. weir  
ID 18.6 B

42 x 21 x 3  
1.5 inch Skimmer  
with 0.75 inch  
Orifice Diameter  
4 ft. weir  
ID 18.1 B

120 x 20 x 3  
1.5 inch Skimmer  
with 1.0 inch  
Orifice Diameter  
12 ft. weir  
ID 18.3 B

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.

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



MATCHLINE -L- STA 229+00 SEE SHEET 17

MATCHLINE -L- STA 243+00 SEE SHEET 19

REVISIONS

RIGHT OF WAY REVISION 10-26-15 EAD:  
Parcel 63 - PUE removed


4/6/2018  
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11:30:14 AM

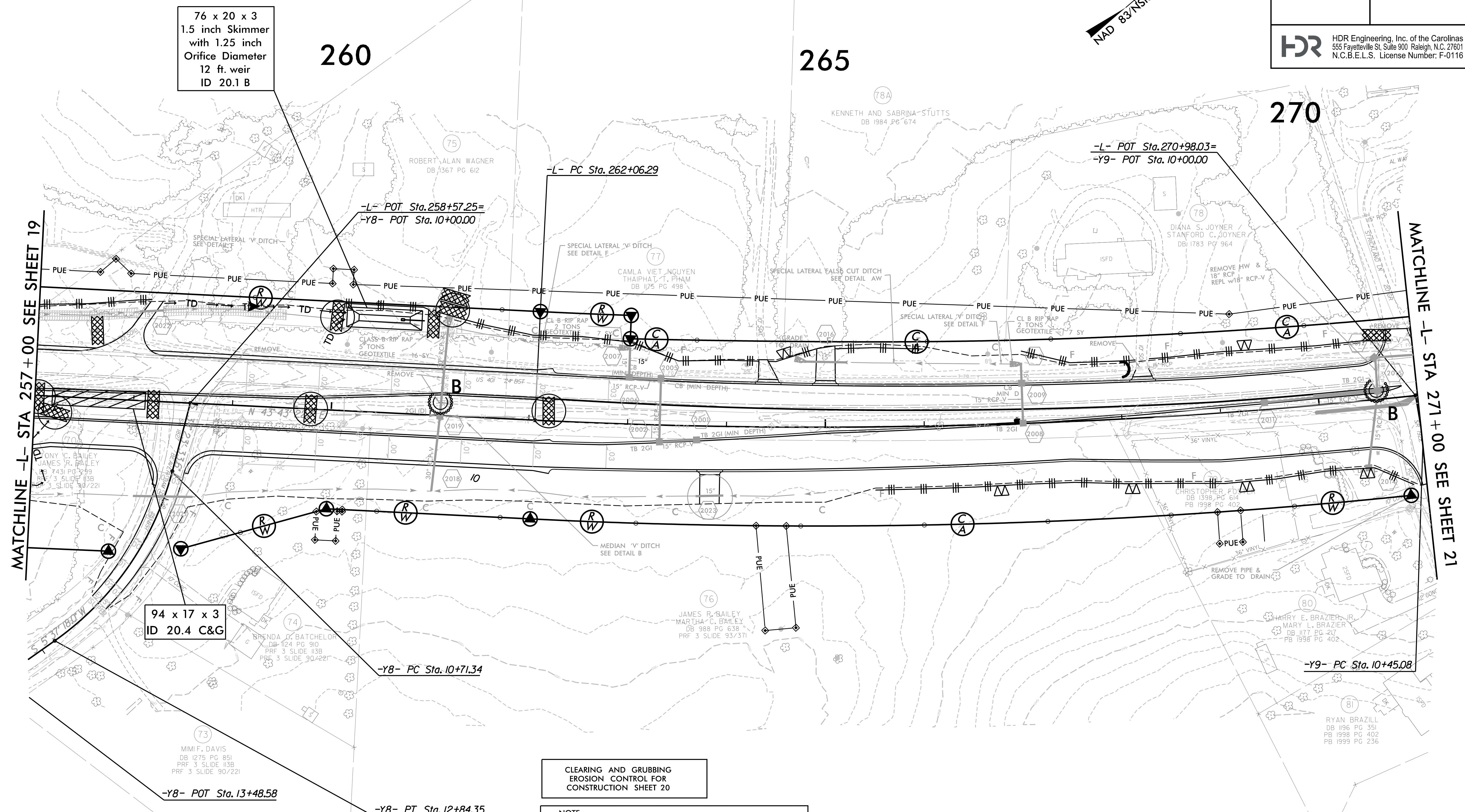
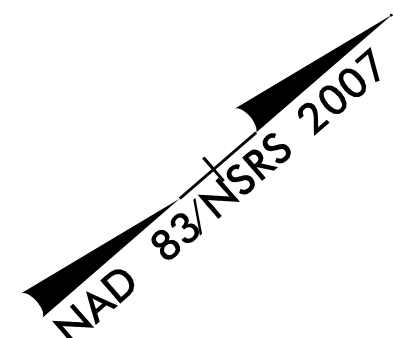
8/17/99







PROJECT REFERENCE NO.		SHEET NO.	
R-2814C		EC-20/CONST.20	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			



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.

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

REVISIONS  
 Right of Way Revision 03-14-16 EAD.  
 Parcel 77 Modified the access point.  
 Parcel 78A - Added new driveway and modified the access point at -L- Sta. 265+00.00 LT


8/17/99  
 4/6/2018  
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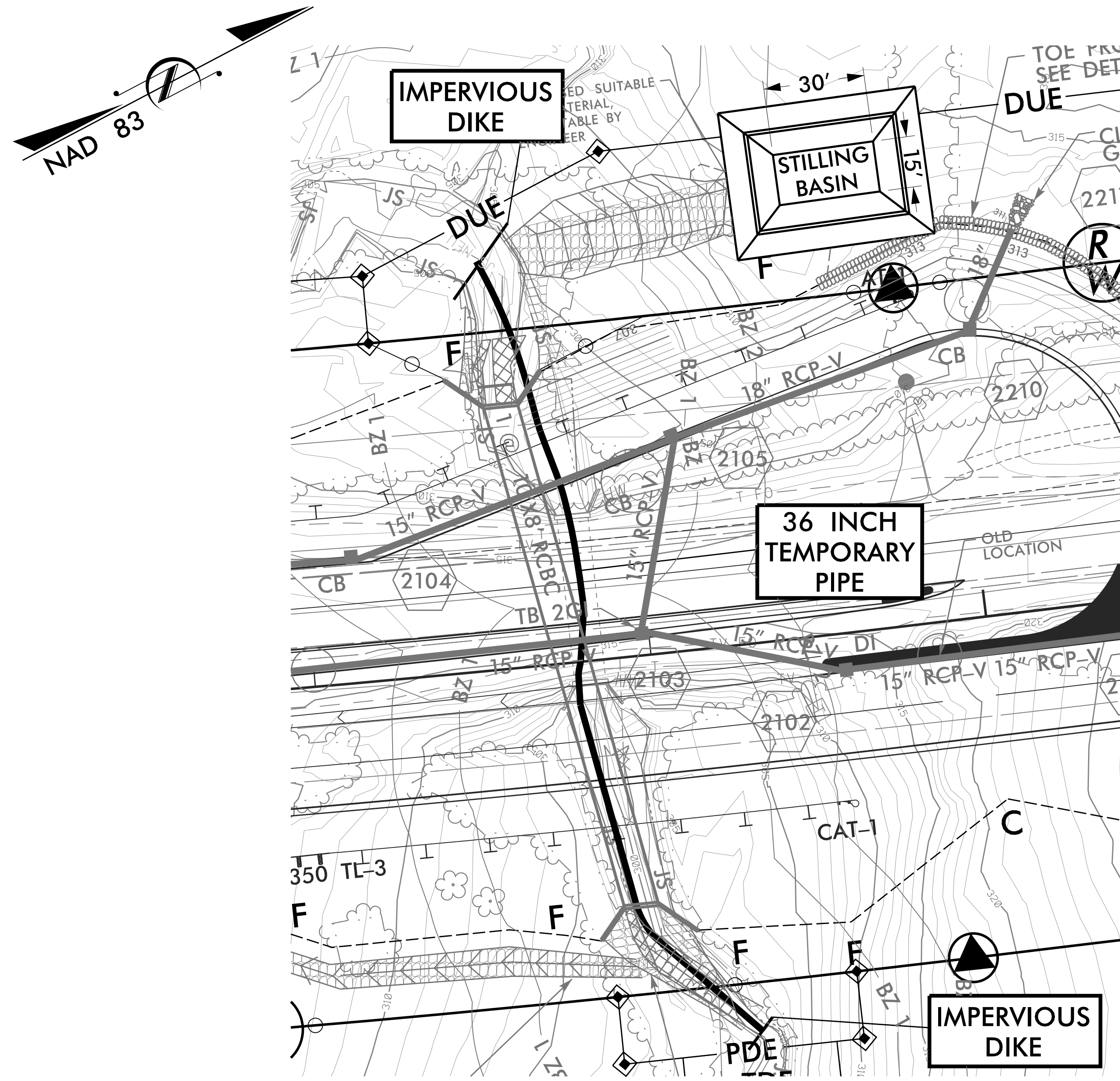


# 10'X8' RCBC CULVERT CONSTRUCTION SEQUENCE STA. 283+77 -L-

PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-21A/CONST.21</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

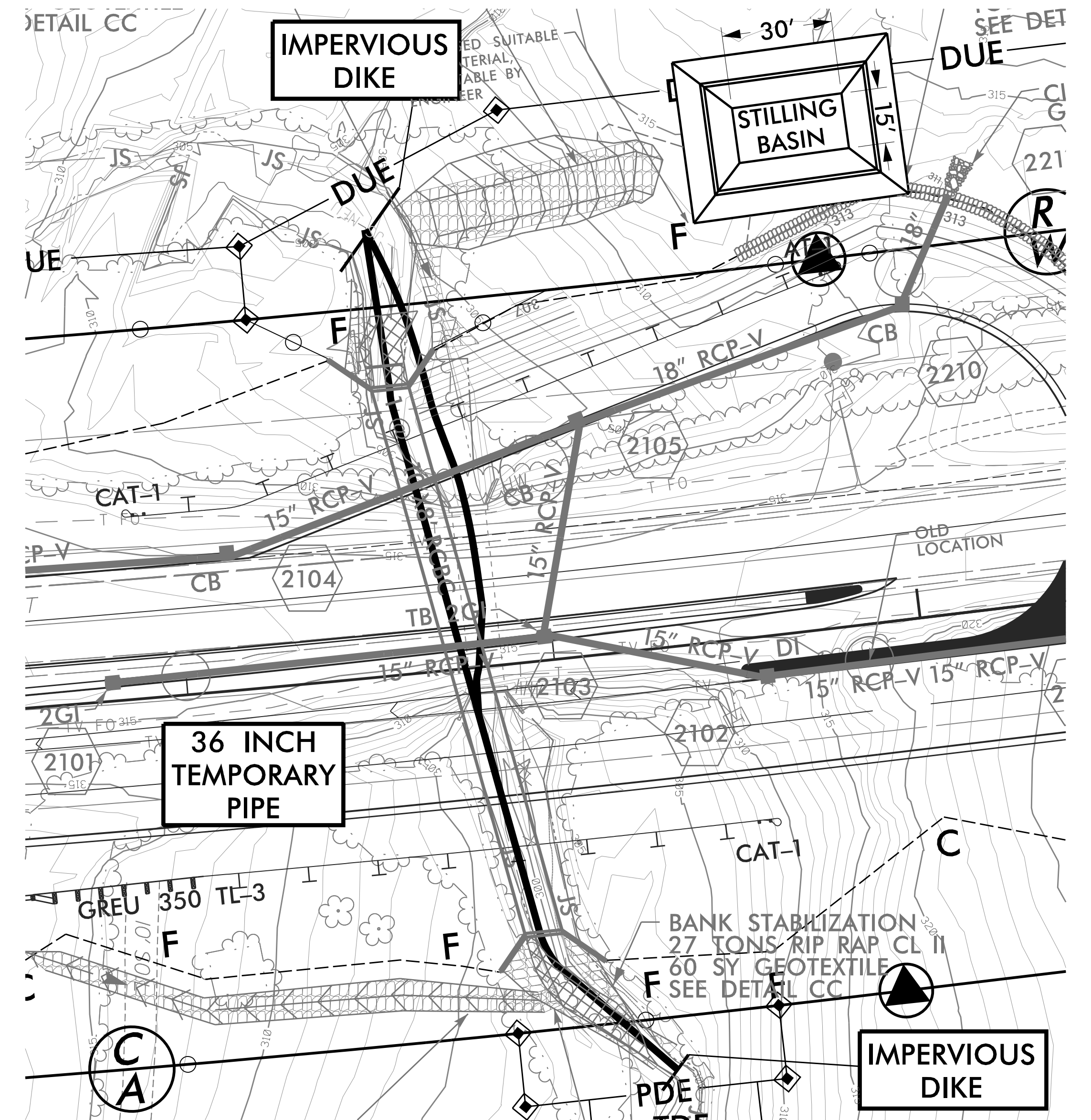
## PHASE I

1. CONSTRUCT SEDIMENT CONTROL DEVICES, INCLUDING TEMPORARY STILLING BASIN (120 CUBIC YARDS MINIMUM)
2. INSTALL IMPERVIOUS DIKE AT THE UPSTREAM AND DOWNSTREAM AND INSTALL AN 36" MIN. TEMPORARY DIVERSION PIPE THROUGH THE EXISTING CULVERT AS SHOWN ON THE PLAN
3. REMOVE APPROXIMATELY 13' OF THE EXISTING CULVERT ON THE DOWNSTREAM END AND INSTALL SHORING
4. CONSTRUCT APPROXIMATELY 83' OF PROPOSED CULVERT AS SHOWN ON THE PLAN
5. BUILD NORTHBOUND LANES



## PHASE II

1. DIVERT THE TRAFFIC ONTO NEWLY CONSTRUCTED NORTHBOUND LANES
2. REMOVE THE REMAINDER OF EXISTING 9'X7' RCBC AND WING WALLS
3. CONSTRUCT BOTTOM SLAB OF PROPOSED 10'X8' RCBC UNDER SOUTHBOUND LANES AND MOVE THE 36" MIN. DIVERSION PIPE TO THE PROPOSED RCBC AS SHOWN ON THE PLAN
4. CONSTRUCT THE REMAINING PORTION OF THE PROPOSED 10'X8' CULVERTS AND WING WALLS
5. CONSTRUCT BANK STABILIZATION AND INSTALL RIP RAP UPSTREAM AND DOWNSTREAM
6. BUILD SOUTHBOUND LANES. SHIFT TRAFFIC INTO FINAL CONFIGURATION
7. REMOVE THE TEMPORARY DIVERSION PIPE AND BOTH IMPERVIOUS DIKES TO ESTABLISH THE FLOW THROUGH THE NEWLY CONSTRUCTED CULVERT
8. REMOVE EROSION CONTROL DEVICES



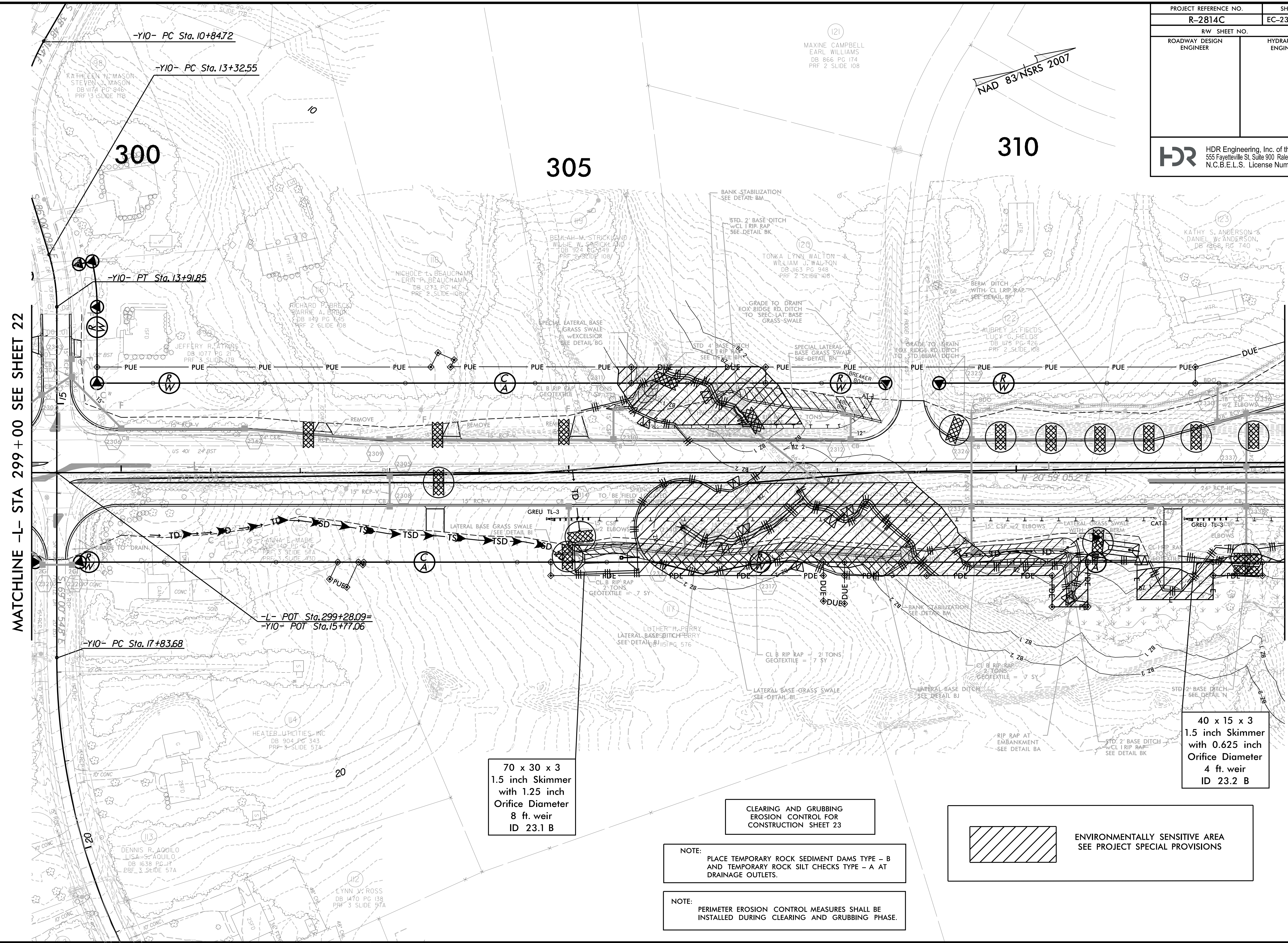
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PROJECT REFERENCE NO.		SHEET NO.	
R-2814C		EC-23/CONST.23	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
HDR		HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



MATCHLINE -L- STA 299+00 SEE SHEET 22

MATCHLINE -L- STA 313+00 SEE SHEET 24

RIGHT OF WAY REVISION 10-16-15 EAD:  
Parcel 119 - PUE revised.

4/6/2018  
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70 x 30 x 3  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
8 ft. weir  
ID 23.1 B

40 x 15 x 3  
1.5 inch Skimmer  
with 0.625 inch  
Orifice Diameter  
4 ft. weir  
ID 23.2 B

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 23


ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

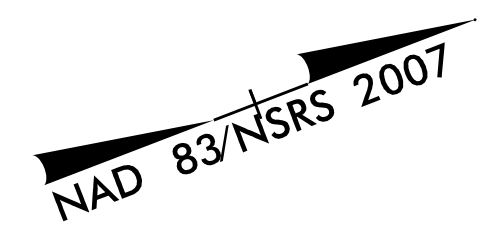
NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.

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

8/17/99



PROJECT REFERENCE NO.		SHEET NO.	
R-2814C		EC-24/CONST.24	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			



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

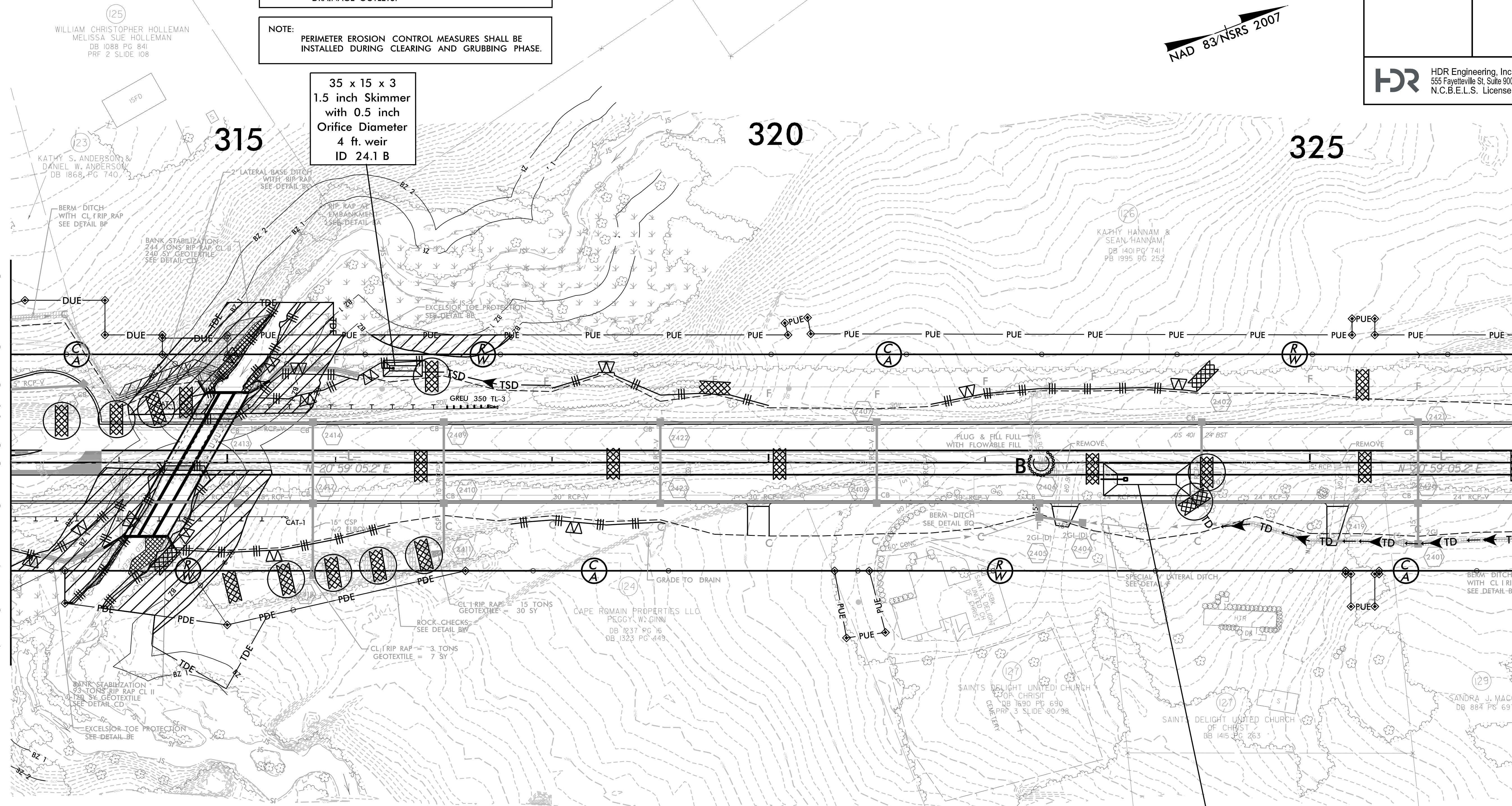
35 x 15 x 3  
1.5 inch Skimmer  
with 0.5 inch  
Orifice Diameter  
4 ft. weir  
ID 24.1 B

80 x 28 x 3  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
8 ft. weir  
ID 24.2 C&G

 ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

MATCHLINE -L- STA 313+00 SEE SHEET 23

MATCHLINE -L- STA 327+00 SEE SHEET 25




REVISIONS

RIGHT OF WAY REVISION 05-28-15, EAD:  
Parcel 123 Property owner name changed to Kathy S. Anderson & Daniel W. Anderson, DB 1868 PG 740  
Parcel 125 Property owner name changed to Melissa Sue Holleman  
Parcel 126 Property owner name changed to Kathy Hannam & Sean Hannam  
Parcel 124 Adjusted TDE around stalling basin -L- 314+30 to 314+99 RT

8/17/99  
4/6/2018  
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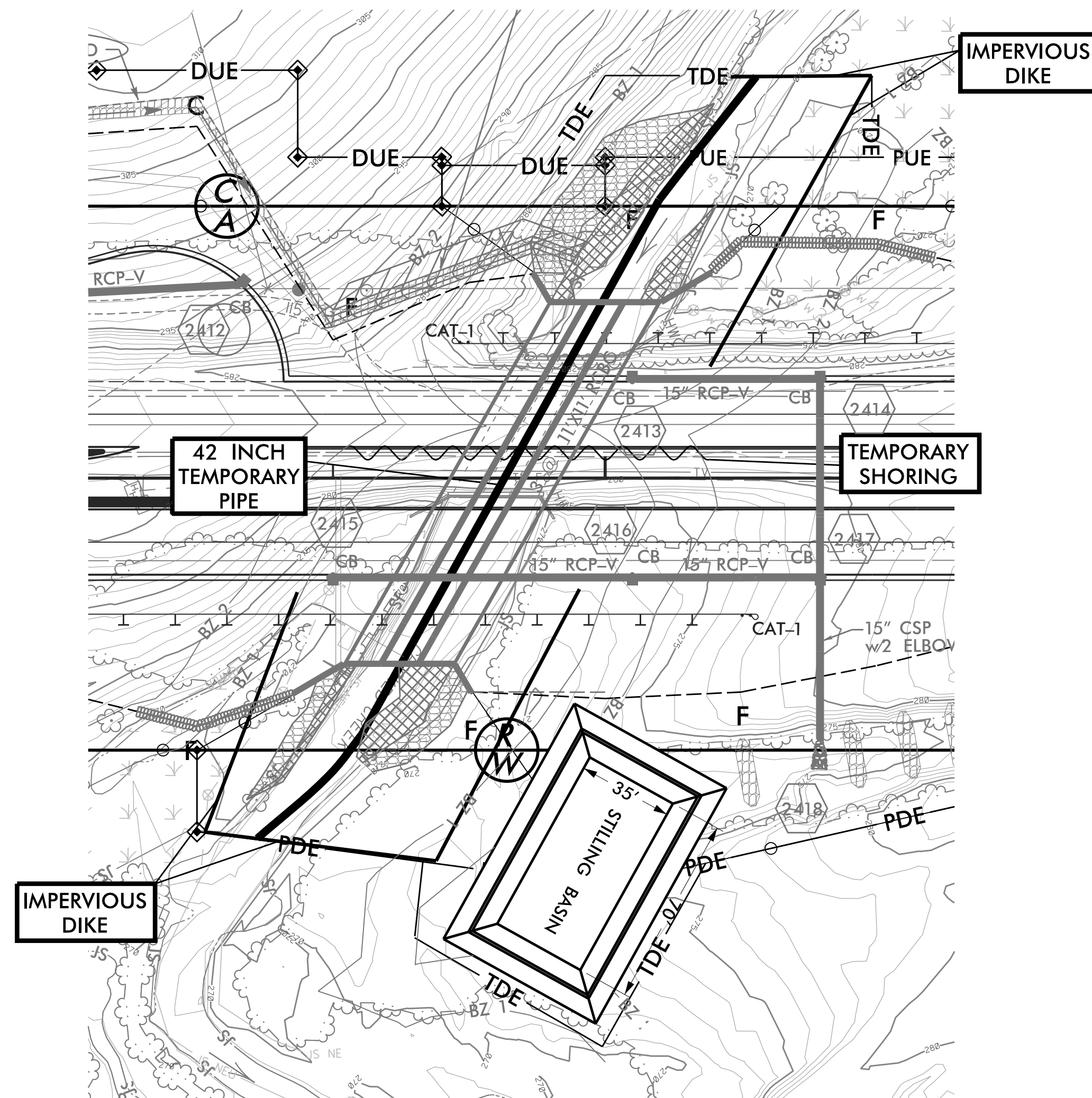


# 11'X11' RCBC CULVERT CONSTRUCTION SEQUENCE STA. 314+50 -L-

PROJECT REFERENCE NO. <i>R-2814C</i>	SHEET NO. <i>EC-24A/CONST.24</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

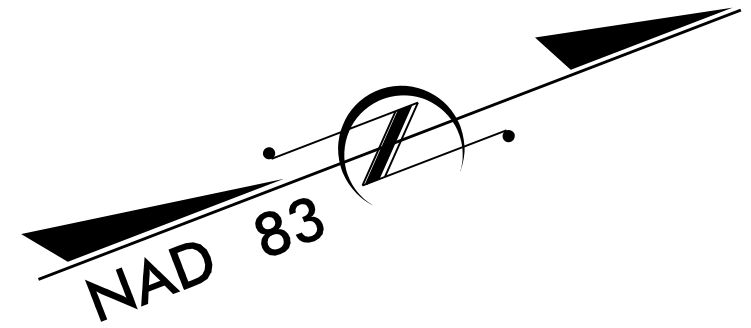
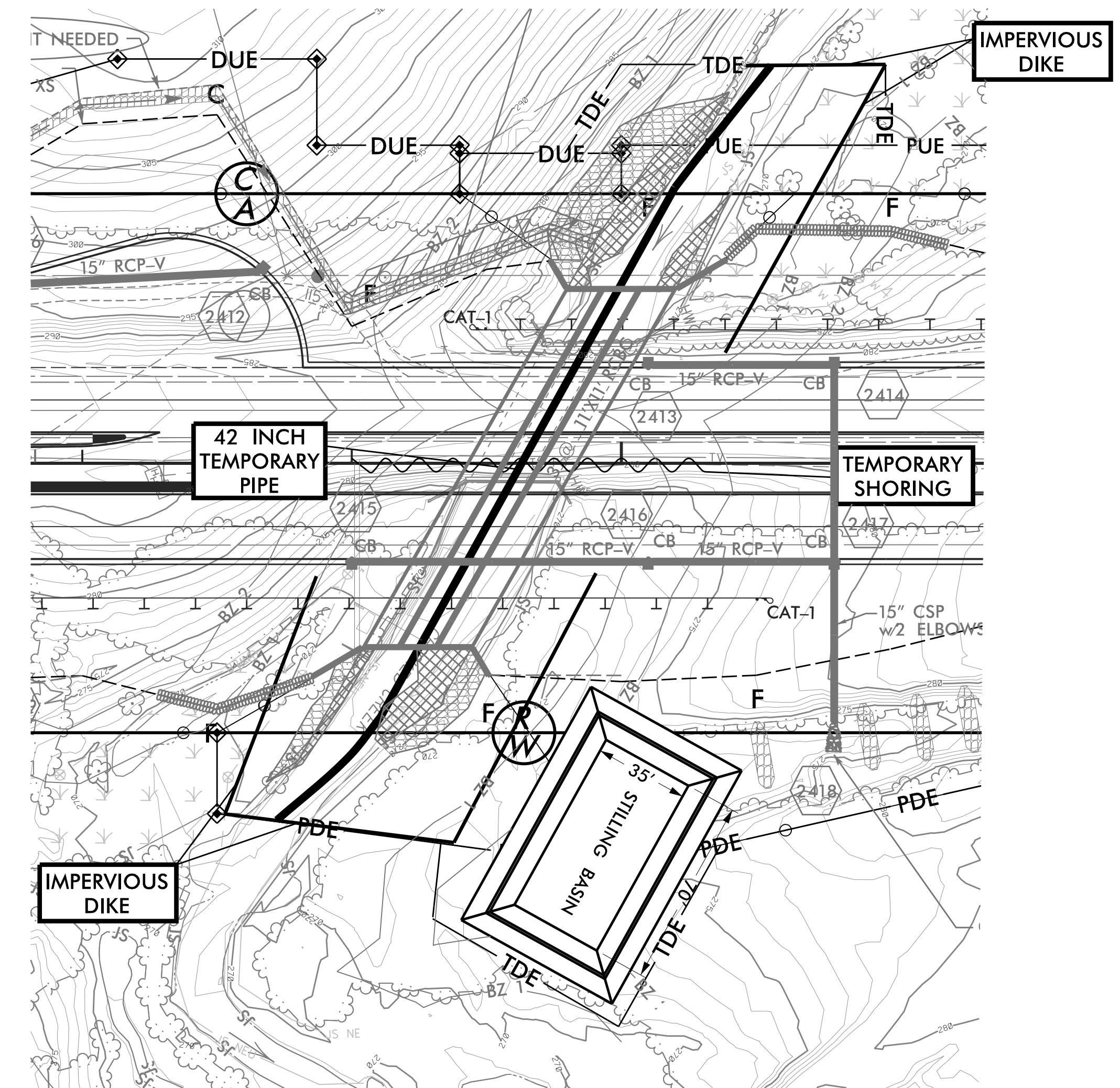
## PHASE I

1. CONSTRUCT SEDIMENT CONTROL DEVICES, INCLUDING TEMPORARY STILLING BASIN (630 CUBIC YARDS MINIMUM)
2. INSTALL A 42" MIN. TEMPORARY DIVERSION PIPE AND TEMPORARY IMPERVIOUS DIKES UPSTREAM AND DOWNSTREAM OF THE PROPOSED 3 @ 11'X11' RCBC AS SHOWN ON THE PLAN
3. INSTALL TEMPORARY SHORING AND CONSTRUCT THREE BARRELS OF PROPOSED CULVERT WITH WING WALLS UNDER NORTHBOUND LANES BY REMOVING 7' OF EXISTING CULVERT AT DOWNSTREAM END
4. BUILD NORTHBOUND LANES




## PHASE II

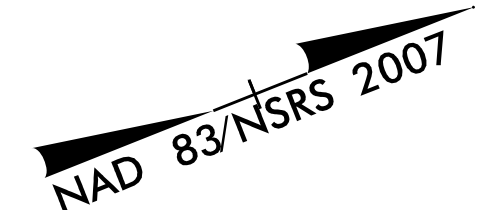
1. DIVERT THE TRAFFIC ONTO NEWLY CONSTRUCTED NORTHBOUND LANES.
2. REMOVE THE REMAINDER OF EXISTING 3 @ 9'X9' RCBC, INSTALL TEMPORARY SHORING AND CONSTRUCT THE REMAINING PORTION OF THE PROPOSED 3 @ 11'X11' RCBC CULVERTS AND WING WALLS
3. CONSTRUCT BANK STABILIZATION AND INSTALL RIP RAP UPSTREAM AND DOWNSTREAM
4. REMOVE THE TEMPORARY DIVERSION PIPE AND BOTH IMPERVIOUS DIKES TO ESTABLISH THE FLOW THROUGH NEWLY CONSTRUCTED CULVERT
5. BUILD SOUTHBOUND LANES. SHIFT TRAFFIC INTO FINAL CONFIGURATION
6. REMOVE EROSION CONTROL DEVICES



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 USER: wvelvet  
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 DATE: 4/6/2018



PROJECT REFERENCE NO.		SHEET NO.	
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RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			



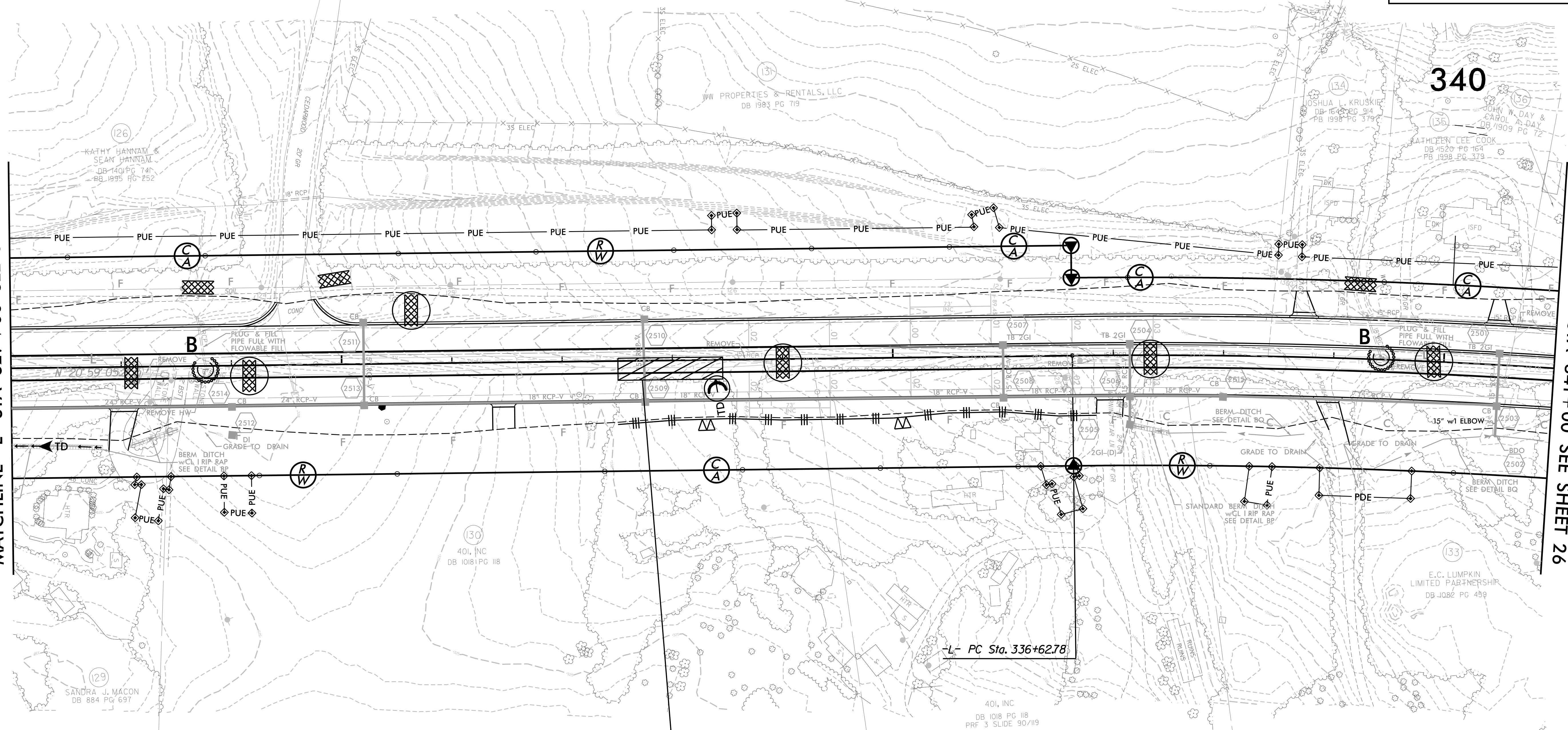
330

335

340

MATCHLINE -L- STA 327+00 SEE SHEET 24

MATCHLINE -L- STA 341+00 SEE SHEET 26



REVISIONS

RIGHT OF WAY REVISION 5-25-16 EAD; Parcel 131 - Added driveway Access Point.

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 25

95 x 20 x 3  
ID 25.1 C&G


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

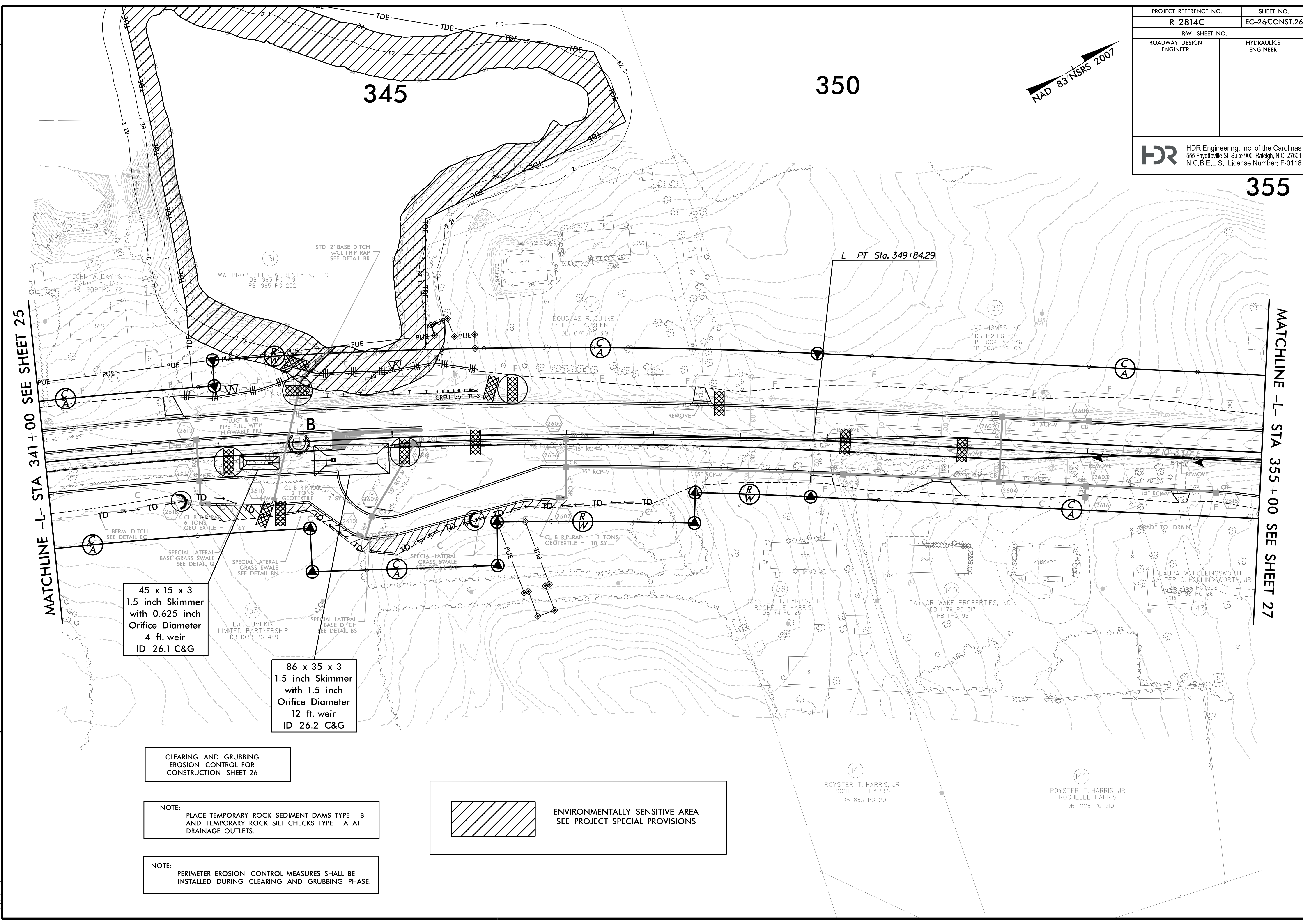
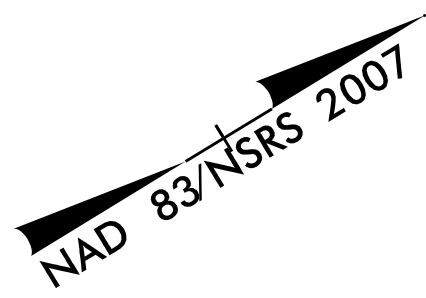
NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.

4/6/2018 C.E.C.PSH.dgn  
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8/17/99



PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-26/CONST.26
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



MATCHLINE -L- STA 341+00 SEE SHEET 25

MATCHLINE -L- STA 355+00 SEE SHEET 27

REVISIONS  
RIGHT OF WAY REVISION 07-16-15 EAD  
Parcels 131 & 136 - Adjusted driveway access point to serve both parcels.

45 x 15 x 3  
1.5 inch Skimmer  
with 0.625 inch  
Orifice Diameter  
4 ft. weir  
ID 26.1 C&G

86 x 35 x 3  
1.5 inch Skimmer  
with 1.5 inch  
Orifice Diameter  
12 ft. weir  
ID 26.2 C&G

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 26


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

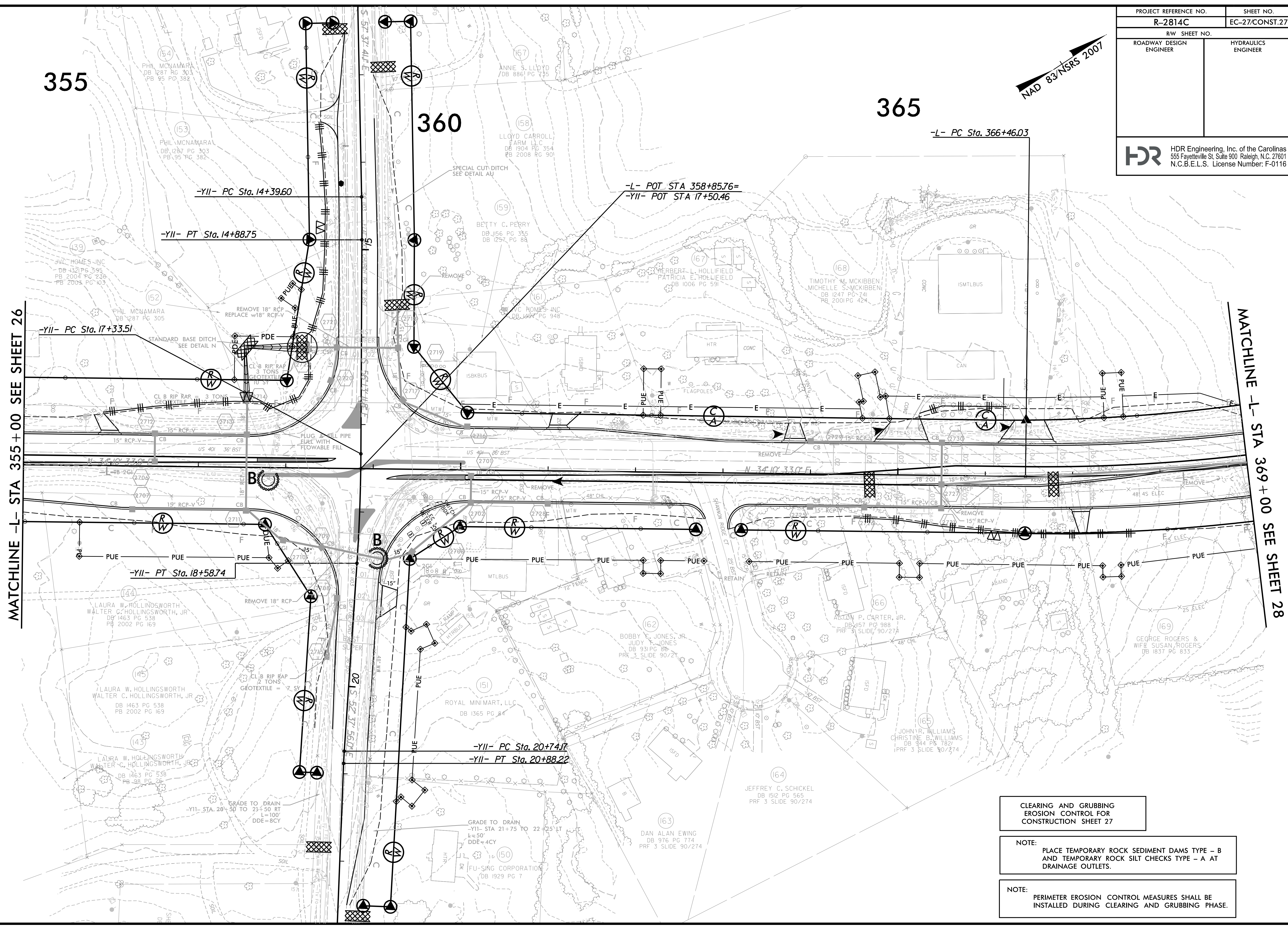
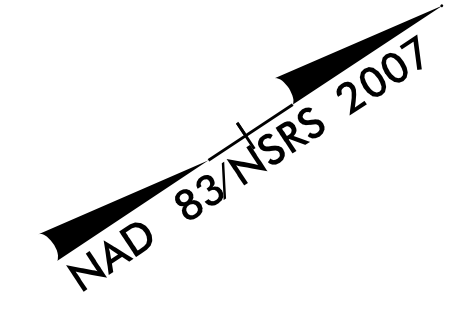
NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.

 ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
R-2814C	EC-27/CONST.27
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



RIGHT OF WAY REVISION 10-15 EAD:  
 Parcel 168 - Removed C/A Fence, add Justed "Begin Fence" text, added "End Fence" text and ROW markers  
 Parcel 159 - Revised Right of Way to eliminate conflict with septic field  
 Parcel 160 - Revised Right of Way and Temporary Construction Easement to eliminate conflict with septic field  
 Parcel 151 - Removed driveway


REVISIONS

8/17/99

4/6/2018  
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 11:31:52 AM

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



PROJECT REFERENCE NO.		SHEET NO.	
R-2814C		EC-28/CONST.28	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116			

NAD 83/NSRS 2007

370

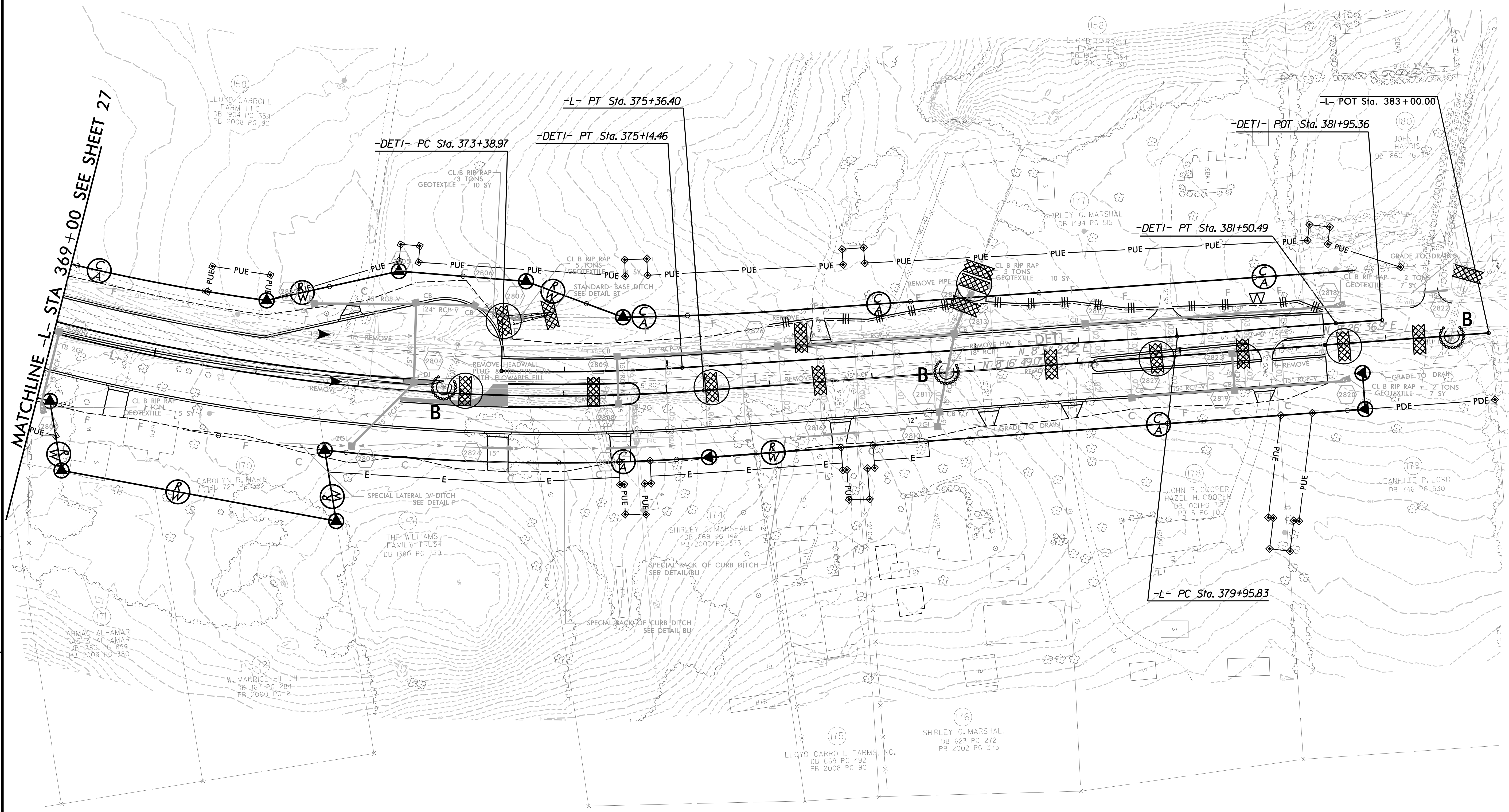
375

380

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.

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



RIGHT OF WAY REVISION 07-30-15 BDK:  
 Parcel 178 - PUE for pole and anchor moved.  
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 Parcel 173 - Moved the proposed 'End Full C/A' line at -L- 373+50 to 'End Fence' line at -L- 373+15.

4/6/2018  
 R-2814C.EC.PSH.dgn  
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8/17/99