TIP PROJECT: R-3421C

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3421C	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

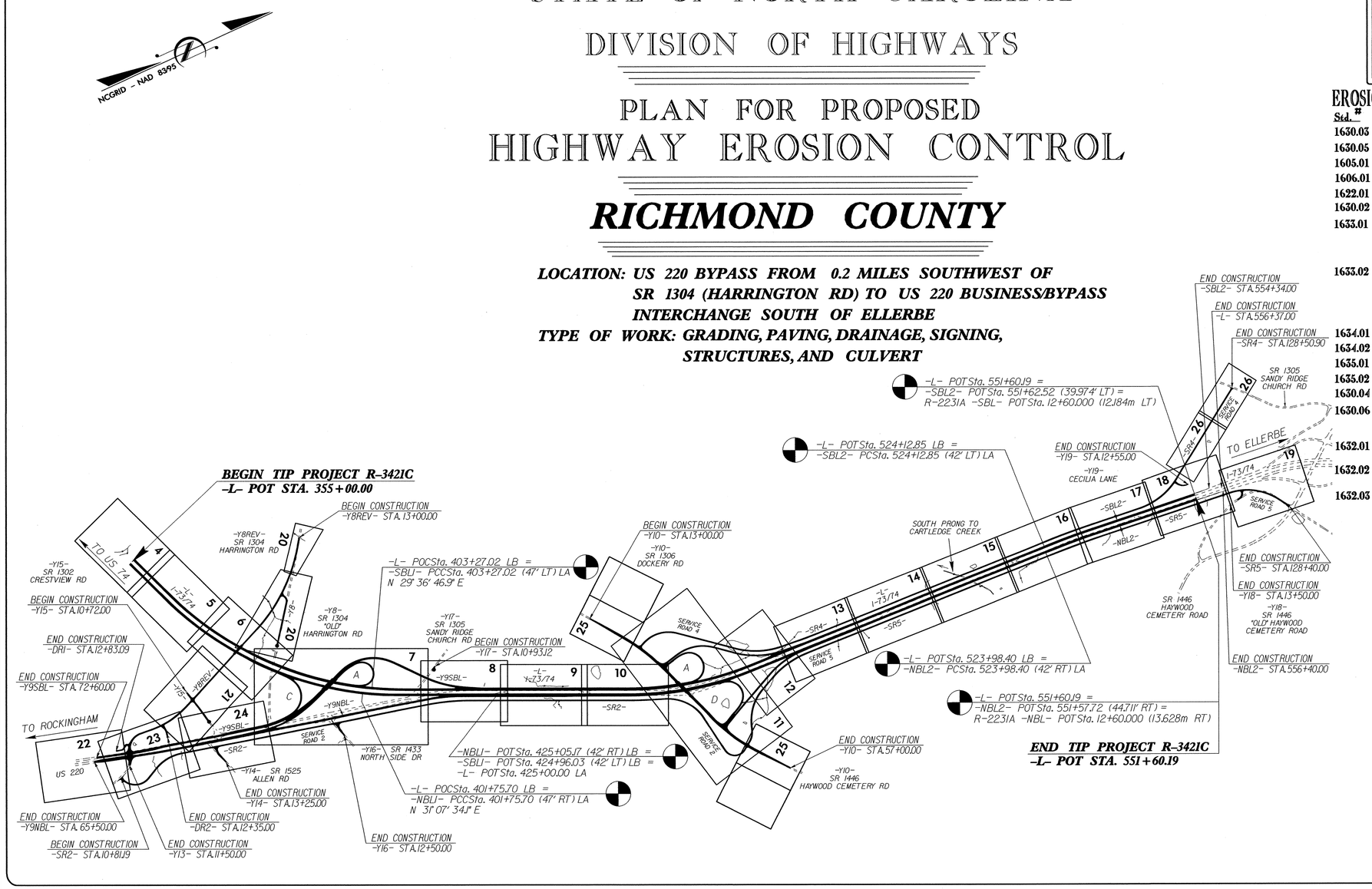
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

RICHMOND COUNTY

LOCATION: US 220 BYPASS FROM 0.2 MILES SOUTHWEST OF SR 1304 (HARRINGTON RD) TO US 220 BUSINESS/BYPASS INTERCHANGE SOUTH OF ELLERBE

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNING, STRUCTURES, AND CULVERT



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
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	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	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	

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

Prepared in the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

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

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

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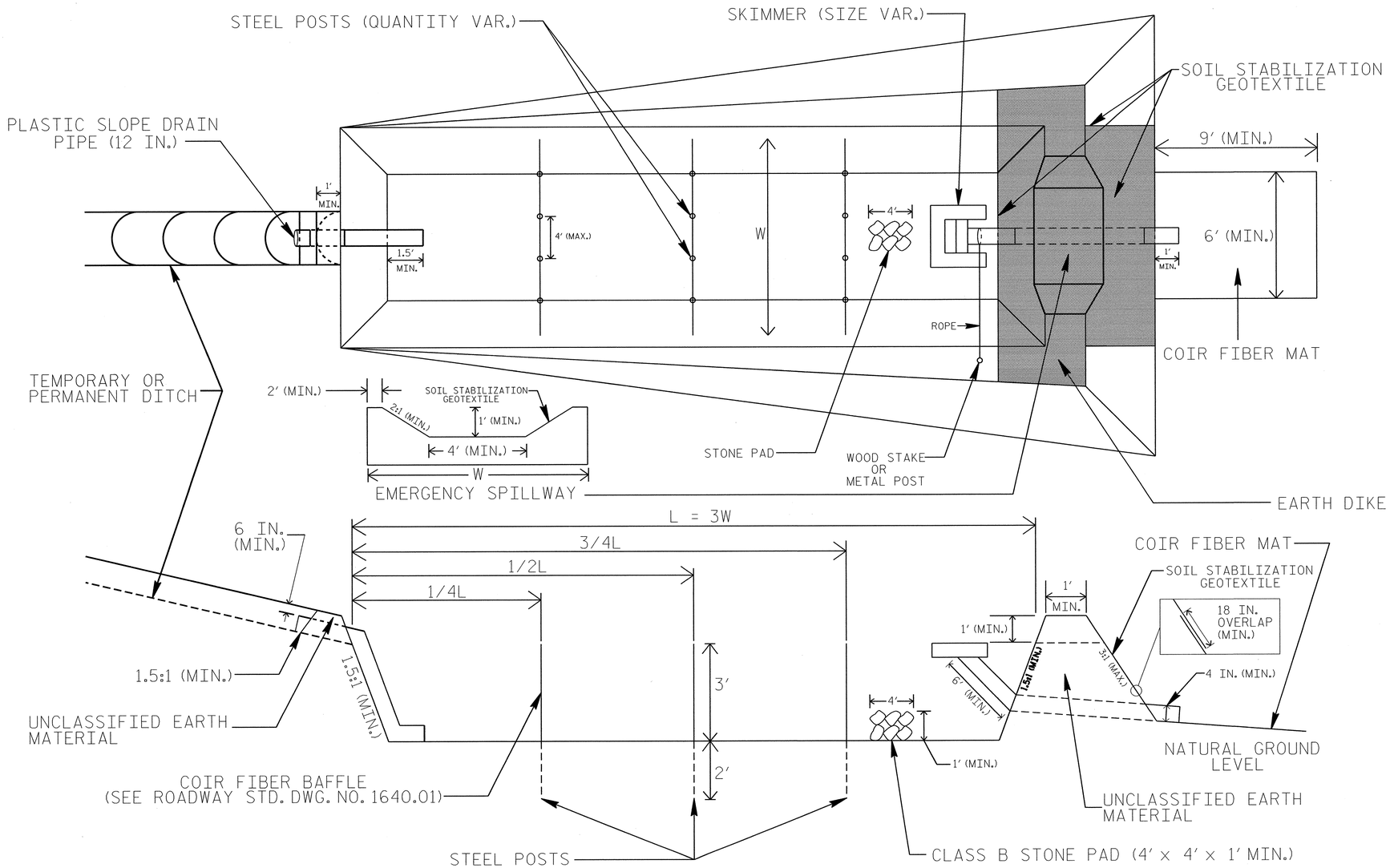
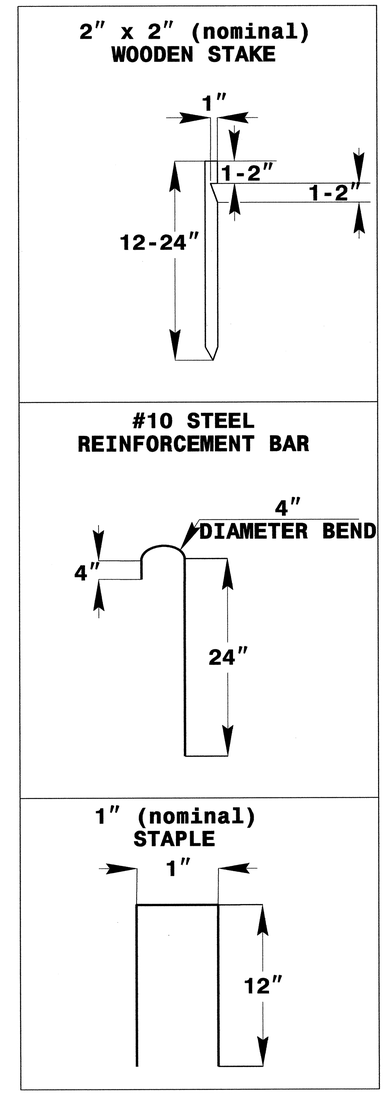
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

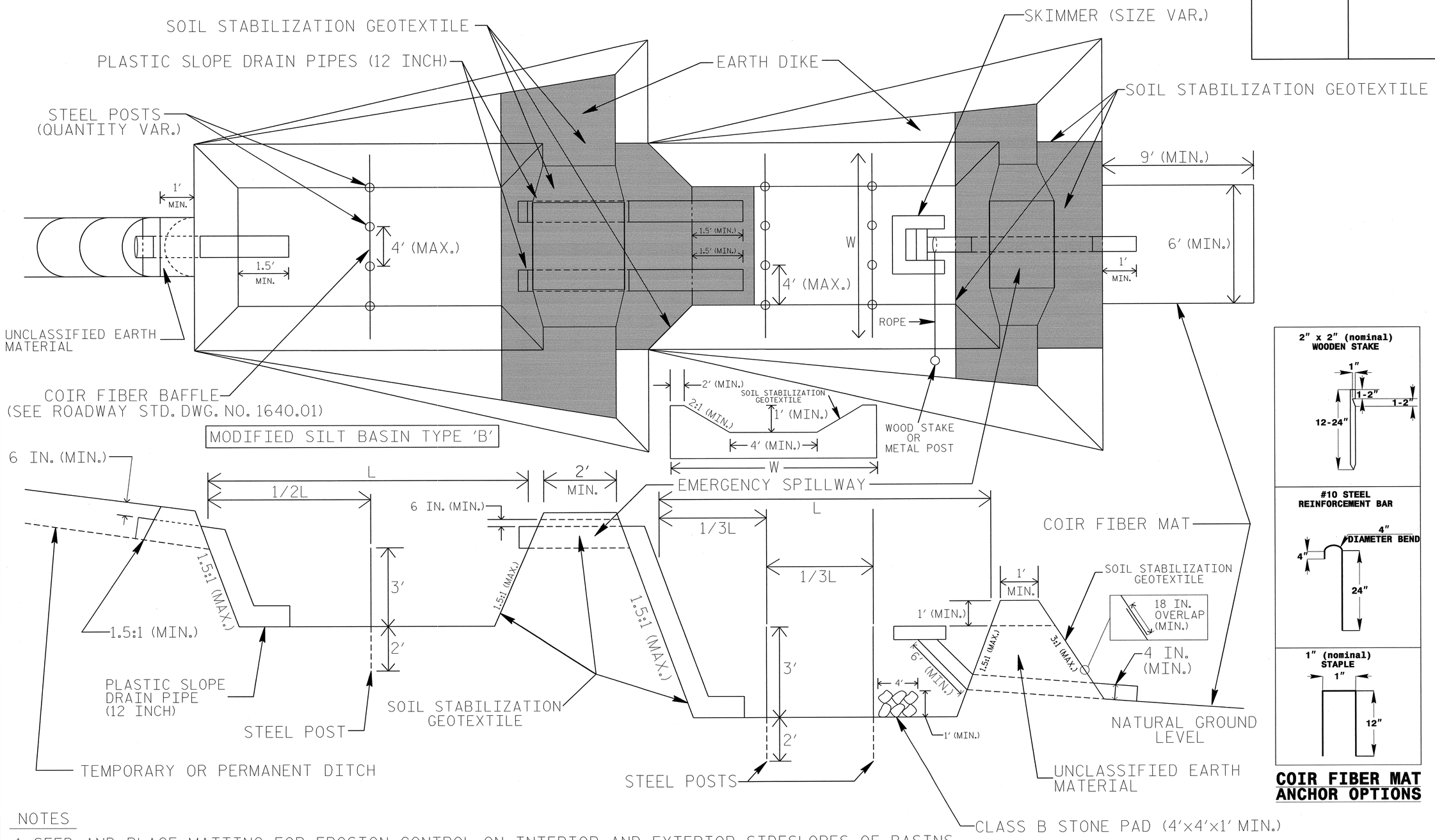
NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE EMERGENCY SPILLWAY 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 AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR EMERGENCY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TIERED SKIMMER BASIN DETAIL



COIR FIBER MAT ANCHOR OPTIONS

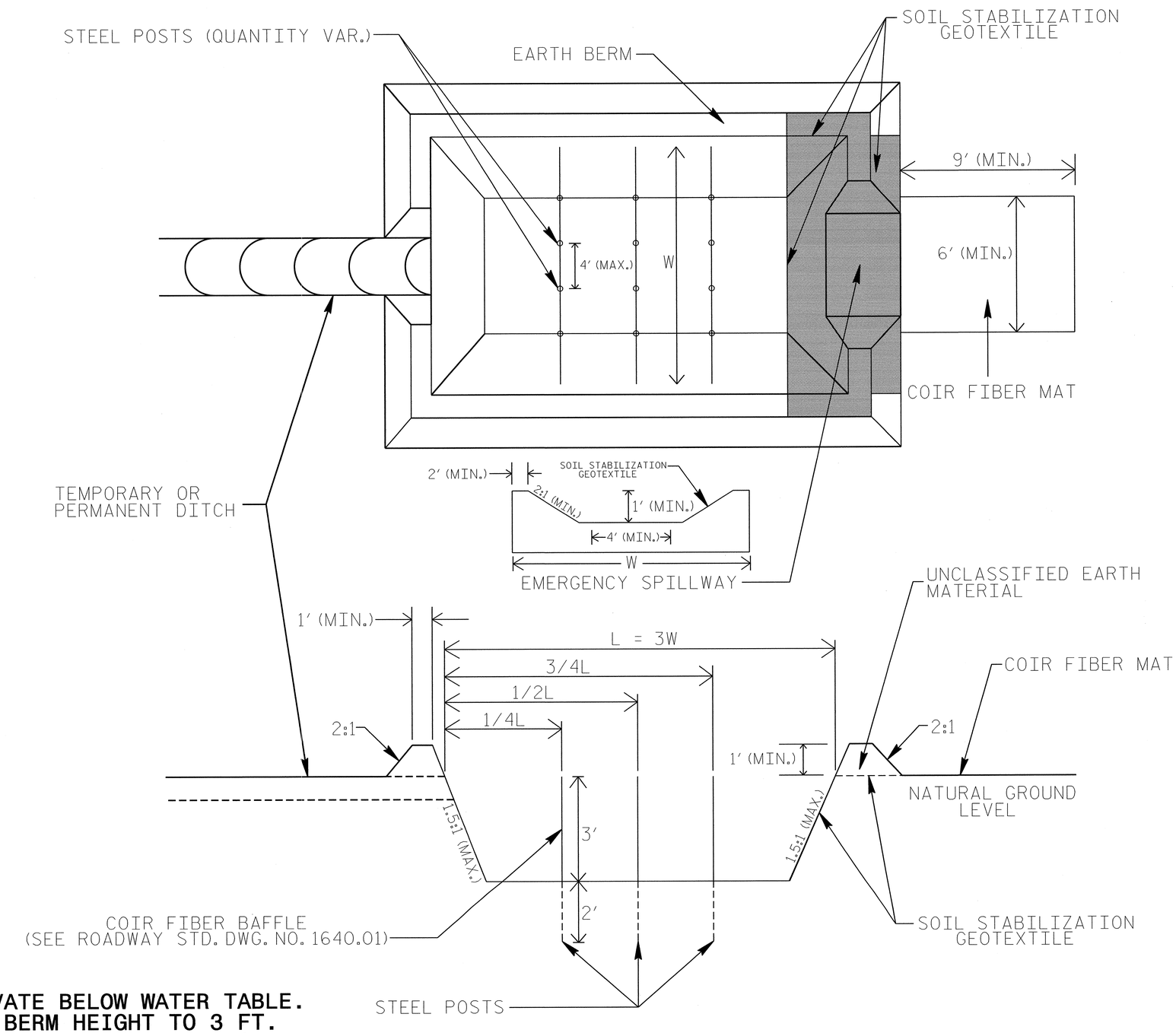
NOTES

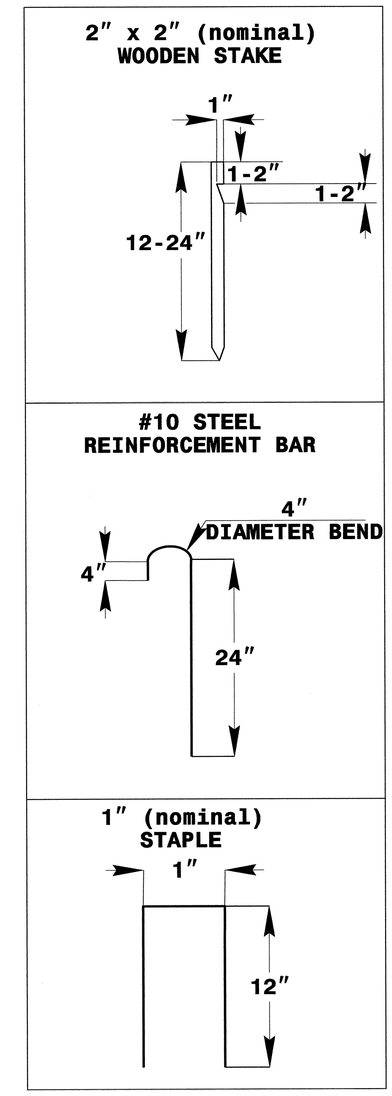
1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES OF BASINS.
2. LIMIT HEIGHT OF EARTH DIKES TO 5 FT.
3. ADDITIONAL MODIFIED SILT BASINS TYPE 'B' MAY BE NEEDED DEPENDING ON SLOPE.
4. FOR BASIN DEPTHS OF 3FT., THE MINIMUM BASIN WIDTHS SHALL BE 9 FT.
5. DETERMINE EMERGENCY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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INFILTRATION BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

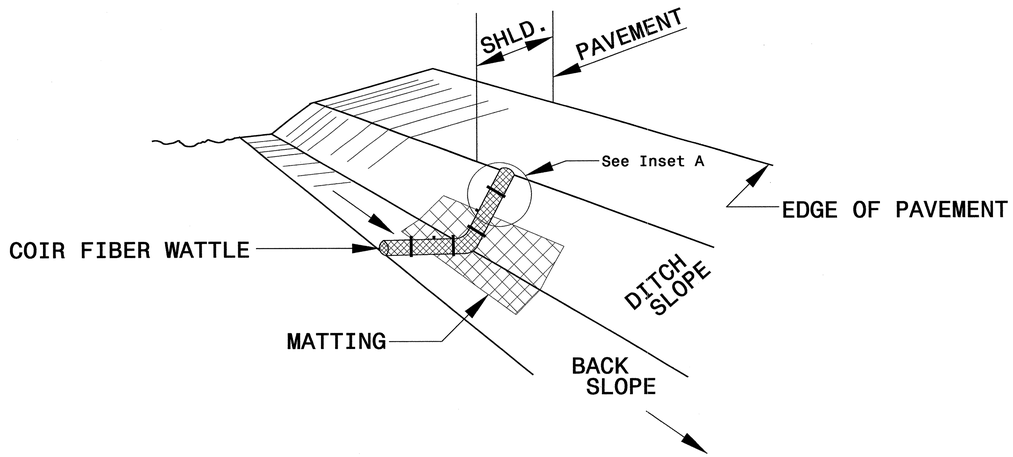
NOTES

1. DO NOT EXCAVATE BELOW WATER TABLE.
2. LIMIT EARTH BERM HEIGHT TO 3 FT.
3. AVOID COMPACTING BOTTOM OF BASIN.
4. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
5. DETERMINE EMERGENCY SPILLWAY LENGTH (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO BASIN.

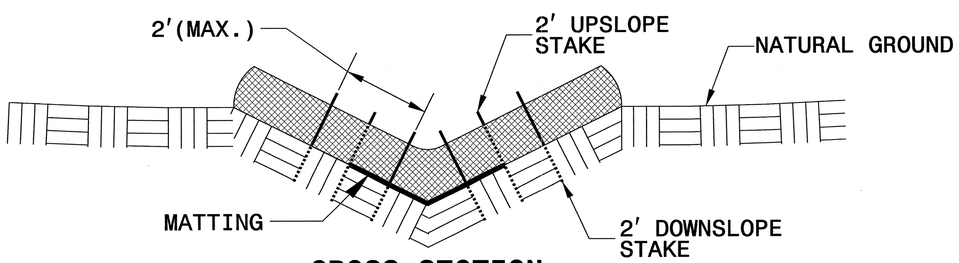
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

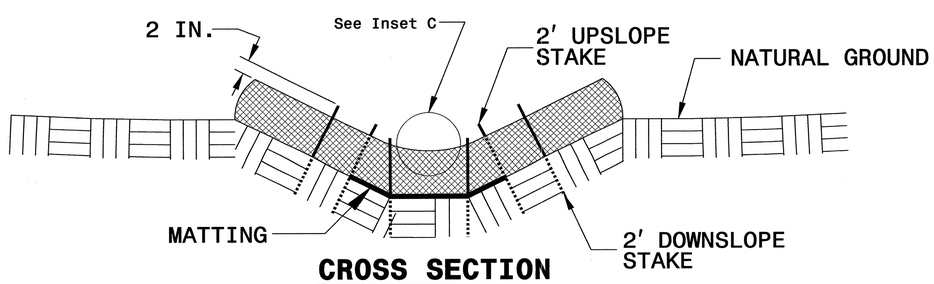
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

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.

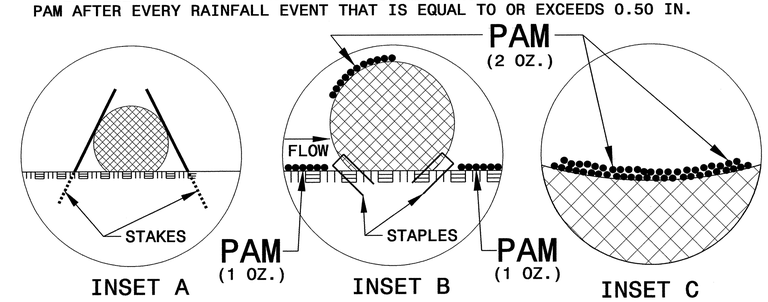
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

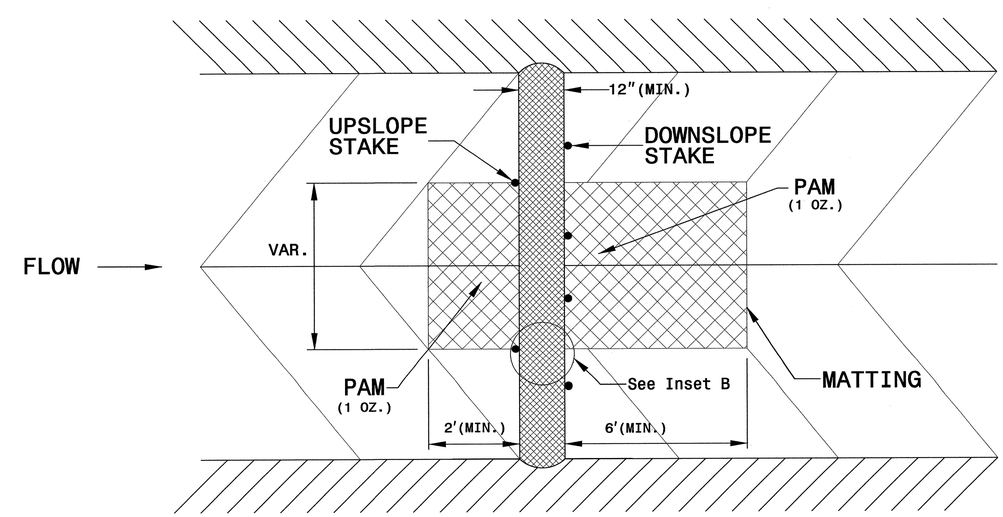
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

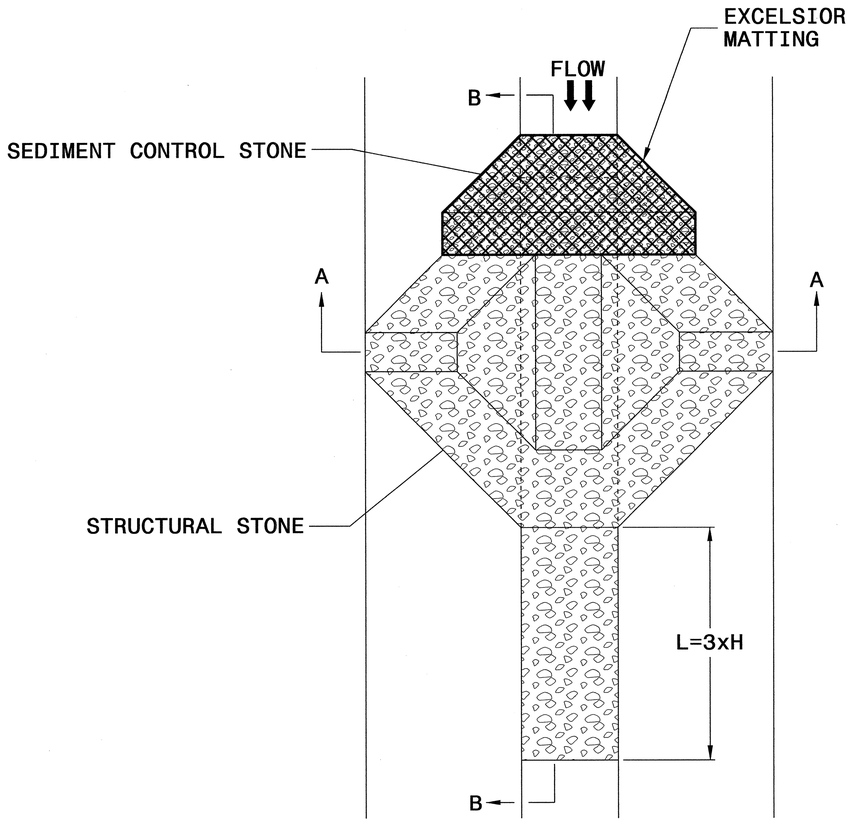




TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-2D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



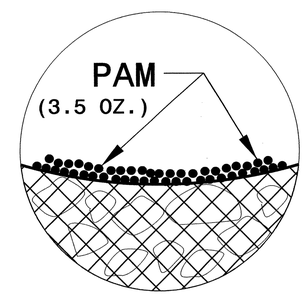
PLAN

NOTES

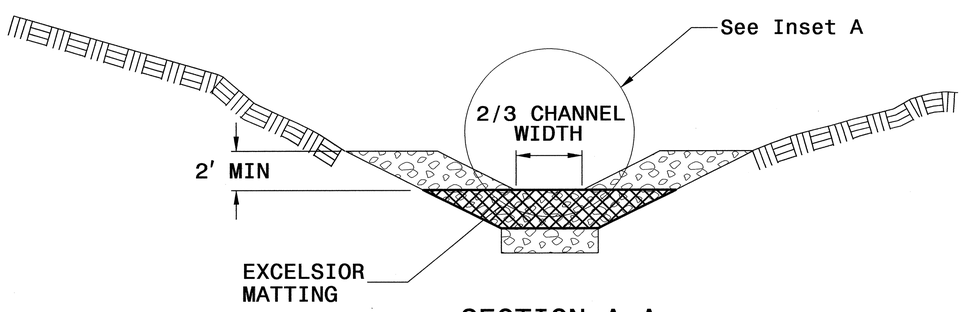
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

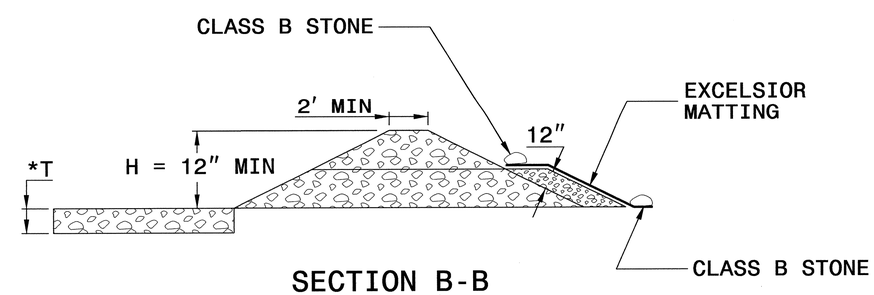
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

*T = 12" MIN., 18" MAX.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	355+00	358+50	MED	635
4	-L-	356+50	358+50	RT	285
4-5	-L-	358+50	365+50	MED	1100
4-5	-L-	358+50	371+50	LT	1685
4-5	-L-	358+50	361+00	RT	245
4-5	-L-BERM DITCH	358+50	361+00	RT	75
5	-L-	365+00	369+00	MED	280
5	-L-	365+00	369+00	RT	395
5	-L-	369+00	371+50	RT	240
5-6	-L-	369+00	373+50	MED	755
5-6	-L-	371+50	373+50	RT	205
6	-L-	373+50	375+00	RT	140
6	-L-	375+00	376+00	RT	145
6-7	-Y9RPC-	0+50.52	6+50	RT	625
7	-L-	385+50	390+50	MED	800
7	-L-	385+50	391+50	LT	765
7	-L-	391+50	393+50	LT	560
7	-L-	390+50	391+00	RT	140
7	-L-	396+50	397+50	RT	150
7	-SØL1-	406+50	408+50	LT	270
7	-SØL1-BERM D.	408+00	409+00	LT	25
7	-Y9NØL-	8+30	9+80	RT	175
7	-Y9NØL-	8+30	5+33.79	RT	385
7	-NØL1-	405+00	407+00	RT	295
7	-NØL1-	407+50	408+50	RT	135
7	-Y9NØL-	10+30	11+30	RT	160
7	-SR2-	63+70	63+20	RT	135
7	-Y9NØL-	12+30	18+40	RT	575
7	-Y9NØL-	11+30	16+90	LT	485
7	-Y9NØL-	21+00	23+00	RT	680
7	-Y9NØL-	23+50	31+00	RT	840

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
7	-Y9SØL-	19+50	21+50	LT	295
7	-Y9LPA-	20+40.9	23+85.3	RT	450
7	-Y9RPC-	8+95	10+60.2	RT	170
7	-Y9RPC-	10+60.2	12+57	RT	120
7	-Y9LPA-	4+50	6+50	RT	300
7	-SR2-	62+70	56+60	RT	965
7	-SR2-	56+60	53+60	RT	230
7	-SR2-	53+60	52+50	RT	200
7	-SR2-	50+00	43+50	RT	600
7	-SR2-	43+50	40+50	RT	380
7	-SR2-	40+50	39+50	RT	380
7	-SR2-BERM D.	43+00	41+00	RT	75
7	-SR2-BERM D.	40+00	39+00	RT	50
7	-Y16-	10+25	12+50	LT	215
7	-Y16-	10+50	12+50	RT	170
7-24	-Y9NØL-	30+50	35+50	LT	830
7-24	-Y9LPA-	25+31.9	30+77.3	RT	505
8	-L-	412+50	419+00	MED	1085
8	-L-	419+00	422+00	MED	520
8	-L-	422+00	426+00	MED	730
8	-Y9SØL-	8+95	7+45	LT	140
8	-Y9SØL-	7+95	4+01	RT	410
8	-Y9SØL-	4+01	1+00.2	RT	285
8	-SR2-	67+68.4	77+00.6	RT	760
8	-SR2-	77+00.6	79+50.6	RT	210
8	-SR2-	79+50.6	84+50.6	RT	575
8	-SR2-BERM D.	75+50.6	77+00.6	RT	65
8	-Y9NØL-	6+30	0+32.6	LT	610
8	-NØL1-	419+50	425+50	RT	770
9	-L-	426+00	433+00	MED	1045
9	-L-	433+00	435+50	LT	280
9	-L-	436+00	437+50	RT	230

PROJECT REFERENCE NO.	SHEET NO.
B-3421C	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
9-10	-L-	439+00	443+00	MED	500
9-10	-L-	438+00	443+00	RT	805
9-10	-SR2-	93+50.8	97+00.6	RT	420
10	-L-	443+00	449+00	MED	810
10	-L-	449+00	451+50	MED	325
10	-L-	440+00	443+00	LT	295
10	-L-	443+00	450+50	LT	770
10	-L-	443+00	449+00	RT	685
10	-SR2-	97+00.6	101+51	RT	420
10-11	-L-	451+50	456+50	MED	1830
10-11	-L-	449+00	455+00	RT	975
10-11	-SR2-	103+55	110+31	LT	950
11	-L-	456+50	464+00	MED	1145
11	-L-	453+50	454+00	LT	265
11	-L-	457+50	459+50	LT	105
11	-L-	460+00	461+00	LT	200
11	-L-	460+00	461+00	RT	440
11	-Y10LPD-	0+00	3+54.8	RT	365
11	-Y10-	35+50	37+50	RT	250
11	-Y10-	42+00	47+50	RT	810
11	-Y10LPA-	11+55	13+55	LT	200
11	-SR5-	24+50	25+50	RT	85
11	-SR5-	24+50	25+50	LT	120
11	-SR2-	122+50	126+50	LT	305
11	-SR2-	122+50	126+50	RT	440
11-12	-L-	464+00	473+50	MED	1440
11-12	-L-	471+00	471+50	LT	60
11-12	-L-	466+00	473+50	RT	1005
11-12	-SR4-	31+76	32+23	RT	65
11-12	-SR4-	32+23	33+96	RT	210

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
11-12	-SR4-	31+76	33+98	LT	300
11-12	-SR4-	31+76	32+23	RT	65
11-12	-SR4-BERM D	32+23	33+98	LT	55
11-12	-Y10RPD-	9+50	13+50	LT	450
11-25	-Y10-	48+50	52+50	LT	340
11-25	-Y10-	52+50	56+00	LT	395
12	-Y10RPA-	7+00	8+00	RT	150
12	-Y10RPD-	6+50	8+00	RT	265
12	-Y10RPD-	6+50	9+50	LT	315
12	-SR4-	30+34.5	29+40	LT	65
12	-SR5-	33+33.8	31+90.4	RT	125
12	-SR5-	27+40	27+00	RT	45
12-13	-L-	473+50	476+50	MED	375
12-13	-SR4-	33+98.6	36+99.8	RT	255
12-13	-SR4-	33+98.6	35+99.7	LT	140
12-13	-SR5-	33+81	35+20	RT	145
12-13	-Y10LPD-	6+00	4+53	RT	275
13	-L-	477+00	480+00	MED	430
13	-L-	480+00	484+00	MED	510
13	-L-	484+00	485+50	MED	145
13	-SR4-	36+99.8	40+49.9	RT	285
13	-SR4-	40+49.9	44+50	RT	485
13	-SR4-	41+50	45+00	LT	285
13	-L-	480+00	483+50	RT	470
13	-L-	484+00	485+50	RT	120
13	-SR5-BERM D	38+49.9	39+50	RT	40
13	-SR5-BERM D	39+50	40+50	RT	40
14	-L-	494+50	501+50	MED	940
14	-L-	489+00	490+50	RT	150
14	-L-	495+00	501+50	RT	660

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-3B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
14	-SR4-	54+00	61+50	RT	835
14	-SR4-	51+00	54+00	LT	280
14	-SR4-	58+50	61+50	LT	220
14	-SR5-	51+50	55+00	RT	280
14	-SR5-	55+00	56+00	RT	50
14	-SR5-	58+00	59+50	RT	110
14	-SR5-BERM D	53+00	54+50	RT	65
14-15	-L-	501+50	508+00	MED	880
14-15	-L-	501+50	508+00	RT	650
14-15	-SR4-	61+50	68+50	RT	625
15	-L-	511+00	516+50	LT	610
15	-SR4-	69+00	69+50	LT	100
15	-SR4-	69+50	74+00	LT	615
15	-SR4-	74+00	76+00	LT	135
15	-L-	508+00	509+00	RT	100
15	-SR5-	70+00	71+00	RT	160
15-16	-L-	516+50	523+00	LT	765
15-16	-L-	512+50	518+50	RT	670
15-16	-SR4-	76+50	78+50	LT	170
16	-L-	522+50	529+50	MED	895
16	-L--SØL2-	523+00	530+00	LT	730
16	-L--NØL2-	523+00	529+50	RT	705
16	-L-	518+50	523+00	RT	455
16	-SR4-	78+50	83+50	LT	375
16	-SR4-	83+50	85+50	LT	185
16-17	-L-	529+50	535+50	MED	775
16-17	-NØL2-	529+50	535+50	RT	985
17	-L-	535+50	544+00	MED	1120
17	-SØL2-	536+02	543+50	LT	775
17	-SØL2-	543+50	551+00	LT	720

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
17	-SR4-	96+07	101+07	LT	420
17	-SR4-	101+07	103+57	LT	185
17	-SR4-	103+57	106+00	LT	215
17	-NØL2-	535+50	543+50	RT	925
17-18	-L-	543+50	551+00	RT	220
18	-L-	544+00	551+00	MED	935
18	-SR4-	104+59	106+00	RT	165
18	-SR4-	110+50	111+50	RT	125
18	-SR5-	113+42	116+92	LT	320
18-19	-Y18-	12+00	13+50	LT	130
19	-SR5-	117+92	122+30	LT	420
19	-SR5-	120+30	122+30	RT	235
19	-SR5-	122+80	127+30	RT	500
19	-SR5-	122+80	124+30	LT	190
19	-Y18-	12+00	12+25	RT	30
20	-YØREV-	13+50	17+00	LT	305
20	-YØREV-	18+00	19+50	LT	190
20	-YØREV-	19+50	22+50	LT	380
20	-YØREV-	16+50	19+00	RT	235
20	-YØREV-	22+50	24+00	RT	90
20	-YØREV-	24+50	26+50	RT	130
20	-Y8-	16+00	18+75	LT	300
21	-YØREV-	41+00	44+00	RT	280
21	-YØREV-	47+00	48+00	LT	140
21	-YØREV-	46+50	48+00	RT	200
21	-Y15-	11+00	12+00	RT	90
21	-Y15-	13+00	15+50	RT	270
21-24	-Y15-	14+50	16+00	LT	155
22	-Y9NØL-BERM D	64+00	65+50	LT	55
22	-Y9SØL-	71+09	71+59	RT	75

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-3C
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
22-23	-Y9NØL-	60+00	65+50	RT	730
22-23	-Y9NØL-ØERM D	62+00	64+00	LT	80
23	-Y8REV-	57+00	59+00	LT	160
23	-Y13-	11+00	12+00	RT	70
23	-Y13-	14+00	15+00	LT	50
23	-SR2-	11+00	12+00	RT	110
23	-SR2-	11+00	12+00	LT	95
23	-SR2-	13+00	17+00	LT	385
23	-Y9NØL-	50+50	53+50	RT	435
23	-Y9SØL-	64+59.8	66+09.3	RT	220
23	-Y9NØL-	56+50	58+00	LT	210
23-24	-Y9NØL-	43+00	50+50	RT	915
23+24	-Y9SØL-	56+12.7	57+62.7	RT	140
24	-Y9SØL-	51+12.7	56+12.7	RT	505
24	-Y9NØL-	35+50	41+00	LT	750
24	-Y9NØL-	41+00	44+00	LT	365
24	-Y9SØL-ØERM D	48+12.8	50+62.8	RT	95
24	-SR2-	39+50	33+00	RT	455
24	-SR2-ØERM D	39+00	37+50	RT	35
24	-Y15-	16+00	16+50	RT	50
25	-Y10-	13+50	15+50	LT	355
25	-Y10-	17+00	19+00	LT	185
25	-Y10-	18+50	20+00	RT	140
26	-SR4-	111+50	114+50	RT	275
26	-SR4-	119+50	120+50	RT	100
2-AC	-TA-3-	36+50.3	39+01.7	LT	245
2-AC	-TA-9-	35+00.8	37+51.7	LT	430
2-AC	-TA-9-	39+53.4	41+40.4	RT	180
2-AE	-TA-4-	62+43.3	66+39.9	RT	285
2-AE	-TA-4-	67+86.9	69+34.3	RT	340

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
2-AE	-TA-4-	60+44.3	60+94	LT	85
2-AF	-TA-4-	72+41.8	75+33.8	LT	250
2-AF	-TA-4-	72+92.5	80+33.8	RT	695
2-AF	-TA-4-	80+33.8	81+33.8	RT	140
2-AF	-TA-8-	12+81.7	14+26.1	LT	295
2-AF	-TA-8-	18+53.2	19+12.8	LT	90
2-AF	-TA-8-	14+25	14+50	LT	35
2-AF	-TA-8-	14+50	14+75	LT	35
2-AF	-TA-5-	73+26.8	80+72.3	RT	850
2-AF	-TA-5-	74+34.5	80+72.3	LT	615
2-AG	-TA-6-	98+07.1	102+57	LT	325
2-AG	-TA-6-	98+07.1	101+57	RT	320
2-AG	-TA-6-	102+57	106+08	RT	365
2-AG	-TA-6-	103+57	108+60	LT	625
2-AG	-TA-7-	98+42.9	100+92	LT	270
2-AG	-TA-7-	100+92	105+44	LT	545
2-AG	-TA-7-	105+44	105+94	LT	105
2-AG, AH	-TA-7-	106+44	110+46	RT	400
			SUBTOTAL		89,035
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					79,915
			TOTAL		168,950
				SAY	170,000

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-3D
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
5	-L- BERM D	361+00	363+50	RT	80
5	-L- BERM D	368+50	371+50	RT	95
5-6	-L- BERM D	371+50	373+50	RT	70
7	-L-	385+22	386+64	LT	245
7	-L-	397+50	399+50	LT	155
7	-L-	391+50	394+00	RT	270
7	-Y9LPA-	3+00	3+50	RT	55
7	-SBL1-BERM D	409+00	409+50	LT	25
7	-Y9SBL-	36+37	34+50	RT	160
7	-Y9LPA-	4+00	4+50	RT	75
7	-Y9RPC-	8+95	7+50	RT	175
7	-Y9RPC-	8+50	6+50	LT	235
9	-L-	426+00	430+50	RT	505
9	-L-	430+50	433+00	RT	585
10	-L-BERM D	447+50	450+50	LT	105
11	-Y10LPA-	3+05	3+50	RT	145
11	-Y10LPA- BERM D	2+60	3+50	LT	90
11	-Y10RPA-	14+00	17+00	LT	285
11	-Y10RPD-	14+00	17+00	RT	375
11	-Y10RPA-	14+00	16+50	RT	420
11	-Y10RPA-	19+00	22+00	LT	395
11	-Y10RPA-	16+50	20+00	RT	470
11	-SR4-	17+00	21+35	LT	355
11	-SR4-	24+51	21+77	LT	280
11	-SR4-	16+50	21+35	RT	430
11	-SR5-	25+50	26+50	RT	95
11-12	-L-	467+00	471+00	LT	545
11-12	-Y10RPA-	10+50	14+00	RT	580
11-12	-Y10RPD-	8+50	14+00	RT	585
11-25	-Y10-	56+00	56+50	LT	75

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
12	-Y10RPA-	8+00	10+50	RT	345
12	-SR4-	31+28.8	30+34.5	LT	140
12	-SR4-BERM D	31+28.8	30+34.5	LT	40
13	-SR4-	40+40	40+73	LT	40
13	-SR5-BERM D	40+50	43+50	RT	85
13	-SR5-	45+00	47+00	RT	125
13	-SR5-	3+32.3	3+35	RT	55
14	-SR5-BERM D	54+50	55+50	RT	45
15	-SR5-	64+50	67+00	RT	200
15	-SR5-	67+00	70+00	RT	185
16	-SR4-	85+50	89+53.9	LT	540
16	-SR4-BERM D	85+00	85+50	LT	30
16	-SR4-BERM D	85+50	89+03	LT	100
16-17	-SBL2-	530+00	532+52	LT	265
17	-SBL2-	532+52	536+02	LT	315
17	-SR4-	92+56.3	96+07.1	LT	390
17	-SR4-BERM D	92+56.3	94+57.1	LT	80
17	-SR5-	94+43	95+43	RT	135
18	-SR4-	108+00	108+50	RT	95
18	-Y19-	10+50	11+75	LT	90
19	-SR5-	124+30	127+30	LT	250
19	-Y18-	10+75	12+00	LT	175
19	-Y18-	11+25	12+00	RT	85
20	-Y8REV-	17+00	18+00	LT	65
20	-Y8REV-	24+00	24+50	RT	70
20	-Y8-	11+00	14+00	LT	420
20	-Y8-	14+00	16+00	LT	205
21	-Y8REV-	38+00	40+00	RT	140
21-23	-Y8REV-	48+00	52+00	LT	395
23	-Y8REV-	54+50	55+50	LT	90

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-3E
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
23	-Y8REV-	52+50	54+50	RT	215
23	-Y8REV-	55+50	57+00	LT	200
23	-DR2-	11+00	12+00	RT	65
23	-DR2-	12+00	12+25	RT	20
24	-Y9S0L-	43+12.7	43+62.7	RT	70
24	-Y9S0L-	43+60	43+93	RT	95
2-AC	TA-3	38+51.3	39+01.7	RT	150
2-AC	TA-9	37+51.7	39+02.9	LT	165
2-AF	TA-4	70+33.8	71+90.2	RT	140
2-AF	TA-4	76+33.8	76+83.8	LT	275
2-AF	TA-8	17+75	18+00	LT	60
2-AF	TA-8	18+00	19+00	LT	85
2-AF	TA-5	69+70.9	71+22.1	LT	190
				SUBTOTAL	14,885
	ADDITIONAL PSRM TO BE INSTALLED				10,960
				TOTAL	25,845
				SAY	26,000

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

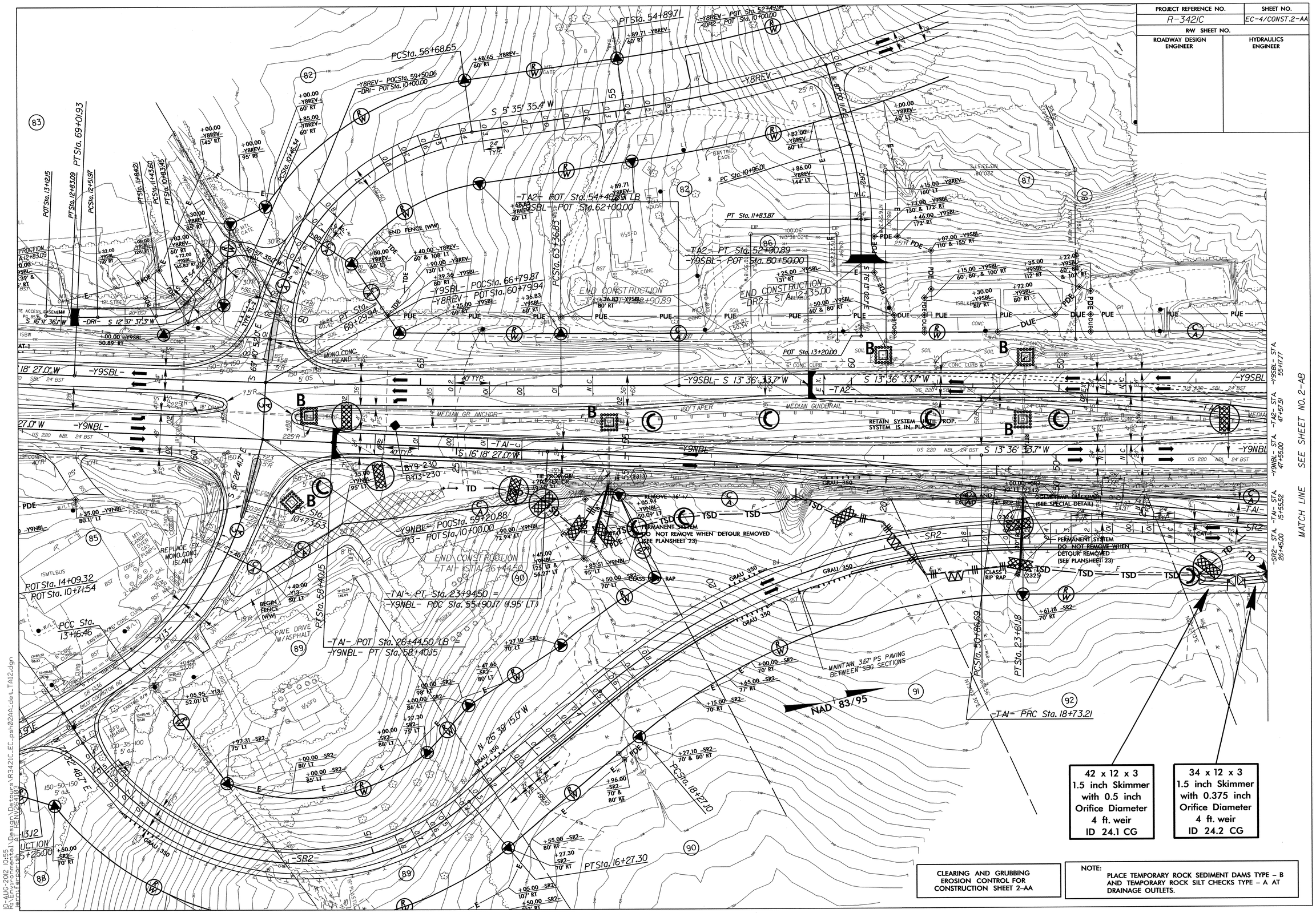
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-3F
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
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-3421C	EC-4/CONST.2-AA
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



42 x 12 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 24.1 CG

34 x 12 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 24.2 CG

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 2-AA

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

10-AUG-2012 10:55
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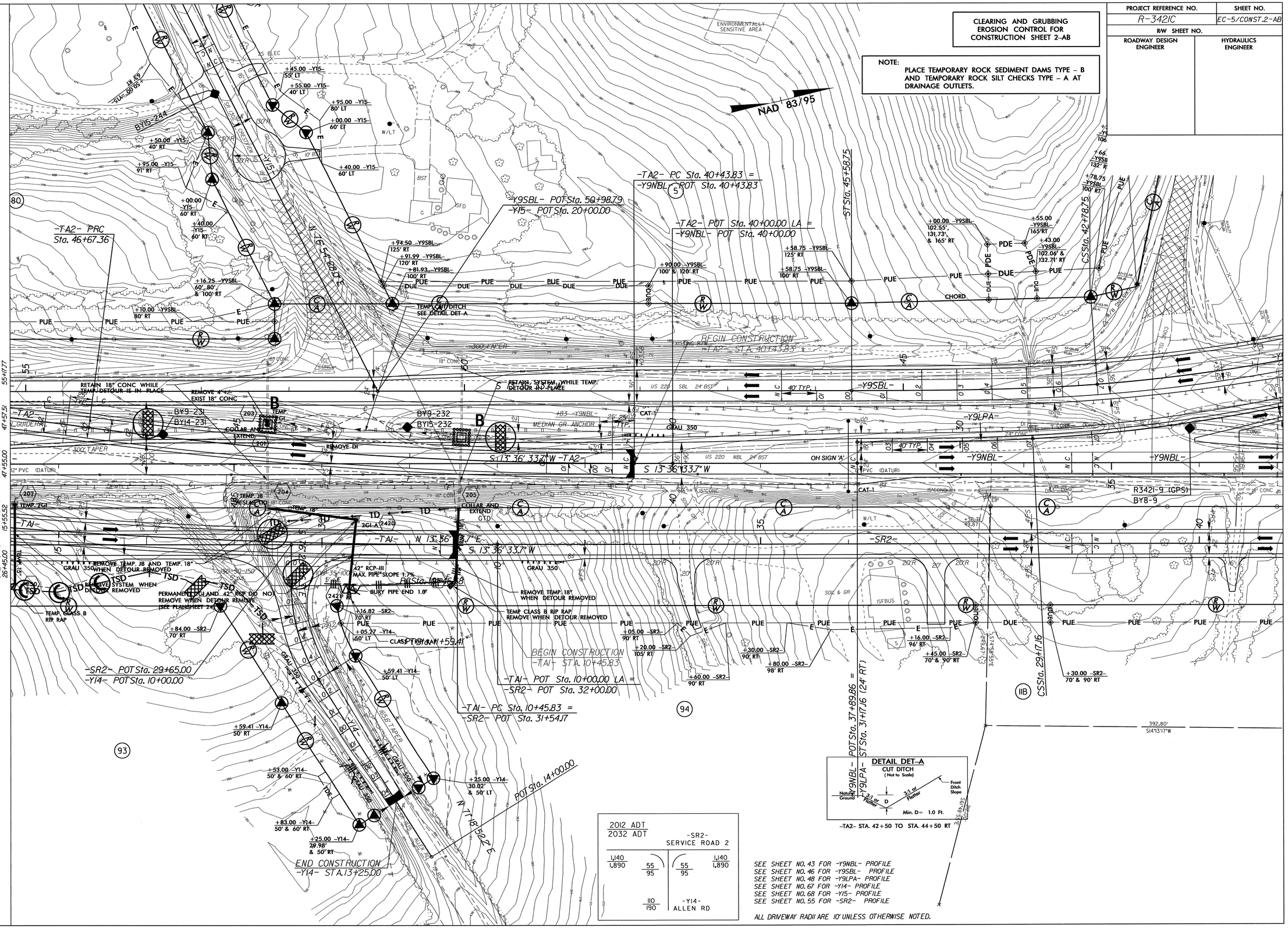
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-5/CONST.2-AB
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 2-AB

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



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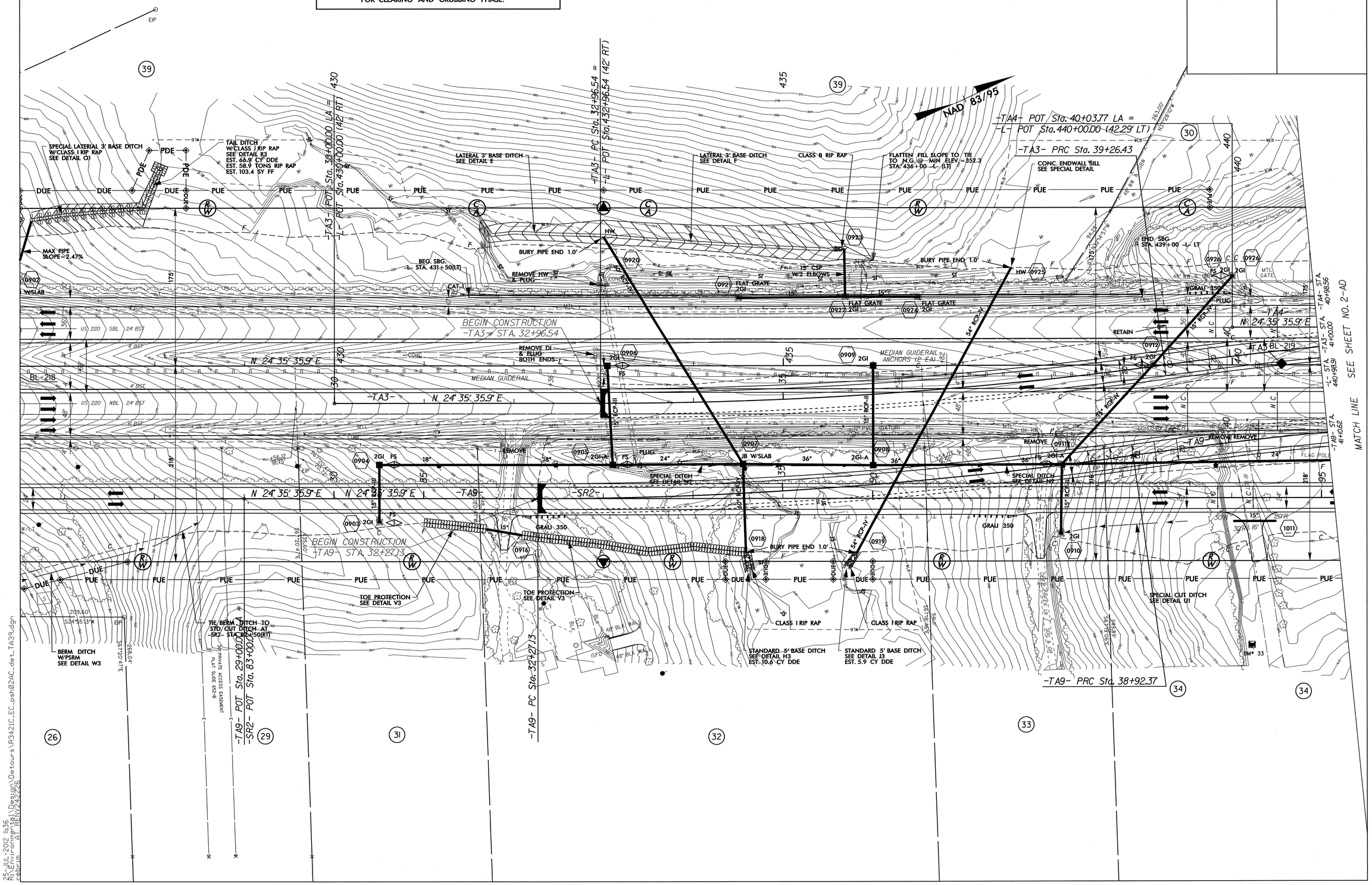
ronald.eagerton

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-6/CONST.2-AC
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
SEE EC-17/CONST.9 AND EC-18/CONST.10
FOR CLEARING AND GRUBBING PHASE.



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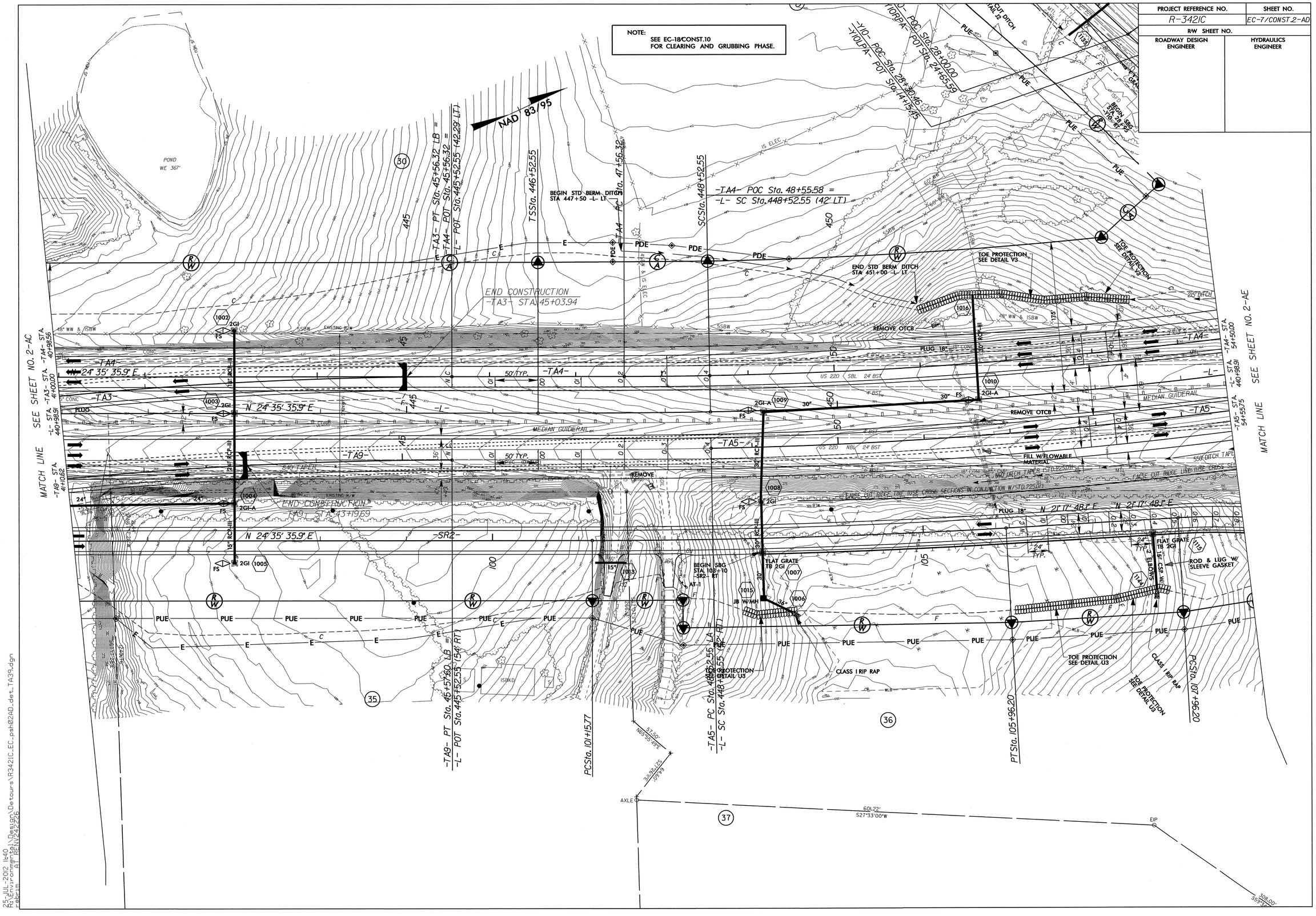
rebrim AT RENV242226

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-7/CONST.2-AD
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
SEE EC-18/CONST.10
FOR CLEARING AND GRUBBING PHASE.



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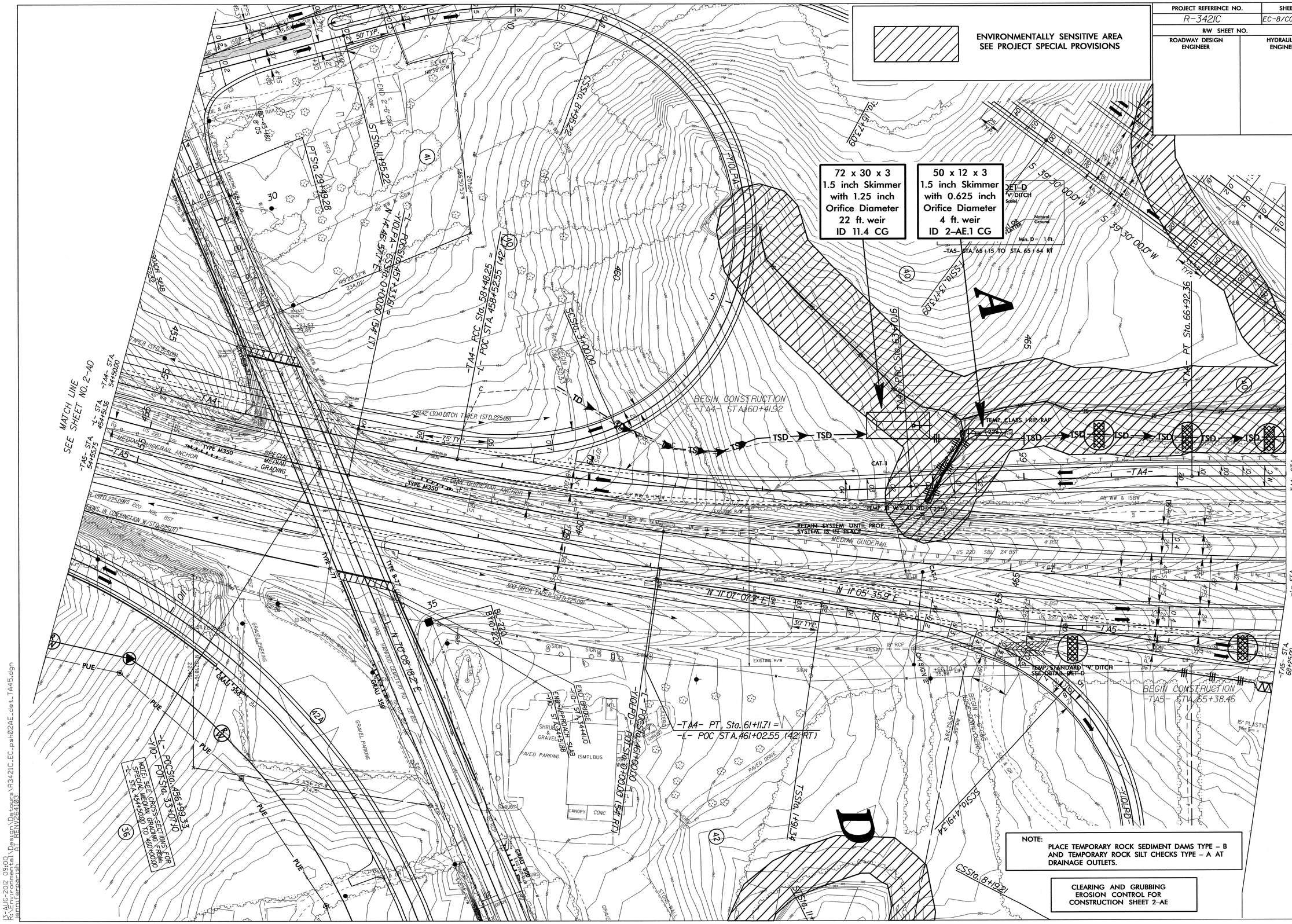
Fedors, Ann
PLAN VIEW 242.2PC

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-8/CONST.2-AE
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



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18CONTROLS AP
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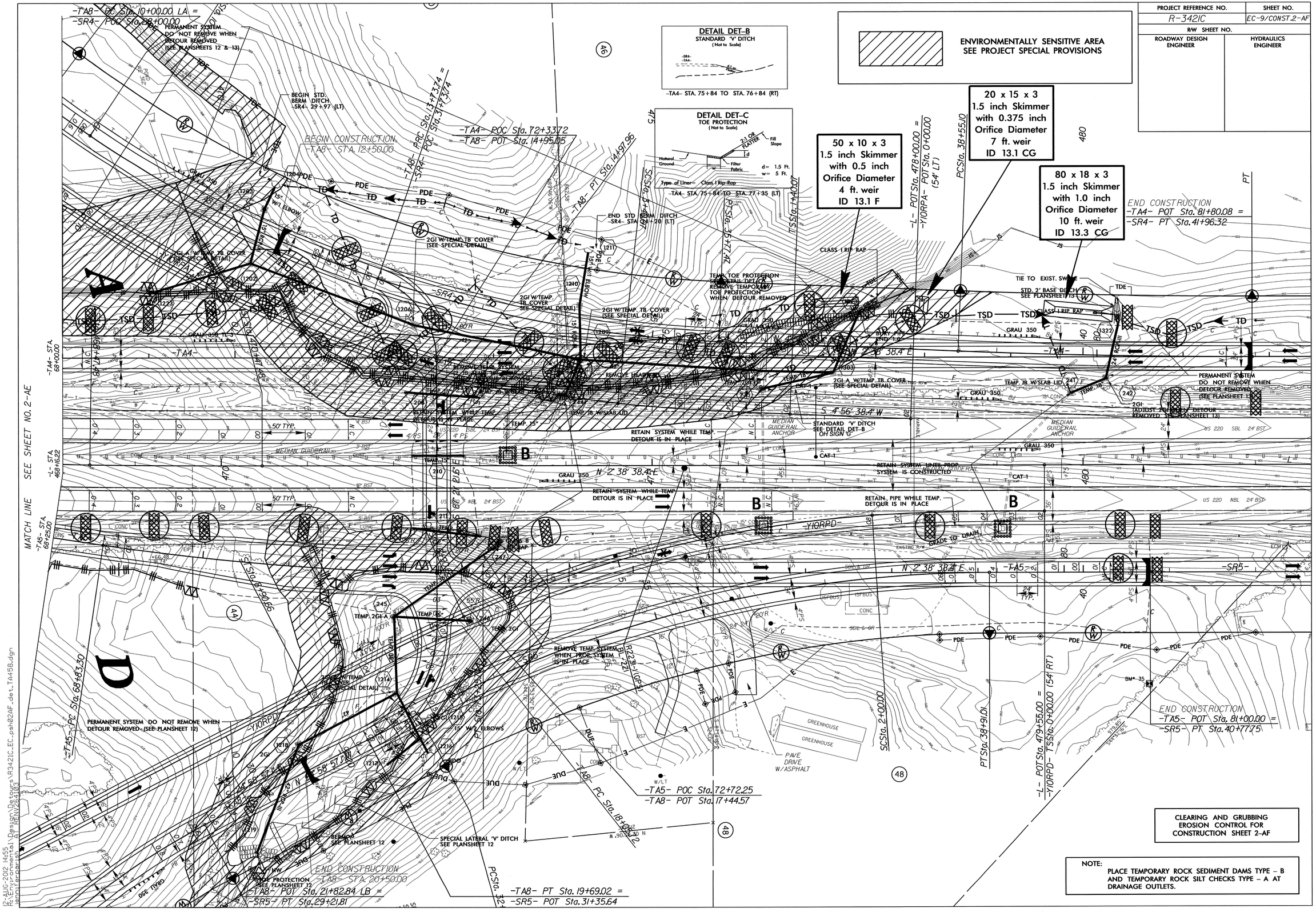
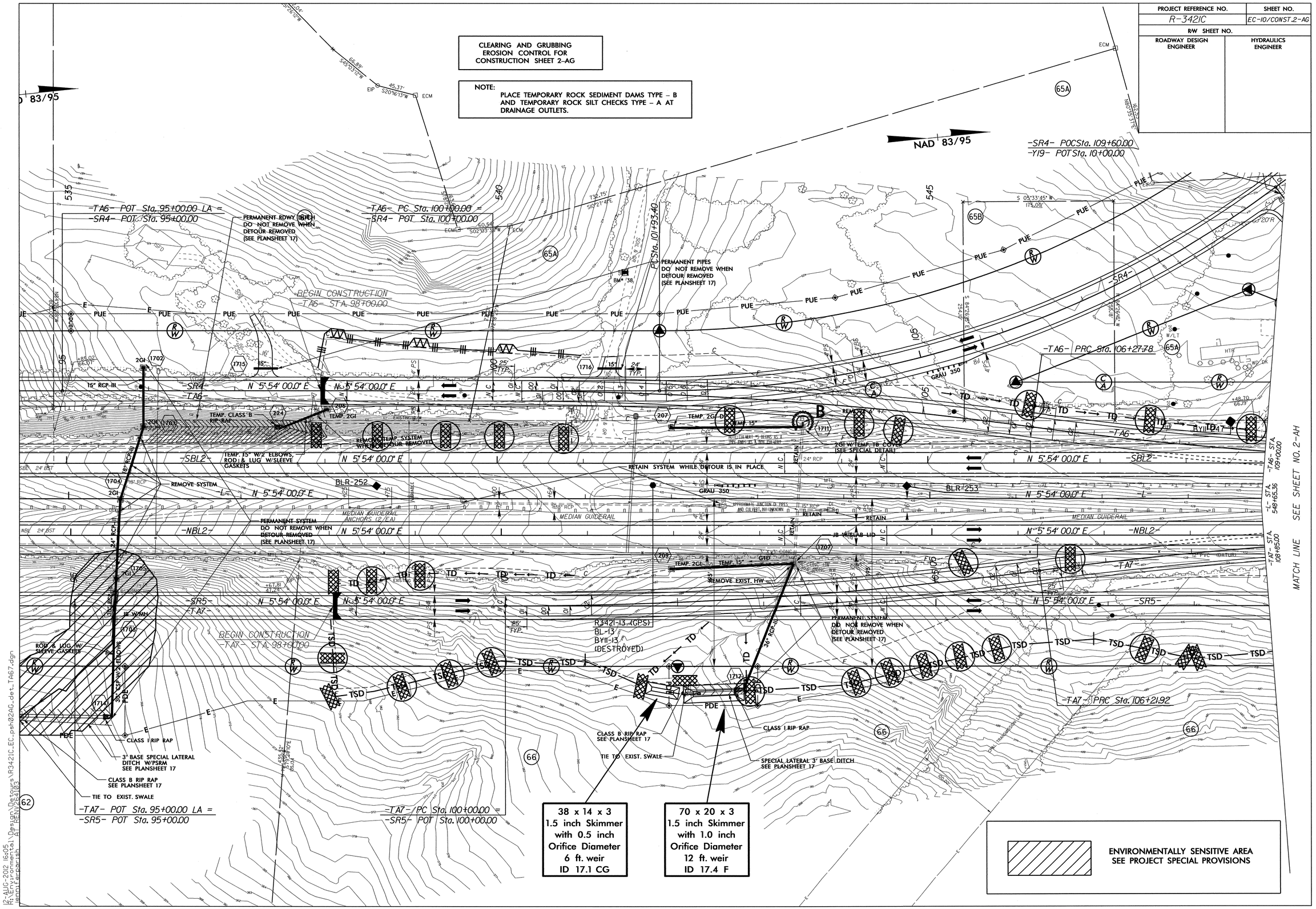
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-9/CONST.2-AF
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-10/CONST.2-AG
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 2-AG

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



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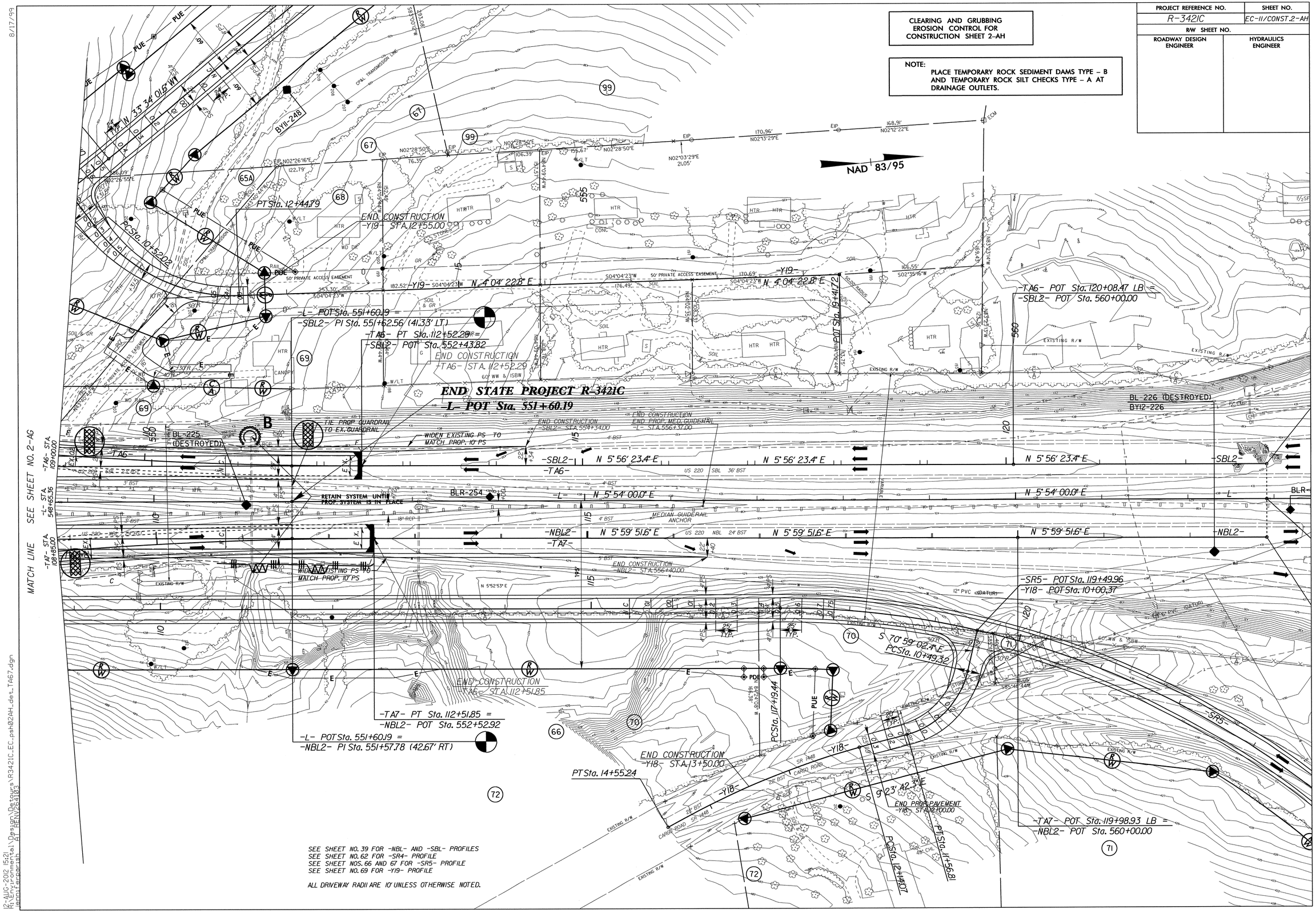
jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-11/CONST.2-AH
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 2-AH

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



SEE SHEET NO. 39 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO. 62 FOR -SR4- PROFILE
SEE SHEET NOS. 66 AND 67 FOR -SR5- PROFILE
SEE SHEET NO. 69 FOR -Y19- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

8/17/99

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smylearpsrsn

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-12/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

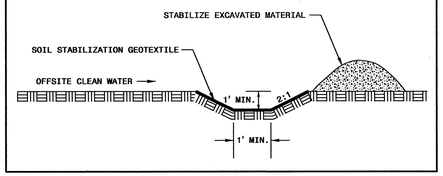
SEE SHEET NO.27 FOR -L- PROFILE

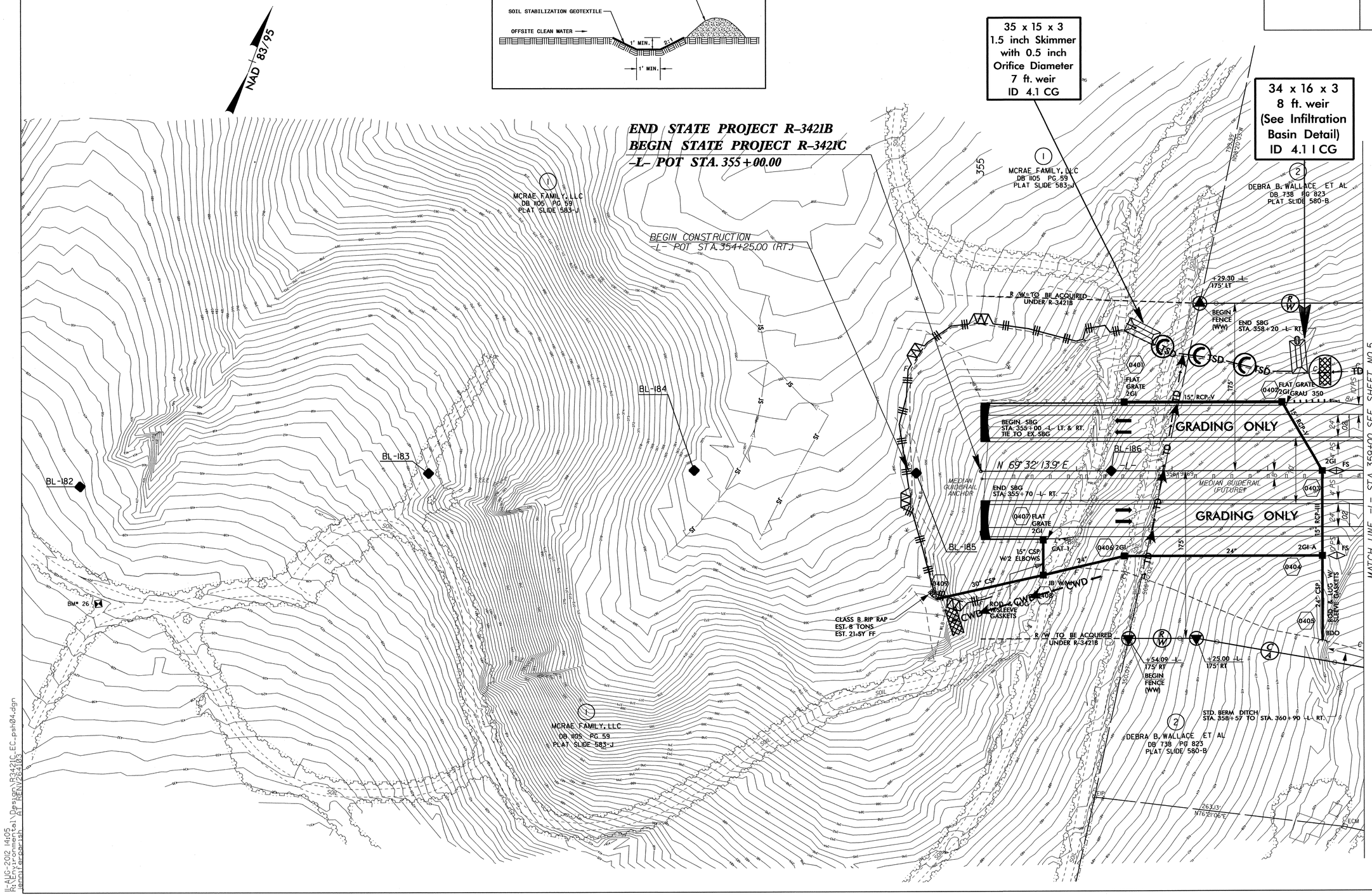
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 04

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

CLEAN WATER DIVERSION

(Not to Scale)





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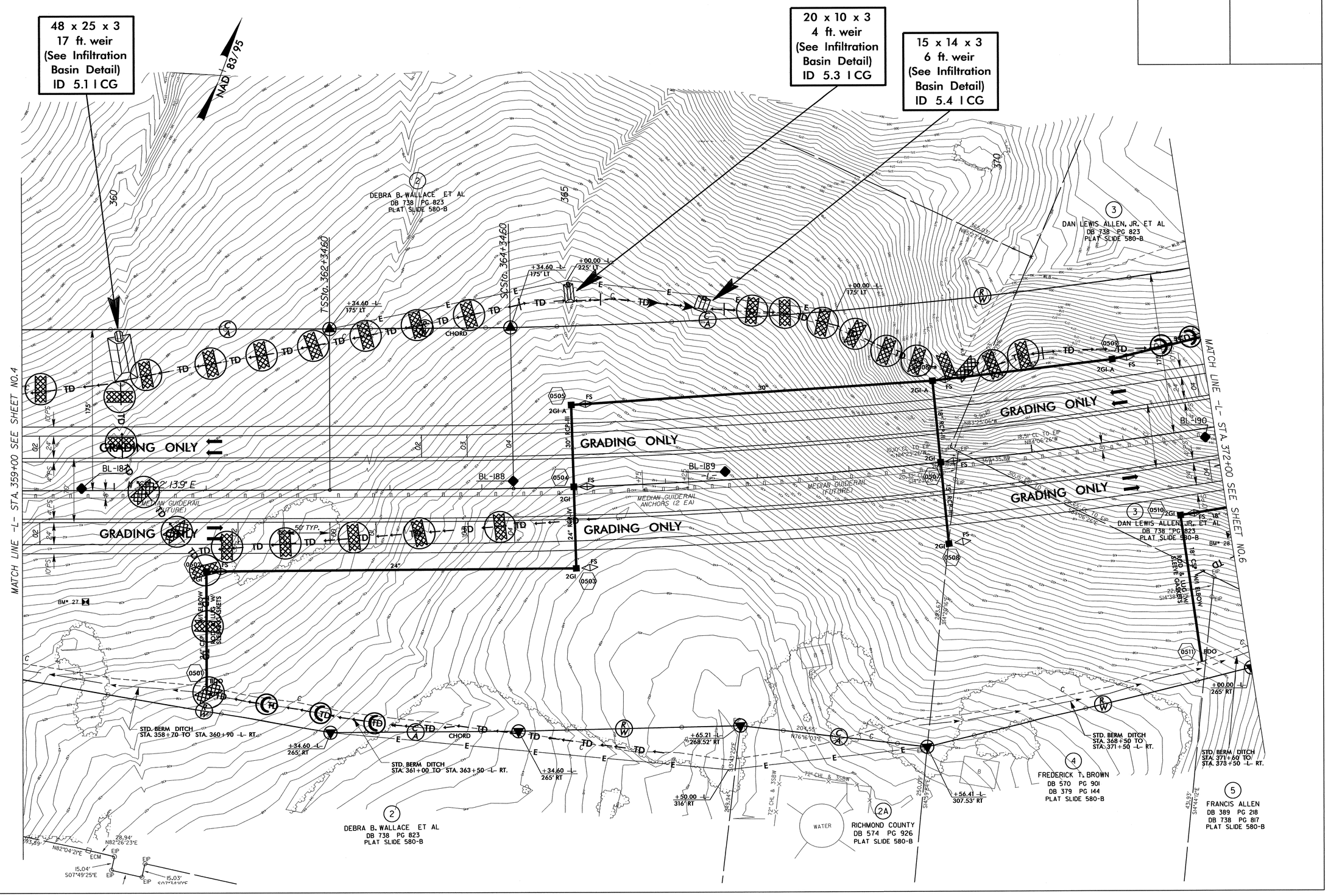
gerrit.carpenter

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-13/CONST.05
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 05

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



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semifarpoish AT HENVZ84103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-14/CONST.06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

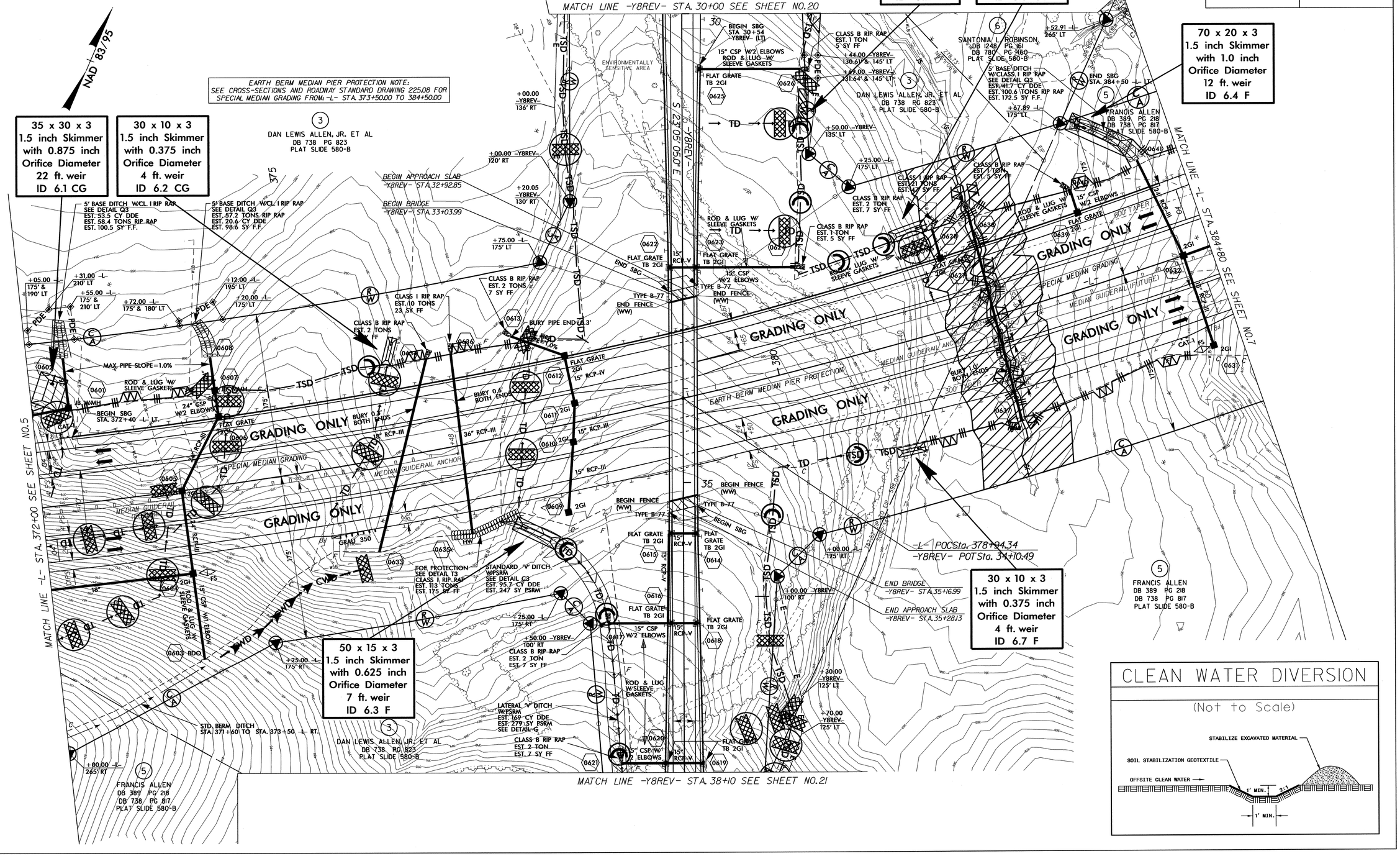
SEE SHEET NOS. 27 AND 28 FOR -L- PROFILE
SEE SHEET NO. 40 FOR -Y8REV- PROFILE

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 06

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

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

EARTH BERM MEDIAN PIER PROTECTION NOTE:
SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWING 225.08 FOR SPECIAL MEDIAN GRADING FROM: -L- STA. 373+50.00 TO 384+50.00



CLEAN WATER DIVERSION

(Not to Scale)

JL-AUG-2012 14:32
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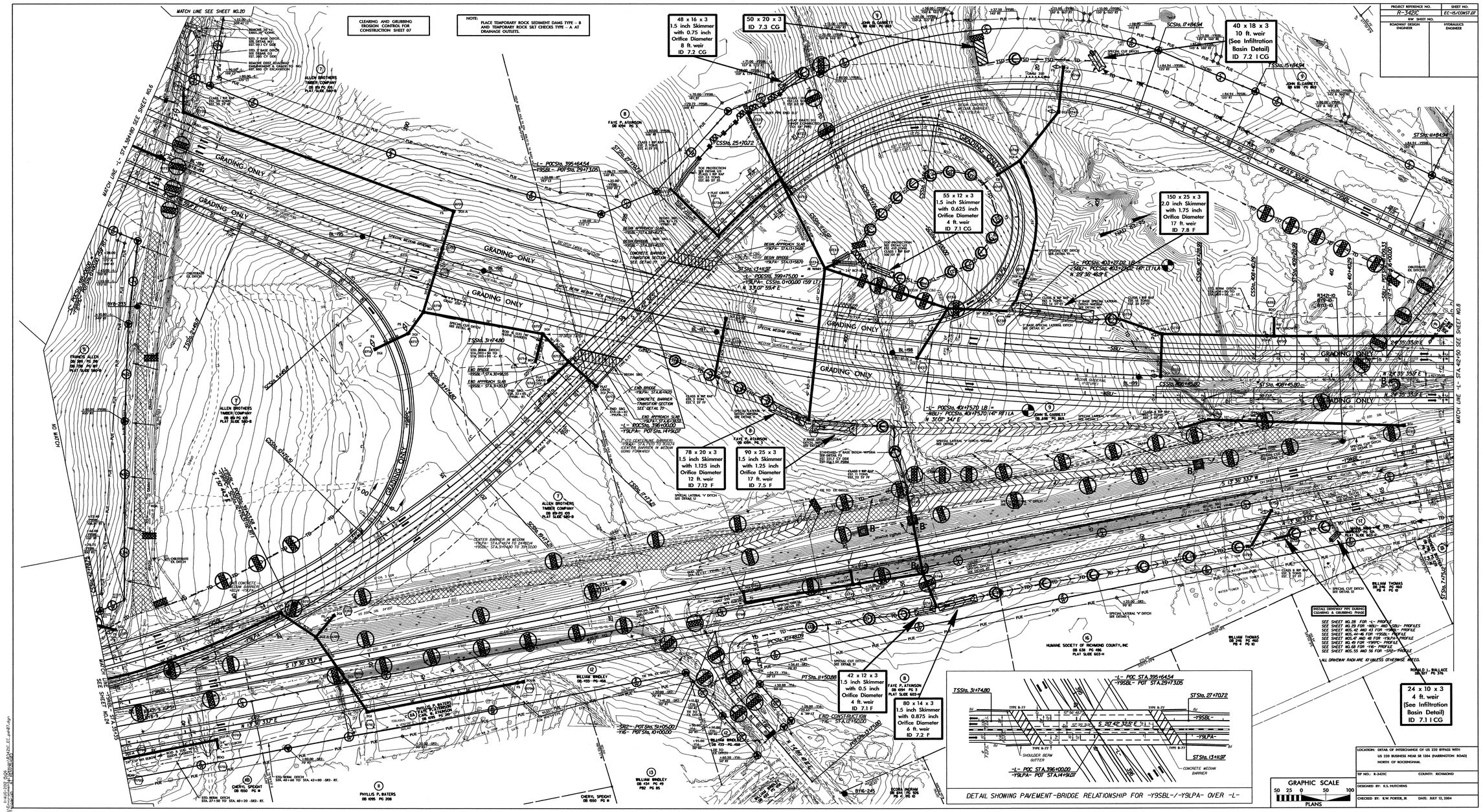
$$$$Project$$$ AT REN\264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-15/CONST.07
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



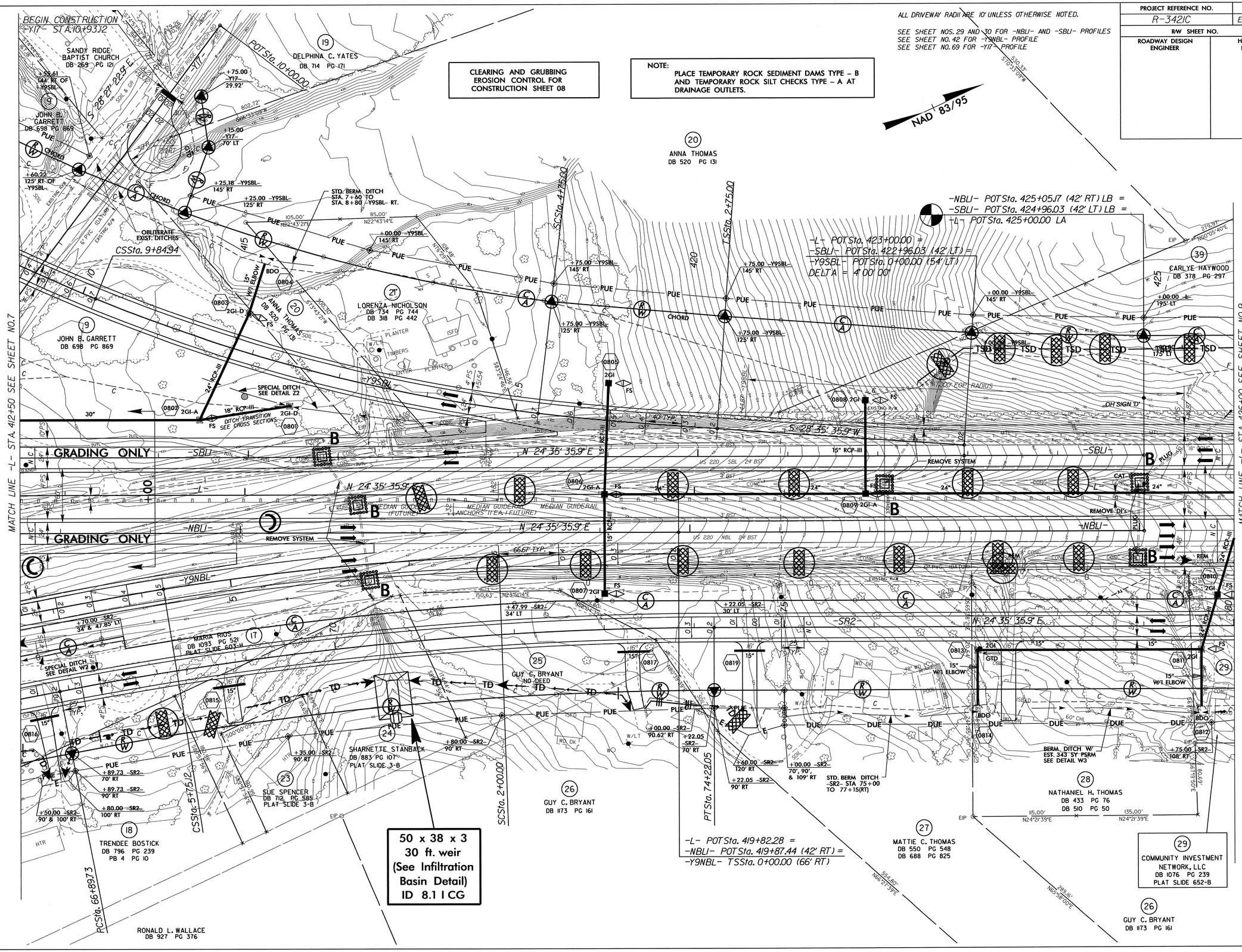
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-16/CONST.08
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 29 AND 30 FOR -NBLI- AND -SBLI- PROFILES
SEE SHEET NO. 42 FOR -Y9NBL- PROFILE
SEE SHEET NO. 69 FOR -Y17- PROFILE

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 08

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



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jenniferparish AT RENV264103

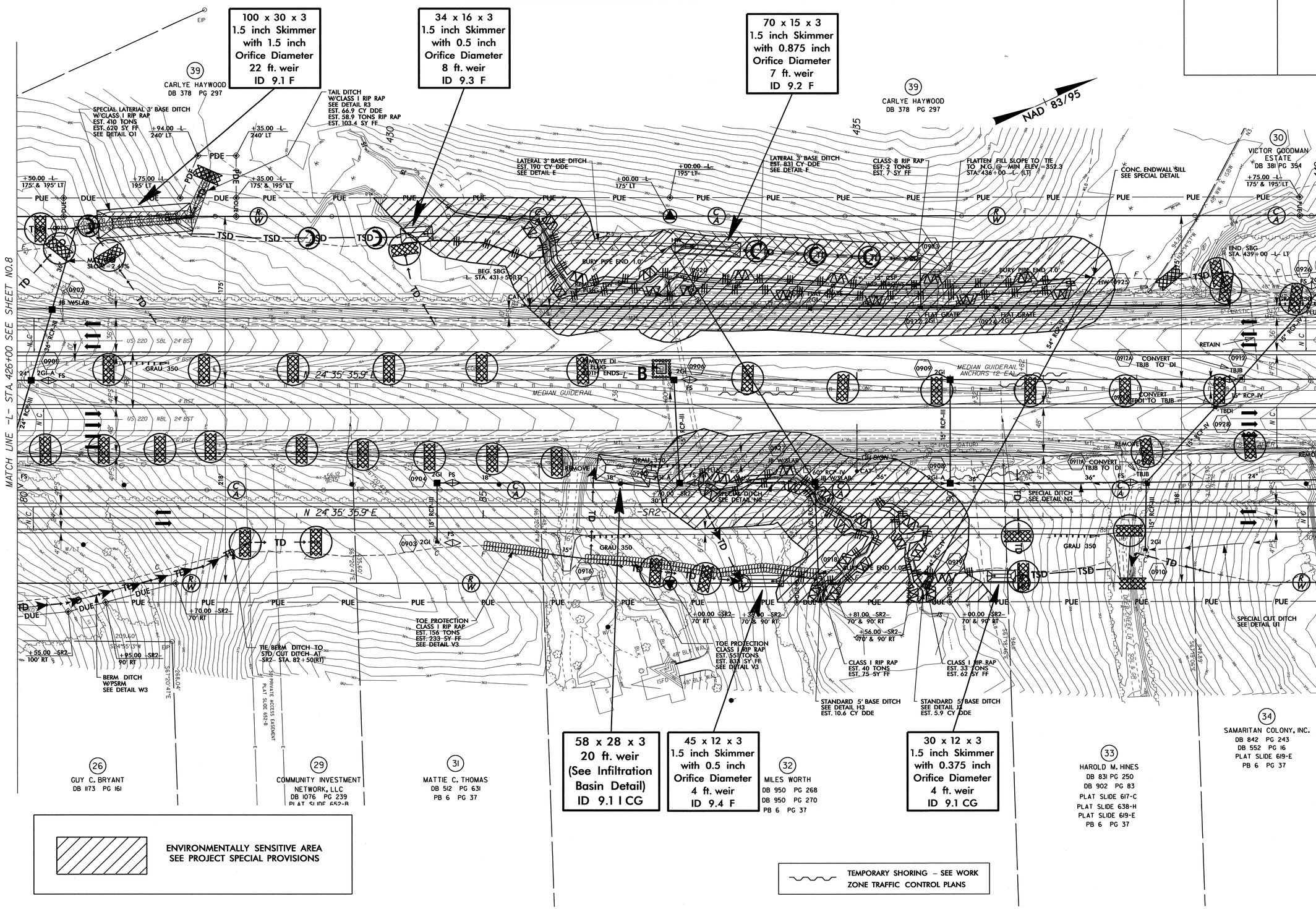
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-17/CONST.09
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 30 AND 31 FOR -NBL- AND -SBL1- PROFILES
SEE SHEET NO. 57 FOR -SR2- PROFILE

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 09

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



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

TEMPORARY SHORING – SEE WORK ZONE TRAFFIC CONTROL PLANS

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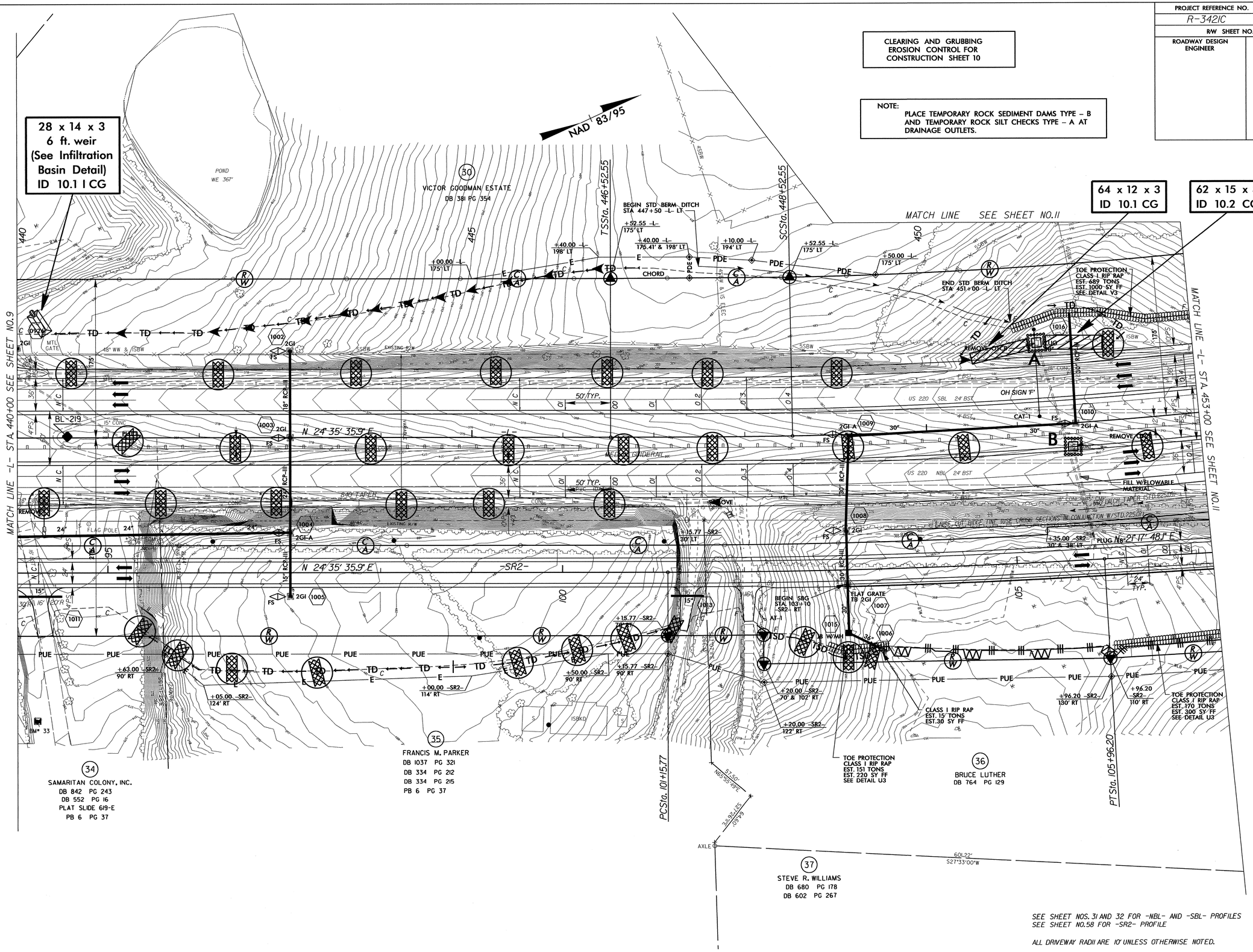
jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-18/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



SEE SHEET NOS. 31 AND 32 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO.58 FOR -SR2- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

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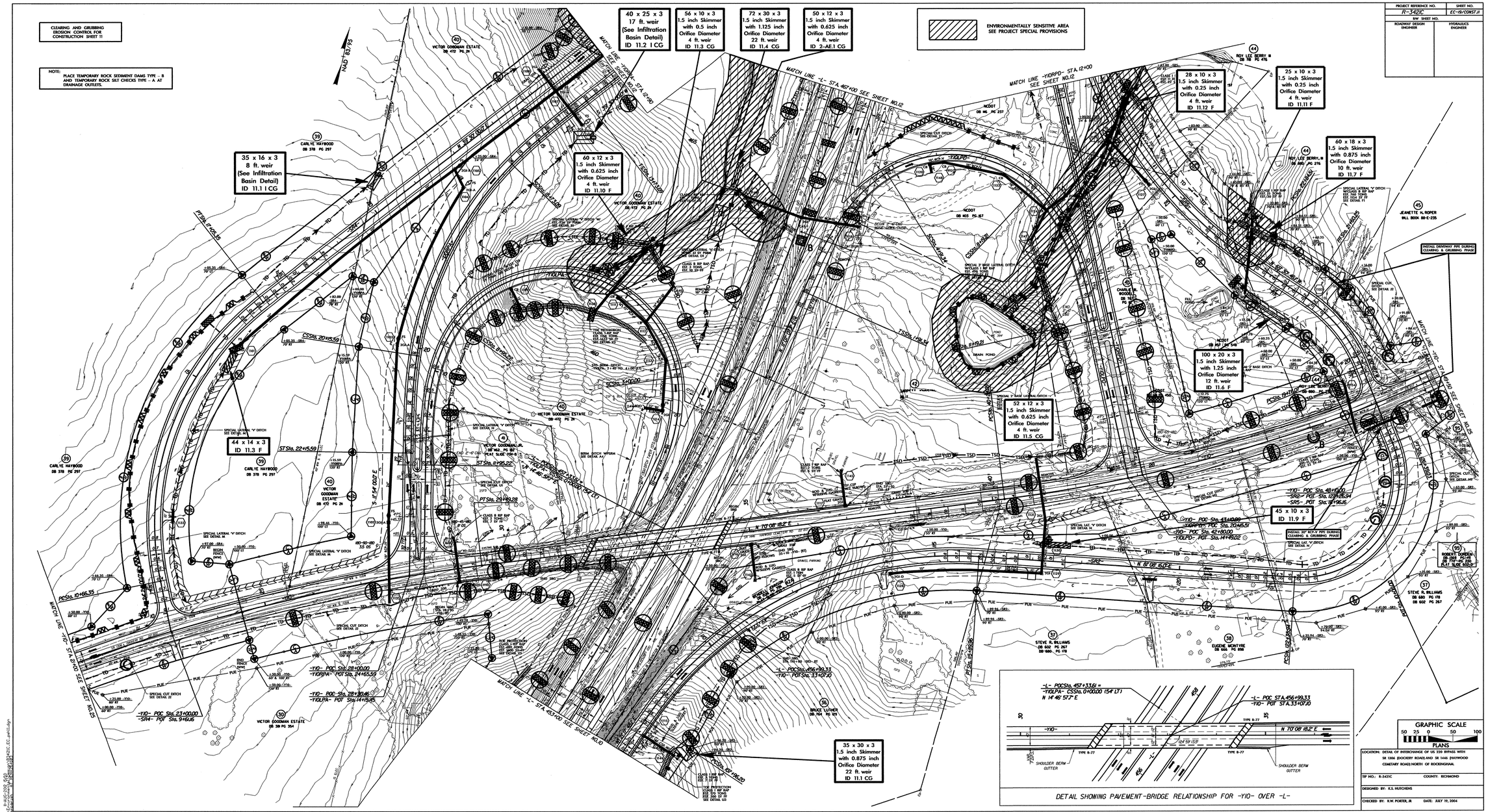
bengilfordpsh AT PENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-19/CONST.II
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



LOCATION: DETAIL OF INTERCHANGE OF US 220 BYPASS WITH SR 1006 (ROCKERY ROAD) AND SR 1446 (PAYWOOD CEMETARY ROAD) NORTH OF ROCKINGHAM.

TIP NO.: R-3421C COUNTY: RICHMOND

DESIGNED BY: K.S. HUTCHENS

CHECKED BY: R.W. PORTER, JR DATE: JULY 19, 2004

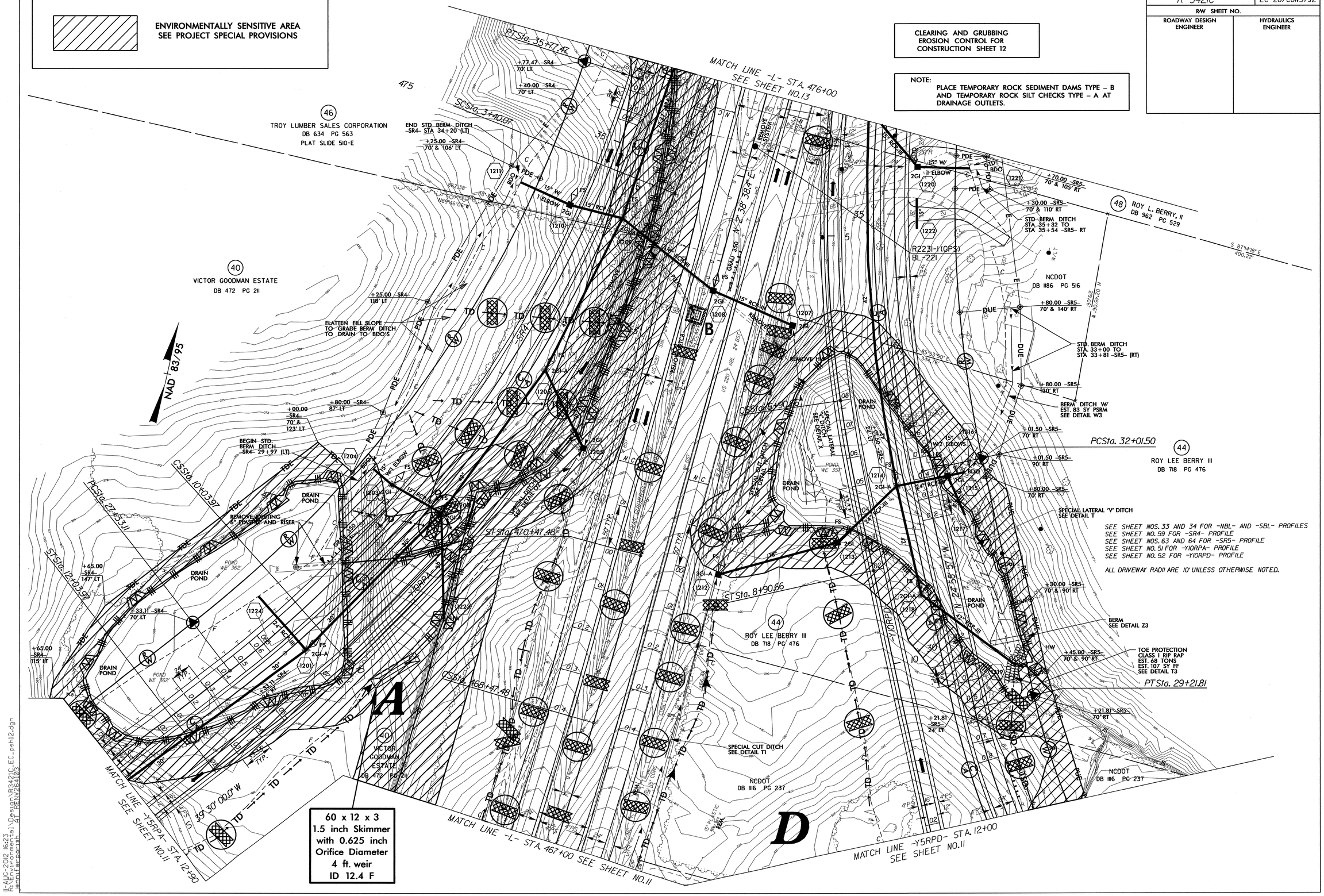
R-3421C-2004_EC20
jwhite/Projects/Richmond/R3421C-EC-pmt1.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-20/CONST.12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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.



SEE SHEET NOS. 33 AND 34 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO. 59 FOR -SR4- PROFILE
SEE SHEET NOS. 63 AND 64 FOR -SR5- PROFILE
SEE SHEET NO. 51 FOR -Y10RPA- PROFILE
SEE SHEET NO. 52 FOR -Y10RPD- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

1-AUG-2012 16:23
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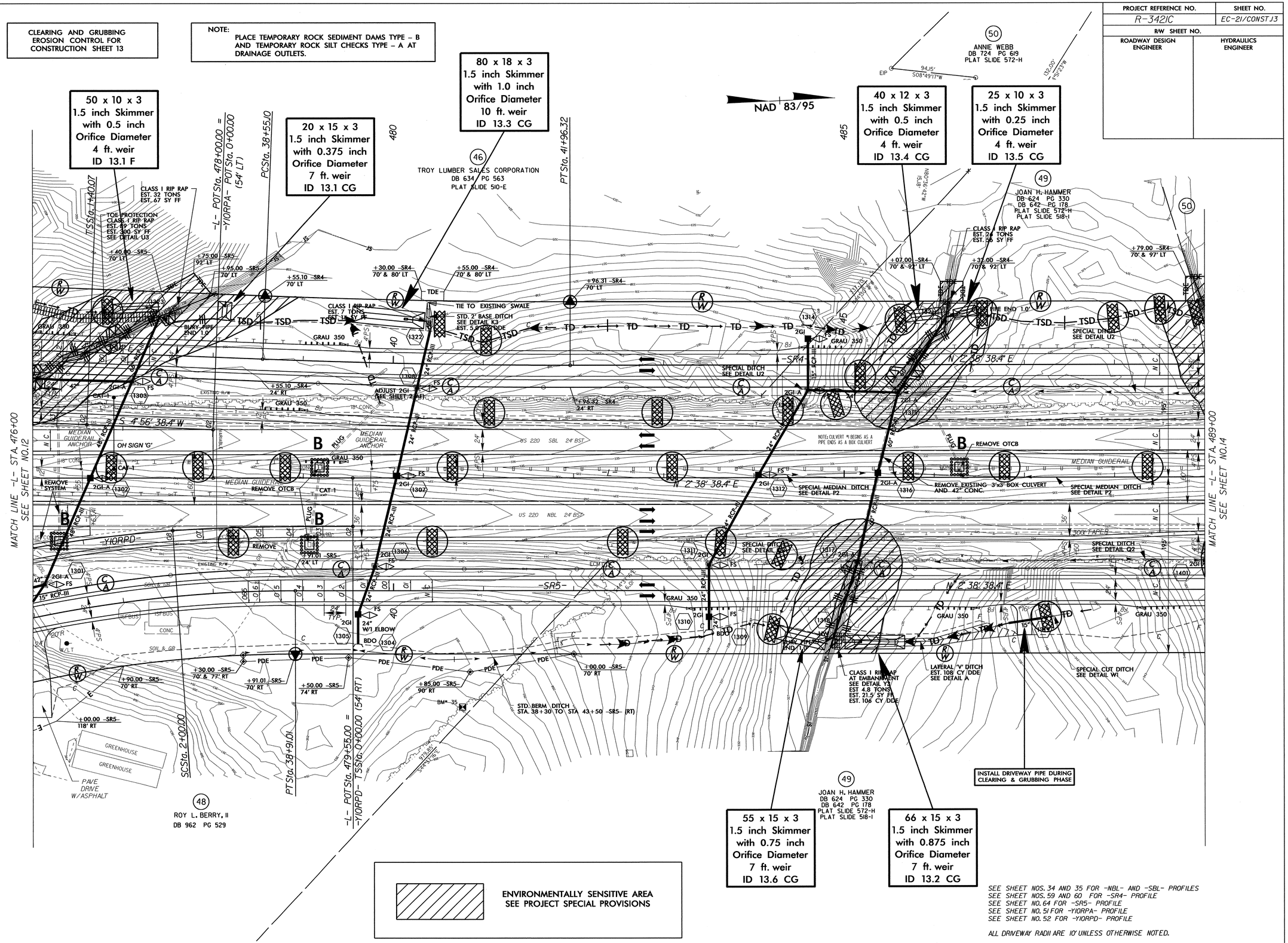
$$$$USERNAME$$$$ | $$$$DATE$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-21/CONST.13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



SEE SHEET NOS. 34 AND 35 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NOS. 59 AND 60 FOR -SR4- PROFILE
SEE SHEET NO. 64 FOR -SR5- PROFILE
SEE SHEET NO. 51 FOR -YIORPA- PROFILE
SEE SHEET NO. 52 FOR -YIORPD- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

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bendrickson AT REN\264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-22/CONST.14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 35 AND 36 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO. 60 FOR -SR4- PROFILE
SEE SHEET NOS. 64 AND 65 FOR -SR5- PROFILE

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 14

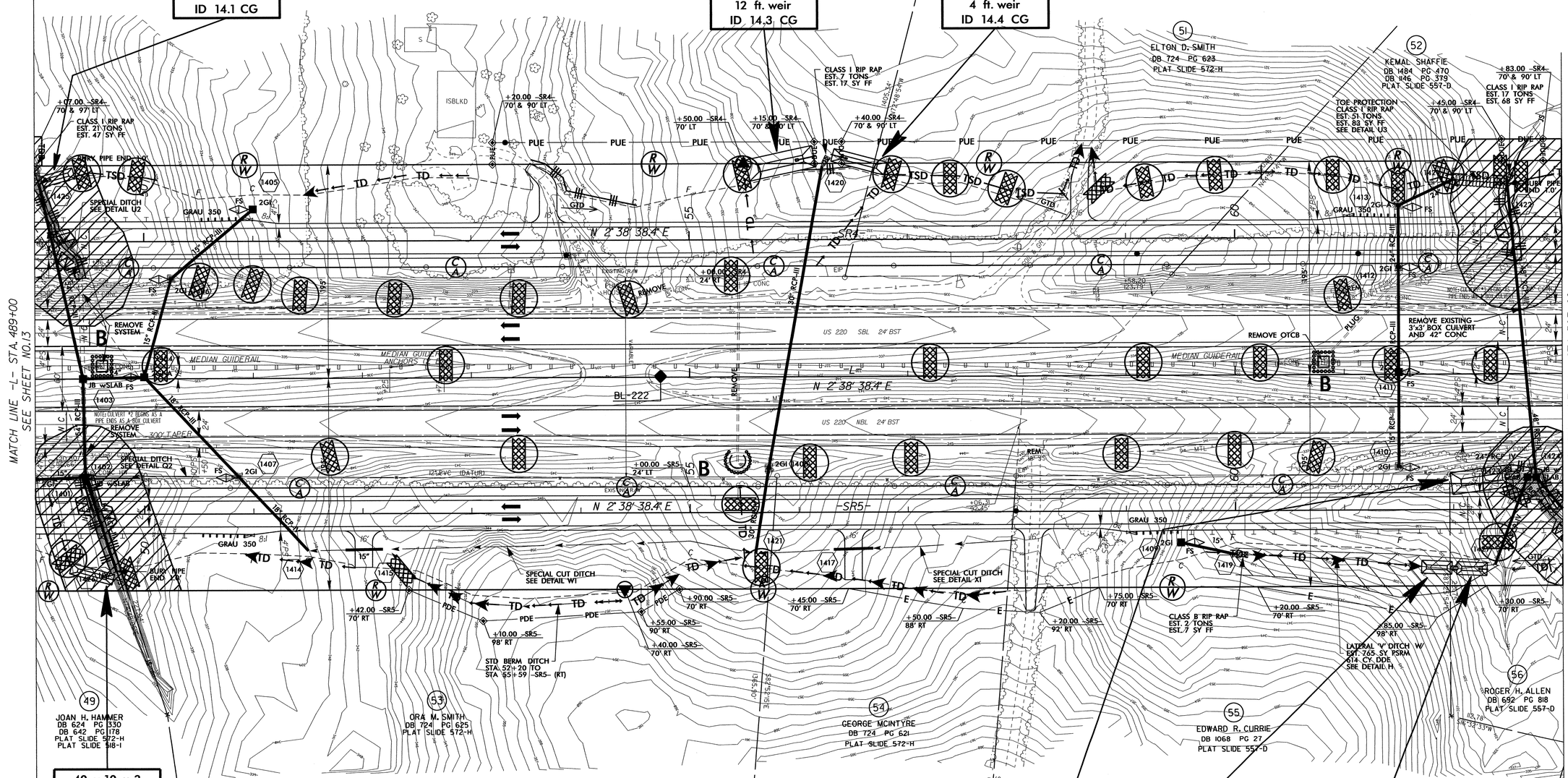
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

NAD 83/95

30 x 10 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 14.1 CG

62 x 20 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
12 ft. weir
ID 14.3 CG

50 x 12 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
4 ft. weir
ID 14.4 CG



40 x 10 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 14.5 CG

56 x 20 x 3
12 ft. weir
(See Infiltration
Basin Detail)
ID 14.1 I CG

Modified Silt Basin
Type 'B'
30 x 12 x 3
4 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 14.1 F

30 x 12 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 14.1 F

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

11-AUG-2012 16:32
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jarroll@ncdot.gov
RELEASE 4.1

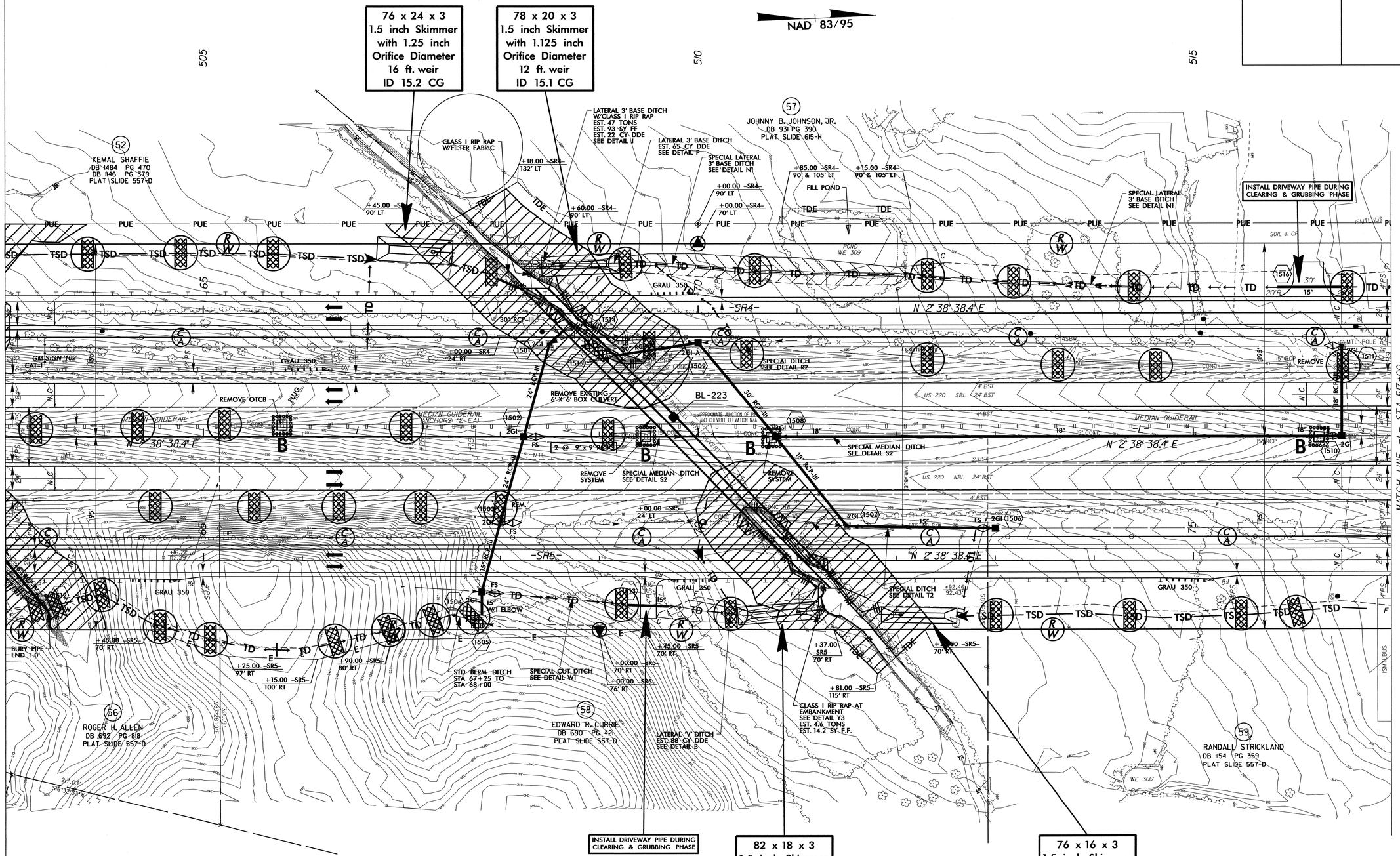
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-23/CONST.15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 36 AND 37 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NOS. 60 AND 61 FOR -SR4- PROFILE
SEE SHEET NO. 65 FOR -SR5- PROFILE

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.



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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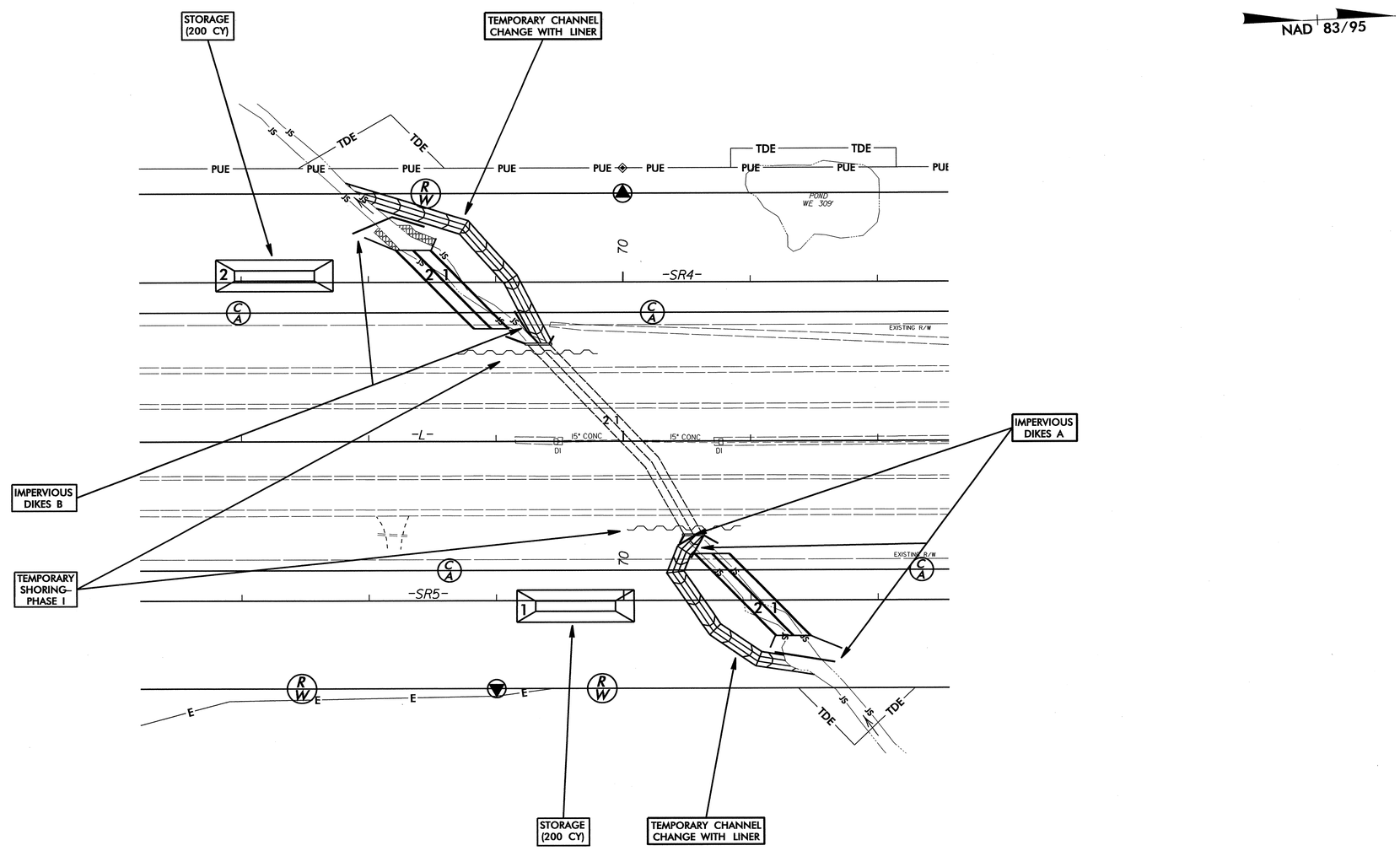
jennifer parish AT RENV264103

CULVERT CONSTRUCTION SEQUENCE STA. 509 + 83 –L–
(SHEET 1 OF 5)

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-24/CONST J5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE I

1. CONSTRUCT STILLING BASINS 1 AND 2 (200 CY EACH).
2. CONSTRUCT TEMPORARY SHORING – PHASE I FOR EXISTING NBL AND SBL.
3. CONSTRUCT IMPERVIOUS DIKES A AND B, AND TEMPORARY CHANNEL CHANGES WITH LINER (4 FT. BASE, 2 FT. DEEP, 2:1 SIDE SLOPES), DIVERTING FLOW.
4. CONSTRUCT APPROXIMATELY 88 FT. OF THE UPSTREAM AND DOWNSTREAM ENDS OF BOTH BARRELS OF THE PROPOSED CULVERT, INCLUDING ANY NECESSARY UPSTREAM/DOWNSTREAM CHANNEL IMPROVEMENTS.
5. REMOVE IMPERVIOUS DIKES A AND B, AND TEMPORARY CHANNEL CHANGES.

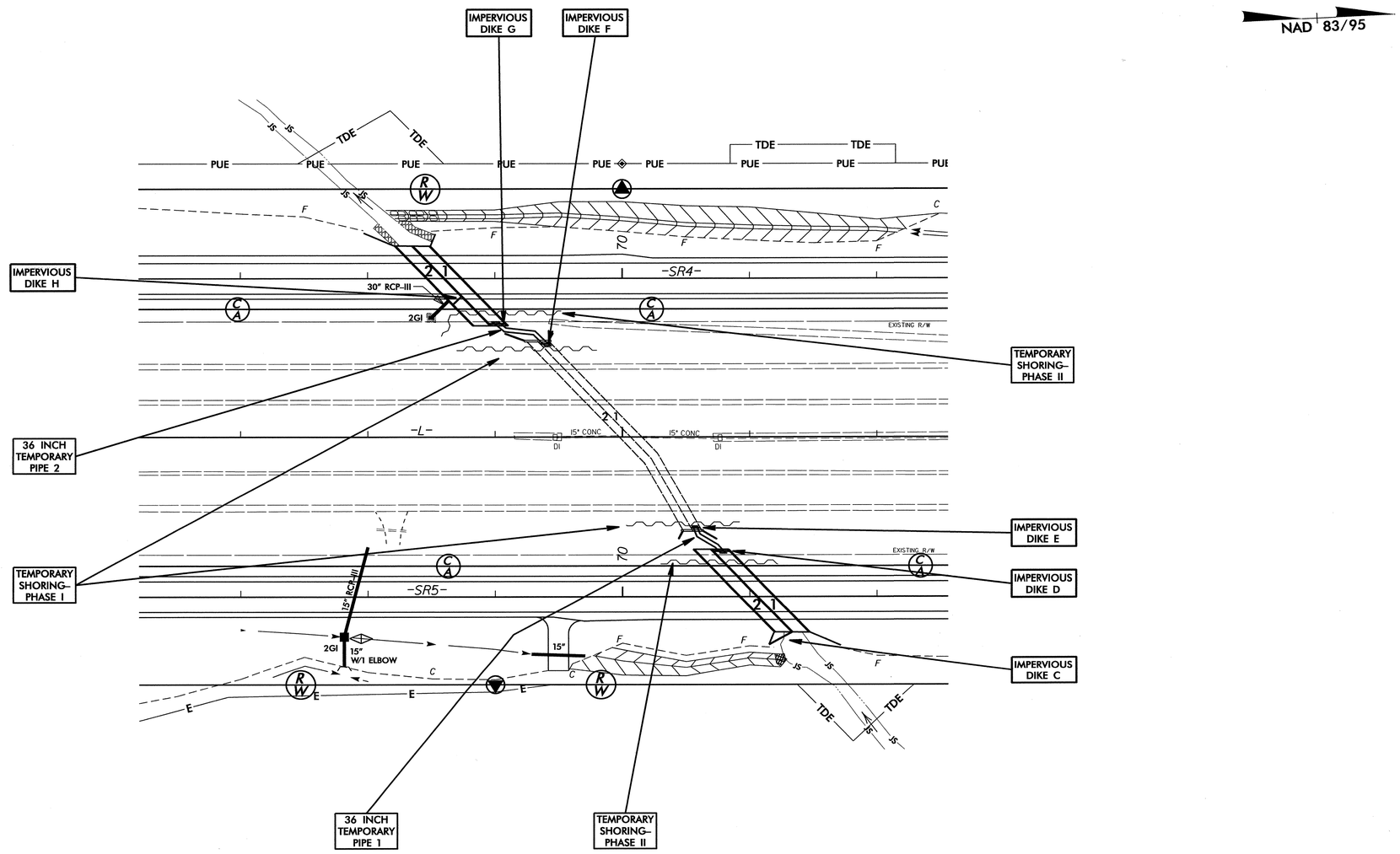


CULVERT CONSTRUCTION SEQUENCE STA. 509+83 –L– (SHEET 2 OF 5)

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-25/CONST.J5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE II

6. CONSTRUCT IMPERVIOUS DIKES C, D, E, F, AND G, AND INSTALL 36" TEMPORARY PIPES 1 AND 2, DIVERTING FLOW THROUGH BARREL 1 OF COMPLETED PORTIONS OF THE PROPOSED CULVERT AND THE EXISTING CULVERT.
7. CONSTRUCT TEMPORARY SHORING – PHASE II FOR SERVICE ROADS (–SR4– AND –SR5–).
8. REMOVE STILLING BASINS 1 AND 2.
9. INSTALL PROPOSED 2GI (–L– STA. 508+50, OS –94.3) AND 30" RCP–III, AND CONSTRUCT IMPERVIOUS DIKE H.
10. CONSTRUCT SERVICE ROADS –SR4– AND –SR5–. SHIFT TRAFFIC FROM EXISTING NBL TO –SR5– AND FROM EXISTING SBL TO –SR4–.

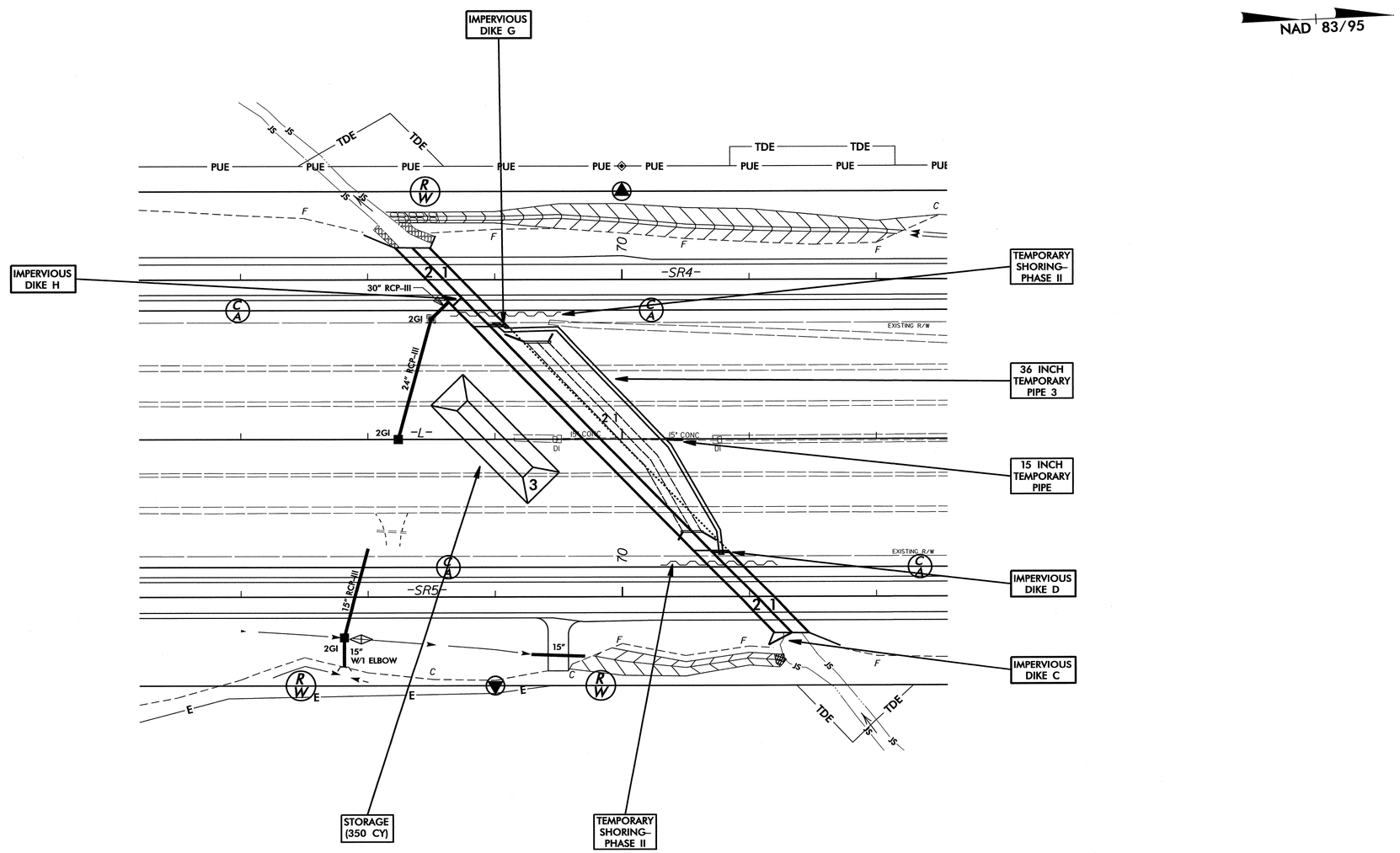


CULVERT CONSTRUCTION SEQUENCE STA. 509 + 83 –L– (SHEET 3 OF 5)

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-26/CONST15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE III

11. INSTALL PROPOSED 2GI (–L– STA. 508 + 23.9, OS 0) AND 24" RCP–III. REMOVE EXISTING DI AND 15" CONCRETE PIPE CONNECTED TO BARREL 2 OF THE EXISTING CULVERT.
12. CONSTRUCT STILLING BASIN 3 (350 CY).
13. REMOVE TEMPORARY SHORING – PHASE I AND EXCAVATE EXISTING NBL AND SBL FOR THE PROPOSED CULVERT.
14. REMOVE 36" TEMPORARY PIPES 1 AND 2, AND IMPERVIOUS DIKES E AND F. INSTALL 36" TEMPORARY PIPE 3, AND 15" TEMPORARY PIPE TIED IN TO EXISTING 15" CONCRETE PIPE ON THE NORTH SIDE OF THE EXISTING CULVERT.
15. REMOVE EXISTING CULVERT. CONSTRUCT BOTTOM SLAB OF REMAINING PORTION OF BARREL 1 AND COMPLETE THE REMAINING PORTION OF BARREL 2 OF THE PROPOSED CULVERT.
16. REMOVE IMPERVIOUS DIKES C AND H.

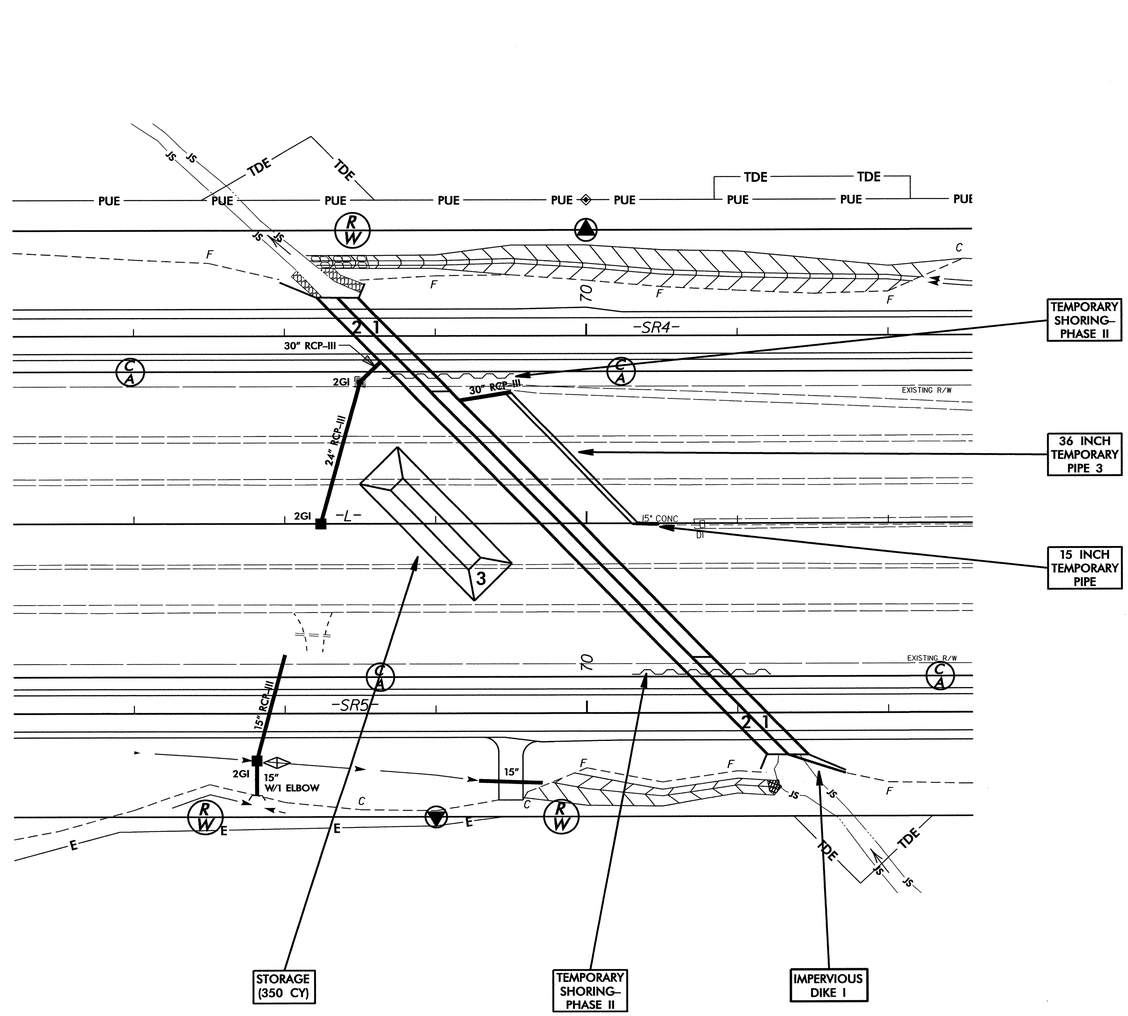


PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-27/CONST J5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 509 + 83 –L– (SHEET 4 OF 5)

PHASE IV

17. CONSTRUCT IMPERVIOUS DIKE I, DIVERTING FLOW THROUGH COMPLETED BARREL 2.
18. REMOVE IMPERVIOUS DIKE D AND PORTION OF 36" TEMPORARY PIPE 3 FROM COMPLETED UPSTREAM SECTION OF PROPOSED CULVERT BARREL 1 TO THE JUNCTION WITH 15" TEMPORARY PIPE.
19. CONSTRUCT REMAINDER OF PROPOSED CULVERT BARREL 1. REMOVE IMPERVIOUS DIKE G AND A PORTION OF 36" TEMPORARY PIPE 3. INSTALL PORTION OF PROPOSED 30" RCP–III TO CONNECT FROM THE PROPOSED CULVERT BARREL 1 TO 36" TEMPORARY PIPE 3 TO MAINTAIN DRAINAGE INTO THE PROPOSED CULVERT UNTIL THE FINAL DRAINAGE IS INSTALLED.



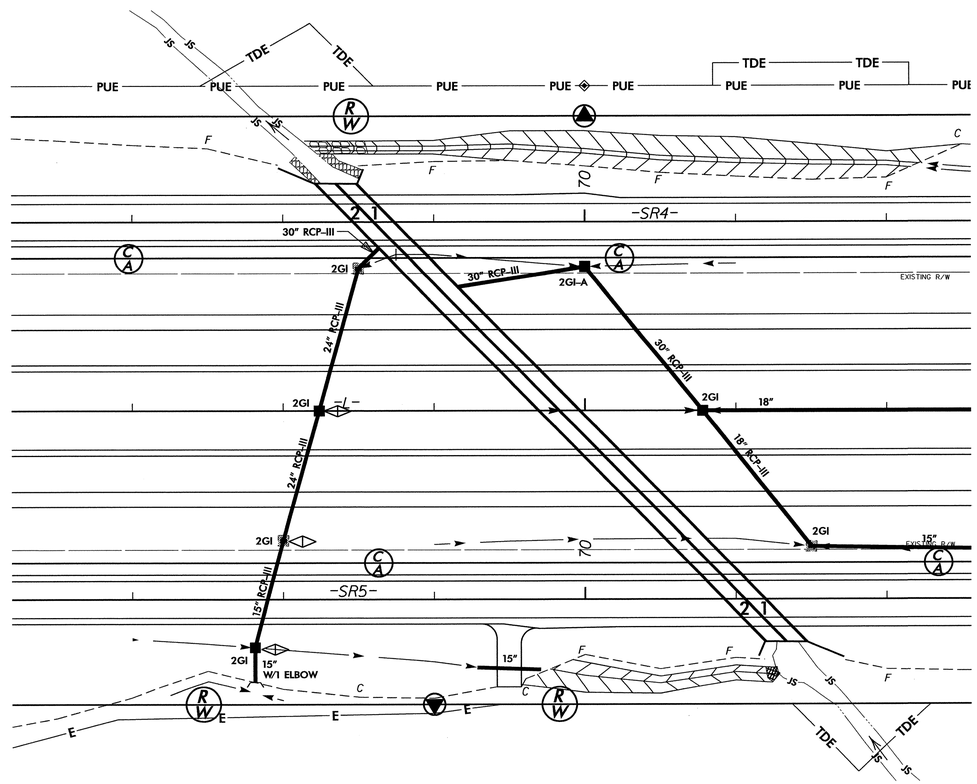
CULVERT CONSTRUCTION SEQUENCE STA. 509 + 83 –L– (SHEET 5 OF 5)

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-28/CONST J5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE V

20. INSTALL PROPOSED DRAINAGE SYSTEM ON THE NORTH SIDE OF THE PROPOSED CULVERT.
21. REMOVE 36" TEMPORARY PIPE 3 AND 15" TEMPORARY PIPE, AND IMPERVIOUS DIKE I.
22. REMOVE STILLING BASIN 3 AND TEMPORARY SHORING – PHASE II.
23. COMPLETE ROADWAY.

NAD 83/95



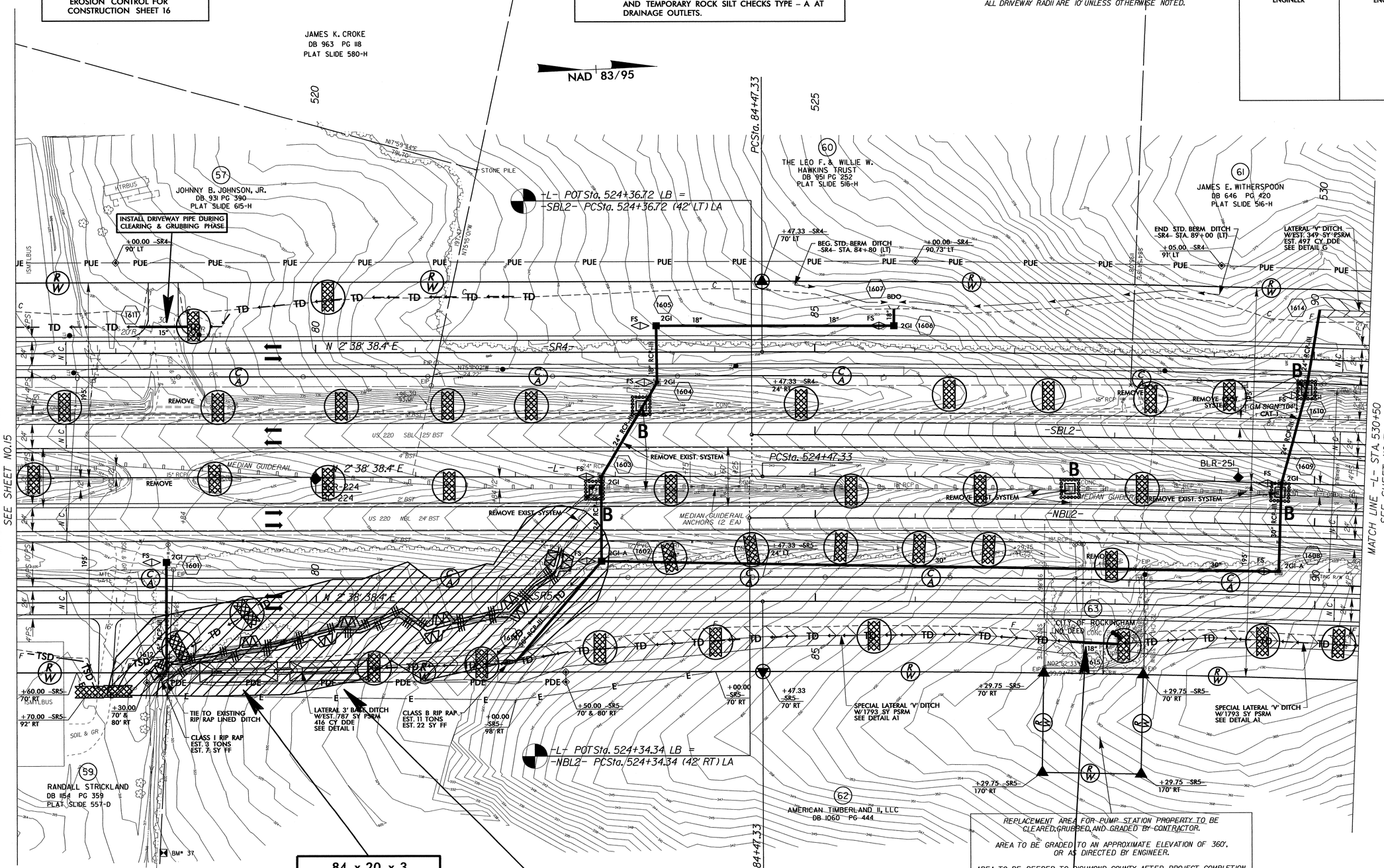
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-29/CONST.16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

SEE SHEET NOS. 37 AND 38 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO. 61 FOR -SR4- PROFILE
SEE SHEET NOS. 65 AND 66 FOR -SR5- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.



REPLACEMENT AREA FOR PUMP STATION PROPERTY TO BE CLEARED, GRUBBED, AND GRADED BY CONTRACTOR.

AREA TO BE GRADED TO AN APPROXIMATE ELEVATION OF 360', OR AS DIRECTED BY ENGINEER.

AREA TO BE DEEDED TO RICHMOND COUNTY AFTER PROJECT COMPLETION.

INSTALL DRIVEWAY PIPE DURING CLEARING & GRUBBING PHASE

84 x 20 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
12 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 16.1 F

Modified Silt Basin
Type 'B'
84 x 20 x 3
12 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 16.1 F

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-30/CONST.17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

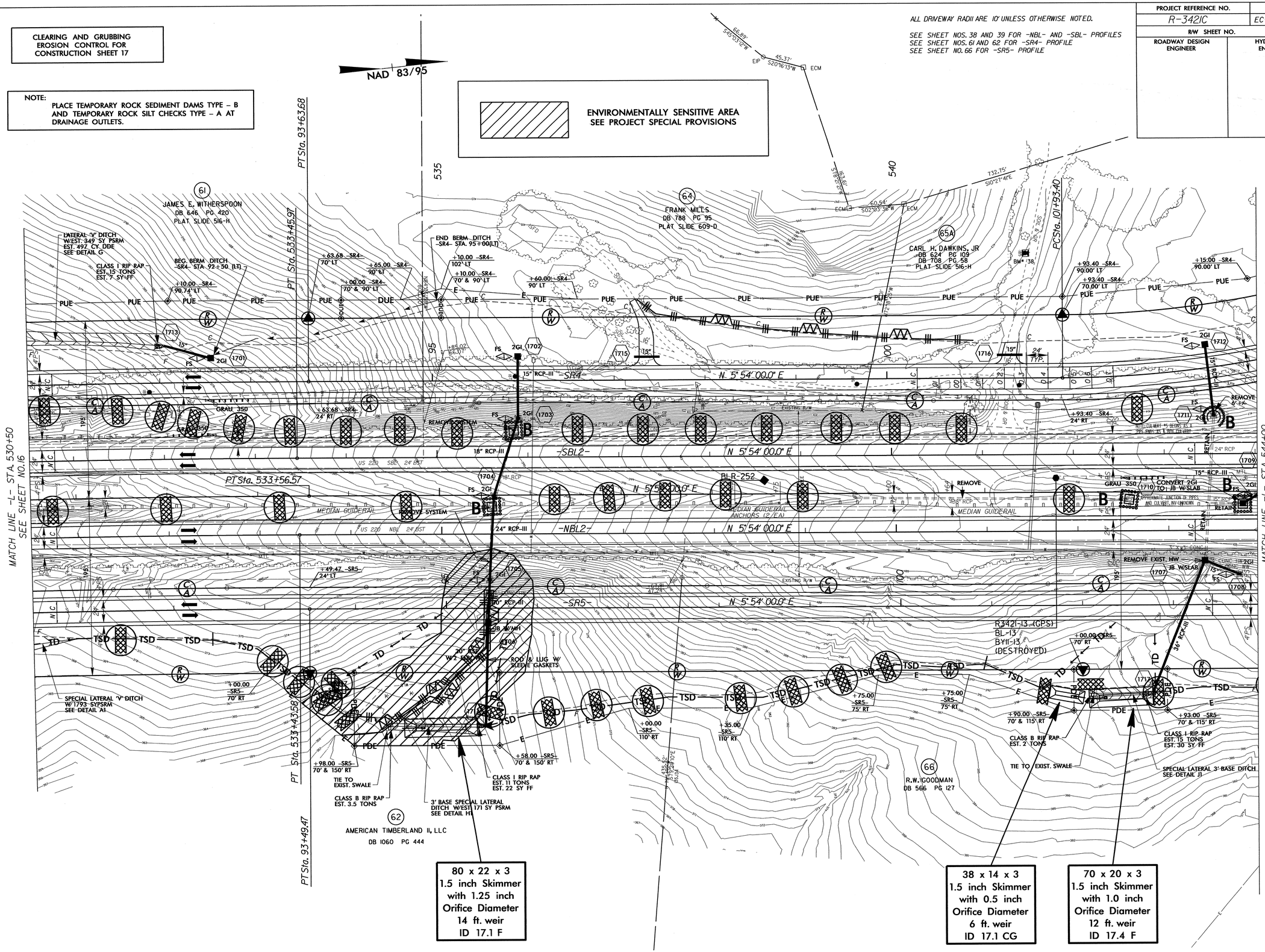
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 17

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

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 38 AND 39 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NOS. 61 AND 62 FOR -SR4- PROFILE
SEE SHEET NO. 66 FOR -SR5- PROFILE

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



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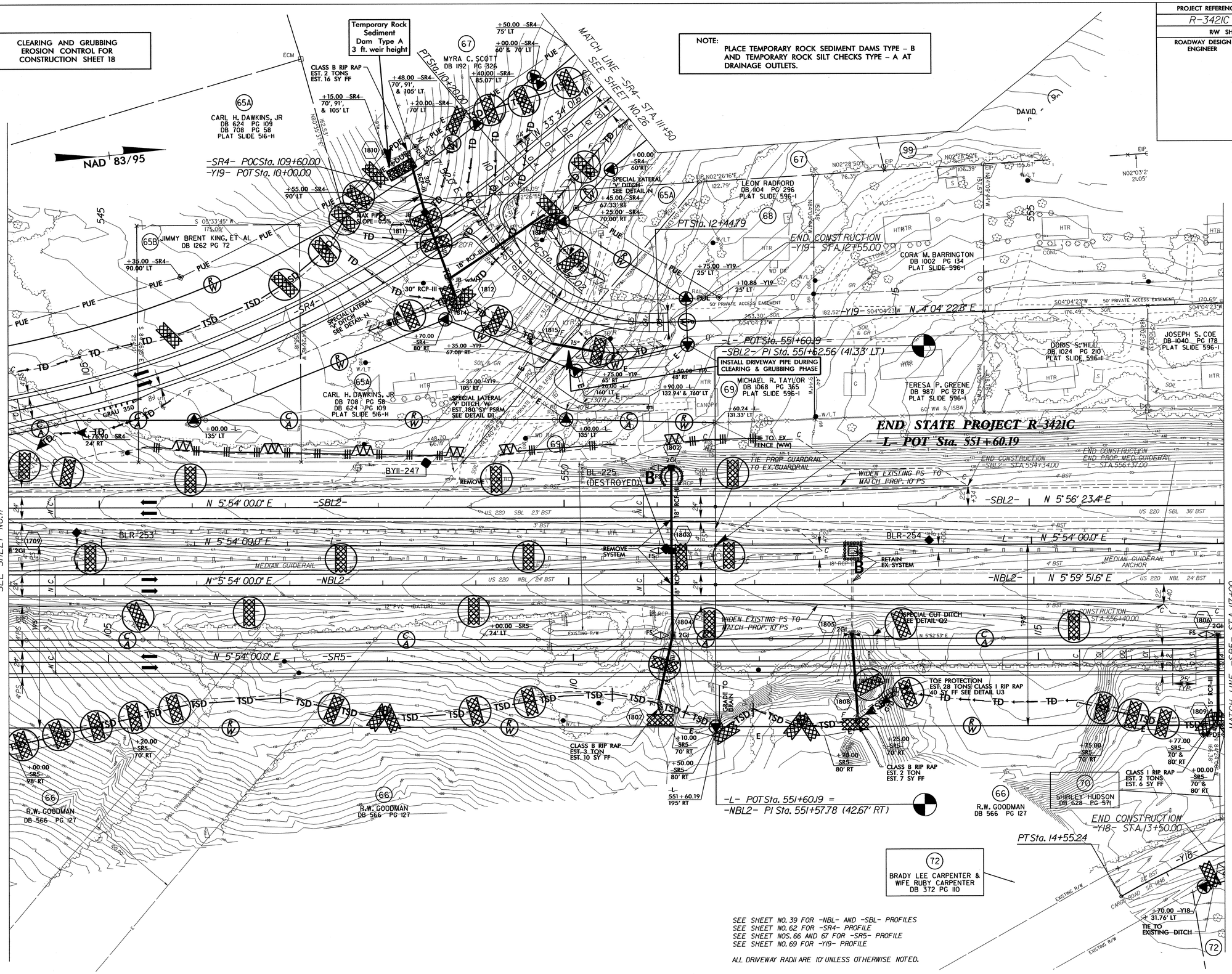
jennifergparish AT HENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-31/CONST.18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



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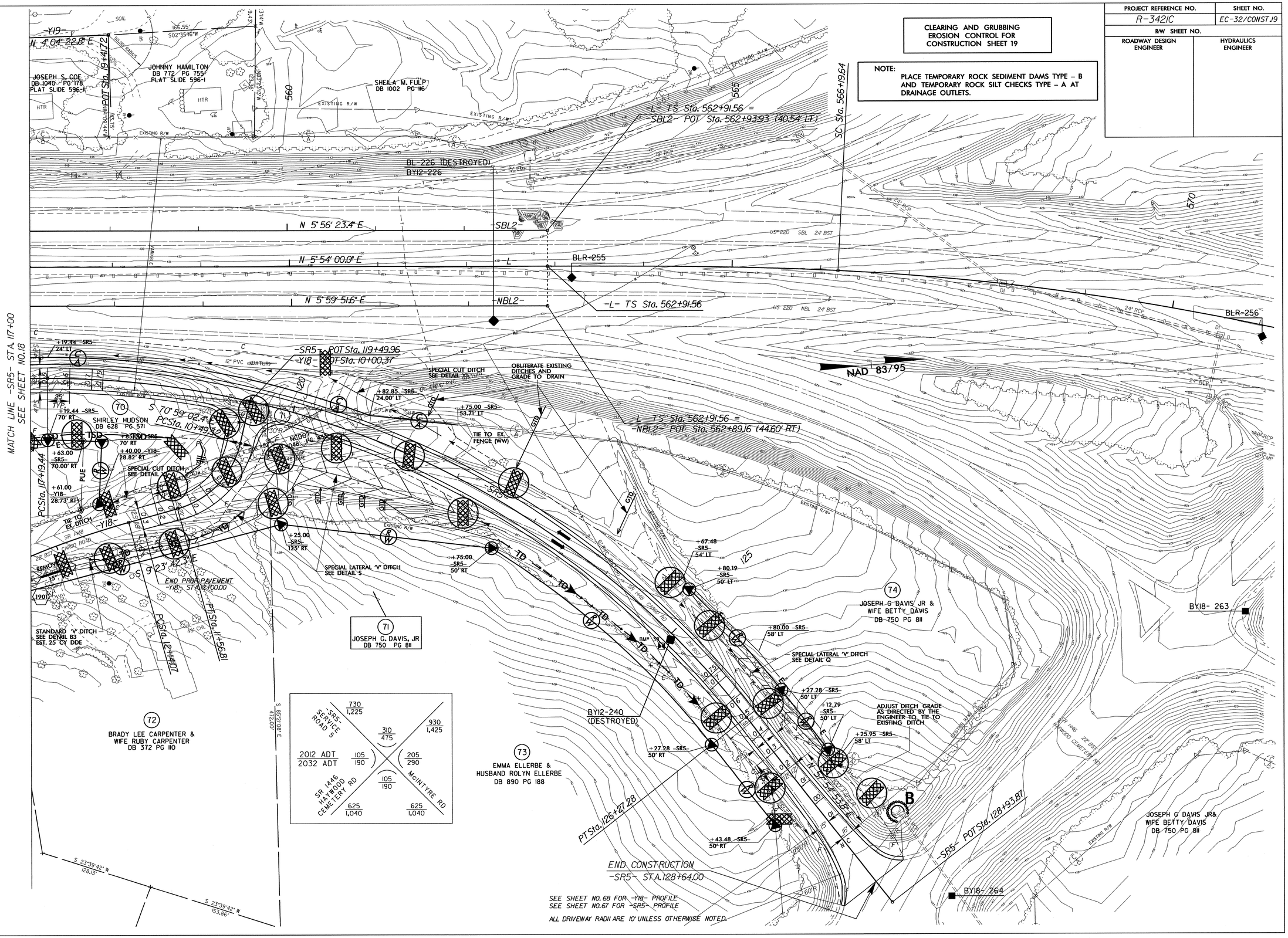
jennifer.parish AT HENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-32/CONST.19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



SEE SHEET NO. 68 FOR -Y18- PROFILE
SEE SHEET NO. 67 FOR -SR5- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

R-AUG-2012 17:01
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bmcintyre@ncdot.gov

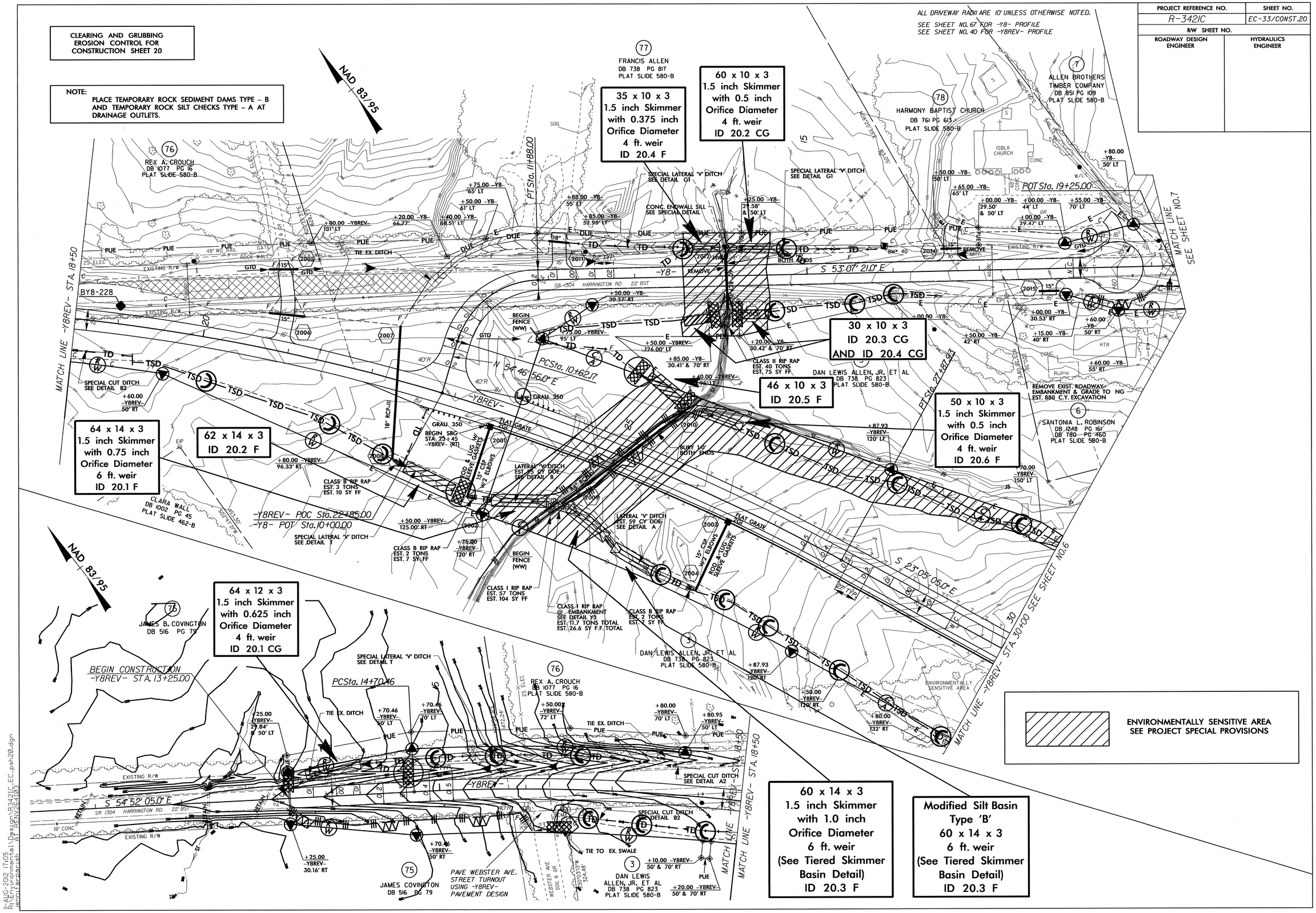
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-33/CONST.20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NO. 67 FOR -Y8- PROFILE
SEE SHEET NO. 40 FOR -Y8REV- PROFILE

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.



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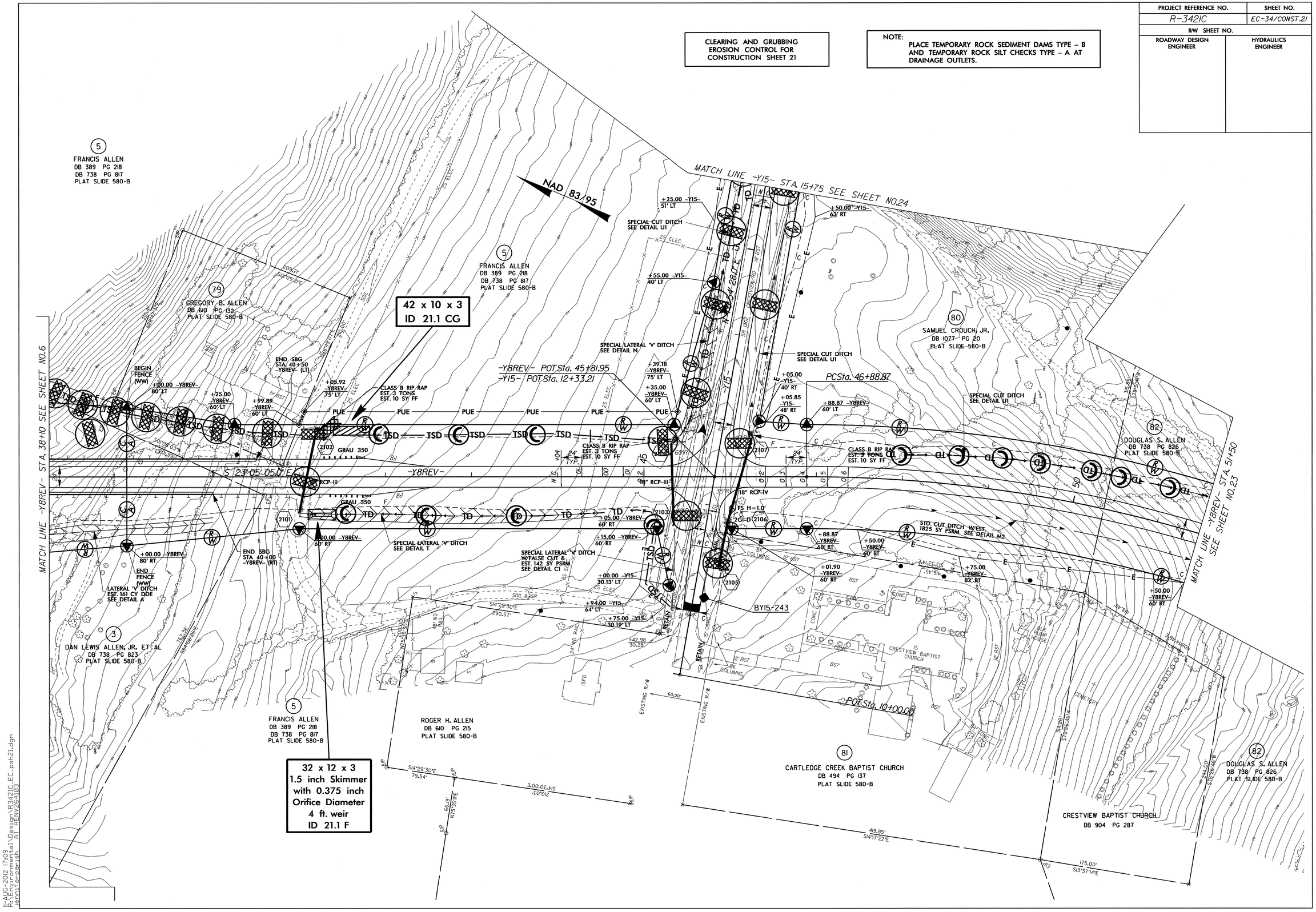
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-34/CONST.21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 21

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



11-AUG-2012 17:09
R:\Environmental\Design\R3421C_EC_psh21.dgn
jennifer.parish AT RENV264103

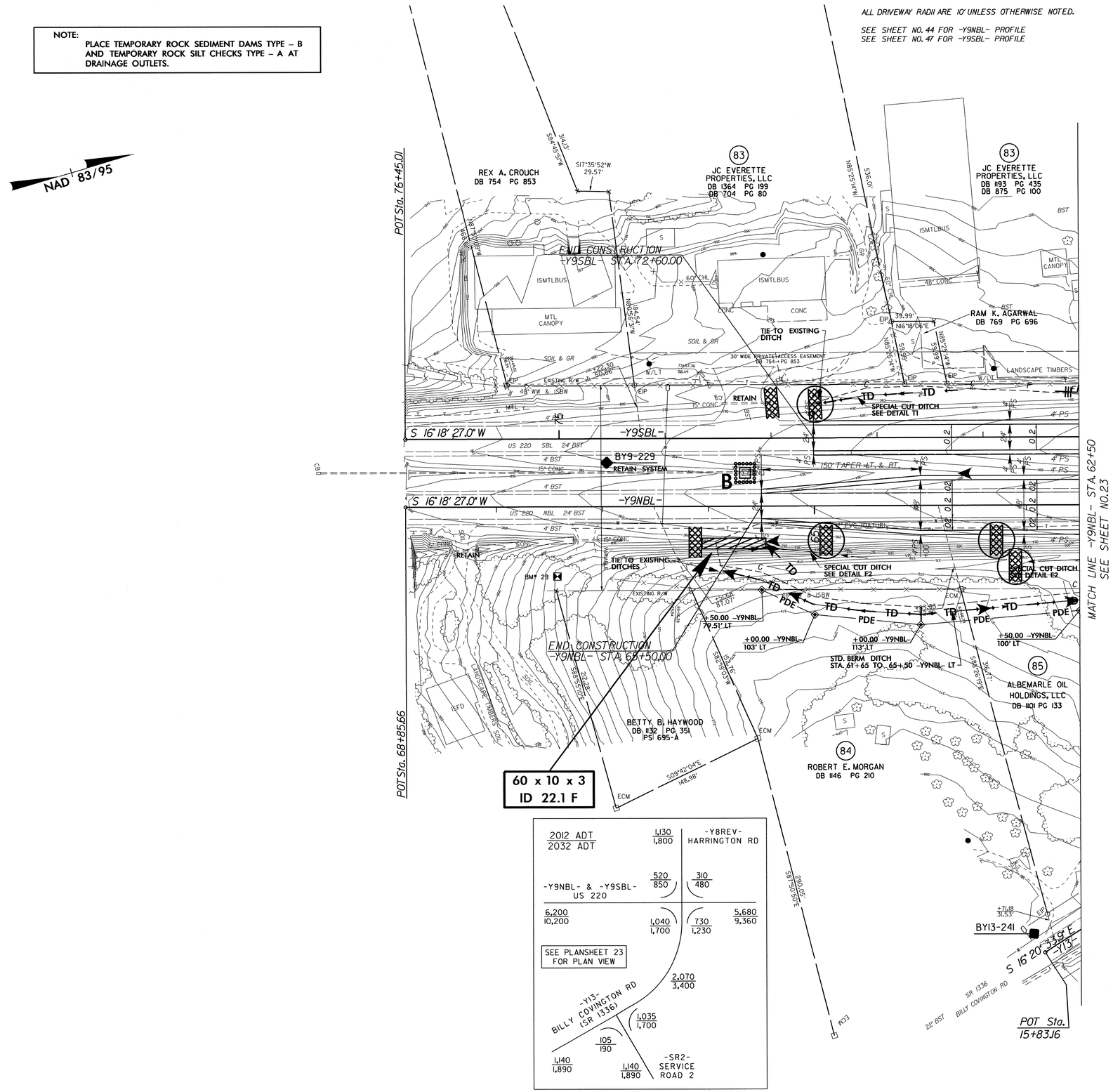
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-35/CONST.22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NO. 44 FOR -Y9NBL- PROFILE
SEE SHEET NO. 47 FOR -Y9SBL- PROFILE



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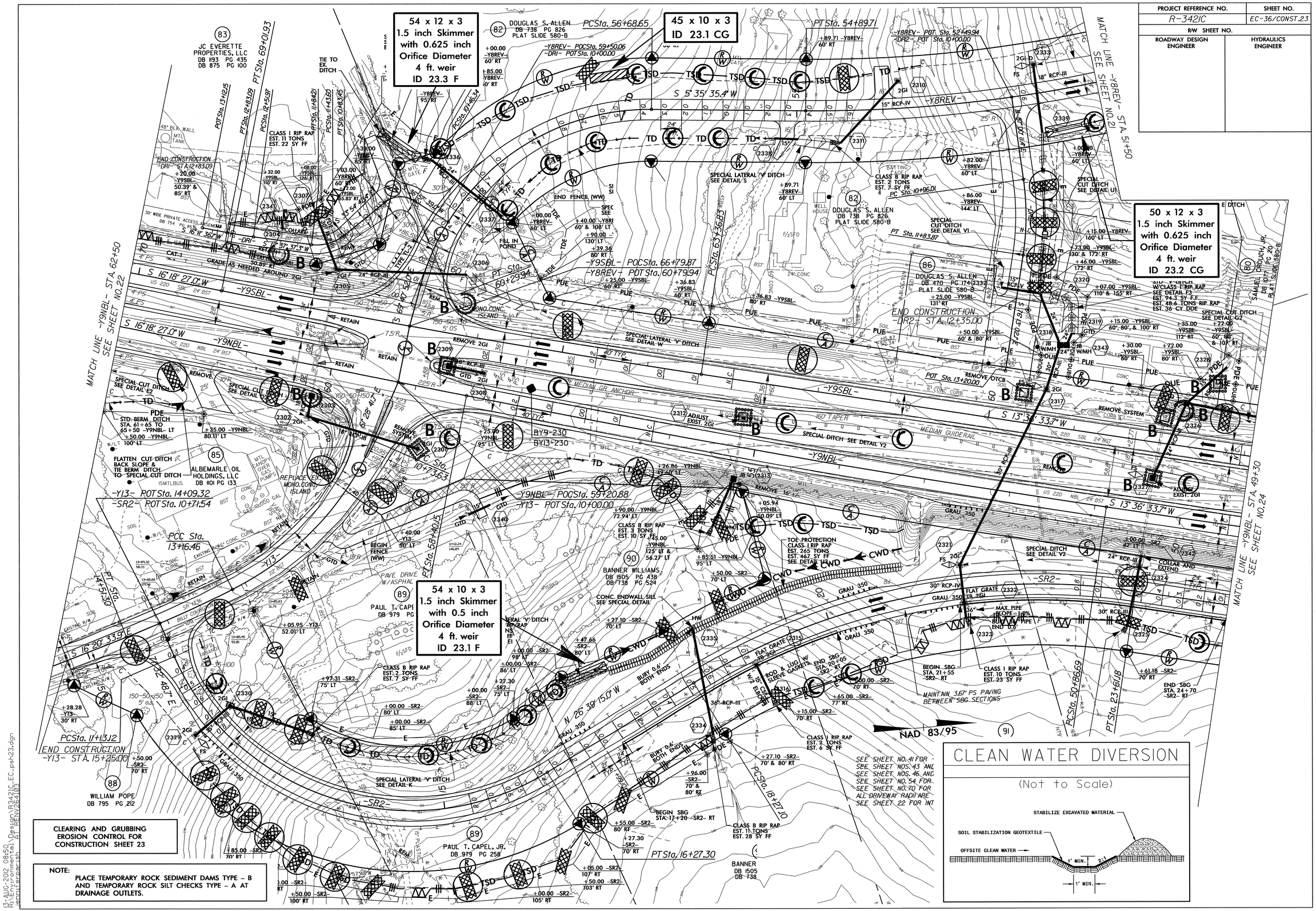
jennifer.parish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-36/CONST.23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 23

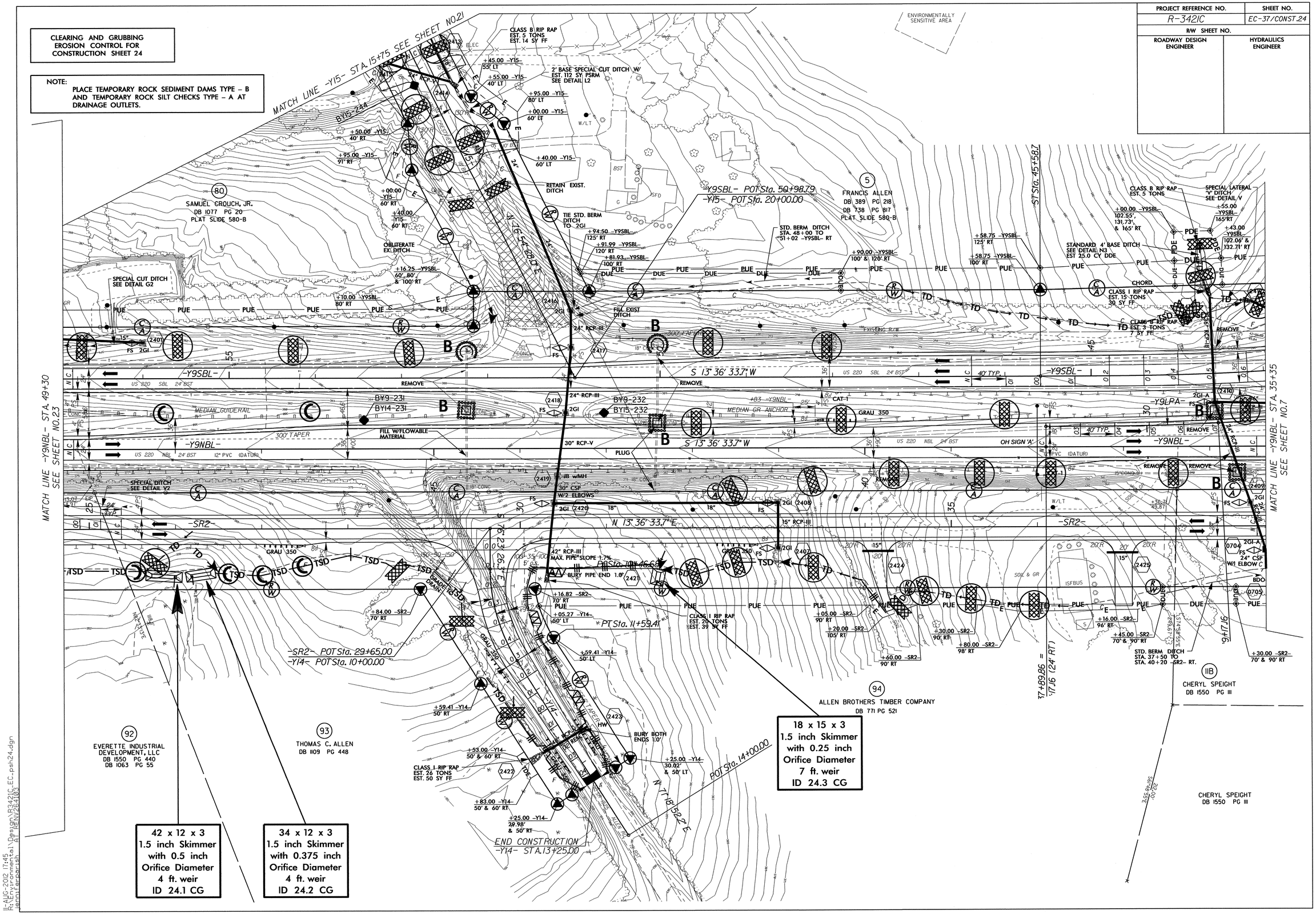
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

13-AUG-2012 08:50
R:\Environmental\Design\R3421C_EC_psh23.dgn
jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-37/CONST.24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



11-AUG-2012 17:45
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jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-38/CONST.25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

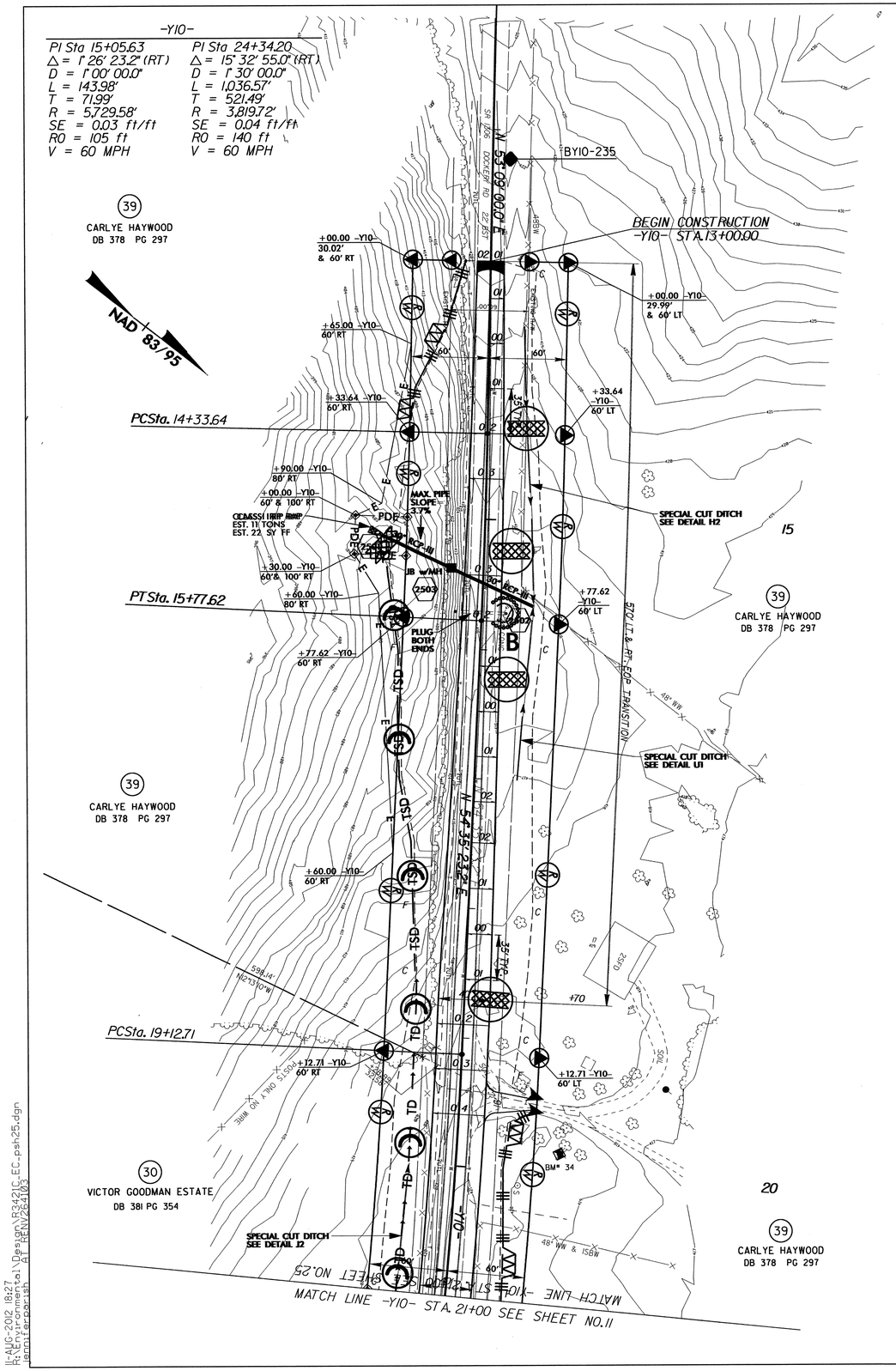
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 25

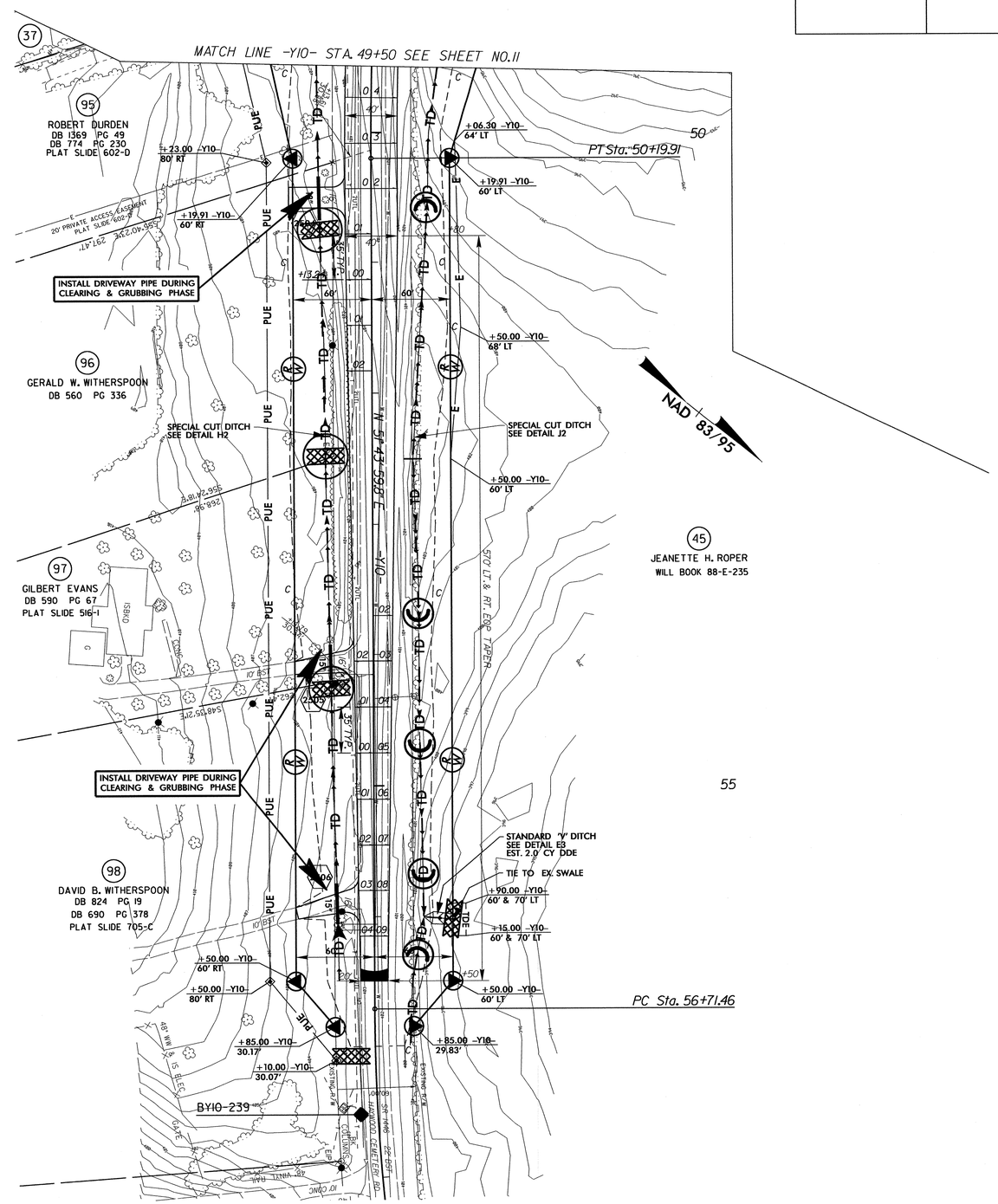
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

-Y10-

PI Sta 15+05.63
Δ = 1° 26' 23.2" (RT)
D = 1° 00' 00.0"
L = 143.98'
T = 71.99'
R = 5,729.58'
SE = 0.03 ft/ft
RO = 105 ft
V = 60 MPH

PI Sta 24+34.20
Δ = 15° 32' 55.0" (RT)
D = 1° 30' 00.0"
L = 1,036.57'
T = 521.49'
R = 3,819.72'
SE = 0.04 ft/ft
RO = 140 ft
V = 60 MPH





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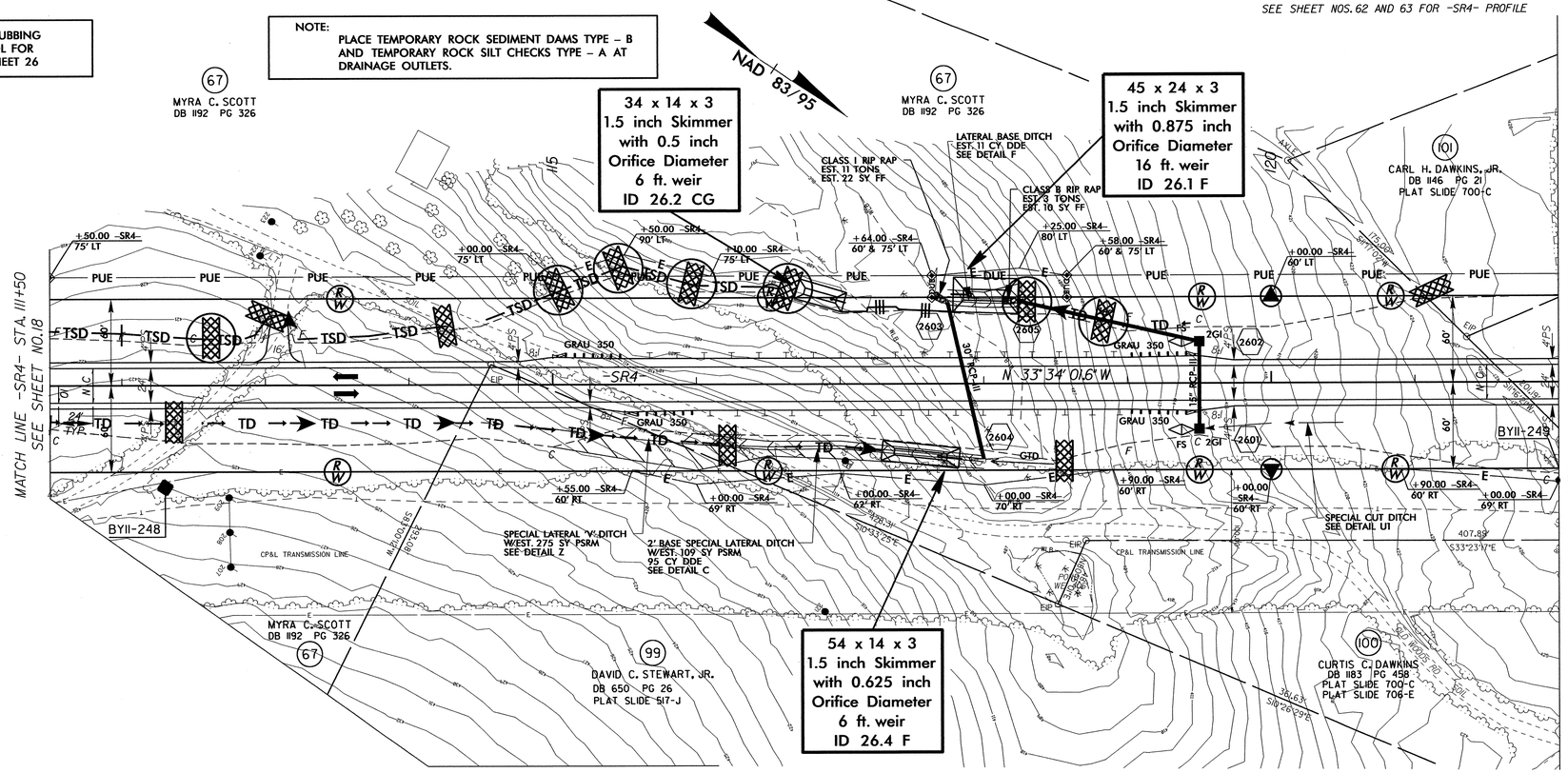
jennifer.parish AT RENV264103

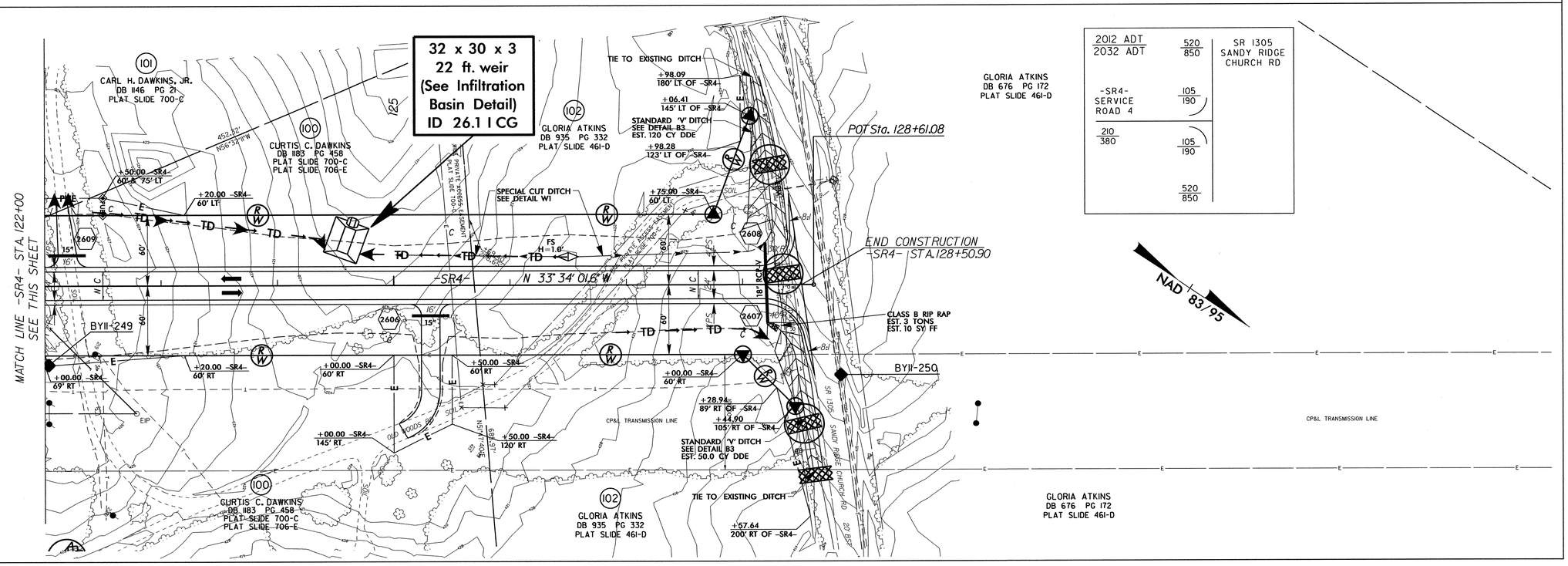
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-39/CONST.26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.
SEE SHEET NOS. 62 AND 63 FOR -SR4- PROFILE





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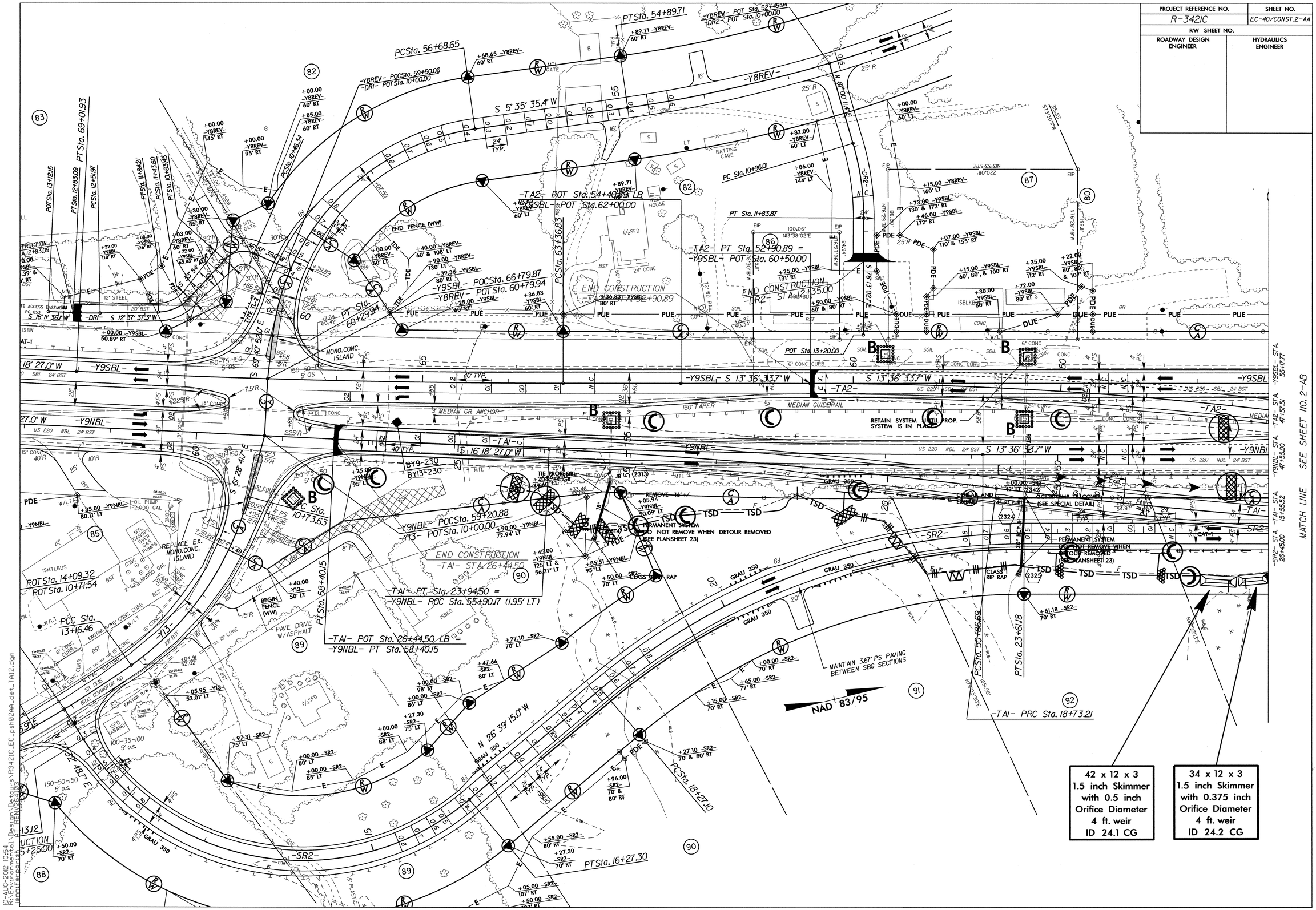
jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-40/CONST.2-AA
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



10-AUG-2012 10:54
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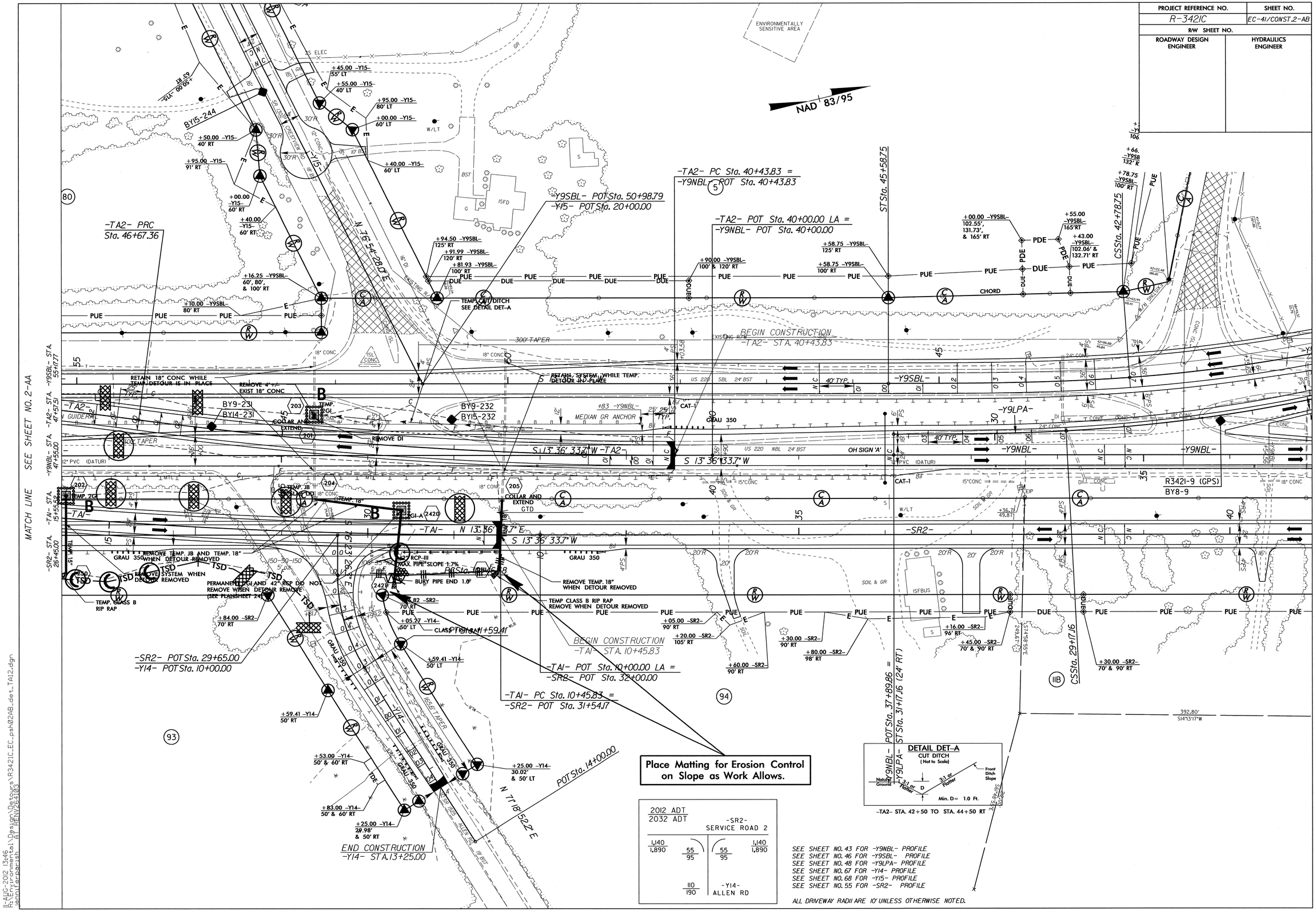
jennifercarlisle AT REN\262703

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-41/CONST.2-AB
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Place Matting for Erosion Control on Slope as Work Allows.

2012 ADT / 2032 ADT	-SR2- SERVICE ROAD 2	
1,140 / 1,890	55 / 95	55 / 95	1,140 / 1,890
	110 / 190	-Y14- ALLEN RD

SEE SHEET NO. 43 FOR -Y9NBL- PROFILE
SEE SHEET NO. 46 FOR -Y9SBL- PROFILE
SEE SHEET NO. 48 FOR -Y9LPA- PROFILE
SEE SHEET NO. 67 FOR -Y14- PROFILE
SEE SHEET NO. 68 FOR -Y15- PROFILE
SEE SHEET NO. 55 FOR -SR2- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

11-AUG-2012 13:46
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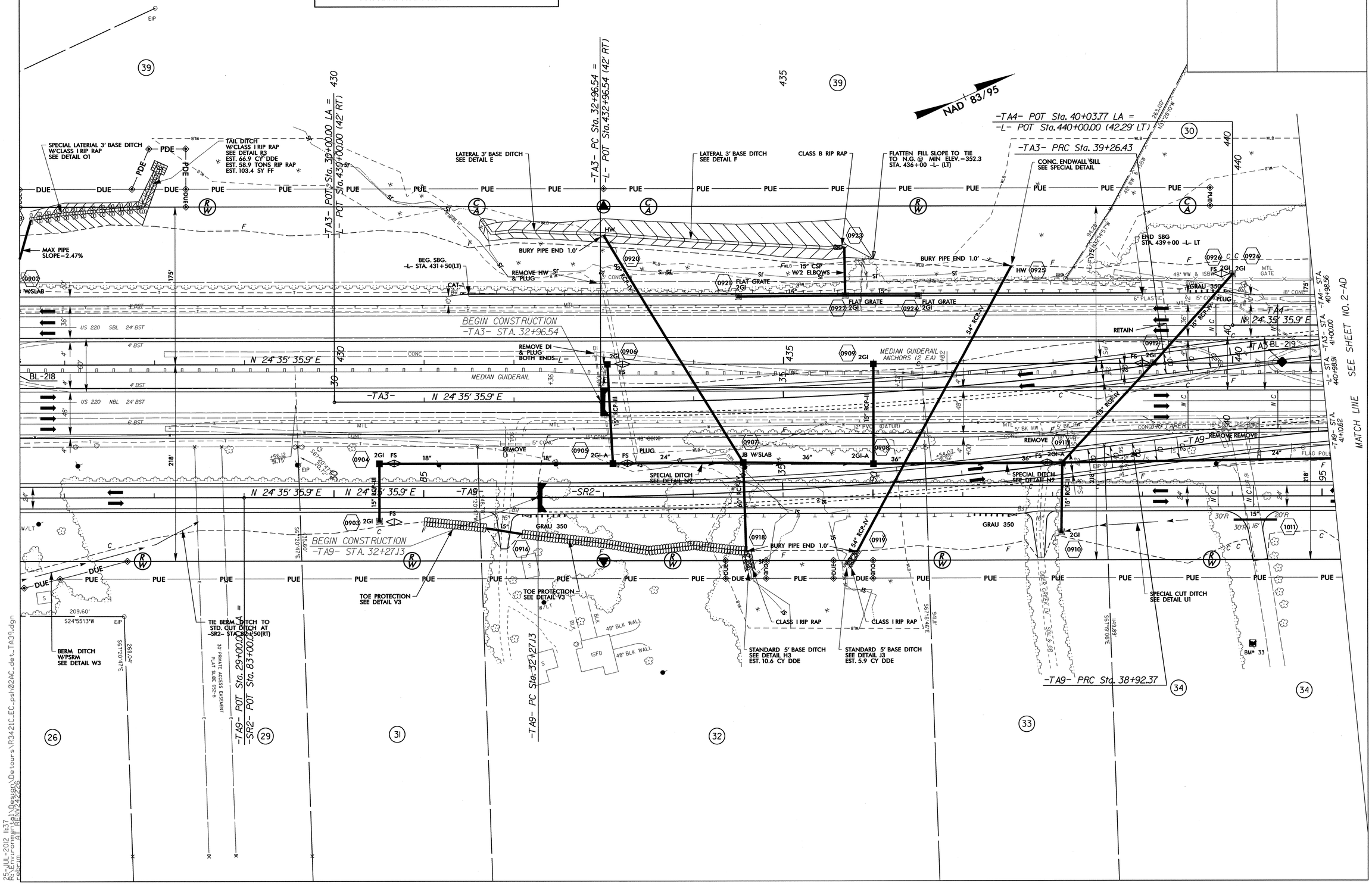
jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-42/CONST.2-AC
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
SEE EC-53/CONST.9 AND EC-54/CONST.10 FOR FINAL GRADE PHASE.



25-JUL-2012 11:37
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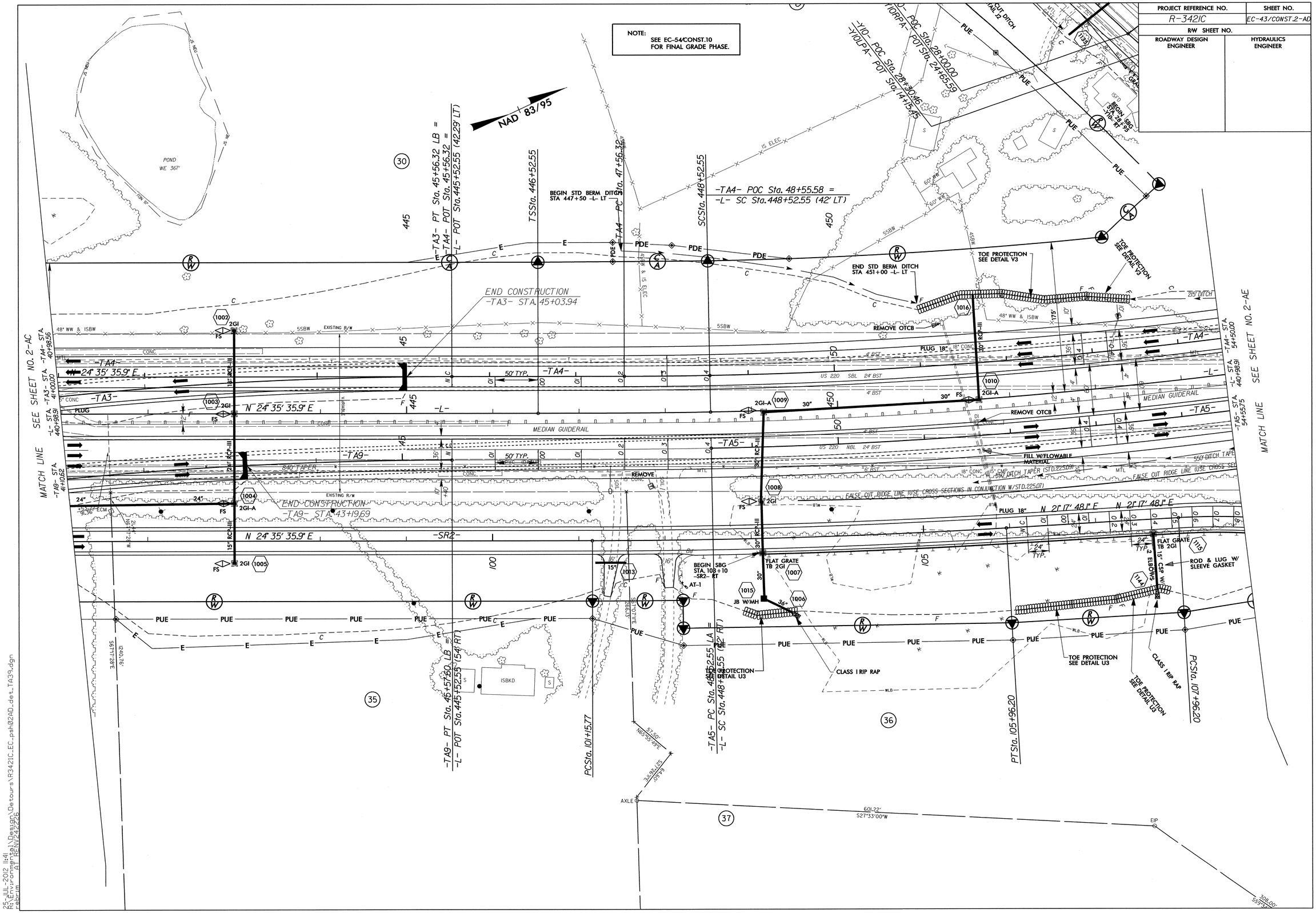
rebrim AT RENV242226

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-43/CONST.2-AD
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
SEE EC-54/CONST.10
FOR FINAL GRADE PHASE.



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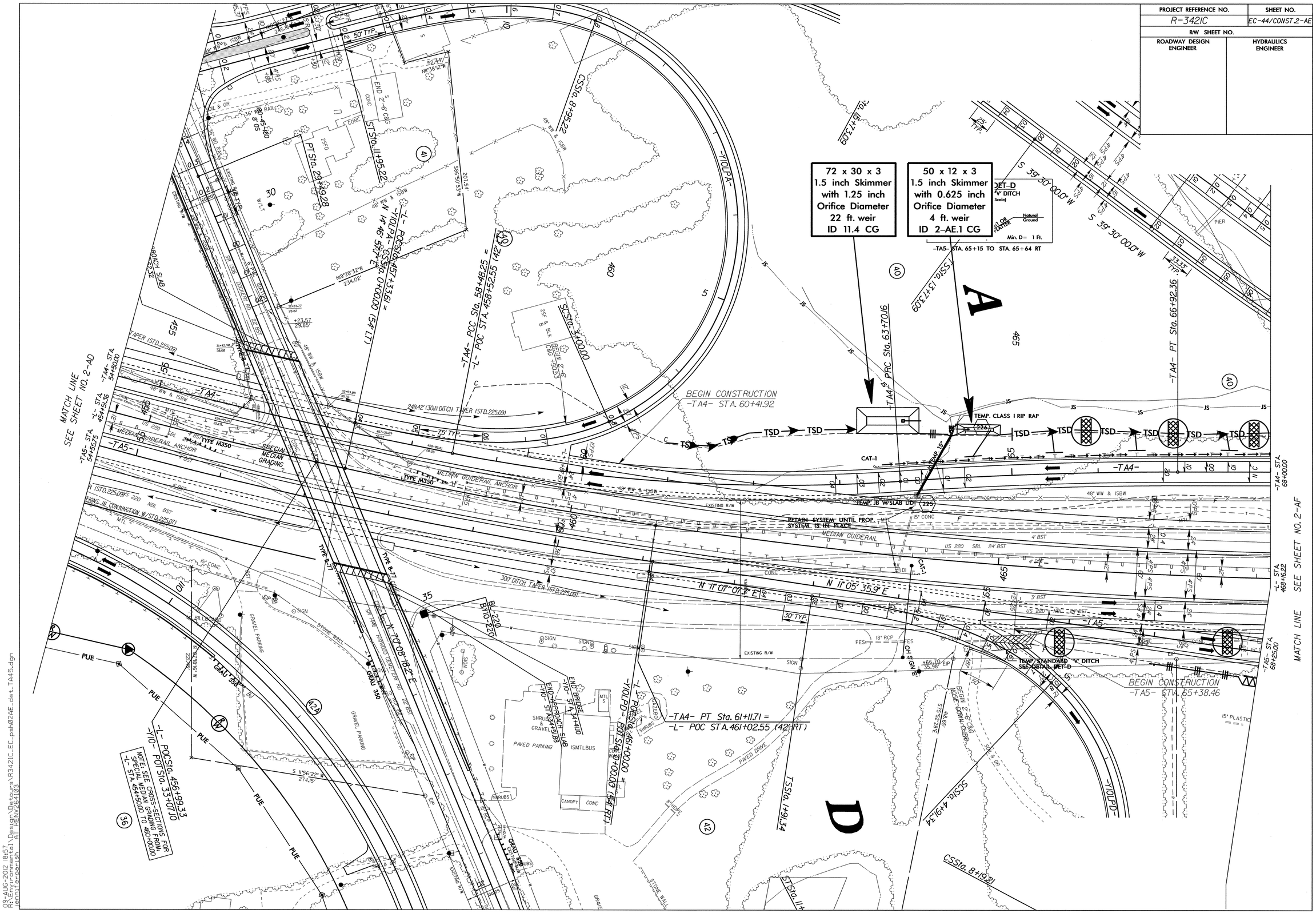
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-44/CONST.2-AE
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



08-AUG-2012 18:57
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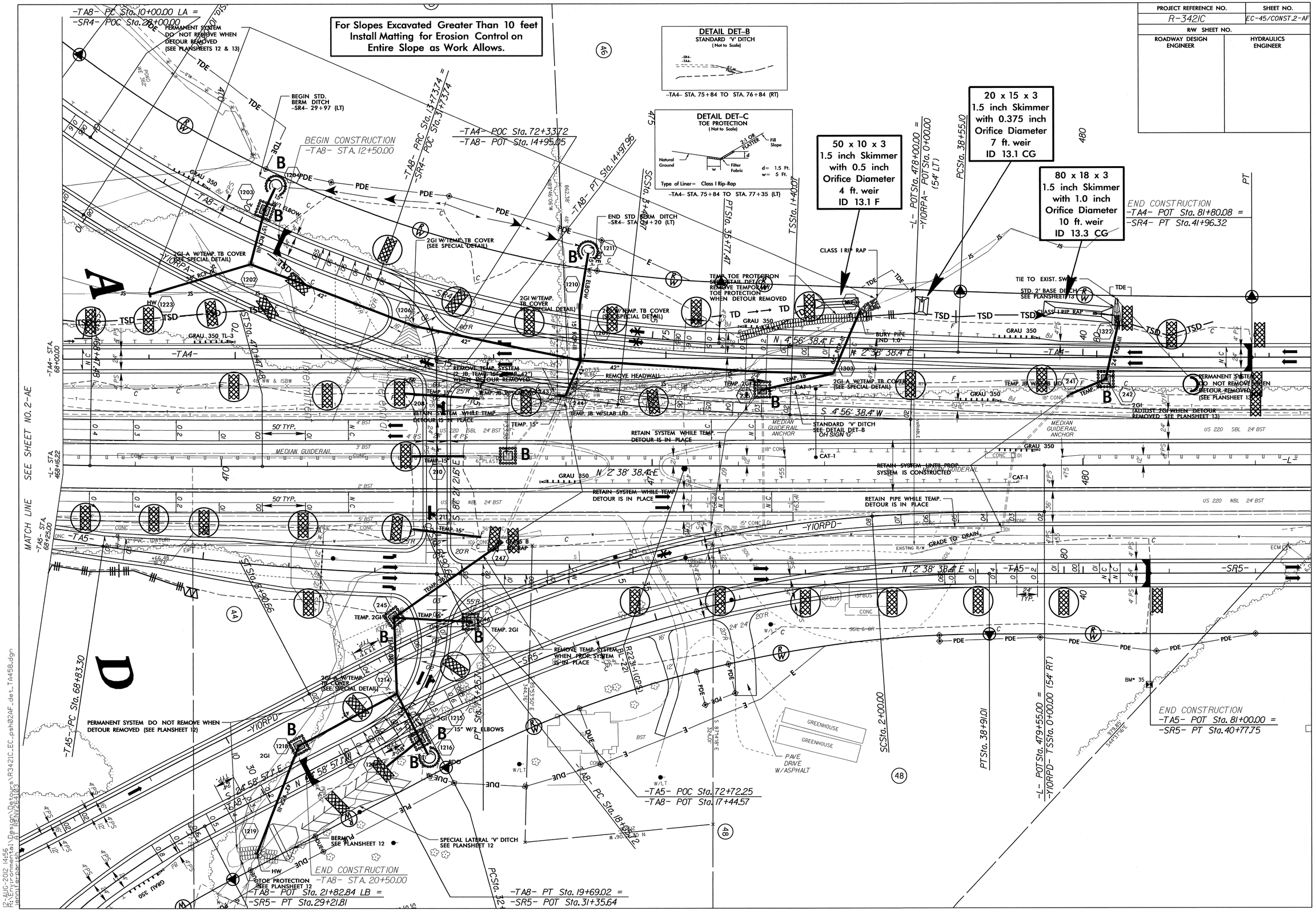
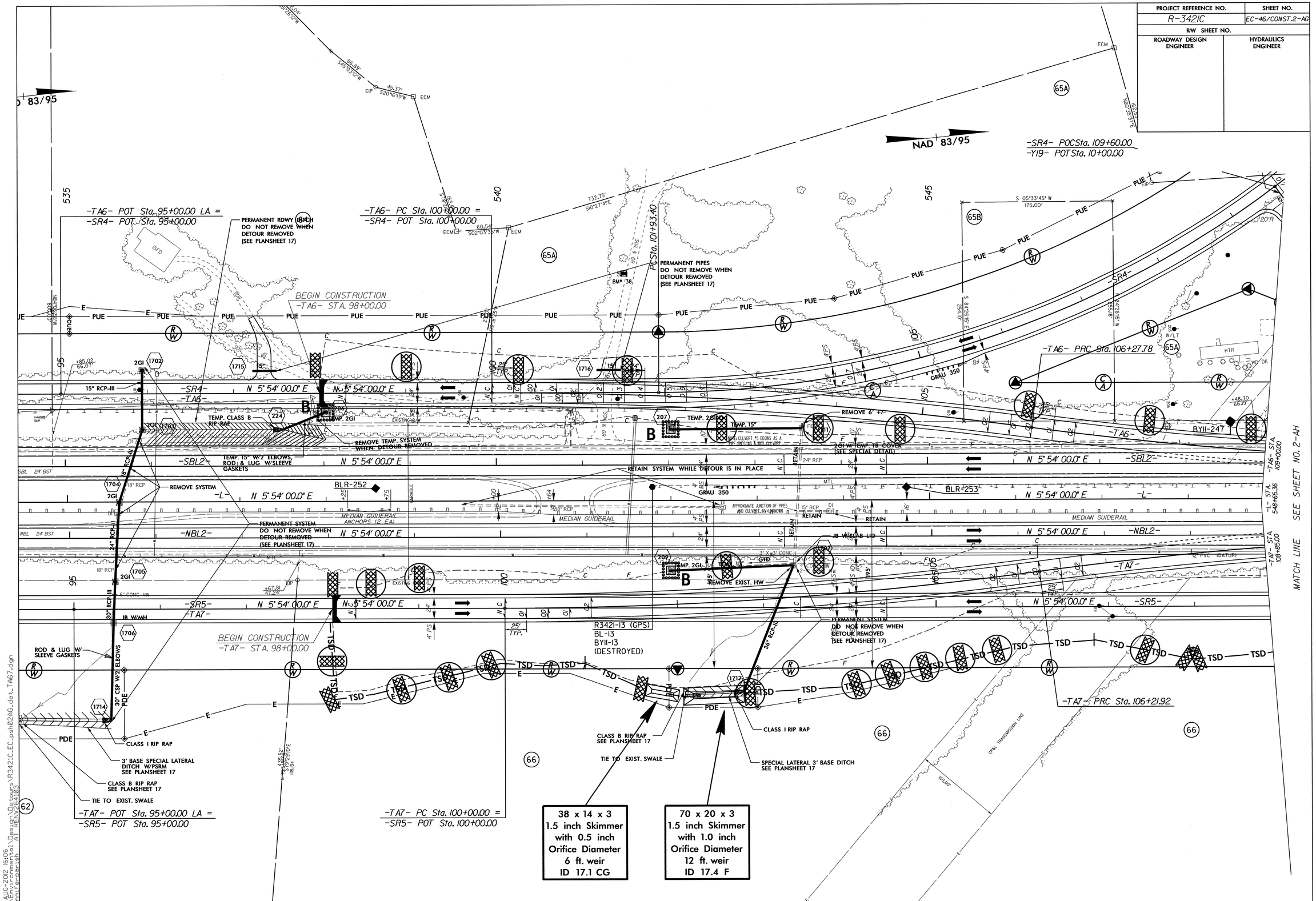
$$USERNAME$$ AT PENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-45/CONST.2-AF
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

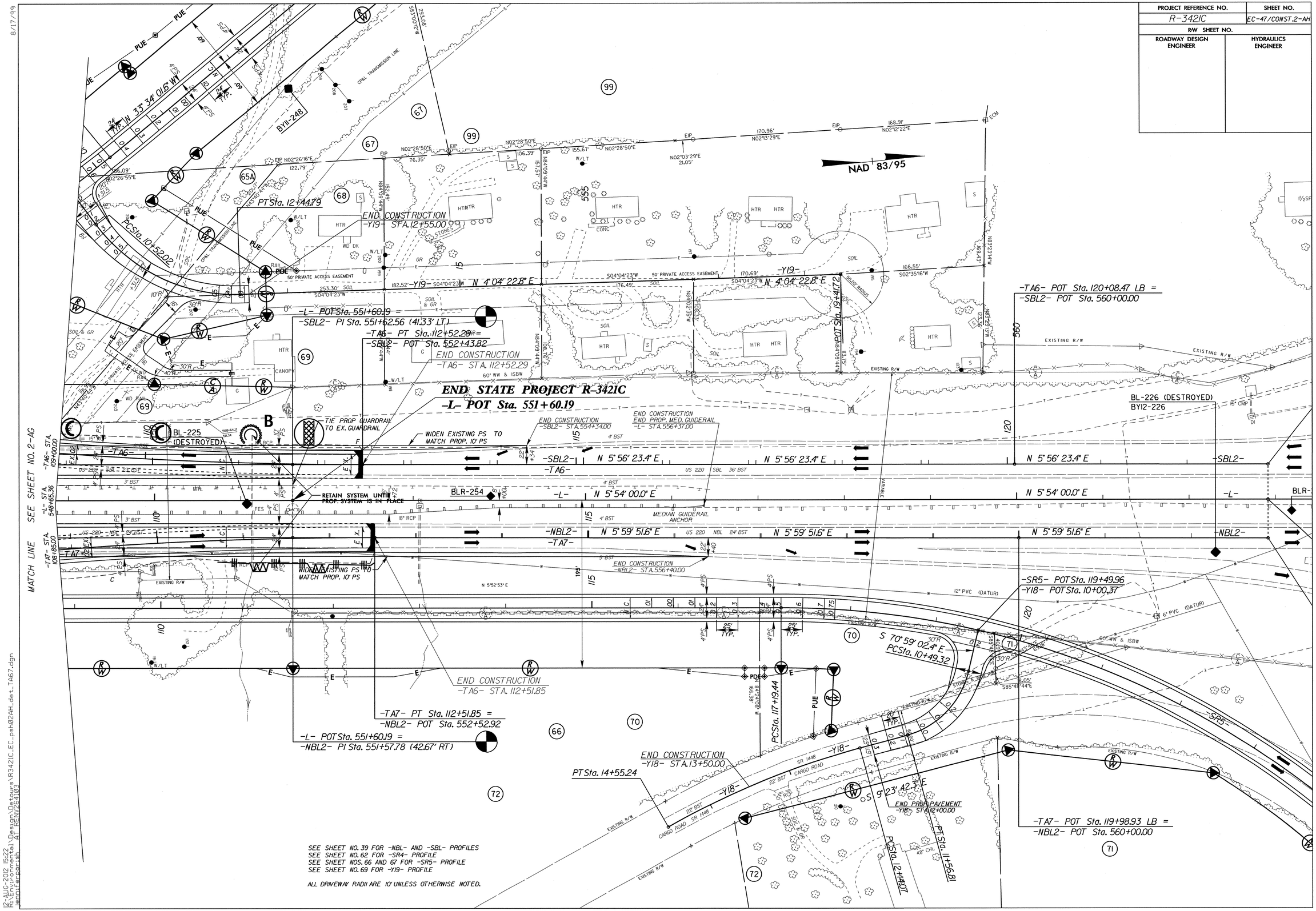


PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-46/CONST.2-AG
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



12-AUG-2012 16:06
R:\Hydraulics\Hydraulics Design\Detours\R3421C_EC_psh02AG_det_TA67.dgn
jeffcontreras@ncdot.gov

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-47/CONST.2-AH
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SEE SHEET NO. 39 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO. 62 FOR -SR4- PROFILE
SEE SHEET NOS. 66 AND 67 FOR -SR5- PROFILE
SEE SHEET NO. 69 FOR -Y19- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

8/17/99

12-AUG-2012 15:22
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jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-48/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

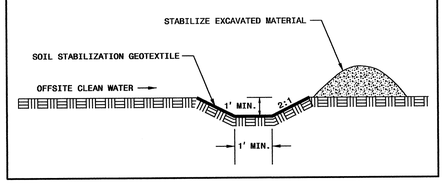
ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NO.27 FOR -L- PROFILE

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

CLEAN WATER DIVERSION

(Not to Scale)



NAD 83/95

Place Matting for Erosion Control on Slope as Work Allows.

35 x 15 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
7 ft. weir
ID 4.1 CG

END STATE PROJECT R-3421B
BEGIN STATE PROJECT R-3421C
-L- POT STA. 355+00.00

BEGIN CONSTRUCTION
-L- POT STA.354+25.00 (RT.)

(1) MCRAE FAMILY, LLC
DB 1105 PG 59
PLAT SLIDE 583-J

(1) MCRAE FAMILY, LLC
DB 1105 PG 59
PLAT SLIDE 583-J

(2) DEBRA B. WALLACE ET AL
DB 738 PG 823
PLAT SLIDE 580-B

BL-182
BL-183
BL-184
BL-185
BL-186

BM# 26

R/W TO BE ACQUIRED UNDER R-3421B

+29.30 -L- 175' LT

BEGIN FENCE (WW)

END SBG STA. 358+20 -L- RT.

FLAT GRATE

FLAT GRATE GRAU 350

15" RCP-V

BEGIN SBG STA. 355+00 -L- LT. & RT. TIE TO EX. SBG

GRADING ONLY

N 69° 32' 13.9" E

MEDIAN GUIDERAIL ANCHOR

END SBG STA. 355+70 -L- RT.

MEDIAN GUIDERAIL (FUTURE)

15" RCP-III

15" CSP W/2 ELBOWS

30" CSP

ROD & LUG W/ SLEEVE GASKETS

24" CSP

ROD & LUG W/ SLEEVE GASKETS

CLASS B RIP RAP
EST. 8 TONS
EST. 21 SY FF

+54.09 -L- 175' RT

BEGIN FENCE (WW)

+25.00 -L- 175' RT

STD. BERM DITCH STA. 358+57 TO STA. 360+90 -L- RT.

35 x 10 x 3
ID 4.1 F

263.13'
N76°21'06"E

MATCH LINE -L- STA. 359+00 SEE SHEET NO.5

11-AUG-2012 14:06
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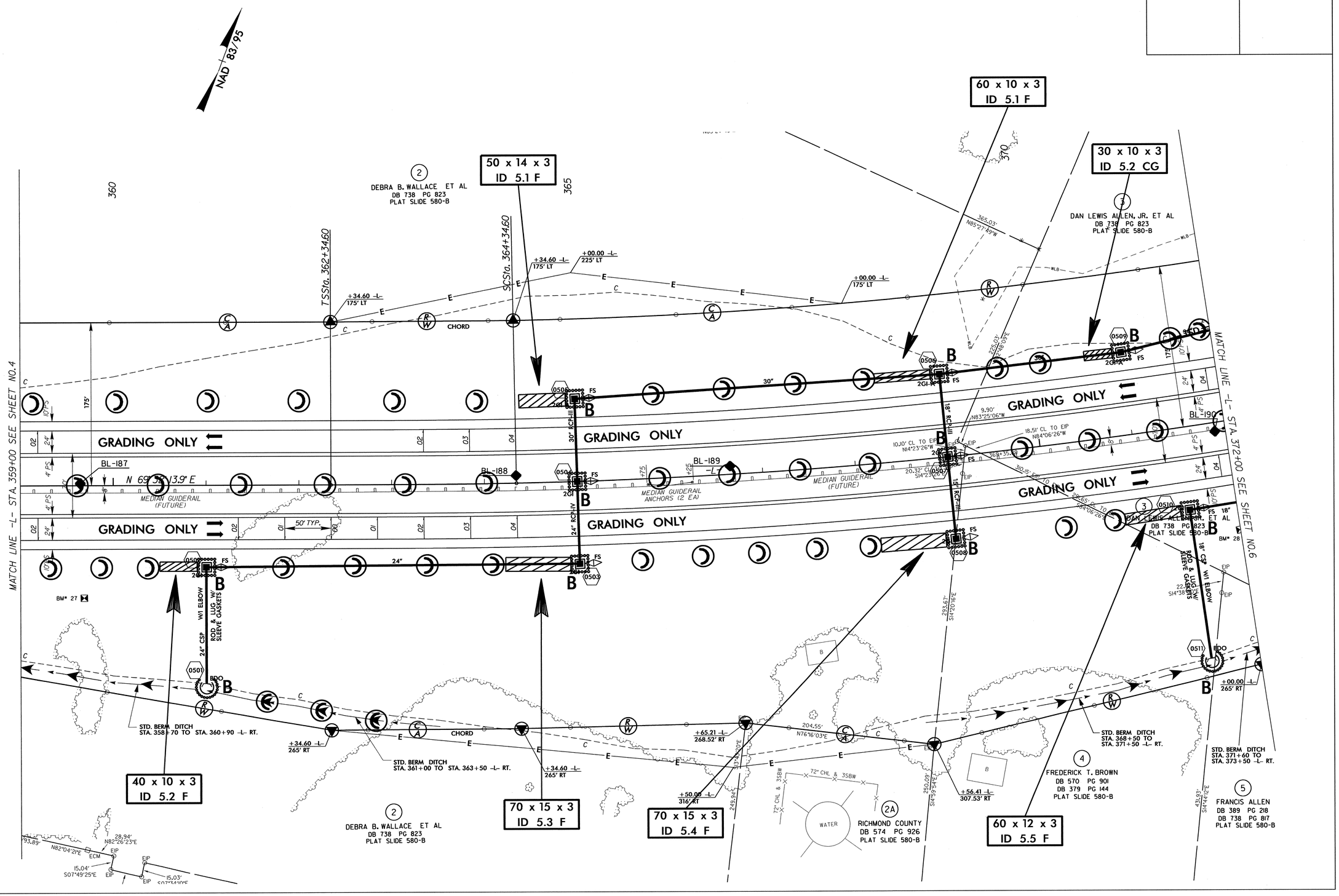
jennifersperlich ALPENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-49/CONST.05
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

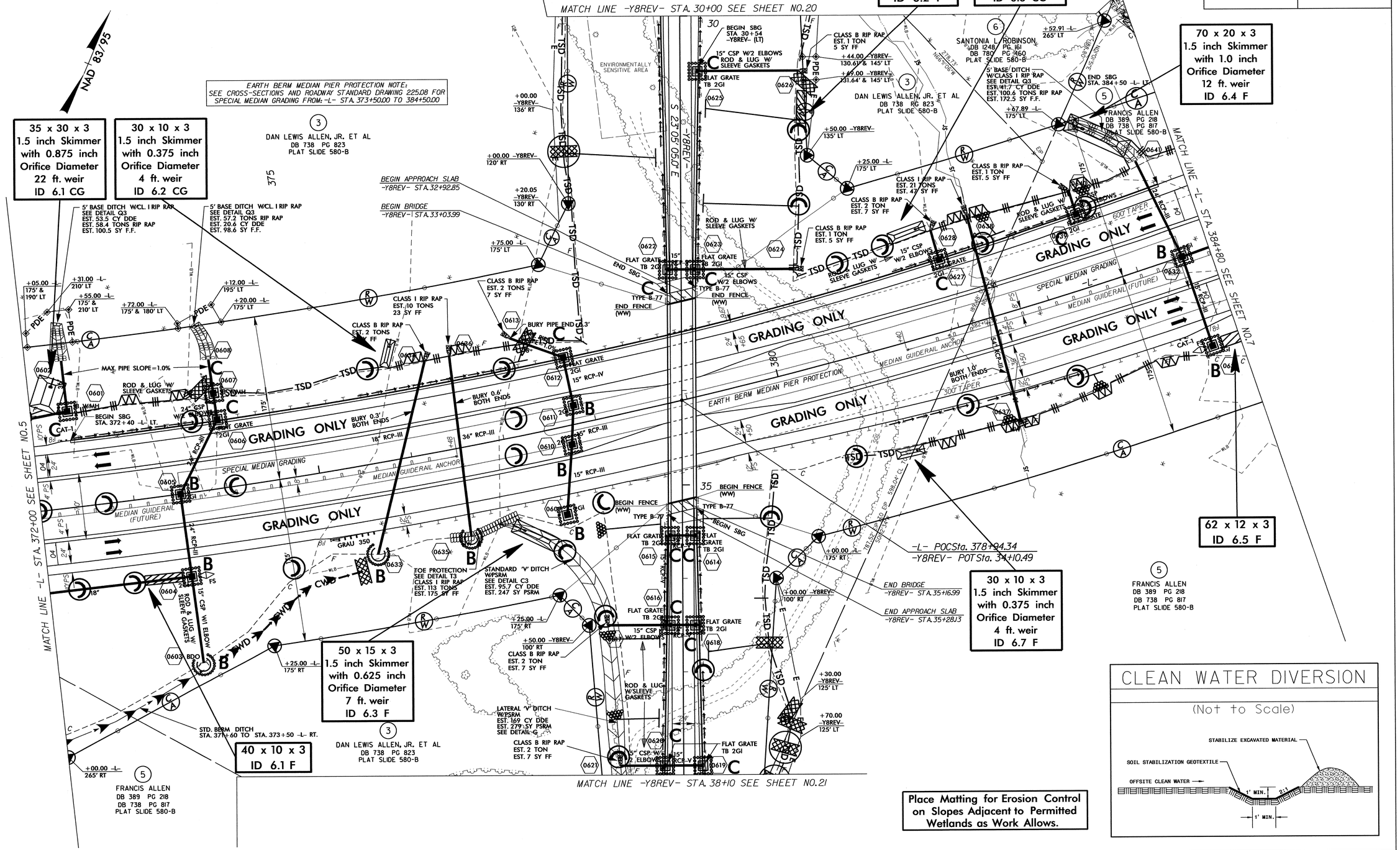


PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-50/CONST.06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 27 AND 28 FOR -L- PROFILE
SEE SHEET NO. 40 FOR -Y8REV- PROFILE

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



CLEAN WATER DIVERSION

(Not to Scale)

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

11-AUG-2012 14:33
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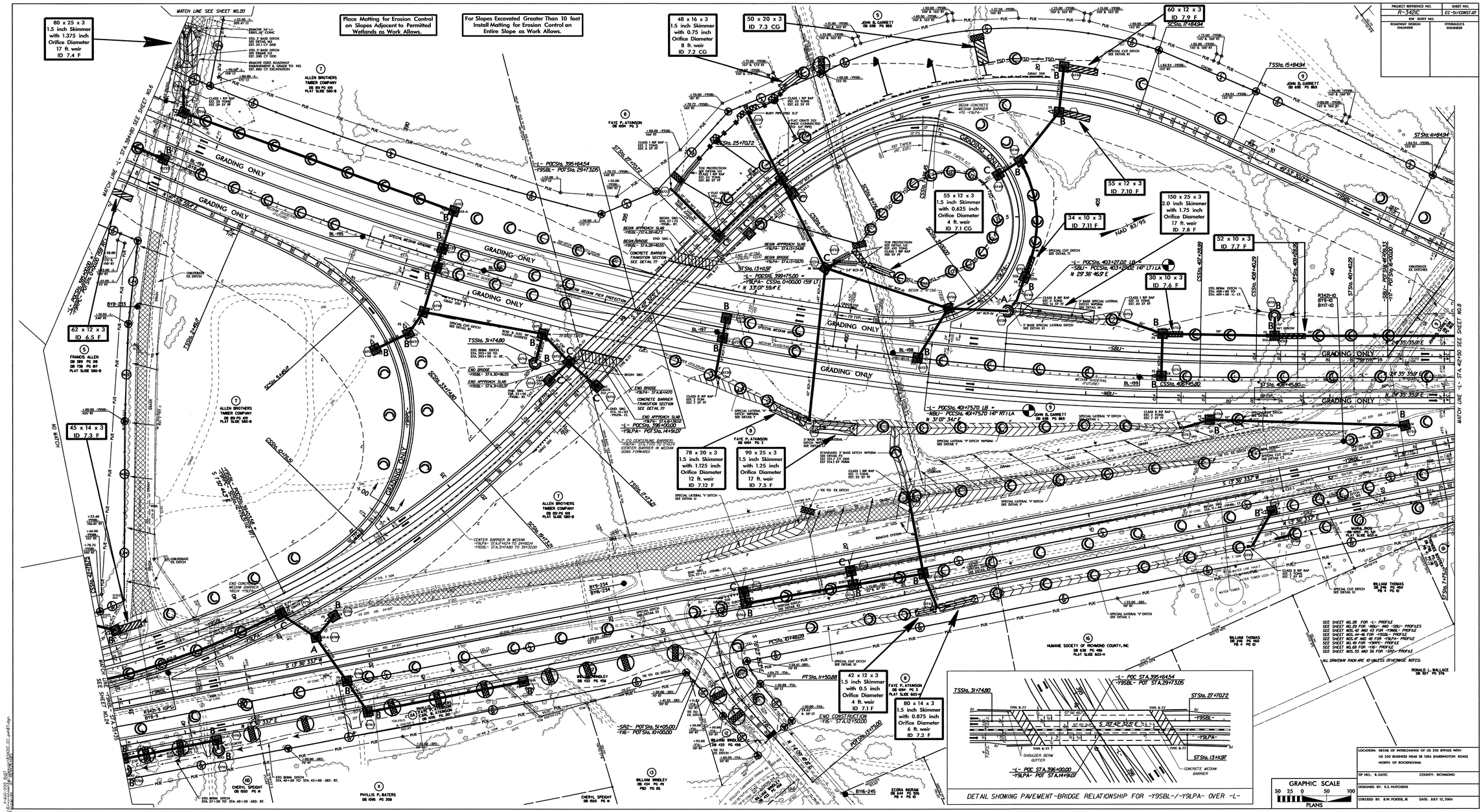
sgoulbourne
R1 REV(26410)

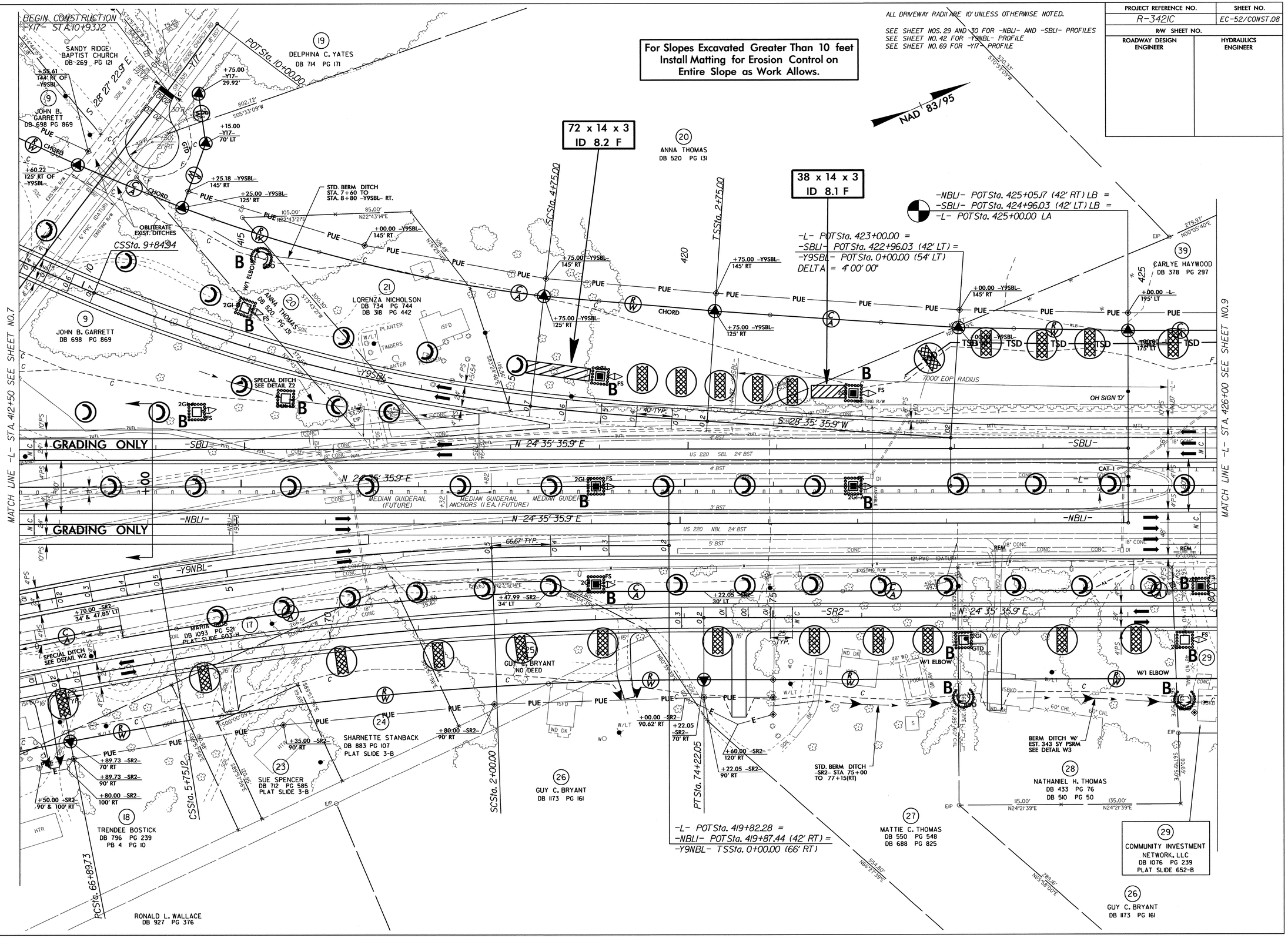

80 x 25 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
17 ft. weir
ID 7.4 F
Place Matting for Erosion Control
on Slopes Adjacent to Permitted
Wetlands as Work Allows.
For Slopes Excavated Greater Than 10 feet
Install Matting for Erosion Control on
Entire Slope as Work Allows.
48 x 16 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
8 ft. weir
ID 7.2 CG
50 x 20 x 3
ID 7.3 CG
60 x 12 x 3
ID 7.9 F
55 x 12 x 3
ID 7.10 F
55 x 12 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
4 ft. weir
ID 7.1 CG
34 x 10 x 3
ID 7.11 F
150 x 25 x 3
2.0 inch Skimmer
with 1.75 inch
Orifice Diameter
17 ft. weir
ID 7.8 F
52 x 10 x 3
ID 7.7 F
30 x 10 x 3
ID 7.6 F
62 x 12 x 3
ID 6.5 F
45 x 14 x 3
ID 7.3 F
78 x 20 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
12 ft. weir
ID 7.12 F
90 x 25 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
17 ft. weir
ID 7.5 F
42 x 12 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 7.1 F
80 x 14 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
6 ft. weir
ID 7.2 F
MATCH LINE SEE SHEET NO.20
MATCH LINE SEE SHEET NO.24
GRADING ONLY
DETAIL SHOWING PAVEMENT-BRIDGE RELATIONSHIP FOR -Y9SBL-/-Y9LPA- OVER -L-
GRAPHIC SCALE
PLANS
PROJECT REFERENCE NO. R-3421C
SHEET NO. EC-5/CONST.01
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
LOCATION: DETAIL OF INTERCHANGE OF US 220 BYPASS WITH US 220 BUSINESS NEAR SR 1304 (HARRINGTON ROAD) NORTH OF ROCKINGHAM
TIP NO.: R-3421C
COUNTY: RICHMOND
DESIGNED BY: K.S. HUTCHENS
CHECKED BY: R.W. FORTER, JR
DATE: JULY 12, 2004

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-52/CONST.08
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 29 AND 30 FOR -NBLI- AND -SBLI- PROFILES
SEE SHEET NO. 42 FOR -Y9NBL- PROFILE
SEE SHEET NO. 69 FOR -Y17- PROFILE

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



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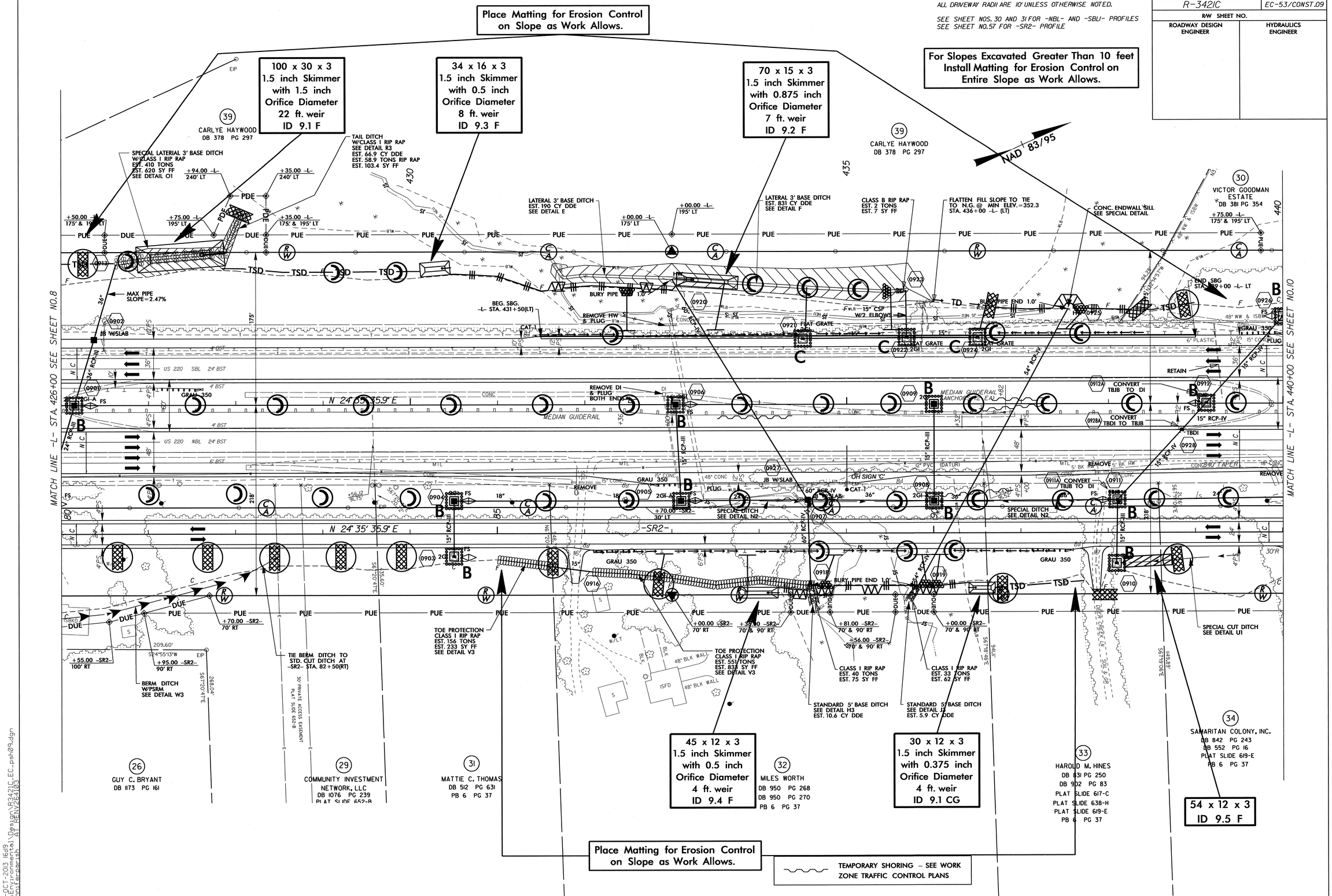
jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-53/CONST.09
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 30 AND 31 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO.57 FOR -SR2- PROFILE



04-OCT-2013 16:19
R:\Roadway\Proj\R3421C_EC_psh09.dgn
jenniferjones AFRENV264103

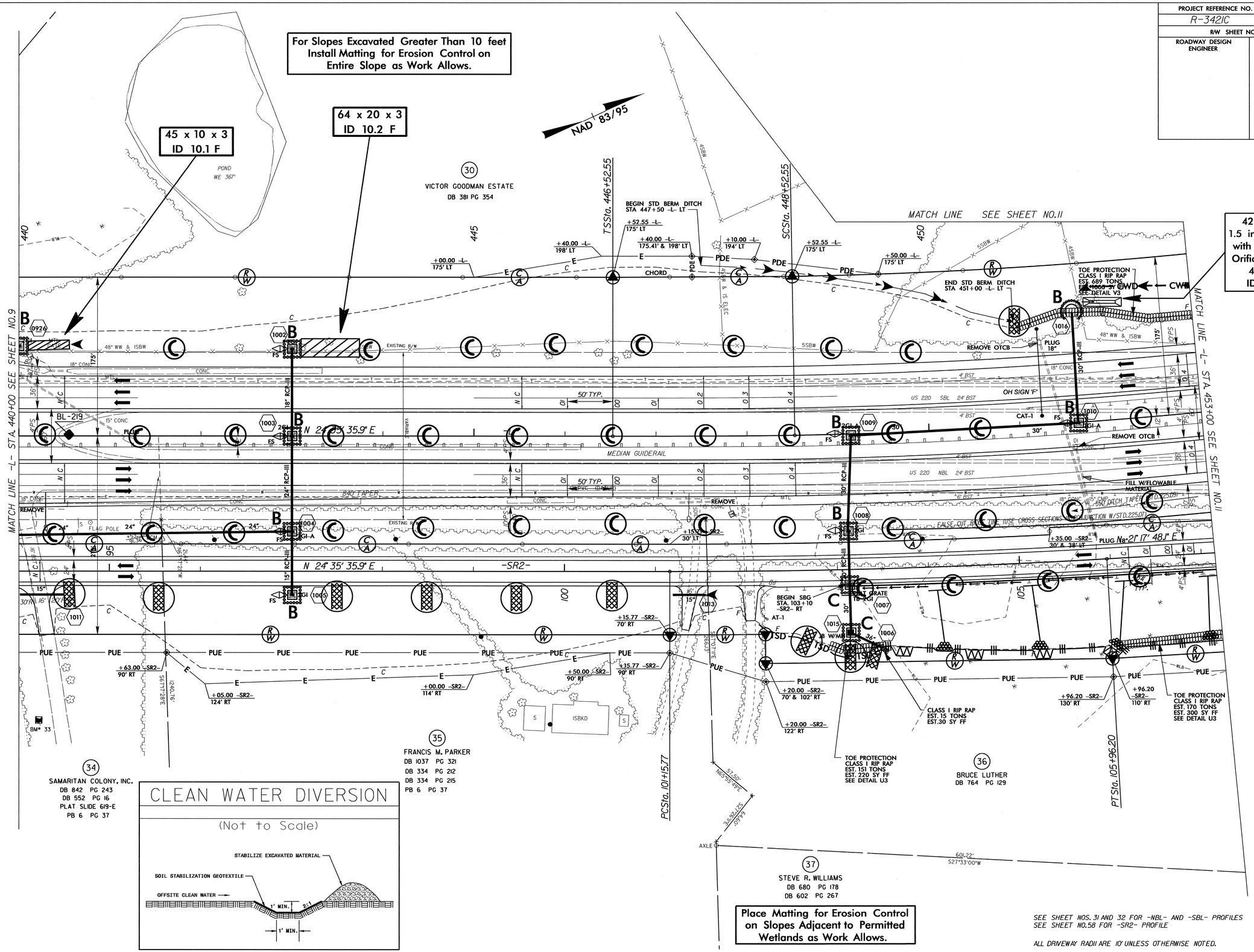
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-54/CONSTJO
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

45 x 10 x 3
ID 10.1 F

64 x 20 x 3
ID 10.2 F

42 x 10 x 3
1.5 inch Skimmer with 0.375 inch Orifice Diameter
4 ft. weir
ID 10.3 F



CLEAN WATER DIVERSION

(Not to Scale)

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

SEE SHEET NOS. 31 AND 32 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO.58 FOR -SR2- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

11-AUG-2012 15:43
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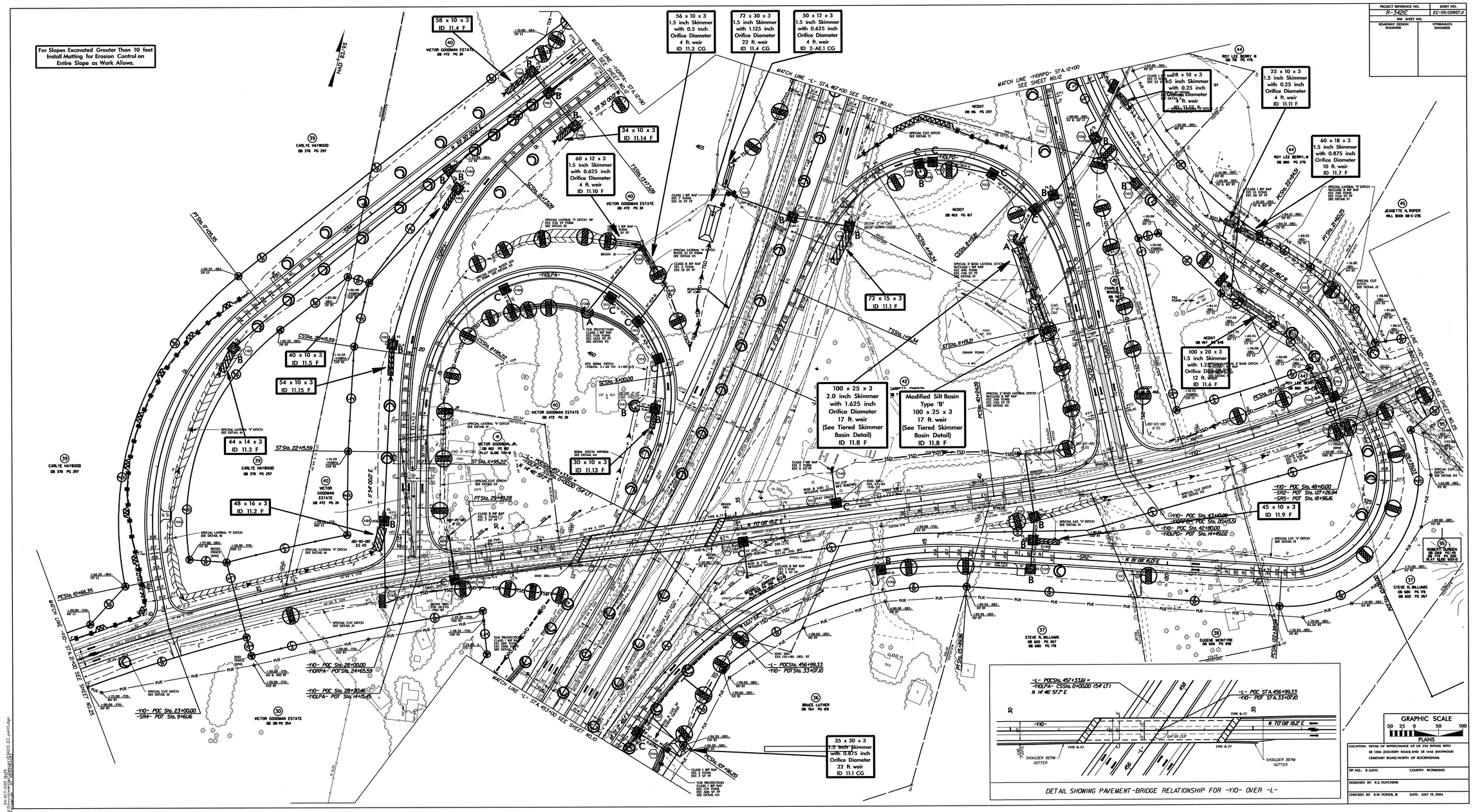
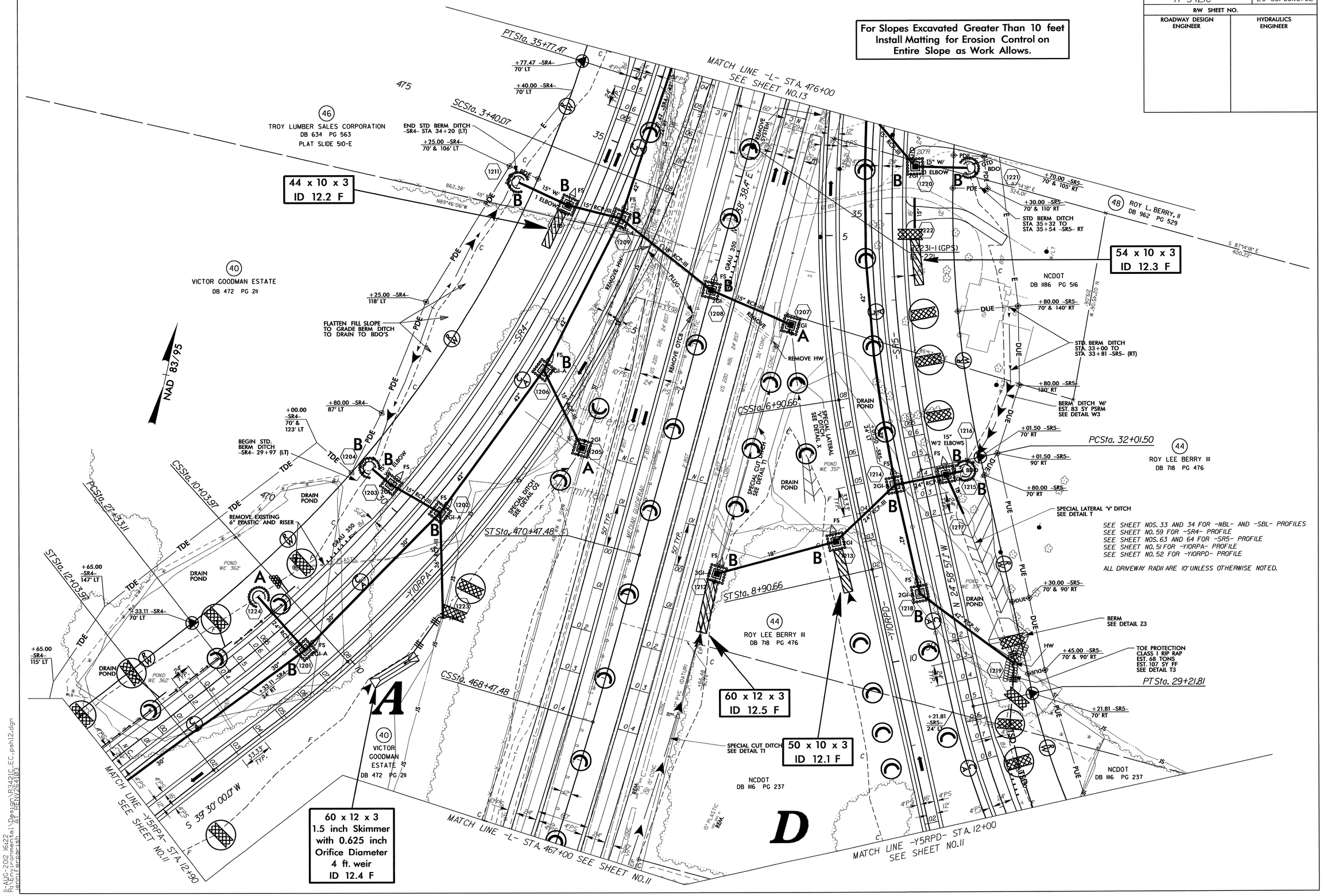
smallerson
A1 REVISED 1/03

PROJECT REFERENCE NO.	SHEET NO.
R-3420C	EC-55/CONST.#
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-56/CONST.12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



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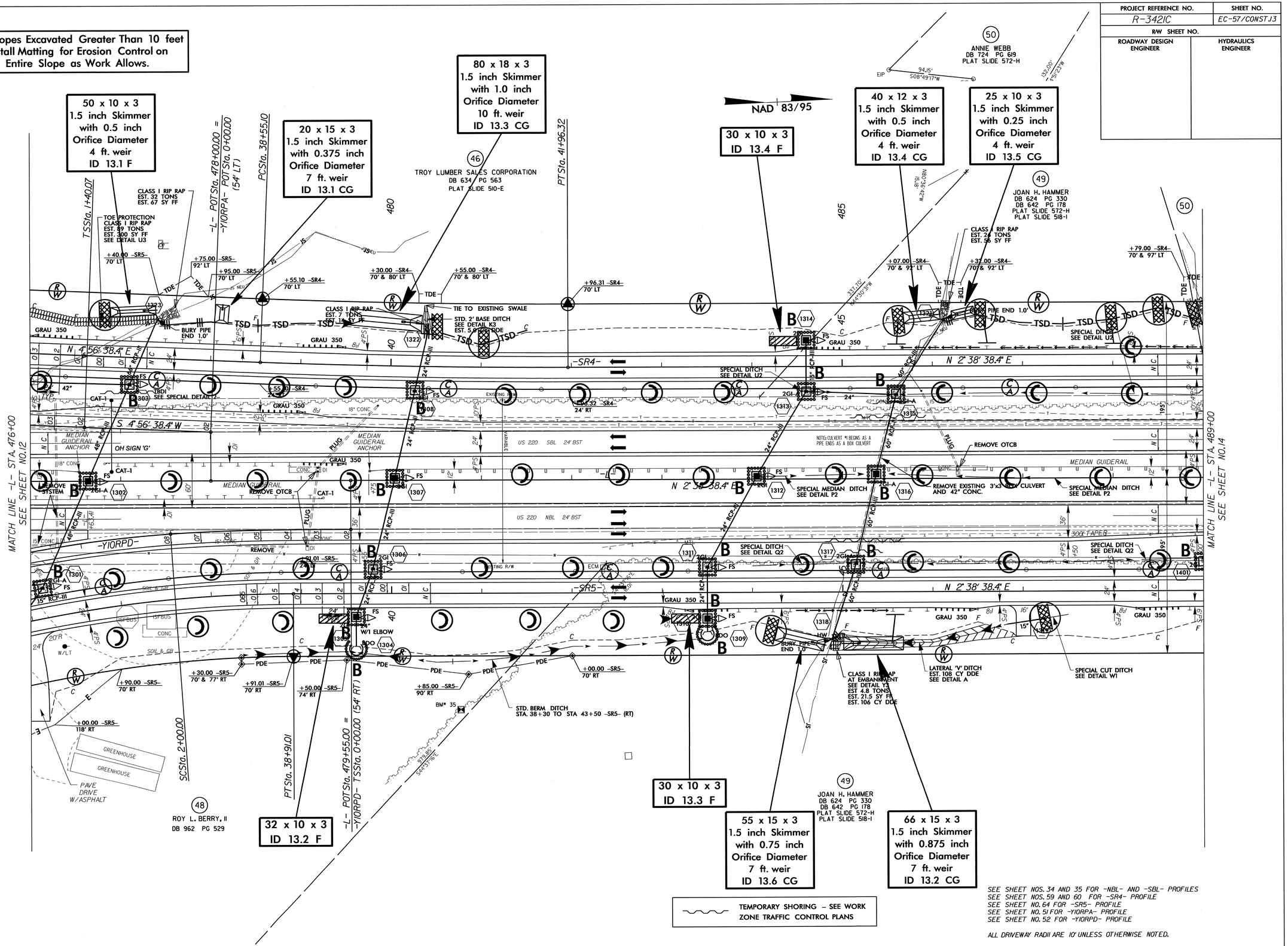
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-57/CONST.13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



SEE SHEET NOS. 34 AND 35 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NOS. 59 AND 60 FOR -SR4- PROFILE
SEE SHEET NO. 64 FOR -SR5- PROFILE
SEE SHEET NO. 51 FOR -Y10RPA- PROFILE
SEE SHEET NO. 52 FOR -Y10RPD- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

04-OCT-2013 16:53
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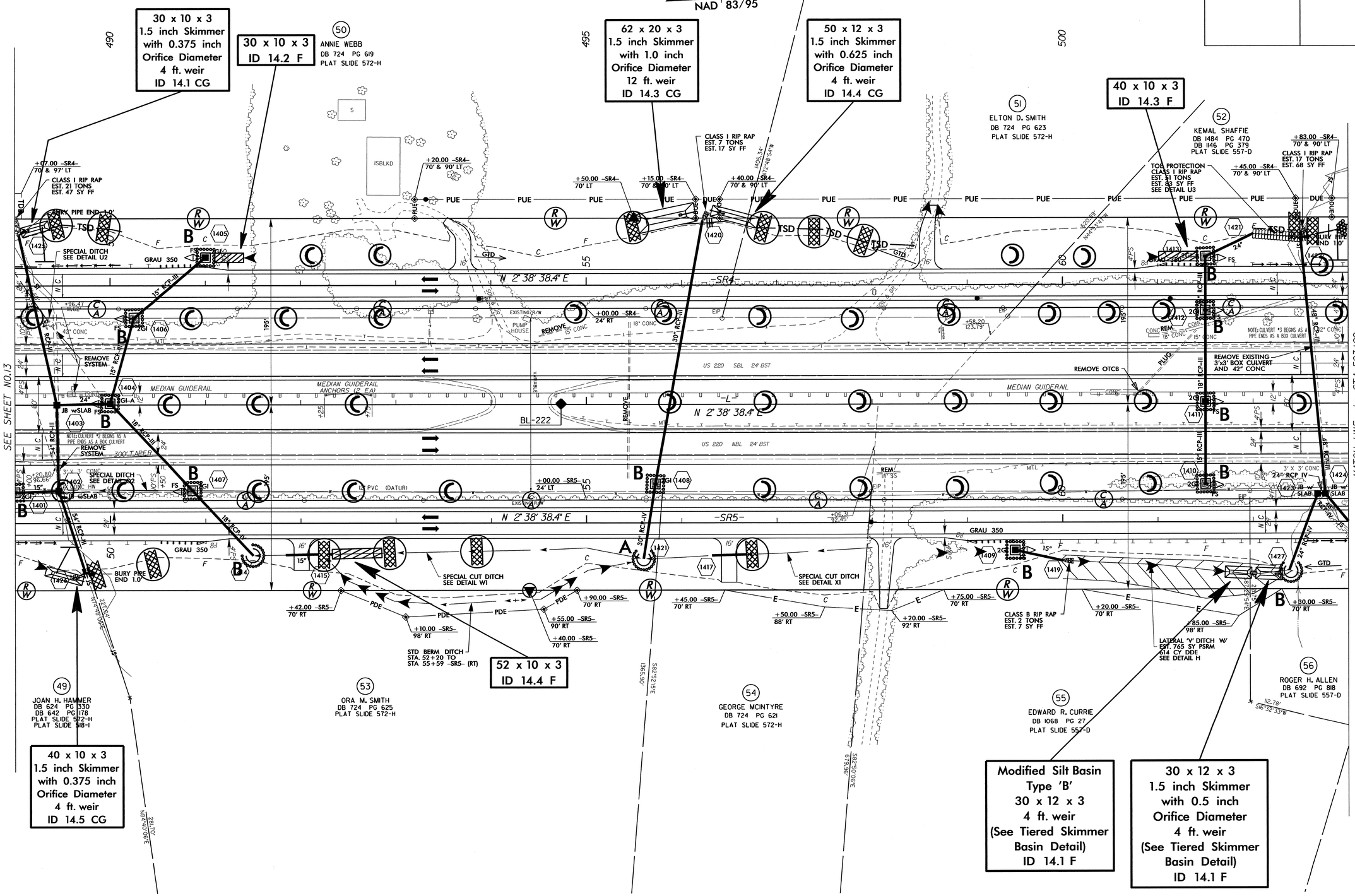
$$$$USERNAME$$$$ AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-58/CONST.14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 35 AND 36 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO. 60 FOR -SR4- PROFILE
SEE SHEET NOS. 64 AND 65 FOR -SR5- PROFILE

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



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AT RENV26470.

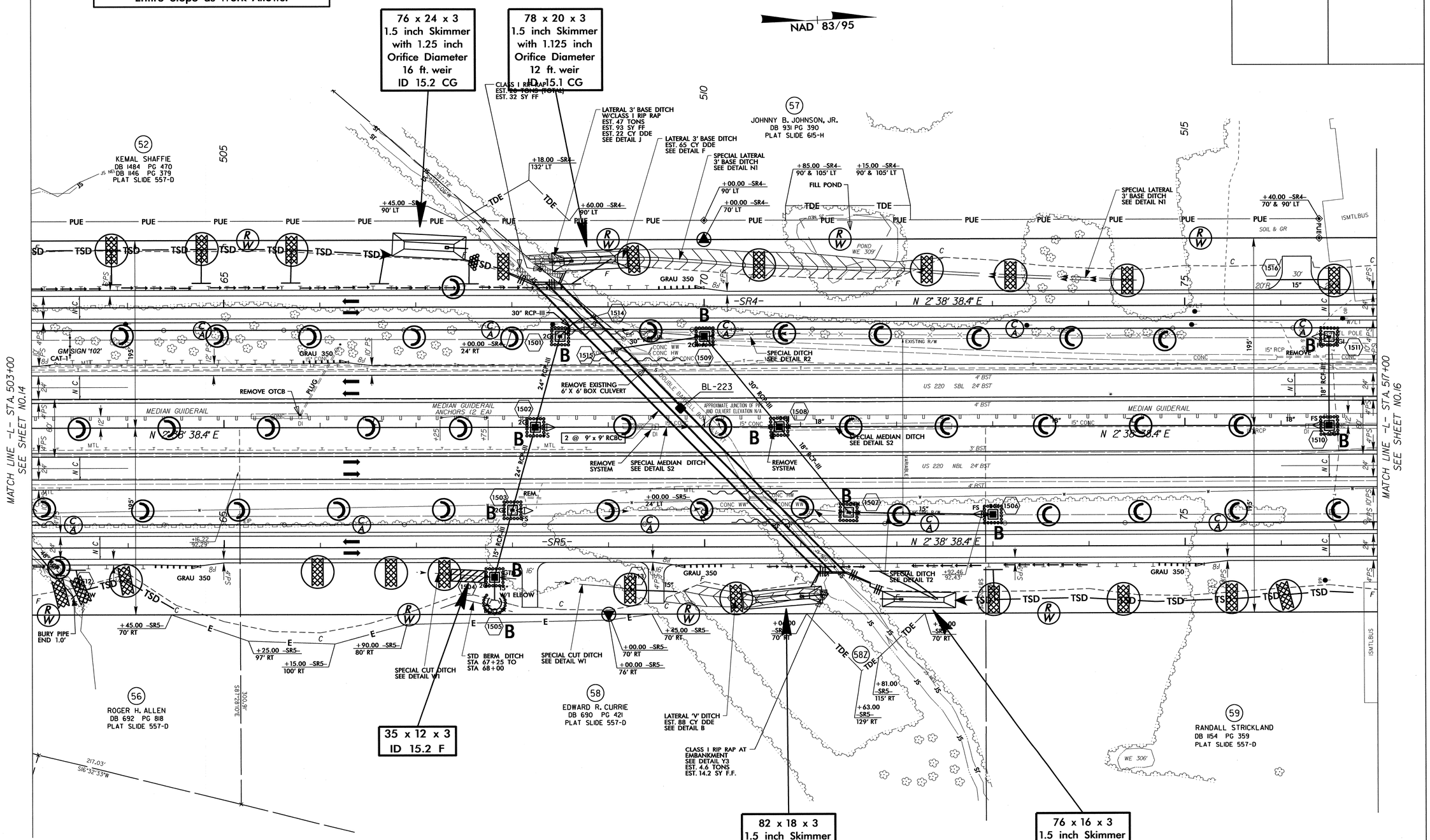
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-59/CONST.15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 36 AND 37 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NOS. 60 AND 61 FOR -SR4- PROFILE
SEE SHEET NO. 65 FOR -SR5- PROFILE

FOR CULVERT PLANS, SEE SHEETS C-1 THRU C-8

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



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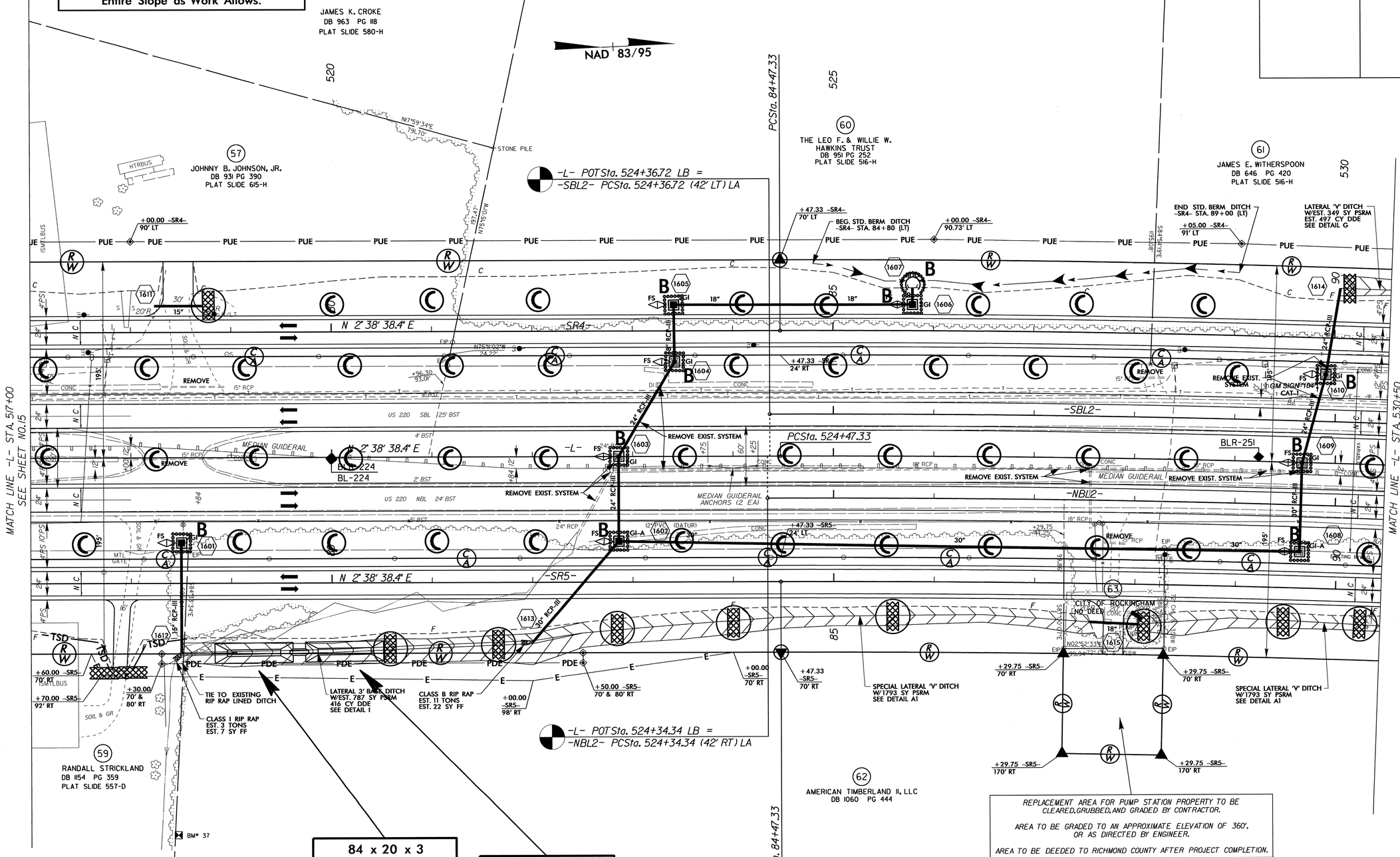
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-60/CONST.16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEE SHEET NOS. 37 AND 38 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO. 61 FOR -SR4- PROFILE
SEE SHEET NOS. 65 AND 66 FOR -SR5- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



REPLACEMENT AREA FOR PUMP STATION PROPERTY TO BE CLEARED, GRUBBED, AND GRADED BY CONTRACTOR.

AREA TO BE GRADED TO AN APPROXIMATE ELEVATION OF 360', OR AS DIRECTED BY ENGINEER.

AREA TO BE DEEDED TO RICHMOND COUNTY AFTER PROJECT COMPLETION.

84 x 20 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
12 ft. weir
(See Tiered Skimmer Basin Detail)
ID 16.1 F

Modified Silt Basin
Type 'B'
84 x 20 x 3
12 ft. weir
(See Tiered Skimmer Basin Detail)
ID 16.1 F

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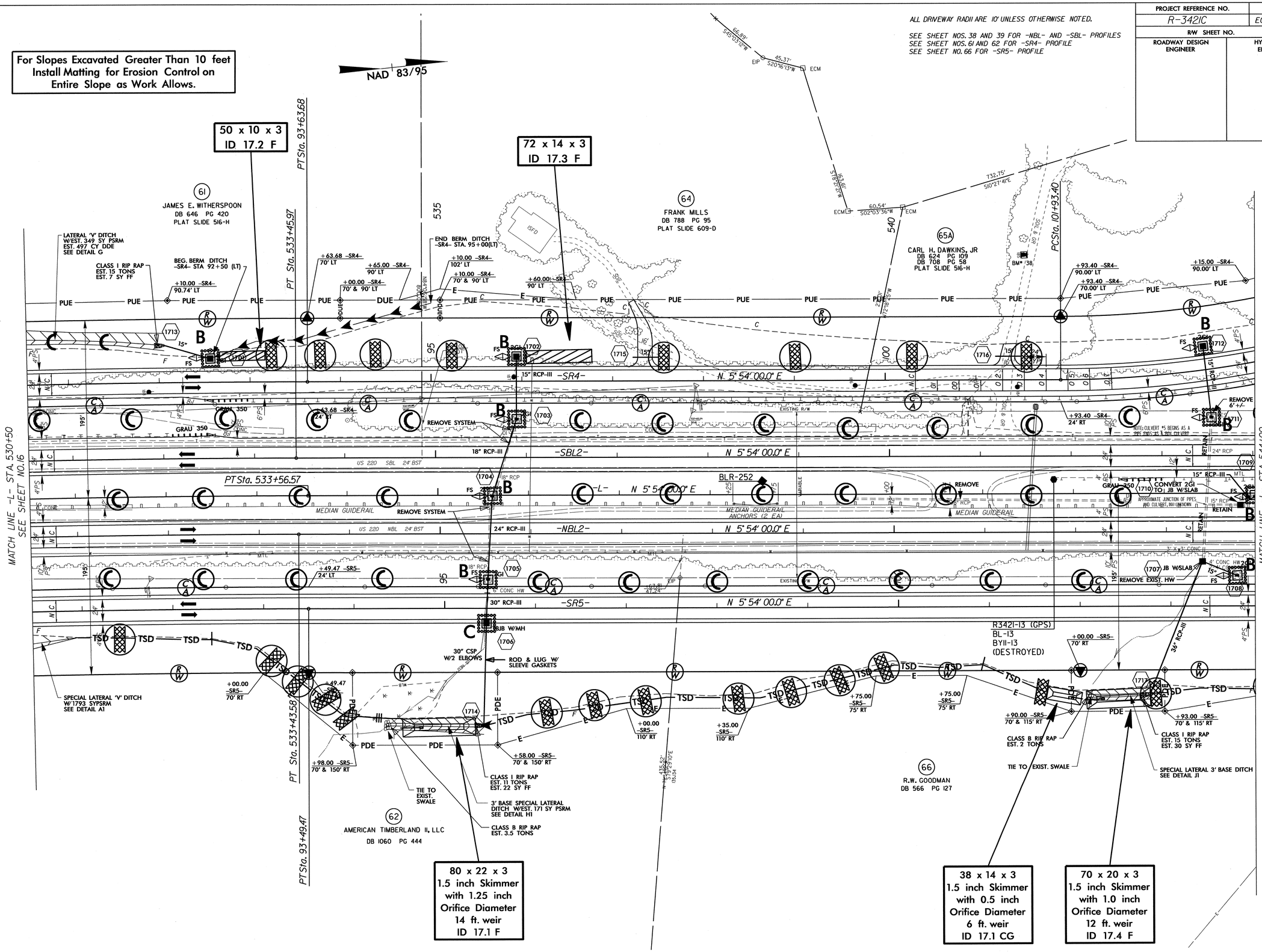
jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-61/CONST.17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NOS. 38 AND 39 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NOS. 61 AND 62 FOR -SR4- PROFILE
SEE SHEET NO. 66 FOR -SR5- PROFILE

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



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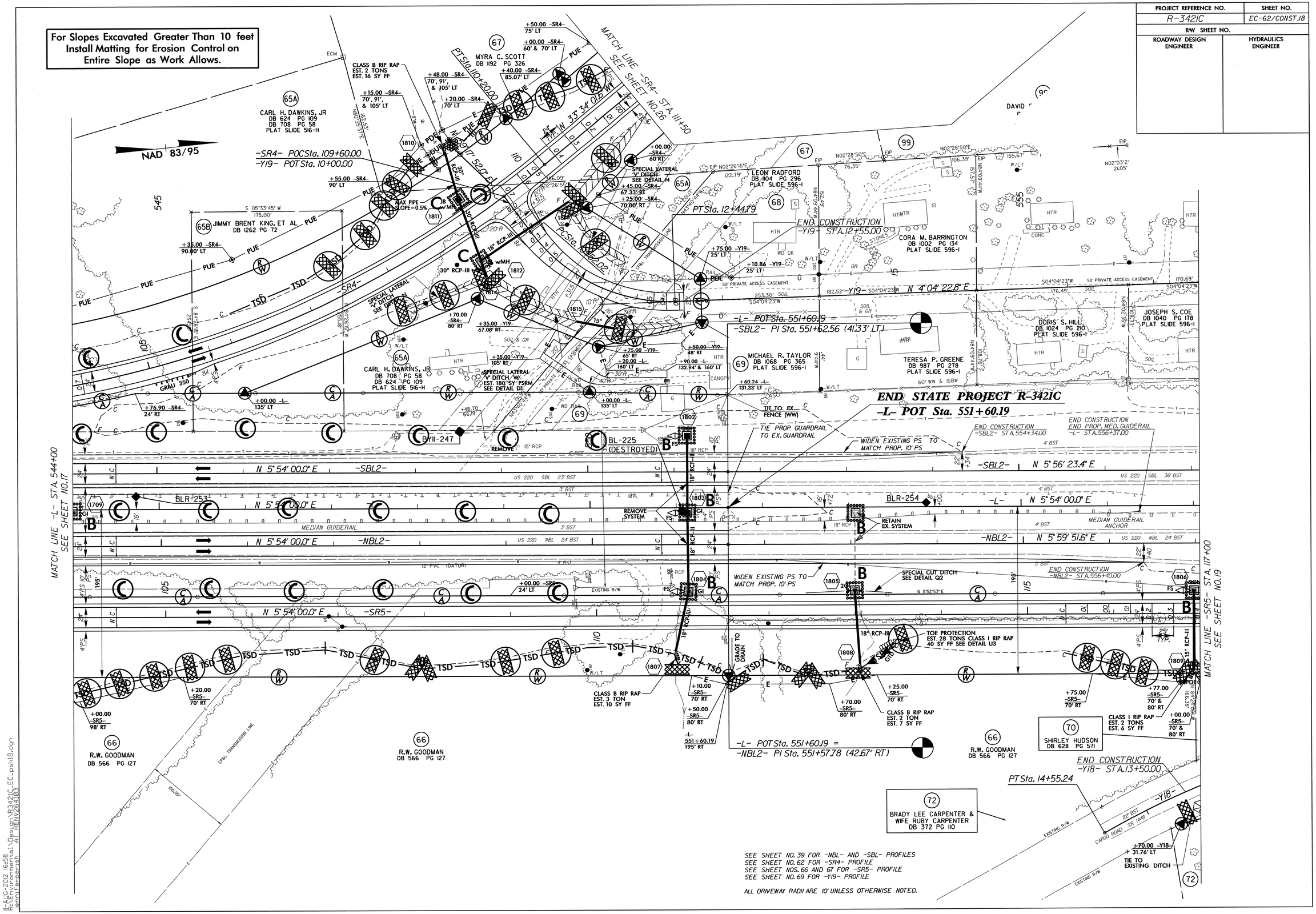
henderson@ATKINS.com

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-62/CONST.18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SEE SHEET NO. 39 FOR -NBL- AND -SBL- PROFILES
SEE SHEET NO. 62 FOR -SR4- PROFILE
SEE SHEET NOS. 66 AND 67 FOR -SR5- PROFILE
SEE SHEET NO. 69 FOR -Y19- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

11-AUG-2012 16:58
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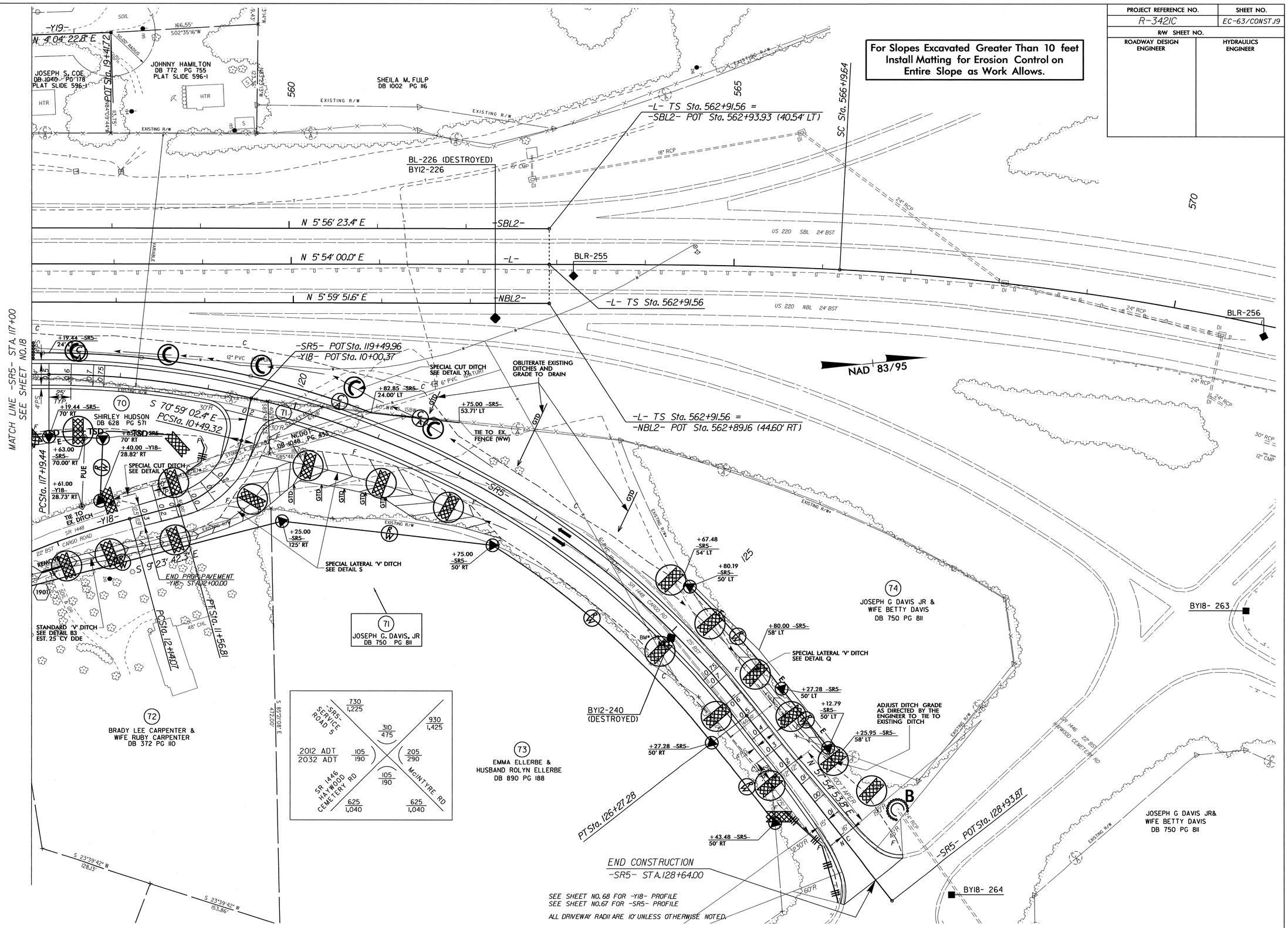
jennifer.parish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-63/CONST.19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



SEE SHEET NO. 68 FOR -Y18- PROFILE
SEE SHEET NO. 67 FOR -SR5- PROFILE

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

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jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-64/CONST.20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

SEE SHEET NO. 67 FOR -Y8- PROFILE
SEE SHEET NO. 40 FOR -Y8REV- PROFILE

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

Place Matting for Erosion Control on Slope as Work Allows.

35 x 10 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 20.4 F

60 x 10 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 20.2 CG

30 x 10 x 3
ID 20.3 CG
AND ID 20.4 CG

46 x 10 x 3
ID 20.5 F

50 x 10 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 20.6 F

64 x 14 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
6 ft. weir
ID 20.1 F

62 x 14 x 3
ID 20.2 F

64 x 12 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
4 ft. weir
ID 20.1 CG

60 x 14 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
6 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 20.3 F

Modified Silt Basin
Type 'B'
60 x 14 x 3
6 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 20.3 F

NAD 83/95

77 FRANCIS ALLEN
DB 738 PG 817
PLAT SLIDE 580-B

76 REX A. CROUCH
DB 1077 PG 16
PLAT SLIDE 580-B

78 HARMONY BAPTIST CHURCH
DB 761 PG 613
PLAT SLIDE 580-B

7 ALLEN BROTHERS
TIMBER COMPANY
DB 851 PG 109
PLAT SLIDE 580-B

6 SANTONIA L. ROBINSON
DB 1248 PG 161
DB 780 PG 460
PLAT SLIDE 580-B

3 DAN LEWIS ALLEN, JR. ET AL
DB 738 PG 823
PLAT SLIDE 580-B

75 JAMES B. COVINGTON
DB 516 PG 79

CLARA WALL
DB 1002 PG 45
PLAT SLIDE 462-B

MATCH LINE -Y8REV- STA. 18+50

MATCH LINE SEE SHEET NO.7

MATCH LINE -Y8REV- STA. 30+00 SEE SHEET NO.6

PT Sta. 11+88.00

POT Sta. 19+25.00

PCSta. 10+62.17

PCSta. 14+70.46

BEGIN CONSTRUCTION
-Y8REV- STA. 13+25.00

-Y8REV- POC Sta. 22+85.00
-Y8- POT Sta. 10+00.00

S 53° 07' 21.0" E

N 54° 46' 56.0" E

S 23° 05' 05.0" E

S 54° 52' 05.0" E

SR 1304 HARRINGTON RD 22' BST

EXISTING R/W

SPECIAL LATERAL 'V' DITCH SEE DETAIL G1

CONC. ENDWALL SILL SEE SPECIAL DETAIL

TIE EX. DITCH

SPECIAL CUT DITCH SEE DETAIL B2

SPECIAL LATERAL 'V' DITCH SEE DETAIL T

LATERAL 'V' DITCH EST. 25 CY DDE SEE DETAIL B

LATERAL 'V' DITCH EST. 59 CY DDE SEE DETAIL A

CLASS II RIP RAP EST. 40 TONS EST. 75 SY FF

CLASS B RIP RAP EST. 3 TONS EST. 10 SY FF

CLASS B RIP RAP EST. 2 TONS EST. 7 SY FF

CLASS I RIP RAP EST. 57 TONS EST. 104 SY FF

CLASS I RIP RAP @ EMBANKMENT SEE DETAIL Y3 EST. 11.7 TONS TOTAL EST. 26.6 SY F.F. TOTAL

CLASS B RIP RAP EST. 2 TONS EST. 7 SY FF

REMOVE EXIST. ROADWAY EMBANKMENT & GRADE TO NG EST. 880 C.Y. EXCAVATION

ENVIRONMENTALLY SENSITIVE AREA

PAVE WEBSTER AVE. STREET TURNOUT USING -Y8REV- PAVEMENT DESIGN

TIE TO EX. SWALE

SPECIAL CUT DITCH SEE DETAIL A2

11-AUG-2012 17:07
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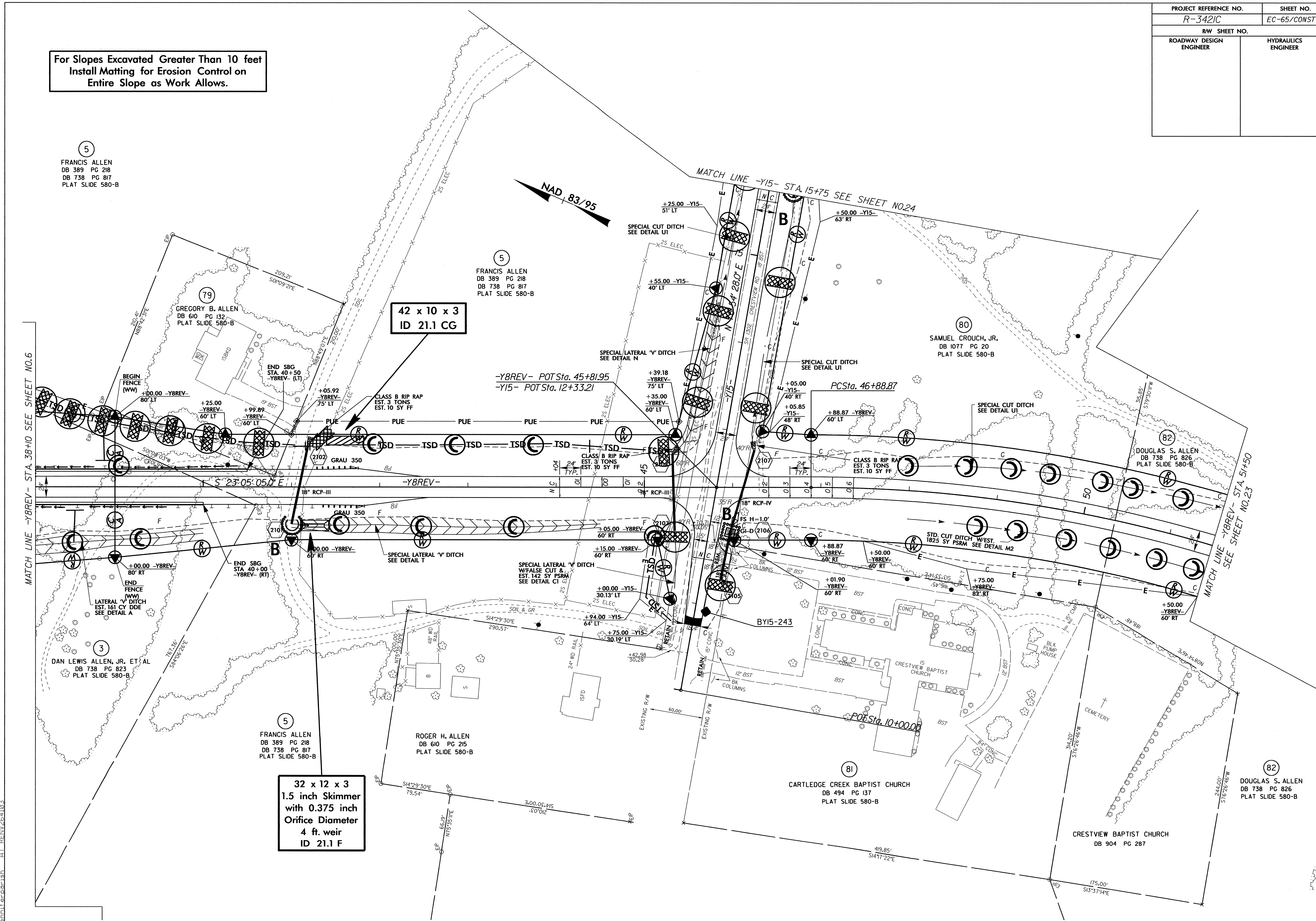
bmillerpaesi AT REV 26.0103



PROJECT REFERENCE NO.
R-3421C
SHEET NO.
EC-65/CONST.21
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.
42 x 10 x 3
ID 21.1 CG
32 x 12 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 21.1 F
NAD 83/95
MATCH LINE -Y15- STA. 15+75 SEE SHEET NO.24
MATCH LINE -Y8REV- STA. 38+10 SEE SHEET NO.6
MATCH LINE -Y8REV- STA. 51+50 SEE SHEET NO.23
-Y8REV- POT Sta. 45+81.95
-Y15- POT Sta. 12+33.21
PC Sta. 46+88.87
POT Sta. 10+00.00
S 23°05′05.0″ E
-Y8REV-
-Y15-
CRESTVIEW RD
SR 1302
5
FRANCIS ALLEN
DB 389 PG 218
DB 738 PG 817
PLAT SLIDE 580-B
79
GREGORY B. ALLEN
DB 610 PG 132
PLAT SLIDE 580-B
80
SAMUEL CROUCH, JR.
DB 1077 PG 20
PLAT SLIDE 580-B
82
DOUGLAS S. ALLEN
DB 738 PG 826
PLAT SLIDE 580-B
3
DAN LEWIS ALLEN, JR. ET AL
DB 738 PG 823
PLAT SLIDE 580-B
ROGER H. ALLEN
DB 610 PG 215
PLAT SLIDE 580-B
81
CARTLEDGE CREEK BAPTIST CHURCH
DB 494 PG 137
PLAT SLIDE 580-B
CRESTVIEW BAPTIST CHURCH
DB 904 PG 287
CEMETERY
BLK PUMP HOUSE
BEGIN FENCE (WW)
END FENCE (WW)
END SBG STA. 40+50 -Y8REV- (LT)
END SBG STA 40+00 -Y8REV- (RT)
CLASS B RIP RAP EST. 3 TONS EST. 10 SY FF
SPECIAL CUT DITCH SEE DETAIL U1
SPECIAL LATERAL 'V' DITCH SEE DETAIL N
SPECIAL LATERAL 'V' DITCH SEE DETAIL T
SPECIAL LATERAL 'V' DITCH W/FALSE CUT & EST. 142 SY PSRM SEE DETAIL C1
LATERAL 'V' DITCH EST. 161 CY DDE SEE DETAIL A
STD. CUT DITCH W/EST. 1825 SY PSRM SEE DETAIL M2
GRAU 350
18″ RCP-III
18″ RCP-IV
FS H=1.0′
GI-D
BY15-243
2101
2102
2103
2104
2105
2106
2107
EXISTING R/W
60.00′
11-AUG-2012 17:10
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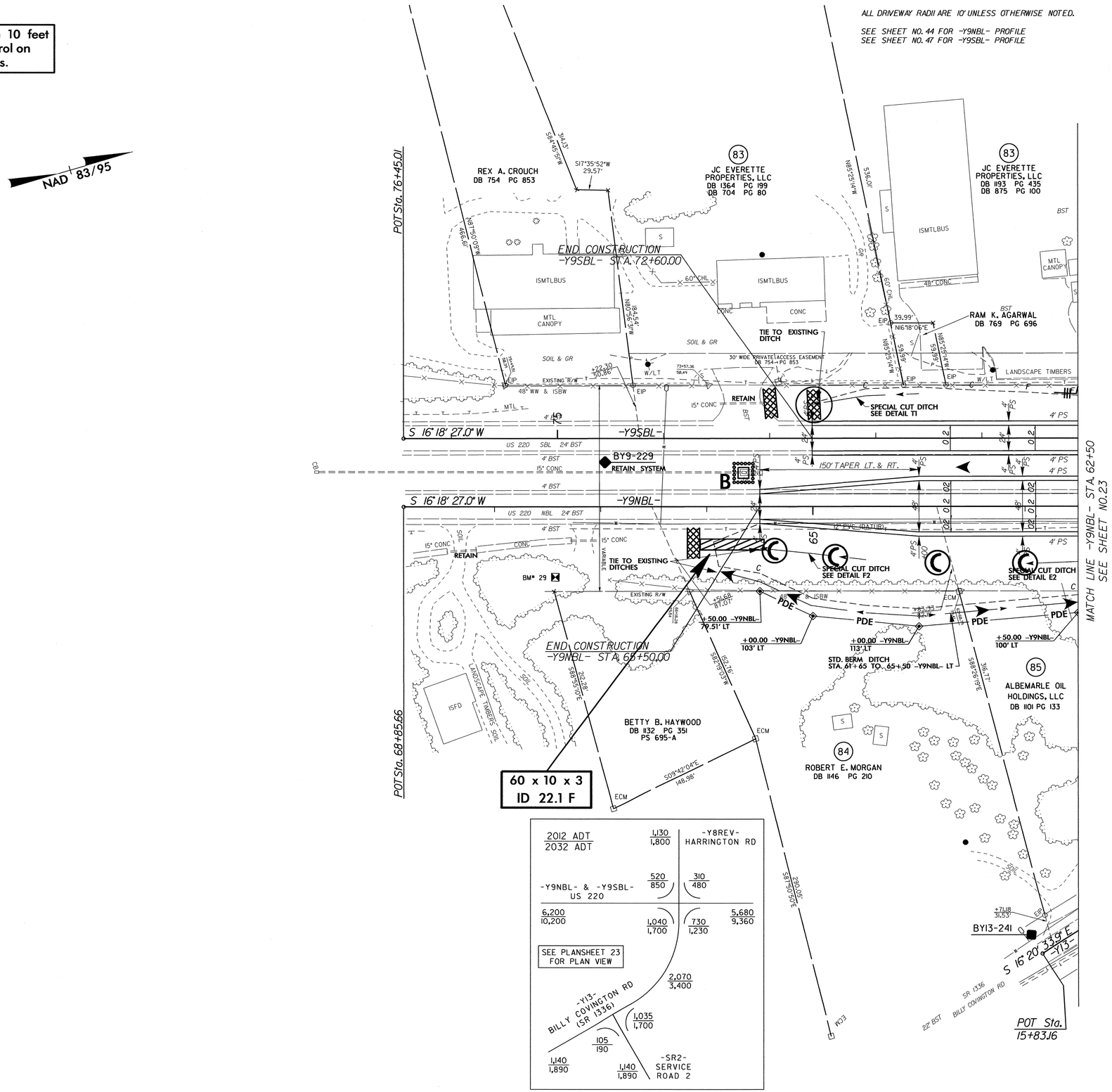
jenniferparish AT RENV264103

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-66/CONST.22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



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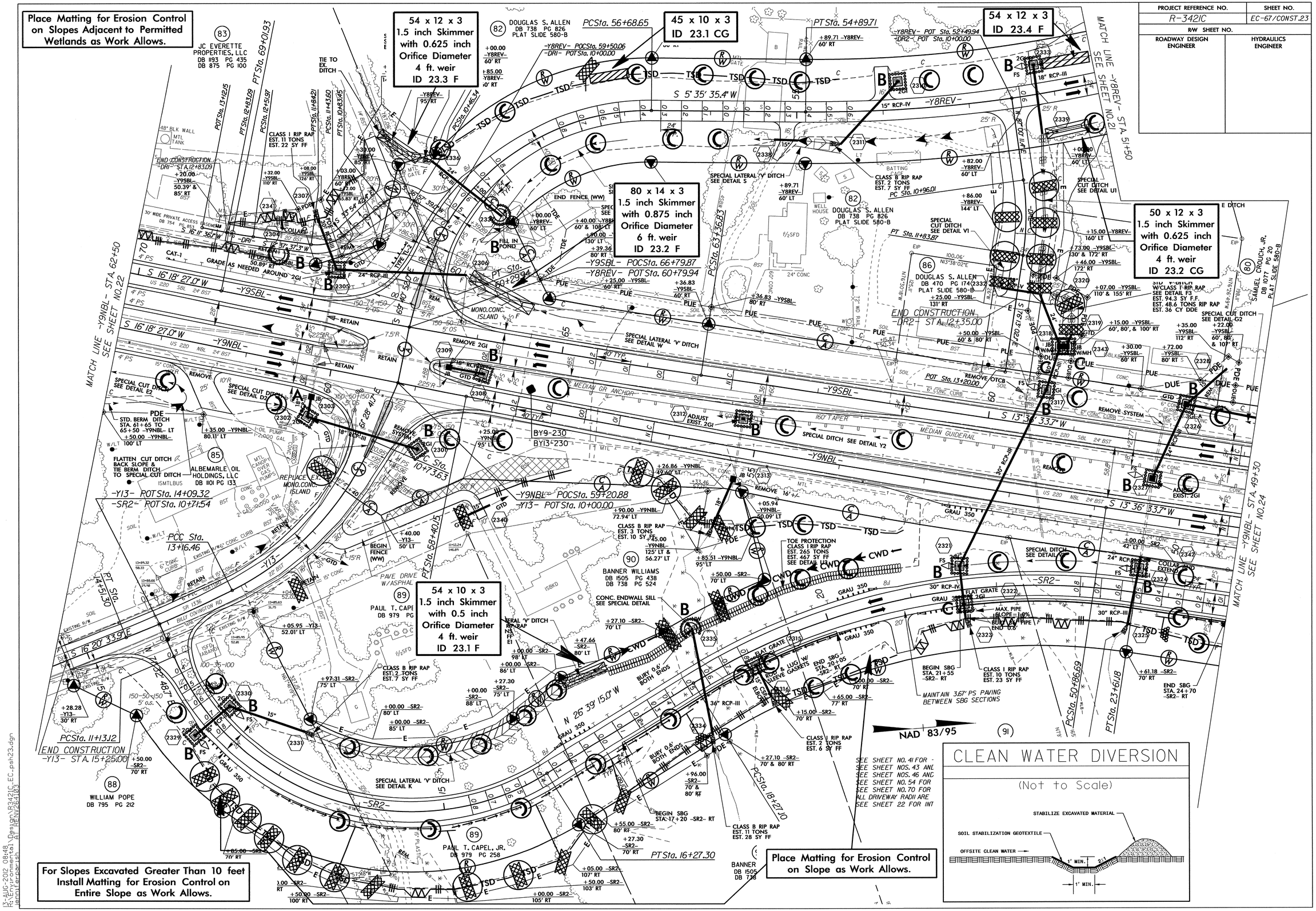
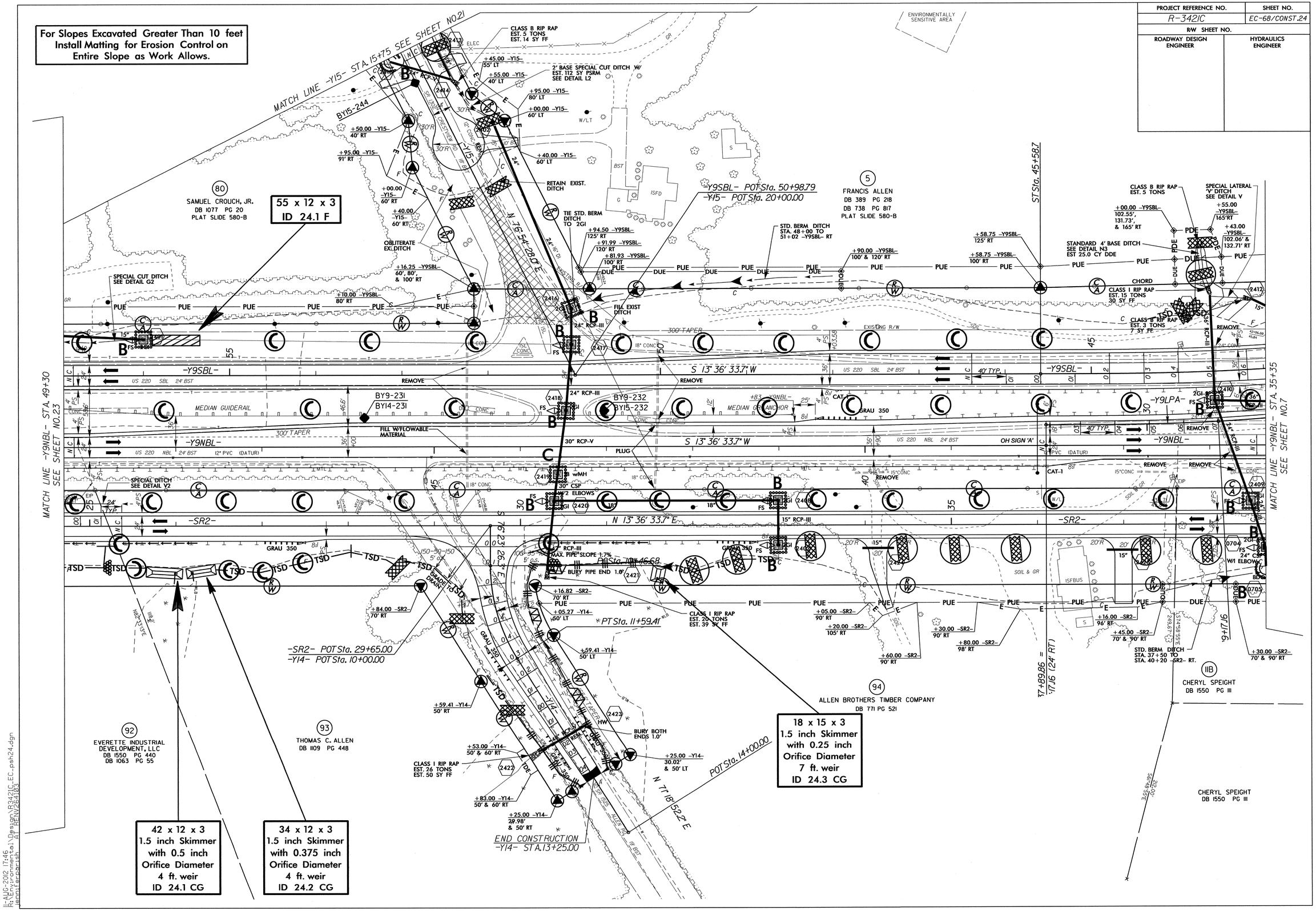
jennifer.parish AT REN/264103



PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-67/CONST.23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-68/CONST.24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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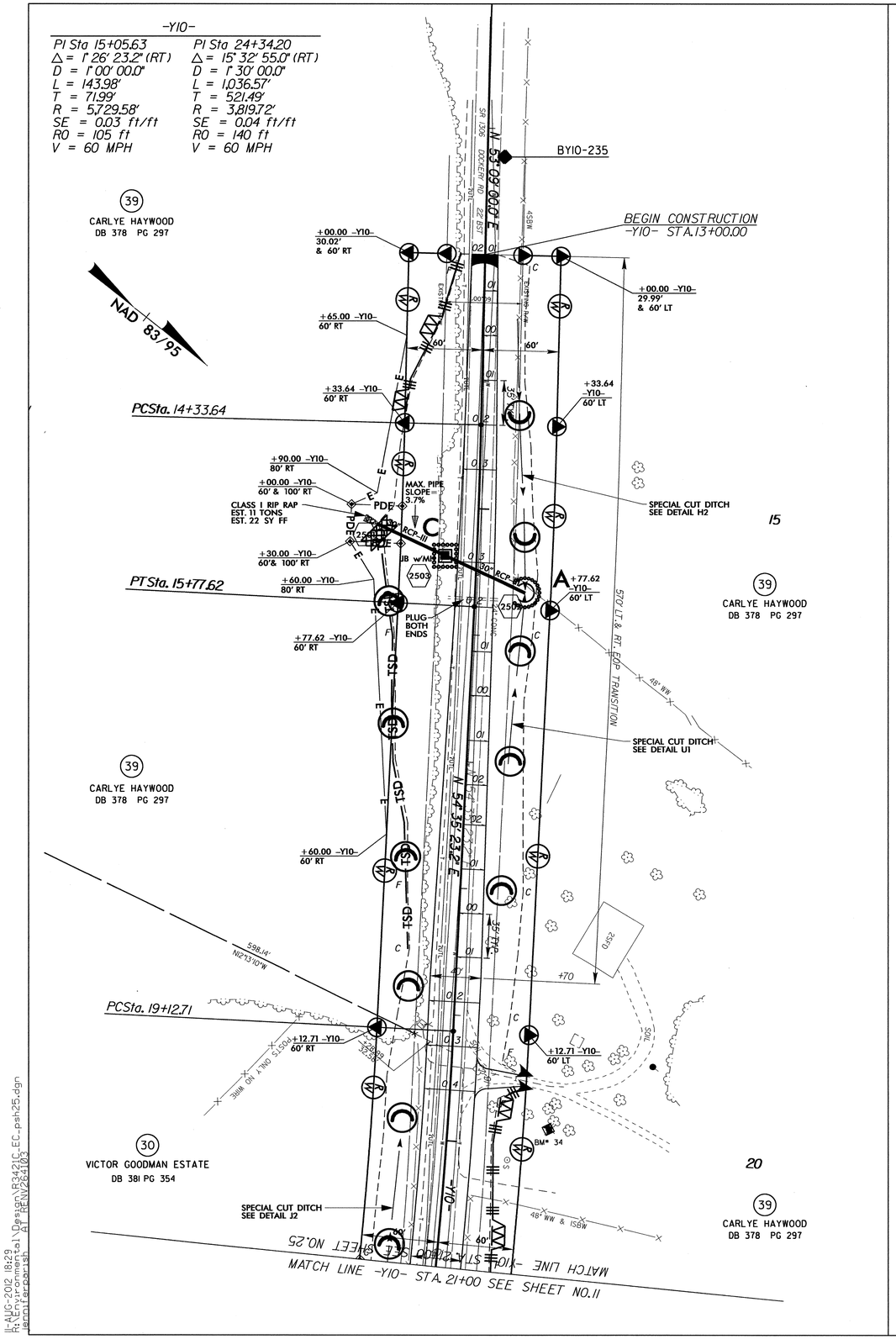
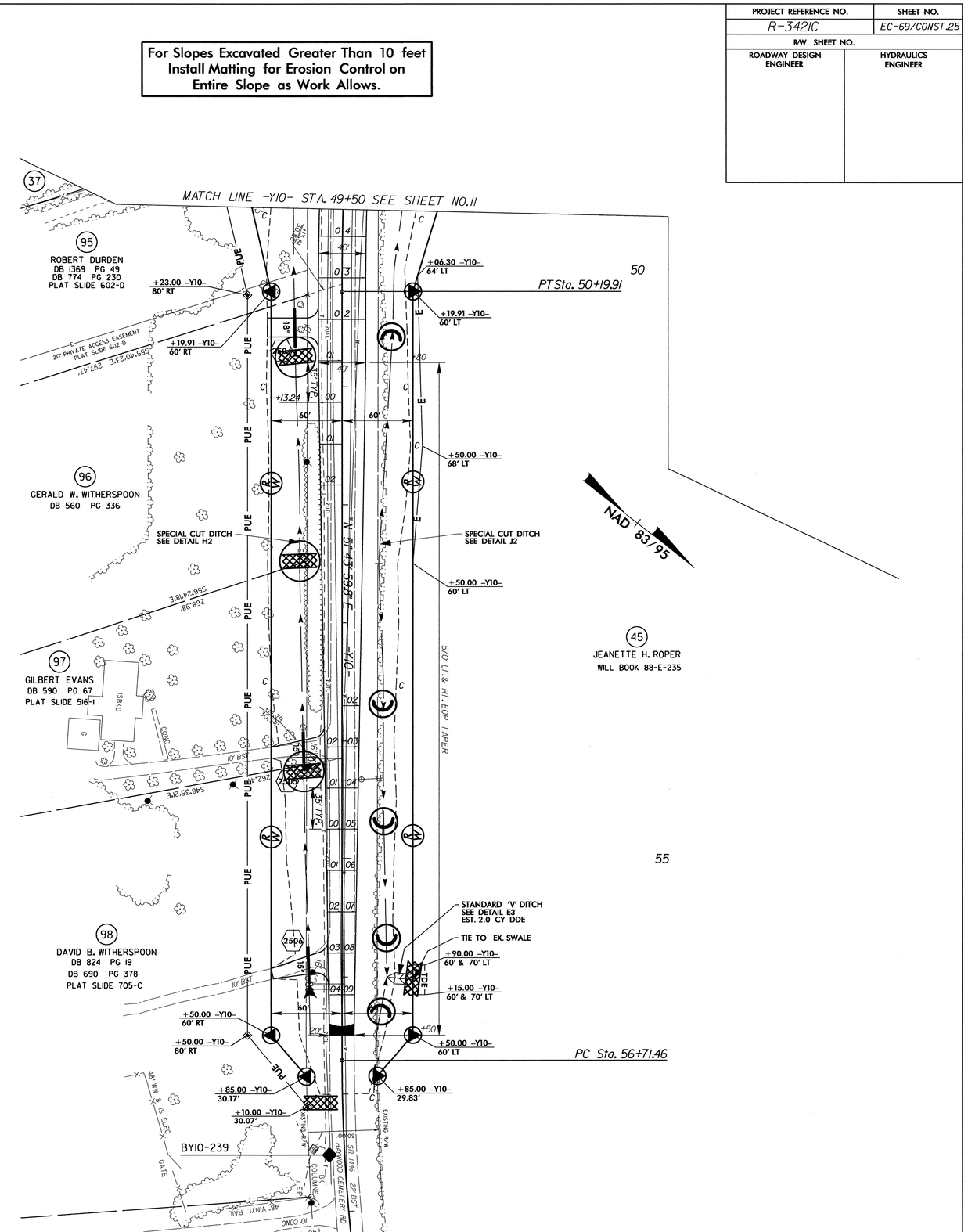
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-69/CONST.25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.





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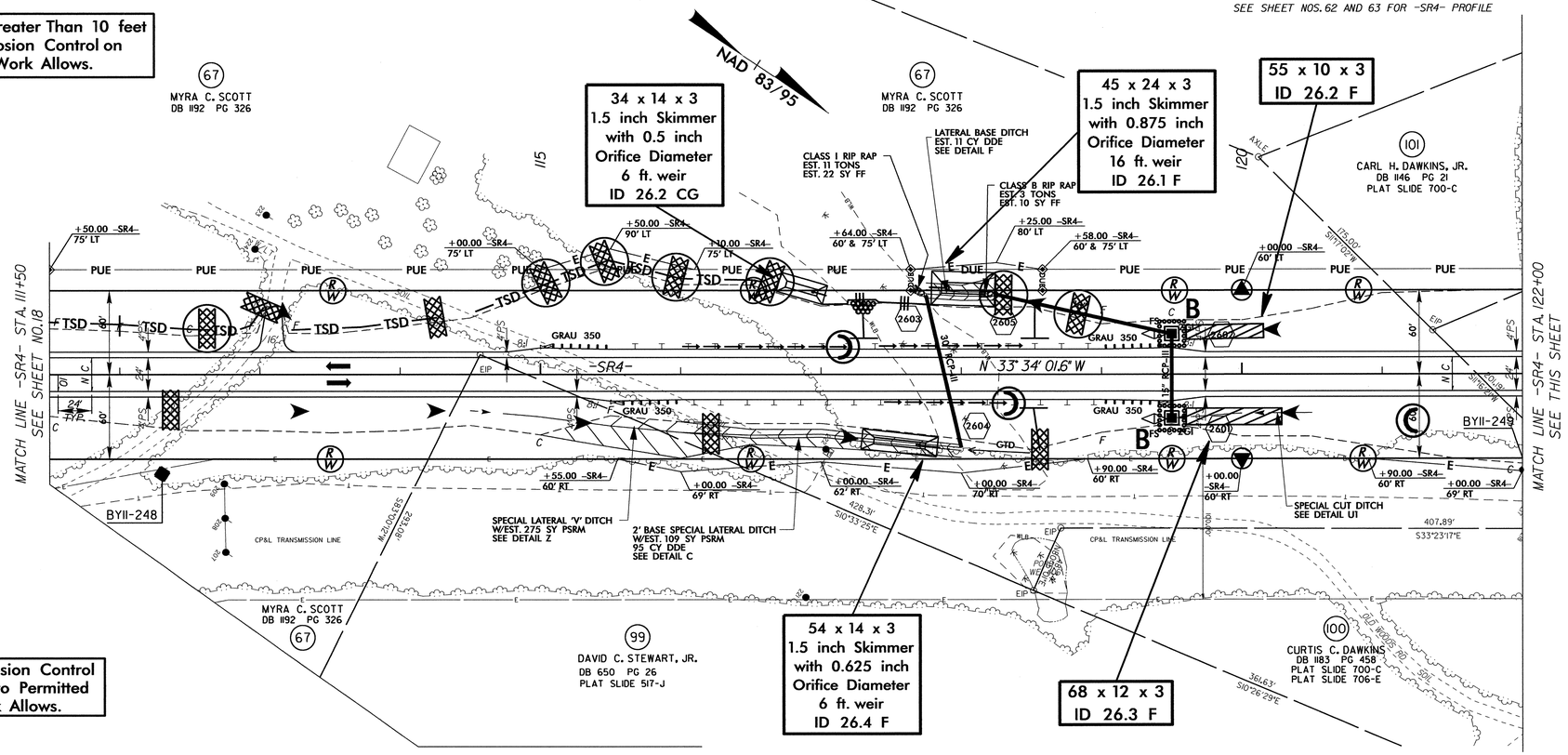
jenniferparish AT RENV264103

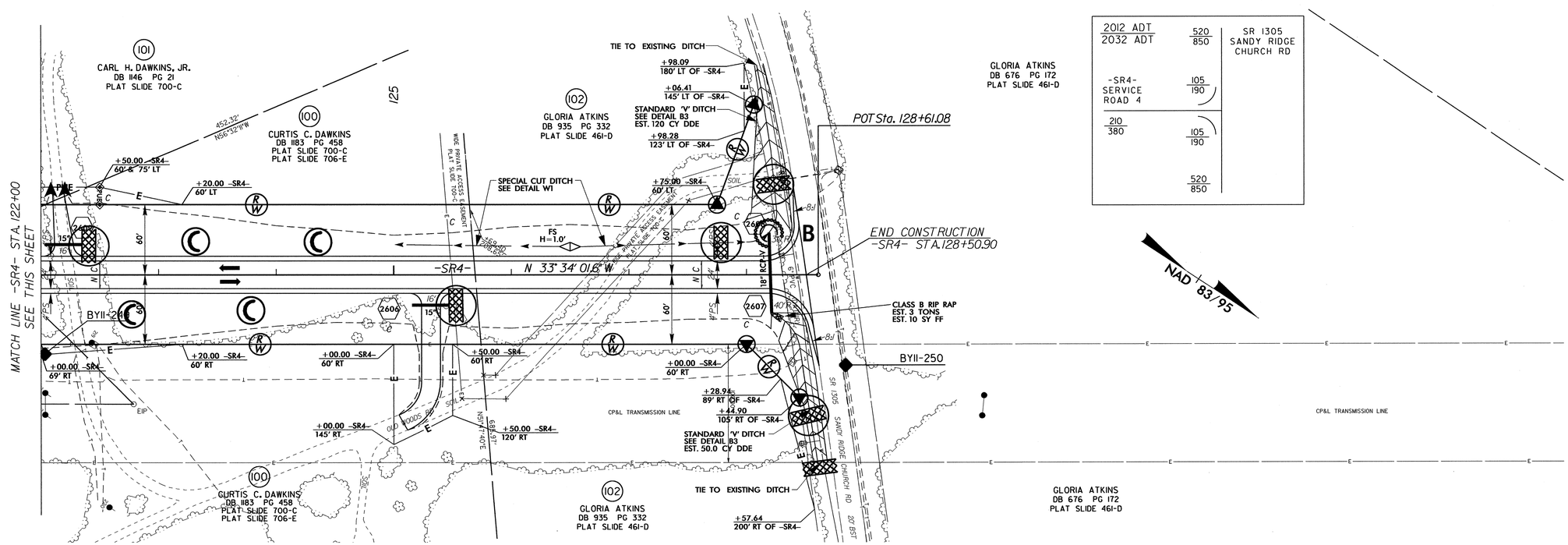
PROJECT REFERENCE NO.	SHEET NO.
R-3421C	EC-70/CONST.26
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.
SEE SHEET NOS. 62 AND 63 FOR -SR4- PROFILE

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.



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



2012 ADT / 2032 ADT	520 / 850	SR 1305 SANDY RIDGE CHURCH RD
-SR4- SERVICE ROAD 4	105 / 190	
210 / 380	105 / 190	
	520 / 850	

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