TIP PROJECT: R-2814B

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2814B	EC-1	

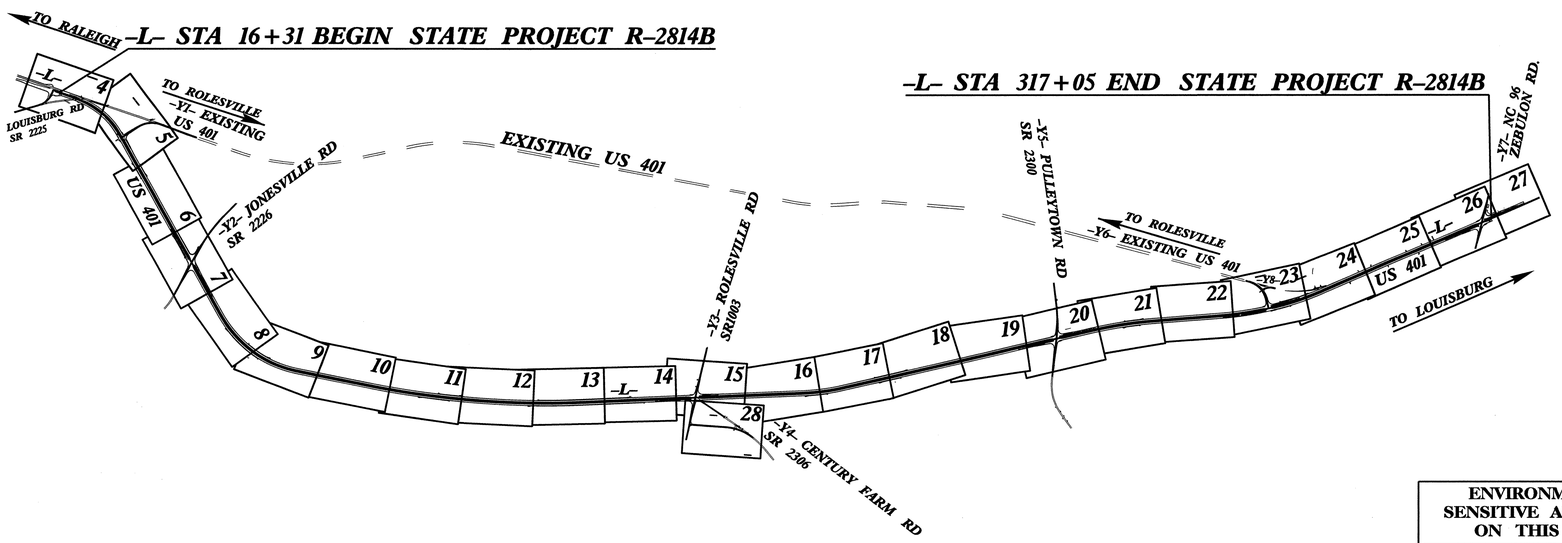
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

WAKE COUNTY

LOCATION: US 401 ROLESVILLE BYPASS FROM SR 2225, LOUISBURG ROAD TO NC 96, ZEBULON ROAD
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB AND GUTTER, CULVERTS AND SIGNALS.



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	
	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	
	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.

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT

High Quality Water Zone(s) Exist
From Sta. 159+00
to Sta. End
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

Prepared In the Office of:

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

2006 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 July 18, 2006 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1605.01	Temporary Silt Fence	1632.01	Rock Inlet Sediment Trap Type A
1606.01	Special Sediment Control Fence	1632.02	Rock Inlet Sediment Trap Type B
1607.01	Gravel Construction Entrance	1632.03	Rock Inlet Sediment Trap Type C
1622.01	Temporary Berms and Slope Drains	1633.01	Temporary Rock Silt Check Type A
1630.03	Temporary Silt Ditch	1634.01	Temporary Rock Sediment Dam Type A
1630.04	Stilling Basin	1634.02	Temporary Rock Sediment Dam Type B
1630.05	Temporary Diversion	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.06	Special Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B

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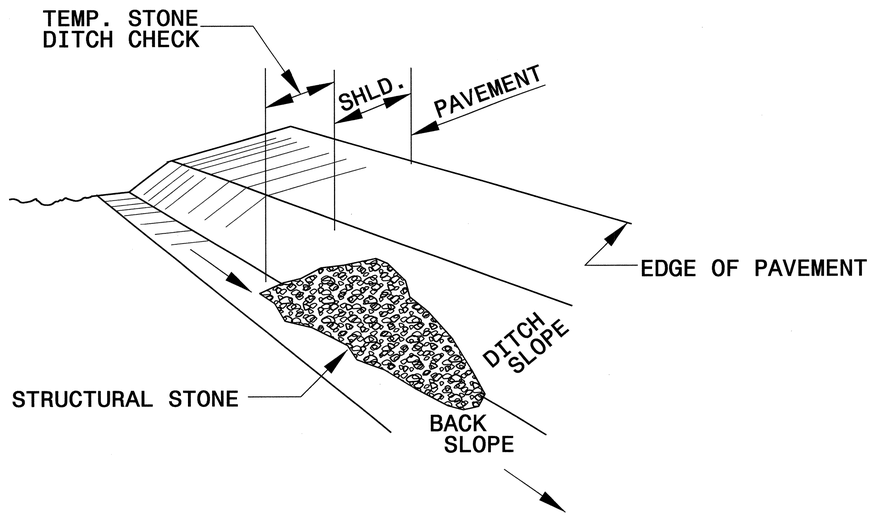
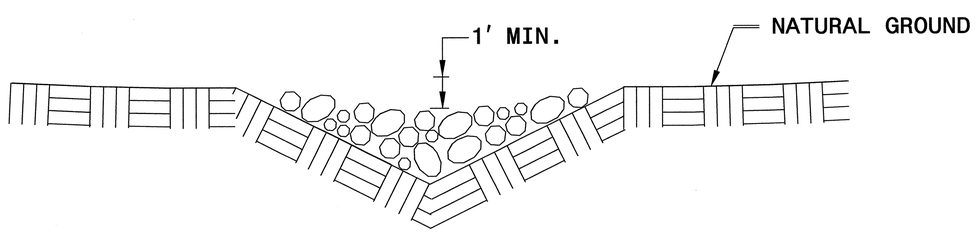
R:\Environmental\Stormwater\Projects\R-2814B\R-2814B_ec_tsh.dgn
jdavis

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

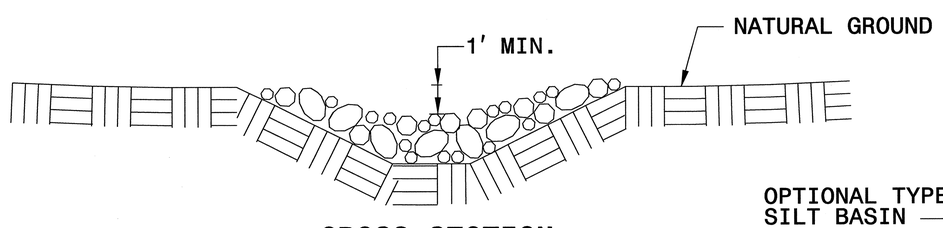
TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH

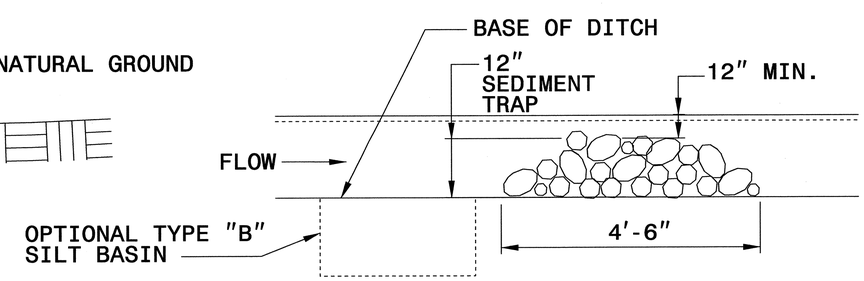


CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

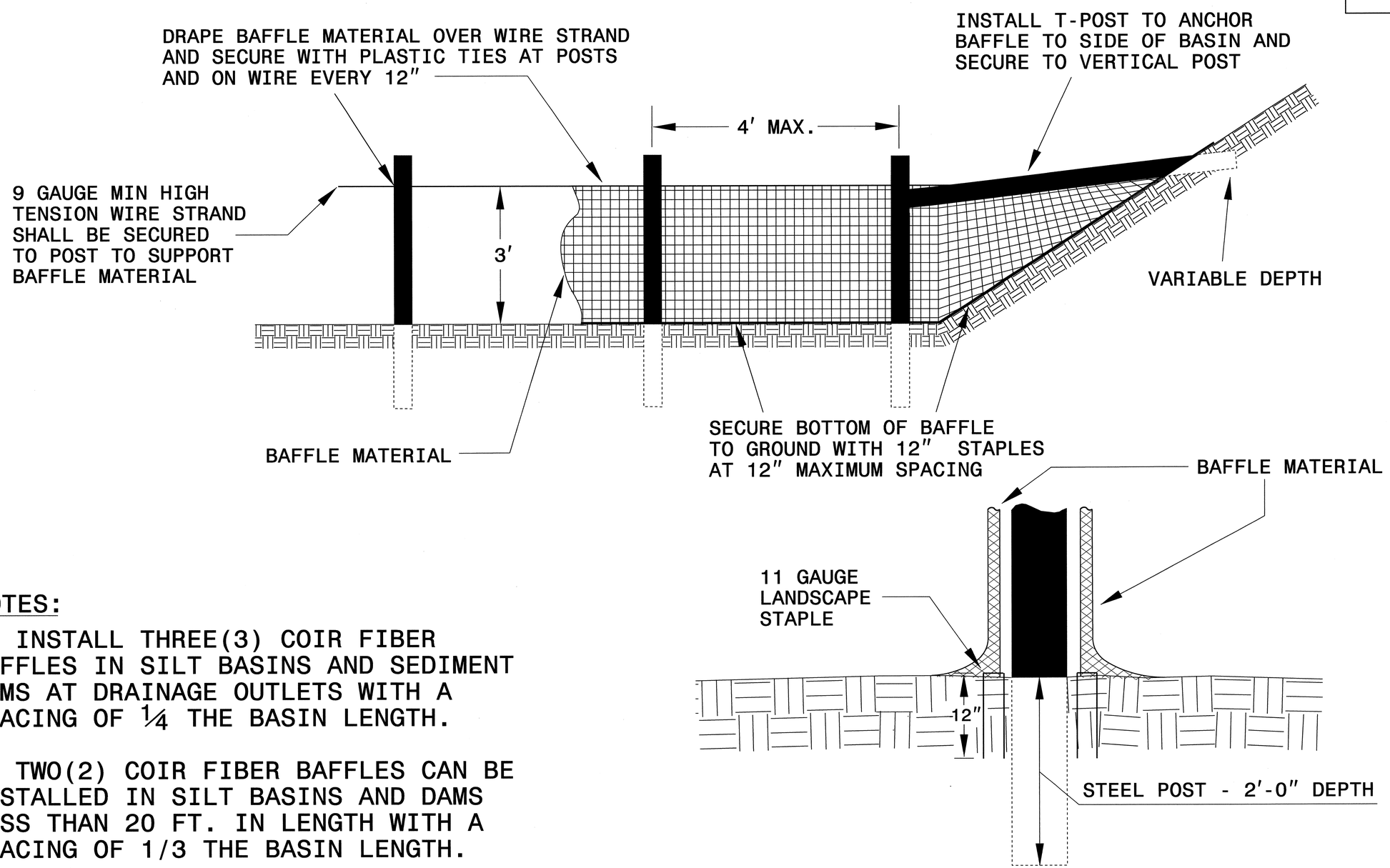
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



ELEVATION VIEW

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER BAFFLE DETAIL



NOTES:

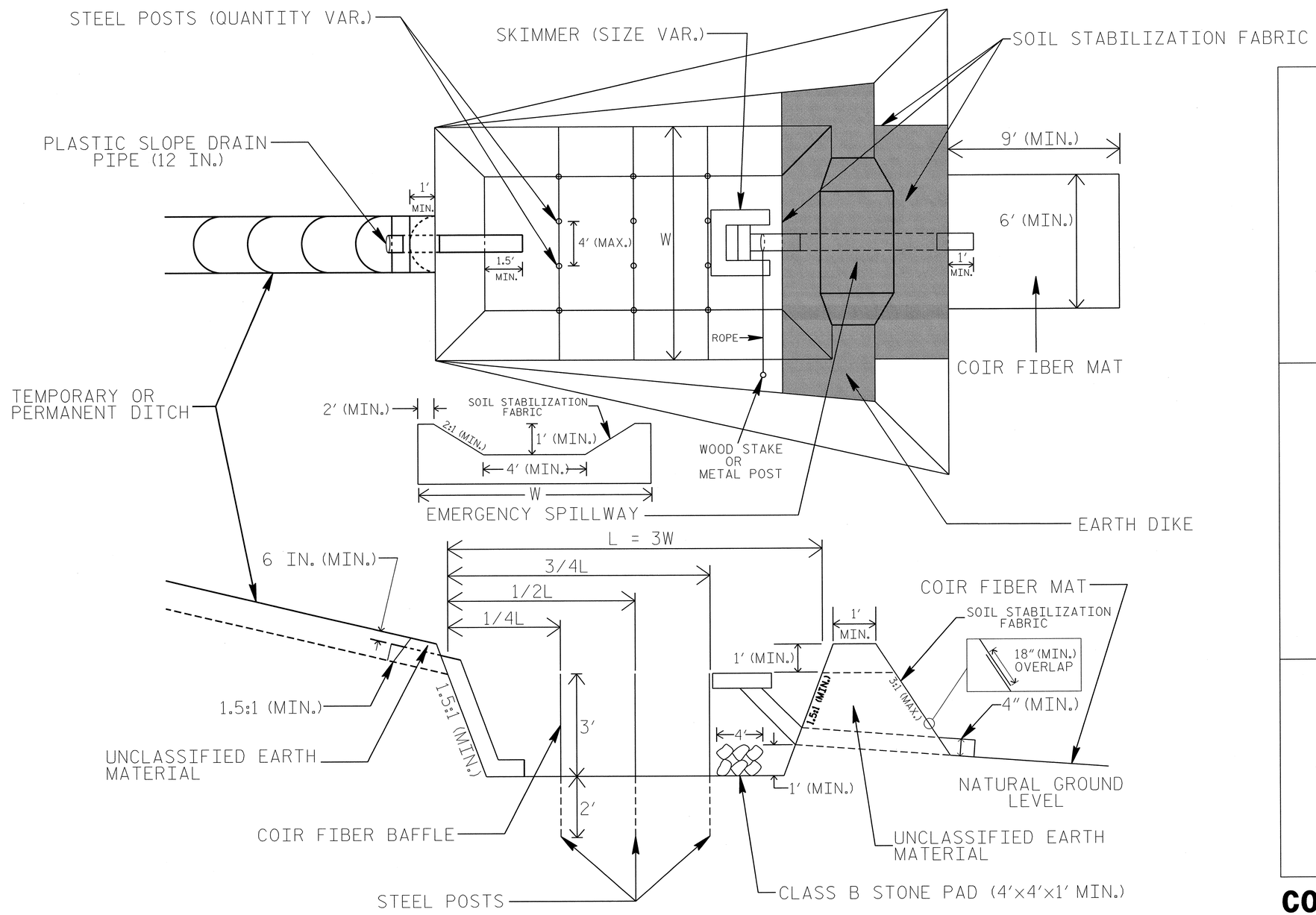
1. INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF ¼ THE BASIN LENGTH.

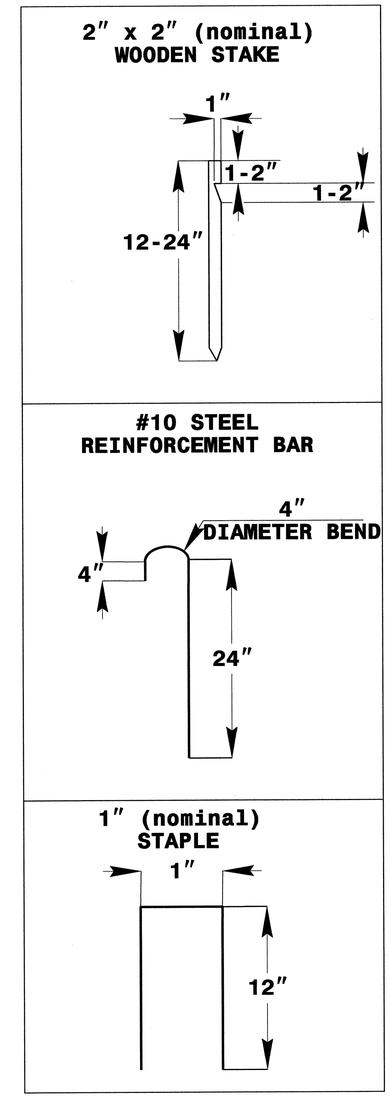
2. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.

3. TOP HEIGHT OF COIR FIBER BAFFLES SHALL NOT BE BELOW BASE OF EMERGENCY SPILLWAY ELEVATION.

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

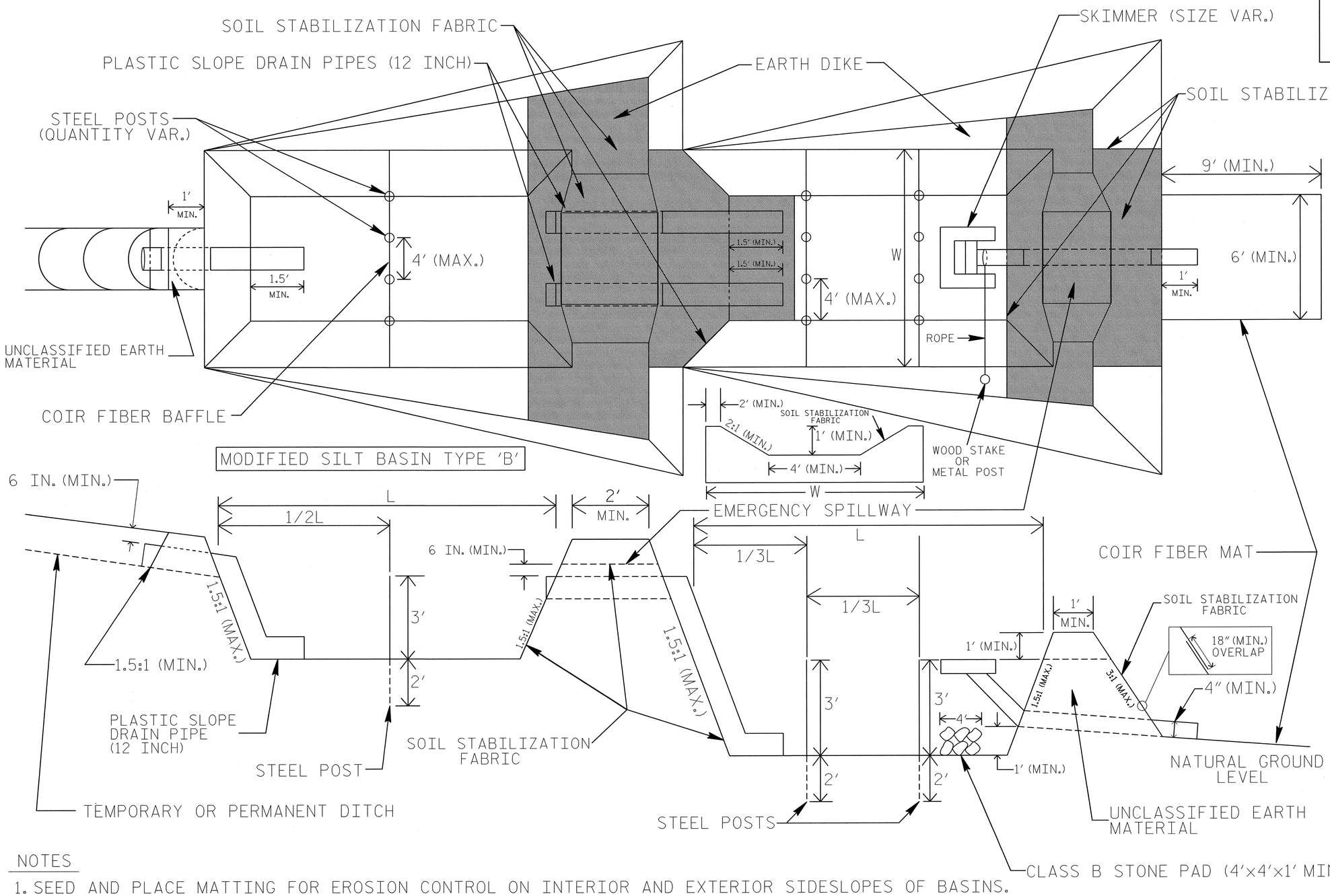
NOTES

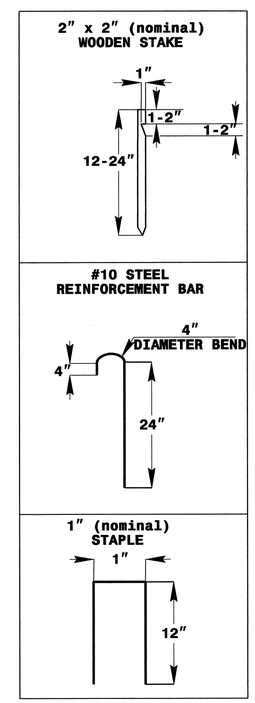
1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE EMERGENCY SPILLWAY LENGTH (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TIERED SKIMMER BASIN DETAIL





COIR FIBER MAT ANCHOR OPTIONS

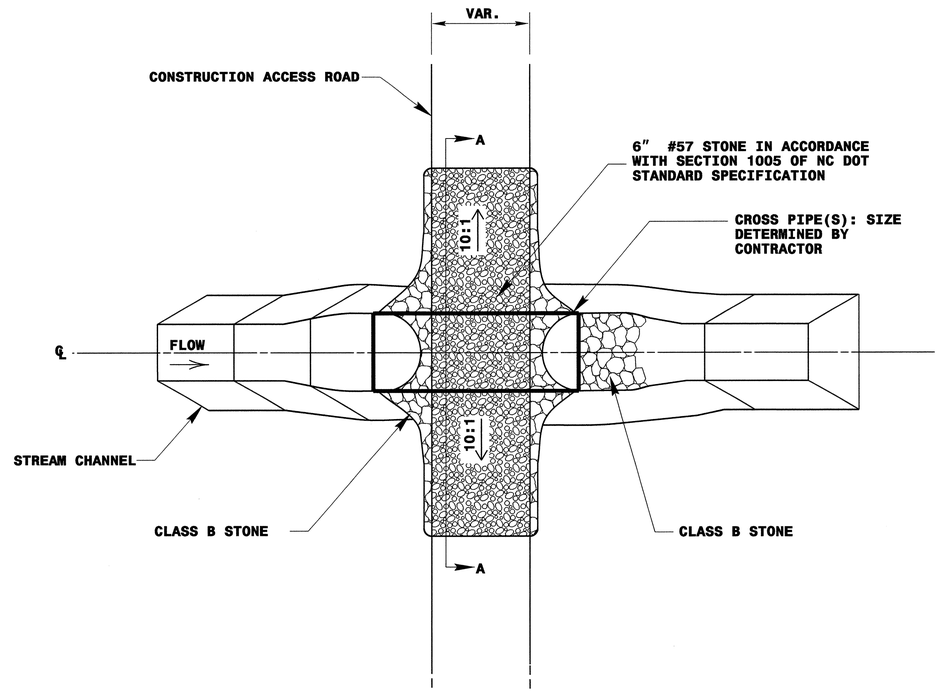
NOTES

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 FABRIC FOR EMERGENCY SPILLWAYS SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18" (MIN.) AS SHOWN.

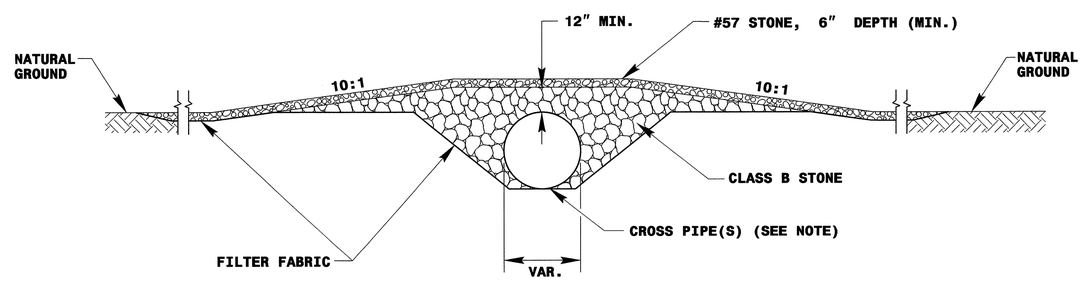
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-2D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY STREAM CROSSING



PLAN VIEW



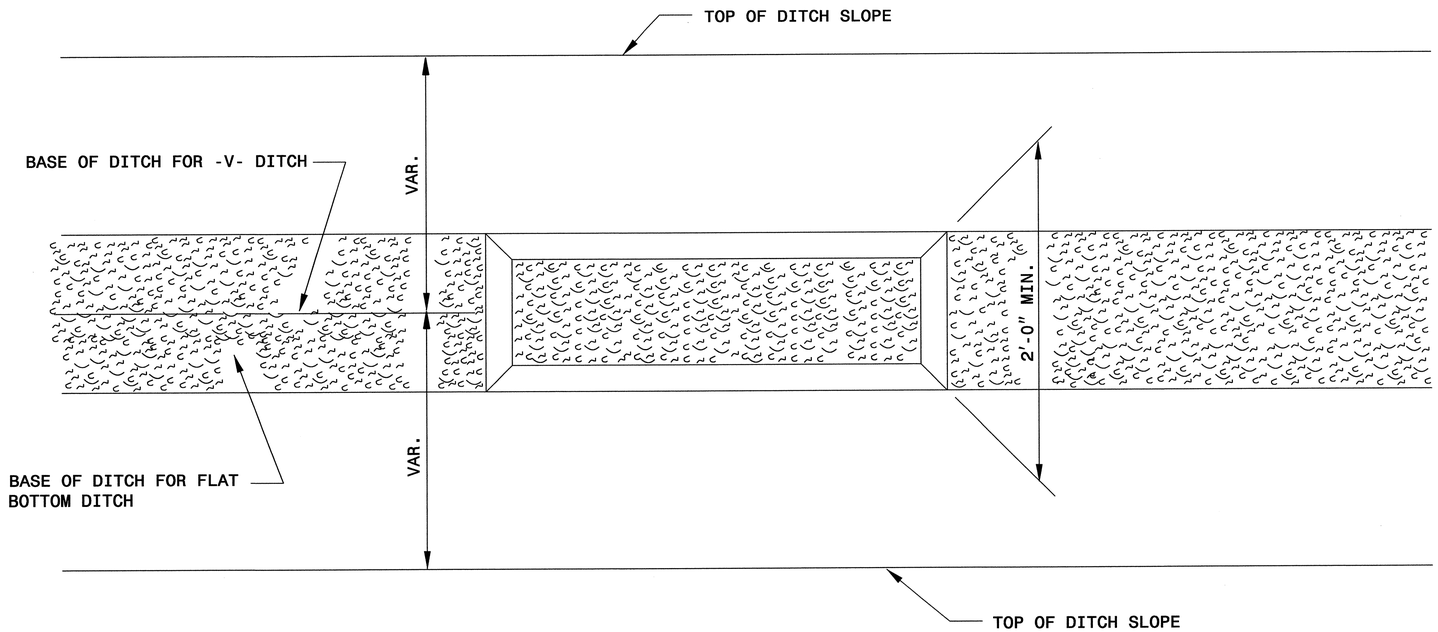
SECTION A-A

NOT TO SCALE

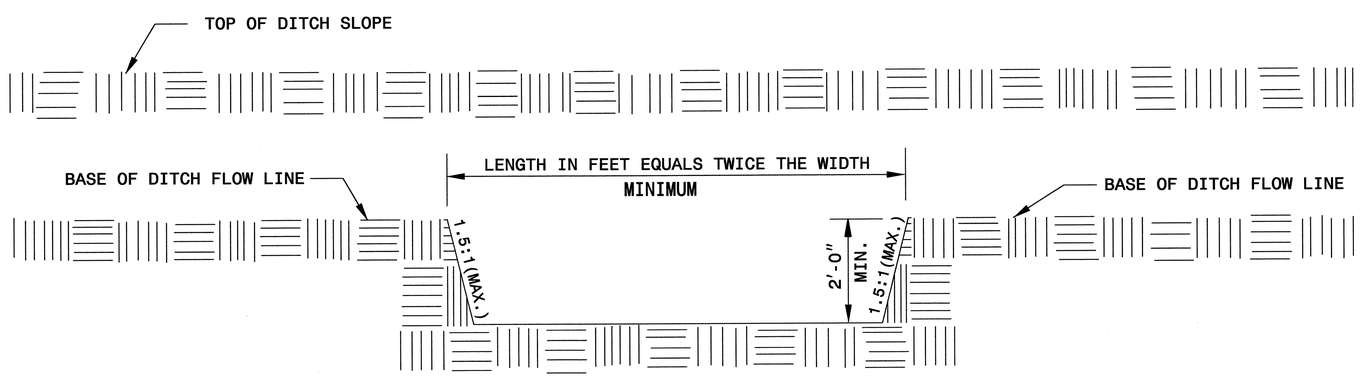
NOTE: PIPE(S) FOR TEMPORARY STREAM CROSSING SHALL BE DESIGNED TO PASS THE PEAK OR BANKFULL FLOW, WHICHEVER IS LESS, FROM A 2-YEAR PEAK STORM, WITHOUT OVER TOPPING.

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-2E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT BASIN 'B' DETAIL



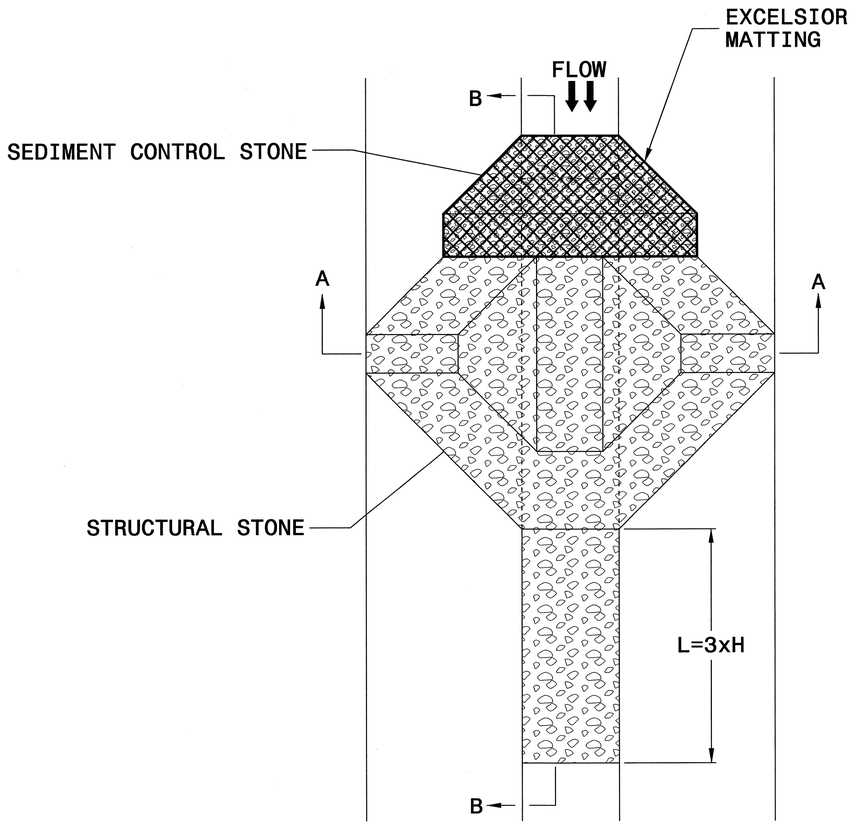
PLAN



ELEVATION

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-2F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



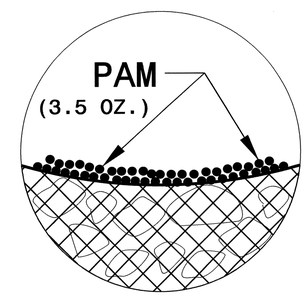
PLAN

NOTES

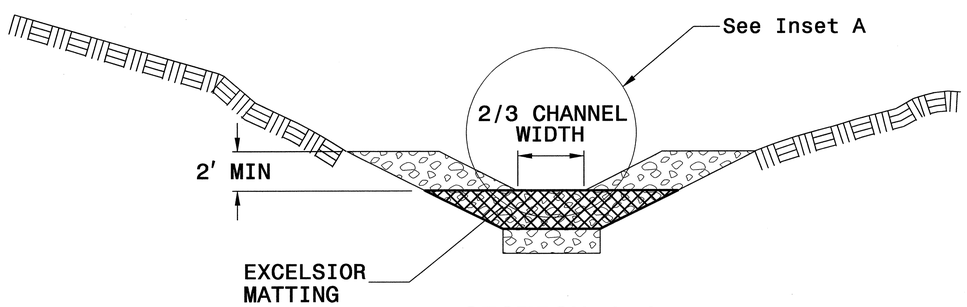
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

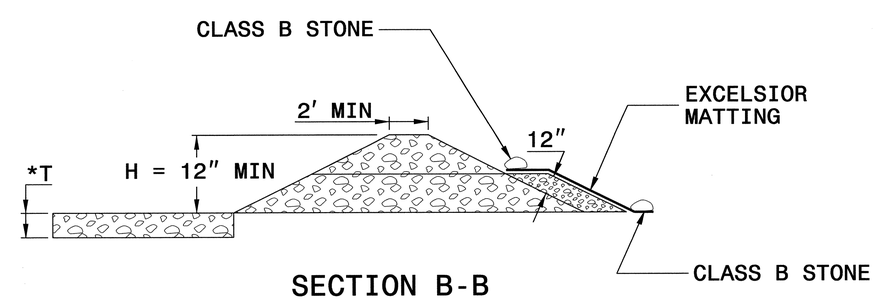
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



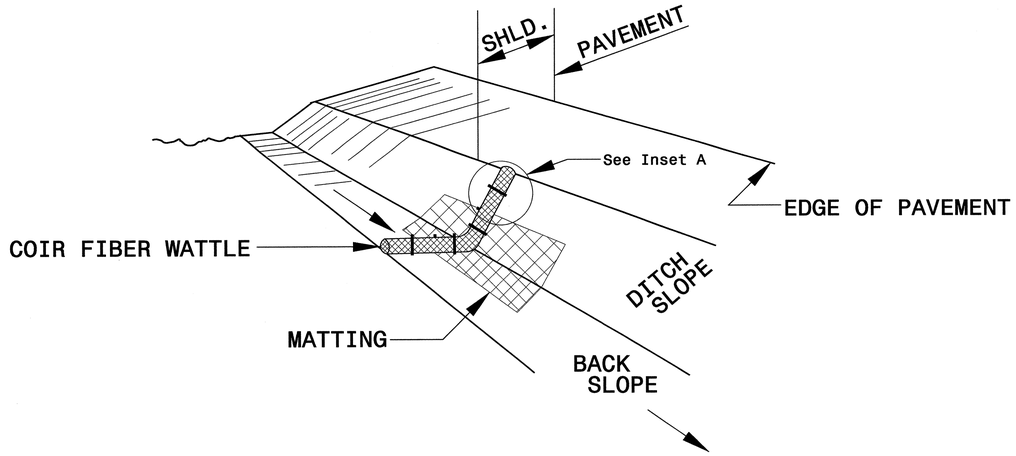
SECTION B-B

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

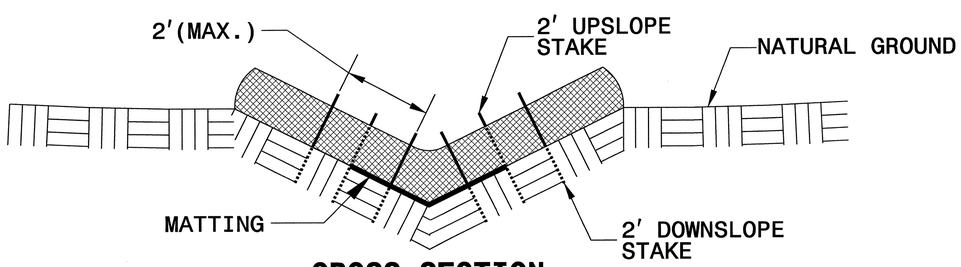
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-2G
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

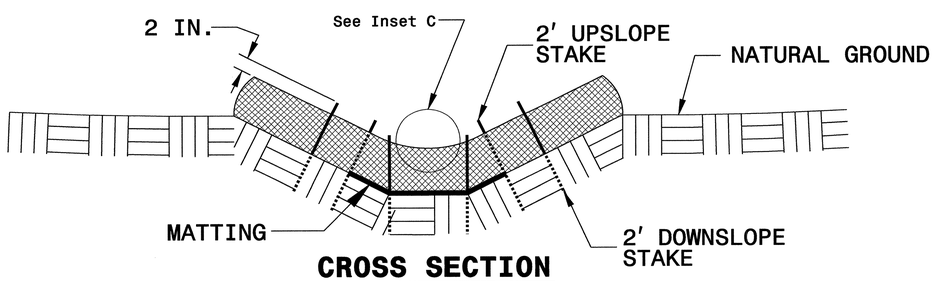
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

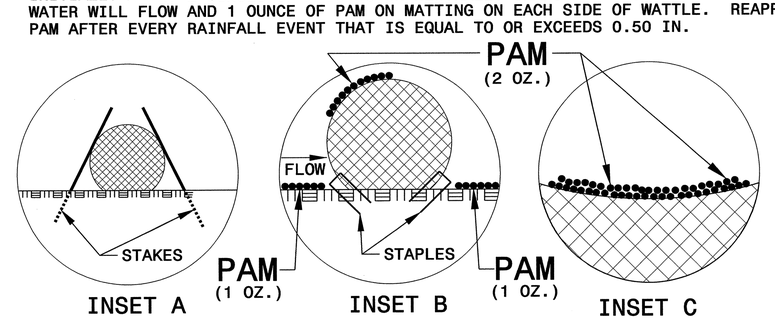
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

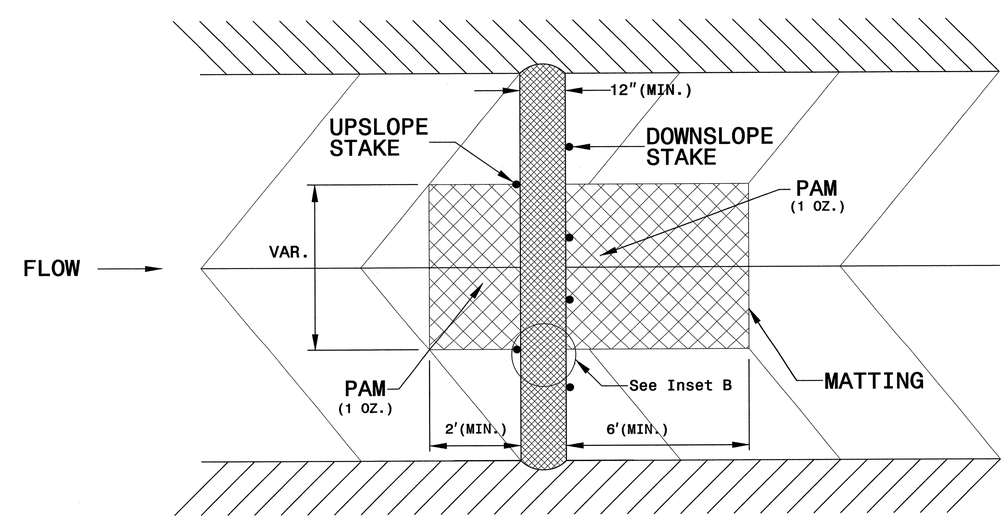
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

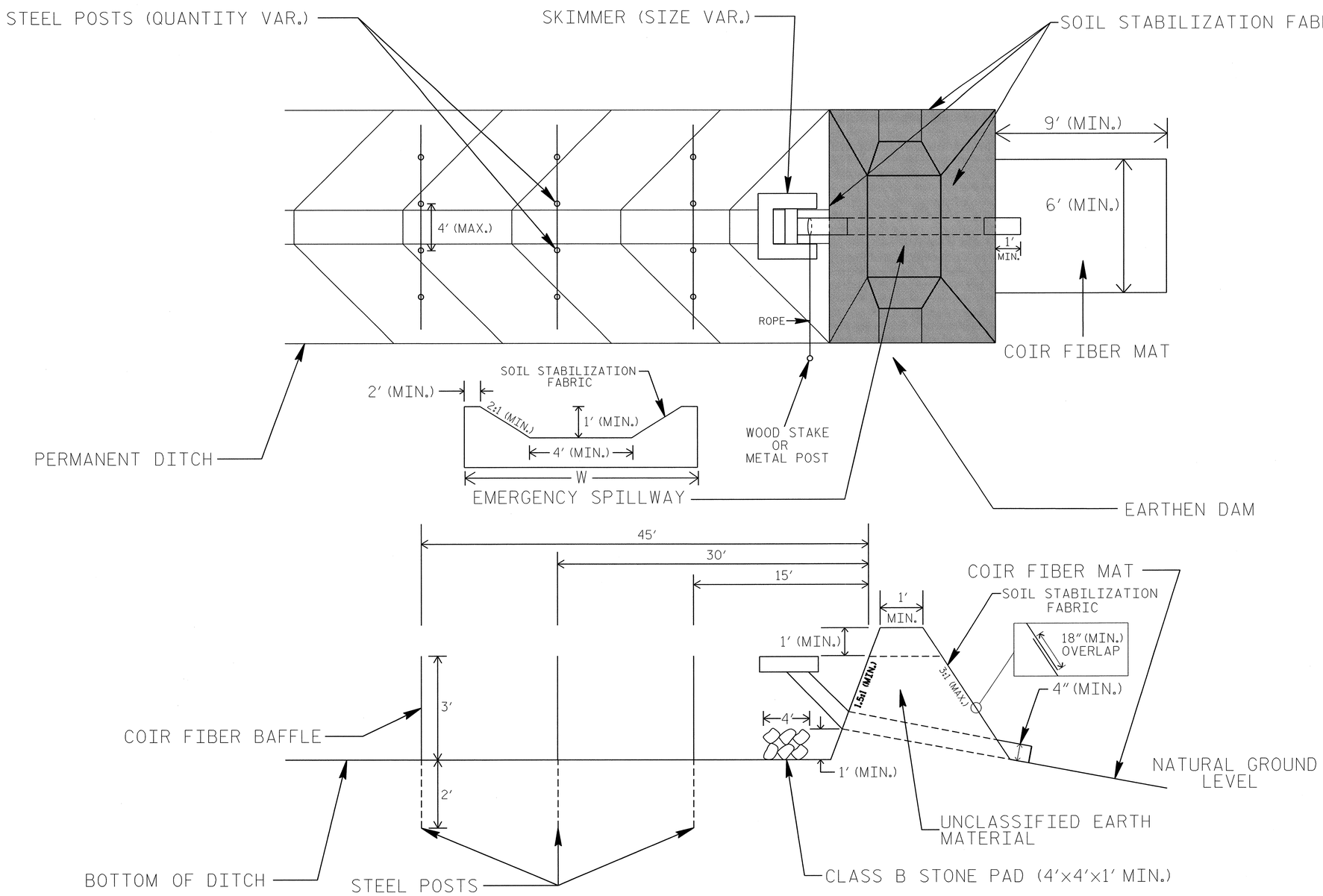


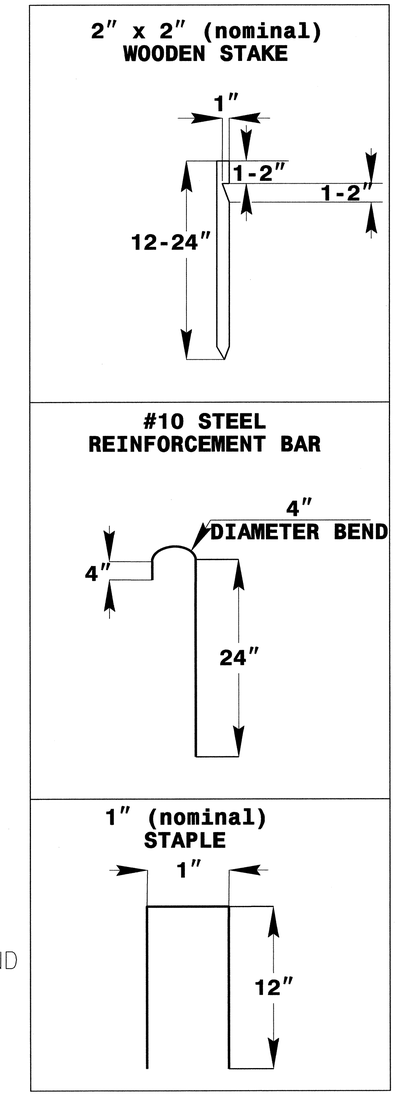


TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-2H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EARTHEN DAM WITH SKIMMER





COIR FIBER MAT ANCHOR OPTIONS

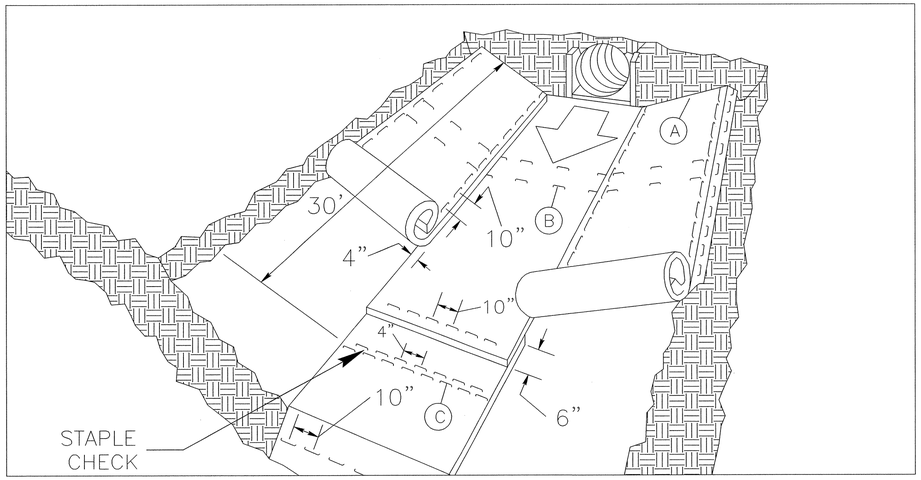
NOTES

1. LIMIT EARTHEN DAM HEIGHT TO 5 FT.
2. DETERMINE EMERGENCY SPILLWAY LENGTH (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
3. SOIL STABILIZATION FABRIC FOR EMERGENCY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18" AS SHOWN.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATTING INSTALLATION DETAIL



MATTING IN DITCHES

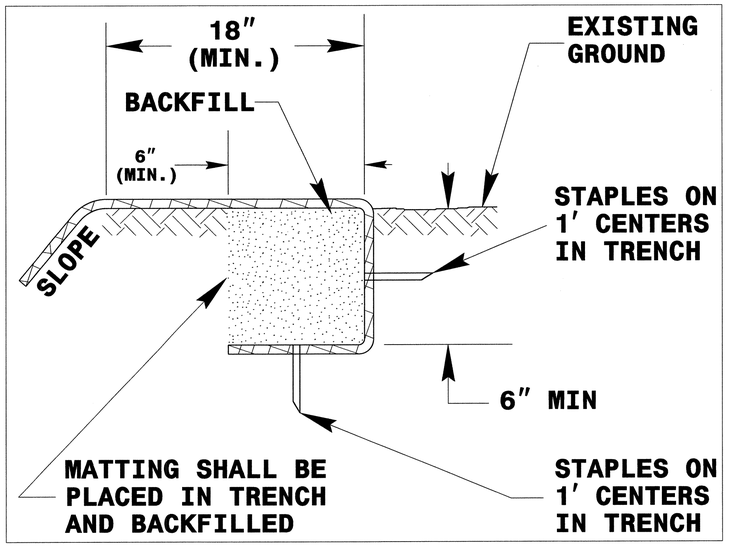
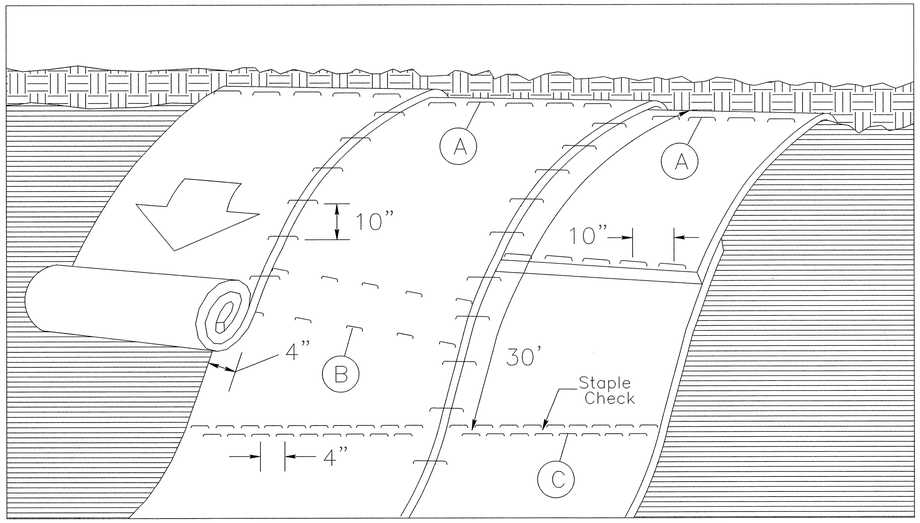


DIAGRAM (A)



MATTING ON SLOPES

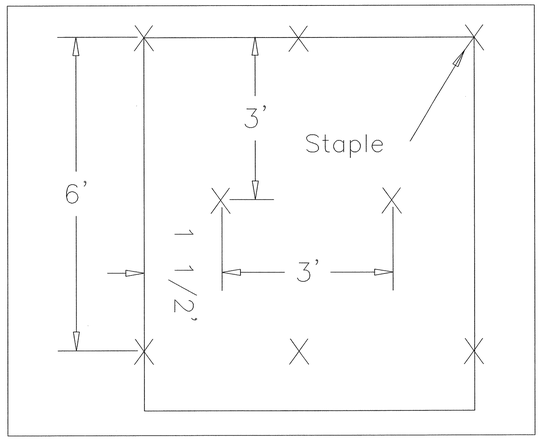


DIAGRAM (B)

Staple Check Pattern

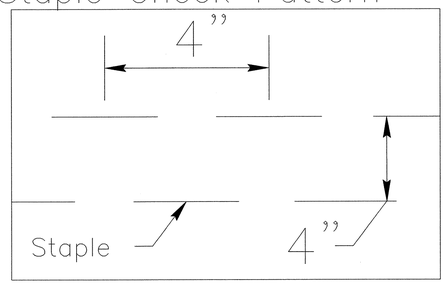


DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	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-	19+50	28+50	MED	1000
5	-L-	24+50	25+00	RT	45
5	-L-	25+00	28+00	LT	270
5	-L-	28+50	30+50	MED	230
5	-L-	29+50	30+00	LT	250
5	-L-	32+50	33+00	LT	60
5	-L-	33+50	34+50	LT	65
5	-L-	33+50	35+50	LT	310
5	-L-	32+50	34+00	MED	605
5	-L-	34+00	38+50	MED	685
5	-L-	34+00	36+00	MED	400
5	-Y1-	18+00	24+00	RT	595
5	-Y1-	20+50	24+00	LT	550
6	-L-	39+00	41+00	LT	280
6	-L-	40+00	49+00	MED	1815
6	-L-	42+00	51+50	LT	795
6	-L-	45+00	51+00	LT	645
6	-L-	42+50	50+50	RT	1555
7	-L-	51+50	57+50	MED	1175
7	-L-	59+50	62+50	MED	340
7	-L-	62+50	71+50	RT	1575
7	-Y2-	19+50	21+50	LT	140
7	-Y2-	23+00	23+50	LT	80
8	-L-	67+00	79+00	MED	2210
9	-L-	79+00	102+50	MED	4340
9	-L-	81+00	83+50	LT	445
10	-L-	97+50	98+50	RT	75
10	-L-	102+50	117+00	MED	2895
10	-L-	102+00	103+00	LT	120
10	-L-	103+00	113+50	LT	1355

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
10	-L-	102+50	108+00	RT	550
11	-L-	108+00	111+50	RT	495
11	-L-	117+50	124+00	RT	930
12	-L-	118+00	154+00	MED	4415
12	-L-	119+00	124+50	LT	760
12	-L-	128+50	130+50	RT	380
12	-L-	128+50	132+00	LT	630
13	-L-	139+50	143+00	RT	170
14	-L-	155+50	161+50	MED	705
14	-L-	156+00	159+00	RT	535
15	-L-	160+00	162+50	LT	345
15	-L-	163+50	164+50	RT	75
15	-L-	163+50	164+50	RT	75
15	-L-	164+00	166+00	MED	230
15	-L-	165+00	172+00	RT	1090
15	-Y3-	16+00	19+00	LT	215
15	-Y3-	19+50	21+00	LT	130
15	-Y3-	21+00	22+00	LT	150
15	-Y3-	25+00	26+50	LT	110
15	-Y3-	17+00	19+00	RT	240
16	-L-	172+00	184+00	LT	1660
16	-L-	172+50	200+50	MED	5720
16	-L-	172+00	182+50	RT	2135
16	-L-	183+50	189+50	LT	605
17	-L-	191+00	191+50	LT	95
17	-L-	192+00	196+00	LT	550
17	-L-	196+00	196+50	LT	75
17	-L-	195+00	196+50	RT	270
18	-L-	209+00	213+00	LT	435
18	-L-	205+00	217+00	LT	2490

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	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)
18	-L-	207+00	214+50	RT	1500
19	-L-	213+00	216+00	LT	245
19	-L-	217+50	219+50	LT	160
19	-L-	219+50	221+00	LT	95
19	-L-	221+50	223+00	RT	295
19	-L-	224+50	227+00	LT	215
20	-L-	233+00	236+50	RT	165
20	-L-	233+00	233+50	MED	80
20	-L-	236+00	239+50	MED	395
20	-L-	232+50	233+50	RT	145
20	-L-	237+00	239+00	RT	185
20	-Y5-	17+00	18+50	LT	75
20	-Y5-	18+50	19+00	LT	55
20	-Y5-	17+50	18+50	RT	85
21	-L-	240+50	263+00	MED	3010
21	-L-	239+00	246+00	RT	670
21	-L-	239+50	240+00	LT	45
21	-L-	248+00	249+50	LT	150
22	-L-	251+50	257+00	RT	550
22	-L-	252+00	257+00	LT	505
22	-L-	261+50	262+00	RT	25
22	-L-	262+00	263+50	RT	80
23	-L-	264+00	269+50	RT	745
23	-L-	264+50	271+50	LT	950
23	-L-	273+00	274+00	MED	190
23	-L-	275+50	312+00	MED	6730
23	-L-	276+00	278+00	RT	190
23	-Y6-	17+50	20+50	RT	340
23	-Y8-	10+50	12+50	RT	205
24	-L-	278+50	281+00	LT	340

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
24	-L-	280+00	281+00	RT	75
24	-L-	283+50	285+00	RT	205
24	-L-	285+50	286+50	RT	80
24	-L-	287+50	290+00	LT	305
25	-L-	291+00	291+50	RT	55
25	-L-	291+00	294+50	LT	595
25	-L-	291+50	296+50	RT	760
25	-L-	296+00	297+00	LT	155
25	-L-	296+50	298+00	RT	260
26	-L-	306+00	307+00	LT	65
26	-L-	307+00	308+50	LT	75
26	-Y7-	11+50	14+00	RT	365
26	-Y7-	17+50	19+00	RT	125
26	-Y7-	17+50	19+00	LT	195
27	-L-	319+50	321+00	RT	220
27	-L-	321+00	323+50	RT	740
28	-Y4-	12+50	18+00	LT	800
28	-Y4-	20+00	22+00	LT	170
28	-Y4-	13+00	18+00	RT	615
28	-Y4-	20+50	22+00	RT	120
				SUBTOTAL	75,570
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					122,685
				TOTAL	198,255
				SAY	200,000

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-3B
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)
4	-L-	21+00	22+00	LT	175
5	-L-	28+00	29+50	LT	125
5	-L-	36+50	38+00	LT	175
6	-L-	38+00	39+00	LT	170
6	-L-	39+50	41+00	LT	160
6	-L-	41+00	41+50	LT	40
6	-L-	42+00	45+00	LT	295
7	-L-	62+50	78+50	LT	2885
8	-L-	70+50	72+50	LT	185
9	-L-	85+50	95+00	LT	1320
9	-L-	83+00	84+00	RT	110
9	-L-	85+50	97+50	RT	2230
10	-L-	95+00	97+50	RT	255
10	-L-	99+50	106+00	RT	640
11	-L-	115+50	116+50	LT	60
12	-L-	121+50	123+00	RT	140
13	-L-	137+00	138+00	RT	80
16	-L-	180+00	182+50	LT	200
16	-L-	182+50	183+50	LT	140
17	-L-	189+00	190+00	LT	25
18	-L-	205+00	209+00	LT	425
20	-Y5-	19+00	19+50	LT	55
21	-L-	249+50	250+00	LT	25
21	-L-	250+00	250+50	RT	150
				SUBTOTAL	10,065
	ADDITIONAL	PSRM TO	BE INSTALLED		3,850
				TOTAL	13,915
				SAY	14,000

PERMANENT SOIL REINFORCEMENT MAT

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

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

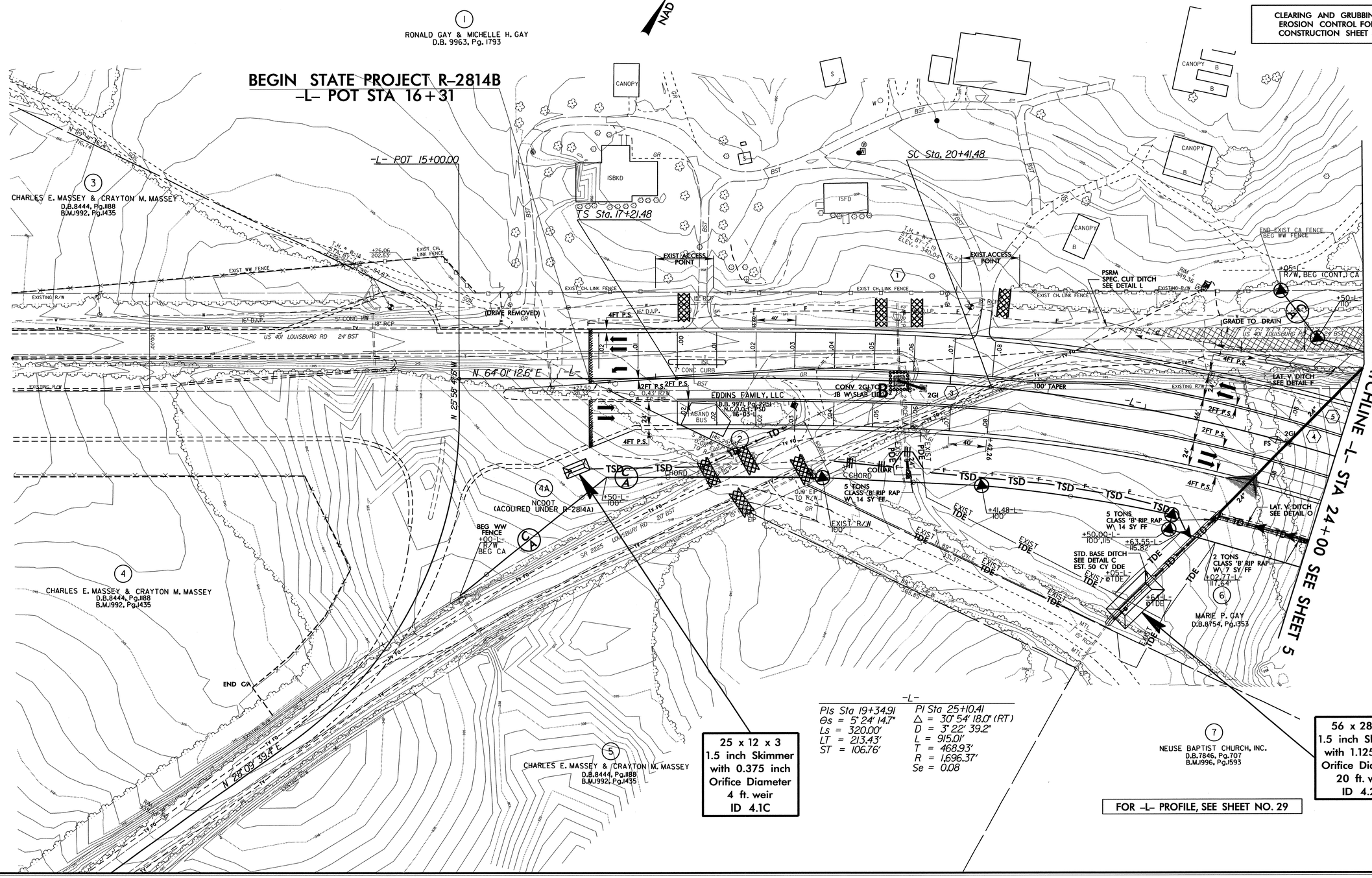
15

20

PAVEMENT REMOVAL

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



-L-

PIs Sta 19+34.91	PI Sta 25+10.41
Θs = 5°24'14.7"	Δ = 30°54'18.0" (RT)
Ls = 320.00'	D = 3°22'39.2"
LT = 213.43'	L = 915.01'
ST = 106.76'	T = 468.93'
	R = 1,696.37'
	Se = 0.08

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mshancock
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PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

-L-

PI Sta 25+10.41
△ = 30° 54' 18.0" (RT)
D = 3° 22' 39.2"
L = 915.01'
T = 468.93'
R = 1,696.37'
Se = 0.08

PIs Sta 30+63.25
Θs = 5° 24' 14.7"
Ls = 320.00'
LT = 213.43'
ST = 106.76'

-Y1-

PI Sta 19+41.84
△ = 50° 01' 41.2" (LT)
D = 11° 27' 33.0"
L = 436.58'
T = 233.30'
R = 500.00'
Se = 0.04

PAVEMENT REMOVAL

NAD 83/2001

20 x 10 x 3
1.5 inch Skimmer
with 0.25 inch
Orifice Diameter
4 ft. weir
ID 5.4F

BEG CONST
-Y1-STA 15+80

S 64° 01' 40.9" W

BEG. GRADE
-Y1-STA.16+00

PC Sta. 17+08.54

PROGRESS ENERGY (CAROLINA POWER & LIGHT) EASEMENT (80' R/W)

US 401 BUSINESS
25900 PROP US401
2400
2600
200
23700
2030 ADT

FOR -L- PROFILE, SEE SHEET NO. 29
FOR -Y1- PROFILE, SEE SHEET NO. 40

PT Sta. 21+45.11

RONALD GAY & MICHELLE H. GAY
D.B. 9963, Pg. 1793

MARIE P. GAY
D.B.8754, Pg.1353

ALEXANDER FAMILY INVESTMENTS, LLC
D.B.8774, Pg.1949

CS Sta. 29+56.49

BEGIN EXPRESSWAY GUTTER
-L- STA.28+30 LT. SIDE OF MEDIAN
END EXPRESSWAY GUTTER
-L- STA.29+98 LT. SIDE OF MEDIAN

15" CSP WITH ELBOWS ROD AND LUG WITH SLEEVE GASKET

400' ACCELERATION LENGTH

GRASS ISLAND

ST Sta. 32+76.49

S 74° 16' E

-Y1-POT STA 25+14.22=
-L- POS STA 31+04.66

50 x 20 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
12 ft. weir
ID 5.1C

66 x 50 x 3
12 ft. weir
ID 5.2C

BAPTIST CHURCH, INC.
7846, Pg.707
J996, Pg.1593

MATCHLINE -L- STA 24+00 SEE SHEET 4

MATCHLINE -L- STA 36+89 SEE SHEET 6

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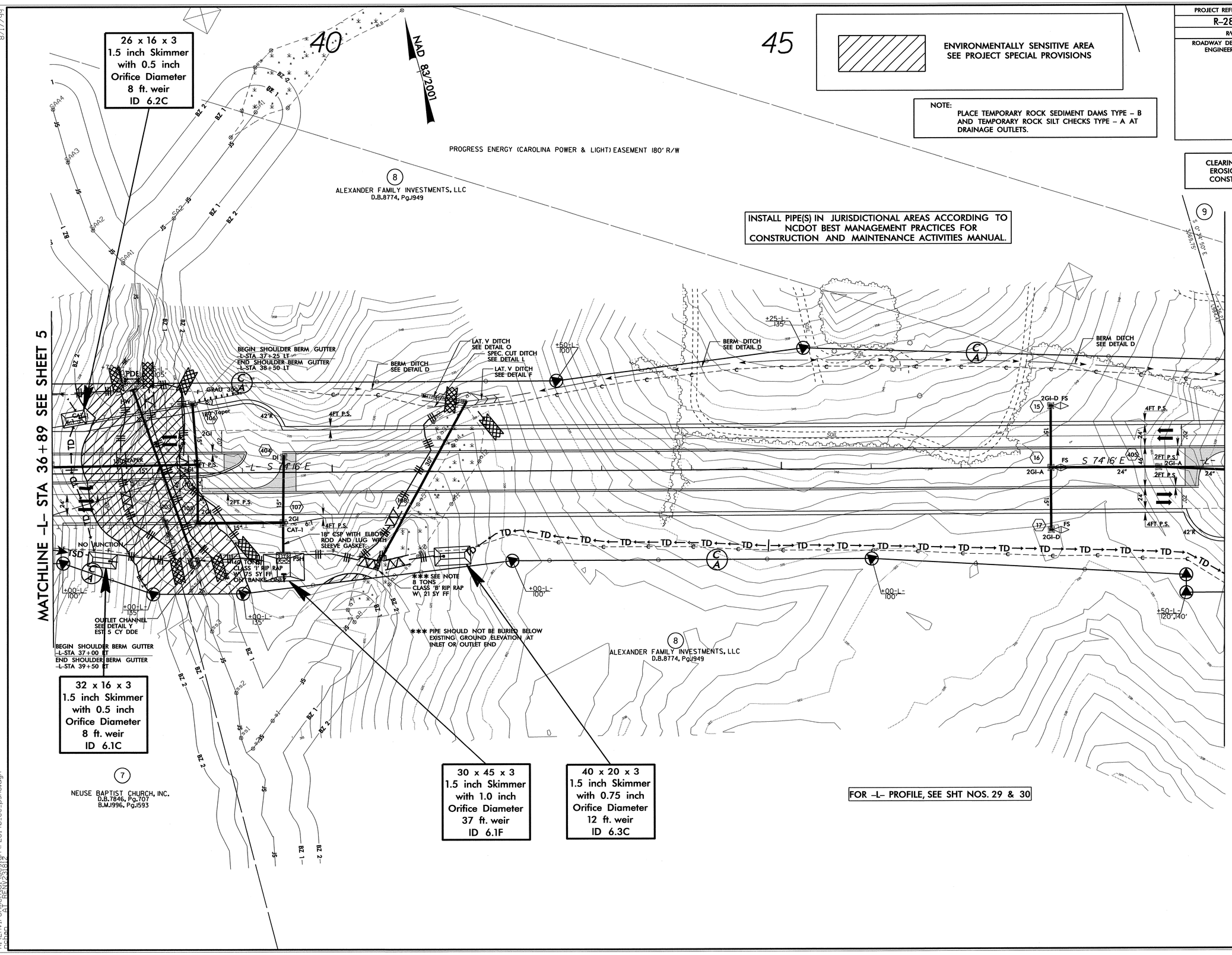
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-6/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 6

INSTALL PIPE(S) IN JURISDICTIONAL AREAS ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.



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pgbap AT REV23.12

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-7/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 7

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

BEGIN GRADE
-Y2-STA 19+00

MATCHLINE -L- STA 49+93 SEE SHEET 6

MATCHLINE -L- STA 63+88 SEE SHEET 8

NAD 83/2001

28 x 13 x 3
6 ft. weir
ID 7.1C

50 x 18 x 3
ID 7.2C

54 x 26 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
18 ft. weir
ID 7.2F

70 x 20 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
12 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 7.1F

45 x 22 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
14 ft. weir
ID 7.3C

INSTALL PIPE(S) IN JURISDICTIONAL AREAS ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

-L-POT STA 58+04.54=
-Y2-POT STA 23+99.14

-Y2-PT STA 21+18.05

PI Sta 16+96.34
Δ = 16°13'02.7" (LT)
D = 1°54'35.5"
L = 849.14'
T = 427.43'
R = 3,000.00'
Se = 0.04

END CONST
-Y2-STA 29+00

END RESURF.
-Y2- STA 28+87

FOR -L- PROFILE, SEE SHEET NO. 30
FOR -Y2- PROFILE, SEE SHEET NO. 40

8/17/99

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cchan AT REN(V23.8)2

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-8/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

INSTALL PIPE(S) IN JURISDICTIONAL AREAS ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

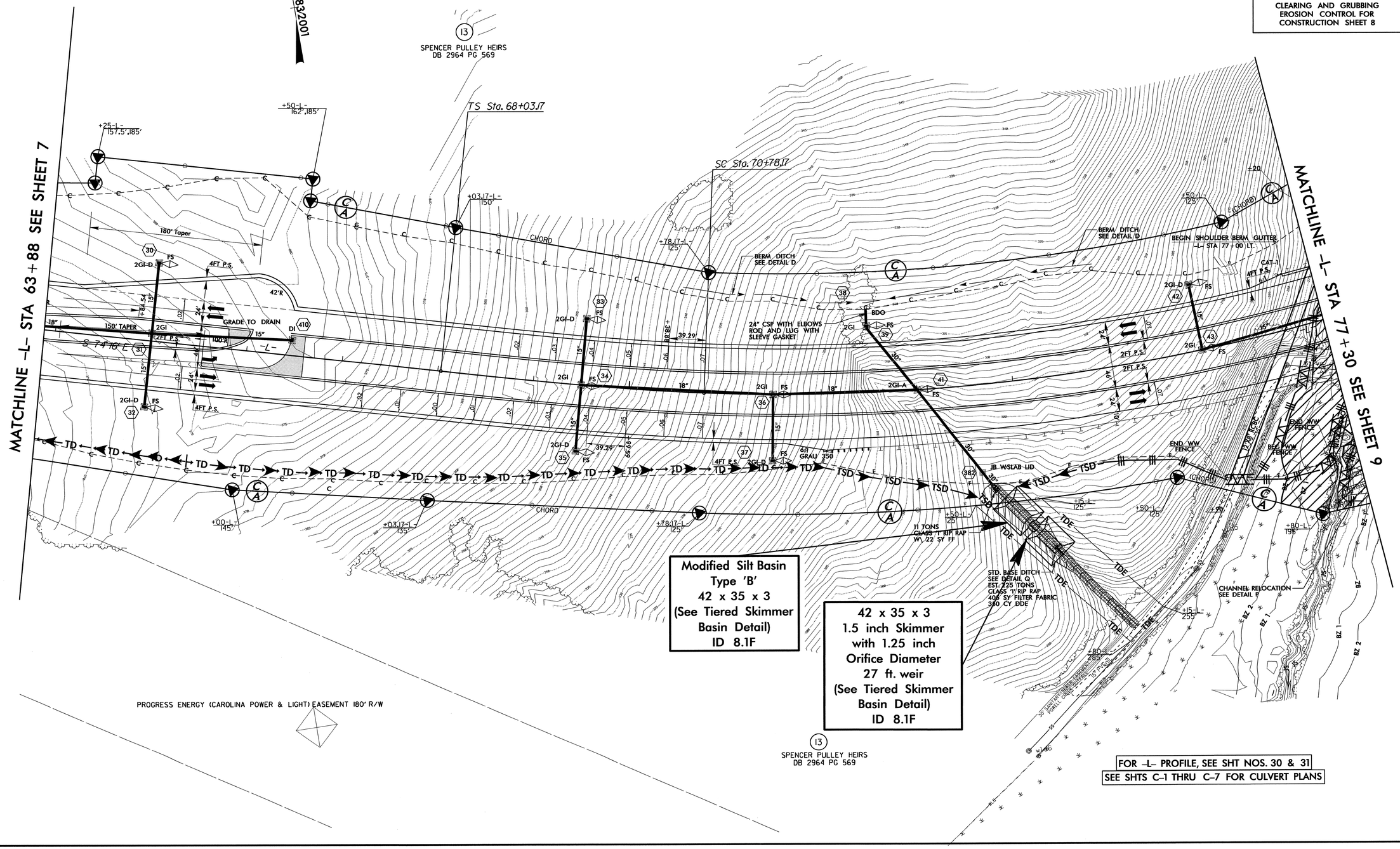
-L-

PIs Sta 69+86.54
Θs = 3° 45' 05.4"
Ls = 275.00'
LT = 183.37'
ST = 91.70'

PI Sta 78+82.11
Δ = 41° 53' 48.9" (LT)
D = 2° 43' 42.1"
L = 1,535.60'
T = 803.95'
R = 2,100.00'
Se = 0.07

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 8



FOR -L- PROFILE, SEE SHT NOS. 30 & 31
SEE SHTS C-1 THRU C-7 FOR CULVERT PLANS

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pchan AT REN\r3812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-9/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

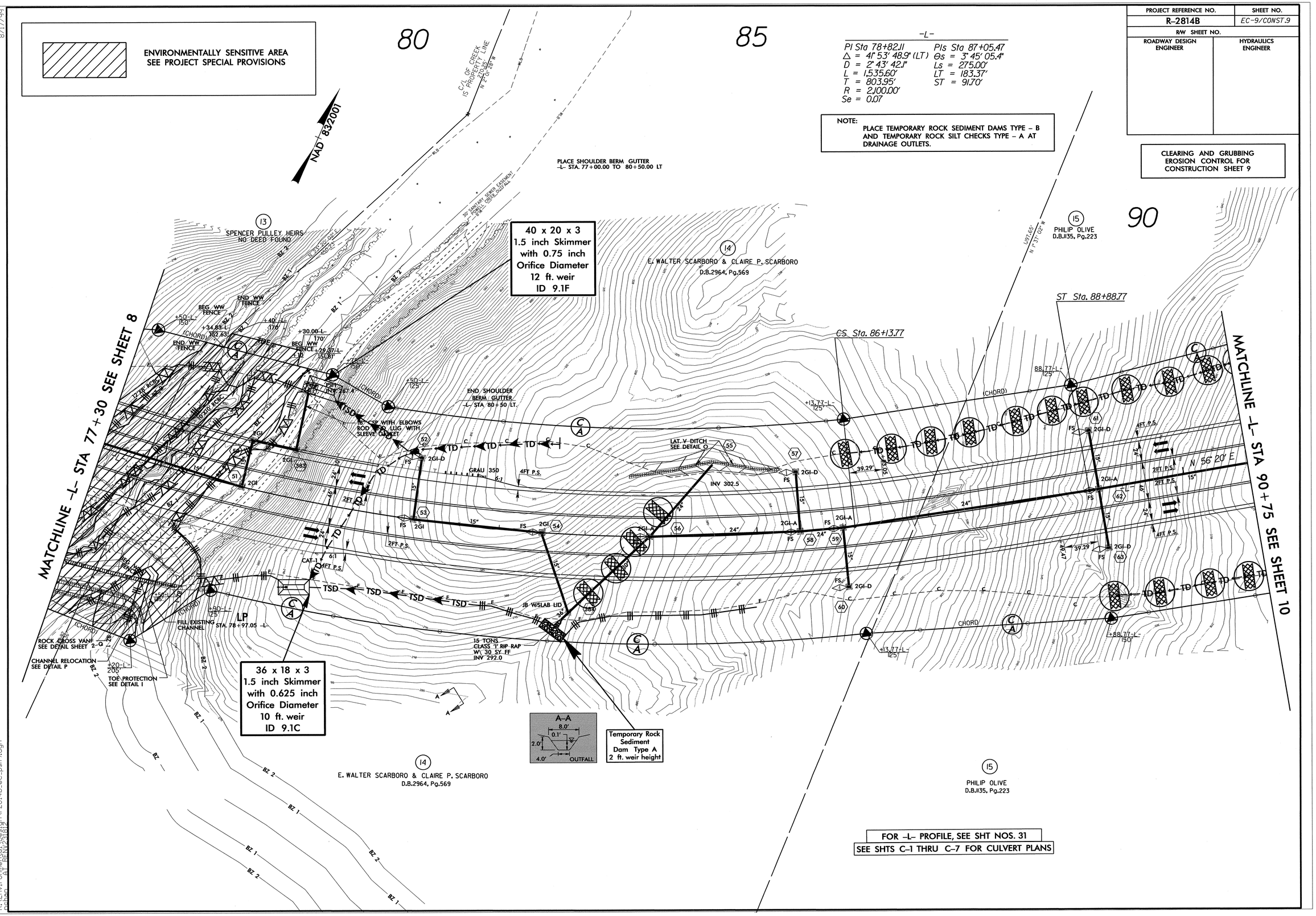
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 9

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

-L-

PI Sta 78+82.11	PIs Sta 87+05.47
△ = 41° 53' 48.9" (LT)	Θs = 3° 45' 05.4"
D = 2° 43' 42.1"	Ls = 275.00'
L = 1,535.60'	LT = 183.37'
T = 803.95'	ST = 91.70'
R = 2,100.00'	
Se = 0.07	

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



FOR -L- PROFILE, SEE SHT NOS. 31
SEE SHTS C-1 THRU C-7 FOR CULVERT PLANS

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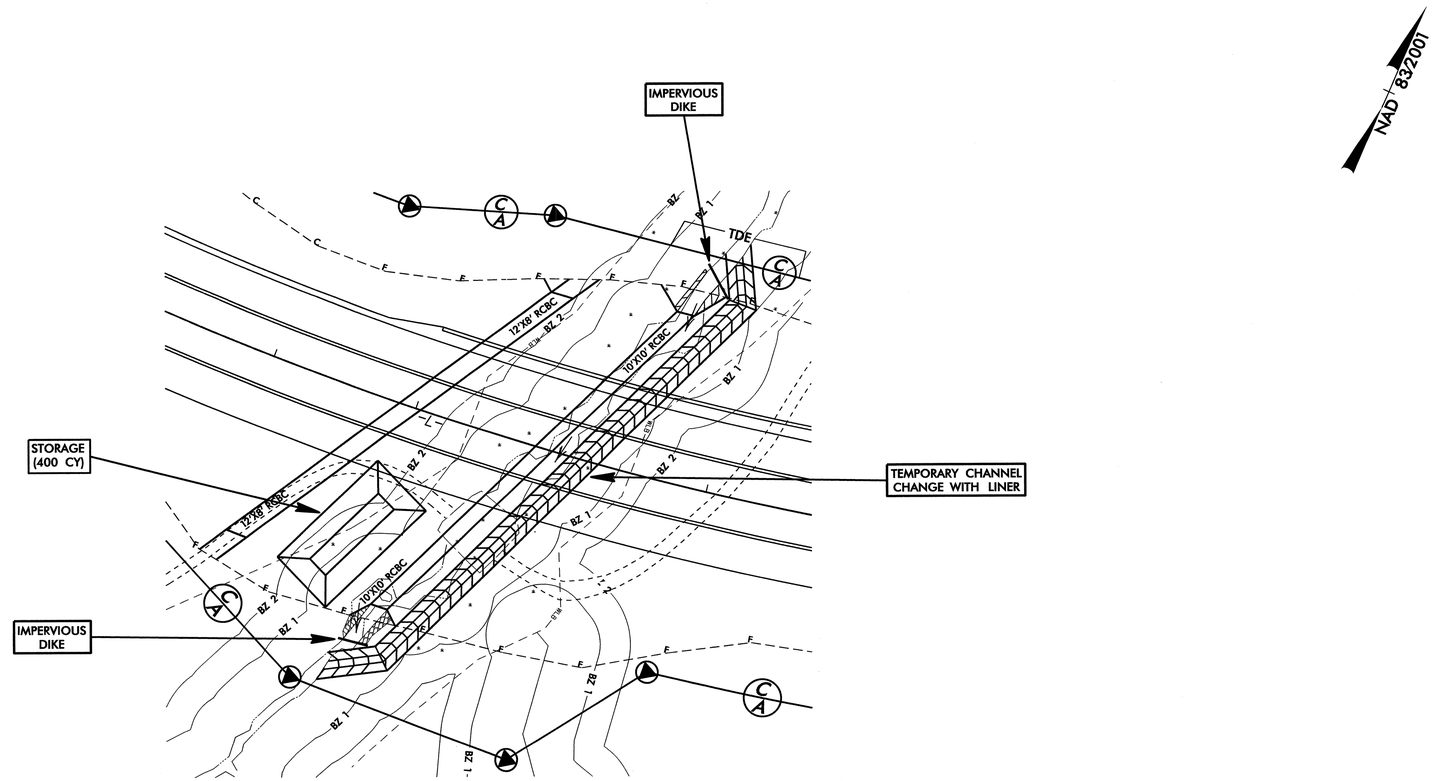
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-10/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 77+89 –L–

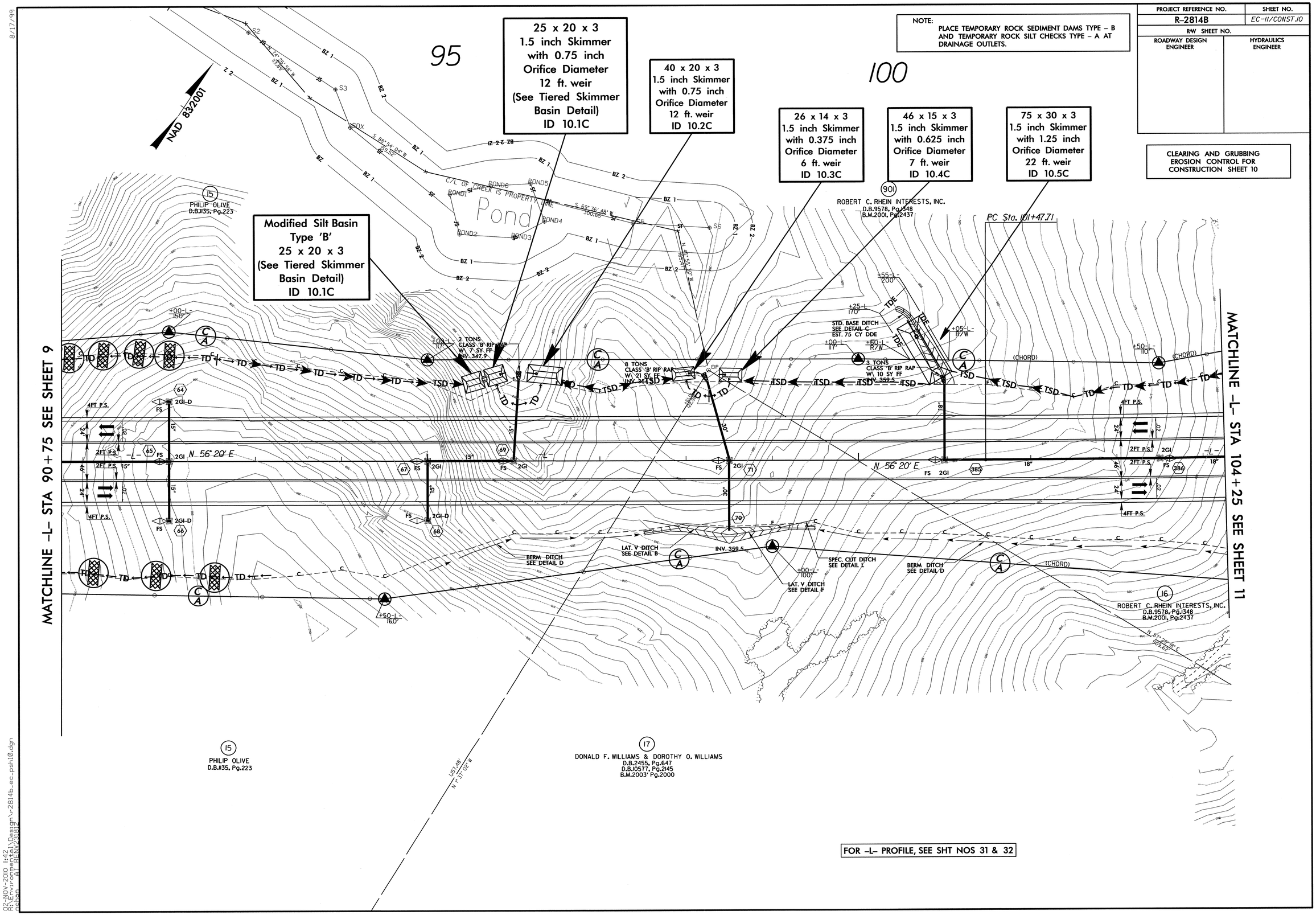
1. CONSTRUCT STILLING BASIN (400 CY).
2. CONSTRUCT TEMPORARY CHANNEL CHANGE WITH LINER (5 FT. BASE, 3 FT. DEEP, 2:1 SIDE SLOPES).
3. CONSTRUCT IMPERVIOUS DIKES, DIVERTING FLOW THROUGH TEMPORARY CHANNEL CHANGE.
4. CONSTRUCT PROPOSED CULVERT AND INLET/OUTLET CHANNEL IMPROVEMENTS.
5. REMOVE IMPERVIOUS DIKES AND TEMPORARY CHANNEL CHANGE, ALLOWING FLOW THROUGH CULVERT.
6. REMOVE STILLING BASIN AND COMPLETE ROADWAY.



PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-11/CONST JO
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 10



FOR -L- PROFILE, SEE SHT NOS 31 & 32

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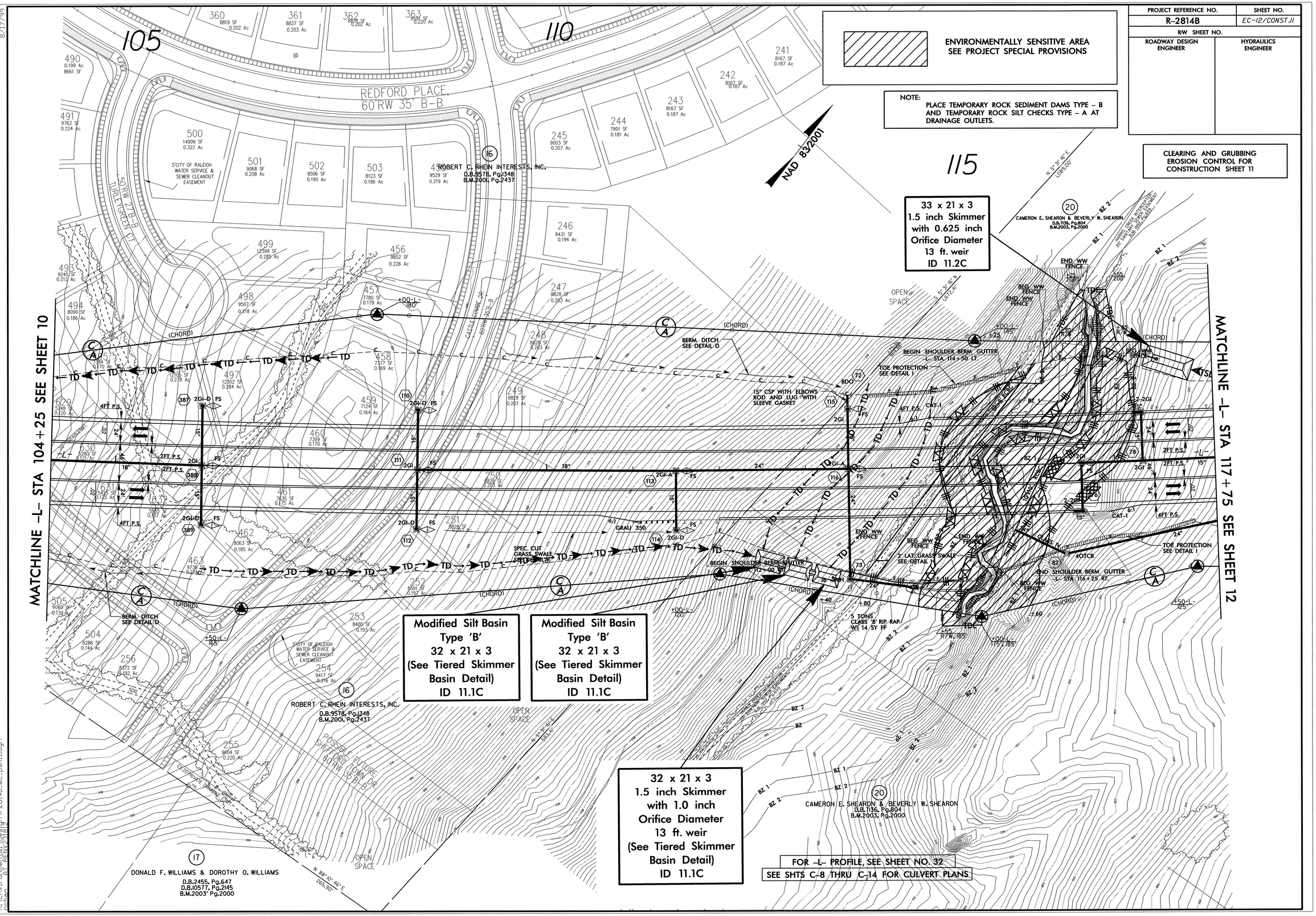
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-12/CONST.JI
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 11



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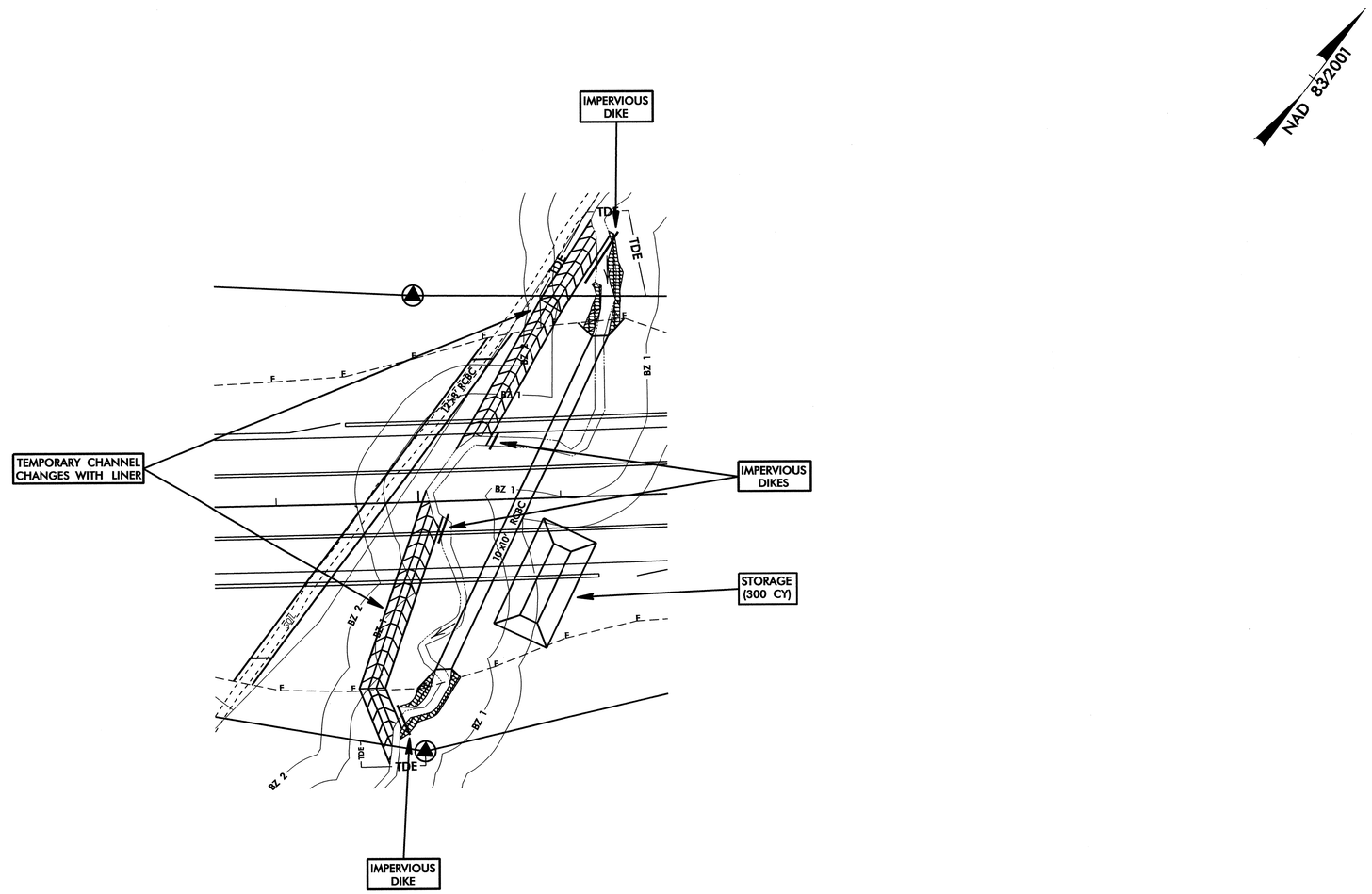
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-13/CONST.JI
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 115+74 –L–

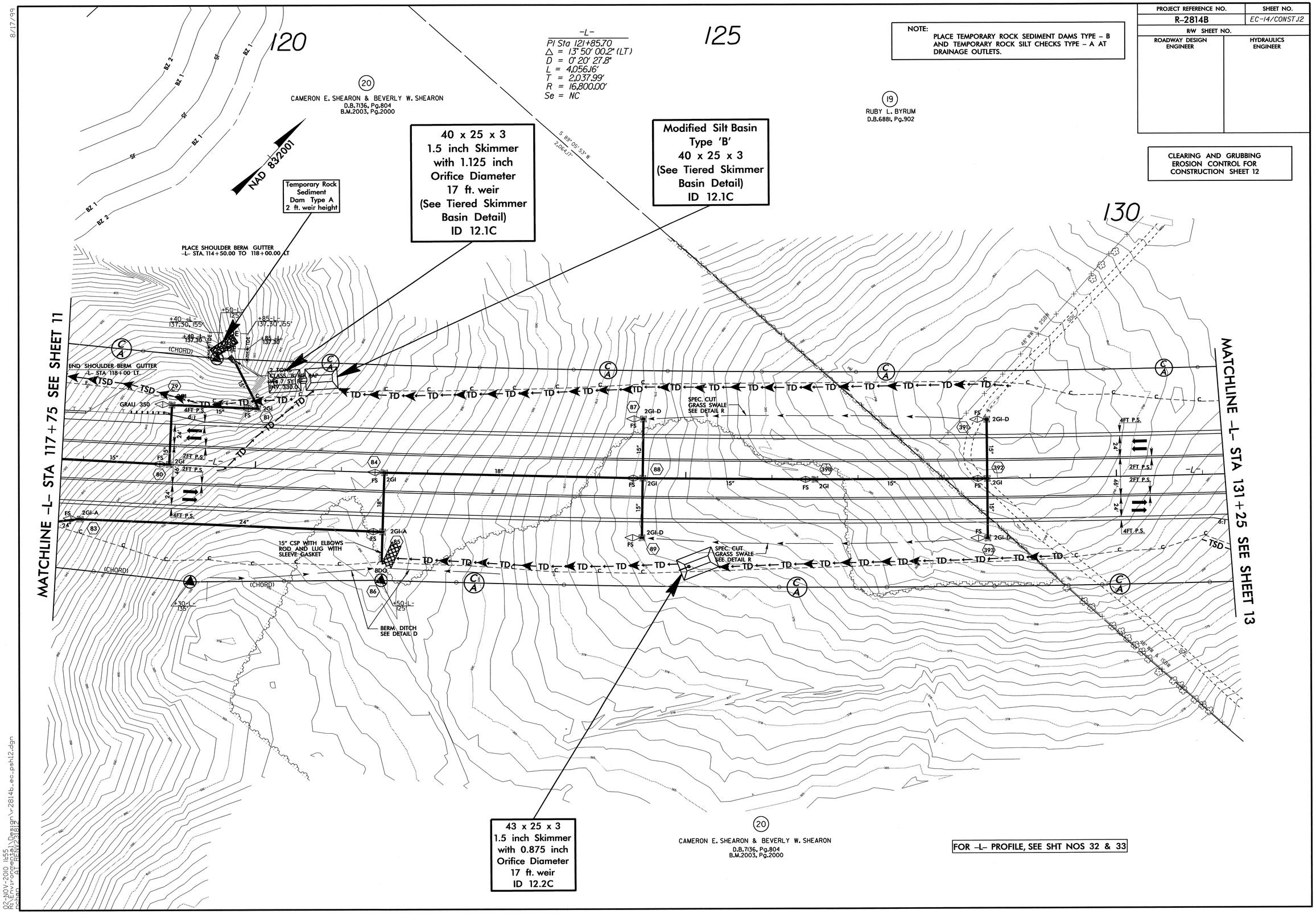
1. CONSTRUCT STILLING BASIN (300 CY).
2. CONSTRUCT TEMPORARY CHANNEL CHANGES WITH LINER (5 FT. BASE, 3 FT. DEEP, 2:1 SIDE SLOPES).
3. CONSTRUCT IMPERVIOUS DIKES, DIVERTING FLOW THROUGH TEMPORARY CHANNEL CHANGES.
4. CONSTRUCT PROPOSED CULVERT AND AS MUCH OF THE INLET/OUTLET CHANNEL IMPROVEMENTS AS POSSIBLE.
5. REMOVE IMPERVIOUS DIKES AND TEMPORARY CHANNEL CHANGES, ALLOWING FLOW THROUGH CULVERT. COMPLETE INLET/OUTLET CHANNEL IMPROVEMENTS.
6. REMOVE STILLING BASIN AND COMPLETE ROADWAY.



PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-14/CONST.12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 12



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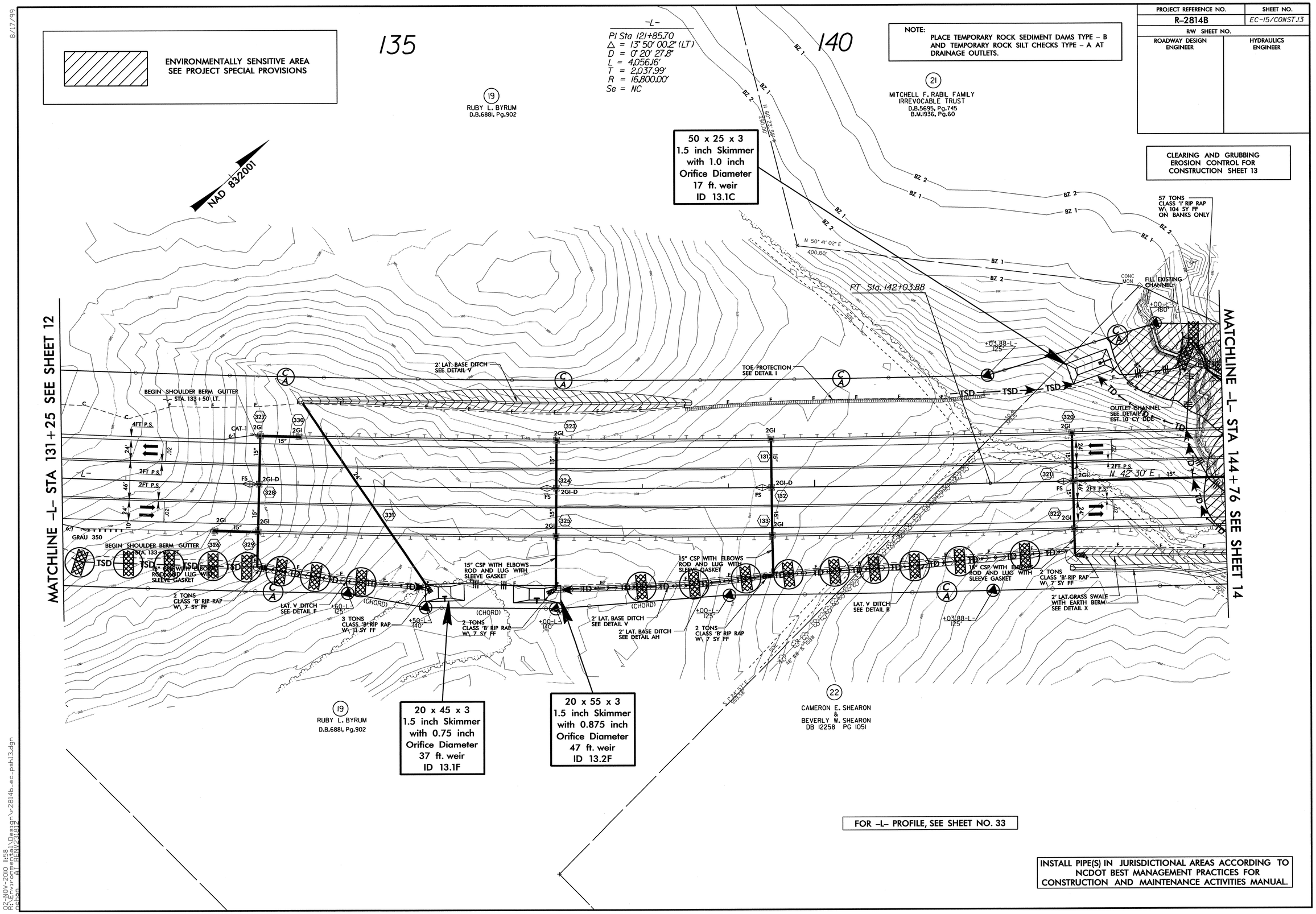
pcbap AT REN\23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-15/CONST.13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 13



FOR -L- PROFILE, SEE SHEET NO. 33

INSTALL PIPE(S) IN JURISDICTIONAL AREAS ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

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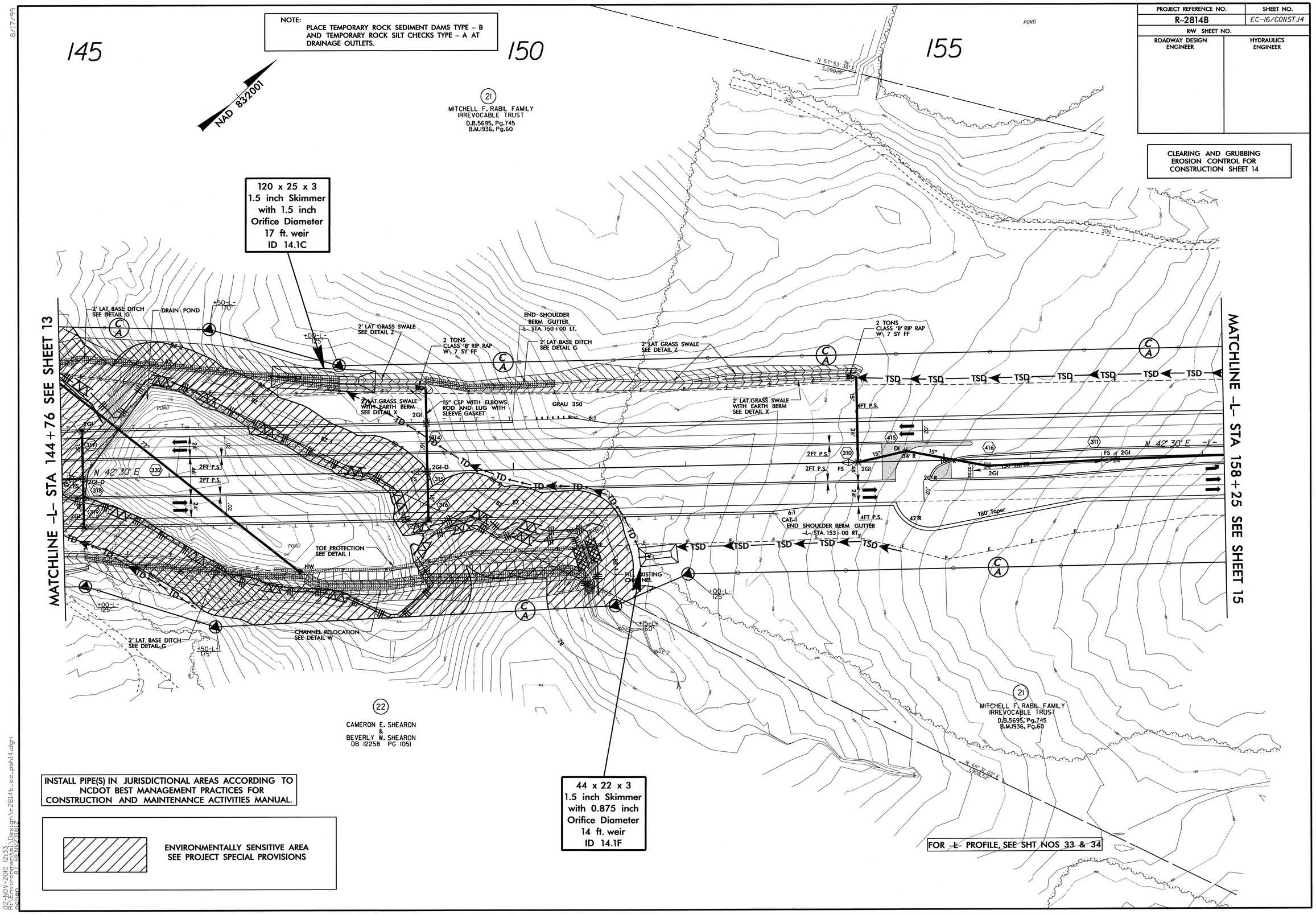
pchan AT REF\NV23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-16/CONST.14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



INSTALL PIPE(S) IN JURISDICTIONAL AREAS ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

8/17/99

02-NOV-2010 12:33
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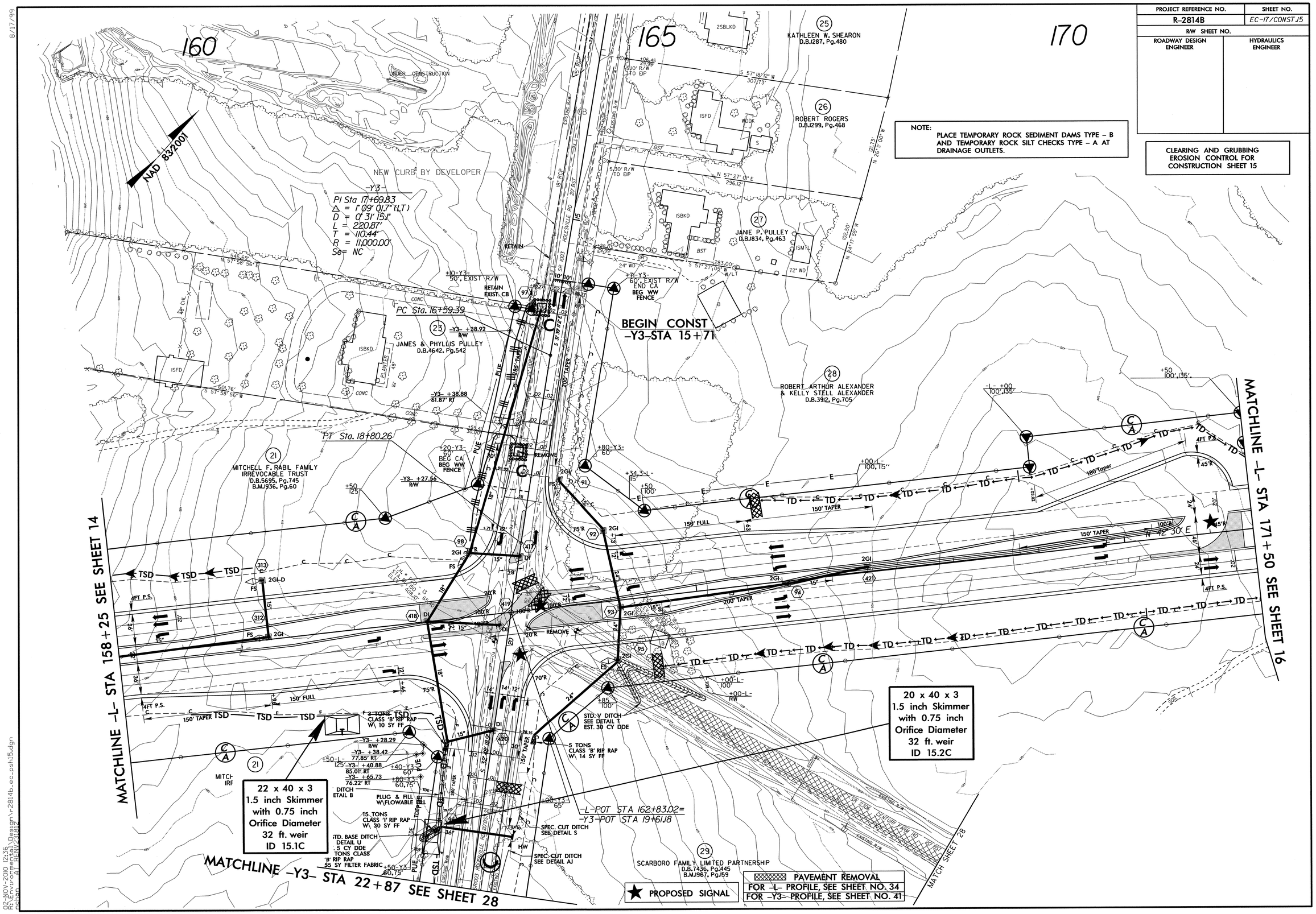
ncbon AT REN\23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-17/CONST.15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



02-NOV-2010 12:36
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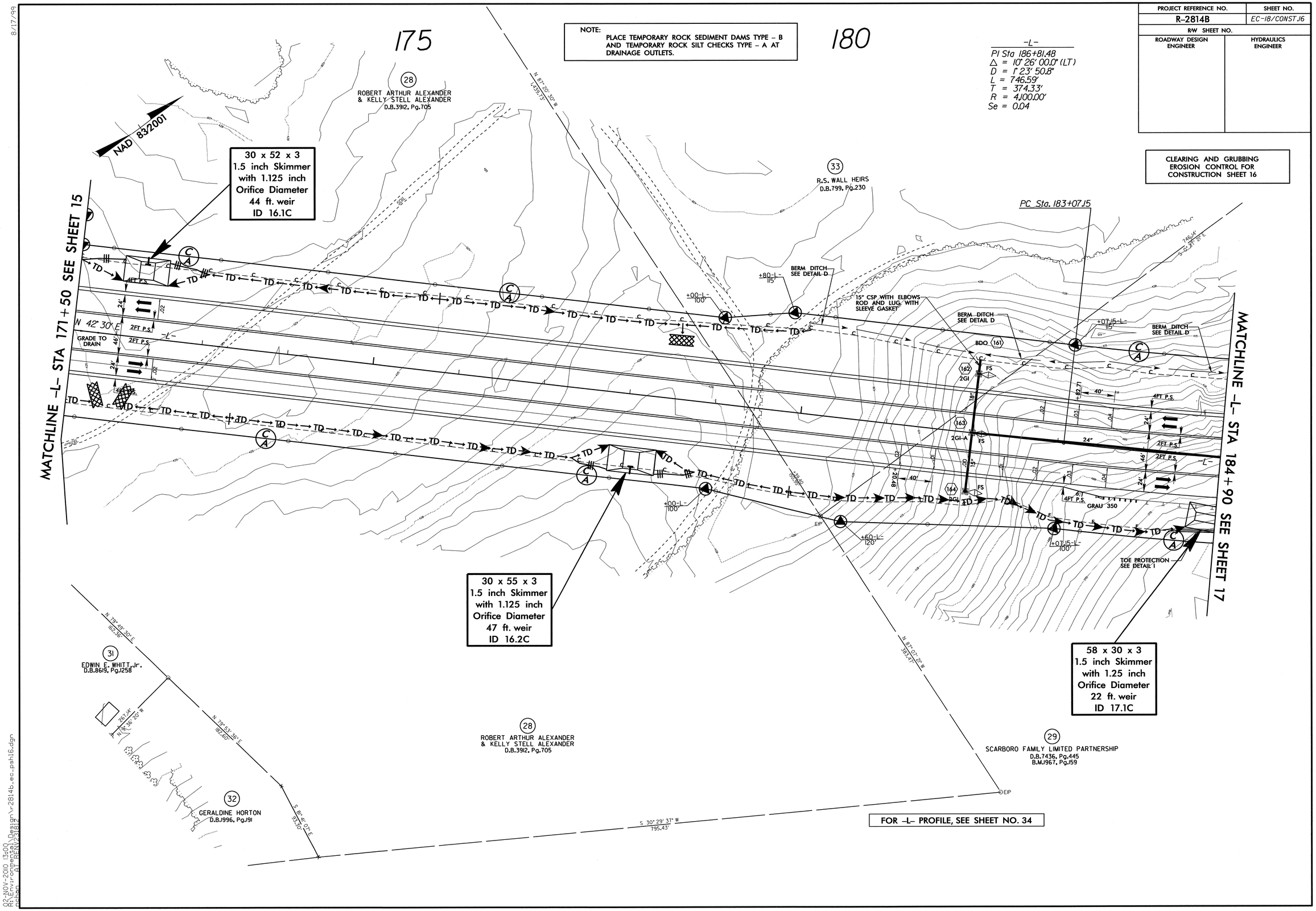
pchan AT REN\23812
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-18/CONST.16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-L-
PI Sta 186+81.48
Δ = 10° 26' 00.0" (LT)
D = 1° 23' 50.8"
L = 746.59'
T = 374.33'
R = 4,100.00'
Se = 0.04

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 16

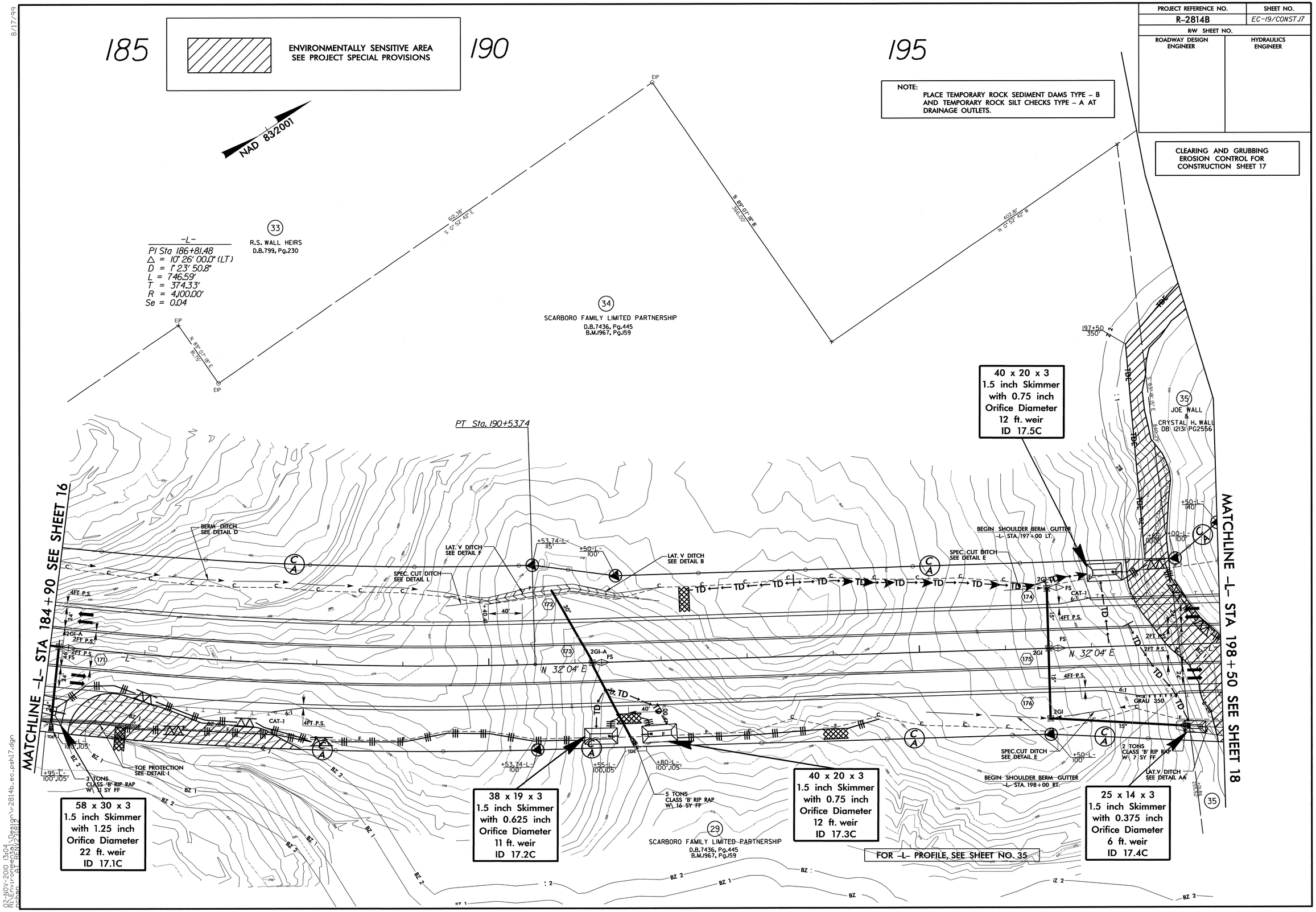


02-NOV-2010 13:00
R:\Environmental\Design\r-2814b_ec_psh16.dgn
pgilson AT RENV23182

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-19/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.



8/17/99

02-NOV-2010 13:04
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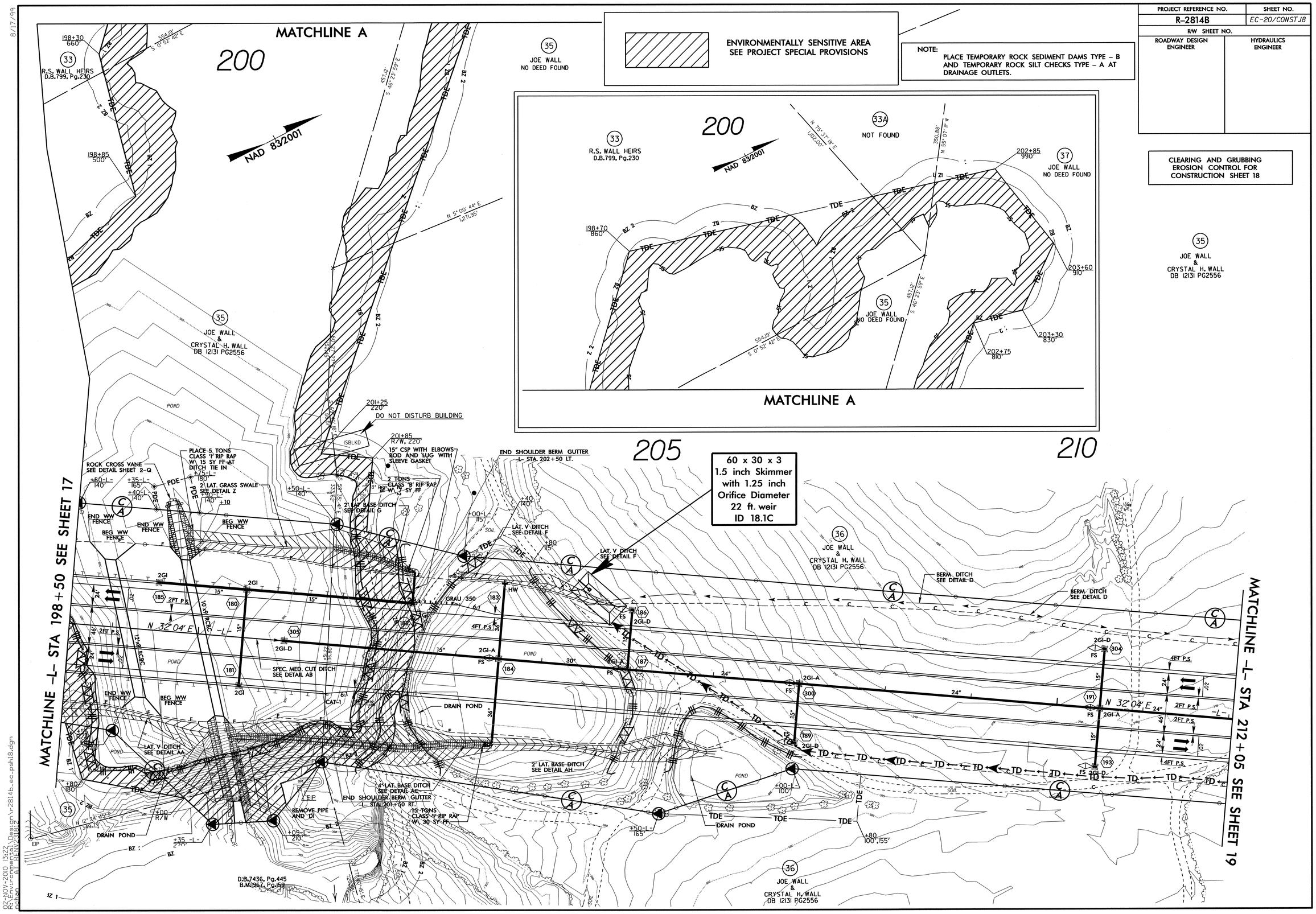
Design AT RENV2382

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-20/CONST.18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 18



8/17/99

02-NOV-2010 13:22
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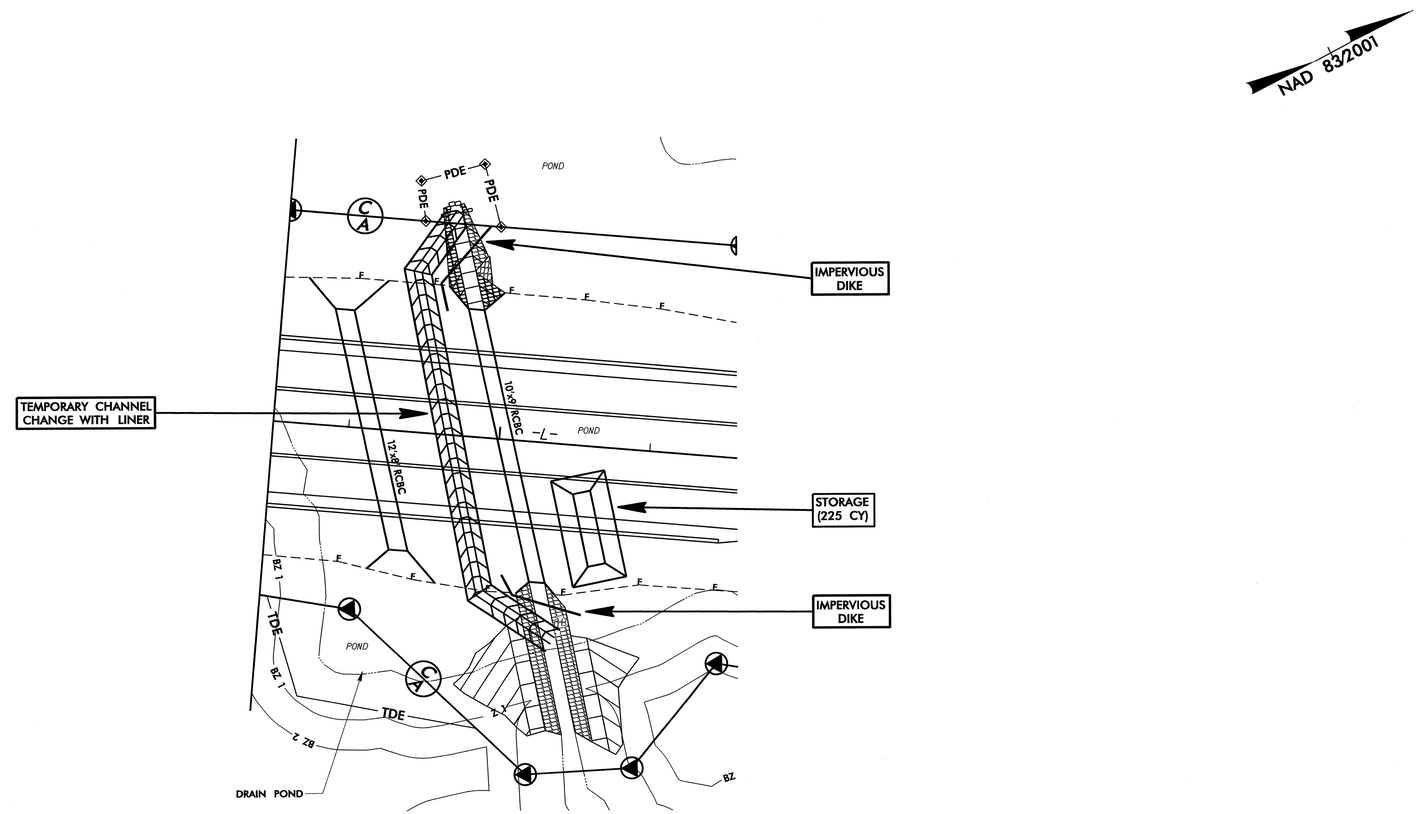
Plan ST REV:23.8.2

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-21/CONST18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 200+04 –L–

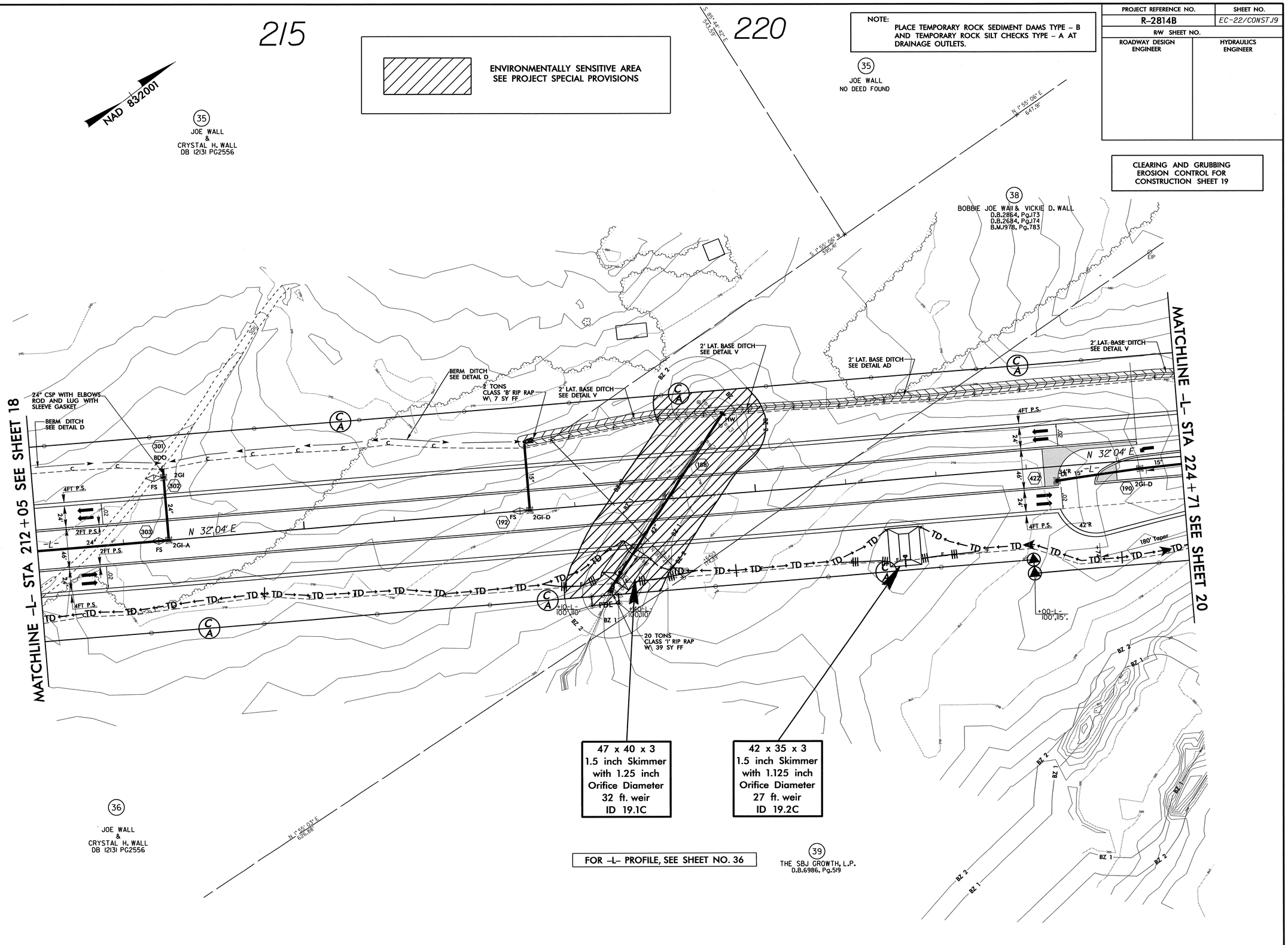
1. BREACH DAM AND DRAIN POND.
2. CONSTRUCT STILLING BASIN (225 CY).
3. CONSTRUCT TEMPORARY CHANNEL CHANGE WITH LINER (5 FT. BASE, 3 FT. DEEP, 2:1 SIDE SLOPES).
4. CONSTRUCT IMPERVIOUS DIKES AND DIVERT FLOW THROUGH TEMPORARY CHANNEL CHANGE.
5. CONSTRUCT PROPOSED CULVERT AND AS MUCH OF THE INLET/OUTLET CHANNEL IMPROVEMENTS AS POSSIBLE.
6. REMOVE IMPERVIOUS DIKES AND TEMPORARY CHANNEL CHANGE, ALLOWING FLOW THROUGH CULVERT. COMPLETE INLET/OUTLET CHANNEL IMPROVEMENTS.
7. REMOVE STILLING BASIN AND COMPLETE ROADWAY.



PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-22/CONST.19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 19



8/17/99

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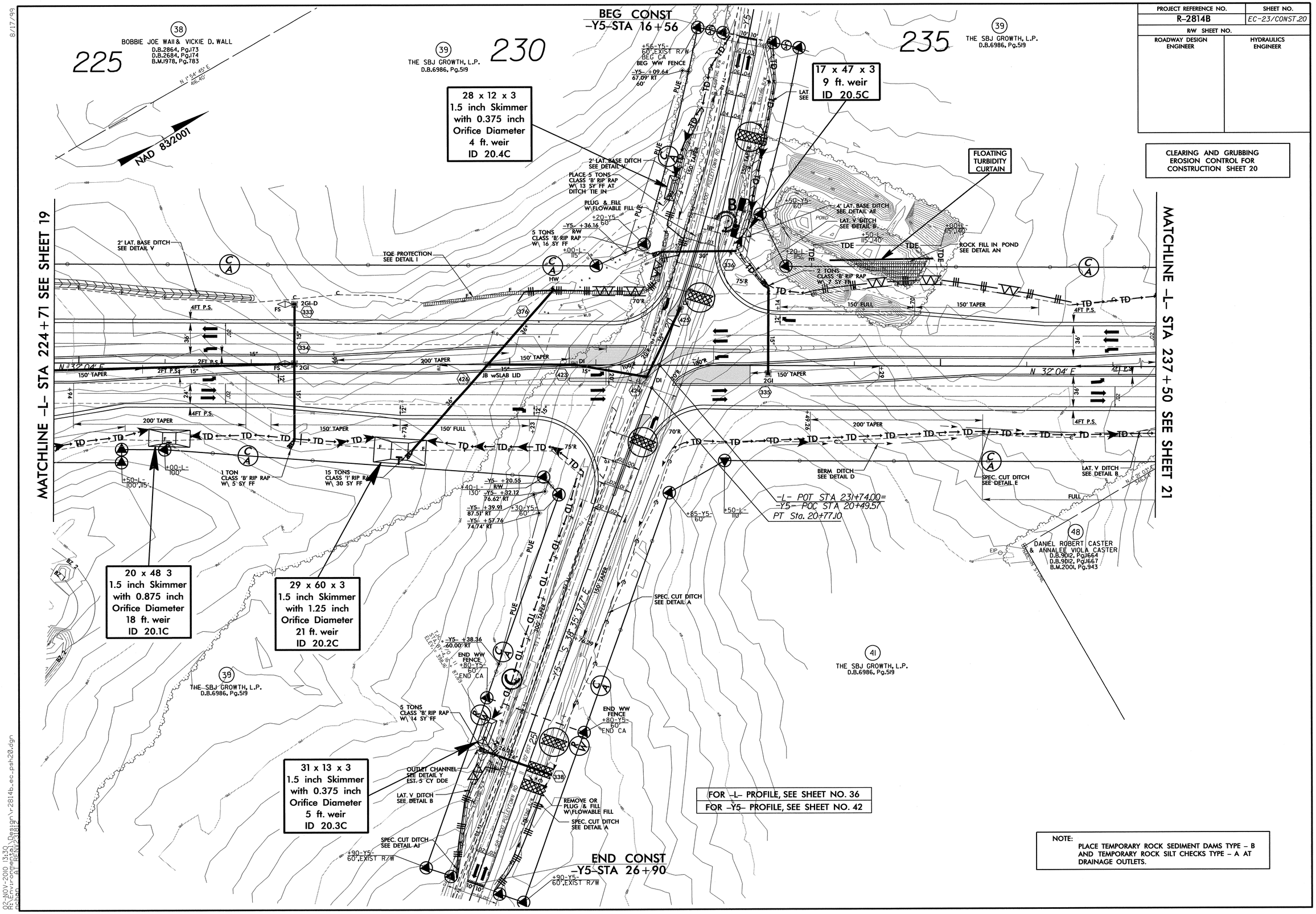
pchan AT REN\23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-23/CONST.20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

8/17/99

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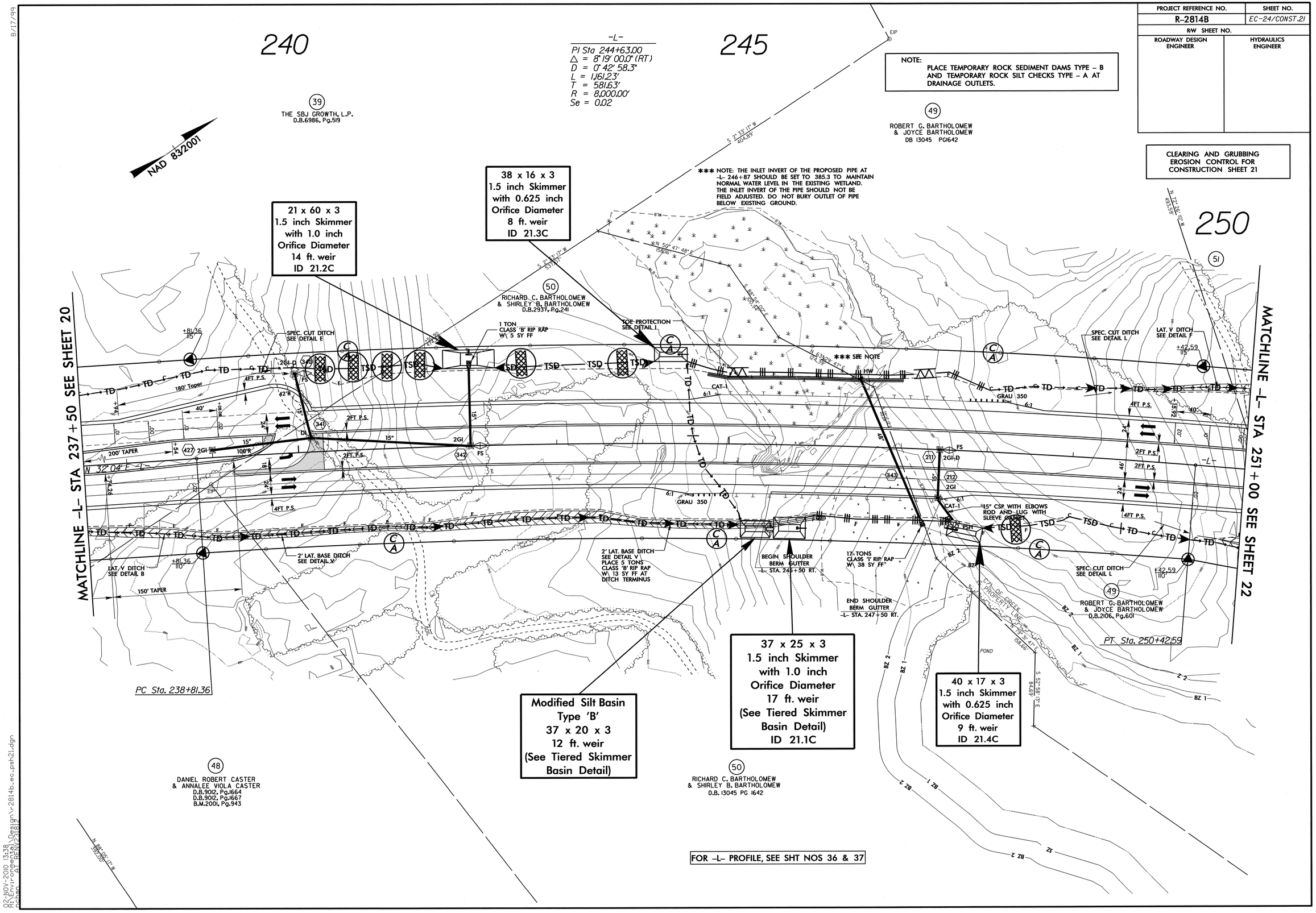
pcaan AT REN\23182

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-24/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.



FOR -L- PROFILE, SEE SHT NOS 36 & 37

8/17/99

02-NOV-2010 13:38
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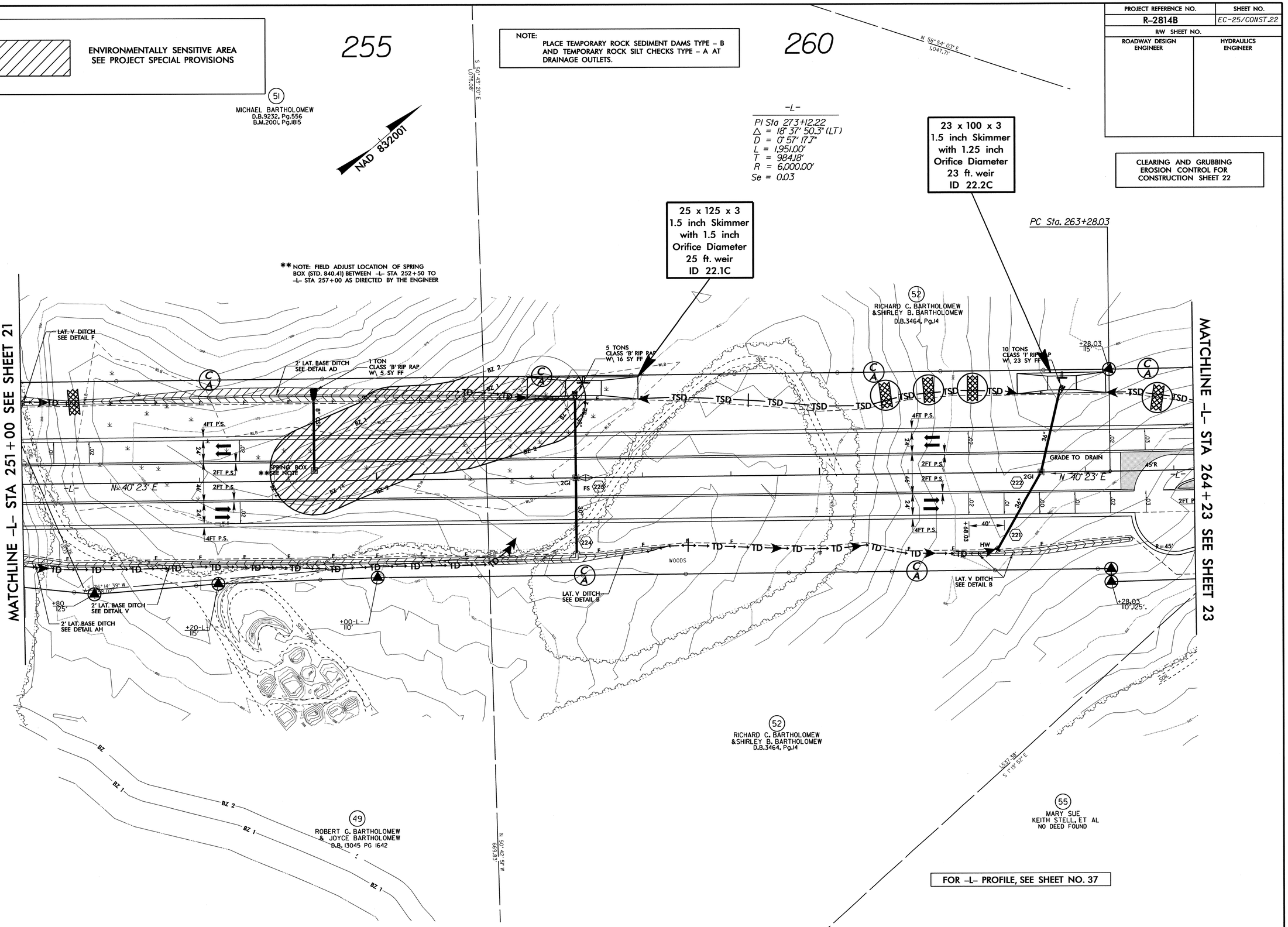
pchan

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-25/CONST.22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 22



FOR -L- PROFILE, SEE SHEET NO. 37

8/17/99

02-NOV-2010 13:49
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pshan AT REN\23182

8/17/99

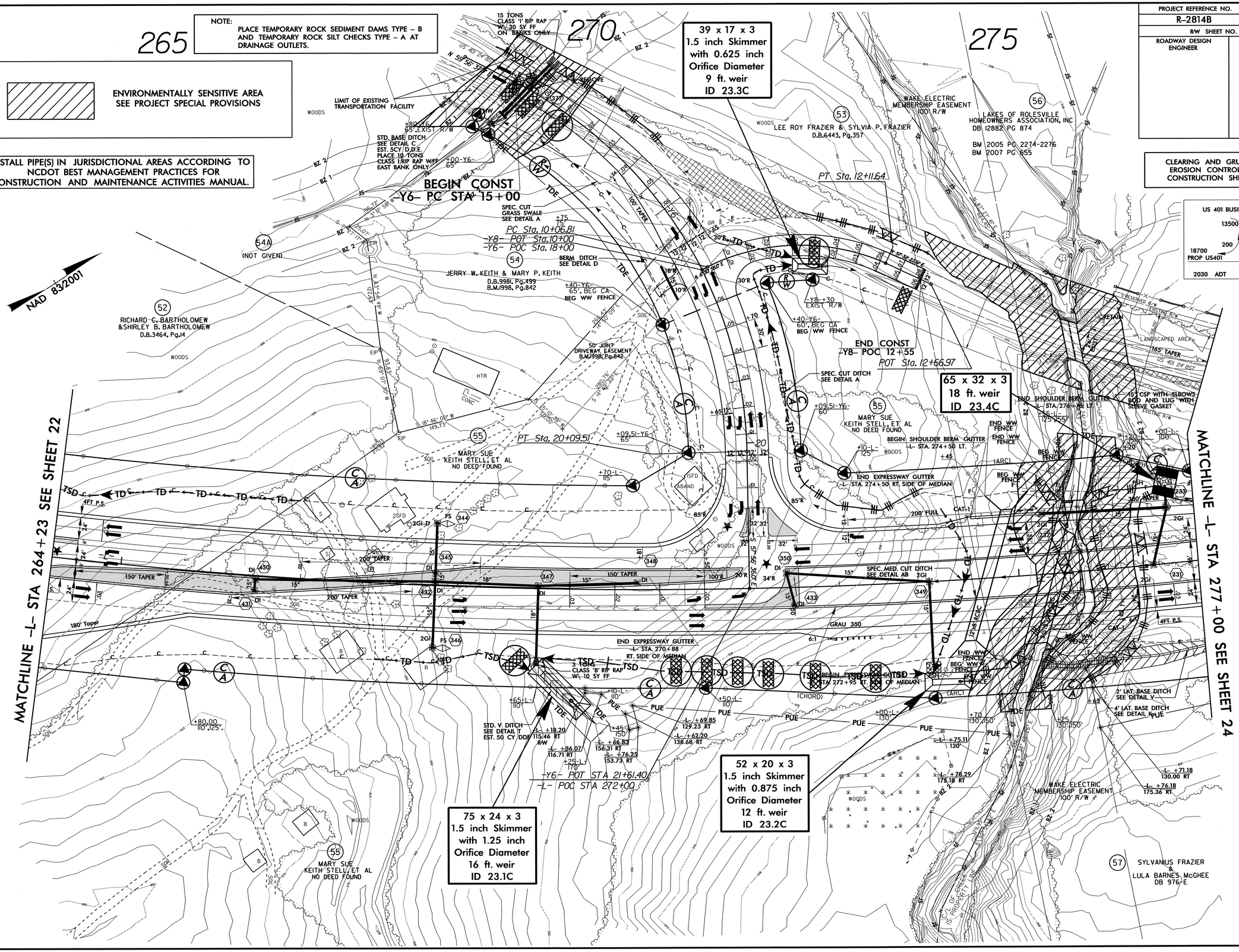
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-26/CONST.23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

INSTALL PIPE(S) IN JURISDICTIONAL AREAS ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 23



02-NOV-2010 13:53
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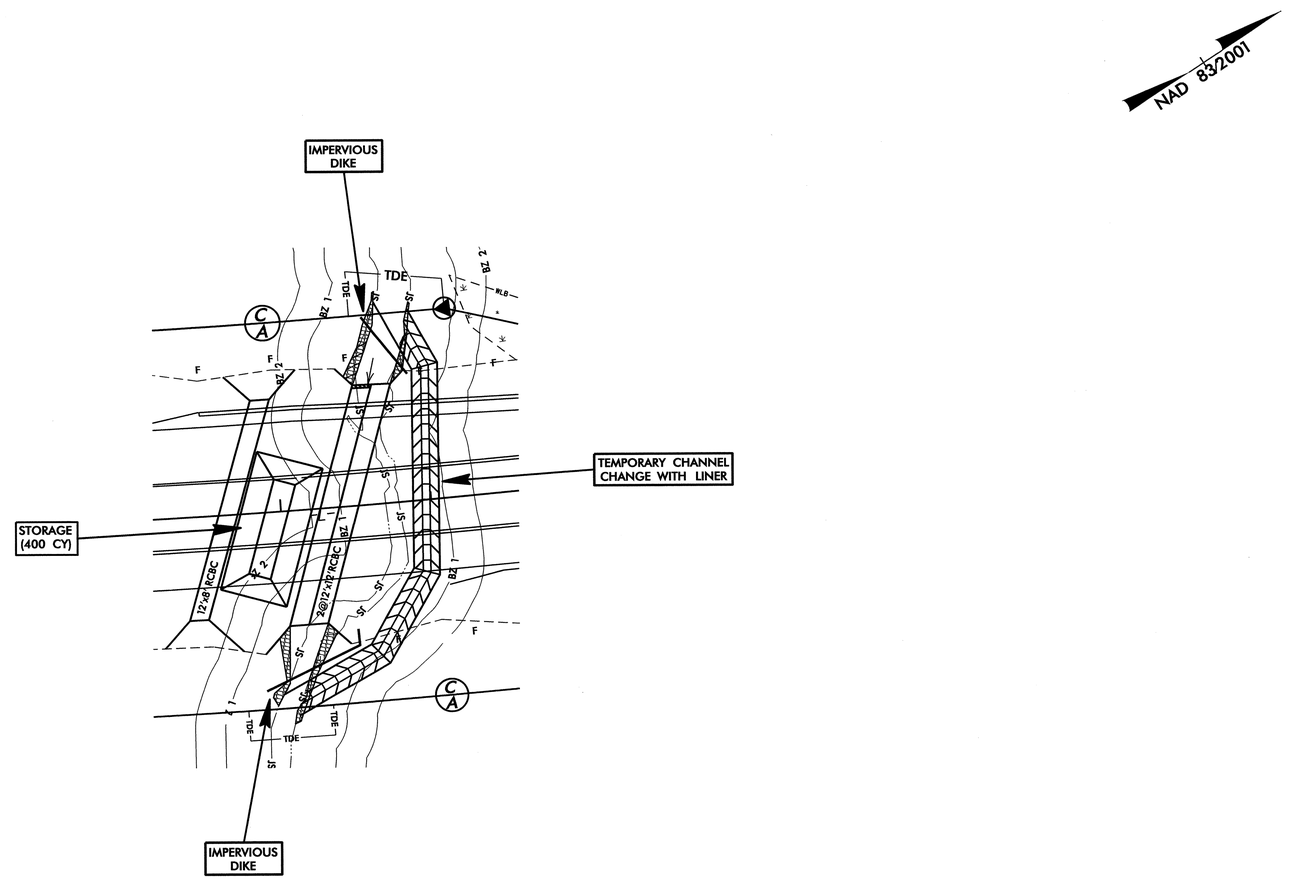
pchan AT REN\23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-27/CONST.23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 275+39 –L–

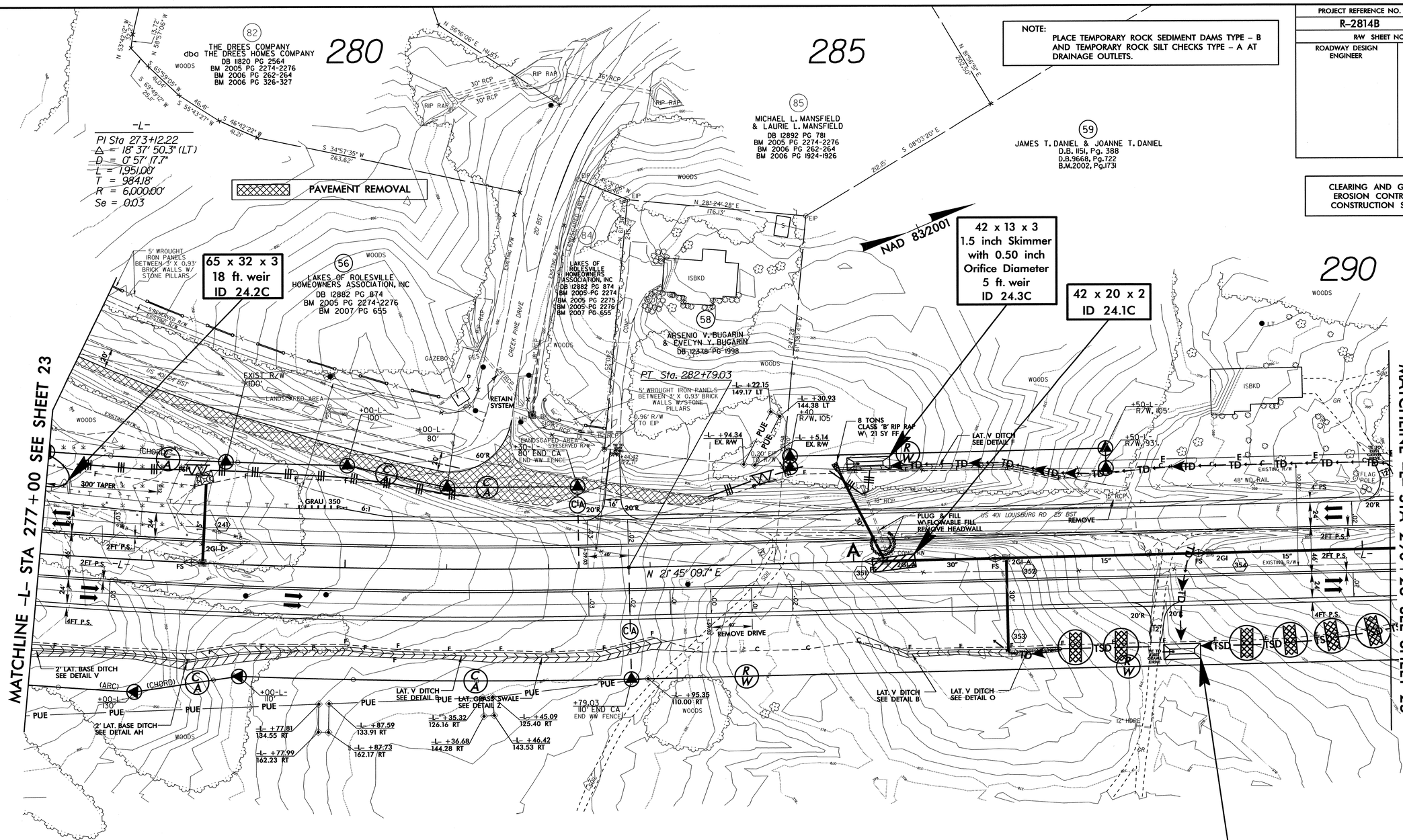
1. CONSTRUCT STILLING BASIN (400 CY).
2. CONSTRUCT TEMPORARY CHANNEL CHANGE WITH LINER (5 FT. BASE, 3 FT. DEEP, 2:1 SIDE SLOPES).
3. CONSTRUCT IMPERVIOUS DIKES, DIVERTING FLOW THROUGH TEMPORARY CHANNEL CHANGE.
4. CONSTRUCT PROPOSED CULVERT AND AS MUCH OF THE INLET/OUTLET CHANNEL IMPROVEMENTS AS POSSIBLE.
5. REMOVE IMPERVIOUS DIKES AND TEMPORARY CHANNEL CHANGE, ALLOWING FLOW THROUGH CULVERT. COMPLETE INLET/OUTLET CHANNEL IMPROVEMENTS.
6. REMOVE STILLING BASIN AND COMPLETE ROADWAY.



PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-28/CONST.24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 24



8/17/99

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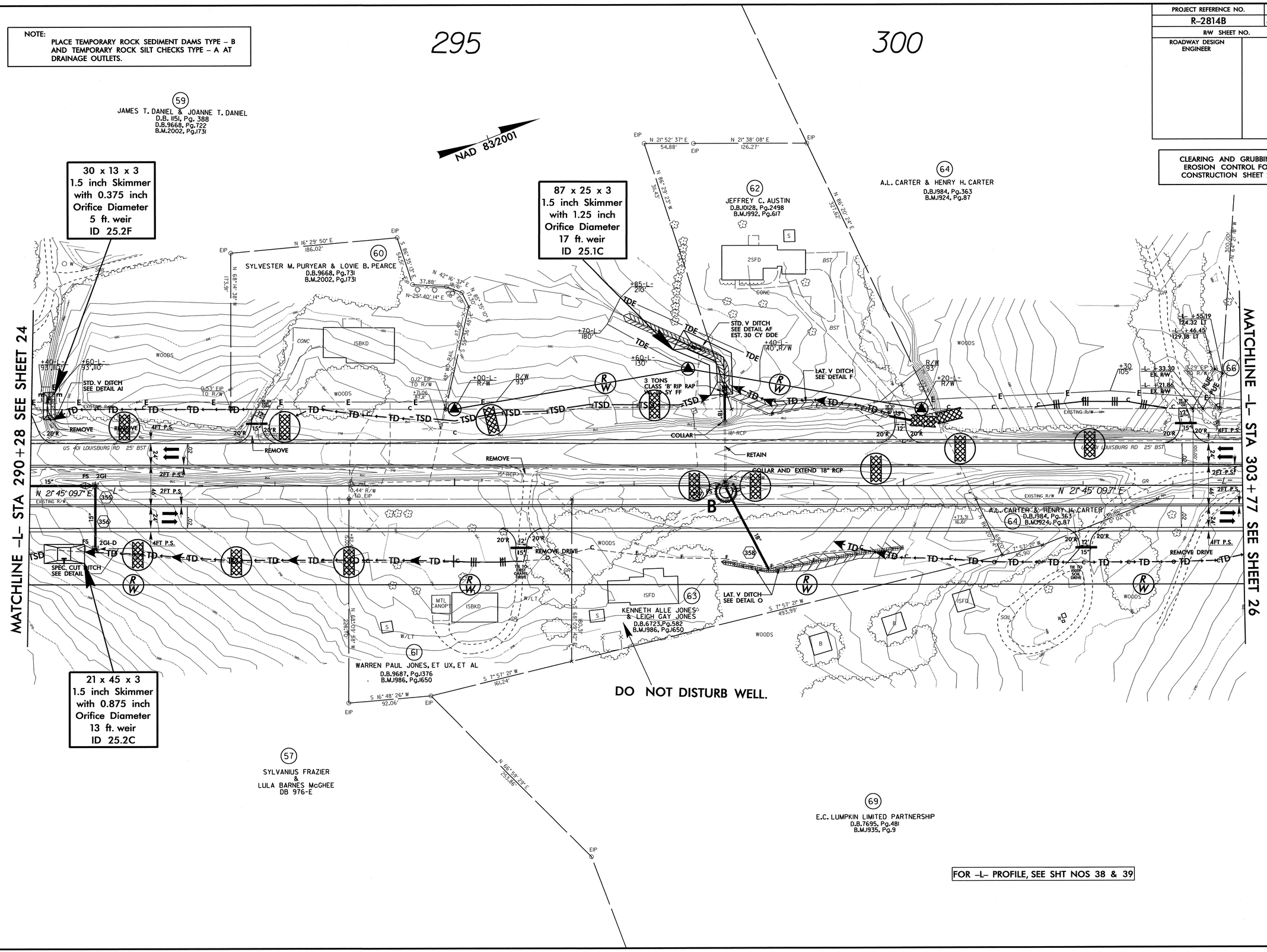
pgbap AT REN\23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-29/CONST.25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 25



FOR –L– PROFILE, SEE SHT NOS 38 & 39

8/17/99

02-NOV-2010 15:43
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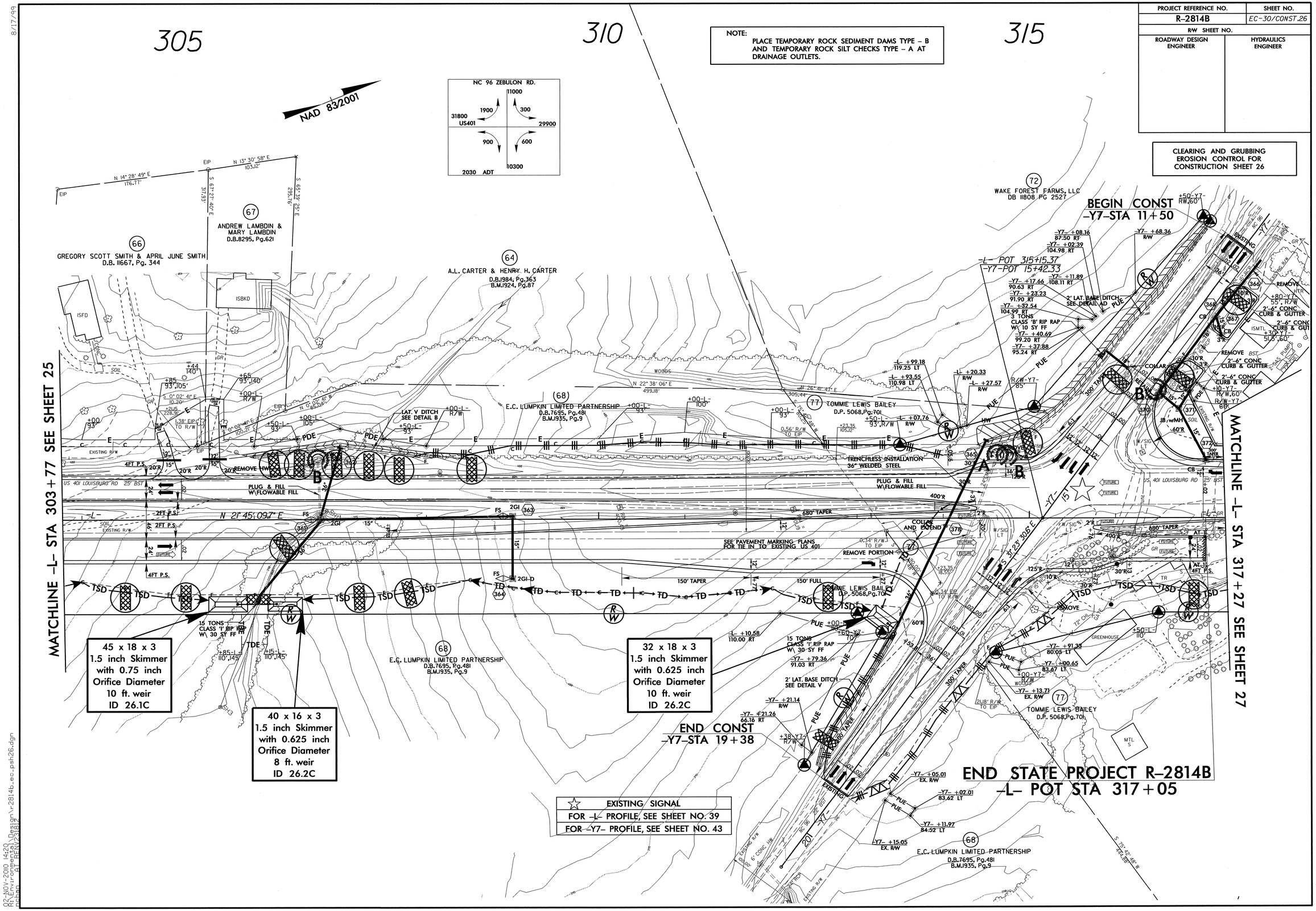
pcban AT REN23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-30/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.



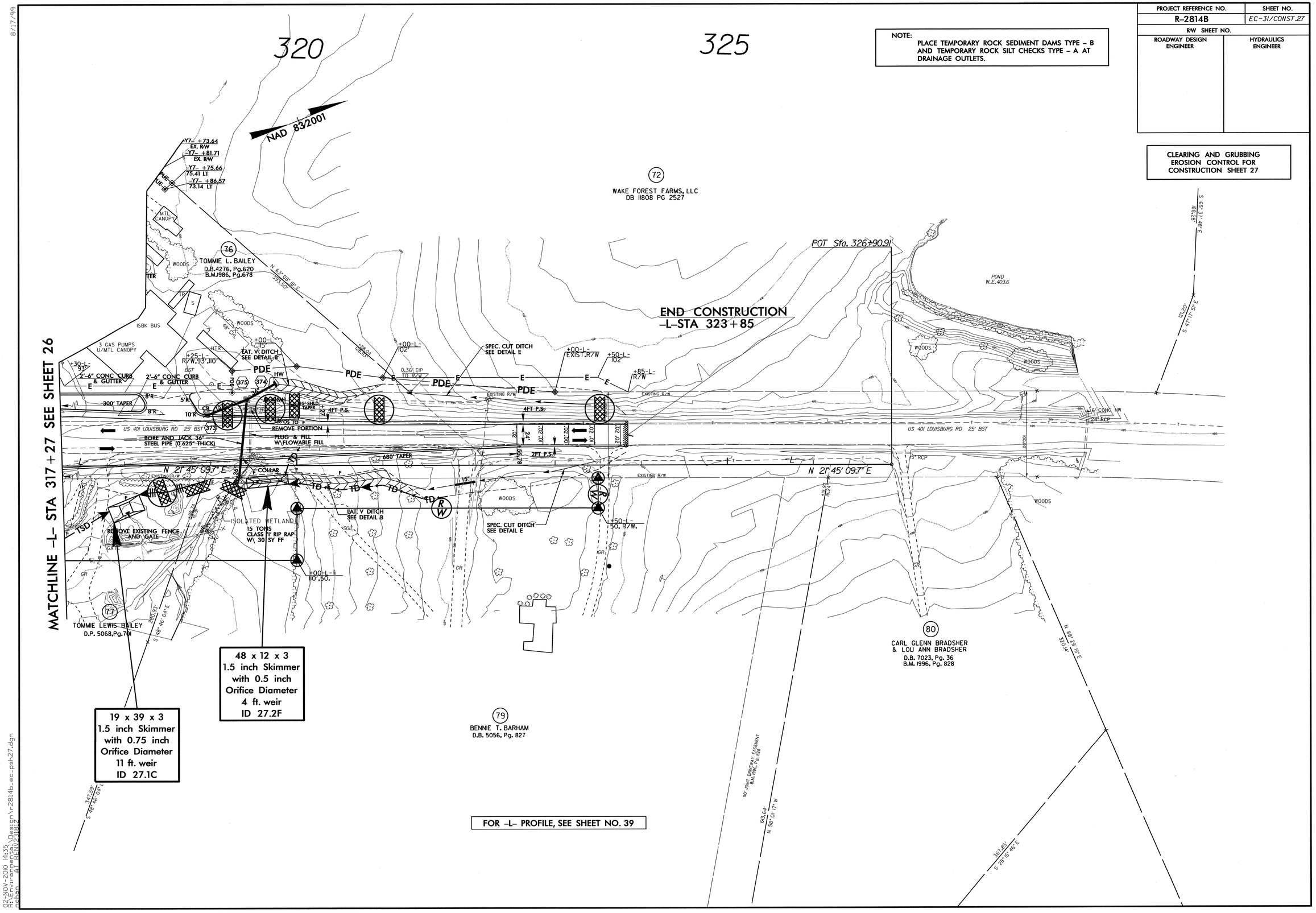
8/17/99

02-NOV-2010 14:20
R:\Environmental\Design\r-2814b_ec_psh26.dgn
mchan AT REN\23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-31/CONST.27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 27



FOR -L- PROFILE, SEE SHEET NO. 39

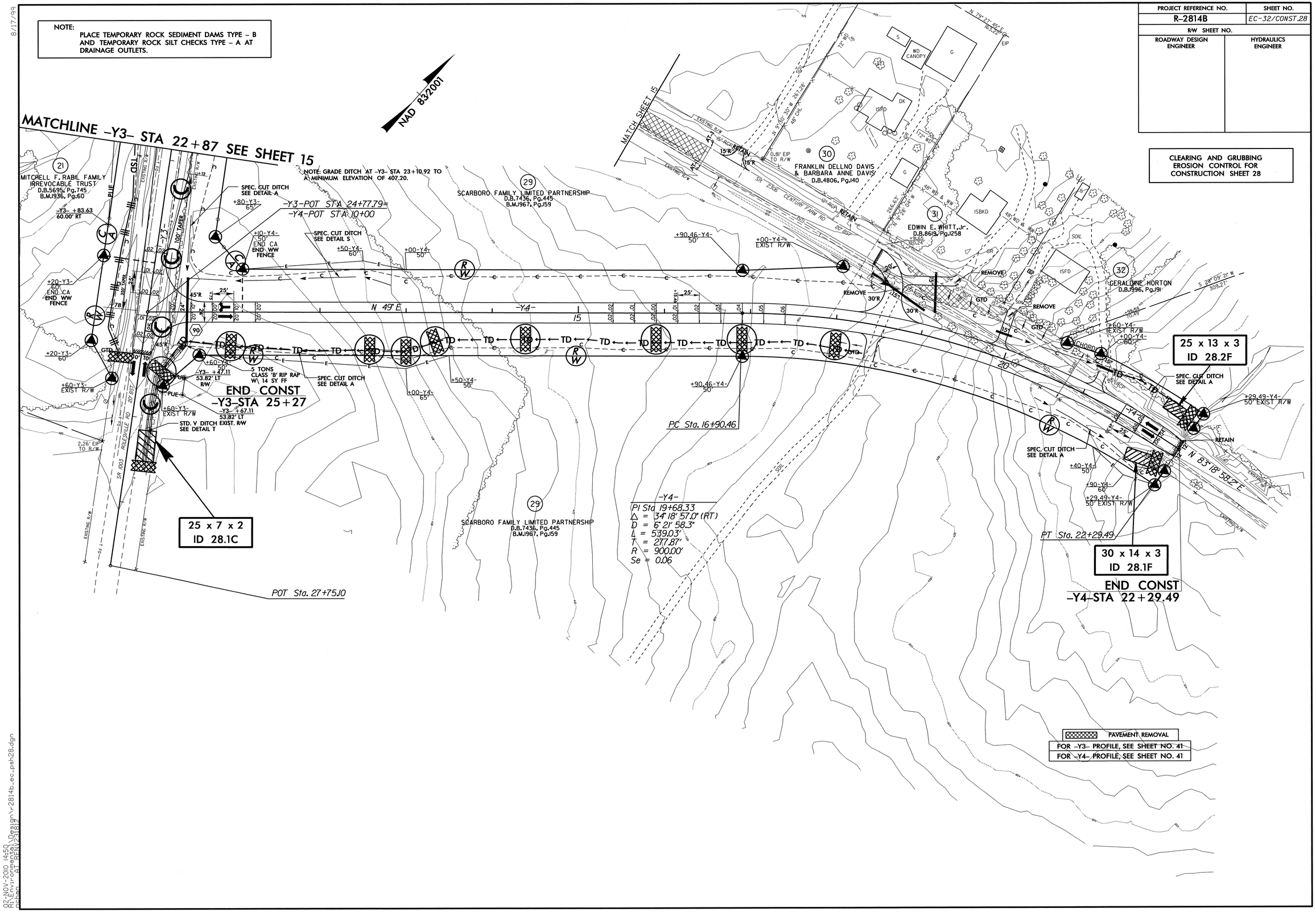
8/17/99

02-NOV-2010 14:35
R:\Environmental\Design\r-2814b_ec_psh27.dgn
pcsan BY REN(23182)

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-32/CONST.28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

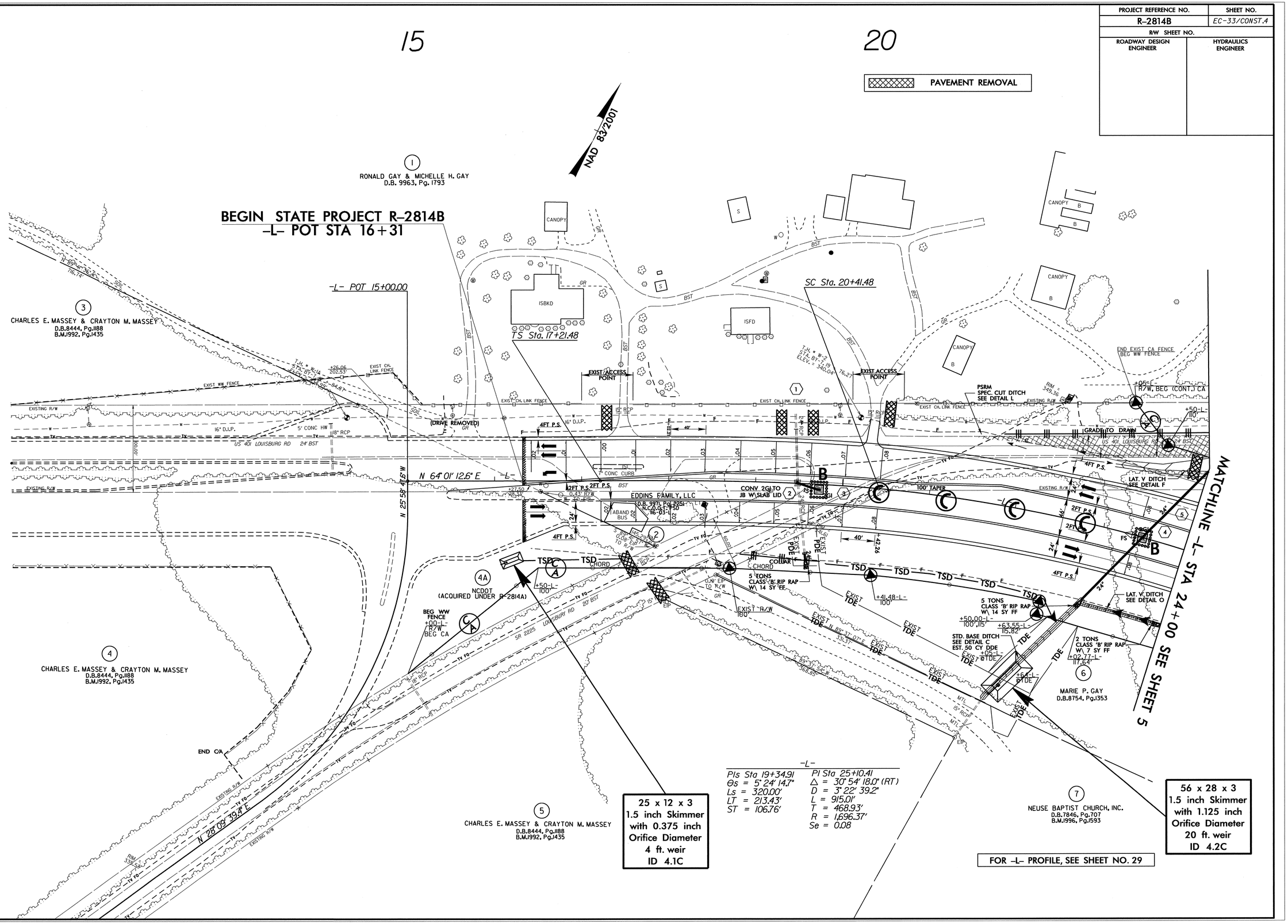
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 28



8/17/99

02-NOV-2010 14:50
R:\Environmental\Design\r-2814b_ec_psh28.dgn
pshan ET RENV2382

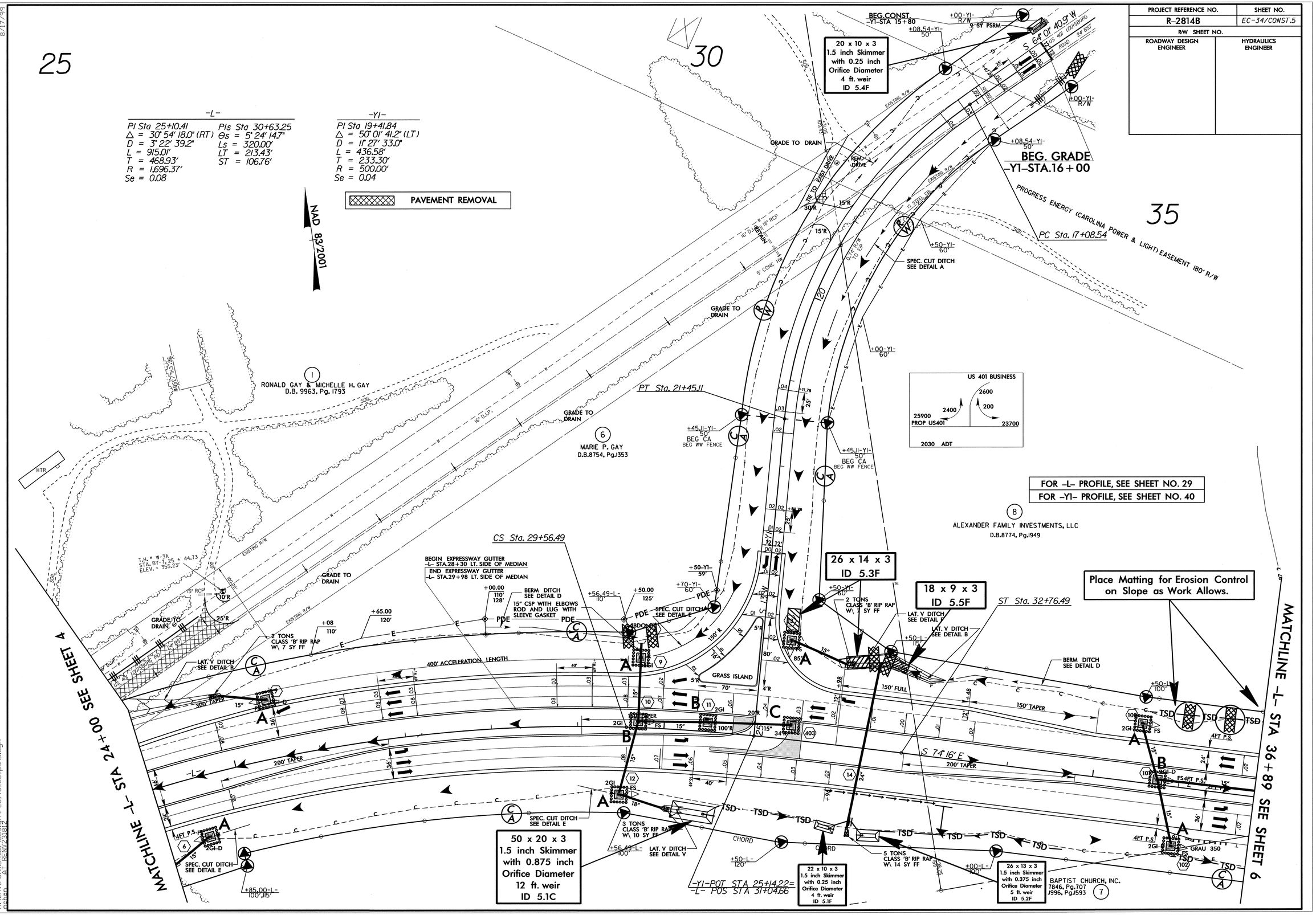
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-33/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



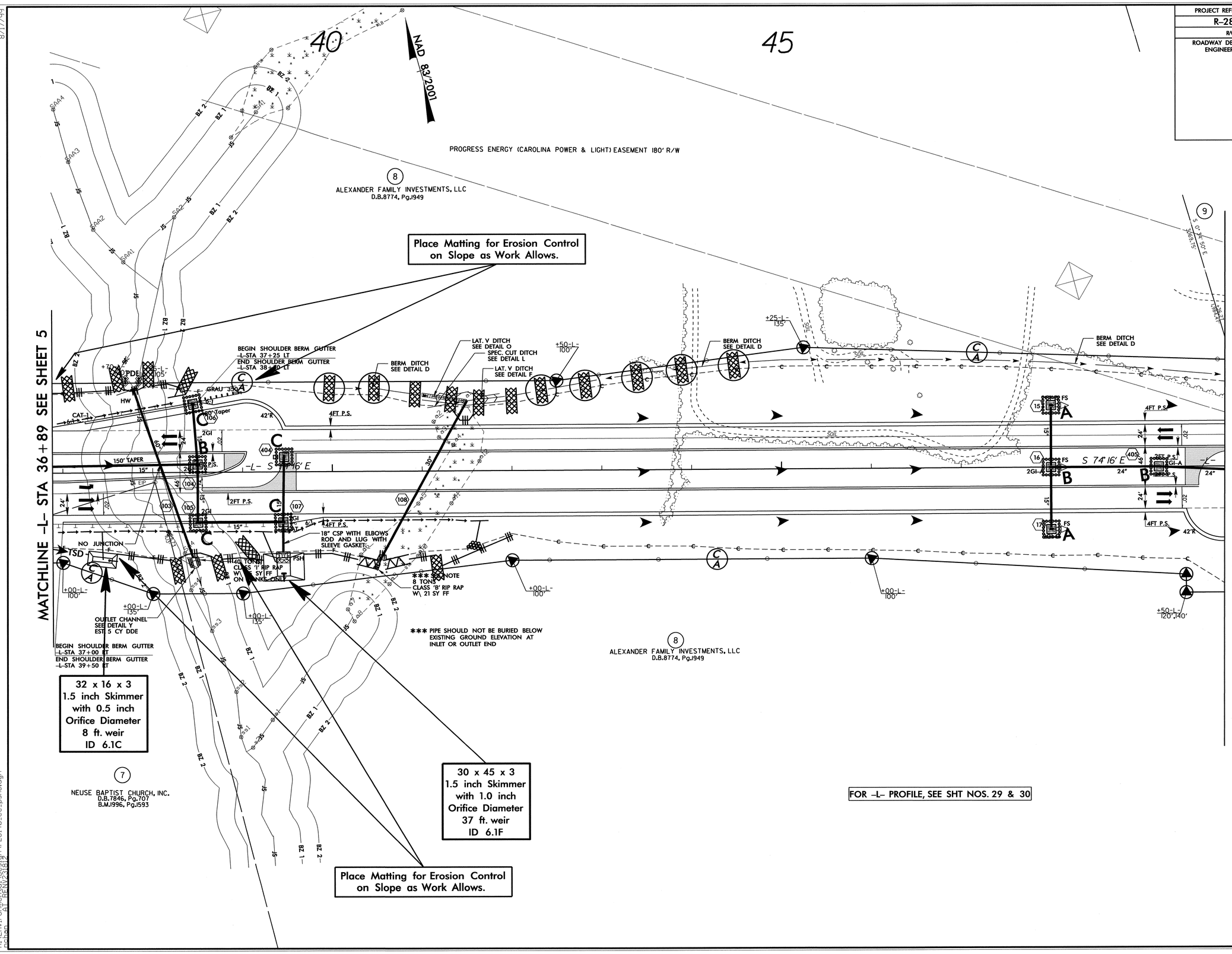
8/17/99

02-NOV-2010 09:31
R:\Environmental\Design\r2814b_ec_psh4.dgn
mebaycock AT REN\247768

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-34/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



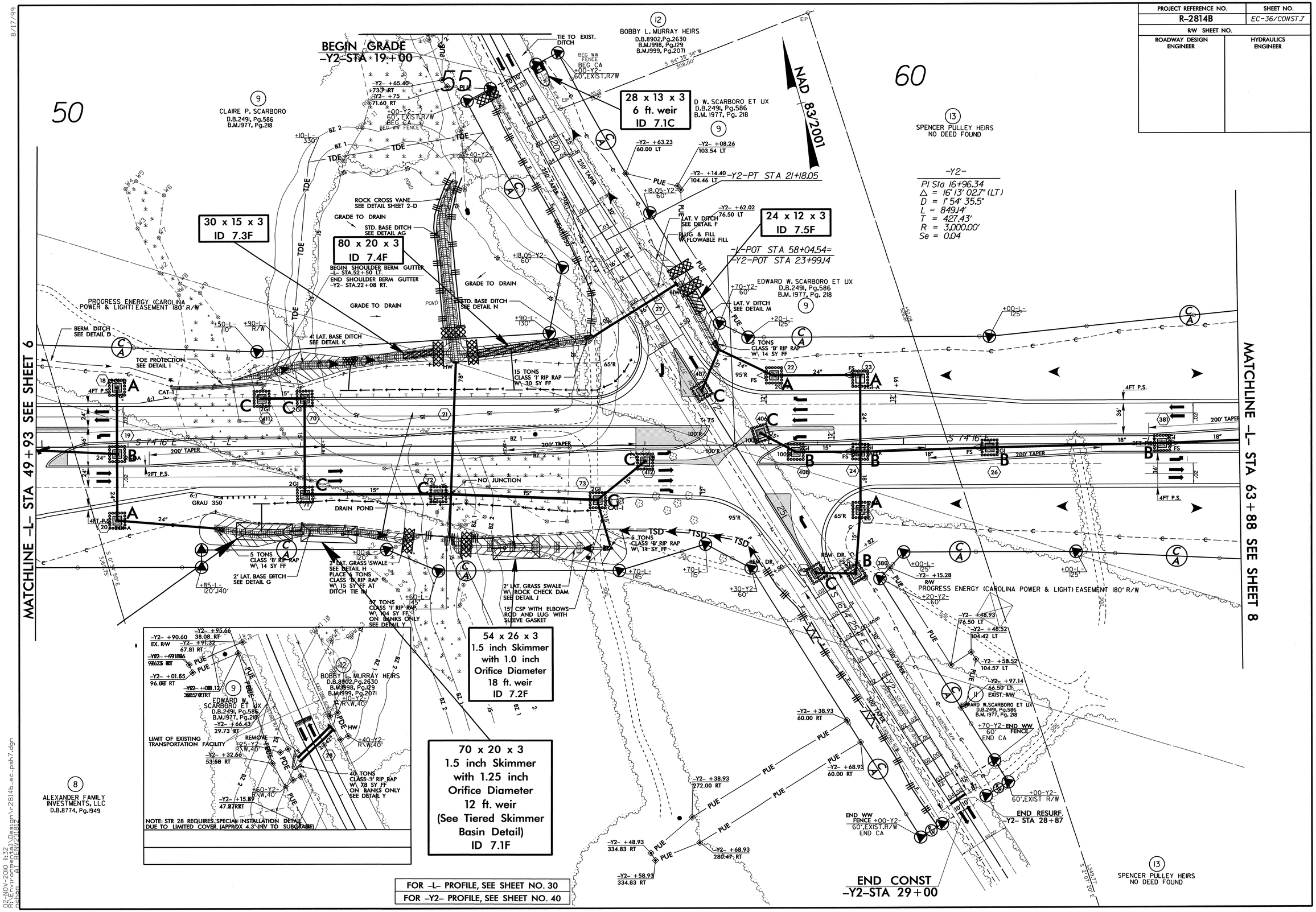
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-35/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



8/17/99

02-NOV-2010 11:23
R:\Environmental\Design\r-2814b_ec_psh6.dgn
pchan AT REN\23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-36/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



8/17/99

02-NOV-2010 11:32
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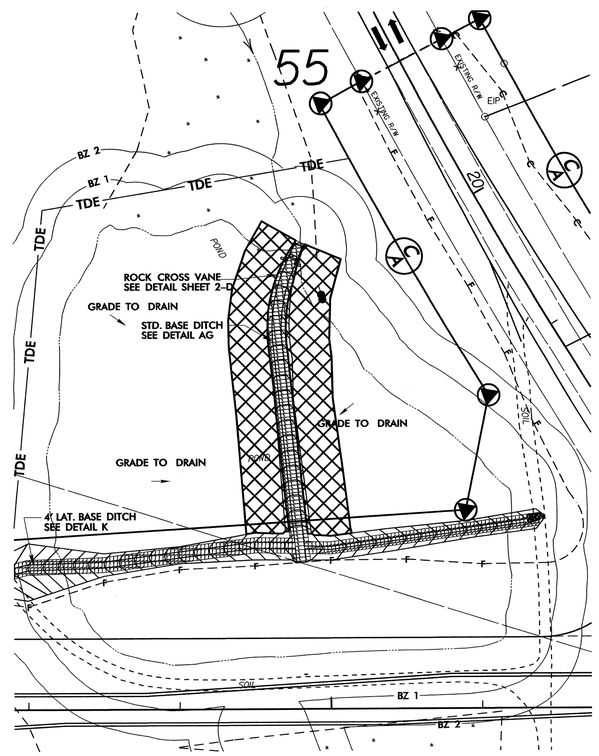
pcban AT RENV23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-37/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

0.24 ACRE STREAMBANK REFORESTATION

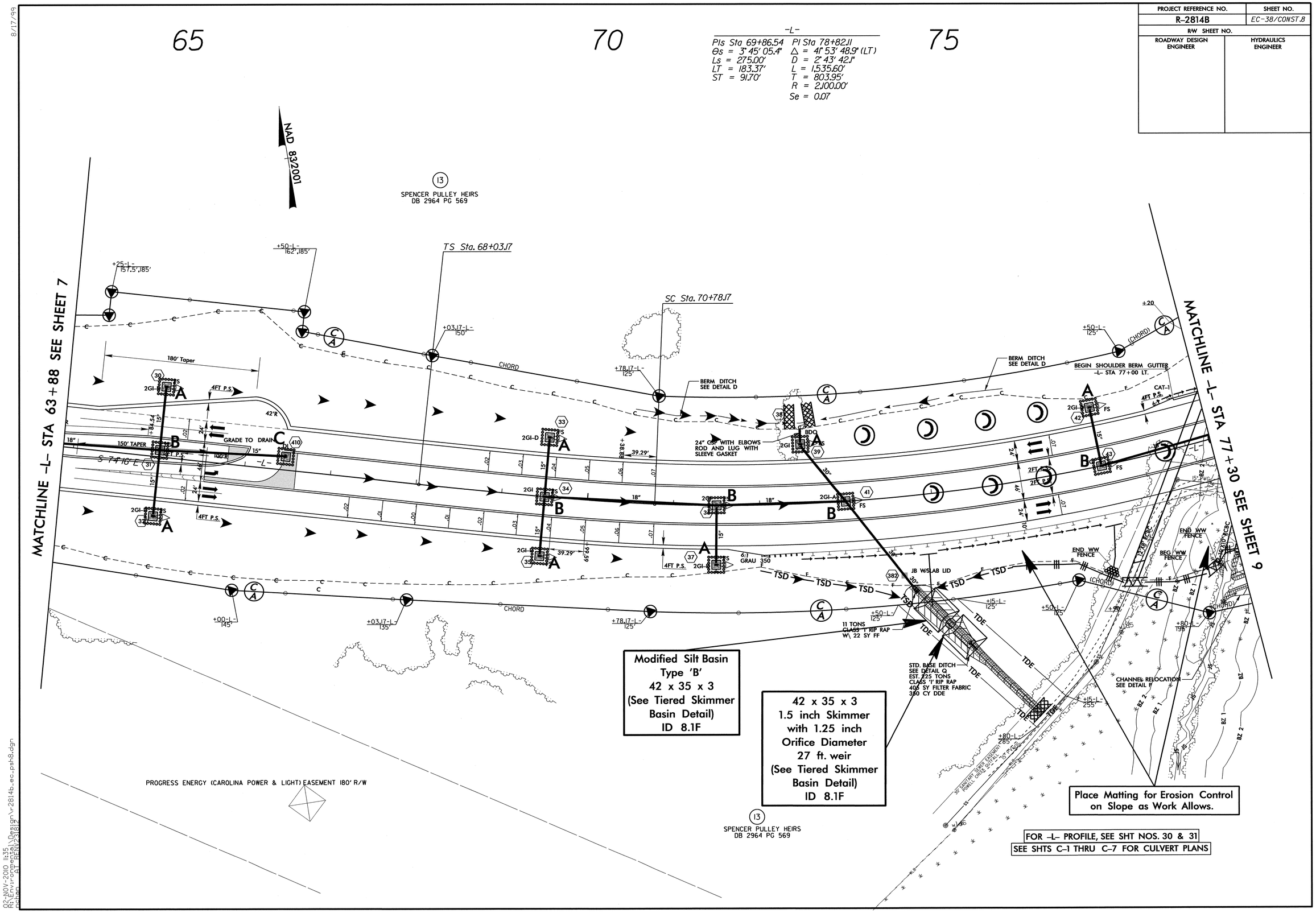


SEE RF-2, RF-3 AND PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-38/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

PIs Sta 69+86.54	PI Sta 78+82.11
Θs = 3° 45' 05.4"	Δ = 41° 53' 48.9" (LT)
Ls = 275.00'	D = 2° 43' 42.1"
LT = 183.37'	L = 1,535.60'
ST = 91.70'	T = 803.95'
	R = 2,100.00'
	Se = 0.07



8/17/99

02-NOV-2010 11:35
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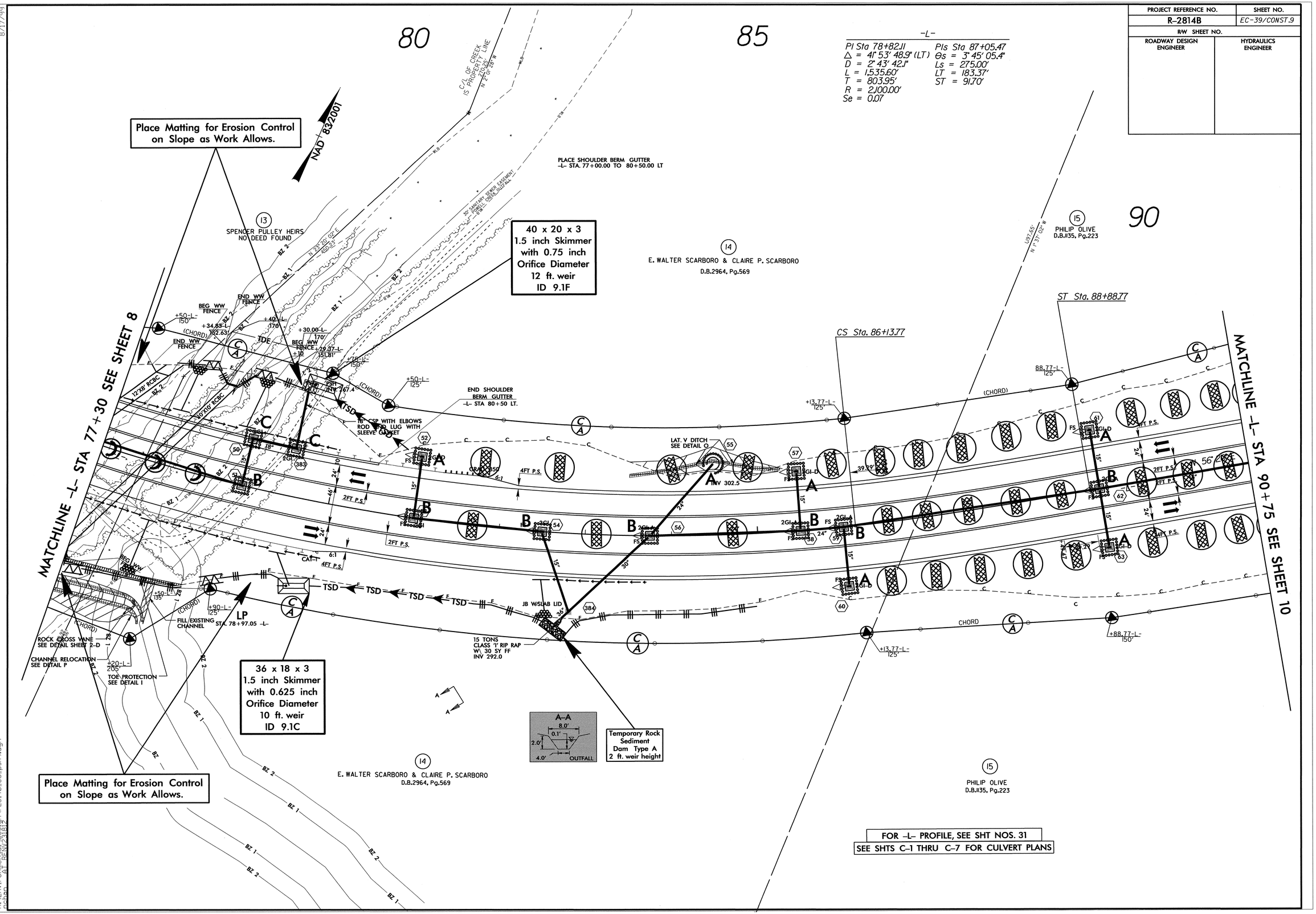
pcrain AT REN\r2812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-39/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



8/17/99

02-NOV-2010 11:40
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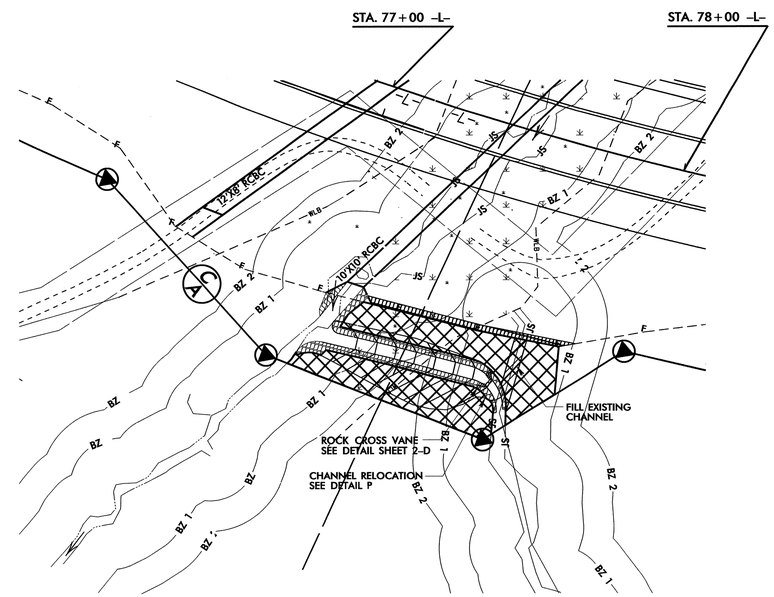
pclean ET REV 23.12

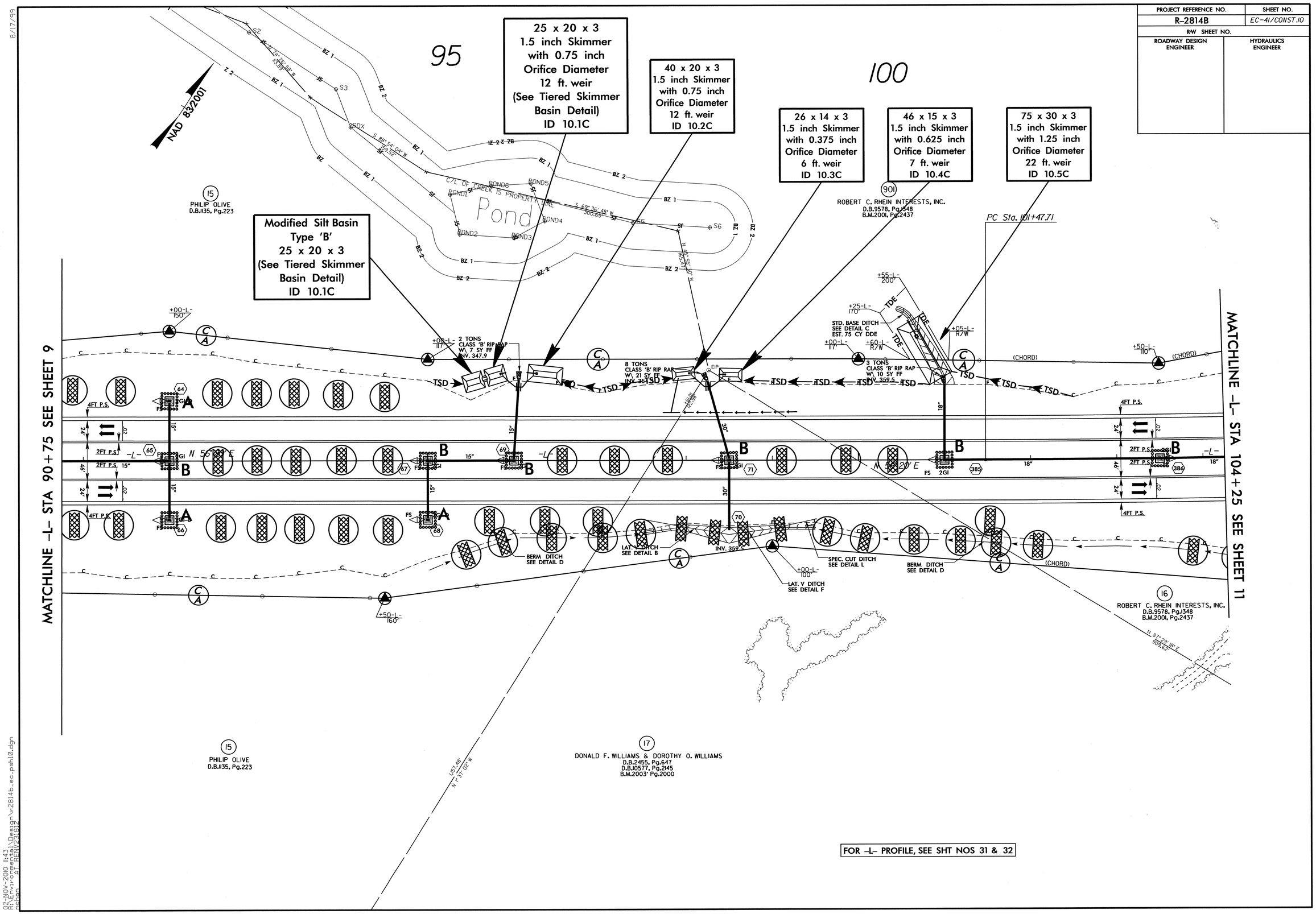
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-40/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

0.16 ACRE STREAMBANK REFORESTATION



SEE RF-2, RF-3 AND PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-41/CONST JO
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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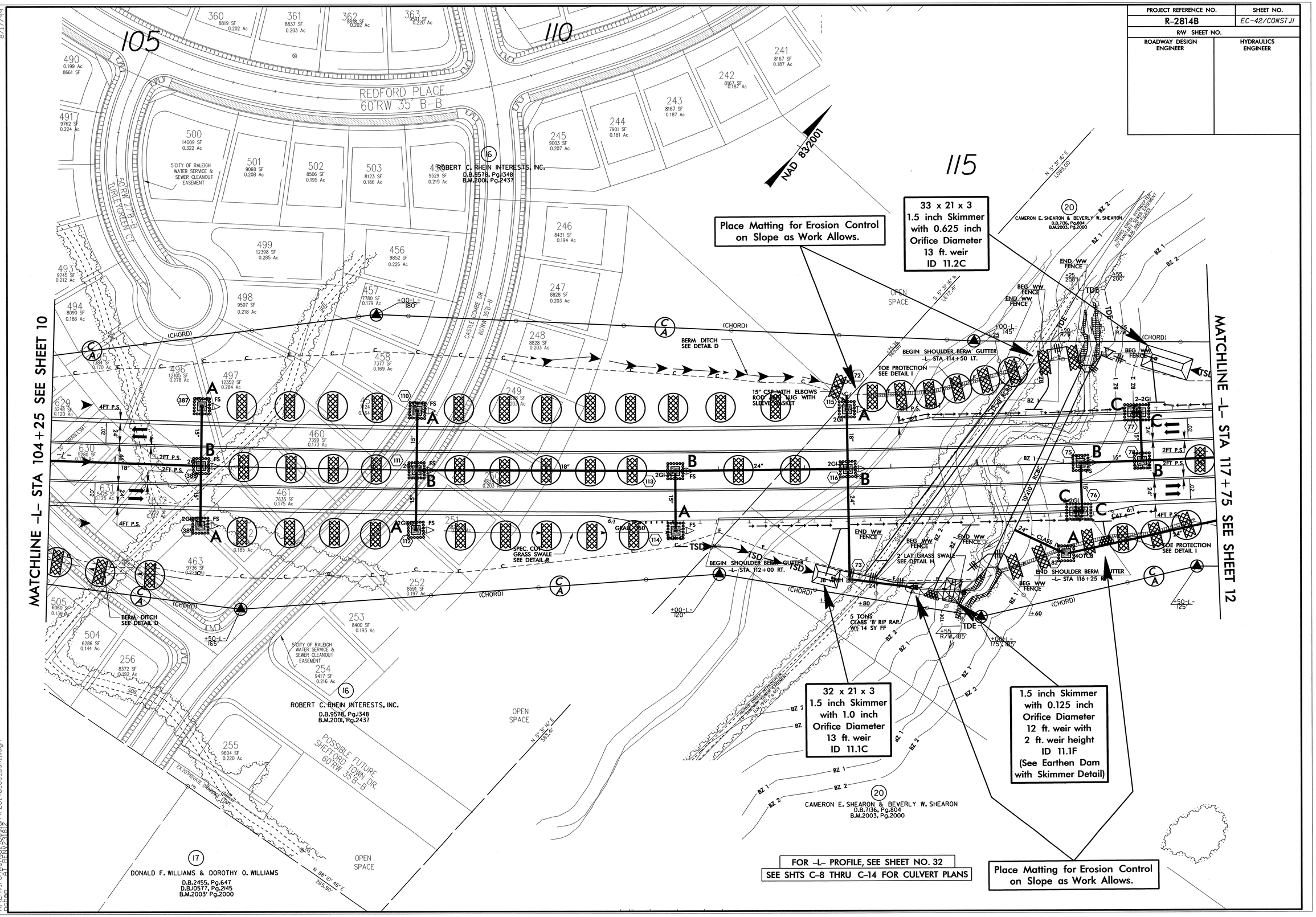
R:\Environmental\Design\r-2814b_ec_psh10.dgn
pcrisp
BY REN/2.18.2

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-42/CONST.JI
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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02-NOV-2010 11:52
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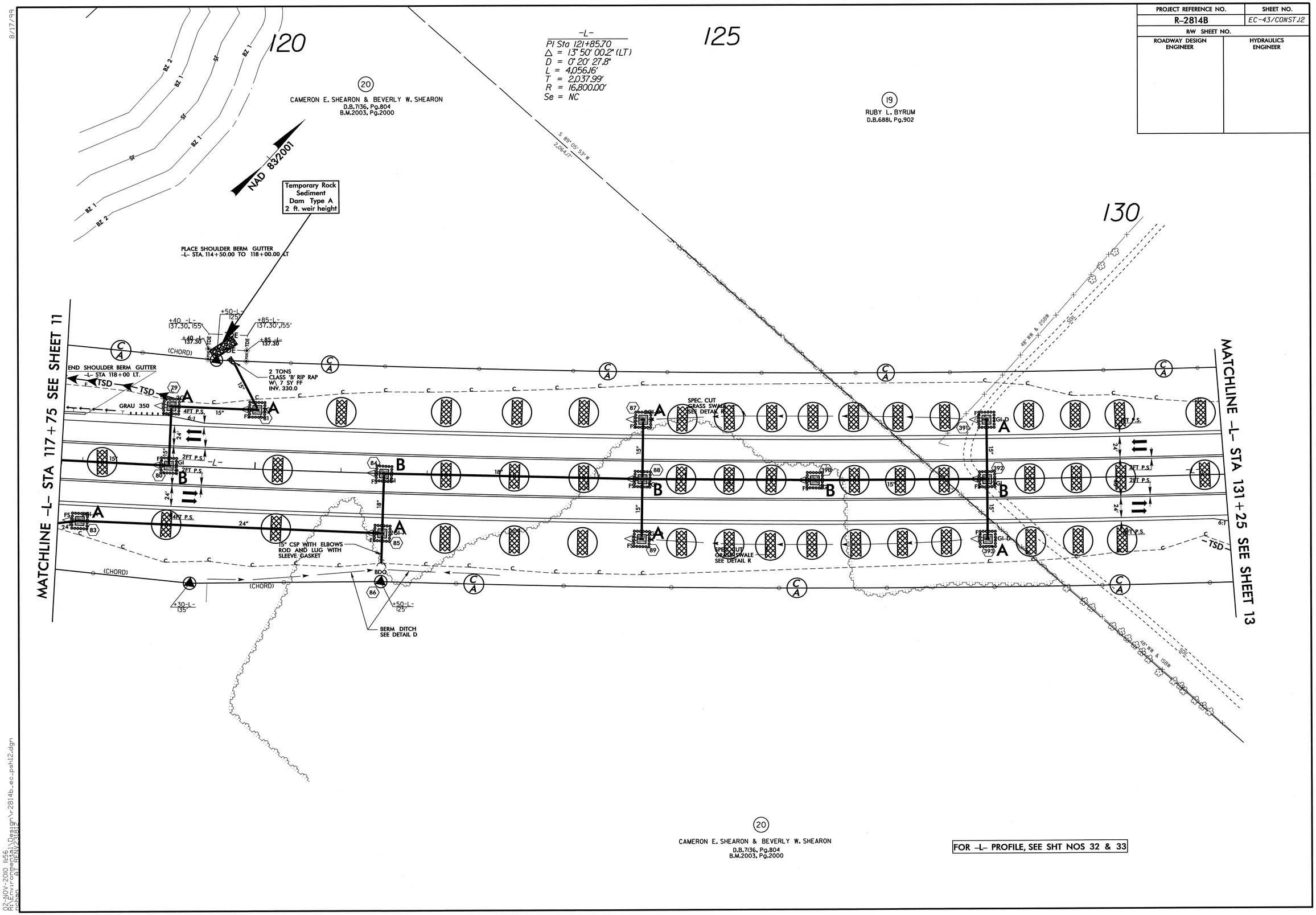
dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-43/CONST.J2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



02-NOV-2010 11:56
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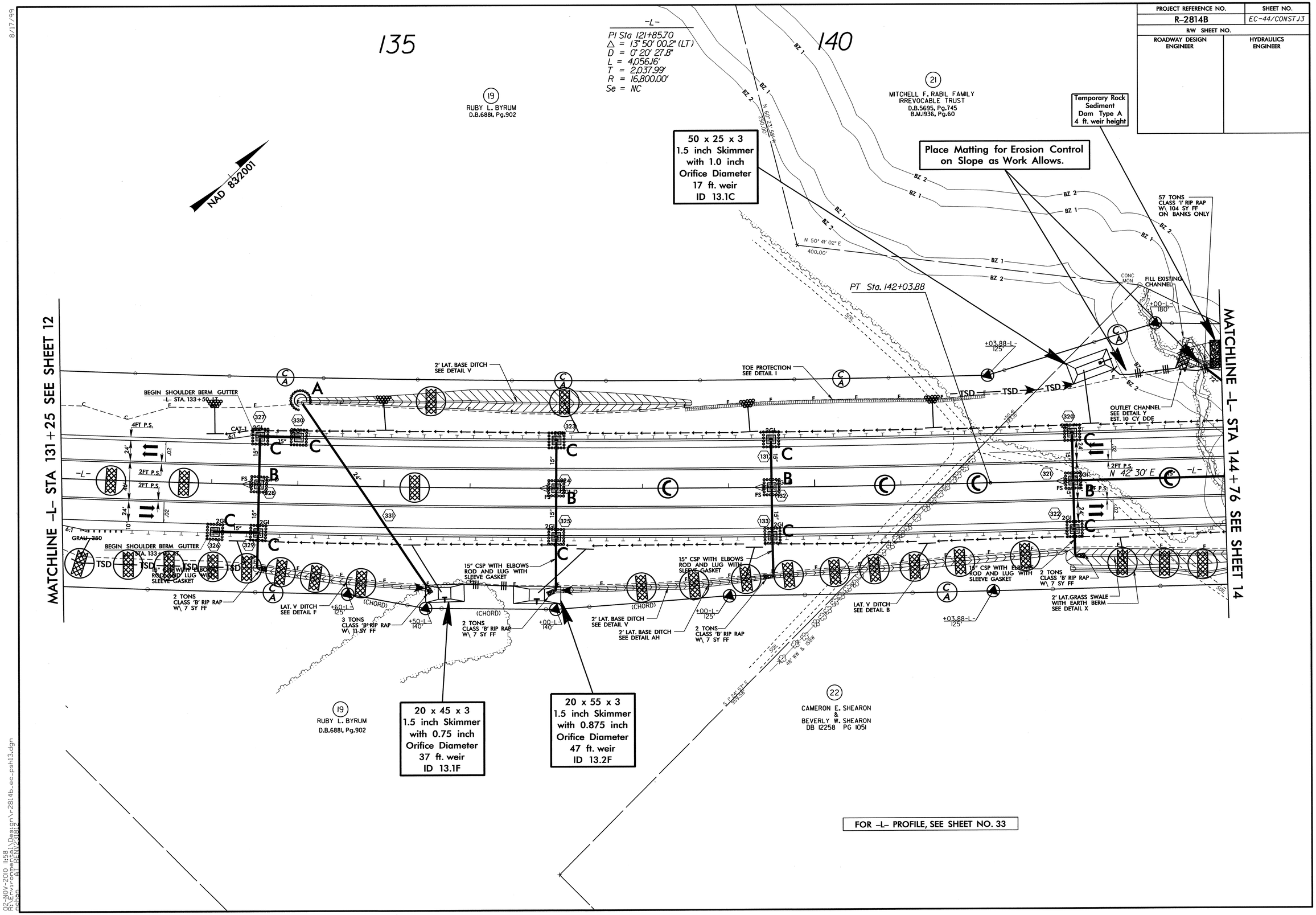
jcban AT RENV23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-44/CONST.J3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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02-NOV-2010 11:58
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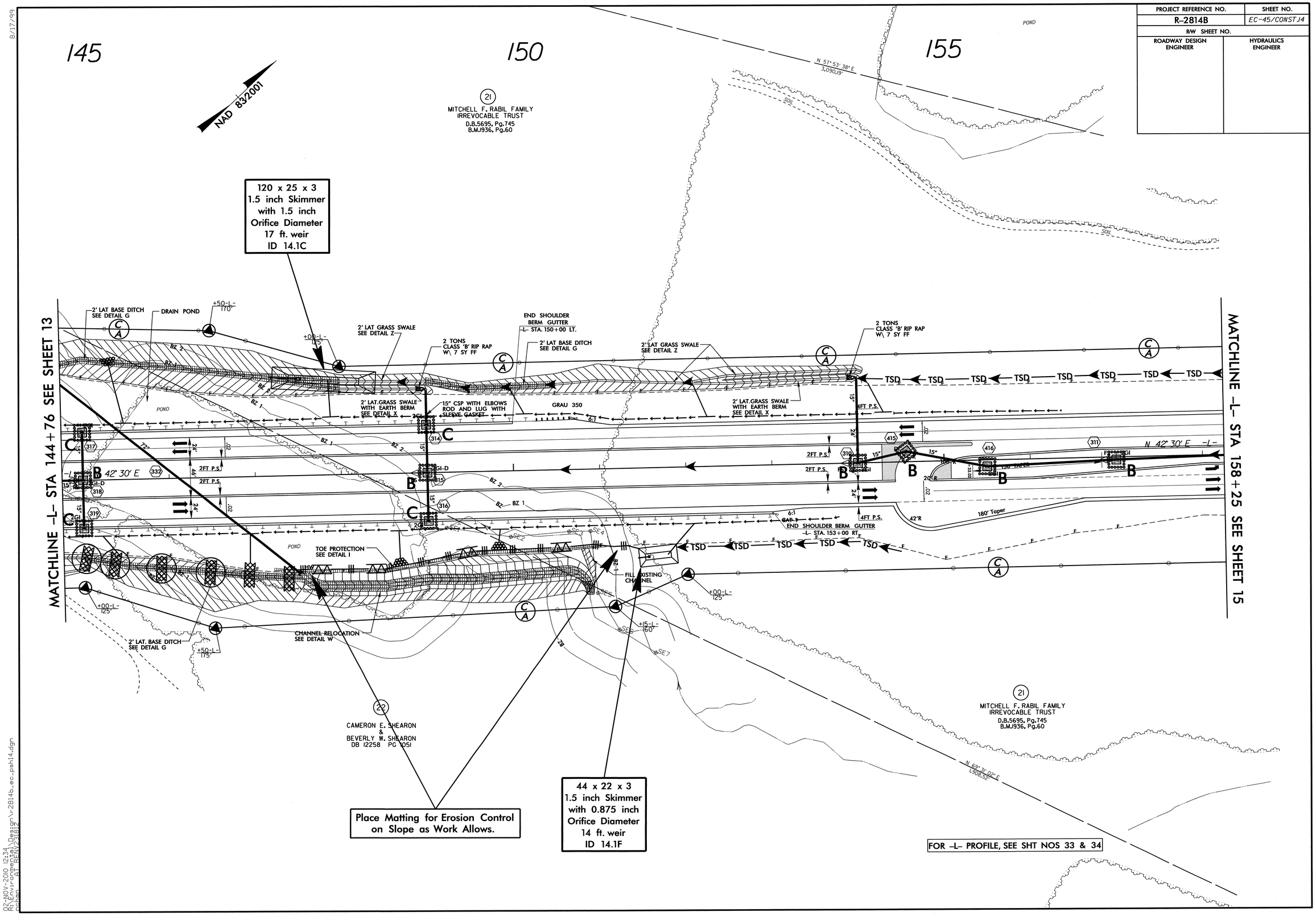
$$$$USER$$ AT $$RFN$$23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-45/CONST.14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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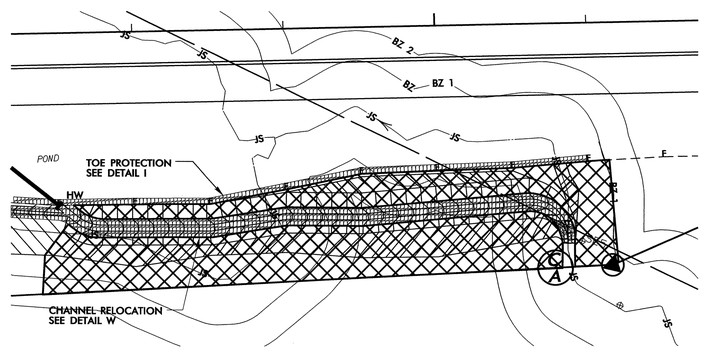
pshap AT REN\23812

0.44 ACRE STREAMBANK REFORESTATION

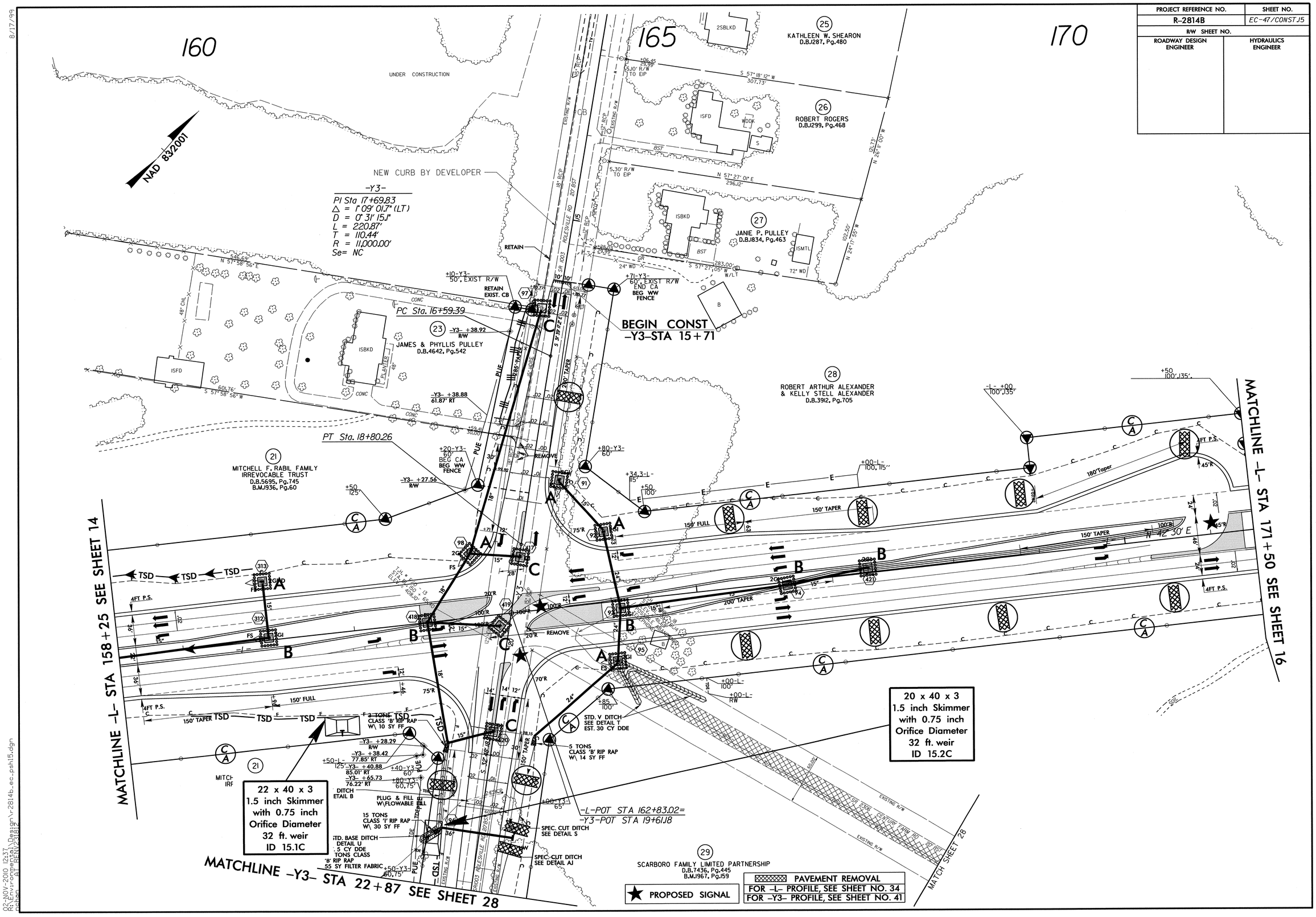
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-46/CONST J4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

150



SEE RF-2, RF-3 AND PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-47/CONST.J5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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02-NOV-2010 12:37
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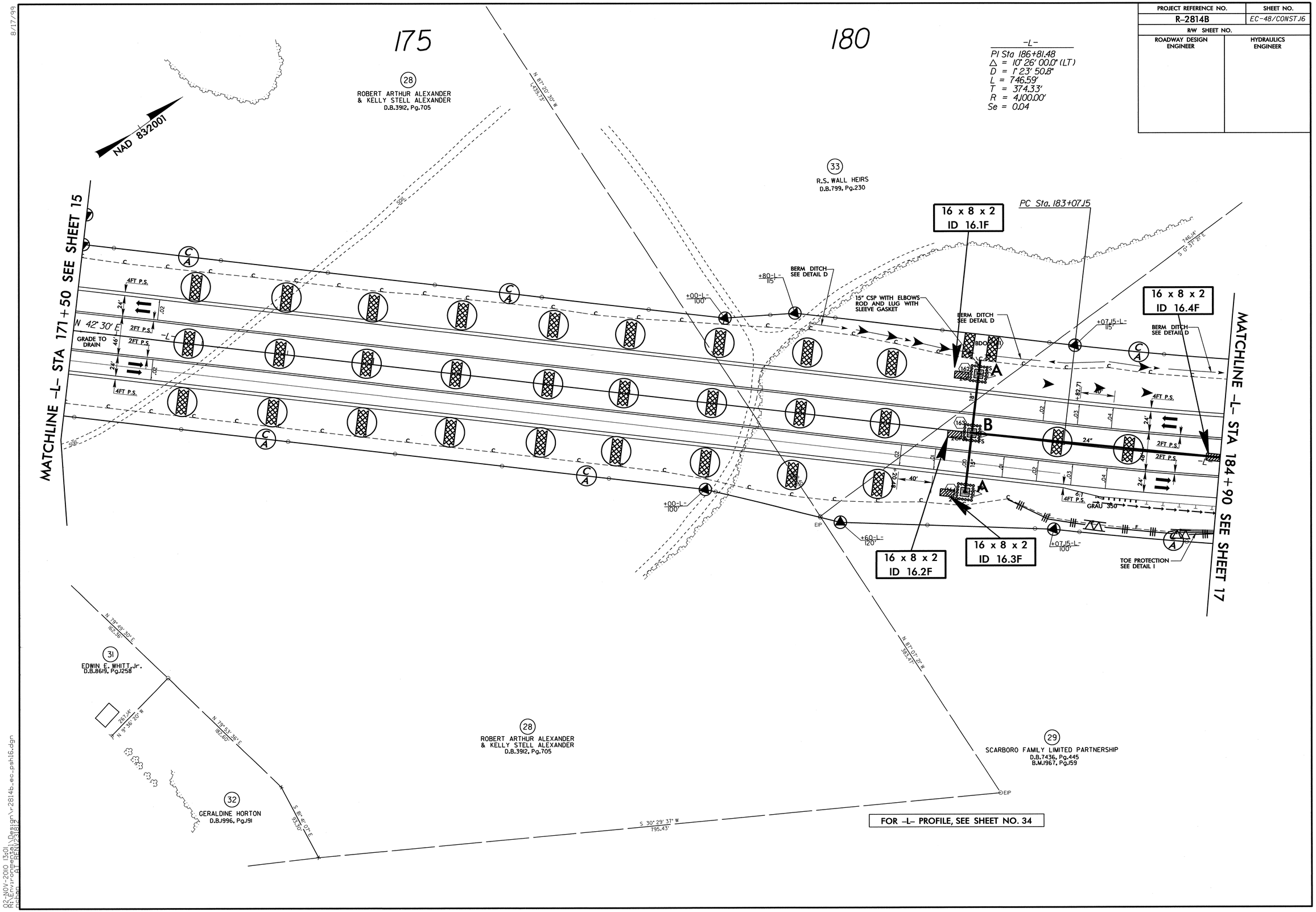
pcrap AT REN(2418)

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-48/CONST J6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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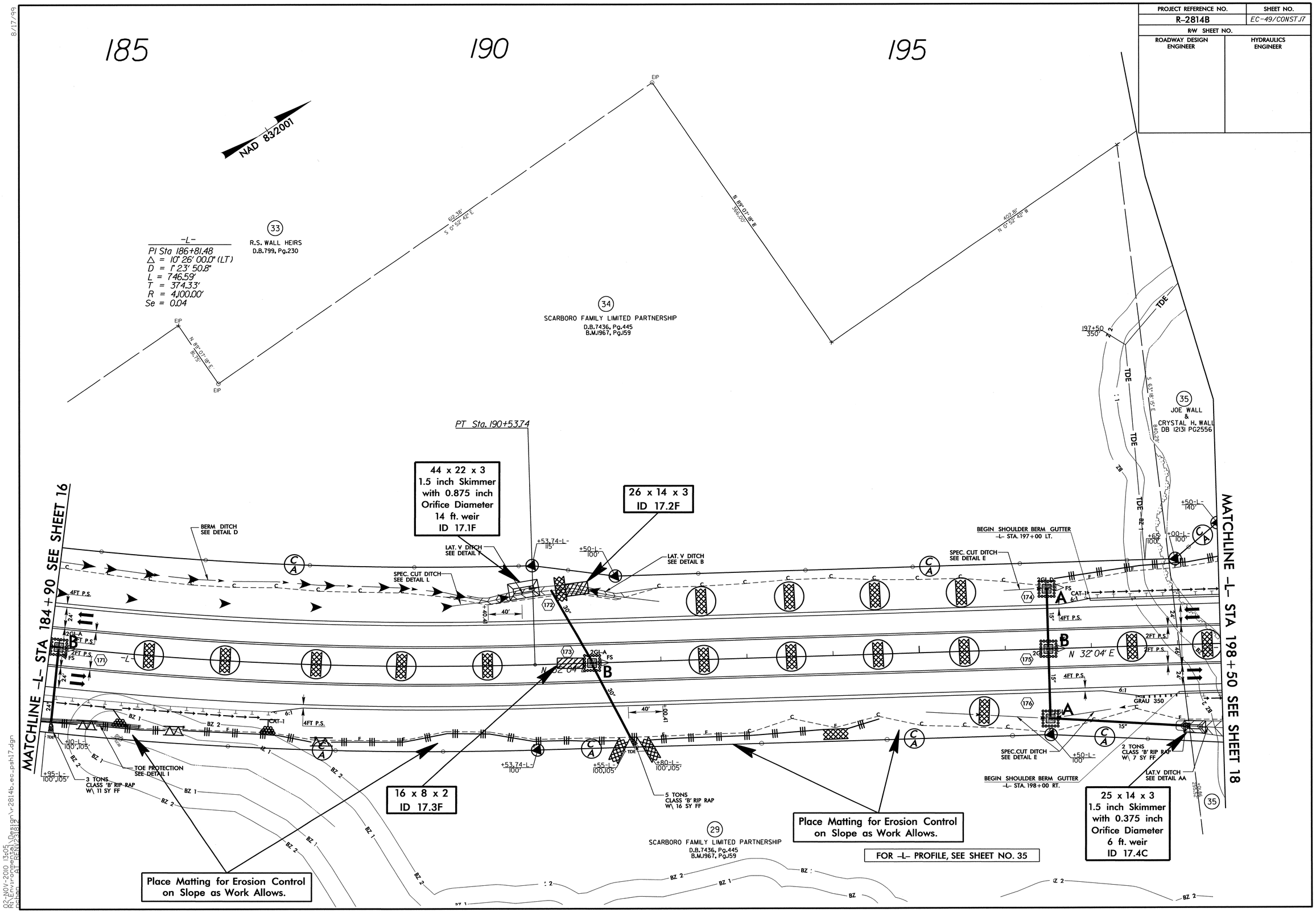
pcjan
ATREVZ2812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-49/CONST.17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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02-NOV-2010 13:05
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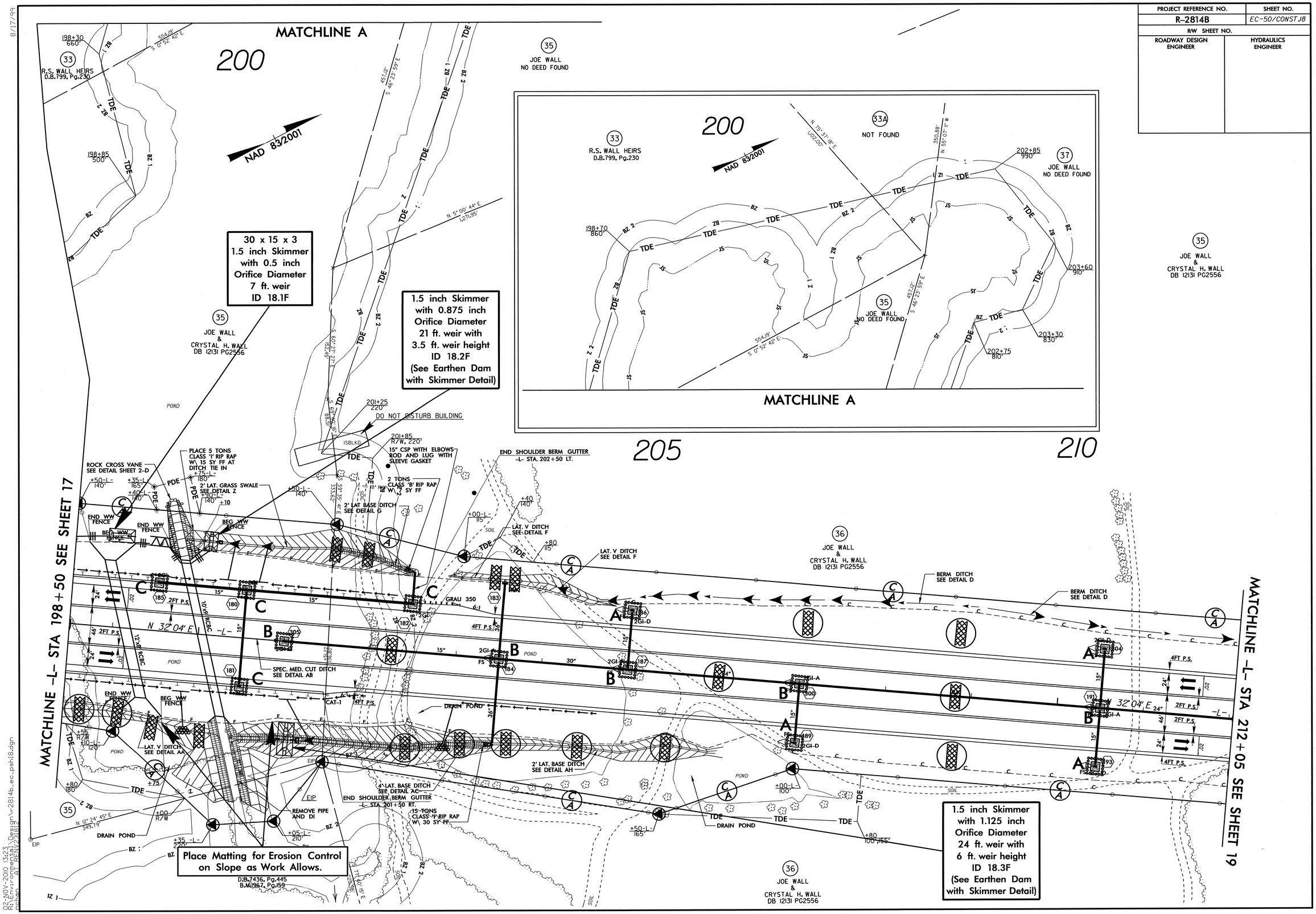
pcban AT REN72382

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-50/CONST.J8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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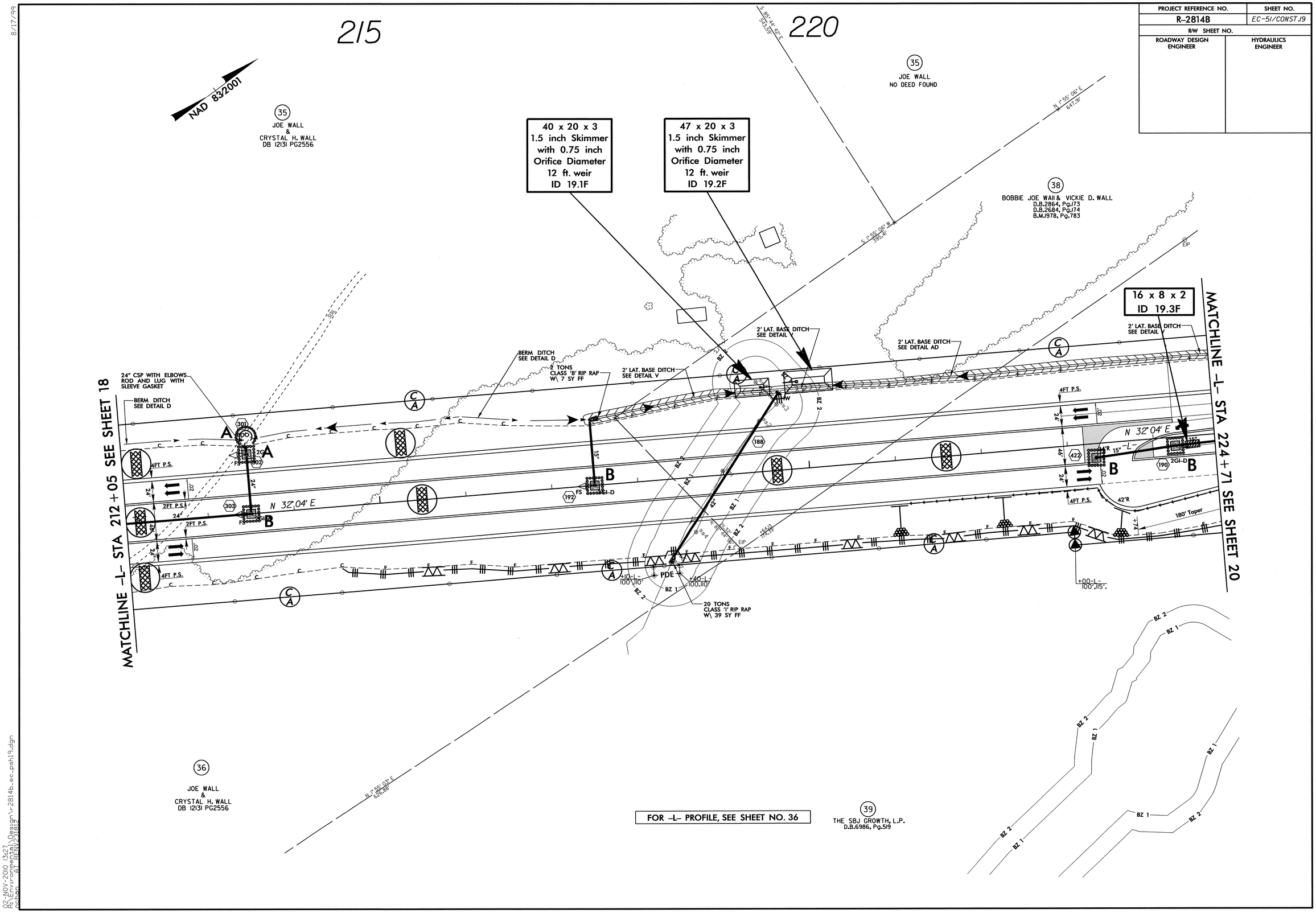
Pshah AT REN\23182

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-51/CONST.19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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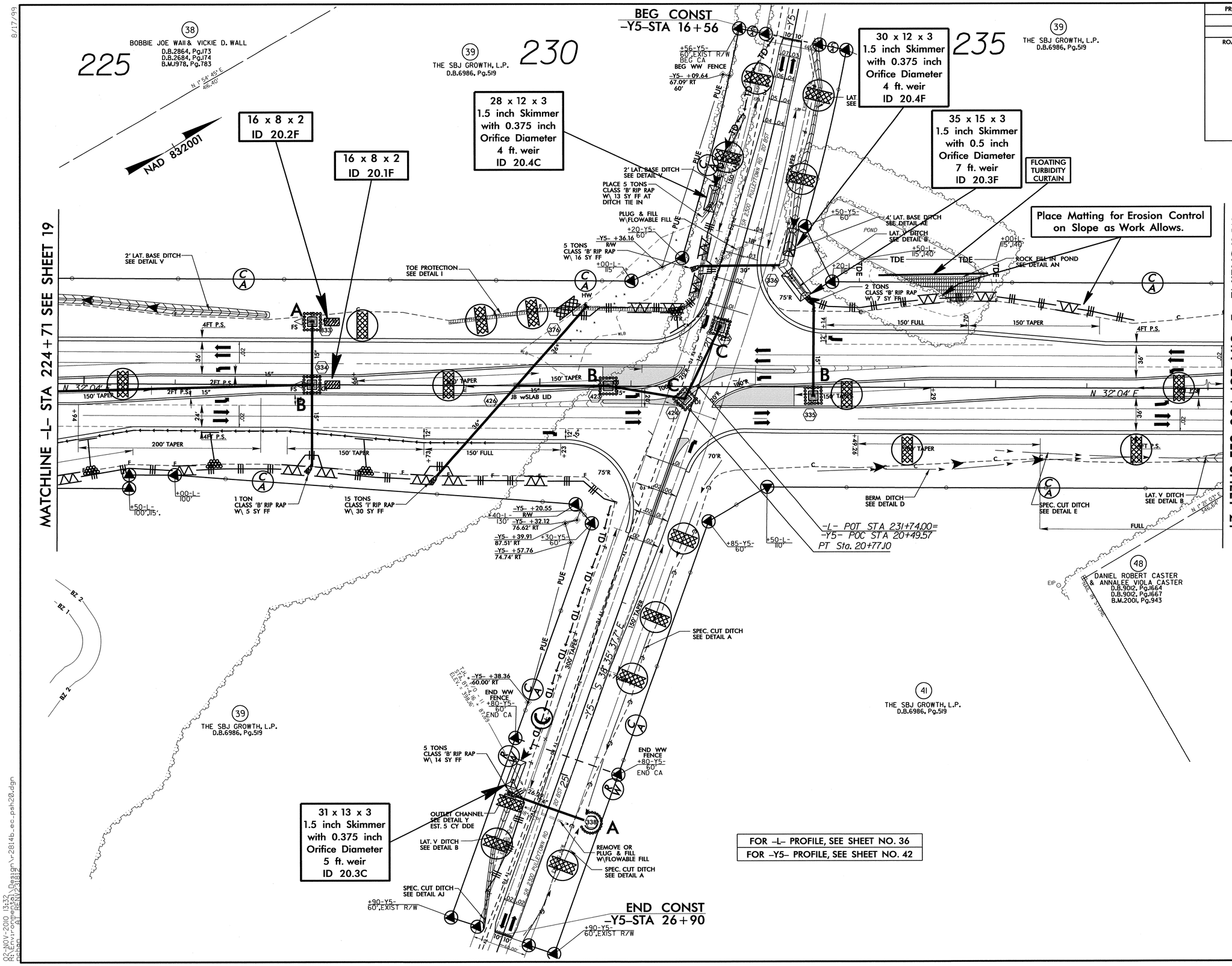
pshan AT REN\23182

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-52/CONST.20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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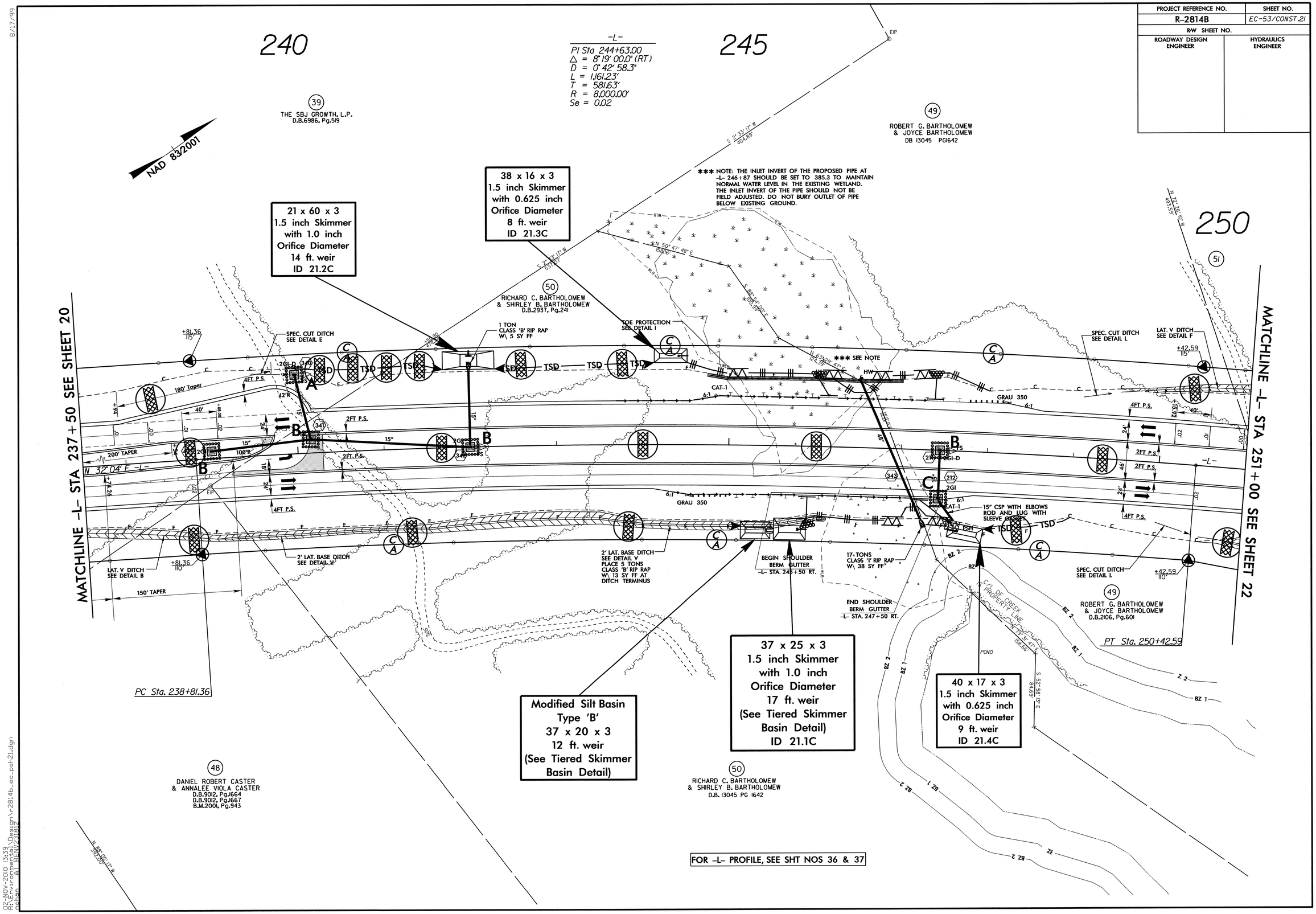
pcaron
at REN\r2812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-53/CONST.21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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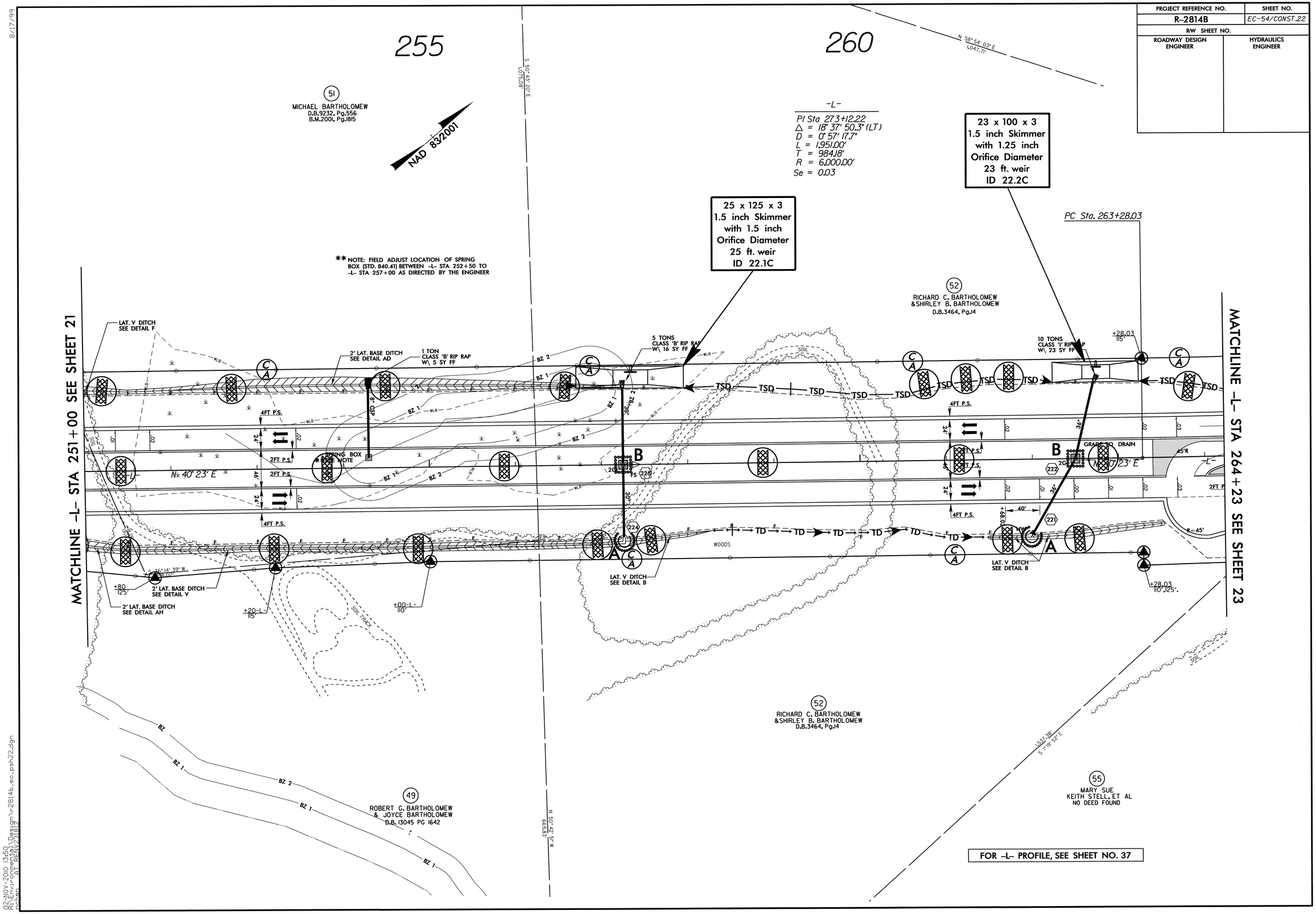
pcbao AT REN\23181

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-54/CONST.22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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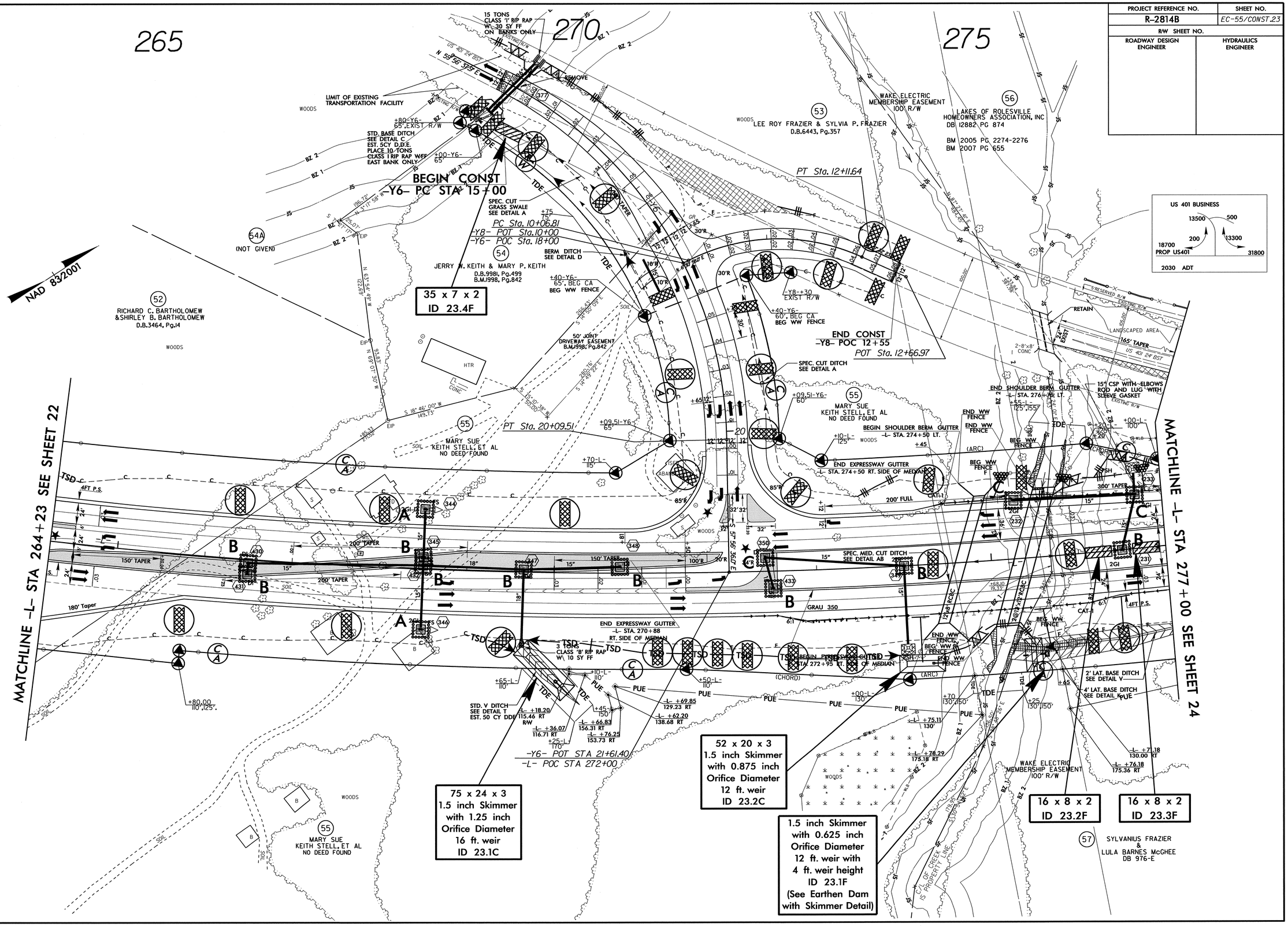
pschan AT REN\23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-55/CONST.23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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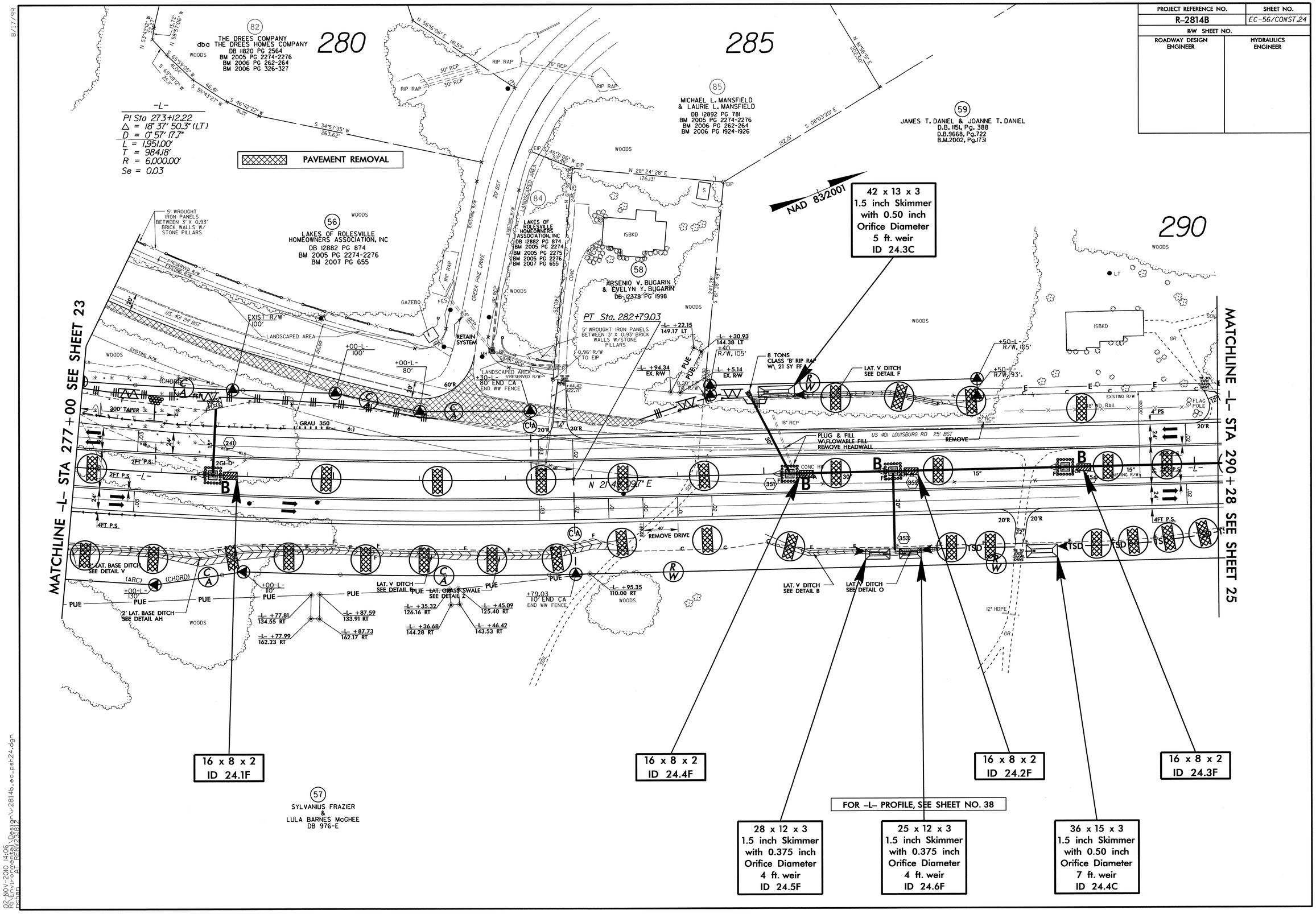
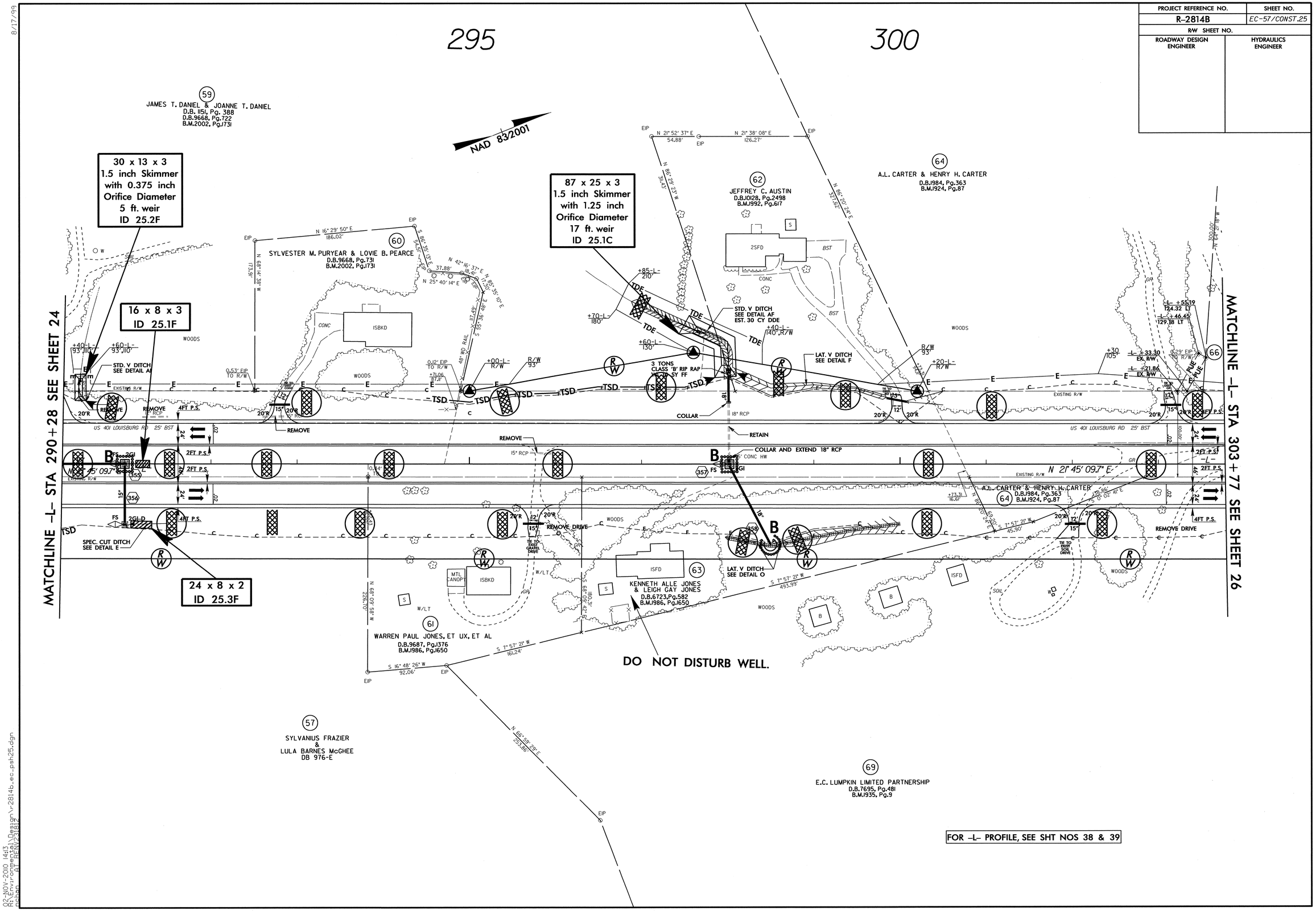
pcrain AT REN\2318\2

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-56/CONST.24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-57/CONST.25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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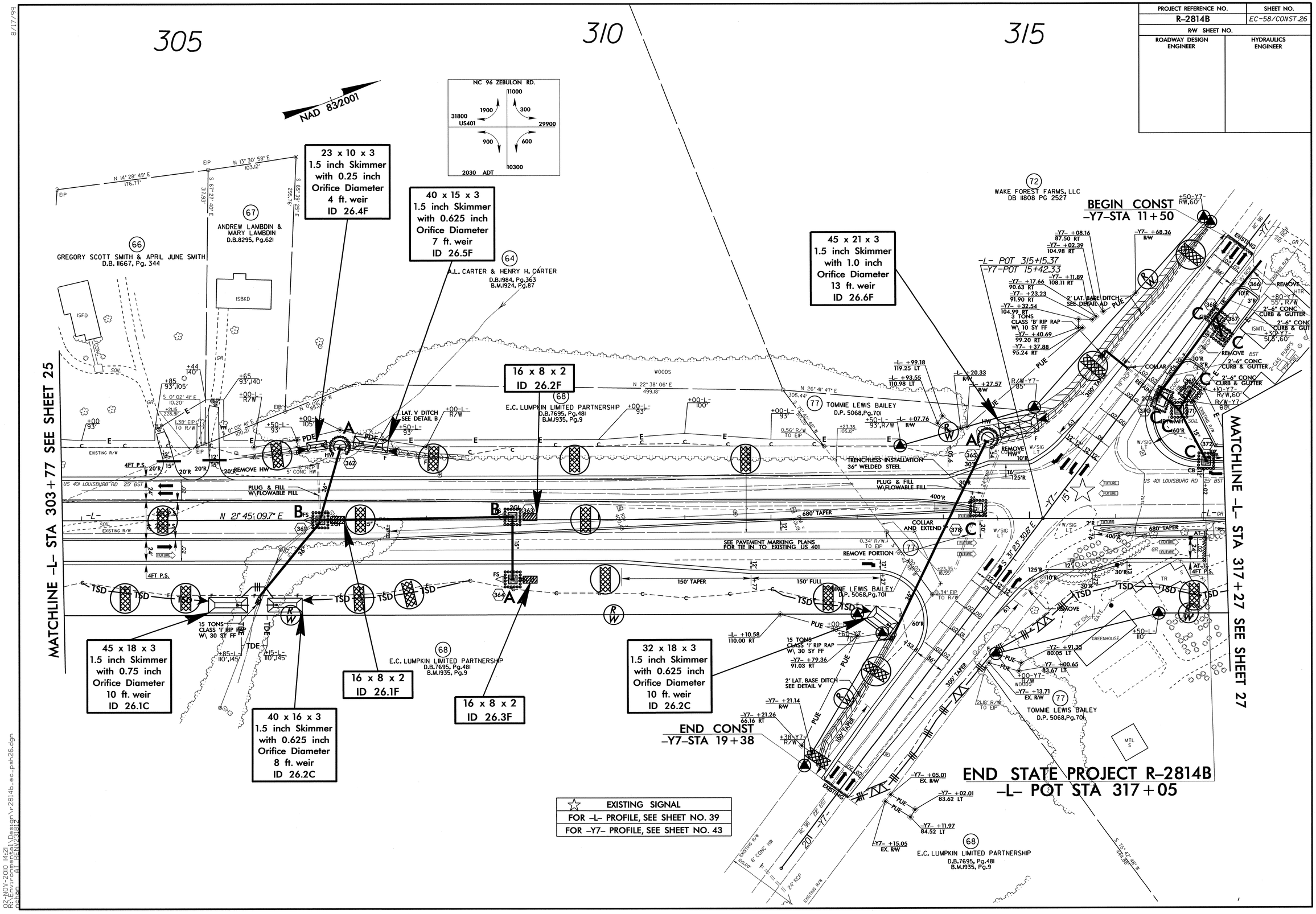
PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-58/CONST.26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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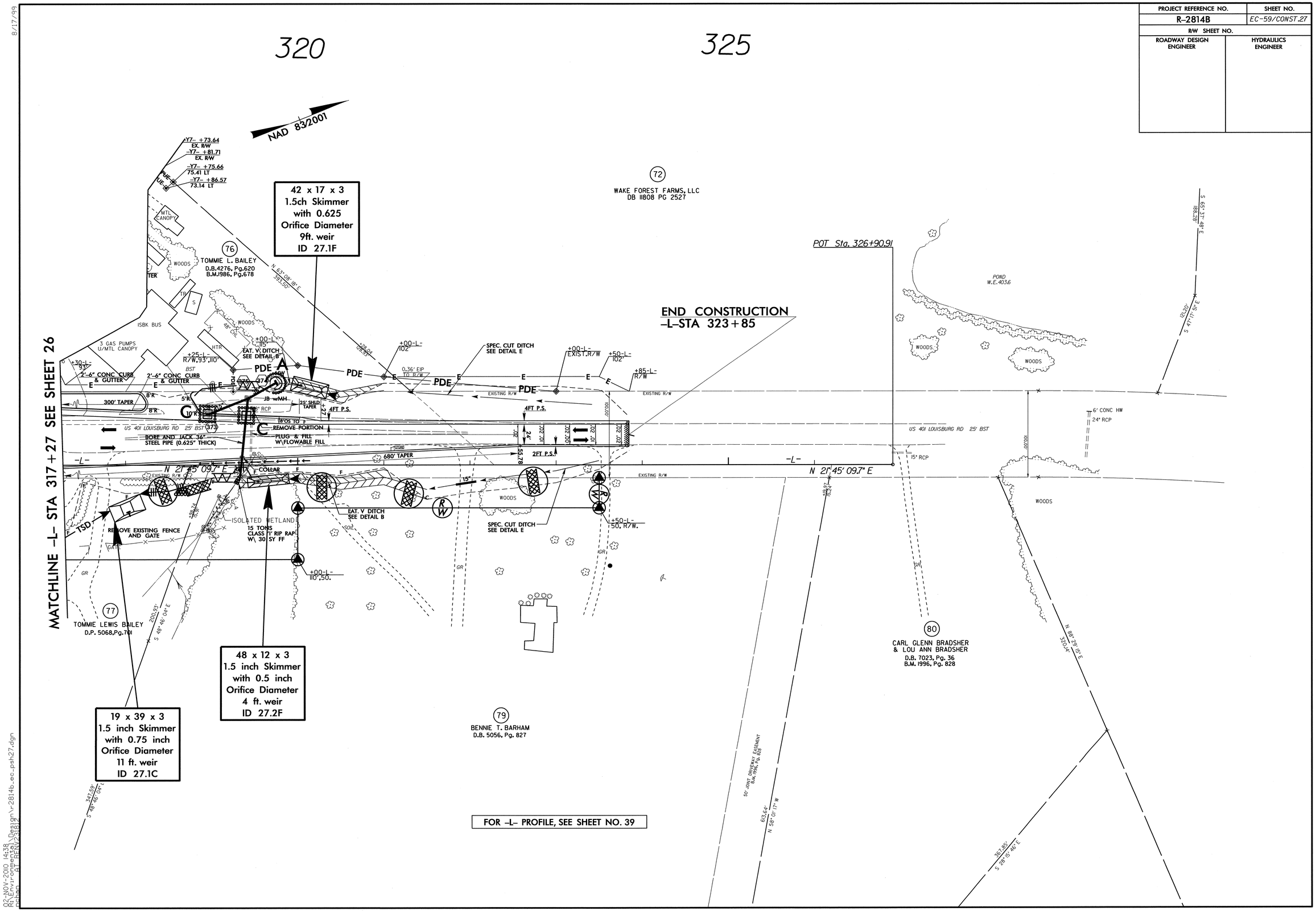
pdean AT REN\23182

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-59/CONST.27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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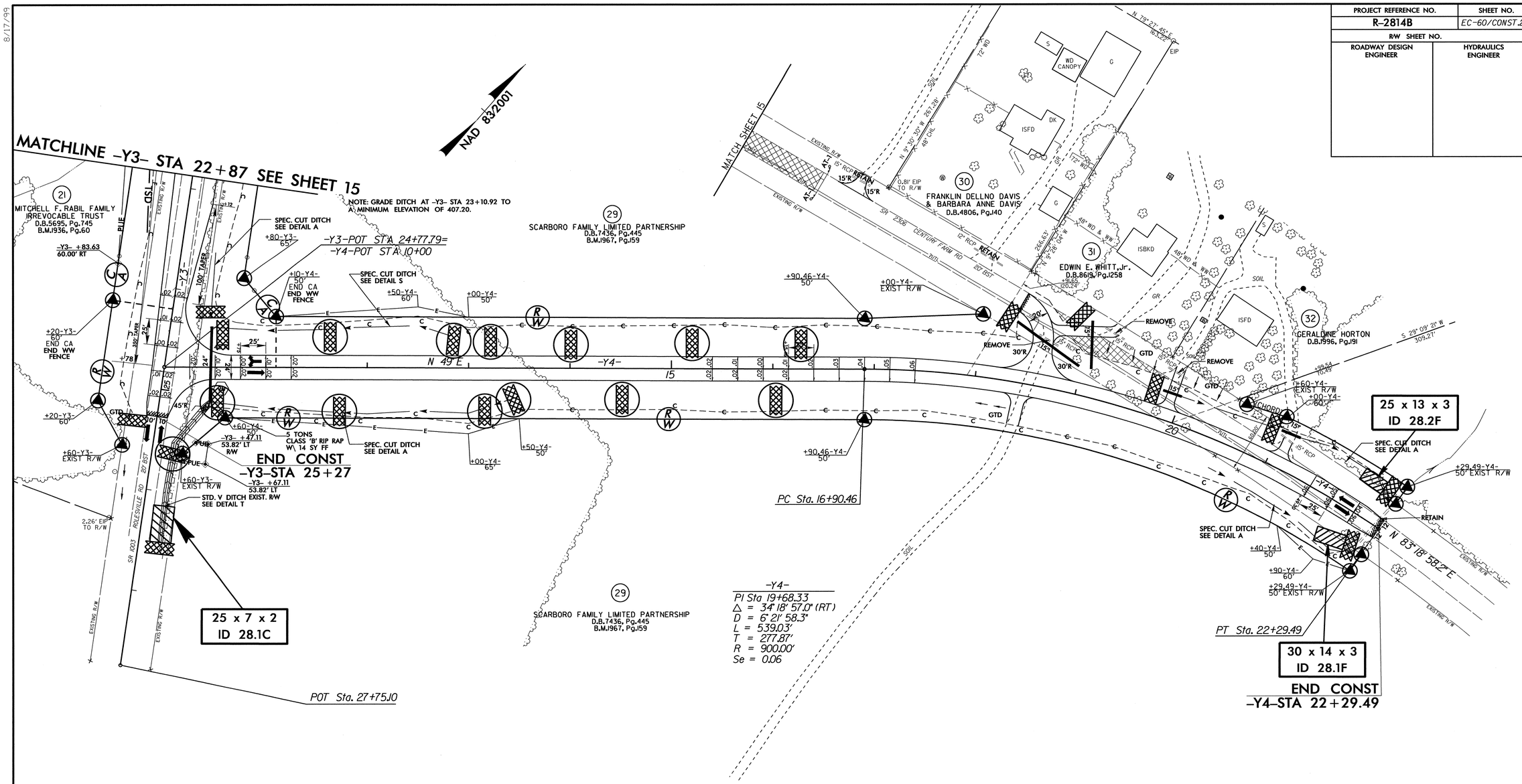
rpchan AT REN\23812

PROJECT REFERENCE NO.	SHEET NO.
R-2814B	EC-60/CONST.28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PAVEMENT REMOVAL
FOR -Y3- PROFILE, SEE SHEET NO. 41
FOR -Y4- PROFILE, SEE SHEET NO. 41

8/17/99

02-NOV-2010 14:51
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nchan AT REN\23812