TIP PROJECT: R-2633BA

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2633BA	EC-1	

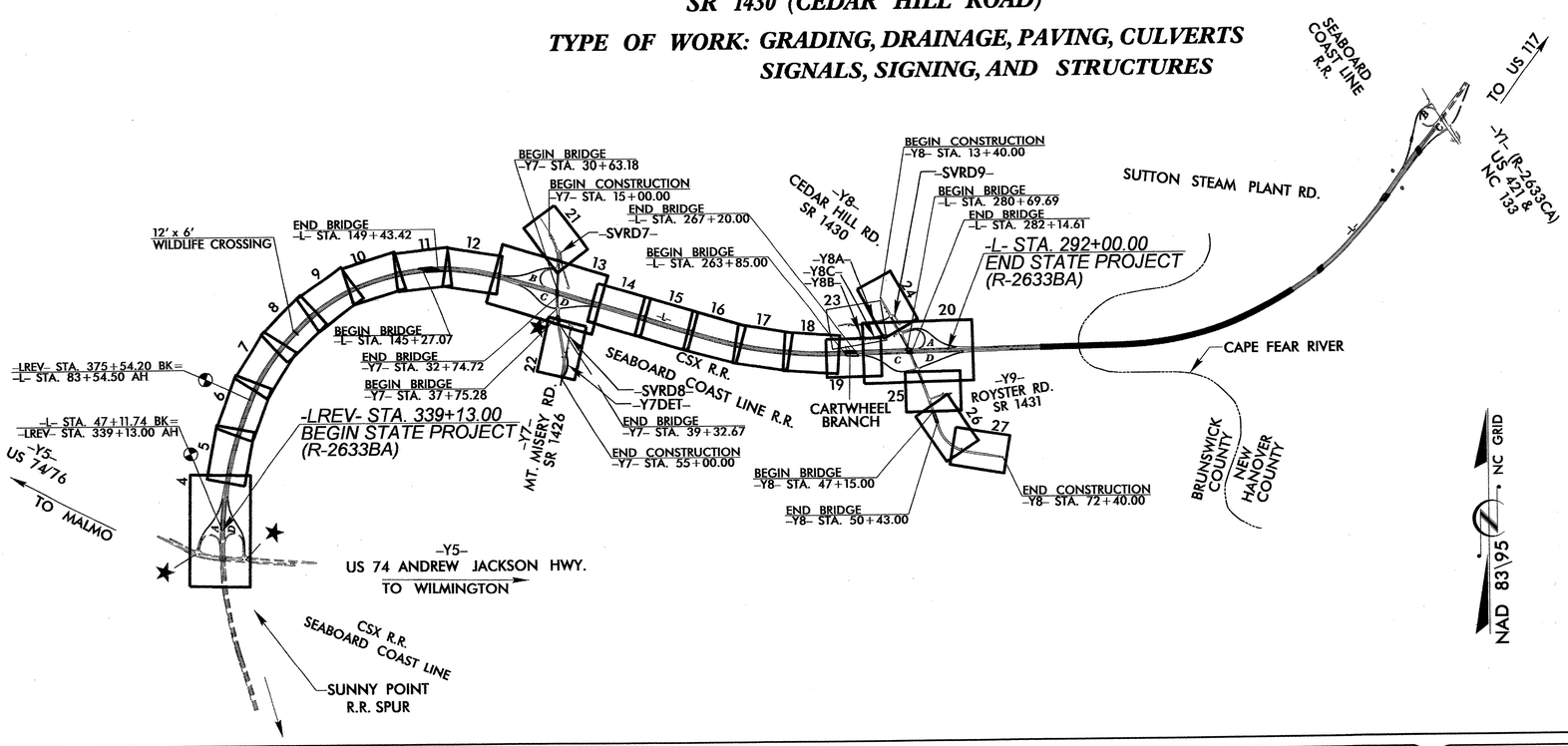
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

BRUNSWICK COUNTY

LOCATION: US 17 (WILMINGTON BYPASS) FROM US 74/76
LOCATION: EAST OF MALMO IN BRUNSWICK COUNTY TO SR 1430 (CEDAR HILL ROAD)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERTS SIGNALS, SIGNING, AND STRUCTURES



EROSION AND SEDIMENT CONTROL MEASURES

Sed. #	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.

Part 2 of 2

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

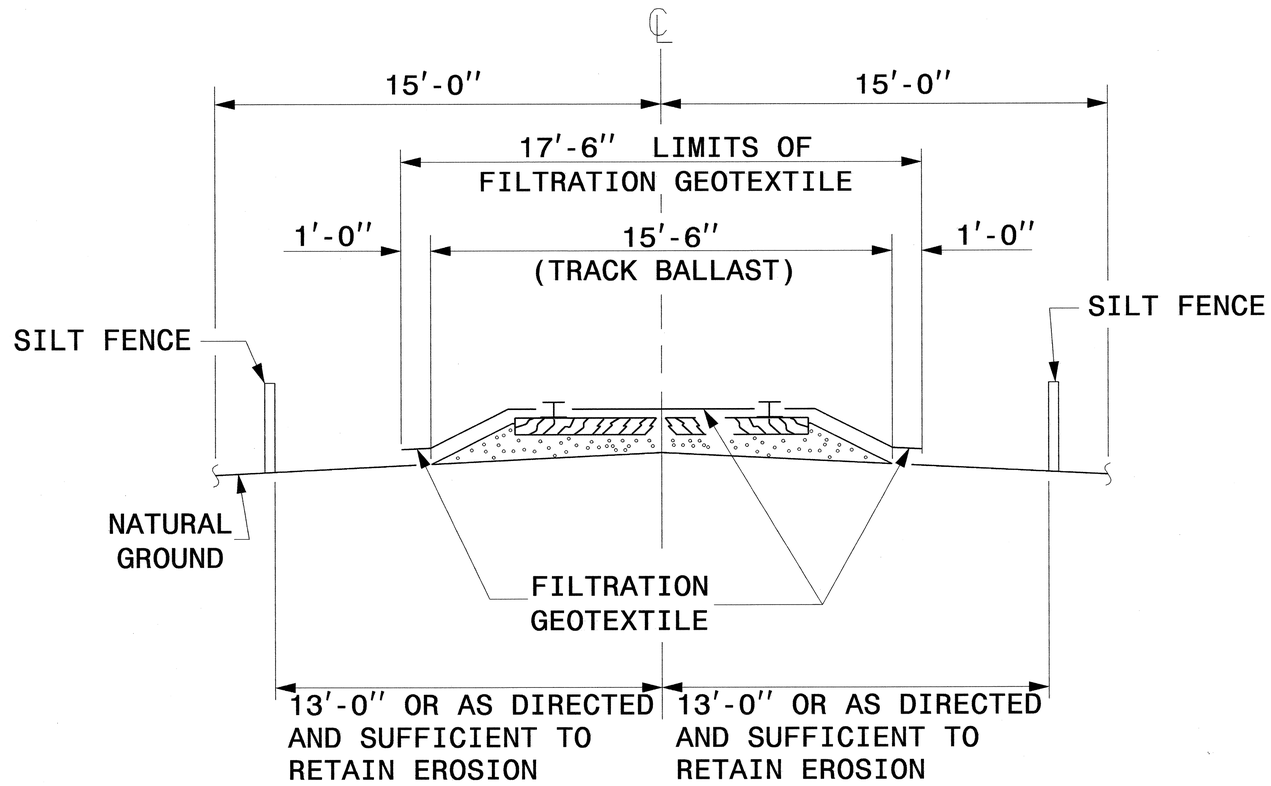
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

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		

03-SEP-2013 11:15
R:\Environmental\Stormwater\Projects\R-2633BA_EC_TSH.dgn
"Johnson, Jeffrey" (JEJOHNSON)

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

RAILROAD EROSION CONTROL DETAIL



NOTES

INSTALL RAILROAD EROSION CONTROL MEASURES PRIOR TO PERFORMING ANY WORK IN THE RAILROAD RIGHT-OF-WAY.

ADDITIONAL EROSION CONTROL MEASURES FOR PROTECTION OF RAILROAD DITCHES MAY BE REQUIRED AS DIRECTED.

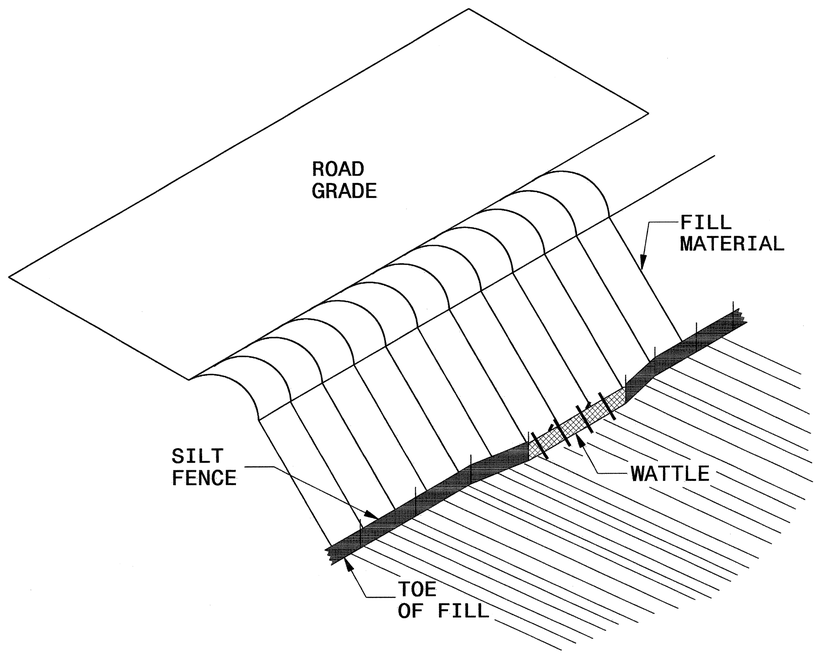
MAKE NO SEPARATE PAYMENT FOR RAILROAD EROSION CONTROL MEASURES.

EXTEND LIMITS OF SILT FENCE AND FILTRATION GEOTEXTILE PARALLEL TO RAILROAD A MINIMUM OF 10'-0" OUTSIDE EDGE OF SUPERSTRUCTURE OR TOE OF SLOPE ON CONSTRUCTION. A GREATER LENGTH OF SILT FENCE OR FILTRATION GEOTEXTILE MAY BE REQUIRED AS DIRECTED.

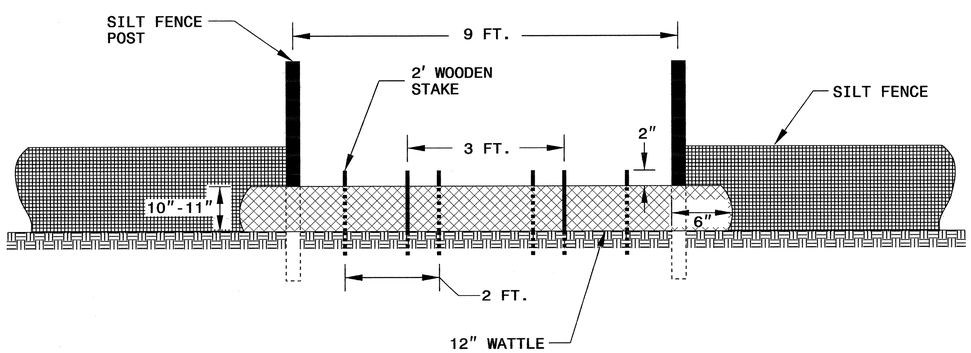
NAIL FILTRATION GEOTEXTILE TO TIMBER RAIL TIES WITH PRIME SOURCE "GRIP CAP" OR EQUIVALENT. SECURE FILTRATION GEOTEXTILE ON SHOULDER AS DIRECTED BY THE RAILROAD AND NCDOT.

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

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

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

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

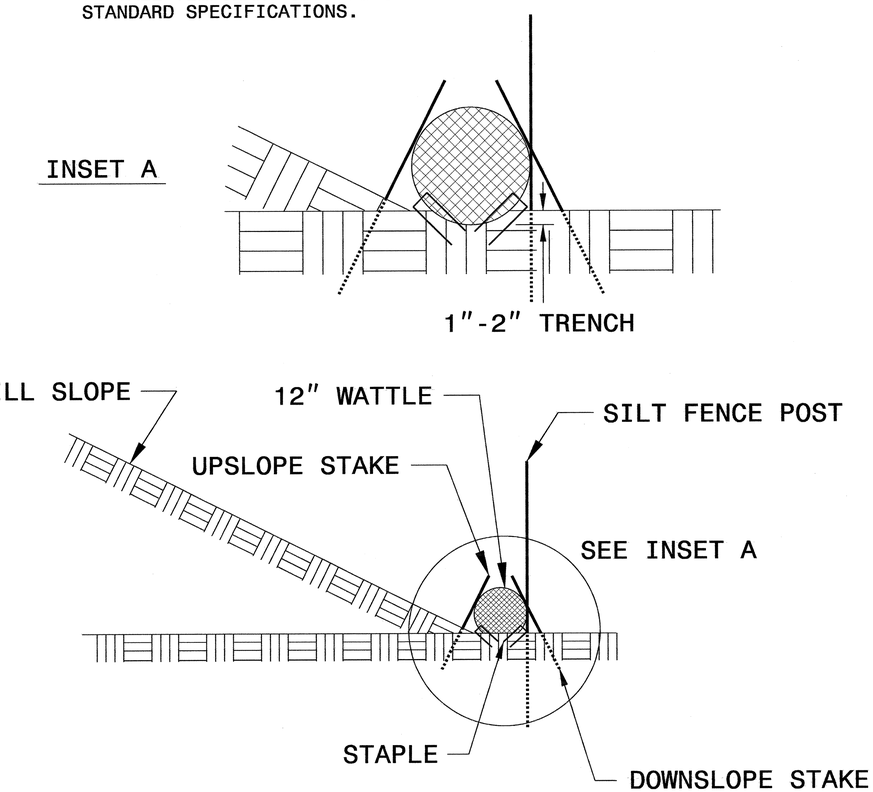
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

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

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

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

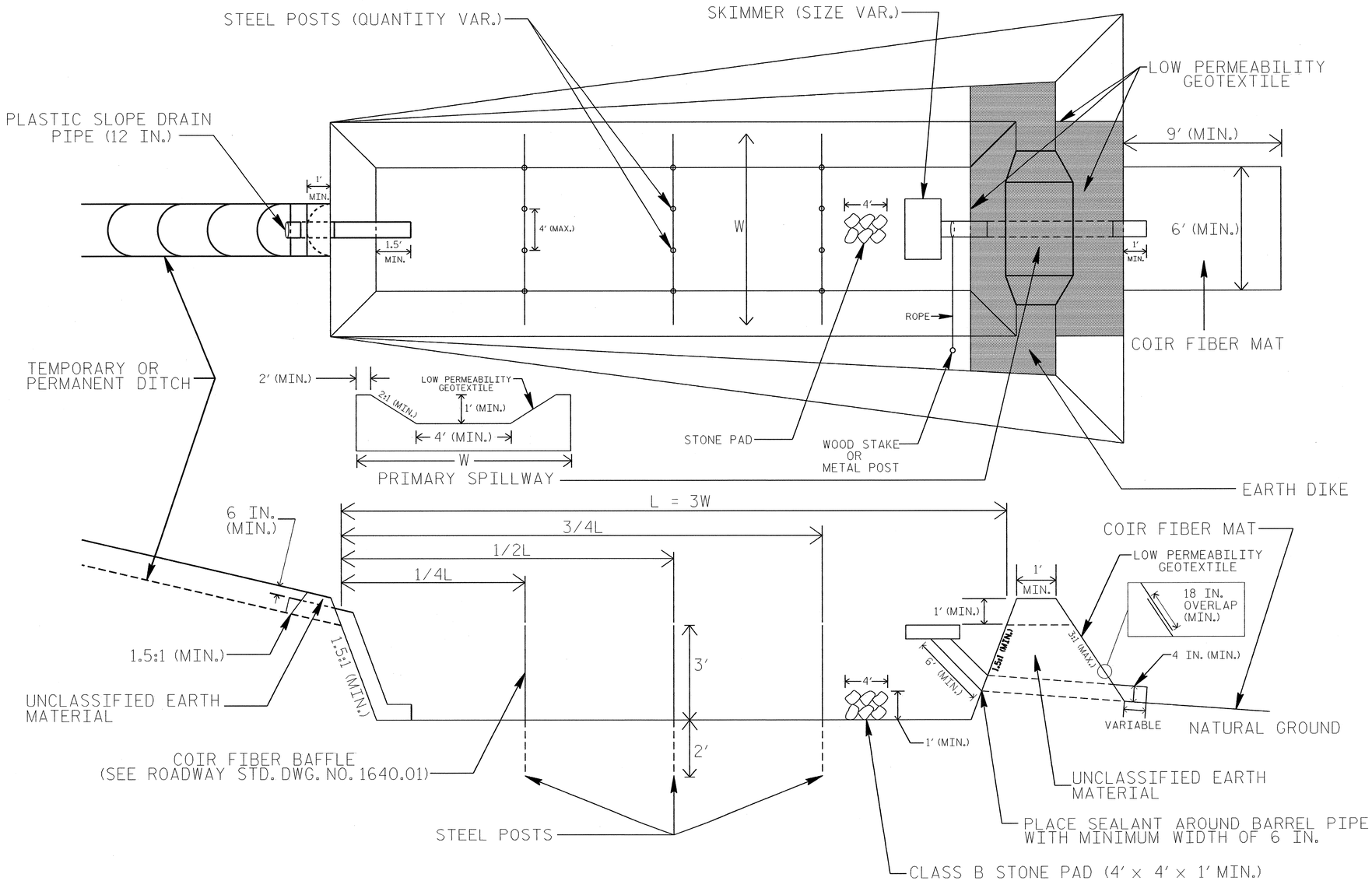
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

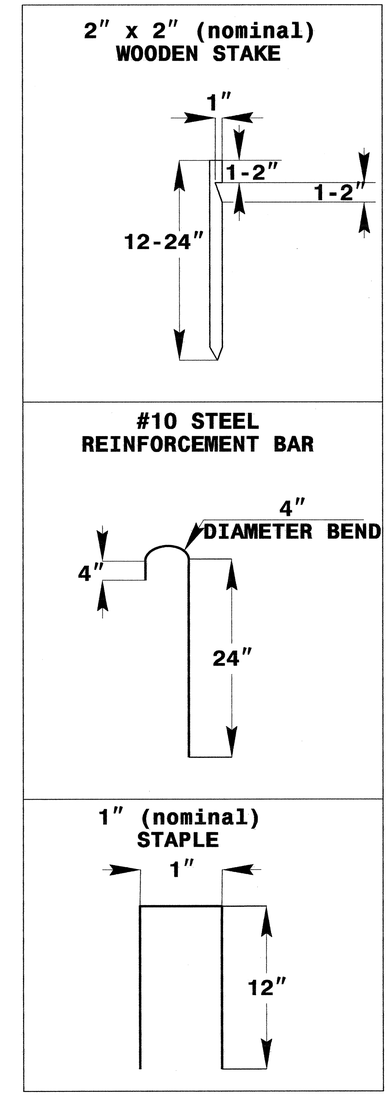


SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL (EAST)





COIR FIBER MAT ANCHOR OPTIONS

NOTES

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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

BORROW PIT DEWATERING BASIN DETAIL

GENERAL NOTES:

DETERMINE BORROW PIT DEWATERING BASIN SIZE USING $V = 8.0203 * Q * T$, WHERE V IS VOLUME (FT^3), Q IS PUMP FLOW RATE (GPM), AND T IS DEWATERING TIME (HR). USE MAXIMUM FLOW RATE OF 1000 GPM AND A MINIMUM DEWATERING TIME OF 2 HOURS.

RISER SHALL BE A NON-PERFORATED, SMOOTH OR CORRUGATED MATERIAL WITH A FLASHBOARD OPTION.

CONSTRUCT THE COIR FIBER BAFFLE IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 1640.01 AND WITH MATERIAL THAT MEETS THE SPECIFICATIONS OF ROADWAY STANDARD 1060-14.

PROVIDE 5′ STEEL POSTS OF THE SELF-FASTENER ANGLE STEEL TYPE. INSTALL STEEL POSTS WITH NO MORE THAN 3′ OF THE POST APPEARING ABOVE THE GROUND.

ATTACH THE COIR FIBER MAT TO THE STEEL POSTS WITH WIRE OR OTHER ACCEPTABLE MEANS AND STAPLED INTO THE BOTTOM AND SIDE SLOPES OF THE BASIN WITH 12″ STAPLES.

INSTALL TYPE 2 GEOTEXTILE ON SIDESLOPES AND BOTTOM OF BASIN AT INLET AS SHOWN IN THE DETAIL.

USE THE TYPICAL SECTION SHOWN FOR THE BORROW PIT DEWATERING BASIN AS A GUIDE. THE BASIN MAY HAVE ANY TYPE CONFIGURATION AS LONG AS SUFFICIENT VOLUME IS PROVIDED AND PROVISIONS ARE MADE FOR A NON-PERFORATED RISER.

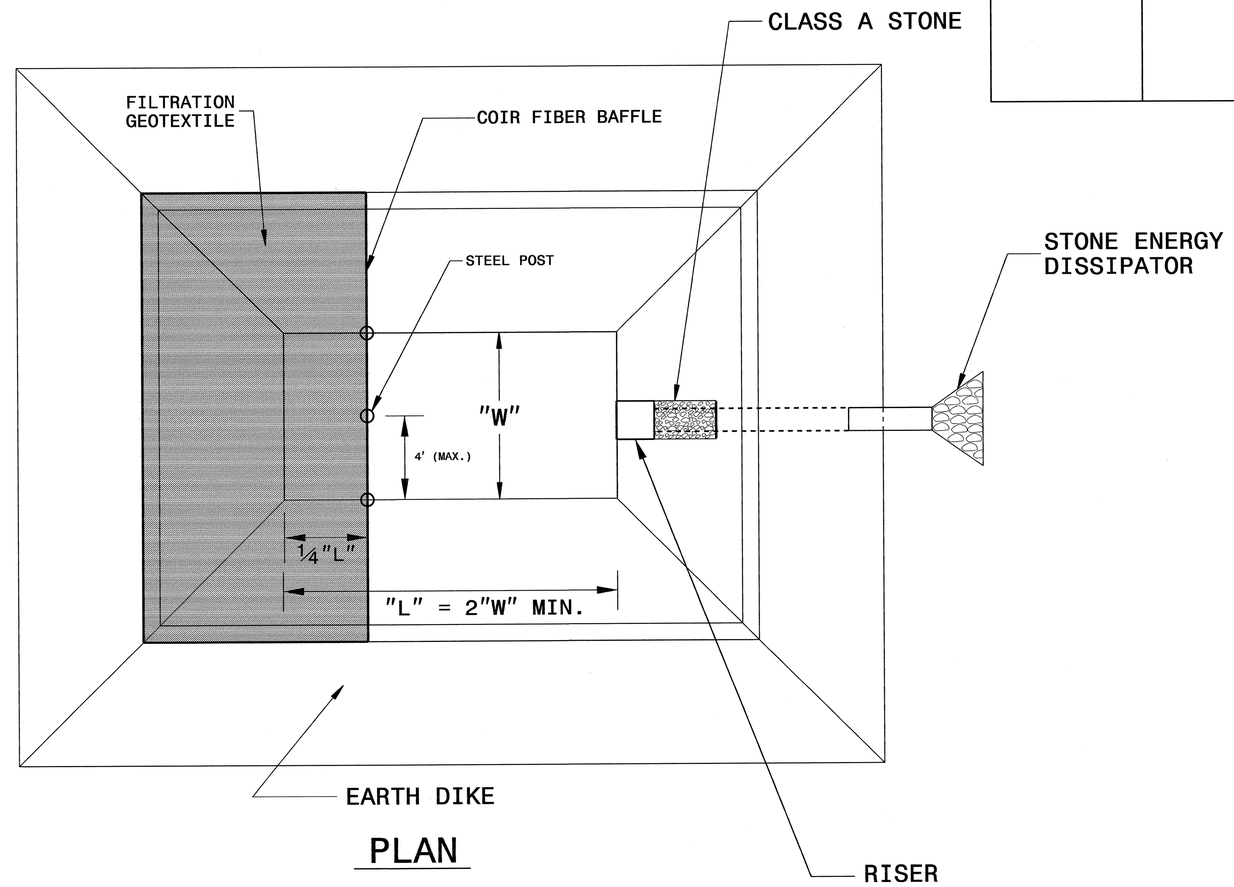
DO NOT EXCEED 3½ FT. IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR BORROW PIT DEWATERING BASIN.

THE BORROW PIT DEWATERING BASIN SIZE IS VARIABLE AND DEPENDENT ON SPECIFIC SITE REQUIREMENTS AS WELL AS PROPOSED CONSTRUCTION OPERATIONS.

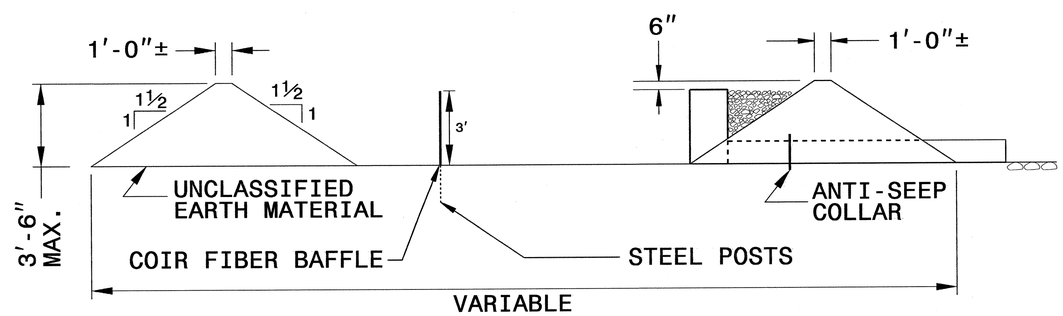
SUBMIT THE SIZE, LOCATION AND RISER PIPE MATERIAL FOR APPROVAL PRIOR TO CONSTRUCTION.

PUMP THE EFFLUENT INTO THE BORROW PIT DEWATERING BASIN TO A MAXIMUM DEPTH OF 6 IN. BELOW TOP OF EARTH DIKE.

PROVIDE A STONE ENERGY DISSIPATOR PAD AT THE OUTLET OF THE PUMP DISCHARGE HOSE AND OUTLET OF THE RISER BARREL IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 876.02 FOR OUTLET W/O DITCH.



PLAN

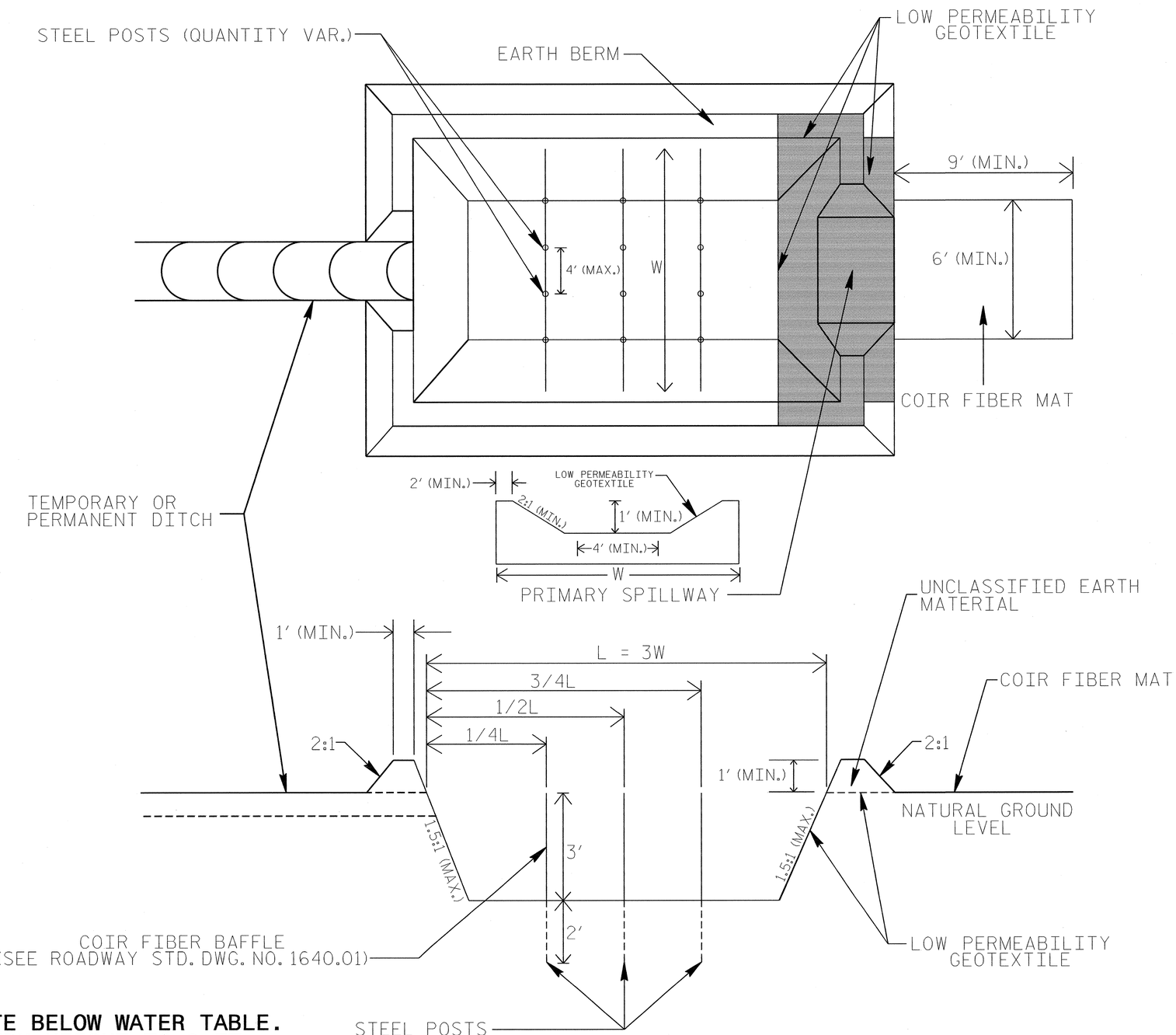


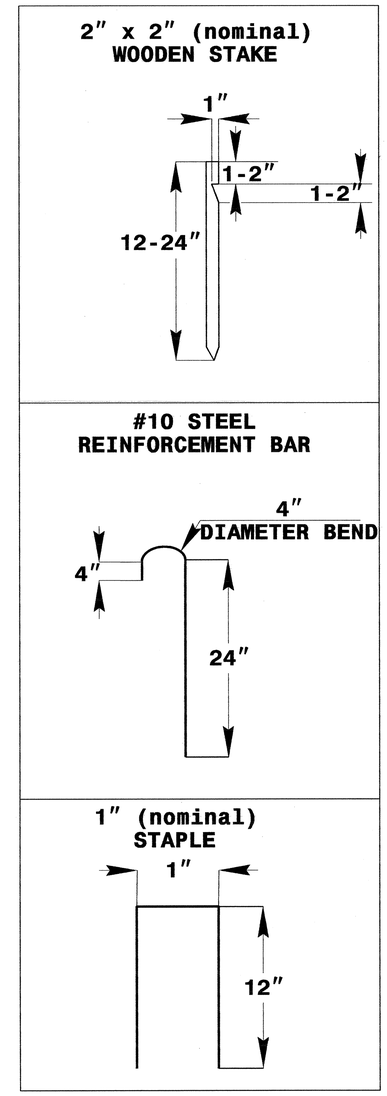
TYPICAL SECTION VIEW

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-2D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INFILTRATION BASIN WITH BAFFLES DETAIL (EAST)





COIR FIBER MAT ANCHOR OPTIONS

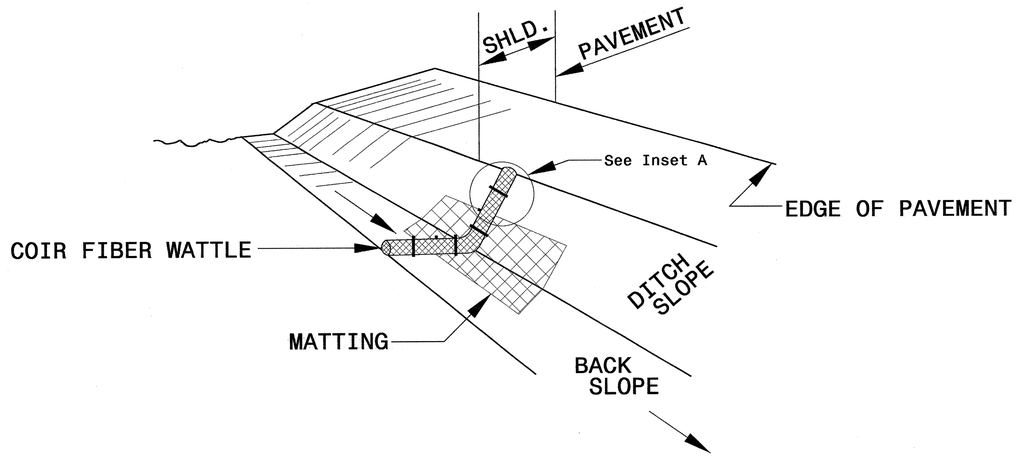
NOTES

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 PRIMARY SPILLWAY LENGTH (FT.) USING Q/0.4, WHERE Q IS FLOW RATE (CFS) INTO BASIN.

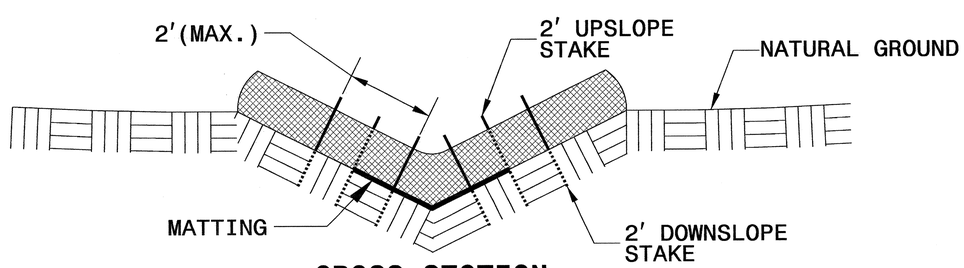
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-2E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

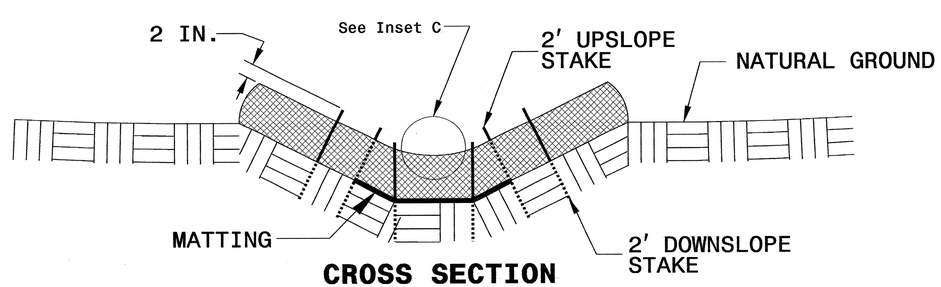
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

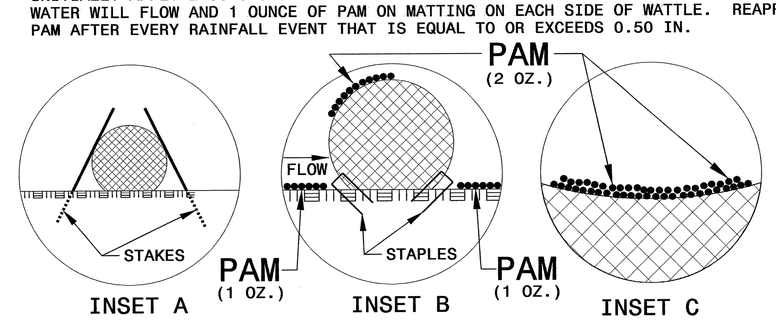
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

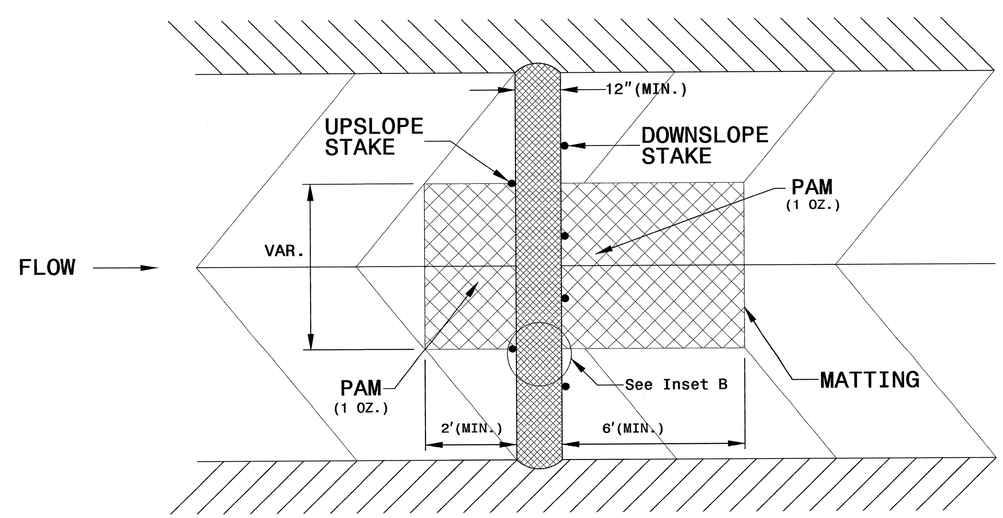
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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-2633BA	EC-3
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-2633BA	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)
4	-LREV-	345+50	346+50	LT	95
4	-LREV-	346+50	347+50	RT	105
8	-L-	100+00	103+00	LT	275
8	-L-	100+00	106+50	RT	600
10	-L-	136+00	145+50	MED	1,275
11	-L-	149+50	182+50	MED	4,420
13	-L-	169+50	171+50	LT	250
13	-L-	190+50	192+50	RT	270
13	-RPB2-	25+50	26+00	RT	70
19	-RPC3-	13+50.33	16+04.12	RT	455
20	-L-	282+50	292+00	MED	1,410
20	-L-	291+00	292+00	LT	135
20	-L-	270+00	272+00	RT	270
20	-Y8-	27+50	29+00	LT	255
20	-RPA3-	24+50	26+00	LT	185
20	-LPA3-	14+50	16+00	RT	140
20	-RPC3-	20+50	22+00	LT	140
20	-RPC3-	22+00	26+50	RT	560
20	-RPC3-	26+50	27+00	LT	60
20	-RPD3-	25+50	26+00	RT	70
21	-Y7-	21+00	23+50	RT	310
22	-Y7-	41+50	46+50	LT	460
22	-Y7-	45+50	47+00	LT	140
22	-Y7-	48+00	51+50	RT	300
22	-SVRD8-	32+50	37+00	LT	315
23	-Y8A-	19+50	20+00	LT	30
25	-Y8-	43+50	44+00	RT	55
25	-Y8-	43+00	44+00	LT	125
26	-Y8-	50+50	52+50	LT	210
				SUBTOTAL	12,985
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					85,600
				TOTAL	98,585
				SAY	100,000

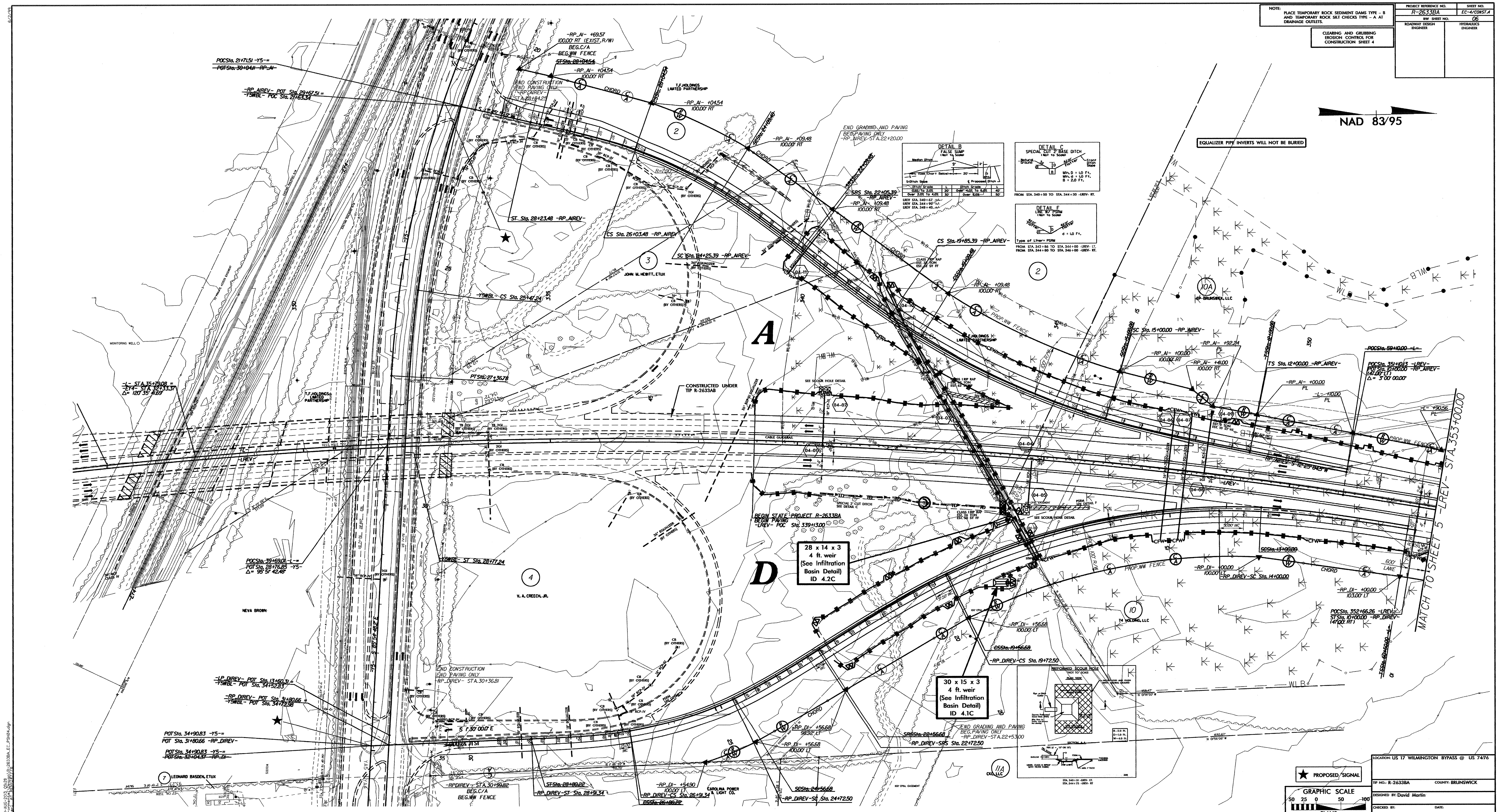
PERMANENT SOIL REINFORCEMENT MATTING

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
13	-RPB2-	25+00	25+50	RT	70
20	-Y8-	25+50	26+00	LT	70
20	-RPD3-	25+50	26+00	LT	70
22	-Y7-	46+50.	47+50	LT	70
				SUBTOTAL	280
		ADDITIONAL PSRM TO BE INSTALLED			2,025
				TOTAL	2,305
				SAY	2,350

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

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-4/CONST.4
R/W SHEET NO.	06
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



★ PROPOSED SIGNAL

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION: US 17 WILMINGTON BYPASS @ US 74/76	
TIP NO.: R-2633BA	COUNTY: BRUNSWICK
DESIGNED BY: David Martin	
CHECKED BY:	DATE:

8/17/99

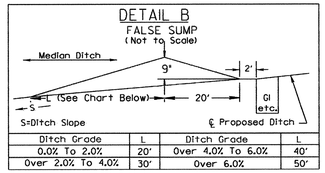
PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-5/CONST.5
R/W SHEET NO.	07
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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 5

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

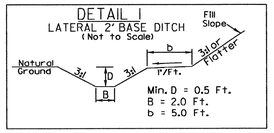
DETAIL B
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

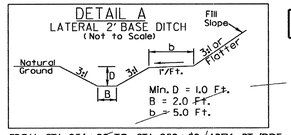
-LREV- STA. 356+85 +/-
-LREV- STA. 361+85 +/-
-LREV- STA. 365+85 +/-

DETAIL I
LATERAL 2' BASE DITCH
(Not to Scale)

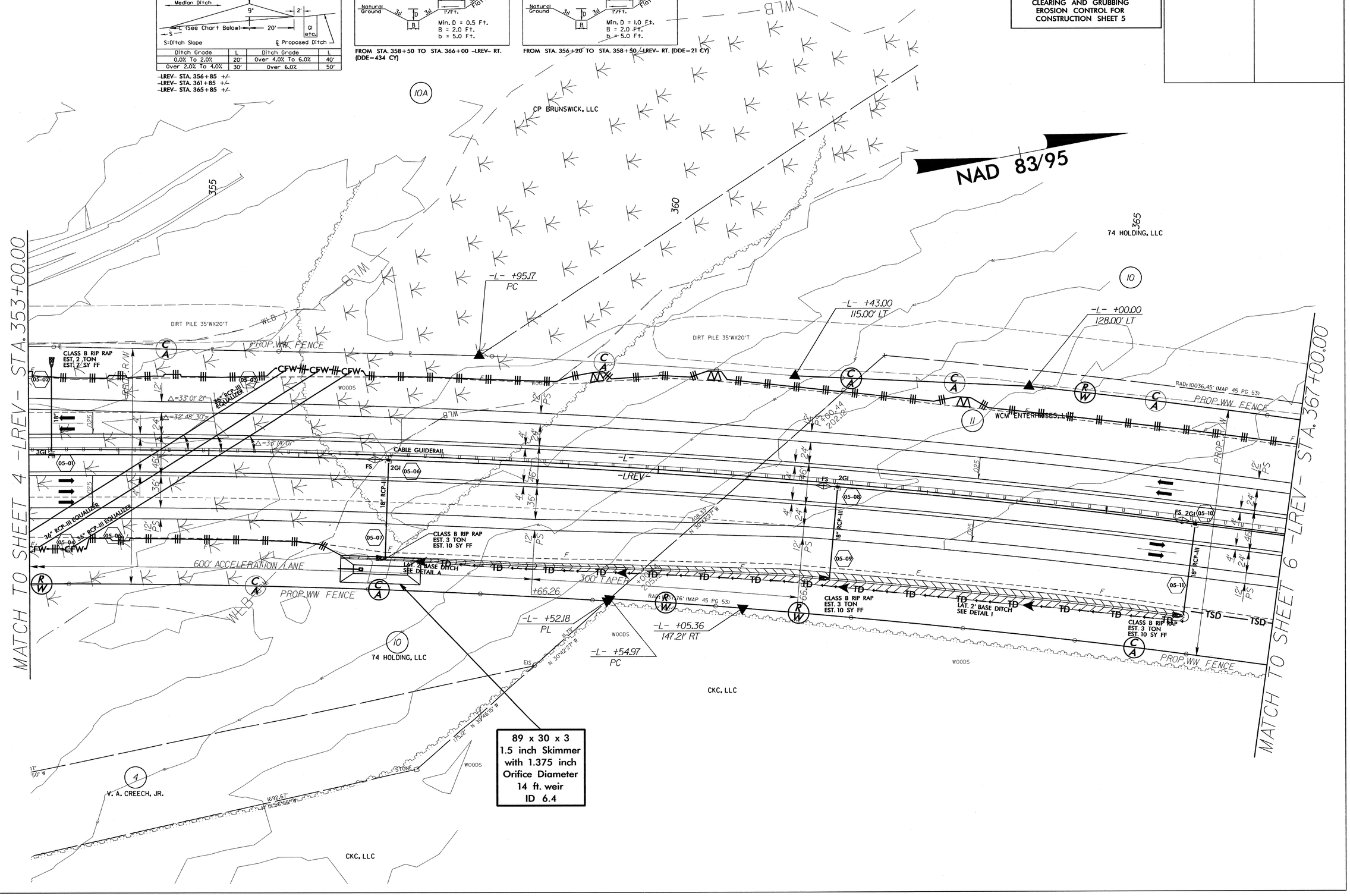


FROM STA. 358+50 TO STA. 366+00 -LREV- RT. (DDE=434 CY)

DETAIL A
LATERAL 2' BASE DITCH
(Not to Scale)



FROM STA. 356+20 TO STA. 358+50 -LREV- RT. (DDE=21 CY)



89 x 30 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
14 ft. weir
ID 6.4

30-AUG-2013 09:31
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jcbandler AT RENV247778

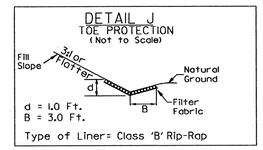
8/17/99

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

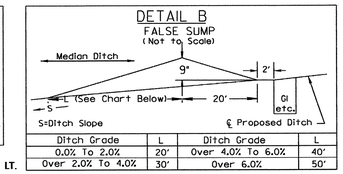
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 6

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-6/CONST.6
R/W SHEET NO.	08
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EQUALIZER PIPE INVERTS WILL NOT BE BURIED



FROM STA. 370+50 TO STA. 374+20 –LREV– LT.
FROM –LREV– STA. 374+50 TO –L– STA. 87+00 LT.



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 375+30 +/– –LREV–

20 x 54 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
6 ft. weir
ID 6.1

50 x 20 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
6 ft. weir
ID 6.3

52 x 17 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
5 ft. weir
ID 6.2

NAD 83/95

74 HOLDING, LLC

CKC, LLC

WCM ENTERPRISES, LLC.

MATCH TO SHEET 5 –LREV– STA. 367+00.00

MATCH TO SHEET 7 –L– STA. 87+00.00

–L– +00.00
128.00' LT

–L– +72.00
140.00' LT

–L– +54.50
140.00' LT

–L– +04.50
140.00' LT

–L– +00.79
147.23' RT

–LREV– PT Sta. 375+54.20 BK =
–L– CSSta. 83+54.50 AH

–L– +98.00
146.43' RT

PROP.WW FENCE

DIRT PILE 35'WX20'T

TOE PROTECTION
SEE DETAIL J

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

CABLE GUIDERAIL

–LREV–

–L–

TSD

CFW

18" RCP

36" RCP-III EQUALIZER

PROP. R/W

PCC Sta. 368+13.22

SCSta. 86+04.50

WOODS

LOT 185

RAD. 40'

N 24°49'28" E
200.87'

N 24°32'23" E

N 80°42'43" E
150.8'

S 92°16'05" E
180.12'

S 58°10'20" E
3.65'±

PK NAIL CONTROL

62.50' Inc.

42.00'

12' PS

24'

4'

16'

.025

.03

.04

.05

370

375

85

10

11

06-03

06-07

2GI

FS

EIR

EIP

W.L.B.

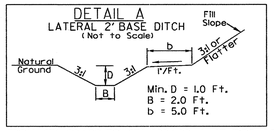
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-7/CONST.7
R/W SHEET NO.	09
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

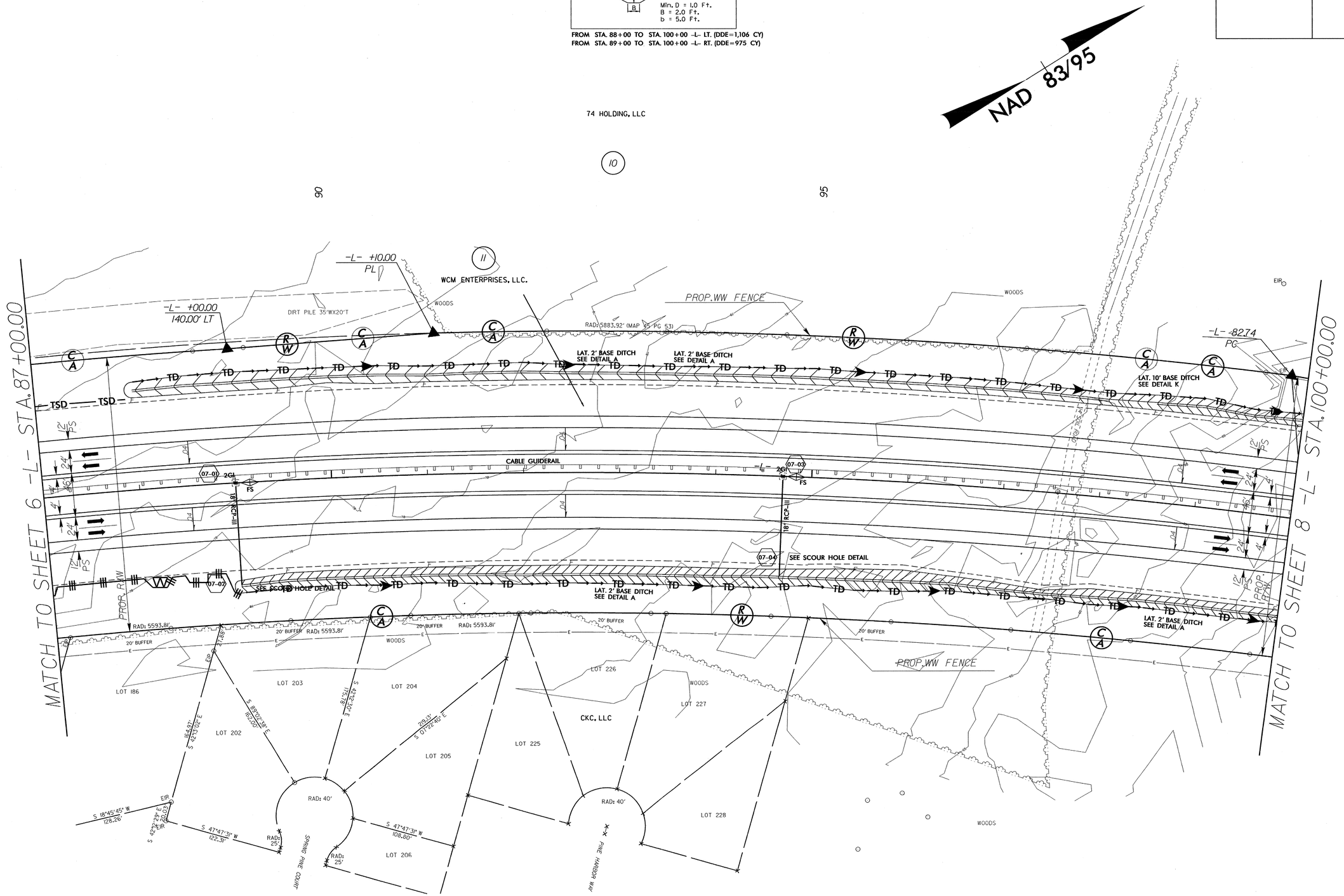
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 7

DETAIL A
LATERAL 2' BASE DITCH
(Not to Scale)



FROM STA. 88+00 TO STA. 100+00 –L– LT. (DDE=1,106 CY)
FROM STA. 89+00 TO STA. 100+00 –L– RT. (DDE=975 CY)



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*chandler1 AT REV24778

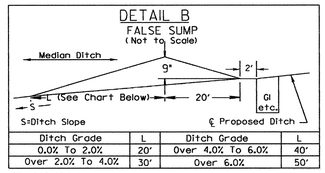
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-8/CONST.8
R/W SHEET NO.	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

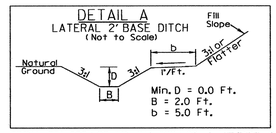
EQUALIZER PIPE INVERTS WILL NOT BE BURIED

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 8

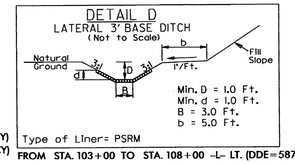


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

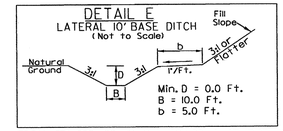
STA. 100+55+/-
STA. 106+28+/-
STA. 112+00+/-



FROM STA. 100+00 TO STA. 103+00 -L- LT.(DDE=260CY)
FROM STA. 100+00 TO STA. 107+00 -L- RT.(DDE=632CY)



FROM STA. 103+00 TO STA. 108+00 -L- LT. (DDE=587CY)

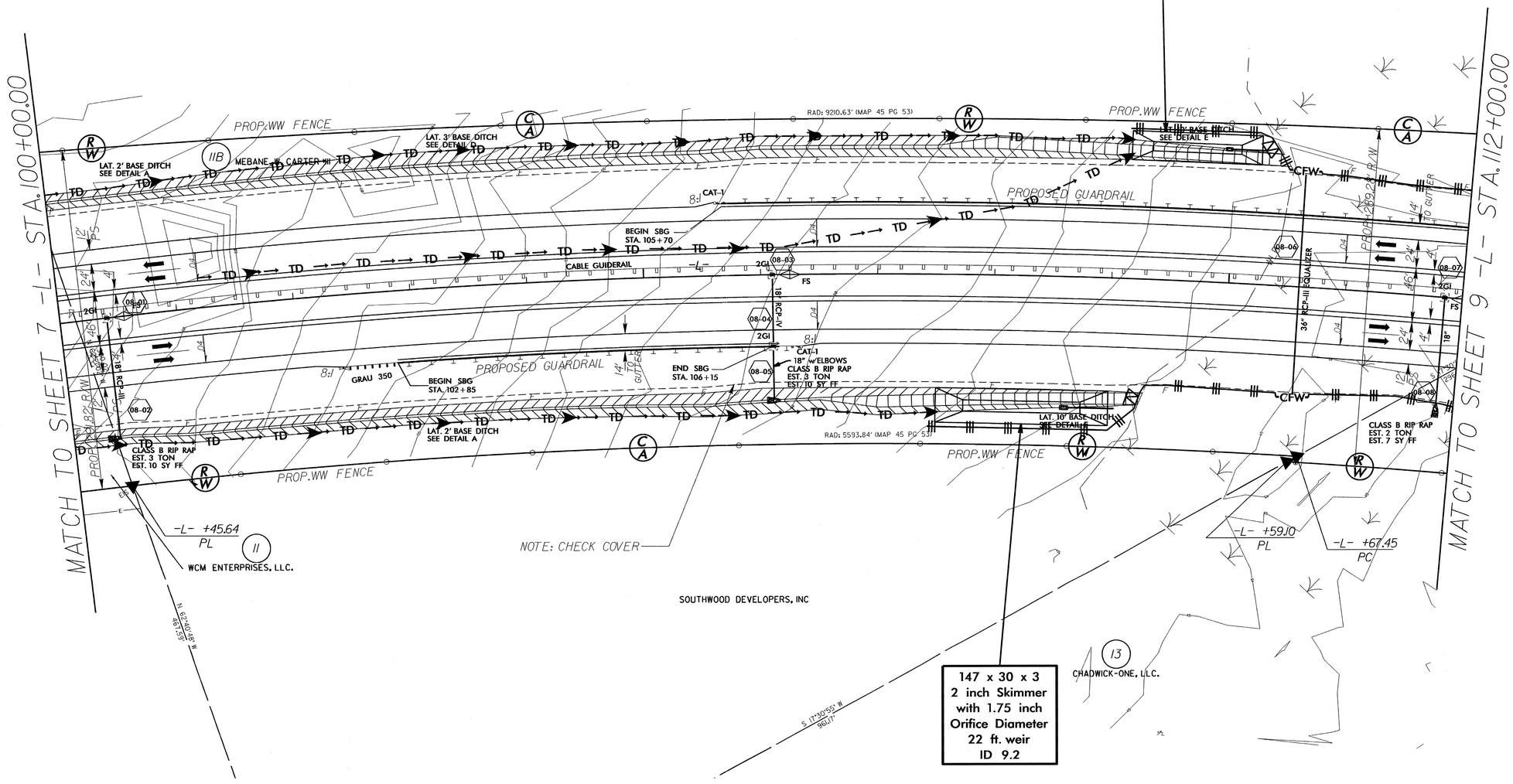


FROM STA. 108+00 TO STA. 110+38 -L- LT. (DDE=189CY)
FROM STA. 107+00 TO STA. 109+25 -L- RT. (DDE=175CY)

(10) 74 HOLDING, LLC

NAD 83/95

111 x 25 x 3
1.5 inch Skimmer
with 1.5 inch
Orifice Diameter
14 ft. weir
ID 9.1



147 x 30 x 3
2 inch Skimmer
with 1.75 inch
Orifice Diameter
22 ft. weir
ID 9.2

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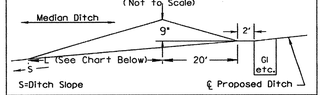
jchandler AT RENV247778

8/17/99

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 9

DETAIL B
FALSE SUMP
(Not to Scale)

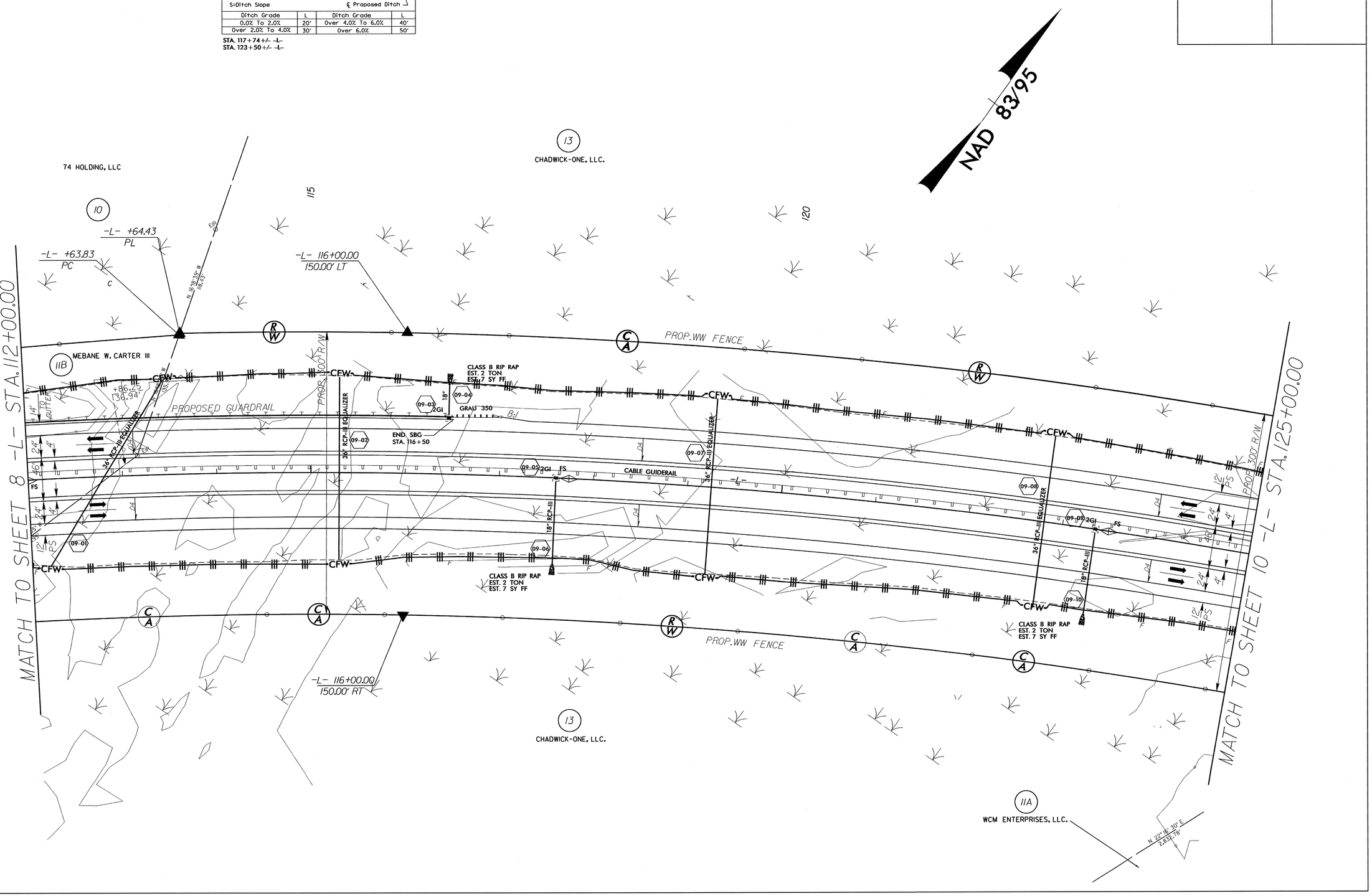


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 117+74 +/- -L-
STA. 123+50 +/- -L-

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-9/CONST.9
R/W SHEET NO.	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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v:\chandler1 AT RENV247778

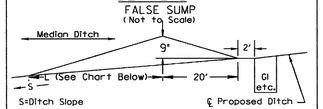
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-10/CONST.10
R/W SHEET NO.	
12	
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

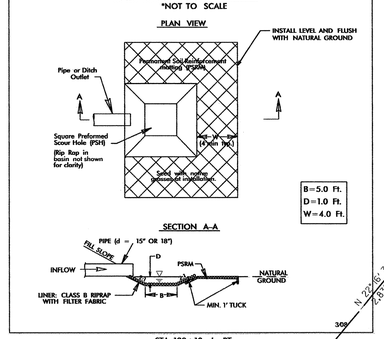
DETAIL B
FALSE SUMP
(Not To Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

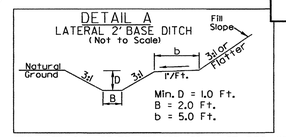
STA. 132+96 +/- -L-
STA. 137+07 +/- -L-
STA. 137+55 +/- -L-

PREFORMED SCOUR HOLE
*NOT TO SCALE



STA. 133+10 -L- RT.

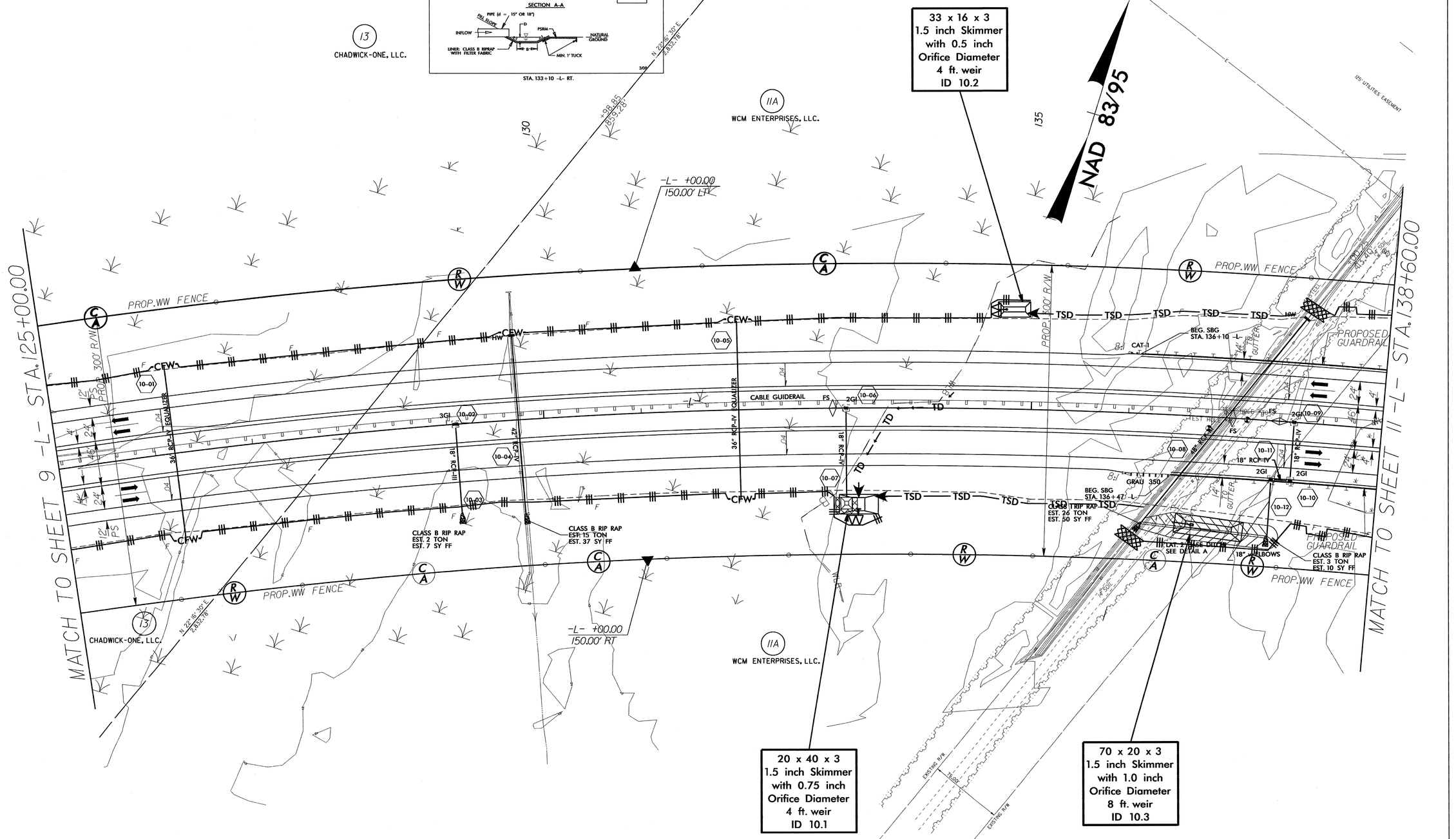
DETAIL A
LATERAL 2' BASE DITCH
(Not To Scale)



FROM STA. 136+25 TO STA. 137+50 -L- RT. (DDE=225CY)

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

33 x 16 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 10.2



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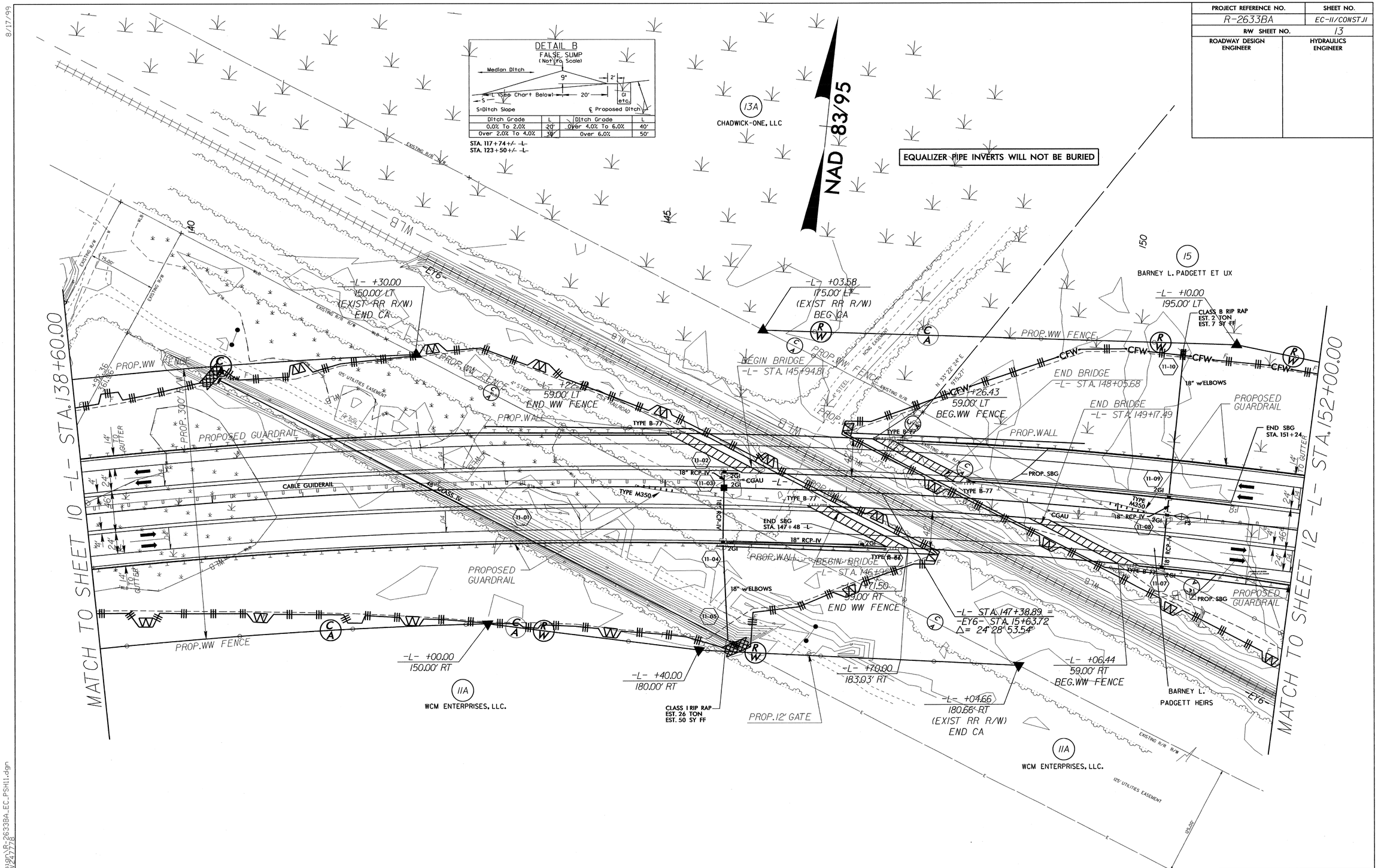
w_ctanner1 AT REWV247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-11/CONST.11
R/W SHEET NO.	13
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.

8/17/99

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v8dgnlar1 AT REV247778

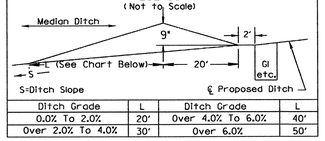
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-12/CONST.12
R/W SHEET NO.	14
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

DETAIL B
FALSE SUMP
(Not to Scale)

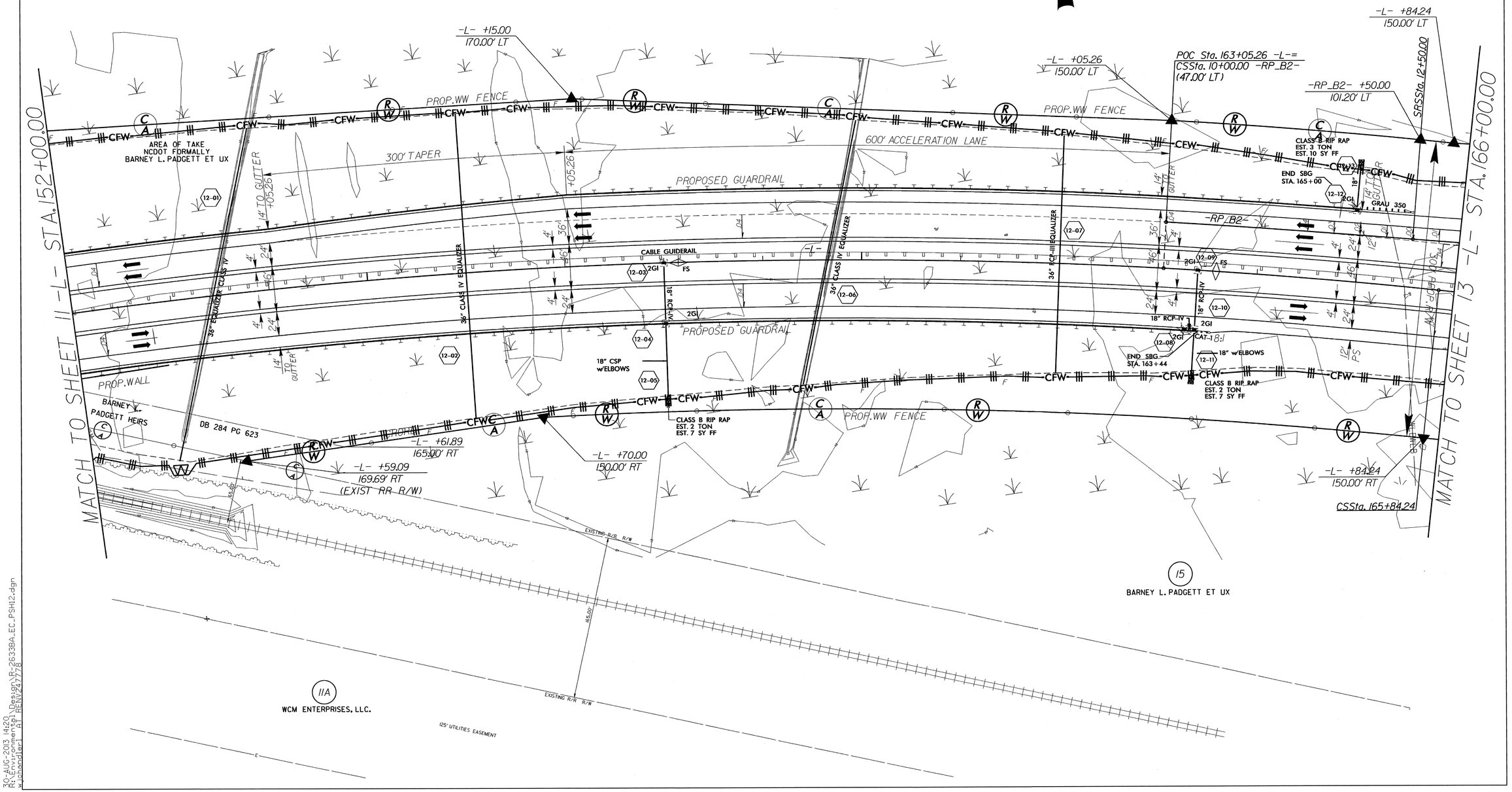


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 158+15+/- -L-
STA. 163+58+/- -L-

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

NAD 83/95

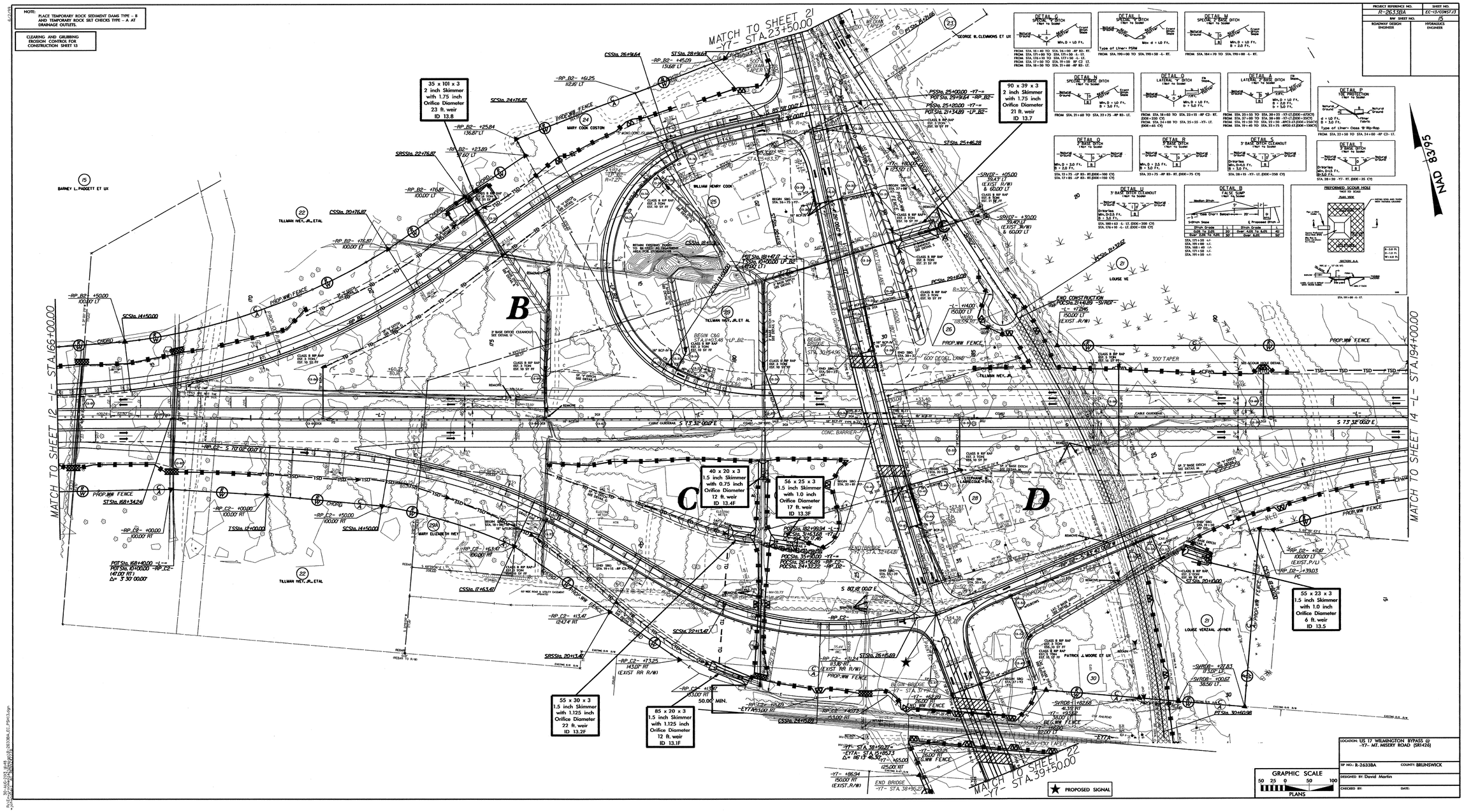


30-AUG-2013 14:20
R:\Environmental\Design\R-2633BA_EC_PSH12.dgn
w_lchandler AT RENV247778

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

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-13/CONST.13
BW SHEET NO.	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



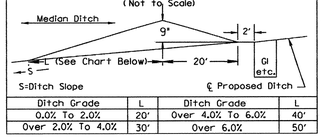
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-14/CONST.14
R/W SHEET NO.	16
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 14

DETAIL B
FALSE SUMP
(Not To Scale)

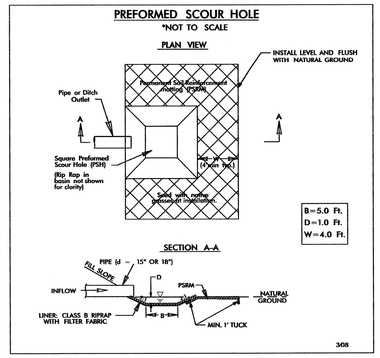


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 194+23 +/- -L-
STA. 205+06 +/- -L-

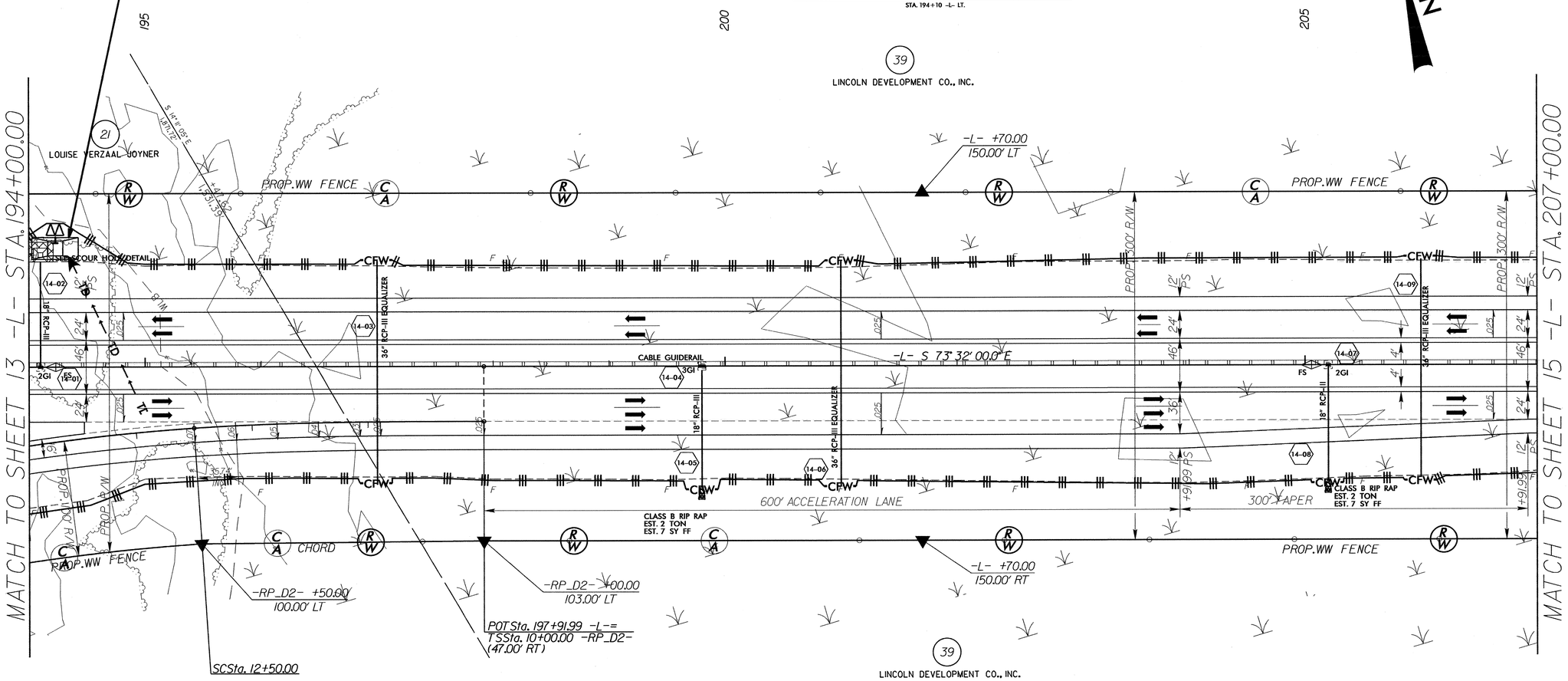
EQUALIZER PIPE INVERTS WILL NOT BE BURIED

PREFORMED SCOUR HOLE
*NOT TO SCALE



STA. 194+10 -L- LT.

19 x 40 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
4 ft. weir
ID 14.1



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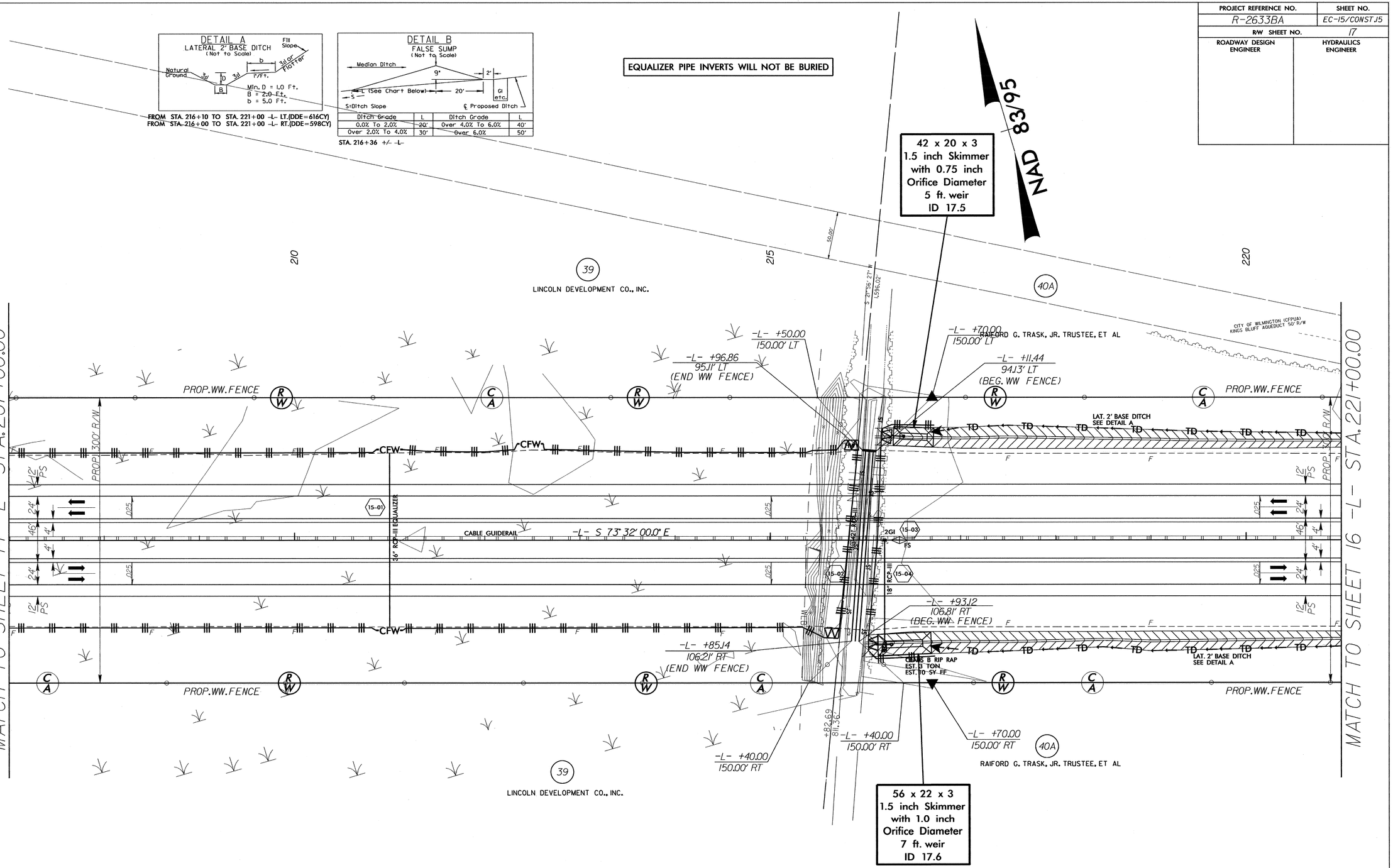
wstanfield RELEASE 17.0

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-15/CONST.15
R/W SHEET NO.	17
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.

8/17/99

30-AUG-2013 14:58
R:\Environmental\Design\R-2633BA_EC_PSH15.dgn
wchandler1 AT RENV247778

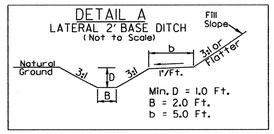
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-16/CONSTJ6
R/W SHEET NO.	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

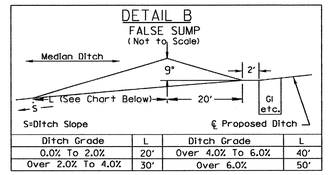
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 16

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

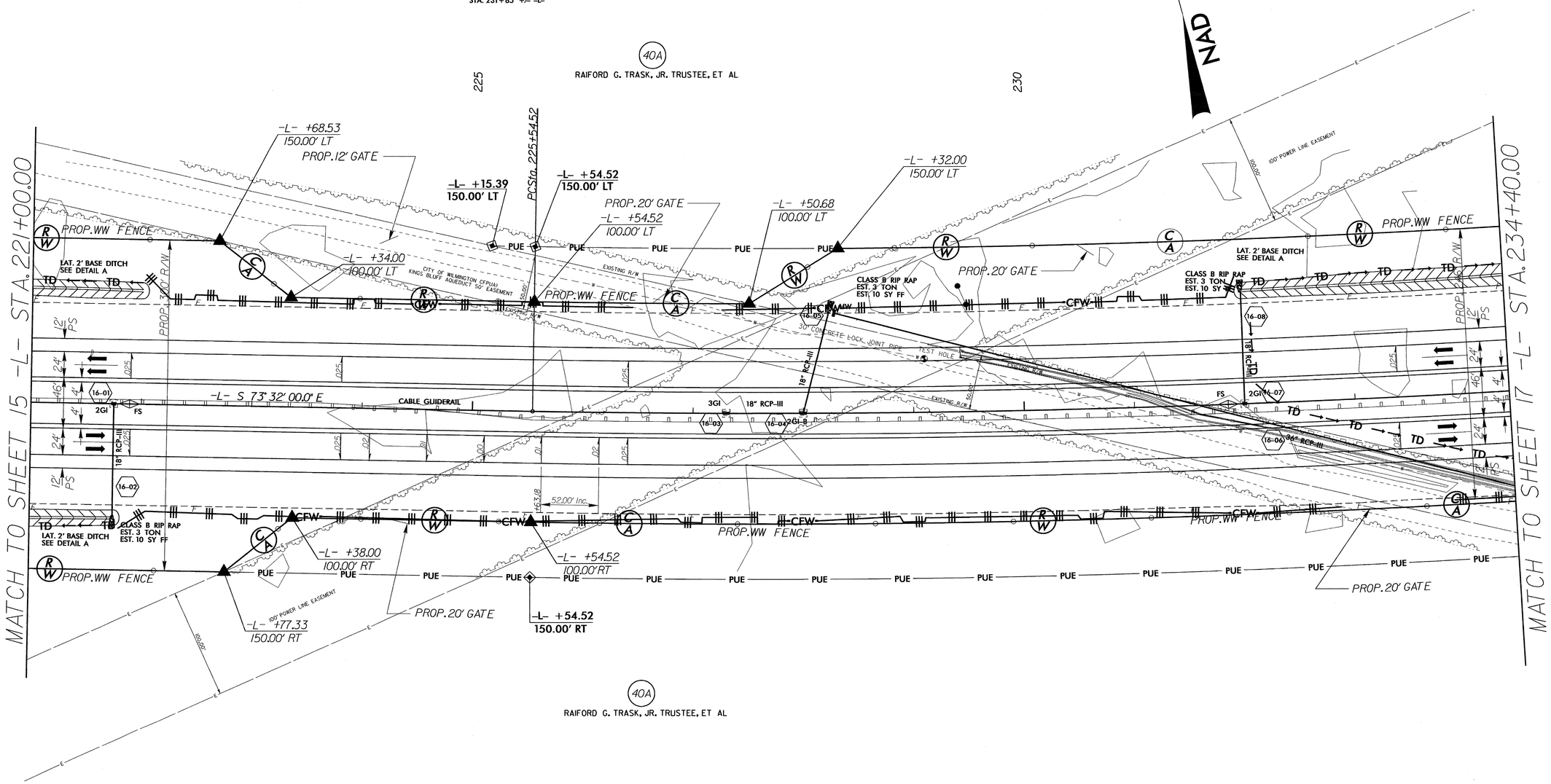


FROM STA. 221+00 TO STA. 222+00 –L– LT.(DDE=117CY)
FROM STA. 221+00 TO STA. 221+75 –L– RT.(DDE=51CY)
FROM STA. 232+00 TO STA. 234+40 –L– LT.(DDE=237CY)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 221+89 +/- –L–
STA. 231+85 +/- –L–



8/17/99

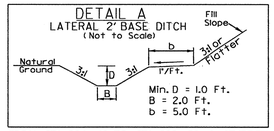
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 17

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-17/CONST.17
R/W SHEET NO.	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

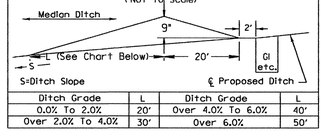
DETAIL A
LATERAL 2' BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

FROM STA. 234+40 TO STA. 239+80 -L- LT.(DDE=468CY)
FROM STA. 244+00 TO STA. 248+00 -L- LT.(DDE=255CY)
FROM STA. 244+00 TO STA. 248+00 -L- RT.(DDE=283CY)

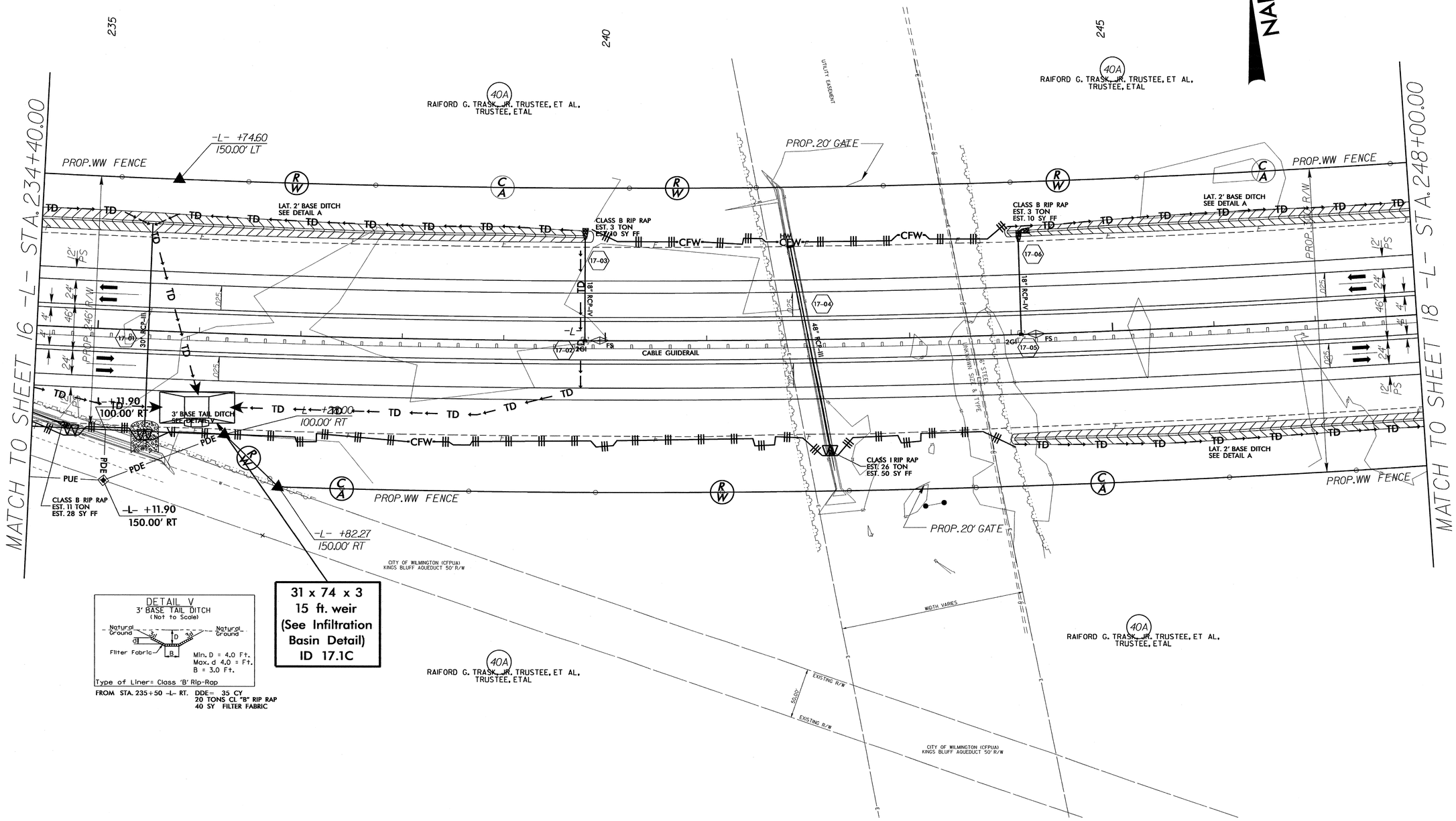
DETAIL B
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 239+95 +/- -L-
STA. 244+24 +/- -L-

NAD 83/95



31 x 74 x 3
15 ft. weir
(See Infiltration Basin Detail)
ID 17.1C

DETAIL V
3' BASE TAIL DITCH
(Not to Scale)

Min. D = 4.0 Ft.
Max. d 4.0 = Ft.
B = 3.0 Ft.

Type of Liner= Class 'B' Rip-Rap

FROM STA. 235+50 -L- RT. DDE= 35 CY
20 TONS CL "B" RIP RAP
40 SY FILTER FABRIC

30-AUG-2013 15:07
R:\Environmental\Design\R-2633BA_EC_PSH17.dgn
w_bhandler1 AT REN\247778

8/17/99

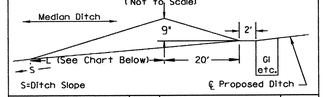
PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-18/CONST18
R/W SHEET NO.	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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 18

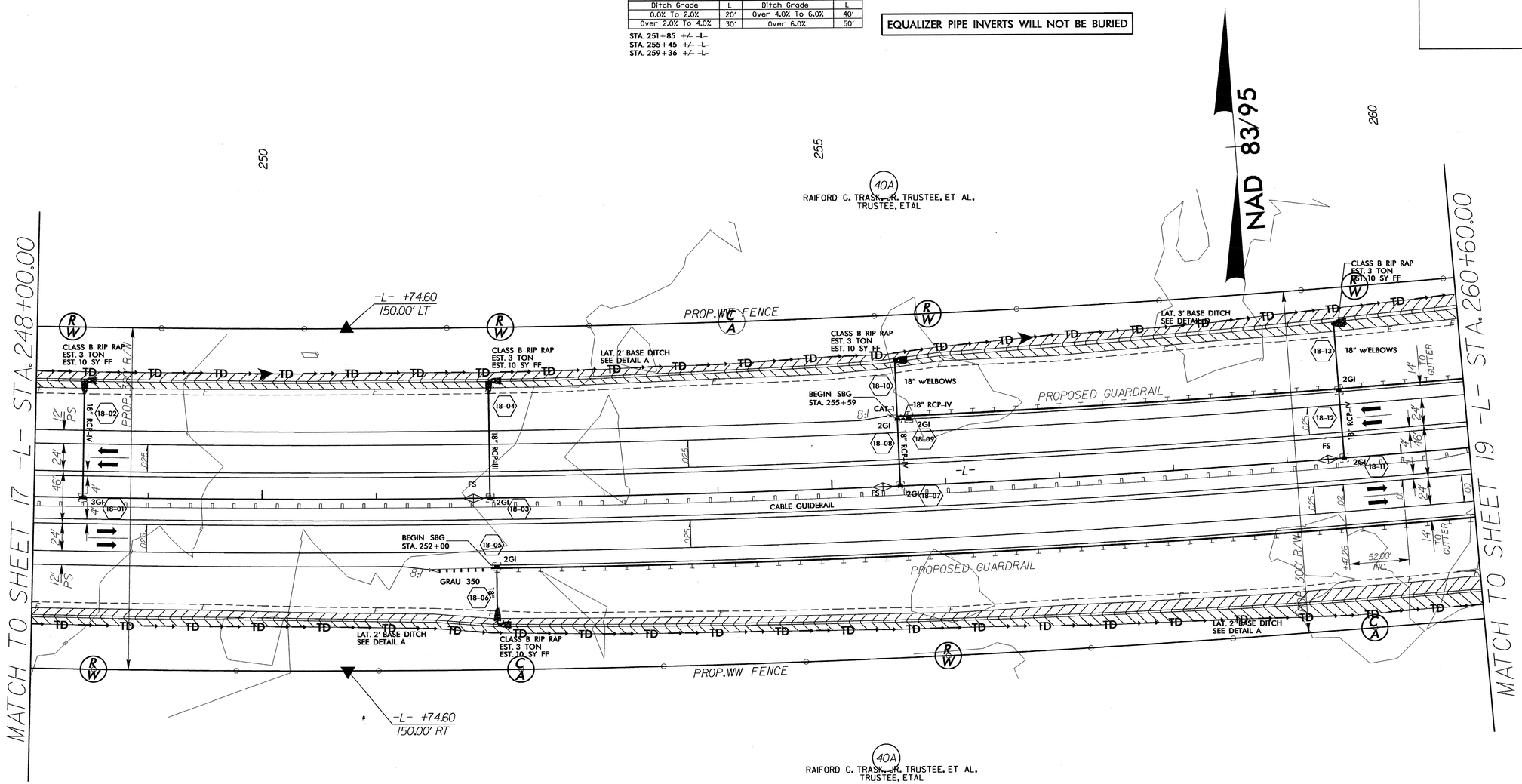
EQUALIZER PIPE INVERTS WILL NOT BE BURIED

DETAIL B
FALSE SUMP
(Not to Scale)

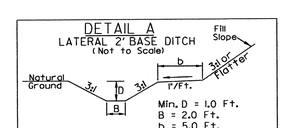


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 251+85 +/- -L-
STA. 255+45 +/- -L-
STA. 259+36 +/- -L-



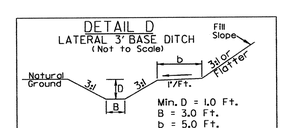
DETAIL A
LATERAL 2' BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

FROM STA. 248+00 TO STA. 255+60 -L- LT.(DDE=473CY)
FROM STA. 248+00 TO STA. 260+60 -L- RT.(DDE=1100CY)

DETAIL D
LATERAL 3' BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 3.0 Ft.
b = 5.0 Ft.

FROM STA. 255+60 TO STA. 260+60 -L- LT.(DDE=484CY)

03-SEP-2013 07:22
R:\Environmental\Design\R-2633BA_EC_PSH18.dgn
xjchandler1 AT RENV247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-19/CONST.19
R/W SHEET NO.	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

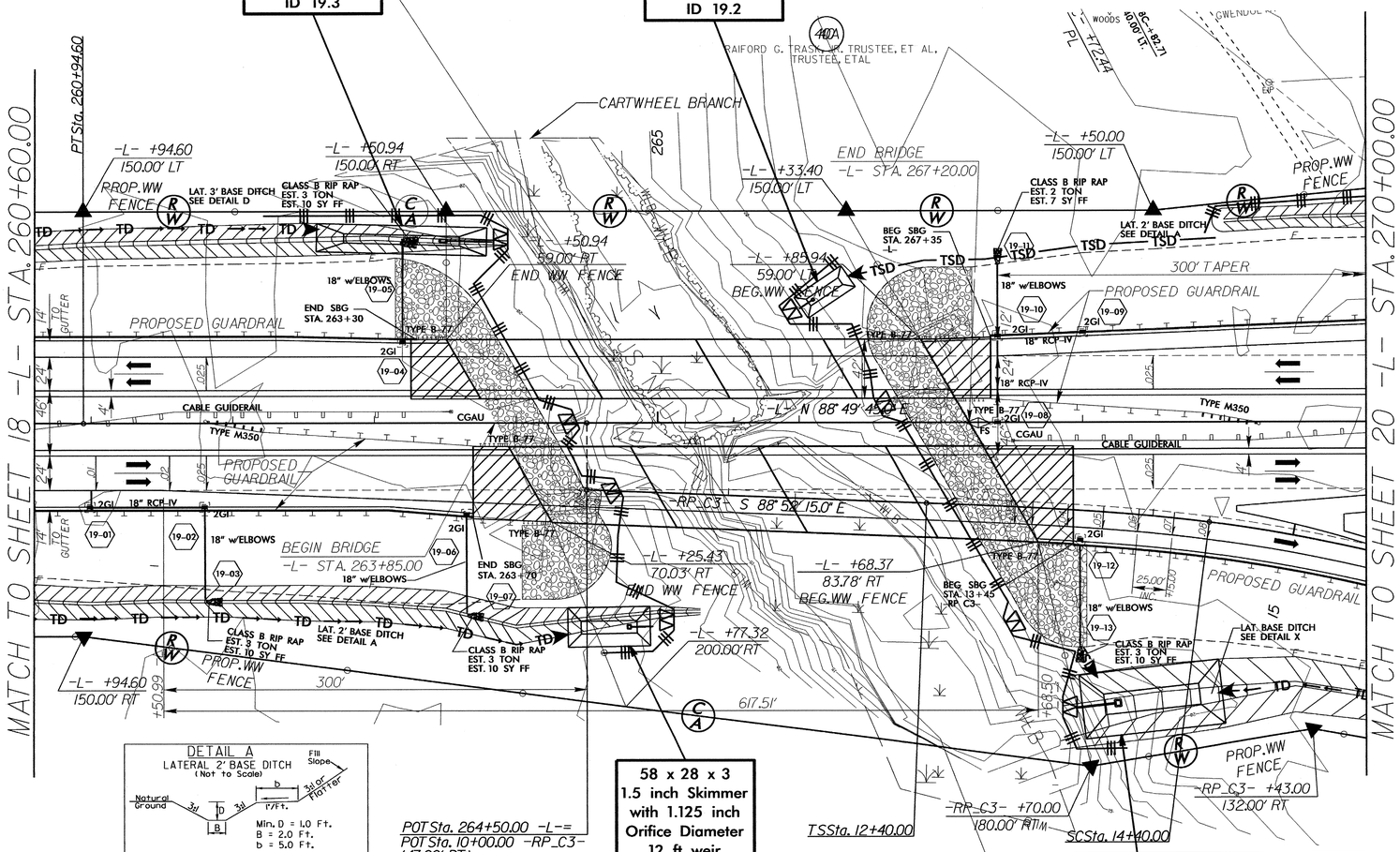
NOTE:
UTILIZE SKIMMER BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

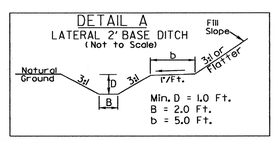
152 x 27 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
12 ft. weir
ID 19.3

40 x 18 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
4 ft. weir
ID 19.2

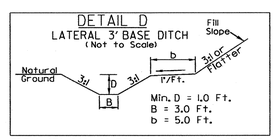
58 x 28 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
12 ft. weir
ID 19.4

99 x 46 x 3
2 inch Skimmer
with 1.875 inch
Orifice Diameter
25 ft. weir
ID 19.1

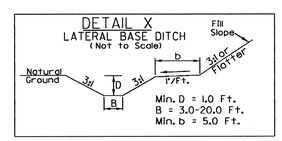




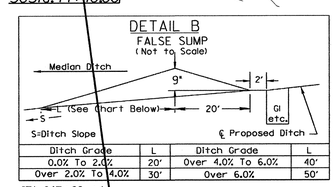
FROM STA. 260+60 TO STA. 265+30 -L- RT.(DDE=769CY)
FROM STA. 269+00 TO STA. 270+00 -L- LT.(DDE=92CY)



FROM STA. 260+60 TO STA. 264+00 -L- LT.(DDE=415CY)



FROM STA. 13+45 TO STA. 15+75 -RP C3- RT.(DDE=1281CY)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 267+22 +/-

NAD 83

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.

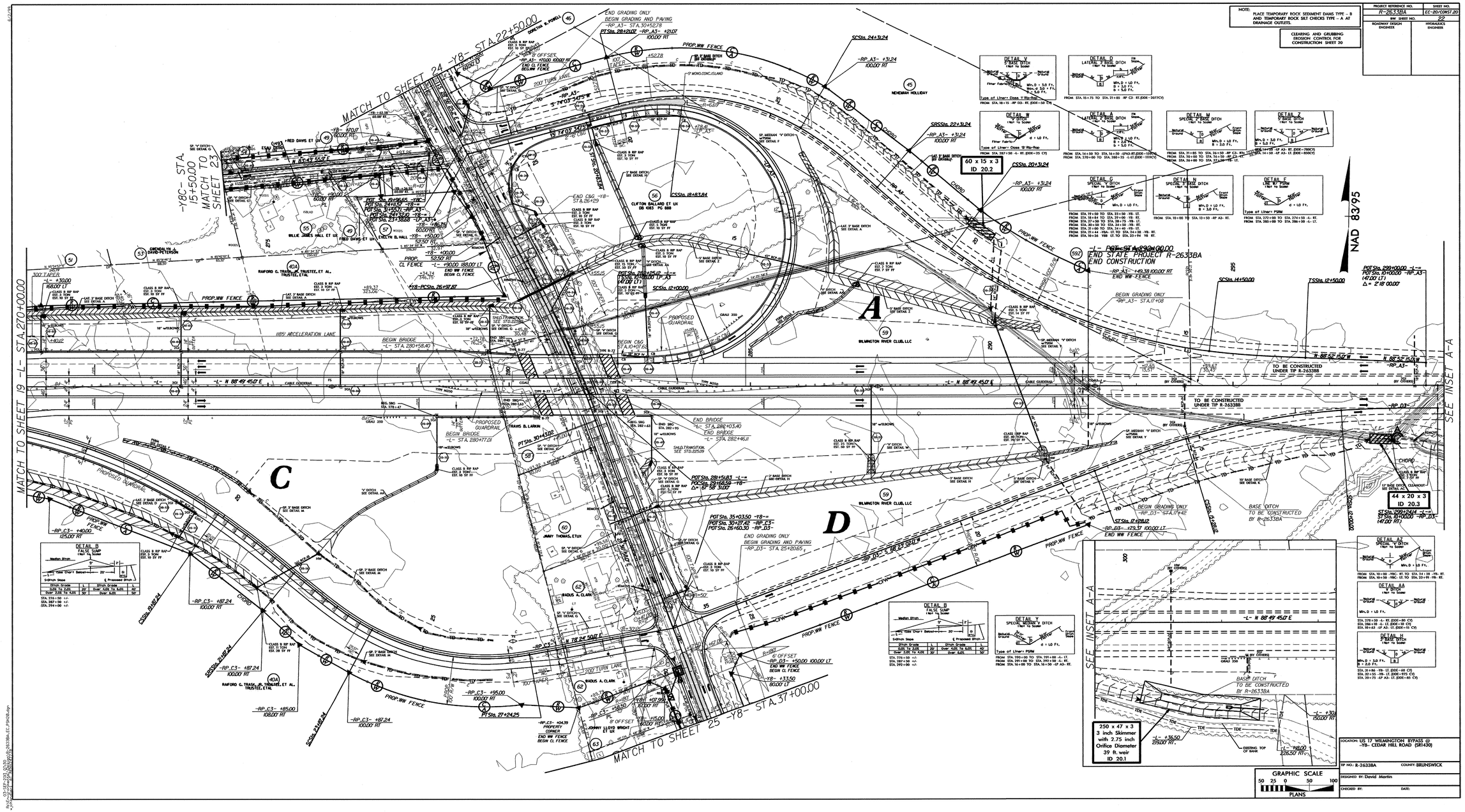
8/17/99

03-SEP-2013 07:25
R:\Environmental\Design\R-2633BA_EC_PSH19.dgn
wchandler AT REN/217778

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 20

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-20/CONST.20
R/W SHEET NO.	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



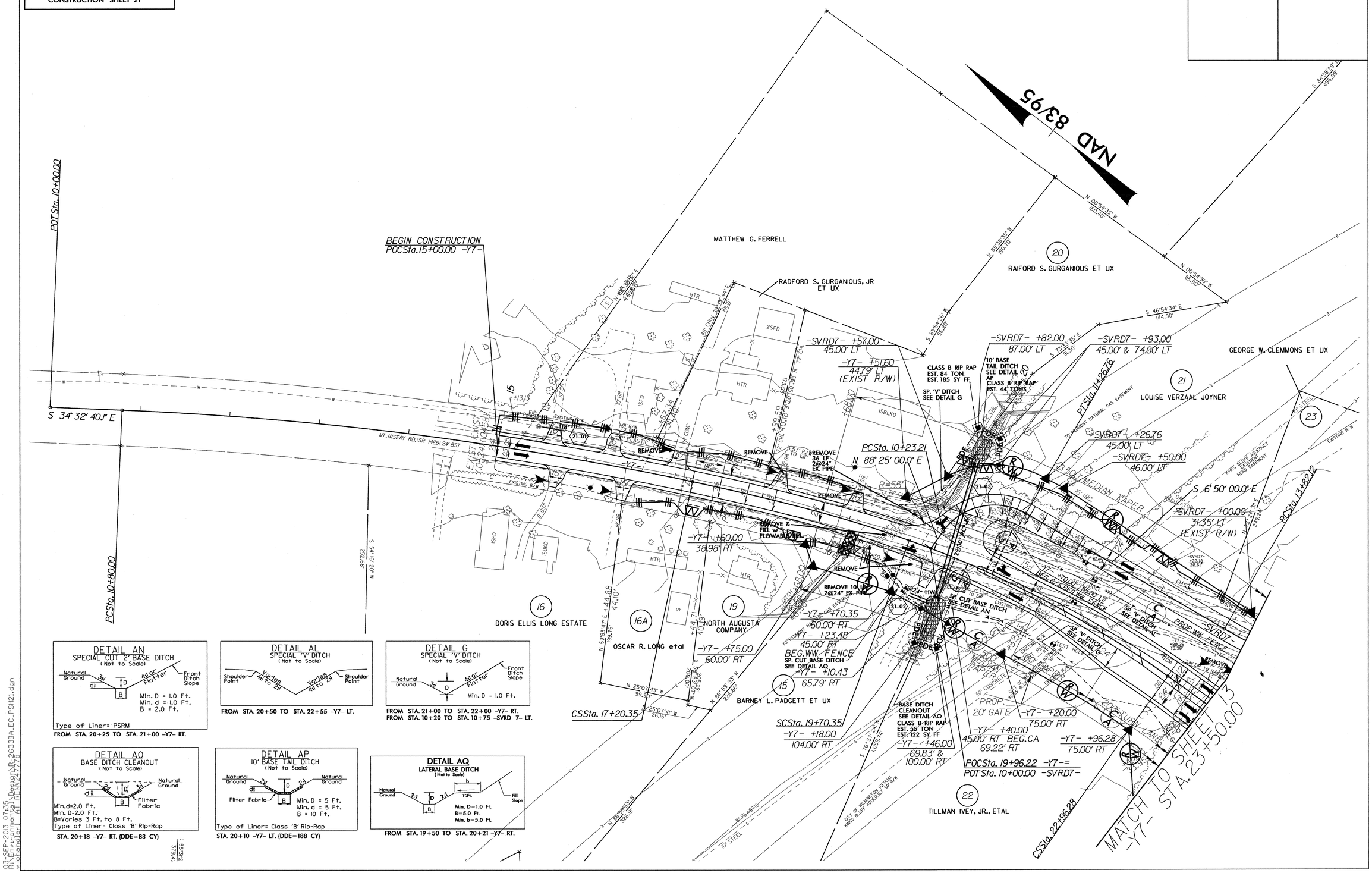
LOCATION: US 17 WILMINGTON BYPASS @ -Y8- CEDAR HILL ROAD (SR1430)	
TIP NO.: R-2633BA	COUNTY: BRUNSWICK
DESIGNED BY: David Martin	
CHECKED BY:	DATE:

8/17/99

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 21

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-21/CONST.21
R/W SHEET NO.	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



03-SEP-2013 07:35
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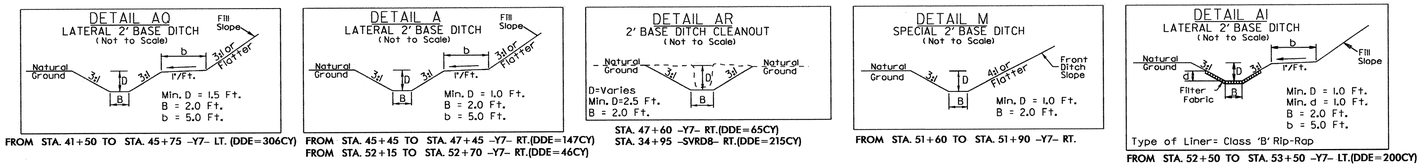
w_jchandler AT RENV247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-22/CONST.22
R/W SHEET NO.	37
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.

8/17/99

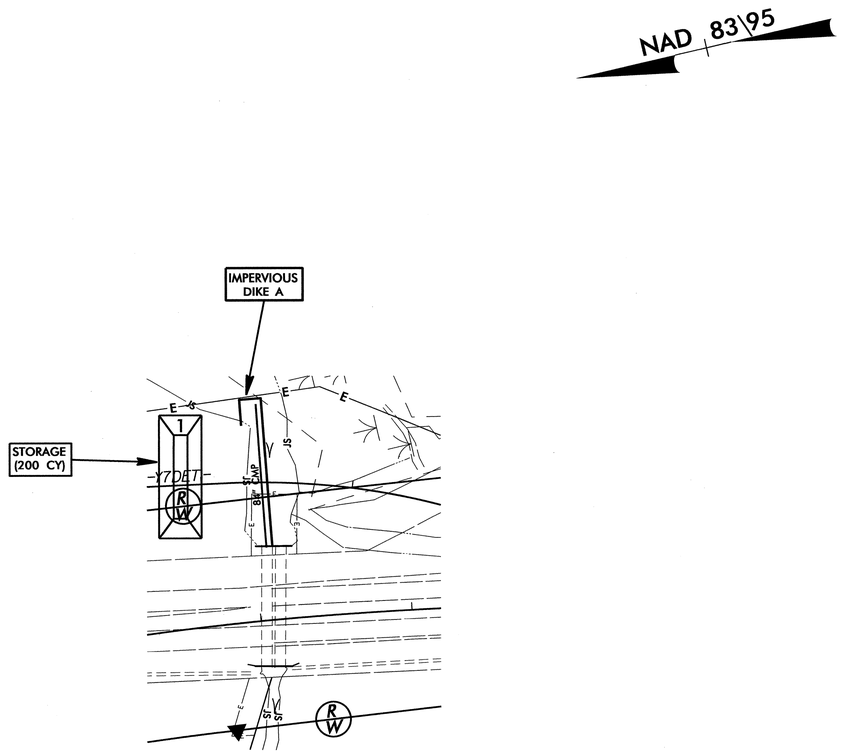
03-SEP-2013 07:39
R:\Roadway\Proj\Design\R-2633BA_EC_PSH22.dgn
w1chandler1 AT REN\247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-23/CONST.22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 52+09 -Y7- (SHEET 1 OF 2)

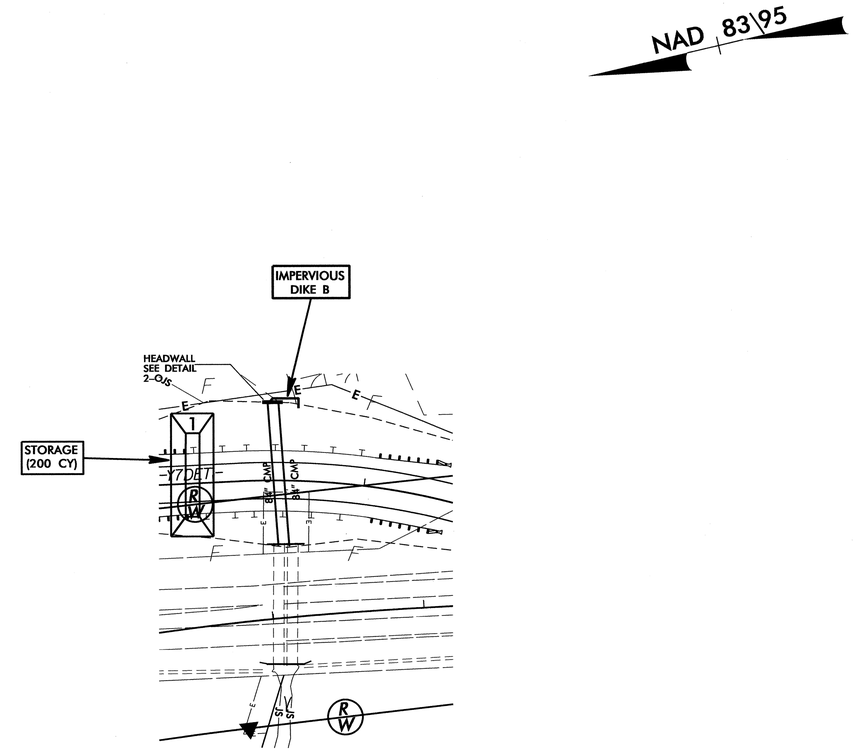
PHASE I

1. CONSTRUCT STILLING BASIN 1 (200 CY).
2. CONSTRUCT IMPERVIOUS DIKE A, DIVERTING FLOW.
3. INSTALL NORTHERNMOST 84 INCH CMP.
4. REMOVE IMPERVIOUS DIKE A.



PHASE II

5. CONSTRUCT IMPERVIOUS DIKE B, DIVERTING FLOW THROUGH NORTHERNMOST 84 INCH CMP.
6. INSTALL SOUTHERNMOST 84 INCH CMP.
7. REMOVE IMPERVIOUS DIKE B, ALLOWING FLOW THROUGH BOTH 84 INCH CMP'S.
8. REMOVE STILLING BASIN 1.
9. CONSTRUCT REINFORCED SANDBAG HEADWALL AND DETOUR ALIGNMENT, AND SHIFT TRAFFIC.

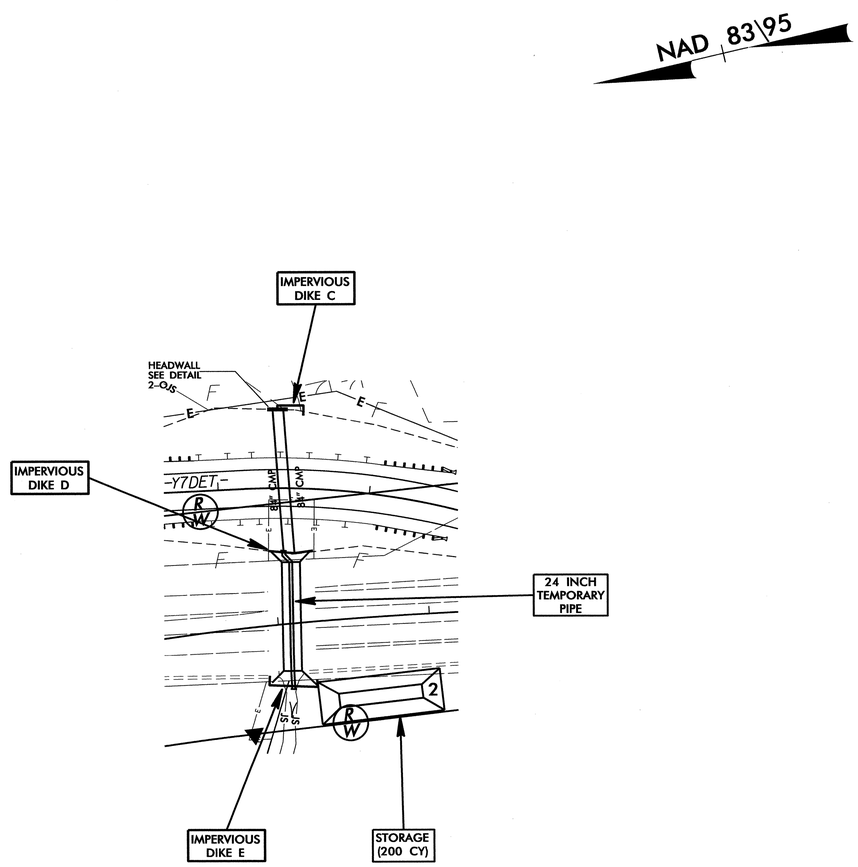


PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-24/CONST.22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 52+09 -Y7- (SHEET 2 OF 2)

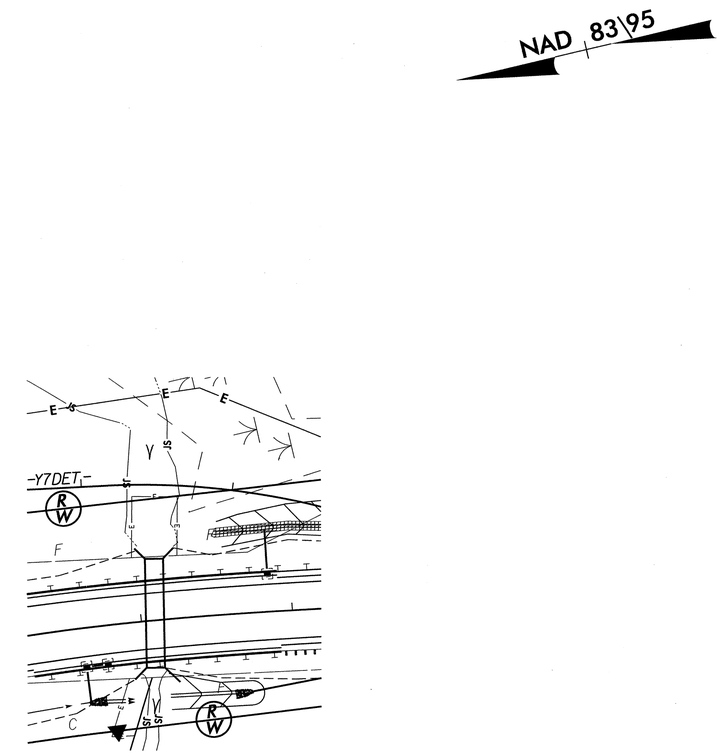
PHASE III

10. CONSTRUCT STILLING BASIN 2 (200 CY).
11. REMOVE EXISTING 84 INCH CMP'S FROM THE -Y7- ALIGNMENT.
12. CONSTRUCT IMPERVIOUS DIKES C, D, AND E, AND INSTALL 24 INCH TEMPORARY PIPE, DIVERTING FLOW.
13. CONSTRUCT PROPOSED CULVERT.

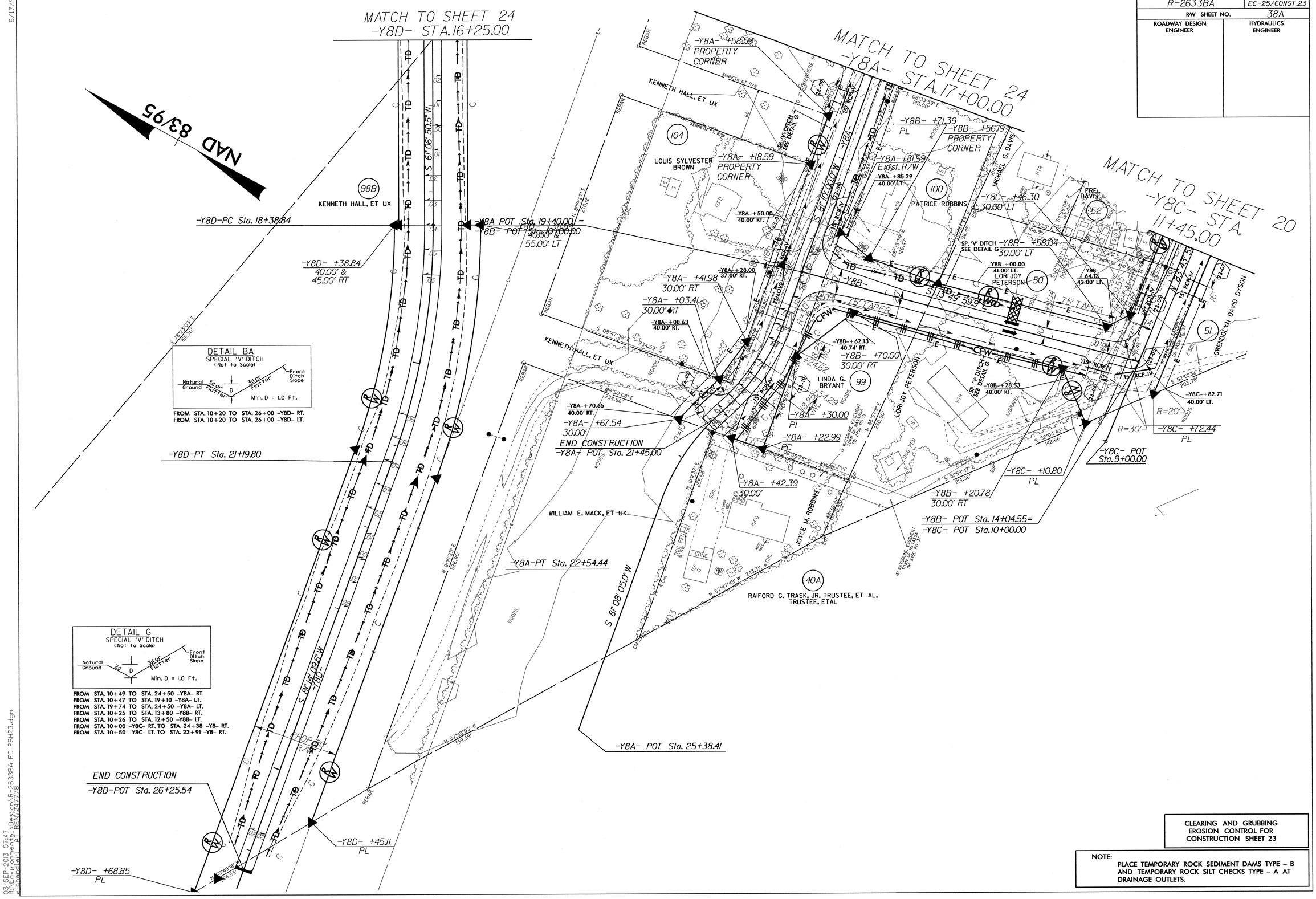


PHASE IV

14. REMOVE IMPERVIOUS DIKES C, D, E, AND 24 INCH TEMPORARY PIPE.
15. REMOVE STILLING BASIN 2.
16. CONSTRUCT -Y7- ALIGNMENT AND SHIFT TRAFFIC.
17. REMOVE DETOUR ALIGNMENT AND CONSTRUCT ANY NECESSARY UPSTREAM/DOWNSTREAM CHANNEL IMPROVEMENTS.
18. COMPLETE ROADWAY.



PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-25/CONST.23
R/W SHEET NO.	38A
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.

8/17/99

03-SEP-2003 07:47
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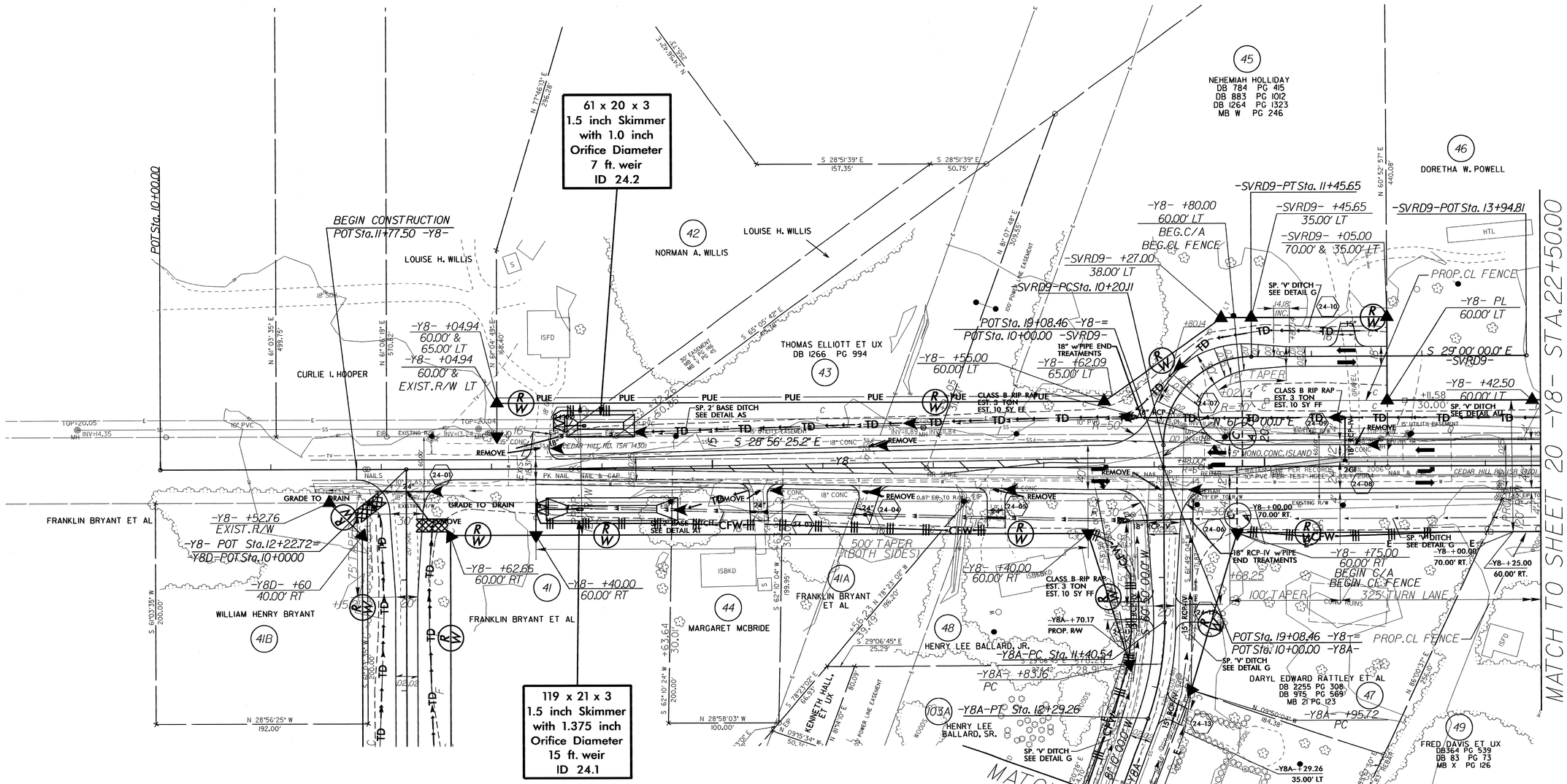
wichouler1 AT RENV247776

8/17/99

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

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-26/CONST.24
R/W SHEET NO.	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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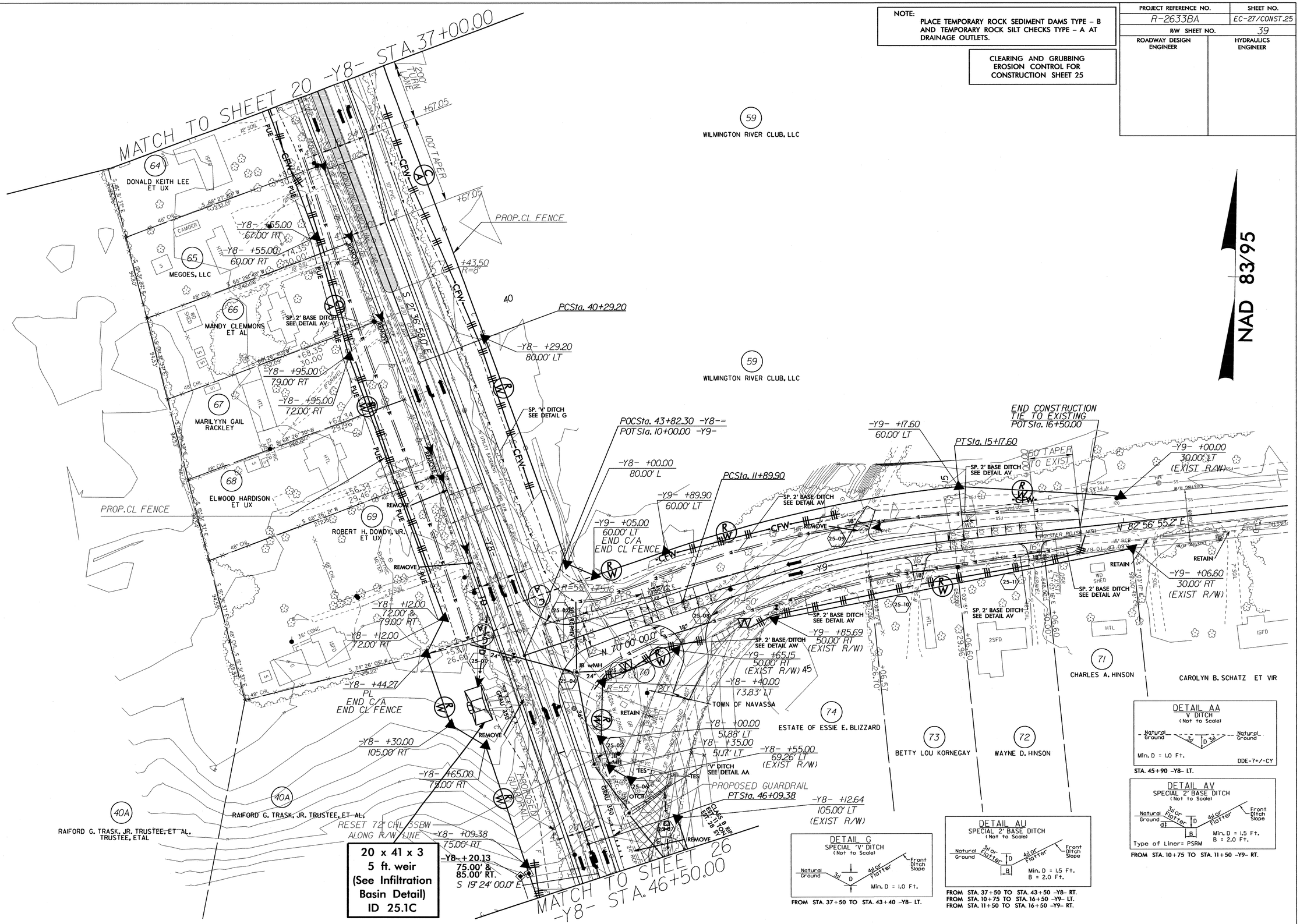
rjchandler1 at RENV24778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-27/CONST.25
R/W SHEET NO.	39
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



DETAIL G
SPECIAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, Aslor Flatter, Front Ditch Slope
Min. D = 1.0 Ft.
FROM STA. 37+50 TO STA. 43+40 -Y8- LT.

DETAIL AU
SPECIAL 2' BASE DITCH
(Not to Scale)
Natural Ground, 3:1 or Flatter, D, B, 4:1 or Flatter, Front Ditch Slope
Min. D = 1.5 Ft.
B = 2.0 Ft.
FROM STA. 37+50 TO STA. 43+50 -Y8- RT.
FROM STA. 10+75 TO STA. 16+50 -Y9- LT.
FROM STA. 11+50 TO STA. 16+50 -Y9- RT.

DETAIL AA
V DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, Natural Ground
Min. D = 1.0 Ft.
DDE=7+/-CY
STA. 45+90 -Y8- LT.

DETAIL AV
SPECIAL 2' BASE DITCH
(Not to Scale)
Natural Ground, 3:1 or Flatter, D, B, 4:1 or Flatter, Front Ditch Slope
Min. D = 1.5 Ft.
B = 2.0 Ft.
Type of Liner= PSRM
FROM STA. 10+75 TO STA. 11+50 -Y9- RT.

8/17/99

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w:\chandler: AT REV\247778

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-28/CONST.26
R/W SHEET NO.	40
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 26

NAD 83/95

-Y8-
PIs Sta 52+68.24 PI Sta 57+60.90
Θs = 7° 27' 37.4" Δ = 46° 12' 00.0" (LT)
Ls = 250.00' D = 5° 58' 05.9"
LT = 166.81' L = 774.09'
ST = 83.47' T = 409.47'
R = 960.00'
e = 8.0%

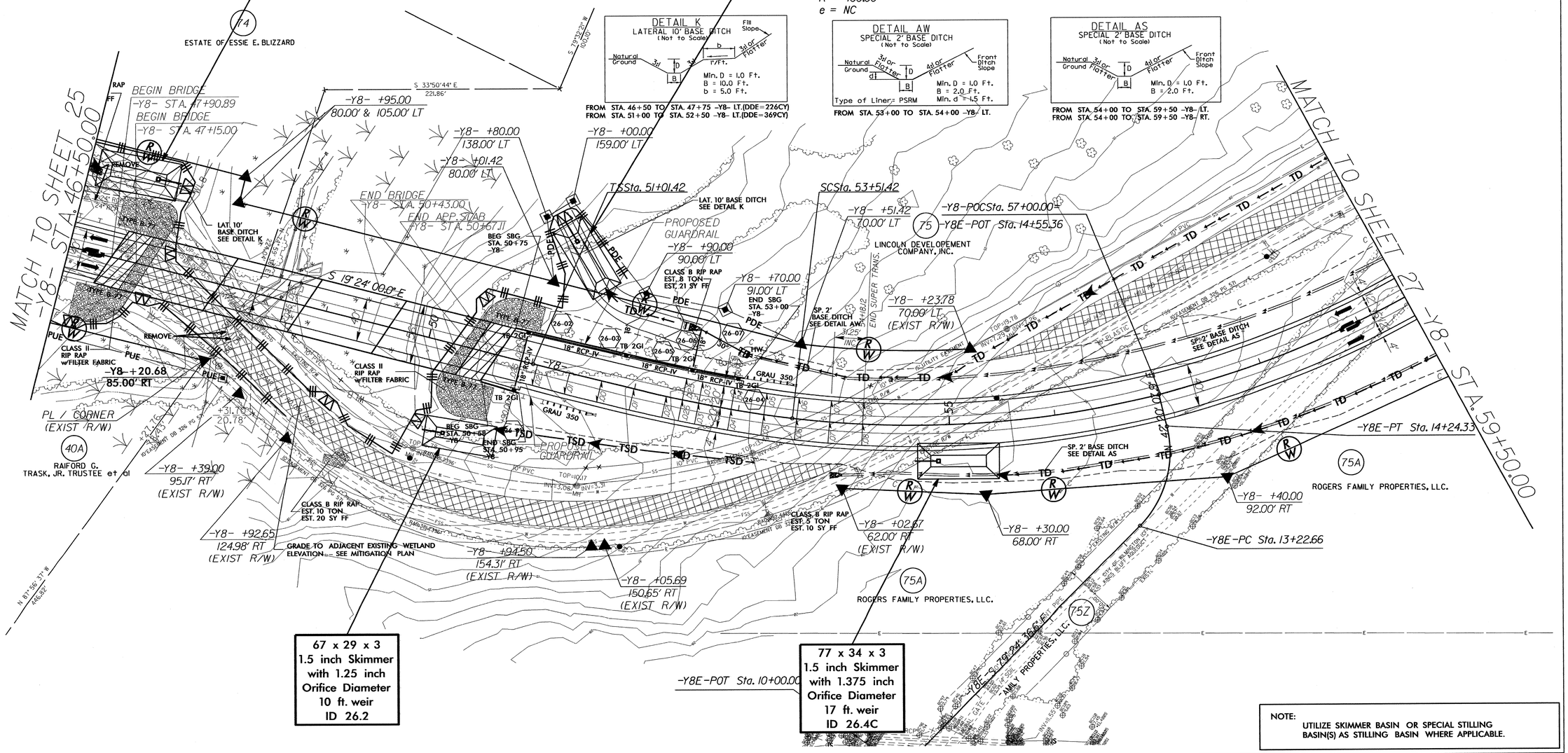
-Y8E-
PI Sta 13+78.38
Δ = 58° 15' 15.6" (LT)
D = 57° 17' 44.8"
L = 101.67'
T = 55.72'
R = 100.00'
e = NC

77 x 35 x 3
1.5 inch Skimmer
with 1.5 inch
Orifice Diameter
14 ft. weir
ID 24.3

74 x 31 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
15 ft. weir
ID 26.1

67 x 29 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
10 ft. weir
ID 26.2

77 x 34 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
17 ft. weir
ID 26.4C



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

03-SEP-2013 07:56
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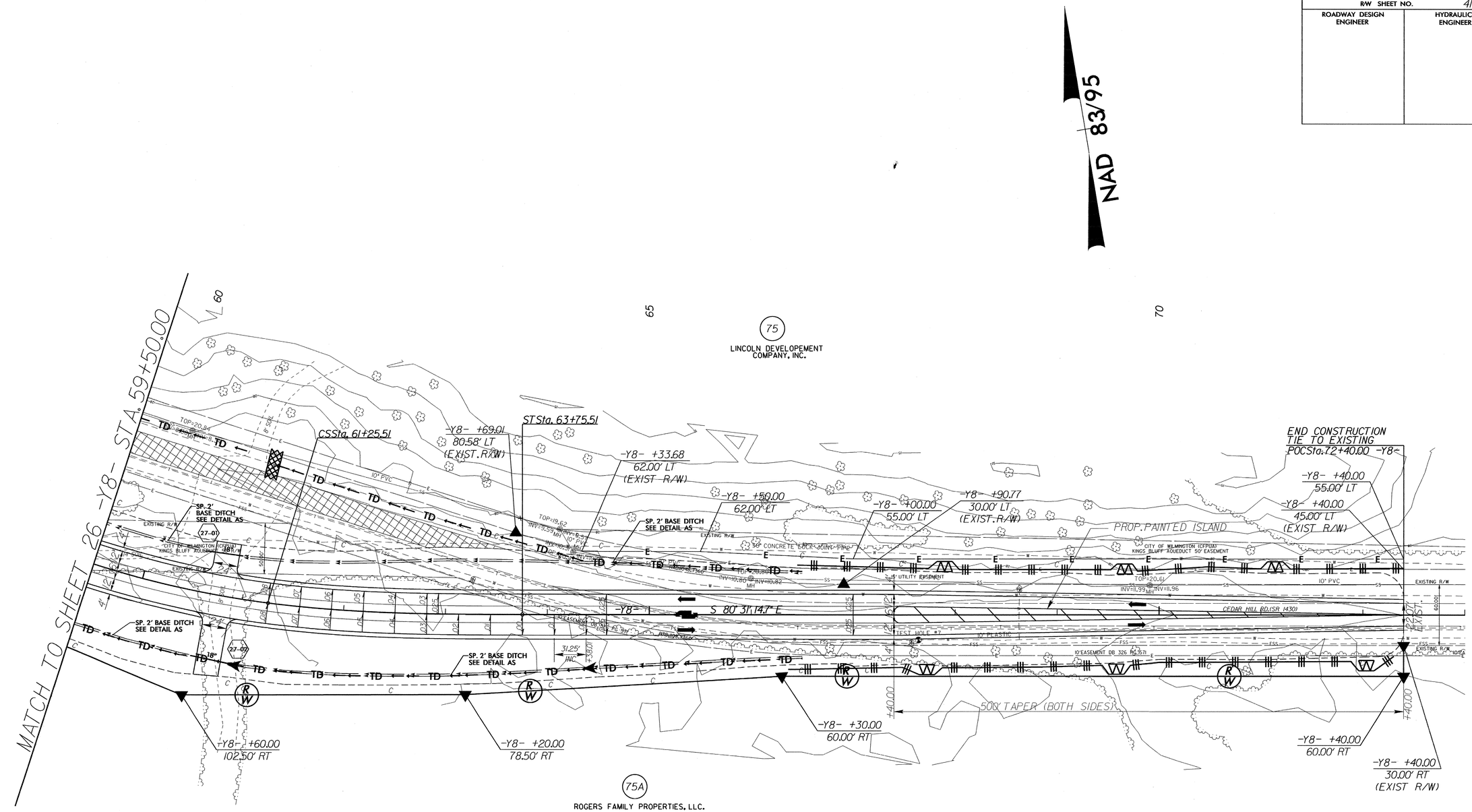
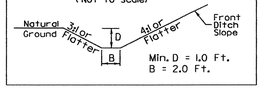
w:\bhandler1 AT RENW247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-29/CONST.27
R/W SHEET NO.	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



DETAIL AS
SPECIAL 2' BASE DITCH
(Not to Scale)



FROM STA. 59+50 TO STA. 67+00 -Y8- LT.
FROM STA. 59+50 TO STA. 67+00 -Y8- RT.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 27

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

8/17/99

03-SEP-2013 07:58
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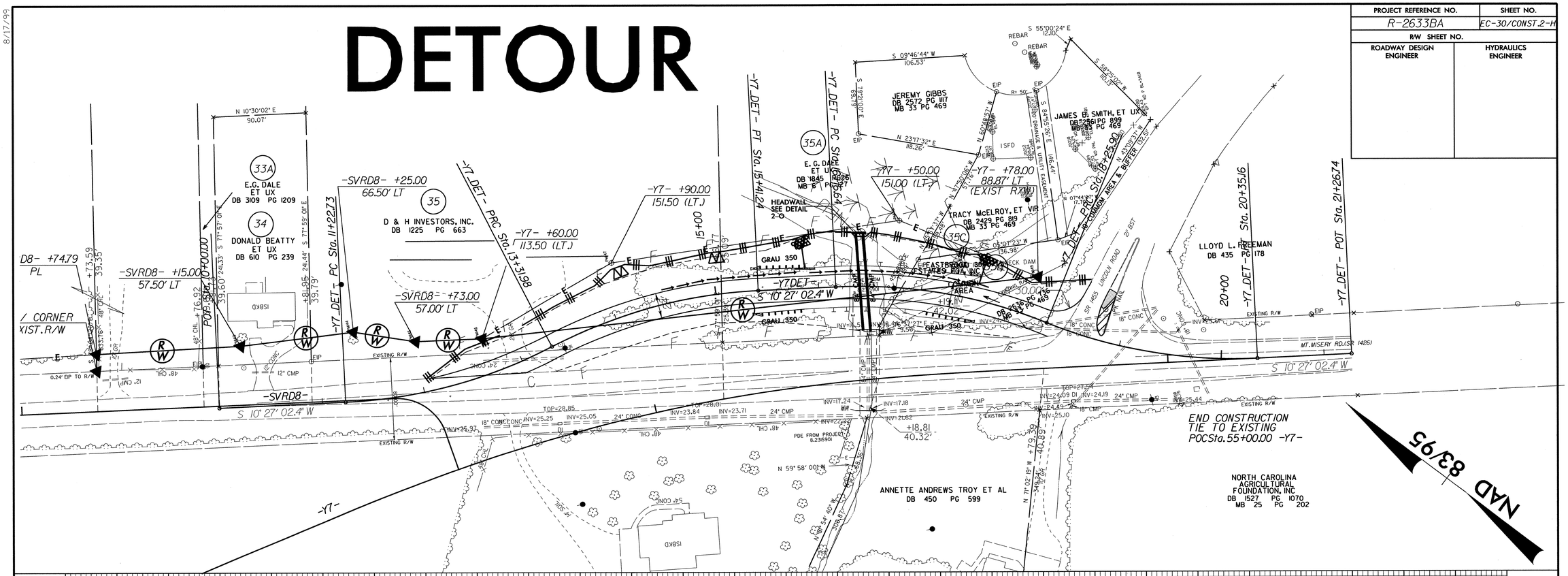
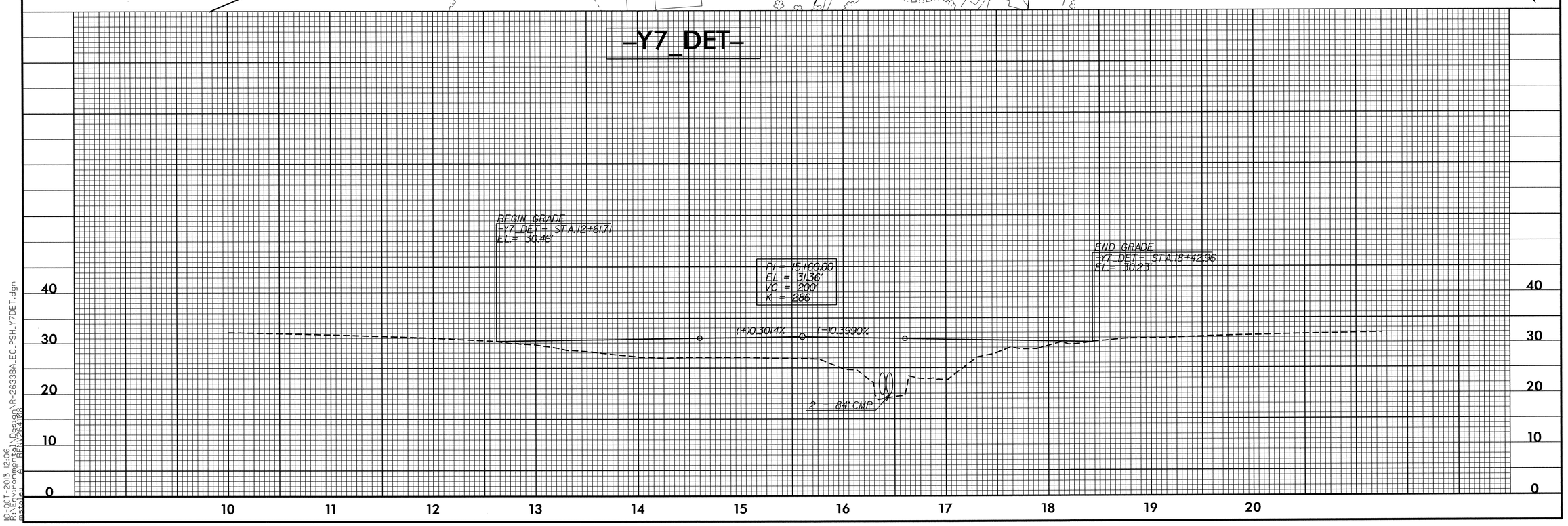
wchandler AT REINV247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-30/CONST.2-H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETOUR





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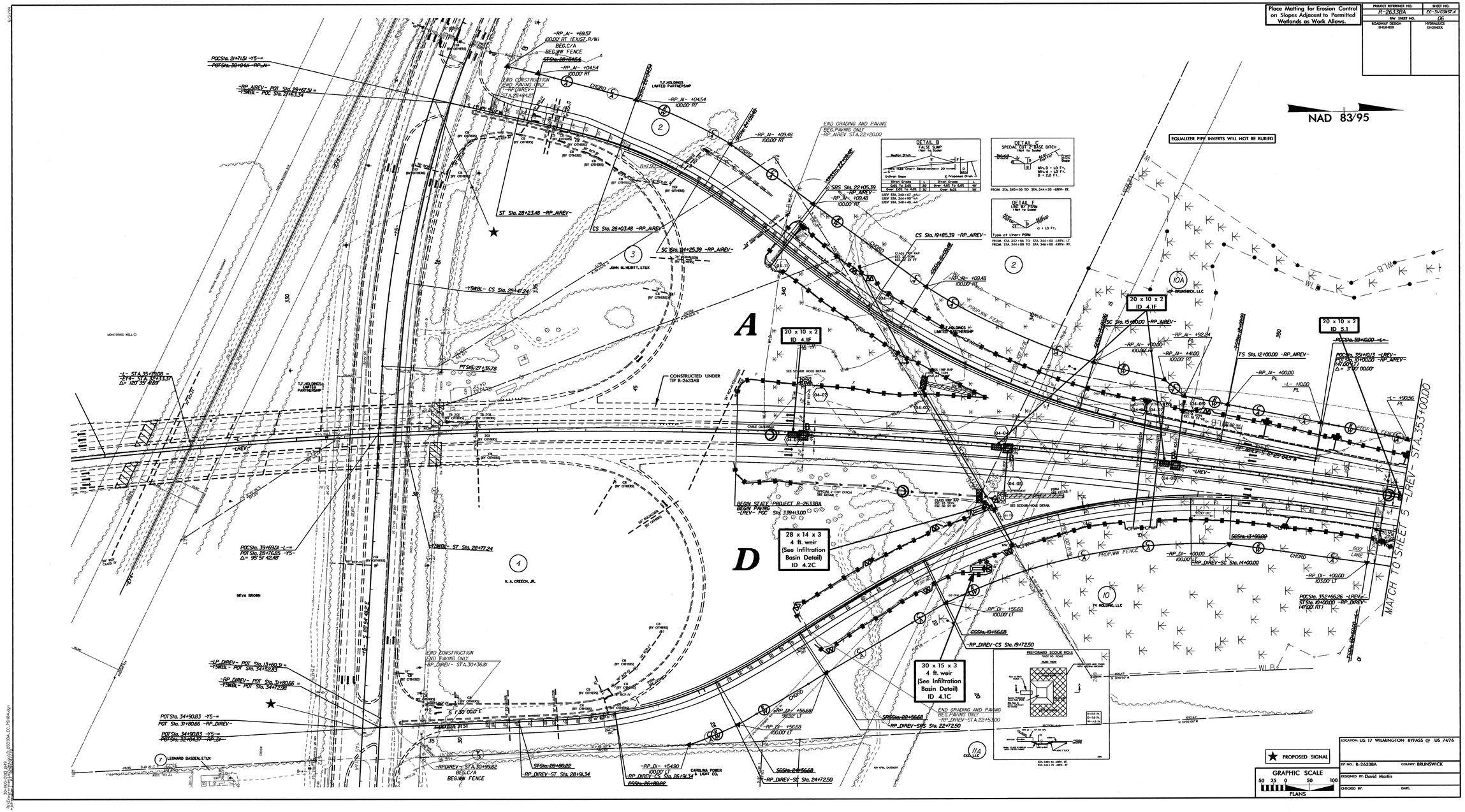
mstaley
21 REV 264.02
8/17/99

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

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-3/C0857.4
R/W SHEET NO.	
06	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



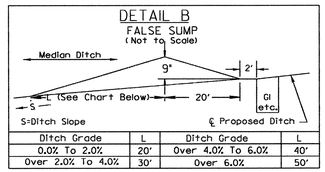
LOCATION: US 17 WILMINGTON BYPASS @ US 74/76	
TIP NO.: R-2633BA	COUNTY: BRUNSWICK
DESIGNED BY: David Martin	
CHECKED BY:	DATE:

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-32/CONST.5
R/W SHEET NO.	07
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

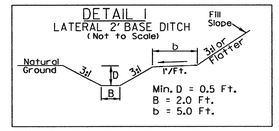
Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

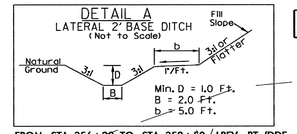


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

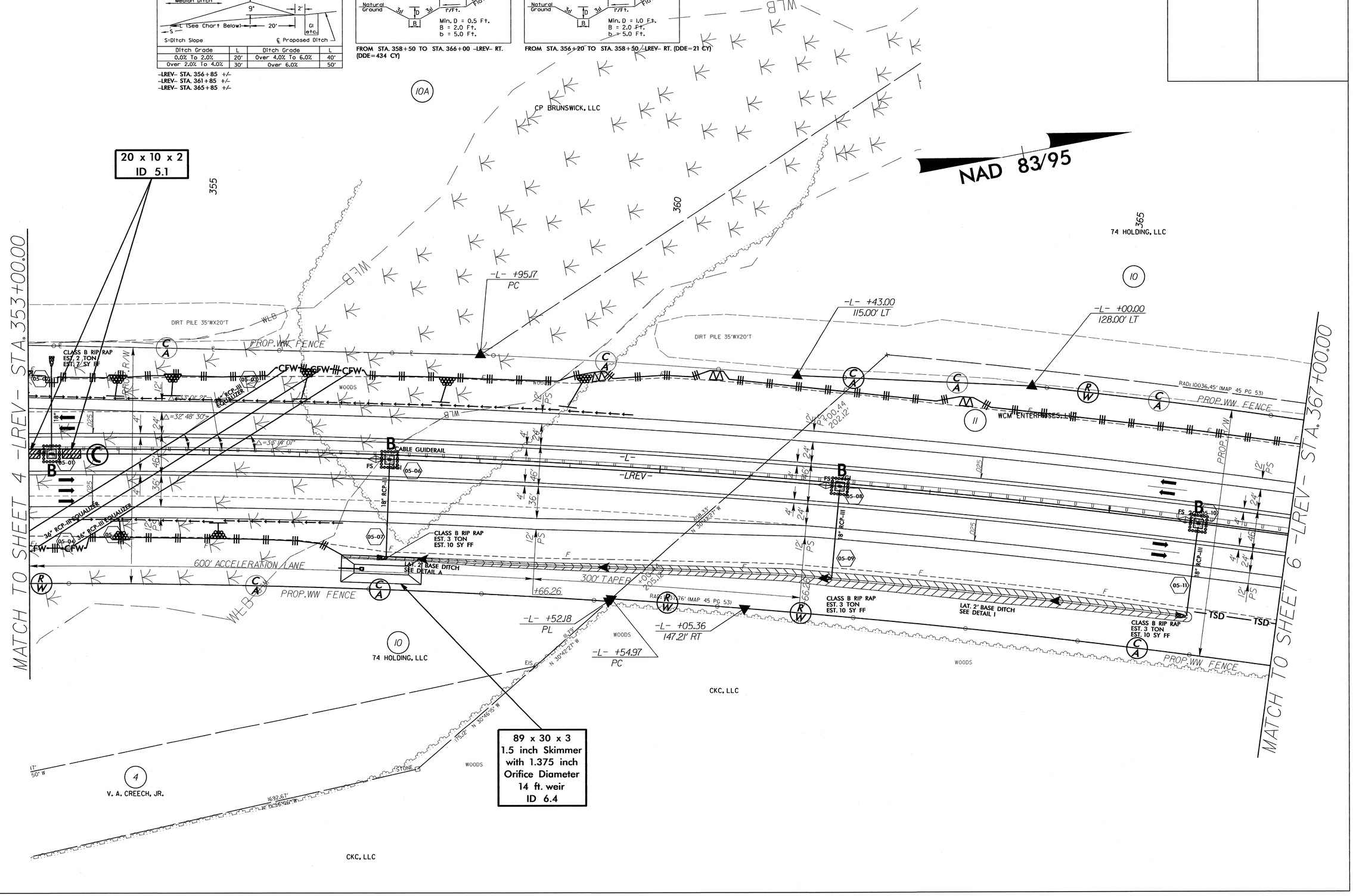
-LREV- STA. 356+85 +/-
-LREV- STA. 361+85 +/-
-LREV- STA. 365+85 +/-



FROM STA. 358+50 TO STA. 366+00 -LREV- RT. (DDE=434 CY)



FROM STA. 356+20 TO STA. 358+50 -LREV- RT. (DDE=21 CY)



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w_jchandler AT RENV247778

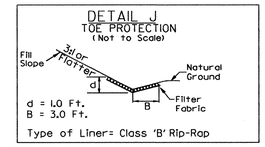
8/17/99

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

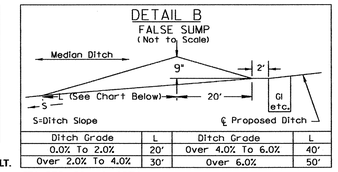
PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-33/CONST.6
R/W SHEET NO.	08
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

20 x 54 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
6 ft. weir
ID 6.1

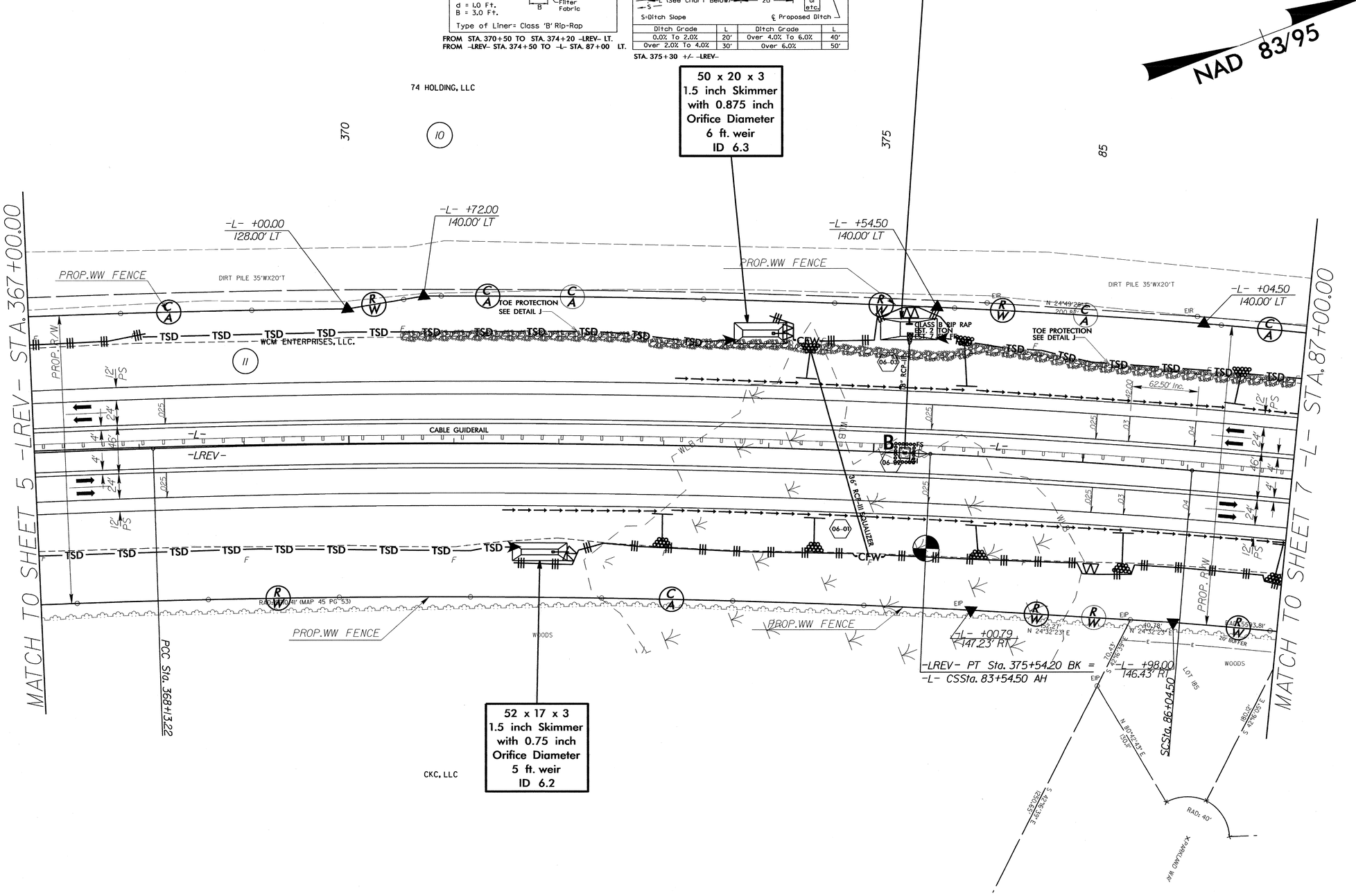


FROM STA. 370+50 TO STA. 374+20 -LREV- LT.
FROM -LREV- STA. 374+50 TO -L- STA. 87+00 LT.



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 375+30 +/- -LREV-



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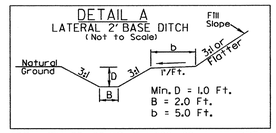
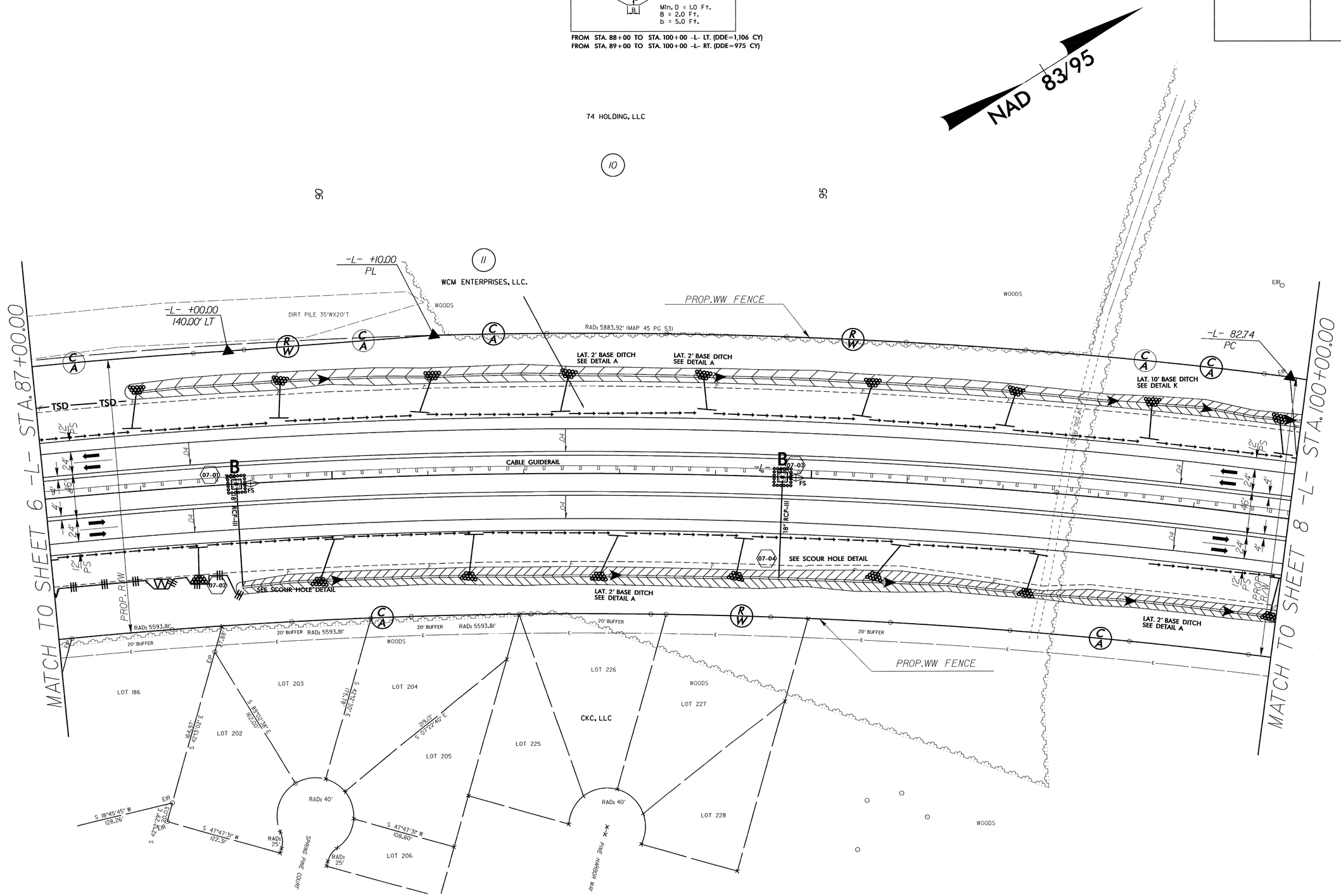
PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-34/CONST.7
R/W SHEET NO.	09
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



FROM STA. 88+00 TO STA. 100+00 -L- LT. (DDE=1,106 CY)
FROM STA. 89+00 TO STA. 100+00 -L- RT. (DDE=975 CY)



8/17/99

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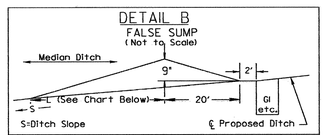
wchandler AT REINV247778

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-35/CONST.8
R/W SHEET NO.	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

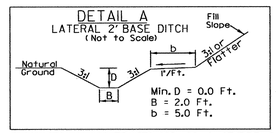
Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

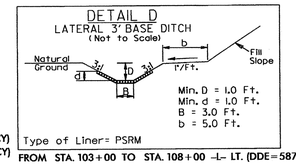


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

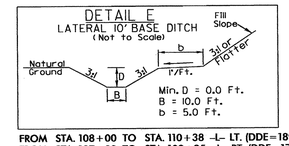
STA. 100+55+/-
STA. 106+28+/-
STA. 112+00+/-



FROM STA. 100+00 TO STA. 103+00 -L- LT.(DDE=260CY)
FROM STA. 100+00 TO STA. 107+00 -L- RT.(DDE=632CY)



FROM STA. 103+00 TO STA. 108+00 -L- LT. (DDE=587CY)



FROM STA. 108+00 TO STA. 110+38 -L- LT. (DDE=189CY)
FROM STA. 107+00 TO STA. 109+25 -L- RT. (DDE=175CY)

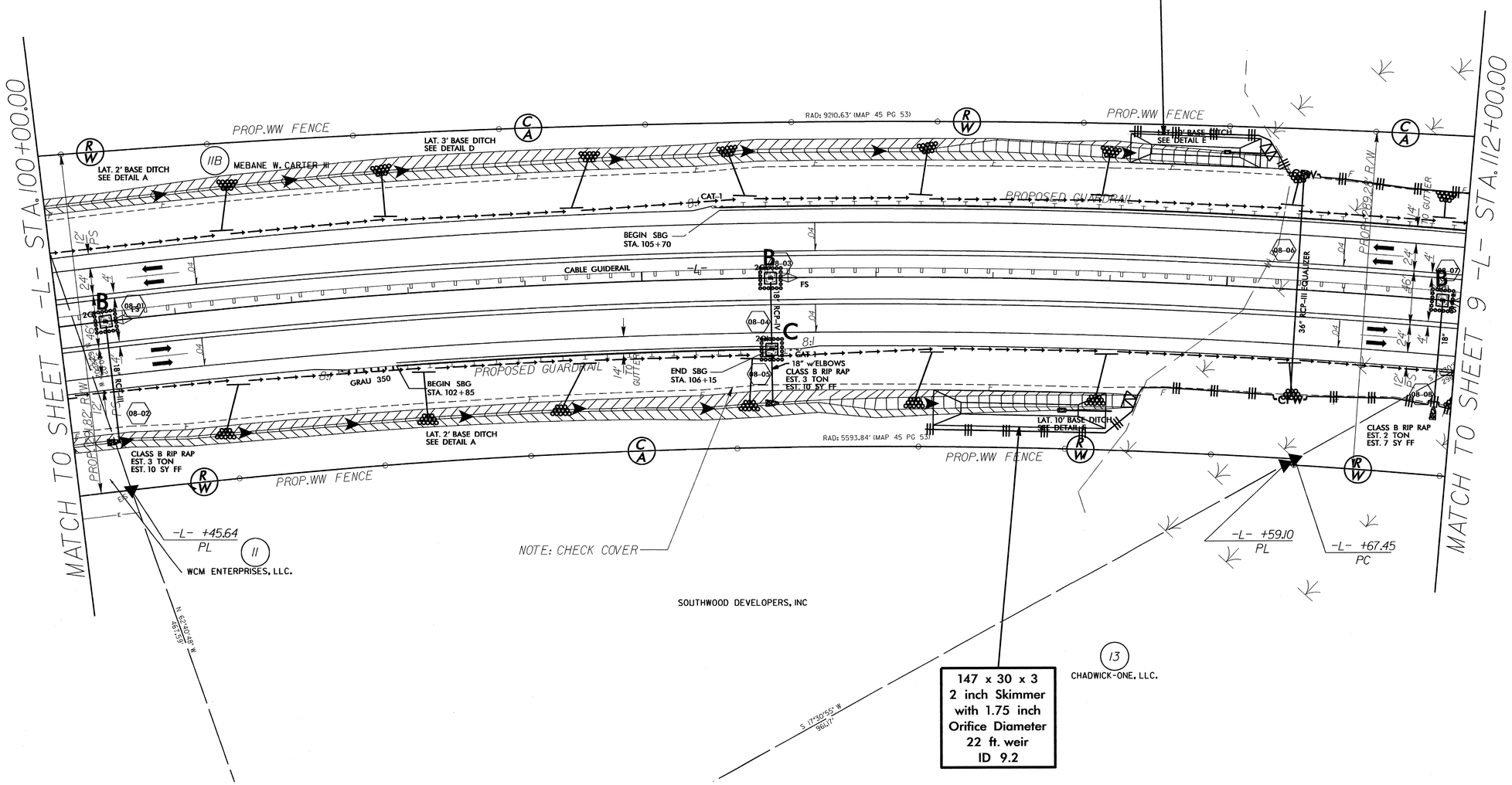
(10) 74 HOLDING, LLC

NAD 83/95

105

110

111 x 25 x 3
1.5 inch Skimmer
with 1.5 inch
Orifice Diameter
14 ft. weir
ID 9.1



147 x 30 x 3
2 inch Skimmer
with 1.75 inch
Orifice Diameter
22 ft. weir
ID 9.2

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w_bhandler1 AT RHN24778

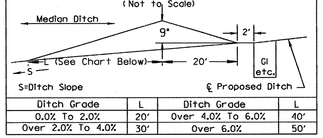
8/17/99

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

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

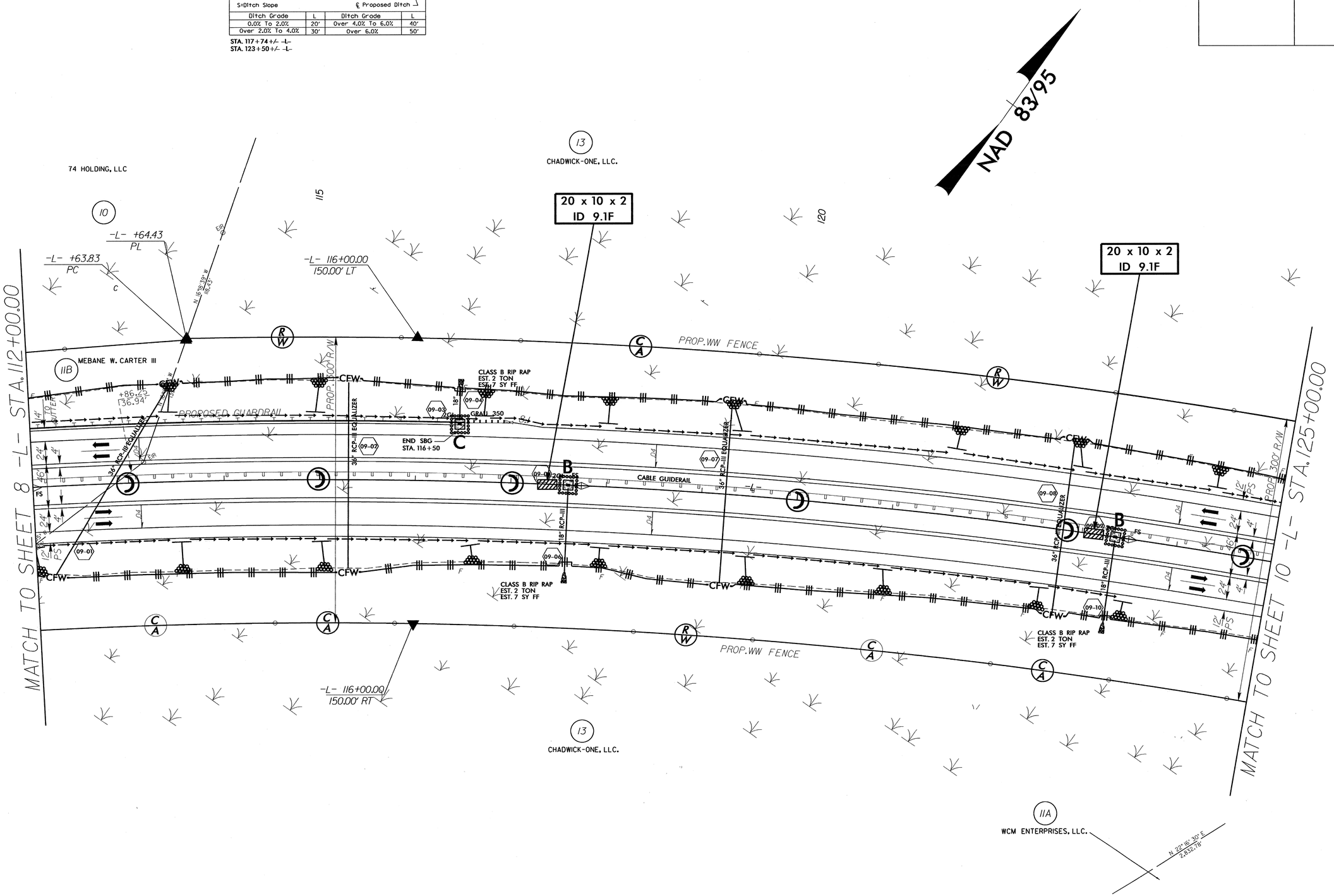
PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-36/CONST.9
R/W SHEET NO.	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL B
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 117+74 +/- -L-
STA. 123+50 +/- -L-



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$$Calculator1 AT REV247778

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-37/CONST.10
R/W SHEET NO.	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

DETAIL B
FALSE SUMP
(Not to Scale)

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 132+96+/- -L-
STA. 137+07+/- -L-
STA. 137+55+/- -L-

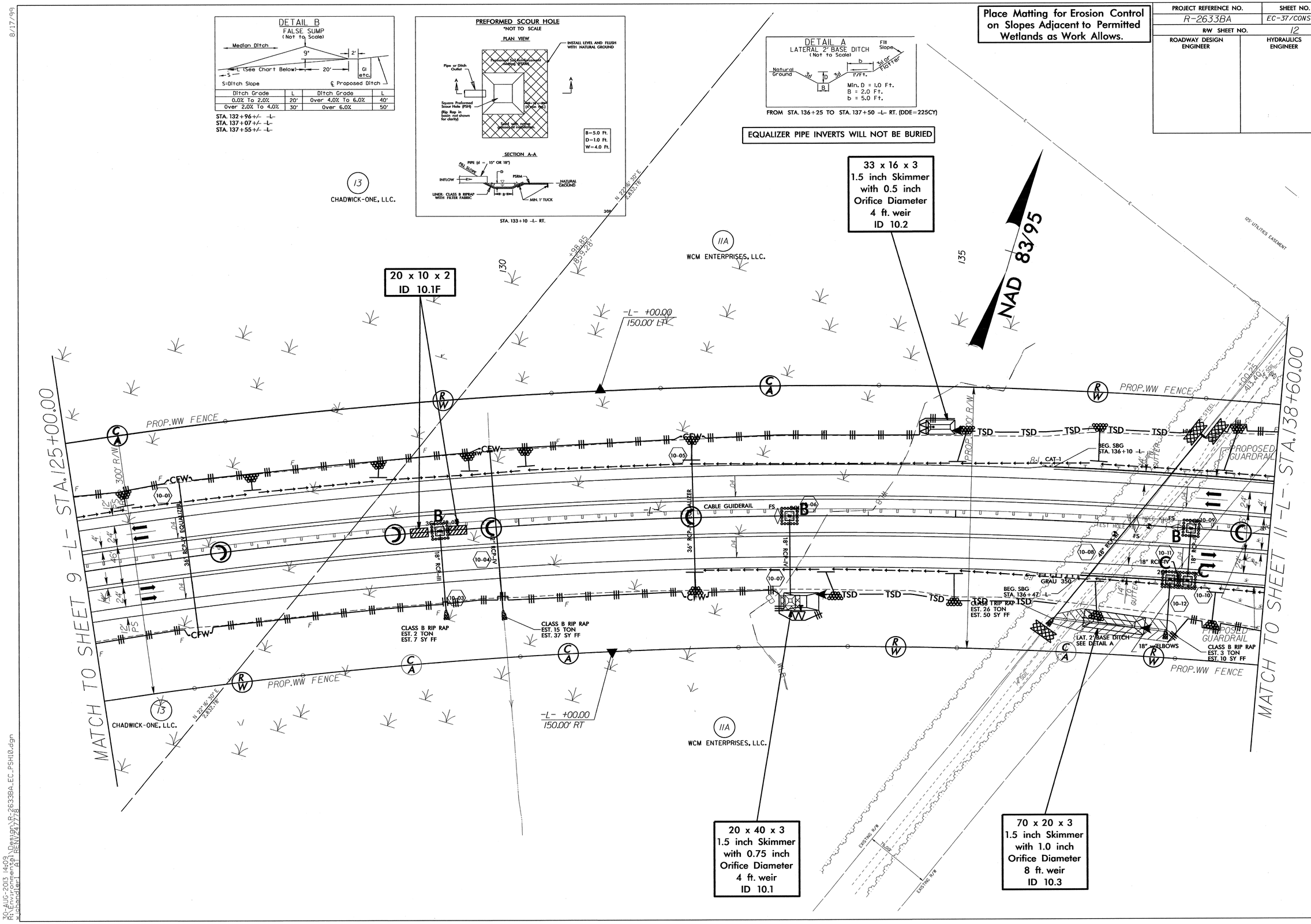
PREFORMED SCOUR HOLE
*NOT TO SCALE

STA. 133+10 -L- RT.

DETAIL A
LATERAL 2' BASE DITCH
(Not to Scale)

FROM STA. 136+25 TO STA. 137+50 -L- RT. (DDE=225CY)

EQUALIZER PIPE INVERTS WILL NOT BE BURIED



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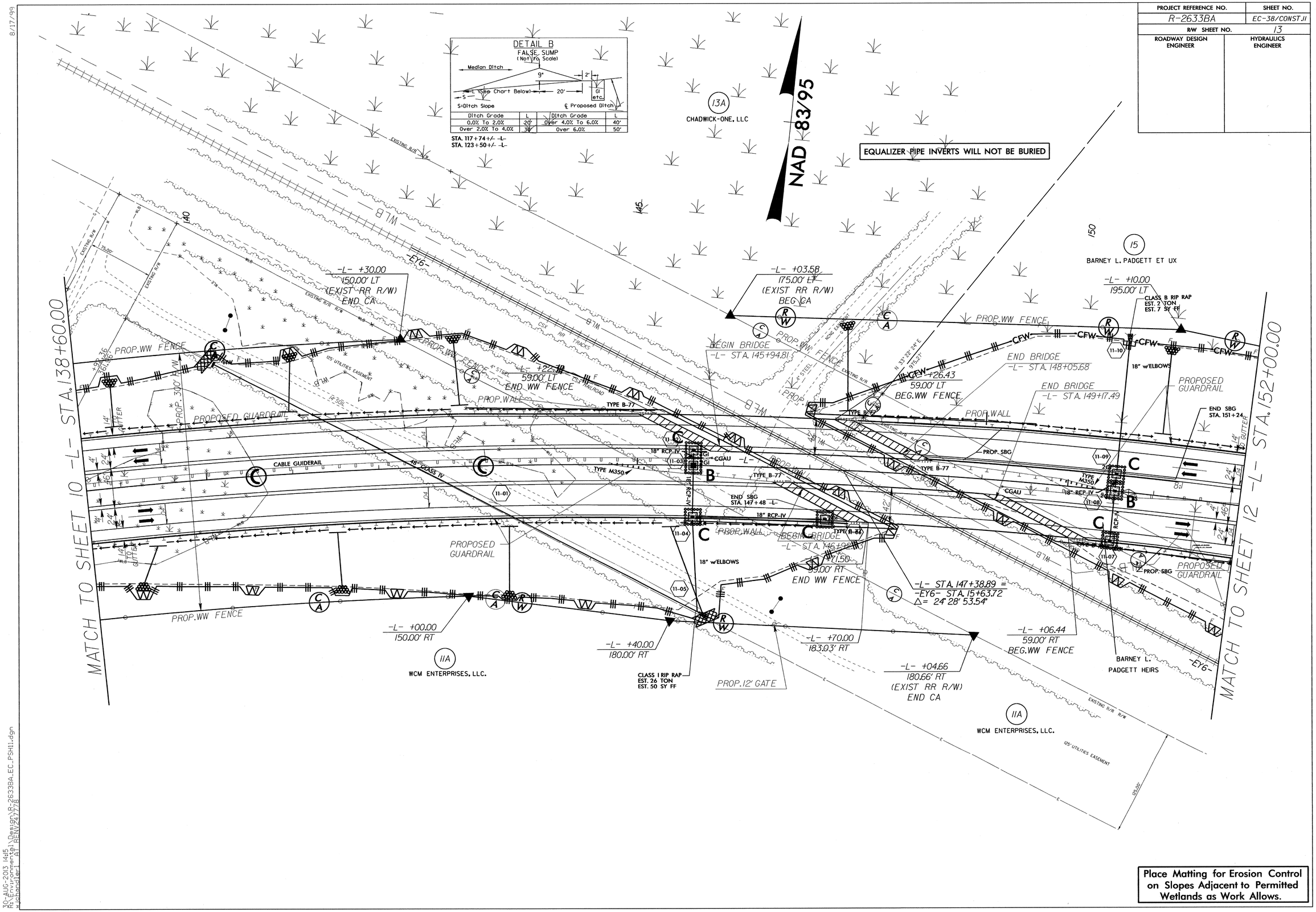
w_cpandler AT DENV247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-38/CONST.II
R/W SHEET NO.	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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

8/17/99

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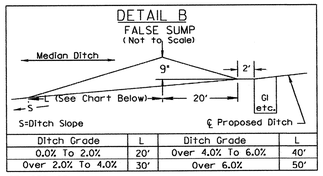
8/17/99

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

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-39/CONST.12
R/W SHEET NO.	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL B
FALSE SUMP
(Not to Scale)

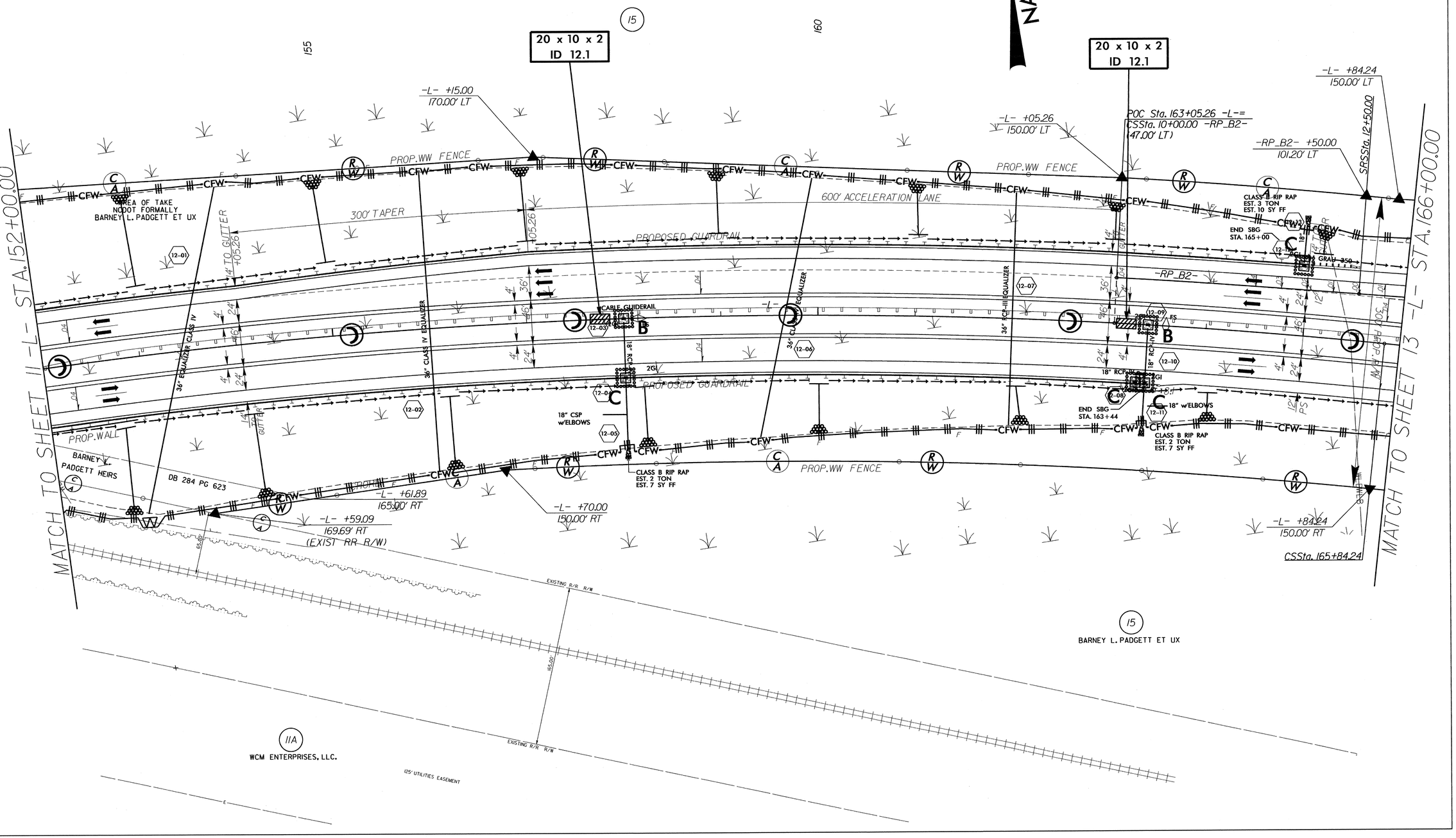


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 158+15+/- -L-
STA. 163+58+/- -L-

EQUALIZER PIPE INVERTS WILL NOT BURIED

NAD 83/95



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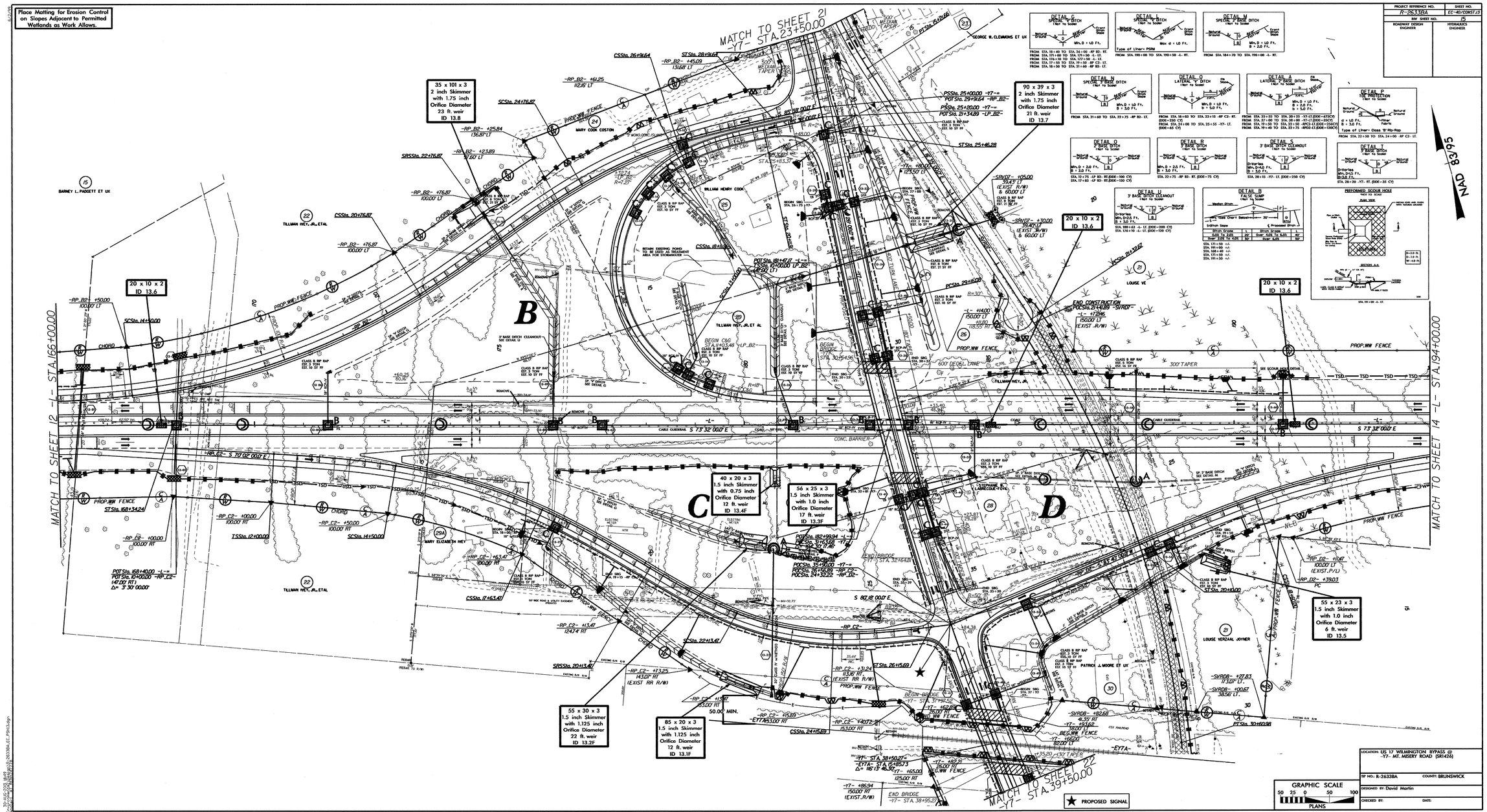
Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-40/CONST.13
SW SHEET NO.	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



LOCATION: US 17 WILMINGTON BYPASS @ -Y7- MT. MISERY ROAD (SR1426)

TIP NO.: R-2633BA COUNTY: BRUNSWICK

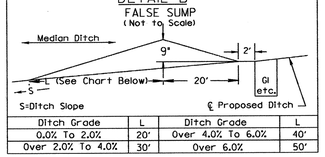
DESIGNED BY: David Martin

CHECKED BY: DATE:

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-41/CONST14
R/W SHEET NO.	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

DETAIL B
FALSE SUMP
(Not to Scale)

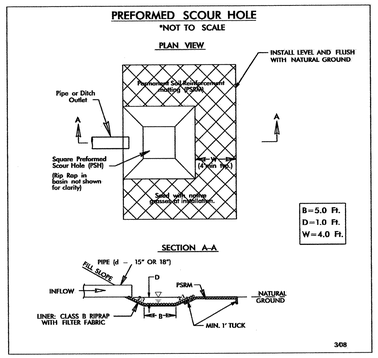


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

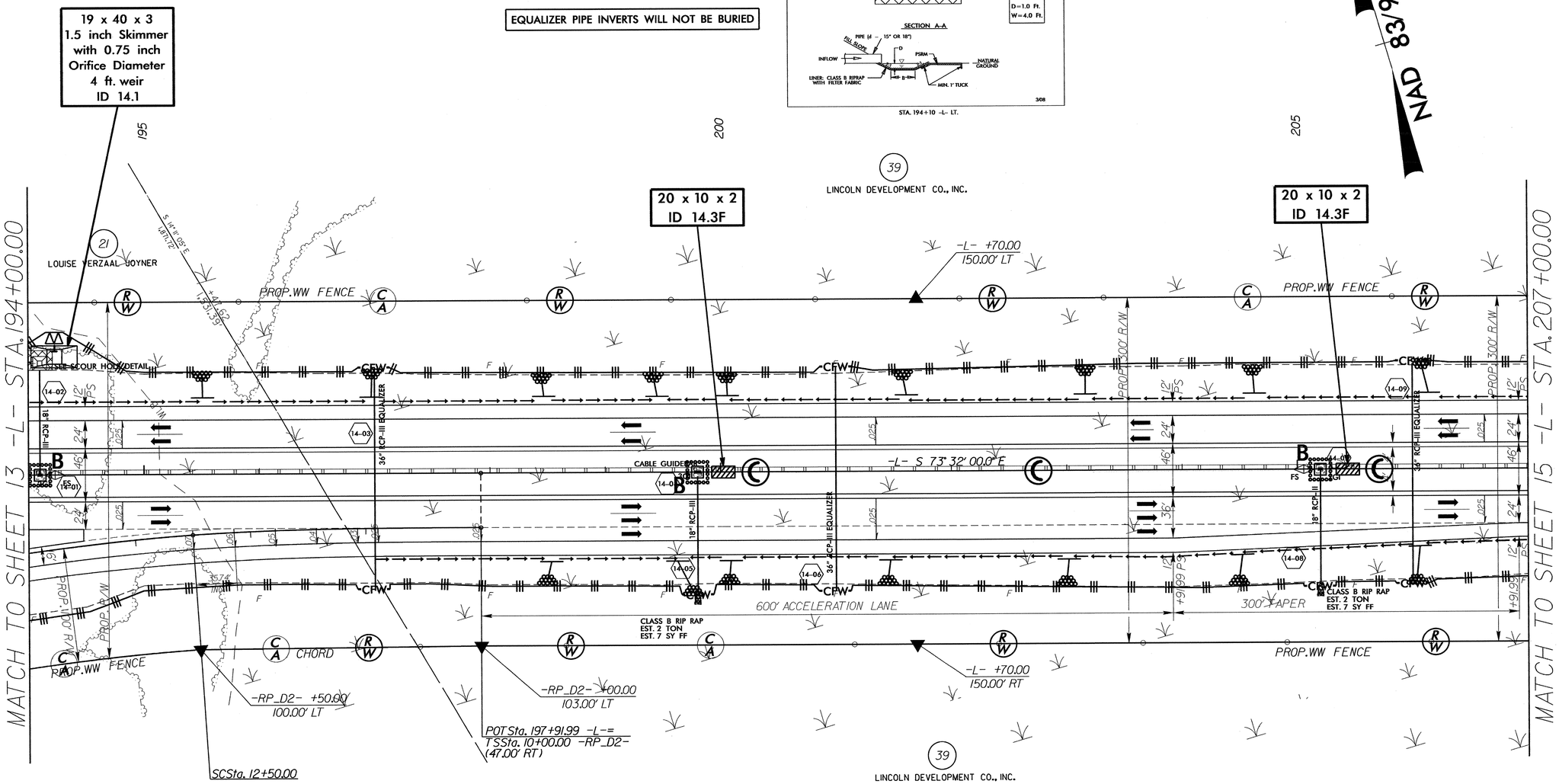
STA. 194+23 +/- -L-
STA. 205+06 +/- -L-

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

PREFORMED SCOUR HOLE
*NOT TO SCALE



STA. 194+10 -L- LT.



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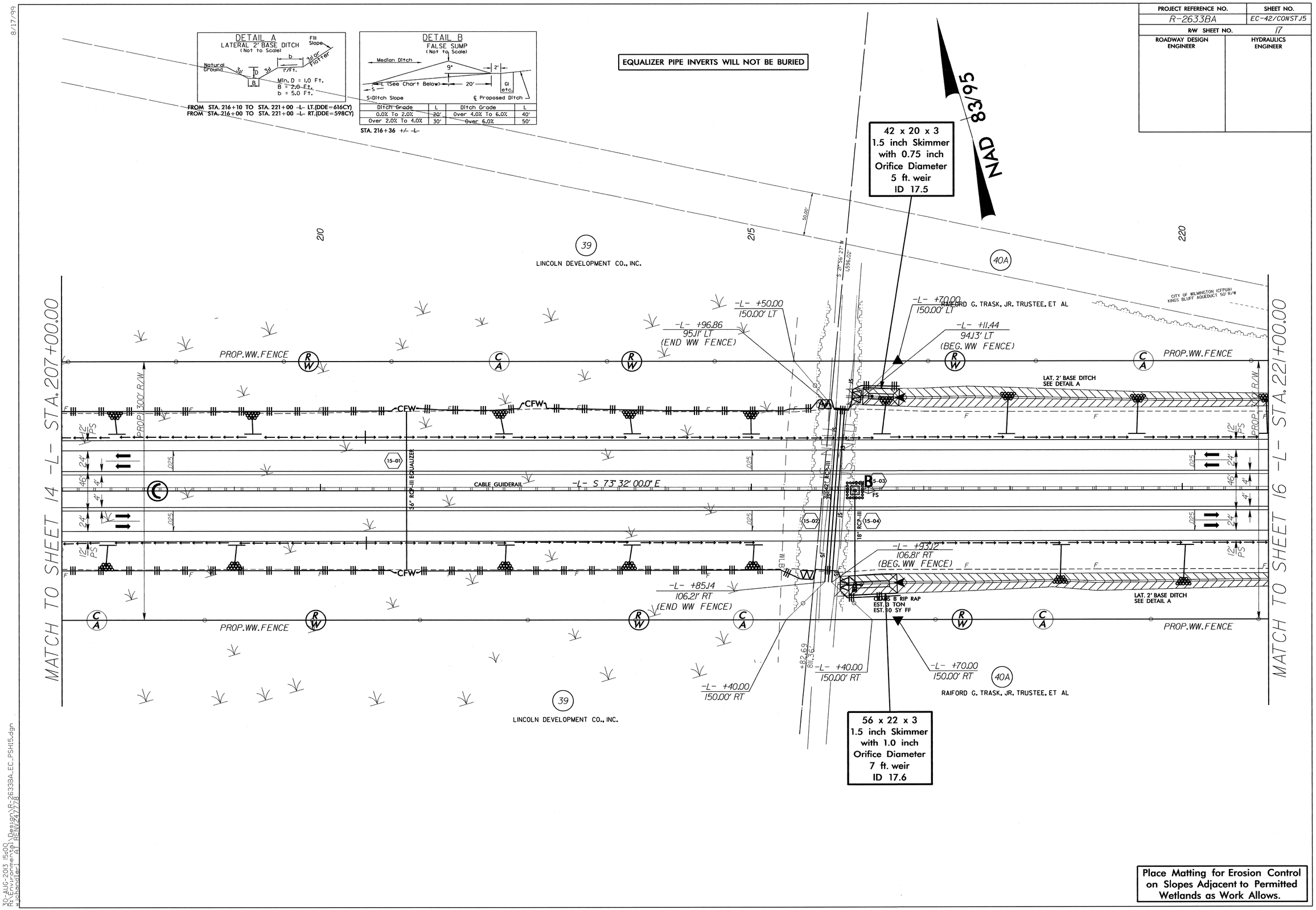
$cchandler AT RENV247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-42/CONST J5
R/W SHEET NO.	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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

8/17/99

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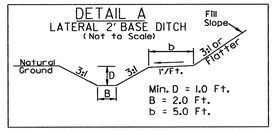
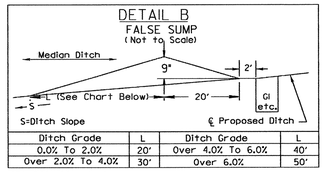
wjchandler AT RENV247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-43/CONST.16
R/W SHEET NO.	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

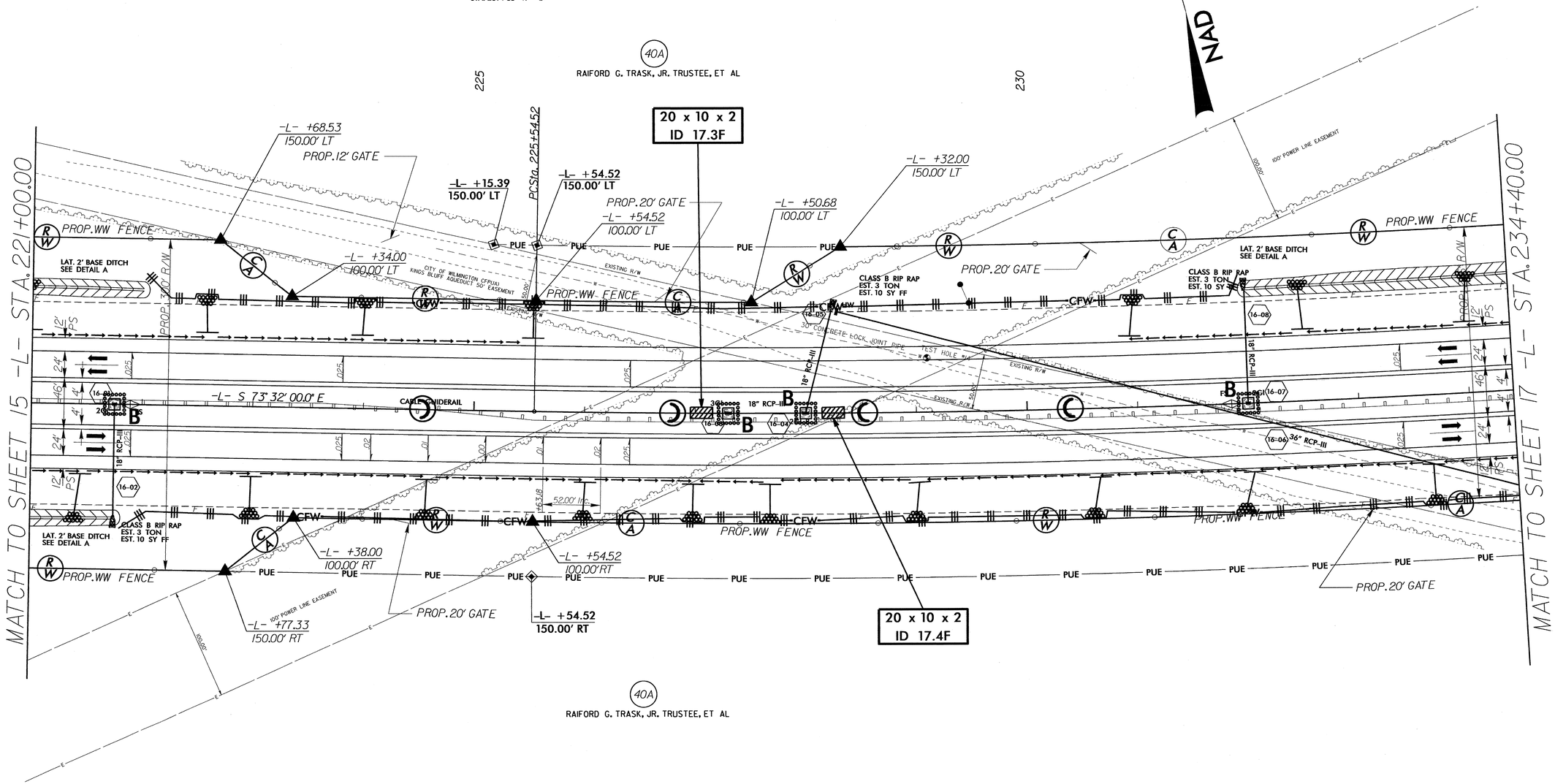


FROM STA. 221+00 TO STA. 222+00 -L- LT.(DDE=117CY)
FROM STA. 221+00 TO STA. 221+75 -L- RT.(DDE=51CY)
FROM STA. 232+00 TO STA. 234+40 -L- LT.(DDE=237CY)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 221+89 +/- -L-
STA. 231+85 +/- -L-



40A
RAIFORD G. TRASK, JR. TRUSTEE, ET AL

8/17/99

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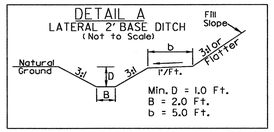
jeheidler AT RENW247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-44/CONST.17
R/W SHEET NO.	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

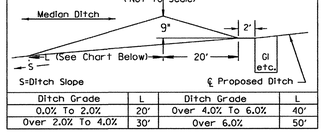
DETAIL A
LATERAL 2' BASE DITCH
(Not To Scale)



Min. D = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

FROM STA. 234+40 TO STA. 239+80 -L- LT.(DDE=468CY)
FROM STA. 244+00 TO STA. 248+00 -L- LT.(DDE=255CY)
FROM STA. 244+00 TO STA. 248+00 -L- RT.(DDE=283CY)

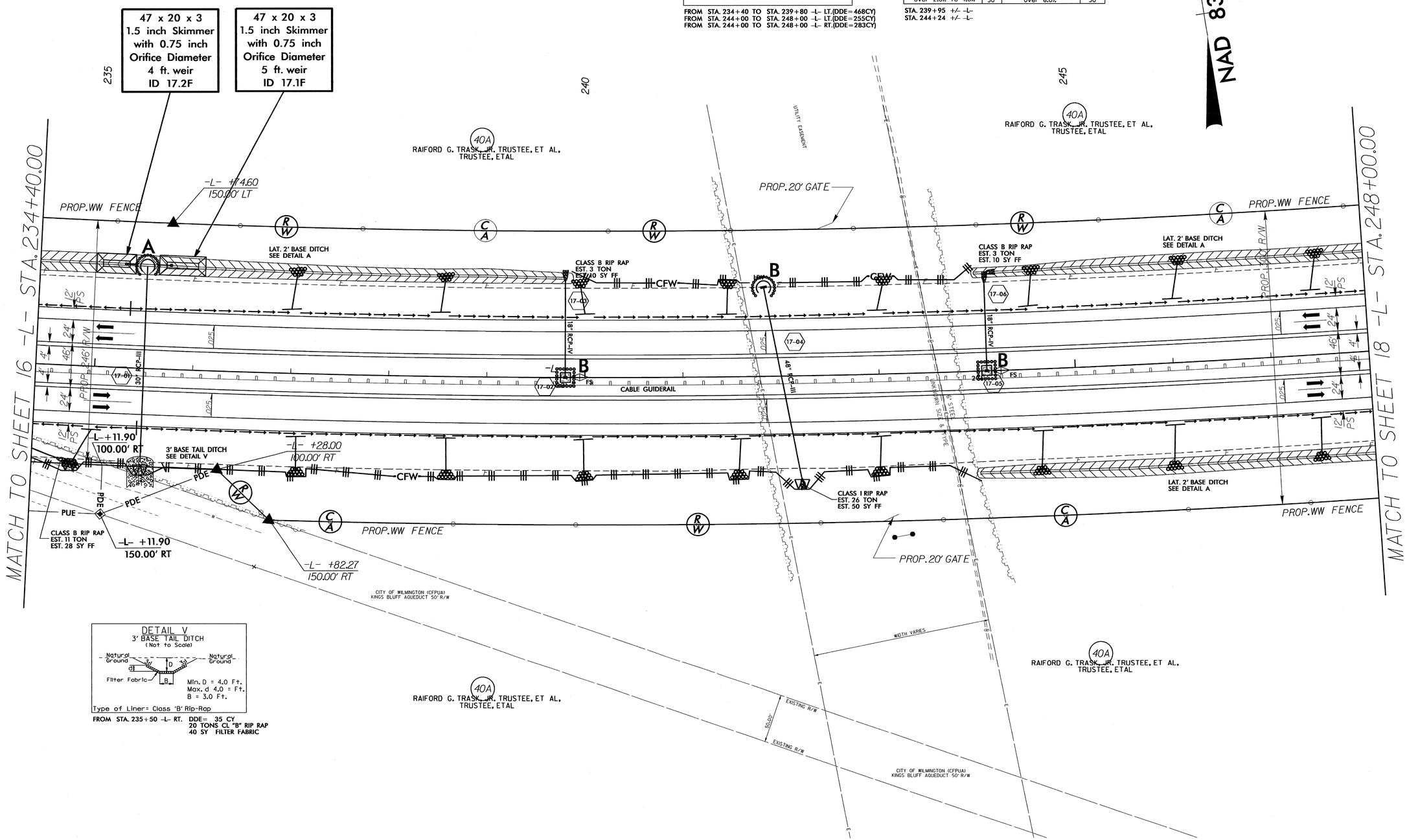
DETAIL B
FALSE SUMP
(Not To Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 239+95 +/- -L-
STA. 244+24 +/- -L-

NAD 83/95



DETAIL V
3' BASE TAIL DITCH
(Not To Scale)

Min. D = 4.0 Ft.
Max. d 4.0 = Ft.
B = 3.0 Ft.

Type of Liner= Class 'B' Rip-Rap

FROM STA. 235+50 -L- RT. DDE= 35 CY
20 TONS CL "B" RIP RAP
40 SY FILTER FABRIC

8/17/99

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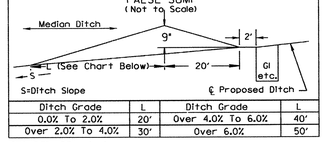
PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-45/CONST.J8
R/W SHEET NO.	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL B
FALSE SUMP
(Not to Scale)

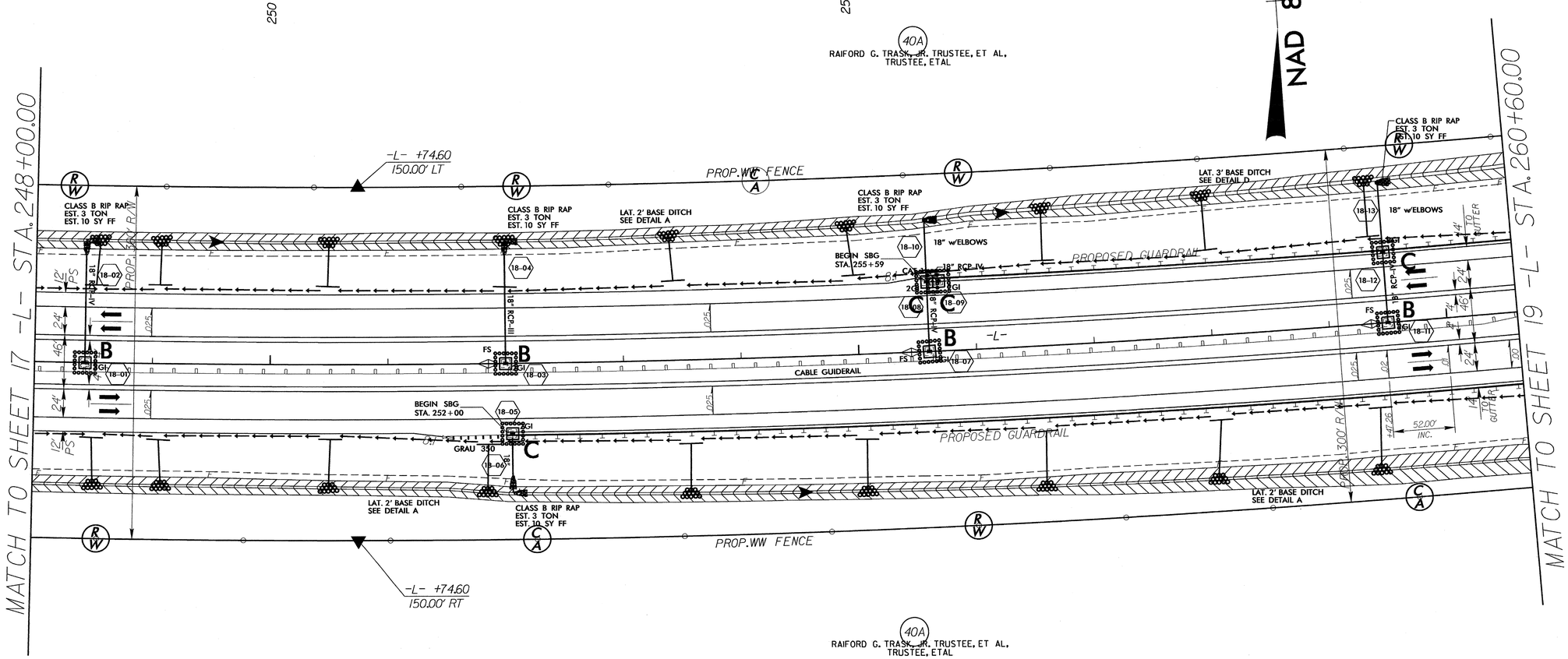


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

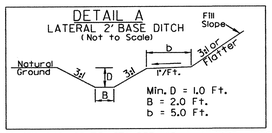
STA. 251+85 +/- -L-
STA. 255+45 +/- -L-
STA. 259+36 +/- -L-

EQUALIZER PIPE INVERTS WILL NOT BE BURIED

NAD 83/95

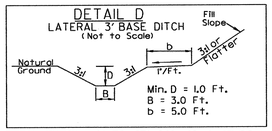


DETAIL A
LATERAL 2' BASE DITCH
(Not to Scale)



FROM STA. 248+00 TO STA. 255+60 -L- LT.(DDE=473CY)
FROM STA. 248+00 TO STA. 260+60 -L- RT.(DDE=1100CY)

DETAIL D
LATERAL 3' BASE DITCH
(Not to Scale)



FROM STA. 255+60 TO STA. 260+60 -L- LT.(DDE=484CY)

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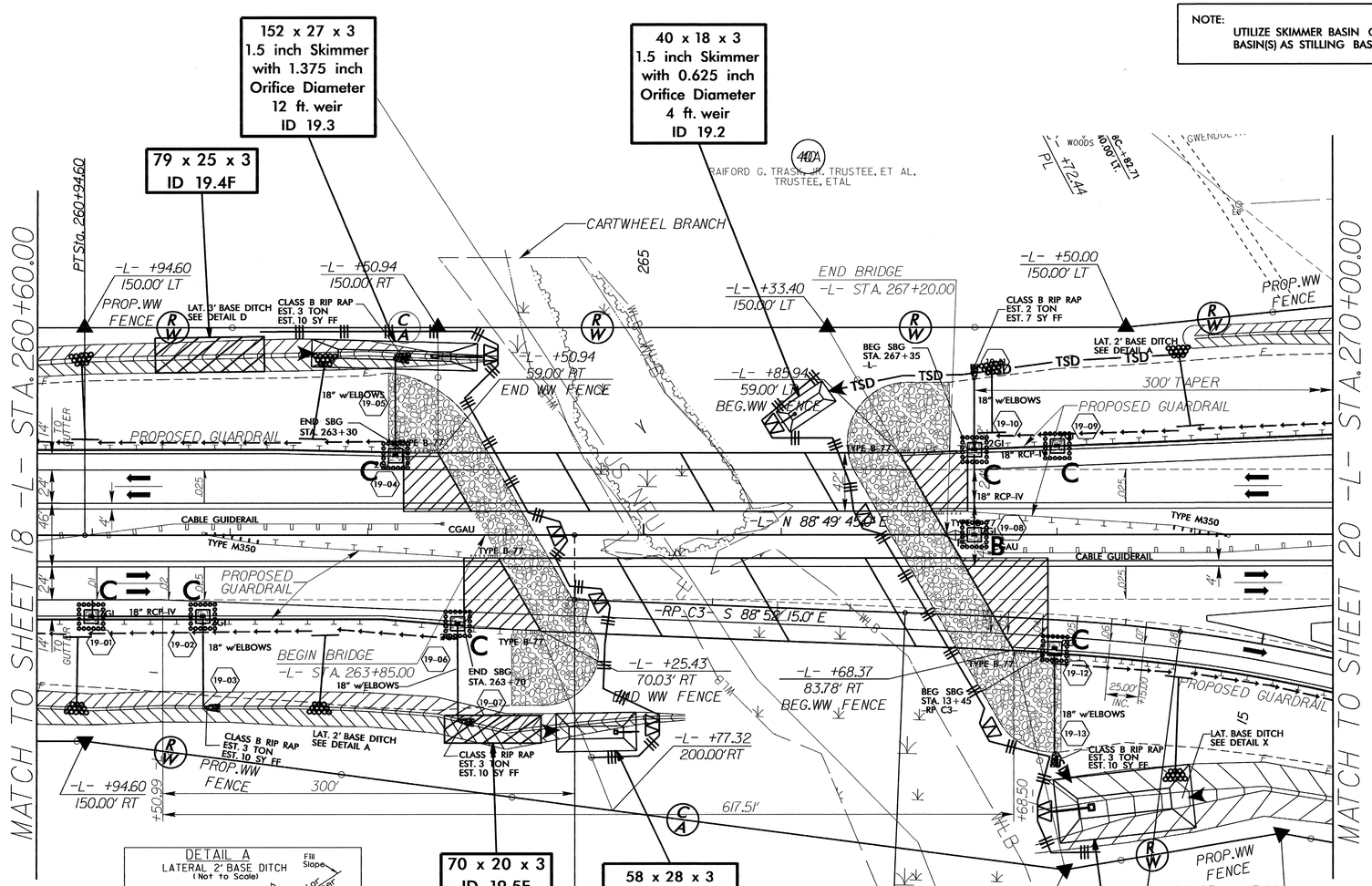
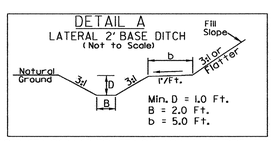
mjchandler1 AT RENV241777F6

8/17/99

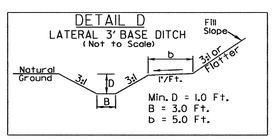
PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-46/CONST.19
R/W SHEET NO.	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

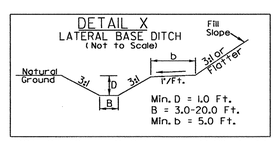




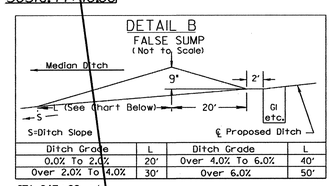
FROM STA. 260+60 TO STA. 265+30 -L- RT.(DDE=769CY)
FROM STA. 269+00 TO STA. 270+00 -L- LT.(DDE=92CY)



FROM STA. 260+60 TO STA. 264+00 -L- LT.(DDE=415CY)



FROM STA. 13+45 TO STA. 15+75 -RP C3- RT.(DDE=1281CY)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 267+22 +/-

03-SEP-2013 07:26
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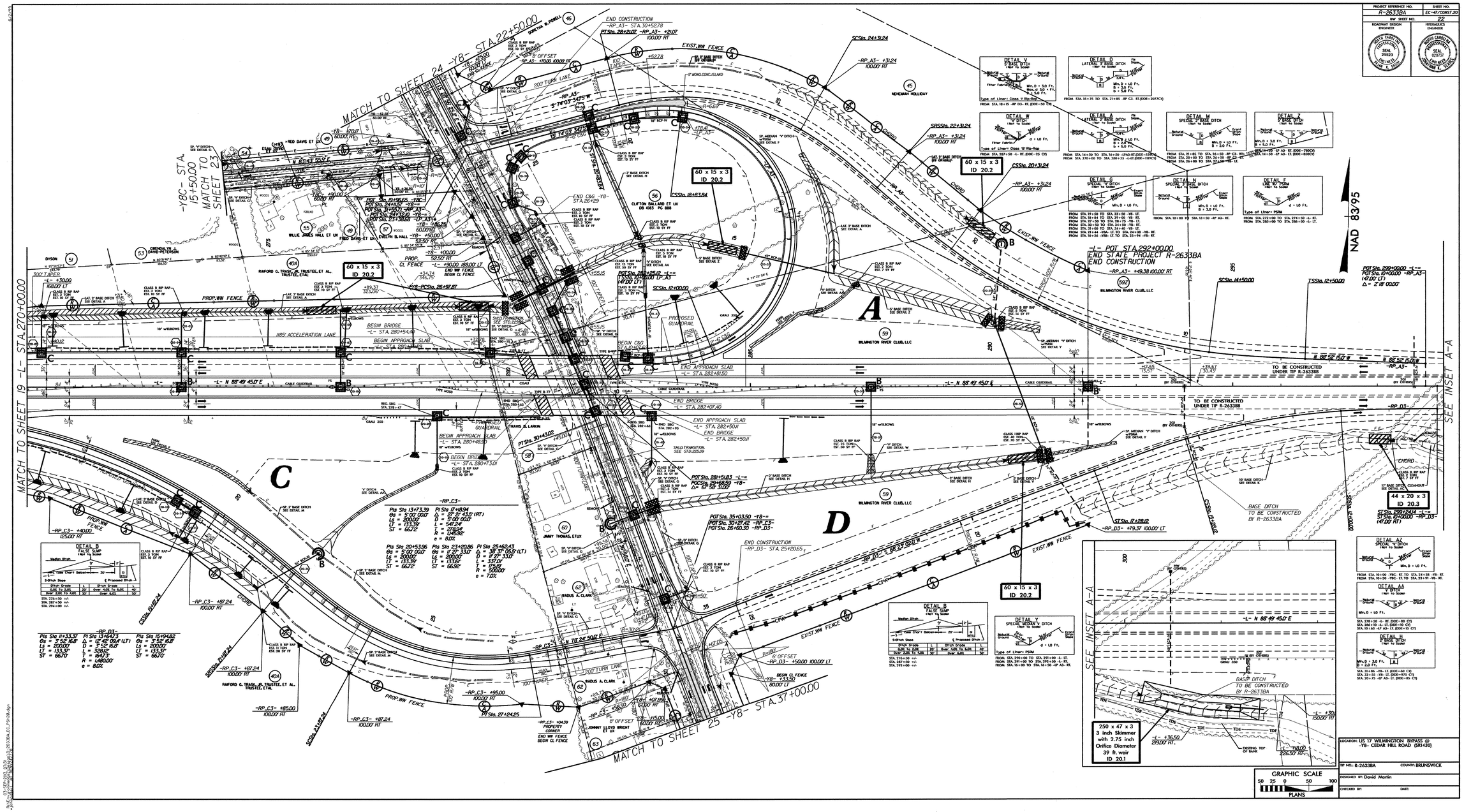
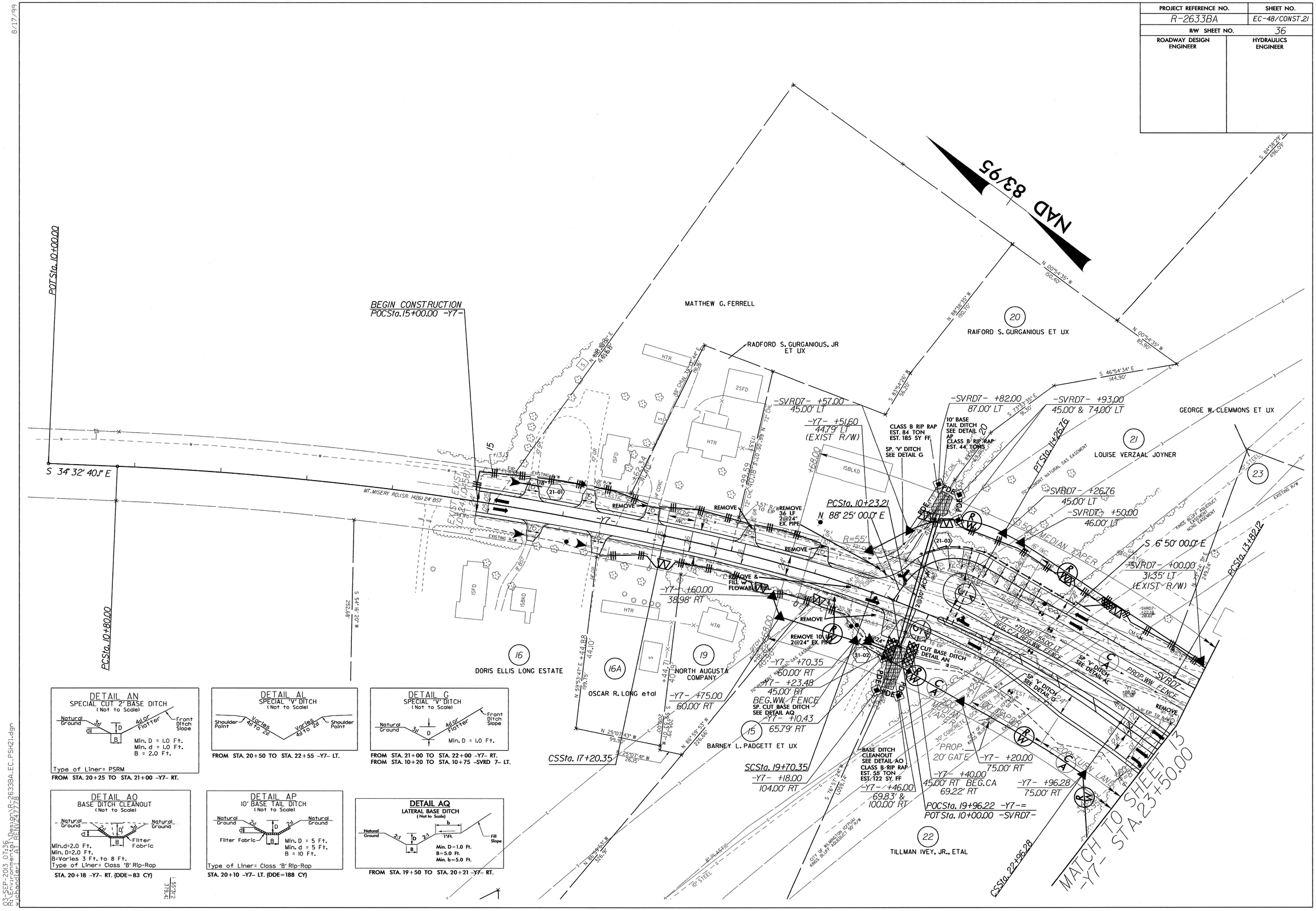
w\chandler1 AT REN\247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-47/CONST.20
R/W SHEET NO.	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25523 ENGINEER	NORTH CAROLINA PROFESSIONAL SEAL 029731 ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-48/CONST.21
R/W SHEET NO.	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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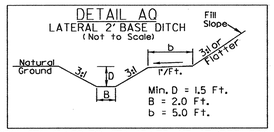
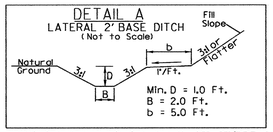
w_lchandler AT RENV247778

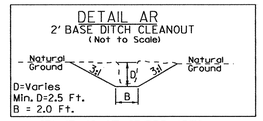
PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-49/CONST.22
R/W SHEET NO.	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



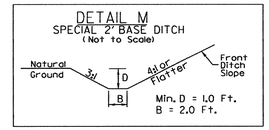
FROM STA. 41+50 TO STA. 45+75 -Y7- LT. (DDE=306CY)



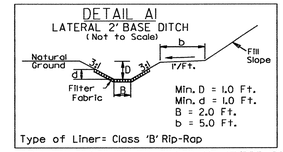
FROM STA. 45+45 TO STA. 47+45 -Y7- RT.(DDE=147CY)
FROM STA. 52+15 TO STA. 52+70 -Y7- RT.(DDE=46CY)



STA. 47+60 -Y7- RT.(DDE=65CY)
STA. 34+95 -SVRD8- RT.(DDE=215CY)



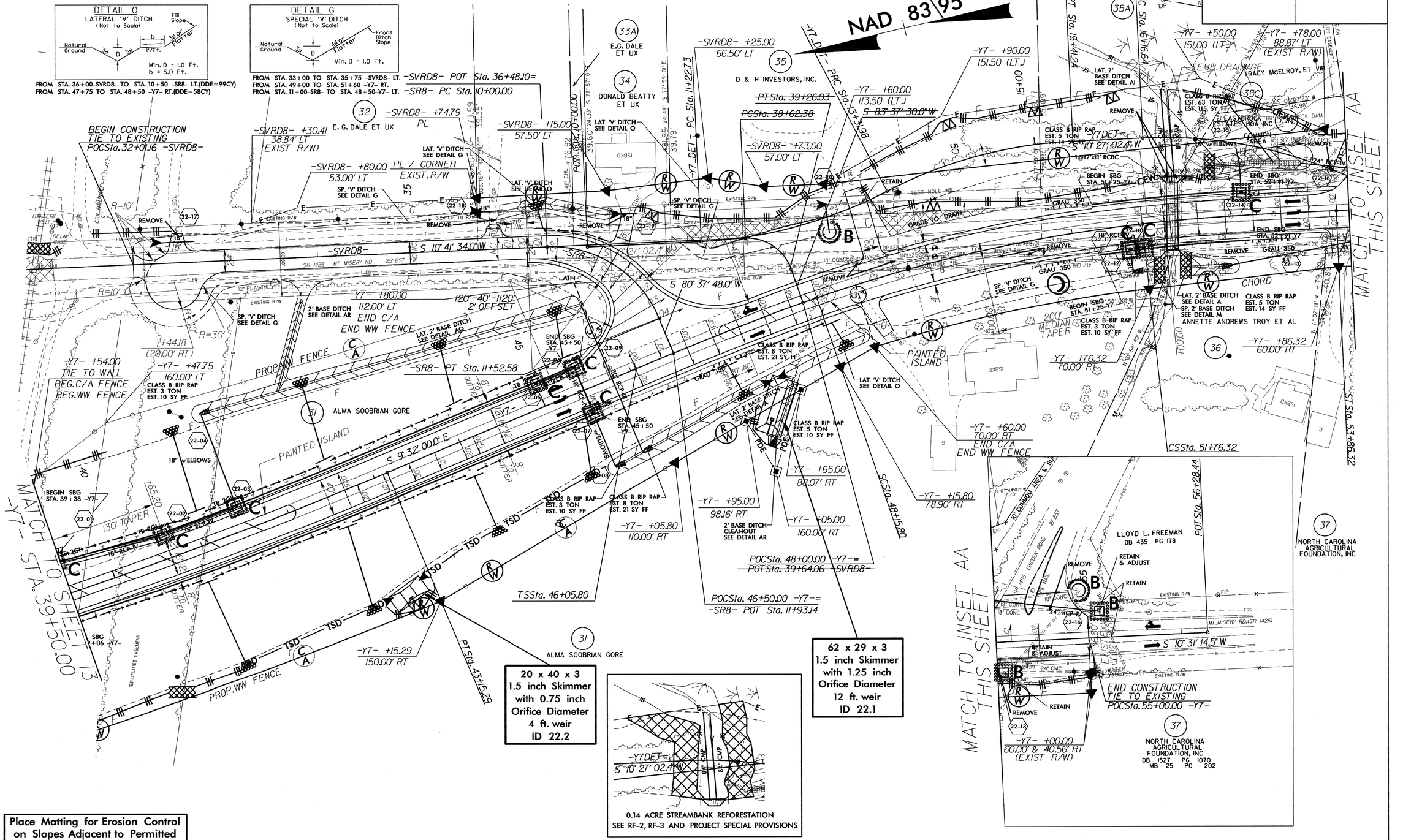
FROM STA. 51+60 TO STA. 51+90 -Y7- RT.



FROM STA. 52+50 TO STA. 53+50 -Y7- LT.(DDE=200CY)

FROM STA. 36+00-SVRD8- TO STA. 10+50 -SR8- LT.(DDE=99CY)
FROM STA. 47+75 TO STA. 48+50 -Y7- RT.(DDE=58CY)

FROM STA. 33+00 TO STA. 35+75 -SVRD8- LT.
FROM STA. 49+00 TO STA. 51+60 -Y7- RT.
FROM STA. 11+00-SR8- TO STA. 48+50-Y7- LT.



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

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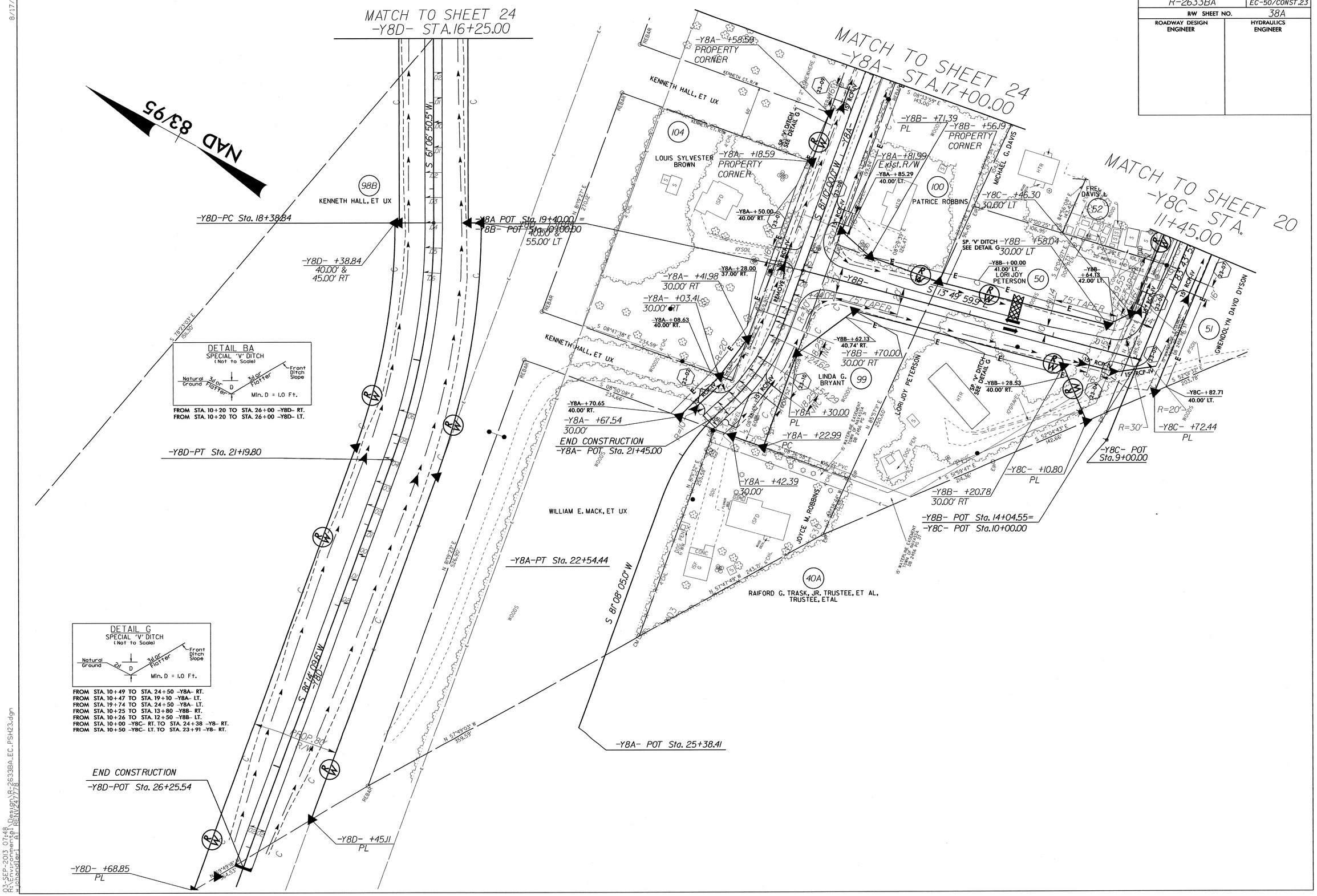
w_lchandler AT RENV247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-50/CONST.23
R/W SHEET NO.	38A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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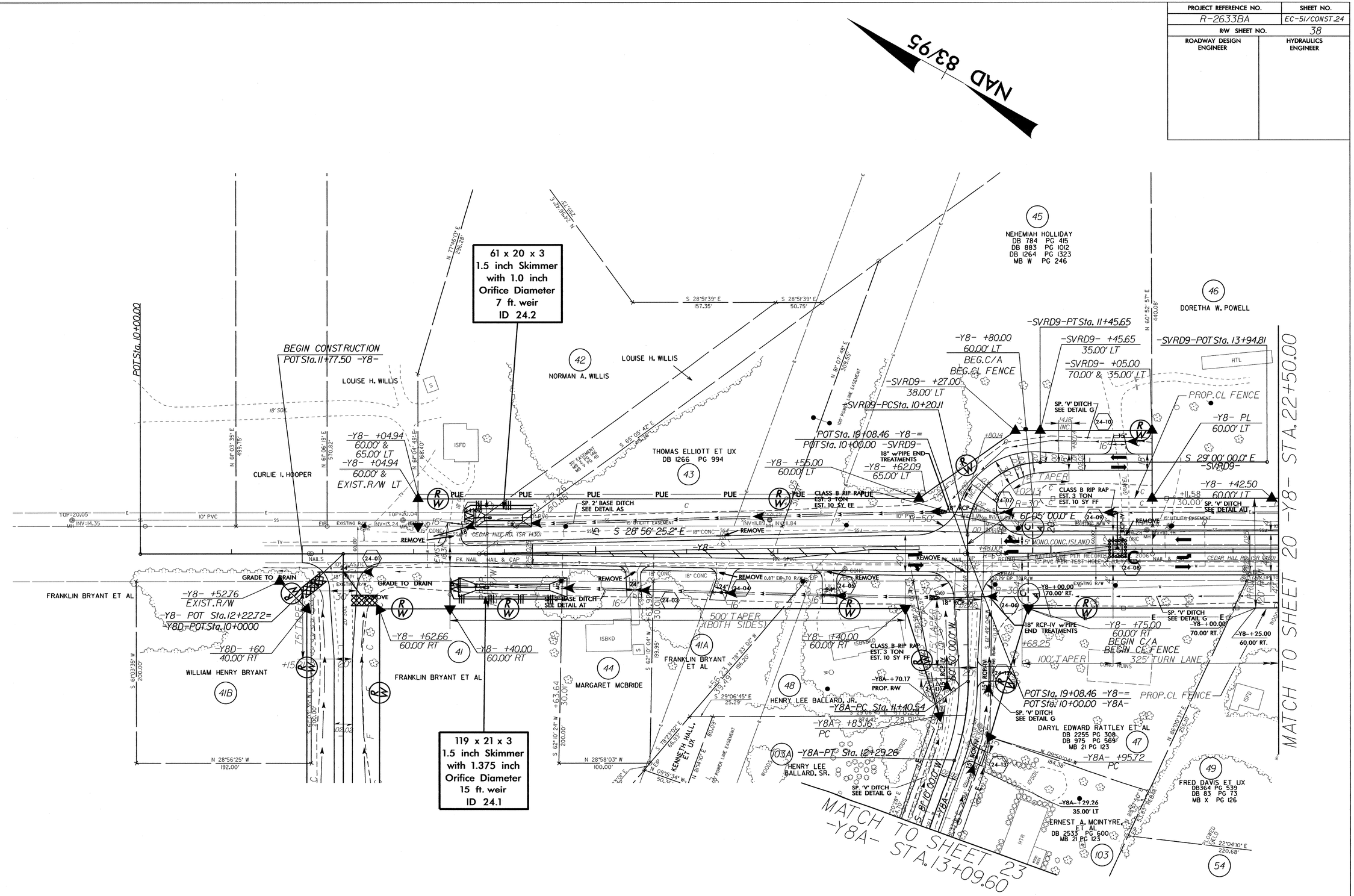
R:\Environmental\Design\R-2633BA_EC_PSH23.dgn
w\chandler AT RENV24778

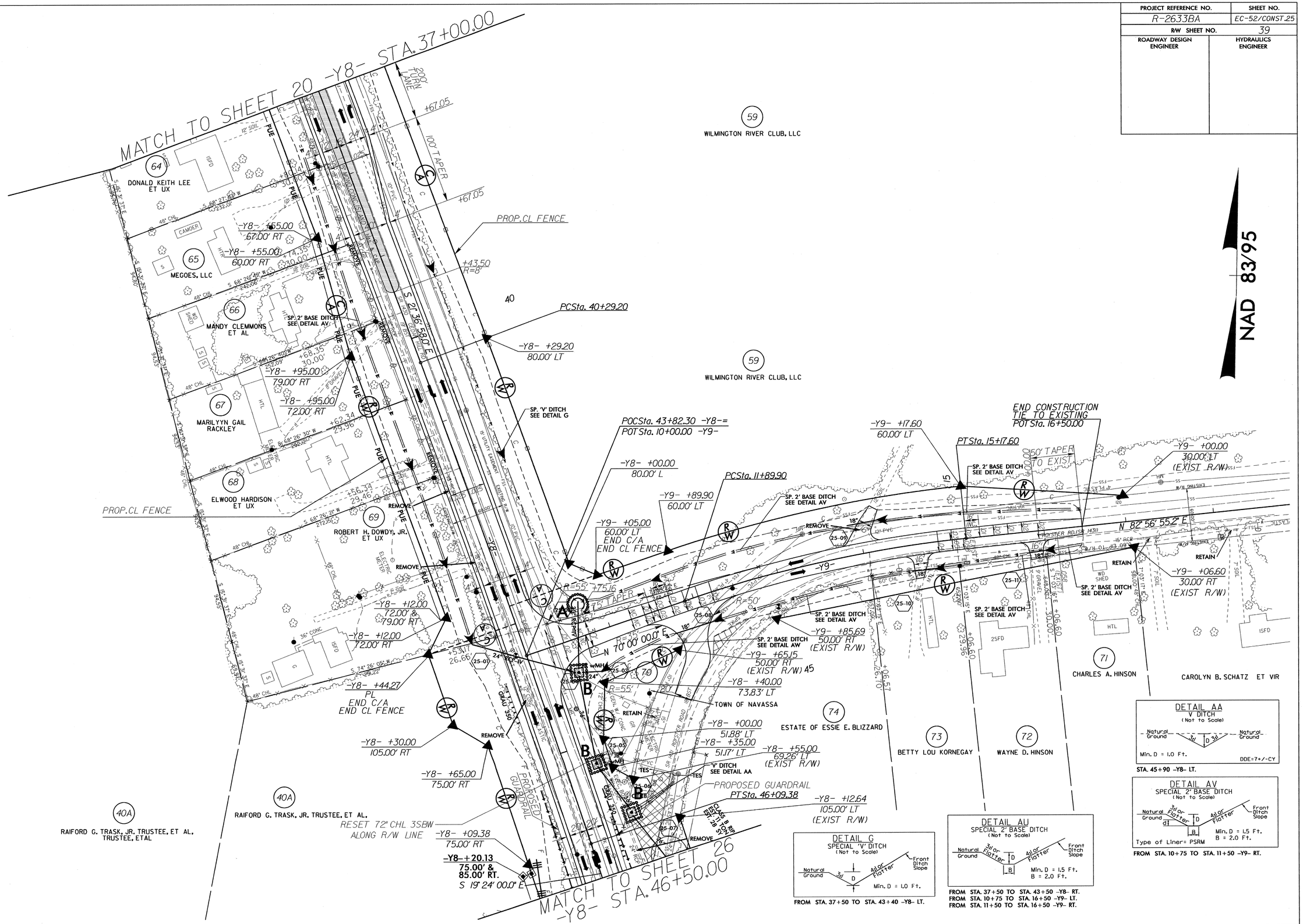
PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-51/CONST.24
R/W SHEET NO.	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



03-SEP-2013 07:51
R:\Environmental\Design\R-2633BA_EC_PSH24.dgn
wchandler AT RENY247778

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-52/CONST.25
R/W SHEET NO.	39
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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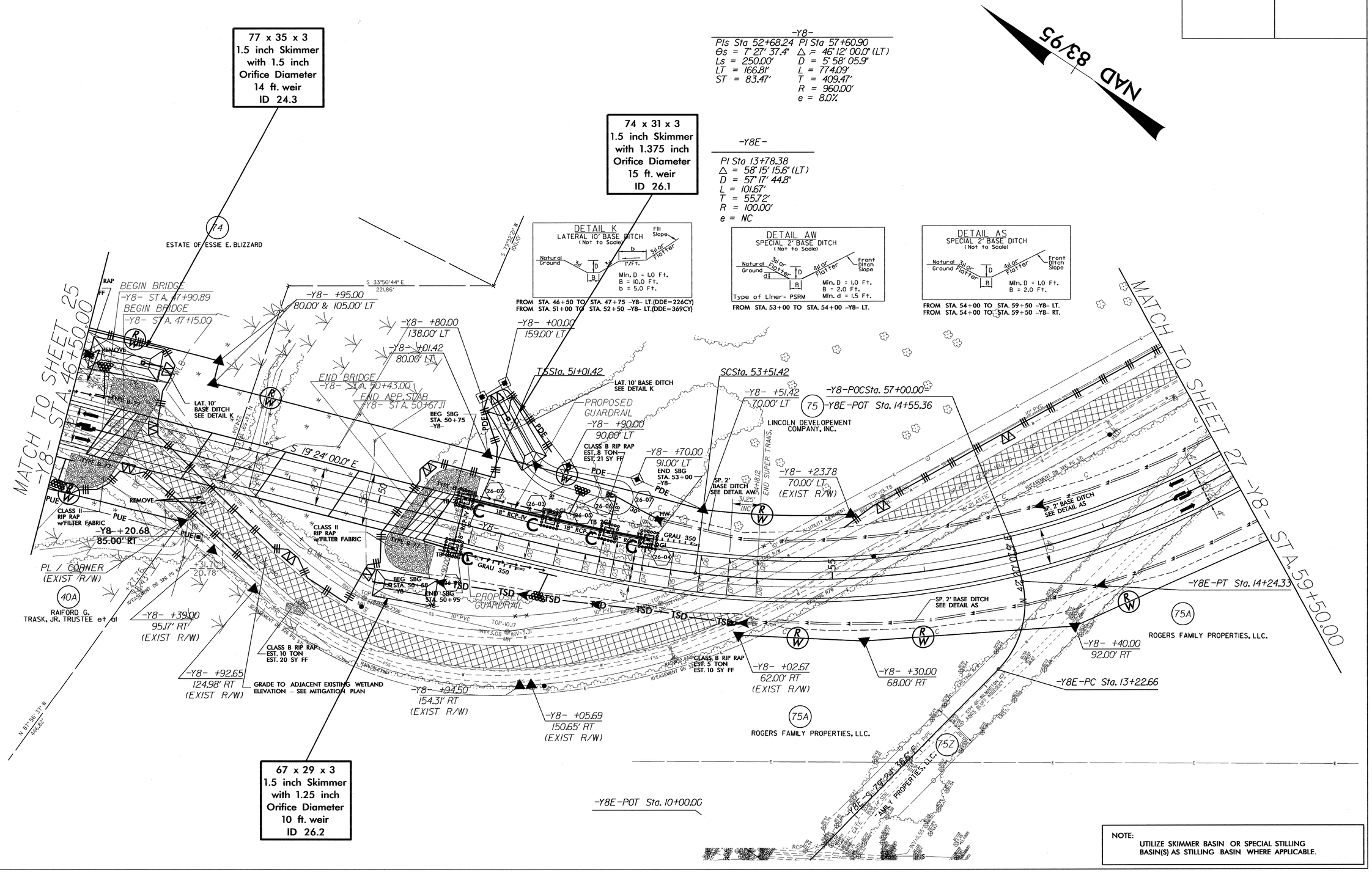
R:\Structure_Mapping\Design\R-2633BA_EC_PSH25.dgn
w(chandler) RENV247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-53/CONST.26
R/W SHEET NO.	40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

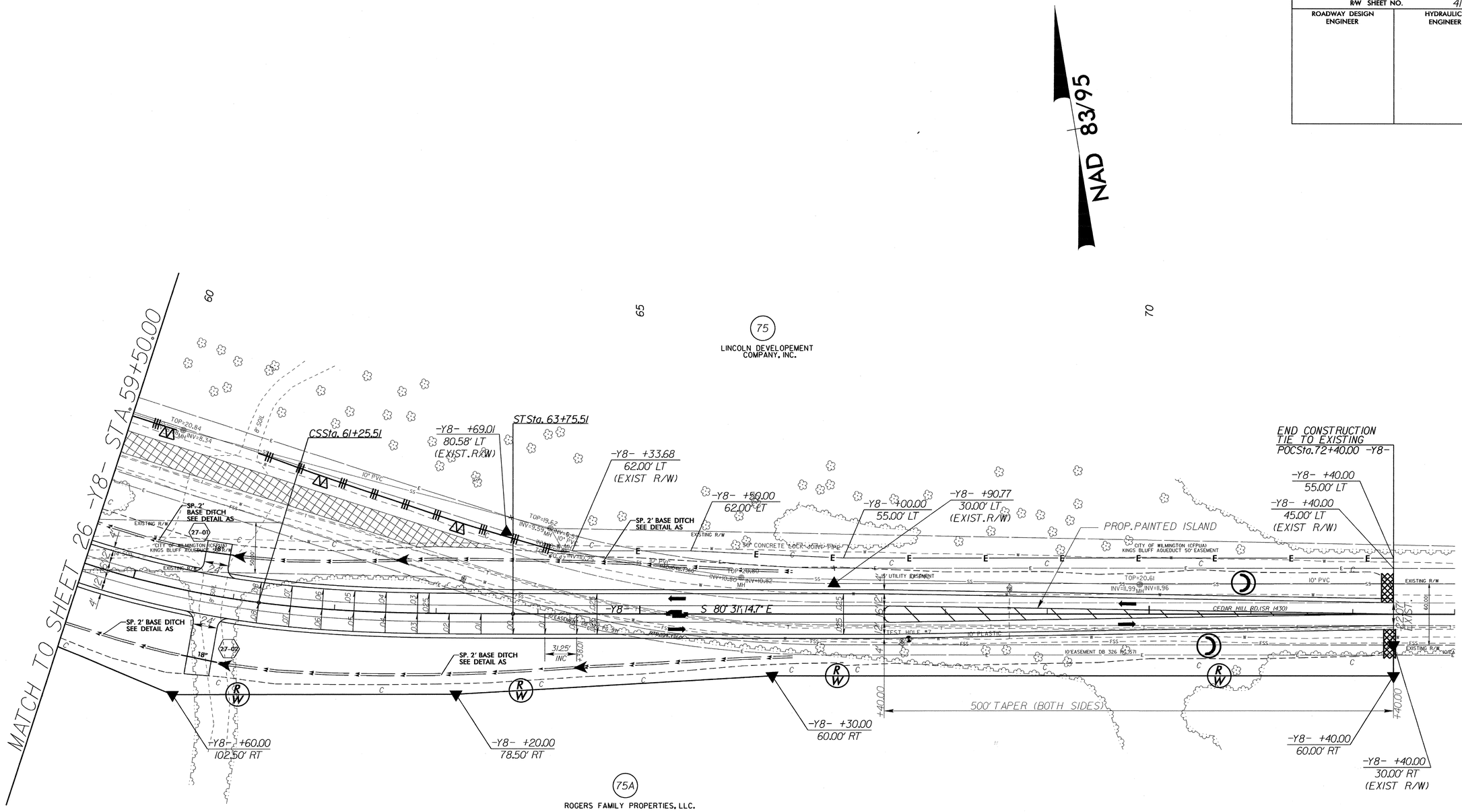


NOTE:
UTILIZE SKIMMER BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

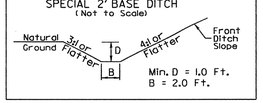
8/17/99

03-SEP-2013 07:57
R:\Environmental\Design\R-2633BA_EC_PSH26.dgn
w/chandler AT FENV247778

PROJECT REFERENCE NO.	SHEET NO.
R-2633BA	EC-54/CONST.27
R/W SHEET NO.	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



DETAIL AS
SPECIAL 2' BASE DITCH
(Not to Scale)



FROM STA. 59+50 TO STA. 67+00 -Y8- LT.
FROM STA. 59+50 TO STA. 67+00 -Y8- RT.

8/17/99

03-SEP-2013 07:59
R:\Environmental\Design\R-2633BA_EC_PSH27.dgn
jchandler AT REINV247778