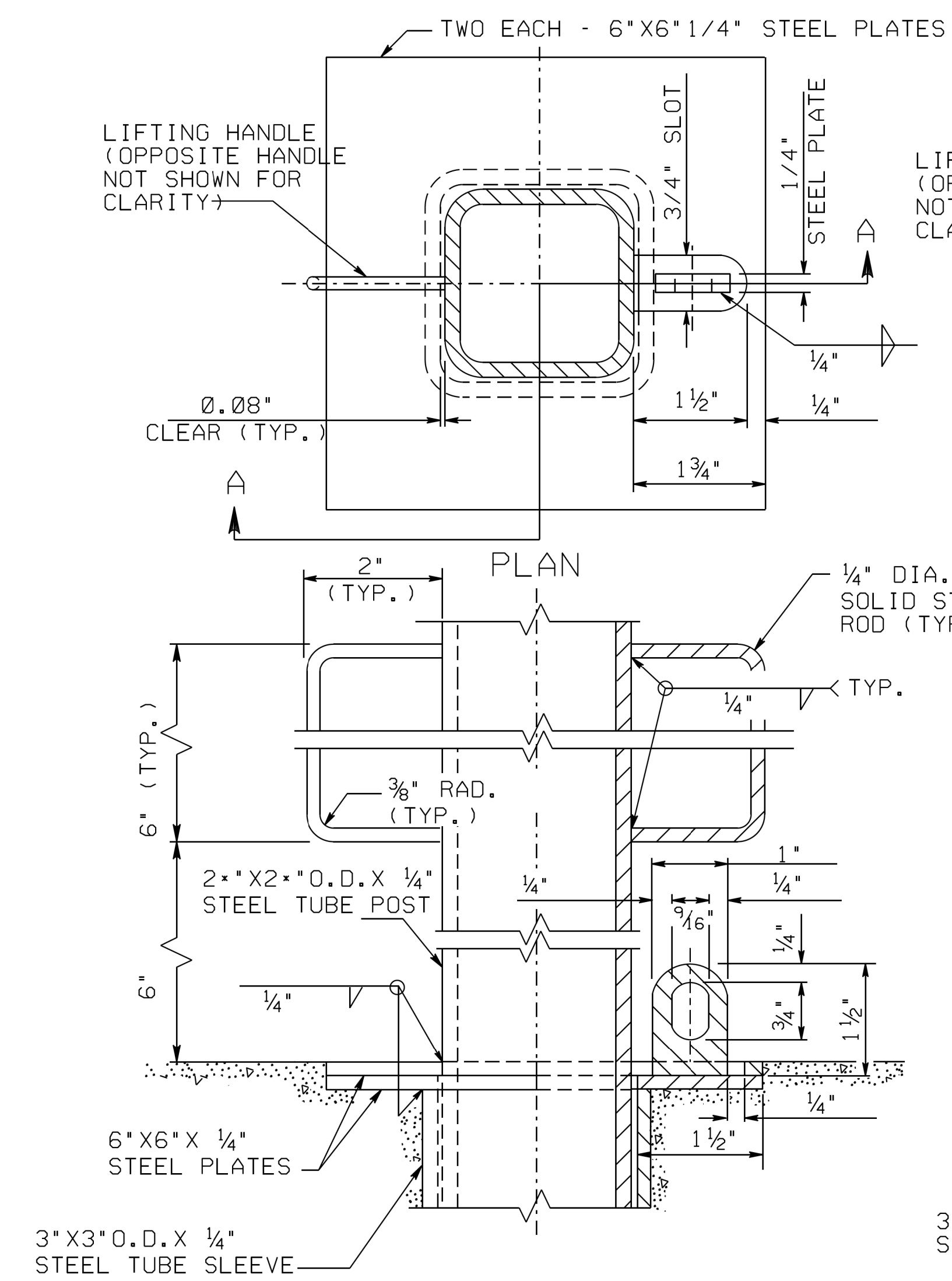
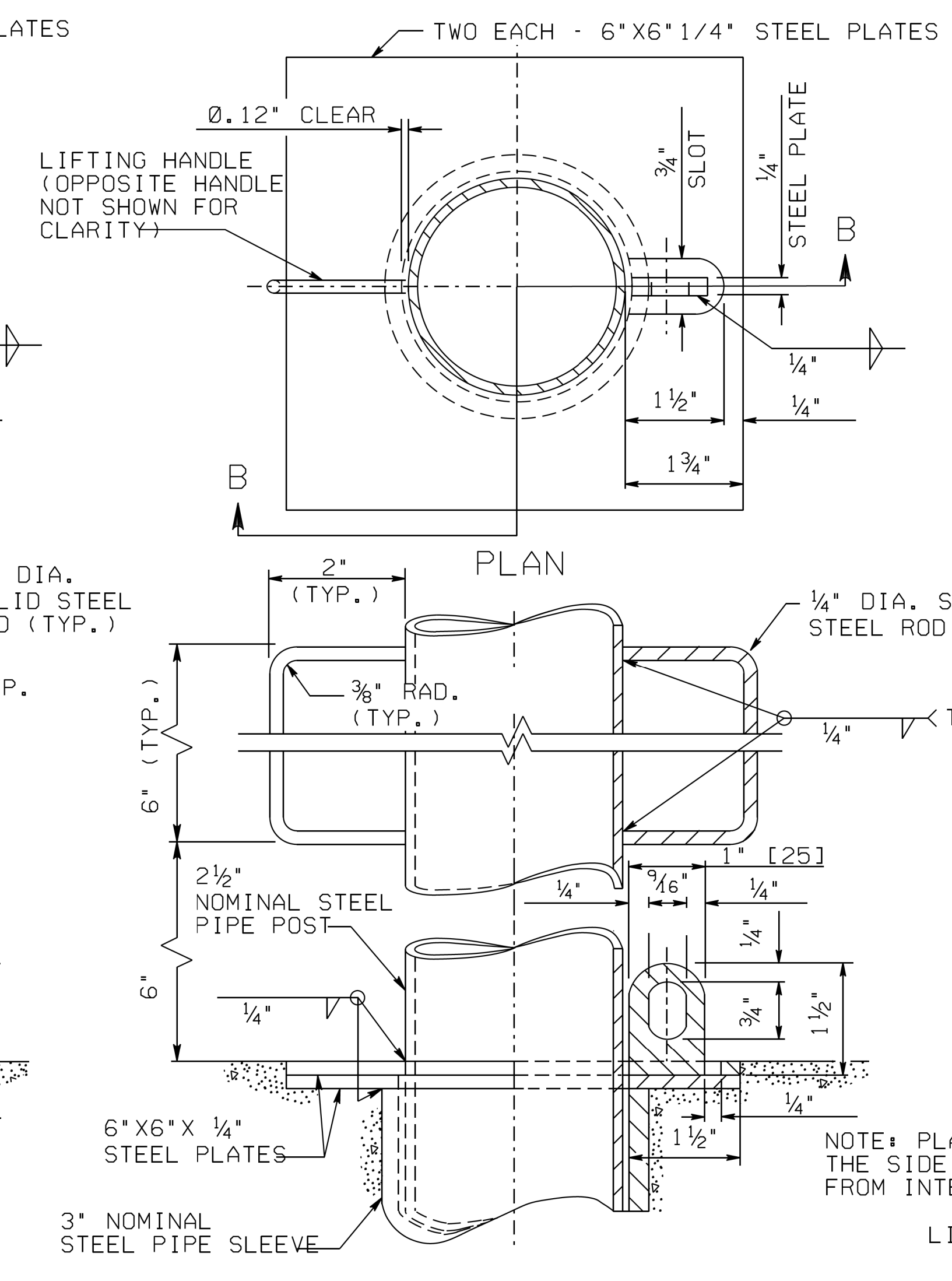


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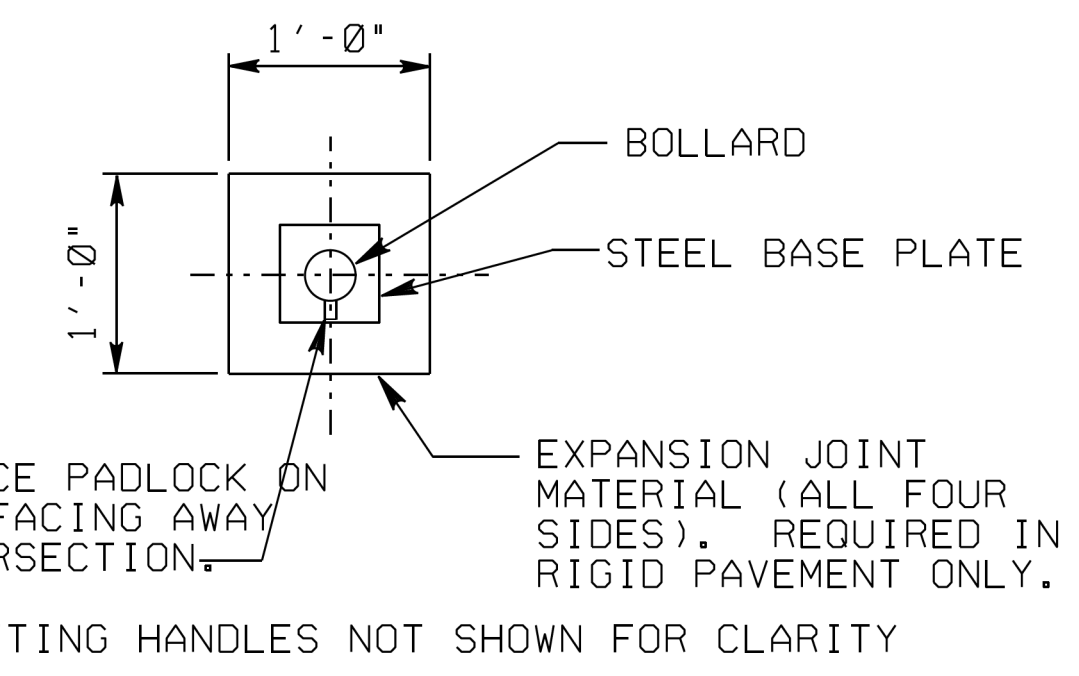
- GENERAL:** MOUNT ALL BOLLARD SLEEVES FLUSH WITH THE BIKEWAY PAVEMENT.
- CONCRETE ENCASEMENT:** SLEEVE ENCASEMENT SHALL BE SQUARE AS SHOWN, IN CONCRETE PAVEMENT, BUT MAY BE SQUARE OR ROUND IN FLEXIBLE PAVEMENT. ROUND ENCASEMENT SHOULD BE 1'-0" DIAMETER.
- PREFORMED EXPANSION JOINT FILLER:** IS REQUIRED WHEN BOLLARDS ARE SET IN CONCRETE PAVEMENT.
- STEEL PIPE:** ASTM A 53 SCHEDULE 40.
- CONCRETE:** USE CLASS B CONCRETE.
- GALVANIZING:** AFTER FABRICATING, HOT-DIP GALVANIZE ALL STEEL PARTS, INCLUDING STEEL PIPE, AS SPECIFIED IN ASTM A 123.
- ALUMINUM:** ALL STEEL COMPONENTS MAY BE REPLACED BY ALUMINUM COMPONENTS MEETING THE FOLLOWING ASTM SPECIFICATIONS: B 209 (PLATE), B 210 OR B 241 (DRAWN SEAMLESS TUBES & PLATES), B 211 (RODS), AND F 901 (BOLTS).
- PERMANENT BOLLARDS:** PERMANENT BOLLARDS SHALL BE THE SAME AS REMOVABLE BOLLARDS, EXCEPT THAT THE STEEL PLATES, SLEEVES AND LIFTING HANDLES SHALL BE OMITTED. ENCASE POSTS DIRECTLY IN CONCRETE.



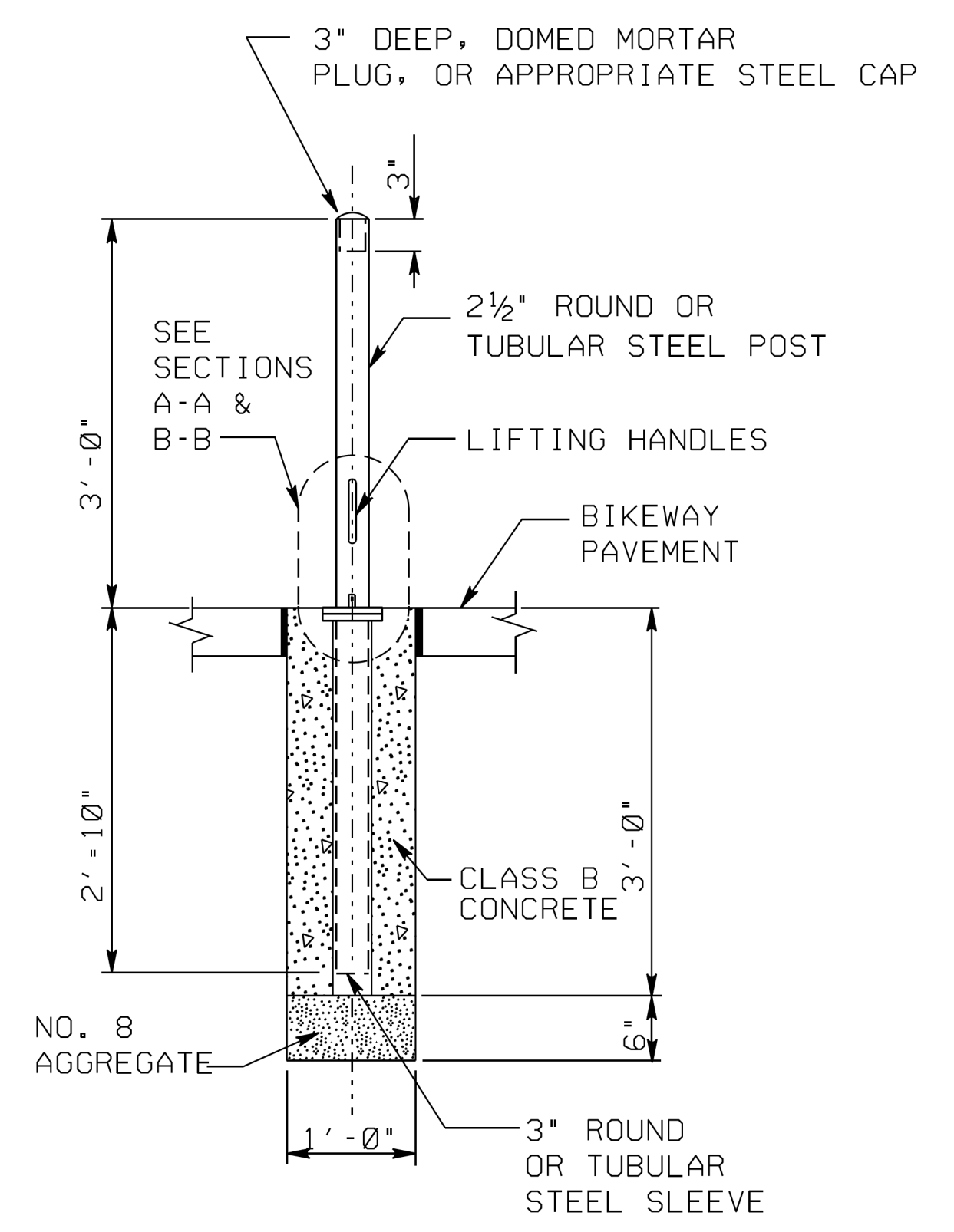
SECTION A-A
REMOVABLE SQUARE BOLLARD



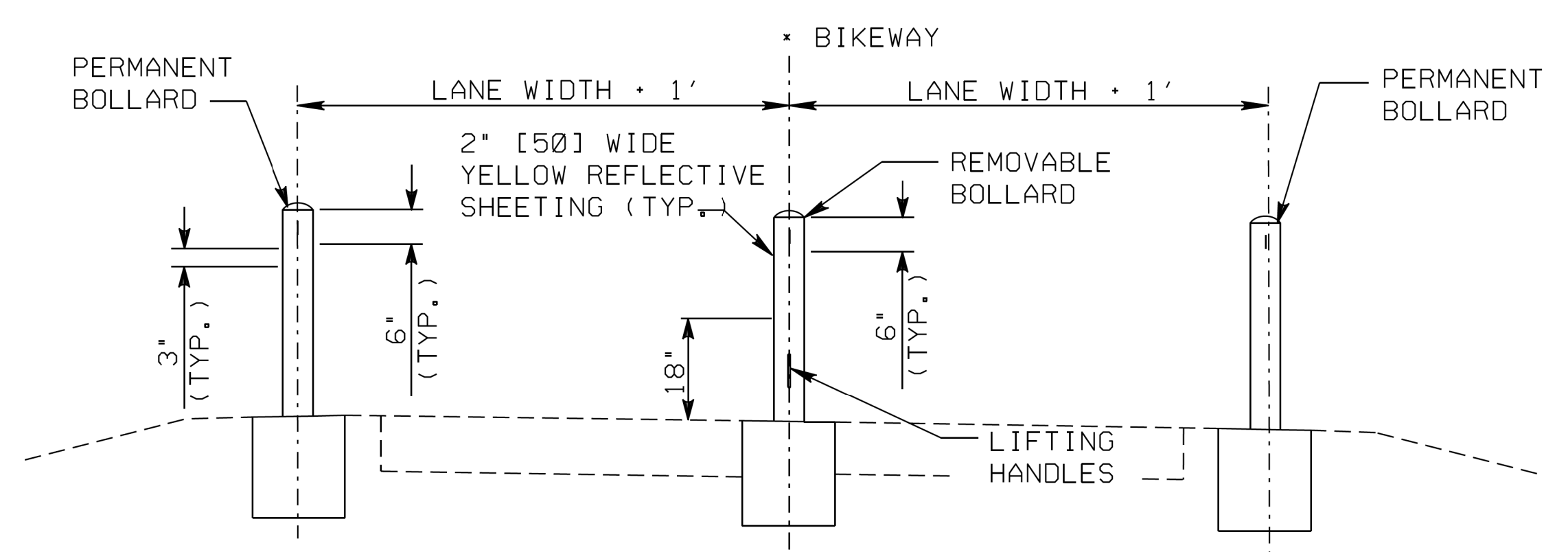
SECTION B-B
REMOVABLE ROUND BOLLARD



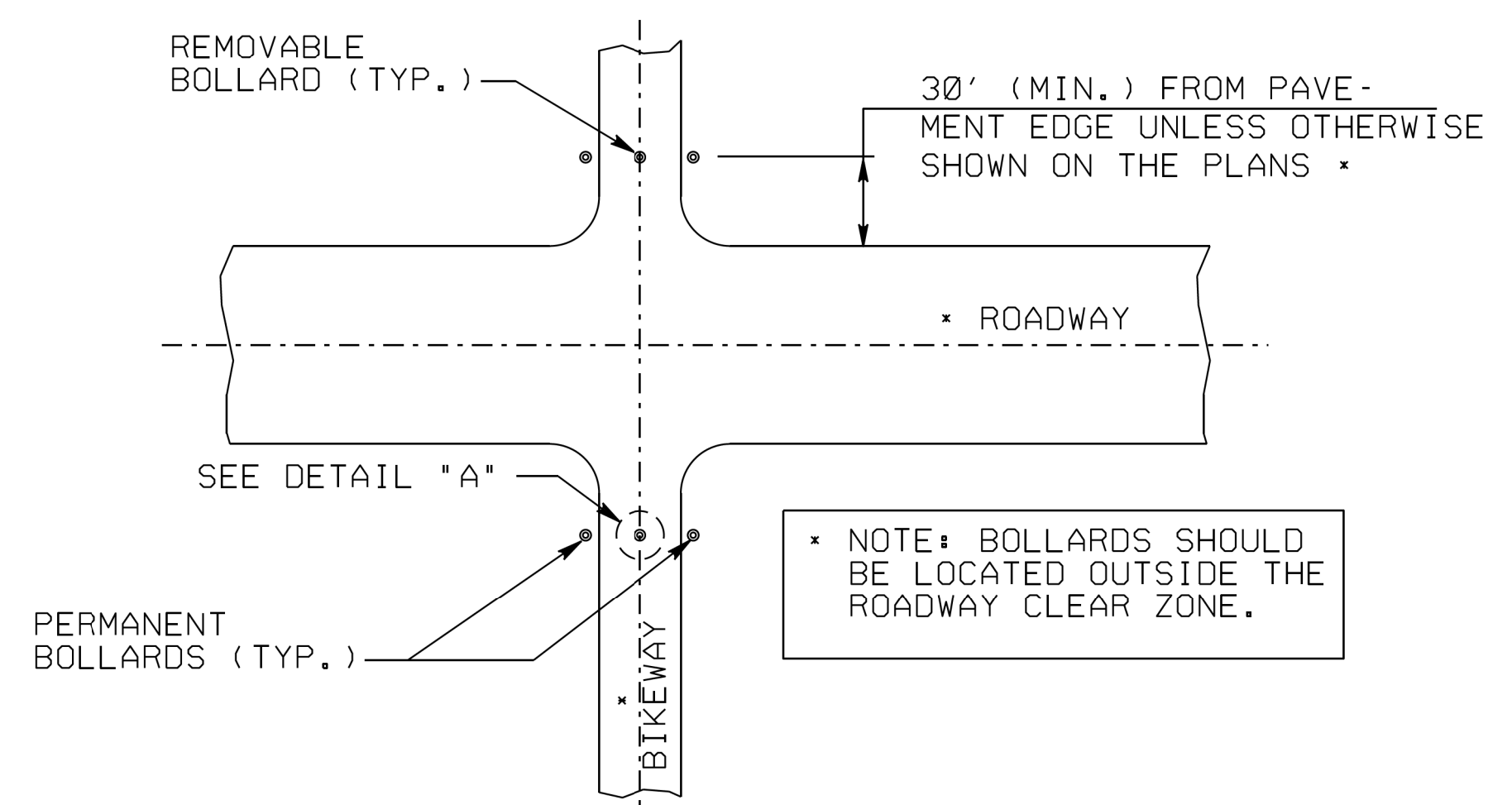
DETAIL "A"
PLAN VIEW



DETAIL "A"
ELEVATION VIEW
REMOVABLE BOLLARD



BOLLARD PLACEMENT - ELEVATION VIEW



BOLLARD PLACEMENT - PLAN VIEW

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6/15/2021



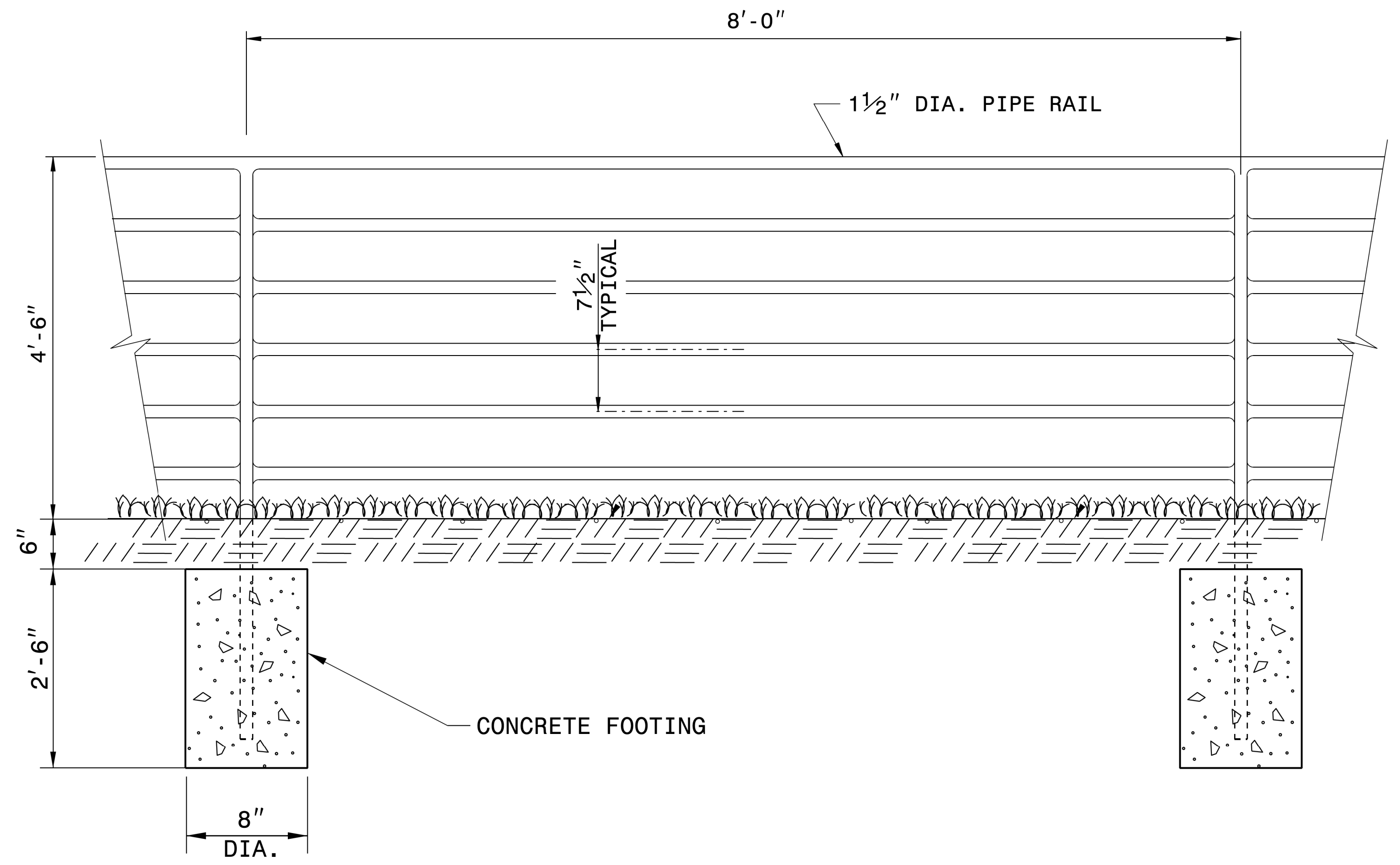
DocuSigned by:
Daniel S. Howerton
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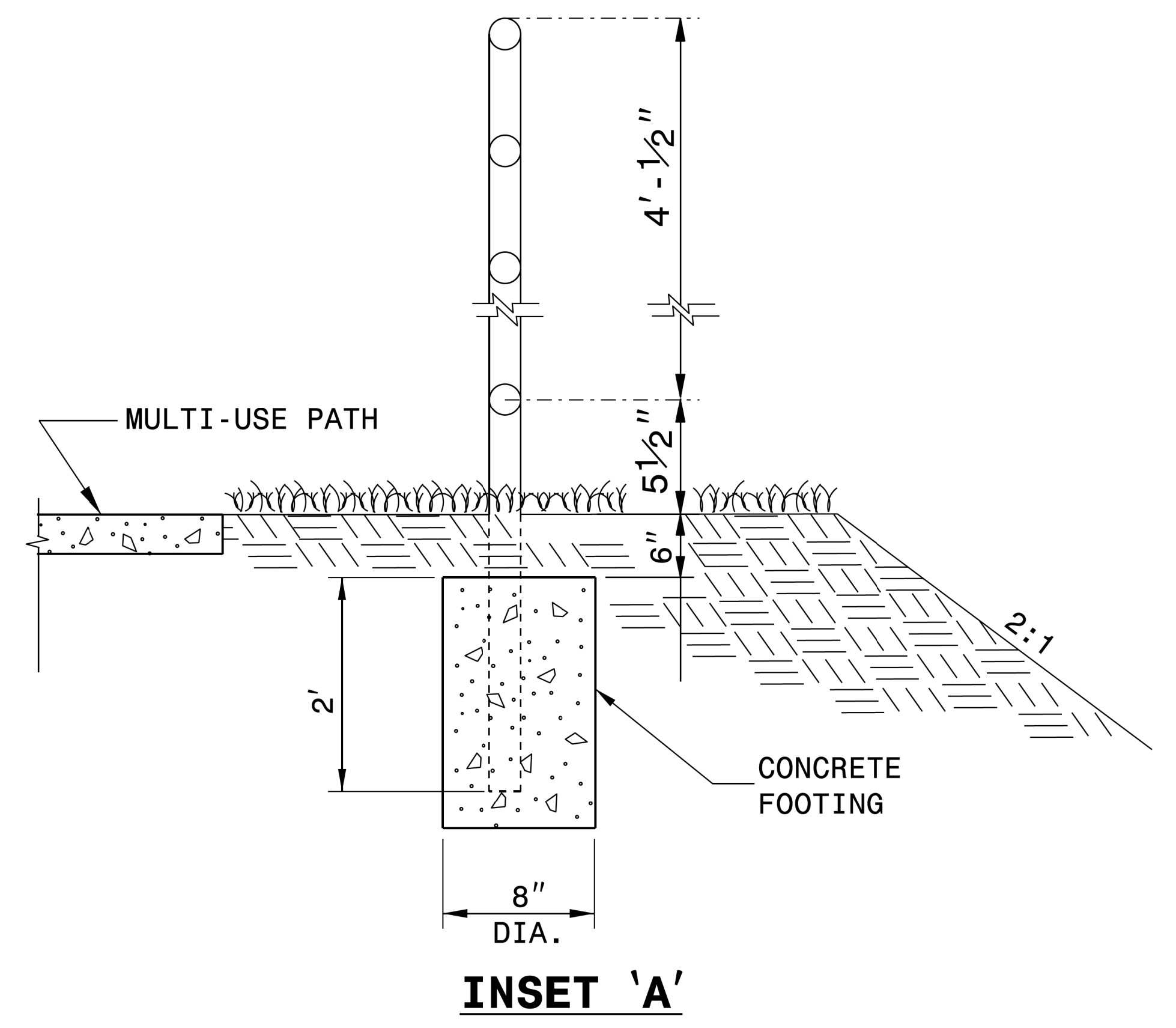
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STEEL BOLLARDS

ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: nbritt/english/misc/bollards steel.dgn	



ELEVATION OF HANDRAIL



NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1 1/2" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

PLACEMENT OF HANDRAIL IN RELATION TO SHOULDER BREAK POINT AND PATH MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

25-JAN-2018 07:30 S:\Contracts\Projects\Special Details\Howerton\Handrail Adjacent to Sidewalk.dgn jhowerton AT CSD-292595

6/15/2021

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J. S. Howerton

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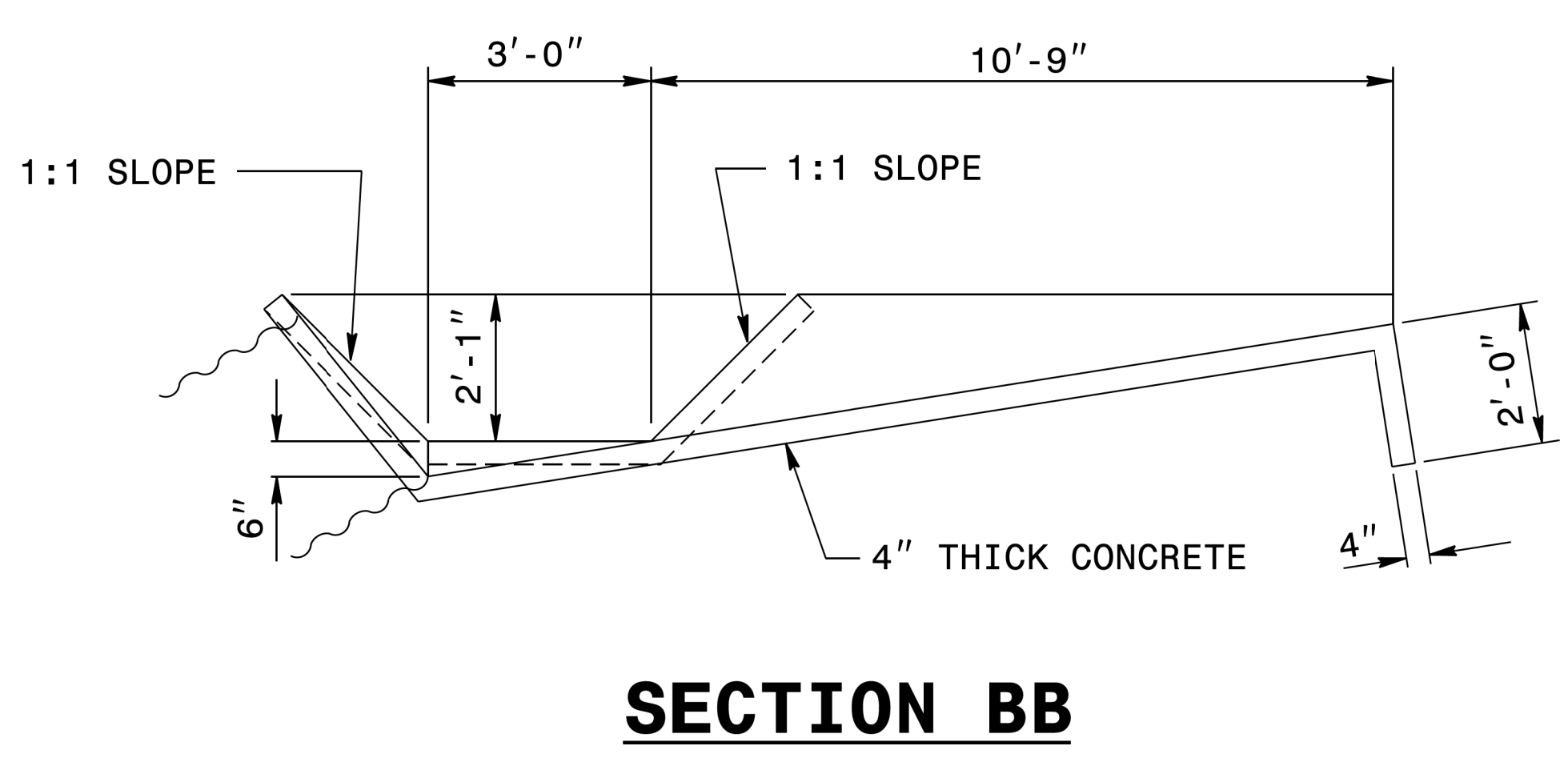
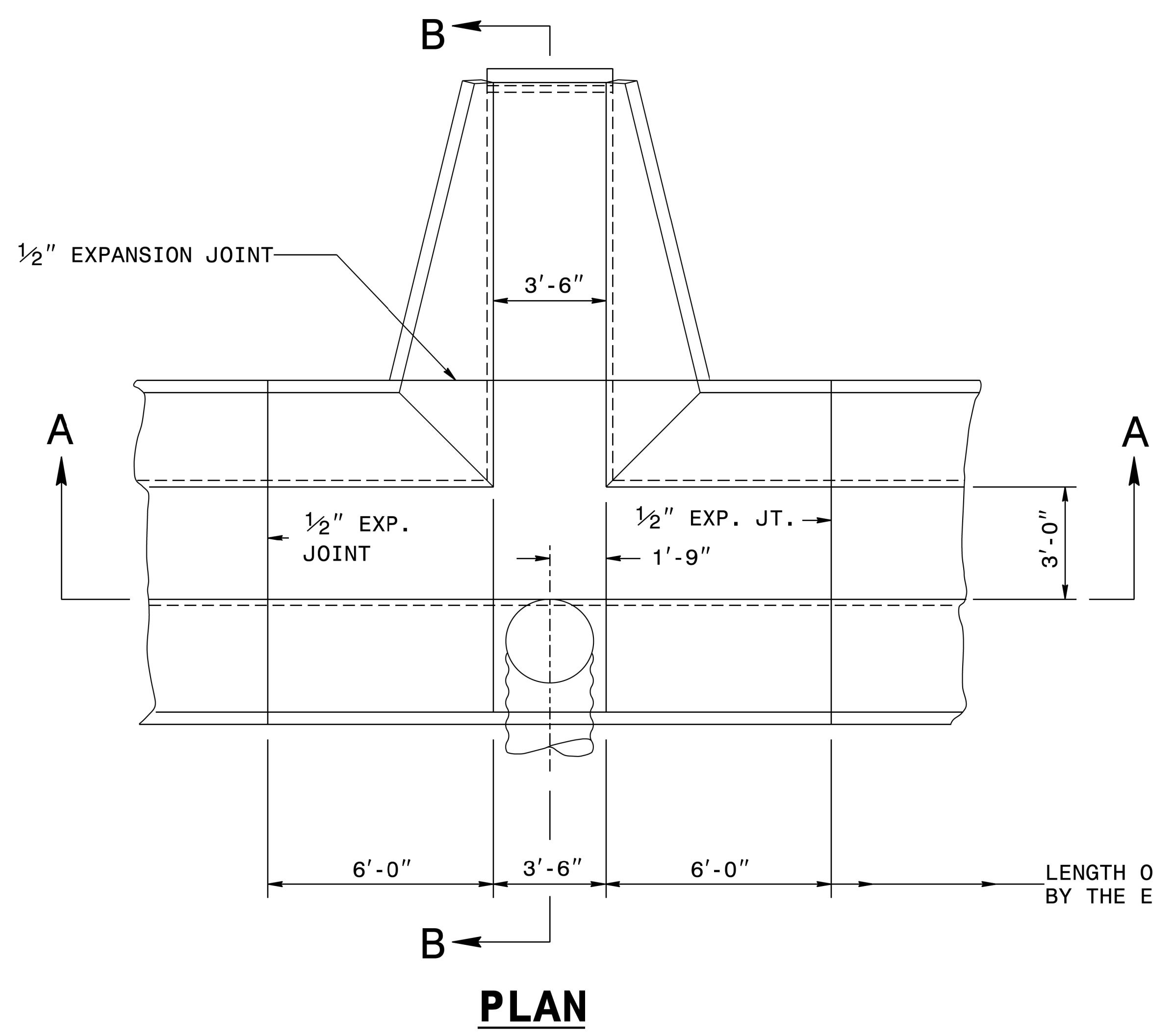
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
PROPOSED BIKE/PED SAFETY RAIL	
ORIGINAL BY: E.E. WARD	DATE: 12-99
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

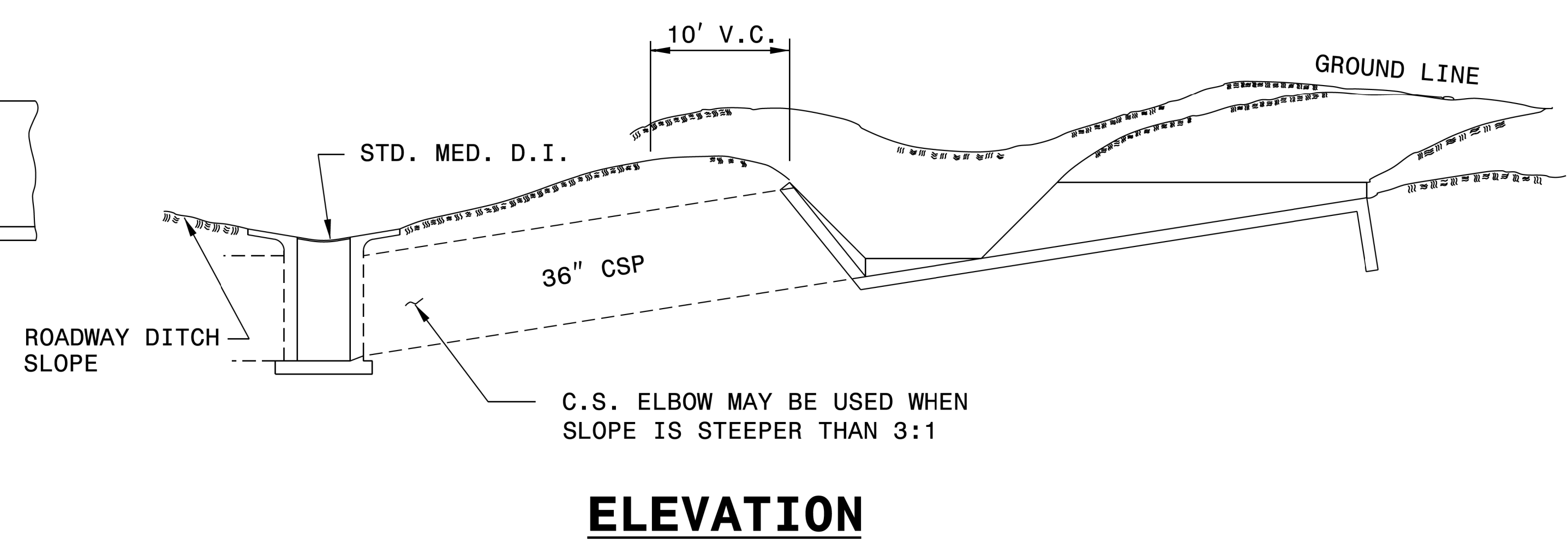
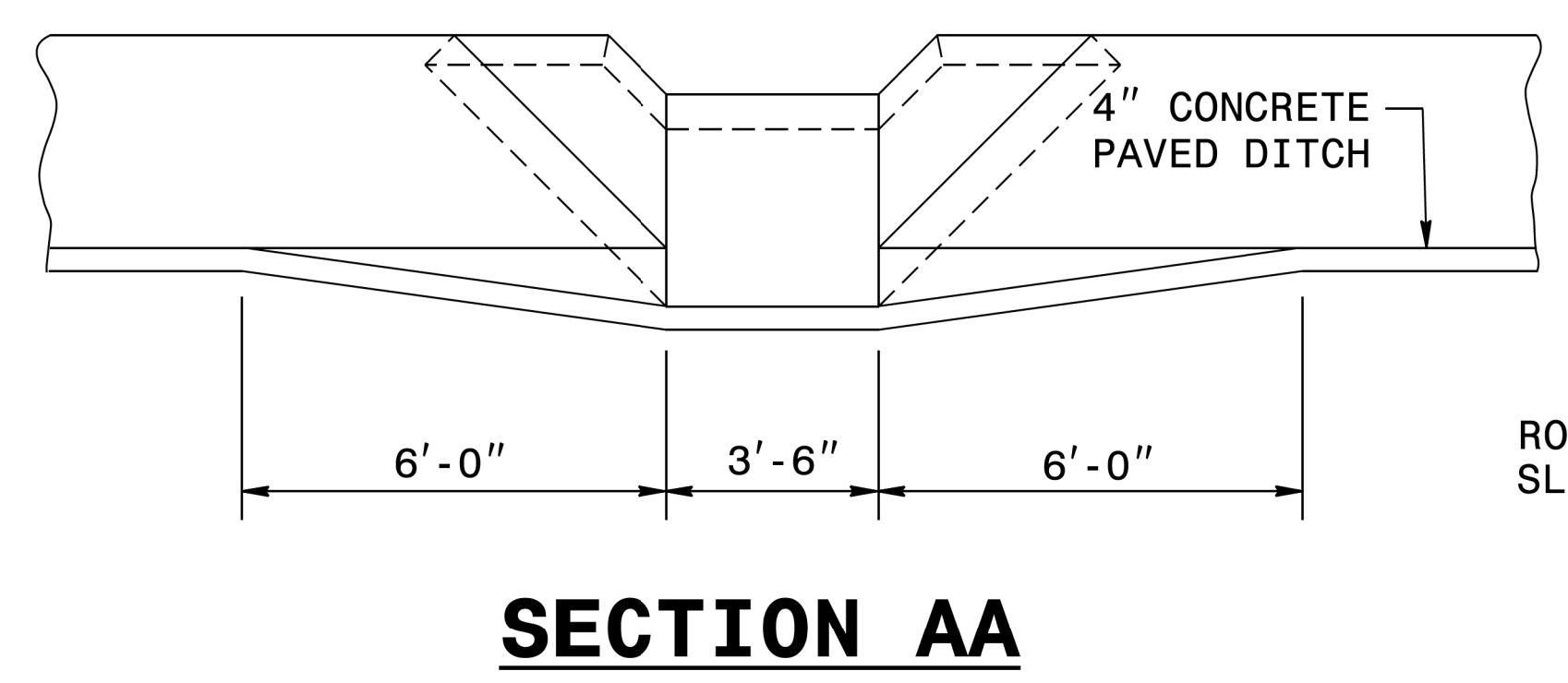
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR GUIDE FOR BERM DRAINAGE OUTLET 36" PIPE SHEET 1 OF 1 850D11

ENGLISH DETAIL DRAWING FOR GUIDE FOR BERM DRAINAGE OUTLET 36" PIPE SHEET 1 OF 1 850D11



GENERAL NOTES:
 WHERE NECESSARY, ELBOWS MAY BE USED TO SKEW PIPE TO FIT INLETS WHERE THERE IS OFFSET BETWEEN THE INLET END AT BERM AND THE D.I.



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6/15/2021

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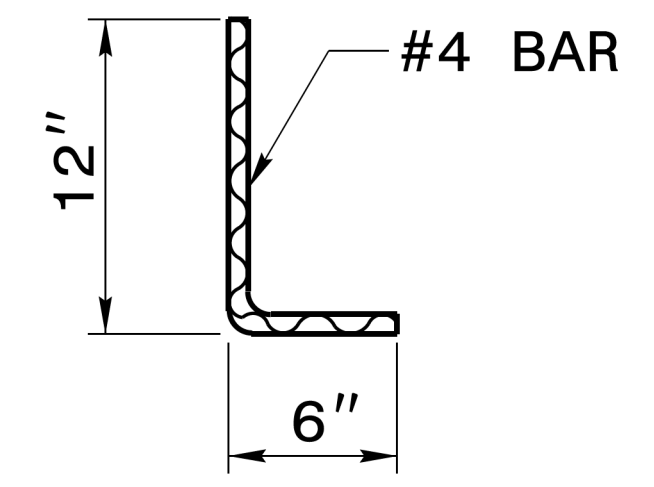
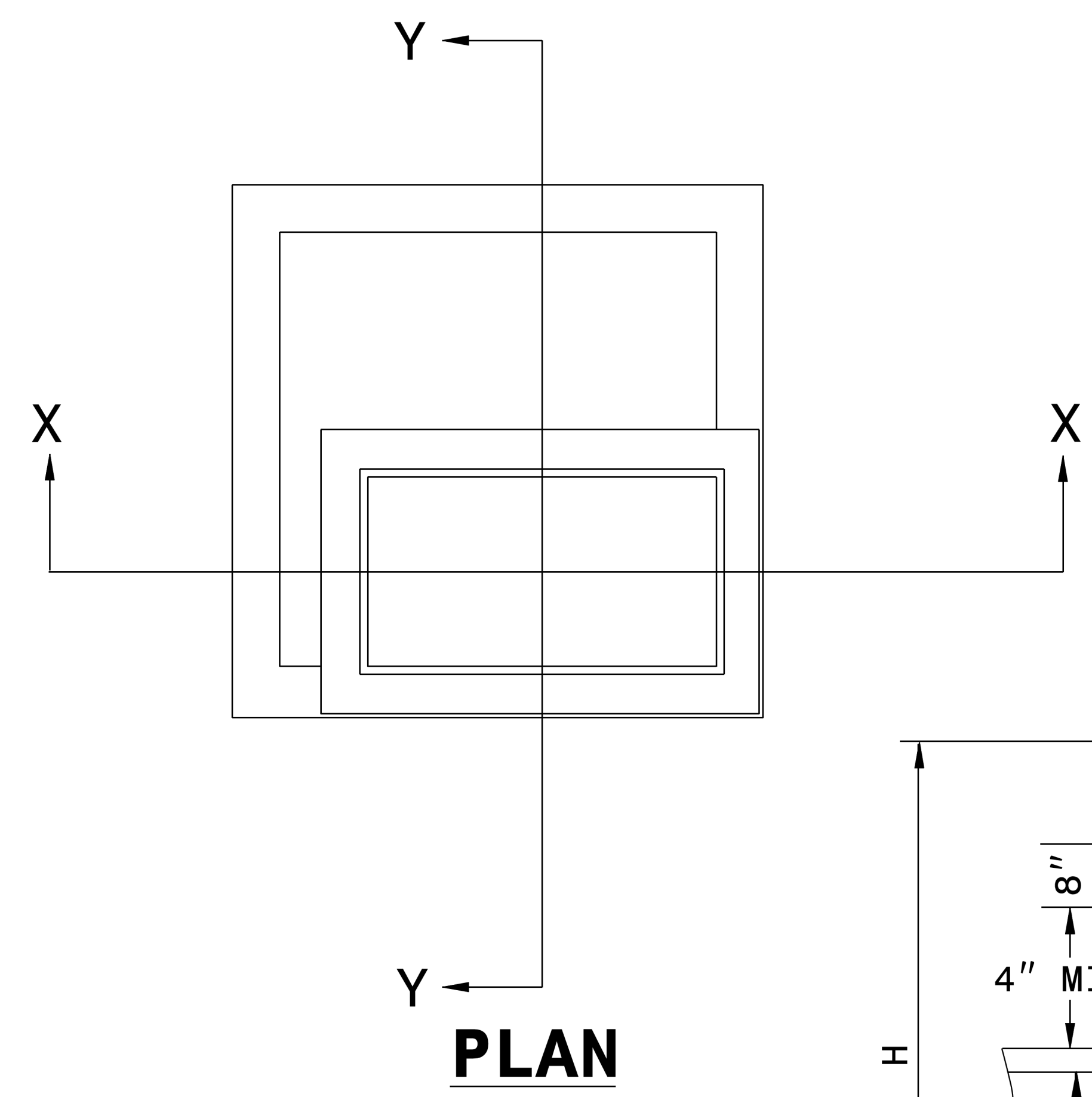
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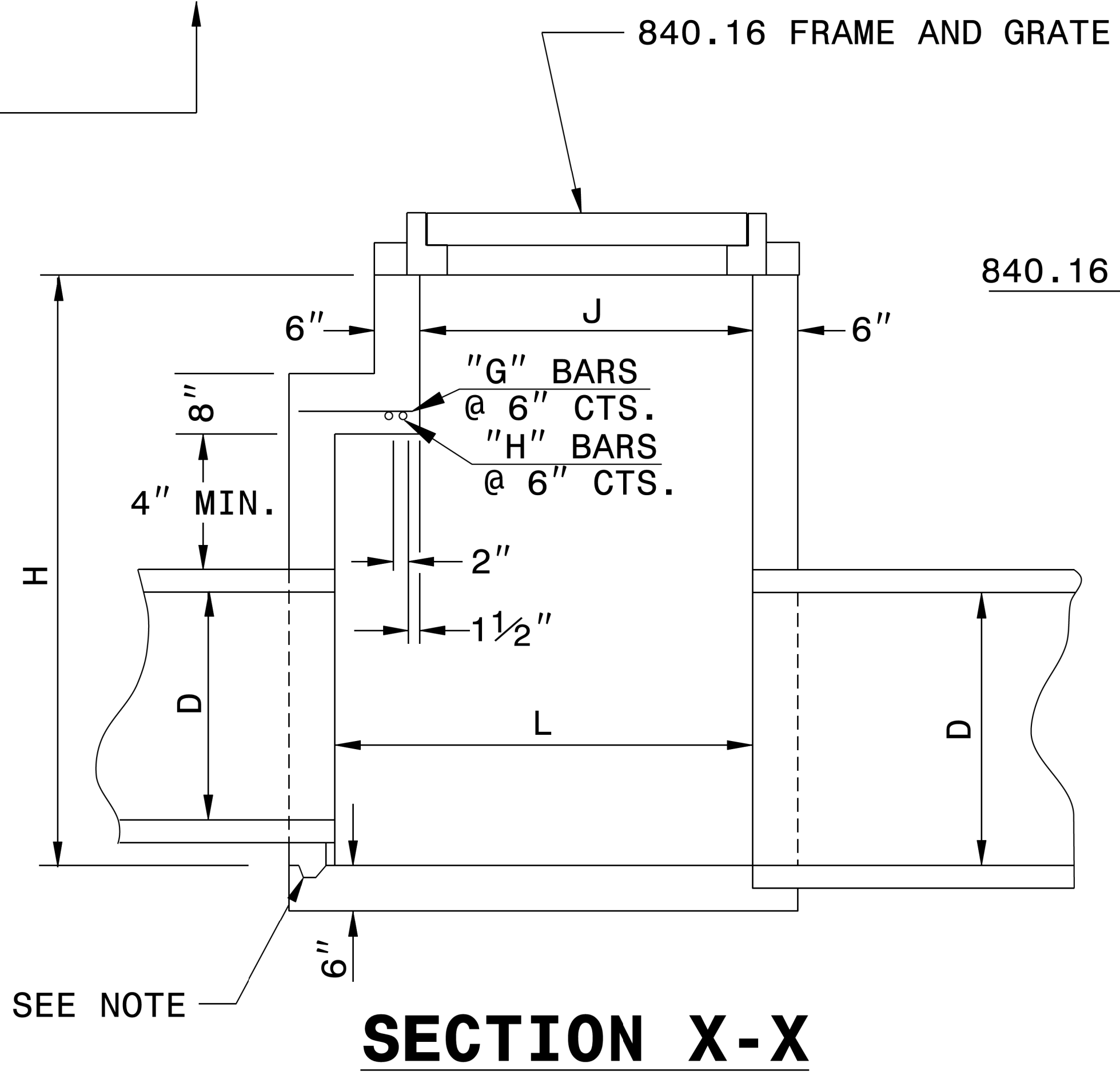
SEE PLATE FOR TITLE

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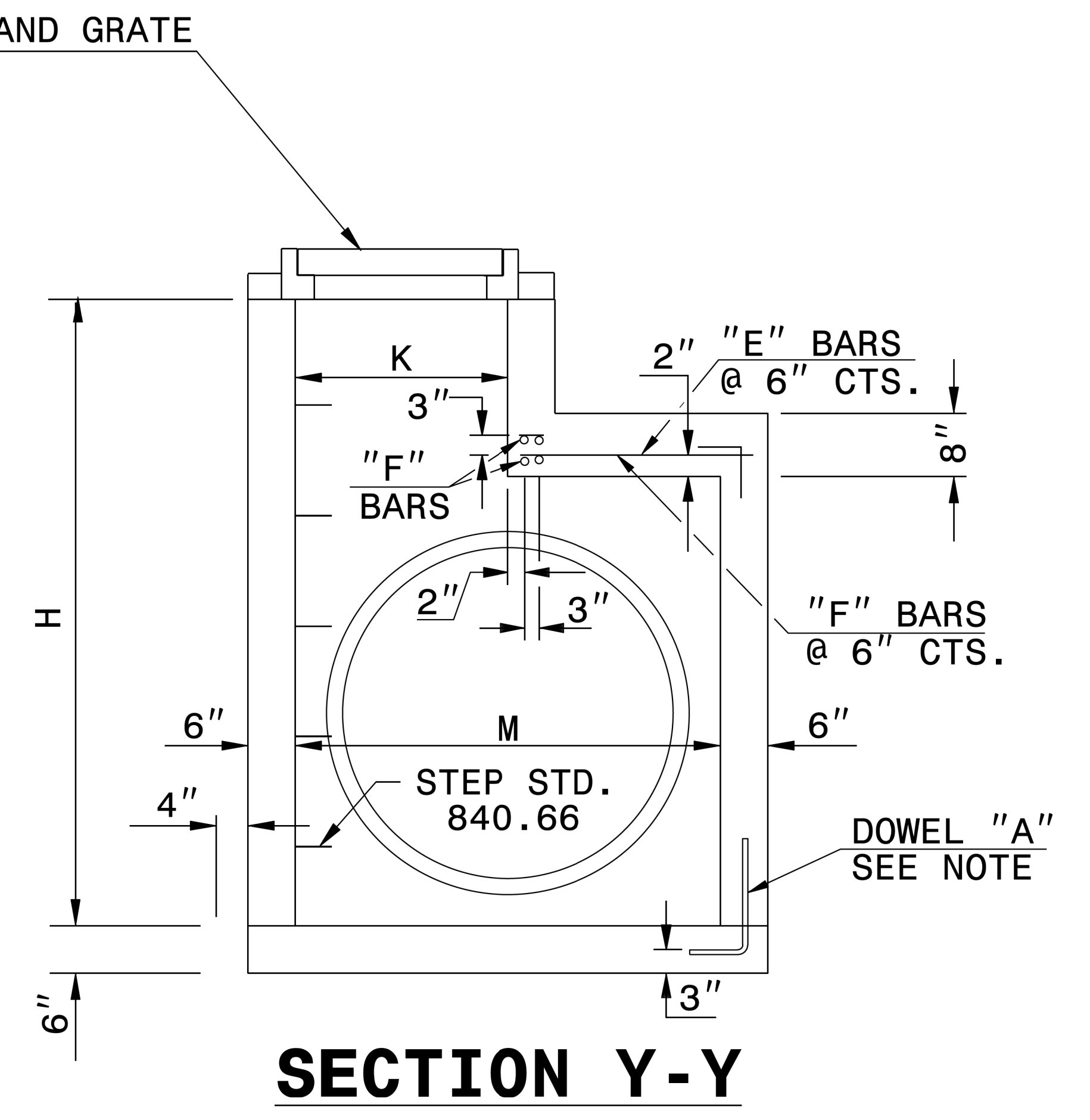


DOWEL

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.
 INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.
 DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.



SECTION X-X



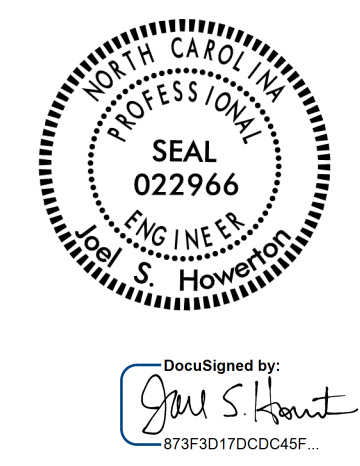
SECTION Y-Y

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE DROP INLET (BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX AND PIPE						REINFORCING STEEL - NO. 4 BARS								CU YDS CONC. IN BOX				DEDUCTIONS FOR ONE PIPE		
PIPE	SPAN	WIDTH	SPAN	WIDTH	HEIGHT	BARS E		BARS F		BARS G		BARS H		TOTAL	BOTTOM SLAB	H TOTAL	H PER FT HT	TOTAL	C.S.	R.C.
D	J	K	L	M	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	LBS.						
12"	3'-0"	2'-0"	3'-8"	2'-0"	3'-9"	—	—	—	—	—	—	—	—	—	0.362	0.926	0.247	1.288	0.015	0.024
15"	3'-0"	2'-0"	3'-8"	2'-0"	4'-0"	—	—	—	—	—	—	—	—	—	0.362	0.988	0.247	1.350	0.023	0.036
18"				2'-0"	4'-3"	—	—	—	—	—	—	—	—	—	0.362	1.050	0.247	1.412	0.033	0.049
24"				2'-10"	4'-9"	8	1'-5"	6	4'-9"	—	—	—	—	27	0.444	1.362	0.278	1.806	0.059	0.085
30"			3'-8"	3'-5"	5'-3"	8	2'-0"	7	4'-9"	—	—	—	—	33	0.502	1.644	0.288	2.146	0.092	0.127
36"			4'-0"	4'-0"	5'-9"	8	2'-5"	8	4'-11"	4	0'-9"	2	4'-11"	47	0.560	1.931	0.321	2.525	0.132	0.178
42"			4'-10"	4'-10"	6'-3"	10	3'-1"	9	5'-7"		1'-5"	3	5'-7"	67	0.704	2.500	0.370	3.282	0.180	0.243
48"			5'-4"	5'-4"	6'-9"	11	3'-7"	10	6'-1"		1'-11"	4	6'-1"	87	0.823	3.013	0.407	3.920	0.235	0.317
54"			6'-0"	6'-0"	7'-3"	12	4'-1"	11	6'-7"		2'-5"	5	6'-7"	107	0.951	3.589	0.444	4.677	0.297	0.401
60"			6'-6"	6'-6"	7'-9"	13	4'-9"	12	7'-3"		3'-1"	6	7'-3"	135	1.311	4.539	0.494	5.775	0.367	0.495
66"			7'-2"	7'-2"	8'-3"	14	5'-4"	14	7'-10"		3'-7"	7	7'-10"	168	1.136	5.061	0.537	6.506	0.444	0.599
72"	3'-0"	2'-0"	7'-8"	7'-8"	8'-9"	15	5'-11"	15	8'-5"	4	4'-3"	8	8'-5"	199	1.500	5.860	0.580	7.473	0.528	0.713

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 JHowerton AT CSO-292595

6/15/2021



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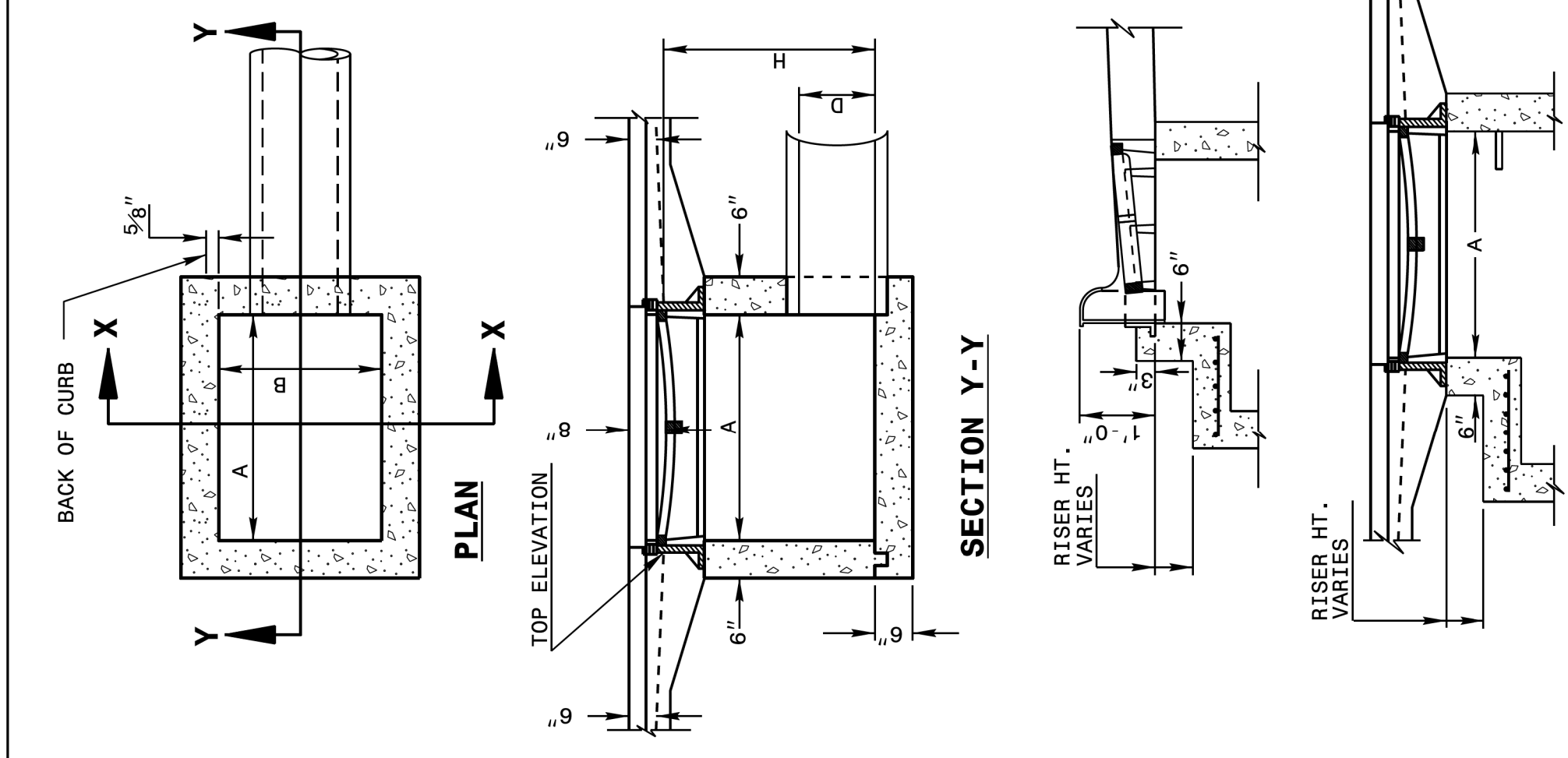
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 jhowerton AT CSD-292595

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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.



ENGLISH DETAIL DRAWING FOR
**MINIMUM DEPTH
CONCRETE CATCH BASIN**
12" THRU 84" PIPE

SHEET 1 OF 2
840D02

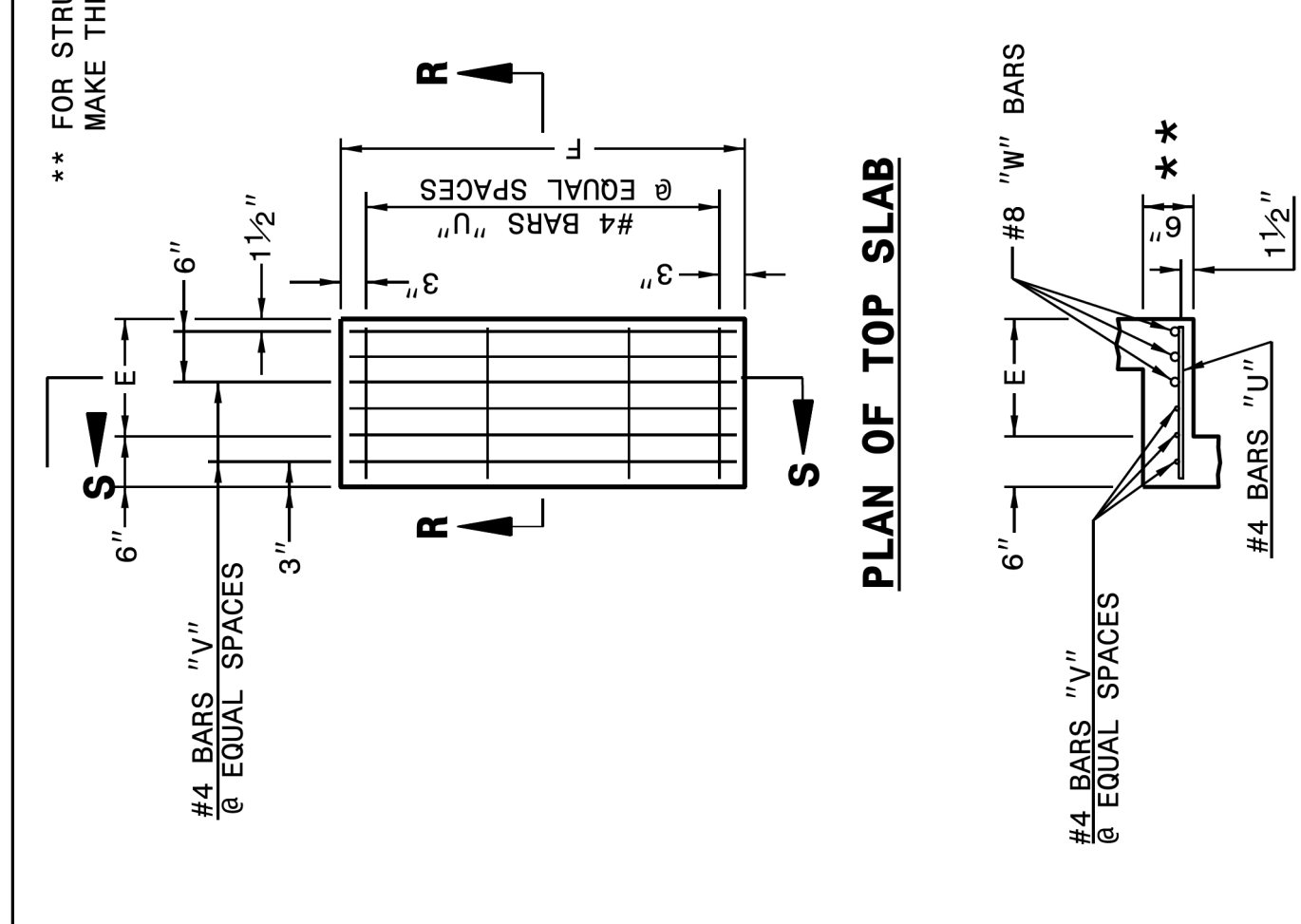
GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66. OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12 CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED. FOR 9'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 CHAMFER ALL EXPOSED CORNERS 1".
 ** FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**MINIMUM DEPTH
CONCRETE CATCH BASIN**
12" THRU 84" PIPE

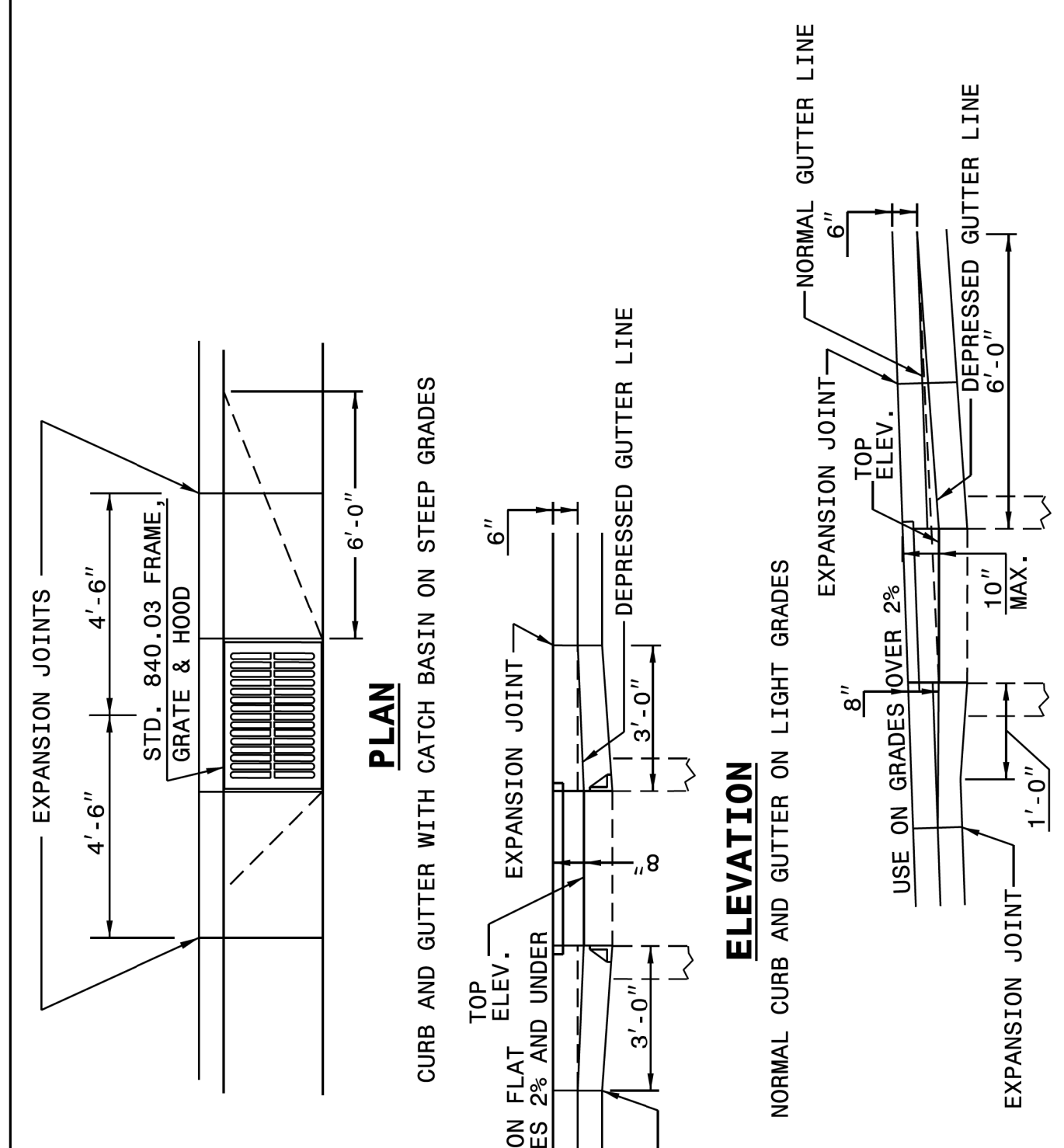
SHEET 1 OF 2
840D02

STATE OF NORTH CAROLINA
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DIVISION OF HIGHWAYS
RALEIGH, N.C.



ENGLISH DETAIL DRAWING FOR
**MINIMUM DEPTH
CONCRETE CATCH BASIN**
12" THRU 84" PIPE

SHEET 2 OF 2
840D02



ENGLISH DETAIL DRAWING FOR
**MINIMUM DEPTH
CONCRETE CATCH BASIN**
12" THRU 84" PIPE

SHEET 2 OF 2
840D02

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

PIPE D.	MINIMUM DIMENSIONS OF BOX AND PIPE COVER DIMENSION			E	F	NO.	LENGTH	BARS-V	NO.	LENGTH	BARS-W	TOTAL LBS.	TOP SLAB	CUL.YDS. CONC. IN BOX FOR MINIMUM HEIGHT, H.	DEDUCTIONS ONE PIPE	
	SPAN	WIDTH	HEIGHT													MIN.	MAX.	MIN.	MAX.	C.M.	R.C.
12"	3'-0"	2'-2"	2'-0"	2'-0"	2'-3"	3	4'-11"	2	4'-11"	3	4'-7"	43	0.200	0.543	0.132	0.178
15"	3'-0"	2'-2"	2'-3"	2'-3"	2'-6"	3	4'-11"	3	4'-7"	3	4'-7"	43	0.200	0.543	0.132	0.178
18"	3'-0"	2'-2"	3'-1"	3'-1"	3'-1"	4	5'-2"	4	5'-2"	3	5'-2"	43	0.200	0.543	0.132	0.178
24"	3'-0"	2'-2"	3'-4"	3'-4"	3'-4"	4	5'-5"	5	5'-5"	3	5'-9"	51	0.235	0.667	2.082	0.235
30"	3'-0"	2'-2"	3'-10"	3'-10"	3'-10"	5	6'-0"	5	6'-0"	3	6'-4"	56	0.289	0.802	2.387	0.287
36"	3'-0"	2'-2"	4'-5"	4'-5"	4'-5"	6	6'-7"	6	6'-7"	3	7'-0"	61	0.340	0.973	2.722	0.363
42"	3'-0"	2'-2"	5'-0"	5'-0"	5'-0"	7	7'-0"	7	7'-0"	3	7'-8"	66	0.391	1.160	3.057	0.440
48"	3'-0"	2'-2"	5'-7"	5'-7"	5'-7"	8	7'-6"	8	7'-6"	3	8'-3"	72	0.442	1.340	3.392	0.524
54"	3'-0"	2'-2"	6'-3"	6'-3"	6'-3"	9	8'-1"	9	8'-1"	3	8'-10"	78	0.493	1.530	3.727	0.615
60"	3'-0"	2'-2"	6'-11"	6'-11"	6'-11"	10	8'-6"	10	8'-6"	3	9'-6"	84	0.544	1.760	4.062	0.713
66"	3'-0"	2'-2"	7'-6"	7'-6"	7'-6"	11	9'-1"	11	9'-1"	3	10'-10"	90	0.595	2.000	4.397	0.764
72"	3'-0"	2'-2"	8'-1"	8'-1"	8'-1"	12	9'-9"	12	9'-9"	3	11'-6"	96	0.646	2.239	4.732	0.815
78"	3'-0"	2'-2"	8'-9"	8'-9"	8'-9"	13	10'-4"	13	10'-4"	3	12'-4"	102	0.697	2.478	5.067	0.866
84"	3'-0"	2'-2"	8'-9"	8'-9"	8'-9"	14	10'-10"	14	10'-10"	3	13'-0"	108	0.748	2.717	5.402	0.917

6/15/2021



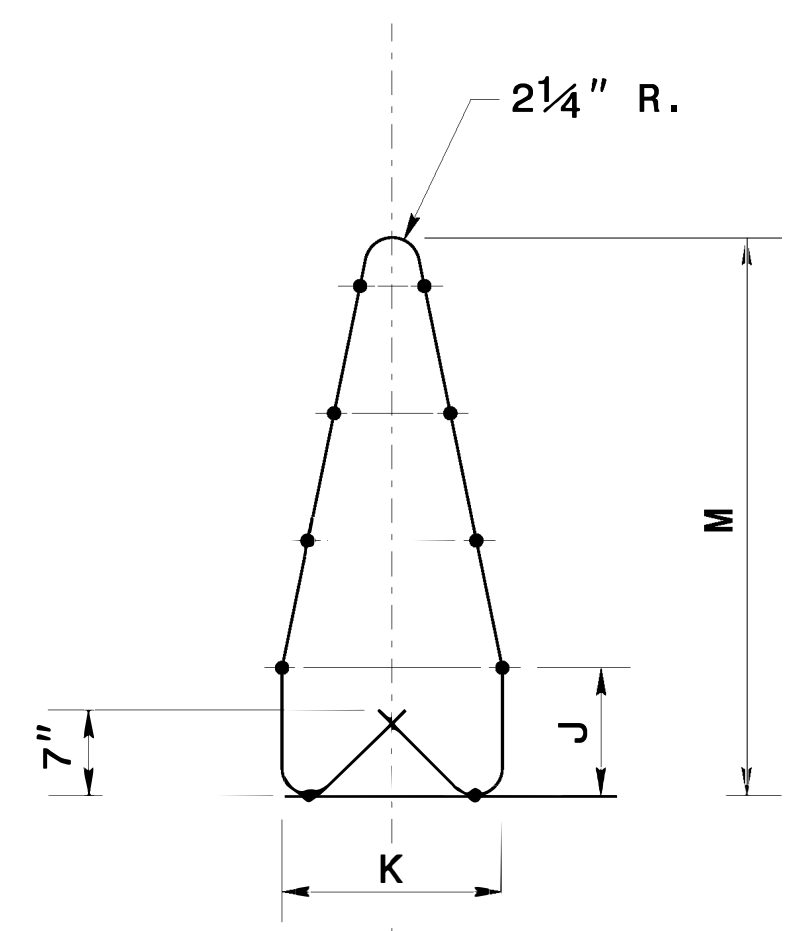
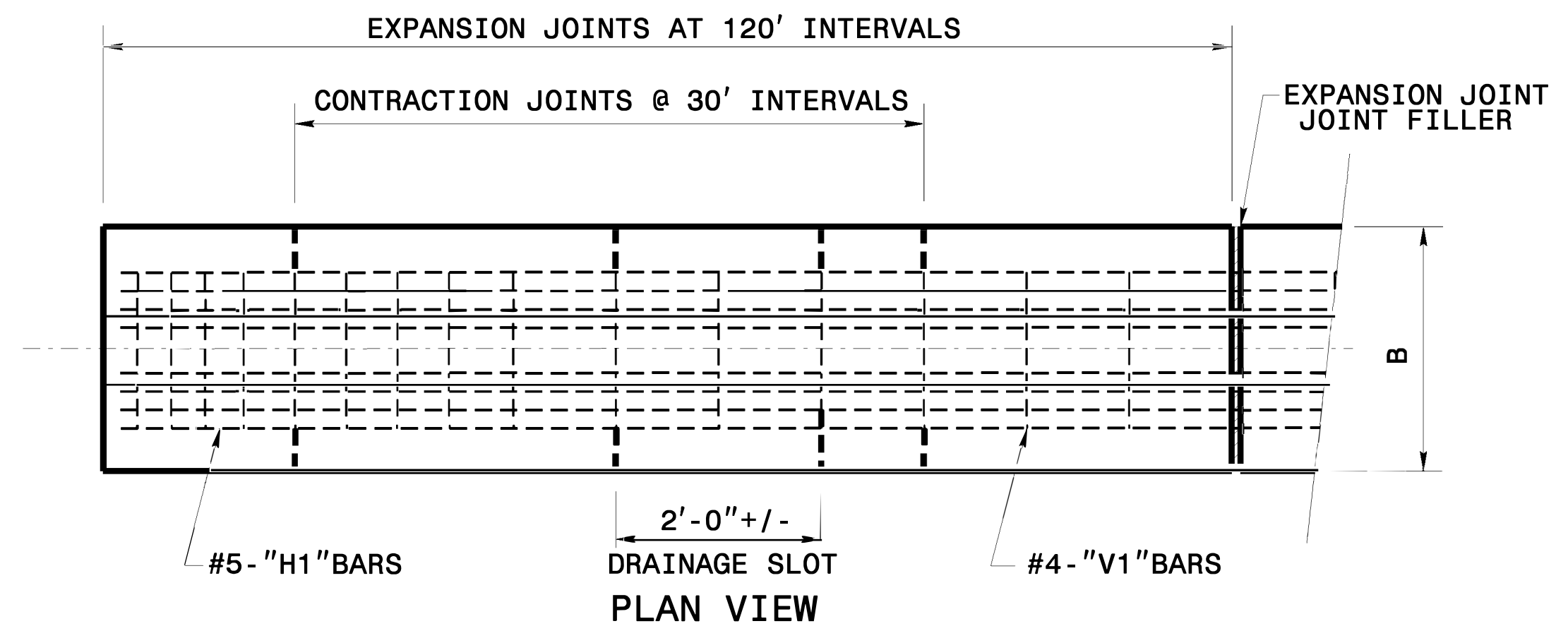
Designed by:
J. S. Howerton
#1393107000456

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SEE PLATE FOR TITLE

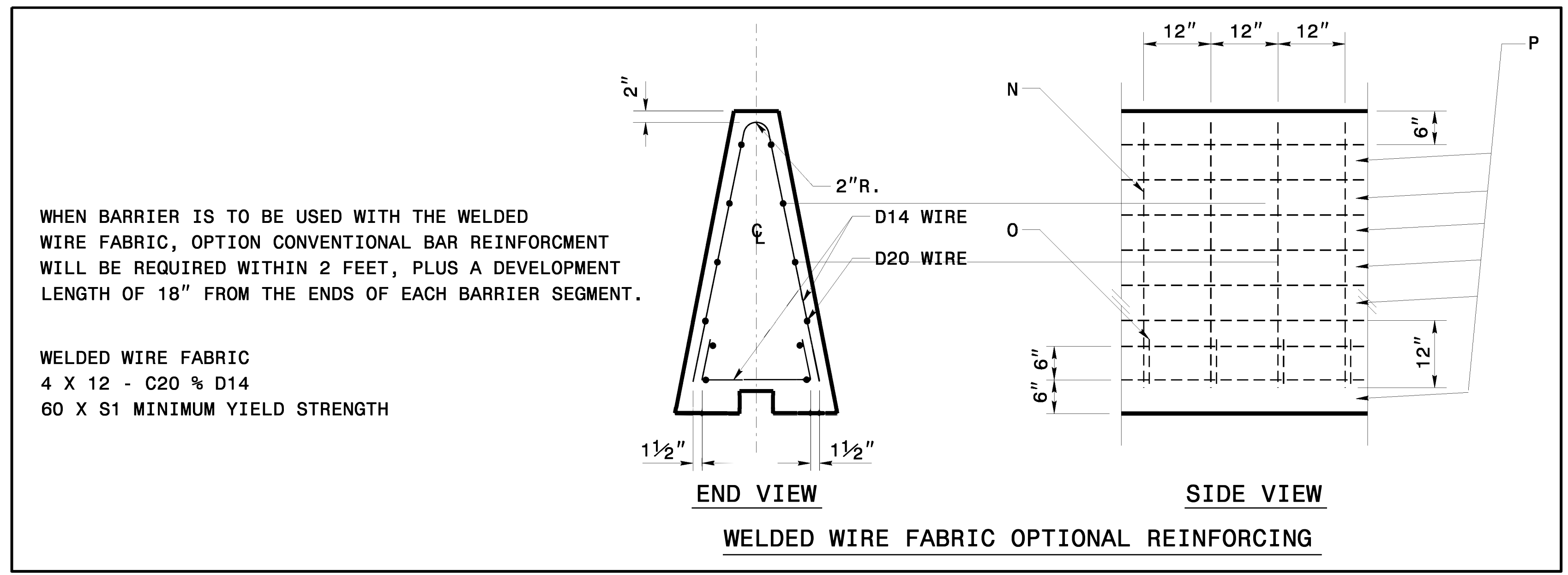
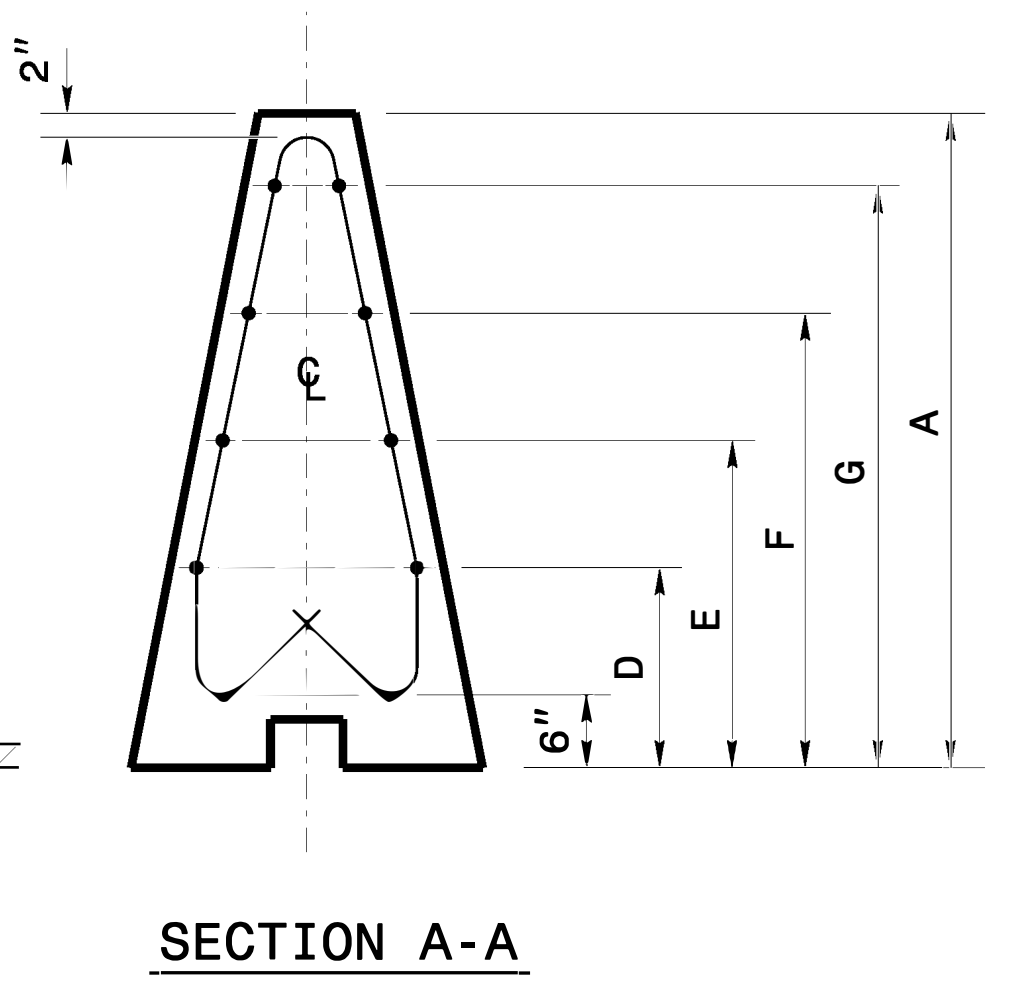
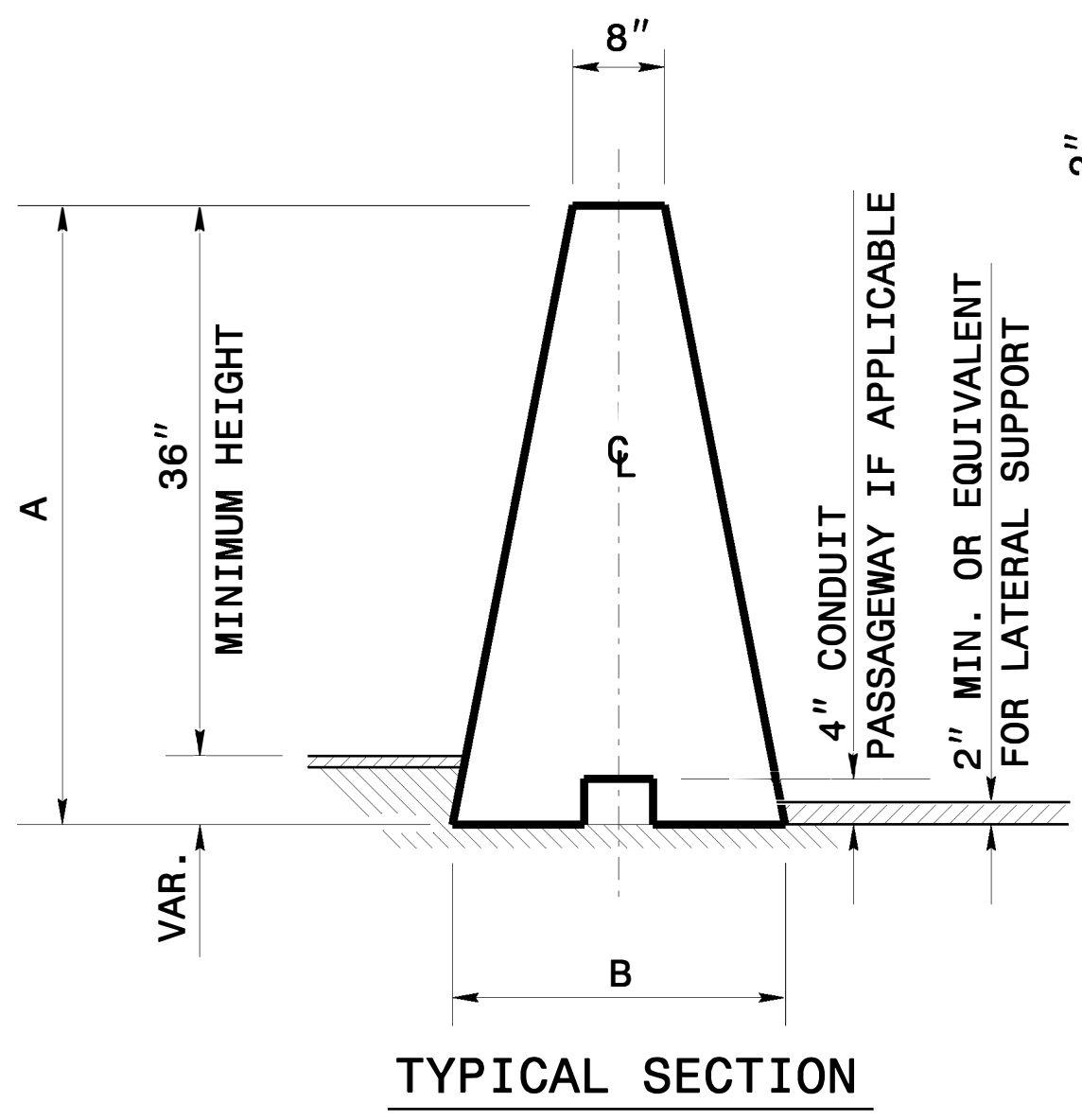
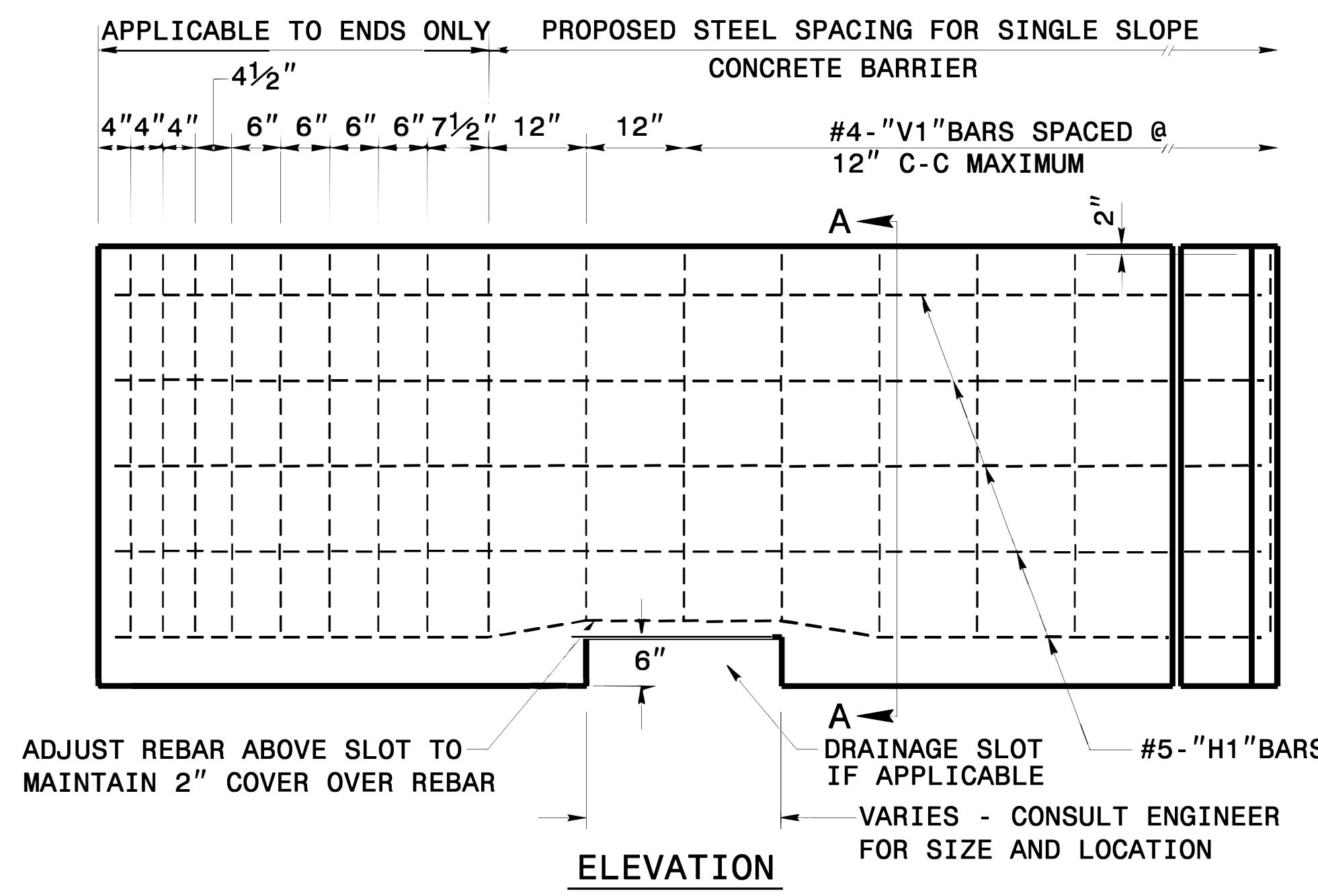
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 MODIFIED BY: E.E. WARD DATE: 3-1-02
 CHECKED BY: _____ DATE: _____
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GENERAL NOTES:

- USE CLASS "AA" CONCRETE.
- MAINTAIN 2" OF COVER OVER ALL REBAR. CHAMFER TOP AND ENDS OF BARRIER 1/2 INCH.
- USE BAR SPLICE LENGTHS A MINIMUM OF 20 TIMES THE NORMAL DIAMETER OF THE BAR. ANY METHOD DEvised BY THE CONTRACTOR AND APPROVED BY THE ENGINEER THAT WILL ASSURE THE LONGITUDINAL ROADWAY STEEL WILL BE POSITIONED +/- 1/2 INCH AS DIMENSIONED WILL BE SATISFACTORY.

WELDED WIRE FABRIC MAY BE USED AS AN OPTION TO CONVENTIONAL REINFORCEMENT FOR CAST-IN-PLACE BARRIER. WELDED WIRE FABRIC SHALL BE MADE IN ACCORDANCE WITH ASTM A497. CONDUIT TO BE PROVIDED ONLY WHEN CALLED FOR ELSEWHERE IN THE PLANS. POSITION OF THE CONDUIT CONDUIT PASSAGEWAY MAY BE ADJUSTED TO FACILITATE CONSTRUCTION, SUBJECT TO APPROVAL BY THE ENGINEER.
- REFER TO ROADWAY STANDARD DRAWING NO.854.01 FOR EXPANSION AND CONTRACTION JOINT, FILLER AND OTHER SPECIFICATIONS.



WHEN BARRIER IS TO BE USED WITH THE WELDED WIRE FABRIC, OPTION CONVENTIONAL BAR REINFORCEMENT WILL BE REQUIRED WITHIN 2 FEET, PLUS A DEVELOPMENT LENGTH OF 18" FROM THE ENDS OF EACH BARRIER SEGMENT.

WELDED WIRE FABRIC
4 X 12 - C20 % D14
60 X S1 MINIMUM YIELD STRENGTH

BARRIER HEIGHT (IN.)	DIMENSIONS											
	A	B	D	E	F	G	K	L	M	N	O	P
42"	42	24	13 1/2	21	28 1/2	36	15	9 1/4	36	72	28	4



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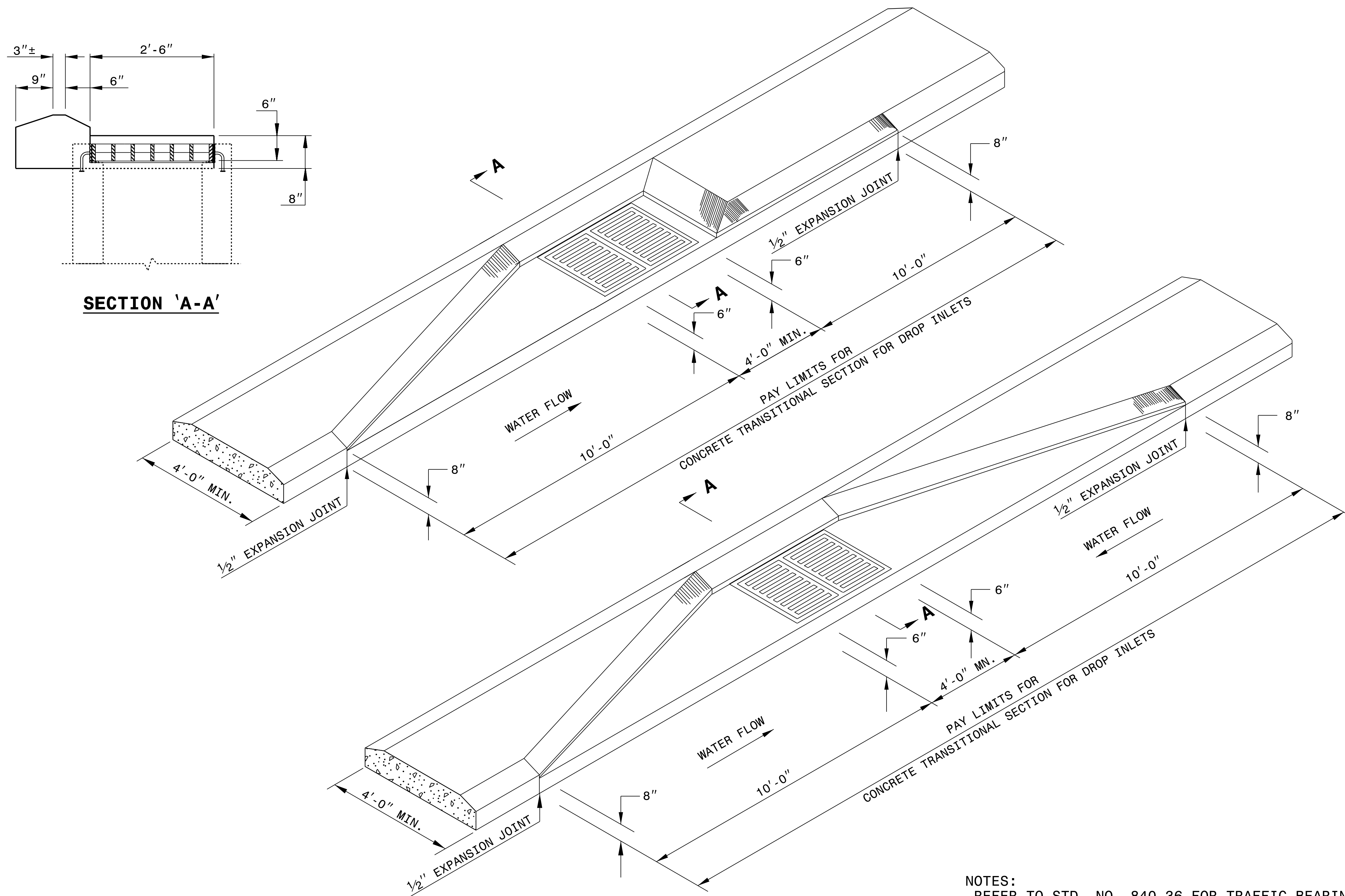
SINGLE SLOPE CONCRETE BARRIER

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: rnbritt DATE: 08-18-06
 CHECKED BY: _____ DATE: _____
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STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**METHOD FOR PLACEMENT OF
DROP INLETS IN CONCRETE ISLANDS**

SHEET 1 OF 1
852D06



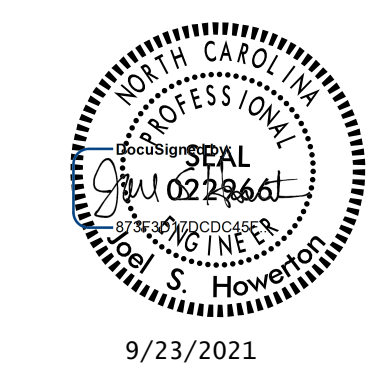
NOTES:
-REFER TO STD. NO. 840.36 FOR TRAFFIC BEARING DRAINAGE STRUCTURE.
-REFER TO STD. NO. 840.37 FOR STEEL GRATE AND FRAME.

STATE OF
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ENGLISH DETAIL DRAWING FOR
**METHOD FOR PLACEMENT OF
DROP INLETS IN CONCRETE ISLANDS**

SHEET 1 OF 1
852D06

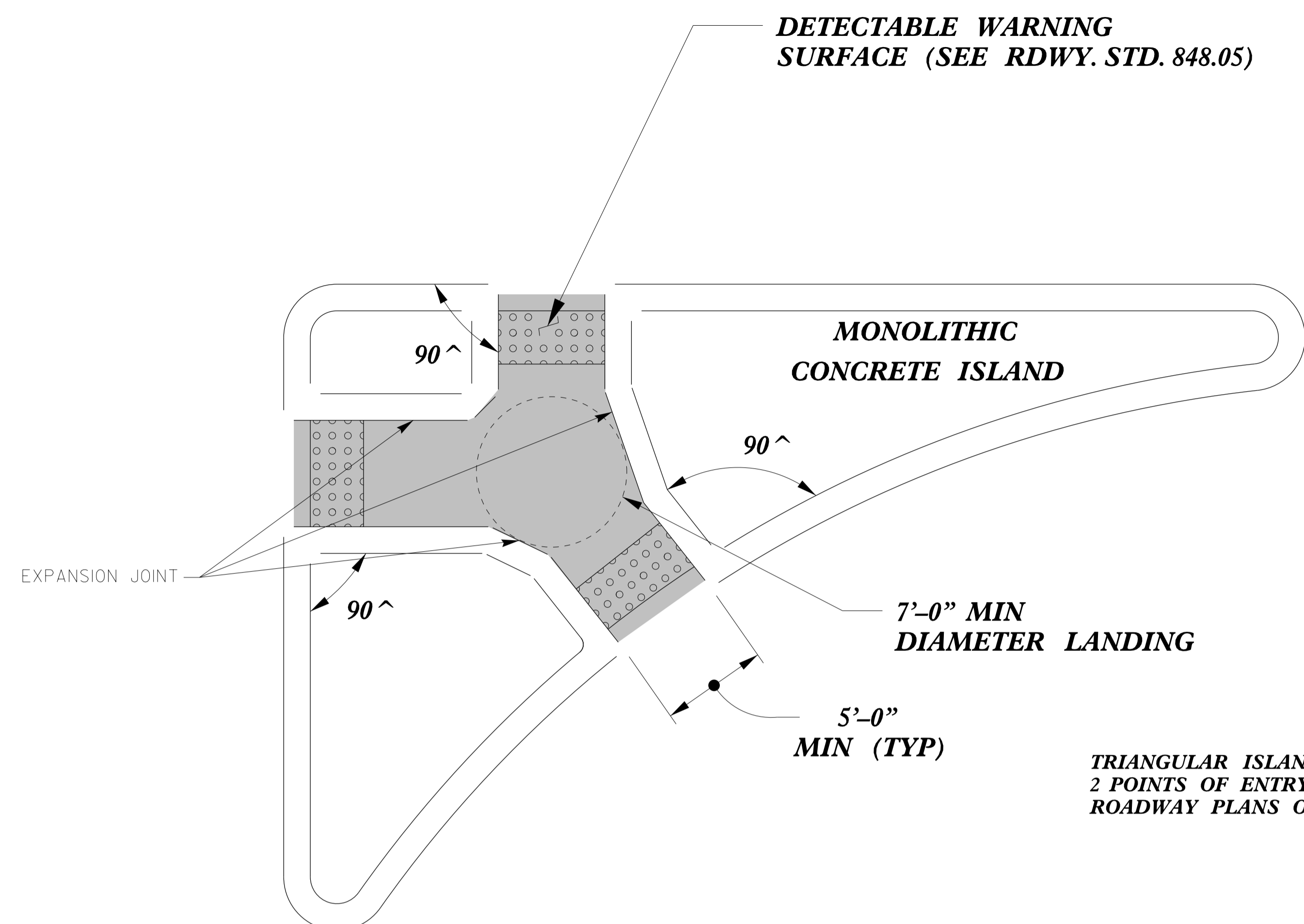
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SEE TITLE PLATE

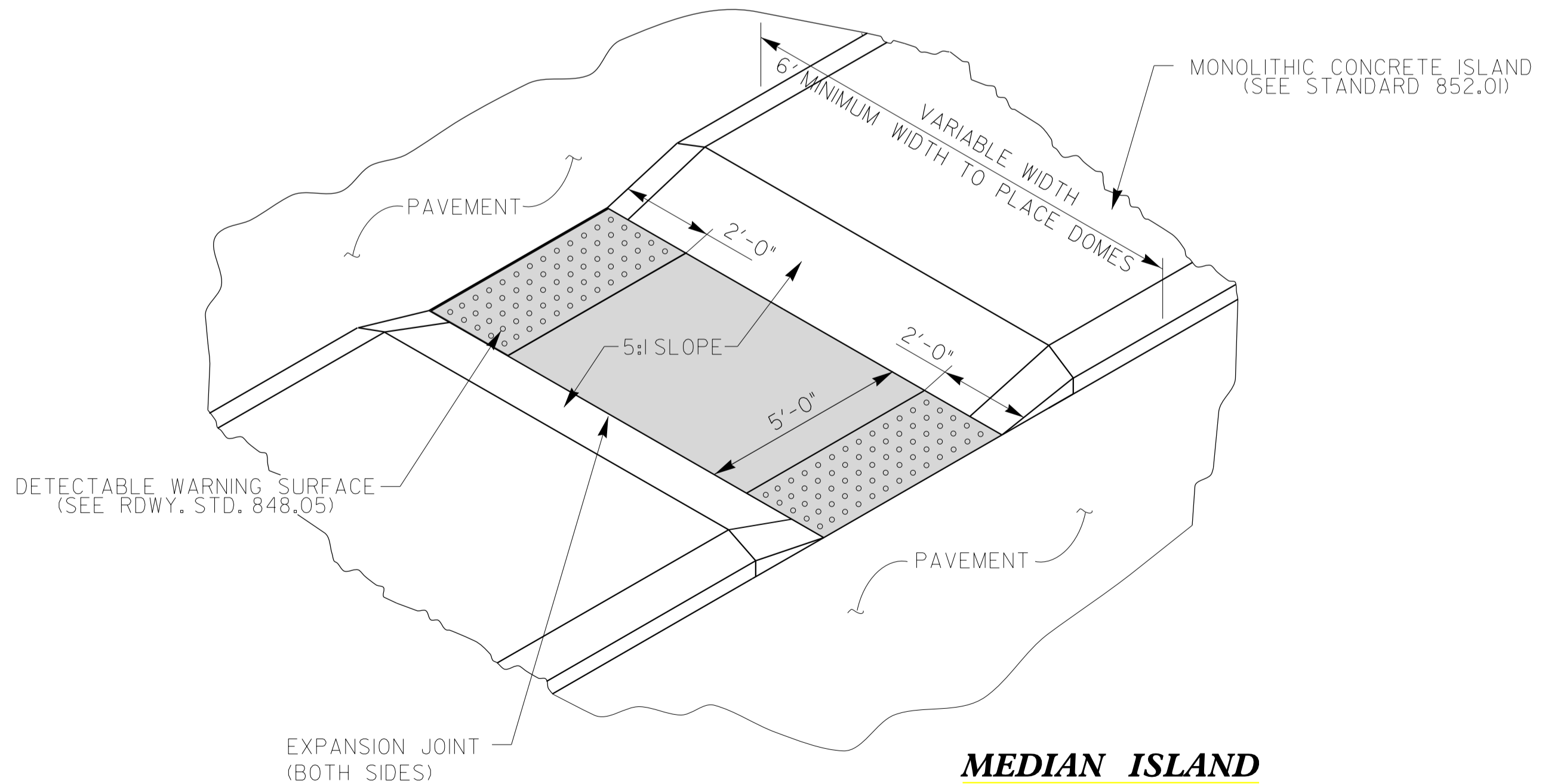
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 CHECKED BY: _____ DATE: _____
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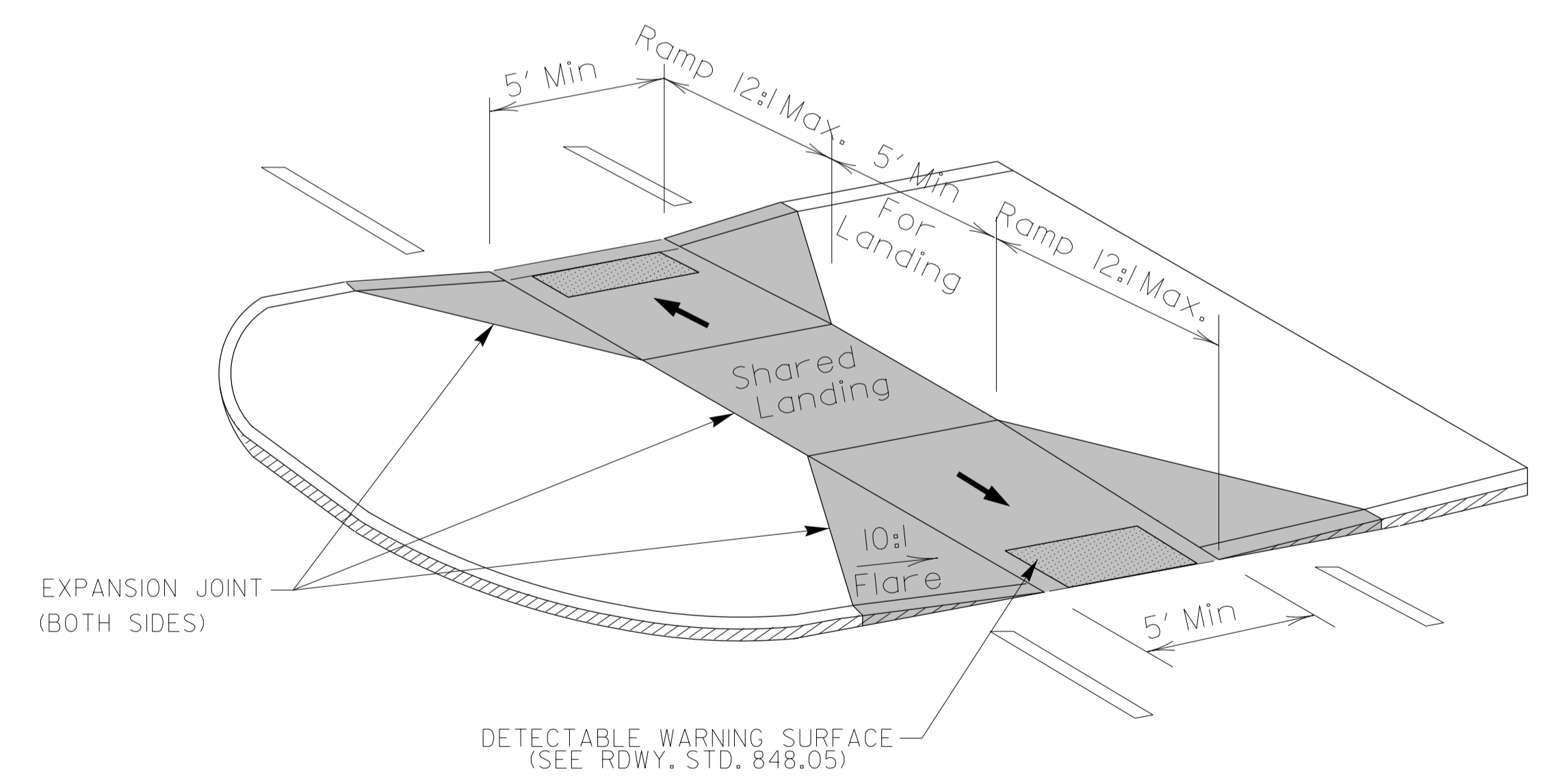
PAY LIMITS FOR 2 OR 3 CURB RAMPS
(CALCULATE BASED ON NUMBER OF SETS OF TRUNCATED DOMES)

TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND WITH CUT THROUGH
TYPE 6



MEDIAN ISLAND WITH CUT THROUGH
TYPE 7



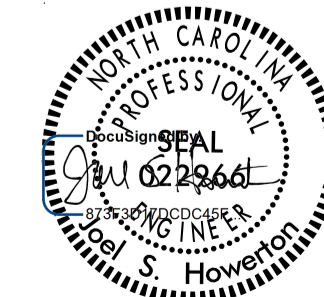
MEDIAN ISLAND CURB RAMPS
TYPE 8

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CURB RAMPS
Median or Turn Lane Islands

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn



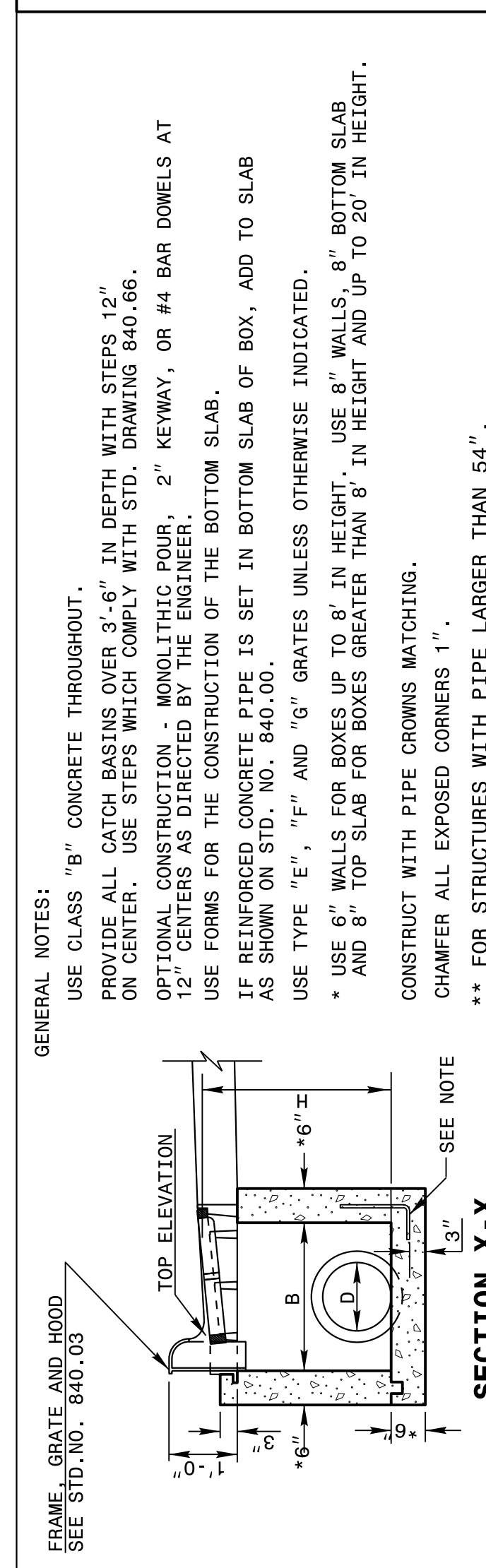
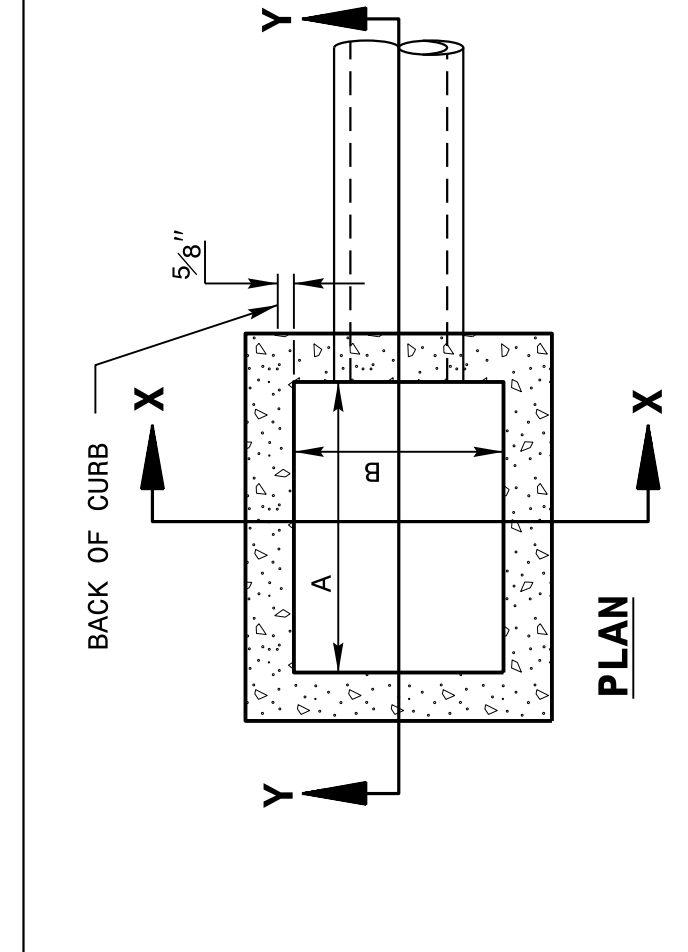
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 Jhewerton AT CSD-292595

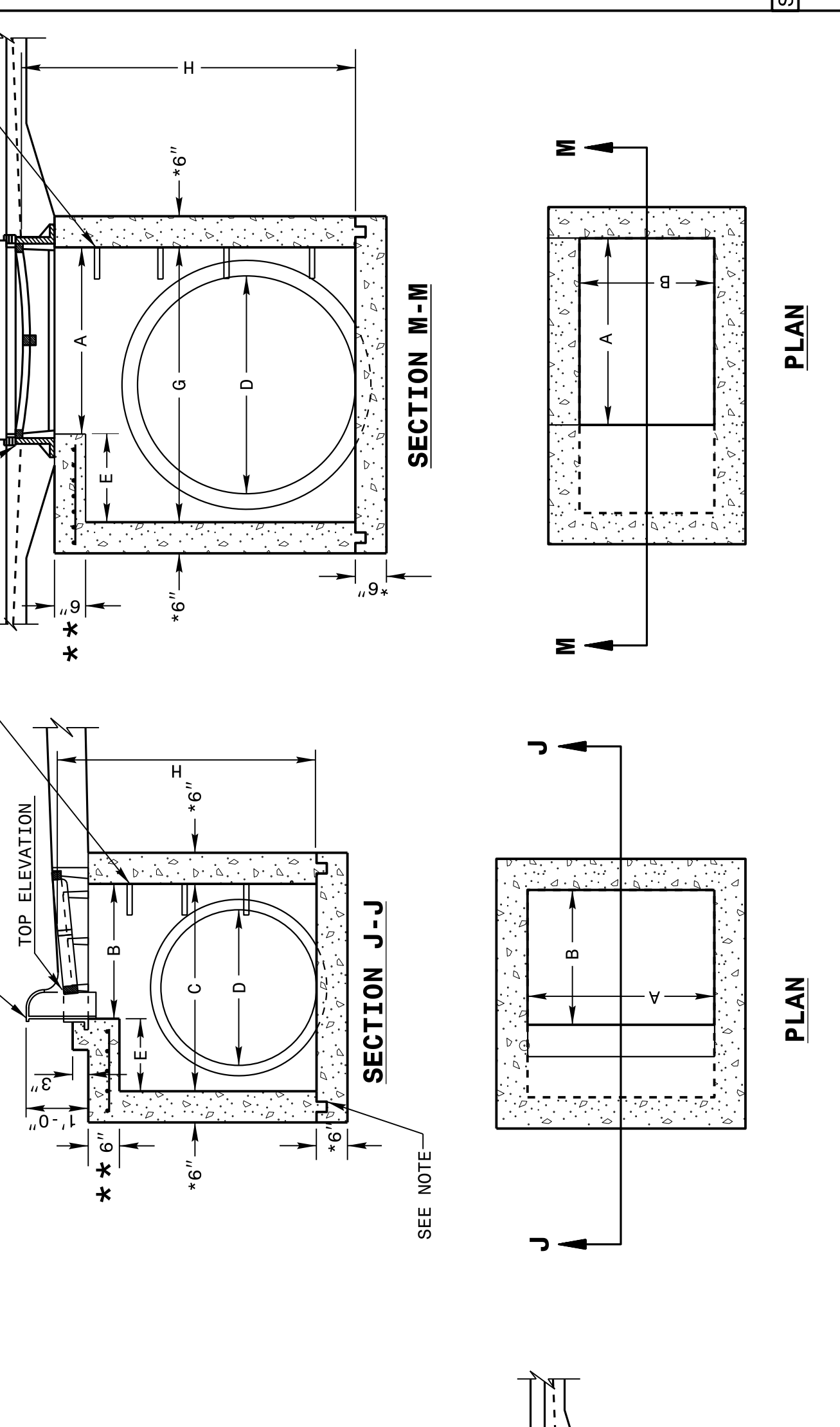
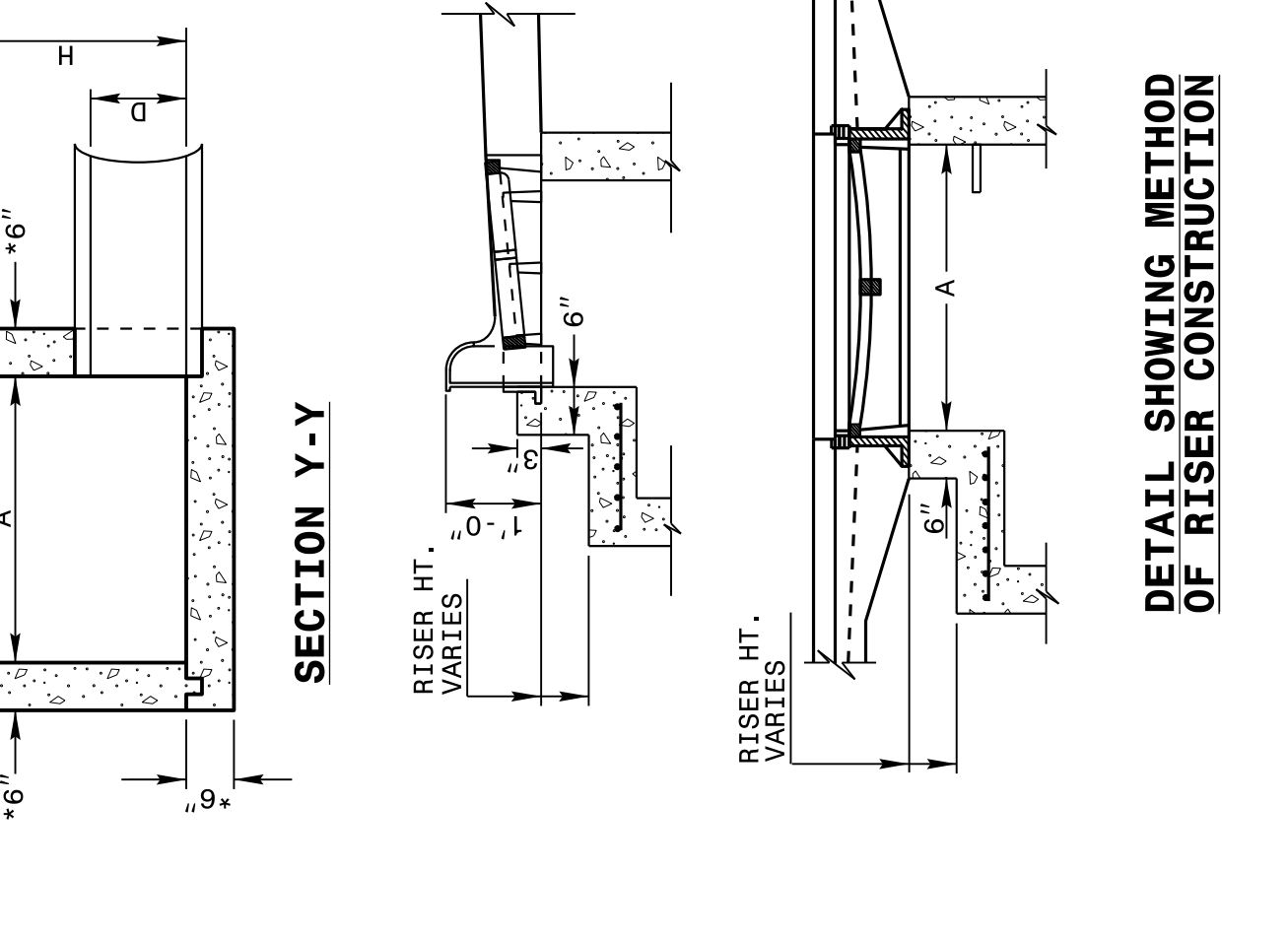
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ENGLISH DETAIL DRAWING FOR
**EXTRA DEPTH
 CONCRETE CATCH BASIN**
 12" THRU 84" PIPE

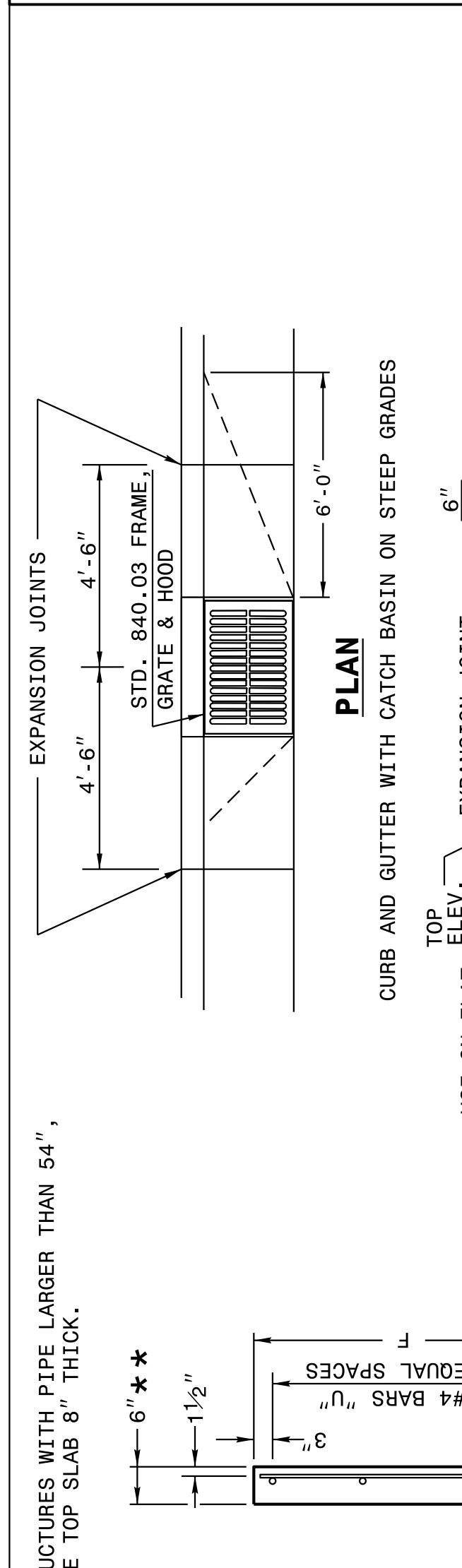
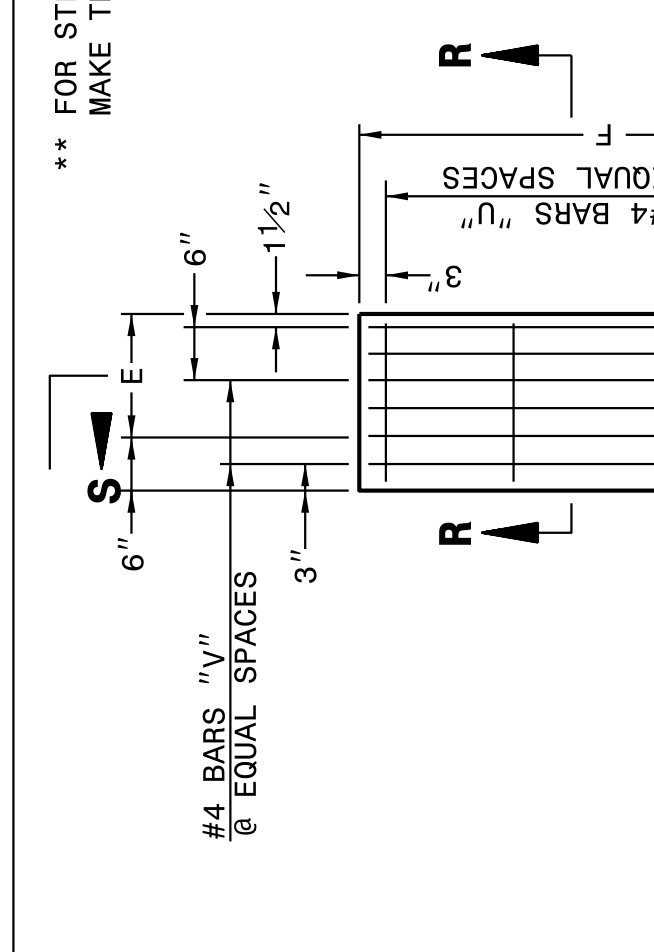


ENGLISH DETAIL DRAWING FOR
**EXTRA DEPTH
 CONCRETE CATCH BASIN**
 12" THRU 84" PIPE

SHEET 1 OF 2
840D02

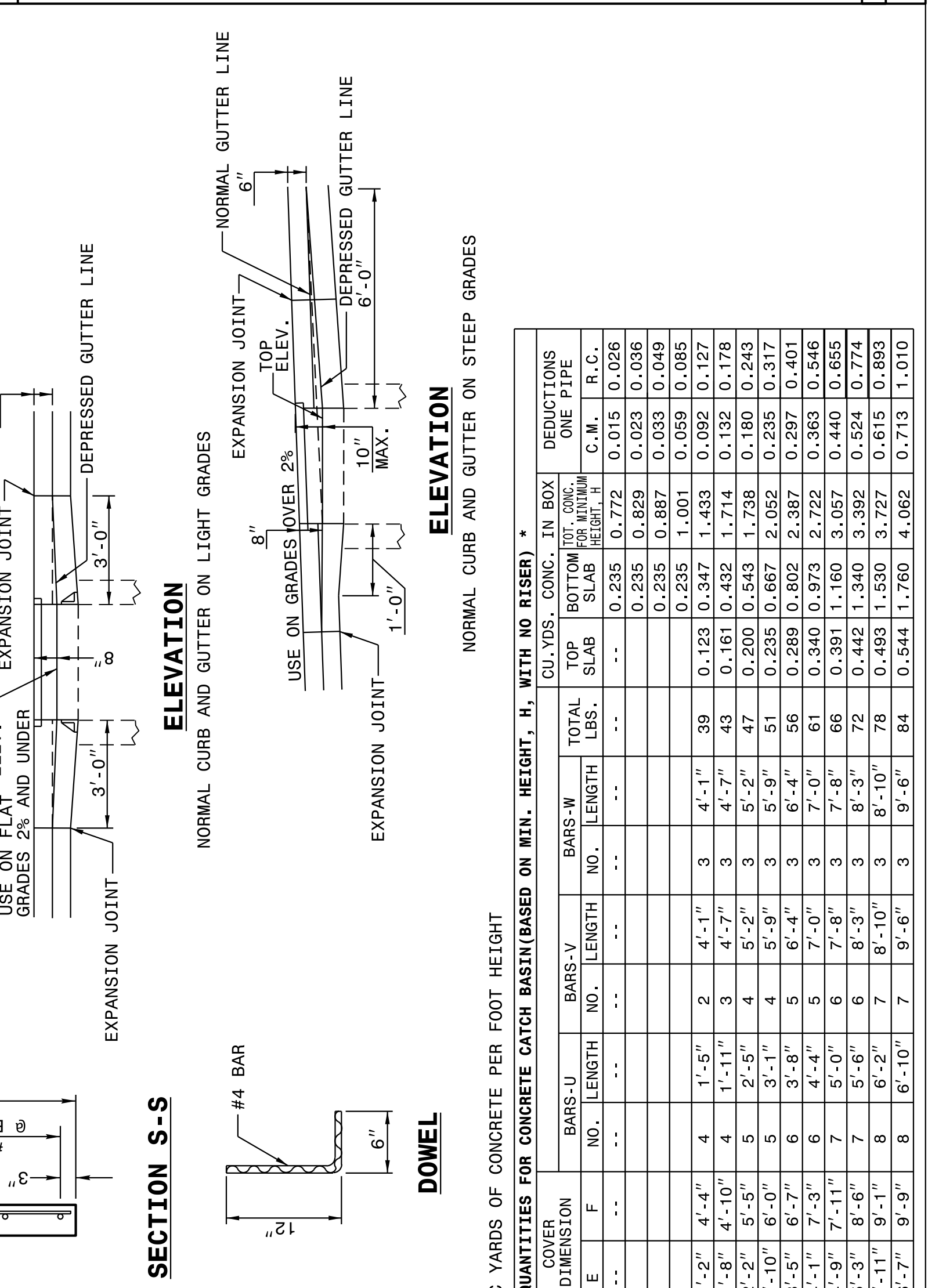
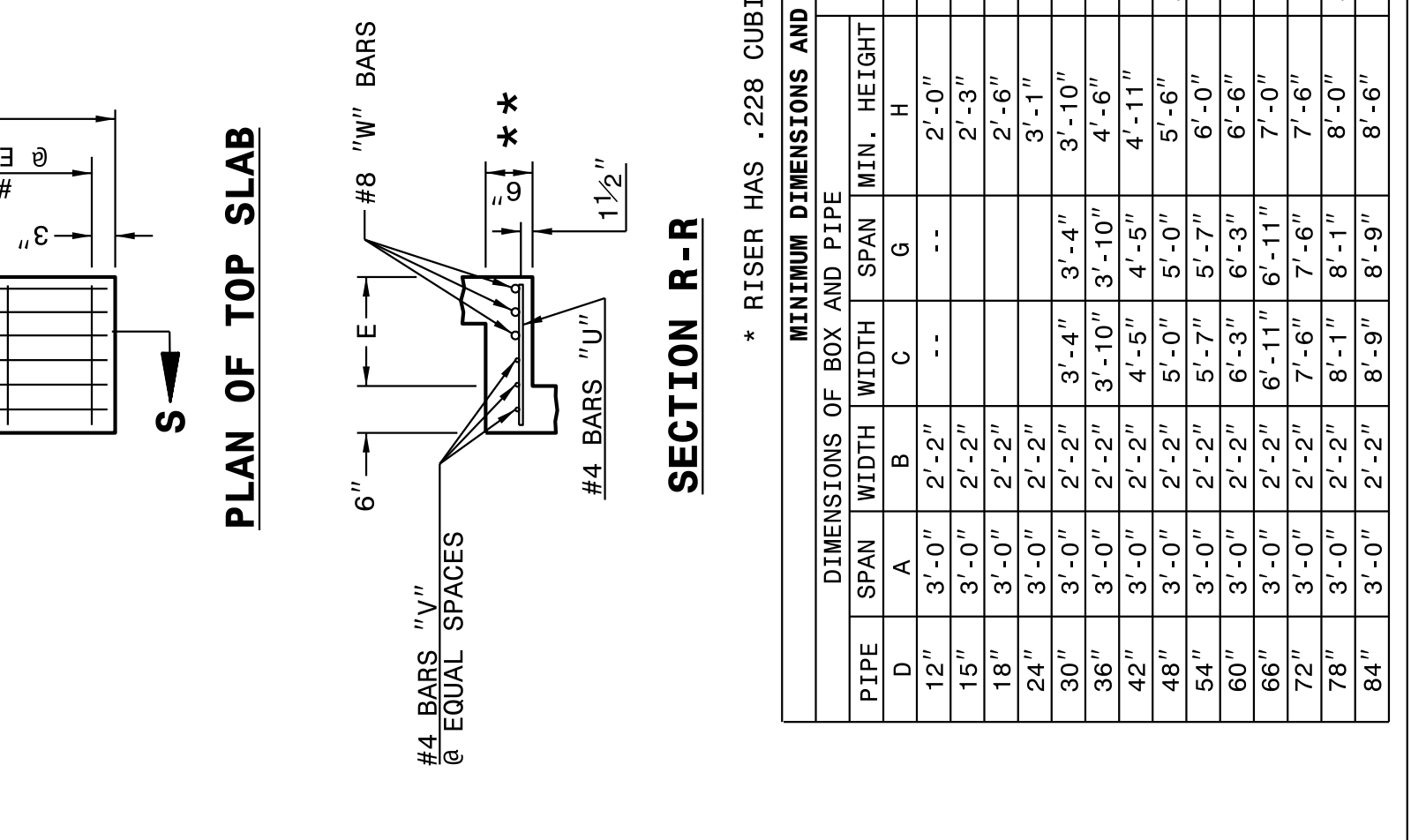
SHEET 1 OF 2
840D02

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 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**EXTRA DEPTH
 CONCRETE CATCH BASIN**
 12" THRU 84" PIPE



ENGLISH DETAIL DRAWING FOR
**EXTRA DEPTH
 CONCRETE CATCH BASIN**
 12" THRU 84" PIPE

SHEET 2 OF 2
840D02

SHEET 2 OF 2
840D02

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

PIPE D.	MINIMUM DIMENSIONS OF BOX AND PIPE		COVER DIMENSION		BARS-V		BARS-W		TOTAL		DEDUCTIONS	
	SPAN	WIDTH	MIN.	HEIGHT	E	F	NO.	LENGTH	NO.	LENGTH	CU. YDS. CONC.	IN BOX
12"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	0.235	0.015
15"	3'-0"	2'-2"	2'-3"	2'-6"	..	..	..	..	..	..	0.235	0.036
18"	3'-0"	2'-2"	3'-1"	3'-1"	..	..	..	..	..	..	0.235	0.049
24"	3'-0"	2'-2"	3'-4"	3'-10"	1'-2"	4'-4"	2	4'-1"	3	4'-1"	0.235	0.085
30"	3'-0"	2'-2"	3'-10"	4'-6"	1'-8"	4'-10"	4	4'-7"	3	4'-7"	0.235	0.127
36"	3'-0"	2'-2"	4'-5"	4'-11"	2'-2"	5'-5"	5	5'-2"	4	5'-2"	0.235	0.178
42"	3'-0"	2'-2"	5'-0"	5'-6"	3'-1"	6'-0"	5	5'-9"	3	5'-9"	0.235	0.243
48"	3'-0"	2'-2"	5'-7"	6'-0"	3'-5"	6'-7"	6	6'-4"	5	6'-4"	0.235	0.317
54"	3'-0"	2'-2"	6'-3"	6'-6"	4'-1"	7'-3"	6	7'-0"	3	7'-0"	0.235	0.401
60"	3'-0"	2'-2"	6'-11"	7'-0"	4'-9"	7'-11"	7	8'-3"	3	8'-3"	0.235	0.485
66"	3'-0"	2'-2"	7'-6"	7'-6"	5'-3"	8'-6"	7	9'-1"	3	9'-1"	0.235	0.570
72"	3'-0"	2'-2"	8'-1"	8'-1"	6'-7"	9'-9"	8	10'-0"	3	10'-0"	0.235	0.655
78"	3'-0"	2'-2"	8'-9"	8'-9"	7'-7"	10'-10"	9	11'-0"	3	11'-0"	0.235	0.740
84"	3'-0"	2'-2"	9'-4"	9'-4"	8'-7"	11'-11"	10	12'-0"	3	12'-0"	0.235	0.825

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ORIGINAL BY: 2002 Std.840.01 DATE: _____
 MODIFIED BY: E.E. WARD DATE: 3-1-02
 CHECKED BY: _____ DATE: _____
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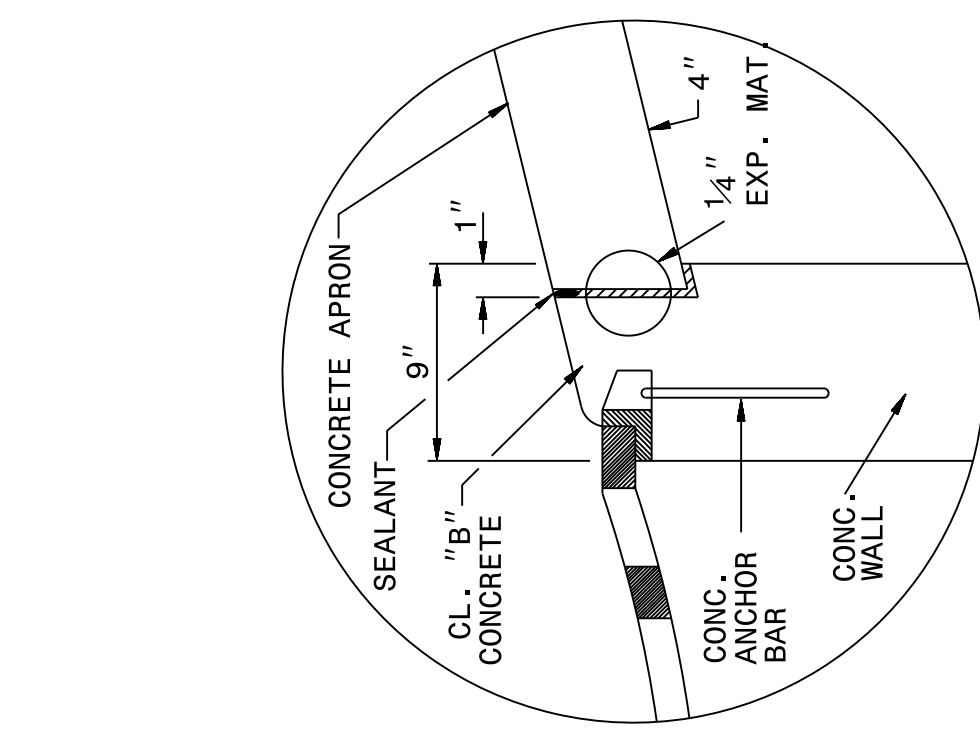
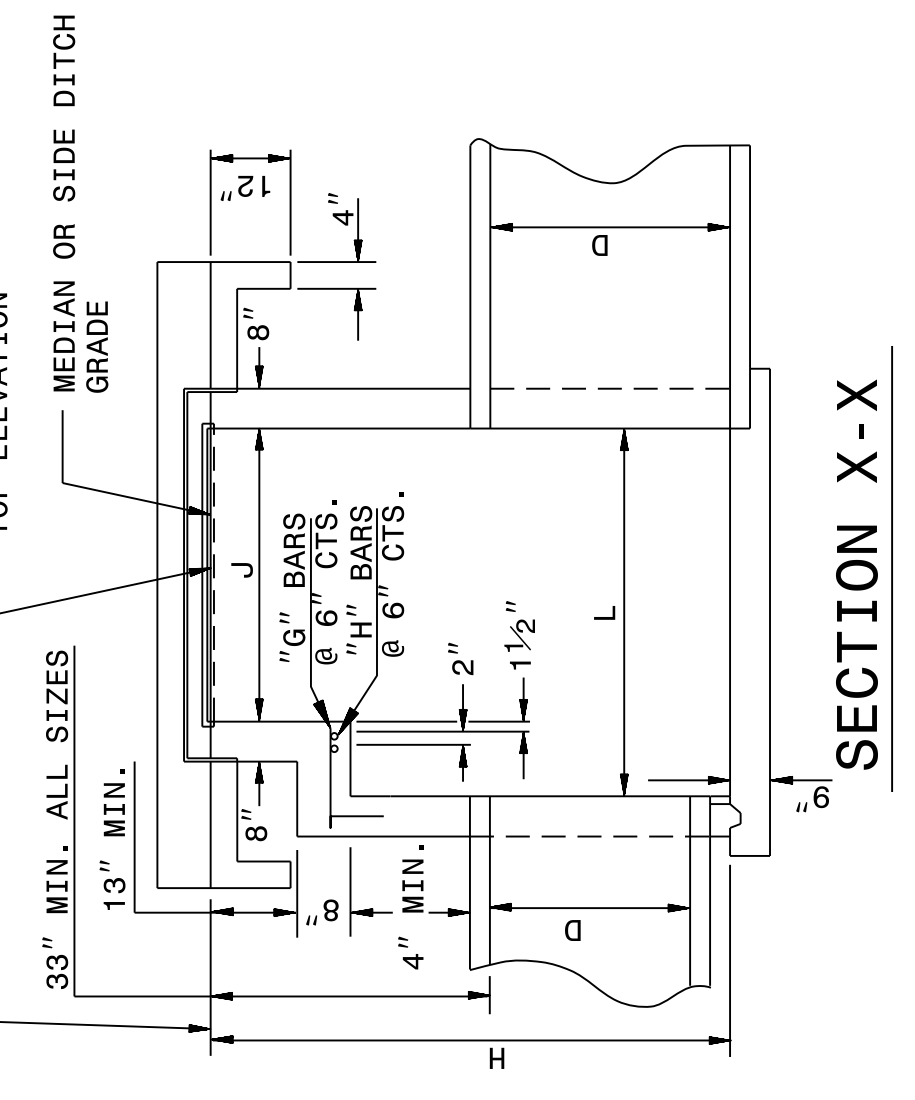
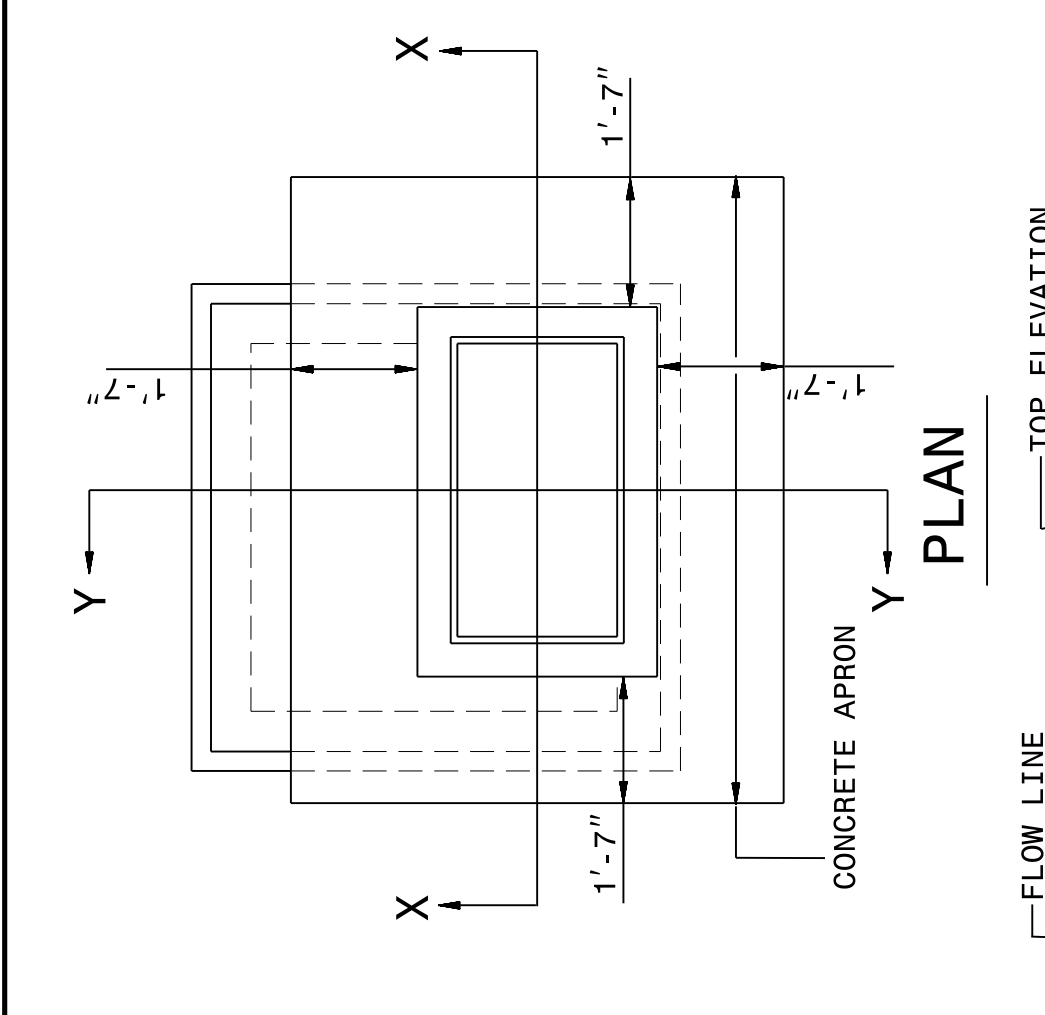
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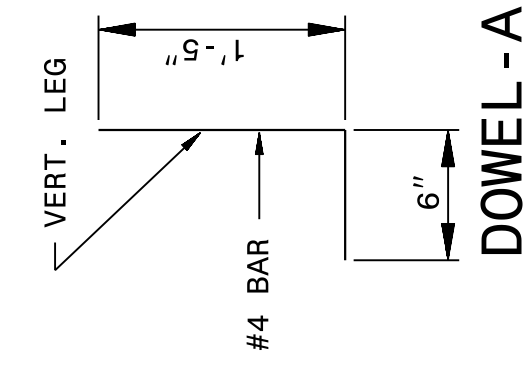
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

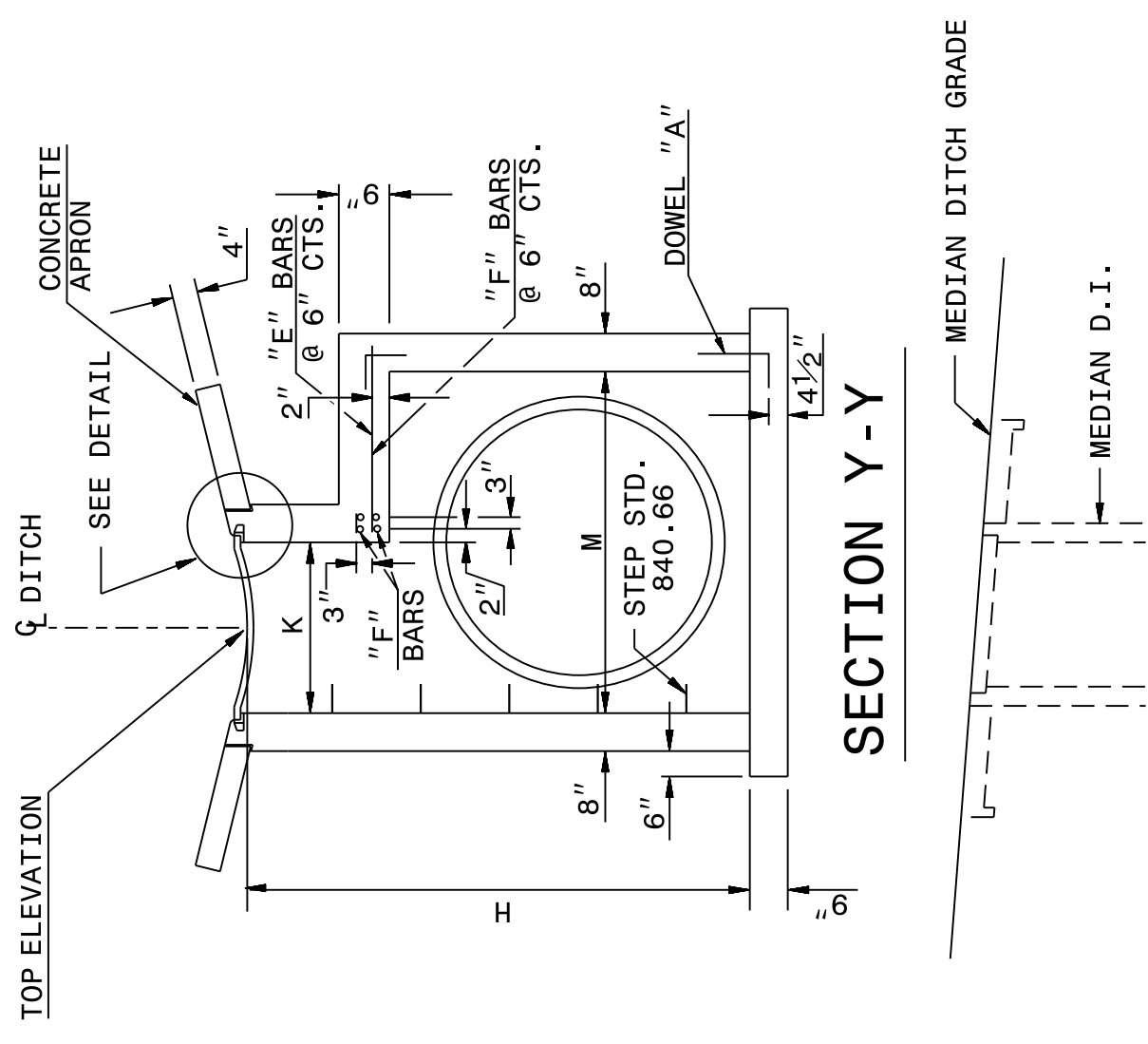
SHEET 1 OF 2
840D17



DETAIL
(APRON SUPPORT NOTCH)



GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE DROP INLETS WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 WHEN PAYMENT FOR THE DROP INLET IS MADE ON A PER EACH BASIS, THE CONCRETE APRON WILL BE CONSIDERED PART OF THE DROP INLET.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 USE STANDARD FRAMES AND GRATES 840.22 (SHOWN), 840.24 (SHOWN), 840.20, 840.29, AND 840.33.
 SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 25 FEET.



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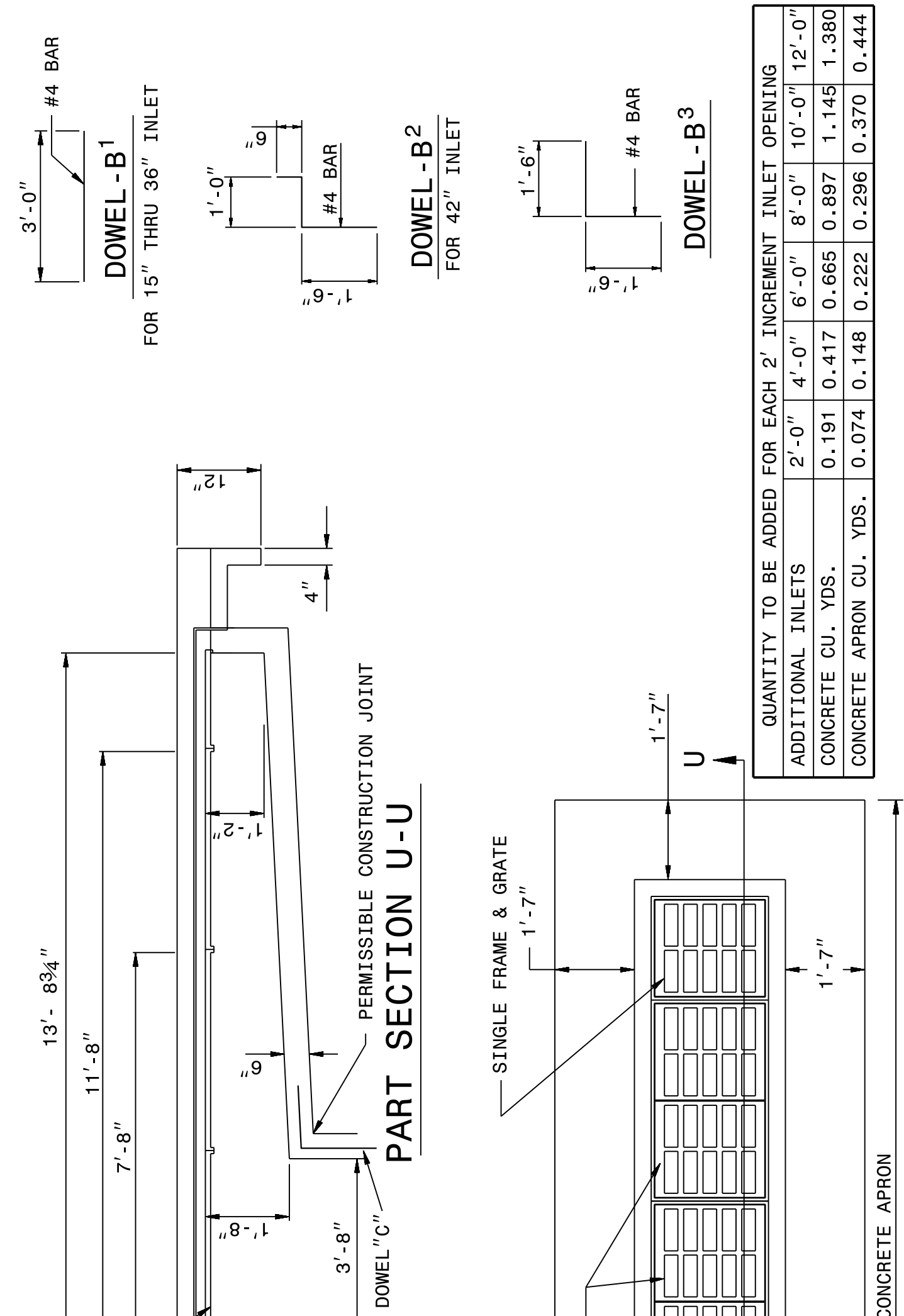
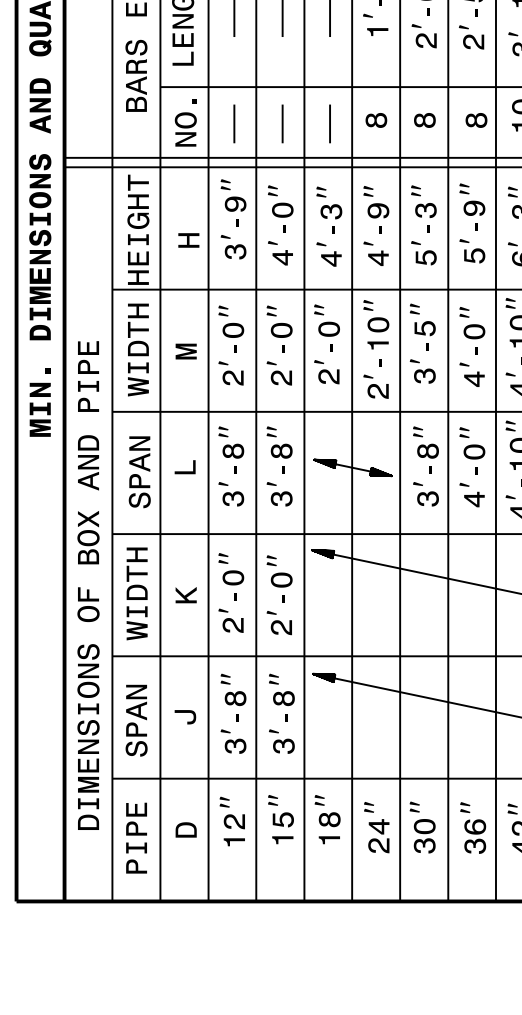
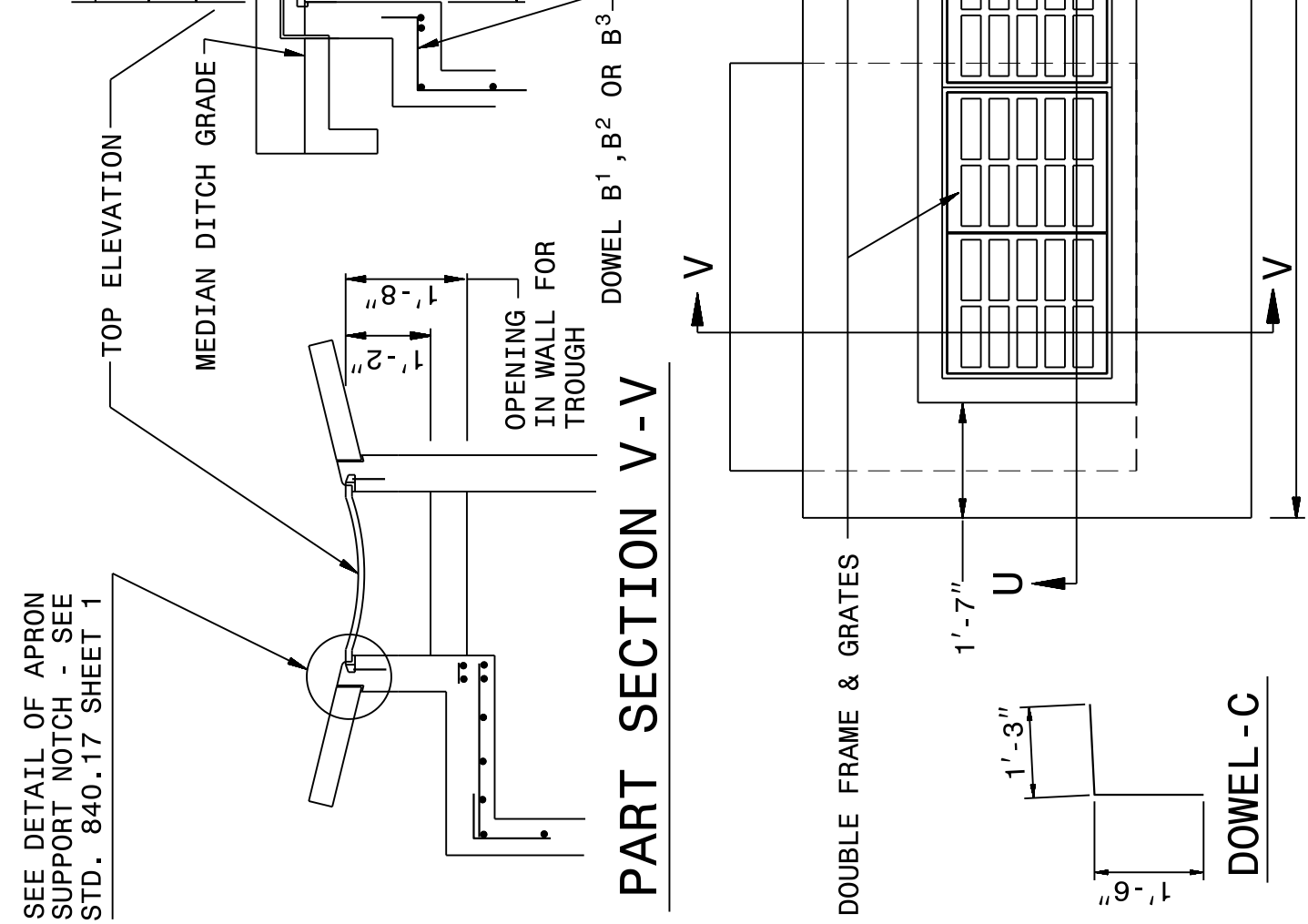
ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

SHEET 1 OF 2
840D17

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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

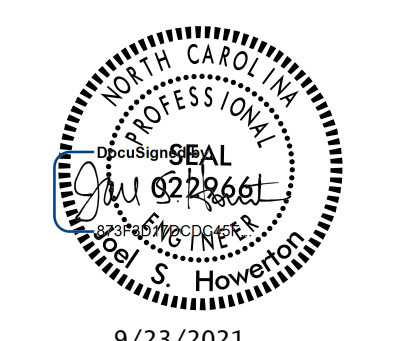
SHEET 2 OF 2
840D17



QUANTITY TO BE ADDED FOR EACH 2' INCREMENT INLET OPENING

ADDITIONAL INLETS	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"	12'-0"
CONCRETE CU. YDS.	0.191	0.417	0.665	0.897	1.145	1.380
CONCRETE APRON CU. YDS.	0.074	0.148	0.222	0.296	0.370	0.444

DIMENSIONS OF BOX AND PIPE		REINFORCING STEEL - NO. 4 BARS				MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET (BASED ON MIN. HEIGHT, H)		CU YDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE				
PIPE	SPAN	WIDTH	SPAN	WIDTH	HEIGHT	BARS E	BARS F	BARS G	BARS H	TOTAL	APRON	TOTAL	C.S.	R.C.
D	J	K	L	M	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.
12"	3'-8"	2'-0"	3'-8"	2'-0"	3'-9"	—	—	—	—	—	—	0.362	0.926	0.247
15"	3'-8"	2'-0"	3'-8"	2'-0"	4'-0"	—	—	—	—	—	—	0.362	0.988	0.247
18"	—	—	—	—	4'-3"	—	—	—	—	—	—	0.362	1.050	0.247
24"	—	—	—	—	4'-9"	8	1'-5"	6	4'-9"	—	—	27	0.444	1.362
30"	—	—	—	—	5'-3"	8	2'-0"	7	4'-9"	—	—	33	0.502	1.644
36"	—	—	—	—	5'-9"	8	2'-5"	8	4'-11"	4	0'-9"	47	0.560	1.931
42"	—	—	—	—	6'-3"	10	3'-1"	9	5'-7"	3	1'-5"	67	0.704	2.500
48"	—	—	—	—	6'-9"	11	3'-7"	10	6'-1"	4	6'-1"	87	0.823	3.013
54"	—	—	—	—	7'-3"	12	4'-1"	11	6'-7"	5	2'-5"	107	0.951	3.589
60"	—	—	—	—	7'-9"	13	4'-9"	12	7'-3"	6	7'-3"	135	1.311	4.539
66"	—	—	—	—	8'-3"	14	5'-4"	14	7'-10"	7	7'-10"	188	1.136	5.061
72"	—	—	—	—	8'-9"	15	5'-11"	15	8'-5"	4	4'-3"	199	1.500	5.860



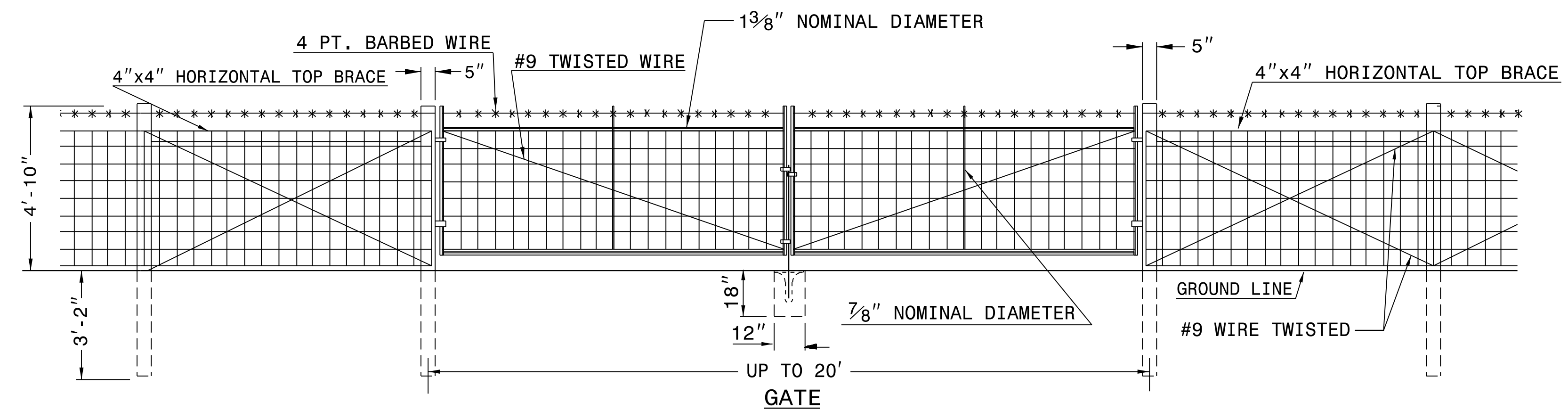
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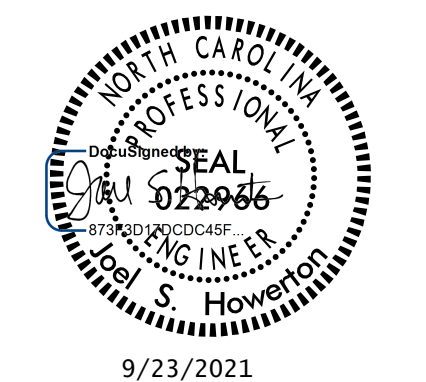
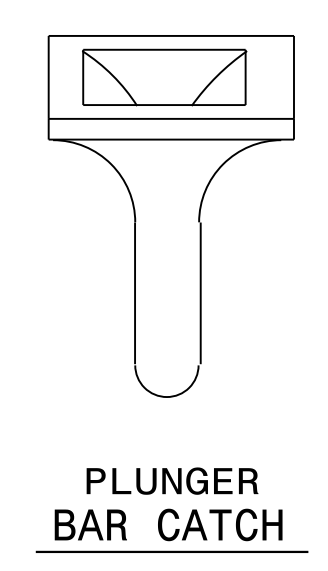
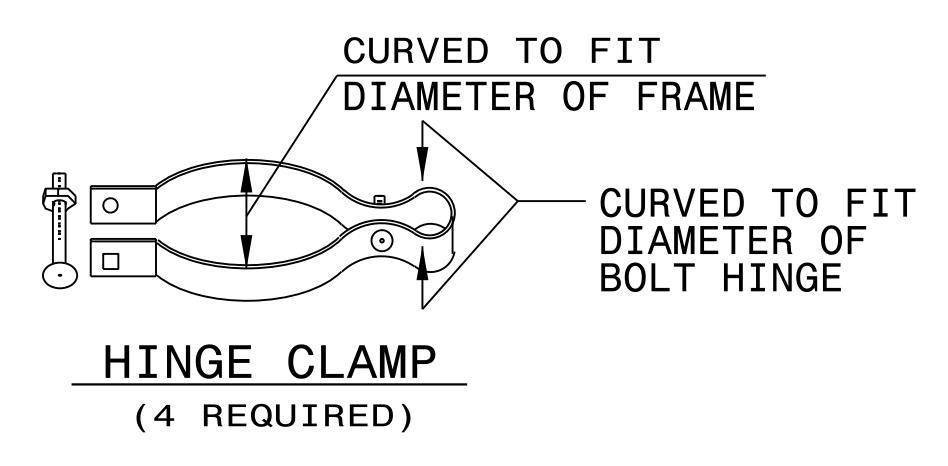
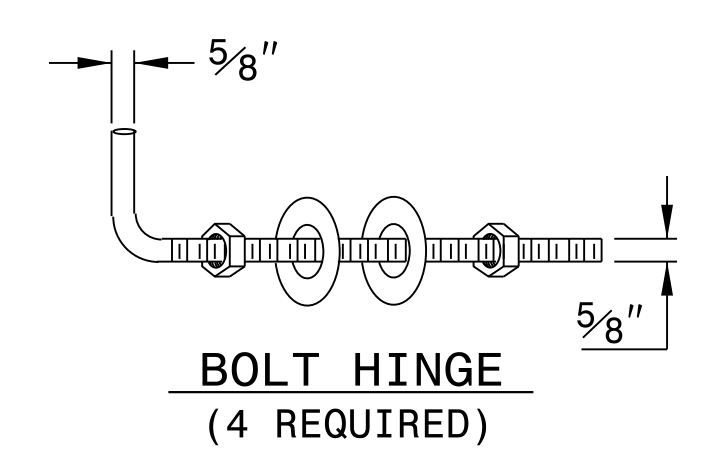
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ORIGINAL BY: 2002 STD.840.1 DATE: _____
 MODIFIED BY: K.A. KEMPF DATE: 07-06-09
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: /stand/840d17 Extra Depth 2GI.dgn



CONSTRUCT ACCORDING TO STANDARD DRAWING 866.02.
 USE LATCH DEVICE APPROVED BY THE ENGINEER. HINGE ASSEMBLY, AS DETAILED, IS SUGGESTED.
 SUBSTITUTION MAY BE MADE SUBJECT TO APPROVAL BY THE ENGINEER. USE 1 3/8\"/>



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WOVEN WIRE FENCE WITH DOUBLE GATE

ORIGINAL BY: K. KEMPF DATE: 4-18-2013
 MODIFIED BY: DATE: _____
 CHECKED BY: DATE: _____
 FILE SPEC.: details\kkempf\english\8660201.dgn

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 JHowerton AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
R-2233BB	2D-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	8/25/2021

DETAIL 1 RIP-RAP ENERGY DISSIPATOR BASIN

DIM. (H)	RIP RAP BASIN TYPE				
	A	B	C	D	E
A	2.0	2.0	2.5	2.5	2.0
B	1.5	1.5	2.0	2.5	1.5
C	2.0	2.0	2.0	3.0	2.0
D	1.5	3.0	2.0	1.5	1.0
E	7.5	10	10	7.5	5.0
F	20	25	25	20	15
G	15	25	20	15	10
DDE (CY)	370	105	244	50	15
GEOTEXTILE (SY)	370	70	185	40	20
CL B RIP RAP (TONS)	125	45	55	45	N/A
CL I RIP RAP (TONS)	105	N/A	N/A	N/A	15
CL II RIP RAP (TONS)	25	50	115	N/A	N/A

ALL DIMENSIONS APPROXIMATE

PLAN

SECTION

BASIN #	LOCATION (AT OUTLET)	TYPE	SHEET
1	LPB STA. 17+10 RT (CL B)	B	6
2	L3 STA. 778+92 LT (CL II)	A	6
3	L3 STA. 786+61 LT (CL B)	A	7
4	L3 STA. 808+38 LT (CL I)	A	9
5	L3 STA. 824+15 LT (CL B)	A	10
6	RPD STA. 20+10 RT (CL B)	A	11
7	L3 STA. 866+75 RT (CL I)	E	12
8	L3 STA. 867+11 RT (CL I)	A	12
9	L3 STA. 947+50 RT (CL B)	A	18
10	Y11 STA. 13+52 RT (CL B)	A	18
11	L3 STA. 965+06 LT (CL II)	C	20
12	L3 STA. 990+57 LT (CL B)	C	22
13	Y3 STA. 41+55 RT (CL B)	D	28
14	Y8 STA. 17+60 LT (CL II)	B	31
15	Y10 STA. 18+27 RT (CL II)	C	31
16	Y11 STA. 22+00 LT (CL I)	A	32

DETAIL 7 TOE PROTECTION

(Not to Scale)

Type of Liner = CL B Rip-Rap

LOCATION	SHEET	TON	SY
FROM Y25REV STA. 25+00 TO 25+85 LT	4A	50	97
FROM L3 STA. 888+00 TO 894+00 RT	14	381	725
FROM Y12 STA. 16+50 TO 18+03 LT	15	90	169
FROM Y11 STA. 12+37 TO 12+73 RT	18	21	44
FROM Y11 STA. 13+50 TO 14+51 LT	18, 32	59	115
FROM L3 STA. 980+74 TO 981+51 LT	21	45	114
FROM L3 STA. 981+56 TO 982+00 LT	21	26	60
FROM Y8 STA. 15+50 TO 16+53 RT	31	60	114

DETAIL 11 LATERAL 'V' DITCH

(Not to Scale)

Type of Liner = CL B Rip-Rap

LOCATION	SHEET	CY	TON	SY
FROM Y25REV STA. 26+02 TO 27+94 RT	4, 4A	220	88	249
FROM L3 STA. 765+00 TO 767+18 RT	6	2,390	100	282
FROM Y22A STA. 37+50 TO 40+00 RT	29	230	115	324
FROM Y5 STA. 17+50 TO 20+50 LT	13	140	138	388
FROM L3 STA. 885+50 TO 890+46 LT	13, 14	140	228	642

DETAIL 12 TOE PROTECTION

(Not to Scale)

Type of Liner = CL II Rip-Rap

LOCATION	SHEET	TON	SY
FROM L3 STA. 794+00 TO 796+00 RT	7, 8	225	241
FROM L3 STA. 796+02 TO 797+59 LT	8	177	197
FROM L3 STA. 798+00 TO 798+33 RT	8	37	51
FROM L3 STA. 799+00 TO 801+02 LT	8	227	248
FROM L3 STA. 800+00 TO 801+00 RT	8	112	115
FROM L3 STA. 828+71 TO 830+50 LT	10	201	215
FROM Y8 STA. 15+26 TO 15+76 LT	11	56	53
FROM L3 STA. 963+00 TO 963+54 RT	19	61	69
FROM L3 STA. 989+50 TO 990+50 LT	21	112	124
FROM Y6 STA. 26+25 TO 28+50 LT	30	253	260
FROM Y6 STA. 29+63 TO 30+45 RT	30	92	97

DETAIL 8 BERM DITCH

(Not to Scale)

Type of Liner = CL B RIPRAP

LOCATION	SHEET	TON	SY
FROM Y2 STA. 19+11 TO 21+00 LT	23	87	247
FROM Y2 STA. 31+00 TO 33+00 LT	6	92	277
FROM L3 STA. 782+00 TO 782+50 RT	7	23	83
FROM L3 STA. 811+45 TO 812+20 RT	9	35	97
FROM L3 STA. 815+87 TO 822+00 RT	9	282	794
FROM L3 STA. 822+00 TO 824+15 RT	10	99	278
FROM L3 STA. 824+15 TO 826+00 RT	10	85	240

DETAIL 13 LATERAL BASE DITCH

(Not to Scale)

Type of Liner = CL II Rip-Rap

LOCATION	SHEET	CY	TON	SY
FROM L3 STA. 833+00 TO 838+00 RT	10, 11	1954	504	1089

DETAIL 2 LATERAL BASE DITCH

(Not to Scale)

Type of Liner = CL B Rip-Rap

LOCATION	SHEET	CY	TON	SY
FROM L3 STA. 745+00 TO STA. 747+80 LT	4, 5	1430	157	425
FROM Y25REV STA. 26+30 TO STA. 28+25 LT	4, 4A	320	109	296

DETAIL 5 RIRPAP PAD AT JURISDICTIONAL STREAM

(Not to Scale)

Type of Liner = CL II Rip-Rap

LOCATION	SHEET	TON	SY
FROM L3 STA. 814+83 LT	9	15	92
FROM RPD STA. 18+09 LT	11	29	92
FROM L3 STA. 968+80 LT	20	23	92
FROM L3 STA. 981+50 LT	21	27	92
FROM L3 STA. 995+71 LT	22	23	92
FROM Y6 STA. 10+25 RT	29	29	92
FROM Y6 STA. 32+05 LT	30	15	92
FROM Y11 STA. 22+33 LT	32	15	92

DETAIL 3 TOE PROTECTION

(Not to Scale)

Type of Liner = CL B Rip-Rap

LOCATION	SHEET	TON	SY
FROM LPD STA. 16+22 TO 18+08 RT	11	66	241
FROM LPD STA. 18+70 TO 20+41 RT	11	61	221
FROM RPD STA. 16+71 TO 19+00 RT	11	81	296
FROM RPD STA. 19+92 TO 20+50 RT	11	21	75
FROM L3 STA. 814+50 TO 814+68 RT	9	6	23

DETAIL 6 LATERAL 'V' DITCH

(Not to Scale)

Type of Liner = CL II Rip-Rap

LOCATION	SHEET	CY	TON	SY
FROM L3 STA. 798+16 TO 799+03 LT	8	50	42	170
FROM L3 STA. 801+00 TO 802+01 LT	8	170	47	188
FROM L3 STA. 798+42 TO 800+02 RT	8	70	84	336
FROM L3 STA. 831+47 TO 838+02 LT	10, 11	1050	302	1212
FROM Y18 STA. 16+00 TO 17+51 LT	11	90	76	304
FROM RPD STA. 18+11 TO 26+22 LT	11	970	398	1595
FROM Y11 STA. 11+00 TO 13+50 LT	18	560	116	467
FROM L3 STA. 961+50 TO 965+05 LT	19, 20	320	171	686
FROM L3 STA. 963+56 TO 966+53 RT	19, 20	210	140	561
FROM L3 STA. 966+53 TO 968+52 RT	20	150	94	376
FROM L3 STA. 968+55 TO 971+50 RT	20	520	138	555
FROM L3 STA. 989+50 TO 989+87 RT	21	20	17	68
FROM L3 STA. 995+00 TO 996+69 RT	22	110	83	332
FROM Y6 STA. 20+68 TO 21+41 RT	30	20	31	125
FROM Y11 STA. 20+59 TO 24+13 RT	32	180	172	690

DETAIL 9 SPECIAL CUT DITCH

(Not to Scale)

Type of Liner = CL B Rip-Rap

LOCATION	SHEET	TON	SY
FROM Y2 STA. 26+22 TO 27+68 RT	6	67	189
FROM Y19 STA. 22+20 TO 27+07 RT	9, 26	224	631
FROM L3 STA. 814+71 TO 816+50 RT	9	82	232
FROM LPD STA. 18+08 TO 18+70 RT	11	29	80
FROM Y22A STA. 35+60 TO 37+00 RT	11, 29	64	181
FROM L3 STA. 883+97 TO 885+50 LT	13	70	198
FROM L3 STA. 890+50 TO 892+00 LT	14	69	194
FROM Y6 STA. 10+00 TO 10+80 LT	29	37	104
FROM Y6 STA. 11+28 TO 13+55 LT	29	104	294
FROM Y10 STA. 19+65 TO 20+50 LT	31	39	110

DETAIL 14 SPECIAL CUT DITCH w/HINGE

(Not to Scale)

Type of Liner = CL B Rip-Rap

LOCATION	SHEET	TON	SY
FROM Y2 STA. 33+50 TO 40+00 LT	6, 24	299	698

DETAIL 4 STANDARD BASE DITCH

(Not to Scale)

Type of Liner = CL B Rip-Rap

LOCATION	SHEET	CY	TON	SY
FROM RPD STA. 19+02 TO 19+85 RT	11	225	60	142
FROM Y5 STA. 11+75 TO 11+78 RT	13	256	2	49

DETAIL 10 SPECIAL CUT DITCH

(Not to Scale)

Type of Liner = COIR FIBER MAT


LOCATION	SHEET	SY
FROM L3 STA. 776+55 TO 779+50 RT	6	318
FROM L3 STA. 807+66 TO 809+50 RT	8, 9	197
FROM Y7 STA. 14+75 TO 17+75 LT	21	318

DETAIL 15 STANDARD V-DITCH LINING

(Not to Scale)

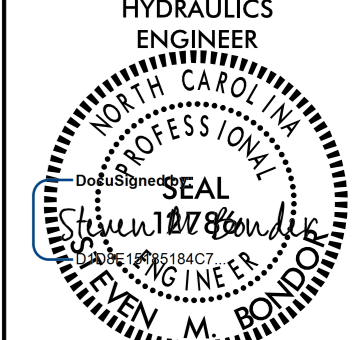
Type of Liner = CL B Rip-Rap

LOCATION	SHEET	TON	SY
FROM RPD STA. 14+14 TO 16+71 RT	11	124	348
FROM RPD STA. 20+50 TO 23+40 RT	11	130	366
FROM L3 STA. 871+00 TO 871+72 LT	12	38	107
FROM L3 STA. 927+50 TO 927+56 LT	17	16	44
FROM L3 STA. 944+50 TO 944+53 LT	18	22	61



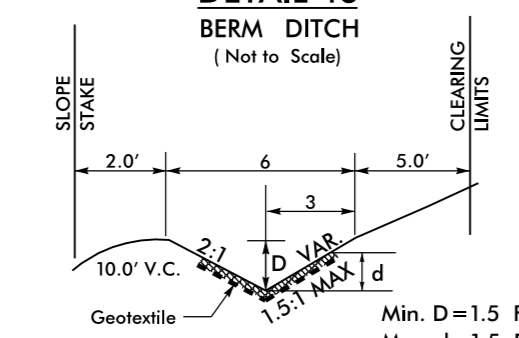
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.883.9329
NC CDA No. F-0029

PROJECT REFERENCE NO.	SHEET NO.
R-2233BB	2D-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



6/14/2021

DETAIL 16
BERM DITCH
(Not to Scale)

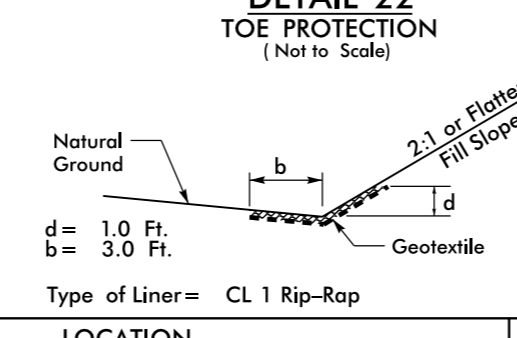


Min. D = 1.5 Ft.
Max. d = 1.5 Ft.

Type of Liner = CL B RIPRAP

LOCATION	SHEET	CL B RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 951+32 TO 954+15 RT	18, 19	132	373

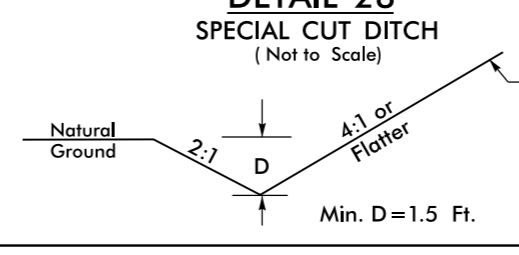
DETAIL 22
TOE PROTECTION
(Not to Scale)



Type of Liner = CL I Rip-Rap

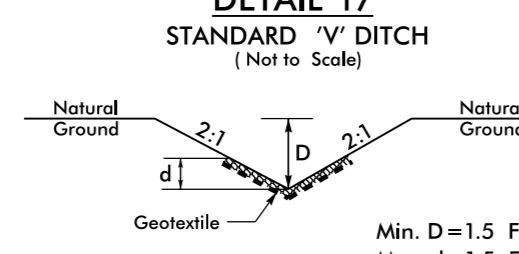
LOCATION	SHEET	CL I RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 865+00 TO 866+51 LT	12	114	156
FROM L3 STA. 969+00 TO 971+00 LT	20	151	223

DETAIL 28
SPECIAL CUT DITCH
(Not to Scale)



LOCATION	SHEET
FROM L3 STA. 779+47 TO 799+60 LT (-CUL16-)	6

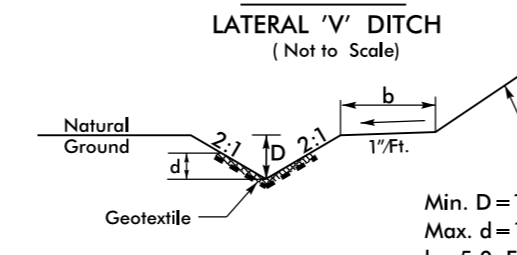
DETAIL 17
STANDARD 'V' DITCH
(Not to Scale)



Type of Liner = CL B Rip-Rap

LOCATION	SHEET	DDE CY	CL B RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM Y3 STA. 31+05 TO 31+63 RT	11	30	28	80
FROM Y12 STA. 10+43 TO 11+25 RT	15	130	38	106
FROM Y12 STA. 10+89 TO 11+25 LT	15	50	17	47
FROM Y12 STA. 28+68 TO 29+15 LT	16	30	29	79
FROM Y11 STA. 19+85 TO 20+39 RT	32	40	17	47

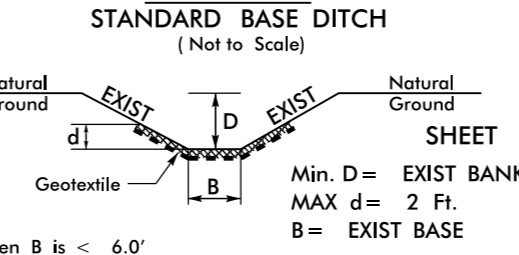
DETAIL 23
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner = CL I Rip-Rap

LOCATION	SHEET	DDE CY	CL I RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 828+00 TO 831+80 RT	10	700	178	606
FROM Y10 STA. 18+75 TO 19+65 LT	31	200	36	122
FROM Y11 STA. 15+50 TO 22+03 LT	32	460	355	1212

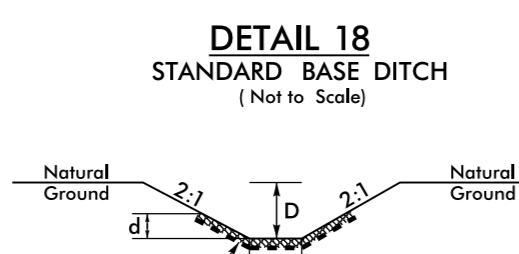
DETAIL 29
STANDARD BASE DITCH
(Not to Scale)



Type of RIPRAP = SEE BELOW

LOCATION	SHEET	CL B OR I RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 867+24 TO 867+25 RT (CL. I)	12	34	68
FROM Y8 STA. 17+26 TO 17+34 LT (CL. B)	31	51	46

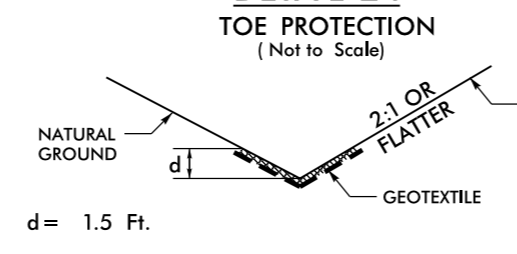
DETAIL 18
STANDARD BASE DITCH
(Not to Scale)



Type of Liner = CL B Rip-Rap

LOCATION	SHEET	DDE CY	CL B RIP-RAP TON	GEOTEXTILE FABRIC SY
Y6 STA. 10+30 RT	29	20	11	75

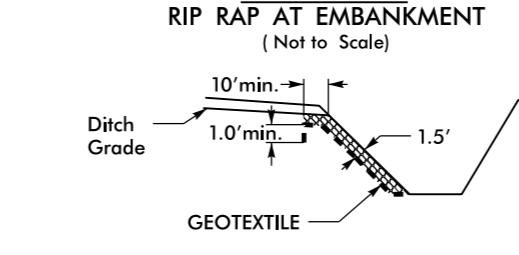
DETAIL 24
TOE PROTECTION
(Not to Scale)



Type of Liner = CL I Rip-Rap

LOCATION	SHEET	CL I RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 743+84 TO 745+00 LT	4	133	182
FROM L3 STA. 744+15 TO 747+50 RT	4,5	385	526
FROM DR2 STA. 11+50 TO 13+03 LT	6	176	240
FROM DR2 STA. 15+50 TO 16+03 LT	5	61	94
FROM DR3 STA. 12+00 TO 14+52 RT	11, 27	289	424

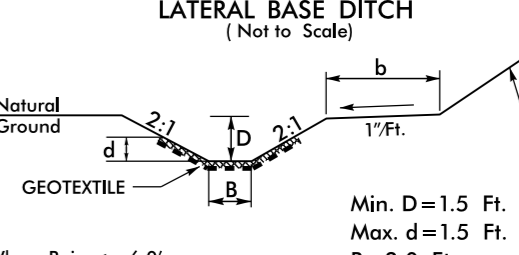
DETAIL 30
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = 5 TONS CL B Rip-Rap
Geotextile = 6 sy

LOCATION	SHEET	CL B RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 797+65 RT	8	43	6
FROM L3 STA. 864+95 LT	12	43	6
FROM L3 STA. 882+80 RT	13	43	6
FROM Y11 STA. 22+27 LT	32	43	6

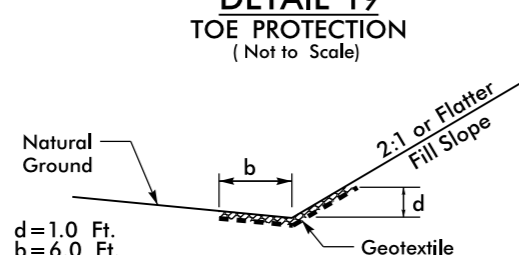
DETAIL 35
LATERAL BASE DITCH
(Not to Scale)



Type of Liner = CL II Rip-Rap

LOCATION	SHEET	DDE CY	CL II RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 734+25 TO 737+85 LT	4	120	150	320

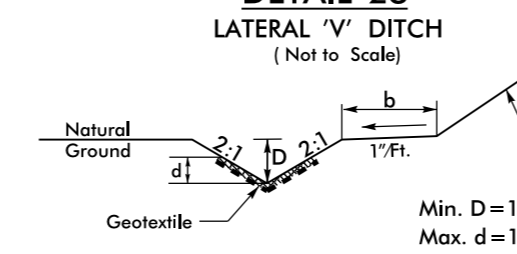
DETAIL 19
TOE PROTECTION
(Not to Scale)



Type of Liner = CLASS II Rip-Rap

LOCATION	SHEET	DDE CY	CL II RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 921+00 TO 922+50 RT	16	216	220	
FROM L3 STA. 995+97 TO 998+58 LT	22	376	438	
FROM L3 STA. 996+66 TO 998+51 RT	22	266	302	

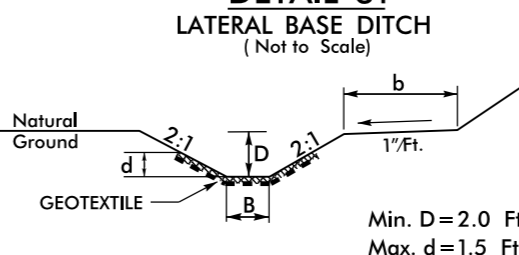
DETAIL 25
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner = CL B Rip-Rap

LOCATION	SHEET	DDE CY	CL B RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM Y3 STA. 18+85 TO 20+44 RT	11, 27	40	78	219

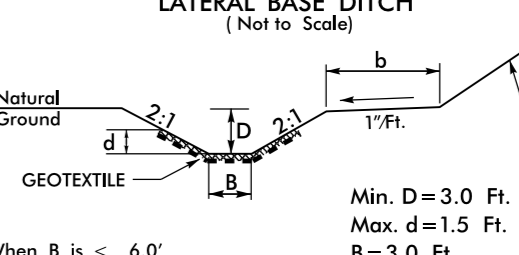
DETAIL 31
LATERAL BASE DITCH
(Not to Scale)



Type of Liner = CL II Rip-Rap

LOCATION	SHEET	DDE CY	CL II RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 910+07 TO 910+50 RT	15	20	34	89
FROM Y10 STA. 26+76 TO 28+00 LT	15	60	87	269

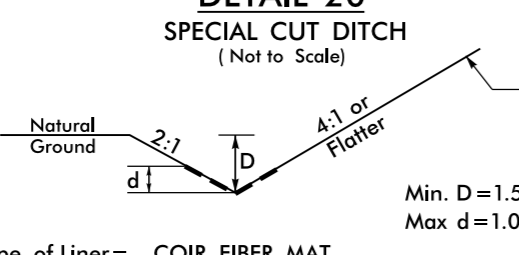
DETAIL 36
LATERAL BASE DITCH
(Not to Scale)



Type of Liner = CL I Rip-Rap

LOCATION	SHEET	DDE CY	CL I RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 738+75 TO 739+25 LT	4	16	35	50
FROM L3 STA. 739+50 TO 742+50 LT	4	200	210	300

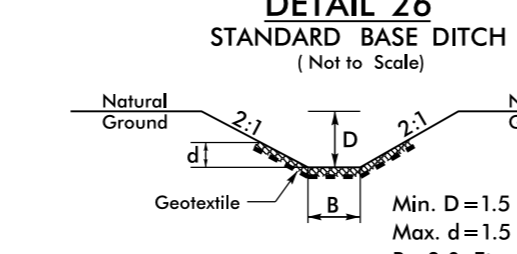
DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner = COIR FIBER MAT

LOCATION	SHEET	CFM SY
FROM Y12 STA. 20+60 TO 22+50 RT	15	134
FROM Y12 STA. 24+00 TO 26+00 RT	15, 16	141
FROM Y12 STA. 28+50 TO 29+20 RT	16	49
FROM Y12 STA. 29+20 TO 31+00 RT	16	127
FROM Y11 STA. 26+00 TO 27+00 RT	32	71

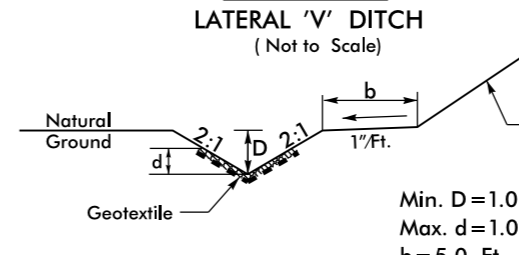
DETAIL 26
STANDARD BASE DITCH
(Not to Scale)



Type of Liner = CL B Rip-Rap

LOCATION	SHEET	DDE CY	CL B RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 767+26 TO 768+28 LT	6	500	70	187

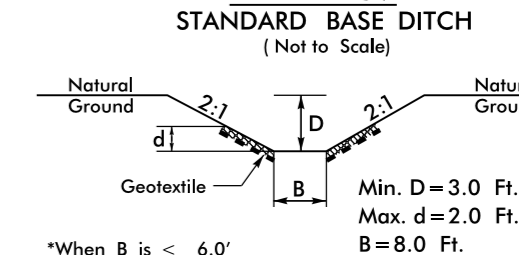
DETAIL 32
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner = CL B Rip-Rap

LOCATION	SHEET	DDE CY	CL B RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM Y8 STA. 20+40 TO 21+90 LT	31	10	67	157

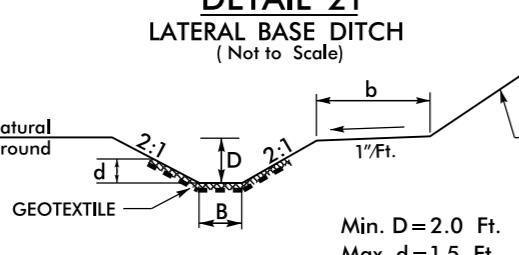
DETAIL 37
STANDARD BASE DITCH
(Not to Scale)



Type of Liner = CL II Rip-Rap

LOCATION	SHEET	DDE CY	CL II RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 731+45 TO 733+45 LT	4	355	189	267

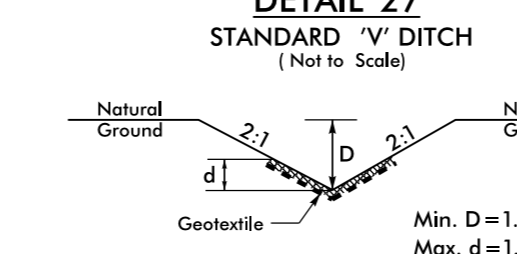
DETAIL 21
LATERAL BASE DITCH
(Not to Scale)



Type of Liner = CL B Rip-Rap

LOCATION	SHEET	DDE CY	CL B RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM Y8 STA. 21+90 TO 23+50 RT	31	100	111	260

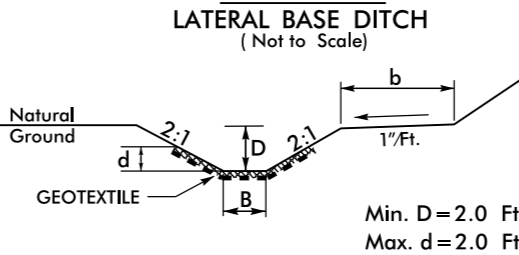
DETAIL 27
STANDARD 'V' DITCH
(Not to Scale)



Type of Liner = CL II Rip-Rap

LOCATION	SHEET	DDE CY	CL II RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 797+67 TO 798+00 RT	8	20	22	85

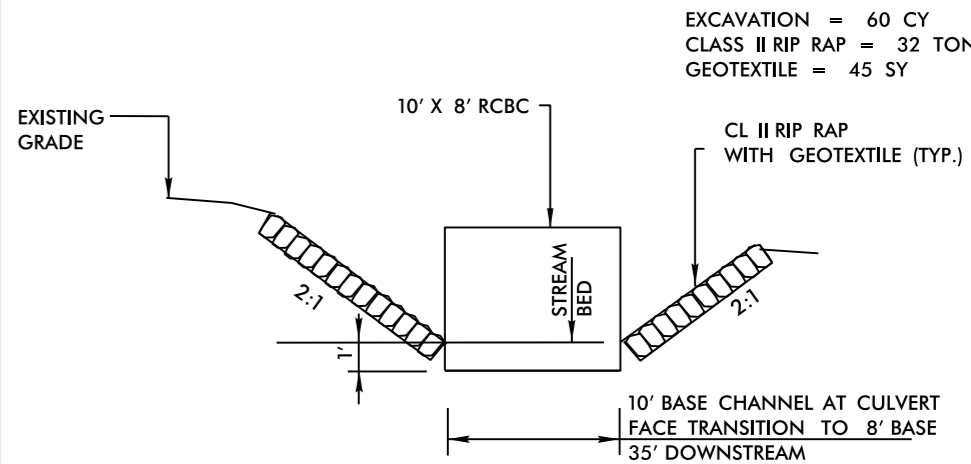
DETAIL 33
LATERAL BASE DITCH
(Not to Scale)



Type of Liner = CL I Rip-Rap

LOCATION	SHEET	DDE CY	CL I RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 733+40 TO 734+65 RT	4	80	100	210

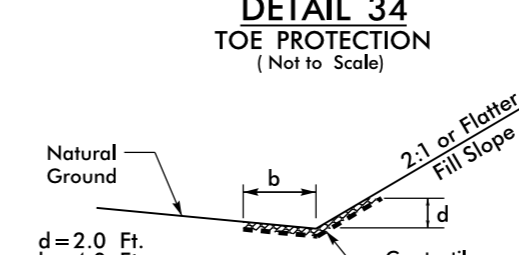
DETAIL 38
CHANNEL CHANGE DETAIL F



EXCAVATION = 60 CY
CLASS II RIP RAP = 32 TONS
GEOTEXTILE = 45 SY

LOCATION	SHEET	CY	TON	SY
FROM L3 STA. 734+65 TO 736+80 RT	4	60	32	45
FROM L3 STA. 736+91 TO 737+07 RT	4	55	30	40

DETAIL 34
TOE PROTECTION
(Not to Scale)



Type of Liner = CLASS I Rip-Rap

LOCATION	SHEET	CL I RIP-RAP TON	GEOTEXTILE FABRIC SY
FROM L3 STA. 734+65 TO 736+80 RT	4	139	190
FROM L3 STA. 737+85 TO 738+75 LT	4	58	80

5/14/20

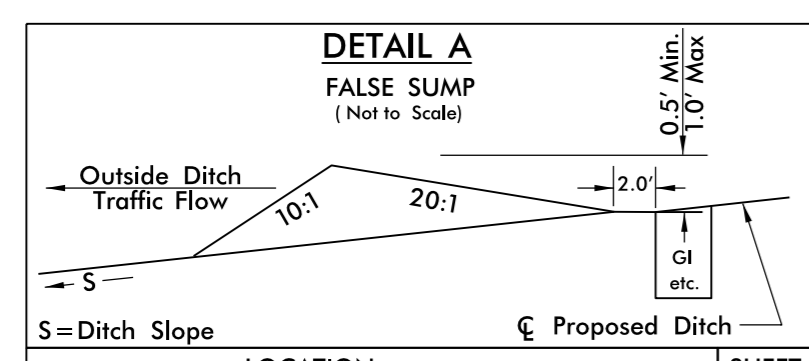


2410 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.883.9329
NC CDA No. F-0029

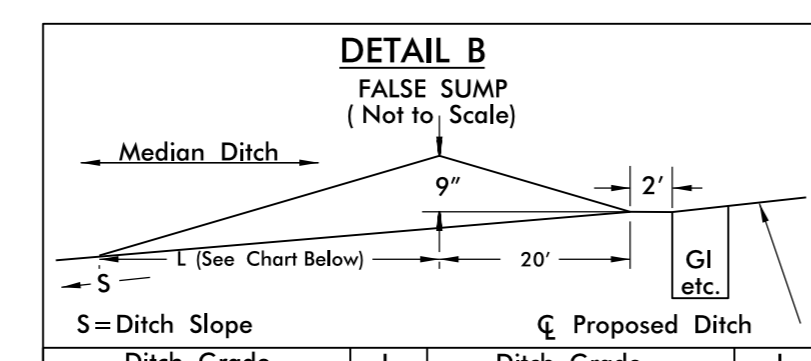
PROJECT REFERENCE NO.	SHEET NO.
R-2233BB	2D-4

R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

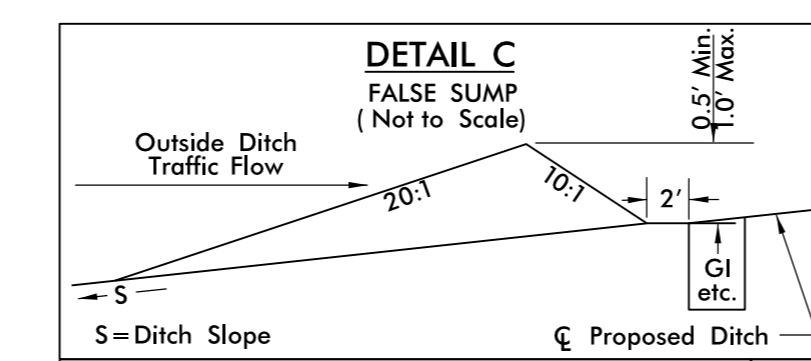


LOCATION	SHEET
Y25REV STA. 24+90 - LT.	4A
L3 STA. 749+35 - LT.	5
L3 STA. 766+20 - LT.	6
L3 STA. 781+40 - LT.	6
RPC STA. 15+30 - RT.	6
RPC STA. 18+15 - RT.	6
RPC STA. 20+65 - RT.	6
RPC STA. 23+15 - RT.	6
L3 STA. 792+20 - RT.	7
L3 STA. 807+20 - RT.	8
L3 STA. 811+60 - RT.	9
L3 STA. 819+50 - LT.	9
L3 STA. 839+30 - LT.	11
L3 STA. 855+15 - RT.	11
Y3 STA. 34+90 - RT.	11
L3 STA. 862+20 - LT.	12
L3 STA. 871+95 - LT.	12
L3 STA. 883+80 - LT.	13
L3 STA. 894+35 - LT.	14
L3 STA. 900+80 - LT.	15
L3 STA. 934+30 - LT.	17
L3 STA. 937+10 - LT.	17
L3 STA. 942+35 - LT.	18
L3 STA. 944+35 - LT.	18
L3 STA. 947+35 - LT.	18
L3 STA. 960+20 - RT.	19
L3 STA. 980+20 - RT.	21
L3 STA. 985+90 - RT.	21
L3 STA. 994+35 - RT.	22
L3 STA. 999+40 - LT.	22
Y2 STA. 18+95 - LT.	23
Y3 STA. 38+65 - LT.	28
Y3 STA. 41+20 - LT.	28
Y6 STA. 23+10 - LT.	30

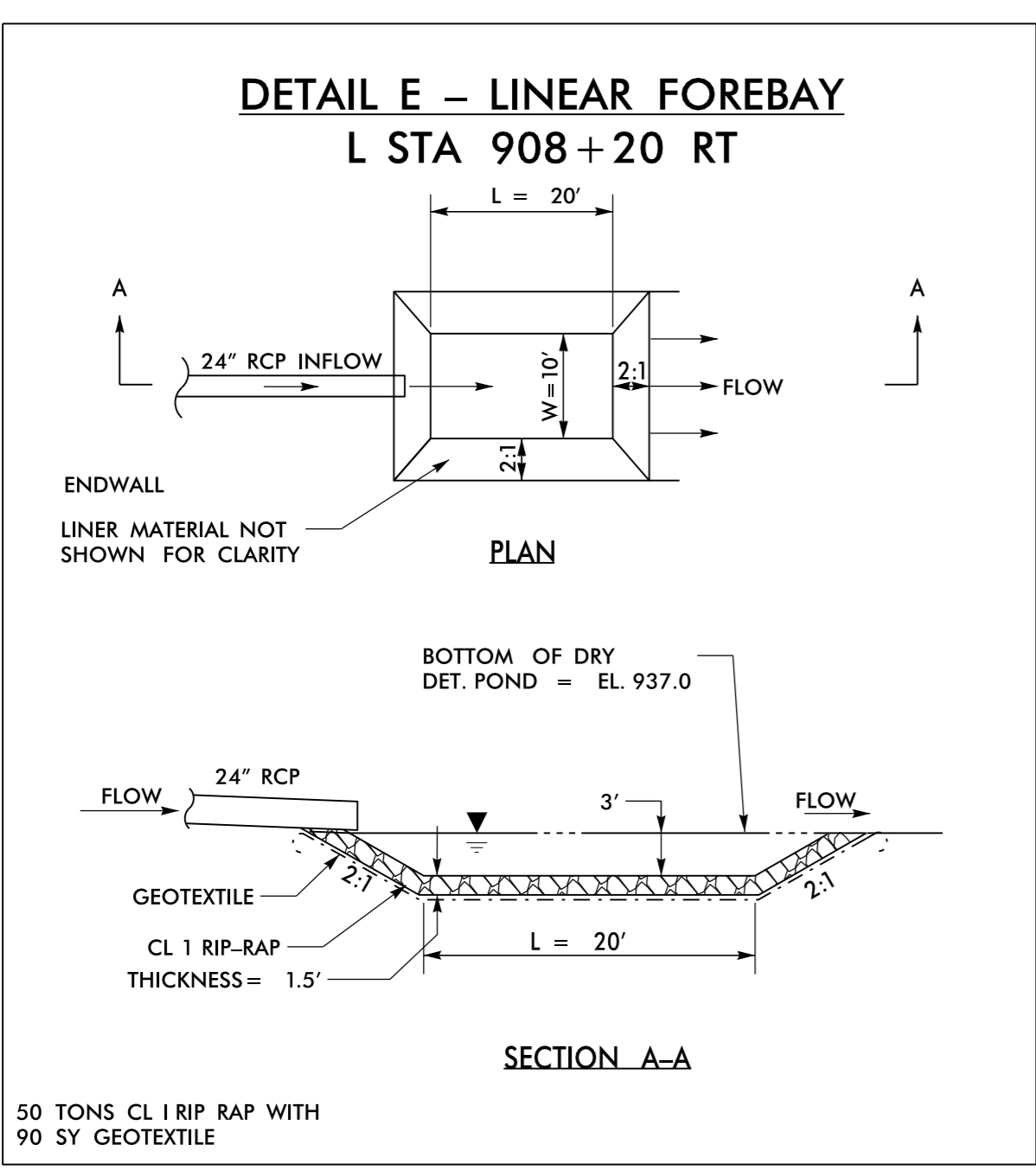
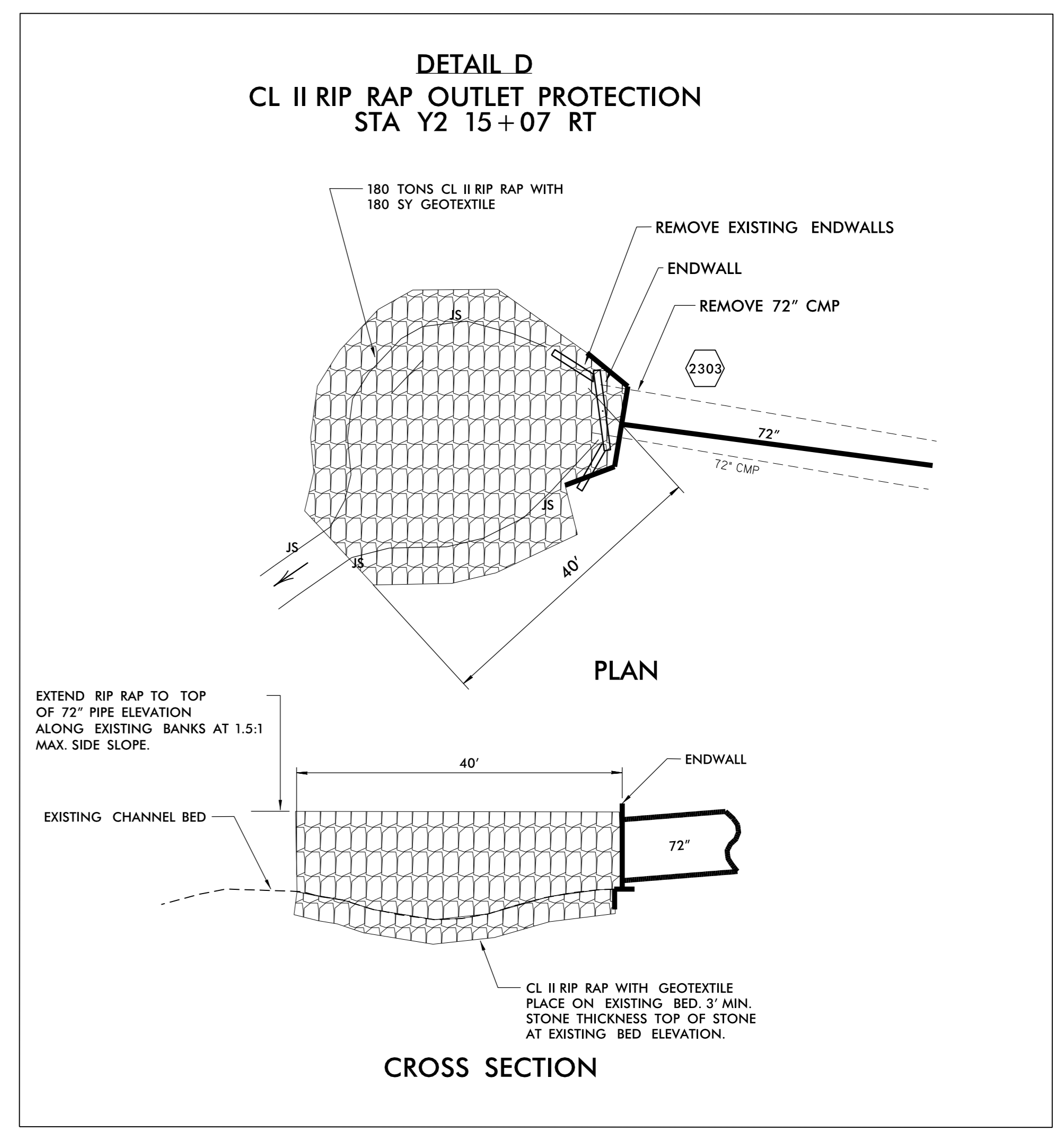
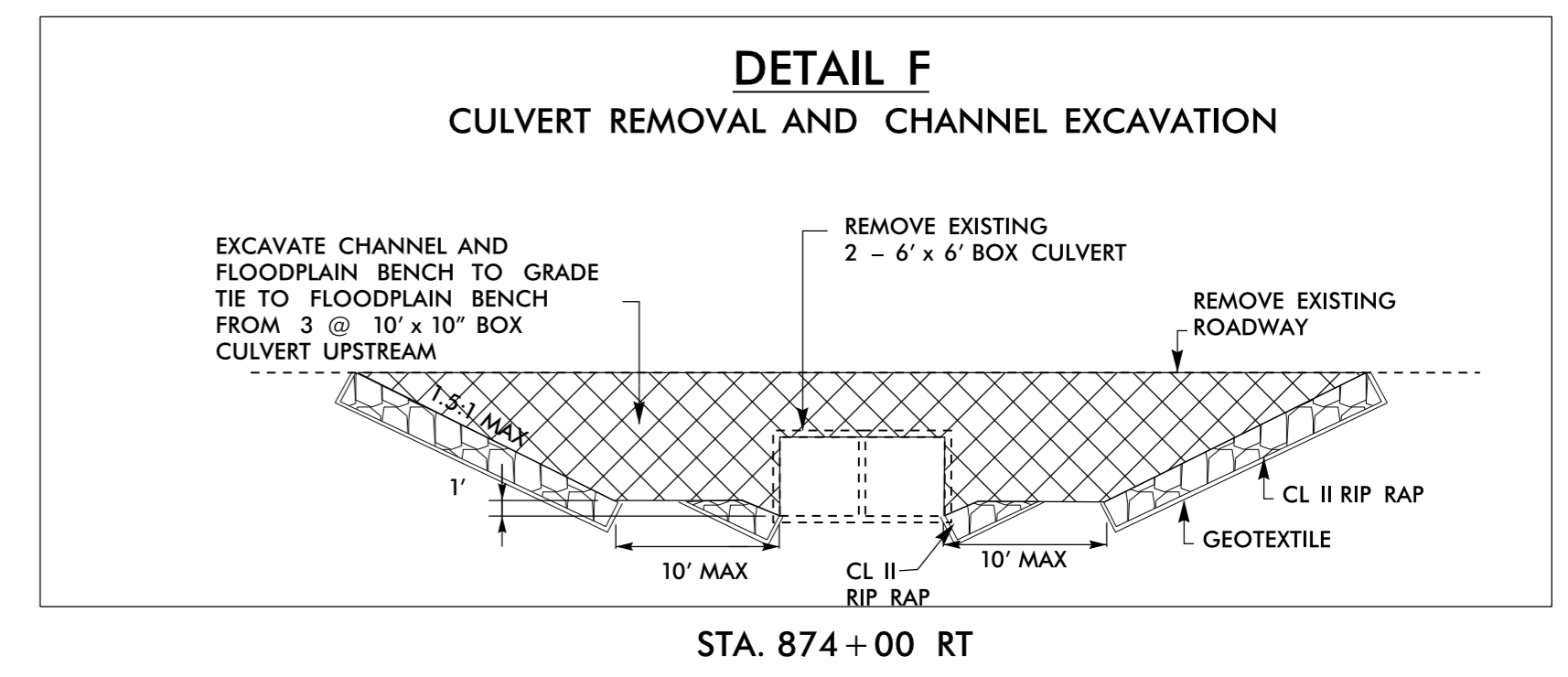


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

LOCATION	SHEET
L3 STA. 744+85	4
L3 STA. 749+30	5
L3 STA. 761+70	6
L3 STA. 766+20	6
L3 STA. 769+65	6
L3 STA. 771+65	6
L3 STA. 773+65	6
L3 STA. 781+35	6
L3 STA. 786+10	7
L3 STA. 792+20	7
L3 STA. 798+30	8
L3 STA. 801+20	8
L3 STA. 808+20	9
L3 STA. 809+65	9
L3 STA. 811+60	9
L3 STA. 819+50	9
L3 STA. 824+00	10
L3 STA. 827+60	10
L3 STA. 833+80	10
L3 STA. 839+85	11
L3 STA. 844+10	11
L3 STA. 846+85	11
L3 STA. 855+20	11
L3 STA. 862+15	12
L3 STA. 866+90	12
L3 STA. 871+95	12
L3 STA. 876+15	13
L3 STA. 878+95	13
L3 STA. 881+65	13
L3 STA. 883+75	13
L3 STA. 886+85	14
L3 STA. 890+35	14
L3 STA. 894+35	14
L3 STA. 897+55	14
L3 STA. 900+85	15
L3 STA. 913+10	16
L3 STA. 934+30	17
L3 STA. 942+30	18
L3 STA. 944+30	18
L3 STA. 947+35	18
L3 STA. 960+20	19
L3 STA. 968+65	20
L3 STA. 973+15	20
L3 STA. 977+20	21
L3 STA. 980+20	21
L3 STA. 988+70	21
L3 STA. 999+35	22



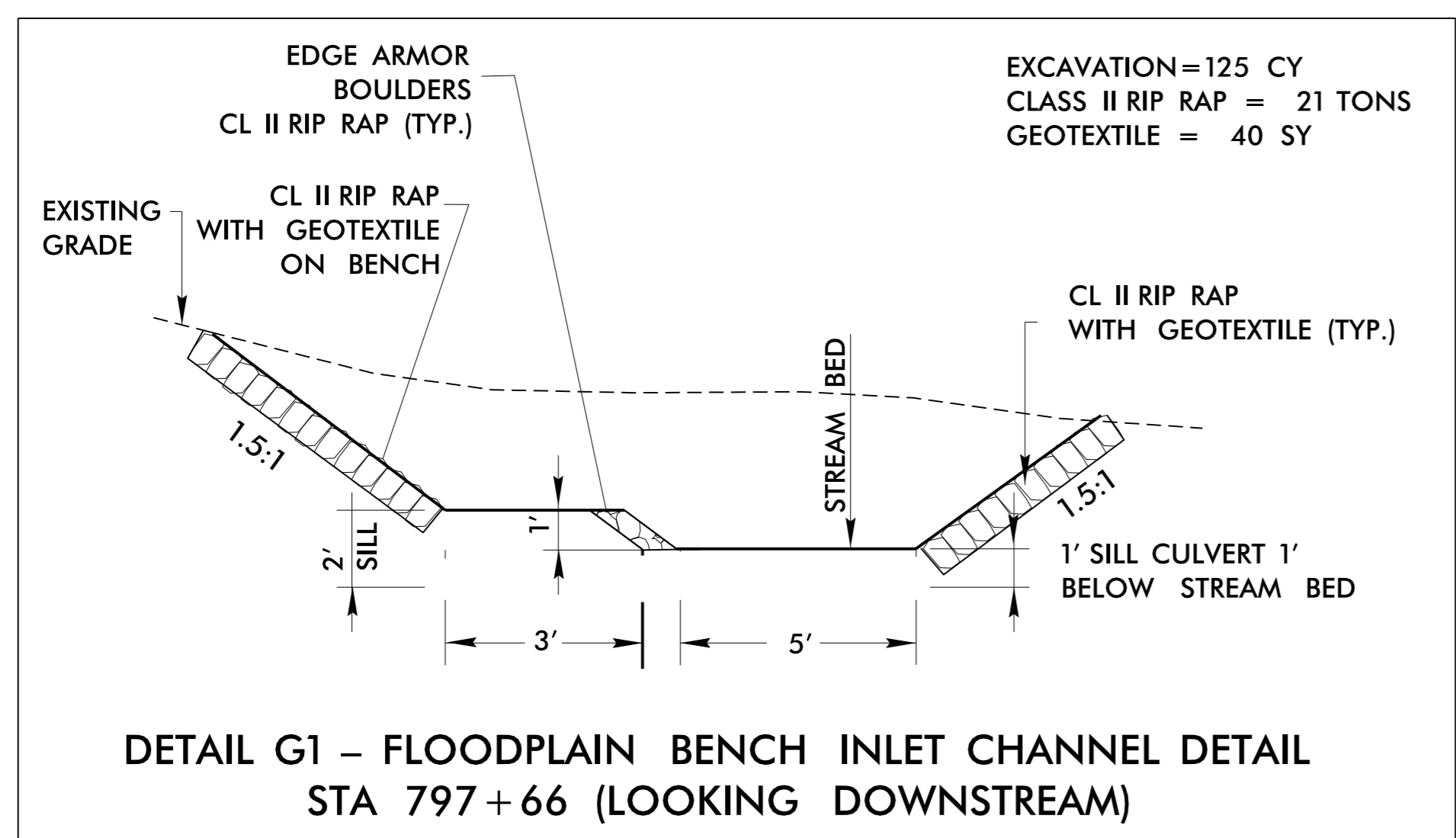
LOCATION	SHEET
Y25REV STA. 22+65 - RT.	4A
L3 STA. 750+30 - RT.	5
L3 STA. 764+70 - RT.	6
L3 STA. 780+35 - RT.	6
RPB STA. 13+20 - LT.	6
RPB STA. 16+15 - LT.	6
RPB STA. 16+15 - RT.	6
RPB STA. 17+70 - LT.	6
RPB STA. 17+70 - RT.	6
RPB STA. 22+65 - LT.	6
RPB STA. 22+65 - RT.	6
RPB STA. 25+15 - LT.	6
RPB STA. 28+65 - LT.	6
L3 STA. 782+30 - RT.	7
L3 STA. 786+00 - RT.	7
L3 STA. 792+20 - LT.	7
L3 STA. 807+70 - LT.	8
L3 STA. 811+65 - LT.	9
L3 STA. 819+50 - RT.	9
L3 STA. 824+00 - RT.	10
L3 STA. 840+40 - RT.	11
L3 STA. 852+20 - RT.	11
RPA STA. 15+90 - RT.	11
Y3 STA. 25+15 - LT.	11
L3 STA. 882+90 - RT.	13
L3 STA. 894+40 - RT.	14
L3 STA. 897+50 - RT.	14
L3 STA. 897+55 - RT.	14
L3 STA. 900+85 - RT.	15
L3 STA. 973+20 - LT.	20
L3 STA. 976+20 - LT.	20
L3 STA. 977+15 - LT.	21
L3 STA. 980+15 - LT.	21
L3 STA. 985+65 - LT.	21
L3 STA. 988+70 - LT.	21
Y3 STA. 36+65 - RT.	28
Y6 STA. 21+85 - RT.	30
Y6 STA. 23+10 - RT.	30



5/14/20

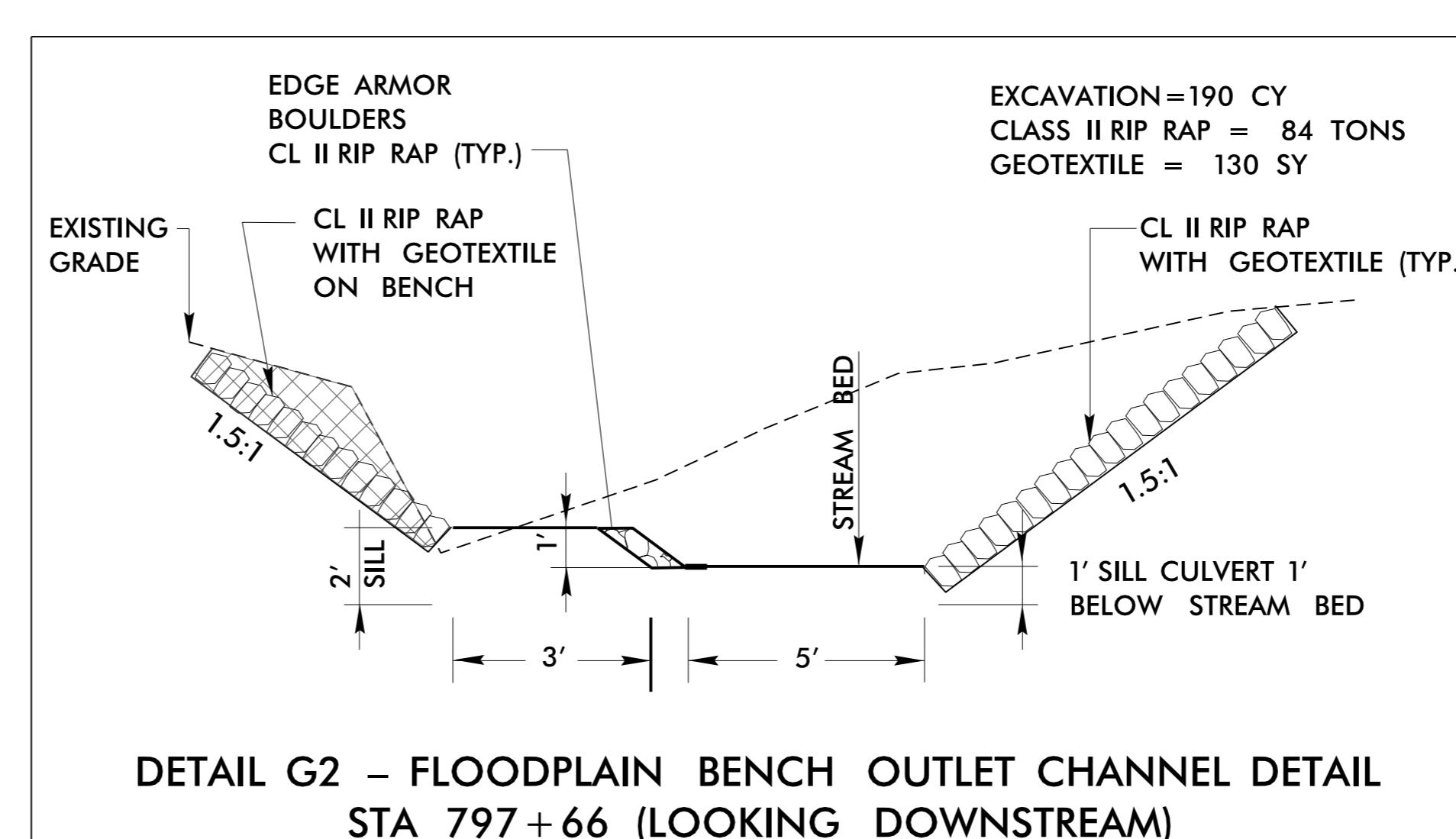
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



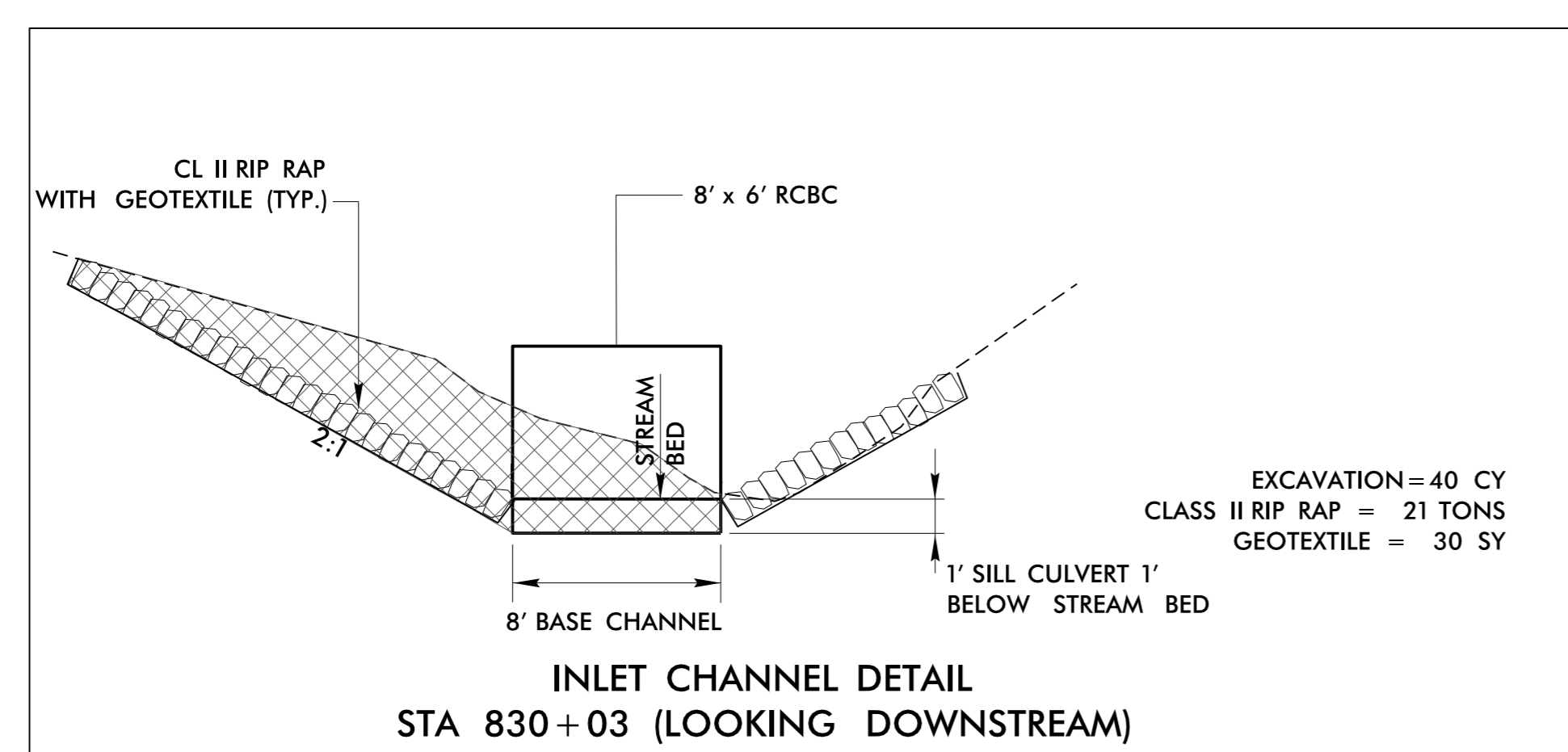
**DETAIL G1 – FLOODPLAIN BENCH INLET CHANNEL DETAIL
STA 797+66 (LOOKING DOWNSTREAM)**

**DETAIL G1
CULVERT 797+66**



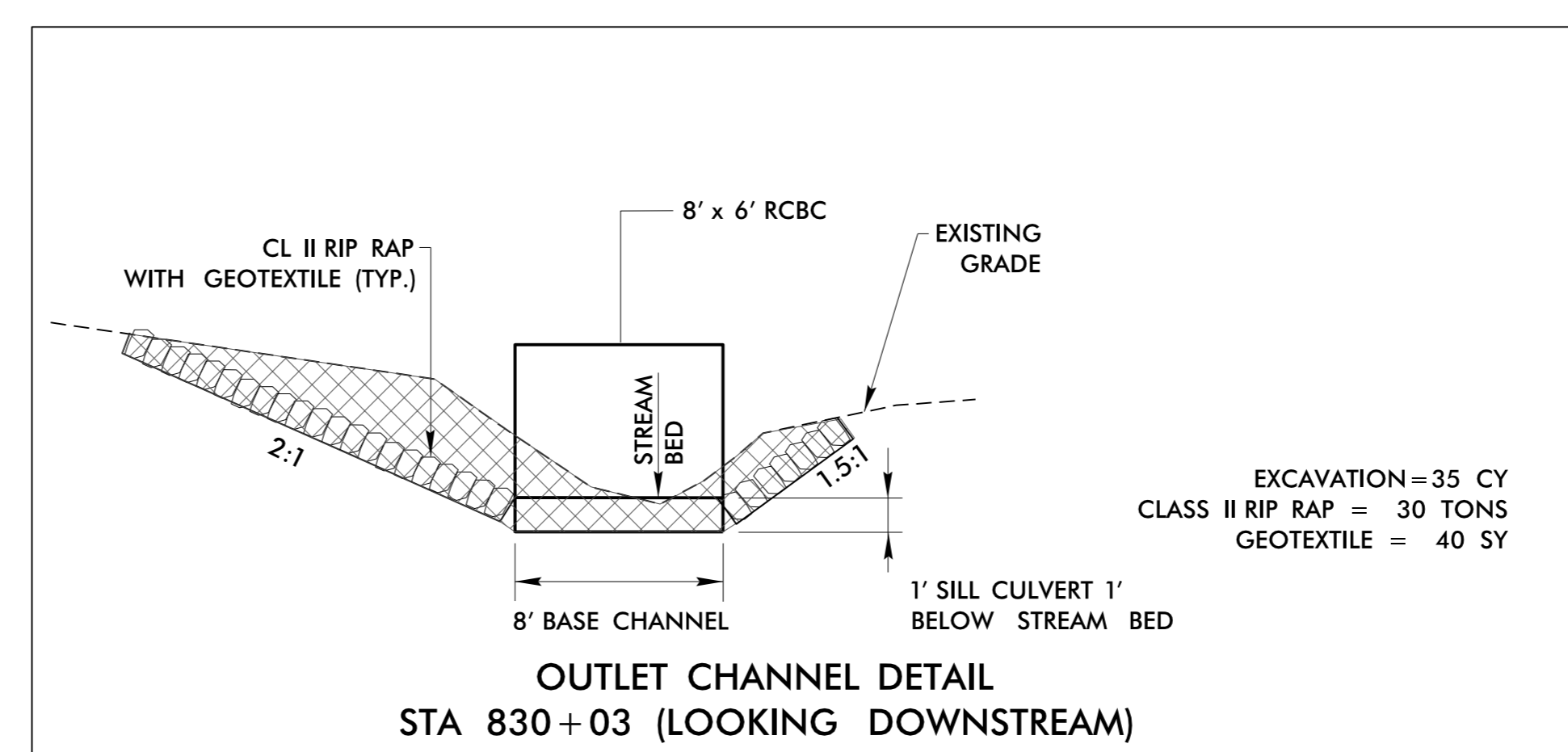
**DETAIL G2 – FLOODPLAIN BENCH OUTLET CHANNEL DETAIL
STA 797+66 (LOOKING DOWNSTREAM)**

**DETAIL G2
CULVERT 797+66**



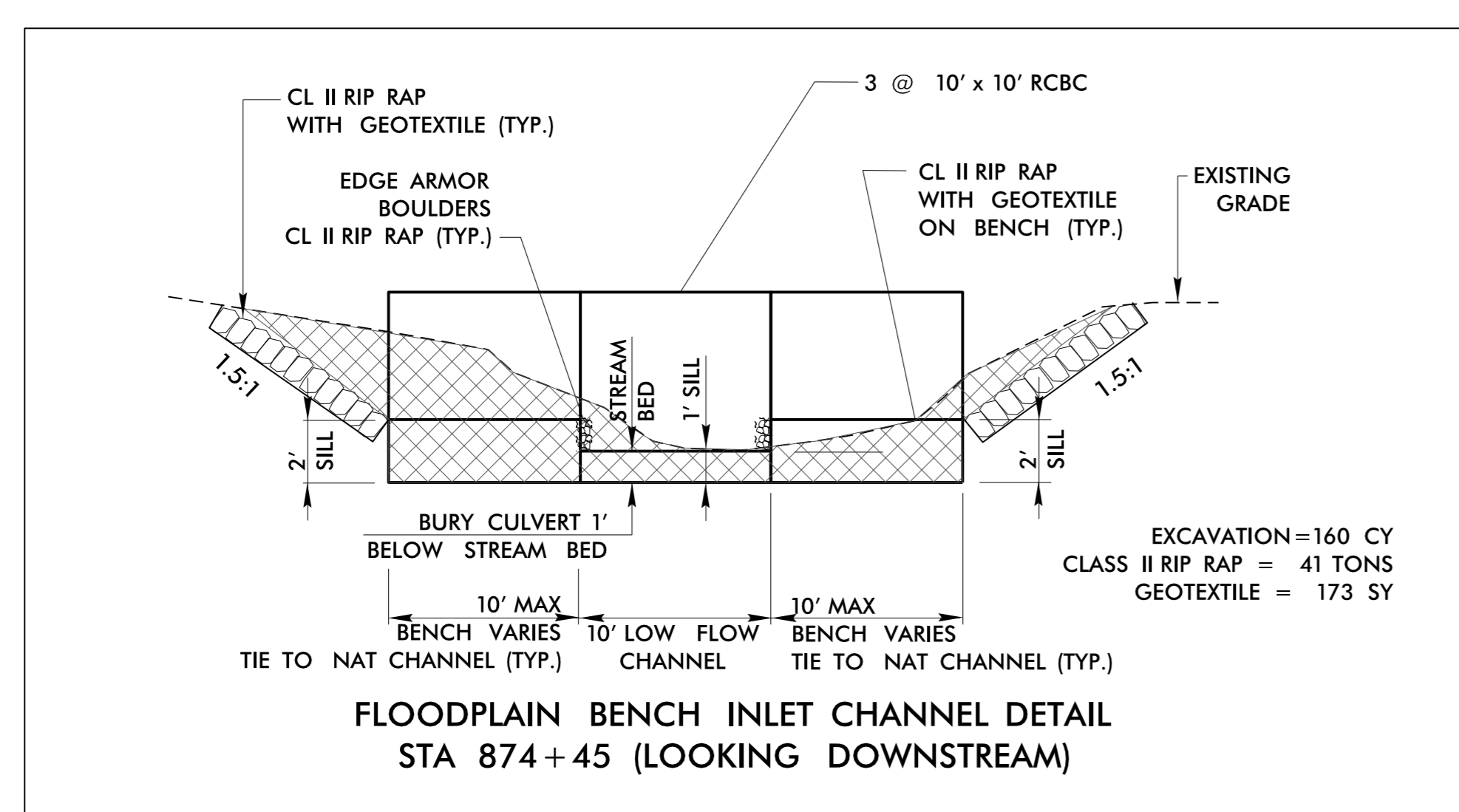
**INLET CHANNEL DETAIL
STA 830+03 (LOOKING DOWNSTREAM)**

**DETAIL H1
CULVERT 830+02**



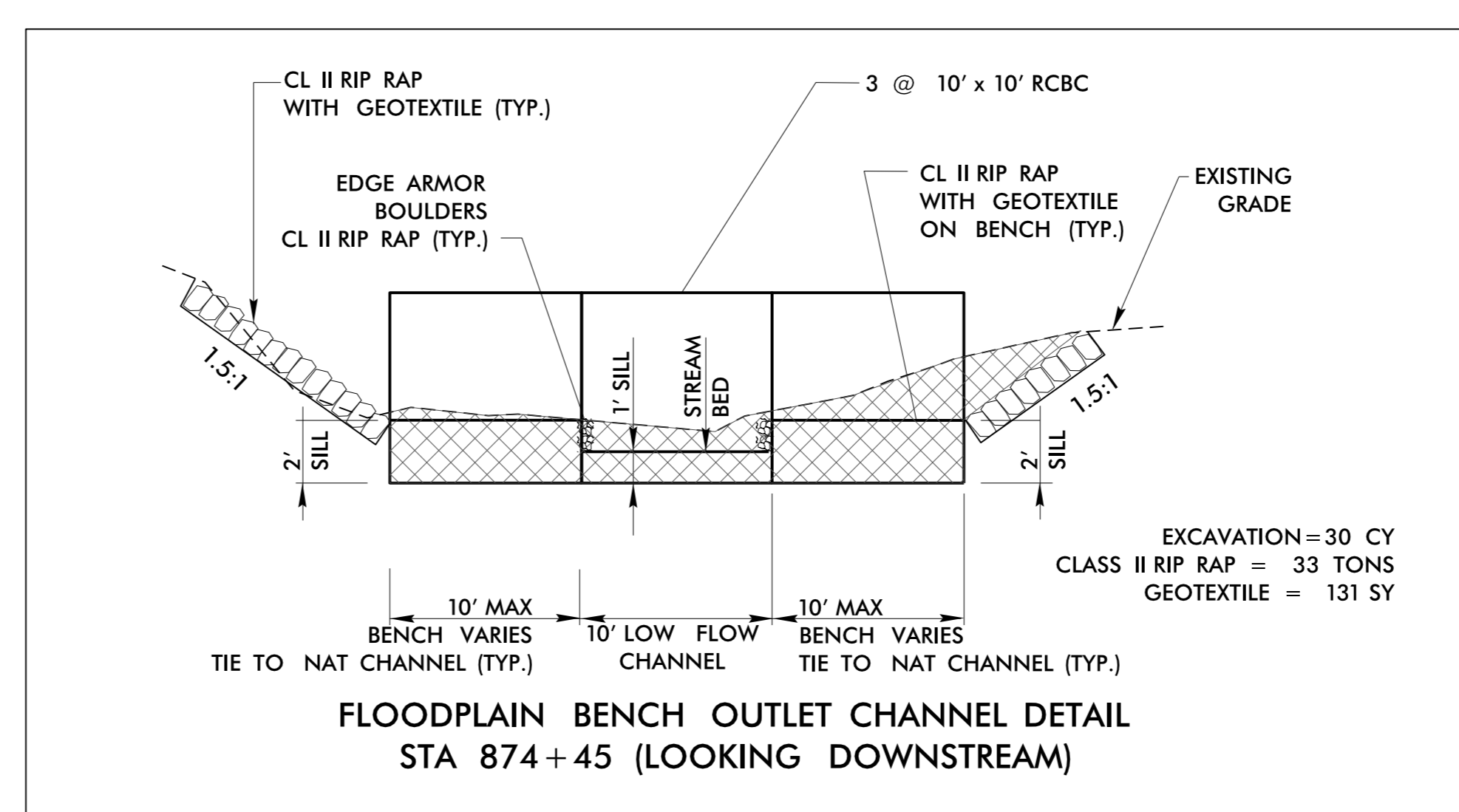
**OUTLET CHANNEL DETAIL
STA 830+03 (LOOKING DOWNSTREAM)**

**DETAIL H2
CULVERT 830+02**



**FLOODPLAIN BENCH INLET CHANNEL DETAIL
STA 874+45 (LOOKING DOWNSTREAM)**

**DETAIL J1
CULVERT 874+45**



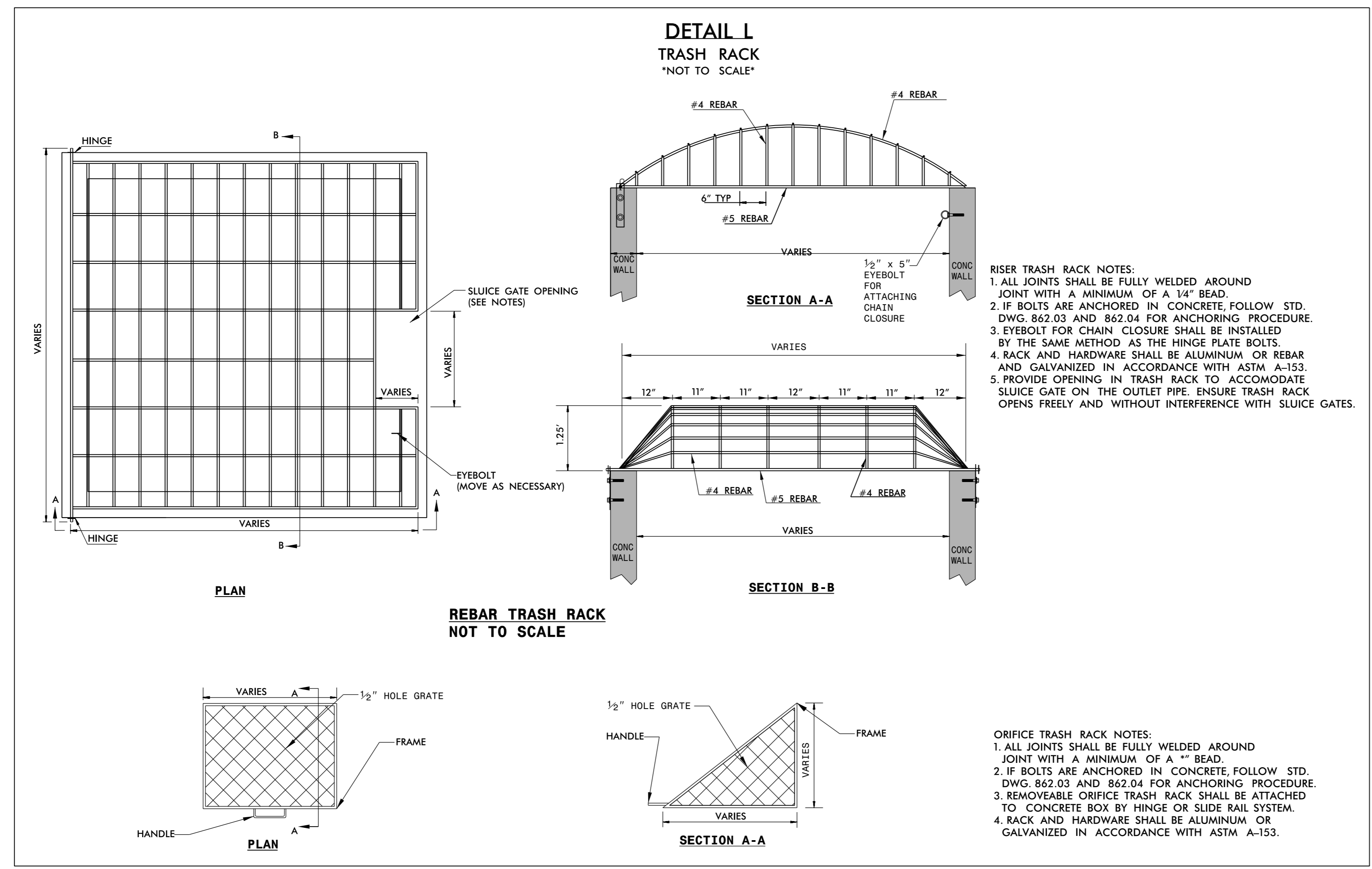
**FLOODPLAIN BENCH OUTLET CHANNEL DETAIL
STA 874+45 (LOOKING DOWNSTREAM)**

**DETAIL J2
CULVERT 874+45**

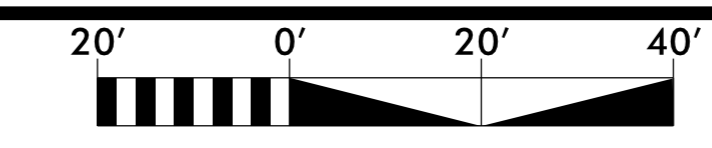
5/14/2021

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	6/14/2021

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



5/14/20

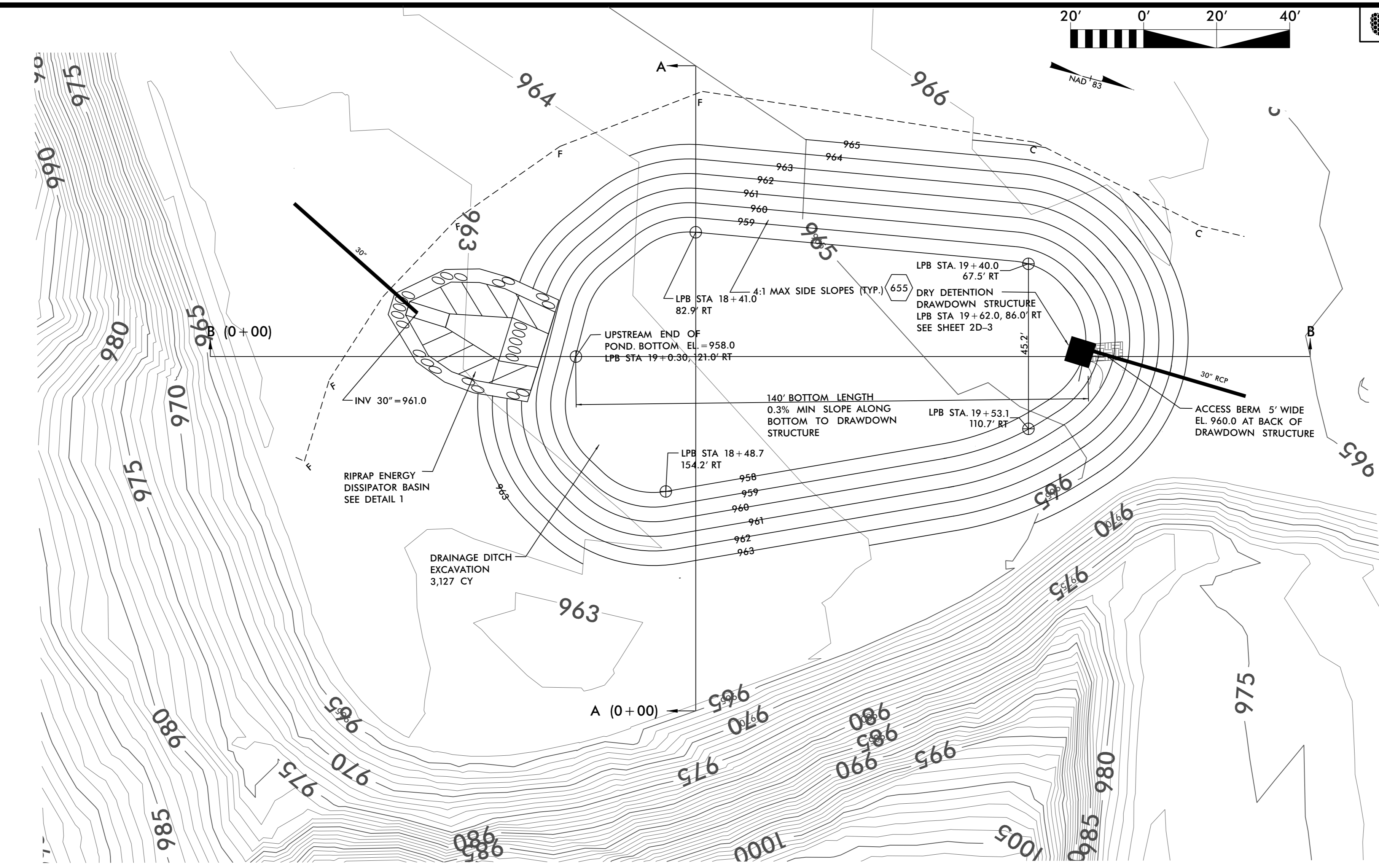


NAD 83

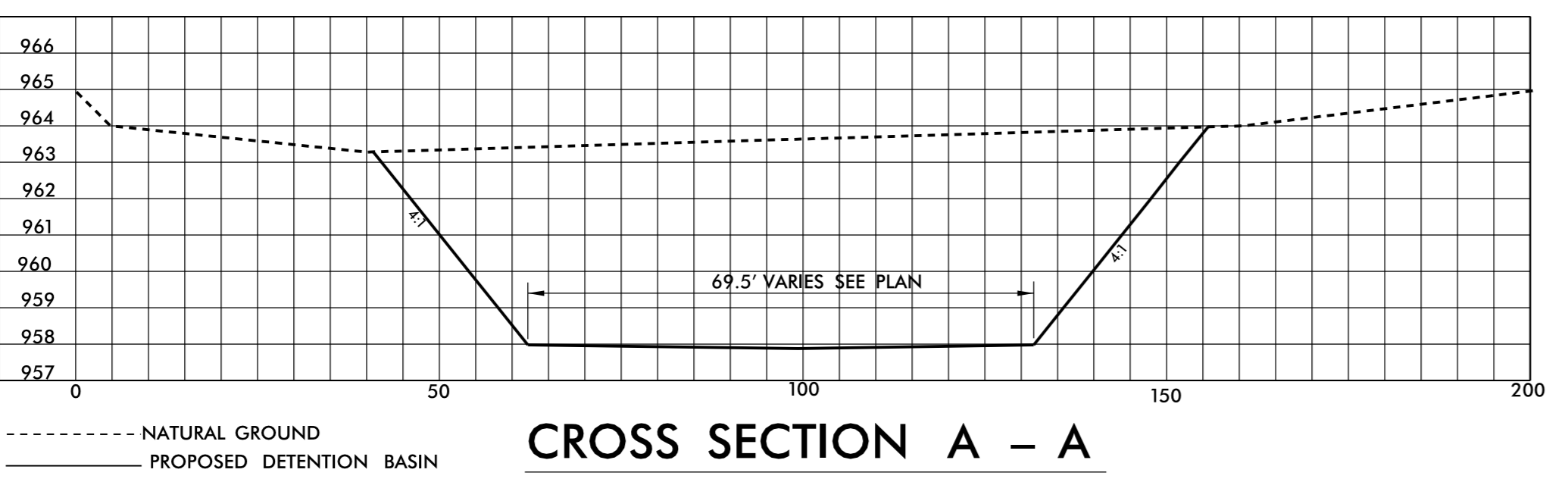
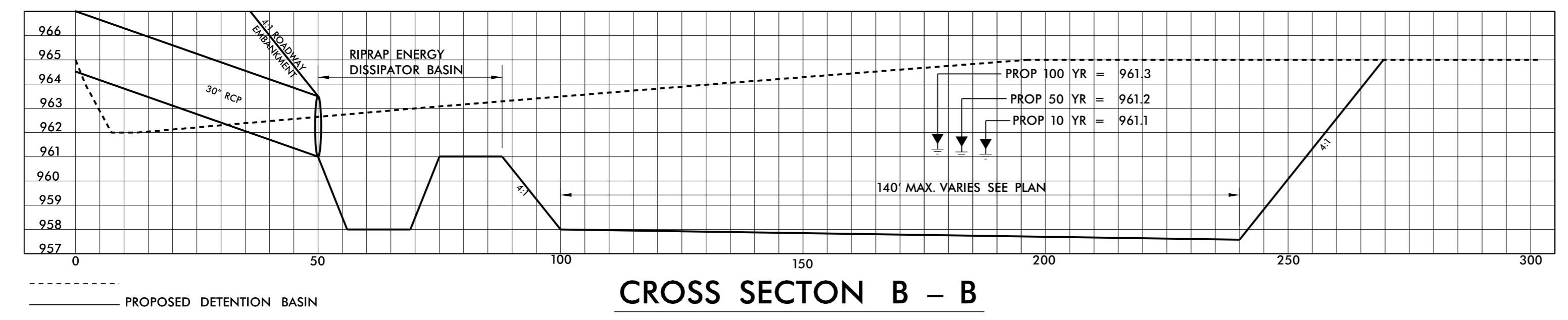


2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.883.9329
NC CCA No. F-0929

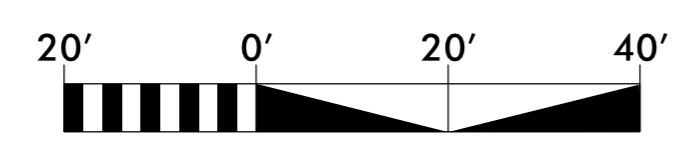
PROJECT REFERENCE NO.		SHEET NO.	
R-2233BB		2D-7	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

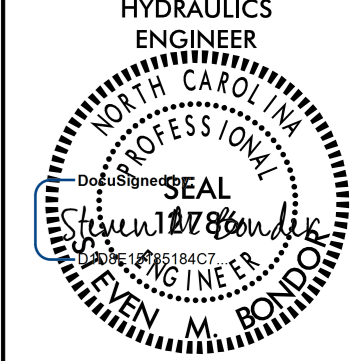


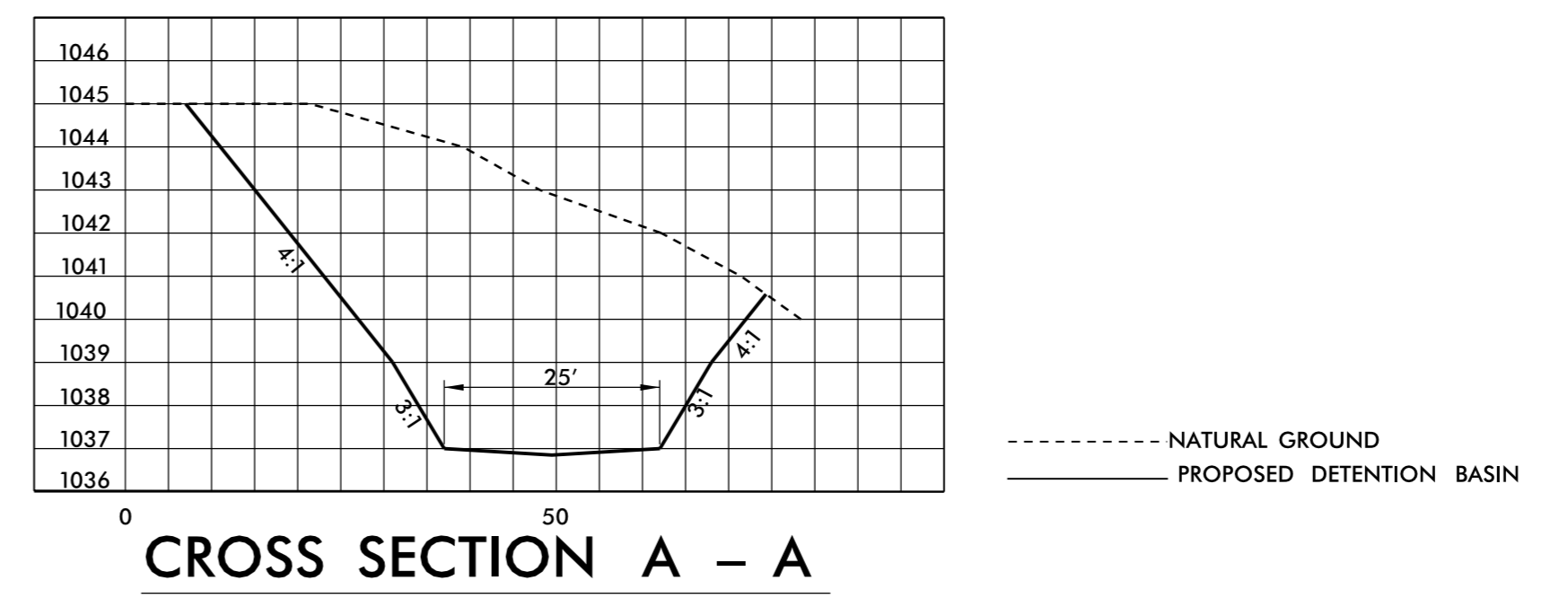
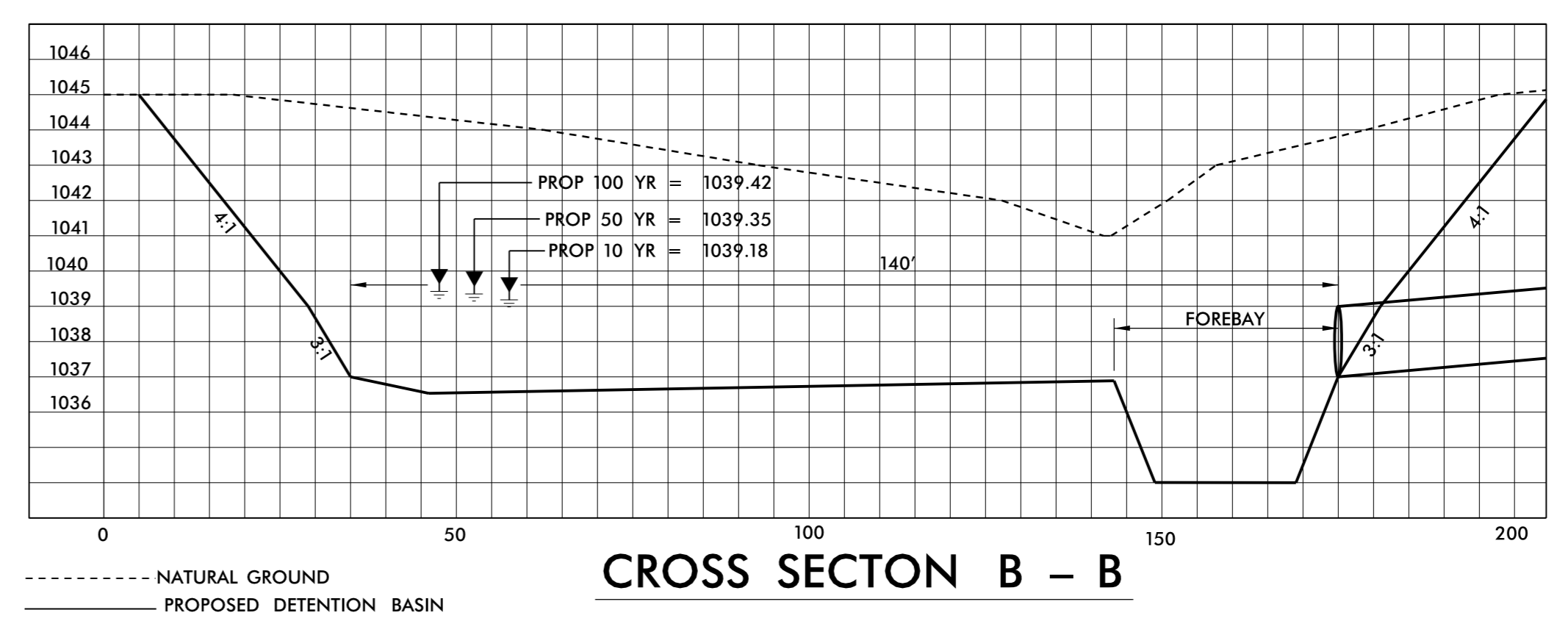
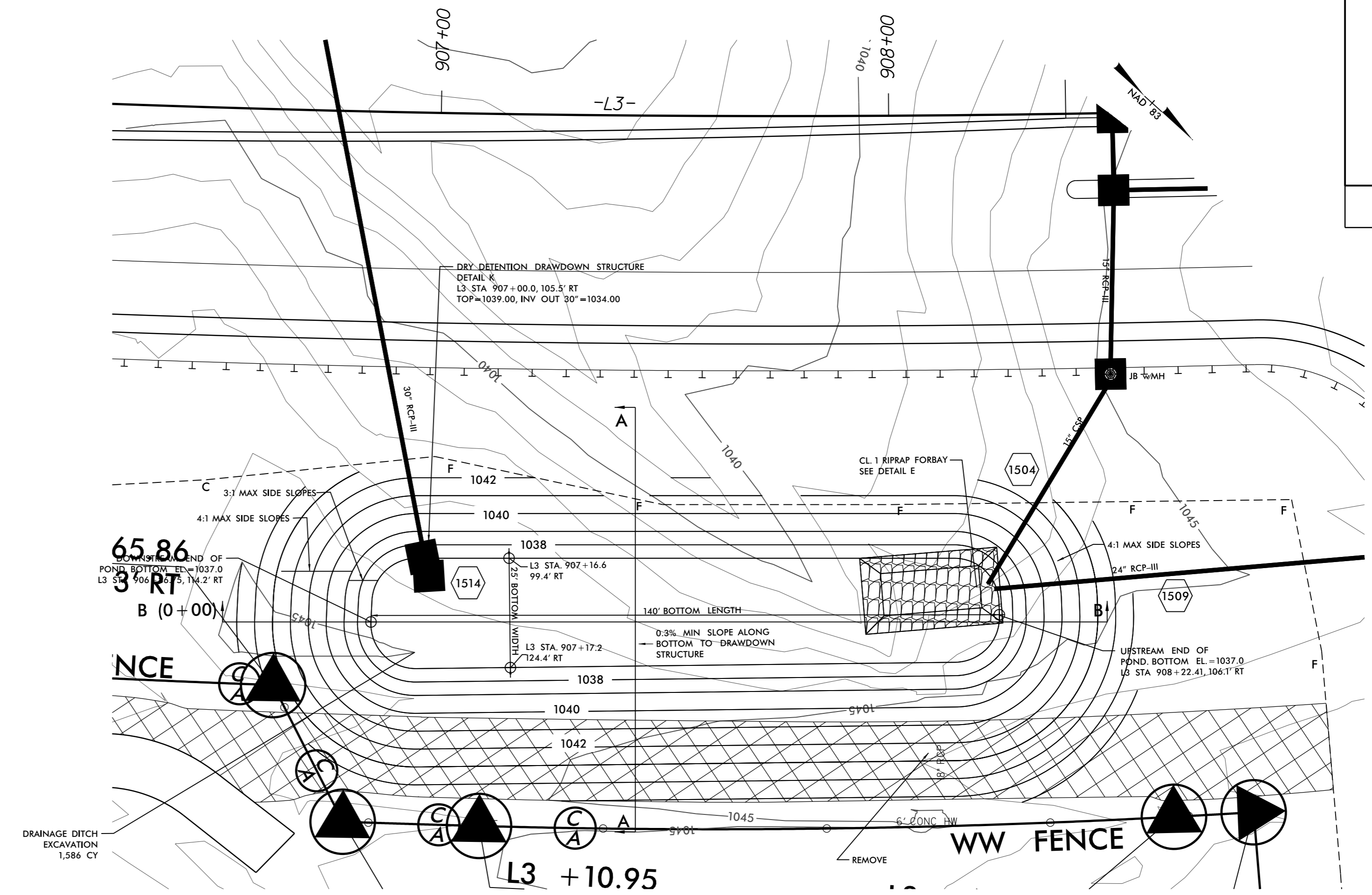
DETAIL M – DRY DETENTION BASIN



5/14/21

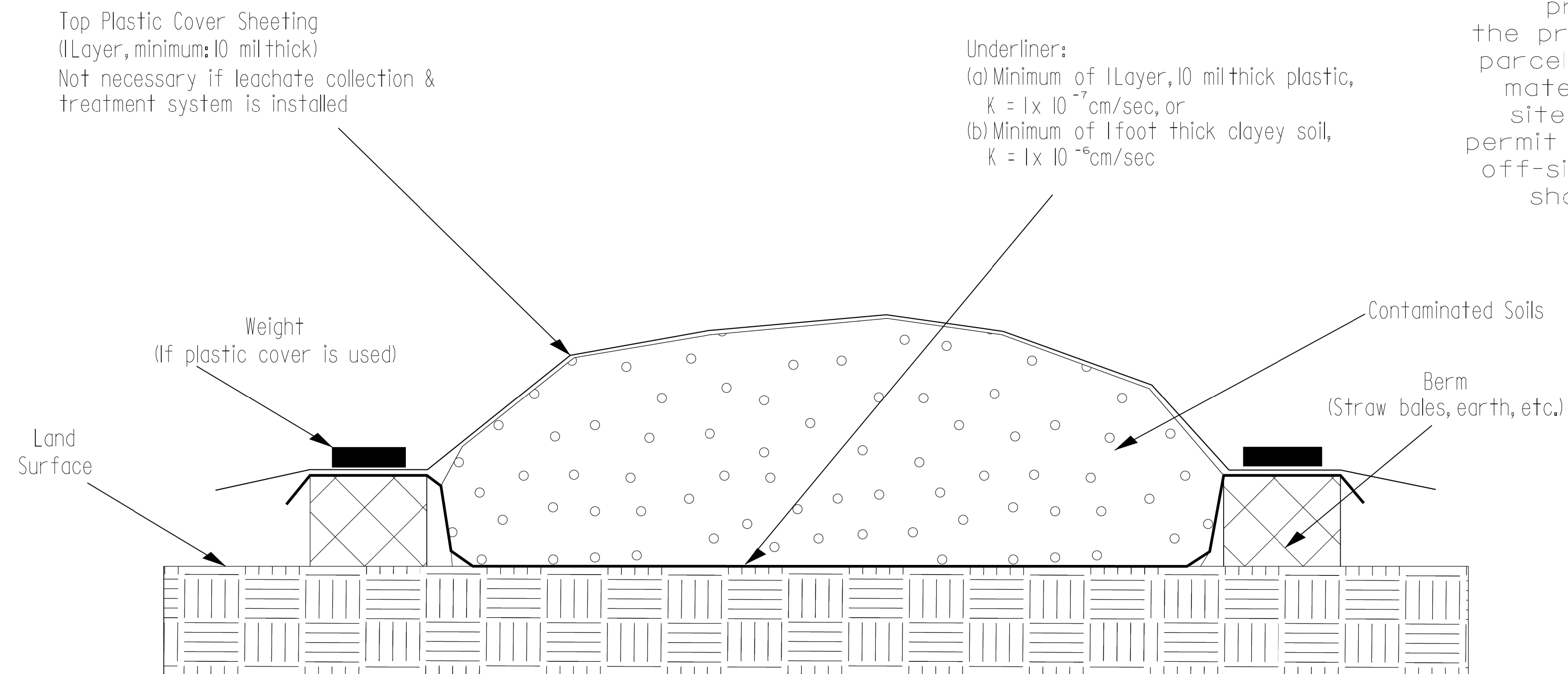


PROJECT REFERENCE NO.		SHEET NO.	
R-2233BB		2D-8	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
		 6/14/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



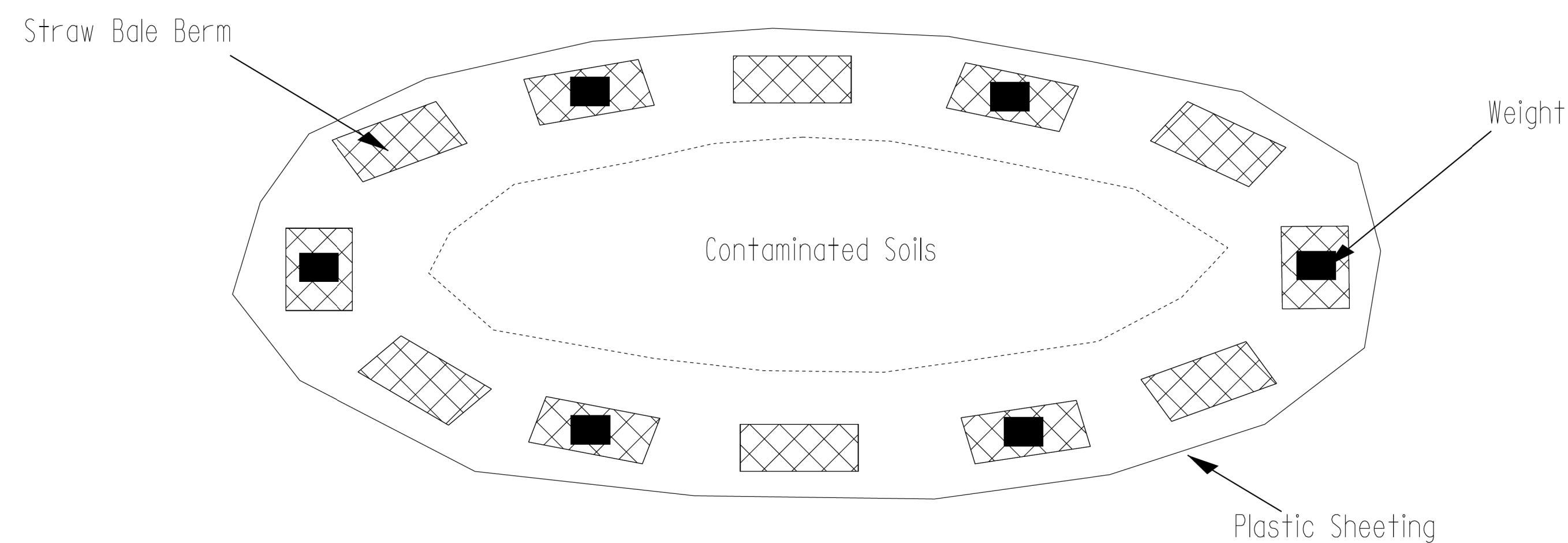
Detail for Temporary Containment of Contaminated Soil

Cross-Section View



NOTE:
The Contractor shall stockpile all contaminated soil excavated from a property in a location within the property boundaries of the source parcel. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDEQ UST Section for off-site temporary storage. Stockpile shall be removed within 45 days.


Map View



GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACT OFFICE

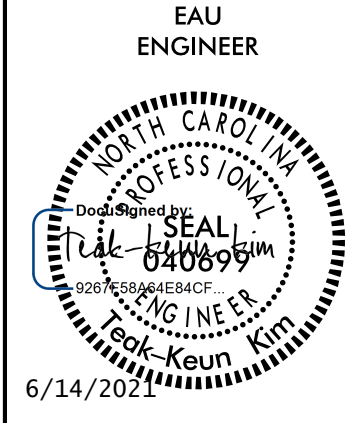
**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH**



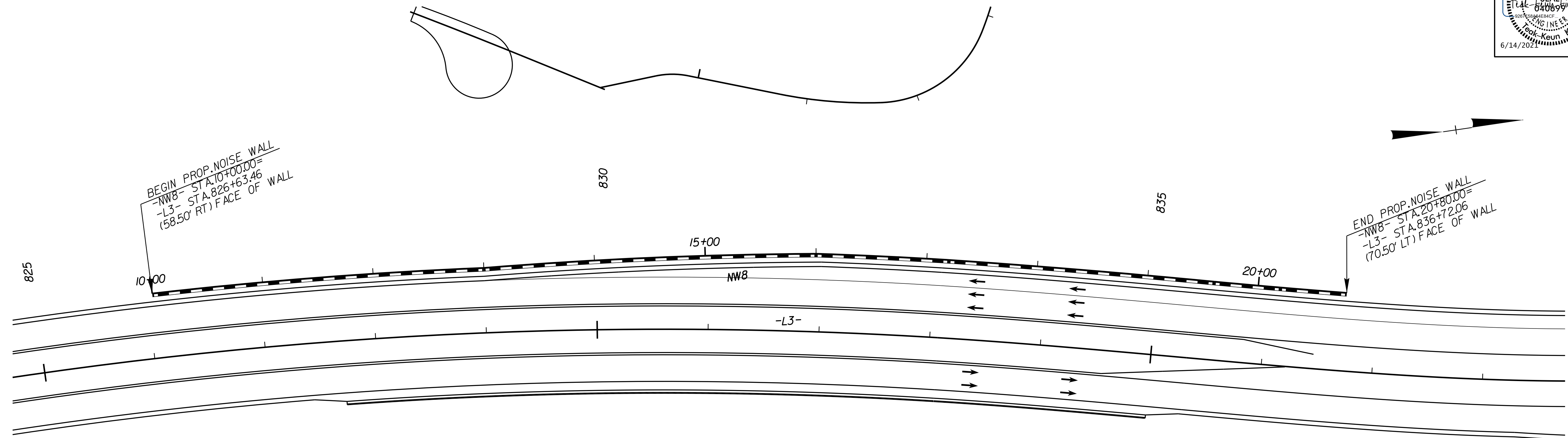
STOCKPILE CONTAINMENT DETAIL

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

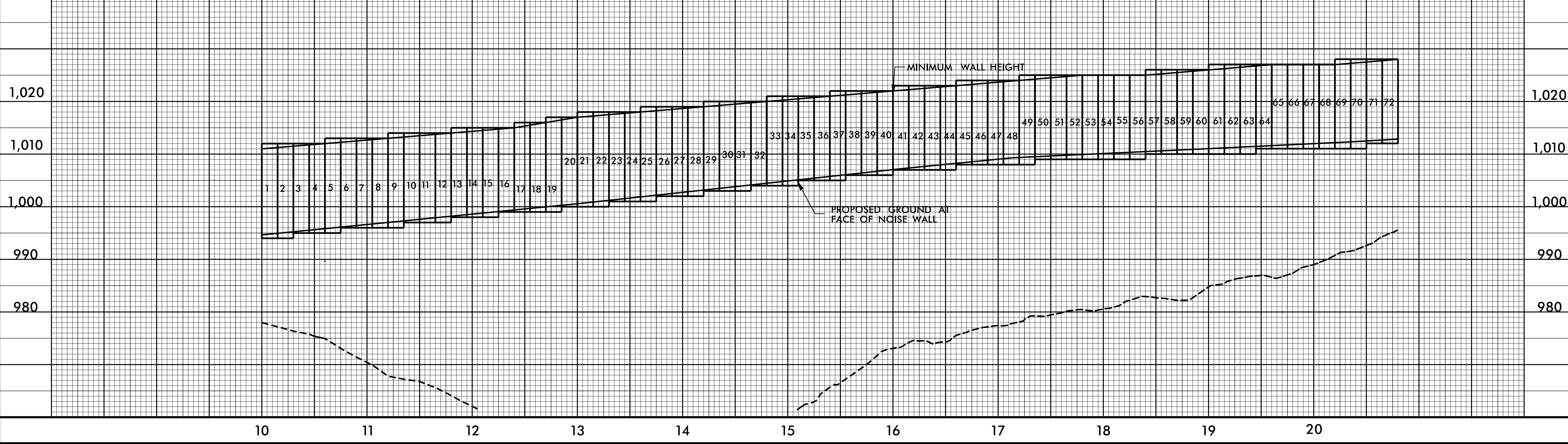
PREPARED BY:	DATE:
REVIEWED BY:	DATE:



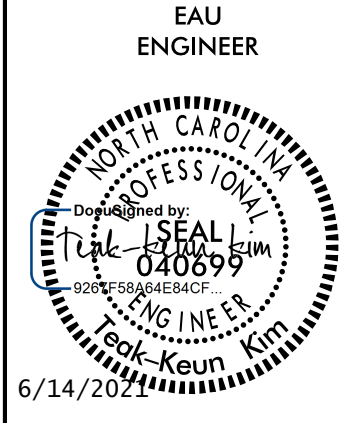
PLAN AND PROFILE OF NOISE WALL 8



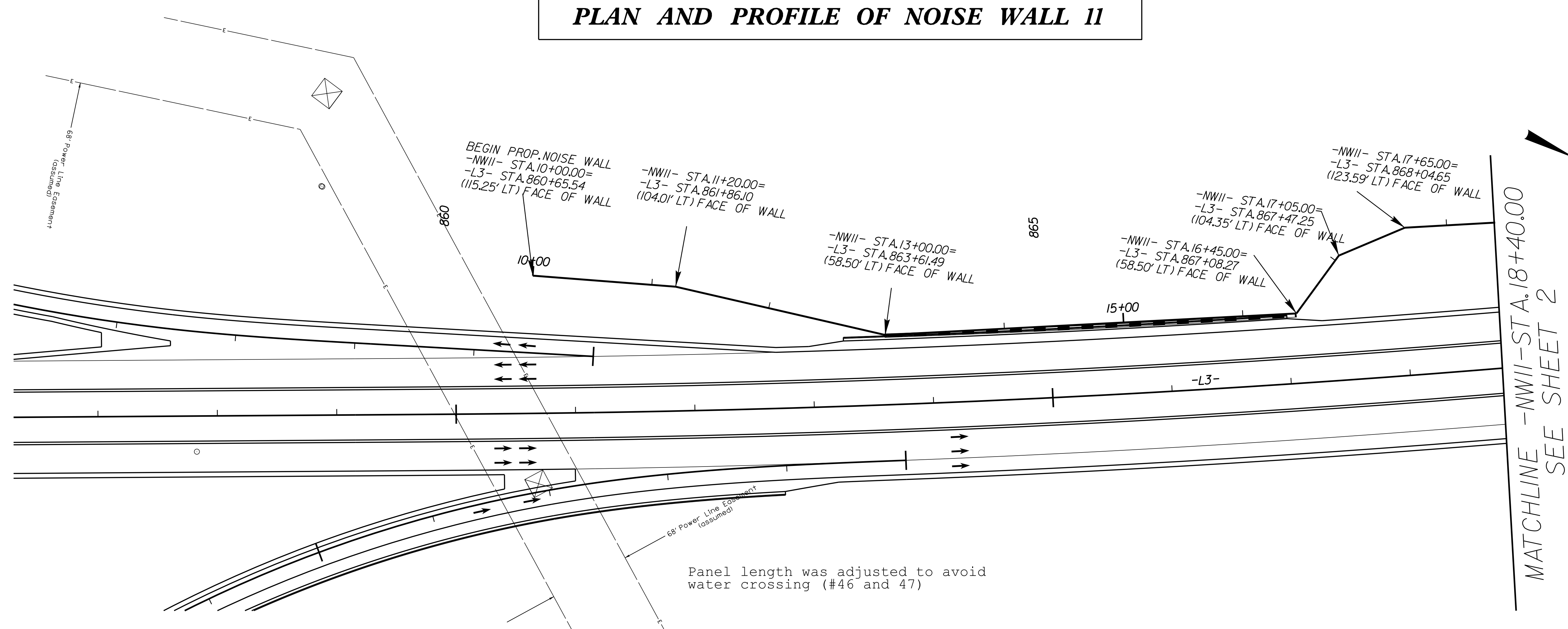
NOISE WALL 8 DESIGN DATA																	
PANEL NUMBER	1-4	5-8	9-12	13-16	17-18	19-20	21-24	25-28	29-32	33-36	37-40	41-44	45-48	49-56	57-60	61-68	69-72
TOP ELEVATION	1012'	1013'	1014'	1015'	1016'	1017'	1018'	1019'	1020'	1021'	1022'	1023'	1024'	1025'	1026'	1027'	1028'
PANEL LENGTH	60'	60'	60'	60'	30'	30'	60'	60'	60'	60'	60'	60'	60'	120'	60'	120'	60'



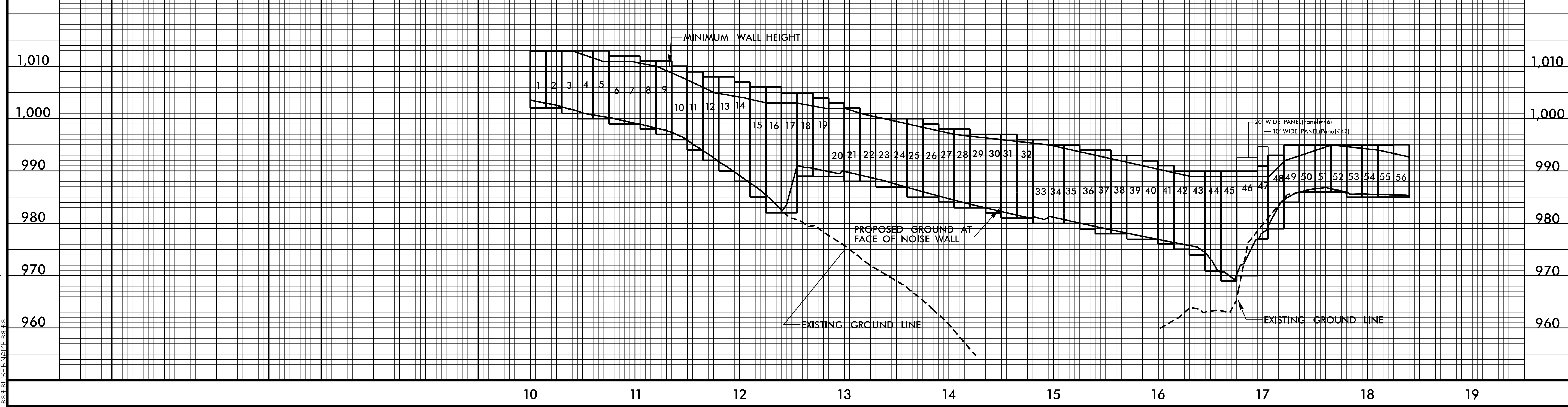
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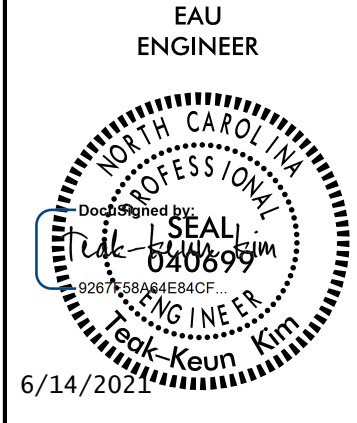
PLAN AND PROFILE OF NOISE WALL 11



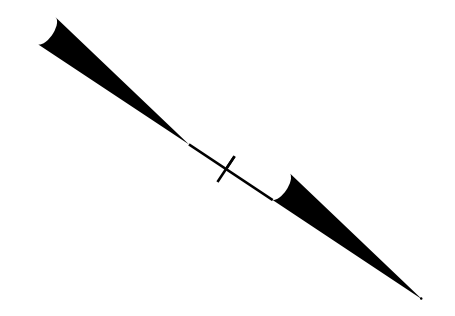
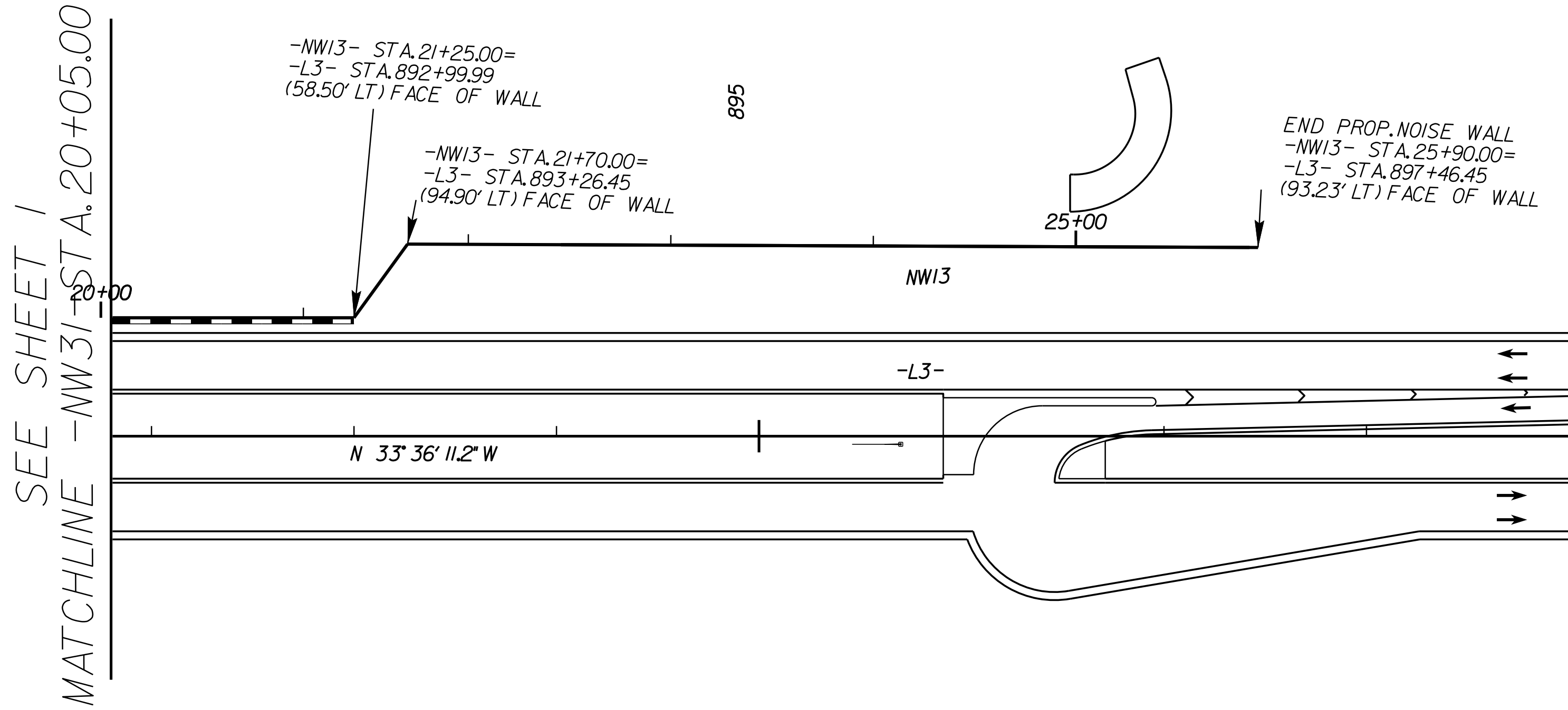
NOISE WALL 11 DESIGN DATA																
PANEL NUMBER	1-5	6-7	8-9	10	11	12-13	14	15-16	17-18	19	22-23	24-25	26	27-28	29-31	32-33
TOP ELEVATION	1013'	1012'	1011'	1010'	1009'	1008'	1007'	1006'	1005'	1004'	1001'	1000'	999'	998'	997'	996'
PANEL LENGTH	75'	30'	30'	15'	15'	30'	15'	30'	30'	15'	30'	30'	15'	30'	45'	30'
	34-35	36-37	38-39	40	41	42-46	47	48	49-56							
	995'	994'	993'	992'	991'	990'	991'	993'	995'							
	30'	30'	30'	15'	15'	80'	10'	15'	120'							



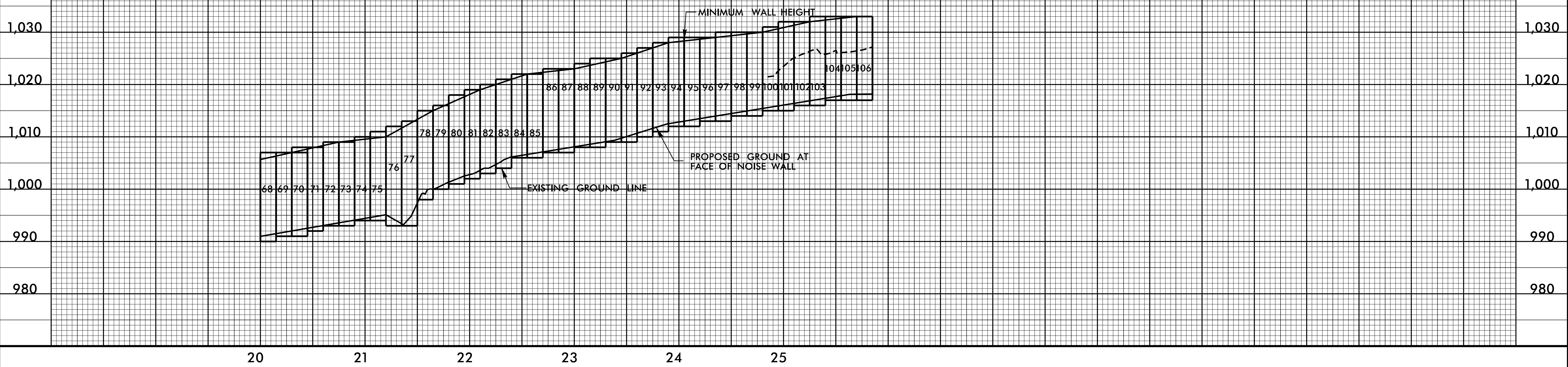
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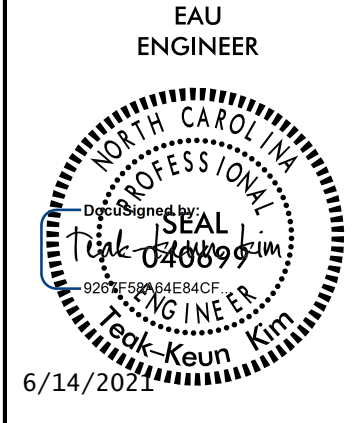
PLAN AND PROFILE OF NOISE WALL 13



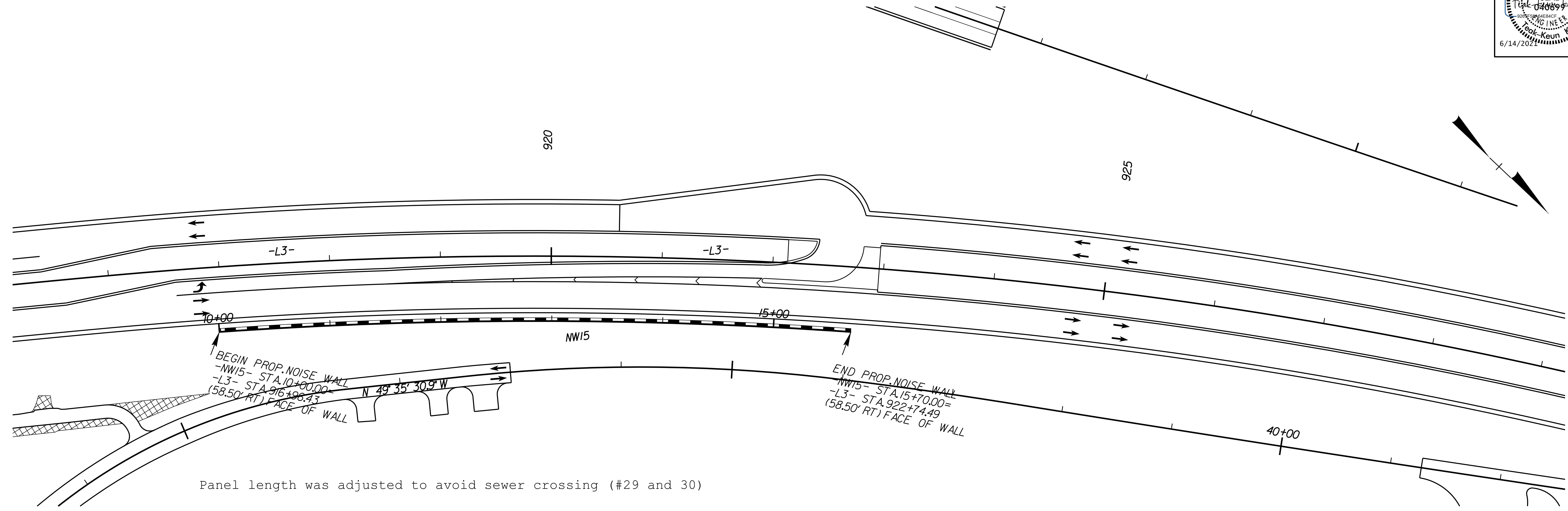
NOISE WALL 13 DESIGN DATA																									
PANEL NUMBER	68-69	70-71	72-73	74	75	76	77	78	79	80	81	82	83	84-85	86-87	88	89-90	91	92	93	94-96	97-99	100	101-102	103-106
TOP ELEVATION	1007'	1008'	1009'	1010'	1011'	1012'	1013'	1015'	1016'	1018'	1019'	1020'	1021'	1022'	1023'	1024'	1025'	1026'	1027'	1028'	1029'	1030'	1031'	1032'	1033'
PANEL LENGTH	30'	30'	30'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	30'	30'	15'	30'	15'	15'	15'	45'	45'	15'	30'	60'



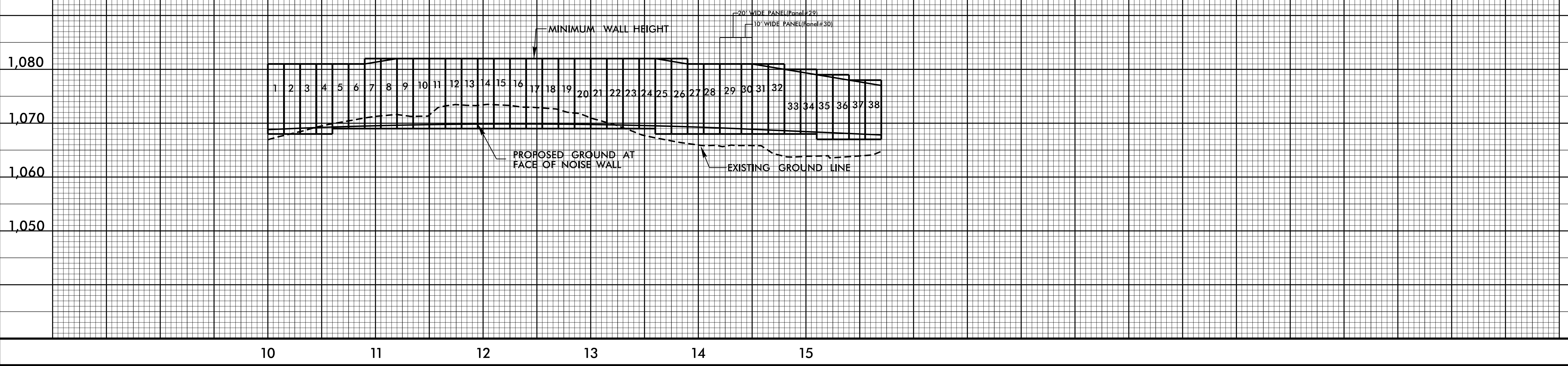
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 8/6/13



PLAN AND PROFILE OF NOISE WALL 15



NOISE WALL 15 DESIGN DATA						
PANEL NUMBER	1-6	7-26	27-32	33-34	35-36	37-38
TOP ELEVATION	1081'	1082'	1081'	1080'	1079'	1078'
PANEL LENGTH	90'	300'	90'	30'	30'	30'



8/6/13
 23-APR-2020 16:43
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STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS



2610 WYCLIFF ROAD
 SUITE 410
 RALEIGH, NC 27607
 PHONE: 919.881.9299
 NC COA No. F-09259

SHOULDER DRAIN SUMMARY

LINE	STATION TO STATION	SHOULDER DRAIN (FT.)	4" SHOULDER DRAIN PIPE (FT.)	4" OUTLET PIPE (FT.)	CONCRETE PADS (EA.)	DRAINAGE BOX #	LINE	STATION TO STATION	SHOULDER DRAIN (FT.)	4" SHOULDER DRAIN PIPE (FT.)	4" OUTLET PIPE (FT.)	CONCRETE PADS (EA.)	DRAINAGE BOX #	LINE	STATION TO STATION	SHOULDER DRAIN (FT.)	4" SHOULDER DRAIN PIPE (FT.)	4" OUTLET PIPE (FT.)	CONCRETE PADS (EA.)	DRAINAGE BOX #
-L-	748+00 TO 760+00 RT	1200	1200				-L-	748+00 TO 758+40 LT	1040	1040				-L-	844+25 TO 849+00 MED RT	475	476			
	748+00 RT			60	1			748+00			48	1			844+25			16		2GI #1124
	750+50 RT			20		2GI #502		751+00			20	1			846+99.38			16		2GI #1125
	752+50 RT			20	1			757+00			20	1		-L-	872+00 TO 882+00 MED RT	1000	1000			
	757+50 RT			20	1			758+40			20		2GI #607		876+00			20		2GI #1301
	760+00 RT			24	1		-L-	775+50 TO 795+00 LT	1950	1952					876+60			20		2GI #1302
-L-	775+30 TO 795+00 RT	1970	1972					775+50			0		2GI #645		879+10			20		2GI #1305
	775+30			0		2GI #650		776+60			20		2GI #648		881+80			20		2GI #1310
	776+60			48	1			779+50			72	1		-L-	938+40 TO 947+50 MED RT	910	912			
	779+50			48		2GI #689		781+50			20		2GI #693		938+40			8		2GI #1820
	782+50			20		2GI #705		784+00			20	1			942+50			20		2GI #1800
	785+00			20	1			787+00			28	1			944+50			16		2GI #1804
	786.25			20		2GI #701		792+00			20		2GI #708		947+50			12		2GI #1807
	788+00			20	1			795+00			84	1		-L-	991+00 TO 995+30 MED RT	430	432			
	792+00			20		2GI #706	-L-	809+50 TO 815+04.66 LT	555	556					994+50			12		2GI #2204
	795+00			104	1			811+50			4		2GI #901		995+30			8		2GI #2205
-L-	809+50 TO 817+75 RT	825	828					813+50			8	1		-L-	914+86 TO 921+80 MED LT	664	664			
	811+45			12		2GI #902	-L-	842+50 TO 845+50 LT	300	300					914+86			16	1	
	813+50			24	1			842+50			20	1			921+80			8		2GI #1603
	816+50			20	1			845+50			0		CB #1123	-L-	923+00 TO 934+71.10 MED LT	1172	1172			
-L-	913+50 TO 937+10 RT	2360	2360				-L-	847+50 TO 853+00 LT	550	552					927+20			20		2GI #1703
	913+50			36	1			847+50			8	1			927+50			20		2GI #1700
	916+50			36	1			852+00			20		2GI #1115		931+00			20	1	
	921+80			44		2GI #1604		853+00			20	1			934+20			20		2GI #1705
	924+50			20	1		-L-	872+00 TO 881+00 LT	900	900				-L-	952+81.10 TO 960+00 MED LT	719	720			
	927+10			20		2GI #1704		874+00			44	1			952+81.10			12	1	
	927+40			20		2GI #1701		876+60			0		2GI #1303		956+00			16	1	
	930+00			20	1			879+50			20	1			960+00			16		2GI #1901
	933+00			20	1		-L-	934+71.10 TO 950+00 LT	1529	1532				-L-	992+50 TO 995+35 MED LT	285	288			
	937+10			40		RCP #1709		934+71.10			20	1			994+50			12		2GI #2204
-L-	992+00 TO 1004+00 RT	1200	1200					937+25			32		2GI #1711		995+35			8		2GI #2205
	994+50			20		2GI #2203		940+00			20	1								
	997+50			80	1			942+50			20		2GI #1802							
	999+50			20		2GI #2212		944+50			20		2GI #1803							
	1002+50			20	1			947+50			20		2GI #1808							
							-L-	952+00 TO 957+50 LT	550	552										
								952+00			20	1								
								955+00			20	1								
								957+50			20	1								
							-L-	992+00 TO 994+00 LT	200	200										
								994+00			52	1								
	SUBTOTAL	7555	7560	896	17			SUBTOTAL	7574	7584	760	19			SUBTOTAL	5655	5664	356	4	
															GRAND TOTAL	20784	20808	2012	40	
															SAY	20800	20832	2036	40	

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5/28/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF EARTHWORK
IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. (+%)	BOROW	WASTE
PHASE 1 SUMMARY 1					
-DRL3- 732+00	-DRL3- 743+00		415,553	415,553	
-L3- 744+75	-L3- 754+50	70,975	88,066	17,091	
-L3- 759+00	-L3- 773+90 Bridge	235,560	73,414		162,146
-L3- 774+93 Bridge	-L3- 801+50	243,501	465,197	221,696	
-RPB- 13+45.45	-RPB- 30+40	501,427	2,468		498,959
-LPB- 11+69.68	-LPB- 21+32	21,829	12,978		8,851
-RPC- 13+98.96	-RPC- 27+04	253,069			253,069
-LPC- 11+71.75	-LPC- 19+62	347,103			347,103
-Y25REV- 17+50	-Y25REV- 33+28	7,352	21,893	14,541	
-Y25EXT- 10+12	-Y25EXT- 13+55	2,333	17		2,316
-Y2- 17+25 RT	-Y2- 42+25 RT	22,566	37,535	17,112	2,143
-Y74- 10+50	-Y74- 16+50	212	139		73
-DR2- 9+67.72 -CUL2-	-DR2- 19+44.66	1,204	2,046	842	
-Y25- 15+70.10 -CUL1-		179			179
-Y16- 13+03.91 -CUL3-		133			133
-Y16- 17+82.39 -CUL4-		2	955	953	
-L3- 779+79.91 -CUL16-		77	81	4	
SUBTOTAL		1,707,522	1,120,339	687,789	1,274,972
PHASE 1 SUMMARY 2					
-L3- 801+50	-L3- 829+50	169,518	121,779		47,739
-Y19- 7+00	-Y19- 20+03 Bridge	594	13,878	13,284	
-Y19- 21+85 Bridge	-Y19- 30+00	1,198	13,938	12,740	
-Y17- 13+21.98 -CUL5-		3	109	106	
-Y17- 17+78.13 -CUL6-		327			327
-Y20- 11+92.83 -CUL7-		10	9		1
-Y21- 17+36.58 -CUL8-		1	1,226	1,225	
SUBTOTAL		171,651	150,940	27,355	48,067
PHASE 1 SUMMARY 3					
-L3- 829+50	-L3- 841+00	4,205	279,697	275,492	
-L3- 843+00	-L3- 856+50	298,328	569		297,759
-RPA- 13+64.15	-RPA- 26+50	55,060	1,910		53,150
-LPA- 11+38.70	-LPA- 19+54	106,384			106,384
-RPD- 13+23.64	-RPD- 30+87	8,055	121,447	113,392	
-LPD- 13+97.53	-LPD- 26+53	20,229	36,174	15,945	
-Y3- 23+00	-Y3- 25+41 Bridge	9,799	470		9,329
-Y3- 27+70 Bridge	-Y3- 41+50	8,050	12,679	4,629	
-Y4- 17+00	-Y4- 23+46	57	3,519	3,462	
-L3- 839+94.99 -CUL14-		662	41		621
-Y23- 25+93.98 -CUL9-		6	94	88	
SUBTOTAL		510,835	456,602	413,009	467,242
PHASE 1 SUMMARY 4					
-L3- 856+50	-L3- 884+00	23,990	199,480	175,490	
-Y6- 13+00	-Y6- 17+00	158	2,842	2,684	
-Y6- 22+66	-Y6- 33+34	8,059	22,944	14,885	
-Y5- 11+75	-Y5- 21+12	691	3,623	2,932	
SUBTOTAL		32,898	228,888	195,990	

STATION	STATION	UNCL. EXCAV.	EMBANK. (+%)	BOROW	WASTE
PHASE 1 SUMMARY 5					
-L3- 884+00	-L3- 914+00	58,021	45,756		12,265
-Y10- 18+31	-Y10- 25+32	188	19,453	19,265	
-Y10- 26+26	-Y10- 29+70	197	3,968	3,771	
-Y8- 15+00	-Y8- 36+60	574	45,010	44,436	
-Y12- 11+25	-Y12- 33+00	3,922	25,129	21,207	
SUBTOTAL		62,902	139,316	88,678	12,265
PHASE 1 SUMMARY 6					
-L3- 914+00	-L3- 944+00	7,823	68,345	60,522	
SUBTOTAL		7,823	68,345	60,522	
PHASE 1 SUMMARY 7					
-L3- 944+00	-L3- 951+00	1,602	31,872	30,270	
-Y9- 13+50	-Y9- 16+54	447	144		303
-Y11- 10+47	-Y11- 28+00	153	289,889	289,736	
-Y42- 14+45.32 -CUL13-		234			234
-Y12- 41+97.56 -CUL11-		23	21		2
SUBTOTAL		2,459	321,925	320,006	540
PHASE 1 SUMMARY 8					
-L3- 951+00 - LT	-L3- 977+00 - LT	51,941	183,602	131,661	
SUBTOTAL		51,941	183,602	131,661	
PHASE 1 SUMMARY 9					
-L3- 977+00 - LT	-L3- 1004+00 - LT	57,337	108,848	51,511	
-Y7A- 13+75 - LT	-Y7A- 17+99 - LT	22,482	13		22,469
SUBTOTAL		79,819	108,860	51,511	22,469
PHASE 1 TOTAL					
		2,627,850	2,778,816	1,976,521	1,825,554
PHASE 1A SUMMARY 10					
-Y6- 17+00	-Y6- 22+66	709	2,372	1,663	
-Y23- 36+60	-Y23- 39+33	691	40		651
-DR4- 12+00	-DR4- 14+14	67	831	764	
-Y23A- 45+53.87 -CUL15-		791	2		789
PHASE 1B SUMMARY 10					
-Y6- 10+00	-Y6- 13+00	506	3,202	2,696	
-Y22A- 34+50 -CUL10-	-Y22A- 40+24	1,046	8,617	7,571	
PHASE 1A & 1B TOTAL		3,810	15,065	12,694	1,439

STATION	STATION	UNCL. EXCAV.	EMBANK. (+%)	BOROW	WASTE
PHASE 2 SUMMARY 11					
-L3- 754+50	-L3- 759+00	89,595			89,595
-L3- 841+00	-L3- 843+00	27,275			27,275
-Y2- 17+25 LT	-Y2- 42+25 LT	25,114	892		24,222
-Y3- 13+10 LT	-Y3- 23+00 LT	8,028	8,074	46	
-Y18DET- 10+47.99	-Y18DET- 13+24.38	9	928	919	
-DR3- 10+25	-DR3- 16+75	234	10,486	10,252	
DETOUR RT -Y3- 14+30	-Y3- 14+30	456	910	454	
DETOUR LT -Y3- 13+50	-Y3- 20+00	92	3,281	3,189	
SUBTOTAL		150,803	24,571	14,860	141,092
PHASE 2 SUMMARY 12					
-L3- 951+00 - RT	-L3- 977+00 - RT	48,264	15,588		32,676
SUBTOTAL		48,264	15,588		32,676
PHASE 2 SUMMARY 13					
-L3- 977+00 - RT	-L3- 1004+00 - RT	32,771	7,052		25,719
-Y7- 14+75 - LT	-Y7- 17+75 - LT	248	2,555	2,307	
-Y7- 19+11 - RT	-Y7- 23+30 - RT	12,041			12,041
SUBTOTAL		45,060	9,607	2,307	37,760
PHASE 2 TOTAL					
		244,127	49,766	17,167	211,528
PHASE 3 SUMMARY 14					
-Y3- 13+10 RT	-Y3- 23+00 RT	34	7,766	7,732	
-Y18- 14+30	-Y18- 18+12	47	7,052	7,005	
SUBTOTAL		81	14,818	14,737	
PHASE 3 SUMMARY 15					
-Y18DET- REMOVAL		807			807
-Y3- DETOUR LT REMOVAL		2,853			2,853
SUBTOTAL		3,660			3,660
PHASE 3 TOTAL					
		3,741	14,818	14,737	3,660
PROJECT SUB TOTALS					
		2,879,528	2,858,465	2,021,119	2,042,181
LOSS DUE TO CLEARING & GRUBBING					
		-20,000		20,000	
ROCK WASTE TO REPLACE BORROW					
				-69,376	-69,376
ADJUST FOR ROCK WASTE					
			-10,406	-10,406	
WASTE IN LIEU OF BORROW					
				-1,959,193	-1,959,193
PROJECT TOTALS					
		2,859,528	2,848,059		13,612
GRAND TOTALS					
		2,859,528	2,848,059		13,612
SAY					
		2,860,000			

SHOULDER BORROW = 38,000 CUBIC YARDS
PAVEMENT VOLUME STRUCTURE = 67,000 CUBIC YARDS
EST. DDE = 25,650 CUBIC YARDS
EST. SHALLOW UNDERCUT = 15,000 CUBIC YARDS
UNDERCUT FOR EMBANKMENT STABILITY = 7,500 CUBIC YARDS
GRADE POINT UNDERCUT = 2,000 CUBIC YARDS
UNDERCUT FOR SUBGRADE STABILITY = 4,000 CUBIC YARDS

PAVEMENT VOLUME STRUCTURE = 67,000 CY
LINES L3, RPB, RPC, LPC, LPA, RPC & Y11 WERE USED TO COMPUTE THE PAVEMENT VOLUME STRUCTURE

NOTE: UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3' OF EMBANKMENT BACKFILL BENEATH PAVEMENT SECTION FROM -L3- 749+45 TO 756+90 (21,560 CY) & FROM -L3- 903+30 TO 905+70 (8,440 CY)

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