

See Sheet 1-A For Index of Sheets, General Notes, and List of Standards
 See Sheet 1-B For Conventional Symbols
 See Sheet 1C-1-1C-4 For Survey Control Sheets

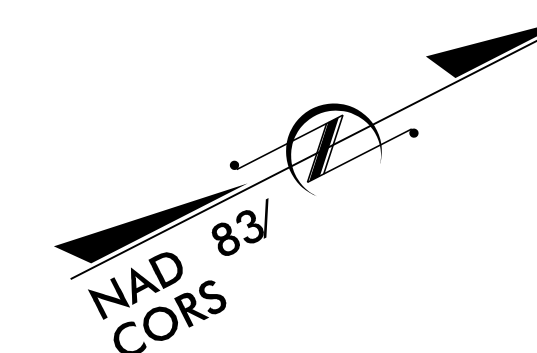
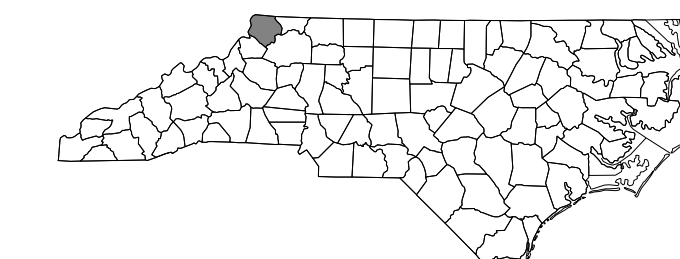
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

ASHE COUNTY

**LOCATION: US 221 FROM US 221 BYPASS TO
 US 221 BUSINESS/NC 88 IN JEFFERSON**

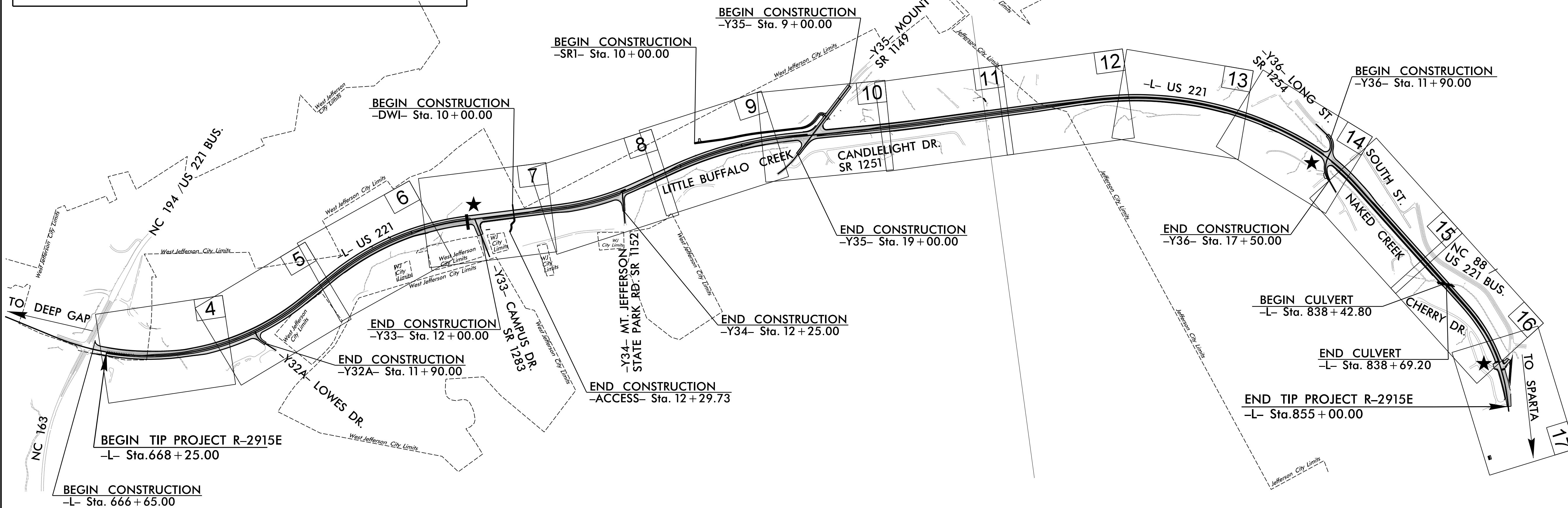
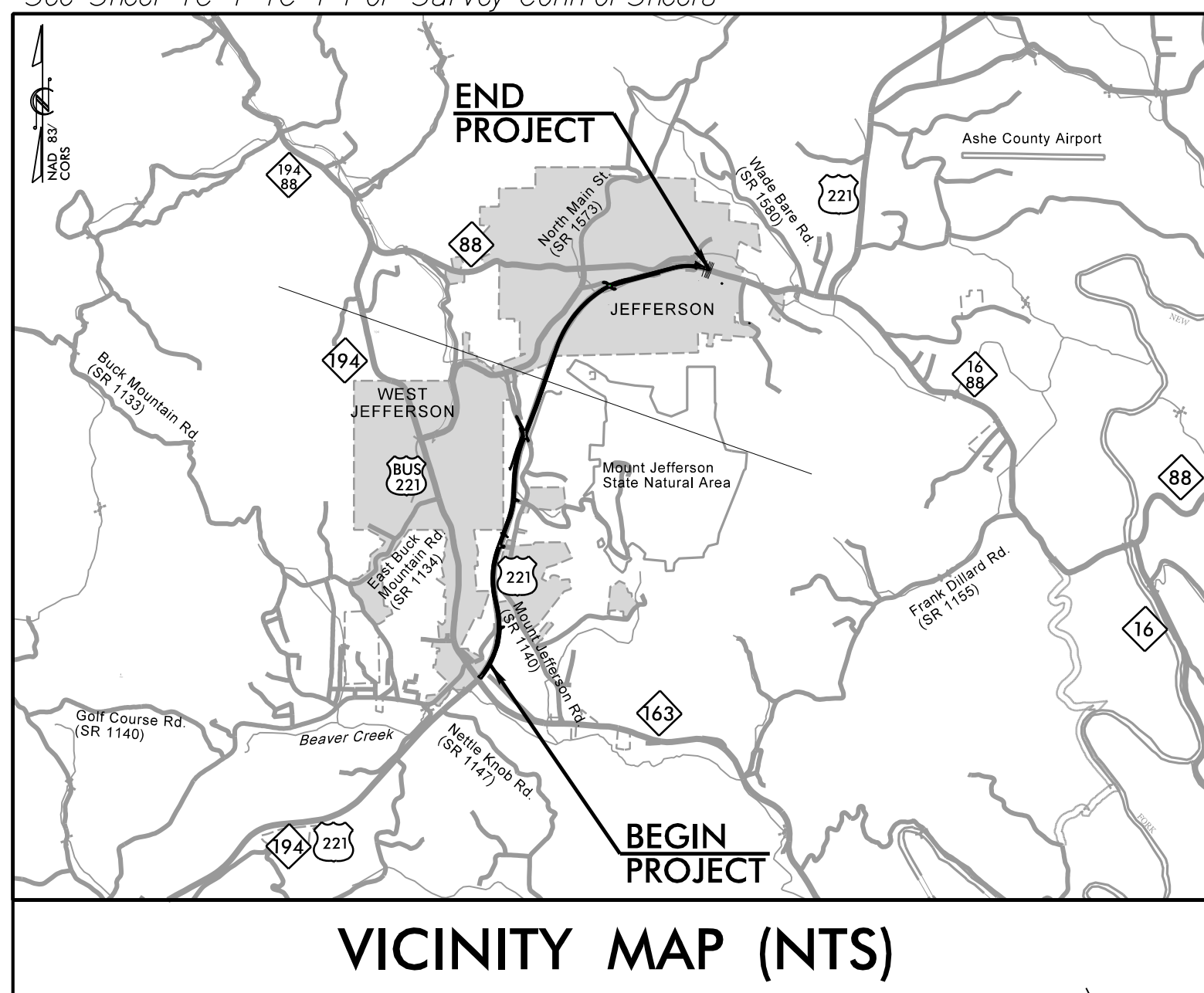
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT, AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2915E	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34518.1.FR6	STP-0221(45)	PE	
34518.2.6	STP-0221(45)	R/W	
34518.2.7	STP-0221(45)	UTIL.	
34518.3.8		CONST.	



TIP PROJECT: R-2915E

CONTRACT: C204356

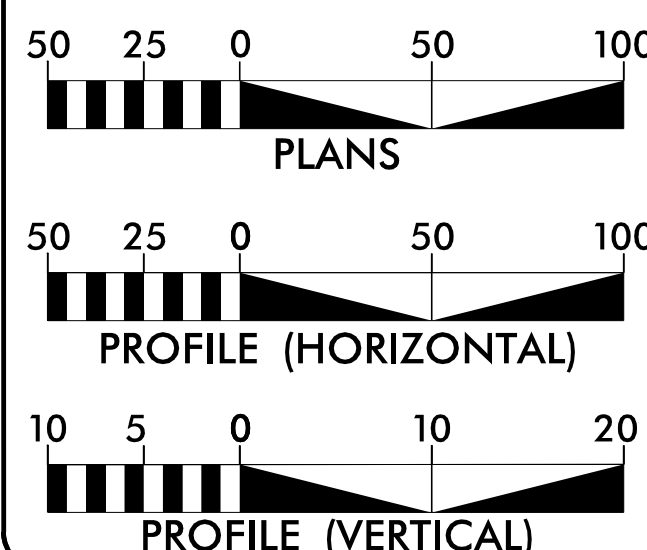


THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON PLANS.

★ PROPOSED TRAFFIC SIGNAL

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2019 = 15,900
 ADT 2039 = 19,400
 K = 8%
 D = 55%
 T = 6%*
 V = 60 MPH
 FUNC. CLASSIFICATION =
 RURAL ARTERIAL
 * TTST = 3% + DUALS = 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2915E..... 3.532 mi
 LENGTH CULVERT TIP PROJECT R-2915E..... 0.005 mi
 TOTAL LENGTH TIP PROJECT R-2915E..... 3.537 mi

NCDOT CONTACT

Joe Laws, P.E.
 PROJECT ENGINEER - DIVISION II

PLANS PREPARED BY:

RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 8601 SIX FORKS ROAD, FORUM 1, SUITE 700
 RALEIGH, NORTH CAROLINA 27615
 NC LICENSE NO. F-0112

FOR NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 MAY 8, 2018

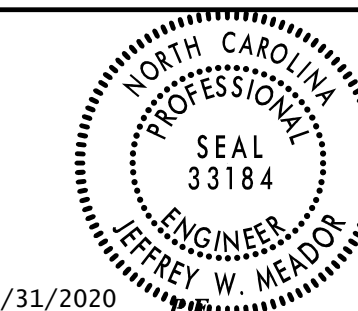
LETTING DATE:
 MARCH 17, 2020

Scott D. Blevins, P.E.
 PROJECT ENGINEER
 RK&K, LLP

Cathy S. Houser, P.E.
 PROJECT DESIGN ENGINEER
 RK&K, LLP

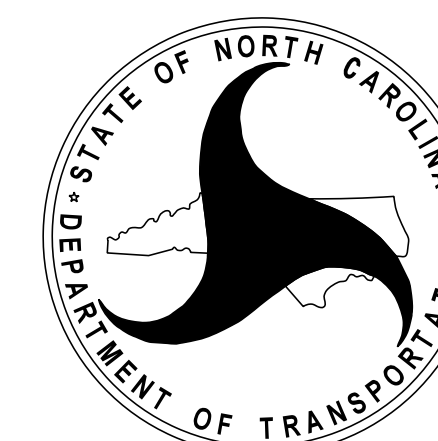
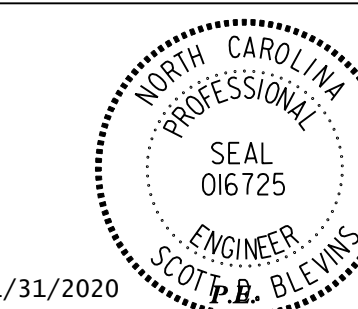
HYDRAULICS ENGINEER

DocuSigned by:
Jeffrey W. Headd
 SIGNATURE: 1/31/2020



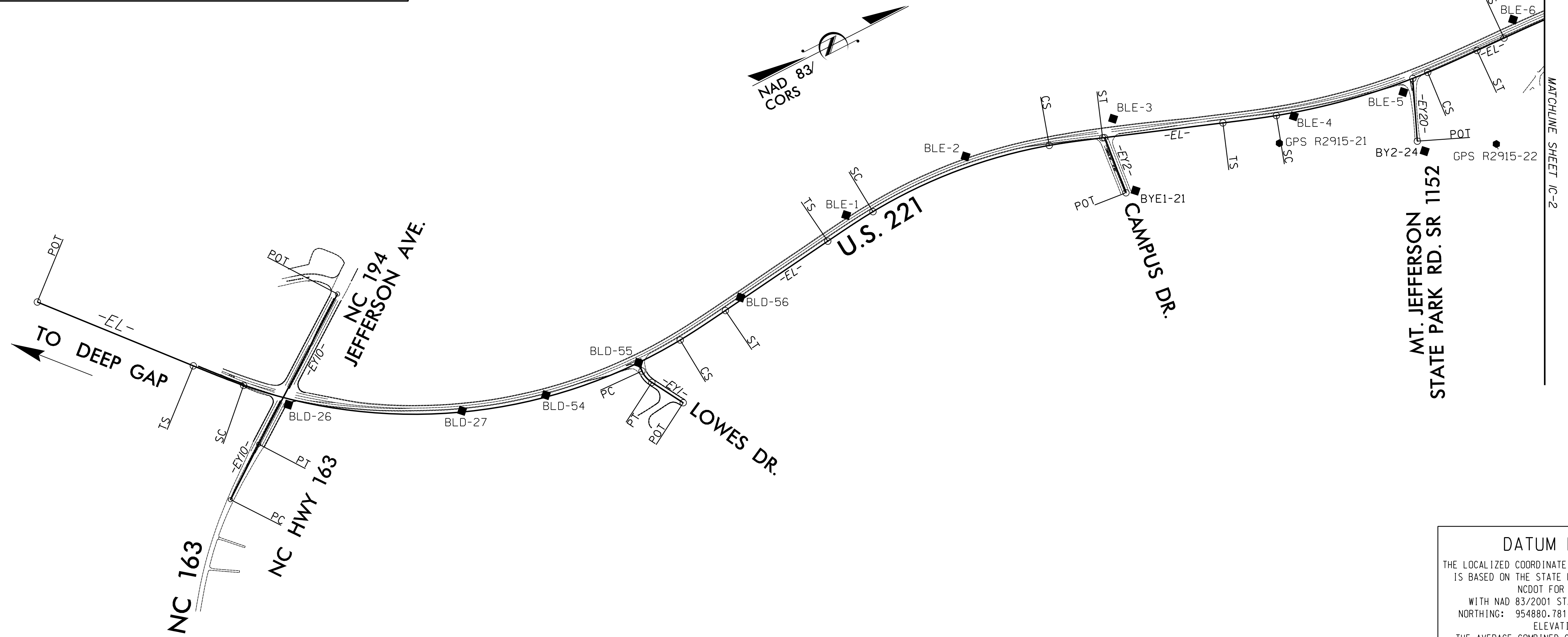
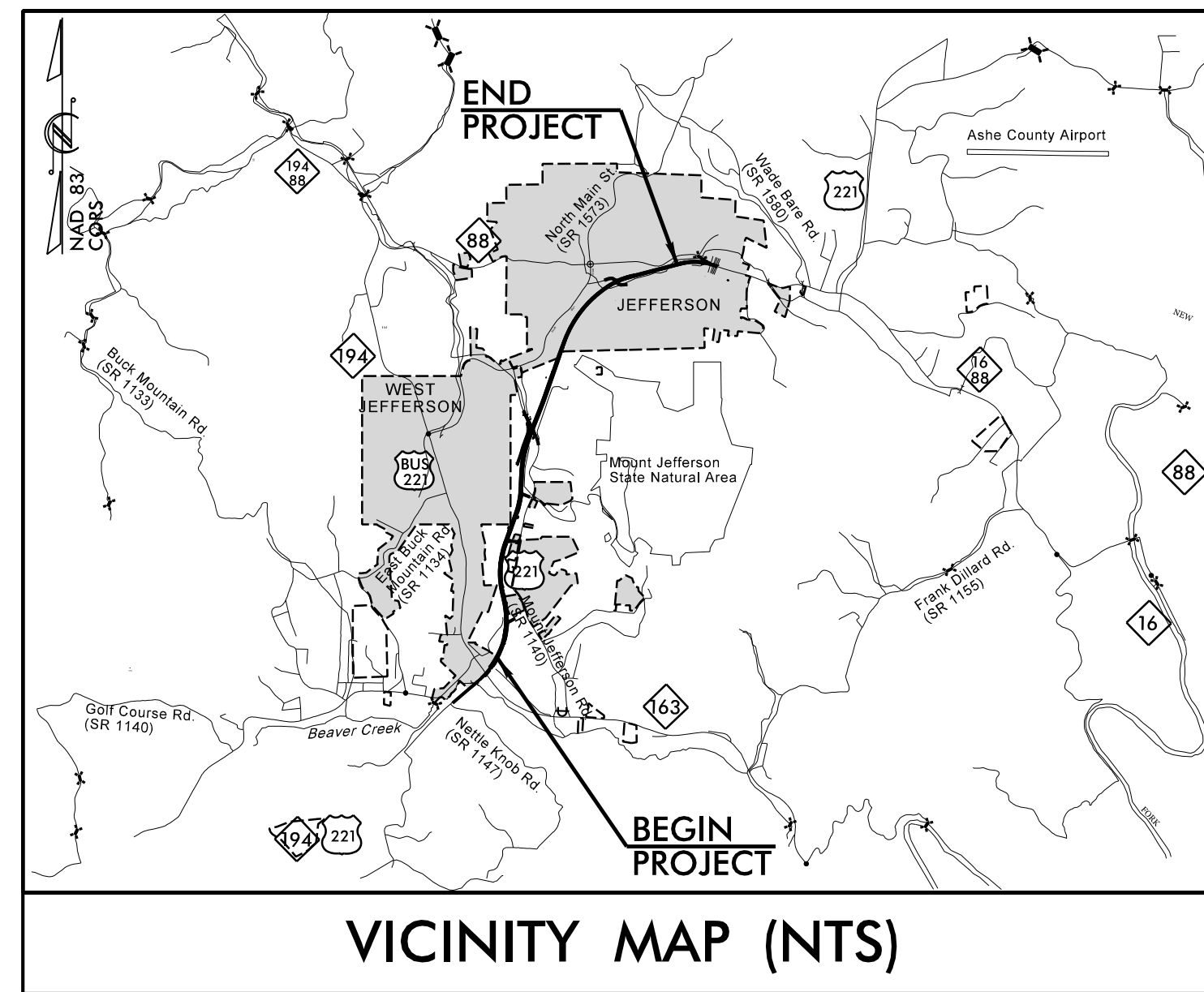
ROADWAY DESIGN ENGINEER

DocuSigned by:
Scott D. Blevins
 SIGNATURE: 1/31/2020



SURVEY CONTROL SHEET R-2915E

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2915-15"

WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF
 NORTHING: 954880.781(ft) EASTING: 1254012.285(ft)
 ELEVATION: 3097.52(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99991292

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R2915-15" TO, -L- STATION 668+25.00 IS
 S 50° 52' 59" W 18,737.44'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. BASLINE/CONTROL INFORMATION CAN BE LOCATED ON THE IC-3 SHEET.
4. EXISTING ALIGNMENT BEARINGS AND DISTANCES CAN BE LOCATED ON THE IC-4 SHEET.

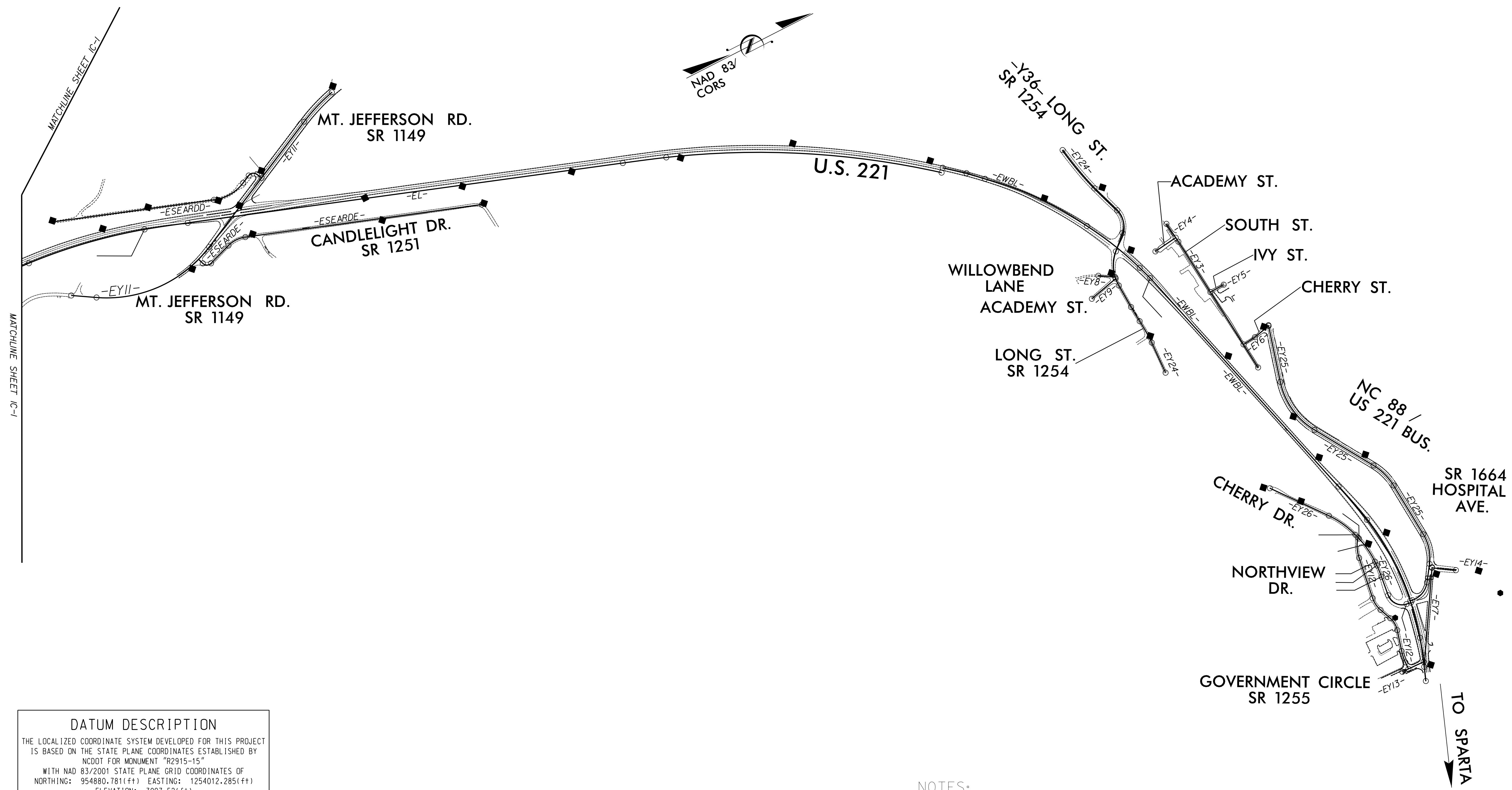
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PROJECT REFERENCE NO.	SHEET NO.
R-2915E	1C-2
Location and Surveys	

SURVEY CONTROL SHEET R-2915E

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2915-15"

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VERTICAL DATUM USED IS NAVD 88

- NOTES:
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NOTE: DRAWING NOT TO SCALE

6/22/99
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CENTERLINE COORDINATE LIST R-2915E

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

L

TYPE	STATION	NORTH	EAST
POT	649+94.93	965463.5408	1267207.5363
TS	660+78.27	966168.9995	1268029.7042
SC	663+53.27	966351.3900	1268235.4785
CS	691+89.08	968937.0510	1269080.5708
ST	693+89.08	969132.8522	1269039.8579
TS	695+97.26	969336.1688	1268995.0954
SC	697+97.26	969531.9372	1268954.2181
CS	713+31.68	971047.1475	1269054.0231
ST	715+31.68	971235.8627	1269120.2258
TS	724+33.90	972083.9270	1269428.1143
SC	726+33.90	972272.6586	1269494.2691
CS	733+48.84	972972.2797	1269633.0055
ST	735+48.84	973171.9742	1269643.8765
TS	738+81.50	973504.3227	1269658.2673
SC	740+41.50	973664.1244	1269666.1800
CS	753+09.01	974899.5027	1269928.5404
ST	754+69.01	975048.7276	1269986.2565
PC	762+87.79	975810.5274	1270286.3441
PT	769+62.40	976442.6833	1270521.7769
TS	788+15.06	978190.6572	1271135.7270
SC	790+05.06	978369.4073	1271200.1207
CS	814+61.56	980261.2448	1272704.8875
SC	816+21.56	980346.7825	1272840.0805
CS	821+66.51	980569.3263	1273336.2369
ST	824+06.51	980634.4373	1273567.2083
TS	840+83.01	981062.3593	1275188.1705
SC	843+63.01	981127.1778	1275460.4959
CS	852+58.54	981083.1386	1276346.7560
ST	855+58.52	980984.1284	1276629.8384

Y34

TYPE	STATION	NORTH	EAST
POT	10+00.00	972922.0298	1269628.7233
POT	13+68.92	972784.2170	1269970.9375

SR1

TYPE	STATION	NORTH	EAST
POT	10+00.00	973933.4529	1269505.3456
PC	12+77.10	974195.0042	1269596.8759
PRC	15+01.92	974409.7792	1269663.1167
PT	17+86.67	974680.9331	1269749.7218
PC	22+55.35	975120.1294	1269913.3405
PT	24+56.71	975315.8825	1269904.3084
PC	25+24.55	975377.0022	1269874.8725
PT	25+87.35	975430.3803	1269893.5200
POT	26+27.61	975447.8845	1269929.7768

Y35

TYPE	STATION	NORTH	EAST
POT	9+00.00	975852.5038	1269734.4327
PC	19+36.63	974918.9751	1270185.1264
PT	22+31.11	974637.7309	1270267.8849

Y36

TYPE	STATION	NORTH	EAST
POT	10+00.00	980504.1647	1272609.6514
PC	11+91.85	980565.9902	1272791.2679
PT	14+04.75	980507.4746	1272981.7391
PC	14+70.86	980454.7114	1273021.5642
PT	17+42.08	980343.6714	1273257.4775
POT	19+14.44	980351.3221	1273429.6759

Y32A

TYPE	STATION	NORTH	EAST
POT	10+00.00	968355.5849	1269126.6642
PC	10+50.10	968353.5117	1269176.7246
PT	11+34.81	968373.4600	1269257.8975
POT	13+42.74	968477.3785	1269437.9975

Y33

TYPE	STATION	NORTH	EAST
POT	10+00.00	971243.6102	1269123.0412
POT	14+80.00	971196.9190	1269600.7649

NOTES:

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NOTE: DRAWING NOT TO SCALE

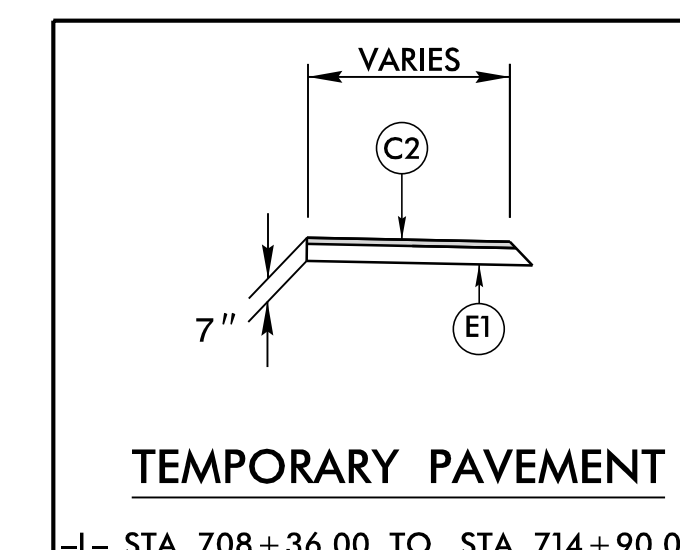
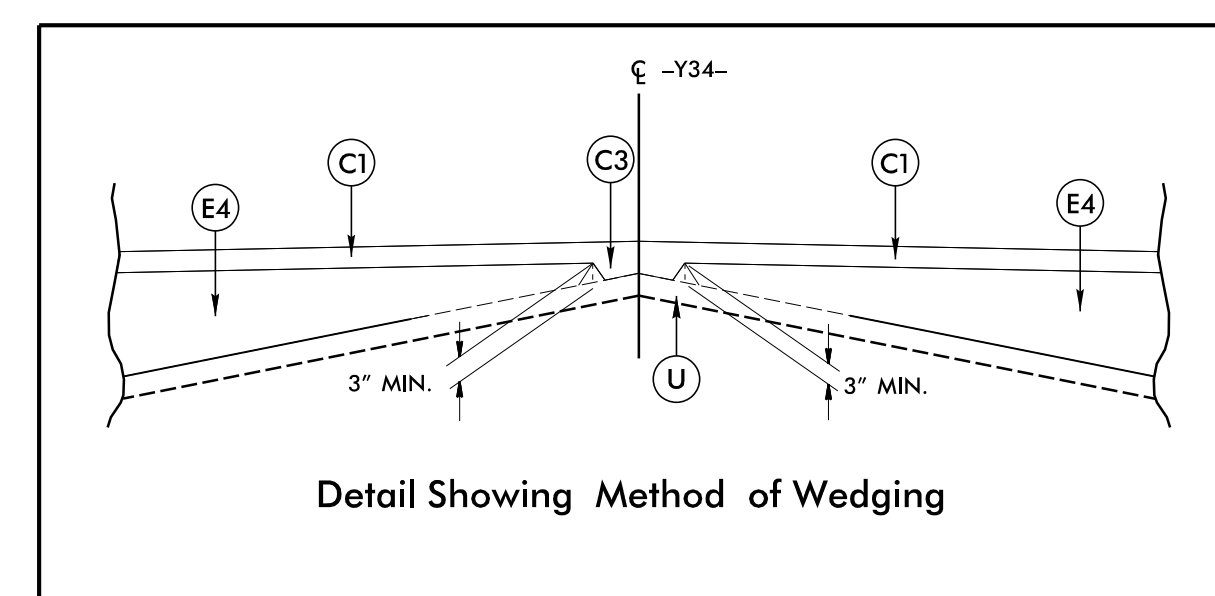
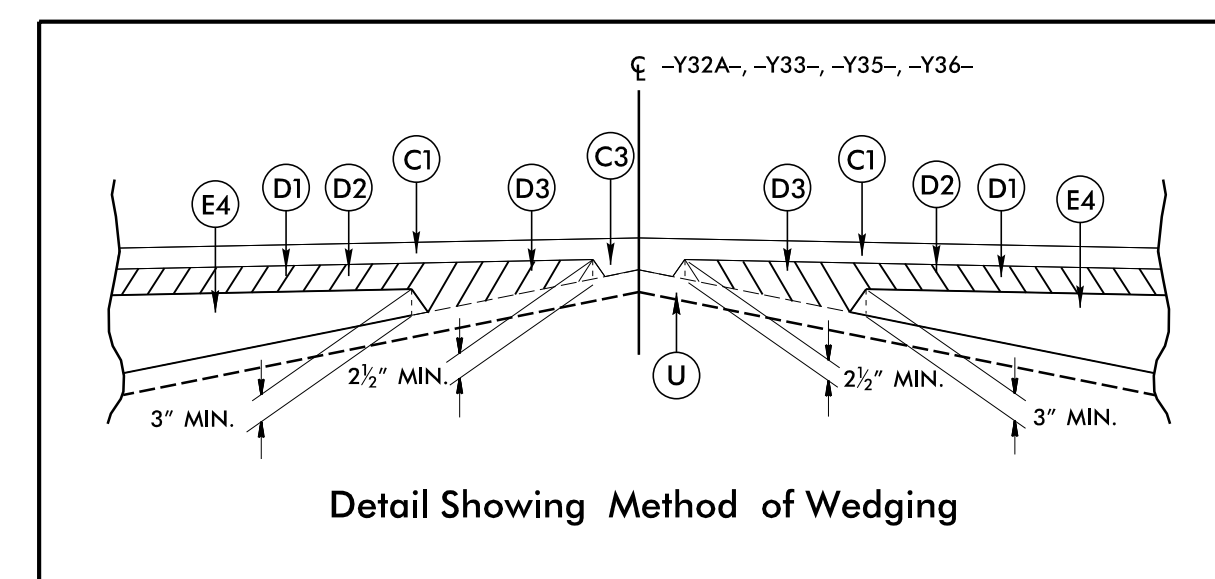
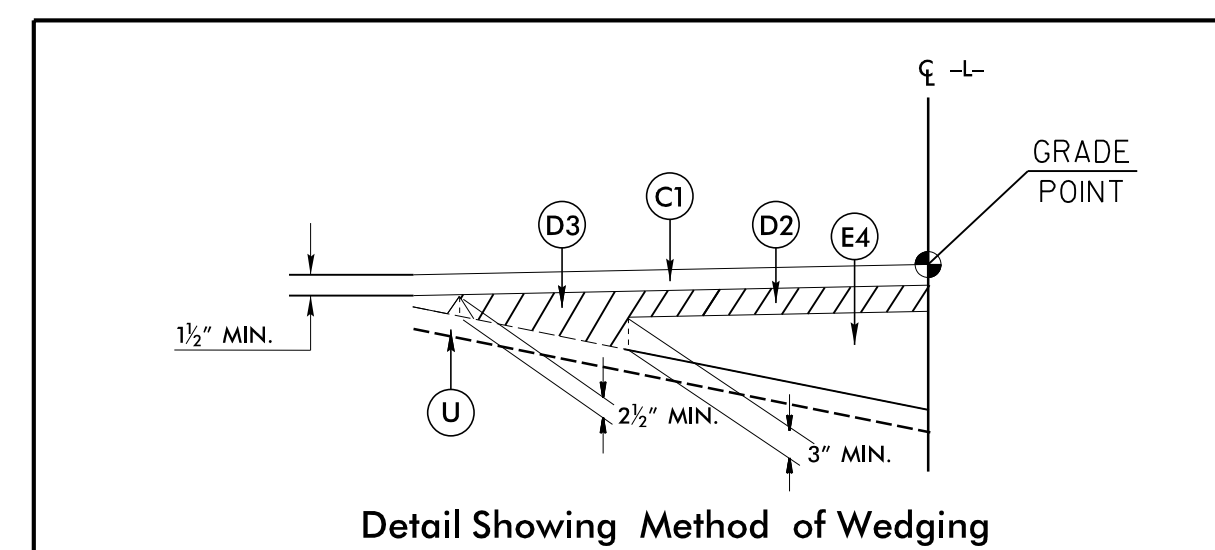
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PAVEMENT SCHEDULE

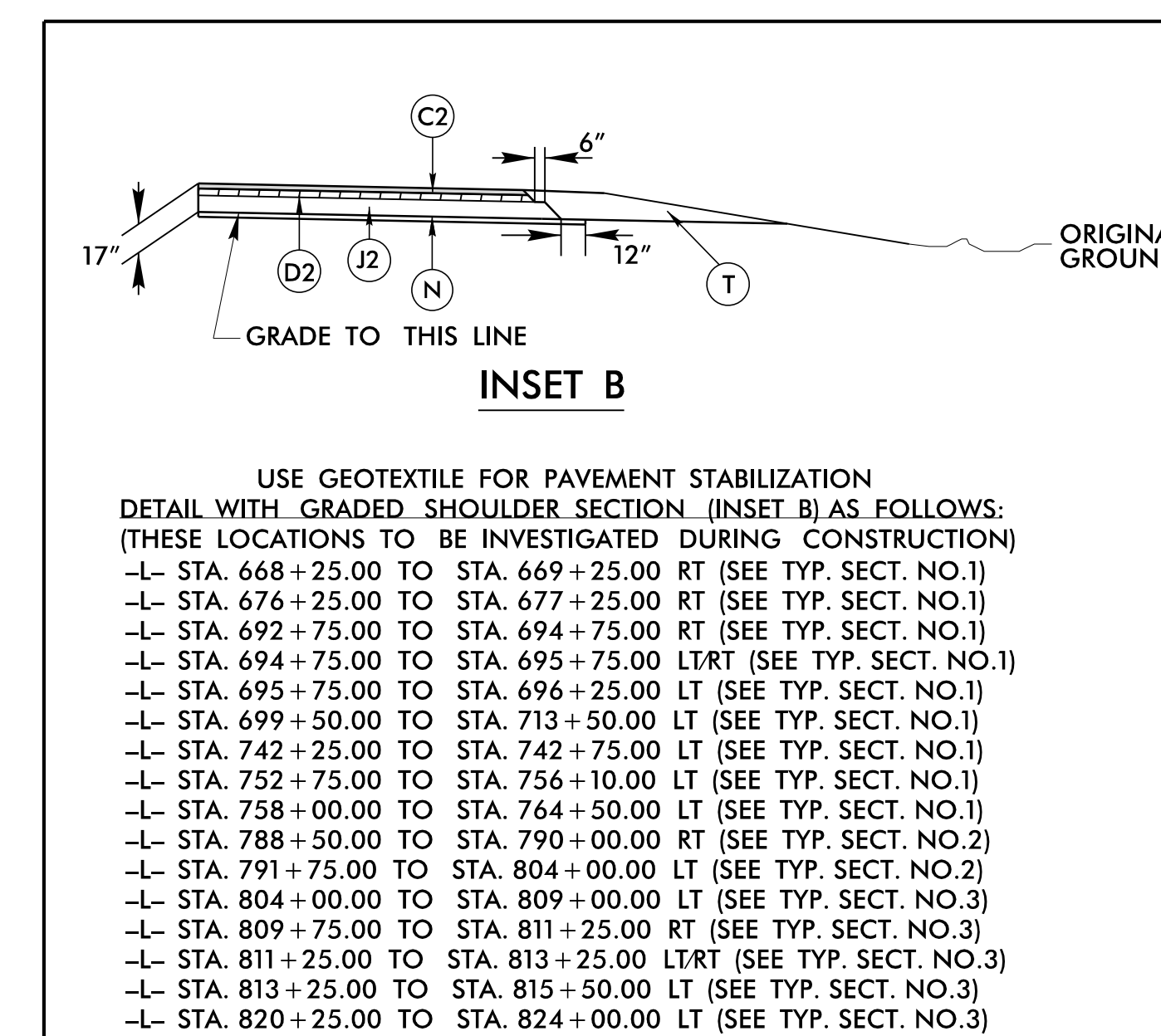
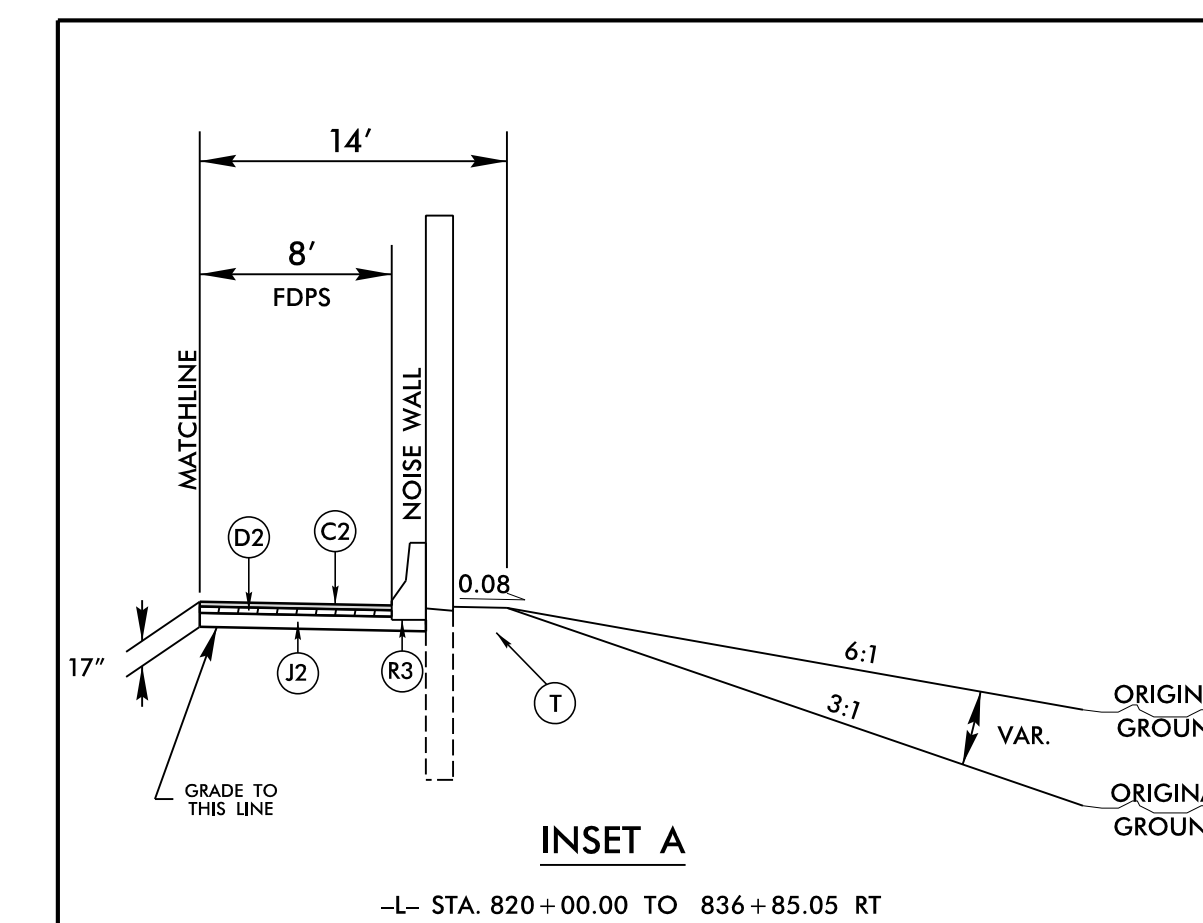
FINAL PAVEMENT DESIGN

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	J2	PROP. 10" AGGREGATE BASE COURSE
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	K	SUBBASE TO BE TREATED WITH LIME TO A DEPTH OF 8" AT A RATE OF 24 LBS. PER SQ. YD. AS DIRECTED BY THE ENGINEER. OR SUBBASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7" AT A RATE OF 56 LBS. PER SQ. YD. AS DIRECTED BY THE ENGINEER.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.	N	GEOTEXTILE FOR PAVEMENT STABILIZATION
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	R1	2'-9" CURB & GUTTER
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R2	2'-6" CURB & GUTTER
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R3	SINGLE FACED CONCRETE BARRIER
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R4	5' MONOLITHIC CONCRETE ISLAND
E2	PROP. APPROX. 4 1/2" DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	S	SIDEWALK
E3	PROP. APPROX. 5 1/2" DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	T	EARTH MATERIAL
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.	U	EXISTING PAVEMENT
J1	PROP. 8" AGGREGATE BASE COURSE	V	1 1/2" MILLING OF EXISTING ASPHALT PAVEMENT
		W	WEDGING

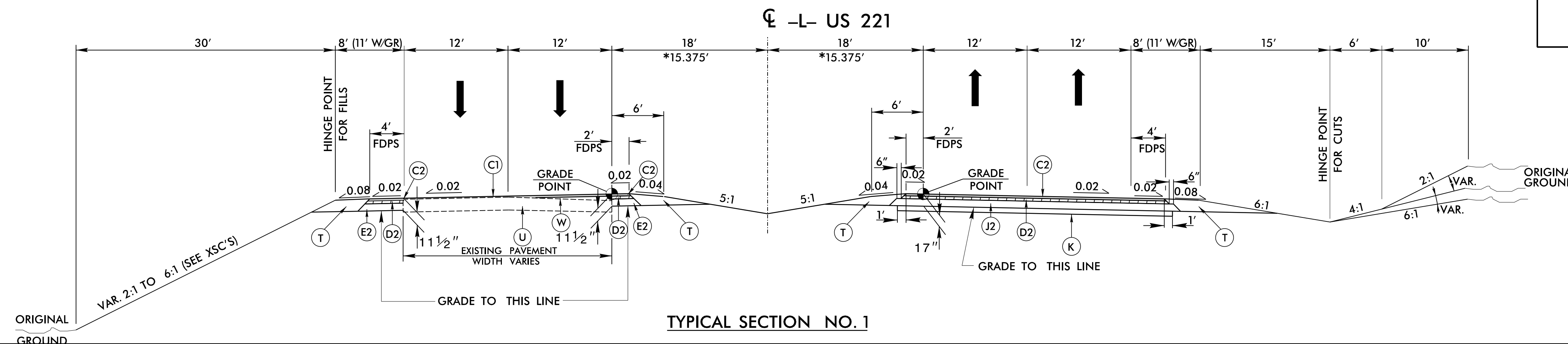
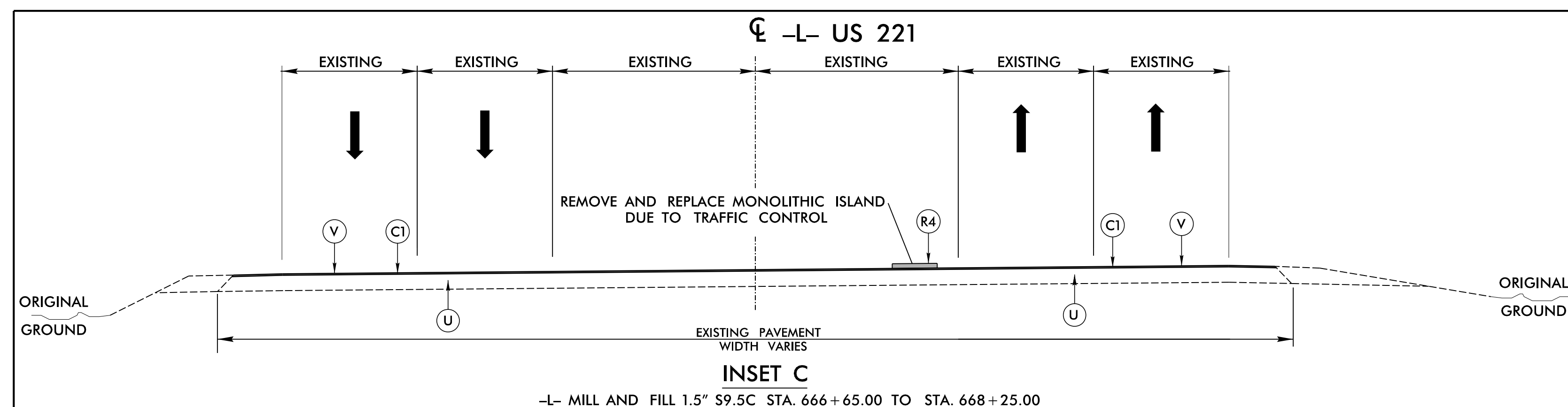
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. SEE PLANS FOR LOCATION OF CONCRETE ISLANDS.



TEMPORARY PAVEMENT
 -L- STA. 708+36.00 TO STA. 714+90.00
 -L- STA. 727+41.00 TO STA. 732+53.00
 -L- STA. 733+41.00 TO STA. 738+98.00
 -L- STA. 759+00.00 TO STA. 762+88.00
 -L- STA. 788+40.00 TO STA. 796+74.00
 -L- STA. 806+37.00 TO STA. 810+65.00
 -L- STA. 822+82.00 TO STA. 846+06.00

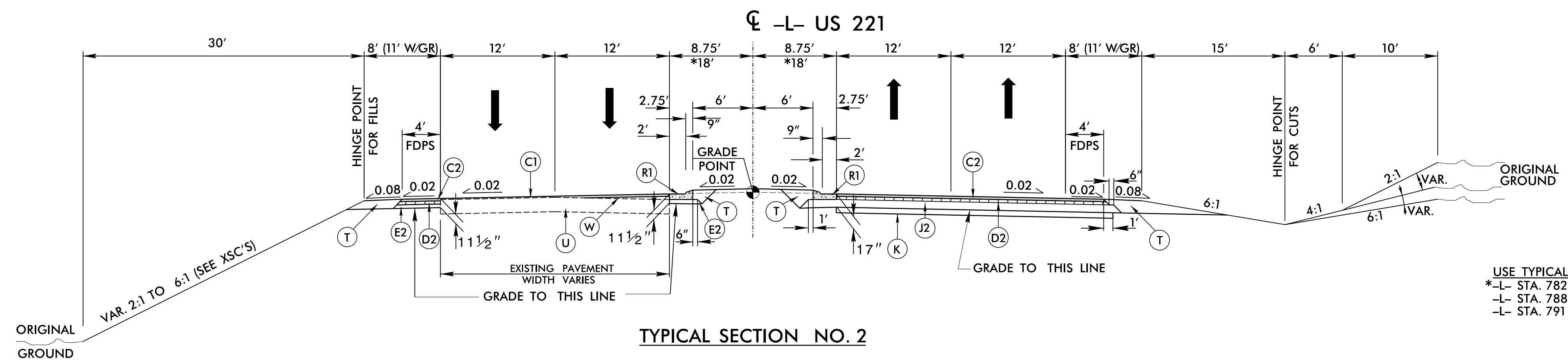


USE TYPICAL SECTION NO. 1
 *-L- STA. 668+25.00 TO STA. 677+50.00
 -L- STA. 677+50.00 TO STA. 678+50.00- TRANSITION MEDIAN
 -L- STA. 678+50.00 TO STA. 695+00.00
 -L- STA. 695+00.00 TO STA. 758+00.00- REVERSE TYPICAL
 -L- STA. 758+00.00 TO STA. 782+47.63

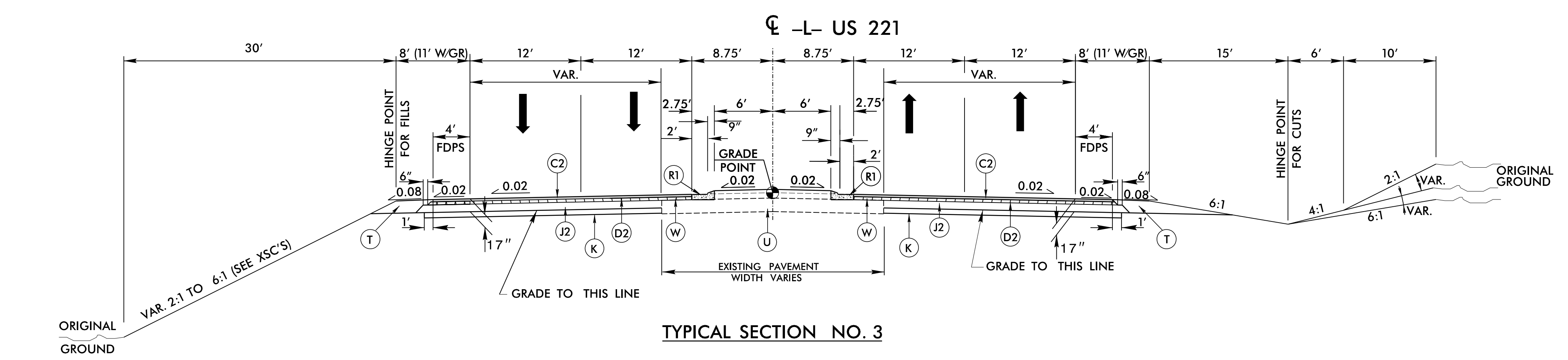


PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN	
C1	1 1/2" TYPE S9.5C
C2	3" TYPE S9.5C
D2	4" TYPE I19.5C
E2	4 1/2" TYPE B25.0C
J2	10" ABC
K	8" LIME OR 7" CEMENT
R1	2'-9" CURB & GUTTER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

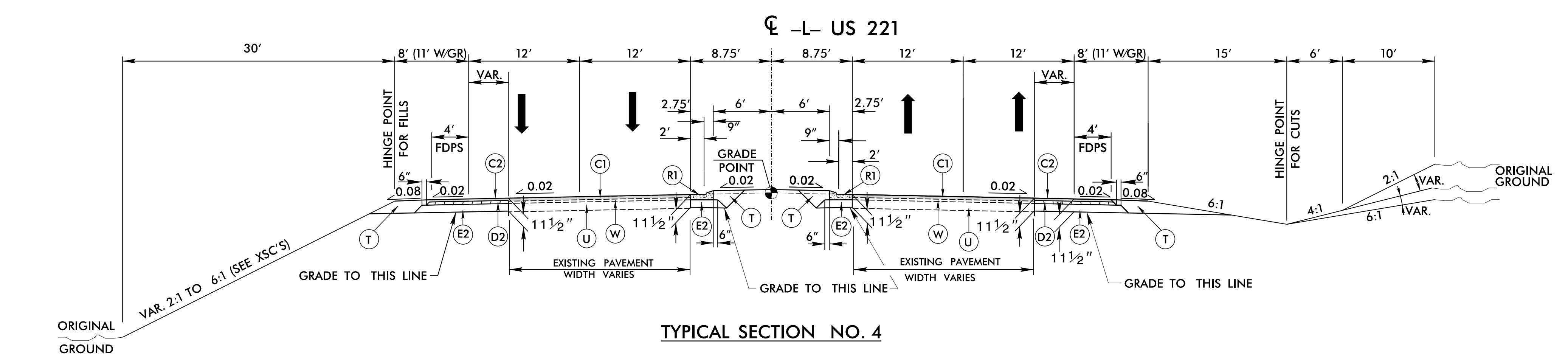
PROJECT REFERENCE NO. <i>R-2915E</i>	SHEET NO. <i>2A-2</i>
ROADWAY DESIGN ENGINEER <i>SCOTT D. BLEVINS</i> SEAL 016725 NORTH CAROLINA PROFESSIONAL ENGINEER DESIGNED BY <i>Scott D. Blevins</i> 09/17/2020	PAVEMENT DESIGN ENGINEER <i>GREGORY K. GOINS</i> SEAL 041709 NORTH CAROLINA PROFESSIONAL ENGINEER DESIGNED BY <i>Gregory K. Goins</i> 09/17/2020
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



USE TYPICAL SECTION NO. 2
 *-L- STA. 782+47.63 TO STA. 788+07.63- TRANSITION MEDIAN
 -L- STA. 788+07.63 TO STA. 791+00.00
 -L- STA. 791+00.00 TO STA. 804+00.00- REVERSE TYPICAL



USE TYPICAL SECTION NO. 3
 -L- STA. 804+00.00 TO STA. 843+50.00

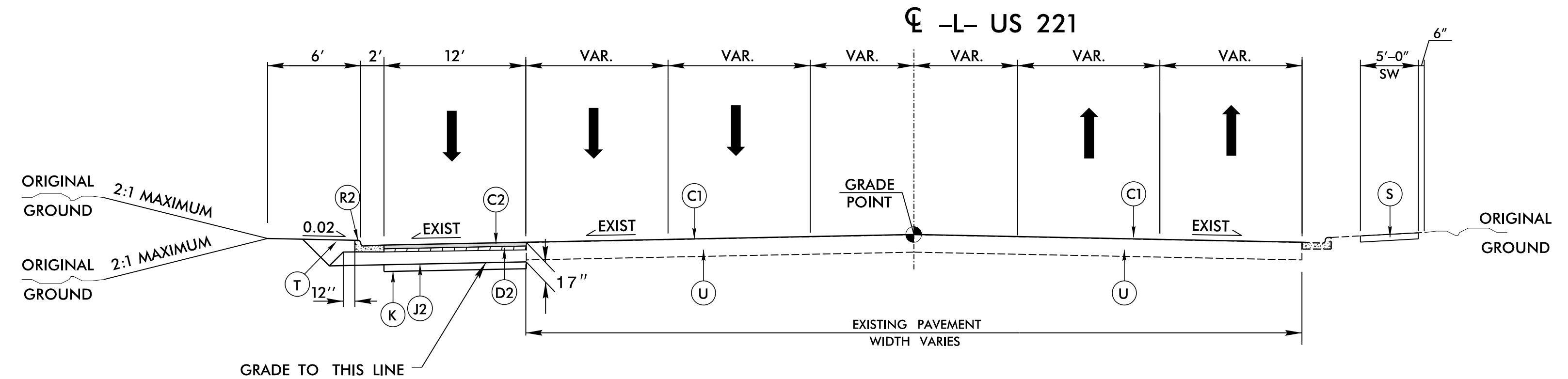


USE TYPICAL SECTION NO. 4
 -L- STA. 843+50.00 TO STA. 849+36.00

RK&K
 P: (919) 878-9560
 8601 Six Forks Road, Forum 1, Suite 700
 Raleigh, North Carolina 27615-3960
 NC License No. F-0112
 Engineers | Construction Managers | Planners | Scientists
 www.rkk.com
 Responsive People | Creative Solutions

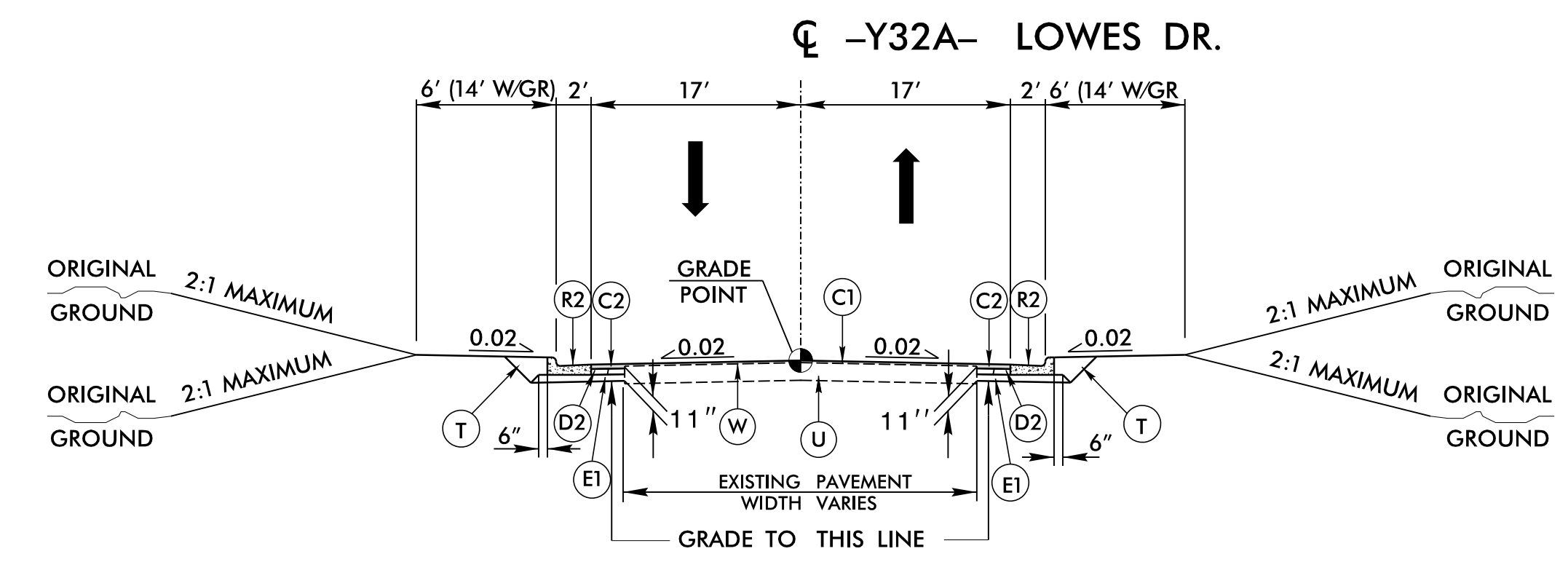
PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN	
C1	1½" TYPE S9.5C
C2	3" TYPE S9.5C
D1	2½" TYPE I19.5C
D2	4" TYPE I19.5C
E1	4" TYPE B25.0C
J2	10" ABC
K	8" LIME OR 7" CEMENT
R2	2'-6" CURB & GUTTER
S	SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

PROJECT REFERENCE NO. <i>R-2915E</i>	SHEET NO. <i>2A-3</i>
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 016725 SCOTT D. BLIVINS DESIGNED BY: 10/27/2020 Scott D. Blivins	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 041709 GREGORY K. GOINS DESIGNED BY: 10/27/2020 Gregory Goins
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



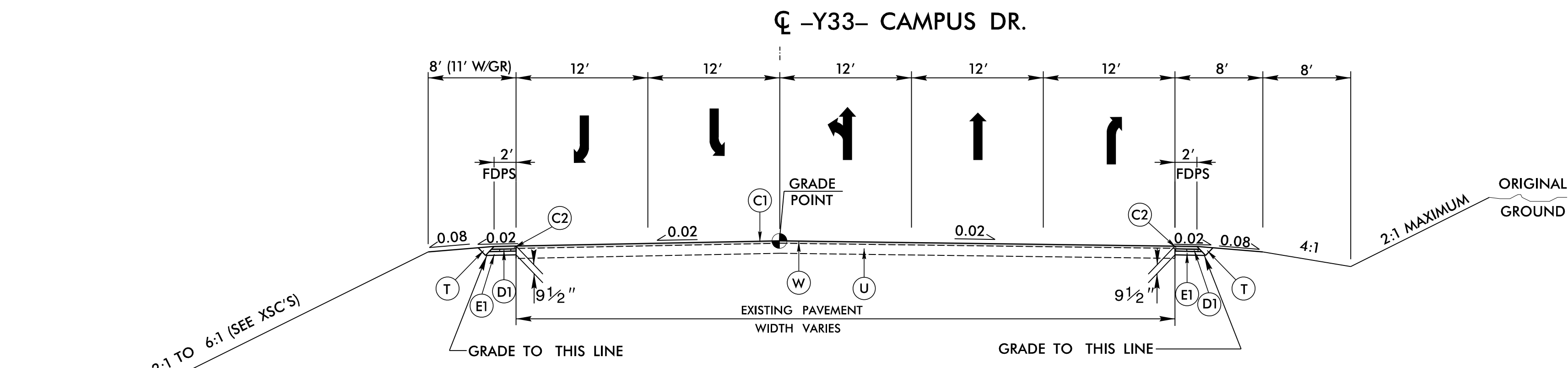
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
-L- STA. 849+36.00 TO STA. 855+00.00



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
-Y32A- STA. 10+54.01 TO STA. 11+90.00



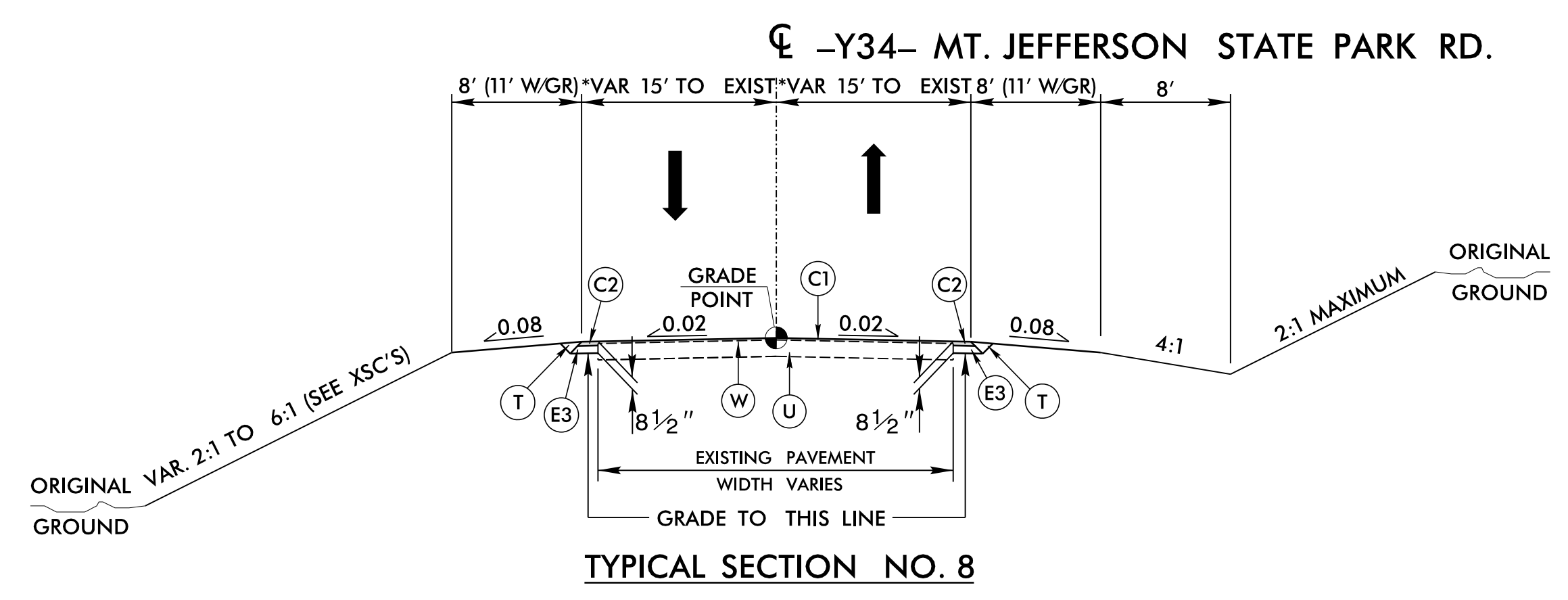
TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
-Y33- STA. 10+55.74 TO STA. 12+00.00

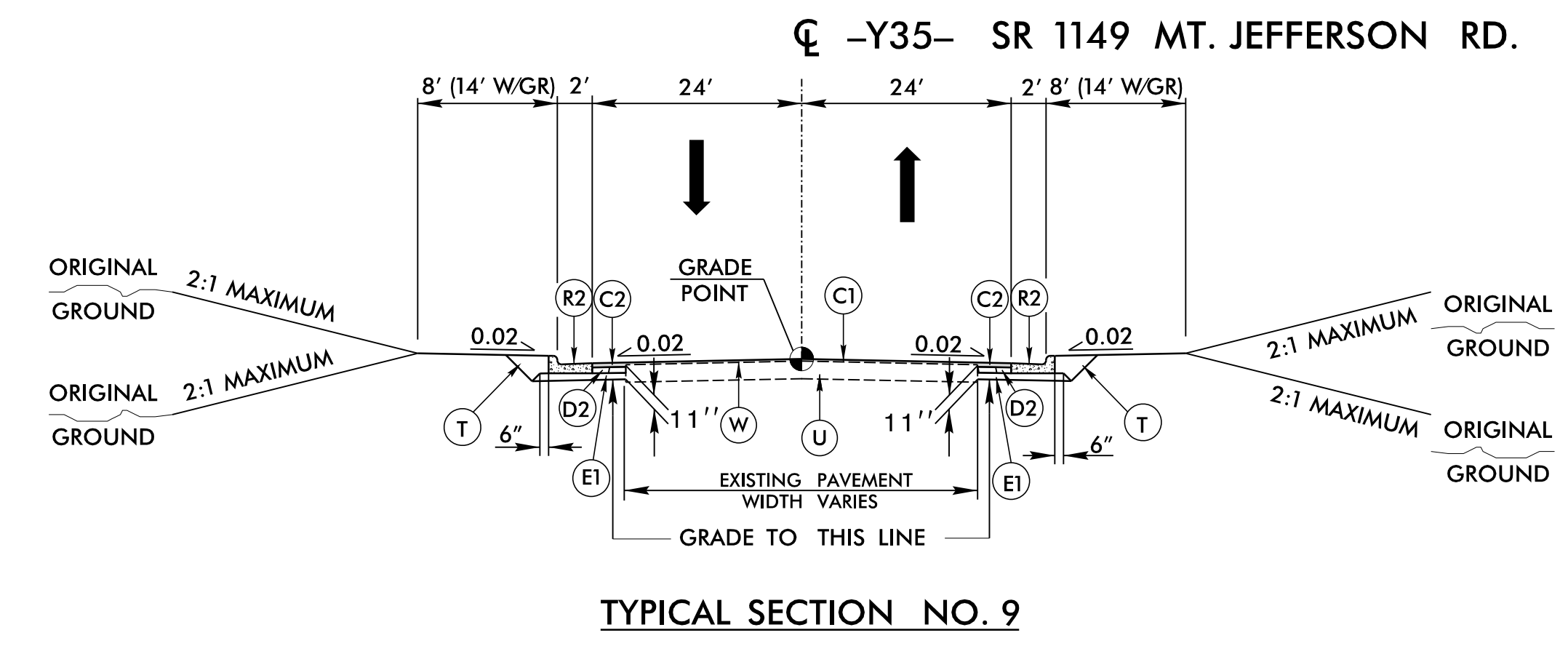
RK&K
 P: (919) 878-9560
 8601 Six Forks Road, Forum 1, Suite 700
 Raleigh, North Carolina 27615-3960
 NC License No. F-0112
 Engineers | Construction Managers | Planners | Scientists
 www.rkk.com
 Responsive People | Creative Solutions

PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN	
C1	1½" TYPE S9.5C
C2	3" TYPE S9.5C
D2	4" TYPE I19.5C
E1	4" TYPE B25.0C
E3	5½" TYPE B25.0C
R2	2'-6" CURB & GUTTER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

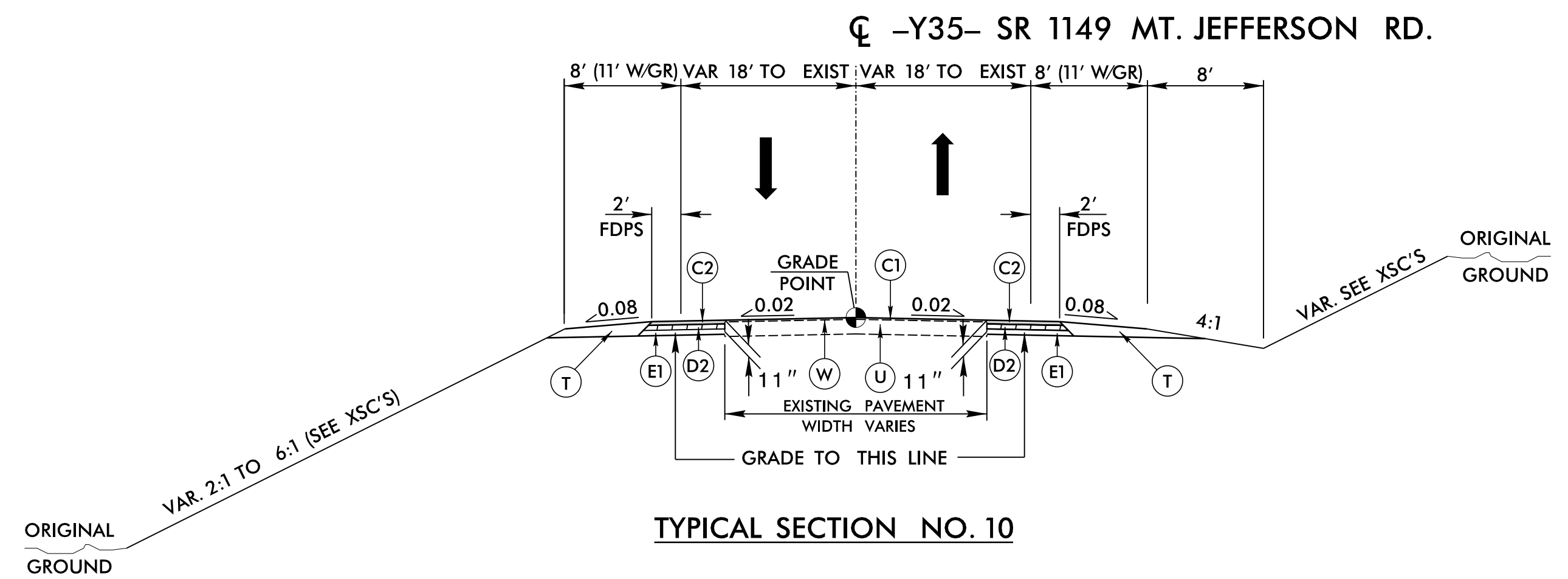
PROJECT REFERENCE NO. <i>R-2915E</i>	SHEET NO. <i>2A-4</i>
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 016725 SCOTT D. BLEVINS ENGINEER 01/31/2020	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 041709 GREGORY K. GOINS ENGINEER 01/31/2020
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



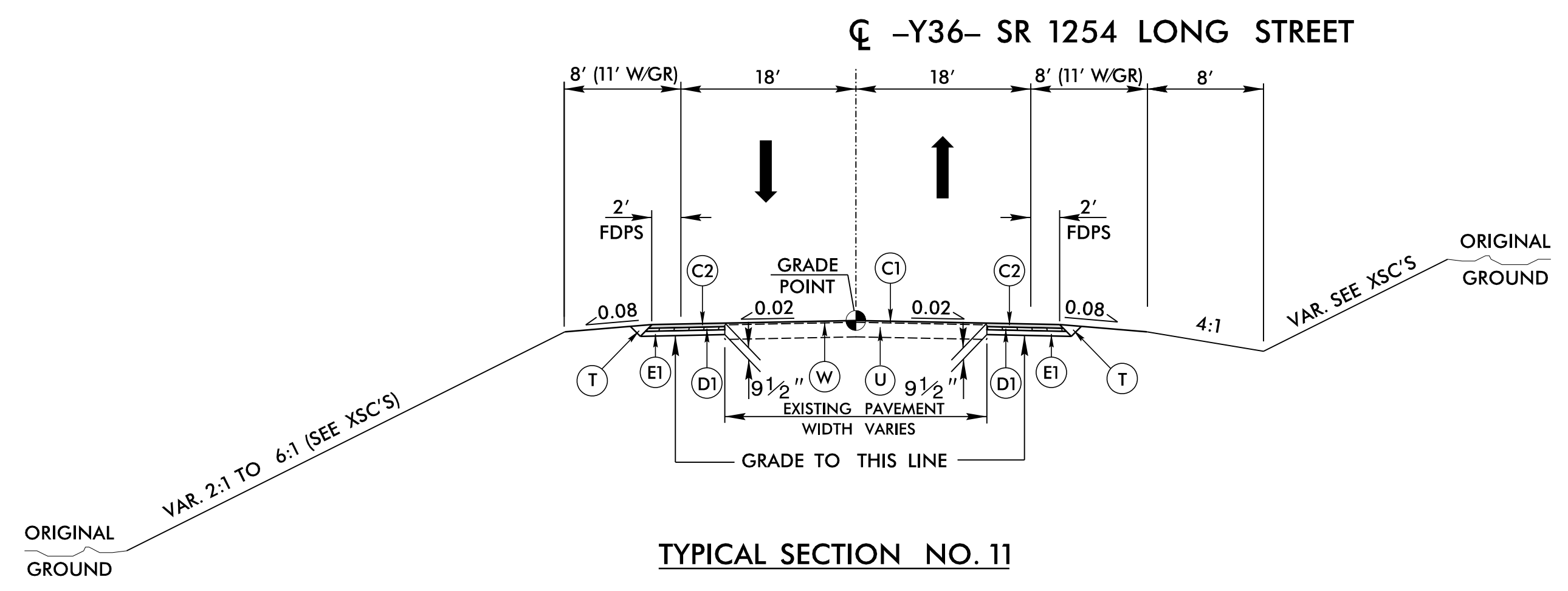
USE TYPICAL SECTION NO. 8
-Y34- STA. 10+56.30 TO STA. 12+25.00



USE TYPICAL SECTION NO. 9
-Y35- OVERLAY STA. 9+00.00 TO STA. 10+90.00
-Y35- STA. 10+90.00 TO STA. 15+62.82



USE TYPICAL SECTION NO. 10
-Y35- STA. 16+77.18 TO STA. 19+00.00



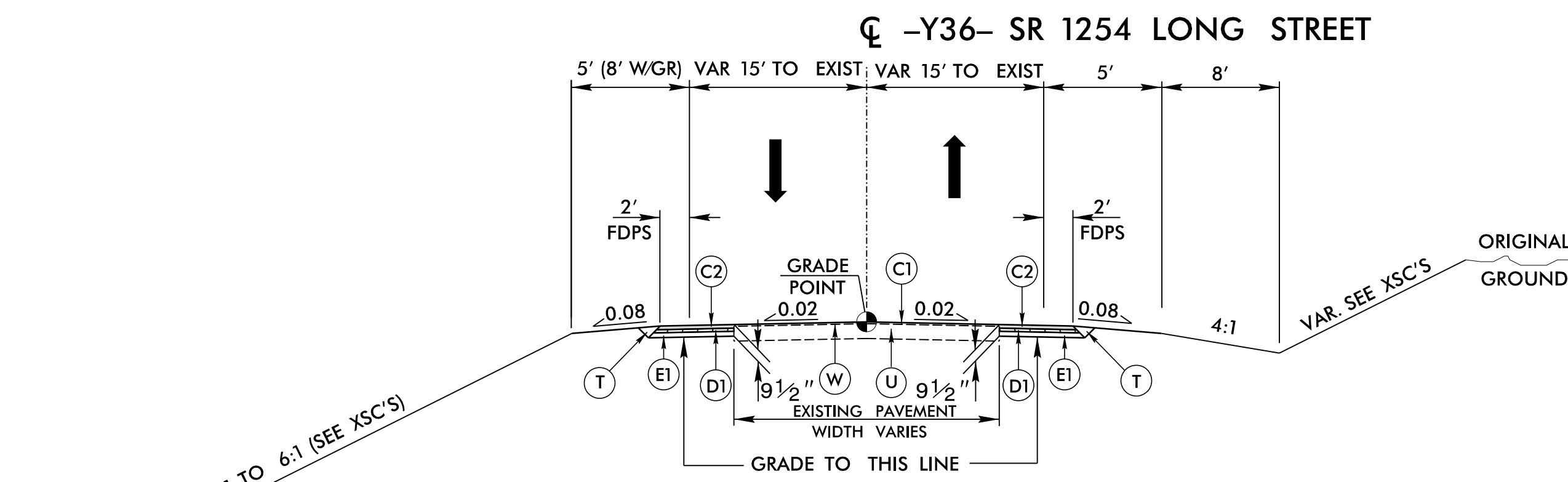
USE TYPICAL SECTION NO. 11
-Y36- STA. 11+90.00 TO STA. 14+34.96

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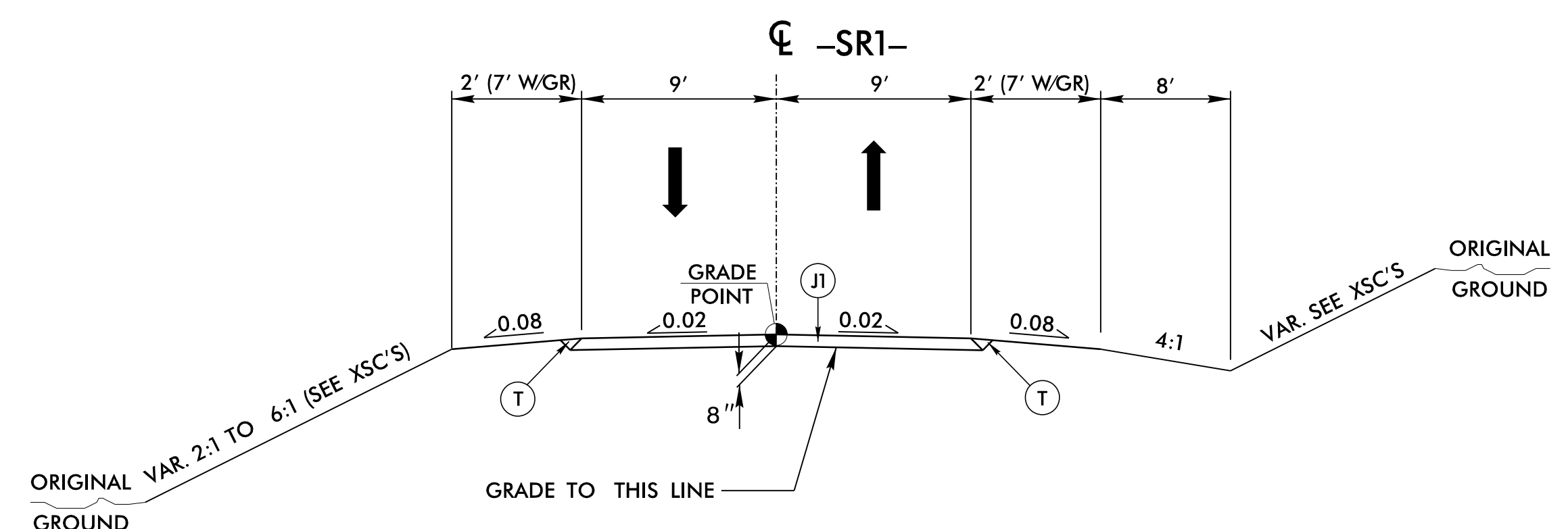
PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN	
C1	1½" TYPE S9.5C
C2	3" TYPE S9.5C
D1	2½" TYPE I19.5C
E1	4" TYPE B25.0C
J1	8" ABC
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

PROJECT REFERENCE NO. <i>R-2915E</i>	SHEET NO. <i>2A-5</i>
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 016725 SCOTT D. BLEVINS ENGINEER DocuSigned By: Scott D. Blevins 2020	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 041709 GREGORY K. GOINS ENGINEER DocuSigned By: Gregory K. Goins 2020
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



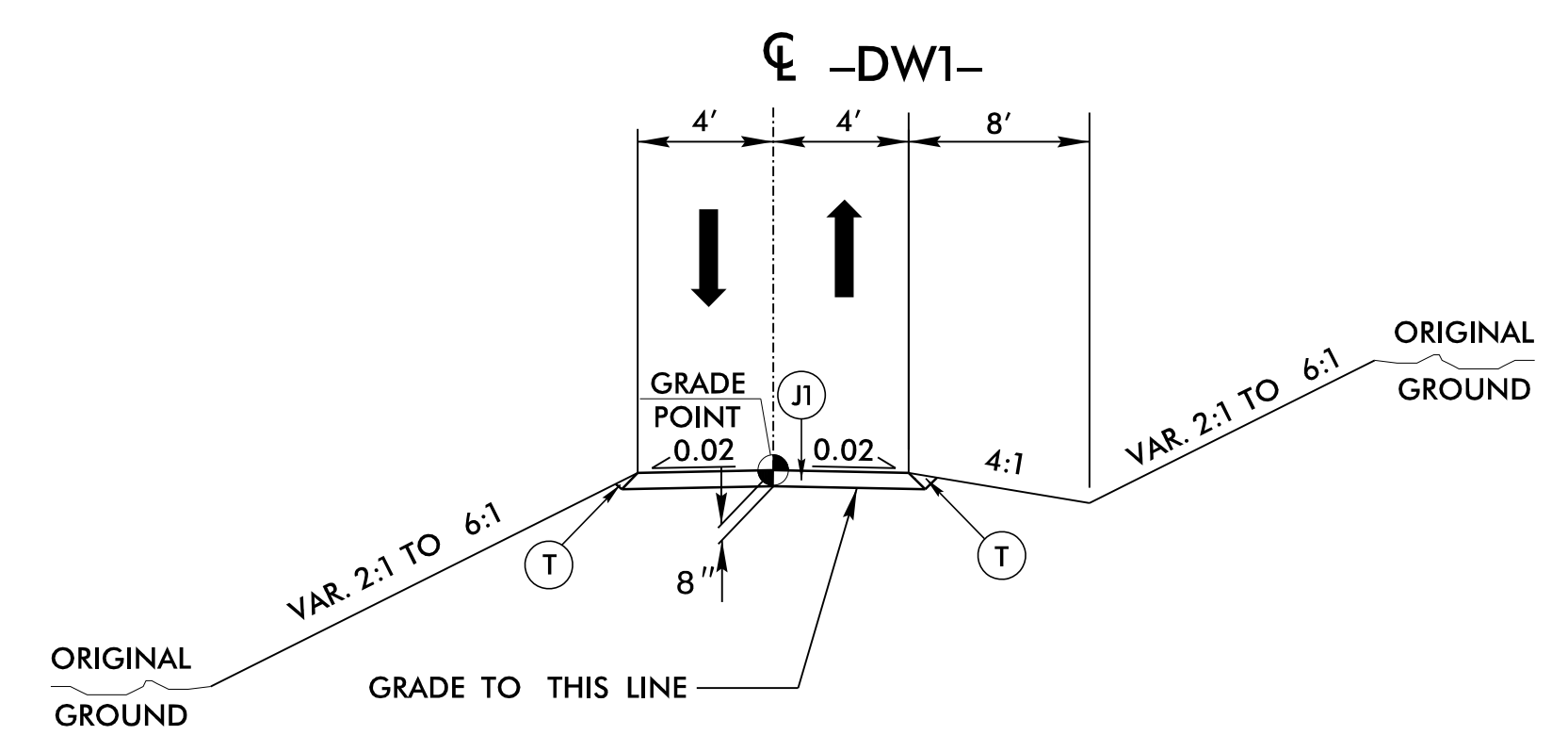
TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12
-Y36- STA. 15+14.93 TO STA. 17+50.00



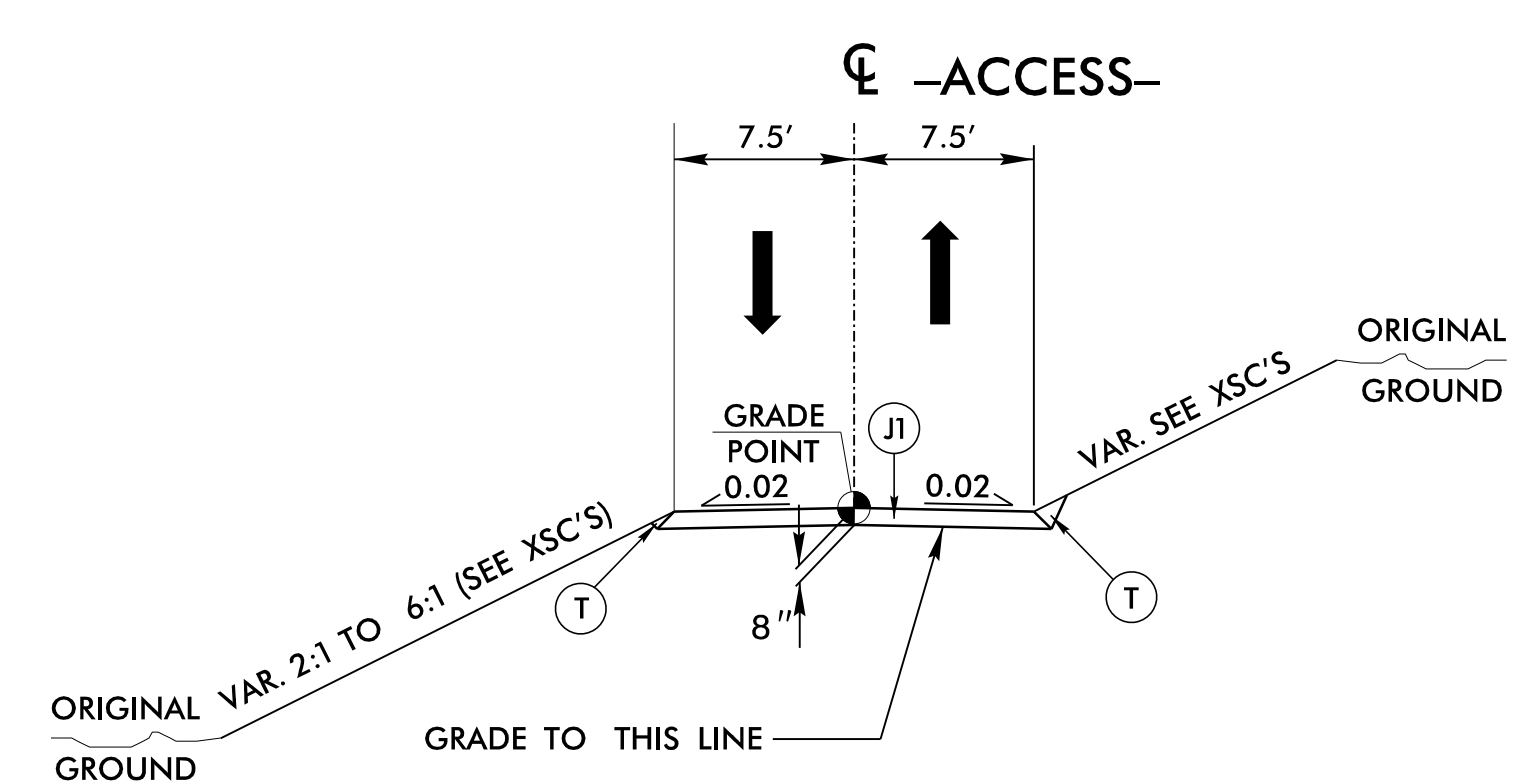
TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13
-SR1- STA. 10+00.00 TO STA. 26+03.61



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14
-DW1- STA. 10+00.00 TO STA. 10+70.73

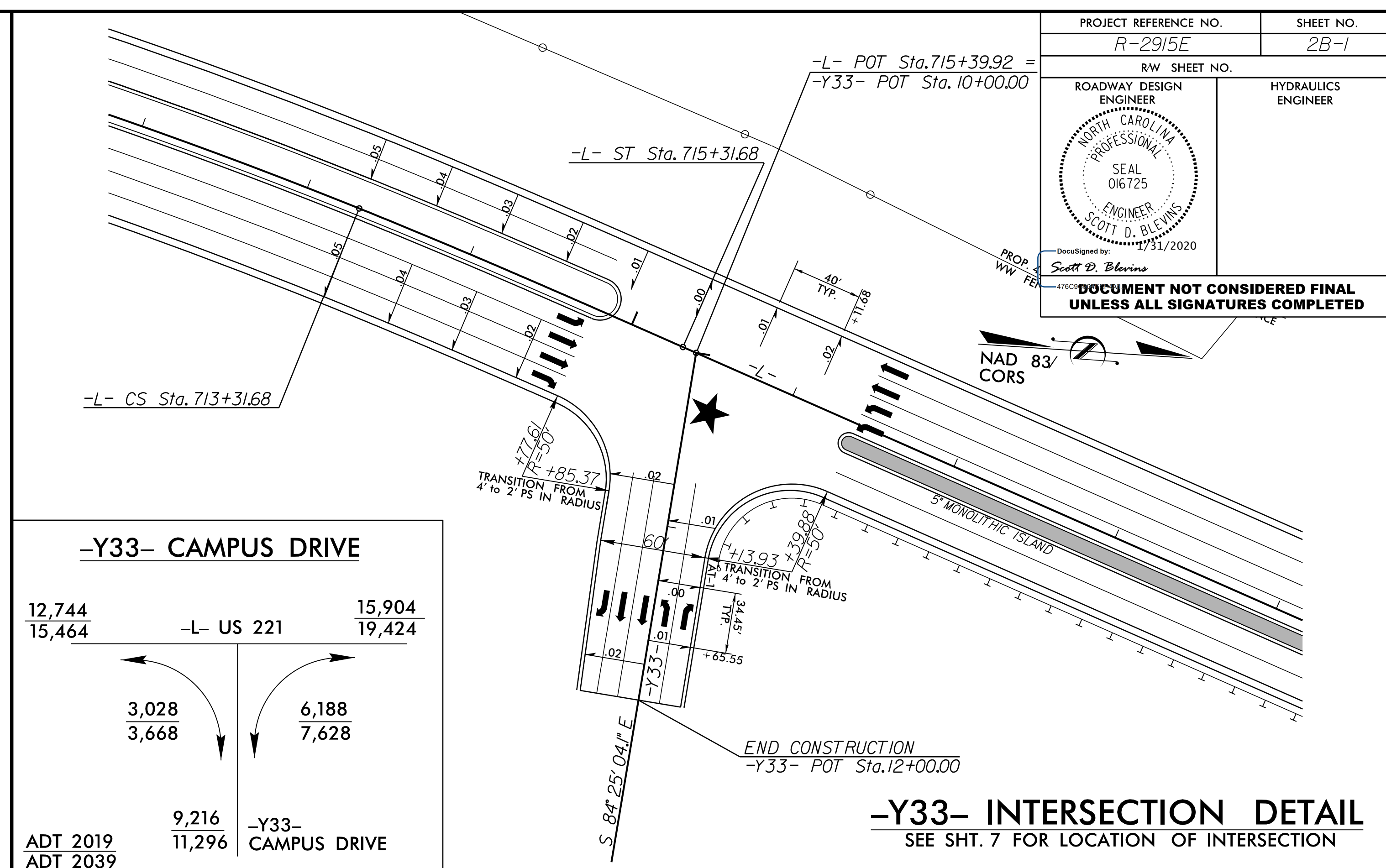
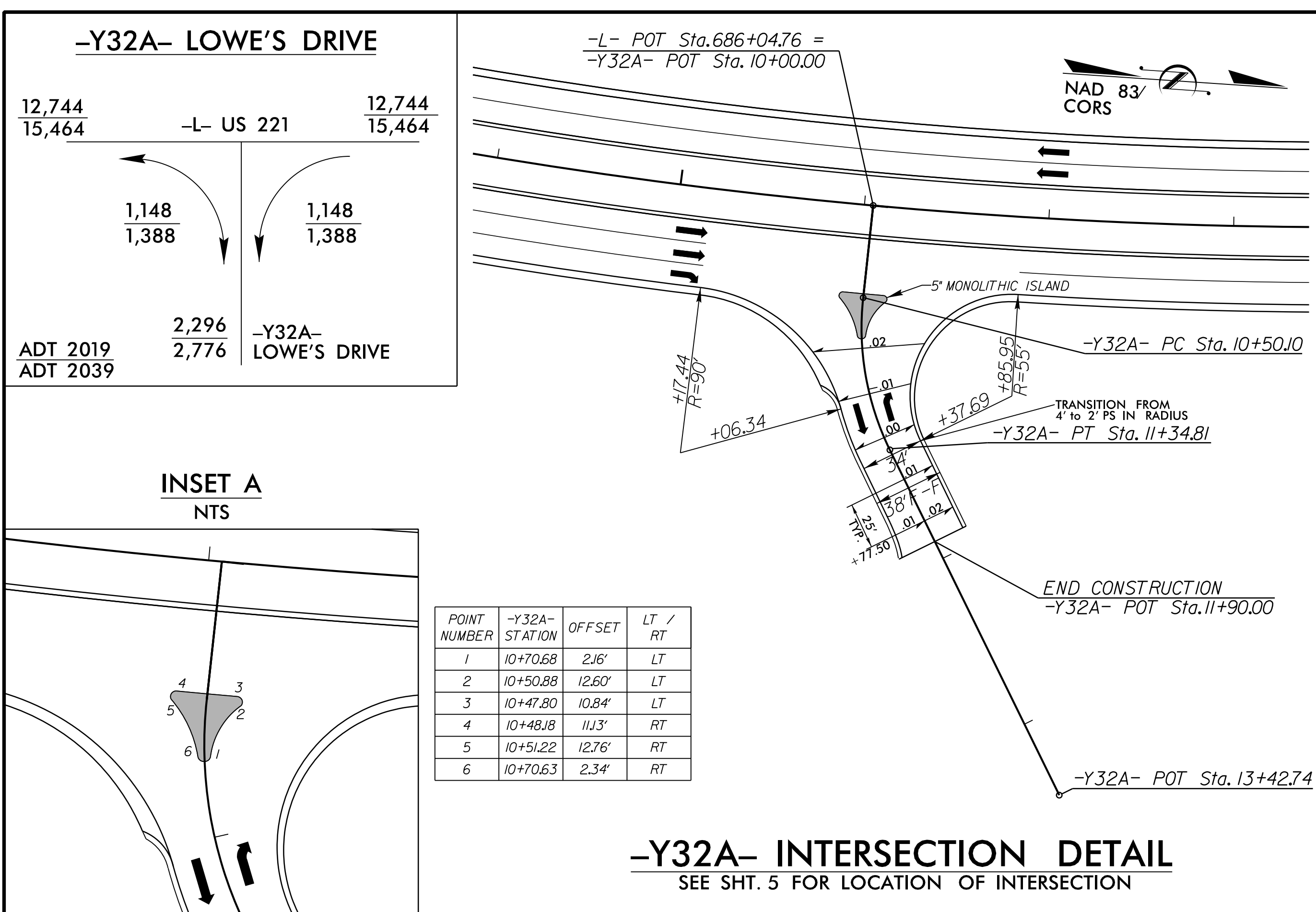


TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15
-ACCESS- STA. 10+42.00 TO STA. 12+29.73

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PROJECT REFERENCE NO. R-2915E
SHEET NO. 2B-1

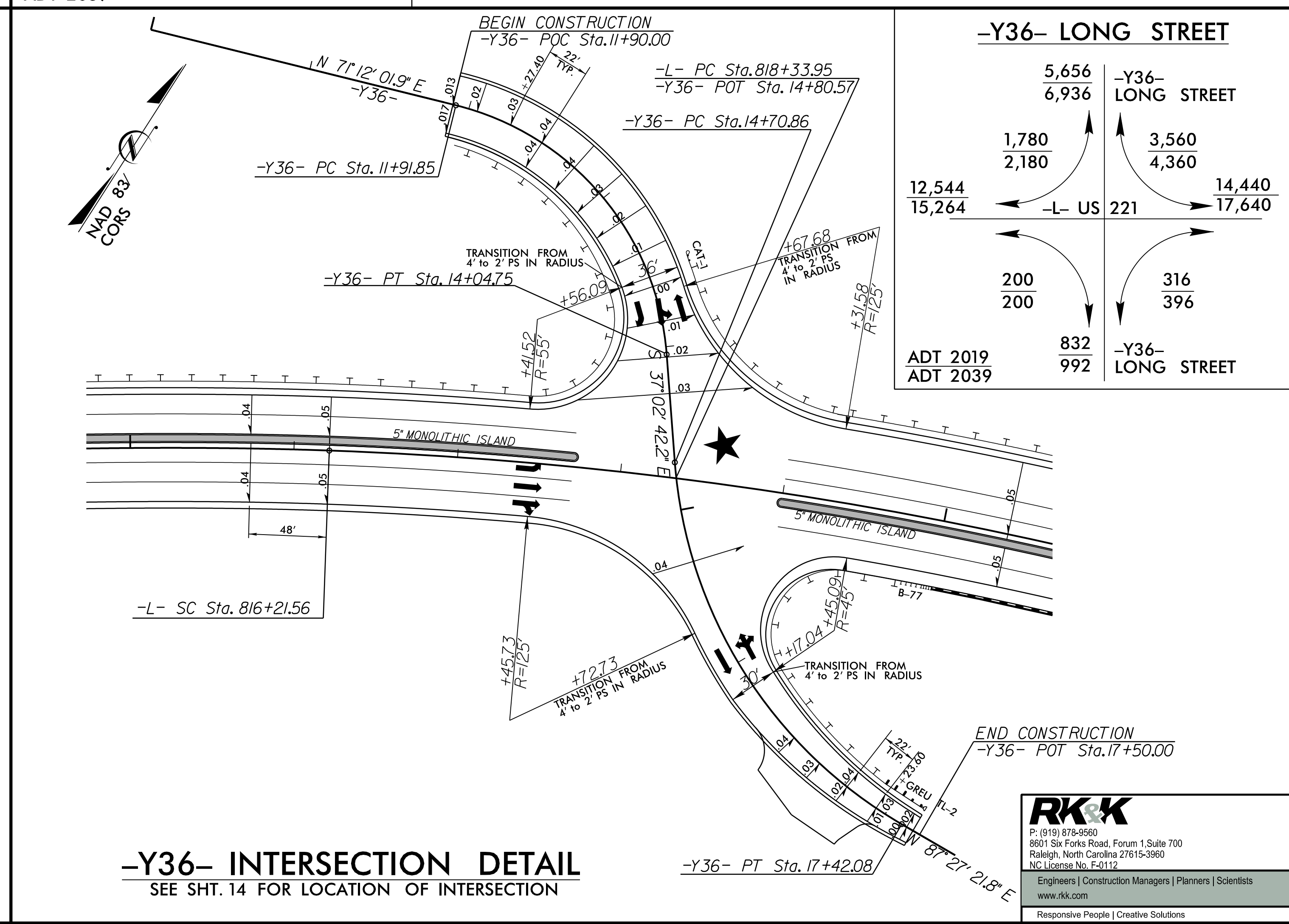
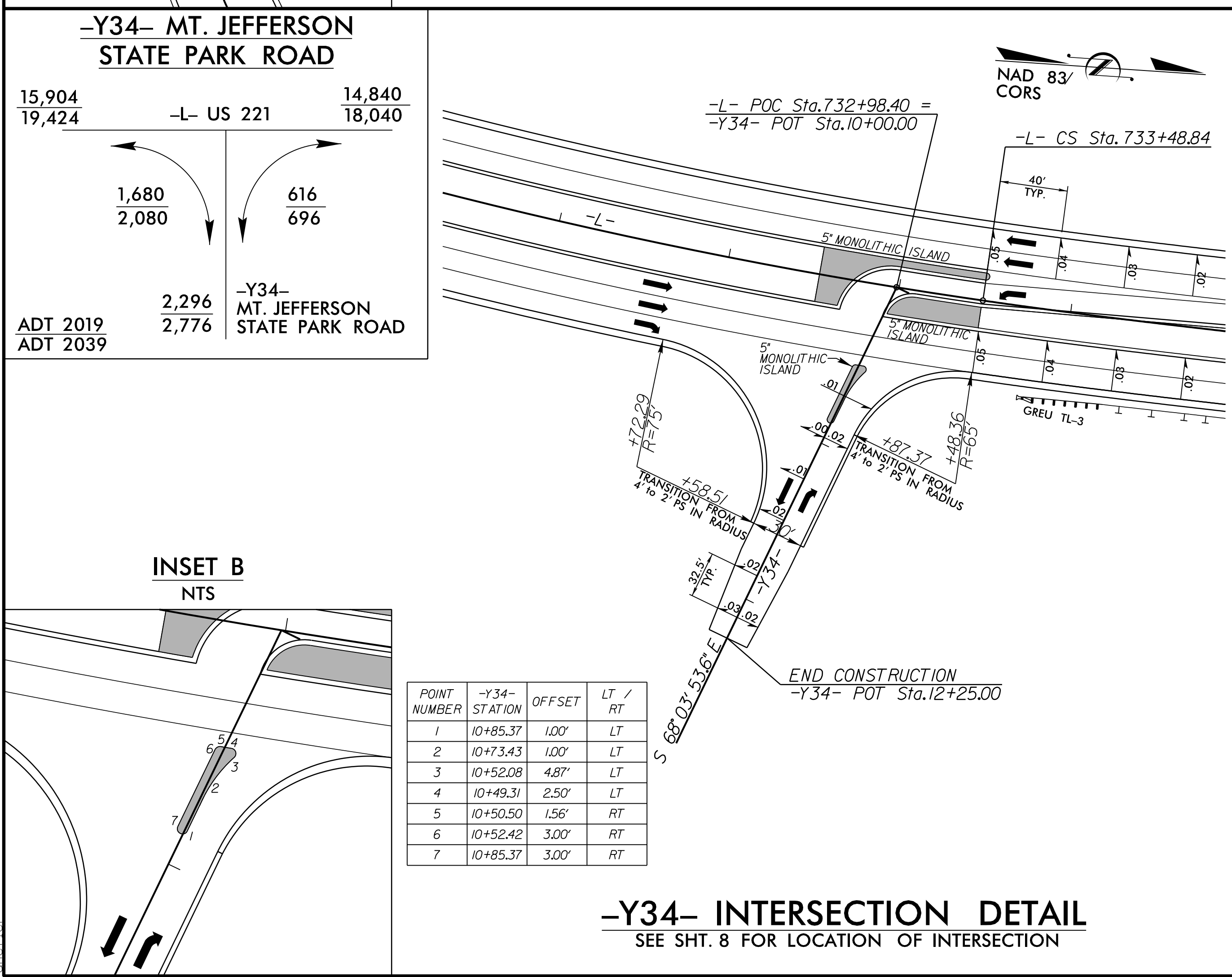
RW SHEET NO.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 016725
ENGINEER SCOTT D. BLEWIS
12/31/2020

HYDRAULICS ENGINEER

DocuSigned by: Scott D. Blewis
476038
12/31/2020

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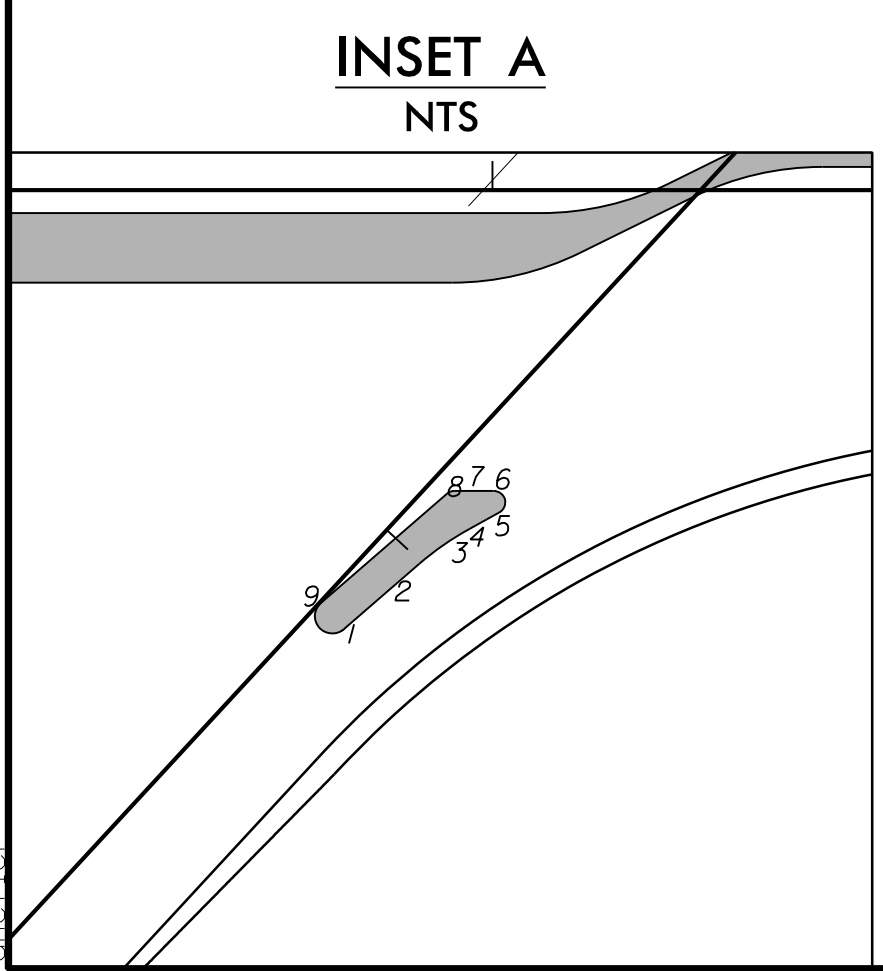
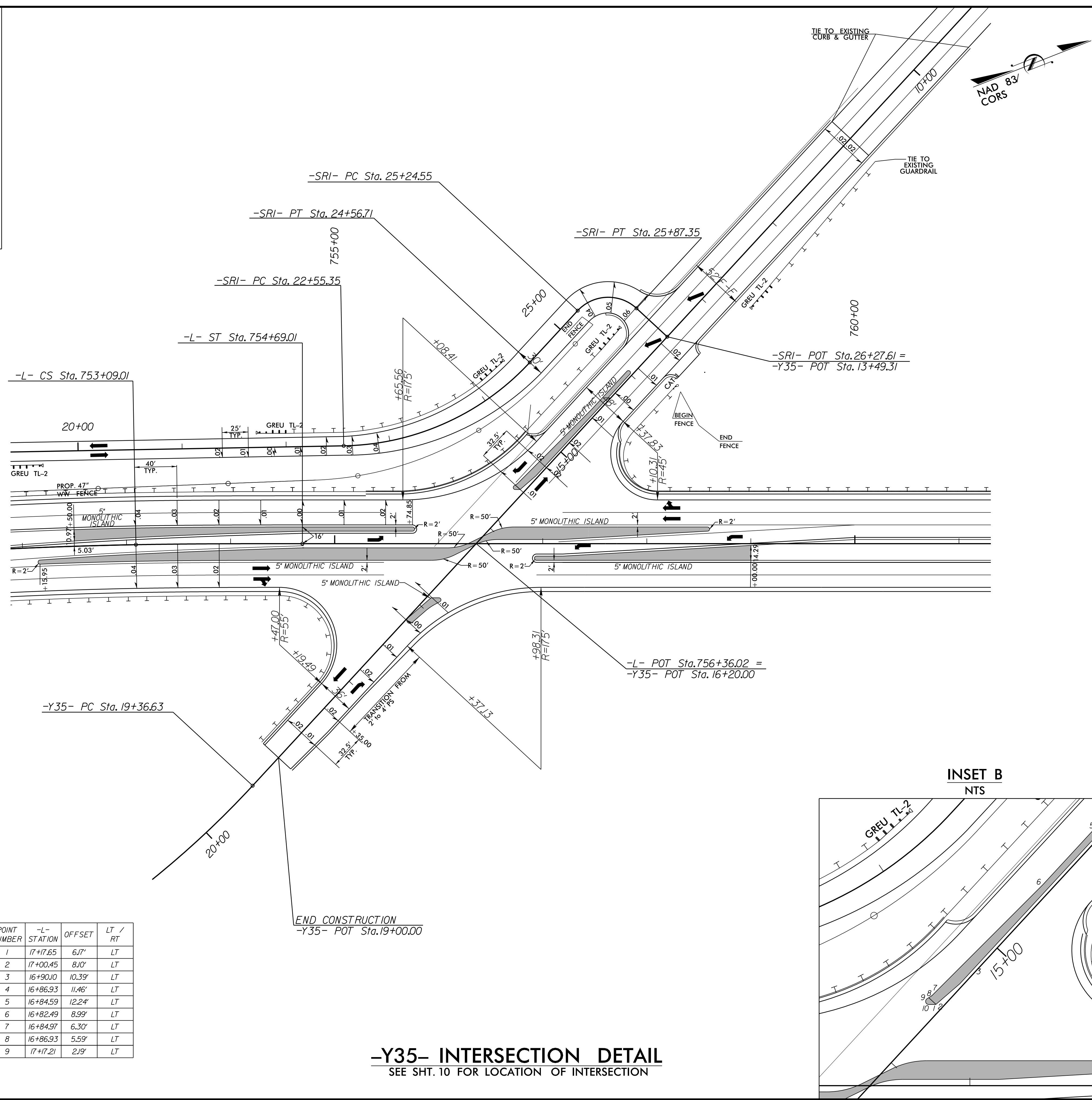
1/30/2020
R:\Roadway\Proj\N-2915E_Rdy_psh02B_1.dgn
sheth

8/17/19
1/30/2020
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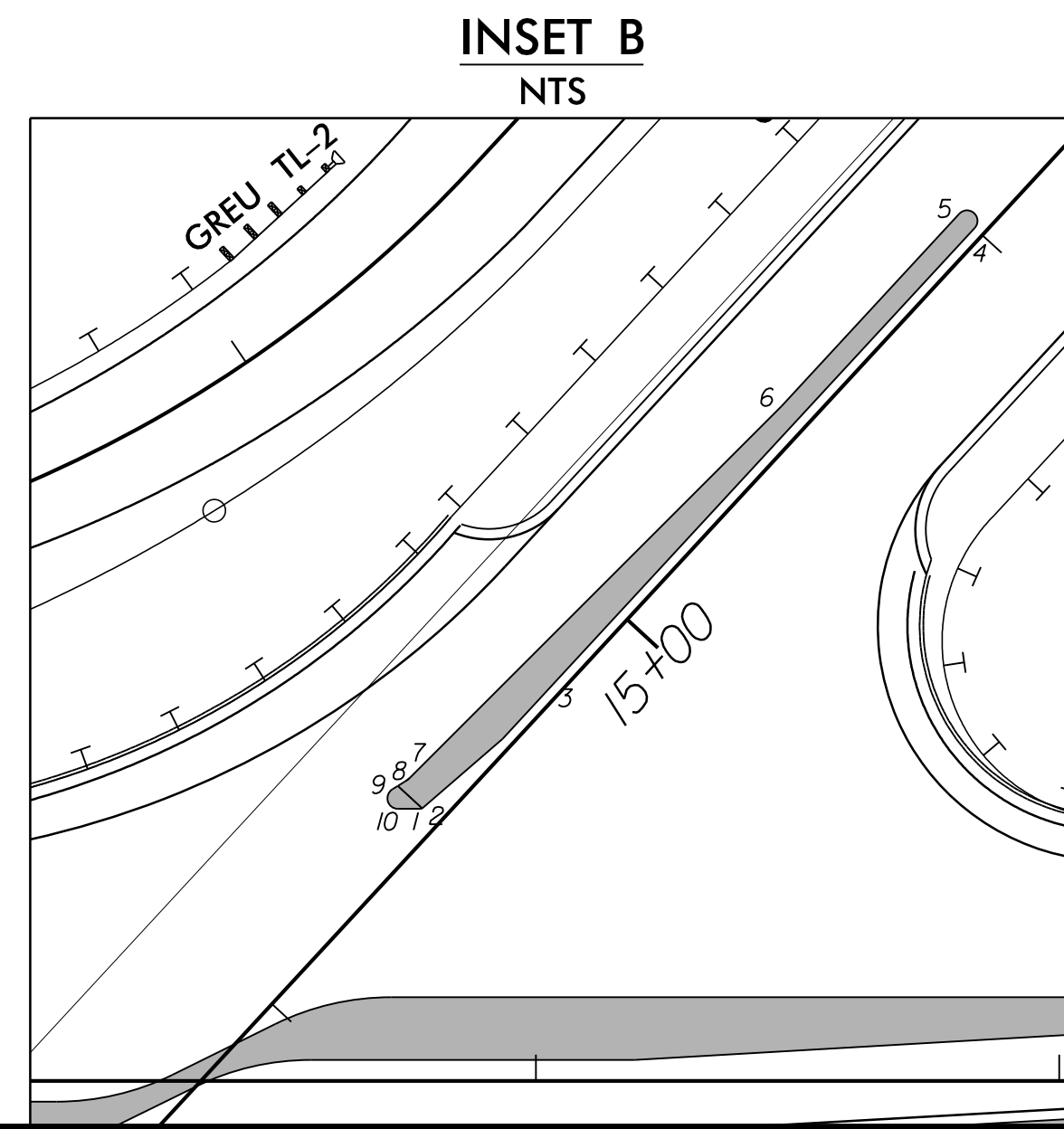
-Y35- MT. JEFFERSON ROAD

5,656 6,936	-Y35- MT. JEFFERSON RD.
4,492 5,452	316 396
14,840 18,040	-L- US 221
-100 -100	1,880 2,280
ADT 2019 ADT 2039	2,728 3,368
	-Y35- MT. JEFFERSON RD.

PROJECT REFERENCE NO. R-2915E	SHEET NO. 2B-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



POINT NUMBER	-L- STATION	OFFSET	LT / RT
1	17+17.65	6.7'	LT
2	17+00.45	8.10'	LT
3	16+90.10	10.39'	LT
4	16+86.93	11.46'	LT
5	16+84.59	12.24'	LT
6	16+82.49	8.99'	LT
7	16+84.97	6.30'	LT
8	16+86.93	5.59'	LT
9	17+17.21	2.19'	LT



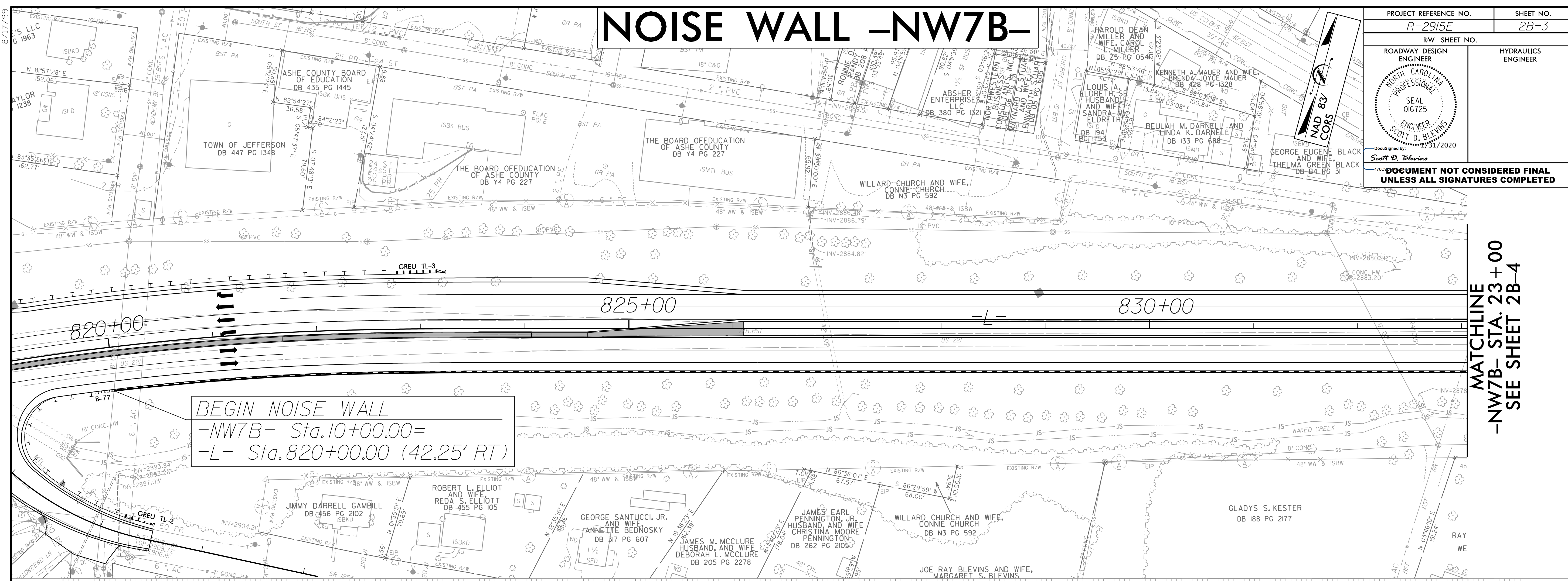
POINT NUMBER	-L- STATION	OFFSET	LT / RT
1	15+53.42	4.56'	RT
2	15+53.07	4.26'	RT
3	15+32.89	2.00'	RT
4	14+00.00	2.00'	RT
5	14+00.00	6.00'	RT
6	14+50.00	6.00'	RT
7	15+50.49	9.99'	RT
8	15+51.41	10.13'	RT
9	15+54.27	10.94'	RT
10	15+56.28	7.67'	RT

-Y35- INTERSECTION DETAIL
SEE SHIT. 10 FOR LOCATION OF INTERSECTION

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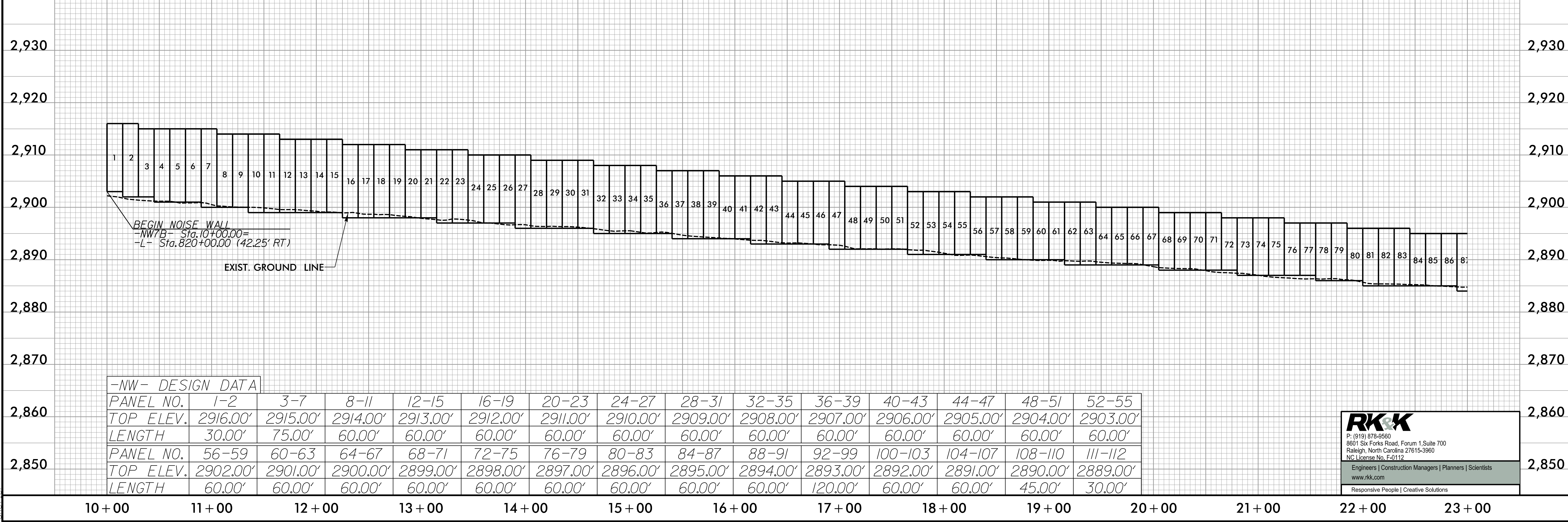
NOISE WALL -NW7B-

PROJECT REFERENCE NO. R-2915E	SHEET NO. 2B-3
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



BEGIN NOISE WALL
 -NW7B- Sta. 10+00.00=
 -L- Sta. 820+00.00 (42.25' RT)

MATCHLINE
 -NW7B- STA. 23+00
 SEE SHEET 2B-4

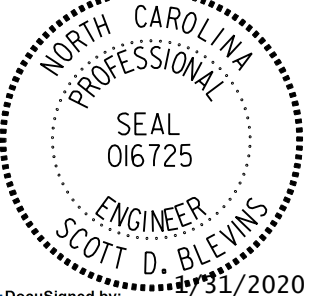


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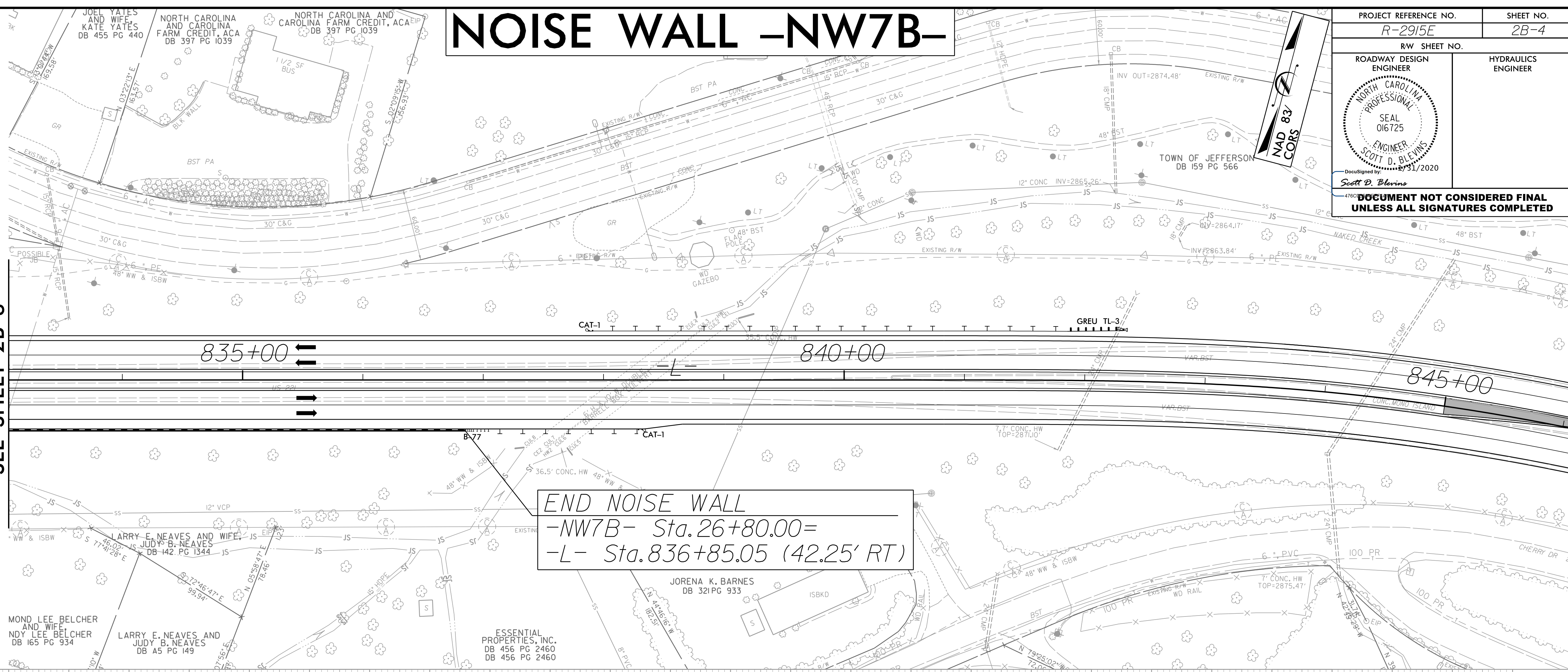
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8/17/19

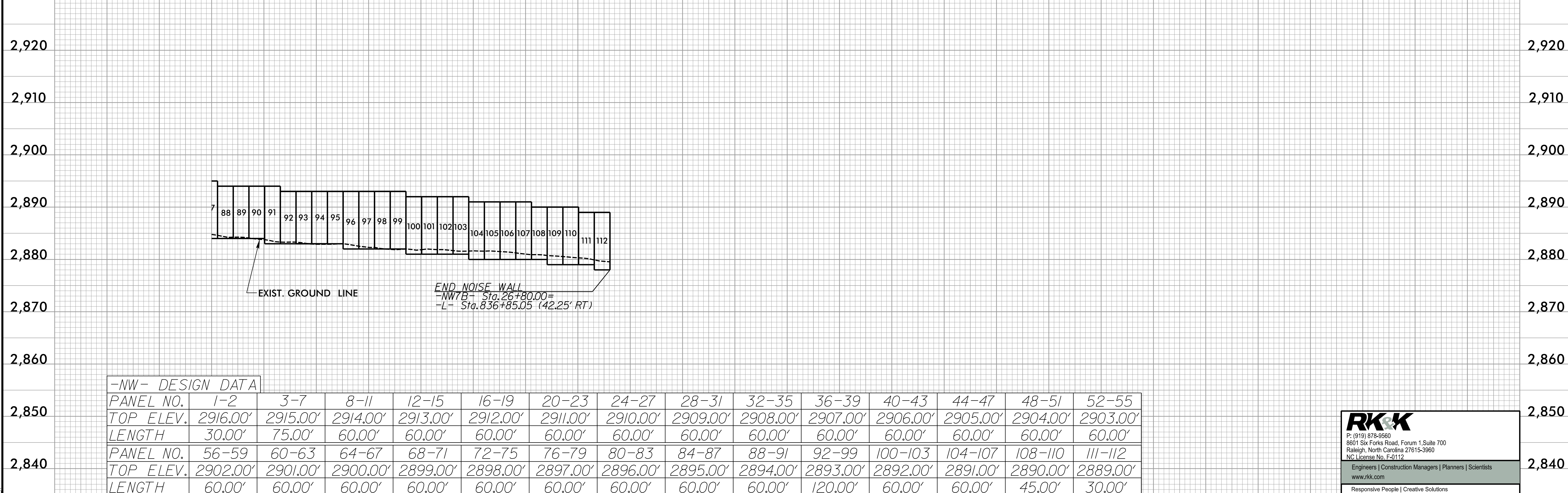
NOISE WALL -NW7B-

PROJECT REFERENCE NO. R-2915E	SHEET NO. 2B-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
Documented by: Scott D. Blewins 8/31/2020	
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**MATCHLINE
-NW7B- STA. 23+00
SEE SHEET 2B-3**



END NOISE WALL
 -NW7B- Sta. 26+80.00=
 -L- Sta. 836+85.05 (42.25' RT)



-NW- DESIGN DATA

PANEL NO.	1-2	3-7	8-11	12-15	16-19	20-23	24-27	28-31	32-35	36-39	40-43	44-47	48-51	52-55
TOP ELEV.	2916.00'	2915.00'	2914.00'	2913.00'	2912.00'	2911.00'	2910.00'	2909.00'	2908.00'	2907.00'	2906.00'	2905.00'	2904.00'	2903.00'
LENGTH	30.00'	75.00'	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'
PANEL NO.	56-59	60-63	64-67	68-71	72-75	76-79	80-83	84-87	88-91	92-99	100-103	104-107	108-110	111-112
TOP ELEV.	2902.00'	2901.00'	2900.00'	2899.00'	2898.00'	2897.00'	2896.00'	2895.00'	2894.00'	2893.00'	2892.00'	2891.00'	2890.00'	2889.00'
LENGTH	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'	60.00'	120.00'	60.00'	60.00'	45.00'	30.00'
	23+00	24+00	25+00	26+00	27+00									

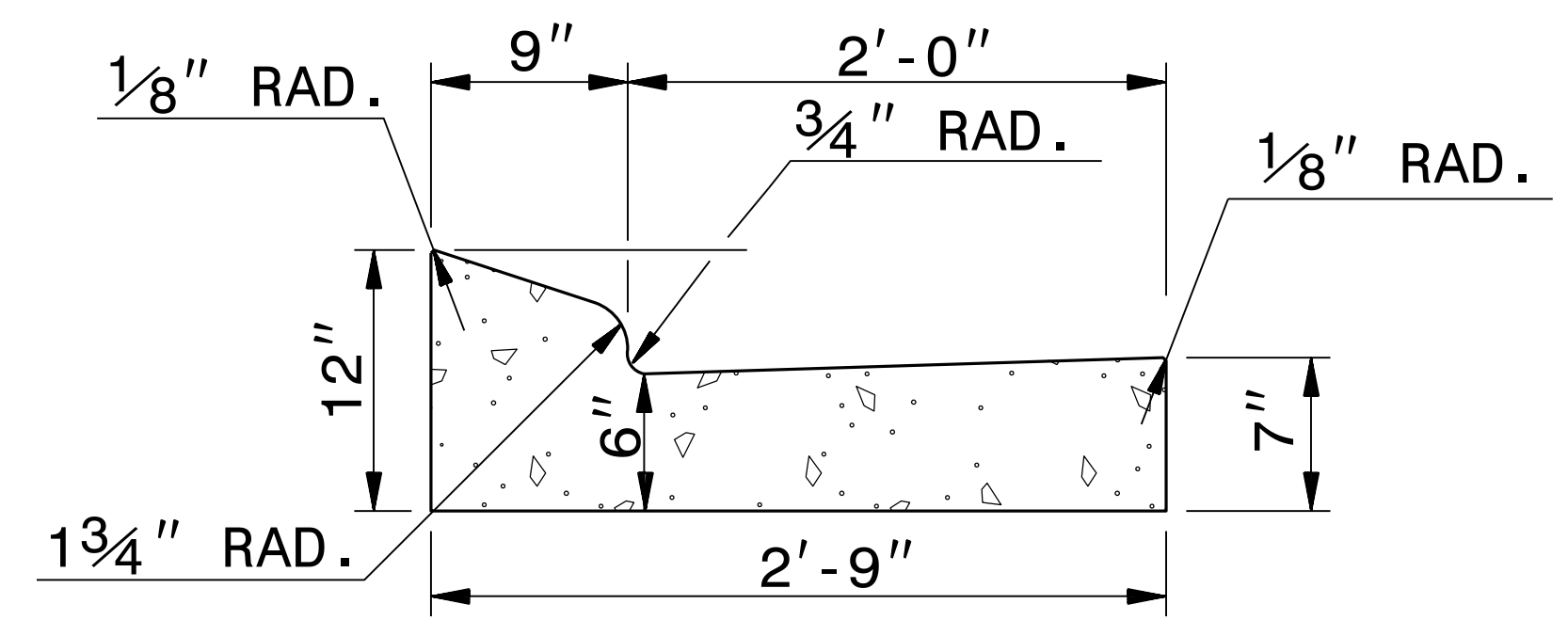
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 8/30/2020
 R-2915E

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

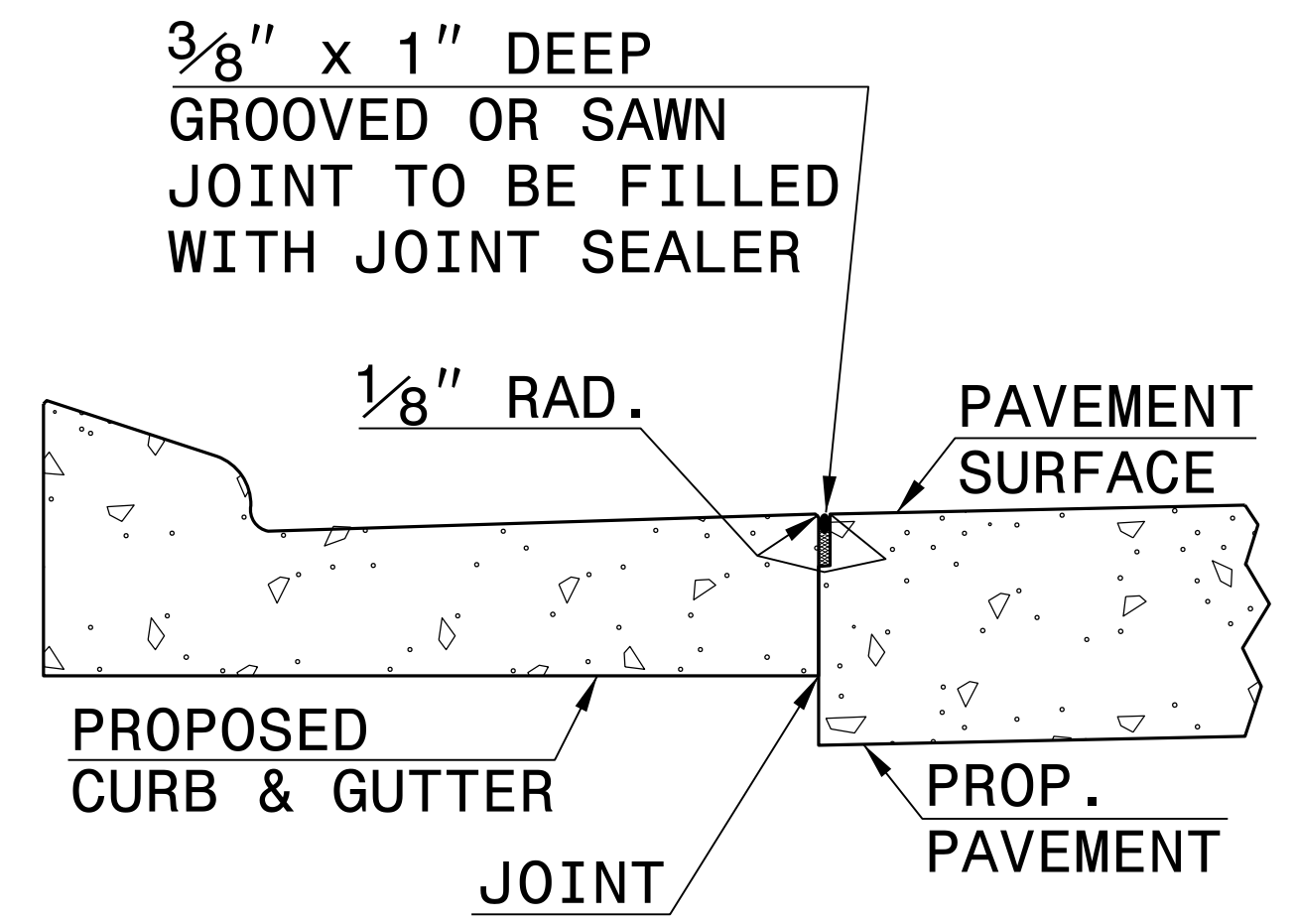
ENGLISH DETAIL DRAWING FOR 2'-9" CONCRETE CURB & GUTTER

- GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
 - JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
 - CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. MAKE NON-TEMPLATE FORMED JOINTS A MIN. OF 1 1/2" DEEP.
 - FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
 - SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.
 - SEE RDWY. STD. DWG. NO. 846.01, SHEET 2 OF 3 FOR PLACEMENT IN SUPERELEVATIONS. (USE 2'-6" CURB AND GUTTER RATES)

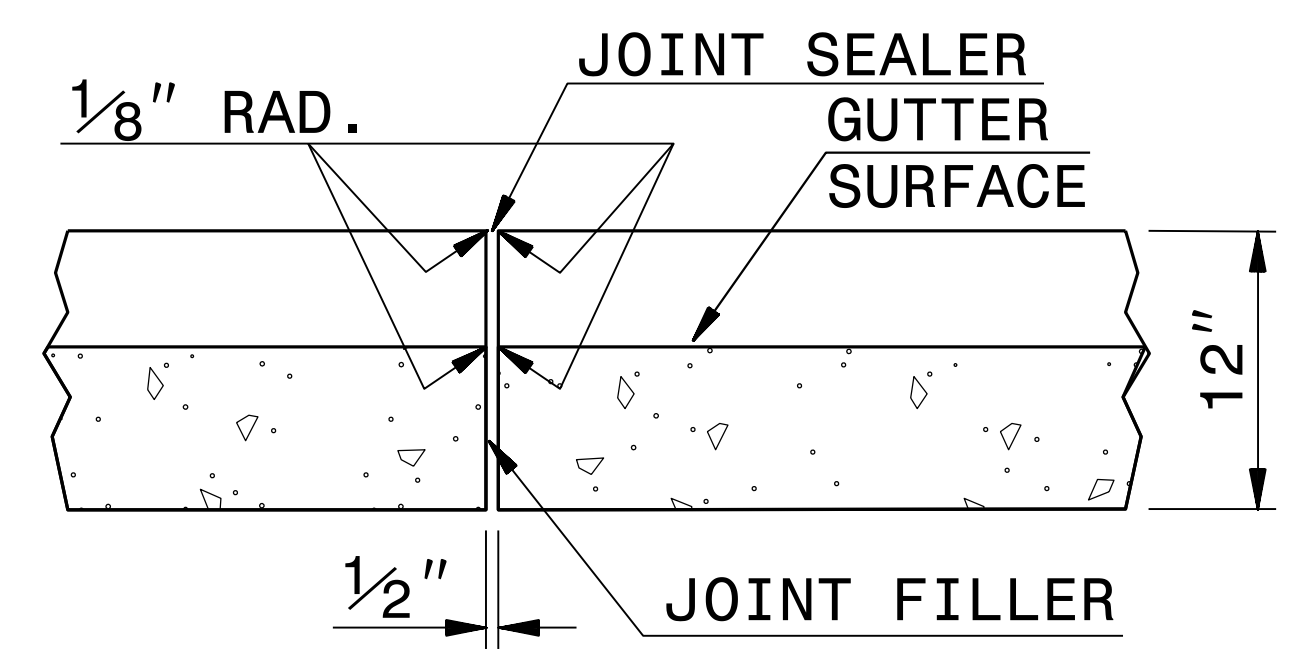


2'-9" CURB AND GUTTER

SECTION VIEW OF CURB AND GUTTER



LONGITUDINAL JOINT



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

SECTION VIEW OF JOINTS

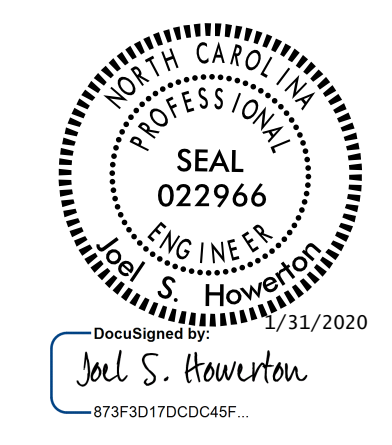
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR 2'-9" CONCRETE CURB & GUTTER

SHEET 1 OF 1 846D01

SHEET 1 OF 1 846D01

J:\AUG-2017\1146 S:\Contracts\Standards\Stand\stand\c&g2'-9.dgn

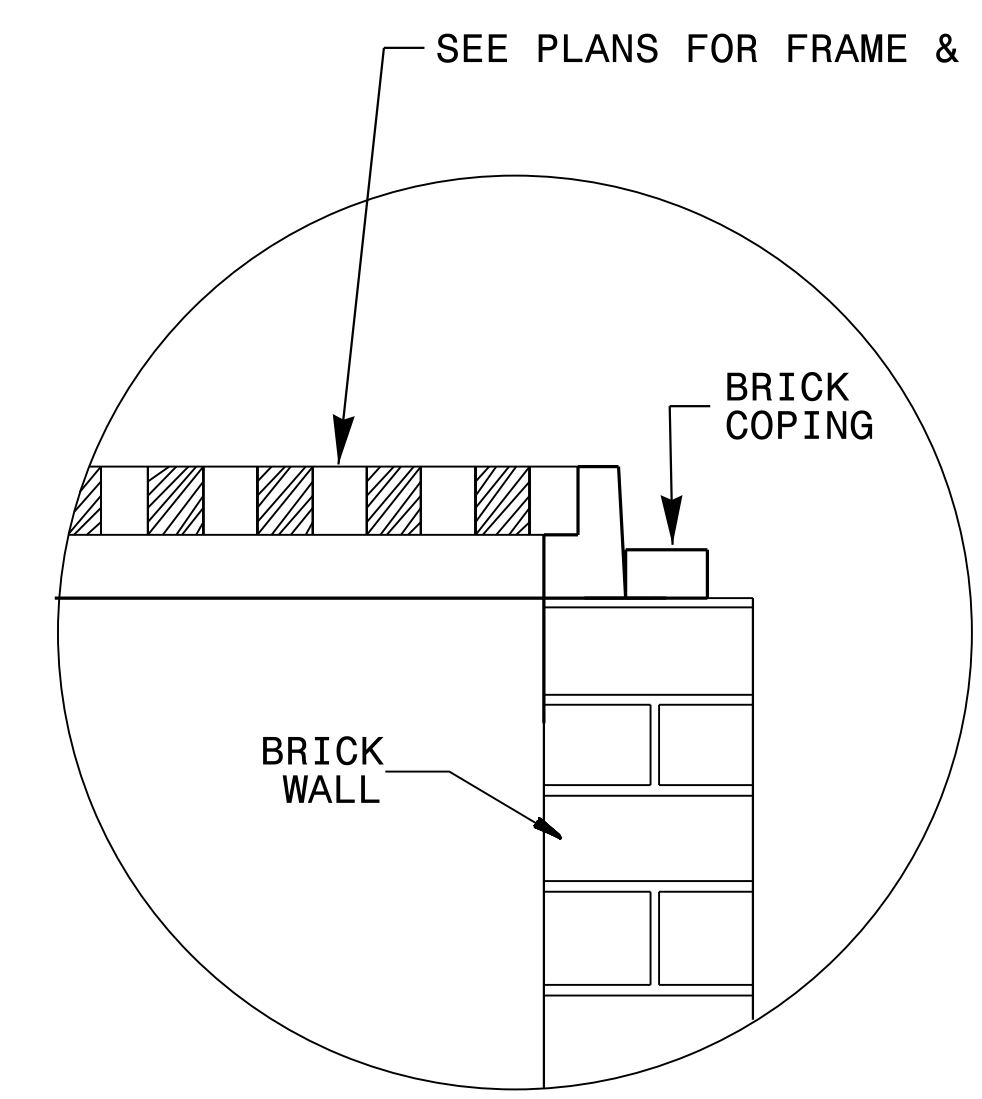


CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

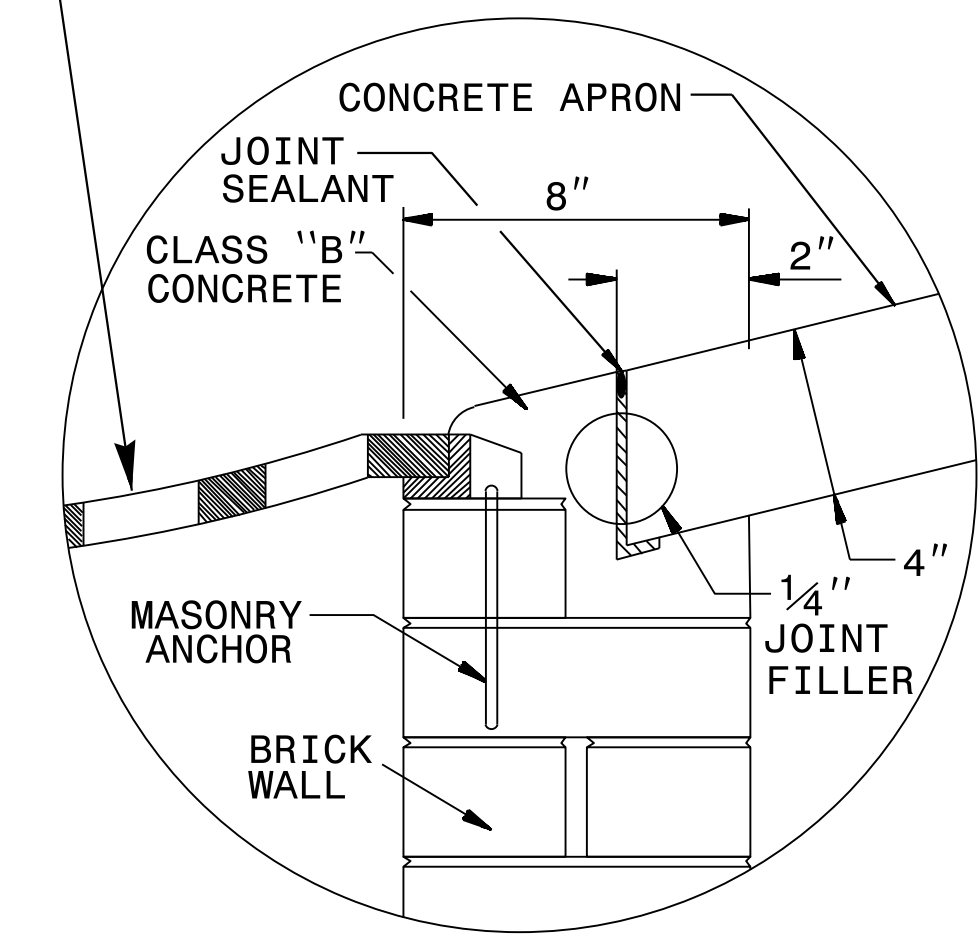
SEE PLATE FOR TITLE

ORIGINAL BY: STD. 846.01 DATE: _____
 MODIFIED BY: E.E. WARD DATE: 8-15-00
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: /usr/details/stand/c&g2'-9.dgn

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



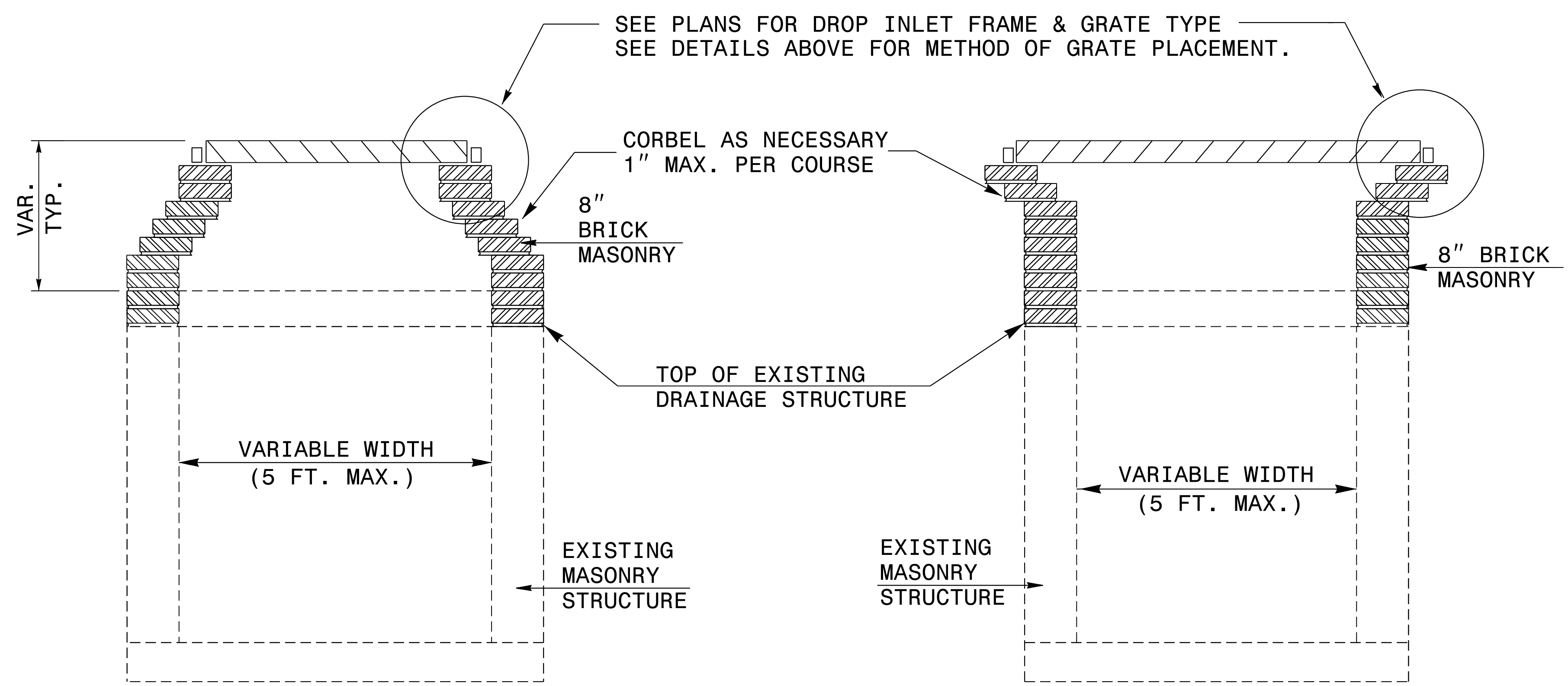
GRATE PLACEMENT DETAIL
FOR DROP INLETS



GRATE PLACEMENT DETAIL
FOR GRATED DROP INLETS

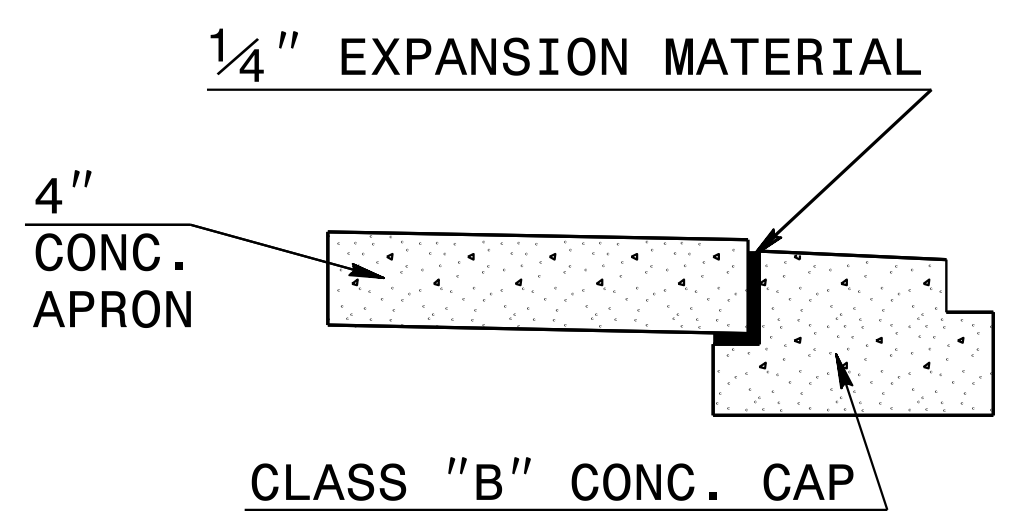
GENERAL NOTES:

- CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.
- USE CLASS B CONCRETE.
- THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.
- JUMBO CONCRETE BRICK WILL BE PERMITTED. 4" CONCRETE BRICK OR 8" SOLID CONCRETE BLOCK ARE REQUIRED FOR DRAINAGE STRUCTURE.
- INCLUDE 18" CONCRETE APRON IN UNIT PRICE BID PER EACH, CONVERT EXISTING CATCH BASIN TO DROP INLET.
- SPECIAL DESIGN IS REQUIRED FOR USE UNDER PAVEMENT.
- CONFIRM DIMENSIONS ON EACH INDIVIDUAL FRAME & GRATE PROPOSAL.
- SEE STD. DRAWING 840.25 FOR MASONRY ANCHORAGE.

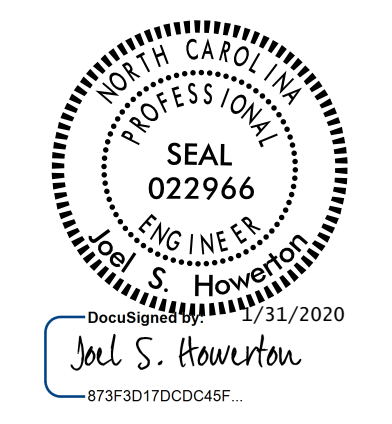


TYPICAL SECTION

TYPICAL SECTION



EXPANSION JOINT DETAIL



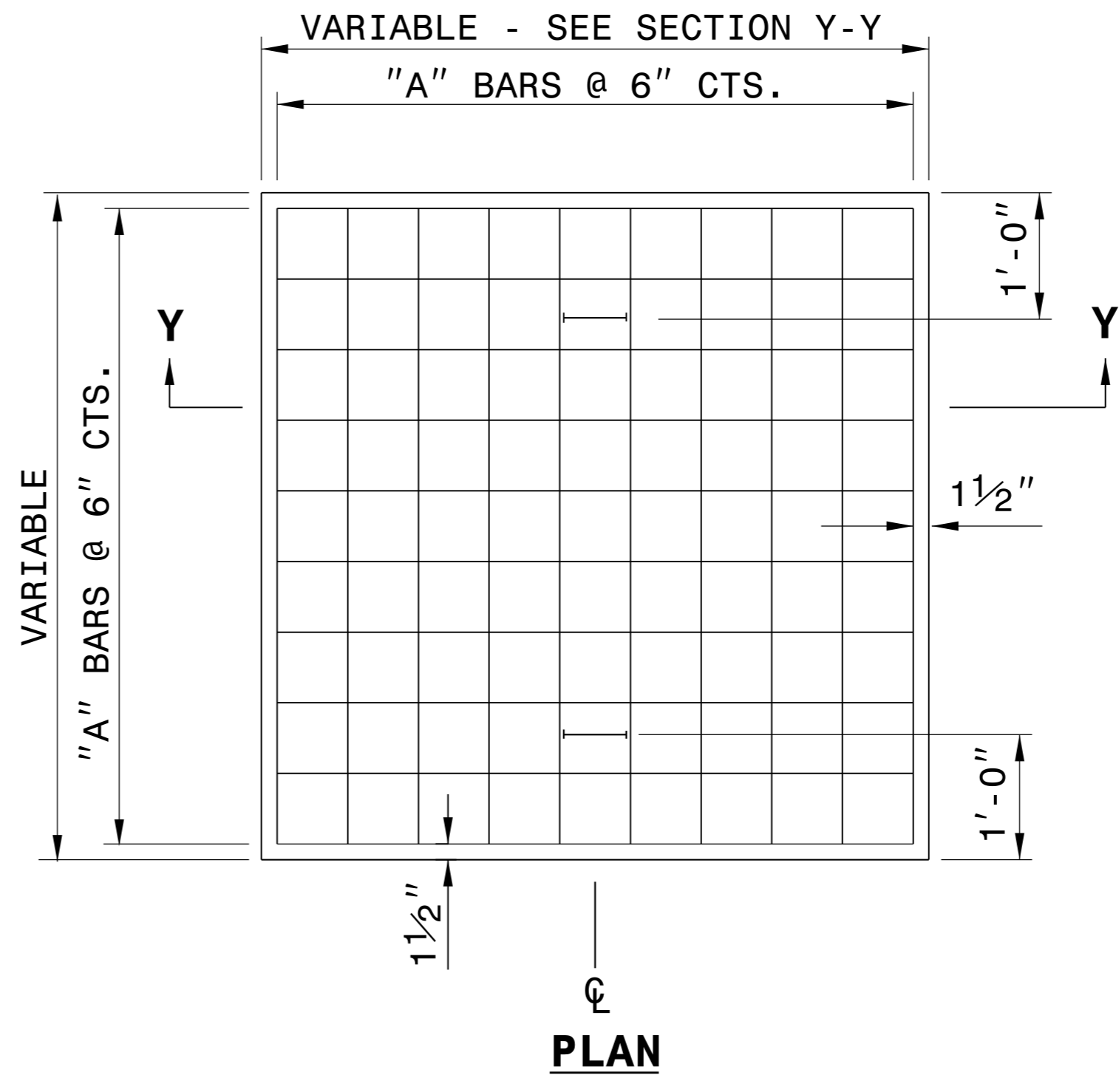
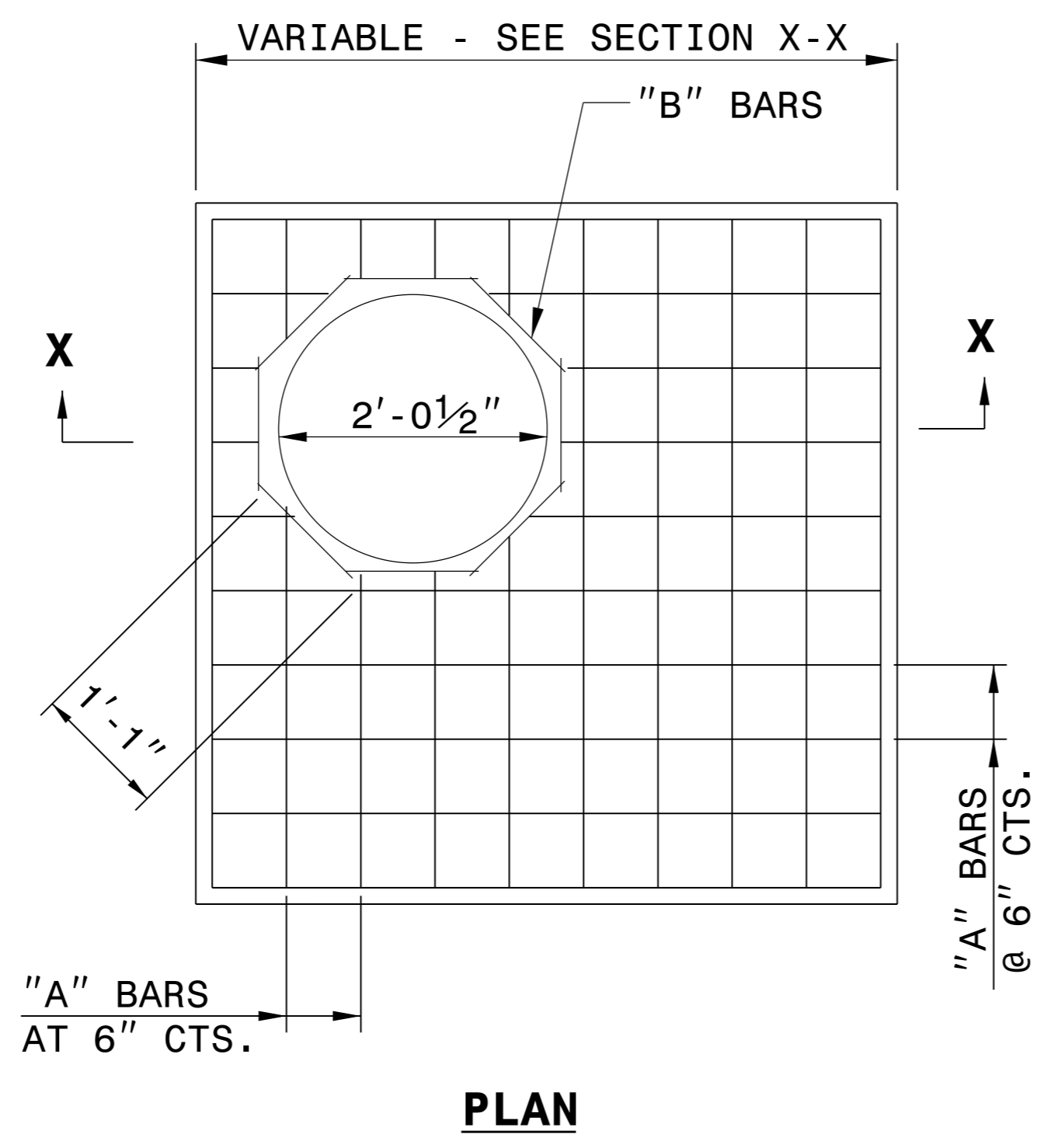
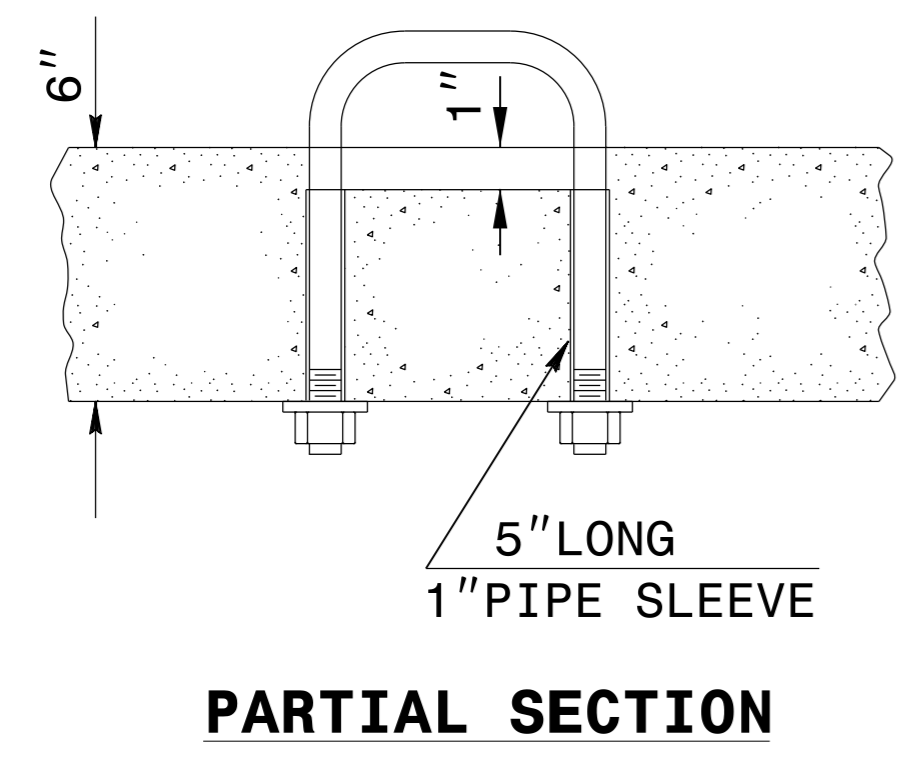
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DETAIL TO CONVERT EXISTING CATCH BASIN OR JUNCTION BOX TO DI OR 2-GI

ORIGINAL BY: T.S.S. DATE: NOV. 1997
 MODIFIED BY: T.S.S. DATE: FEB. 2000
 CHECKED BY: DATE:
 FILE SPEC.: s:\usr\details\stand\cbtod102.dgn

26-JUN-2017 10:39 S:\Contracts\Special Details\Howerton\Convert CB or JB to DI.dgn Howerton AT USD-292595

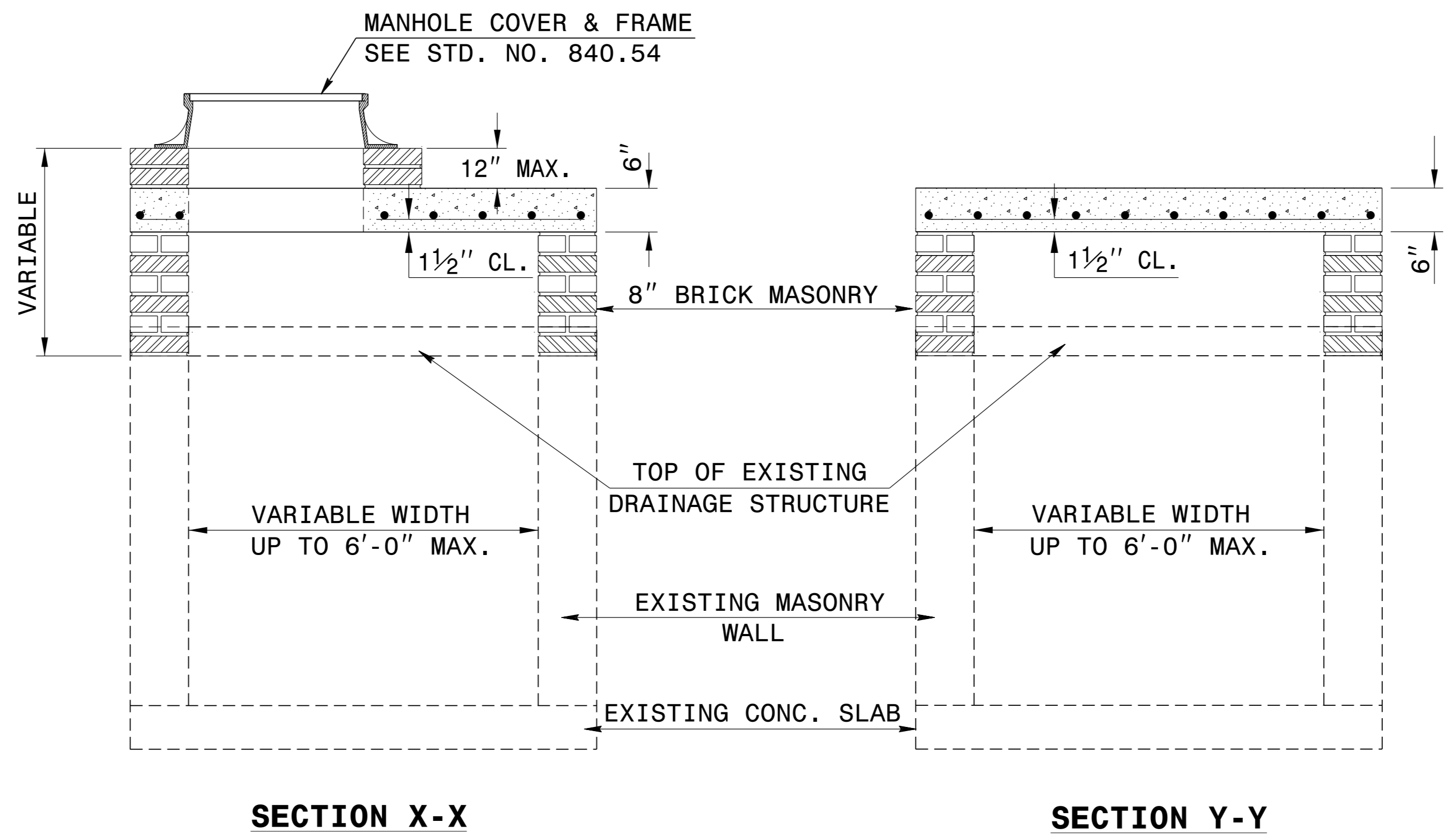
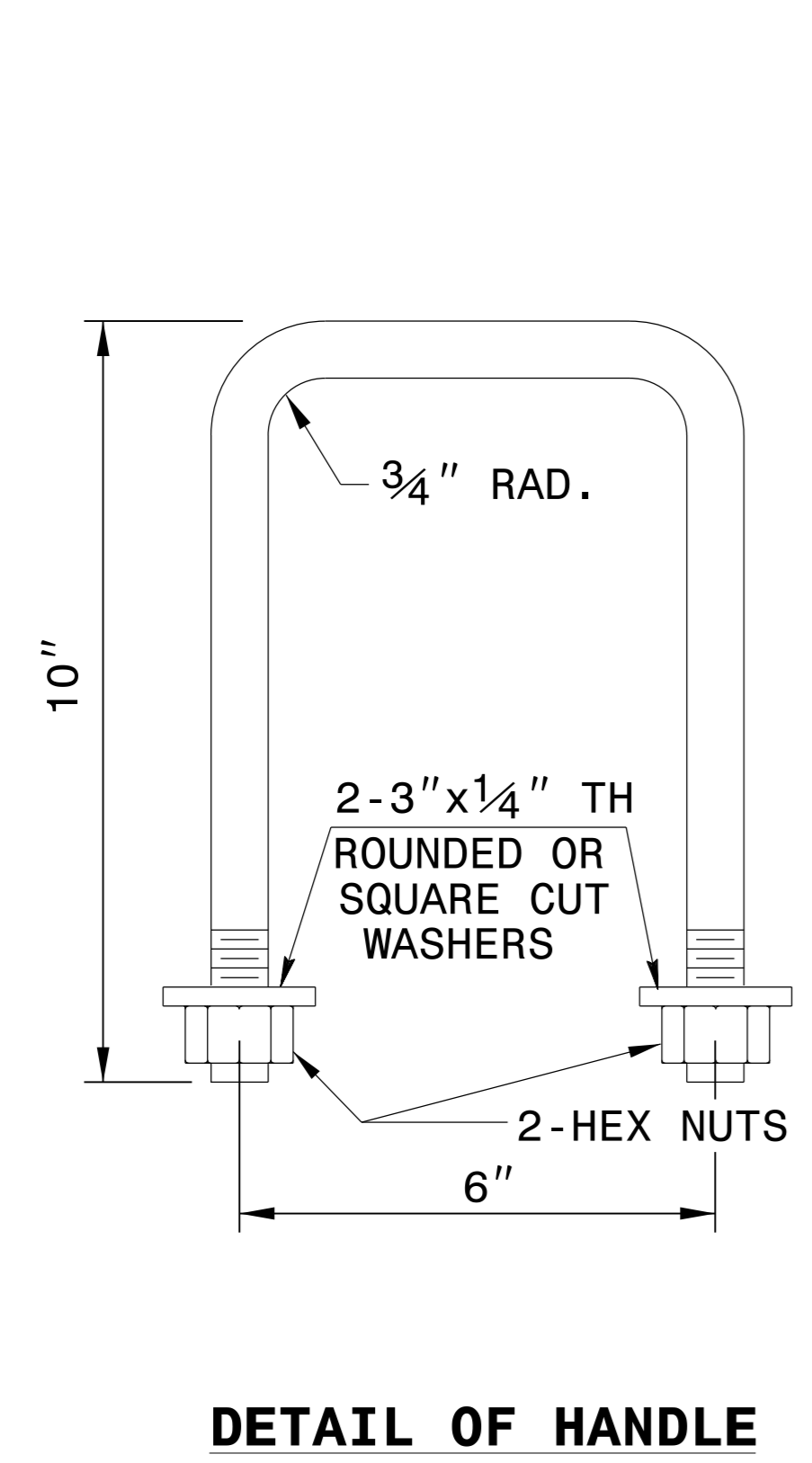


GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

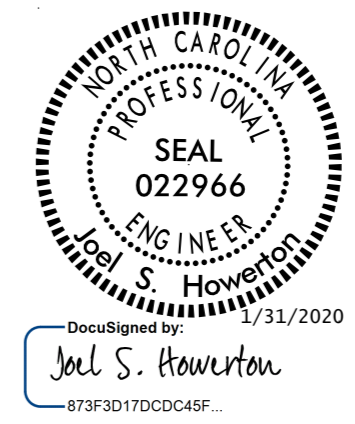
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.



BILL OF MATERIALS				
REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.4326 *
BRICK MASONRY PER FT HT (MIN)				.4111

*** NOTE:**
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL TO CONVERT EXISTING DI, CB, OTCB or GI TO JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: NOV. 1997
 MODIFIED BY: T.S.S. DATE: FEB. 2000
 CHECKED BY: DATE:
 FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn

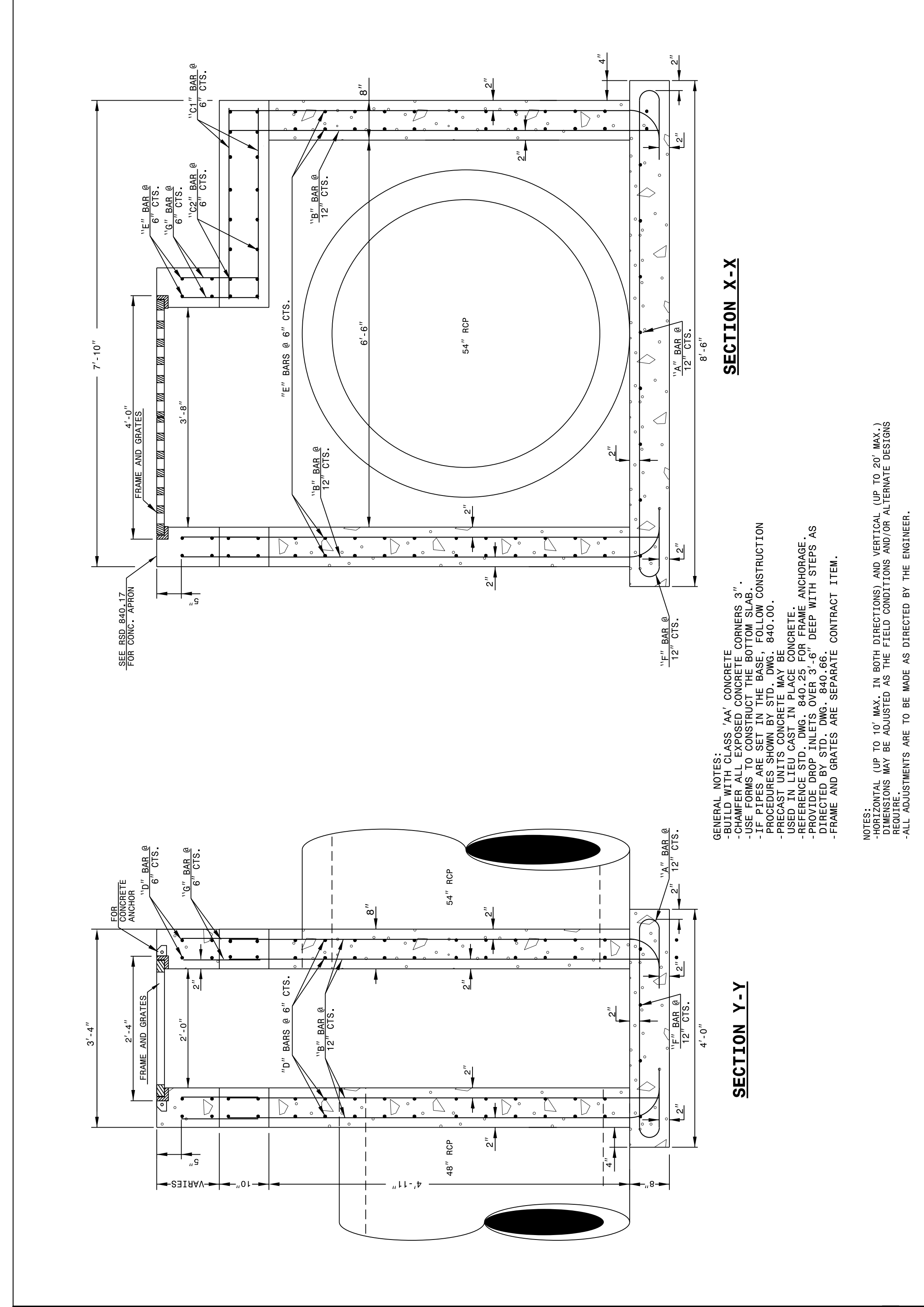
873F3D17DC045F
 DocuSigned by:
 Joel S. Howerton
 2/31/2020

I3-AUG-2018 09:00 S:\Contracts\Special Details\jhowerton\840d35 TBD1 Up to 54in.dgn .jhowerton AT USD-292595

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

ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING GRATED INLET FOR PIPES UP TO 54"

SHEET 1 OF 2 **840D35**



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

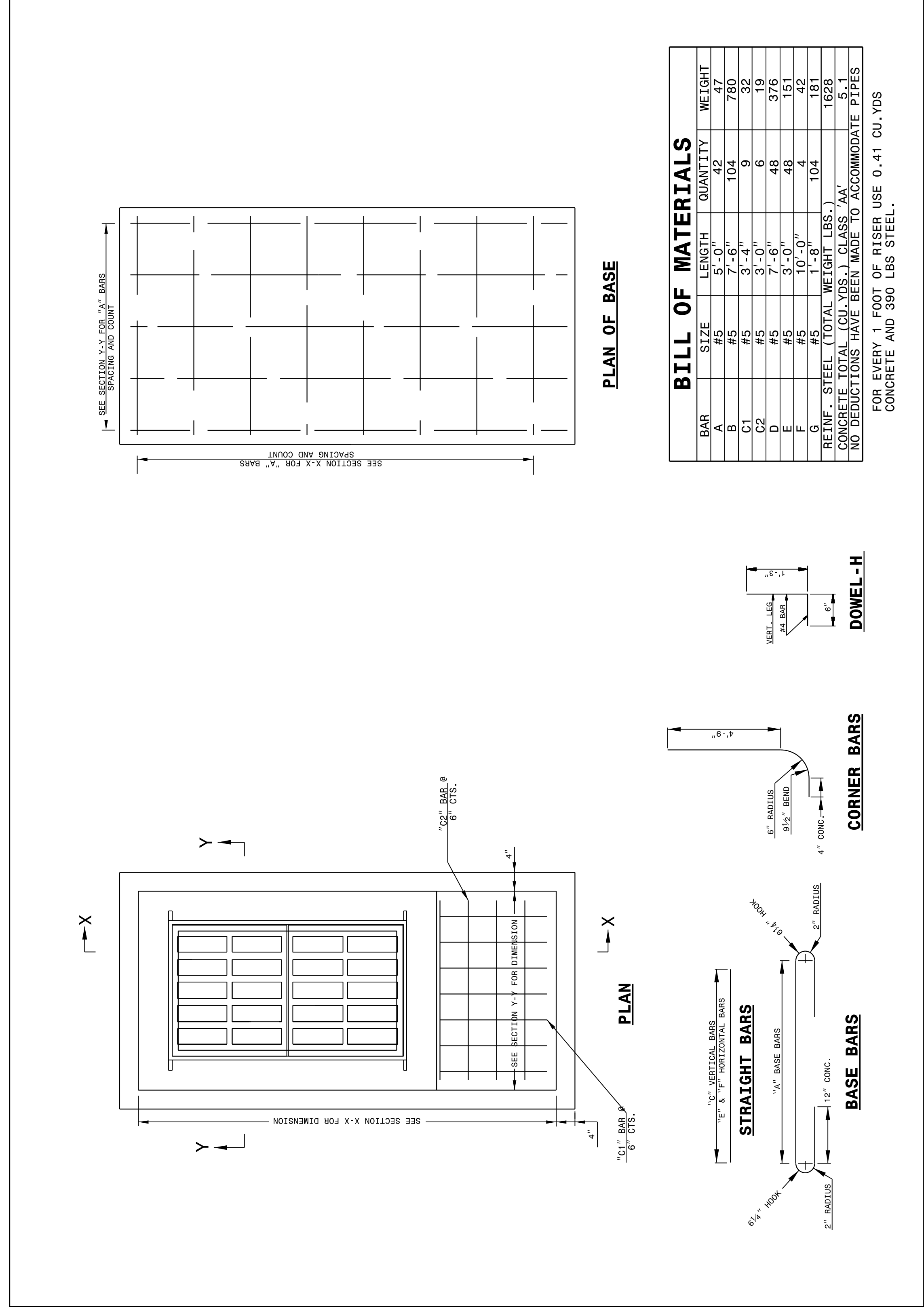
ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING GRATED INLET FOR PIPES UP TO 54"

SHEET 1 OF 2 **840D35**

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

ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING GRATED INLET FOR PIPES UP TO 54"

SHEET 2 OF 2 **840D35**



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

ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING GRATED INLET FOR PIPES UP TO 54"

SHEET 2 OF 2 **840D35**

SECTION X-X

GENERAL NOTES:
 -BUILD WITH CLASS 'AA' CONCRETE
 -CHAMFER ALL EXPOSED CONCRETE CORNERS 3".
 -USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 -PIPE ANCHORS IN THE BASE, FOLLOW CONSTRUCTION PRACTICES SHOWN IN THE DRAWING.
 -PRECAST UNITS CONCRETE MAY BE USED IN LIEU CAST IN PLACE CONCRETE.
 -REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
 -FRAME AND GRATINGS ARE SEPARATE CONTRACT ITEM.
 -FRAME AND GRATINGS ARE SEPARATE CONTRACT ITEM.

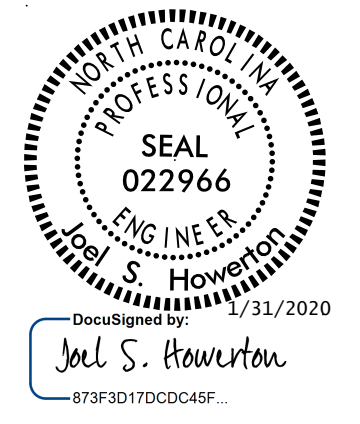
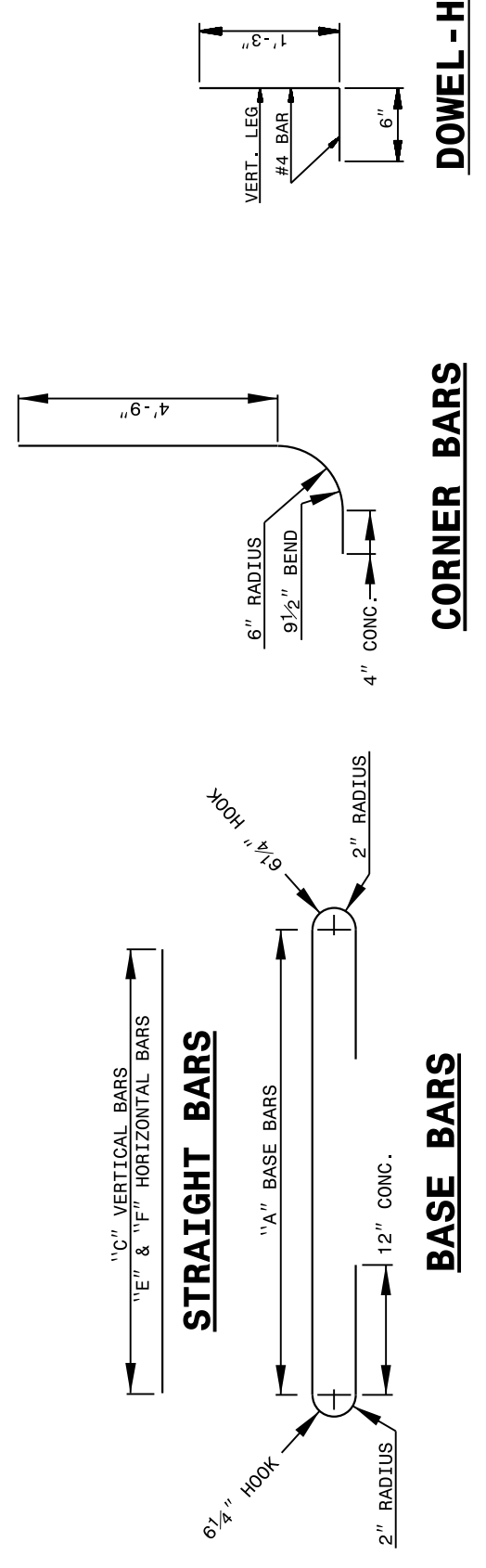
NOTES:
 -HORIZONTAL UP TO 10' MAX. IN BOTH DIRECTIONS AND VERTICAL (UP TO 20' MAX.) DIMENSIONS MAY BE ADJUSTED AS THE FIELD CONDITIONS AND/OR ALTERNATE DESIGNS REQUIRE.
 -ALL ADJUSTMENTS ARE TO BE MADE AS DIRECTED BY THE ENGINEER.

SECTION Y-Y

BILL OF MATERIALS

BAR	SIZE	LENGTH	QUANTITY	WEIGHT
A	#3	5'-0"	42	47
B	#3	7'-6"	104	780
C1	#3	3'-0"	6	32
C2	#3	3'-0"	48	178
D	#5	3'-0"	48	376
E	#5	3'-0"	4	151
F	#5	1'-0"	4	42
G	#5	1'-0"	104	181
REFIN. STEEL (TOTAL WEIGHT LBS.)				1626
CONCRETE TOTAL (CU. YDS.) CLASS 'AA'				5.1
NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES				

FOR EVERY 1 FOOT OF RISER USE 0.41 CU. YDS CONCRETE AND 390 LBS STEEL.

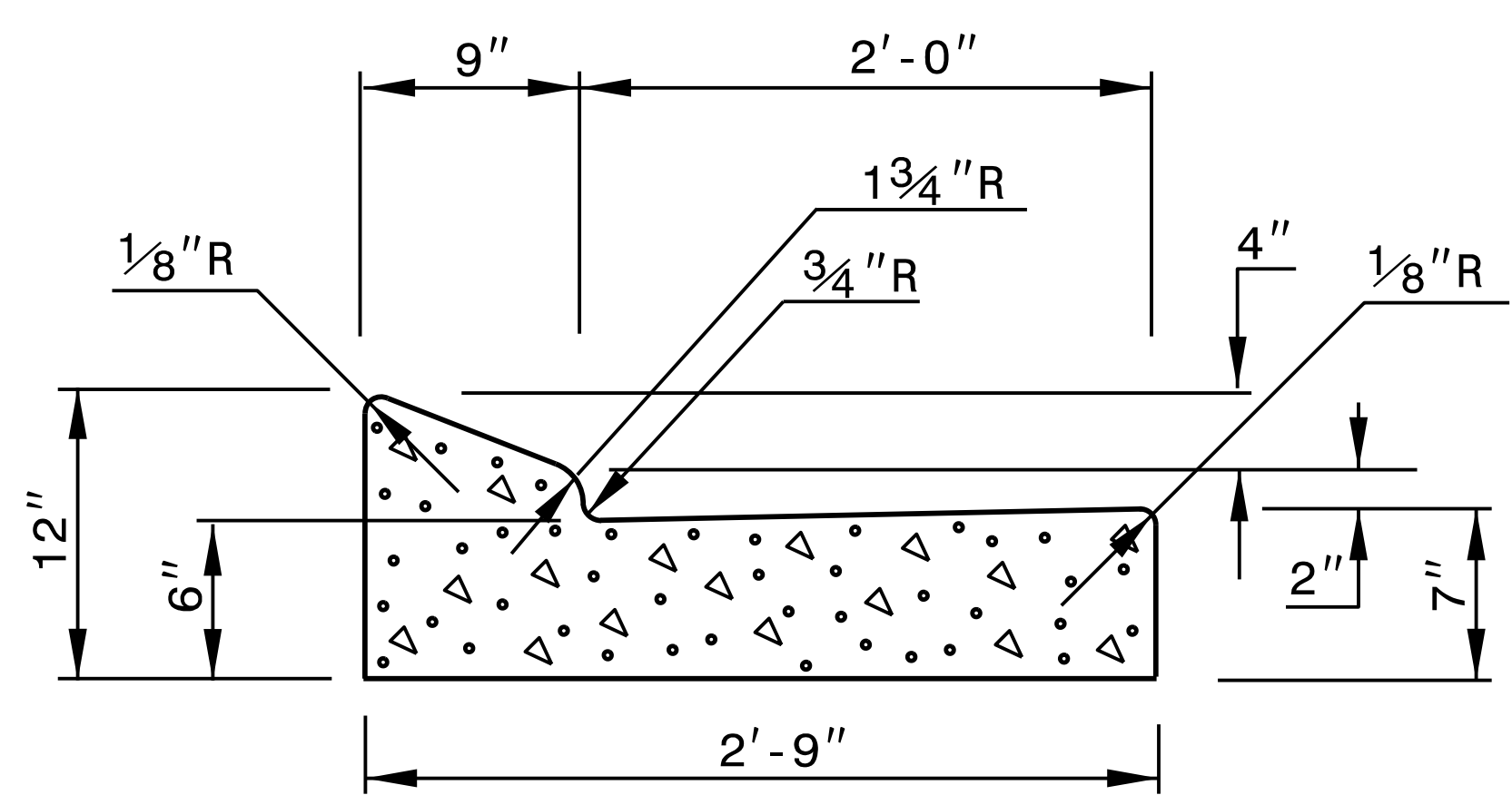


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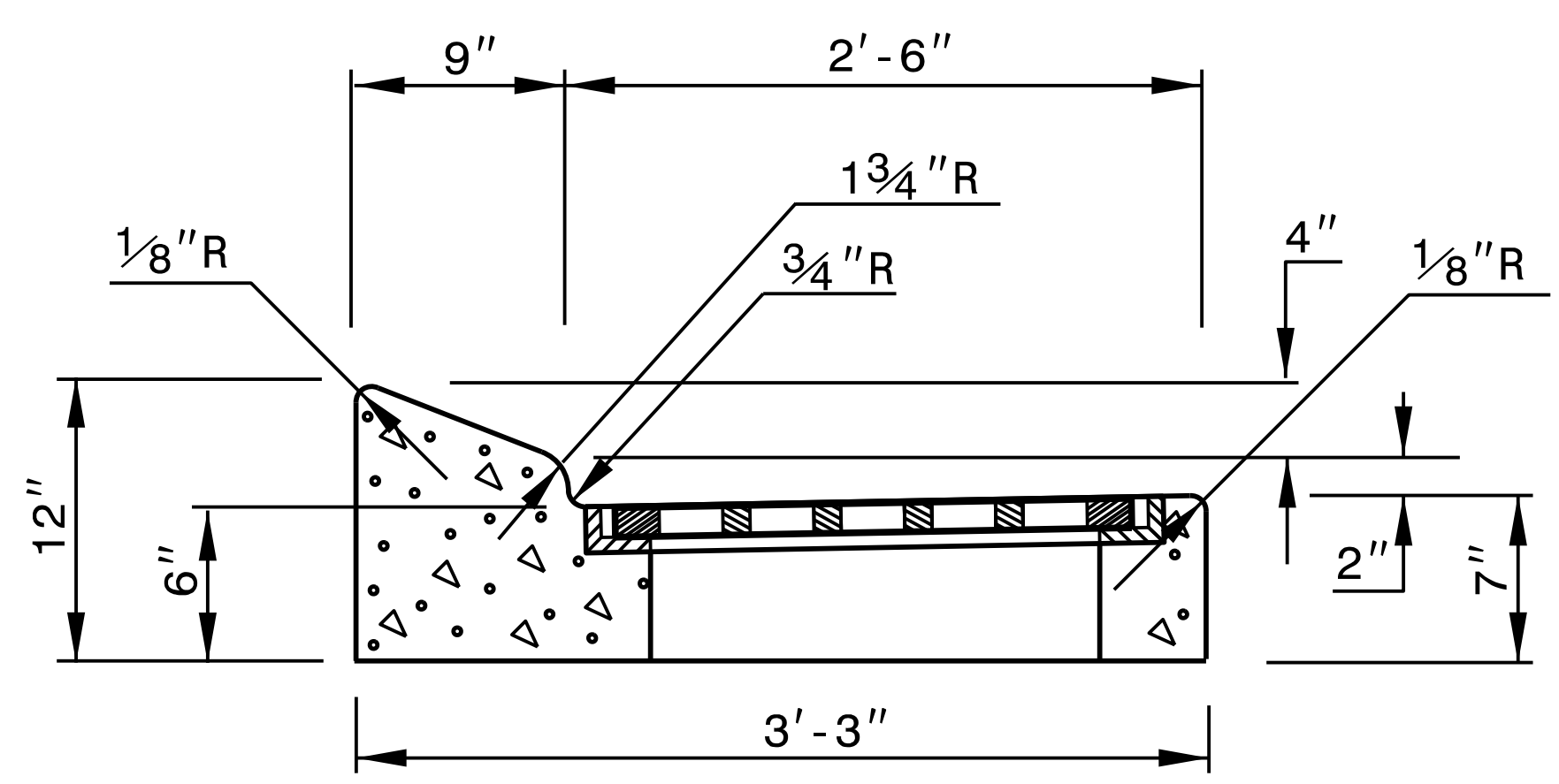
CONTRACT STANDARDS AND DEVELOPMENT UNIT
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SEE PLATE FOR TITLE

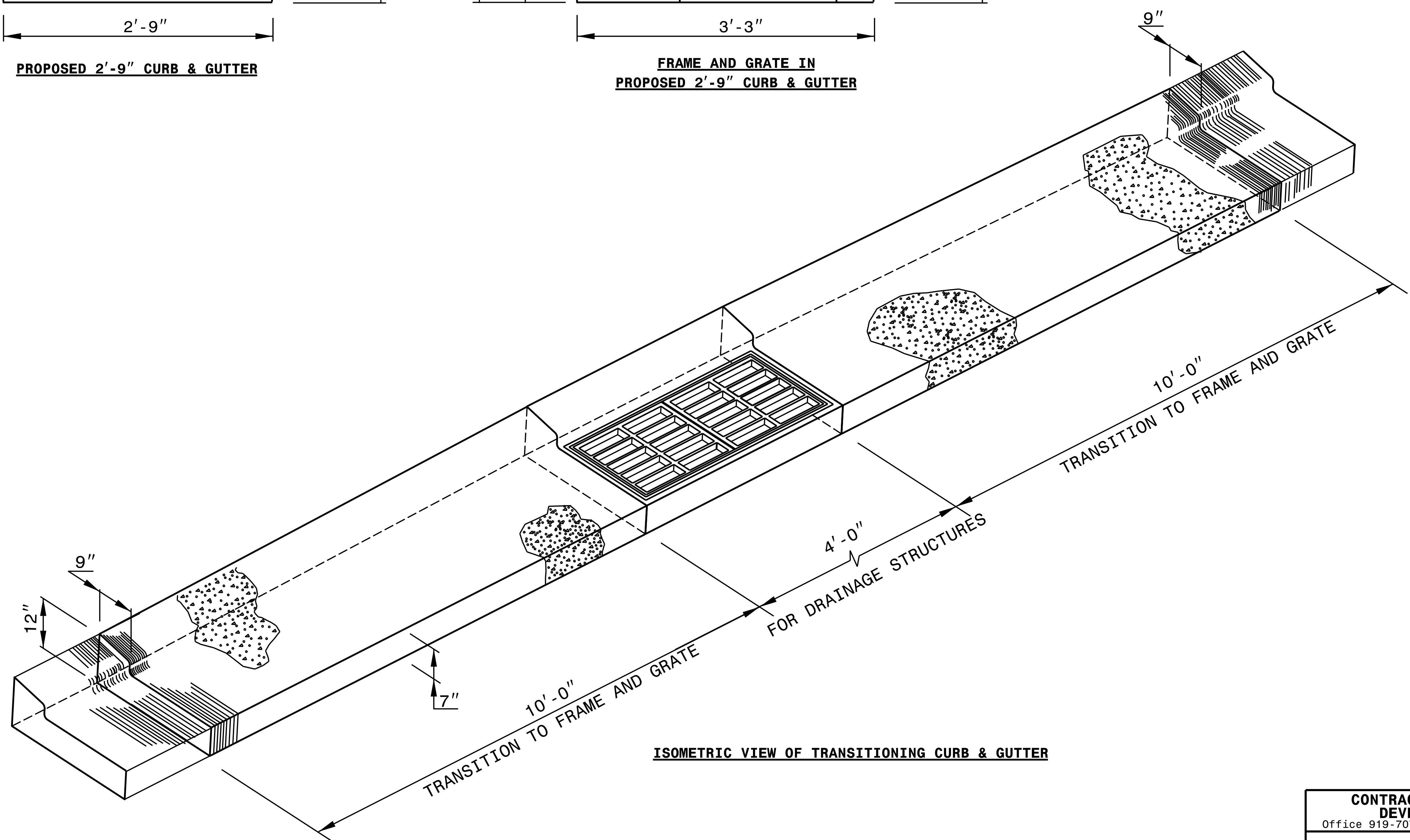
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 CHECKED BY: DATE:
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PROPOSED 2'-9" CURB & GUTTER



FRAME AND GRATE IN PROPOSED 2'-9" CURB & GUTTER



ISOMETRIC VIEW OF TRANSITIONING CURB & GUTTER



DocuSigned by:
Joel S. Howerton
873F3D7DCC645F...

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DETAIL OF 2'-9" TO FRAME AND GRATE

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
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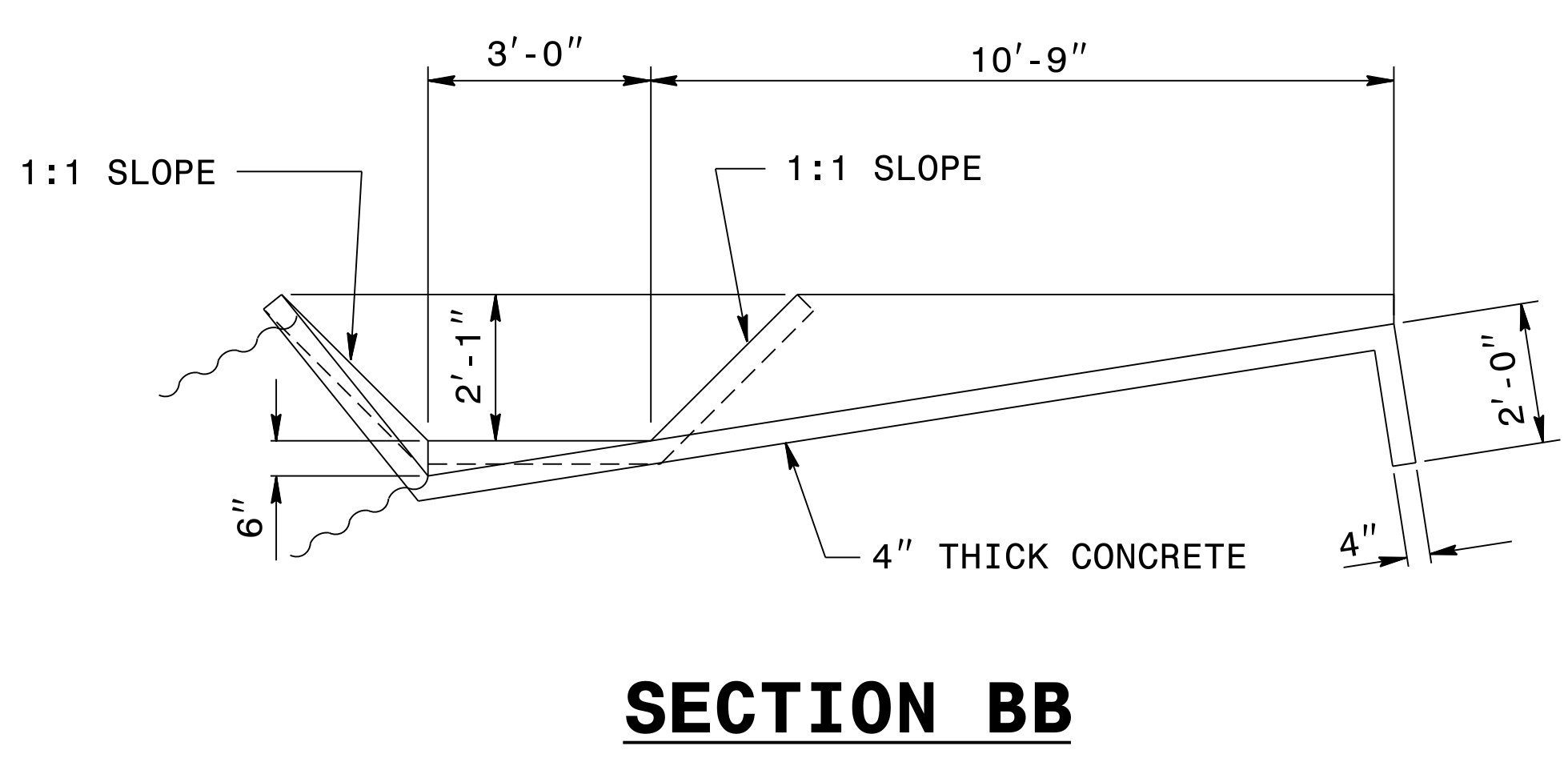
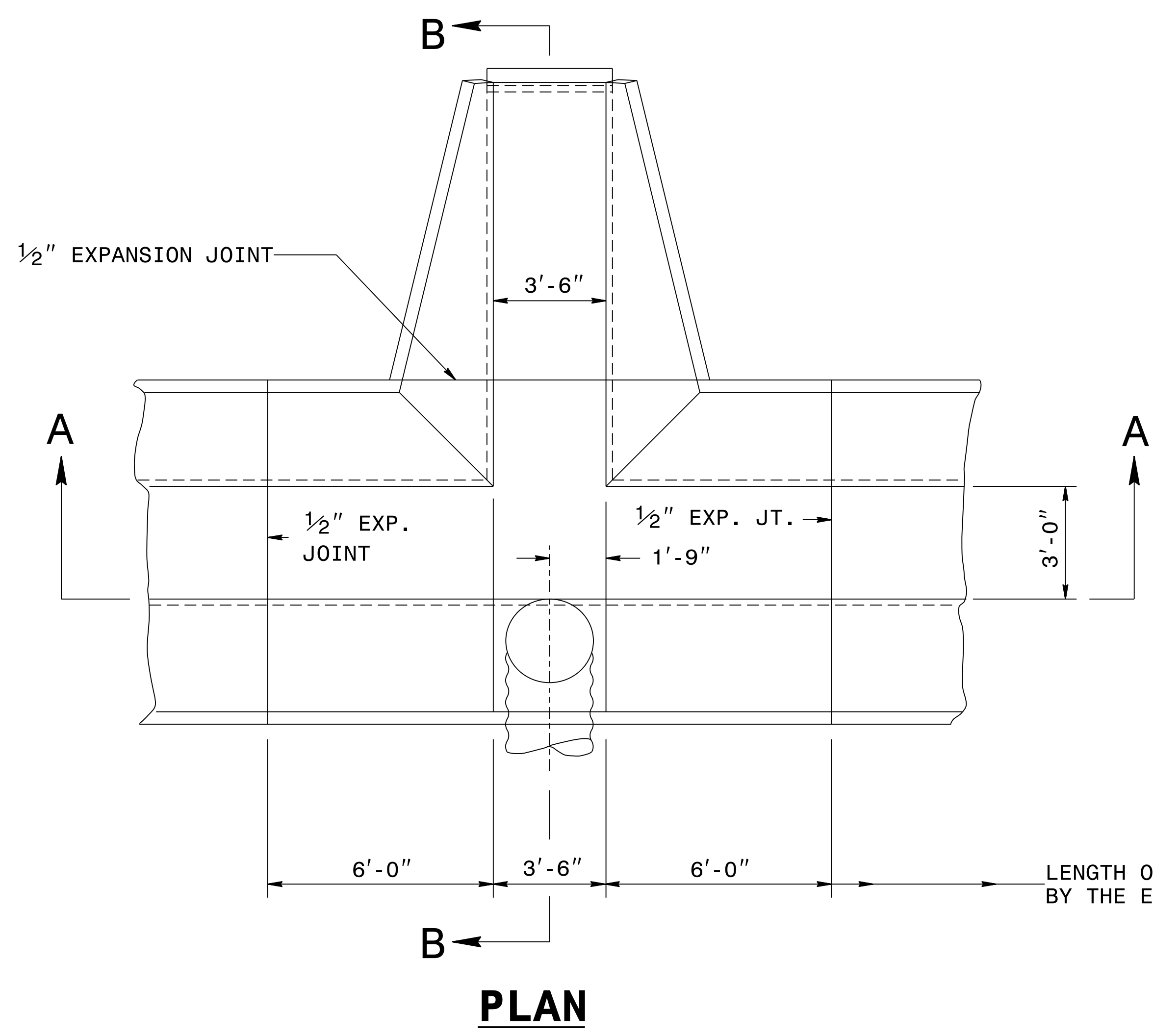
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ENGLISH DETAIL DRAWING FOR GUIDE FOR BERM DRAINAGE OUTLET 36" PIPE

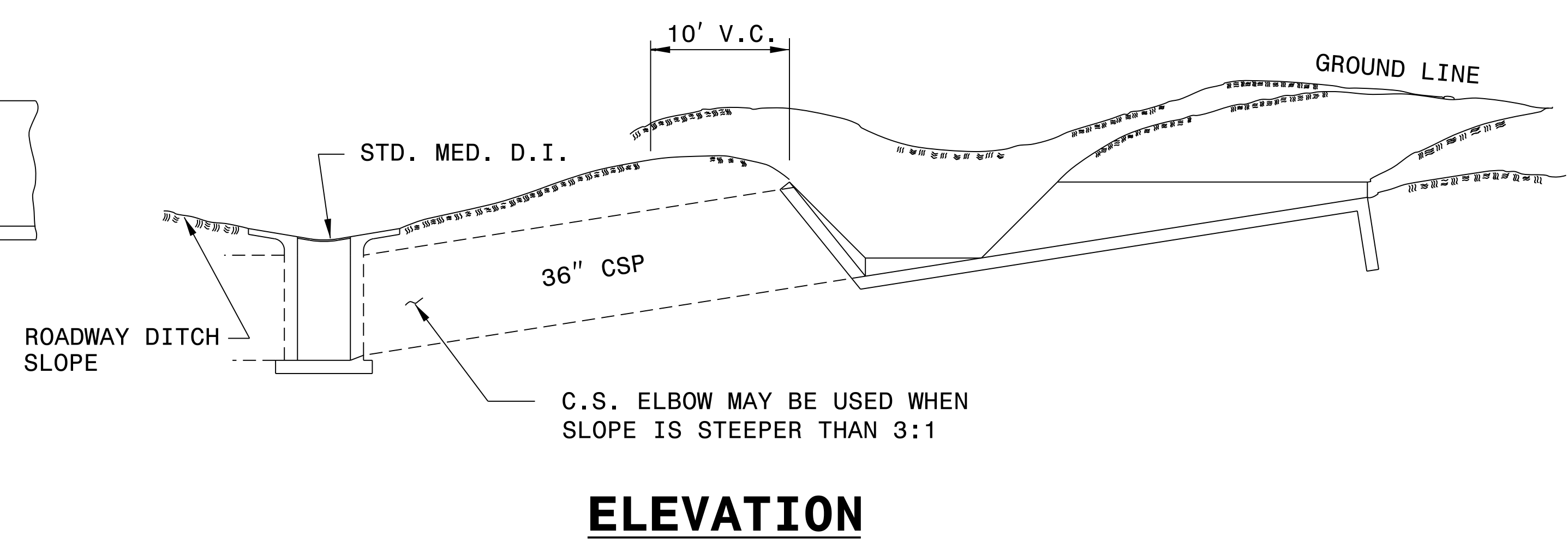
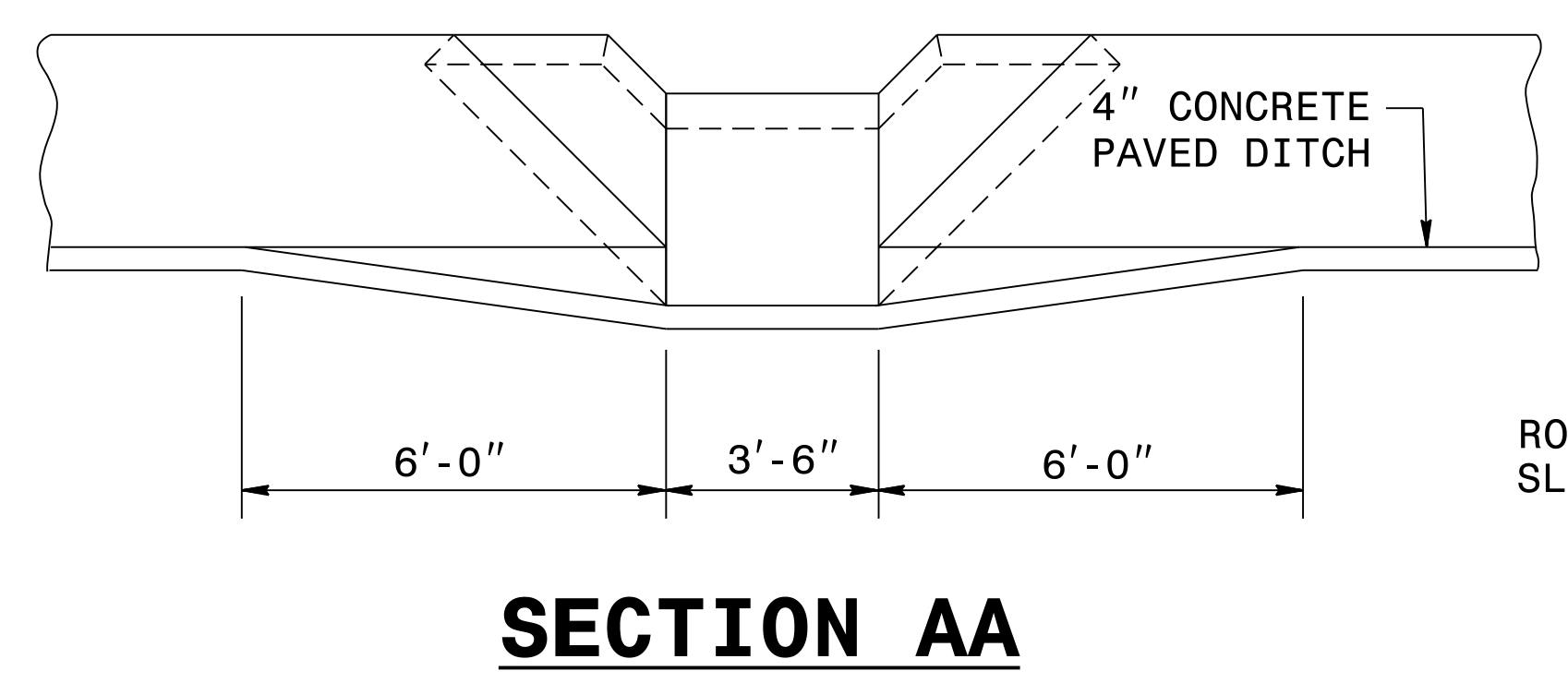
ENGLISH DETAIL DRAWING FOR GUIDE FOR BERM DRAINAGE OUTLET 36" PIPE

SHEET 1 OF 1 850D11

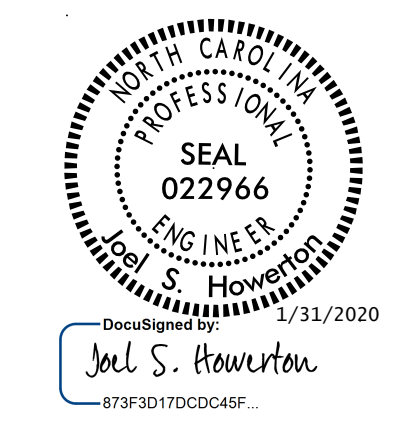
SHEET 1 OF 1 850D11



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.



30-APR-2019 09:40 S:\Contracts\Contractors\Special\Details\Vericard\usr\details\stand\850d11.dgn Jhowerston AT USD-292595



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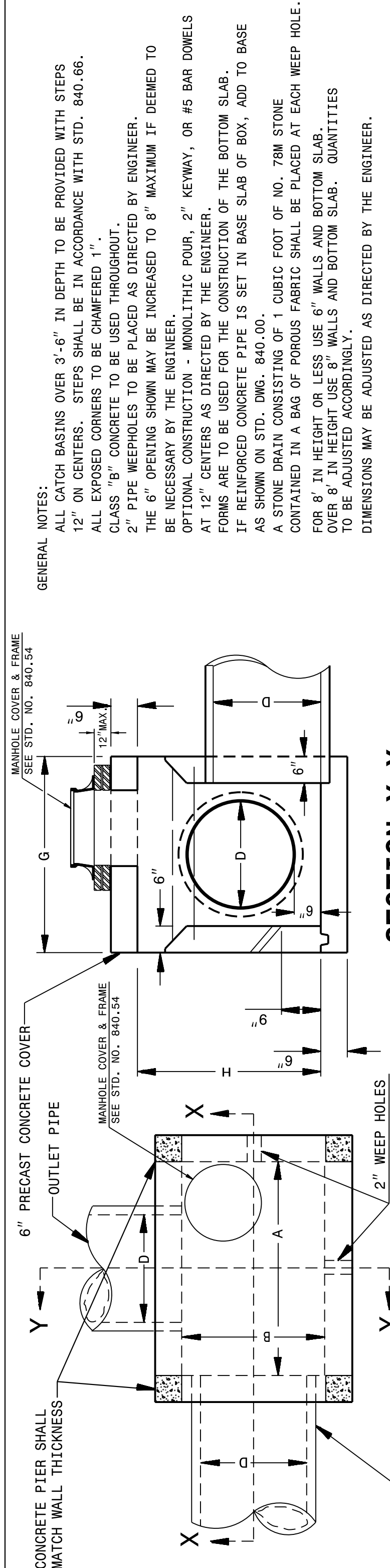
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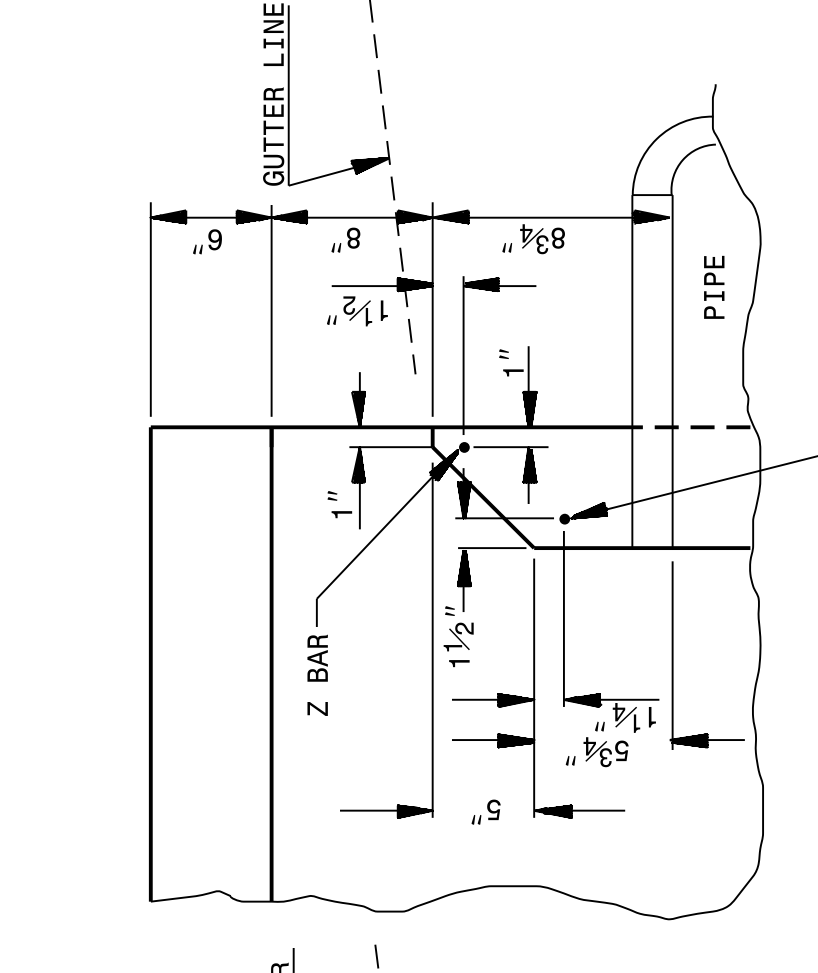
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SECTION Y-Y



ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN
(3 OR 4 SIDE OPEN THROAT)
(MANHOLE OPTIONAL)

ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN
(3 OR 4 SIDE OPEN THROAT)
(MANHOLE OPTIONAL)

SHEET 1 OF 2
840D04

SHEET 1 OF 2
840D04

GENERAL NOTES:
 ALL CATCH BASINS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 12" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. 840.66. ALL EXPOSED CORNERS TO BE CHAMFERED 1". CLASS 'B' CONCRETE TO BE USED THROUGHOUT.
 2" PIPE WEEDHOLES TO BE PLACED AS DIRECTED BY ENGINEER.
 THE 6" OPENING SHOWN MAY BE INCREASED TO 8" MAXIMUM IF DEEMED TO BE NECESSARY BY THE ENGINEER.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #5 BAR DOWELS FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STD. DWG. 840.00.
 A STONE DRAIN CONSISTING OF 1 CUBIC FOOT OF NO. 78M STONE CONTAINED IN A BAG OF POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE.
 FOR 8" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB.
 OVER 8" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. QUANTITIES TO BE ADJUSTED ACCORDINGLY.
 DIMENSIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

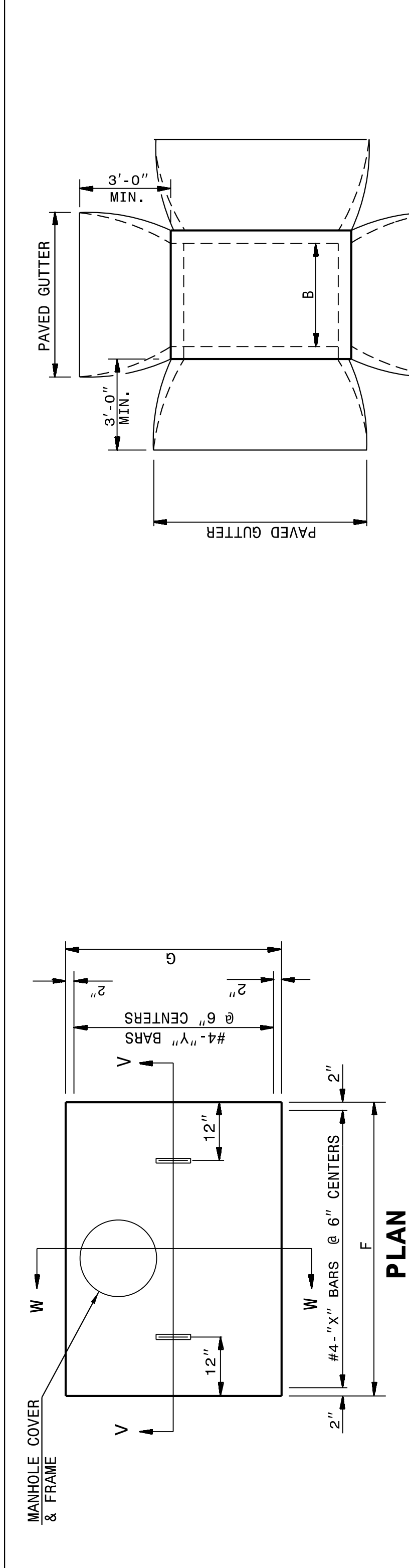
PART SECTION Y-Y
 SHOWING METHOD OF CONSTRUCTION FOR 6" OPENING

PART SECTION Y-Y
 SHOWING METHOD OF CONSTRUCTION IF INCREASED OPENING IS USED

DIM'S OF BOX & PIPE		MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)				TOTAL QUANTITIES BOX & SLABS		DEDUCTION ONE PIPE THROUGH OPENING	
PIPE D	SPAN	WIDTH	HEIGHT	BARS - X	BARS - Y	BARS - Z	CU. YDS. CONC.	REINFORCING	R. C.
				NO. LENGTH	NO. LENGTH	NO. LENGTH			
12"	3'-6"	2'-3"	1'-10"	4 3'-0"	6 4'-3"	2 4'-3"	0.181	0.271	0.015
15"	3'-6"	2'-3"	2'-1"	4 3'-0"	6 4'-3"	2 4'-3"	0.181	0.271	0.015
18"	4'-0"	2'-8"	2'-4"	5 3'-5"	7 4'-9"	2 4'-9"	0.226	0.340	0.023
24"	4'-0"	2'-8"	2'-10"	5 3'-5"	7 4'-9"	2 4'-9"	0.226	0.340	0.023
30"	4'-0"	3'-6"	3'-4"	5 4'-3"	9 4'-9"	2 4'-9"	0.278	0.417	0.033
36"	4'-0"	3'-6"	3'-10"	5 4'-9"	12 5'-3"	2 5'-3"	0.340	0.510	0.049
42"	5'-0"	4'-6"	4'-4"	5 5'-3"	12 5'-9"	2 5'-9"	0.407	0.611	0.069
48"	5'-0"	4'-6"	4'-10"	5 5'-9"	13 5'-9"	2 5'-9"	0.444	0.666	0.078

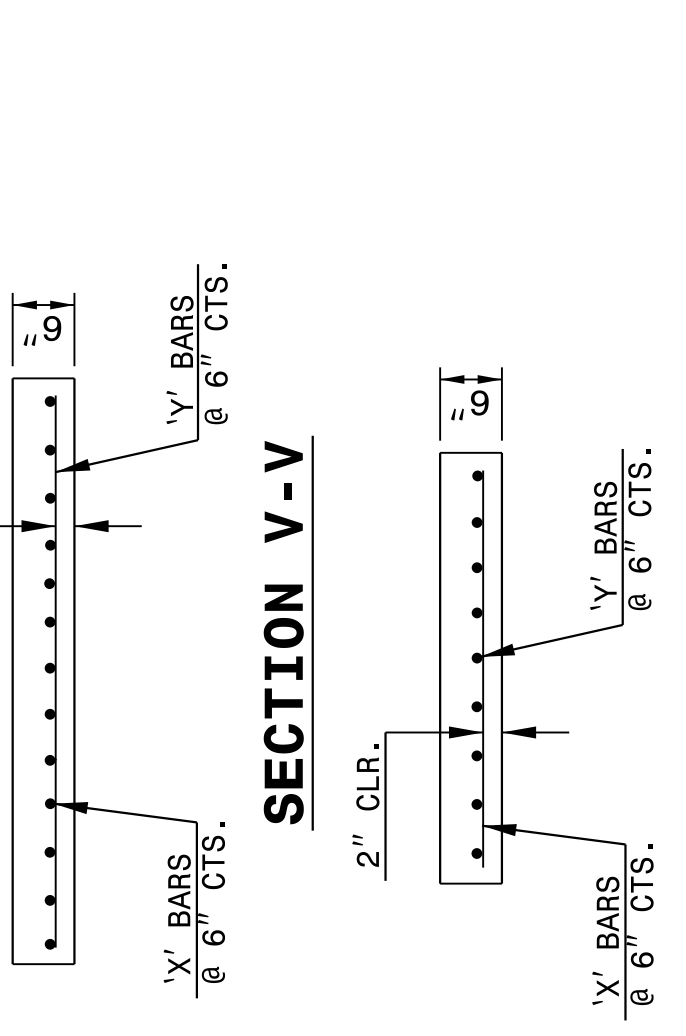
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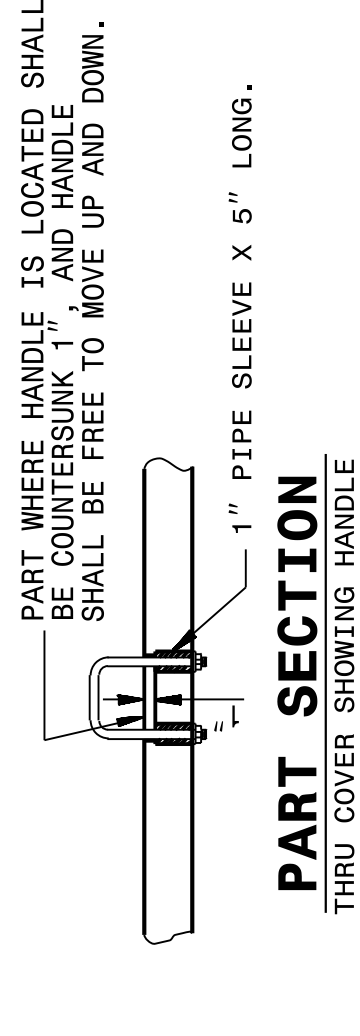


PLAN OF PRECAST COVER

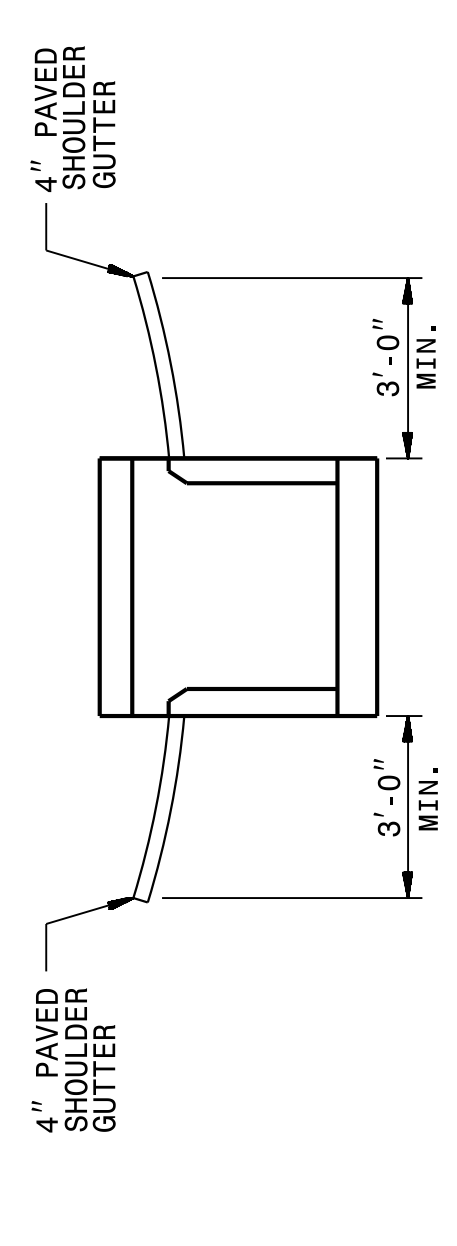
SECTION V-V



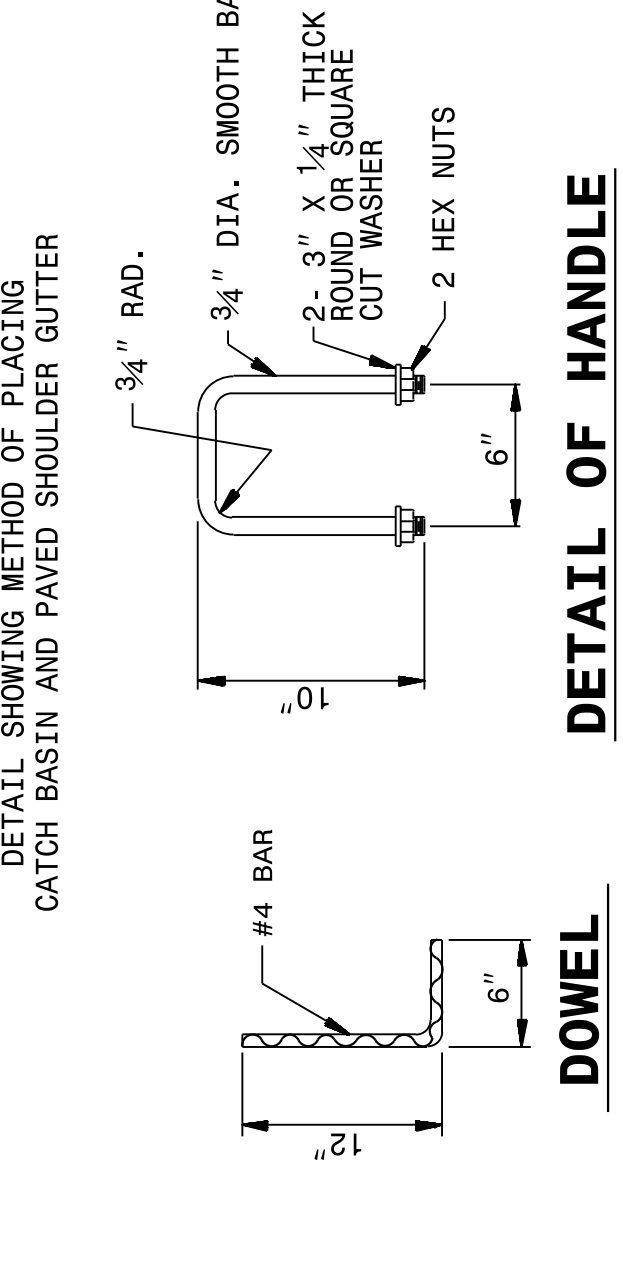
SECTION W-W



PLAN OF CATCH BASIN IN MEDIAN STRIP



SECTION OF CATCH BASIN MEDIAN STRIP



SHEET 2 OF 2
840D04

SHEET 2 OF 2
840D04

PART SECTION Y-Y
 SHOWING METHOD OF CONSTRUCTION FOR 6" OPENING

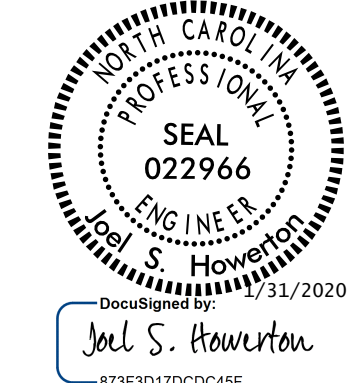
PART SECTION Y-Y
 SHOWING METHOD OF CONSTRUCTION IF INCREASED OPENING IS USED

DIM'S OF BOX & PIPE		MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)				TOTAL QUANTITIES BOX & SLABS		DEDUCTION ONE PIPE THROUGH OPENING	
PIPE D	SPAN	WIDTH	HEIGHT	BARS - X	BARS - Y	BARS - Z	CU. YDS. CONC.	REINFORCING	R. C.
				NO. LENGTH	NO. LENGTH	NO. LENGTH			
12"	3'-6"	2'-3"	1'-10"	4 3'-0"	6 4'-3"	2 4'-3"	0.181	0.271	0.015
15"	3'-6"	2'-3"	2'-1"	4 3'-0"	6 4'-3"	2 4'-3"	0.181	0.271	0.015
18"	4'-0"	2'-8"	2'-4"	5 3'-5"	7 4'-9"	2 4'-9"	0.226	0.340	0.023
24"	4'-0"	2'-8"	2'-10"	5 3'-5"	7 4'-9"	2 4'-9"	0.226	0.340	0.023
30"	4'-0"	3'-6"	3'-4"	5 4'-3"	9 4'-9"	2 4'-9"	0.278	0.417	0.033
36"	4'-0"	3'-6"	3'-10"	5 4'-9"	12 5'-3"	2 5'-3"	0.340	0.510	0.049
42"	5'-0"	4'-6"	4'-4"	5 5'-3"	12 5'-9"	2 5'-9"	0.407	0.611	0.069
48"	5'-0"	4'-6"	4'-10"	5 5'-9"	13 5'-9"	2 5'-9"	0.444	0.666	0.078

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 MODIFIED BY: rnbritt DATE: 07-03-2014
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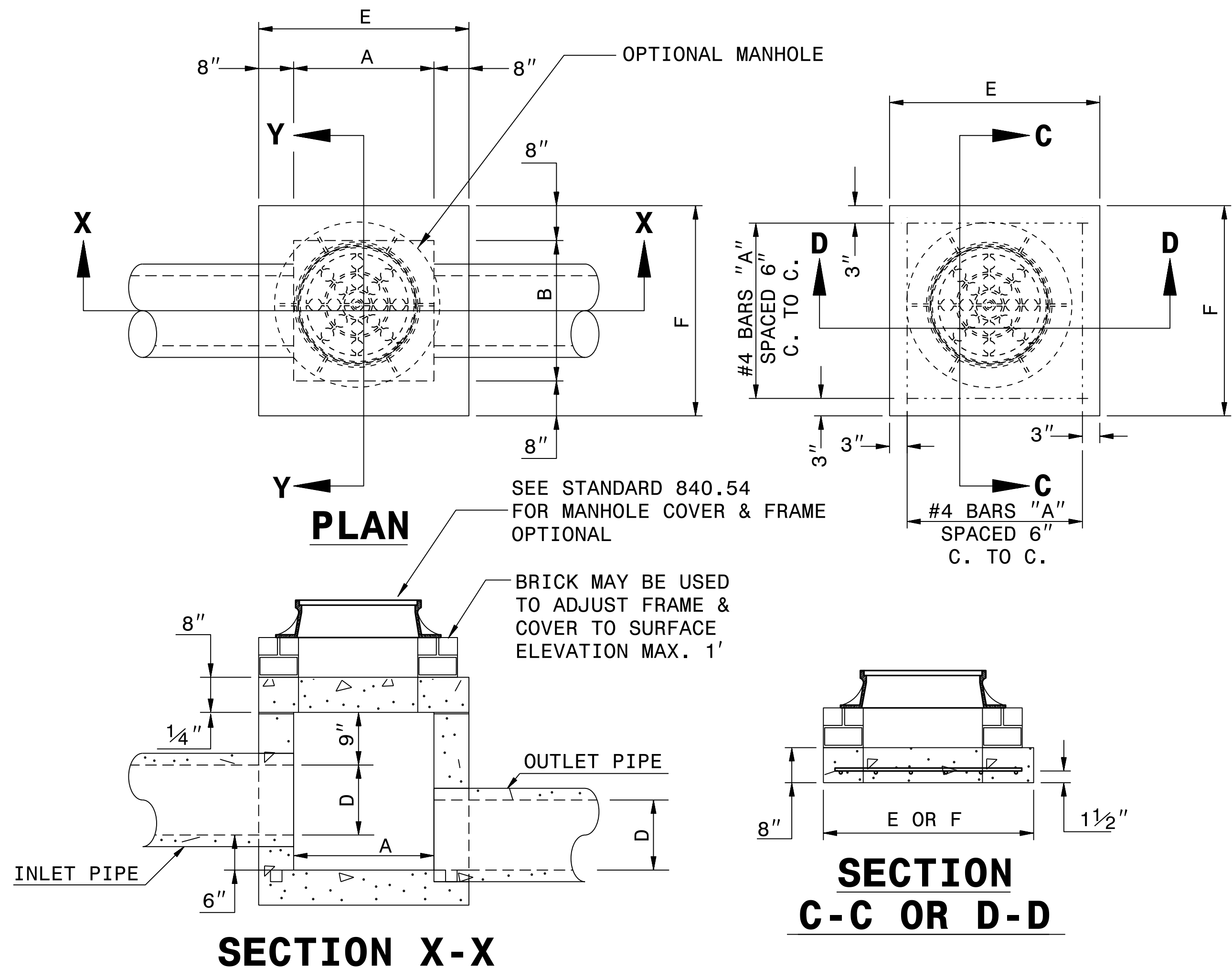


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ROADWAY DETAIL DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
UP TO 30' OF FILL

SHEET 1 OF 1
840D31



GENERAL NOTES:

CHAMFER ALL EXPOSED CORNERS 1".

USE CLASS "B" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS TO CONSTRUCT THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.

PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.

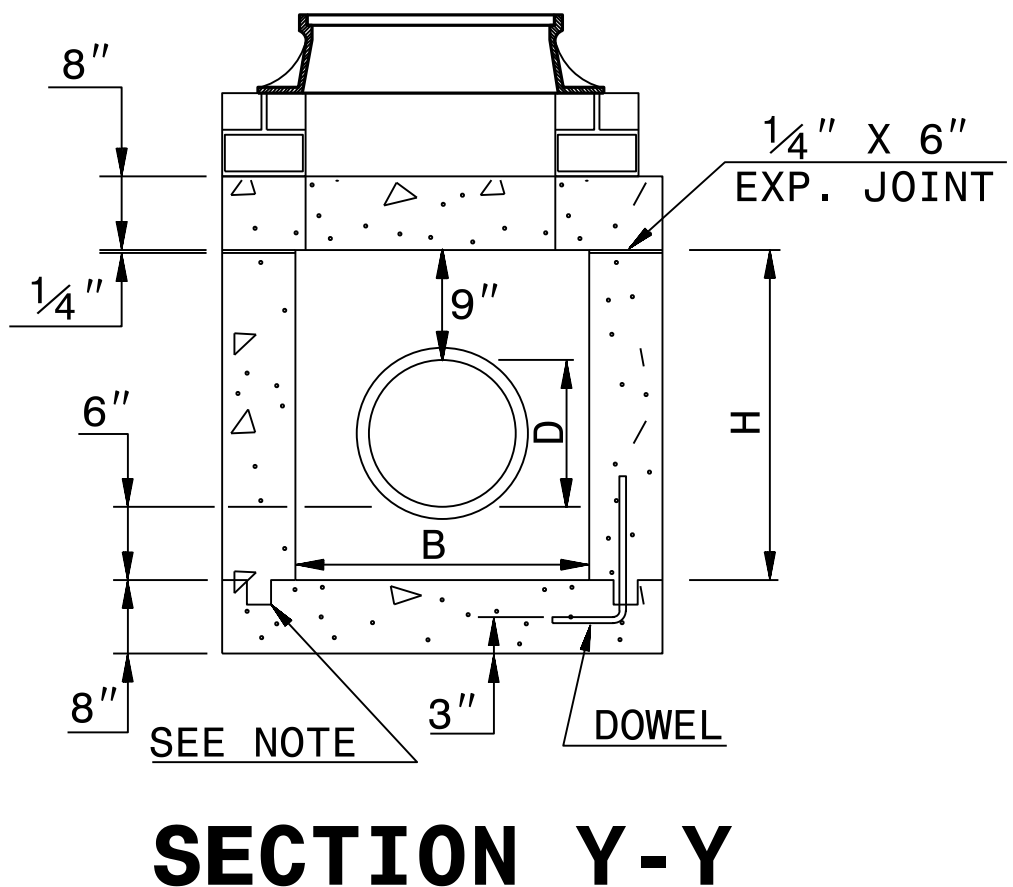
ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)

MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 25 FEET.

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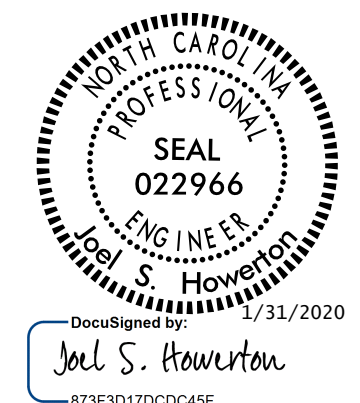
ROADWAY DETAIL DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
UP TO 30' OF FILL

SHEET 1 OF 1
840D31



DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES														
PIPE	DIMENSIONS OF BOX AND PIPE			REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE CU.YDS.	
	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WALL/ FT. OF HT.	LBS. REINF	CU. YDS. MIN. "H"	C.S.	R.C.
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.222	0.222	0.246	22	0.998	0.015	0.024
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.261	0.261	0.271	24	1.200	0.023	0.036
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.302	0.302	0.295	30	1.416	0.033	0.049
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.394	0.394	0.344	40	1.907	0.059	0.085
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.499	0.499	0.394	51	2.474	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.616	0.616	0.443	64	3.114	0.132	0.178
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.745	0.745	0.492	77	3.828	0.180	0.243
48"	5'-4"	5'-4"	5'-3"	26	6'-3"	6'-4"	6'-4"	0.988	0.988	0.541	111	4.819	0.235	0.317
54"	5'-10"	5'-10"	5'-9"	28	6'-7"	6'-10"	6'-10"	1.150	1.150	0.591	126	5.696	0.297	0.401
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.386	1.386	0.640	145	6.770	0.367	0.495
66"	7'-1"	7'-1"	6'-9"	32	7'-10"	8'-1"	8'-1"	1.609	1.609	0.689	169	7.870	0.444	0.589

30-DEC-2019 09:00 S:\Contracts\Special Details\Howerton\840d31 Special JB up to 30ft of Fill.dgn Jhowerton AT_CSD-320965



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ORIGINAL BY: J. HOWERTON DATE: 12/30/19
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 FILE SPEC. jhowerton/840d31 up to 30ft of fill.dgn

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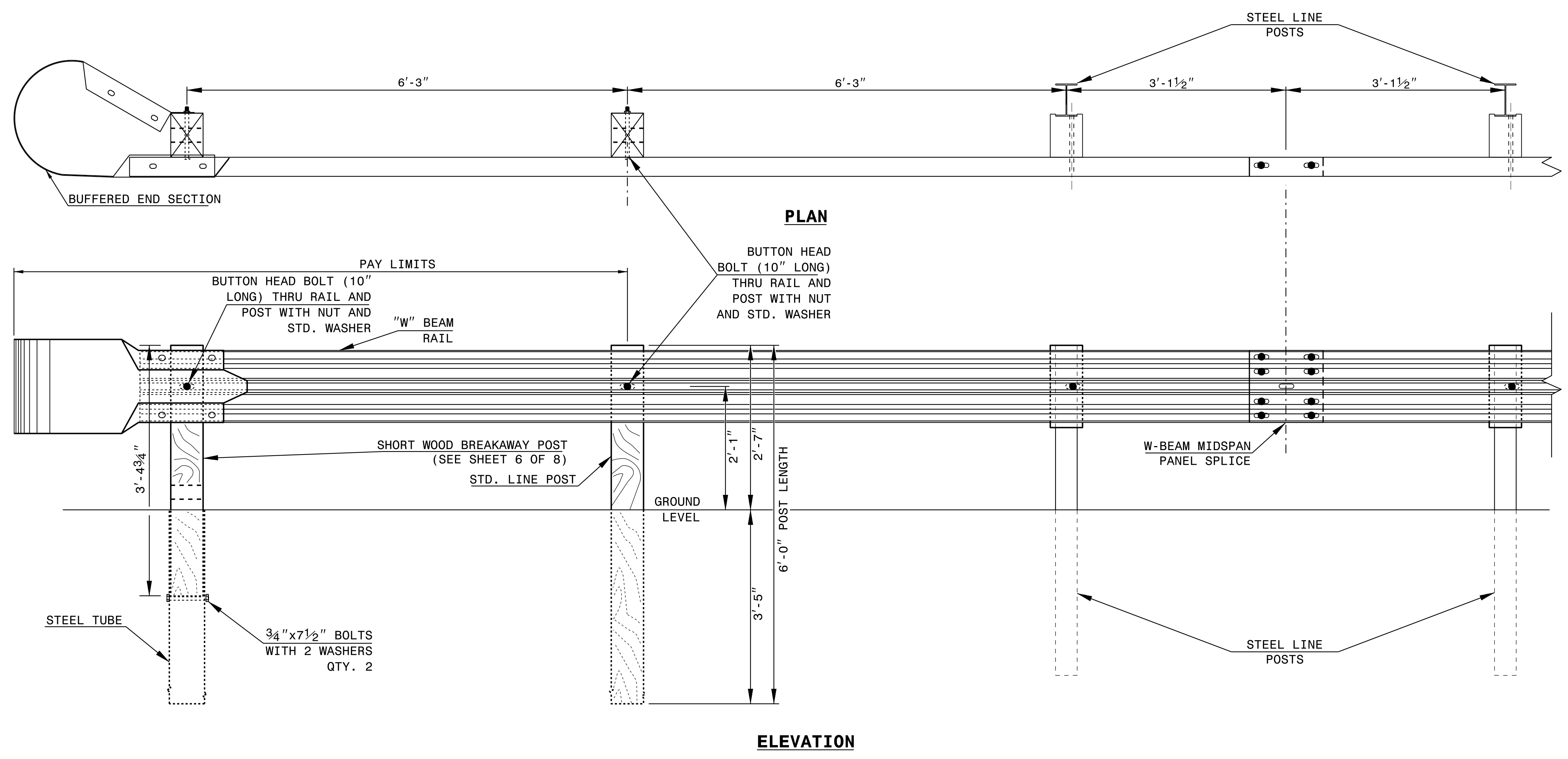
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

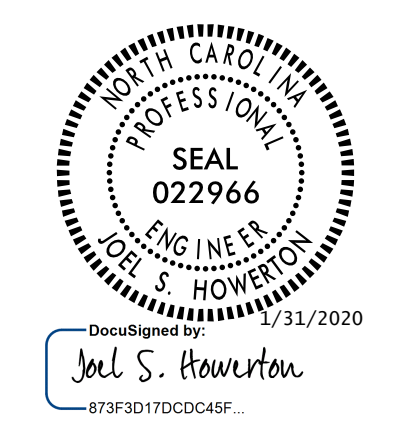
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY
A.T. - 1 SYSTEM



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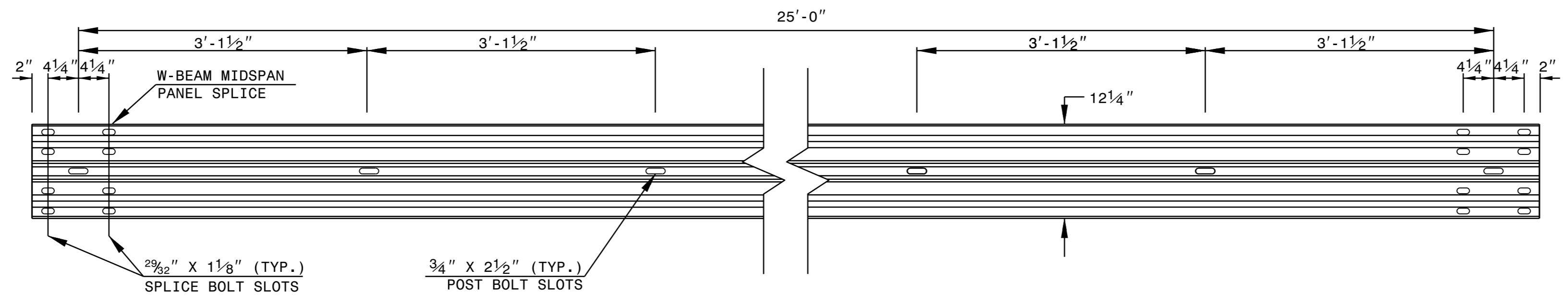
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

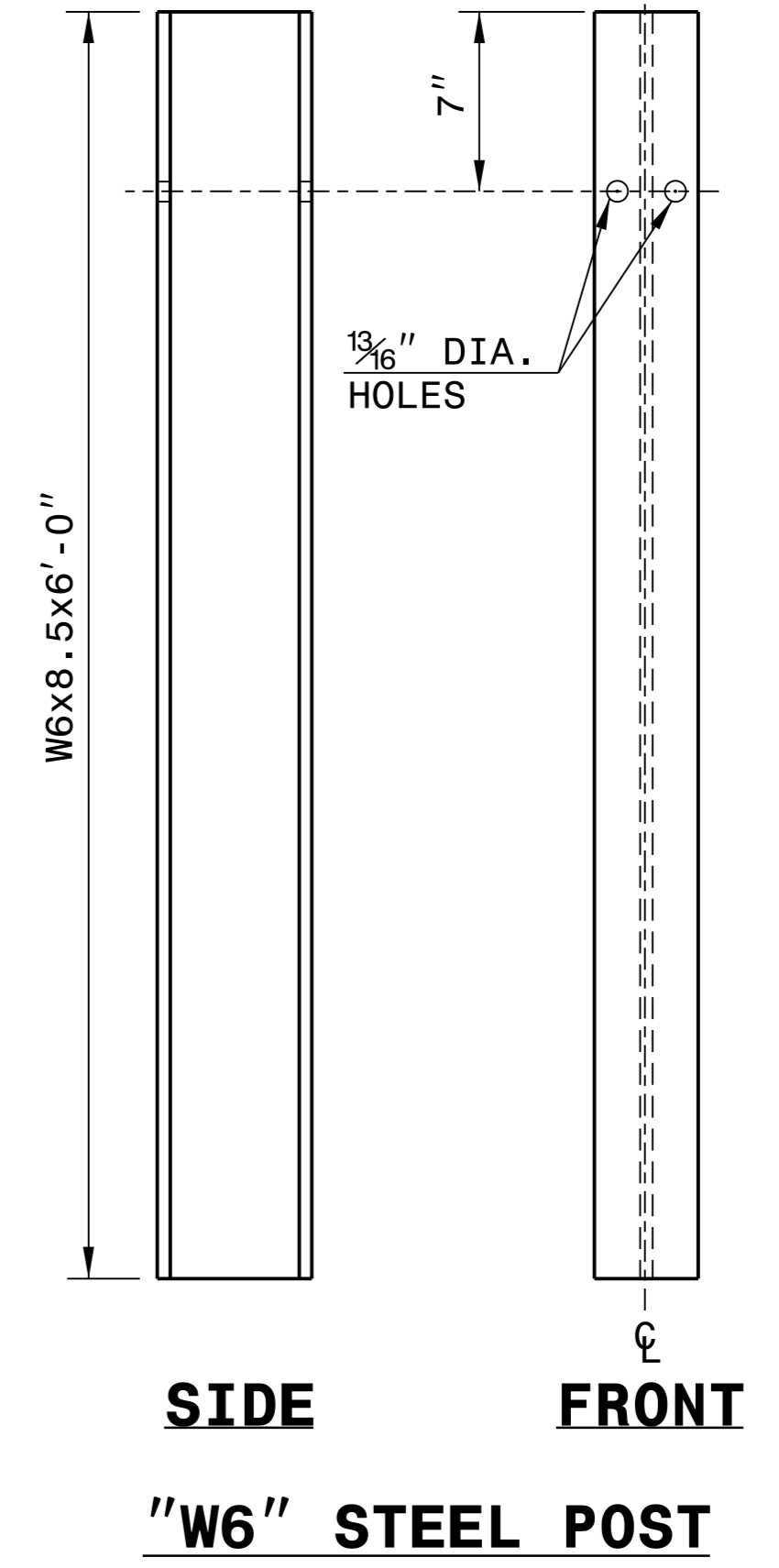
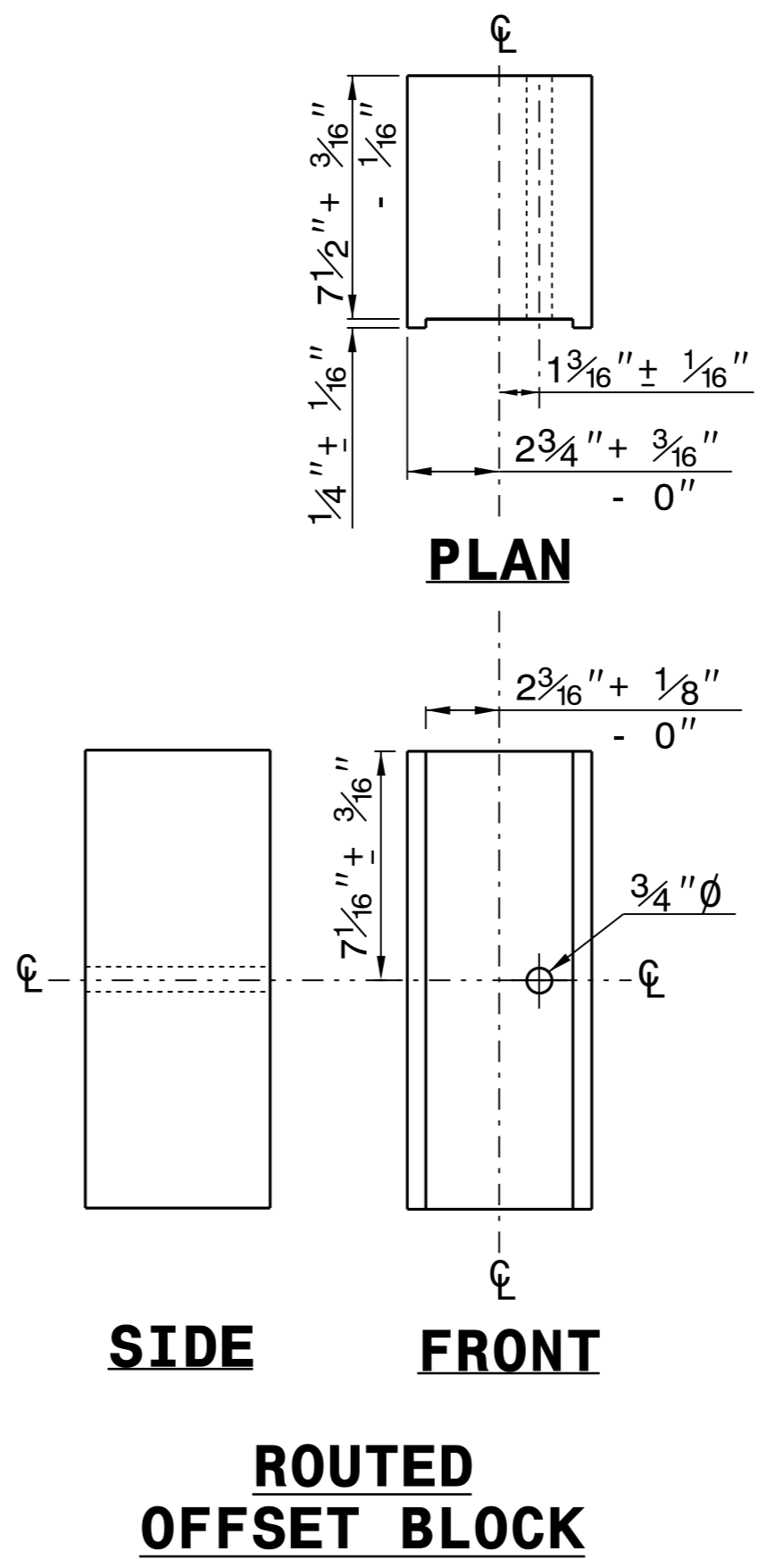
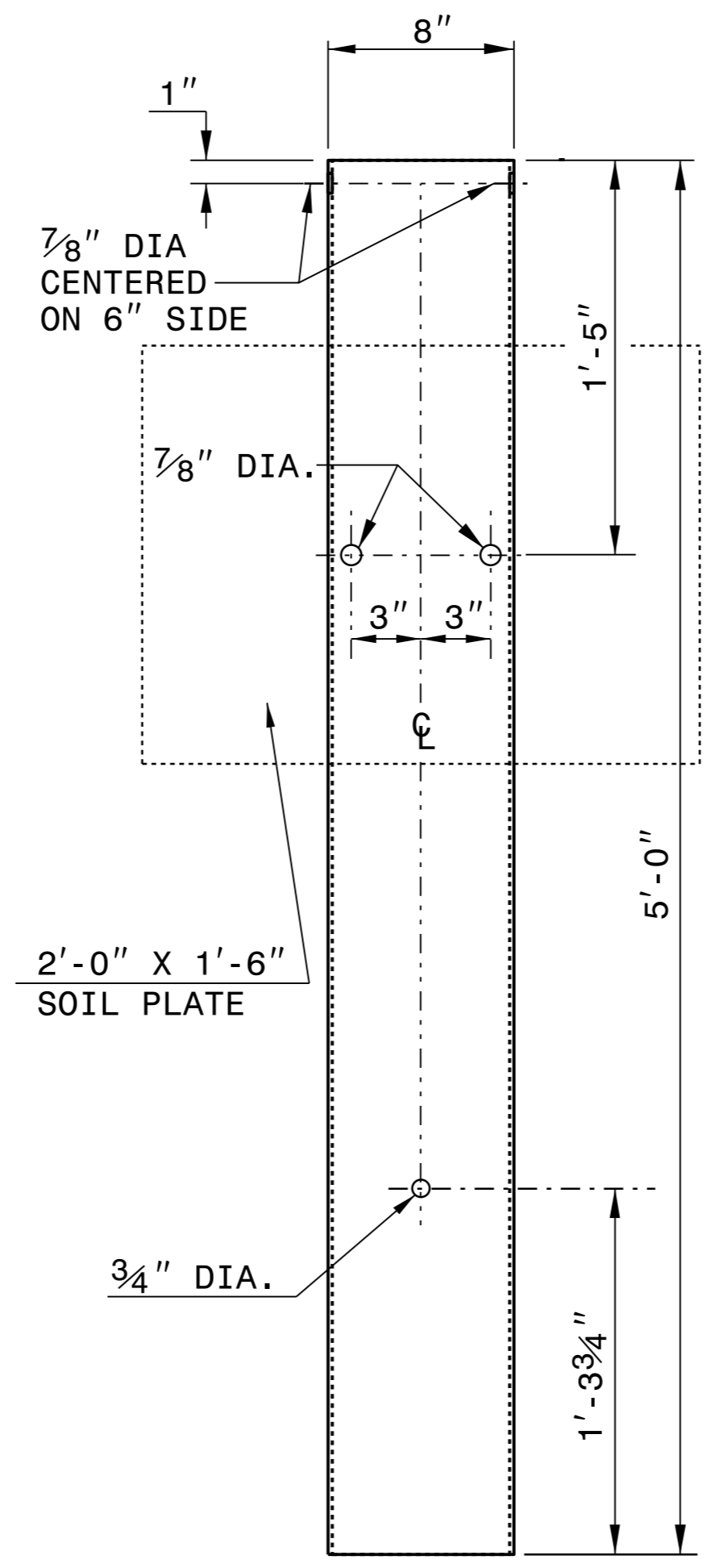
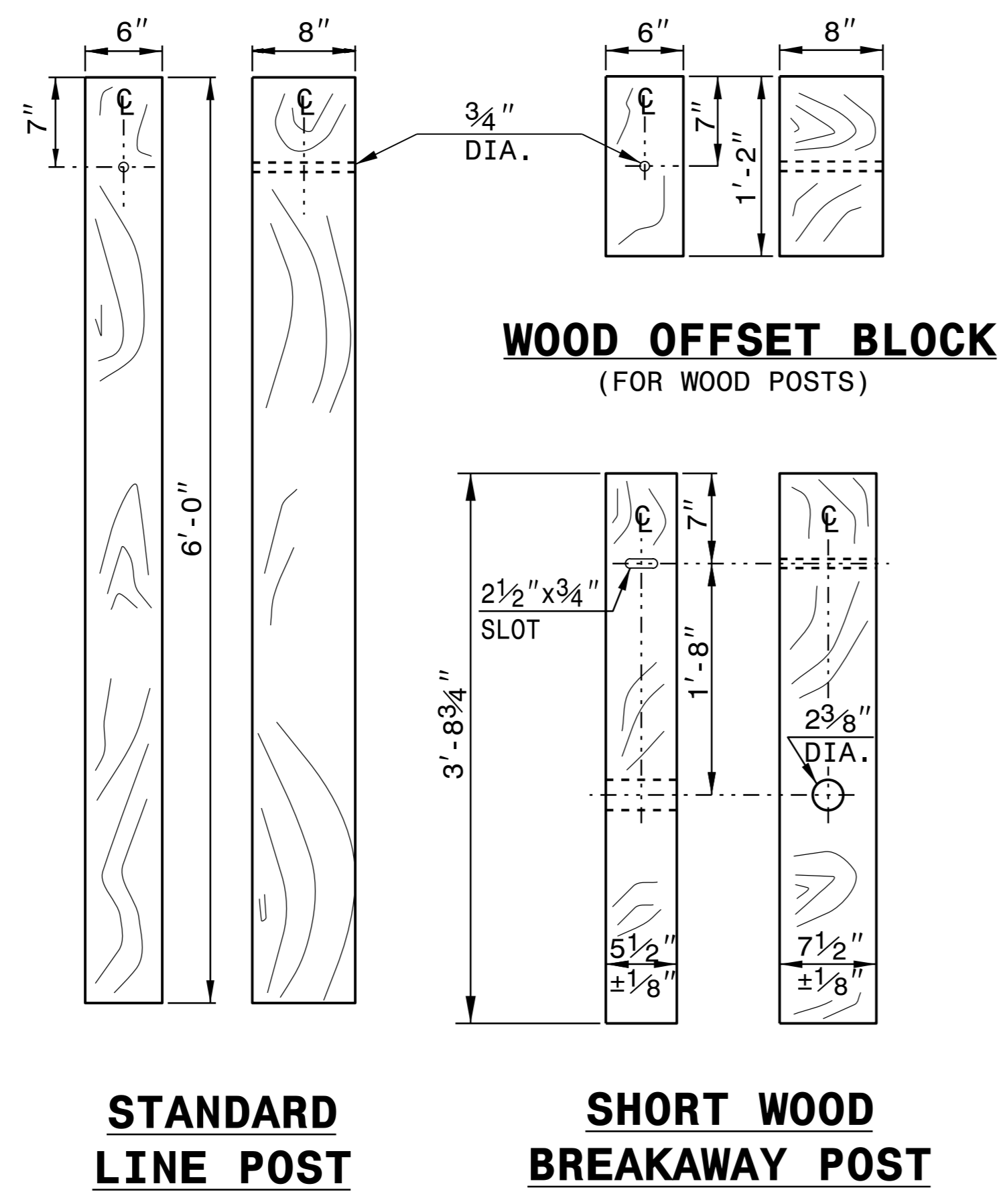
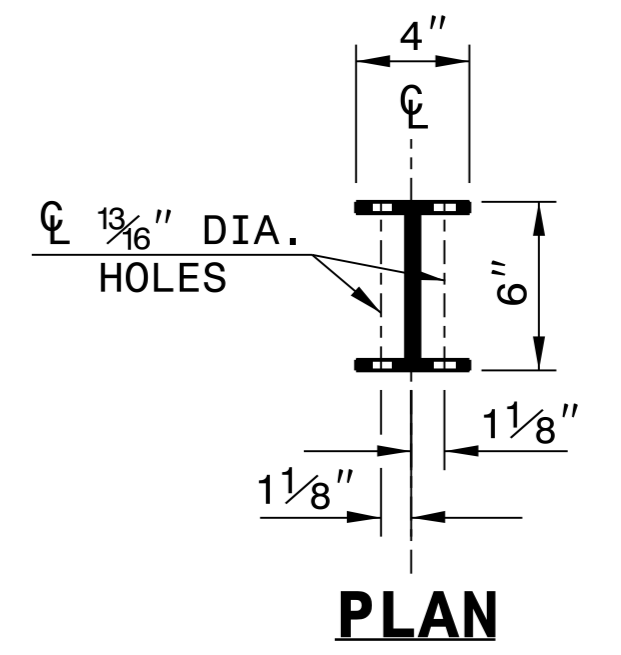
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

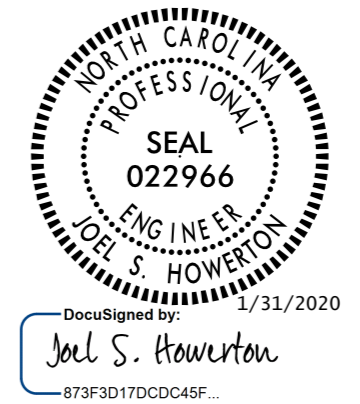
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



SYSTEM PARTS



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ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
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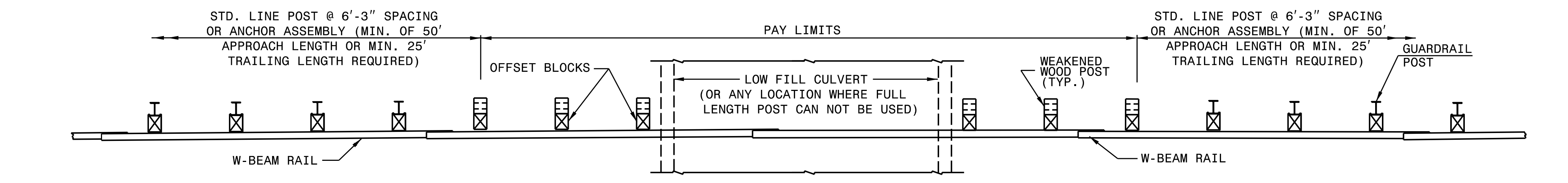
SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25'-0" CLEAR SPAN

SHEET - OF -
862D01

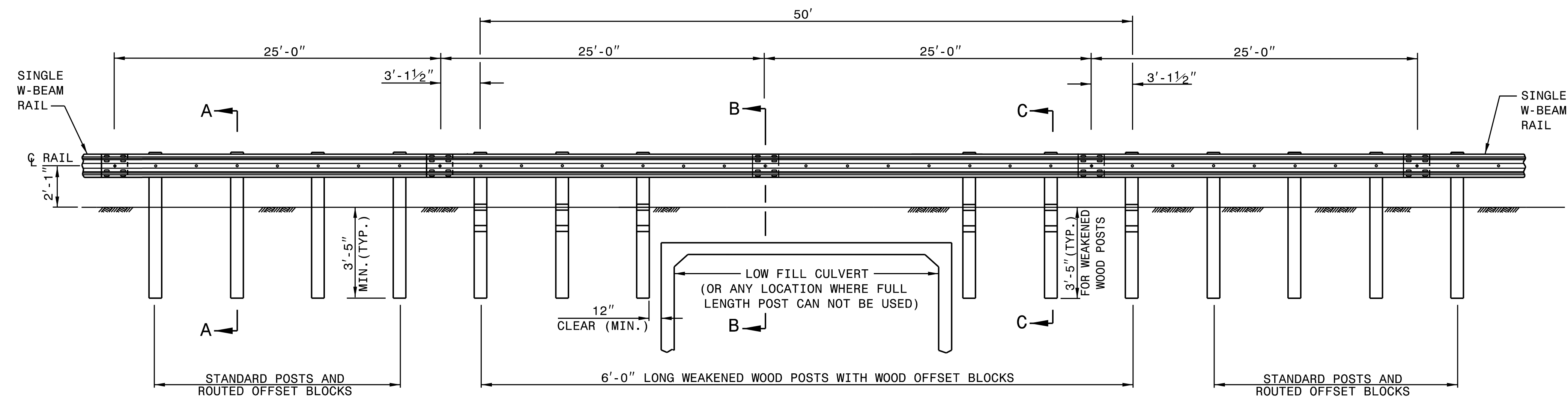
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SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25'-0" CLEAR SPAN

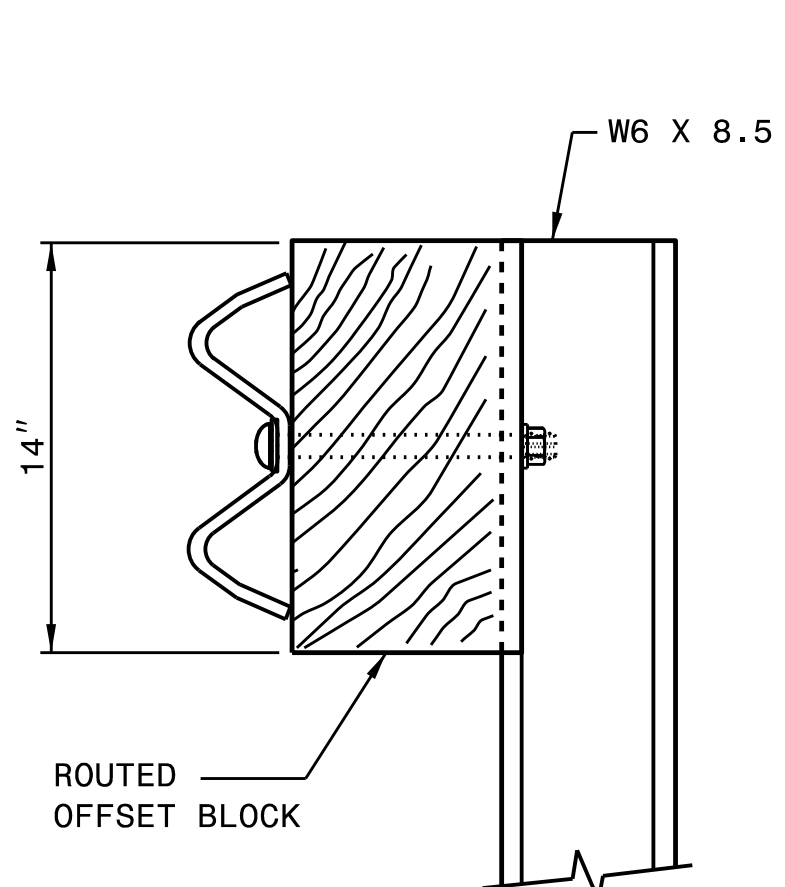
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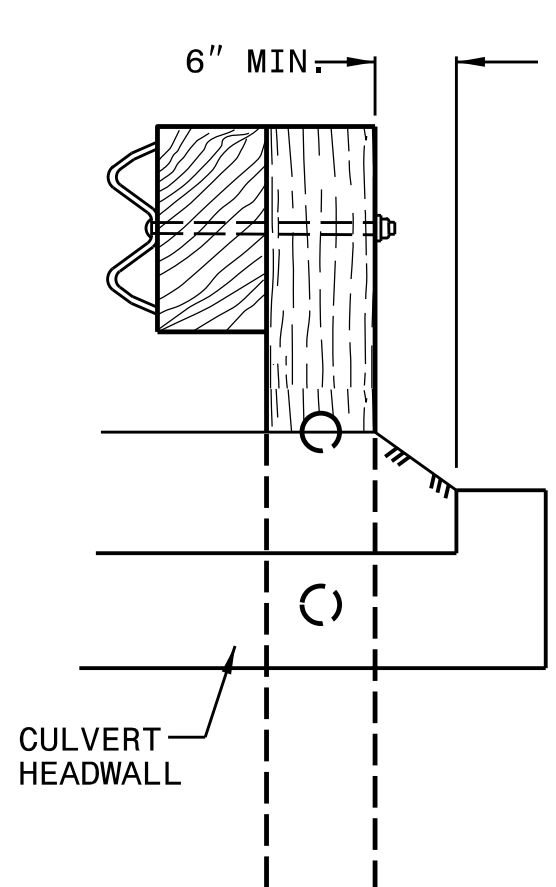
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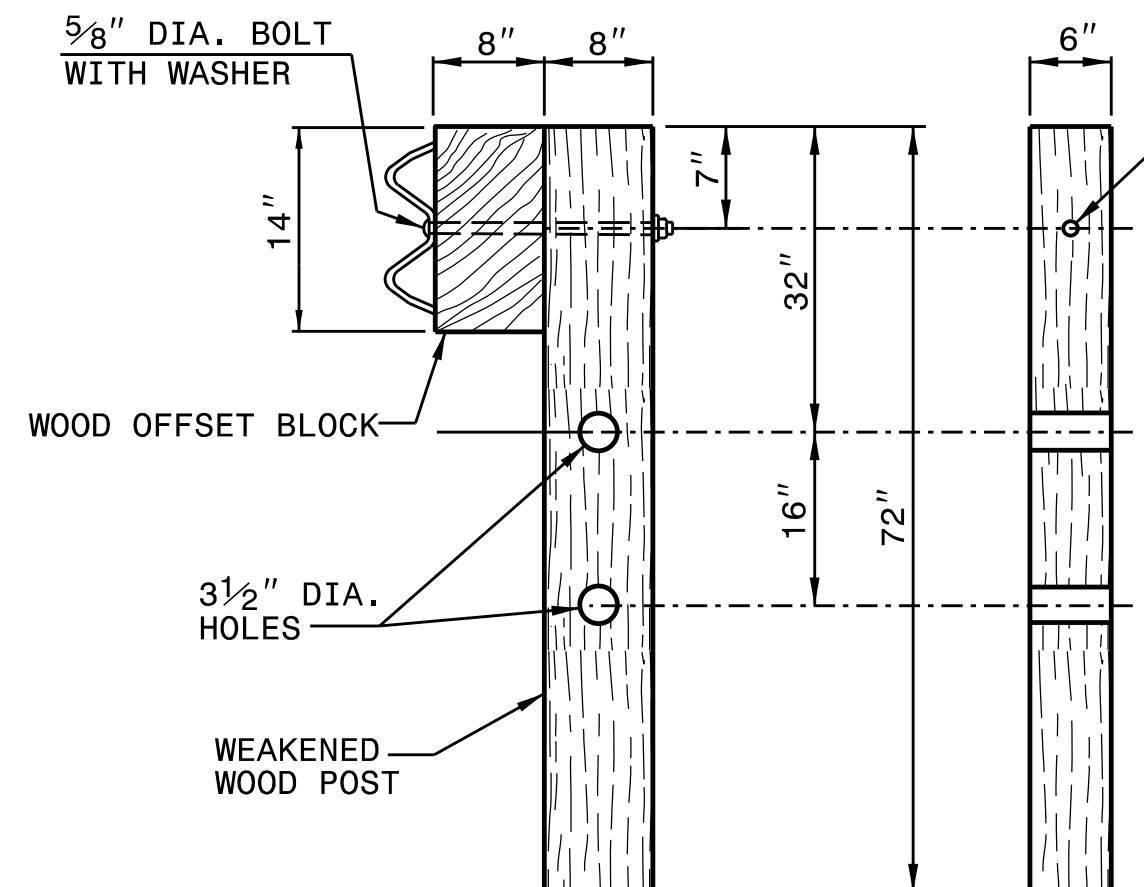
**ELEVATION
25'-0" GUARDRAIL SPAN**



SECTION A-A

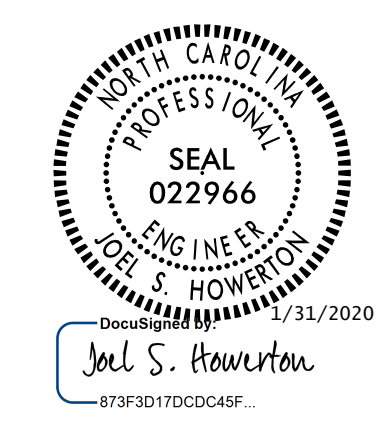


SECTION B-B



**SECTION C-C FRONT
WEAKENED WOOD POST**

- GENERAL NOTES:
1. LAP RAIL IN THE DIRECTION OF TRAFFIC FLOW.
 2. SEE ROADWAY PLANS FOR LOCATIONS AND CONTINUATION OF RAIL OR END SECTIONS.
 3. MINIMUM DISTANCE OF 5 FEET BEHIND THE GUARDRAIL SHOULD BE CLEAR OF ANY FIXED-OBJECT HAZARDS THAT COULD SNAG AN IMPACTING VEHICLE.



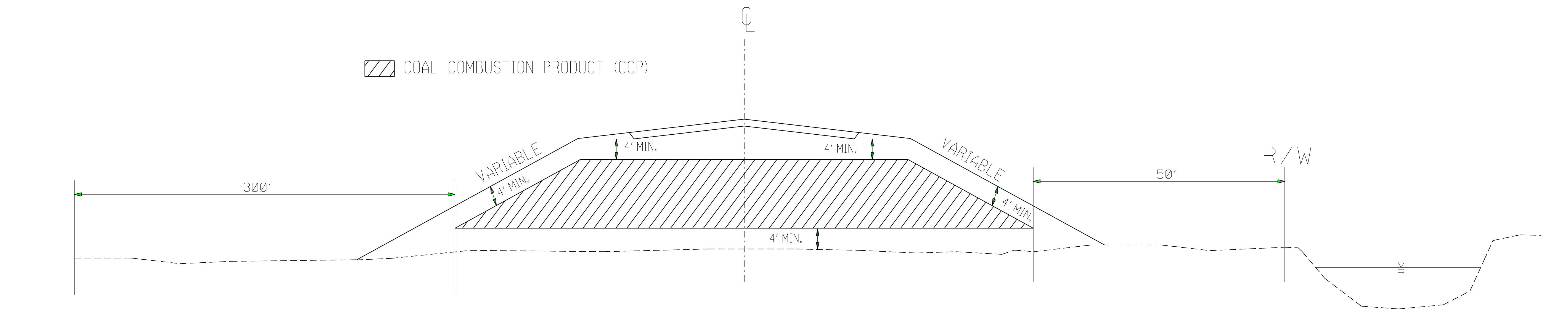
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

25'-0" CLEAR SPAN GUARDRAIL PLACEMENT

ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	

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COAL COMBUSTION PRODUCT PLACEMENT



PRIVATE DWELLING
OR WELL

PERENNIAL STREAM, OTHER SURFACE
WATER BODY OR *WETLAND

*(OBTAIN PERMISSION FROM ARMY
CORPS OF ENGINEERS)

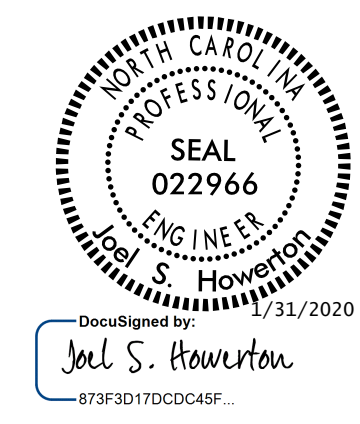
PLACE CCP IN HATCHED AREA IN ACCORDANCE
WITH THE PROJECT SPECIAL PROVISIONS

PLACE CCP A MINIMUM OF 5' ABOVE
SEASONAL HIGH GROUND WATER

PLACE AT LOCATIONS AS APPROVED BY THE ENGINEER

PLACE SOIL BORROW MATERIAL ON THE OUTSIDE
OF CCP AS EACH LIFT OF CCP IS PLACED

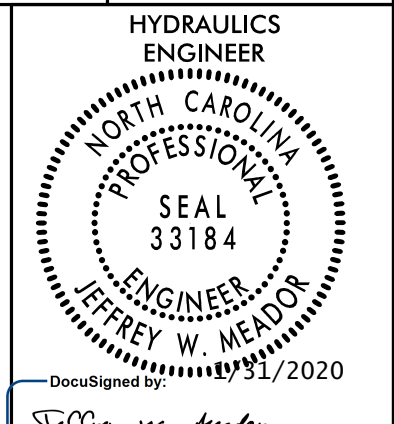
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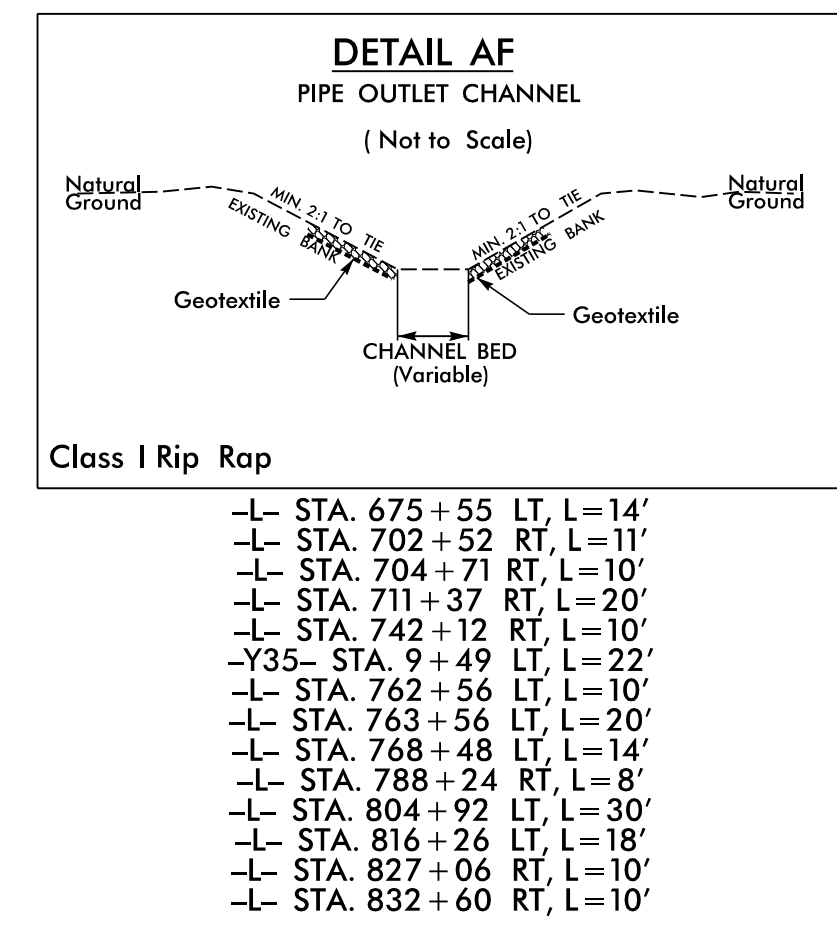
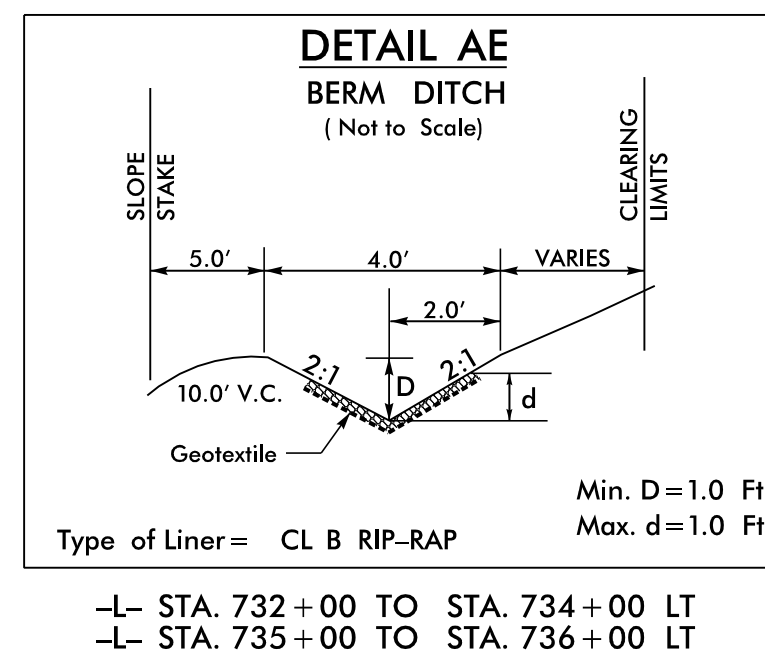
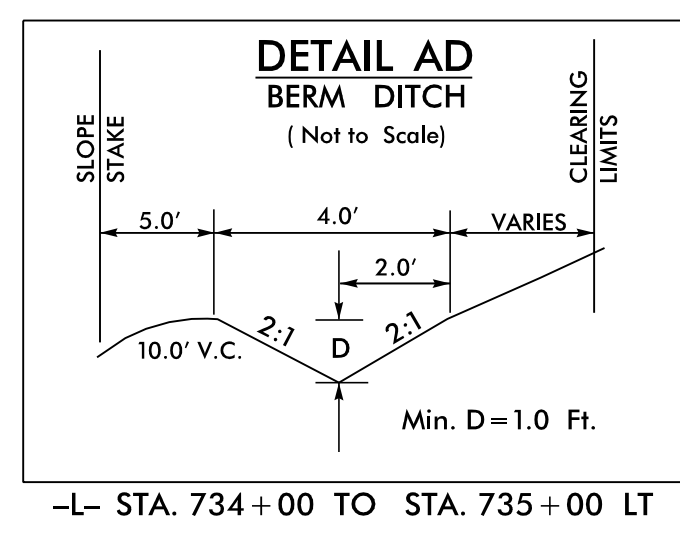
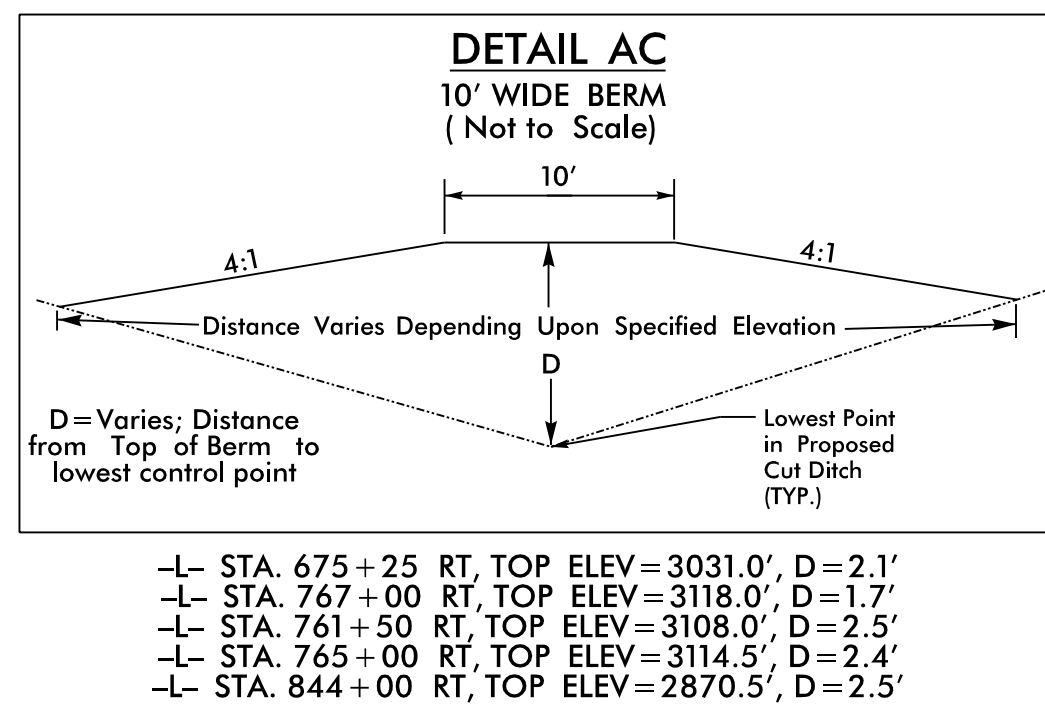
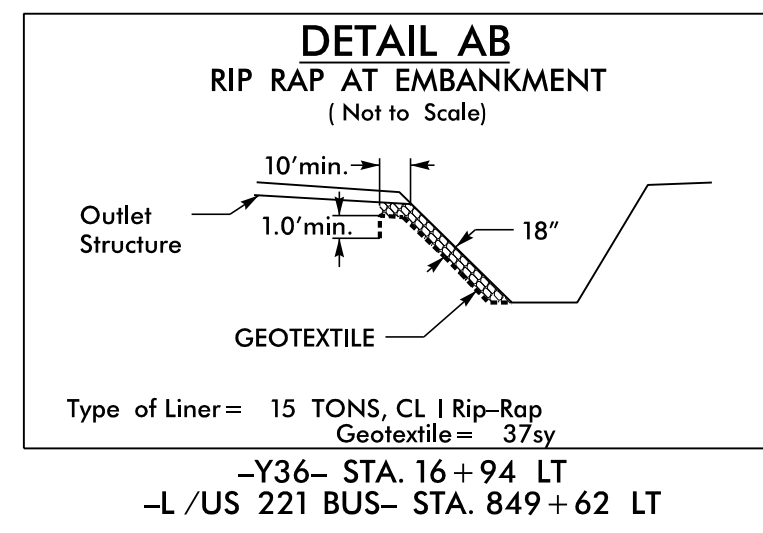
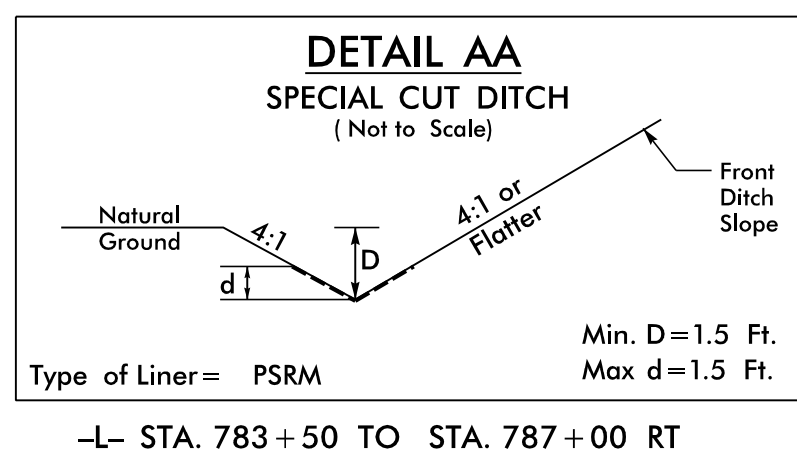
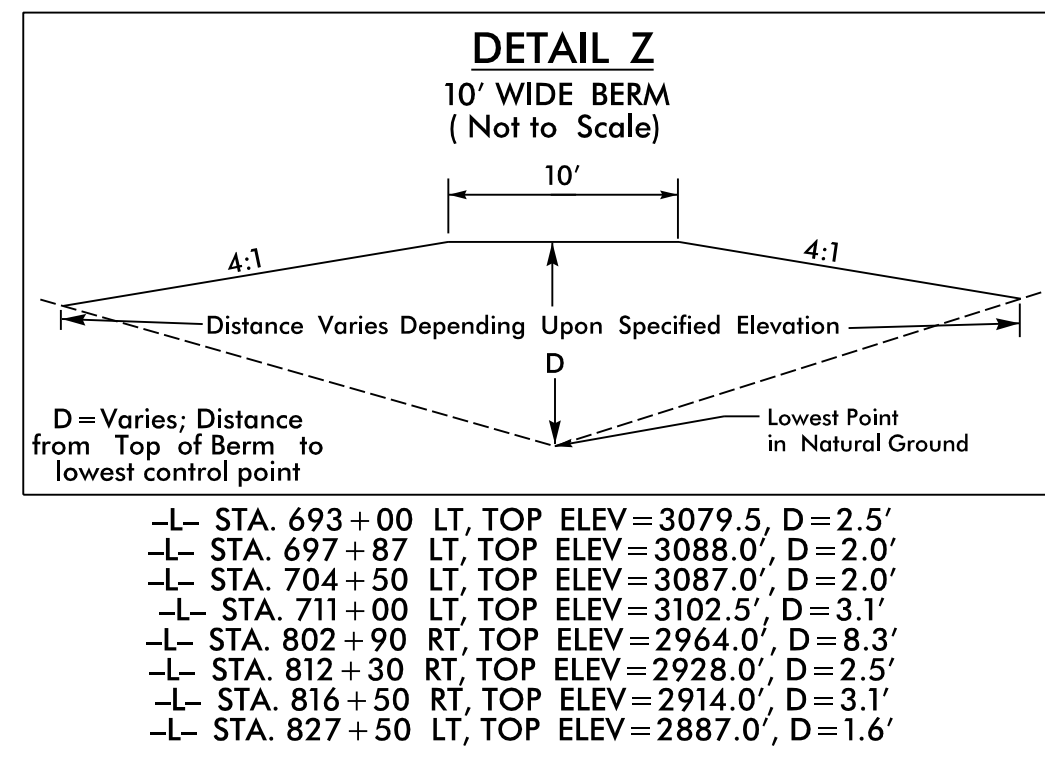
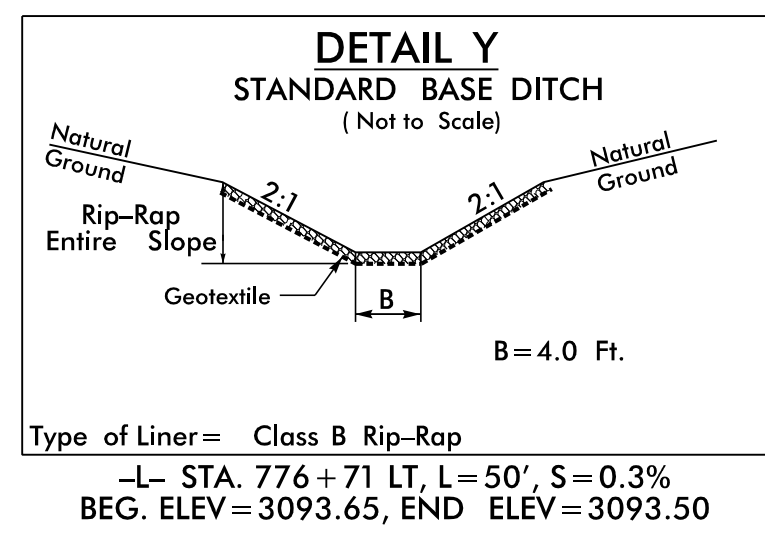
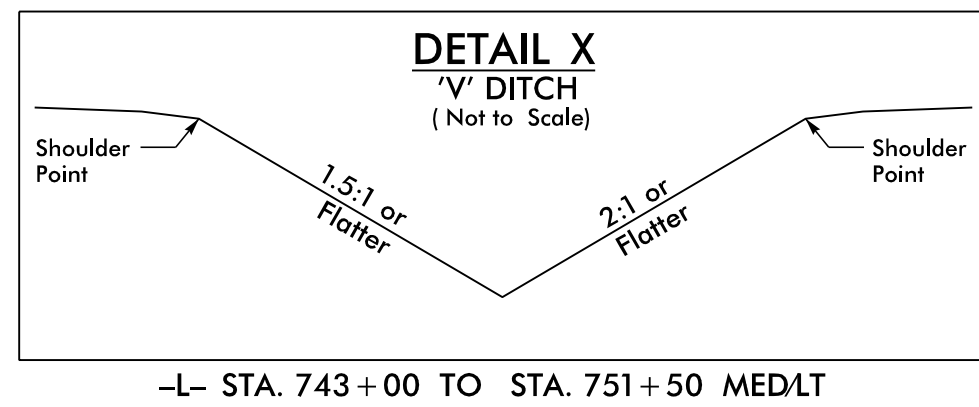
DocuSigned by:
Joel S. Howerton
873F3D17DCDC45F...

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
COAL COMBUSTION PRODUCT PLACEMENT DETAIL	
ORIGINAL BY: J.S.H.	DATE: 3/16/15
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: joel/coal combustion material detail.dgn	

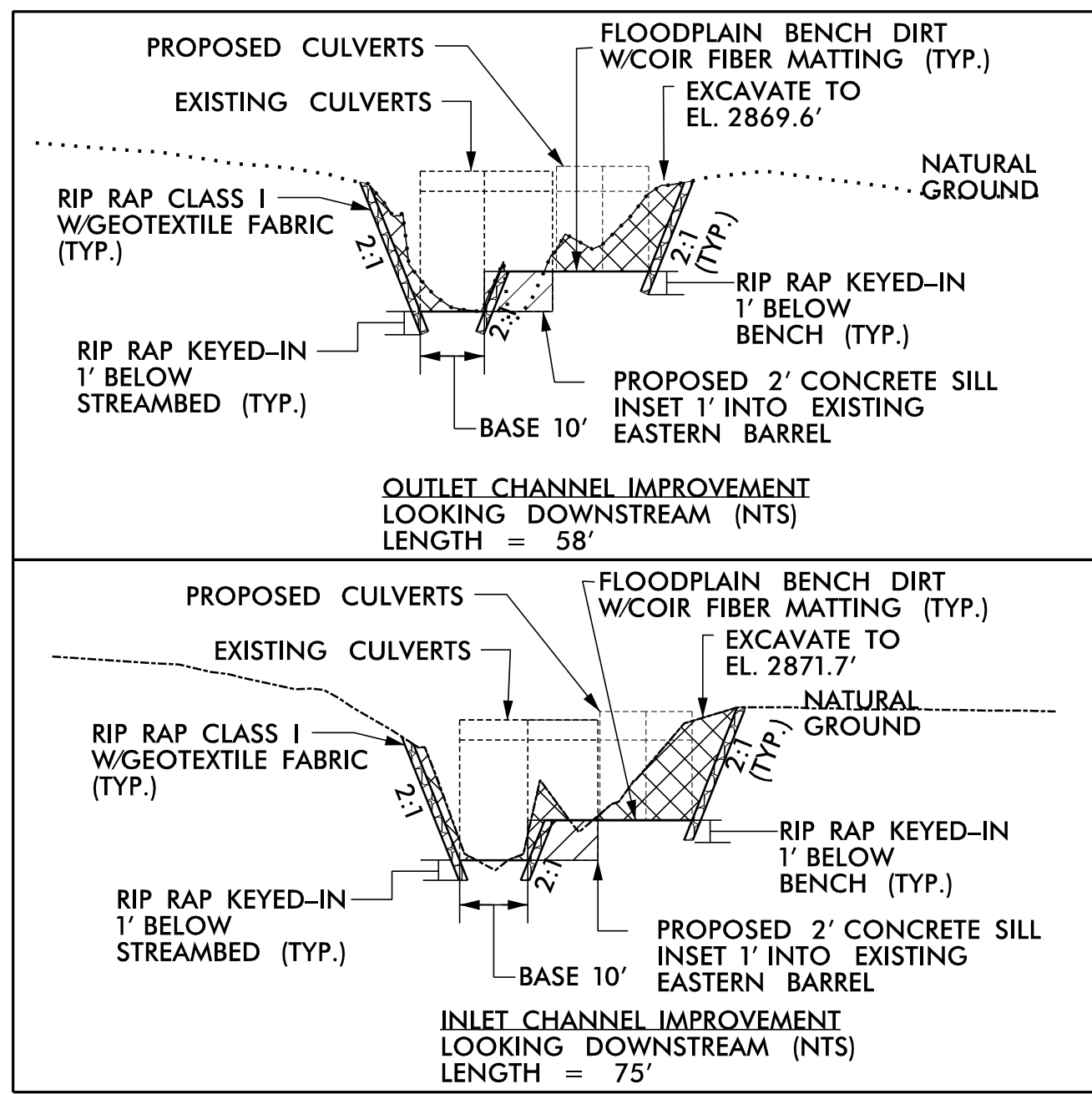
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CULVERT @ -L- STA. 838+56




PERMANENT CHANNEL EXCAVATION

TOTAL CHANNEL EXCAVATION = 485 CY (STRUCTURE PAY ITEM)

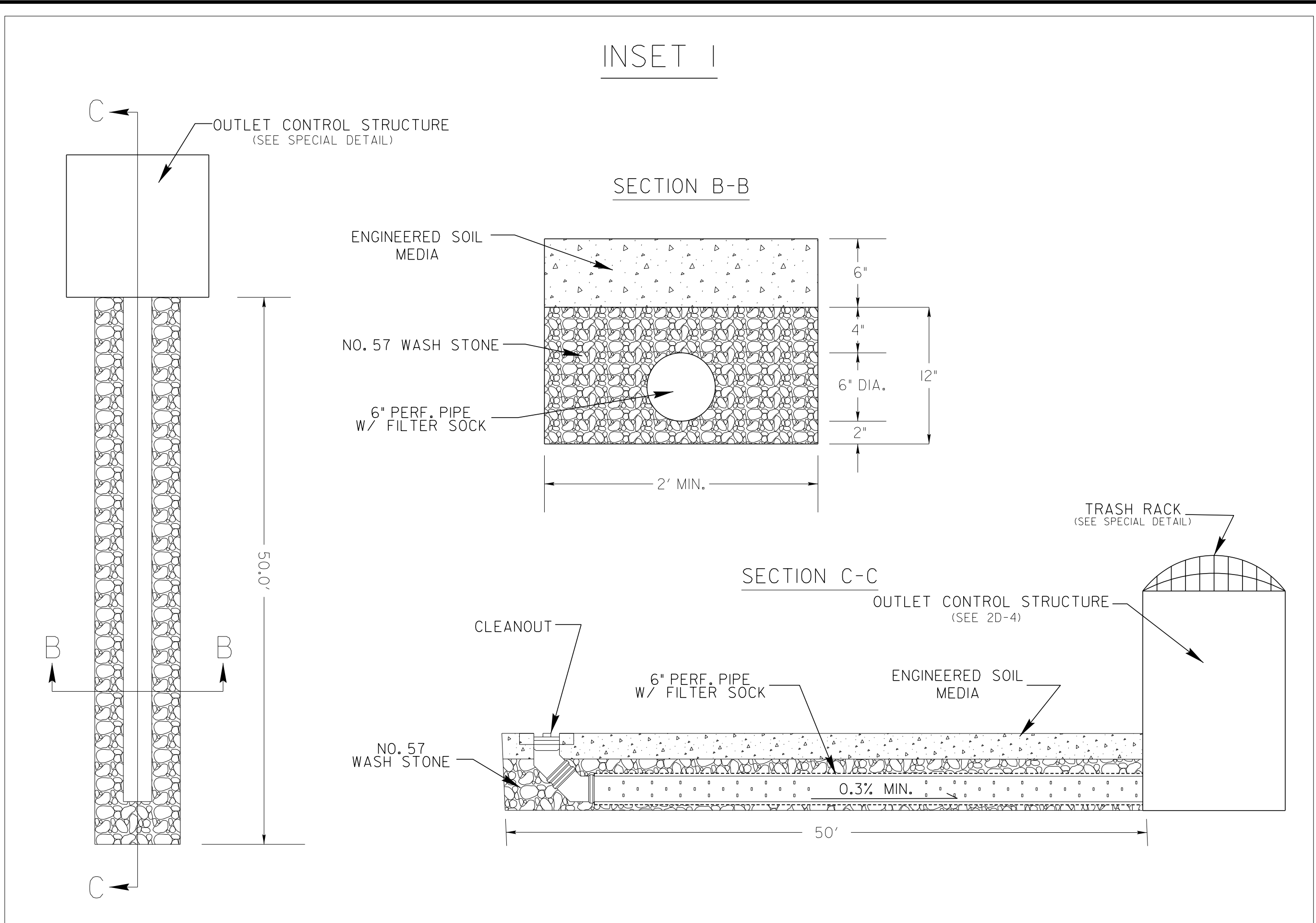
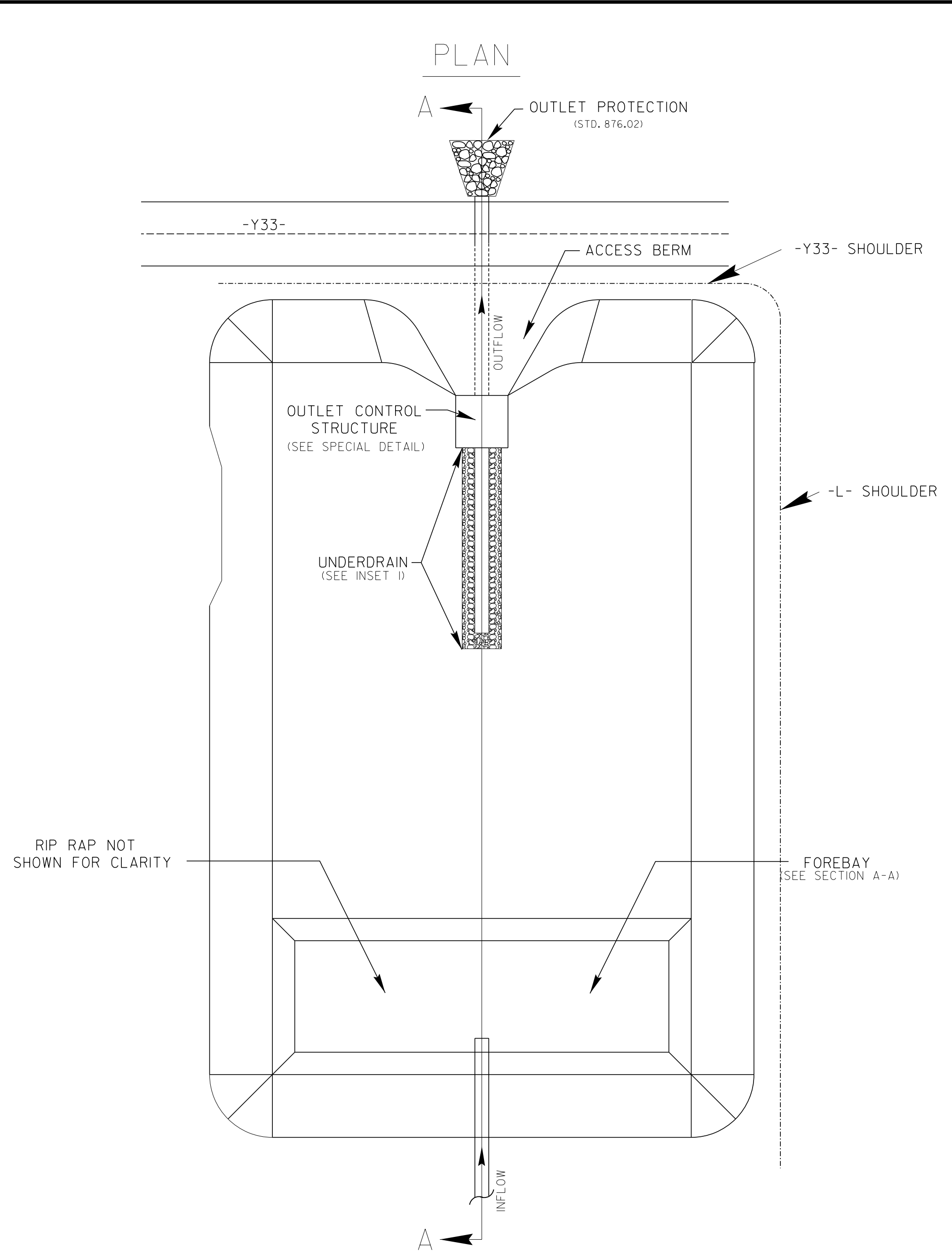
TOTAL CL I RIP RAP = 255 TONS

TOTAL GEOTEXTILE FAB. = 270 SY

8/17/99

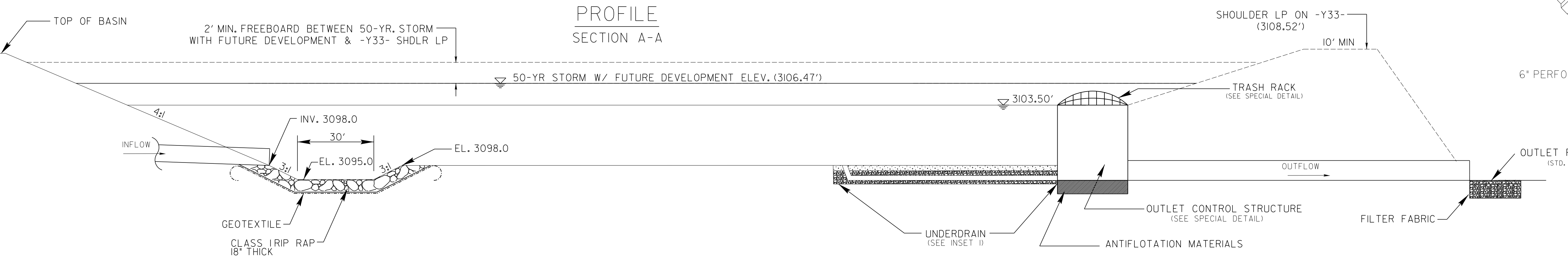
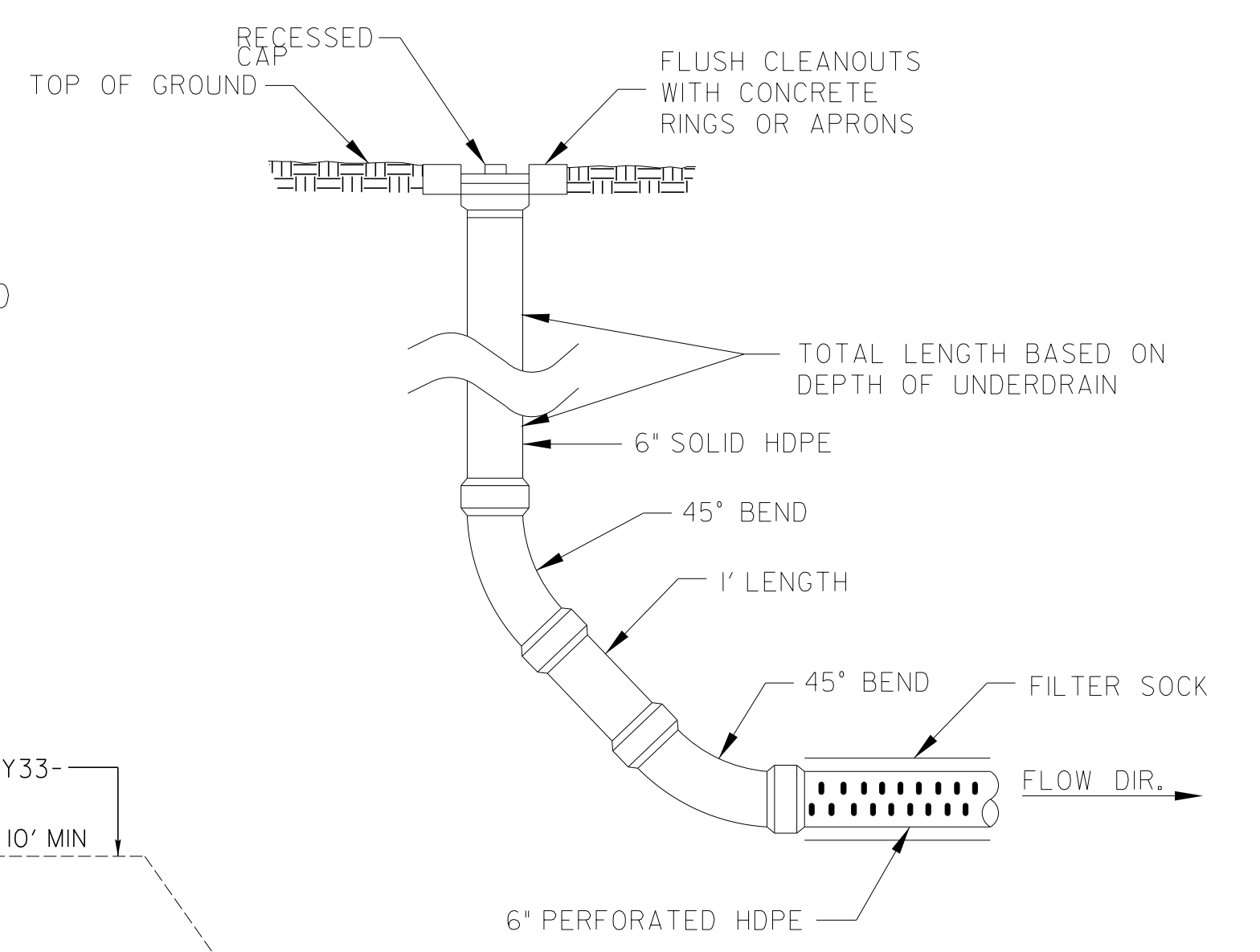
PROJECT REFERENCE NO. <i>R-2915E</i>	SHEET NO. <i>2D-3</i>
RW SHEET NO.	
HYDRAULICS ENGINEER  Jeffrey W. Neader	

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- NOTES
1. SHAPE OF BASIN MAY VARY DEPENDING ON SITE CONSTRAINTS. (RECOMMEND LENGTH TO WIDTH RATIO - 3:1)
 2. 6" UNDERDRAIN IS A SECONDARY DRAWDOWN DEVICE AND IS NOT INTENDED TO BE PRIMARY DRAWDOWN DEVICE.
 5. ACCESS BERM SHOULD BE PROVIDED FOR MAINTENANCE.
 6. LENGTH OF UNDERDRAIN TO BE 50.0', ENDING WITH A CAPPED CLEAN OUT.
 7. ONLY UNDERDRAIN PIPE (LOCATED BENEATH ENGINEERED SOIL MEDIA) SHOULD BE PERFORATED.
 8. PROVIDE THREADED SCREW CAP, RECESSED BELOW TOP OF CONCRETE RING OR APRON.

REFERENCED SPECIAL DETAILS
 DRY DETENTION BASIN "OUTLET CONTROL STRUCTURE"
 DRY DETENTION BASIN "TRASH RACKS"



NOT TO SCALE

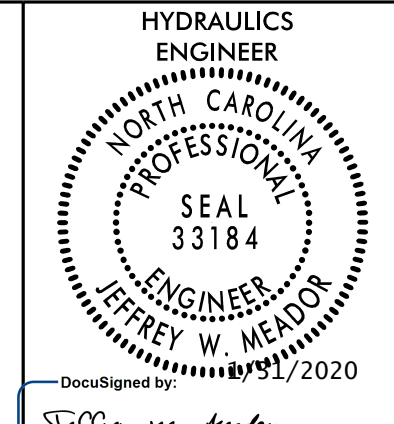
DRY DETENTION BASIN DETAILS WITH UNDERDRAIN

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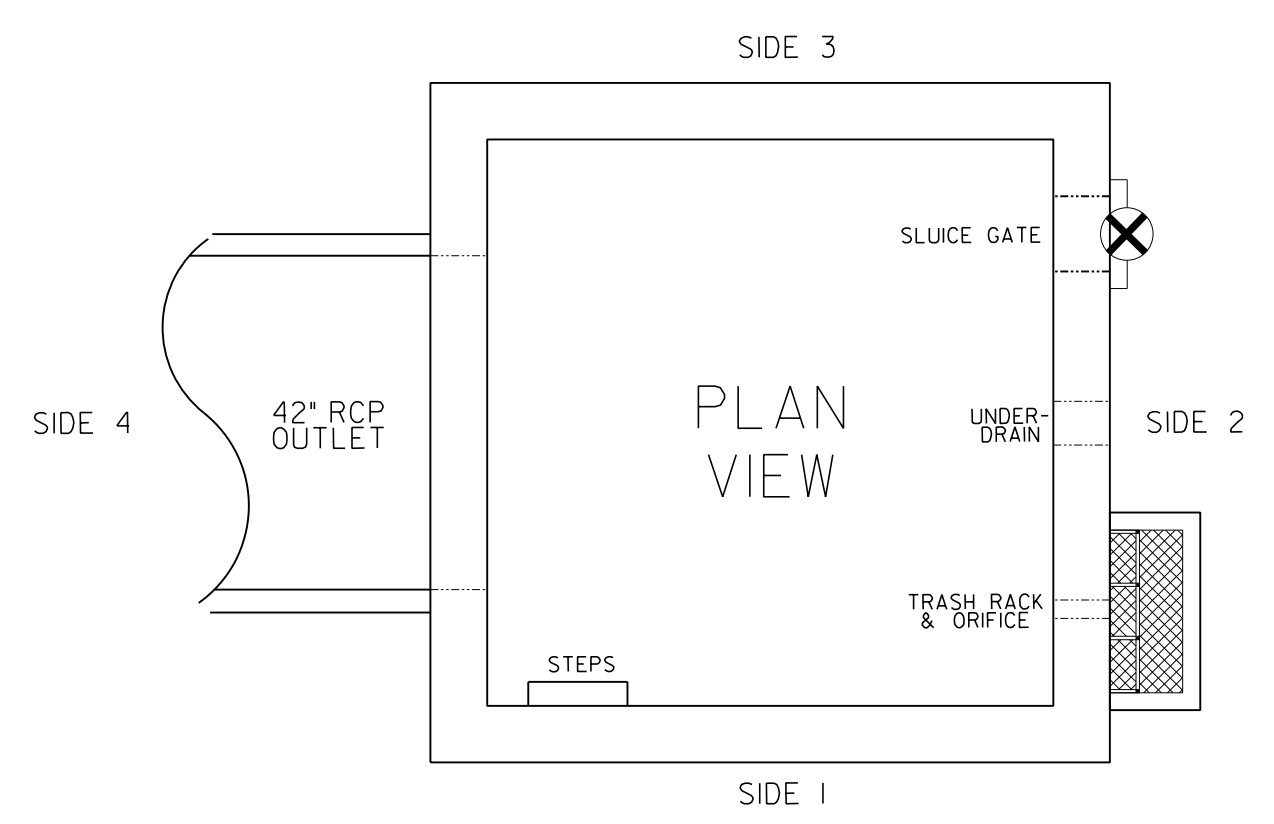
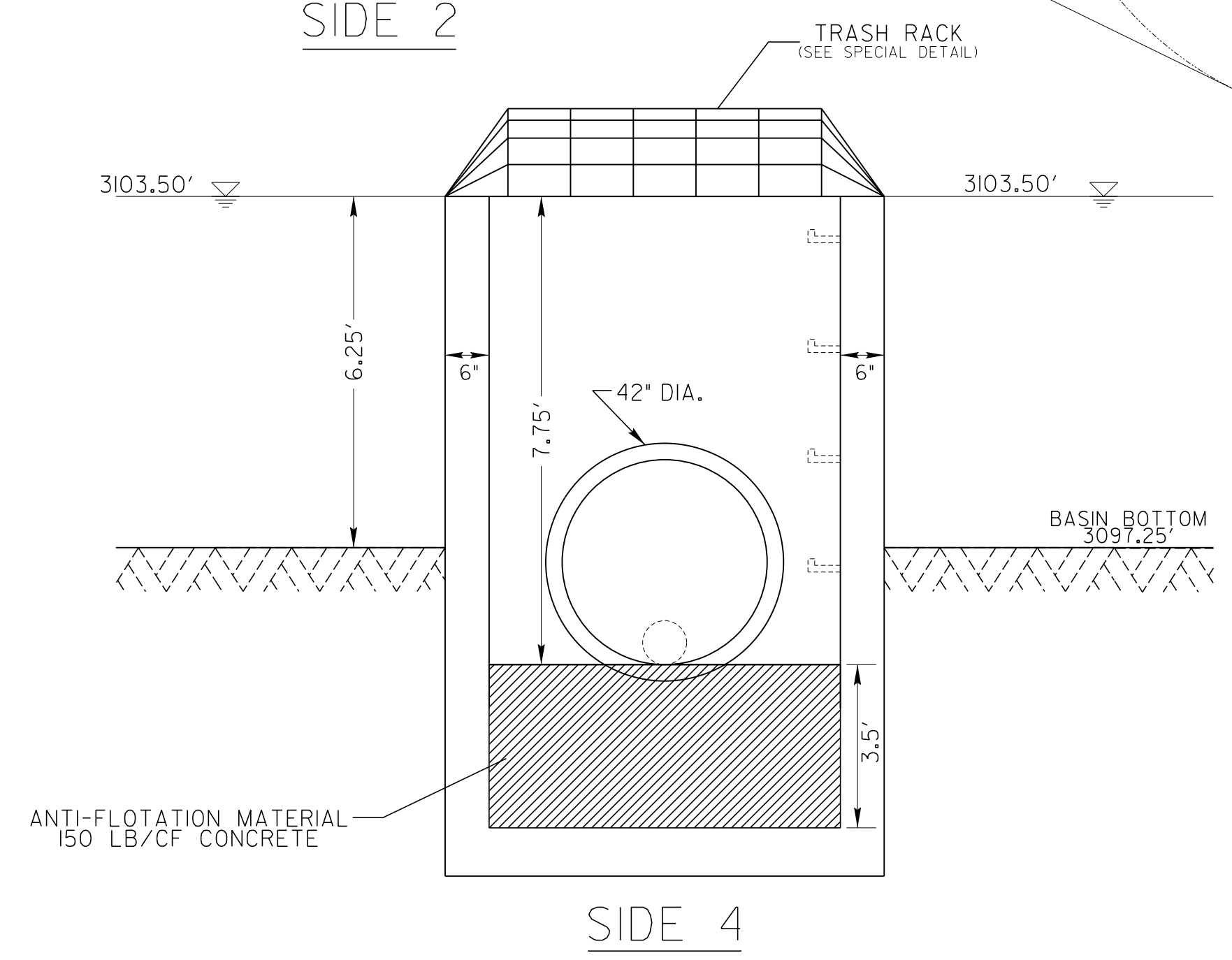
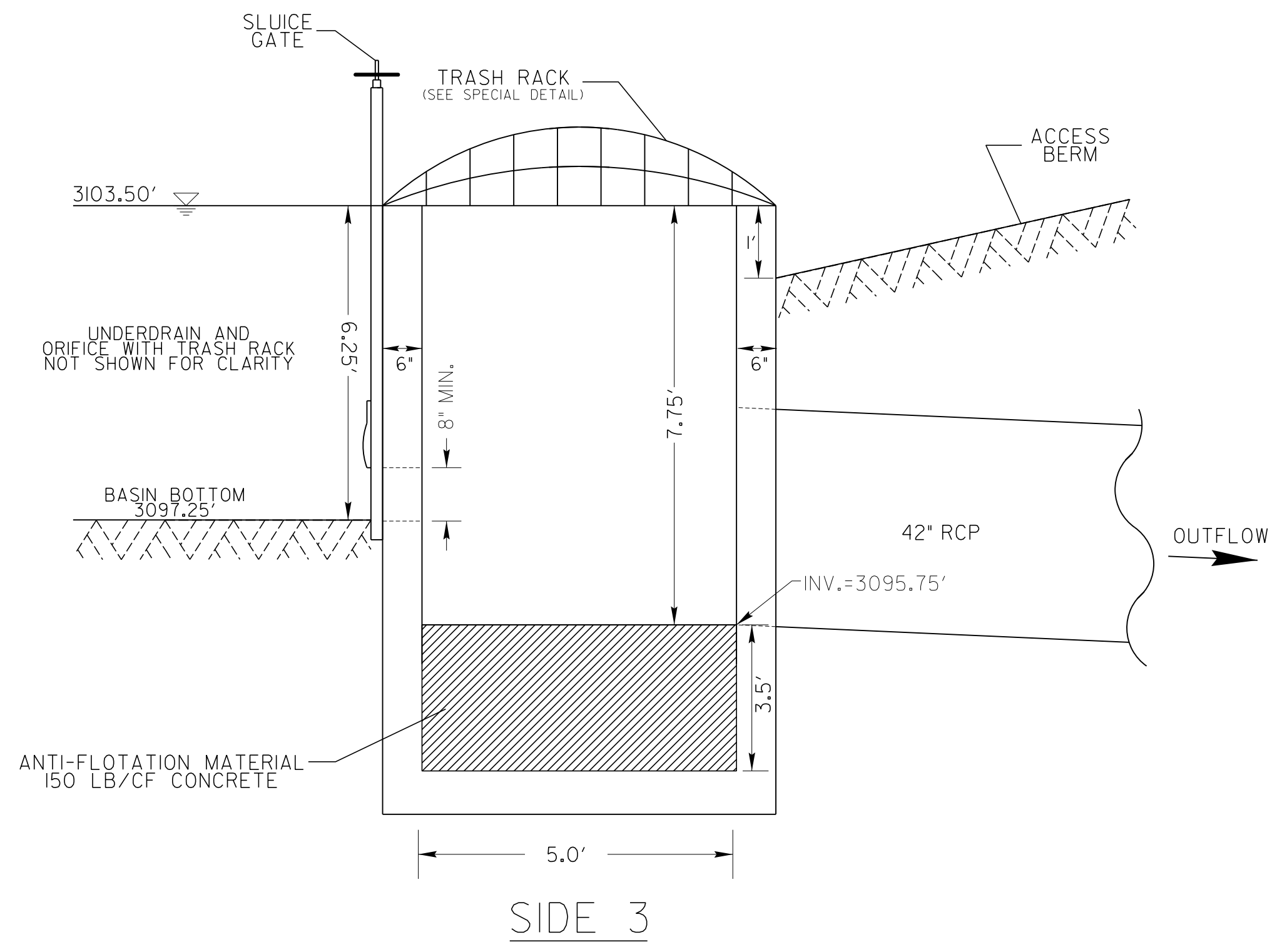
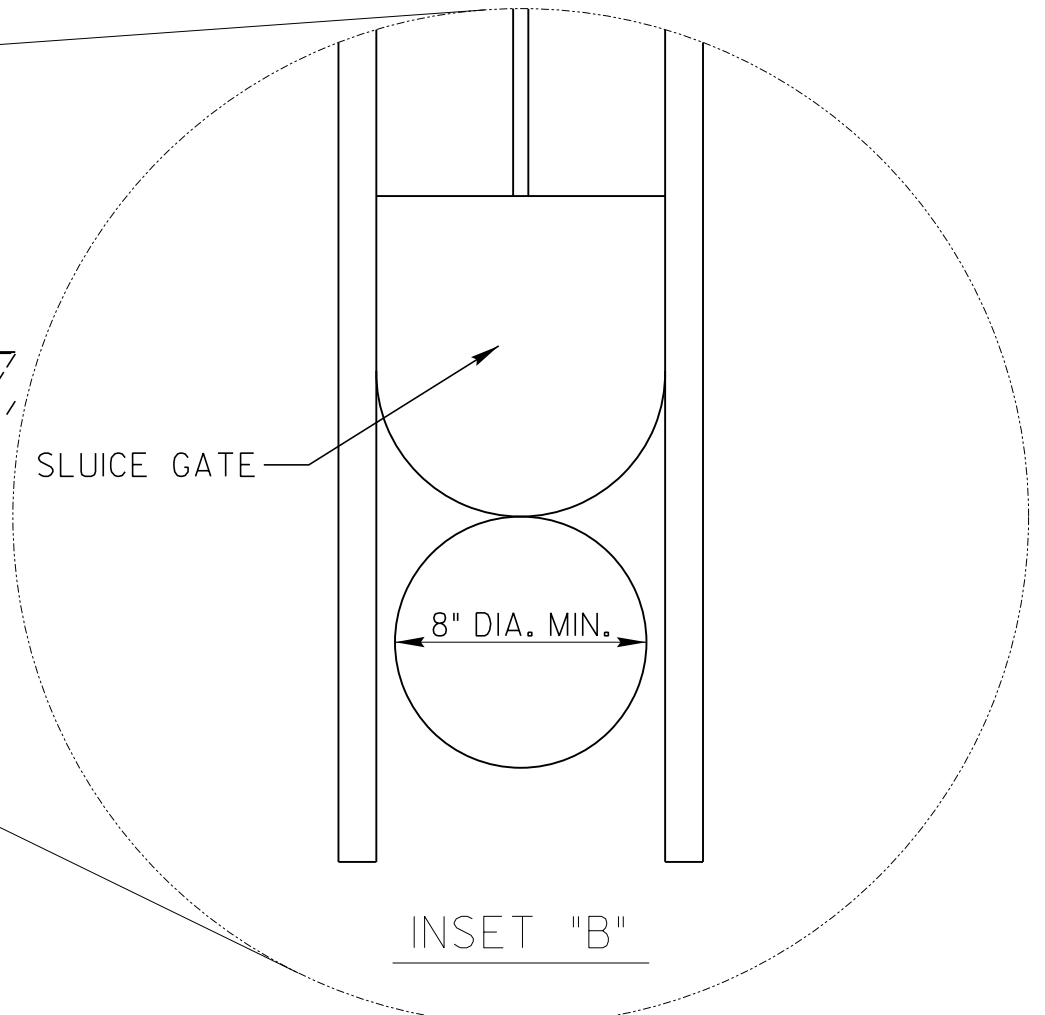
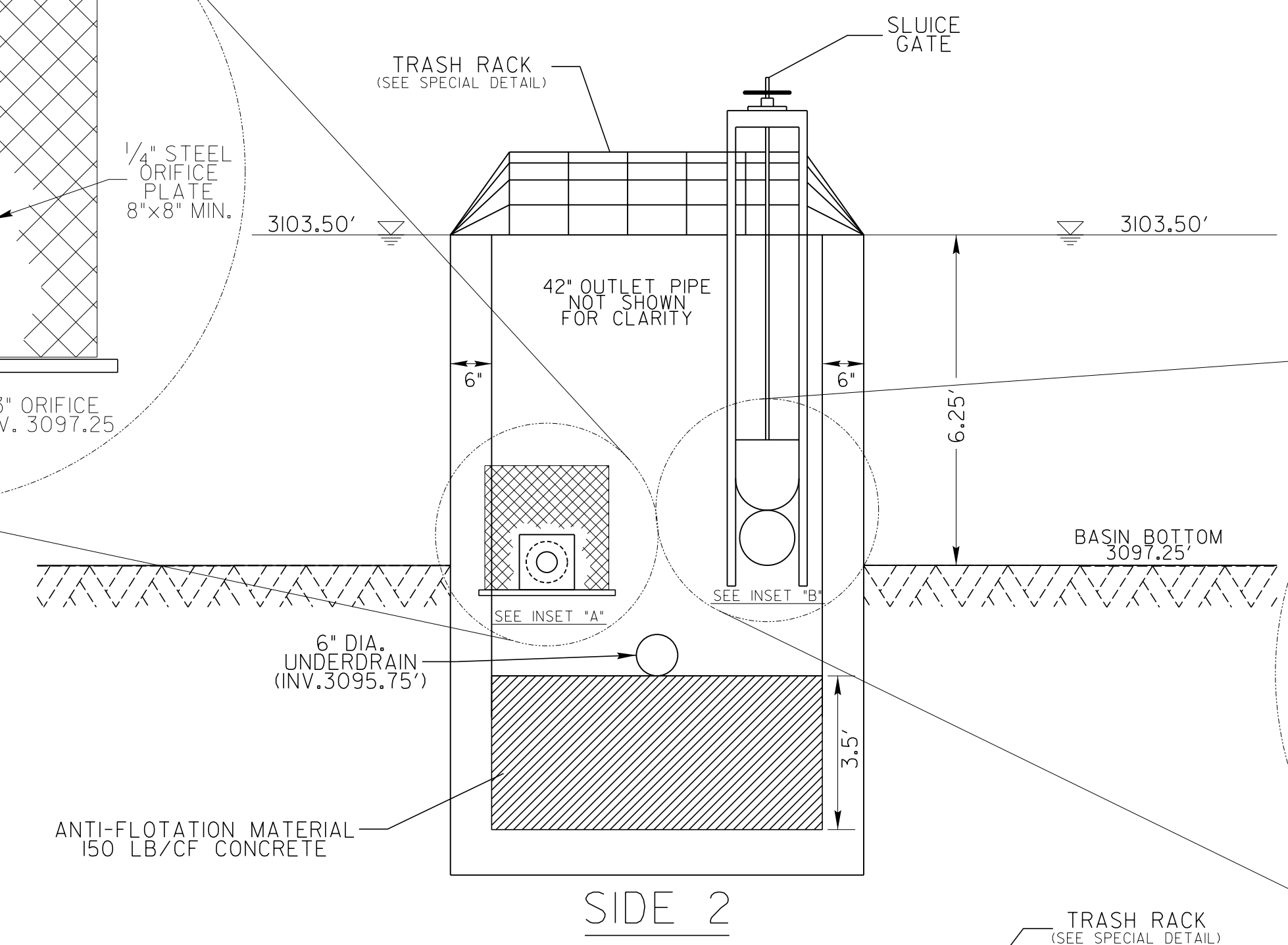
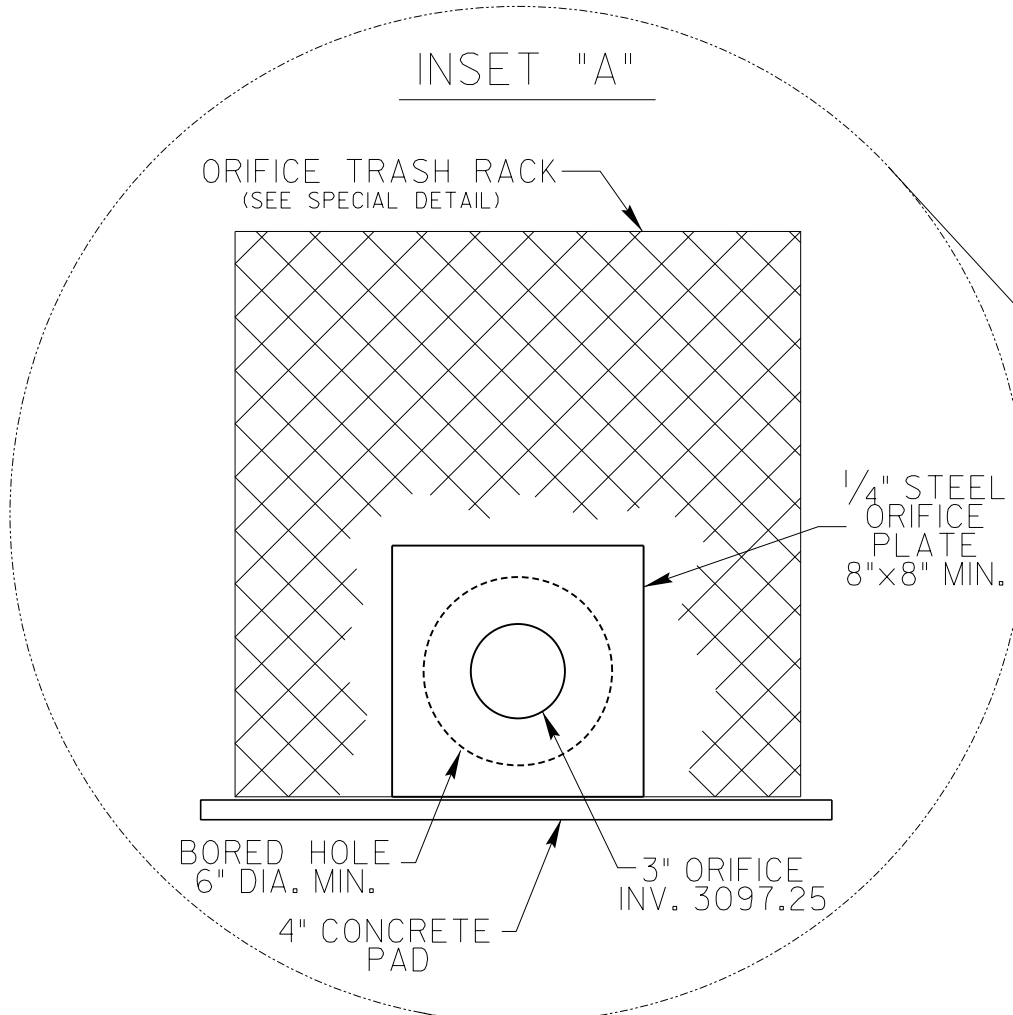
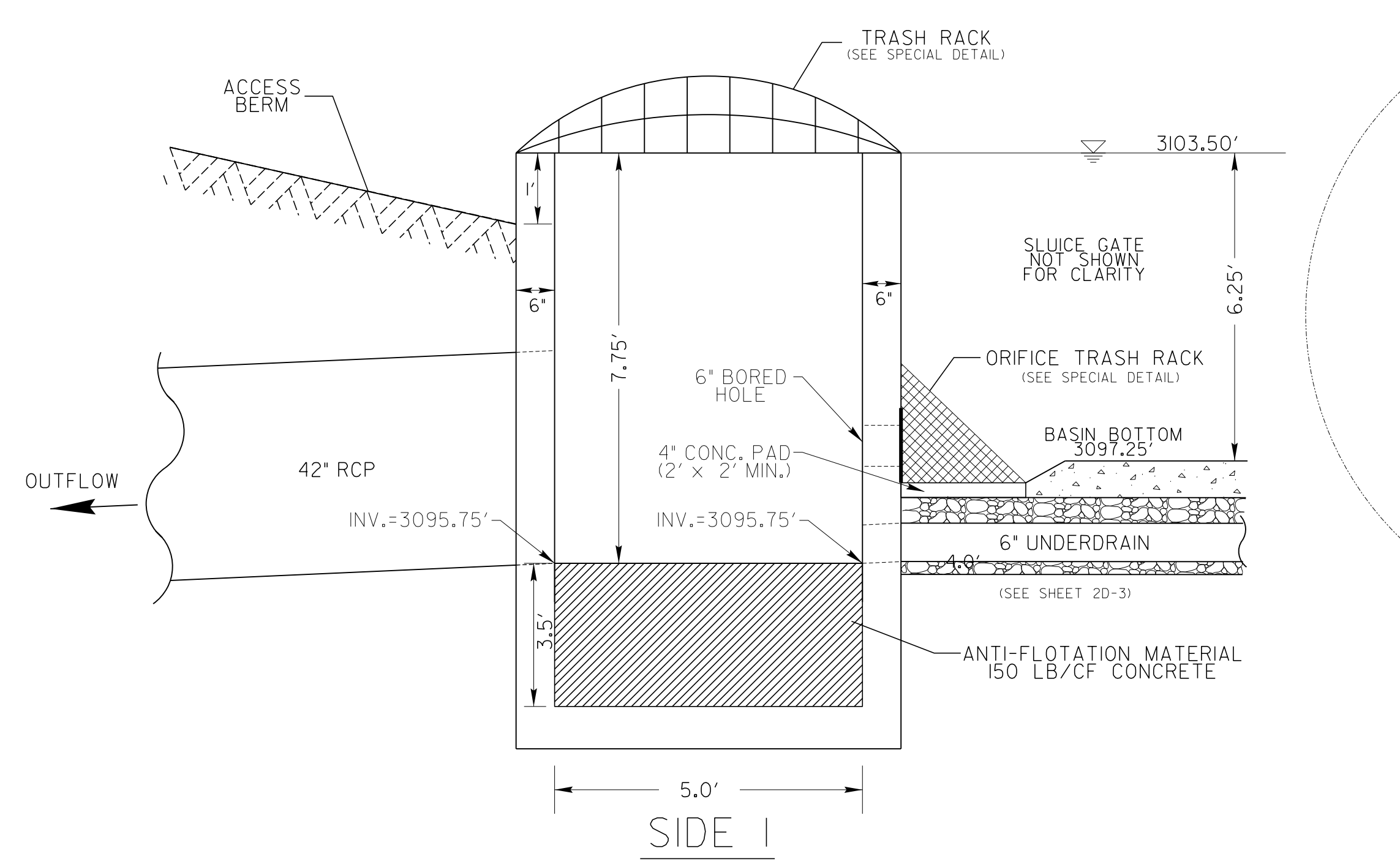
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8/17/19

PROJECT REFERENCE NO. <i>R-2915E</i>	SHEET NO. <i>2D-4</i>
RW SHEET NO.	



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- NOTES**
1. ORIFICE, SLUICE GATE AND UNDERDRAIN SHOWN ON DIFFERENT SIDES FOR CLARITY PURPOSES. LOCATIONS TO BE SPECIFIED BY ENGINEER.
 2. 42" MINIMUM DIAMETER FOR OUTLET PIPE.
 3. 3" DIAMETER ORIFICE
 4. 6" UNDERDRAIN IS A SECONDARY DRAWDOWN DEVICE AND IS NOT INTENDED TO BE PRIMARY DRAWDOWN DEVICE.
 5. 8" MIN. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION.
 6. 12" O.C. STEPS MUST BE PROVIDED INSIDE THE OUTLET CONTROL STRUCTURE, SEE STD. DRAWING 840.66

REFERENCED SPECIAL DETAILS

DRY DETENTION BASIN "BASIN DETAILS"
 DRY DETENTION BASIN "TRASH RACKS"

NOT TO SCALE

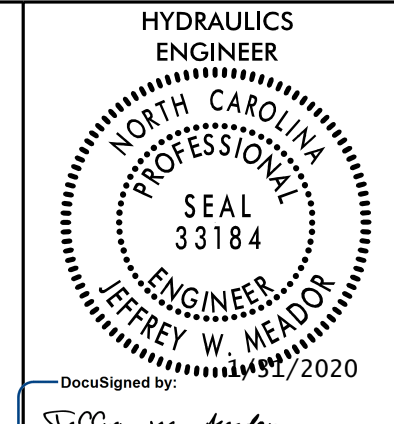
DRY DETENTION BASIN OUTLET CONTROL STRUCTURE

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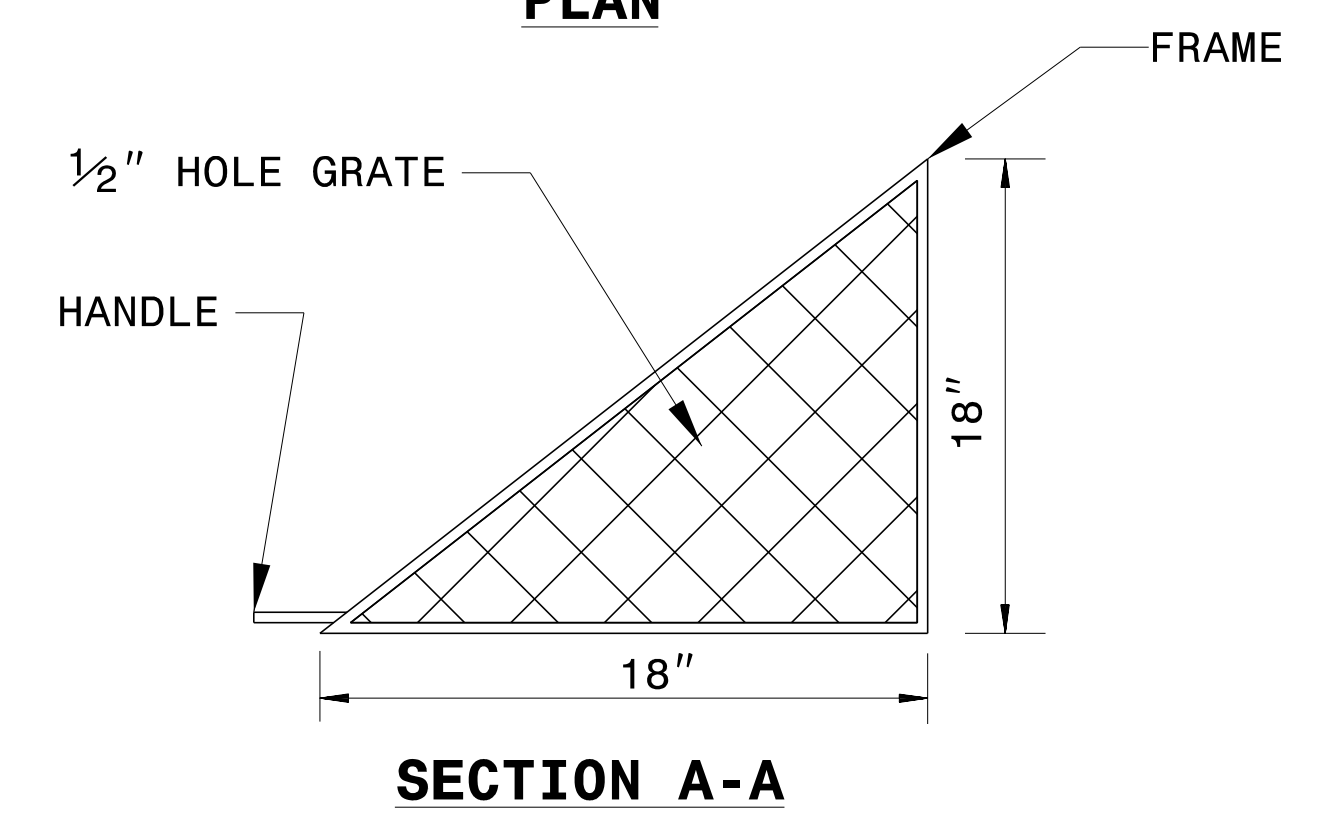
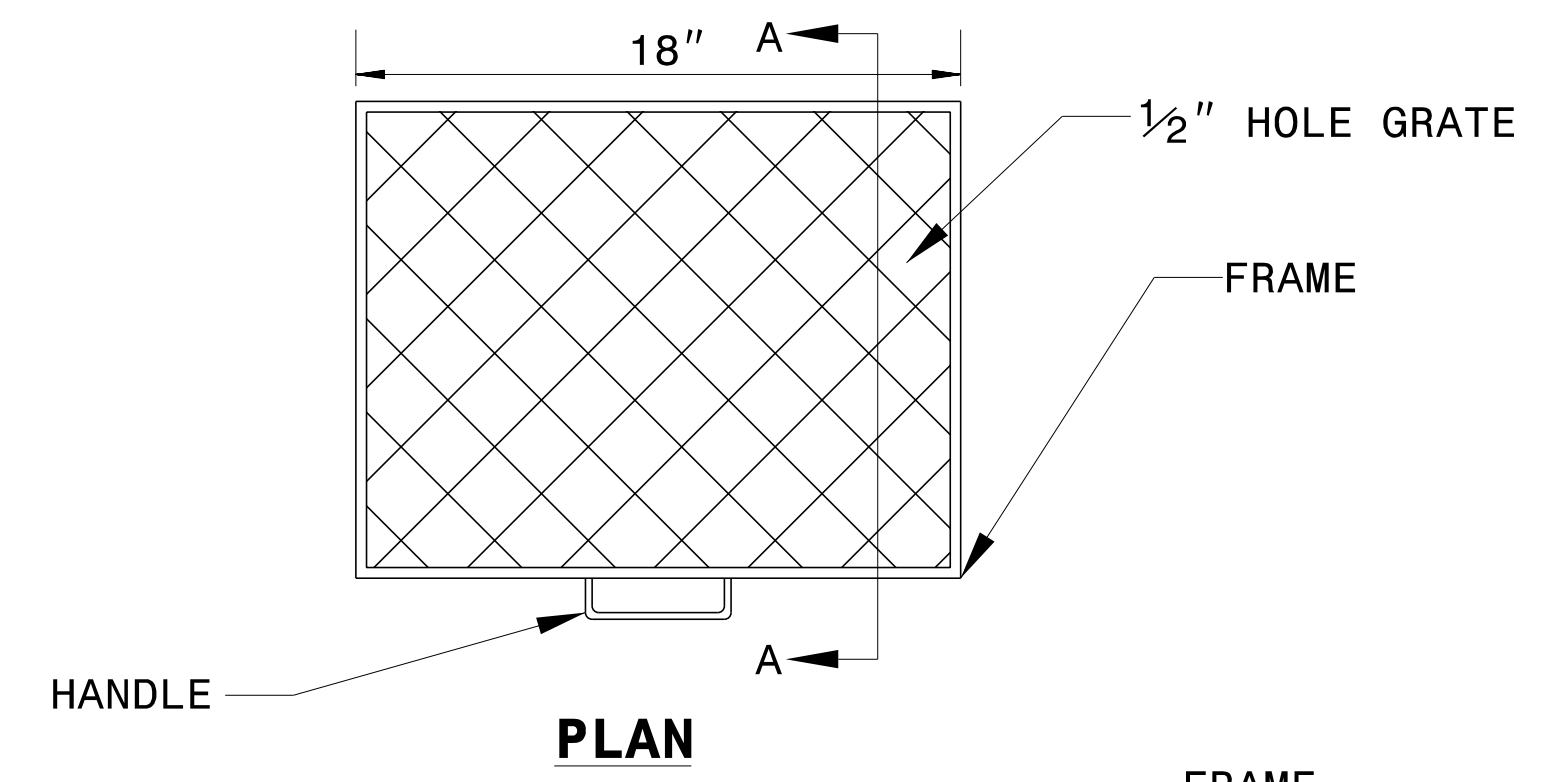
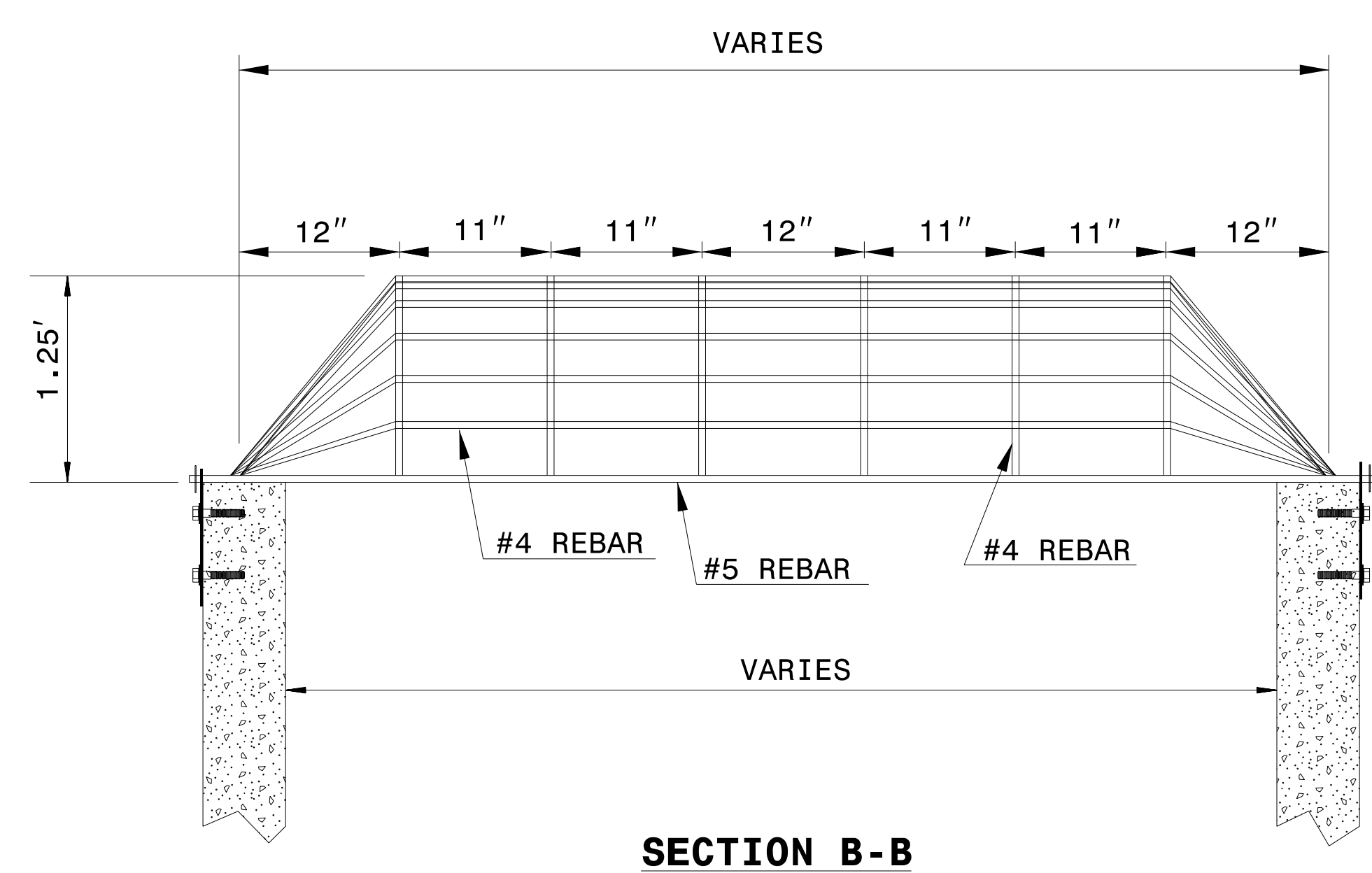
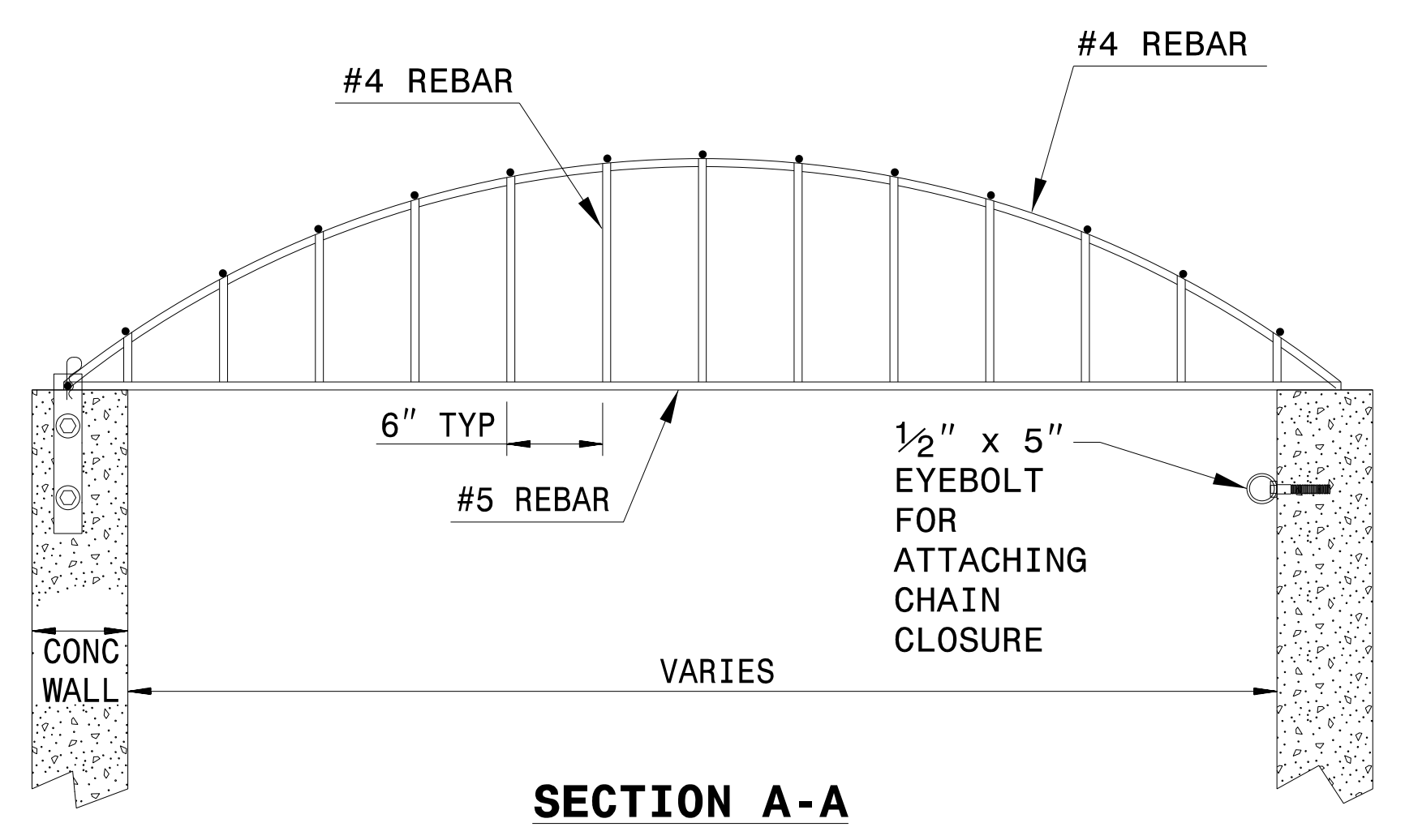
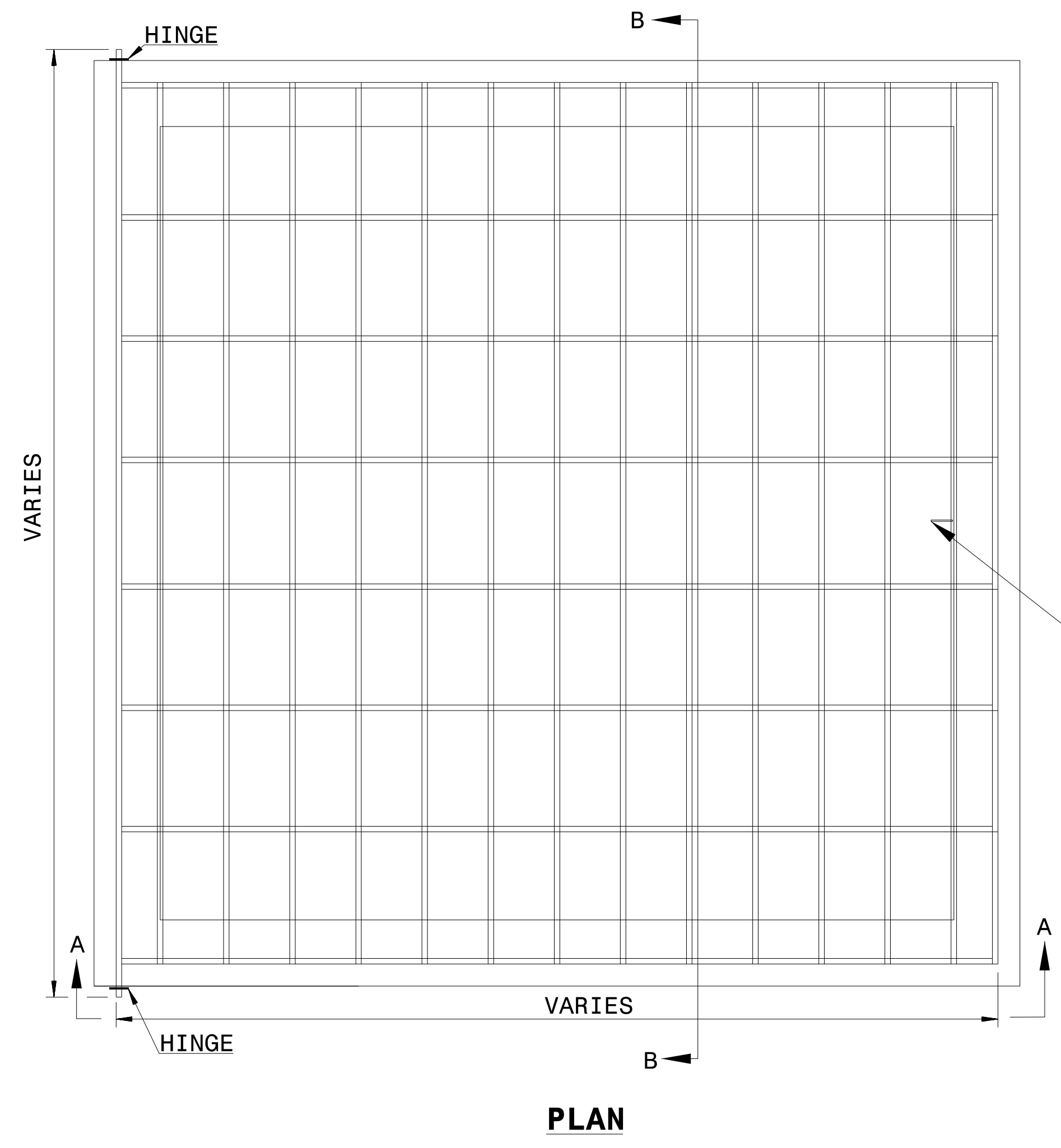
8/17/99

PROJECT REFERENCE NO. <i>R-2915E</i>	SHEET NO. <i>2D-5</i>
R/W SHEET NO.	



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*** NOT TO SCALE**



- RISER TRASH RACK NOTES:**
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
 2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
 3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
 4. RACK AND HARDWARE SHALL BE REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.

- ORIFICE TRASH RACK NOTES:**
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
 2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
 3. REMOVEABLE ORIFICE TRASH RACK SHALL BE ATTACHED TO CONCRETE BOX BY HINGE OR SLIDE RAIL SYSTEM.
 4. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM A-153.

REBAR TRASH RACK

REMOVEABLE ORIFICE TRASH RACK

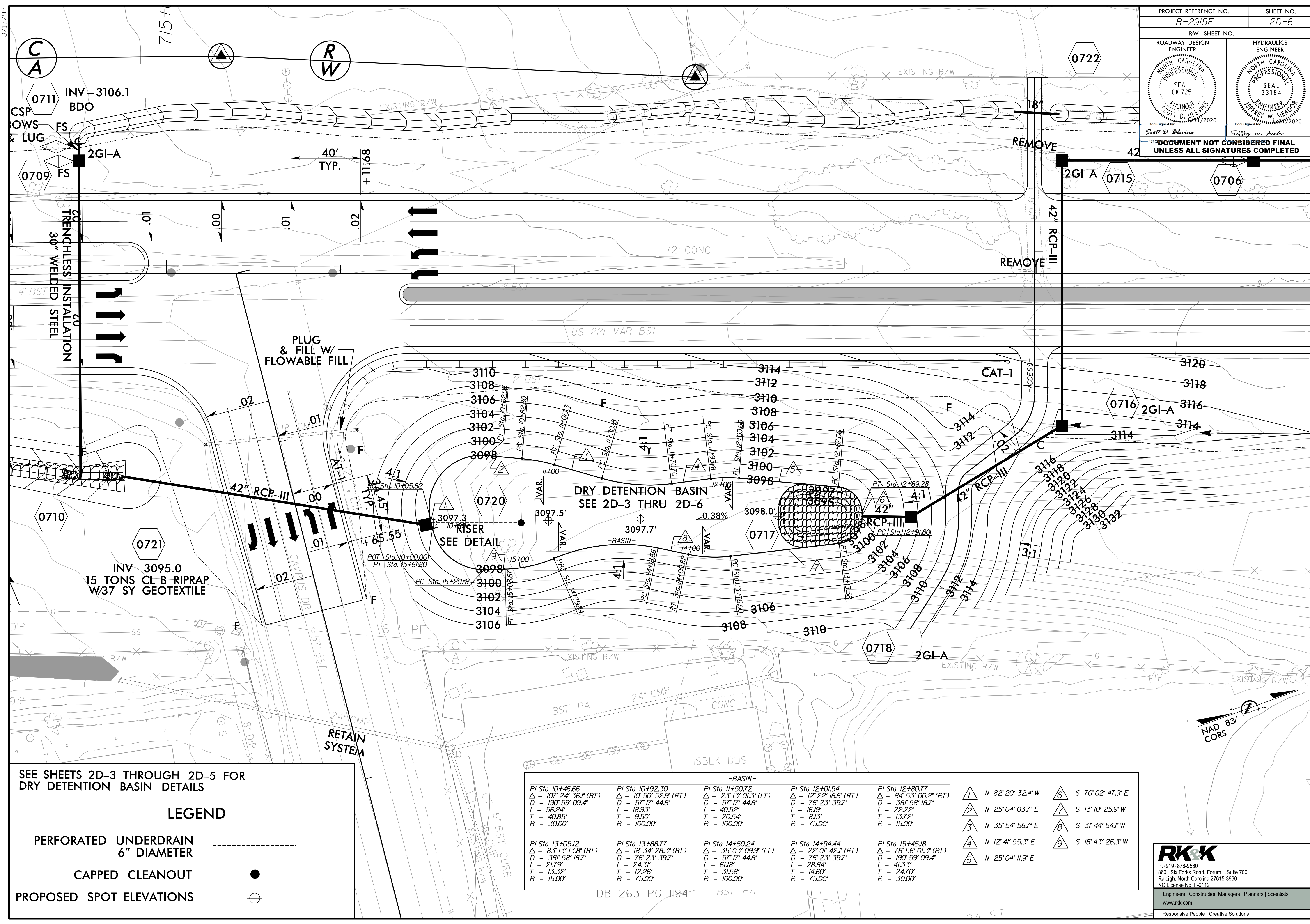
DRY DETENTION BASIN TRASH RACK

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1/30/2020 R:\Hydr\ulics\CADD\PSH\Redlines\NR-2915E_Hyd_Pond_Details.dgn

PROJECT REFERENCE NO. R-2915E	SHEET NO. 2D-6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 016725 SCOTT D. BLEVINS 09/21/2020	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 33184 JEFFREY W. MEADOR 09/21/2020

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SEE SHEETS 2D-3 THROUGH 2D-5 FOR
DRY DETENTION BASIN DETAILS

LEGEND

PERFORATED UNDERDRAIN 6" DIAMETER	-----
CAPPED CLEANOUT	●
PROPOSED SPOT ELEVATIONS	⊕

-BASIN-

PI Sta 10+46.66 Δ = 107' 24" 36.1" (RT) D = 190' 59" 09.4" L = 56.24' T = 40.85' R = 300.0'	PI Sta 10+92.30 Δ = 10' 50" 52.9" (RT) D = 57' 17" 44.8" L = 18.93' T = 9.50' R = 100.00'	PI Sta 11+50.72 Δ = 23' 13" 01.3" (LT) D = 57' 17" 44.8" L = 40.52' T = 20.54' R = 100.00'	PI Sta 12+01.54 Δ = 12' 22" 16.5" (RT) D = 76' 23" 39.7" L = 16.9' T = 8.13' R = 75.00'	PI Sta 12+80.77 Δ = 84' 53" 00.2" (RT) D = 38' 58" 18.7" L = 22.22' T = 13.72' R = 15.00'	△ N 82° 20' 32.4" W △ S 70° 02' 47.9" E △ N 25° 04' 03.7" E △ S 13° 10' 25.9" W △ N 35° 54' 56.7" E △ S 31° 44' 54.7" W △ N 12° 41' 55.3" E △ S 18° 43' 26.3" W △ N 25° 04' 11.9" E
PI Sta 13+05.12 Δ = 83' 13" 13.8" (RT) D = 38' 58" 18.7" L = 21.79' T = 13.32' R = 15.00'	PI Sta 13+88.77 Δ = 18' 34" 28.3" (RT) D = 76' 23" 39.7" L = 24.31' T = 12.26' R = 75.00'	PI Sta 14+50.24 Δ = 35' 03" 09.9" (LT) D = 57' 17" 44.8" L = 61.8' T = 31.58' R = 100.00'	PI Sta 14+94.44 Δ = 22' 01" 42.1" (RT) D = 76' 23" 39.7" L = 28.84' T = 14.60' R = 75.00'	PI Sta 15+45.18 Δ = 78' 56" 01.3" (RT) D = 190' 59" 09.4" L = 41.33' T = 24.70' R = 30.00'	

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF BASIN COMPONENT ITEMS

ITEM DESCRIPTION	UNIT	QUANTITY
		BASIN 1
		(718+00 -L- RT)
GENERIC DRAINAGE ITEM - 6" PIPE - PERFORATED W/FILTER SOCK	LF	50
GENERIC DRAINAGE ITEM - 6" PVC CLEANOUT	EA	1
WASHED #57 STONE	TON	6
GENERIC DRAINAGE ITEM - REBAR TRASH RACK	EA	1
GEOTEXTILE FOR DRAINAGE	SY	165
RIP RAP, CLASS I STONE	TON	120
GENERIC DRAINAGE ITEM - ANTI-FLOTATION CONCRETE	CY	3.3
GENERIC DRAINAGE ITEM - ENGINEERED SOIL MEDIA	CY	2
GENERIC DRAINAGE ITEM - REMOVABLE ORIFICE TRASH RACK	EA	1
8" SLUICE GATE	EA	1
NOTE: OUTLET CONTROL BOX AND OUTLET PIPE INCLUDED ON DRAINAGE SUMMARY SHEET 3D-3		

GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
		HP 10x42	HP 12x53	HP 14x73	HP 10x42	HP 12x53	HP 14x73	HP 10x42	HP 12x53	HP 14x73	
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

NOTES:

- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ PSF
- DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EXTENSION IS 6' FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32' FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
- CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.

ENGINEER

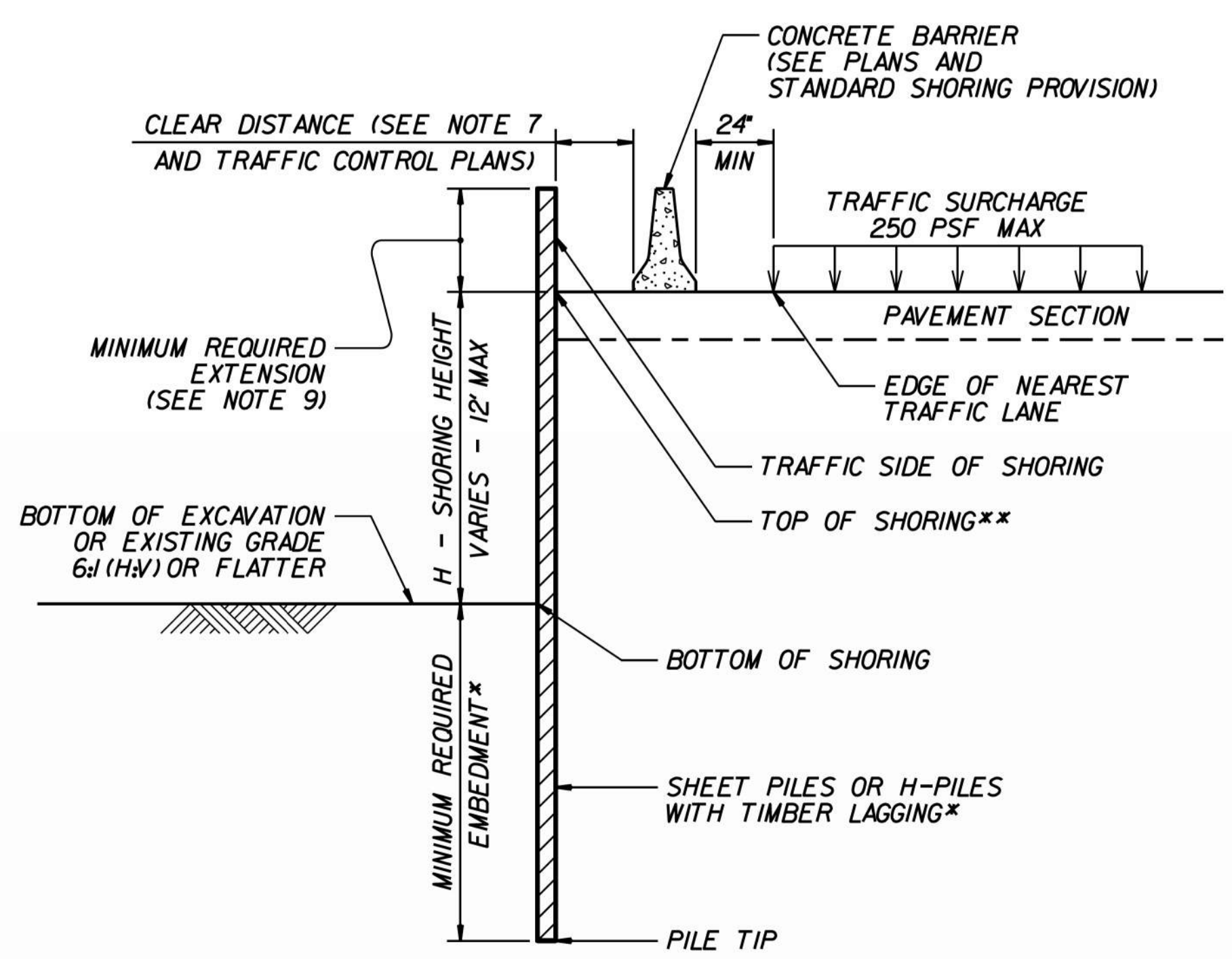
GEOTECHNICAL ENGINEER

SEAL 041709

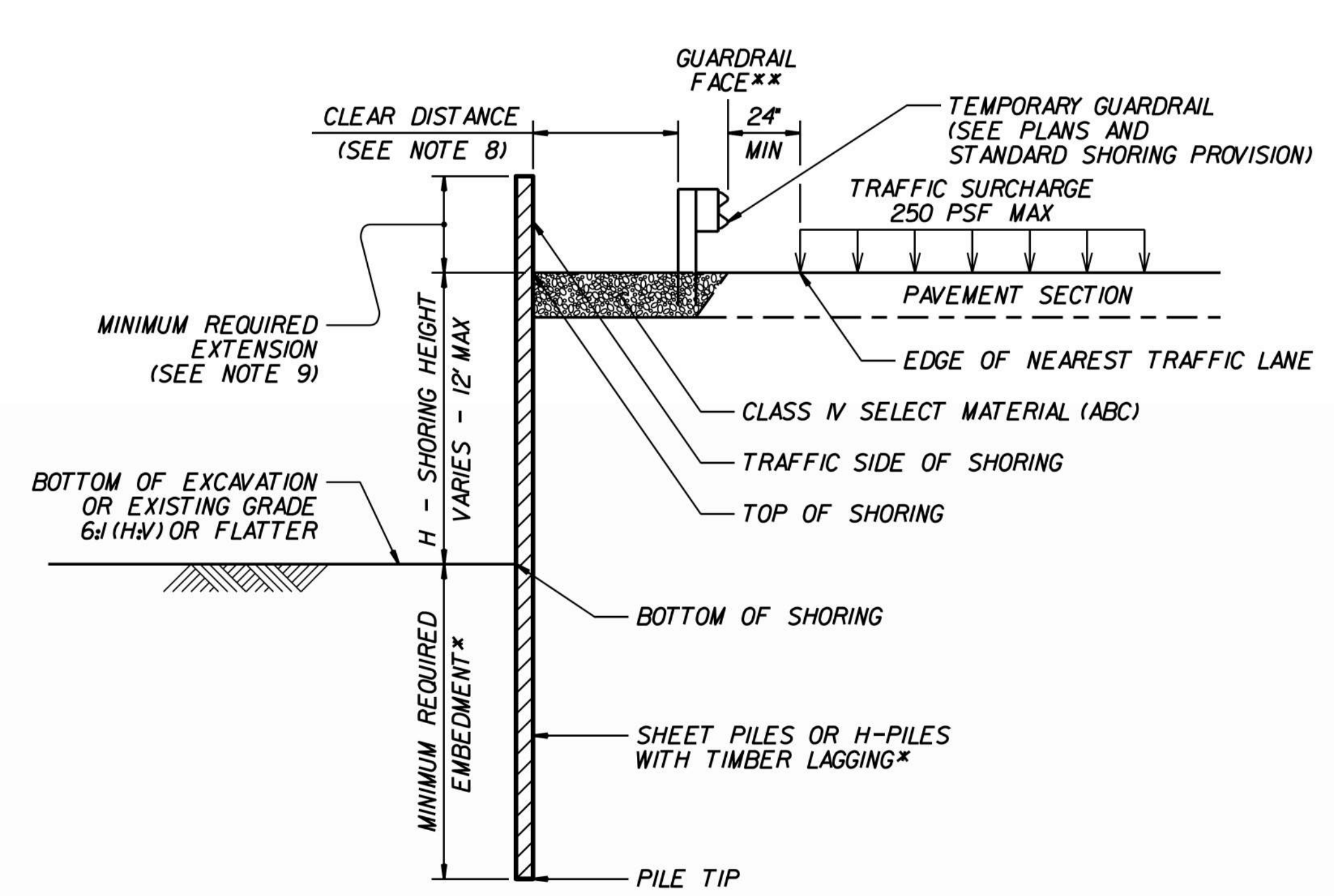
GREGORY K. GOINS

DATE 11/31/2020

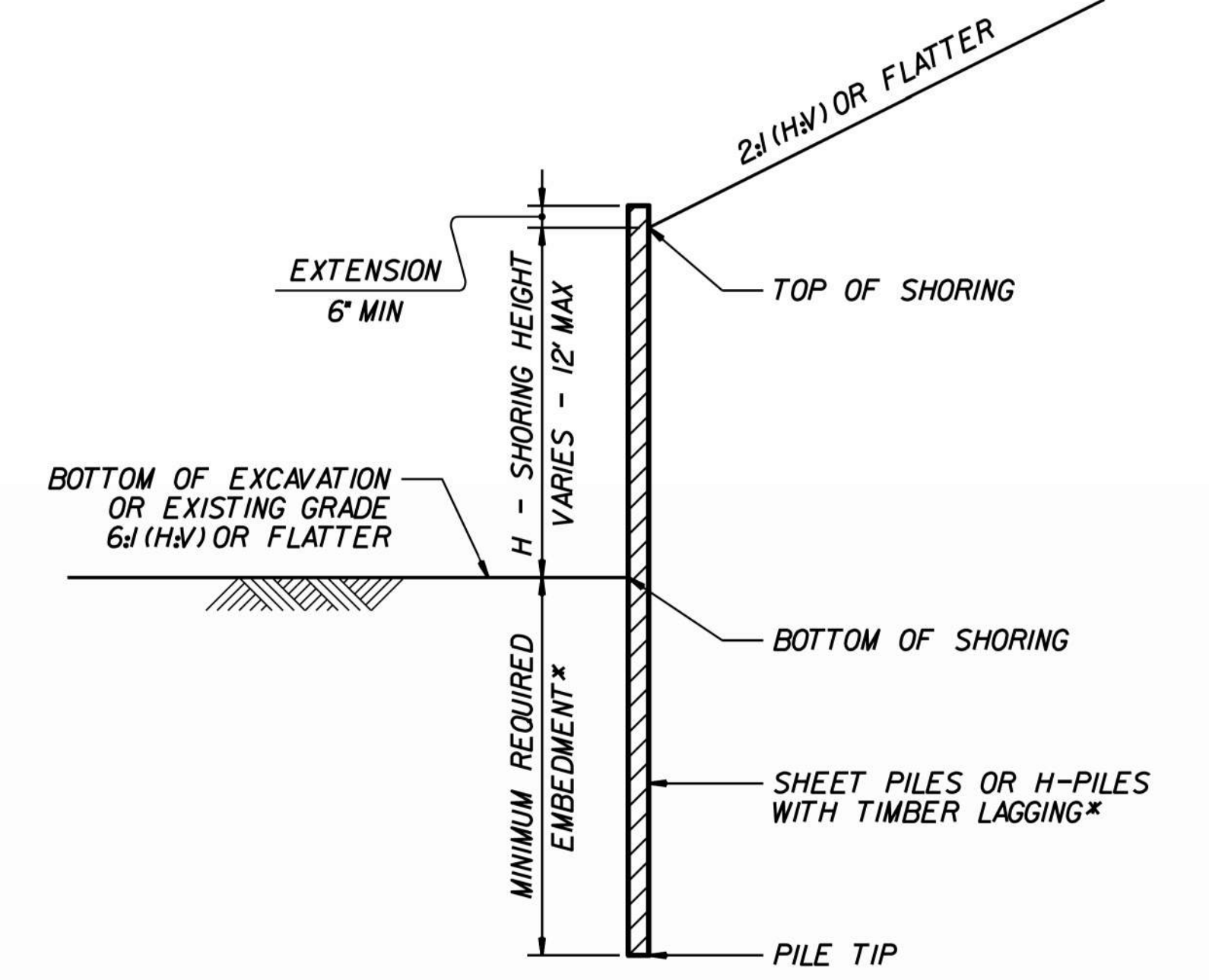
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CONCRETE BARRIER
**TOP OF SHORING = EDGE OF PAVEMENT



TEMPORARY GUARDRAIL
**GUARDRAIL FACE = EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING (SLOPE CASE)
*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING (SURCHARGE CASE)
*SEE TABLE ABOVE.

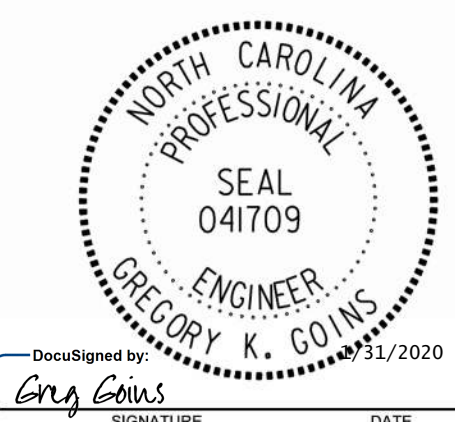
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

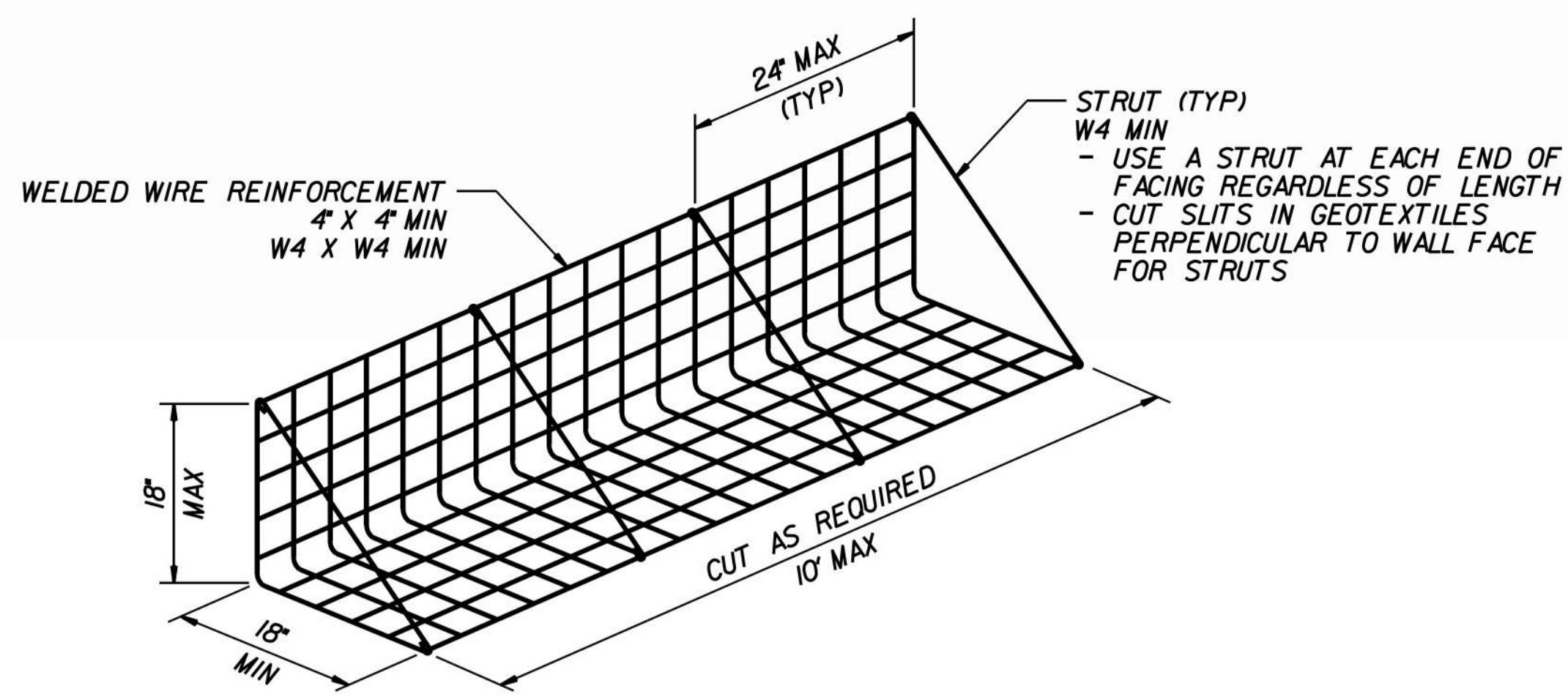
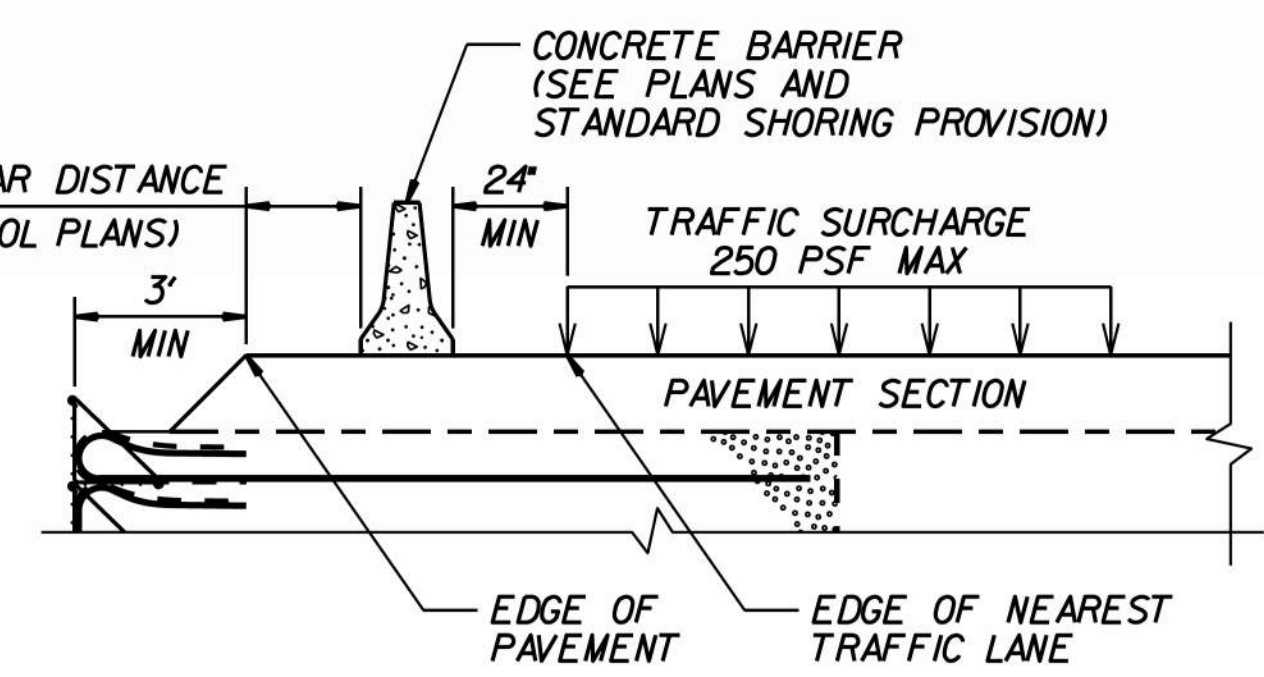
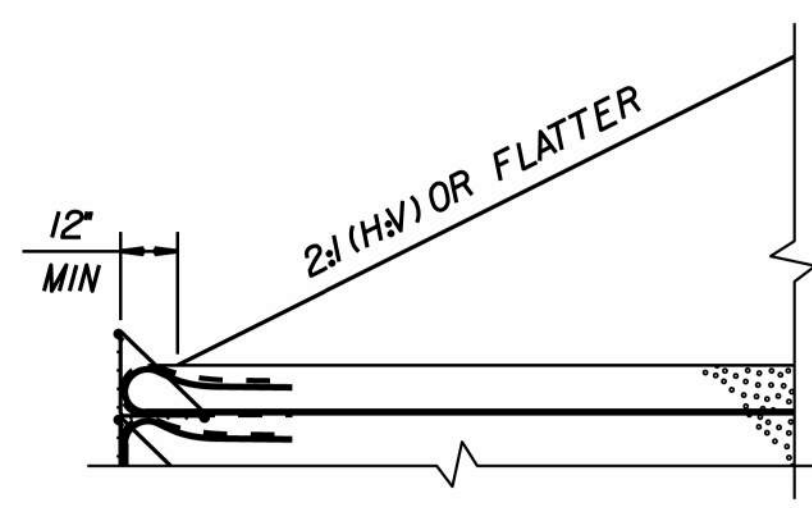
GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

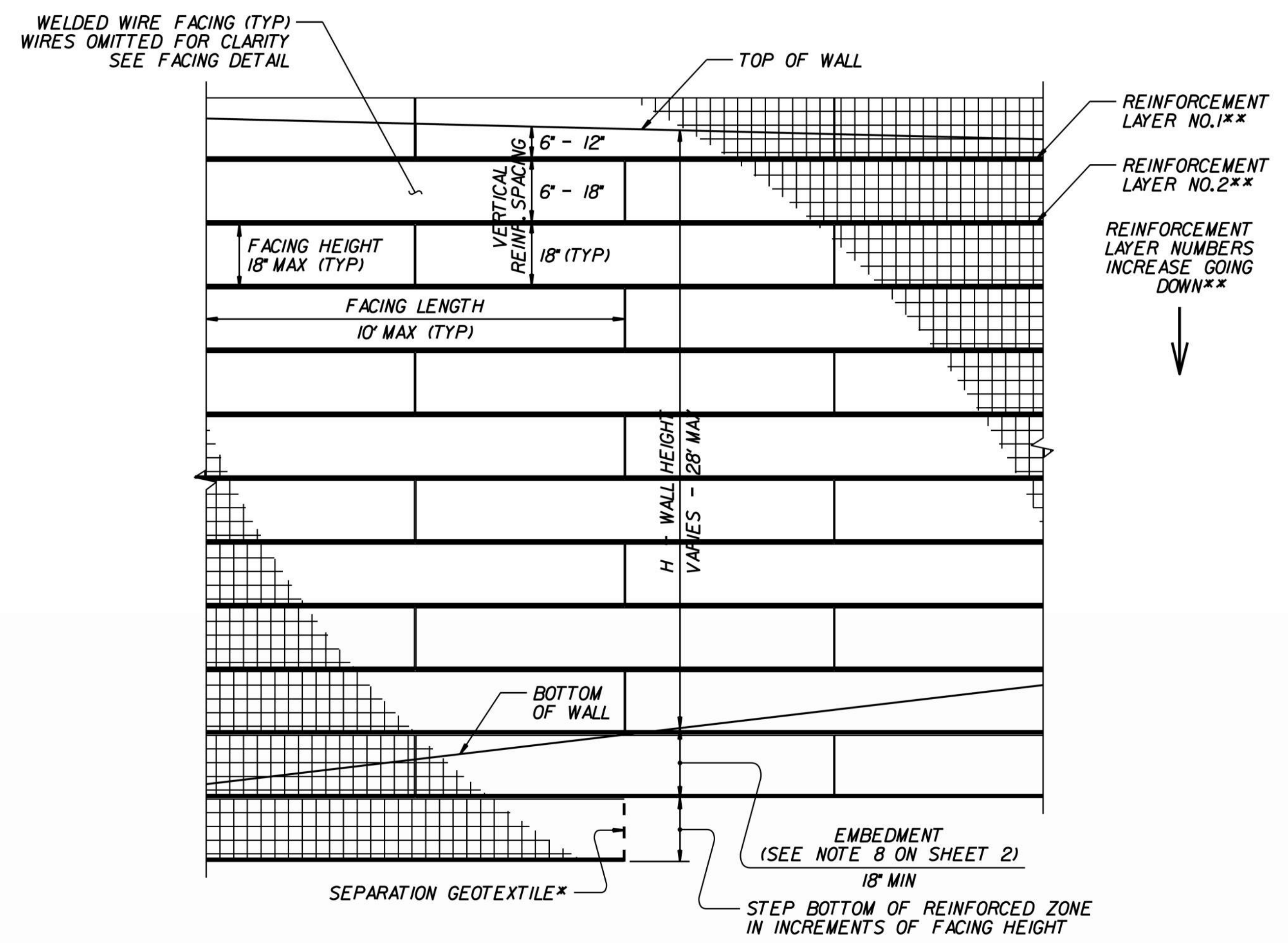
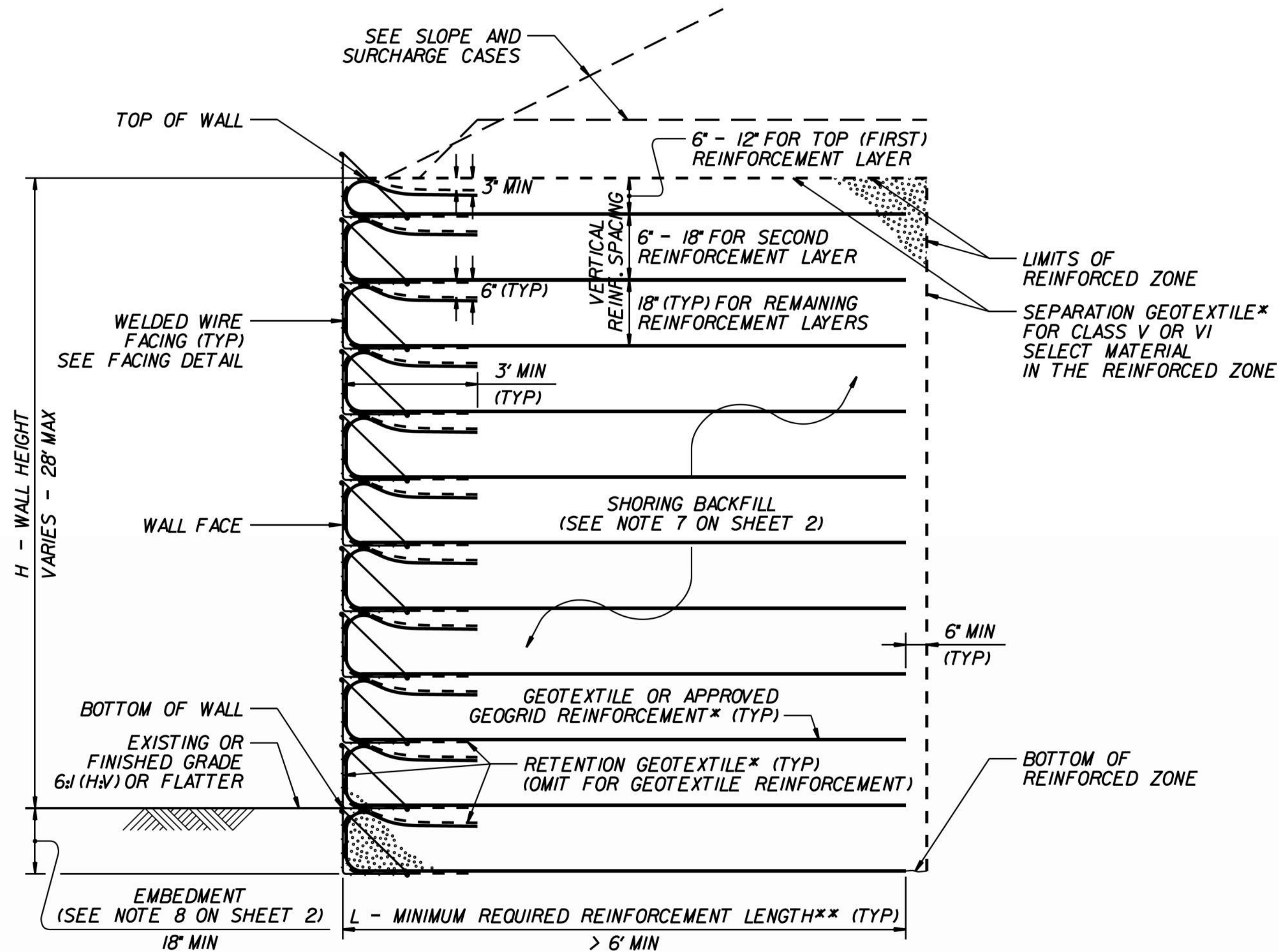
PROJECT REFERENCE NO. R-2915E	SHEET NO. 2G-2
GEOTECHNICAL ENGINEER  GREGORY K. GOINS ENGINEER	ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



SLOPE CASE

SURCHARGE CASE

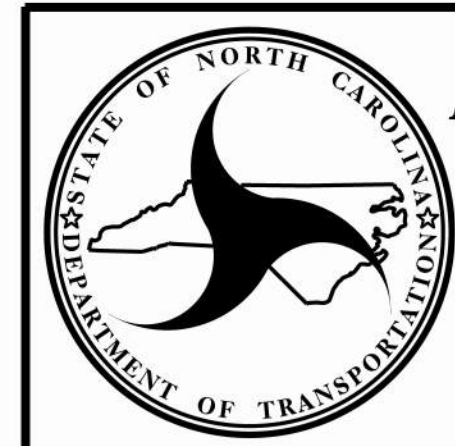
FACING DETAIL



STANDARD TEMPORARY WALL
 (FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
 *SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
 **SEE REINFORCEMENT TABLES ON SHEET 3.

STANDARD TEMPORARY WALL - PARTIAL ELEVATION

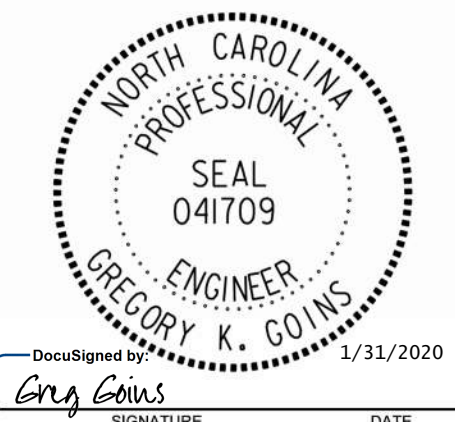
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
 **SEE REINFORCEMENT TABLES ON SHEET 3.

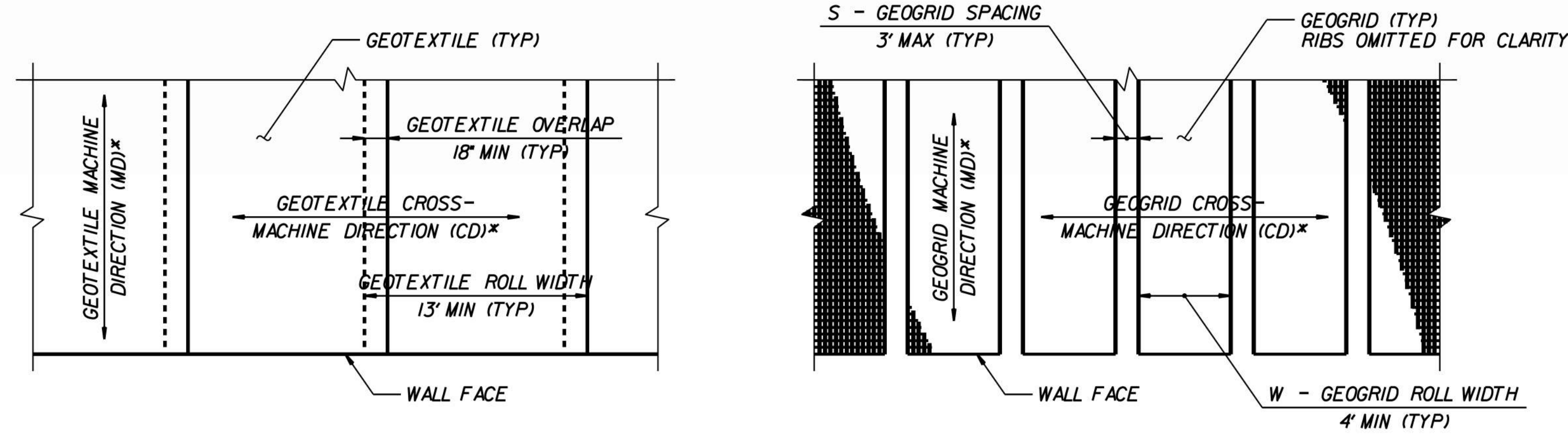


NORTH CAROLINA
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**GEOTECHNICAL
 ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02

STANDARD
 TEMPORARY WALL
 SHEET 1 OF 3

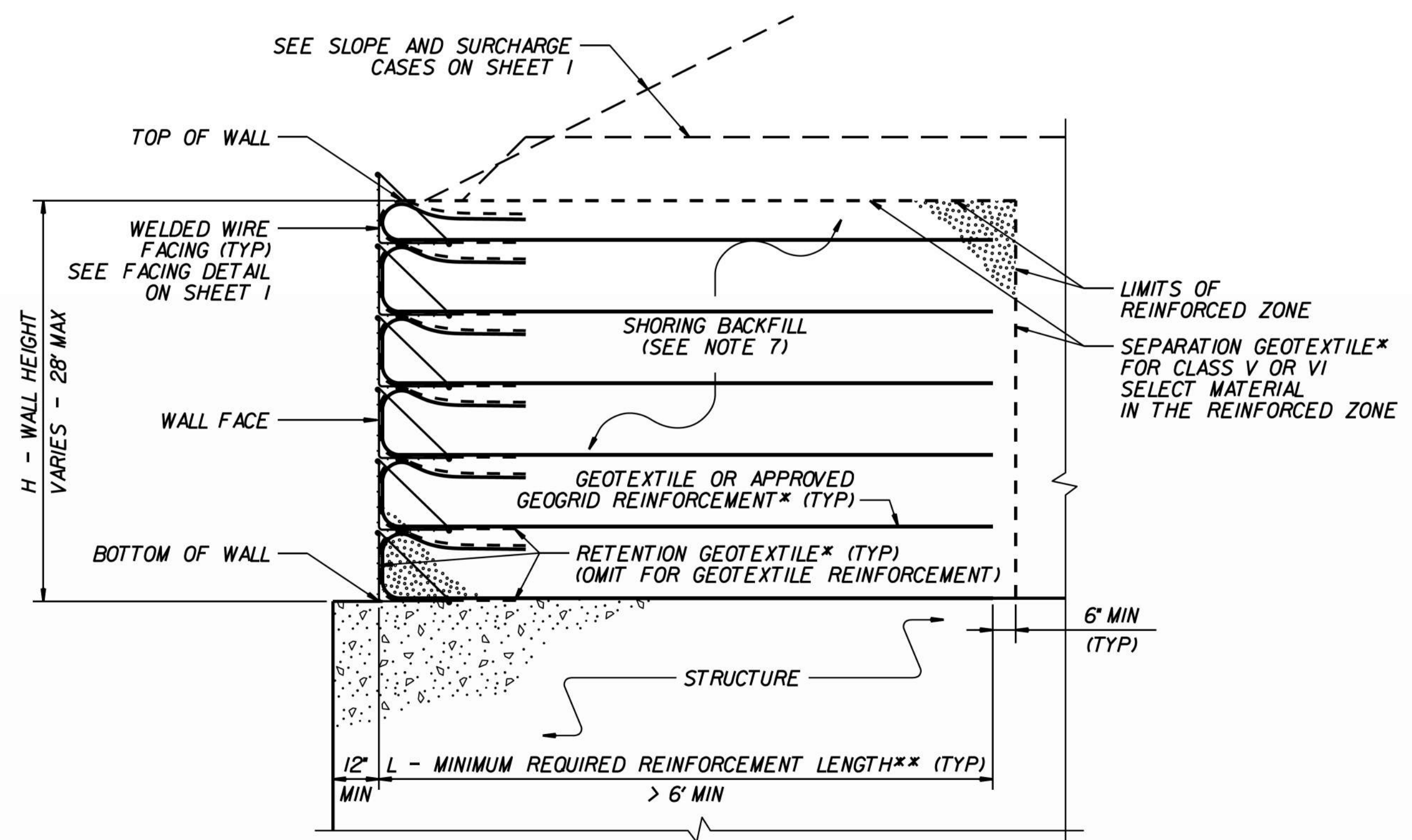
PROJECT REFERENCE NO. R-2915E		SHEET NO. 2G-3
GEOTECHNICAL ENGINEER  GREGORY K. GOINS ENGINEER 1/31/2020		ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



GEOTEXTILE PLACEMENT
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

GEOGRID PLACEMENT
(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT - $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS
(PLAN VIEW)
*SEE NOTE 12.




TEMPORARY WALL ON STRUCTURE DETAIL
*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ PSF
- DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER IS ABOVE BOTTOM OF REINFORCED ZONE.
- DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
- EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
- DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
- GEOGRIDS ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Materials/Pages/Materials-Manual-by-Manual.aspx DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

- IF THE WEBSITE DOES NOT LIST A SHORT-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID, USE A SHORT-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 3.5 FOR THE GEOGRID REINFORCEMENT.
- FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
 - AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
- W (REINFORCEMENT ROLL WIDTH) \geq (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
- REINFORCEMENT STRENGTH IN CD \geq MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
 - SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
 - DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
 - FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
 - DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
 - CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
 - FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
 - FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD TEMPORARY WALL SHEET 2 OF 3

DATE: 11-19-13

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

CHAIN	BEGINNING STATION	ENDING STATION	UNCL. EXCA. C.Y.	EMBANK. +% C.Y.	BORROW C.Y.	WASTE C.Y.
SUMMARY 1						
-L- RT	668+50.00	698+50.00	54,723	13,516		41,207
-L- LT	668+50.00	698+50.00	2,400	6,175		530
-Y32A-	11+00.00	11+50.00	200	6		194
SUBTOTAL			61,628	19,697		41,931
SUMMARY 2						
-L- RT	698+50.00	728+50.00	24,394	4,370		20,024
-L- LT	698+50.00	728+50.00	13,423	40,769	27,346	
-L- LT/RT	703+00.00	705+00.00	260			260
-Y33-	11+00.00	12+00.00	3	259	256	
SUBTOTAL			38,080	45,398	27,602	20,284
SUMMARY 3						
-L- RT	728+50.00	758+50.00	2,680	1,477		1,203
-L- LT	728+50.00	758+50.00	95,284	22,538		72,746
-Y34-	11+00.00	12+00.00	354	80		274
-Y35-	11+00.00	15+50.00	93	4,512	4,419	
-Y35-	17+00.00	19+00.00	22	132	110	
-SR1-	25+50.00	26+00.00	27	100	73	
SUBTOTAL			98,460	28,840	4,602	74,222
SUMMARY 4						
-L- RT	758+50.00	788+50.00	10,387	16,409	6,022	
-L- LT	758+50.00	788+50.00	1,757	16,464	14,707	
SUBTOTAL			12,144	32,873	20,729	
SUMMARY 5						
-L- RT	788+50.00	818+50.00	786	9,366	8,580	
-L- LT	788+50.00	818+50.00	132	87,655	87,523	
-L- LT/RT	801+75.00	804+50.00	800			800
-Y36-	12+00.00	14+00.00	13	319	306	
-Y36-	15+50.00	17+50.00	14	104	90	
SUBTOTAL			1,745	97,445	96,500	800
SUMMARY 6						
-L- RT	818+50.00	848+50.00	3,422	638		2,784
-L- LT	818+50.00	848+50.00	3,192	4,884	1,692	
-L- LT	834+50.00	835+50.00	790			790
SUBTOTAL			7,404	5,522	1,692	3,574
SUMMARY 7						
-L- RT	848+50.00	849+50.00	213			213
-L- RT	847+00.00	849+50.00	550			550
-L- LT	848+50.00	855+00.00	605	14		591
SUBTOTAL			1,368	14		1,354
SHEET TOTALS			220,829	229,789	151,124	142,164
MATERIAL FOR SHOULDER CONSTRUCTION				23,640	23,640	
EARTH WASTE IN LIEU OF BORROW					-141,364	-141,364
PROJECT TOTAL			220,829	253,429	33,400	800
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					1,670	
GRAND TOTAL			220,829	253,429	35,070	800
SAY			220,830	35,080		

DRAINAGE DITCH EXCAVATION = 18,200 C.Y.
PAVEMENT STRUCTURE VOLUME IN CUT = 16,712 C.Y.
UNDERCUT EXCAVATION = 2,400 C.Y.

THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL UNIT.
 *UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3' OF EMBANKMENT OR BACKFILL
 -L- 703 + 00.00 TO 705 + 00.00 (260 CY) & -L- 834 + 50.00 TO 835 + 50.00 (790 CY) & 847 + 00.00 TO 849 + 50.00 (550 CY) PER GEOTECHNICAL

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL
-L-	679+90	849+23	LT	5953
-L-	679+90	849+43	RT	5905
-L-	683+25	686+77	MED	504
-L-	683+32	690+52	LT	71
-L-	691+95	698+85	MED	979
-L-	725+00	749+40	MED	2819
-L-	749+94	754+82	RT	386
-L-	756+92	767+45	MED	1214
-L-	783+91	787+00	LT	44
-L-	788+02	795+62	MED	798
-L-	803+06	810+64	MED	951
-L-	826+00	845+00	MED	3670
-L-	850+02	852+62	LT	544
				0
-Y33-	10+67	11+17	LT	58
-Y34-	10+25	11+30	LT	83
-Y35-	14+50	15+63	LT/RT	667
-L-	710+60	714+87	LT	297
-L-	710+60	714+87	LT	34
-L-	727+42	732+53	LT	305
-L-	727+42	732+53	LT	40
-L-	733+41	739+00	RT	308
-L-	733+41	739+00	RT	44
-L-	759+00	762+87	RT	745
-L-	759+00	762+87	RT	30
-L-	788+43	796+85	RT	452
-L-	788+43	796+85	RT	66
-L-	806+35	810+65	RT	630
-L-	806+35	810+65	RT	34
-L-	822+81	846+06	RT	4879
-L-	822+81	846+06	RT	183
			TOTAL:	32693
			SAY:	32,700

SHOULDER BERM GUTTER SUMMARY

IN LINEAR FEET

LINE	Station	Station	LENGTH
L	693+00.00	695+00.00	200.0
L	698+75.00	709+50.00	1075.0
L	735+50.00	750+50.00	1490.0
L	755+30.00	756+85.56	172.9
L	757+72.38	776+95.00	1955.0
L	788+50.00	805+00.00	1635.0
L	810+00.00	811+50.00	150.0
		TOTAL:	6677.9
		SAY:	6680

WOVEN WIRE 47" FENCE SUMMARY

IN LINEAR FEET

STATION TO STATION	LT. OR RT.	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E 4" POSTS	F 5" POSTS
L 697+00 TO 718+03.98	LT	2,176.30	2		8	140	28
L 724+33.90 TO 728+00.00	LT	355.41	2		2	20	10
L 732+00.00 TO Y35 13+89.31	LT	2,630.45	2		10	169	34
Y35 13+79.46 TO 13+91.20	RT	36.67	2			0	4
L 801+67.19 TO 807+52.69	LT	612.18	2		3	37	13
L 838+01.57 TO 838+74.29	RT	88.24	2		1	3	7
Contingency per Division		500.00					
GRAND TOTAL		6,399.25				369	96
SAY		6,400.00				370	96
Additional Barbed Wire	100 LF						

PAVEMENT BREAKING SUMMARY

IN SQUARE YARDS

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
L	732+90	734+50	MED	1890.91		210.10
L	756+00	757+50	LT	5353.56		594.84
					TOTAL	804.94
					SAY	810



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8/17/99

COMPUTED BY: ARS
CHECKED BY: CSH
REVISED BY: CSH

DATE: 9/14/2017
DATE: 1/20/2019
DATE: 12/30/2019

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Information Purposes only and should be verified by the contractor for project construction stakeout.

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Table with columns: STATION, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, C.S.P., R.C. PIPE CLASS III, R.C. PIPE CLASS IV, DRAINAGE PIPE, ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD STANDARD, CONCRETE TRANSITIONAL SECTION, TYPE OF GRATE, DROP INLET, CATCH BASIN, FLOWABLE FILL CY, CONC. COLLARS CL. "B" C.Y. STD. 840.72, PIPE REMOVAL LIN. FT., REMARKS, and ABBREVIATIONS.

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