



Iowa Department of Transportation

Highway Division

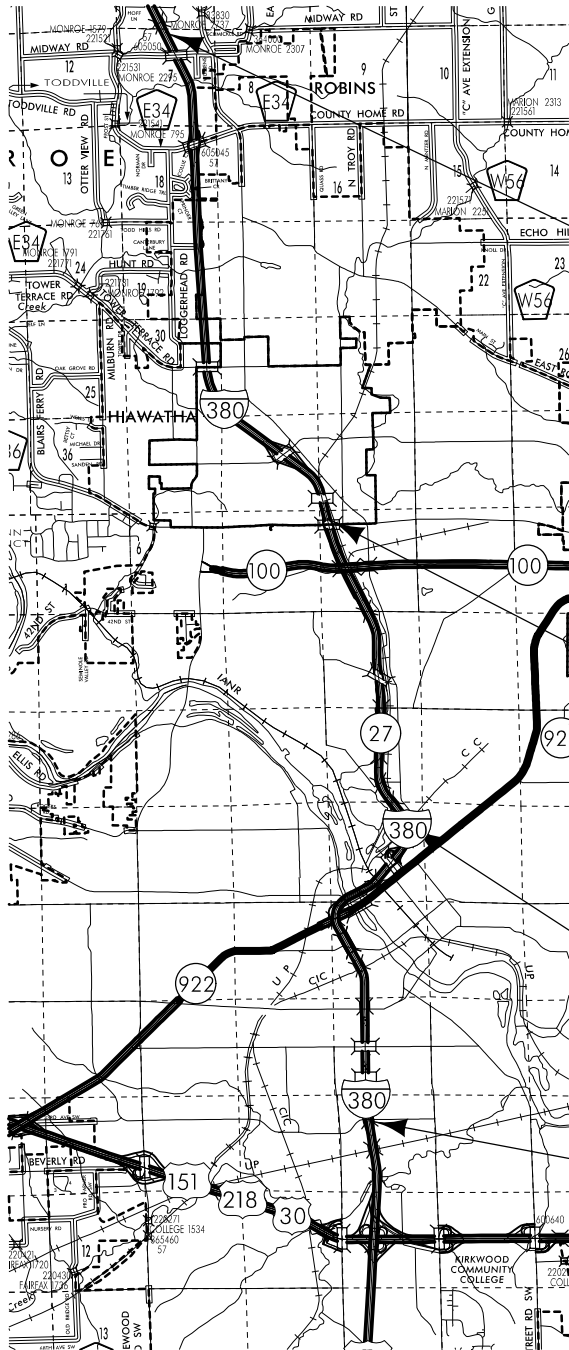
PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM

LINN COUNTY

HMA RESURFACING/BRIDGE RAIL RETROFIT

From 33rd Ave. Bridge In Cedar Rapids N. To 1.4 Miles N. Of  
Co. Rd. E-34(SBL)



STA. 1232+00 (MP 30.2)  
END RESURFACING/PROJECT

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.



EQUATION: STA. 568+11.05 (BK) =  
STA. 925+67.62 (AH)  
(MP 24.4)

STA. 392+40 (MP 21.1)  
BEGIN RESURFACING

STA. 207+75 (MP 17.6)  
BEGIN PROJECT

MILEAGE SUMMARY			
105-1 09-27-94			
Div.	Location	Lin. Ft.	Miles
	Sta. 392+40 to Sta. 568+11.05 Equation: Sta. 568+11.05 (Back) = Sta. 925+67.62 (Ahead)	17571.05	
	Sta. 925+67.62 to Sta. 1232+00	30632.38	
	Deduct Bridge at Sta. 406+20.10	520	
	Deduct Bridge at Sta. 418+54.68	168	
	Deduct Bridge at Sta. 433+33.86	226.67	
	Deduct Bridge at Sta. 460+02.04	173	
	Deduct Bridge at Sta. 514+01.25	188	
	Total Length of Roadway	48203.43	9.13
	Total Length of Bridges	1275.67	0.25
	Total Length of Resurfacing	46927.76	8.89

DESIGN DATA RURAL				
2012	AADT	64,300	V.P.D.	
2032	AADT	89,300	V.P.D.	
20--	DHV	--	V.P.H.	
TRUCKS		12	%	
Total				
Design ESALs		30M		

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Kelly C. Bell	Primary Signature Block
V.1	David L. Bare	Structural Design

REVISIONS

TOTAL	
157	
PROJECT IDENTIFICATION NUMBER	
10-57-380-030	
PROJECT NUMBER	
IMX-380-6(271)16--02-57	
R.O.W. PROJECT NUMBER	

INDEX OF SHEETS

No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
A.1	Title Sheet
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1 - 17	Typical Cross Sections and Details
<b>C Sheets</b>	<b>Quantities and General Information</b>
C.1	Project Description
C.1	Estimated Project Quantities
C.1 - 2	Estimate Reference Information
C.3	Standard Road Plans
C.3	Index of Tabulations
C.3	General Notes
C.4 - 22	Tabulations (beg. with tab. of incidentals if needed)
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1 - 26	Interstate 380
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
* J.1	Traffic Control Plan
* J.1	Staging Notes Stage
* J.1	Tabulation of Special Events
* J.2	Traffic Control & Staging Legend & Symbol Info. Sheet
* J.3 - 4	Staging Typical
* J.5	Staging and Traffic Control Sheets Stage 1A
* J.6	Staging and Traffic Control Sheets Stage 2A
* J.7	Staging and Traffic Control Sheets Stage 2B
* J.8 - 9	Details of Outside Lane Drop at 8th Avenue
* J.10	Staging and Traffic Control Sheets Stage 1B
* J.11 - 13	Details of Inside Lane Drop at 8th Avenue
* J.14 - 17	Staging and Traffic Control Sheets Stage 3A
* J.18 - 22	Staging and Traffic Control Sheets Stage 3B
* J.23	Interim Standard Road Plan TC-418
<b>K Sheets</b>	<b>Interchange Sheets</b>
* K.1	Boyson Road Interchange Layout Sheet
* K.2	County Home Road Interchange Layout Sheet
<b>U Sheets</b>	<b>500 Series, Mod.Stds. and Detail Sheets</b>
U.1	Traffic Details - Detector Loop Details
U.2	Traffic Details - Junction Box Splices
U.3	High Tension Cable Guardrail Special Anchor Sections
U.4	High Tension Cable Guardrail, End Anchor (Behind Bridge End)
U.5	High Tension Cable Guardrail, End Anchor (Behind Guardrail) At Tower Terrace and Message Board Overhead
U.6	Modified Standard Road Plan BA-202B
U.7	Modified Standard Road Plan BA-202A
<b>V Sheets</b>	<b>Bridge and Culvert Situation Plans</b>
V.1 - 59	Bridge and Culvert Situation Plans
* Color Plan Sheets	

ROADWAY DESIGN

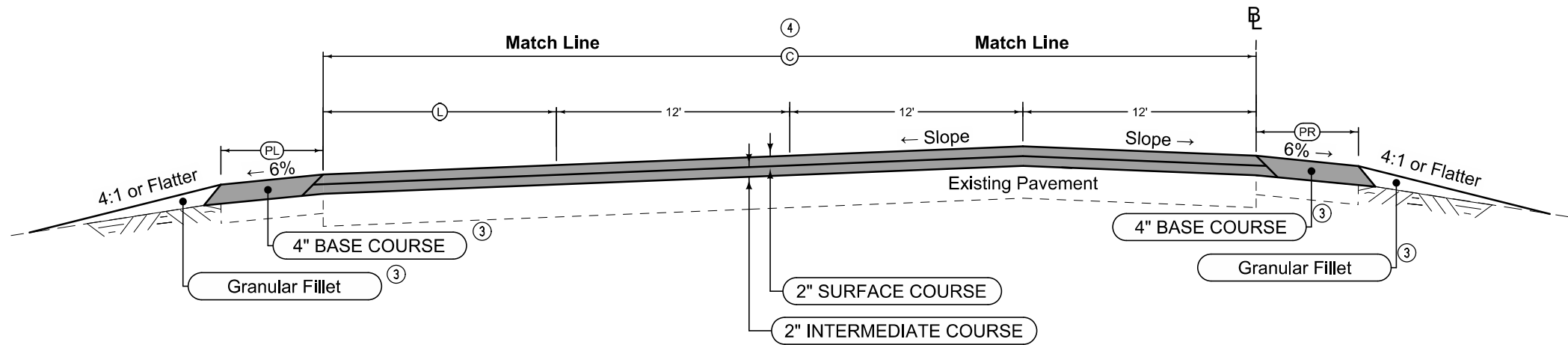


I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature Kelly C. Bell 05-15-2012  
Kelly C. Bell Date  
Printed or Typed Name

My license renewal date is December 31, 2013

Pages or sheets covered by this seal: A.1, B.1 - B.17,  
C.1 - C.22, D.1 - D.26, J.1 - J.23, K.1 - K.2, U.1 - U.7



(In direction of increasing stationing)

I-380 3 & 4 Lane SB Left Shoulder HMA Resurfacing				
STATION TO STATION		PL Feet	Asphalt Binder Tons <sup>②</sup>	HMA Base Course Tons <sup>②</sup>
392+39.53	402+69.50	10	15.45	257.5
407+46.38	409+73.62	6	2.05	34.1
409+73.62	417+42.59	10	11.53	192.2
419+51.05	420+43.00	10	1.38	23.0
420+43.00	423+15.16	10 to 6	3.28	54.6
423+15.16	427+19.34	6	3.63	60.5
427+19.34	432+42.26	6	4.71	78.4
435+14.08	446+22.24	10	16.62	277.0
446+22.24	448+22.24	10 to 6	2.40	40.0
448+22.24	451+95.06	6	3.36	55.9
451+95.06	454+25.74	10	3.46	57.7
454+25.74	456+25.74	10 to 6	0.02	0.4
456+25.74	458+92.31	6	4.18	69.7
461+08.37	466+01.49	6	4.44	74.0
466+01.49	486+67.73	10	30.99	516.6
486+67.73	491+91.47	6	4.71	78.6
491+91.47	492+51.47	6 to 10	0.72	12.0
492+51.47	496+61.51	10	6.15	102.5
496+61.51	498+23.95	10 to 6	1.95	32.5
498+23.95	504+00.00	6	5.18	86.4
504+00.00	513+04.94	10	13.57	226.2
515+34.82	525+90.50	6	9.50	158.4
525+90.50	540+67.74	10	22.16	369.3
540+67.74	542+95.50	10 to 6	2.73	45.6
542+95.50	547+82.50	10	4.38	73.1
TOTAL			178.55	2976.2

I-380 3 & 4 Lane SB HMA Resurfacing						
STATION TO STATION		C Feet	L Feet	Asphalt Binder Tons <sup>②</sup>	Hot Mix Asphalt <sup>②</sup> Tons	
					Surface Course	Intermediate Course
392+39.53	402+69.50	48	12	75.91	640.8	624.4
407+46.38	409+73.62	54.47 to 74	18.47 to 38	22.37	189.0	183.9
409+73.62	417+42.59	36	0	42.60	359.2	350.8
419+51.05	420+43.00	36	0	5.09	43.0	42.0
420+43.00	427+19.34	36 to 46.98	0 to 10.98	43.13	363.9	355.0
427+19.34	432+42.26	87.48 to 54	51.48 to 18	56.68	478.9	465.7
435+14.08	446+22.24	48	12	81.68	689.4	671.8
446+22.24	451+95.06	48 to 76	12 to 40	54.45	460.0	447.5
451+95.06	454+25.74	36	0	12.78	107.8	105.3
454+25.74	458+92.31	36 to 45.04	0 to 9.04	29.07	245.2	239.2
461+08.37	466+01.49	49.22 to 76	13.22 to 40	47.33	399.9	389.0
466+01.49	479+73.43	36	0	76.01	640.9	626.0
479+73.43	486+67.73	36 to 45.86	0 to 9.86	43.69	368.6	359.6
486+67.73	492+51.47	87.86 to 48	51.86 to 12	35.78	301.8	294.5
492+51.47	496+61.51	48	12	30.22	255.1	248.6
496+61.51	504+00.00	48 to 70	12 to 34	66.82	564.4	549.3
504+00.00	513+04.94	36	0	50.14	422.8	412.9
515+34.82	525+90.50	39.38 to 74	3.38 to 38	91.80	775.3	754.7
525+90.50	540+67.74	36	0	81.85	690.1	674.0
540+67.74	547+82.50	36 to 57	0 to 21	51.05	430.8	419.9
TOTAL				998.45	8426.9	8214.1

I-380 3 & 4 Lane SB Right Shoulder HMA Resurfacing				
STATION TO STATION		PR Feet	Asphalt Binder Tons <sup>②</sup>	HMA Base Course Tons <sup>②</sup>
392+39.53	402+69.50	10	15.45	257.5
407+46.38	409+73.62	10	3.41	56.8
409+73.62	417+42.59	10	11.53	192.2
419+51.05	420+43.00	10	1.38	23.0
420+43.00	423+15.16	10	4.10	68.3
423+15.16	427+19.34	10	6.05	100.8
427+19.34	432+42.26	10	7.84	130.7
435+14.08	446+22.24	10	16.62	227.0
446+22.24	448+22.24	10	3.00	50.0
448+22.24	451+95.06	10	5.59	93.2
451+95.06	454+25.74	10	3.46	57.7
454+25.74	456+25.74	10	0.03	0.5
456+25.74	458+92.31	10	6.97	116.1
461+08.37	466+01.49	10	7.40	123.3
466+01.49	486+67.73	10	30.99	516.6
486+67.73	491+91.47	10	7.86	130.9
491+91.47	492+51.47	10	0.90	15.0
492+51.47	496+61.51	10	6.15	102.5
496+61.51	498+23.95	10	2.44	40.6
498+23.95	504+00.00	10	8.64	144.0
504+00.00	513+04.94	10	13.57	226.2
515+34.82	525+90.50	10	15.84	263.9
525+90.50	540+67.74	10	22.16	369.3
540+67.74	542+95.50	10	3.42	56.9
542+95.50	547+82.50	10	7.31	121.8
TOTAL			212.11	3534.8

DESIGN RATES	
ITEM	RATE
Surface Course	155 lbs./cu. ft.
Intermediate Course	150 lbs./cu. ft.
Base Course	150 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.
Asphalt Binder	6% asphalt

Notes:

① Finished slope shall match existing pavement. Section may be modified as directed by the Engineer through areas of special shaping.

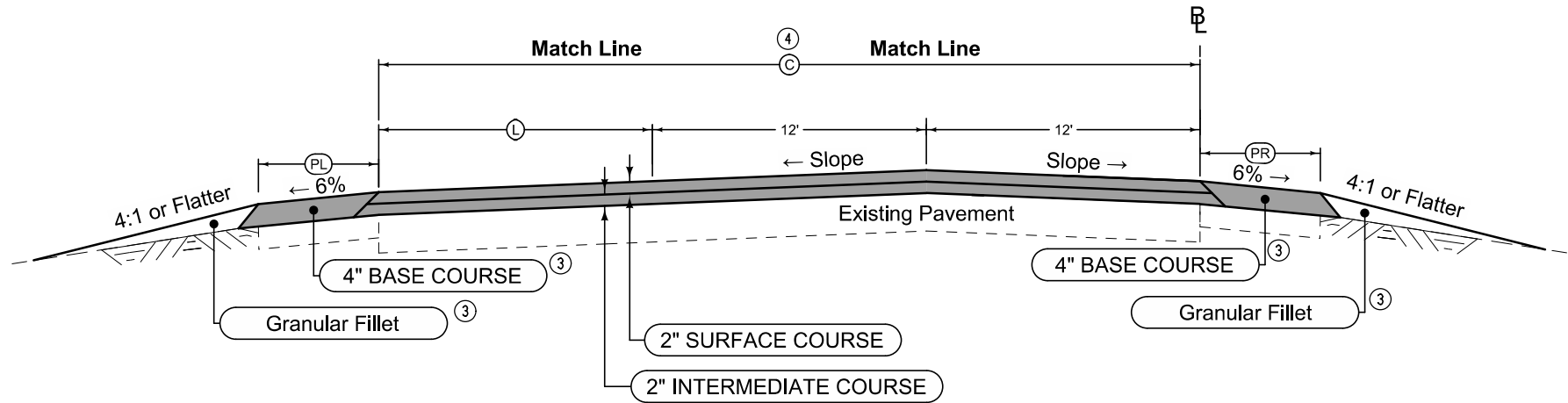
Refer to tabulation listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.

② Bid item.

③ See Typical 7137M for details.

④ Includes quantities for the ramp gore area at ramp tapers.

I-380 3 & 4 LANE SB  
HMA RESURFACING



(In direction of increasing stationing)

I-380 2 Lane SB Left Shoulder HMA Resurfacing				
STATION TO STATION		PL Feet	Asphalt Binder Tons	HMA Base Course Tons
547+82.50	549+67.50	6	1.67	27.8
549+67.50	550+00.00	10	0.49	8.1
550+00.00	551+00.00	10	1.50	25.0
551+00.00	568+11.05	10	25.67	427.8
EQTN STA 568+11.05 = 925+67.62				
925+67.62	934+14.59	10	12.70	211.7
934+14.59	940+15.00	6	5.40	90.1
940+15.00	940+75.00	6 to 10	0.72	12.0
940+75.00	949+25.00	10	12.75	212.5
949+25.00	951+25.00	10 to 6	2.40	40.0
951+25.00	960+98.68	6	8.76	146.1
960+98.68	985+65.00	10	36.99	616.6
985+65.00	991+65.00	6	5.40	90.0
991+65.00	992+25.00	6 to 10	0.72	12.0
992+25.00	1138+50.00	10	219.38	3656.3
1138+50.00	1140+50.00	10 to 6	2.40	40.0
1140+50.00	1150+23.68	6	8.76	146.1
1150+23.68	1171+40.00	10	31.74	529.1
1171+40.00	1177+40.00	6	5.40	90.0
1177+40.00	1178+00.00	6 to 10	0.72	12.0
1178+00.00	1232+00.00	10	81.00	1350.0
TOTAL			464.57	7743.2

I-380 2 Lane SB HMA Resurfacing						
STATION TO STATION		C Feet	L Feet	Asphalt Binder Tons	Hot Mix Asphalt	
					Surface Course	Intermediate Course
547+82.50	549+67.50	57 to 68	33 to 44	17.73	149.8	145.7
549+67.50	568+11.05	24	0	68.40	575.5	564.7
EQTN STA 568+11.05 = 925+67.62						
925+67.62	934+14.59	24	0	31.43	264.4	259.4
934+14.59	940+75.00	66 to 24	42 to 0	45.65	385.3	375.6
940+75.00	949+25.00	24	0	31.54	265.3	260.3
949+25.00	960+98.68	24 to 64	0 to 40	79.35	669.6	652.9
960+98.68	985+65.00	24	0	91.51	769.9	755.3
985+65.00	992+25.00	24 to 68	0 to 44	46.63	393.6	383.6
992+25.00	1138+50.00	24	0	542.65	4565.2	4478.9
1138+50.00	1150+23.68	24 to 64	0 to 40	79.35	669.6	652.9
1150+23.68	1171+40.00	24	0	78.52	660.6	648.1
1171+40.00	1178+00.00	24 to 68	0 to 44	46.63	393.6	383.6
1178+00.00	1232+00.00	24	0	200.36	1685.6	1653.8
TOTAL				1359.75	11448.0	11214.8

I-380 2 Lane SB Right Shoulder HMA Resurfacing				
STATION TO STATION		PR Feet	Asphalt Binder Tons	HMA Base Course Tons
547+82.50	549+67.50	10	2.78	46.3
549+67.50	550+00.00	10	0.49	8.1
550+00.00	551+00.00	10 to 6	1.20	20.0
551+00.00	568+11.05	6	15.40	256.7
EQTN STA 568+11.05 = 925+67.62				
925+67.62	934+14.59	6	7.62	127.1
934+14.59	940+15.00	6	5.40	90.1
940+15.00	940+75.00	6	0.54	9.0
940+75.00	949+25.00	6	7.65	127.5
949+25.00	951+25.00	6	1.80	30.0
951+25.00	960+98.68	6	8.76	146.1
960+98.68	985+65.00	6	22.20	370.0
985+65.00	991+65.00	6	5.40	90.0
991+65.00	992+25.00	6	0.54	9.0
992+25.00	1138+50.00	6	131.63	2193.8
1138+50.00	1140+50.00	6	1.80	30.0
1140+50.00	1150+23.68	6	8.76	146.1
1150+23.68	1171+40.00	6	19.05	317.5
1171+40.00	1177+40.00	6	5.40	90.0
1177+40.00	1178+00.00	6	0.54	9.0
1178+00.00	1232+00.00	6	48.60	810.0
TOTAL			295.56	4926.3

DESIGN RATES	
ITEM	RATE
Surface Course	155 lbs./cu. ft.
Intermediate Course	150 lbs./cu. ft.
Base Course	150 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.
Asphalt Binder	6% asphalt

Notes:

① Finished slope shall match existing pavement. Section may be modified as directed by the Engineer through areas of special shaping.

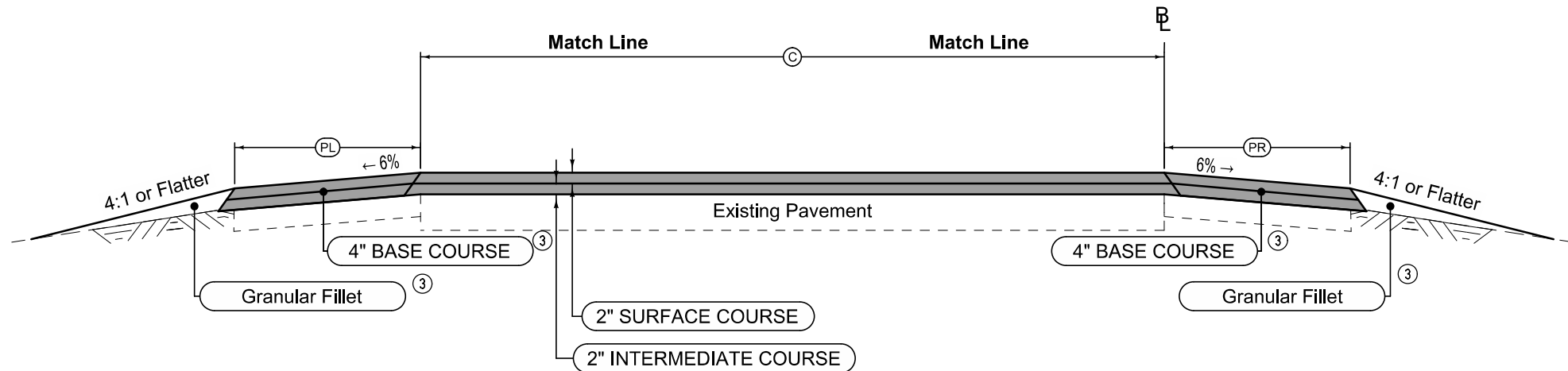
Refer to tabulation listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.

② Bid item.

③ See Typical 7137M for details.

④ Includes quantities for the ramp gore area at ramp tapers.

I-380 2 LANE SB  
HMA RESURFACING



(In direction of traveled way)

Ramp SB HMA Resurfacing Left Shoulder - No Curb						
DESCRIPTION	STATION TO STATION		PL Feet	Asphalt Binder Tons	Hot Mix Asphalt ② Tons	
					Surface Course	Intermediate Course
H-2	8+00.00	9+00.00	4	0.65	7.8	3.1
CS-C	3451+95.00	3458+02.47	4	3.96	47.1	19.0
Glass-C	3466+00.00	3473+06.20	4	4.61	54.7	22.1
Glass-C	3473+06.20	3473+56.20	4 to 6	0.41	4.8	2.0
SB Collector	5545+00.00	5547+00.00	6	1.96	23.3	9.4
SB Collector	5547+00.00	5547+20.00	6 to 4	0.16	1.9	0.8
SB Collector	5547+20.00	5556+42.67	4	6.02	71.5	28.8
SB Collector	5556+42.67	5565+93.70	6	9.31	110.6	44.6
Collins-C	3525+90.50	3531+30.00	4	3.52	41.8	16.9
BF-C	3549+67.50	3556+40.00	6	6.58	78.2	31.5
BF-A	1525+87.21	1534+14.59	4	5.40	64.1	25.9
Boyson-C	3561+00.00	3574+00.00	4	8.48	100.8	40.6
Boyson-A	1574+50.00	1585+65.00	4	7.28	86.4	34.8
County Home Rd.-C	3550+20.00	3561+25.00	4	7.21	85.6	34.5
County Home Rd.-A	1561+00.00	1571+40.00	4	6.79	80.6	32.5
TOTAL				72.34	859.2	346.5

Ramp SB HMA Resurfacing No Curb						
DESCRIPTION	STATION TO STATION		C Feet	Asphalt Binder Tons	Hot Mix Asphalt ② Tons	
					Surface Course	Intermediate Course
H-2	8+00.00	9+00.00	16	2.49	20.9	20.6
CS-C	3451+95.00	3458+02.47	16	15.13	126.9	125.3
Glass-C	3466+00.00	3473+56.20	16	18.83	157.9	156.0
SB Collector	5545+00.00	5546+00.00	24	3.71	31.2	30.6
SB Collector	5546+00.00	5547+20.00	24 to 16	3.72	31.3	30.8
SB Collector	5547+20.00	5556+42.67	16	22.98	192.7	190.3
SB Collector	5556+42.67	5561+73.69	60 to 36	39.14	330.4	321.9
SB Collector	5561+73.69	5564+71.64	36	16.51	139.2	135.9
SB Collector	5564+71.64	5565+93.70	36 to 45	7.60	64.1	62.6
Collins-C	3525+90.50	3531+30.00	16	13.44	112.7	111.3
BF-C	3549+67.50	3556+40.00	24	24.95	209.9	206.0
BF-A	1525+87.21	1526+60.00	34 to 16	2.81	23.7	23.2
BF-A	1526+60.00	1534+14.59	16	18.79	157.6	155.6
Boyson-C	3561+00.00	3574+00.00	16	32.38	271.5	268.1
Boyson-A	1574+50.00	1585+65.00	16	27.77	232.8	230.0
County Home Rd.-C	3550+20.00	3561+25.00	16	27.52	230.8	227.9
County Home Rd.-A	1561+00.00	1571+40.00	16	25.90	217.2	214.5
TOTAL				303.67	2550.8	2510.6

Ramp SB HMA Resurfacing Right Shoulder - No Curb						
DESCRIPTION	STATION TO STATION		PR Feet	Asphalt Binder Tons	Hot Mix Asphalt ② Tons	
					Surface Course	Intermediate Course
H-2	8+00.00	9+00.00	6	0.98	11.6	4.7
CS-C	3451+95.00	3458+02.47	6	5.95	70.6	28.5
Glass-C	3466+00.00	3473+06.20	6	6.91	82.1	33.1
Glass-C	3473+06.20	3473+56.20	6	0.49	5.8	2.3
SB Collector	5545+00.00	5547+00.00	6	1.96	23.3	9.4
SB Collector	5547+00.00	5547+20.00	6	0.20	2.3	0.9
SB Collector	5547+20.00	5556+42.67	6	9.03	107.3	43.3
SB Collector	5556+42.67	5565+93.70	6	9.31	110.6	44.6
Collins-C	3525+90.50	3531+30.00	6	5.28	62.7	25.3
BF-C	3549+67.50	3556+40.00	6	6.58	78.2	31.5
BF-A	1525+87.21	1534+14.59	6	8.10	96.2	38.8
Boyson-C	3561+00.00	3574+00.00	6	12.72	151.1	60.9
Boyson-A	1574+50.00	1585+65.00	6	10.91	129.6	52.3
County Home Rd.-C	3550+20.00	3561+25.00	6	10.82	128.5	51.8
County Home Rd.-A	1561+00.00	1571+40.00	6	10.18	120.9	58.8
TOTAL				99.42	1180.8	486.2

DESIGN RATES	
ITEM	RATE
Surface Course	155 lbs./cu. ft.
Intermediate Course	150 lbs./cu. ft.
Base Course	150 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.
Asphalt Binder	6% asphalt

Notes:

① Finished slope shall match existing pavement. Section may be modified as directed by the Engineer through areas of special shaping.

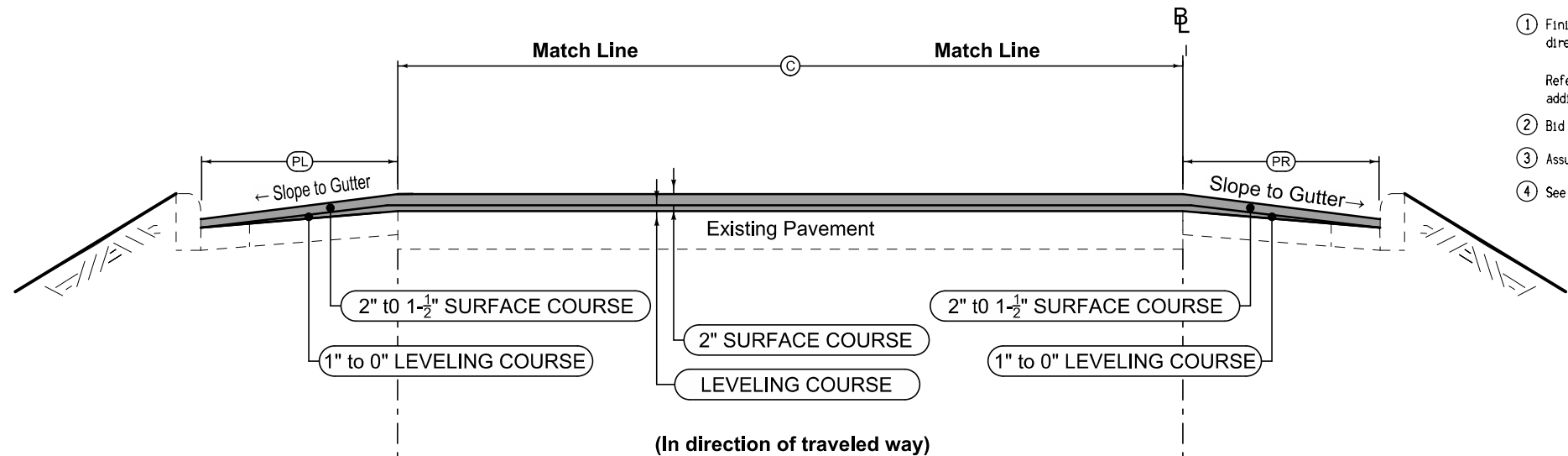
Refer to tabulation listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.

② Bid item.

③ See Typical 7137M for details.

RAMP SB  
HMA RESURFACING





Notes:

① Finished slope shall match existing pavement. Section may be modified as directed by the Engineer through areas of special shaping.

Refer to tabulation listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.

② Bid item.

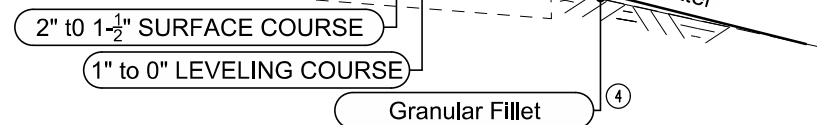
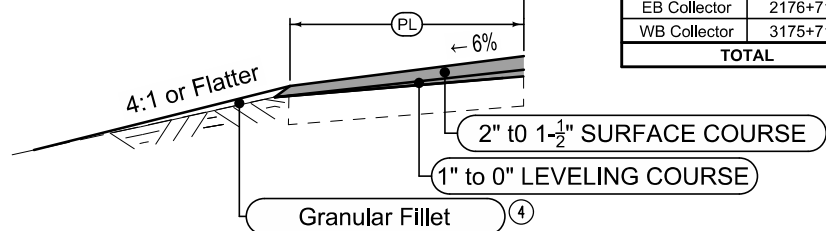
③ Assumes 1" leveling course for the length of ramp.

④ See Typical 7137M for details.

Ramp SB HMA Resurfacing Left Shoulder - With Curb						
DESCRIPTION	STATION TO STATION		PL Feet	Asphalt Binder Tons ②	Hot Mix Asphalt Tons ②	
				Surface Course	Leveling Course	
H-2	0+81.47	8+00.00	4	2.21	27.8	9.0
H-3	6+01.10	9+30.00	4	1.01	12.7	4.1
H-3	9+30.00	9+70.00	4 to 6	0.15	1.9	0.6
SB Collector	5540+72.77	554314.09	0	0.0	0.0	0.0
EB Collector	2176+71.80	2179+50.00	6	1.28	16.2	5.2
TOTAL				4.65	58.6	18.9

Ramp SB With Curbed Shoulder Sections HMA Resurfacing						
DESCRIPTION	STATION TO STATION		C Feet	Asphalt Binder Tons ②	Hot Mix Asphalt Tons ②	
				Surface Course	Leveling Course ③	
H-2	0+81.47	8+00.00	16	13.40	150.0	73.4
H-3	6+01.10	9+70.00	16	6.88	77.0	37.7
CS-C	3458+02.47	3459+24.66	16 to 28	3.12	35.0	17.1
Glass-A	1478+87.26	1479+40.25	43 to 24	2.05	23.0	11.2
Glass-A	1479+40.25	1480+75.00	24	3.75	42.1	20.5
Glass-A	1480+75.00	1481+95.00	24 to 16	2.79	31.3	15.3
Glass-A	1481+95.00	1486+60.73	16	8.69	97.3	47.5
42-C	3504+00.00	3513+37.60	16	17.49	195.8	95.7
42-C	3513+37.60	3513+91.26	16 to 21.37	1.17	13.1	6.4
SB Collector	5516+09.00	5518+50.00	24	6.71	75.2	36.7
SB Collector	5518+50.00	5519+70.00	24 to 16	2.79	31.3	15.3
SB Collector	5519+70.00	5531+27.50	16	21.59	241.7	118.2
SB Collector	5531+27.50	5537+35.12	52 to 24	26.71	299.6	145.6
SB Collector	5537+35.12	5540+72.77	24	9.40	105.4	51.4
SB Collector	5540+72.77	5543+14.09	38	10.61	119.0	57.8
SB Collector	5543+14.09	5545+00.00	24	5.18	58.0	28.3
EB Collector	2176+71.80	2179+50.00	24	7.75	86.8	42.3
WB Collector	3175+71.24	3178+10.00	24	6.65	74.5	36.3
TOTAL				156.73	1756.5	856.7

Ramp SB HMA Resurfacing Right Shoulder - With Curb						
DESCRIPTION	STATION TO STATION		PR Feet	Asphalt Binder Tons ②	Hot Mix Asphalt Tons ②	
				Surface Course	Leveling Course	
CS-C	3458+02.47	3459+24.66	0	0.00	0.0	0.0
Glass-A	1478+87.26	1480+45.00	0	0.00	0.0	0.0
Glass-A	1480+45.00	1480+75.00	0 to 6	0.07	0.9	0.3
Glass-A	1480+75.00	1486+60.73	6	3.18	40.1	13.0
42-C	3504+00.00	3513+37.60	6	4.32	54.5	17.6
42-C	3513+37.60	3513+91.26	6 to 0	0.12	1.6	0.5
SB Collector	5516+09.00	5535+00.00	6	8.72	109.1	35.5
SB Collector	5540+72.77	5543+14.09	0	0.00	0.0	0.0
SB Collector	5543+14.09	5545+00.00	6	0.86	10.8	3.5
WB Collector	3175+71.24	3178+10.00	0	0.00	0.0	0.0
TOTAL				17.27	217.0	70.4



Ramp SB HMA Resurfacing Left Shoulder - No Curb						
DESCRIPTION	STATION TO STATION		PL Feet	Asphalt Binder Tons ②	Hot Mix Asphalt Tons ②	
				Surface Course	Leveling Course	
CS-C	3458+02.47	3459+24.66	4	0.45	6.3	1.5
Glass-A	1478+87.26	1480+45.00	6	0.91	12.2	3.0
Glass-A	1480+45.00	1480+75.00	6 to 4	0.14	1.9	0.5
Glass-A	1480+75.00	1486+60.73	4	2.26	30.3	7.3
42-C	3504+00.00	3513+91.26	4	3.82	51.2	12.4
SB Collector	5516+09.00	5519+40.00	6	1.91	25.7	6.2
SB Collector	5519+40.00	5519+70.00	6 to 4	0.14	1.9	0.5
SB Collector	5519+70.00	5531+27.50	4	4.46	59.8	14.5
SB Collector	5531+27.50	5535+00.00	6	2.15	28.9	7.0
SB Collector	5535+00.00	5540+72.27	6	3.30	44.4	10.7
SB Collector	5543+14.09	5545+00.00	6	1.07	14.4	3.5
WB Collector	3175+71.24	3178+10.00	6	1.38	18.5	4.5
TOTAL				21.99	295.5	71.6

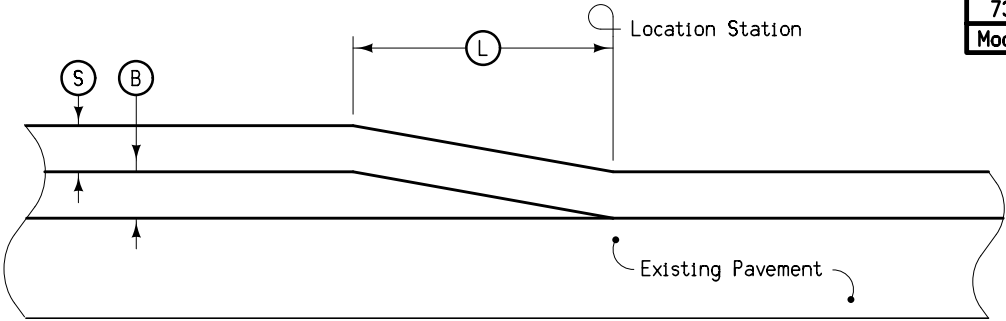
DESIGN RATES	
ITEM	RATE
Surface Course	155 lbs./cu. ft.
Intermediate Course	150 lbs./cu. ft.
Base Course	150 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.
Asphalt Binder	6% asphalt

Ramp SB HMA Resurfacing Right Shoulder - No Curb						
DESCRIPTION	STATION TO STATION		PR Feet	Asphalt Binder Tons ②	Hot Mix Asphalt Tons ②	
				Surface Course	Leveling Course	
H-2	0+81.47	8+00.00		4.15	55.7	13.5
H-3	6+01.10	9+70.00	6	2.13	28.6	6.9
SB Collector	5535+00.00	5540+72.27	6	3.30	44.4	10.7
EB Collector	2176+71.80	2179+50.00	6	1.61	21.6	5.2
TOTAL				11.19	150.3	36.3

## RAMP SB WITH CURBED SHOULDER SECTIONS HMA RESURFACING

Posted Speed Limit (mph)	Runout Ratio (Ft. per Inch)
45 or More	50
20 to 45	25
Under 20	10 *

\* Based on turning maneuvers at side roads and intersections.



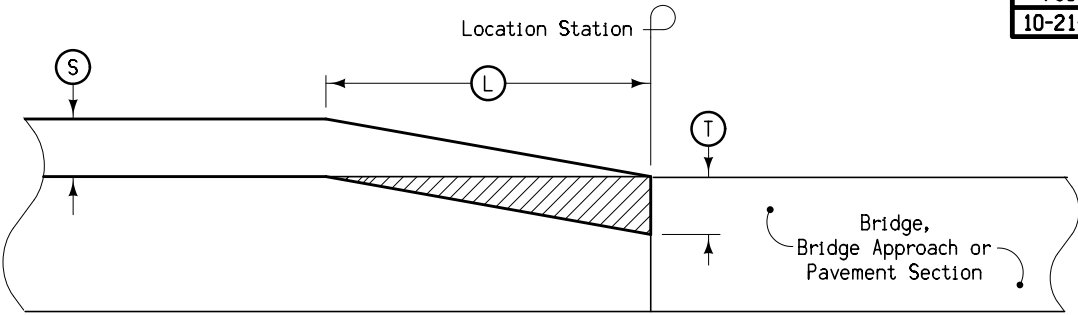
- (S) Surface Course  
(B) Intermediate Course

Description	Location Station	(L) Feet	(S) Inches	(B) Inches
Ramp H-2	8+00.00	100	2	2
Ramp H-3	5+01.10	100	2	2
Ramp CS-C	3457+02.47	100	2	2
Ramp Glass-A	1487+60.73	100	2	2
Ramp 42-C	3503+00.00	100	2	2
SB Collector	5545+00.00	100	2	2

INTERMEDIATE COURSE  
RUNOUT TRANSITION

Posted Speed Limit (mph)	Runout Ratio (ft per inch)
45 or More	50
20 to 45	25
Under 20	10 *

\* Based on turning maneuvers at side roads and intersections.



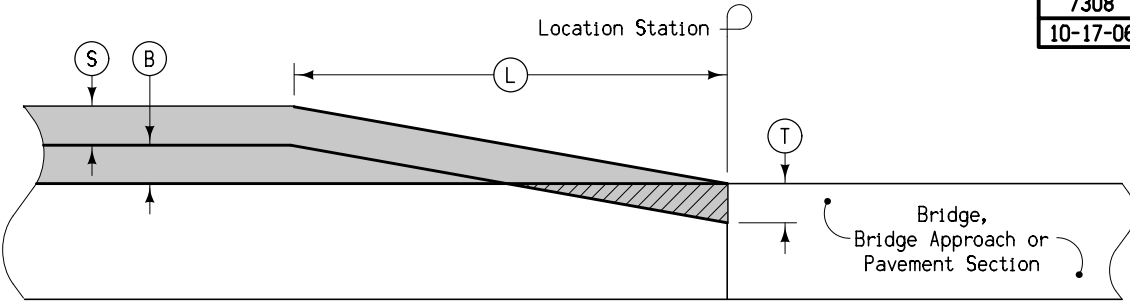
- (S) Surface Course  
(T) Milling

Location Station	Location Station	(L) Feet	(S) Inches	(T) Inches
Ramp H-2	0+81.47	100	2	2
Ramp H-3	9+70.00	100	2	2
Ramp CS-C	3459+24.66	100	2	2
Ramp Glass-A	1478+87.26	100	2	2
Ramp 42-C	351391.26	100	2	2
SB Collector	5516+09.00	100	2	2
EB Collector	2176+71.80	100	2	2
EB Collector	2179+50.00	100	2	2
WB Collector	3175+71.24	100	2	2
WB Collector	3178+10.00	100	2	2

SURFACE NOTCH FOR  
SINGLE COURSE RESURFACING

Posted Speed Limit (mph)	Runout Ratio (ft per inch)
45 or More	50
20 to 45	25
Under 20	10 *

\* Based on turning maneuvers at side roads and intersections.



- (S) Surface Course  
(B) Intermediate Course  
(T) Milling

Description	Location Station	(L) Feet	(S) Inches	(B) Inches	(T) Inches
ML 380	392+39.53	200	2	2	2
ML 380	402+69.50	200	2	2	2
ML 380	407+46.38	200	2	2	2
ML 380	407+46.38	200	2	2	2
ML 380	417+42.59	200	2	2	2
ML 380	419+51.05	200	2	2	2
ML 380	432+42.26	200	2	2	2
ML 380	435+14.08	200	2	2	2
ML 380	458+92.31	200	2	2	2
ML 380	461+08.37	200	2	2	2
ML 380	513+04.94	200	2	2	2
ML 380	515+34.82	200	2	2	2
ML 380	1231+80.00	200	2	2	2
Glass-C	3473+56.20	200	2	2	2
SB Collector	5565+93.70	200	2	2	2
Ramp BF-A	1525+87.21	200	2	2	2
Boyson Road	3574+00.00	200	2	2	2
Boyson Road	1574+50.00	200	2	2	2
County Home Road	3561+25.00	200	2	2	2
County Home Road	1561+00.00	200	2	2	2

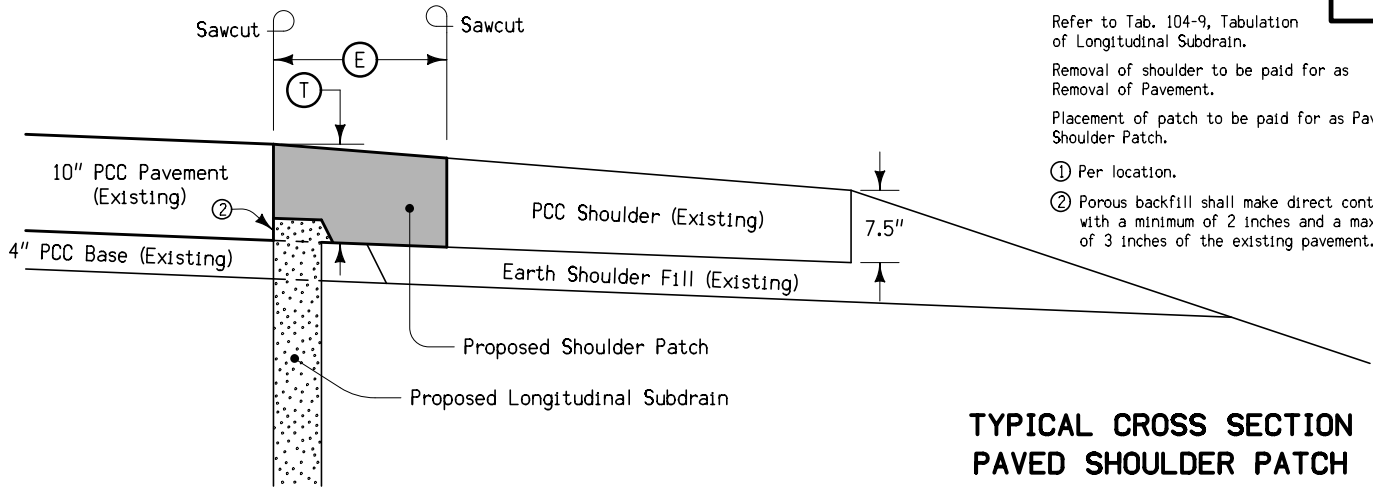
The Engineer has the discretion to adjust the Location Station closer the bridge end.

SURFACE NOTCH - INTERMEDIATE  
RUNOUT FOR DOUBLE COURSE RESURFACING

7308  
10-17-06

7307  
10-21-03

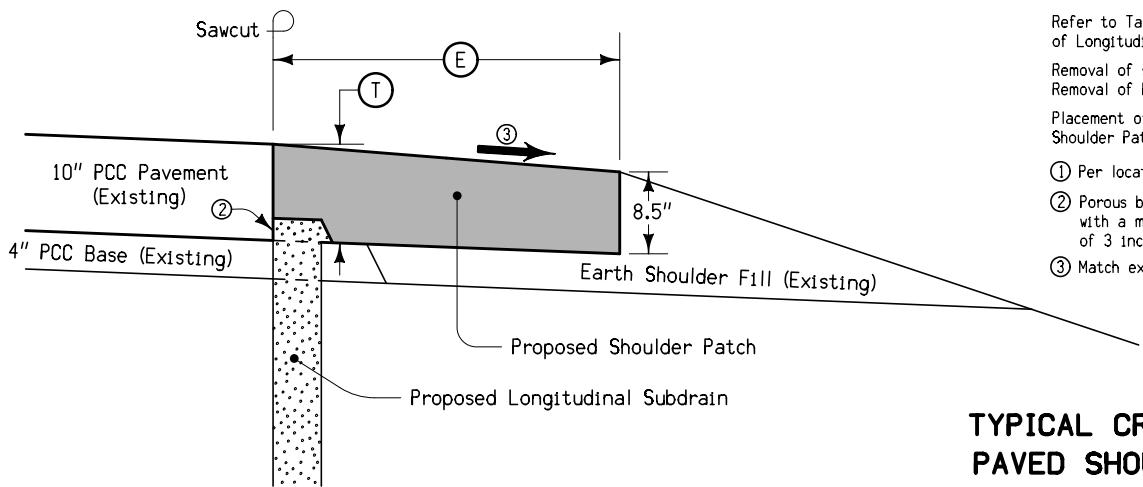




- Notes:
- Refer to Tab. 104-9, Tabulation of Longitudinal Subdrain.
- Removal of shoulder to be paid for as Removal of Pavement.
- Placement of patch to be paid for as Paved Shoulder Patch.
- ① Per location.
  - ② Porous backfill shall make direct contact with a minimum of 2 inches and a maximum of 3 inches of the existing pavement.

TYPICAL CROSS SECTION  
PAVED SHOULDER PATCH

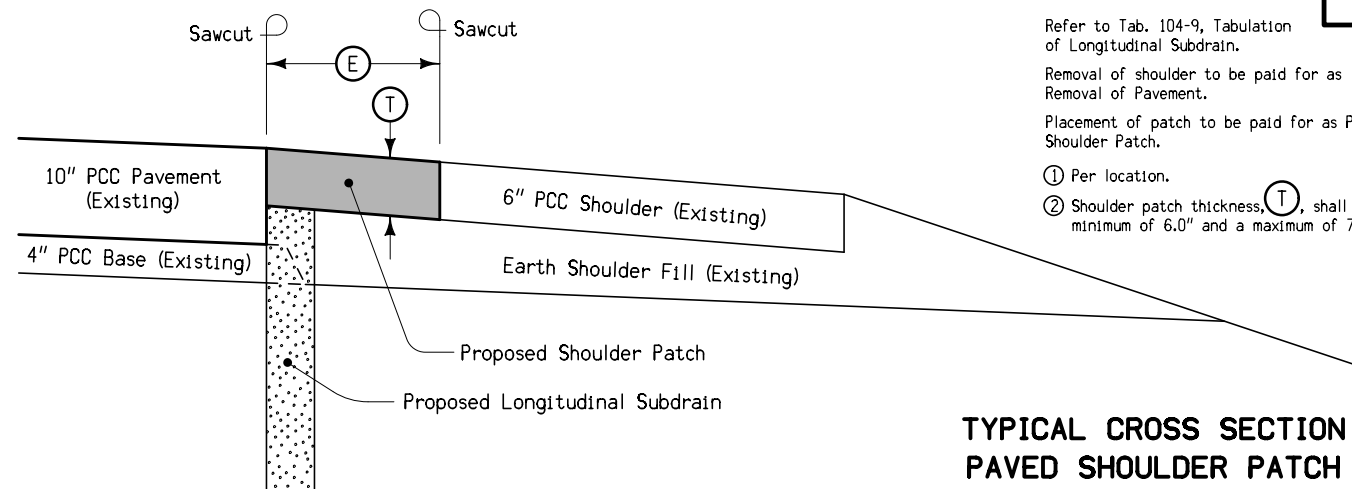
LOCATION				DIMENSIONS		QUANTITIES ①	REMARKS
ROAD ID	STATION TO STATION		SIDE	T Inches	E Feet	SURFACE AREA Sq. Yds.	
	SOUTHBOUND						
I-380	1200+00	1186+00	Out	10	3	133	SB Mainline Shoulder
I-380	1180+00	1178+00	Out	10	3	67	SB Mainline Shoulder
I-380	1171+00	1167+00	Out	10	3	133	SB Mainline Shoulder
I-380	1103+00	1099+00	Out	10	3	133	SB Mainline Shoulder
I-380	1093+00	1084+00	Out	10	3	300	SB Mainline Shoulder
I-380	1074+00	1039+00	Out	10	3	1167	SB Mainline Shoulder
I-380	1006+00	992+50	Out	10	3	450	SB Mainline Shoulder
I-380	985+00	971+00	Out	10	3	467	SB Mainline Shoulder
I-380	963+00	961+00	Out	10	3	67	SB Mainline Shoulder
	TOTAL					2917	



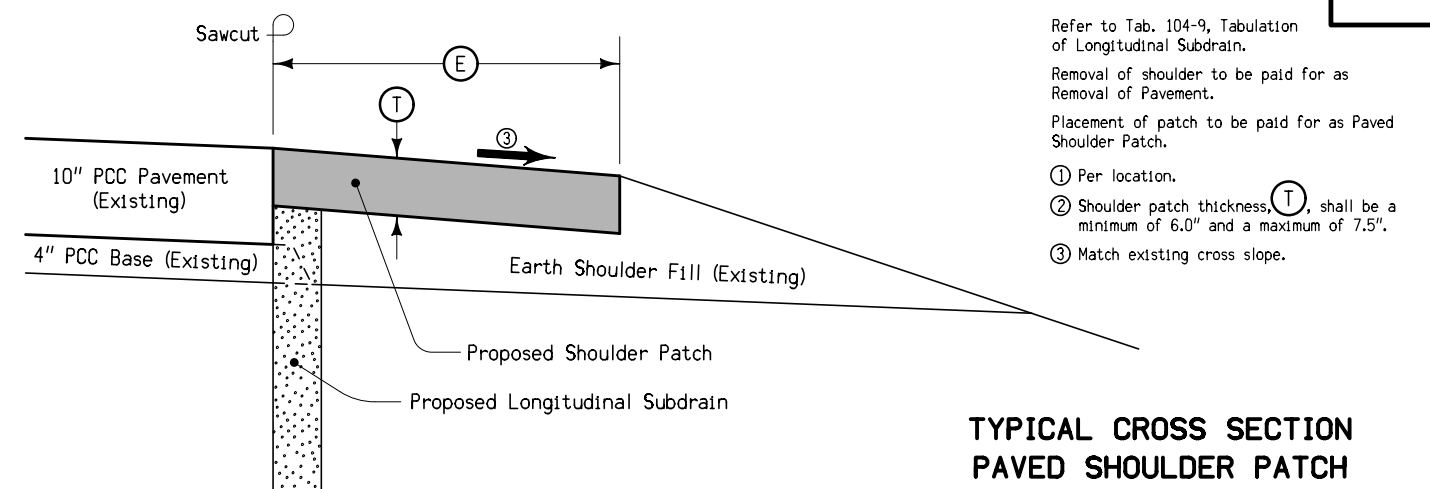
- Notes:
- Refer to Tab. 104-9, Tabulation of Longitudinal Subdrain.
- Removal of shoulder to be paid for as Removal of Pavement.
- Placement of patch to be paid for as Paved Shoulder Patch.
- ① Per location.
  - ② Porous backfill shall make direct contact with a minimum of 2 inches and a maximum of 3 inches of the existing pavement.
  - ③ Match existing cross slope.

TYPICAL CROSS SECTION  
PAVED SHOULDER PATCH

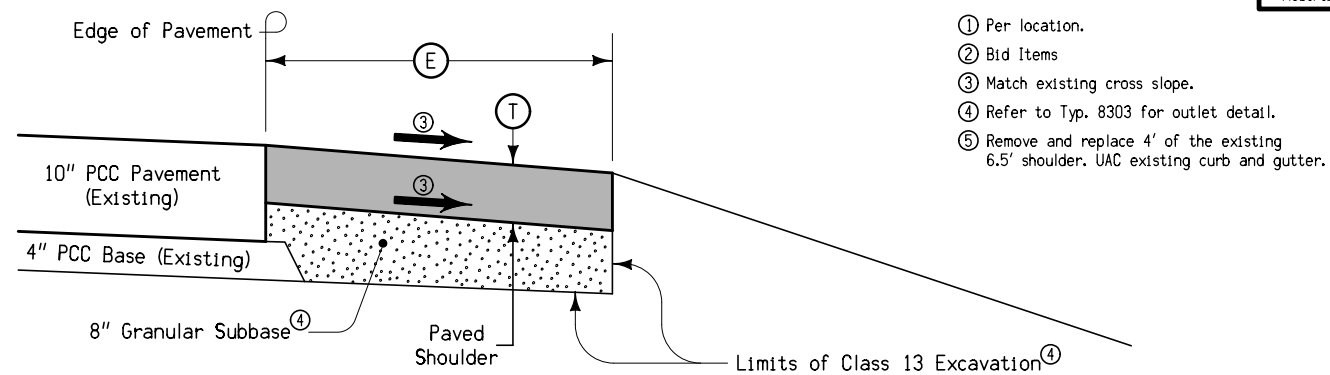
LOCATION				DIMENSIONS		QUANTITIES ①	REMARKS
ROAD ID	STATION TO STATION		SIDE	T Inches	E Feet	SURFACE AREA Sq. Yds.	
	SOUTHBOUND						
I-380	1231+00	1200+00	Med	10	6	2067	SB Mainline Shoulder
I-380	1186+00	1172+00	Med	10	6	933	SB Mainline Shoulder
I-380	1161+00	1145+00	Med	10	6	1067	SB Mainline Shoulder
I-380	1138+00	1128+00	Med	10	6	667	SB Mainline Shoulder
I-380	1115+00	1111+00	Med	10	6	267	SB Mainline Shoulder
I-380	1092+00	1085+00	Med	10	6	467	SB Mainline Shoulder
I-380	1083+00	1054+00	Med	10	6	1933	SB Mainline Shoulder
I-380	1052+00	971+50	Med	10	6	5367	SB Mainline Shoulder
	TOTAL					12768	



LOCATION				DIMENSIONS		QUANTITIES ①	REMARKS
ROAD ID	STATION TO STATION		SIDE	Ⓣ ②	ⓔ	SURFACE AREA Sq. Yds.	
				Inches	Feet		
	SOUTHBOUND						
I-380	949+50	941+00	Out	6	3	283	SB Mainline Shoulder
I-380	933+00	926+00	Out	6	3	233	SB Mainline Shoulder
I-380	537+00	527+00	Out	6	3	333	SB Mainline Shoulder
I-380	512+50	506+00	Out	6	3	217	SB Mainline Shoulder
I-380	498+00	493+00	Out	6	3	167	SB Mainline Shoulder
I-380	446+00	436+00	Out	6	3	333	SB Mainline Shoulder
I-380	496+00	481+00	Med	6	3	500	SB Mainline Shoulder
I-380	432+00	420+00	Med	6	3	400	SB Mainline Shoulder
I-380	416+00	408+00	Med	6	3	267	SB Mainline Shoulder
	TOTAL					2733	

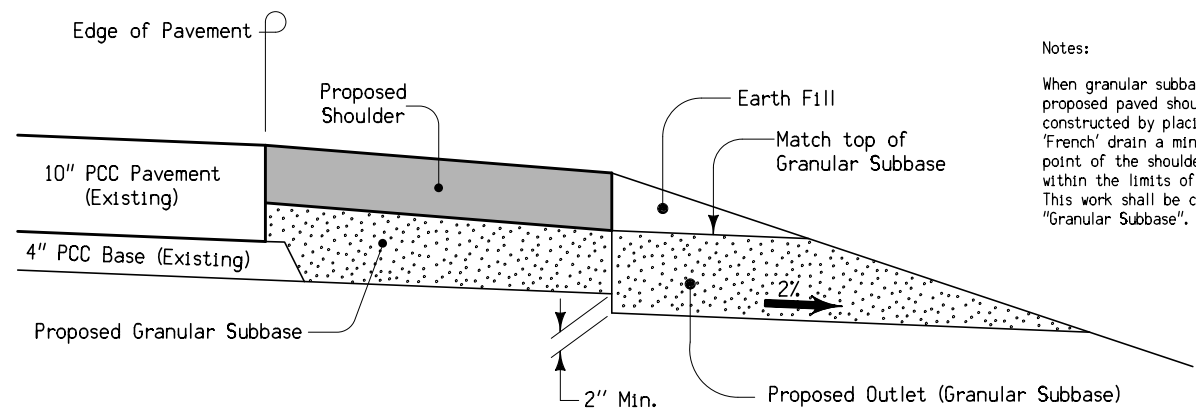


LOCATION				DIMENSIONS		QUANTITIES ①	REMARKS
ROAD ID	STATION TO STATION		SIDE	Ⓣ Inches	ⓔ Feet	SURFACE AREA Sq. Yds.	
	SOUTHBOUND						
I-380	971+50	957+00	Med	6	6	967	SB Mainline Shoulder
I-380	942+00	936+00	Med	6	6	400	SB Mainline Shoulder
I-380	934+00	932+00	Med	6	6	133	SB Mainline Shoulder
	TOTAL					1500	



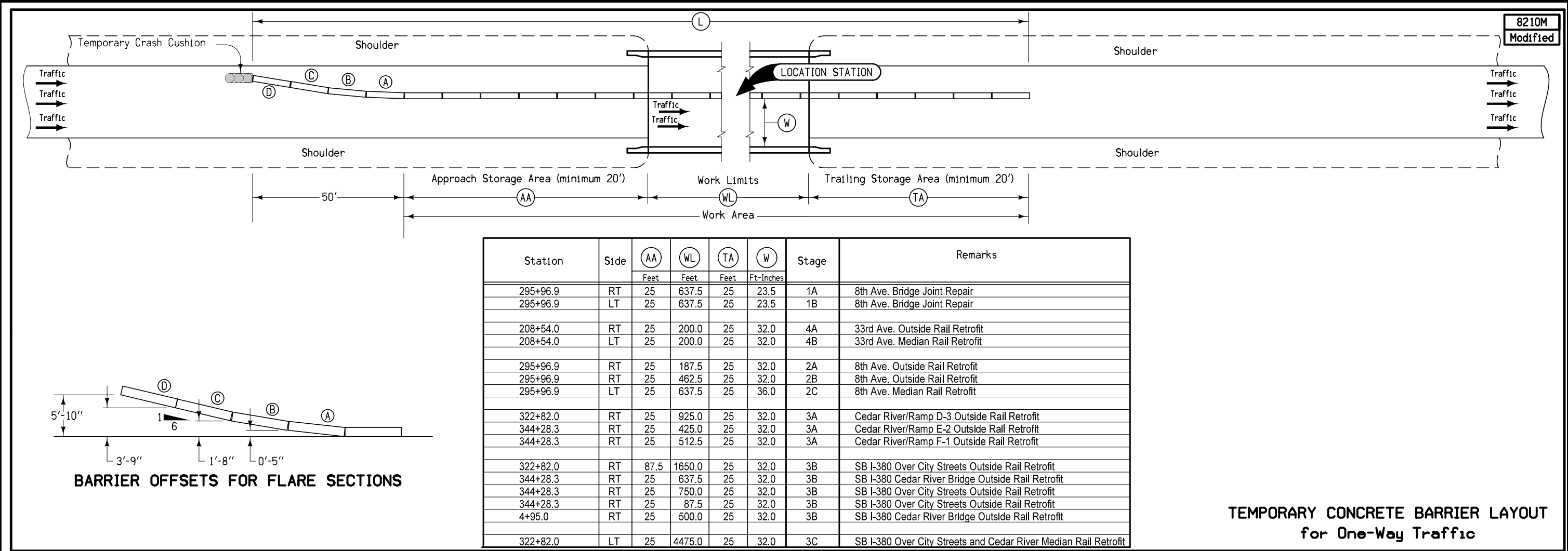
TYPICAL CROSS SECTION  
PAVED SHOULDER REPLACEMENT

LOCATION			DIMENSIONS		QUANTITIES ①			REMARKS	
ROAD ID	STATION TO STATION		SIDE	Ⓣ Inches	ⓔ Feet	② SURFACE AREA Sq. Yds.	② EXCAVATION CL. 13 Cu. Yds.		② GRANULAR SUBBASE Sq. Yds.
	SOUTHBOUND								
I-380	555+00	550+00	Med	6	6	333	74	333	SB Mainline Shoulder
I-380	1571+00	1578+00	Out	6	6	467	104	467	SB Off-Ramp County Home Road Shoulder
I-380	3551+00	3547+00	Out	6	6	267	59	267	SB On-Ramp County Home Road Shoulder
I-380	1590+00	1585+00	Out	6	6	333	74	333	SB Off-Ramp Boyson Road Shoulder
I-380	3574+00	3564+00	Out	6	6	111	25	111	SB On-Ramp Boyson Road Shoulder
I-380	1534+00	1526+00	Out	6	6	533	118	533	SB Off-Ramp Blairs Ferry Road Shoulder
I-380	3556+00	3546+00	Out	6	6	667	148	667	SB On-Ramp Blairs Ferry Road Shoulder
I-380	5560+00	5547+00	Out	6	6	867	193	867	SB Collector Road Shoulder
I-380	5556+00	5547+00	In	6	4	400	89	400	SB Collector Road Shoulder
I-380	3513+90	3507+00	In	6	4	307	68	307	SB On-Ramp 42-C Shoulder
I-380	3507+00	3500+00	Out	6	4	311	69	311	SB On-Ramp 42-C Shoulder ⑤
	TOTAL					4596	1021	4596	

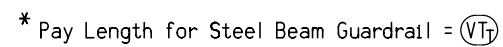


OUTLET FOR  
GRANULAR SUBBASE

Notes:  
When granular subbase is placed under the proposed paved shoulder, an outlet shall be constructed by placing a granular subbase 'French' drain a minimum 24" wide at the low point of the shoulder and at 100' intervals within the limits of the proposed shoulder. This work shall be considered incidental to "Granular Subbase".



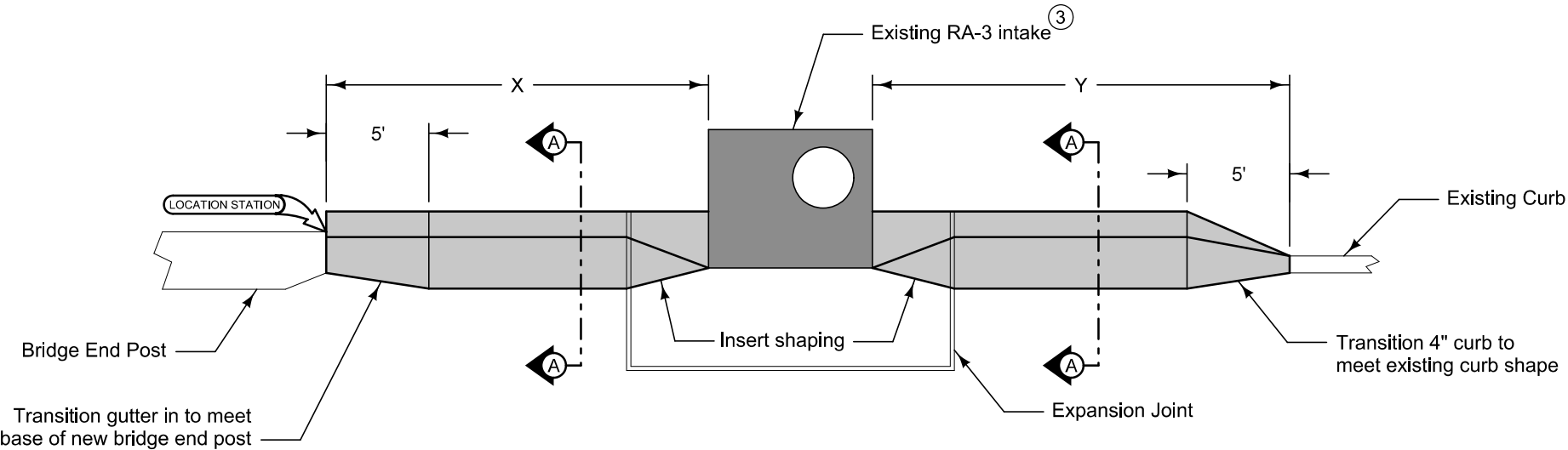
CP-4



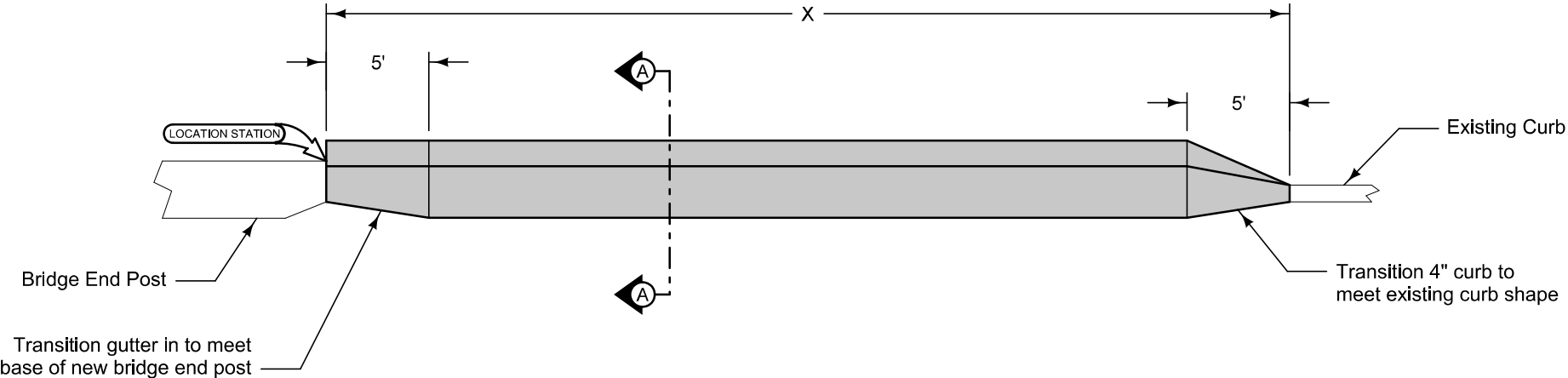
- ① See Standards for list of materials.
- ② See Sheet U.6
- ③ Face of guardrail is even with edge of shoulder.

[illegible]





CASE 1



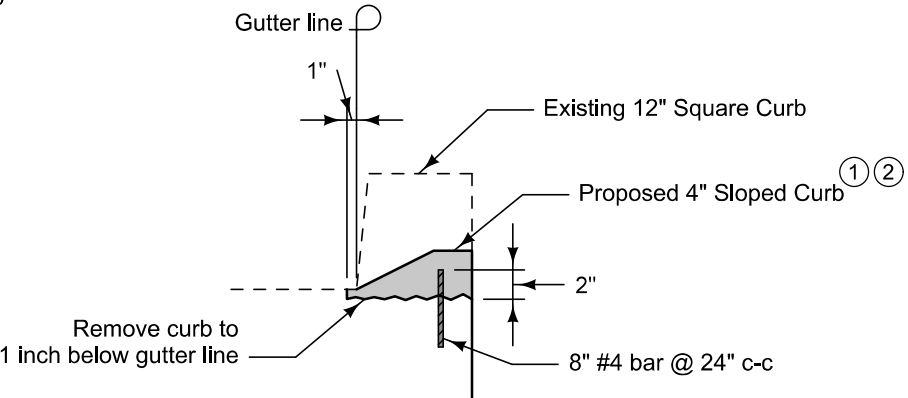
CASE 2

The intent of this work is to remove the existing 12-inch vertical curb adjacent to certain bridges and replace it with a 4-inch sloped curb design. This work also involves removing and reconstructing certain intake tops.

- ① Match joints in adjacent shoulder pavement. Refer to PV-101.
- ② Refer to PV-102 for details of curb types.
- ③ Remove existing Type RA-3 intake top. Construct new SW-507 intake top such that the height of the top at the face of the curb is 4 inches. Attach new top to existing RA-3 base section. Transition shape of proposed curb through insert area to match shape of new intake top.

The Engineer will measure the linear feet of Dowelled P.C. Curb along the face of the curb at the gutter line. Payment for Dowelled P.C. Curb will be the contract unit price per linear foot.

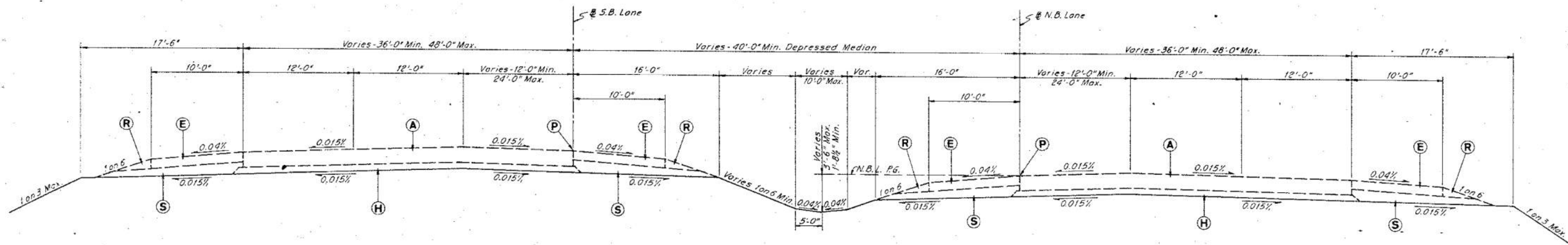
Contract Items:  
Removal of Curb  
Curb, Dowelled P.C. Concrete, as per plan  
Intake, SW-507 Modified, Top Only



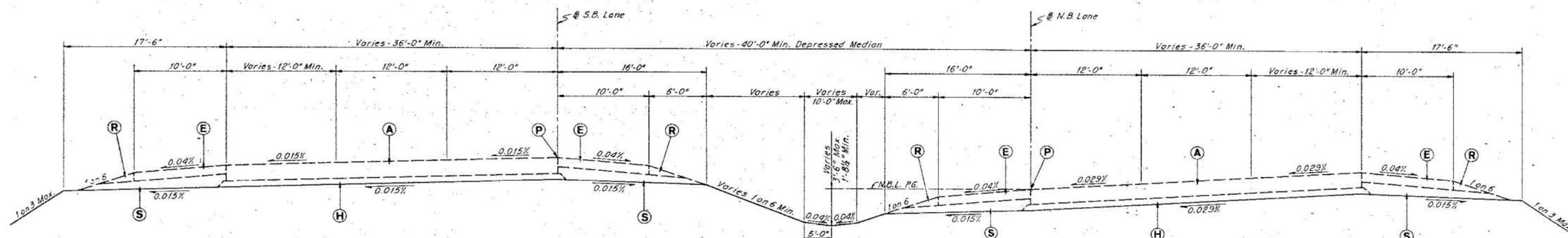
Section A-A

Station	Offset	Case	X (lf)	Y (lf)	Contract Items			Remarks
					Removal of Curb (lf)	Dowelled Curb (lf) ②	Rebuild Intake Top (No.) ③	
306+00	22' Lt.	1	8	50	58	58	1	I-380 Southbound at 5th Ave SW Bridge, NW Corner
268+00	22' Lt.	2	50	-	50	50	-	I-380 Southbound at 15th/16th Ave SW Bridge, NW Corner
207+80	22' Lt.	1	8	35	43	43	1	I-380 Southbound at 33rd Ave SW Bridge, NW Corner
290+75	22' Lt.	2	45	-	45	45	-	I-380 Southbound at 8th Ave SW Bridge, NW Corner
	Totals:				196.0	196.0	2	

CURB REPLACEMENT NEAR BRIDGES



**FREEWAY WITH VARIABLE MEDIAN**  
**NORMAL CROWN SECTION**



**LEGEND**

- (A) 10" Standard Non-Reinforced P.C. Concrete Pavement, Class "C" (CD Transverse Joints)
- (B) 9" Standard Non-Reinforced P.C. Concrete Pavement, Class "C"
- (D) 8" Standard Non-Reinforced P.C. Concrete Pavement, Class "C"
- (E) 6" Class I Paved Shoulder (6" P.C.C.)
- (G) Concrete Shoulder Gutter
- (H) 4" Class "A" Subbase
- (K) Keyed and Doweled Joint
- (L) Longitudinal Joint
- (N) 6" Integral Curb
- (P) Profile Grade
- (R) Granular Surfacing of Shoulders
- (S) Backfill for Earth Shoulder Finishing
- (W) 4'-4" Width; 5'-5" Width P.C. Concrete Sidewalk

**FREEWAY WITH VARIABLE MEDIAN**  
**SUPERELEVATED SECTION**

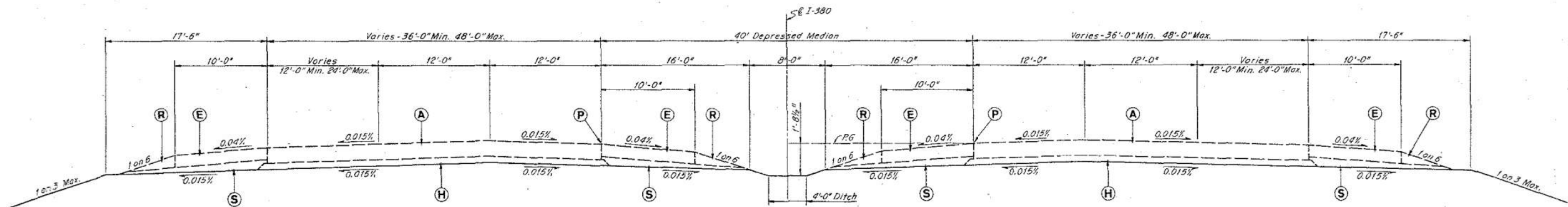
**Notes:**

1. Typical Sections are intended to show general features and materials of proposed construction. For exact Pavement Details of any given location see Pavement Plans Sheets 29 to 47 and Roadway Cross Sections.
2. Profile Grade is carried on Base Lines. See Geometric Plans Sheets 154 to 158 for location of these Base Lines.
3. All sections are shown looking in the direction of stationing.
4. For location and depth of Selected Backfill see Soil Surveys Sheets 129 to 150.
5. For exact location of Joints see Joint Layout Sheets 30 to 50.

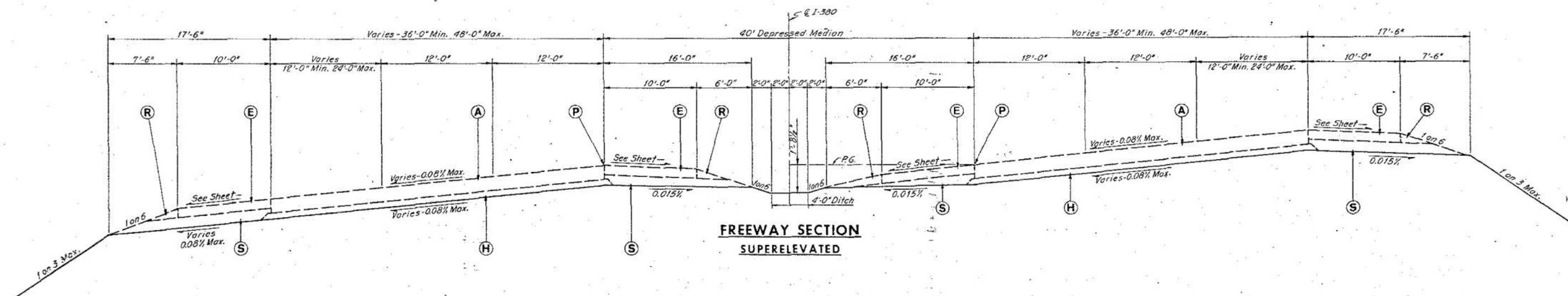
For Information Only

**TYPICAL SECTIONS**

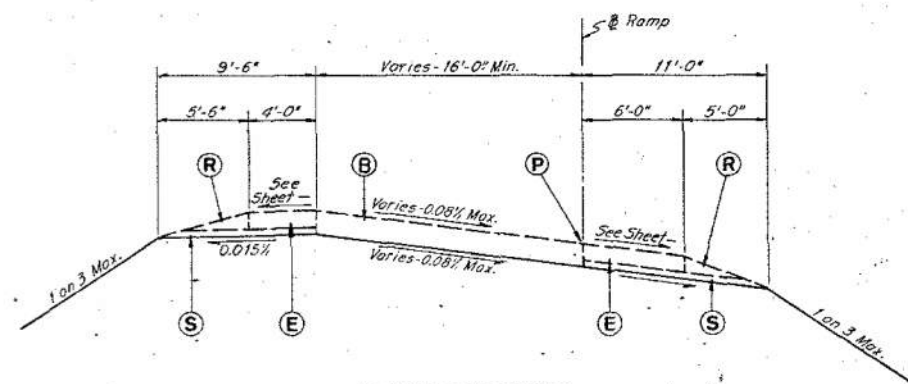
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 CHECKED \_\_\_\_\_ DATE \_\_\_\_\_  
 HNTB



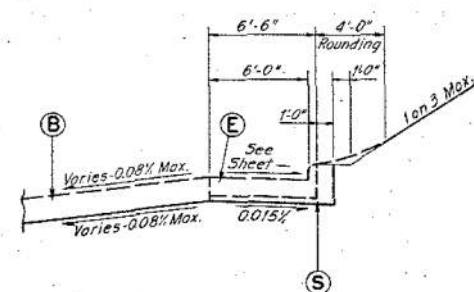
**FREEWAY SECTION  
NORMAL CROWN**



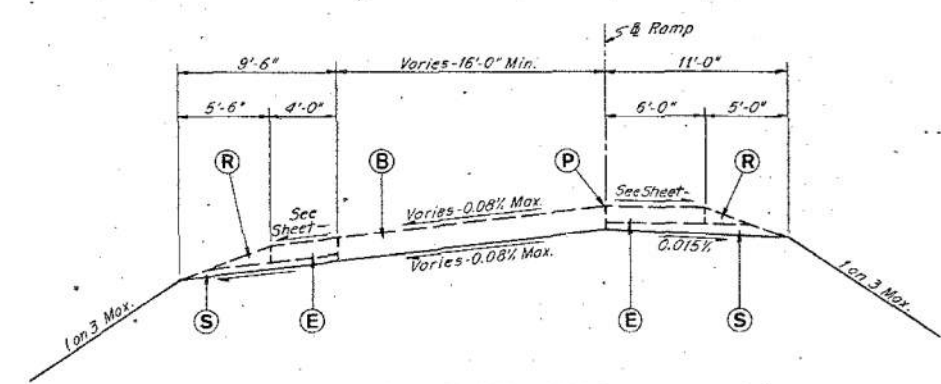
**FREEWAY SECTION  
SUPERELEVATED**



**RAMP SECTION  
SUPERELEVATED RIGHT**



**RAMP SECTION  
Class "I" Paved Shoulder  
with "6" Curb**



**RAMP SECTION  
SUPERELEVATED LEFT**

Note:  
For Legend and Notes see Sheet 4.

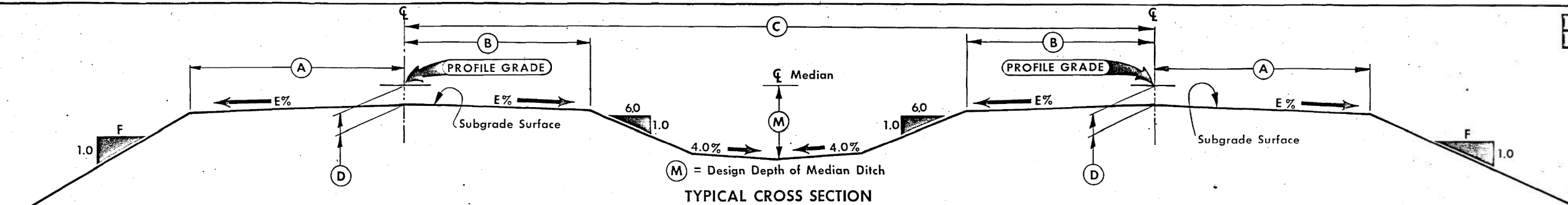
**For Information Only**

**TYPICAL SECTIONS**

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
KANSAS CITY

**HNTB**

MADE J.R.S. DATE 5-10-74  
CHECKED T.C.W. DATE 7-24-76

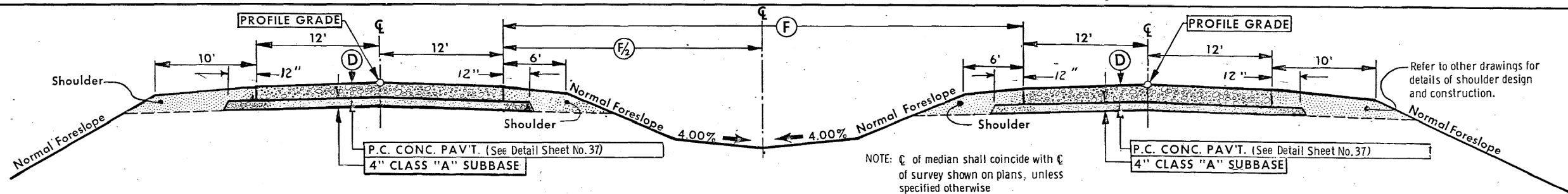


**CUT**  
For typical cross sections of ditches and backlopes for roadway in cut - refer to other detail drawings within the plans.

ROAD IDENT.	LOCATION		DIMENSIONS				SLOPE	
	STATION TO	STATION	A	B	C	D	F	E%
1-380	963+00.00	969+00.00	29.0'	25.5'	64.0'	14"	6.0	1.5

**NOTE:**  
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the engineer.

Median shall coincide with Survey shown on plans unless specified otherwise.



**NOTE:**  
Normal section shown may be appropriately modified for areas specifically designated by the Engineer, such as intersections or superelevated curves.

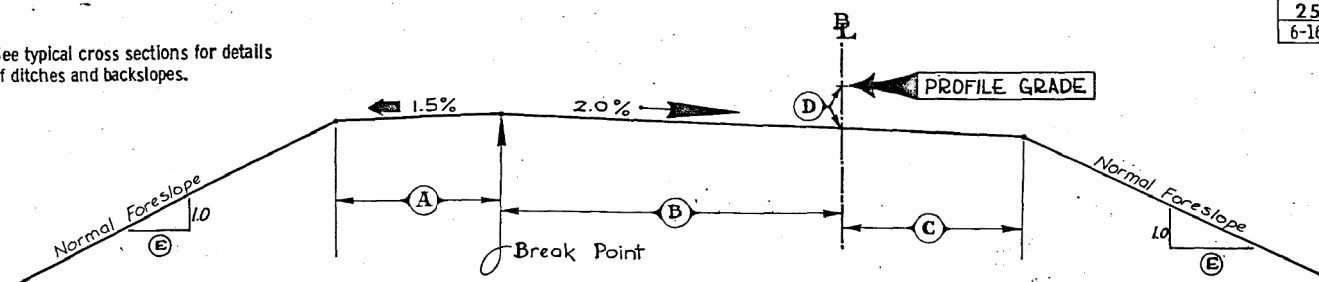
ROAD IDENT.	STATION TO STATION		D	F	SHLDR. TYPE
1-380	944+51.25	971+50.00	10'	40.0'	Class 1 Paved

**NOTE:** Median shall coincide with Survey shown on plans, unless specified otherwise

Refer to other drawings for details of shoulder design and construction.

For Information Only

See typical cross sections for details of ditches and backslopes.



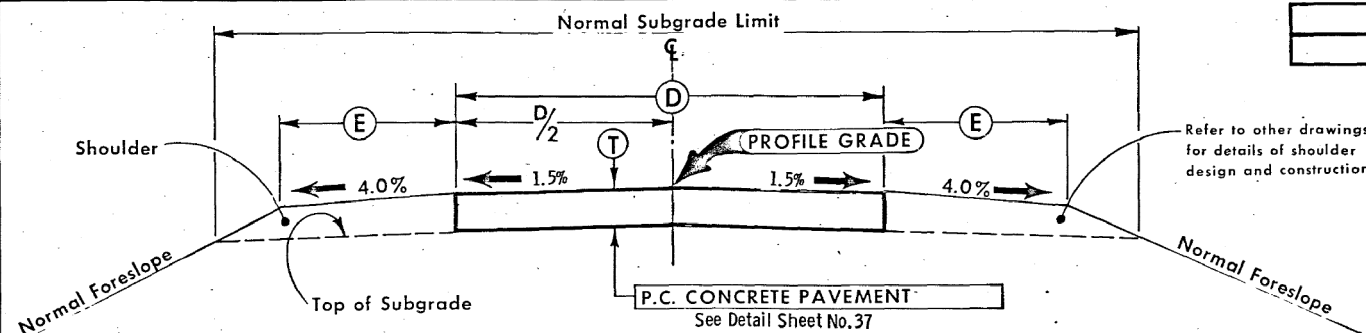
RAMP GRADING  
TYPICAL CROSS SECTION

INTERCHANGE	RAMP	(A)	(B)	(C)	(D)	SLOPE (E)
Carpenter Road	B&C	9.0'	16.0'	11.0'	9'	6.0

Note: Refer to detail plans for portions of Ramps to be graded.

NOTE:  
This section is typical only. Refer to other drawings for additional details.  
Normal section shown may be appropriately modified at areas specifically designated by the engineer, such as intersections or superelevated curves.

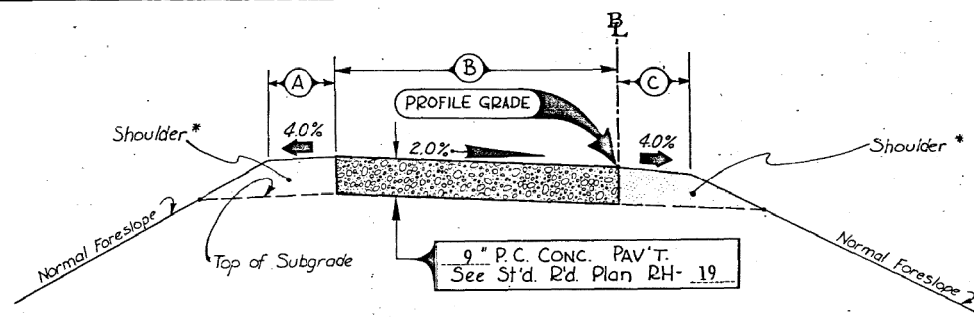
(Section view is in direction of Traffic)



TYPICAL CROSS SECTION  
PROPOSED HIGHWAY IMPROVEMENT

ROAD IDENT	STATION TO STATION	(D)	(T)	(E)	SHOULDER TYPE
Carpenter Road	-1960+80.00 1980+37.87	24.0'	9'	10.0'	Stabilized

NOTE:  
Normal sections shown may be appropriately modified for areas specifically designated by the engineer such as intersections or superelevated curves.



RAMP PAVEMENT  
TYPICAL CROSS SECTION

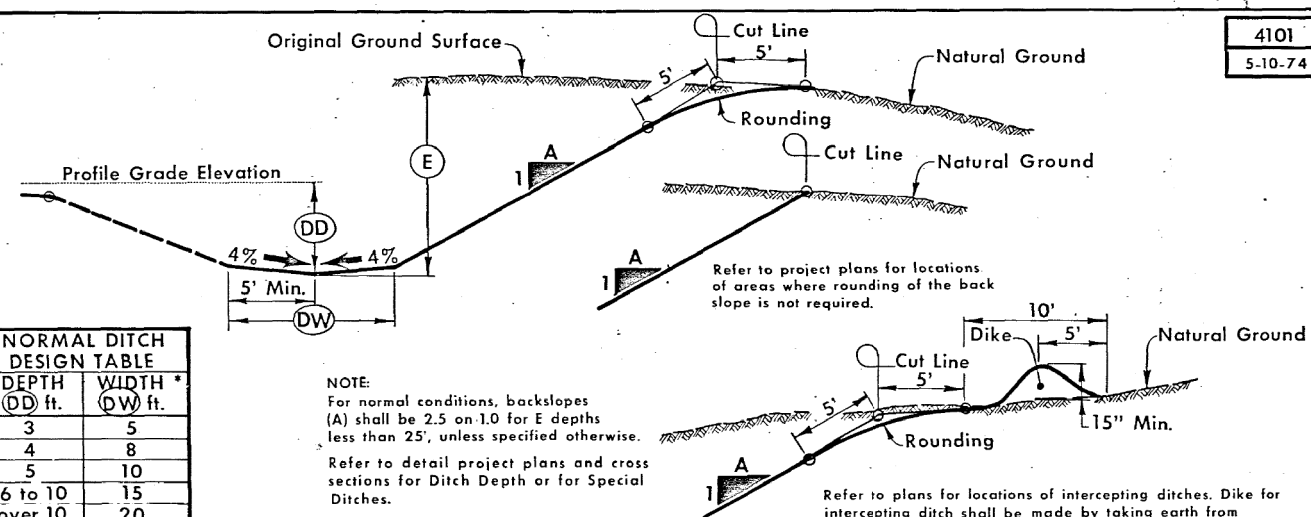
INTERCHANGE	RAMP	(A)	(B)	(C)
Carpenter Road	B & C	4.0'	16.0'	6.0'
Carpenter Road	A & D	4.0'	16.0'	6.0'

Note: Pave Ramp A & D Terminals only.

NOTE:  
Normal section shown may be appropriately modified at areas specifically designated by the engineer, such as intersections or superelevated curves.

(Section view is in direction of Traffic)

\* Refer to other drawings for details of shoulder design and construction.



DEPTH (DD) ft.	WIDTH * (DW) ft.
3	5
4	8
5	10
6 to 10	15
over 10	20

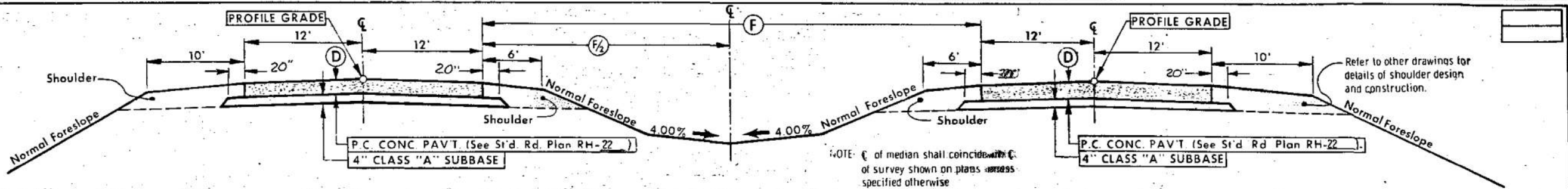
NOTE:  
For normal conditions, backslopes (A) shall be 2.5 on 1.0 for E depths less than 25', unless specified otherwise.  
Refer to detail project plans and cross sections for Ditch Depth or for Special Ditches.

TYPICAL CROSS SECTION  
(EARTH EXCAVATION, NORMAL DITCH AND BACKSLOPE)

Refer to plans for locations of intercepting ditches. Dike for intercepting ditch shall be made by taking earth from roadway side. Do not excavate back of dike.

For Information Only



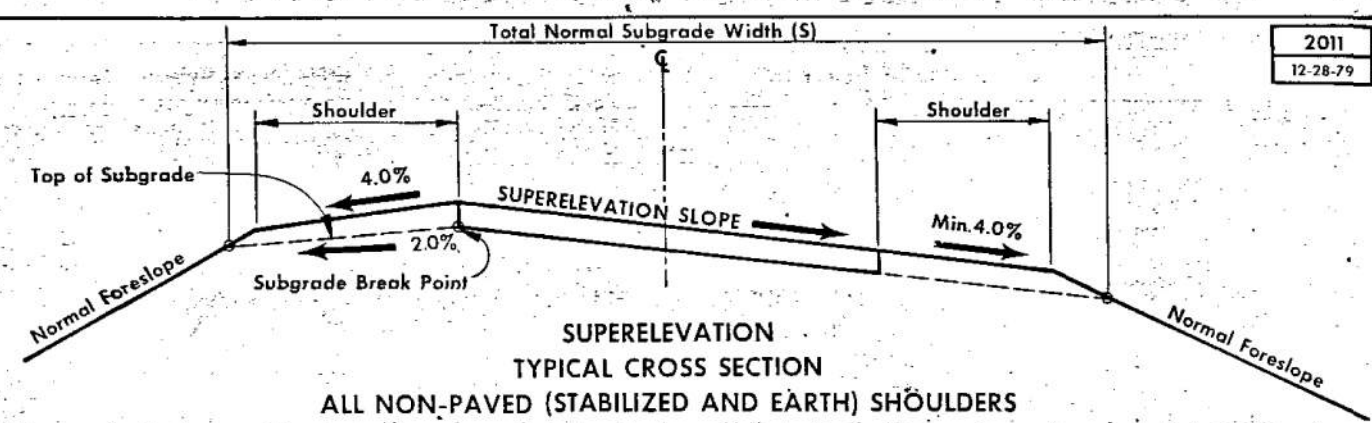


NOTE  
Normal section shown may be appropriately modified for areas specifically designated by the engineer, such as intersections or superelevated curves.

### TYPICAL CROSS SECTIONS FOR PAVING PROPOSED HIGHWAY IMPROVEMENT

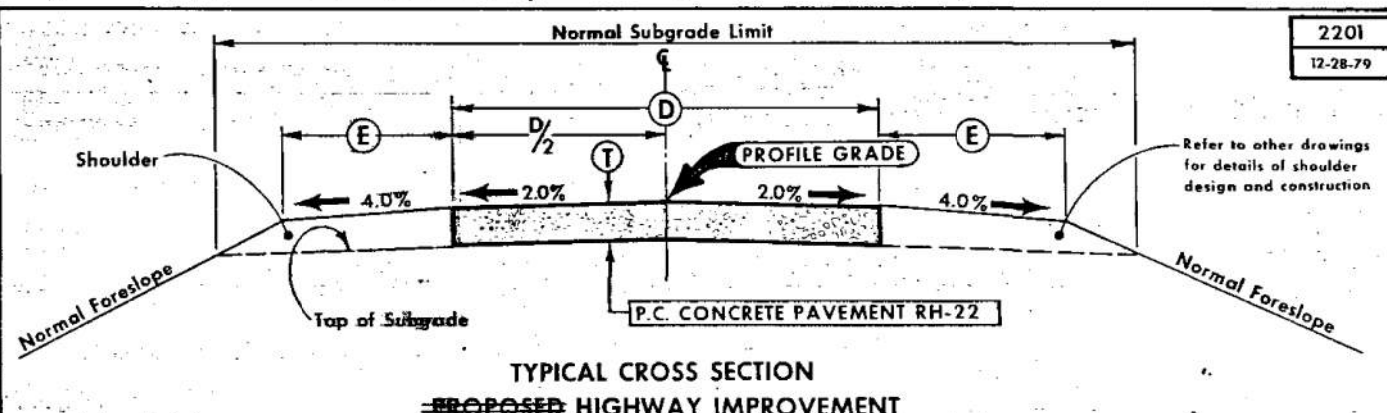
ROAD IDENT.	STATION TO STATION	D	F	SHLDR. TYPE
I-380	971+50 - 1004+30.04	10'	40'	Class 1 Paved
I-380	1004+30.04 - 1039+58.15	10'	Var(1)	Class 1 Paved
I-380	1039+58.15 - 1228+30.94 (2)	10'	64'	Class 1 Paved

- (1) Median Width "F" varies from 40.0' to 64.0'  
(2) Equation: Sta. 1199+88.94 (Back)  
Sta. 1199+28.58 (Ahead)



### SUPERELEVATION TYPICAL CROSS SECTION ALL NON-PAVED (STABILIZED AND EARTH) SHOULDERS

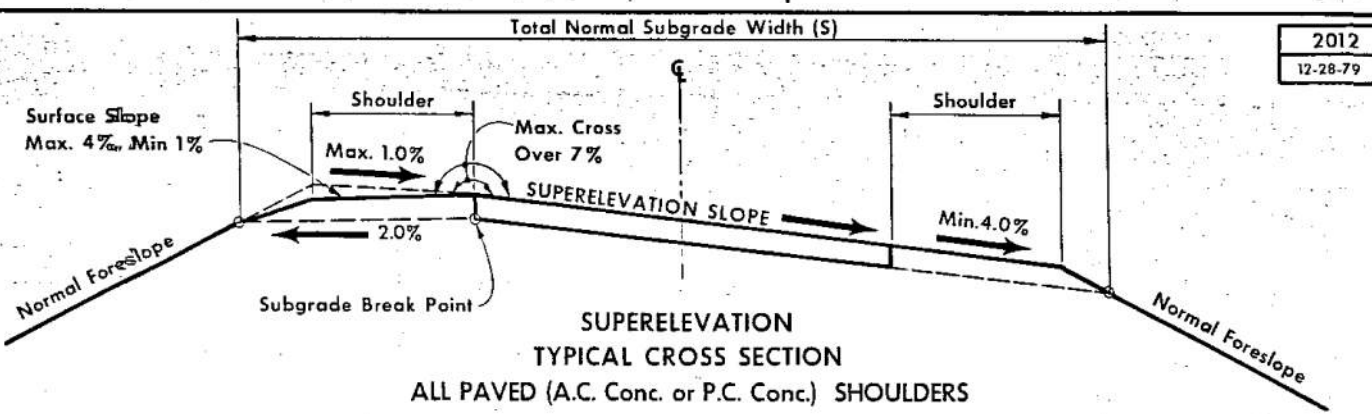
Normal subgrade width shall be used. High Side: shoulder shall be constant slope at 4.0%. Low Side: shoulder shall be same slope as superelevation slope (Min. 4.0%).



### TYPICAL CROSS SECTION PROPOSED HIGHWAY IMPROVEMENT

NOTE:  
Normal sections shown may be appropriately modified for areas specifically designated by the engineer such as intersections or superelevated curves.

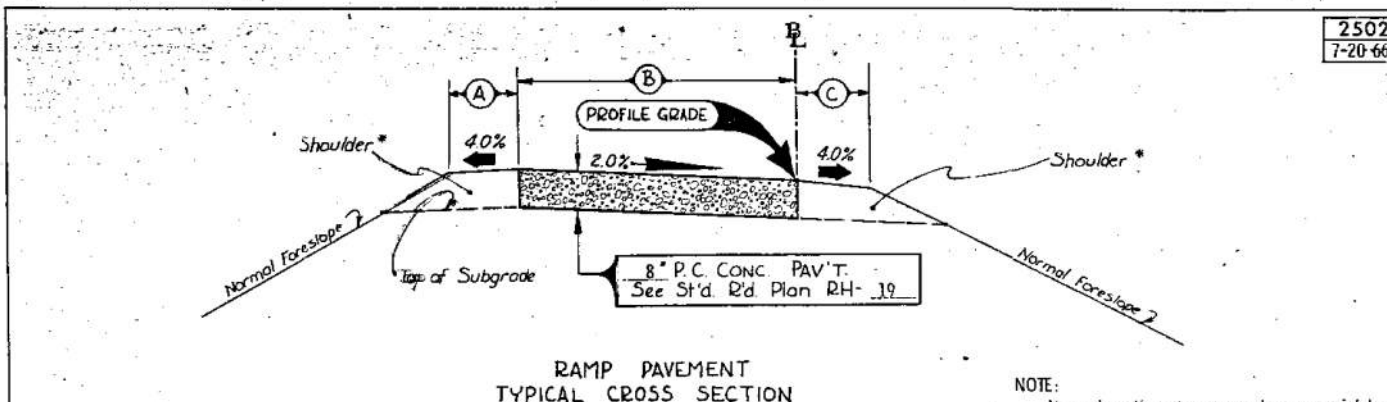
ROAD IDENT.	STATION TO STATION	D	T	E	SHOULDER TYPE
E6W 2830	4146+00.00 - 4198+00.00	24'	8"	10'	Stab.



### SUPERELEVATION TYPICAL CROSS SECTION ALL PAVED (A.C. Conc. or P.C. Conc.) SHOULDERS

High Side: The shoulder slope shall be maintained at the normal rate of 4.0% unless this slope produces a grade break with adjacent pavement of more than 7.0%. The shoulder slope shall then be determined by a 7.0% break with adjacent pavement unless this would create a slope flatter than 1.0%. The grade break should then be reduced and a slope of at least 1.0% on the shoulder provided.

Low Side: The shoulder slope shall be maintained at normal rate of 4.0% unless the adjacent pavement slope is steeper, in which case the shoulder will slope at the same slope as adjacent pavement.



### RAMP PAVEMENT TYPICAL CROSS SECTION

INTERCHANGE	RAMP	(A)	(B)	(C)
Carpenter Road	A & D	4'	16'	6'
Toddville (E6W)	All	4'	16'	6'

\* Refer to other drawings for details of shoulder design and construction.

NOTE:  
Normal section shown may be appropriately modified at areas specifically designated by the engineer, such as intersections or superelevated curves.

(Section view is in direction of Traffic)

For Information Only

<div>100-1D 10-18-05</div> <div>PROJECT DESCRIPTION</div> <div>This project is patch and resurface southbound I-380 from Ash Pit Bridge north to 1.4 miles north of County Road E-34.</div> <div>This project is also to replace southbound existing steel bridge rails with concrete barrier rails, and to update the southbound and select northbound median guardrail from 33rd Avenue to 1.4 miles north of County Road E-34.</div>						<div>100-4A 10-29-02</div> <div>ESTIMATE REFERENCE INFORMATION</div> <table><tr><th>Item No.</th><th>Item Code</th><th>Description</th></tr><tr><td>1</td><td>2102-0425070</td><td>SPECIAL BACKFILL</td></tr><tr><td></td><td></td><td>Refer to Tab 112-9 in the C Sheets.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>2</td><td>2102-2710070</td><td>EXCAVATION, CLASS 10, ROADWAY AND BORROW</td></tr><tr><td></td><td></td><td>Includes 634.4 cu. yds. of Contractor furnished Class 10 material for beam guardrail installations.</td></tr><tr><td></td><td></td><td>Refer to Tab. 107-23 in the C Sheets.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>3</td><td>2102-2713070</td><td>EXCAVATION, CLASS 13, ROADWAY AND BORROW</td></tr><tr><td></td><td></td><td>Refer to Typical 7126 &amp; 8303 in the B Sheets and Tab 112-9 in the C Sheets.</td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Class 13 material to be wasted as per Article 1106.07 of the current specifications.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>4</td><td>2111-8174100</td><td>GRANULAR SUBBASE</td></tr><tr><td>5</td><td>2122-5190006</td><td>PAVED SHOULDER, P.C. CONCRETE, 6 IN.</td></tr><tr><td></td><td></td><td>Refer to Typical 7126 &amp; 8303 in the B Sheets</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>6</td><td>2122-5500060</td><td>PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN.</td></tr><tr><td></td><td></td><td>Refer to Tab. 112-9 in the C Sheets and Typical 7156 in the B Sheets.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>7</td><td>2123-7450000</td><td>SHOULDER CONSTRUCTION, EARTH</td></tr><tr><td></td><td></td><td>Refer to Typical 7156 in the B Sheets and Tab 112-9 in the C Sheets.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>8</td><td>2212-0475095</td><td>CLEANING AND PREPARATION OF BASE</td></tr><tr><td></td><td></td><td>This bid item includes:</td></tr><tr><td></td><td></td><td>2.5 miles of ramps</td></tr><tr><td></td><td></td><td>0.5 miles of two lane roadway</td></tr><tr><td></td><td></td><td>6.1 miles of SB four lane roadway</td></tr><tr><td></td><td></td><td>1.7 miles of SB six lane roadway</td></tr><tr><td></td><td></td><td>1.2 miles of SB eight lane roadway</td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td>12.0 miles total</td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Existing steel reflectors embedded in the pavement will be left in place and resurfaced over.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>9</td><td>2212-5070310</td><td>PATCHES, FULL-DEPTH REPAIR</td></tr><tr><td>10</td><td>2212-5070330</td><td>PATCHES BY COUNT (REPAIR)</td></tr><tr><td></td><td></td><td>Refer to Tabs 102-6C_ML_R, 102-6C_RMP_R, and 102-6C_SHLD_R in the C sheets.</td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Loose steel reflectors may be removed.</td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Quantity increased by 15% for additional locations.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>11</td><td>2212-5075001</td><td>HOT MIX ASPHALT SURFACE PATCHES</td></tr><tr><td></td><td></td><td>Included to address surface repairs identified by the Engineer during construction.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>12</td><td>2213-6745500</td><td>REMOVAL OF CURB</td></tr><tr><td></td><td></td><td>See Typ. CP-5 for more information and details.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>13</td><td>2214-5145150</td><td>PAVEMENT SCARIFICATION</td></tr><tr><td></td><td></td><td>See Typical 7303, 7307, and 7308M in the B Sheets</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>14</td><td>2301-6911722</td><td>PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>15</td><td>2303-0001000</td><td>HOT MIX ASPHALT MIXTURE, WEDGE, LEVELING OR STRENGTHENING COURSE</td></tr><tr><td>16</td><td>2303-0031500</td><td>HOT MIX ASPHALT MIXTURE (1,000,000 ESAL), BASE COURSE, 1/2 IN. MIX</td></tr><tr><td>17</td><td>2303-0042500</td><td>HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX</td></tr><tr><td>18</td><td>2303-0043503</td><td>HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-3</td></tr><tr><td>19</td><td>2303-0062500</td><td>HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX</td></tr><tr><td>20</td><td>2303-0063502</td><td>HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2</td></tr><tr><td></td><td></td><td>HMA Quantities increased 5% for irregularities.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>21</td><td>2303-0245828</td><td>ASPHALT BINDER, PG 58-28</td></tr><tr><td>22</td><td>2303-0247022</td><td>ASPHALT BINDER, PG 70-22</td></tr><tr><td></td><td></td><td>Asphalt binder estimated at 6% of the HMA.</td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td>2303-0245828</td><td>ASPHALT BINDER, PG 58-28</td></tr><tr><td></td><td></td><td>Estimated for ramp and shoulder locations.</td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td>2303-0247022</td><td>ASPHALT BINDER, PG 70-22</td></tr><tr><td></td><td></td><td>Estimated for mainline locations.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>23</td><td>2303-6911000</td><td>HOT MIX ASPHALT PAVEMENT SAMPLES</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>24</td><td>2303-7000510</td><td>HOT MIX ASPHALT MIXTURE INCORPORATED WITH ANTI-STRIP AGENT</td></tr><tr><td></td><td></td><td>When required, the incorporation of anti-strip agent into the asphalt mixture will be paid for by use of this bid item in lieu of extra work order, as described in Article 2303.05, D. All other provisions of this specification shall remain in effect.</td></tr><tr><td>-</td><td>-</td><td>-</td></tr></table>	Item No.	Item Code	Description	1	2102-0425070	SPECIAL BACKFILL			Refer to Tab 112-9 in the C Sheets.	-	-	-	2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW			Includes 634.4 cu. yds. of Contractor furnished Class 10 material for beam guardrail installations.			Refer to Tab. 107-23 in the C Sheets.	-	-	-	3	2102-2713070	EXCAVATION, CLASS 13, ROADWAY AND BORROW			Refer to Typical 7126 & 8303 in the B Sheets and Tab 112-9 in the C Sheets.						Class 13 material to be wasted as per Article 1106.07 of the current specifications.	-	-	-	4	2111-8174100	GRANULAR SUBBASE	5	2122-5190006	PAVED SHOULDER, P.C. CONCRETE, 6 IN.			Refer to Typical 7126 & 8303 in the B Sheets	-	-	-	6	2122-5500060	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN.			Refer to Tab. 112-9 in the C Sheets and Typical 7156 in the B Sheets.	-	-	-	7	2123-7450000	SHOULDER CONSTRUCTION, EARTH			Refer to Typical 7156 in the B Sheets and Tab 112-9 in the C Sheets.	-	-	-	8	2212-0475095	CLEANING AND PREPARATION OF BASE			This bid item includes:			2.5 miles of ramps			0.5 miles of two lane roadway			6.1 miles of SB four lane roadway			1.7 miles of SB six lane roadway			1.2 miles of SB eight lane roadway						12.0 miles total						Existing steel reflectors embedded in the pavement will be left in place and resurfaced over.	-	-	-	9	2212-5070310	PATCHES, FULL-DEPTH REPAIR	10	2212-5070330	PATCHES BY COUNT (REPAIR)			Refer to Tabs 102-6C_ML_R, 102-6C_RMP_R, and 102-6C_SHLD_R in the C sheets.						Loose steel reflectors may be removed.						Quantity increased by 15% for additional locations.	-	-	-	11	2212-5075001	HOT MIX ASPHALT SURFACE PATCHES			Included to address surface repairs identified by the Engineer during construction.	-	-	-	12	2213-6745500	REMOVAL OF CURB			See Typ. CP-5 for more information and details.	-	-	-	13	2214-5145150	PAVEMENT SCARIFICATION			See Typical 7303, 7307, and 7308M in the B Sheets	-	-	-	14	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	-	-	-	-	-	-	15	2303-0001000	HOT MIX ASPHALT MIXTURE, WEDGE, LEVELING OR STRENGTHENING COURSE	16	2303-0031500	HOT MIX ASPHALT MIXTURE (1,000,000 ESAL), BASE COURSE, 1/2 IN. MIX	17	2303-0042500	HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX	18	2303-0043503	HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-3	19	2303-0062500	HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX	20	2303-0063502	HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2			HMA Quantities increased 5% for irregularities.	-	-	-	21	2303-0245828	ASPHALT BINDER, PG 58-28	22	2303-0247022	ASPHALT BINDER, PG 70-22			Asphalt binder estimated at 6% of the HMA.					2303-0245828	ASPHALT BINDER, PG 58-28			Estimated for ramp and shoulder locations.					2303-0247022	ASPHALT BINDER, PG 70-22			Estimated for mainline locations.	-	-	-	23	2303-6911000	HOT MIX ASPHALT PAVEMENT SAMPLES	-	-	-	-	-	-	24	2303-7000510	HOT MIX ASPHALT MIXTURE INCORPORATED WITH ANTI-STRIP AGENT			When required, the incorporation of anti-strip agent into the asphalt mixture will be paid for by use of this bid item in lieu of extra work order, as described in Article 2303.05, D. All other provisions of this specification shall remain in effect.	-	-	-																																																																																																																																																																																
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		Refer to Typical 7156 in the B Sheets and Tab 112-9 in the C Sheets.																																																																																																																																																																																																																																																																																																																																																																																																																																	
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		Existing steel reflectors embedded in the pavement will be left in place and resurfaced over.																																																																																																																																																																																																																																																																																																																																																																																																																																	
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10	2212-5070330	PATCHES BY COUNT (REPAIR)																																																																																																																																																																																																																																																																																																																																																																																																																																	
		Refer to Tabs 102-6C_ML_R, 102-6C_RMP_R, and 102-6C_SHLD_R in the C sheets.																																																																																																																																																																																																																																																																																																																																																																																																																																	
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		Included to address surface repairs identified by the Engineer during construction.																																																																																																																																																																																																																																																																																																																																																																																																																																	
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13	2214-5145150	PAVEMENT SCARIFICATION																																																																																																																																																																																																																																																																																																																																																																																																																																	
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14	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES																																																																																																																																																																																																																																																																																																																																																																																																																																	
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15	2303-0001000	HOT MIX ASPHALT MIXTURE, WEDGE, LEVELING OR STRENGTHENING COURSE																																																																																																																																																																																																																																																																																																																																																																																																																																	
16	2303-0031500	HOT MIX ASPHALT MIXTURE (1,000,000 ESAL), BASE COURSE, 1/2 IN. MIX																																																																																																																																																																																																																																																																																																																																																																																																																																	
17	2303-0042500	HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX																																																																																																																																																																																																																																																																																																																																																																																																																																	
18	2303-0043503	HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-3																																																																																																																																																																																																																																																																																																																																																																																																																																	
19	2303-0062500	HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX																																																																																																																																																																																																																																																																																																																																																																																																																																	
20	2303-0063502	HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2																																																																																																																																																																																																																																																																																																																																																																																																																																	
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21	2303-0245828	ASPHALT BINDER, PG 58-28																																																																																																																																																																																																																																																																																																																																																																																																																																	
22	2303-0247022	ASPHALT BINDER, PG 70-22																																																																																																																																																																																																																																																																																																																																																																																																																																	
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24	2303-7000510	HOT MIX ASPHALT MIXTURE INCORPORATED WITH ANTI-STRIP AGENT																																																																																																																																																																																																																																																																																																																																																																																																																																	
		When required, the incorporation of anti-strip agent into the asphalt mixture will be paid for by use of this bid item in lieu of extra work order, as described in Article 2303.05, D. All other provisions of this specification shall remain in effect.																																																																																																																																																																																																																																																																																																																																																																																																																																	
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<div>100-0A 10-28-97</div> <div>ESTIMATED ROADWAY QUANTITIES (1 DIVISION PROJECT)</div> <table><tr><th>Item No.</th><th>Item Code</th><th>Item</th><th>Unit</th><th>Total</th><th>As Built Qty.</th></tr><tr><td>1</td><td>2102-0425070</td><td>SPECIAL BACKFILL</td><td>TON</td><td>386.2</td><td></td></tr><tr><td>2</td><td>2102-2710070</td><td>EXCAVATION, CLASS 10, ROADWAY AND BORROW</td><td>CY</td><td>634.4</td><td></td></tr><tr><td>3</td><td>2102-2713070</td><td>EXCAVATION, CLASS 13, ROADWAY AND BORROW</td><td>CY</td><td>1,438.0</td><td></td></tr><tr><td>4</td><td>2111-8174100</td><td>GRANULAR SUBBASE</td><td>SY</td><td>5,152.0</td><td></td></tr><tr><td>5</td><td>2122-5190006</td><td>PAVED SHOULDER, P.C. CONCRETE, 6 IN.</td><td>SY</td><td>5,152.0</td><td></td></tr><tr><td>6</td><td>2122-5500060</td><td>PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN.</td><td>SY</td><td>882.0</td><td></td></tr><tr><td>7</td><td>2123-7450000</td><td>SHOULDER CONSTRUCTION, EARTH</td><td>STA</td><td>40.10</td><td></td></tr><tr><td>8</td><td>2212-0475095</td><td>CLEANING AND PREPARATION OF BASE</td><td>MILE</td><td>12.0</td><td></td></tr><tr><td>9</td><td>2212-5070310</td><td>PATCHES, FULL-DEPTH REPAIR</td><td>SY</td><td>5,528.6</td><td></td></tr><tr><td>10</td><td>2212-5070330</td><td>PATCHES BY COUNT (REPAIR)</td><td>EACH</td><td>444</td><td></td></tr><tr><td>11</td><td>2212-5075001</td><td>HOT MIX ASPHALT SURFACE PATCHES</td><td>TON</td><td>600.0</td><td></td></tr><tr><td>12</td><td>2213-6745500</td><td>REMOVAL OF CURB</td><td>STA</td><td>1.96</td><td></td></tr><tr><td>13</td><td>2214-5145150</td><td>PAVEMENT SCARIFICATION</td><td>SY</td><td>25,588.0</td><td></td></tr><tr><td>14</td><td>2301-6911722</td><td>PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES</td><td>LS</td><td>1.00</td><td></td></tr><tr><td>15</td><td>2303-0001000</td><td>HOT MIX ASPHALT MIXTURE, WEDGE, LEVELING OR STRENGTHENING COURSE</td><td>TON</td><td>1,106.6</td><td></td></tr><tr><td>16</td><td>2303-0031500</td><td>HOT MIX ASPHALT MIXTURE (1,000,000 ESAL), BASE COURSE, 1/2 IN. MIX</td><td>TON</td><td>20,139.5</td><td></td></tr><tr><td>17</td><td>2303-0042500</td><td>HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX</td><td>TON</td><td>3,510.5</td><td></td></tr><tr><td>18</td><td>2303-0043503</td><td>HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-3</td><td>TON</td><td>7,422.1</td><td></td></tr><tr><td>19</td><td>2303-0062500</td><td>HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX</td><td>TON</td><td>20,400.3</td><td></td></tr><tr><td>20</td><td>2303-0063502</td><td>HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2</td><td>TON</td><td>20,868.7</td><td></td></tr><tr><td>21</td><td>2303-0245828</td><td>ASPHALT BINDER, PG 58-28</td><td>TON</td><td>1,930.0</td><td></td></tr><tr><td>22</td><td>2303-0247022</td><td>ASPHALT BINDER, PG 70-22</td><td>TON</td><td>2,476.1</td><td></td></tr><tr><td>23</td><td>2303-6911000</td><td>HOT MIX ASPHALT PAVEMENT SAMPLES</td><td>LS</td><td>1.00</td><td></td></tr><tr><td>24</td><td>2303-7000510</td><td>HOT MIX ASPHALT MIXTURE INCORPORATED WITH ANTI-STRIP AGENT</td><td>TON</td><td>41,269.000</td><td></td></tr><tr><td>25</td><td>2435-0250714</td><td>INTAKE, SW-507 MODIFIED, TOP ONLY</td><td>EACH</td><td>2</td><td></td></tr><tr><td>26</td><td>2435-0600010</td><td>MANHOLE ADJUSTMENT, MINOR</td><td>EACH</td><td>8</td><td></td></tr><tr><td>27</td><td>2435-0600110</td><td>INTAKE ADJUSTMENT, MINOR</td><td>EACH</td><td>7</td><td></td></tr><tr><td>28</td><td>2502-8212034</td><td>SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.</td><td>LF</td><td>38,090.0</td><td></td></tr><tr><td>29</td><td>2502-8220196</td><td>SUBDRAIN OUTLET, RF-19E</td><td>EACH</td><td>157</td><td></td></tr><tr><td>30</td><td>2505-4008120</td><td>REMOVAL OF STEEL BEAM GUARDRAIL</td><td>LF</td><td>2,879.0</td><td></td></tr><tr><td>31</td><td>2505-4008130</td><td>REMOVAL OF CABLE GUARDRAIL</td><td>LF</td><td>1,515.0</td><td></td></tr><tr><td>32</td><td>2505-4008300</td><td>STEEL BEAM GUARDRAIL</td><td>LF</td><td>5,337.5</td><td></td></tr><tr><td>33</td><td>2505-4008400</td><td>STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION</td><td>EACH</td><td>16</td><td></td></tr><tr><td>34</td><td>2505-4020580</td><td>GUARDRAIL, SPECIAL ANCHOR SECTION</td><td>EACH</td><td>4</td><td></td></tr><tr><td>35</td><td>2505-4021010</td><td>STEEL BEAM GUARDRAIL END ANCHOR, BOLTED</td><td>EACH</td><td>19</td><td></td></tr><tr><td>36</td><td>2505-4021020</td><td>STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM</td><td>EACH</td><td>12</td><td></td></tr><tr><td>37</td><td>2505-4021700</td><td>STEEL BEAM GUARDRAIL END TERMINAL</td><td>EACH</td><td>21</td><td></td></tr><tr><td>38</td><td>2505-4021701</td><td>STEEL BEAM GUARDRAIL FLARED END TERMINAL</td><td>EACH</td><td>4</td><td></td></tr><tr><td>39</td><td>2505-6000111</td><td>HIGH TENSION CABLE GUARDRAIL</td><td>LF</td><td>5,199.0</td><td></td></tr><tr><td>40</td><td>2505-6000121</td><td>HIGH TENSION CABLE GUARDRAIL, END ANCHOR</td><td>EACH</td><td>30</td><td></td></tr><tr><td>41</td><td>2505-6000131</td><td>HIGH TENSION CABLE GUARDRAIL, SPARE PARTS KIT</td><td>EACH</td><td>1</td><td></td></tr><tr><td>42</td><td>2510-6745850</td><td>REMOVAL OF PAVEMENT</td><td>SY</td><td>25,404.0</td><td></td></tr><tr><td>43</td><td>2512-1950000</td><td>CURB, DOWELLED P.C. CONCRETE, AS PER PLAN</td><td>LF</td><td>196.0</td><td></td></tr><tr><td>44</td><td>2525-0000200</td><td>LOOP DETECTORS (ADDITION OR REPLACEMENT TO AN EXISTING TRAFFIC SIGNAL SYSTEM)</td><td>EACH</td><td>9</td><td></td></tr><tr><td>45</td><td>2526-8285000</td><td>CONSTRUCTION SURVEY</td><td>LS</td><td>1.00</td><td></td></tr><tr><td>46</td><td>2527-9263109</td><td>PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED</td><td>STA</td><td>1,587.94</td><td></td></tr><tr><td>47</td><td>2527-9263112</td><td>PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE</td><td>STA</td><td>1,587.94</td><td></td></tr><tr><td>48</td><td>2527-9263131</td><td>WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS</td><td>STA</td><td>204.81</td><td></td></tr><tr><td>49</td><td>2527-9263152</td><td>PRE-CUT SYMBOLS AND LEGENDS, REGULAR MARKING TAPE</td><td>EACH</td><td>8</td><td></td></tr><tr><td>50</td><td>2527-9263600</td><td>REMOVABLE, NONREFLECTIVE, PREFORMED TAPE</td><td>STA</td><td>45.23</td><td></td></tr><tr><td>51</td><td>2528-8445110</td><td>TRAFFIC CONTROL</td><td>LS</td><td>1.00</td><td></td></tr><tr><td>52</td><td>2529-2242304</td><td>CD JOINT ASSEMBLY</td><td>EACH</td><td>6</td><td></td></tr><tr><td>53</td><td>2529-5070110</td><td>PATCHES, FULL-DEPTH FINISH, BY AREA</td><td>SY</td><td>839.6</td><td></td></tr><tr><td>54</td><td>2529-5070120</td><td>PATCHES, FULL-DEPTH FINISH, BY COUNT</td><td>EACH</td><td>66</td><td></td></tr><tr><td>55</td><td>2529-8174010</td><td>SUBBASE (PATCHES)</td><td>SY</td><td>2,782.1</td><td></td></tr><tr><td>56</td><td>2529-8201000</td><td>JOINT ASSEMBLY, EF</td><td>EACH</td><td>42</td><td></td></tr><tr><td>57</td><td>2533-4980005</td><td>MOBILIZATION</td><td>LS</td><td>1.00</td><td></td></tr><tr><td>58</td><td>2548-0000100</td><td>MILLED SHOULDER RUMBLE STRIPS, HMA SURFACE</td><td>STA</td><td>336.0</td><td></td></tr><tr><td>59</td><td>2548-0000110</td><td>ASPHALT EMULSION FOR FOG SEAL (SHOULDER RUMBLE STRIPS)</td><td>GAL</td><td>364.0</td><td></td></tr><tr><td>60</td><td>2551-0000110</td><td>TEMP CRASH CUSHION</td><td>EACH</td><td>15</td><td></td></tr><tr><td>61</td><td>2595-0000100</td><td>UPRR INSURANCE PROVISIONS</td><td>LS</td><td>1.00</td><td></td></tr><tr><td>62</td><td>2599-9999005</td><td>REMOVE AND REINSTALL STEEL BEAM GUARDRAIL</td><td>EACH</td><td>2</td><td></td></tr><tr><td>63</td><td>2599-9999009</td><td>MOVABLE TEMPORARY TRAFFIC BARRIER</td><td>LF</td><td>14,587.5</td><td></td></tr><tr><td>64</td><td>2599-9999018</td><td>PAVED SHOULDER PATCH</td><td>SY</td><td>20,252.0</td><td></td></tr><tr><td>65</td><td>2599-9999020</td><td>GRANULAR FILLET FOR PAVED SHOULDER</td><td>TON</td><td>680.0</td><td></td></tr><tr><td>66</td><td>2602-0000312</td><td>PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.</td><td>LF</td><td>3,000.0</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>						Item No.	Item Code	Item	Unit	Total	As Built Qty.	1	2102-0425070	SPECIAL BACKFILL	TON	386.2		2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	634.4		3	2102-2713070	EXCAVATION, CLASS 13, ROADWAY AND BORROW	CY	1,438.0		4	2111-8174100	GRANULAR SUBBASE	SY	5,152.0		5	2122-5190006	PAVED SHOULDER, P.C. CONCRETE, 6 IN.	SY	5,152.0		6	2122-5500060	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN.	SY	882.0		7	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	40.10		8	2212-0475095	CLEANING AND PREPARATION OF BASE	MILE	12.0		9	2212-5070310	PATCHES, FULL-DEPTH REPAIR	SY	5,528.6		10	2212-5070330	PATCHES BY COUNT (REPAIR)	EACH	444		11	2212-5075001	HOT MIX ASPHALT SURFACE PATCHES	TON	600.0		12	2213-6745500	REMOVAL OF CURB	STA	1.96		13	2214-5145150	PAVEMENT SCARIFICATION	SY	25,588.0		14	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LS	1.00		15	2303-0001000	HOT MIX ASPHALT MIXTURE, WEDGE, LEVELING OR STRENGTHENING COURSE	TON	1,106.6		16	2303-0031500	HOT MIX ASPHALT MIXTURE (1,000,000 ESAL), BASE COURSE, 1/2 IN. MIX	TON	20,139.5		17	2303-0042500	HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX	TON	3,510.5		18	2303-0043503	HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-3	TON	7,422.1		19	2303-0062500	HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX	TON	20,400.3		20	2303-0063502	HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2	TON	20,868.7		21	2303-0245828	ASPHALT BINDER, PG 58-28	TON	1,930.0		22	2303-0247022	ASPHALT BINDER, PG 70-22	TON	2,476.1		23	2303-6911000	HOT MIX ASPHALT PAVEMENT SAMPLES	LS	1.00		24	2303-7000510	HOT MIX ASPHALT MIXTURE INCORPORATED WITH ANTI-STRIP AGENT	TON	41,269.000		25	2435-0250714	INTAKE, SW-507 MODIFIED, TOP ONLY	EACH	2		26	2435-0600010	MANHOLE ADJUSTMENT, MINOR	EACH	8		27	2435-0600110	INTAKE ADJUSTMENT, MINOR	EACH	7		28	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF	38,090.0		29	2502-8220196	SUBDRAIN OUTLET, RF-19E	EACH	157		30	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	2,879.0		31	2505-4008130	REMOVAL OF CABLE GUARDRAIL	LF	1,515.0		32	2505-4008300	STEEL BEAM GUARDRAIL	LF	5,337.5		33	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION	EACH	16		34	2505-4020580	GUARDRAIL, SPECIAL ANCHOR SECTION	EACH	4		35	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	19		36	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM	EACH	12		37	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL	EACH	21		38	2505-4021701	STEEL BEAM GUARDRAIL FLARED END TERMINAL	EACH	4		39	2505-6000111	HIGH TENSION CABLE GUARDRAIL	LF	5,199.0		40	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR	EACH	30		41	2505-6000131	HIGH TENSION CABLE GUARDRAIL, SPARE PARTS KIT	EACH	1		42	2510-6745850	REMOVAL OF PAVEMENT	SY	25,404.0		43	2512-1950000	CURB, DOWELLED P.C. CONCRETE, AS PER PLAN	LF	196.0		44	2525-0000200	LOOP DETECTORS (ADDITION OR REPLACEMENT TO AN EXISTING TRAFFIC SIGNAL SYSTEM)	EACH	9		45	2526-8285000	CONSTRUCTION SURVEY	LS	1.00		46	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	1,587.94		47	2527-9263112	PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE	STA	1,587.94		48	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	STA	204.81		49	2527-9263152	PRE-CUT SYMBOLS AND LEGENDS, REGULAR MARKING TAPE	EACH	8		50	2527-9263600	REMOVABLE, NONREFLECTIVE, PREFORMED TAPE	STA	45.23		51	2528-8445110	TRAFFIC CONTROL	LS	1.00		52	2529-2242304	CD JOINT ASSEMBLY	EACH	6		53	2529-5070110	PATCHES, FULL-DEPTH FINISH, BY AREA	SY	839.6		54	2529-5070120	PATCHES, FULL-DEPTH FINISH, BY COUNT	EACH	66		55	2529-8174010	SUBBASE (PATCHES)	SY	2,782.1		56	2529-8201000	JOINT ASSEMBLY, EF	EACH	42		57	2533-4980005	MOBILIZATION	LS	1.00		58	2548-0000100	MILLED SHOULDER RUMBLE STRIPS, HMA SURFACE	STA	336.0		59	2548-0000110	ASPHALT EMULSION FOR FOG SEAL (SHOULDER RUMBLE STRIPS)	GAL	364.0		60	2551-0000110	TEMP CRASH CUSHION	EACH	15		61	2595-0000100	UPRR INSURANCE PROVISIONS	LS	1.00		62	2599-9999005	REMOVE AND REINSTALL STEEL BEAM GUARDRAIL	EACH	2		63	2599-9999009	MOVABLE TEMPORARY TRAFFIC BARRIER	LF	14,587.5		64	2599-9999018	PAVED SHOULDER PATCH	SY	20,252.0		65	2599-9999020	GRANULAR FILLET FOR PAVED SHOULDER	TON	680.0		66	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	3,000.0													
Item No.	Item Code	Item	Unit	Total	As Built Qty.																																																																																																																																																																																																																																																																																																																																																																																																																														
1	2102-0425070	SPECIAL BACKFILL	TON	386.2																																																																																																																																																																																																																																																																																																																																																																																																																															
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	634.4																																																																																																																																																																																																																																																																																																																																																																																																																															
3	2102-2713070	EXCAVATION, CLASS 13, ROADWAY AND BORROW	CY	1,438.0																																																																																																																																																																																																																																																																																																																																																																																																																															
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5	2122-5190006	PAVED SHOULDER, P.C. CONCRETE, 6 IN.	SY	5,152.0																																																																																																																																																																																																																																																																																																																																																																																																																															
6	2122-5500060	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN.	SY	882.0																																																																																																																																																																																																																																																																																																																																																																																																																															
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9	2212-5070310	PATCHES, FULL-DEPTH REPAIR	SY	5,528.6																																																																																																																																																																																																																																																																																																																																																																																																																															
10	2212-5070330	PATCHES BY COUNT (REPAIR)	EACH	444																																																																																																																																																																																																																																																																																																																																																																																																																															
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14	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LS	1.00																																																																																																																																																																																																																																																																																																																																																																																																																															
15	2303-0001000	HOT MIX ASPHALT MIXTURE, WEDGE, LEVELING OR STRENGTHENING COURSE	TON	1,106.6																																																																																																																																																																																																																																																																																																																																																																																																																															
16	2303-0031500	HOT MIX ASPHALT MIXTURE (1,000,000 ESAL), BASE COURSE, 1/2 IN. MIX	TON	20,139.5																																																																																																																																																																																																																																																																																																																																																																																																																															
17	2303-0042500	HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX	TON	3,510.5																																																																																																																																																																																																																																																																																																																																																																																																																															
18	2303-0043503	HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-3	TON	7,422.1																																																																																																																																																																																																																																																																																																																																																																																																																															
19	2303-0062500	HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), INTERMEDIATE COURSE, 1/2 IN. MIX	TON	20,400.3																																																																																																																																																																																																																																																																																																																																																																																																																															
20	2303-0063502	HOT MIX ASPHALT MIXTURE (30,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2	TON	20,868.7																																																																																																																																																																																																																																																																																																																																																																																																																															
21	2303-0245828	ASPHALT BINDER, PG 58-28	TON	1,930.0																																																																																																																																																																																																																																																																																																																																																																																																																															
22	2303-0247022	ASPHALT BINDER, PG 70-22	TON	2,476.1																																																																																																																																																																																																																																																																																																																																																																																																																															
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24	2303-7000510	HOT MIX ASPHALT MIXTURE INCORPORATED WITH ANTI-STRIP AGENT	TON	41,269.000																																																																																																																																																																																																																																																																																																																																																																																																																															
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33	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION	EACH	16																																																																																																																																																																																																																																																																																																																																																																																																																															
34	2505-4020580	GUARDRAIL, SPECIAL ANCHOR SECTION	EACH	4																																																																																																																																																																																																																																																																																																																																																																																																																															
35	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	19																																																																																																																																																																																																																																																																																																																																																																																																																															
36	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM	EACH	12																																																																																																																																																																																																																																																																																																																																																																																																																															
37	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL	EACH	21																																																																																																																																																																																																																																																																																																																																																																																																																															
38	2505-4021701	STEEL BEAM GUARDRAIL FLARED END TERMINAL	EACH	4																																																																																																																																																																																																																																																																																																																																																																																																																															
39	2505-6000111	HIGH TENSION CABLE GUARDRAIL	LF	5,199.0																																																																																																																																																																																																																																																																																																																																																																																																																															
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41	2505-6000131	HIGH TENSION CABLE GUARDRAIL, SPARE PARTS KIT	EACH	1																																																																																																																																																																																																																																																																																																																																																																																																																															
42	2510-6745850	REMOVAL OF PAVEMENT	SY	25,404.0																																																																																																																																																																																																																																																																																																																																																																																																																															
43	2512-1950000	CURB, DOWELLED P.C. CONCRETE, AS PER PLAN	LF	196.0																																																																																																																																																																																																																																																																																																																																																																																																																															
44	2525-0000200	LOOP DETECTORS (ADDITION OR REPLACEMENT TO AN EXISTING TRAFFIC SIGNAL SYSTEM)	EACH	9																																																																																																																																																																																																																																																																																																																																																																																																																															
45	2526-8285000	CONSTRUCTION SURVEY	LS	1.00																																																																																																																																																																																																																																																																																																																																																																																																																															
46	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	1,587.94																																																																																																																																																																																																																																																																																																																																																																																																																															
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48	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	STA	204.81																																																																																																																																																																																																																																																																																																																																																																																																																															
49	2527-9263152	PRE-CUT SYMBOLS AND LEGENDS, REGULAR MARKING TAPE	EACH	8																																																																																																																																																																																																																																																																																																																																																																																																																															
50	2527-9263600	REMOVABLE, NONREFLECTIVE, PREFORMED TAPE	STA	45.23																																																																																																																																																																																																																																																																																																																																																																																																																															
51	2528-8445110	TRAFFIC CONTROL	LS	1.00																																																																																																																																																																																																																																																																																																																																																																																																																															
52	2529-2242304	CD JOINT ASSEMBLY	EACH	6																																																																																																																																																																																																																																																																																																																																																																																																																															
53	2529-5070110	PATCHES, FULL-DEPTH FINISH, BY AREA	SY	839.6																																																																																																																																																																																																																																																																																																																																																																																																																															
54	2529-5070120	PATCHES, FULL-DEPTH FINISH, BY COUNT	EACH	66																																																																																																																																																																																																																																																																																																																																																																																																																															
55	2529-8174010	SUBBASE (PATCHES)	SY	2,782.1																																																																																																																																																																																																																																																																																																																																																																																																																															
56	2529-8201000	JOINT ASSEMBLY, EF	EACH	42																																																																																																																																																																																																																																																																																																																																																																																																																															
57	2533-4980005	MOBILIZATION	LS	1.00																																																																																																																																																																																																																																																																																																																																																																																																																															
58	2548-0000100	MILLED SHOULDER RUMBLE STRIPS, HMA SURFACE	STA	336.0																																																																																																																																																																																																																																																																																																																																																																																																																															
59	2548-0000110	ASPHALT EMULSION FOR FOG SEAL (SHOULDER RUMBLE STRIPS)	GAL	364.0																																																																																																																																																																																																																																																																																																																																																																																																																															
60	2551-0000110	TEMP CRASH CUSHION	EACH	15																																																																																																																																																																																																																																																																																																																																																																																																																															
61	2595-0000100	UPRR INSURANCE PROVISIONS	LS	1.00																																																																																																																																																																																																																																																																																																																																																																																																																															
62	2599-9999005	REMOVE AND REINSTALL STEEL BEAM GUARDRAIL	EACH	2																																																																																																																																																																																																																																																																																																																																																																																																																															
63	2599-9999009	MOVABLE TEMPORARY TRAFFIC BARRIER	LF	14,587.5																																																																																																																																																																																																																																																																																																																																																																																																																															
64	2599-9999018	PAVED SHOULDER PATCH	SY	20,252.0																																																																																																																																																																																																																																																																																																																																																																																																																															
65	2599-9999020	GRANULAR FILLET FOR PAVED SHOULDER	TON	680.0																																																																																																																																																																																																																																																																																																																																																																																																																															
66	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	3,000.0																																																																																																																																																																																																																																																																																																																																																																																																																															
ENGLISH		IOWA DOT	DESIGN TEAM	Flattery\Bell\Luong\Janecek	Linn COUNTY		PROJECT NUMBER	IMX-380-6(271)16--02-57	SHEET NUMBER	C.1																																																																																																																																																																																																																																																																																																																																																																																																																									

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100-4A  
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
62	2599-9999005	<b>REMOVE AND REINSTALL STEEL BEAM GUARDRAIL</b> Remove and Reinstall Steel Beam Guardrail at 5th Avenue (SB Median) & 15th/16th Avenue (SB Median): Existing median-side bridge end sections at 5th Avenue and at 15th/16th Avenue are being reconstructed. Prior to demolition of the end section, remove the entire steel beam guardrail installation that is attached to the end section. This will also require releasing tension in the attached high-tension cable guardrail. Once the end section is completed and suitable to be stressed, reinstall steel beam guardrail and attach to new bridge end section. Reattach high-tension cable guardrail to steel beam guardrail. Note that depending on location shift of steel beam guardrail, the high-tension cable guardrail may need to be lengthened. Splice in new cable segments as necessary. Follow Gibraltar's recommendations regarding splice fittings and minimum splice length. This cable work to be considered incidental to steel beam guardrail removal and reinstallation.  Method of measurement shall be by count for each location. Basis of payment will be the contract unit price for each location, and includes furnishing all materials, equipment, tools, and labor necessary to complete the removal and installation of the guardrail.
-	-	-
63	2599-9999009	<b>MOVABLE TEMPORARY TRAFFIC BARRIER</b> Refer to Tab. 108-33 and J sheets.  Refer to Special Provision for Moveable Temporary Traffic Barrier.
-	-	-
64	2599-9999018	<b>PAVED SHOULDER PATCH</b> See B Sheet typicals for locations and details.  Refer to Article 2304 for HMA and PCC options.  Measurement shall be computed in square yards to the nearest 0.1 square yards from measurements of areas of concrete removed and replaced. Payment is full compensation for restoring the subgrade or subbase, furnishing and placing the patching material, and placing backfill material in the disturbed area.  Payment for overdepth patches will be made according to Article 2529.05 A 2.
-	-	-
65	2599-9999020	<b>GRANULAR FILLET FOR PAVED SHOULDER</b> See B Sheet Typicals for details.  Filletts shall be installed per Section 2121 of the Standard Specifications.  Measurement for fillets satisfactorily placed will be computed from the weights of the individual truck loads.  Payment will be the contract unit price per ton for the tons placed. Payment is full compensation for furnishing the materials, equipment, tools and labor to place the material in accordance with the contract documents.
-	-	-
66	2602-0000312	<b>PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.</b> Includes an estimated 3000 LF for placement of "Perimeter and Slope Sediment Control Device, 12 in. dia." to address erosion to be encountered during guardrail grading. Verify the specific locations with the Engineer prior to beginning placement.
-	-	-

111-25  
10-18-11

INDEX OF TABULATIONS

Tabulation	Tabulation Title	Sheet No.
102-5	EXISTING PAVEMENT	C.10
102-6C ML F	FULL-DEPTH PATCHES (MAINLINE - FINISH)	C.13
102-6C ML R	FULL-DEPTH PATCHES (MAINLINE - REPAIR)	C.14 - C.15
102-6C RMP R	FULL-DEPTH PATCHES (RAMP - REPAIR)	C.16 - C.19
102-6C_SHLD_R	FULL-DEPTH PATCHES (REPAIR)	C.19 - C.20
104-10	ADJUSTMENT OF FIXTURES	C.10
104-9	LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE	C.20 - C.22
107-23	GRADING FOR GUARDRAIL INSTALLATIONS	C.4
108-8A	STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE END POST	C.4
108-8C	STEEL BEAM GUARDRAIL FOR SIDE OBSTACLE (ONE-WAY PROTECTION)	C.5
108-9A	HIGH TENSION CABLE GUARDRAIL	C.5
108-22	PAVEMENT MARKING LINE TYPES	C.6 - C.8
108-29	PAVEMENT MARKING SYMBOLS AND LEGENDS	C.8
108-30	CRASH CUSHIONS	C.9
108-33	TEMPORARY BARRIER RAIL	C.9
110-1	REMOVAL OF PAVEMENT	C.10
110-7A	REMOVAL OF STEEL BEAM GUARDRAIL	C.11
110-7B	REMOVAL OF CABLE GUARDRAIL	C.11
112-10	MILLED RUMBLE STRIPS	C.11
112-9	SHOULDERS	C.12
LOOP	LOCATIONS OF DETECTOR LOOPS	C.11

105-4  
10-18-11

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
BA-200	10-18-11	Steel Beam Guardrail Components
BA-201	10-19-10	Steel Beam Guardrail Barrier Transition Section
BA-202	10-18-11	Steel Beam Guardrail Bolted End Anchor
BA-205	10-18-11	Steel Beam Guardrail End Terminal
BA-206	10-18-11	Steel Beam Guardrail Flared End Terminal For Cable Connection
BA-250	10-18-11	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post
BA-252	10-18-11	Steel Beam Guardrail Installation at Side Obstacle (One-Way Protection)
BA-351	04-20-10	High Tension Cable Guardrail
BA-500	04-20-10	Temporary Crash Cushions Sand Barrel
EW-301	04-19-11	Guardrail Grading
PM-110	04-19-11	Line Types
PM-111	10-18-11	Symbols and Legends
PM-120	04-19-11	Stop Lines and Islands
PM-310	04-19-11	Entrance and Exit Ramps
PM-560	04-19-11	Divided Multi-Lane Roadway with no Turn Lanes
PM-562	04-19-11	Divided Multi-Lane Roadway with Left Turn Lanes
PM-620	04-19-11	Two-Lane Roadway with no Turn Lanes (Four-Way Stop Condition)
PV-12	04-17-12	Milled Shoulder Rumble Strips
PV-101	04-17-12	Joints
PV-102	04-19-11	PCC Curb Details
PV-302	04-17-12	Superelevation Details Four Lane Roadway Depressed Median
PV-304	04-17-12	Superelevation Details Six Lane Roadway Depressed Median
RF-19C	10-19-10	Subdrains (Longitudinal)
RF-19E	10-20-09	Outlets for Longitudinal, Transverse and Backslope Subdrains
RM-48	10-17-06	Temporary Floodlighting
RR-1	04-17-12	Full Depth Patch with 'EF' joint in PCC
RR-4	04-19-11	Full Depth PCC Patch with Dowels
RR-26	04-19-11	Subbase Patches
SI-173	04-20-10	Object Markers
SI-211	10-19-10	Object Marker and Delineator Placement with Guardrail
SI-881	04-19-11	Special Signs for Workzones
TC-1	10-18-11	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-402	04-17-12	Shoulder Closure (Multi-Lane)
TC-416	04-17-12	Partial Lane Closure on Ramps
TC-417	04-17-12	Ramp Closure
TC-420	04-17-12	Lane Closure at Ramps
TC-421	04-17-12	Lane Closure with TBR
TC-422	04-17-12	Closure of Two Adjacent Lanes on Divided Highway
TC-431	04-17-12	Slow Moving Vehicle Operating in the Traffic Lane
TC-432	04-17-12	Shoulder Rumble Strip Operations
TC-433	10-18-11	Pavement Marking Operations
TC-482	04-19-11	Uneven Lanes

111-01  
04-17-12

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work
2012	
IMN-380-6(281)21--0E-57	PPCB Repair
IHSIPX-380-6(278)20--08-57	High Friction Surface Treatment
MBIN-380-6(543)21--0M-57	Bridge Cleaning
MBIN-380-6(544)20--0M-57	Bridge Cleaning
IMN-380-6(256)0--0E-52	PCC Patching
IHSIPX-380-6(266)13-08-57	Cable Guardrail
MPIN-380-6(707)0--0N-52	Fog Seal Shoulders
NHSN-000-S(472)--2R-00	Traffic Signs
MPIN-380-6(708)0--0N-52	Delineator & Milepost Signs
3012026-04	Street Improvements (10th St.)
301869-01	Reconstruction (2nd Ave.)
330020-04	Storm Sewer Improvements (Coe)
305079-02	Street Improvements (6th St.)
2013	
MBIN-380-6(540)34--0M-57	Bridge Painting
IMX-380-6(270)16--02-57	HMA Resurfacing
IMN-380-6(257)0--0E-52	PCC Patching

232-3A  
MODIFIED

EROSION CONTROL  
(RURAL SEEDING)

Following the completion of work, place seed, fertilizer, and mulch on all disturbed areas as follows:

SEEDING:  
3 lbs. of Fescue or Fawn per 1000 sq. ft.

FERTILIZER:  
17 lbs. of 13-13-13 (or equivalent) commercial fertilizer per 1000 sq. ft.

MULCH:  
70 lbs. of dry cereal straw per 1000 sq. ft. Consolidate all mulch into the soil using a mulch stabilizer.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization. No extra compensation will be allowed.

262-6  
10-18-05

UTILITIES  
(NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

254-1  
10-02-01

INCIDENT MANAGEMENT

An incident management plan, provided by the District Office, will be discussed at the pre-construction conference.

ENGLISH

IOWA DOT

DESIGN TEAM Flattery\Bell\Luong\Janecek

Linn COUNTY

PROJECT NUMBER IMX-380-6(271)16--02-57

SHEET NUMBER C.3

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Refer to EW-301

## STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE END POST

Refer to BA-200, BA-201, BA-202, BA-205, BA-250, SI-172, SI-173 and SI-211.

① See Standards for list of materials.

ENGLISH

IOWA DOT

## DESIGN TEAM

Flattery\Bell\Luong\Janecek

Linn COUNTY

PROJECT NUMBER

IMX-380-6(271)16--02-57

SHEET NUMBER

## C.4

(2) See Standards for list of materials.

Refer to BA-200, BA-201, BA-203, BA-205, BA-206, BA-252, SI-172, SI-173, and SI-211

[illegible]

BCY4: Broken Centerline (Yellow) @ 0.25	DCY4: Double Centerline (Yellow) @ 2.00	NPY4: No Passing Zone Line (Yellow) @ 1.25	BLW4: Broken Lane Line (White) @ 0.25	ELW4: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 1.00	CHW8: Channelizing Line (White) @ 2.00	CHY8: Channelizing Line (Yellow) @ 2.00	SLW4: Solid Lane Line (White) @ 1.00	SLW2: Stop Line (White) @ 6.00

ENGLISH	IOWA DOT	DESIGN TEAM	Flattery\Bell\Luong\Janecek	Linn	COUNTY	PROJECT NUMBER	IMX-380-6(271)16--02-57	SHEET NUMBER	C.6
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BCY4: Broken Centerline (Yellow) @ 0.25	DCY4: Double Centerline (Yellow) @ 2.00	NPY4: No Passing Zone Line (Yellow) @ 1.25	BLW4: Broken Lane Line (White) @ 0.25	ELW4: Edge Line Right (White) @ 1.00
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ENGLISH	IOWA DOT	DESIGN TEAM	Flattery\Bell\Luong\Janecek	Linn COUNTY	PROJECT NUMBER	IMX-380-6(271)16--02-57	SHEET NUMBER	C.7
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\*BCY4 - Place on the same side of the roadway to match existing markings near the project.  
\*\*NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.

[illegible]

108-29  
10-18-11

See PM Series

[illegible]

108-30  
04-20-10

CRASH CUSHIONS

1 Lane(s) to which the installation is adjacent.

2 Complete this section when using the Temporary Crash Cushion bid item. Refer to BA-500

\* Bid Item

No.	1 Direction of Traffic	Location Station	Side	Obstacle Width	Crash Cushion (Select One)*					2 Sand Barrel Details					Earthwork*		Remarks
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	V	W	X	Y	Z	Excavation Class 10	Embankment in Place	
										Length	Length	Length	Length	Length			
				FT							FT	FT	FT	FT	FT	CY	CY
BRIDGE JOINT REPLACEMENTS																	
	SB	STAGE 1A 297+65.0	Out	1.9	1												
	SB	STAGE 1B 297+65.0	Med	1.9	1												
BRIDGE RAIL RETROFITS																	
	SB	33rd Ave SW 210+40.0	Out	1.9	1												
	SB	210+40.0	Med	1.9	1												
	SB	8th Ave SW STAGE 2A 297+65.0	Med	1.9	1												
	SB	STAGE 2B 297+65.0	Out	1.9	1												
	SB	STAGE 2C 293+05.0	Out	1.9	1												
		Cedar River Bridges															
	SB	STAGE 3A 0+45.0	Out	1.9	1												
	SB	345+45.0	Out	1.9	1												
	SB	358+20.0	Out	1.9	1												
	SB	STAGE 3B 331+00.0	Out	1.9	1												
	SB	330+62.5	Out	1.9	1												
	SB	341+20.0	Out	1.9	1												
	SB	353+05.0	Out	1.9	1												
	SB	358+95.0	Out	1.9	1												
	SB	STAGE 3C 358+25.0	Med	1.9	1												
		TOTAL			15												
NOTE: Temporary Crash Cushions shall be compatible with the Moveable Temporary Traffic Barrier.																	

[illegible]

[illegible]

ENGLISH	IOWA DOT	DESIGN TEAM	Flattery\Bell\Luong\Janecek	Linn COUNTY	PROJECT NUMBER	IMX-380-6(271)16--02-57	SHEET NUMBER	C.10
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110-7A

Modified

REMOVAL OF STEEL BEAM GUARDRAIL

① Lane(s) to which the installation is adjacent.

Location				Guardrail	Remarks	
No.	① Direction of Traffic	Station to Station	Side			
				LF		
Interstate 380						
	SB	MP 26.600		R	90	Overhead message board
	SB	MP 23.411		R	66	42nd St. Bridge
	SB	MP 23.087		R	80	First exit 22 overhead sign
	SB	MP 22.986		R	80	Second exit 22 overhead sign
	SB	MP 22.387		R	66	29th St. bridge
	SB	MP 22.068		R	92	Exit 21 overhead sign
	SB	MP 21.894		R	65	J Ave. bridge
	SB	MP 21.600		R	66	H Ave. Bridge
	SB	MP 21.300		R	66	Railroad bridge
	SB	MP 17.621		L	300	33rd Ave SW(Bullnose)
	SB	MP 17.621		R	66	SB Outside 33rd Ave SW
	SB	MP 18.800		R	66	SB 15th Ave SW
	SB	290+75		L	300	8th Ave SW(Bullnose)
	SB	296+50		R	66	SB Outside 8th Ave SW
	SB	306+00		R	66	5th ave SW
	SB	314+00		L	150	3RD Ave SW(Bullnose)
	SB	357+50		R	66	4th St NE
	SB	360+30		R	66	Overhead Sign Exit 20A.
	SB	1039+35		L	300	Tower Terrace Road(Bullnose)
	SB	1161+94		L	300	County Home Road(E-34)
	SB	1212+21		L	300	Midway Road(Bullnose)
Ramps						
	SB	5545+19.0		R	82	Blairs Ferry to tri-level dog leg
	SB	5545+19.0		L	80	Blairs Ferry to tri-level dog leg
TOTALS					2879	

110-7B 10-19-10									
REMOVAL OF CABLE GUARDRAIL									
* Not a bid item									
① Lane(s) to which the installation is adjacent									
Location					Type  (High/Low Tension)	Cable	Post * Footings, Concrete	End Terminal*	Remarks
No.	① Direction of Traffic	Station to Station	Side	Remove		Remove	Remove		
				LF		Yes/No	No.		
				Interstate 380					
	SB	MP 21.716		R	Low Tension	670.0	No	2	SB Mainline.
	SB	207+75		L	High Tension	-	No	1	33rd Ave SW
	SB	209+50		L	High Tension	-	No	1	33rd Ave SW
	SB	290+75		L	High Tension	-	No	1	8th Ave SW
	SB	296+75		L	High Tension	-	No	1	8th Ave SW
	SB	314+00		L	High Tension	-	No	1	3rd Ave SW
	SB	357+50		L	High Tension	-	No	1	4th St NE
Ramps									
	SB	2+65.0		R	Low Tension	845.0		2	Cable-H Ave. on ramp
					Totals:	1515.0		10	

[illegible][illegible]

Location								Quantities												Remarks	
Road Identification	① Direction Of Traffic	Station to Station		Side	<div><div>P</div></div>	<div><div>G</div></div>	<div><div>L</div></div>	② Class 13 Excavation Widening	③ HMA Base Widening		Hot Mix Asphalt		② Paved Shoulder	Special Backfill		Granular Shoulder		Earth Shoulder Construction			
					Feet	Feet	Feet	CY	TON ②	TON/STA	TON	TON/STA	SY	TON ②	TON/STA	TON ②	TON/STA	STA ②	CY		
I-380	NB	205+06.9	205+26.9	L	10.4		20.000	7.7			7.702	38.511	23.0	7.788	38.940			0.2	2.4	NB 33rd Ave SW.	
I-380	NB	205+26.9	205+76.9	L	10.37-8.75		50.000	17.7			17.785	35.570	53.1	18.051	36.101			0.5	6.1	NB 33rd Ave SW.	
I-380	NB	205+76.9	206+26.9	L	8.8		50.000	16.2			16.315	32.629	48.6	16.631	33.263			0.5	6.1	NB 33rd Ave SW.	
I-380	NB	206+26.9	207+01.9	L	8.75-1.25		75.000	13.9			14.288	19.050	41.7	15.133	20.177			0.8	10.4	NB 33rd Ave SW.	
I-380	NB	207+01.9	207+80.0	L	1.3		78.125	3.6			4.274	5.471	10.9	5.540	7.092			0.8	12.0	NB 33rd Ave SW.	
I-380	SB	210+60.6	210+40.6	L	3.3		20.000	2.4			2.540	12.700	7.2	2.807	14.034			0.2	2.7	SB Median 33rd Ave SW.	
I-380	SB	210+40.6	210+03.1	L	3.25-1.25		37.500	3.1			3.407	9.085	9.4	3.961	10.563			0.4	5.4	SB Median 33rd Ave SW.	
I-380	SB	210+03.1	209+50.0	L	1.3		53.125	2.5			2.906	5.471	7.4	3.767	7.092			0.5	8.2	SB Median 33rd Ave SW.	
I-380	NB	207+64.4	207+84.4	L	3.3		20.000	2.4			2.540	12.700	7.2	2.807	14.034			0.2	2.7	NB 8th Ave SW	
I-380	NB	207+84.4	208+34.4	L	3.25-1.25		50.000	4.2			4.543	9.085	12.5	5.282	10.563			0.5	7.3	NB 8th Ave SW	
I-380	NB	208+34.4	209+75.0	L	1.3		140.625	6.5			7.693	5.471	19.5	9.973	7.092			1.4	21.7	NB 8th Ave SW	
I-380	SB	297+23.1	297+03.1	L	3.3		20.000	2.4			2.540	12.700	7.2	2.807	14.034			0.2	2.7	SB 8th Ave SW	
I-380	SB	297+03.1	296+65.6	L	3.25-1.25		37.500	3.1			3.407	9.085	9.4	3.961	10.563			0.4	5.4	SB 8th Ave SW	
I-380	SB	296+65.6	296+12.5	L	1.3		53.125	2.5			2.906	5.471	7.4	3.767	7.092			0.5	8.2	SB 8th Ave SW	
I-380	NB	311+64.4	311+84.4	L	8.3		20.000	6.1			6.164	30.818	18.3	6.303	31.513			0.2	2.5	NB 3rd Ave SW	
I-380	NB	311+84.4	312+34.4	L	8.25-6.25		50.000	13.4			13.597	27.193	40.3	14.008	28.015			0.5	6.4	NB 3rd Ave SW	
I-380	NB	312+34.4	312+59.4	L	6.3		25.000	5.8			5.892	23.569	17.4	6.129	24.518			0.3	3.3	NB 3rd Ave SW	
I-380	NB	312+59.4	313+21.9	L	6.25-1.25		62.500	8.7			9.075	14.520	26.0	9.878	15.805			0.6	8.9	NB 3rd Ave SW	
I-380	NB	313+21.9	314+00.0	L	1.3		78.125	3.6			4.274	5.471	10.9	5.540	7.092			0.8	12.0	NB 3rd Ave SW	
Ramp	SB	11+85.0	11+65.0	R	3.3		20.000	2.4			2.540	12.700	7.2	2.807	14.034			0.2	2.7	SB H Ave. on Ramp	
Ramp	SB	11+65.0	11+15.0	R	3.25-1.25		50.000	4.2			4.543	9.085	12.5	5.282	10.563			0.5	7.3	SB H Ave. on Ramp	
Ramp	SB	11+15.0																			

102-6C ML F Modified																		
FULL-DEPTH PATCHES (MAINLINE - FINISH)																		
Refer to Standard Roads Plans RR-1, RR-2, RR-4, RR-18, and RR-26																		
Count	Location		Dimension			PCC Patches			HMA Patches	Composite HMA	Subbase Patches	Subbase Patch w/ 'EF' Joint	Patch Subdrain	'CD' Joints	'CT' Joints	'EF' Joints	Anchor Lugs Removal	Remarks
	Station or Milepost	Lane	Length	Width	Patch Thickness	With Dowels	Without Dowels	C R C										
						RR-4	RR-2	RR-18										
		L, R, or B	FT	FT	IN	SY	SY	SY	SY	TON	SY	SY	RR-1 or RR-26 No.	No.	No.	RR-1 No.	No.	
	Mainline																	
1	30.18	LT.SH.	10.0	6.0	12.0	6.7						6.7						
1	30.18	LT	10.0	12.0	12.0	13.3						13.3				1		
1	30.18	RT	10.0	12.0	12.0	13.3						13.3				1		
1	30.18	RT.SH.	10.0	10.0	12.0	11.1						11.1						
1	23.42	LT.SH.	10.0	10.0	12.0	11.1						11.1						
1	23.42	LT	10.0	12.0	12.0	13.3						13.3				1		
1	23.42	CT	10.0	12.0	12.0	13.3						13.3				1		
1	23.42	RT	10.0	12.0	12.0	13.3						13.3				1		
1	23.42	RT.SH.	10.0	12.0	12.0	13.3						13.3						
1	23.36	LT.SH.	10.0	10.0	12.0	11.1						11.1						
1	23.36	LT	10.0	12.0	12.0	13.3						13.3				1		
1	23.36	CT	10.0	12.0	12.0	13.3						13.3				1		
1	23.36	RT	10.0	12.0	12.0	13.3						13.3				1		
1	23.36	RT.SH.	10.0	12.0	12.0	13.3						13.3						
1	22.42	LT.SH.	10.0	10.0	12.0	11.1						11.1						
1	22.42	LT	10.0	10.0	12.0	11.1						11.1				1		
1	22.42	CT	10.0	10.0	12.0	11.1						11.1				1		
1	22.42	RT	10.0	10.0	12.0	11.1						11.1				1		
1	22.42	RT.SH.	10.0	6.0	12.0	6.7						6.7						
1	22.42	Ramp Lane	10.0	16.0	12.0	17.8						17.8				1		
1	22.36	LT.SH.	10.0	10.0	12.0	11.1						11.1						
1	22.36	LT	10.0	10.0	12.0	11.1						11.1				1		
1	22.36	CT	10.0	10.0	12.0	11.1						11.1				1		
1	22.36	RT	10.0	10.0	12.0	11.1						11.1				1		
1	22.36	RT.SH.	10.0	6.0	12.0	6.7						6.7						
1	22.36	Ramp Lane	10.0	10.0	12.0	11.1						11.1				1		
1	21.94	LT.SH.	10.0	10.0	12.0	11.1						11.1						
1	21.94	LT	10.0	12.0	12.0	13.3						13.3				1		
1	21.94	CT	10.0	12.0	12.0	13.3						13.3				1		
1	21.94	RT	10.0	12.0	12.0	13.3						13.3				1		
1	21.94	RT.SH.	10.0	10.0	12.0	11.1						11.1						
1	21.94	Ramp Lane	10.0	12.0	12.0	13.3						13.3				1		
1	21.86	LT.SH.	10.0	10.0	12.0	11.1						11.1						
1	21.86	LT	10.0	12.0	12.0	13.3						13.3				1		
1	21.86	CT	10.0	12.0	12.0	13.3						13.3				1		
1	21.86	RT	10.0	12.0	12.0	13.3						13.3				1		
1	21.86	RT.SH.	10.0	6.0	12.0	6.7						6.7						
1	21.86	Ramp Lane	10.0	20.0	12.0	22.2						22.2				1		
1	21.63	LT.SH.	12.0	10.0	12.0	13.3						13.3						
1	21.63	LT	12.0	12.0	12.0	16.0						16.0				1		
1	21.63	CT	12.0	12.0	12.0	16.0						16.0				1		
1	21.63	RT	12.0	12.0	12.0	16.0						16.0				1		
1	21.63	RT.SH.	12.0	10.0	12.0	13.3						13.3						
1	21.58	LT.SH.	12.0	10.0	12.0	13.3						13.3						
1	21.58	LT	12.0	12.0	12.0	16.0						16.0				1		
1	21.58	CT	12.0	12.0	12.0	16.0						16.0				1		
1	21.58	RT	12.0	12.0	12.0	16.0						16.0				1		
1	21.58	RT.SH.	12.0	10.0	12.0	13.3						13.3						
1	21.40	LT.SH.	8.0	10.0	12.0	8.9						8.9						
1	21.40	LT	8.0	12.0	12.0	10.7						10.7				1		
1	21.40	CT	8.0	12.0	12.0	10.7						10.7				1		
1	21.40	RT	8.0	12.0	12.0	10.7						10.7				1		
1	21.40	RT.SH.	8.0	6.0	12.0	5.3						5.3						
1	21.40	Ramp Lane	8.0	20.0	12.0	17.8						17.8				1		
1	21.30	LT.SH.	12.0	10.0	12.0	13.3						13.3						
1	21.30	LT	12.0	12.0	12.0	16.0						16.0				1		
1	21.30	CT	12.0	12.0	12.0	16.0						16.0				1		
1	21.30	RT	12.0	12.0	12.0	16.0						16.0				1		
1	21.30	RT.SH.	12.0	10.0	12.0	13.3						13.3						
1	21.30	Ramp Lane	12.0	12.0	12.0	16.0						16.0				1		
1	21.12	LT.SH.	10.0	10.0	12.0	11.1						11.1						
1	21.12	LT	10.0	12.0	12.0	13.3						13.3				1		
1	21.12	CT	10.0	12.0	12.0	13.3						13.3				1		
1	21.12	RT	10.0	12.0	12.0	13.3						13.3				1		
1	21.12	RT.SH.	10.0	10.0	12.0	11.1						11.1						
1	21.12	Ramp Lane	10.0	12.0	12.0	13.3						13.3				1		
66	TOTALS					839.6						839.6				42		





FULL-DEPTH PATCHES (RAMP - REPAIR)	
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100	100

Refer to Standard Roads Plans RR-1, RR-2, RR-4, RR-18, and RR-26

[illegible]

**FULL-DEPTH PATCHES (RAMP - REPAIR)**

Refer to Standard Roads Plans RR-1, RR-2, RR-4, RR-18, and RR-26

[illegible]

[illegible]







## LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

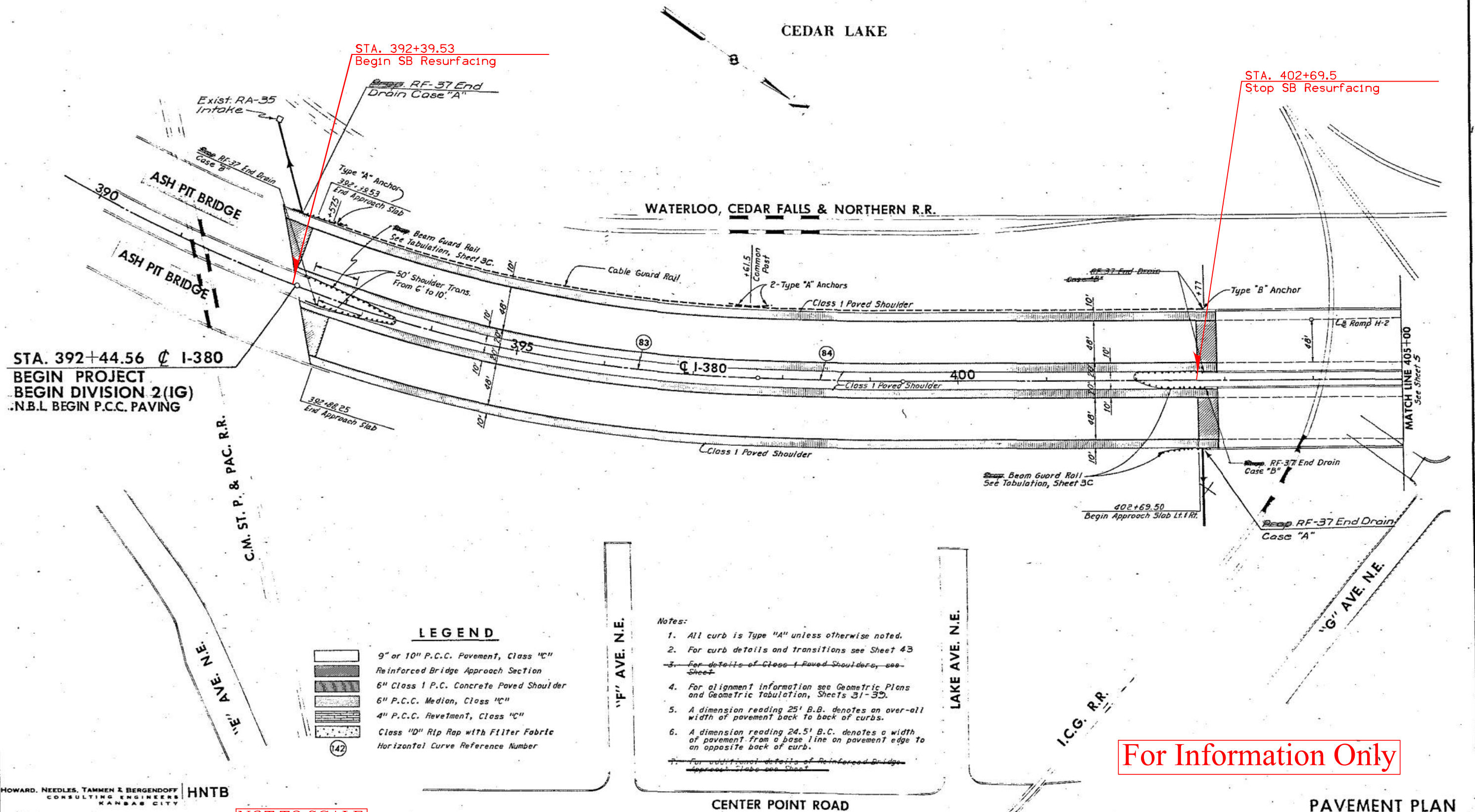
\* Not a bid item

Location						Longitudinal Subdrain (RF-19C)							Subdrain Outlet			Porous* Backfill	Class "A"* Crushed Stone	Remarks	
Line No.	Road or Lane Ident.	Station to Station		Side	Depth	Shoulder		Backslope		Bridge Berm ①			RF-19C, RF-19E, or RF-19F						
					ⓓ	Size	Length	Size	Length	Size	Type	Length	Station	Size	Standard Road Plan and Type				
		IN	IN		FT	IN	FT	IN		FT		IN							
19	SBL	980+00.0	975+00.0	OUT	42.0	4.0	540.0						980+00.0	6.0	RF-19E	50.0	0.2		
													980+00.0	6.0	RF-19E				
													975+00.0	6.0	RF-19E			0.2	
20	SBL	975+00.0	971+00.0	OUT	42.0	4.0	440.0						975+00.0	6.0	RF-19E	40.7	0.2		
													971+00.0	6.0	RF-19E				
													949+50.0	6.0	RF-19E				
21	SBL	949+50.0	945+00.0	OUT	42.0	4.0	490.0						945+00.0	6.0	RF-19E	45.4	0.2		
													945+00.0	6.0	RF-19E				
													941+00.0	6.0	RF-19E			0.2	
22	SBL	945+00.0	941+00.0	OUT	42.0	4.0	440.0						933+00.0	6.0	RF-19E	31.5	0.2		
													930+00.0	6.0	RF-19E				
													930+00.0	6.0	RF-19E			0.2	
23	SBL	933+00.0	930+00.0	OUT	42.0	4.0	340.0						930+00.0	6.0	RF-19E	40.7	0.2		
													926+00.0	6.0	RF-19E				
													926+00.0	6.0	RF-19E			0.2	Eq. 568+11.05 = 925+67.62
25	SBL	537+00.0	535+00.0	OUT	42.0	4.0	240.0						537+00.0	6.0	RF-19E	22.2			
													535+00.0	6.0	RF-19E			0.2	
													535+00.0	6.0	RF-19E				
26	SBL	535+00.0	530+00.0	OUT	42.0	4.0	540.0						530+00.0	6.0	RF-19E	50.0	0.2		
													530+00.0	6.0	RF-19E				
													530+00.0	6.0	RF-19E			0.2	
27	SBL	530+00.0	527+00.0	OUT	42.0	4.0	320.0						530+00.0	6.0	RF-19E	29.6	0.2		
28	SBL	512+50.0	510+00.0	OUT	42.0	4.0	290.0						512+50.0	6.0	RF-19E		26.9	0.2	
													510+00.0	6.0	RF-19E				
29	SBL	510+00.0	506+00.0	OUT	42.0	4.0	440.0						510+00.0	6.0	RF-19E	40.7		0.2	
													506+00.0	6.0	RF-19E				
													498+00.0	6.0	RF-19E			0.2	
30	SBL	498+00.0	493+00.0	OUT	42.0	4.0	540.0						493+00.0	6.0	RF-19E	50.0	0.2		
													446+00.0	6.0	RF-19E				
													441+00.0	6.0	RF-19E			0.2	
31	SBL	446+00.0	441+00.0	OUT	42.0	4.0	540.0						441+00.0	6.0	RF-19E	50.0	0.2		
													441+00.0	6.0	RF-19E				
													436+00.0	6.0	RF-19E			0.2	
33	SBL	1231+00.0	1225+00.0	MED	30.0	4.0	640.0						1231+00.0	6.0	RF-19E	39.5	0.2		
													1225+00.0	6.0	RF-19E				
													1225+00.0	6.0	RF-19E			0.2	
34	SBL	1225+00.0	1220+00.0	MED	30.0	4.0	540.0						1220+00.0	6.0	RF-19E	33.3	0.2		
													1220+00.0	6.0	RF-19E				
													1220+00.0	6.0	RF-19E			0.2	
35	SBL	1220+00.0	1215+00.0	MED	30.0	4.0	540.0						1215+00.0	6.0	RF-19E	33.3	0.2		
													1215+00.0	6.0	RF-19E				
													1215+00.0	6.0	RF-19E			0.2	
36	SBL	1215+00.0	1210+00.0	MED	30.0	4.0	540.0						1210+00.0	6.0	RF-19E	33.3	0.2		
													1210+00.0	6.0	RF-19E				
													1210+00.0	6.0	RF-19E			0.2	
37	SBL	1210+00.0	1205+00.0	MED	30.0	4.0	540.0						1205+00.0	6.0	RF-19E	33.3	0.2		
													1205+00.0	6.0	RF-19E				
													1205+00.0	6.0	RF-19E			0.2	
38	SBL	1205+00.0	1200+00.0	MED	30.0	4.0	540.0						1200+00.0	6.0	RF-19E	33.3	0.2		
													1186+00.0	6.0	RF-19E				
													1186+00.0	6.0	RF-19E			0.2	
38	SBL	1186+00.0	1180+00.0	MED	30.0	4.0	640.0						1180+00.0	6.0	RF-19E	39.5	0.2		
													1180+00.0	6.0	RF-19E				
													1180+00.0	6.0	RF-19E			0.2	
40	SBL	1180+00.0	1175+00.0	MED	30.0	4.0	540.0						1175+00.0	6.0	RF-19E	33.3	0.2		
													1175+00.0	6.0	RF-19E				
													1175+00.0	6.0	RF-19E			0.2	
41	SBL	1175+00.0	1172+00.0	MED	30.0	4.0	340.0						1172+00.0	6.0	RF-19E	21.0	0.2		
													1161+00.0	6.0	RF-19E				
													1161+00.0	6.0	RF-19E			0.2	
42	SBL	1161+00.0	1155+00.0	MED	30.0	4.0	640.0						1155+00.0	6.0	RF-19E	39.5	0.2		
													1155+00.0	6.0	RF-19E				
													1155+00.0	6.0	RF-19E			0.2	
43	SBL	1155+00.0	1150+00.0	MED	30.0	4.0	540.0						1150+00.0	6.0	RF-19E	33.3	0.2		
													1150+00.0	6.0	RF-19E				
													1150+00.0	6.0	RF-19E			0.2	
44	SBL	1150+00.0	1145+00.0	MED	30.0	4.0	540.0						1145+00.0	6.0	RF-19E	33.3	0.2		
													1145+00.0	6.0	RF-19E				
													1145+00.0	6.0	RF-19E			0.2	
45	SBL	1138+00.0	1135+00.0	MED	30.0	4.0	340.0						1135+00.0	6.0	RF-19E	21.0	0.2		
													1135+00.0	6.0	RF-19E				
													1135+00.0	6.0	RF-19E			0.2	
46	SBL	1135+00.0	1130+00.0	MED	30.0	4.0	540.0						1130+00.0	6.0	RF-19E	33.3	0.2		
													1130+00.0	6.0	RF-19E				
													1130+00.0	6.0	RF-19E			0.2	
47	SBL	1130+00.0	1128+00.0	MED	30.0	4.0	240.0						1128+00.0	6.0	RF-19E	14.8	0.2		
													1115+00.0	6.0	RF-19E				
													1115+00.0	6.0	RF-19E			0.2	
48	SBL	1115+00.0	1111+00.0	MED	30.0	4.0	440.0						1111+00.0	6.0	RF-19E	27.2	0.2		
													1111+00.0	6.0	RF-19E				
													1111+00.0	6.0	RF-19E			0.2	
49	SBL	1092+00.0	1090+00.0	MED	30.0	4.0	240.0						1092+00.0	6.0	RF-19E	14.8	0.2		
													1092+00.0	6.0	RF-19E				
													1090+00.0	6.0	RF-19E			0.2	
50	SBL	1090+00.0	1085+00.0	MED	30.0	4.0	540.0						1085+00.0	6.0	RF-19E	33.3	0.2		
													1085+00.0	6.0	RF-19E				
													1085+00.0	6.0	RF-19E			0.2	
51	SBL	1083+00.0	1080+00.0	MED	30.0	4.0	340.0						1080+00.0	6.0	RF-19E	21.0	0.2		
													1080+00.0	6.0	RF-19E				
													1080+00.0	6.0	RF-19E			0.2	
52	SBL	1080+00.0	1075+00.0	MED	30.0	4.0	540.0						1075+00.0	6.0	RF-19E	33.3	0.2		
													1075+00.0	6.0	RF-19E				
													1075+00.0	6.0	RF-19E			0.2	
53	SBL	1075+00.0	1070+00.0	MED	30.0	4.0	540.0						1070+00.0	6.0	RF-19E	33.3	0.2		
													1070+00.0	6.0	RF-19E				
													1070+00.0	6.0	RF-19E			0.2	
54	SBL	1070+00.0	1065+00.0	MED	30.0	4.0	540.0						1065+00.0	6.0	RF-19E	33.3	0.2		
													1065+00.0	6.0	RF-19E				
													1065+00.0	6.0	RF-19E			0.2	
55	SBL	1065+00.0	1060+00.0	MED	30.0														

\* Not a bid item

ENGLISH	IOWA DOT	DESIGN TEAM	Flattery\Bell\Luong\Janecek	Linn	COUNTY	PROJECT NUMBER	IMX-380-6(271)16--02-57	SHEET NUMBER	C.22
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NOTE:  
Southbound Lanes from Ash Pit Bridge to Sta. 410+00 and Ramp H-2  
were constructed as part of a previous contract.



**For Information Only**

PAVEMENT PLAN



NOTE:  
Southbound Lanes from Ash Pit Bridge to Sta. 410+00 and Ramp H-2 were constructed as part of a previous contract.

CEDAR LAKE

STA. 407+46.38  
Resume SB Resurfacing

STA. 410+00-S.B.L.  
BEGIN P.C.C. PAVING

Begin Taper  
4" Yellow Edge Line (Temporary)  
Sta. 410+00

STATION 415+00 @ I-380  
END DIVISION 2(IG)  
BEGIN DIVISION 1(I)

STA. 0+81.47  
Begin Ramp H-2 Resurfacing

SHAVER RD. N.E.

WATERLOO, CEDAR FALLS & NORTHERN R.R.

STA. 9+00  
End Ramp H-2 Resurfacing

Existing Ret. Wall # 410L

DIVISION 2(IG) DIVISION 1(I)  
Type A Anchor

0+81.47 H-2, 8.5' LT.

STA. 417+42.59  
Stop SB Resurfacing

STA. 408+00 to 416+00  
Typical D6-3

End dashed white lane line.  
Sta. 405+00

End Approach Slab  
407+46.38

10' STD. NON-REINF. 9" STD. NON-REINF.  
P.C.C. PAV'T. (CD JOINTS)  
3+33.60 @ H-2  
408+13.60 @ I-380

Cable Guard Rail

End 6" Curb  
8+00.00

Class 1 Paved Shoulder

Class 1 Paved Shoulder (With 6" Integral Curb)

Base Line

End Approach Slab  
417+42.59

End Approach Slab  
419+51.05

MATCH LINE 405+00

Beam RF-37 End Drain  
Case "B"

End Approach Slab  
408+13.60

Beam RF-37 End Drain  
Case "A"

End Approach Slab  
410+00

End Approach Slab  
411+03.88

End Approach Slab  
412+03.88

End Approach Slab  
413+03.88

End Approach Slab  
414+03.88

End Approach Slab  
415+03.88

End Approach Slab  
416+03.88

End Approach Slab  
417+42.59

End Approach Slab  
418+42.59

End Approach Slab  
419+51.05

End Approach Slab  
420+00

"G" AVE. N.E.

12TH ST. N.E.

LINCOLN AVE. N.E.

WEAVER AVE. N.E.

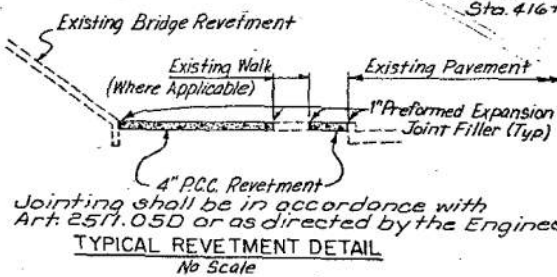
ILLINOIS CENTRAL GULF R.R.

"H" AVE. N.E.

- Notes:
1. All curb is Type "A" unless otherwise noted.
  2. For curb details and transitions see Sheet 43.
  3. For details of Class 1 Paved Shoulders, see Sheet 44.
  4. For alignment information see Geometric Plans and Geometric Tabulation, Sheets 31-35.
  5. A dimension reading 25' B.B. denotes an over-all width of pavement back to back of curbs.
  6. A dimension reading 24.5' B.C. denotes a width of pavement from a base line on pavement edge to an opposite back of curb.
  7. For additional details of Reinforced Bridge Approach Slabs see Sheets 45-49.
  8. Transition from shoulder cross slope to same slope as pavement in length indicated.

LEGEND

- 9" or 10" P.C.C. Pavement, Class "C"
- Reinforced Bridge Approach Section
- 6" Class 1 P.C. Concrete Paved Shoulder
- 6" P.C.C. Median, Class "C"
- 4" P.C.C. Revetment, Class "C"
- Class "D" Rip Rap with Filter Fabric
- Horizontal Curve Reference Number
- Intake Tops to be Constructed this Contract



NOT TO SCALE

For Information Only

PAVEMENT PLAN

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
KANSAS CITY

HNTB

MADE R.K.L. DATE 7-15-75  
CHECKED J.R.S. DATE 8-6-75  
SCALE 1" = 40'

ENGLISH IOWA DOT DESIGN TEAM Flattery\Bell\Luong\Janecek

LINN COUNTY PROJECT NUMBER IMX-380-6(271)16--02-57

SHEET NUMBER D.2



STA. 9+70  
End Ramp H-3 Resurfacing

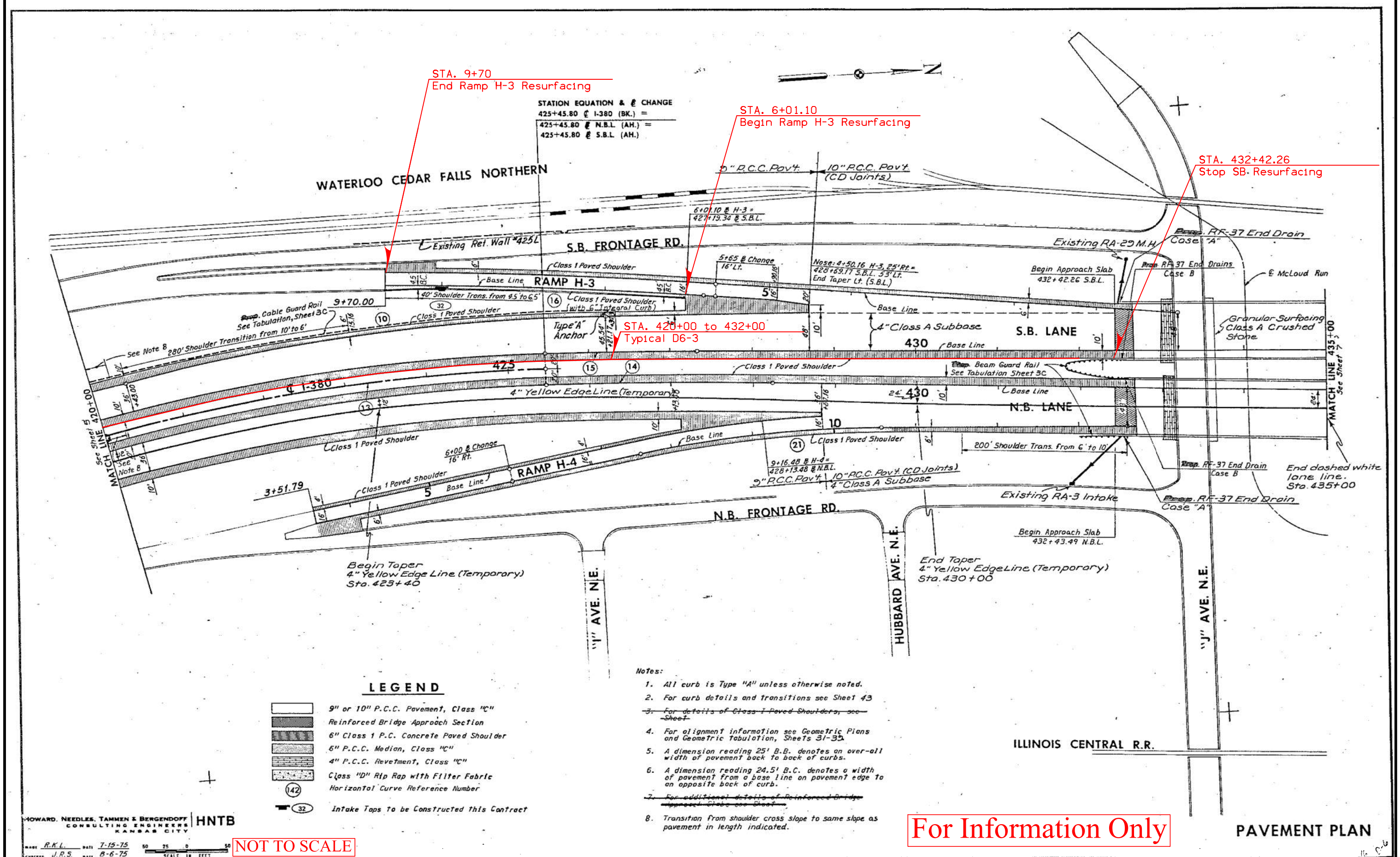
STA. 6+01.10  
Begin Ramp H-3 Resurfacing

STA. 432+42.26  
Stop SB Resurfacing

STA. 420+00 to 432+00  
Typical D6-3

For Information Only

PAVEMENT PLAN



LEGEND

- 9" or 10" P.C.C. Pavement, Class "C"
- Reinforced Bridge Approach Section
- 6" Class 1 P.C.C. Concrete Paved Shoulder
- 6" P.C.C. Median, Class "C"
- 4" P.C.C. Revetment, Class "C"
- Class "D" Rip Rap with Filter Fabric
- Horizontal Curve Reference Number
- Intake Taps to be Constructed this Contract

Notes:

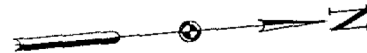
- All curb is Type "A" unless otherwise noted.
- For curb details and transitions see Sheet 43
- For details of Class 1 Paved Shoulders, see Sheet
- For alignment information see Geometric Plans and Geometric Tabulation, Sheets 31-35
- A dimension reading 25' B.B. denotes an over-all width of pavement back to back of curbs.
- A dimension reading 24.5' B.C. denotes a width of pavement from a base line on pavement edge to an opposite back of curb.
- For additional details of Reinforced Bridge approach Slab see Sheet
- Transition from shoulder cross slope to same slope as pavement in length indicated.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS KANSAS CITY HNTB

DATE 7-15-75 DRAWN J.R.S. CHECKED J.R.S. SCALE 1" = 20'

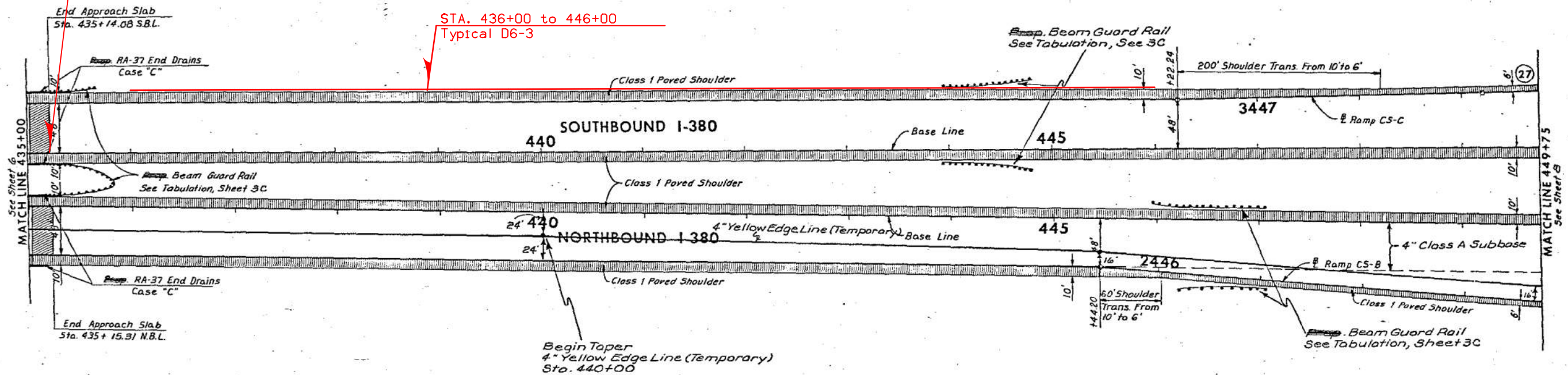
NOT TO SCALE





STA. 435+14.08  
Resume SB Resurfacing

STA. 436+00 to 446+00  
Typical D6-3



#### LEGEND

- 9' or 10' P.C.C. Pavement, Class "C"
- Reinforced Bridge Approach Section
- 6' Class 1 P.C. Concrete Paved Shoulder
- 6' P.C.C. Median, Class "C"
- 4' P.C.C. Revetment, Class "C"
- Class "D" Rip Rap with Filter Fabric
- Horizontal Curve Reference Number

#### Notes:

1. All curb is Type "A" unless otherwise noted.
2. For curb details and transitions see Sheet 43.
3. For details of Class 1 Paved Shoulders, see Sheet 43.
4. For alignment information see Geometric Plans and Geometric Tabulation, Sheets 31-33.
5. A dimension reading 25' B.B. denotes an over-all width of pavement back to back of curbs.
6. A dimension reading 24.5' B.C. denotes a width of pavement from a base line on pavement edge to an opposite back of curb.
7. For additional details of Reinforced Bridge Approach Slabs see Sheet 43.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
KANSAS CITY, MO  
HNTB

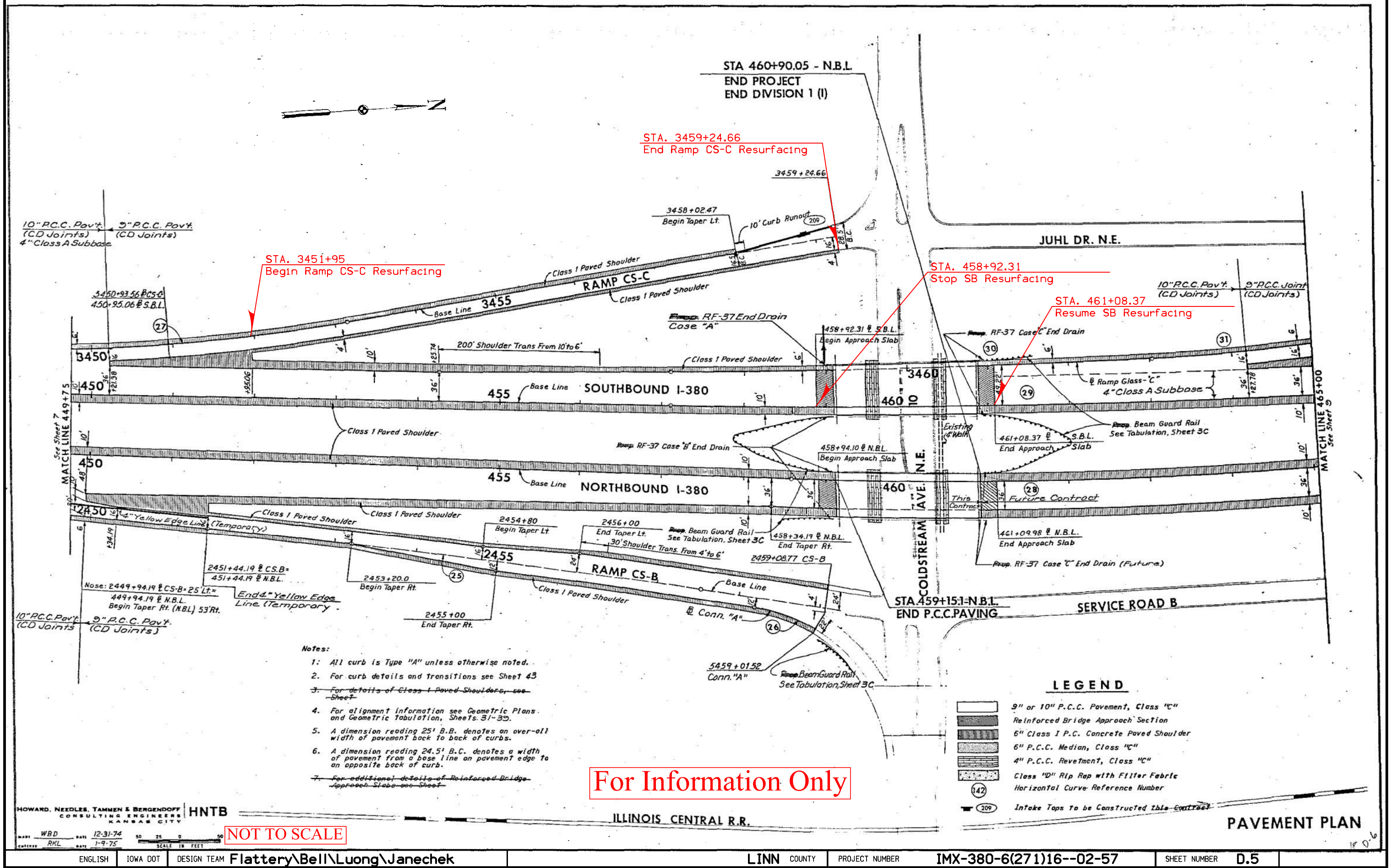
MADE WBD DATE 12-31-75  
CHECKED RKL DATE 1-9-75  
SCALE 1" = 40'

NOT TO SCALE

For Information Only

PAVEMENT PLAN







SIERRA DR. N.E.

SIERRA-JUHL CONN.

NOTE:  
Construct Southbound Lanes to Sta. 468+50 and Ramp Glass-C as part  
of this project. All other construction shown will be part of a Future  
contract.

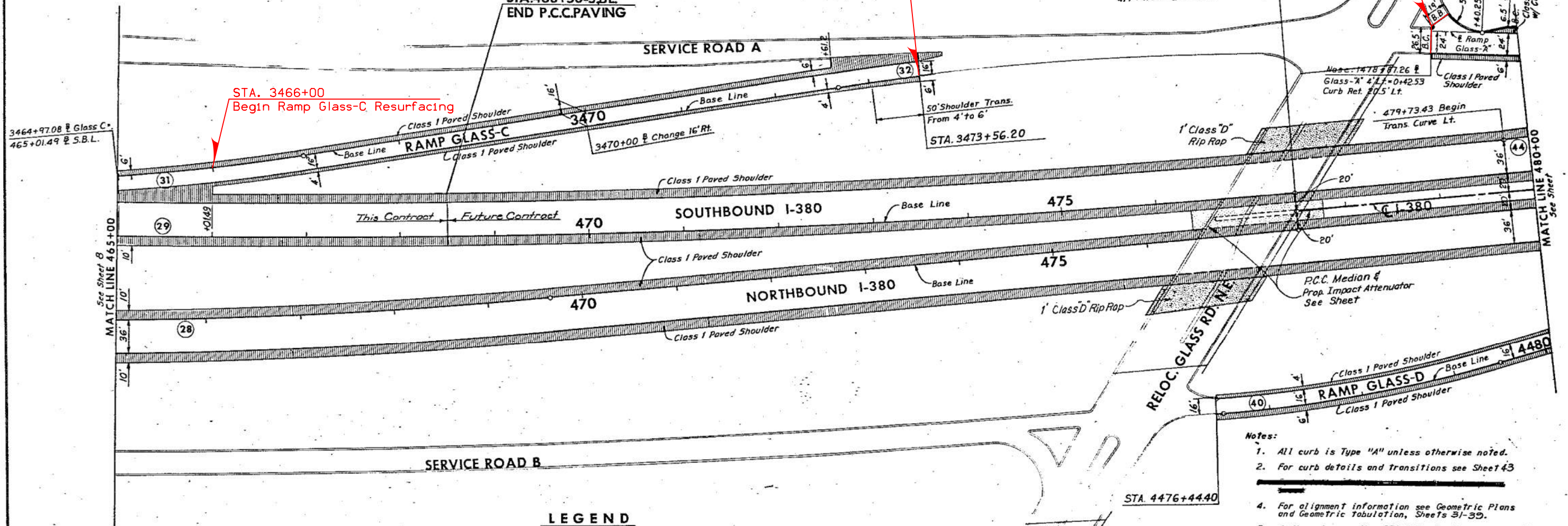
STA. 1478+87.26  
Begin Ramp Glass-A Resurfacing

STA. 3473+56.2  
End Ramp Glass-C Resurfacing

STA. 3466+00  
Begin Ramp Glass-C Resurfacing

STA. 468+50 S.B.L.  
END P.C.C. PAVING

STATION EQUATION & CHANGE  
477+60.37 @ N.B.L. (BK.) =  
477+47.06 @ S.B.L. (BK.) =  
477+47.06 @ I-380 (AH.)



### LEGEND

- 9" or 10" P.C.C. Pavement, Class "C"
- Reinforced Bridge Approach Section
- 6" Class 1 P.C. Concrete Paved Shoulder
- 6" P.C.C. Median, Class "C"
- 4" P.C.C. Revetment, Class "C"
- Class "D" Rip Rap with Filter Fabric.
- Horizontal Curve Reference Number

### Notes:

1. All curb is Type "A" unless otherwise noted.
2. For curb details and transitions see Sheet 143
3. For alignment information see Geometric Plans and Geometric Tabulation, Sheets 31-39.
4. A dimension reading 25' B.B. denotes an over-all width of pavement back to back of curbs.
5. A dimension reading 24.5' B.C. denotes a width of pavement from a base line on pavement edge to on opposite back of curb.
6. Place Class "D" rip rap from edge of shoulder to bridge revetment.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
KANSAS CITY

HNTB

DATE 1-2-75  
CHECKED RKL  
SCALE 1" = 40' FEET

NOT TO SCALE

ILLINOIS CENTRAL R.R.

For Information Only

PAVEMENT PLAN

ENGLISH

IOWA DOT

DESIGN TEAM

Flattery\Bell\Luong\Janecek

LINN COUNTY

PROJECT NUMBER

IMX-380-6(271)16--02-57

SHEET NUMBER

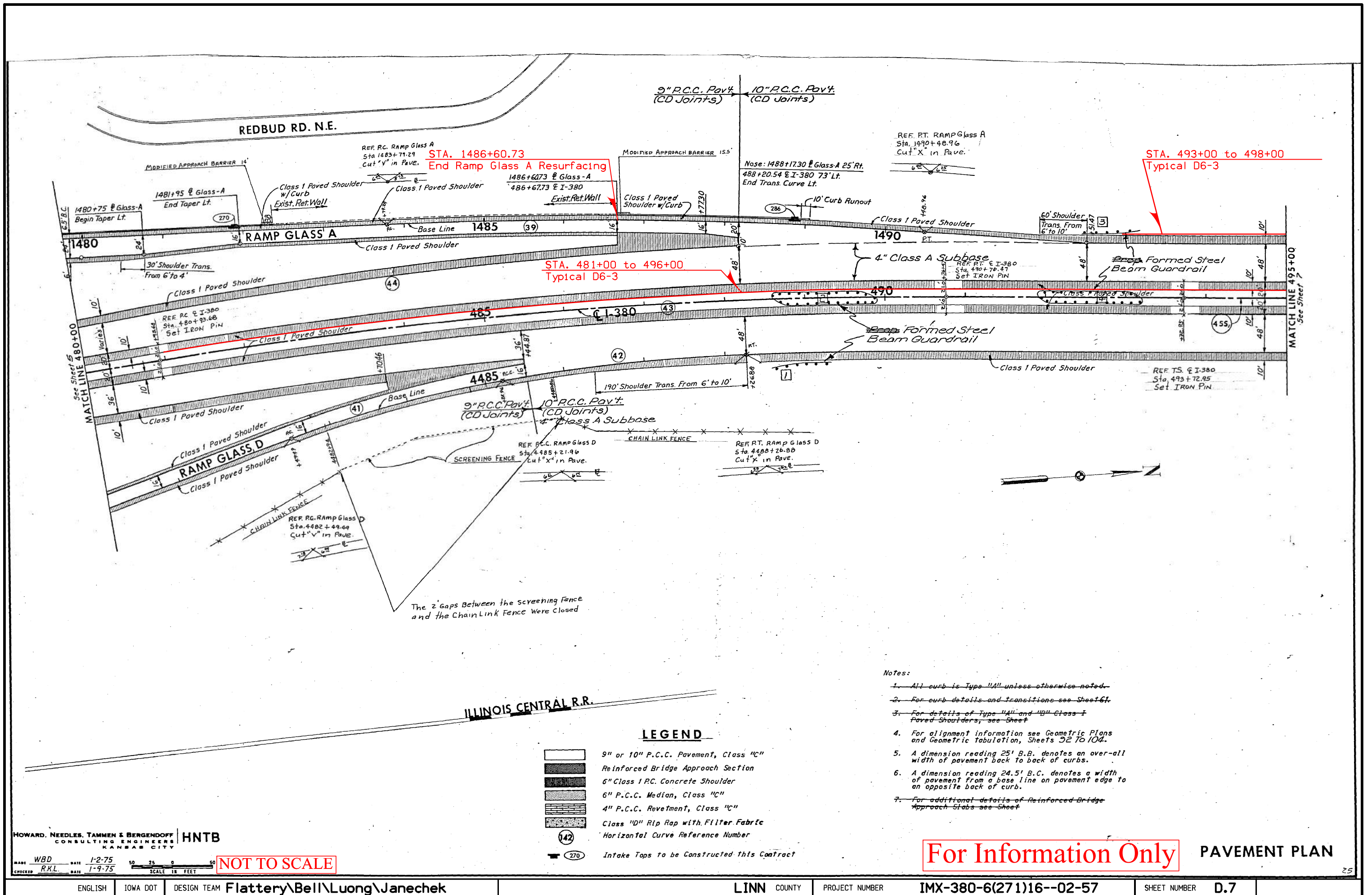
D.6

10:04:57 AM 3/5/2012

mjanek

W:\Projects\5738003010\Design\271\57380271d01.sht







REDBUD RD. N.E.

STA. 506+00 to 512+50  
Typical D6-3

STA. 3507+00 to 3513+90  
Typical 7126

STA. 493+00 to 498+00  
Typical D6-3

STA. 3500+00 to 3507+00  
Typical 7126

STA. 3504+00  
Begin Ramp 42-C Resurfacing

STA. 481+00 to 496+00  
Typical D6-3

### LEGEND

- 
- 
- 
- 
- 
- 
- 
- 

MCCLOUD RUN

For Information Only

### Notes:

1. All curb is Type "A" unless otherwise noted.
2. For curb details and transitions see Sheet 61.
3. For details of Type "A" and "B" Class 1 Paved Shoulders, see Sheet
4. For alignment information see Geometric Plans and Geometric Tabulation, Sheets 32 to 104.
5. A dimension reading 25' B.B. denotes an over-all width of pavement back to back of curbs.
6. A dimension reading 24.5' B.C. denotes a width of pavement from a base line on pavement edge to an opposite back of curb.
7. For additional details of Reinforced Bridge Approach Slabs see Sheet

PAVEMENT PLAN

NOT TO SCALE

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
KANSAS CITY

HNTB

MADE R.K.L. DATE 12-31-75  
CHECKED W.B.D. DATE 1-3-75

SCALE IN FEET

ENGLISH IOWA DOT DESIGN TEAM Flattery\Bell\Luong\Janecek

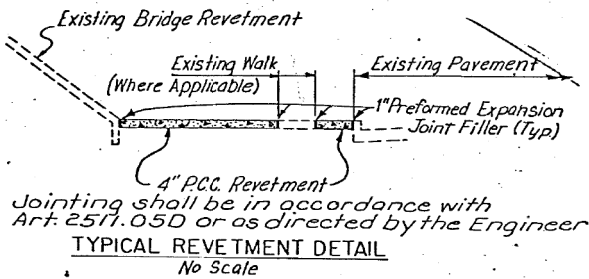
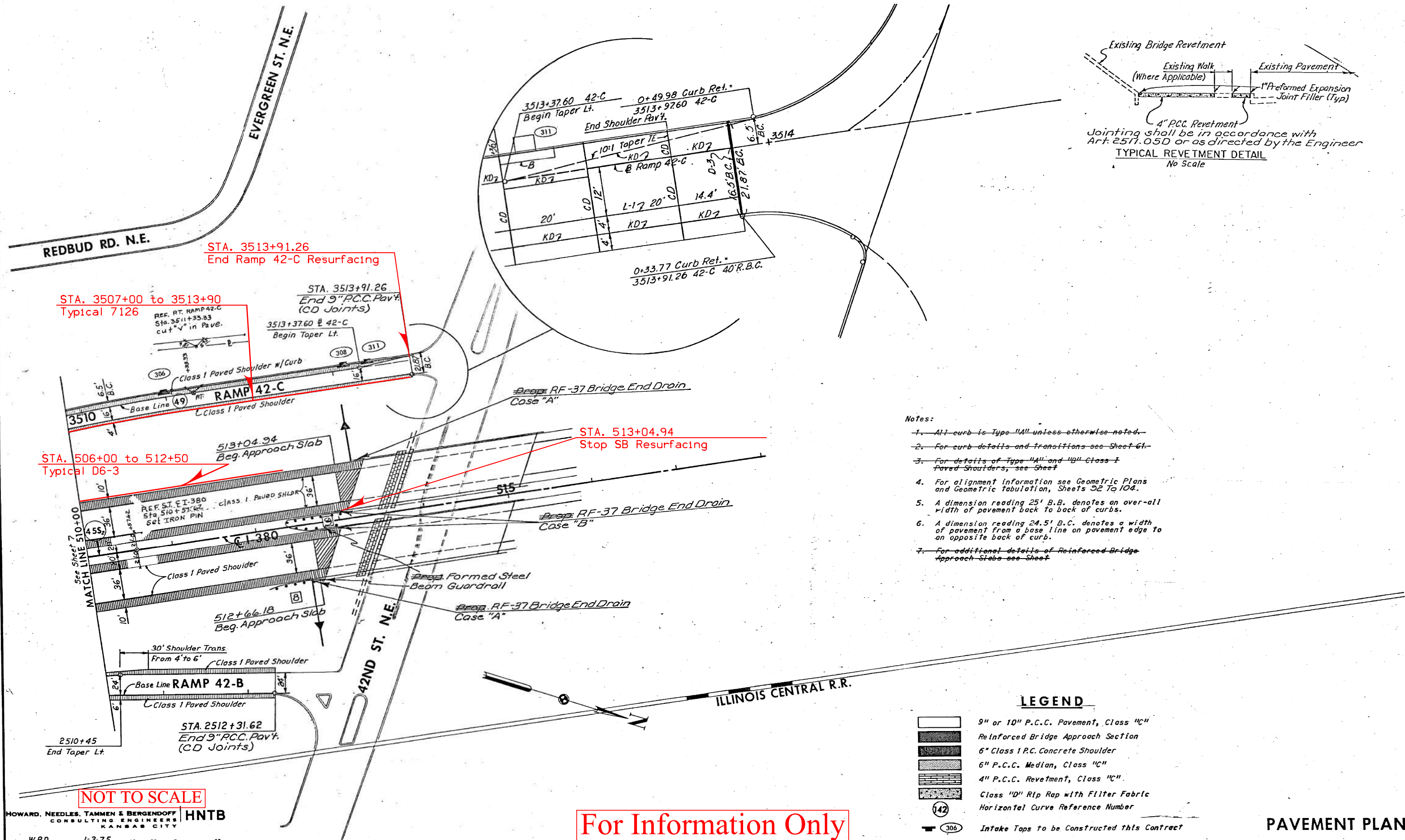
LINN COUNTY

PROJECT NUMBER

IMX-380-6(271)16--02-57

SHEET NUMBER D.8





- Notes:
- 1. All curb is Type "A" unless otherwise noted.
  - 2. For curb details and transitions see Sheet 61.
  - 3. For details of Type "A" and "B" Class 1 Paved Shoulders, see Sheet 61.
  - 4. For alignment information see Geometric Plans and Geometric Tabulation, Sheets 52 To 104.
  - 5. A dimension reading 25' B.B. denotes an over-all width of pavement back to back of curbs.
  - 6. A dimension reading 24.5' B.C. denotes a width of pavement from a base line on pavement edge to an opposite back of curb.
  - 7. For additional details of Reinforced Bridge Approach Slabs see Sheet 61.

**LEGEND**

	9" or 10" P.C.C. Pavement, Class "C"
	Reinforced Bridge Approach Section
	6" Class 1 P.C. Concrete Shoulder
	6" P.C.C. Median, Class "C"
	4" P.C.C. Revetment, Class "C"
	Class "D" Rip Rap with Filter Fabric
	Horizontal Curve Reference Number
	Intake Taps to be Constructed this Contract

For Information Only

PAVEMENT PLAN

HOWARD, NEEDLES, TAMMEN & BERGENOFF  
CONSULTING ENGINEERS  
KANSAS CITY

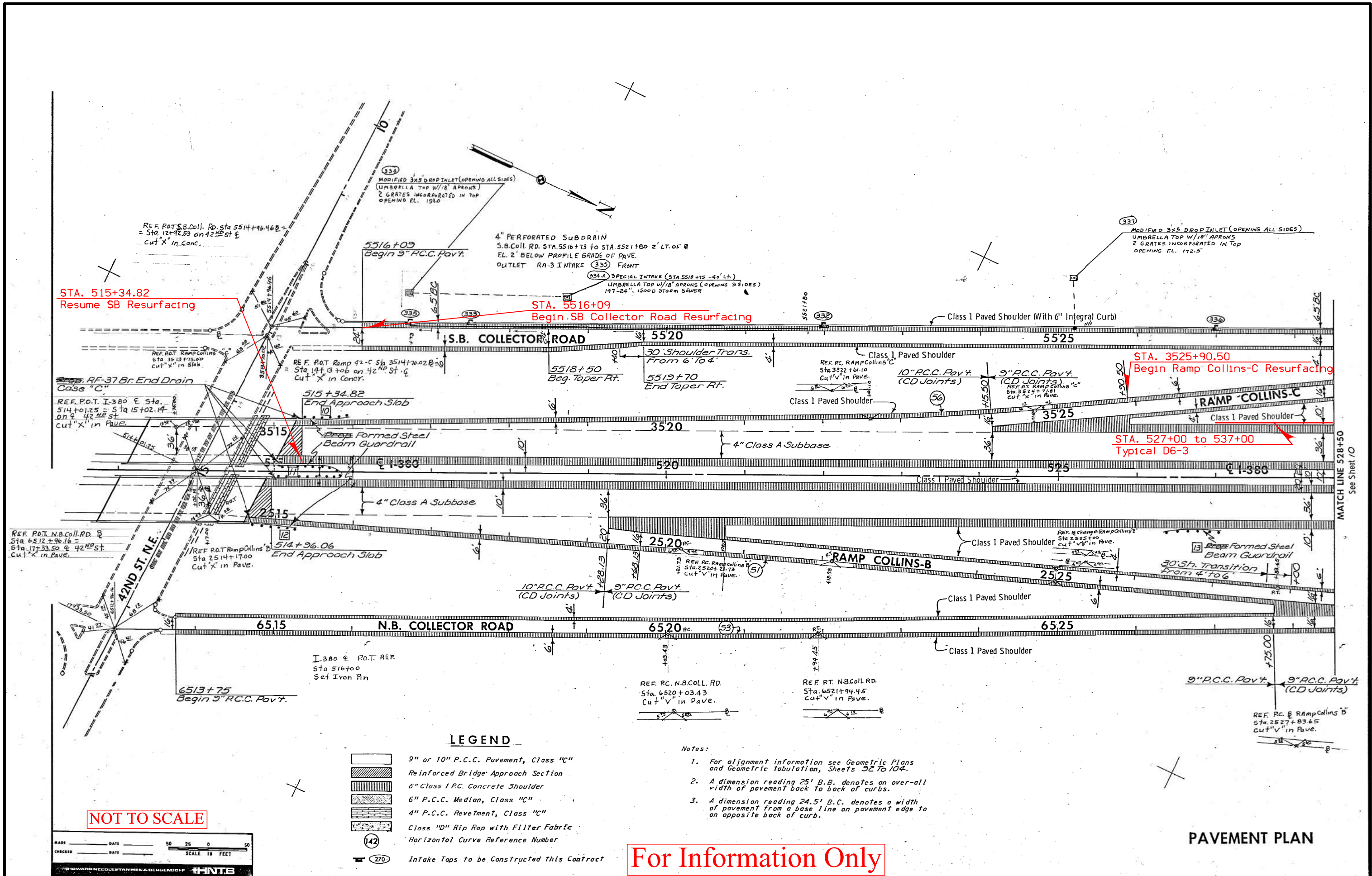
HNTB

MADE BY W.B.D. DATE 1-3-75  
R.K.I. 1-9-75

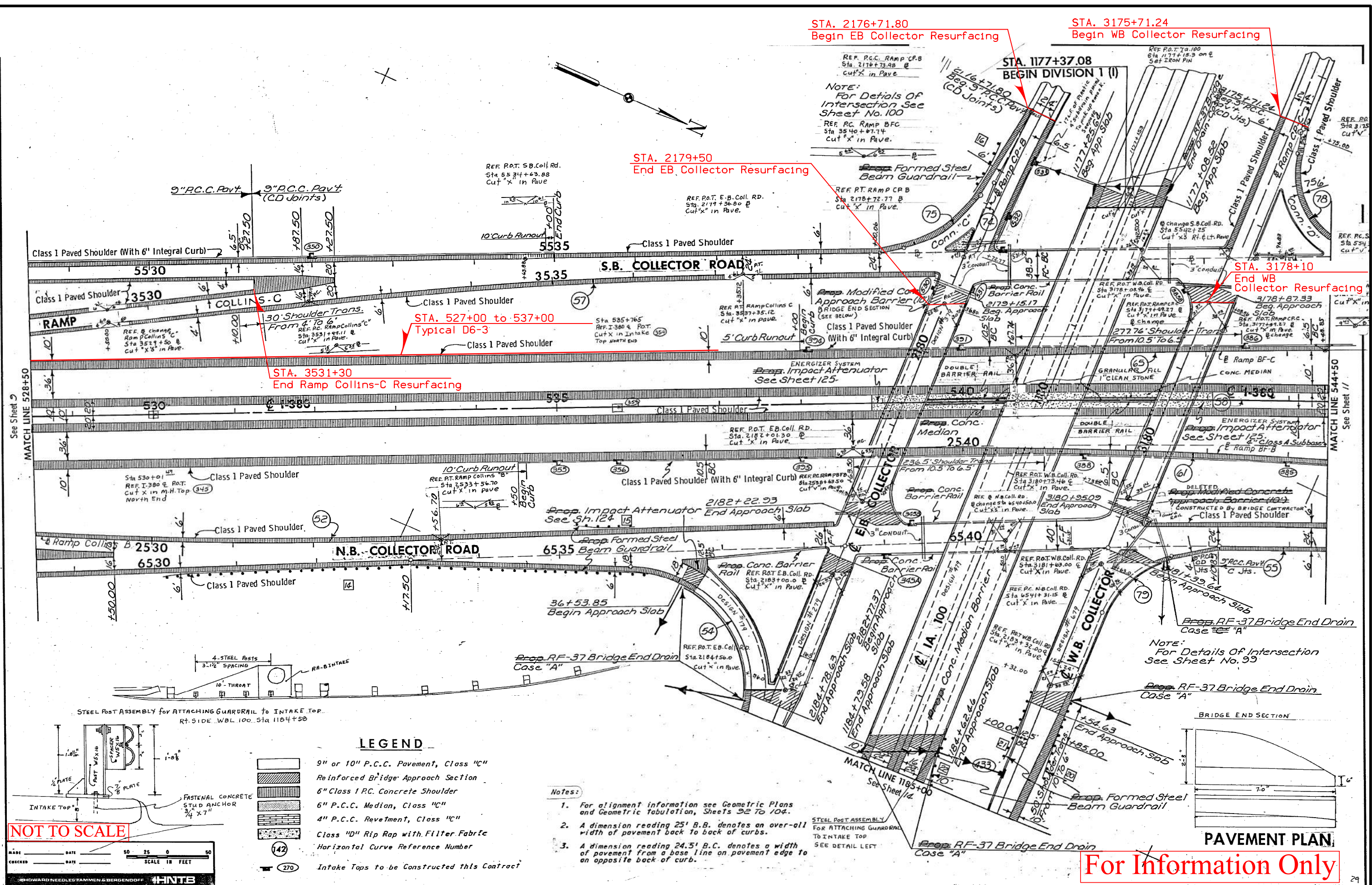
ENGLISH IOWA DOT DESIGN TEAM Flattery\Bell\Luong\Janecek

LINN COUNTY PROJECT NUMBER IMX-380-6(271)16--02-57 SHEET NUMBER D.9

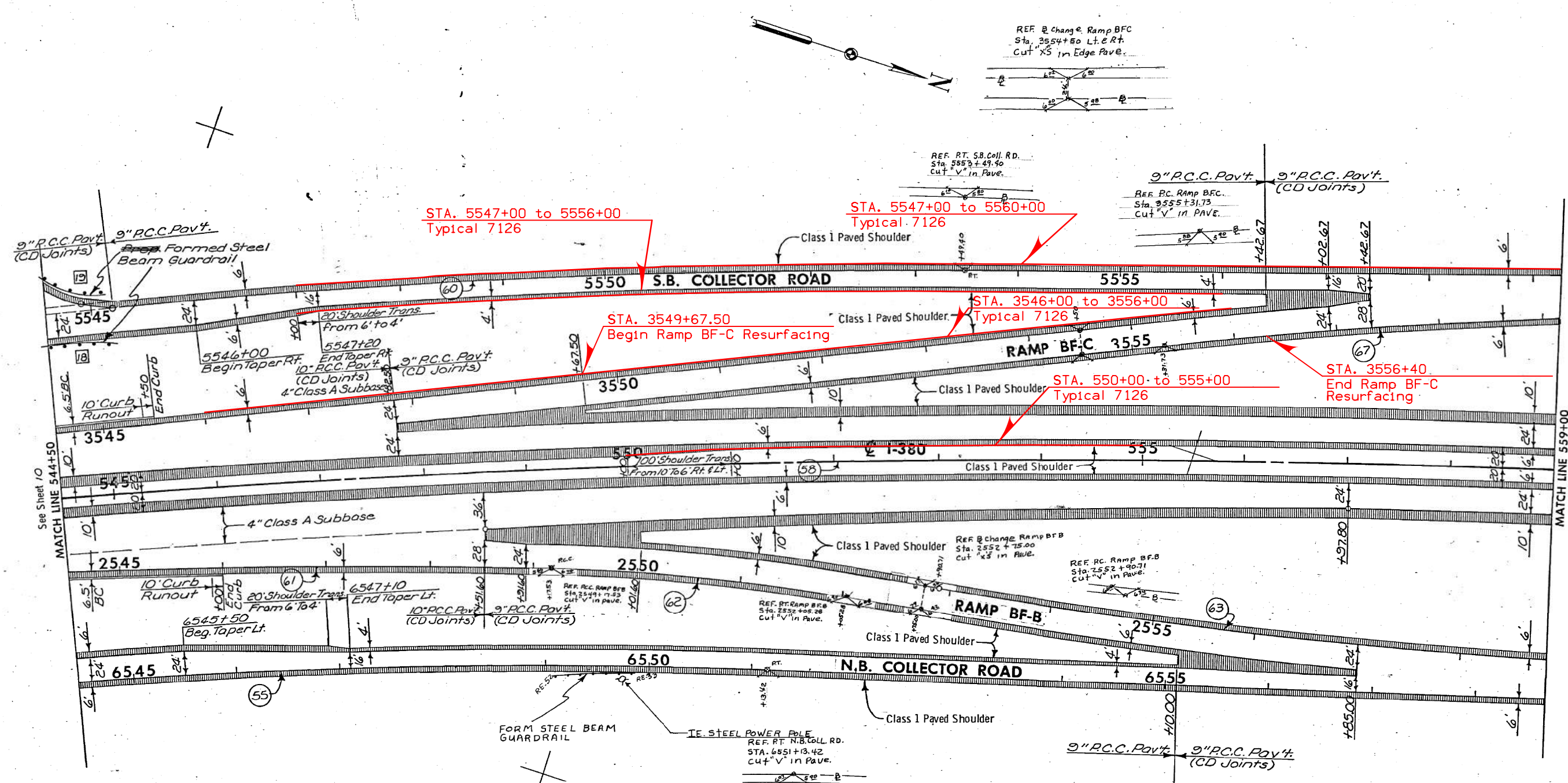












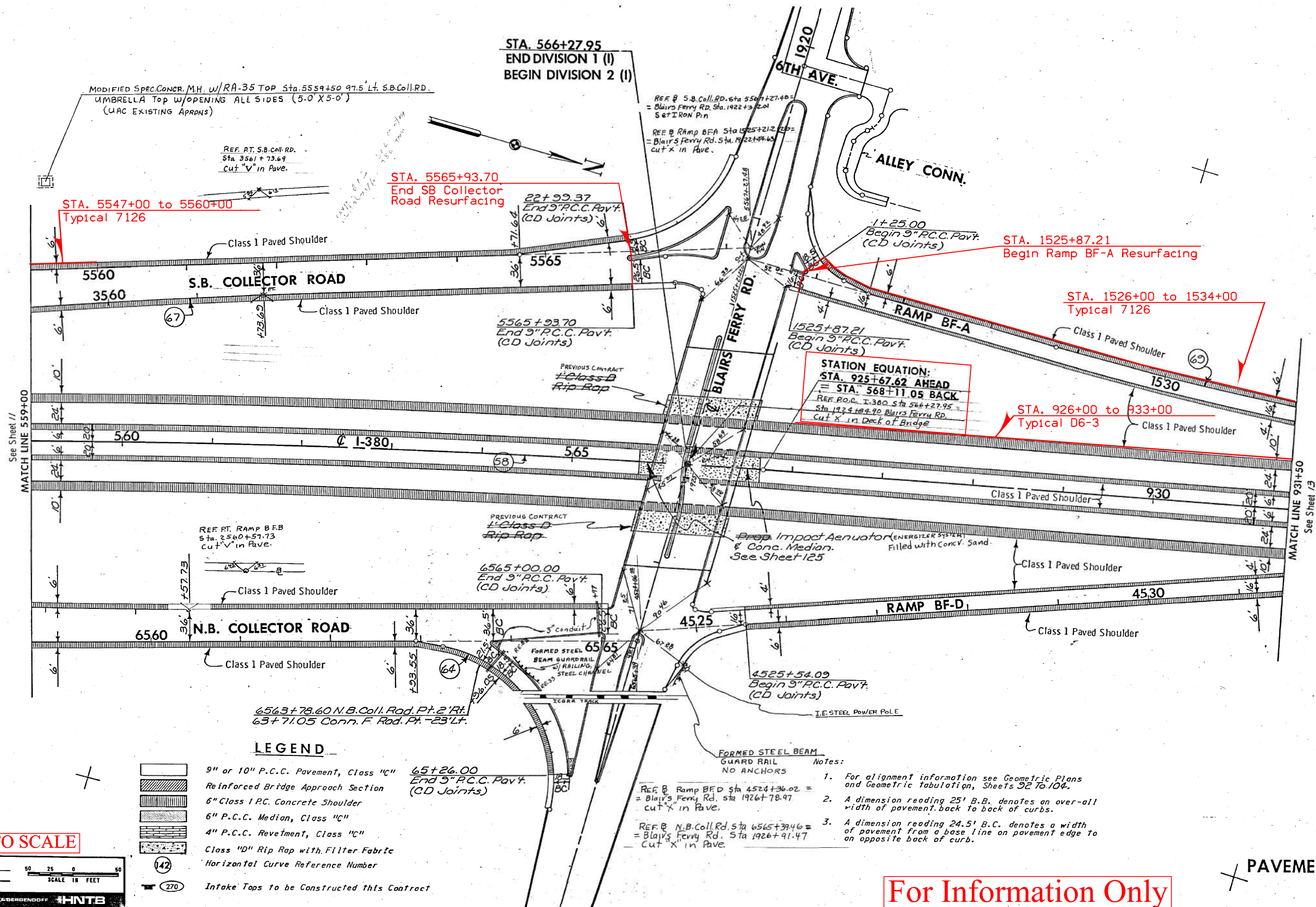
### LEGEND

- 9" or 10" P.C.C. Pavement, Class "C"
- Reinforced Bridge Approach Section
- 6" Class 1 P.C. Concrete Shoulder
- 6" P.C.C. Median, Class "C"
- 4" P.C.C. Reveiment, Class "C"
- Class "D" Rip Rap with Filter Fabric
- Horizontal Curve Reference Number
- Intake Taps to be Constructed this Contract

**For Information Only**

### PAVEMENT PLAN

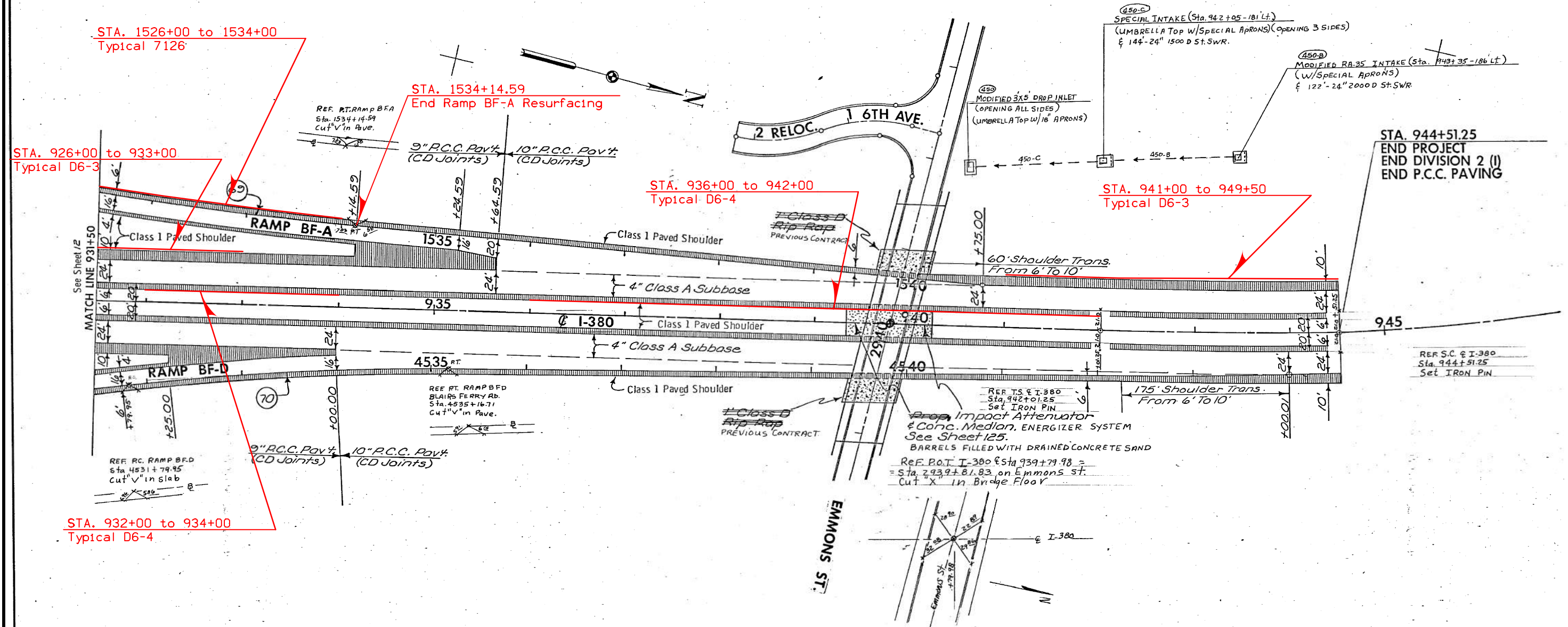




For Information Only

PAVEMENT PLAN





# LEGEND

- 9" or 10" P.C.C. Pavement, Class "C"
- Reinforced Bridge Approach Section
- 6" Class 1 P.C. Concrete Shoulder
- 6" P.C.C. Median, Class "C"
- 4" P.C.C. Revetment, Class "C"
- Class "D" Rip Rap with Filter Fabric
- Horizontal Curve Reference Number
- Intake Tops to be Constructed this Contract

## Notes:

1. For alignment information see Geometric Plans and Geometric Tabulation, Sheets 92 to 104.
2. A dimension reading 25' B.B. denotes an over-all width of pavement back to back of curbs.
3. A dimension reading 24.5' B.C. denotes a width of pavement from a base line on pavement edge to an opposite back of curb.

NOT TO SCALE

For Information Only

PAVEMENT PLAN



Property Owners  
31-City of Hiawatha  
31B-N Ariane Booth est.  
32-Jerry & Lucille A Hejkal  
34-George A Krug

RAPIDS TWP.  
T84N R7W

STA. 941+00 to 949+50  
Typical D6-3

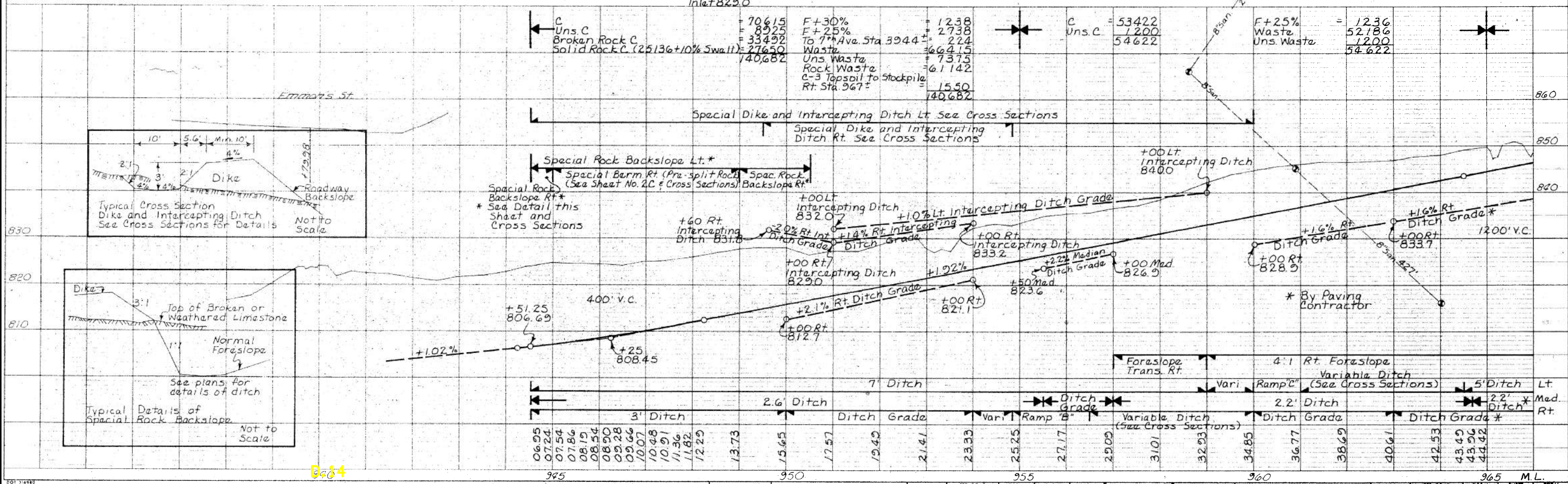
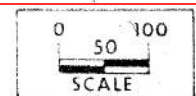
STA. 957+00 to 971+50  
Typical D6-4

STA. 961+00 to 963+00  
Typical D6-1

For Information Only

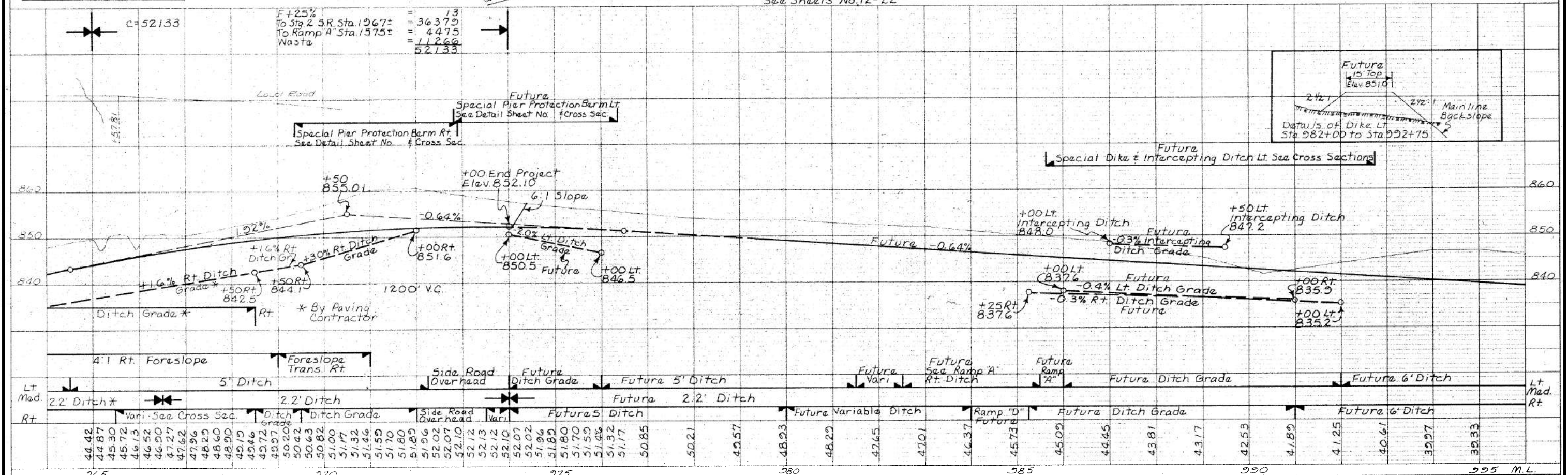
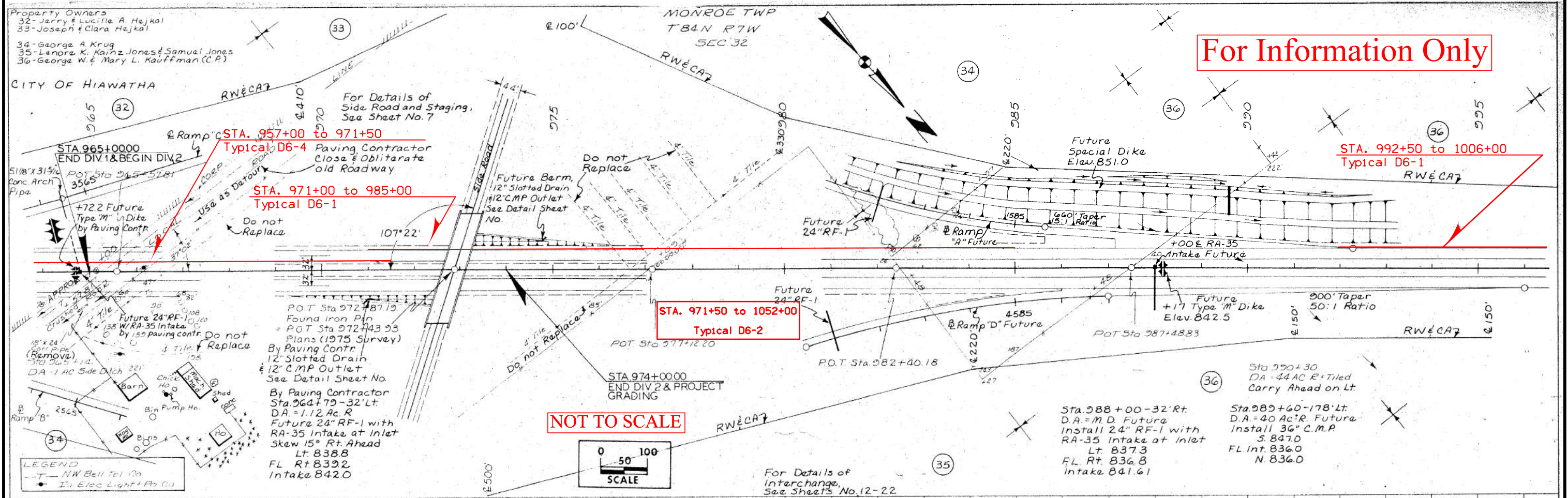
NOT TO SCALE

LEGEND  
-T- N.W. Bell Tel. Co.  
-E- Elec Light & Po. Co.  
-W- Waterloo Cedar Falls & N.R.R.





# For Information Only





Property Owners  
36- Marion L. Wood, et al.  
37- Cedar Rapids Comm. School District  
38- Roland L. & Patty L. Hiemstra (C.R.)  
38B- Roland L. Hiemstra  
39- The Gazette Co.

For Information Only

STA. 992+50 to 1006+00  
Typical D6-1

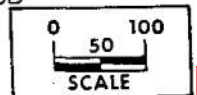
STA. 971+50 to 1052+00  
Typical D6-2

Note:  
Left and Right Lane geometrics  
are to widen median from 64'  
to 88' only. All cross section  
stations and elevations are  
to Mainline survey.

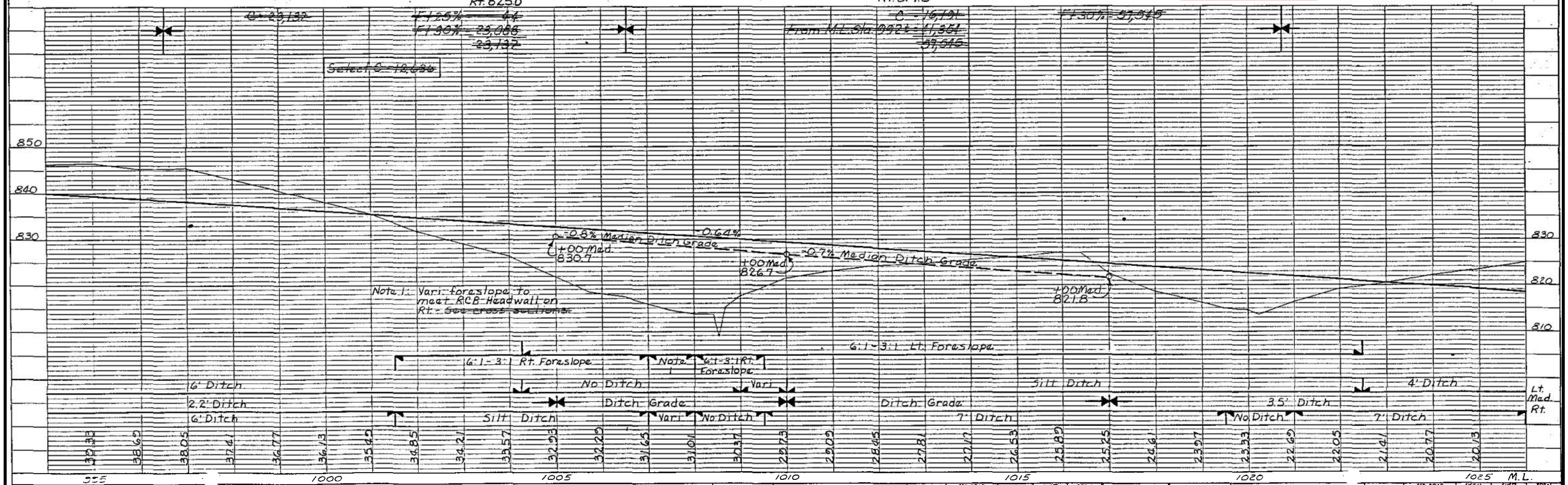
P.I. Sta. 3022+89.40  
(Rt. Lane)  
P.I. Sta. 4023+50.51  
(Lt. Lane)  
C.R.I. Lt. Lane  
C.R.I. Rt. Lane  
Set Iron Pin

Mainline Survey  
Δ=47°46'00" Rt  
Qs=1.125'  
Ls=150.0'  
Ts=1846.82'  
Es=351.16'  
P=0.25'  
K=75.00'  
Xc=150.0'  
Yc=0.98'  
Lt=100.00'  
St=50.00'  
Lc=150.00'

Left & Right Lanes  
Δ=47°46'00" Rt  
Qs=1.3125'  
Ls=175.0'  
Ts=1859.36'  
Es=351.25'  
P=0.33'  
K=87.50'  
Xc=174.99'  
Yc=1.34'  
Lt=116.67'  
St=58.34'  
Lc=175.00'



NOT TO SCALE





Property Owners  
38B - Roland L. Hiemstra  
39 - The Gazette Co.  
41 - Howard Price  
42 - François J. & Grace E. Pruss

Left and Right Lanes  
 $\Delta = 49^\circ 46' 00''$   $\Delta = 47^\circ 08' 30''$   
 $\theta_s = 1.3125'$   $D = 1^\circ 30'$   
 $L_s = 175.0'$   $T = 1666.48'$   
 $T_s = 1859.36'$   $L = 3142.78'$   
 $E_s = 351.25'$   $E = 347.70'$   
 $P = 0.33'$   $R = 3819.72'$   
 $K = 87.50'$   $e = 0.053$   
 $X_c = 174.99'$   $s = 220'$   
 $Y_c = 1.34'$   $x = 45'$   
 $LT = 116.67'$   
 $ST = 58.34'$   
 $LC = 175.00'$

Note:  
Left & Right Lane  
geometrics are to  
widen median from  
64' to 88' only. All  
cross section stations  
and elevations are to  
Mainline survey.

MONROE TWP.  
T84N R7W

For Details of Side Road  
See Sheets No. 14 & 15

For Details of Future Interchange  
See Sheets No. 31

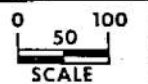
Special Ditch  
See Sheet No. 16 for Details

For Information Only

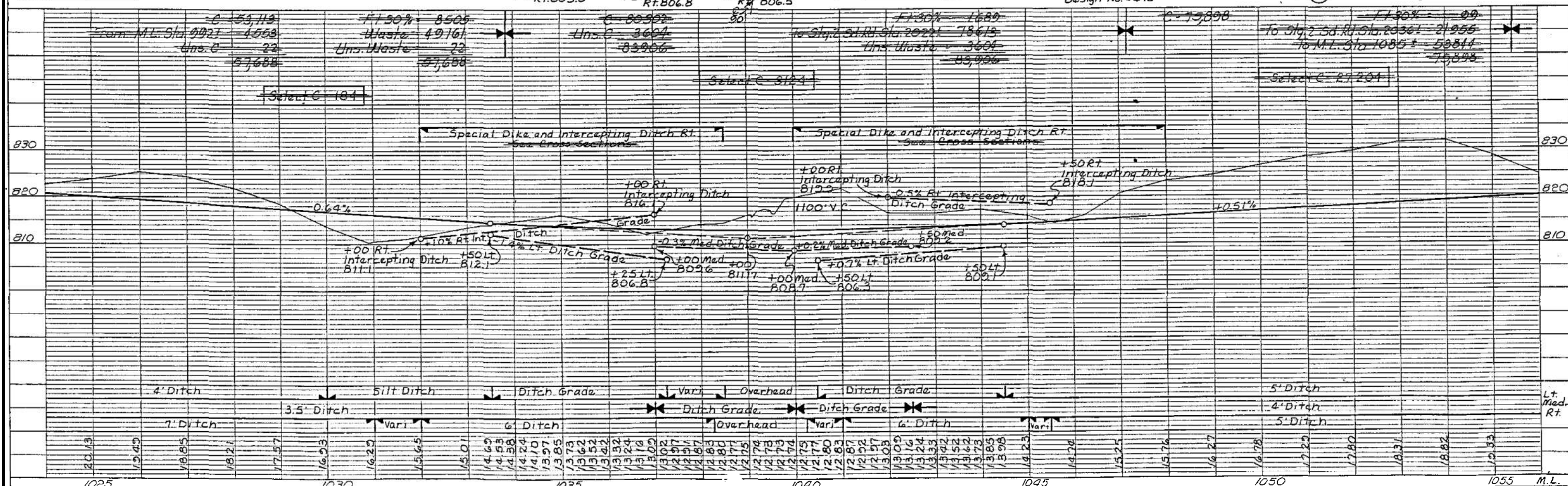
STA. 971+50 to 1052+00  
Typical D6-2

STA. 1039+00 to 1074+00  
Typical D6-1

NOT TO SCALE



LEGEND  
N.W. Bell Tel. Co.

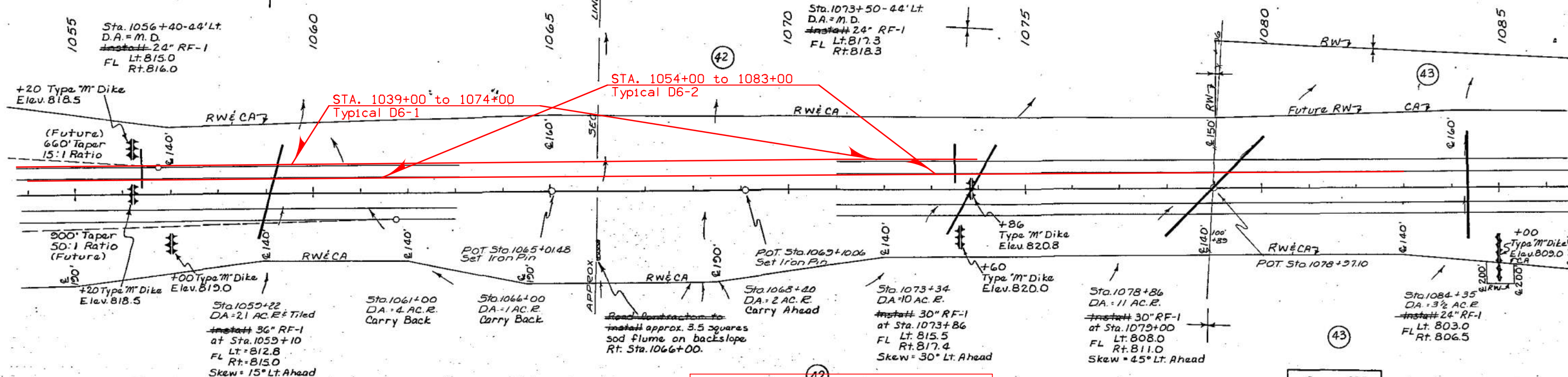




Property Owners  
42- Francis J. & Grace E. Pruss  
43- Margaret Hullinger

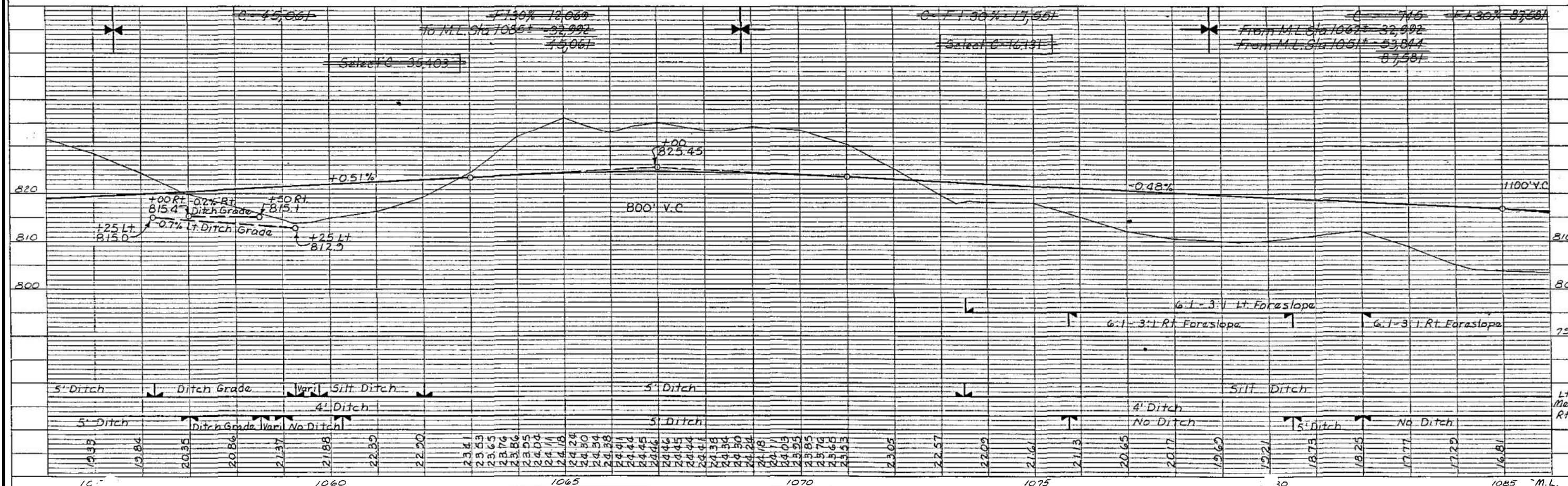
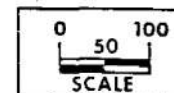
MONROE TWP.  
T84N R7W  
SEC. 30 SEC. 15

For Details of Future  
Interchange, See  
Sheet No. 31



For Information Only

NOT TO SCALE



ENGLISH

IOWA DOT

DESIGN TEAM Flattery\Bell\Luong\Janecek

LINN COUNTY

PROJECT NUMBER

IMX-380-6(271)16--02-57

SHEET NUMBER

D.19

10:09:00 AM 3/5/2012

mjanec

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**For Information Only**

STA. 1111+00 to 1115+00  
Typical D6-2

STA. 1085+00 to 1092+00  
Typical D6-2

STA. 1084+00 to 1093+00  
Typical D6-1

STA. 1099+00 to 1103+00  
Typical D6-1

Type "M" Dike  
Elev. 828.8

type "F" Dike  
46.0  
+08  
Sta. 1114.500  
9.5 Sg  
Sad fl  
St. Sta. 1114

LEGEND  
 ➔ To Elec Light & Po. Co.

NOT TO SCALE

0 50 100  
SCALE

Sta. 1112.64 - 122 R.T. ~~Q~~<sup>R</sup> ~~Inst. 48" RF-1~~  
 D.A. = 10° AC. ~~# Bent 4' X 4' Flume~~  
 = ~~Inst. 30" C.M.P.~~ At Sta. 1111.40  
 S = 833.7 Flume 814.0  
 FL Int = 834.1 FL 825.0  
 Int = 841.9 R.T. 833.0  
 N = 842.5  
 Skew = 55° Lt. Ahead Skew = 5° Rt. Ahead  
 Design No. 4548

Sta. 1113+00-44' Rt.  
D.A. = MD  
~~Install~~ 24" RF-1  
FL Lt. 844.8  
Rt. 843.8

$\leftarrow$  From M.L.  $3\frac{1}{2}$  H.H.F.  $\frac{137,950}{-140,882}$

~~Select C - 17931~~

C	174,123	At 30%	36,164
Unsa. C	1878	To M.L.S. @ 100%	137,959
	176,001	Unsa. Wanda	1878

Note 1- Vari Foreslope to meet  
RCB headwalls Lt and Rt  
~~See cross sections~~

Note 2 - Vari Foreslope to  
meet 4' x 4' Flume on Lt.  
~~See Cross Sections~~

Backslope Bench		
Rt. <del>Side</del> Detail 9104		280

6:1-3:1 Lt. Foreslope

6.1-3.1	Lt. Foreslope
6.1-3.1	Rt. Foreslope

Trans Nota 6:1=3:1 Lt  
2 Foreslope

[illegible][illegible]

1. 姓名	2. 性别	3. 年龄	4. 职业	5. 住址	6. 电话
7. 单位	8. 职务	9. 职称	10. 学历	11. 民族	12. 籍贯
13. 婚姻	14. 子女	15. 父母	16. 兄弟姐妹	17. 其他	18. 备注

50.00	+0.48%
-------	--------

$\frac{1}{2} \times 8 \times 8 = 32$

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

DATE	DESCRIPTION	AMOUNT	CHECK NO.	BANK	INTEREST	TOTAL
12-1-80	12-1-80	100.00				100.00
12-2-80	12-2-80	100.00				100.00
12-3-80	12-3-80	100.00				100.00
12-4-80	12-4-80	100.00				100.00
12-5-80	12-5-80	100.00				100.00
12-6-80	12-6-80	100.00				100.00
12-7-80	12-7-80	100.00				100.00
12-8-80	12-8-80	100.00				100.00
12-9-80	12-9-80	100.00				100.00
12-10-80	12-10-80	100.00				100.00
12-11-80	12-11-80	100.00				100.00
12-12-80	12-12-80	100.00				100.00
12-13-80	12-13-80	100.00				100.00
12-14-80	12-14-80	100.00				100.00
12-15-80	12-15-80	100.00				100.00
12-16-80	12-16-80	100.00				100.00
12-17-80	12-17-80	100.00				100.00
12-18-80	12-18-80	100.00				100.00
12-19-80	12-19-80	100.00				100.00
12-20-80	12-20-80	100.00				100.00
12-21-80	12-21-80	100.00				100.00
12-22-80	12-22-80	100.00				100.00
12-23-80	12-23-80	100.00				100.00
12-24-80	12-24-80	100.00				100.00
12-25-80	12-25-80	100.00				100.00
12-26-80	12-26-80	100.00				100.00
12-27-80	12-27-80	100.00				100.00
12-28-80	12-28-80	100.00				100.00
12-29-80	12-29-80	100.00				100.00
12-30-80	12-30-80	100.00				100.00
12-31-80	12-31-80	100.00				100.00
TOTAL		3650.00				3650.00


	Lt.
	Med

[illegible]

22 22 22 22

4556	4557	4558	4559	4560	4561	4562	4563	4564	4565	4566	4567	4568	4569	4570	4571	4572	4573	4574	4575	4576	4577	4578	4579	4580	4581	4582	4583	4584	4585	4586	4587	4588	4589	4590
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

50.0	
50.2	
50.4	
50.7	

ENGLISH	IOWA DOT	DESIGN TEAM <b>Flattery\Bell\Luong\Janecek</b>
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LINN COUNTY	PROJECT NUMBER	IMX-380-6(271)16--02-57
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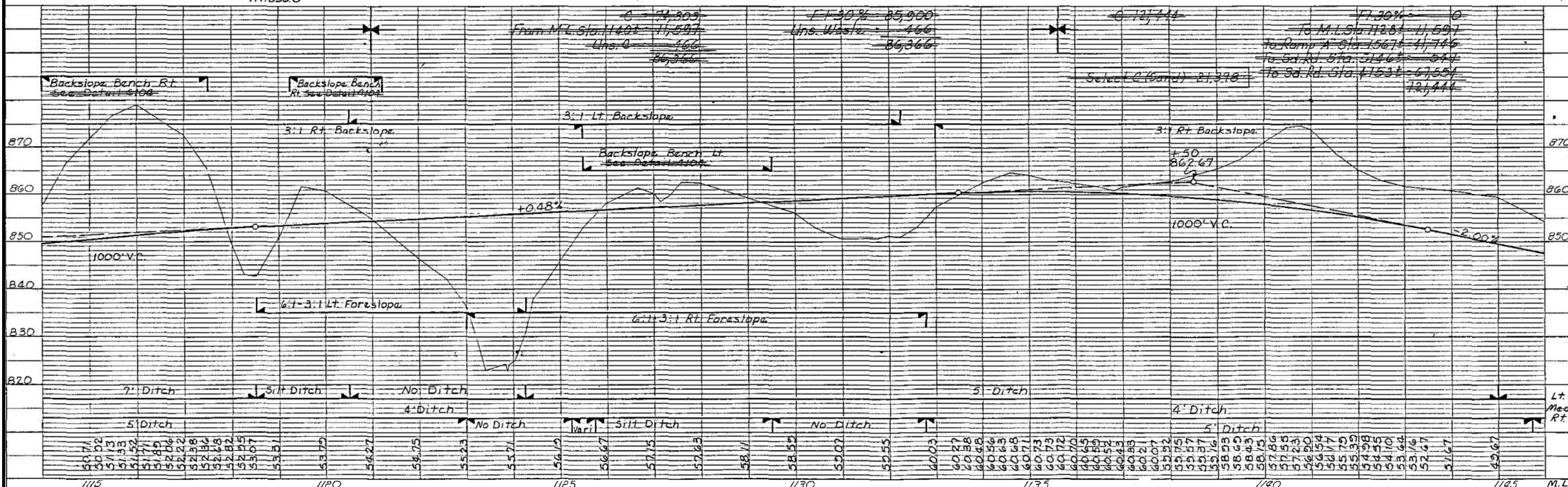
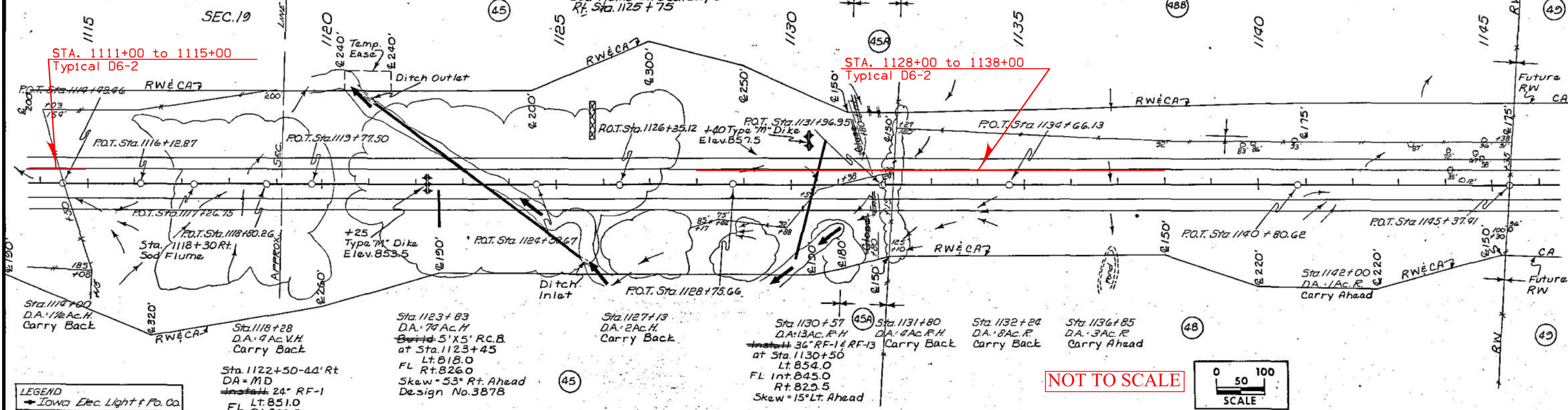
SHEET NUMBER	D.20
--------------	------



Property Owners  
45- Charles Leverage &  
Elizabeth L. Morningstar  
45A- Ia. Elec. Light & Po. Co. et al.  
48- Donald M. & Rosa E. Coraway  
48B- Helen M. Martin  
49- John Rex & Maureen Kay Barker

MONROE TWP.  
T89N R7W  
SEC. 18

For Information Only





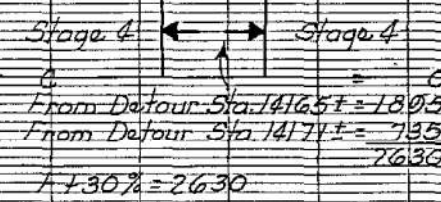
For Details of Side Road E6W,  
See Sheets No. 19 & 20

For Details of Interchange,  
See Sheets No. 32 - ~~40~~ 41

For Details of Staging,  
See Sheet No. 20

For Details of Detail, MONROE TWP.  
See Sheet No. 22 T84N R7W

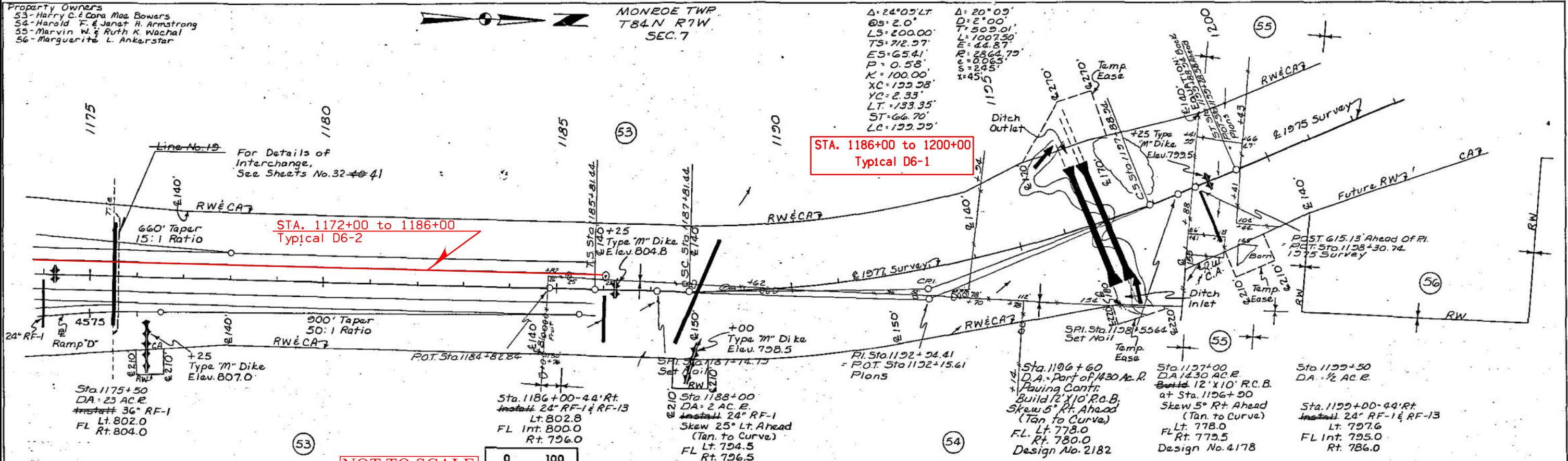
SEC. 18 SEC. 7



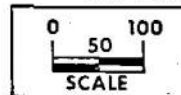


Property Owners  
53-Harry C. & Cora Mae Bowers  
54-Harold F. & Janet H. Armstrong  
55-Marvin W. & Ruth K. Wachal  
56-Marguerite L. Ankerstar

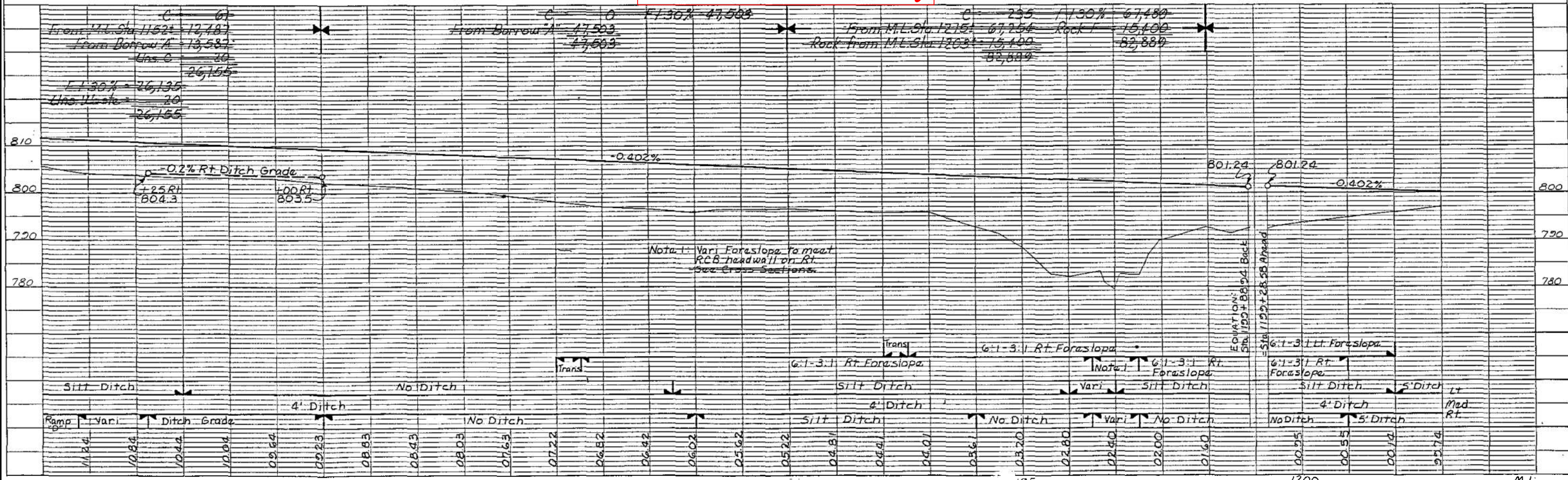
MONROE TWP  
T84N R7W  
SEC. 7



NOT TO SCALE



For Information Only



ENGLISH

IOWA DOT

DESIGN TEAM Flattery\Bell\Luong\Janecek

LINN COUNTY

PROJECT NUMBER

IMX-380-6(271)16--02-57

SHEET NUMBER D.23

10:10:05 AM 3/5/2012

mjanek

W:\Projects\5738003010\Design\271\57380271d02.sht

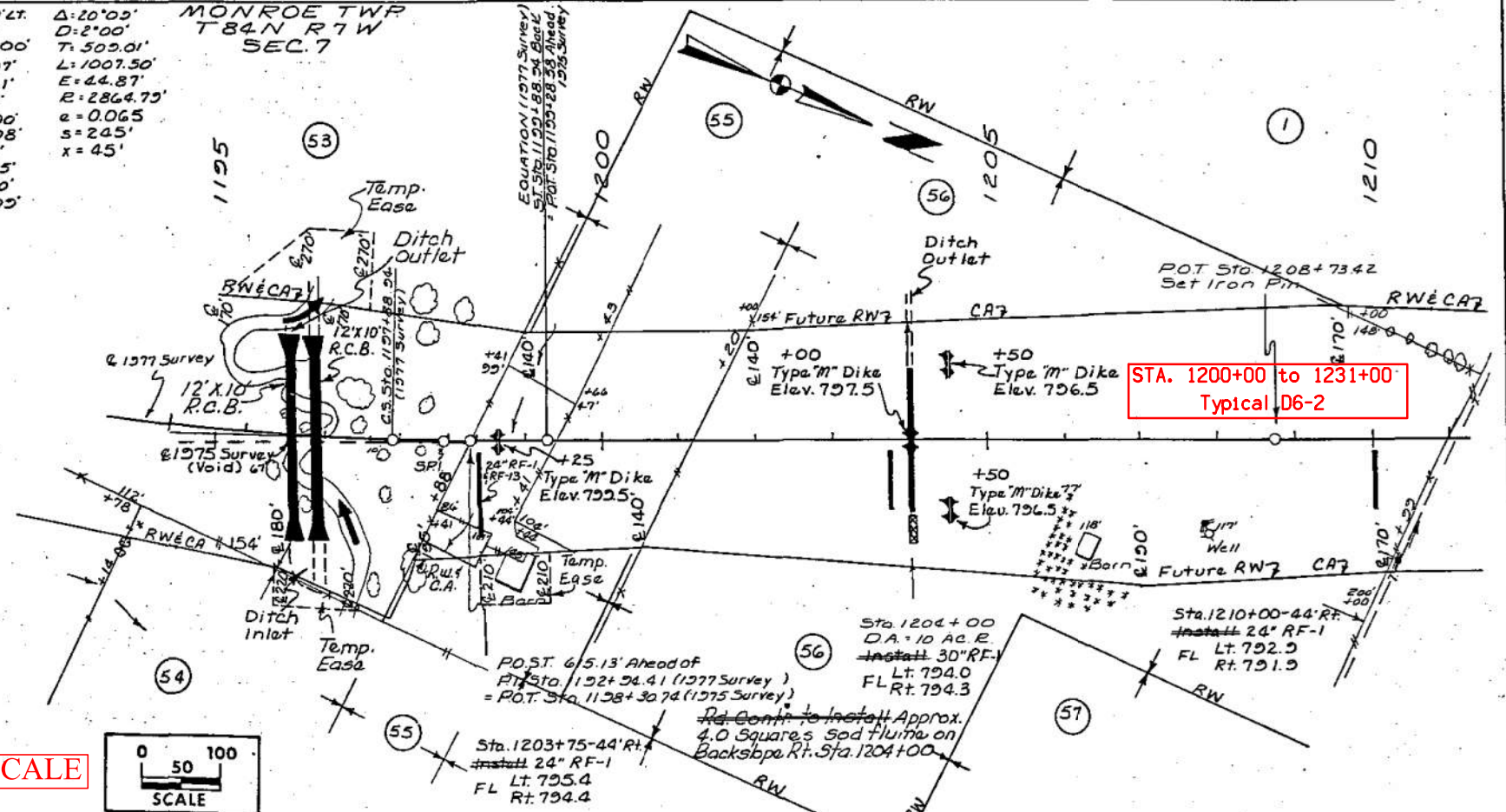


Property Owners  
53-Harry C. & Cora Mae Bowers  
54-Harold F. & Janet H. Armstrong  
55-Marvin W. & Ruth K. Wachal  
56-Marguerite L. Antkstar  
57-Olivia Nelson Radfearn  
1-Arthur B. & Georgia A. Bezdek

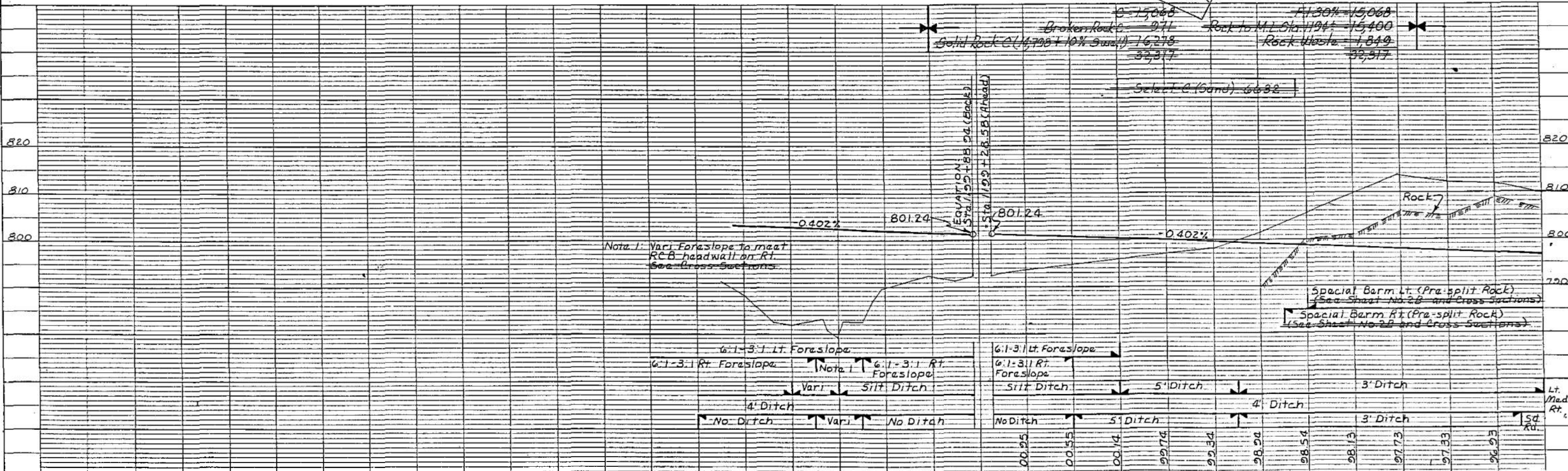
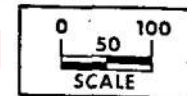
For Information Only

$\Delta=24^{\circ}09'27''$   
 $\Delta=20^{\circ}05'$   
 $\Delta=2.0^{\circ}$   
 $LS=200.00'$   
 $TS=712.37'$   
 $ES=654.1'$   
 $P=0.58'$   
 $K=100.00'$   
 $XC=133.35'$   
 $YC=2.33'$   
 $LT=133.35'$   
 $ST=66.70'$   
 $LC=133.35'$   
 $D=2.00'$   
 $T=505.01'$   
 $L=1007.50'$   
 $E=44.87'$   
 $R=2864.73'$   
 $e=0.065'$   
 $s=245'$   
 $x=45'$

MONROE TWP  
T84N R7W  
SEC. 7



NOT TO SCALE



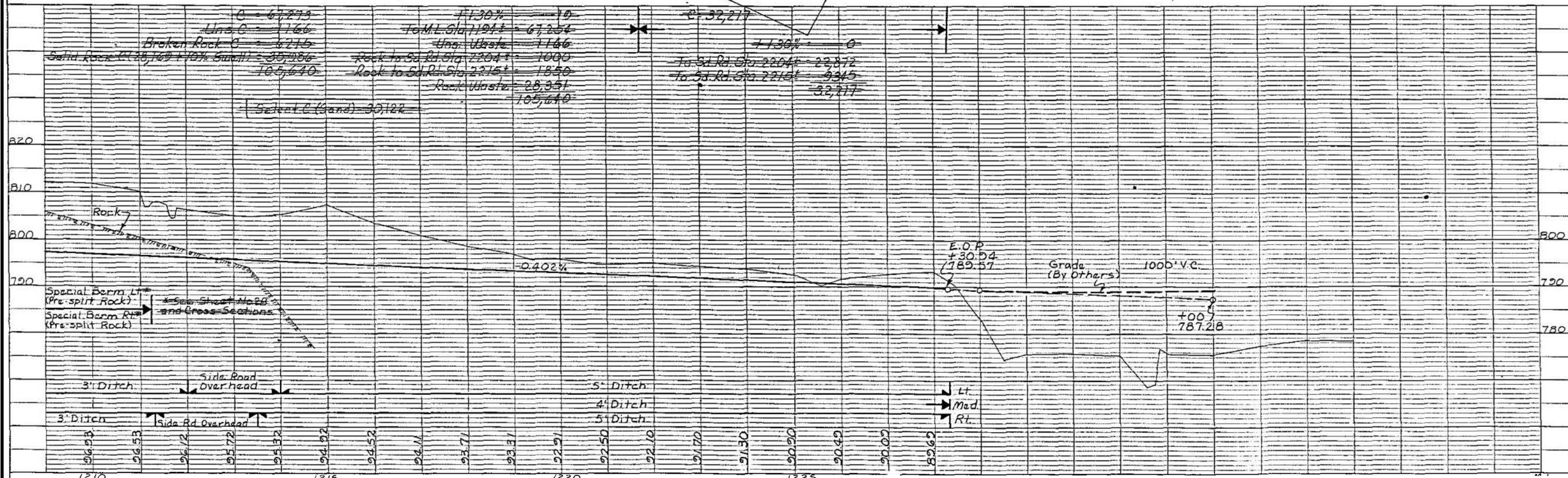
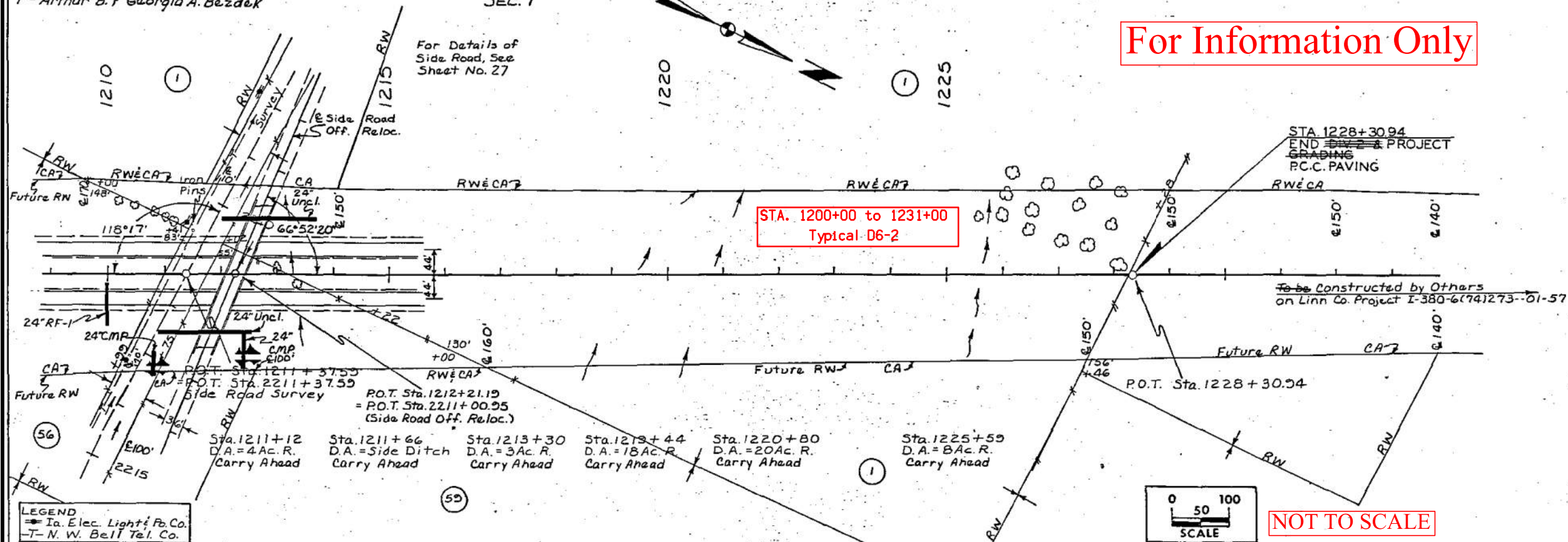


Property Owners:  
56 - Marguerite L. Ankenstar  
59 - Meryl Junior & Virginia R. Bowers (C.P.)  
1 - Arthur B. & Georgia A. Bezdek

MONROE TWP  
T84N R7W  
SEC. 7

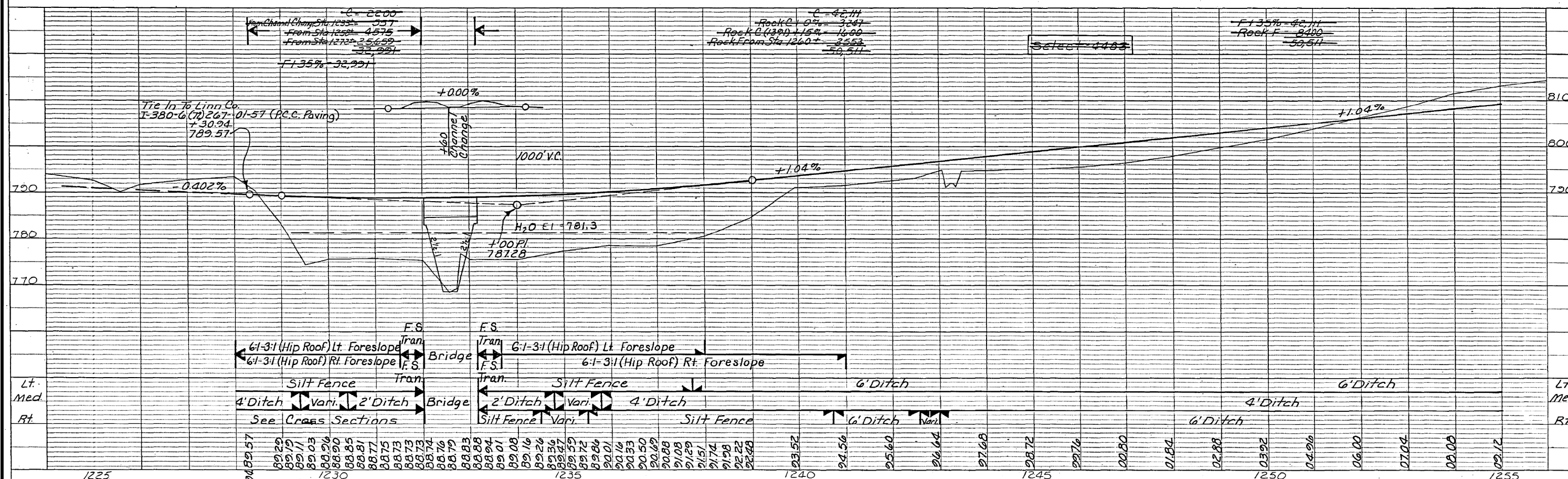
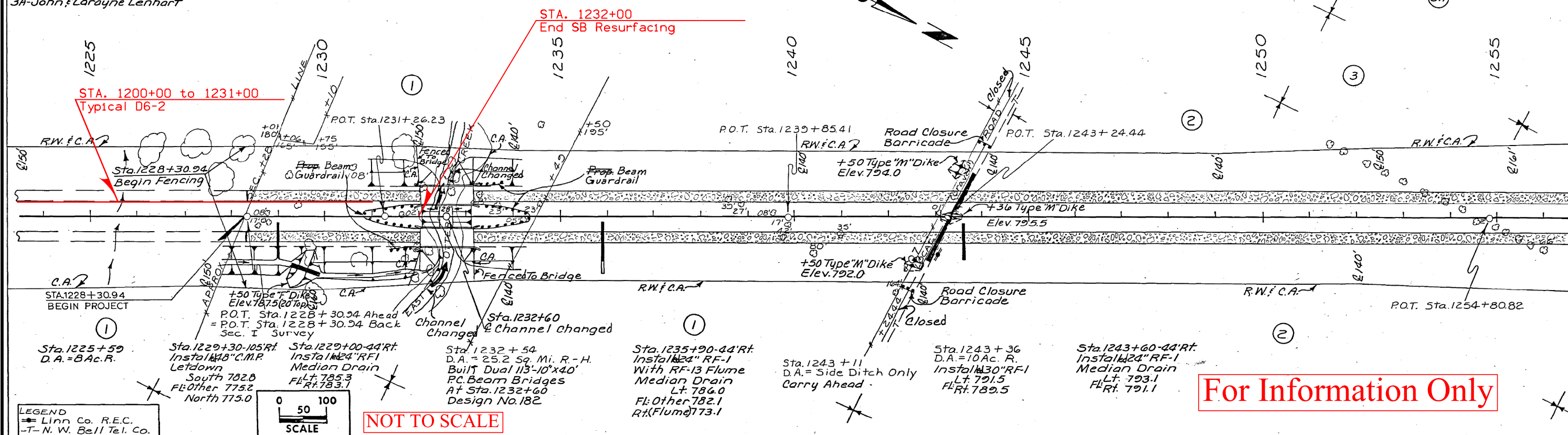
For Details of  
Side Road, See  
Sheet No. 27

For Information Only





SEC. 6
















CROSS SECTION VIEW COLOR LEGEND  
OF TRAFFIC CONTROL AND STAGING SHEETS

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND  
OF TRAFFIC CONTROL AND STAGING SHEETS

	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS











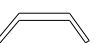
LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White

SHADING

Design Color No.

Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

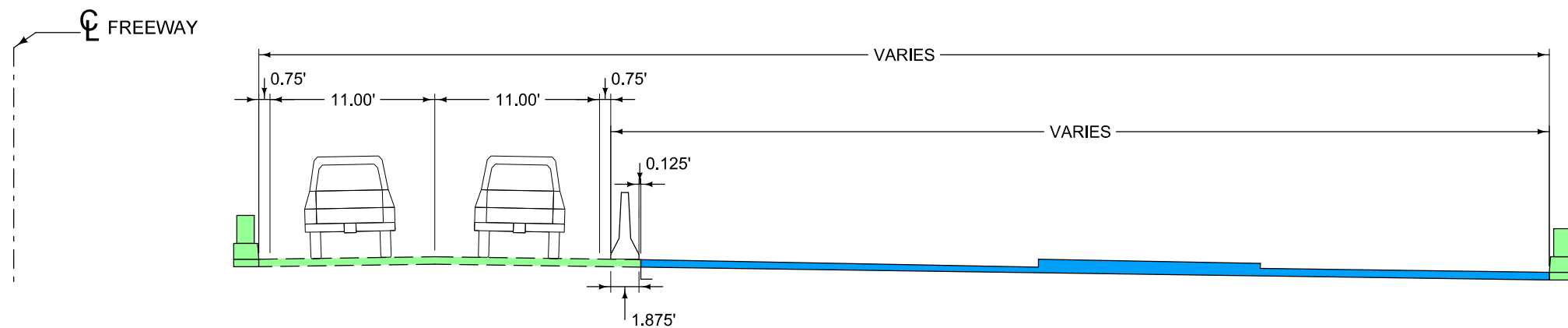
PLAN VIEW PATTERN AND SYMBOL LEGEND  
OF TRAFFIC CONTROL AND STAGING SHEETS

●	Channelizing Device		Crash Cushion
✕	Drum		Traffic Signal
■	Temporary Lane Separator		Flagger
◆	Tubular Marker		Temporary Floodlighting
♦	Channelizer Marker		Traffic Sign
△	Concrete Barrier Marker		Type III Barricade
◁	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure

NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

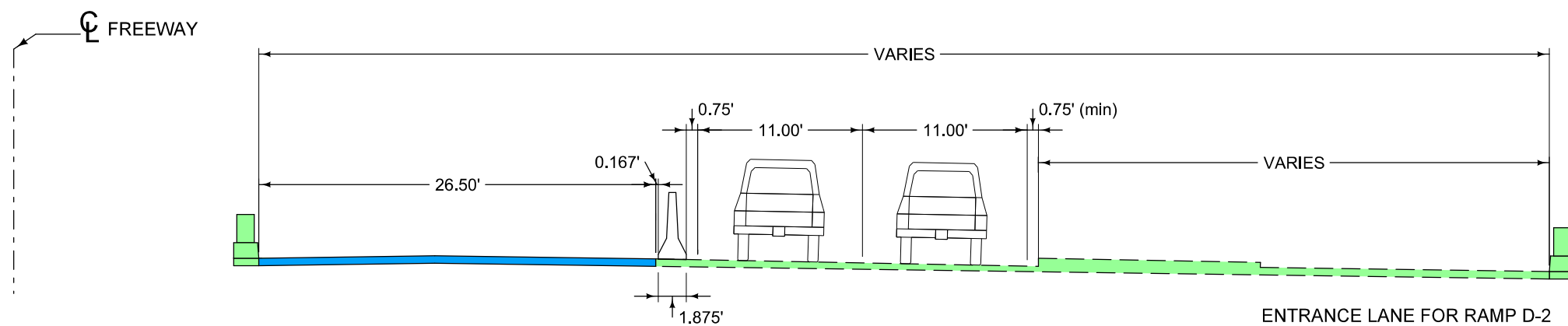
TRAFFIC CONTROL  
AND  
STAGING  
LEGEND AND SYMBOL  
INFORMATION SHEET

(COVERS SHEET SERIES J)



### SB - STAGE 1A

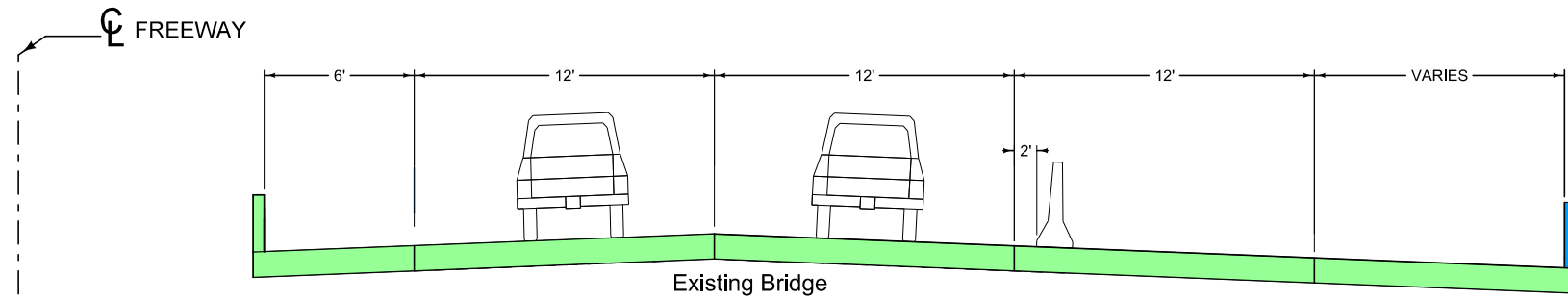
(In direction of traveled way)



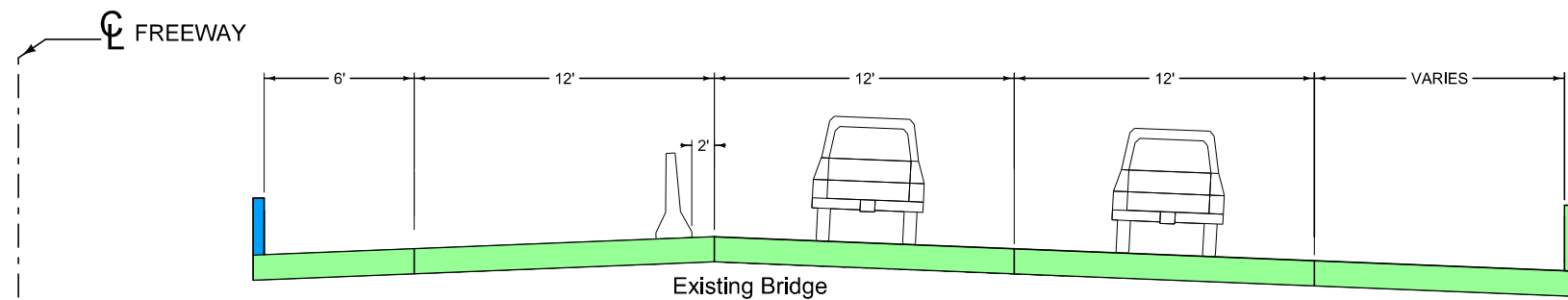
### SB - STAGE 2B

(In direction of traveled way)

## STAGING DETAILS TRAFFIC CONTROL - SOUTHBOUND 8th Avenue Bridge Joint Repair



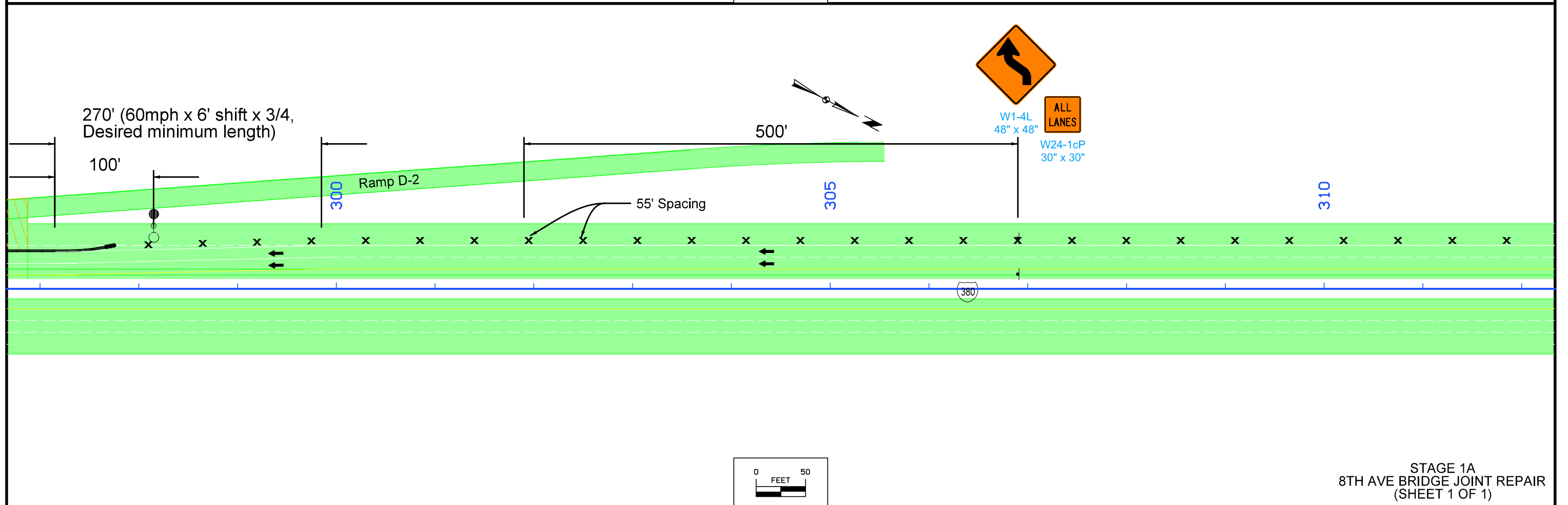
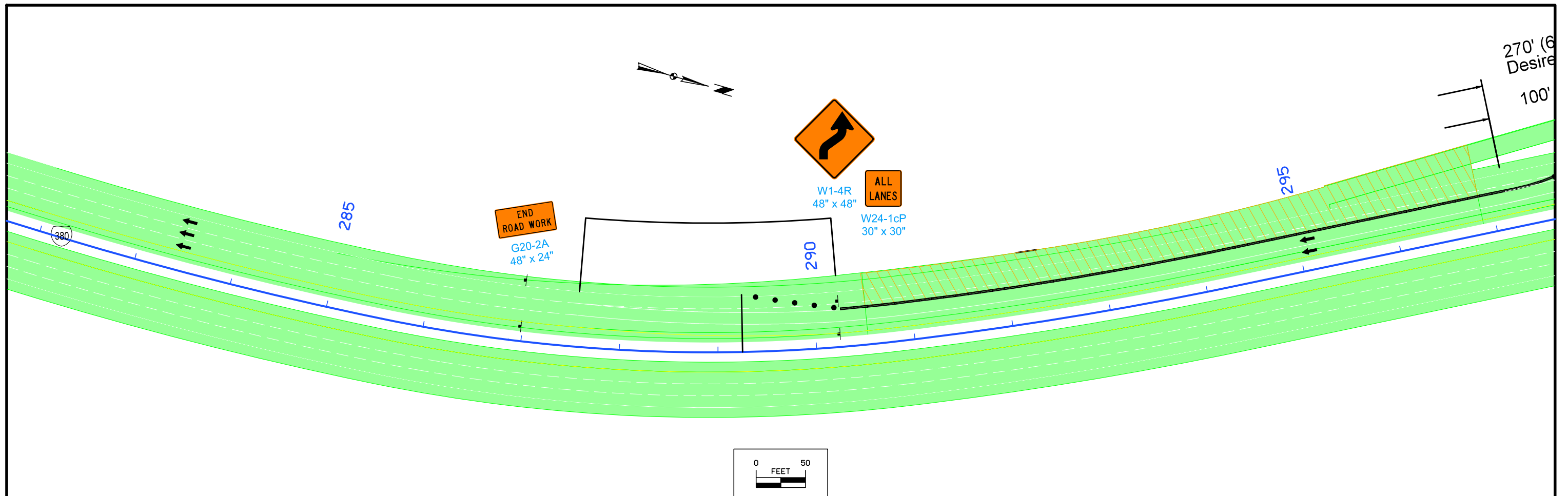
SB - STAGE 2A, 2B, 3A, & 3B  
(In direction of traveled way)



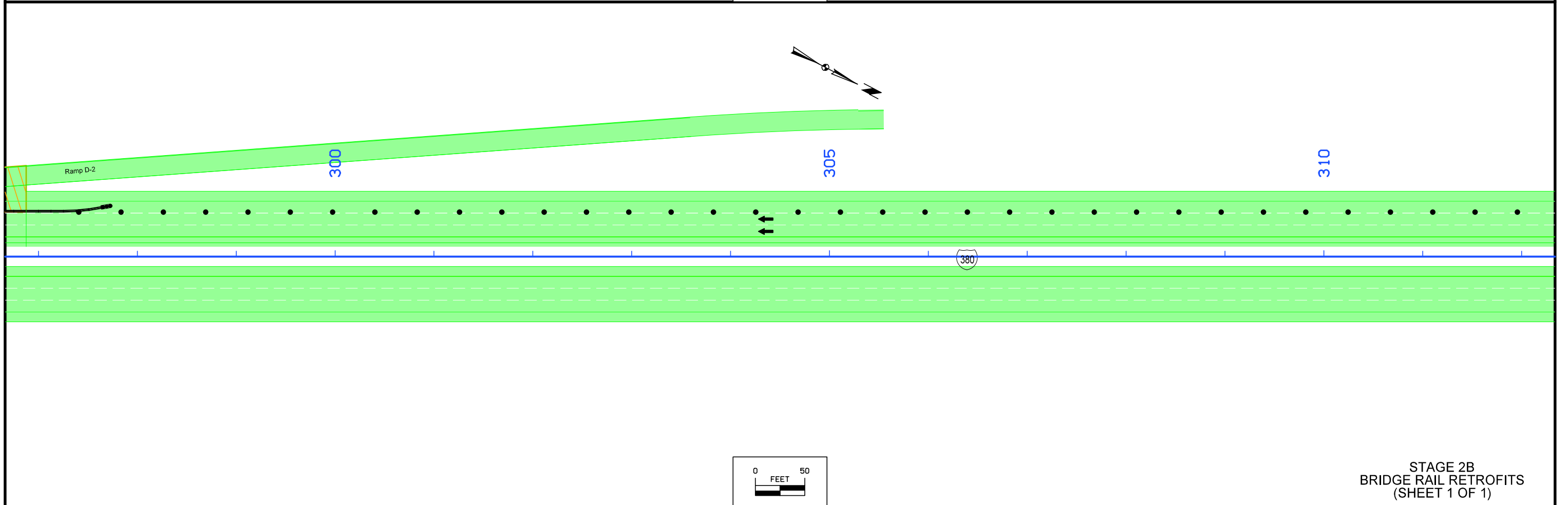
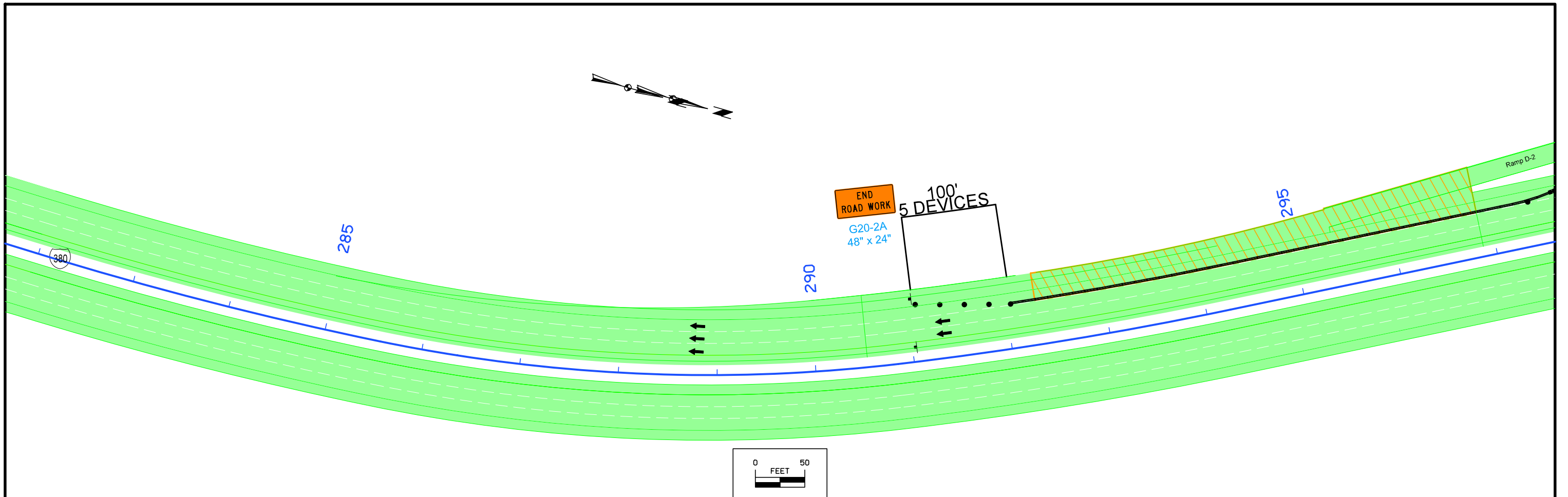
SB - STAGE 2C & 3C  
(In direction of traveled way)

## STAGING DETAILS TRAFFIC CONTROL - SOUTHBOUND Bridge Rail Retrofits

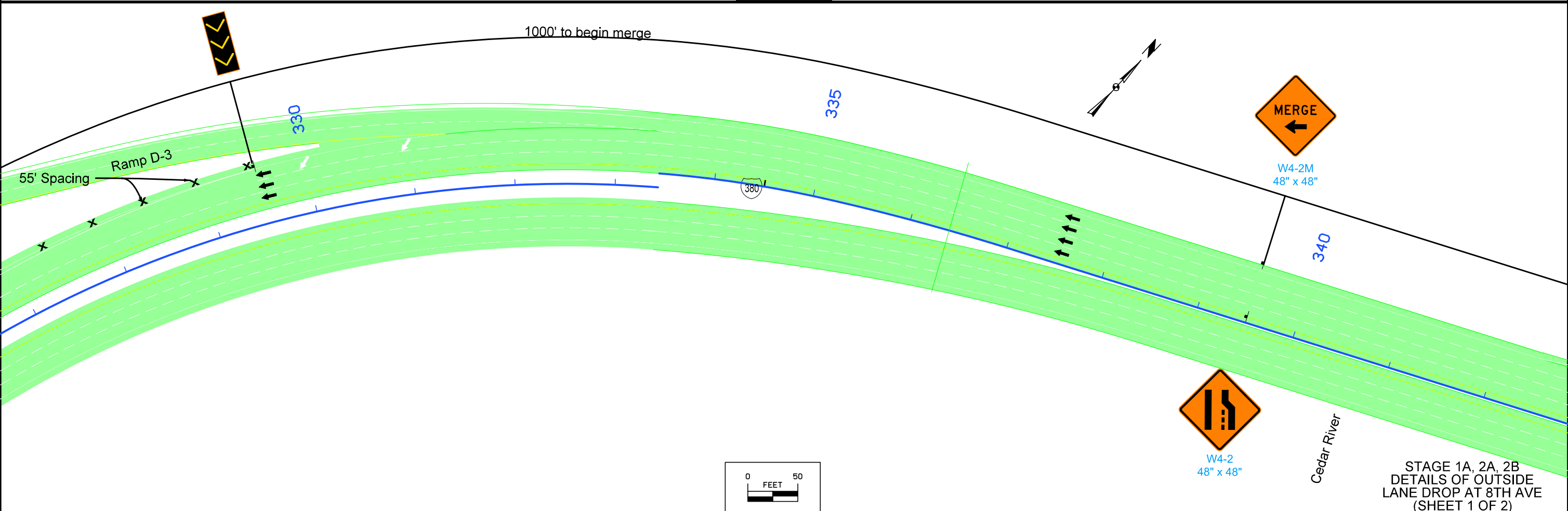
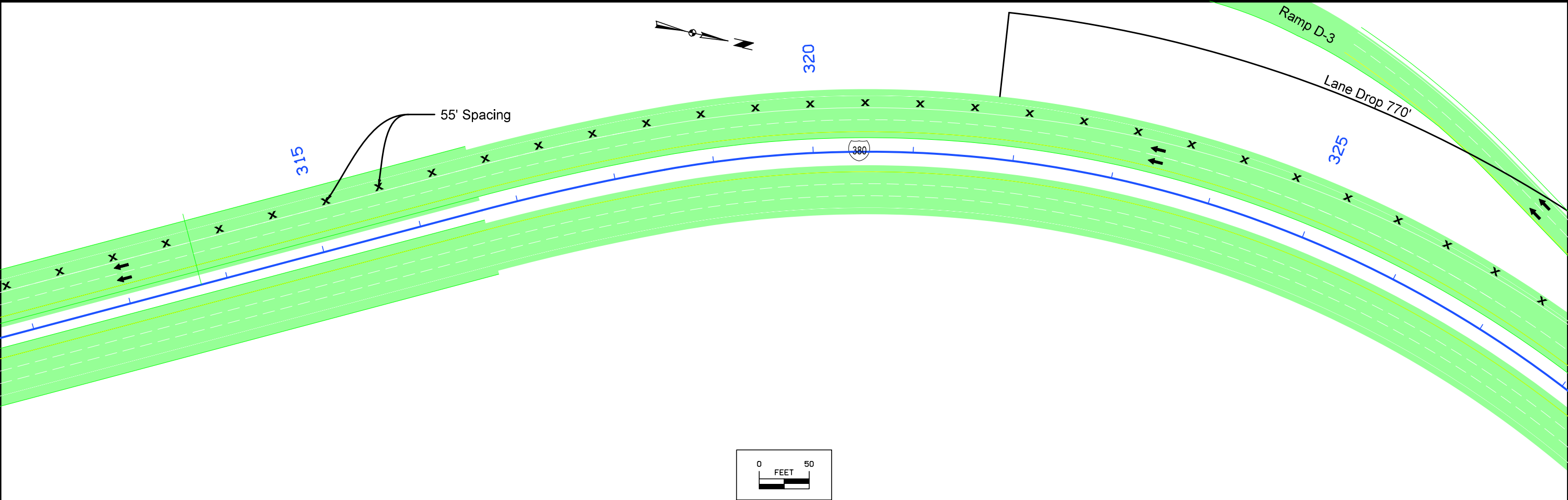




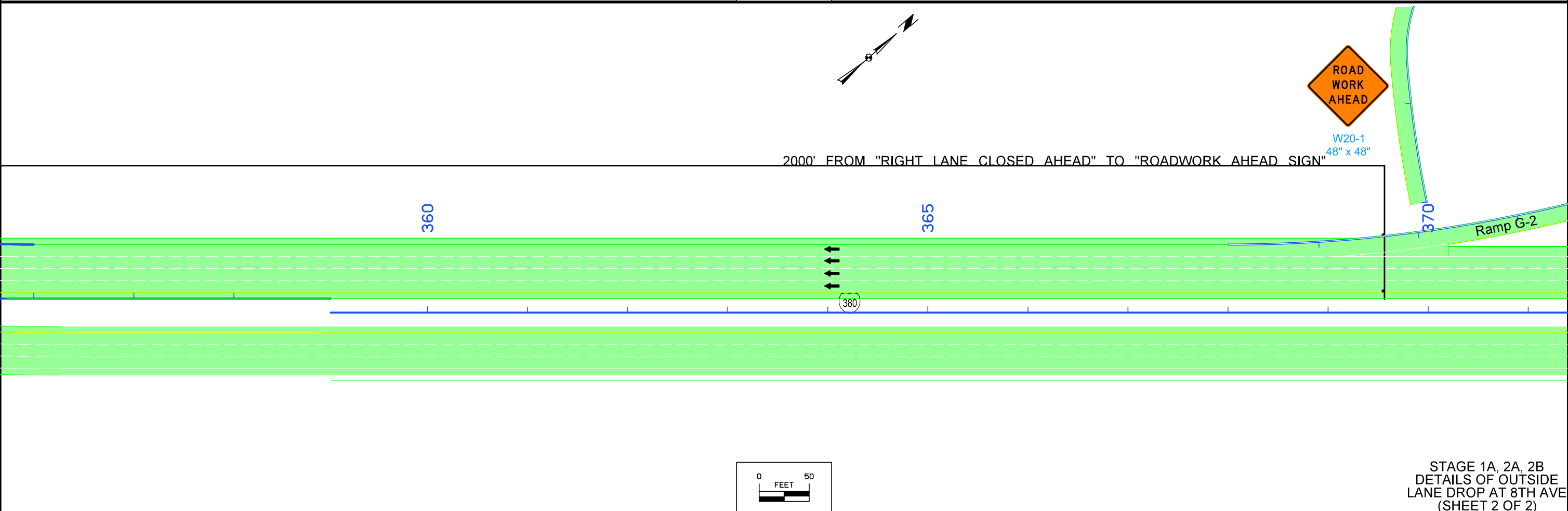
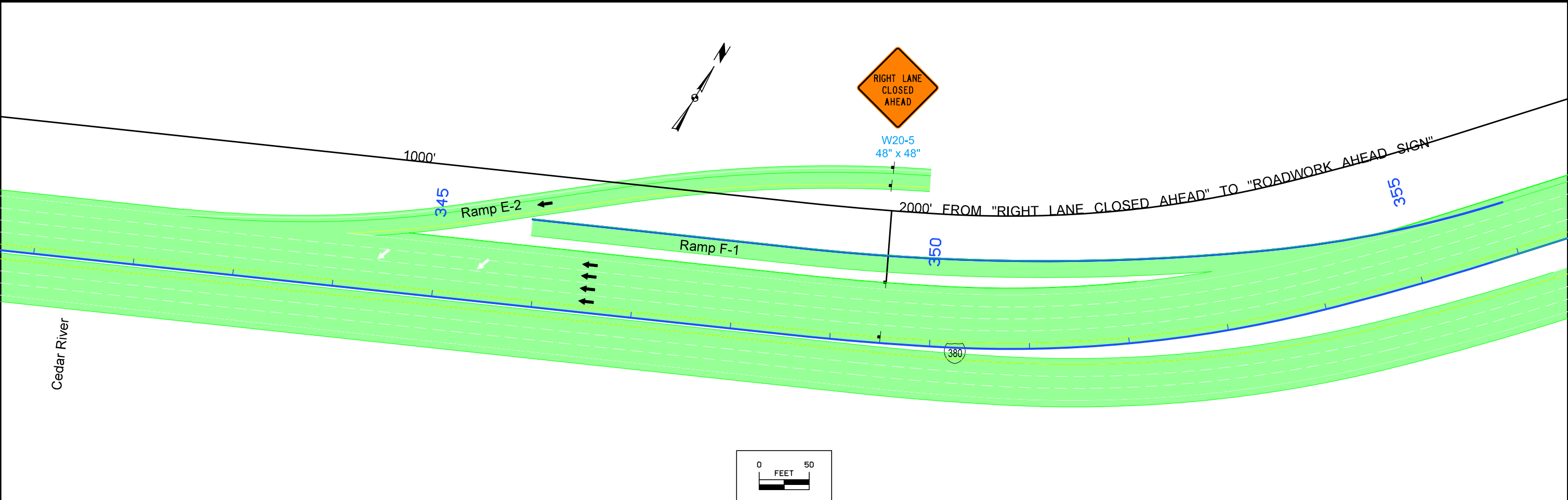




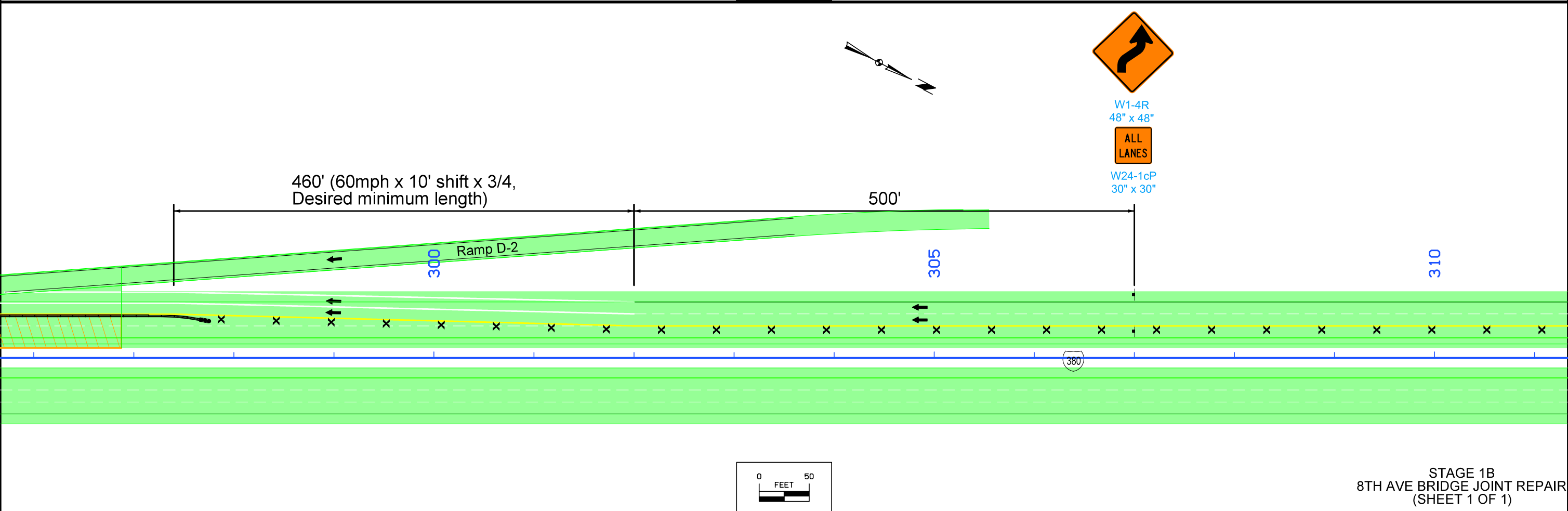
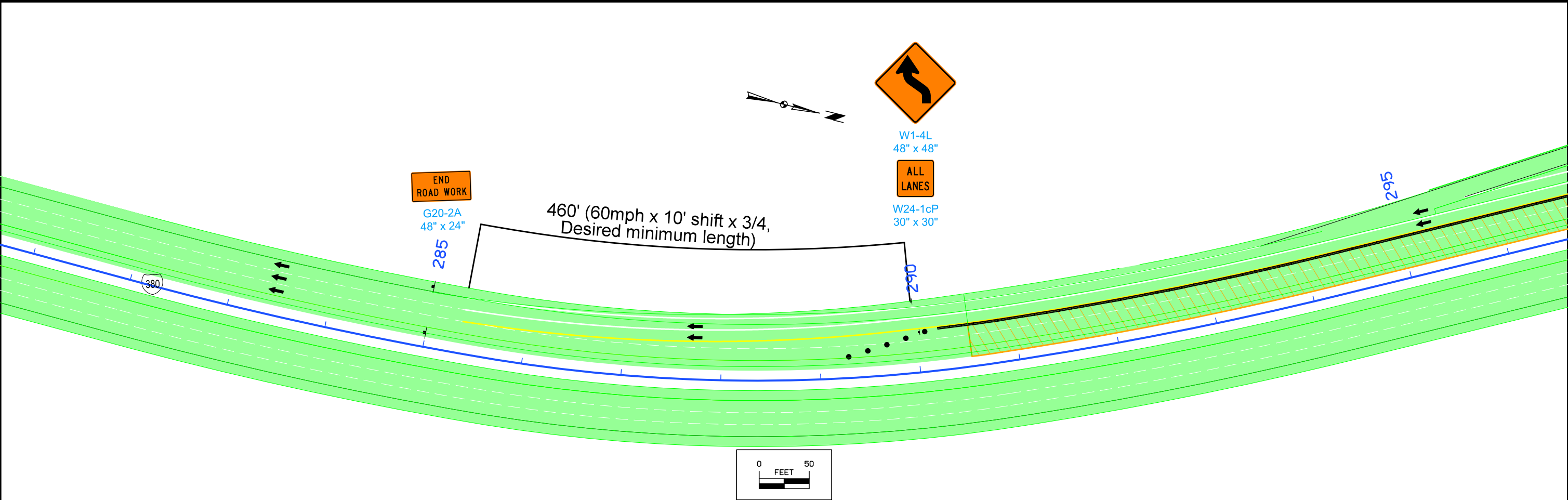
STAGE 2B  
BRIDGE RAIL RETROFITS  
(SHEET 1 OF 1)

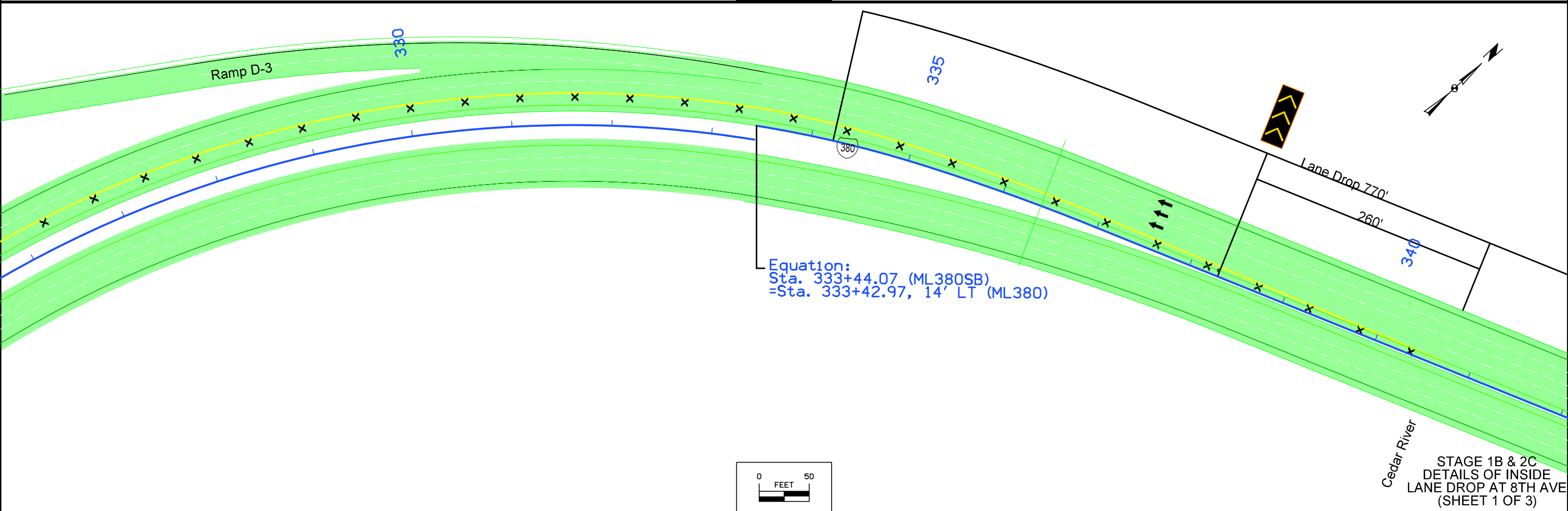
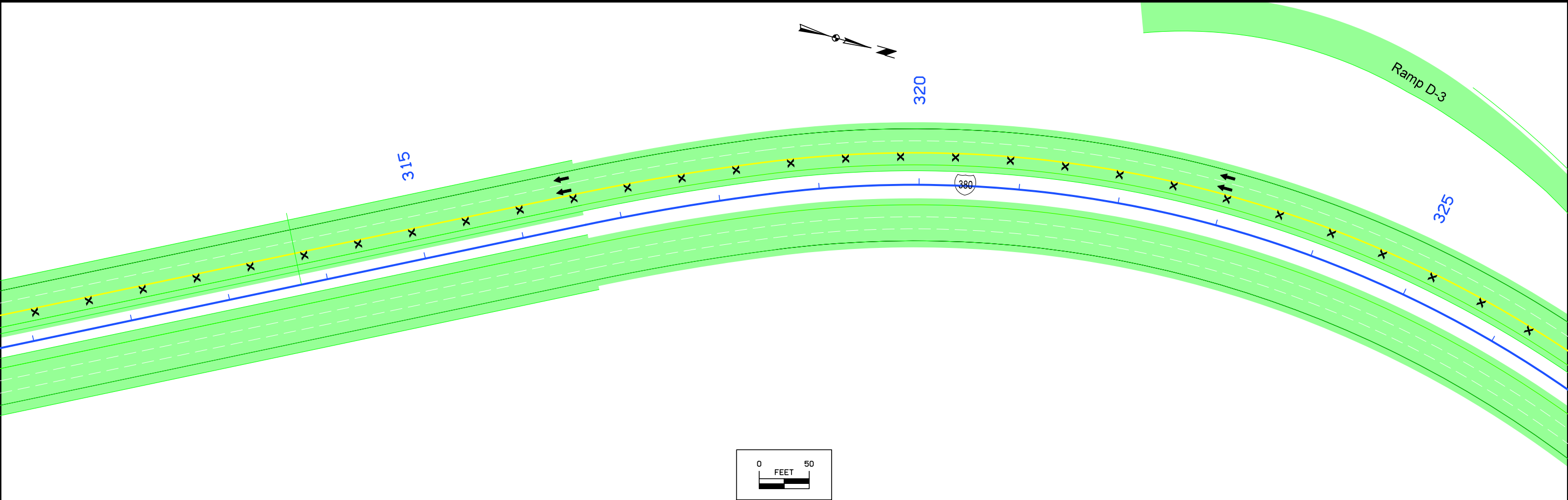




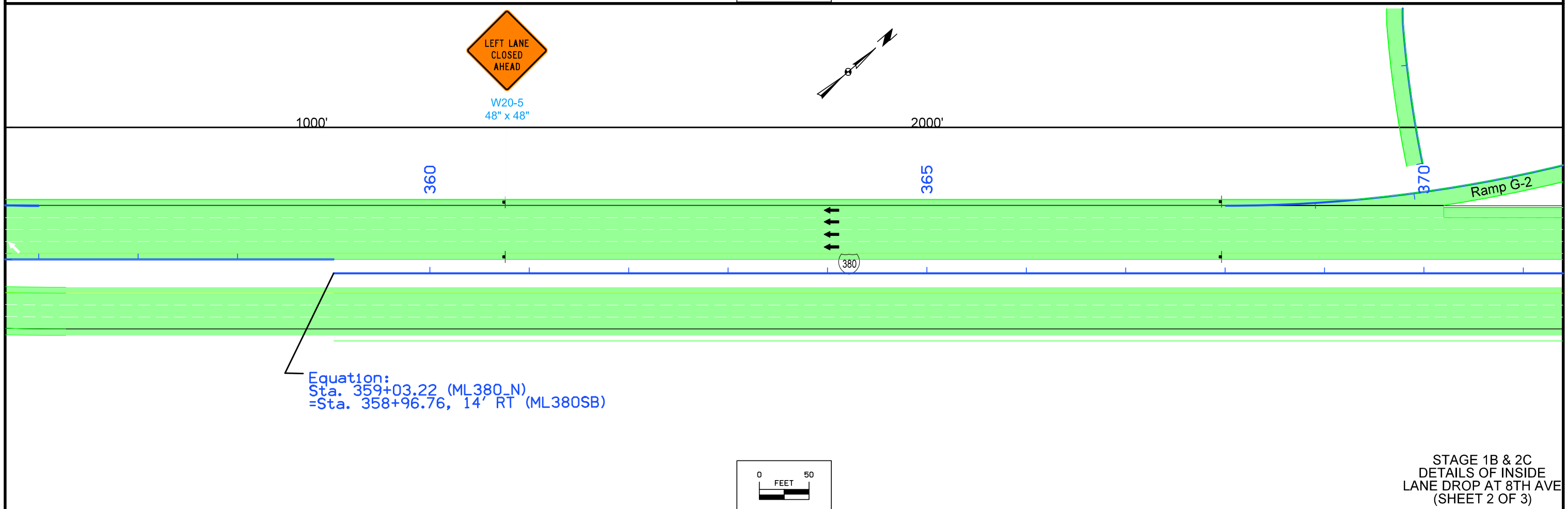
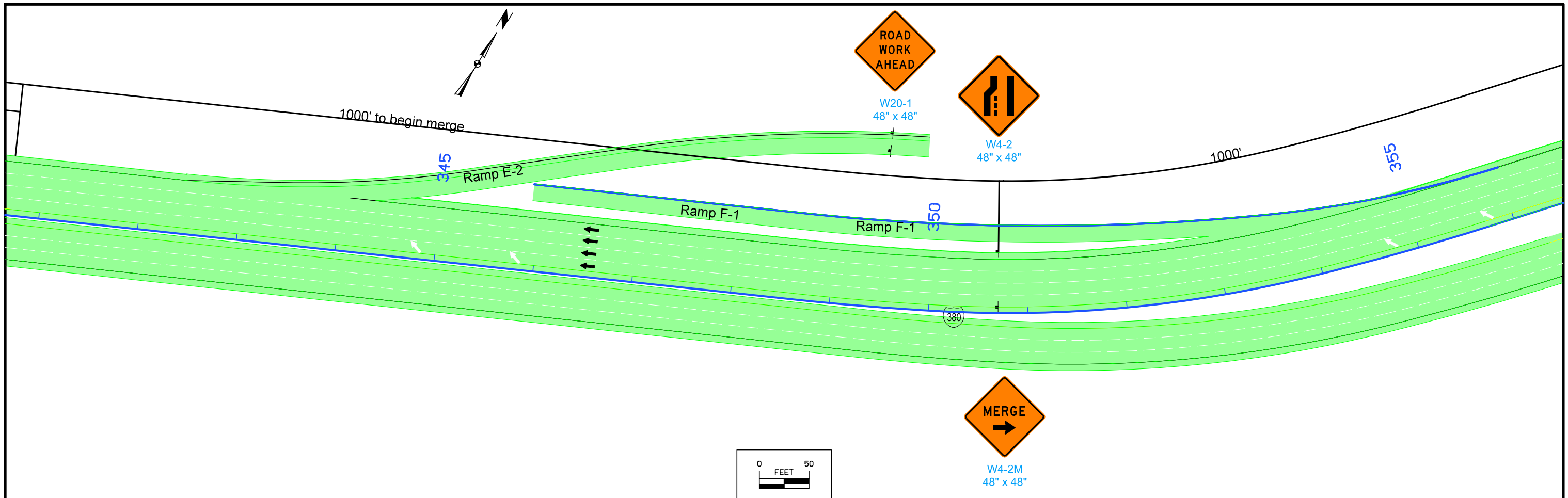


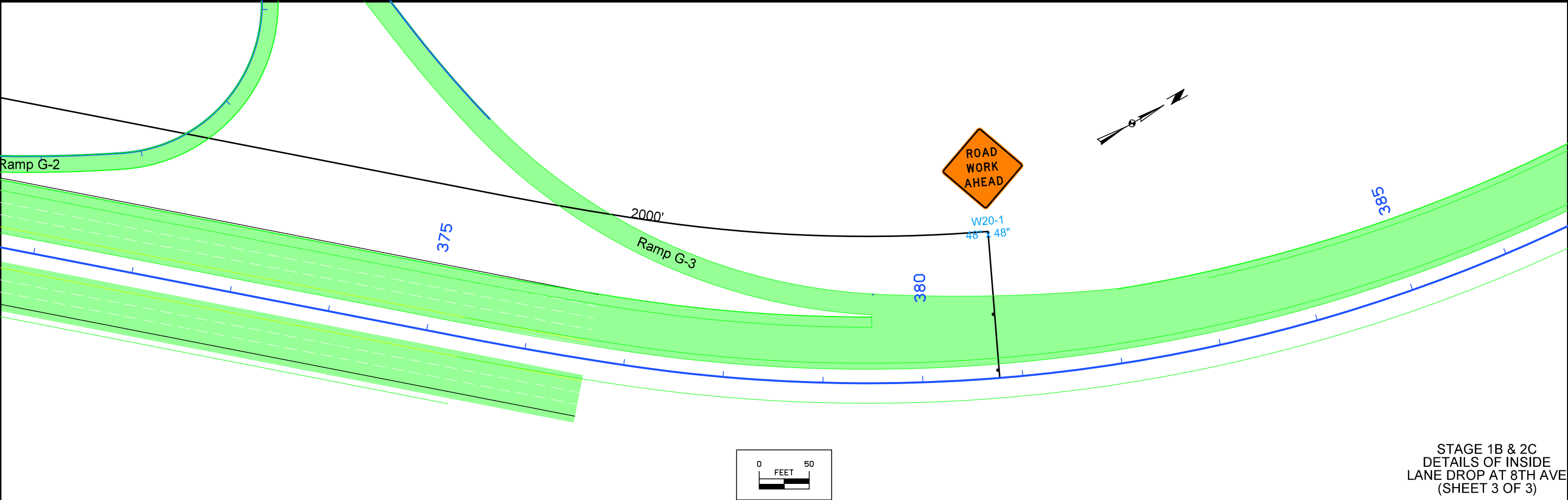
STAGE 1A, 2A, 2B  
DETAILS OF OUTSIDE  
LANE DROP AT 8TH AVE  
(SHEET 2 OF 2)





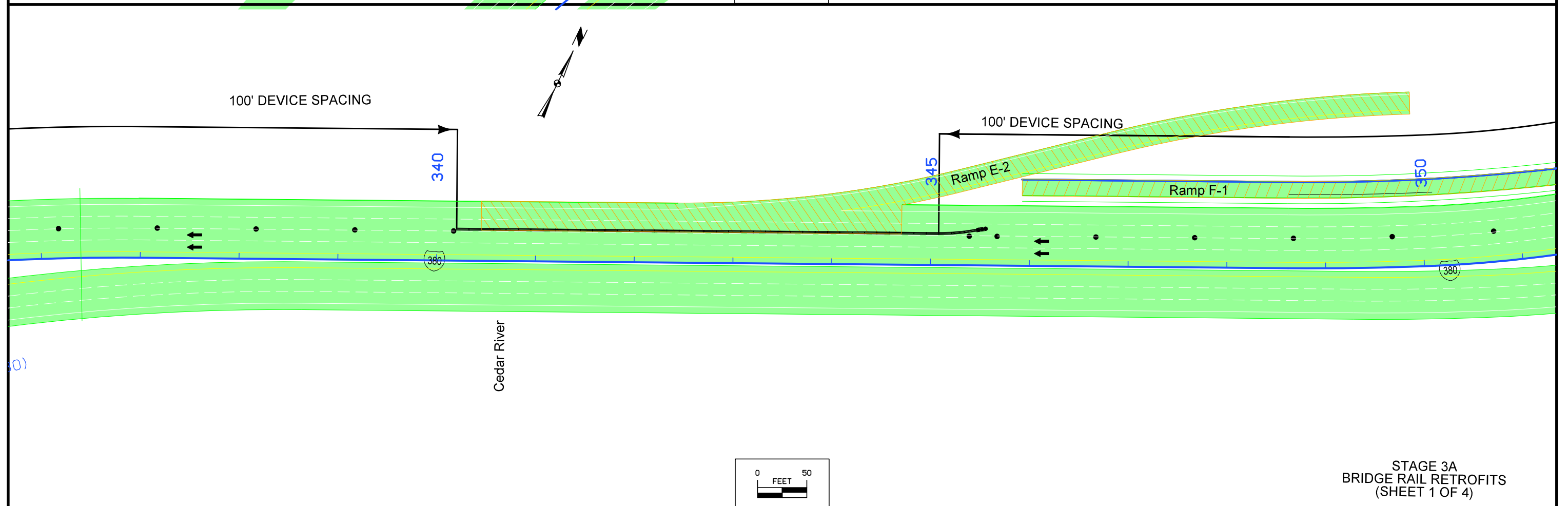
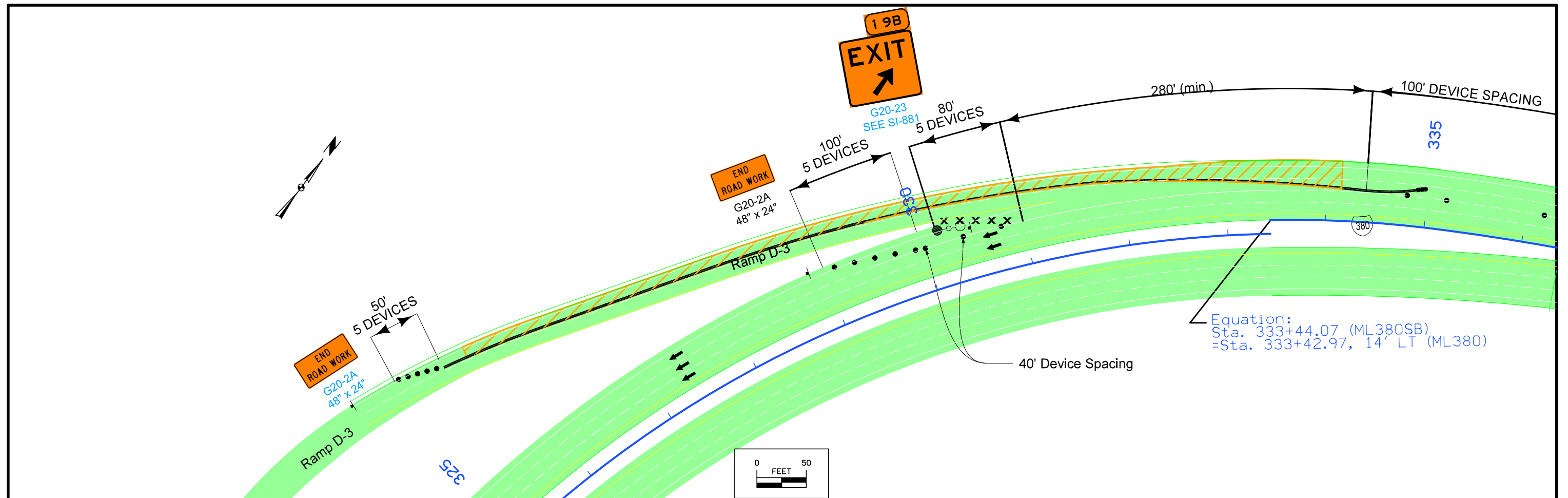


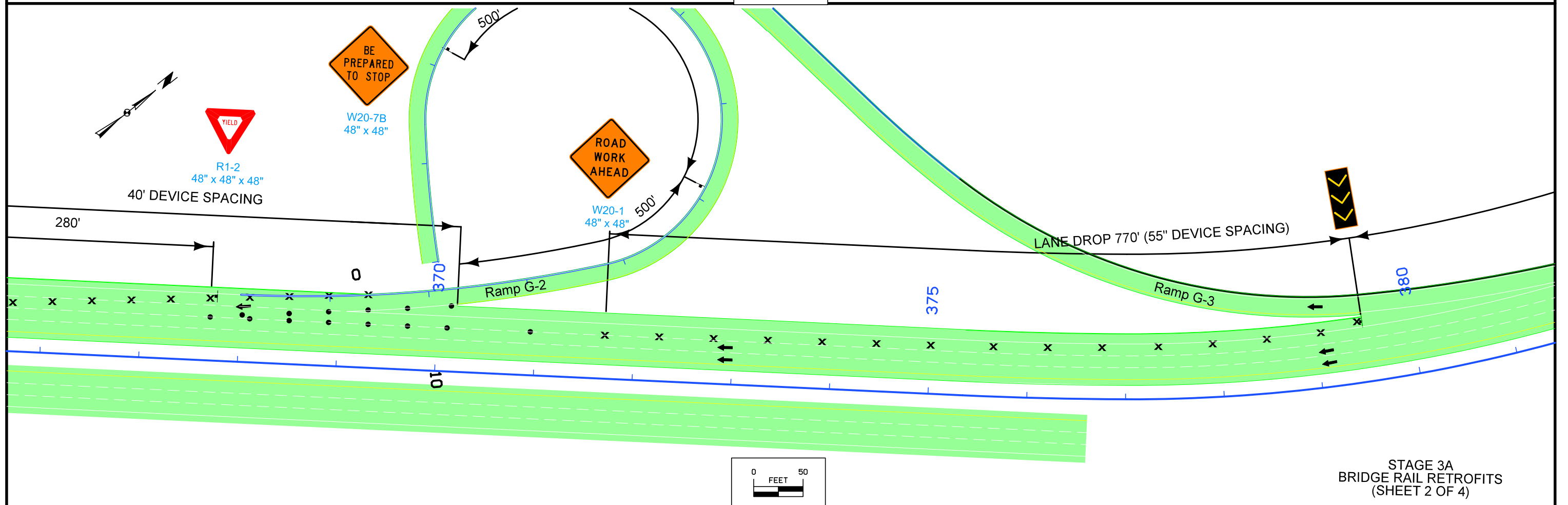
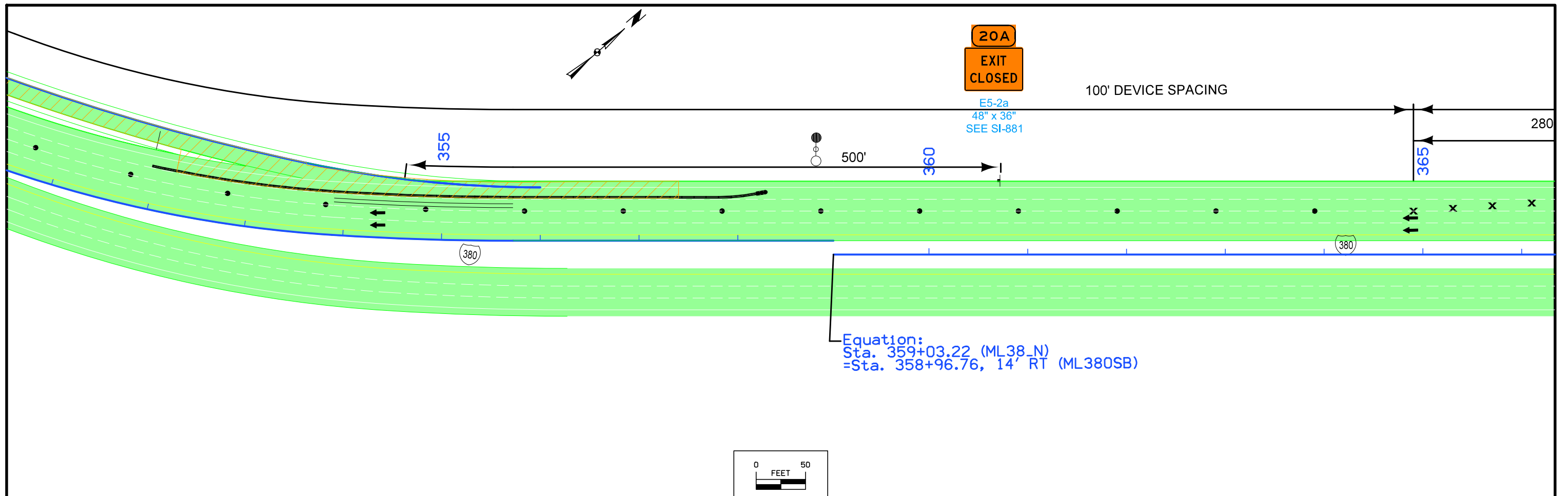




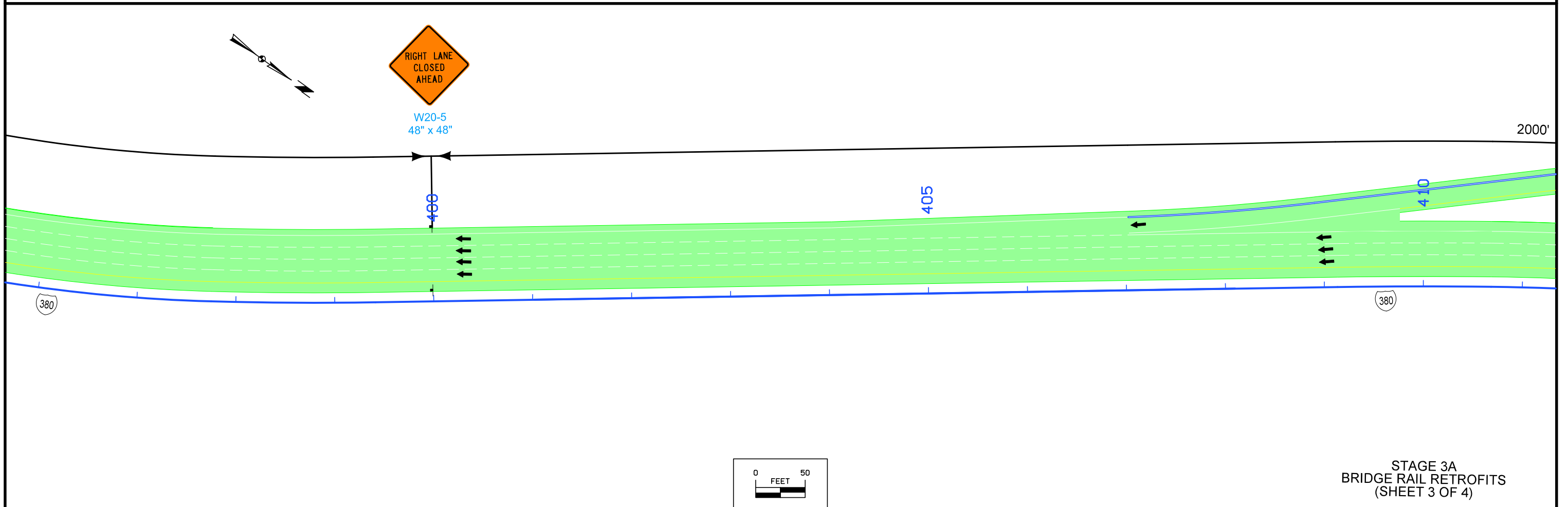
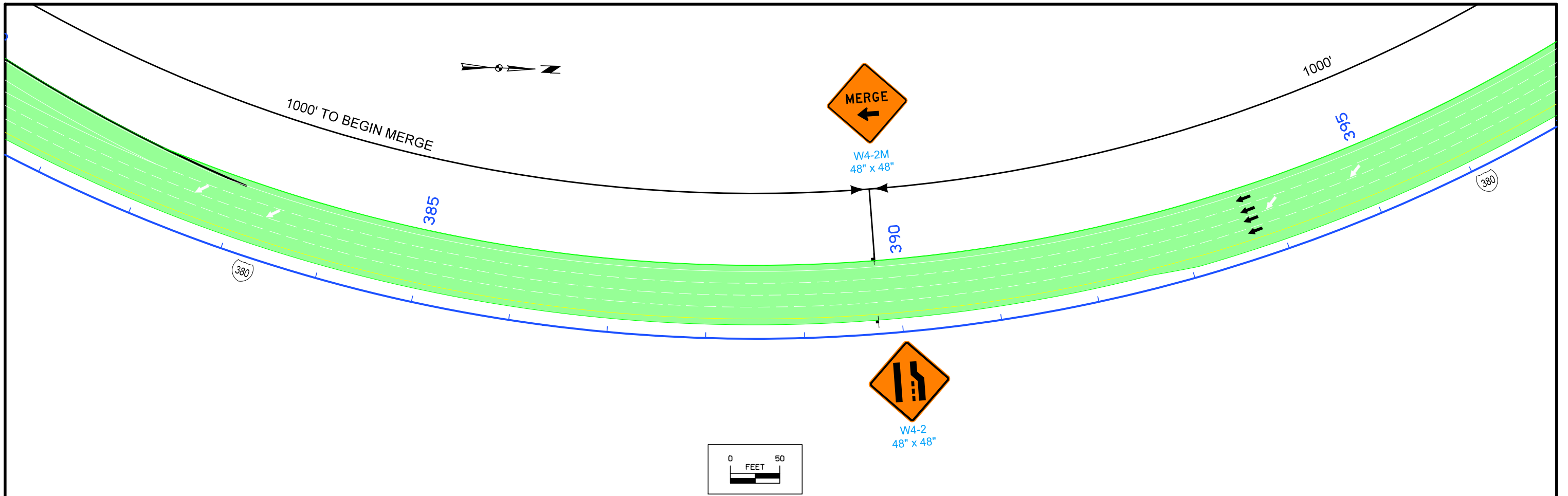
STAGE 1B & 2C  
DETAILS OF INSIDE  
LANE DROP AT 8TH AVE  
(SHEET 3 OF 3)

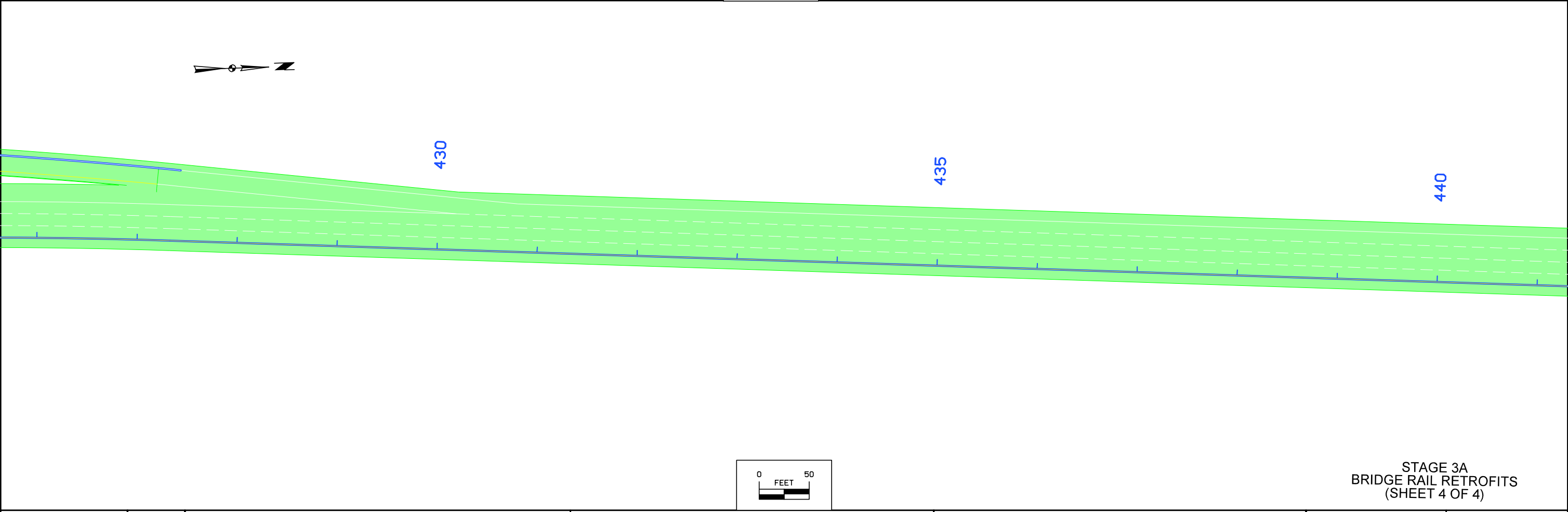
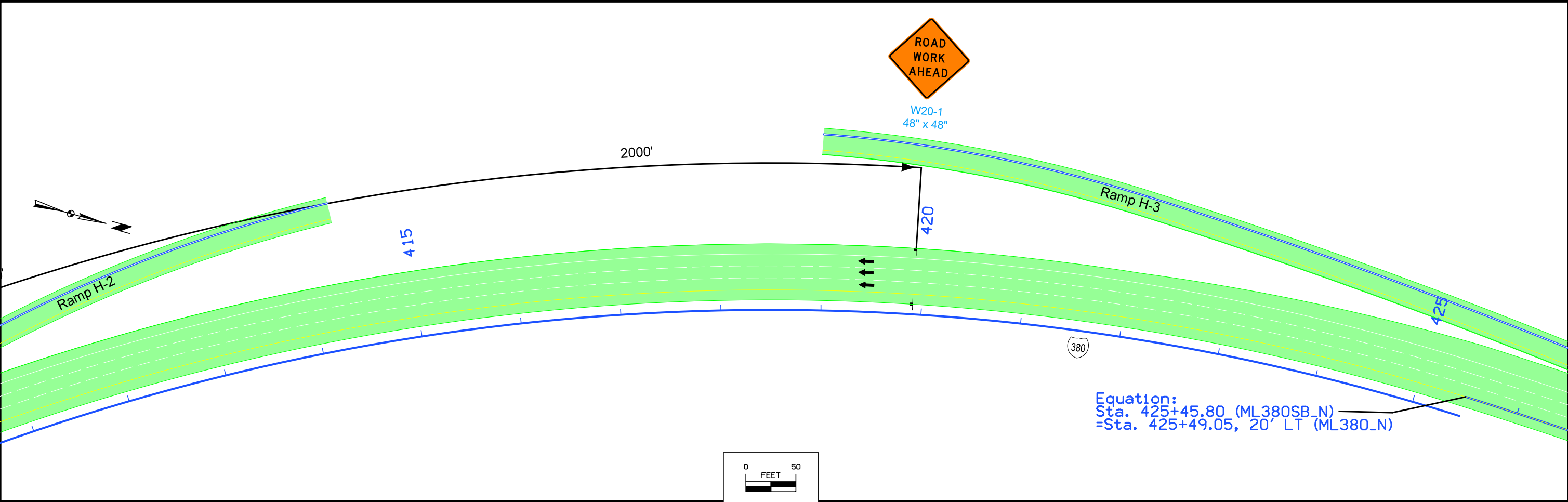




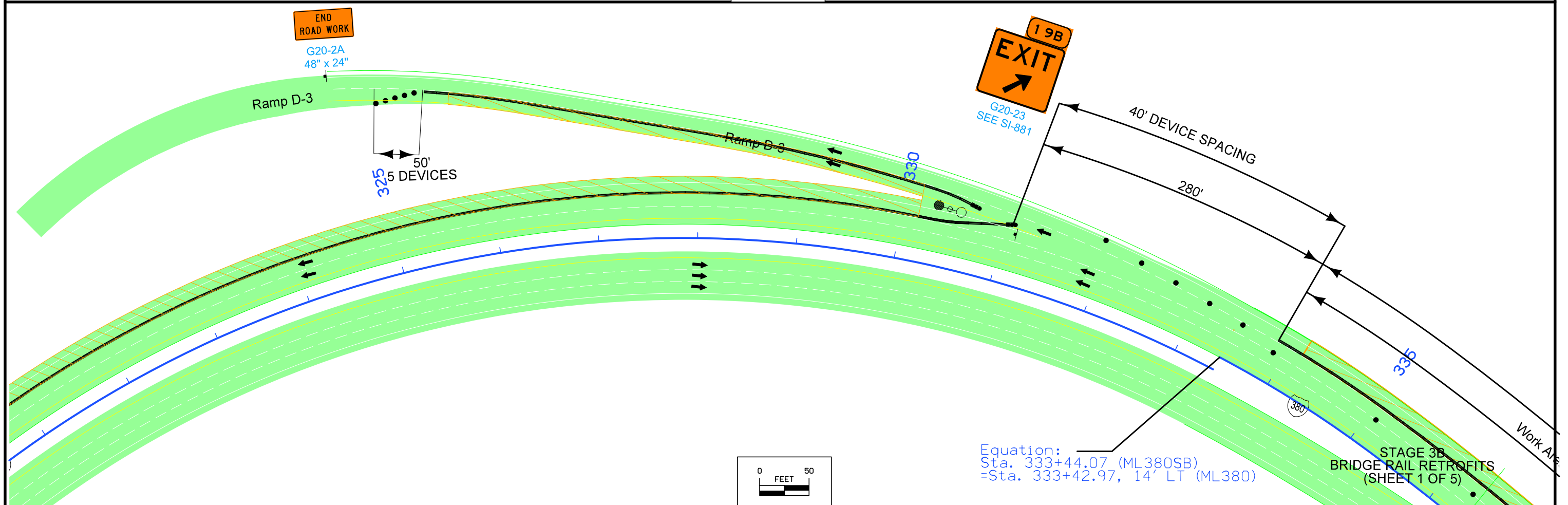
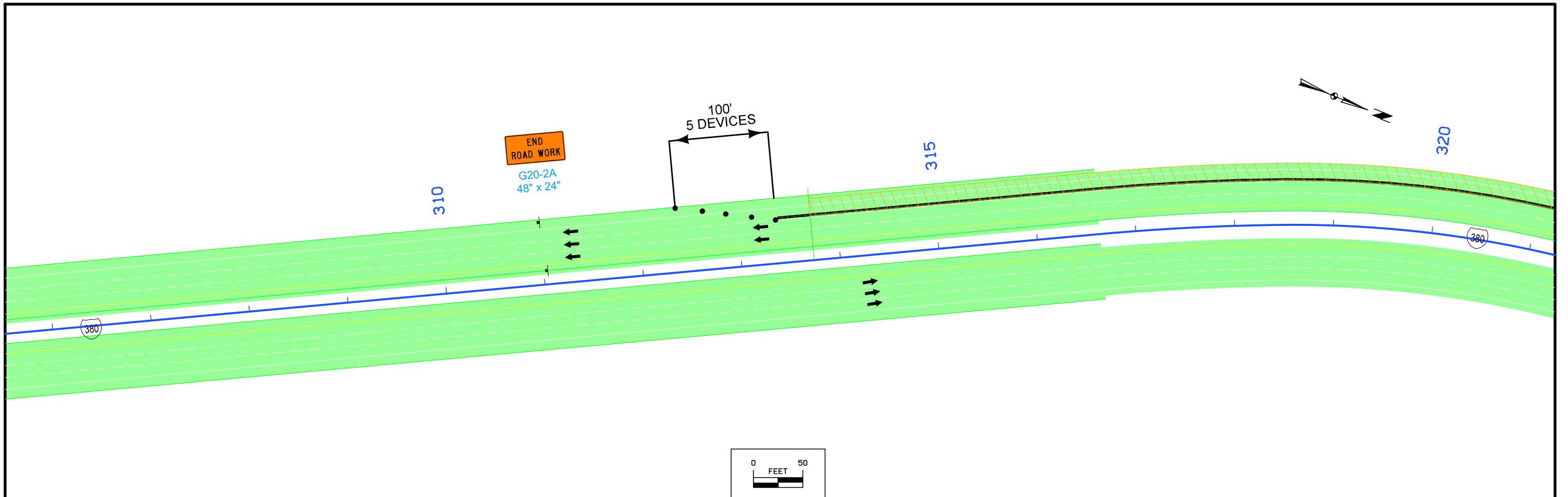


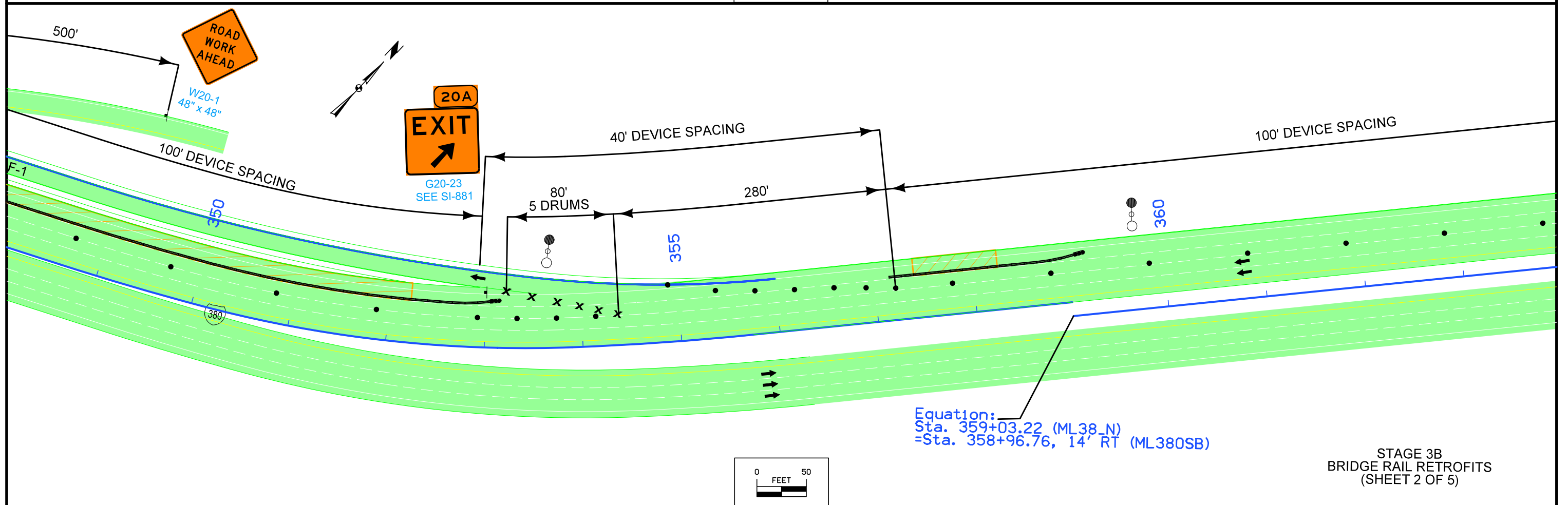
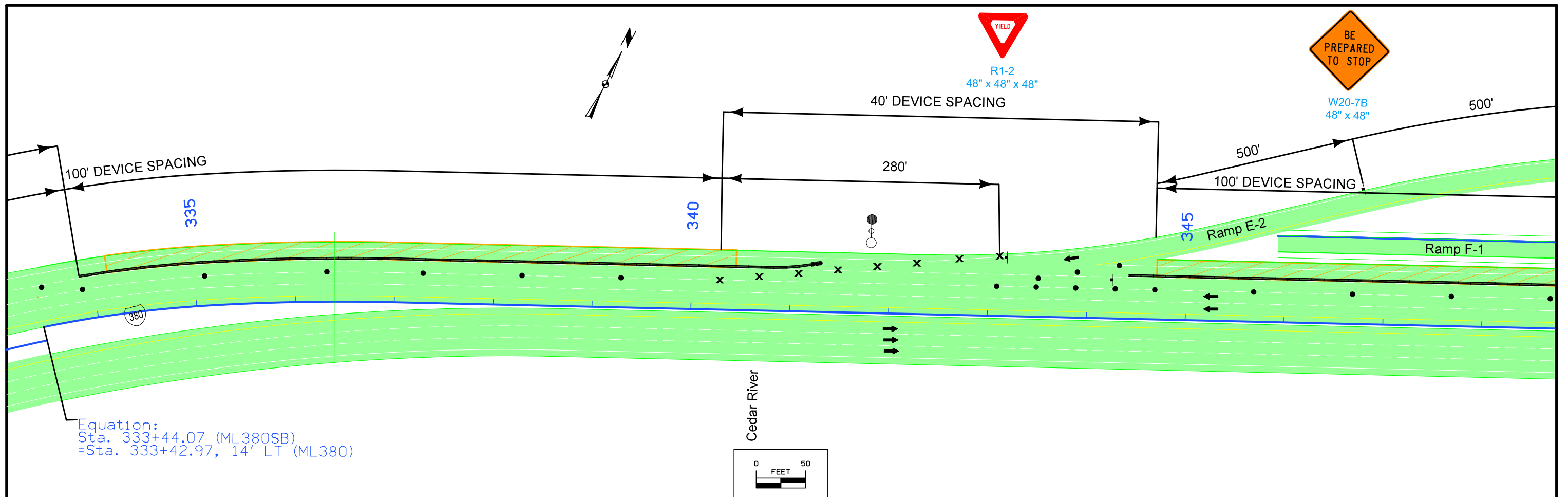




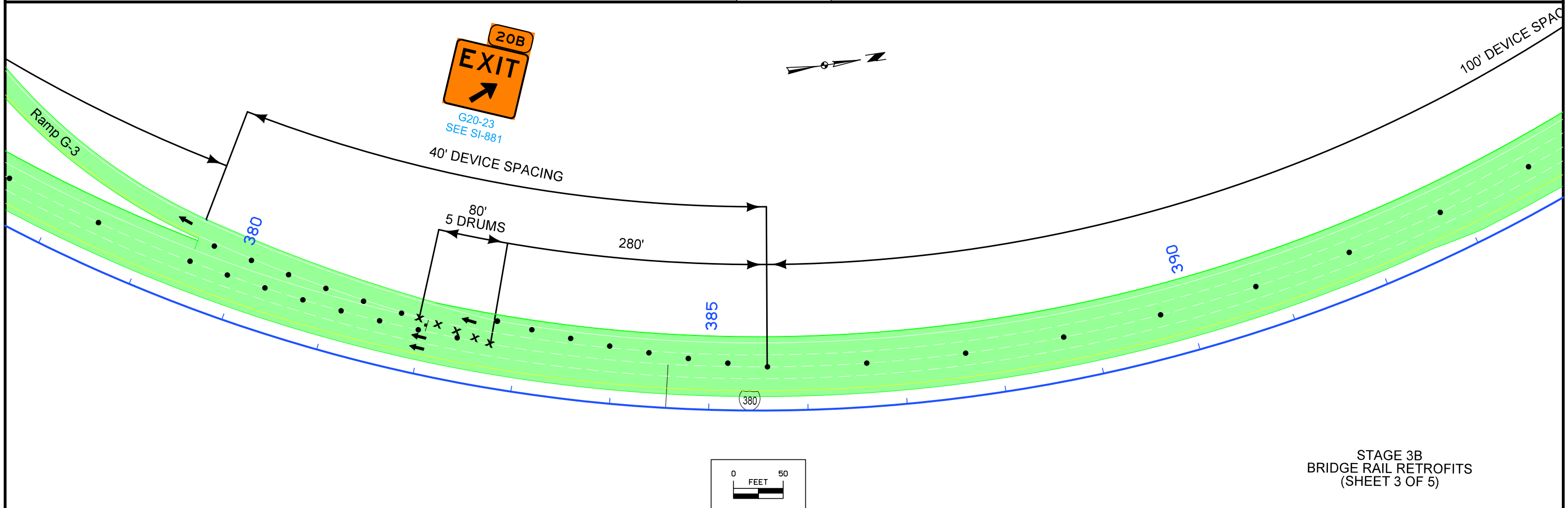
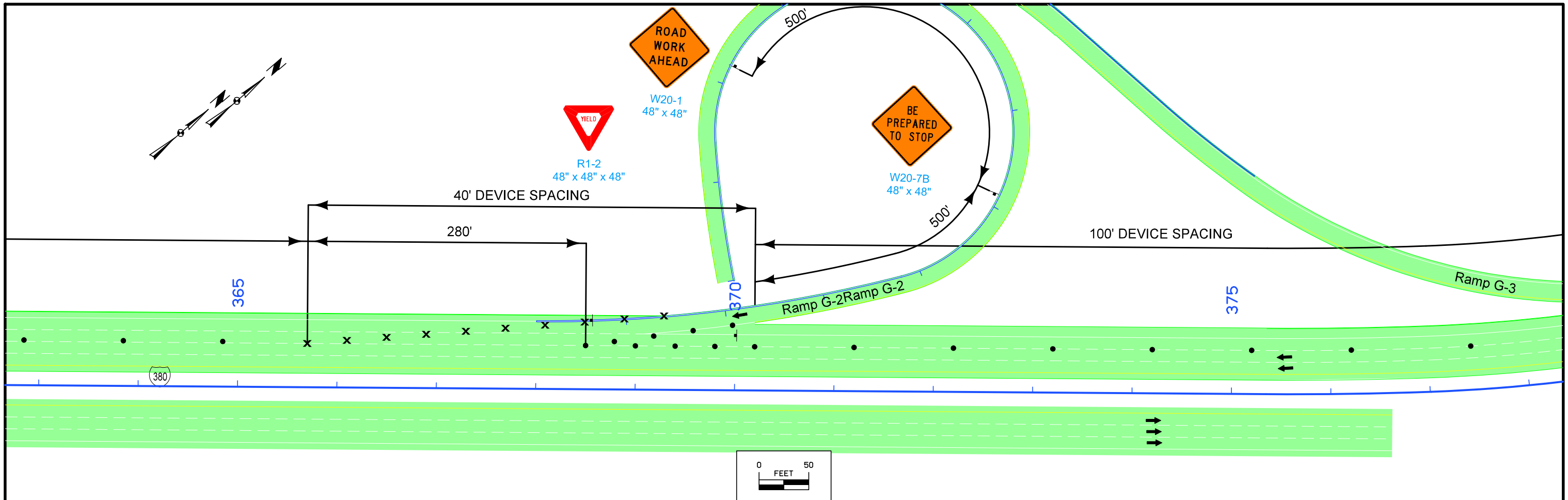




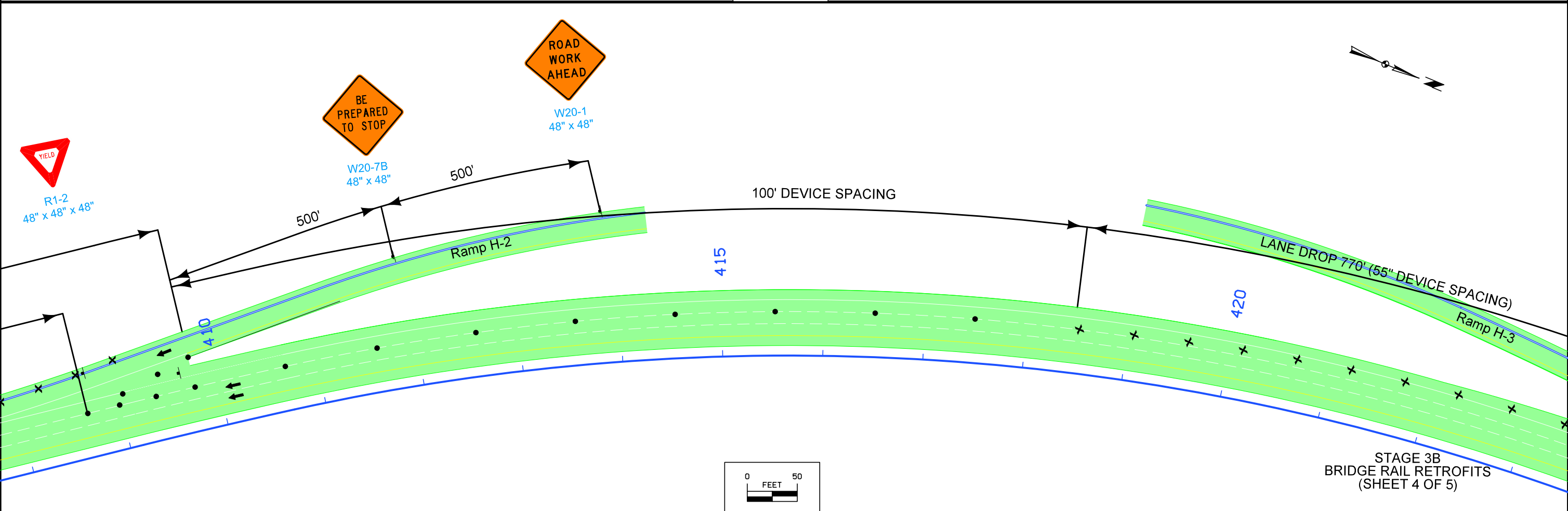
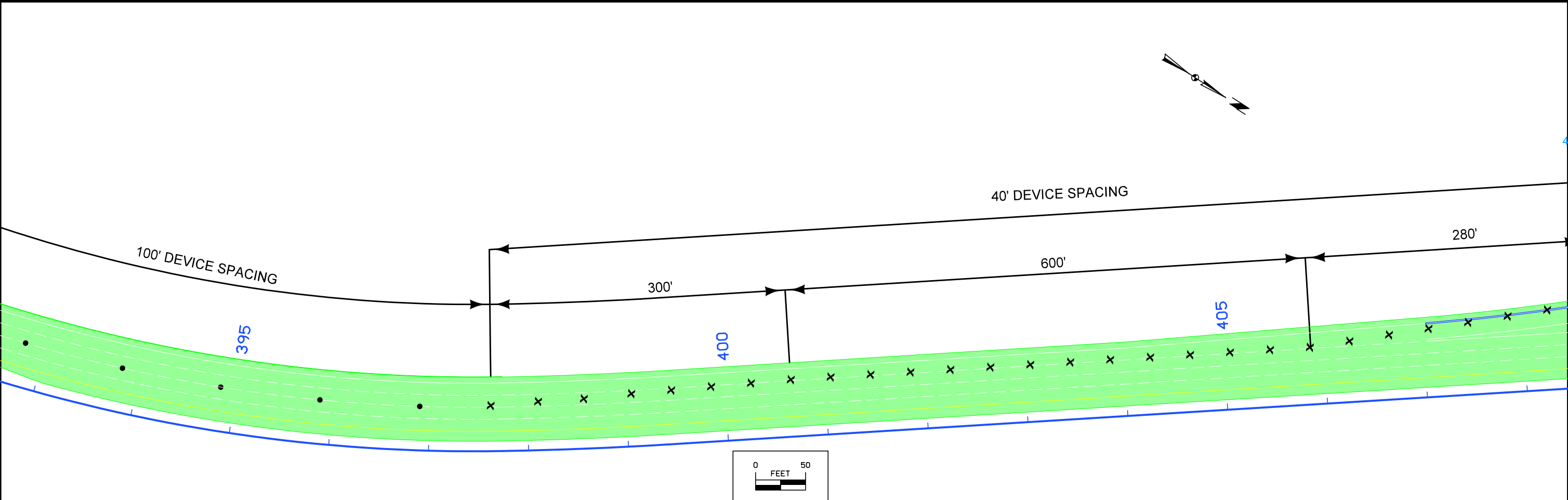




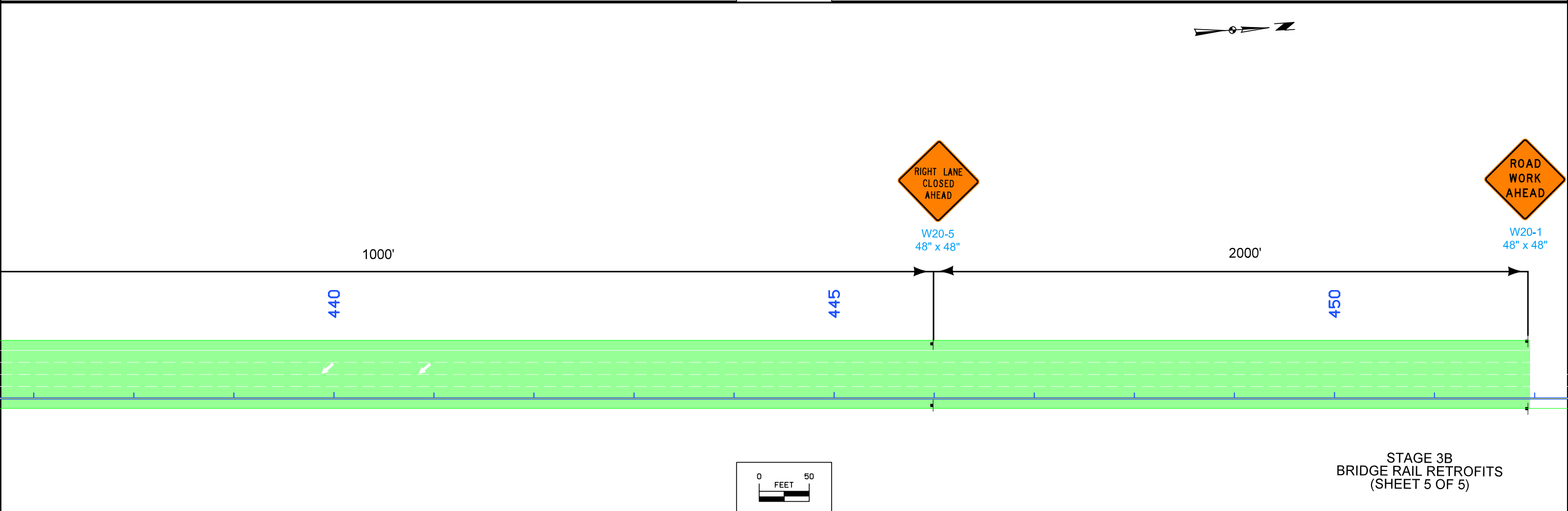
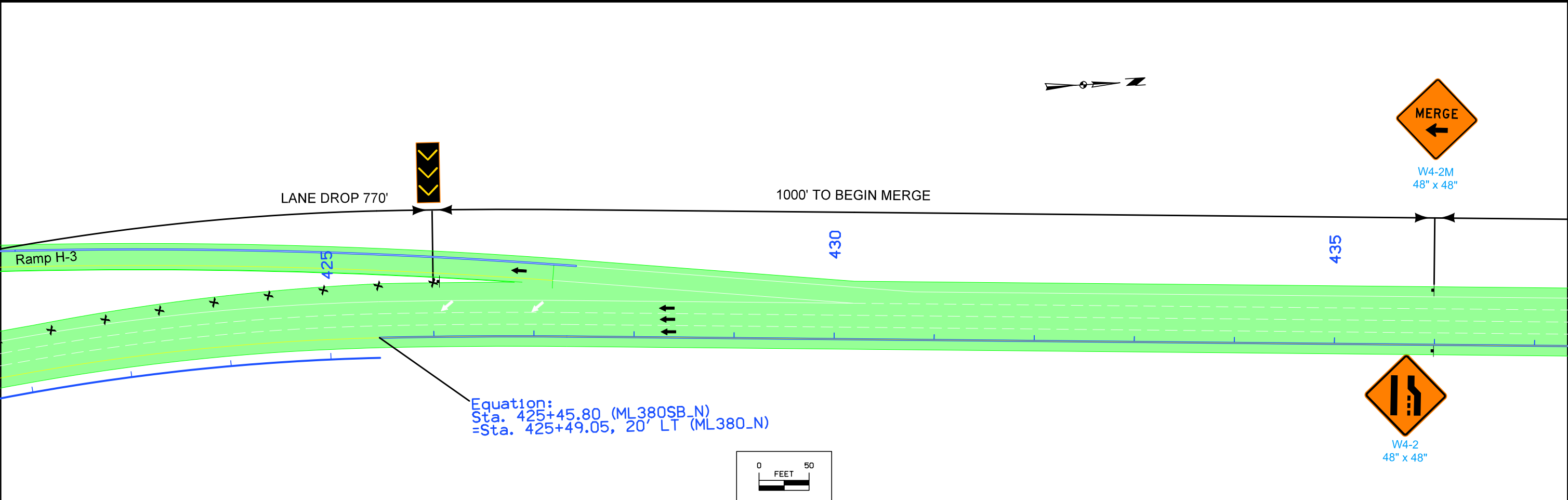


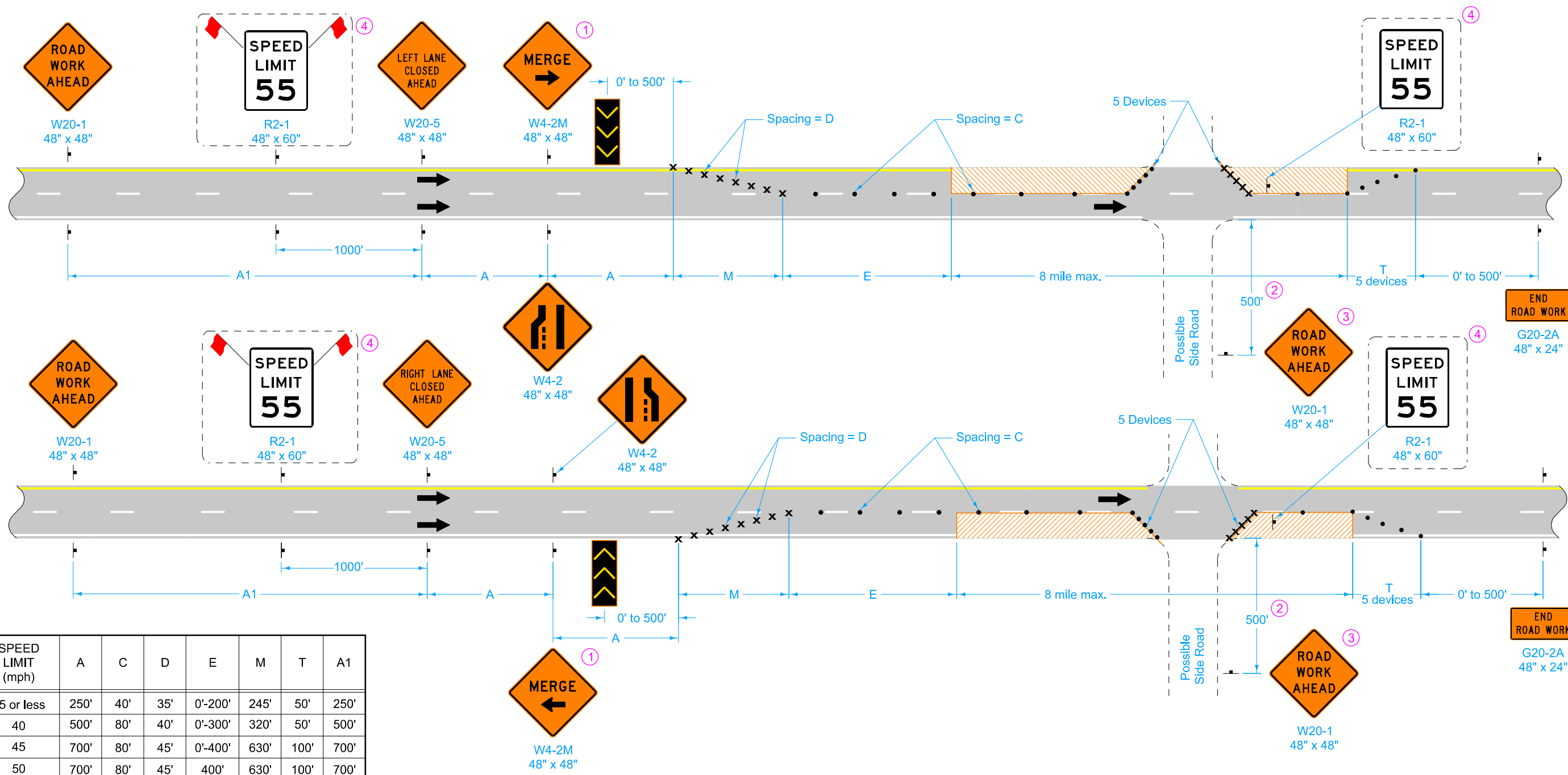


STAGE 3B  
BRIDGE RAIL RETROFITS  
(SHEET 3 OF 5)









SPEED LIMIT (mph)	A	C	D	E	M	T	A1
35 or less	250'	40'	35'	0'-200'	245'	50'	250'
40	500'	80'	40'	0'-300'	320'	50'	500'
45	700'	80'	45'	0'-400'	630'	100'	700'
50	700'	80'	45'	400'	630'	100'	700'
55 - 60	1000'	100'	55'	600'	770'	100'	2000'
65 - 70	1000'	100'	65'	700'	910'	100'	2000'

LEGEND

→

Direction Of Traffic

⌵

Traffic Sign

X

Drum

•

42" Channelizer

⏏

Arrow Board

▨

Work Area

When the Average Daily Traffic (ADT) exceeds 20,000 vehicles per day or when a traffic queue extends beyond the advanced signing, place RIGHT/LEFT LANE CLOSED 4 MILES and RIGHT/LEFT LANE CLOSED 2 MILES signs (W20-5) on both sides of the roadway 4 miles and 2 miles in advance of the lane closure, respectively, as appropriate.

Where there is a lane line drop-off or rise, do not allow traffic to cross over the drop-off or rise, except for ramp locations where a BUMP (W8-1) sign is placed.

Drop-offs greater than a nominal 4 inches are not allowed during non-working hours.

- ① Refer to SI-881 for sign details.
- ② Where side road speed limit is 40 mph or less, a distance of 200 feet is allowed.
- ③ Place a ROAD WORK AHEAD sign on the opposite side of the intersection in a similar location.
- ④ For roadways with a posted speed limit of 60 mph or greater before road work:

Place SPEED LIMIT 55 signs prior to the lane closure as shown.

When the length of closure is greater than 1 mile, install SPEED LIMIT 55 signs in the closed lane at 1-mile intervals.

Remove or cover all existing signs that conflict with 55 mph speed limit while 55 mph speed limit is in effect.

Possible Contract Item:  
Traffic Control

INTERIM

STANDARD ROAD PLAN

REVISIONS: Changed Arrow Display to Arrow Board to comply with changes to MUTCD. Removed W3-5 sign.

Deanna Mafult

APPROVED BY DESIGN METHODS ENGINEER

LANE CLOSURE ON DIVIDED HIGHWAY

REVISION

703-01-12

TC-418

SHEET 1 of 1



NOTE:  
For Details of Ramp Terminal Intersection  
Geometrics Refer to Sheets No. 15-20

For Details of Staging,  
Refer to Sheet No. 6  
For Details of Ramp "B"  
Taper Geometrics,  
Refer to Sheet No. 14

For Details of Ramp "C"  
Taper Geometrics,  
Refer to Sheet No. 13

STA. 3564+00 to 3574+00  
Typical 7126

STA. 3561+00  
Begin Ramp C Resurfacing

STA. 3574+00  
End Ramp C Resurfacing

STA. 1574+50  
Begin Ramp A Resurfacing

STA. 1585+65  
End Ramp A Resurfacing

STA. 1585+00 to 1590+00  
Typical 7126

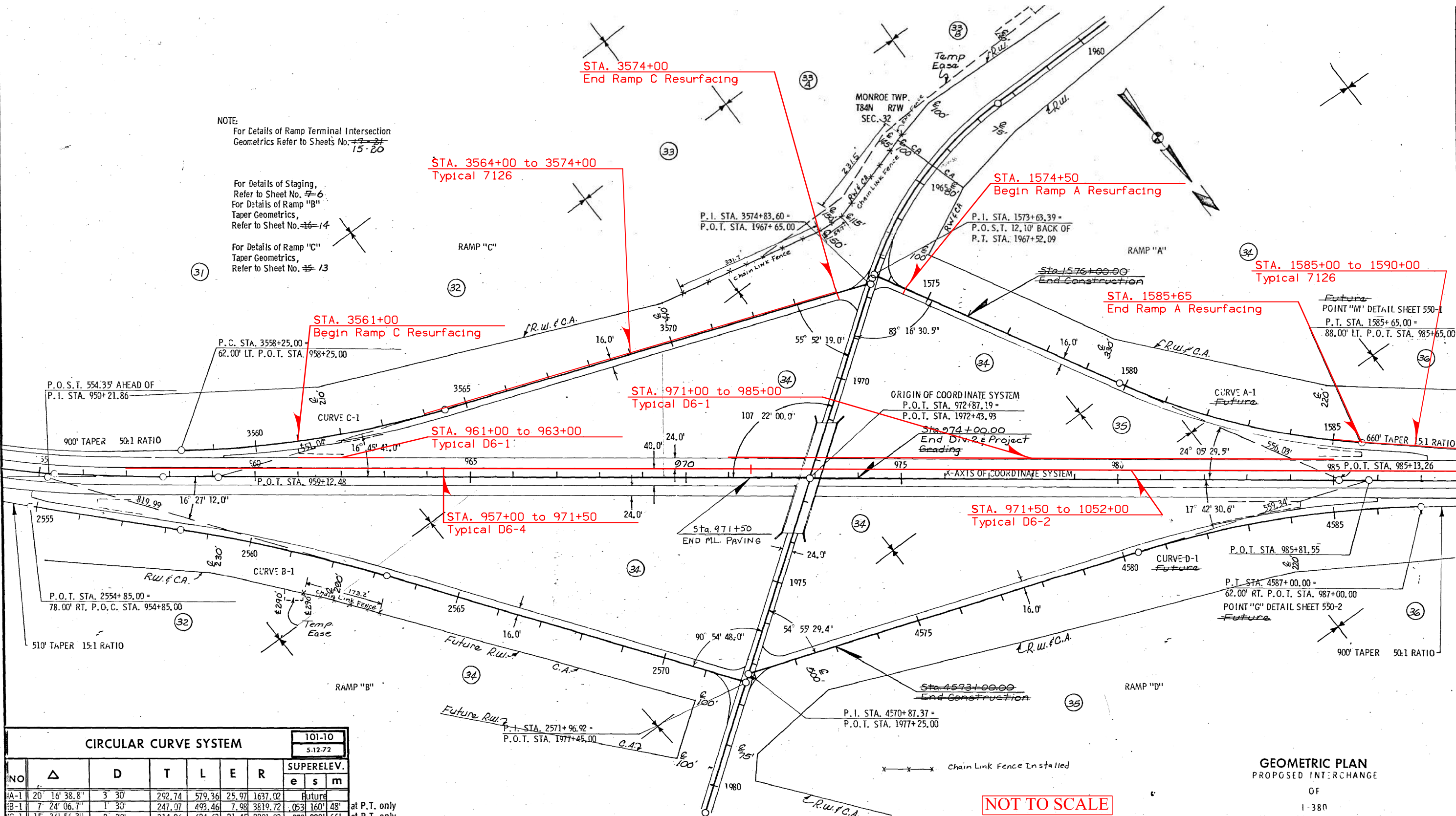
Future  
POINT "M" DETAIL SHEET 550-1  
P.T. STA. 1585+65.00 =  
88.00' LT. P.O.T. STA. 985+65.00

STA. 971+00 to 985+00  
Typical D6-1

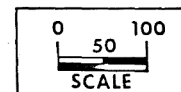
STA. 961+00 to 963+00  
Typical D6-1

STA. 957+00 to 971+50  
Typical D6-4

STA. 971+50 to 1052+00  
Typical D6-2



NOT TO SCALE



GEOMETRIC PLAN  
PROPOSED INTERCHANGE

OF

1-380

WITH

Boyson Road ~~CARPENTER ROAD~~  
HIAWATHA

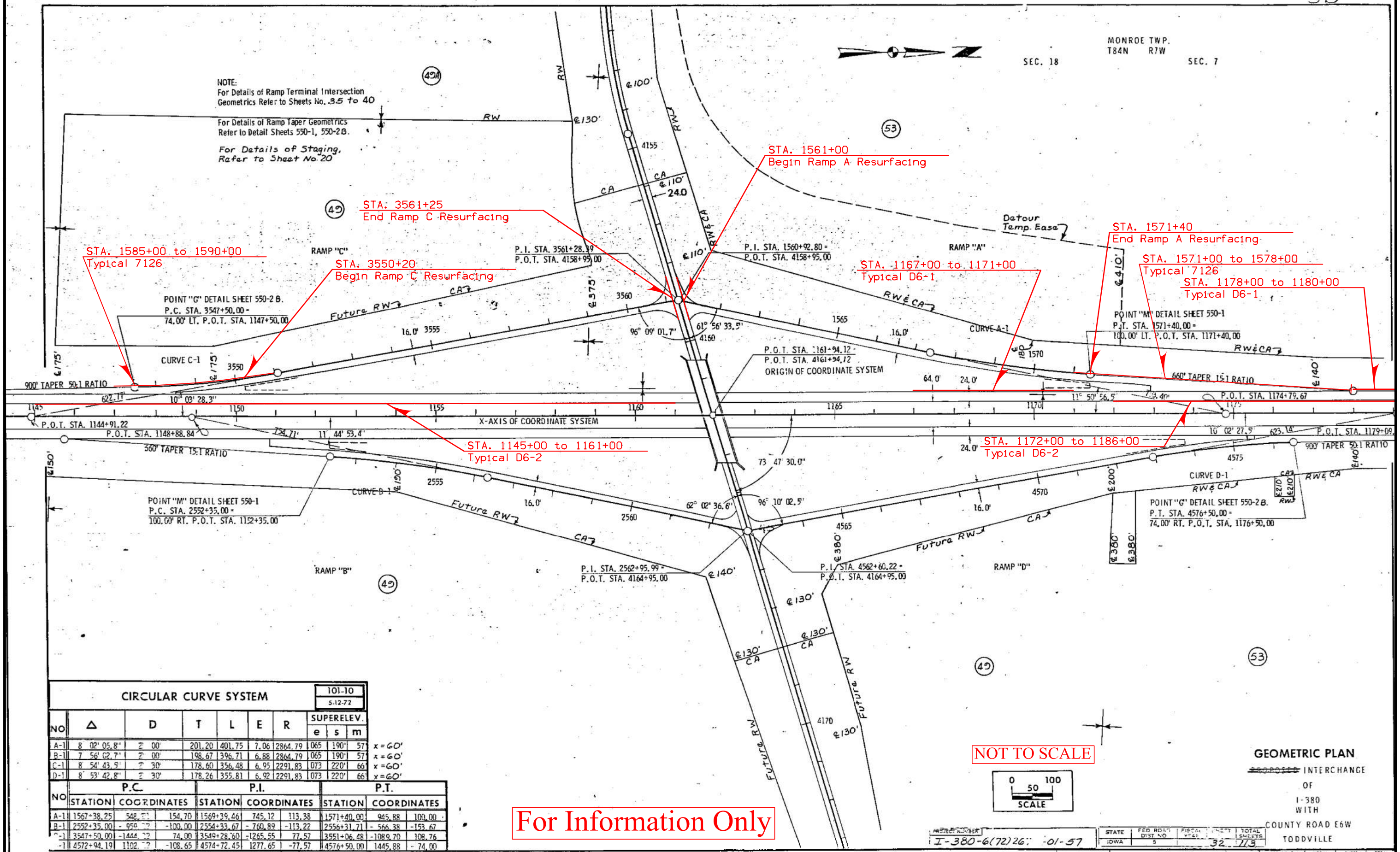
For Information Only

CIRCULAR CURVE SYSTEM									
101-10									
5-12-72									
NO	Δ	D	T	L	E	R	SUPERELEV.		
							e s m		

NO	Δ	D	T	L	E	R	SUPERELEV.		
							e s m		
A-1	20° 16' 38.8"	3' 30"	292.74	579.36	25.97	1637.02	Future		
B-1	7° 24' 06.7"	1' 30"	247.97	493.46	7.98	3819.72	0.53 160' 48"	at P.T. only	
C-1	15° 36' 56.3"	2' 30"	314.26	624.63	21.45	2291.83	0.73 220' 66"	at P.T. only	
D-1	16° 33' 45.9"	2' 30"	333.58	662.51	24.15	2291.83	Future		

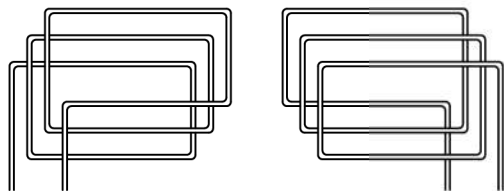
		P.C.		P.I.		P.T.	
NO		STATION	COORDINATES	STATION	COORDINATES	STATION	COORDINATES
A-1		1579+85.65	718.47	1582+78.39	985.71	1585+65.00	1277.80
B-1		2558+35.00	-1463.42	-123.40	2560+82.07	-1219.42	-162.27
C-1		3558+25.00	-1462.20	62.00	3561+39.26	-1148.00	68.28
D-1		4580+37.49	761.51	-170.14	4583+71.07	1079.28	-68.67



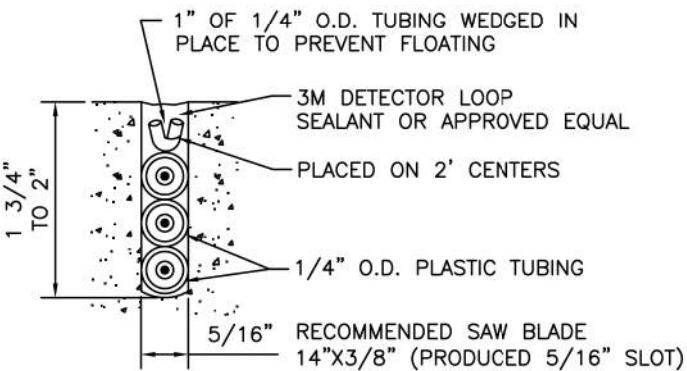
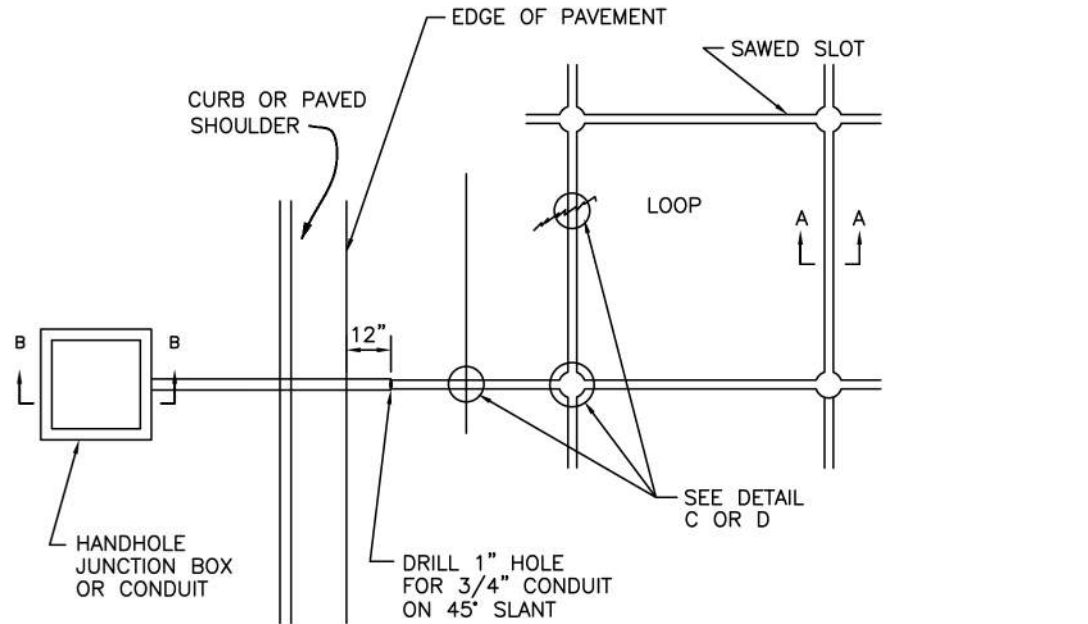




DETECTOR LOOP DETAILS



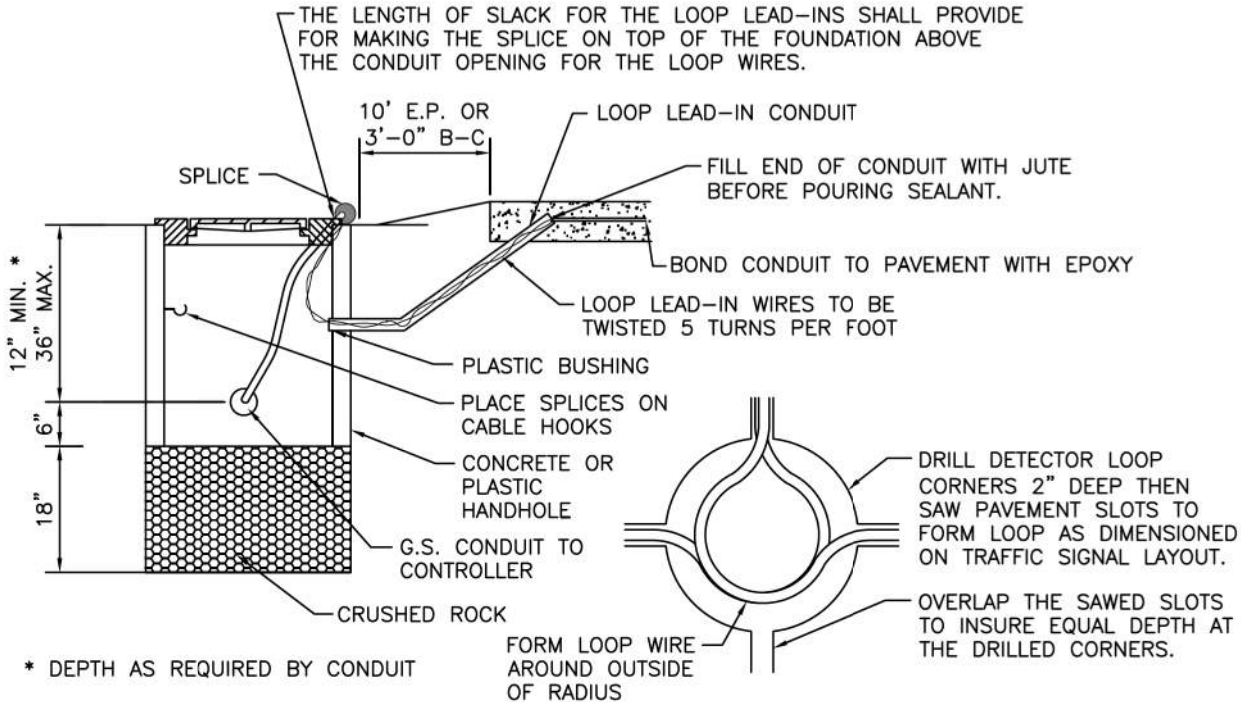
ALL DETECTOR LOOPS SHALL BE WOUND IN A CLOCKWISE CONFIGURATION, AS VIEWED FROM THE LEAD-IN CONNECTION SLOT. FROM THE LEAD-IN CONNECTION, THE BOTTOM CONDUCTOR IN THE SAWED SLOT SHALL BE IDENTIFIED AND LABELED AS THE NEGATIVE LEAD. THE NEGATIVE LEAD SHALL BE CONNECTED TO THE BLACK CONDUCTOR OF THE CABLE PATH AND THE POSITIVE LEAD SHALL BE CONNECTED TO THE COLOR CODED CONDUCTOR OF THE CABLE PAIR.



GENERAL NOTES:

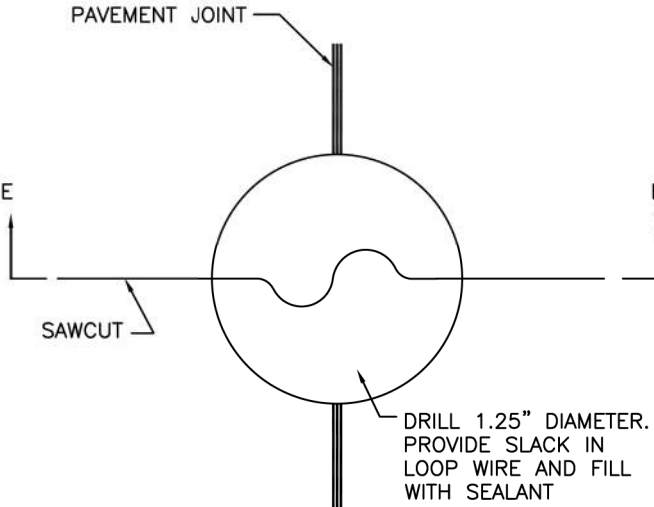
- 1. ALL LOOPS SHALL HAVE SEPARATE LEAD-IN SAWCUTS AND CONDUIT BETWEEN THE LOOP AND THE HANDHOLE.
- 2. SAWING OF NEW P.C. CONCRETE PAVEMENT SHALL NOT OCCUR UNTIL AT LEAST SEVEN DAYS AFTER PLACEMENT UNLESS APPROVED BY ENGINEER.

FILE NO.: 16750-070	CEDAR RAPIDS METROPOLITAN AREA		
APPROVAL DATE: APRIL 2003	STANDARD DETAILS FOR PUBLIC IMPROVEMENTS		
REVISION NO.: 1	TRAFFIC DETAILS – DETECTOR LOOP DETAILS SHEET 1 OF 2		NO. 16750-070
REVISION DATE: APRIL 2003			

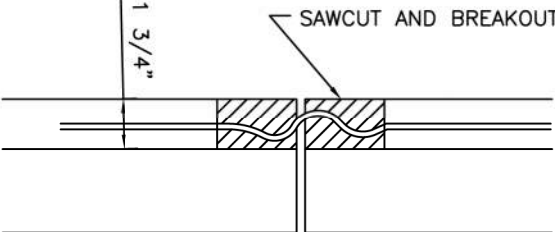


SECTION B-B

DETAIL C



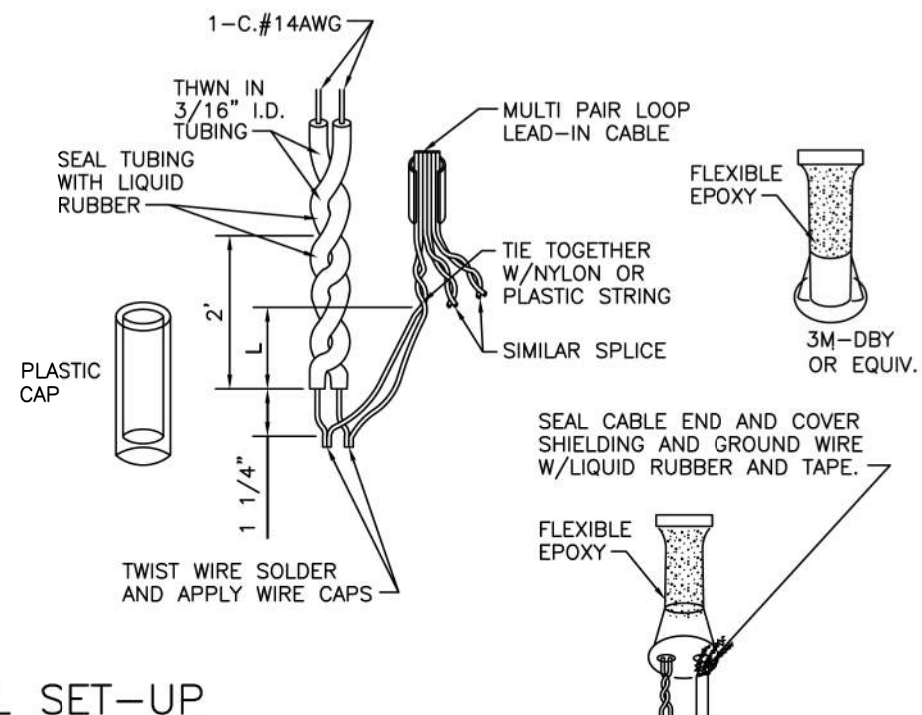
DETAIL D



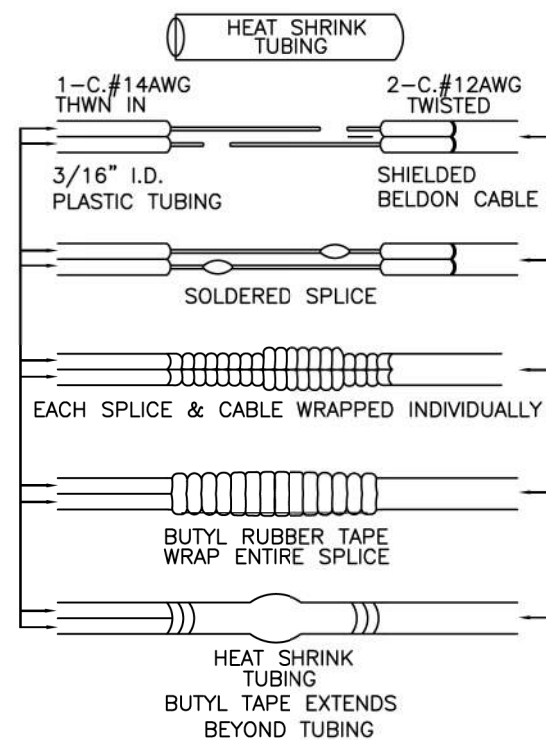
SECTION E-E

(LOOP WIRE TREATMENT AT PAVEMENT JOINTS AND CRACKS)

FILE NO.: 16750-070	CEDAR RAPIDS METROPOLITAN AREA		
APPROVAL DATE: APRIL 2003	STANDARD DETAILS FOR PUBLIC IMPROVEMENTS		
REVISION NO.: 1	TRAFFIC DETAILS – DETECTOR LOOP DETAILS SHEET 2 OF 2		NO. 16750-070
REVISION DATE: APRIL 2003			



### INITIAL SET-UP

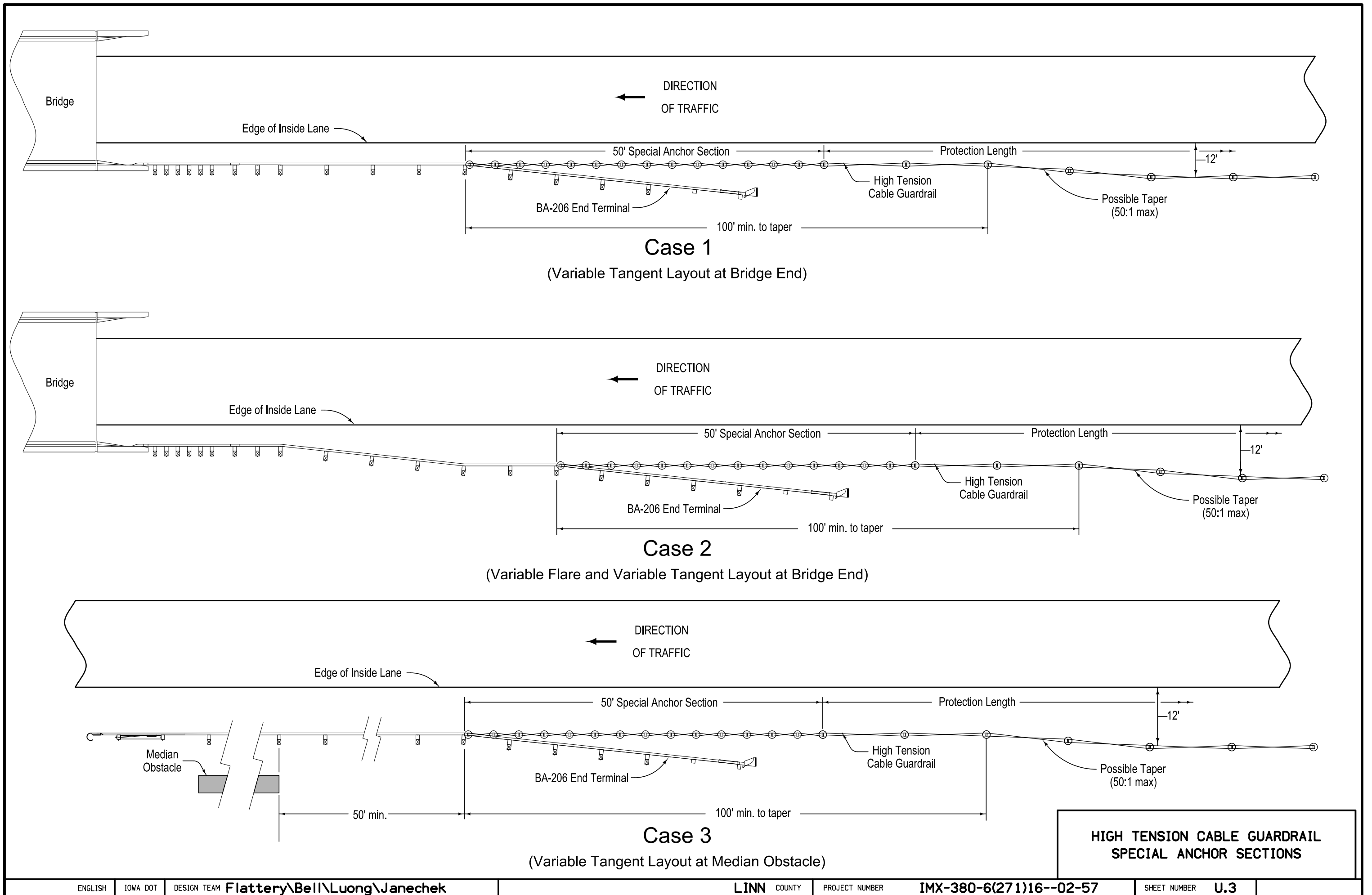


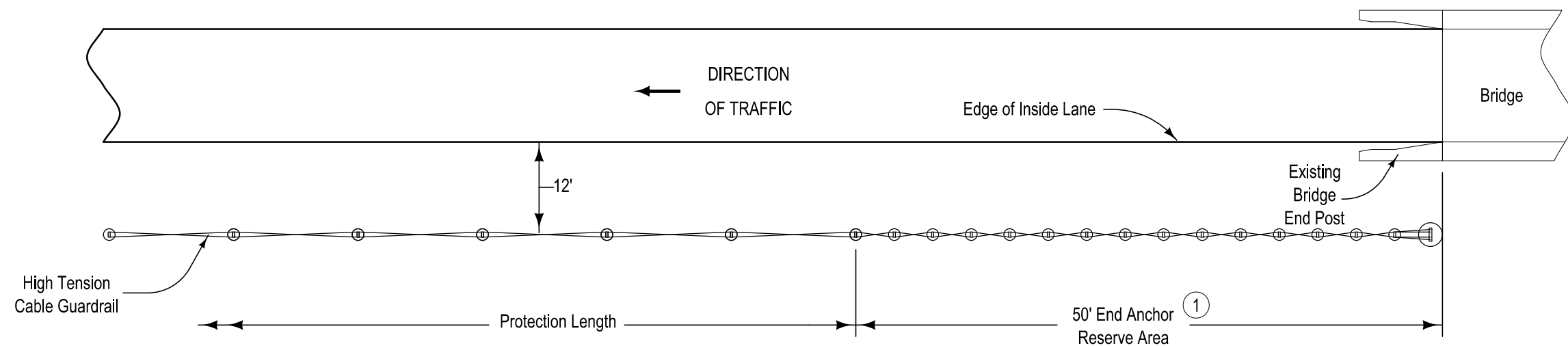
### FINISHED SPLICE

### FINISHED SPLICE

FILE NO.: 16750-080	CEDAR RAPIDS METROPOLITAN AREA	
APPROVAL DATE: APRIL 2003	STANDARD DETAILS FOR PUBLIC IMPROVEMENTS	
REVISION NO.: 1	TRAFFIC DETAILS	
REVISION DATE: APRIL 2003	JUNCTION BOX SPLICES	
		NO. 16750-080



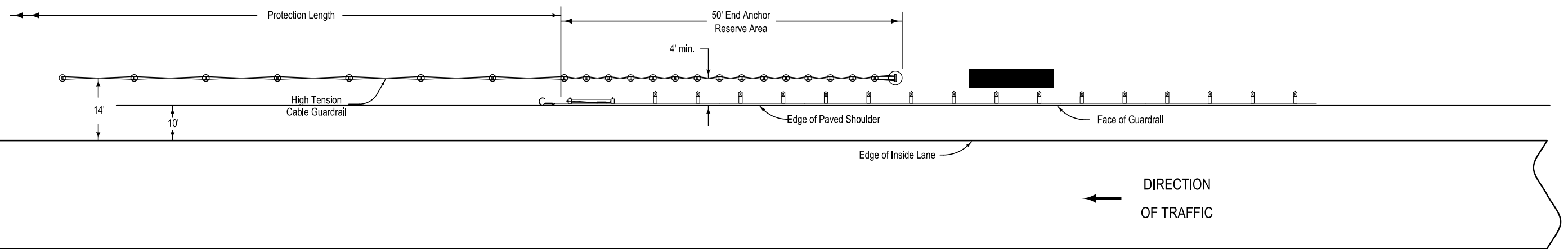




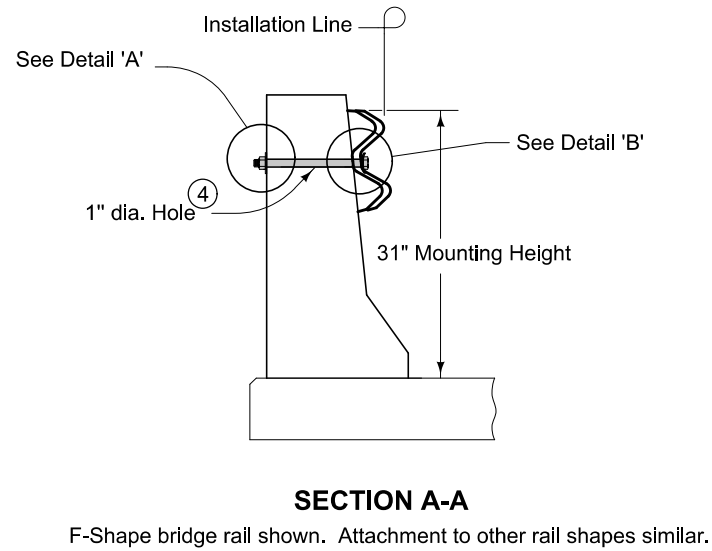
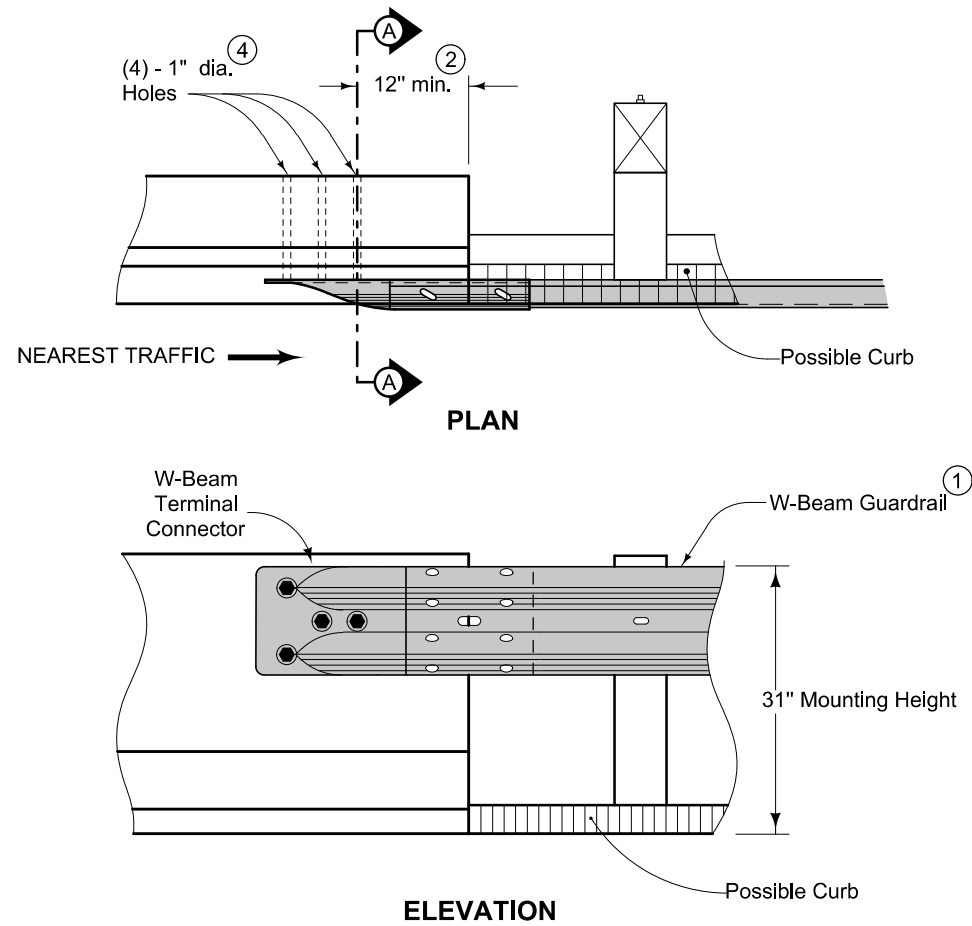
① Where supplied end anchor is less than 50 feet, increase protection length in order to align end anchor with bridge end post as shown.

**HIGH TENSION CABLE GUARDRAIL,  
END ANCHOR  
(Behind Bridge End)**



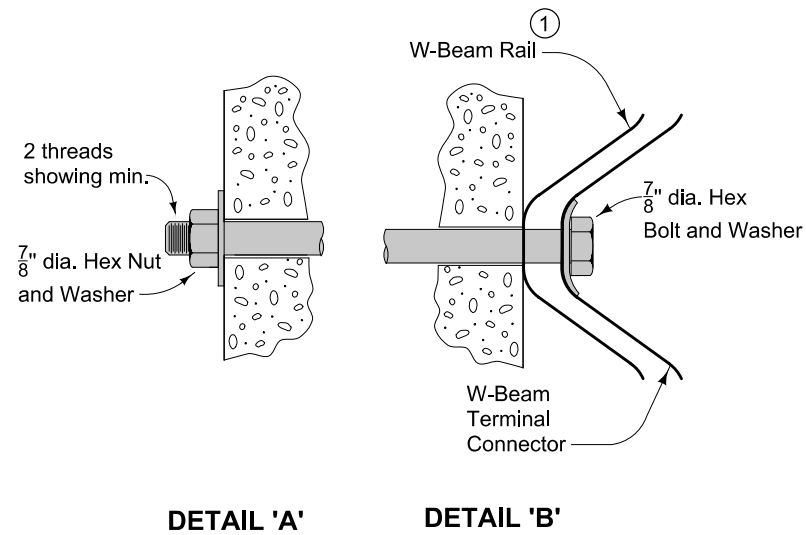
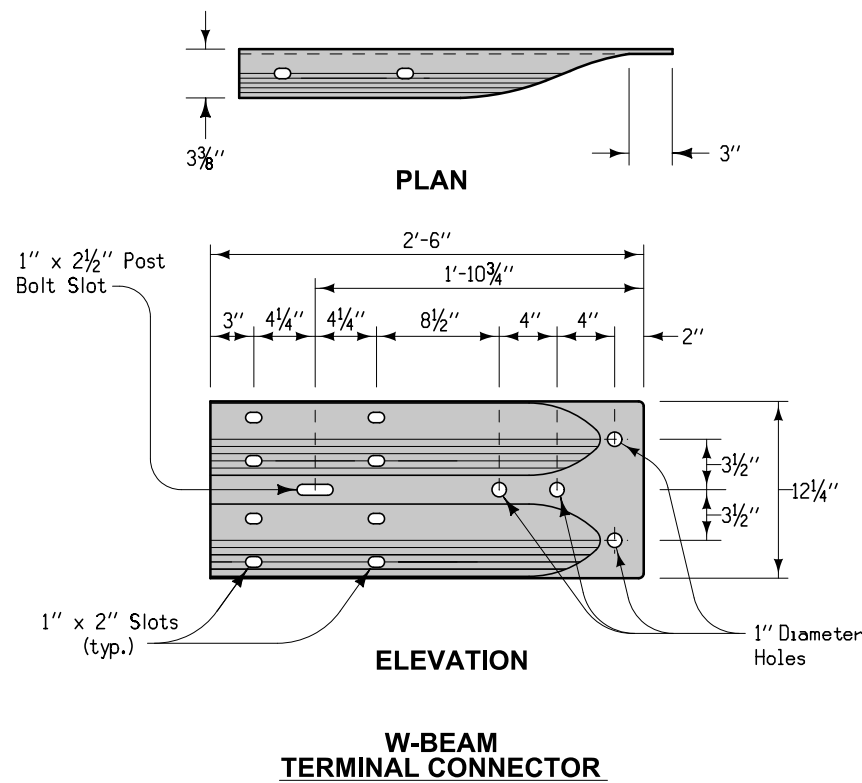


HIGH TENSION CABLE GUARDRAIL,  
END ANCHOR  
(Behind Guardrail)  
At Tower Terrace and Message Board Overhead



- ① See BA-200.
- ② Adjust as necessary to avoid conflicts at first post.
- ③ Lap the Terminal Connector on the outside of the W-beam rail.
- ④ Drill new 1-inch holes with a core bit.

#### BOLTED W-BEAM END ANCHOR



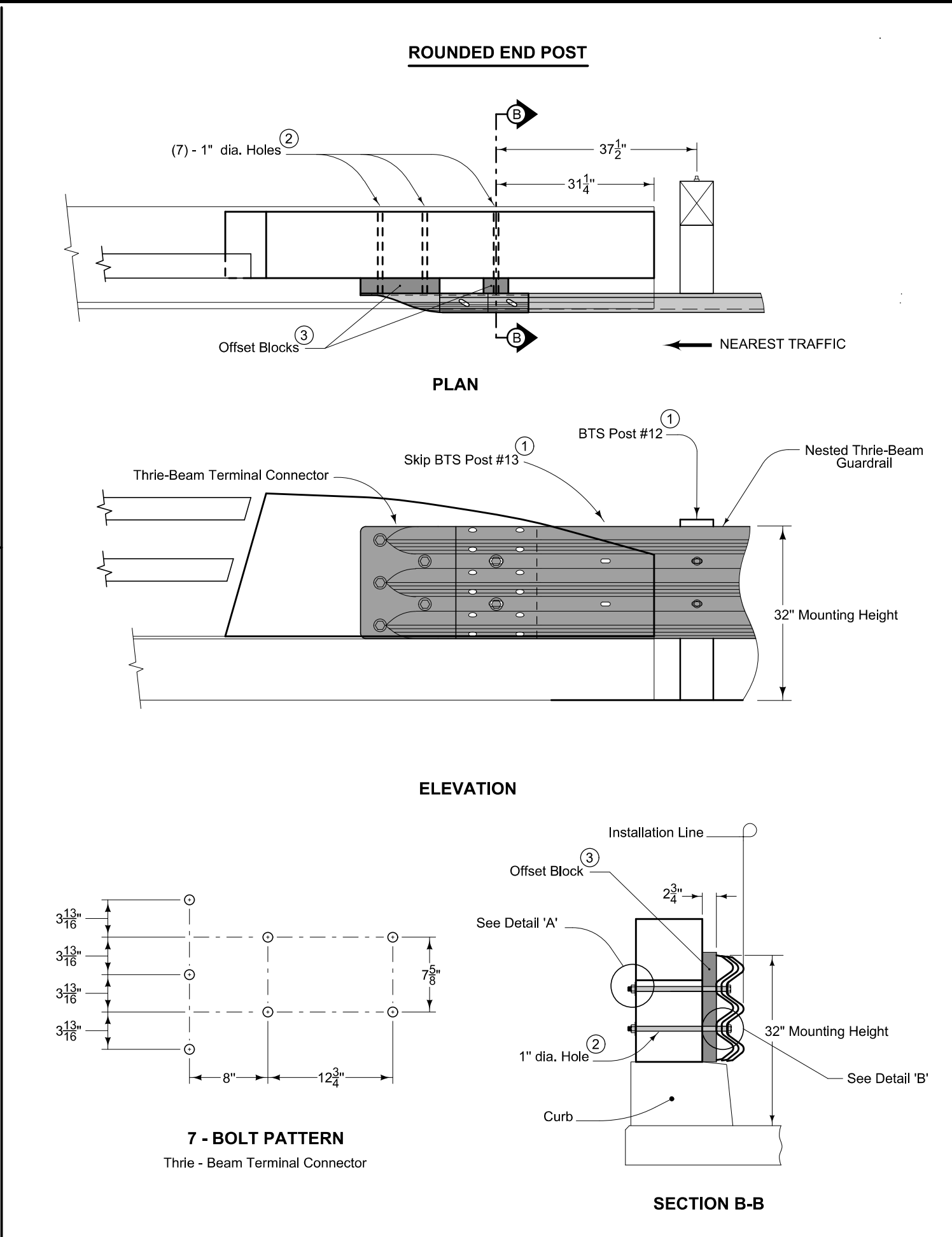
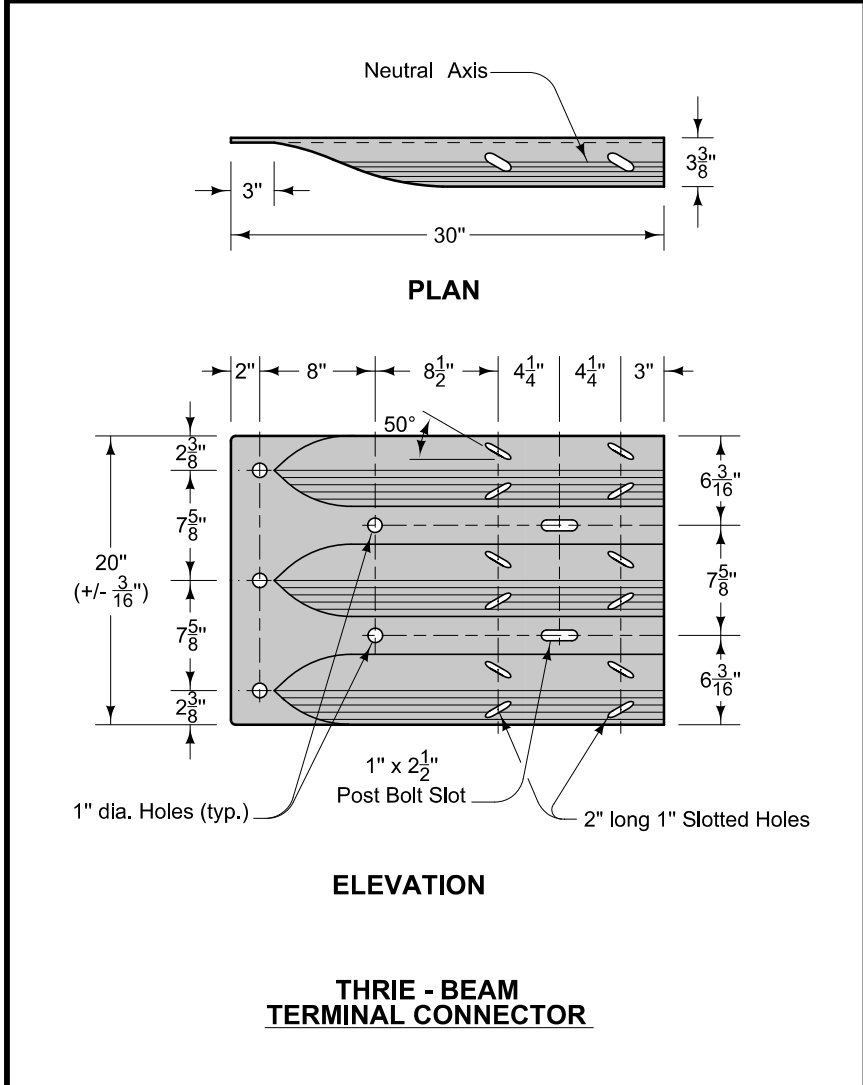
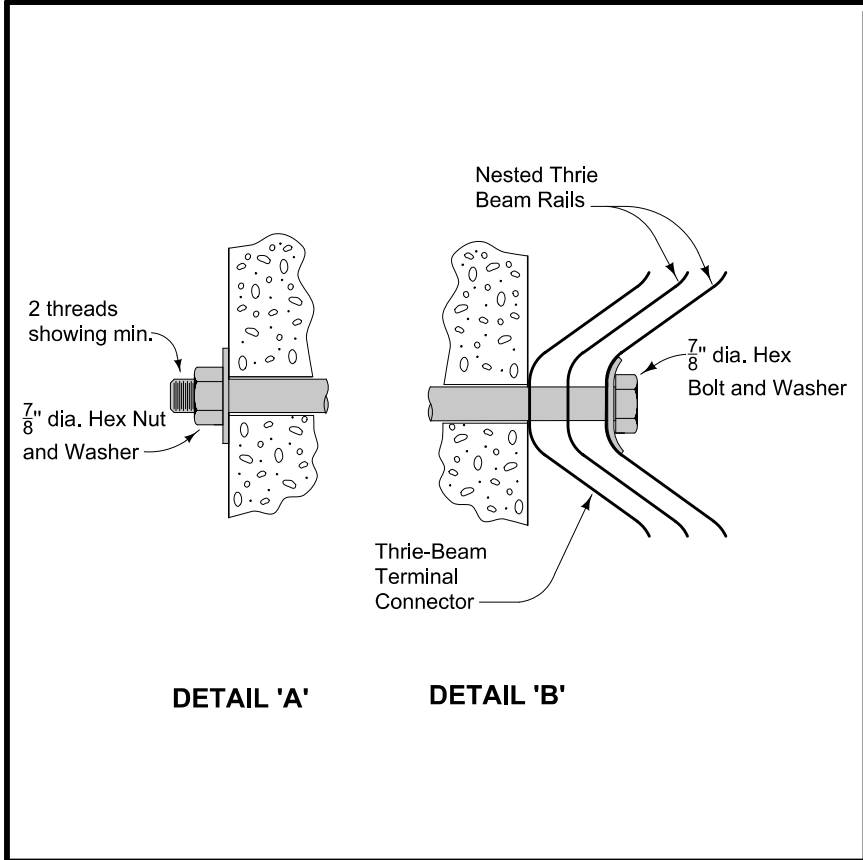
Possible Contract Item:  
Steel Beam Guardrail, End Anchor, Bolted

Materials Included in the Contract Item:  
W-Beam Terminal Connector  
4 sets -  $\frac{7}{8}$ " Approved Hex Bolts, Nuts, and Washers

MODIFIED		REVISION	
STANDARD ROAD PLAN		1	Modified
		BA-202B	
		SHEET 1 of 1	

MODIFICATIONS: Modified to show trailing W-Beam end anchor.

**STEEL BEAM GUARDRAIL  
BOLTED END ANCHOR**



- (1) See BA-201.
- (2) Drill new 1-inch holes with a core bit.
- (3) Shim out guardrail using offset blocks as shown. Use wood offset blocks meeting the requirements of Section 4174.


Possible Contract Item:  
Steel Beam Guardrail End Anchor, Bolted

Materials included in the Contract Item:

- 1 - Thrie-Beam Terminal Connector
- 2 - Offset Blocks
- 7 - Approved 7/8" x sufficient length Hex Bolts
- 7 - Approved 7/8" Hex Nuts
- 14 - Approved 15/16" Washers

<b>MODIFIED</b>	REVISION	
	1	10-18-11
	<b>BA-202</b>	
	SHEET 1 of 1	
MODIFICATIONS: Modified to show attachment to rounded-style bridge end post.		
<b>STEEL BEAM GUARDRAIL BOLTED END ANCHOR</b>		



ESTIMATED BRIDGE RAIL RETROFIT QUANTITIES - DESIGN #510						ESTIMATED BRIDGE RAIL RETROFIT QUANTITIES - DESIGN #910					
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.	ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS	LS	1.00		1	2401-6745635	REMOVAL OF EXISTING HANDRAIL	LS	1.00	
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING	LF	4,651.5		2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING	LF	824.0	
3	2426-6772016	CONCRETE REPAIR	SF	64		3	2533-4980005	MOBILIZATION	LS	1.00	
4	2533-4980005	MOBILIZATION	LS	1.00							
ESTIMATE REFERENCE INFORMATION						ESTIMATE REFERENCE INFORMATION - DESIGN #910					
ITEM NO.	ITEM CODE	DESCRIPTION				ITEM NO.	ITEM CODE	DESCRIPTION			
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS INCLUDES REMOVAL AND REPLACEMENT OF EXISTING CHAIN LINK FENCE ON WEST,(OUTSIDE) RAIL OF SOUTHBOUND BRIDGE.				1	2401-6745635	REMOVAL OF EXISTING HANDRAIL --			
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING INCLUDES FURNISHING AND INSTALLING 1" DIAMETER PLASTIC CONDUIT.  INCLUDES 307.9 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE AND 48,364 LBS OF GRADE 60 EPOXY COATED REINF. STEEL.  IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.  INCLUDES 3942 LBS OF GALVANIZED STRUCTURAL STEEL FOR JUNCTION BOX COVER PLATES.  INCLUDES THE COST OF LOCATING AND VERIFYING USABILITY OF EXISTING CONDUIT IN THE BRIDGE CURB.				2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING INCLUDES FURNISHING AND INSTALLING 1" DIAMETER PLASTIC CONDUIT.  INCLUDES 60.4 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE AND 8548 LBS OF GRADE 60 EPOXY COATED REINFORCING STEEL.  IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.  INCLUDES 1075 LBS OF GALVANIZED STRUCTURAL STEEL FOR JUNCTION BOX COVER PLATES.  INCLUDES THE COST OF LOCATING AND VERIFYING USABILITY OF EXISTING CONDUIT IN THE BRIDGE CURB.			
3	2426-6772016	CONCRETE REPAIR --				3	2533-4980005	MOBILIZATION --			
4	2533-4980005	MOBILIZATION --									
ESTIMATED BRIDGE RAIL RETROFIT QUANTITIES - DESIGN #810						STRUCTURAL DESIGN					
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.			I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.			
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS	LS	1.00	Signature <u>David L. Bare</u> Date <u>2-20-2012</u>						
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING	LF	660.0	Printed or Typed Name <u>David L. Bare</u>						
3	2533-4980005	MOBILIZATION	LS	1.00	My license renewal date is December 31, <u>2013</u>						
						Pages or sheets covered by this seal: <u>V.1-V.59</u>					
ESTIMATE REFERENCE INFORMATION - DESIGN #810						**** = DESIGN NUMBERS 510, 810, 910.					
ITEM NO.	ITEM CODE	DESCRIPTION				<div>NOTE: ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.</div>		DESIGN FOR REPAIRS TO <b>DUAL VARIABLE WIDTH C.W.P.G. BRIDGE - SOUTHBOUND</b>  <b>ESTIMATED QUANTITIES</b> <div>JANUARY, 2012</div> <b>LINN COUNTY</b> <div>IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION</div> <div>DESIGN SHEET NO. <u>1</u> OF <u>59</u> FILE NO. <u>30514</u> DESIGN NO. <b>****</b></div>			
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS --									
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING INCLUDES FURNISHING AND INSTALLING 1" DIAMETER PLASTIC CONDUIT.  INCLUDES 43.2 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE AND 6839 LBS OF GRADE 60 EPOXY COATED REINFORCING STEEL.  IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.  INCLUDES 358 LBS OF GALVANIZED STRUCTURAL STEEL FOR JUNCTION BOX COVER PLATES.  INCLUDES THE COST OF LOCATING AND VERIFYING USABILITY OF EXISTING CONDUIT IN THE BRIDGE CURB.									
3	2533-4980005	MOBILIZATION --									
DESIGN TEAM DLB / BDK / RDM						LINN COUNTY		PROJECT NUMBER IMX-380-6(271)16--02-57		SHEET NUMBER <b>V.1</b>	

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ESTIMATED BRIDGE RAIL RETROFIT QUANTITIES - DESIGN #1110						ESTIMATED BRIDGE RAIL RETROFIT QUANTITIES - DESIGN #1410							
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.	ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.		
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS	LS	1.00		1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS	LS	1.00			
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING	LF	2,202.9		2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING	LF	1,429.3			
3	2533-4980005	MOBILIZATION	LS	1.00		3	2533-4980005	MOBILIZATION	LS	1.00			
ESTIMATE REFERENCE INFORMATION - DESIGN #1110						ESTIMATE REFERENCE INFORMATION - DESIGN #1410							
ITEM NO.	ITEM CODE	DESCRIPTION				ITEM NO.	ITEM CODE	DESCRIPTION					
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS --				1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS --					
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING INCLUDES FURNISHING AND INSTALLING 1" DIAMETER PLASTIC CONDUIT.  INCLUDES 152.1 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE AND 22,933 LBS OF GRADE 60 EPOXY COATED REINF. STEEL.  IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.  INCLUDES 2509 LBS OF GALVANIZED STRUCTURAL STEEL FOR JUNCTION BOX COVER PLATES.  INCLUDES THE COST OF LOCATING AND VERIFYING USABILITY OF EXISTING CONDUIT IN THE BRIDGE CURB.				RETROFIT CONCRETE BARRIER RAILING INCLUDES FURNISHING AND INSTALLING 1" DIAMETER PLASTIC CONDUIT.  INCLUDES 95.6 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE AND 14,896 LBS OF GRADE 60 EPOXY COATED REINFORCING STEEL.  IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.  INCLUDES 717 LBS OF GALVANIZED STRUCTURAL STEEL FOR JUNCTION BOX COVER PLATES.  INCLUDES THE COST OF LOCATING AND VERIFYING USABILITY OF EXISTING CONDUIT IN THE BRIDGE CURB.							
3	2533-4980005	MOBILIZATION --				3	2533-4980005	MOBILIZATION --					
ESTIMATED BRIDGE RAIL RETROFIT QUANTITIES - DESIGN #1210						ESTIMATED BRIDGE RAIL RETROFIT QUANTITIES - DESIGN #1610							
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.	ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.		
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS	LS	1.00		1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS	LS	1.00			
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING	LF	1,047.6		2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING	LF	394.0			
3	2533-4980005	MOBILIZATION	LS	1.00		3	2533-4980005	MOBILIZATION	LS	1.00			
ESTIMATE REFERENCE INFORMATION - DESIGN #1210						ESTIMATE REFERENCE INFORMATION - DESIGN #1610							
ITEM NO.	ITEM CODE	DESCRIPTION				ITEM NO.	ITEM CODE	DESCRIPTION					
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS --				1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS --					
2	2414-6431100	RETROFIT CONCRETE BARRIER RAILING INCLUDES FURNISHING AND INSTALLING 1" DIAMETER PLASTIC CONDUIT.  INCLUDES 68.7 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE AND 10,873 LBS OF GRADE 60 EPOXY COATED REINFORCING STEEL.  IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.  INCLUDES 717 LBS OF GALVANIZED STRUCTURAL STEEL FOR JUNCTION BOX COVER PLATES.  INCLUDES THE COST OF LOCATING AND VERIFYING USABILITY OF EXISTING CONDUIT IN THE BRIDGE CURB.				RETROFIT CONCRETE BARRIER RAILING INCLUDES FURNISHING AND INSTALLING 1" DIAMETER PLASTIC CONDUIT.  INCLUDES 26.5 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE AND 4160 LBS OF GRADE 60 EPOXY COATED REINFORCING STEEL.  IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.  INCLUDES 1075 LBS OF GALVANIZED STRUCTURAL STEEL FOR JUNCTION BOX COVER PLATES.  INCLUDES THE COST OF LOCATING AND VERIFYING USABILITY OF EXISTING CONDUIT IN THE BRIDGE CURB.							
3	2533-4980005	MOBILIZATION --				3	2533-4980005	MOBILIZATION --					
DESIGN TEAM DLB / BDK / RDM						LINN COUNTY PROJECT NUMBER IMX-380-6(271)16--02-57						SHEET NUMBER V.2	
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ESTIMATED BRIDGE RAIL RETROFIT QUANTITIES - DESIGN #1710						ESTIMATED BRIDGE RAIL RETROFIT QUANTITIES - DESIGN #112					
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.	ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS	LS	1.00		1	2401-6750001	REMOVALS, AS PER PLAN	LS	1.00	
2	2401-6750001	REMOVALS, AS PER PLAN	LS	1.00		2	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	1.4	
3	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	43.9		3	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	252	
4	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	7,271							
5	2413-1200000	STEEL EXTRUSION JOINT WITH NEOPRENE	LF	219.4							
6	2413-1200100	NEOPRENE GLAND INSTALLATION AND TESTING	LF	219.4							
7	2414-6431100	RETROFIT CONCRETE BARRIER RAILING	LF	1,320.3							
8	2533-4980005	MOBILIZATION	LS	1.00							

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2401-6745636	REMOVAL OF EXISTING HANDRAIL AND END POSTS - -
2	2401-6750001	REMOVALS, AS PER PLAN INCLUDES ALL WORK FOR REMOVAL AND OFF-SITE DISPOSAL OF DECK SLAB AND ABUTMENT BACKWALL CONCRETE AND EXPANSION JOINT MATERIAL AT JOINTS "A", "B" AND "C". REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO MATERIAL NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.
3	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS) - -
4	2404-7775005	REINFORCING STEEL, EPOXY COATED INCLUDES MECHANICAL SPLICERS IN THE ABUTMENT BACKWALL AND DECK.
5	2413-1200000	STEEL EXTRUSION JOINT WITH NEOPRENE INCLUDES ALL NECESSARY HARDWARE AND ACCESSORIES INCLUDING THE ANCHORAGE SYSTEM, TEMPORARY ERECTION MATERIAL AND THE $\frac{3}{8}$ " BARRIER PLATES WITH THEIR ANCHORAGE SYSTEM. EXCLUDES INSTALLATION OF NEOPRENE GLAND.
6	2413-1200100	NEOPRENE GLAND INSTALLATION AND TESTING INCLUDES INSTALLATION OF NEOPRENE GLAND AND WATER TESTING OF JOINT.
7	2414-6431100	RETROFIT CONCRETE BARRIER RAILING INCLUDES FURNISHING AND INSTALLING 1" DIAMETER PLASTIC CONDUIT.  INCLUDES 87.5 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE AND 13,739 LBS OF GRADE 60 EPOXY COATED REINFORCING STEEL.  IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.  INCLUDES 1434 LBS OF GALVANIZED STRUCTURAL STEEL FOR JUNCTION BOX COVER PLATES.  INCLUDES THE COST OF LOCATING AND VERIFYING USABILITY OF EXISTING CONDUIT IN THE BRIDGE CURB.
8	2533-4980005	MOBILIZATION - -

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2401-6750001	REMOVALS, AS PER PLAN INCLUDES ALL WORK FOR REMOVAL AND OFF-SITE DISPOSAL OF EXISTING CONCRETE RAILING END SECTION. REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401, OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO MATERIAL NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.
2	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS) INCLUDES FURNISHING AND INSTALLING 1 INCH DIAMETER PLASTIC CONDUIT.  INCLUDES CLEANING EXISTING CONCRETE RAIL, FURNISHING AND PLACING CONCRETE SEALER.
3	2404-7775005	REINFORCING STEEL, EPOXY COATED - -

ESTIMATED BRIDGE RAIL RETROFIT QUANTITIES - DESIGN #212

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2401-6750001	REMOVALS, AS PER PLAN	LS	1.00	
2	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	1.4	
3	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	252	

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2401-6750001	REMOVALS, AS PER PLAN INCLUDES ALL WORK FOR REMOVAL AND OFF-SITE DISPOSAL OF EXISTING CONCRETE RAILING END SECTION. REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401, OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO MATERIAL NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.
2	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS) INCLUDES FURNISHING AND INSTALLING 1 INCH DIAMETER PLASTIC CONDUIT.  INCLUDES CLEANING EXISTING CONCRETE RAIL, FURNISHING AND PLACING CONCRETE SEALER.
3	2404-7775005	REINFORCING STEEL, EPOXY COATED - -

\*\*\*\* = DESIGN NUMBERS 1710, 112, 212.

NOTE:  
ROADWAY QUANTITIES SHOWN  
ELSEWHERE IN THESE PLANS.

DESIGN FOR REPAIRS TO  
DUAL VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND  
  
ESTIMATED QUANTITIES  
JANUARY, 2012  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 3 OF 59 FILE NO. 30514 DESIGN NO. \*\*\*\*

DESIGN TEAM DLB / BDK / RDM

LINN COUNTY

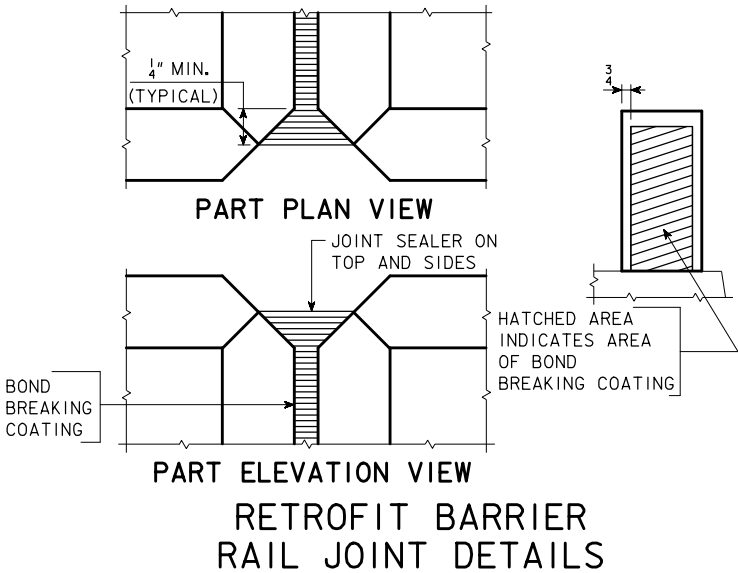
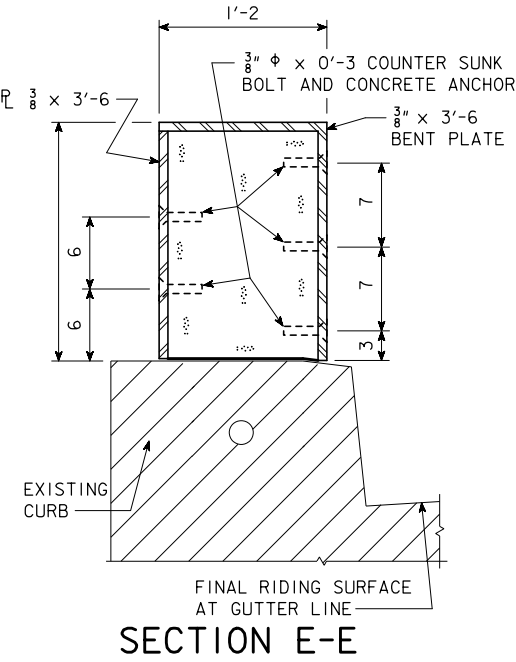
PROJECT NUMBER IMX-380-6(271)16--02-57

SHEET NUMBER V.3



THE INTENT OF THESE DESIGNS IS TO CONSTRUCT CAST IN PLACE RETROFIT BARRIER RAILS ON 8 EXISTING BRIDGES AND RAMPS, AND REPLACE THREE EXPANSION JOINTS ON ONE BRIDGE, ON I-380 IN CEDAR RAPIDS. COPIES OF THE ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES.

LIST OF RETROFIT RAIL BRIDGES				
DESIGN. #	LOCATION	STATION	FHWA #	MAINT. #
510	S.B. I-380 OVER 1ST, 2ND, 3RD AVE. S.W. & IA922, US151 & 1ST, 3RD ST. N.W.	322+81.95	603688	5719.7L380
810	RAMP D-3 OVER 3RD ST. N.W.	322+81.95	603930	5719.9A380
910	S.B. I-380 OVER CEDAR RIVER	344+28.26	603700	5720.1S380
1110	S.B. I-380 OVER 1ST, 2ND, 3RD, 4TH ST. N.E. & R.R.	344+28.26	603692	5720.3L380
1210	RAMP F-1 OVER 2ND ST. N.E.	344+28.26	603960	5720.2A380
1410	RAMP E-2 OVER 2ND ST. N.E.	344+28.26	603950	5720.1A380
1610	S.B. I-380 OVER 33RD AVE. S.W.	208+53.95	603022	5717.6L380
1710	S.B. I-380 OVER 8TH AVE. S.W. & C/C R.R.	295+96.90	607090	5719.2L380



RETROFIT BARRIER  
RAIL JOINT DETAILS

#### DOWEL SETTING NOTES:

THE 6c1 & 6c2 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. EITHER OF THE FOLLOWING SYSTEMS MAY BE USED AS A BONDING AGENT FOR VERTICAL DOWELS, BUT ONLY SYSTEM "A" MAY BE USED FOR HORIZONTAL DOWELS:

- POLYMER GROUT SYSTEM IN ACCORDANCE WITH STANDARD SPECIFICATIONS ARTICLE 2301.03,E.
- HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2½ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

#### RETROFIT BARRIER RAILING NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN. THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER. ALL DIMENSIONS AND DETAILS SHOWN IN THESE PLANS PERTINENT TO NEW CONSTRUCTION IN RELATION TO EXISTING PORTIONS OF THE STRUCTURE SHALL BE VERIFIED IN THE FIELD BY THE BRIDGE CONTRACTOR BEFORE STARTING CONSTRUCTION. FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE. THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS 5/8 INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

COST OF JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION. THE RETROFIT BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF RETROFIT BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR RETROFIT CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL (INCLUDING REINF. STEEL AND 1"ϕ PLASTIC CONDUIT) PLUS ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS. IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE. ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED. THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETING FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED. THE PRICE BID FOR "REMOVAL OF EXISTING HANDRAIL AND END POSTS" SHALL INCLUDE ALL COSTS ASSOCIATED WITH DISMANTLING THE EXISTING ALUMINUM HANDRAIL (APPROX. 12 424 L.F. AND 1465 POSTS). THE RAILS AND POSTS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE BY THE CONTRACTOR. THE BID ITEM SHALL ALSO INCLUDE ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING CONCRETE END POSTS AND THE CUTTING OFF AND PAINTING OF THE EXISTING RAIL POST ANCHOR BOLTS IF REQUIRED. ANY REMOVALS REQUIRED SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE STATE. EXISTING BRIDGE RAIL IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE EXISTING CONDUIT IN THE BRIDGE CURBS. IN ORDER TO ENSURE THE EXISTING CONDUITS AND/OR ELECTRICAL SERVICE (IF PRESENT) ARE NOT DAMAGED DURING PLACEMENT OF THE RETROFIT CONCRETE BARRIER RAILING, THE CONTRACTOR SHALL BE REQUIRED TO DO THE FOLLOWING:

- PHYSICALLY LOCATE THE CONDUIT AT APPROXIMATELY 50 FOOT INTERVALS PRIOR TO DRILLING ANY HOLES FOR 3/4" DIAMETER DOWEL BARS.
- AFTER COMPLETION OF DRILLING FOR THE 3/4" DOWEL BARS AND PRIOR TO PLACEMENT OF THE DOWELS, PROVE TO THE INSPECTOR BY A REASONABLE METHOD THE USABILITY OF THE CONDUIT HAS NOT BEEN COMPROMISED.

COST OF THESE OPERATIONS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE RETROFIT CONCRETE BARRIER RAILING. ANY DAMAGE TO THE CONDUIT OR WIRING BY THE CONTRACTOR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

\*\*\*\* = DESIGN NUMBERS 510, 810, 910, 1110, 1210, 1410, 1610, 1710.

#### SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 2009.  
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2009, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

#### DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2002. REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60. CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 4,000 PSI.

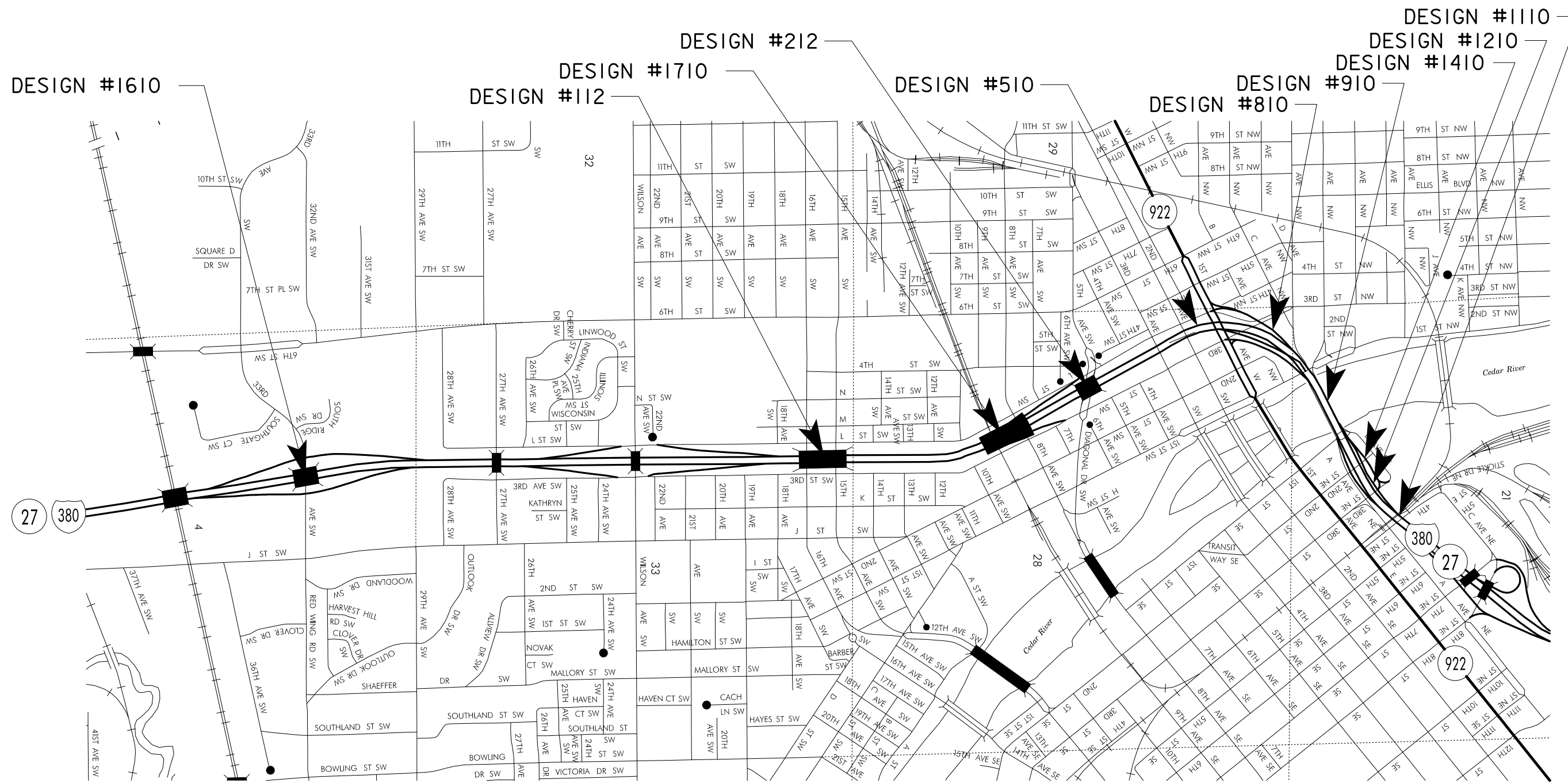
DESIGN FOR REPAIRS TO  
**DUAL VARIABLE WIDTH  
C.W.P.G. BRIDGES - SOUTHBOUND**

#### GENERAL NOTES

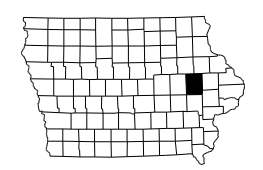
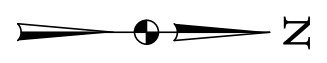
JANUARY, 2012

#### LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 4 OF 59 FILE NO. 30514 DESIGN NO. **\*\*\*\***



LOCATION MAP  
PART OF CITY OF CEDAR RAPIDS



\*\*\*\* = DESIGN NUMBERS 510, 810, 910,  
1110, 1210, 1410, 1610, 1710, 112, 212.

DESIGN FOR REPAIRS TO

DUAL VARIABLE WIDTH

C.W.P.G. BRIDGES - SOUTHBOUND

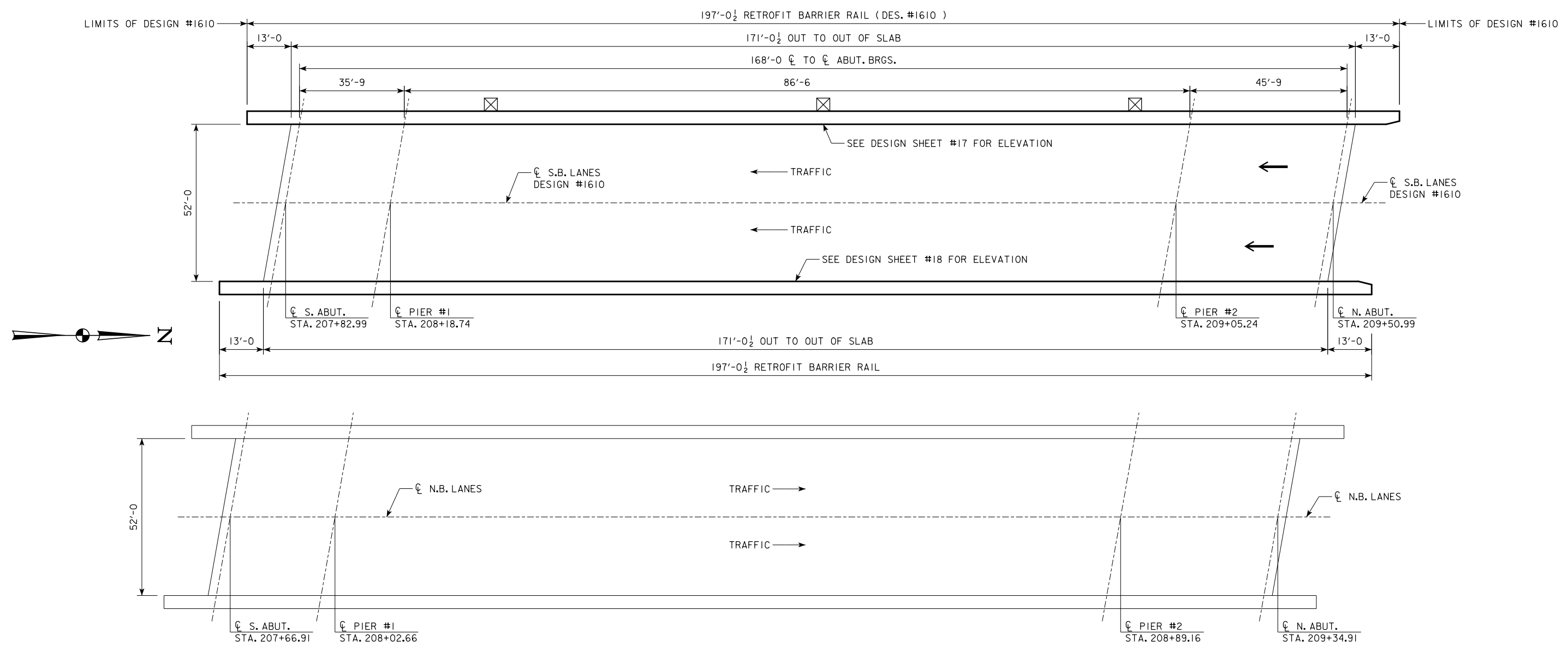
GENERAL PLAN

JANUARY, 2012

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 59 FILE NO. 30514 DESIGN NO. \*\*\*\*



SITUATION PLAN

LOCATION:

SB I-380 OVER 33RD AVE. S.W.  
T-82 N R-7 W  
SECTION 4  
RAPIDS TOWNSHIP  
LINN COUNTY  
MAINT. NO. 5717.6L380  
FHWA NO. 603022  
LATITUDE 41.94508388°  
LONGITUDE -91.6704733°

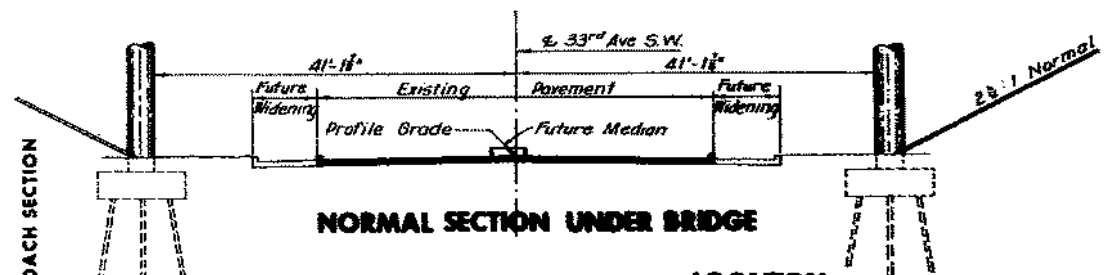
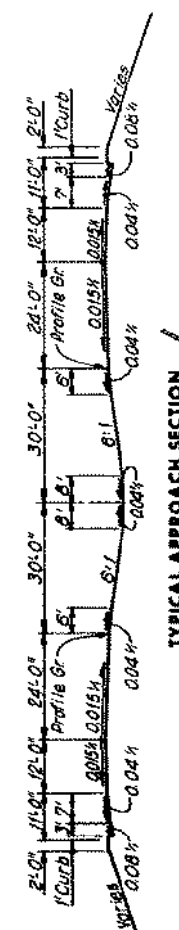
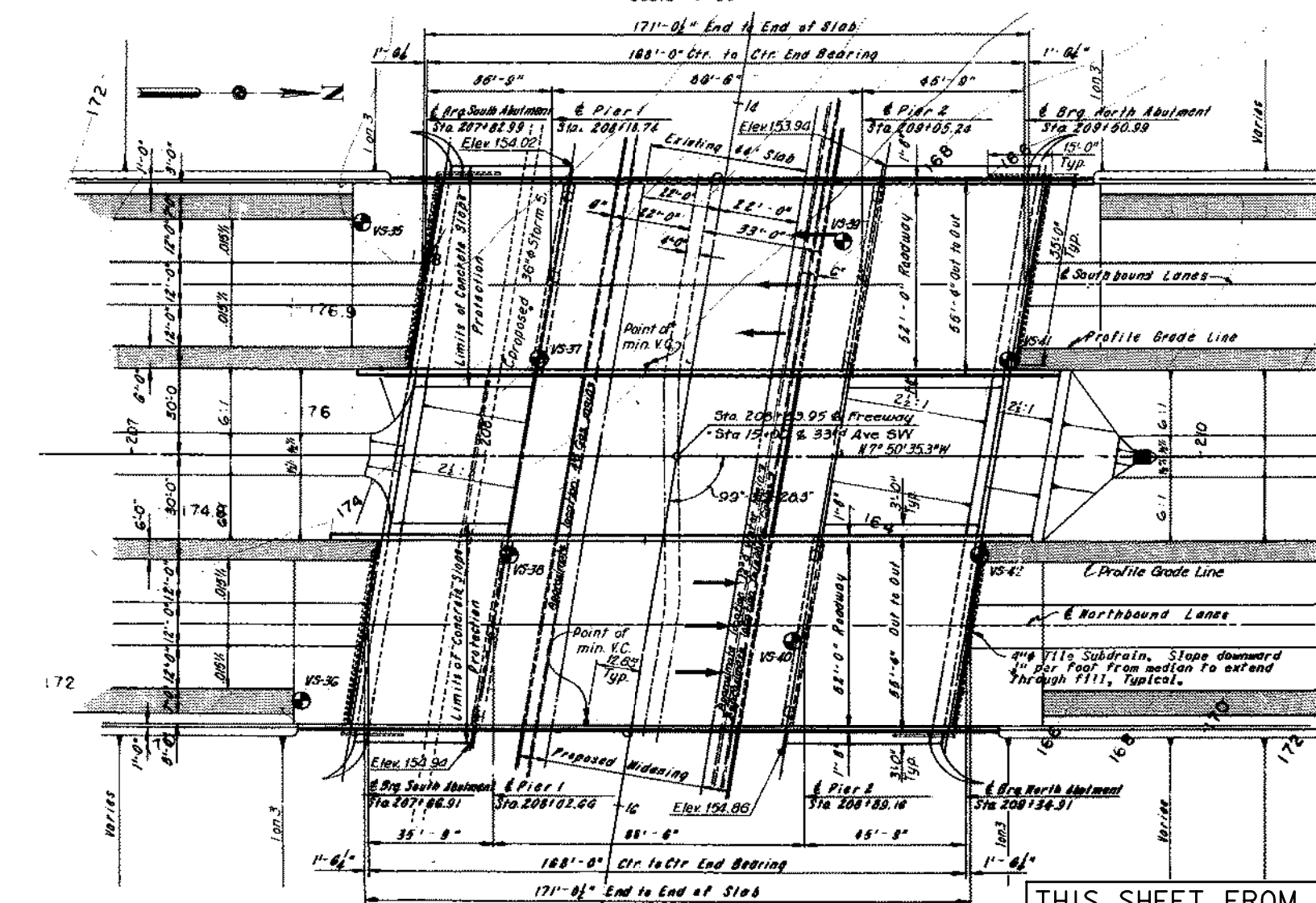
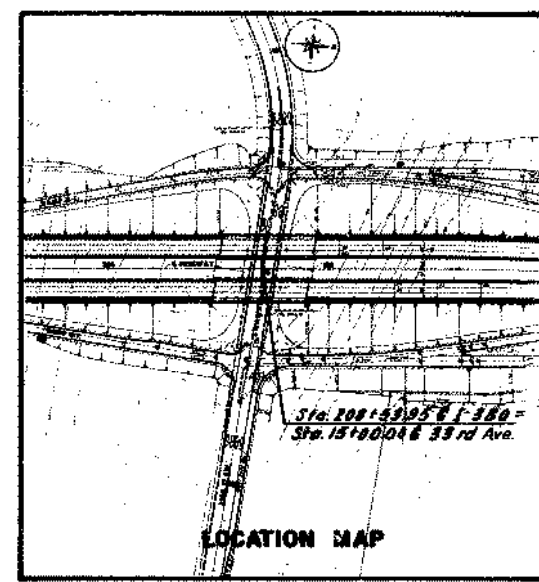
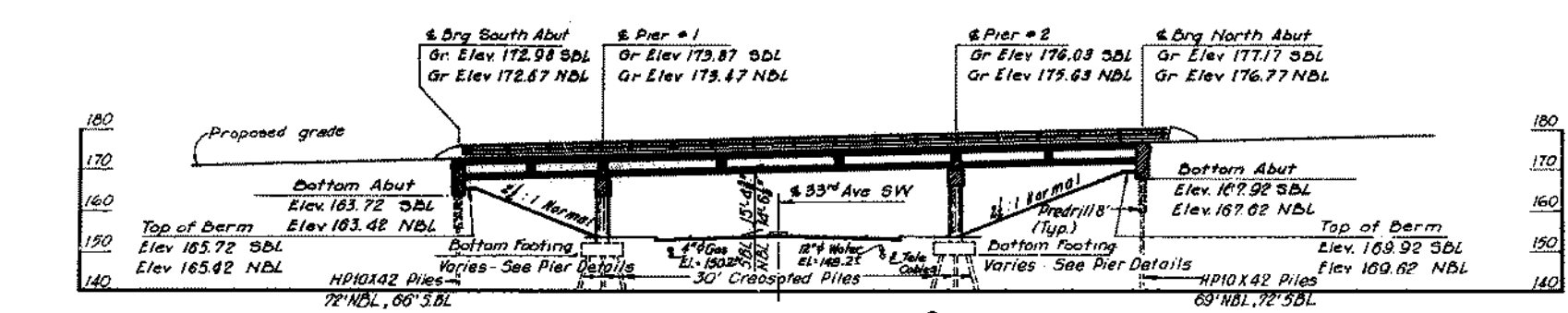
DESIGN HISTORY AT THIS SITE	
DES. NO.	TYPE OF WORK
1870	ORIGINAL DESIGN
1684	OVERLAY - SOUTHBOUND

DESIGN FOR REPAIRS TO  
**168'-0 x 52'-0 P.P.C.B.  
SOUTHBOUND**  
**SITUATION PLAN**  
**LINN COUNTY**  
JANUARY, 2012  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 6 OF 59 FILE NO. 30514 DESIGN NO. 1610

☒ = APPROXIMATE LIGHTING JUNCTION BOX LOCATION.



FEDERAL ROUTE NO.	STATE	FED. AID FUND. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA				



**LOCATION**  
Cedar Valley Freeway over 33rd Ave.  
City of Cedar Rapids  
Linn County  
Rapid Turn 182M RTW Section 4

**DESIGN TRAFFIC**  
1-380 Traffic Count 30,100  
Two-Way WPD (1994)

DESIGN NO. 1610  
FILE NO. 30514  
DESIGN SHEET NO. 7 OF 59

**1-380 OVER 33rd AVENUE**  
DESIGN FOR 9°30'25" SKEW  
**DUAL 168'-0"X52'-0" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE**  
35'-9, 66'-4, 45'-9 SPANS

**SITUATION PLAN**  
STA. 208+43.95 & 1+380 = STA. 15+00.04 & 33rd AVE. S.W.  
PROJECT NO. 1-380-44421260-01-57  
**LINN COUNTY**  
IOWA STATE HIGHWAY COMMISSION  
JUNE 1972  
DESIGN NO. 1610 LINN COUNTY FILE 20000 SHEET 7 OF 59

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.  
*Paul L. Robinson*  
Paul L. Robinson, P. E., Iowa Reg. No. 6126



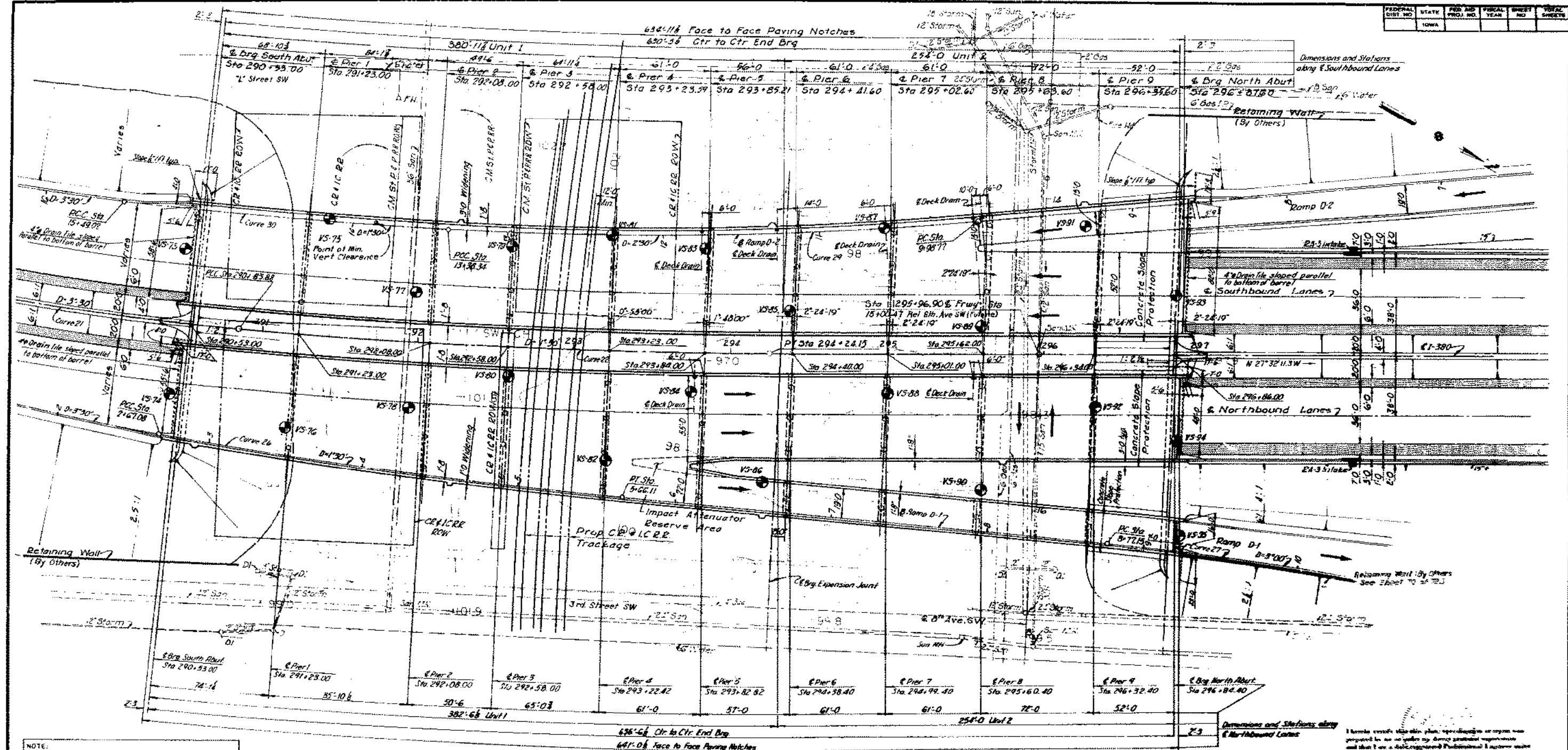
**NOTE:** All dimensions are measured horizontally.  
⊙ indicates sounding location. For Sounding Data, see Sheet 3 thru 5 of 25.

**BENCH MARK**  
H-72: 1/4" cut in northeast bolt in top flange of fire hydrant on west side of J Street in front of 3209 J Street, S.W. Elevation 180.320

THIS SHEET FROM ORIGINAL DESIGN PLANS IS INCLUDED FOR INFORMATION ONLY.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
LANCASTER, MASS.  
NEW YORK  
MARK: ALG. DATE: 08-17-71. CHECKED: DMS. DATE: 3-15-72





**NOTE:**  
The information shown on this drawing concerning type and location of underground utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determinations as to the type and location of underground utilities as may be necessary to avoid damage thereto.

**HOWARD, NEEDLES, TAMMEN & BERGENDOFF**  
CONSULTING ENGINEERS  
KANSAS CITY

MADE 3-15 DATE 3-2-72 CHECKED L.H.B. DATE 3-7-72

**CURVE DATA**

<b>CURVE 21 @ I-380</b> P.V.I. Sta. 288+22.930 A = 18°25'36.5" D = 3°30'00.0" T = 265.533 L = 526.480 E = 21.396 R = 1637.022	<b>CURVE 22 @ I-380</b> P.V.I. Sta. 292+54.124 A = 5°06'14.5" D = 1°30'00.0" T = 170.247 L = 340.268 E = 3.752 R = 3819.719	<b>CURVE 26 @ Ramp D-1</b> P.V.I. Sta. 4+16.674 A = 4°29'07.7" D = 1°30'00.0" T = 149.592 L = 299.031 E = 2.320 R = 3819.719
<b>CURVE 27 @ Ramp D-2</b> P.V.I. Sta. 9+94.253 A = 7°01'03.5" D = 3°00'00.0" T = 117.107 L = 233.921 E = 3.587 R = 1909.859	<b>CURVE 29 @ Ramp D-2</b> P.V.I. Sta. 11+68.869 A = 8°25'21.0" D = 2°30'00.0" T = 170.095 L = 339.567 E = 6.303 R = 2291.831	<b>CURVE 30 @ Ramp D-2</b> P.V.I. Sta. 14+43.707 A = 3°09'35.6" D = 1°30'00.0" T = 105.366 L = 210.678 E = 1.453 R = 3819.719

**BENCH MARK**

H-90 Tip of arrowhead on top of fire hydrant on northeast corner of 3rd Street and 8th Avenue, SW. Elev. 102.078

**THIS SHEET FROM ORIGINAL DESIGN PLANS IS INCLUDED FOR INFORMATION ONLY.**

Note: All dimensions are measured horizontally. ● indicates sounding location. For Sounding Data, see Sheets 5 thru 13 of 72.

**SITUATION PLAN**

**LOCATION**

I-380 over 8th Ave. S.W., C.M.S.T.P. and P.R.R., C.R. and I.C.R.R.  
City of Cedar Rapids  
Linn County  
Rapids Ten  
183N R7W  
Section 28

**DESIGN TRAFFIC**

I-380 Traffic Count 49,300  
Two-way V.P.D. (1994)  
Ramp D-1 Traffic Count 5,984  
one-way V.P.D. (1994)  
Ramp D-2 Traffic Count 5,984  
one-way V.P.D. (1994)

DESIGN NO. 1710  
FILE NO. 30514  
DESIGN SHEET NO. 9 OF 59

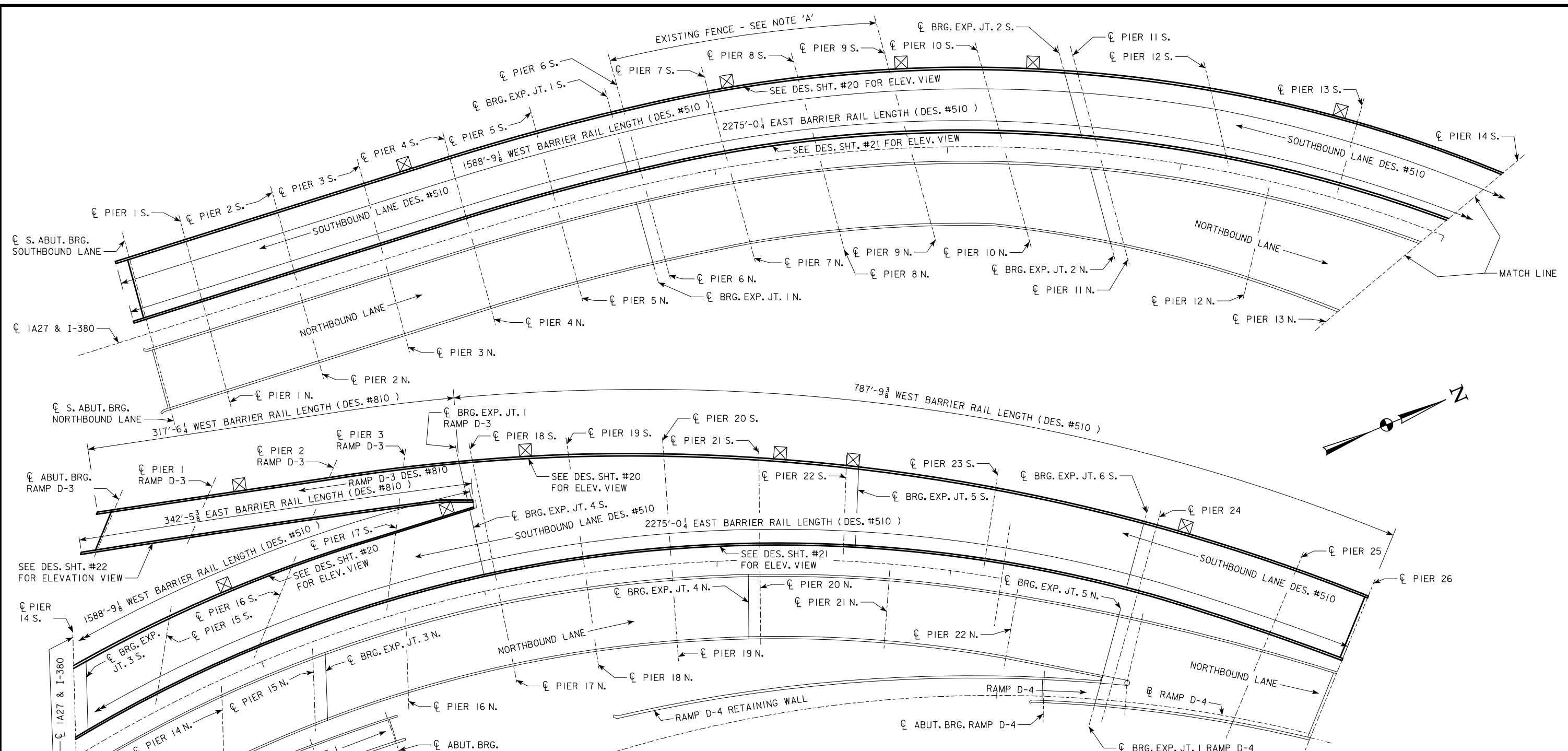
**I-380 OVER C.M.S.T.P., P.R.R., C.R. & I.C.R.R. AND 8th AVE. S.W.**  
DESIGN FOR VARIABLE SKED  
**DUAL 63'-0" x VARIABLE WIDTH CONTINUOUS WELDED PLATE GIRDER BRIDGE**  
16'-0.85'-0.50'-0.65'-0.47'-0.34'-0.45'-0.47'-0.77'-0.52'-0 SPANS

**SITUATION PLAN**

STA. 295+94.98 @ I-380 = STA. 15+00.47 @ 8th AVE. (FUTURE)  
PROJECT NO. I-380-4(79)261-00-57  
**LINN COUNTY**  
IOWA STATE HIGHWAY COMMISSION

ISHC of Linn County





SITUATION PLAN

LOCATION DES. #510:

SB I-380 OVER 1ST, 2ND, 3RD AVE. S.W. &  
IA922, US151 & 1ST, 3RD ST. N.W.  
T-83 N R-7 W  
SECTION 21 & 28  
RAPIDS TOWNSHIP  
LINN COUNTY  
MAINT. NO. 5719.7L380  
FHWA NO. 603688  
LATITUDE 41.97168402°  
LONGITUDE -91.67410981°

LOCATION DES. #810:

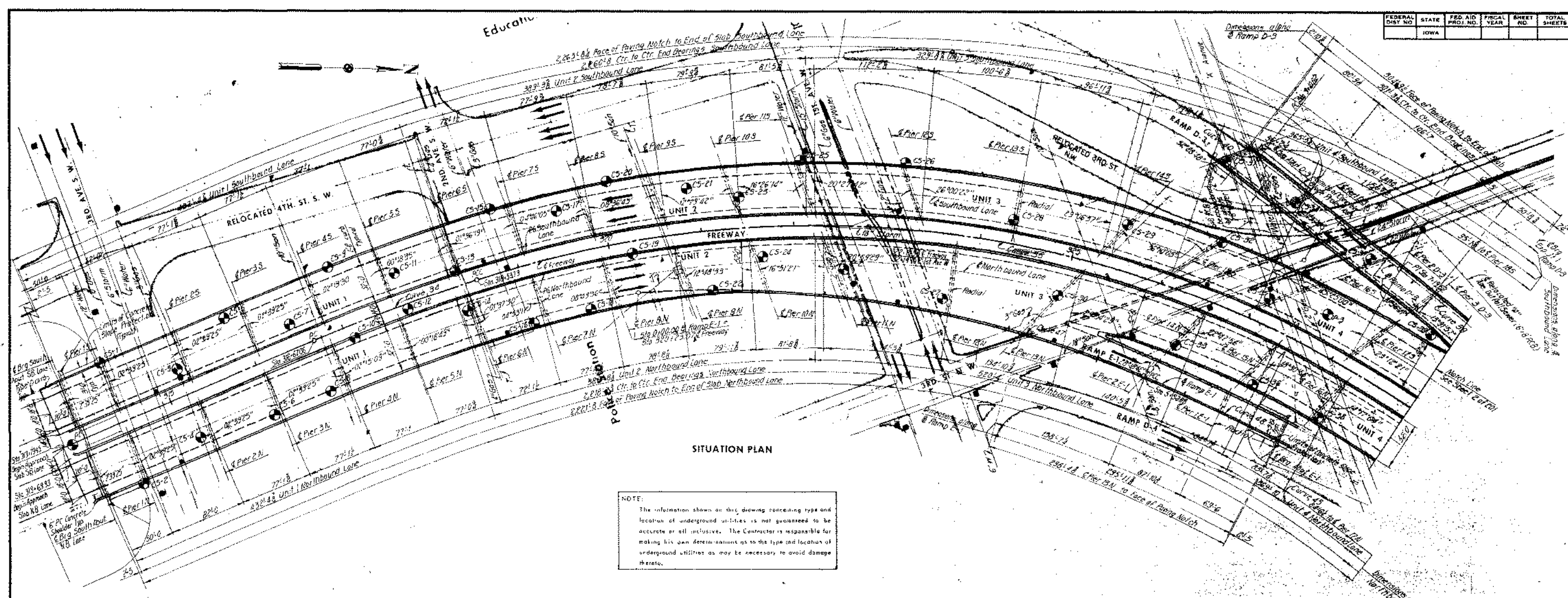
SB I-380 RAMP D-3 OVER 3RD ST. N.W.  
T-83 N R-7 W  
SECTION 21 & 28  
RAPIDS TOWNSHIP  
LINN COUNTY  
MAINT. NO. 5719.9A380  
FHWA NO. 603930  
LATITUDE 41.97679719°  
LONGITUDE -91.67647399°

☒ = APPROXIMATE LIGHTING JUNCTION BOX LOCATION.

NOTE 'A':  
EXISTING FENCE ON OUTSIDE RAIL OF SOUTHBOUND BRIDGE  
TO BE REMOVED DURING RETROFIT RAIL CONSTRUCTION AND  
REPLACED WHEN CONSTRUCTION IS COMPLETE.

DESIGN HISTORY AT THIS SITE	
DES. NO.	TYPE OF WORK
1276	ORIGINAL DESIGN
1786	BRIDGE FLOOR SURFACE REPAIR
102	JOINT REPAIR - SOUTHBOUND

DESIGN FOR REPAIRS TO  
**DUAL VARIABLE WIDTH  
C.W.P.G. BRIDGES - SOUTHBOUND**  
**SITUATION PLAN**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 10 OF 59 FILE NO. 30514 DESIGN NO. 510, 810



FEDERAL AID NO.	STATE AID NO.	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA				

#### CURVE DATA

Curve 34 @ Interch. P.I. Sta. 51+60.450 Δ = 4°40'00.0" D = 2°30'00.0" L = 95.388 E = 1.502 H = 2291.831	Curve 35 @ Interch. P.I. Sta. 52+27.203 Δ = 74°37'57.3" D = 5°00'00.0" L = 875.469 E = 1452.652 H = 1125.916	Curve 36 @ Southbound Lane P.I. Sta. 54+24.104 Δ = 8°11'31.0" D = 4°56'35.2" L = 165.768 E = 24.531 H = 1159.916	Curve 37 @ Northbound Lane P.I. Sta. 53+07.126 Δ = 12°53'16.1" D = 2°30'00.0" L = 259.648 E = 515.512 H = 14.571
Curve 38 @ Southbound Lane P.I. Sta. 55+08.879 Δ = 4°41'59.5" D = 2°30'00.0" L = 94.022 E = 1.928 H = 2291.831	Curve 39 @ Ramp D-3 P.I. Sta. 5+55.661 Δ = 25°11'00.2" D = 3°30'00.0" L = 355.669 E = 719.525 H = 1637.022	Curve 40 @ Ramp D-3 P.I. Sta. 10+11.504 Δ = 12°03'15.0" D = 6°00'00.0" L = 101.375 E = 202.002 H = 934.930	Curve 41 @ Ramp D-4 P.I. Sta. 5+05.011 Δ = 25°04'50.8" D = 4°00'00.0" L = 305.521 E = 602.020 H = 1432.334
Curve 42 @ Ramp D-4 P.I. Sta. 10+51.570 Δ = 24°31'27.9" D = 5°00'00.0" L = 249.053 E = 490.438 H = 26.753	Curve 43 @ Ramp E-1 P.I. Sta. 2+81.928 Δ = 27°38'57.6" D = 5°00'00.0" L = 281.928 E = 352.875 H = 1145.916	Curve 44 @ Ramp E-1 P.I. Sta. 8+04.504 Δ = 12°31'52.4" D = 2°30'00.0" L = 251.622 E = 501.243 H = 13.772	Curve 45 @ Ramp E-1 P.I. Sta. 5+05.011 Δ = 25°04'50.8" D = 4°00'00.0" L = 305.521 E = 602.020 H = 1432.334

#### BENCH MARK

- BM - 45 "X" cut in last top coat on top of fire hydrant on N.W. corner of 3rd St. and 3rd Ave. S.W. E.L. 93.95
- BM - 46 "X" cut in concrete wall on top of fire hydrant on N.W. corner of 1st Ave. and 3rd St. N.W. E.L. 97.96
- BM - 47 "X" cut in concrete wall on top of fire hydrant on S.W. corner of 1st Ave. and 1st St. S.W. E.L. 100.93

#### LOCATION

I-380 over 3rd Ave S.W., 2nd Ave. S.W., 1st Ave. W., 3rd St. N.W., and 1st St. N.W.  
City of Cedar Rapids  
Linn County  
Roads 140-1-83W H-7W  
Sections 21 and 22

#### DESIGN TRAFFIC

- I-380 Traffic Count  
40,420 Two Way V.P.D. (1994)
- Ramp E-1 Traffic Count  
2,770 One Way V.P.D. (1994)
- Ramp D-3 Traffic Count  
12,940 One Way V.P.D. (1994)
- Ramp D-4 Traffic Count  
12,940 One Way V.P.D. (1994)

Notes:  
• All dimensions are measured horizontally.  
• Indicates sounding location.  
• Sounding data see Sheets 4, 5, 6, 7, and 8 of 201.  
• Indicates point of minimum vertical clearance.

1990 Natural Resources Council Approval  
Order No. 72-29, dated February 8, 1972.

THIS SHEET FROM ORIGINAL  
DESIGN PLANS IS INCLUDED  
FOR INFORMATION ONLY.

DESIGN NO: 510, 810  
FILE NO. 30514  
DESIGN SHEET NO. 11 OF 59

CEDAR RIVER BRIDGE-  
SOUTH APPROACH  
DESIGN FOR VARIABLE SKEW  
CONTINUOUS WELDED PLATE GIRDER BRIDGE

#### SITUATION PLAN

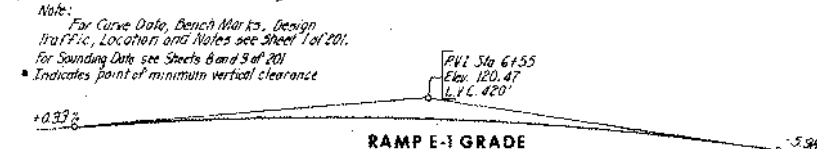
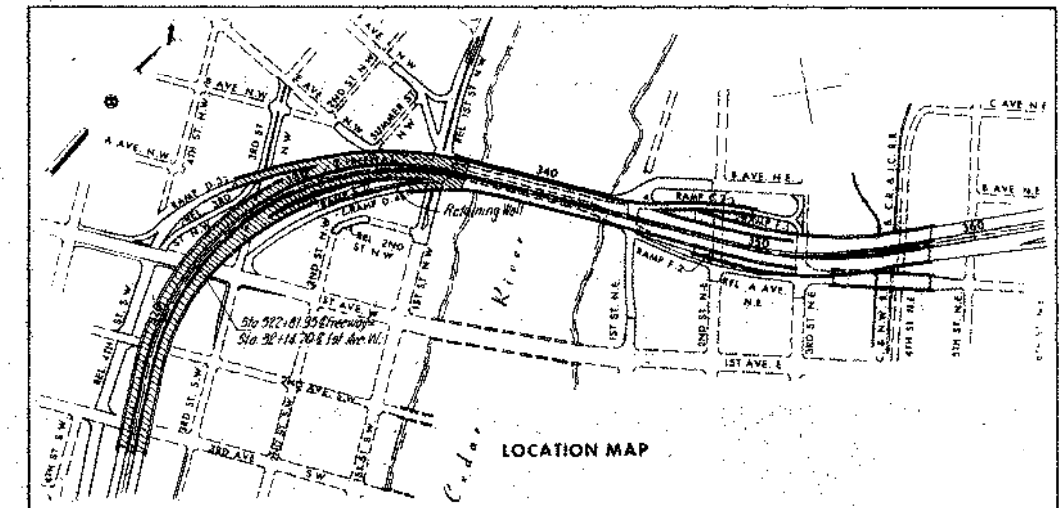
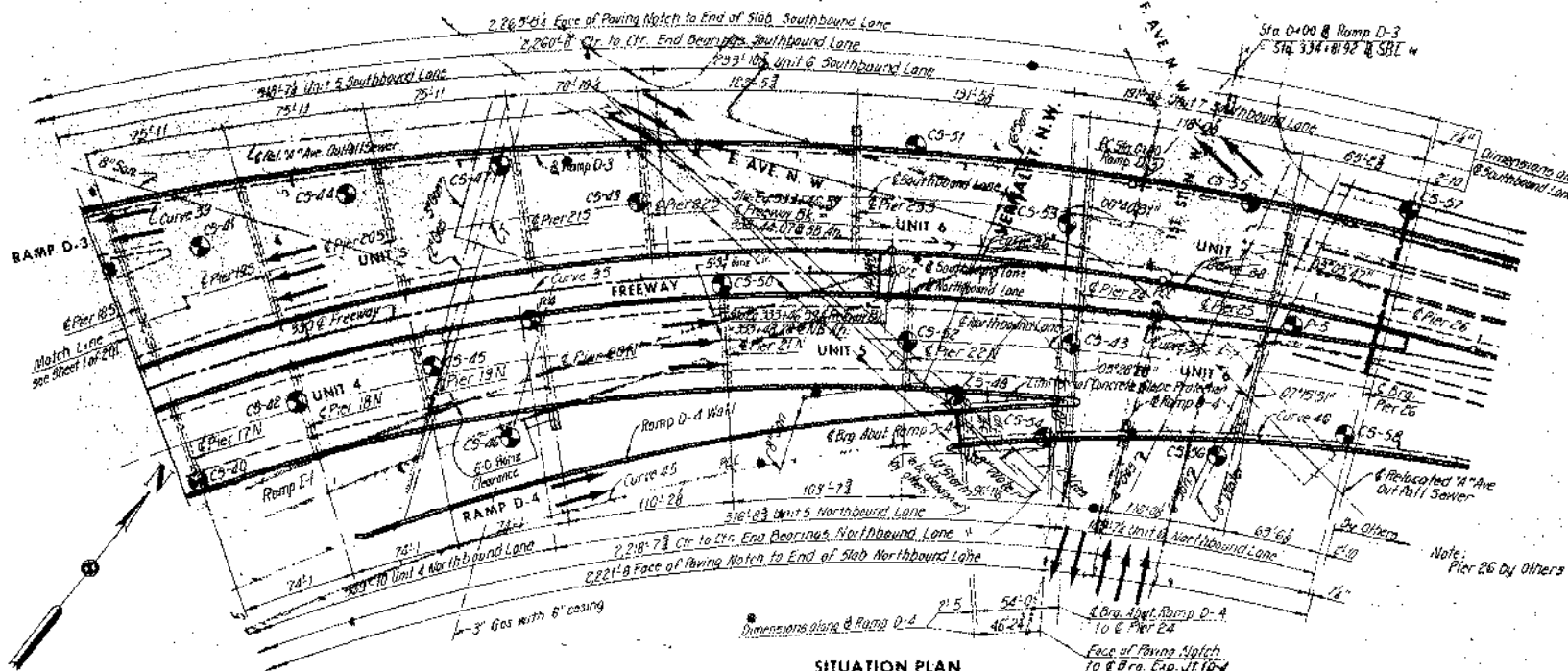
STA. 322+81.95 @ FREEWAY=  
STA. 324+47.0 @ 1ST. AVE. W.  
PROJECT NO. I-380-6(68)263-01-57  
LINN COUNTY  
IOWA STATE HIGHWAY COMMISSION

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
KANSAS CITY

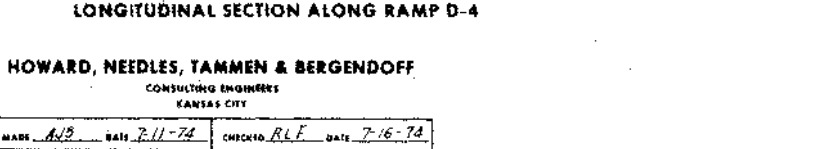
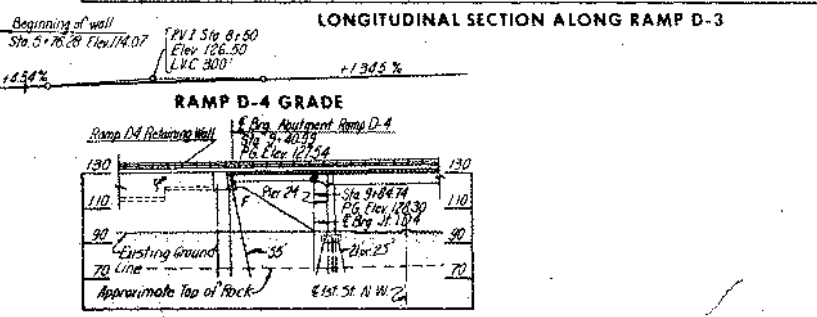
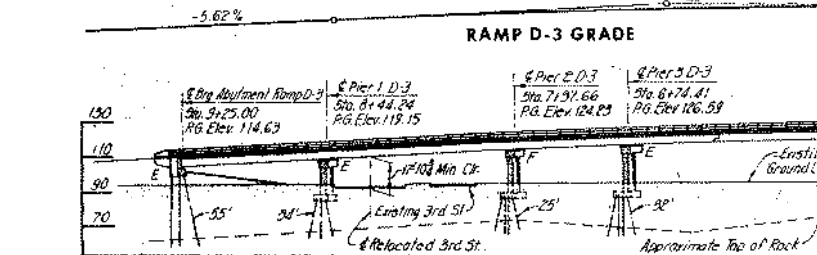
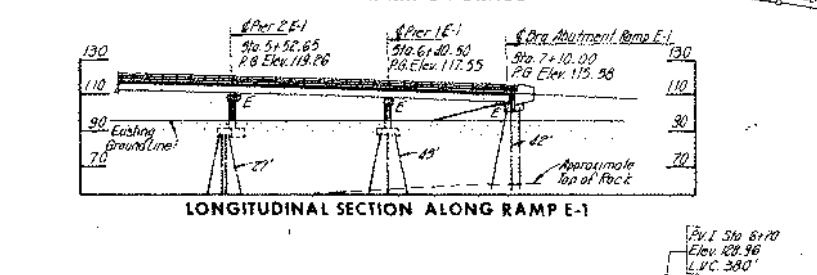
MADE A.S. DATE 7-11-74 CHECKED R.L.F. DATE 7-16-74

DESIGN NO. 1276 LINN COUNTY FILE 23191 SHEET 3 OF 203-0

FEDERAL DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA				



NOTE:  
The information shown on this drawing concerning type and location of underground utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determinations as to the type and location of underground utilities as may be necessary to avoid damage thereto.



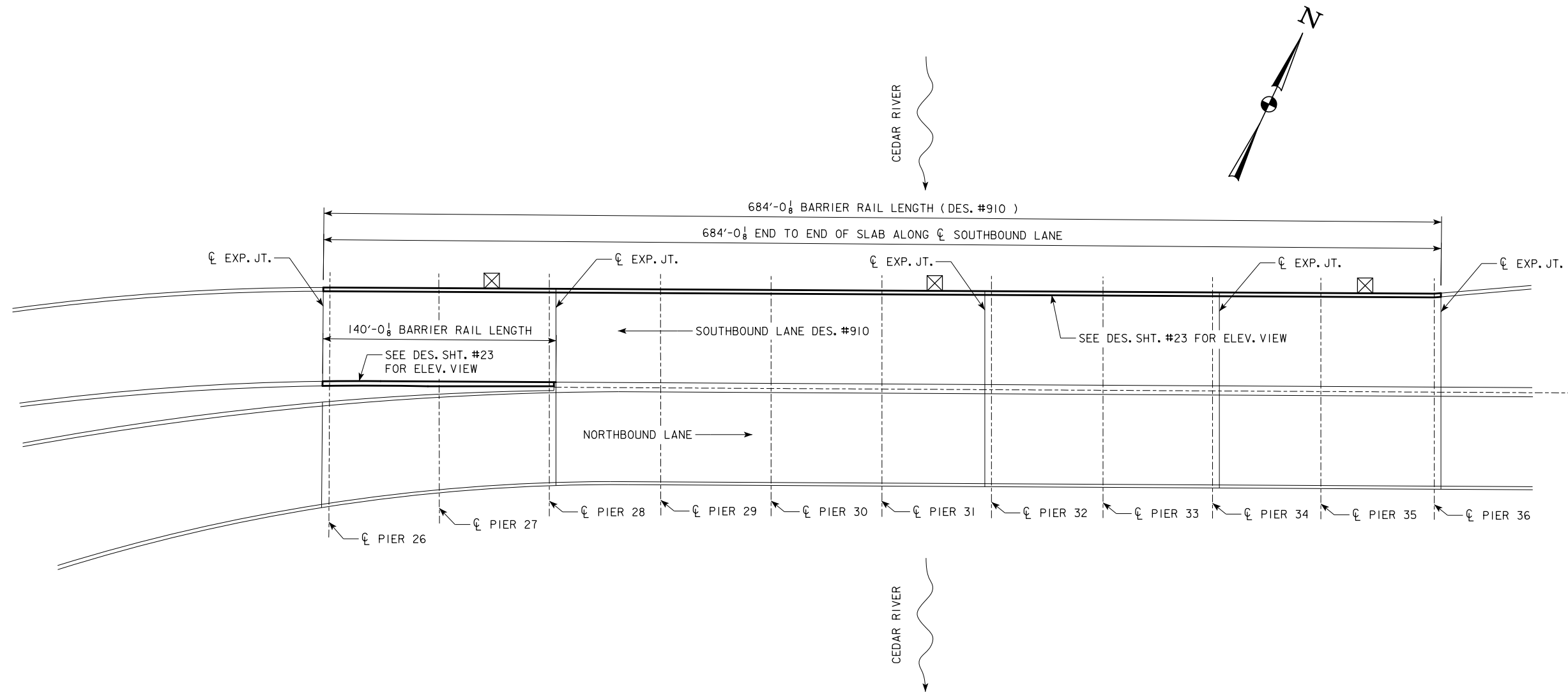
THIS SHEET FROM ORIGINAL DESIGN PLANS IS INCLUDED FOR INFORMATION ONLY.

DESIGN NO. 510, 810  
FILE NO. 30514  
DESIGN SHEET NO. 12 OF 59

CEDAR RIVER BRIDGE  
SOUTH APPROACH  
DESIGN FOR VARIABLE SKEW  
CONTINUOUS WELDED PLATE GIRDER BRIDGE

SITUATION PLAN  
STA. 322+81.95 @ FREEWAY =  
STA. 32+14.70 @ 1ST AVE. W  
PROJECT NO. 1-380-6(08)263--01-57  
LINN COUNTY  
IOWA STATE HIGHWAY COMMISSION





SITUATION PLAN

LOCATION:

SB I-380 OVER CEDAR RIVER  
T-83 N R-7 W  
SECTION 21  
RAPIDS TOWNSHIP  
LINN COUNTY  
MAINT. NO. 5720.IS380  
FHWA NO. 603700  
LATITUDE 41.97721835°  
LONGITUDE -91.67572369°

DESIGN HISTORY  
AT THIS SITE

DES. NO.	TYPE OF WORK
174	ORIGINAL DESIGN
395	BRIDGE REPAIR (PIERS & SEALS)
1786	BRIDGE FLOOR SURFACE REPAIR
202	JOINT REPAIR - SOUTHBOUND

☒ = APPROXIMATE LIGHTING JUNCTION BOX LOCATION.

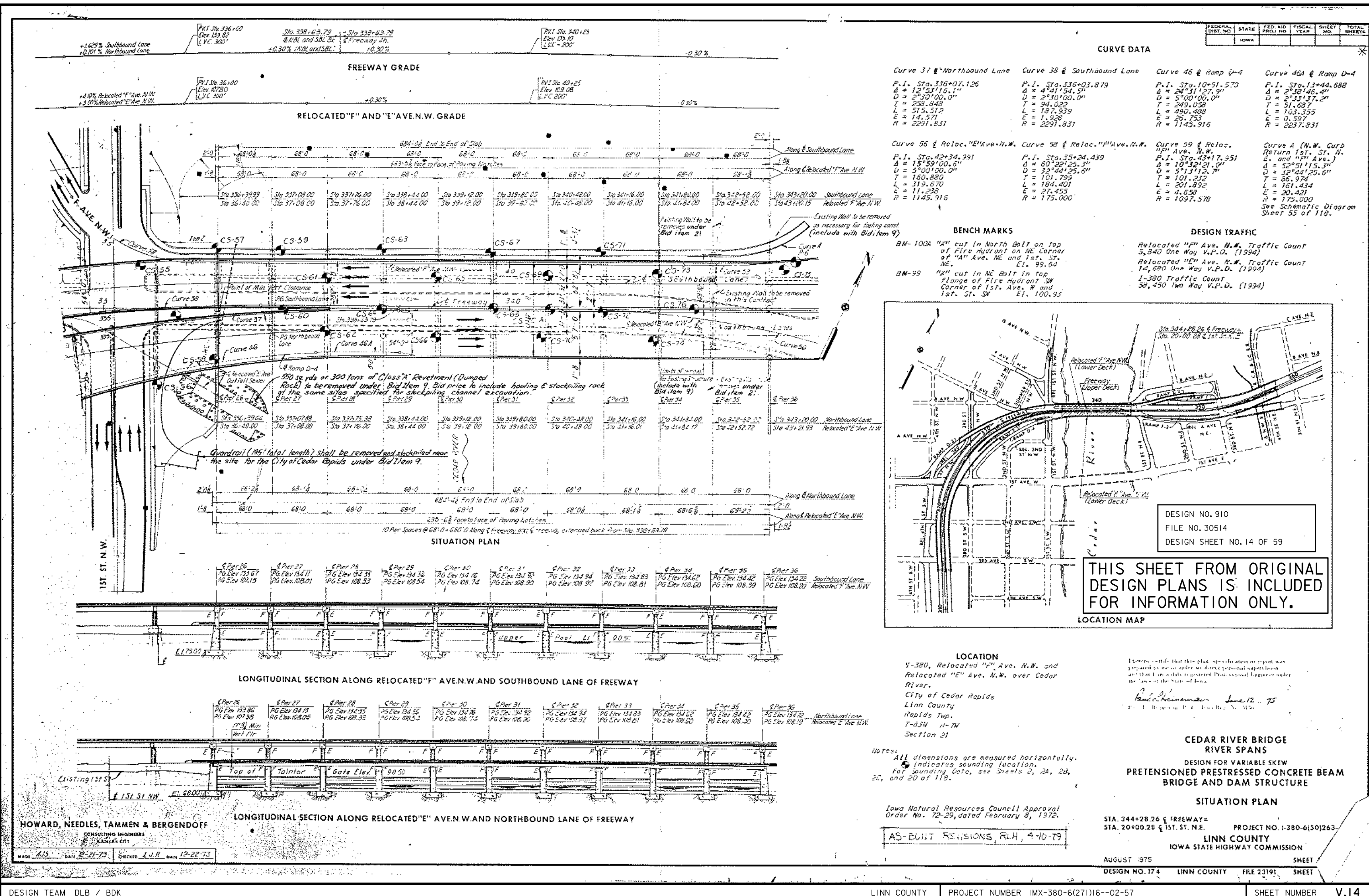
DESIGN FOR REPAIRS TO  
684'-0 x 111'-5  
P.P.C.B. BRIDGE - SOUTHBOUND

SITUATION PLAN

LINN COUNTY

JANUARY, 2012

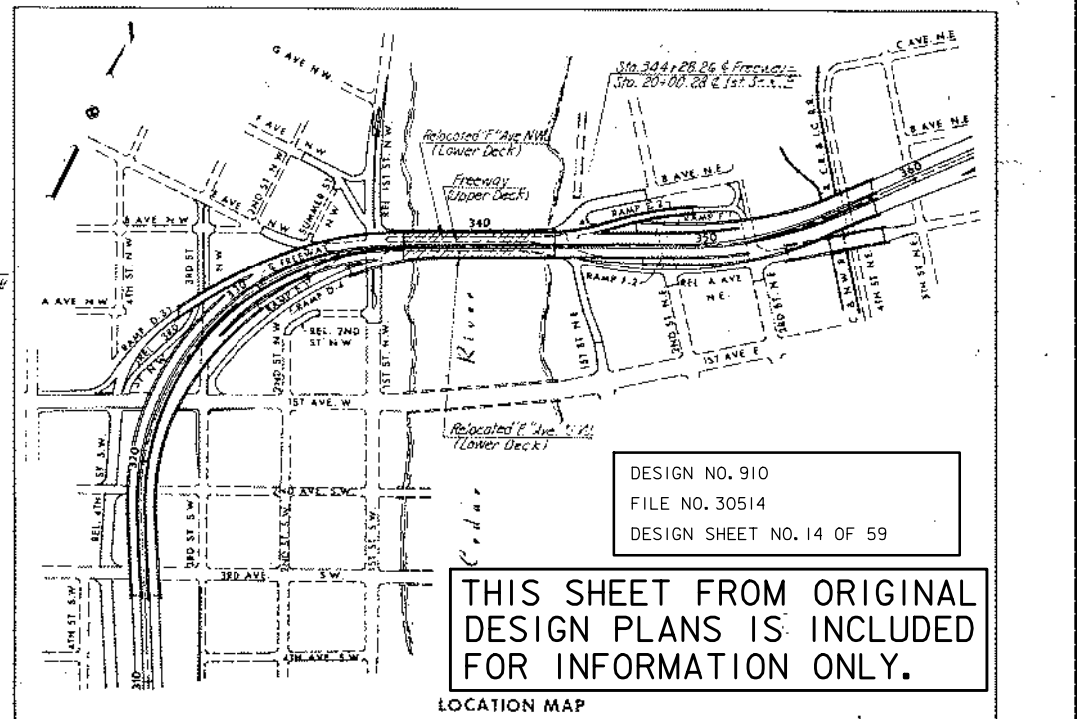
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 13 OF 59 FILE NO. 30514 DESIGN NO. 910



CURVE DATA					
FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA				
Curve 31 @ Northbound Lane					
P.I. Sta. 336+07.126					
Δ = 12°53'16.1"					
D = 2°30'00.0"					
T = 258.848					
L = 515.572					
E = 14.571					
R = 2291.831					
Curve 38 @ Southbound Lane					
P.I. Sta. 336+03.879					
Δ = 4°41'54.5"					
D = 2°30'00.0"					
T = 94.022					
L = 187.939					
E = 1.926					
R = 2291.831					
Curve 46 @ Ramp D-4					
P.I. Sta. 10+51.570					
Δ = 24°31'27.9"					
D = 5°00'00.0"					
T = 249.058					
L = 490.488					
E = 0.597					
R = 1145.916					
Curve 46A @ Ramp D-4					
P.I. Sta. 13+44.688					
Δ = 2°33'37.2"					
D = 5°00'00.0"					
T = 51.687					
L = 103.355					
E = 0.597					
R = 2237.831					
Curve 56 @ Reloc. "E" Ave. N.W.					
P.I. Sta. 42+34.991					
Δ = 15°59'00.5"					
D = 5°00'00.0"					
T = 160.880					
L = 319.670					
E = 11.238					
R = 1145.916					
Curve 58 @ Reloc. "E" Ave. N.W.					
P.I. Sta. 35+24.439					
Δ = 60°22'29.3"					
D = 32°44'25.6"					
T = 101.799					
L = 184.401					
E = 27.455					
R = 175.000					
Curve 59 @ Reloc. "E" Ave. N.W.					
P.I. Sta. 43+17.951					
Δ = 10°32'21.0"					
D = 5°00'00.0"					
T = 101.799					
L = 201.892					
E = 4.653					
R = 1097.578					
Curve 6 (N.W. Curb Return 1st. St. N. E. and "F" Ave.)					
P.I. Sta. 10+51.570					
Δ = 52°51'15.3"					
D = 32°44'25.6"					
T = 86.974					
L = 161.454					
E = 20.421					
R = 175.000					

BENCH MARKS	
BM-100A	"X" cut in North Bolt on top of Fire Hydrant on NE Corner of "A" Ave. NE and 1st. St. NE. E. 99.64
BM-99	"X" cut in NE Bolt in top flange of Fire Hydrant SW Corner of 1st. Ave. W and 1st. St. SW E. 100.95

DESIGN TRAFFIC	
Relocated "F" Ave. N.W. Traffic Count	3,840 One Way V.P.D. (1994)
Relocated "E" Ave. N.W. Traffic Count	14,680 One Way V.P.D. (1994)
1-380 Traffic Count	58,450 Two Way V.P.D. (1994)



**LOCATION**  
I-380, Relocated "F" Ave. N.W. and Relocated "E" Ave. N.W. over Cedar River.  
City of Cedar Rapids  
Linn County  
Rapids Twp.  
T-65W R-7W  
Section 21

**NOTES:**  
All dimensions are measured horizontally.  
• indicates sounding location.  
For sounding data, see sheets 2, 2A, 2B, 2C, and 2D of 119.

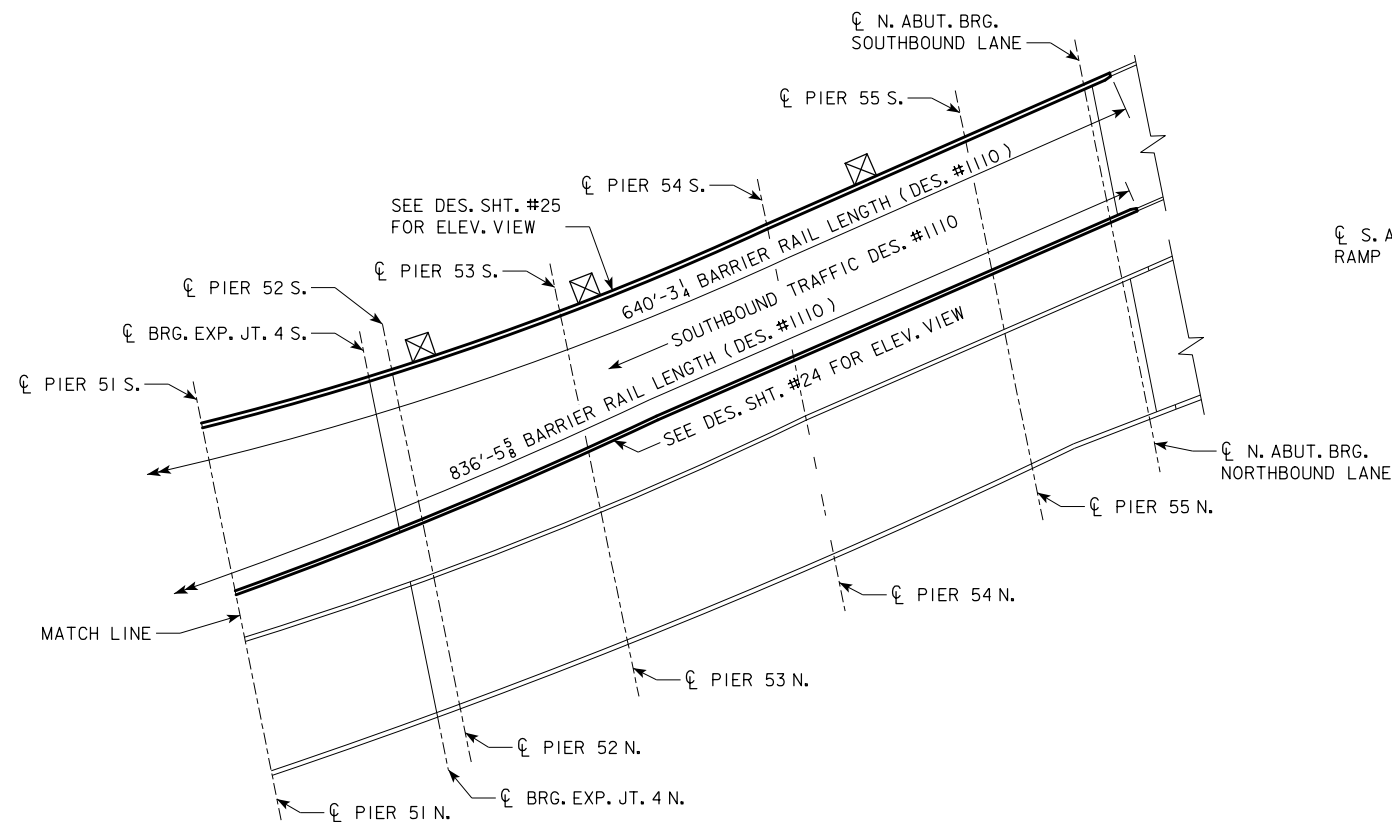
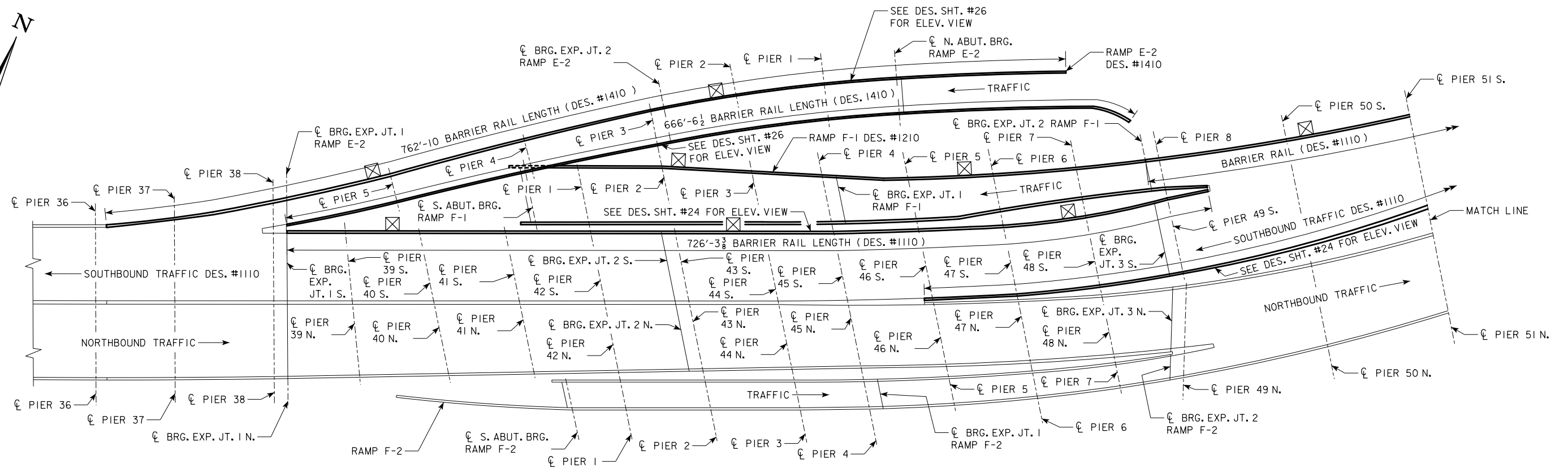
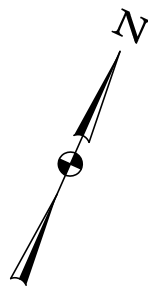
Iowa Natural Resources Council Approval  
Order No. 72-29, dated February 8, 1972.

AS-BUILT REVISIONS, R.H., 4-10-79

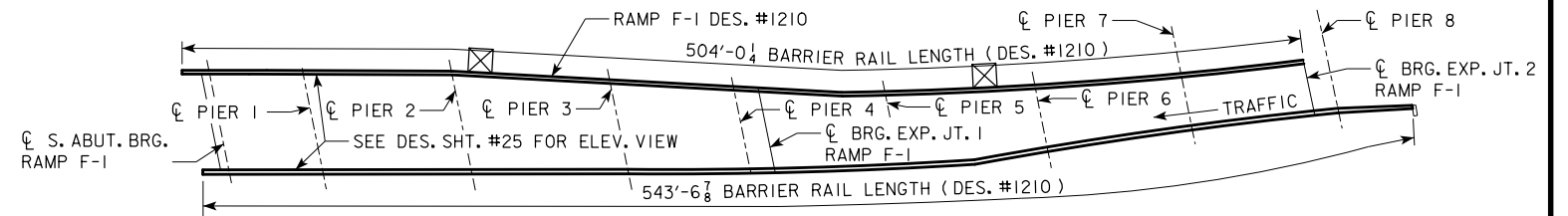
**CEDAR RIVER BRIDGE RIVER SPANS**  
DESIGN FOR VARIABLE SKEW  
PRETENSIONED PRESTRESSED CONCRETE BEAM  
BRIDGE AND DAM STRUCTURE

**SITUATION PLAN**  
STA. 344+28.26 @ FREEWAY =  
STA. 20+00.28 @ 1ST. ST. N.E. PROJECT NO. I-380-6(50)263  
LINN COUNTY  
IOWA STATE HIGHWAY COMMISSION

AUGUST 1975  
DESIGN NO. 174 LINN COUNTY FILE 23191 SHEET



## SITUATION PLAN



## SITUATION PLAN - RAMP F-1

### LOCATION DES. #1110:

SB I-380 OVER 1ST, 2ND, 3RD, 4TH ST. N.E. & R.R.  
T-83 N R-7 W  
SECTION 21  
RAPIDS TOWNSHIP  
LINN COUNTY  
MAINT. NO. 5720.3L380  
FHWA NO. 603692  
LATITUDE 41.97169903°  
LONGITUDE -91.67411934°

### LOCATION DES. #1210:

SB I-380 RAMP F-1 OVER 2ND ST. N.E.  
T-83 N R-7 W  
SECTION 21  
RAPIDS TOWNSHIP  
LINN COUNTY  
MAINT. NO. 5720.2A380  
FHWA NO. 603960  
LATITUDE 41.98096964°  
LONGITUDE -91.66791234°

### LOCATION DES. #1410:

SB I-380 RAMP E-2 OVER 2ND ST. N.E.  
T-83 N R-7 W  
SECTION 21  
RAPIDS TOWNSHIP  
LINN COUNTY  
MAINT. NO. 5720.1A380  
FHWA NO. 603950  
LATITUDE 41.98013168°  
LONGITUDE -91.66995916°

\*\*\* = DESIGN NUMBERS 1110, 1210, 1410

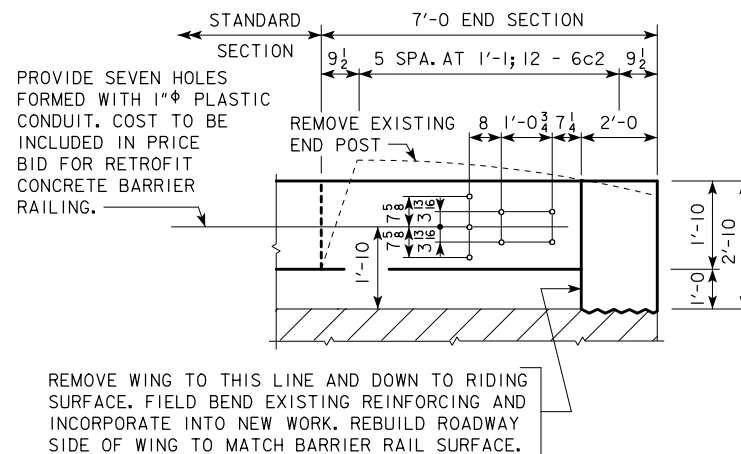
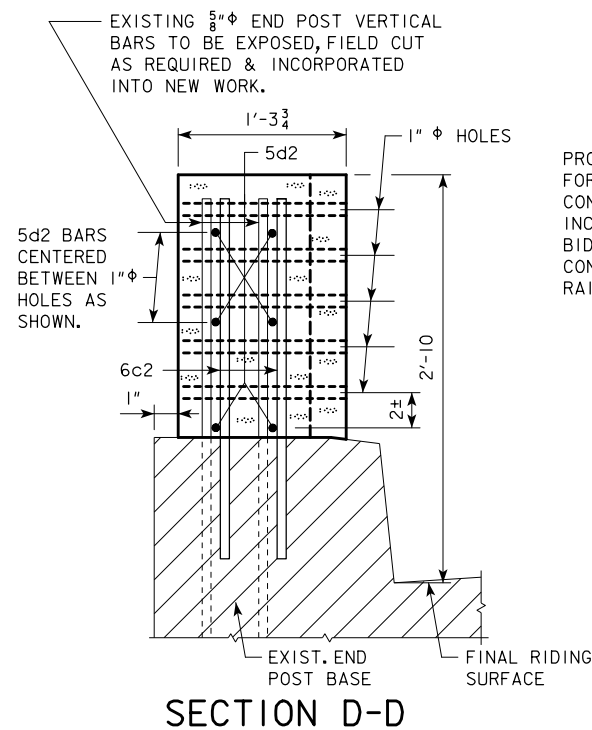
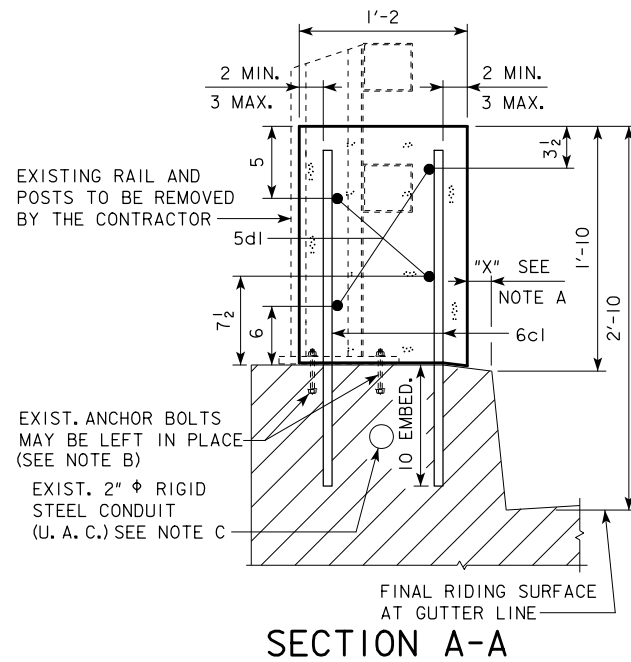
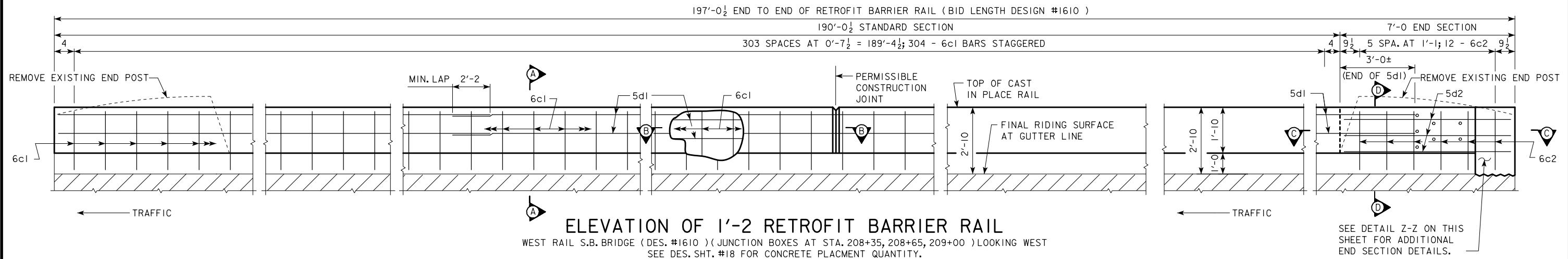
## DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
1176	ORIGINAL DESIGN
100	JOINT REPAIR - SOUTHBOUND

DESIGN FOR REPAIRS TO  
**DUAL VARIABLE WIDTH  
C.W.P.G. BRIDGES - SOUTHBOUND**  
**SITUATION PLAN**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 15 OF 59 FILE NO. 30514 DESIGN NO. \*\*\*







EPOXY REINF. STEEL - ONE RAIL DES. #1610					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	304	2'-6	1142
6c2	END SECTION, VERTICAL	—	12	2'-6	45
5d1	STANDARD RAIL, LONGIT.	—	24	34'-0	851
5d2	END SECTION, LONGIT.	—	6	6'-8	42
TOTAL (LBS.)					2080

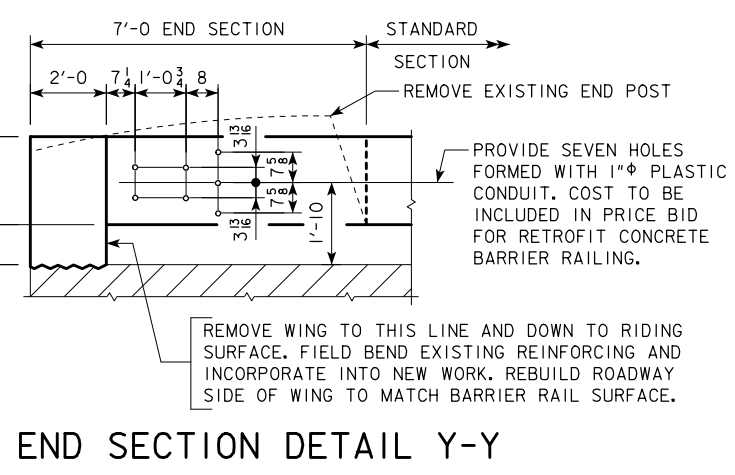
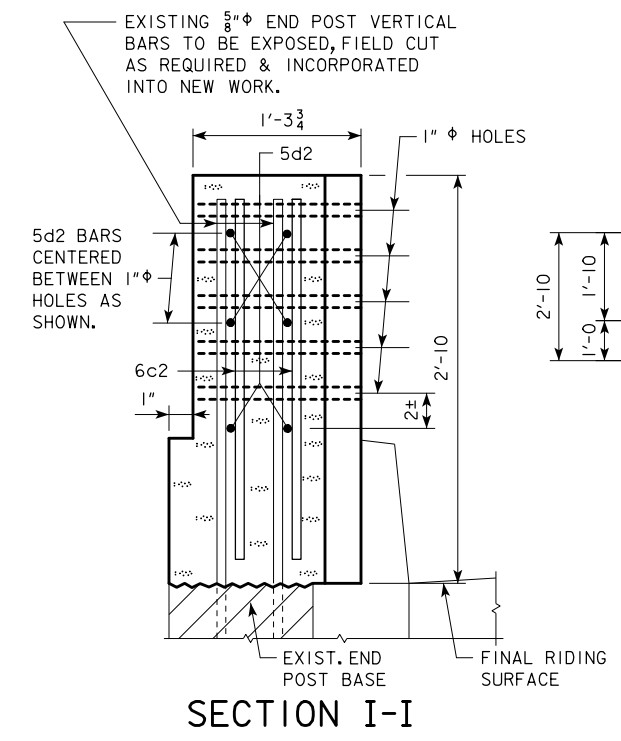
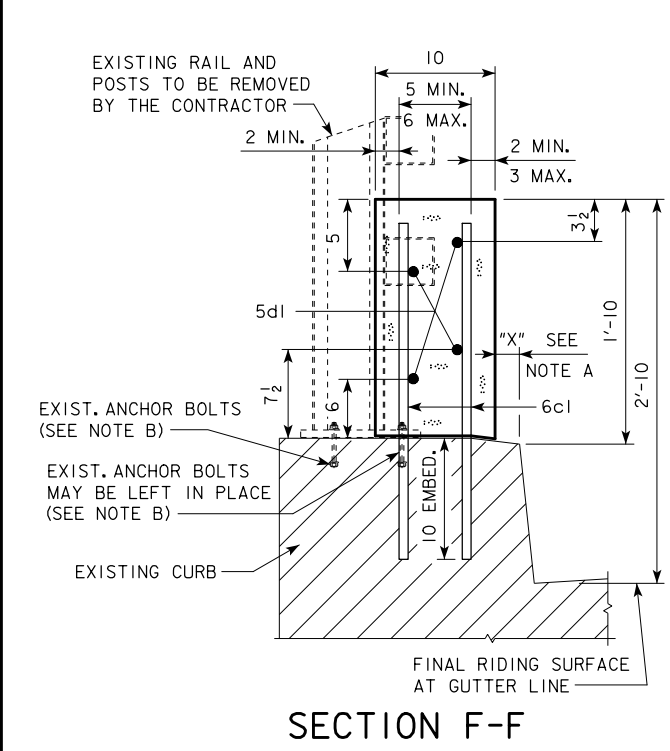
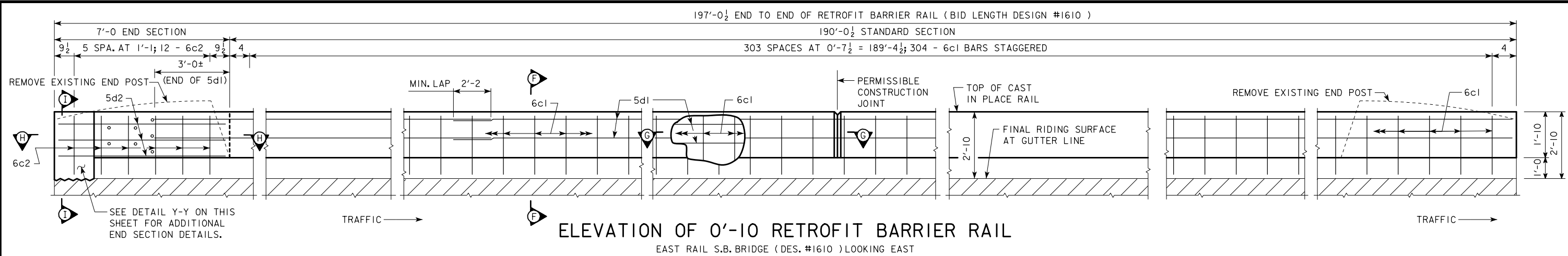
NOTE A:  
 ON EACH SIDE OF BRIDGE, DIMENSION "X" SHALL BE A MINIMUM OF 1" AND A MAXIMUM OF 3", BUT MUST BE CONSTANT FOR FULL LENGTH OF BRIDGE, HOWEVER APPROXIMATELY 10 LINEAR FEET AT EITHER END OF STANDARD RAIL SECTION SHALL BE TRANSITIONED TO 2" AT END SECTION AS SHOWN.

NOTE B:  
 EXISTING RAIL IS TO BE REMOVED. ANY ANCHOR BOLTS THAT WILL HAVE AT LEAST 2" OF CONCRETE COVER WHEN ENCOMPASSED BY THE NEW BARRIER RAIL MAY BE LEFT IN PLACE AT THE CONTRACTORS OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY ANCHOR BOLTS NOT HAVING THE 2" MIN. COVER SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW THE TOP OF CURB AND ENDS OF NON STAINLESS STEEL BOLTS PAINTED WITH TWO COATS OF ZINC RICH PAINT. STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL MAY BE LEFT IN PLACE AT CONTRACTORS OPTION SUBJECT TO APPROVAL OF THE ENGINEER. STAINLESS STEEL BOLTS NEED NOT BE PAINTED. NON STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW TOP OF CURB SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH TWO COATS OF ZINC RICH PAINT.

CONC. PLACE. QTY. - ONE RAIL DES. #1610			TOTAL
LOCATION			
1'-2 STANDARD SECTION	190.0 @ 0.077 CU. YDS. PER LIN. FT.		14.6
END SECTIONS	0.66 CU. YDS. PER SECTION		0.7
TOTAL (CU. YDS.)			15.3

SEE DESIGN SHEET #4 IN THESE PLANS FOR:  
 • RAIL JOINT DETAILS  
 • DOWEL SETTING NOTE  
 • RETROFIT BARRIER RAIL NOTES

DESIGN FOR REPAIRS TO  
**168'-0 x 52'-0**  
**P.P.C.B. BRIDGE - SOUTHBOUND**  
**RETROFIT BARRIER RAIL DETAILS**  
 JANUARY, 2012  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 17 OF 59 FILE NO. 30514 DESIGN NO. 1610



EPOXY REINF. STEEL - ONE RAIL DES. #1610					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	304	2'-6	1142
6c2	END SECTION, VERTICAL	—	12	2'-6	45
5d1	STANDARD RAIL, LONGIT.	—	24	34'-0	851
5d2	END SECTION, LONGIT.	—	6	6'-8	42
TOTAL (LBS.)					2080

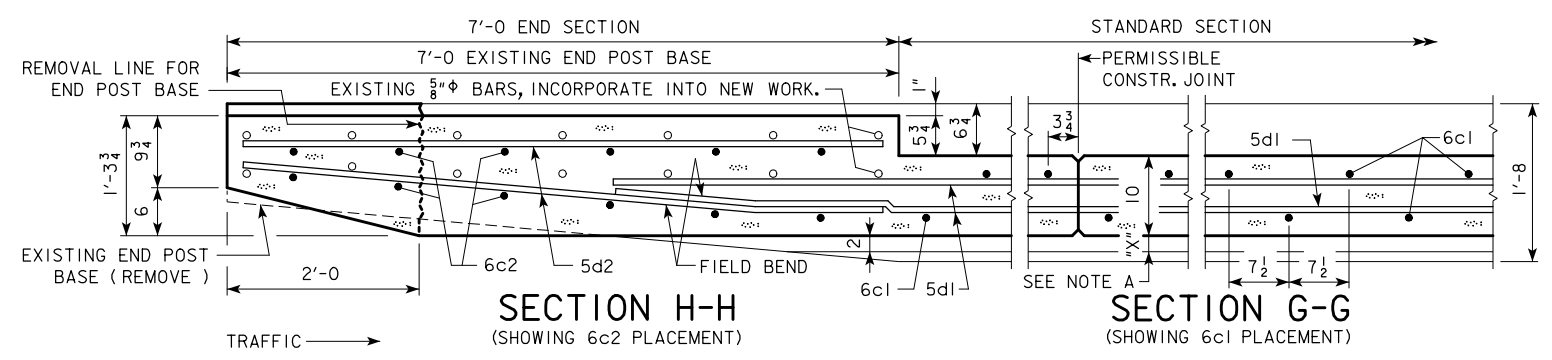
NOTE A:  
ON EACH SIDE OF BRIDGE, DIMENSION "X" SHALL BE A MINIMUM OF 1" AND A MAXIMUM OF 3", BUT MUST BE CONSTANT FOR FULL LENGTH OF BRIDGE, HOWEVER APPROXIMATELY 10 LINEAR FEET AT EITHER END OF STANDARD RAIL SECTION SHALL BE TRANSITIONED TO 2" AT END SECTION AS SHOWN.

NOTE B:  
EXISTING RAIL IS TO BE REMOVED. ANY ANCHOR BOLTS THAT WILL HAVE AT LEAST 2" OF CONCRETE COVER WHEN ENCOMPASSED BY THE NEW BARRIER RAIL MAY BE LEFT IN PLACE AT THE CONTRACTORS OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY ANCHOR BOLTS NOT HAVING THE 2" MIN. COVER SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW THE TOP OF CURB AND ENDS OF NON STAINLESS STEEL BOLTS PAINTED WITH TWO COATS OF ZINC RICH PAINT. STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL MAY BE LEFT IN PLACE AT CONTRACTORS OPTION SUBJECT TO APPROVAL OF THE ENGINEER. STAINLESS STEEL BOLTS NEED NOT BE PAINTED. NON STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW TOP OF CURB SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH TWO COATS OF ZINC RICH PAINT.

CONC. PLACE. QTY. - ONE RAIL DES. #1610		
LOCATION		TOTAL
10" STANDARD SECTION	190.0 @ 0.055 CU. YDS. PER LIN. FT.	10.5
END SECTIONS	0.66 CU. YDS. PER SECTION	0.7
TOTAL (CU. YDS.)		11.2

SEE DESIGN SHEET #4 IN THESE PLANS FOR:

- RAIL JOINT DETAILS
- DOWEL SETTING NOTE
- RETROFIT BARRIER RAIL NOTES



DESIGN FOR REPAIRS TO

168'-0 x 52'-0

P.P.C.B. BRIDGE - SOUTHBOUND

RETROFIT BARRIER RAIL DETAILS

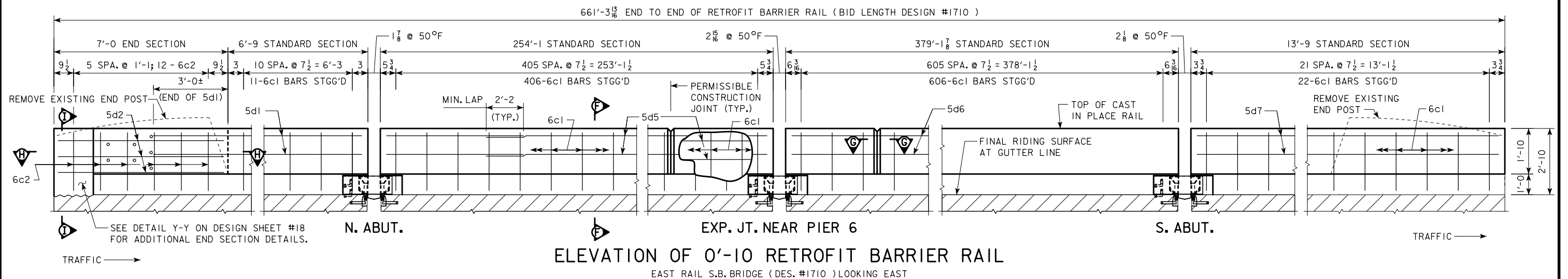
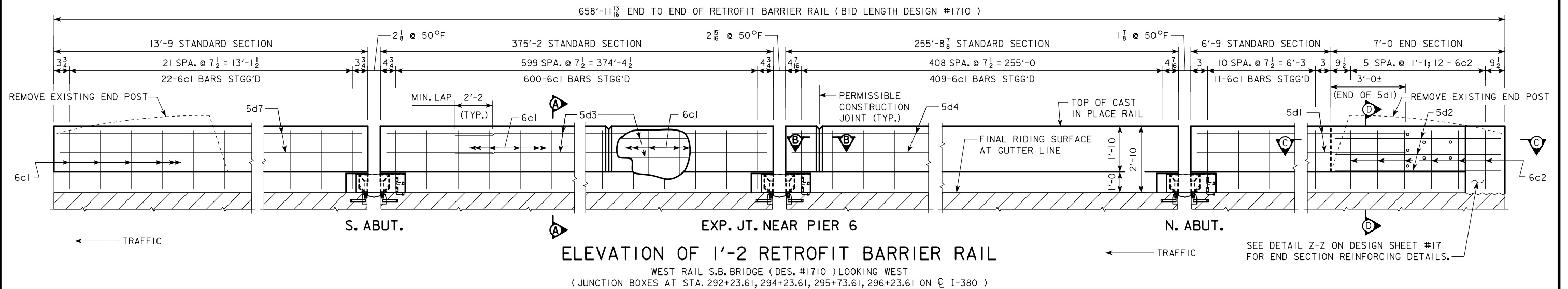
JANUARY, 2012

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 18 OF 59 FILE NO. 30514 DESIGN NO. 1610



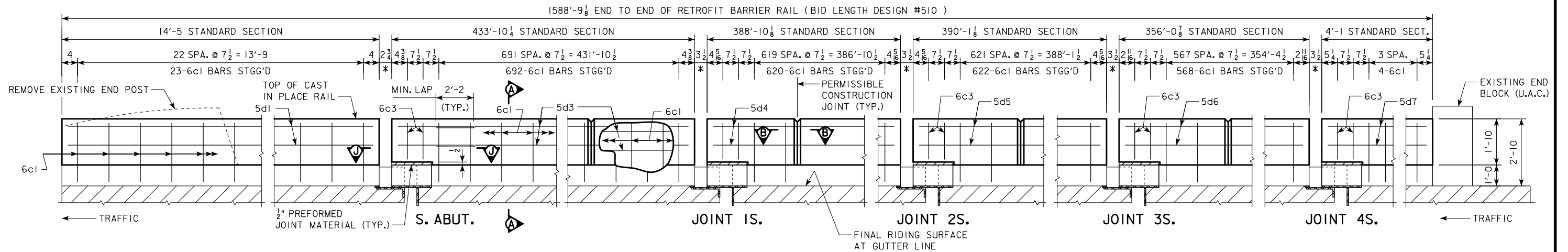


EPOXY REINF. STEEL - TWO RAILS DES. #1710					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	2087	2'-6	7837
6c2	END SECTION, VERTICAL	—	24	2'-6	90
5d1	STANDARD RAIL, LONGIT.	—	8	9'-7	80
5d2	END SECTION, LONGIT.	—	12	6'-8	83
5d3	STANDARD RAIL, LONGIT.	—	40	39'-4	1641
5d4	STANDARD RAIL, LONGIT.	—	28	38'-4	1119
5d5	STANDARD RAIL, LONGIT.	—	28	38'-2	1115
5d6	STANDARD RAIL, LONGIT.	—	40	39'-10	1662
5d7	STANDARD RAIL, LONGIT.	—	8	13'-5	112
TOTAL (LBS.)					13 739

SEE DES. SHT. #4 FOR RAIL JOINT DETAILS.  
SEE DES. SHT. #17 FOR SECTIONS A-A, B-B, C-C AND D-D.  
SEE DES. SHT. #18 FOR SECTIONS F-F, G-G, H-H, I-I.

CONCRETE PLACEMENT QTY. DES. #1710			
LOCATION		TOTAL	
10" STANDARD SECTION	653.7 @ 0.055 CU. YDS. PER LIN. FT.	36.0	
1'-2 STANDARD SECTION	651.4 @ 0.077 CU. YDS. PER LIN. FT.	50.2	
END SECTIONS	2 @ 0.66 CU. YDS. PER SECTION	1.3	
TOTAL (CU. YDS.)		87.5	

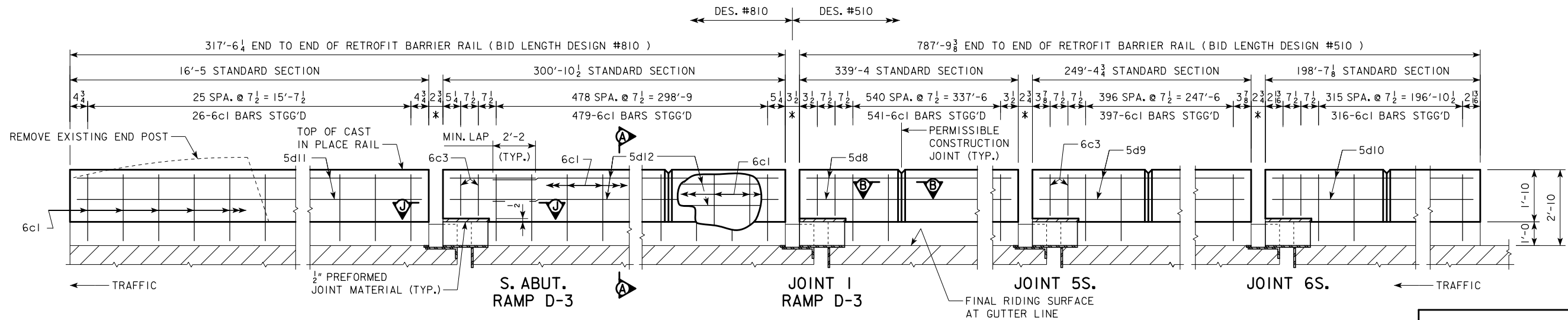
DESIGN FOR REPAIRS TO  
633'-0 x VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND  
RETROFIT BARRIER RAIL DETAILS  
JANUARY, 2012  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 19 OF 59 FILE NO. 30514 DESIGN NO. 1710



### ELEVATION OF 1'-2 RETROFIT BARRIER RAIL

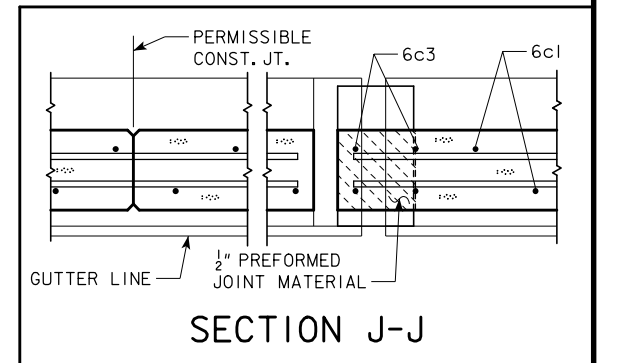
WEST RAIL S.B. BRIDGE (DES. #510) LOOKING WEST  
(JUNCTION BOXES AT STA. 316+50, 319+15, 320+60, 321+73, 324+23, 326+88, 328+99 ON  $\angle$  I-380)

\* = DIMENSION SHOWN IS AT 50°F  
ACTUAL DIMENSION SHALL MATCH  
ACTUAL JOINT OPENING.



### ELEVATION OF 1'-2 RETROFIT BARRIER RAIL

WEST RAIL OF RAMP D-3 (DES. #810) CONTINUING INTO  
WEST RAIL OF S.B. BRIDGE (DES. #510) LOOKING WEST.  
(JUNCTION BOXES AT STA. 326+68.24, 329+11.24, 331+21.74, 331+91.24, ON  $\angle$  I-380)  
(JUNCTION BOX AT STA. 334+80 ON  $\angle$  S.B. LANE)



SEE DES. SHT. #4 FOR RAIL JOINT DETAILS.  
SEE DES. SHT. #17 FOR SECTIONS A-A, AND B-B.

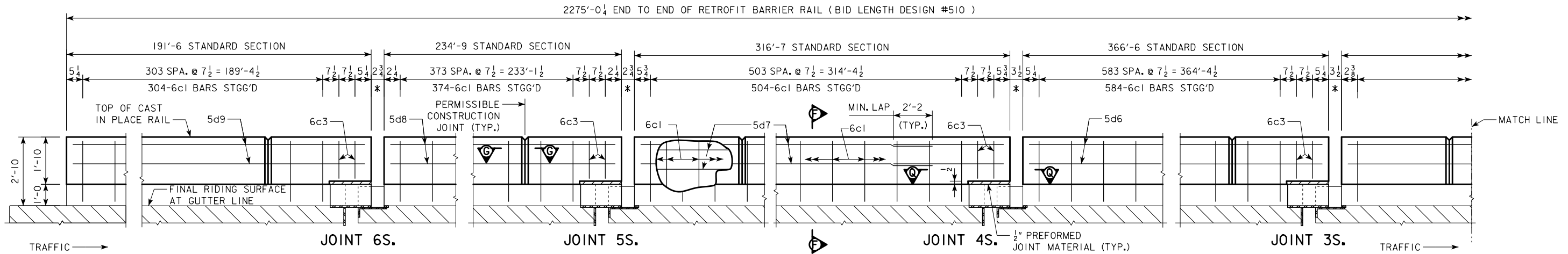
EPOXY REINF. STEEL - TWO RAILS DES. #510					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	3783	2'-6	14 205
6c3	STANDARD RAIL, VERT.	—	32	1'-5	68
5d1	STANDARD RAIL, LONGIT.	—	4	14'-1	59
5d3	STANDARD RAIL, LONGIT.	—	48	38'-2	1911
5d4	STANDARD RAIL, LONGIT.	—	44	37'-4	1713
5d5	STANDARD RAIL, LONGIT.	—	44	37'-5	1717
5d6	STANDARD RAIL, LONGIT.	—	40	37'-7	1568
5d7	STANDARD RAIL, LONGIT.	—	4	3'-9	16
5d8	STANDARD RAIL, LONGIT.	—	36	39'-8	1489
5d9	STANDARD RAIL, LONGIT.	—	28	37'-6	1095
5d10	STANDARD RAIL, LONGIT.	—	24	34'-11	874
TOTAL (LBS.)					24 715

EPOXY REINF. STEEL - ONE RAIL DES. #810					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	505	2'-6	1896
6c3	STANDARD RAIL, VERT.	—	4	1'-5	9
5d11	STANDARD RAIL, LONGIT.	—	4	16'-1	67
5d12	STANDARD RAIL, LONGIT.	—	32	39'-6	1318
TOTAL (LBS.)					3290

CONCRETE PLACEMENT QTY. DES. #810	
LOCATION	TOTAL
1'-2 STANDARD SECTION 317.3 @ 0.077 CU. YDS. PER LIN. FT.	24.4
TOTAL (CU. YDS.)	24.4

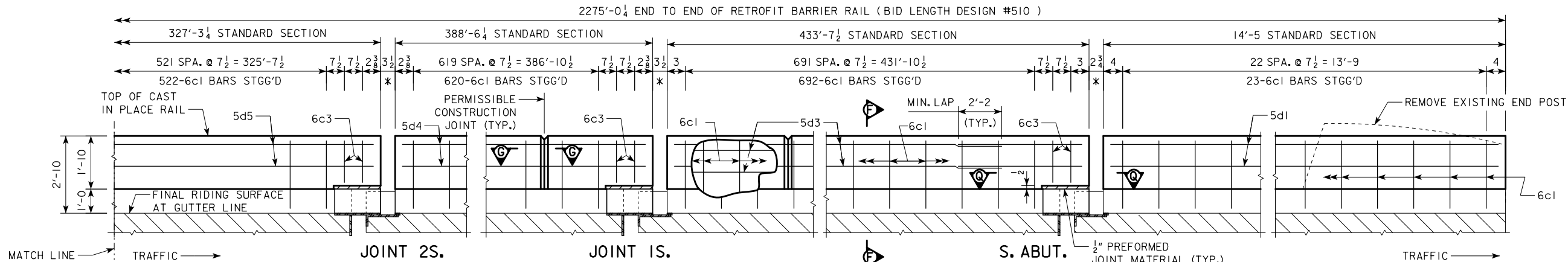
CONCRETE PLACEMENT QTY. DES. #510	
LOCATION	TOTAL
1'-2 STANDARD SECTION 2374.7 @ 0.077 CU. YDS. PER LIN. FT.	182.9
TOTAL (CU. YDS.)	182.9

DESIGN FOR REPAIRS TO  
**DUAL VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**RETROFIT BARRIER RAIL DETAILS**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 20 OF 59 FILE NO. 30514 DESIGN NO. 510, 810

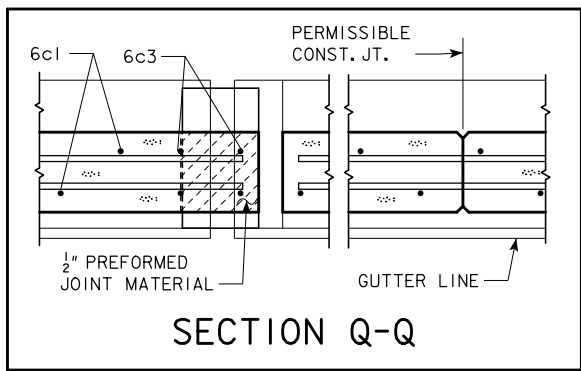


ELEVATION OF 0'-10 RETROFIT BARRIER RAIL  
EAST RAIL S.B. BRIDGE (DES. #510 )LOOKING EAST

\* = DIMENSION SHOWN IS AT 50°F  
ACTUAL DIMENSION SHALL MATCH  
ACTUAL JOINT OPENING.



ELEVATION OF 0'-10 RETROFIT BARRIER RAIL  
EAST RAIL S.B. BRIDGE (DES. #510 )LOOKING EAST



CONCRETE PLACEMENT QTY. DES. #510	
LOCATION	TOTAL
10" STANDARD SECTION 2273.2 @ 0.055 CU. YDS. PER LIN. FT.	125.0
TOTAL (CU. YDS.)	125.0

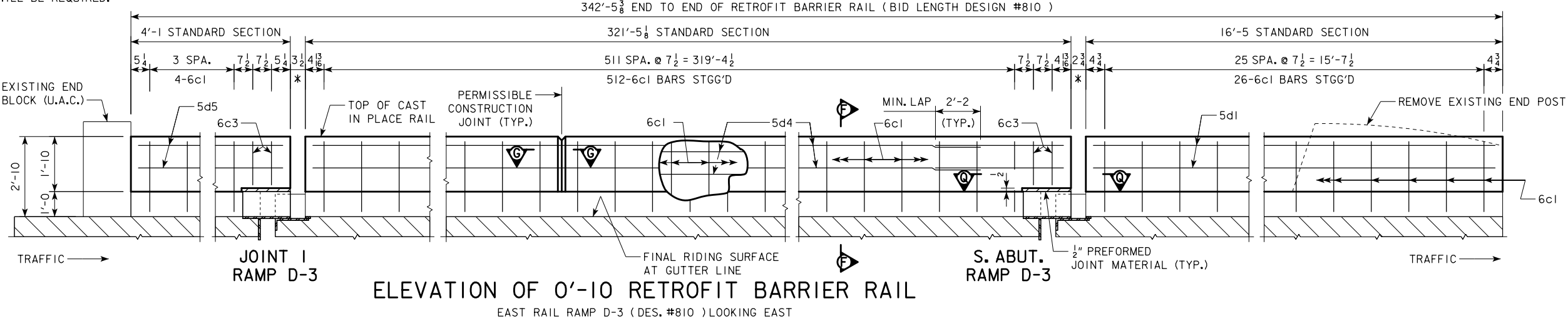
EPOXY REINF. STEEL - ONE RAIL DES. #510					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	3623	2'-6	13 604
6c3	STANDARD RAIL, VERT.	—	28	1'-5	60
5d1	STANDARD RAIL, LONGIT.	—	4	14'-1	59
5d3	STANDARD RAIL, LONGIT.	—	48	38'-1	1907
5d4	STANDARD RAIL, LONGIT.	—	44	37'-4	1713
5d5	STANDARD RAIL, LONGIT.	—	36	38'-3	1436
5d6	STANDARD RAIL, LONGIT.	—	40	38'-7	1610
5d7	STANDARD RAIL, LONGIT.	—	36	37'-1	1392
5d8	STANDARD RAIL, LONGIT.	—	28	35'-5	1034
5d9	STANDARD RAIL, LONGIT.	—	20	40'-0	834
TOTAL (LBS.)					23 649

SEE DES. SHT. #4 FOR RAIL JOINT DETAILS.  
SEE DES. SHT. #18 FOR SECTIONS F-F, AND G-G.

DESIGN FOR REPAIRS TO  
**DUAL VARIABLE WIDTH  
 C.W.P.G. BRIDGE - SOUTHBOUND**  
**RETROFIT BARRIER RAIL DETAILS**  
 JANUARY, 2012  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 21 OF 59 FILE NO. 30514 DESIGN NO. 510



NOTE: FIELD BEND OF 5d4 BARS  
WILL BE REQUIRED.

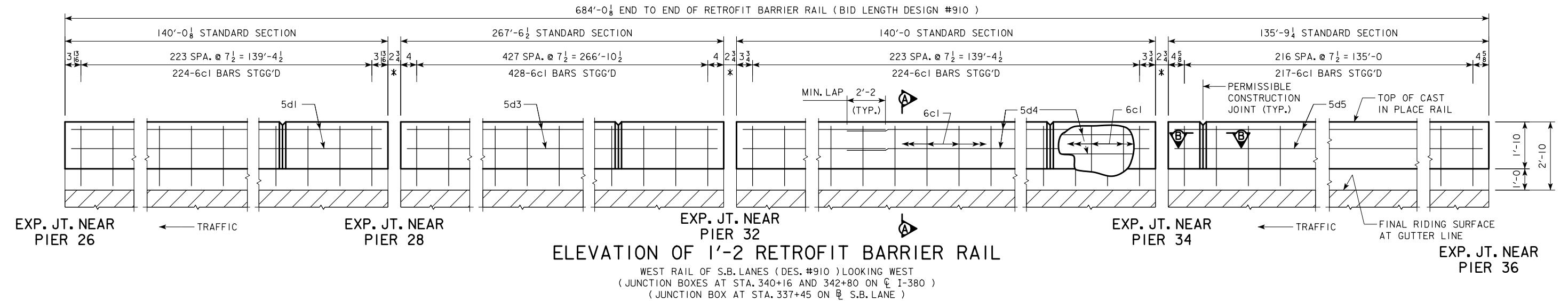


EPOXY REINF. STEEL - ONE RAIL DES. #810						
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	
6c1	STANDARD RAIL, VERT.	—	542	2'-6	2035	
6c3	STANDARD RAIL, VERT.	—	8	1'-5	17	
5d1	STANDARD RAIL, LONGIT.	—	4	16'-1	67	
5d4	STANDARD RAIL, LONGIT.	—	36	37'-8	1414	
5d5	STANDARD RAIL, LONGIT.	—	4	3'-9	16	
TOTAL (LBS.)					3549	

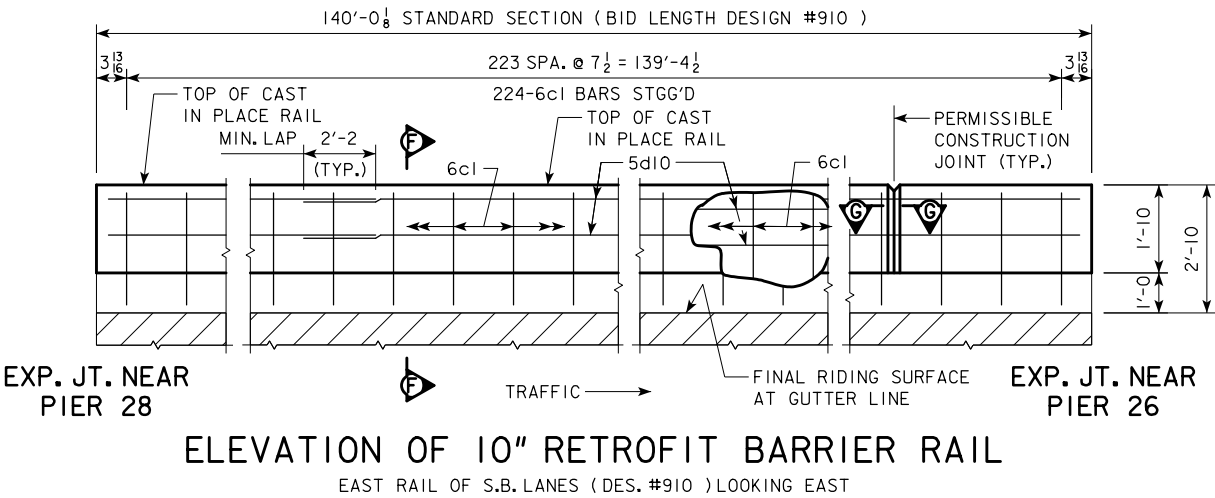
CONCRETE PLACEMENT QTY. DES. #810		
LOCATION		TOTAL
10" STANDARD SECTION	341.9 @ 0.055 CU. YDS. PER LIN. FT.	18.8
TOTAL (CU. YDS.)		18.8

SEE DES. SHT. #4 FOR RAIL JOINT DETAILS.  
SEE DES. SHT. #18 FOR SECTIONS F-F, G-G.  
SEE DES. SHT. #21 FOR SECTION Q-Q.

DESIGN FOR REPAIRS TO  
**DUAL VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**RETROFIT BARRIER RAIL DETAILS**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 22 OF 59 FILE NO. 30514 DESIGN NO. 810



\* = DIMENSION SHOWN IS AT 50°F  
 ACTUAL DIMENSION SHALL MATCH  
 ACTUAL JOINT OPENING.

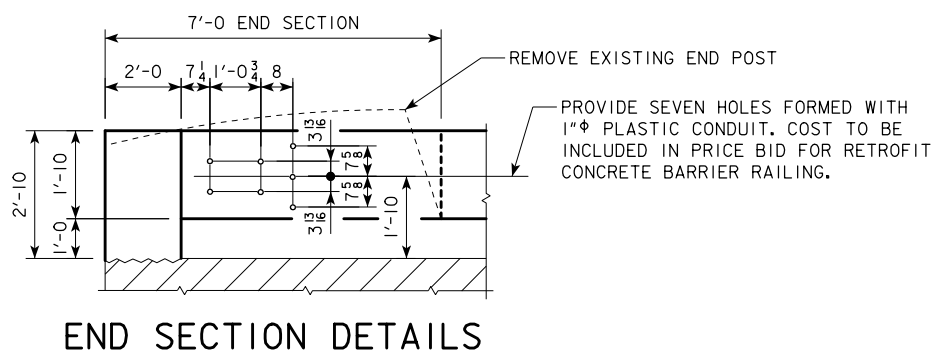
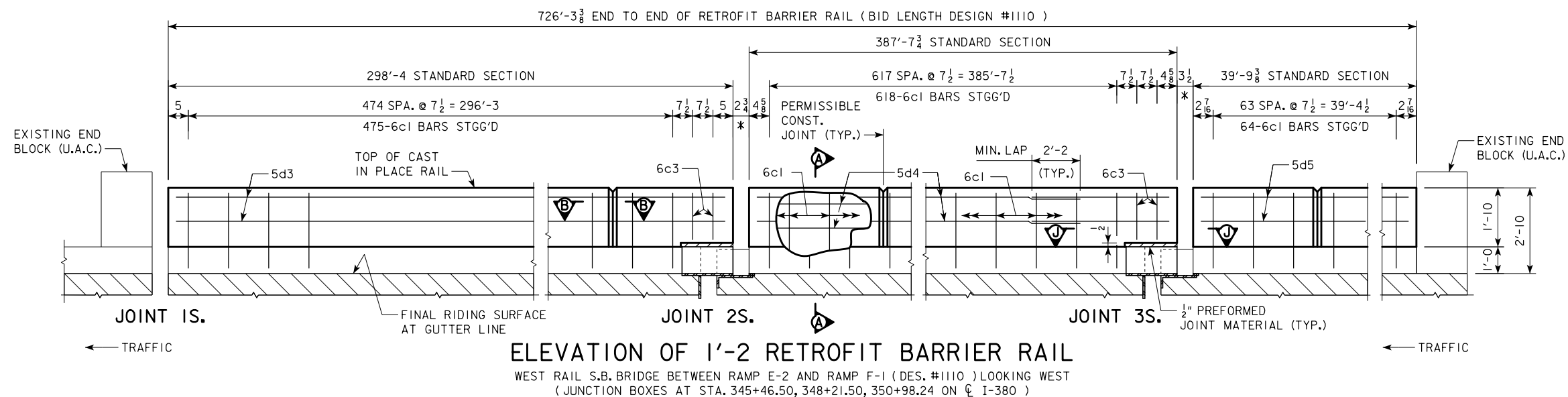
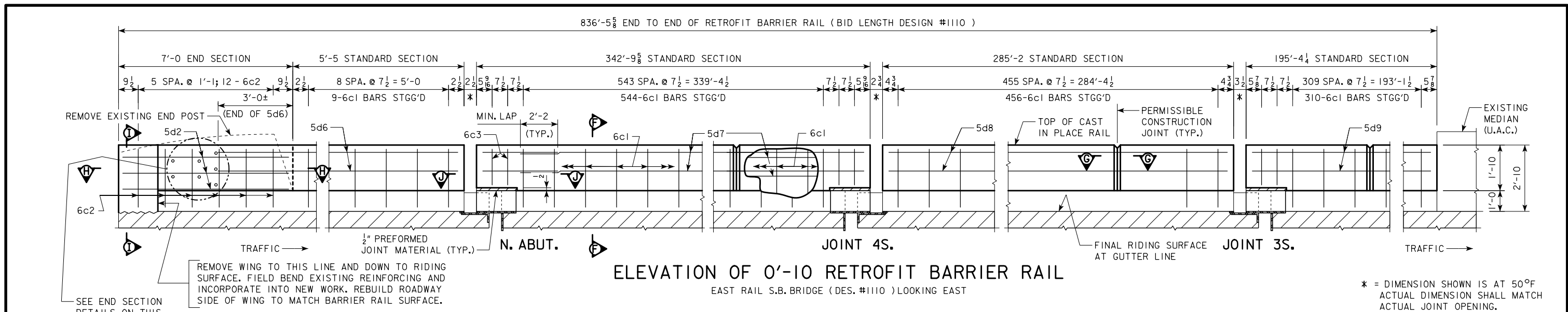


EPOXY REINF. STEEL - TWO RAILS DES. #910					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	1317	2'-6	4945
5d1	STANDARD RAIL, LONGIT.	—	16	36'-7	610
5d3	STANDARD RAIL, LONGIT.	—	32	35'-4	1179
5d4	STANDARD RAIL, LONGIT.	—	16	36'-7	610
5d5	STANDARD RAIL, LONGIT.	—	16	35'-6	592
5d10	STANDARD RAIL, LONGIT.	—	16	36'-8	612
TOTAL (LBS.)					8548

SEE DES. SHT. #4 FOR RAIL JOINT DETAILS.  
 SEE DES. SHT. #17 FOR SECTIONS A-A AND B-B.  
 SEE DES. SHT. #18 FOR SECTIONS F-F AND G-G.

CONCRETE PLACEMENT QTY. DES. #910		
LOCATION		TOTAL
1'-2 STANDARD SECTION	684.0 @ 0.077 CU. YDS. PER LIN. FT.	52.7
10" STANDARD SECTION	140.0 @ 0.055 CU. YDS. PER LIN. FT.	7.7
TOTAL (CU. YDS.)		60.4

DESIGN FOR REPAIRS TO  
**684'-0 x 111'-5**  
**P.P.C.B. BRIDGE - SOUTHBOUND**  
**RETROFIT BARRIER RAIL DETAILS**  
 JANUARY, 2012  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 23 OF 59    FILE NO. 30514    DESIGN NO. 910



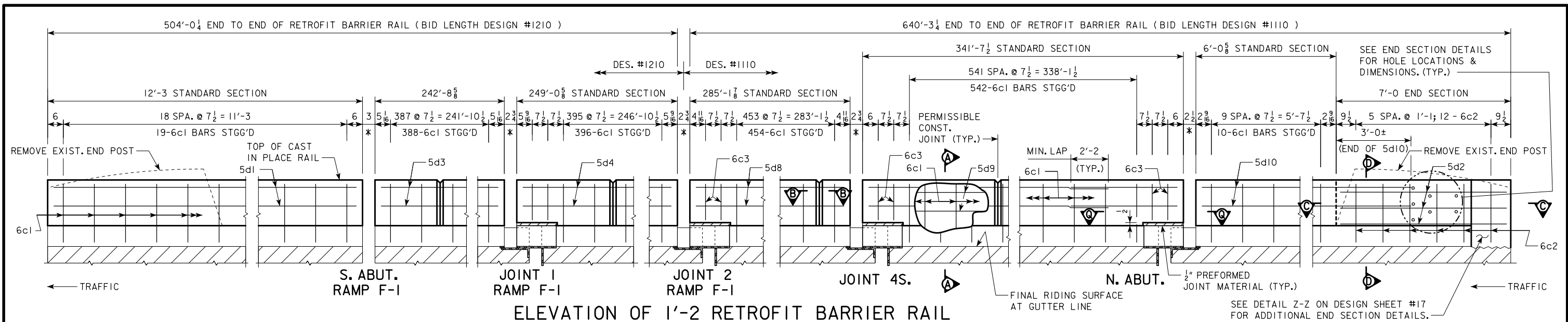
CONCRETE PLACEMENT QTY. DES. #1110		
LOCATION		TOTAL
1'-2 STANDARD SECTION	726.3 @ 0.077 CU. YDS. PER LIN. FT.	55.9
10" STANDARD SECTION	836.4 @ 0.055 CU. YDS. PER LIN. FT.	46.0
END SECTIONS	1 @ 0.66 CU. YDS.	0.7
TOTAL (CU. YDS.)		102.6

EPOXY REINF. STEEL - TWO RAILS DES. #1110					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	2476	2'-6	9297
6c2	END SECTION, VERTICAL	—	12	2'-6	45
6c3	STANDARD RAIL, VERT.	—	20	1'-5	43
5d2	END SECTION, LONGIT.	—	6	6'-8	42
5d3	STANDARD RAIL, LONGIT.	—	32	39'-2	1307
5d4	STANDARD RAIL, LONGIT.	—	44	37'-3	1709
5d5	STANDARD RAIL, LONGIT.	—	4	39'-5	164
5d6	STANDARD RAIL, LONGIT.	—	4	8'-2	34
5d7	STANDARD RAIL, LONGIT.	—	36	40'-0	1502
5d8	STANDARD RAIL, LONGIT.	—	32	37'-6	1252
5d9	STANDARD RAIL, LONGIT.	—	24	34'-4	859
TOTAL (LBS.)					16 254

SEE DES. SHT. #4 FOR RAIL JOINT DETAILS.  
SEE DES. SHT. #17 FOR SECTIONS A-A AND B-B.  
SEE DES. SHT. #18 FOR SECTIONS F-F, G-G, H-H, I-I.  
SEE DES. SHT. #20 FOR SECTION J-J.

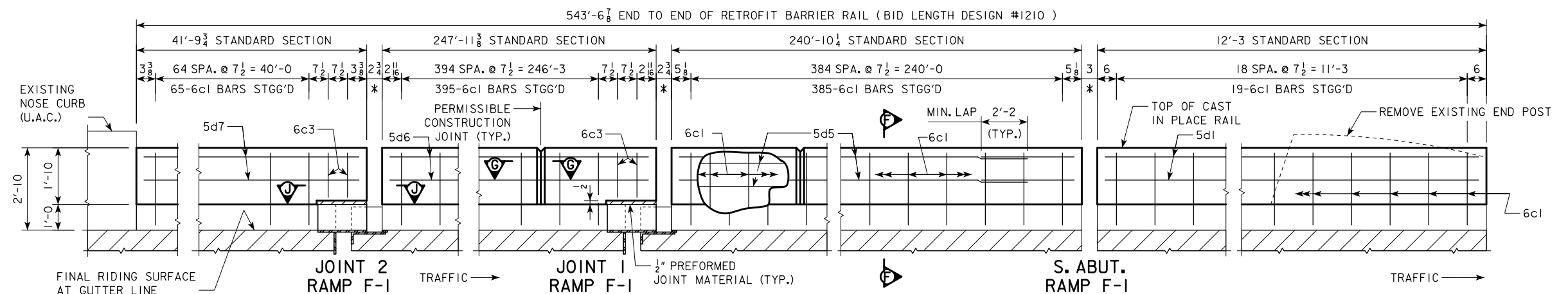
DESIGN FOR REPAIRS TO  
**DUAL VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**RETROFIT BARRIER RAIL DETAILS**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 24 OF 59 FILE NO. 30514 DESIGN NO. 1110





WEST RAIL S.B. BRIDGE (DES. #1110) LOOKING WEST  
 WEST RAIL RAMP F-1 (DES. #1210) LOOKING WEST  
 (JUNCTION BOXES AT STA. 7+95 AND 5+55 ON RAMP F-1)  
 (JUNCTION BOXES AT STA. 352+40, 354+77.5, 355+59, 357+00 ON I-380)

\* = DIMENSION SHOWN IS AT 50°F  
 ACTUAL DIMENSION SHALL MATCH  
 ACTUAL JOINT OPENING.



EAST RAIL RAMP F-1 (DES. #1210) LOOKING EAST

#### EPOXY REINF. STEEL - TWO RAILS DES. #1210

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	1667	2'-6	6260
6c3	STANDARD RAIL, VERT.	—	12	1'-5	26
5d1	STANDARD RAIL, LONGIT.	—	8	11'-11	99
5d3	STANDARD RAIL, LONGIT.	—	28	36'-6	1066
5d4	STANDARD RAIL, LONGIT.	—	28	37'-5	1093
5d5	STANDARD RAIL, LONGIT.	—	28	36'-3	1059
5d6	STANDARD RAIL, LONGIT.	—	28	37'-3	1088
5d7	STANDARD RAIL, LONGIT.	—	8	21'-10	182
TOTAL (LBS.)					10 873

#### CONCRETE PLACEMENT QTY. DES. #1210

LOCATION	TOTAL
10" STANDARD SECTION 542.9 @ 0.055 CU. YDS. PER LIN. FT.	29.9
1'-2 STANDARD SECTION 504.0 @ 0.077 CU. YDS. PER LIN. FT.	38.8
TOTAL (CU. YDS.)	68.7

#### EPOXY REINF. STEEL - ONE RAIL DES. #1110

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	1006	2'-6	3778
6c2	END SECTION, VERTICAL	—	12	2'-6	45
6c3	STANDARD RAIL, VERT.	—	12	1'-5	26
5d2	END SECTION, LONGIT.	—	6	6'-8	42
5d8	STANDARD RAIL, LONGIT.	—	32	37'-6	1252
5d9	STANDARD RAIL, LONGIT.	—	36	39'-11	1499
5d10	STANDARD RAIL, LONGIT.	—	4	8'-10	37
TOTAL (LBS.)					6679

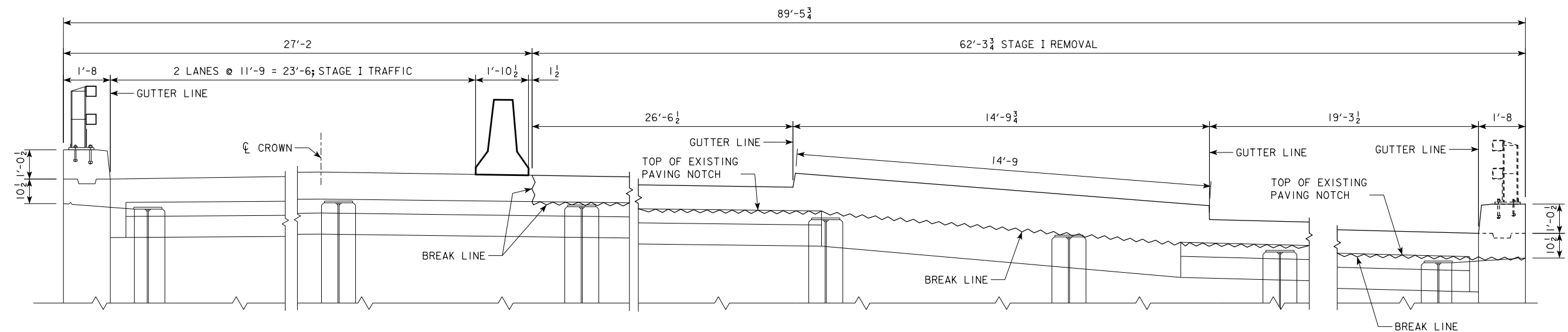
#### CONCRETE PLACEMENT QTY. DES. #1110

LOCATION	TOTAL
1'-2 STANDARD SECTION 633.3 @ 0.077 CU. YDS. PER LIN. FT.	48.8
END SECTIONS 1 @ 0.66 CU. YDS.	0.7
TOTAL (CU. YDS.)	49.5

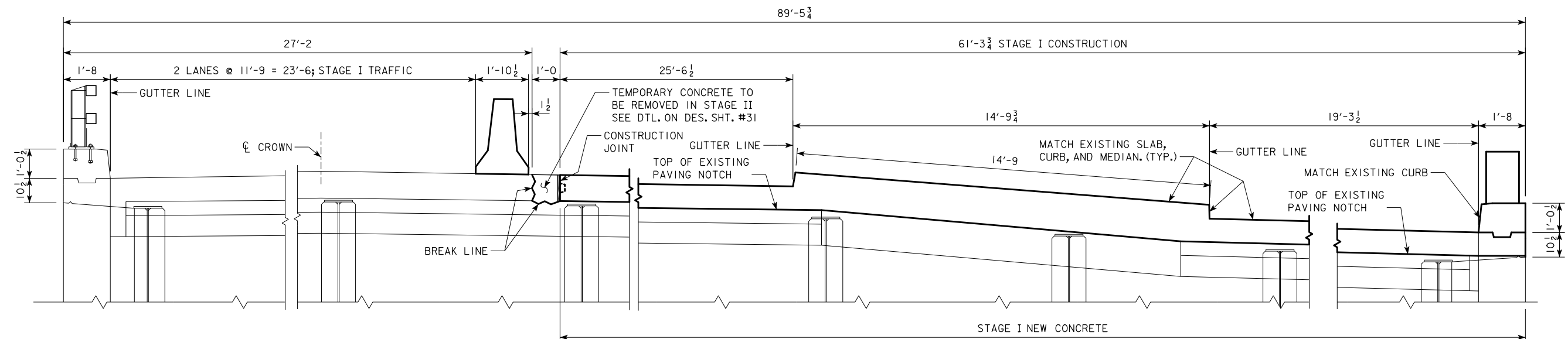
SEE DES. SHT. #4 FOR RAIL JOINT DETAILS.  
 SEE DES. SHT. #17 FOR SECTIONS A-A, B-B, C-C, AND D-D.  
 SEE DES. SHT. #18 FOR SECTIONS F-F, G-G.  
 SEE DES. SHT. #20 FOR SECTION J-J.  
 SEE DES. SHT. #21 FOR SECTION Q-Q.  
 SEE DES. SHT. #22 FOR SECTION Y-Y.

DESIGN FOR REPAIRS TO  
**DUAL VARIABLE WIDTH  
 C.W.P.G. BRIDGE - SOUTHBOUND**  
**RETROFIT BARRIER RAIL DETAILS**  
 JANUARY, 2012  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 25 OF 59 FILE NO. 30514 DESIGN NO. 1110, 1210





ABUTMENT BACKWALL REAR ELEVATION  
NORTH ABUTMENT (SOUTHBOUND) - STAGE I REMOVAL  
( LOOKING SOUTH )

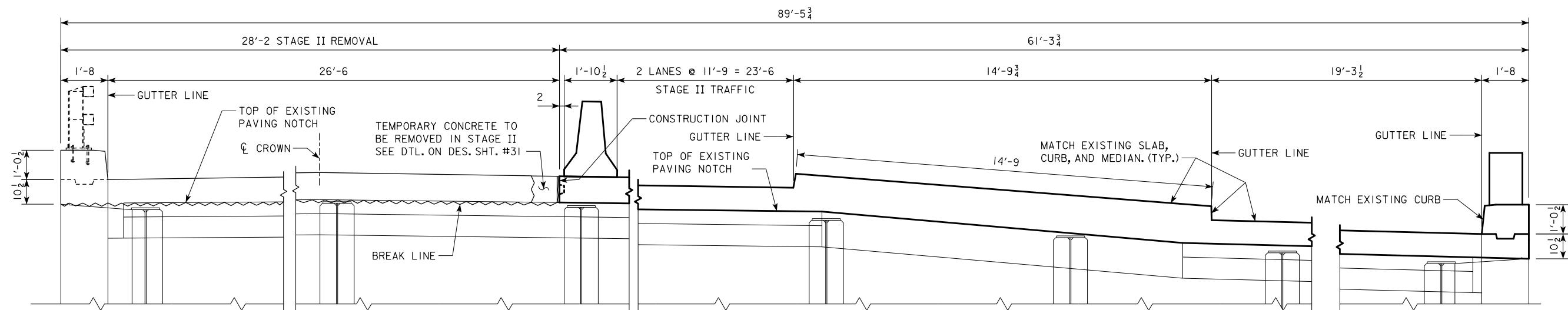


ABUTMENT BACKWALL REAR ELEVATION  
NORTH ABUTMENT (SOUTHBOUND) - STAGE I CONSTRUCTION  
( LOOKING SOUTH )

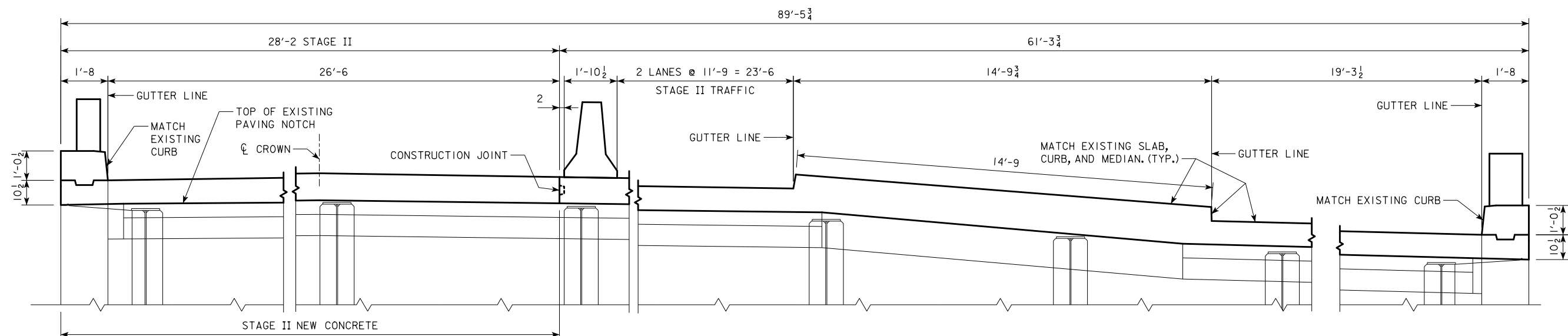
NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "A".

DESIGN FOR REPAIRS TO 2°24'19" SKEW L.A.  
**633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "A" ABUT. - STAGE I DTLS.**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 27 OF 59 FILE NO. 30514 DESIGN NO. 1710





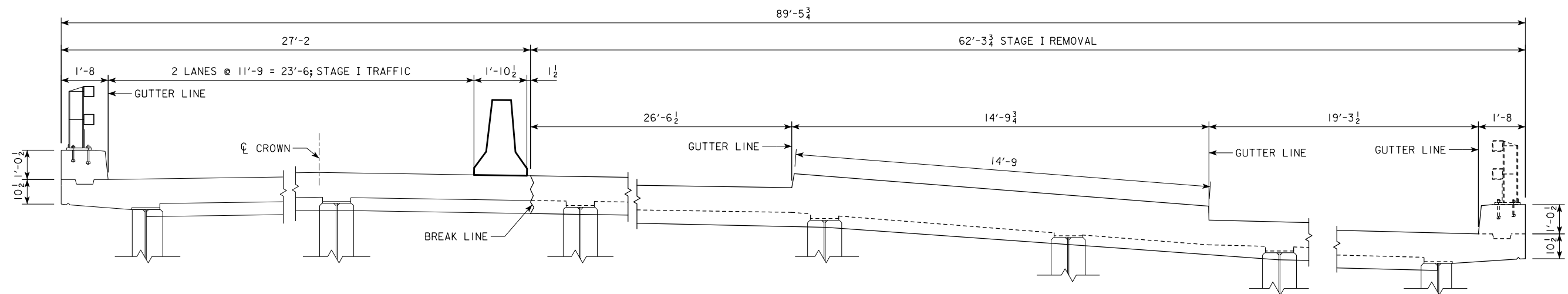
ABUTMENT BACKWALL REAR ELEVATION  
NORTH ABUTMENT (SOUTHBOUND) - STAGE II REMOVAL  
( LOOKING SOUTH )



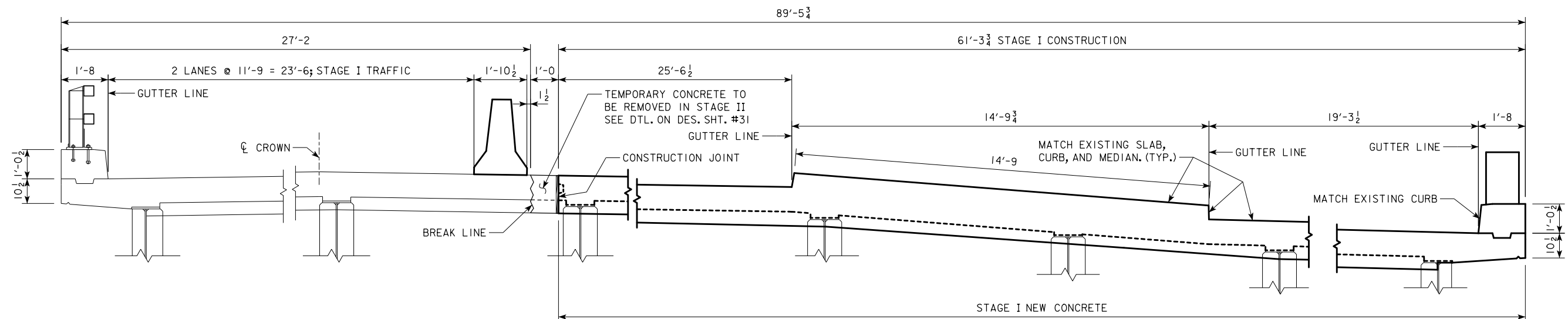
ABUTMENT BACKWALL REAR ELEVATION  
NORTH ABUTMENT (SOUTHBOUND) - STAGE II CONSTRUCTION  
( LOOKING SOUTH )

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "A".

DESIGN FOR REPAIRS TO 2°24'19" SKEW L.A.  
**633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "A" ABUT. - STAGE II DTLS.**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 28 OF 59 FILE NO. 30514 DESIGN NO. 1710



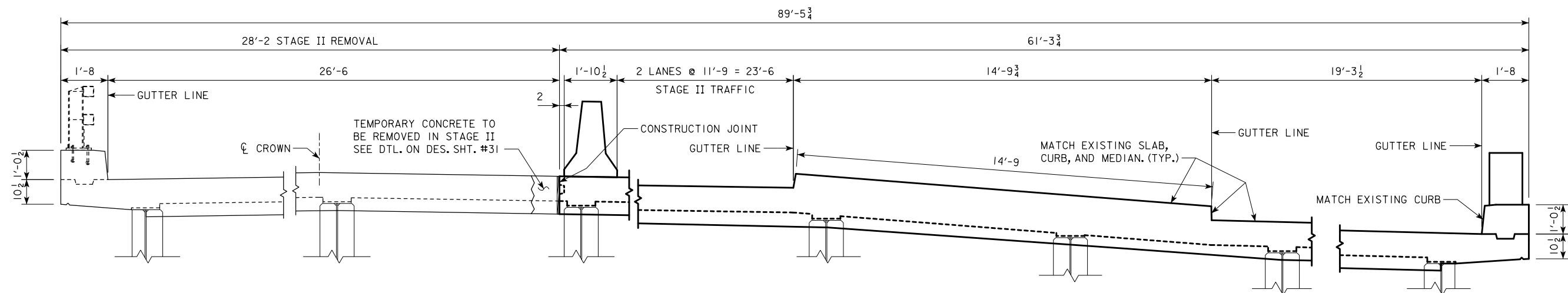
BRIDGE SLAB ELEVATION  
NORTH ABUTMENT (SOUTHBOUND) - STAGE I REMOVAL  
( LOOKING SOUTH )



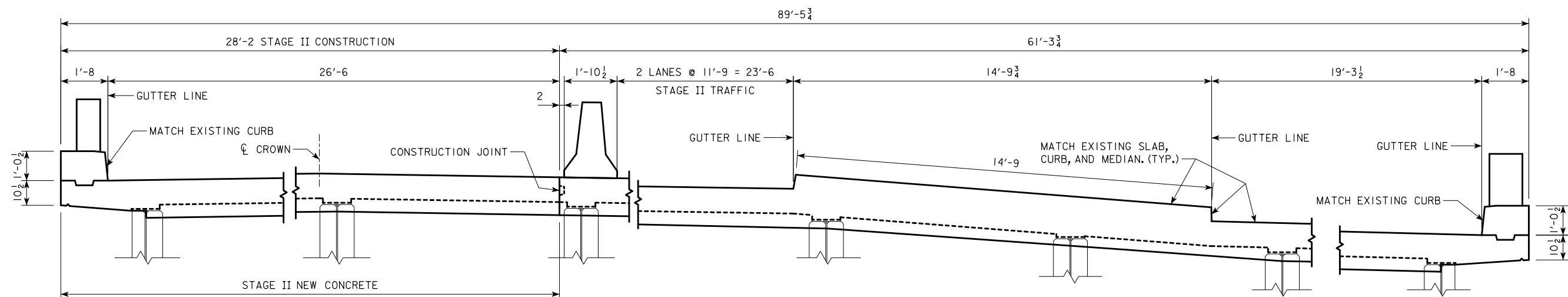
BRIDGE SLAB ELEVATION  
NORTH ABUTMENT (SOUTHBOUND) - STAGE I CONSTRUCTION  
( LOOKING SOUTH )

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "A".

DESIGN FOR REPAIRS TO 2°24'19" SKEW L.A.  
633'-0 x VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND  
JOINT "A" SLAB - STAGE I DTLS.  
JANUARY, 2012  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 29 OF 59 FILE NO. 30514 DESIGN NO. 1710



BRIDGE SLAB ELEVATION  
NORTH ABUTMENT (SOUTHBOUND) - STAGE II REMOVAL  
( LOOKING SOUTH )

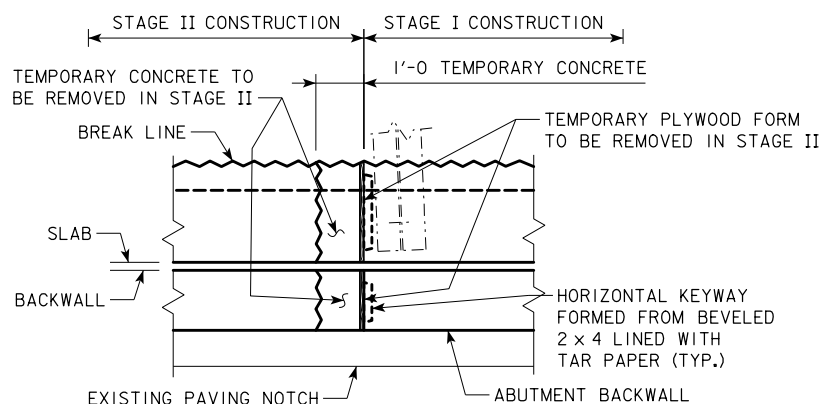
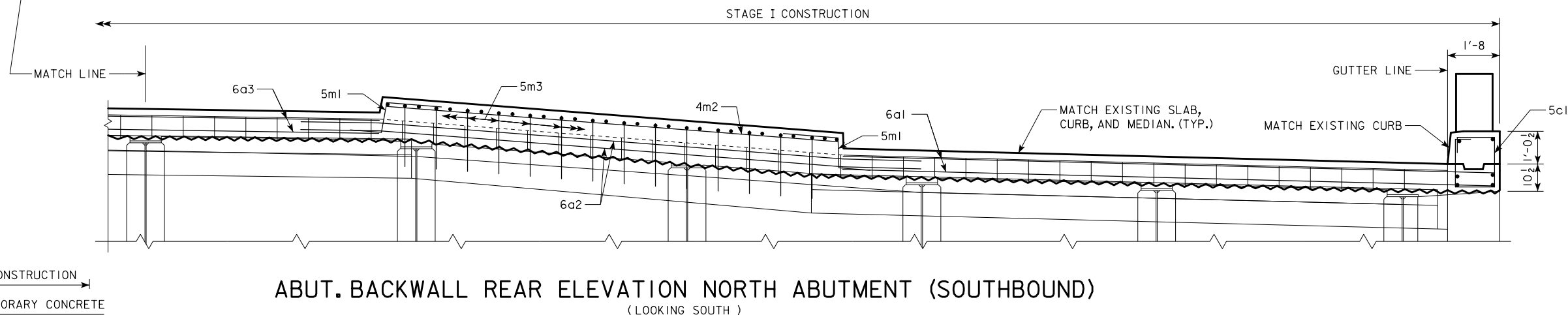
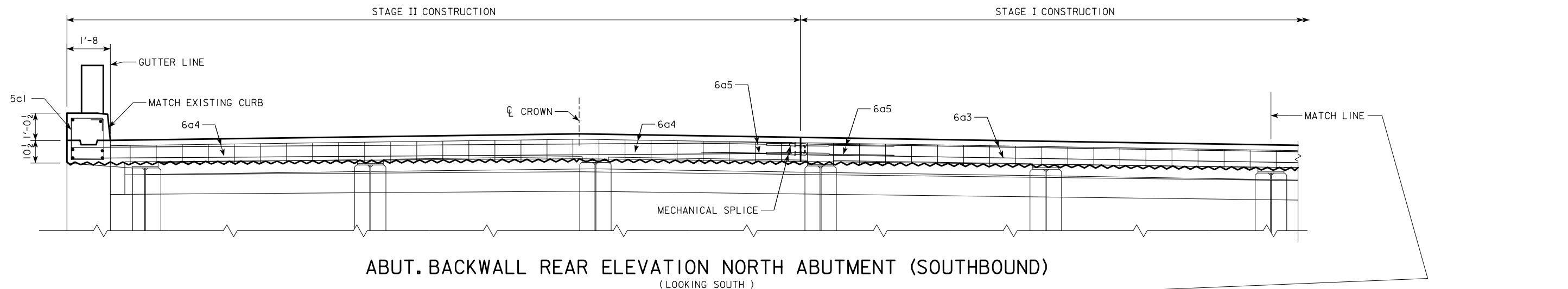


BRIDGE SLAB ELEVATION  
NORTH ABUTMENT (SOUTHBOUND) - STAGE II CONSTRUCTION  
( LOOKING SOUTH )

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "A".

DESIGN FOR REPAIRS TO 2°24'19" SKEW L.A.  
**633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "A" SLAB - STAGE II DTLS.**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 30 OF 59 FILE NO. 30514 DESIGN NO. 1710





TEMPORARY CONCRETE DETAIL  
REQUIRED FOR STAGE I ONLY  
REMOVED IN STAGE II

THE 6a BARS IN THE ABUTMENT BACKWALL AND DECK OF JOINT "A" SHALL BE SPLICED AT THE LOCATIONS SHOWN USING MECHANICAL SPLICE ASSEMBLIES. MECHANICAL SPLICE ASSEMBLIES CONSIST OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPLICER. THE MECHANICAL SPLICE ASSEMBLY USED SHALL MEET THE REQUIREMENTS OF MATERIALS IM 451 APPENDIX E. REINFORCING SPLICE BARS SHALL BE A MINIMUM OF  $\frac{3}{4}$  INCH DIAMETERS.

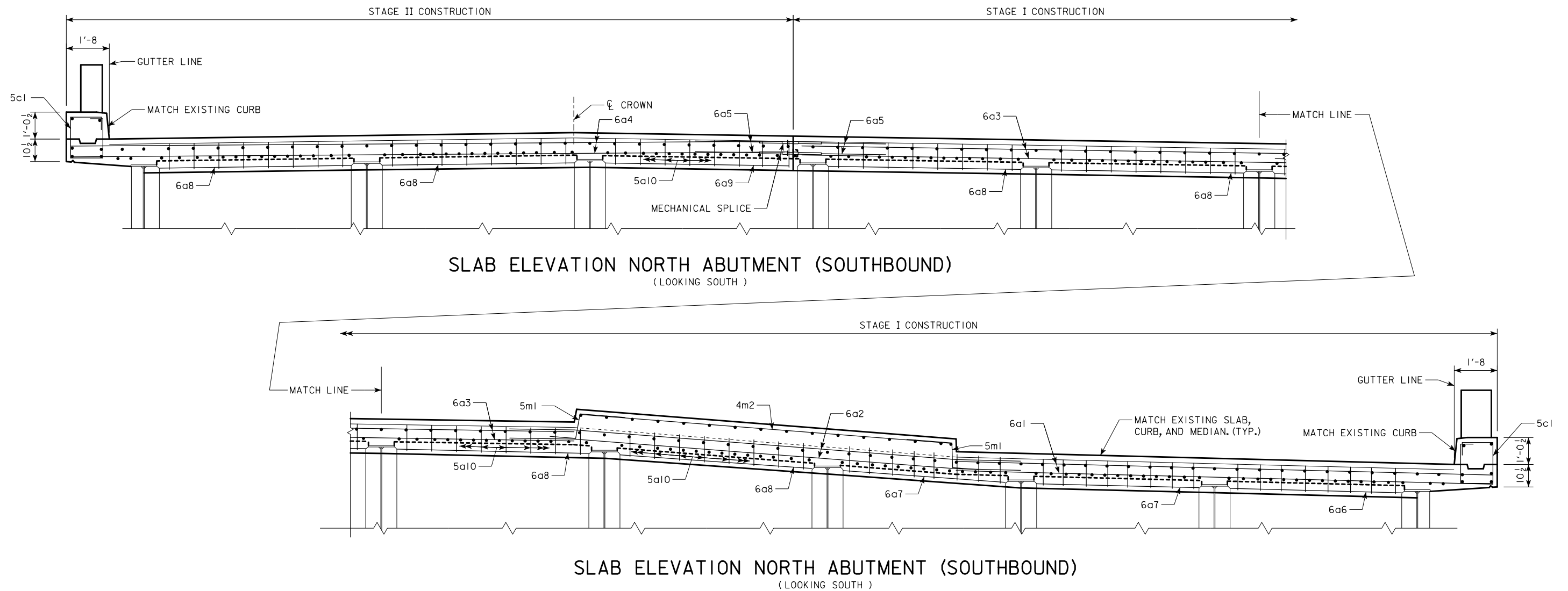
ALL MECHANICAL SPLICE ASSEMBLIES TO BE USED IN SPLICING 6a BARS IN THE ABUTMENT BACKWALL AND DECK OF JOINT "A" SHALL BE EPOXY COATED.

THE COST OF ALL SPLICE ASSEMBLIES IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL EPOXY COATED" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF MECHANICAL SPLICE ASSEMBLIES IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED". A TOTAL OF 10 EPOXY COATED SPLICE ASSEMBLIES WILL BE REQUIRED.

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "A".

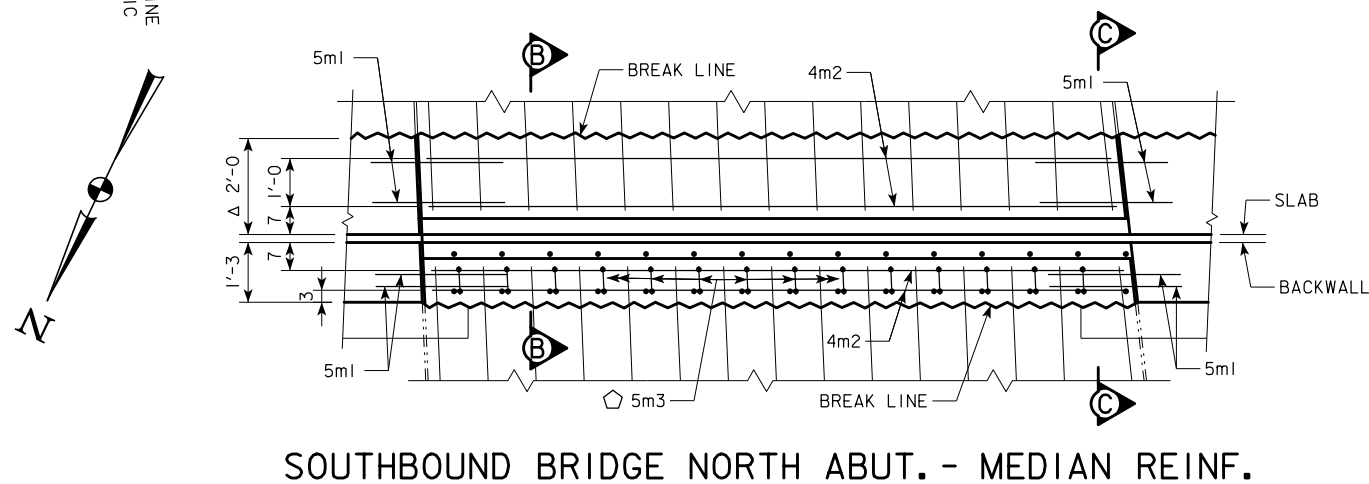
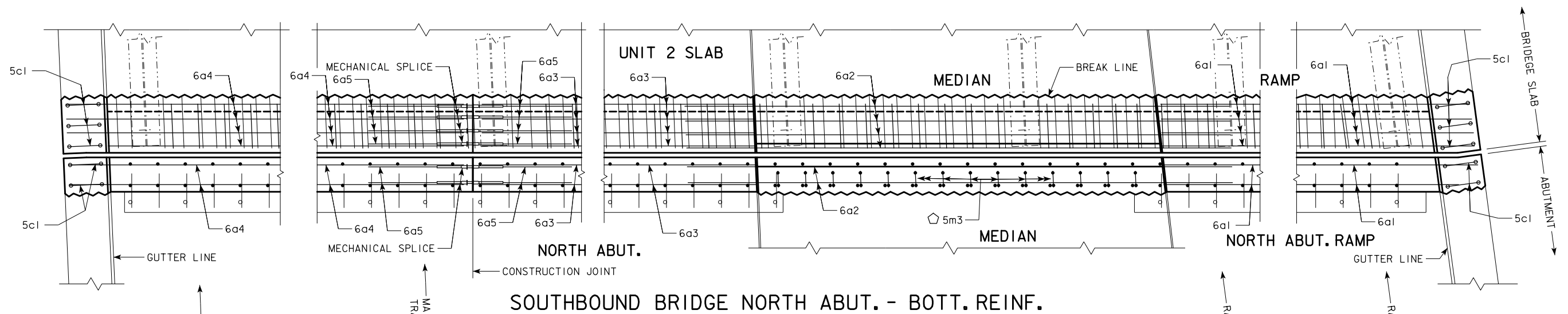
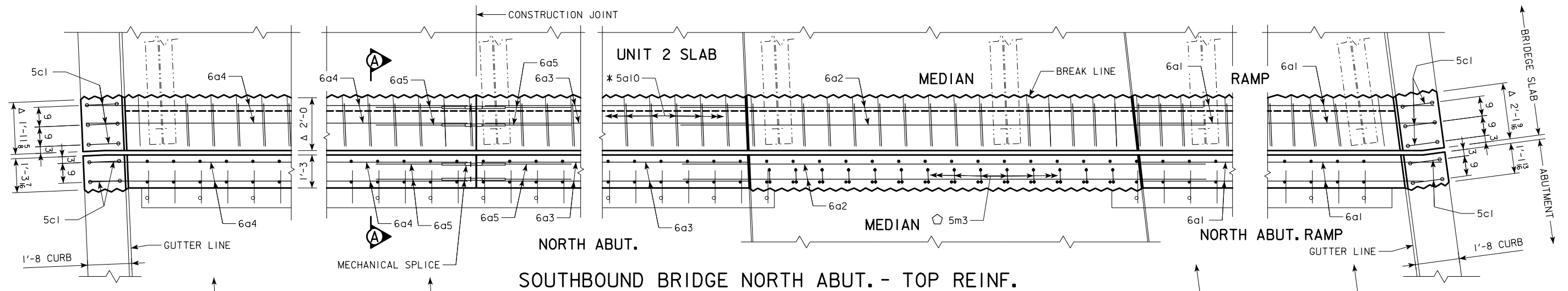
NOTE: THE CONTRACTOR SHALL PLACE A TEMPORARY PLYWOOD FORM BETWEEN THE TEMPORARY CONCRETE AND PERMANENT CONCRETE PLACED DURING STAGE I AS SHOWN IN TEMPORARY CONCRETE DETAIL. THIS WILL PREVENT BOND AND ASSIST IN STAGE II REMOVALS AND CONSTRUCTION. THE TEMPORARY PLYWOOD FORM SHALL BE REMOVED WITH STAGE II REMOVALS.

DESIGN FOR REPAIRS TO 2°24'19" SKEW L.A.  
**633'-0" VARIABLE WIDTH**  
**C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "A" ABUT. - REINF. DTLS.**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 31 OF 59 FILE NO. 30514 DESIGN NO. 1710



NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "A".

DESIGN FOR REPAIRS TO 2°24'19" SKEW L.A.  
**633'-0 VARIABLE WIDTH**  
**C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "A" SLAB - REINF. DTLS.**  
 JANUARY, 2012  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 32 OF 59 FILE NO. 30514 DESIGN NO. 1710



NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "A".  
SEE DES. SHT. #34 FOR DETAILS OF SECTION A-A, B-B, AND C-C.

NOTE 'A': INCORPORATE EXISTING LONGITUDINAL  
AND VERTICAL REINFORCING INTO NEW WORK.

Δ = ADJUST AS NEEDED TO SET EXPANSION JOINT.  
\* = PLACE ONE 5a10 BAR AT EACH EXISTING TOP  
DECK LONGITUDINAL BAR BETWEEN BEAMS.

◊ = PLACE ONE 5m3 BAR AT EACH EXISTING BACKWALL  
VERTICAL BAR IN MEDIAN.

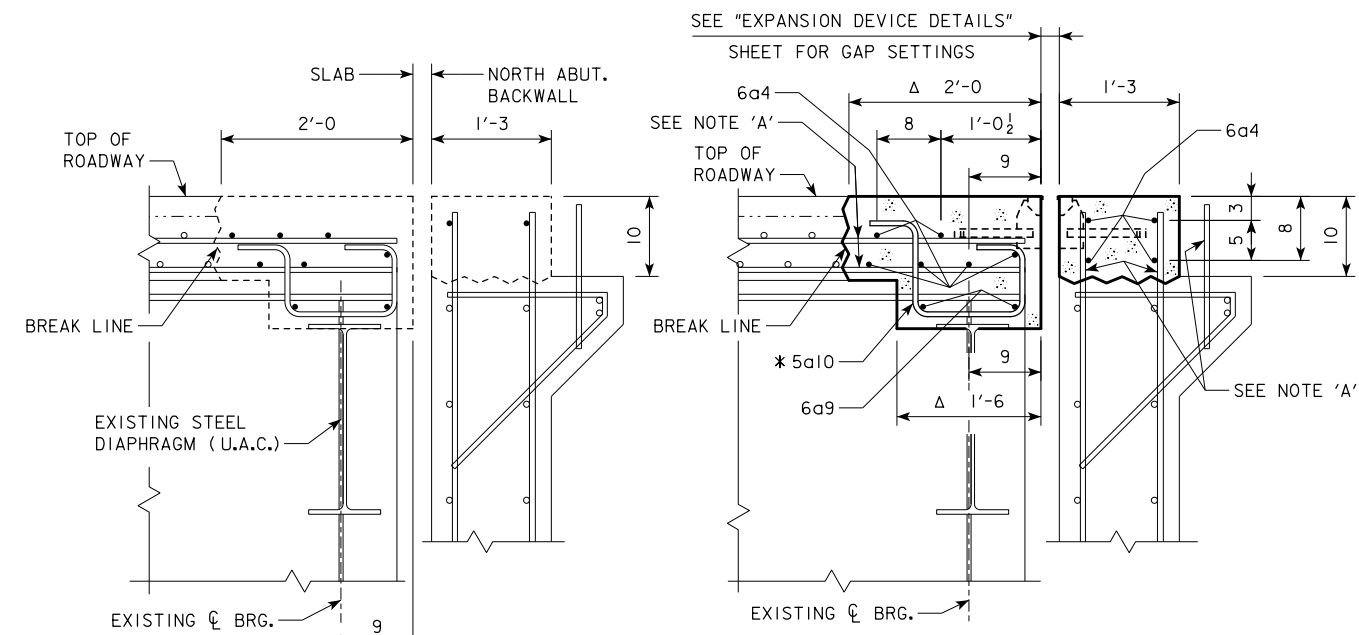
DESIGN FOR REPAIRS TO 2°24'19" SKEW L.A.  
**633'-0" VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "A" - REINF. DTLS.**

JANUARY, 2012

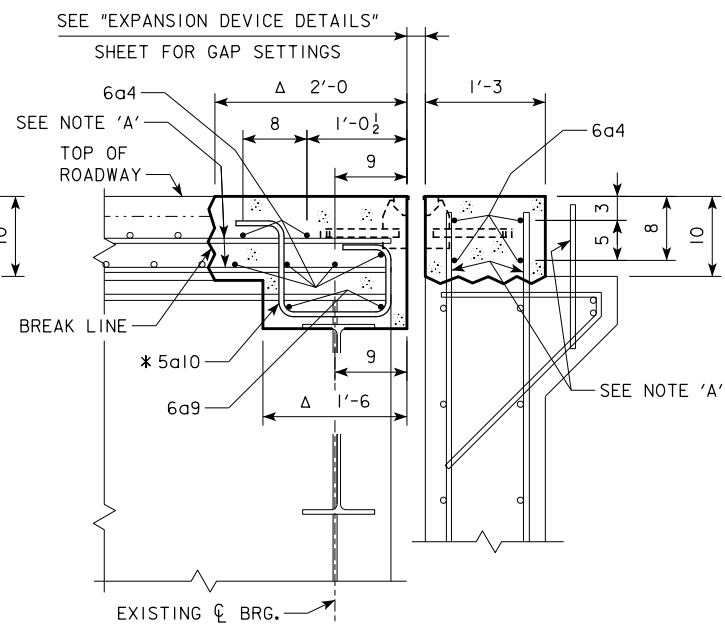
**LINN COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 33 OF 59 FILE NO. 30514 DESIGN NO. 1710

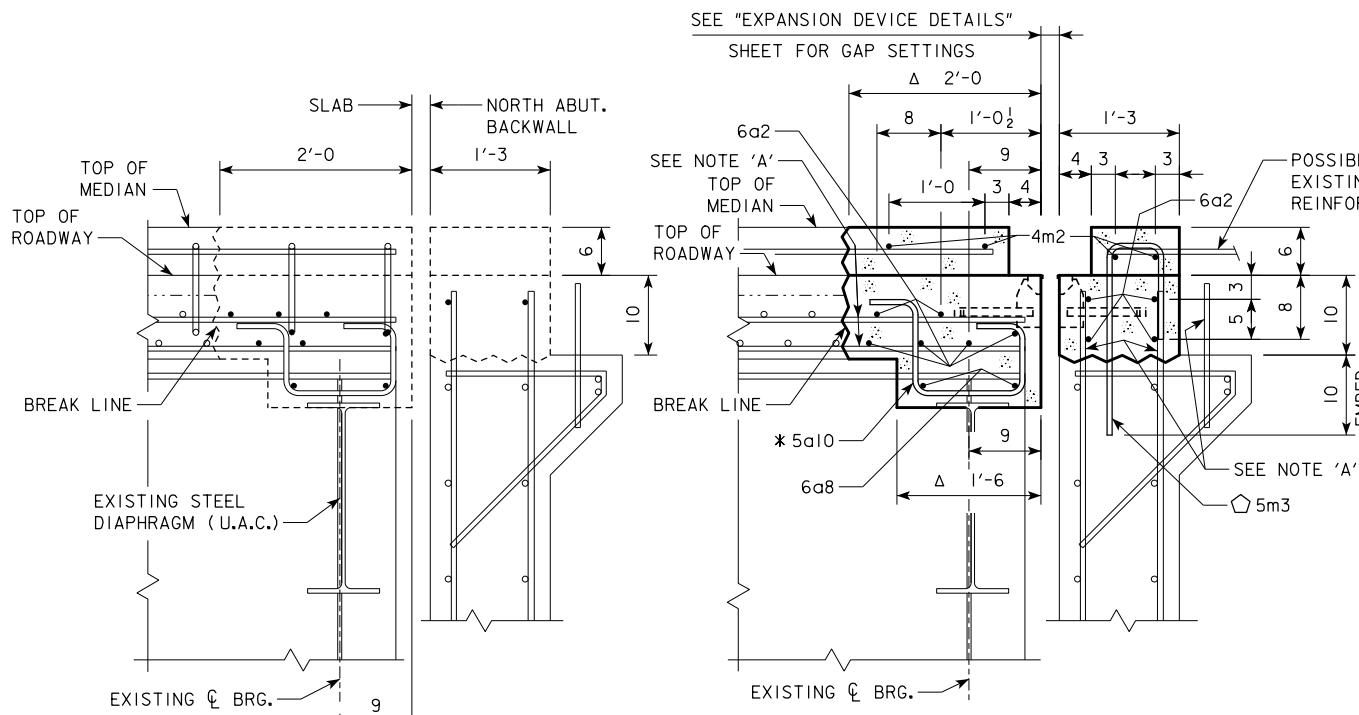




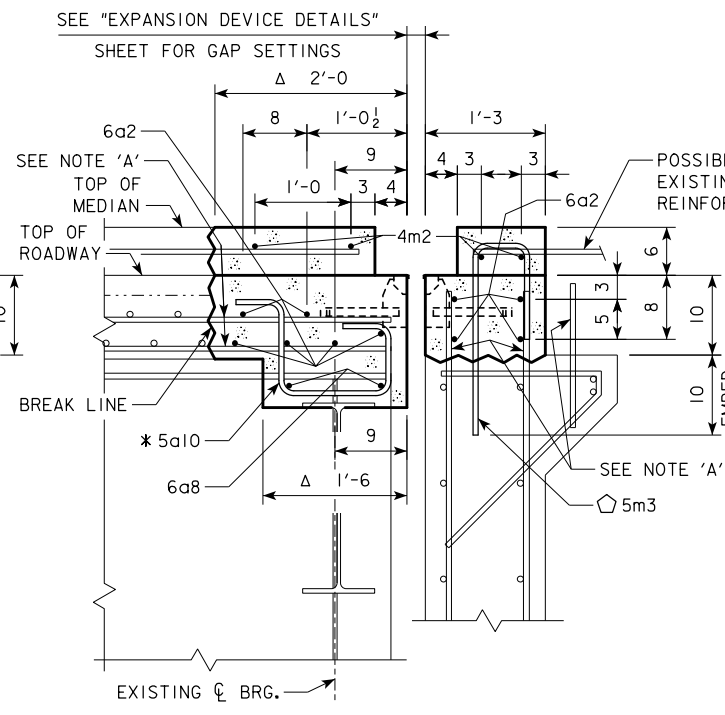
**SECTION A-A**  
(NORTH ABUTMENT)  
SLAB AND ABUTMENT BACKWALL REMOVAL LIMIT



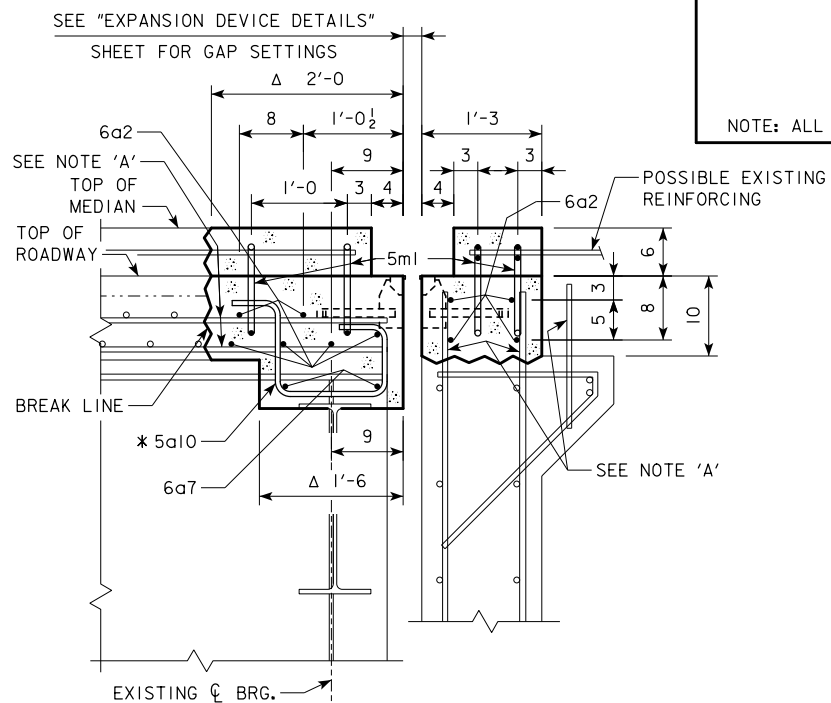
**SECTION A-A**  
(NORTH ABUTMENT)  
SLAB AND ABUTMENT BACKWALL REPLACEMENT



**SECTION B-B**  
(NORTH ABUTMENT)  
SLAB AND ABUTMENT BACKWALL REMOVAL LIMIT  
AT MEDIAN SECTION



**SECTION B-B**  
(NORTH ABUTMENT)  
SLAB AND ABUTMENT BACKWALL REPLACEMENT  
AT MEDIAN SECTION



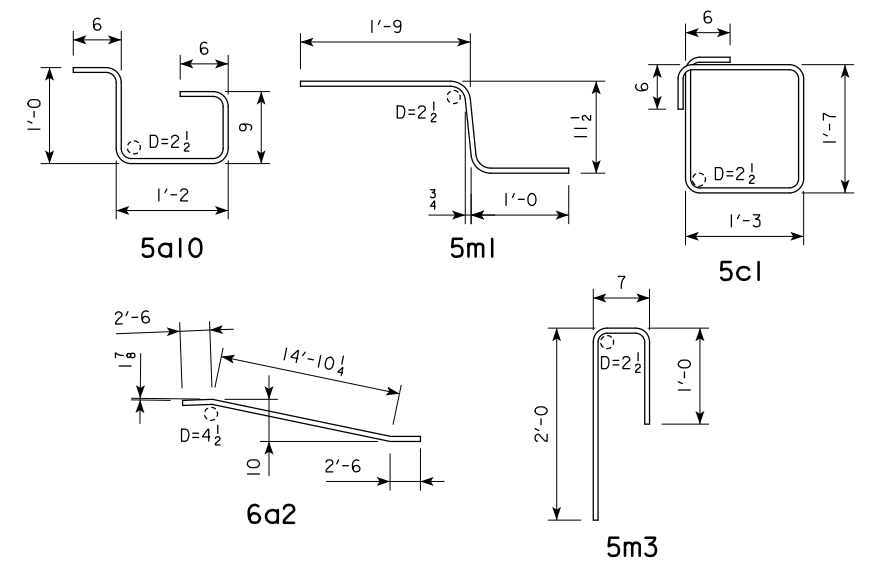
**SECTION C-C**  
(NORTH ABUTMENT)  
SLAB AND ABUTMENT BACKWALL  
AT MEDIAN SECTION

NOTE 'A': INCORPORATE EXISTING LONGITUDINAL AND VERTICAL REINFORCING INTO NEW WORK.  
Δ = ADJUST AS NEEDED TO SET EXPANSION JOINT.  
\* = PLACE ONE 5a10 BAR AT EACH EXISTING TOP DECK LONGITUDINAL BAR BETWEEN BEAMS.  
◊ = PLACE ONE 5m3 BAR AT EACH EXISTING BACKWALL VERTICAL BAR IN MEDIAN.

## EPOXY COATED REINF. BAR LIST - ONE ABUT.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	BACKWALL & SLAB TRANSVERSE - STAGE I	—	10	20'-10	313
6a2	BACKWALL & SLAB TRANSVERSE - STAGE I	—	10	19'-10	298
6a3	BACKWALL & SLAB TRANSVERSE - STAGE I	—	10	25'-2	378
6a4	BACKWALL & SLAB TRANSVERSE - STAGE II	—	10	27'-8	416
6a5	BACKWALL & SLAB TRANSV. MECH. SPLICE	—	20	2'-4	70
BOTH STAGES					
6a6	SLAB DIAPHRAGM TRANSVERSE - STAGE I	—	2	6'-7	20
6a7	SLAB DIAPHRAGM TRANSVERSE - STAGE I	—	4	6'-3	38
6a8	SLAB DIAPHRAGM TRANSVERSE - STAGE I & II	—	12	7'-5	134
6a9	SLAB DIAPHRAGM TRANSVERSE - STAGE II	—	2	7'-1	21
5a10	SLAB LONGITUDINAL - STAGE I & II	—	80	3'-11	327
5c1	CURB TRANSVERSE HOOP	□	10	6'-8	70
5m1	BACKWALL & SLAB MEDIAN CURB - STAGE I	—	8	3'-9	31
4m2	BACKWALL & SLAB MEDIAN TRANSV. - STAGE I	—	4	14'-5	39
5m3	BACKWALL MEDIAN VERT. - STAGE I	—	14	3'-7	52
REINFORCING STEEL EPOXY COATED - TOTAL (LBS)					2207

## BENT BAR DETAILS



## CONC. PLACEMENT QTY. - N. ABUT.

LOCATION	TOTAL
ABUTMENT BACKWALL AND CURB	4.0
SLAB AND CURB	11.1
TOTAL (CU. YDS.)	15.1

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "A".  
SEE DES. SHT. #33 FOR LOCATIONS OF SECTIONS A-A, B-B, AND C-C.

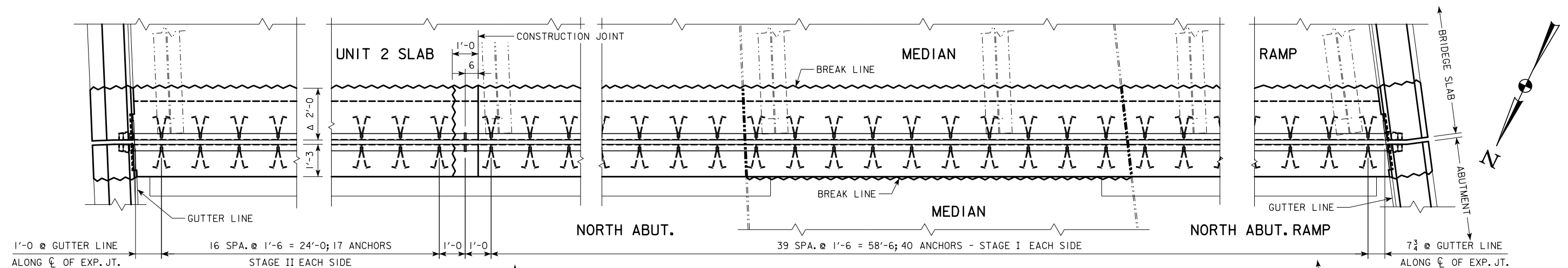
DESIGN FOR REPAIRS TO 2°24'19" SKEW L.A.  
**633'-0 VARIABLE WIDTH**  
**C.W.P.G. BRIDGE - SOUTHBOUND**

**JOINT "A" - REPAIR DTLS.**

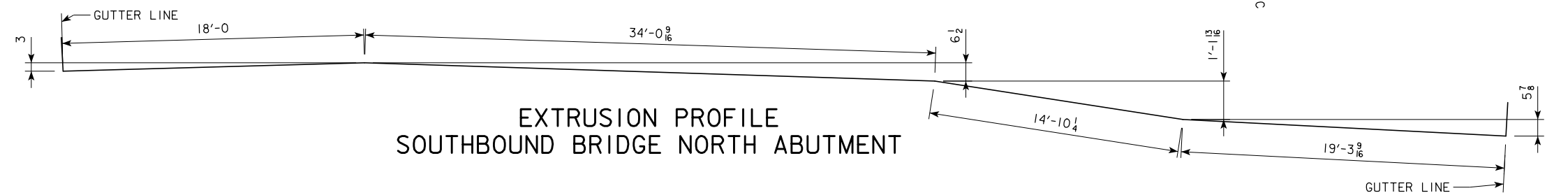
JANUARY, 2012

**LINN COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 34 OF 59 FILE NO. 30514 DESIGN NO. 1710

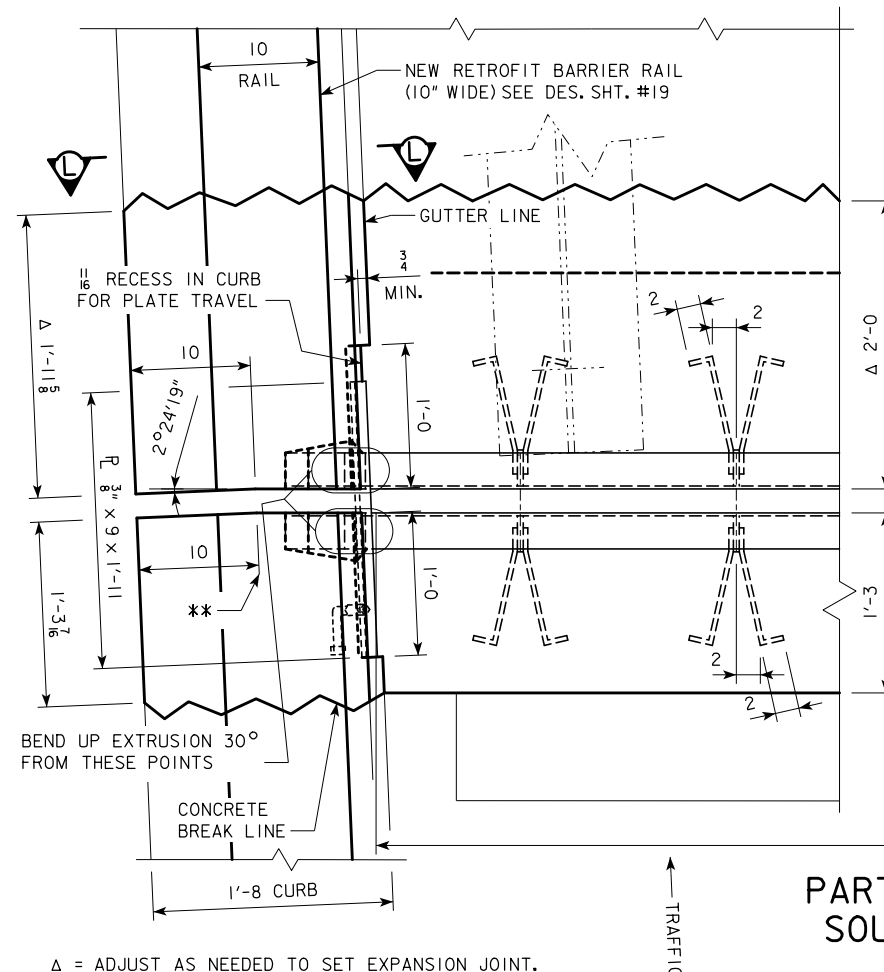


PART PLAN VIEW OF EXPANSION DEVICE  
SOUTHBOUND BRIDGE NORTH ABUTMENT

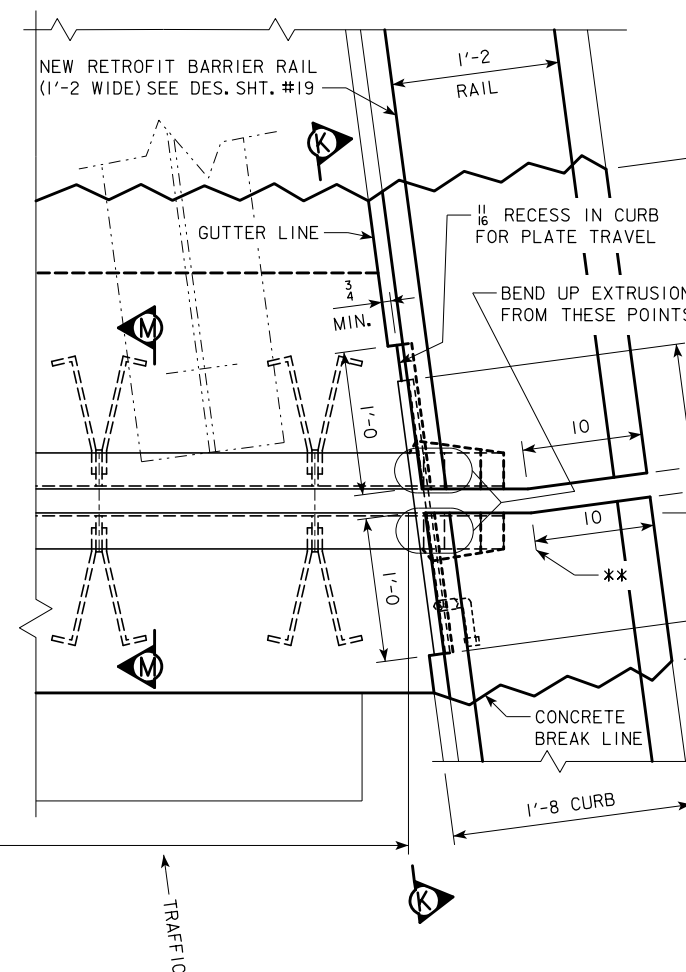
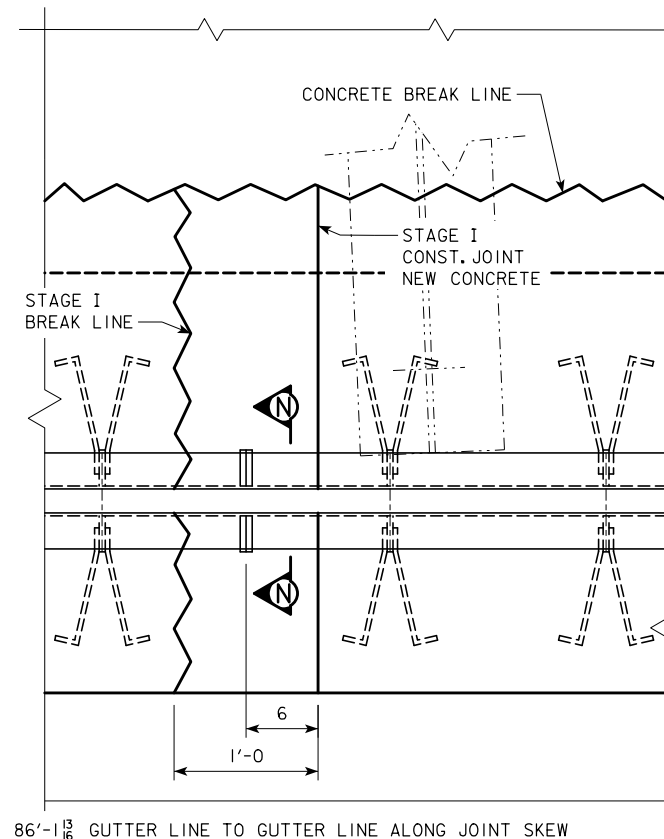


EXTRUSION PROFILE  
SOUTHBOUND BRIDGE NORTH ABUTMENT

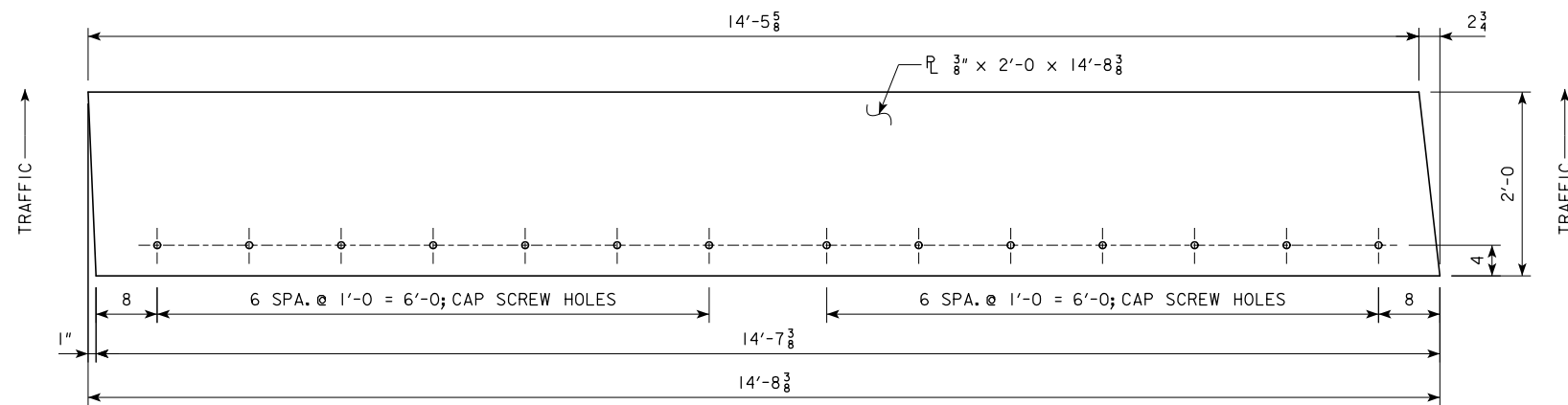
NOTE: THE CAP SCREW ANCHORAGE SYSTEM FOR THE  $\frac{3}{8}$ " CURB PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.



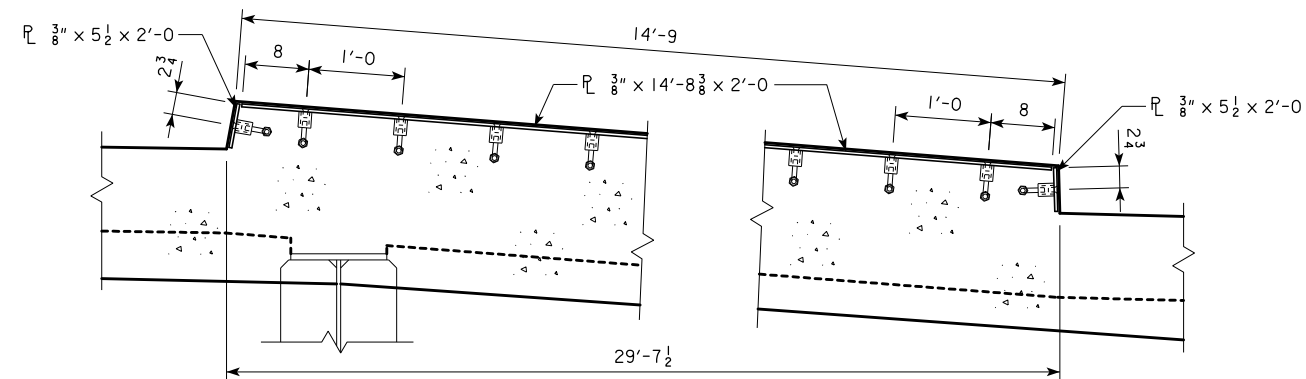
PART PLAN VIEW OF EXPANSION DEVICE  
SOUTHBOUND BRIDGE NORTH ABUTMENT



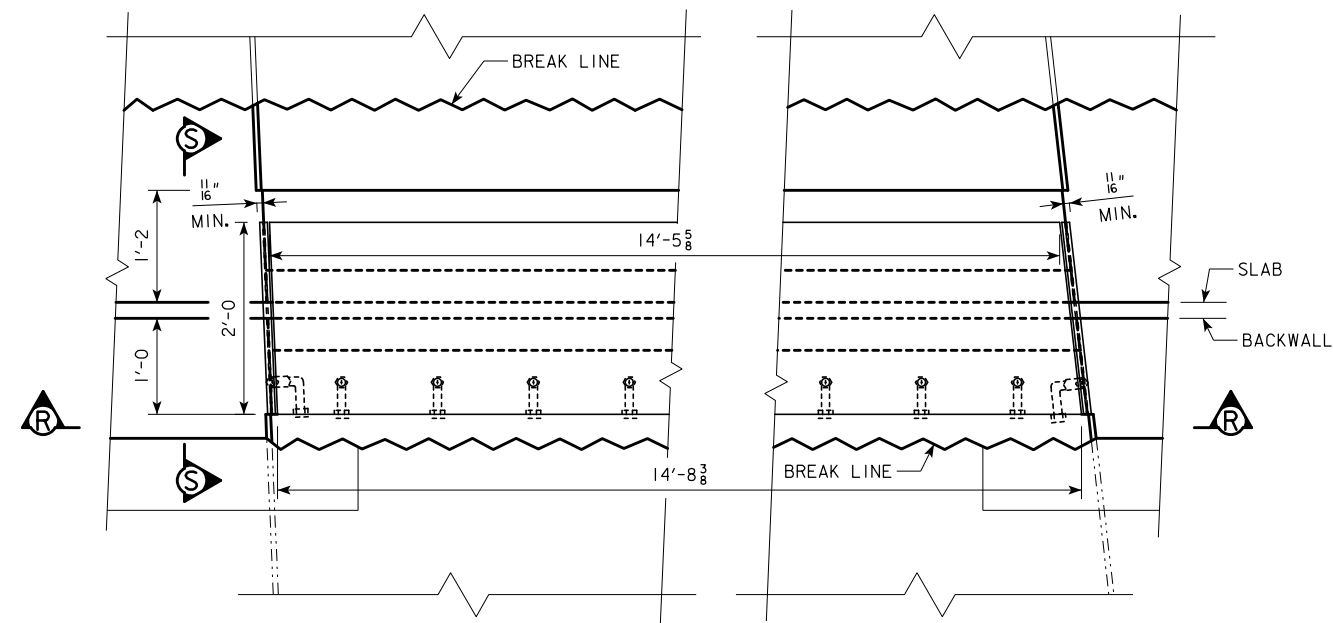
DESIGN FOR REPAIRS TO 2°24'19" SKEW L.A.  
633'-0" VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND  
JOINT "A" - REPAIR DTLS.  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 35 OF 59 FILE NO. 30514 DESIGN NO. 1710



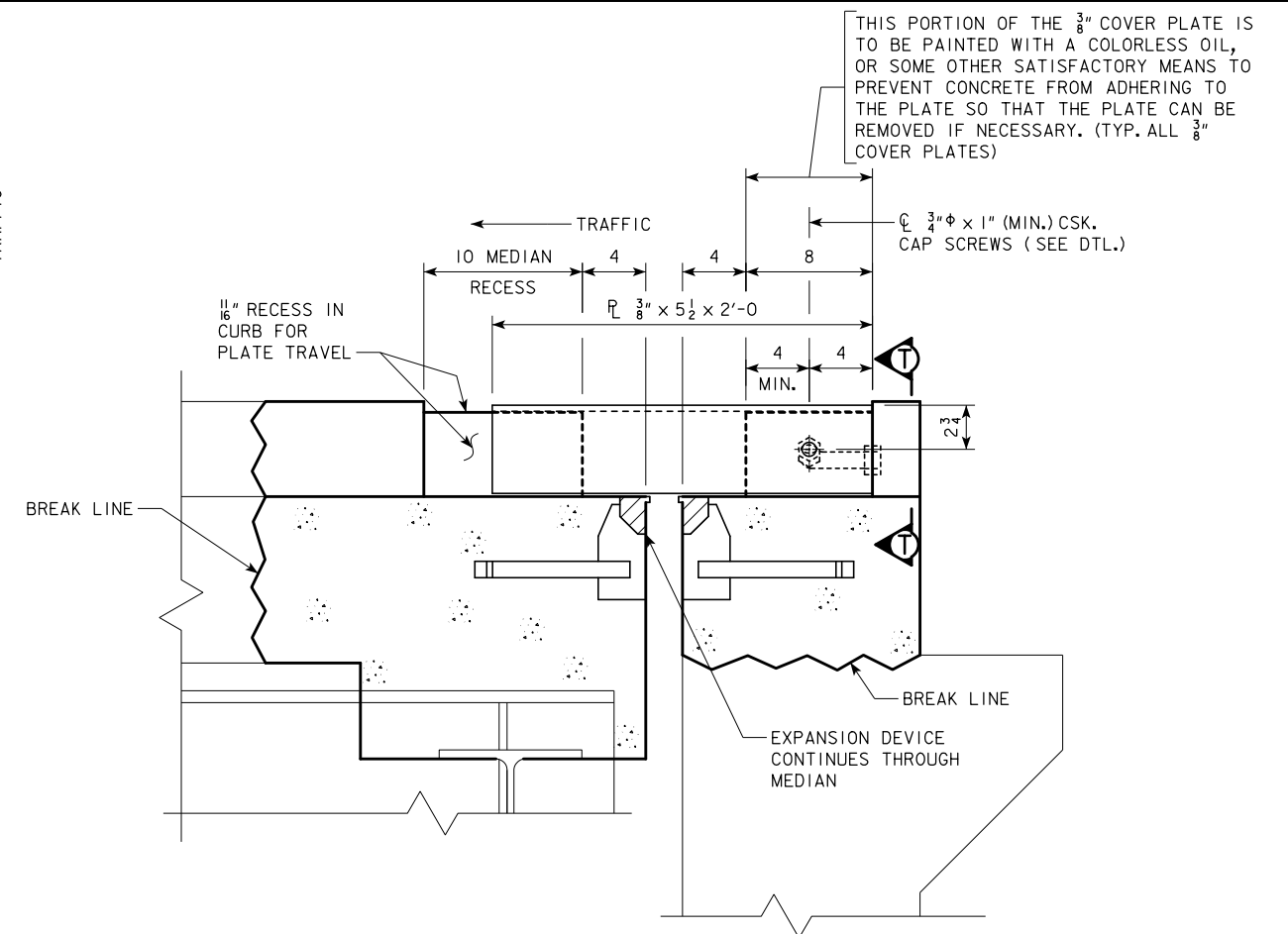
MEDIAN COVER PLATE - TOP PLATE



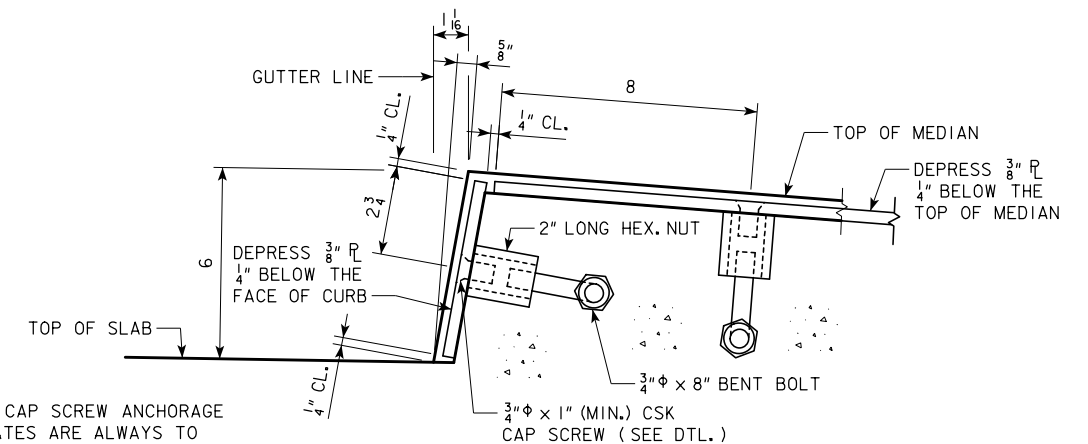
SECTION R-R



SOUTHBOUND BRIDGE NORTH ABUT.  
MEDIAN COVER PLATE

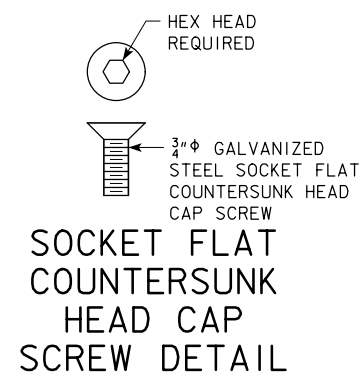
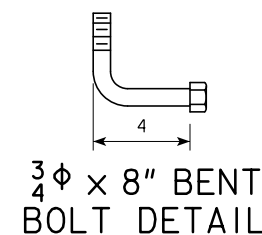


SECTION S-S



SECTION T-T

CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE 3/8" BARRIER PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.



DESIGN FOR REPAIRS TO 2°24'19" SKEW L.A.  
633'-0" VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND  
MEDIAN EXPANS. JT. COVER PLATE  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 36 OF 59 FILE NO. 30514 DESIGN NO. 1710



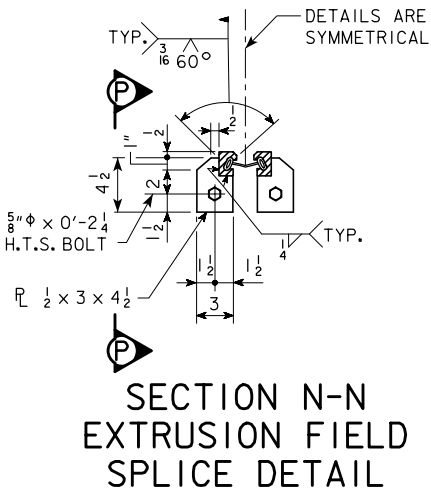
STAGE CONSTRUCTION NOTES:

FIELD SPLICES IN THE STEEL EXTRUSION SHALL BE MADE IN THE LOCATIONS DETAILED. PIECES SHALL BE JOINED WITH A PRE-QUALIFIED PARTIAL PENETRATION SINGLE-V-GROOVE WELD AS DETAILED. ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH. NO WELD SHALL BE PERMITTED IN THE INTERNAL SECTION OF THE EXTRUSION WHERE THE NEOPRENE GLAND IS TO BE LOCATED.

STEEL EXTRUSIONS ARE TO BE INSTALLED IN STAGES.

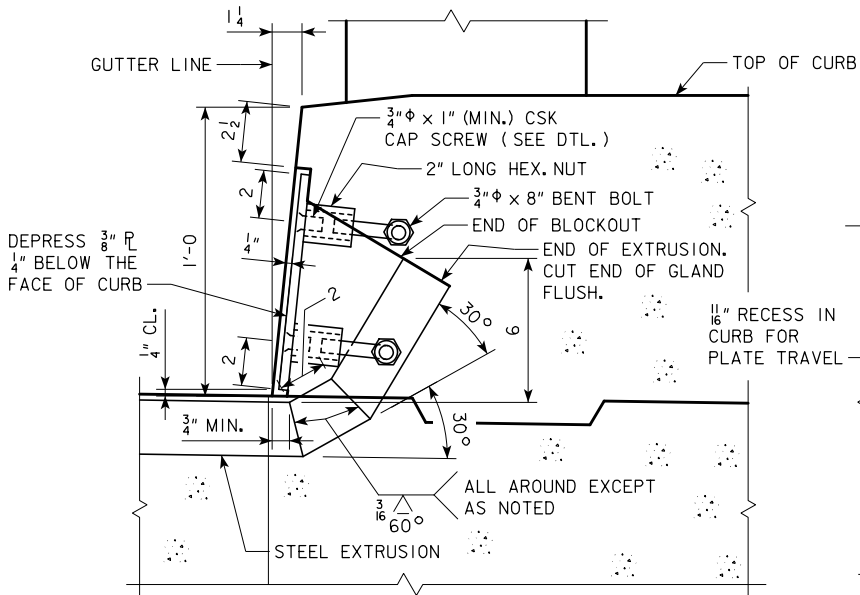
GALVANIZED COATING DAMAGED BY FIELD WELDING SHALL BE REPAIRED IN ACCORDANCE WITH MATERIALS I.M. 410.

ALL CURB PLATES INCLUDING THEIR ANCHORAGES SHALL BE GALVANIZED.

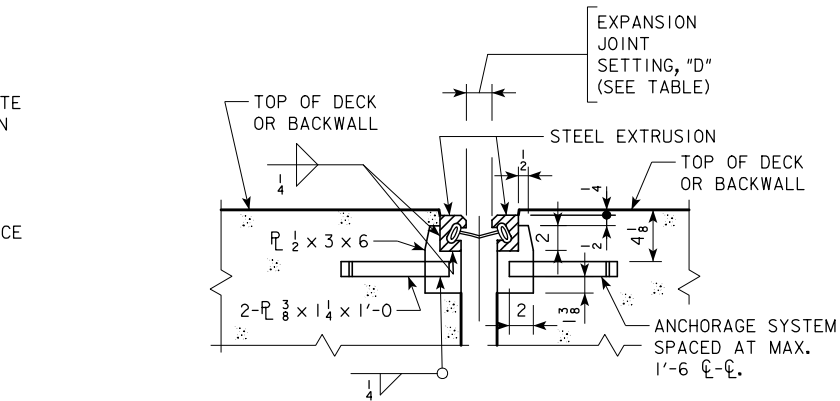


CURB PLATE NOTE:

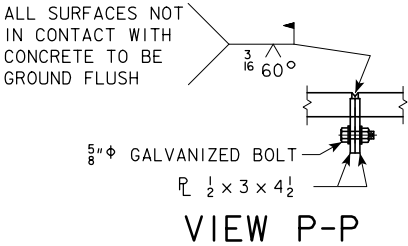
THE MATERIAL USED FOR THE CURB PLATES IS TO BE ASTM A-36 STEEL. THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATES, BOLTS, NUTS, AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.



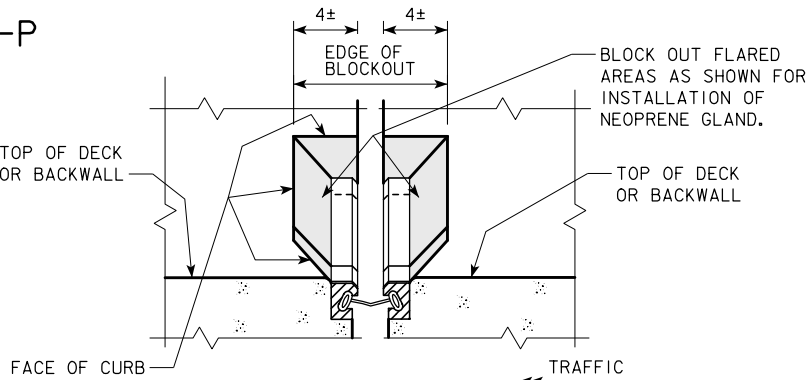
SECTION L-L



SECTION M-M

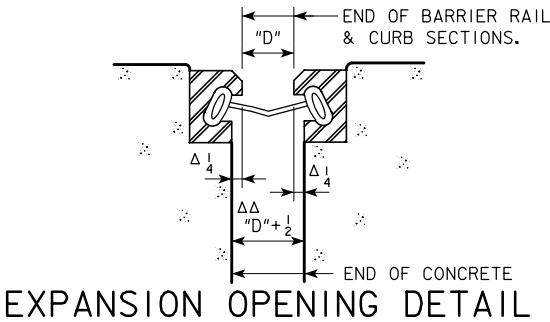


VIEW P-P



BLOCKOUT DETAIL

(NOT SHOWING CURB COVER PLATE )

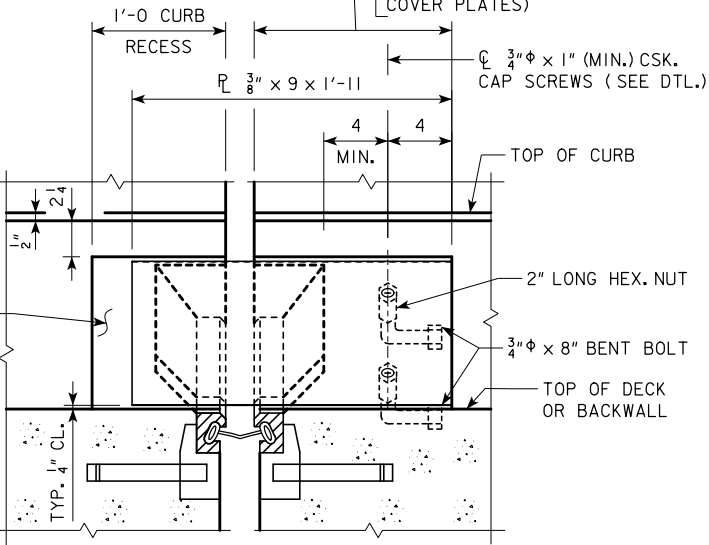


EXPANSION OPENING DETAIL

THIS DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.

USED FOR ALL OUT TO OUT DIMENSIONS OF SLAB. THE DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.

THIS PORTION OF THE 3/8" COVER PLATE IS TO BE PAINTED WITH A COLORLESS OIL, OR SOME OTHER SATISFACTORY MEANS TO PREVENT CONCRETE FROM ADHERING TO THE PLATE SO THAT THE PLATE CAN BE REMOVED IF NECESSARY. (TYP. ALL 3/8" COVER PLATES)



SECTION K-K

NOTE: SEE DESIGN SHEET #35 & #44 FOR LOCATIONS OF SECTIONS K-K, L-L, M-M, AND N-N.

NOTE:  
SEE DESIGN SHEET #38 FOR EXPANSION DEVICE NOTES CONTAINING THE STEEL EXTRUSION NOTES, NEOPRENE GLAND NOTES, AND WATERTIGHT INTEGRITY TESTING AND REPAIR NOTES.

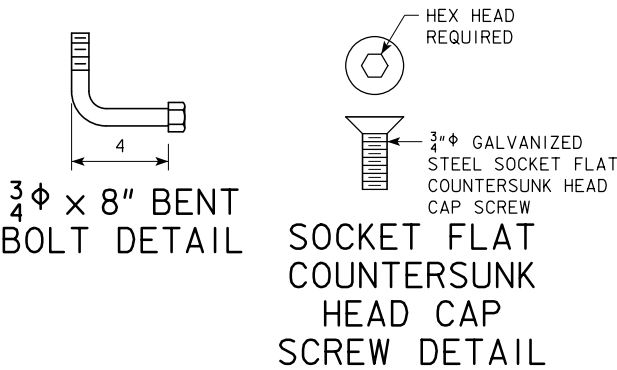
\* M.I.T. = MAXIMUM INSTALLATION TEMPERATURE.

TABLE OF JOINT SETTINGS

	NEOPRENE GLAND	* M.I.T.	JOINT OPENING "D" AT TEMP. OF		
			90°F	50°F	10°F
JOINT "A"	SE-300	90°	1 1/2"	1 7/8"	2 1/4"
JOINT "A"	A2R-400	90°	2"	2 3/8"	2 3/4"
JOINT "C"	SE-400	90°	1 1/2"	2 1/8"	2 3/4"
JOINT "C"	A2R-400	90°	2"	2 5/8"	3 1/4"
JOINT "B"	SE-500	90°	2"	2 5/16"	3 7/8"

NOTE:  
JOINT SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL. TEMPERATURES SHOWN ARE CONCRETE DECK TEMPERATURES ON THE UNDERSIDE OR SHADED PORTION OF THE DECK.

CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE 3/8" BARRIER PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.



3/4" x 8" BENT BOLT DETAIL

SOCKET FLAT COUNTERSUNK HEAD CAP SCREW DETAIL

TABLE OF APPROVED EXPANSION DEVICES

	MANUFACTURER	TYPE OF STEEL EXTRUSION	NEOPRENE GLAND
JOINT "A"	WATSON-BOWMAN & ACME CORP.	A	SE-300
JOINT "A"	D.S. BROWN	SSA2	A2R-400
JOINT "C"	WATSON-BOWMAN & ACME CORP.	A	SE-400
JOINT "C"	D.S. BROWN	SSA2	A2R-400
JOINT "B"	WATSON-BOWMAN & ACME CORP.	A	SE-500
	APPROVED EQUAL		

DESIGN FOR REPAIRS TO VARIOUS SKEWS L.A.  
633'-0" VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND

EXPANSION DEVICE DETAILS

JANUARY, 2012

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 37 OF 59 FILE NO. 30514 DESIGN NO. 1710

ENGLISHDECKRAILBRIDGES.DGN - 1026s2 - THIS SHEET ISSUED 11-08.

STEEL EXTRUSION NOTES:

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS OF THE EXPANSION DEVICES SHOWING LAYOUT, MATERIAL TO BE USED, AND PROVISIONS FOR HOLDING DEVICE DURING PLACEMENT OF CONCRETE.

THE EXPANSION DEVICE SHALL BE GALVANIZED AFTER WELDING.

THE EXPANSION DEVICE IS TO BE PARALLEL TO GRADE.

CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF THE PLATE.

THE MINIMUM GRADE OF STRUCTURAL STEEL FOR THE EXPANSION DEVICE SHALL BE ASTM A-36.

BLOCKOUT DETAILS MAY BE ALTERED FROM THOSE SHOWN PROVIDED THE GLAND MAY BE INSTALLED AND REMOVED IF NECESSARY AND THE CURB AREA REMAINS WATERTIGHT.

SHOP AND OR FIELD SPLICES OF THE STEEL EXTRUSION WILL BE PERMITTED. FIELD SPLICES OF THE STEEL EXTRUSION SHALL BE MADE AT THE STAGING JOINTS IF CONSTRUCTION IS STAGED. GALVANIZED COATING DAMAGED BY FIELD WELDING SHALL BE REPAIRED IN ACCORDANCE WITH MATERIALS I.M. 410. PIECES OF STEEL EXTRUSION IN THE 15 FT. TO 22 FT. RANGE SHALL BE USED TO FORM THE REQUIRED GUTTER TO GUTTER LENGTH. THE INDIVIDUAL LENGTH OF PIECES SHALL BE CHOSEN SO THAT A MINIMUM NUMBER OF SPLICES IS REQUIRED. ALL PIECES SHALL BE JOINED WITH A PREQUALIFIED PARTIAL PENETRATION SINGLE GROOVE WELD, AND ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH. NO WELD SHALL BE PERMITTED IN THE INTERNAL SECTION OF THE EXTRUSION WHERE THE NEOPRENE GLAND IS TO BE LOCATED.

THE NUMBER OF FEET OF STEEL EXTRUSION INSTALLED SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT BASED ON PLAN QUANTITIES. THE PRICE BID FOR "STEEL EXTRUSION JOINT W/NEOPRENE" SHALL INCLUDE THE COST OF FURNISHING BUT NOT THE COST OF INSTALLING THE NEOPRENE GLAND. THE CONTRACT PRICE BID FOR "STEEL EXTRUSION JOINT W/NEOPRENE" SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING STEEL EXTRUSIONS. THIS WORK WILL CONSIST OF FURNISHING ALL REQUIRED MATERIALS, (INCLUDING THE 3/8" PLATES AT THE CURBS AND MEDIAN AND THEIR ANCHORAGE SYSTEMS), AND THE INSTALLATION AND ADJUSTMENT OF THE EXPANSION JOINTS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. THE FURNISHING AND INSTALLATION OF ALL NECESSARY HARDWARE AND ACCESSORIES AS SUPPLIED BY THE EXPANSION JOINT MANUFACTURER ARE TO BE INCLUDED IN THIS WORK, INCLUDING THE ANCHORAGE SYSTEM AND ANY TEMPORARY ERECTION MATERIAL. ALL WORK AND MATERIALS FOR THE INSTALLATION OF THE EXPANSION JOINTS ARE TO COMPLY WITH THE WRITTEN RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER.

NEOPRENE GLAND NOTES:

THE NEOPRENE GLAND IS TO BE PLACED AS ONE CONTINUOUS PIECE FROM END TO END OF THE STEEL EXTRUSION.

THE NEOPRENE GLAND SHALL CONFORM TO ASTM-2628 MODIFIED TO EXCLUDE RECOVER TEST AND COMPRESSION SET.

THE CONTRACTOR SHALL INSTALL THE GLAND ONLY WHEN THE DECK TEMPERATURE IS BETWEEN 40°F AND MAXIMUM INSTALLATION TEMPERATURE SHOWN IN THESE PLANS INCLUSIVE. THE DECK TEMPERATURE SHALL BE MEASURED BY RECORDING THE SURFACE TEMPERATURES ON THE UNDERSIDE OF THE DECK ADJACENT TO THE JOINTS. IF THE DECK TEMPERATURE DOES NOT FALL WITHIN THE SPECIFIED TEMPERATURE RANGE BEFORE THE CONTRACTOR HAS COMPLETED ALL OTHER REQUIRED WORK, IT WILL BE NECESSARY FOR THE CONTRACTOR TO RETURN TO THE PROJECT SITE TO COMPLETE INSTALLATION AND TESTING OF THE NEOPRENE GLAND. IF THE CONTRACTOR IS REQUIRED TO RETURN TO THE PROJECT SITE AFTER ALL OTHER REQUIRED WORK HAS BEEN COMPLETED, THE CONTRACTOR SHALL COMPLETE INSTALLATION AND TESTING OF NEOPRENE GLAND AT NO EXTRA CHARGE TO THE STATE.

THE NUMBER OF FEET OF NEOPRENE GLAND INSTALLED SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT BASED ON PLAN QUANTITIES. THE PRICE FOR "NEOPRENE GLAND INSTALLATION AND TESTING" SHALL BE FULL COMPENSATION FOR INSTALLING AND TESTING OF THE NEW NEOPRENE GLAND. THIS WORK WILL CONSIST OF CLEANING THE EXTRUSION, INSTALLATION OF THE NEOPRENE GLAND AND WATER TIGHT TESTING OF THE EXPANSION JOINT SYSTEM. ALL WORK AND MATERIALS NECESSARY FOR THE INSTALLATION OF THE NEOPRENE GLAND SHALL COMPLY WITH THE RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER. THE PRICE BID FOR "NEOPRENE GLAND INSTALLATION AND TESTING" SHALL INCLUDE ALL WATERTIGHT INTEGRITY TESTING, LEAK REPAIRS AS DIRECTED BY THE ENGINEER, AND SUBSEQUENT WATERTIGHT TESTING UNTIL A LEAK FREE INSTALLATION IS ACHIEVED.

WATERTIGHT INTEGRITY TESTING AND REPAIR NOTES:

AFTER INSTALLATION OF EACH NEOPRENE GLAND, THE CONTRACTOR SHALL PERFORM WATERTIGHT INTEGRITY TESTS AT THE DECK LEVEL TO DETECT ANY LEAKAGE. THE TESTS ARE TO CHECK FOR LEAKAGE AT THE UPTURNED ENDS OF THE EXPANSION DEVICE AND FOR LEAKAGE ALONG THE EXPANSION DEVICE ACROSS THE DECK AND ANY MEDIANS OR SIDEWALKS. THE CONTRACTOR MAY CONDUCT A SINGLE TEST OF THE ENTIRE DEVICE INCLUDING UPTURNED ENDS OR MAY CONDUCT SEPARATE TESTS OF UPTURNED ENDS AND ONE OR MORE TESTS OF OVERLAPPING LENGTHS BETWEEN THE UPTURNED ENDS.

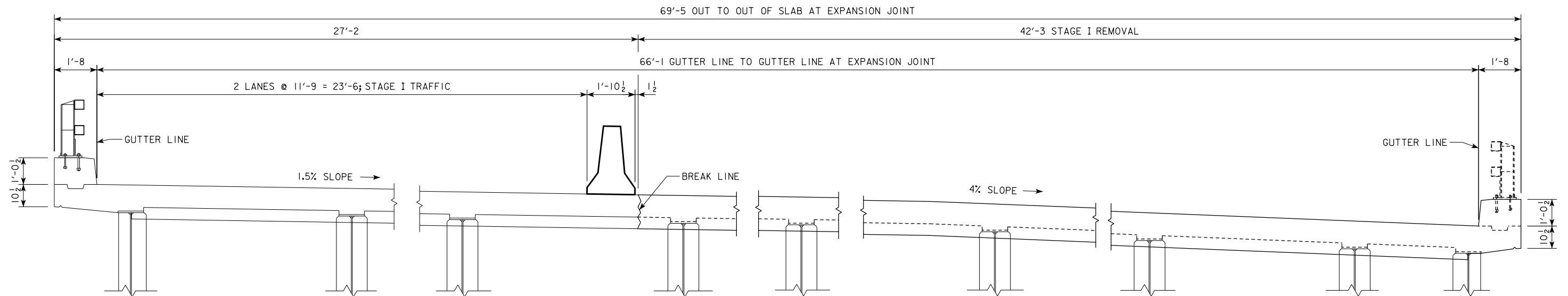
AT EACH UPTURNED END OF THE EXPANSION DEVICE, THE CONTRACTOR SHALL BLOCK OUT ON THE DECK AT LEAST 3 FEET OF THE EXPANSION DEVICE LEADING TO THE UPTURNED END AND FLOOD THE AREA. A MINIMUM WATER DEPTH OF 3" SHALL BE MAINTAINED AT THE GUTTERLINE FOR AT LEAST 30 MINUTES. DURING THE TEST, THE INSPECTOR SHALL OBSERVE FOR ANY OVERFLOW AT THE UPTURNED END. AT THE CONCLUSION OF THE TEST THE INSPECTOR WILL EXAMINE THE UNDERSIDE OF THE JOINT FOR LEAKAGE. THE EXPANSION DEVICE IS CONSIDERED WATERTIGHT IF THE INSPECTOR OBSERVES NO OVERFLOW DURING THE TEST AND IF NO DRIPPING WATER OR WATER DROPLETS ARE VISIBLE IN THE UNDERDECK AREAS NEAR THE UPTURNED END.

THE CONTRACTOR SHALL TEST THE EXPANSION DEVICE BETWEEN UPTURNED ENDS BY BLOCKING OUT AND COVERING THE DEVICE WITH PONDED OR FLOWING WATER TO A DEPTH OF AT LEAST 1" AT ALL POINTS, FOR AT LEAST 30 MINUTES. VERTICAL CURB SURFACES MAY BE TESTED WITH AN UNNOZZLED HOSE DELIVERING APPROXIMATELY ONE GALLON PER MINUTE DIRECTED TO FLOW OVER THE ENTIRE CURB HEIGHT FOR 30 MINUTES. AT THE CONCLUSION OF THE TEST, THE INSPECTOR WILL EXAMINE THE UNDERSIDE OF THE JOINT FOR LEAKAGE. THE EXPANSION DEVICE IS CONSIDERED WATERTIGHT IF NO DRIPPING WATER OR WATER DROPLETS ARE VISIBLE IN THE UNDERDECK AREAS ALONG THE FULL LENGTH OF THE EXPANSION JOINT. DAMP CONCRETE THAT DOES NOT SHOW DRIPPING WATER OR WATER DROPLETS IS NOT CONSIDERED A SIGN OF LEAKAGE.

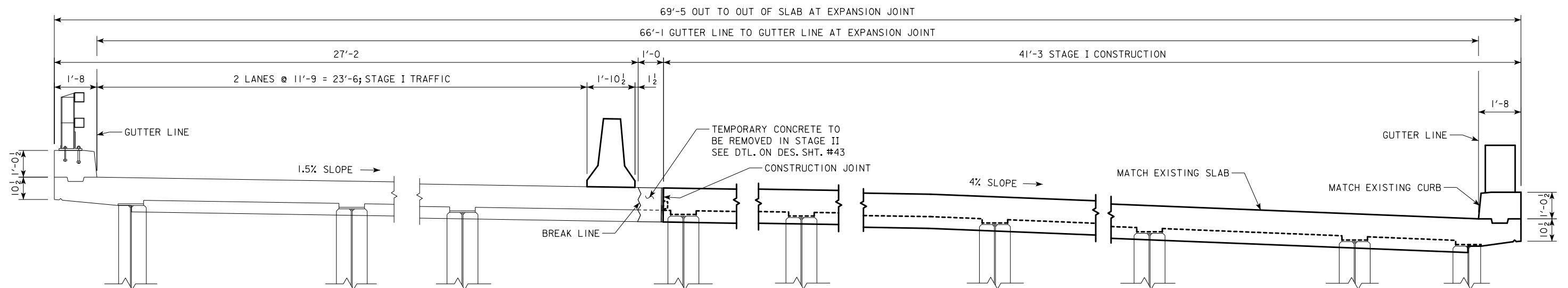
IF THE EXPANSION DEVICE LEAKS AT AN UPTURNED END OR ALONG ITS LENGTH, THE CONTRACTOR SHALL LOCATE THE LEAK(S) AND TAKE REPAIR MEASURES TO STOP THE LEAKAGE. THE REPAIR MEASURES SHALL BE AS RECOMMENDED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER PRIOR TO BEGINNING CORRECTIVE WORK.

IF MEASURES TO ELIMINATE LEAKAGE ARE TAKEN, THE CONTRACTOR SHALL PERFORM SUBSEQUENT WATERTIGHT INTEGRITY TESTS SUBJECT TO THE SAME CONDITIONS AS THE ORIGINAL TEST.

DESIGN FOR REPAIRS TO VARIOUS SKEWS L.A.  
633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND  
  
EXPANSION DEVICE NOTES  
JANUARY, 2012  
  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 38 OF 59 FILE NO. 30514 DESIGN NO. 1710



BRIDGE SLAB ELEVATION  
EXPANSION JOINT UNIT 1 & UNIT 2  
(SOUTHBOUND) - STAGE I REMOVAL  
(LOOKING SOUTH)

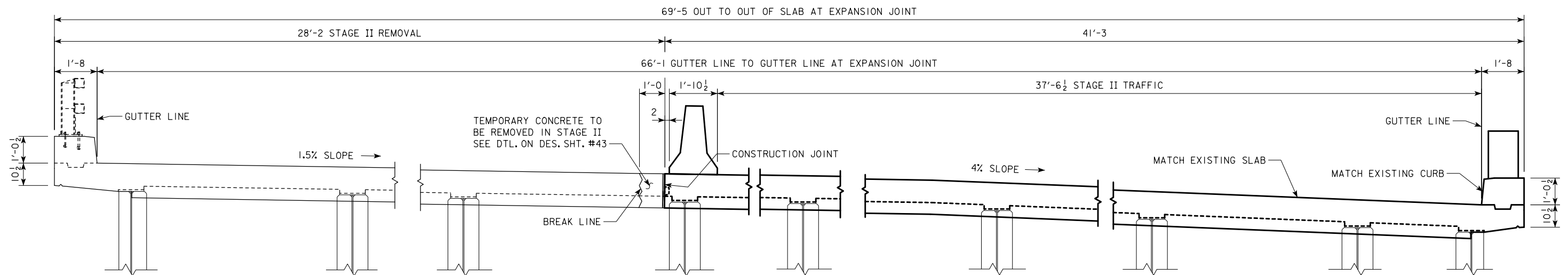


BRIDGE SLAB ELEVATION  
EXPANSION JOINT UNIT 1 & UNIT 2  
(SOUTHBOUND) - STAGE I CONSTRUCTION  
(LOOKING SOUTH)

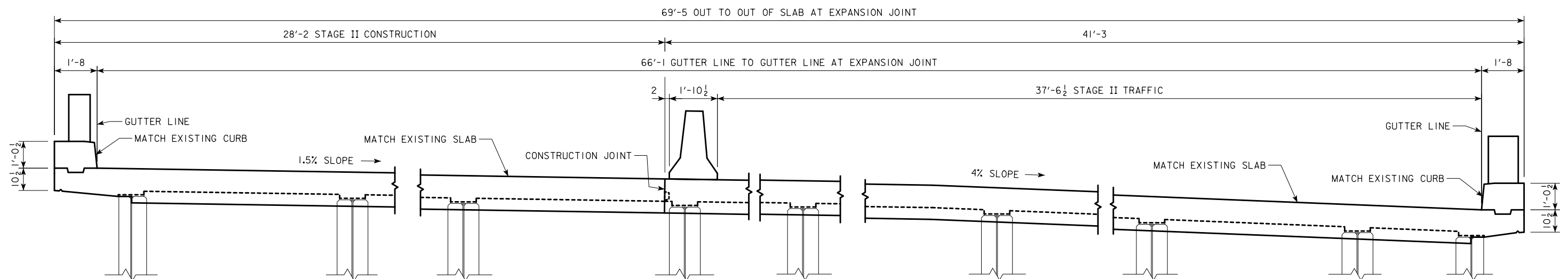
NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "B".

DESIGN FOR REPAIRS TO 2°46'00" SKEW L.A.  
**633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "B" - STAGE I DTLS.**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 39 OF 59 FILE NO. 30514 DESIGN NO. 1710





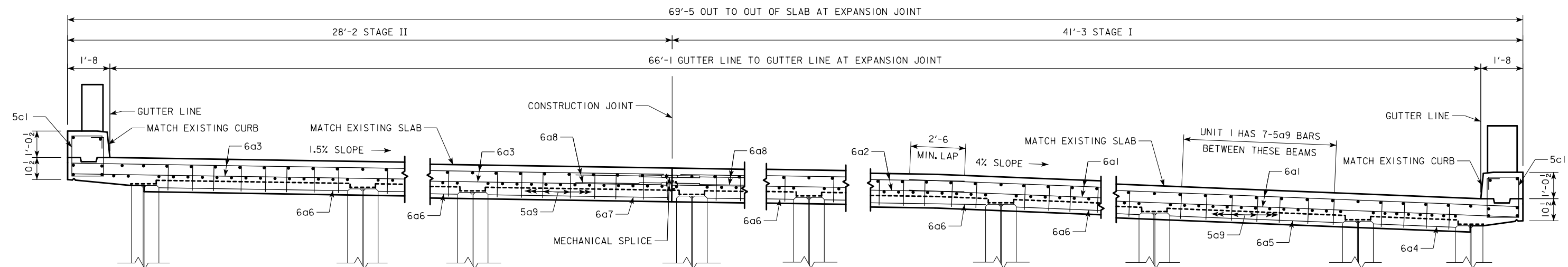
BRIDGE SLAB ELEVATION  
EXPANSION JOINT UNIT 1 & UNIT 2  
(SOUTHBOUND) - STAGE II REMOVAL  
(LOOKING SOUTH)



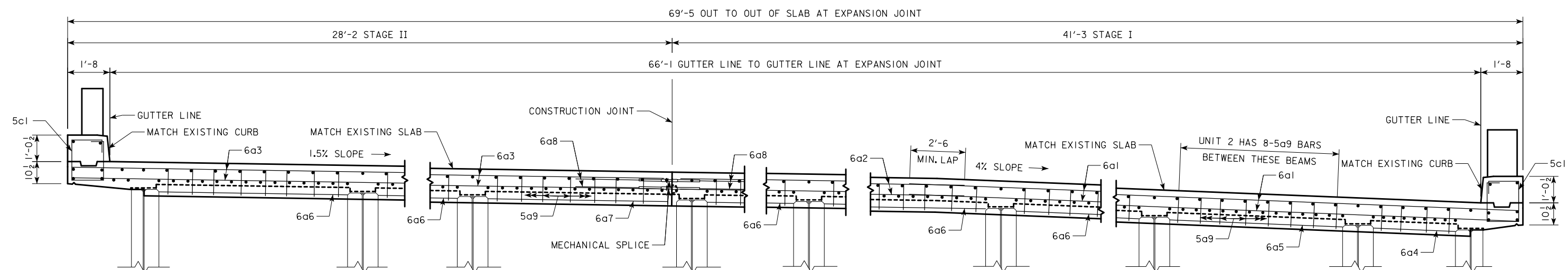
BRIDGE SLAB ELEVATION  
EXPANSION JOINT UNIT 1 & UNIT 2  
(SOUTHBOUND) - STAGE II CONSTRUCTION  
(LOOKING SOUTH)

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "B".

DESIGN FOR REPAIRS TO 2°46'00" SKEW L.A.  
**633'-0" VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "B" - STAGE II DTLS.**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 40 OF 59 FILE NO. 30514 DESIGN NO. 1710



SLAB ELEVATION EXPANSION JOINT - UNIT 1  
(SOUTHBOUND)  
(LOOKING SOUTH)



SLAB ELEVATION EXPANSION JOINT - UNIT 2  
(SOUTHBOUND)  
(LOOKING SOUTH)

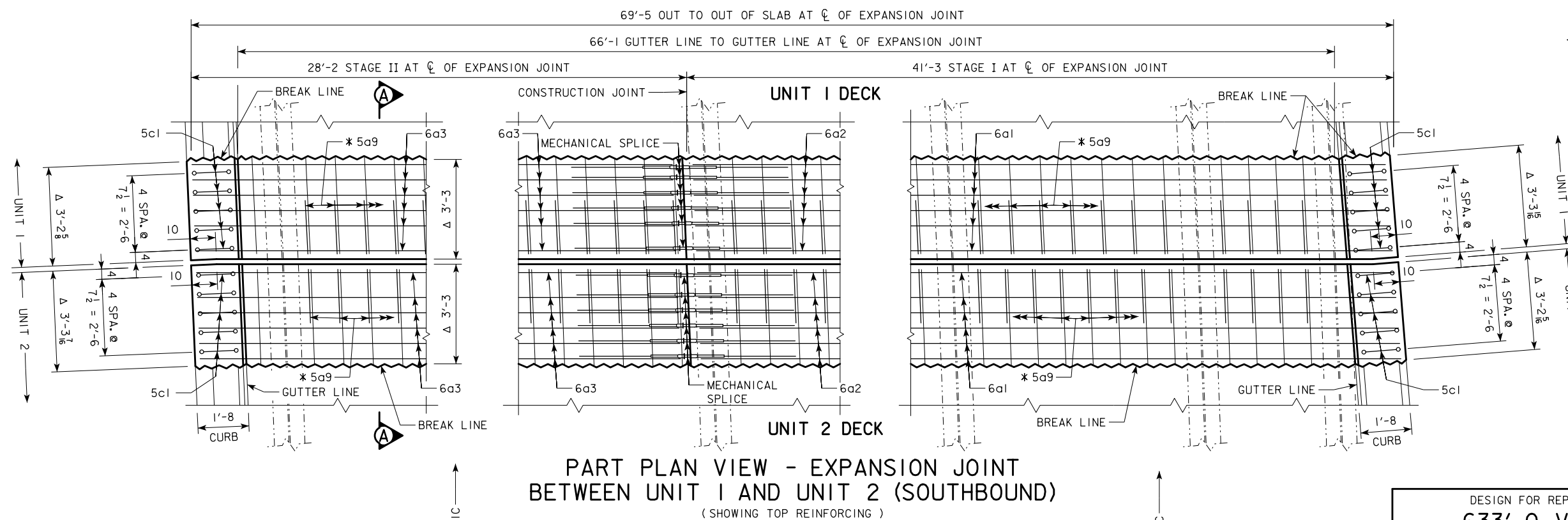
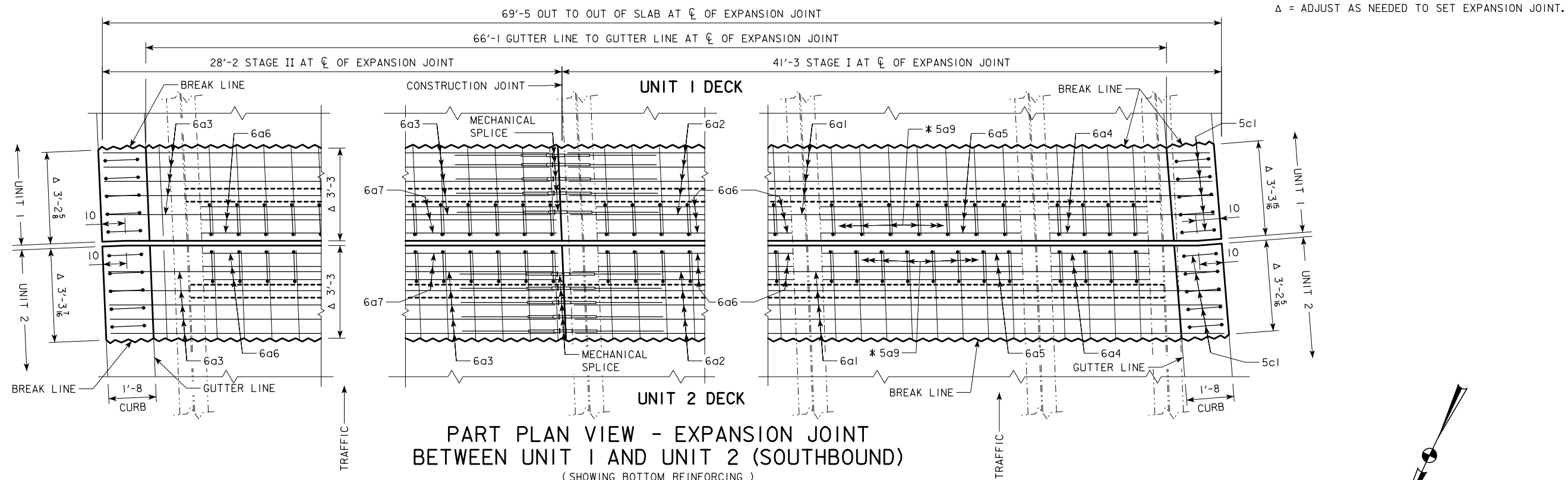
THE 6a BARS IN THE DECK OF JOINT "B" SHALL BE SPLICED AT THE LOCATIONS SHOWN USING MECHANICAL SPLICE ASSEMBLIES. MECHANICAL SPLICE ASSEMBLIES CONSIST OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPLICER. THE MECHANICAL SPLICE ASSEMBLY USED SHALL MEET THE REQUIREMENTS OF MATERIALS IN 451 APPENDIX E. REINFORCING SPLICE BARS SHALL BE A MINIMUM OF  $\frac{3}{4}$  INCH DIAMETERS.

ALL MECHANICAL SPLICE ASSEMBLIES TO BE USED IN SPLICING 6a BARS IN THE DECK OF JOINT "B" SHALL BE EPOXY COATED.

THE COST OF ALL SPLICE ASSEMBLIES IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL EPOXY COATED" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF MECHANICAL SPLICE ASSEMBLIES IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED". A TOTAL OF 22 EPOXY COATED SPLICE ASSEMBLIES WILL BE REQUIRED.

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "B".

DESIGN FOR REPAIRS TO 2°46'00" SKEW L.A.  
**633'-0 VARIABLE WIDTH**  
**C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "B" - REINF. DTLS.**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 41 OF 59 FILE NO. 30514 DESIGN NO. 1710



NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "B".  
SEE DES. SHT. #43 FOR DETAILS OF SECTION A-A.

\* = PLACE ONE 5a9 BAR AT EACH EXISTING TOP DECK LONGITUDINAL BAR  
BETWEEN BEAMS.

DESIGN FOR REPAIRS TO 2°46'00" SKEW L.A.  
**633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**

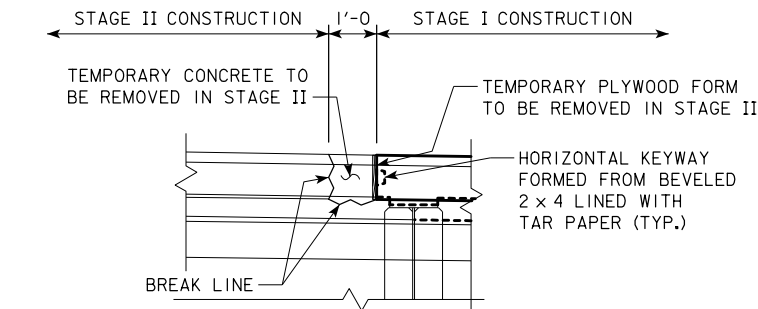
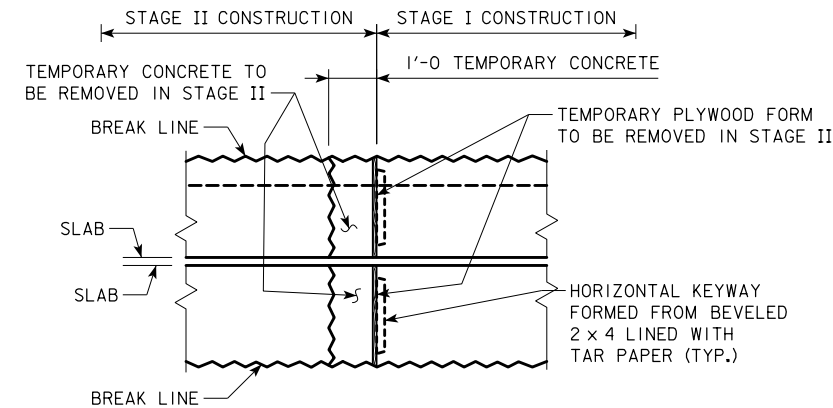
**JOINT "B" - REINF. DTLS.**

JANUARY, 2012

**LINN COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 42 OF 59 FILE NO. 30514 DESIGN NO. 1710





### TEMPORARY CONCRETE DETAIL

REQUIRED FOR STAGE I ONLY  
REMOVED IN STAGE II

NOTE: THE CONTRACTOR SHALL PLACE A TEMPORARY PLYWOOD FORM BETWEEN THE TEMPORARY CONCRETE AND PERMANENT CONCRETE PLACED DURING STAGE I AS SHOWN IN TEMPORARY CONCRETE DETAIL. THIS WILL PREVENT BOND AND ASSIST IN STAGE II REMOVALS AND CONSTRUCTION. THE TEMPORARY PLYWOOD FORM SHALL BE REMOVED WITH STAGE II REMOVALS.

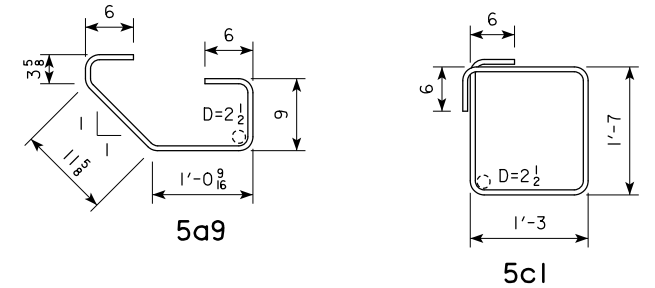
NOTE 'A': INCORPORATE EXISTING LONGITUDINAL AND VERTICAL REINFORCING INTO NEW WORK.

Δ = ADJUST AS NEEDED TO SET EXPANSION JOINT.  
\* = PLACE ONE 5a9 BAR AT EACH EXISTING TOP DECK LONGITUDINAL BAR BETWEEN BEAMS.

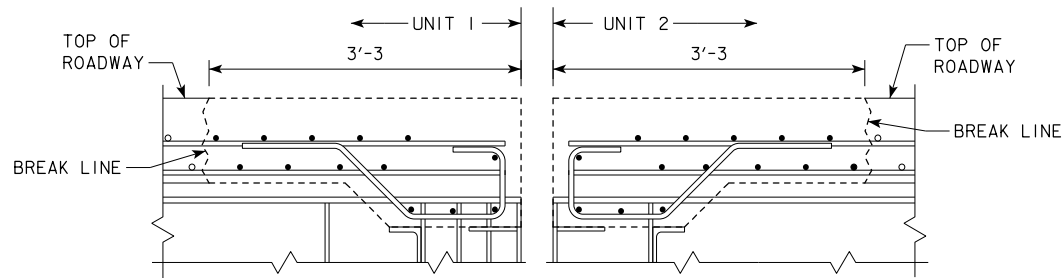
### EPOXY COATED REINF. BAR LIST - ONE EXP. JOINT

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB TRANSVERSE - STAGE I	—	22	26'-11	889
6a2	SLAB TRANSVERSE - STAGE I	—	22	16'-6	545
6a3	SLAB TRANSVERSE - STAGE II	—	22	27'-10	920
6a4	SLAB TRANSVERSE - STAGE I	—	6	3'-3	29
6a5	SLAB TRANSVERSE - STAGE I	—	6	6'-10	62
6a6	SLAB TRANSVERSE - STAGE I & II	—	30	7'-5	334
6a7	SLAB TRANSVERSE - STAGE II	—	6	7'-1	64
6a8	SLAB TRANSV. MECH. SPLICE - BOTH STAGES	—	22	2'-4	77
5a9	SLAB LONGITUDINAL - STAGE I & II	⌋	119	4'-1	507
5c1	CURB TRANSVERSE HOOP	⌈	20	6'-8	139
REINFORCING STEEL EPOXY COATED - TOTAL (LBS)					3566

### BENT BAR DETAILS

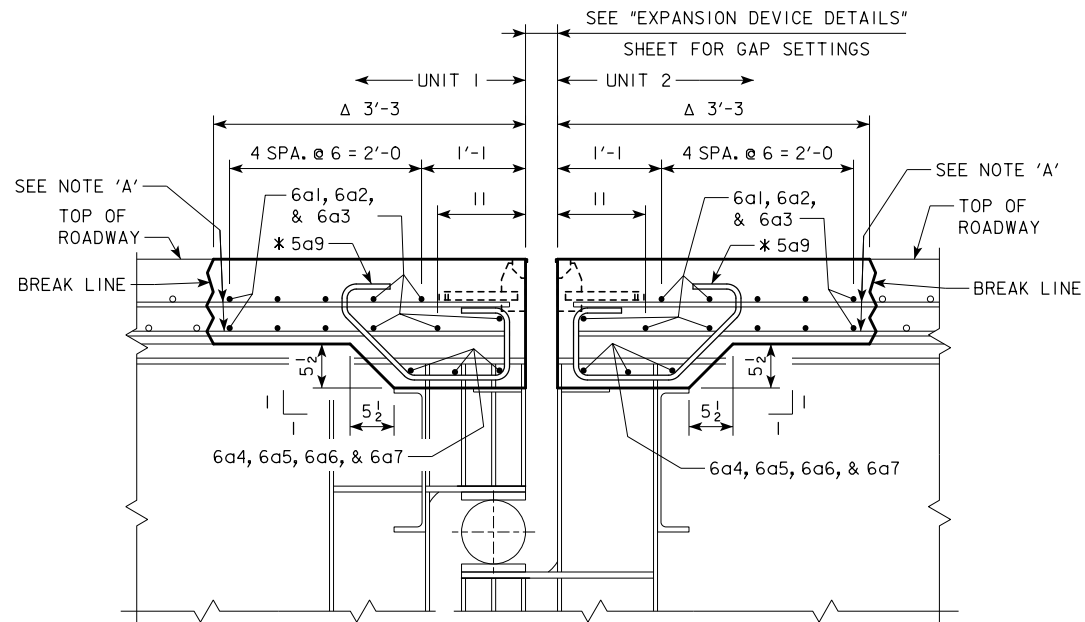


NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER



### SECTION A-A

EXPANSION JOINT REMOVAL LIMIT



### SECTION A-A

EXPANSION JOINT REPLACEMENT

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "B".  
SEE DESIGN SHEET #42 FOR LOCATION OF SECTION A-A.

### CONC. PLACEMENT QTY. - EXP. JT.

LOCATION	TOTAL
SLAB AND CURB	19.6
TOTAL (CU. YDS.)	19.6

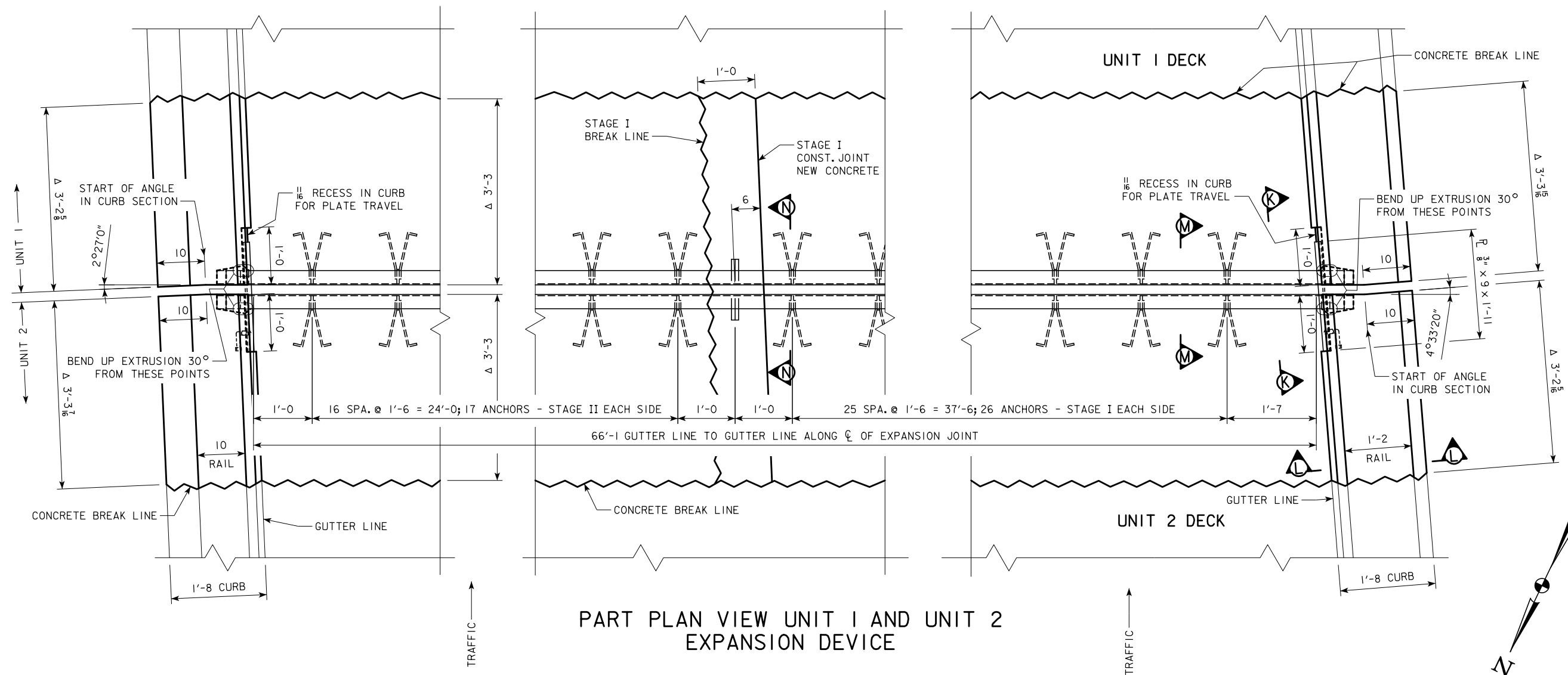
DESIGN FOR REPAIRS TO 2°46'00" SKEW L.A.  
633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND

JOINT "B" - REPAIR DTLS.

JANUARY, 2012

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 43 OF 59 FILE NO. 30514 DESIGN NO. 1710



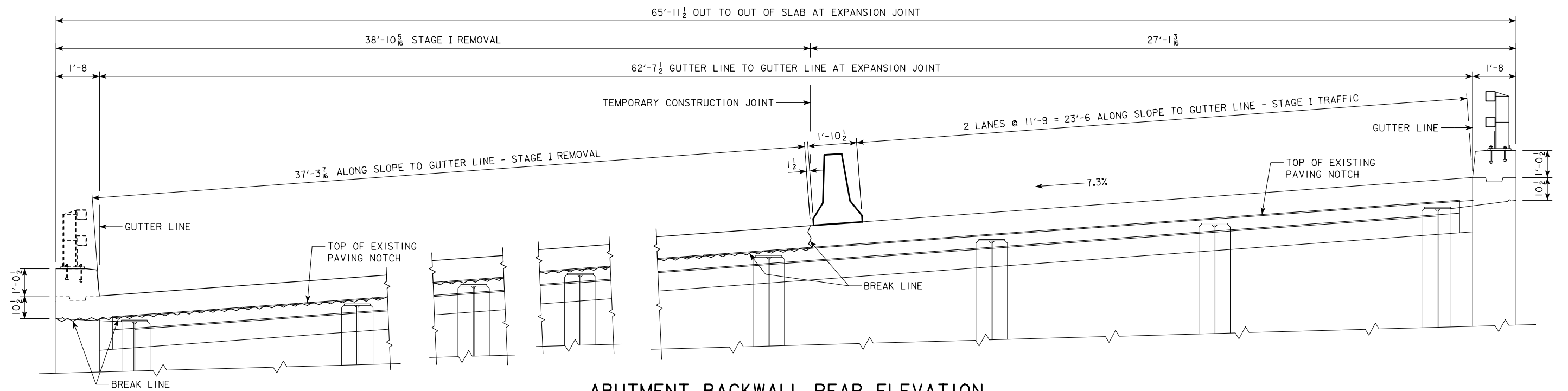
PART PLAN VIEW UNIT 1 AND UNIT 2  
EXPANSION DEVICE

Δ = ADJUST AS NEEDED TO SET EXPANSION JOINT.

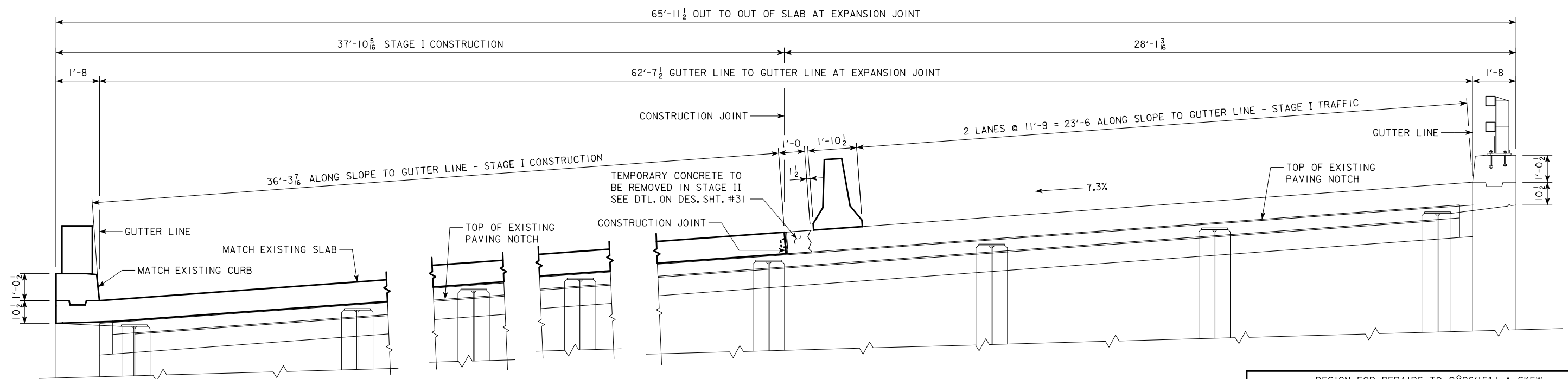
NOTE: THE CAP SCREW ANCHORAGE SYSTEM FOR THE  $\frac{3}{8}$ " CURB PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "B".  
SEE DES. SHT. #17 FOR DETAILS OF 1'-2" BARRIER RAIL AND  
SEE DES. SHT. #18 FOR DETAILS OF 10" BARRIER RAIL.  
SEE DESIGN SHEET #37 FOR DETAILS OF SECTIONS K-K, L-L, M-M, AND N-N.

DESIGN FOR REPAIRS TO 2°46'00" SKEW L.A.  
**633'-0" VARIABLE WIDTH**  
**C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "B" - EXPANS. DEVICE**  
 JANUARY, 2012  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 44 OF 59 FILE NO. 30514 DESIGN NO. 1710



**ABUTMENT BACKWALL REAR ELEVATION  
SOUTH ABUTMENT (SOUTHBOUND) - STAGE I REMOVAL**  
(LOOKING NORTH)

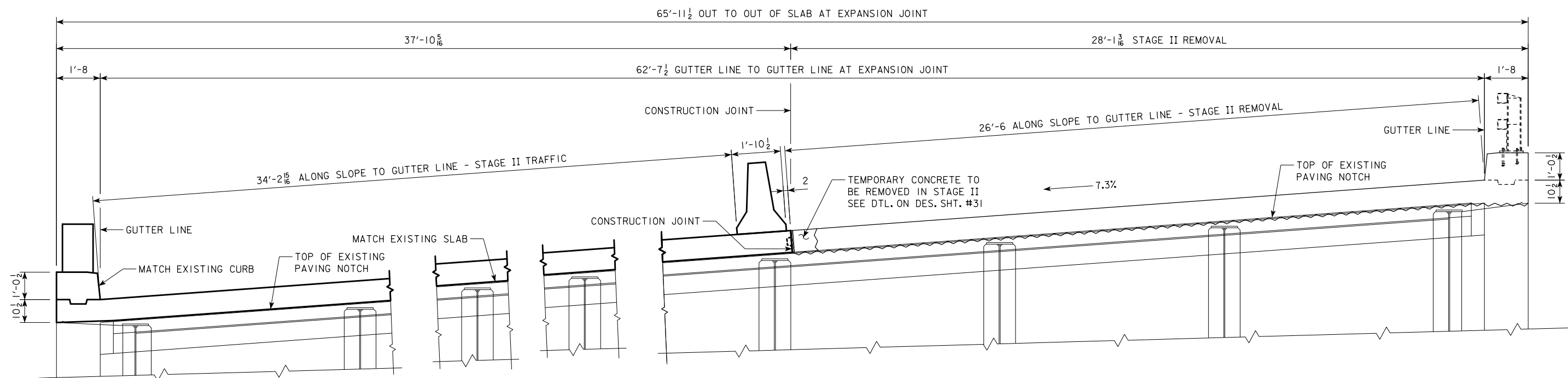


**ABUTMENT BACKWALL REAR ELEVATION  
SOUTH ABUTMENT (SOUTHBOUND) - STAGE I CONSTRUCTION**  
(LOOKING NORTH)

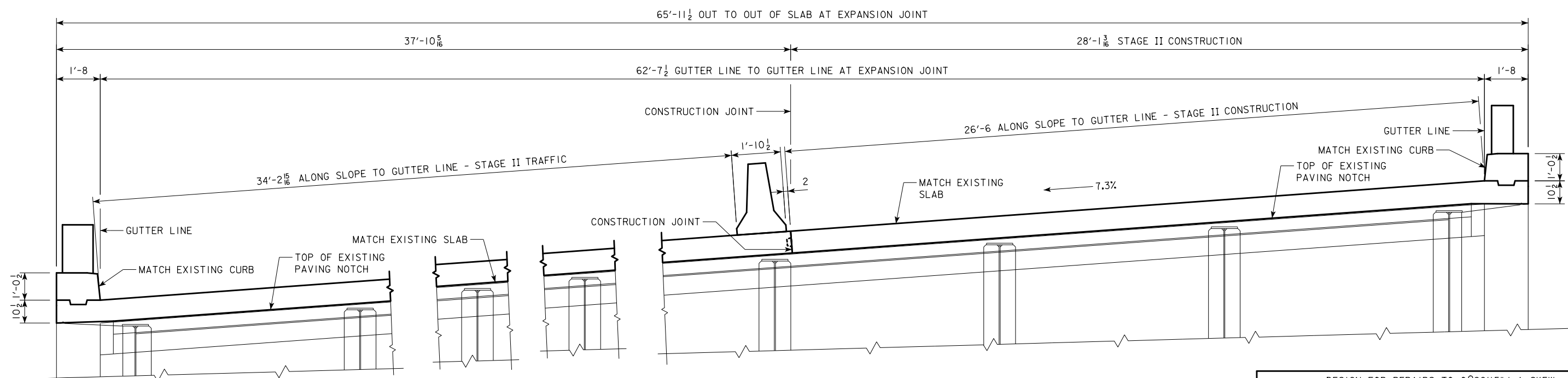
NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "C".

DESIGN FOR REPAIRS TO 0°26'15" L.A. SKEW  
**633'-0" VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "C" ABUT. - STAGE I DTLS.**  
 JANUARY, 2012  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 45 OF 59 FILE NO. 30514 DESIGN NO. 1710





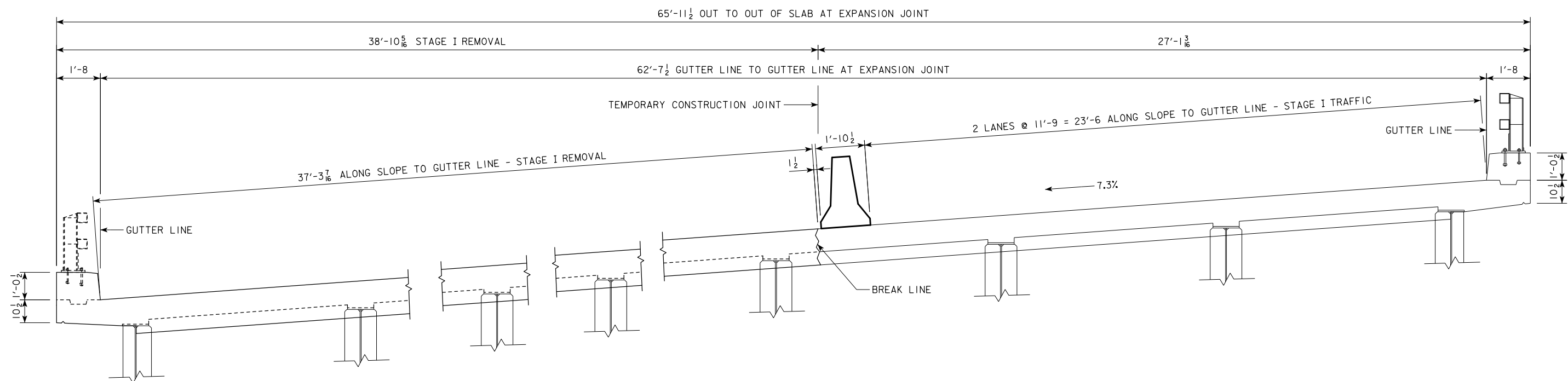
ABUTMENT BACKWALL REAR ELEVATION  
SOUTH ABUTMENT (SOUTHBOUND) - STAGE II REMOVAL  
( LOOKING NORTH )



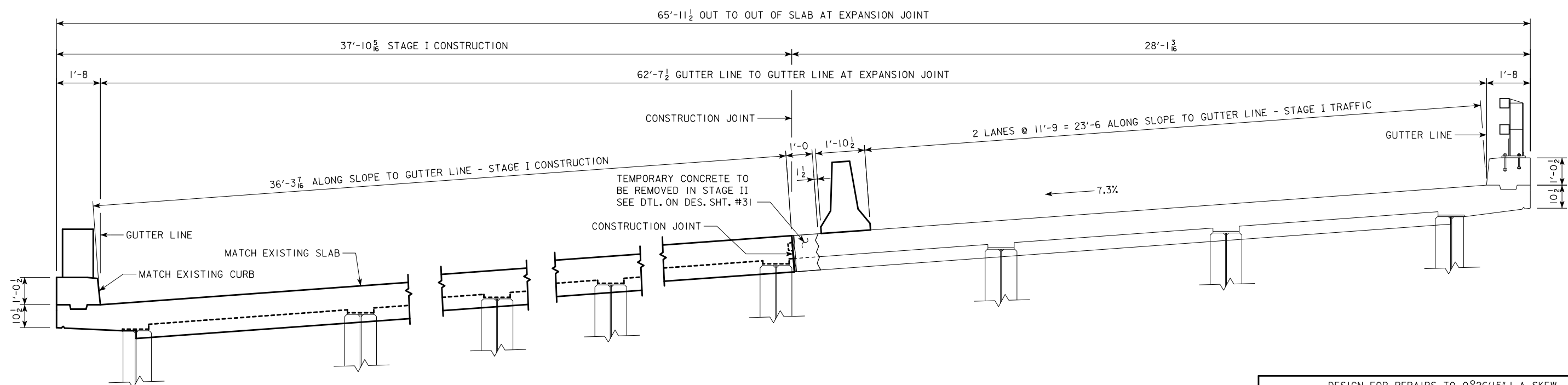
ABUTMENT BACKWALL REAR ELEVATION  
SOUTH ABUTMENT (SOUTHBOUND) - STAGE II CONSTRUCTION  
( LOOKING NORTH )

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "C".

DESIGN FOR REPAIRS TO 0°26'15" L.A. SKEW  
633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND  
JOINT "C" ABUT. - STAGE II DTLS.  
JANUARY, 2012  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 46 OF 59 FILE NO. 30514 DESIGN NO. 1710



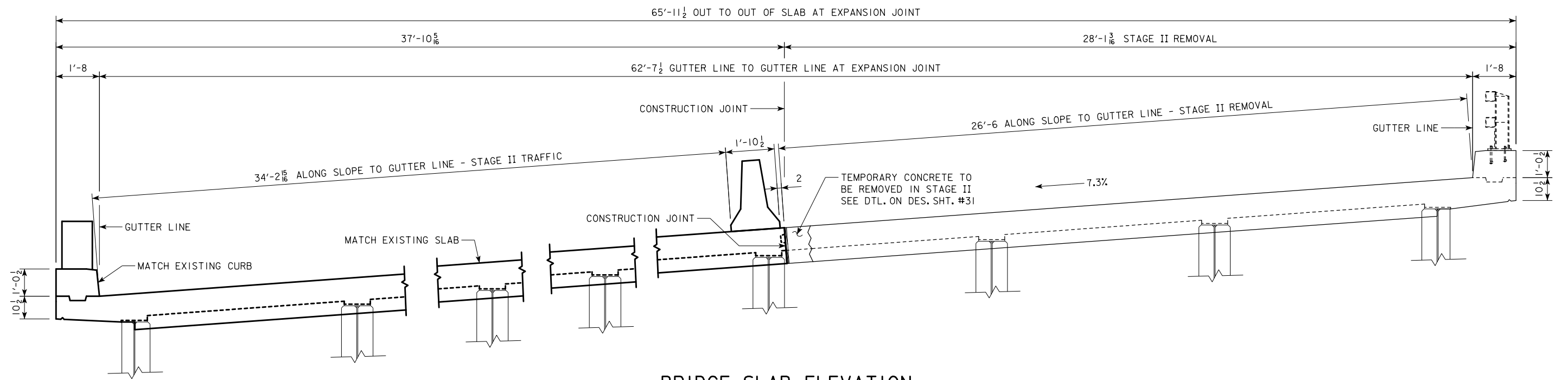
**BRIDGE SLAB ELEVATION**  
**SOUTH ABUTMENT (SOUTHBOUND) - STAGE I REMOVAL**  
 (LOOKING NORTH )



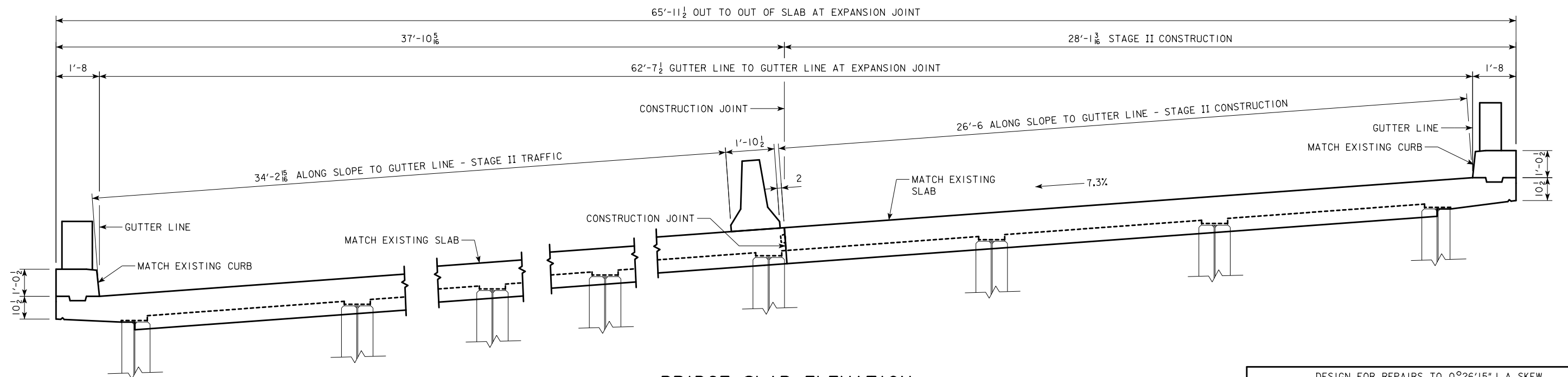
**BRIDGE SLAB ELEVATION**  
**SOUTH ABUTMENT (SOUTHBOUND) - STAGE I CONSTRUCTION**  
 (LOOKING NORTH )

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "C".

DESIGN FOR REPAIRS TO 0°26'15" L.A. SKEW  
**633'-0 VARIABLE WIDTH**  
**C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "C" SLAB - STAGE I**  
 JANUARY, 2012  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 47 OF 59 FILE NO. 30514 DESIGN NO. 1710



**BRIDGE SLAB ELEVATION**  
**SOUTH ABUTMENT (SOUTHBOUND) - STAGE II REMOVAL**  
 ( LOOKING NORTH )

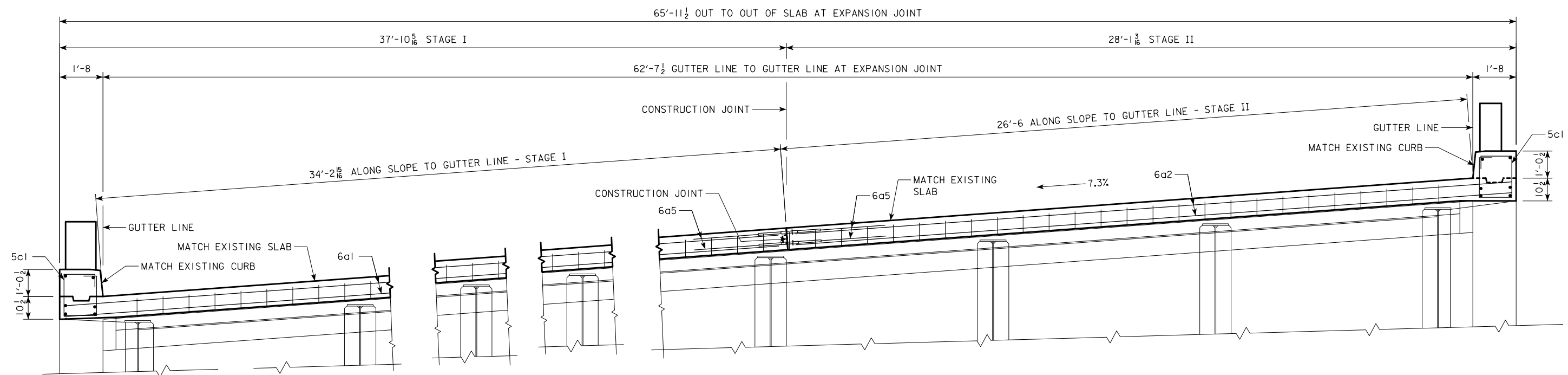


**BRIDGE SLAB ELEVATION**  
**SOUTH ABUTMENT (SOUTHBOUND) - STAGE II CONSTRUCTION**  
 ( LOOKING NORTH )

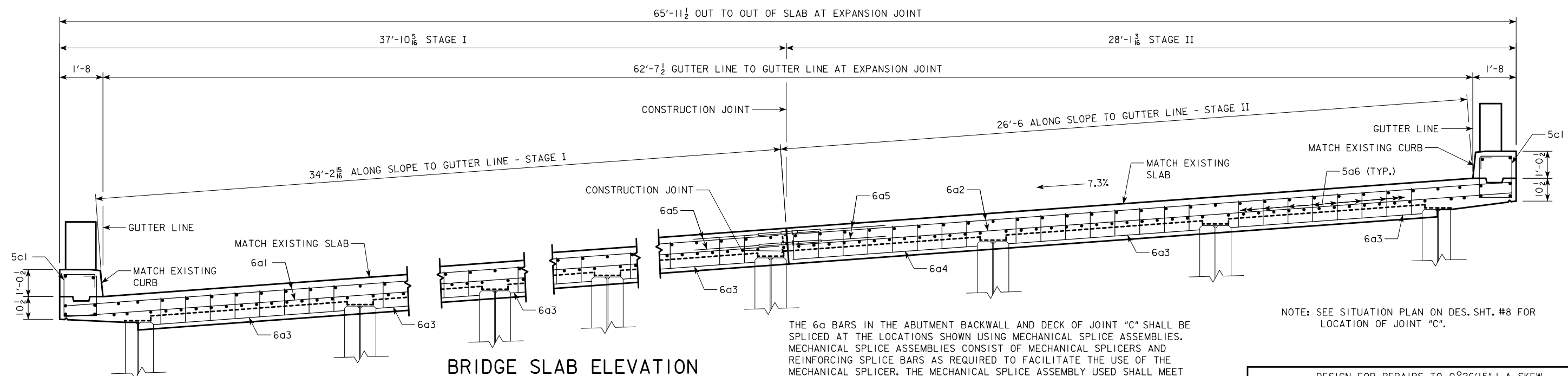
NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "C".

DESIGN FOR REPAIRS TO 0°26'15" L.A. SKEW  
**633'-0 VARIABLE WIDTH**  
**C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "C" SLAB - STAGE II**  
 JANUARY, 2012  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 48 OF 59 FILE NO. 30514 DESIGN NO. 1710





ABUT. BACKWALL REAR ELEVATION SOUTH ABUTMENT (SOUTHBOUND)  
(LOOKING NORTH)



BRIDGE SLAB ELEVATION  
SOUTH ABUTMENT (SOUTHBOUND)  
(LOOKING NORTH)

THE 6a BARS IN THE ABUTMENT BACKWALL AND DECK OF JOINT "C" SHALL BE SPLICED AT THE LOCATIONS SHOWN USING MECHANICAL SPLICE ASSEMBLIES. MECHANICAL SPLICE ASSEMBLIES CONSIST OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPLICER. THE MECHANICAL SPLICE ASSEMBLY USED SHALL MEET THE REQUIREMENTS OF MATERIALS IM 451 APPENDIX E. REINFORCING SPLICE BARS SHALL BE A MINIMUM OF 3/4 INCH DIAMETERS.

ALL MECHANICAL SPLICE ASSEMBLIES TO BE USED IN SPLICING 6a BARS IN THE ABUTMENT BACKWALL AND DECK OF JOINT "C" SHALL BE EPOXY COATED.

THE COST OF ALL SPLICE ASSEMBLIES IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL EPOXY COATED" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF MECHANICAL SPLICE ASSEMBLIES IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED". A TOTAL OF 10 EPOXY COATED SPLICE ASSEMBLIES WILL BE REQUIRED.

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "C".

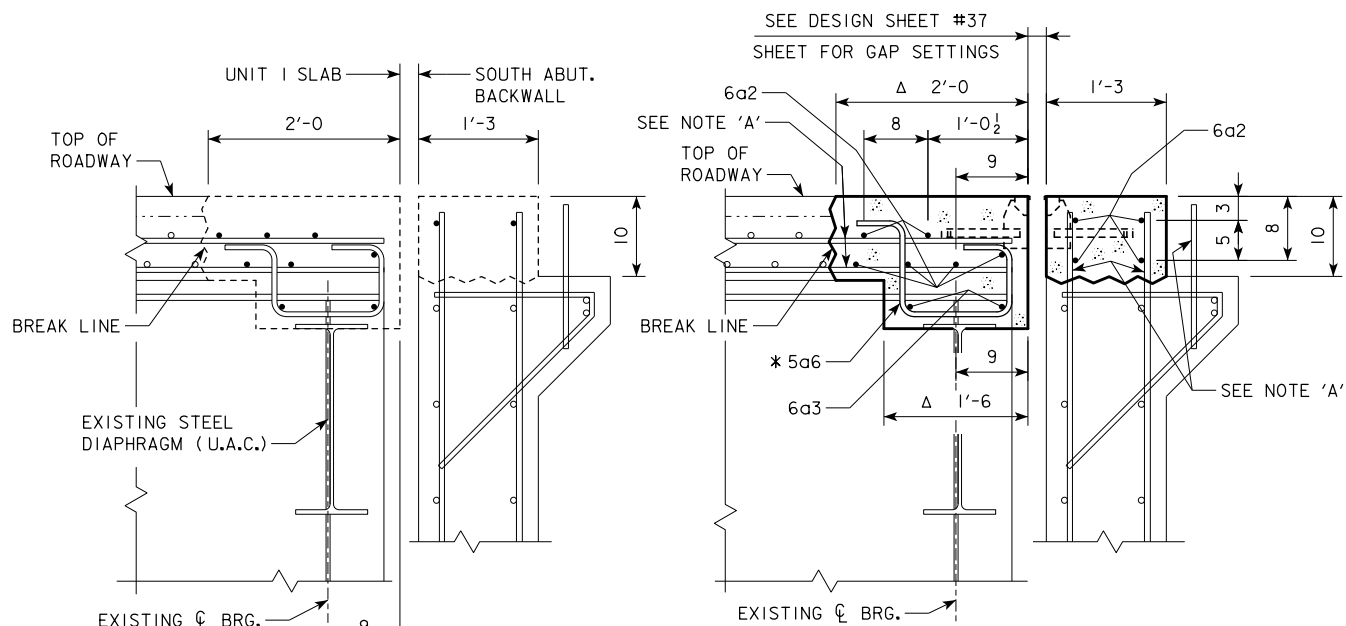
DESIGN FOR REPAIRS TO 0°26'15" L.A. SKEW  
633'-0" VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND

JOINT "C" - REINF. DTLS.

JANUARY, 2012

LINN COUNTY

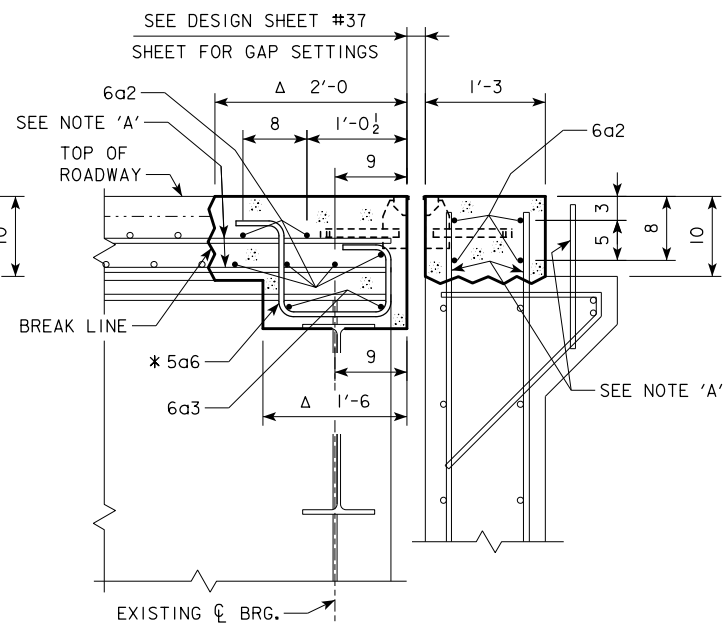
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 49 OF 59 FILE NO. 30514 DESIGN NO. 1710



SECTION A-A

(SOUTH ABUTMENT)

SLAB AND ABUTMENT BACKWALL REMOVAL LIMIT



SECTION A-A

(SOUTH ABUTMENT)

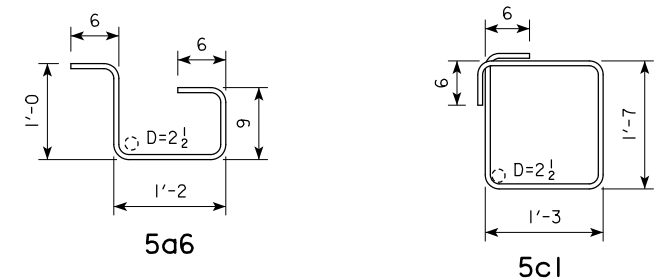
SLAB AND ABUTMENT BACKWALL REPLACEMENT

NOTE 'A': INCORPORATE EXISTING LONGITUDINAL AND VERTICAL REINFORCING INTO NEW WORK.  
 $\Delta$  = ADJUST AS NEEDED TO SET EXPANSION JOINT.  
\* = PLACE ONE 5a6 BAR AT EACH EXISTING TOP DECK LONGITUDINAL BAR BETWEEN BEAMS.

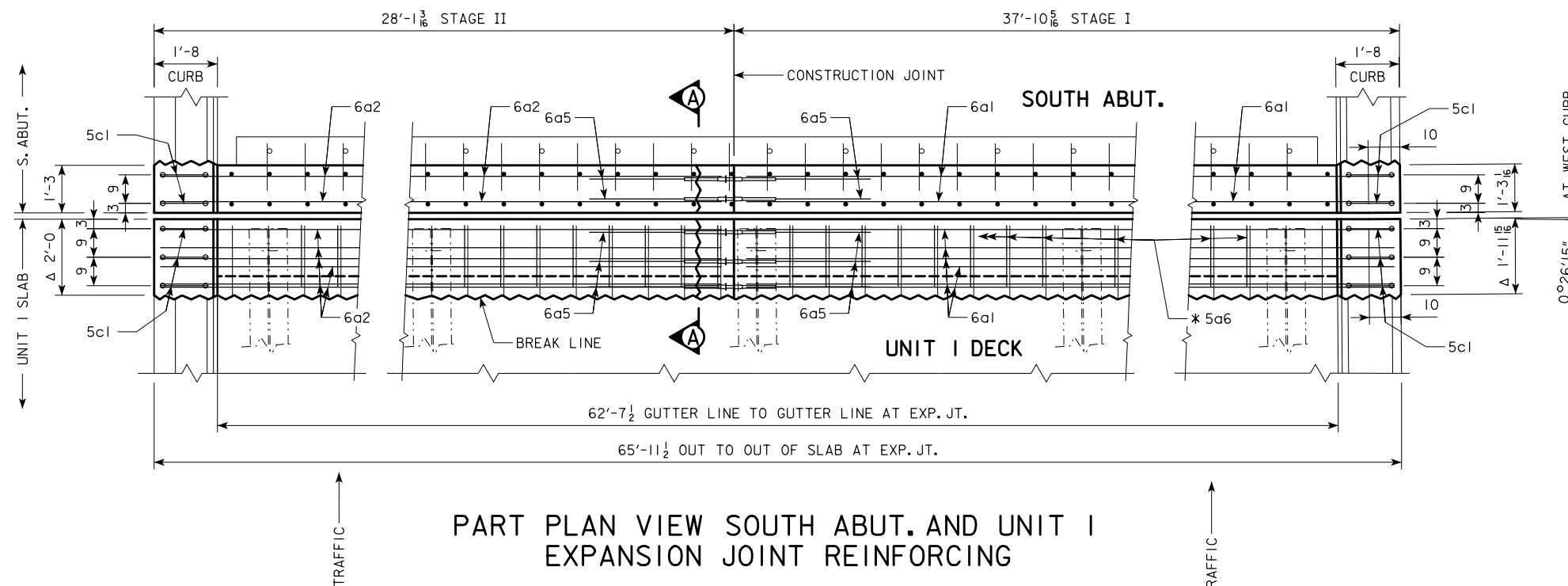
## EPOXY COATED REINF. BAR LIST - ONE ABUT.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	BACKWALL & SLAB TRANSVERSE - STAGE I	—	10	37'-5	562
6a2	BACKWALL & SLAB TRANSVERSE - STAGE II	—	10	27'-7	414
6a3	SLAB TRANSVERSE - STAGE I & II	—	12	7'-4	132
6a4	SLAB TRANSVERSE - STAGE II	—	2	7'-1	21
6a5	BACKWALL & SLAB TRANSV. MECH. SPLICE	—	20	2'-4	70
BOTH STAGES					
5a6	SLAB LONGITUDINAL - STAGE I & II	⌒	56	3'-11	229
5c1	CURB TRANSVERSE HOOP	⊠	10	6'-8	70
REINFORCING STEEL EPOXY COATED - TOTAL (LBS)					1498

## BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER



PART PLAN VIEW SOUTH ABUT. AND UNIT I  
EXPANSION JOINT REINFORCING

## CONC. PLACEMENT QTY. - S. ABUT.

LOCATION	TOTAL
ABUTMENT BACKWALL AND CURB	2.8
SLAB AND CURB	6.4
TOTAL (CU. YDS.)	9.2

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "C".  
SEE DES. SHT. #17 FOR DETAILS OF 1'-2" BARRIER RAIL AND  
SEE DES. SHT. #18 FOR DETAILS OF 10" BARRIER RAIL.

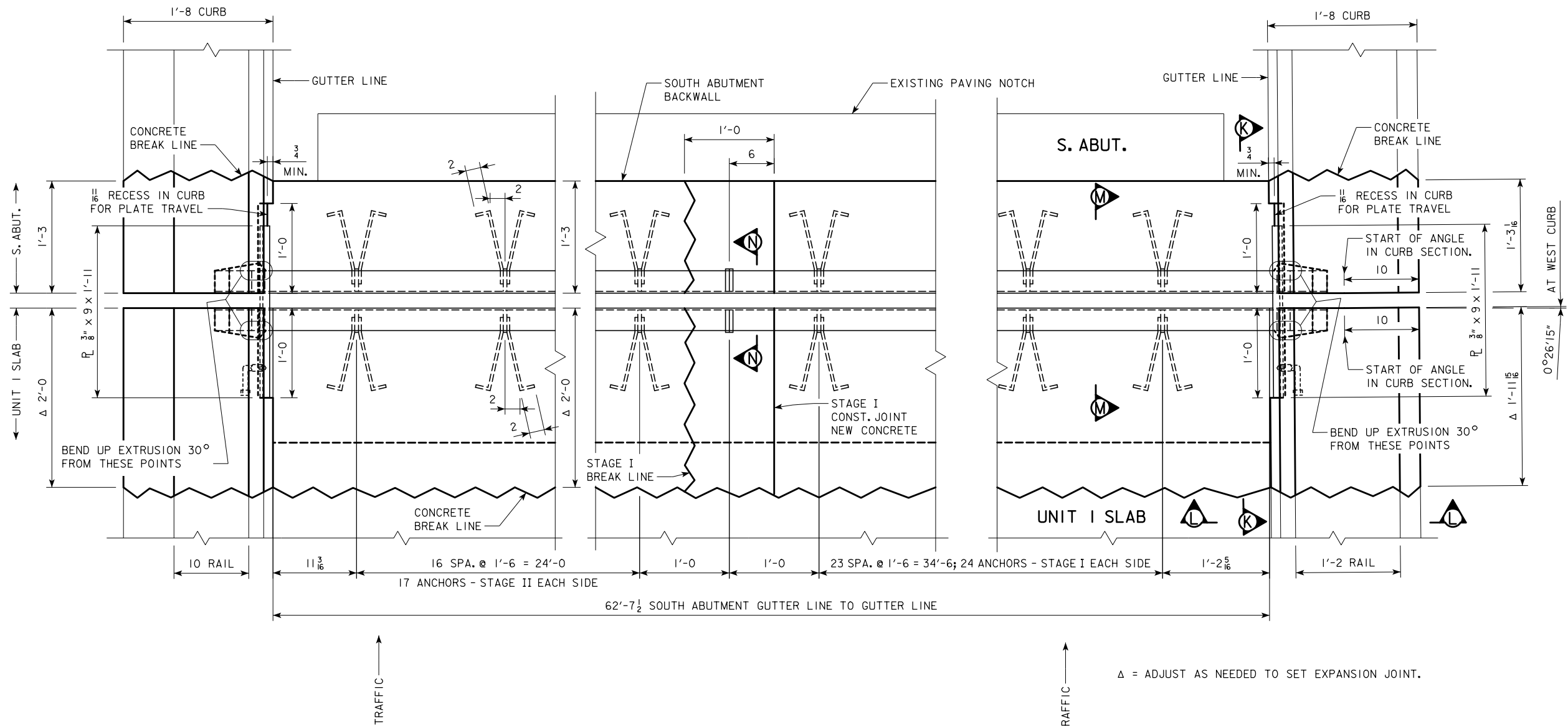
DESIGN FOR REPAIRS TO 0°26'15" L.A. SKEW  
633'-0" VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND

JOINT "C" - REPAIR DTLS.

JANUARY, 2012

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
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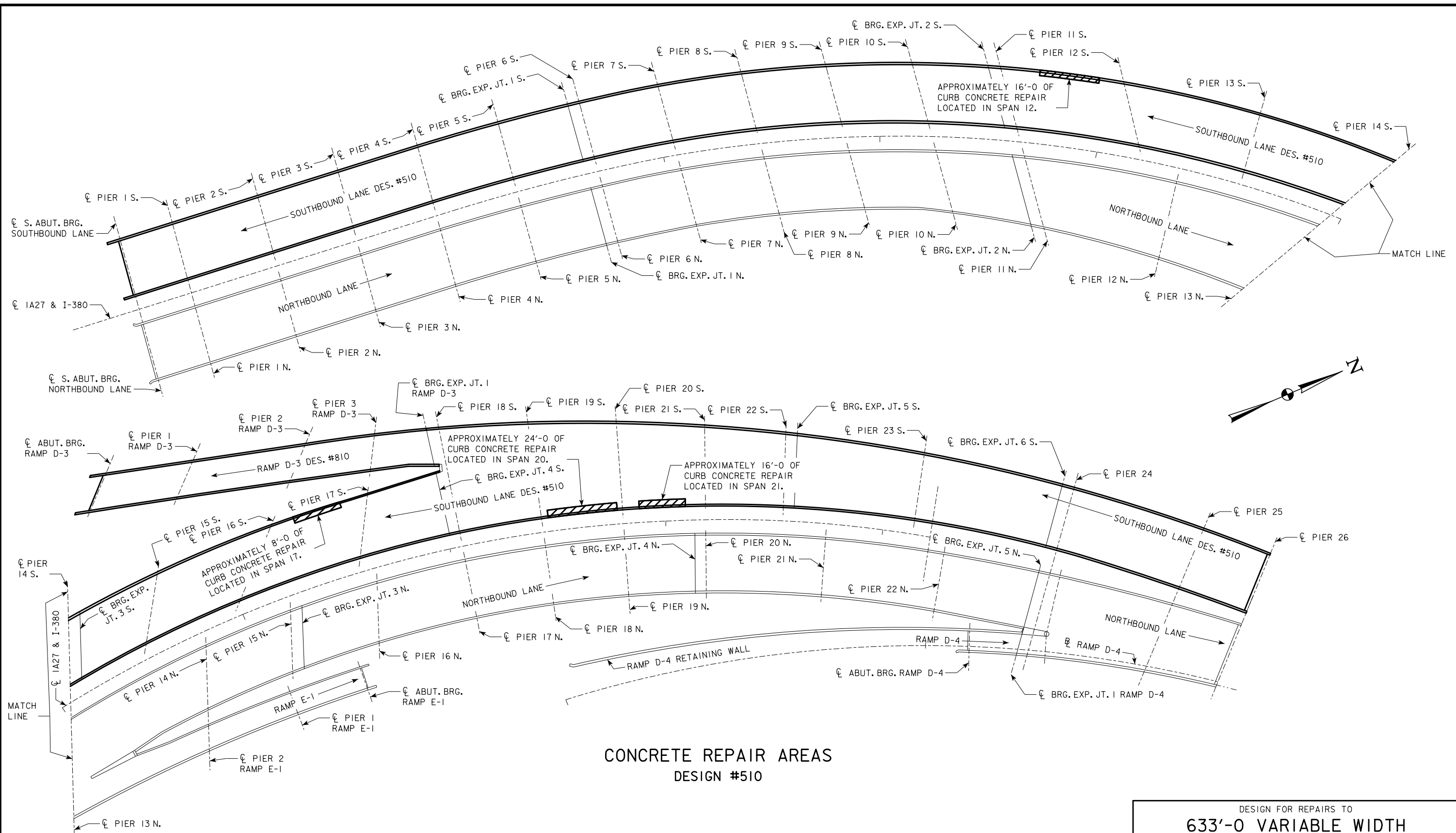


PART PLAN VIEW SOUTH ABUT. AND UNIT I  
EXPANSION DEVICE  
(RAIL SHOWN)

NOTE: THE CAP SCREW ANCHORAGE SYSTEM FOR THE  $\frac{3}{8}$ " CURB PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.

NOTE: SEE SITUATION PLAN ON DES. SHT. #8 FOR LOCATION OF JOINT "C".  
SEE DES. SHT. #17 FOR DETAILS OF 1'-2 BARRIER RAIL AND  
SEE DES. SHT. #18 FOR DETAILS OF 10" BARRIER RAIL.  
SEE DESIGN SHEET #37 FOR DETAILS OF SECTIONS K-K, L-L, M-M, AND N-N.

DESIGN FOR REPAIRS TO 0°26'15" L.A. SKEW  
**633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND**  
**JOINT "C" - EXPANS. DEVICE**  
JANUARY, 2012  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 51 OF 59 FILE NO. 30514 DESIGN NO. 1710

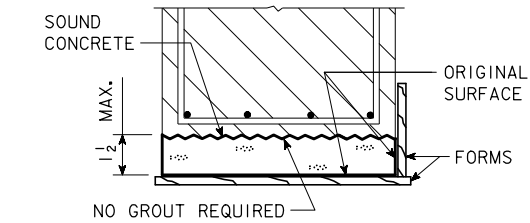


CONCRETE REPAIR AREAS  
DESIGN #510

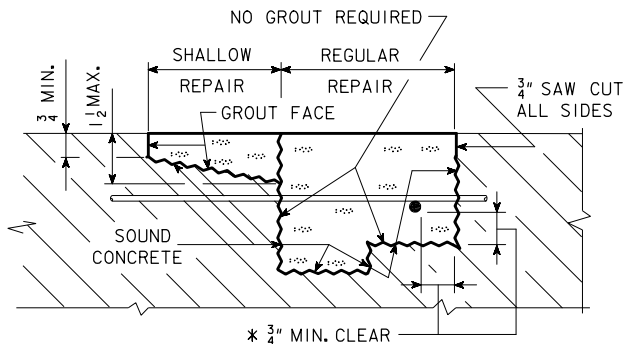
DESIGN FOR REPAIRS TO  
633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND  
CONCRETE REPAIR AREAS DES. #510  
JANUARY, 2012  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 52 OF 59 FILE NO. 30514 DESIGN NO. 510



CORRECTION 11-10 - ADDED SECTION 2426 FOR CONCRETE REPAIR TO STANDARD NOTES.  
ENGLISHREPAIRRETROFITBRIDGES.DGN 1045 - THIS SHEET REDRAWN 9-27-90.

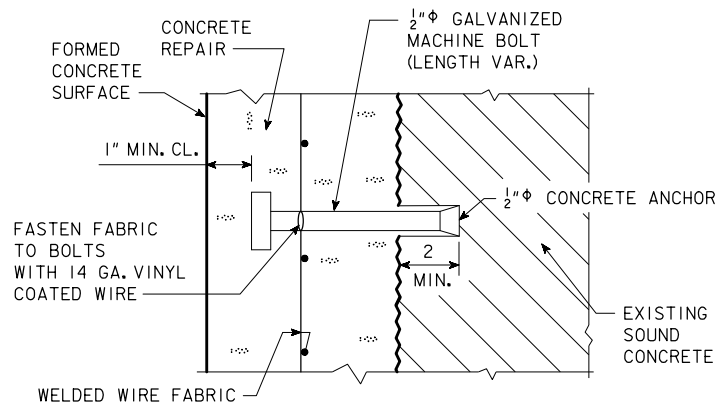


SHALLOW REPAIR  
BOTTOM SURFACE



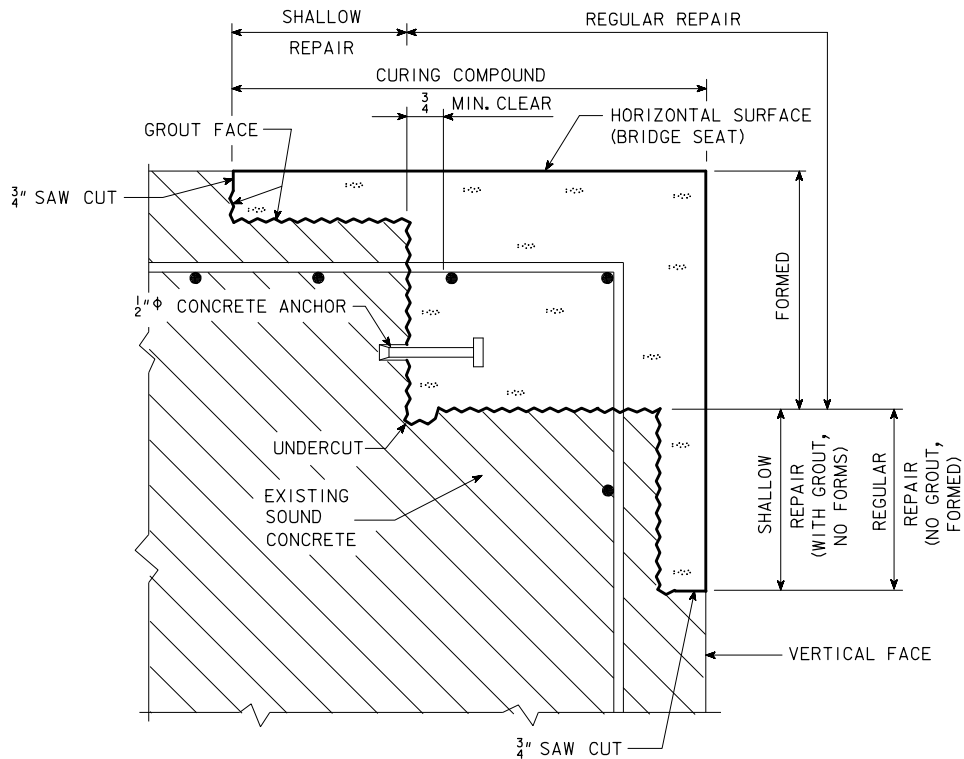
REPAIR DEFINITION

\* INDICATES CLEARANCE FOR AN UN-BONDED REBAR.

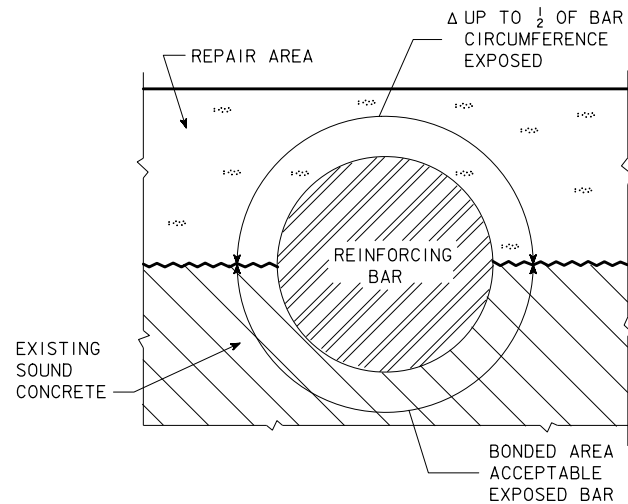


ANCHOR DETAIL

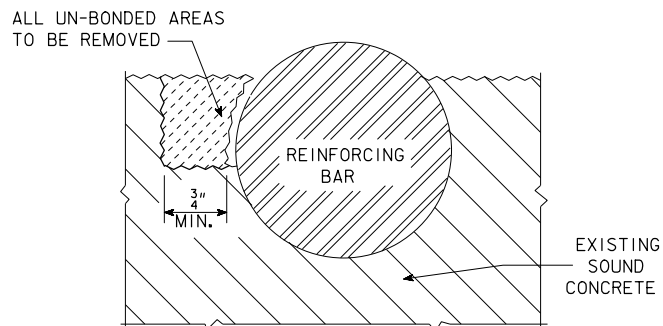
FOR SPACING AND USE OF CONCRETE ANCHORS  
AND WWF SEE THE STANDARD NOTES.



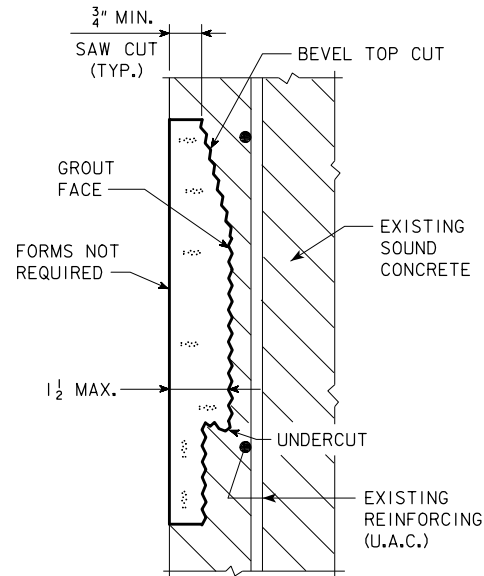
CORNER REPAIR



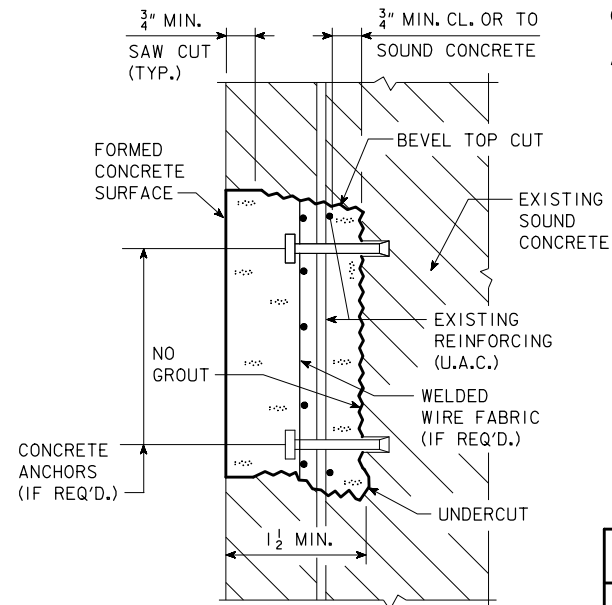
Δ IF MORE THAN 1/2 OF THE REBAR IS EXPOSED IT  
SHALL BE TREATED AS AN UN-BONDED REBAR.



CONCRETE REMOVAL  
ADJACENT TO REINFORCING



SHALLOW REPAIR  
VERTICAL FACE



REGULAR REPAIR  
VERTICAL FACE

## STANDARD NOTES:

THE SPALLED AND HOLLOW AREAS OF THIS BRIDGE AS NOTED AND SHOWN IN THESE PLANS SHALL BE REPAIRED AS FOLLOWS:

ALL THE COSTS OF EQUIPMENT AND MATERIALS REQUIRED TO REPAIR THE SPALLED AND HOLLOW AREAS OF THIS BRIDGE SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE REPAIR".

THE PRICE BID FOR "CONCRETE REPAIR" SHALL INCLUDE THE COST OF ALL CONCRETE ANCHORS AND MESH REQUIRED BY THE PLANS.

THE ENGINEER SHALL DETERMINE AND OUTLINE BY VISUAL AND AUDIBLE INSPECTION THE ACTUAL AREAS OF THE CONCRETE REPAIRS. THE CONTRACTOR SHALL BE PAID FOR THE ACTUAL AMOUNT OF REPAIRS MADE ON A SQUARE FOOT BASIS BASED ON THE PRICE BID PER SQUARE FOOT.

ALL EXISTING REINFORCING BARS THAT ARE EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED AND CAREFULLY INCORPORATED INTO THE NEW WORK, EXCEPT BADLY DETERIORATED EXISTING REINFORCING WHICH SHALL BE REPLACED AS DIRECTED BY THE ENGINEER.

THE CONCRETE ANCHORS REQUIRED SHALL HAVE A MINIMUM PULL OUT OF 5000 LBS. BASED ON 4000 PSI CONCRETE. AN ANCHOR MEETING THE REQUIREMENTS OF IOWA D.O.T. MATERIALS I.M. 453.09 AND THE PULL OUT LOAD ABOVE IS REQUIRED. THE ANCHORS SHALL BE GALVANIZED AND SHALL BE INSTALLED ACCORDING TO RECOMMENDATIONS OF THE MANUFACTURER. THE COST OF FURNISHING AND INSTALLING THE CONCRETE ANCHORS SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE REPAIR".

THE WELDED WIRE FABRIC SHALL BE ASTM A185 AND GALVANIZED AS PER ASTM A-641. THE WWF WIRES SHALL BE SPACED 3 x 3 OR 4 x 4 AND THE WIRES SHALL HAVE A NOMINAL AREA OF 0.014 TO 0.029 SQUARE INCHES INCLUSIVE, EXAMPLE "WWF 3 x 3 - W1.4 x W2.9".

WHERE REINFORCEMENT HAS BEEN EXPOSED AND CLEARANCE AROUND THE PERIPHERY OF THE EXISTING BAR IS PROVIDED NO SUPPLEMENTAL REINFORCING IS REQUIRED, EXCEPT WHERE EXISTING REINFORCEMENT DENSITY AND PATTERN ARE SUCH THAT INDIVIDUAL OPEN SPACES BETWEEN BARS ARE OF 1.5 SQUARE FOOT OR LARGER. FOR THIS CONDITION 1/2 inch diameter concrete anchors and welded wire fabric shall be installed at the rate of ONE CONCRETE ANCHOR WITH WWF PER EACH 1.5 SQUARE FEET OF AREA WITHIN EACH OPEN SPACE.

REFER TO SECTION 2426, OF THE STANDARD SPECIFICATIONS, FOR INFORMATION ABOUT REPAIRING STRUCTURAL CONCRETE.

## CONCRETE PLACEMENT QUANTITIES

MARK	TYPE	UNITS	QUANTITY
①	SHALLOW REPAIR	SQ. FT.	
②	REGULAR REPAIR	SQ. FT.	64
TOTAL (SQ. FT.)			64

## ESTIMATED CONCRETE REPAIR QUANTITIES

DESCRIPTION	UNITS	AMOUNT
CONCRETE REPAIR	SQ. FT.	64

DESIGN FOR REPAIRS TO  
633'-0 VARIABLE WIDTH  
C.W.P.G. BRIDGE - SOUTHBOUND

CONCRETE REPAIRS DES. #510

JANUARY, 2012

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 53 OF 59 FILE NO. 30514 DESIGN NO. 510

RETROFIT BARRIER RAILING NOTES:

IT IS THE INTENT OF THIS DESIGN TO CONSTRUCT TWO (2)RETROFIT BARRIER RAIL END SECTIONS ON THE APPROACH AND DEPARTURE ENDS OF THE EXISTING S.B. 482'-0 x 52'-0 P.P.C.B. BRIDGE OVER 15TH & 16TH AVE. S.W. IN CEDAR RAPIDS, AT STATION 272+73.11 (15TH AVE.) AND STATION 269+21.70 (16TH AVE.).

COPIES OF ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE BRIDGE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES. DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON DESIGN PLANS (ORIGINAL DESIGN NO. 2070, RETROFIT RAIL AND DECK REPAIR DESIGN NO. 285).

ALL DIMENSIONS AND DETAILS SHOWN IN THESE PLANS PERTINENT TO NEW CONSTRUCTION IN RELATION TO EXISTING PORTIONS OF THE STRUCTURE SHALL BE VERIFIED IN THE FIELD BY THE BRIDGE CONTRACTOR BEFORE STARTING CONSTRUCTION.

FAINT LINES ON PLANS INDICATE EXISTING PORTIONS OF THE BRIDGE.

UTILITY COMPANIES AND MUNICIPALITIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.

ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.

ANY REMOVALS REQUIRED SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE BRIDGE CONTRACTOR AND SHALL BE REPAIRED AT NO COST TO THE STATE.

THE PRICE BID FOR "REMOVALS, AS PER PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVAL OF PORTIONS OF THE EXISTING RAIL END SECTION AS NECESSARY, AND CUTTING THE EXISTING VERTICAL REINFORCING AS NEEDED.

EXISTING BRIDGE RAIL END IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.

INITIATE THE CONCRETE REMOVAL LINES WITH A ¾" SAW CUT.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS ⅝ INCH DIAMETER BAR ). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

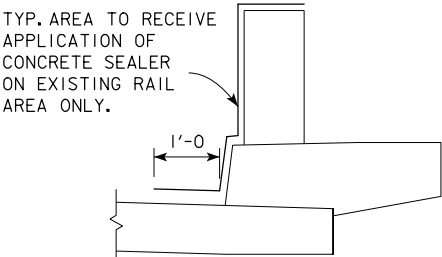
ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

THE TOP AND INTERIOR FACES OF THE EXISTING CONCRETE RAILING ARE TO BE CLEANED AND SEALED IN ACCORDANCE WITH STANDARD SPECIFICATION 2403.03,P,3. IF NEW SECTIONS OF RAIL ARE CONSTRUCTED, THE NEW SECTIONS SHALL NOT BE SEALED. ALL COSTS ASSOCIATED WITH CLEANING AND SEALING OF THE CONCRETE RAILS SHALL BE INCLUDED IN THE UNIT PRICE BID ITEM "STRUCTURAL CONCRETE".

THE BRIDGE CONTRACTOR SHALL DRESS UP THE SLOPES AROUND THE WINGS WHICH ARE DISTURBED DURING CONSTRUCTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL AND NO EXTRA PAYMENT WILL BE MADE.

DOWEL SETTING NOTE:

THE 6a & 5b BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. THE HOLE DEPTHS SHALL BE AS SHOWN. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE GROUT MANUFACTURER'S RECOMMENDATIONS. THE FOLLOWING SYSTEM SHALL BE USED AS A BONDING AGENT FOR THE DOWELS:  
POLYMER GROUT SYSTEM IN ACCORDANCE WITH STANDARD 2301.03,E OF THE STANDARD SPECIFICATIONS AND CURRENT SUPPLEMENTAL SPECIFICATIONS OF THE IOWA D.O.T. HIGHWAY DIVISION.



DETAIL OF CONCRETE SEALER AREA

SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 2002.  
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2009, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

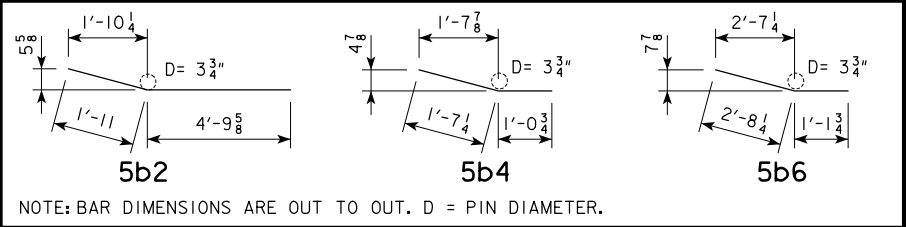
DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2002. REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60. CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI.

EPOXY REINF. BAR LIST - 2 END SECT.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	END SECTION, VERTICAL	—	14	3'-6	74
6a2	END SECTION, VERTICAL	—	10	2'-6	38
6a3	END SECTION, VERTICAL	—	12	2'-4	42
5b1	END SECTION, HORIZONTAL, B.F.	—	6	6'-8	42
5b2	END SECTION, HORIZONTAL, F.F.	—	6	6'-9	42
5b3	END SECTION, HORIZONTAL, B.F.	—	1	2'-8	3
5b4	END SECTION, HORIZONTAL, F.F.	—	1	2'-8	3
5b5	END SECTION, HORIZONTAL, B.F.	—	1	3'-9	4
5b6	END SECTION, HORIZONTAL, F.F.	—	1	3'-10	4
REINF. STEEL EPOXY COATED - TOTAL (LBS)					252

BENT BAR DETAILS

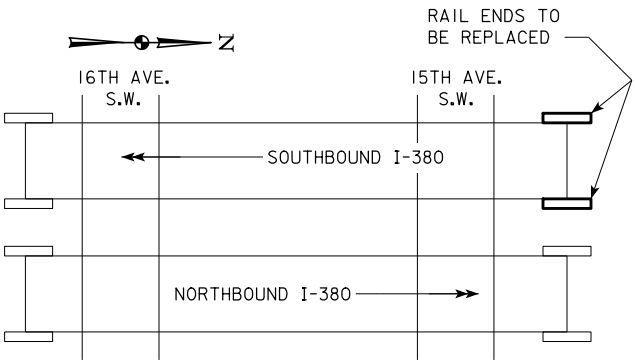


CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
END SECTION	2 AT 0.7 CU. YDS. PER SECTION
	1.4
TOTAL (CU. YDS.)	1.4

LOCATION:

S.B. I-380 OVER 15TH & 16TH AVE. S.W.  
IN CEDAR RAPIDS  
T-83 N R-7 W  
SECTION 33  
RAPIDS TOWNSHIP  
LINN COUNTY  
MAINT. NO. 5718.8L380  
FHWA NO. 607070  
LATITUDE 41.96229716°  
LONGITUDE -91.67076982°



SITUATION PLAN

DESIGN HISTORY AT THIS SITE	
DES. NO.	TYPE OF WORK
2070	ORIGINAL DESIGN
285	RETROFIT RAIL AND DECK REPAIR

DESIGN FOR REPAIRS TO 0° SKEW

482'-0 X 52'-0

P.P.C.B. BRIDGE - SOUTHBOUND

34'-11 END SPANS 64'-10, 5 @ 36'-6, 64'-10 INTERIOR SPANS

GENERAL NOTES & QUANTITIES

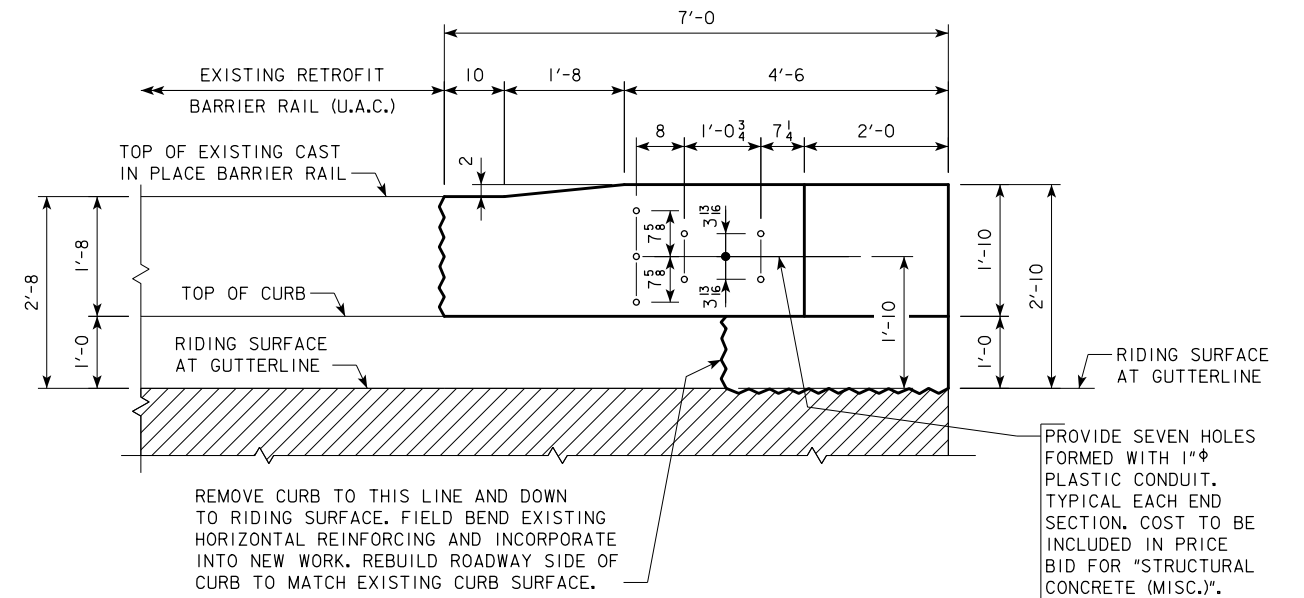
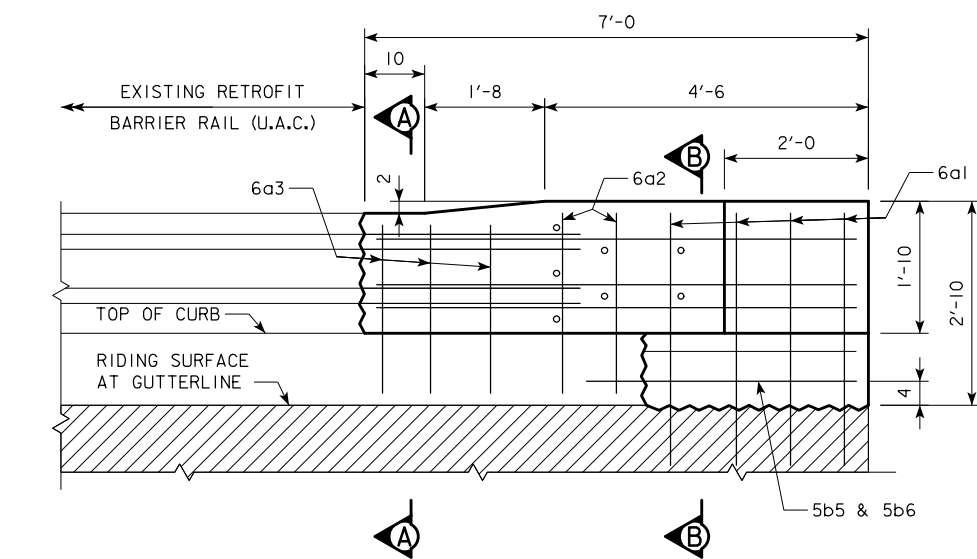
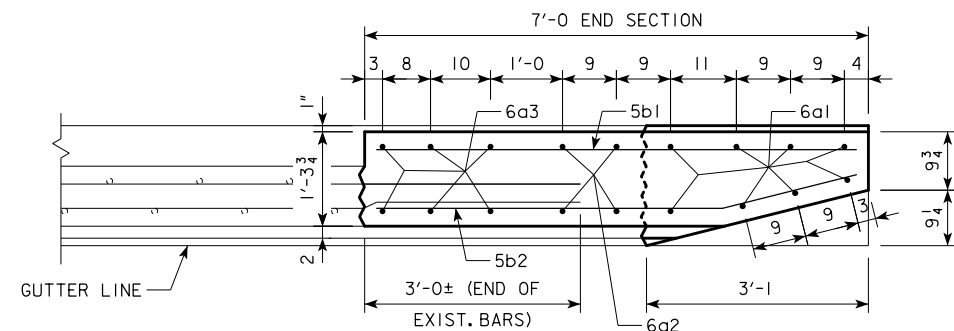
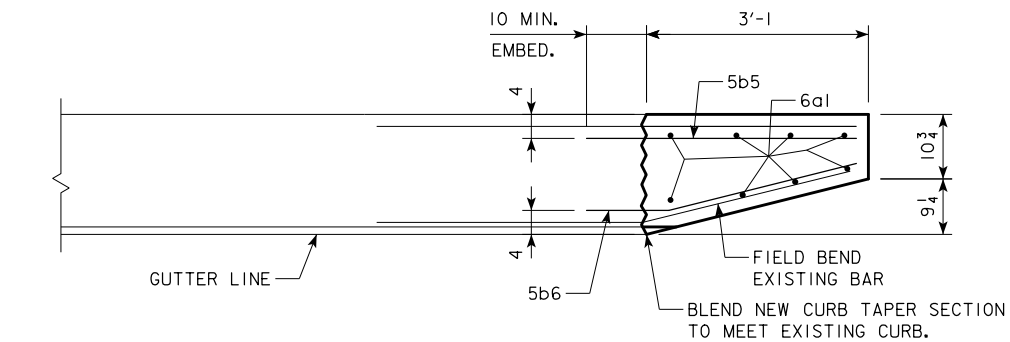
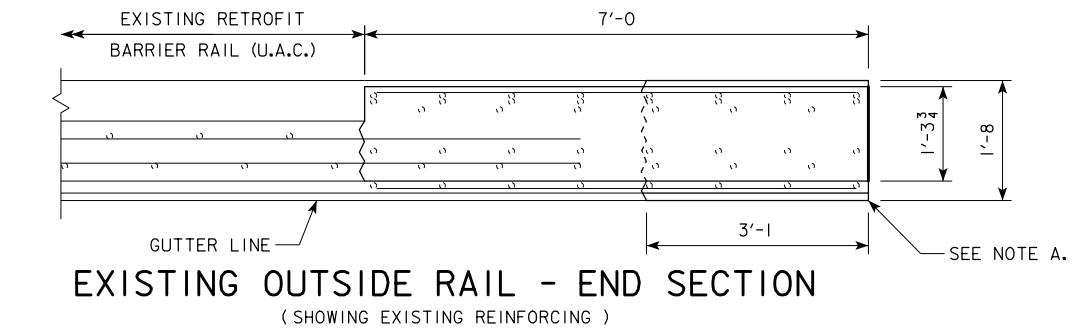
STA. 272+73.11 @ I-380 @ 15TH AVE. S.W. JANUARY, 2012

STA. 269+21.70 @ I-380 @ 16TH AVE. S.W.

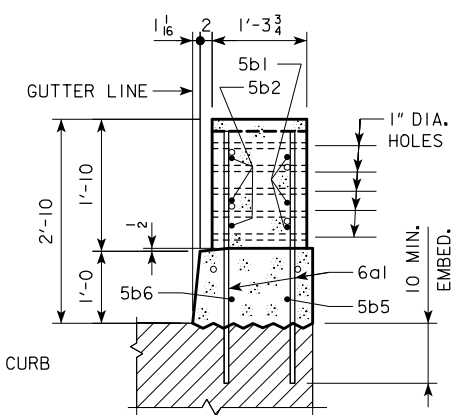
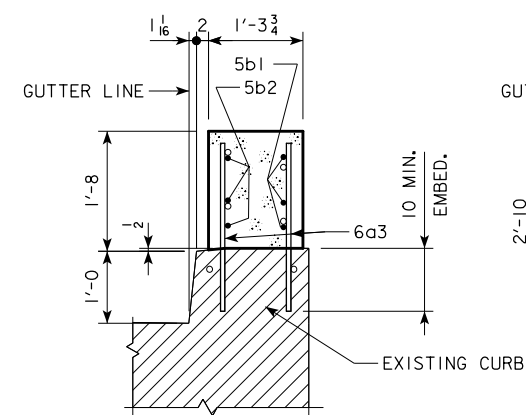
LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 54 OF 59 FILE NO. 30514 DESIGN NO. 112

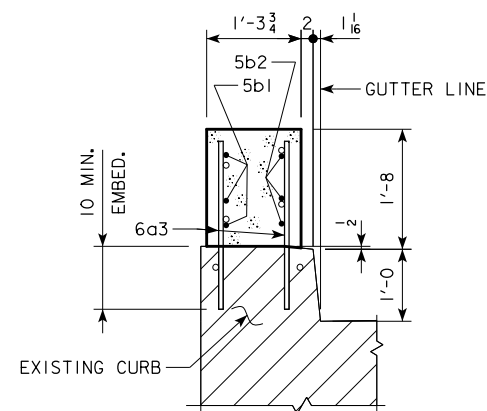
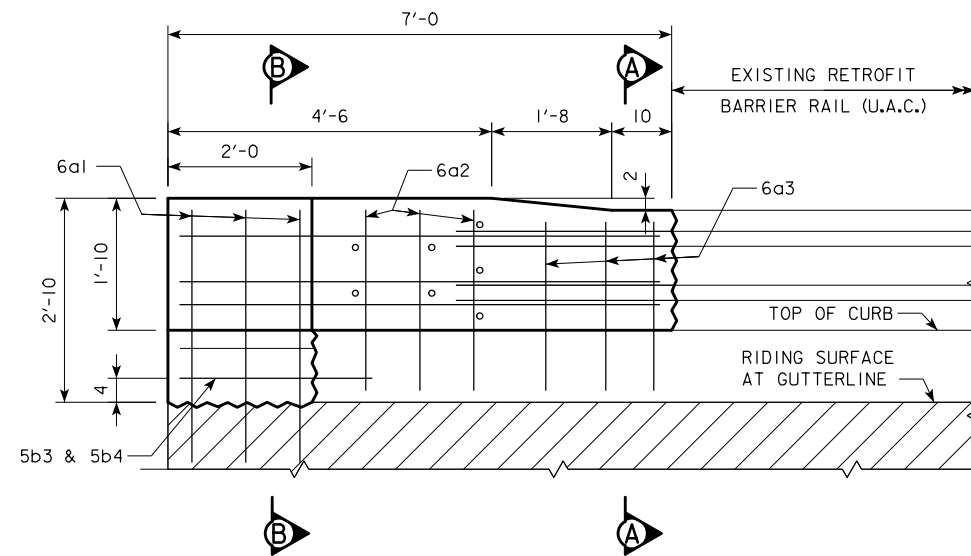
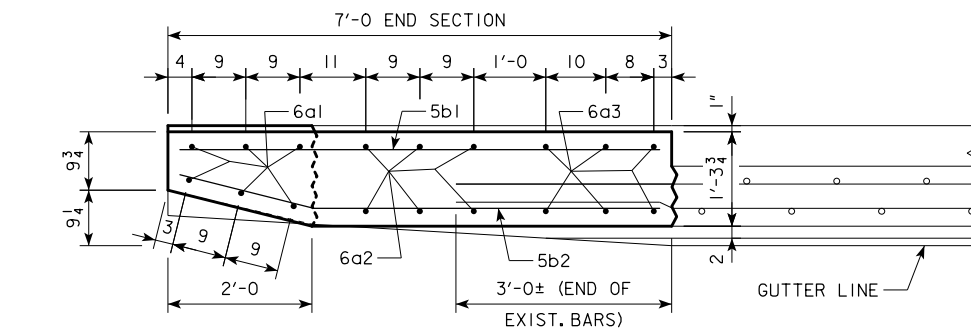
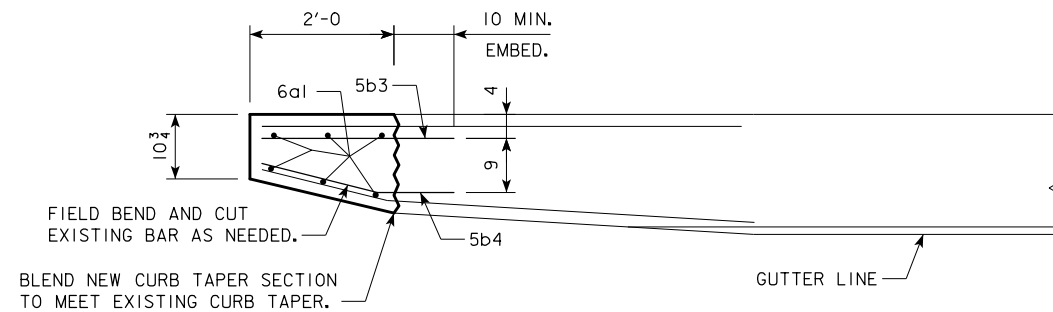
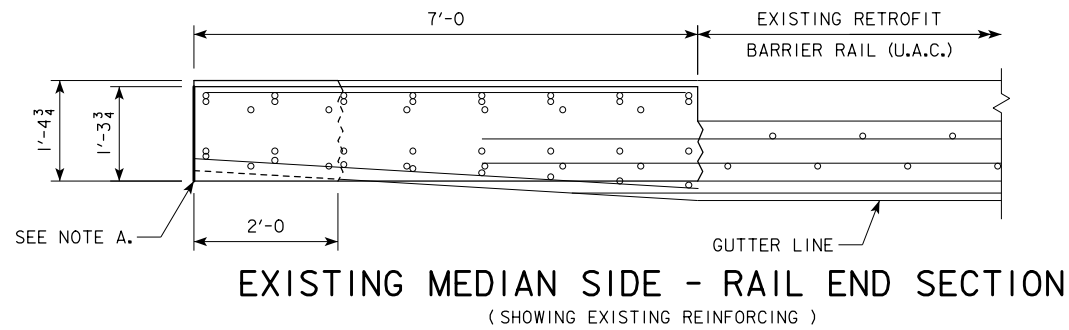


OUTSIDE RAIL - END SECTION

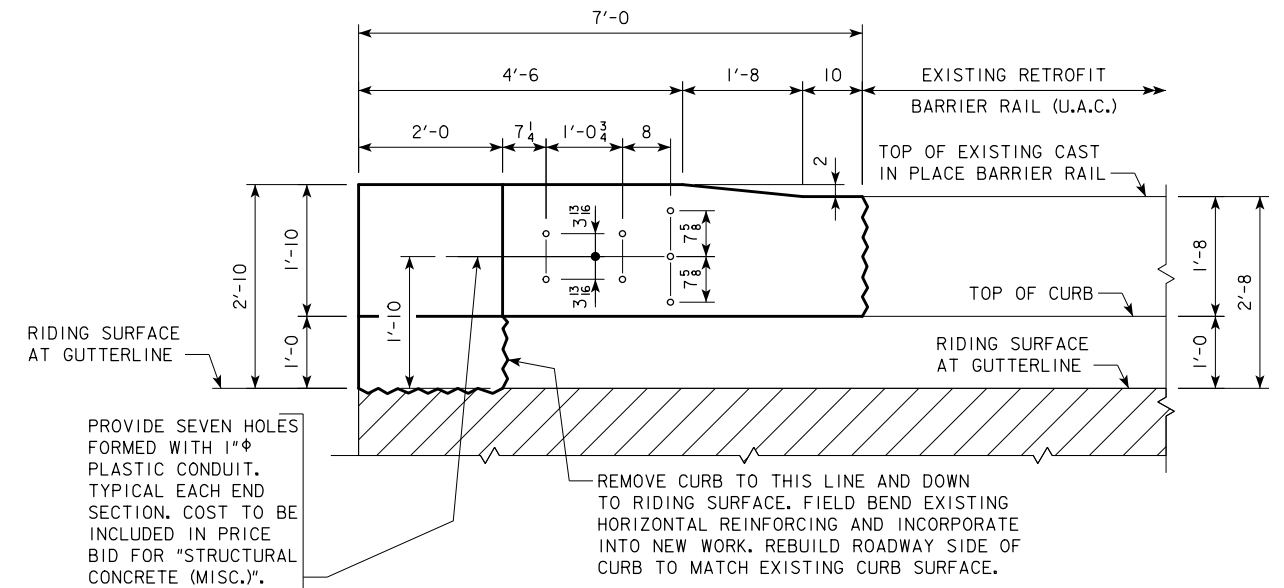


NOTE A:  
REMOVE EXISTING END POST AND PART OF CURB DOWN TO EXISTING RIDING SURFACE. ALL VERTICAL REINFORCING IS TO BE CUT FLUSH WITH OR SLIGHTLY BELOW TOP OF CURB AND RIDING SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH TWO COATS OF ZINC RICH PAINT. ALL HORIZONTAL REINFORCING IS TO BE CAREFULLY EXPOSED AND INCORPORATED INTO NEW WORK.

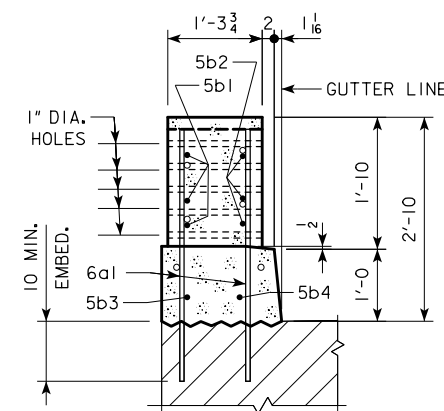
DESIGN FOR REPAIRS TO 0° SKEW  
482'-0 X 52'-0  
P.P.C.B. BRIDGE - SOUTHBOUND  
34'-11 END SPANS 64'-10, 5 @ 36'-6, 64'-10 INTERIOR SPANS  
OUTSIDE RAIL - END SECTION  
STA. 272+73.11 @ I-380 @ 15TH AVE. S.W.  
STA. 269+21.70 @ I-380 @ 16TH AVE. S.W.  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 55 OF 59 FILE NO. 30514 DESIGN NO. 112



**SECTION A-A**



**MEDIAN SIDE RAIL - END SECTION**



**SECTION B-B**

NOTE A:  
REMOVE EXISTING END POST AND PART OF CURB DOWN TO  
EXISTING RIDING SURFACE. ALL VERTICAL REINFORCING  
IS TO BE CUT FLUSH WITH OR SLIGHTLY BELOW TOP OF  
CURB AND RIDING SURFACE AND THE REMAINING EXPOSED  
ENDS PAINTED WITH TWO COATS OF ZINC RICH PAINT.  
ALL HORIZONTAL REINFORCING IS TO BE CAREFULLY  
EXPOSED AND INCORPORATED INTO NEW WORK.

DESIGN FOR REPAIRS TO 0° SKEW  
**482'-0 X 52'-0**  
**P.P.C.B. BRIDGE - SOUTHBOUND**  
34'-11 END SPANS 64'-10, 5 @ 36'-6, 64'-10 INTERIOR SPANS  
**MEDIAN SIDE RAIL - END SECTION**  
STA. 272+73.11 @ I-380 @ 15TH AVE. S.W. JANUARY, 2012  
STA. 269+21.70 @ I-380 @ 16TH AVE. S.W.  
**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 56 OF 59 FILE NO. 30514 DESIGN NO. 112



RETROFIT BARRIER RAILING NOTES:

IT IS THE INTENT OF THIS DESIGN TO CONSTRUCT TWO (2)RETROFIT BARRIER RAIL END SECTIONS ON THE APPROACH AND DEPARTURE ENDS OF THE EXISTING S.B. 267'-0 x 52'-0 C.W.P.G. BRIDGE WITH A 40°06'27.8" SKEW (L.A.) OVER 5TH AVE. S.W. IN CEDAR RAPIDS, AT STATION 305+12.87.

COPIES OF ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE BRIDGE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES. DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON DESIGN PLANS (ORIGINAL DESIGN NO. 2170, RETROFIT RAIL AND DECK REPAIR DESIGN NO. 485).

ALL DIMENSIONS AND DETAILS SHOWN IN THESE PLANS PERTINENT TO NEW CONSTRUCTION IN RELATION TO EXISTING PORTIONS OF THE STRUCTURE SHALL BE VERIFIED IN THE FIELD BY THE BRIDGE CONTRACTOR BEFORE STARTING CONSTRUCTION.

FAINT LINES ON PLANS INDICATE EXISTING PORTIONS OF THE BRIDGE.

UTILITY COMPANIES AND MUNICIPALITIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.

ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.

ANY REMOVALS REQUIRED SHALL BE IN ACCORDANCE WITH SECTION 240I OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE BRIDGE CONTRACTOR AND SHALL BE REPAIRED AT NO COST TO THE STATE.

THE PRICE BID FOR "REMOVALS, AS PER PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVAL OF PORTIONS OF THE EXISTING RAIL END SECTION AS NECESSARY, AND CUTTING THE EXISTING VERTICAL REINFORCING AS NEEDED.

EXISTING BRIDGE RAIL END IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.

INITIATE THE CONCRETE REMOVAL LINES WITH A ¾" SAW CUT.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS ⅝ INCH DIAMETER BAR ). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

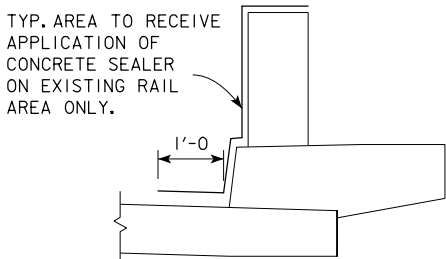
ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

THE TOP AND INTERIOR FACES OF THE EXISTING CONCRETE RAILING ARE TO BE CLEANED AND SEALED IN ACCORDANCE WITH STANDARD SPECIFICATION 2403.03,P,3. IF NEW SECTIONS OF RAIL ARE CONSTRUCTED, THE NEW SECTIONS SHALL NOT BE SEALED. ALL COSTS ASSOCIATED WITH CLEANING AND SEALING OF THE CONCRETE RAILS SHALL BE INCLUDED IN THE UNIT PRICE BID ITEM "STRUCTURAL CONCRETE".

THE BRIDGE CONTRACTOR SHALL DRESS UP THE SLOPES AROUND THE WINGS WHICH ARE DISTURBED DURING CONSTRUCTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL AND NO EXTRA PAYMENT WILL BE MADE.

DOWEL SETTING NOTE:

THE 6a & 5b BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. THE HOLE DEPTHS SHALL BE AS SHOWN. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE GROUT MANUFACTURER'S RECOMMENDATIONS. THE FOLLOWING SYSTEM SHALL BE USED AS A BONDING AGENT FOR THE DOWELS:  
POLYMER GROUT SYSTEM IN ACCORDANCE WITH STANDARD 2301.03,E OF THE STANDARD SPECIFICATIONS AND CURRENT SUPPLEMENTAL SPECIFICATIONS OF THE IOWA D.O.T. HIGHWAY DIVISION.



DETAIL OF CONCRETE SEALER AREA

SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 2002.  
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2009, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

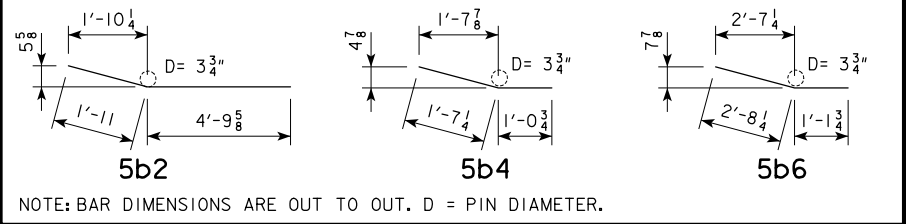
DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2002. REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60. CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI.

EPOXY REINF. BAR LIST - 2 END SECT.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	END SECTION, VERTICAL	—	14	3'-6	74
6a2	END SECTION, VERTICAL	—	10	2'-6	38
6a3	END SECTION, VERTICAL	—	12	2'-4	42
5b1	END SECTION, HORIZONTAL, B.F.	—	6	6'-8	42
5b2	END SECTION, HORIZONTAL, F.F.	—	6	6'-9	42
5b3	END SECTION, HORIZONTAL, B.F.	—	1	2'-8	3
5b4	END SECTION, HORIZONTAL, F.F.	—	1	2'-8	3
5b5	END SECTION, HORIZONTAL, B.F.	—	1	3'-9	4
5b6	END SECTION, HORIZONTAL, F.F.	—	1	3'-10	4
REINF. STEEL EPOXY COATED - TOTAL (LBS)					252

BENT BAR DETAILS

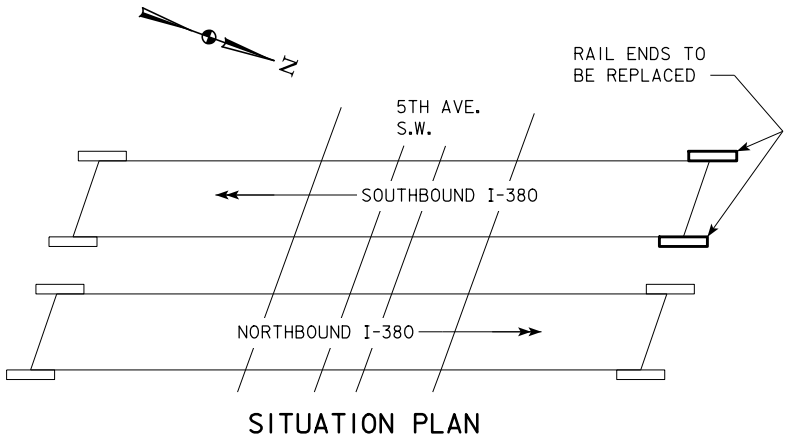


CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
END SECTION	2 AT 0.7 CU. YDS. PER SECTION
	1.4
TOTAL (CU. YDS.)	1.4

LOCATION:

S.B. I-380 OVER 5TH AVE. S.W.  
IN CEDAR RAPIDS  
T-83 N R-7 W  
SECTION 28  
RAPIDS TOWNSHIP  
LINN COUNTY  
MAINT. NO. 5719.4L380  
FHWA NO. 607110  
LATITUDE 41.97108255°  
LONGITUDE -91.6736881°



DESIGN HISTORY AT THIS SITE

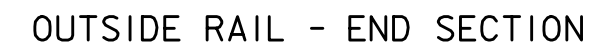
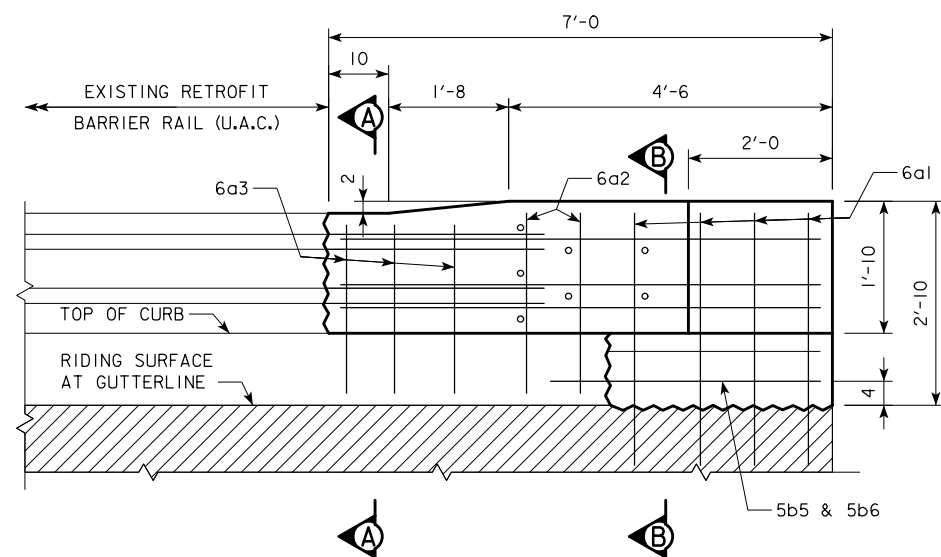
DES. NO.	TYPE OF WORK
2170	ORIGINAL DESIGN
485	RETROFIT RAIL AND DECK REPAIR

DESIGN FOR REPAIRS TO A 40°06'27.8" SKEW (L.A.)

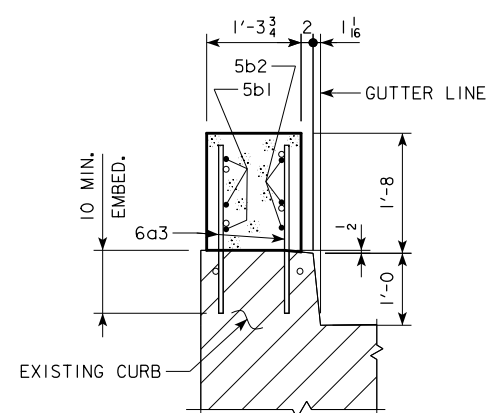
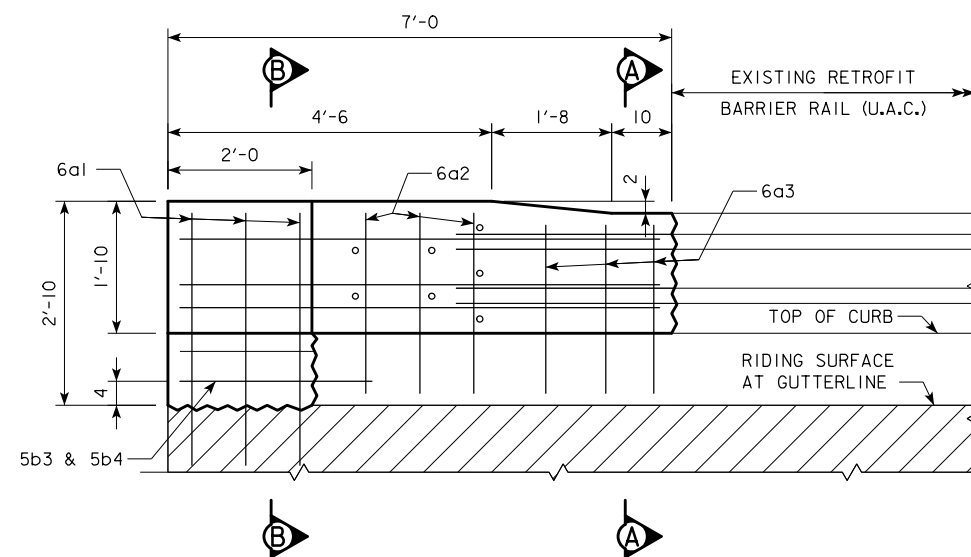
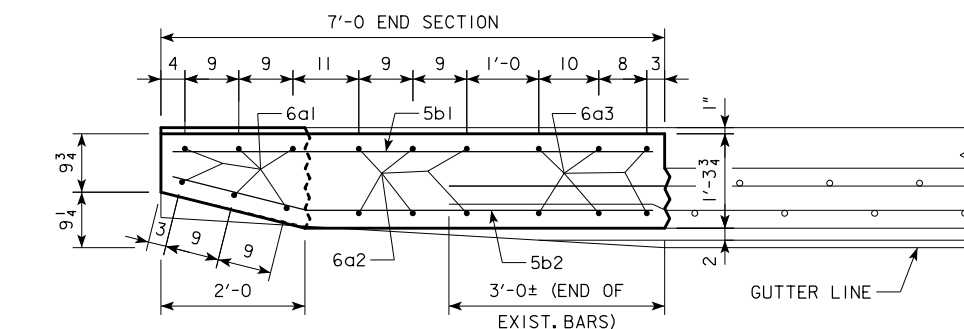
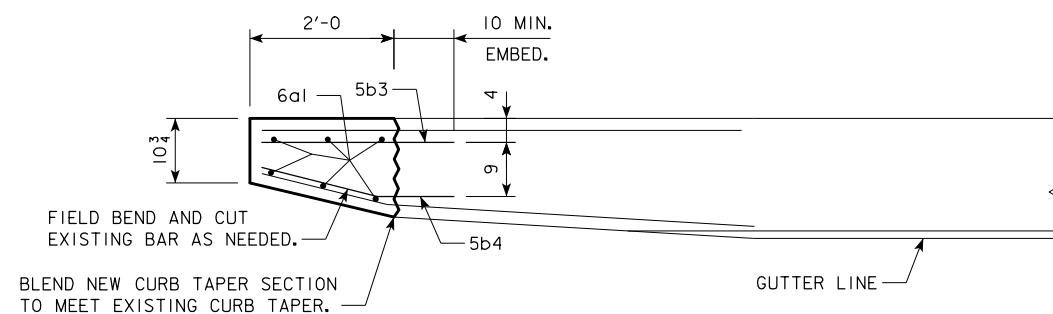
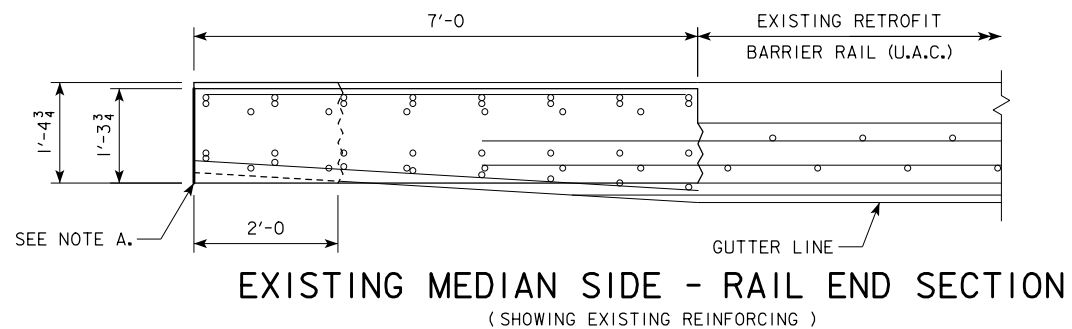
267'-0 X 52'-0  
C.W.P.G. BRIDGE - SOUTHBOUND  
53'-0 END SPANS 72'-9 & 88'-3 INTERIOR SPANS  
GENERAL NOTES & QUANTITIES  
STA. 305+12.87 @ I-380 JANUARY, 2012

LINN COUNTY

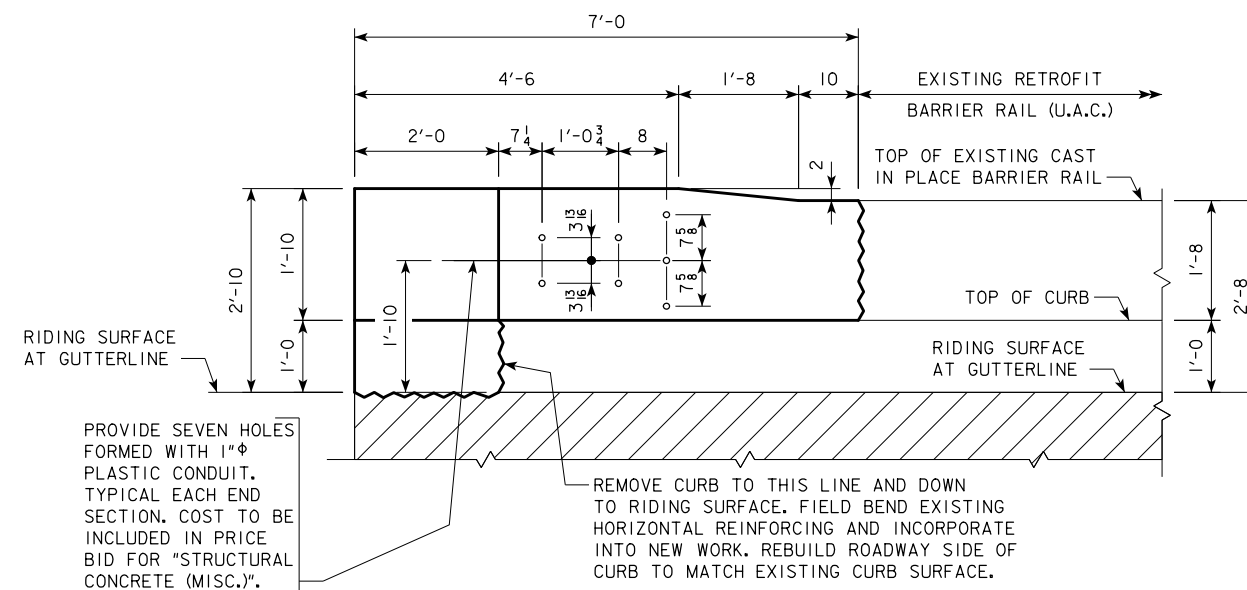
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 57 OF 59 FILE NO. 30514 DESIGN NO. 212



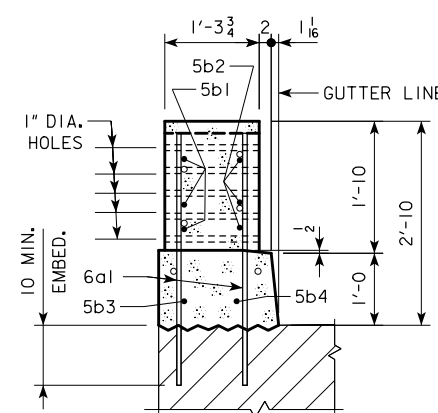
DESIGN FOR REPAIRS TO A 40°06'27.8" SKEW (L.A.)  
267'-0 X 52'-0  
C.W.P.G. BRIDGE - SOUTHBOUND  
53'-0 END SPANS 72'-9 & 88'-3 INTERIOR SPANS  
OUTSIDE RAIL - END SECTION  
STA. 305+12.87 @ I-380 JANUARY, 2012  
LINN COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 58 OF 59 FILE NO. 30514 DESIGN NO. 212



SECTION A-A



MEDIAN SIDE RAIL - END SECTION



SECTION B-B

NOTE A:  
REMOVE EXISTING END POST AND PART OF CURB DOWN TO EXISTING RIDING SURFACE. ALL VERTICAL REINFORCING IS TO BE CUT FLUSH WITH OR SLIGHTLY BELOW TOP OF CURB AND RIDING SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH TWO COATS OF ZINC RICH PAINT. ALL HORIZONTAL REINFORCING IS TO BE CAREFULLY EXPOSED AND INCORPORATED INTO NEW WORK.

DESIGN FOR REPAIRS TO A 40°06'27.8" SKEW (L.A.)  
**267'-0 X 52'-0**  
**C.W.P.G. BRIDGE - SOUTHBOUND**  
 53'-0 END SPANS 72'-9 & 88'-3 INTERIOR SPANS  
**MEDIAN SIDE RAIL - END SECTION**  
 STA. 305+12.87 @ I-380 JANUARY, 2012  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 59 OF 59 FILE NO. 30514 DESIGN NO. 212