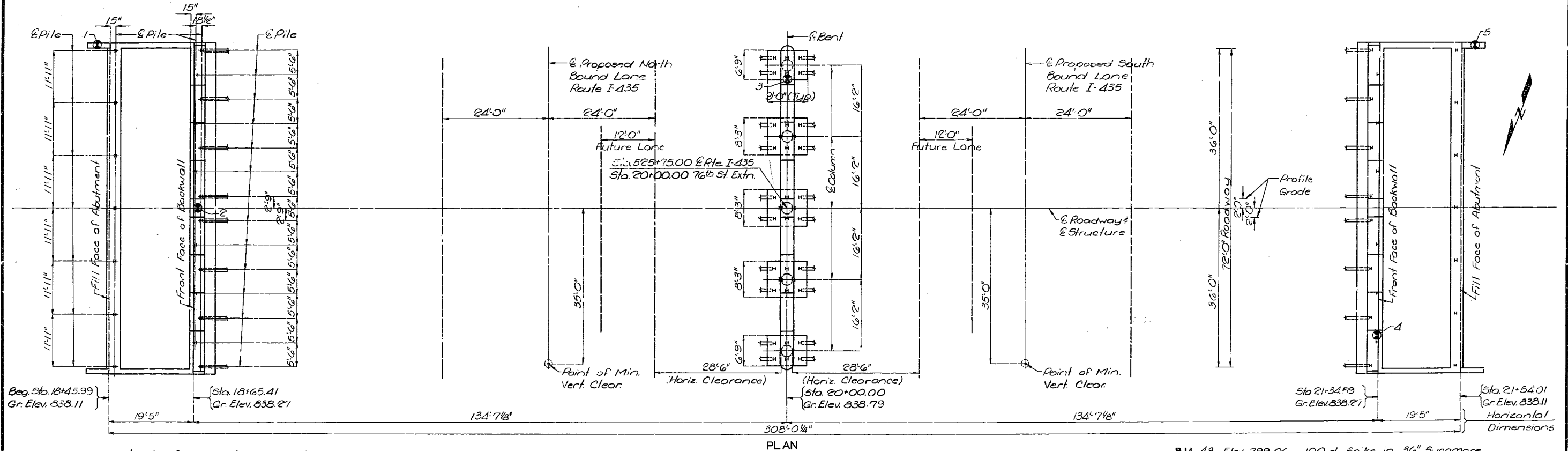
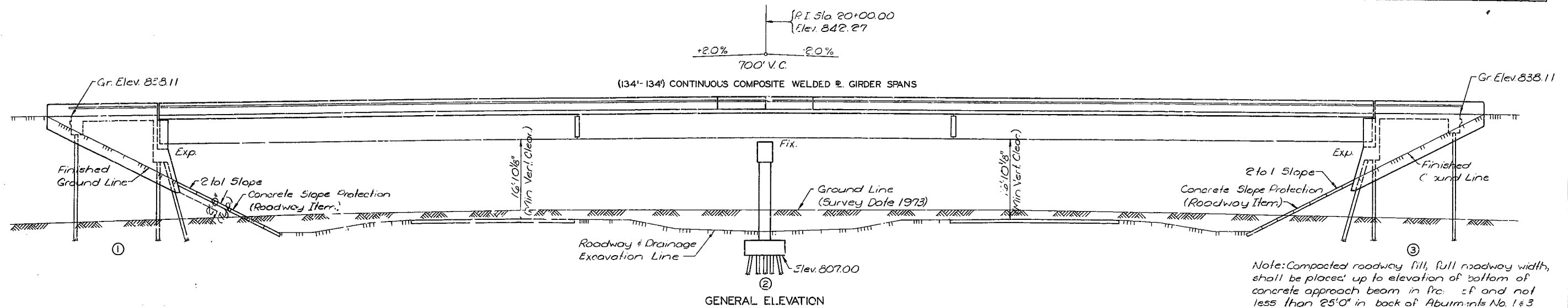


MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	156	



Note: For Boring Data see Sheet No. 2.
 * Indicates location of boring.
 Grade Elevations shown are taken at Φ Roadway.
 For General Notes, Estimated Quantities, and Pile Data see Sheet No. 2.

BRIDGE: 76TH STREET EXTN. UNDERPASS
 STATE ROAD FROM RTE. 152 TO RTE. I-35
 ABOUT 2.2 MILES NORTH OF RTE. I-35
 PROJECT NO. I-435-1(153) STA. 525+75.00
 JOB NO. 4-I435-49C RTE. I-435
 CLAY COUNTY

STD. 611.60
STD. 706.35
A-3448

DESIGNED Aug. 1976
 DETAILED Oct. 1976
 CHECKED May 1977

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 13

DATE 1/22/80

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FED. ROAD DIST. NO.	STATE	FED. AID PRO. NO.	FISCAL YR.	SHEET NO.	TOTAL SHEETS
5	MO.		19	157	

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O - 1973

Design Loading:
 H 20-44 15#/sq.ft. Future Wearing Surface
 Earth 120# Equivalent Fluid Pressure 30#
 Fatigue Stress - Case II Interim 1974

Design unit Stresses:

Class B Concrete (substructure) $f_c = 1,200$ psi
 Class B2 Concrete (superstructure) $f_c = 4000$ psi
 Reinforcing Steel (substr. Gr. 60) $f_s = 20,000$ psi
 Reinforcing Steel (Grade 60) (Superstructure Slab and Safety Barrier Curbs) $f_y = 60,000$ psi
 Structural Carbon Steel $f_s = 20,000$ psi
 Structural Steel (A.S.T.M. A-572) Grade 50 $f_s = 27,000$ psi
 Steel Pile $f_b = 9000$ psi

Fabricated Steel:

Field connections, High Strength Bolts $3/4"$ ϕ , holes $13/16"$ ϕ except as noted.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be $1\frac{1}{2}"$ unless otherwise shown.

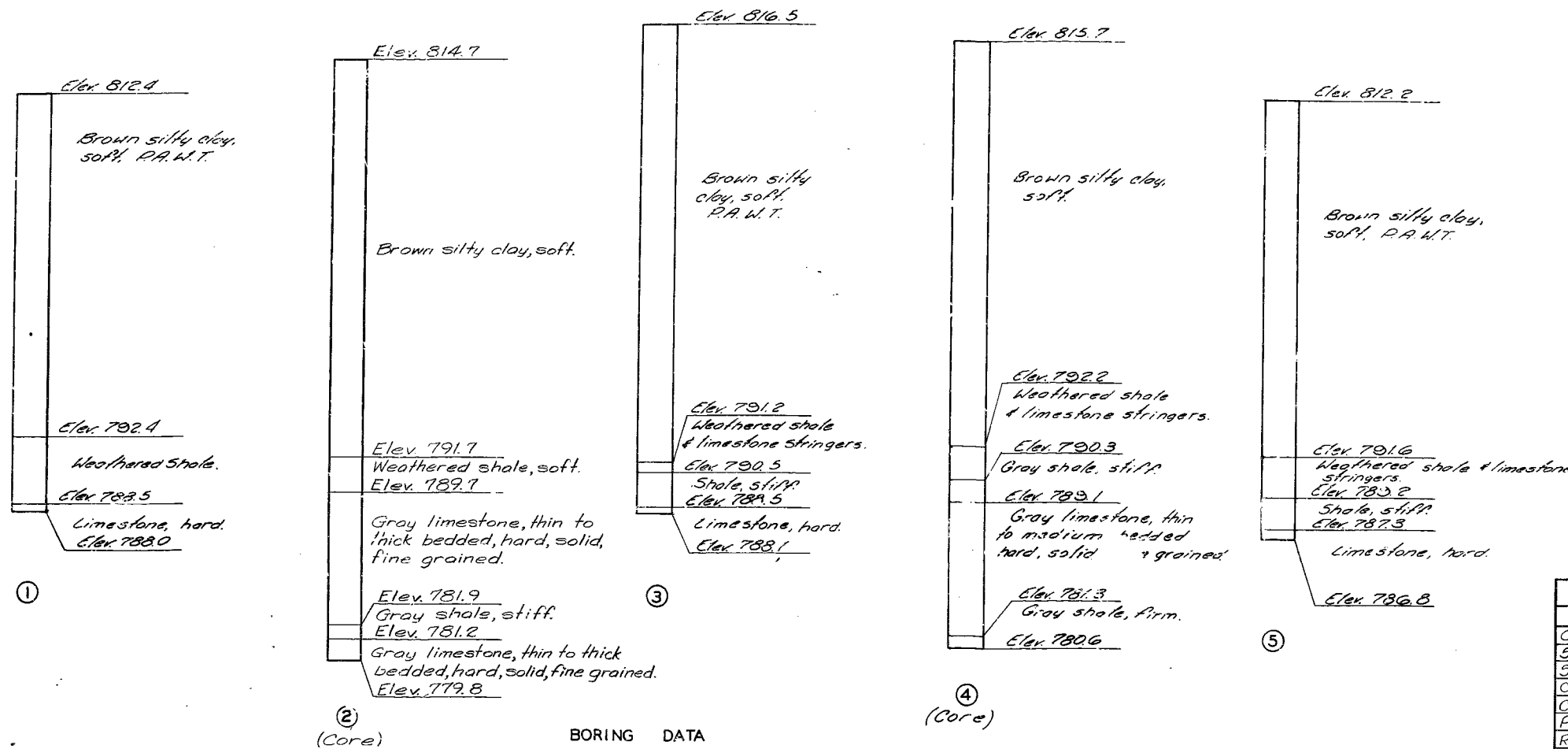
All reinforcing bars in top of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least $1/2"$.
 Paint System B by contractor in accordance with Std. Spec. 712.12 (Color of the final field coat shall be green.)

Payweight for fabricated steel will be based on welded field splices regardless of type used.

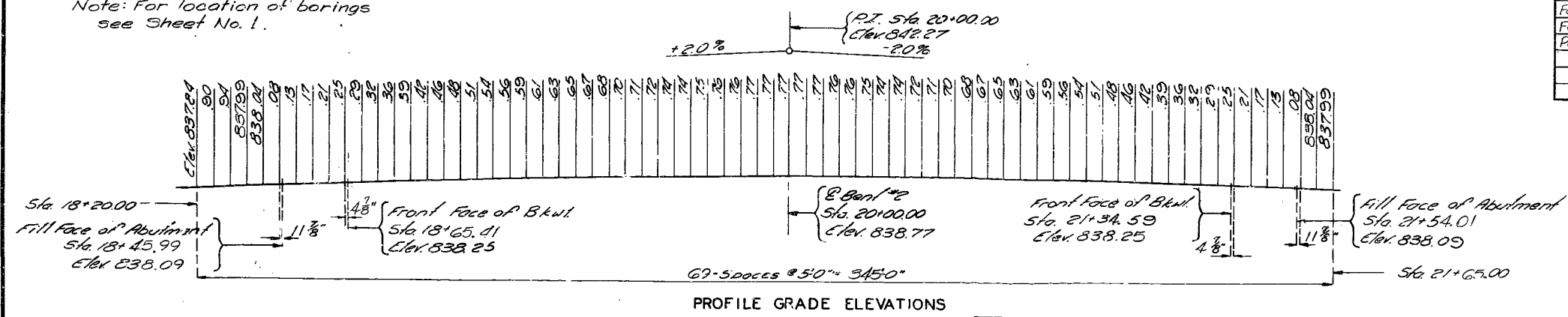
ESTIMATED QUANTITIES

ITEM	SUBSTR.	SUPERSTR.	TOTAL
Class I Excavation	Cu. Yd. 215		215
Slab Drains	Each 12		12
Structural Steel Pile (10")	Lin. Ft. 2,357		2,357
Class B Concrete	Cu. Yd. 337.4		337.4
Class B2 Concrete	Cu. Yd. 746.4		746.4
Preformed Compression Exp. Joint Seal (3.5%)	Lin. Ft. 144		144
Reinforcing Steel (Grade 60)	Lb. 44,970	82,840	127,810
Reinforcing Steel (Epoxy Coated)	Lb. 1520	93,890	95,410
Fabricated Structural Carbon Steel	Lb. 493,160		493,160
Fabricated Structural Low Alloy Steel	Lb. 175,250		175,250
Painting (System B) Green	Ton 333.4		333.4

Note: All Concrete (Class B2) and reinforcing steel (Grade 60) above Const. Joint under slab in Semi-Deep Abutments is included in superstructure quantities.

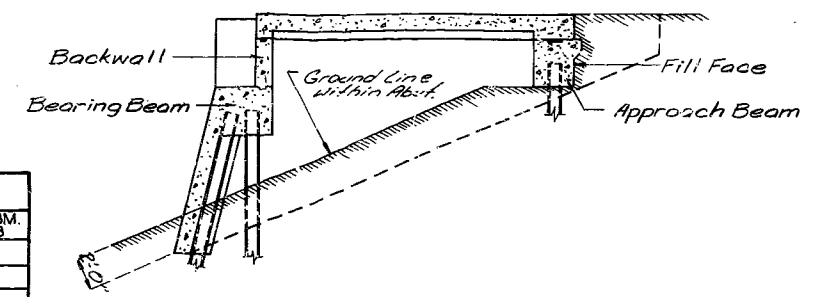


Note: For location of borings see Sheet No. 1.



BENT NO.	PILE DATA				
	APPR. BM. NO. 1	BRG. BM. NO. 2	INT. BT. NO. 2	BRG. BM. NO. 3	APPR. BM. NO. 3
7	14	36	14	7	
Approximate Length Ft.	44	37	19	38	45
Design Bearing Tons	31	53	56	53	31
Hammer Energy required ft-lbs.	7000	13,100	13,200	13,100	7000

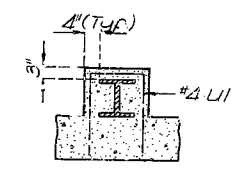
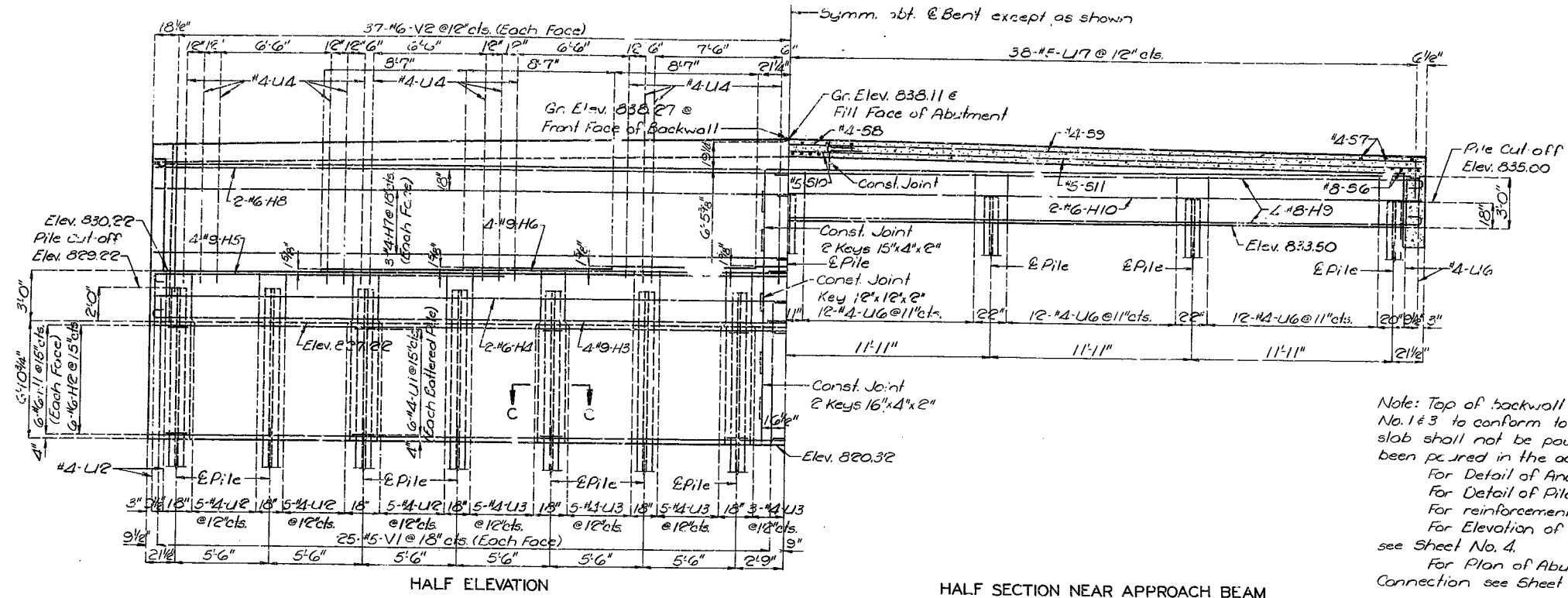
Minimum energy requirement of hammer based on plan length and design bearing value of piles.
 All pile shall be driven to practical refusal.



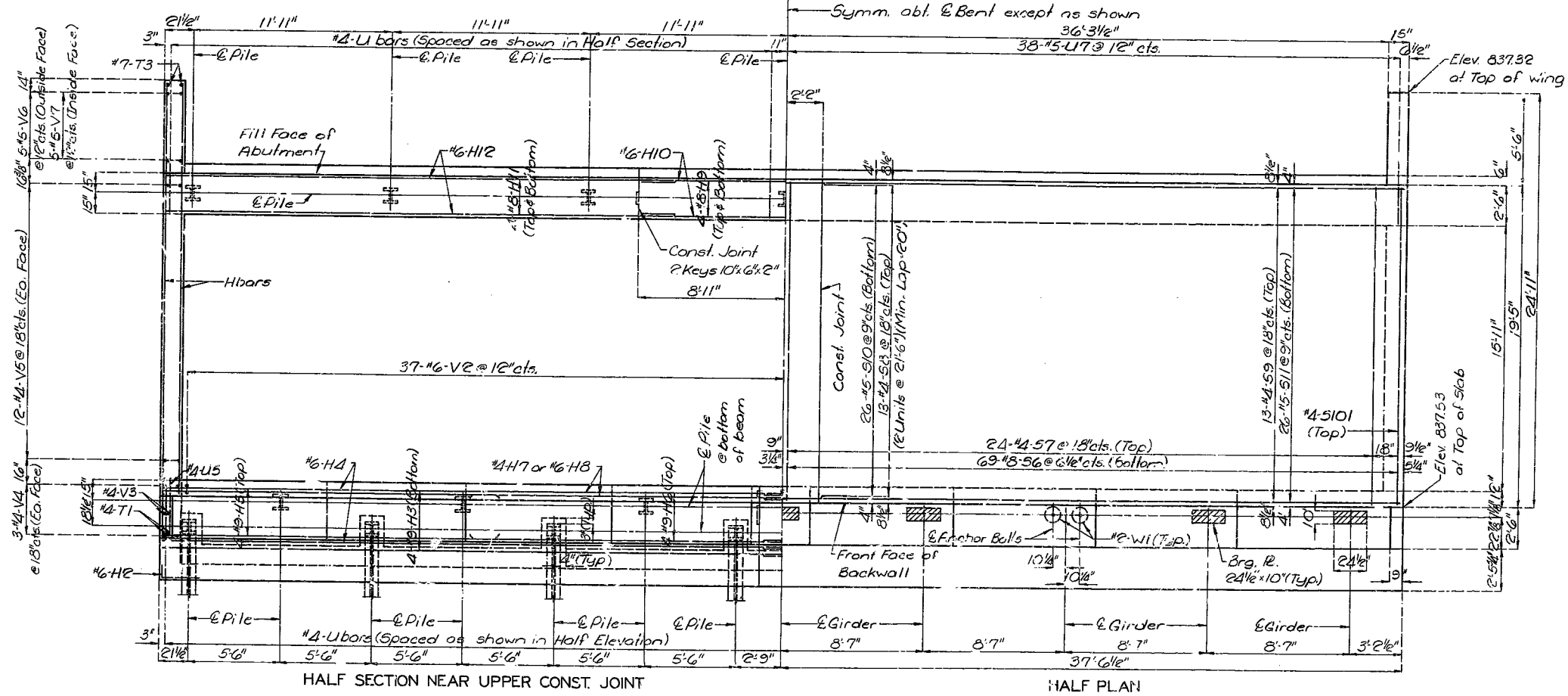
GROUND LINE AND PILING IN ABUTMENTS

Note: In no case shall the earth within abutments No. 1 & 3 be above the ground line shown. Forms supporting the abutment slabs may be left in place.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	158	



SECTION C-C
 Note: Top of backwall and expansion device for Abutments No. 1 & 3 to conform to crown of roadway slab. Abutment slab shall not be poured until the superstructure slab has been poured in the adjacent span.
 For Detail of Anchor Bolt Wells see Sheet No. 7.
 For Detail of Pile Splice see Sheet No. 4.
 For reinforcement of safety barrier curb see Sheet No. 12.
 For Elevation of Wing and Section Near & Roadway see Sheet No. 4.
 For Plan of Abutment Slab Showing Electrical Lead Connection see Sheet No. 4.



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DETAILED Oct. 1976
 CHECKED May 1977

Note: This drawing is not to scale. Follow dimensions.

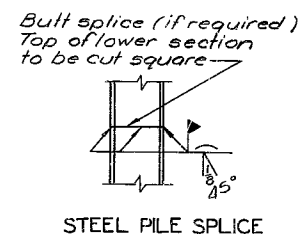
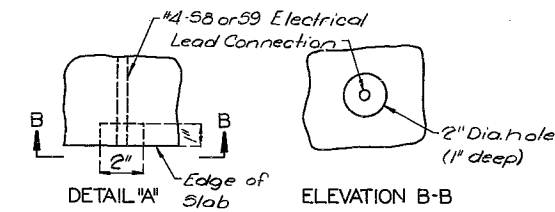
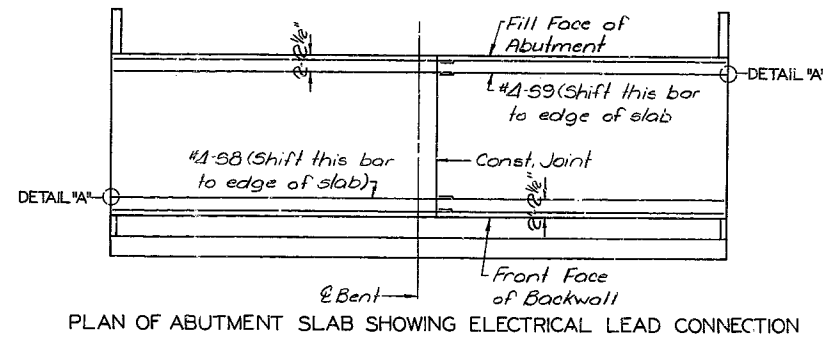
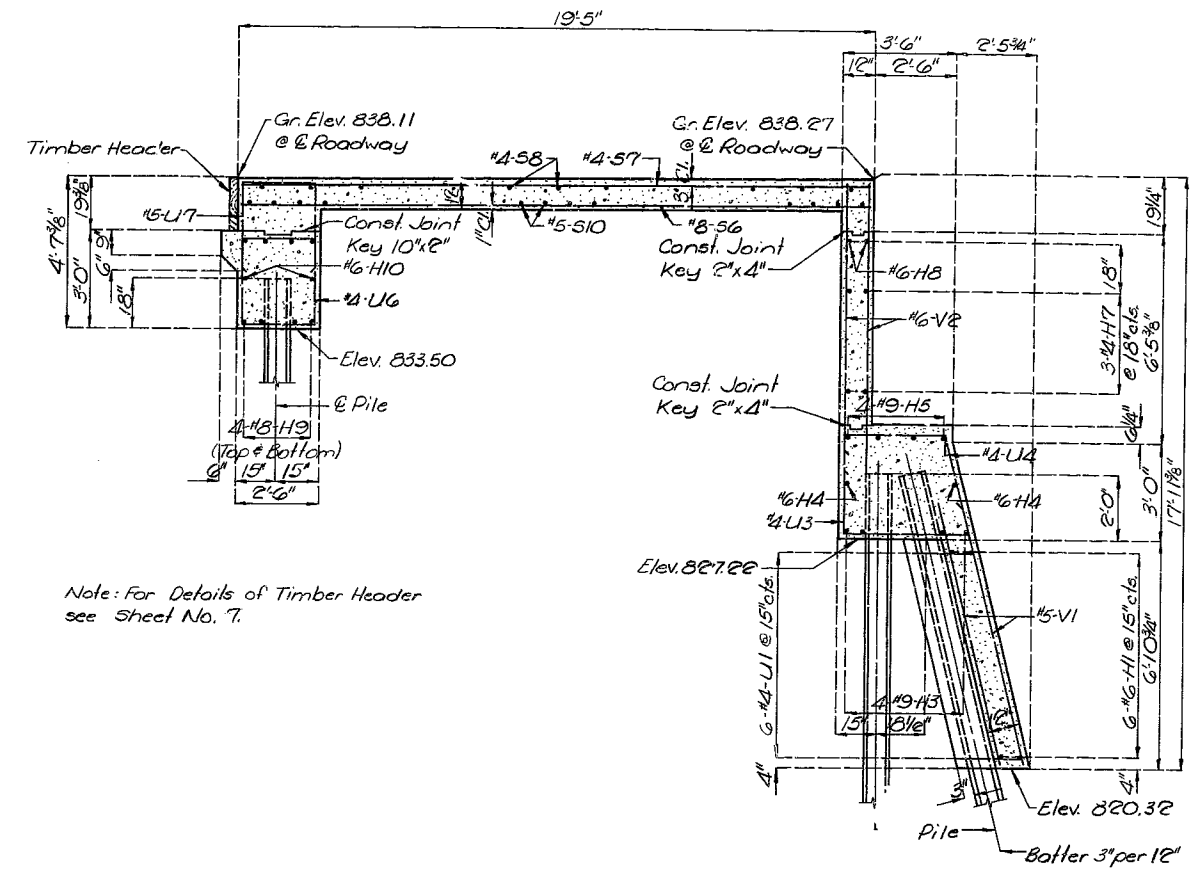
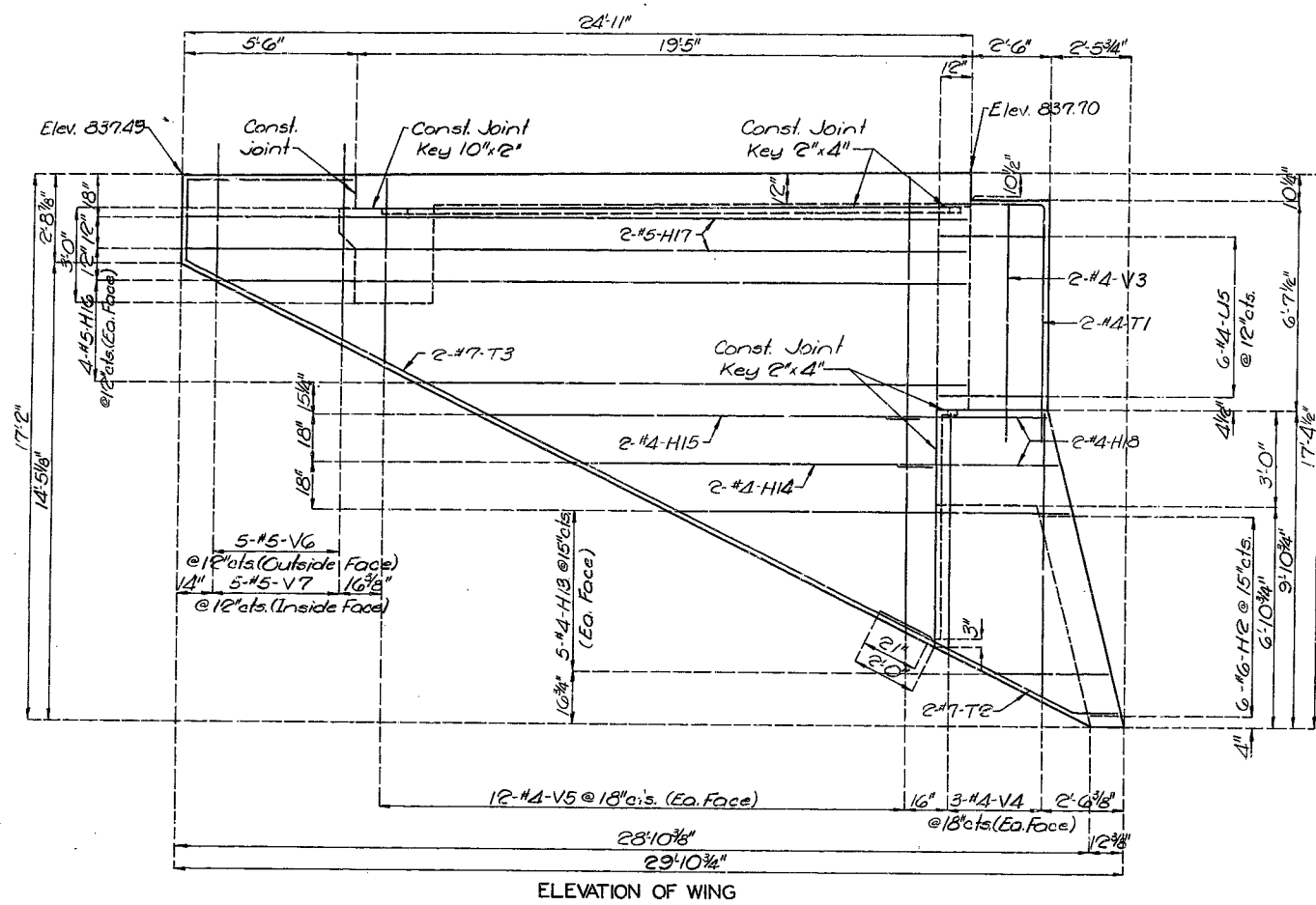
DETAILS OF ABUTMENTS NO. 1 & 3

Sheet No. 3 of 13

CLAY COUNTY

A-3448

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	159	



DETAILS OF ABUTMENTS NO. 1 & 3

DETAILED Oct. 1976
CHECKED May 1977

Note: This drawing is not to scale. Follow dimensions.

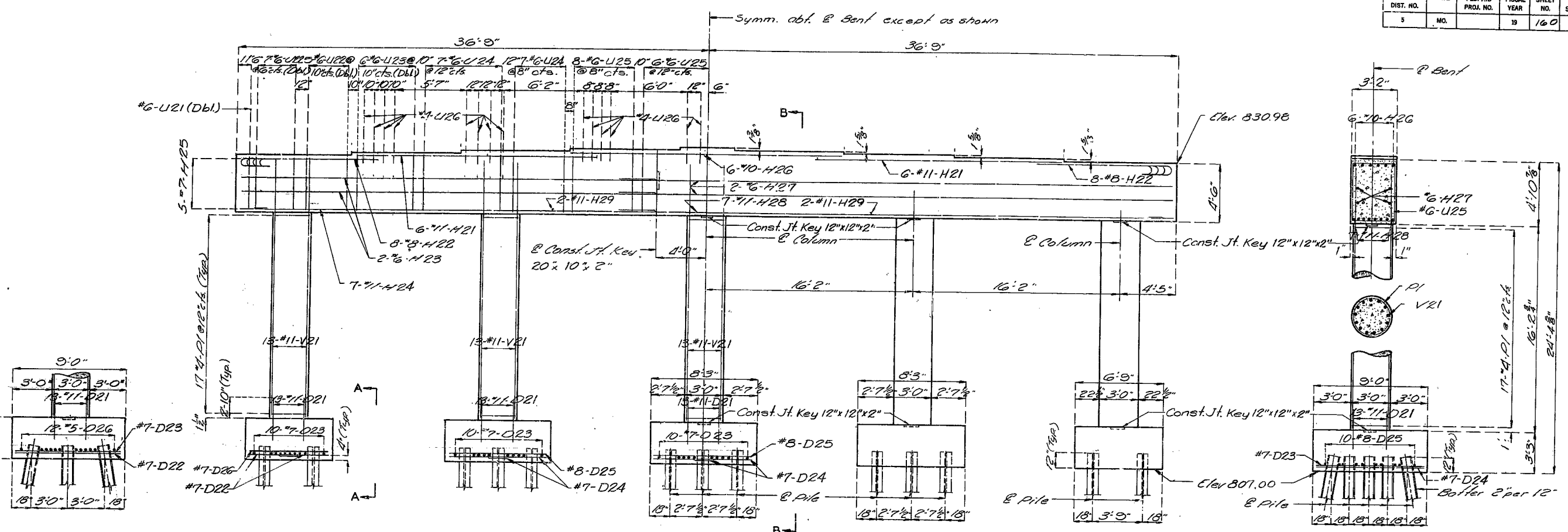
Sheet No. 4 of 13

CLAY COUNTY

A-3448

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	160	

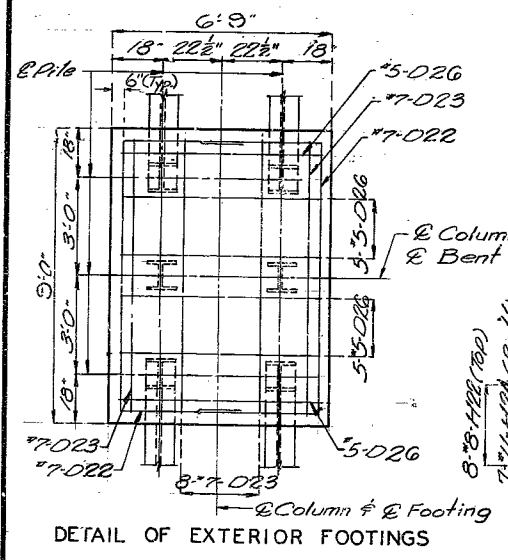


SECTION A-A

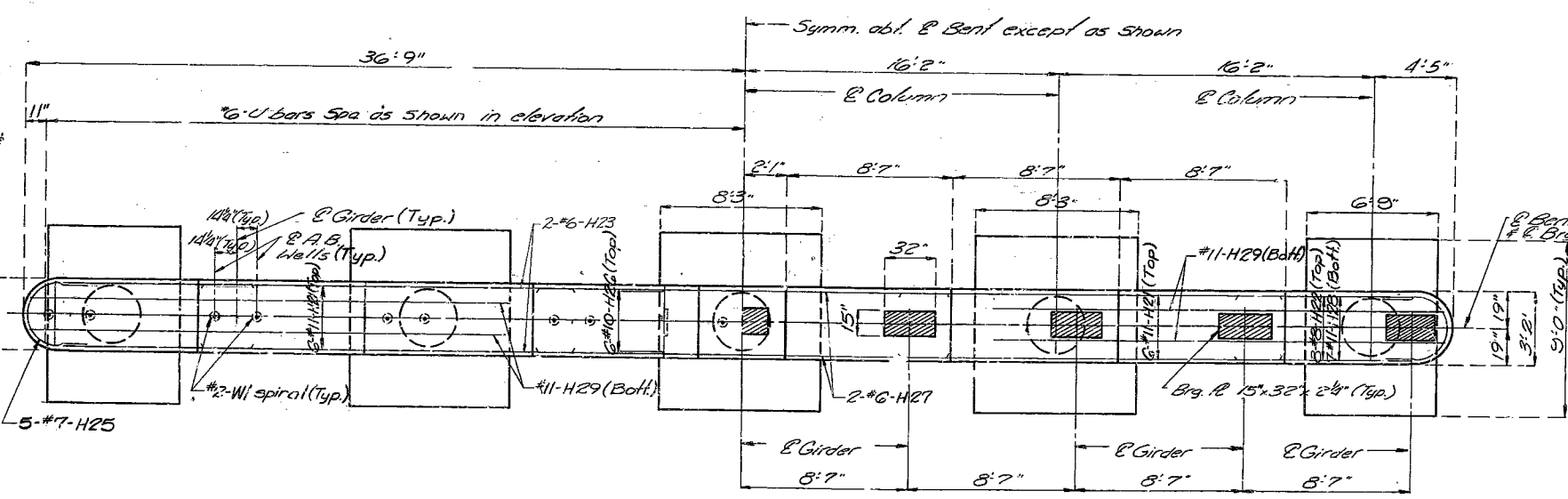
ELEVATION

SECTION B-B

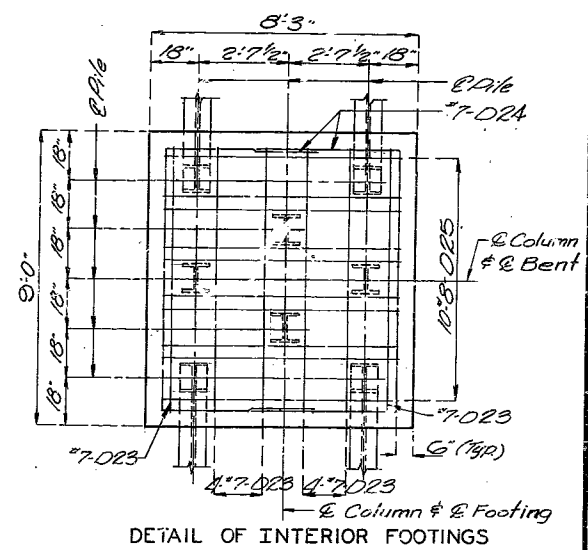
N 1/2: For details of Anchor Bolt Wells see Sheet No. 7.
 For details of Pile Splice see Sheet No. 4.



DETAIL OF EXTERIOR FOOTINGS



DETAILS OF INT. BENT NO. 2



DETAIL OF INTERIOR FOOTINGS

DETAILED SEPT. 1976
 CHECKED May 1977

Note: This drawing is not to scale. Follow dimensions.

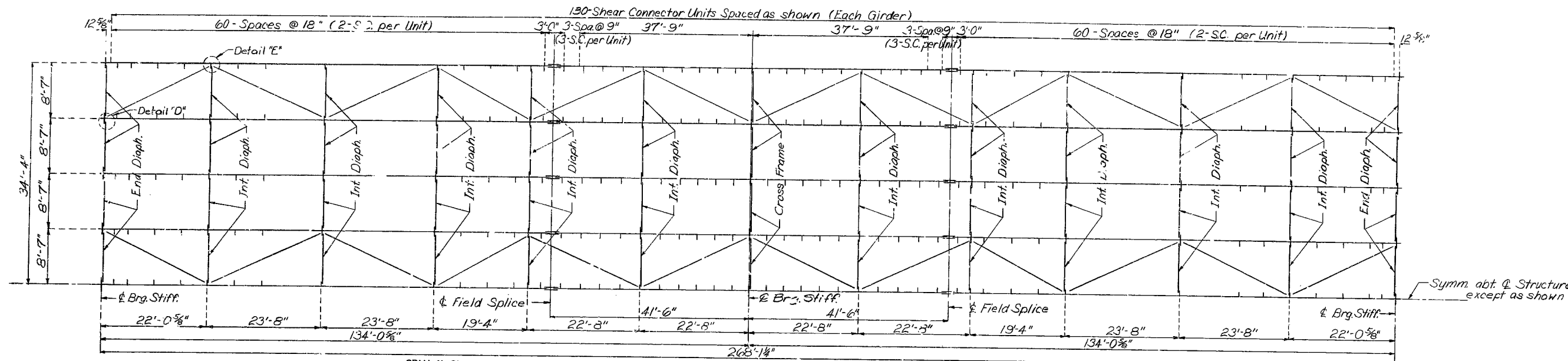
Sheet No. 5 of 13.

CLAY COUNTY

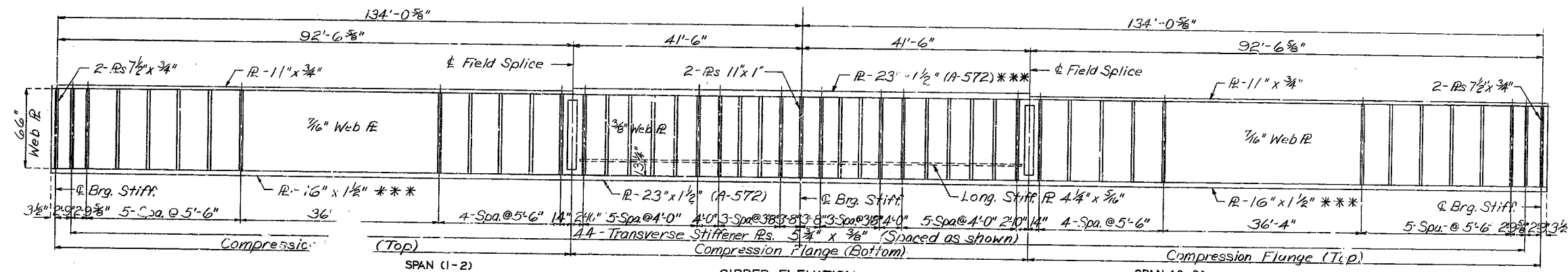
A-3448

416

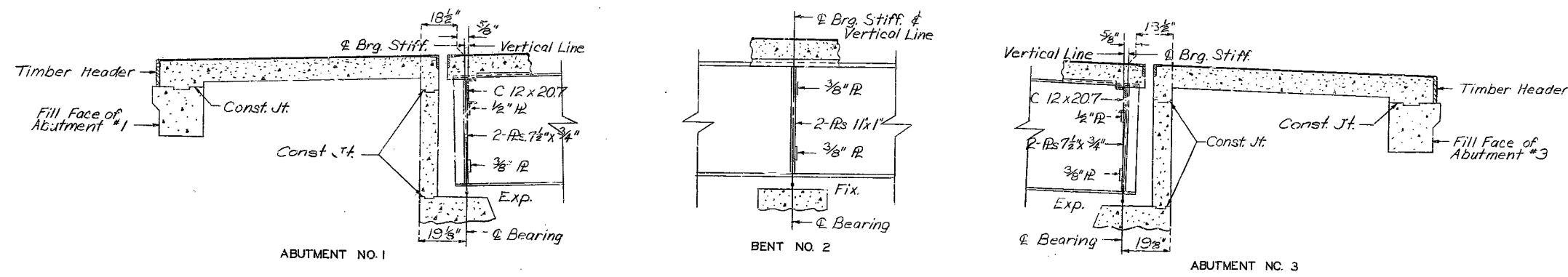
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	161	



Note: Longitudinal dimensions are along top of slab.



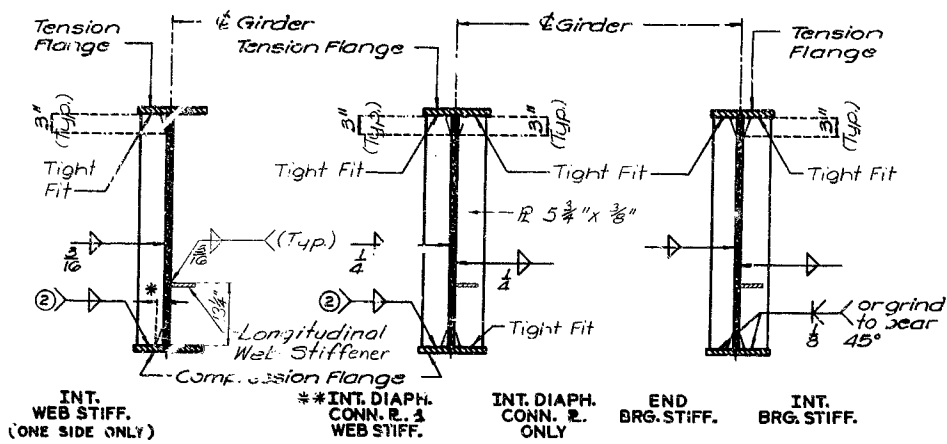
Note: Plate girders shall be fabricated to conform with Camber Diagram shown on sheet No. 10.



Note: Whenever longitudinal stiffeners interfere with bolting the diaphragms and cross frames in place, clip stiffeners. Longitudinal web stiffeners shall be placed on the outside of exterior girders and on the side opposite to transverse web stiffener plates for interior girders. Transverse web stiffeners shall be placed as detailed. *** Indicates flange plates subject to notch toughness requirements. All web plates shall be subject to notch toughness requirements. Fabricated structural steel shall be A-36 except as noted. Additional transverse web stiffener plates shall be added as required for intermediate diaphragms.

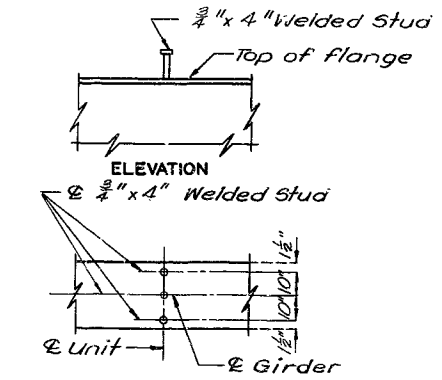
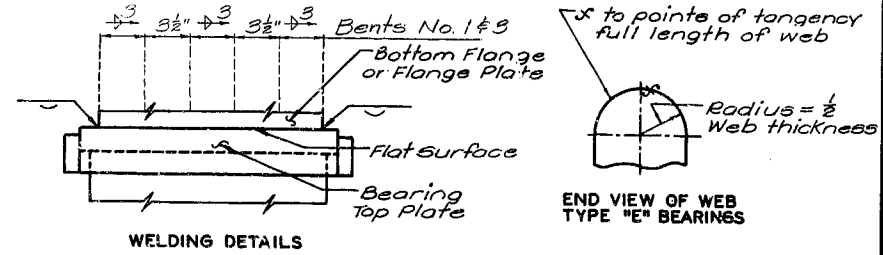
417

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	162	

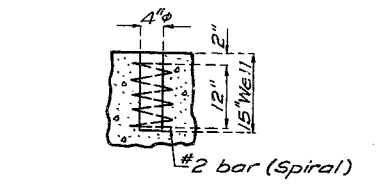


② Weld to compression flange as located on Elevation of Girder.
 * 1/2" Typical for all Int. Web Stiff., Int. Diaph. Conn. R. and Brg. Stiff.
 ** Weld may be omitted on interior girders, and Tight Fit used when Intermediate Diaphragm Connection. Plate is required on both sides.

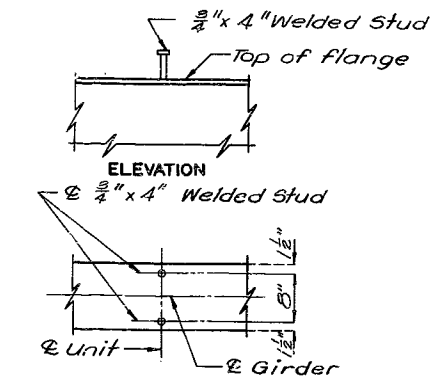
NOTES. TYPE "E" BEARINGS
 ANCHOR BOLTS FOR TYPE "E" BEARINGS SHALL BE 1-1/4" SWAGED BOLTS AND SHALL EXTEND 12" INTO CONCRETE WITH HEXAGON NUTS AND PLAIN WASHERS FOR FIXED BEARINGS, NO NUTS FOR EXPANSION BEARINGS.
 "ESTIMATED WEIGHT" DOES NOT INCLUDE WEIGHT OF ANCHOR BOLTS.
 "S" INDICATES MACHINE FINISH SURFACE.
 ① BONDED LUBRICANT
 A LUBRICANT COATING SHALL BE APPLIED IN THE SHOP TO BOTH MATING SURFACES OF THE BEARING ASSEMBLY. THE LUBRICANT, METHOD OF CLEANING, AND APPLICATION SHALL MEET THE REQUIREMENTS OF MIL-L-23398 AND MIL-L-46147 SUCH AS DOW CORNING'S MOLYKOTE 3402 BONDED LUBRICANT. THE COATED AREA SHALL BE PROTECTED FOR SHIPPING AND ERECTION.



DETAILS OF SHEAR CONNECTORS

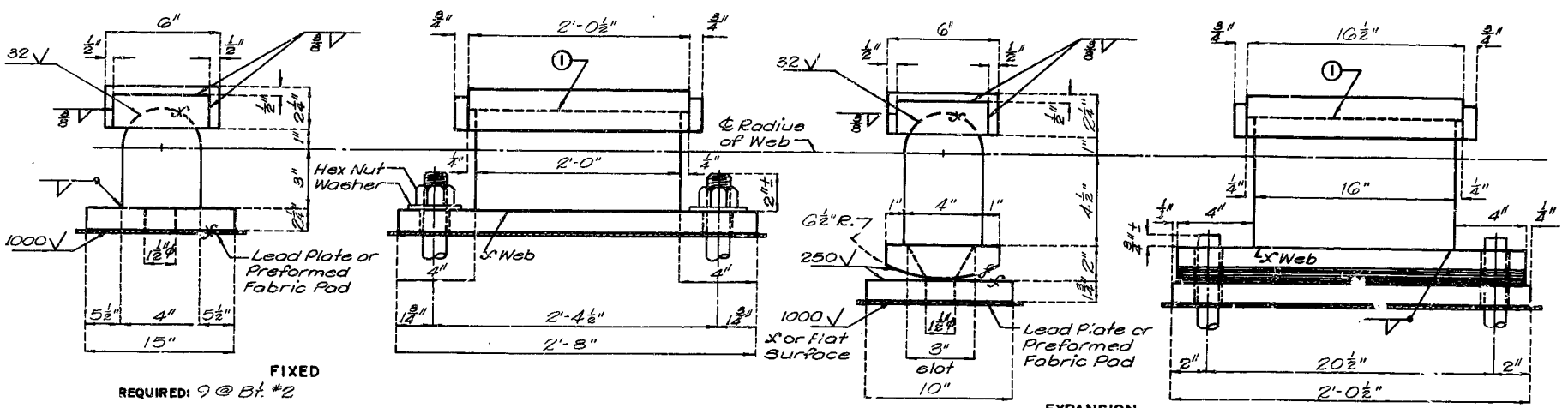


DETAIL OF ANCHOR BOLT WELLS

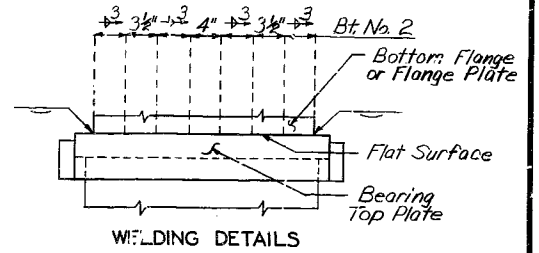


DETAILS OF SHEAR CONNECTORS

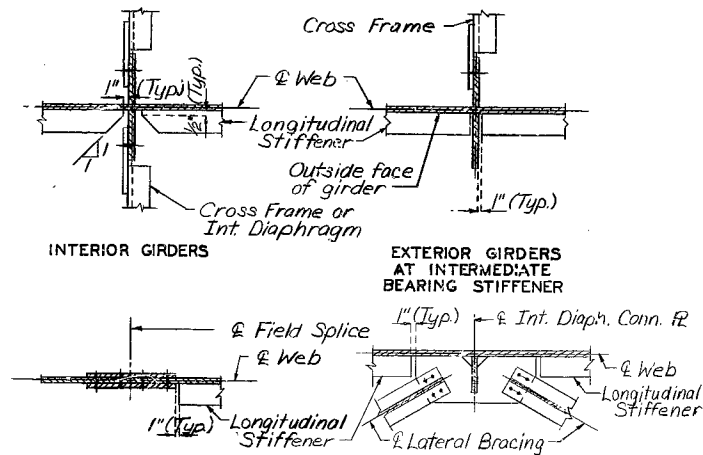
Note: Weight of 1520 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel.



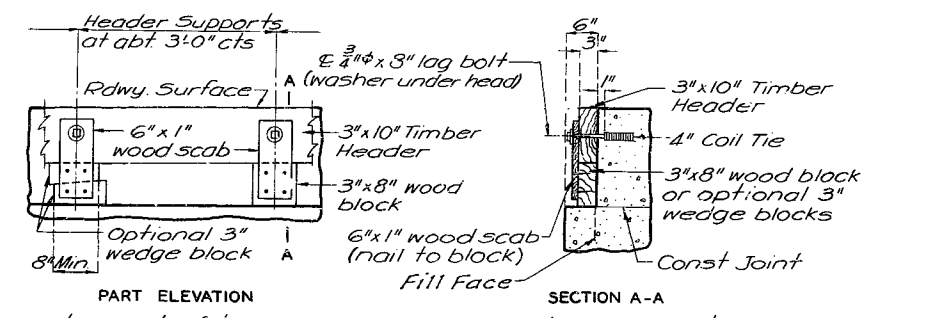
TYPE "E" BEARINGS
 (ESTIMATED WEIGHT 10,932#)



WELDING DETAILS



LONGITUDINAL STIFFENER DETAILS



Note: Cost of timber headers complete in place to be included in price bid for concrete.

DETAILS OF TIMBER HEADER AT ABUTMENTS

418

REVISED NOV. 1976
 MAR. 1973
 STD. E. B.

DETAILED SEPT. 1976
 CHECKED JAN. 1977

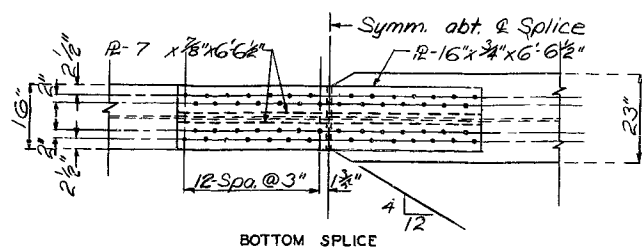
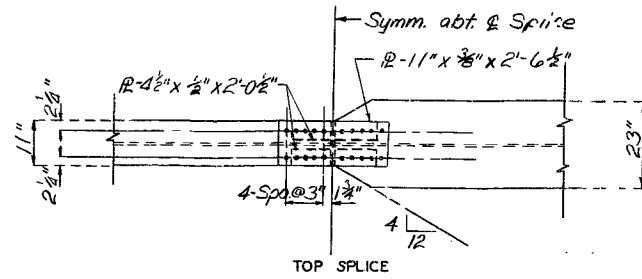
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 13

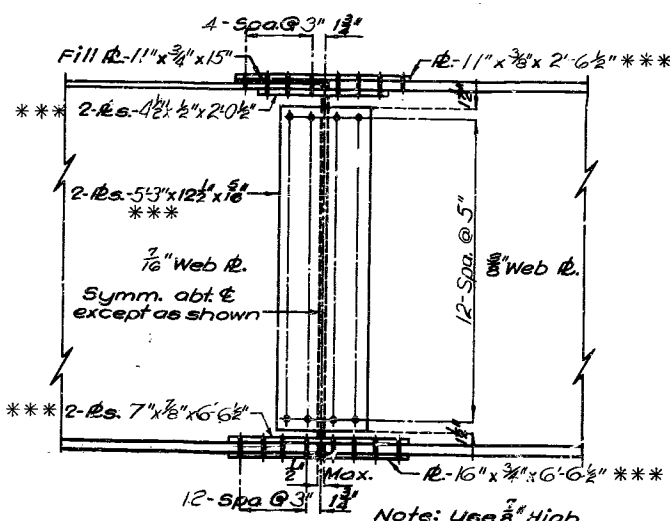
CLAY COUNTY

A-3448

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	165	

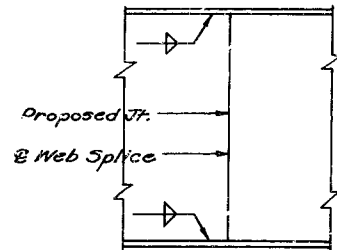


PLAN OF FLANGE

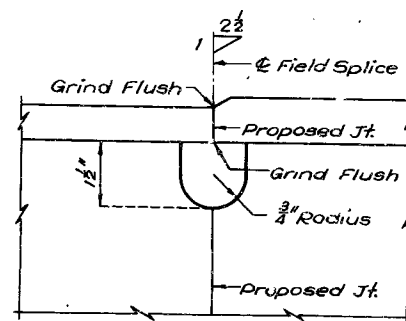
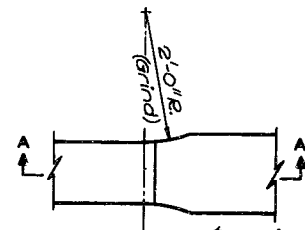


Note: Field splices may be field welded or field bolted.

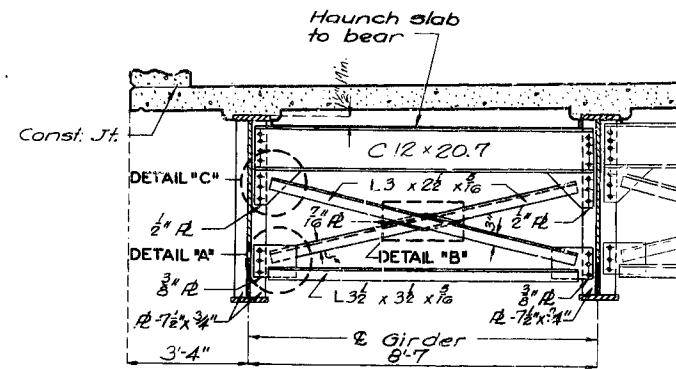
*** Indicates Flange & Web Splice Plates subject to notch toughness requirements.



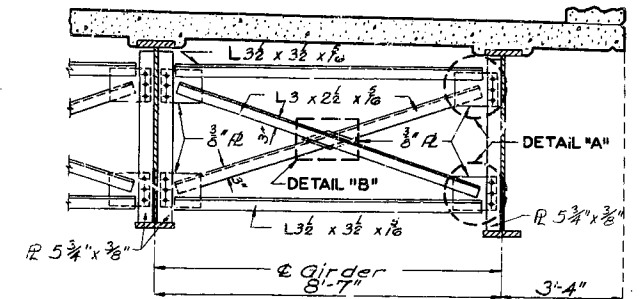
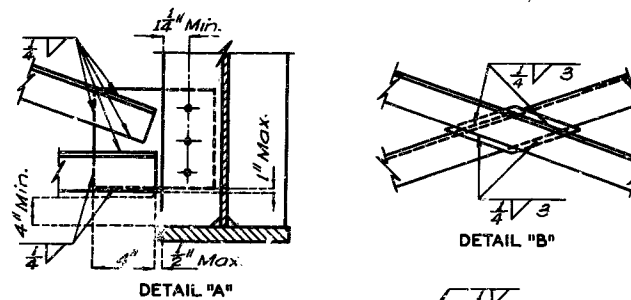
Note: Shop welded web splices may be fabricated by the contractor when detailed on the shop drawings and approved by the engineer. No additional payment will be made for optional shop welded web splices.



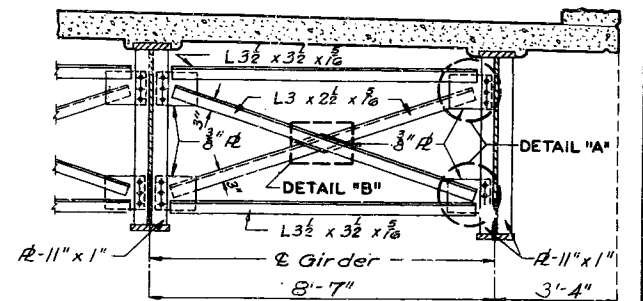
WELDED FIELD SPLICE



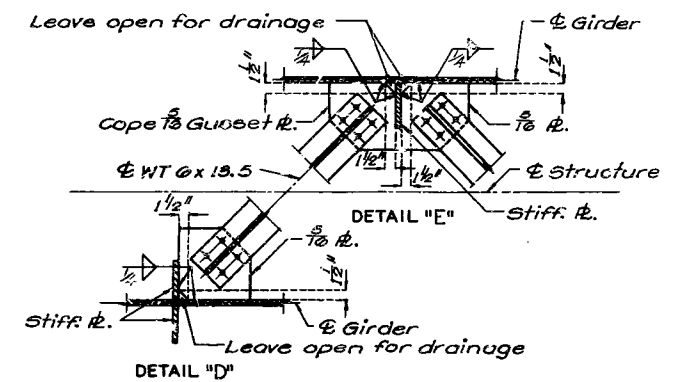
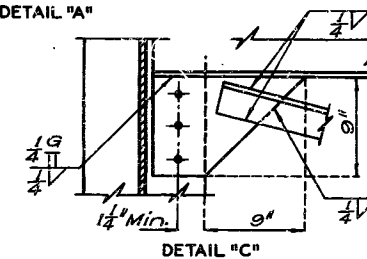
TYP. PART SECTION SHOWING END DIAPHRAGMS



TYP. PART SECTION SHOWING INT. DIAPHRAGMS



TYP. PART SECTION SHOWING CROSS FRAMES

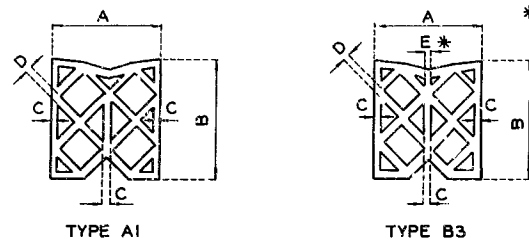


DETAILS OF LATERAL BRACING

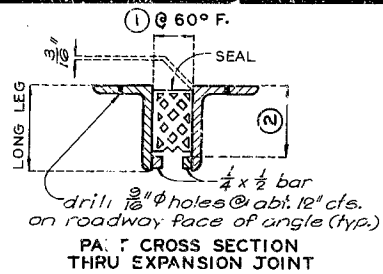
Note: 5/16" R shall be placed 15" above top of bottom flange plate.

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MD.		18	164	



* OPTIONAL "C"



NOTES FOR PREFORMED COMPRESSION JOINT SEAL:

STRUCTURAL STEEL FOR EXPANSION DEVICE SHALL BE FABRICATED IN ONE SECTION EXCEPT THAT WHEN THE LENGTH IS OVER 50 FEET, SPlicing IS PERMISSIBLE. EXPANSION DEVICE SHALL BE BENT TO CONFORM TO CROWN AND GRADE OF ROADWAY.
 NO. 5 BARS FOR EXPANSION DEVICE SHALL BE STRUCTURAL GRADE.
 APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF #5 BARS SHOWN.
 PREFORMED COMPRESSION JOINT SEAL SHALL BE INSTALLED BEFORE CURBS ARE POURED.
 3.8" CURB PLATE SHALL BE INSTALLED WITH CURB.
 PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F EXPANSION JOINT WIDTH SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH TABLES.
 SEE SPECIAL PROVISIONS FOR THE REQUIREMENTS OF COMPRESSION JOINT SEAL.

TYPE	"A" (WIDTH)	"B" (HEIGHT)	"C" (SHELL)	"D" (WEBS)	"E" (B3 ONLY) (SMALL WEBS)
AI OR B3	2.500 + .250 - .000	2.750 + .125 - .125	0.187 + .046 - .015	0.093 + .031 - .015	0.062 + .031 - .031
AI OR B3	3.000 + .250 - .000	3.406 + .187 - .187	0.187 + .046 - .015	0.125 + .046 - .015	0.075 + .046 - .031
AI OR B3	3.500 + .250 - .000	3.500 + .187 - .187	0.187 + .046 - .015	0.125 + .046 - .015	0.097 + .046 - .031
AI OR B3	4.000 + .312 - .000	4.718 + .250 - .250	0.250 + .046 - .031	0.235 + .046 - .031	0.111 + .046 - .031

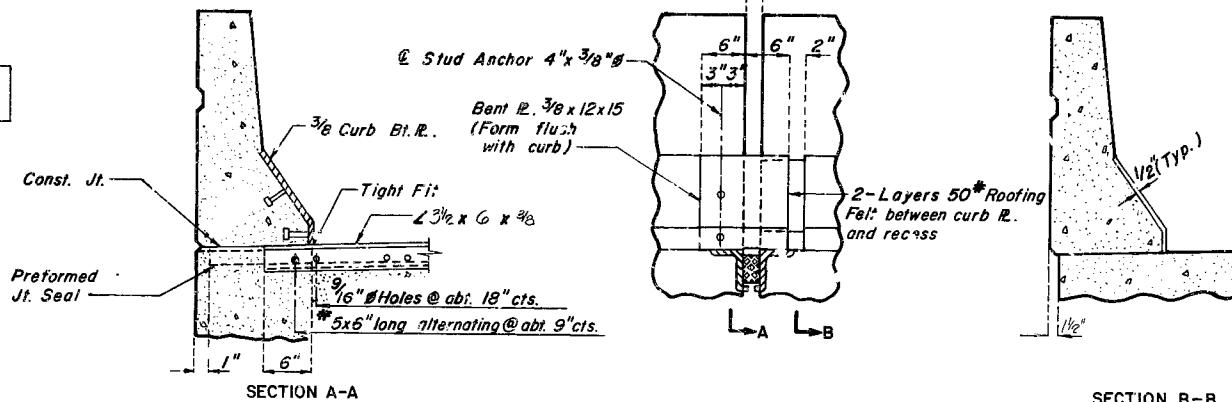
TYPE	GROOVE SIZE AT 60°F.		SEAL SIZE		ANGLE SIZE
	①	②	WIDTH	HEIGHT	
AI OR B3	1-5/8"	4"	2-1/2"	2-3/4"	5 x 3 x 3/8
AI OR B3	1-7/8"	4-7/8"	3"	3-13/32"	6x3-1/2 x 3/8
AI OR B3	2-1/4"	5-1/8"	3-1/2"	3-1/2"	6 x 3-1/2 x 3/8
AI OR B3	2-5/8"	6-3/8"	4"	4-23/32"	8 x 4 x 7/16

TEMP. (°F.)	SEAL WIDTHS							
	CONCRETE STRUCTURES				STEEL STRUCTURES			
-10°	2 1/2"	3"	3 1/2"	4"	2 1/2"	3"	3 1/2"	4"
0°	2-1/8"	2-5/8"	3"	3-3/32"	2"	2-1/2"	2-7/8"	3-1/4"
+20°	1-7/8"	2-1/4"	2-3/4"	3-1/8"	1-7/8"	2-1/4"	2-5/8"	3"
+40°	1-3/4"	2-1/8"	2-1/2"	2-7/8"	1-3/4"	2-1/8"	2-1/2"	2-7/8"
+60°	1-5/8"	1-7/8"	2-1/4"	2-5/8"	1-5/8"	1-7/8"	2-1/4"	2-5/8"
+80°	1-3/8"	1-3/4"	2"	2-1/4"	1-3/8"	1-3/4"	2"	2-1/4"
+100°	1-1/4"	1-1/2"	1-3/4"	2"	1-1/4"	1-5/8"	1-7/8"	2-1/8"
+110°	1-1/8"	1-3/8"	1-5/8"	1-7/8"	1-1/4"	1-1/2"	1-3/4"	2"
+120°	-	-	-	-	1-1/8"	1-3/8"	1-5/8"	1-7/8"

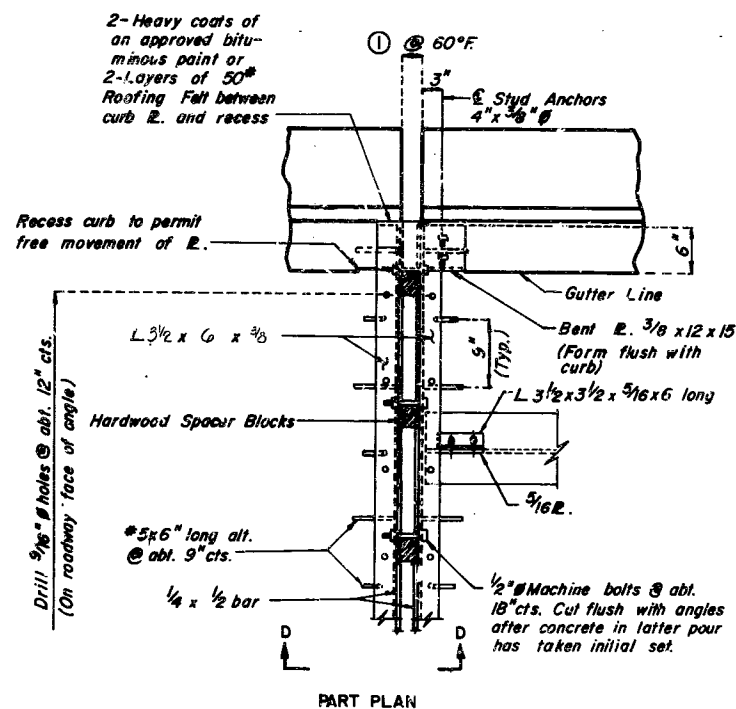
TYPE	GROOVE SIZE AT 60°F.		SEAL SIZE	
	WIDTH	HEIGHT	WIDTH	HEIGHT
AI OR B3	1-5/16"	2-3/4"	2"	2-1/16"

ARMOR ANGLES FOR LONGITUDINAL SEALS WILL NOT BE USED UNLESS SPECIFIED.

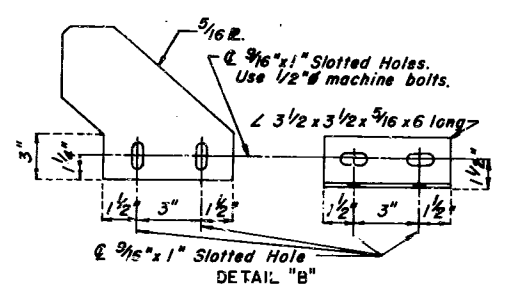
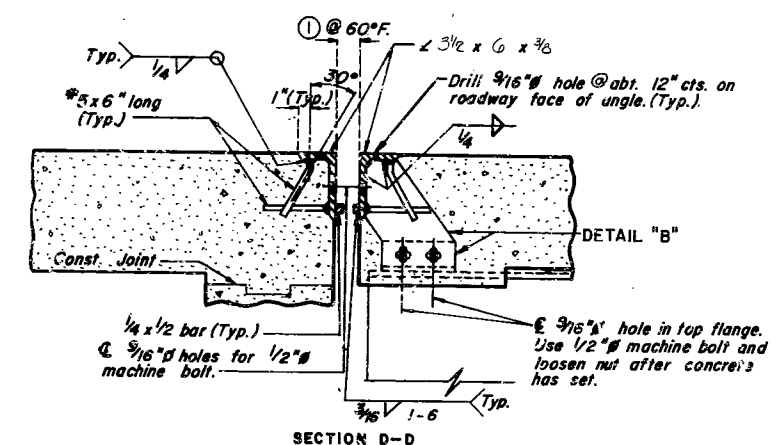
TYPE	"A" (WIDTH)	"B" (HEIGHT)	"C" (SHELL)	"D" (WEBS)
AI OR B3	2.000 + .187 - .000	2.0625 + .125 - .125	0.125 + .030 - .015	0.094 + .030 - .015



ELEVATION OF BARRIER CURB



DETAILS OF PREFORMED COMPRESSION JOINT SEAL



420

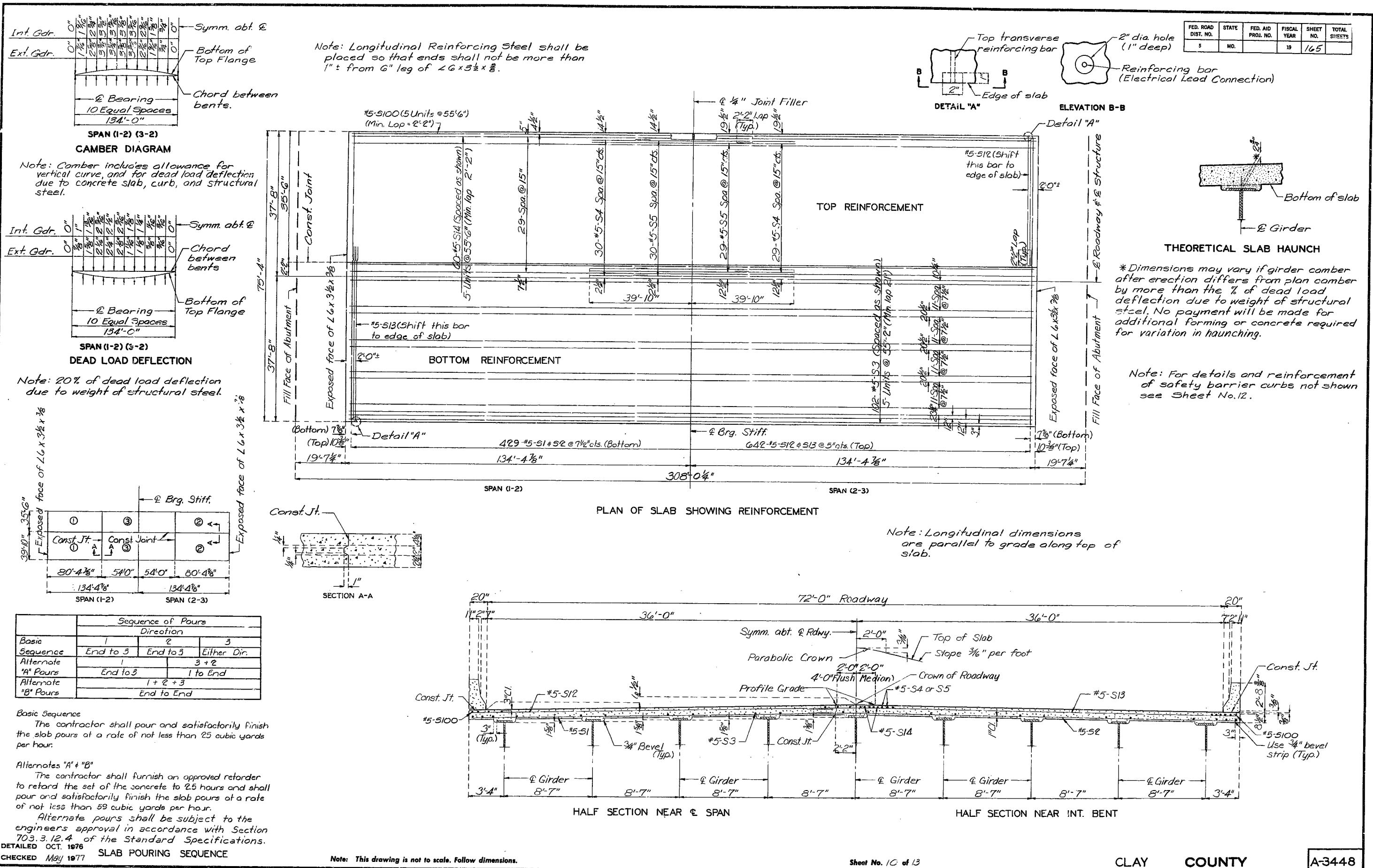
REVISED AUG. 1978
OCT. 1973
STD. PCJTS

DETAILED Sept. 1976
CHECKED May 1977

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 13.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	165	



421

Note: This drawing is not to scale. Follow dimensions.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	166	

GENERAL NOTES:

SLAB DRAINS MAY BE FABRICATED OF EITHER 1/4" WELDED SHEETS OF A.S.T.M. A36 STEEL OR FROM 1/4" STRUCTURAL STEEL TUBING A.S.T.M. A500 OR A501.

OUTSIDE DIMENSIONS OF DRAINS ARE 8" x 4".

THE DRAINS SHALL BE CAST IN THE CONCRETE WITH THE TOP OF THE DRAINS BEING 1/8" BELOW THE FINISHED CONCRETE LINE.

LOCATE DRAINS IN SLAB BY DIMENSIONS SHOWN IN PART ELEVATION.

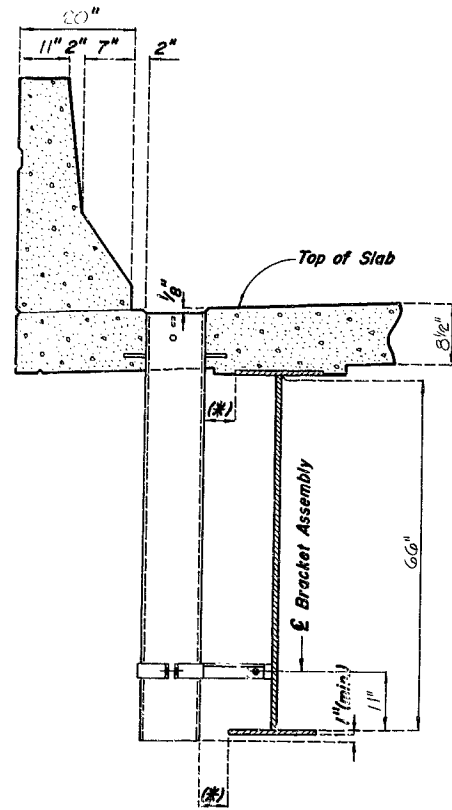
SHIFT REINFORCING IN FIELD WHERE NECESSARY TO CLEAR DRAINS.

THE DRAINS AND 10 GAGE BRACKET ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A123.

THE 1/4" x 3" x 2" BAR SHALL BE LOCATED ON THE PLATE GIRDER SHOP DRAWINGS.

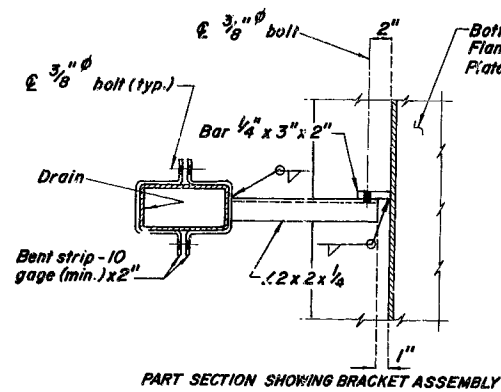
SHOP DRAWINGS WILL NOT BE REQUIRED FOR SLAB DRAINS AND THE 10 GAGE BRACKET ASSEMBLY.

Cost of furnishing, fabricating, galvanizing and installing slab drains, complete in place, shall be paid for at the contract unit price for slab drains per each.

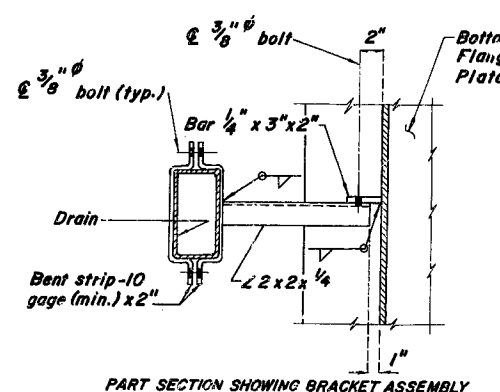


PART ELEVATION OF SLAB

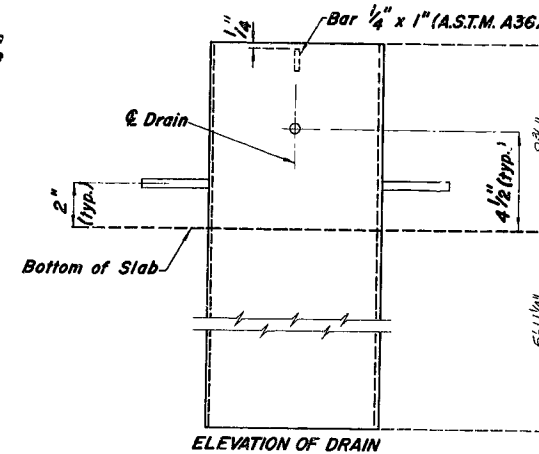
(* If dimension is less than 1", drains shall be placed parallel to roadway, otherwise place drains transverse to roadway.



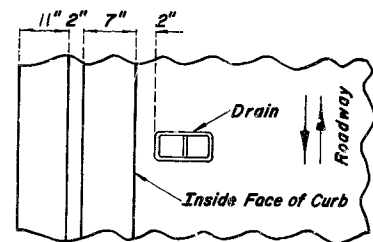
PART SECTION SHOWING BRACKET ASSEMBLY



PART SECTION SHOWING BRACKET ASSEMBLY

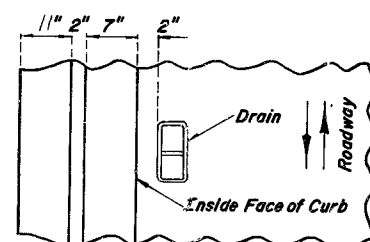


ELEVATION OF DRAIN



PART PLAN OF DRAIN

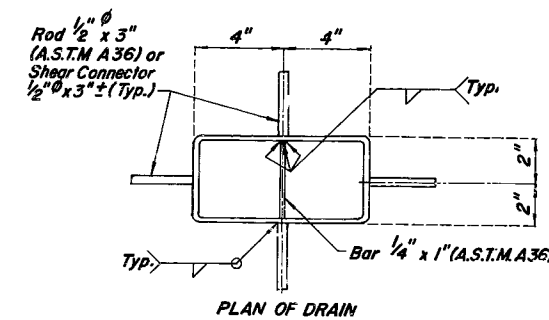
DETAILS OF DRAINS TRANSVERSE TO ROADWAY



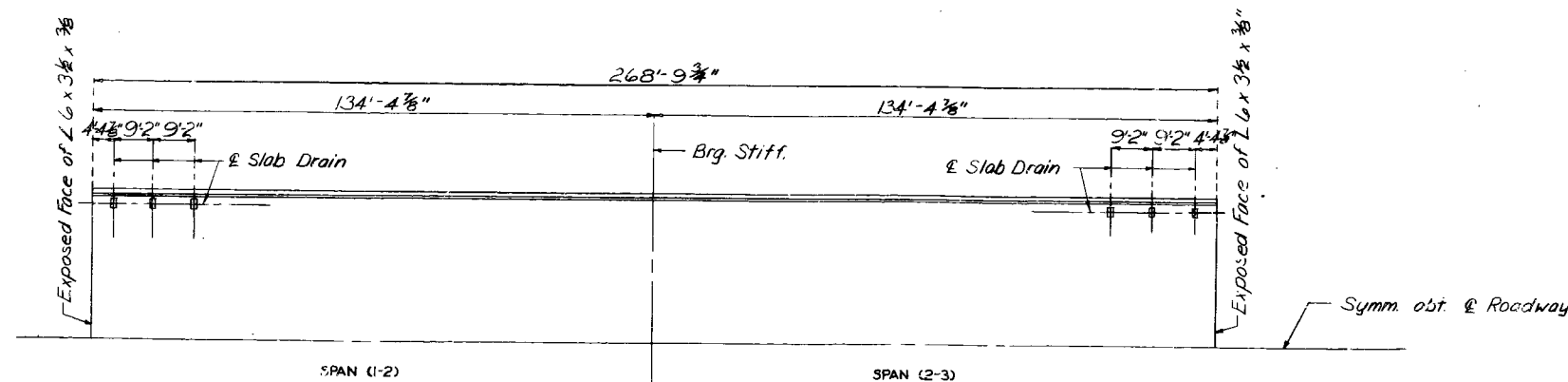
PART PLAN OF DRAIN

DETAILS OF DRAINS PARALLEL TO ROADWAY

SLAB DRAIN DETAILS



PLAN OF DRAIN



PART PLAN OF SLAB SHOWING SLAB DRAINS

Note: Longitudinal dimensions shown are parallel to grade along top of slab.

422

STD. S.D.-48" - M.M.S. REVISED OCT. 1979
FEB. 1978

DETAILED Oct. 1976
CHECKED May 1977

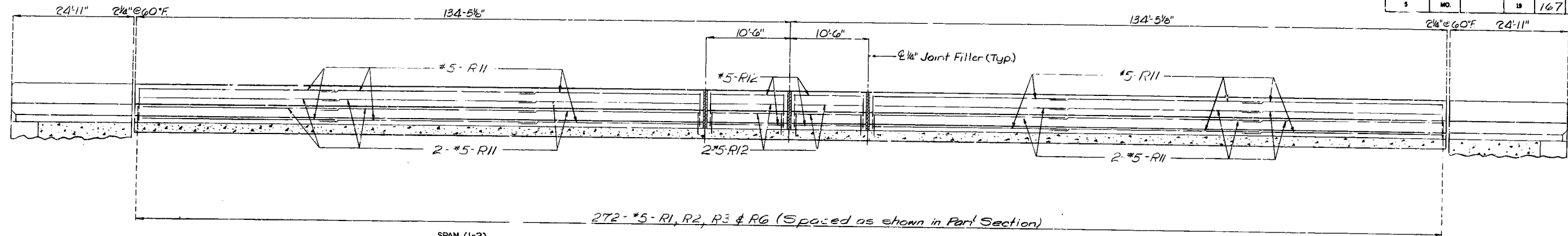
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 11 of 13.

CLAY COUNTY

A-3448

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	167	



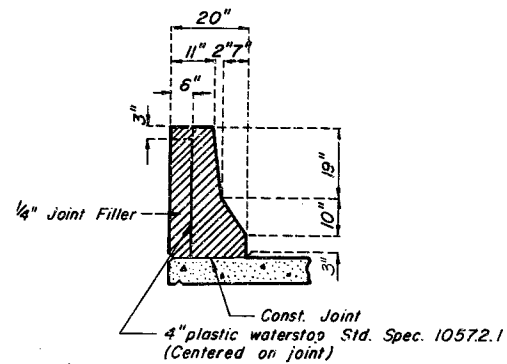
272 #5-R1, R2, R3 & R6 (Spaced as shown in Part Section)

SPAN (1-2)

SPAN (2-3)

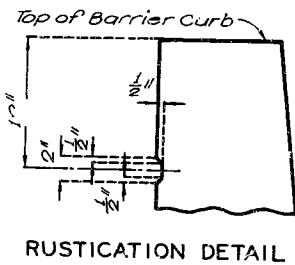
SECTION NEAR LEFT SAFETY BARRIER CURB

Note: Longitudinal dimensions are along top of barrier curb parallel to grade.

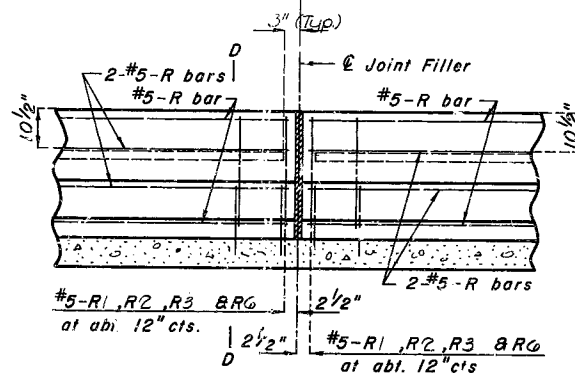


Note: Plastic waterstop shall be placed in all safety barrier curb filled joints.
Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

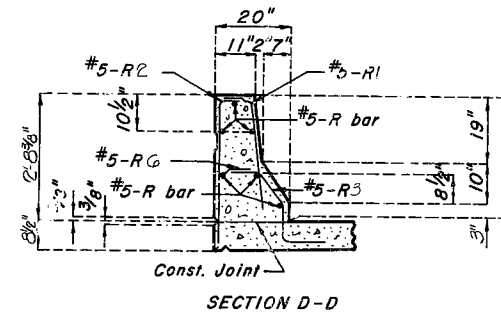
DETAILS OF PLASTIC WATERSTOP



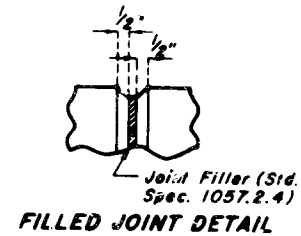
RUSTICATION DETAIL



PART SECTION NEAR LEFT BARRIER CURB

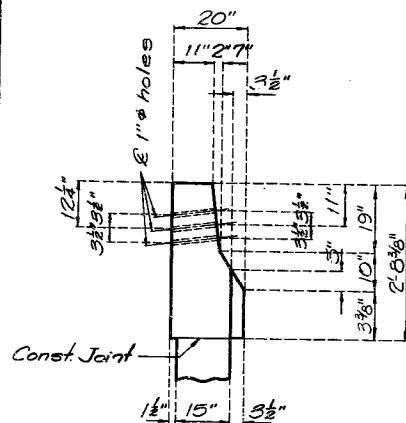


SECTION D-D

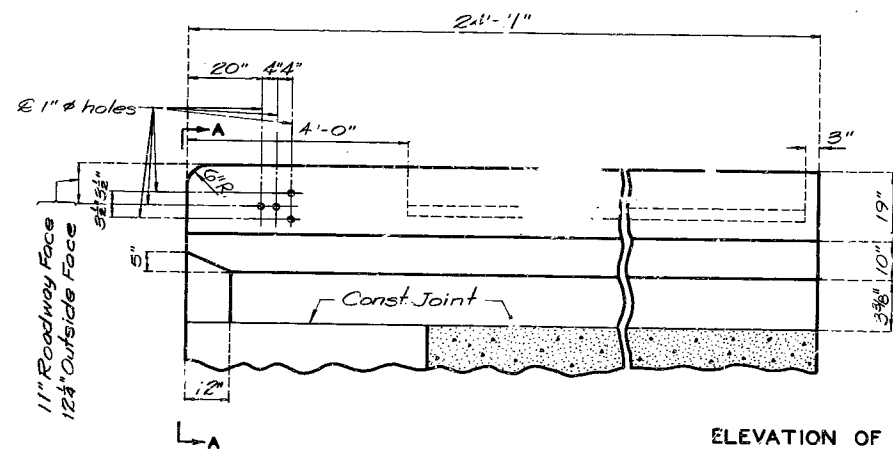


FILLED JOINT DETAIL

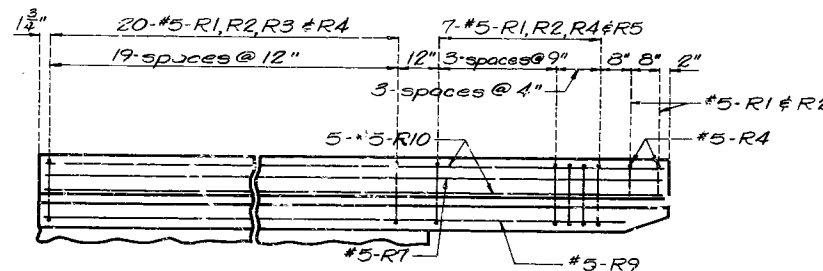
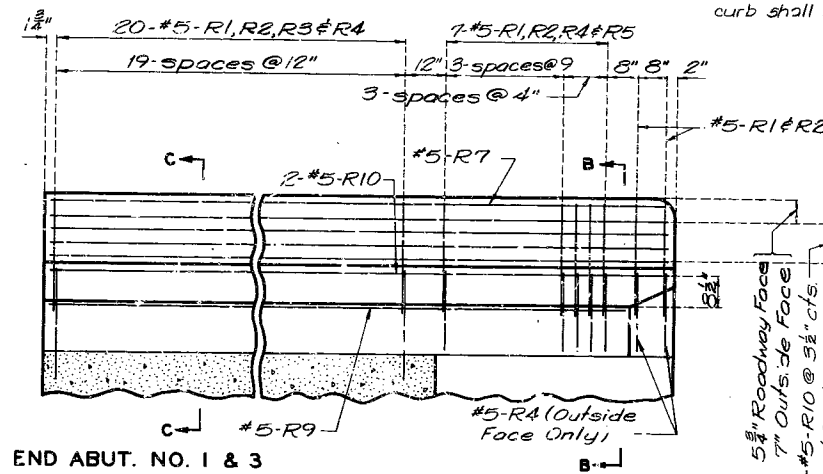
NOTES:
TOP OF BARRIER CURB TO BE BUILT PARALLEL TO GRADE WITH BARRIER CURB JOINTS (EXCEPT AT END BEHTS) NORMAL TO GRADE.
ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE 1/2" RADIUS OR 3/8" BEVEL UNLESS OTHERWISE NOTED.
Minimum clearance to #5-R bars in roadway face of barrier curb shall be 3".



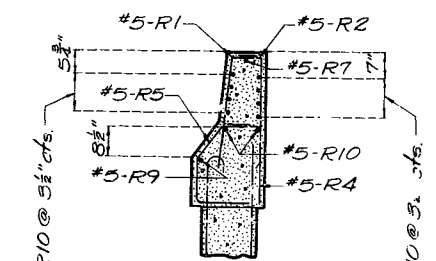
SECTION A-A



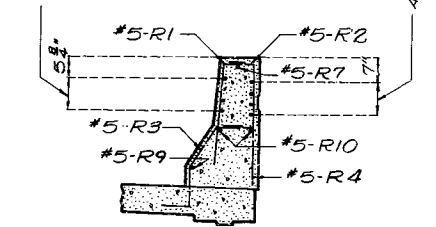
ELEVATION OF BARRIER CURB AT END ABUT. NO. 1 & 3



Note: Use a minimum lap of 17" for #5 horizontal barrier curb bars.



SECTION B-B



SECTION C-C

DETAILED SEPT. 1976
CHECKED May 1977

Note: This drawing is not to scale. Follow dimensions.

PLAN OF BARRIER CURB AT END ABUT. NO. 1 & 3

Show No. 12 of 13

CLAY COUNTY

A-3448

423

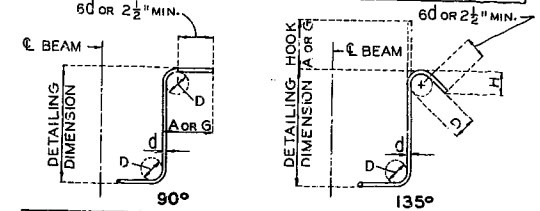
COMPLETE BILL OF REINFORCING STEEL

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT			
								B	C	D	E	F	H	K	FT.	IN.	FT.				IN.		
SUBSTRUCTURE																							
ABUTMENTS NO. 1&3																							
48	6H1	APRON		20	X			38	2.000							38	2	38	2	2752			
74	6H2	APRON		19	X			9.000	2	3.000						3	0	2	10	102			
16	6H3	BEARING BEAM		17	X			38	7.000							39	10	39	10	2167			
2	6H4	BEARING BEAM		20	X			38	2.000							38	2	38	2	459			
16	7H5	BEARING BEAM		17	X			20	10.000							22	1	22	1	1202			
15	9H6	BEARING BEAM		20	X			20	1.000							20	1	20	1	1093			
24	4H7	BACKWALL		20	X			37	11.000							37	11	37	11	608			
3	6H8	BACKWALL		20	X			38	2.000							38	2	38	2	59			
16	8H9	APPROACH BEAM		17	X			46	3.000							47	2	47	2	2015			
4	6H10	APPROACH BEAM		20	X			46	3.000							46	3	46	3	278			
16	6H11	APPROACH BEAM		17	X			31	1.000							32	0	32	0	1367			
4	6H12	APPROACH BEAM		20	X			30	4.000							30	4	30	4	182			
40	4H13	WING		20	X	V		11	9.000							11	9	11	9				
INCR = 26.000 IN																							
8	4H14	WING		20	X			9	10.000							9	10	9	10	53			
8	4H15	WING		20	X			12	6.000							12	6	12	6	67			
32	5H16	WING		20	X	V		23	0.000							23	0	23	0				
INCR = 24.375 IN																							
16	5H17	WING		20	X			24	8.000							24	8	24	8	412			
16	4H18	WING		20	X			5	6.000							5	6	5	6	59			
8	4T1	CURTAIN WALL		19	X			7	5.000	3	5.000					10	10	10	9	57			
8	7T2	WING		15	X			14.000	7	2.000			6.250	12.500		8	4	8	4	136			
8	7T3	WING		14	X			5	3.000	2	7.000	26	3.750		23	6.500	11	9.000	34	2	33	11	555
96	4U1	PILE ENCASEMENT		10	X			22.000	15.000							4	11	4	9	305			
68	4U2	BEARING BEAM		13	S	X		3	3.000	2	9.250	4	0.000	2	8.000		13	5	13	2	598		
70	4U3	BEARING BEAM		13	S	X		3	2.000	3	0.625	4	0.000	2	11.250		13	11	13	8	639		
56	4U4	BEARING BEAM		10	S	X		6.000	3	3.000							4	3	4	1	153		
24	4U5	CURTAIN WALL		10	S	X		3	5.000	6.000							7	4	7	2	115		
152	4U6	APPROACH BEAM		13	S	X		2	3.000	2	8.000	2	3.000	2	8.000		10	7	10	4	1049		
150	5U7	APPROACH BEAM		10	S	X		3	1.000	2	3.000						8	5	8	3	1291		
200	5V1	APRON		20	X			8	1.000							8	1	8	1	1686			
202	6V2	BACKWALL		20	X			9	1.000							9	1	9	1	3984			
8	4V3	CURTAIN WALL		20	X			7	6.000							7	6	7	6	40			
24	4V4	WING		20	X	V		8	10.000							8	10	8	10				
INCR = 9.000 IN																							
96	4V5	WING		20	X	V		14	2.000							14	2	14	2	130			
INCR = 9.125 IN																							
20	5V6	WING		20	X	V		6	4.000							6	4	6	4	639			
INCR = 6.250 IN																							
20	5V7	WING		17	X	V		5	10.000							6	5	6	5	110			
INCR = 6.250 IN																							
36	ZW1	A B WELLS		22	X			12.000	9.125							19	9	19	9	119			
SUPERSTRUCTURE																							
660	5R1	BARRIER CURB		E	15			2	6.125	6.000						2	6.125	6.000					
660	5R2	BARRIER CURB		E	19			2	6.000	6.000						2	6.000	6.000					
624	5R3	BARRIER CURB		E	27			9.000		11.125	7.000	12.000	9.125	6.375	3	4	3	1	1980				
116	5R4	BARRIER CURB		E	19			10.000	9.000							20	18			177			
28	5R5	BARRIER CURB		E	27			12.000	1.000	11.125	9.000		6.375	9.125	2	10	2	7	73				
544	5R6	BARRIER CURB		E	19			18.500	9.000							2	4	2	2	29			
4	5R7	BARRIER CURB		E	20			24	6.000							24	6	24	6	102			
4	5R9	BARRIER CURB		E	20			23	8.000							23	8	23	8	99			
40	5R10	BARRIER CURB		F	20			24	8.000							24	8	24	8	1024			
72	5R11	BARRIER CURB		E	20			42	2.000							42	2	42	2	3167			
24	5R12	BARRIER CURB		E	20			10	3.000							10	3	10	3	257			
429	5S1	SLAB		E	20			35	3.000							35	3	35	3	1572			
429	5S2	SLAB		E	20			42	0.000							42	0	42	0	18793			
510	5S3	SLAB		E	20			55	2.000							55	2	55	2	29345			
120	5S4	SLAB		E	20			21	10.000							21	10	21	10	2733			
119	5S5	SLAB		E	20			60	0.000							60	0	60	0	7384			
276	8S6	ABUTMENT SLAB		E	20			19	2.000							19	2	19	2	14124			
98	4S7	ABUTMENT SLAB		E	20			19	2.000							19	2	19	2	1254			
52	4S8	ABUTMENT SLAB		E	20			21	6.000							21	6	21	6	747			
26	4S9	ABUTMENT SLAB		E	20			35	1.000							35	1	35	1	609			
52	5S10	ABUTMENT SLAB		E	20			41	11.000							41	11	41	11	2273			
52	5S11	ABUTMENT SLAB		E	20			35	1.000							35	1	35	1	1903			
642	5S12	SLAB		E	20			35	3.000							35	3	35	3	23603			
642	5S13	SLAB		E	20			42	0.000							42	0	42	0	28123			
300	5S14	SLAB		E	20			55	6.000							55	6	55	6	17366			
10	5S100	SLAB		E	20			55	6.000							55	6	55	6	579			
4	5S101	ABUTMENT SLAB		E	20			19	2.000							19	2	19	2	51			

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
								B	C	D	E	F	H	K	FT.	IN.	FT.			
12	11H21	BEAM		20	X			20	0.000							20	0	20	0	1275
16	2H22	BEAM		17	X			11	9.000							11	9	11	9	542
4	6H23	BEAM		20	X			31	2.000							31	2	31	2	187
7	11H24	BEAM		20	X			31	2.000							31	2	31	2	1159
10	7H25	BEAM		7	X			4	1.000	2	9.500					9	8	9	8	198
6	10H26	BEAM		20	X			21	1.000							21	1	21	1	544
4	6H27	BEAM		20	X			40	4.000							40	4	40	4	244
7	11H28	BEAM		20	X			43	7.000							43	7	43	7	1621
4	11H2	BEAM		20	X			21	0.000							21	0	21	0	446
85	4P1	COLUMN		16	X			2	9.000							9	6	9	6	539
4	6U21	BEAM		13	S	X		20.625	4	3.000	20.625	4	3.000		13	1	12	8	76	
48	6U22	BEAM		13	S	X		23.375	4	3.000	23.375	4	3.000		13	7	13	1	943	
28	6U23	BEAM		13	S	X		23.375	4	4.625	23.375	4	4.625		13	10	13	4	681	
28	6U24	BEAM		13	S	X		2	11.000	4	4.625	2	11.000	4	4.625	15	9	15	4	645
27	6U25	BEAM		13	S	X		2	11.000	4	7.875	2	11.000	4	7.875	16	4	15	10	642
28	4U26	BEAM		10	S	X		6.000	2	11.000					3	11	3	9	70	
65	11V21	COLUMNS		20	X			20	4.000							20	4	20	4	7022
18	ZW1	A.B. WELLS		22	X			12.000	9.125							19	9	19	9	59

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	168	

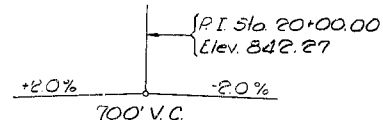


BAR SIZE	D (IN.)	90° HOOK		135° HOOK	
		A OR G	H	A OR G	APPROX. H
#2	1-1/2"	4"	4"	4"	2-1/2"
#4	2"				

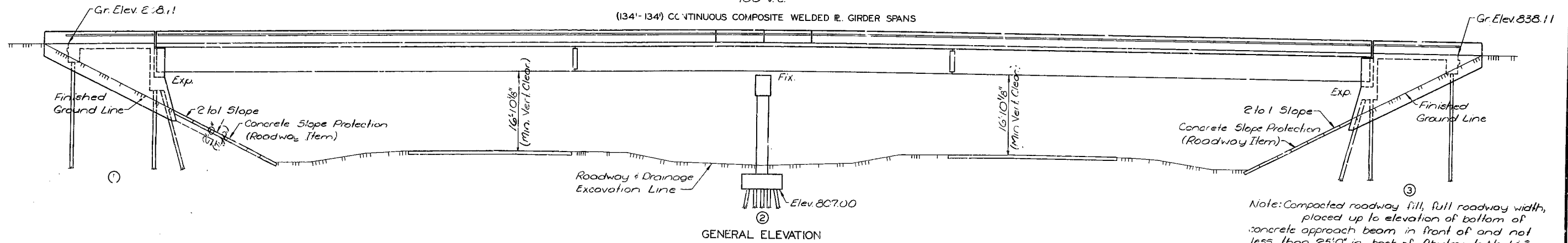
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	156	

FINAL PLAN

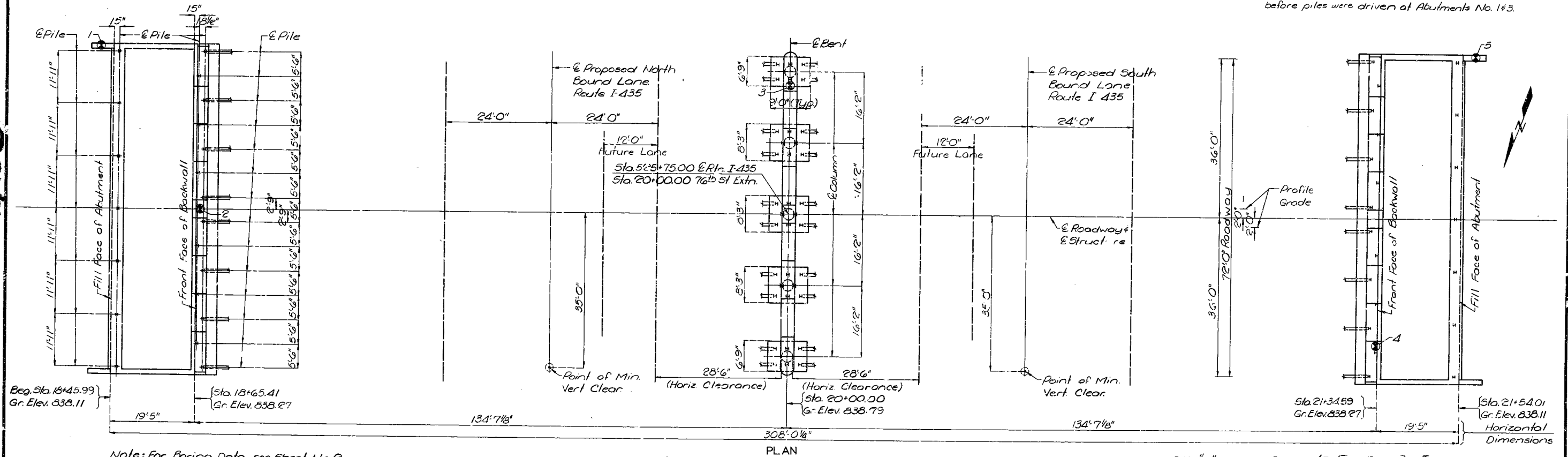


(134'-134') CONTINUOUS COMPOSITE WELDED R. GIRDER SPANS



Note: Compacted roadway fill, full roadway width, placed up to elevation of bottom of concrete approach beam in front of and not less than 25'0" in back of Abutments No. 1 & 3 before piles were driven at Abutments No. 1 & 3.

GENERAL ELEVATION



PLAN

Note: For Boring Data see Sheet No. 2.
 Ⓢ Indicates location of boring.
 Grade Elevations shown are taken at Ⓢ Roadway.
 For General Notes, Estimated Quantities, and Pile Data see Sheet No. 2.

B.M. "D" ON S.E. COR. OF LT. END POST BT. #1 = 840.16

BRIDGE: 76TH STREET EXTN. UNDERPASS

STATE ROAD FROM RTE. 152 TO RTE. I-35

ABOUT 2.2 MILES NORTH OF RTE. I-35

PROJECT NO. I-435-1(153); STA. 525+75.00

JOB NO. 4-I435-49C

RTE. I-435

CLAY

COUNTY

DATE 1/22/80

DESIGNED Aug. 1976
 DETAILED Oct. 1976
 CHECKED May 1977

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1A of 13

STD. 611.60
STD. 706.35
A-3448

FINAL PLANS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	157	

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O.-1973

Design Loading:

H-20-44 15#/sq. ft. Future Wearing Surface
 Earth 120# Equivalent Fluid Pressure 50#
 Fatigue Stress - Case II Interim 1974

Design Unit Stresses:

Class B Concrete (substructure) $f_c = 1,200$ psi
 Class B2 Concrete (superstructure) $f_c = 4,000$ psi
 Reinforcing Steel (substr. Gr. 60) $f_s = 20,000$ psi
 Reinforcing Steel (Grade 60) (Superstructure Slab and Safety Barrier Curb) $f_y = 60,000$ psi
 Structural Carbon Steel $f_s = 20,000$ psi
 Structural Steel (A.S.T.M. A-572) Grade 50 $f_s = 27,000$ psi
 Steel Pile $f_b = 9000$ psi

Fabricated Steel:

Field connections, High Strength Bolts $\frac{3}{4}$ " ϕ holes $\frac{3}{16}$ " ϕ except as noted.

Reinforcing Steel:

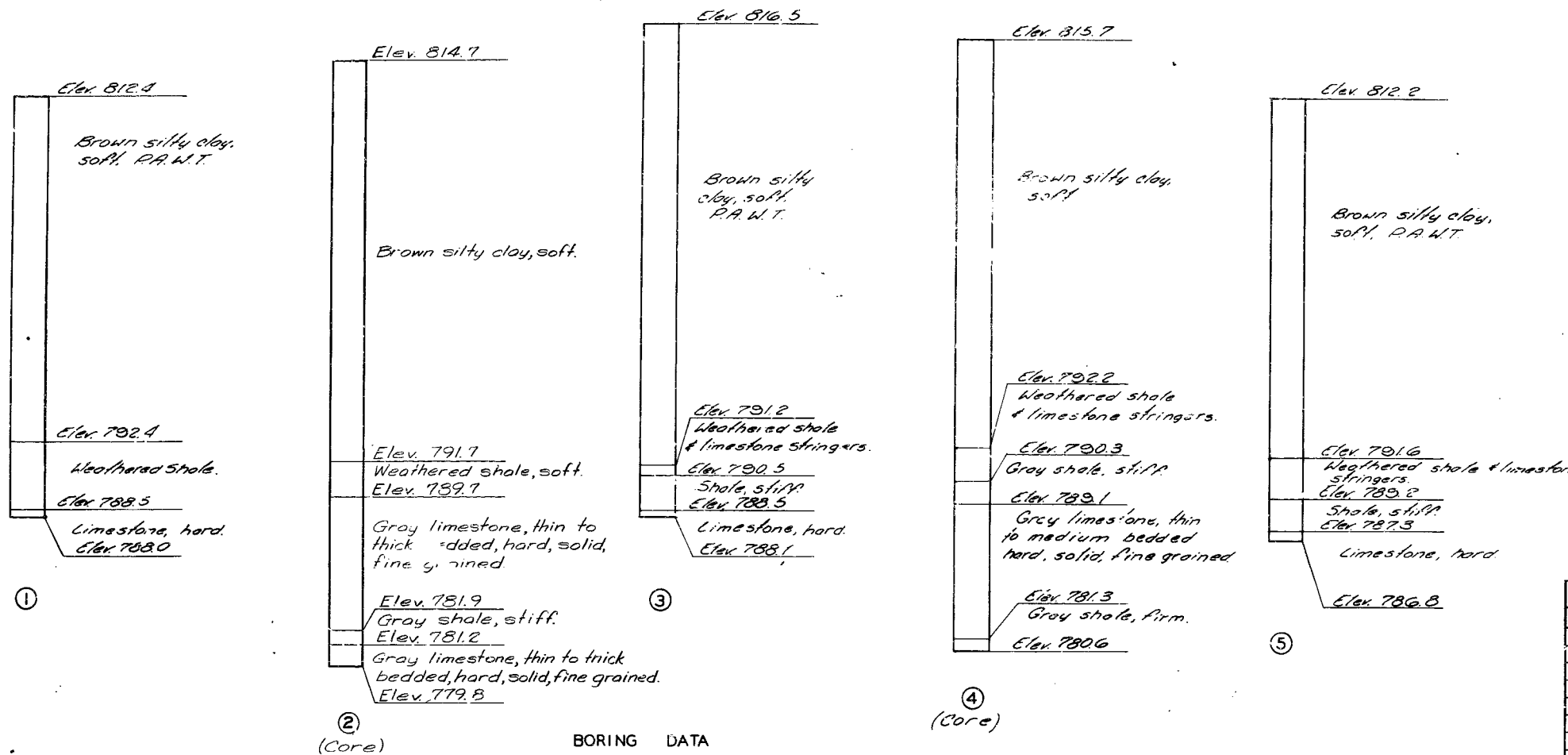
Minimum clearance to reinforcing steel $\frac{1}{2}$ " unless otherwise shown.

All reinforcing bars in top of substructure beams or caps spaced to clear anchor bolts for bearings by at least $\frac{1}{2}$ "
 Paint System B by contractor in accordance with Std. Spec. 712.12 (Color of the final field coat green.)

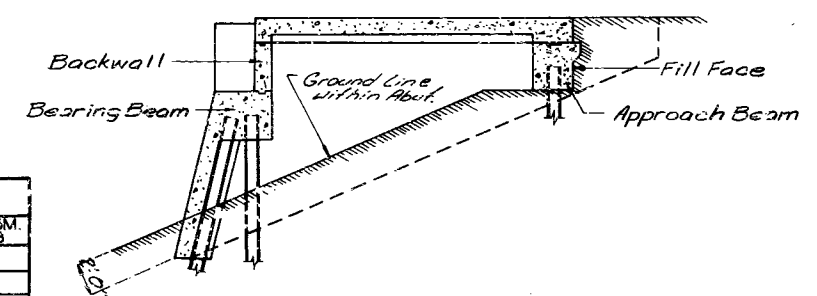
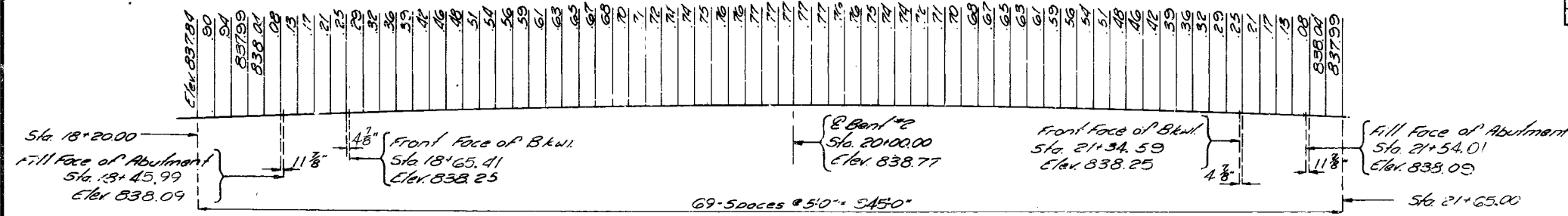
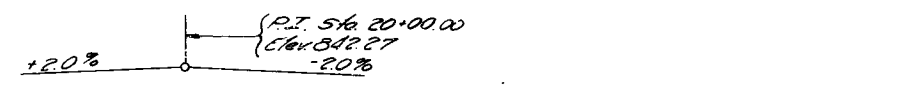
Payweight for fabricated steel based on welded field splices regardless of type used.

ESTIMATED QUANTITIES			
ITEM		SUBSTR.	SUPERSTR. TOTAL
Class I Excavation	Cu. Yd.	24.6	24.6
Slab Drains	Each		12
Structural Steel Pile (10")	Lin. Ft.	2503	2503
Class B Concrete	Cu. Yd.	337.4	337.4
Class B2 Concrete	Cu. Yd.		746.4
Preformed Compression Exp. Joint Seal (3.52) Lin. Ft.		144	144
Reinforcing Steel (Grade 60)	Lb.	44,970	82,340
Reinforcing Steel (Epoxy Coated)	Lb.	1520	95,330
Fabricated Structural Carbon Steel	Lb.		476,360
Fabricated Structural Low Alloy Steel	Lb.		173,780
Painting (System B) Green	Ton		334.3

Note: All Concrete (Class B2) and reinforcing steel (Grade 60) above Const. Joint under slab in Semi-Deep Abutments is included in superstructure quantities.



Note: For location of borings see Sheet No. 1.



PILE DATA					
BENT NO.	APPR. BM. NO. 1	BRG. BM. NO. 1	INT. BT. NO. 2	BR. BM. NO. 3	APPR. BM. NO. 3
Pile Type and Size	H.P.I.C. x 42				
Number	7	18	36	14	7
Approximate Length Ft.	46	42	20	43	47
Design Bearing Tons	31	53	56	53	31
Hammer Energy required Ft.Lbs.	7000	13,100	13,200	13,100	7000

Minimum energy requirement of hammer based on plan length and design bearing value of piles.
 All pile driven to practical refusal.

GROUND LINE AND PILING IN ABUTMENTS

Note: In no case is the earth within abutments No. 1 & 3 above the ground line shown to remain supporting the abutment slabs left in place.

DETAILED SEPT. 1976
 CHECKED MAY 1977

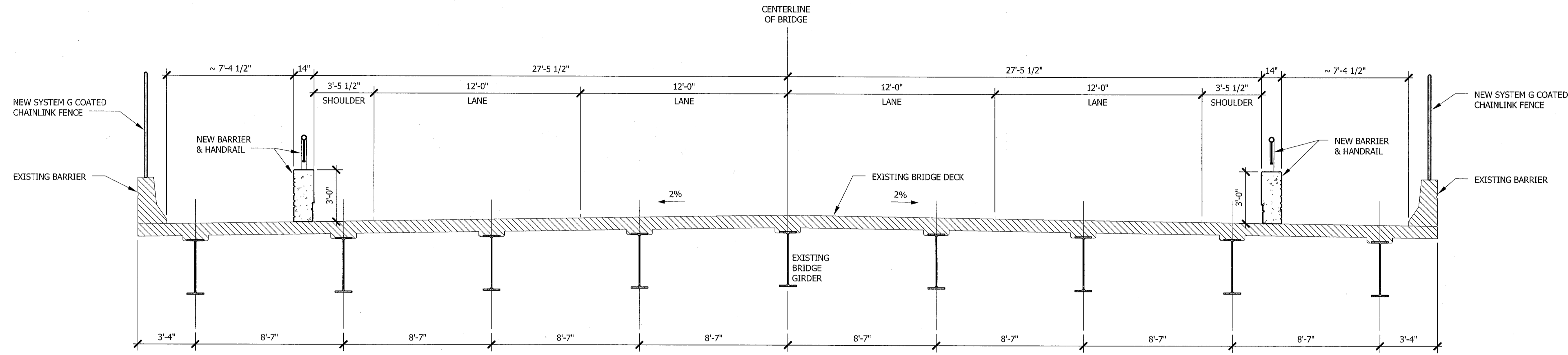
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 13

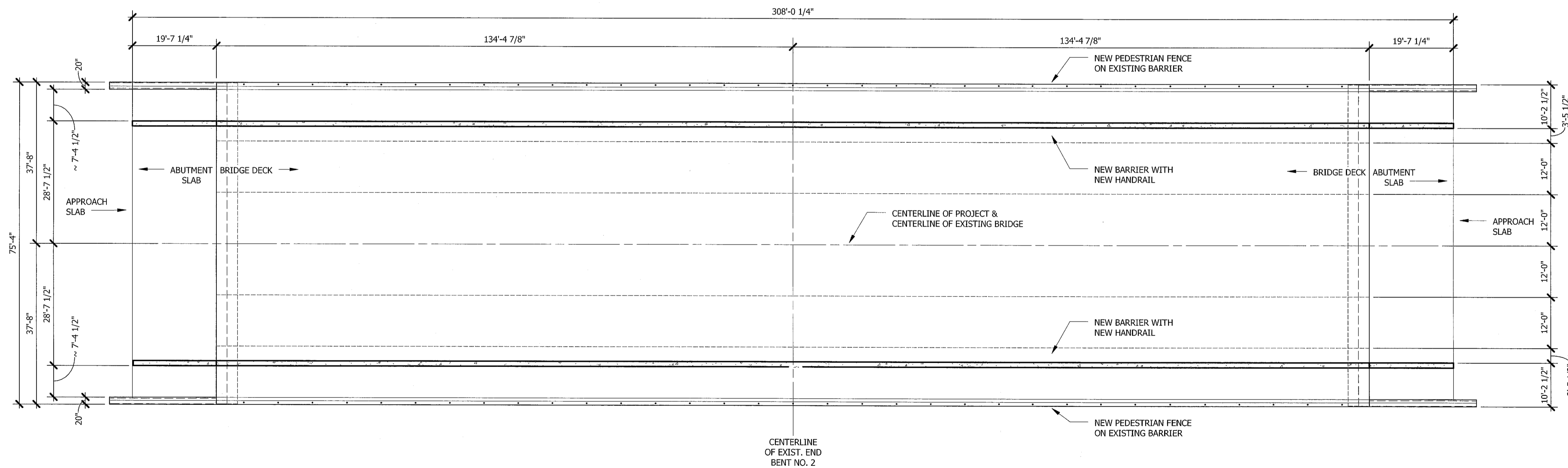
CLAY COUNTY

A-3448

ITEM	ESTIMATED QUANTITIES			TOTAL
	UNITS	SUBSTR.	SUPERSTR.	
(72IN.) PEDESTRIAN FENCE (STRUCTURES)	LINEAR FOOT		637	637
TRAFFIC BARRIER	LINEAR FOOT		615	615
PEDESTRIAN GUARD FENCE	LINEAR FOOT		615	615
DRAINAGE SYSTEM	LUMP SUM		1	1



BRIDGE CROSS SECTION
SCALE: 1/4" = 1'-0"



EXISTING BRIDGE PLAN
SCALE: 1/16" = 1'-0"

GENERAL NOTES:

DESIGN SPECIFICATIONS:

2002-AASHTO 17TH EDITION LOAD FACTOR DESIGN:

CLASS B-1 CONCRETE $f'_c = 4,000$ psi

REINFORCING STEEL (GRADE 60), $f_y = 60,000$ psi

REVISED STRUCTURES:

CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING NEW MATERIAL.

LONGITUDINAL DIMENSIONS ARE BASED ON THE ORIGINAL DESIGN PLANS.

ALL JOINT FILLER SHALL BE IN ACCORDANCE WITH SEC. 1057 FOR PREFORMED SPONGE EXPANSION AND PARTITION JOINTS FILLER, EXCEPT AS NOTED.

ALL DIMENSIONS SHOWN ARE IN INCHES UNLESS OTHERWISE NOTED.

PREFORMED FIBER EXPANSION JOINT MATERIAL SHALL BE SECURELY STITCHED TO ONE FACE OF THE CONCRETE WITH NO. 10 GAGE COPPER WIRE OR NO. 12 GAGE SOFT DRAWN GALVANIZED STEEL WIRE.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2" UNLESS NOTED OTHERWISE.

ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, LATEST APPLICABLE EDITION AND AISC CODE OF STANDARD PRACTICE.

ALL STRUCTURAL STEEL FOR PIPE SHAPES SHALL BE ASTM A53, GRADE B, TUBING FOR POSTS SHALL BE ASTM 500, GRADE B, AND BARS FOR PICKETS AND BOTTOM RAIL SHALL BE ASTM A709 GRADE 36.

ALL STRUCTURAL STEEL WELDS IN THE SHOP OR THE FIELD SHALL BE PERFORMED BY A QUALIFIED WELDER AND SHALL CONFORM TO THE CURRENT REQUIREMENTS OF A.W.S.

"SEC" REFERS TO THE SECTIONS IN THE STANDARD AND SUPPLEMENTAL SPECIFICATIONS UNLESS SPECIFIED OTHERWISE.

GENERAL NOTES
SCALE: N.T.S.

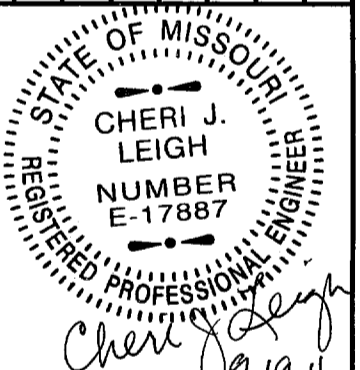
Soccer Drive Bridge

NE Soccer Drive Improvements
Phase 1A

Revised Per MoDot Comments

Cheri J. Leigh

08-30-11



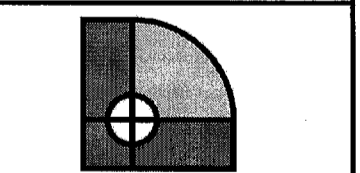
Cheri J. Leigh
Professional Engineer
MO# E-17887

Reviewed By: CJL

Designed By: ARB

Drafted By: CMH

Lutjen Project No.: 10073



LUTJEN

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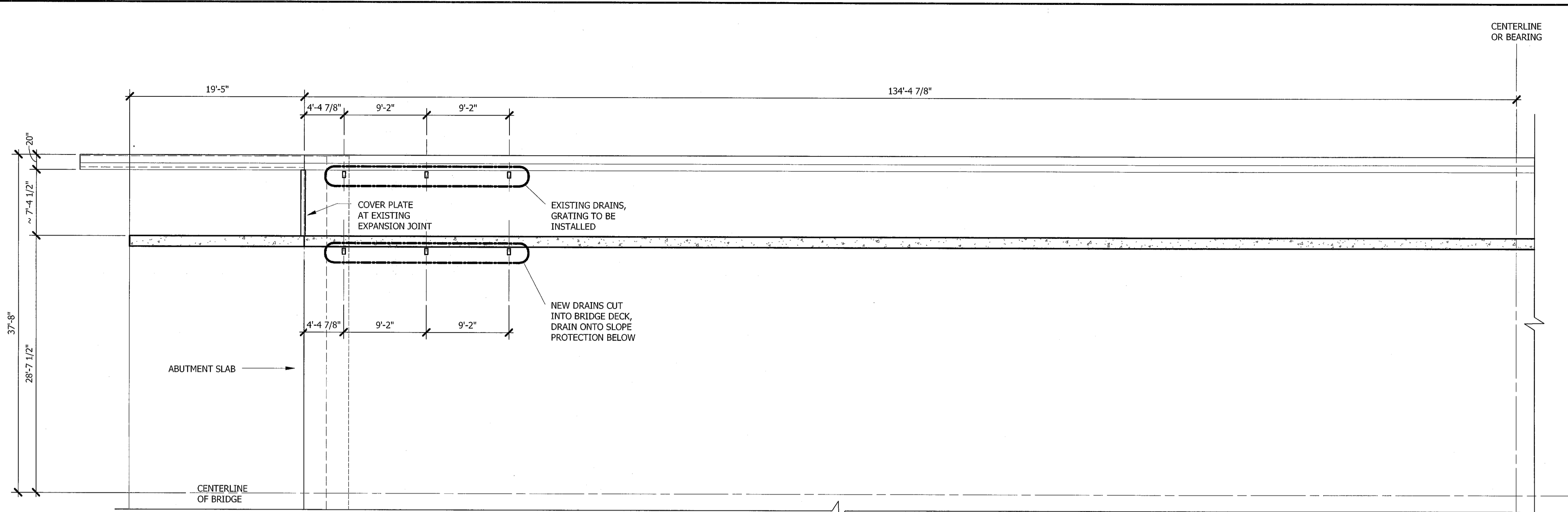
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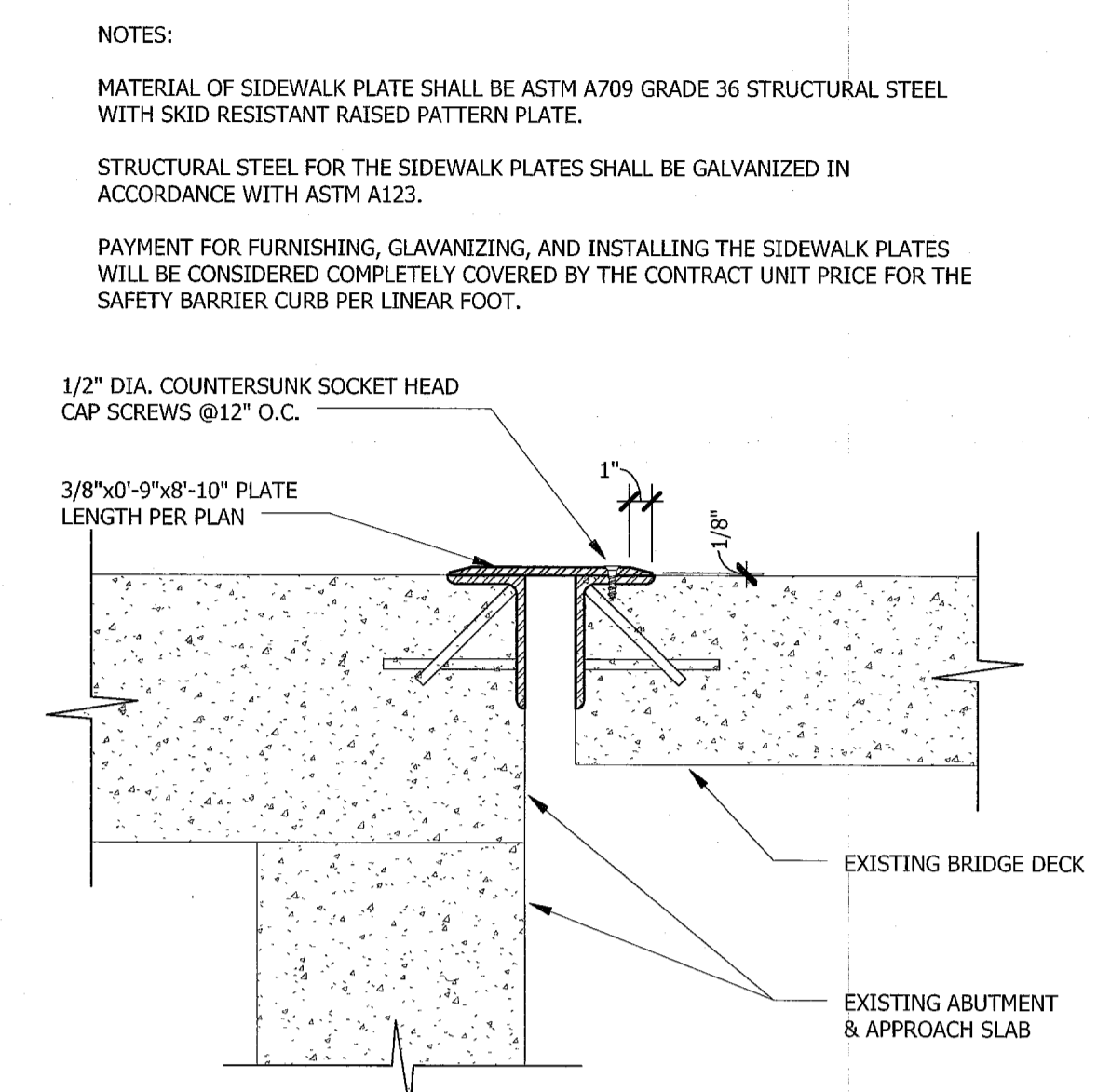
Sheet No.:

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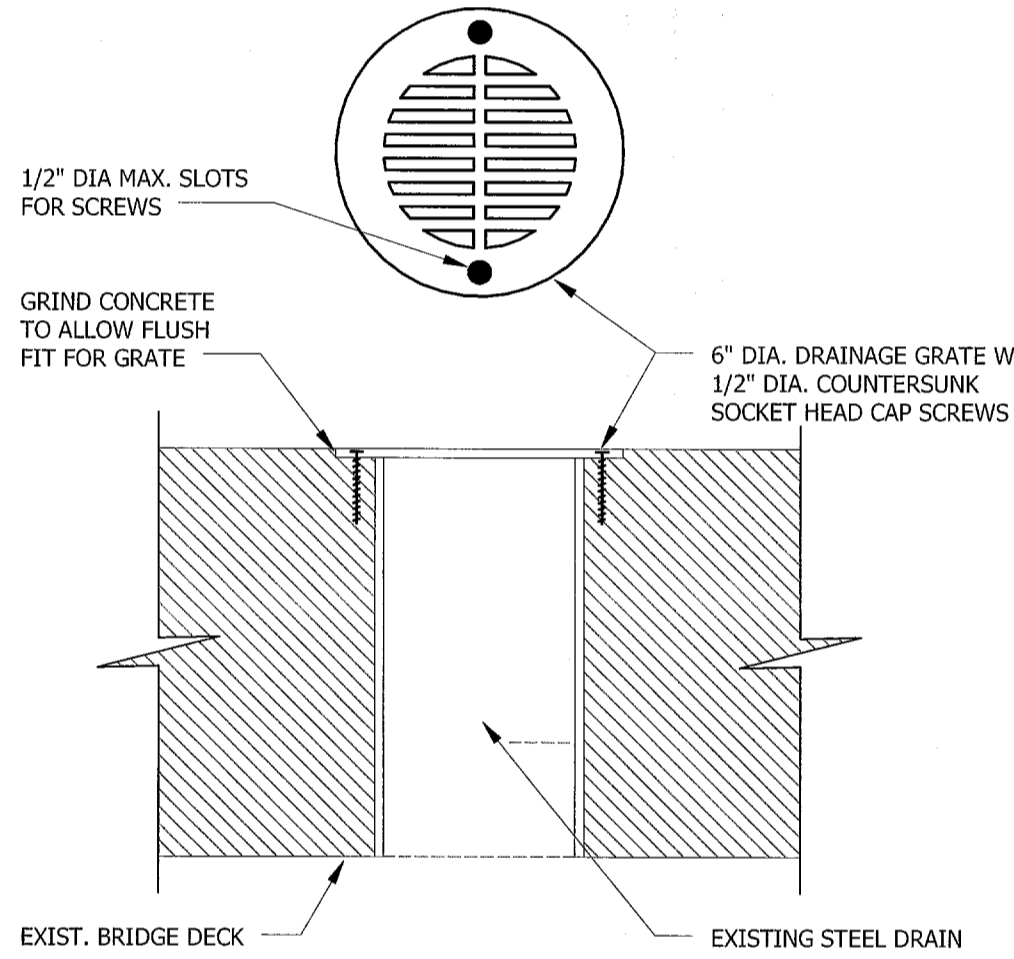




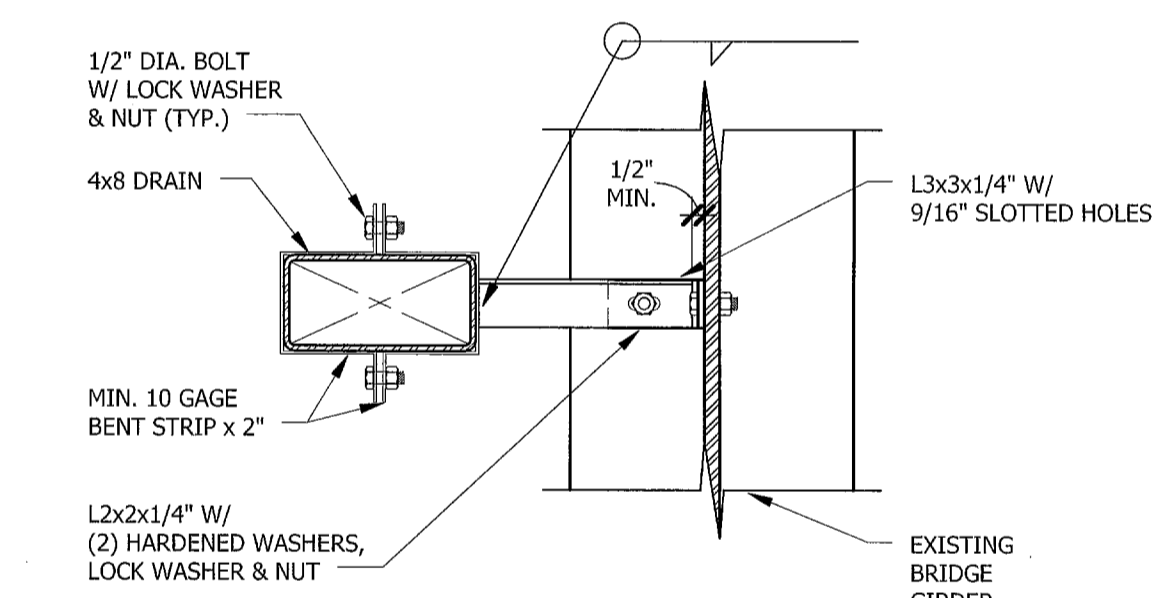
DRAINAGE AND COVER PLATE PLAN
SCALE: 1/8" = 1'-0"



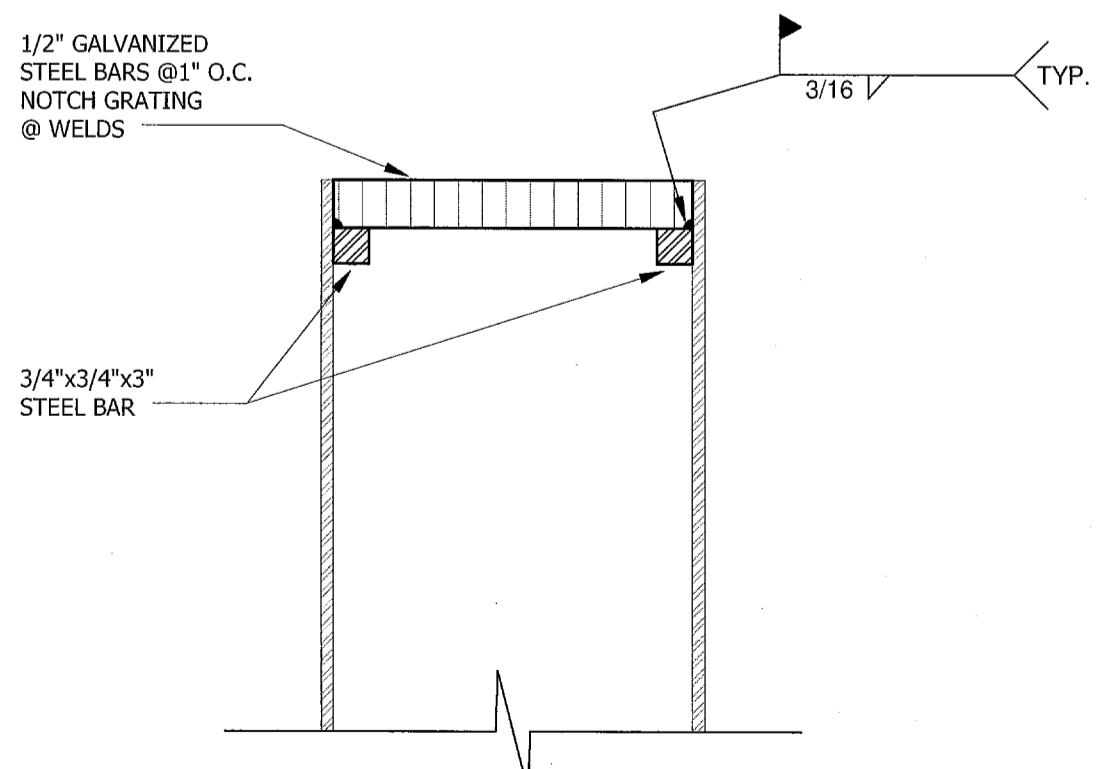
EXPANSION JOINT COVER PLATE DETAIL
SCALE: 1 1/2" = 1'-0"



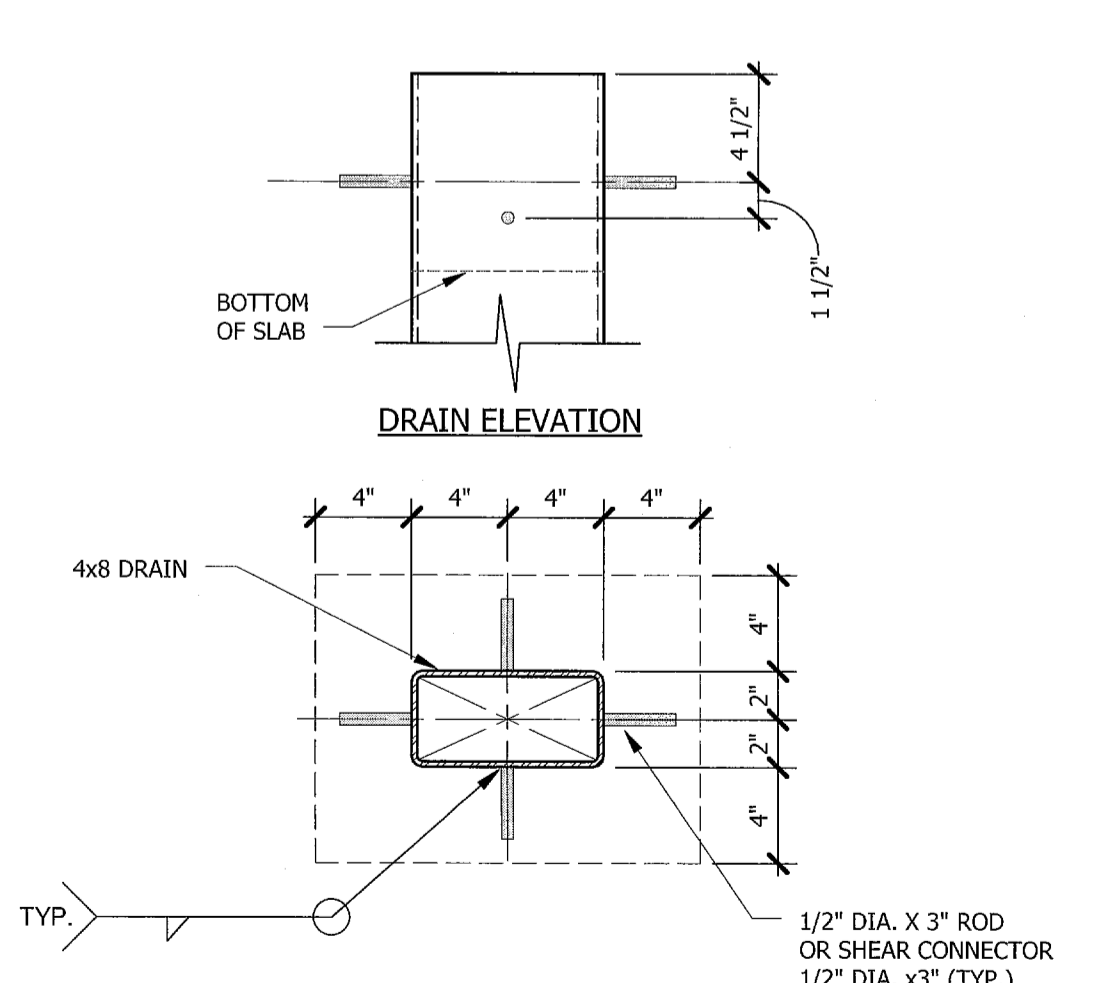
STEEL DRAIN CAP DETAIL
SCALE: 3" = 1'-0"



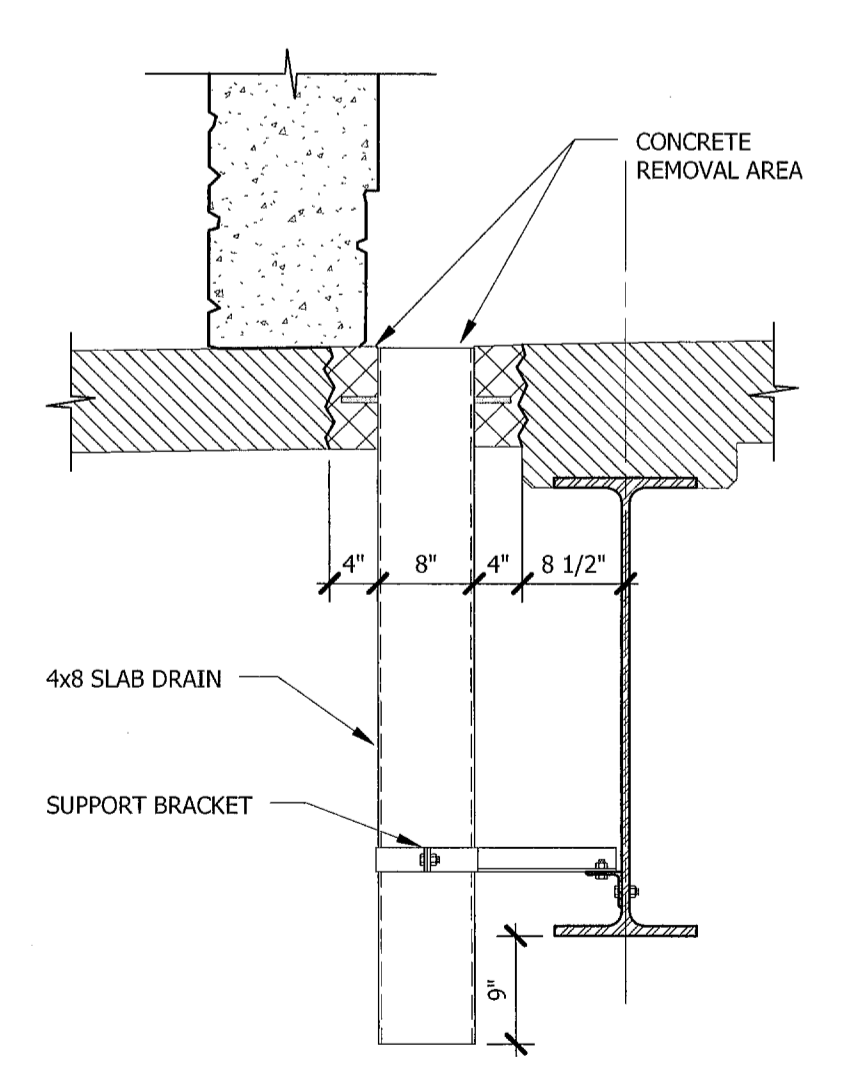
DRAIN BRACKET DETAIL
SCALE: 1 1/2" = 1'-0"



NEW COVER AT EXIST. DRAIN DETAIL
SCALE: 3" = 1'-0"



DRAIN CONNECTION DETAIL
SCALE: 1 1/2" = 1'-0"



BRIDGE DETAIL
SCALE: 3/4" = 1'-0"

DRAIN NOTES:

SLAB DRAINS MAY BE FABRICATED OF EITHER 1/4" WELDED SHEETS OF ASTM A709 GRADE 36 STEEL OR FROM 1/4" STRUCTURAL STEEL TUBING ASTM A500 OR A501.

SLAB DRAIN BRACKET ASSEMBLY SHALL BE ASTM A709 GRADE 36 STEEL.

LOCATE DRAINS IN SLAB BY DIMENSIONS SHOWN IN PART SECTION NEAR DRAIN.

THE DRAINS AND BRACKET ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

ALL BOLTS, HARDENED WASHERS, LOCK WASHERS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

THE SLAB DRAIN AND BRACKET ASSEMBLIES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

ALL BOLTS, HARDENED WASHERS, LOCK WASHERS, AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

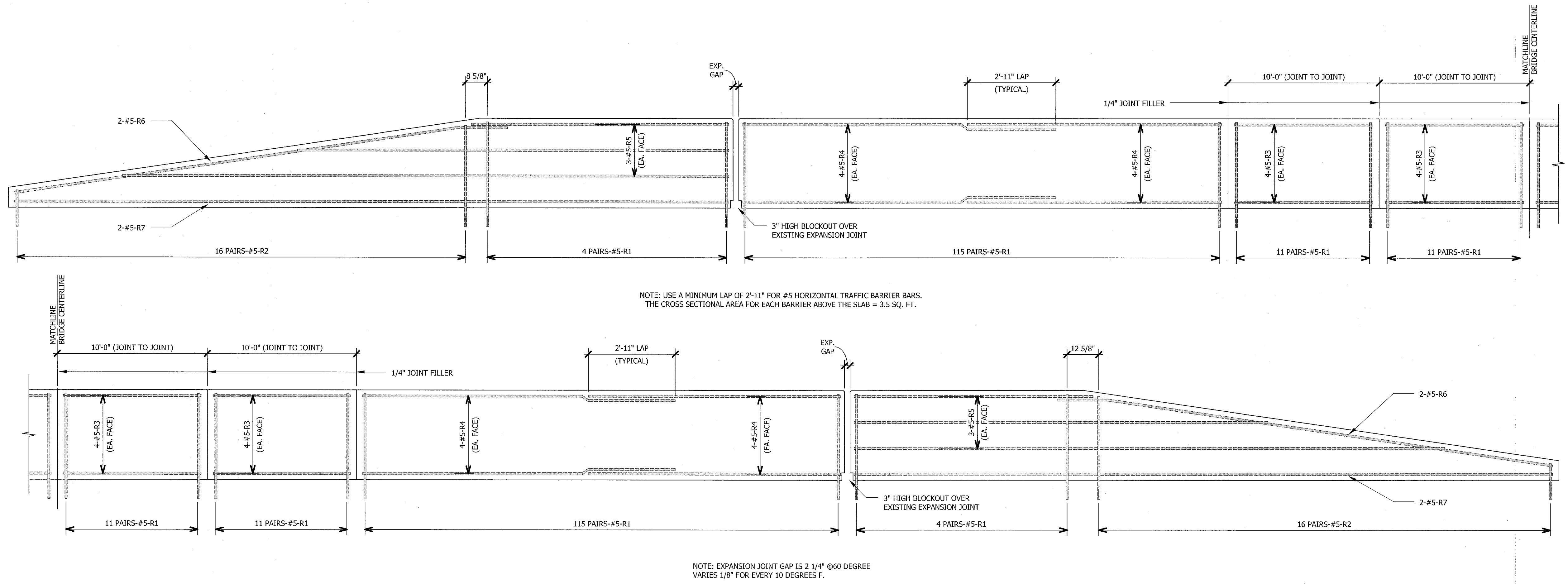
LOCATIONS OF THE SLAB DRAINS ARE SHOWN ON THE SLAB DRAIN LAYOUT.

THE DRAINS SHALL BE PLACED SO THE DOWNSPOUT IS VERTICAL AND THE HOLES IN THE BRACKET AND THE GIRDER LINE UP.

THE COST OF FURNISHING AND INSTALLING SLAB DRAINS COMPLETE-IN-PLACE INCLUDING AND ANY OTHER INCIDENTAL ITEMS SHALL BE COMPLETELY COVERED BY THE CONTRACT LUMP SUM PRICE FOR "DRAINAGE SYSTEM (ON STRUCTURE)".

FULL DEPTH DECK REPAIR SHALL BE IN ACCORDANCE WITH SEC. 704.

Soccer Drive Bridge		NE Soccer Drive Improvements Phase 1A	
Revised Per MoDot Comments			DESCRIPTION
Cheri J. Leigh			P.E. SIGNATURE
08-30-11			DATE
Reviewed By:	CJL	Cheri J. Leigh Professional Engineer MO# E-17887	
Designed By:	ARB		
Drafted By:	CMH		
Lutjen Project No.: 10073			
1301 Burlington, #100 North Kansas City, MO 64116 816.587.4320 816.587.1389 fax www.lutjen.com surveying planning engineering landscape architecture			
Lutjen, Inc. MO State Certificate of Authority #: 2007022824			
Sheet No.:		2	



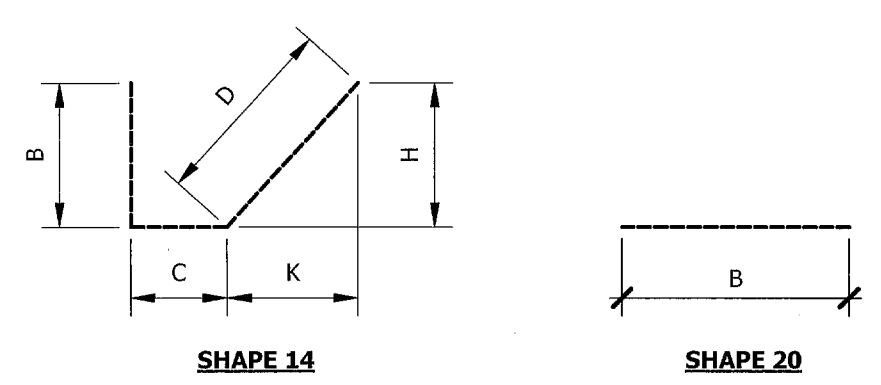
NOTE: USE A MINIMUM LAP OF 2'-11" FOR #5 HORIZONTAL TRAFFIC BARRIER BARS. THE CROSS SECTIONAL AREA FOR EACH BARRIER ABOVE THE SLAB = 3.5 SQ. FT.

NOTE: EXPANSION JOINT GAP IS 2 1/4" @60 DEGREE VARIES 1/8" FOR EVERY 10 DEGREES F.

BARRIER REINFORCING ELEVATION

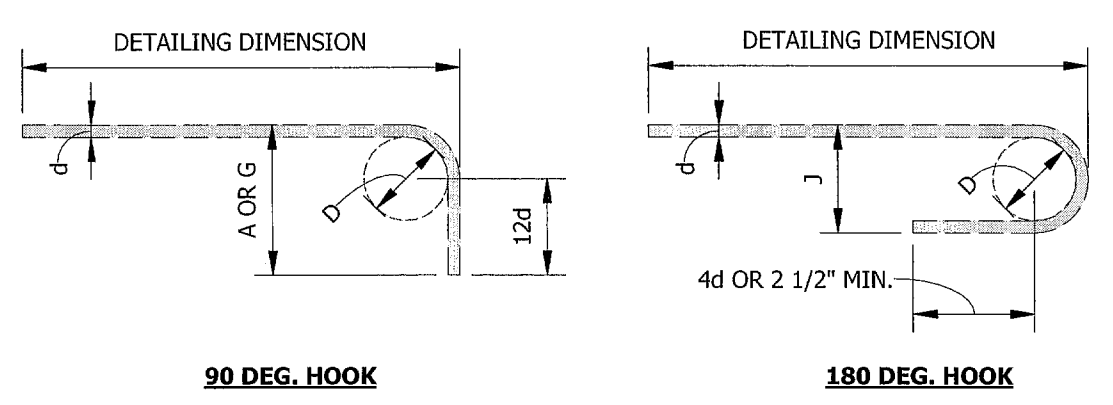
SCALE: 1/2" = 1'-0"

COMPLETE BILL OF REINFORCING																					
NO. REQUIRED	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUPS (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	"B"	"C"	"D"	"E"	"F"	"H"	"K"	NOMINAL LEN.	ACTUAL LEN.	WEIGHT		
1128	5	R1	BARRIER WALL	E	20				8	3'	4.00"						3'	4.00"	3'	4.00"	3922
128	5	R2	TRANSITION WALL INCR. = 1.78"	E	20				8	0'	13.00"	0'	13.00"				0'	13.00"	0'	13.00"	295
64	5	R3	BARRIER WALL	E	20				8	9'	6.00"						9'	6.00"	9'	6.00"	634
64	5	R4	BARRIER WALL	E	20				8	58'	6.00"						58'	6.00"	58'	6.00"	3905
24	5	R5	TRANSITION WALL INCR. = 5'-10.00"	E	20				8	4'	6.00"						4'	6.00"	4'	6.00"	263
8	5	R6	TRANSITION WALL	E	14					2'	7.00"	15'	0.00"		2'	3.20"	15'	7.00"	17'	7.00"	147
4	5	R7	TRANSITION WALL	E	20					18'	11.00"						18'	11.00"	18'	11.00"	159



BENDING DIAGRAM
SCALE: N.T.S.

END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	180 DEG. HOOKS		90 DEG. HOOKS
		A OR G	J	A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"



REINFORCING NOTES:
 ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.
 HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
 E = EPOXY COATED REINFORCEMENT.
 S = STIRRUP.
 X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
 V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
 NO. EA. = NUMBER OF BARS OF EACH LENGTH.
 NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATOR'S USE (NEAREST INCH).
 ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
 PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
 FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS, LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
 REINFORCING STEEL (GRADE 60) = FY 60,000 PSI.

Soccer Drive Bridge

NE Soccer Drive Improvements Phase 1A

08-30-11

Cheri J. Leigh

Revised Per MoDot Comments

DESCRIPTION

P.E. SIGNATURE

DATE

STATE OF MISSOURI REGISTERED PROFESSIONAL ENGINEER

CHERI J. LEIGH NUMBER E-17887

Cheri J. Leigh Professional Engineer MO#: E-17887

Reviewed By: CJL

Designed By: ARB

Drafted By: CMH

Lutjen Project No.: 10073

LUTJEN

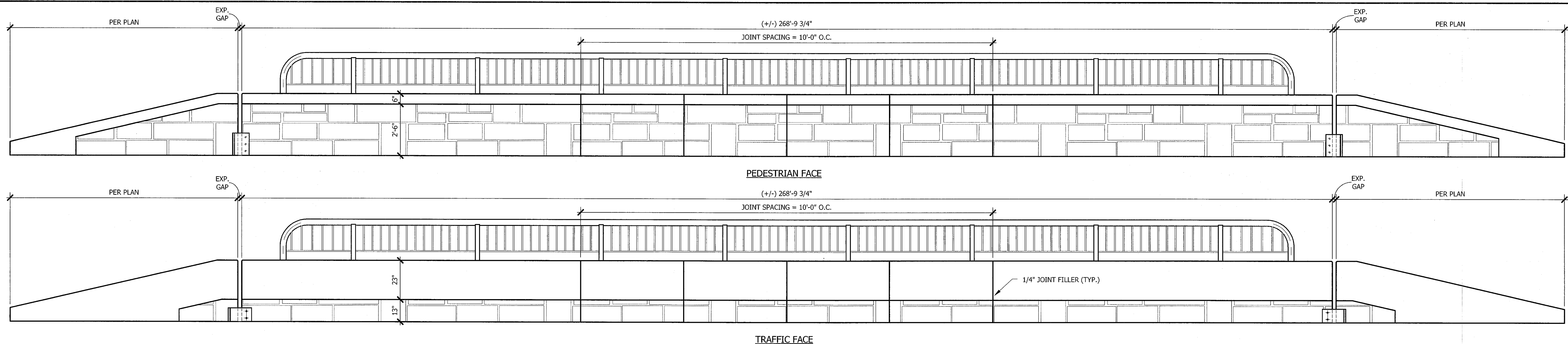
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 North Kansas City, MO 64116
 816.587.4320
 816.587.1393 fax
 www.lutjen.com

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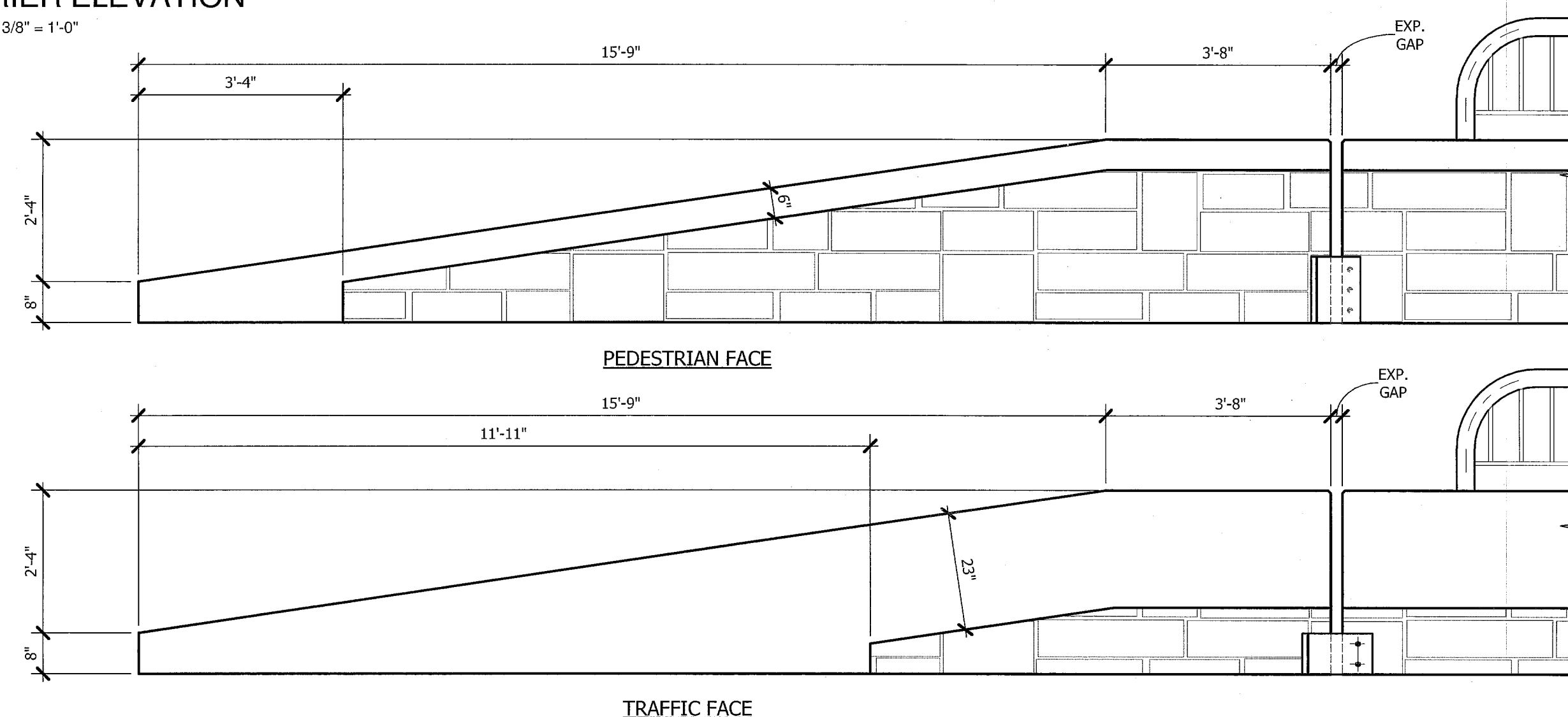
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Sheet No.: 3

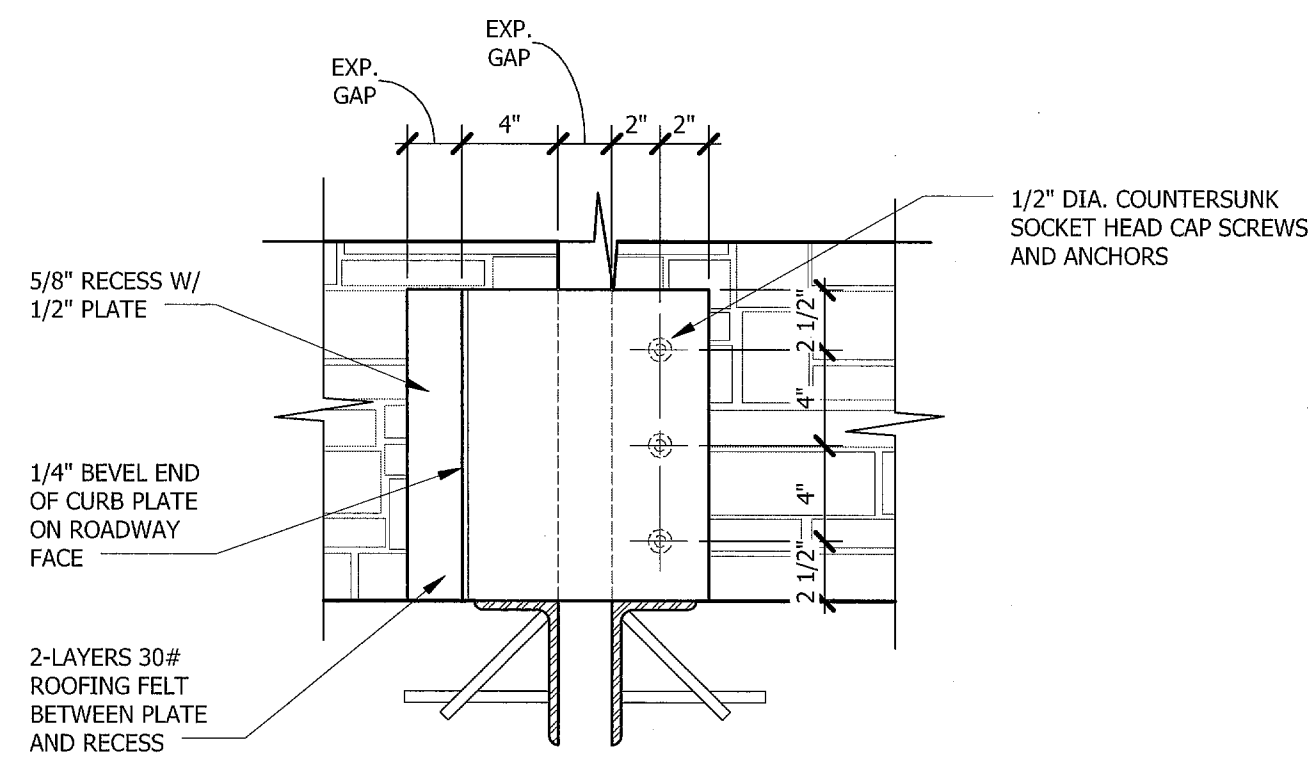
Leigh & O'Kane, LLC
 Structural Engineers
 MO State Certificate of Authority #001644
 9201 Ward Parkway, Suite 301
 Kansas City, MO 64114
 816.444.2114 P
 816.444.9655 F
 www.leok.com



NOTE: EXPANSION JOINT GAP IS 2 1/4" @60 DEGREE VARIES 1/8" FOR EVERY 10 DEGREES F.
FULL NEW BARRIER ELEVATION
 SCALE: 3/8" = 1'-0"

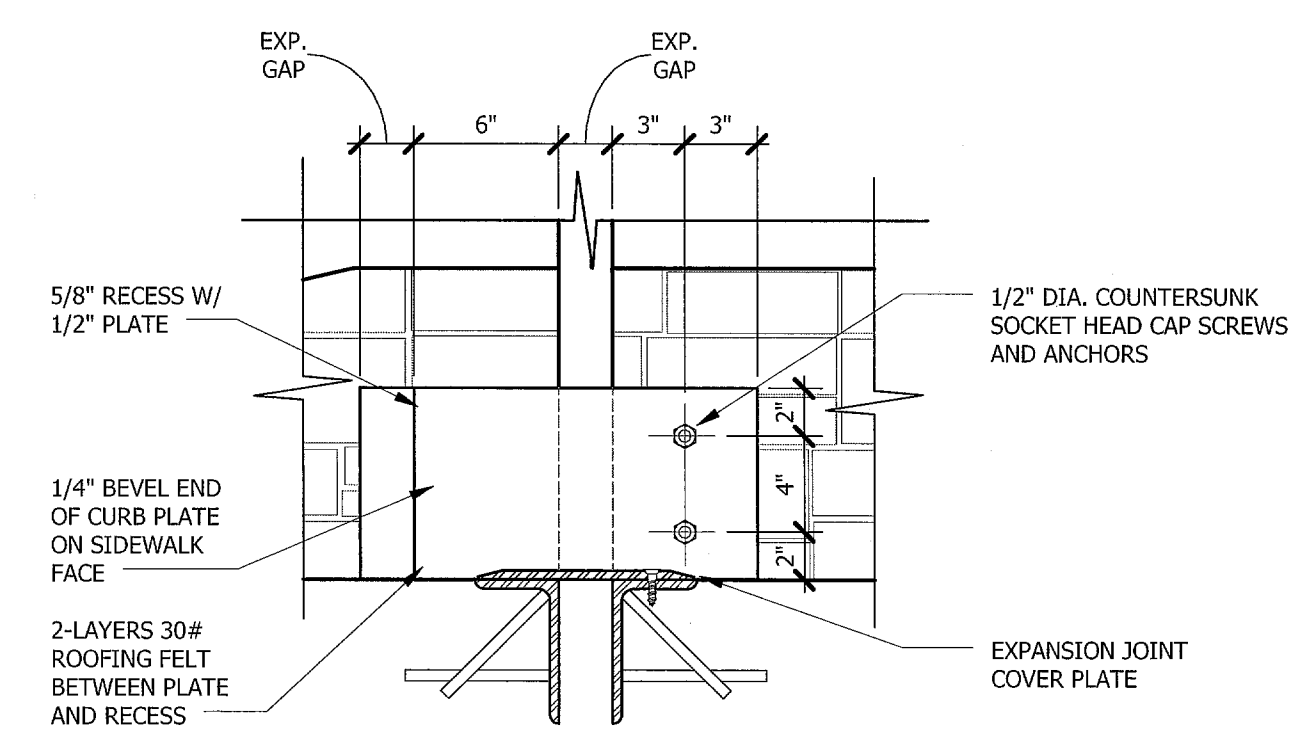


NEW BARRIER TRANSITION ELEVATION
 SCALE: 1/2" = 1'-0"



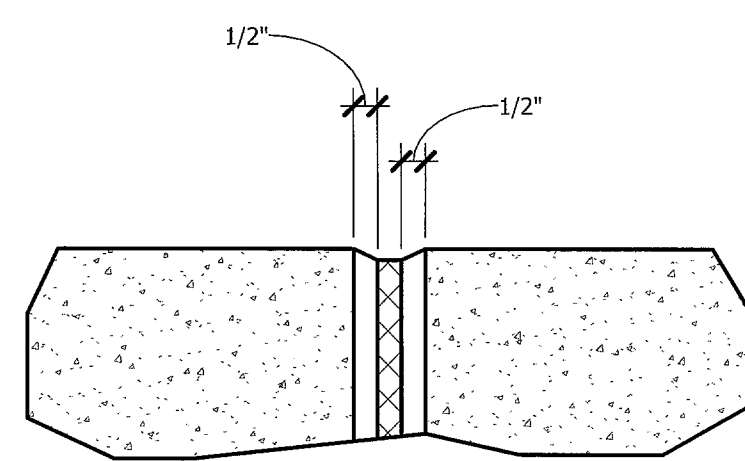
NOTE: NO FORMLINER AT RECESS

PEDESTRIAN FACE

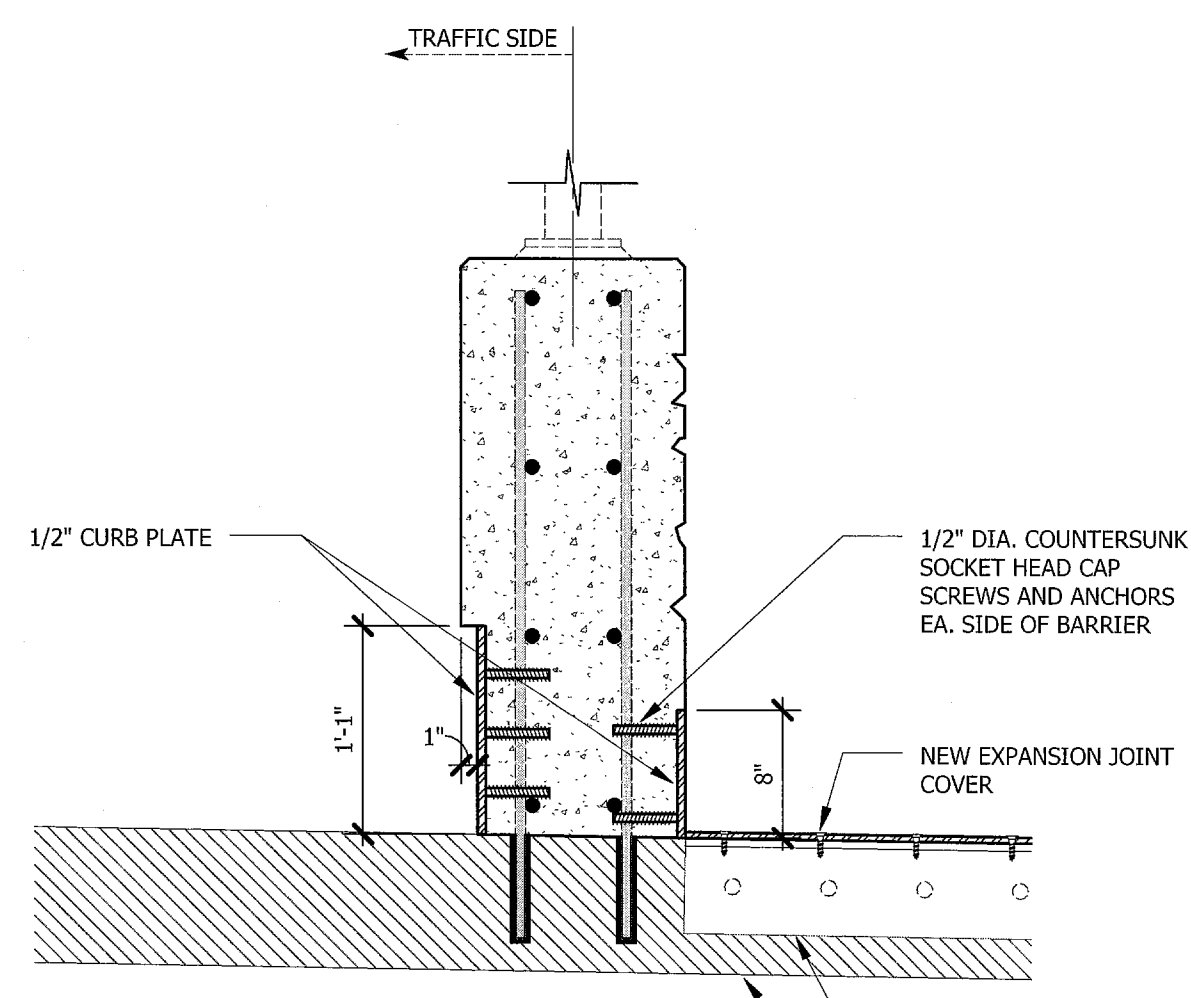


TRAFFIC FACE

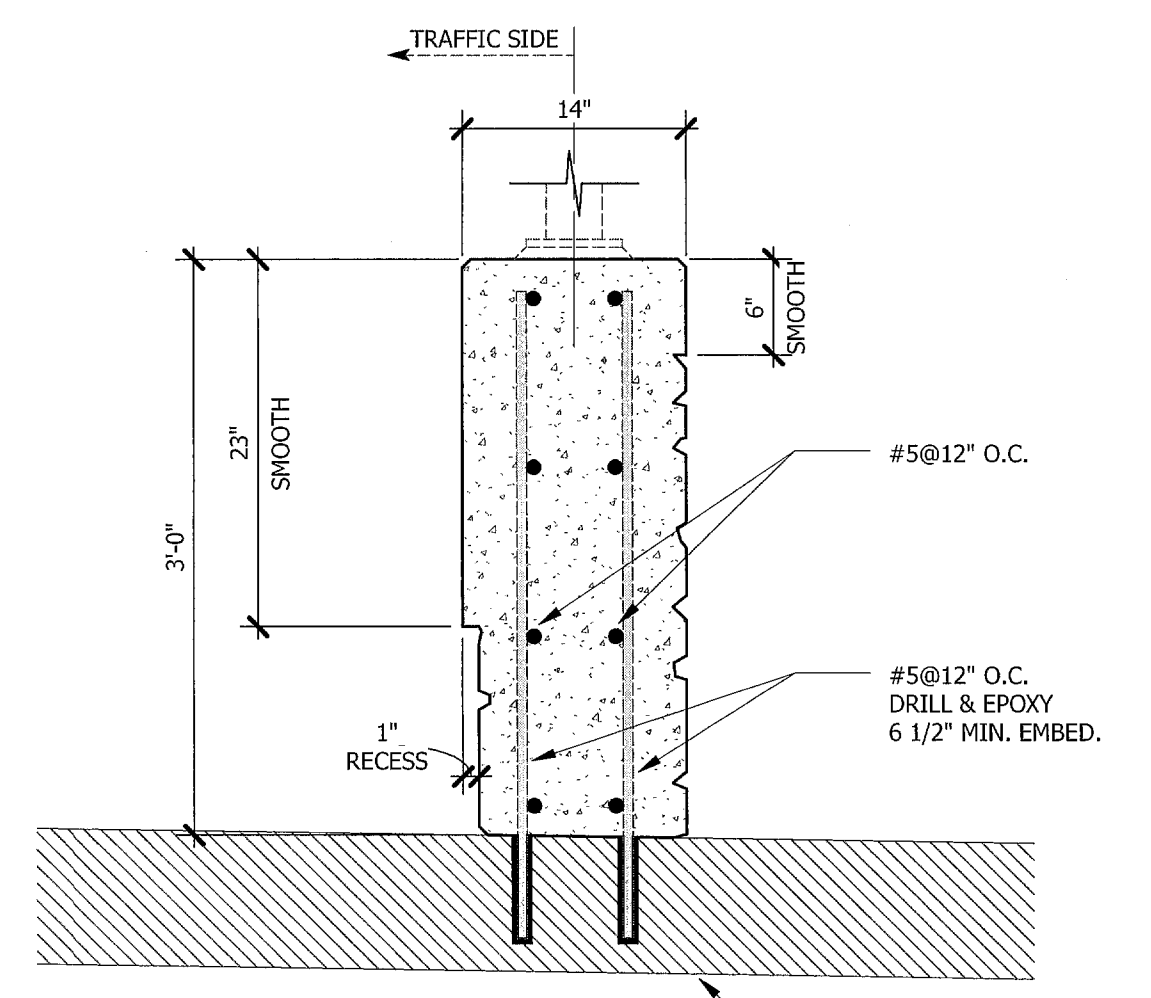
BARRIER EXPANSION PLATE DETAIL
 SCALE: 1 1/2" = 1'-0"



FILLED JOINT DETAIL
 SCALE: 3" = 1'-0"



BARRIER EXPANSION PLATE SECTION
 SCALE: 1" = 1'-0"



NEW BARRIER SECTION
 SCALE: 1" = 1'-0"

NOTES:

TOP OF TRAFFIC BARRIER SHALL BE BUILT PARALLEL TO GRADE WITH BARRIER JOINTS NORMAL TO GRADE.

ALL EXPOSED EDGES OF TRAFFIC BARRIER SHALL HAVE A 3/8" BEVEL UNLESS OTHERWISE NOTED.

PAYMENT FOR ALL CONCRETE AND REINFORCEMENT, COMPLETE-IN-PLACE, WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR TRAFFIC BARRIER PER LINEAR FOOT.

CONCRETE IN THE TRAFFIC BARRIER SHALL BE CLASS B-1.

MEASUREMENT OF TRAFFIC BARRIER IS TO THE NEAREST LINEAR FOOT MEASURED ALONG THE OUTSIDE TOP OF SLAB FROM END OF TRANSITION SECTION TO END OF TRANSITION SECTION.

THE BARRIER SHALL BE CURED BY APPLICATION OF TYPE 1-D OR TYPE 2 LIQUID MEMBRANE-FORMING COMPOUND IN ACCORDANCE WITH SEC. 1035. SURFACE SEALING FOR CONCRETE WITH SEC. 703 IS REQUIRED ON THE ROADWAY FACE OF NEW BARRIERS AND THE FULL DEPTH REPAIR AREAS AT NEW SLAB DRAINS.

THE CONTRACTOR SHALL USE ONE OF THE QUALIFIED EPOXY ANCHOR SYSTEMS IN ACCORDANCE WITH SEC. 1039.

COST OF FURNISHING AND INSTALLING THE EPOXY ANCHOR SYSTEM COMPLETE-IN-PLACE WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR TRAFFIC BARRIER PER LINEAR FOOT.

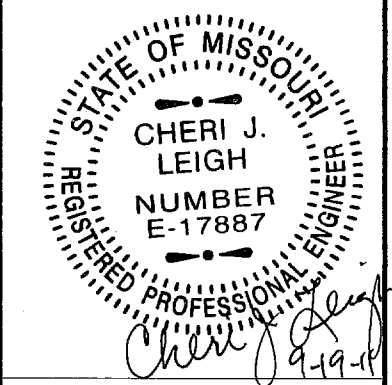
THE MINIMUM EMBED DEPTH IN CONCRETE WITH $f_c = 4000$ PSI FOR THE RESIN ANCHOR SYSTEM SHALL BE THAT REQUIRED TO MEET THE MINIMUM ULTIMATE PULLOUT STRENGTH IN ACCORDANCE WITH SEC. 1039 BUT SHALL NOT BE LESS THAN 5".

LOCATE EXISTING REBAR PRIOR TO DRILLING.

BARRIER NOTES
 SCALE: N.T.S.

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Revised Per	MoDot	Comments	DESCRIPTION
Cheri J. Leigh			P.E. SIGNATURE
08-30-11			DATE



Cheri J. Leigh
 Professional Engineer
 MO#: E-17887

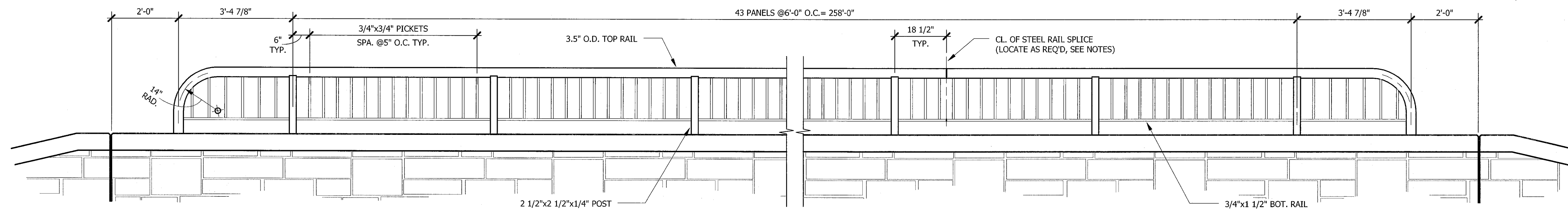
Reviewed By:	CJL
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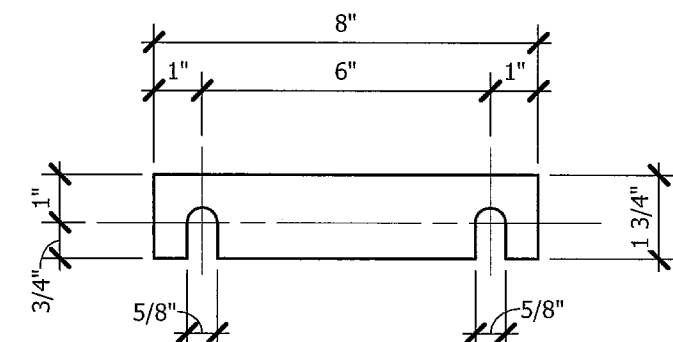
BARRIER RAIL ELEVATION

SCALE: 1/2" = 1'-0"

SHIM NOTES:

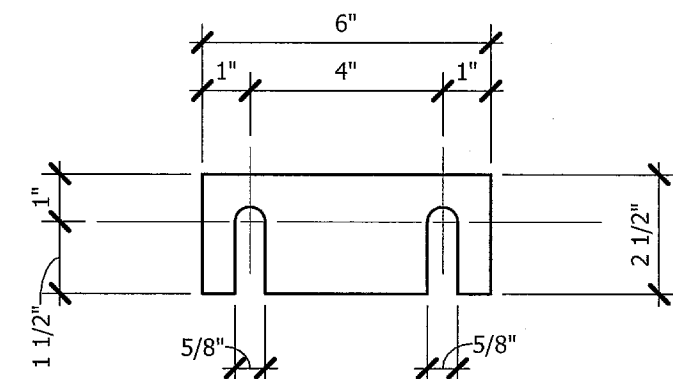
(2) 1/16" x 8" AND (1) 1/16" x 6" GALVANIZED STEEL SHIMS SHALL BE PROVIDED FOR EACH POST TO BE USED AS REQUIRED.

AT THE CONTRACTOR'S OPTION, A GROUTED LEVELING PAD MAY BE USED IN LIEU OF THE GALVANIZED STEEL SHIM PLATES TO ERECT THE POSTS VERTICAL. THE LEVELING PAD SHALL BE A NON-SHRINK GROUT AS APPROVED BY THE ENGINEER. THE GROUT SHALL BE MIXED, APPLIED AND CURED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.



8" SHIM DETAIL

SCALE: 3" = 1'-0"



6" SHIM DETAIL

SCALE: 3" = 1'-0"

STEEL RAIL NOTES:

TOP RAILS SHALL BE 3" DIA. STANDARD STEEL PIPE CONFORMING TO ASTM A53, TYPE E OR S, GRADE B, SCHEDULE 40. POSTS SHALL BE 2 1/2"x2 1/2"x1/4" STRUCTURAL TUBING. TUBING FOR POSTS SHALL CONFORM TO ASTM 500, GRADE B. BOTTOM RAILS, PICKETS AND BASE PLATES SHALL CONFORM TO ASTM A709 (GRADE 36).

ALL RAILS, POSTS, PICKETS, SHIMS, AND BASE PLATES SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL BE DONE IN ACCORDANCE WITH ASTM A123 AND ASTM A153.

STEEL RAILS SHALL BE SET PARALLEL TO THE TOP OF CONCRETE BRIDGE RAILS. ALL POSTS AND PICKETS SHALL BE SET PERPENDICULAR TO THE GRADE IN THE PLANE OF THE STEEL RAIL. ALL POSTS SHALL BE SET VERTICAL OUT OF THE PLANE OF THE STEEL RAIL. GALVANIZED STEEL SHIMS MAY BE USED AS REQUIRED BETWEEN CONCRETE AND BASE PLATE OF POSTS.

ALL TOP AND BOTTOM RAIL TO POST WELDED CONNECTIONS SHALL BE GROUND SMOOTH. NO FIELD WELDING WILL BE PERMITTED. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF THE STEEL.

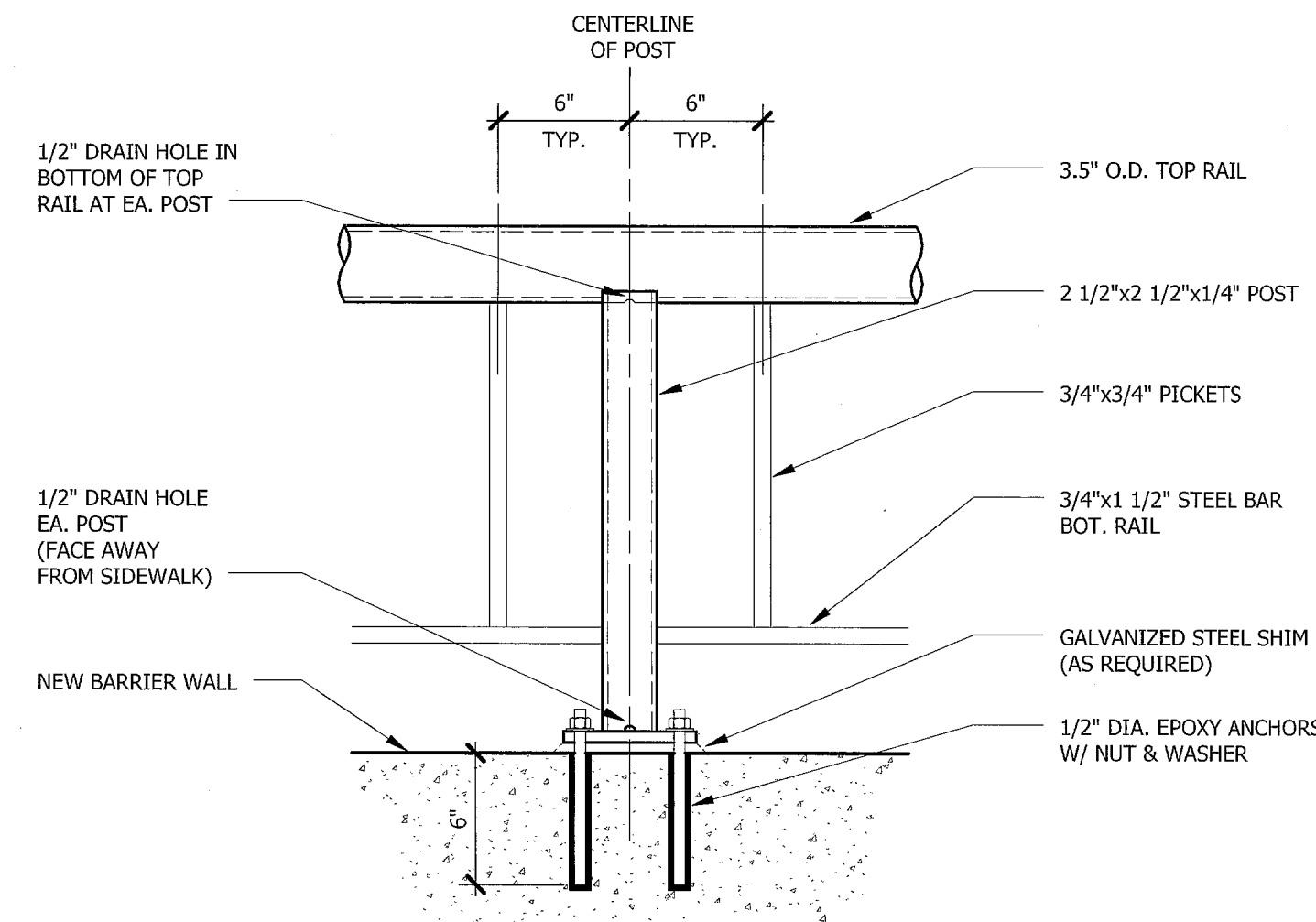
THE STEEL RAIL SHALL BE FABRICATED IN LENGTHS TO INCLUDE A MINIMUM OF TWO AND MAXIMUM OF THREE PANELS. TOP RAIL MEMBERS SHALL BE ATTACHED TO AT LEAST TWO POSTS. CENTER OF RAIL SPLICES SHALL BE 1'-6 1/2" FROM THE CENTERLINE OF POSTS UNLESS SHOWN OTHERWISE.

ALL MATERIAL, LABOR, SPLICES, SHIMS, AND INSTALLATION SHALL BE PAID FOR UNDER THE BID ITEM "STEEL RAIL". THE STEEL RAIL IS TO BE PAID FOR ON A LINEAR FOOT BASIS MEASURED FROM END TO END OF THE STEEL RAIL.

THE CONCRETE ANCHORS, NUTS, AND WASHERS SHALL BE GALVANIZED. THE ANCHORS SHALL MEET THE MATERIAL AND PULL OUT REQUIREMENTS PER MoDOT STANDARD SPECIFICATION SECTION 1039.40. LENGTH OF EMBEDMENT INTO CONCRETE SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.

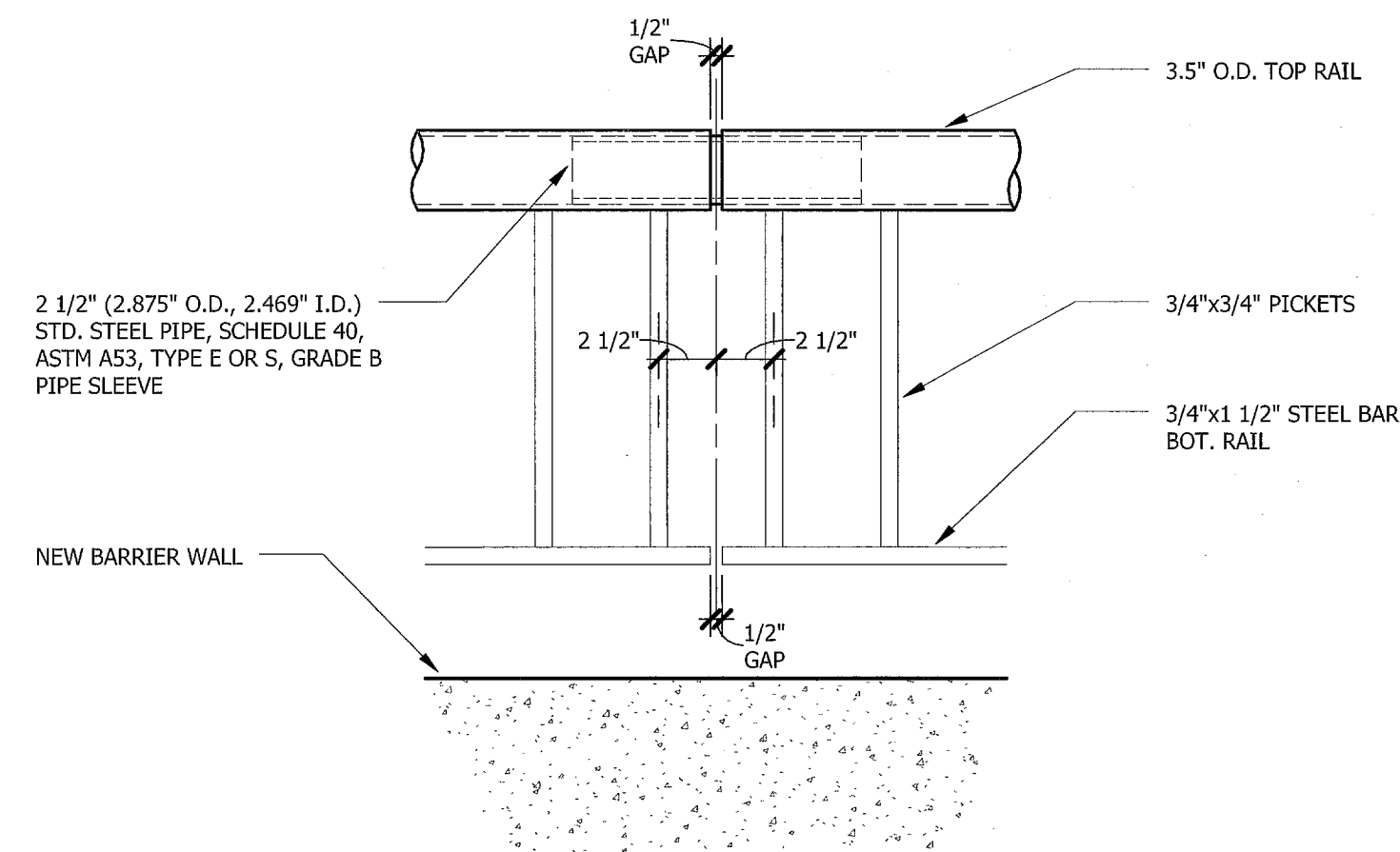
STEEL RAIL NOTES

SCALE: 12" = 1'-0"



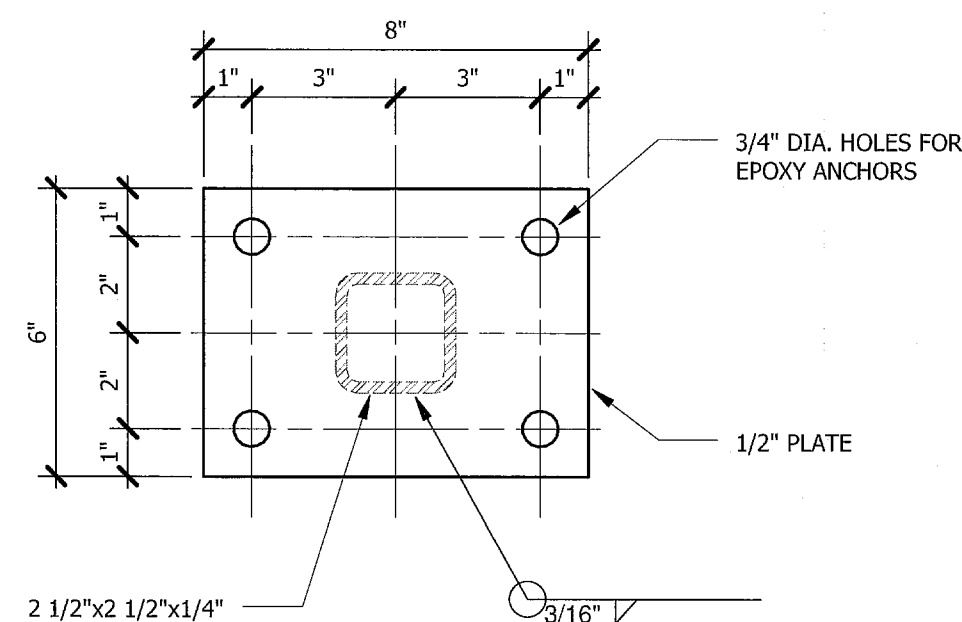
HANDRAIL ELEVATION

SCALE: 1 1/2" = 1'-0"



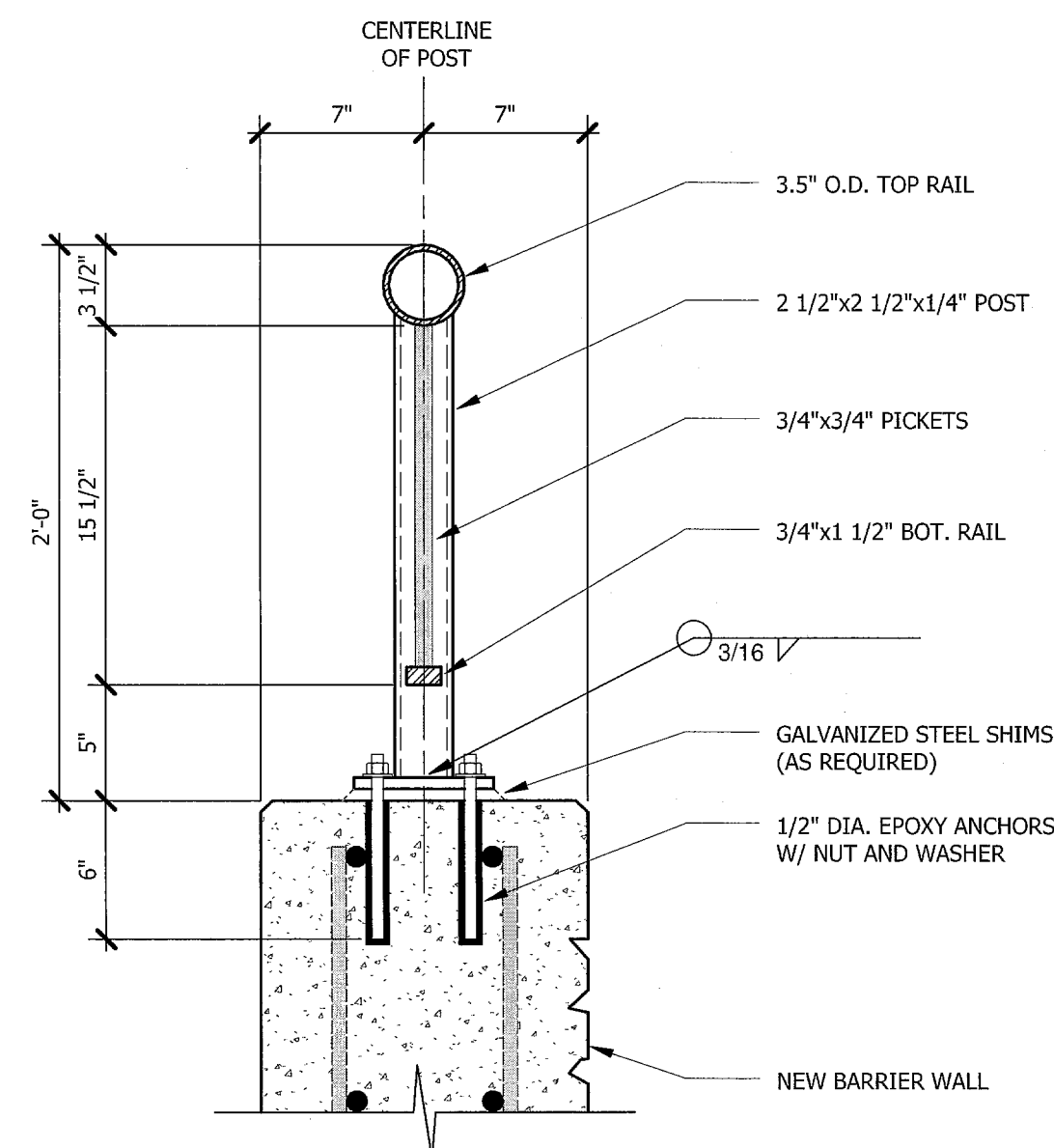
HANDRAIL SPLICE DETAIL

SCALE: 1 1/2" = 1'-0"



HANDRAIL BASE PLATE

SCALE: 3" = 1'-0"

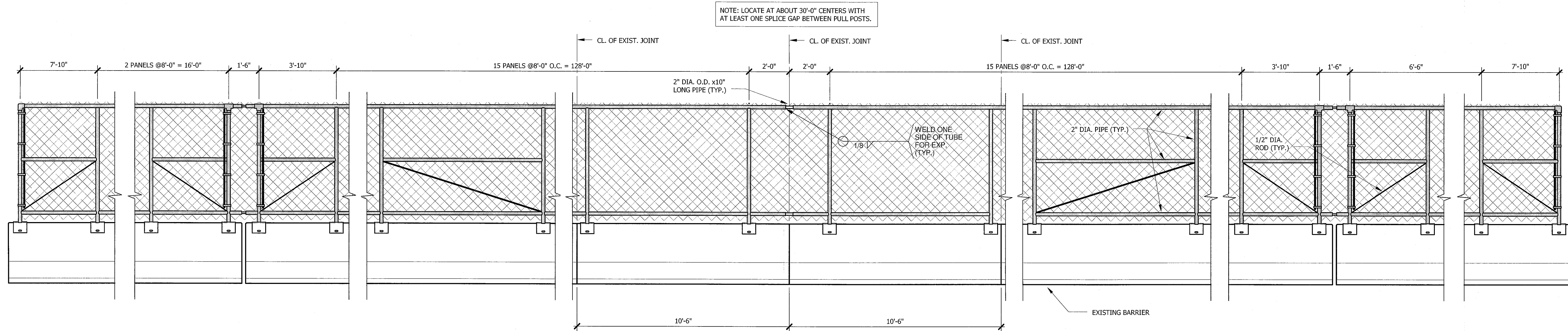


HANDRAIL SECTION

SCALE: 1 1/2" = 1'-0"

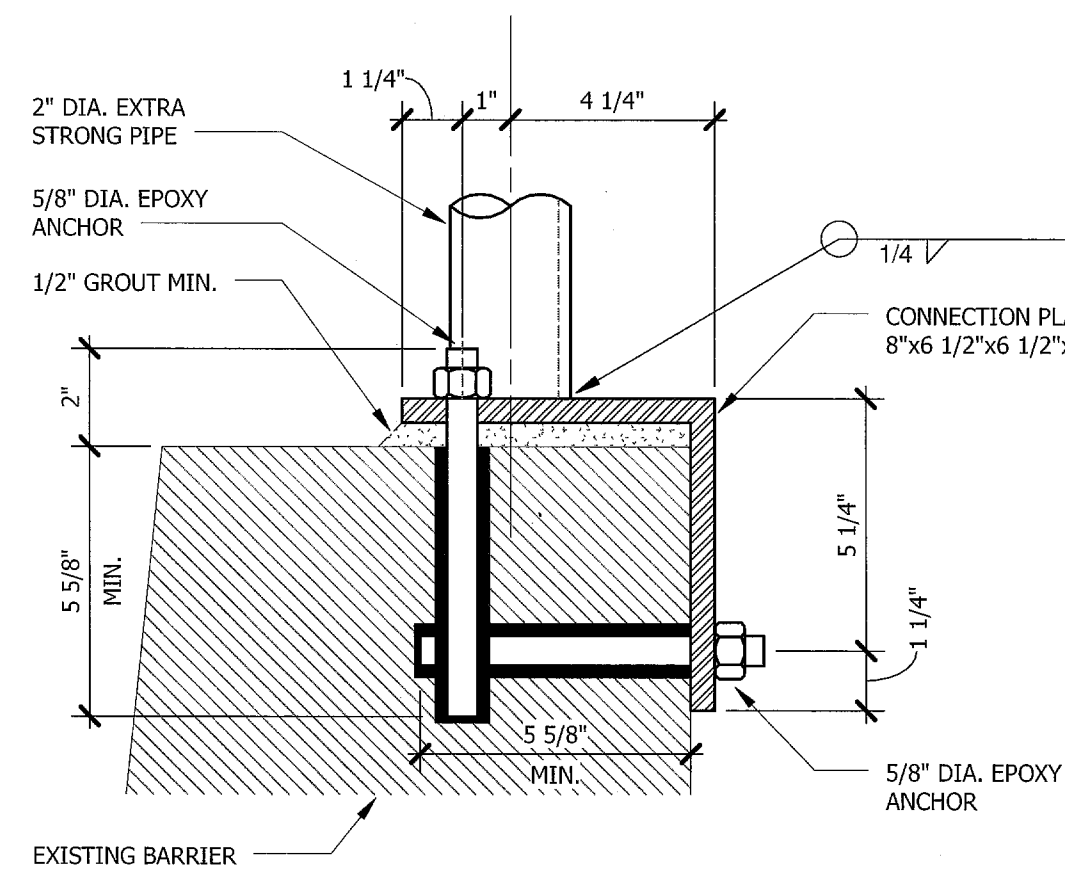
Soccer Drive Bridge		NE Soccer Drive Improvements Phase 1A	
Revised Per MoDot Comments			DESCRIPTION
Cheri J. Leigh			P.E. SIGNATURE
08-30-11			DATE
Cheri J. Leigh Professional Engineer MO#: E-17887			
Reviewed By:	CJL		
Designed By:	ARB		
Drafted By:	CMH		
Lutjen Project No.: 10073			
1301 Burlington, #100 North Kansas City, MO 64116 816.587.4320 816.587.1939 fax www.lutjen.com surveying planning engineering landscape architecture			
Lutjen, Inc. MO State Certificate of Authority #: 2007022824			
Sheet No.:		5	

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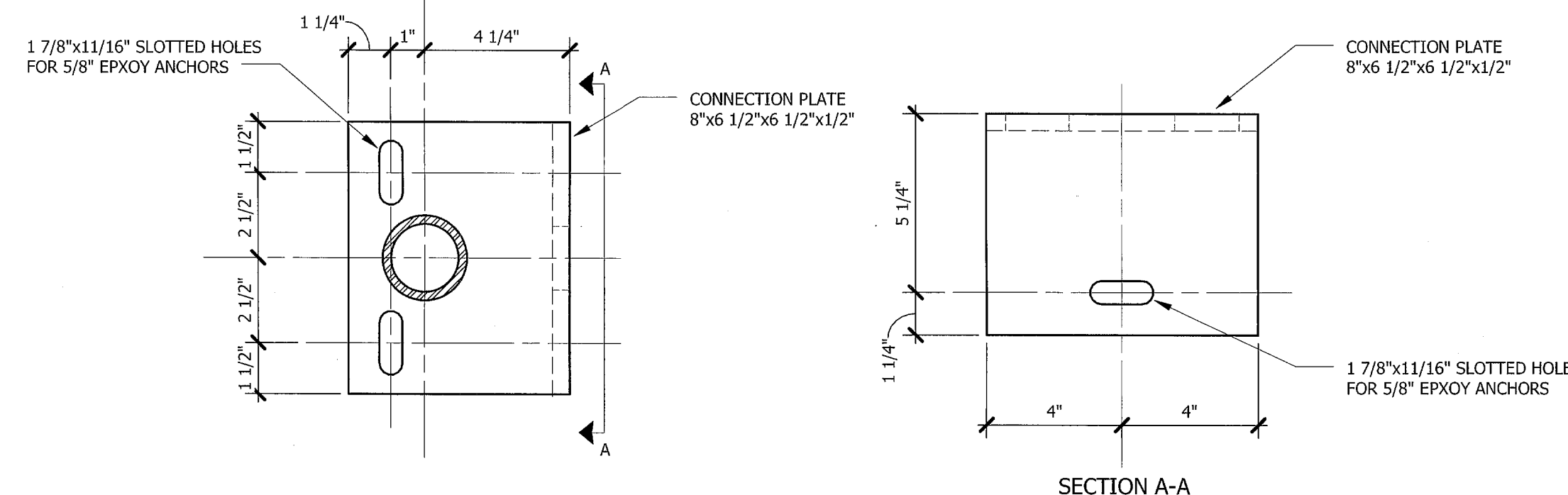
EXISTING BARRIER FENCE ELEVATION

SCALE: 3/8" = 1'-0"



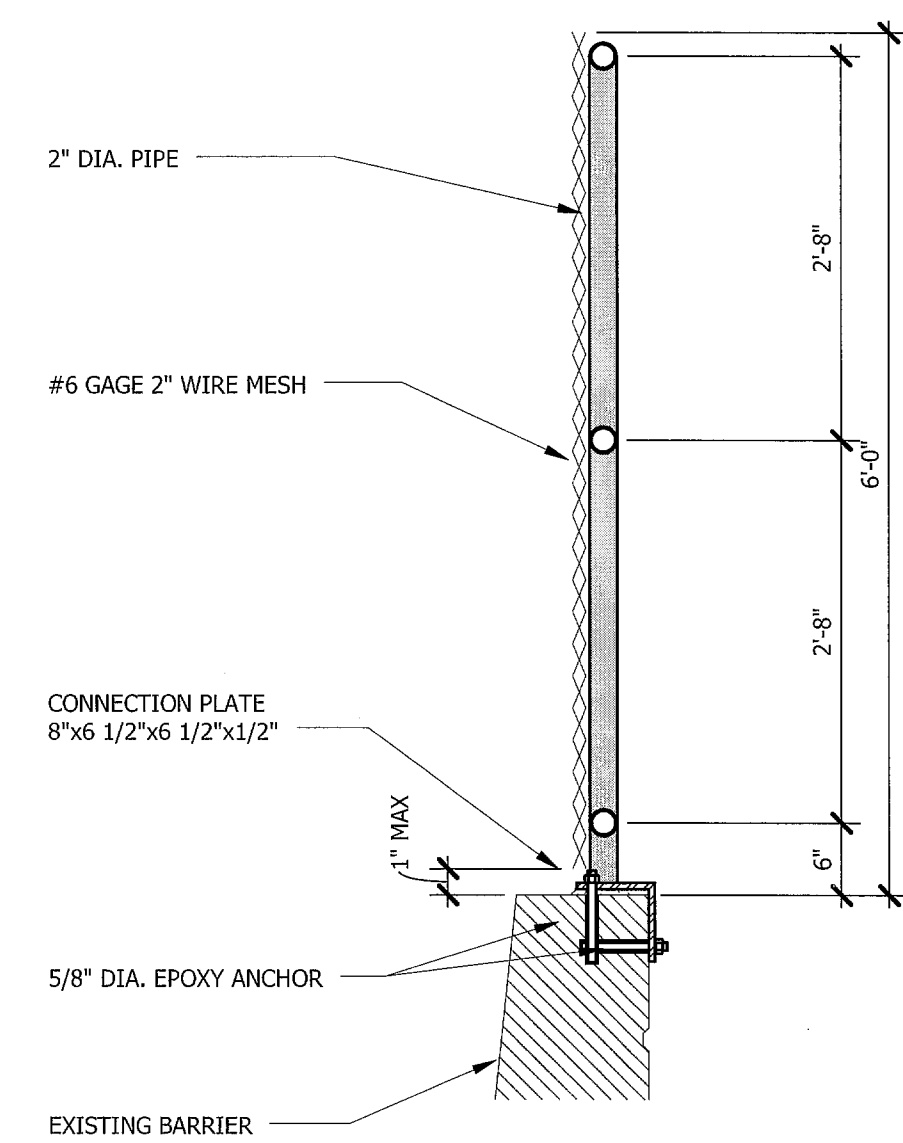
FENCE POST BASE PLATE SECTION

SCALE: 3" = 1'-0"



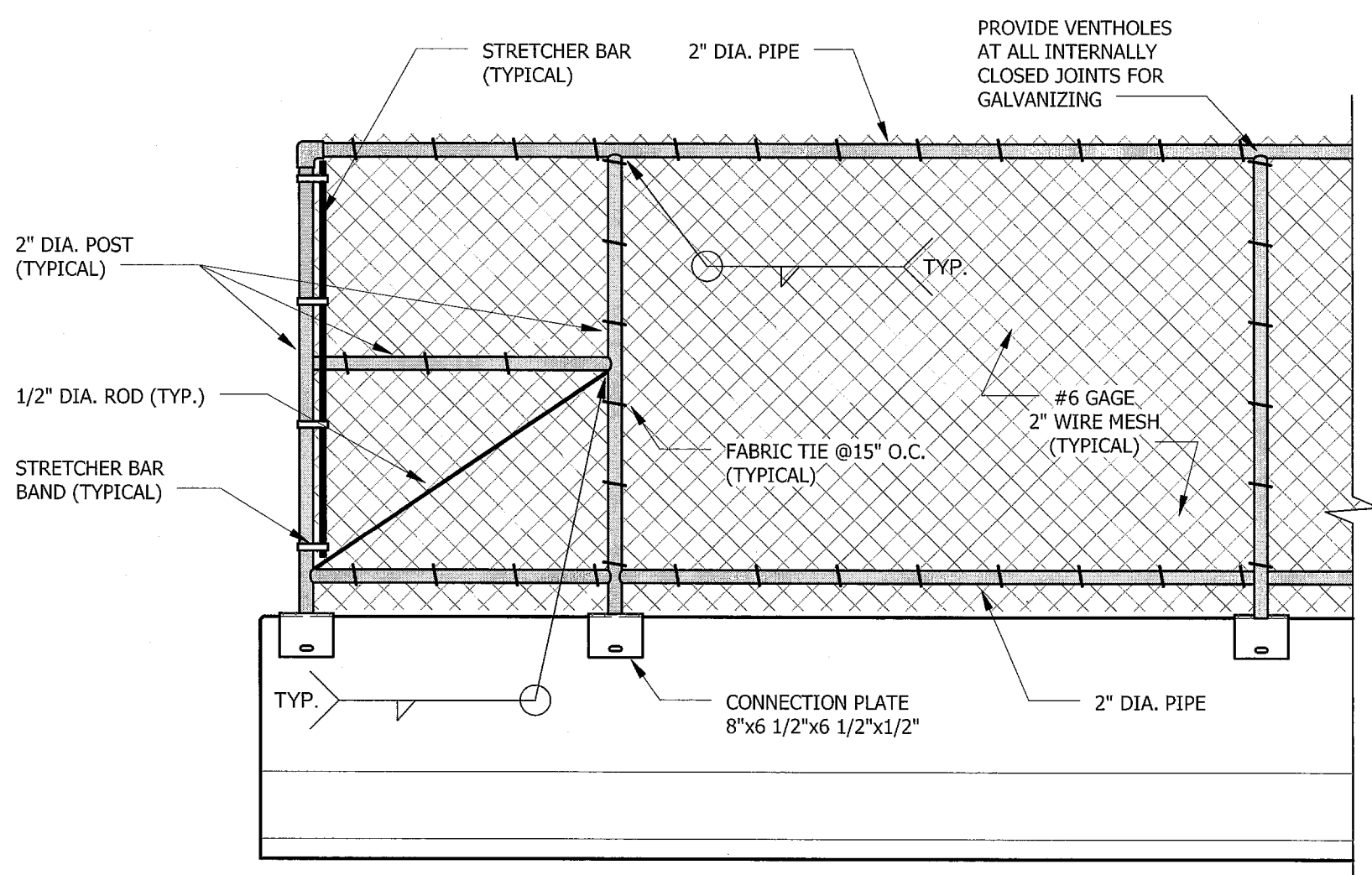
FENCE POST BASE CONNECTION DETAIL

SCALE: 3" = 1'-0"



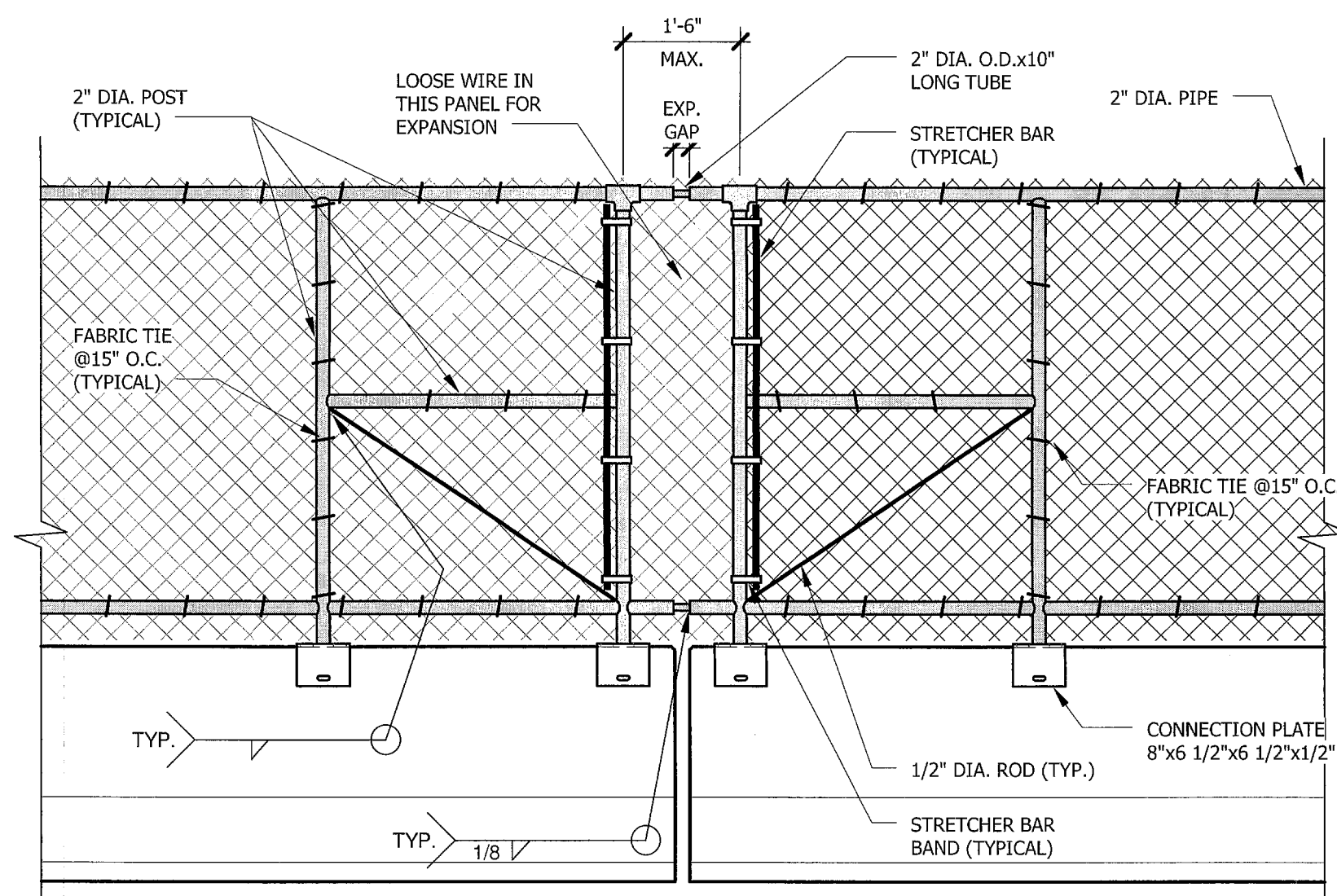
FENCE SECTION

SCALE: 3/4" = 1'-0"



PARTIAL FENCE ELEVATION

SCALE: 1/2" = 1'-0"



EXPANSION DEVICE GAP

SCALE: 1/2" = 1'-0"

NOTES:

PEDESTRIAN GUARD FENCE (CHAIN LINK TYPE) SHALL BE IN ACCORDANCE WITH SEC. 1043, EXCEPT ALL FABRIC SHALL HAVE THE TOP AND BOTTOM EDGES KNUCKLED, ALL PIPES AND FABRIC TO BE COATED IN SYSTEM G COATING.

ALL RAIL POSTS SHALL BE VERTICAL. GROUT OF 1/2" MINIMUM THICKNESS SHALL BE PLACED UNDER CONNECTION PLATES TO PROVIDE FOR VERTICAL ALIGNMENT OF RAIL POSTS.

PAYMENT FOR FURNISHING, COATING, AND ERECTING THE FENCE AND FRAME COMPLETE WITH EPOXY ANCHOR SYSTEMS AND WASHERS WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR (72") PEDESTRIAN FENCE PER LINEAR FOOT.

DIMENSIONS OF PEDESTRIAN GUARD FENCE ARE MEASURED HORIZONTALLY.

CONTRACTOR SHALL USE ONE OF THE QUALIFIED EPOXY ANCHOR SYSTEMS IN ACCORDANCE WITH SEC. 1039.

THE MINIMUM EMBEDMENT DEPTH IN CONCRETE WITH $f_c = 4000$ PSI FOR THE EPOXY ANCHOR SYSTEM SHALL BE THAT REQUIRED TO MEET THE MINIMUM ULTIMATE PULLOUT STRENGTH IN ACCORDANCE WITH SEC. 1039 BUT SHALL NOT BE LESS THAN 5 5/8" EMBED.

THE MAXIMUM SPACING ALLOWED FOR THE BRACED PANELS (PULL POSTS) IS 100FT.

CONNECT THE LOWER END OF THE 1/2" DIA. ROD TO THE END OF THE BRACED PANEL TO WHICH THE STRETCHER BAR IS ATTACHED.

CORE WIRE SIZE FOR WIRE FABRIC SHALL BE 6 GAGE MINIMUM.

FENCING MANUFACTURER TO FIELD VERIFY ALL REQUIRED DIMENSIONS.

SYSTEM G IN ACCORDANCE WITH SECTION 1081.

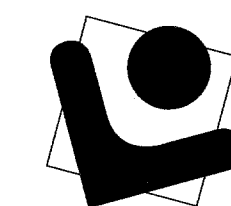
THE COST OF THE PRIME COAT WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT LUMP SUM PRICE FOR THE FABRICATED STRUCTURAL STEEL. TINT OF THE PRIME COAT FOR SYSTEM G SHALL BE SIMILAR TO THE COLOR OF THE FIELD COAT TO BE USED.

THE COLOR OF THE FIELD COAT(S) SHALL BE BLACK (FEDERAL STANDARD #17038). THE COST OF THE INTERMEDIATE FIELD COAT WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT LUMP SUM PRICE FOR "INTERMEDIATE FIELD COAT (SYSTEM G)". THE COST OF THE FINISH FIELD COAT WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT LUMP SUM PRICE FOR "FINISH FIELD COAT (SYSTEM G)".

AT THE OPTION OF THE CONTRACTOR, THE INTERMEDIATE AND FINISH FIELD COAT(S) MAY BE APPLIED IN THE SHOP. THE CONTRACTOR SHALL EXERCISE EXTREME CARE DURING ALL PHASES OF LOADING, HAULING, HANDLING, ERECTION, AND POURING OF THE SLAB TO MINIMIZE DAMAGE AND SHALL BE FULLY RESPONSIBLE FOR ALL REPAIRS AND CLEANING OF THE COATING SYSTEMS AS REQUIRED BY THE ENGINEER.

FENCE NOTES

SCALE: 12" = 1'-0"



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Revised Per	Me/Date	Comments	DESCRIPTION
Cheri J. Leigh			
08-30-11			

Professional Engineer

 Cheri J. Leigh
 Professional Engineer
 MO#: E-17887

Designed By:	CJL
Reviewed By:	ARB
Drafted By:	CMH

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