DESIGN DESIGNATION					
BRG. NUM.	AADT 2011	AADT 2031	TRUCK %	FUNCT. CLASS.	SPEED LIMIT
A2281	7,404	15,178	18.40%	INTERSTATE	70 MPH
A2433	1,472	3,018	18.50%	INTERSTATE	65 MPH
A2434	4,552	9,332	17.80%	INTERSTATE	65 MPH
A2439	6,487	13,298	17.90%	INTERSTATE	65 MPH
A3431	5,707	11,699	27.20%	INTERSTATE	70 MPH
A3441	3,077	6,308	18.40%	INTERSTATE	70 MPH
A3456	3,077	6,308	18.40%	INTERSTATE	70 MPH

NO RIGHT OF WAY ACQUISITION

CONVENTIONAL SYMBOLS
(USED IN PLANS)

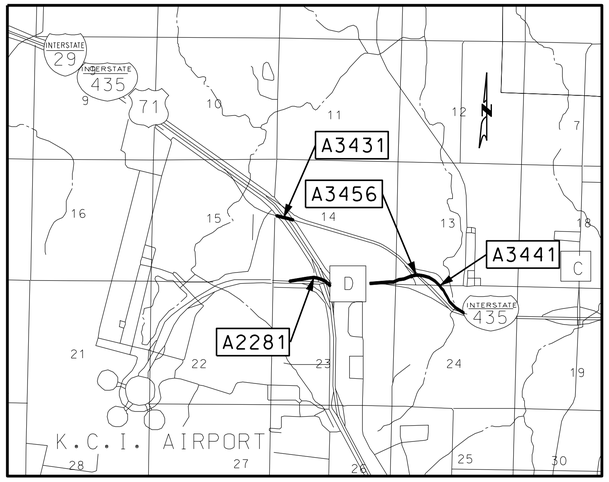
	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	-FO-
OVERHEAD TELEPHONE		
UNDERGROUND TELEPHONE	-T-	-T-
OVERHEAD POWER		
UNDERGROUND POWER	-P-	-P-
GAS	-G-	-G-
WATER	-W-	-W-
MANHOLE	SAN	
FIRE HYDRANT	HYD	
WATER VALVE	WV	
WATER METER	WM	
DROP INLET	DI	
DITCH BLOCK		
GROUND MOUNTED SIGN	SIGN	
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL	PED	
FENCE		
CHAIN LINK	-V-	
WOVEN WIRE	-X-	
GATE POST		
BENCHMARK	BM	

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLANS FOR PROPOSED STATE HIGHWAY

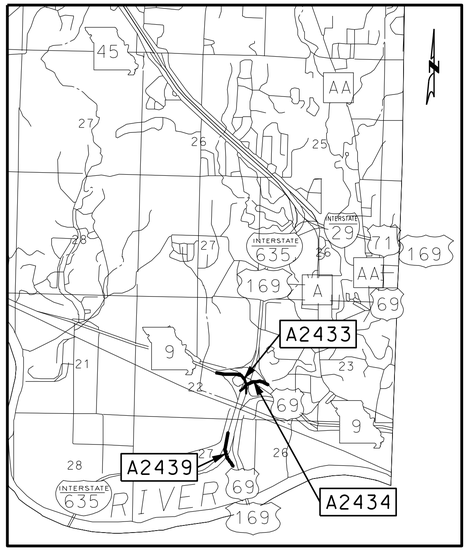
PLATTE COUNTY

LOCATION MAP 1
(NOT TO SCALE)



KEY (LOCATION MAP 1)				
BRG. NUM.	ROUTE DESCRIPTION	LOG MILE	TRAFFIC CONTROL	DESCRIPTION OF WORK
A2281	RP (I-29N TO RTE D)	0.260	CLOSED/DETOUR	HALF-SOLE REPAIR
A3431	I-435E	14.417	HALF AT A TIME	REPLACE EXPANSION JOINT
A3441	RP (I-435W TO RTE D)	0.257	CLOSED/DETOUR	REPLACE EXPANSION JOINT
A3456	RP (I-435W TO RTE D)	0.446	CLOSED/DETOUR	REPLACE EXPANSION JOINT

LOCATION MAP 2



KEY (LOCATION MAP 2)				
BRG. NUM.	ROUTE DESCRIPTION	LOG MILE	TRAFFIC CONTROL	DESCRIPTION OF WORK
A2433	RP (I-635N TO RTE 9)	0.090	CLOSE/DETOUR	REPLACE DECK
A2434	US 69S	120.600	CLOSE/DETOUR	REPLACE DECK
A2439	US 69S	121.275	CLOSE/DETOUR	REPLACE DECK/PAINT GIRDERS

INDEX OF SHEETS

LENGTH OF PROJECT				
BRG. NUM.	BEGIN LOG	END LOG	CALC. LENGTH	ACTUAL LENGTH
A2281	0.260	0.430	897.600	835.00
A2433	0.090	0.210	633.600	651.00
A2434	120.600	120.639	205.920	199.00
A2439	121.275	121.325	264.000	244.00
A3431	14.417	14.503	454.080	432.00
A3441	0.257	0.314	300.960	298.00
A3456	0.446	0.557	586.080	532.00
		TOTAL	3,342.24	3,191.00

APPARENT LENGTH	3,342.24
TOTAL CORRECTIONS	151.24
NET LENGTH OF PROJECT	3,191.00
STATE LENGTH	3,191.00

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED: 11/14/2012
ROUTE: VAR. | STATE: MO
DISTRICT: KC | SHEET NO.: 1
COUNTY: PLATTE
JOB NO.: J4I2373
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFFECTIVE: 08-01-2012

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
WARNING SIGNS							
WO1-1L	48X48	16.00					TURN (SYMBOL LEFT ARROW)
WO1-1R	48X48	16.00					TURN (SYMBOL RIGHT ARROW)
WO1-2L	48X48	16.00					CURVE (SYMBOL LEFT ARROW)
WO1-2R	48X48	16.00					CURVE (SYMBOL RIGHT ARROW)
WO1-3L	48X48	16.00					REVERSE TURN (SYMBOL LEFT ARROW)
WO1-3R	48X48	16.00					REVERSE TURN (SYMBOL RIGHT ARROW)
WO1-4L	48X48	16.00					REVERSE CURVE (SYMBOL LEFT ARROW)
WO1-4R	48X48	16.00					REVERSE CURVE (SYMBOL RIGHT ARROW)
WO1-4bL	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
WO1-4bR	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
WO1-4cL	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
WO1-4cR	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
WO1-6	60X30	12.50					HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00					HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-8	18X24	3.00					CHEVRON (SYMBOL)
WO1-8a	30X36	7.50					CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00					STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00					YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00					SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00					BE PREPARED TO STOP
WO3-5	48X48	16.00					SPEED LIMIT AHEAD
WO4-1L	48X48	16.00					MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00					MERGE (SYMBOL FROM RIGHT)
WO5-1	48X48	16.00					ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00					ONE LANE BRIDGE
WO5-5	48X48	16.00	2	32.00			NARROW LANES (34)
WO6-1	48X48	16.00					DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00					DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00					TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00					NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00					BUMP
WO8-2	48X48	16.00					DIP
WO8-3	48X48	16.00					PAVEMENT ENDS
WO8-4	48X48	16.00					SOFT SHOULDER
WO8-5	48X48	16.00					SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00					TRUCK CROSSING WITH FLAGS
WO8-6c	48X48	16.00					TRUCK ENTRANCE
WO8-7	36X36	9.00					LOOSE GRAVEL
WO8-9	48X48	16.00					LOW SHOULDER
WO8-11	48X48	16.00					UNEVEN LANES
WO8-12	48X48	16.00					NO CENTER LINE
W10-1	42 RND.	9.62					RAILROAD CROSSING
WO12-1	24X24	4.00					DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00					LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00					LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00					OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO8-15	48X48	16.00					GROOVED PAVEMENT
WO8-15p	30X24	5.00					MOTORCYCLE (PLAQUE)
WO8-17	48X48	16.00					SHOULDER DROP-OFF (SYMBOL)
WO8-17p	30X24	5.00					SHOULDER DROP-OFF (PLAQUE)
SPECIAL	120X60	50.00					LOW CLEARANCE XX FT XX IN XX MILES AHEAD
SPECIAL	120X60	50.00					WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25					ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00					XXX FEET (PLAQUE)
WO16-3	30X24	5.00					X MILE (PLAQUE)
WO20-1	48X48	16.00	9	144.0			ROAD/BRIDGE/RAMP WORK AHEAD (2)
WO20-2	48X48	16.00	7	112.0			DETOUR AHEAD (18)
WO20-3	48X48	16.00					ROAD CLOSED AHEAD
WO20-4	48X48	16.00					ONE LANE ROAD AHEAD
WO20-5	48X48	16.00	4	64.00			RIGHT/CENTER/LEFT LANE CLOSED AHEAD (5)
WO20-5a	48X48	16.00	4	64.00			2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD (5A)
WO20-6a	48X48	16.00	4	64.00			RIGHT/CENTER/LEFT LANE CLOSED (6)
WO20-7a	48X48	16.00					FLAGGER (SYMBOL) WITH FLAGS
WO21-2	36X36	9.00					FRESH OIL
WO21-5b	48X48	16.00					SHOULDER WORK AHEAD
WO22-1	48X48	16.00					BLASTING ZONE AHEAD
WO22-2	42X36	10.50					TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50					END BLASTING ZONE
WO22-6e	21X15	2.19					WET PAINT (ARROW PIVOTS)
GUIDE SIGNS							
SPECIAL	36X36	9.00					FRESH OIL/LOOSE GRAVEL
E05-1	36X48	12.00					GORE EXIT
E05-2	48X36	12.00					EXIT OPEN
E05-2a	48X36	12.00					EXIT CLOSED
G020-1	60X24	10.00					ROAD WORK NEXT XX MILES
G020-2	48X24	8.00					END ROAD WORK
G020-4	36X18	4.50					PILOT CAR FOLLOW ME
SPECIAL	42X30	8.75					PLEASE WAIT FOR PILOT CAR
G023-1	48X24	8.00	7	56.00			WORK ZONE (PLAQUE) (54)
M04-8a	24X18	3.00	3	9.00			END DETOUR (52)
M04-9L	48X36	12.00					DETOUR (LEFT ARROW)
M04-9R	48X36	12.00					DETOUR (RIGHT ARROW)
M04-10L	48X18	6.00					DETOUR (ARROW LEFT)
M04-10R	48X18	6.00					DETOUR (ARROW RIGHT)
SPECIAL	36X78	19.50	56	1092.0			DETOUR SIGN (SEE SHEET 15) (50A) (50B) (50C) (50D) (50E)
SPECIAL	36X36	9.00	4	36.00			KCI DETOUR SIGN (SEE SHEET 15) (95A) (95D) (95E)
REGULATORY SIGNS							
R1-1	48X48	13.25					STOP
R1-2	48 TRI.	6.93					YIELD
R1-2a	36X36	9.00					TO ONCOMING TRAFFIC (PLAQUE)
R1-3	20X9	1.25					X-WAY (PLAQUE)
R2-1	36X48	12.00	12	144.0			SPEED LIMIT XX (4) (25)
R3-1	48X48	16.00					NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00					NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00					NO TURNS
R3-4	48X48	16.00					NO U-TURN (SYMBOL)
R3-7L	30X30	6.25					LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25					RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00					DO NOT PASS
R4-2	36X48	12.00					PASS WITH CARE
R4-7aL	36X48	12.00					KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00					KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25					DO NOT ENTER
R5-1a	36X24	6.00					WRONG WAY
R6-1L	48X18	6.00					ONE WAY ARROW (LEFT)
R6-1R	48X18	6.00					ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00					ONE WAY (LEFT)
R6-2R	24X30	5.00					ONE WAY (RIGHT)
R10-6	24X36	6.00					STOP HERE ON RED (45° ARROW)
R11-2	48X30	10.00	2	20.00			ROAD CLOSED (29)
R11-3a	60X30	12.50					ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50					ROAD CLOSED TO THRU TRAFFIC
S4-4	36X15	3.75					WHEN FLASHING
CONST-3A	60X48	20.00					FINE SIGN
CONST-3X	56X12	4.67					SPEEDING/PASSING (PLATE)
SPECIAL	60X30	12.50	3	37.50			TRUCKS USE RIGHT LANE (99)
MISCELLANEOUS SIGNS							
SPECIAL	36X48	12.00	1	12.00			POINT OF PRESENCE (97)
SPECIAL	96X48	32.00					POINT OF PRESENCE
CONST-7-48	48X24	8.00	1	8.00			RATE OUR WORK ZONE (98)
CONST-7-72	72X36	18.00					RATE OUR WORK ZONE
616-10.05 CONSTRUCTION SIGNS TOTAL				1,895			
616-10.10 RELOCATED SIGNS TOTAL							

BRIDGES A2434 & A2439 MAY BE CLOSED CONCURRENTLY COMBINE QUANTITIES FOR BOTH DETOURS IF CLOSED CONCURRENTLY.

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR (8 SAND BARRELS)
6122009		IMPACT ATTENUATOR (9 SAND BARRELS)
6122010		IMPACT ATTENUATOR (10 SAND BARRELS)
6122012		IMPACT ATTENUATOR (12 SAND BARRELS)
6122014		IMPACT ATTENUATOR (14 SAND BARRELS)
6122017	2	IMPACT ATTENUATOR (17 SAND BARRELS)
6122019		IMPACT ATTENUATOR (19 SAND BARRELS)
6122020	7	REPLACEMENT SAND BARREL
6122030	2	IMPACT ATTENUATOR ARRAY (RELOCATION)
6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161007		SPEED LIMIT AND STROBE LIGHT ASSEMBLY
6161008	9	ADVANCED WARNING RAIL SYSTEM
6161009	21	FLAG ASSEMBLY
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONES)
6161024		CHANNELIZER (TRIM LINE) WITH LIGHT
6161025	114	CHANNELIZER (TRIM LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161027		CHANNELIZER (VERTICAL PANEL) WITH LIGHT
6161028		CHANNELIZER
6161030		TYPE III MOVEABLE BARRICADE
6161031	8	TYPE III MOVEABLE BARRICADE WITH LIGHT
6161033		DIRECTION INDICATOR BARRICADE
6161034	56	DIRECTION INDICATOR BARRICADE, WITH LIGHT
6161040	4	FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161051		WARNING LIGHT, TYPE A
6161052		WARNING LIGHT, TYPE B
6161053		WARNING LIGHT, TYPE C
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098	6	CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/RETAINED
6161100		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/COMMISSION RETAINED
6173800A	450	CONTRACTOR FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
6173602B		CONTRACTOR FURNISHED/COMMISSION RETAINED TEMPORARY TRAFFIC BARRIER
6174000A		TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
6175012A	450	RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
6177000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
9019400		TEMPORARY LIGHTING
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

QUANTITY SHEET
SHEET 2 OF 2

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED: 12/10/2012
ROUTE: VAR. | STATE: MO
DISTRICT: KC | SHEET NO.: 3
COUNTY: PLATTE
JOB NO.: J4I2373
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUMMARY OF QUANTITIES

REMOVAL OF IMPROVEMENTS

ITEM	LOCATION	QUANTITY	DESCRIPTION
TURNDOWN	BRIDGE A2433	1	SE CORNER
TURNDOWN	BRIDGE A2439	1	NW CORNER
TURNDOWN	BRIDGE A3441	2	SE CORNER, NE CORNER
TURNDOWN	BRIDGE A3456	2	SE CORNER, NE CORNER
BRIDGE ANCHOR SECTION	BRIDGE A2433	3	2 SOUTH END, 1 WEST END
BRIDGE ANCHOR SECTION	BRIDGE A2434	4	BOTH ENDS
BRIDGE ANCHOR SECTION	BRIDGE A2439	3	2 NORTH END, 1 SOUTH END
BRIDGE ANCHOR SECTION	BRIDGE A3431	2	WEST END
TRANSITION SECTION	BRIDGE A2433	3	2 SOUTH END, 1 WEST END
TRANSITION SECTION	BRIDGE A2434	4	BOTH ENDS
TRANSITION SECTION	BRIDGE A2439	3	2 NORTH END, 1 SOUTH END
TRANSITION SECTION	BRIDGE A3431	2	WEST END
		TOTAL	1 LS

GUARDRAIL

BRIDGE	LOCATION	BRIDGE ANCHOR SECTION (EACH)	TRANSITION SECTION (EACH)	CRASHWORTHY END TERMINAL (EACH)	LINEAR GRADING CLASS I (STA)	SEEDING (ACRE)
A2433	SE CORNER	1	1	1	0.5	0.0172
A2433	SW CORNER	1	1	0	0.0	0.0000
A2433	NW CORNER	1	1	0	0.0	0.0000
A2434	SE CORNER	1	1	0	0.0	0.0000
A2434	SW CORNER	1	1	0	0.0	0.0000
A2434	NE CORNER	1	1	0	0.0	0.0000
A2434	NW CORNER	1	1	0	0.0	0.0000
A2439	SW CORNER	1	1	0	0.0	0.0000
A2439	NE CORNER	1	1	0	0.0	0.0000
A2439	NW CORNER	1	1	1	0.5	0.0172
A3431	SW CORNER	1	1	0	0.0	0.0000
A3431	NW CORNER	1	1	0	0.0	0.0000
A3441	SE CORNER	0	0	1	0.5	0.0172
A3441	NE CORNER	0	0	1	0.5	0.0172
A3456	SE CORNER	0	0	1	0.5	0.0172
A3456	NE CORNER	0	0	1	0.5	0.0172
	TOTAL	12	12	6	3.0	0.1

PERMANENT EROSION CONTROL

BRIDGE	LOCATION (ROCK BLANKET)	LOCATION (ROCK FLUME)**	FURNISHING TYPE II ROCK *BLANKET (CY)	PLACING TYPE II ROCK BLANKET (CY)	FURNISHING TYPE I ROCK DITCH LINER (CY)	PLACING TYPE I ROCK DITCH LINER (CY)	LINEAR GRADING CLASS I (STA)
A2281	15' X 60' NW CORNER	N/A	50	50	0.0	0.0	0.0
A2433	15' X 50' SW CORNER	8' X 100' INTO DITCH IN NW CORNER	27.8	41.7	19.9	19.9	1.0
A2434	15' X 40' SE CORNER	N/A	33.4	33.4	0.0	0.0	0.0
A2439	20' X 40' SE CORNER	N/A	29.7	44.5	0.0	0.0	0.0
		TOTAL	140.9	169.6	19.9	19.9	1.0

*CONCRETE FROM DECKS OF A2433 & A2439 SHALL BE RECYCLED AS ROCK BLANKET
**DITCH LINER & LINEAR GRADING ARE FOR ROCK FLUME

SURVEY & STAKING

DESCRIPTION	QUANTITY	UNITS
CONTRACTOR FURNISHED	1	LUMPSUM

PAVEMENT MARKING REMOVAL

ITEM	LOCATION	QUANTITY	DESCRIPTION
PAVEMENT MARKING	RAMP: I-29NB TO RTE. D	250	SEE TC SHEET 4 OF 9
PAVEMENT MARKING	RAMP: I-29NB TO RTE. D	250	SEE TC SHEET 4 OF 9
PAVEMENT MARKNG (SKIPS)	I-435SB	210	730' WEST OF BRIDGE A3431
PAVEMENT MARKNG (SKIPS)	I-435SB	430	1460' EAST OF BRIDGE A3441
PAVEMENT MARKNG (SKIPS)	I-435SB	210	730' EAST OF BRIDGE A2434
PAVEMENT MARKNG (SKIPS)	I-435SB	430	1460' NORTH OF BRIDGE A2439
	TOTAL	1,780	

TEMPORARY STRIPING

LOCATION	6" TEMPORARY WHITE TAPE	6" TEMPORARY YELLOW TAPE
SEE TRAFFIC CONTROL SHEET 5 OF 11	390.0	250.0
SEE TRAFFIC CONTROL SHEET 9 OF 11	3,844.0	0.0
TOTAL	4,234.0	250.0

MOBILIZATION

QUANTITY	UNITS
1	LUMPSUM

PAVING & MILLING

BRIDGE	LOCATION	1.75" SP095c PG70-22 (TONS)	1.75" BP-1 (TONS)	TACK (GAL)	COLD MILLING MODIFIED (SY)	UBAWS TYPE C (SY)
A2281	TWO LIFTS OVER ENTIRE BRIDGE	0.0	0.0	0	0	5938
A2281	SOUTH APPROACH	44.7	26.1	74	739	0
A2281	WEST APPROACH	44.7	26.1	74	739	0
A2433	SOUTH APPROACH	44.7	26.1	74	739	0
A2433	WEST APPROACH	44.7	26.1	74	739	0
A2434	EAST APPROACH	44.7	26.1	74	739	0
A2434	SOUTH APPROACH	44.7	26.1	74	739	0
A2439	NORTH APPROACH	44.7	26.1	74	739	0
A2439	SOUTH APPROACH	44.7	26.1	74	739	0
	TOTAL	357.6	208.8	600	5912	5938

PERMANENT STRIPING

LOCATION	6" PAINT YELLOW	6" PAINT WHITE	9" PAINT BLACK
ON BRIDGE A2281	835.0	1,043.8	208.8
ON BRIDGE A2433	651.0	651.0	0.0
ON BRIDGE A2434	199.0	199.0	0.0
ON BRIDGE A2439	244.0	305.0	61.0
SEE TRAFFIC CONTROL SHEET 5 OF 11	255.0	180.0	0.0
SEE TRAFFIC CONTROL SHEET 9 OF 11	0.0	210.0	210.0
(SKIPS) 1460' EAST OF BRIDGE A3441	0.0	430.0	430.0
(SKIPS) 730' EAST OF BRIDGE A2434	0.0	210.0	210.0
SKIPS) 1460' NORTH OF BRIDGE A2439	0.0	430.0	430.0
TOTAL	2,184.0	3,658.8	1,549.8

SUMMARY SHEET
SHEET 1 OF 2

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/14/2012
ROUTE VAR. | STATE MO
DISTRICT KC | SHEET NO. 3
COUNTY PLATTE
JOB NO. J4I2373
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

REV.

Sign Spacing, Device Spacing, Channelizing Taper Lengths And Recommended Maximum Speed Reductions

TAPER LENGTHS AND SPACING OF CHANNELIZING DEVICES						
SPEED (P) MPH	MINIMUM TAPER LENGTHS (L) FOR LANE WIDTHS (W)			MINIMUM TAPER SHOULDER (T1)	MAXIMUM CHANNELIZER SPACING	
	10 FT	11 FT	12 FT		THROUGH TAPER	THROUGH WORK AREA
0-35	205 FT	225 FT	245 FT	70	35 FT	50 FT
40-45	450 FT	495 FT	540 FT	150	40 FT	100 FT
50-55	550 FT	605 FT	660 FT	185	50 FT	100 FT
60-70	700 FT	770 FT	840 FT	235	60 FT	100 FT

TAPER LENGTHS AND END TREATMENTS FOR CONCRETE BARRIER				
SPEED (P) MPH	MINIMUM TAPER LENGTHS FOR LANE WIDTHS (3)			END TREATMENT (4)
	10 FT	11 FT	12 FT	
<40	160 FT	168 FT	176 FT	BARRIER HEIGHT TRANSITION
≥40	160 FT	168 FT	176 FT	APPROVED CRASH CUSHION

SIGN SPACING FOR ADVANCE SIGN SERIES (1) (2)		
SPEED (P) MPH	NON-DIVIDED HIGHWAYS (S)	DIVIDED HIGHWAYS (S)
0-35	200 FT	200 FT
40-45	350 FT	500 FT
50-55	500 FT	1000 FT
60-70	SA-1000 FT, SB-1500 FT, SC-2640 FT **	

** THE SA DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN.

THE SB DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS.

THE SC DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS.

(THE "FIRST SIGN" IS THE SIGN IN A THREE-SIGN SERIES THAT IS CLOSEST TO THE TEMPORARY TRAFFIC CONTROL ZONE. THE "THIRD SIGN" IS THE SIGN THAT IS FURTHEST UPSTREAM FROM THE TEMPORARY TRAFFIC CONTROL ZONE)

NOTES:

DIMENSIONS IN FEET UNLESS OTHERWISE NOTED.

(1) SPACING BETWEEN SIGNS AND SPACING BETWEEN LAST SIGN AND FLAGGER, BEGINNING OF TAPER, OR SIGNED CONDITION

(2) SPACINGS MAY BE ADJUSTED AS NECESSARY TO MEET FIELD CONDITIONS

(3) TAPER LENGTHS SHOWN INCLUDE LENGTH REQUIRED FOR LANE AND 10' SHOULDER.

(4) CONCRETE BARRIER MAY BE INSTALLED AT AN 8:1 FLARE RATE FROM THE SHOULDER POINT TO THE LIMITS OF THE CLEAR ZONE WHERE THEY SIDE SLOPE IS 6:1 OR FLATTER.

TAPER LENGTH (L)

L = W X P FOR 40 MPH OR MORE

$L = \frac{WP^2}{60}$ FOR 35 MPH OR LESS

L = TAPER LENGTH IN FEET

W = LATERAL SHIFT IN FEET

P = POSTED SPEED PRIOR TO ROAD WORK IN MPH

LONGITUDINAL BUFFER SPACE	
SPEED (P) MPH	BUFFER SPACE (FEET)
0-35	250
40-45	360
50-55	495
60-70	730

EPG TABLE 616.29 RECOMMENDED MAXIMUM SPEED REDUCTIONS	
ACTIVITY (I.E. WORKERS, EQUIPMENT OR MATERIAL) LOCATION	RECOMMENDED WORK ZONE SPEED REDUCTION (WHEN APPLICABLE)
10 FT. BEYOND EDGE OF TRAVELWAY TO EDGE OF RIGHT OF WAY	NO SPEED REDUCTION
IN TRAFFIC LANE OR WITHIN 10FT. OF THE TRAFFIC LANE	10 MPH
HEAD-TO-HEAD ON MULTILANE	10 MPH
SPECIAL CIRCUMSTANCES WITHIN A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY WARRANT A LOWER SPEED LIMIT THAN RECOMMENDED ABOVE. ALL SPEED LIMIT REDUCTIONS GREATER THAN 10 MPH SHALL BE DOCUMENTED, SUBMITTED TO AND APPROVED BY THE DISTRICT WORK ZONE COORDINATOR.	

GENERAL NOTES:

1. SEE STANDARD PLAN 616.10 FOR DETAILS AND ITEMS NOT SHOWN
2. EXISTING SIGNS SHALL BE COVERED DURING WORKING HOURS ONLY IF IN CONFLICT WITH TRAFFIC CONTROL PLANS.
3. NO DIRECT PAYMENT WILL BE MADE FOR RELOCATING, COVERING, UNCOVERING OR REMOVING SIGNS.
4. CONES ALLOWABLE FOR DAYTIME OPERATIONS ONLY.
5. LOCATE FLASHING ARROW PANEL AT BEGINNING OF TAPER WHEN FEASIBLE, ARROW PANELS ARE ALWAYS LOCATED BEHIND CHANNELIZERS OR CONES.
6. ADJUST SIGN & DEVICE SPACING ACCORDING TO FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

DEVICE SPACING
TRAFFIC CONTROL SHEET
SHEET 1 OF 11

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/14/2012

ROUTE VAR. | STATE MO

DISTRICT KC | SHEET NO. 4

COUNTY PLATTE

JOB NO. J4I2373

CONTRACT ID.

PROJECT NO.

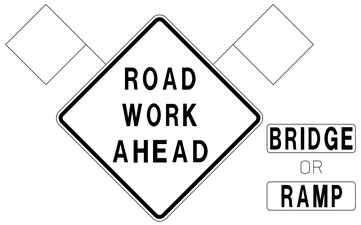
BRIDGE NO.

DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

SIGN LEGEND & DEVICE LEGEND



W020-1
2

W020-2
18

R11-2
29

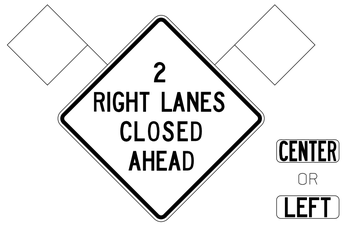
W05-5
34

M04-8a
52

G023-1
54

99

W020-5
5



W020-5a
5A

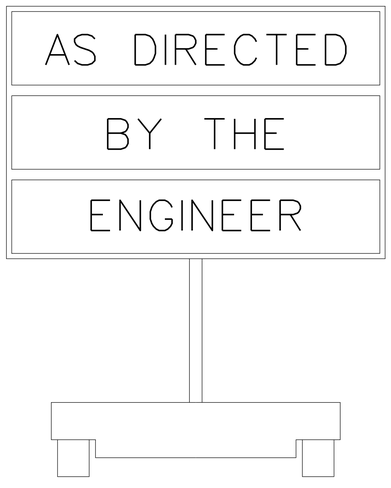
W020-6a
6

CONST-5-48
97

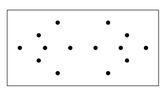
CONST-7-48
98

50B, 50C, 50D, & 50E SIGNS LOCATED ALONG THE FREEWAY SHALL USE A 45° ARROW SYMBOLS AS SHOWN ON THE DETOUR SHEETS.

50B, 50C, 50D, & 50E SIGNS LOCATED ON RAMPS & AT GRADE INTERSECTION SHALL USE 90° ARROW SYMBOLS AS SHOWN ON THE DETOUR SHEETS.



FLASHING ARROW PANNEL (FAP)

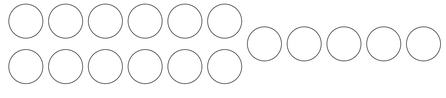


SIGN

TYPE III MOVEABLE BARRICADE

CHANNELIZER (TRIMLINE)

IMPACT ATTENUATOR (17 SAND BARRELS)



SIGN & DEVICE LEGEND
TRAFFIC CONTROL SHEET
SHEET 2 OF 11

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED: 11/14/2012
ROUTE: VAR. | STATE: MO
DISTRICT: KC | SHEET NO.: 5
COUNTY: PLATTE
JOB NO.: J4I2373
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

ADDITIONAL DETOUR GUIDE SIGNING

1) THE GUIDE SIGN ON EXIT 13 WHERE THE LANES FOR THE FLYOVER DEPART SHALL BE HAVE A "CLOSED" PLAQUE APPLIED DURING THE CLOSURE.

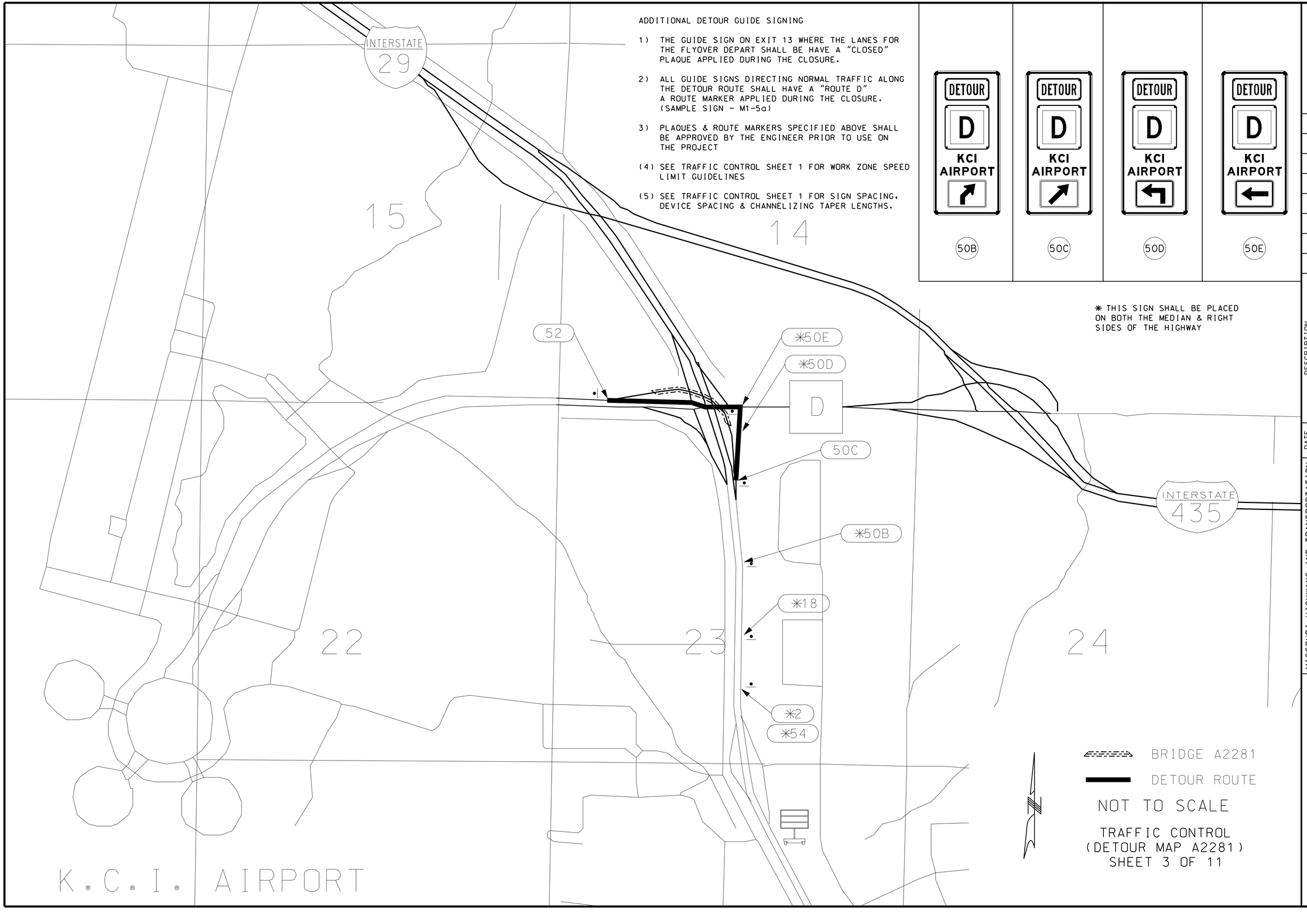
2) ALL GUIDE SIGNS DIRECTING NORMAL TRAFFIC ALONG THE DETOUR ROUTE SHALL HAVE A "ROUTE D" A ROUTE MARKER APPLIED DURING THE CLOSURE. (SAMPLE SIGN - M1-5a)

3) PLAQUES & ROUTE MARKERS SPECIFIED ABOVE SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE ON THE PROJECT

(4) SEE TRAFFIC CONTROL SHEET 1 FOR WORK ZONE SPEED LIMIT GUIDELINES

(5) SEE TRAFFIC CONTROL SHEET 1 FOR SIGN SPACING, DEVICE SPACING & CHANNELIZING TAPER LENGTHS.

✳ THIS SIGN SHALL BE PLACED ON BOTH THE MEDIAN & RIGHT SIDES OF THE HIGHWAY



TRAFFIC CONTROL
(DETOUR MAP A2281)
SHEET 3 OF 11

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DATE PREPARED: 11/14/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	6

COUNTY: PLATTE

JOB NO.: J4I2373

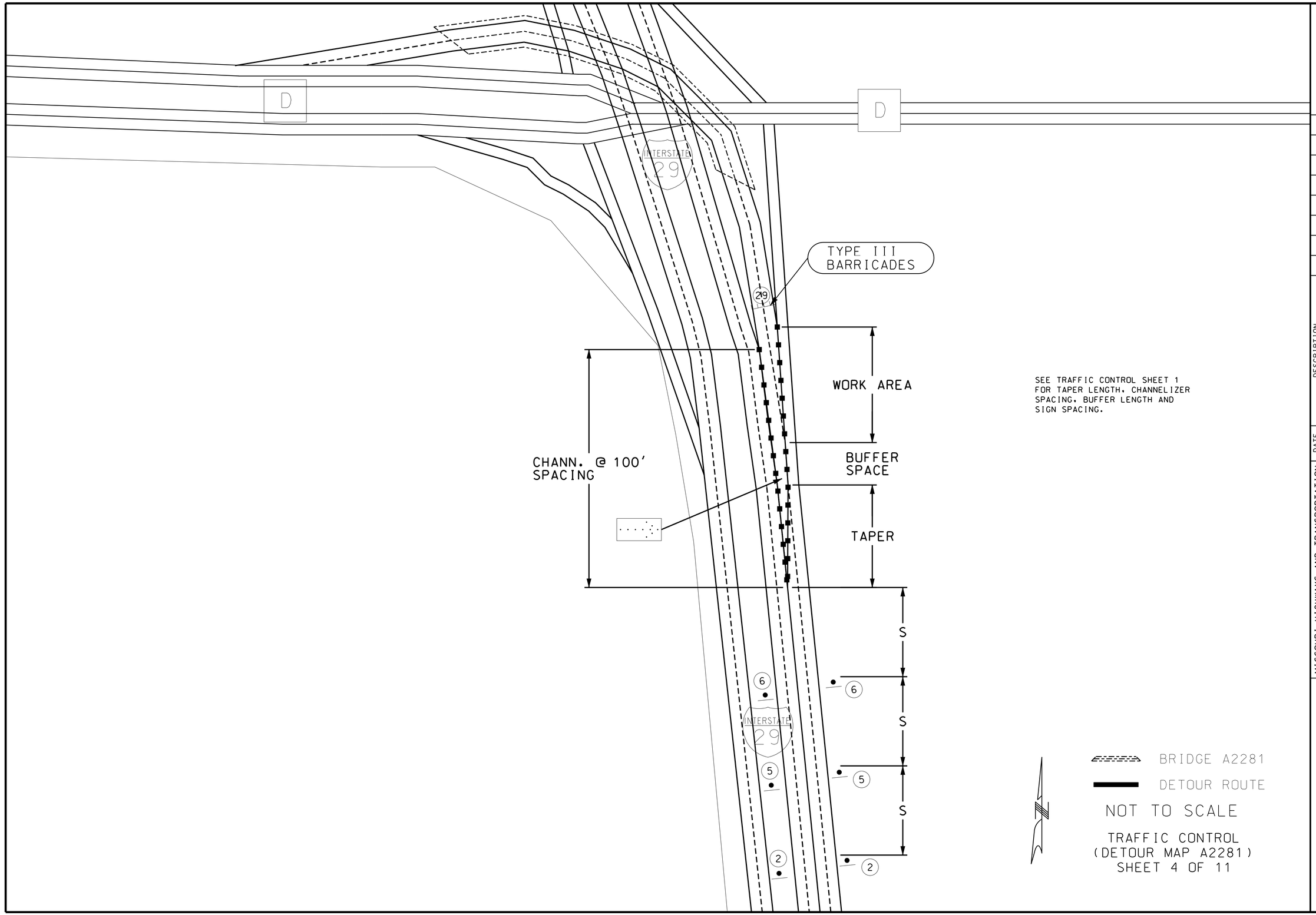
CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



SEE TRAFFIC CONTROL SHEET 1 FOR TAPER LENGTH, CHANNELIZER SPACING, BUFFER LENGTH AND SIGN SPACING.

TRAFFIC CONTROL
(DETOUR MAP A2281)
SHEET 4 OF 11

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED
11/14/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	7

COUNTY
PLATTE

JOB NO.
J4I2373

CONTRACT ID.

PROJECT NO.

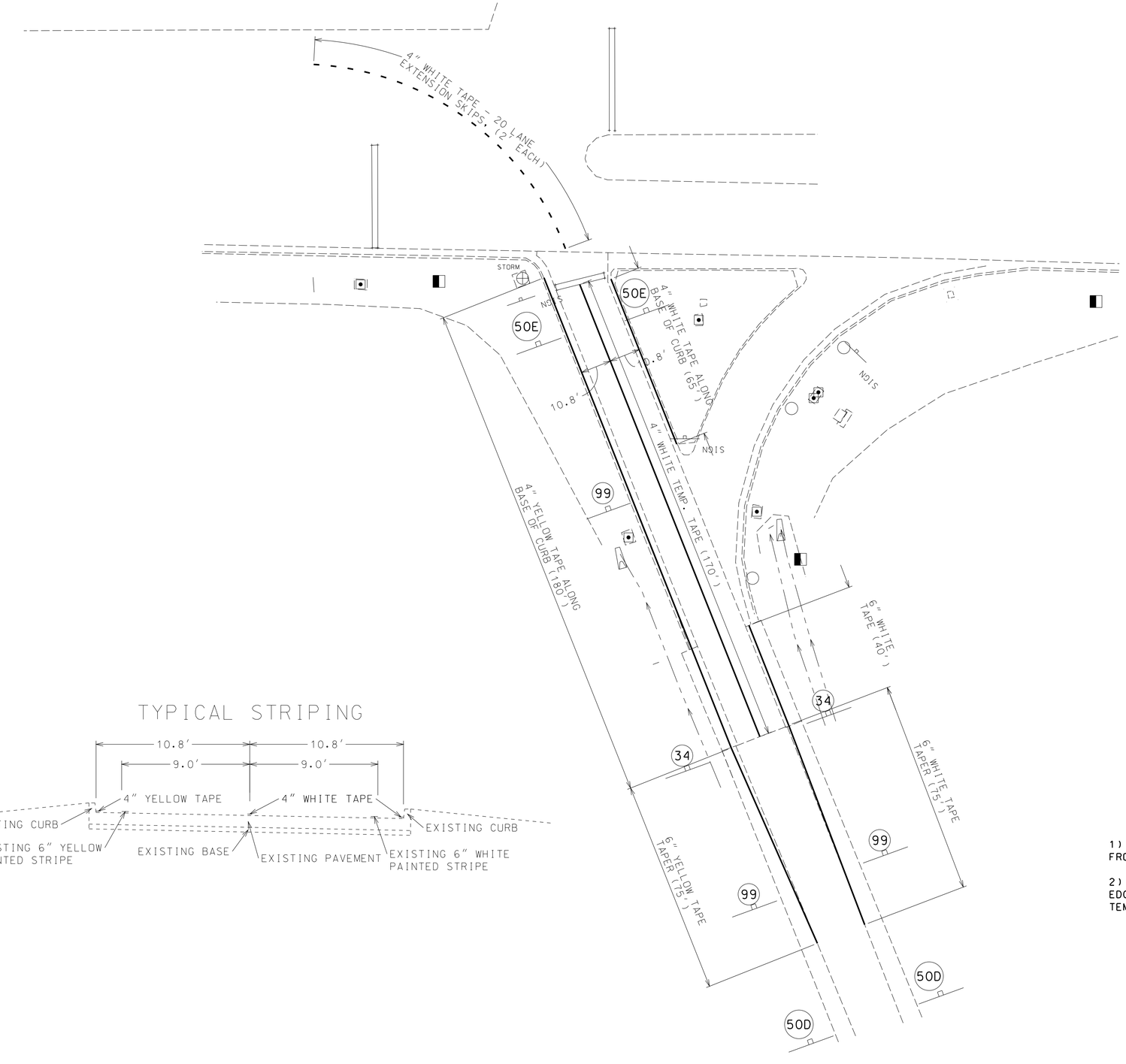
BRIDGE NO.

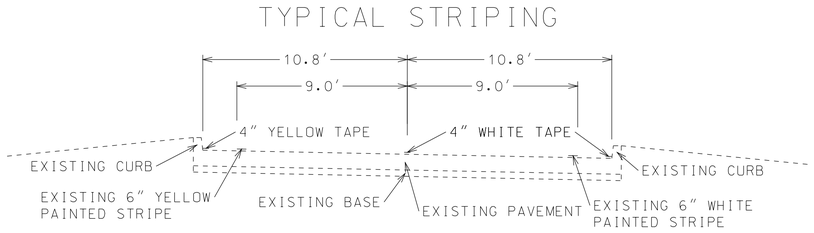
DESCRIPTION	DATE

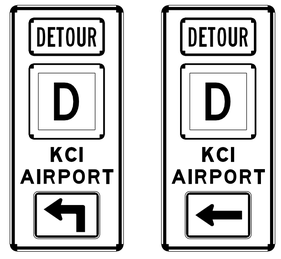
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.







50D 50E

1) REMOVE EXISTING EDGELINES FOR 250' FROM THE INTERSECTION WITH RTE. D.

2) ONCE BRIDGE A2281 REOPENS. ORIGINAL EDGELINES SHALL BE RESTRIPED & ALL TEMPORARY TAPE SHALL BE REMOVED.

SCALE
0 20 40 60

TRAFFIC CONTROL
(DETOUR MAP A2281)
SHEET 5 OF 11

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED
11/14/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	8

COUNTY
PLATTE

JOB NO.
J4I2373

CONTRACT ID.

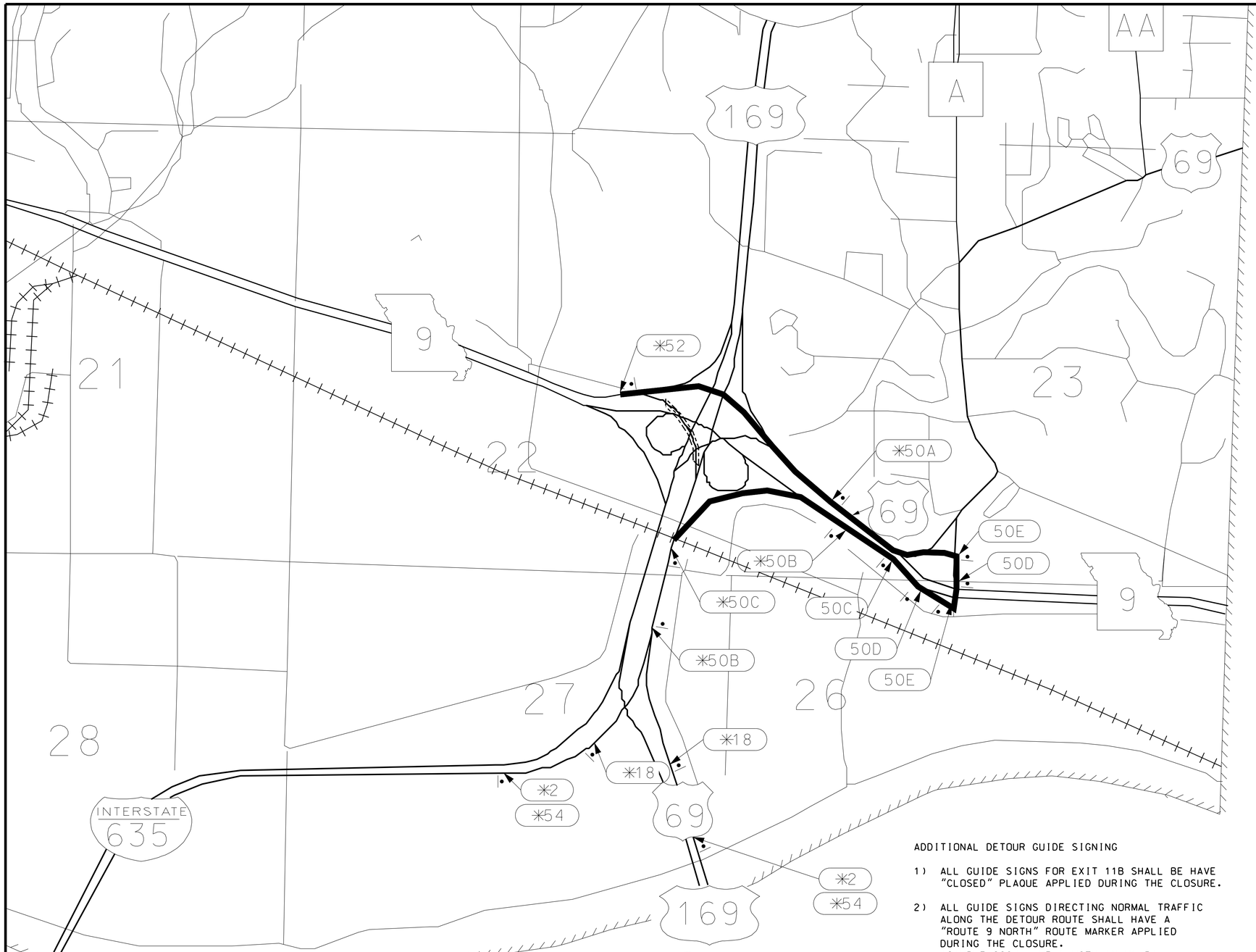
PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



DETOUR M04-8 / NORTH M3-1 / 9 M1-5 / ↑ M6-3 — 50A

DETOUR M04-8 / NORTH M3-1 / 9 M1-5 / ↗ M5-2R — 50B

DETOUR M04-8 / NORTH M3-1 / 9 M1-5 / ↗ M6-2R — 50C

DETOUR M04-8 / NORTH M3-1 / 9 M1-5 / ↰ M5-1L — 50D

DETOUR M04-8 / NORTH M3-1 / 9 M1-5 / ← M6-1L — 50E

✳ THIS SIGN SHALL BE PLACED ON BOTH THE MEDIAN & RIGHT SIDES OF THE HIGHWAY

ADDITIONAL DETOUR GUIDE SIGNING

1) ALL GUIDE SIGNS FOR EXIT 11B SHALL BE HAVE "CLOSED" PLAQUE APPLIED DURING THE CLOSURE.

2) ALL GUIDE SIGNS DIRECTING NORMAL TRAFFIC ALONG THE DETOUR ROUTE SHALL HAVE A "ROUTE 9 NORTH" ROUTE MARKER APPLIED DURING THE CLOSURE. (SAMPLE SIGN - M3-1 WITH AN M1-5)

3) PLAQUES & ROUTE MARKERS SPECIFIED ABOVE SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE ON THE PROJECT

(4) SEE TRAFFIC CONTROL SHEET 1 FOR WORK ZONE SPEED LIMIT GUIDELINES

(5) SEE TRAFFIC CONTROL SHEET 1 FOR SIGN SPACING, DEVICE SPACING & CHANNELIZING TAPER LENGTHS.

BRIDGE A2433

DETOUR ROUTE

NOT TO SCALE

TRAFFIC CONTROL
(DETOUR MAP A2433)
SHEET 6 OF 11

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED: 11/14/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	9

COUNTY: PLATTE

JOB NO.: J4I2373

CONTRACT ID.:

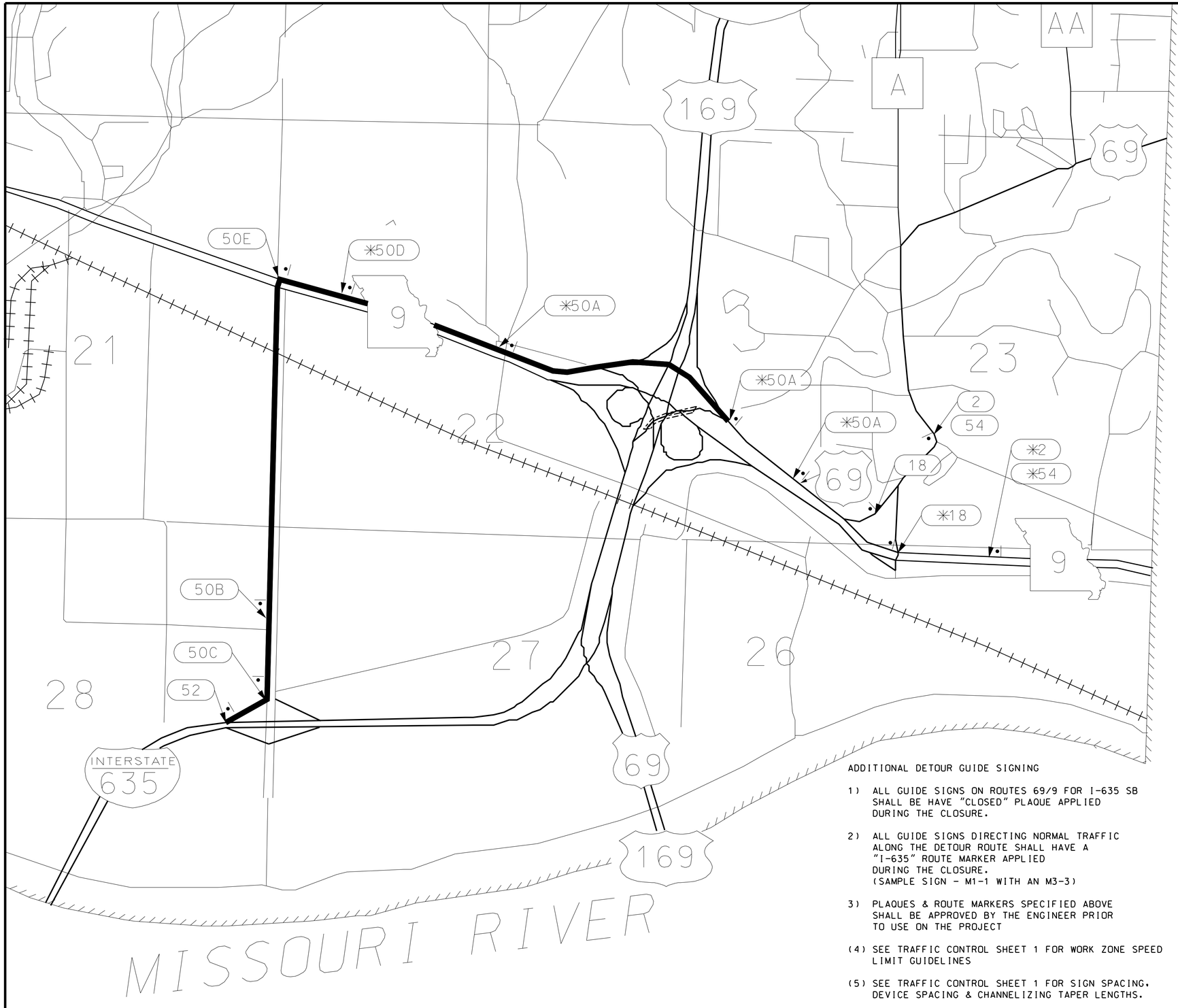
PROJECT NO.:

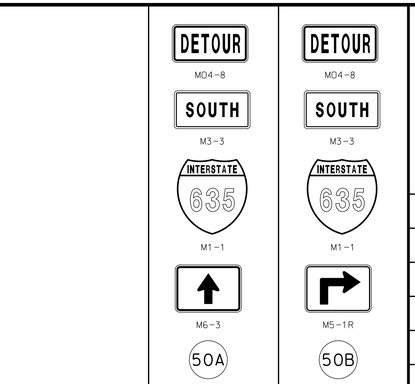
BRIDGE NO.:

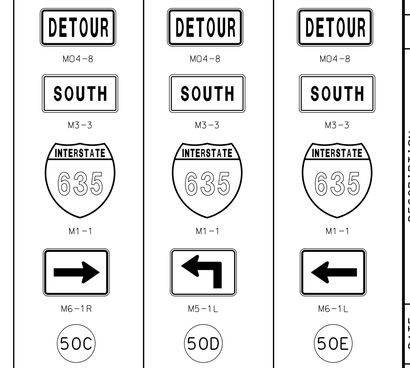
DATE	DESCRIPTION

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT







✳ THIS SIGN SHALL BE PLACED ON BOTH THE MEDIAN & RIGHT SIDES OF THE HIGHWAY

ADDITIONAL DETOUR GUIDE SIGNING

1) ALL GUIDE SIGNS ON ROUTES 69/9 FOR I-635 SB SHALL BE HAVE "CLOSED" PLAQUE APPLIED DURING THE CLOSURE.

2) ALL GUIDE SIGNS DIRECTING NORMAL TRAFFIC ALONG THE DETOUR ROUTE SHALL HAVE A "I-635" ROUTE MARKER APPLIED DURING THE CLOSURE. (SAMPLE SIGN - M1-1 WITH AN M3-3)

3) PLAQUES & ROUTE MARKERS SPECIFIED ABOVE SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE ON THE PROJECT

(4) SEE TRAFFIC CONTROL SHEET 1 FOR WORK ZONE SPEED LIMIT GUIDELINES

(5) SEE TRAFFIC CONTROL SHEET 1 FOR SIGN SPACING, DEVICE SPACING & CHANNELIZING TAPER LENGTHS.

(6) USE TC SHEET 11 OF 11 FOR RIGHT LANE CLOSURE [SPEED REDUCTION & CLOSING TAPER NOT REQUIRED]

BRIDGE A2439 MAY BE CLOSED CONCURRENTLY WITH THIS BRIDGE BY COMBINING BOTH DETOURS

BRIDGE A2434

DETOUR ROUTE

NOT TO SCALE

TRAFFIC CONTROL
(DETOUR MAP A2434)
SHEET 7 OF 11

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED
11/14/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	10

COUNTY
PLATTE

JOB NO.
J4I2373

CONTRACT ID.

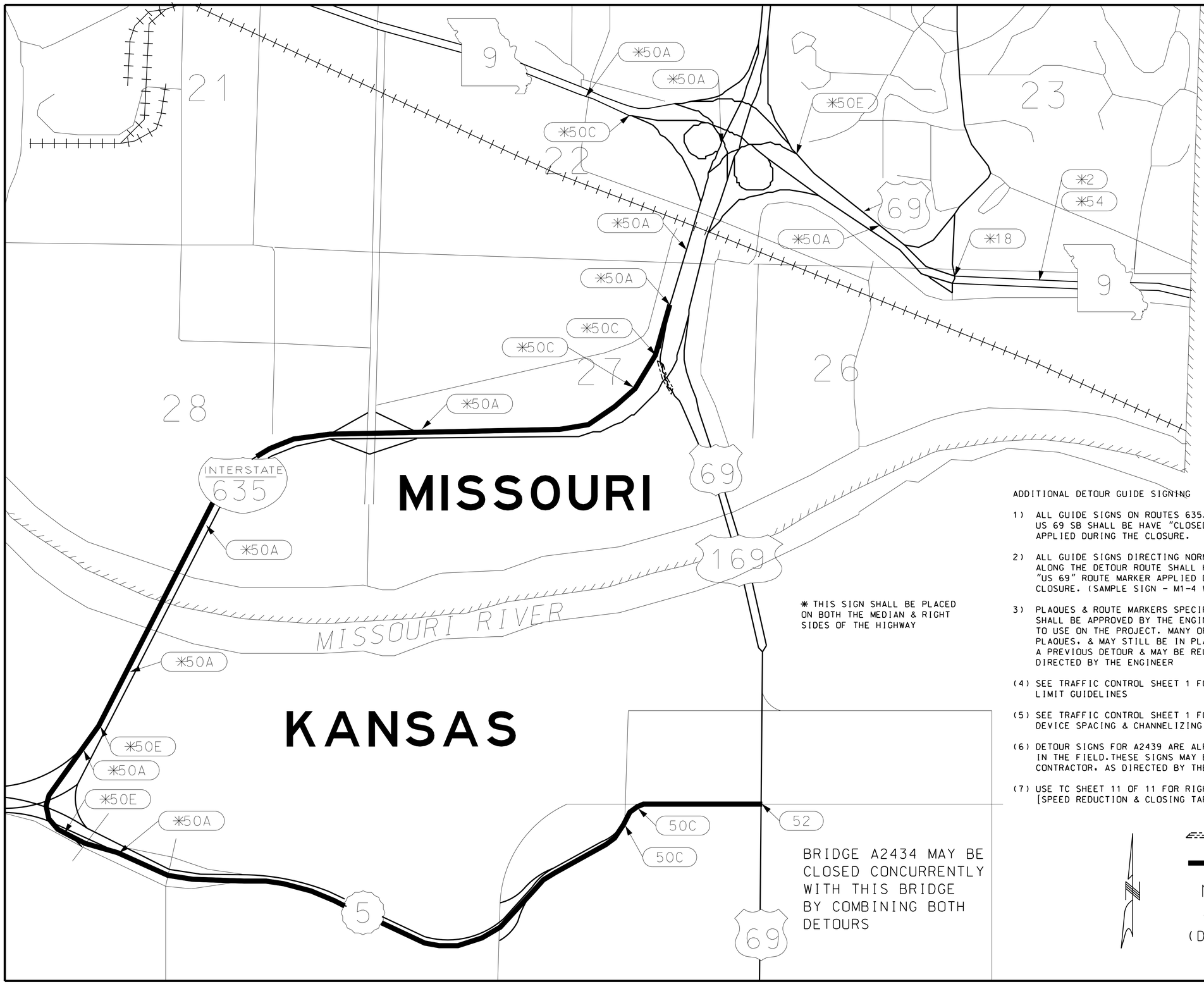
PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



✳ THIS SIGN SHALL BE PLACED ON BOTH THE MEDIAN & RIGHT SIDES OF THE HIGHWAY

BRIDGE A2434 MAY BE CLOSED CONCURRENTLY WITH THIS BRIDGE BY COMBINING BOTH DETOURS

ADDITIONAL DETOUR GUIDE SIGNING

1) ALL GUIDE SIGNS ON ROUTES 635/69/9 FOR US 69 SB SHALL BE HAVE "CLOSED" PLAQUE APPLIED DURING THE CLOSURE.

2) ALL GUIDE SIGNS DIRECTING NORMAL TRAFFIC ALONG THE DETOUR ROUTE SHALL HAVE A "US 69" ROUTE MARKER APPLIED DURING THE CLOSURE. (SAMPLE SIGN - M1-4 WITH AN M3-3)

3) PLAQUES & ROUTE MARKERS SPECIFIED ABOVE SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE ON THE PROJECT. MANY OF THE SIGNS, PLAQUES, & MAY STILL BE IN PLACE FROM A PREVIOUS DETOUR & MAY BE REUSED AS DIRECTED BY THE ENGINEER

(4) SEE TRAFFIC CONTROL SHEET 1 FOR WORK ZONE SPEED LIMIT GUIDELINES

(5) SEE TRAFFIC CONTROL SHEET 1 FOR SIGN SPACING, DEVICE SPACING & CHANNELIZING TAPER LENGTHS.

(6) DETOUR SIGNS FOR A2439 ARE ALREADY PLACED IN THE FIELD.THESE SIGNS MAY BE USED BY THE CONTRACTOR, AS DIRECTED BY THE ENGINEER.

(7) USE TC SHEET 11 OF 11 FOR RIGHT LANE CLOSURE [SPEED REDUCTION & CLOSING TAPER NOT REQUIRED]

BRIDGE A2439

DETOUR ROUTE

NOT TO SCALE

TRAFFIC CONTROL
(DETOUR MAP A2439)
SHEET 8 OF 11

DETOUR M04-8 / SOUTH M3-3 / 69 M1-4 / ↑ M6-3 / 50A

DETOUR M04-8 / SOUTH M3-3 / 69 M1-4 / → M6-1R / 50C

DETOUR M04-8 / SOUTH M3-3 / 69 M1-4 / ← M6-1L / 50E

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED: 11/14/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	11

COUNTY: PLATTE

JOB NO.: J4I2373

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DATE	DESCRIPTION

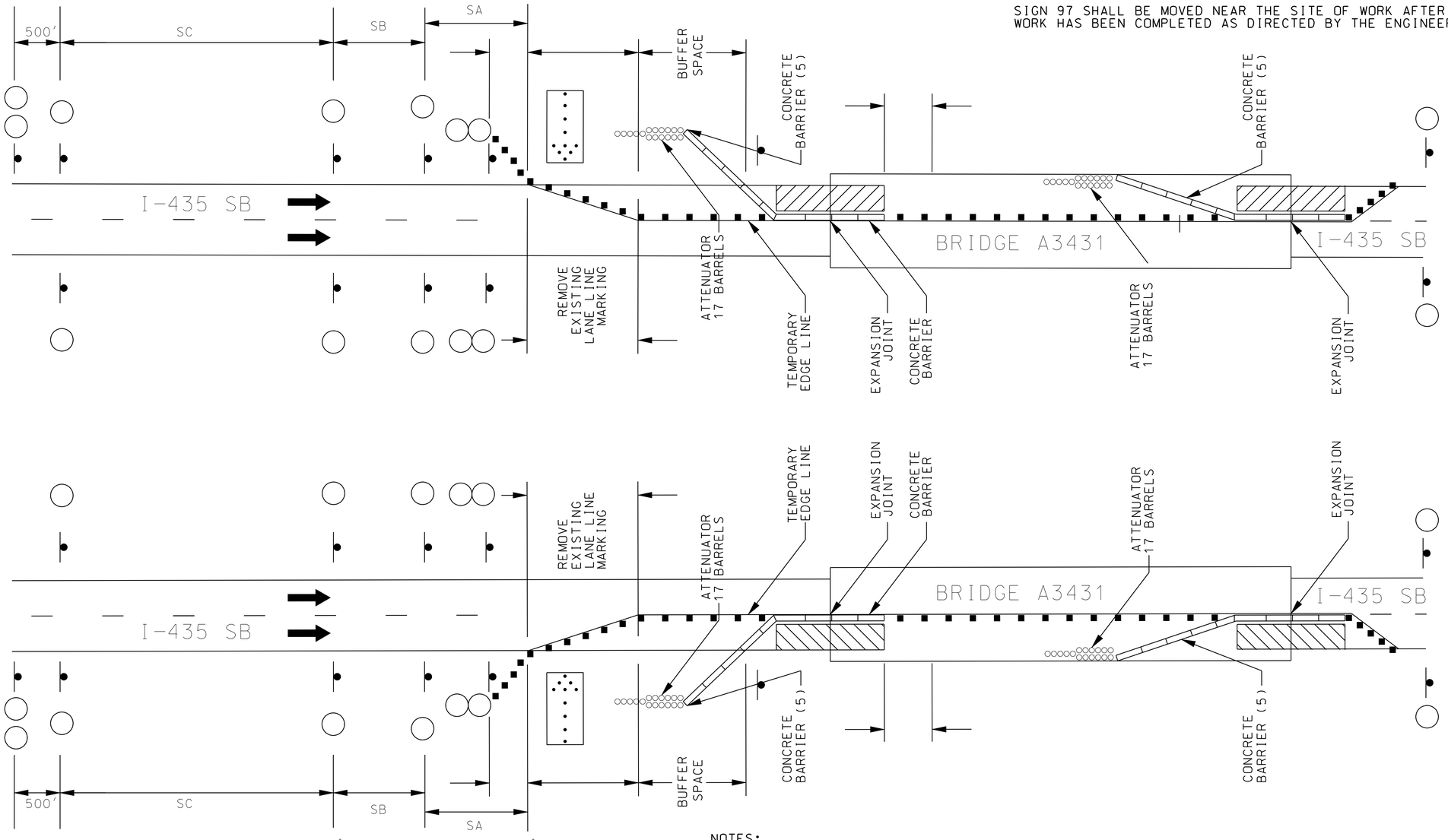
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT

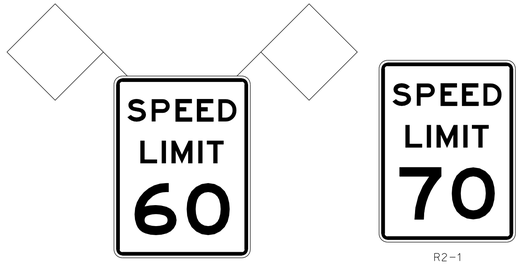
WORKAREA ASSUMED TO BE 50'

SIGN 97 SHALL BE MOVED NEAR THE SITE OF WORK AFTER WORK HAS BEEN COMPLETED AS DIRECTED BY THE ENGINEER.

TWO-LANE DIVIDED HIGHWAY
WITH BARRIER (LT LANE)



TWO-LANE DIVIDED HIGHWAY
WITH BARRIER (RT LANE)



NOTES:

(1). SEE TRAFFIC CONTROL SHEET 1 FOR WORK ZONE SPEED LIMIT GUIDELINES.
(2). SEE TRAFFIC CONTROL SHEET 1 FOR SIGN SPACING, DEVICE SPACING AND CHANNELIZING TAPER LENGTHS.
(3). REMOVE AND/OR MODIFY ANY EXISTING PAVEMENT MARKING AS NEEDED.
(4). TEMPORARY PAVEMENT MARKING REQUIRED.
(5). FLARE BARRIER TO EDGE LINE & USE IMPACT ATTENUATOR (17 SAND BARRELS)
(6). AN ADDITIONAL SIGN 2 SHALL BE PLACED AT THE GORE OF THE SB ENTRANCE RAMP AT EXIT 15 ON I-435 SB

NOT TO SCALE

LANE CLOSURE I-435 SB
BRIDGE A3431
TRAFFIC CONTROL SHEET
SHEET 9 OF 11

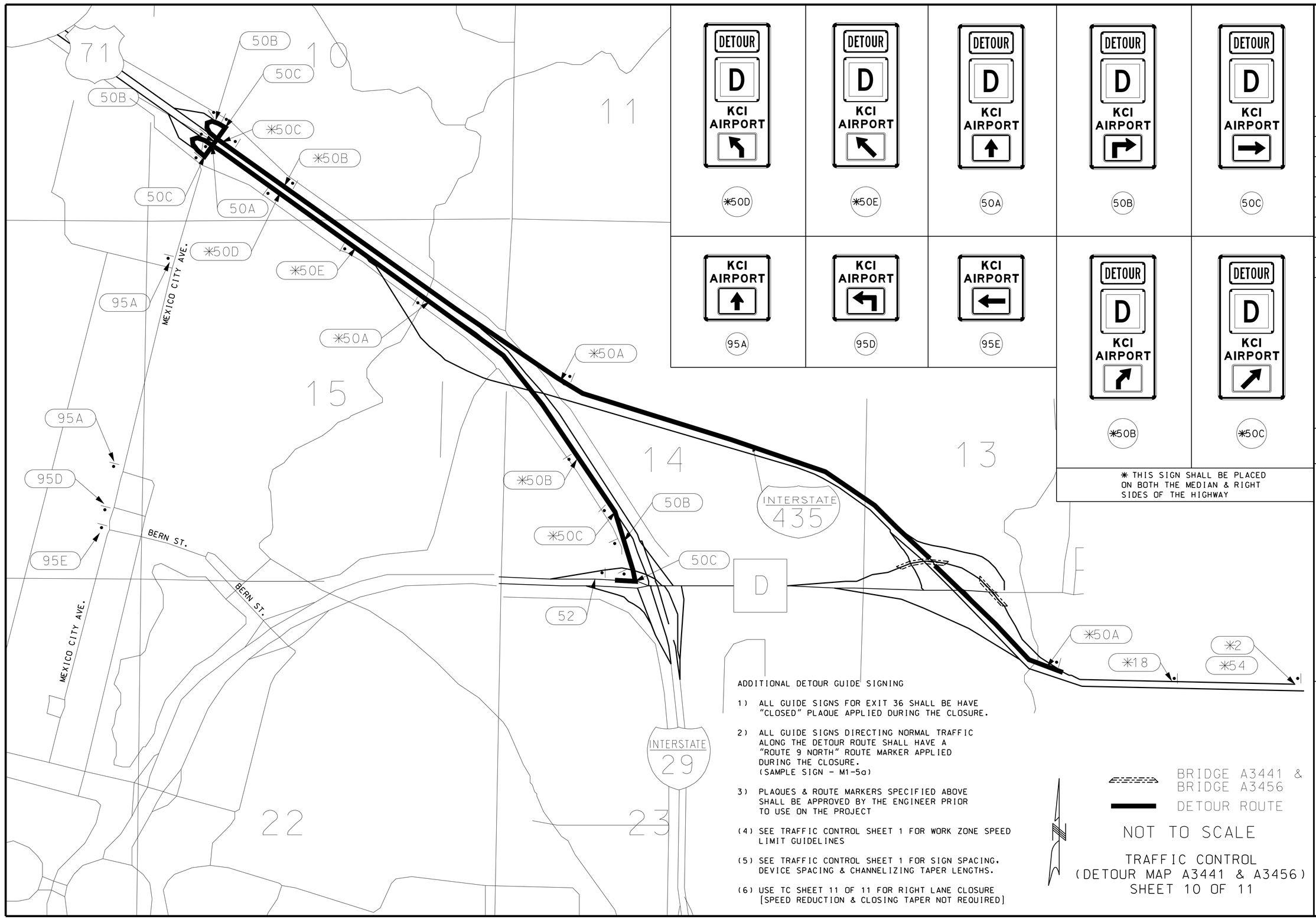
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED: 11/14/2012
ROUTE: VAR. | STATE: MO
DISTRICT: KC | SHEET NO.: 12
COUNTY: PLATTE
JOB NO.: J4I2373
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DATE	DESCRIPTION

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



✳ THIS SIGN SHALL BE PLACED ON BOTH THE MEDIAN & RIGHT SIDES OF THE HIGHWAY

ADDITIONAL DETOUR GUIDE SIGNING

1) ALL GUIDE SIGNS FOR EXIT 36 SHALL BE HAVE "CLOSED" PLAQUE APPLIED DURING THE CLOSURE.

2) ALL GUIDE SIGNS DIRECTING NORMAL TRAFFIC ALONG THE DETOUR ROUTE SHALL HAVE A "ROUTE 9 NORTH" ROUTE MARKER APPLIED DURING THE CLOSURE. (SAMPLE SIGN - M1-5a)

3) PLAQUES & ROUTE MARKERS SPECIFIED ABOVE SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE ON THE PROJECT

(4) SEE TRAFFIC CONTROL SHEET 1 FOR WORK ZONE SPEED LIMIT GUIDELINES

(5) SEE TRAFFIC CONTROL SHEET 1 FOR SIGN SPACING, DEVICE SPACING & CHANNELIZING TAPER LENGTHS.

(6) USE TC SHEET 11 OF 11 FOR RIGHT LANE CLOSURE [SPEED REDUCTION & CLOSING TAPER NOT REQUIRED]

BRIDGE A3441 & BRIDGE A3456

DETOUR ROUTE

NOT TO SCALE

TRAFFIC CONTROL (DETOUR MAP A3441 & A3456) SHEET 10 OF 11

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/14/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	13

COUNTY: PLATTE

JOB NO.: J4I2373

CONTRACT ID.:

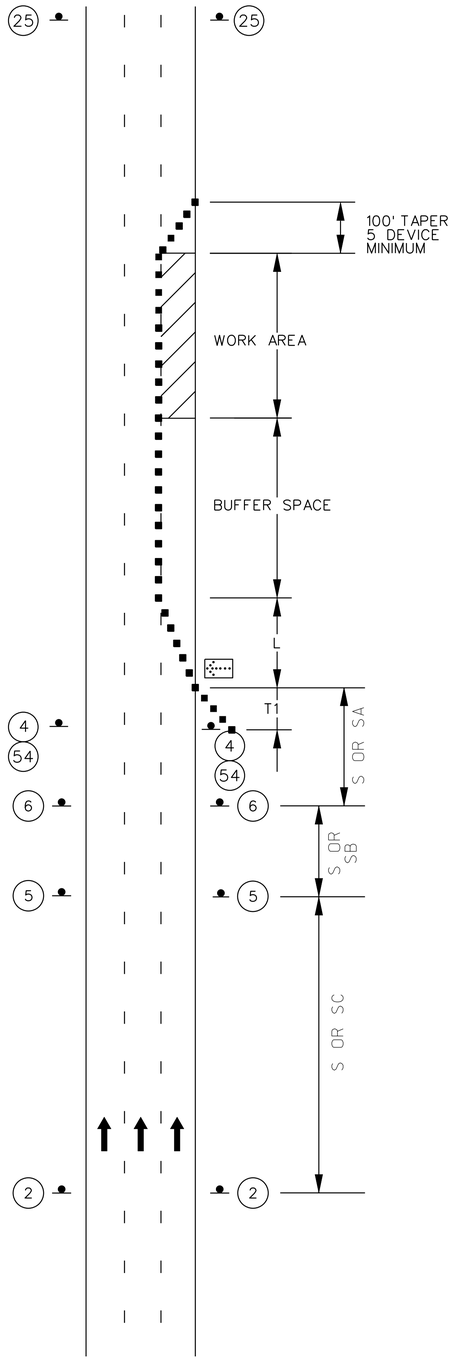
PROJECT NO.:

BRIDGE NO.:

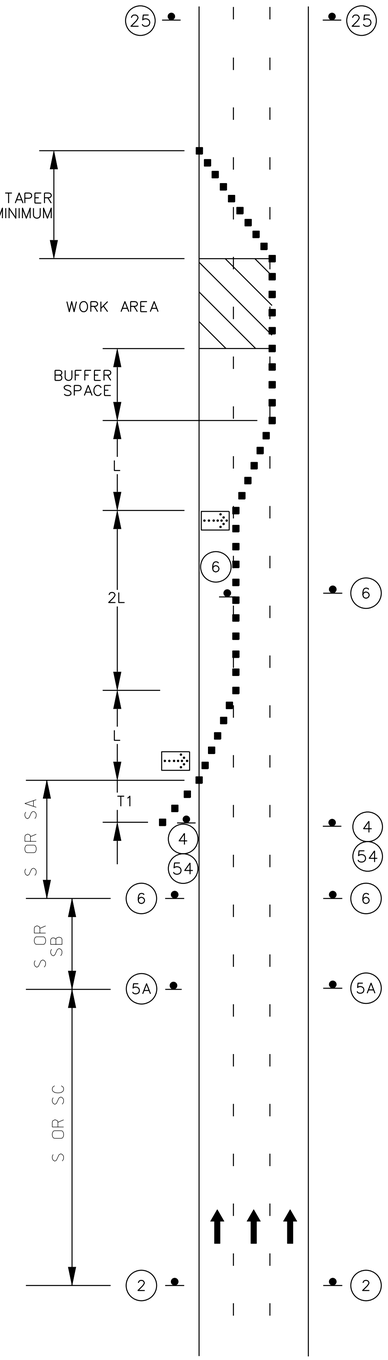
DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



TYPICAL LEFT OR RIGHT LANE CLOSURE
MULTI-LANE DIVIDED HIGHWAY



LANE CLOSURE TWO LANES OF
MULTI-LANE DIVIDE HIGHWAY

R2-1
4

R2-1
NORMAL SPEED
25

NOTES:

(1). SEE TRAFFIC CONTROL SHEET 1 FOR WORK ZONE SPEED LIMIT GUIDELINES.

(2). SEE TRAFFIC CONTROL SHEET 1 FOR SIGN SPACING, DEVICE SPACING AND CHANNELIZING TAPER LENGTHS.

(3). MAINTAIN 12' LANES FOR ALL LANES REMAINING OPEN.

(4). EXISTING PAVEMENT MARKING SHALL NOT BE REMOVED.

(5). TEMPORARY PAVEMENT MARKING IS NOT REQUIRED.

(6). LANE REDUCTIONS SHALL ONLY BE PERFORMED DURING OFF PEAK HOURS AND ONLY AS APPROVED BY THE ENGINEER.

NOT TO SCALE

TRAFFIC CONTROL SHEET
(LANE DROP UNDER BRIDGE)
SHEET 11 OF 11

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED
11/14/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	14

COUNTY
PLATTE

JOB NO.
J4I2373

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

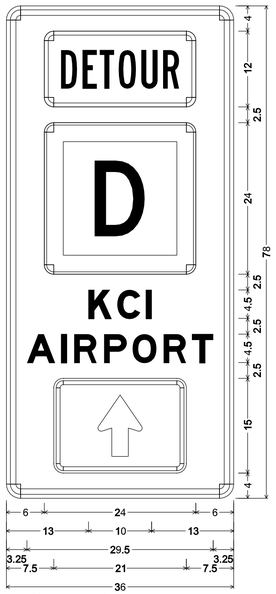
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

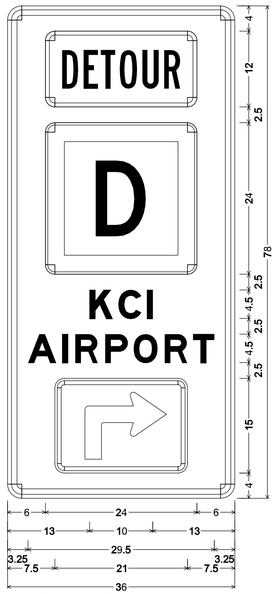
SIGN NO.	50A. 50B. 50C. 50D. 50E
STATION	SEE TC SHEETS 3. 5. & 10 OF 11
ROADWAY	I-29NB & I-435NB RAMPS TO RTE D



MO4-11-36 SHR4L1;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
[KCI] E Mod; [AIRPORT] E Mod;
Table of letter and object lefts.

	6.000							
	6.000							
K	C	I						
13.000	17.625	22.125						
A	I	R	P	O	R	T		
3.250	8.625	10.750	15.500	20.000	24.875	29.375		
	7.500							

50A



MO4-11-36 SHR4L1;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
[KCI] E Mod; [AIRPORT] E Mod;
Table of letter and object lefts.

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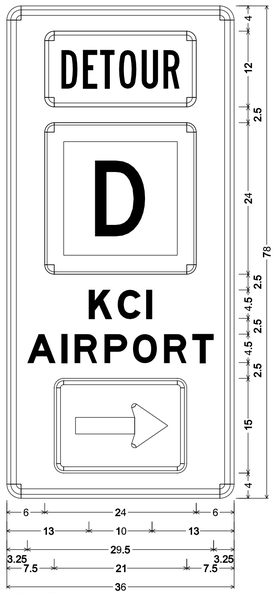
	6.000							
K	C	I						
13.000	17.625	22.125						
A	I	R	P	O	R	T		
3.250	8.625	10.750	15.500	20.000	24.875	29.375		
	7.500							

50B



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2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
[KCI] E Mod; [AIRPORT] E Mod;
Table of letter and object lefts.

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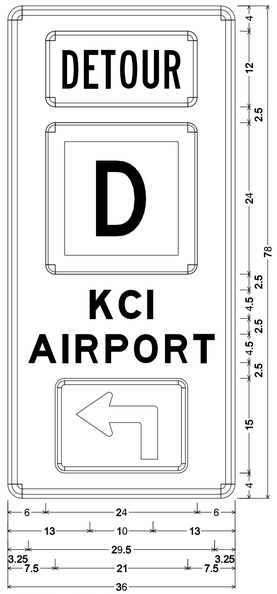
	6.000							
K	C	I						
13.000	17.625	22.125						
A	I	R	P	O	R	T		
3.250	8.625	10.750	15.500	20.000	24.875	29.375		
	7.500							

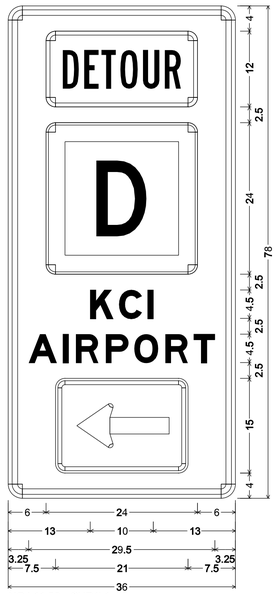
50C



MO4-11-36 SHR4L1;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
[KCI] E Mod; [AIRPORT] E Mod;
Table of letter and object lefts.

	6.000							
	6.000							
K	C	I						
13.000	17.625	22.125						
A	I	R	P	O	R	T		
3.250	8.625	10.750	15.500	20.000	24.875	29.375		
	7.500							

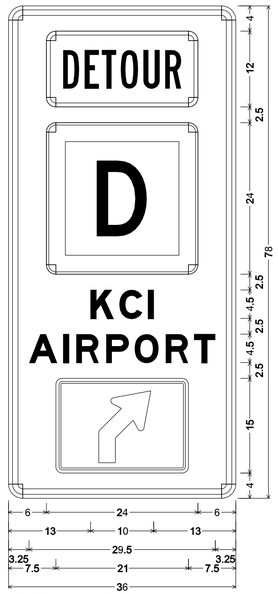
50D



MO4-11-36 SHR4L1;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
[KCI] E Mod; [AIRPORT] E Mod;
Table of letter and object lefts.

	6.000							
	6.000							
K	C	I						
13.000	17.625	22.125						
A	I	R	P	O	R	T		
3.250	8.625	10.750	15.500	20.000	24.875	29.375		
	7.500							

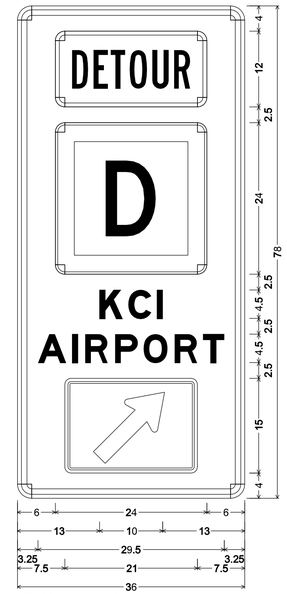
50E



MO4-11-36 SHR4L1;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
[KCI] E Mod; [AIRPORT] E Mod;
Table of letter and object lefts.

	6.000							
	6.000							
K	C	I						
13.000	17.625	22.125						
A	I	R	P	O	R	T		
3.250	8.625	10.750	15.500	20.000	24.875	29.375		
	7.500							

50B



MO4-11-36 SHR4L1;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
[KCI] E Mod; [AIRPORT] E Mod;
Table of letter and object lefts.

	6.000							
	6.000							
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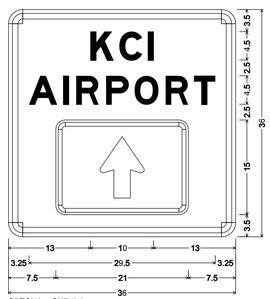
13.000	17.625	22.125						
A	I	R	P	O	R	T		
3.250	8.625	10.750	15.500	20.000	24.875	29.375		
	7.500							

50C



SPECIAL SHR4L1;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
[KCI] E Mod; [AIRPORT] E Mod;
Table of letter and object lefts.

K	C	I						
13.000	17.625	22.125						
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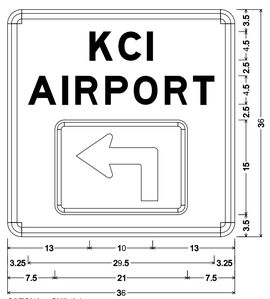
95A



SPECIAL SHR4L1;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
[KCI] E Mod; [AIRPORT] E Mod;
Table of letter and object lefts.

K	C	I						
13.000	17.625	22.125						
A	I	R	P	O	R	T		
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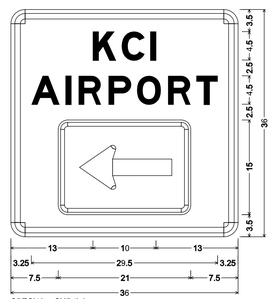
	7.500							

95D

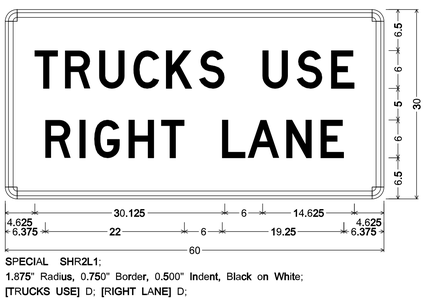


SPECIAL SHR4L1;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
[KCI] E Mod; [AIRPORT] E Mod;
Table of letter and object lefts.

K	C	I						
13.000	17.625	22.125						
A	I	R	P	O	R	T		
3.250	8.625	10.750	15.500	20.000	24.875	29.375		
	7.500							

95E

SIGN NO.	95
STATION	SEE TC SHEET 10 OF 11
ROADWAY	MEXICO CITY AVE.



SPECIAL SHR2L1;
1.875" Radius, 0.750" Border, 0.500" Indent, Black on White;
[TRUCKS USE] D; [RIGHT LANE] D;
Table of letter and object lefts.

T	R	U	C	K	S	U	S	E	
4.625	9.500	14.875	20.375	25.500	30.750	40.750	46.250	51.625	
R	I	G	H	T	L	A	N	E	
6.375	11.750	14.125	19.625	24.750	34.375	38.375	44.500	50.000	

99

SIGN NO.	99
STATION	SEE TC SHEET 5 OF 11
ROADWAY	I-29NB RAMP TO RTE D

SIGNING SHEET
D-31
SHEET 1 OF 1

D-31

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED
11/14/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	15

COUNTY
PLATTE

JOB NO.
J4I2373

CONTRACT ID.

PROJECT NO.

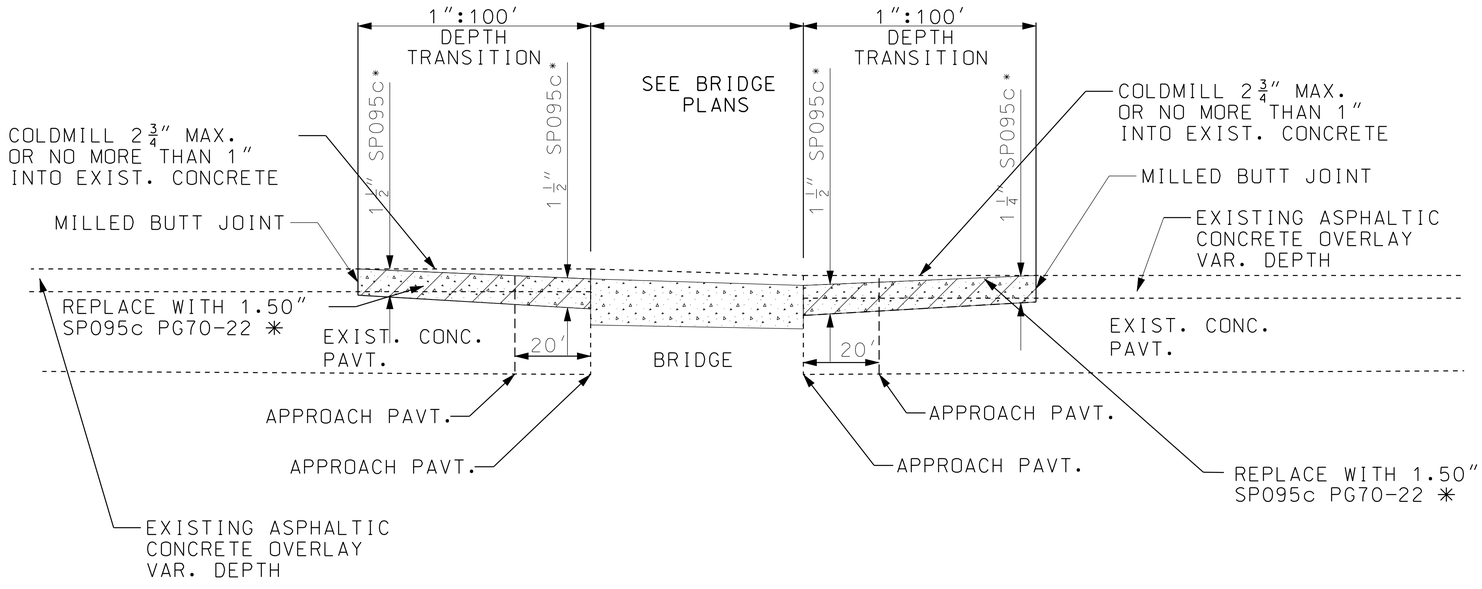
BRIDGE NO.

DATE	DESCRIPTION

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

REV.



DEPTH TRANSITIONS AT BRIDGES (A2281, A2433, A2434, & A2439)

ANY WORK INDICATED ON THE PLANS THAT EXTENDS BEYOND THE PROJECT LIMITS IS CONSIDERED INCIDENTAL TO AND A PART OF THE CONSTRUCTION OF THIS PROJECT.

NOTE:

DECKS ON BRIDGE A2433, A2434 & A2439 SHALL BE 1¼" LOWER THAN EXISTING

NEW WEARING SURFACE ON BRIDGE A2281 SHALL BE ¼" LOWER THAN EXISTING

COLDMILL

NEW PAVEMENT

NOTE:

✳ ON SHOULDERS, USE BITUMINOUS PAVEMENT MIXTURE BP-1

NOT TO SCALE

DEPTH TRANS.

1) SP095c 1.969 TON/CY.
2) BP-1 1.971 TON/CY
3) POLYMER MODIFIED TACK 0.10 GAL/SQ. YD. (SEE JSP)

SPECIAL SHEET
SHEET 1 OF 2

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/14/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	16

COUNTY: PLATTE

JOB NO.: J4I2373

CONTRACT ID.:

PROJECT NO.:

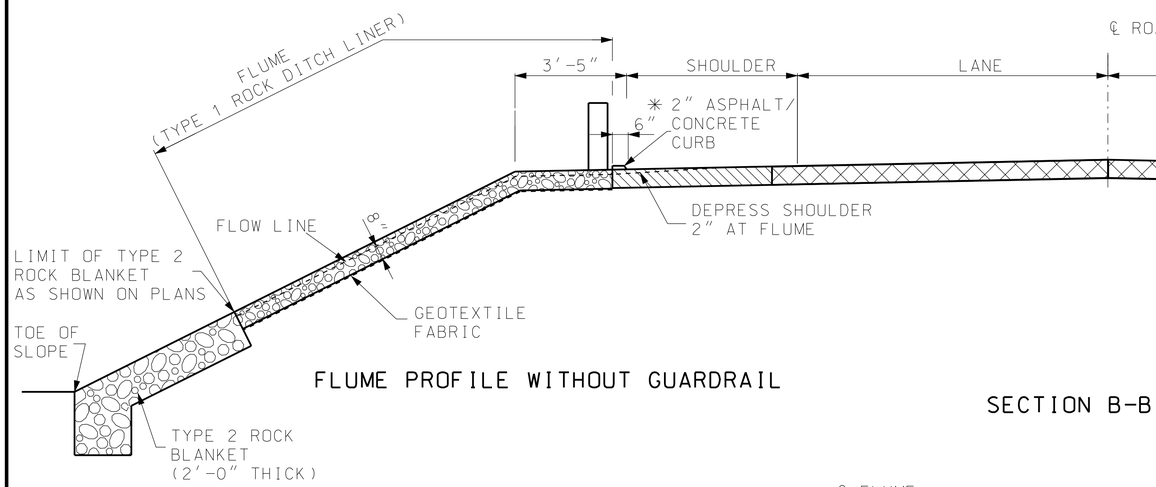
BRIDGE NO.:

DESCRIPTION	DATE

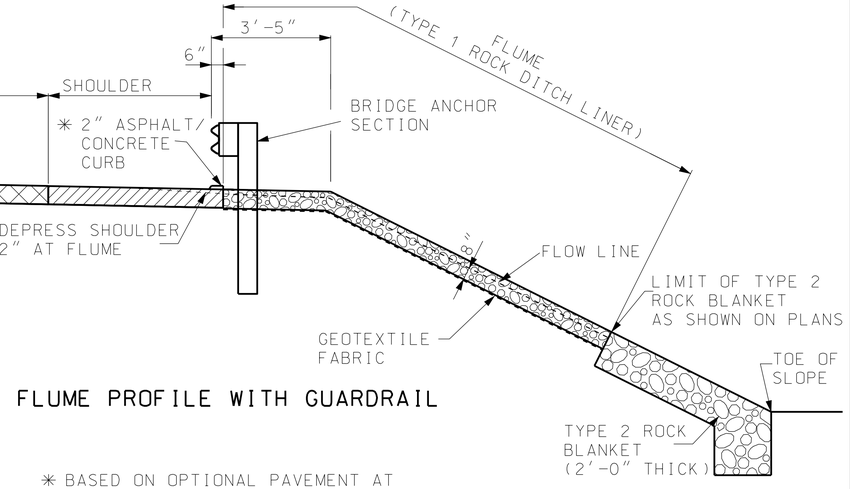
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



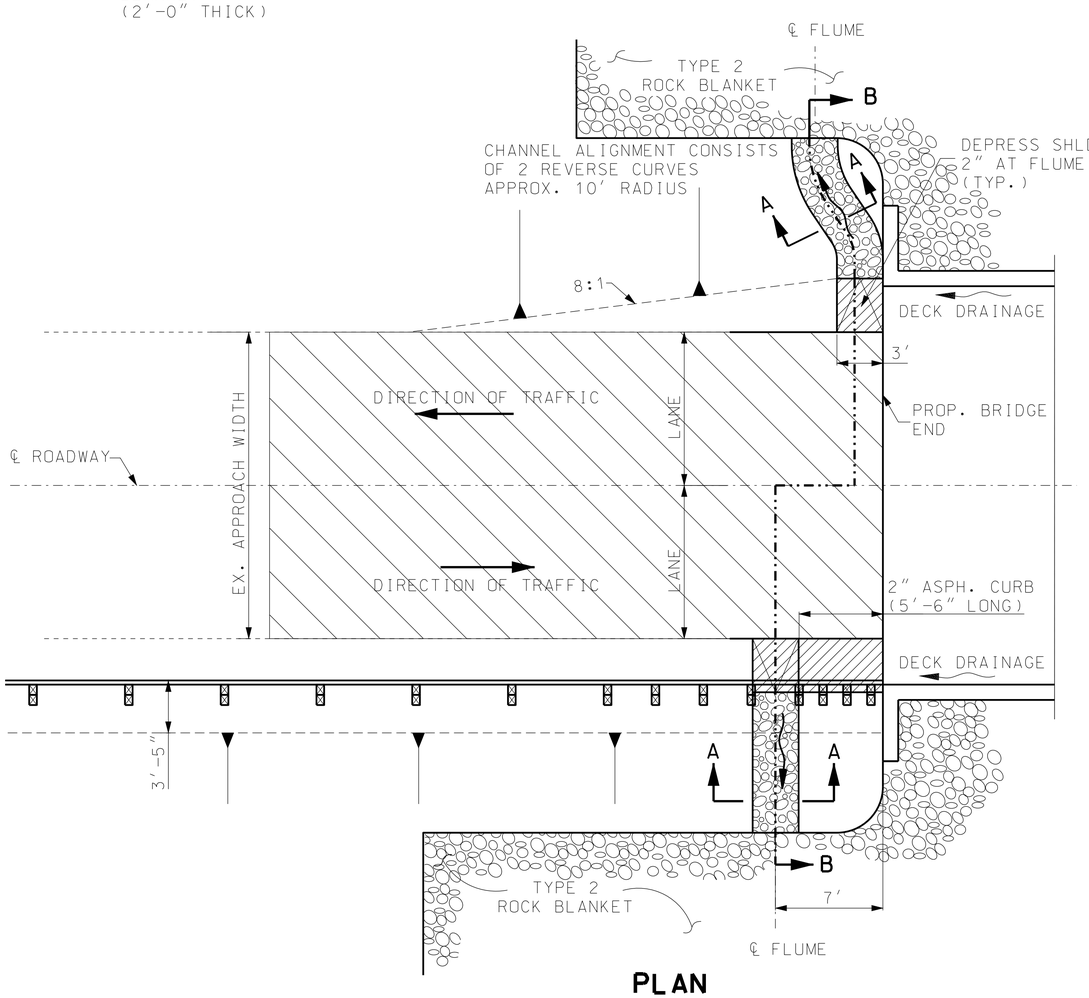
FLUME PROFILE WITHOUT GUARDRAIL



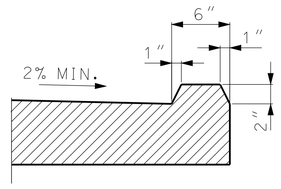
FLUME PROFILE WITH GUARDRAIL

* BASED ON OPTIONAL PAVEMENT AT BRIDGE ENDS SELECTION

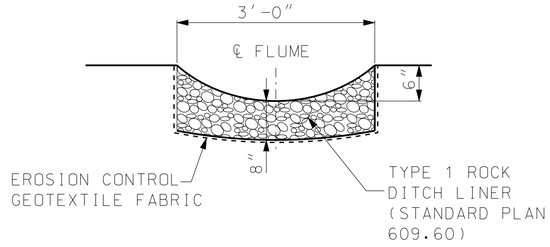
SECTION B-B



PLAN



ASPHALT/CONCRETE CURB



SECTION A-A

LEGEND

PAVED SHOULDER
(SEE SPECIAL SHEET - PAVEMENT TRANSITION AT BRIDGE ENDS)

ASPHALT/CONCRETE
OVERLAY (IF REQUIRED
FOR GRADE CHANGE)

ROCK FLUME
ALSO SEE JOB SPECIAL PROVISIONS

SPECIAL SHEET
SHEET 2 OF 2

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED: 11/19/2012

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	17

COUNTY: PLATTE

JOB NO.: J4I2373

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

SEC/SUR 14 TWP 52N RGE 34W

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

U.I.P. AND REHAB EXISTING (70'-105'-110'-105')(6'-100'-118'-118'-100') CONTINUOUS CONCRETE BOX GIRDER SPANS

General Notes:

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A
Bridge Deck Rating = 5

Design Loading:
HS20-44 Military 24,000# Tandem Axle (1968 & New Construction)
15#/Sq. Ft. Future Wearing Surface
Fatigue Stress - Case I

Design Unit Stresses:

Class B-2 Concrete (Superstructure, except Safety Barrier Curb)	f'c = 4,000 psi
Class B-1 Concrete (Safety Barrier Curb)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Miscellaneous:
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

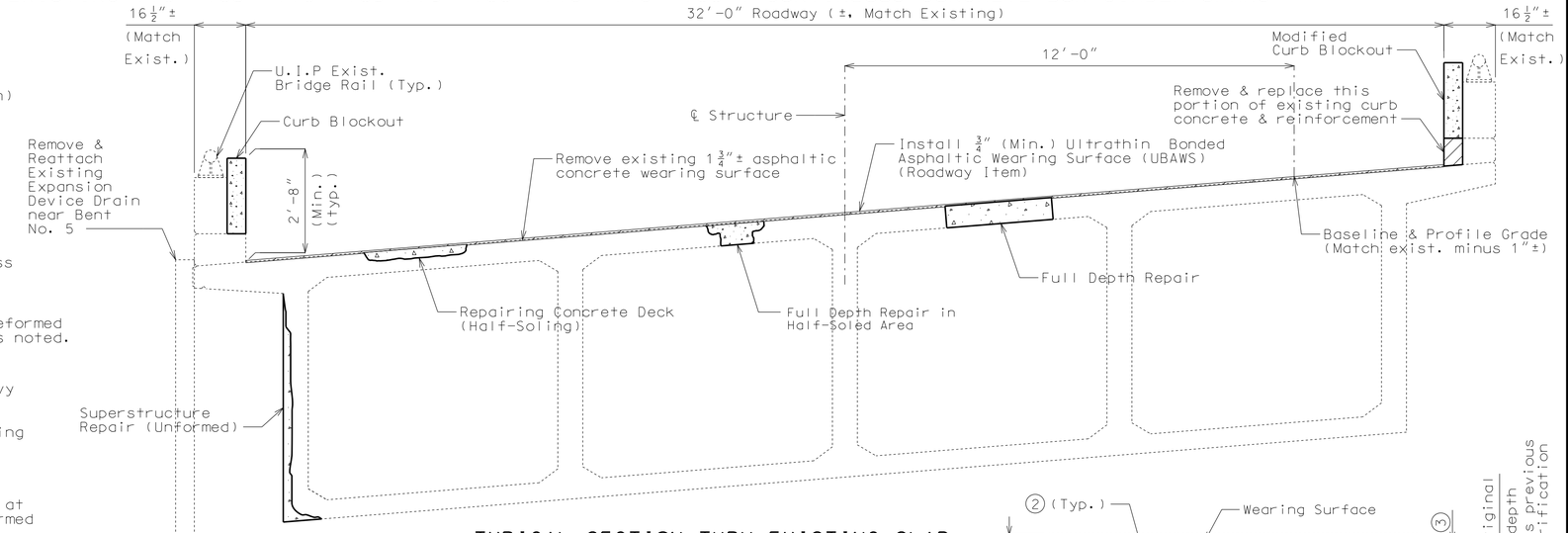
For PLAN OF SLAB SHOWING SPECIAL REPAIR ZONES, see A-2281R bridge plans Sh. 1 of 4.

Any half-soling required in the areas designated as special repair zones shall be completed in alphabetical sequence. Any repair in the remainder of the bridge that is adjacent to Zone A and not designated as a special repair zone shall be completed prior to work in Zone A.

Removal and repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone. Before placing concrete in areas adjacent to areas of subsequent repair, the concrete shall be separated with a material such as polyethylene sheets to aid in removal of old concrete.

Zones with the same letter designation may be repaired at the same time except for the zones directly adjacent to the centerline of bent. If either of the zones adjacent to centerline of bent has a single repair area of over 10 square feet or a total repair area of over 20 square feet, that zone shall be repaired before removing concrete in the other zone of the same designation at that bent.

Total width of full depth repair shall not exceed 1/3 of the deck width at one time. For any area of deck repair that extends over a concrete girder and is more than 18 inches in length along the girder, the concrete removal shall stop at the centerline of girder and repair completed in this area. Prior to continuing work in this area, the concrete shall have attained a compressive strength of 3200 psi. No traffic shall be permitted over the girder that is undergoing repair.



TYPICAL SECTION THRU EXISTING SLAB

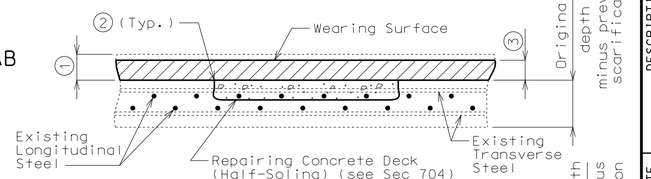
Miscellaneous (cont.):

When the full depth repair extends over a diaphragm or girder and the deteriorated concrete extends into the diaphragm or girder, all deteriorated concrete shall be removed and replaced as full depth repair. Concrete in girders shall not be removed below the deck haunch of the girder without prior review and approval from the engineer.

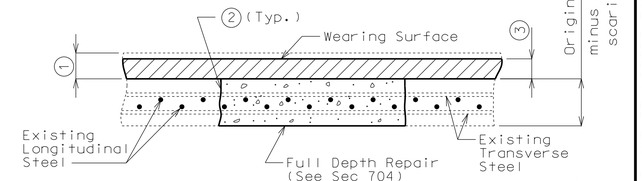
Interior falsework installed by the contractor resting on the bottom slab shall be removed where entry access is available.

If any single repair area does not exceed 9 square feet in size and the total repair within a special repair zone does not exceed 27 square feet, the special repair zone requirement does not apply for that zone. Half-soling repair in the special repair zone, on either side of the intermediate bents, shall be to a depth that will not expose half the diameter of the longitudinal reinforcing bar. Full depth repair shall be made when removal of deteriorated concrete exposes half or more of the diameter of the longitudinal reinforcing bar.

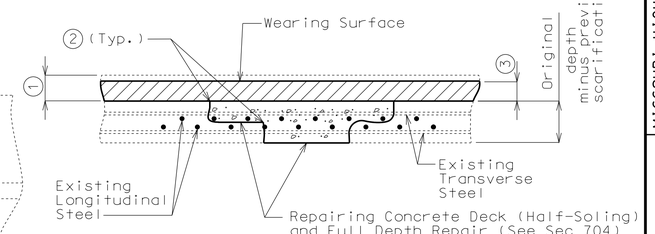
Traffic Handling:
Structure to be closed during construction.



HALF-SOLED AREA



FULL DEPTH REPAIR



FULL DEPTH REPAIR
WITH HALF-SOLED REPAIR

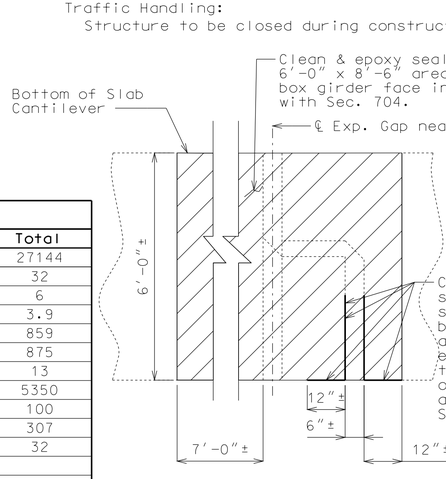
① Remove existing wearing surface.

② One inch vertical side shall be established outside the deteriorated area. See Sec 704.

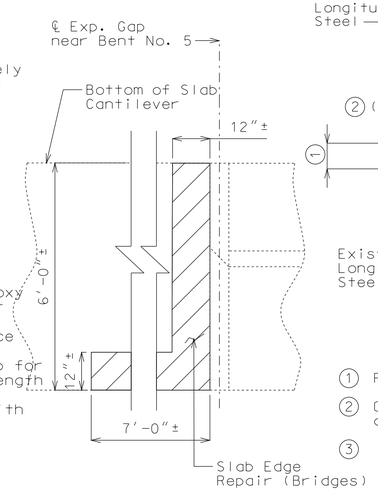
③ ¾" (min.) UBAWS overlay. (Roadway Item)

Estimated Quantities

Item		Total
Removal of Asphalt Wearing Surface	sq. foot	27144
Removal of Existing Expansion Joints & Adjacent Concrete	linear foot	32
Remove and Replace Curb and Parapet	linear foot	6
Class B-2 Concrete	cu. yard	3.9
Curb Blockout	linear foot	859
Modified Curb Blockout	linear foot	875
Superstructure Repair (Unformed)	sq. foot	13
Repairing Concrete Deck (Half Soling)	sq. foot	5350
Full Depth Repair	sq. foot	100
Clean and Epoxy Seal	sq. foot	307
Strip Seal Expansion Joint System	linear foot	32



TYPICAL ELEVATION NEAR
INT. BENT NO. 5
SHOWING EPOXY SEAL



TYPICAL ELEVATION NEAR
INT. BENT NO. 5
SHOWING SUPERSTRUCTURE REPAIR
(UNFORMED)

Designed Sep. 2012
Detailed Sep. 2012
Checked Sep. 2012

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

REPAIRS TO BRIDGE: RAMP 4 (I-29/71 NBL TO RTE. D WBL) OVER I-29/71
STATE ROAD FROM RTE. 152 TO I-435
AT RTE. D
STA. 15+51.21 (Match Existing)

STD. 617.10
STD. 706.35

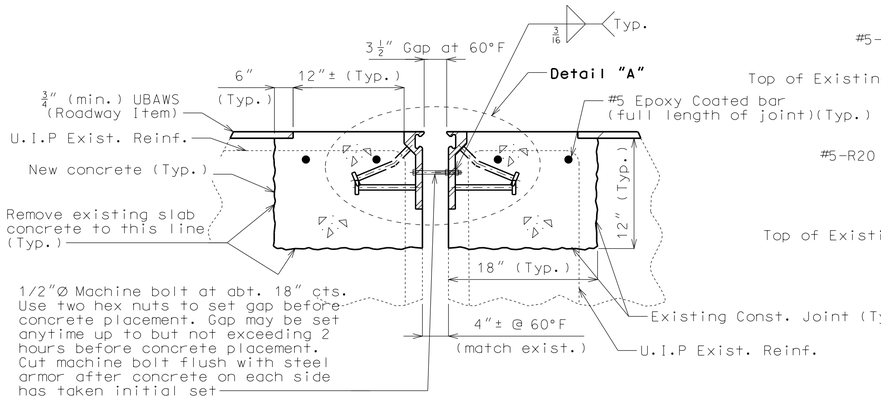
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-29 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A22813

DESCRIPTION | DATE

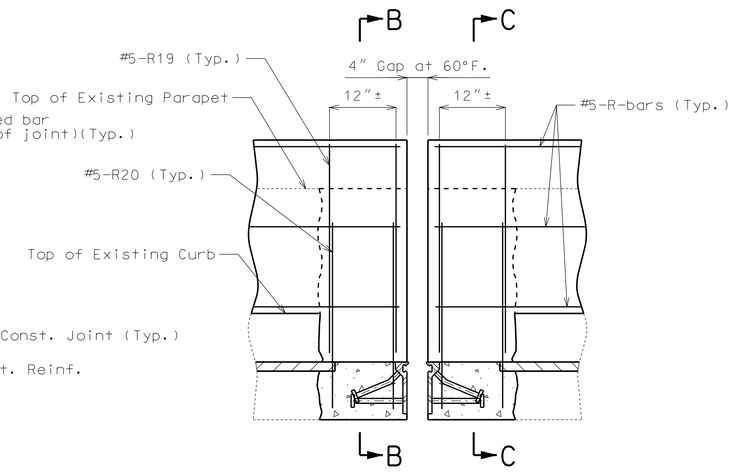
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



SECTION A-A

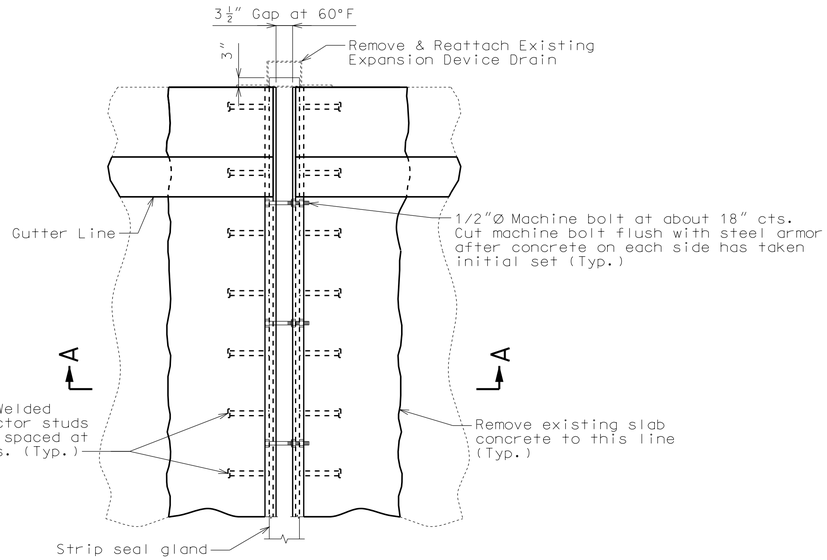
Note: Strip seal gland not shown for clarity.



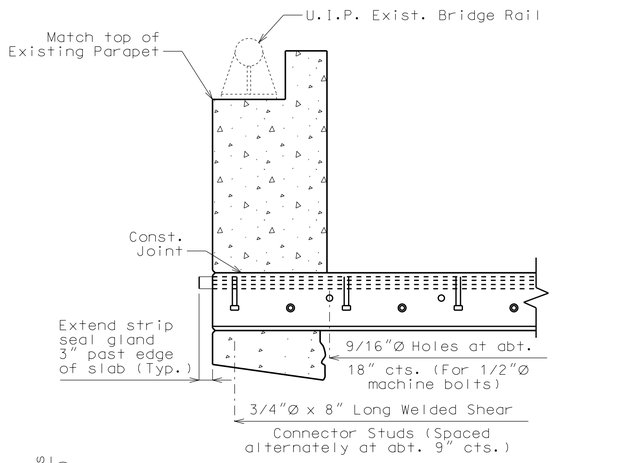
Note: Strip seal gland not shown for clarity.

PART ELEVATION OF LEFT CURB

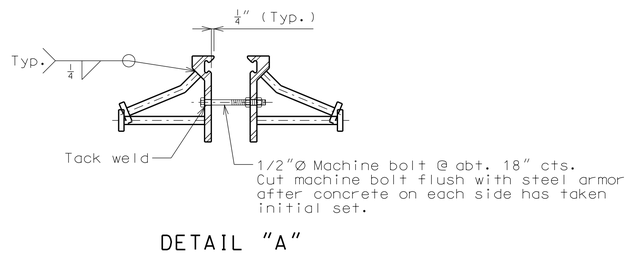
(Right Curb similar)



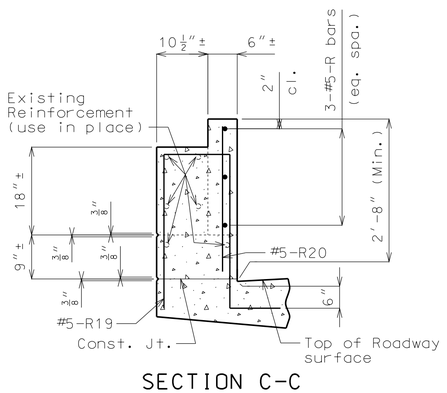
PART PLAN



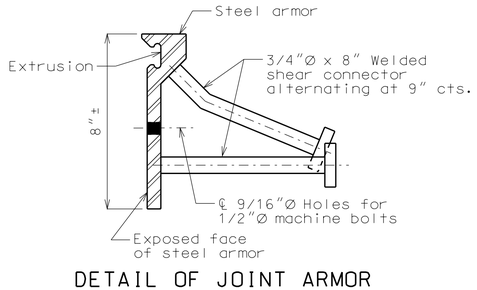
PART SECTION B-B



DETAIL "A"



SECTION C-C



DETAIL OF JOINT ARMOR

Strip seal gland size = 5"

DETAIL OF GLAND

GENERAL NOTES:

Expansion joint system shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove welded splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion joint system shall be fabricated and installed to the crown and grade of the roadway.

The strip seal gland shall be installed in joints in one continuous piece without field splices. Factory splicing will be permitted for joints in excess of 53 feet.

Structural steel for the expansion joint system shall be ASTM A709 Grade 36 except the steel armor may be ASTM A709 Grade 50W. Anchors for the expansion joint system shall be in accordance with Sec 1037. Strip seal expansion joint system shall be in accordance with Sec 717.

Structural steel for the expansion joint system shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 5/16" for each 10° fall or rise in temperature at installation.

Concrete shall be forced under and around steel armor and anchors. Proper consolidation of the concrete shall be achieved by localized internal vibration.

Cost of removal (except curbs) will be completely covered by the contract unit price for "Removal of Existing Expansion Joints & Adjacent Concrete."

Cost of new concrete and Epoxy Coated Reinforcing Steel will be completely covered by the contract unit price for Class B-2 Concrete.

Cost of removing & reattaching the existing expansion device drain will be considered completely covered by the contract unit price for "Removal of Existing Expansion Joints & Adjacent Concrete." See existing bridge plans for details.

Existing tube rails that fall within the area of parapet removal at expansion joint shall be protected from damage.

Any damage to tube rails during removal shall be repaired or replaced, at the contractors expense, as directed by the engineer.

Tube rails shall be reattached in removal areas. Cost of reattaching tube rails will be considered completely covered by the contract unit price for "Remove and Replace Curb and Parapet".

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-29 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY PLATTE
JOB NO. J4I2373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A22813

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

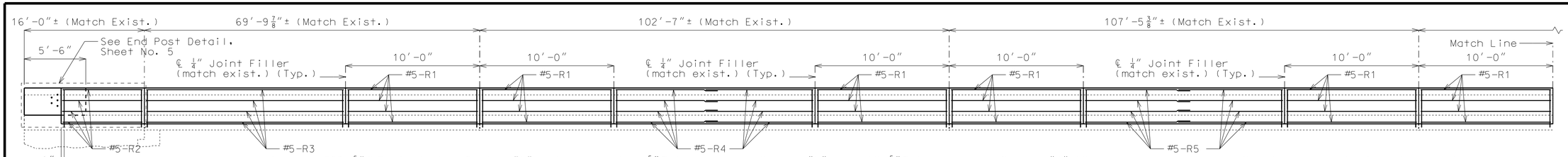
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

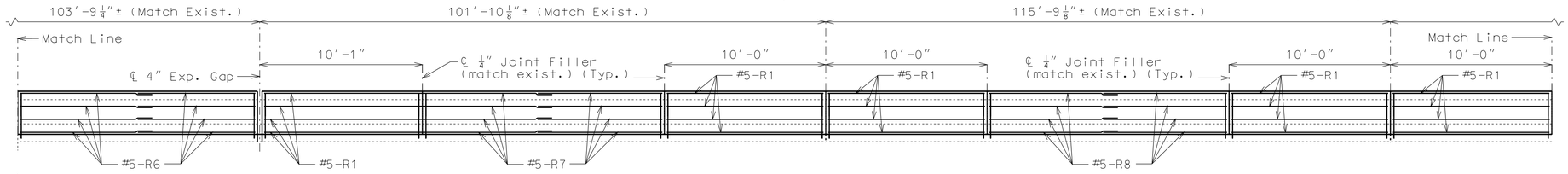
REV.

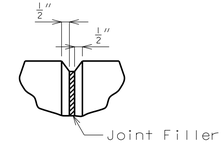
DETAILS OF STRIP SEAL NEAR INTERMEDIATE BENT NO. 5

Detailed Sep. 2012
Checked Sep. 2012

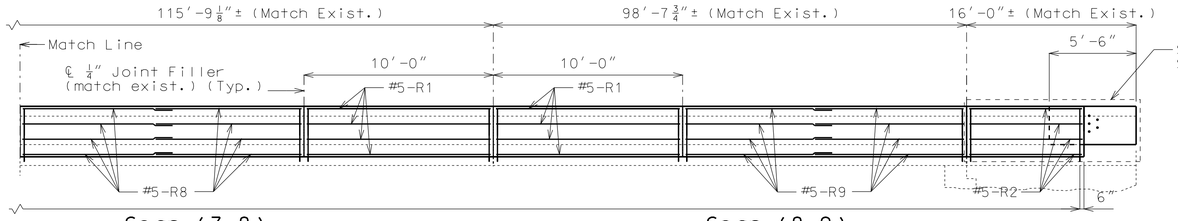
Note: This drawing is not to scale. Follow dimensions.







FILLED JOINT DETAIL

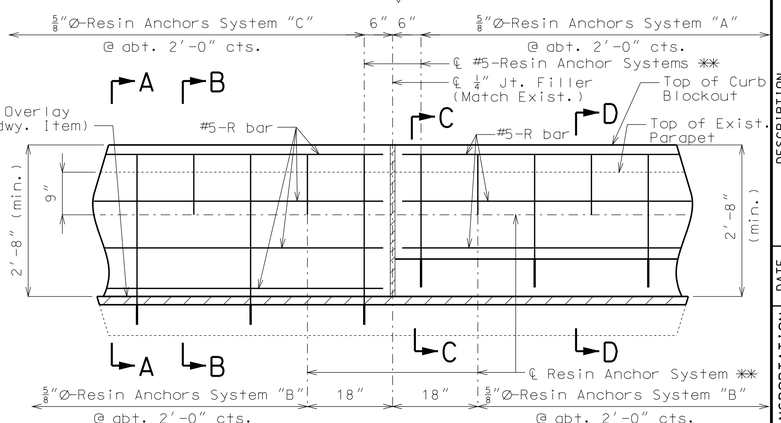


DEVELOPED SECTION NEAR LEFT CURB BLOCKOUT

(Modified Curb Blockout shown, for simplicity (1))

Note: Longitudinal dimensions shown are along grade and are taken at top and outside face of Parapet along the curve.

Bridge rail not shown, for clarity.



PART SECTION NEAR LEFT CURB BLOCKOUT

Notes:
Concrete in curb blockout shall be Class B-1 with f′c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top and outside face of parapet from end of wing to end of wing. (Match existing curb and parapet)

All exposed edges of curb blockout shall have 1/2″ radius or 3/8″ bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

All reinforcement shall be epoxy coated.

** Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, and clear existing reinforcement.

Use a minimum lap of 2′-11″ for #5 horizontal curb blockout bars.

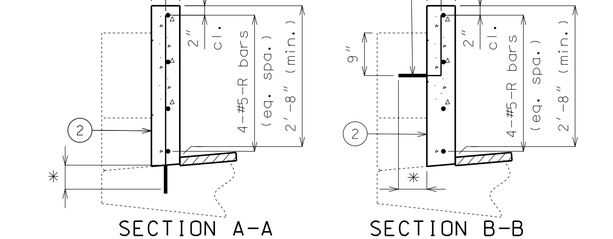
Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Curb Blockout"/"Modified Curb Blockout".

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f′c = 4,000 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″.

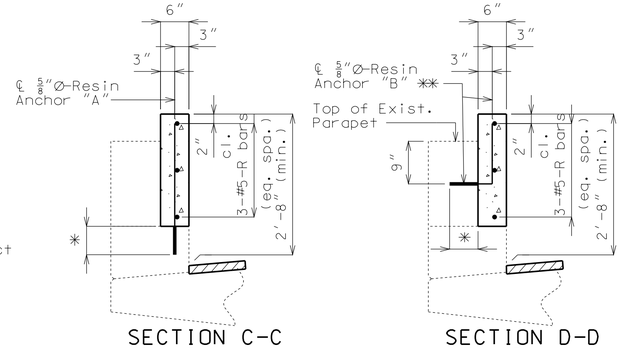
An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8″Ø threaded rod.

For Details of Resin Anchors, see Sheet No. 4.



SECTION A-A
(Modified Curb Blockout)

SECTION B-B
(Modified Curb Blockout)



SECTION C-C
(Curb Blockout)

SECTION D-D
(Curb Blockout)

Notes:

(1) Estimated 30% of left (south) curb length is Modified Curb Blockout. Final quantity to be determined by the Engineer.

(2) Remove existing curb concrete and reinforcement to roadway face of parapet. Cost of this curb removal will be completely covered by the contract unit price for "Modified Curb Blockout".

DETAILS OF LEFT CURB BLOCKOUT

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

Detailed Sep. 2012
Checked Sep. 2012

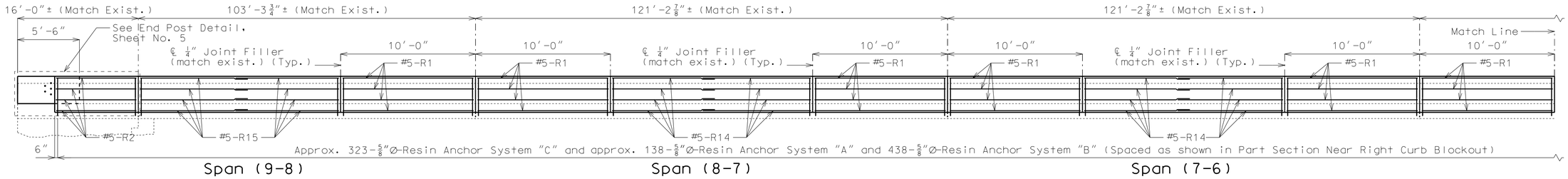
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

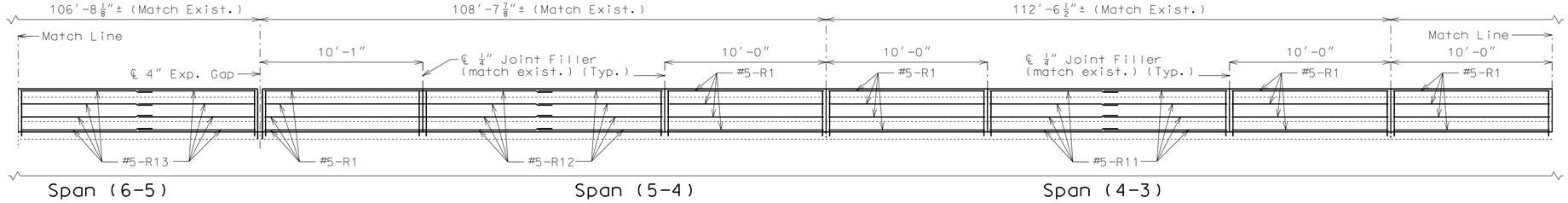
DATE PREPARED 11/19/2012
ROUTE I-29 | STATE MO
DISTRICT BR | SHEET NO. 3
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A22813

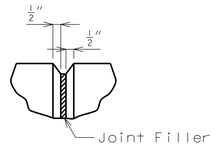
DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

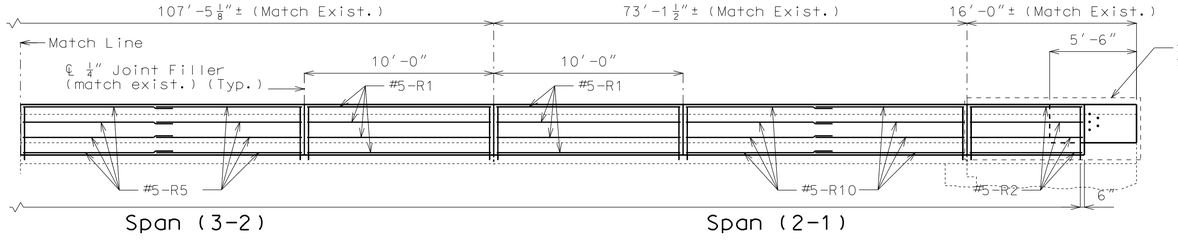
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

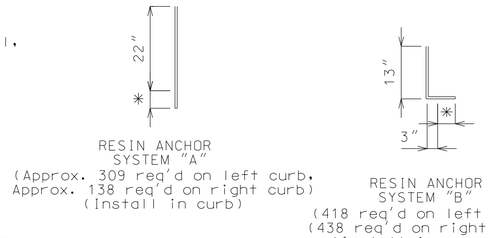






FILLED JOINT DETAIL





* Use manufacturer's embedment length. (5″ minimum embedment)

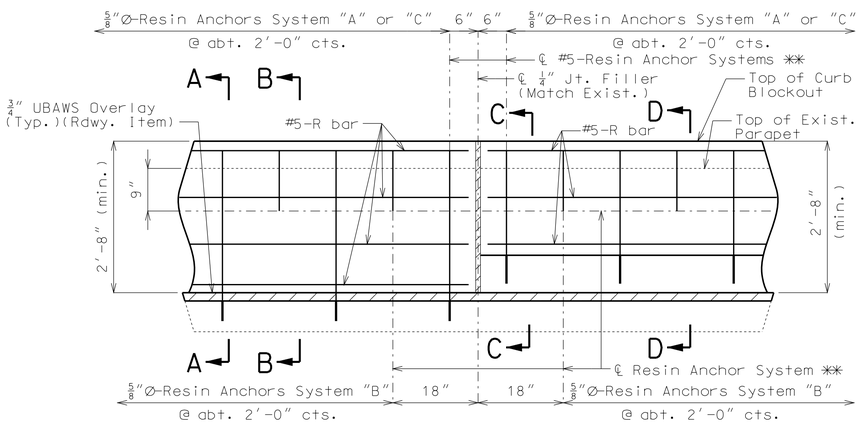
DETAILS OF RESIN ANCHORS

DEVELOPED SECTION NEAR RIGHT CURB BLOCKOUT

(Modified Curb Blockout shown, for simplicity (1))

Note: Longitudinal dimensions shown are along grade and are taken at top and outside face of Parapet along the curve.

Bridge rail not shown, for clarity.

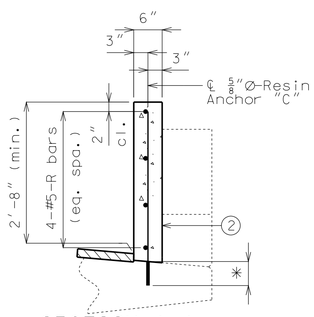


PART SECTION NEAR RIGHT CURB BLOCKOUT

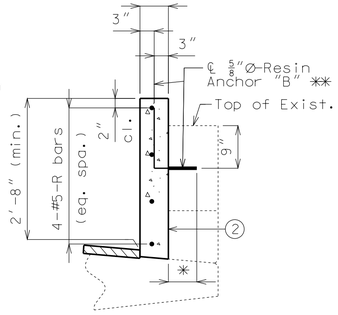
Notes:

(1) Estimated 70% of left (north) curb length is Modified Curb Blockout. Final quantity to be determined by the Engineer.

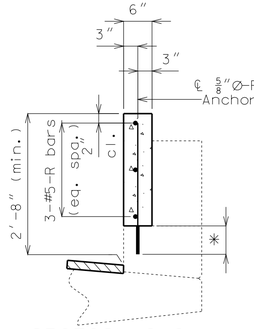
(2) Remove existing curb concrete and reinforcement to roadway face of parapet. Cost of this curb removal will be completely covered by the contract unit price for "Modified Curb Blockout".



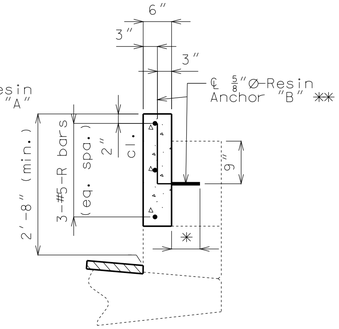
SECTION A-A
(Modified Curb Blockout)



SECTION B-B
(Modified Curb Blockout)



SECTION C-C
(Curb Blockout)



SECTION D-D
(Curb Blockout)

Notes:
Concrete in curb blockout shall be Class B-1 with f′c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top and outside face of parapet from end of wing to end of wing. (Match existing curb and parapet)

All exposed edges of curb blockout shall have ½″ radius or ¾″ bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

All reinforcement shall be epoxy coated.

** Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, and clear existing reinforcement.

Use a minimum lap of 2′-11″ for #5 horizontal curb blockout bars.

Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Curb Blockout"/"Modified Curb Blockout".

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f′c = 4,000 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″.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the ⅝″Ø threaded rod.

DETAILS OF RIGHT CURB BLOCKOUT

Detailed Sep. 2012
Checked Sep. 2012

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-29 | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A22813

DESCRIPTION | DATE

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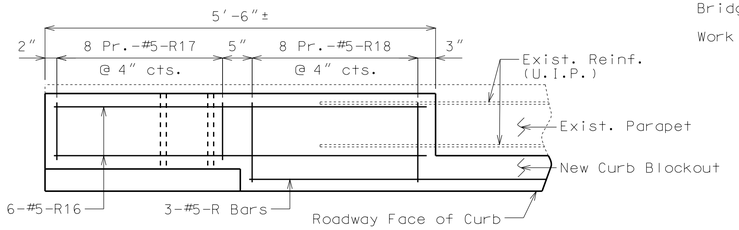
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Notes:

✻✻ Shift resin anchors where necessary to clear exist. reinforcement.

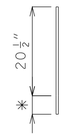
Bridge rail not shown for clarity.

Work this sheet with Sheets No. 3 & 4.



PLAN SHOWING END POST REINFORCEMENT

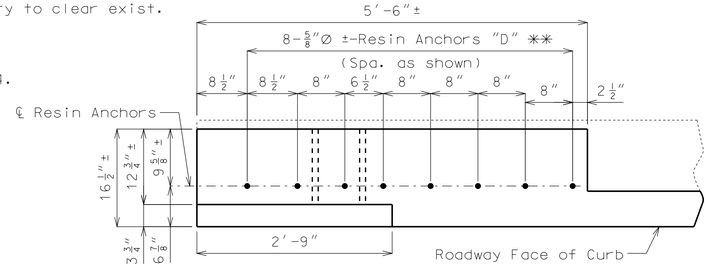
Note: Existing vertical reinforcement, use-in-place, not shown for clarity



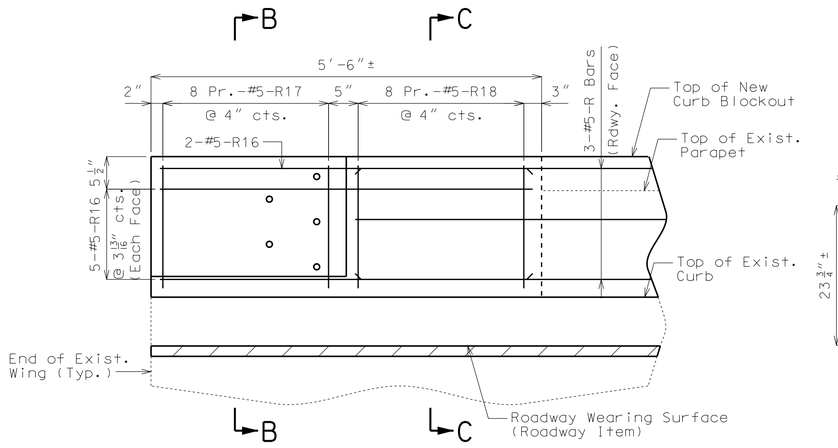
RESIN ANCHOR SYSTEM "D"
(32 req'd)
(Install in curb)

✻ Use manufacturer's embedment length. (5″ minimum embedment)

DETAILS OF RESIN ANCHORS

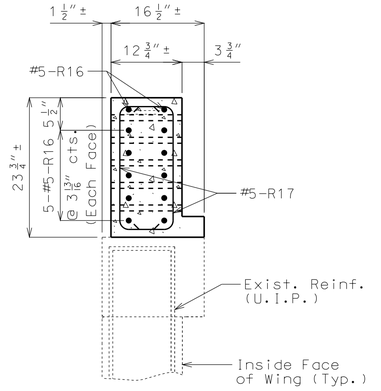


PLAN SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS

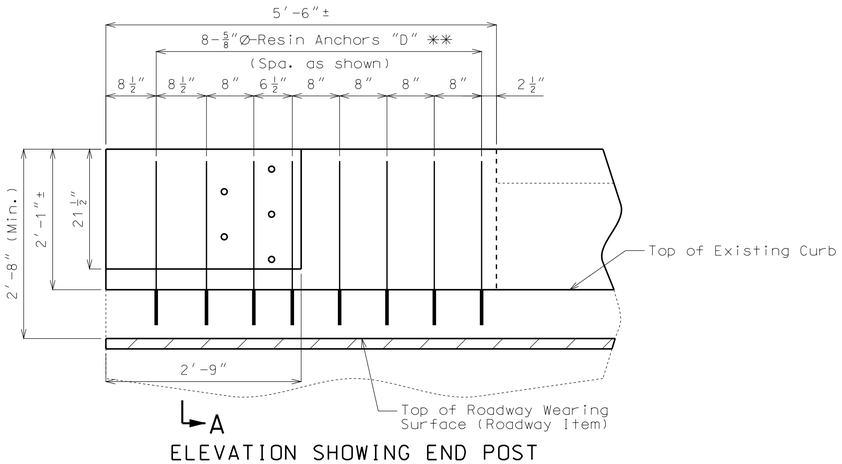


ELEVATION SHOWING END POST REINFORCEMENT

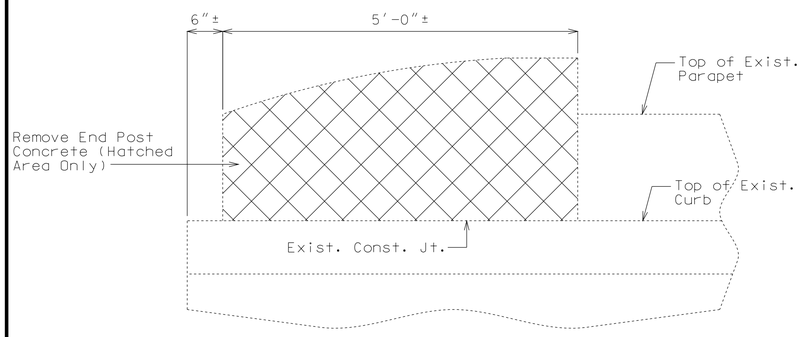
Note: Existing vertical reinforcement, use-in-place, not shown for clarity



SECTION B-B

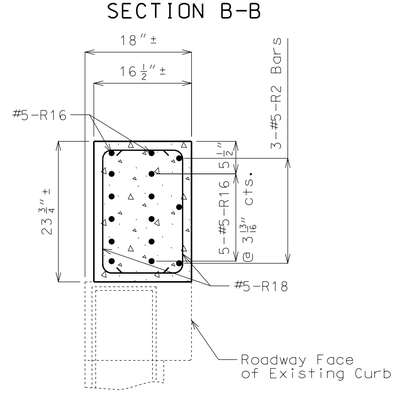


ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS

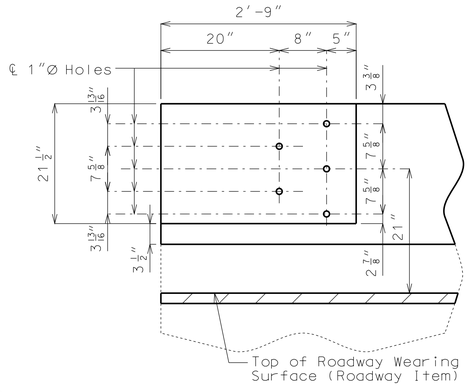


ELEVATION OF EXISTING END POST SHOWING CONCRETE REMOVAL

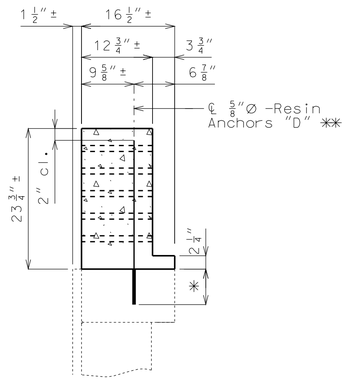
Note:
Cost of removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout (linear foot).



SECTION C-C



DETAILS OF GUARD RAIL ATTACHMENT



SECTION A-A

DETAILS OF END POST AT END BENTS NO. 1 & NO. 9

Detailed July 2012
Checked Sep. 2012

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-29 | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY PLATTE
JOB NO. J4I2373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A22813

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

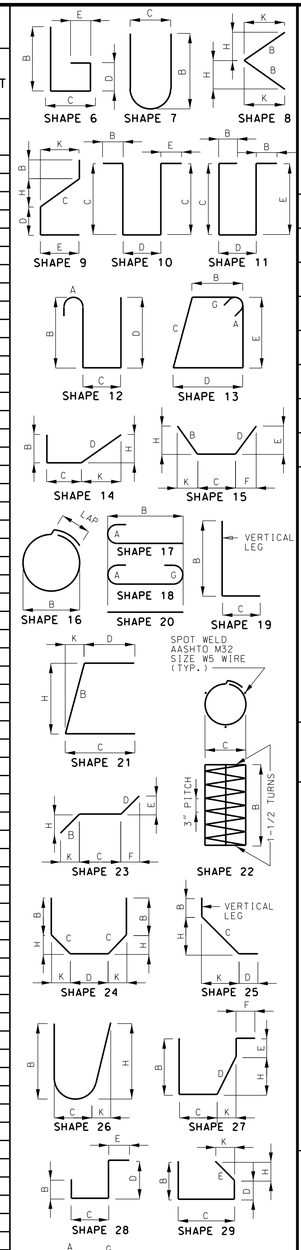
REV.

BILL OF REINFORCING STEEL

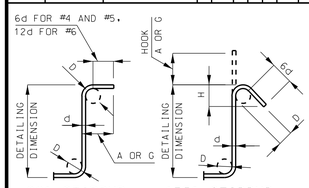
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			BLOCKOUT																									
106	5	R1	BLOCKOUT	E	20					9	9.000													9	9	9	9	1078
16	5	R2	BLOCKOUT	E	20					13	0.000													13	0	13	0	217
4	5	R3	BLOCKOUT	E	20					59	6.000													59	6	59	6	248
8	5	R4	BLOCKOUT	E	20					42	8.000													42	8	42	8	356
16	5	R5	BLOCKOUT	E	20					45	1.000													45	1	45	1	752
8	5	R6	BLOCKOUT	E	20					48	2.000													48	2	48	2	402
8	5	R7	BLOCKOUT	E	20					42	3.000													42	3	42	3	353
16	5	R8	BLOCKOUT	E	20					49	3.000													49	3	49	3	822
8	5	R9	BLOCKOUT	E	20					45	8.000													45	8	45	8	381
8	5	R10	BLOCKOUT	E	20					32	11.000													32	11	32	11	275
8	5	R11	BLOCKOUT	E	20					47	8.000													47	8	47	8	398
8	5	R12	BLOCKOUT	E	20					50	9.000													50	9	50	9	423
8	5	R13	BLOCKOUT	E	20					44	8.000													44	8	44	8	373
16	5	R14	BLOCKOUT	E	20					52	0.000													52	0	52	0	868
8	5	R15	BLOCKOUT	E	20					48	0.000													48	0	48	0	401
48	5	R16	BLOCKOUT	E	20					5	3.000													5	3	5	3	263
64	5	R17	BLOCKOUT	E	10	S						12.000		20.750										3	9	3	6	234
64	5	R18	BLOCKOUT	E	10	S						8.000		20.750										3	1	2	10	189
8	5	R19	BLOCKOUT	E	10	S					12.000	2	7.000	13.500										7	4	7	0	58
8	5	R20	BLOCKOUT	E	20					2	5.000													2	5	2	5	20
			TOTALS																									
	5			E																								8111
			TOTAL																									0
			TOTAL	E																								8111
			Slab on Girder																									
	5			E																								8111
			TOTAL																									8111

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.

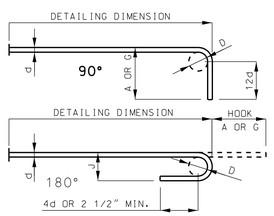


BENDING DIAGRAMS



STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES 180° HOOKS A OR G	180° HOOKS J	90° HOOKS 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"

TWO ADDITIONAL #5-R1 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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 FABRICATORS 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.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-29 | STATE MO
DISTRICT BR | SHEET NO. 6
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A22813

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

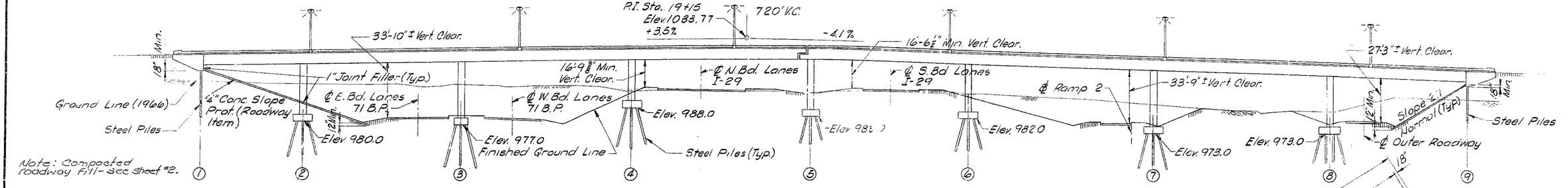
Detailed Oct. 2012
Checked Oct. 2012

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

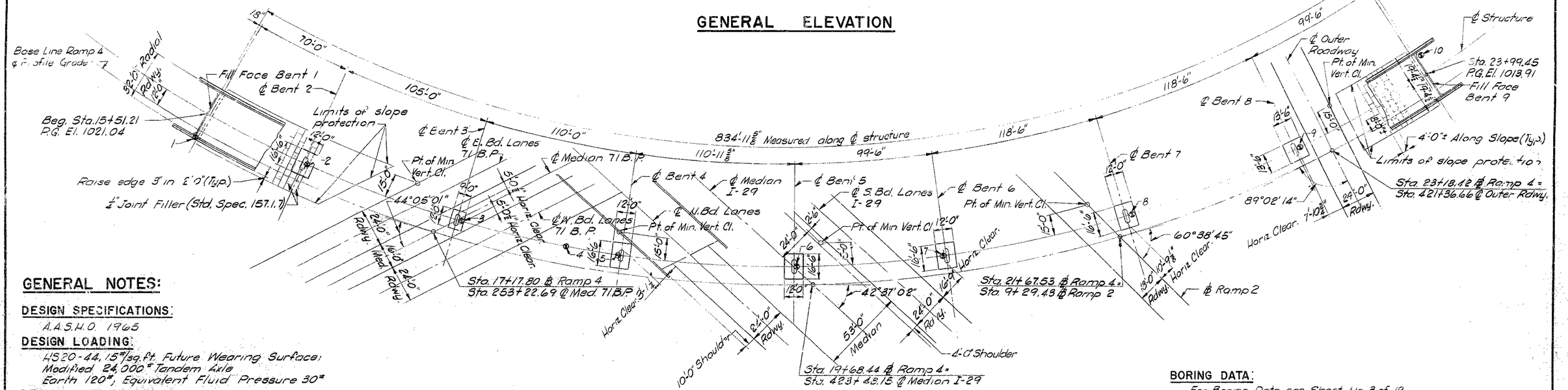
MISSOURI STATE HIGHWAY DEPARTMENT

(70'-105'-110'-105')(5.97'-99.5'-118.5'-118.5'-99.5') Cont. Conc. Box Girders

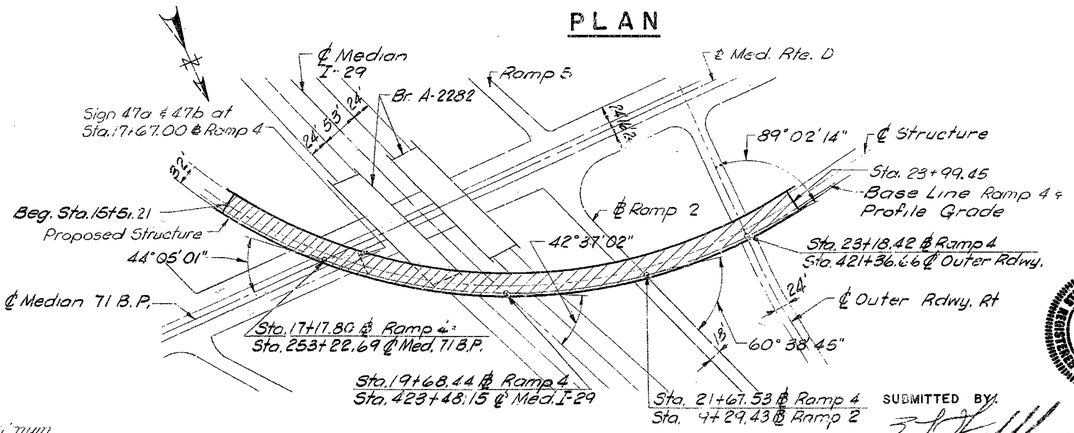
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	69	



GENERAL ELEVATION



PLAN



LOCATION SKETCH

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.O. 1965

DESIGN LOADING:
H S20-44, 15#/sq.ft. Future Wearing Surface
Modified 24,000# Tandem Axle
Earth 120#, Equivalent Fluid Pressure 30#

DESIGN UNIT STRESSES:
Class B Concrete (substructure) fc = 1,200 p.s.i.
Class B1 Concrete (superstructure) fc = 1,600 p.s.i.
Reinforcing Steel fs = 20,000 p.s.i.
Structural Steel (A.S.T.M. A36-66) fs = 20,000 p.s.i.
Steel Piles (A.S.T.M. A36-66) fb = 9,000 p.s.i.

SURFACE SEAL:
Superstructure deck to be surface sealed.

PAINTING:
Structural steel bearings, expansion devices, and access doors shall be cleaned and painted in the field or may be cleaned and painted one coat of red lead in the shop with the two remaining coats applied in the field except that final coat on access doors shall be gray. No paint shall be applied to top surface of top plate and bottom surface of bottom plate of bearings. In lieu of painting, the contractor may, if he prefers, galvanize any or all of these items. All galvanizing shall be done after fabrication. Cost of painting or galvanizing to be included in price bid for other items.

CONSTRUCTION CLEARANCE:
Falsework over Outer Roadway shall be constructed with a minimum vertical clearance of 14'-6" from crown of pavement and a minimum lateral clearance of 28'-0".

BORING DATA:
For Boring Data, see Sheet No. 3 of 19.
⊗ Indicates location of boring.

BENCH MARK:
B.M. #34 Spike & washers in P.P. 149' ± Lt. of Survey Line Sta. 424+16 ± Elev. 1009.44

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29
ABOUT 10 MILES NORTH OF PARKSVILLE
PROJECT NO. I-29-1 (12) (RTE. I-29) **STA.** 15+51.21
PLATTE **COUNTY**

DESIGNED JULY 1967 BY J. PARIKH
DETAILED JULY 1967 BY HERD
CHECKED NOV. 1967 BY R. PARIKH

R. W. BOOKER & ASSOCIATES INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

SUBMITTED BY: _____
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-10795

REGISTERED PROFESSIONAL ENGINEER — STATE OF MISSOURI — EUGENE L. FIELDHAMMER NUMBER E-10795

SUBMITTED BY W. D. Gourley, BRIDGE ENGINEER DATE Feb 13, 1968
APPROVED BY M. J. Sinder, CHIEF ENGINEER DATE Feb 13, 1968

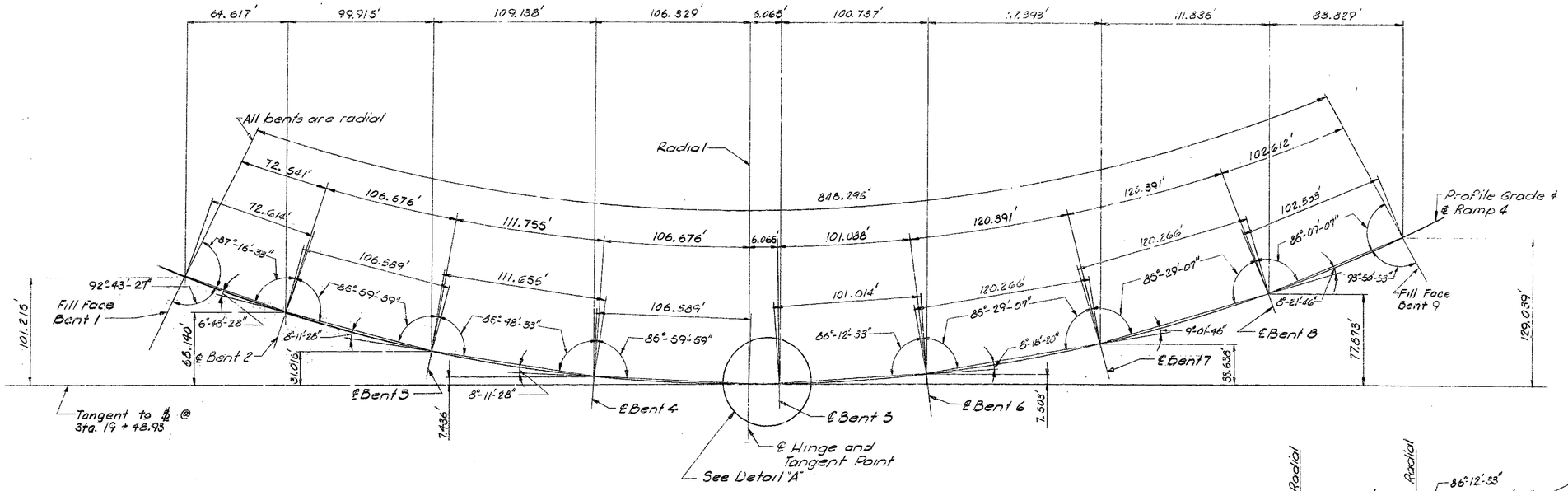
STD. 72.09
STD. 54.00
A-2281

Sheet No. 1 of 19.

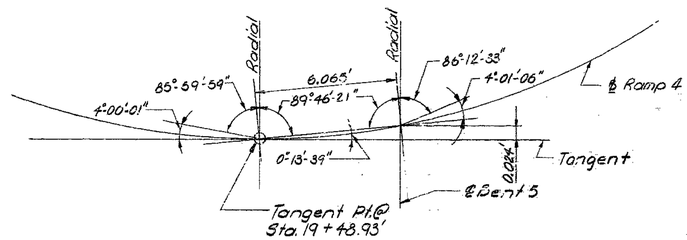
SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	70	



LAYOUT PLAN



DETAIL "A"

FILE DATA

Bent No.		1	2	3	4	5	6	7	8	9
Pile Type and Size		12 BP53	14BP73	14BP73	14BP73	14BP73	14BP73	14BP73	14BP73	14BP73
Number		4	12	12	12	12	12	12	16	5
Approximate Length	Ft.	65	72	40'	30'	45'	42'	40'	34'	51'	66'
Design Bearing	Tons	38	91	94	97	83	92	94	87	72
Hammer Energy Required	Ft. Lbs.	13000	21,400	22,100	22,800	20,700	21,600	22,100	20,500	16,200

ESTIMATED QUANTITIES

Item	Unit	Substr.	Superstr.	Total
Class 1 Excavation for structures	Cu. Yd.	685	——	685
12" Steel Piles in Place	Lin. Ft.	343	——	343
[illegible]	Lin. Ft.	3598	——	3598
Class B Concrete	Cu. Yd.	[illegible]	——	[illegible]
Class B1 Concrete	Cu. Yd.	——	2,541.6	2,541.6
Reinforcing Steel	Lb.	14,350	988,610	1,002,960
Fabricated Structural Carbon Steel	Lb.	——	5,460	5,460
Bridge Rail (Single Tube Type)	Lin. Ft.	——	1,711	1,711
Conduit System (on Structures)	Lump Sum	——	1	1

CURVE DATA

P.I.	20+16.69
Δ	79°-57'-25" Lt.
D	7°-30'-00"
R	763.94'
T	640.58
L	1066.09
SE	0.08 Ft/Ft.

QUANTITY NOTES:

All concrete and reinforcement above footings is included in superstructure quantities.

No payment for excavation will be allowed at End Bents 1 and 9.

PILE NOTES

Minimum energy requirement of hammer based on plan length and design bearing value of piles. Increase by the factor (W+w)/2W when the weight of the ram (W) is less than the weight of the pile (w).

All piles shall be driven to practical refusal.

Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 25'0" in back of End Bents 1 and 9 before steel piles are driven.

HORIZONTAL CURVE

Bents cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1 (12) (RTE. I-29) **STA.** 15+51.21

PLATTE **COUNTY**

A-2281

DETAILED DOT 1967 BY HERD

CHECKED NOV. 1967 BY MALI & R. PARIKH

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 2 of 19.

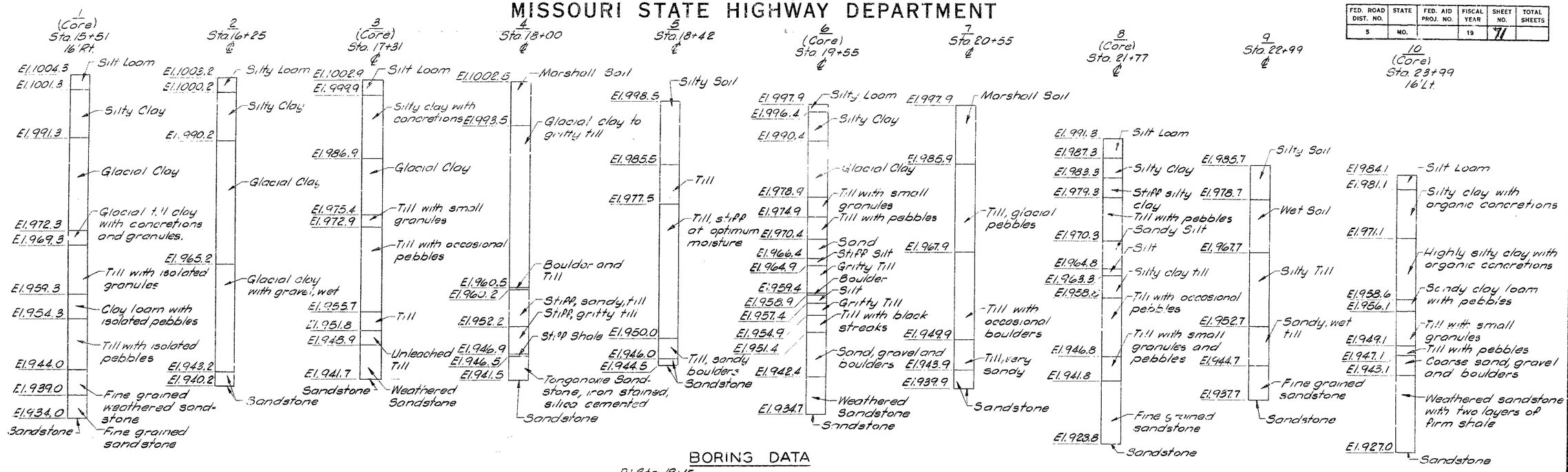
SEE FINAL PLANS BROWN-LINES

FOR INFORMATION ONLY

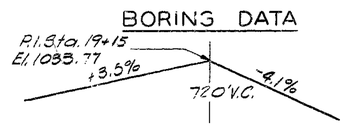
A22813, Sht. 9

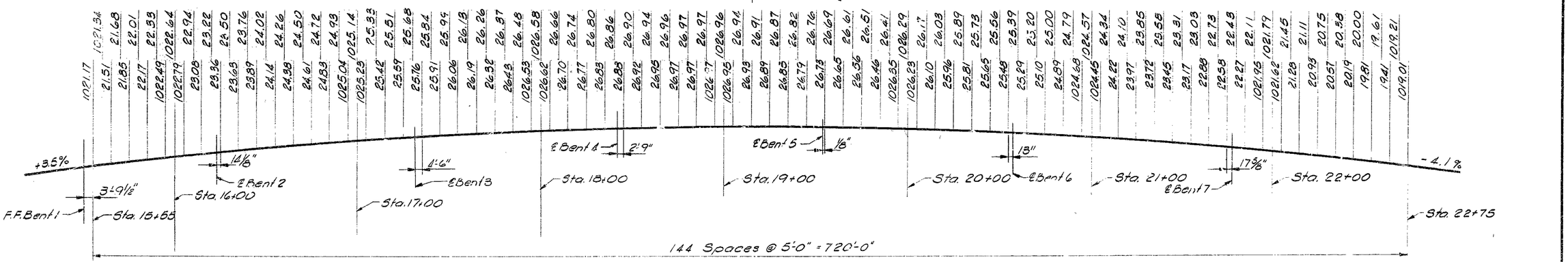
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	71	



BORING DATA





PROFILE GRADE ELEVATIONS

NOTES

For location of borings see Sheet No. 1 of 19.
Core drill equipment - 2 1/8" double tube core Rbl.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1(12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

DETAILED MAY 1967 BY HERD
CHECKED NOV 1967 BY KUHLMANN

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 3 of 19.

A-2281

50

FOR INFORMATION ONLY **A22813, Sht. 10**

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	MO.		19	72	

COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE				
92	#6	7'-0"	S1	Top Slab
618	#6	32'-3"	S2	Bott Slab
104	#7	32'-6"	S3	"
28	#9	49'-0"	S4	"
8	#10	51'-6"	S5	"
21	#7	51'-6"	S6	"
29	#7	41'-3"	S7	"
16	#6	4'-6"	S8	"
16	#6	5'-3"	S9	"
6	#9	46'-3"	S10	"
22	#7	46'-3"	S11	"
106	#14S	60'-0"	S12	"
227	#11	60'-0"	S13	"
22	#7	41'-3"	S14	"
6	#9	41'-3"	S15	"
21	#11	59'-6"	S16	"
3	#14S	59'-6"	S17	"
21	#10	59'-6"	S18	"
25	#10	60'-0"	S19	"
42	#14S	23'-0"	S20	"
43	#11	22'-3"	S21	"
21	#11	31'-6"	S22	"
8	#14S	32'-3"	S23	"
22	#8	47'-6"	S24	"
6	#10	47'-6"	S25	"
22	#9	58'-6"	S26	"
6	#11	58'-6"	S27	"
22	#9	54'-3"	S28	"
6	#11	54'-3"	S29	"
8	#14S	26'-3"	S61	"
21	#11	25'-6"	S62	"
289	#7	34'-0"	S30	Top Slab
3151	#6	34'-0"	S31	"
196	#8	58'-9"	S32	"
36	#5	24'-0"	S33	"
35	#11	51'-3"	S34	"
22	#11	25'-6"	S35	"
10	#10	25'-6"	S36	"
36	#5	29'-0"	S37	"
35	#14S	57'-3"	S38	"
22	#11	23'-9"	S39	"
10	#8	23'-9"	S40	"
36	#5	26'-9"	S41	"
35	#14S	58'-9"	S42	"
32	#14S	30'-6"	S43	"
72	#8	42'-3"	S44	"
28	#8	16'-6"	S45	"
22	#14S	30'-0"	S46	"
10	#11	30'-0"	S47	"
35	#14S	57'-3"	S48	"
36	#5	31'-0"	S49	"
54	#14S	33'-6"	S50	"
10	#11	33'-6"	S51	"
35	#14S	60'-0"	S52	"
36	#5	37'-3"	S53	"
34	#5	23'-3"	S54	"
36	#5	27'-9"	S55	"
34	#5	25'-6"	S56	"
68	#8	41'-3"	S57	"
224	#8	58'-3"	S58	"
34	#5	29'-9"	S59	"
34	#5	36'-0"	S60	"
34	#8	34'-0"	S63	"
35	#14S	58'-3"	S64	"
36	#8	32'-3"	S65	"
6	#5	5'-9"	R26	Lgt. Std. Sup.
6	#5	5'-6"	R27	"
6	#5	5'-6"	R28	"
6	#5	5'-3"	R29	"
18	#5	4'-6"	R30	"
12	#5	3'-3"	R31	"

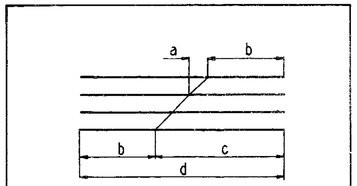
NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE (CONT.)				
408	#4	7'-6"	G1	Diaphragm
68	#6	29'-6"	G2	"
192	#5	11'-9	G3	Webs
2288	#6	9'-9"	G4	* "
3418	#6	9'-9"	G5	* "
14	#8	56'-6"	G6	"
14	#8	58'-9"	G7	"
112	#4	28'-3"	G8	"
112	#4	29'-6"	G9	"
16	#8	55'-6"	G10	"
16	#8	57'-6"	G11	"
128	#4	27'-9"	G12	"
128	#4	28'-9"	G13	"
14	#8	57'-0"	G14	"
14	#8	57'-9"	G15	"
14	#8	58'-3"	G16	"
198	#4	28'-6"	G17	"
84	#4	29'-0"	G18	"
84	#4	29'-3"	G19	"
12	#4	21'-9"	G20	"
66	#4	27'-6"	G21	"
12	#4	26'-9"	G22	"
16	#8	56'-0"	G25	"
16	#8	56'-2"	G26	"
16	#8	57'-0"	G27	"
126	#4	28'-0"	G28	"
96	#4	28'-3"	G29	"
30	#4	29'-6"	G30	"
24	#4	26'-0"	G31	"
8	#5	4'-9"	R1	End Posts
4	#5	5'-9"	R2	"
4	#5	6'-6"	R3	"
4	#5	7'-0"	R4	"
4	#5	7'-3"	R5	"
8	#5	7'-6"	R6	"
44	#5	5'-9"	R7	Parapet
4	#5	6'-0"	R8	End Post
4	#5	6'-9"	R9	"
16	#6	10'-0"	R10	"
1674	#5	5'-3"	R11	Parapet
104	#5	9'-9"	R12	"
16	#5	11'-9"	R13	"
8	#5	30'-6"	R14	"
32	#5	32'-0"	R15	"
12	#5	28'-3"	R16	"
24	#5	30'-0"	R17	"
12	#5	31'-9"	R18	"
12	#5	33'-6"	R19	"
12	#5	28'-0"	R21	"
12	#5	29'-9"	R22	"
24	#5	32'-9"	R23	"
24	#5	34'-6"	R24	"
12	#5	30'-3"	R25	"
1674	#5	3'-6"	C1	Curb
72	#5	3'-3"	C2	"
8	#6	15'-9"	C3	"
6	#5	24'-0"	C4	"
6	#5	25'-3"	C5	"

NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE (CONT.)				
8	#5	26'-6"	C6	Curb
16	#5	27'-9"	C7	"
8	#5	29'-0"	C8	"
16	#5	26'-9"	C9	"
8	#5	28'-0"	C10	"
6	#5	34'-6"	C11	"
8	#5	27'-6"	C12	"
16	#5	29'-9"	C13	"
16	#5	31'-3"	C14	"
6	#5	33'-9"	C15	"
SUPERSTR. END BENTS 1 & 9				
52	#6	34'-3"	H1	Beam
128	#5	14'-3"	U1	"
48	#7	9'-6"	H2	Wings
16	#7	18'-0"	H3	"
48	#7	24'-0"	H4	"
24	#4	11'-0"	V1	"
52	#4	12'-9"	V2	"
8	#6	21'-9"	T1	"
SUPERSTR. INT. BENTS 2,3 & 4				
45	#6	29'-6"	H5	Beam
57	#11	32'-3"	H6	"
57	#11	29'-6"	H7	"
180	#6	22'-9"	U2	"
124	#5	14'-3"	V3	Col. Bt. 2
72	#11	37'-3"	V5	"
72	#5	14'-3"	V3	Col. Bt. 3
48	#11	42'-6"	V6	"
104	#5	14'-3"	V3	Col. Bt. 4
72	#11	32'-6"	V7	"
SUPERSTR. INT. BENTS 6,7 & 8				
45	#6	29'-6"	H5	Beam
63	#11	32'-3"	H6	"
63	#11	29'-6"	H7	"
180	#6	22'-9"	U2	"
62	#5	16'-3"	V4	Col. Bt. 6
48	#11	37'-3"	V5	"
74	#5	16'-3"	V4	Col. Bt. 7
48	#11	44'-3"	V8	"
130	#5	16'-3"	V4	Col. Bt. 8
90	#11	38'-6"	V9	"

NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTR. INT. BENT 5				
4	#6	29'-6"	H5	Beam & Hinge
17	#11	32'-3"	H6	"
17	#11	29'-6"	H7	"
22	#5	29'-6"	H8	"
60	#5	16'-9"	U3	"
6	#5	34'-3"	H11	"
4	#5	9'-9"	H12	"
2	#5	12'-0"	H13	"
3	#5	29'-0"	H14	"
39	#7	7'-0"	H15	"
2	#5	5'-0"	H16	"
8	#4	4'-3"	H17	"
40	#7	5'-6"	H18	"
6	#5	6'-6"	H19	"
8	#5	3'-3"	H20	"
39	#6	9'-6"	U4	"
33	#7	9'-6"	U5	"
6	#7	9'-3"	U6	"
8	#4	5'-0"	U7	"
40	#6	15'-0"	U8	"
40	#7	13'-3"	U9	"
128	#5	16'-3"	V4	Column
72	#11	38'-0"	V10	"

NO.	SIZE	LENGTH	MARK	LOCATION
SUBSTR. INT. BENTS 2,4,5,6 & 7				
10	#9	28'-0"	D1	Footings
90	#9	16'-0"	D3	"
135	#9	11'-6"	D4	"
SUBSTR. INT. BENT 3				
2	#9	20'-6"	D2	Footings
10	#9	11'-6"	D5	"
15	#9	8'-6"	D6	"
SUBSTR. INT. BENT 8				
2	#11	27'-0"	D7	Footings
15	#8	13'-0"	D8	"
21	#11	13'-0"	D9	"

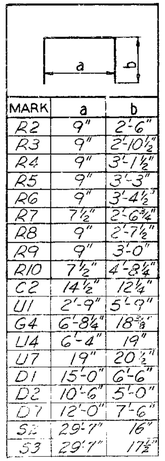
BENDING SKETCHES & CUTTING DIAGRAMS



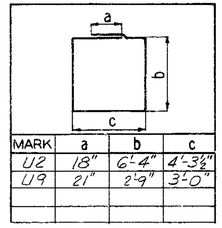
*BEND AS SHOWN

CUTTING SCHEDULE

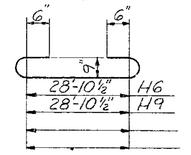
REMARKS	a	b	c	d
13 V2 Cut 52	8¾"	2'-0"	10'-9"	12'-9"
12 H4 Cut 48	12½"	6'-3¼"	17'-8¾"	24'-0"



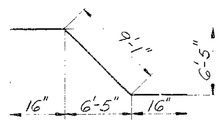
MARK	a	b
R2	9"	2'-6"
R3	9"	2'-10½"
R4	9"	3'-1½"
R5	9"	3'-3"
R6	9"	3'-4½"
R7	7½"	2'-6¾"
R8	9"	2'-7½"
R9	9"	3'-0"
R10	7½"	4'-3¾"
C2	14½"	12¼"
U1	2'-9"	5'-9"
G4	6'-8¾"	18'-3"
U4	6'-4"	19"
U7	19"	20½"
D1	15'-0"	6'-6"
D2	10'-6"	5'-0"
D7	12'-0"	7'-6"
S2	29'-7"	16"
S3	29'-7"	17½"



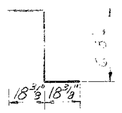
MARK	a	b	c
U2	18"	6'-4"	4'-3½"
U9	21"	2'-9"	3'-0"



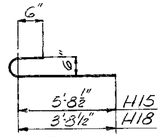
H6, H9



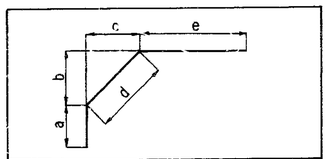
G3



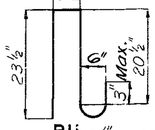
G5



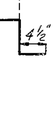
H15, H18



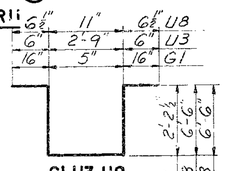
MARK	a	b	c	d	e
H2	2'-0"	5'-3⅜"	5'-5⅝"	7'-6"	——
T1	18"	9'-2"	12'-10"	15'-9¼"	4'-5¾"



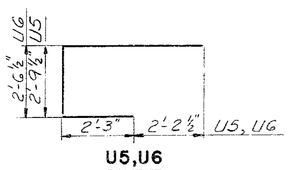
R11



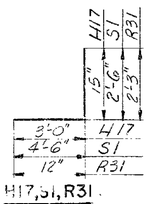
C1



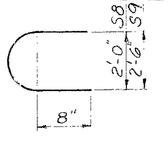
G1, U3, U8



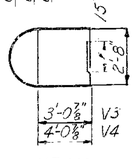
U5, U6



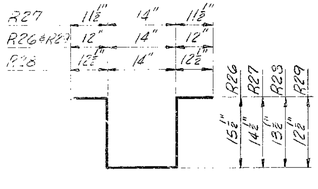
H17, S1, R31



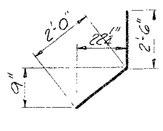
S8, S9



V3, V4



R26, R27, R28, R29



R30

* Bend in shop or field.

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

DETAILED NOV. 1967 BY MOORE
CHECKED NOV. 1967 BY FUHLMANN & MALI

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

No. 904 | Aug. 1963 | Dec. 1964 | Revised

60

BRIDGE RAMP 4 OVER 71 B.P. & I-29

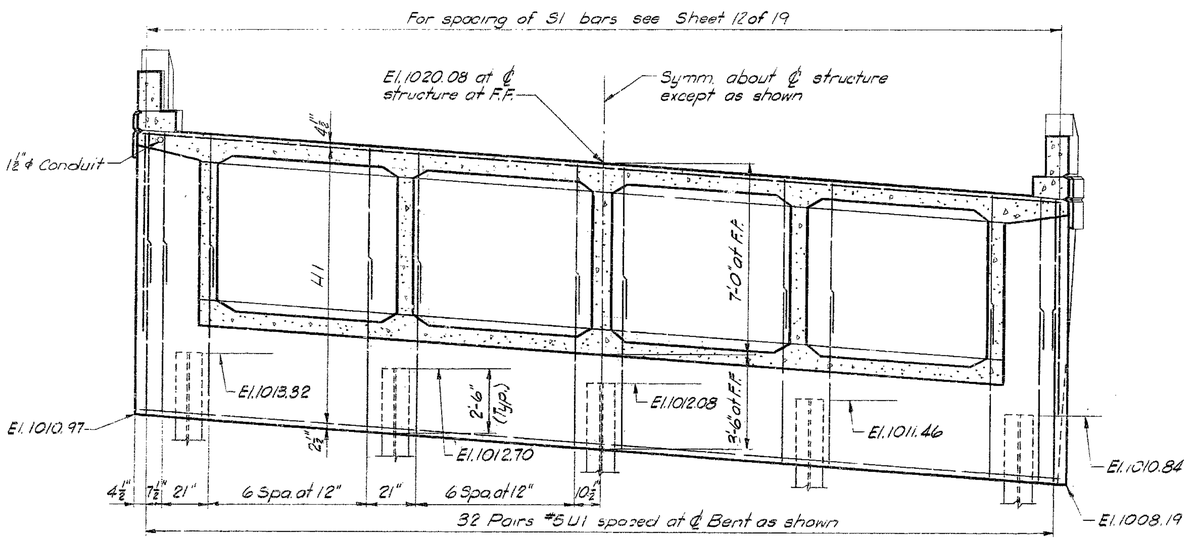
STATE ROAD INTERSTATE ROUTE 29
ABOUT 10 MILES NORTH OF PARKSVILLE
PROJECT NO. I-29-1 (12) (RTE. I-29) STA. 15+51.11
PLATTE COUNTY

A-2281

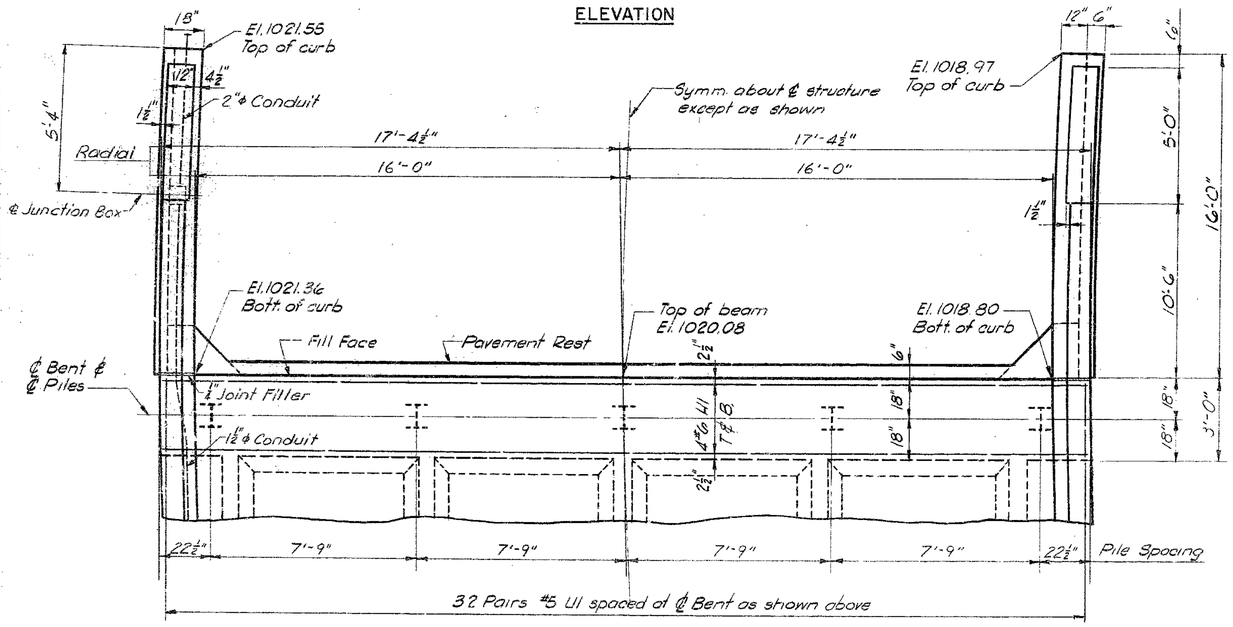
Sheet No. 4 of 19.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	18	

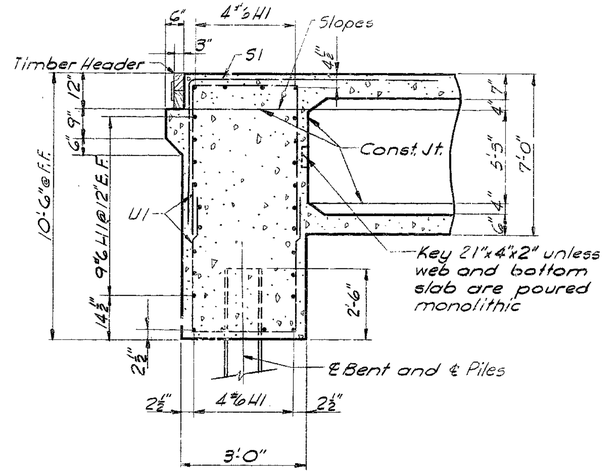


ELEVATION

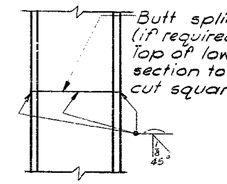


PLAN

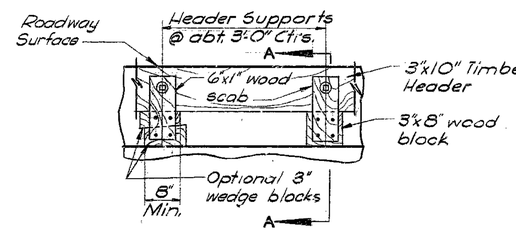
END BENT 1



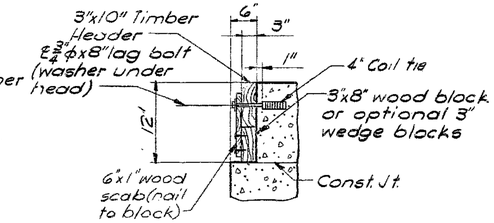
SECTION AT ℄



STEEL PILE SPLICE



PART ELEVATION



SECTION A-A

TIMBER HEADER DETAIL

NOTES:

- Wingwalls shall be constructed on a horizontal curve. For offsets, see Sheet No. 9 of 19.
- Fill at End Bent 1 shall not be carried above bottom of beam and wings until adjacent superstructure span is in place
- For wingwall elevation, plan and reinforcement see Sheet No. 6 of 19.
- For reinforcement in curb, parapet and end post, see Sheet No. 17 of 19 and Sheet No. 18 of 19.
- Cost of timber headers complete in place to be included in price bid for concrete.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1 (12) (RTE. I-29) **STA** 15+51.21

PLATTE COUNTY

A-2281

DETAILED OCT. 1967 BY MANNISI

CHECKED NOV. 1967 BY R. PARIKH

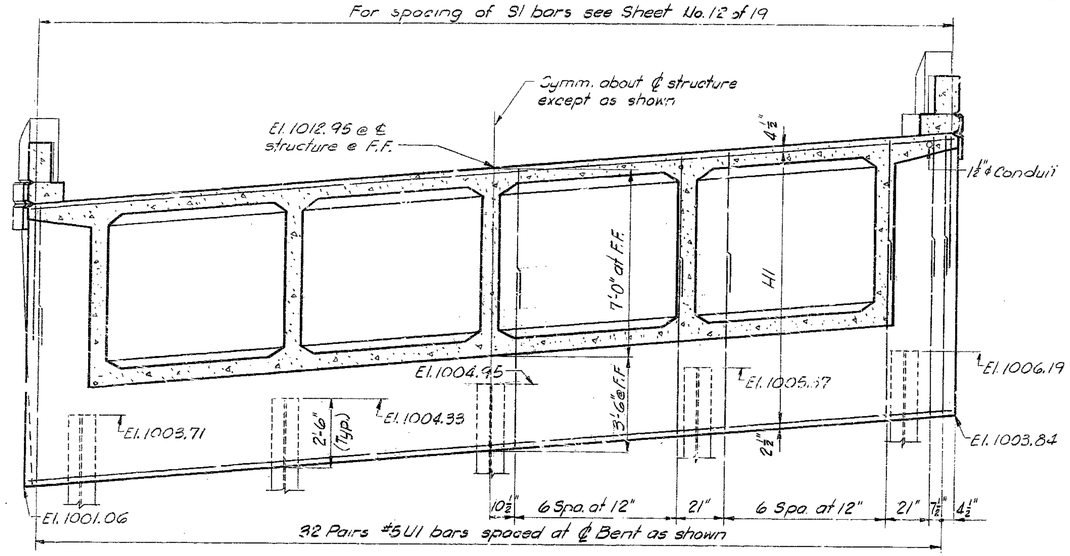
R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

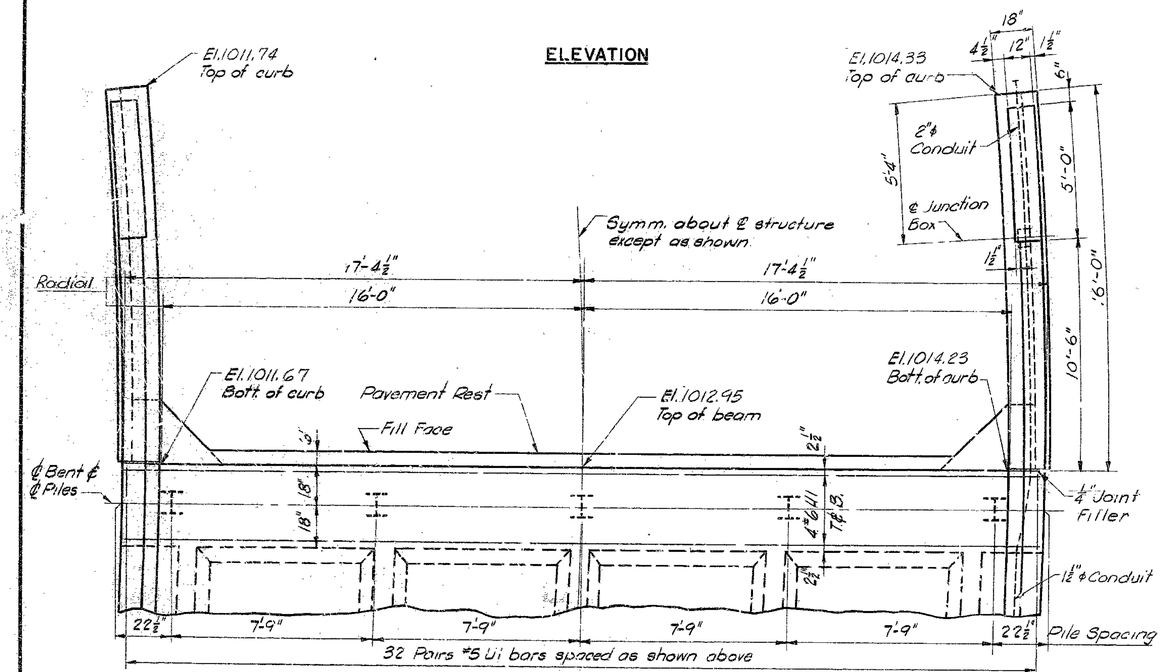
19

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	74	

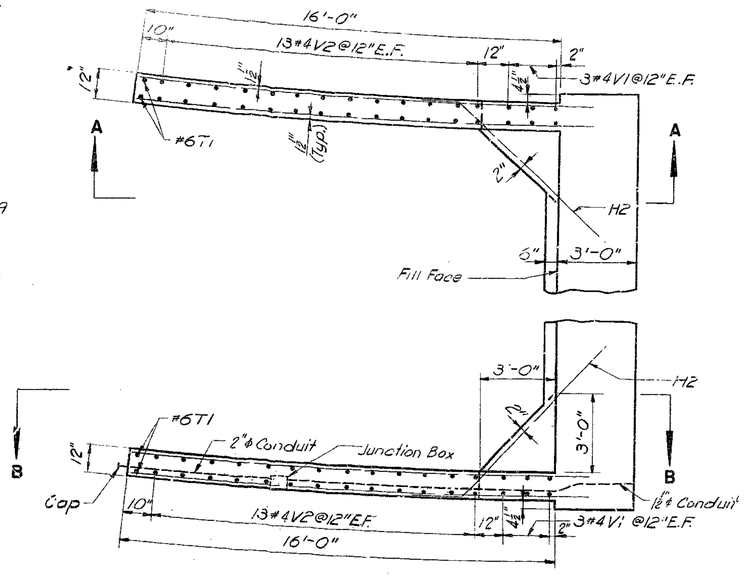


ELEVATION

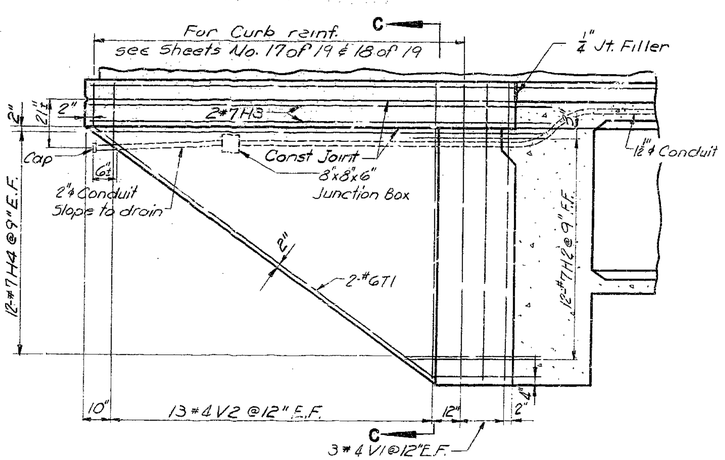


PLAN

END BENT 9

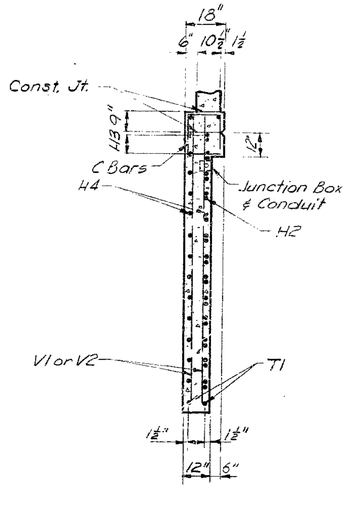


PLAN OF WINGWALL



ELEVATION A-A

(Elevation B-B opposite hand)
(Conduit and Junction Box in Elevation B-B only)



SECTION C-C

NOTES:

Wingwalls shall be constructed on a horizontal curve For offsets, see Sheet No. 9 of 19.
For Timber Header Detail, Section @ ℄ Bent and steel pile splice, see Sheet No. 3 of 19.
Fill at End Bent 9 shall not be carried above bottom of beam and wings until adjacent superstructure span is in place.
For reinforcement in curb, parapet and end post, see Sheet No. 17 of 19 and Sheet No. 18 of 19.
#6H2 bars to be bent in field, if necessary.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1 (12) (RTE. I-29) STA. 15+51.21

PLATTE COUNTY

A-2281

62

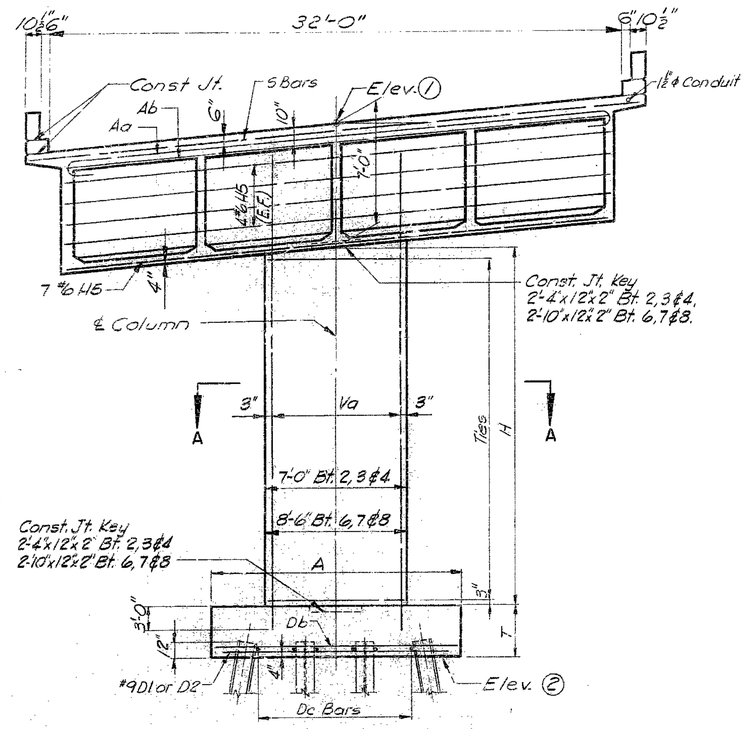
DETAILED JUNE 1967 BY GREENWELL
CHECKED NOV. 1967 BY R.J. PARIKH

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

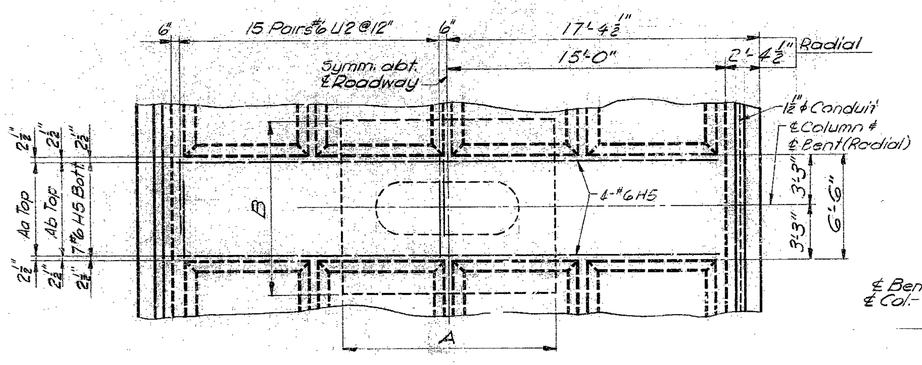
Note: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	75	

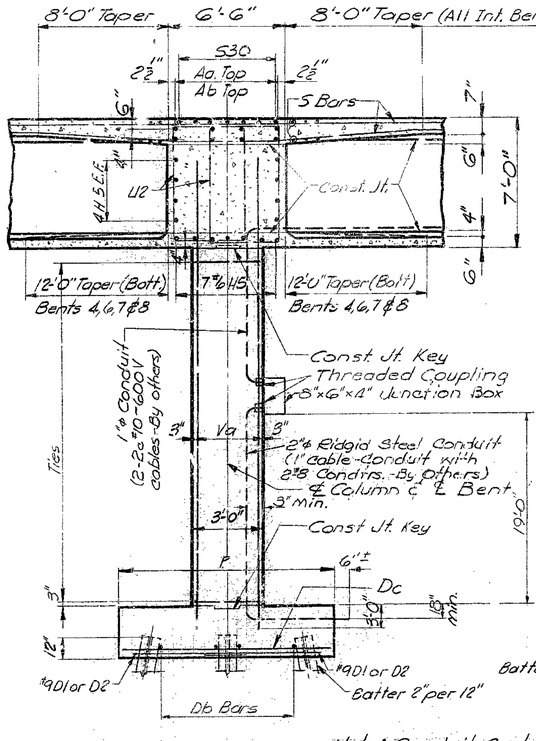


ELEVATION



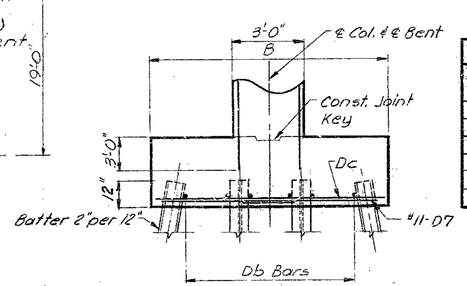
PLAN

INTERMEDIATE BENTS 2,3,4,6,7,8 & 8



SECTION AT ℄
(BENTS 2,3,4,6,8&7)

Note: Conduit System shown shall be placed at Bent No. 3 only.



SECTION AT ℄
(BENT 8 ONLY)

REINFORCING

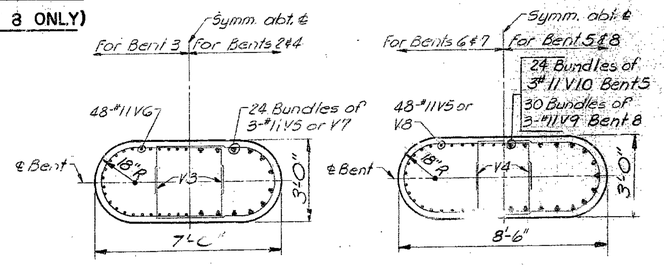
BENT NO.	COLUMNS Va BARS	COLUMNS Vb BARS	COLUMNS TIES	BEAMS Aa BARS	BEAMS Ab BARS	FOOTINGS Db BARS	FOOTINGS Dc BARS	REMARKS
2	24 Bundles of 3-#11V5	—	62 Pairs #5 V3 @6"	17-#11 H6	17-#11 H7	18-#9D3	27-#9D4	Bundled bars in column
3	48-#11 V6	—	36 Pairs #5 V3 @12"	19-#11 H6	19-#11 H7	10-#9D5	15-#9D6	—
4	24 Bundles of 3-#11V7	—	52 Pairs #5 V3 @6"	21-#11 H6	21-#11 H7	18-#9D3	27-#9D4	Bundled bars in column
6	48-#11V5	—	31 Pairs #5 V4 @12"	21-#11 H6	21-#11 H7	18-#9D3	27-#9D4	—
7	48-#11 V8	—	37 Pairs #5 V4 @12"	21-#11 H6	21-#11 H7	18-#9D3	27-#9D4	—
8	30 Bundles of 3-#11V9	—	65 Pairs #5 V4 @6"	21-#11 H6	21-#11 H7	15-#9D8	21-#11D9	Bundled bars in column

DIMENSIONS

BENT NO.	FOOTING A	FOOTING B	FOOTING T	COLUMN H
2	16'-6"	12'-0"	4'-6"	30'-10 3/8"
3	12'-0"	9'-0"	4'-6"	36'-2 3/8"
4	16'-6"	12'-0"	4'-9"	26'-1 5/8"
6	16'-6"	12'-0"	4'-6"	31'-0"
7	16'-6"	12'-0"	4'-6"	37'-1"
8	13'-6"	13'-6"	4'-9"	32'-4 1/8"

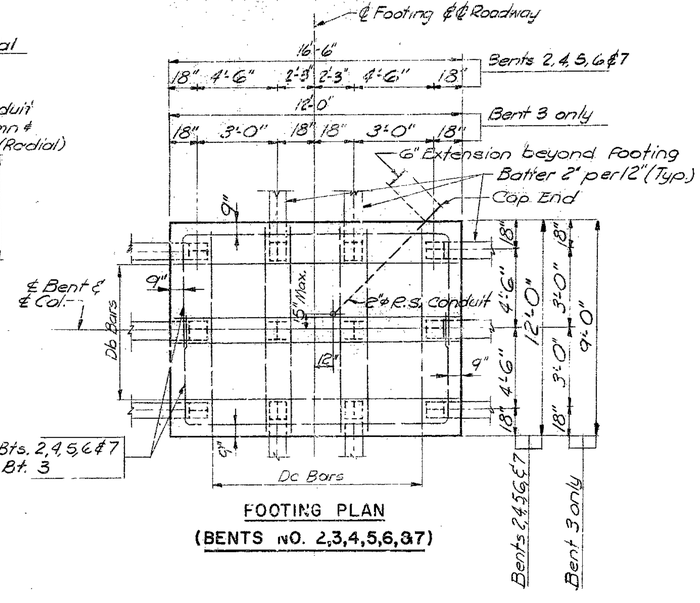
ELEVATIONS

BENT NO.	(1)	(2)
2	1022.37	980.00
3	1024.73	977.00
4	1025.91	988.00
6	1024.50	982.00
7	1021.58	973.00
8	1017.15	973.00



(BENTS 2,3,&4) (BENTS 5,6,7,&8)

SECTION A-A



FOOTING PLAN
(BENTS NO. 2,3,4,5,6,8&7)

NOTE:
For Footing Plan of Bent 8 see Sheet No. 11 of 19.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1(12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

A-2281

DETAILED OCT 1967 BY STAFFORD
CHECKED NOV. 1967 BY MALI

R. W. BOCKER & ASSOCIATES INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 7 of 19.

SEE FINAL PLANS BROWN-LINES

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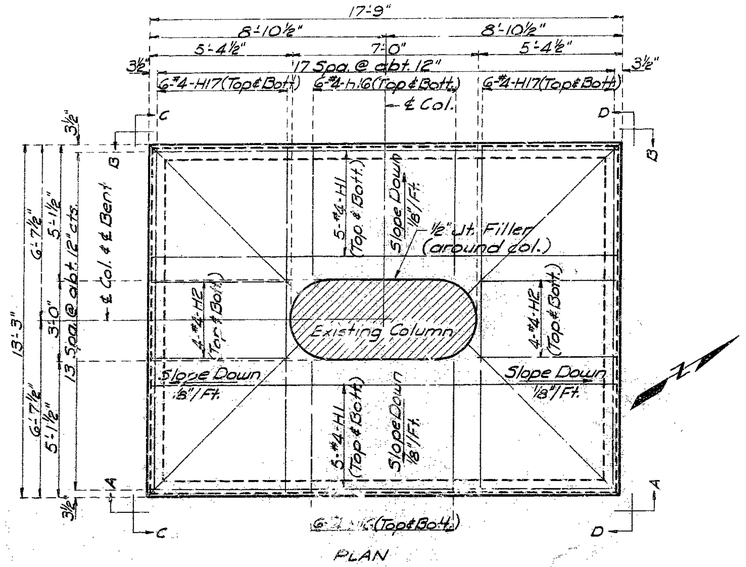
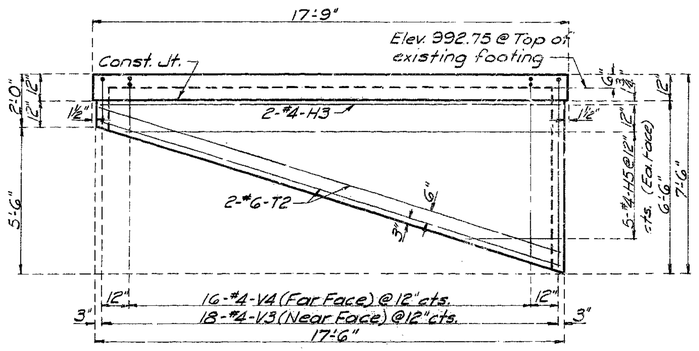
FOR INFORMATION ONLY **A22813, Sht. 14**

MISSOURI STATE HIGHWAY DEPARTMENT

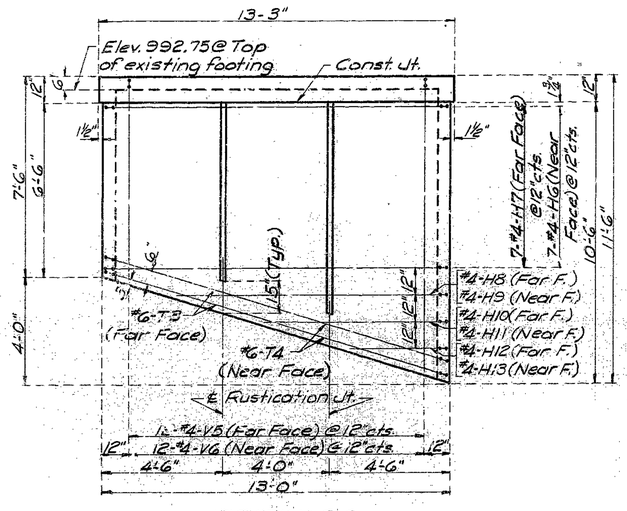
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
5	MO.		19		



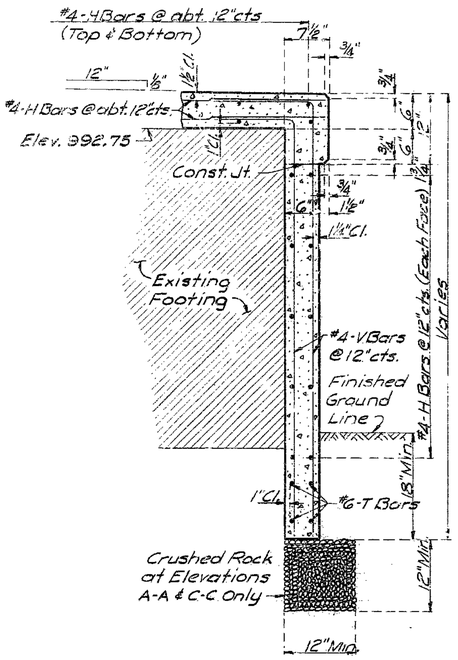
PLAN



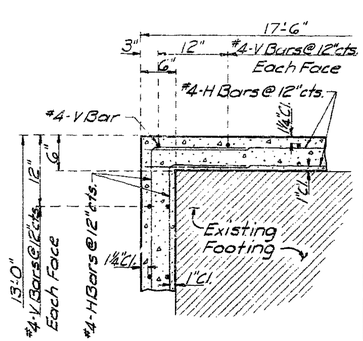
ELEVATION B-B



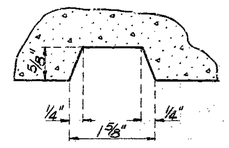
ELEVATION C-C



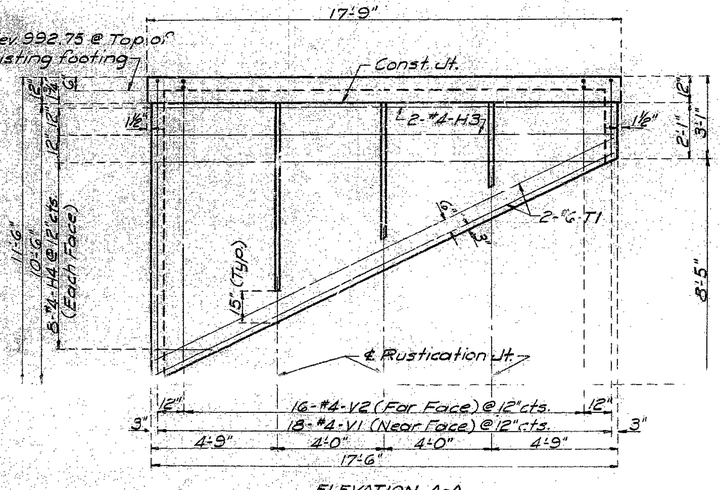
VERTICAL SECTION THRU WALLS (TYPICAL AS NOTED)



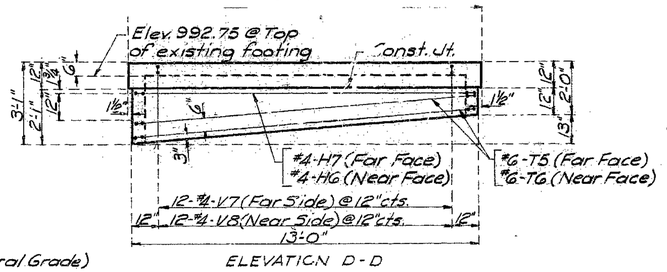
HORIZONTAL SECTION THRU WALLS AT CORNERS (TYPICAL)



DETAIL OF RUSTICATION JOINT

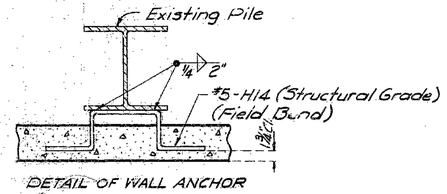


ELEVATION A-A



ELEVATION D-D

NOTE:
Anchor wall to these piles as shown at right.



DETAIL OF WALL ANCHOR

NOTE:
Anchor to piles shown at left near bottom of wall.

GENERAL QUANTITIES		
Class I Excavation	Cu. Yd.	10
Class B-1 Concrete	Cu. Yd.	10.7
Reinforcing Steel	Lb.	1980

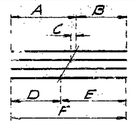
NOTE:
Cost of crushed rock to be included in price paid for other items.

COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION
20	#4	17'-6"	H1	Slab
16	#4	5'-1"	H2	"
6	#4	17'-3"	H3	Wall
8	#4	19'-3"	H4	"
5	#4	20'-2"	H5	"
8	#4	15'-3"	H6	" *
8	#4	14'-4"	H7	" *
1	#4	11'-2"	H8	" *
1	#4	11'-8"	H9	" *
1	#4	7'-10"	H10	" *
1	#4	8'-4"	H11	" *
1	#4	4'-7"	H12	" *
1	#4	5'-1"	H13	" *
4	#5	6'-0"	H14	"(Str.Gr.)*
24	#4	4'-10"	H16	Slab
24	#4	13'-0"	H17	"
4	#6	19'-2"	T1	Wall
4	#6	18'-1"	T2	"
2	#6	15'-10"	T3	" *
2	#6	16'-9"	T4	" *
2	#6	15'-4"	T5	" *
2	#6	16'-2"	T6	" *
9	#4	16'-8"	V1	" *
8	#4	15'-8"	V2	" *
9	#4	11'-7"	V3	" *
8	#4	10'-9"	V4	" *
6	#4	20'-2"	V5	" *
6	#4	21'-1"	V6	" *
6	#4	6'-3"	V7	" *
6	#4	7'-2"	V8	" *

BENDING SKETCHES & CUTTING DIAGRAMS

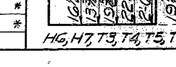
* Bend as shown.



G CUT H

Mk.	A	B	C	D	E	F	G	H
H4	16'-11"	2'-4"	2'-1"	2'-4"	16'-11"	19'-3"	8	8
H5	16'-5¼"	3'-8¾"	3'-5⅛"	3'-8¾"	16'-5⅛"	20'-2"	5	5
V1	12'-4⅜"	4'-3⅛"	5'-¾"	8'-6⅜"	8'-1⅛"	16'-8"	9	9
V2	11'-5⅜"	4'-3⅛"	5'-¾"	8'-3⅜"	7'-7⅛"	15'-9"	8	8
V3	8'-5⅜"	3'-1⅛"	3¾"	5'-11⅛"	5'-7⅛"	11'-7"	9	9
V4	7'-8⅜"	3'-0⅜"	3¾"	5'-6⅛"	5'-2⅛"	10'-9"	8	8
V5	11'-9⅜"	8'-4⅜"	3¾"	10'-2⅛"	9'-11⅛"	20'-2"	6	6
V6	12'-3⅜"	8'-9⅜"	3¾"	10'-8⅛"	10'-4⅛"	21'-1"	6	6
V7	3'-7"	2'-8"	1"	3'-2"	3'-1"	6'-3"	6	6
V8	4'-0½"	3'-1½"	1"	3'-7½"	3'-6½"	7'-2"	6	6

12" H14
12'-8½" H6
12'-3" H7
12'-10⅛" T3
13'-3¾" T4
12'-4" T5
12'-9" T6



H6, H7, T3, T4, T5, T6

MARK	A	B
H8	13½"	10'-0½"
H9	16¼"	10'-3¾"
H10	13½"	6'-8½"
H11	16½"	6'-11¾"
H12	13½"	3'-5¾"
H13	16¼"	3'-8¾"
V1	16¾"	Varies
V2	14"	"
V3	16¾"	"
V4	14"	"
V5	14"	"
V6	17"	"
V7	14"	"
V8	17"	"

NOTE:
All bending dimensions are out to out.
Total lengths are measured along centerline bar to the nearest inch.
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for detailing reinforced concrete structures.

BENT NO. 4 — FOOTING COVER

DETAILED Mar 1970 BY Brockman
CHECKED Mar. 1970 BY Moberly

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

Sheet No. 7A of 19.

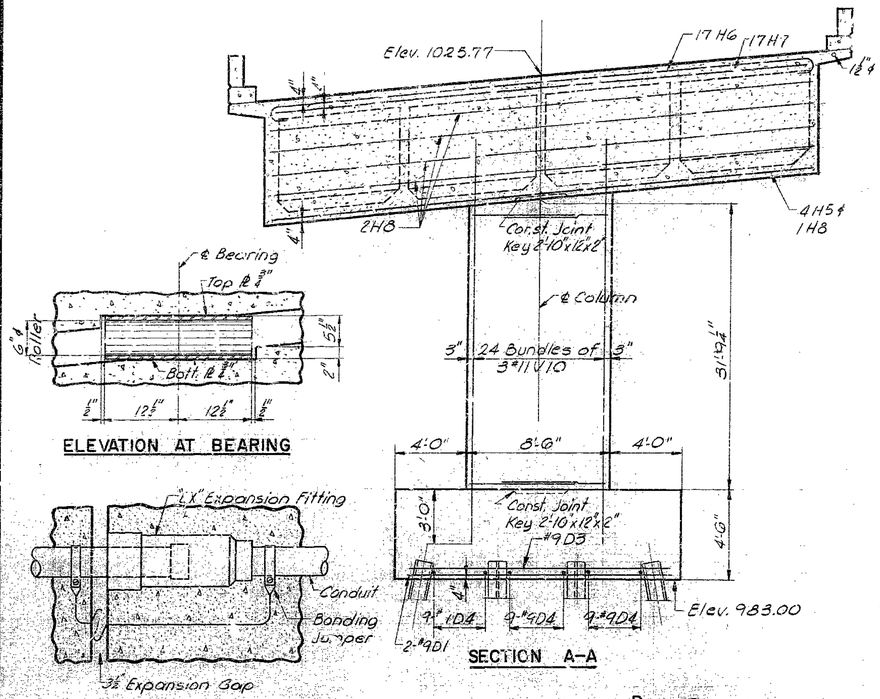
PLATTE COUNTY

A-2281

SEE FINAL PLANS FOR CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

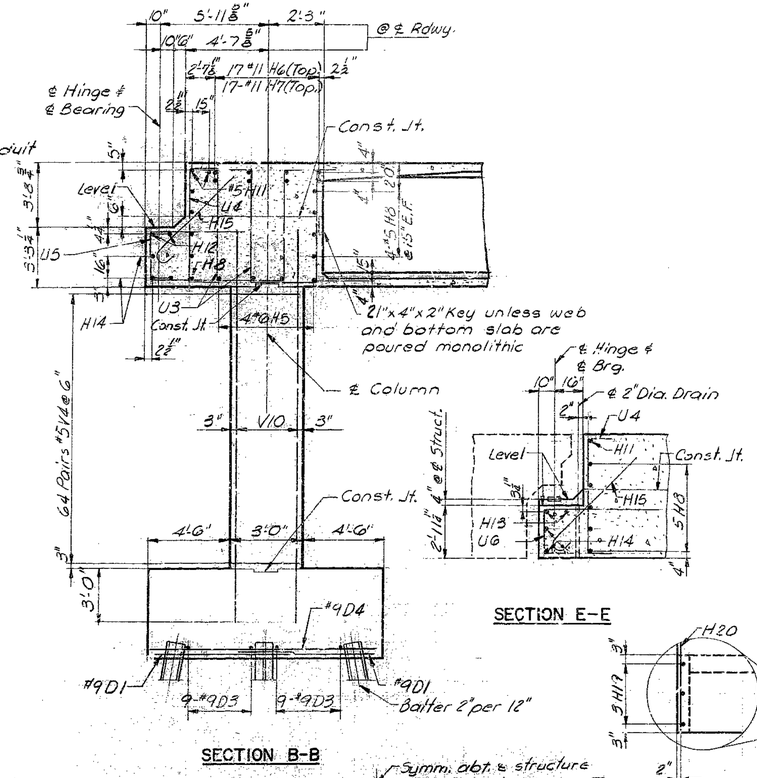
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	76	



SECTION A-A

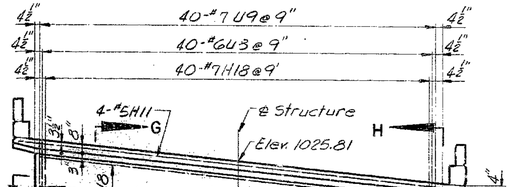
"EX" CONDUIT EXPANSION FITTING

ELEVATION AT BEARING

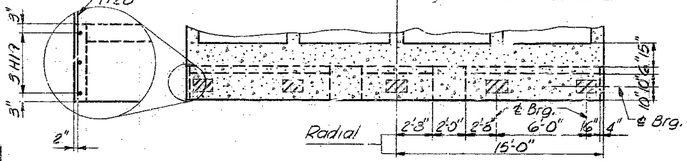


SECTION B-B

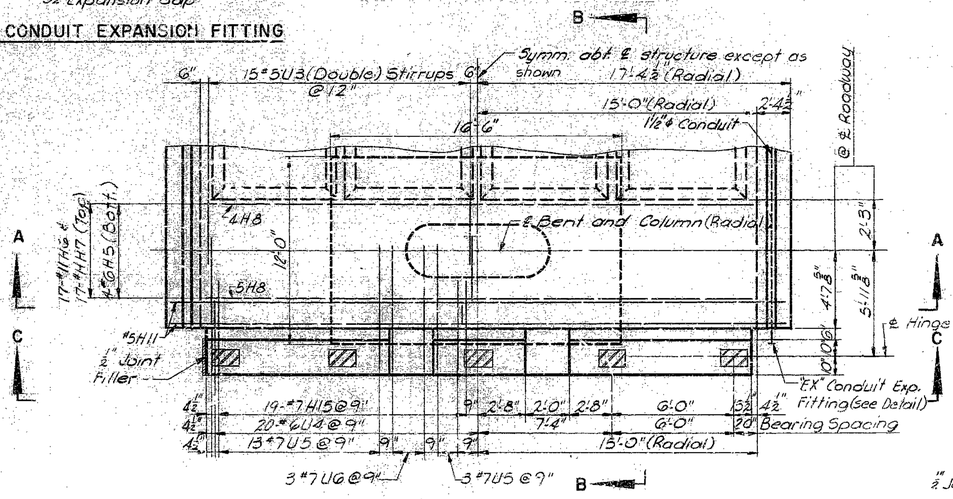
SECTION E-E



ELEVATION AT ℄ HINGE
(Looking Down Station)

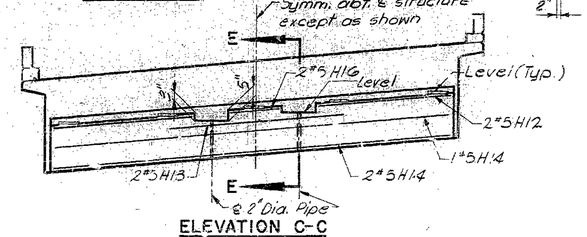


SECTION F-F

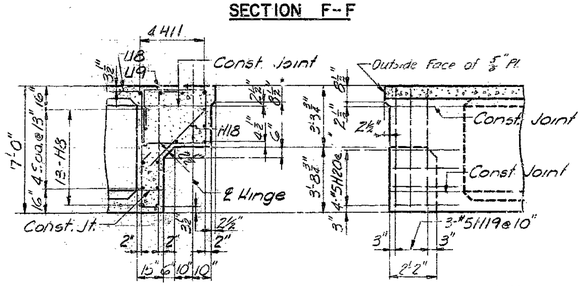


PLAN

INT. BENT NO. 5

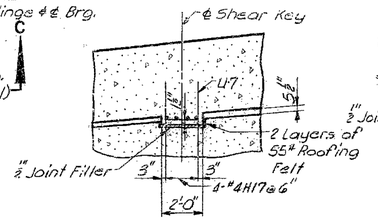


ELEVATION C-C

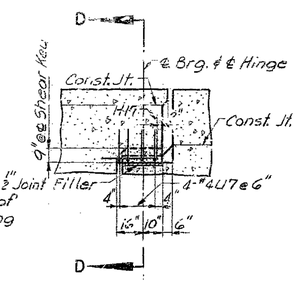


SECTION G-G

ELEVATION H-H



SECTION D-D



SECTION THRU SHEAR KEY

NOTES:
For Expansion Device see Sheet No. 14 of 19.
For Bearings see Sheet No. 15 of 19.
For Footing Plan and Column Section see Sheet No. 7of 19.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1 (12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

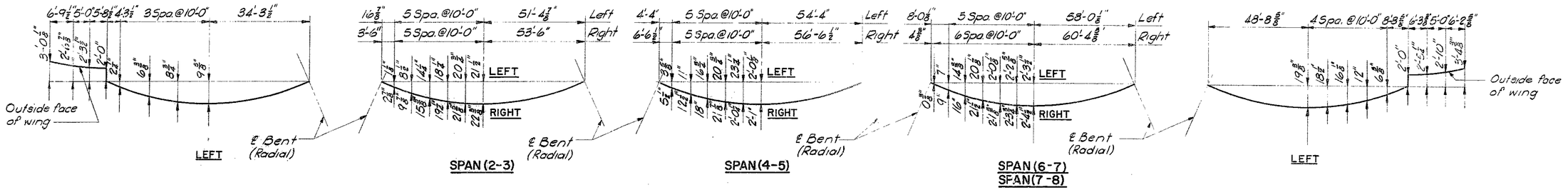
DETAILED Sept. 1967 BY Mannisi
CHECKED Nov. 1967 BY Moli

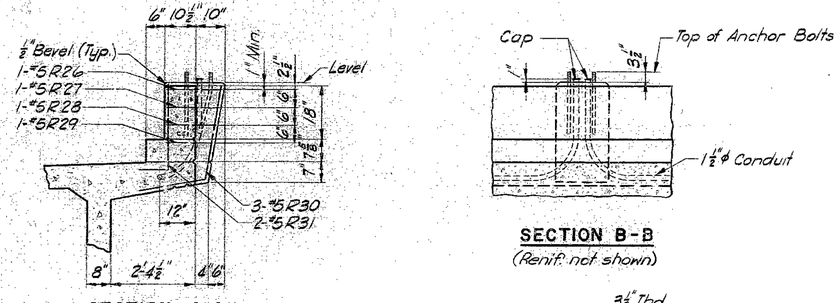
R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	77	





LIGHT STANDARD DETAILS

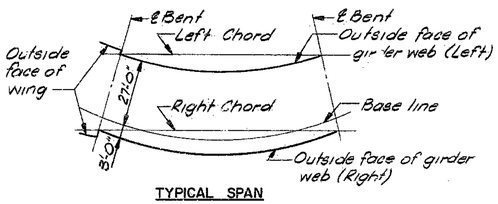
CURVE OFFSETS

CONDUIT SYSTEM NOTES:

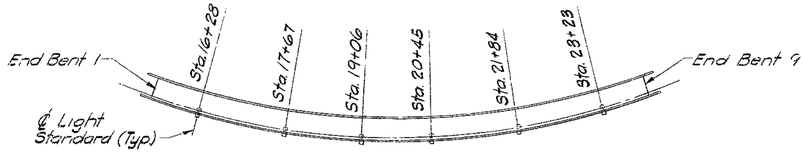
Cost of furnishing and placing conduit expansion fittings, junction boxes and anchor bolts for light standard shall be included in contract unit price of conduit system (on structures).
Anchor bolts to be furnished complete with Standard Hex. nuts and washers, all galvanized.
Light standards, wiring and fixtures to be furnished and installed by others.
All conduit to be rigid galvanized steel with 3" minimum cover in concrete.
Shift reinforcing steel in field where necessary to clear conduit and junction boxes.

Top of light standard supports to be made horizontal, anchor bolts to be placed vertically.

Galvanized Expansion Fittings shall provide a minimum of movement in either direction of 4" at open joints and 1" at filled joints. Fittings shall be equal to O.Z. Elect. Mfg. Co. Expansion Fitting "EX" with approved bonding jumper. (See Sheet 8 of 19.)
Junction boxes to be flush mounted shall be equal to O.Z. Elect. Mfg. Co. Type "YR".
Junction box to be surface mounted shall be equal to O.Z. Elec. Mfg. Co. Type "YL" (Waterfight).
Junction boxes to be fastened to columns with ⅜" bolts in expansion anchors or concrete inserts.
Place ½" ϕ drain holes at low points in conduits and junction boxes.
For details of sign lighting and wiring see Electrical Plans.



CURVE OFFSET LOCATION PLAN



LIGHT STANDARD LOCATION PLAN

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1(12) (RTE. I-29) STA. 15+51.21

PLATTE COUNTY

DETAILED AUG. 19 67 BY MANNISI
CHECKED NOV. 19 67 BY KUHLMANN

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
115 a OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 9 of 19 .

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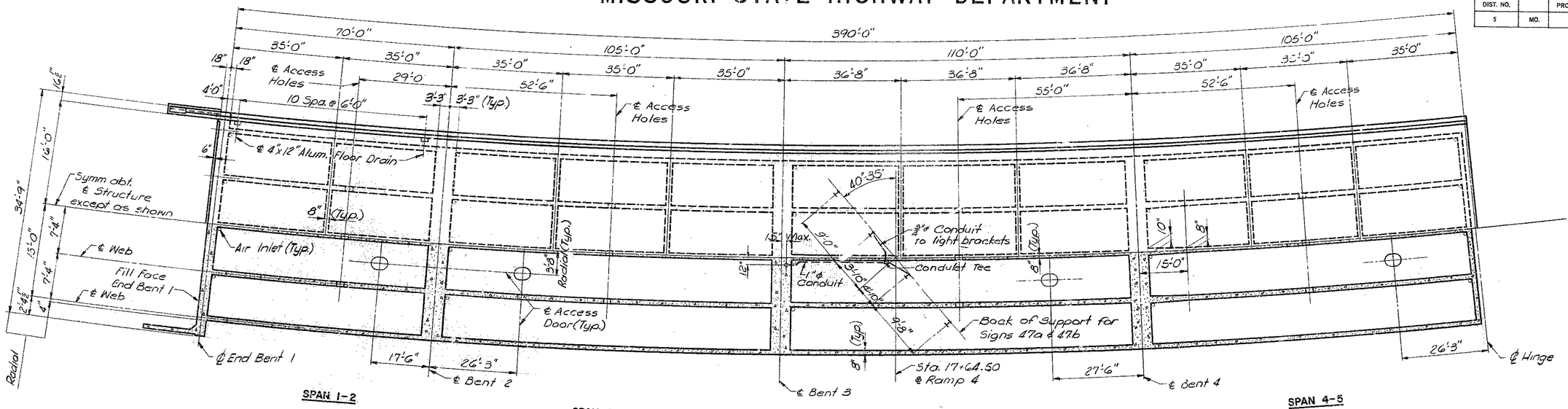
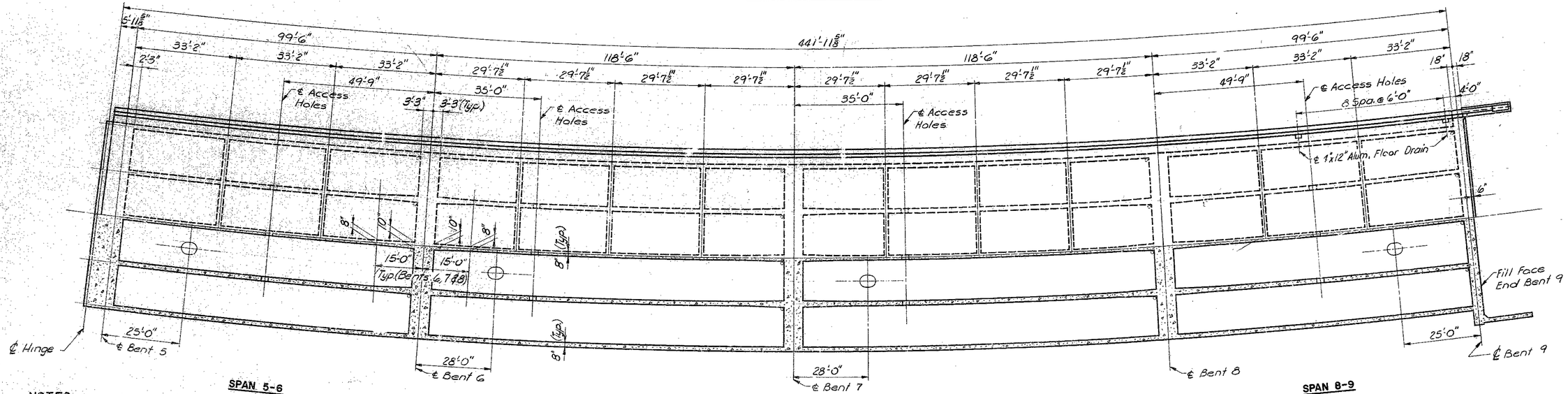
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	78	



SPAN 1-2 THRU 4-5



SPAN 5-6 THRU 8-9

HALF PLAN & SECTION

NOTES

All longitudinal dimensions shown are measured along ℄ Structure.
For Transverse Section see Sheet No. 11 of 19.
For Air Inlet Detail, Access Door Details and Pouring Sequence see Sheet No. 16 of 19.
For Floor Drain Details see Sheet No. 15 of 19.
For Sign Support Details see Sheet No. 19 of 19.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1 (12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

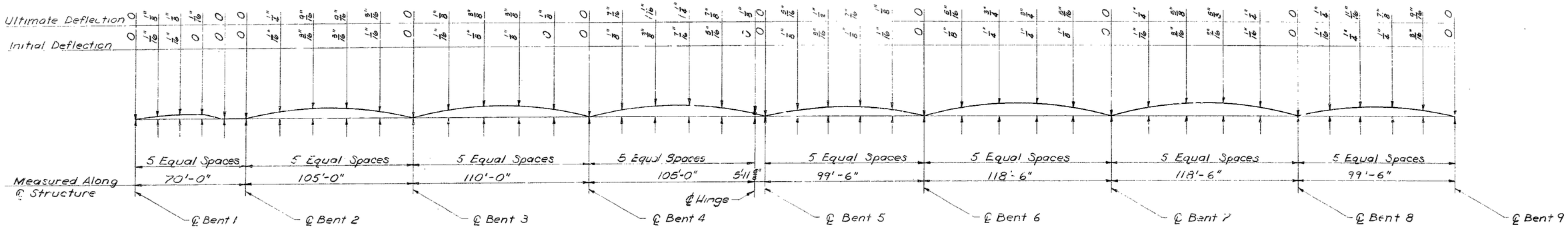
DETAILED JULY 1967 BY SHANK
CHECKED NOV. 1967 BY MALI

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1136 OLIVE STREET
ST. LOUIS, MISSOURI 63101

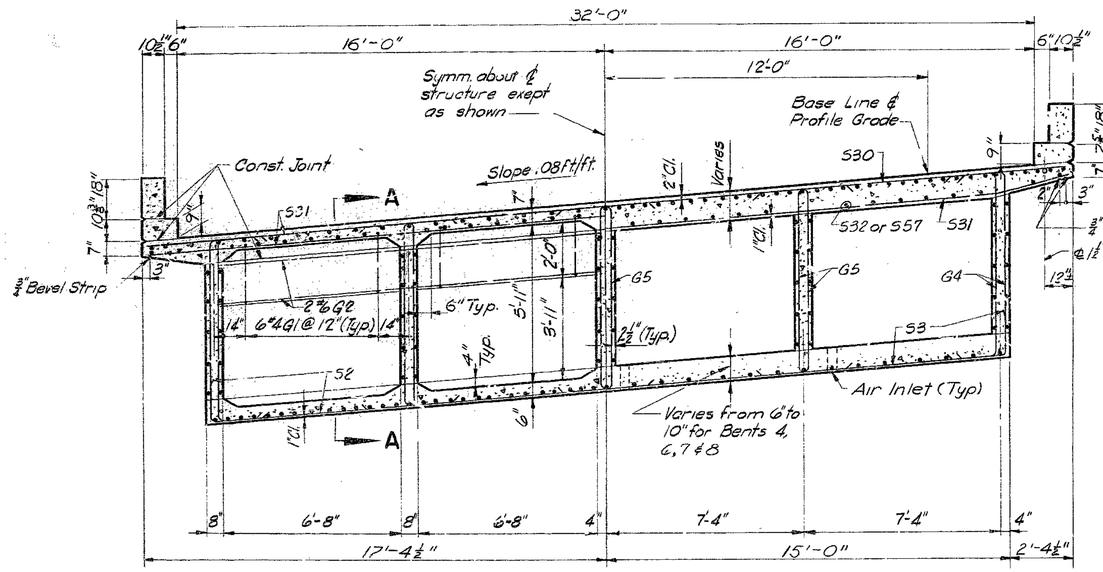
Note: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	79	

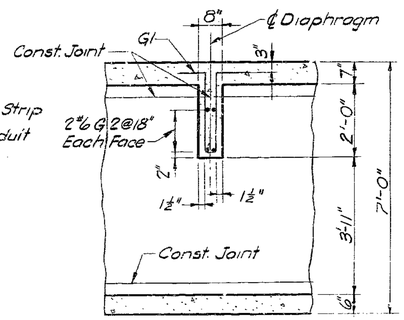


CAMBER DIAGRAM



HALF SECTION
NEAR DIAPHAGMS

HALF SECTION
NEAR INT. BENTS



SECTION A-A

NOTES:
Bottom slab increases from 6" to 10" in 12'-0" on each side of bean at Int. Bents 4, 6, 7 & 8. For details see Sheet No. 7 of 19.

FOOTING PLAN
(INT. BENT 8)

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1(12) (RTE. I-29) STA. 15+51.21

PLATTE COUNTY

A-2281

DETAILED JULY 1967 BY GREENWELL
CHECKED NOV. 1967 BY KUHLMANN

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 11 of 19.

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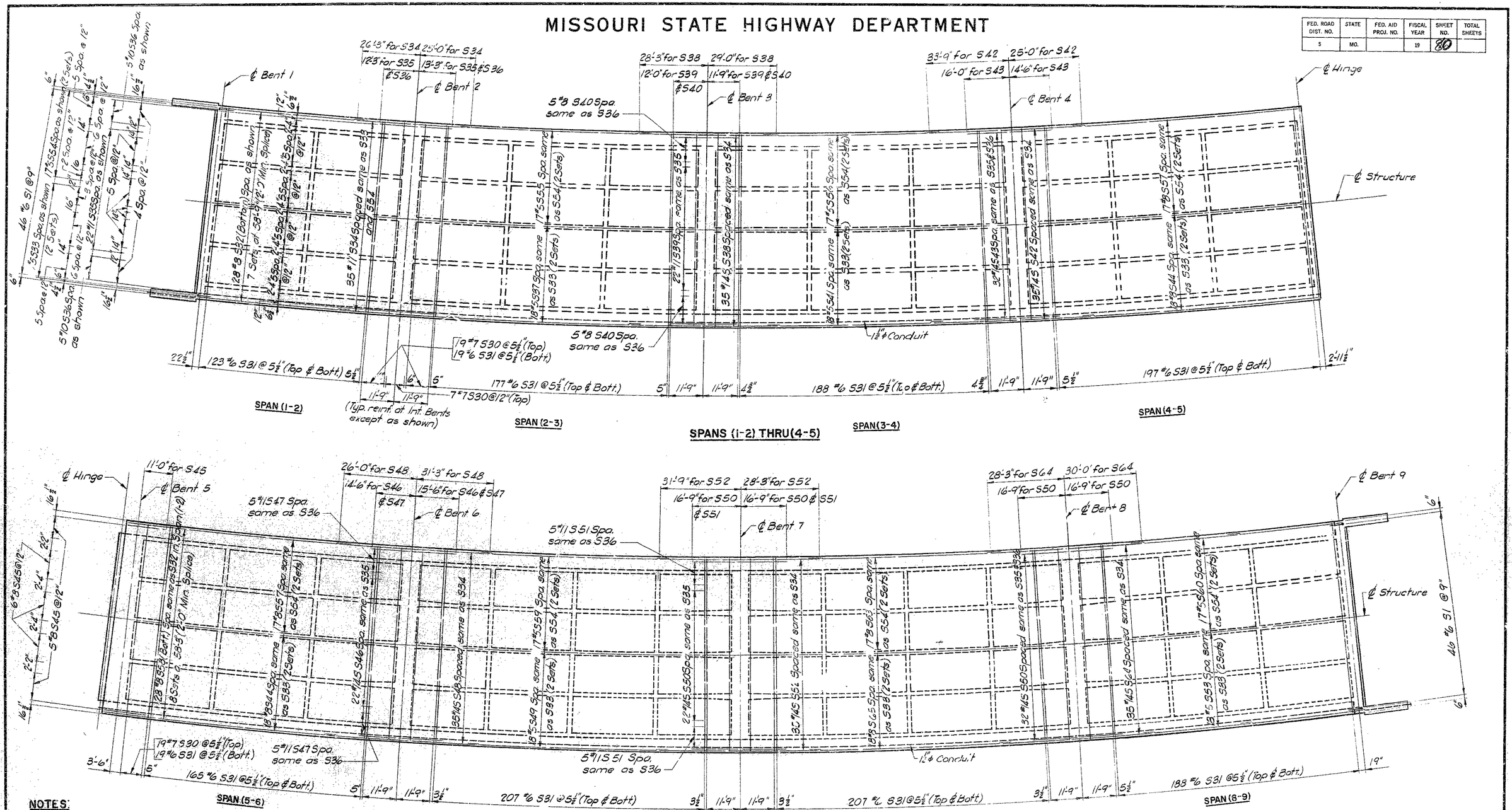
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	80	



TOP SLAB PLAN

NOTES:

All longitudinal reinforcing shown is for top of top slab except as noted.
All longitudinal dimensions are measured along ℄ Structure along curve. All transverse dimensions are radial.
For location of drains see Sheet No. 10 of 19.
Longitudinal reinf. steel shall be placed so that ends shall not be more than 1"± from ⅝"℄ and 6"±4"L at Exp. Device.

DETAILED NOV. 1967 BY HERD
CHECKED NOV. 1967 BY KUHLMANN

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 12 of 19.

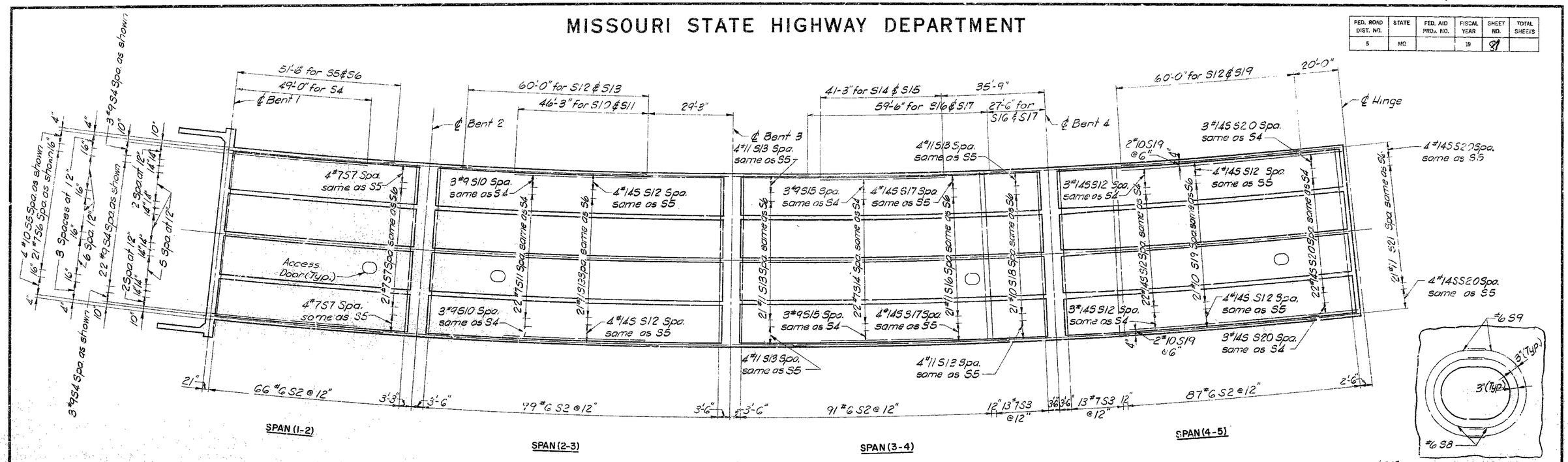
BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29
ABOUT 10 MILES NORTH OF PARKSVILLE
PROJECT NO. I-29-1 (12) (RTE. I-29) **STA.** 15+51.21
PLATTE COUNTY

A-2281

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	87	



SPANS (1-2) THRU (4-5)

SPANS (5-6) THRU (8-9)

BOTTOM SLAB PLAN

NOTES:

For location of access doors see Sheet No. 10 of 19.
For section thru slab see Sheet No. 11 of 19.
Bottom slab reinforcing shall be cut in field to allow access door installation.
All longitudinal dimensions are measured along ℄ Structure along curve.
All transverse dimensions are radial.

DETAILED NOV. 1967 BY HERD
CHECKED NOV. 1967 BY KUHLMANN

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 13 of 19.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1 (12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

A-2281

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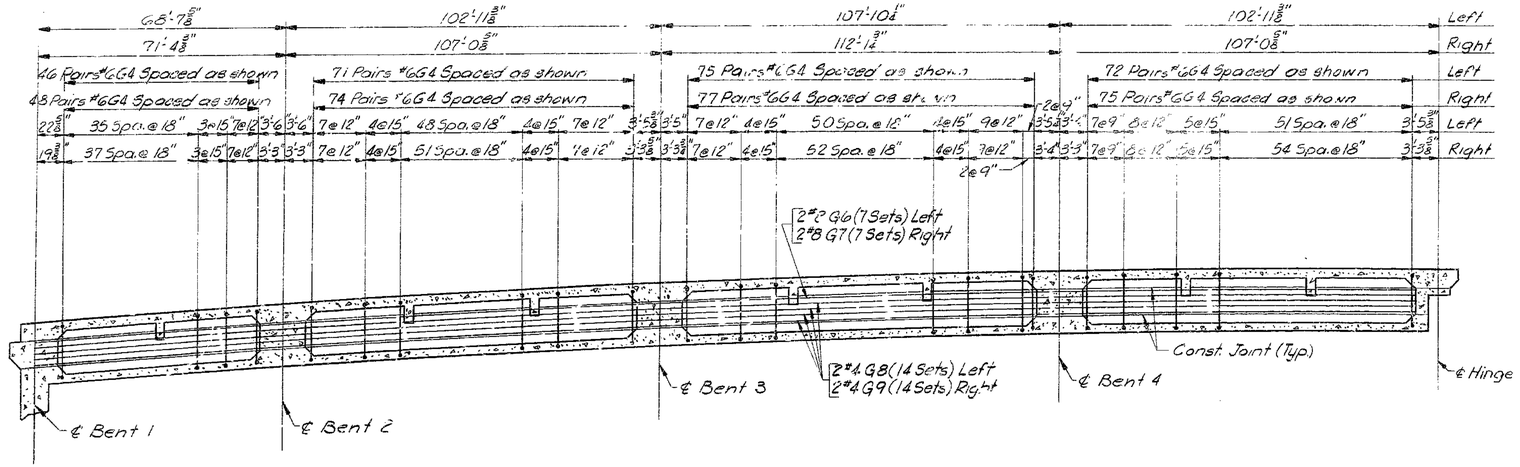
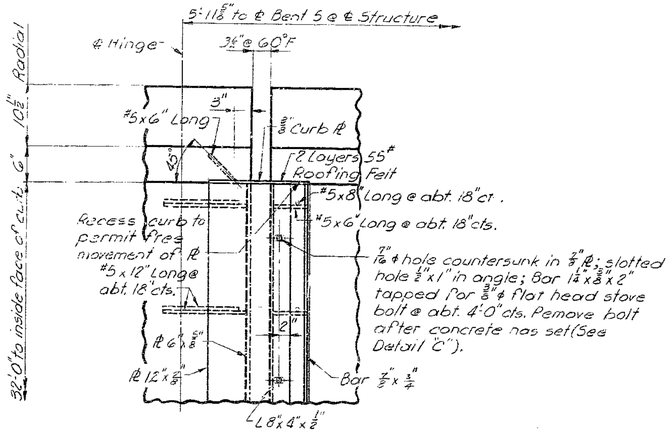
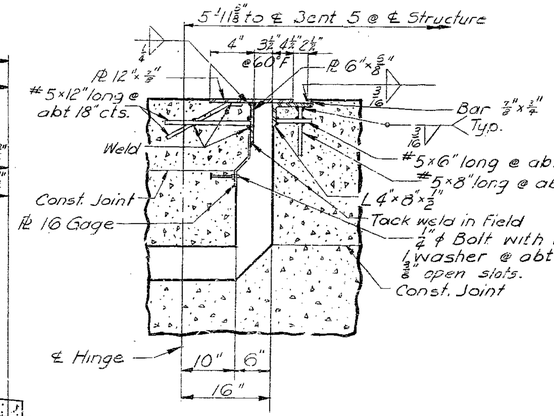
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	8P	



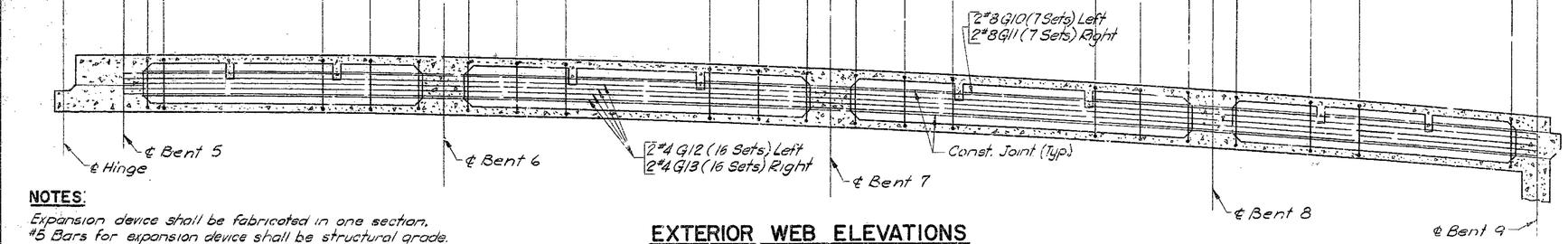


PLAN



SECTION

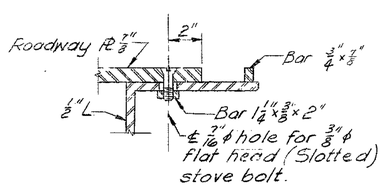
PLATE EXPANSION DEVICE
(NEAR INT. BENT 5)



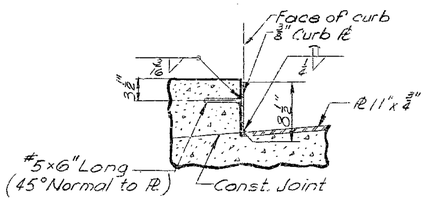
EXTERIOR WEB ELEVATIONS

NOTES:

Expansion device shall be fabricated in one section.
#5 Bars for expansion device shall be structural grade. Approved stud welded anchors may be used in lieu of #5 bars shown.
Use 2 layers of 55# roofing felt between the sliding contact surface of curb plate and concrete curb.
Weight of all expansion device material is included in the "Estimated Weight of Fabricated Structural Carbon Steel."



DETAIL "C"



SECTION THRU CURB

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABC 10 MILES NORTH OF PARKVILLE

PROJECT NO. I-29-1(12) (RTE. 1-29) **STA.** 15+51.21

PLATTE COUNTY

DETAILED JUNE 1967 BY STAFFORD
CHECKED NOV. 1967 BY R. PARIKH

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

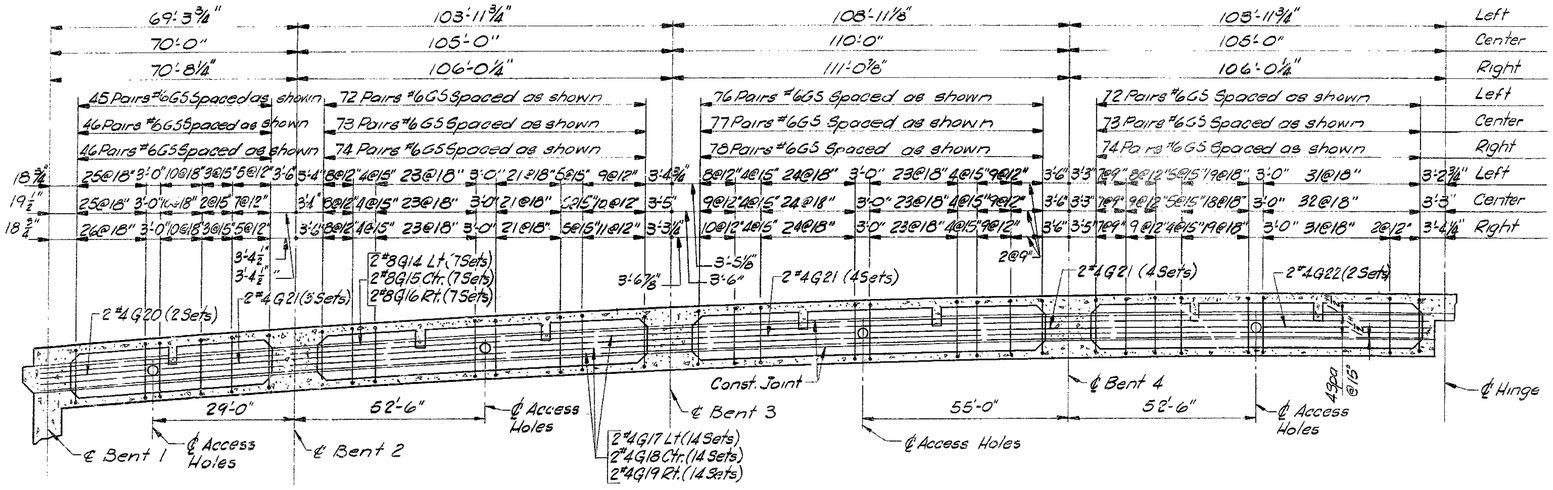
Note: This drawing is not to scale. Follow dimensions.

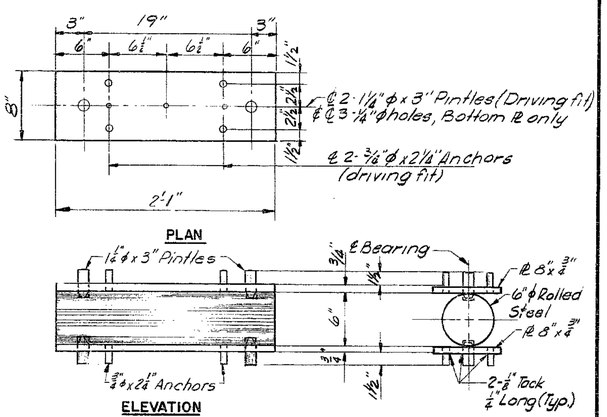
Sheet No. 14 of 19.

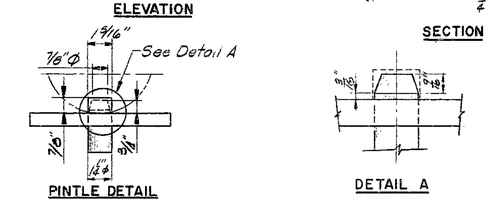
A-2281

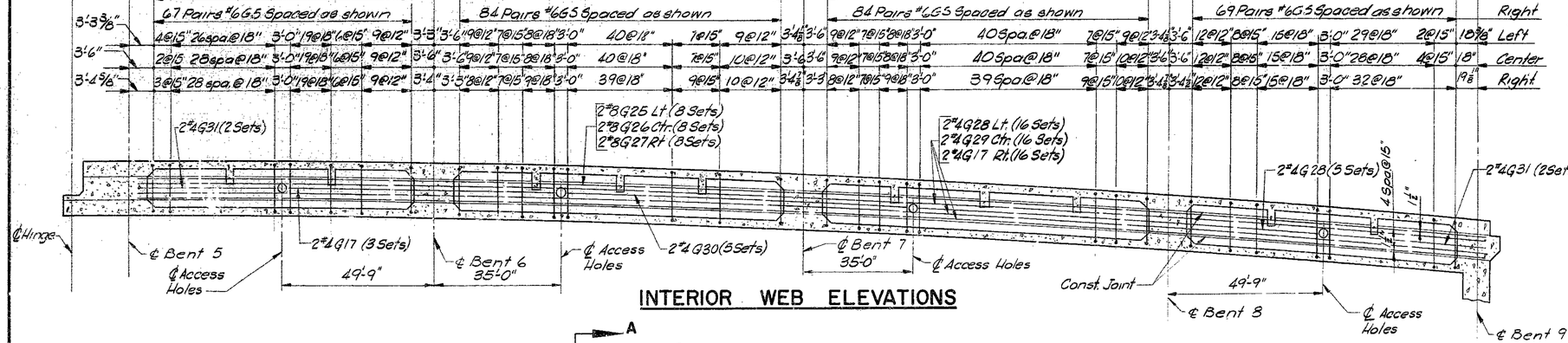
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	83	

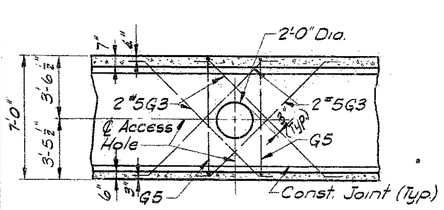




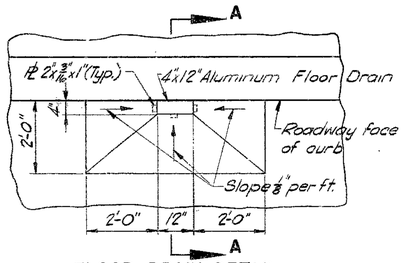




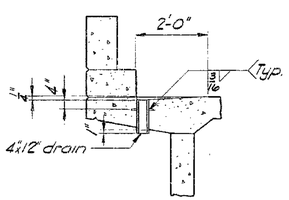
INTERIOR WEB ELEVATIONS



ACCESS HOLE IN WEB



FLOOR DRAIN DETAIL



SECTION A-A

NOTES

Cut or shift transverse reinforcing steel in field to clear drains. Shift longitudinal reinforcing steel to clear drains.
For location of floor drains see Sheet No 10 of 19.
Floor drains shall be ⅛" aluminum sheets, welded A.S.T.M. B 209 alloy 3003-H14 or 6061-T6.
Payment for furnishing and placing 4"x12" Aluminum Floor Drains shall be included in price bid for Class B-1 Concrete.

NOTES

Top and bottom plates to be A.S.T.M. A 514-67 alloy steel.
Material for pintles and roller shall be cold finished carbon steel A.I.S.I. C1045 or C1042 (Turned and polished).
All bearing plates shall be straightened to plane surfaces.
Weight of expansion rollers is included in Fabricated Structural Carbon Steel item.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1 (12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

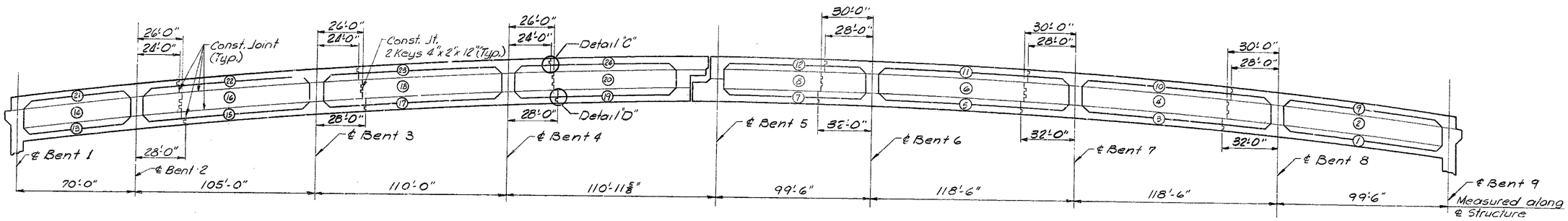
DETAILED OCT. 1967 BY MANNISI
CHECKED NOV. 1967 BY R. PARIKH

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

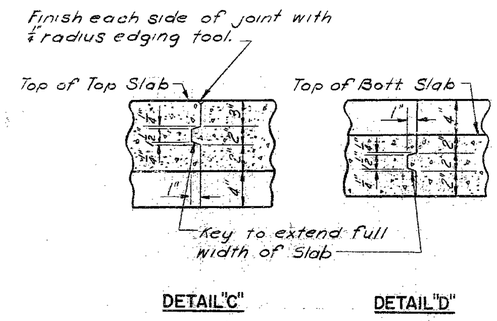
Note: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	23	

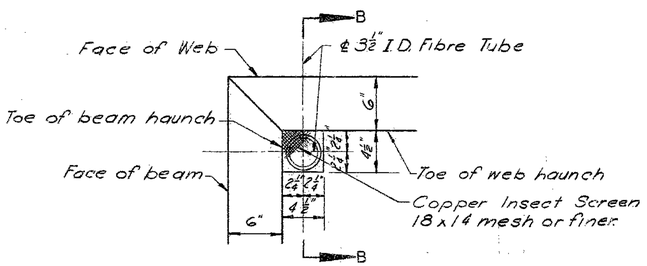


POURING SEQUENCE

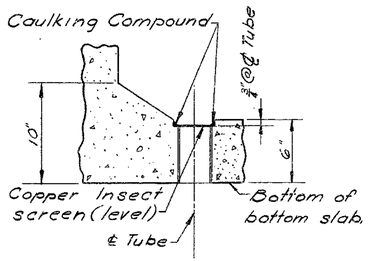


DETAIL "C"

DETAIL "D"

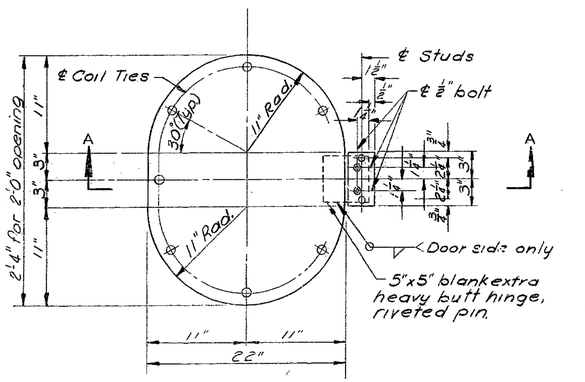


PLAN

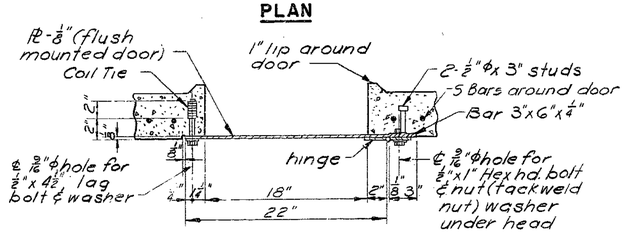


SECTION B-B

AIR INLET DETAIL



PLAN



SECTION A-A

ACCESS DOOR DETAILS

(8 Required)

NOTES:

Numbers in circles indicate the basic pouring sequence. Longitudinal joints in roadway slabs, unless specifically on plans, will not be permitted.

The contractor shall use an approved oscillating screed type, self-propelled mechanical finishing machine and shall pour roadway slabs at a rate of not less than 25 cubic yards per hour. He shall observe the basic pouring sequence unless he can demonstrate to the engineer that he can pour and satisfactorily finish the superstructure concrete at a rate which will permit the combining of such of the basic pours as may be specifically designated by the engineer as being compatible with design. Finishing machine loads will not be permitted on concrete less than 48 hours old.

With use of forms and basic falsework meeting the approval of the engineer, the girder webs and diaphragms may be poured with the bottom slab sections on which they bear.

All forms shall be removed from the interior of box girders except top slab forms which may be left in place.

Payment for furnishing and placing fiber tube, copper screen, and caulking compound shall be included in price bid for other items of work.

Access doors shall be assembled and in place while slab is being poured. Weight of access door is included in Estimated Weight of Fabricated Structural Carbon Steel.

Bottom surface of door to be flush with bottom slab. For location of access doors see sheet number 10 of 19.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1 (12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

DETAILED AUG. 1967 BY F. MERTZ

CHECKED NOV. 1967 BY MALI

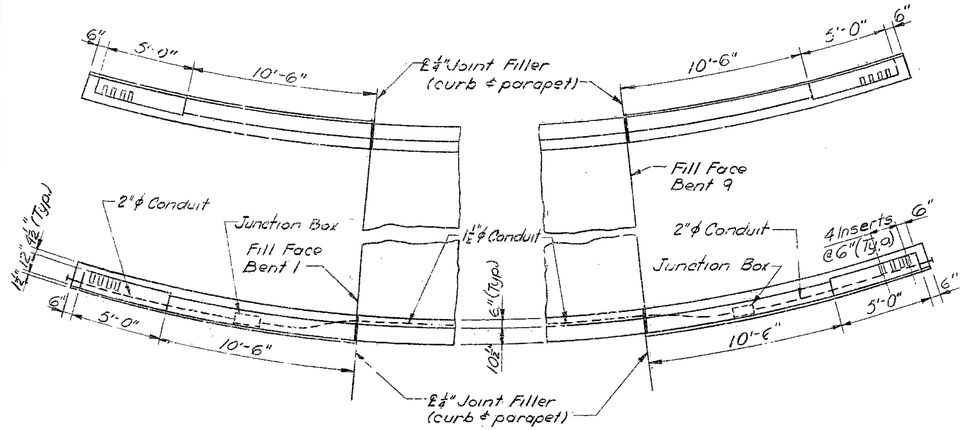
R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

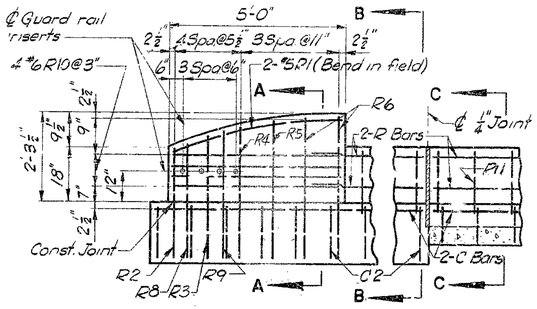
13

MISSOURI STATE HIGHWAY DEPARTMENT

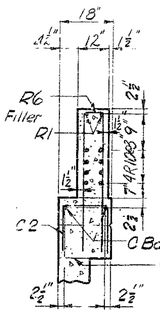
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	95	



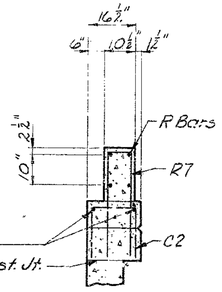
PLAN OF END POSTS



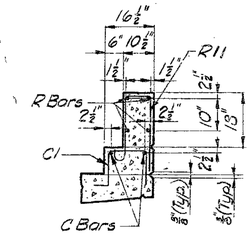
SECTION AT END POST



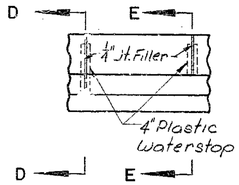
SECTION A-A



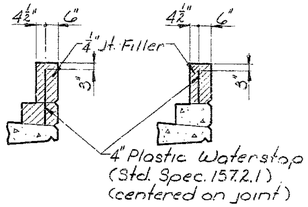
SECTION B-B



SECTION C-C



ELEVATION



SECTION D-D SECTION E-E

NOTES:

Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

Plastic waterstop shall be placed in all parapet and curb filled joints on the left side of the bridge only.

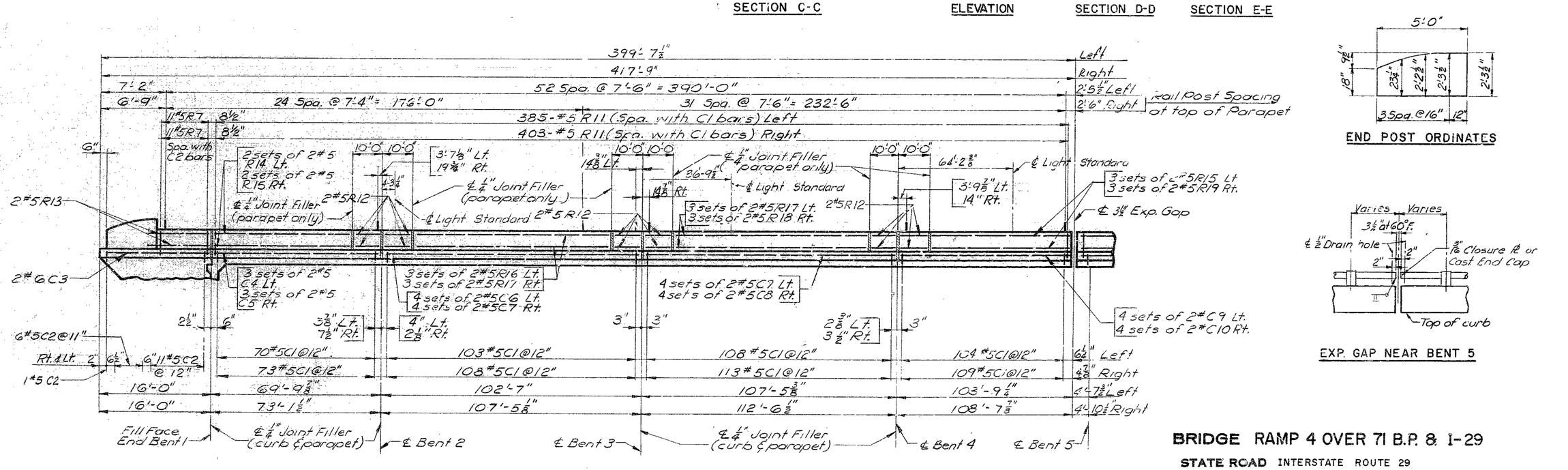
All longitudinal dimensions shown are measured along outside face of parapet along the curve except as shown.

All transverse dimension shown are radial.

Anchors for attaching guard rail shall be ¾" threaded malleable iron (galv.) inserts having a min. depth of 3½" and filled with a plastic closing plug. Cost for furnishing and installing inserts and plugs will be included in price bid for other items.

For details of curb and parapet not shown, see Sheet No. 18 of 19.

Light standards are on right parapet only and measured along top of parapet For details of Light Standard Support see Sheet No. 9 of 19.



SPAN 1–2 THRU SPAN 4–5

CURB & PARAPET ELEVATION

END POST ORDINATES

EXP. GAP NEAR BENT 5

DETAILED OCT. 1967 BY STAFFORD & HOHLT

CHECKED NOV. 1967 BY MALI

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 17 of 19.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1 (12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

A-2281

MISSOURI STATE HIGHWAY DEPARTMENT

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO.		13	86	

GENERAL HANDRAIL NOTES:

All handrail posts shall be set normal to grade.

Aluminum tube handrail shall be bent to conform to vertical and horizontal alignment of parapet.

Aluminum washer shims between top of parapet and post base may be used for adjusting handrail alignment. Maximum thickness of shims to be 1/8". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.

All parts of handrail, except anchor bolts, nuts, washers, and set screws are to be of aluminum material.

The contract unit price per linear foot of "Bridge Rail" shall include furnishing and erecting the handrail complete with anchor bolts, shims and insulating compound.

All fillets 1/4" except as noted.

All drafts 3° except as noted.

Pipe rail to be fabricated in a minimum of 2 panel lengths.

Omit set screw on side adjacent to filled joint in parapet and curb at all expansion posts.

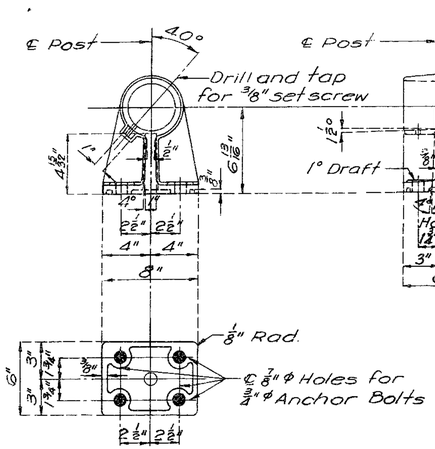
Top of curbs and parapets to be built parallel to grade with curb and parapet joints (except at end posts) normal to grade.

Concrete end posts to be vertical.

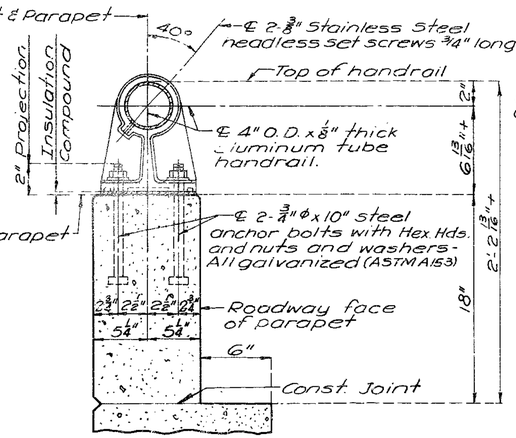
All exposed edges of end posts shall have 1/2" bevel. All exposed edges of curbs and parapets shall have 1/2" radius or 3/8" bevel unless otherwise noted.

If the contractor desires, he may use drive fit cast aluminum end caps in lieu of welded aluminum closure plates.

Integrally cast test coupons and a coat of clear lacquer specified in Std. Spec. 56.2.4 and 56.3.5 respectively will not be required for these rail posts.

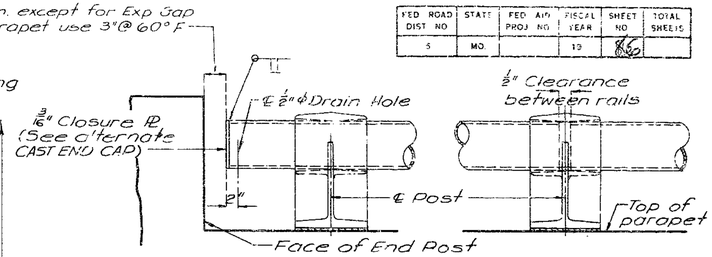


POST DETAILS

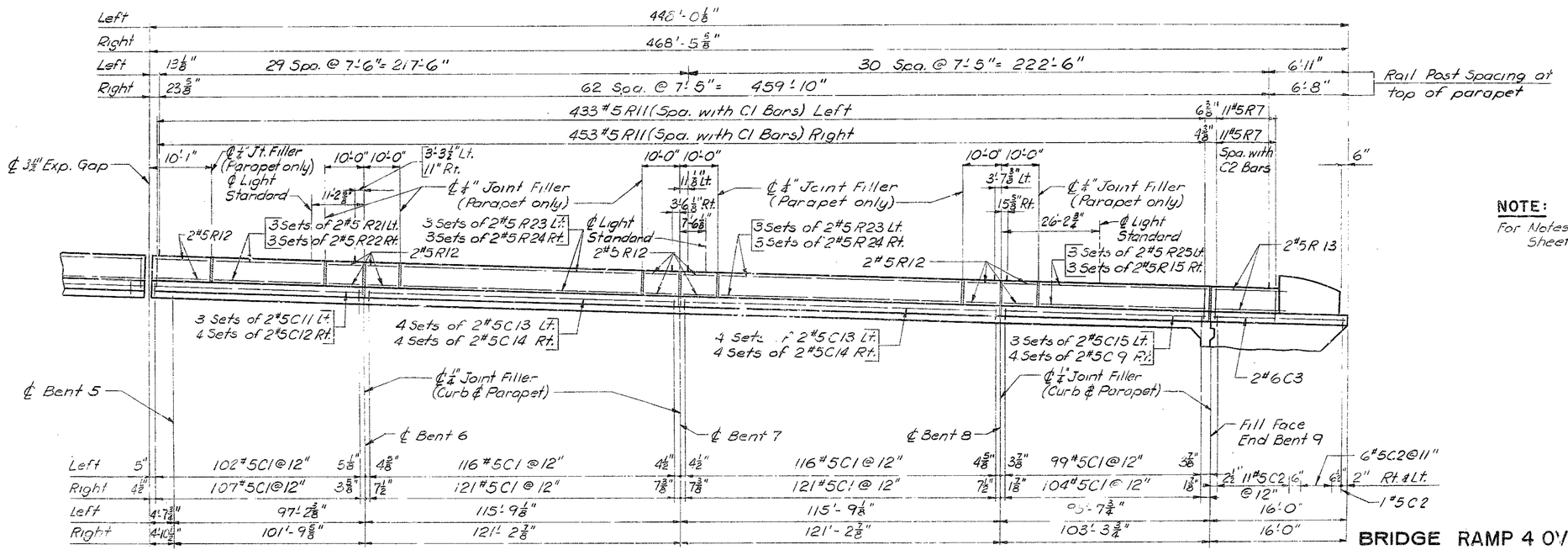


SECTION THRU HANDRAIL

SINGLE TUBE ALUMINUM RAILING



FILLED JOINT DETAILS



SPAN 5-6 THRU SPAN 8-9

CURB & PARAPET ELEVATION

NOTE:
For Notes and details not shown see Sheet No. 17 of 19.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1(12) (RTE. I-29) STA. 15+51.21

PLATTE COUNTY

A-2281

STD. 15.2 | REVISED JAN. 1967 | MAR. 1964

DETAILED OCT. 1967 BY HERD & BRAUN

CHECKED NOV. 1967 BY MALI

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 18 of 19.

15

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	61	

NOTES:

For details of post clamp not shown see Std. 72.03.
Anchors shall be of the ... equal to ... Red Head (Phillips Drill Co.) or Bull Dog (J.D. Polis Mfg. Co.).
For details of light bracket not shown see Std. 72.09.
Use 1/4-20NC-2 round head rolled thread, stainless steel screws for locking tab.
Add 6" to sign height for lighting fixtures when computing sign area.
Fabricated Structural Carbon Steel includes the weight of Structural Steel for Sign Supports.
For Conduit System Notes see Sheet No. 9 of 19.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1(12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

DETAILED DEC. 1967 BY SHANK

CHECKED DEC. 1967 BY J.M. PARIKH

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Rev. Feb. 20, 1970

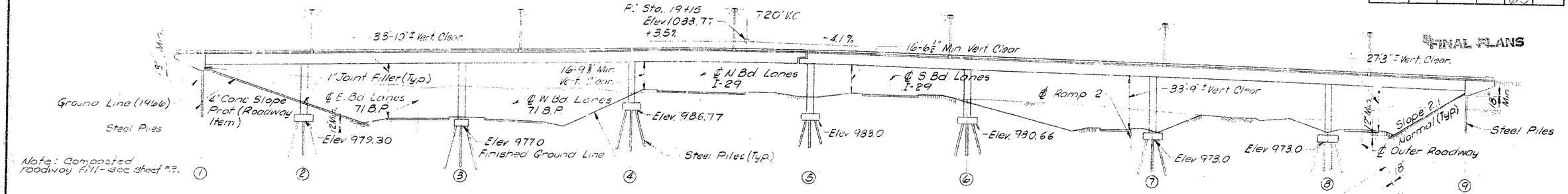
A-2281

MISSOURI STATE HIGHWAY DEPARTMENT

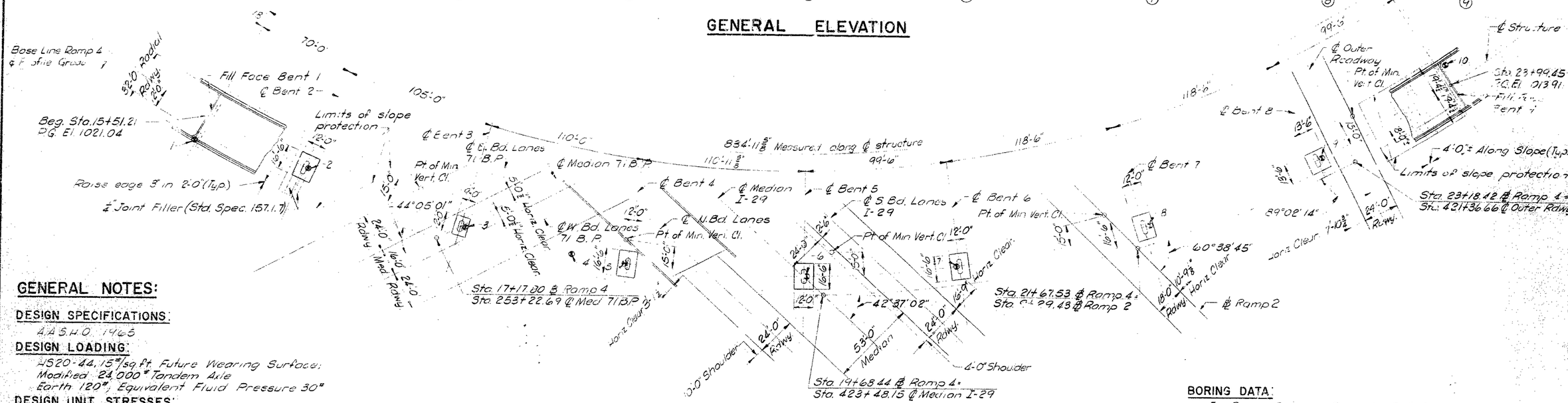
(70'-105'-110'-105')(5.97'-95'-118.5'-118.5'-99.5') Cont. Conc Box Girders

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	69	

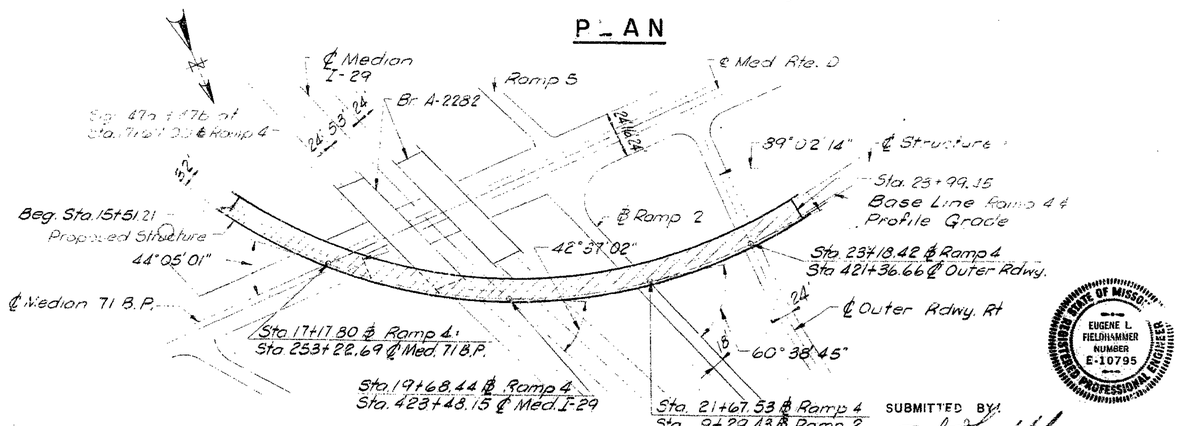
FINAL PLANS



GENERAL ELEVATION



PLAN



LOCATION SKETCH

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.O. 1965

DESIGN LOADING:
H520-44, 15#/sq. Ft. Future Wearing Surface;
Modified 24,000# Tandem Axle
Earth (120#), Equivalent Fluid Pressure 30#

DESIGN UNIT STRESSES:
Class B Concrete (substructure) f_c = 1,200 p.s.i.
Class B1 Concrete (superstructure) f_c = 1,600 p.s.i.
Reinforcing Steel f_s = 20,000 p.s.i.
Structural Steel (A.S.T.M. A36-66) f_s = 20,000 p.s.i.
Steel Pile (A.S.T.M. A36-66) f_b = 9,000 p.s.i.

SURFACE SEAL:
Superstructure deck to be surface sealed.

PAINTING:
Structural steel bearings, expansion devices, and access doors cleaned and painted one coat of red lead in the shop with the two remaining coats applied in the field except that final coat on access doors was gray. No paint applied to top surface of top plate and bottom surface of bottom plate of bearings.

Cost of painting to be included in price bid for other items.

CONSTRUCTION CLEARANCE:
Falsework over Outer Rdwy. shall provide a minimum vertical clearance of 14'-6" from crown of pavement and minimum lateral clearance of 29'-0".

BORING DATA:
For Boring Data, see Sheet No 3 of 19.
● Indicates location of boring.

BENCH MARK:
B.M. #34 Spike ℄ washers in P.P. 149' Lt. of Survey Line Sta. 424+16 ± Elev. 1009.44
B.M. 14" Bolt Head, Top of Curb, W. of End Post S.W. Cor. Bridge, Elev. 1011.85

NOTE:
Contractor elected to pour footings at lower elevations shown, at his option & expense.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29
ABOUT 10 MILES NORTH OF PARKSVILLE
PROJECT NO. I-29-1(12) (RTE. I-29) STA. 15+51.21

PLATTE COUNTY

REGISTERED PROFESSIONAL ENGINEER STATE OF MISSOURI EUGENE L. FIELDHAMMER NUMBER E-10795

SUBMITTED BY: [signature]
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-10795

SUBMITTED BY: [signature] BRIDGE ENGINEER DATE Feb. 13, 1968
APPROVED BY: [signature] CHIEF ENGINEER DATE Feb. 13, 1968

DESIGNED JULY 1967 BY J. PORTH
DETAILED JULY 1967 BY HERN
CHECKED NOV. 1967 BY R. PARIKH

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 1A of 4

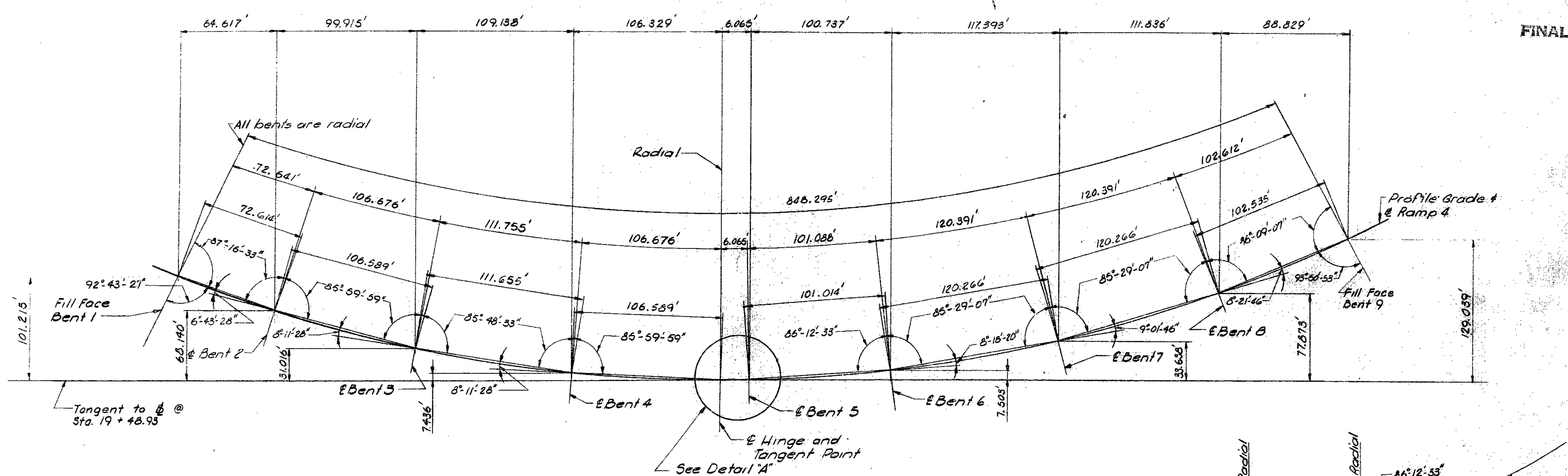
STD. 72.09
STD. 54.00
A-2281

FINAL PLANS

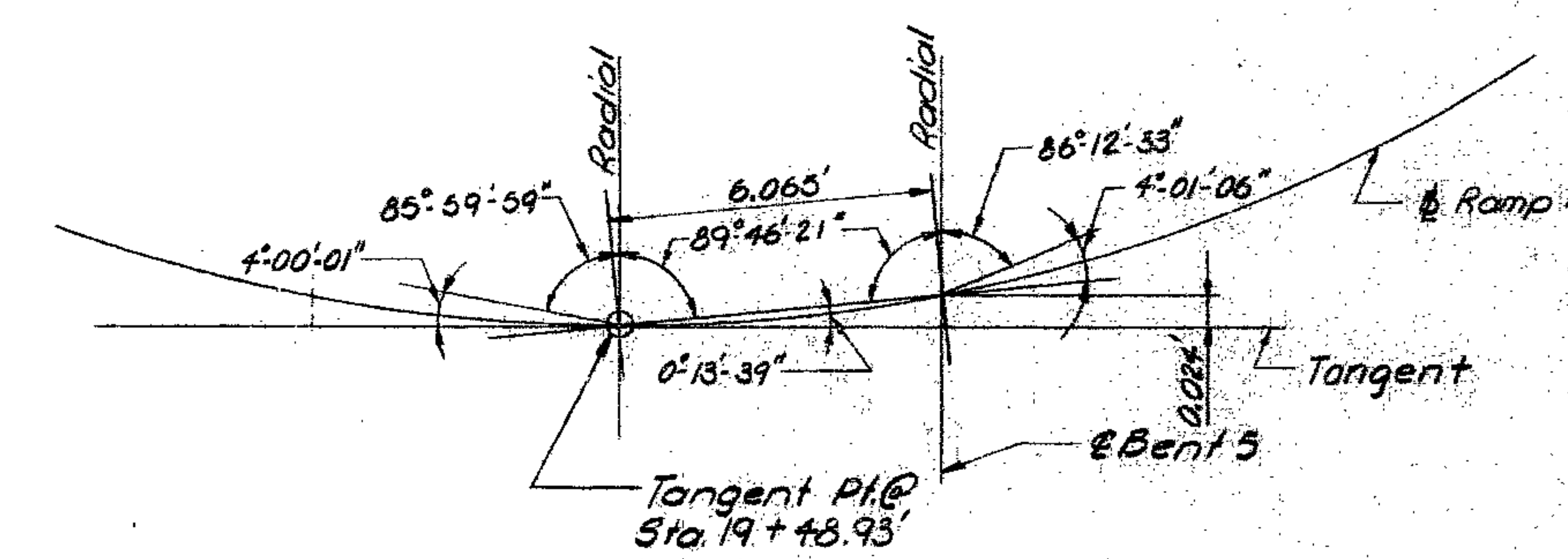
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	70	

FINAL PLANS



LAYOUT PLAN



DETAIL "A"

QUANTITY NOTES:

All concrete and reinforcement above footings is included in superstructure quantities.
No payment for excavation allowed at End Bents 1 and 9.

PILE NOTES

Minimum energy requirement of hammer based on plan length and design bearing value of piles. Increase by the factor (W+w)/2W when the weight of the ram (W) is less than the weight of the pile (w).
All piles driven to practical refusal.
Compacted roadway fill (full roadway width) placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bents 1 and 9 before steel piles were driven.

HORIZONTAL CURVE

Bents cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords.

PILE DATA

Bent No.		1		2	3	4	5	6	7	8	9
Pile Type and Size		12 BP53		14BP73	14BP73	14BP73	14BP73	14BP73	14BP73	14BP73	14BP73
Number		Lt 2	Rt.	12	12	12	12	12	12	16	5
Approximate Length	Ft.	65	72	40'	30'	45'	42'	40'	34'	31'	66'
Design Bearing	Tons	58		91	94	97	88	92	94	87	72
Hammer Energy Required	Ft. Lbs.	13,000		21,400	22,100	22,800	20,700	21,600	22,100	20,500	16,200

ESTIMATED QUANTITIES

Item	Unit	Substr.	Superstr.	Total
Class 1 Excavation for structures	Cu. Yd.	385	—	705
12" Steel Piles in Place	Lin. Ft.	327	—	327 ✓
14" Steel Piles in Place	Lin. Ft.	3283	—	3283 ✓
Class B Concrete	Cu. Yd.	216.9	—	216.9 ✓
Class B1 Concrete	Cu. Yd	—	2,541.6	2,541.6 ✓
Reinforcing Steel	Lb.	14,350	988,610	1,002,960 ✓
Fabricated Structural Carbon Steel	Lb.	—	5,460	5,460 ✓
Bridge Rail (Single Tube Type)	Lin. Ft.	—	1,711	1,711 ✓
Conduit System (on Structures)	Lump Sum	—	1	1 ✓
CONTINGENT ITEMS				
Force Account	F.A.			$29,945.70
Force Account	F.A.			$3,543.95
Force Account	F.A.			$597.88

CURVE DATA

P.I. - 20 + 16.69
Δ - 79°-57'-25" Lt.
D - 7°-30'-00"
R - 763.94'
T - 640.53'
L - 1066.09'
SE - 0.08 Ft/Ft.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1 (12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

DETAILED OCT. 1967 BY HERD
CHECKED NOV. 1967 BY MALI & R. PARIKH

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 24 of 94

A-2281

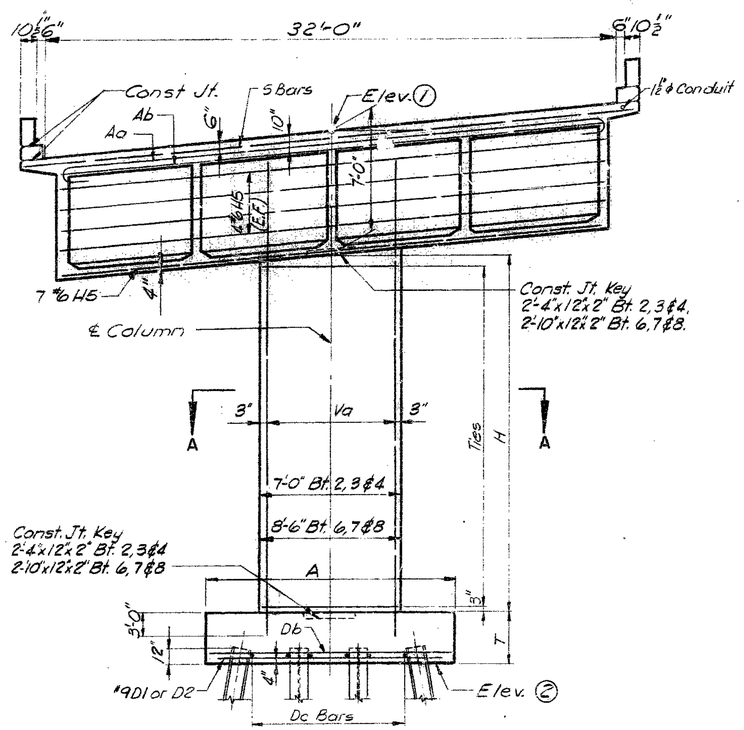
FINAL PLANS

79

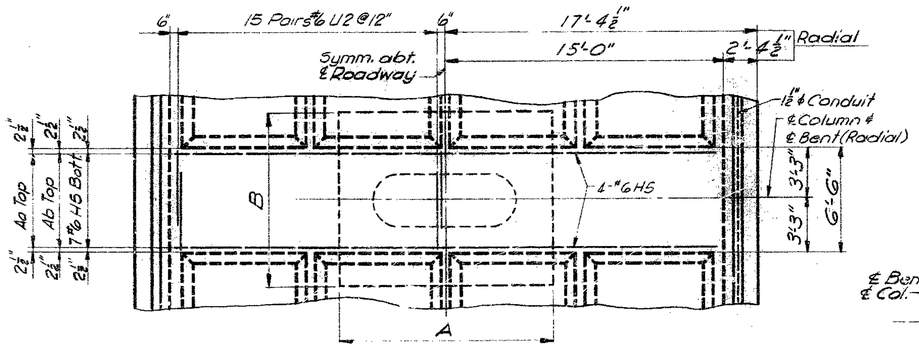
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	75	

FINAL PLANS

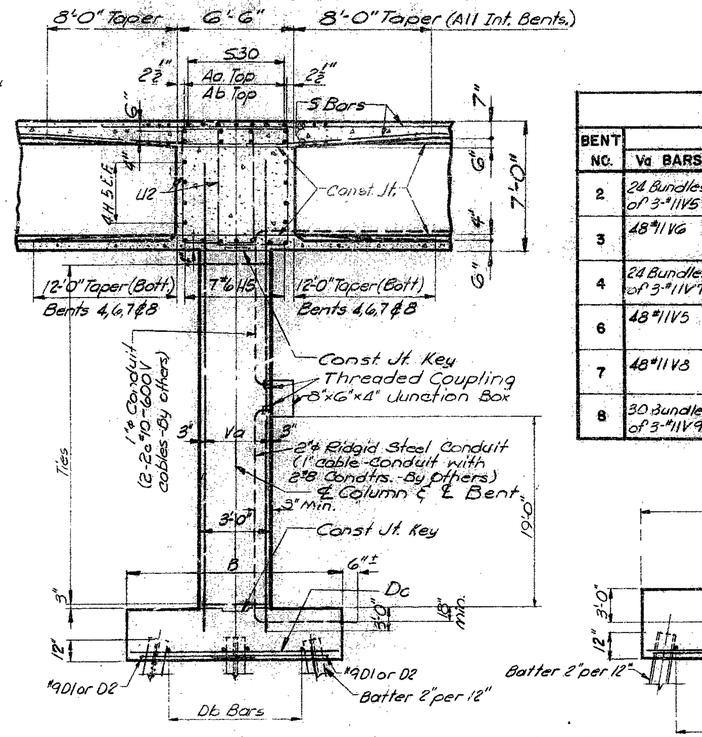


ELEVATION



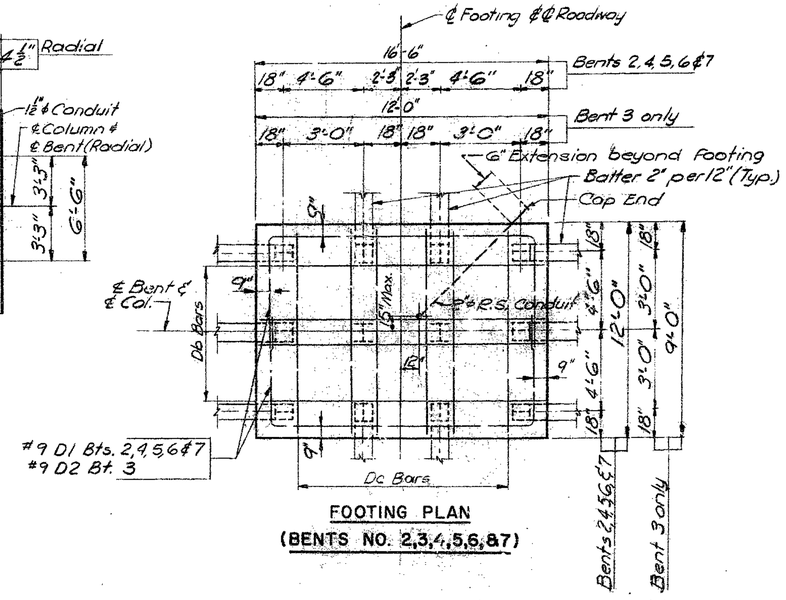
PLAN

INTERMEDIATE BENTS 2,3,4,6,7,& 8



SECTION AT ℄ (BENTS 2,3,4,6,&7)

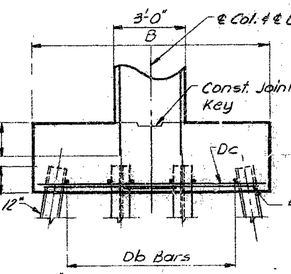
Note: Conduit system shown shall be placed at Bent No. 3 only.



FOOTING PLAN (BENTS NO. 2,3,4,5,6,&7)

REINFORCING

BENT NO.	COLUMNS Va BARS	COLUMNS Vb BARS	TIES	BEAMS Aa BARS	BEAMS Ab BARS	FOOTINGS Db BARS	FOOTINGS Dc BARS	REMARKS
2	24 Bundles of 3-#11 V5	—	62 Pairs #5 V3 @ 6"	17-#11 H6	17-#11 H7	18-#9 D5	27-#9 D4	Bundled bars in column
3	48-#11 V6	—	36 Pairs #5 V3 @ 12"	19-#11 H6	19-#11 H7	10-#9 D5	15-#9 D6	—
4	24 Bundles of 3-#11 V7	—	52 Pairs #5 V3 @ 6"	21-#11 H6	21-#11 H7	18-#9 D3	27-#9 D4	Bundled bars in column
6	48-#11 V5	—	31 Pairs #5 V4 @ 12"	21-#11 H6	21-#11 H7	18-#9 D3	27-#9 D4	—
7	48-#11 V8	—	37 Pairs #5 V4 @ 12"	21-#11 H6	21-#11 H7	18-#9 D3	27-#9 D4	—
8	30 Bundles of 3-#11 V9	—	65 Pairs #5 V4 @ 6"	21-#11 H6	21-#11 H7	15-#8 D8	21-#11 D9	Bundled bars in column

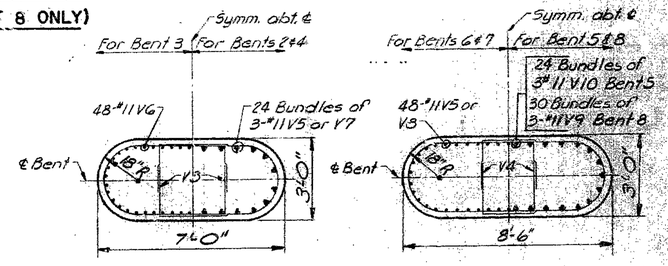


SECTION AT ℄ (BENT 8 ONLY)

DIMENSIONS

BENT NO.	FOOTING A	FOOTING B	FOOTING T	COLUMN H	ELEVATIONS ①	ELEVATIONS ②	
✓2	16'-6"	12'-0"	5'-2"	30'-10½"	1022.37	979.20	*
3	12'-0"	9'-0"	4'-6"	36'-2½"	1024.73	977.00	
✓4	16'-6"	12'-0"	6'-0"	26'-1½"	1025.91	986.77	*
✓6	16'-6"	12'-0"	5'-10"	31'-0"	1024.50	980.66	*
7	16'-6"	12'-0"	4'-6"	37'-1"	1021.53	973.00	
8	13'-6"	13'-6"	4'-9"	32'-4½"	1017.15	973.00	

* Footing dimensions shown at contractors option & expense.



(BENTS 2,3,&4) (BENTS 5,6,7,&8)

SECTION A-A

NOTE:
For Footing Plan of Bent 8 see Sheet No. 11 of 19.

BRIDGE RAMP 4 OVER 71 B.P. & I-29

STATE ROAD INTERSTATE ROUTE 29

ABOUT 10 MILES NORTH OF PARKSVILLE

PROJECT NO. I-29-1(12) (RTE. I-29) **STA.** 15+51.21

PLATTE COUNTY

DETAILED OCT 19 67 BY STAFFORD
CHECKED NOV. 19 67 BY MALI

R. W. BOOKER & ASSOCIATES, INC.
CONSULTING ENGINEERS
1139 OLIVE STREET
ST. LOUIS, MISSOURI 63101

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

Sheet No. 7A of 19 4 see also – sheet 7B of 4

A-2281

FINAL PLANS

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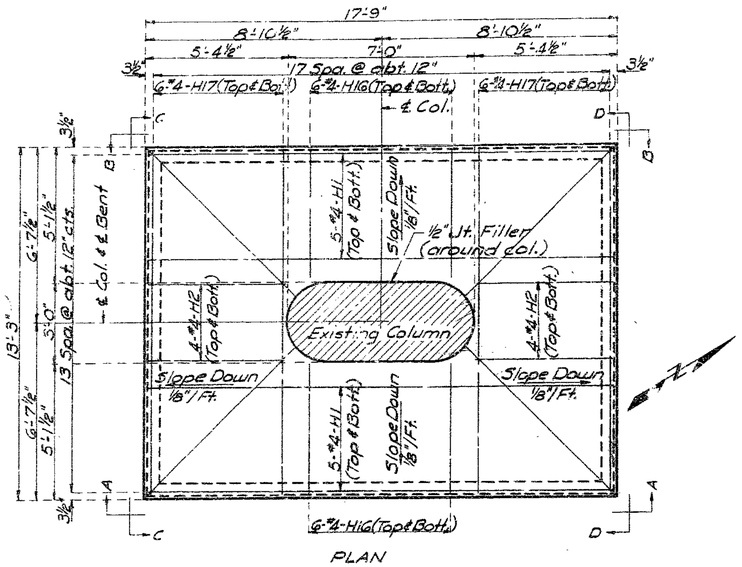
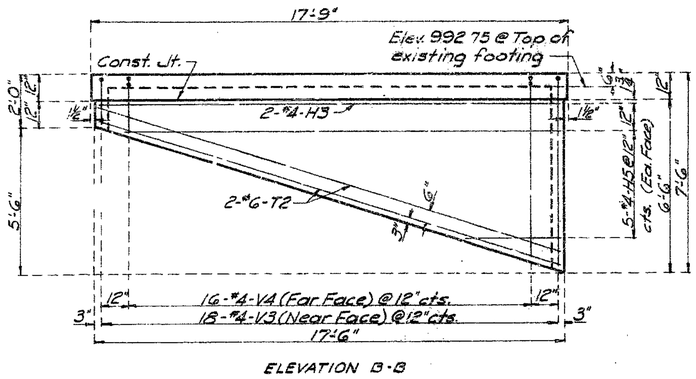
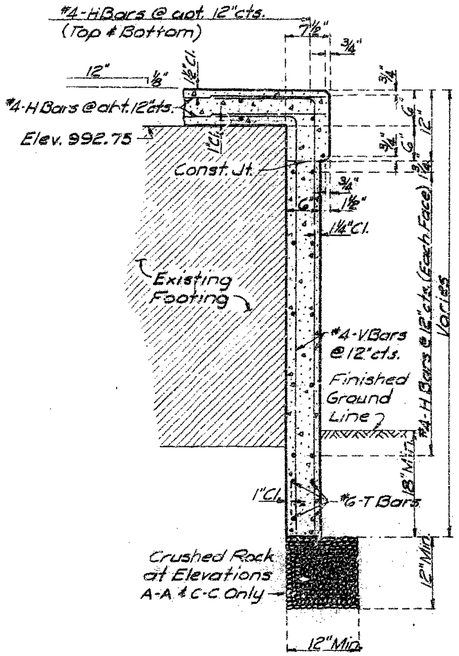
MISSOURI STATE HIGHWAY DEPARTMENT

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

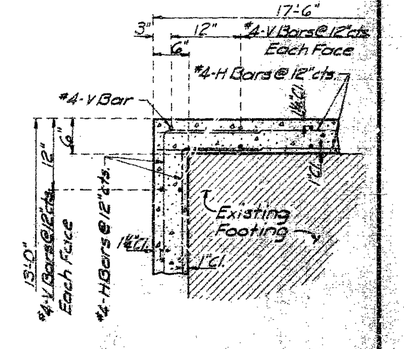
FINAL PLANS



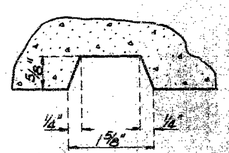




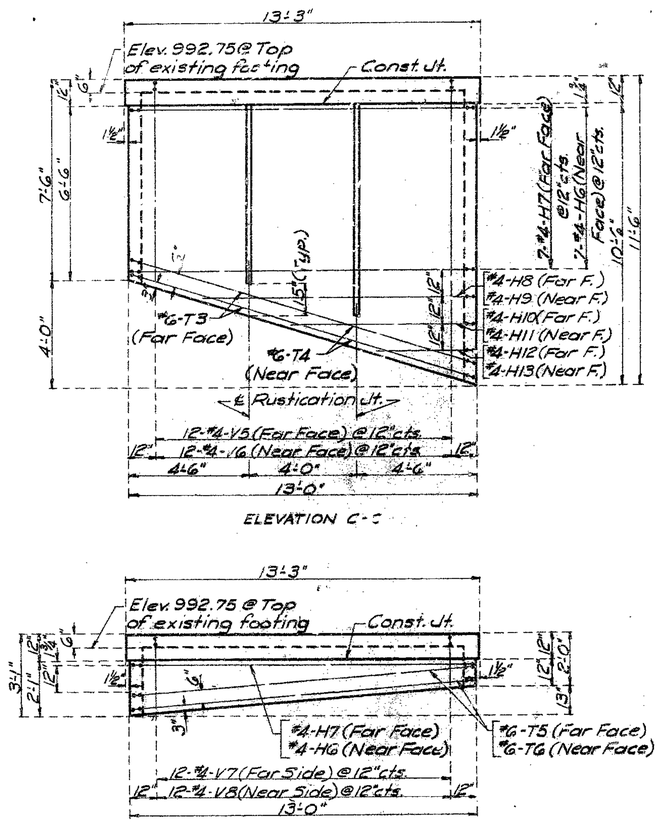
VERTICAL SECTION THRU WALLS (TYPICAL AS NOTED)



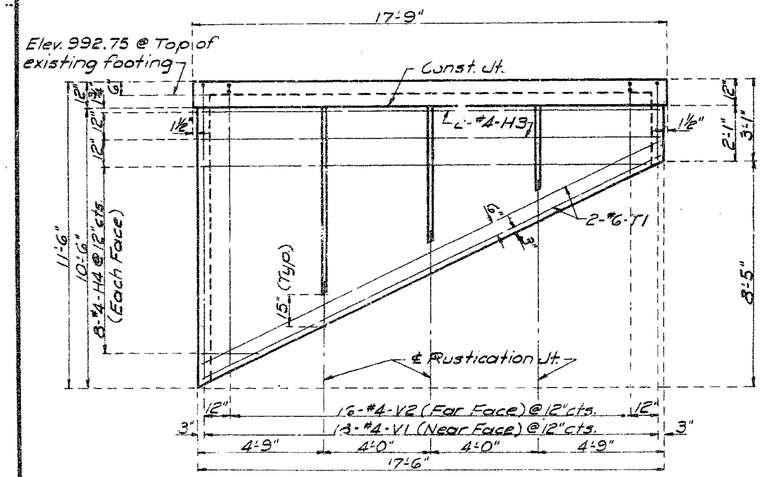
HORIZONTAL SECTION THRU WALLS AT CORNERS (TYPICAL)



DETAIL OF RUSTICATION JOINT

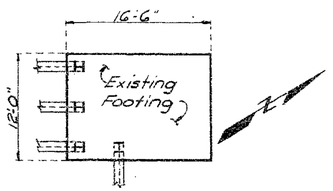


ELEVATION C-C

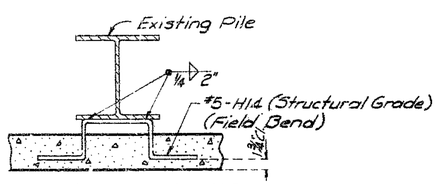


ELEVATION A-A

ELEVATION D-D



NOTE:
Anchor wall to these piles as shown at right.



DETAIL OF WALL ANCHOR

NOTE:
Anchor to piles shown at left near bottom of wall.

GENERAL QUANTITIES		
Class I Excavation	Cu. Yd.	10
Class B-1 Concrete	Cu. Yd.	10.7
Reinforcing Steel	Lb.	1980

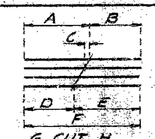
Note: These quantities are by Form Acc.

NOTE:
Cost of crushed rock to be included in price paid for other items.

COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION	
20	#4	17'-6"	H1	Slab	
16	#4	5'-1"	H2	"	
6	#4	17'-3"	H3	Wall	
8	#4	19'-3"	H4	"	
5	#4	20'-2"	H5	"	
2	#4	15'-3"	H6	"	*
8	#4	14'-4"	H7	"	*
1	#4	11'-2"	H8	"	*
1	#4	11'-8"	H9	"	*
1	#4	7'-10"	H10	"	*
1	#4	8'-4"	H11	"	*
1	#4	4'-7"	H12	"	*
1	#4	5'-1"	H13	"	*
1	#5	6'-0"	H14	"(Str.Gr.)"	*
24	#4	4'-10"	H16	Slab	
24	#4	13'-0"	H17	"	
4	#6	19'-2"	T1	Wall	
4	#6	18'-1"	T2	"	
2	#6	15'-10"	T3	"	*
2	#6	16'-9"	T4	"	*
2	#6	15'-4"	T5	"	*
2	#6	16'-2"	T6	"	*
9	#4	16'-8"	V1	"	*
8	#4	15'-8"	V2	"	*
9	#4	11'-7"	V3	"	*
8	#4	10'-9"	V4	"	*
6	#4	20'-2"	V5	"	*
6	#4	21'-1"	V6	"	*
6	#4	6'-3"	V7	"	*
6	#4	7'-2"	V8	"	*

BENDING SKETCHES & CUTTING DIAGRAMS



* Bend as shown.

CUT H

MK.	A	B	C	D	E	F	G	H
H4	16'-11"	2'-4"	2'-1"	2'-4"	16'-11"	19'-3"	8	8
H5	16'-3⅛"	3'-8⅜"	3'-2⅜"	3'-8⅜"	16'-5⅛"	20'-2"	5	5
V1	12'-4⅜"	4'-3¼"	5¼"	8'-1⅜"	12'-4⅜"	16'-9"	9	9
V2	11'-5⅜"	4'-3⅜"	5¼"	8'-1⅜"	7'-7⅜"	15'-9"	8	8
V3	8'-5⅜"	3'-1⅜"	3¼"	5'-11⅜"	5'-7⅜"	11'-7"	9	9
V4	7'-5⅜"	3'-0⅜"	3¼"	5'-6⅜"	5'-2⅜"	10'-9"	8	8
V5	11'-9⅜"	3'-4⅜"	3¼"	10'-2⅜"	9'-11⅜"	20'-2"	6	6
V6	12'-3⅜"	3'-9⅜"	3¼"	10'-6⅜"	10'-4⅜"	21'-1"	6	6
V7	3'-7"	2'-8"	1"	3'-2"	3'-1"	6'-3"	6	6
V8	4'-0½"	3'-1⅛"	1"	3'-7½"	3'-6½"	7'-2"	6	6

MARK	A	B
H3	13½"	10'-0"
H9	10½"	16'-3"
H10	13½"	6'-8½"
H11	10½"	6'-11½"
H12	13½"	3'-8½"
H13	10½"	3'-8½"
V1	16½"	Varies
V2	14"	"
V3	16½"	"
V4	14"	"
V5	14"	"
V6	17"	"
V7	14"	"
V8	17"	"

12" H14	
12'-8½" H6	
12'-9" H7	
12'-10½" T3	
13'-5¾" T4	
12'-4" T5	
12'-9" T6	

H6, H7, T3, T4, T5, T6

NOTE:
All bending dimensions are out to out.
Total lengths are measured along centerline bar to the nearest inch.
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for detailing reinforced concrete structures.

BENT NO. 4 — FOOTING COVER

DETAILED Mar 1970 BY Brockman
CHECKED Mar. 1970 BY Moberly

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

Sheet No. 78 of 4 .

FINAL PLANS

PLATTE COUNTY

A-2-81

78

MISSOURI STATE HIGHWAY DEPARTMENT

(70'-105'-110'-105')(5.97'-99.5'-118.5'-118.5'-99.5') Conf. Conc. Box Girders

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

GENERAL ELEVATION

PLAN

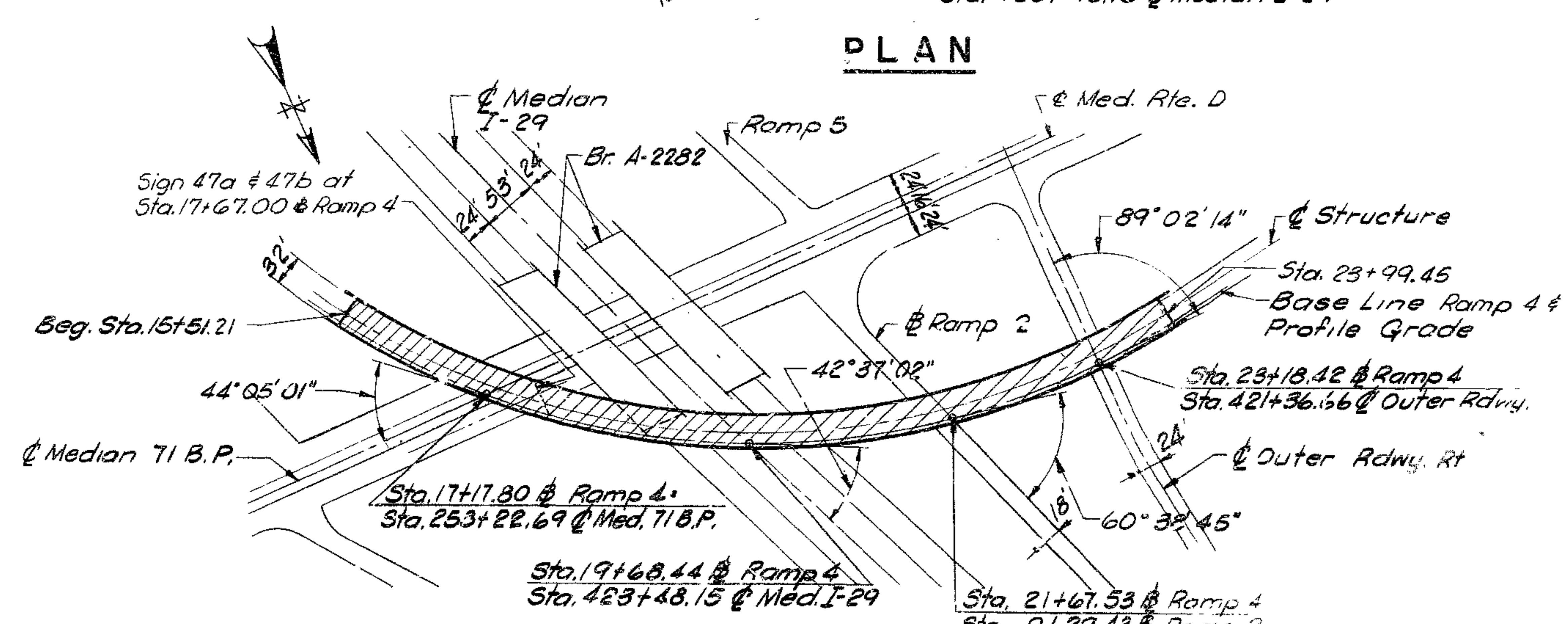
GENERAL NOTES:

Structural Steel (A.S.T.M. A-588)

Deck Surfacing Transition:
Asphaltic concrete transition beyond the ends of deck surfacing shall be approximately 1/16 inch per foot or as approved by the engineer.

ESTIMATED QUANTITIES		
ITEM		TOTAL
Special Type "D" Mixture	Ton	211
Coal Tar Protective Coat	Sq.Yd.	3,014
Elastomeric Exp. Joint Seal	Lin.Ft.	32

Cost of raising 20 Rdwy. Drains to be included in price bid for other items.



LOCATION SKETCH

BORING DATA:
For Boring Data, see Sheet No. 3 of 19.
"⊗" Indicates location of boring.

BENCH MARK:
B.M. #34 Spike & washers in P.P. 149' ± Lt. of Survey Line Sta. 424+16 ± Elev. 1009.44

DECK SURFACING
BRIDGE: RAMP 4 OVER 71 B.P. & I-29

STATE ROAD, INTERSTATE ROUTE 29
ABOUT 10 MILES NORTH OF PARKSVILLE
PROJECT NO. I-29-1 (50) (RTE. I-29) STA. 15+51.21
PLATTE COUNTY

SUBMITTED BY W. A. Carney (Bridge Engineer) DATE 12-23-70
APPROVED BY Robert N. Hunter (Chief Engineer) DATE 12-23-70

A-2281 A1

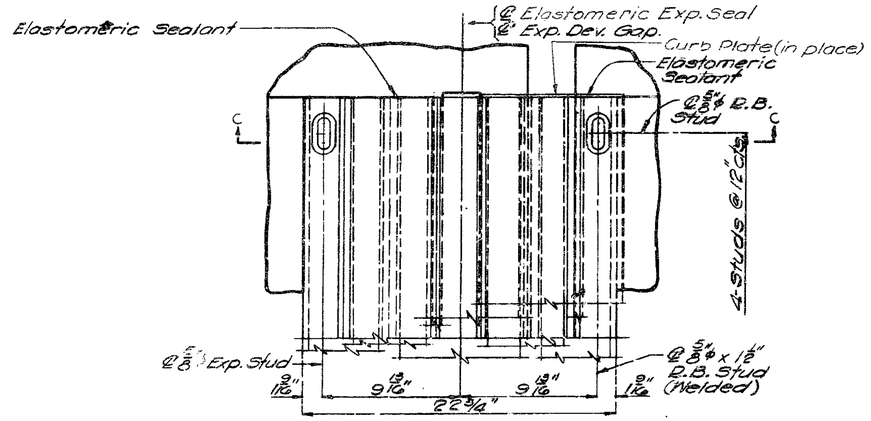
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 2

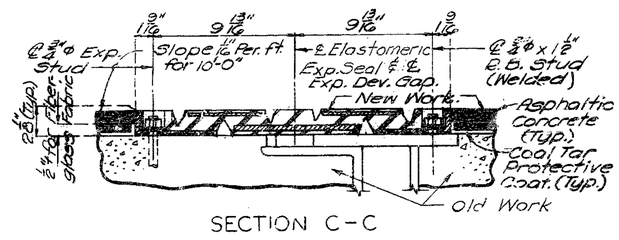
407

MISSOURI STATE HIGHWAY DEPARTMENT

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



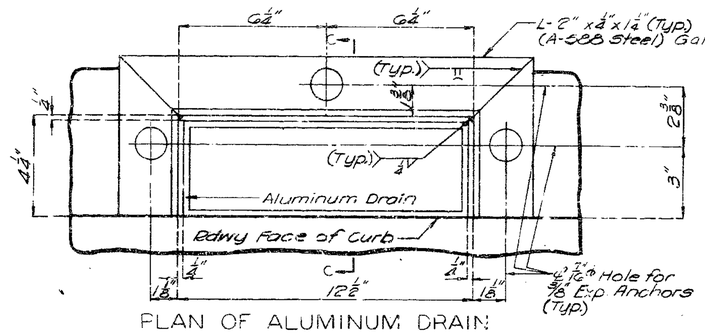
PLAN OF EXPANSION JOINT



SECTION C-C

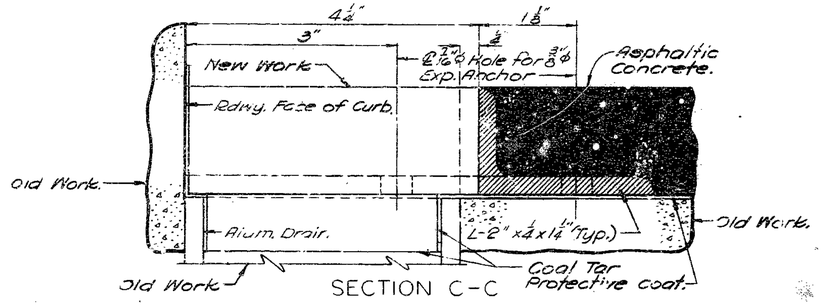
Note: For details of Steel Reinforced Elastomeric Exp. Joint Seal, See Special Provisions.

DETAILS OF EXPANSION JOINT
AT BENT 5



Note:
Galvanized Steel bolt down angles shall be in accordance with (A.S.T.M A-153). Cost of galvanizing shall be included in price bid for other items.

PLAN OF ALUMINUM DRAIN



SECTION C-C

NOTE:
Apply coal tar sealant and fiberglass prior to setting L's. Turn fiberglass down into drain. Drill holes in concrete. Coat area with additional coat of coal tar sealant just prior to bolting down angles. See Special Provisions.

MODIFICATION OF ALUMINUM DRAINS

(20 REQUIRED)

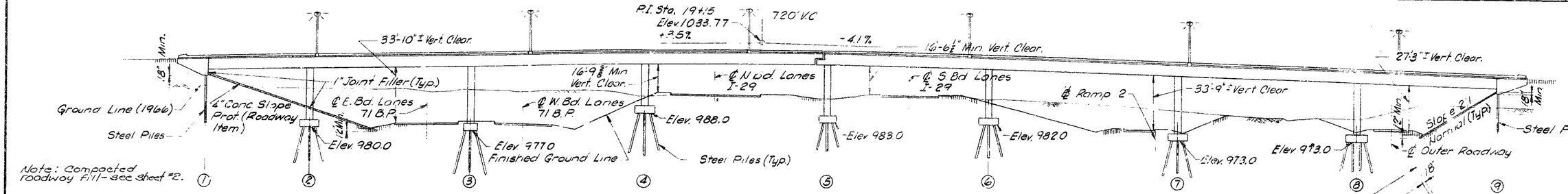
408

MISSOURI STATE HIGHWAY DEPARTMENT

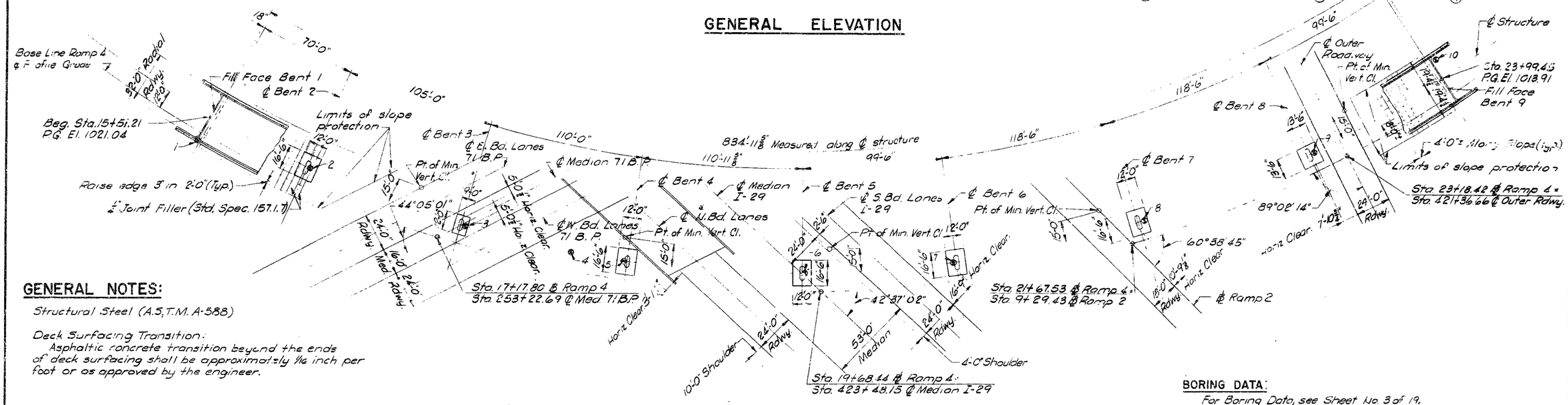
(70'-105'-110'-105')(5.97'-99.5'-118.5'-118.5'-99.5') Cont. Conc. Box Girders

FINAL PLANS

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



GENERAL ELEVATION



GENERAL NOTES:

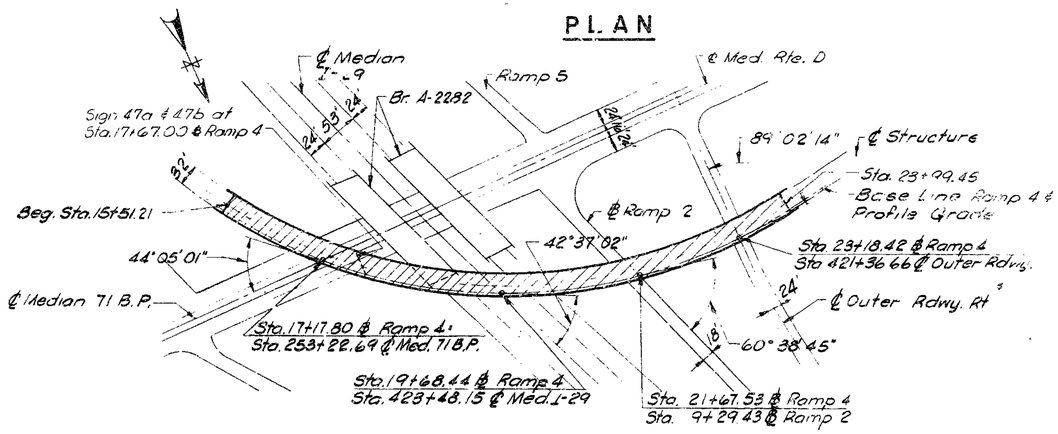
Structural Steel (A.S.T.M. A-588)

Deck Surfacing Transition:
Asphaltic concrete transition beyond the ends of deck surfacing shall be approximately 1/16 inch per foot or as approved by the engineer.

FINAL QUANTITIES		
ITEM		TOTAL
Special Type "D" Mixture	Ton	210
Coal Tar Protective Coat	Sq.Yd.	3014
Elastomeric Exp. Joint Seal	Lin.Ft.	32
CONTINGENT ITEMS		
Compaction Sample	Each	1

Cost of raising 20" Rdwy. Drains to be included in price bid for other items.

PLAN



LOCATION SKETCH

BORING DATA:
For Boring Data, see Sheet No. 3 of 19.
Ⓑ Indicates location of boring.

BENCH MARK:
B.M. Bolt In Top Of Curb On S.W. Corner
Elev. 1019.13

REVISED

DECK SURFACING
BRIDGE: RAMP 4 OVER 71 B.P. & I-29

STATE ROAD, INTERSTATE ROUTE 29
ABOUT 10 MILES NORTH OF PARKSVILLE
PROJECT NO. I-29-1(60) (RTE. I-29) **STA.** 15+51.21
PLATTE **COUNTY**

SUBMITTED BY W. B. Carney BRIDGE ENGINEER DATE 12.23.70
APPROVED BY Robert N. Hunter CHIEF ENGINEER DATE 12.23.70

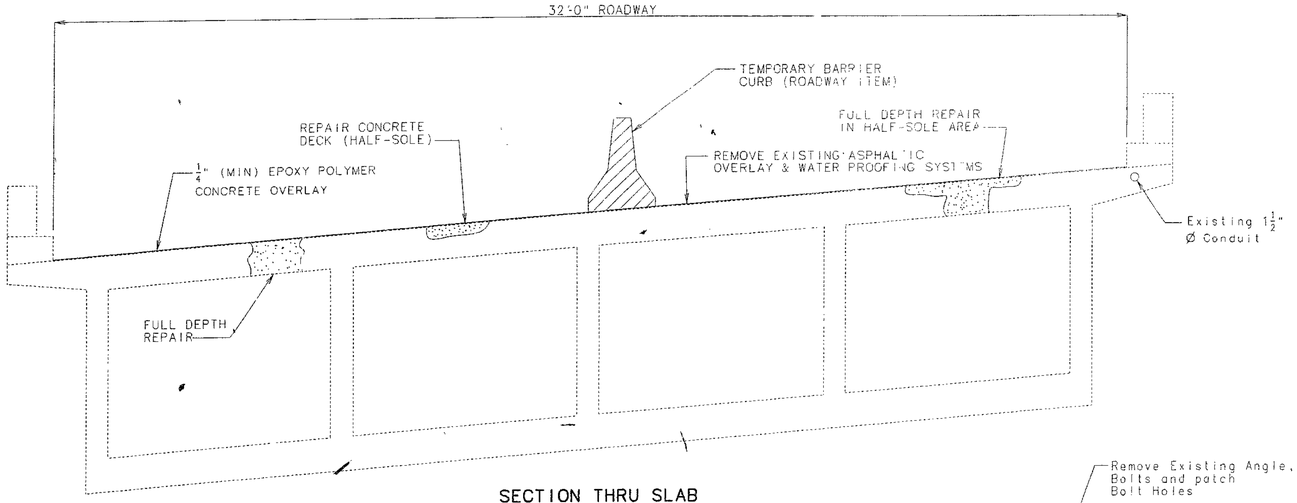
A-22814I

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

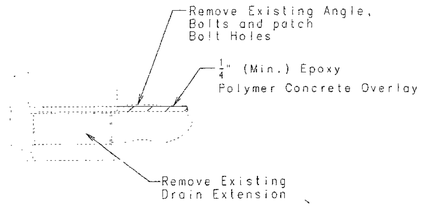
Sheet No. 1A of 1

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.	IM-IMG-29-1(96)	94
SEC./SUR. 14 & 23 TWP. 52N RGE. 34W		

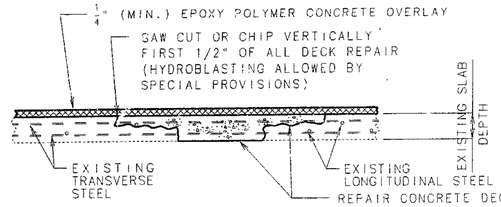


SECTION THRU SLAB

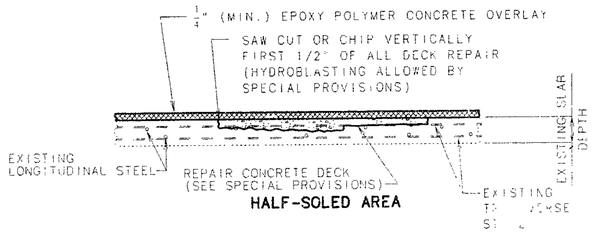


Note: Removal of Drain Extensions, Angles, Bolts and patching Bolt holes is included in Asphalt Removal.

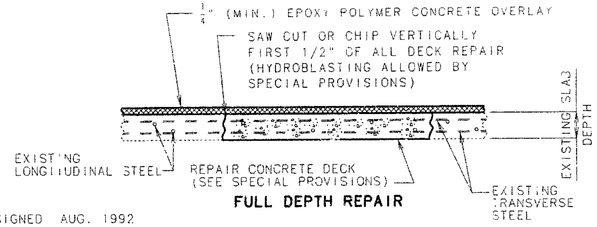
DETAIL OF EXISTING DRAIN



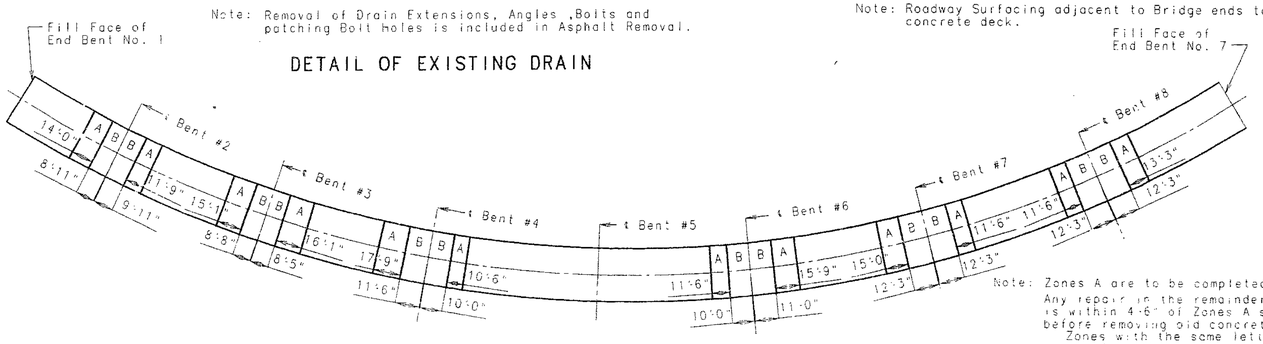
FULL DEPTH REPAIR IN HALF-SOLED AREA



HALF-SOLED AREA



FULL DEPTH REPAIR



PLAN OF EXISTING SLAB SHOWING SPECIAL REPAIR ZONES

Note: Zones A are to be completed before Zones B. Any repair in the remainder of the bridge that is within 4'-6" of Zones A shall be completed before removing old concrete in Zones A.

Zones with the same letter designation may be repaired at the same time except for the zones directly adjacent to the centerline of bent. If either of the zones adjacent to centerline of bent has a single repair area of over 10 square feet or a total repair area of over 20 square feet, that zone shall be repaired before removing concrete in the other zone of the same designation at that bent.

GENERAL NOTES:

DESIGN UNIT STRESSES:
Class B1 Concrete f'c= 4,000 psi
Reinforcing Steel Grade 60 f'y= 60,000 psi

OLD WORK:
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work."

MAINTAIN TRAFFIC:
Maintain one lane of traffic on structure during construction.

VERIFY DIMENSIONS:
Contractor shall verify all dimensions in field before ordering new steel.

PLAN DIMENSIONS:
Plan dimensions are based on installation at 60° F. The expansion gap and other dimensions shall be adjusted during installation for compliance with any temperature change.

RESIN ANCHOR SYSTEM:
The contractor shall use one of the resin anchor systems listed in the job special provisions.
These anchor systems shall be installed according to the manufacturer's specifications, except as modified by the job Special Provisions.
Cost of furnishing and installing the anchor system complete in place shall be included in the price bid for "Strip Seal Expansion Device".

The ½" diameter resin anchor systems shall have a minimum ultimate pullout strength of 9800 lbs. in concrete with f'c = 4000 psi, see special provisions.

BARS BONDED IN OLD CONCRETE:
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible.

Note: Roadway Surfacing adjacent to Bridge ends to match existing concrete deck.

FINAL PLANS
I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.
SIGNATURE
4-14-99

FINAL QUANTITIES		
ITEM		TOTAL
REPLACEMENT OF EXPANSION DEVICE AND ADJACENT CONCRETE	LIN.FT.	32
ASPHALT REMOVAL	SQ. FT.	15977
REPAIRING CONCRETE DECK (HALF-SOLING)	SQ. FT.	1147
FULL DEPTH REPAIR	SQ. FT.	279
EPOXY POLYMER CONCRETE OVERLAY	SQ. YD.	3108
STRIP SEAL EXPANSION DEVICE	LIN.FT.	32
SETTLEMENT FOR CR. A2281 (WINGWALL REPAIR)	LUMP SUM	1

REPAIRS TO BRIDGE :
RAMP 4 OVER RTE I-29 & RTE 291
STATE ROAD INTERSTATE ROUTE 29
ABOUT 4 MILES SE OF PLATTE CITY
PROJECT NO. STA. 15+51.21
JOB NO. J411016 RTE. I-29
PLATTE COUNTY
DATE

STD.
STD.
A-2281R

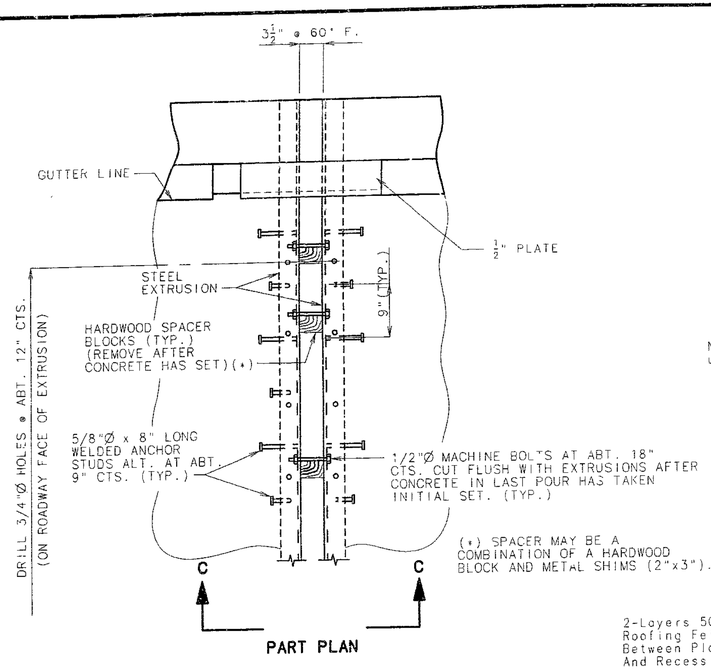
DESIGNED AUG. 1992
DETAILED AUG. 1992
CHECKED AUG. 1992

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 1 OF 4

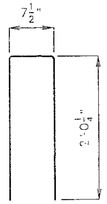
3/14

STATE	PROJ. NO.	SHEET NO.
MO.	IM-IMG-29-1(96)	95



PART PLAN

(*) SPACER MAY BE A COMBINATION OF A HARDWOOD BLOCK AND METAL SHIMS (2"x3").



#5-R1 (8-Required)

NOTE: New #5-R1 Bars shall be Epoxy Coated.
All Dimensions are out to out.
Bends shall be in accordance with CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures Stirrup and Tie Dimensions.

Note: Furnishing and installing #5-R1 Bars shall be included in the contract unit price bid for "Replacement of Expansion Device and Adjacent Concrete .

BENDING DIAGRAM

NOTE: * 3½" GAP BASED ON PLAN DIMENSIONS. ACTUAL GAP SHALL BE FIELD VERIFIED BY CONTRACTOR. REQUIRED MOVEMENT SHALL BE 3½"

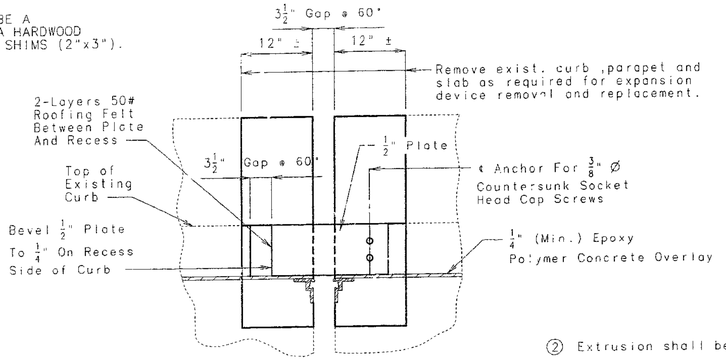
NOTES FOR STRIP SEAL:

The Expansion Device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the special provisions.
The contractor must field verify all dimensions prior to fabrication.
All welds shall conform to Section 712 of the Standard Specifications.
Splices of steel extrusion shall develop full strength.
All steel shall be A-36, except steel extrusions shall be A.S.T.M. A-588 or A-36.
Anchors for the extrusions shall be approved welded studs (C1010 thru C1020)
Payment for steel extrusions shall be made under the contract unit price for "Strip Seal Expansion Device".

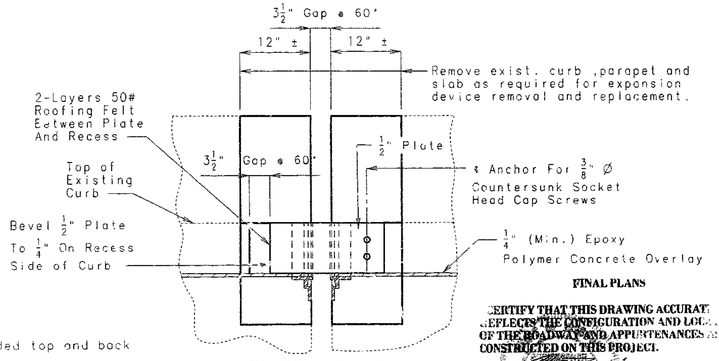
Note: Gap Dimension shall be increased 5/16" for each 10° fall in temperature and decreased 5/16" for each 10° rise in temperature .

STRIP SEAL GLAND
MOVEMENT RATING 3"

NOTE: The Strip Seal Gland shall extend past the edge of the slab by 3/4".



ELEVATION A-A



ELEVATION B-B

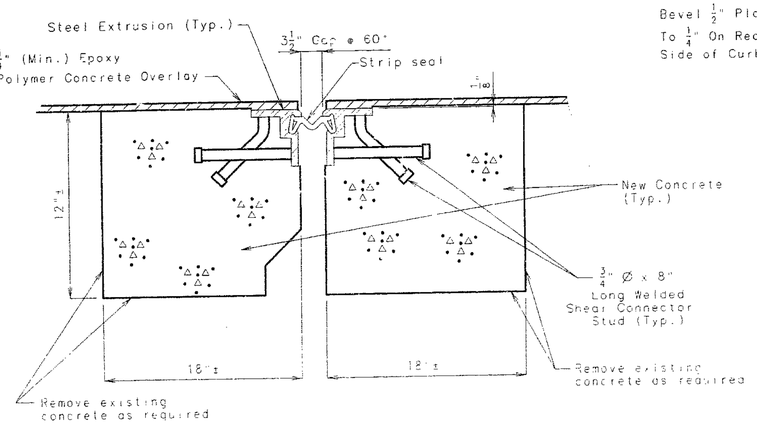
② Extrusion shall be welded top and back

FINAL PLANS

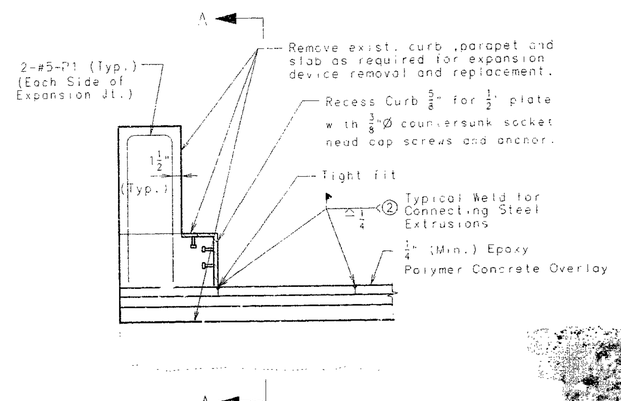
I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

SIGNATURE

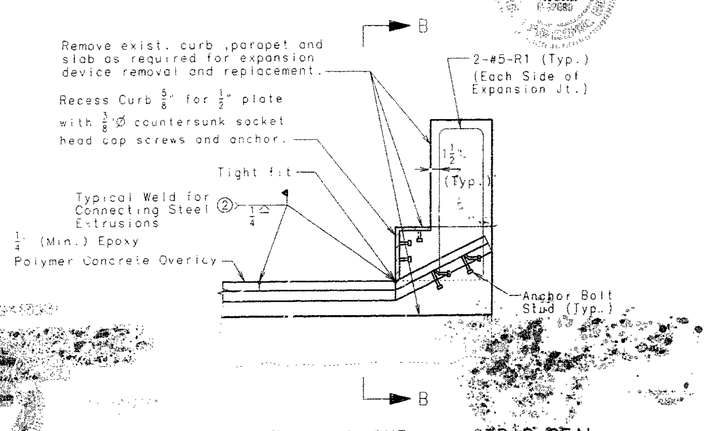
4-14-99



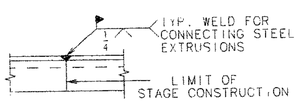
SECTION C-C



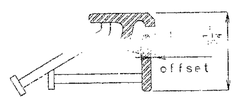
DETAIL OF LEFT CURB AT STRIP SEAL



DETAIL OF RIGHT CURB AT STRIP SEAL



DETAIL OF WELDED SPLICE



DETAIL OF STEEL EXTRUSION
(ANCHORED IN ELASTOMERIC CONCRETE)

DETAILS OF STRIP SEAL EXPANSION DEVICE NEAR INT. BENT NO. 5

DETAILED AUG. 1992
CHECKED AUG. 1992

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

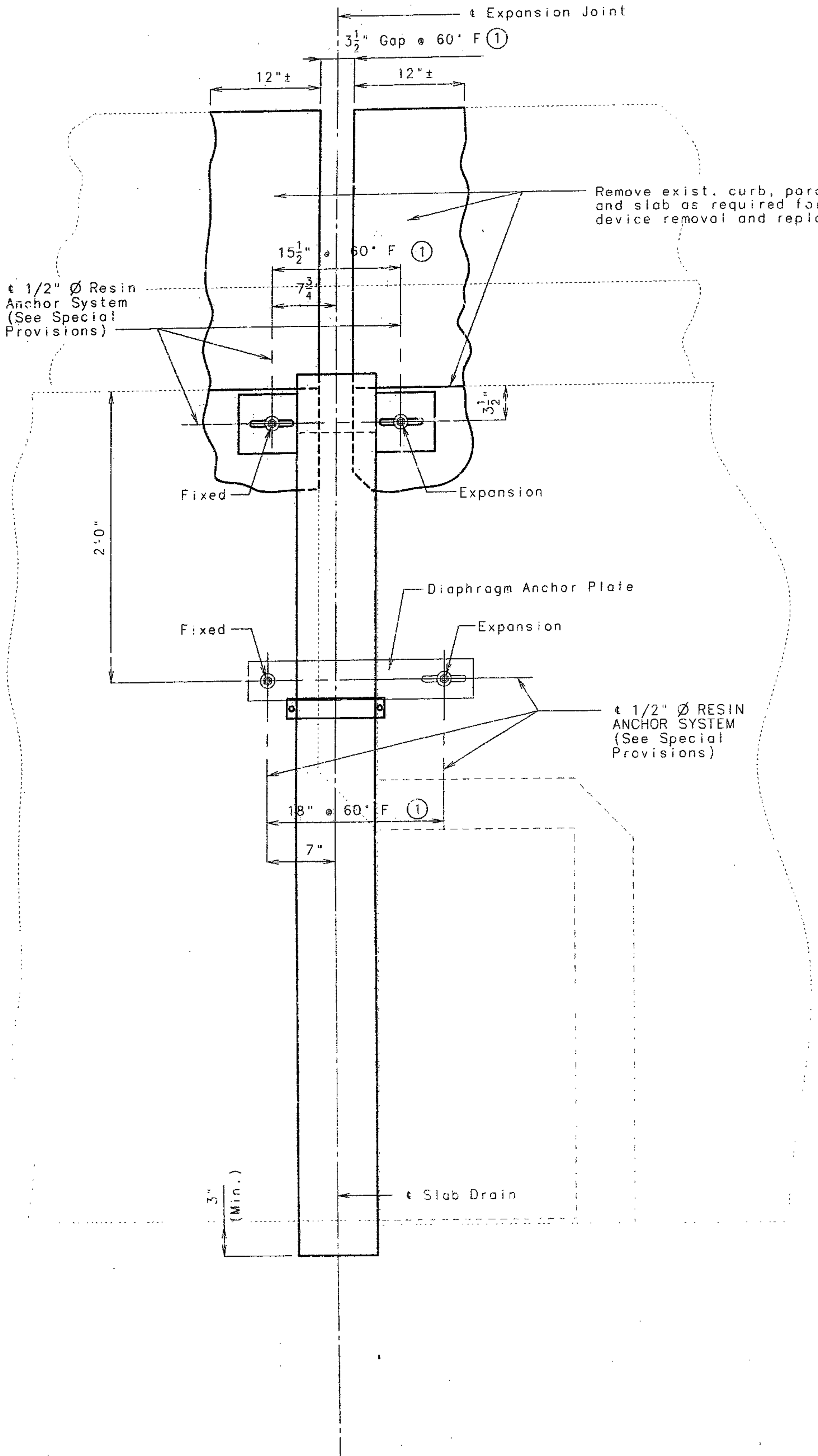
SHEET NO. 2 OF 4 .

PLATTE COUNTY A-2281R

2-23-15

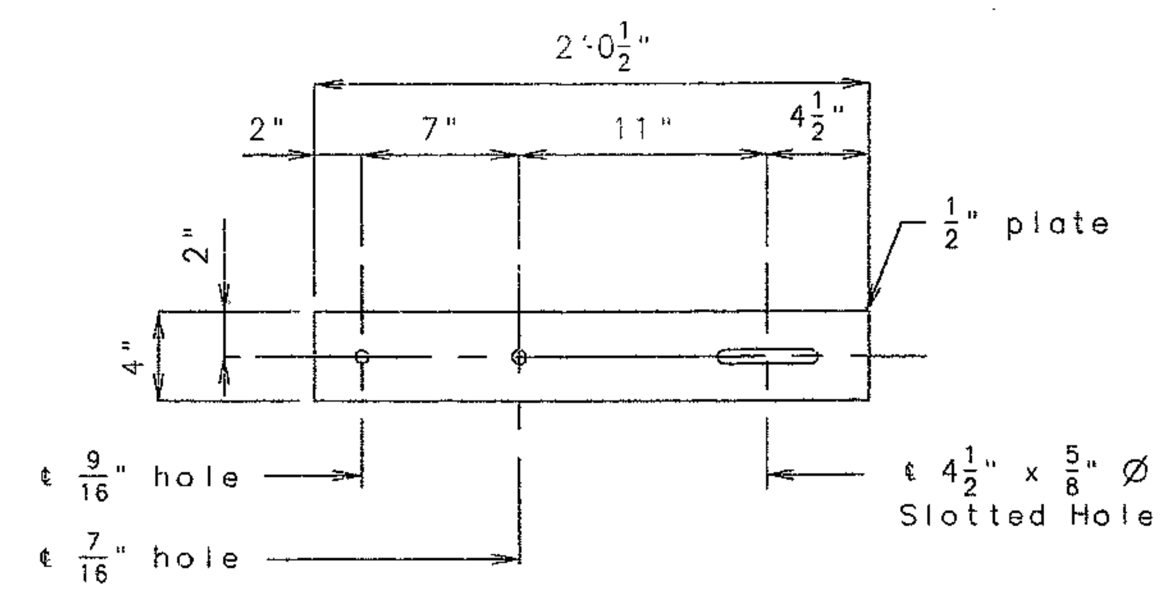
STATE	PROJ. NO.	SHEET NO.
MO.	IM-IMG-29-1(96)	96

Note: Dimension ① shall be increased $\frac{5}{16}$" for each 10° fall in temperature and decreased $\frac{5}{16}$" for each 10° rise in temperature at installation.

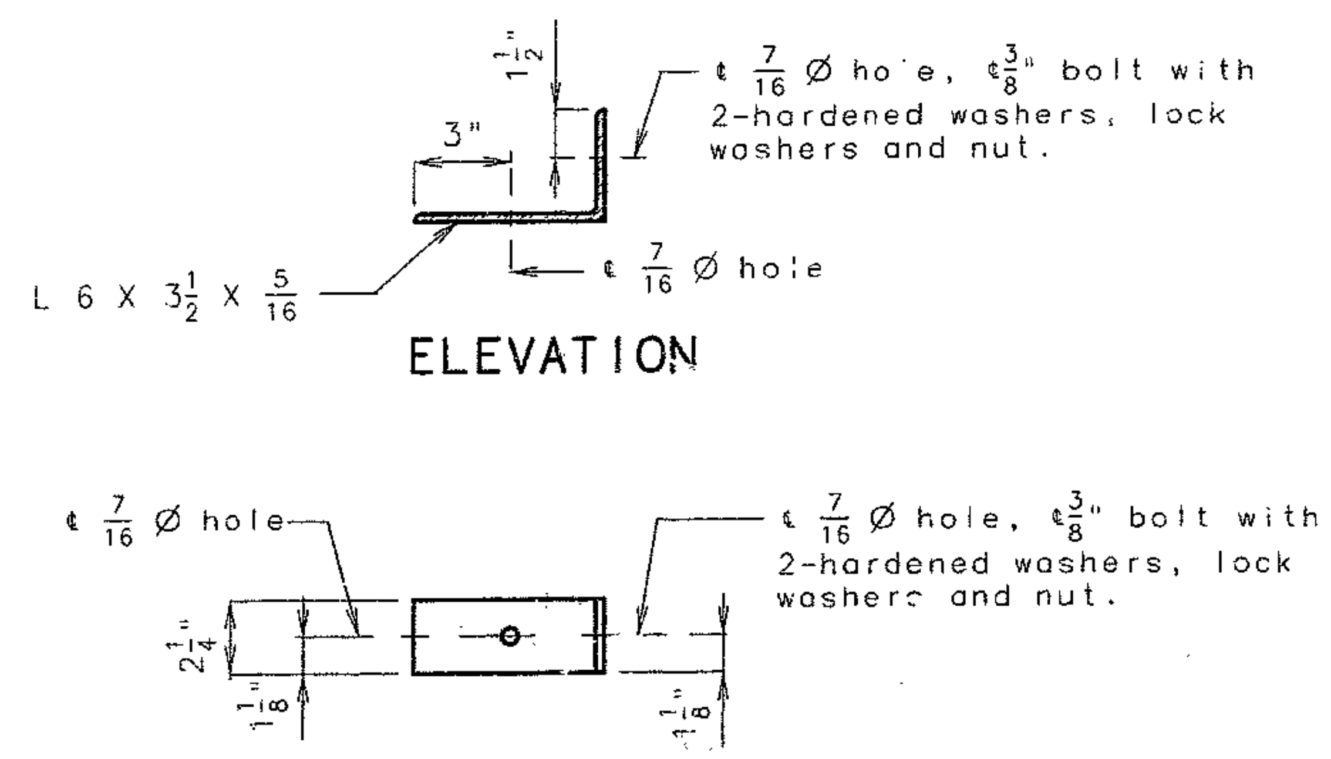


NOTE: Expansion Device Drain shall be centered on top of Slab Expansion Joint @ 60° F.

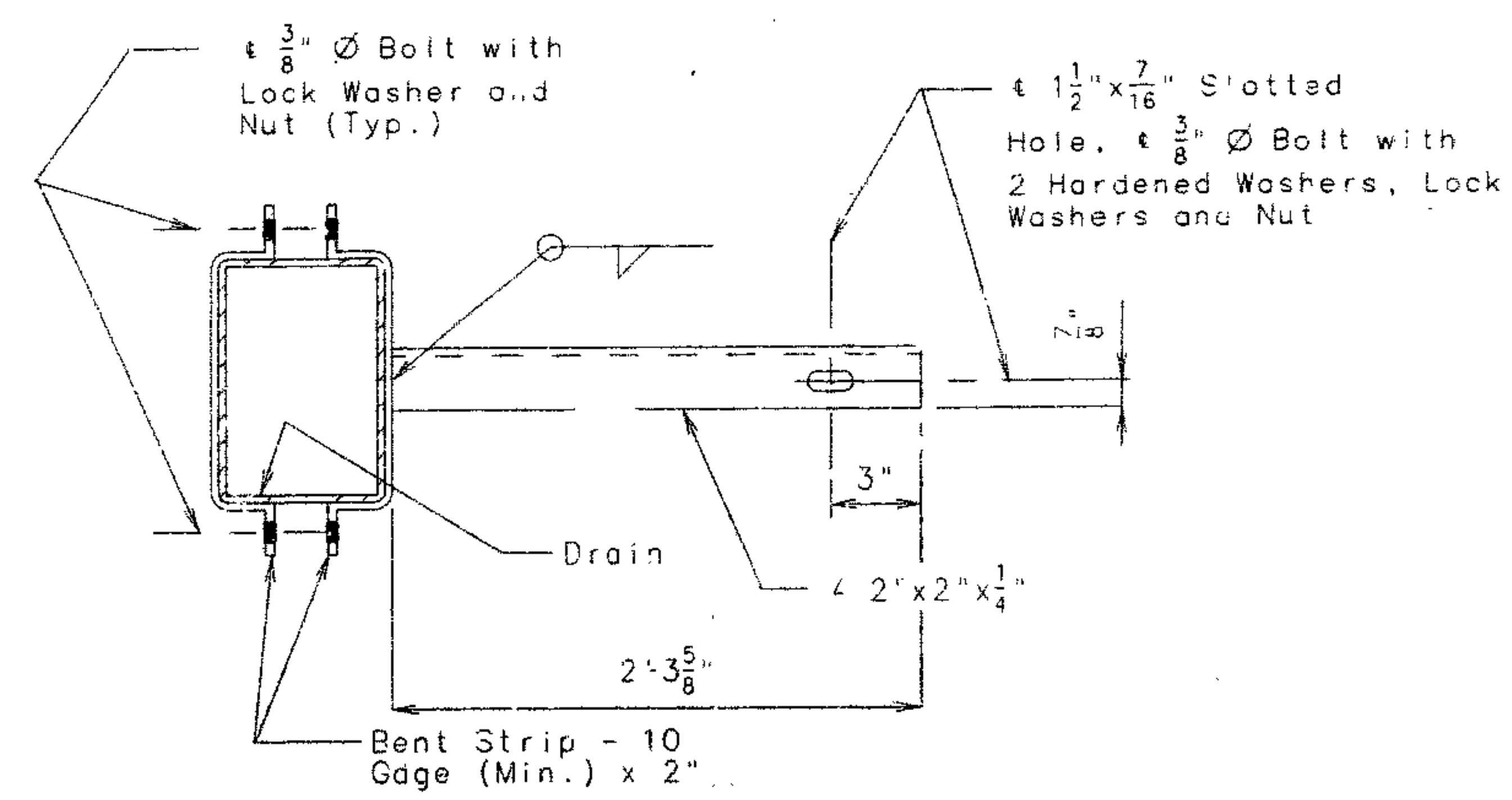
PART ELEVATION



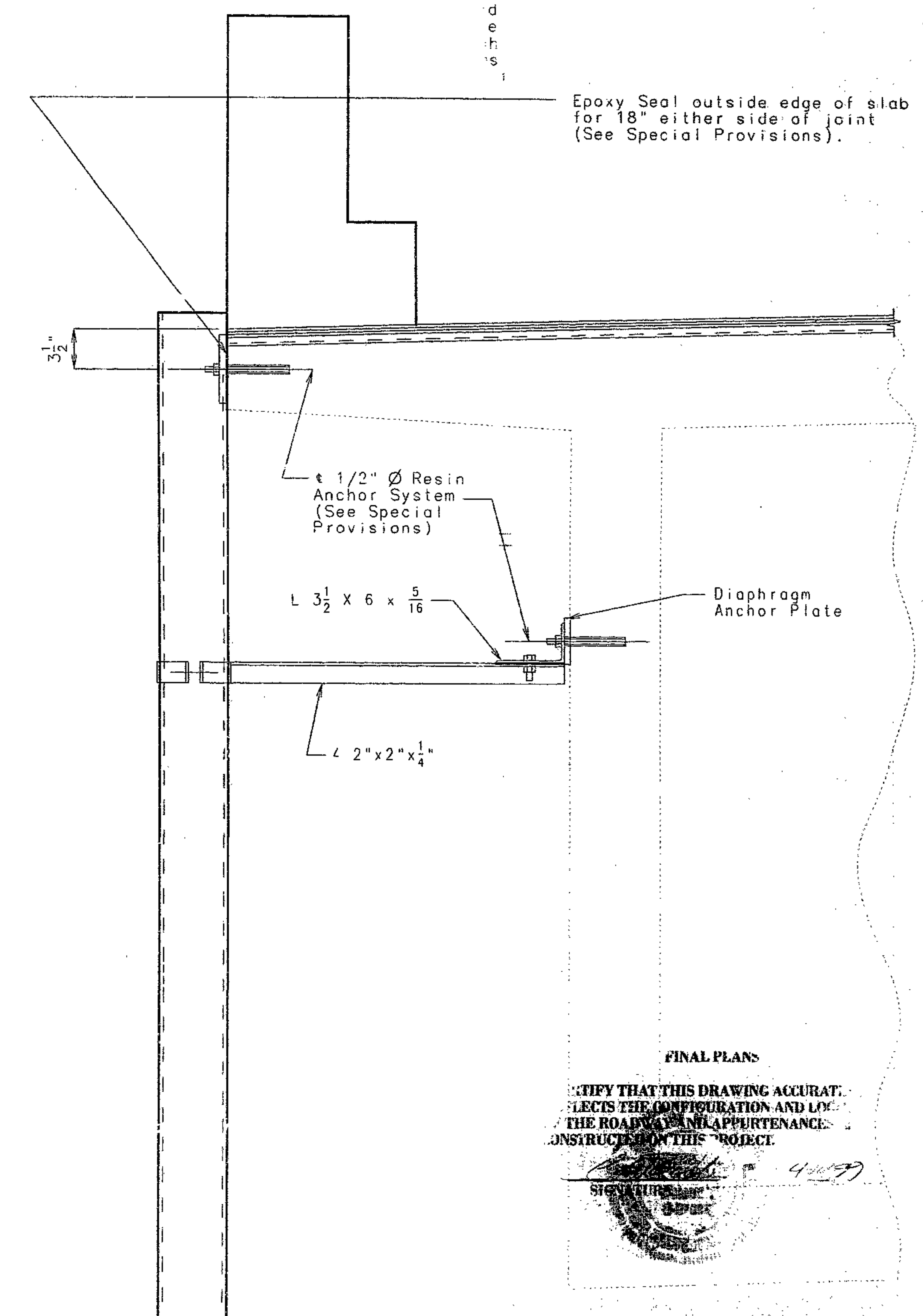
DIAPHRAGM ANCHOR PLATE



DETAIL OF L $3\frac{1}{2}$ X 6 X $\frac{5}{16}$



PART SECTION SHOWING BRACKET ASSEMBLY



SECTION NEAR EXPANSION SYSTEM

FINAL PLANS

[I CER]TIFY THAT THIS DRAWING ACCURAT[ELY] [REF]LECTS THE CONFIGURATION AND LOC[ATION OF] THE ROADWAY AND APPURTENANCES [AS C]ONSTRUCTED ON THIS PROJECT.

DETAILS OF EXPANSION DEVICE DRAIN NEAR BENT NO.5
(LEFT SIDE ONLY)

NOTE: At expansion side of drains, tighten bolts, back off one half turn and burr threads.

DETAILED DEC. 1995
CHECKED DEC. 1995

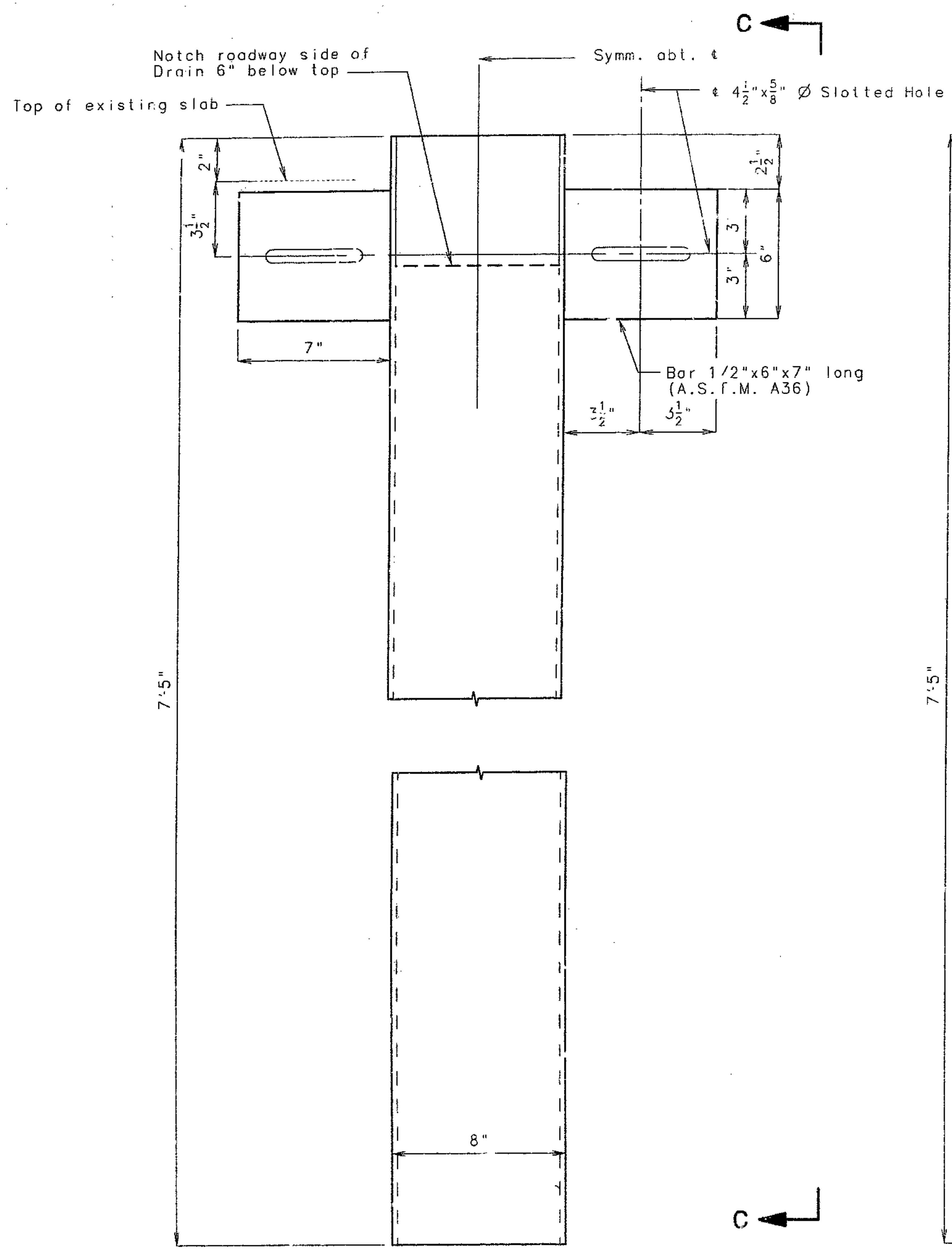
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 3 OF 4

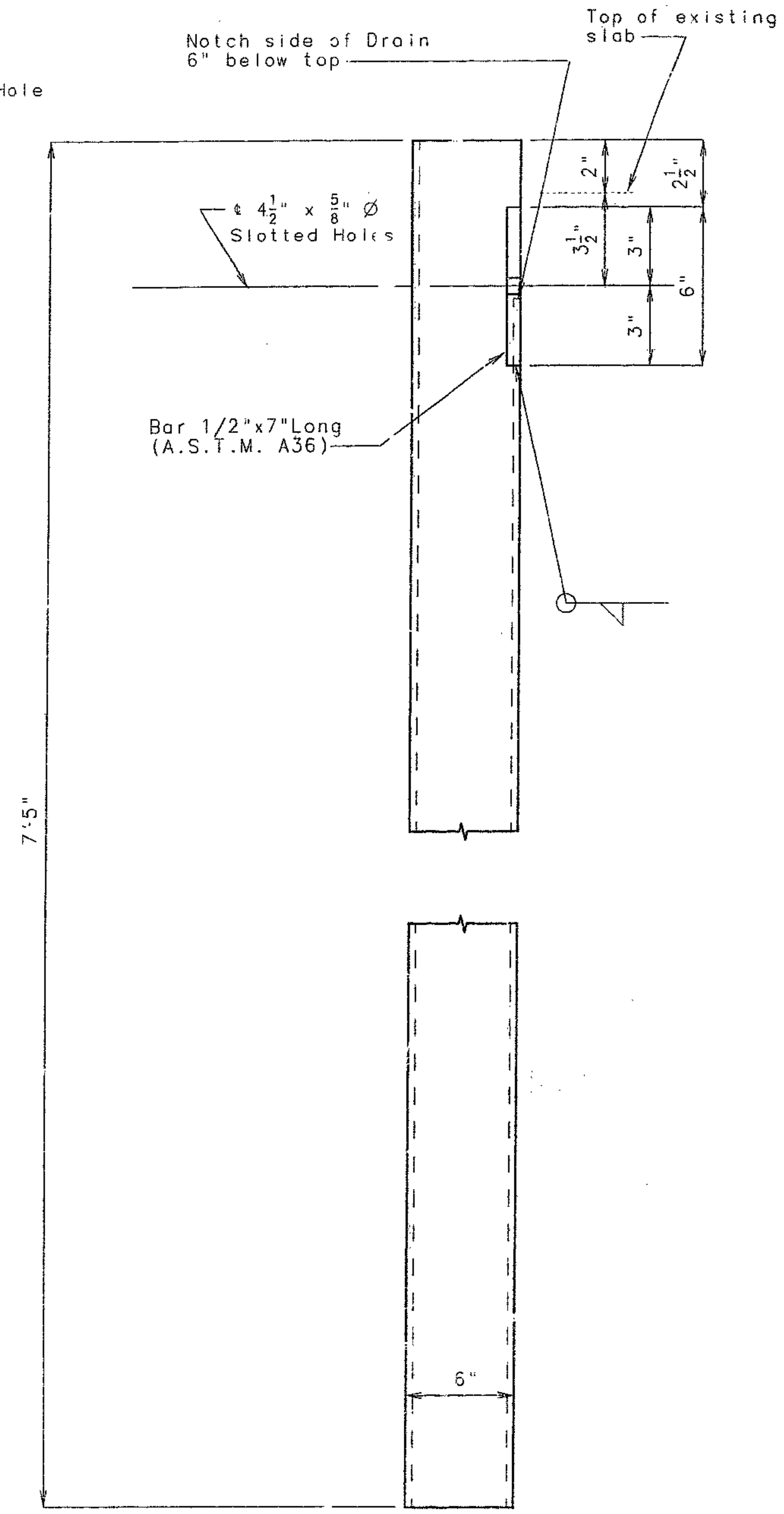
PLATTE COUNTY A-2281R

24 to 1

STATE	PROJ. NO.	SHEET NO.
MO.	IM-IMG-29-1(96)	97



ELEVATION OF DRAIN NEAR BENT NO. 5



ELEVATION C-C

NOTES FOR EXPANSION DEVICE DRAIN:

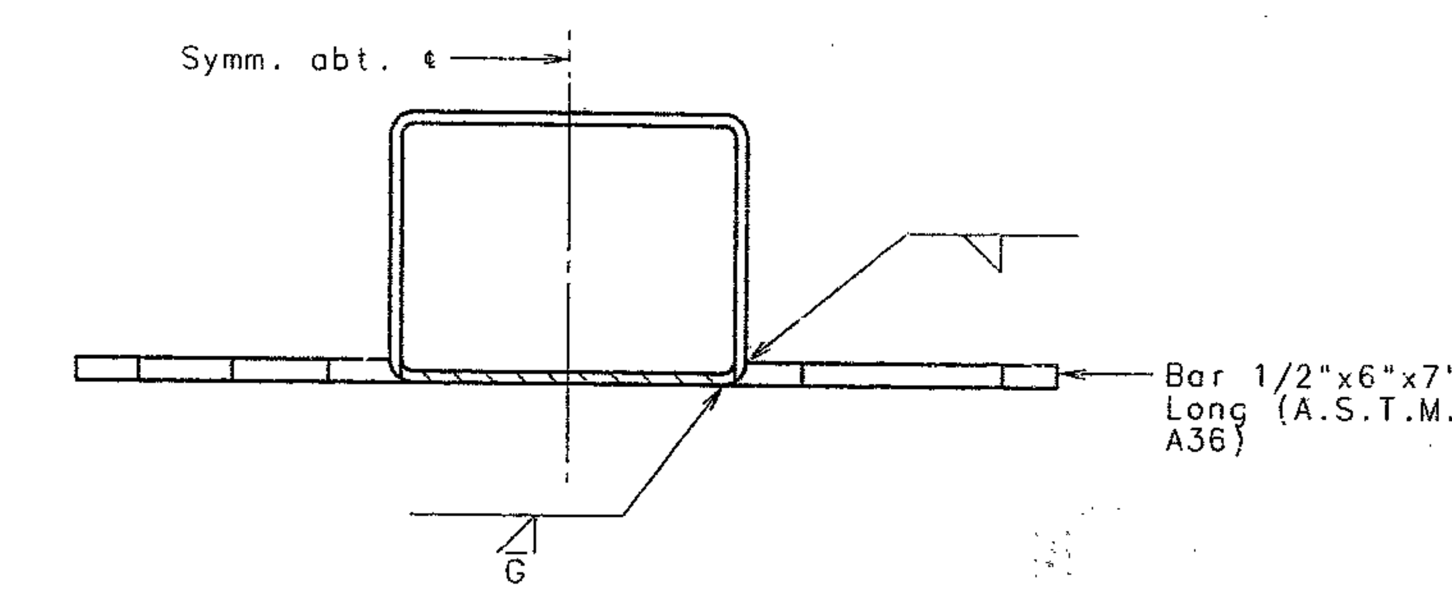
Drains may be fabricated of either 1/4" welded sheets of A.S.T.M. A36 steel or from 1/4" structural steel tubing A.S.T.M. A500 or A501.

Outside dimensions of Drains are 8"x6".

The Drains and Bracket Assembly shall be galvanized in accordance with A.S.T.M. A123.

All Bolts, Hardened Washers, Lock Washers and Nuts shall be galvanized in accordance with A.S.T.M. A153.

Payment for furnishing and installing Expansion Device Drain and Resin Anchor Systems complete in place shall be included in the contract unit price for "Strip Seal Expansion Device".



PLAN OF DRAIN NEAR INT. BENT NO. 5

FINAL PLANS

[redacted]

DETAILS OF EXPANSION DEVICE DRAIN

DETAILED JAN. 1996
CHECKED JAN. 1996

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 4 OF 4

PLATTE COUNTY A2281R

SEC/SUR 5 TWP 50N RGE 33W

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

General Notes:

U.I.P. AND REDECK EXISTING (58'-75'-114'-95')(5'-69'-114'-71'-54') CONT. COMP. CURVED PLATE GIRDER SPANS

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A

Design Loading:
HS20 Modified (New Construction)
15#/sq. ft. Future Wearing Surface
Earth - 120 #/Cu. Ft., Equivalent Fluid Pressure 45#/Cu. Ft.
Fatigue Stress - Case I

Design Unit Stresses:
Class B-1 Concrete (Safety Barrier Curb) f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Safety Barrier Curb) f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

Miscellaneous:
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

Roadway surfacing adjacent to bridge ends shall match new bridge slab surface (Roadway Item).

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

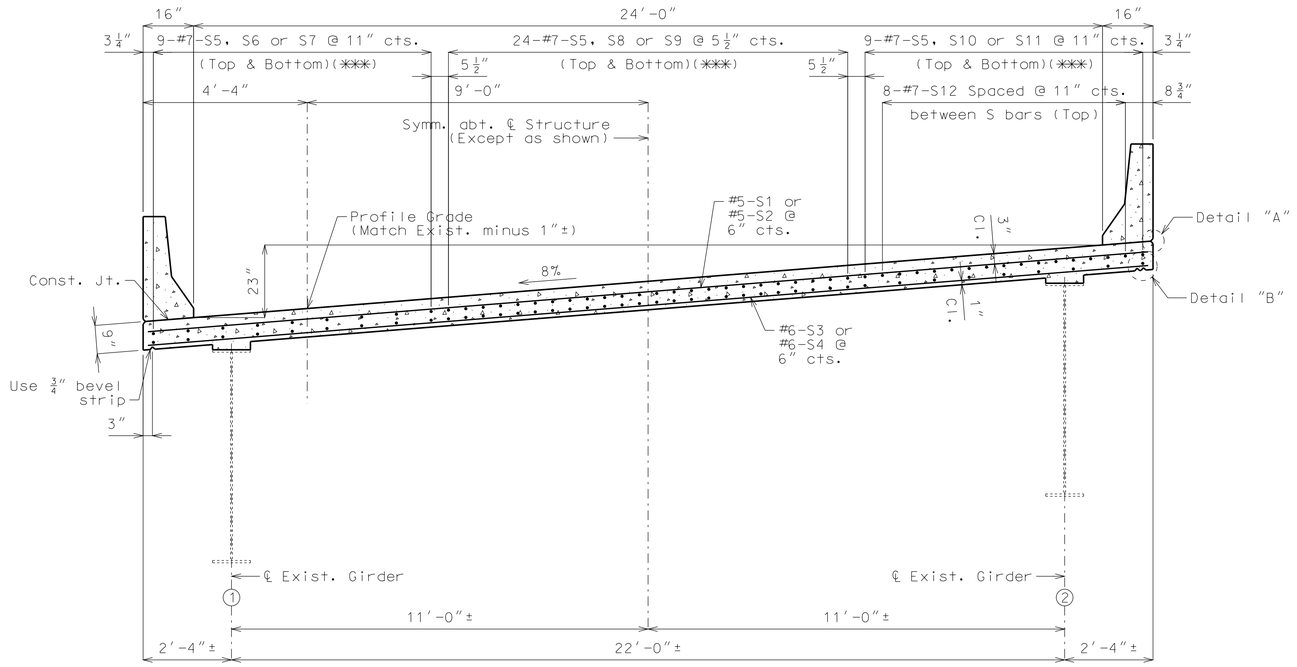
Contractor shall verify all dimensions in field before ordering new material.

The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Dimensions shown are horizontal unless otherwise shown.

Sign Support:
Existing sign support on bridge shall be removed and reattached in similar manner to the existing sign support. All existing connection bolts shall be replaced with new A325 H.S. bolts. Cost of removal and any new materials required for reattaching existing sign support will be considered completely covered by the contract unit price for other items.

Traffic Handling:
Structure to be closed during construction.



HALF SECTION NEAR MIDSPAN HALF SECTION NEAR INT. BENT

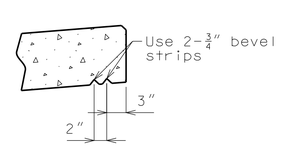
TYPICAL SECTION THRU SLAB

*** S6, S8 & S10 bars located near Int. Bent No. 5 in Span (4-5)
S7, S9 & S11 bars located near Int. Bent No. 5 in Span (5-6)

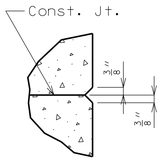
Estimated Quantities		
Item		Total
Removal of Existing Bridge Decks	sq. foot	17,597
Slab on Steel	sq. yard	1951
* Safety Barrier Curb	linear foot	1379
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
Expansion Device (Flat Plate)	linear foot	77
Hinge Modification	each	2
Type N PTFE Bearing	each	2

* Safety barrier curb shall be cast-in-place option or slip-form option.

Cost of any required excavation for bridge will be considered completely covered by the contract unit price for other items.



DETAIL "B"



DETAIL "A"

Estimated Quantities for Slab on Steel		
Item		Total
Class B-2 Concrete	cu. yard	505.5
Reinforcing Steel (Epoxy Coated)	pound	215,100

The table of Estimated Quantities for Slab on Steel represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard from end of slab to end of slab and the overall width shown in the Typical Section Thru Slab. Payment for conventional forms or optional stay-in-place forms, all concrete and coated reinforcing steel will be considered completely covered by the contract unit price for the slab.

Method of forming the slab shall be in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

Slab shall be cast-in-place with conventional forming or stay-in-place corrugated steel forms. Precast prestressed panels will not be permitted.

For optional Stay-In-Place Form Details, see Sheet No. 2.

REQUIRED LAP LENGTH FOR BAR SPLICES **	
Bar Size	Splice Length
4	2'-7"
5	3'-3"
6	3'-10"
7	4'-11"

** Unless otherwise shown.

TABLE SHOWING S12 BAR LENGTHS					
Int. Bent No. 2		Int. Bent No. 3		Int. Bent No. 4	
Span 1	Span 2	Span 2	Span 3	Span 3	Span 4
8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
Int. Bent No. 6		Int. Bent No. 7		Int. Bent No. 8	
Span 5	Span 6	Span 6	Span 7	Span 7	Span 8
8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"

REPAIRS TO BRIDGE OVER RAMP 6, I-635 S.B.L. AND RTE. 9 E.B.L.

STATE ROAD FROM MISSOURI RIVER TO RTE. 9

IN RIVERSIDE

STA. 15+86.36± (Match Existing)

STD. 617.10
STD. 706.35

Detailed Oct. 2012
Checked Nov. 2012

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

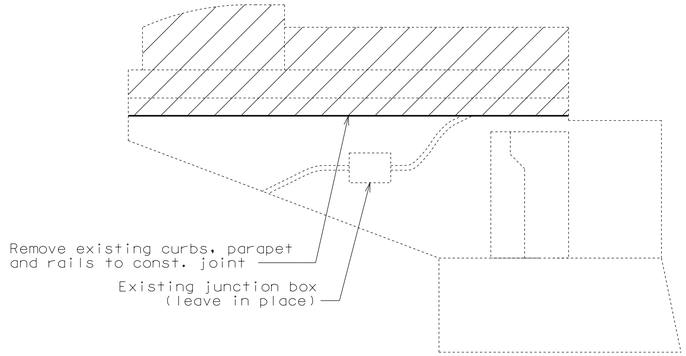
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-635 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24333

DESCRIPTION | DATE

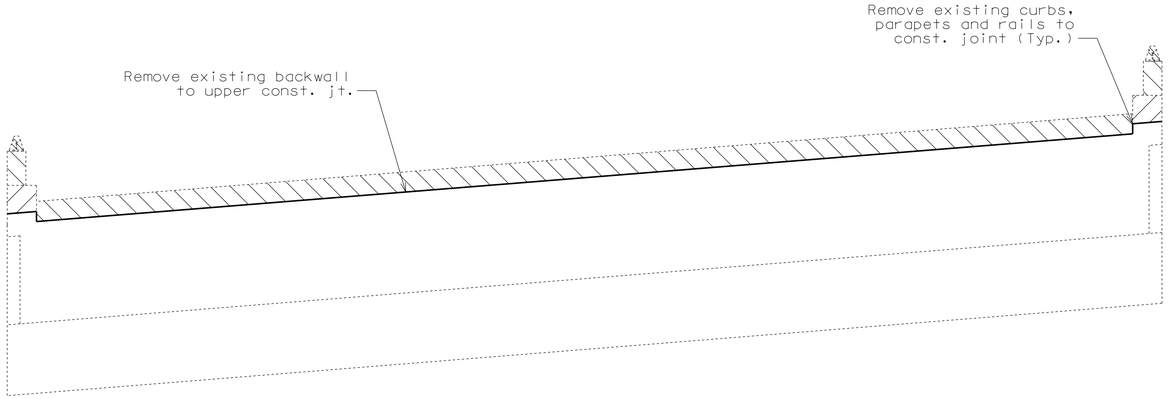
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



ELEVATION OF WING SHOWING CONCRETE REMOVAL LIMITS

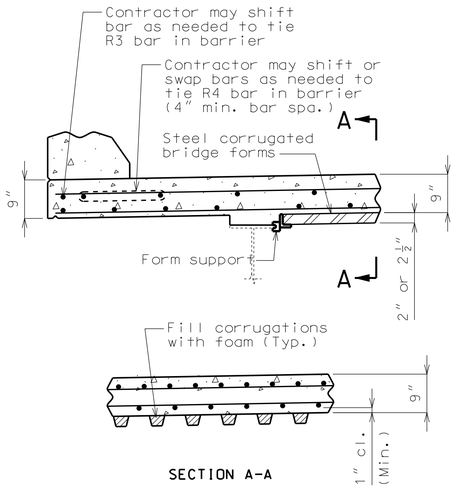
Note:
Exist. power running thru conduit on bridge shall be shut-off prior to construction. Exist. conduit on wing shall be cut-off at const. joint elevation.



DETAILS OF CONCRETE REMOVAL @ END BENTS

(Looking parallel to ℄ of Roadway)

Note:
Cost of removing curbs, parapets, rails and end posts, as shown will be considered completely covered by the contract unit price for "Removal of Existing Bridge Decks".



OPTIONAL STAY-IN-PLACE FORM DETAILS

Notes:
Corrugated steel bridge deck forms, supports closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

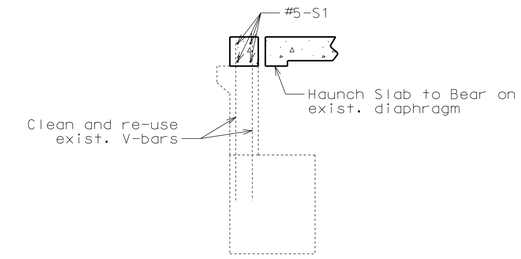
Form sheets shall not rest directly on the top of girders, stringers or floorbeams flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Welding on or drilling holes in the flanges of the girders, stringers or floorbeams will not be permitted. All steel fabrication and construction shall be in accordance with Sec's 1080 and 712. MoDOT certified field welders will not be required for welding of the form supports.

The contractor shall provide temporary bracing as necessary to prevent girders from rotating during slab pour. The cost for temporary bracing shall be considered completely covered by the contract unit price for Slab on Steel.

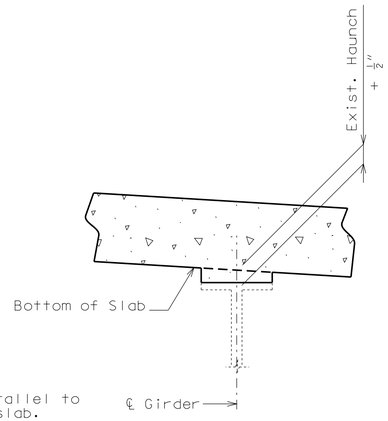
Slab shall be poured upgrade from end to end at a minimum rate of 25 cu. yd./ hr.

Alternate pour sequences may be submitted to the engineer for approval. Keyed construction joints shall be provided between pours.

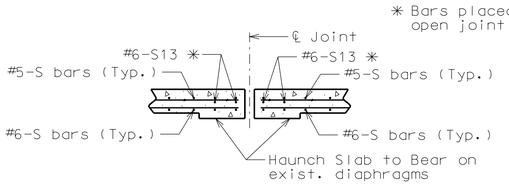
Slab is to be considered at a uniform depth as shown on the plans. Haunching will vary.



TYPICAL SECTION THRU END BENTS NO. 1 & 9

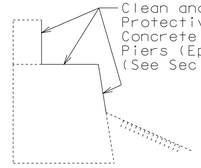


THEORETICAL SLAB HAUNCH

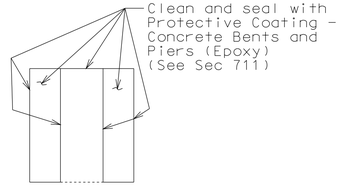


PART SECTION THRU SLAB AT INT. BENT NO. 5

Deflection Note:
The contractor shall determine dead load deflections and haunching based on field measurements and/or existing bridge plans and may be adjusted based on the difference between the new and existing dead load weights.



TYPICAL SECTION THRU END BENTS 1 & 9 SHOWING PROTECTIVE COATING



TYPICAL SECTION THRU INT. BENT 5 SHOWING PROTECTIVE COATING

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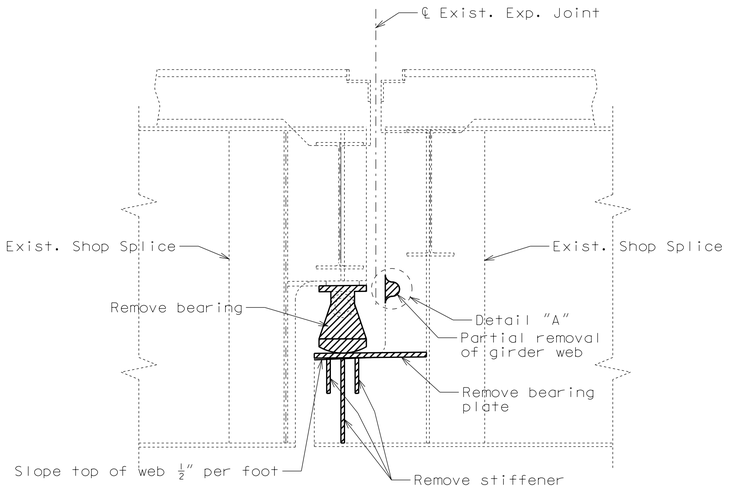
DATE PREPARED: 11/19/2012
ROUTE: I-635 | STATE: MO
DISTRICT: BR | SHEET NO.: 2
COUNTY: PLATTE
JOB NO.: J412373
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A24333

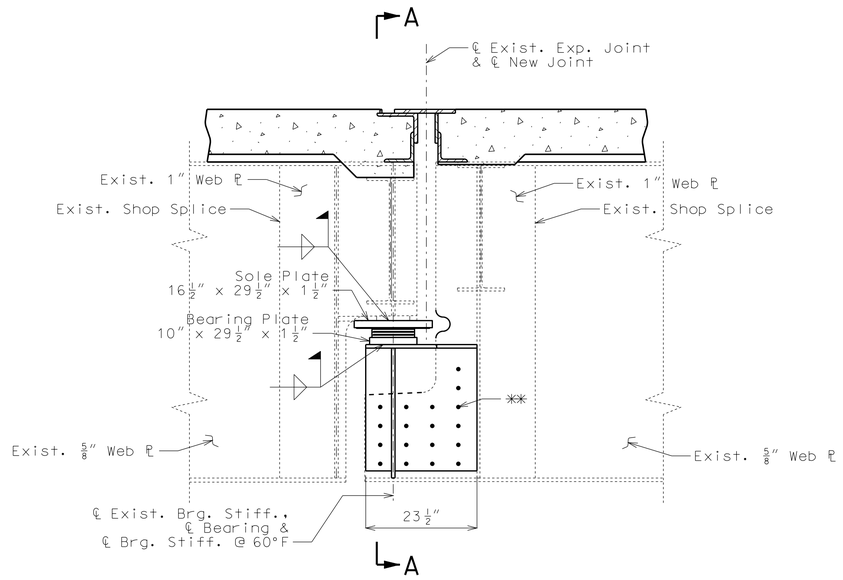
DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

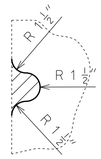
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



PART ELEVATION SHOWING
EXISTING HINGE DETAIL AND REMOVAL



DETAIL OF HINGE MODIFICATION
NEAR INT. BENT NO. 5
(Anchor bolts not shown for clarity)



DETAIL "A"

Notes:

For bearing details, see Sheet No. 4.

Removal of existing bearing, plates and any other removal incidental to shelf modification will be considered completely covered by the contract unit price for Hinge Modification per each.

Existing diaphragms not shown for clarity.

The cost of furnishing all materials and labor necessary for hinge modification including structural steel, bolts and incidental work, complete-in-place, will be considered completely covered by the contract unit price for Hinge Modification per each.

All structural steel shall be ASTM A709 Grade 50.

Any weld material remaining after removal shall be ground flush.

Back gouge all full penetration groove welds.

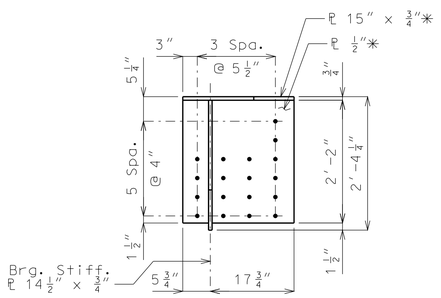
* Indicates plates subject to notch toughness requirements.

Required temporary support load of 93 kips per girder near Int. Bent No. 5 is a service load without a factor of safety.

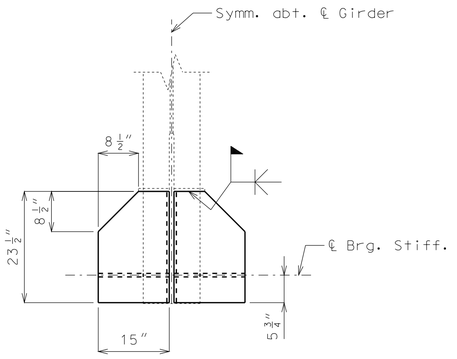
Fabricated Steel Connection Notes:

** Field connections shall be made with ⅞" diameter high strength bolts and 15/16" diameter holes, except as noted.

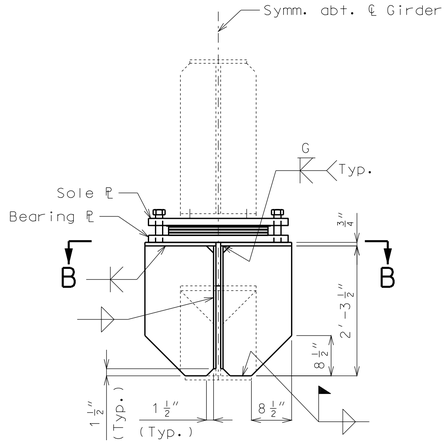
High strength bolts, nuts and washers will be sampled for quality assurance as specified in Sec 106 and Field Section (FS-712) from Materials Manual.



SHELF PLATE DETAIL
(Each Side of Existing Web)



SECTION B-B



SECTION A-A

DETAILS OF HINGE MODIFICATION NEAR INT. BENT NO. 5

Detailed Nov. 2012
Checked Nov. 2012

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

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DATE PREPARED	11/19/2012
ROUTE	I-635
STATE	MO
DISTRICT	BR
SHEET NO.	3
COUNTY	PLATTE
JOB NO.	J412373
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A24333

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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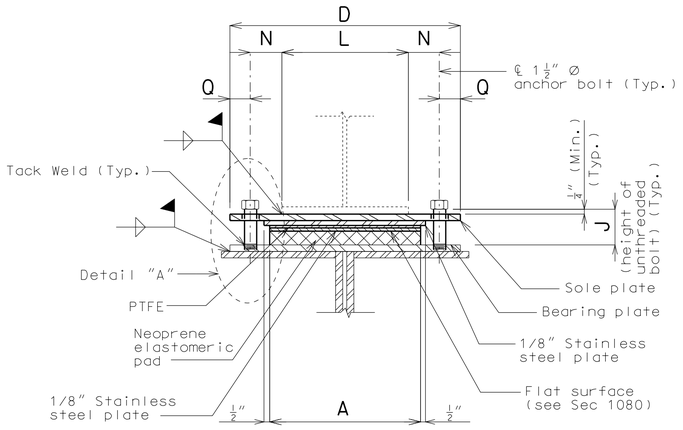
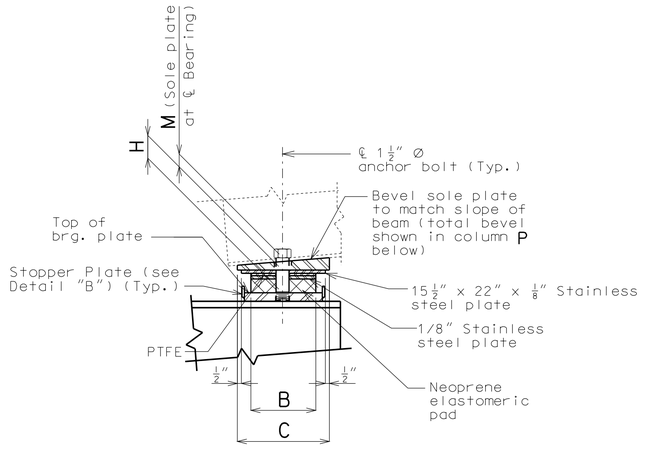
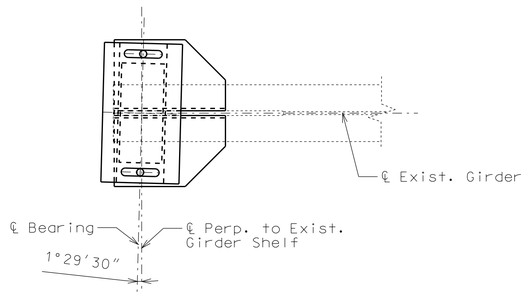


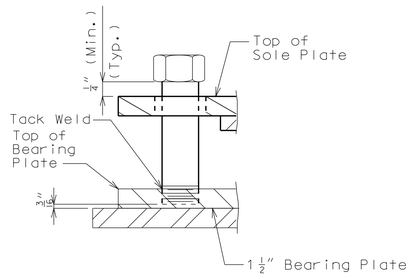
END VIEW



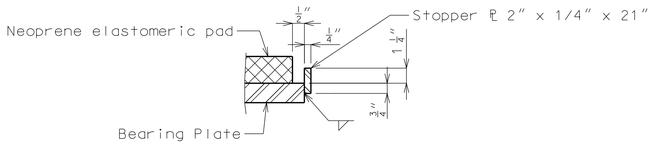
SIDE VIEW



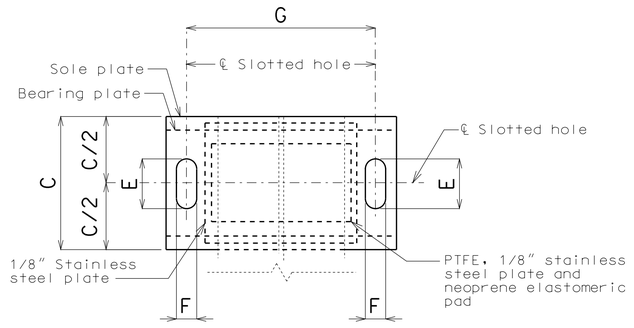
PLAN SHOWING SKEW OF NEW BEARING



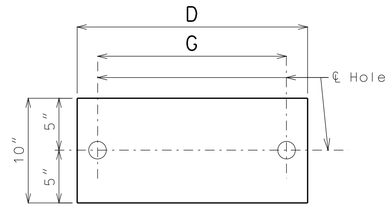
DETAIL "A"



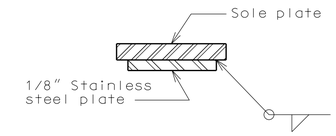
DETAIL "B"

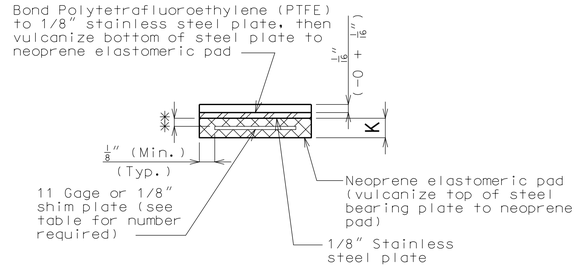


PART PLAN



DETAIL OF BEARING PLATE





✳✳ Layers of ½" elastomeric pad (Typ.)

NEOPRENE ELASTOMERIC PAD

PTFE SLIDING BEARINGS																		
HINGE NEAR BENT NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	NUMBER OF SHIM PLATES(✳)	NUMBER REQUIRED
5	21"	9"	16½"	29½"	8"	1⅝"	25"	2 1/16"	3¾"	1¾"	16"	1½"	4½"	–	2¼"	¼"	2	2
																	TOTAL BEARINGS	2

(✳) The required shim plate shall be placed between layers of elastomer and molded together to form an integral unit.

GENERAL NOTES:

Design Coefficient of Friction for testing is equal to 0.077 for unfilled PTFE.

Only unfilled PTFE sheets shall be used.

Anchor bolts shall be 1½" Ø ASTM A325 steel bolts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided.

Anchor bolt shall be at the ℄ of slotted hole at 60°F. Bearing position shall be adjusted R for each 10° fall or rise in temperature at installation.

The sole plate and bearing plate shall be furnished with the bearing and will be considered completely covered by the contract unit price for Type N PTFE Bearing. The sole plate shall be field welded to the girders. The bearing plate shall be field welded to the hanger plate.

All structural steel for the anchor bolts shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum).

Neoprene Elastomeric Pads shall be 70 Durometer.

Structural steel for sole plate and bearing plate shall be ASTM A709 Grade 50 and shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum). The stainless steel plate shall be protected from any coating.

Type N PTFE Bearings shall be in accordance with Sec 716.

The 1½" bearing plate shall be tapped to receive 1½"Ø H.S. Bolts.

DETAILS OF TYPE "N" PTFE BEARINGS AT HINGES

Detailed Oct. 2012
Checked Nov. 2012

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

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DATE PREPARED 11/19/2012
ROUTE I-635 | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY PLATTE
JOB NO. J4I2373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24333

DESCRIPTION | DATE

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JEFFERSON CITY, MO 65102
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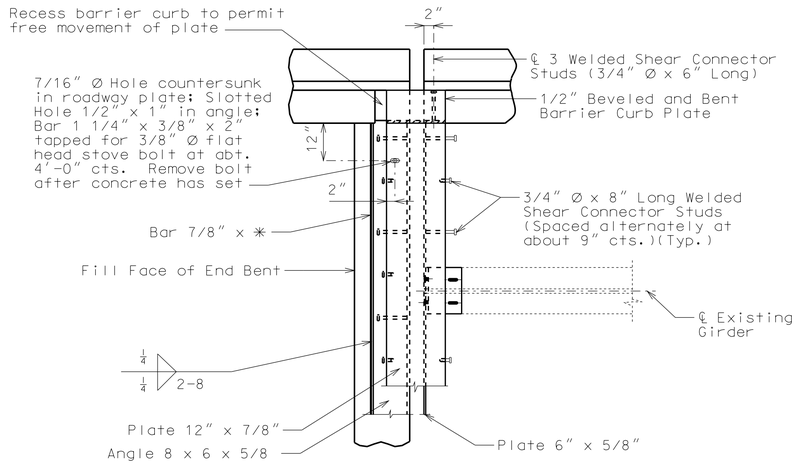
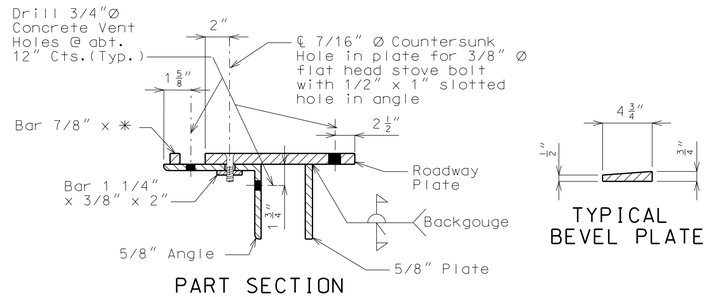


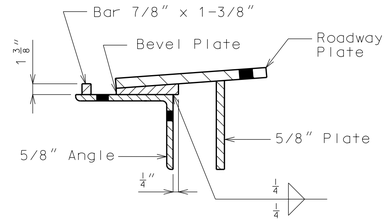
PART PLAN

Note: Concrete vent holes not shown for clarity.



PART SECTION (TYPICAL)

TYPICAL BEVEL PLATE



PART SECTION THRU BEVEL PLATE

Note: Bevel plates shall be used at End Bent No. 9 only.

GENERAL NOTES:

Expansion device shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove weld splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion device shall be fabricated and installed to the crown and grade of the roadway.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" for each 10° fall or rise in temperature at installation.

Material for the expansion device shall be ASTM A709 Grade 36 structural steel. Anchors for the expansion device shall be in accordance with Sec 1037.

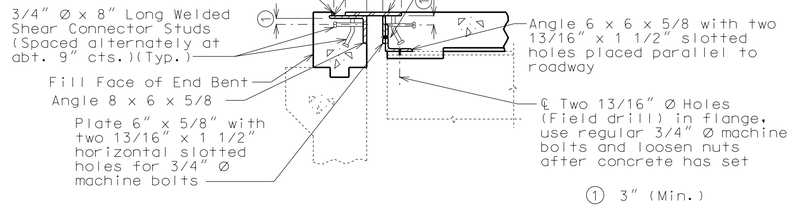
Structural steel for the expansion device and curb plate shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Payment for furnishing, coating or galvanizing and installing the structural steel for the expansion device will be considered completely covered by the contract unit price for Expansion Device (Flat Plate) per linear foot.

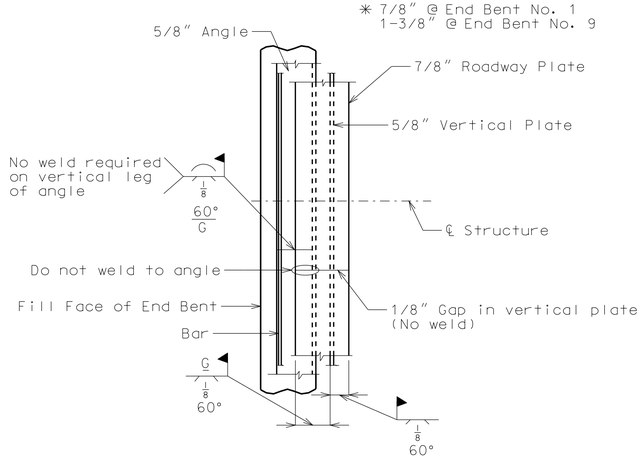
Concrete shall be forced under and around flat plate, anchors and angles. Proper consolidation shall be achieved by localized internal vibration. Finishing of the concrete shall be achieved by hand finishing within one foot of the expansion device. The vertical and horizontal concrete vent holes shall be offset from each other. Do not alternate holes at the 12" spacing.

Longitudinal reinforcing steel shall be cut/bent so that ends shall not be more than ±1" from vertical plate and the vertical leg of the angle at the expansion device.

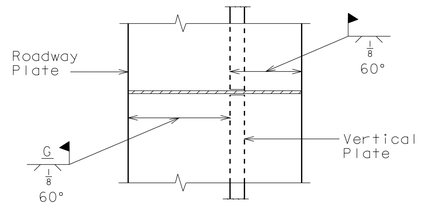
Complete joint penetration welds utilized in the fabrication of the expansion device shall be nondestructively tested by an approved method.



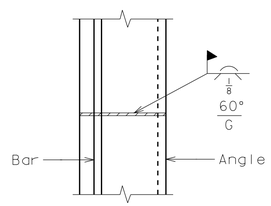
PART SECTION AT END BENT



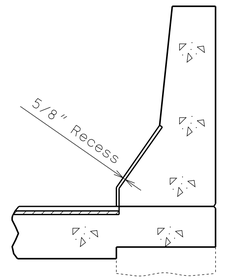
PERMISSIBLE FIELD SPLICE AT END BENT



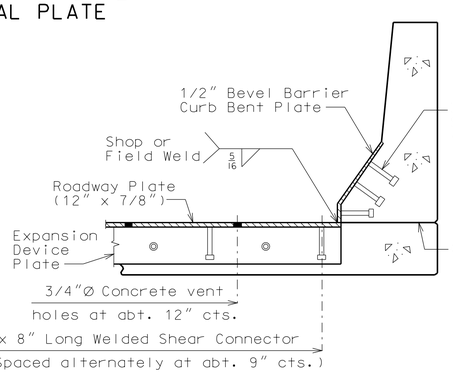
PART PLAN ROADWAY PLATE AND VERTICAL PLATE



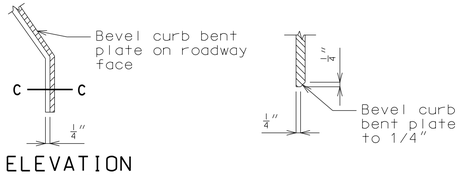
PART PLAN OF ANGLE AND BAR



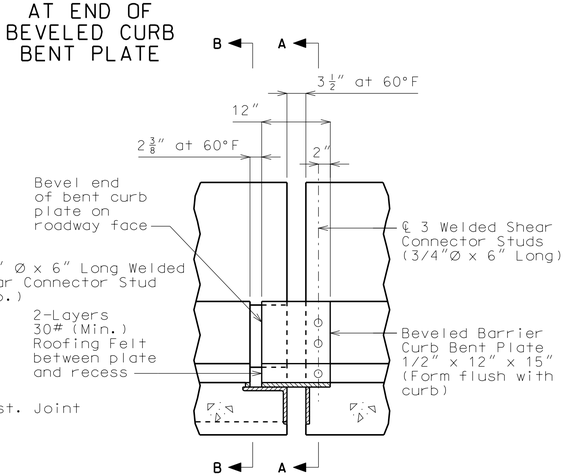
PART SECTION B-B



PART SECTION A-A



PART ELEVATION AT END OF BEVELED CURB BENT PLATE



ELEVATION OF BARRIER CURB

DETAILS OF FLAT PLATE EXPANSION DEVICE AT END BENTS NO. 1 & 9

Detailed Oct. 2012
Checked Nov. 2012

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED	11/19/2012
ROUTE	I-635
STATE	MO
DISTRICT	BR
SHEET NO.	5
COUNTY	PLATTE
JOB NO.	J412373
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A24333

DESCRIPTION | DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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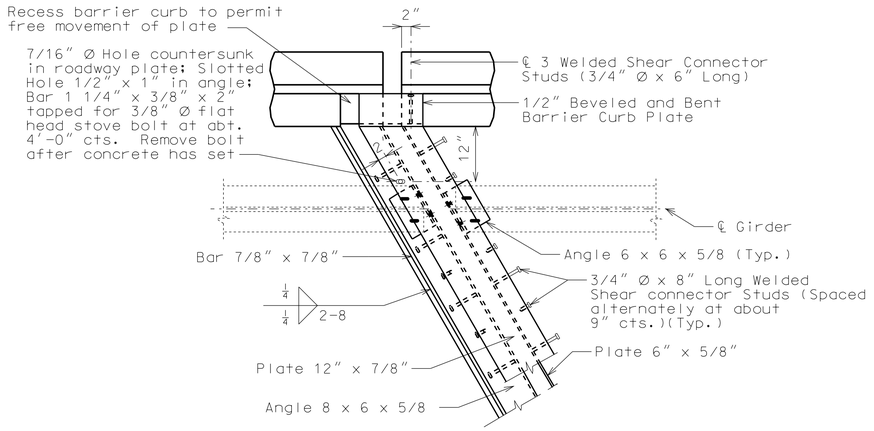
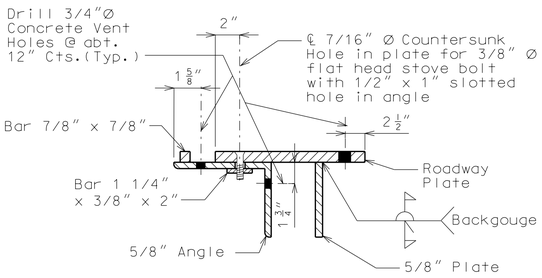


PART PLAN

Note: Concrete vent holes not shown for clarity.



PART SECTION (TYPICAL)

GENERAL NOTES:

Expansion device shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove weld splice shall be required. Welds shall be ground flush to provide a smooth surface.The expansion device shall be fabricated and installed to the crown and grade of the roadway.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/4" for each 10° fall or rise in temperature at installation.

Material for the expansion device shall be ASTM A709 Grade 36 structural steel. Anchors for the expansion device shall be in accordance with Sec 1037.

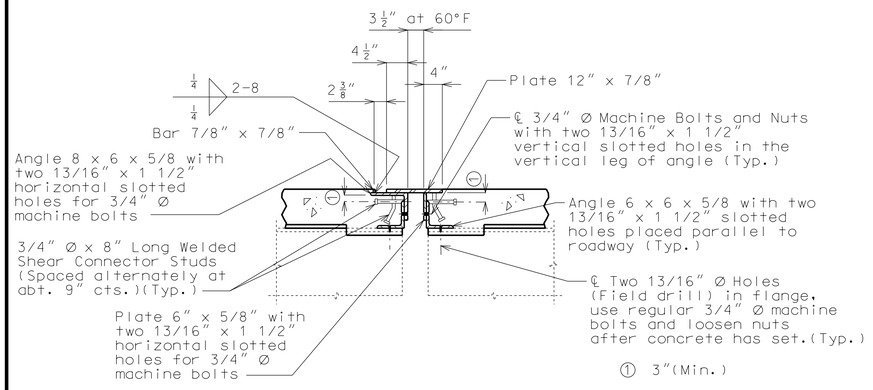
Structural steel for the expansion device and curb plate shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Payment for furnishing, coating or galvanizing and installing the structural steel for the expansion device will be considered completely covered by the contract unit price for Expansion Device (Flat Plate) per linear foot.

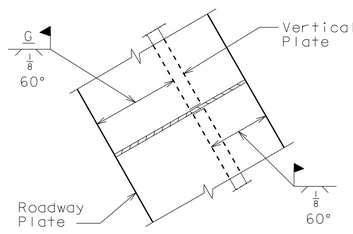
Concrete shall be forced under and around flat plate, anchors and angles. Proper consolidation shall be achieved by localized internal vibration. Finishing of the concrete shall be achieved by hand finishing within one foot of the expansion device. The vertical and horizontal concrete vent holes shall be offset from each other. Do not alternate holes at the 12" spacing.

Longitudinal reinforcing steel shall be cut/bent so that ends shall not be more than ±1" from vertical plate and the vertical leg of the angle at the expansion device.

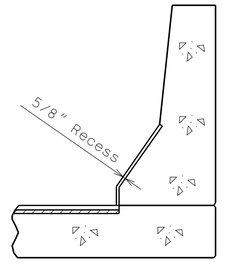
Complete joint penetration welds utilized in the fabrication of the expansion device shall be nondestructively tested by an approved method.



PART SECTION AT INTERMEDIATE BENT

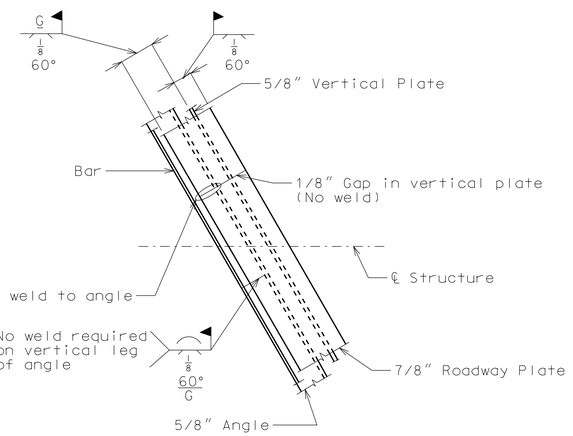


PART PLAN ROADWAY PLATE AND VERTICAL PLATE

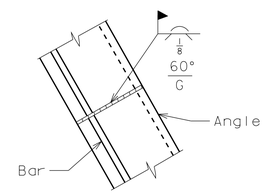


PART SECTION B-B

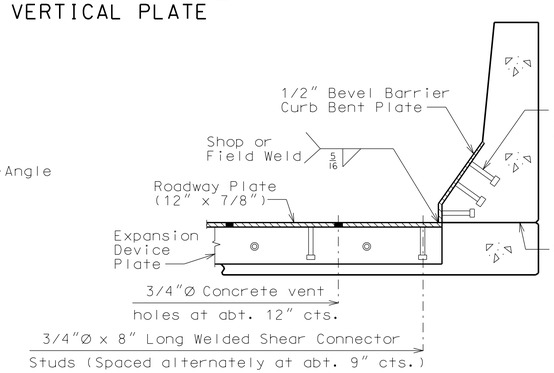
PART ELEVATION AT END OF BEVELED CURB BENT PLATE



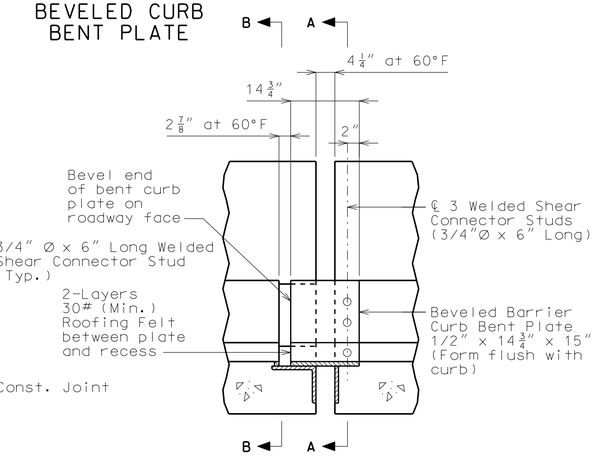
PERMISSIBLE FIELD SPLICE AT INT. BENT



PART PLAN OF ANGLE AND BAR



PART SECTION A-A



ELEVATION OF BARRIER CURB

DETAILS OF FLAT PLATE EXPANSION DEVICE NEAR INT. BENT NO. 5

Detailed Oct. 2012
Checked Nov. 2012

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

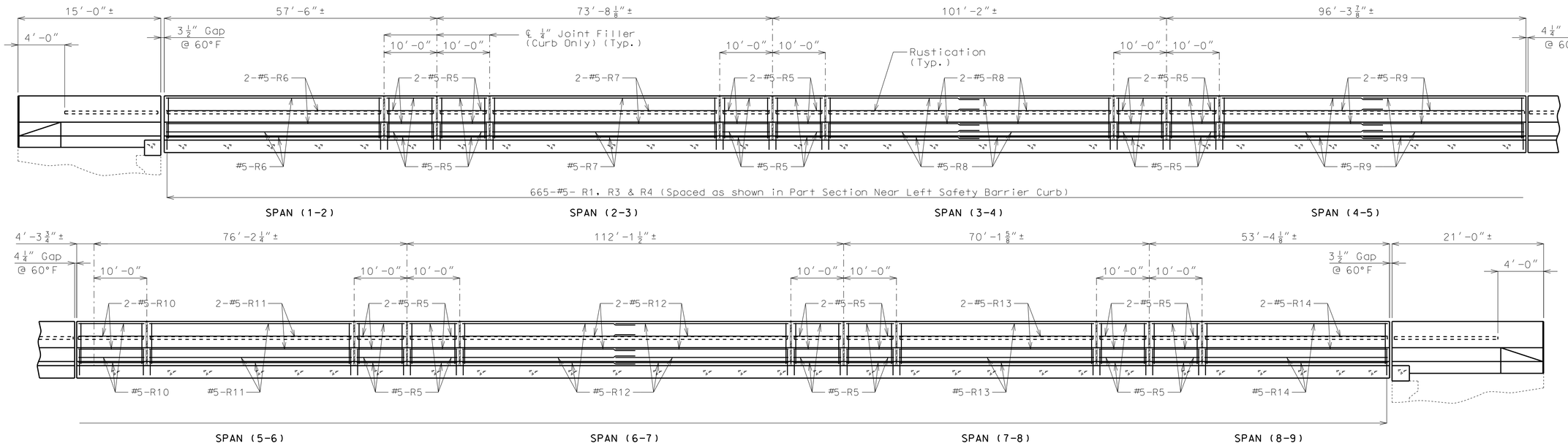
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-635 | STATE MO
DISTRICT BR | SHEET NO. 6
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24333

DESCRIPTION | DATE

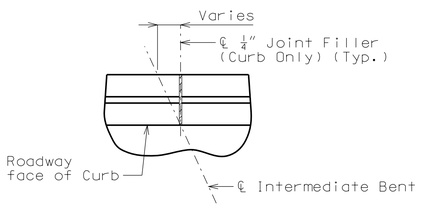
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

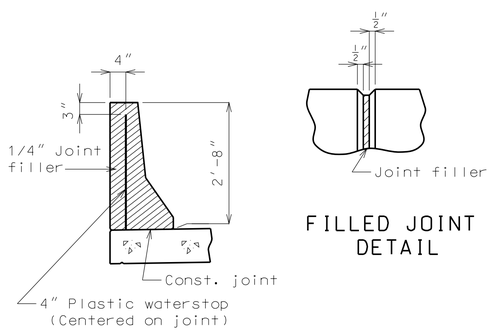
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



SECTION NEAR LEFT SAFETY BARRIER CURB

Note: Dimensions shown are parallel to grade.



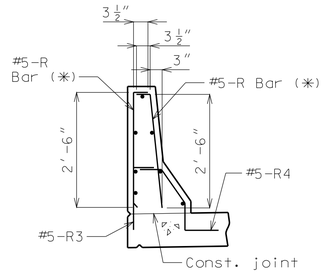


DETAILS OF PLASTIC WATERSTOP

Notes:

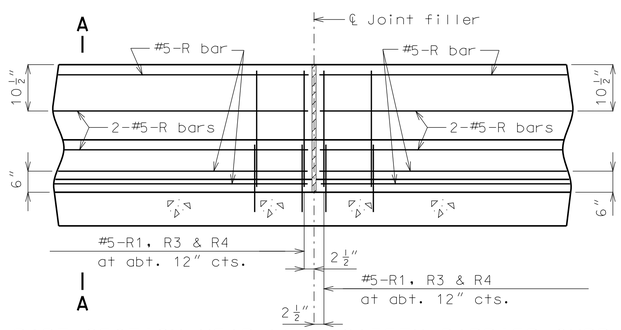
Plastic waterstop shall be placed in all safety barrier curb filled joints, except structures with superelevation, use on all lower safety barrier curb joints only.

Cost of plastic waterstop, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb.

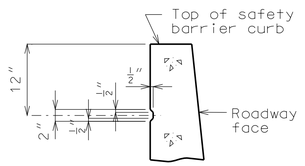


R-BAR PERMISSIBLE ALTERNATE SHAPE

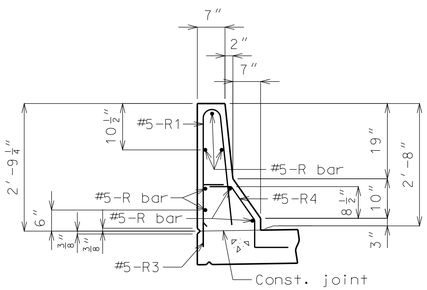
(*) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)



PART SECTION NEAR LEFT SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



PART SECTION SHOWING RUSTICATION DETAILS

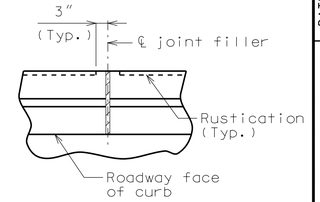


PART SECTION A-A

Notes:

Use a minimum lap of 2′-11″ for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.33 sq. ft.



PART PLAN SHOWING SAFETY BARRIER CURB JOINT

Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2″ radius or a 3/4″ bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012

ROUTE I-635 | STATE MO

DISTRICT BR | SHEET NO. 7

COUNTY PLATTE

JOB NO. J412373

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A24333

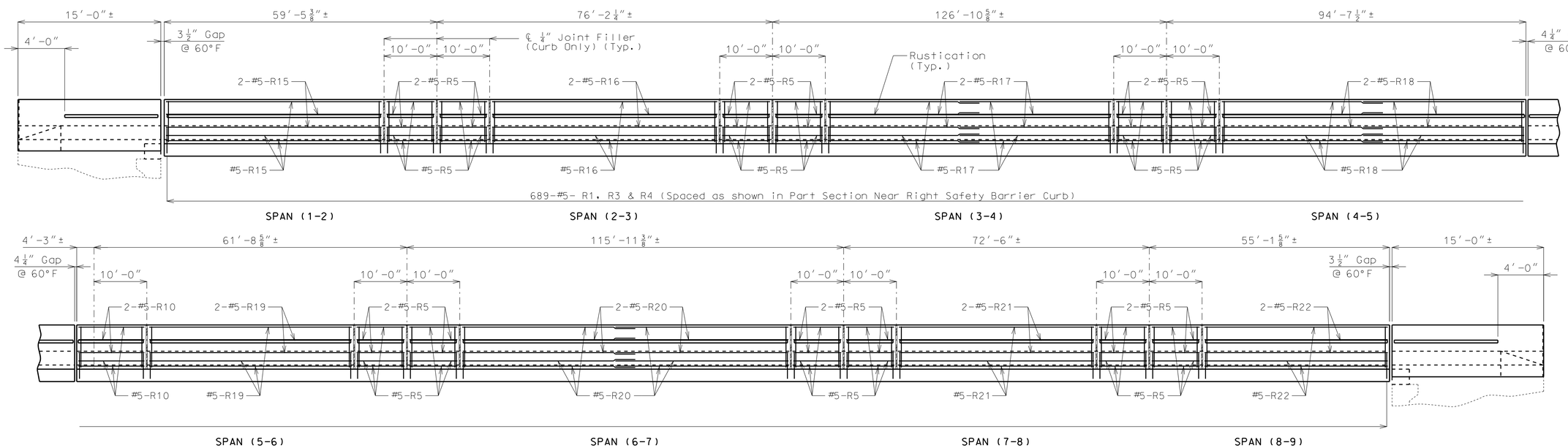
DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

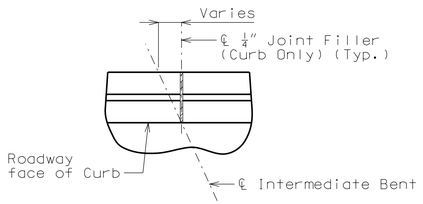
Detailed Nov. 2012
Checked Nov. 2012

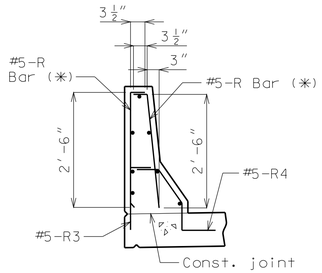
Note: This drawing is not to scale. Follow dimensions.



ELEVATION OF RIGHT SAFETY BARRIER CURB

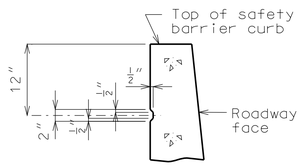
Note: Dimensions shown are parallel to grade.



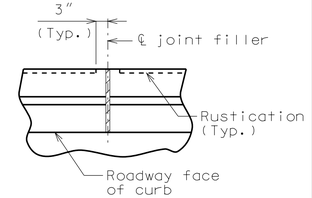


R-BAR PERMISSIBLE ALTERNATE SHAPE

(*) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)



PART SECTION SHOWING RUSTICATION DETAILS



PART PLAN SHOWING SAFETY BARRIER CURB JOINT

Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2″ radius or a 3/4″ bevel, unless otherwise noted.

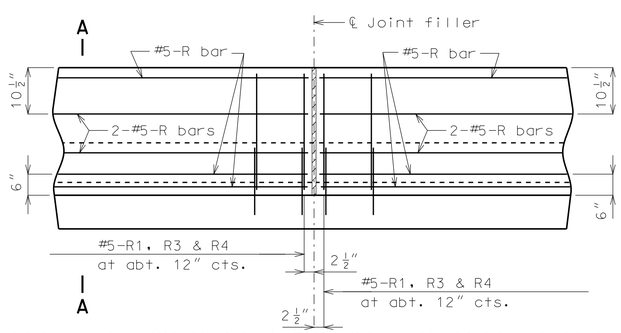
Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

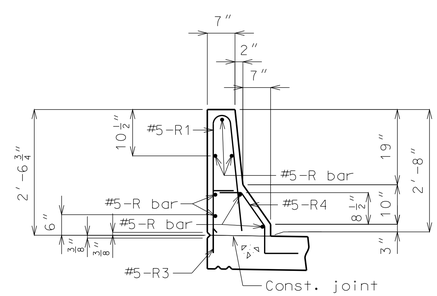
Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

FILLED JOINT DETAIL



PART SECTION NEAR RIGHT SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



PART SECTION A-A

Notes:

Use a minimum lap of 2′-11″ for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.19 sq. ft.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012

ROUTE I-635 | STATE MO

DISTRICT BR | SHEET NO. 8

COUNTY PLATTE

JOB NO. J412373

CONTRACT ID.

PROJECT NO.

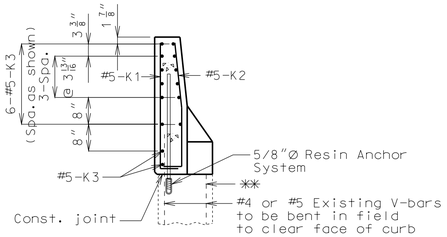
BRIDGE NO. A24333

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

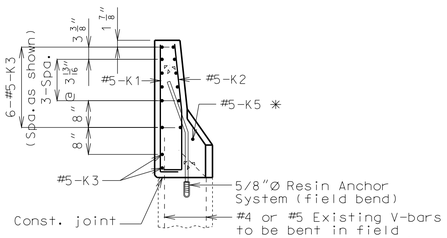
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

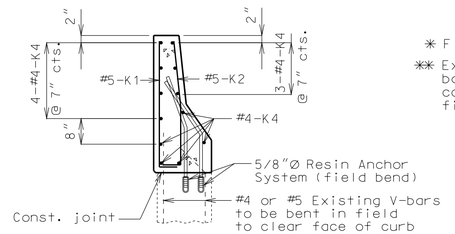
Detailed Nov. 2012
Checked Nov. 2012



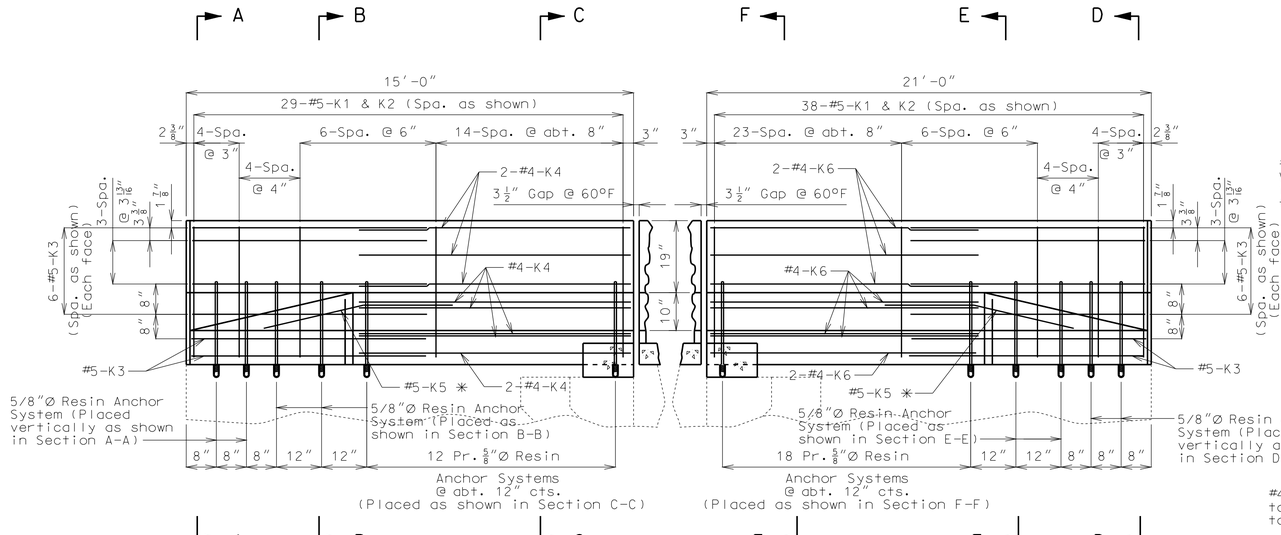
SECTION A-A



SECTION B-B

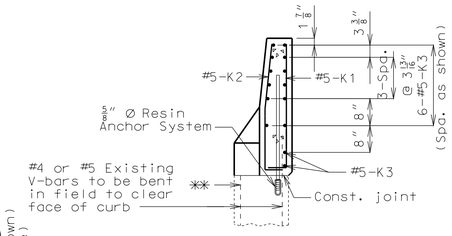


SECTION C-C

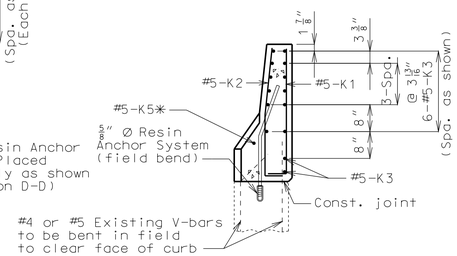


ELEVATION
(End Bent No. 1)

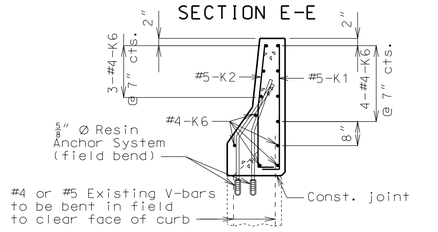
ELEVATION
(End Bent No. 9)



SECTION D-D



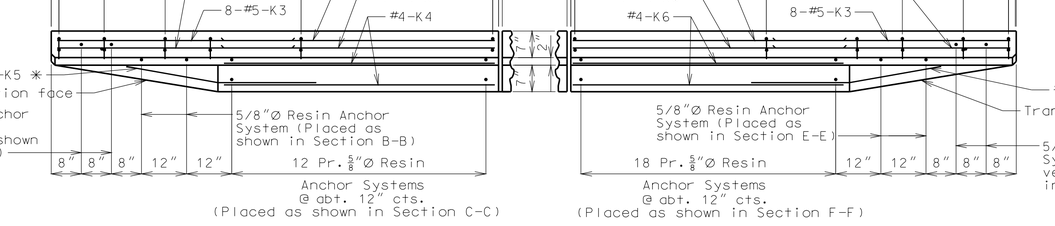
SECTION E-E



SECTION F-F

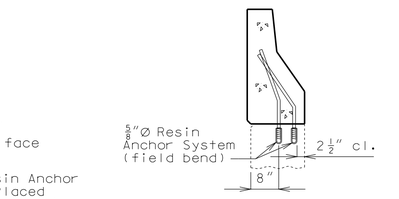
* Fit bar to follow transistion face of curb.

** Existing reinforcement which cannot be bent into the new barrier curb transition shall be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

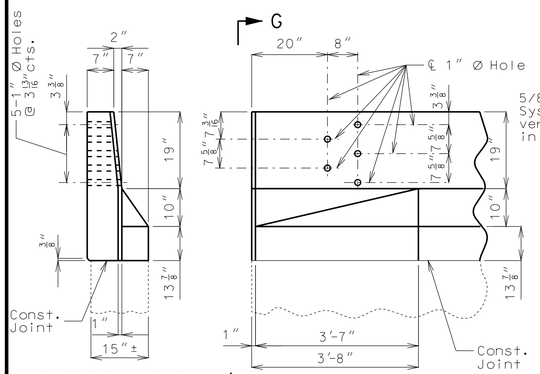


PLAN
(End Bent No. 1)

PLAN
(End Bent No. 9)



ANCHOR SYSTEMS AT SECTIONS C-C & F-F



DETAILS OF GUARD RAIL ATTACHMENT

Notes:
Use a minimum lap of 2'-0" between K3 and K4 or K6 bars.

68 - 5/8"Ø Resin Anchors required (length = 2'-3")

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb."

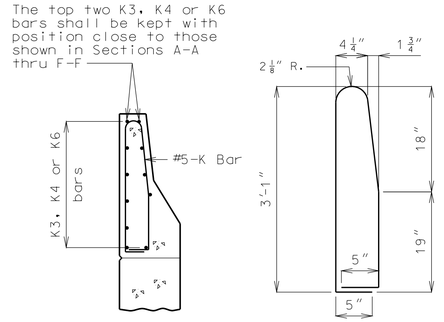
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

The minimum embedment depth in concrete with f'c = 4.000 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".

DETAILS OF LEFT SAFETY BARRIER CURB AT END BENTS

The top two K3, K4 or K6 bars shall be kept with position close to those shown in Sections A-A thru F-F



K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE (**)

(**) The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.

DATE PREPARED 11/19/2012

ROUTE	STATE
69	MO
DISTRICT	SHEET NO.
BR	9

COUNTY PLATTE

JOB NO. J412373

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A24333

DATE	DESCRIPTION	REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Detailed Nov. 2012
Checked Nov. 2012

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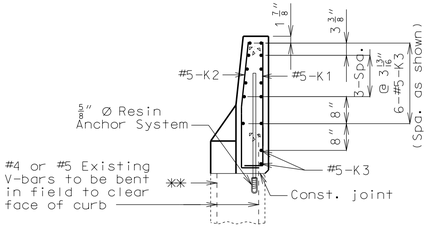
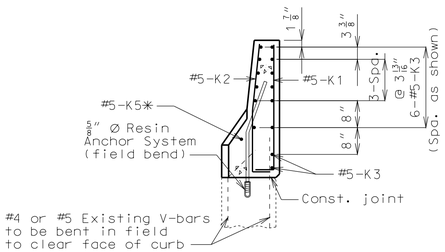
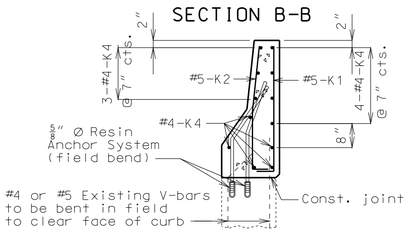


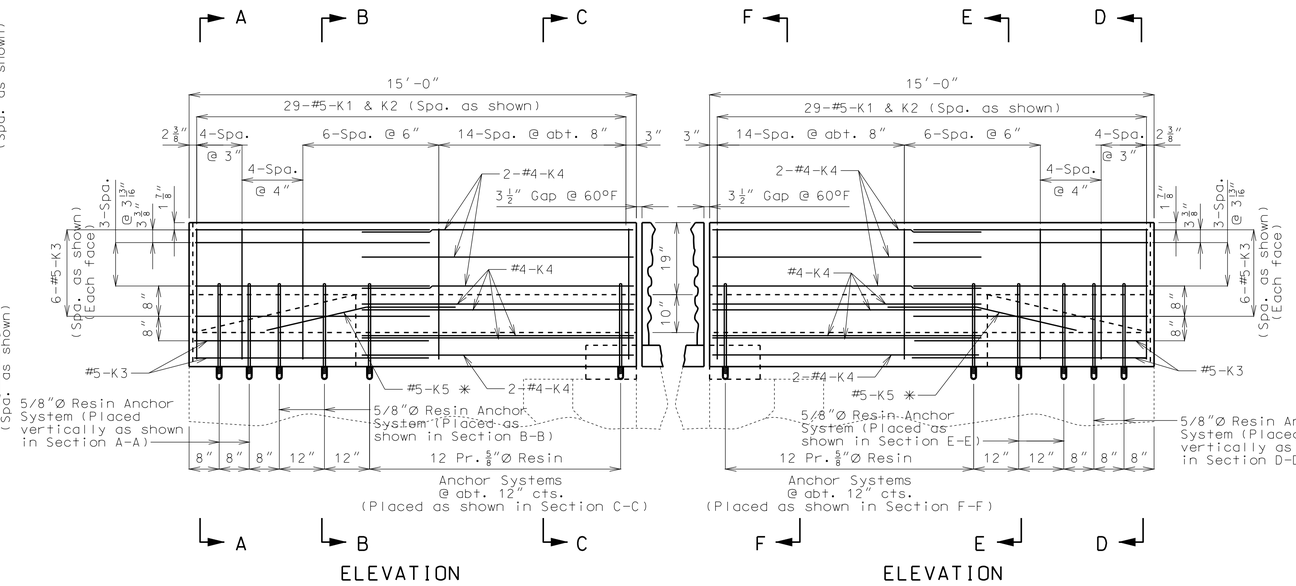
SECTION A-A



SECTION B-B



SECTION C-C

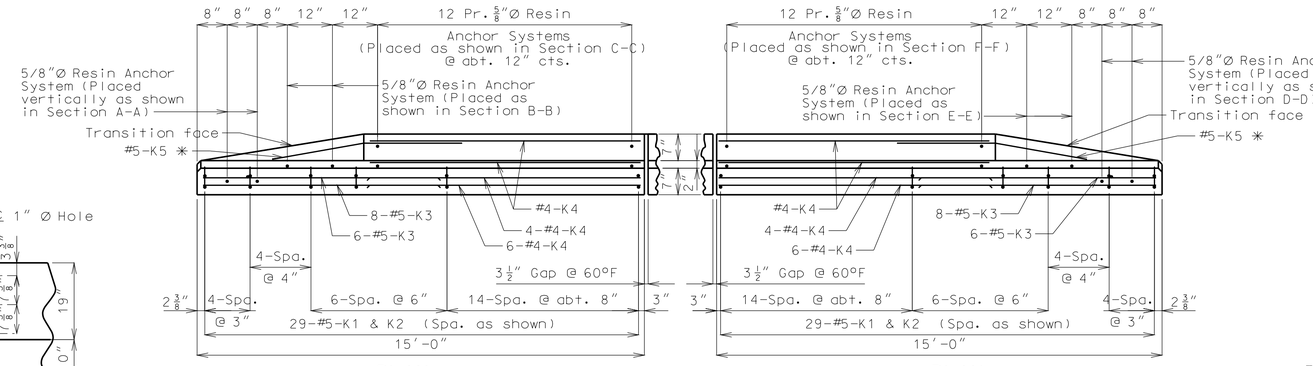


ELEVATION

ELEVATION

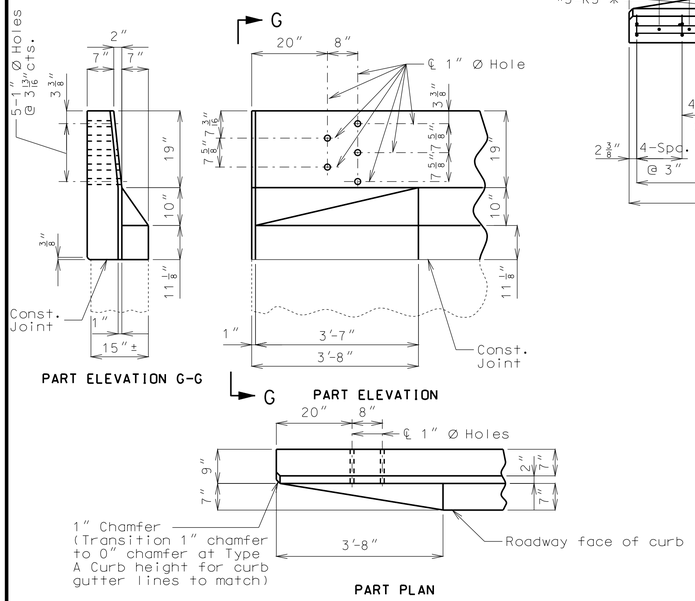
* Fit bar to follow transistion face of curb.

** Existing reinforcement which cannot be bent into the new barrier curb transition shall be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.



PLAN

PLAN



DETAILS OF GUARD RAIL ATTACHMENT

Notes:
Use a minimum lap of 2'-0" between K3 and K4 bars.

56 - 5/8"Ø Resin Anchors required (length = 2'-3")

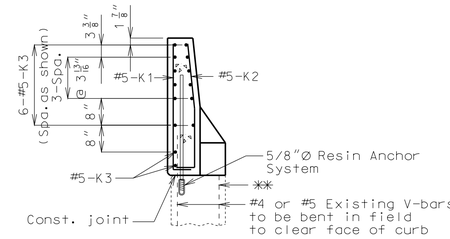
Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb."

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

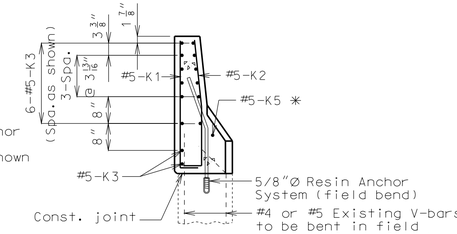
Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

The minimum embedment depth in concrete with f'c = 4.000 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".

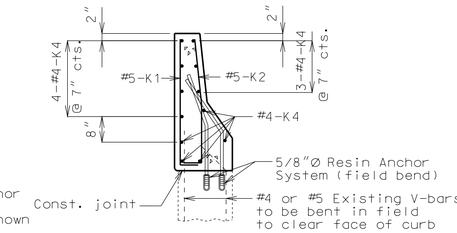
DETAILS OF RIGHT SAFETY BARRIER CURB AT END BENTS



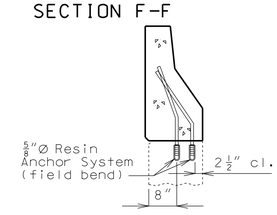
SECTION D-D



SECTION E-E

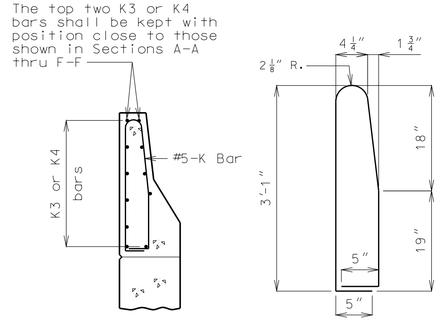


SECTION F-F



ANCHOR SYSTEMS AT SECTIONS C-C & F-F

The top two K3 or K4 bars shall be kept with position close to those shown in Sections A-A thru F-F



K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE (**)

(**) The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012

ROUTE I-635 | STATE MO

DISTRICT BR | SHEET NO. 10

COUNTY PLATTE

JOB NO. J412373

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A24333

DESCRIPTION | DATE

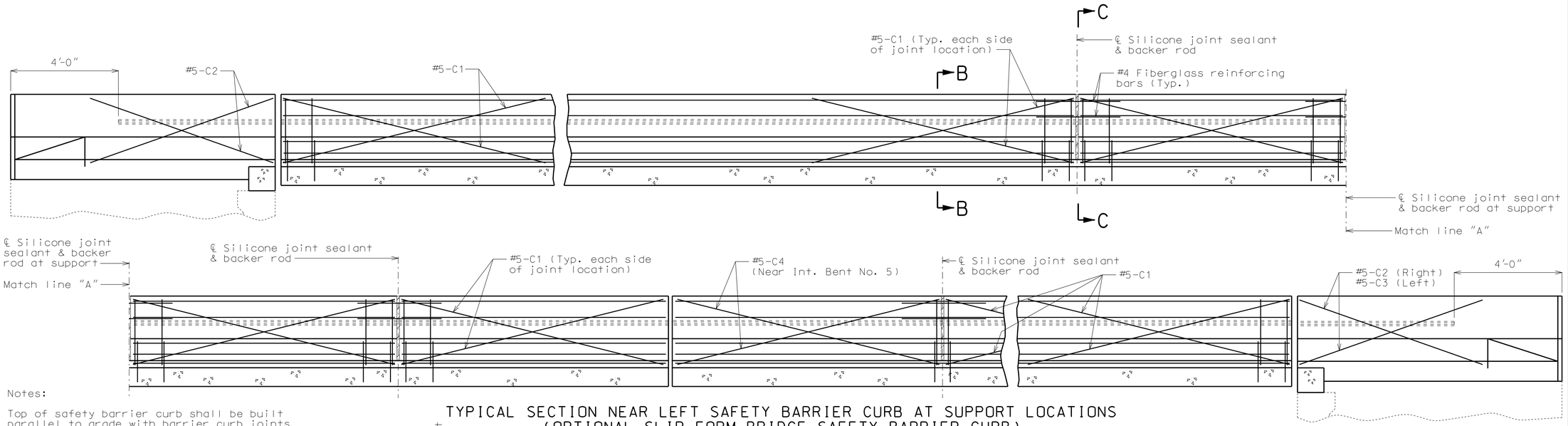
REV.

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Detailed Nov. 2012
Checked Nov. 2012

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



Notes:

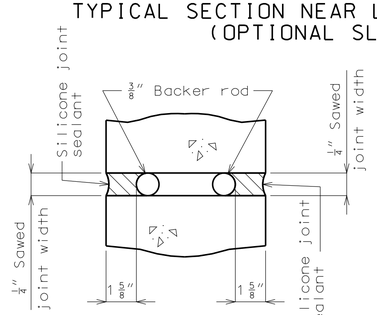
Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

TYPICAL SECTION NEAR LEFT SAFETY BARRIER CURB AT SUPPORT LOCATIONS (OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)



SECTION A-A

Notes:

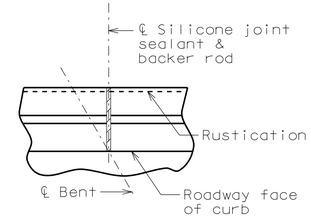
Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

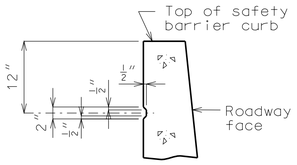
C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb.

For Slip-Form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

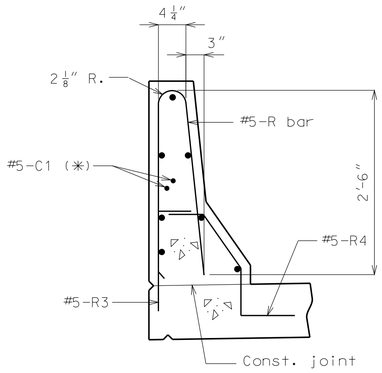


PART PLAN SHOWING SAFETY BARRIER CURB JOINT



PART SECTION SHOWING RUSTICATION DETAILS

RUSTICATION DETAIL
(Use on highway grade separation only)



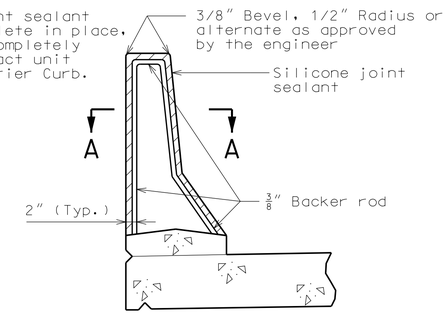
PART SECTION B-B

Note:

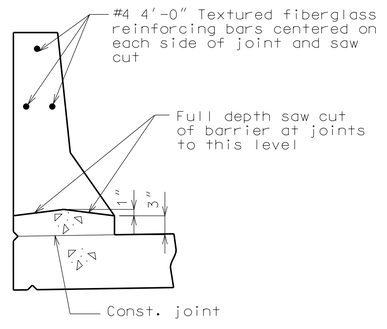
(*) Each side of joint location.

Note:

Cost of silicone joint sealant and backer rod, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb.



SECTION THRU JOINT



PART SECTION C-C

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

(Left barrier curb shown, right barrier curb similar.)

Detailed Nov. 2012
Checked Nov. 2012

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-635 | STATE MO
DISTRICT BR | SHEET NO. 11
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24333

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

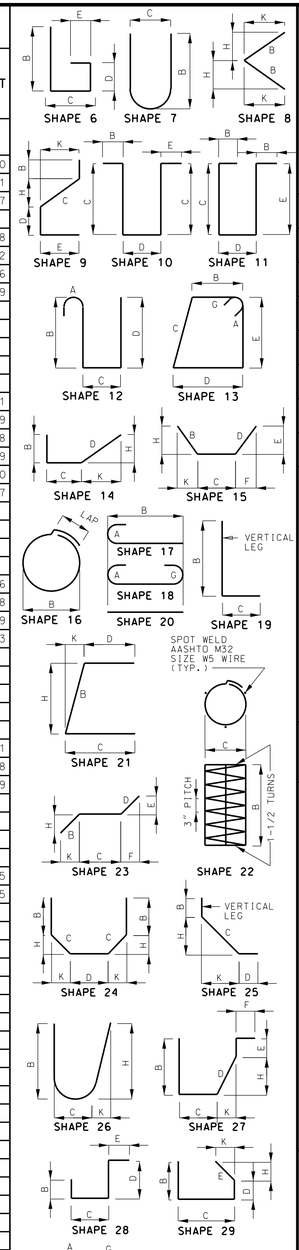
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

BILL OF REINFORCING STEEL

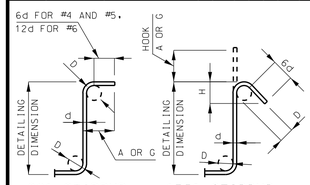
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SLAB																									
1306	5	S1	SLAB	E	20					26	5.000													26	5	26	5	35984
68	5	S2	SLAB	E	20			V	2	24	10.000													24	10	24	10	
			INCREMENT =							2	0.000													2	0	2	0	952
			8.250 INCH																									
1298	6	S3	SLAB	E	20					26	5.000													26	5	26	5	51502
68	6	S4	SLAB	E	20			V	2	24	10.000													24	10	24	10	
			INCREMENT =							2	0.000													2	0	2	0	1370
			8.250 INCH																									
924	7	S5	SLAB	E	20					58	0.000													58	0	58	0	109542
18	7	S6	SLAB	E	20			V	2	17	6.000													17	6	17	6	
			INCREMENT =							9	10.000													9	10	9	10	503
			11.500 INCH																									
18	7	S7	SLAB	E	20			V	2	51	1.000													51	1	51	1	
			INCREMENT =							48	11.000													48	11	48	11	1840
			3.250 INCH																									
48	7	S8	SLAB	E	20			V	2	30	2.000													30	2	30	2	
			INCREMENT =							18	0.000													18	0	18	0	2363
			6.375 INCH																									
48	7	S9	SLAB	E	20			V	2	48	9.000													48	9	48	9	
			INCREMENT =							45	7.000													45	7	45	7	4628
			1.625 INCH																									
18	7	S10	SLAB	E	20			V	2	39	1.000													39	1	39	1	
			INCREMENT =							30	8.000													30	8	30	8	1283
			12.625 INCH																									
18	7	S11	SLAB	E	20			V	2	45	5.000													45	5	45	5	
			INCREMENT =							44	0.000													44	0	44	0	1645
			2.125 INCH																									
98	7	S12	SLAB	E	20					16	0.000													16	0	16	0	3205
6	6	S13	SLAB	E	20					31	9.000													31	9	31	9	286
			BARRIER CURB																									
125	5	K1	BARRIER CURB	E	19	S				3	1.000	5.125												3	6	3	5	445
125	5	K2	BARRIER CURB	E	14	S					5.125	19.125		18.000				2.000		17.875				3	6	3	5	445
56	5	K3	BARRIER CURB	E	20					5	7.000													5	7	5	7	326
38	4	K4	BARRIER CURB	E	20					11	2.000													11	2	11	2	283
4	5	K5	BARRIER CURB	E	8					2	2.125							2	2.000		2.375			4	4	4	4	18
12	4	K6	BARRIER CURB	E	20					17	2.000													17	2	17	2	138
1354	5	R1	BARRIER CURB	E	26					2	6.000	4.250	2	6.125				2	6.000		3.000			5	2	5	2	7296
1354	5	R3	BARRIER CURB	E	19	S					17.000	6.000												0	23	0	22	2589
1354	5	R4	BARRIER CURB	E	27	S						6.000		11.250		7.000		12.000		9.250		6.375		3	0	2	10	4001
170	5	R5	BARRIER CURB	E	20					9	9.000													9	9	9	9	1729
7	5	R6	BARRIER CURB	E	20					47	3.000													47	3	47	3	345
7	5	R7	BARRIER CURB	E	20					53	5.000													53	5	53	5	390
14	5	R8	BARRIER CURB	E	20					42	0.000													42	0	42	0	613
14	5	R9	BARRIER CURB	E	20					44	6.000													44	6	44	6	650
14	5	R10	BARRIER CURB	E	20					14	0.000													14	0	14	0	204
7	5	R11	BARRIER CURB	E	20					55	11.000													55	11	55	11	408
14	5	R12	BARRIER CURB	E	20					47	6.000													47	6	47	6	694
7	5	R13	BARRIER CURB	E	20					49	10.000													49	10	49	10	364
7	5	R14	BARRIER CURB	E	20					43	1.000													43	1	43	1	315
7	5	R15	BARRIER CURB	E	20					49	2.000													49	2	49	2	359
7	5	R16	BARRIER CURB	E	20					55	11.000													55	11	55	11	408
14	5	R17	BARRIER CURB	E	20					54	10.000													54	10	54	10	801
14	5	R18	BARRIER CURB	E	20					43	8.000													43	8	43	8	638
7	5	R19	BARRIER CURB	E	20					41	5.000													41	5	41	5	302

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
14	5	R20	BARRIER CURB	E	20					49	4.000													49	4	49	4	720
7	5	R21	BARRIER CURB	E	20					52	3.000													52	3	52	3	381
7	5	R22	BARRIER CURB	E	20					44	10.000													44	10	44	10	327
112	5	C1	SLIP FORM	E	20					10	0.000													10	0	10	0	1168
6	5	C2	SLIP FORM	E	20					11	6.000													11	6	11	6	72
2	5	C3	SLIP FORM	E	20					17	4.000													17	4	17	4	36
4	5	C4	SLIP FORM	E	20					14	2.000													14	2	14	2	59
			TOTALS																									
	4			E																								421
	5			E																								63039
	6			E																								53158
	7			E																								125009
			TOTAL																									0
			TOTAL	E																								241627
			Slab on																									
			Girder																									
	5			E																								36936
	6			E																								53158
	7			E																								125009
			TOTAL																									215103
			Safety																									
			Barrier																									
			Curb																									
	4			E																								421
	5			E																								24768
			TOTAL																									25189
			Slip Form																									
			Option																									
	5			E																								1335
			TOTAL																									1335

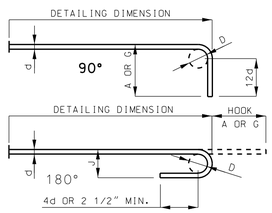


BENDING DIAGRAMS



STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES		
		180° HOOKS		90° 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"

TWO ADDITIONAL #7-S12, #6-S13, #4-K4 & #5-R5 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:

ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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 FABRICATORS 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.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-635 | STATE MO
DISTRICT BR | SHEET NO. 12
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24333

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

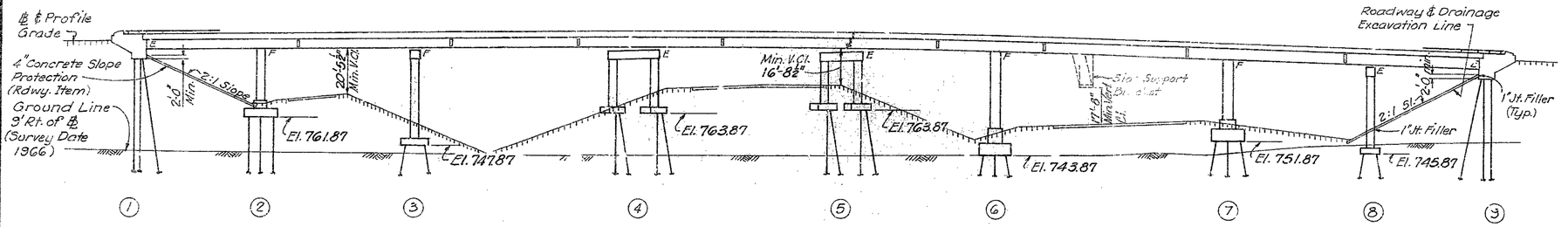
Detailed Nov. 2012
Checked Nov. 2012

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	Mo.		19	13	

P.C. Sta. 16+14.59 +2.39% P.I. Sta. 19+14.59 -4.44% P.T. Sta. 22+14.59
El. 806.70
600' V.C.
(58'-75'-114'-35½')(5'-69'-114'-71'-54') Cont. Comp. ℄ Girder Spans



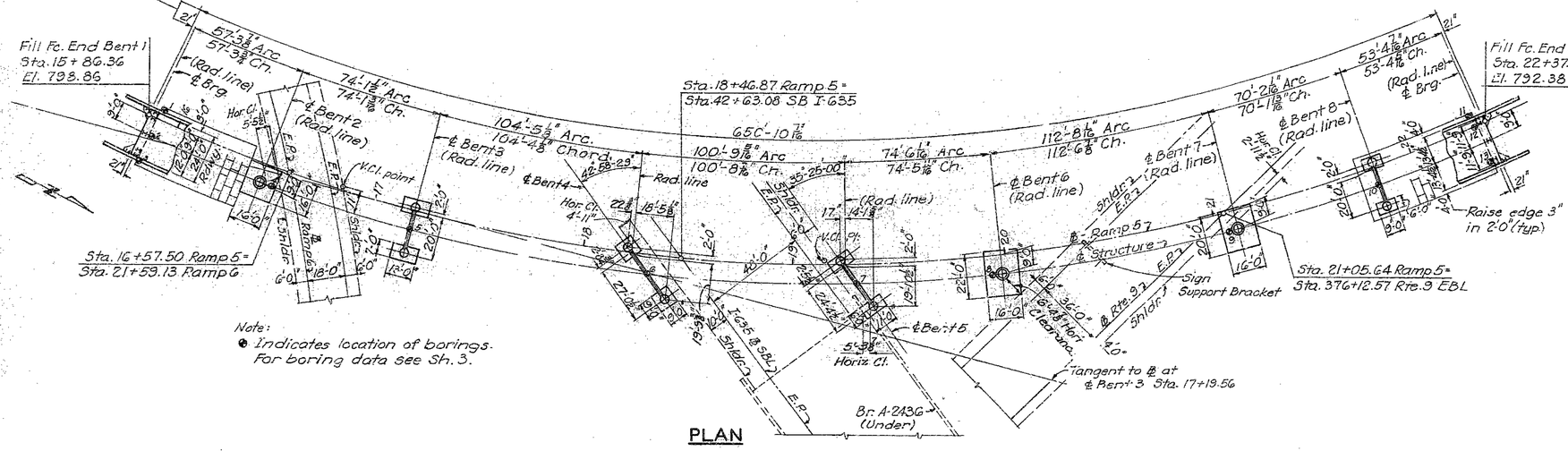
ELEVATION

Note: Bents can not be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords. For substructure layout see Sheet 2.

Ramp 5 Curve Data
P.I. Sta. 24+34.23
Δ = 104°51'-13" Lt.
D = 7°-30'
T = 992.96'
L = 1398.04'
R = 763.94'
S.E. = .08'/ft.

Note: Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 25' in back of End Bents 1 & 9 and up to Roadway & Drainage Excavation Line at Bents 2, 3, 4, 5 & 7 before piles are driven.

Horizontal dimensions along ℄ Ramp 6



Note:
● Indicates location of borings. For boring data see Sh. 3.

PLAN

GENERAL NOTES

Design Specifications: AASHO 1969

Design Loading:
HS20-44

Earth 120# Equivalent Fluid Pressure 30#
Fatigue Stress - Case 1

Design Unit Stresses:

Class B Concrete (substructure)	fc = 1,200 psi
Class B1 Concrete (superstructure)	fc = 1,600 psi
Reinforcing Steel	fs = 20,000 psi
Structural Steel (ASTM . 36)	fs = 20,000 psi
Structural Steel (ASTM A572) Grade 50	fs = 27,000 psi
Steel Pile	fb = 9,000 psi

Field connections, High Strength Bolts ⅞", holes 15/16" except as noted.

Paint: Shop none; Field, by contractor in accordance with Std. Spec. 712.12.

Minimum clearance to reinforcing steel shall be 1½" unless otherwise shown.

All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least ½".

PILE DATA

Bent No.		1	2	3	4	5	6	7	8	9
Pile Type & Size		10BP42	12BP53	10BP42	10BP42	10BP42	12BP53	12BP53	10BP42	10BP42
Number each Bent		7	9	12	16	10	12	12	8	8
Approximate Length	Ft.	105	80	52	62	62	40	32	20	45
Design Bearing	Tons	53	61	54	49	48	70	66	39	43
Hammer Energy	Ft. Lbs.	13,200	13,720	12,200	11,000	10,800	15,800	14,900	8,800	9,900

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

ESTIMATED QUANTITIES

Items		Substr.	Superstr.	Totals
Class 1 Excavation	Cu.Yd.	810		810
Structural Steel Piles (10")	Lin.Ft.	3,491		3,491
Structural Steel Piles (12")	Lin.Ft.	1,584		1,584
Class B Concrete	Cu.Yd.	468.1		468.1
Class B1 Concrete	Cu.Yd.		631.5	631.5
Reinforcing Steel	Lb.	56,290	202,180	258,470
Fabricated Structural Carbon Steel	Lb.		353,950	353,950
Fabricated Structural Low Alloy Steel	Lb.		91,860	91,860
Painting	Ton		259.5	259.5
Bridge Rail (one tube)	Lin.Ft.		1,356	1,356
Stl. Reinf. Elastomeric Exp. Joint Type A	Lin.Ft.		52	52
Stl. Reinf. Elastomeric Exp. Joint Type B	Lin.Ft.		32	32
Fabricated Sign Support Brackets	Lump Sum		1	1
Conduit System on Structure	Lump Sum		1	1
Coal Tar Interlayer Protective Coat	Sq.Yd.		1,740	1,740
Special Type "D" Mixture (Asphalt Conc.)	Ton		119	119
Fab. Struct. Carbon Steel (Substr.)	Lb.	84,300		84,300
Fab. Struct. Low Alloy Steel (Substr.)	Lb.	7,250		7,250

Note: Payment for Fabricated Structural Steel, superstr, will be based on welded field splices regardless of type used.

All concrete and reinforcement in end posts, parapets, and curbs is included with superstructure quantities.

Bench Marks:
B.M. 11 Elev. 751.71 Top center bolt in motor car set off ℄ E. end S. track 70' Rt. Sta. 20+28 S.B. I-635.
B.M. 12 Elev. 756.36 Chisled □ on N.W. cor. culvt. ndwll. 25' Lt. Sta. 45+45 N.B. I-635.

BRIDGE: RAMP 5 OVER RAMP 6, I-635 S.B.L. AND RTE. 9 E.B.L.
STATE ROAD - INTERSTATE ROUTE 635
IN RIVERSIDE
PROJECT NO. I-IG-635-1(75)(RTE. I-635) STA. 15+86.36
PLATTE COUNTY

DESIGNED JAN. 1970 BY H&C
DETAILED JAN. 1970 BY JER
CHECKED MAY 1970 BY FJD

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

Sheet No. 1 of 23.

STATE OF MISSOURI — F. M. CORTELYOU, JR. — NUMBER E-4155 — REGISTERED PROFESSIONAL ENGINEER

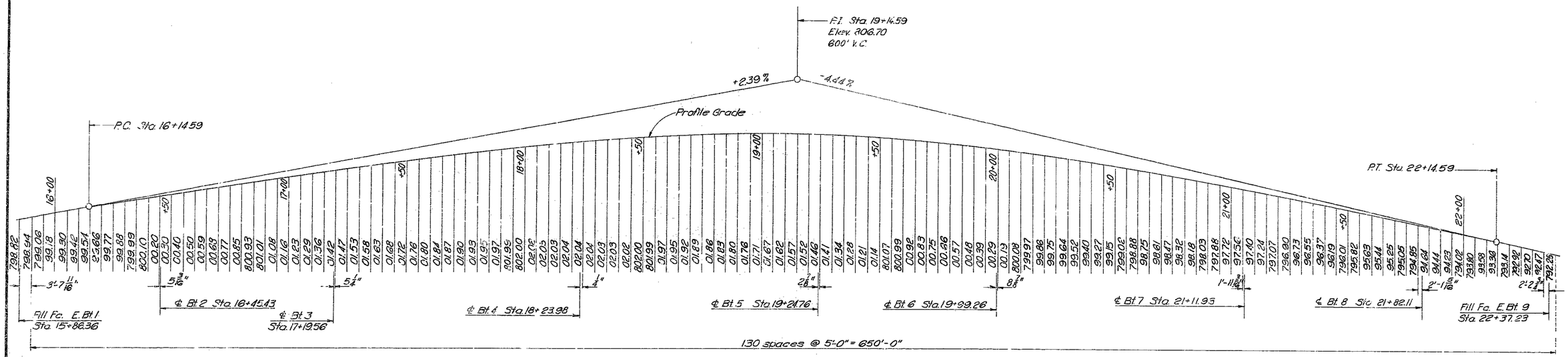
SUBMITTED BY W. D. Carney BRIDGE ENGINEER DATE 1-24-72
APPROVED BY Robert L. Newton CHIEF ENGINEER DATE 1-24-72
HARRINGTON AND CORTELYOU CONSULTING ENGINEERS KANSAS CITY, MO.

DWG. 903.09	
DWG. 611.60	
DWG. 706.30A	
A-2433	

180

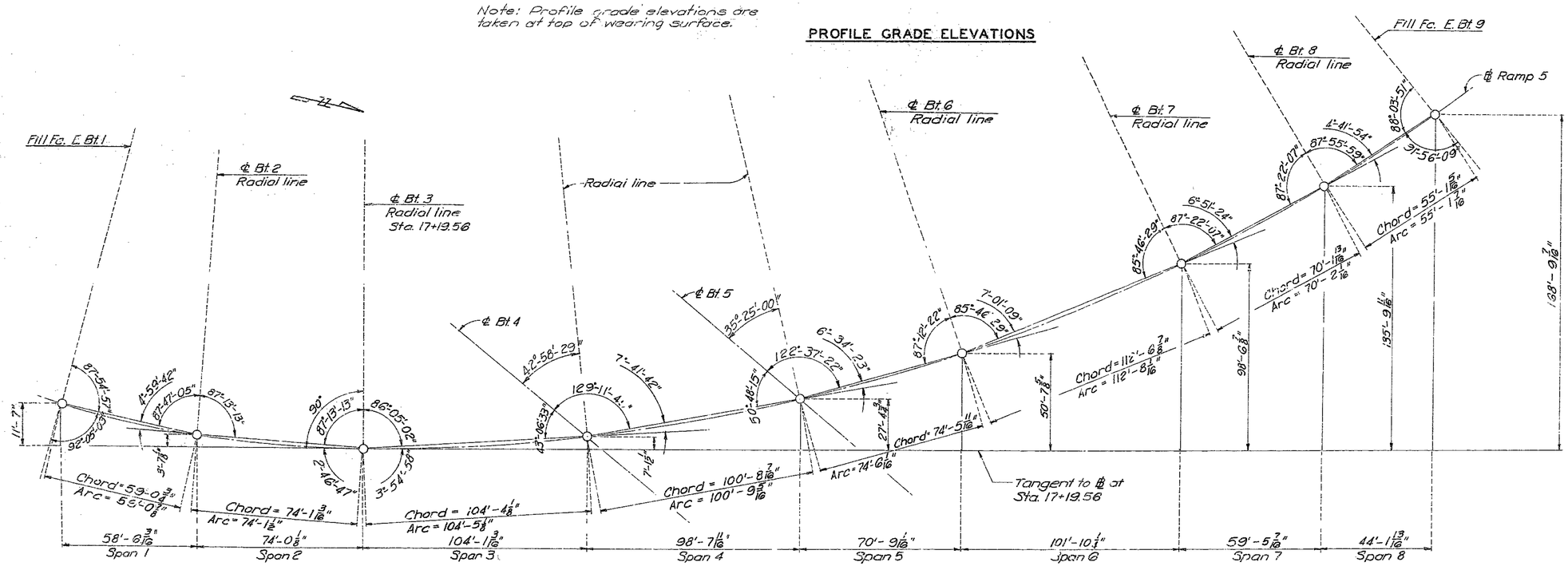
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	70	



Note: Profile grade elevations are taken at top of wearing surface.

PROFILE GRADE ELEVATIONS



SUBSTRUCTURE LAYOUT

All dimensions are horizontal

181

DETAILED Dec. 1969 BY BS
CHECKED May 1970 BY FJD

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

Sheet No. 2 of 23.

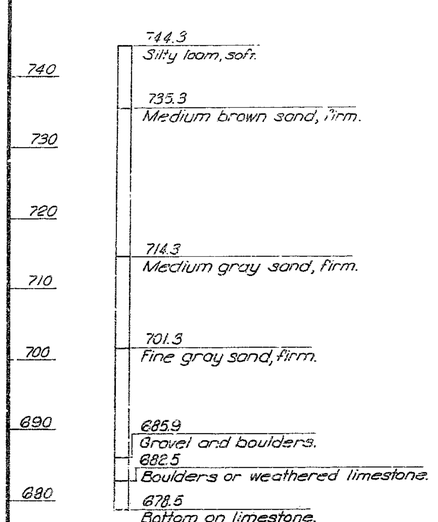
PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-24133

MISSOURI STATE HIGHWAY DEPARTMENT

F.I.D. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	71	



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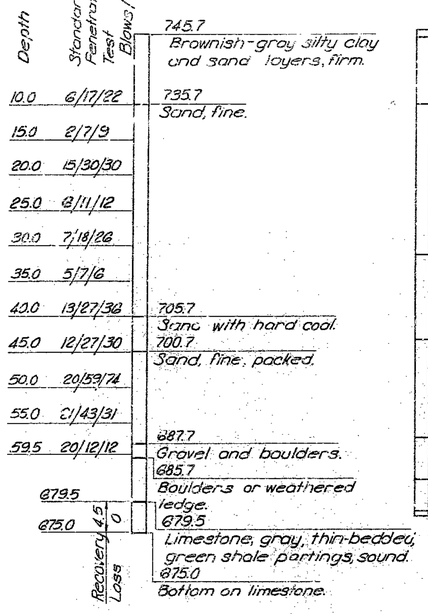

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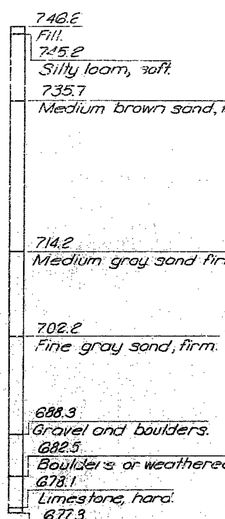

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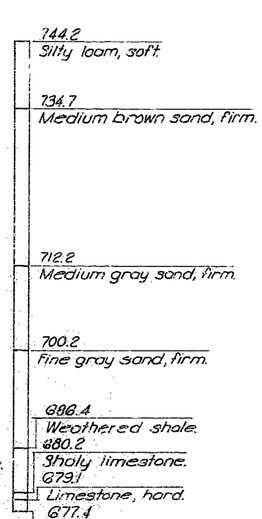

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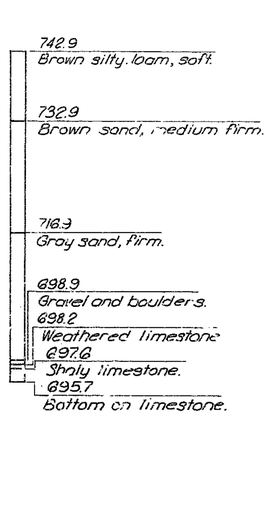

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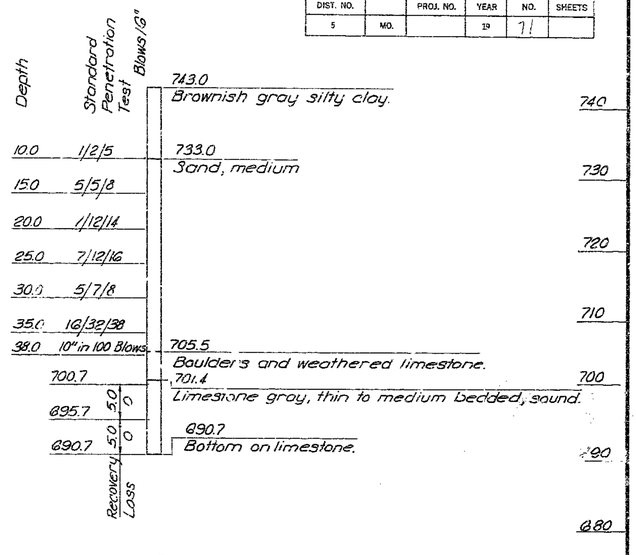

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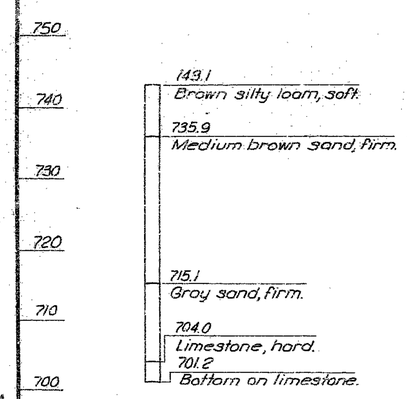

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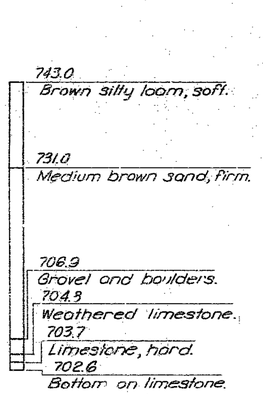

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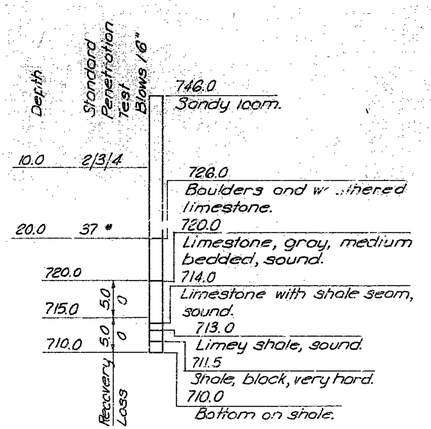

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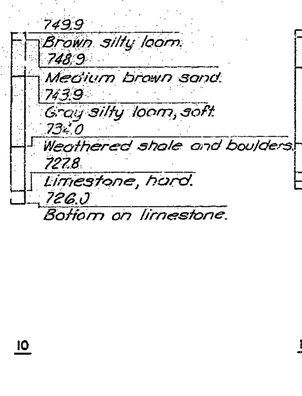

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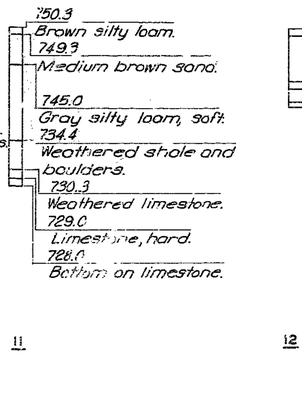

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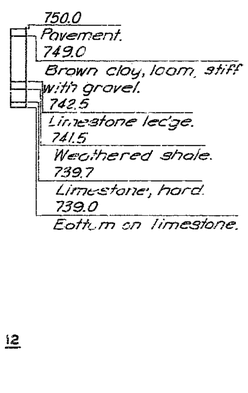

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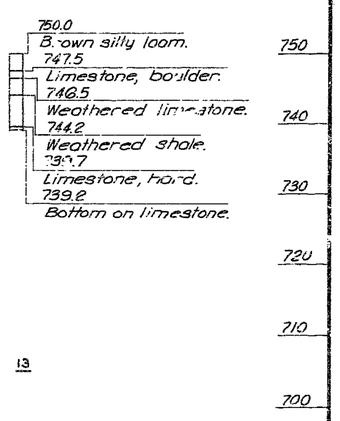


13

* Discontinued, boulders.

Note:
See Sh. 1 for location of borings.

BORING DATA

PLATTE COUNTY

182

DETAILED Dec. 1969 BY B.S.
CHECKED May 1970 BY F.J.D

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

Sheet No. 3 of 23 .

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

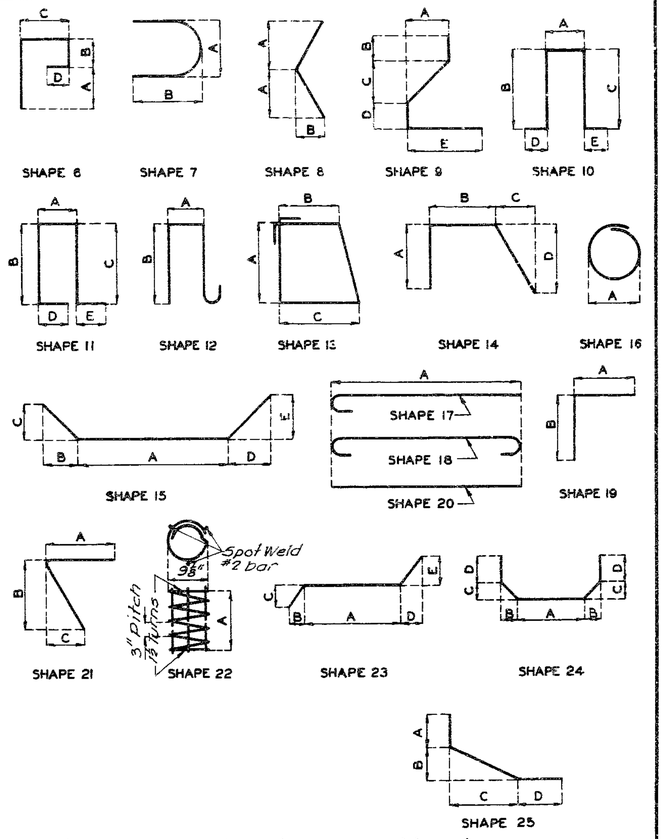
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	17	

NO. REQD.	MARK NO. SIZE MARK	LOCATION	SHAPE NO.	TIE OR STIR.	SUBSTR.	VARIES NO. EA.	DIMENSIONS A FT. IN.	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	LENGTH FT. IN.	WEIGHT LBS.
		END BENTS 1&9											
28	#6 F1	Fillets	15		S		4'-4"	0'-8½"	0'-8½"	0'-8½"	0'-8½"	6'-2"	
8	6H1	Beam & Backwall	20		S		26-2					26-2	
16	4H2	Backwall	20		S		26-2					26-2	
16	6H3	Beam	18		S		26-2					27-6	
8	6T2	Wings	19		S		3-4	8-0				11-2	
58	4U1	Beam	13	T	S		2-8	2-9	3-2½			11-10	
16	4U2	"	10	T	S		2-8	0-6	0-6			3-6	
20	7U3	Beam	14		S		5-7	1-10	5-7	5-7		15-0	
24	4U4	Wings	10	T	S		0-6	2-10	2-10			6-0	
100	5V1	Backwall	20		S		8-8					8-8	
8	6V2	Beam	20		S		2-8					2-8	
40	5V3	Wings	20		S		8-10					8-10	
8	4V5	Wings	20		S		7-8					7-8	
8	2W1	Anchor Bolt Wells	22		S		1-3					23-0	
4	6H4	Wings, End Bt. 1	20		S		14-8					14-8	
20	6H5	" "	20		S	V 4	13-10½					13-10½	
		Increment = 1'-8⅝"					6-11					6-11	
1	6T1	Wings, End Bt. 1	25		S		1-9	5-6½	9-7	1-9		14-5	
40	4V4	" "	20		S	V 4	7-5¾					7-5¾	
		Increment = 7 3/16 inches					2-1					2-1	
2	6H4	Wings, End Bt. 9	20		S		14-8					14-8	
10	6H6	" "	20		S	V 2	13-9½					13-9½	
		Increment = 1'-10⅛"					6-5					6-5	
4	6H7	Wings, End Bt. 9	20		S		20-8					20-8	
2	6H8	" "	20		S		3-11					3-11	
2	6H9	" "	20		S		19-3					19-3	
2	6H10	" "	20		S		17-3					17-3	
2	6H11	" "	20		S		16-7					16-7	
2	6H12	" "	20		S		13-3					13-3	
2	6H13	" "	20		S		11-3					11-3	
2	6H14	" "	20		S		5-11					5-11	
2	6T3	" "	25		S		1-9	5-2	9-7	1-9½		14-3	
2	6T4	" "	25		S		1-9	7-9	15-6	1-9		20-8	
20	4V6	" "	20		S	V 2	7-4					7-4	
		Increment = 7 inches					2-1					2-1	
18	4V7	Wings, End Bt. 9	20		S	V 2	10-6					10-6	
		Increment = 6½ inches					6-2					6-2	
3	4V8	Wings, End Bt. 9	20		S		6-10					6-10	
8	4V9	" "	20		S	V 2	4-0					4-0	
		Increment = 6½ inches					2-4½					2-4½	
3	6V10	Wings, End Bt. 9	20		S		7-4					7-4	
50	5V82	Backwall	10		S		0-9	2-1¼	2-1¼			4-10	

NO. REQD.	MARK NO. SIZE MARK	LOCATION	SHAPE NO.	TIE OR STIR.	SUBSTR.	VARIES NO. EA.	DIMENSIONS A FT. IN.	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	LENGTH FT. IN.	WEIGHT LBS.
		BENT 2											
4	5B7	Footing	16		S		6-6					21-6	
24	9B8	"	20		S		14-3					14-3	
2	9B9	Footing	10		S		14-0	8-2	8-2			29-10	
10	5B10	"	20		S		3-10					3-10	
		BENT 6											
8	5B1	Footing	16		S		7-6					24-8	
18	7B2	"	20		S		14-3					14-3	
14	9B3	"	20		S		20-3					20-3	
2	9B5	Footing	10		S		20-0	8-2	8-2			35-10	
12	5B11	"	20		S		7-4					7-4	
		BENT 7											
5	5B1	Footing	16		S		7-6					24-8	
19	7B2	"	20		S		14-3					14-3	
12	9B4	"	20		S		18-3					18-3	
2	9B6	Footing	10		S		18-0	8-2	8-2			33-10	
12	5B12	"	20		S		4-10					4-10	
		BENT 3											
44	11D30	Footing	17		S		5-7					6-9	
16	10F30	Footing	20		S		12-6					12-6	
4	10F31	"	10		S		6-0	7-3	7-3			19-11	
20	5F32	Footing	20		S		6-6					6-6	
8	11H30	Beam	23		S		18-1	3-9¾	0-4½	3-9¾	0-4½	25-8	
8	10H31	"	23		S		18-1	3-9¾	0-4½	3-9¾	0-4½	25-8	
2	6H32	Beam	23		S		18-1	3-9¾	0-4½	3-9¾	0-4½	25-9	
88	3P30	Column	16		S		3-9					12-8	
18	4U30	Beam	13	T	S		3-8½	1-2½	1-2½			10-4	
16	4U31	Beam	10	T	S		2-8	0-6	0-6			3-2	
22	11V30	Column	20		S		42-10					42-10	
22	11V31	Column	20		S		44-7					44-7	
4	2W1	Anchor Bolt Wells	22		S		1-3					23-0	

BENDING DIAGRAMS



Note: All bending dimensions are out to out. Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for detailing reinforced concrete structures.

T- tie or stirrup
S-bar is included in substructure quantities.

Length- Total lengths are measured along centerline bar to the nearest inch.

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.

REVISED	SEPT. 1969
STD. 90.7	JULY 1969

183

Drawn Feb 1970 by BS
Checked May 1970 by FJD

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

PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

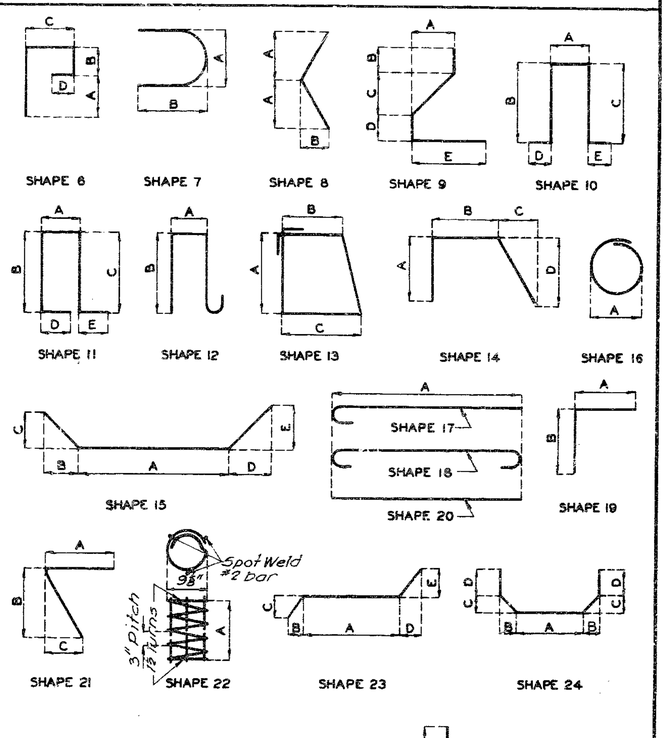
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	12	

NO. REQD.	MARK NO. SIZE	MARK	LOCATION	SHAPE NO.	TIE OR STIR.	SUBSTR.	VARIES	NO. EA.	DIMENSIONS A FT. IN.	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	LENGTH FT. IN.	WEIGHT LBS.
			BENT 4												
44	11	D40	Footing	20		S			5'- 8"					5'-8"	
4	7	F40	Footing	10		S			8 - 0	5 - 0	5 - 0			17-8	
24	7	F41	Footing	20		S			8 - 6					8-6	
8	10	H40	Beam	23		S			25 - 11	3 - 9	0 - 3	3 - 9	0 - 3	33-5	
4	9	H41	"	23		S			25 - 11	3 - 9	0 - 3	3 - 9	0 - 3	33-5	
2	6	H42	Beam	23		S			25 - 11	3 - 9	0 - 3	3 - 9	0 - 3	33-5	
56	3	P40	Column	16		S			3 - 3					10-10	
26	4	U40	Beam	13	T	S			3 - 8½	1 - 2½	1 - 2½			10 - 4	
16	4	U41	Beam	10	T	S			2 - 8	0 - 6	0 - 6			3-6	
22	11	V40	Column	20		S			26 - 8					26-8	
22	11	V41	Column	20		S			28 - 4					28-4	
4	2	W1	Anchor Bolt Wells	22		S			1 - 3					23-0	
			BENT 5												
42	9	D50	Footing	20		S			4 - 8					4 - 8	
4	10	F50	Footing	10		S			10 - 0	3 - 9½	3 - 9½			17-0	
12	5	F51	"	20		S			5 - 6					5-6	
12	10	F52	Footing	20		S			10 - 6					10-6	
8	10	H50	Beam	23		S			23-6½	3 - 1⅜	0 - 2½	3 - 1⅜	0 - 2½	29-10	
2	6	H51	Beam	23		S			23-6½	3 - 1⅜	0 - 2½	3 - 1⅜	0 - 2½	29-10	
51	3	P50	Column	16		S			3 - 3					10-10	
24	4	U50	Beam	13	T	S			3 - 8½	1 - 2½	1 - 2½			10-4	
14	4	U51	Beam	10	T	S			2 - 4	0 - 6	0 - 6			3-2	
21	9	V50	Column	20		S			24 - 3					24-3	
21	9	V51	Column	20		S			25 - 10					25-10	
4	2	W1	Anchor Bolt Wells	22		S			1 - 3					23-0	

NO. REQD.	MARK NO. SIZE	MARK	LOCATION	SHAPE NO.	TIE OR STIR.	SUBSTR.	VARIES	NO. EA.	DIMENSIONS A FT. IN.	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	LENGTH FT. IN.	WEIGHT LBS.
			BENT 8												
42	11	D80	Footing	17		S			5' - 7"					6'- 9"	
4	7	F80	Footing	10		S			8 - 0	3 - 6	3 - 6			14 - 8	
6	5	F81	"	20		S			5 - 6					5-6	
14	7	F82	Footing	20		S			8 - 6					8-6	
8	11	H80	Beam	23		S			18 - 8¾	3 - 1½	0' - 3½	3 - 1½	0 - 3½	25-0	
2	6	H81	Beam	23		S			18 - 8¾	3 - 1½	0 - 3½	3 - 1½	0 - 3½	25-0	
78	3	P80	Column	16		S			3 - 3					10-10	
19	4	U80	Beam	13	T	S			3 - 8½	1 - 2½	1 - 2½			10-4	
14	4	U81	Beam	10	T	S			2 - 4	0 - 6	0 - 6			3-2	
21	11	V80	Column	20		S			37 - 6					37-6	
21	11	V81	Column	20		S			39 - 4					39-4	
4	2	W1	Anchor Bolt Wells	22		S			1 - 3					23-0	
			SUPERSTRUCTURE												
1331	5	C1	Curb	10	T				1 - 1½	1 - 2¼	1 - 2¼		0 - 6	3-8	
66	5	C2	"	10	T				1 - 1½	1 - 1¾	1 - 1¼			3-2	
6	6	C3	"	20					14 - 8					14-8	
2	6	C4	"	20					20 - 8					20-8	
2	6	C5	"	20					53 - 2					53-2	
4	6	C6	"	20					35 - 8					35-8	
4	5	C7	"	20					56 - 7					56-7	
4	6	C8	"	20					40 - 10					40-10	
4	5	C9	"	20					48 - 8					48-8	
4	6	C10	"	20					51 - 2					51-2	
4	5	C11	"	20					37 - 4					37-4	
2	6	C12	"	20					57 - 4					57-4	
2	5	C13	"	20					59 - 4					59-4	
4	5	C14	"	20					38 - 7					38-7	
6	5	C15	"	20					43 - 0					43-0	
4	5	C16	"	20					47 - 10					47-10	
4	5	C17	"	20					58 - 6					58-6	
4	5	C18	"	20					36 - 9					36-9	
2	5	C19	"	20					54 - 11					54-11	
4	5	C20	Curb	20					33 - 6					33-6	
8	5	R1	End Post	20					4 - 9					4-9	
4	5	R2	"	10	T				0 - 9	2 - 8⅛	2 - 8⅛			5-11	
4	5	R3	"	10	T				0 - 9	2 - 10½	2 - 10½			6-4	
4	5	R4	"	10	T				0 - 9	3 - 1	3 - 1			6-9	
4	5	R5	"	10	T				0 - 9	3 - 2	3 - 2			6-11	
4	5	R6	"	10	T				0 - 9	3 - 2¾	3 - 2¾			7-0	
4	5	R7	"	10	T				0 - 9	3 - 3⅜	3 - 3⅜			7-1	
4	5	R8	End Post	10	T				0 - 9	3 - 4⅜	3 - 4⅜			7-3	

BENDING DIAGRAMS



Note: All bending dimensions are out to out.
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for detailing reinforced concrete structures.

T- tie or stirrup
S- bar is included in substructure quantities.
Length- total lengths are measured along centerline bar to the nearest inch.

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.

184

STD. 90.7.	REVISED
JULY 1969	SEPT. 1969

Drawn Feb 1970 by BS
Checked May 1970 by FJD

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

Sheet No. 5 of 23

PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

FOR INFORMATION ONLY **A24333, Sht. 18**

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	24	

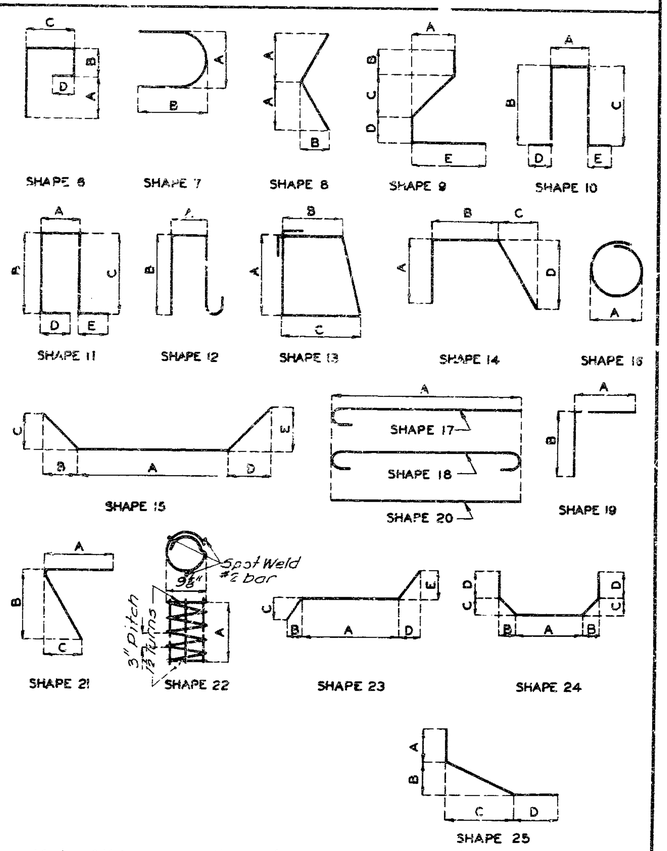
SUPERSTRUCTURE (CONT.)

NO. REQD.	MARK NO. SIZE MARK	LOCATION	SHAPE NO.	TIE OR STIR.	SUBSTR.	VARIES	NO. EA.	DIMENSIONS A FT. IN.	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	LENGTH FT. IN.	WEIGHT LBS.
8	#5R9	End Post	10	T				0'-9"	3'-4 5/8"	3'-4 5/8"			7'-4"	
16	5R10	End Post	10	T				0-7 1/8"	4-9	4-9			9-11	
133'	5R11	Parapet	12	T				0-8 3/8"	2-0 3/8"				5-1	
56	5R12	"	10	T				0-8 1/2"	1-7 7/8"	1-7 1/2"		0-6	4-2	
12	5R13	"	20					10-7					10-7	
4	5R14	"	20					16-7					16-7	
96	5R15	"	20					9-8					9-8	
4	5R16	"	20					43-2					43-2	
4	5R17	"	20					49-10					49-10	
8	5R18	"	20					46-7					46-7	
8	5R19	"	20					14-0					14-0	
8	5R20	"	20					55-10					55-10	
8	5R21	"	20					43-8					43-8	
8	5R22	"	20					41-1					41-1	
4	5R23	"	20					53-4					53-4	
4	5R24	"	20					47-4					47-4	
4	5R25	"	20					49-4					49-4	
8	5R26	"	20					53-11					53-11	
8	5R27	"	20					42-10					42-10	
4	5R28	"	20					41-5					41-5	
8	5R29	"	20					48-5					48-5	
4	5R30	"	20					52-2					52-2	
4	5R31	"	20					45-0					45-0	
648	5S1	Slab	20					26-6					26-6	
1292	5S2	"	20					8-9					8-9	
969	GS3	"	20					26-6					26-6	
96	7S4	"	20					16-0					16-0	
16	GS5	"	23					29-5	0-11 5/8"	0-8 3/4"	0-11 5/8"	0-8 3/4"	31-8	
68	GSG	"	20		V	2		24-8 1/4"					24-8 1/4"	
		Increment = 8 1/4 inches						2-0					2-0	
68	557	Slab	20		V	2		24-8 1/4"					24-8 1/4"	
		Increment = 8 1/4 inches						2-0					2-0	
82	7S8	Slab	20		V	2		29-8					29-8	
		Increment = 3 3/8 inches						16-9					16-9	
18	7S9	Slab	20		V	2		16-5					16-5	
		Increment = 6 1/4 inches						12-3					12-3	
9	7S10	Slab	20					53-0					53-0	
33	7S11	"	20					52-6					52-6	
42	7S12	"	20					51-10					51-10	
45	7S13	"	20					47-2					47-2	
120	7S14	"	20					46-8					46-8	
45	7S15	"	20					46-0					46-0	
3	7S16	"	20					52-4					52-4	
24	7S17	"	20					46-4					46-4	
9	7S18	"	20					51-1					51-1	
9	GS19	"	20					45-9					45-9	
16	7S20	"	20		V	2		8-7					8-7	
		Increment = 6 1/4 inches						4-5					4-5	

SUPERSTRUCTURE (CONT.)

NO. REQD.	MARK NO. SIZE MARK	LOCATION	SHAPE NO.	TIE OR STIR.	SUBSTR.	VARIES	NO. EA.	DIMENSIONS A FT. IN.	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	LENGTH FT. IN.	WEIGHT LBS.
82	7S21	Slab	20		V	2		21'-5"					21-8	
		Increment = 3 3/8 inches						8-3					8-9	
9	7S22	Slab	20					16-2					16-2	
24	7S23	"	20					16-0					16-0	
9	7S24	"	20					15-9					15-9	
9	GS25	"	20					46-0					46-0	
24	GS26	"	20					45-8					45-8	
9	GS27	"	20					44-11					44-11	
36	GS28	"	20					47-4					47-4	
105	GS29	"	20					46-10					46-10	
36	GS30	"	20					46-1					46-1	
9	GS31	"	20					52-1					52-1	
24	GS32	"	20					51-6					51-6	
18	GS33	"	20					55-3					55-3	
9	7S34	"	20					19-6					19-6	
24	7S35	"	20					19-4					19-4	
9	7S36	"	20					19-0					19-0	
9	7S37	"	20					48-7					48-7	
24	7S38	"	20					48-1					48-1	
9	7S39	"	20					47-5					47-5	
9	7S40	"	20					51-0					51-0	
24	7S41	"	20					50-6					50-6	
9	7S42	"	20					49-9					49-9	
48	GS43	"	20					50-9					50-9	
24	7S44	"	20					51-0					51-0	
9	7S45	"	20					50-3					50-3	
9	7S46	"	20					53-10					53-10	
24	7S47	"	20					53-3					53-3	
9	7S48	"	20					56-3					56-3	
24	7S49	"	20					55-8					55-8	
9	7S50	"	20					54-11					54-11	
9	7S51	"	20					46-11					46-11	
24	7S52	"	20					46-5					46-5	
9	7S53	"	20					45-9					45-9	
9	GS54	"	20					32-10					32-10	
24	GS55	"	20					32-6					32-6	
9	GS56	"	20					32-1					32-1	
9	GS57	"	20					49-4					49-4	
24	GS58	"	20					48-10					48-10	
9	GS59	"	20					48-3					48-3	
18	GSG0	"	20					50-0					50-0	
18	GS61	"	20					56-6					56-6	
48	GSG2	"	20					56-0					56-0	
9	GSG3	"	20					50-10					50-10	
18	GSG4	Slab	20					51-3					51-3	
56	5SG5	"	17					1-8					2-3	
56	5SG6	"	17					2-1					3-6	

BENDING DIAGRAMS



Note: All bend dimensions are out to out. Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for detailing reinforced concrete structures.

T~ tie or stirrup 5~ bar is included in substructure quantities.

Length~ Total lengths are measured along centerline bar to the nearest inch.

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.

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STD. 90.7 JULY 1969 REVISED SEPT. 1969

Drawn Feb 1970 by BS
Checked May 1970 by FJD

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

Sheet No. 6 of 23

PLATTE COUNTY

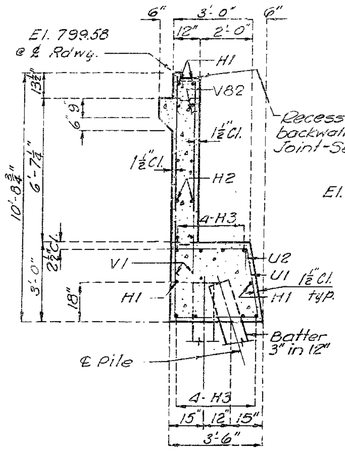
HARRINGTON AND CORTELYOU CONSULTANTS KANSAS CITY, MO.

A-2433

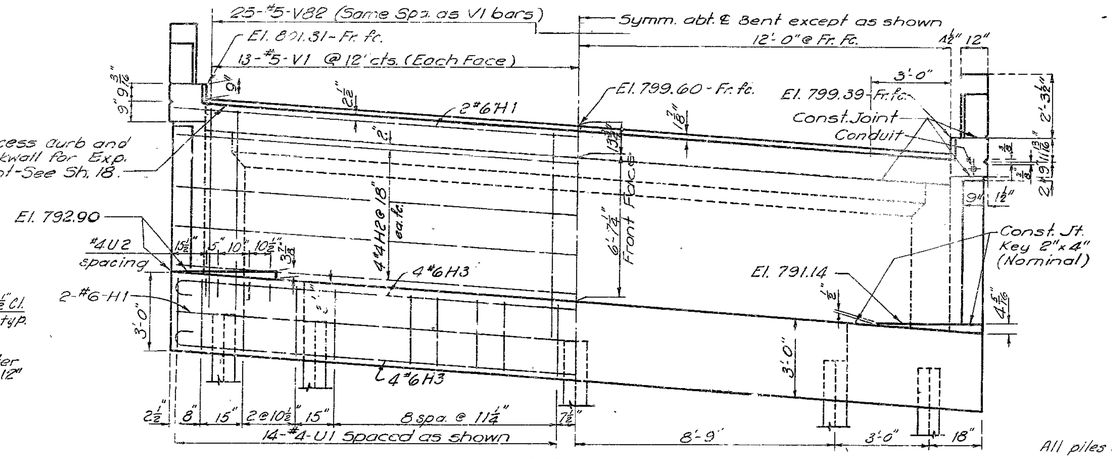
FOR INFORMATION ONLY **A24333, Sht. 19**

MISSOURI STATE HIGHWAY DEPARTMENT

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO		19	17	

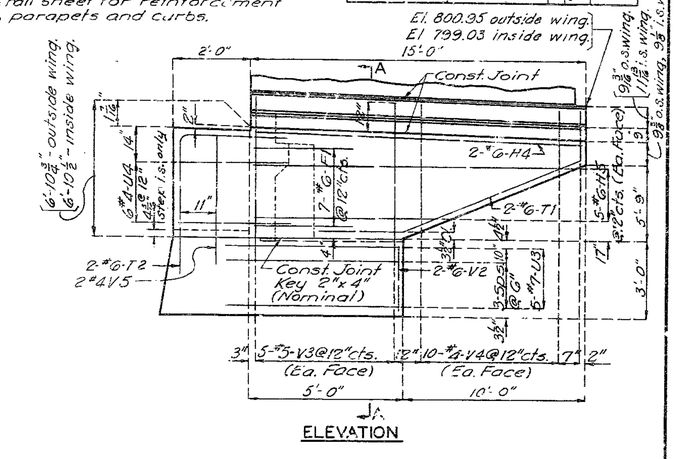


SECTION AT ℄



ELEVATION

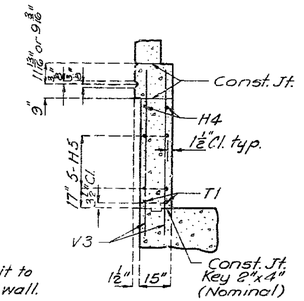
Note: See bridge rail sheet for reinforcement of end posts, parapets and curbs.



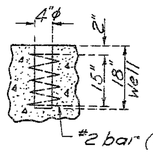
ELEVATION

All piles are 10BP42.

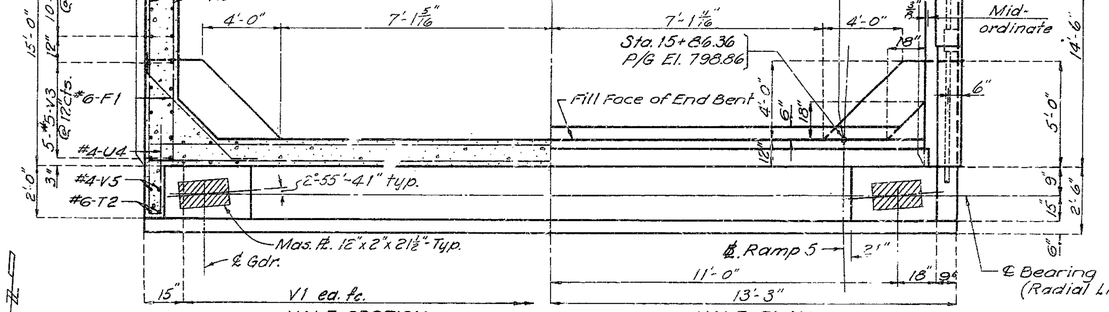
Note:
For End Bent notes see Sh. 10.
Backwall above upper construction joint shall not be poured until the structural steel of the expansion device has been installed and the slab has been poured in the adjacent span.

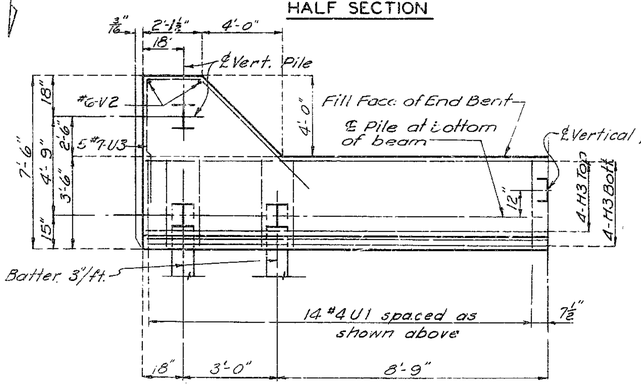


PART SECTION A-A

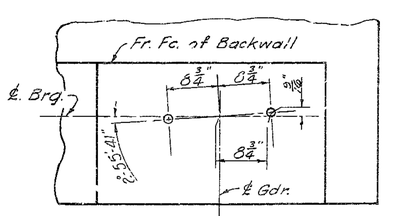


ANCHOR BOLT WELL

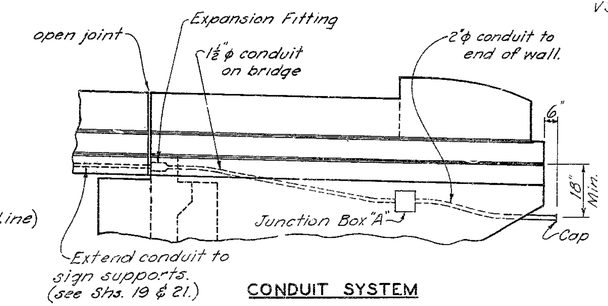




HALF PLAN OF BEAM
(BELOW LOWER CONSTRUCTION JOINT)



ANCHOR BOLT LAYOUT



CONDUIT SYSTEM

Conduit System Notes:-

All conduit to be rigid galvanized steel with 2¾" minimum cover in concrete.

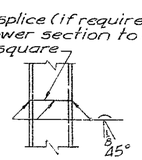
Shift reinforcing steel in field where necessary to clear conduit and junction boxes. Do not cut reinforcing steel.

Wiring and fixtures to be furnished and installed by others.

Galvanized Expansion Fittings shall provide a minimum movement in either direction of 4" at open joints. Fittings shall be equal to O.Z. Elec. Mgf. Co. Expansion Fittings "EX" with approved bonding jumper.

All junction boxes in end bent and bridge slab shall be flush mounted and equal to O.Z. Mgf. Co. Type "YR". Wall thickness to be sufficient to provide 5 full threads for watertight conduit joint. Junction boxes required: 2 Boxes "A", 10"x10"x6", and 1 Box "B", 6"x4"x4".

For additional details for conduit system see Sheets 19, 20, & 21.



STEEL PILE SPLICE

STD. 121.A	REVISED
APRIL 1965	APRIL 1969

DETAILED DEC. 1969 BY DHL.
CHECKED MAY 1970 BY FLD

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

DETAILS OF END BENT NO. 1

PLATTE COUNTY

Sheet No. 7 of 23.

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

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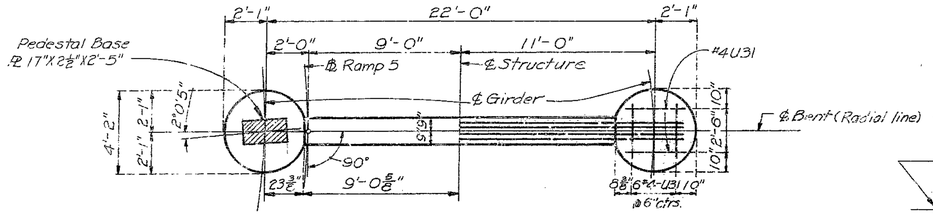
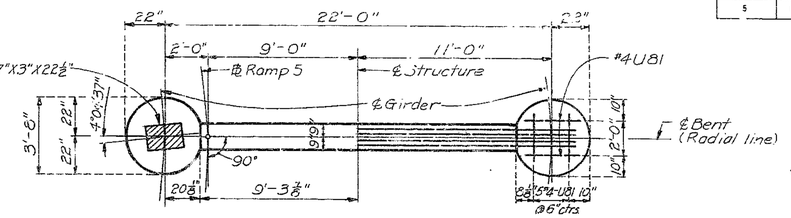
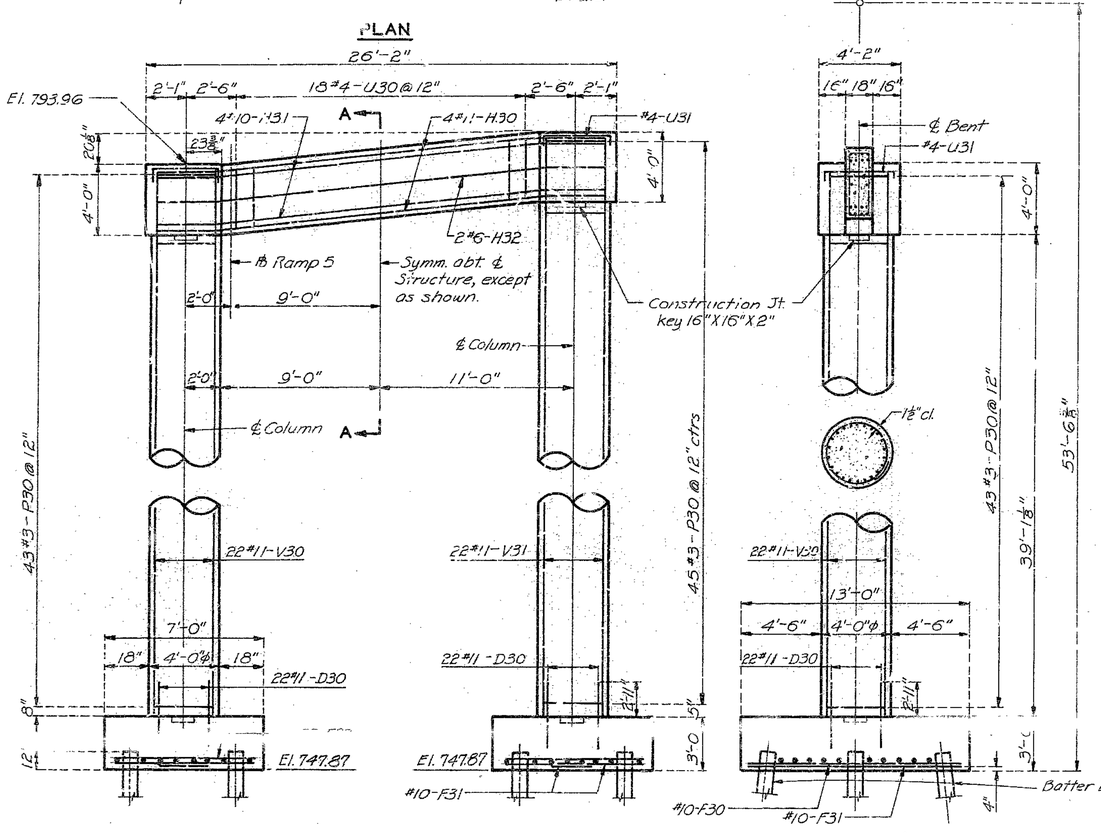
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	F.SCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	7[illegible]	

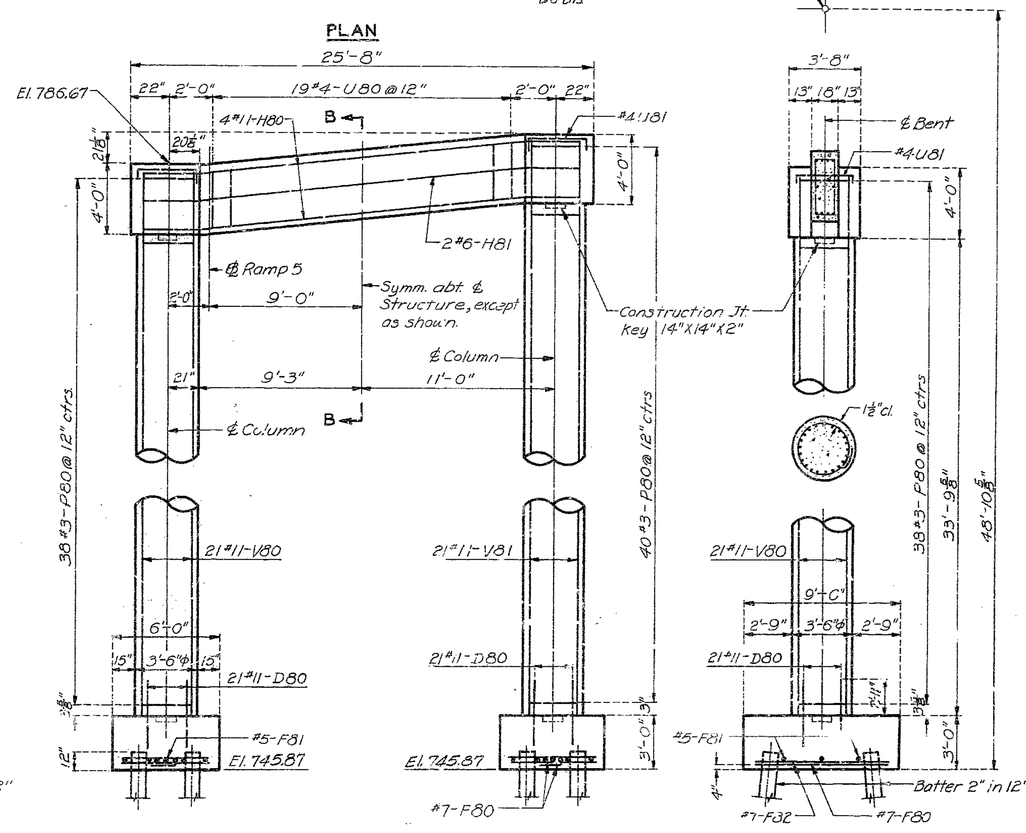






ELEVATION

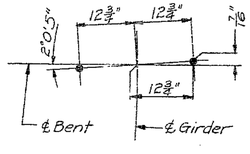
SECTION AT ℄



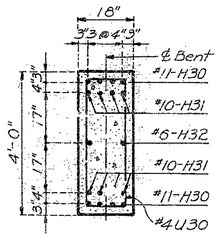
ELEVATION

SECTION AT ℄

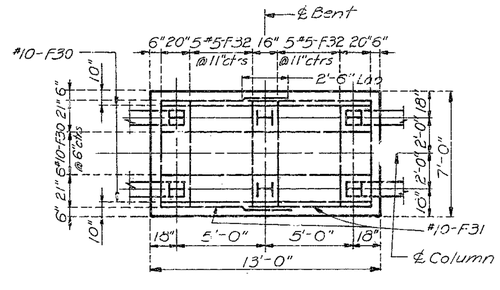
Notes:
All piles are 10 BP 42.
For Anchor Bolt Well, see Sheet No. 7.



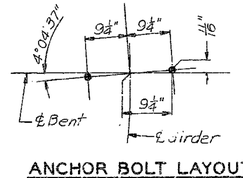
ANCHOR BOLT LAYOUT
(INT. BT. 3)



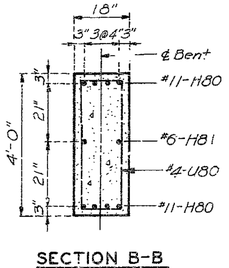
SECTION A-A



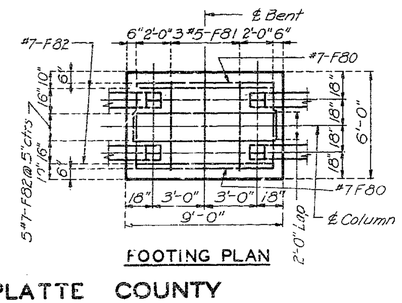
FOOTING PLAN



ANCHOR BOLT LAYOUT
(INT. BT. 6)



SECTION B-B



FOOTING PLAN

PLATTE COUNTY

DETAILED DEC. 1969 BY RPC
CHECKED MAY 1970 BY DHL

DETAILS OF INTERMEDIATE BENT NO. 3

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

DETAILS OF INTERMEDIATE BENT NO. 8

Sheet No. 8 of 23.

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

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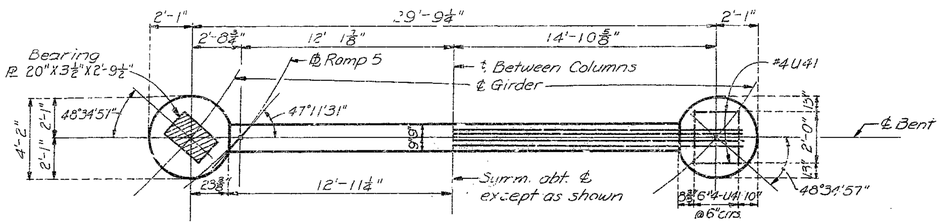
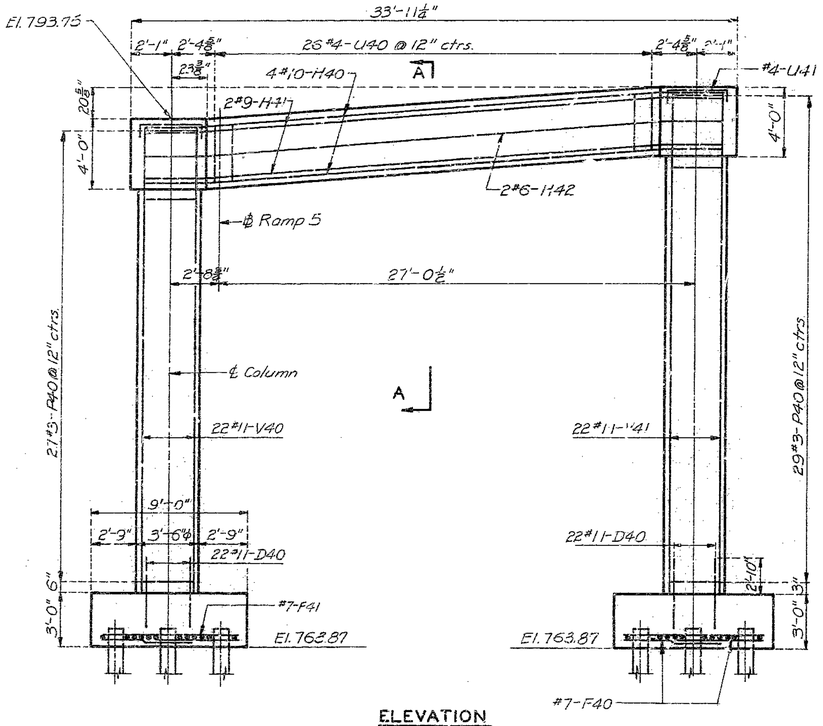
MISSOURI STATE HIGHWAY DEPARTMENT

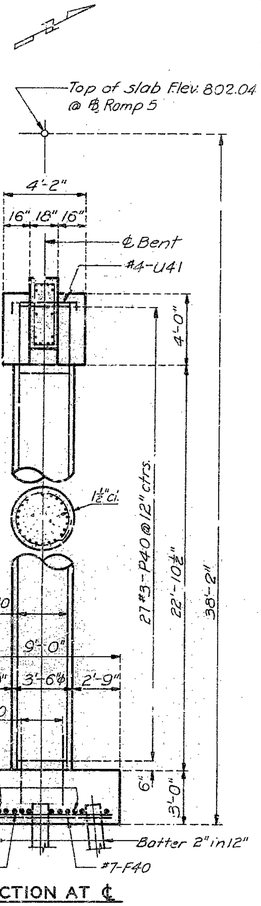
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	77	



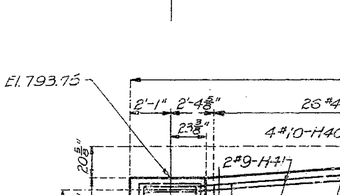
PLAN



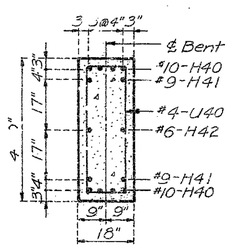
ELEVATION



SECTION AT ℄

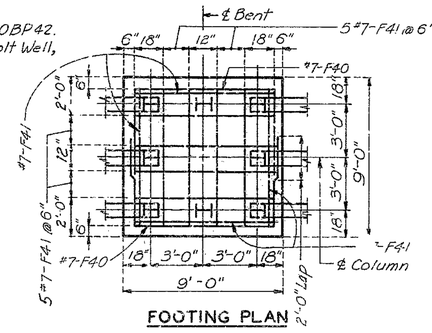


ANCHOR BOLT LAYOUT
(INT. BT. 4)



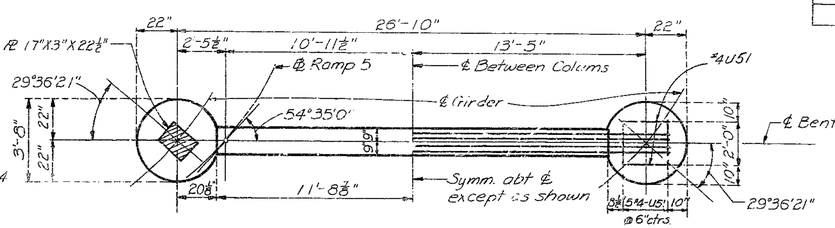
SECTION A-A

Notes:
All piles are 10BP42.
For Anchor Bolt Well, see Sheet No. 7.

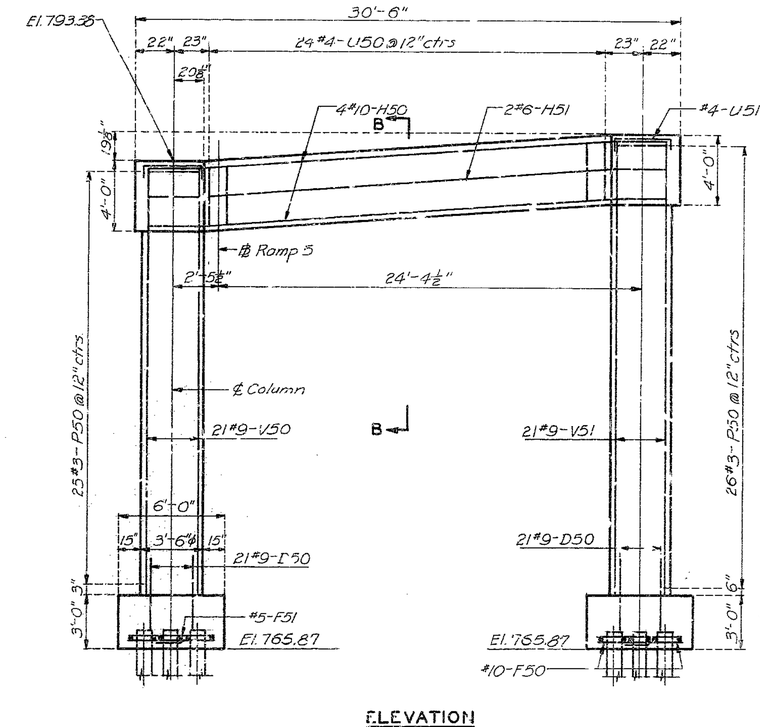


FOOTING PLAN

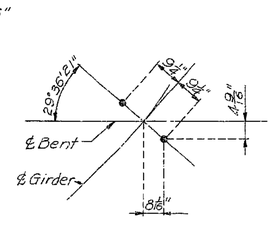
DETAILS OF INTERMEDIATE BENT NO. 4



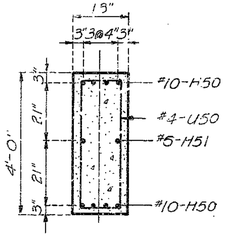
PLAN



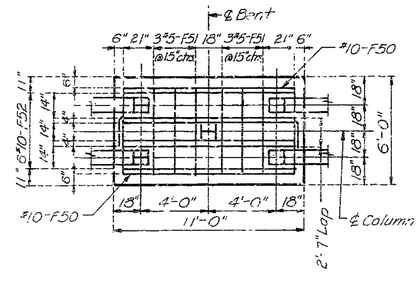
ELEVATION



ANCHOR BOLT LAYOUT
(INT. BT. 5)



SECTION B-B



FOOTING PLAN

DETAILS OF INTERMEDIATE BENT NO. 5

PLATTE COUNTY

DETAILED DEC. 1969 BY RPC
CHECKED MAY 1970 BY DHL

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

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

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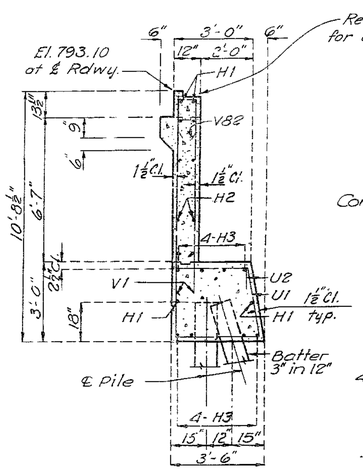
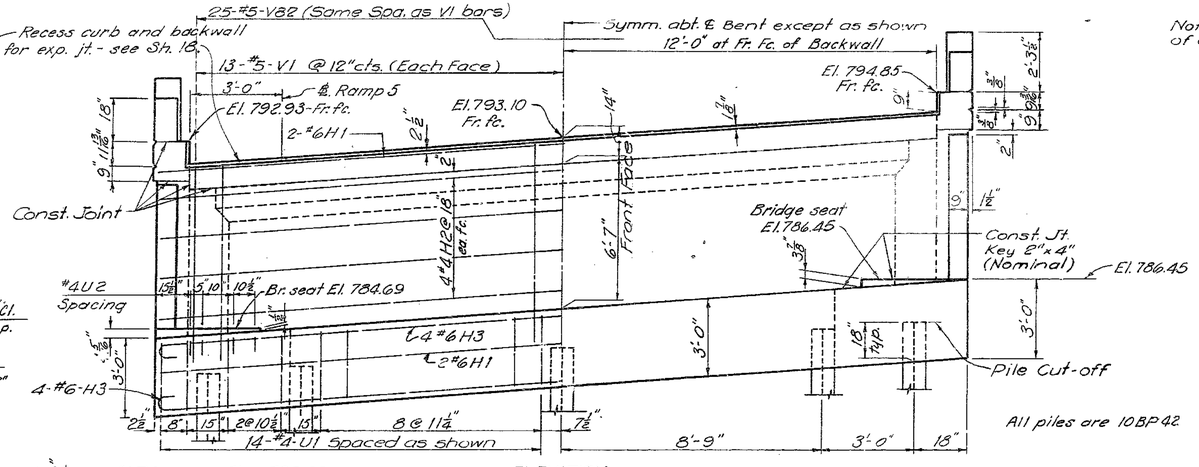
MISSOURI STATE HIGHWAY DEPARTMENT

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO		19	1.	

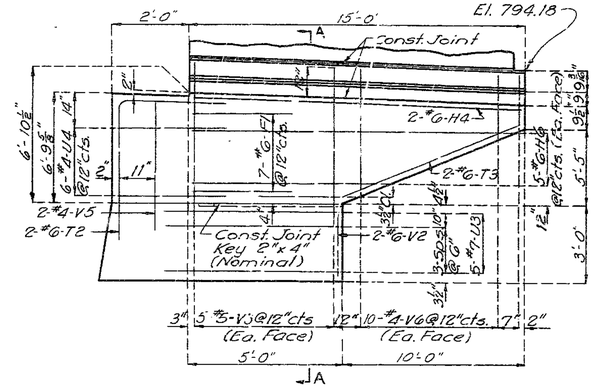


SECTION AT ℄

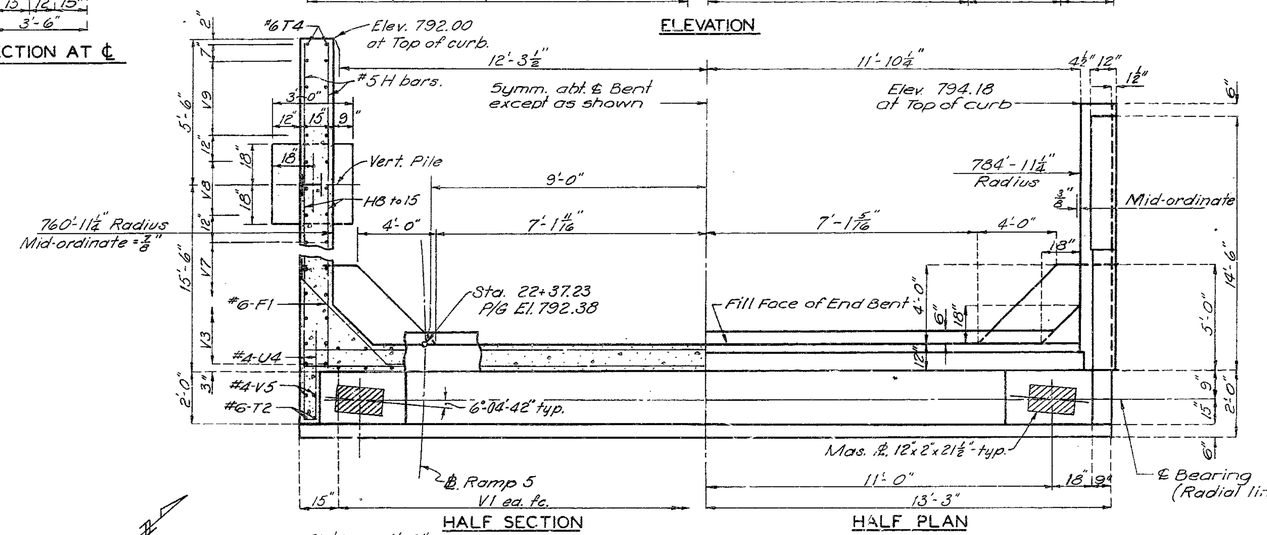


ELEVATION

Note: See bridge rail sheet for reinforcement of end posts, parapets and curbs.

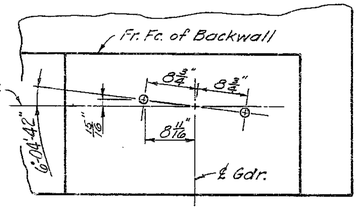


ELEVATION OUTSIDE WING

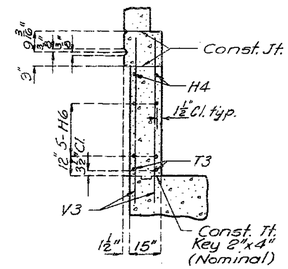


HALF SECTION

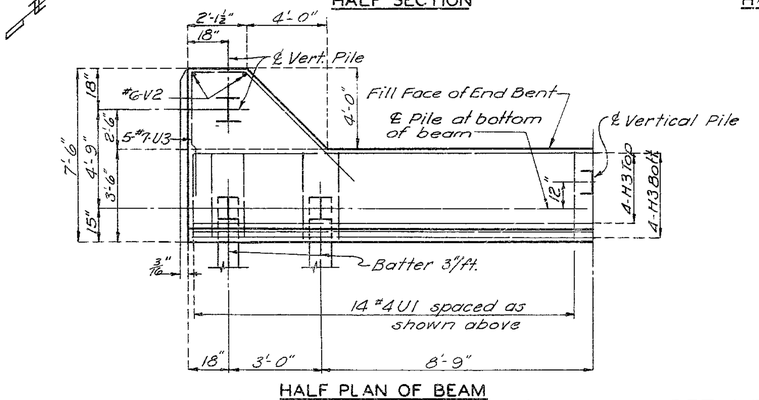
HALF PLAN



ANCHOR BOLT LAYOUT

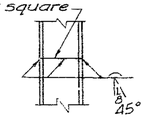


PART SECTION A-A



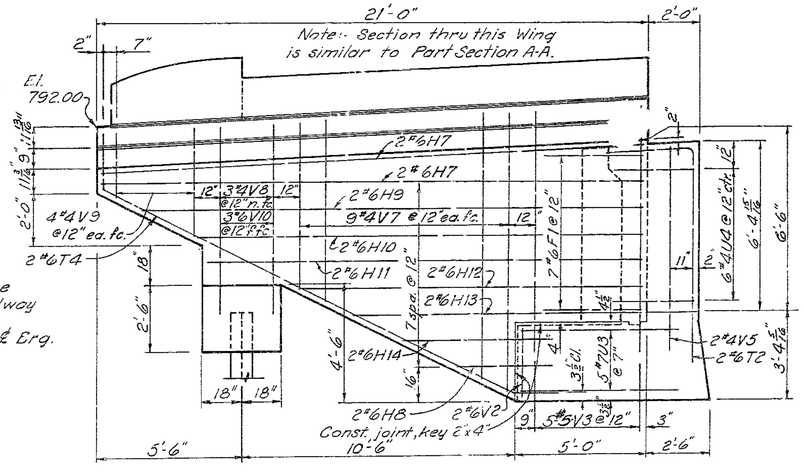
HALF PLAN OF BEAM
(BELOW LOWER CONSTRUCTION JOINT)

Butt splice (if required) Top of lower section to be cut square



STEEL PILE SPLICE

Notes:
Top of backwall and expansion device at End Bent 9 to conform to slope of roadway slab.
Backwall is parallel to radial line at ℄ Brg.
For Anchor bolt wells see Sh. 7.
For Substructure Layout see Sh. 2.



ELEVATION INSIDE WING

PLATTE COUNTY

DETAILS OF END BENT NO. 9

189

STD. 12.1 A	REVISED
APRIL 1965	APRIL 1969

DETAILED DEC. 1969 BY DHL
CHECKED MAY 1970 BY FJD

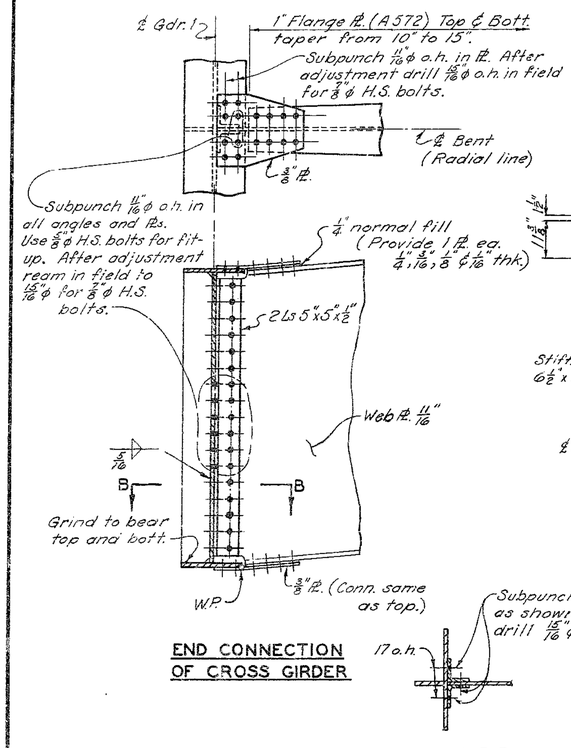
Note: This drawing is not to scale. Follow dimensions.

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

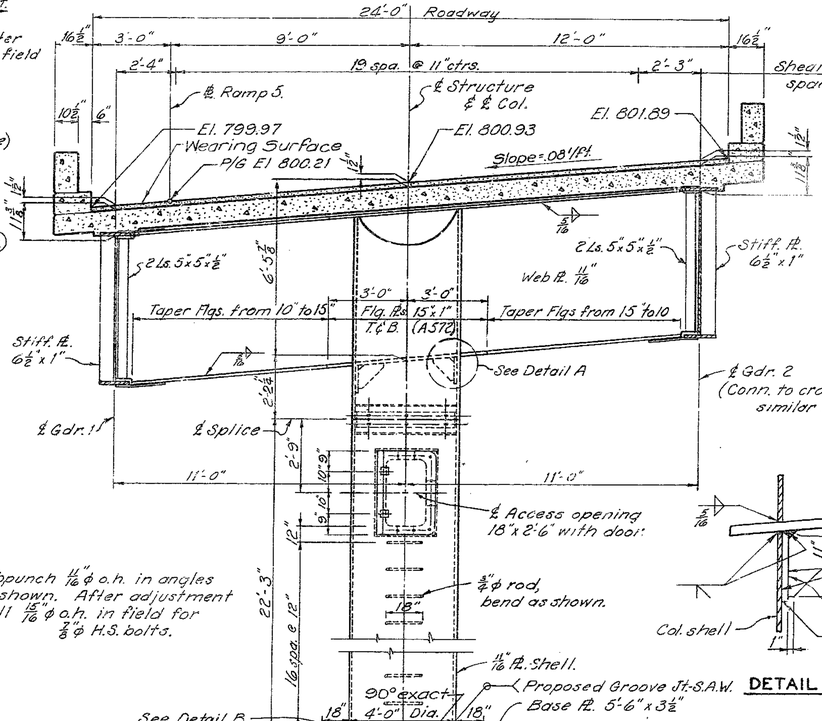
MISSOURI STATE HIGHWAY DEPARTMENT

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

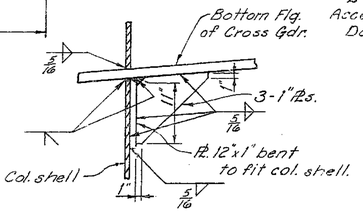


END CONNECTION OF CROSS GIRDER

SECTION B-B

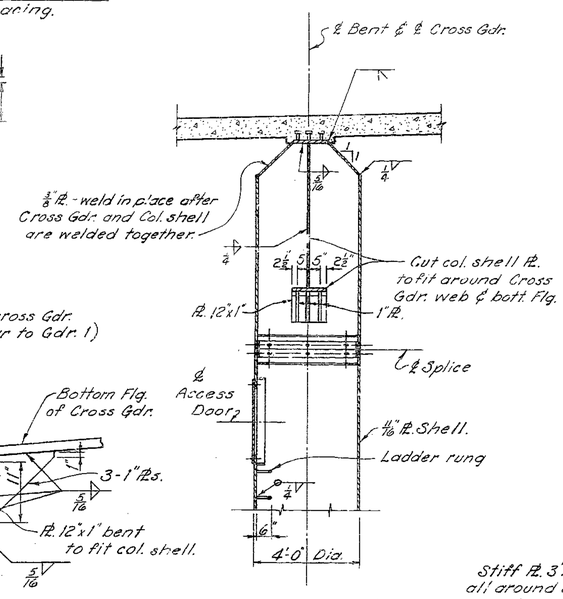


ELEVATION

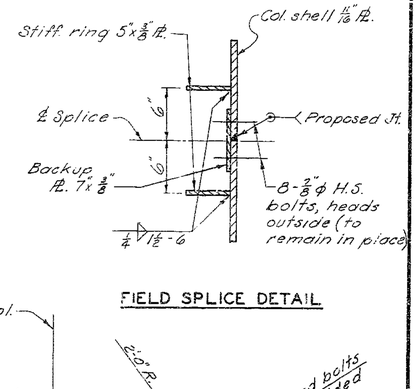


DETAIL A

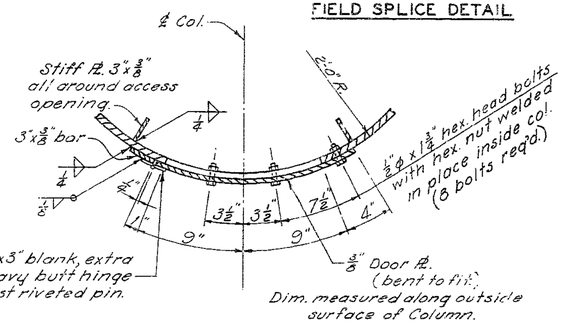
Note X:
Shop fabricate the anchor bolt cage to provide a rigid member for handling and erection. Immediately prior to encasing in conc. the top annular Pl. shall be level and at the correct elev.
The 1½" ϕ rods (A307) upset to 2" ϕ at top end and threaded 12½" shall be provided with 1 washer and 3 hex. nuts. Bend ½" ϕ rod (A307) in a spiral on outside of anchor bolts as shown and weld to each bolt.



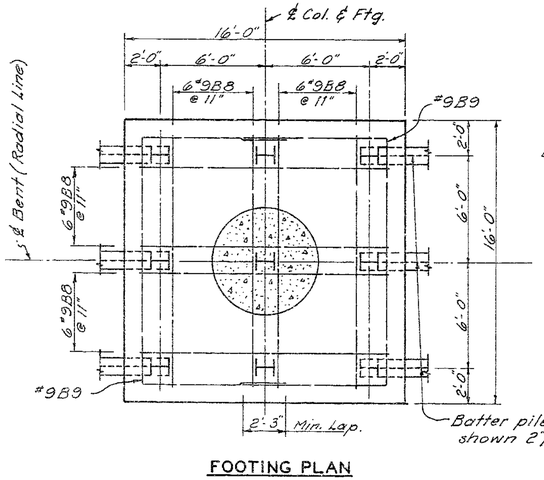
SECTION AT ℄



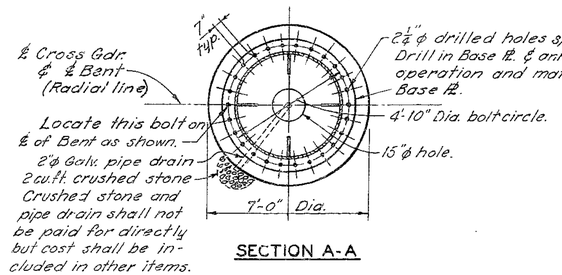
FIELD SPLICE DETAIL



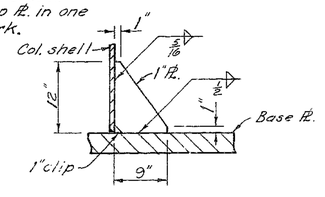
SECTION THRU ACCESS DOOR



FOOTING PLAN



SECTION A-A



DETAIL B

Notes:-

Cross girder and full height column shall be completely shop fabricated, welded and welds inspected. This includes access door, base plate, ladder rungs and stiffening rings. The column shall then be cut with a mechanically-guided torch at the field splice location after which the backup plate shall be fitted and bolt holes drilled with all parts assembled and then match-marked.

Edge of column shell plates at field splice shall be protected during shipping and details for the same shall be shown on shop drawings.

Procedure and sequence of making field column splice shall be approved by the Engineer before any welding is done.

Field splice shall be completed and x-rayed before main longitudinal girders are connected to the cross girder.

All welded shop splices required in fabricating the column shall be made with the approval of the Engineer, and finished welds shall be ground smooth.

All steel shall be A36 unless otherwise noted.

For details of shear connectors see Sheet 16.

DETAILS OF INTERMEDIATE BENT 2

PLATTE COUNTY

DETAILED Jan. 1970 BY DHL
CHECKED May 1970 BY FJD

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

Sheet No. 11 of 23

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

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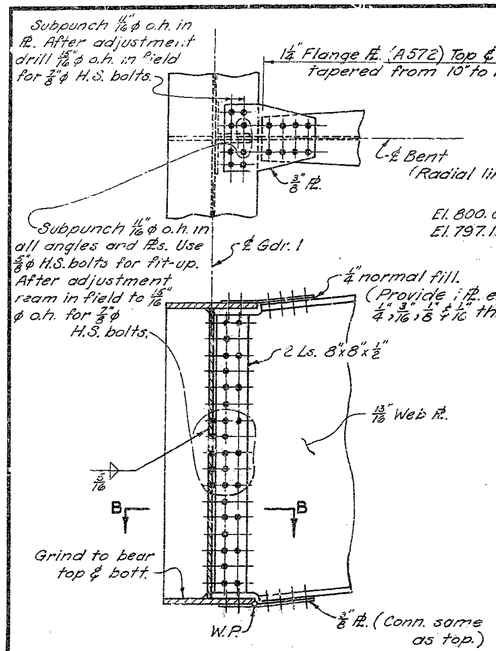
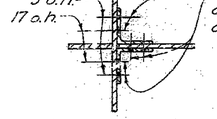
MISSOURI STATE HIGHWAY DEPARTMENT

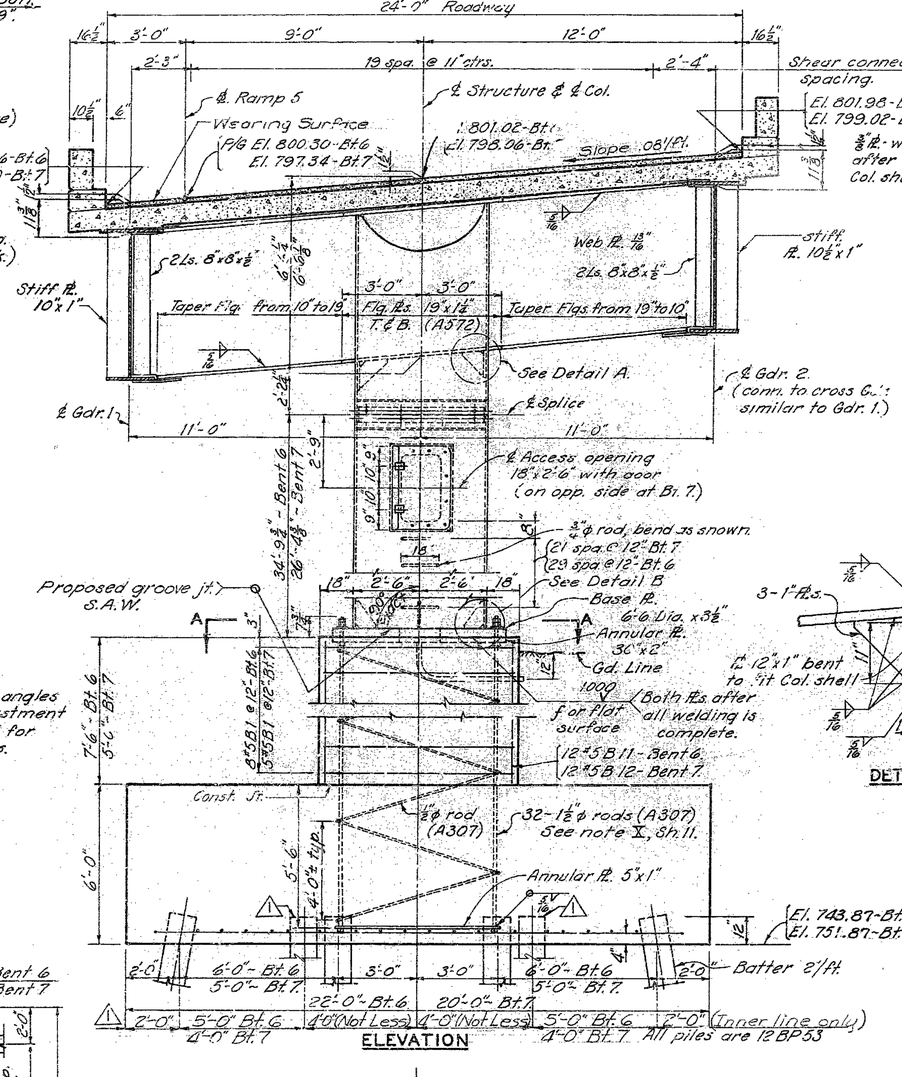
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		



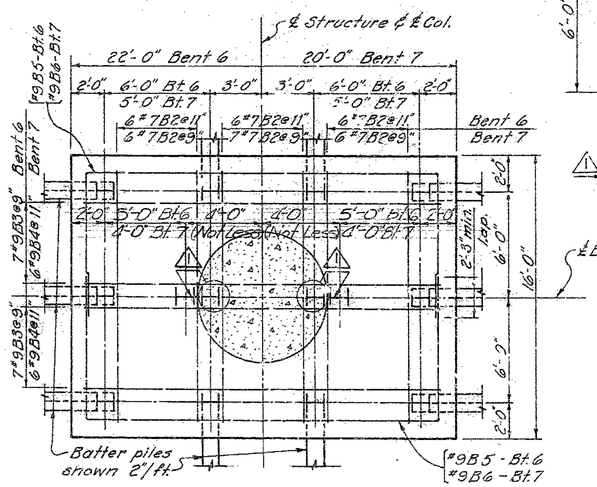
END CONNECTION OF CROSS GIRDER



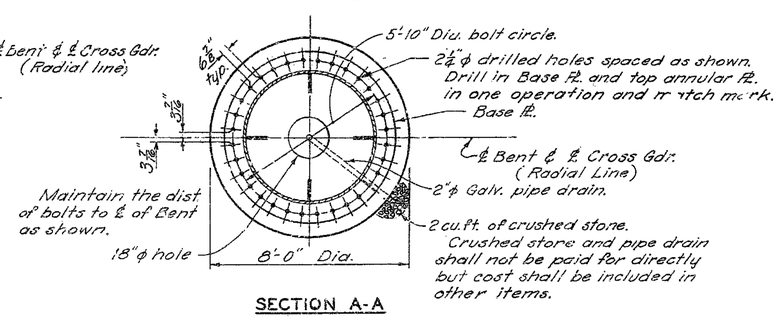
SECTION B-B



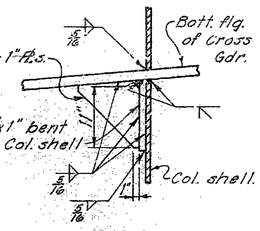
ELEVATION



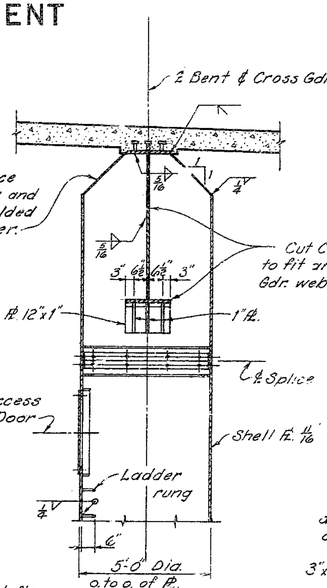
FOOTING PLAN



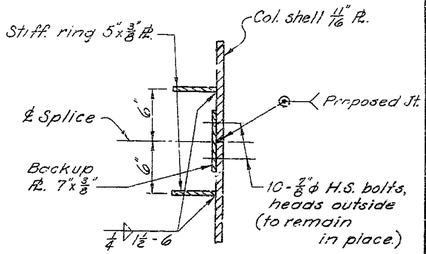
SECTION A-A



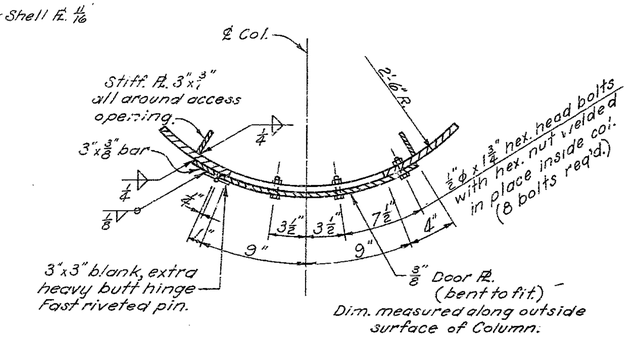
DETAIL A

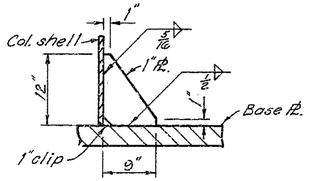


SECTION AT ℄



FIELD SPLICE DETAIL





DETAIL B

SECTION THRU ACCESS DOOR

Notes:
For notes pertaining to this sheet refer to Sh. 11.

DETAILED Jan. 1970 BY DHL
CHECKED May 1970 BY FJD

DETAILS OF INTERMEDIATE BENTS 6 & 7

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

Sheet No. 12 of 23. △ Revised 6-6-72

COUNTY

CONTRACTOR: J.D. CORTELYOU, KANSAS CITY, MO.

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	8J	

Notes:

Longitudinal dimensions shown are taken along top of girder web.

All floorbeams and cross girders are on radial lines except as shown at Bent 5.

* 3 studs per row except as noted; # indicates 4 studs per row.

FRAMING PLAN

PLATTE COUNTY

DETAILED DEC. 1969 BY KKD

CHECKED MAY 1970 BY FJD

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

Sheet No. 13 of 23.

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

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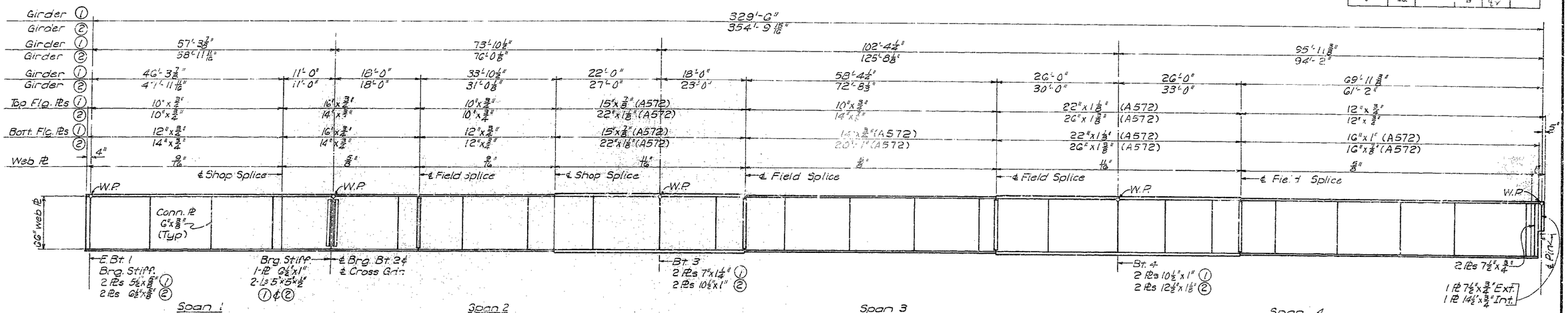
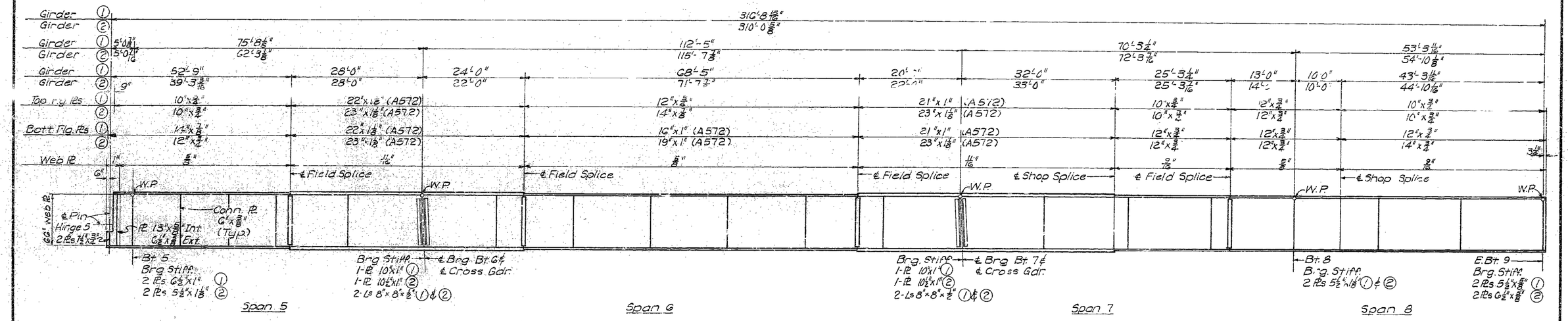
MISSOURI STATE HIGHWAY DEPARTMENT

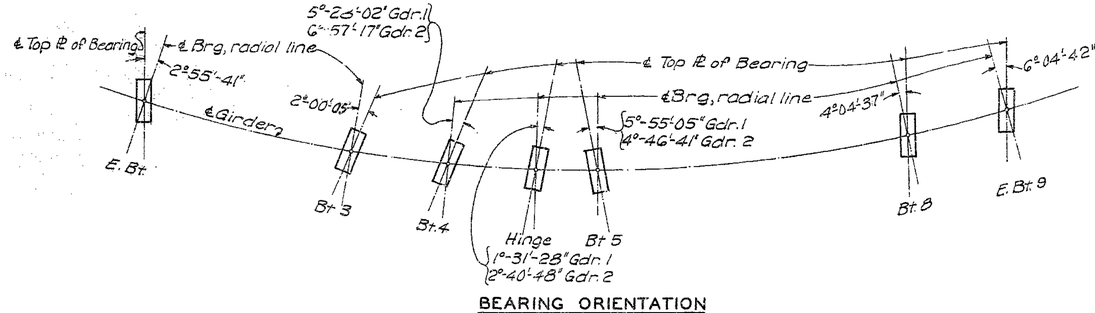
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	4Y	





GIRDER ELEVATION

Girder 1 shown



BEARING ORIENTATION

Notes:

Floor beams are normal to top of girder web; cross girders at Bents 2, 6 and 7 are vertical.

Plate girders shall be fabricated to conform with Camber Diagram shown on Sh. 23 and to horizontal curvature shown on Sh. 13.

All steel A36 except as noted.

All A572 steel shall be Grade 50.

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DETAILED JAN 1970 BY KKD

CHECKED MAY 1970 BY FJD

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

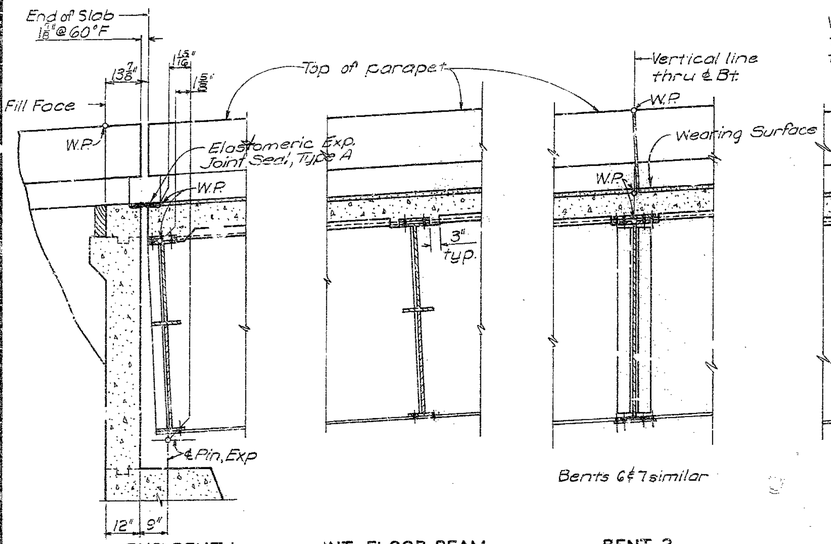
PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

MISSOURI STATE HIGHWAY DEPARTMENT

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

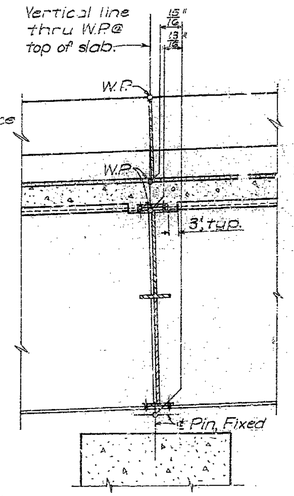


END BENT 1

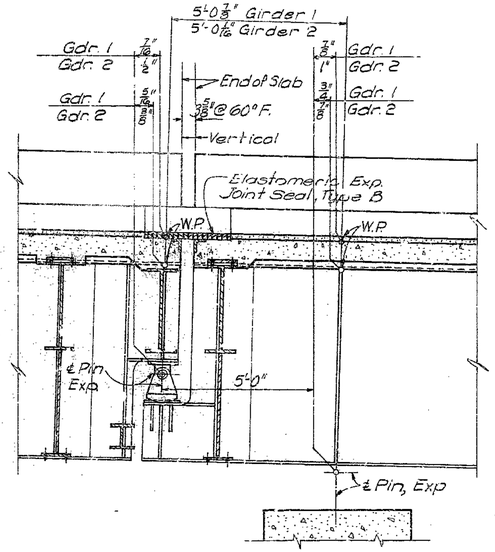
INT. FLOOR BEAM

Bents 6 & 7 similar

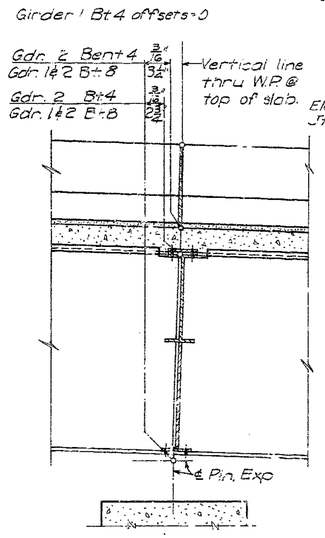
BENT 2



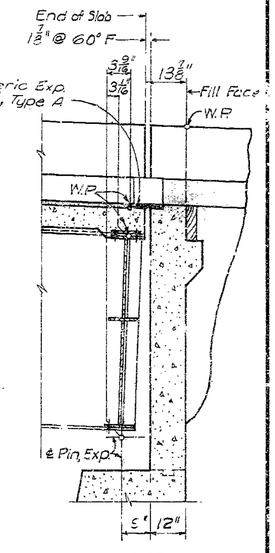
BENT 3



HINGE & BENT 5

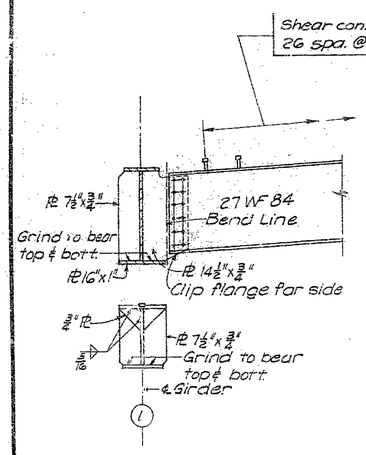


BENTS 4 & 8

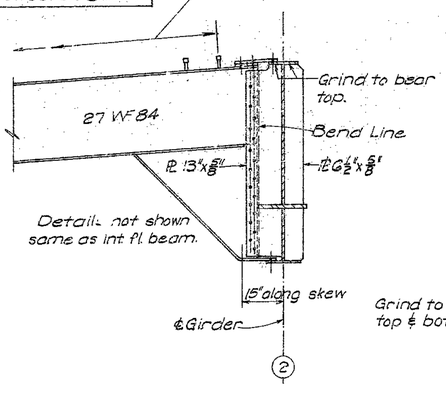


END BENT 9

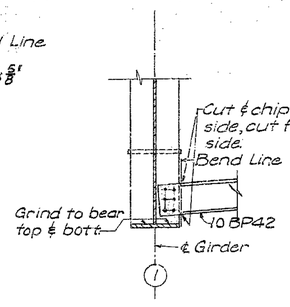
PART LONGITUDINAL SECTIONS



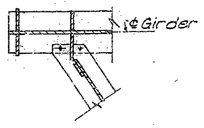
SECTION A-A



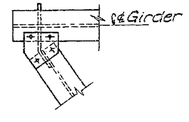
SECTION B-B



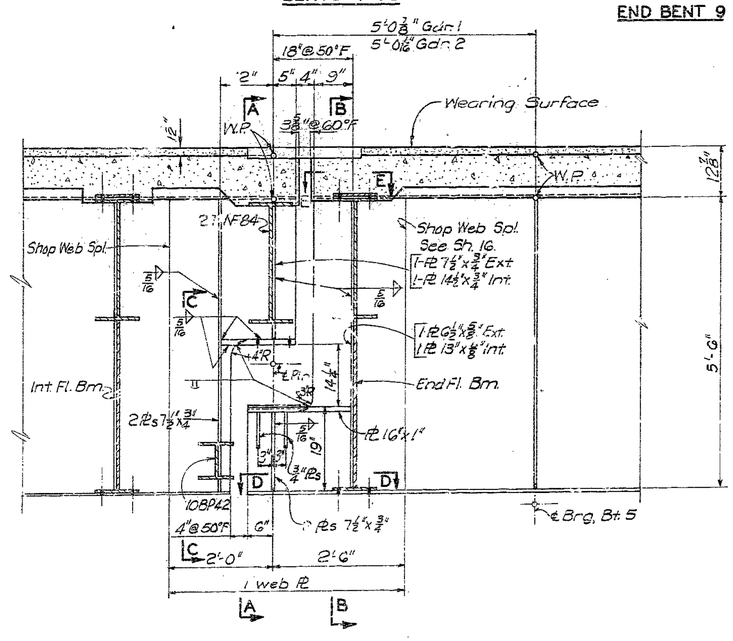
SECTION C-C



SECTION D-D



SECTION E-E



HINGE DETAILS

PLATTE COUNTY

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DETAILED JAN. 1970 BY KKD
CHECKED MAY 1970 BY FJD

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

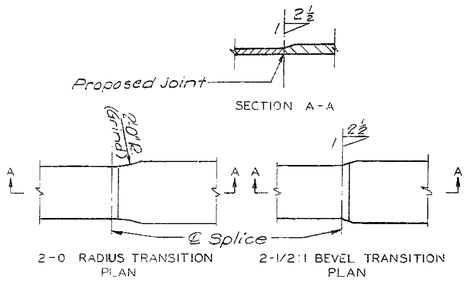
Sheet No. 15 of 23.

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

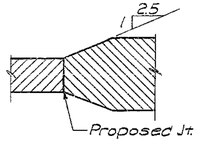
A-2433

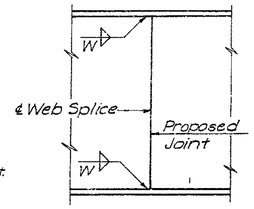
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	16	



FIELD OR SHOP FLANGE SPLICE

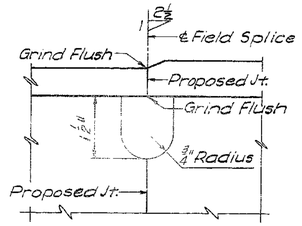




W = 1/4 for 3/8" f.l.g. fts except for 1" web ft. use 5/16. = 3/16 for all other gdr. welding.

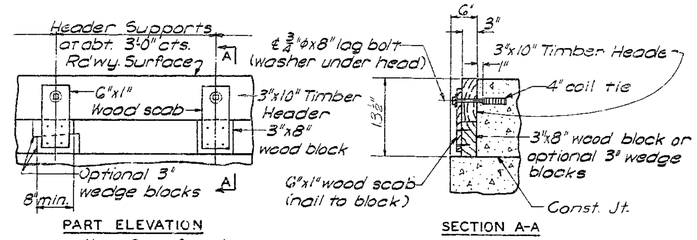
Shop welded web splices may be fabricated by the contractor when detailed on the shop drawings and approved by the engineer. No additional payment will be made for optional shop welded web splices.

SHOP WEB SPLICE AND GIRDER WELDING



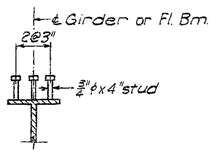
WELDED FIELD SPLICES

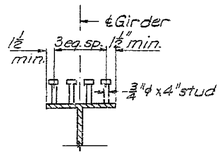
Note: Plan view of welded field splice is same as shown for shop flange splice.



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

DETAILS OF TIMBER HEADER

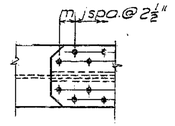




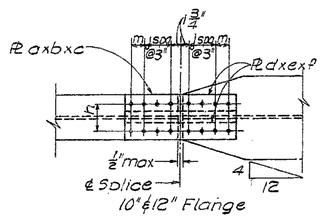
SHEAR CONNECTORS

See Sheets 11, 12, 13 & 20 for spacing and location of shear connectors.

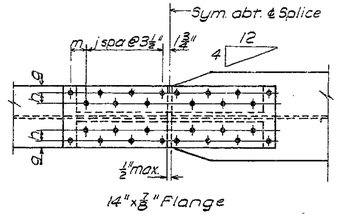
Weight of 3,230 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel.



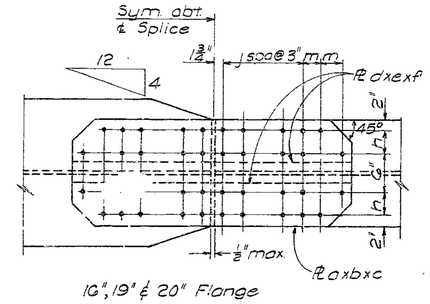
14"x3/4" Flange



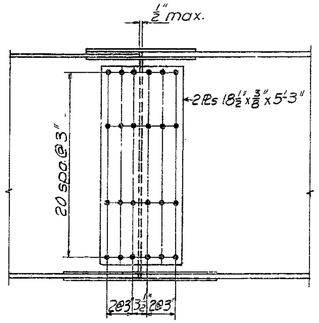
10"℄12" Flange



14"x7/8" Flange



16", 19" & 20" Flange

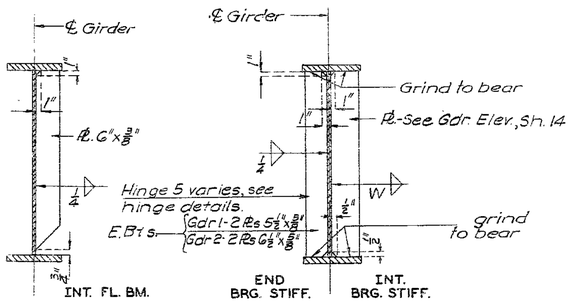


No. of Splices	Flange	a	b	c	d	e	f	h	j	g	m	Open Holes No. ea. Pl. One o.s. Pl.	Open Holes No. ea. Pl. One ins. Pl.	Fill Pl.
8	10"x3/4"	10"	3/8"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	6"	2		3"	16	8	10"x5/8"x12" (1), 10"x3/8"x12" (3)
9	12"x3/4"	12"	3/8"	2'-6 1/2"	5"	5/8"	2'-6 1/2"	7"	3		3"	20	10	12"x5/8"x15" (2), 12"x1/4"x15" (1), 12"x3/8"x15" (2)
2	14"x3/4"	14"	9/16"	3'-7 5/8"	6"	11/16"	3'-7 5/8"	2 1/2"	6	1 1/2"	3 1/2"	32	16	14"x5/8"x21 1/2" (1), 14"x3/8"x21 1/2" (1)
5	14"x7/8"	14"	1/4"	4'-0 1/2"	6"	11/16"	3'-5 1/2"	2 1/2"	5	1 1/2"	3 1/2"	28	12	14"x1/4"x2'-0" (3), 14"x1/2"x2'-0" (1), 14"x3/8"x2'-0" (1)
1	16"x7/8"	16"	3/4"	3'-8 1/2"	7"	3/4"	3'-8 1/2"	3"	4		3 1/2"	48	24	16"x1/2"x22" (1)
3	16"x1"	16"	15/16"	3'-8 1/2"	7"	15/16"	3'-8 1/2"	3"	4		3 1/2"	48	24	16"x3/8"x22" (2)
2	19"x1"	19"	11/16"	3'-6 1/2"	8 1/2"	15/16"	3'-6 1/2"	4 1/2"	6		0	56	28	19"x3/8"x21" (2)
2	20"x1"	20"	11/16"	3'-6 1/2"	9"	3/4"	3'-6 1/2"	5"	6		0	56	28	20"x1/4"x21" (1), 20"x3/8"x21" (1)

(2) denotes number of fills required for structure.
Field splices: 15/16" ϕ reamed holes
All splice plates shall be A36.

FIELD SPLICES

Field splices may be field welded or field bolted.



W = 3/8" at Cross Gdr. conn. Pl. for B't's. G & 7.
5/16" for all other stiffs.

STIFFENER DETAILS

PLATTE COUNTY

DETAILED JAN. 1970 BY KKD
CHECKED MAY 1970 BY FJD

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

Sheet No. 16 of 23.

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

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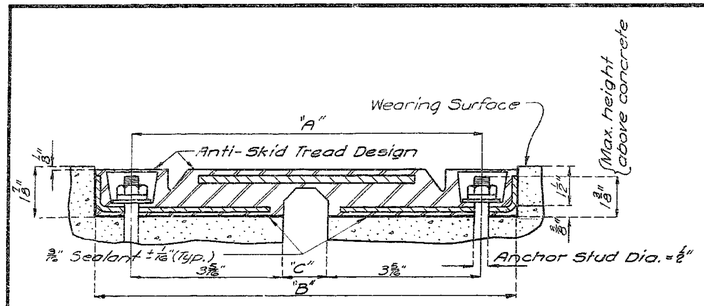
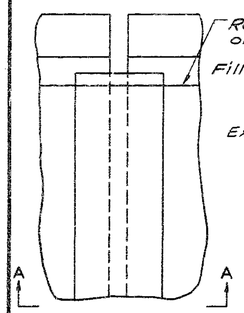
MISSOURI STATE HIGHWAY DEPARTMENT

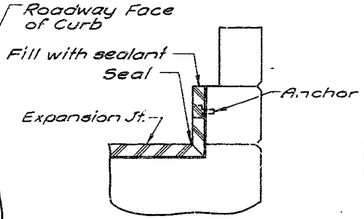
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		



SECTION A-A



PART PLAN



SECTION THRU CURB

Table of Variable Dimensions			
Temp.	Dim. "A"	Dim. "B"	Dim. "C" (Max.)
110°F	7⅝"	9⅜"	1"
90	8"	9¾"	1⅛"
70	8⅜"	10"	1⅛"
60	8⅝"	10¼"	1⅛"
50	8⅝"	10⅜"	2"
40	8¾"	10½"	2⅛"
30	9"	10⅝"	2⅜"
10	9¼"	11"	2⅝"
-10°F	9⅜"	11⅛"	3"

Joint Seal for 2" movement

Note: Plan dimensions are based on installation at 60°F. Expansion joint width shall be adjusted during installation for compliance with the above table. See Special Provisions.

Note: The expansion joint shall be set, anchored, bonded and sealed as recommended by the manufacturer and as set forth in the Special Provisions. Anchors shall be cone expansion type. Payment for furnishing and installing the expansion joint, including anchor bolt assembly, shall be made under unit price bid per lineal foot of joint.

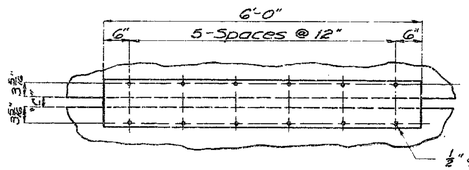
Accurately locate the hole spacing for ½" studs (expanding anchor type), on both sides of the expansion void at a distance of 3⅝" from the edge of the concrete and snap a chalk line on both sides of the expansion void. Layout transverse hole spacing along the chalk line in accordance with the shop drawings and the Typical Layout as shown on this sheet. Insure that the holes are directly opposite each other (square). Drill holes ½" ϕ x 2½" deep.

Holes shall not be drilled nor anchor bolts set until the concrete is at least 7 days old.

First section of expansion joint shall be installed starting at ℄ of roadway.

Tighten all nuts to 40 foot pounds. Retighten to 40 foot pounds 30 minutes after initial tightening.

Wire brush bolt cavity and coat with sealant. Fill cavity with sealant to a depth of ½" and push plug down to snap lock. Scrape off all excess sealant.

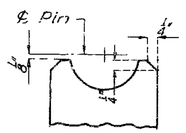


PART PLAN SHOWING TYPICAL LAYOUT FOR HOLE SPACING

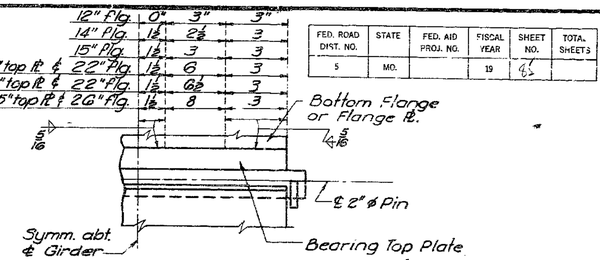
NOTES: TYPE "D" BEARINGS

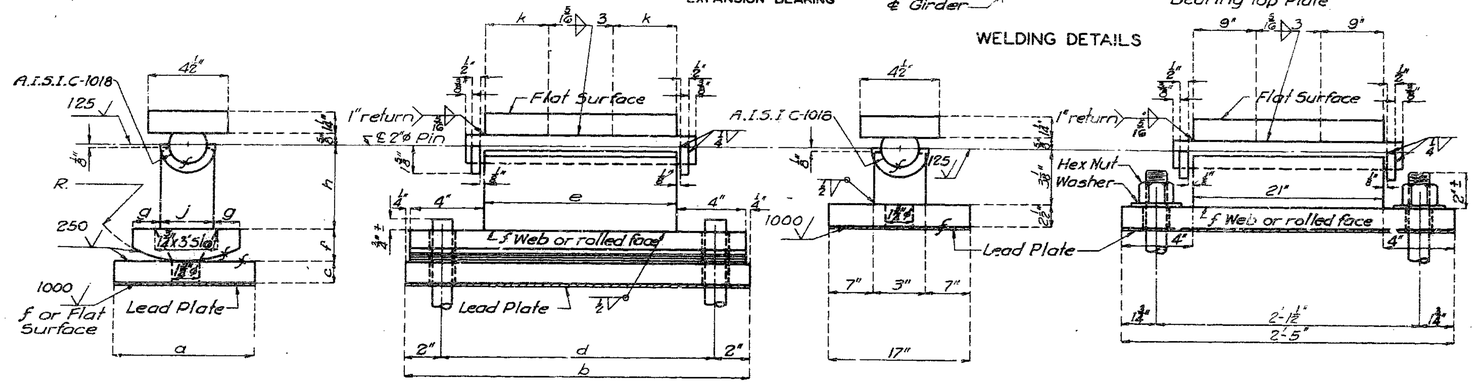
Lead plates under bearings shall be approximately ⅛" thickness and weigh 8# / sq. ft. Cost of lead plates shall be included in price bid for other items. "Estimated weight" does not include weight of anchor bolts.

Anchor Bolts for Type "D" Bearings shall be 1½" ϕ swedged bolts and shall extend 15" into concrete, with hexagon nuts and plain washers for Fixed Bearings, no nuts for Expansion Bearings.



END VIEW OF WEB EXPANSION BEARING





EXPANSION:

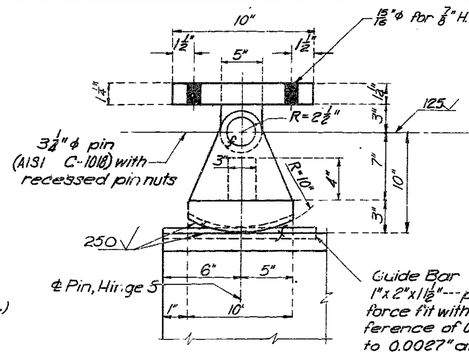
Required:
2 each - E. Bents 1 ℄ 9
2 - Bent 4
2 each - Bents 5 ℄ 8

FIXED

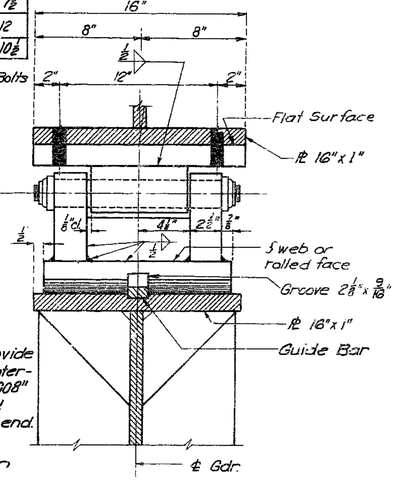
Required: 2 - Bent 3

TYPE "D" BEARINGS
(Estimated Weight 6,380#)

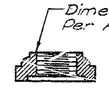
	a	b	c	d	e	f	g	h	k	j	R
E. Bents 1 ℄ 9	12"	21⅛"	2"	17½"	13"	2"	2"	5½"	5"	3"	7½"
Bent 4	20	2-9½	3½	2-5½	2-1	2⅛	1¾	9⅜	11	3½	12
Bents 5 ℄ 8	17	22½	3	18½	14	2⅛	2	8⅜	5½	3	10½



Note: Place heads of ⅞" ϕ bolts on bottom side of top bearing plate.



TYPE "D" MODIFIED BEARINGS
(Estimated Wt. 700#)



RECESSED PIN NUT
(Cast or Forged steel)

Note: Castings to be ASTM A27 Grade 65-35 or equal. Forgings to be ASTM A235, Class E or equal.

Note: See Sh. 14 for bearing orientation angles.

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DETAILS OF STEEL REINFORCED ELASTOMERIC EXPANSION JOINT SEAL TYPE A

PLATTE COUNTY

DETAILED DEC. 1971 BY WEAVER
CHECKED JAN. 1972 BY KLEENE

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

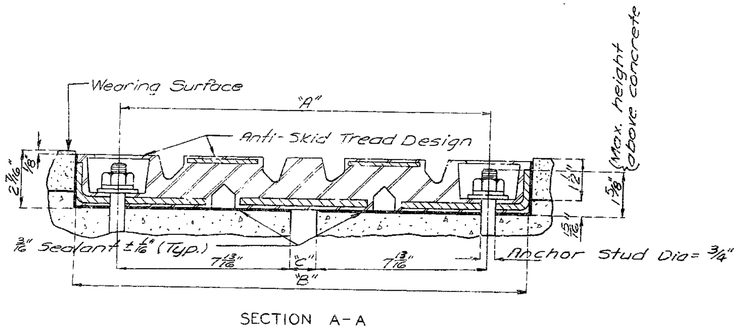
Sheet No. 17 of 23 .

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

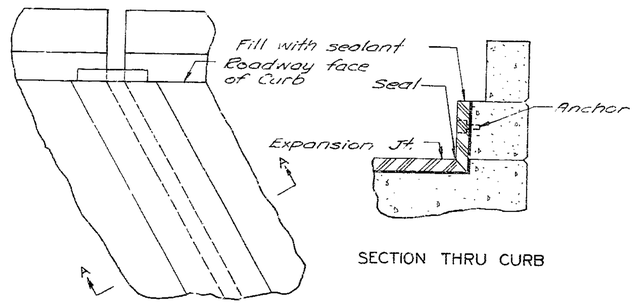
A-2433

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	17	



SECTION A-A



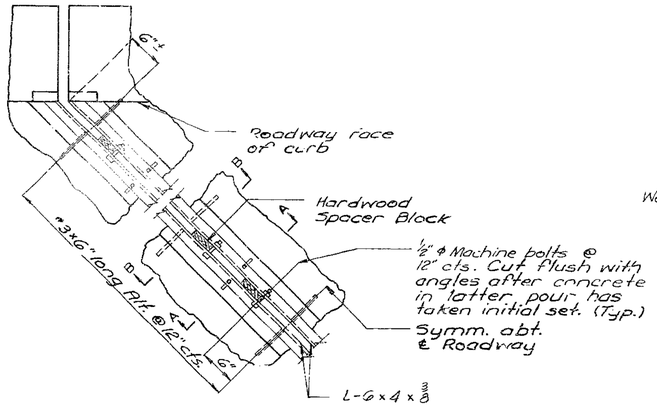
SECTION THRU CURB

PART PLAN

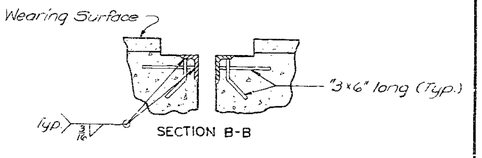
Table of Variable Dimensions			
Temp	Dim. "A"	Dim. "B"	Dim. "C" (Max.)
110°F	17 5/8"	20 3/4"	2"
90	18 1/4"	21 3/16"	2 5/8"
70	19"	22 1/8"	3 3/8"
60	19 1/4"	22 3/8"	3 5/8"
50	19 5/8"	22 3/4"	4"
40	20"	23 1/8"	4 3/8"
30	20 1/4"	23 3/8"	4 5/8"
10	21"	24 1/8"	5 3/8"
-10°F	21 3/8"	24 3/4"	6"

Joint Seal for 4" movement

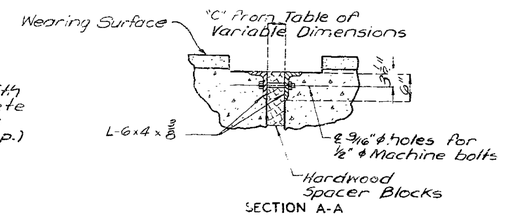
Note: Plan dimensions are based on installation at 60°F. Expansion joint width shall be adjusted during installation for compliance with the above table. See Special provisions.



PART PLAN



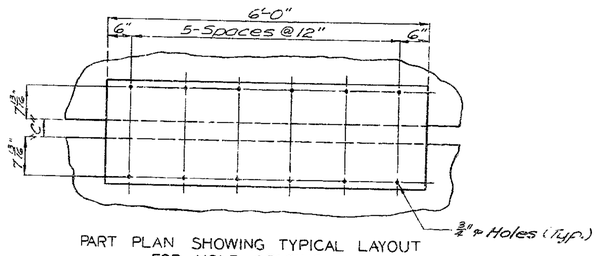
SECTION B-B



SECTION A-A

Note: Expansion Device shall be fabricated in one section except that when the length is over 50 feet, splicing is permissible. The Expansion Device shall be bent to conform to crown and grade of roadway.
No. 3 bars for Expansion Device shall be structural grade.
Approved stud welded anchors or deformed bar anchors (ASTM A 496) may be used in lieu of #3 bars shown.
Payment for furnishing and placing structural steel for Expansion Device shall be made under price bid for Fabricated Structural Carbon Steel.

DETAILS OF ARMOUR JOINT REINFORCEMENT AT EXPANSION DEVICE TYPE B



PART PLAN SHOWING TYPICAL LAYOUT FOR HOLE SPACING

Note: The expansion joint shall be set, anchored, bonded and sealed as recommended by the manufacturer and as set forth in the Special Provisions. Anchors shall be cone expansion type. Payment for furnishing and installing the expansion joint including anchor bolt assembly, shall be made under unit price bid per lineal foot of joint.

Accurately locate the hole spacing for 3/4" studs (expanding anchor type), on both sides of the expansion void at a distance of 1 7/8" from the edge of the concrete and snap a chalk line on both sides of the expansion void. Layout transverse hole spacing along the chalk line in accordance with the shop drawings and the Typical Layout as shown on this sheet. Insure that the holes are directly opposite each other (square). Drill holes 3/4" ϕ x 3 3/4" deep.

Holes shall not be drilled nor anchor bolts set until the concrete is at least 7 days old.

First section of expansion joint shall be installed starting at ℄ of roadway.

Tighten all nuts to 85 foot pounds. Retighten to 85 foot pounds 30 minutes after initial tightening.

Wire brush bolt cavity and coat with sealant. Fill cavity with sealant to a depth of 1/2" and push plug down to snap lock. Scrape off all excess sealant.

DETAILS OF STEEL REINFORCED ELASTOMERIC EXPANSION JOINT SEAL TYPE B

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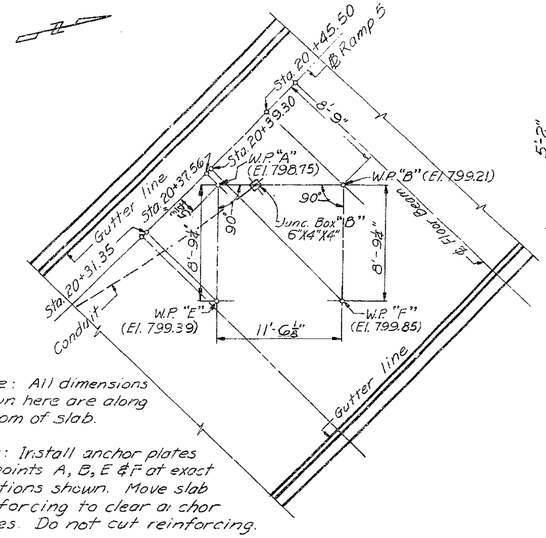
STD. 5.5.2	REVISED
JAN. 1971	JULY 1971

DETAILED DEC. 1971 BY WEAVER
CHECKED JAN. 1972 BY KLEENE

MISSOURI STATE HIGHWAY DEPARTMENT

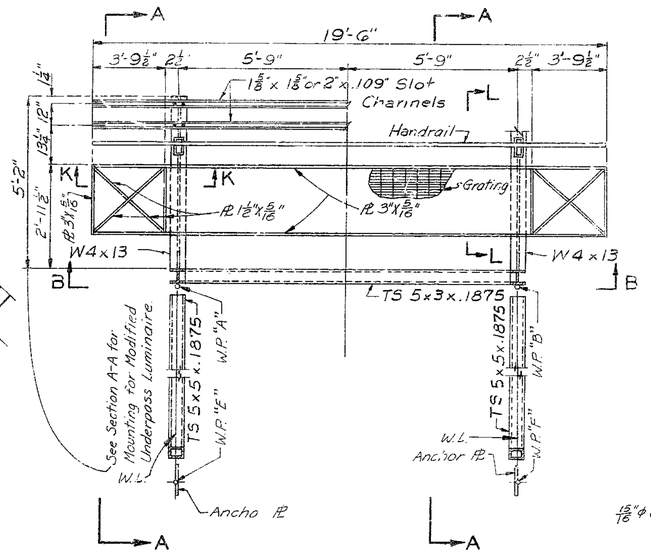
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	91	



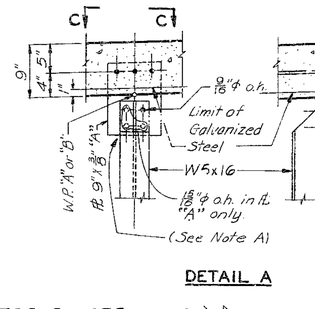
Note: All dimensions shown here are along bottom of slab.

Note: Install anchor plates at points A, B, E & F at exact locations shown. Move slab reinforcing to clear anchor plates. Do not cut reinforcing.

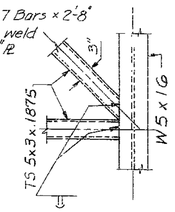
LAYOUT



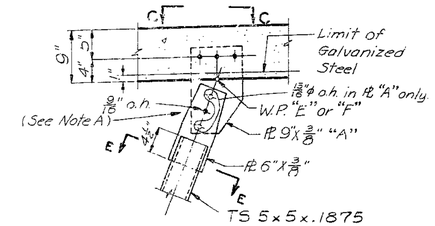
PLAN



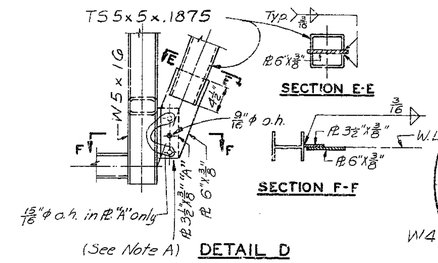
DETAIL A



DETAIL B



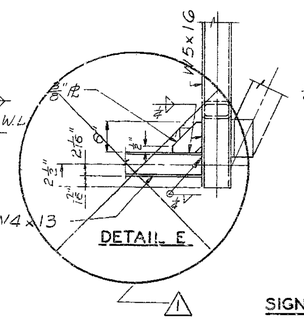
DETAIL C

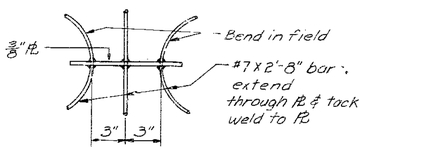


SECTION E-E

SECTION F-F

DETAIL D





SECTION C-C

Note A:
Ream or drill all holes to 15/16" ø in field after erection.

SIGN SUPPORT NOTES:

All structural steel shall be ASTM A36.

Pipe for railing and posts shall be 1 1/4" galvanized steel standard weight, ASTM A53 with a minimum yield of 30,000 psi. 3/8" diam. vent holes are permissible in railing.

All tubing shall be hollow structural tubing.

All connection bolts shall be 7/8" ø H.S. bolts, open holes 15/16" ø, except as noted on details.

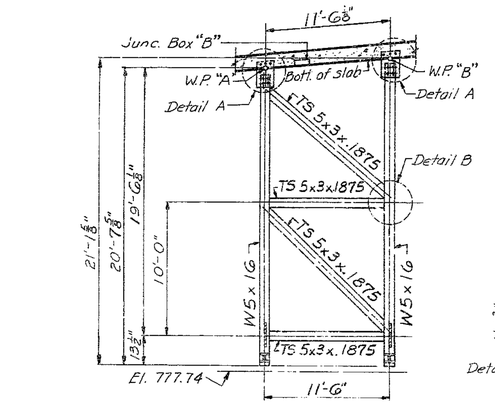
Grating shall have 1 1/2" x 3/16" bearing bars spaced at 1 3/16" centers, 1/2" x 3/16" cross bars spaced at 4" centers.

Grating shall be attached to WF supports with 4" ø bolts and saddle clips.

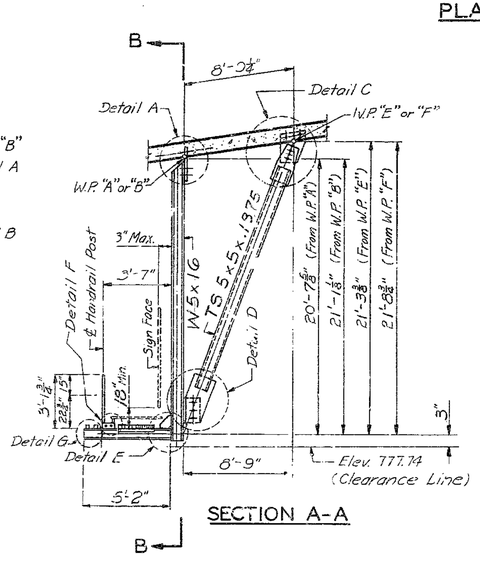
All material in sign support shall be galvanized.

The cost of furnishing and erecting all materials for the sign support including exposed Conduit and Luminaires shall be included in Lump Sum price bid for "Fabricated Sign Support Brackets."

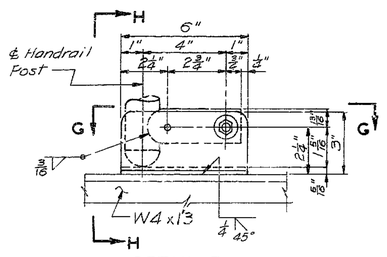
For additional information on Lighting System and Signs, See Standard Plans 903.09.



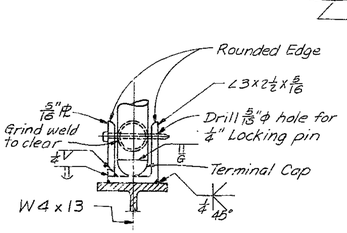
SECTION B-B



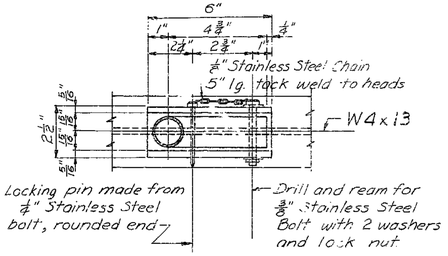
SECTION A-A



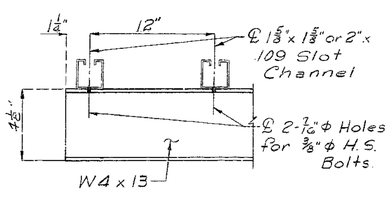
DETAIL F



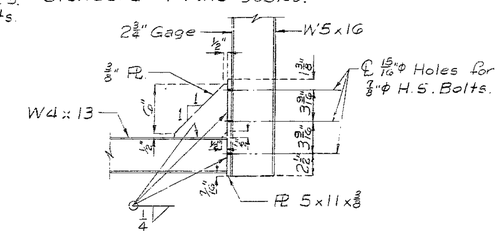
SECTION H-H



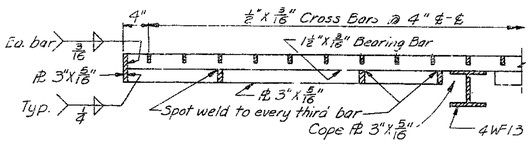
SECTION G-G



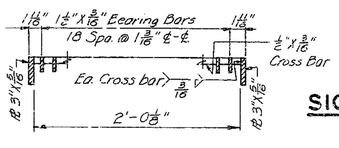
DETAIL G



REVISED DETAIL E

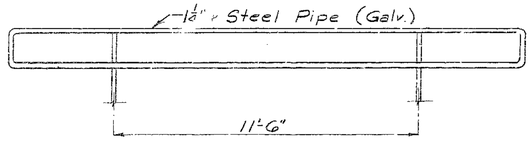


SECTION K-K



SECTION L-L

SIGN SUPPORT BRACKET



Elevation of Handrail

Note: The welding Type Elbows, Tees & Crosses or Continuous Weld Joints may be used in Construction of the Handrail.

PLATTE COUNTY

DETAILED JAN. 1970 BY RPC & BRANDEL

CHECKED JAN. 1970 BY ℄ JD

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

Rev. 6-16-72

Sheet No. 19 of 23.

HARRINGTON AND CORTELYOU CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

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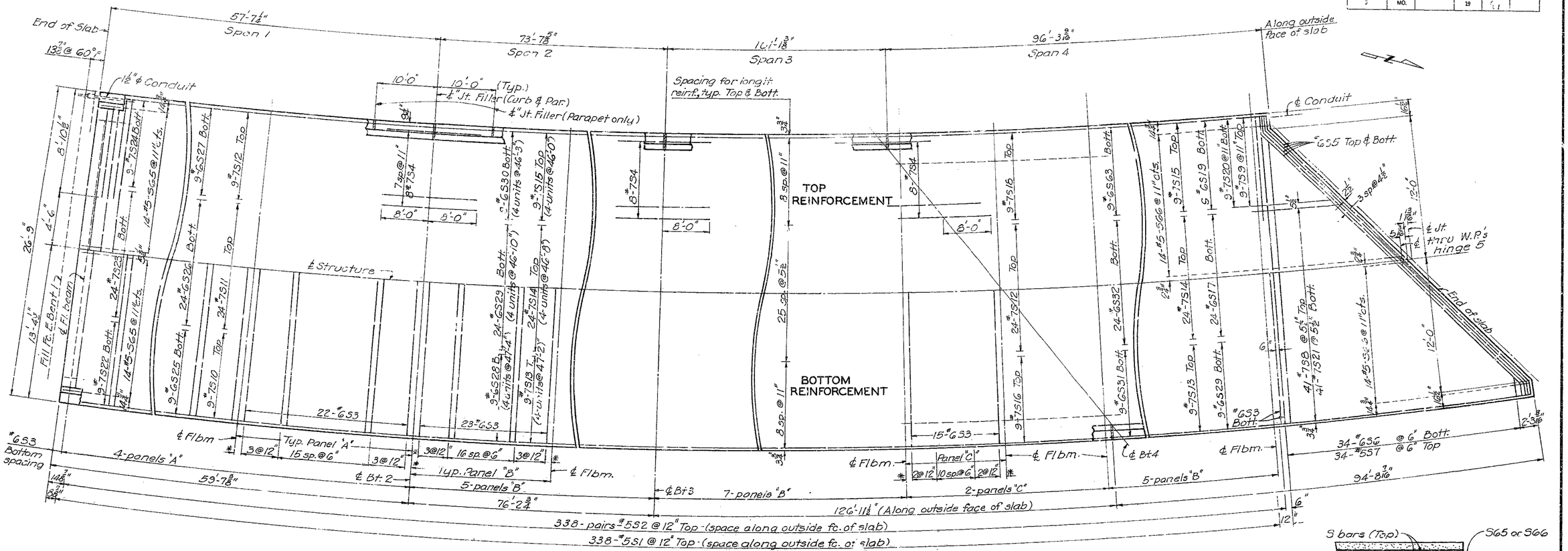
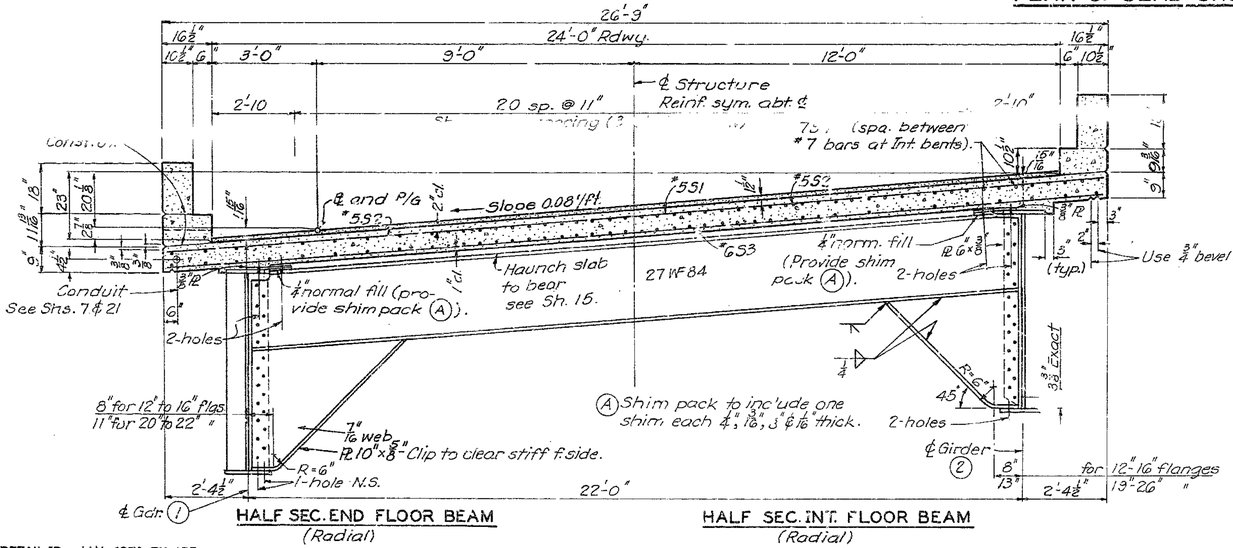
MISSOURI STATE HIGHWAY DEPARTMENT

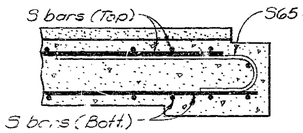
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		19	11	



PLAN OF SLAB SHOWING REINFORCEMENT



* Dimension varies - place bars radially centered between floor beams. Space along C.S. face of slab



PART SECTION AT EXP. JOINTS

℄ of splices for longitudinal reinforcement shall be at ℄ floorbeams in bottom of slab and midway between floorbeams in top of slab. For floorbeam spacing see Sh. 13.

Note: Holes for floorbeam field connections shall be subpunched or subdrilled and reamed while assembled in the shop, or may be drilled from the solid with girders and floorbeams assembled.

Note: For details and reinforcement of curb and parapet not shown see sheet 22.
All longitudinal dimensions are slope lengths at top of slab.
For details of shear connectors see sheet 16.

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DETAILED JAN. 1970 BY JER
CHECKED MAY 1970 BY FJD

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

Sheet No. 20 of 23.

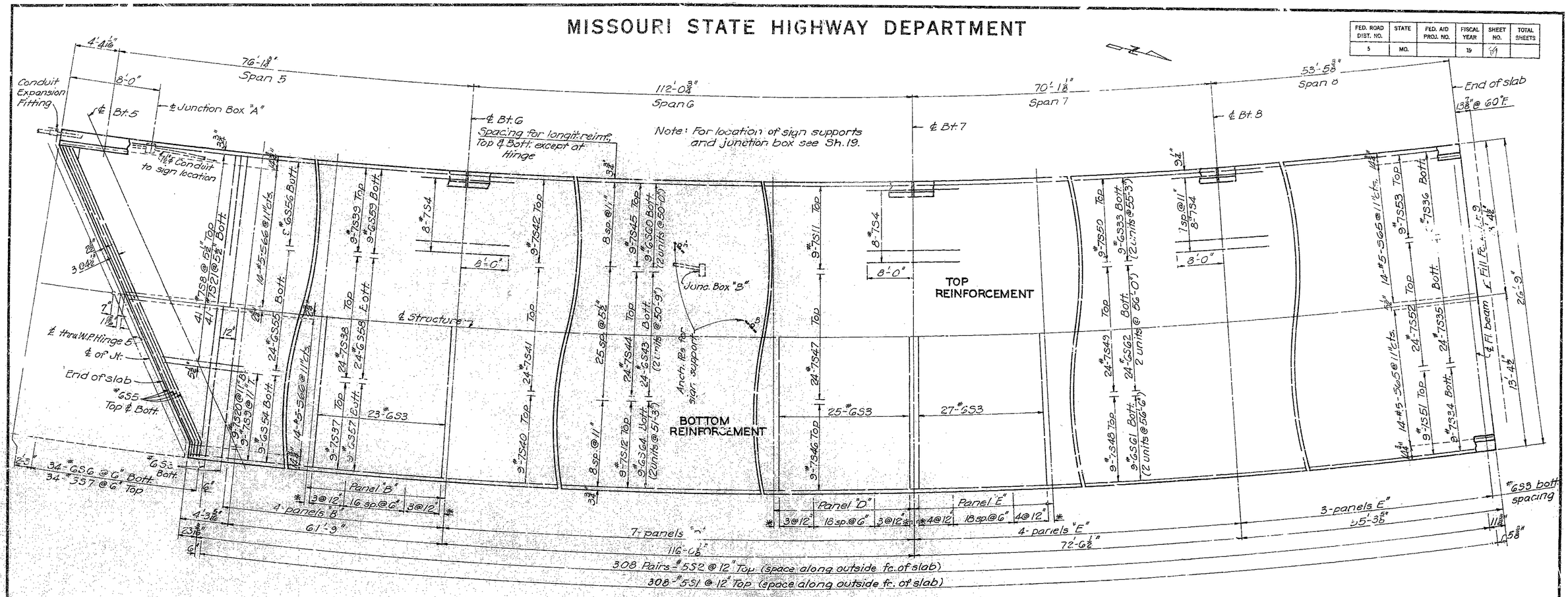
PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

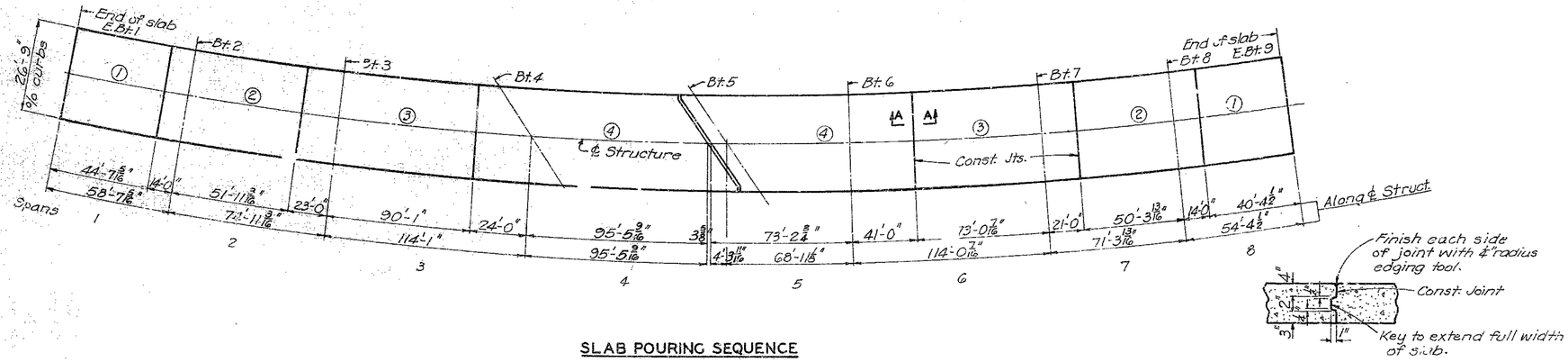
MISSOURI STATE HIGHWAY DEPARTMENT

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



PLAN OF SLAB SHOWING REINFORCEMENT

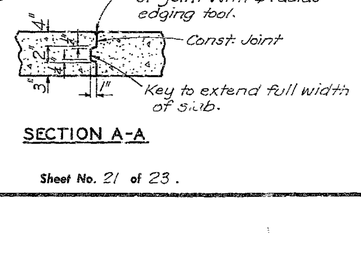
Note: For notes pertaining to slab reinforcement, see Sheet 20.



SLAB POURING SEQUENCE

	Sequence of Pours Direction			
	1	2	3	4
Basic Sequence	End to 2	1 to 3	2 to 4	3 to End
Alternate "A" Pours	1 + 2		3	4
	End to 3		2 to 4	3 to End
Alternate "B" Pours	1 + 2		3 + 4	
	End to 3		2 to End	
Alternate "C" Pours	1 + 2 + 3 + 4			
	End to End			

Note: The contractor shall pour and satisfactorily finish the slab pours at a rate of not less than 42 cubic yards per hour unless he elects to use an approved retarder to retard the set of the concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than 25 cubic yards per hour.



SECTION A-A

PLATTE COUNTY

DETAILED JAN. 1970 BY JER
CHECKED MAY 1970 BY FJD

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

Sheet No. 21 of 23.

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

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FOR INFORMATION ONLY

A24333, Sht. 34

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	90	

GENERAL BRIDGE RAIL NOTES:

All bridge rail posts shall be set normal to grade.

Aluminum tube bridge rail shall be bent to conform to vertical and horizontal alignment of parapet.

Aluminum washer shims between top of parapet and post base may be used for adjusting bridge rail alignment. Maximum thickness of shims to be $\frac{1}{2}$". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.

All parts of bridge rail, except anchor bolts, nuts, washers, and set screws are to be of aluminum material.

All fillets $\frac{1}{4}$" except as noted.

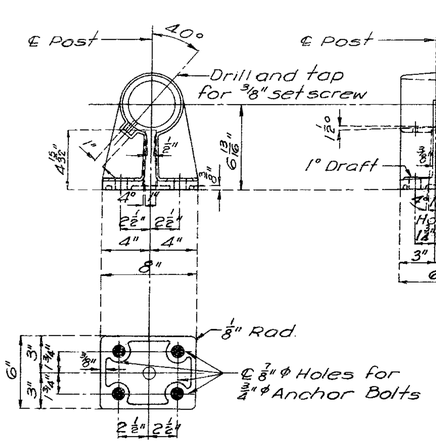
All drafts 3° except as noted.

Omit set screw in side of rail posts adjacent to filled joints in curb and parapet at rail expansion points. Omit set screw in each side of rail post on end bents except where a gap is shown in rail over an expansion device.

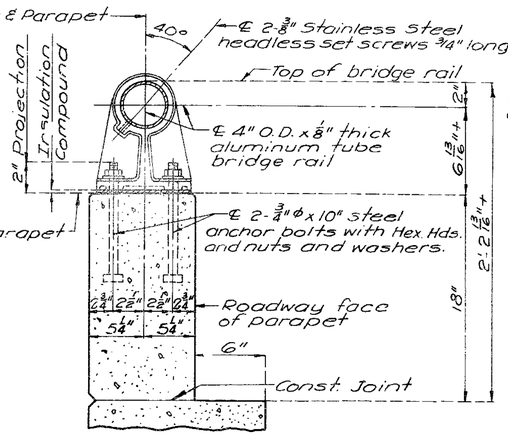
Top of curbs and parapet to be built parallel to grade with curb and parapet joints (except at end bents) normal to grade.

Concrete end posts to be vertical.

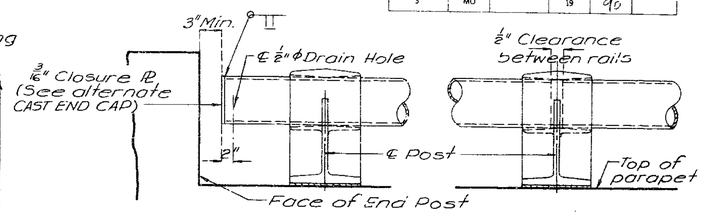
All exposed edges of end posts shall have $\frac{1}{2}$" bevel. All exposed edges of curbs and parapets shall have $\frac{1}{2}$" radius or $\frac{1}{8}$" bevel unless otherwise noted.

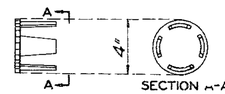


POST DETAILS



SECTION THRU BRIDGE RAIL

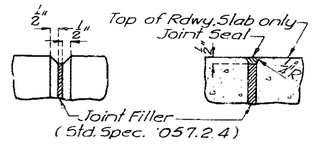




CAST END CAP
(Drive Fit Type)

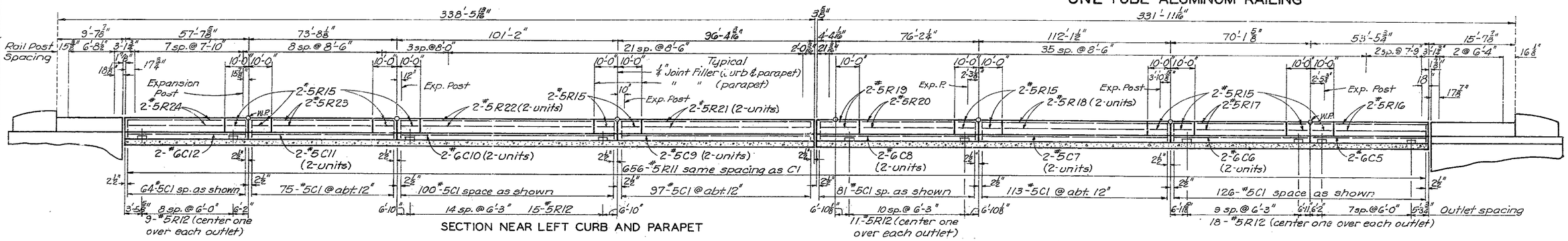
POST RAIL SPLICE OR EXP.

TYPICAL BRIDGE RAIL DETAILS



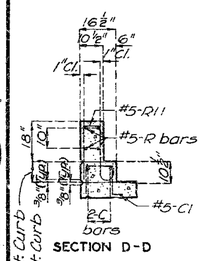
FILLED JOINT DETAILS

ONE TUBE ALUMINUM RAILING

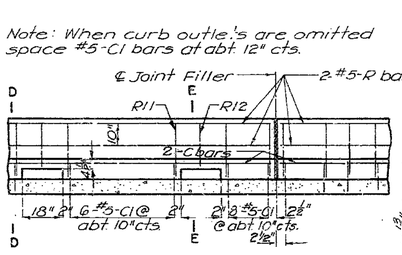


SECTION NEAR LEFT CURB AND PARAPET

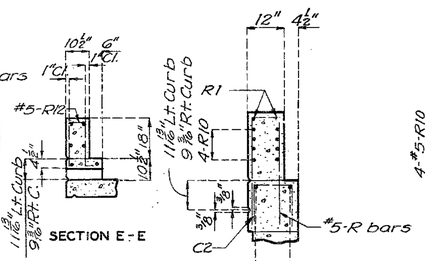
Span: 1 2 3 4 5 6 7 8

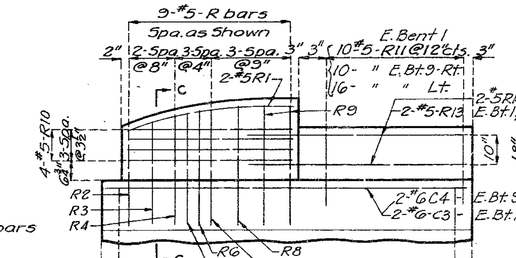


Note: When curb outlets are omitted space #5-C1 bars at abt. 12" cts.

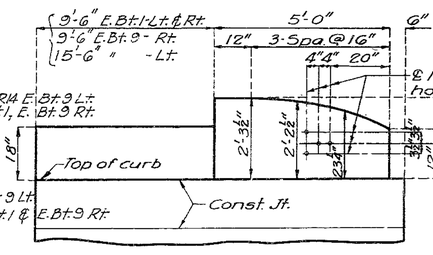


ELEVATION OF CURB & PARAPET

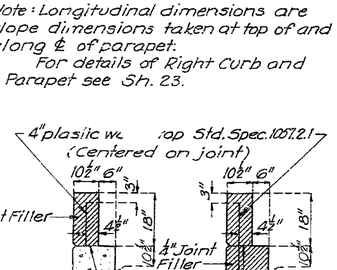


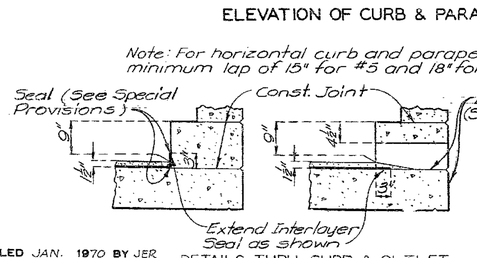


ELEVATION OF END POSTS

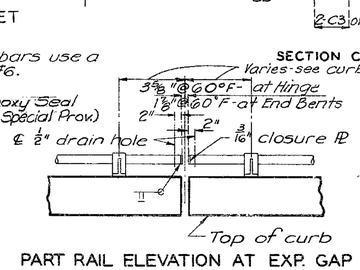


Note: Longitudinal dimensions are slope dimensions taken at top of and along ℄ of parapet.
For details of Right Curb and Parapet see Sh. 23.



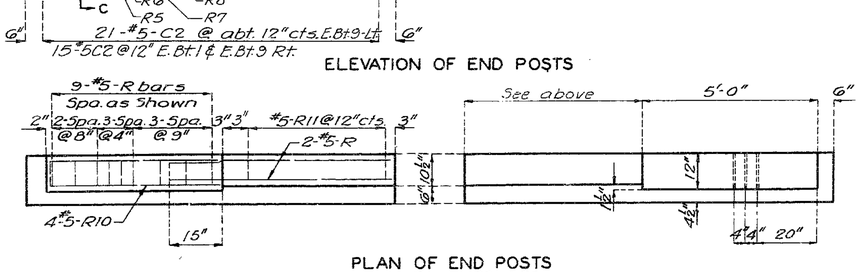


DETAILS THRU CURB & OUTLET



PART RAIL ELEVATION AT EXP. GAP

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



PLAN OF END POSTS

Sheet No. 22 of 23.

DETAILS OF PLASTIC WATERSTOP

Note: Plastic waterstop shall be placed in all parapet & curb filled joints except on high side of superelevated structures.
Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

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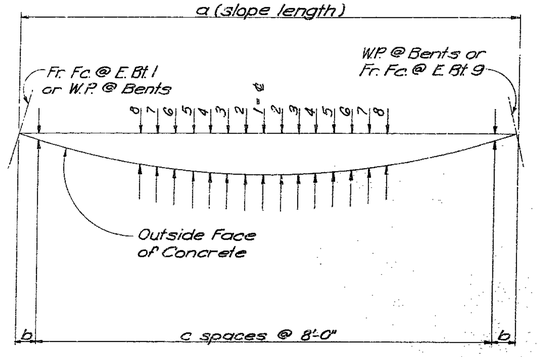
STD. 15.2	REVISED
MAR. 1964	OCT. 1968

DETAILED JAN. 1970 BY JER
CHECKED MAY 1970 BY F.J.D

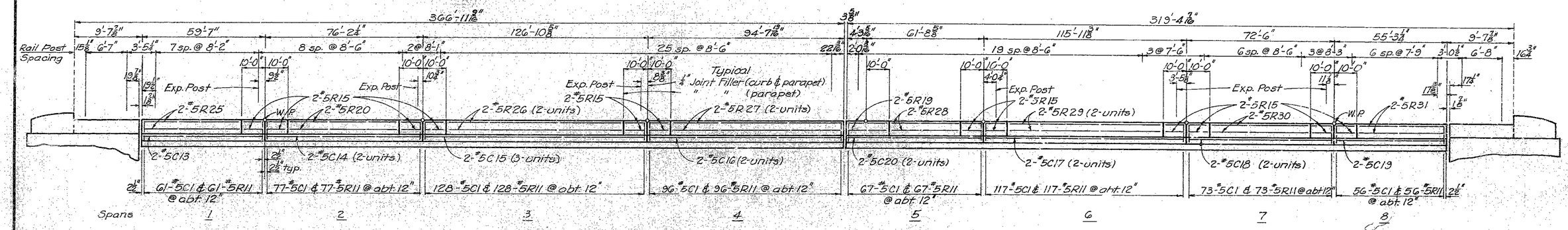
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	91	



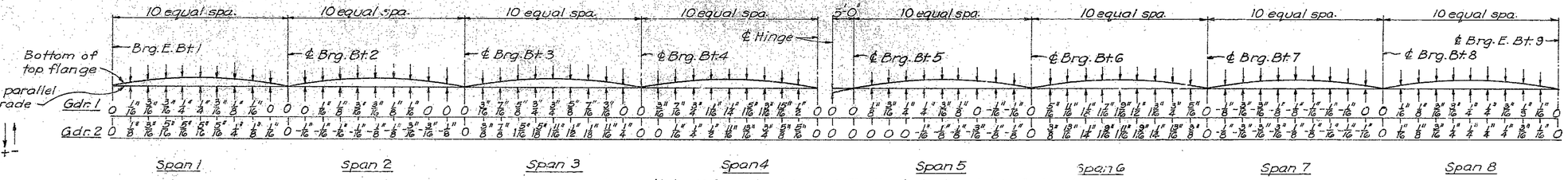
Left Outside Face of Concrete									Right Outside Face of Concrete							
Span	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
a	57'-9"	75'-7 1/2"	99'-9"	101'-2"	77'-1 3/16"	111'-11 9/16"	70'-0 11/16"	53'-7 1/4"	59'-0 1/16"	76'-2 3/8"	128'-0 1/8"	98'-11 5/16"	60'-9 3/8"	115'-10 3/8"	72'-6 1/4"	55'-5 5/8"
b	4-10 1/2	4-9 3/8	9-10 1/2	2-7	6-6 3/8	7-11 3/8	3-0 3/8	2'-9 1/2"	5-10 1/8	6-1 5/16	8-0 1/4	9-5 5/16	6-4 1/16	9-11 1/16	4-3 1/8	3-8 11/16
c	6	8	10	12	8	12	8	6	6	8	14	10	6	12	8	6
1	6 3/4"	10 3/4"	1'-7 5/8"	1'-8 1/4"	11 3/4"	2'-0 3/4"	9 3/4"	5 3/8"	6 3/4"	11 1/2"	2'-7 1/4"	1'-6 3/8"	7"	2'-1 3/8"	10"	5 3/8"
2	6 1/8	10 3/8	1'-7 1/8	1'-7 3/8	11 1/2	2'-0 1/4	9 1/4	5 1/4	6 1/2	10 3/8	2'-6 3/8	1'-6 1/8	6 1/2	2'-1 1/8	9 1/2	5 1/8
3	4 3/8	8 3/8	1'-5 1/8	1'-6 1/4	9 3/8	1'-10 3/8	7 3/8	3 5/8	4 3/8	9 1/8	2'-5 1/4	1'-4 3/8	5	1'-11 3/8	8	3 5/8
4	2 3/8	6 1/4	1'-3 1/4	1'-3 3/8	7 1/4	1'-8 1/4	5 1/4	1 3/8	2 3/8	6 3/8	2'-2 3/8	1'-2 1/4	2 3/8	1'-9 1/4	5 3/8	1 3/8
5		2 3/8	11 1/2	1'-0 1/8	5 3/8	1'-4 3/8	1 3/8			3 1/4	1'-11 3/8	10 3/4		1'-5 3/8	2 3/8	
6			7	7 3/8		1'-0 1/8					1'-7	6 3/8		1'-1 3/8		
7				2		6 1/4					1'-1 3/8			8		
8											7 3/8					

CURVE ORDINATES



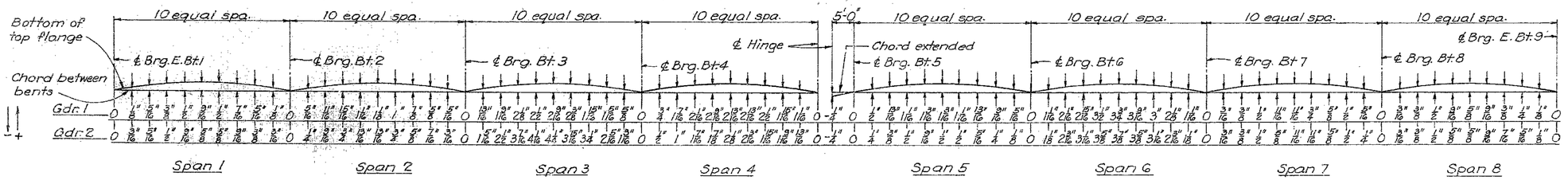
Note: For details of Rail see Sh. 22.

ELEVATION OF RIGHT CURB AND PARAPET



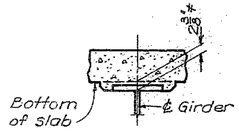
Note: 16 % of dead load deflection is due to weight of structural steel.

DEAD LOAD DEFLECTION



Note: Camber shown is for vertical curve and dead load deflection of concrete slab and structural steel.

PLATE GIRDER CAMBER DIAGRAM



THEORETICAL SLAB HAUNCH

* Dimension may vary if girder camber after erection differs from plan camber by more than the % of D.L. deflection due to weight of structural steel. No payment will be made for additional forming or concrete required for variable haunching.

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DETAILED Jan. 1970 BY B.S & JER
CHECKED May 1970 BY F.J.D

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

Sheet No. 23 of 23.

PLATTE COUNTY

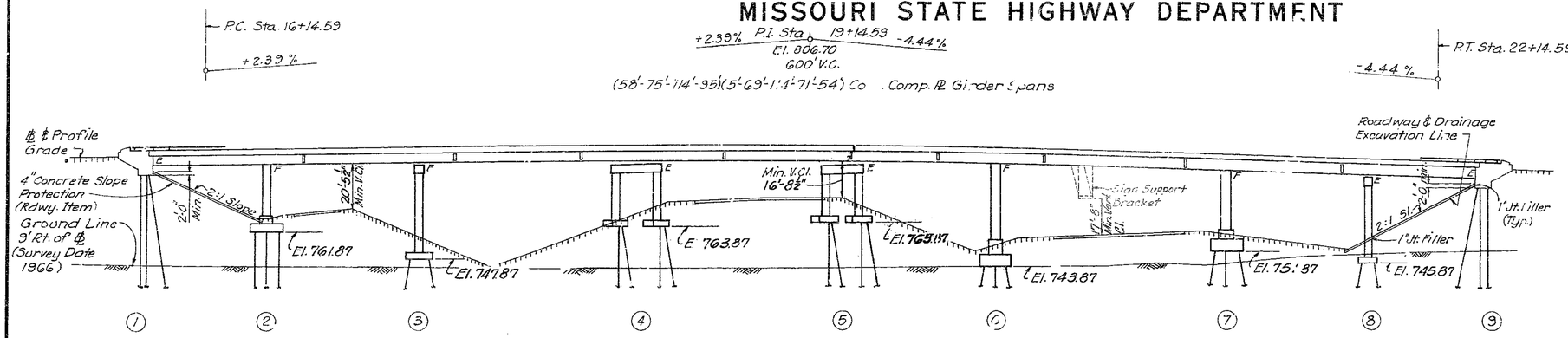
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2433

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	4	

FINAL PLANS

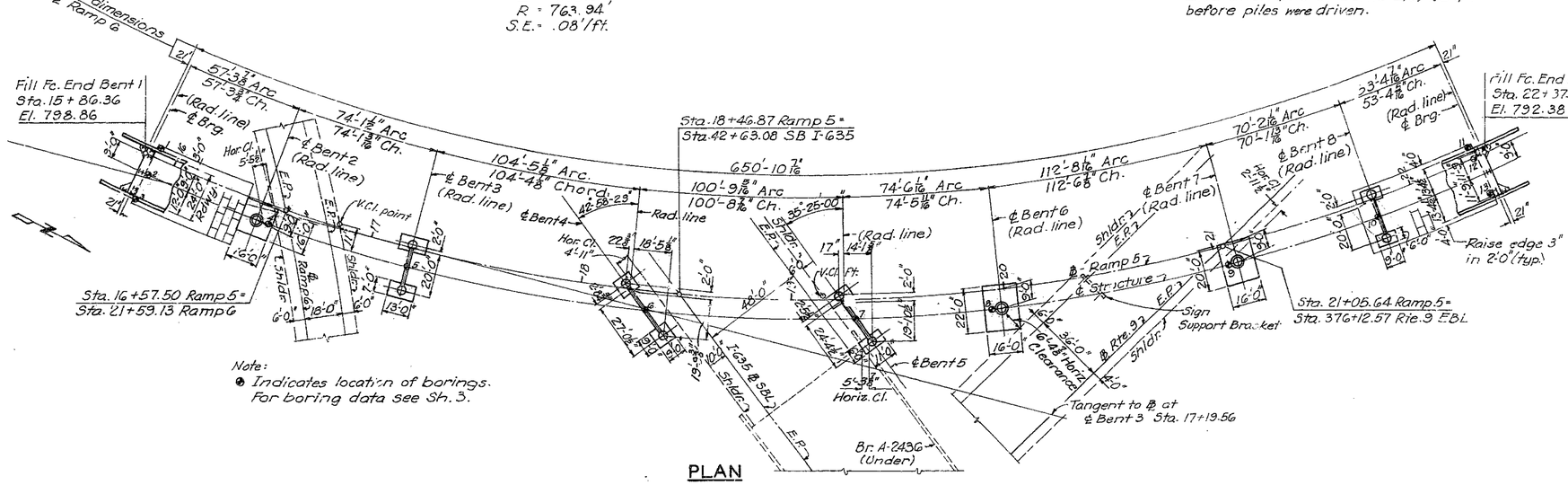


ELEVATION

Note: Bents can not be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords.
For substructure layout see Sheet 2.

Ramp 5 Curve Data
P.I. Sta. 24+34.23
Δ = 104°-51'-13" Lt.
D = 7°-30'
T = 992.96'
L = 1398.04'
R = 763.94'
S.E. = .08'/ft.

Note:
Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front of and not less than 25' in back of End Bents 1 & 9 and up to Roadway & Drainage Excavation Line at Bents 2, 3, 4, 5 & 7 before piles were driven.



Note:
● Indicates location of borings.
For boring data see Sh. 3.

PLAN

GENERAL NOTES

Design Specifications: AASHO 1969

Design Loading:
HS20-44

Earth 120# Equivalent Fluid Pressure 30#.
Fatigue Stress - Case 1

Design Unit Stresses:

Class B Concrete (substructure)	fc = 1,200 psi
Class B1 Concrete (superstructure)	fc = 1,600 psi
Reinforcing Steel	fs = 20,000 psi
Structural Steel (ASTM A36)	fs = 20,000 psi
Structural Steel (ASTM A572) Grade 50	fs = 27,000 psi
Steel Pile	fb = 9,000 psi

Field connections, High Strength Bolts 7/8", holes 15/16" ϕ except as noted.
Paint: Shop none; Field, by contractor in accordance with Std. Spec. 712.12.
Minimum clearance to reinforcing steel 1½" unless otherwise shown.
All reinforcing bars in tops of substructure beams or caps spaced to clear anchor bolts for bearings by at least ½".

PILE DATA

Bent No.		1	2	3	4	5	6	7	8	9
Pile Type & Size		10BP42	12BP53	10BP42	10BP42	10BP42	12BP53	12BP53	10BP42	10BP42
Number each Bent		7	9	12	16	10	12	12	8	8
Final Length	Ft.	101-116	57-87	50-52	60-87	63-67	40-41	27-37	10-20	42-47
Design Bearing	Tons	43	61	54	49	48	70	66	39	43
Hammer Energy	Ft. Lbs.	13,200	13,700	12,200	11,000	10,800	15,800	14,900	8,300	9,900

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

QUANTITIES

Items		Substr.	Supers	Totals	
Class 1 Excavation	Cu.Yd.	988.5		988.5	X
Structural Steel Piles (10")	Lin.Ft.	3545		3545	X
Structural Steel Piles (12")	Lin.Ft.	1603		1603	X
Class B Concrete	Cu.Yd.	468.1		468.1	X
Class B1 Concrete	Cu.Yd.		637.5	637.5	X
Reinforcing Steel	Lb.	56710	202180	258890	X
Fabricated Structural Carbon Steel	Lb.		352660	352660	X
Fabricated Structural Low Alloy Steel	Lb.		92030	92030	X
Painting	Ton		267.3	267.3	X
Bridge Rail (one tube)	Lin.Ft.		1356	1356	X
Stl. Reinf. Elastomeric Exp. Joint Type A	Lin.Ft.		52	52	X
Stl. Reinf. Elastomeric Exp. Joint Type B	Lin.Ft.		32	32	X
Fabricated Sign Support Brackets	Lump Sum		1	1	X
Conduit System on Structure	Lump Sum		1	1	X
Coal Tar Interlayer Protective Coat	Sq.Yd.		1740	1740	X
Special Type "D" Mixture (Asphalt Conc.)	Ton		125	125	X
Fab Struct Carbon Steel (Substr)	Lb.	85780		85780	X
Fab Struct Low Alloy Steel (Substr)	Lb.	7290		7290	X

Note: Payment for fabricated structural steel, superstr, based on welded field splices regardless of type used.
All concrete and reinforcement in end posts, parapets, and curbs is included with superstructure quantities.

B.M. Bolt head in SW corner of curb Br. A-2433 Elev. 799.03
B.M. Bolt head in NW corner of curb Br. A-2433 Elev. 794.18

BRIDGE: RAMP 5 OVER RAMP 6, I-635 S.B.L. AND RTE. 9 E.B.L.
STATE ROAD - INTERSTATE ROUTE 635
IN RIVERSIDE
PROJECT NO. IG-635-1(75)(RTE. I-635) STA. 15+86.36
PLAT [illegible] UNTY

DESIGNED JAN. 1970 H&C
DETAILED JAN. 1970 BY JEP
CHECKED MAY 1970 BY FJD

Note: This drawing is not to scale. Follow dimensions

Sheet No. 1A of 23.

F. M. CORTELYOU, JR. NUMBER E-4155 REGISTERED PROFESSIONAL ENGINEER — STATE OF MISSOURI

SUBMITTED BY W. A. Carr BRIDGE ENGINEER 4-72
APPROVED BY Robert L. Hunter CHIEF ENGINEER DATE 1-24-72

HARRINGTON AND CORTELYOU CONSULTING ENGINEERS KANSAS CITY, MO.

FINAL PLAN

DWG. 903.09
DWG. 611.60
DWG. 706.30A
A-2433

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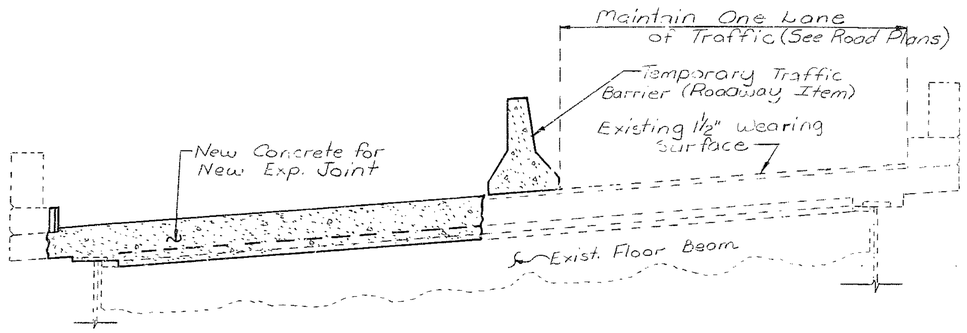
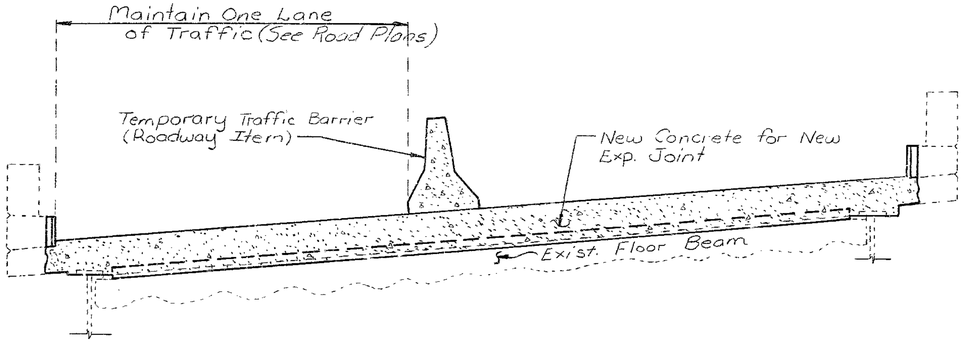
AF 33910A

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

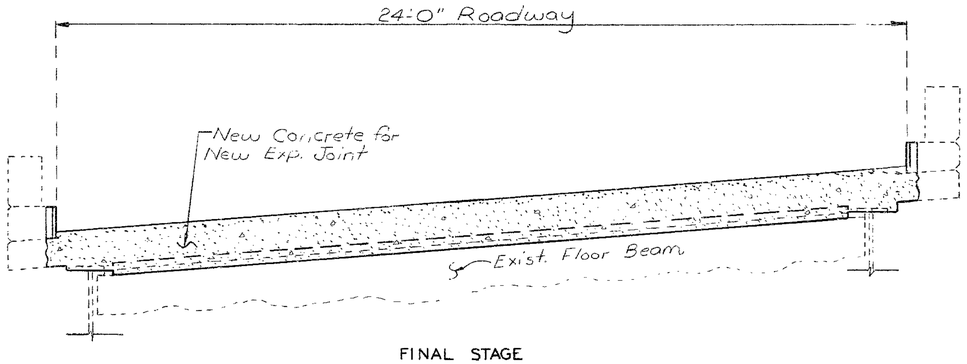
STATE	PROJ. NO.	SHEET NO.
MO.	IR-635-1(208)	7
SEC./SUR 5	TWP 50N	RGE. 33W



STAGE ONE



STAGE TWO



FINAL STAGE

PART SECTIONS THRU SLAB NEAR NEW EXP. DEVICE JOINT

ESTIMATED QUANTITIES		
ITEM		TOTAL
Special Work	Lump Sum	1
Elastomeric Exp. Jt. Seal (2.5 in.)	Lin. Ft.	24
Elastomeric Exp. Jt. Seal (4.0 in.)	Lin. Ft.	30
Preformed Compression Expansion Jt. Seal (3.5 in.)	Lin. Ft.	24

Note: Outline of old work is indicated by light washed lines. Heavy lines indicate new work.

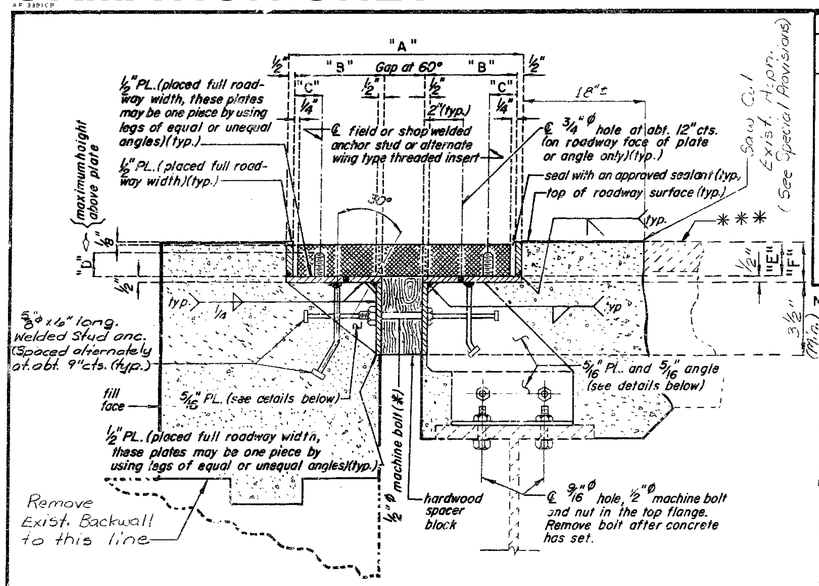
REPAIRS TO
BRIDGE: RAMP 5 OVER RAMP 6, I-635 S.B.L. AND RTE. 9 E.B.L.
STATE ROAD - INTERSTATE ROUTE 635
IN RIVERSIDE
PROJECT NO. IR-635-1(208) STA. 15+86.36 ±
JOB NO. 4-I635-763 RTE. I-635
PLATTE COUNTY
DATE JAN. 22, 1985

STD.	
STD.	
A-2433R	

DESIGNED Oct. 1984
DETAILED Oct 1984
CHECKED Nov. 1984

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

STATE	PROJ NO	SHEET NO.
MO.	IR-635-1(208)	8



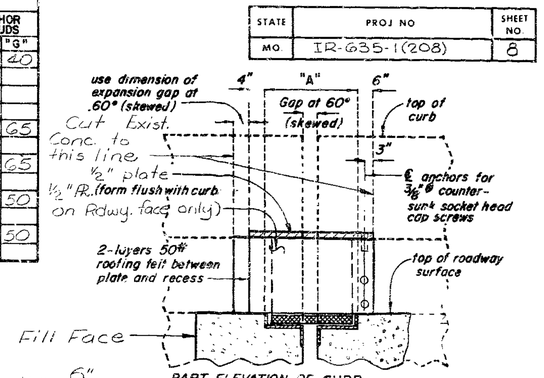
PART SECTION THRU ARMORED JOINT

*** Existing Asphaltic Concrete

PART PLAN

LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	ANCHOR STUDS "G"
End Bt. No. 9	Acme Trojan TR300	2"	11½"	4¼"	1¾"	1⅛"	1¾"	2¼"	½"	40
	Gen-Strip CCL 2½"	2½"	11¾"	4¼"	1½"	1⅛"	1¾"	2¼"	⅝"	65
	On-Flex 25	1½"	11"	4¼"	1⅝"	¼"	1⅜"	2⅛"	⅝"	65
	Fel-Span 130A CS	¾"	11¾"	4½"	1⅝"	1¼"	1⅝"	2⅛"	½"	50
	Wabo Bendoflex 250	2"	11½"	4½"	1⅝"	1¼"	1⅞"	2⅜"	½"	50

NOTE: *All dimensions are at right angles.*
Expansion gap and dimension "A" shall be increased ⅛" for each 10° fall in temperature and decreased ⅛" for each 10° rise in temperature.



PART ELEVATION OF CURB

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE CERTIFIED NUTS AND BOLTS FOR THE ANCHOR STUDS OR WING TYPE THREADED INSERTS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL. APPROVED STUD WELDED ANCHORS (C-1010 THRU C-1020) SHALL BE USED.

SEE SPECIAL PROVISIONS FOR PAINTING.

ANCHOR BOLTS IN THE Brush CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE Brush CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT.

FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

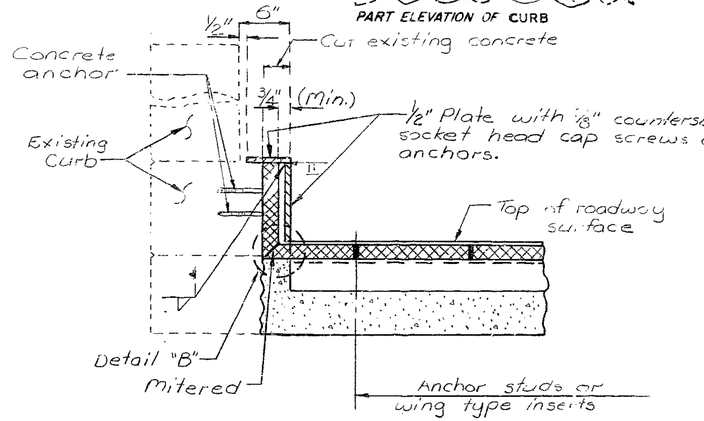
PLATES SHALL BE FIELD ADJUSTED BY ADDING OR REMOVING METAL SHIMS (2"± 3"), AS REQUIRED FOR TEMPERATURE CORRECTION. THE EXPANSION GAP SHALL BE ADJUSTED FOR ANY TEMPERATURE CORRECTION PRIOR TO POURING TOP OF END BENT BACKWALL.

Alternate methods of supporting Exp. Device during installation may be submitted to the Engineer for approval.

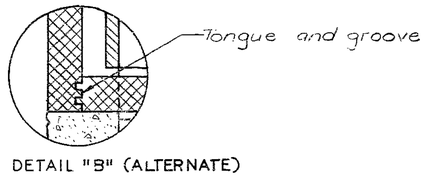
Details & location of armor splices shall be shown on shop drawings.

Existing reinforcement exposed shall be cleanly stripped and reused. Where reinforcement interferes with installation of Exp. Joint Seal it shall be shifted or removed for clearance. Minimum clearance to reinforcement shall be 1½".

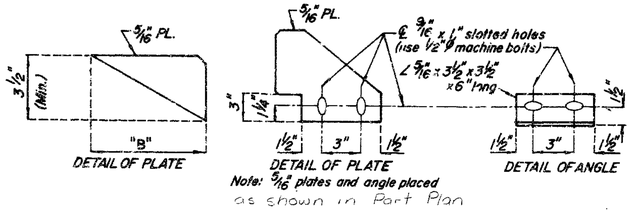
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.



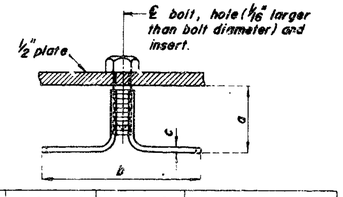
SECTION THRU CURB AT NEW EXP. JT. SEAL



DETAIL "B" (ALTERNATE)



Note: 5/16" plates and angle placed as shown in Part Plan



Bolt Diameter	Safe Load Tension (lbs.)(min.)	Approx. Ult. Cap. Tension (lbs.)(min.)	Dimensions a (min.)	b	c
1/2"	800	8,000	1-5/8"	5"	.218"
5/8"	1,300	9,200	1-5/8"	5"	.218"
3/4"	1,800	13,200	2-1/4"	6"	.262"
7/8"	2,000	16,200	2-1/2"	6-1/2"	.306"
1"	2,000	16,200	2-1/2"	6-1/2"	.306"

DETAILS OF ALTERNATE WING TYPE THREADED INSERT

(Machine bolts need only be used to secure the Wing Type Threaded Inserts to the steel plate until the concrete has attained 3,000 p.s.i.)

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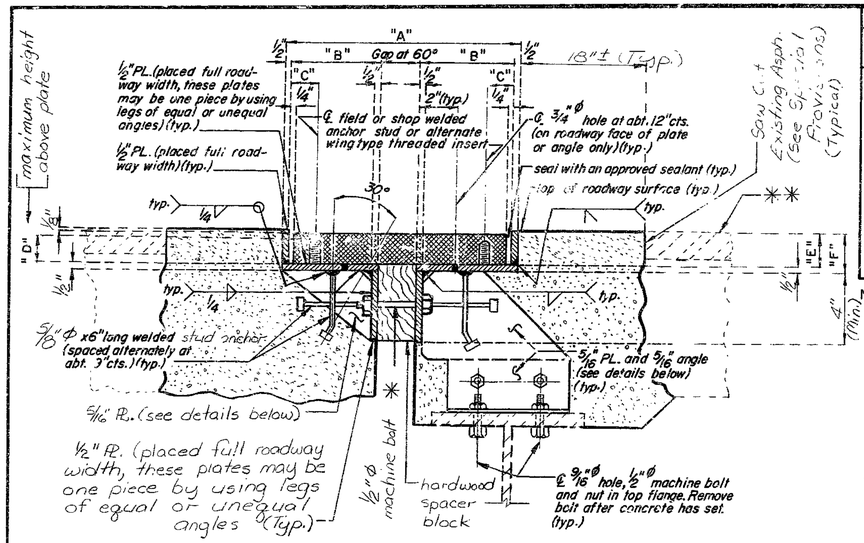
DETAILED Oct. 1984
CHECKED Nov. 1984

DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL AT BENT NO. 9

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

PLATTE COUNTY

A-2433R

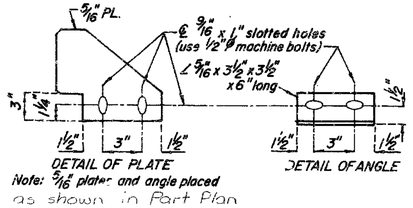


** Existing Asphaltic Concrete

PART SECTION THRU ARMORED JOINT

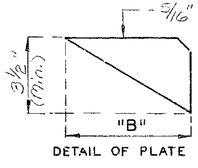
PART PLAN

* Place ½"Ø machine bolt (9/16"Ø hole) on centers of about 5'-0".



DETAIL OF PLATE

Note: 5/16" plate and angle placed as shown in Part Plan



DETAIL OF PLATE

LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	ANCHOR STUDS "G"
Near Int. Bent No 5	On-Flex 45	2¼"	11¼"	4¼"	1 5/16"	1½"	2¾"	3½"	⅝"	6S
	Wabo Bendoflex 450	2½"	12"	4¼"	1 5/16"	1¼"	2¾"	3¼"	½"	5O
	Fel-Span T40A CS	2¼"	12¼"	4½"	1⅝"	1½"	2¼"	2¾"	½"	5O

NOTE: All dimensions are at right angles.
Expansion gap and dimension "A" shall be increased ¼" for each 10° fall in temperature and decreased ¼" for each 10° rise in temperature.

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE CERTIFIED NUTS AND BOLTS FOR THE ANCHOR STUDS OR WING TYPE THREADED INSERTS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL. NO APPROVED STUD WELDED ANCHORS (C-1010 THRU C-1020) SHALL BE USED.

SEE SPECIAL PROVISIONS FOR PAINTING.

ANCHOR BOLTS IN THE Brush CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE Brush CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

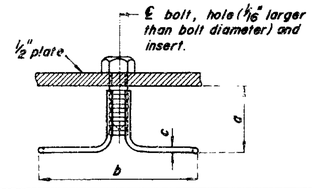
CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT.

FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

Alternate methods of supporting Exp. Device during installation may be submitted to the Engineer for approval. Details & location of armor splices shall be shown on shop drawings.

Existing reinforcement exposed shall be cleany stripped and reused. Where reinforcement interferes with installation of Exp. Joint Seal it shall be shifted or removed for clearance.
Minimum clearance to reinforcement shall be 1½".
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

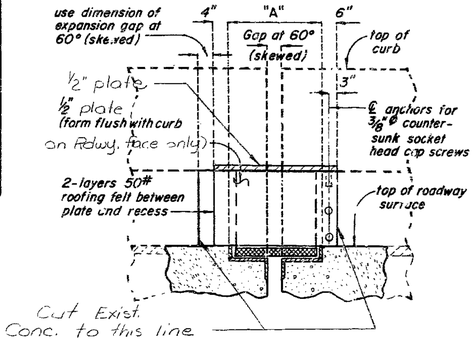


Bolt Diameter	Safe Load Tension (lbs.) (min.)	Approx. Ult. Cap. Tension (lbs.) (min.)	Dimensions a (min.)	b	c
1/2"	800	8,000	1-5/8"	5"	.218"
5/8"	1,300	9,200	1-5/8"	5"	.218"
3/4"	1,800	13,200	2-1/4"	6"	.262"
7/8"	2,000	16,200	2-1/2"	6-1/2"	.306"
1"	2,000	16,200	2-1/2"	6-1/2"	.306"

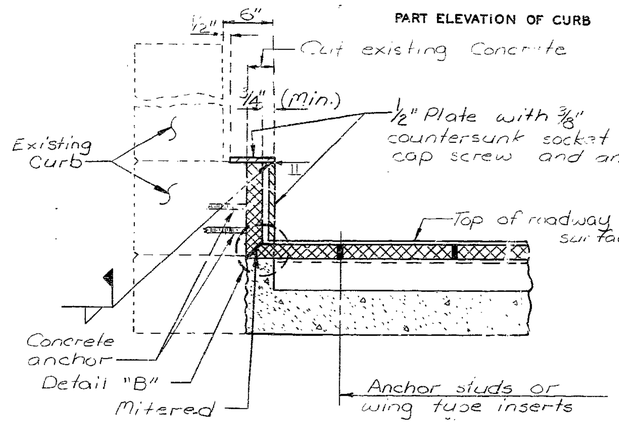
DETAILS OF ALTERNATE WING TYPE THREADED INSERT

(Machine bolts need only be used to secure the Wing Type Threaded Inserts to the steel plate until the concrete has attained 3,000 p.s.i.)

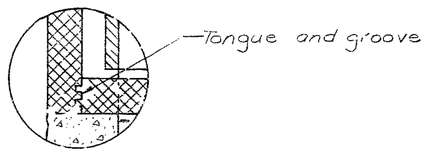
STATE	PROJ NO	SHEET NO
MO	IR-635-1(208)	9



PART ELEVATION OF CURB



SECTION THRU CURB AT NEW EXP. JT. SEAL



DETAIL "B" (ALTERNATE)

REVISED	AUG. 1983
SPS-INT BT.	
FEB. 1978	

DETAILED Oct. 1984
CHECKED Nov. 1984

DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL NEAR BENT NO. 5

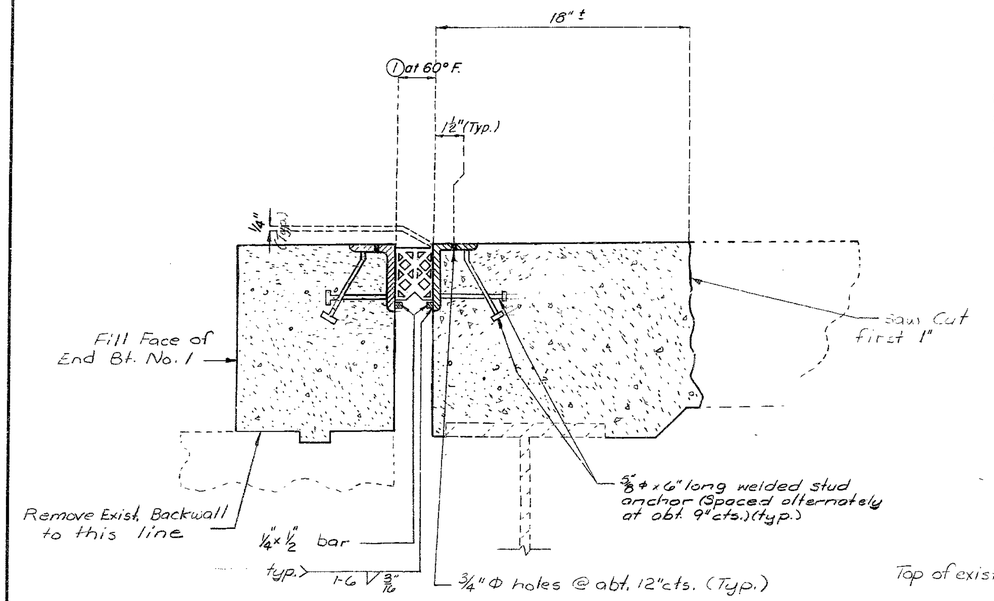
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 4 .

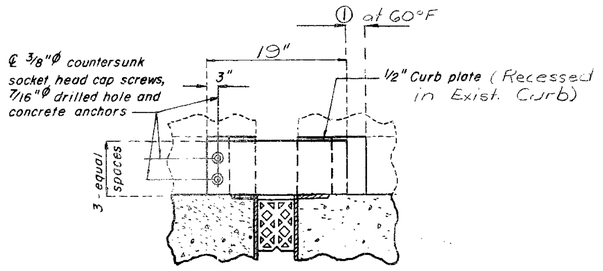
PLATTE COUNTY

A-2433R

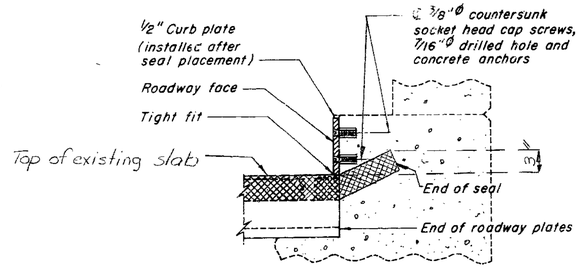
STATE	PROJ NO	SHEET NO
MO	IR-635-1(208)	10



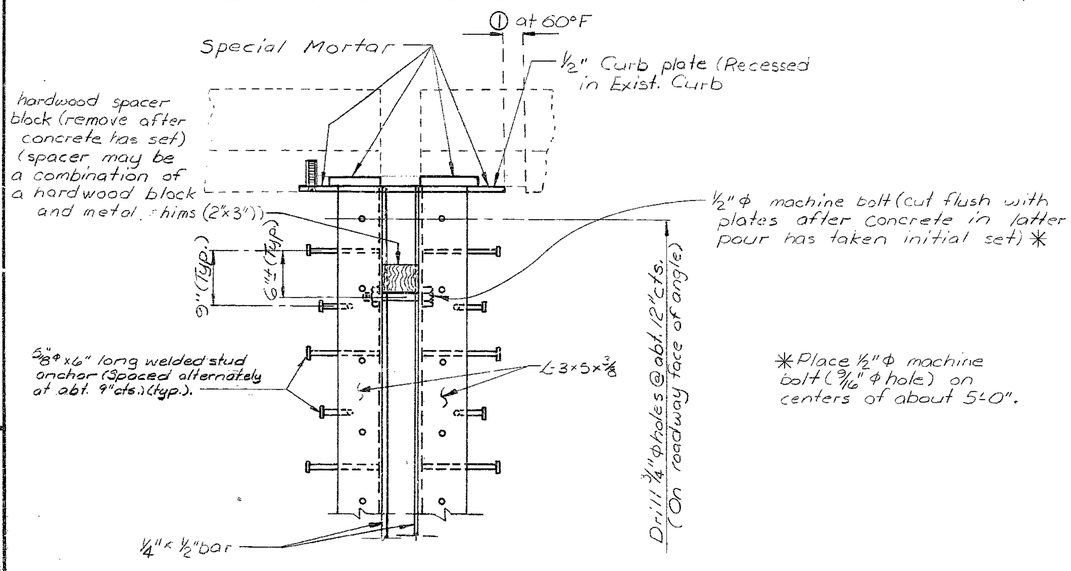
PART CROSS SECTION THRU ARMORED EXPANSION JOINT AT END BENT NO.1



PART ELEVATION OF CURB

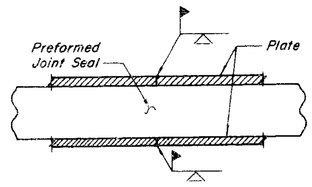


PART SECTION THRU CURB



PART PLAN

* Place ½"Φ machine bolt (9/16"Φ hole) on centers of about 5'-0".



DETAIL OF WELDED SPLICE

NOTES:

Plan dimensions are based on right angles.

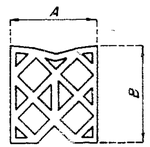
Compression seal and plates shall be bent to conform to new crown and grade of roadway.

See special provisions for the requirements of compression joint seal.

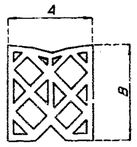
Dimension ① shall be increased 1/16" for each 10° fall in temperature and decreased 1/16" for each 10° rise in temperature at installation.

Concrete anchors shall be the cone expansion type for hot-dip galvanized bolts.

Note: A method of supporting Exp. Device during installation shall be submitted to the Engineer for approval.



TYPE A1



TYPE B3

TABLE OF TRANSVERSE BRIDGE SEAL DIMENSIONS				
TYPE	"A" (WIDTH)	"B" (HEIGHT)	①	MAX. LIMIT OF COMPRESSIBILITY
A1 OR B3	2.0"	NOT LESS THAN "A"	1 3/8"	46%
A1 OR B3	2.5"	NOT LESS THAN "A"	1 5/8"	46%
A1 OR B3	3.0"	NOT LESS THAN "A"	1 7/8"	43%
A1 OR B3	3.5"	NOT LESS THAN "A"	2 1/4"	42%
A1 OR B3	4.0"	NOT LESS THAN "A"	2 5/8"	42%
A1 OR B3	4.5"	NOT LESS THAN "A"	2 3/4"	40%
A1 OR B3	5.0"	NOT LESS THAN "A"	2 7/8"	40%

Use at End Bent No.1

In lieu of the specified seal, the next larger seal may be substituted. Dimensions and limits shall correspond to the actual seal installed.

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PREFORMED-EXISTING | BRUSH CURB | JAN. 1984
08-80 | REVISED

DETAILED NOV. 1984
CHECKED NOV. 1984

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

PLATTE COUNTY

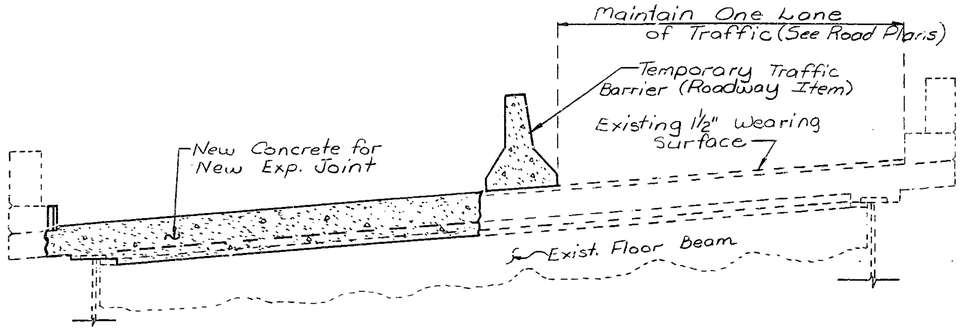
A-2433R

AF 33910A

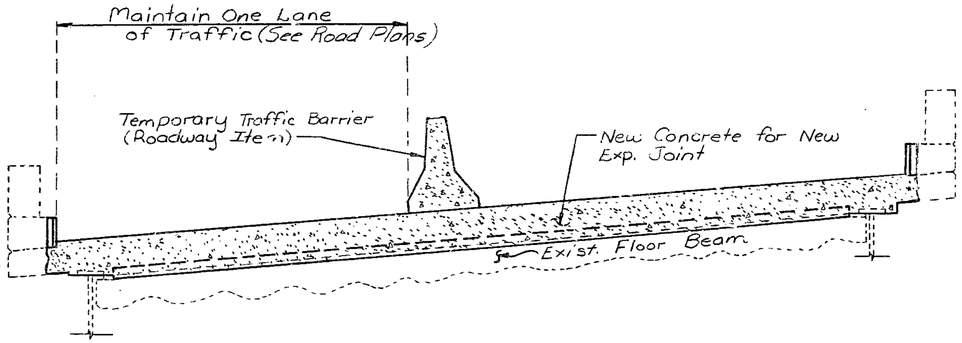
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO	SHEET NO.
MO.	IR-635-1(208)	7
SEC./SUR. 5	TWP. 50N	RGE. 33W

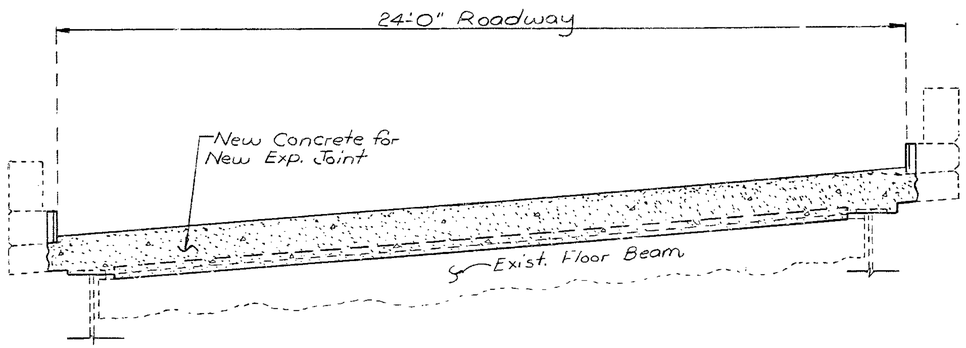
FINAL PLANS



STAGE ONE



STAGE TWO



FINAL STAGE

PART SECTIONS THRU SLAB NEAR NEW EXP. DEVICE JOINT

ESTIMATED QUANTITIES		
ITEM		TOTAL
Special Work	Lump Sum	1
Elastomeric Exp. Jt. Seal (2.5 in.)	Lin. Ft.	24
Elastomeric Exp. Jt. Seal (4.0 in.)	Lin. Ft.	30
Preformed Compression Expansion Jt. Seal (2.5 in.)	Lin. Ft.	24

Note: Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

151

DESIGNED Oct. 1984
DETAILED Oct. 1984
CHECKED Nov. 1984

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

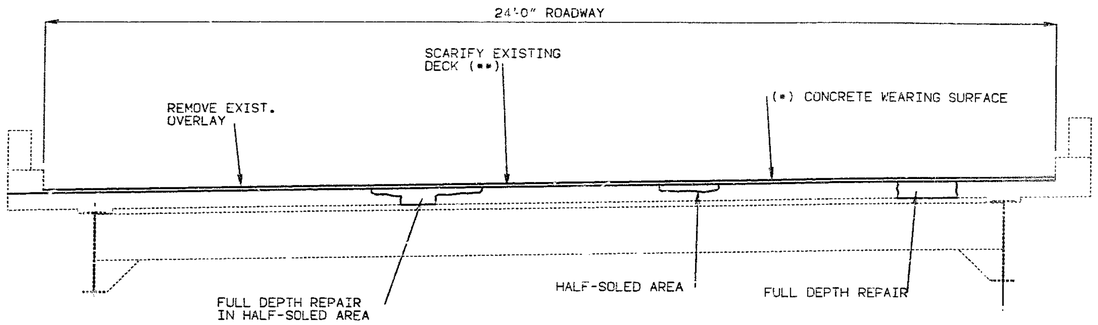
Sheet 1A of 4

REPAIRS TO
BRIDGE: RAMP 5 OVER RAMP 6, I-635 S.B.L. AND RTE. 9 E.B.L.
STATE ROAD-INTERSTATE ROUTE 635
IN RIVERSIDE
PROJECT NO. IR-635-1(208) STA. 15+86.36 ±
JOB NO. 4-I635-763 RTE. I-635
PLATTE COUNTY
DATE JAN. 22, 1985

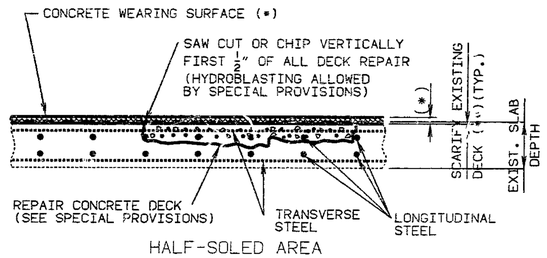
STD.
STD.
A-2433R

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

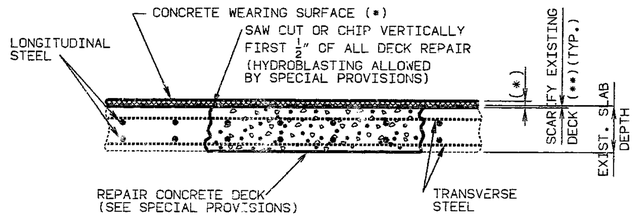
STATE	PROJ. NO.	SHEET NO.
MO.		48
SEC./SUR. 5	TWP. 50N RGE. 33W	



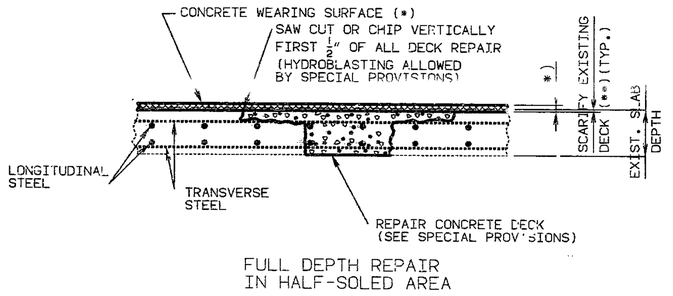
TYPICAL SECTION THRU SLAB



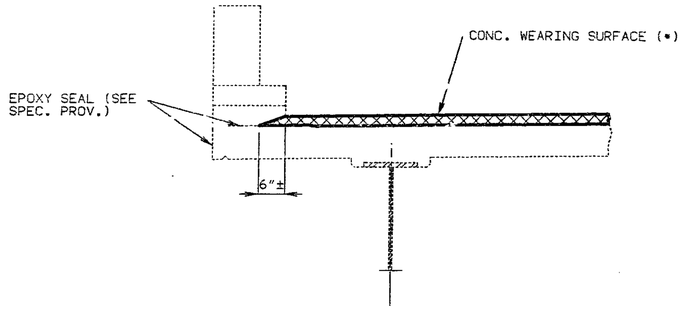
HALF-SOLED AREA



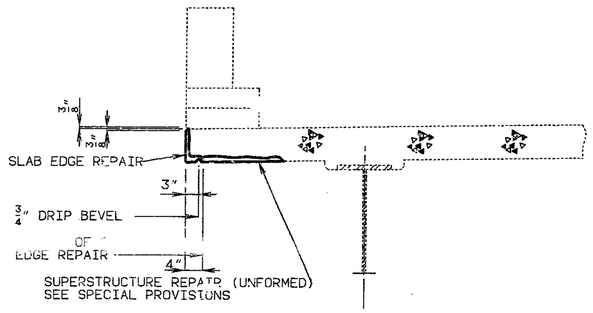
FULL DEPTH REPAIR



FULL DEPTH REPAIR
IN HALF-SOLED AREA



DETAIL THRU CURB OUTLET



PART SECTION THRU SLAB

GENERAL NOTES:

DESIGN SPECIFICATIONS: A.A.S.H.T.O. -1989

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATES NEW WORK.

MAINTAIN TRAFFIC ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS.)

ROADWAY SURFACING ADJACENT TO BRIDGE ENDS TO MATCH EXISTING CONCRETE DECK PLUS $1\frac{1}{2}$"±.

ESTIMATED QUANTITIES		
ITEM		TOTAL
ASPHALT REMOVAL (BRIDGES)	SQ. FT.	15,613
SUPERSTRUCTURE REPAIR (UNFORMED) SEE SPEC. PROV.	SQ. FT.	400
REPAIRING CONCRETE DECK (HALF-SOLING)	SQ. FT.	200
FULL DEPTH REPAIR	SQ. FT.	100
CONCRETE WEARING SURFACE(*) ( )	SQ. YD.	1735
SLAB EDGE REPAIR (BRIDGES)	LIN. FT.	330

* SEE JOB SPECIAL PROVISIONS FOR ALTERNATE USE OF CONCRETE WEARING SURFACE.
$1\frac{3}{4}$" (MIN.) LATEX MODIFIED CONCRETE.
2" (MIN.) LOW SLUMP CONCRETE.

** SCARIFY EXIST. DECK $\frac{1}{4}$" (MIN.) IF LATEX MODIFIED CONCRETE IS USED, OR $\frac{1}{2}$" (MIN.) IF LOW SLUMP CONCRETE IS USED.

B.M.

REPAIRS TO BRIDGE: RAMP 5 OVER RAMP 6, I-635 SBL. & RTE. 9 EBL.

STATE ROAD FROM STATE LINE TO RTE I-29

IN RIVERSIDE

PROJECT NO. F.A.-635-1(247) STA. 15+86.36± (RAMP 5)

JOB NO. 4I 990 635 RTE. I-635

PLATTE COUNTY

DATE 2/4/91

STD.
STD.
A-2433R1

DESIGNED AUG. 1990
DETAILED AUG. 1990
CHECKED AUG. 1990

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 1 OF 1.

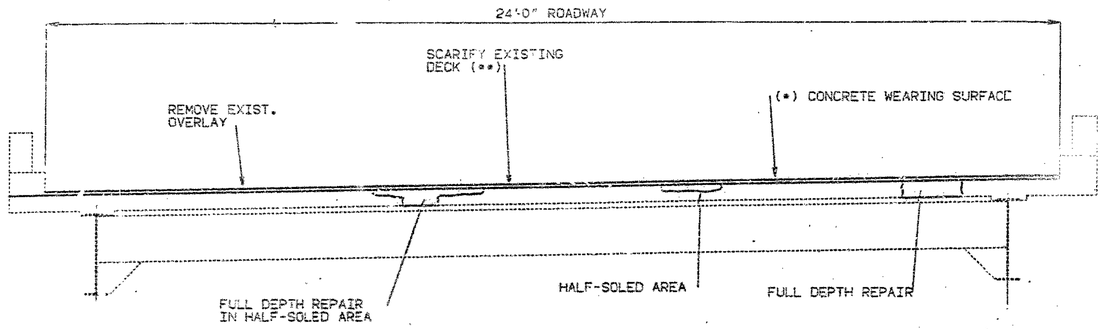
1992 400

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

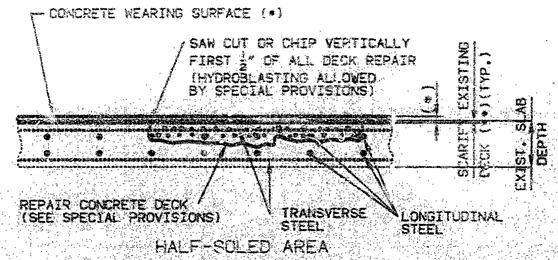
(30)

STATE	PROJ. NO.	SHEET NO.
MO.	FA-635-1(247)	30
SEC./SUR. 5	TWP. 50N RGE. 33W	

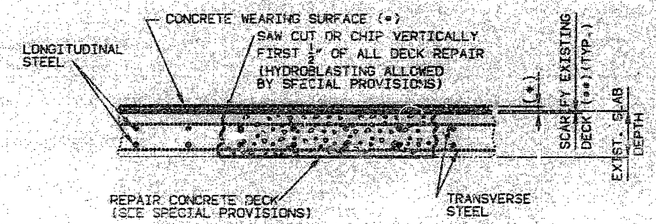
FINAL PLANS



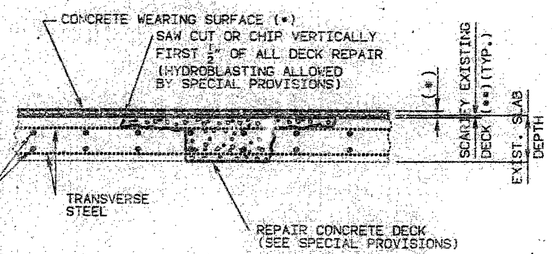
TYPICAL SECTION THRU SLAB



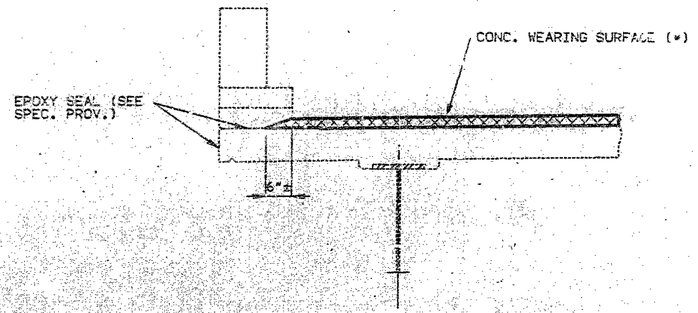
HALF-SOLED AREA



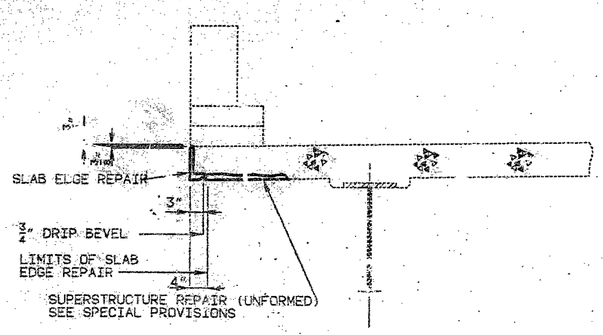
FULL DEPTH REPAIR



FULL DEPTH REPAIR IN HALF-SOLED AREA



DETAIL THRU CURB OUTLET



PART SECTION THRU SLAB

GENERAL NOTES:

DESIGN SPECIFICATIONS: A.A.S.H.T.O. -1989

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATES NEW WORK.

MAINTAIN TRAFFIC ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS.)

ROADWAY SURFACING ADJACENT TO BRIDGE ENDS TO MATCH EXISTING CONCRETE DECK PLUS (1/2"±.

FINAL QUANTITIES

ITEM		TOTAL
ASPHALT REMOVAL (BRIDGES)	SQ. FT.	15613
SUPERSTRUCTURE REPAIR (UNFORMED) SEE SPEC. PROV.	SQ. FT.	310
REPAIRING CONCRETE DECK (HALF-SOLING)	SQ. FT.	154
FULL DEPTH REPAIR	SQ. FT.	0
CONCRETE WEARING SURFACE(*) (LOW SLUMP)	SQ. YD.	1735
SLAB EDGE REPAIR (BRIDGES)	LIN. FT.	331

* SEE JOB SPECIAL PROVISIONS FOR 2" (MIN.) LOW SLUMP CONCRETE.

** SCARIFY EXIST. DECK 1/2" (MIN.) FOR LOW SLUMP CONCRETE

B.M.

REPAIRS TO BRIDGE: RAMP 5 OVER RAMP 6, I-635 SBL. & RTE. 9 EBL.

STATE ROAD FROM STATE LINE TO RTE I-29 IN RIVERSIDE

PROJECT NO. FA-635-1(247) STA. 15+86.36± (RAMP 5)

JOB NO. 4I 990 635 RTE. I-635

PLATTE COUNTY

DATE 2/4/91

STD.	
STD.	
A-2433R1	

DESIGNED	AUG. 1990
DETAILED	AUG. 1990
CHECKED	AUG. 1990

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

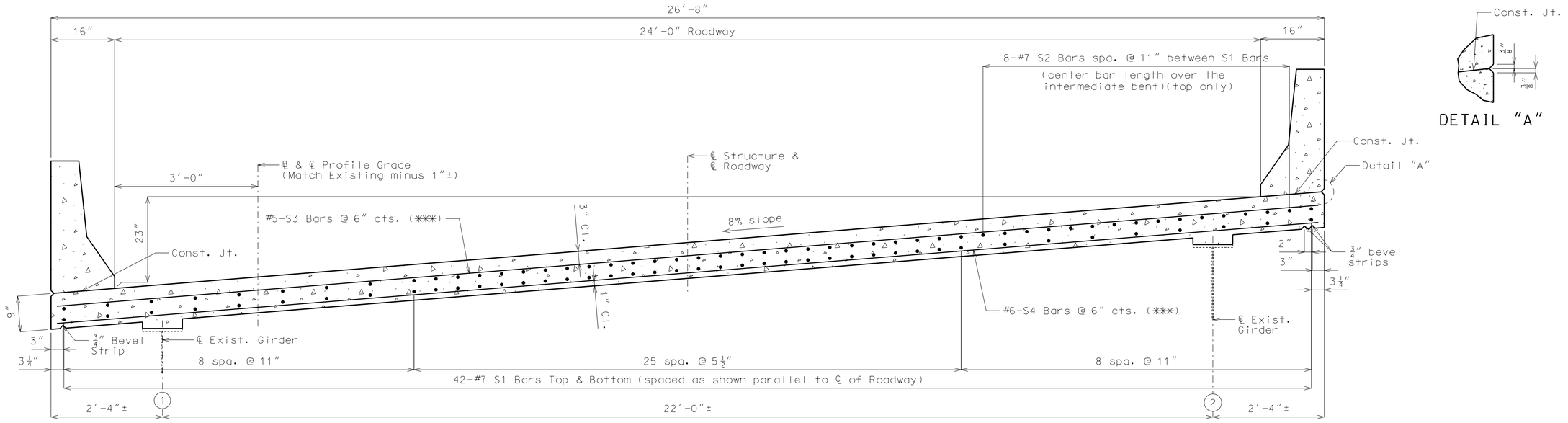
SHEET NO. 1A OF 1.

30

SEC/SUR 5 TWP 50N RGE 33W

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

U.I.P. & Redeck Existing (64′-83′-54′) Continuous Composite Curved Plate Girder Spans



HALF SECTION NEAR END BENT

HALF SECTION NEAR INTERMEDIATE BENT

DETAIL "A"

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012

ROUTE	STATE
69	MO
DISTRICT	SHEET NO.
BR	1

COUNTY PLATTE

JOB NO. J412373

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A24343

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

General Notes:

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A

Design Loading:
HS20-44 (1969), HS20 Modified (New Construction)
15#/Sq. Ft. Future Wearing Surface
Fatigue Stress - Case I

Design Unit Stresses:

Class B-1 Concrete (Safety Barrier Curb)	f′c = 4.000 psi
Class B-2 Concrete (Superstructure except Safety Barrier Curb)	f′c = 4.000 psi
Reinforcing Steel (Grade 60)	fy = 60.000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2″, unless otherwise shown.

Miscellaneous:

All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

Roadway surfacing adjacent to bridge ends shall match new bridge slab surface (Roadway Item).

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Refer to existing bridge plans for other dimensions and information not shown.

Dimensions shown are horizontal unless otherwise noted.

Traffic Handling:
Structure to be closed during construction.

Designed
Detailed Oct. 2012
Checked

✱✱✱ spaced along outside edge of Right Curb.

Estimated Quantities

	Item		Total
	Removal of Existing Bridge Decks	sq. foot	5536
	Slab on Steel	sq. yard	605
✱	Safety Barrier Curb	linear foot	457

✱ Safety barrier curb shall be cast-in-place option or slip-form option.

Cost of any required excavation for bridge will be considered completely covered by the contract unit price for other items.

REQUIRED LAP LENGTH FOR BAR SPLICES ✱✱

Bar Size	Splice Length
5	3′-3″
6	3′-10″
7	4′-11″

✱✱ Unless otherwise shown.

Estimated Quantities for Slab on Steel

Item		Total
Class B-2 Concrete	cu. yard	156.3
Reinforcing Steel (Epoxy Coated)	pound	68120

The table of Estimated Quantities for Slab on Steel represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard from end of slab to end of slab and the overall width shown in the Typical Section Thru Slab. Payment for conventional forms or optional stay-in-place forms, all concrete and coated reinforing steel will be considered completely covered by the contract unit price for the slab.

Method of forming the slab shall be in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

Slab shall be cast-in-place with conventional forming or stay-in-place corrugated steel forms. Precast prestressed panels will not be permitted.

For optional Stay-In-Place Form Details, see Sheet No. 2.

REPAIRS TO BRIDGE: RAMP 6 (RTE. 69 SB TO I-635 SB) OVER RTE. 9 SB

STATE ROAD FROM MISSOURI RIVER TO I-29

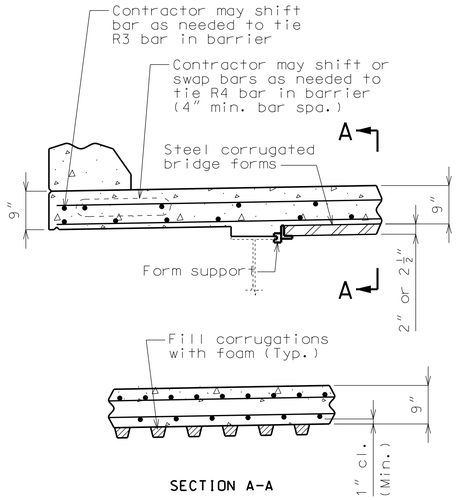
IN RIVERSIDE

STA. 17+34.75± (Match Existing)

STD. 617.10
STD. 706.35

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

Note:
Cost of removing curbs, parapets, rails and end posts, as shown will be considered completely covered by the contract unit price for "Removal of Existing Bridge Decks".



SECTION A-A

OPTIONAL STAY-IN-PLACE FORM DETAILS

Notes:
Corrugated steel bridge deck forms, supports closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

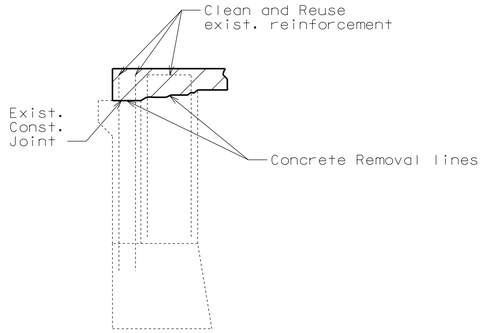
Form sheets shall not rest directly on the top of girders, stringers or floorbeams flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Welding on or drilling holes in the flanges of the girders, stringers or floorbeams will not be permitted. All steel fabrication and construction shall be in accordance with Sec's 1080 and 712. MoDOT certified field welders will not be required for welding of the form supports.

The contractor shall provide temporary bracing as necessary to prevent girders from rotating during slab pour. The cost for temporary bracing shall be considered completely covered by the contract unit price for Slab on Steel.

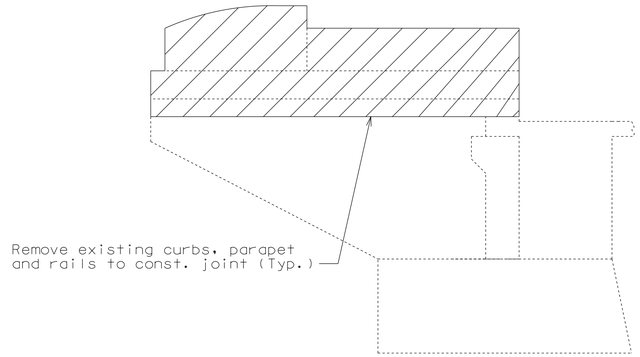
Slab shall be poured upgrade from end to end at a minimum rate of 25 cu. yd./ hr.

Alternate pour sequences may be submitted to the engineer for approval. Keyed construction joints shall be provided between pours.

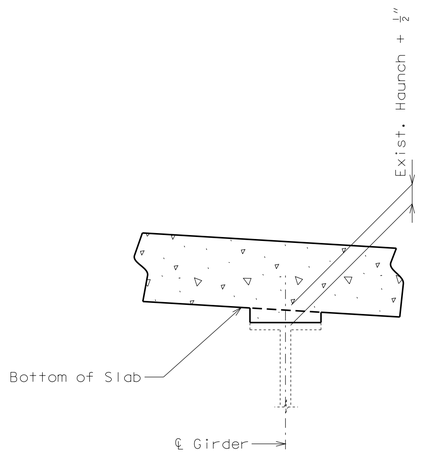
Slab is to be considered at a uniform depth as shown on the plans. Haunching will vary.



PART SECTION THRU SLAB AT END BENTS SHOWING CONCRETE REMOVAL LIMITS



ELEVATION OF WING SHOWING CONCRETE REMOVAL LIMITS



THEORETICAL SLAB HAUNCH

Deflection Note:
The contractor shall determine dead load deflections and haunching based on field measurements and/or existing bridge plans and may be adjusted based on the difference between the new and existing dead load weights.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE 69 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24343

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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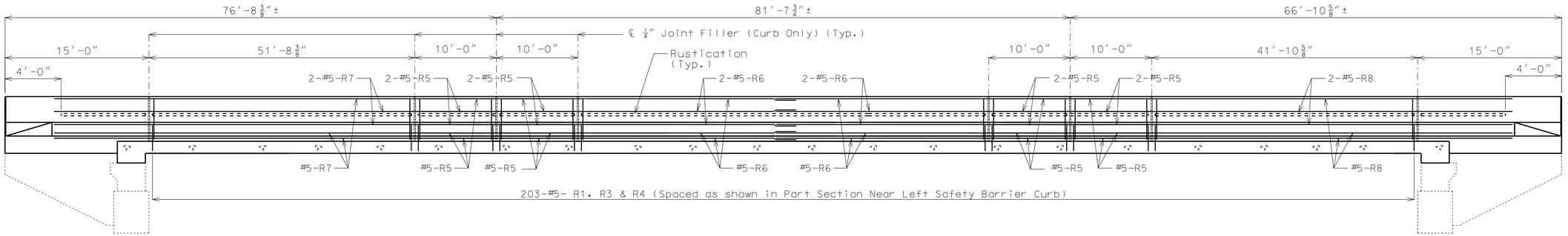
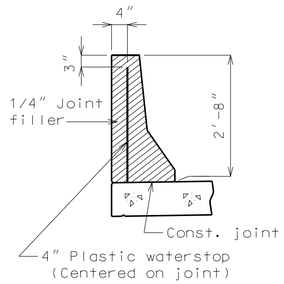


SECTION NEAR LEFT SAFETY BARRIER CURB

Note: Dimensions shown are parallel to grade.

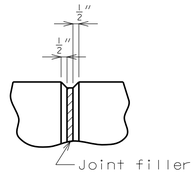


DETAILS OF PLASTIC WATERSTOP

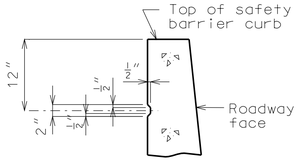
Notes:

Plastic waterstop shall be placed in all safety barrier curb filled joints, except structures with superelevation, use on all lower safety barrier curb joints only.

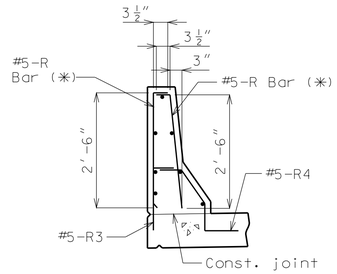
Cost of plastic waterstop, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb.



FILLED JOINT DETAIL

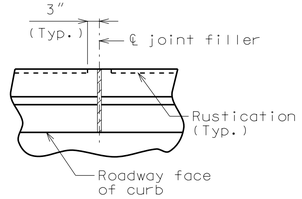


PART SECTION SHOWING RUSTICATION DETAILS



R-BAR PERMISSIBLE ALTERNATE SHAPE

(*) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)



PART PLAN SHOWING SAFETY BARRIER CURB JOINT

Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

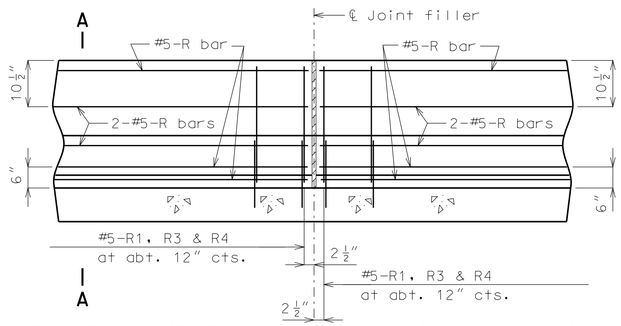
All exposed edges of safety barrier curb shall have either a 1/2″ radius or a 3/8″ bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

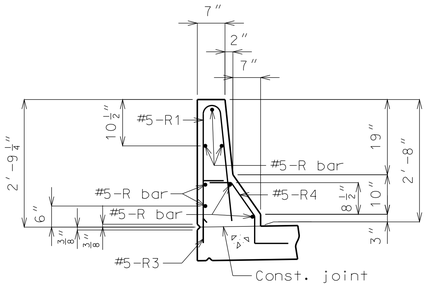
Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".



PART SECTION NEAR LEFT SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



PART SECTION A-A

Notes:

Use a minimum lap of 2′-11″ for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.28 sq. ft.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012

ROUTE	STATE
69	MO
DISTRICT	SHEET NO.
BR	3

COUNTY: PLATTE

JOB NO.: J4I2373

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A24343

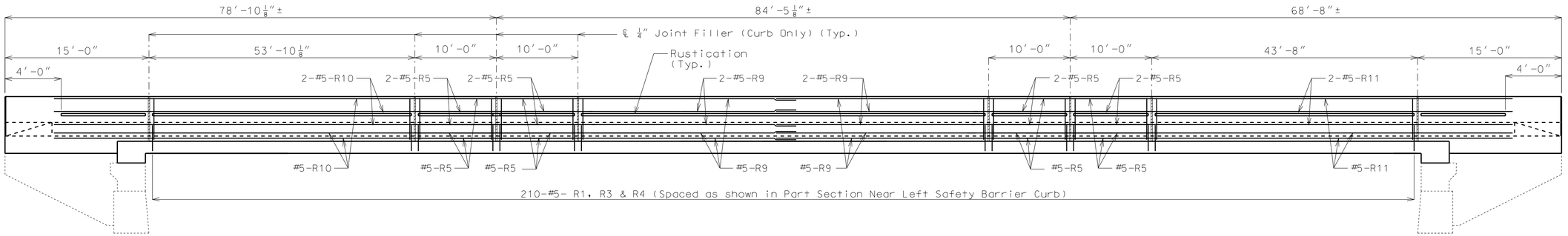
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

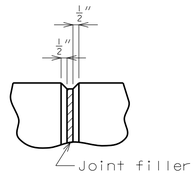
Detailed Oct. 2012
Checked Oct. 2012

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

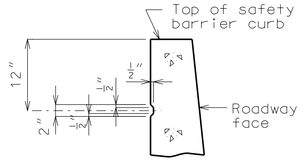


ELEVATION OF RIGHT SAFETY BARRIER CURB

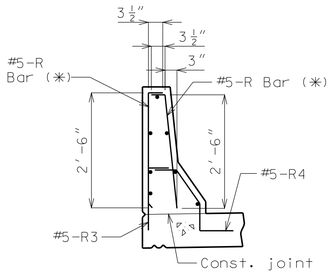
Note: Dimension shown are parallel to grade.



FILLED JOINT DETAIL



PART SECTION SHOWING RUSTICATION DETAILS



R-BAR PERMISSIBLE ALTERNATE SHAPE

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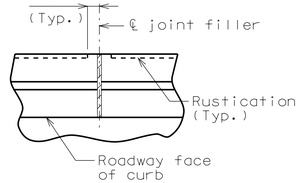


PART PLAN SHOWING SAFETY BARRIER CURB JOINT

Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

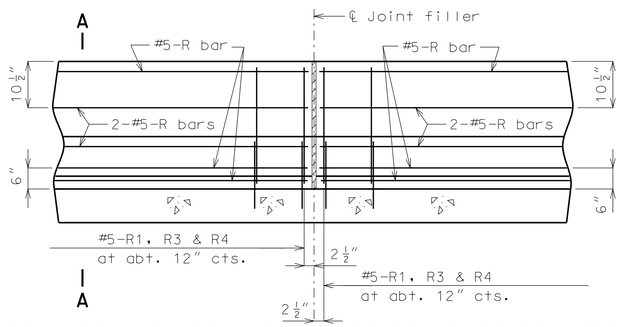
All exposed edges of safety barrier curb shall have either a 1/2″ radius or a 3/8″ bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

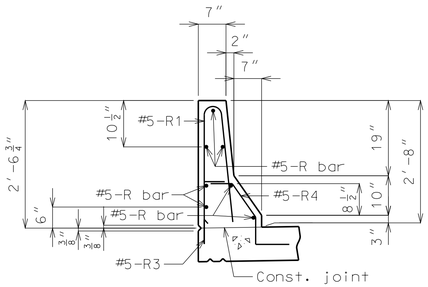
Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".



PART SECTION NEAR RIGHT SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



PART SECTION A-A

Notes:

Use a minimum lap of 2′-11″ for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.28 sq. ft.

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DATE PREPARED 11/19/2012

ROUTE	STATE
69	MO
DISTRICT	SHEET NO.
BR	4

COUNTY: PLATTE

JOB NO.: J4I2373

CONTRACT ID.:

PROJECT NO.:

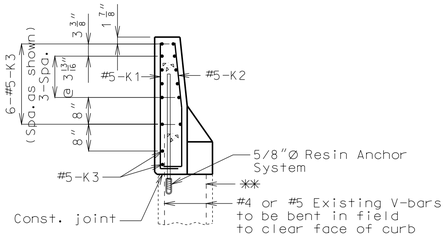
BRIDGE NO.: A24343

DESCRIPTION	DATE

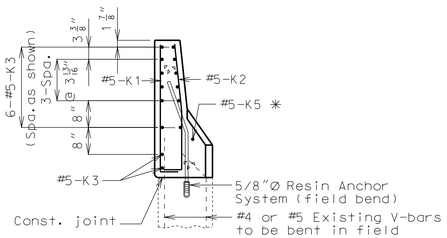
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Detailed Oct. 2012
Checked Oct. 2012

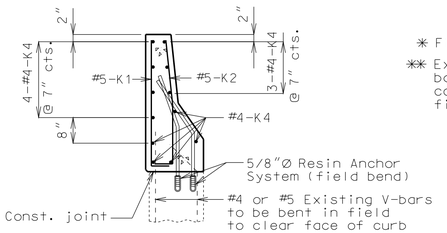
Note: This drawing is not to scale. Follow dimensions.



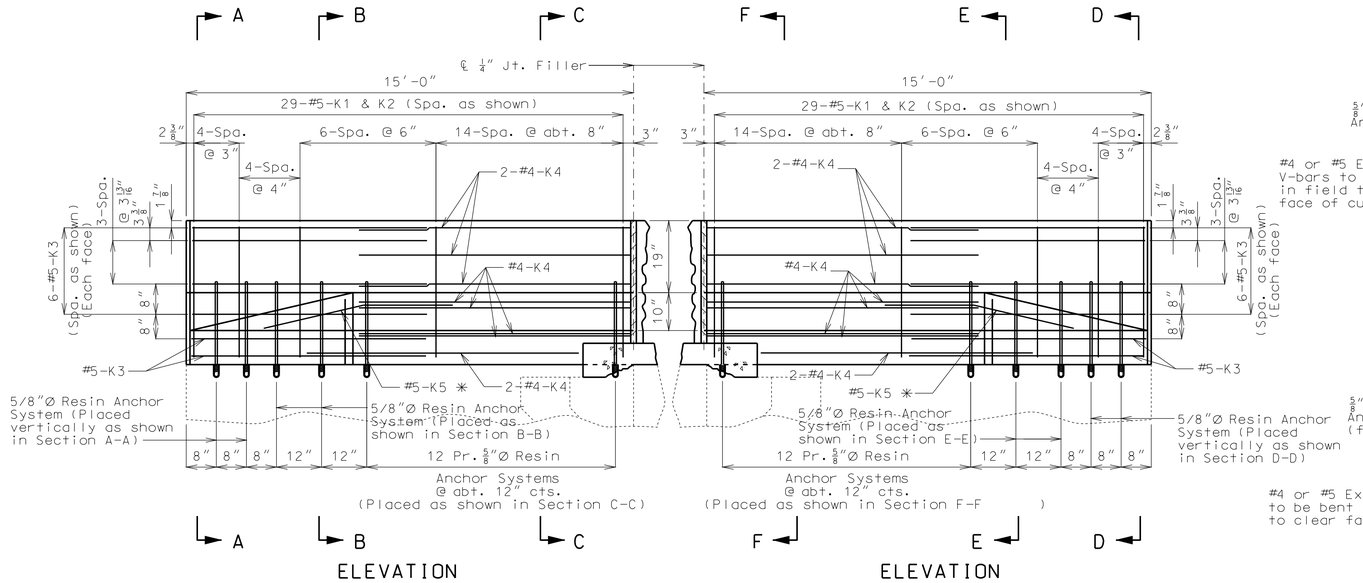
SECTION A-A



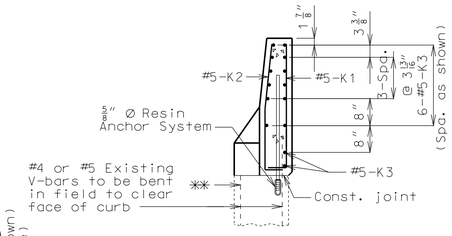
SECTION B-B



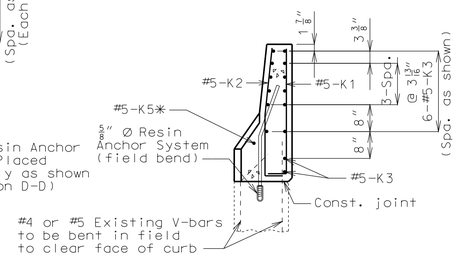
SECTION C-C



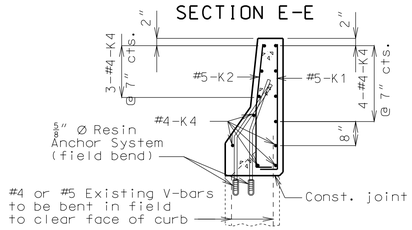
ELEVATION ELEVATION



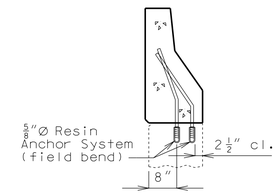
SECTION D-D



SECTION E-E



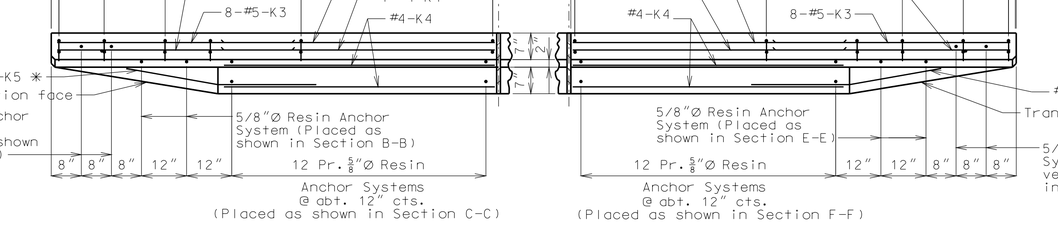
SECTION F-F



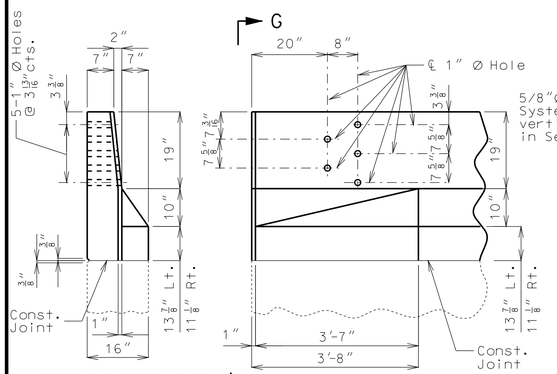
ANCHOR SYSTEMS AT SECTIONS C-C & F-F

* Fit bar to follow transistion face of curb.

** Existing reinforcement which cannot be bent into the new barrier curb transition shall be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.



PLAN PLAN



DETAILS OF GUARD RAIL ATTACHMENT

Notes:
Use a minimum lap of 2'-0" between K3 and K4 bars.

112 - 5/8"Ø Resin Anchors required (length = 2'-3")

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb."

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

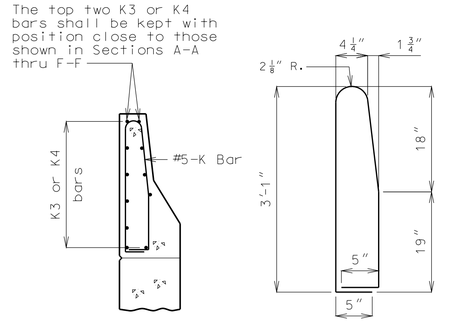
Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

The minimum embedment depth in concrete with f'c = 4.000 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".

DETAILS OF SAFETY BARRIER CURB AT END BENTS

(Left barrier curb shown: right barrier curb similar)

The top two K3 or K4 bars shall be kept with position close to those shown in Sections A-A thru F-F



K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE (***)

(***) The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.

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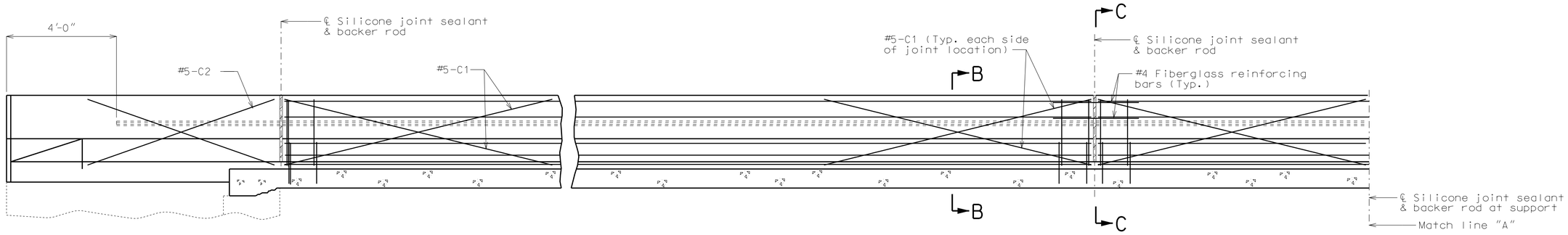
DATE PREPARED	11/19/2012
ROUTE	69
STATE	MO
DISTRICT	BR
SHEET NO.	5
COUNTY	PLATTE
JOB NO.	J412373
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A24343

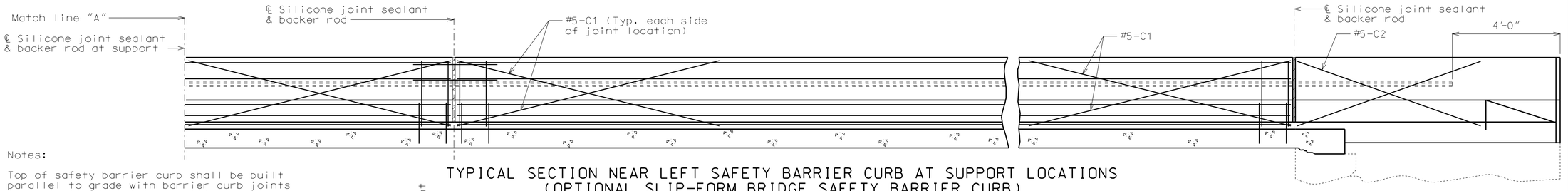
DESCRIPTION DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

REV.





TYPICAL SECTION NEAR LEFT SAFETY BARRIER CURB AT SUPPORT LOCATIONS (OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)

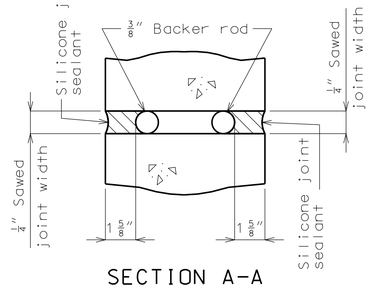
Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.



SECTION A-A

Notes:

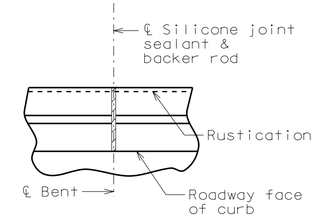
Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

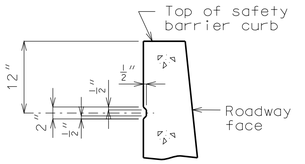
C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb.

For Slip-Form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

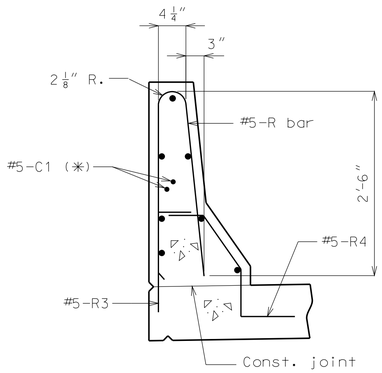


PART PLAN SHOWING SAFETY BARRIER CURB JOINT



PART SECTION SHOWING RUSTICATION DETAILS

RUSTICATION DETAIL
(Use on highway grade separation only)



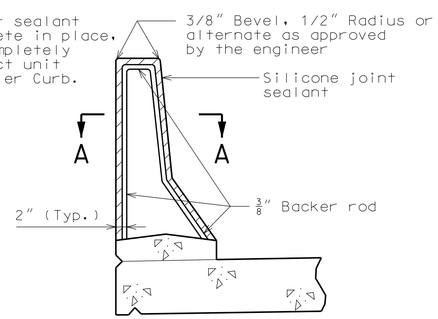
PART SECTION B-B

Note:

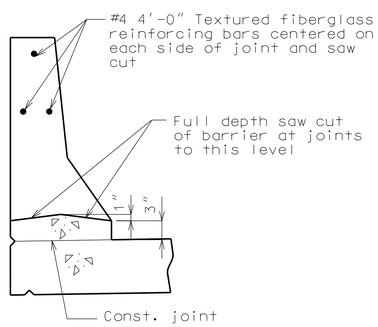
(✳) Each side of joint location.

Note:

Cost of silicone joint sealant and backer rod, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb.



SECTION THRU JOINT



PART SECTION C-C

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

(Left barrier curb shown, right barrier curb similar.)

Detailed Oct. 2012
Checked Oct. 2012

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE 69 | STATE MO
DISTRICT BR | SHEET NO. 6
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24343

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

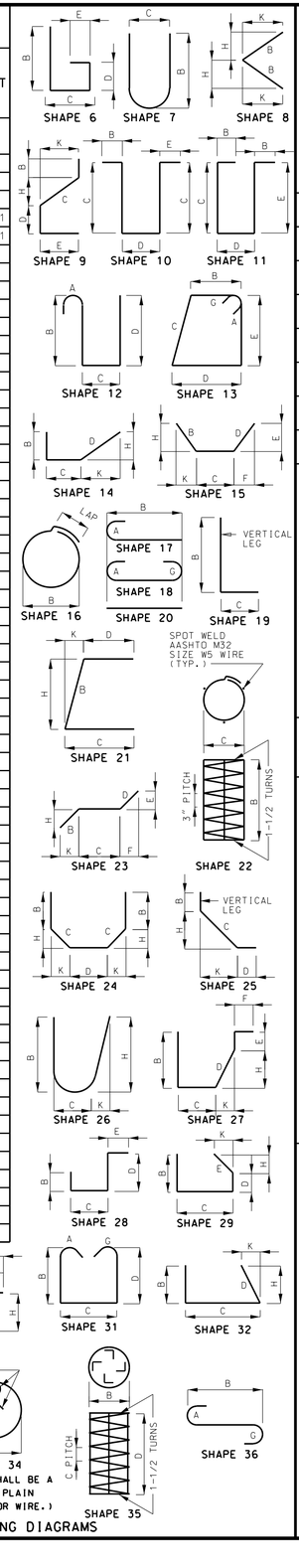
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SLAB																									
336	7	S1	SLAB	E	20					56	10.000													56	10	56	10	39032
34	7	S2	SLAB	E	20					16	0.000													16	0	16	0	1112
415	5	S3	SLAB	E	20					26	5.000													26	5	26	5	11434
417	6	S4	SLAB	E	20					26	5.000													26	5	26	5	16546
			BARRIER CURB																									
116	5	K1	BARRIER CURB	E	19	S				3	0.750	5.125												3	6	3	5	413
116	5	K2	BARRIER CURB	E	14	S					5.125	18.875		19.000						2.000		18.875		3	7	3	6	423
56	5	K3	BARRIER CURB	E	20					5	7.000													5	7	5	7	326
50	4	K4	BARRIER CURB	E	20					11	2.000													11	2	11	2	373
4	5	K5	BARRIER CURB	E	8					2	2.125									2	2.000		2.375	4	4	4	4	18
413	5	R1	BARRIER CURB	E	26					2	6.000	4.250		2	6.125					2	6.000		3.000	5	2	5	2	2226
413	5	R3	BARRIER CURB	E	19	S					17.000	6.000												0	23	0	22	790
413	5	R4	BARRIER CURB	E	27	S						6.000		11.250		7.000		11.250		9.250		6.375		3	0	2	10	1220
58	5	R5	BARRIER CURB	E	20					9	9.000													9	9	9	9	590
14	5	R6	BARRIER CURB	E	20					32	4.000													32	4	32	4	472
7	5	R7	BARRIER CURB	E	20					51	5.000													51	5	51	5	375
7	5	R8	BARRIER CURB	E	20					41	7.000													41	7	41	7	304
14	5	R9	BARRIER CURB	E	20					33	7.000													33	7	33	7	490
7	5	R10	BARRIER CURB	E	20					53	7.000													53	7	53	7	391
7	5	R11	BARRIER CURB	E	20					43	5.000													43	5	43	5	317
40	5	C1	SLIP FORM	E	20					10	0.000													10	0	10	0	417
8	5	C2	SLIP FORM	E	20					11	3.000													11	3	11	3	94
			TOTALS																									
	4			E																								373
	5			E																								20300
	6			E																								16546
	7			E																								40144
			TOTAL																									0
			TOTAL	E																								77363
			Slab on Girder																									
	5			E																								11434
	6			E																								16546
	7			E																								40144
			TOTAL																									68124
			Safety Barrier Curb																									
	4			E																								373
	5			E																								8355
			TOTAL																									8728

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			Slip Form																									
			Option																									
	5			E																								
			TOTAL																									511



BENDING DIAGRAMS

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012

ROUTE 69 | STATE MO

DISTRICT BR | SHEET NO. 7

COUNTY PLATTE

JOB NO. J412373

CONTRACT ID.

PROJECT NO.

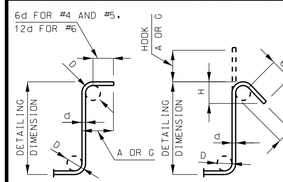
BRIDGE NO. A24343

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DESCRIPTION | DATE

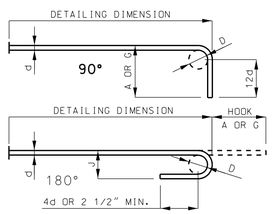
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS A OR G	180° HOOKS J	90° HOOKS 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"

TWO ADDITIONAL #4-K4, #5-R5, #6-S4 & #7-S2 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:

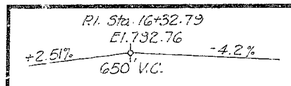
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR 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 FABRICATORS 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.

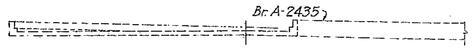
Detailed Oct. 2012
Checked Oct. 2012

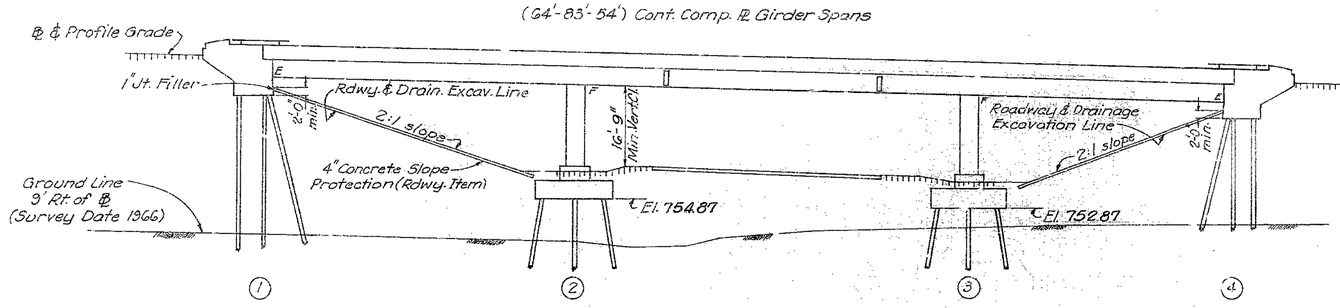
Note: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	1-7	







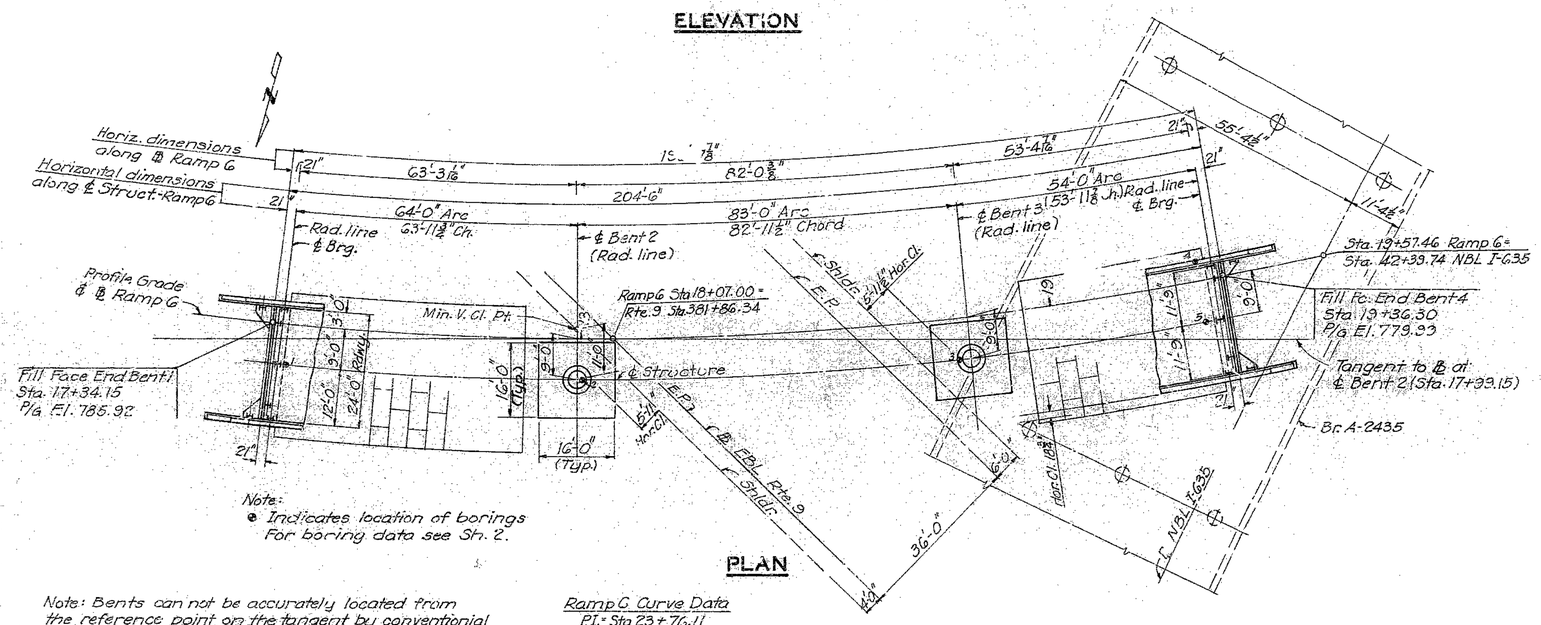
Note:
Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front and not less than 25' in back of End Bents 1 & 4 and up to Roadway & Drainage Excavation Line at Bents 2 & 3 before piles are driven.

PILE DATA

Bent No.		1	2	3	4
Pile Type & Size		10BP42	12BP53	12BP53	10BP42
Number		7	9	9	7
Approximate Length	Ft.	77	55	53	70
Design Bearing	Tons	33	62	62	33
Hammer Energy	Ft. Lbs.	9,700	14,000	14,000	8,800

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

ELEVATION



Note:
● Indicates location of borings
For boring data see Sh. 2.

PLAN

Note: Bents can not be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords.
For substructure layout see Sheet 2.

Ramp G Curve Data
P.I. Sta 23+76.11
Δ = 121°55'36" Lt.
D = 7°30'
T = 1376.11'
L = 1625.68'
R = 763.94'
S.E. = .08'/ft

Note: Payment for Fabricated Structural Steel, superstructure, will be based on welded field splices regardless of type actually used.

ESTIMATED QUANTITIES

Items		Substr.	Superstr.	Totals
Class I Excavation	Cu. Yd.	160		160
Structural Steel Pile (10")	Lin. Ft.	1,029		1,029
Structural Steel Pile (12")	Lin. Ft.	972		972
Class B Concrete	Cu. Yd.	131.9		131.9
Class B1 Concrete	Cu. Yd.		199.6	199.6
Reinforcing Steel	Lb.	7,590	62,440	70,390
Fabricated Structural Carbon Steel	Lb.		69,620	69,620
Fabricated Structural Low Alloy Steel	Lb.		32,300	32,300
Painting	Ton		66.8	66.8
Bridge Rail (one tube)	Lin. Ft.		434	434
Coal Tar Interlayer Protective Coat	Sq. Yd.		537	537
Special Type "D" Mixture (Asphaltic Conc.)	Ton		37	37
3" Reinforced Elastomeric Exp. Joint Seal	Lin. Ft.		52	52
Fab. Struct. Carbon Steel (Substr.)	Lb.	32,330		32,330
Fab. Struct. Low Alloy Steel (Substr.)	Lb.	6,800		6,800

All concrete and reinforcement in end posts, parapets, and curbs is included with superstructure quantities.

GENERAL NOTES

Design Specifications: AASHO 1969

Design Loading:
HS20-44

Earth 120# Equivalent Fluid Pressure 30#
Fatigue Stress - Case I

Design Unit Stresses:

Class B Concrete (substructure)	fc = 1,200 psi
Class B1 Concrete (superstructure)	fc = 1,600 psi
Reinforcing Steel	fs = 20,000 psi
Structural Steel (ASTM A36)	fs = 20,000 psi
Structural Steel (ASTM A572) Grade 50	fs = 27,000 psi
Steel Pile	fb = 9,000 psi

Field connections, High Strength Bolts 7/8" ϕ, holes 15/16" ϕ except as noted.
Paint: Shop none; Field, by contractor in accordance with Std. Spec. 712.12.
Minimum clearance to reinforcing steel shall be 1 1/2" unless otherwise shown.
All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least 1/2".
Profile grade elevations are taken at top of wearing surface.

Bench Marks:
B.M. 12 Elev. 750.96 Chisled "+" on N.W. cor. culvt. hdwll. 25' Lt. 45+45 NB I-635.
B.M. 13 Elev. 810.25 100d nail in 24" Oak 50' Rt. Sta. 43+50 NB I-635.

BRIDGE: RAMP G OVER ROUTE 9 E.B.L.

STATE ROAD - INTERSTATE ROUTE 635

IN RIVERSIDE

PROJECT NO. I-IG-635-1(75)(RTE. I-635) STA. 17+34.15

PLATTE COUNTY

DESIGNED NOV. 1969 BY H&C
DETAILED DEC. 1969 BY JER
CHECKED MAY 1970 BY FJD

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

Sheet No. 1 of 11.

STATE OF MISSOURI — F. M. CORTELYOU, JR. — NUMBER E-4155 — REGISTERED PROFESSIONAL ENGINEER

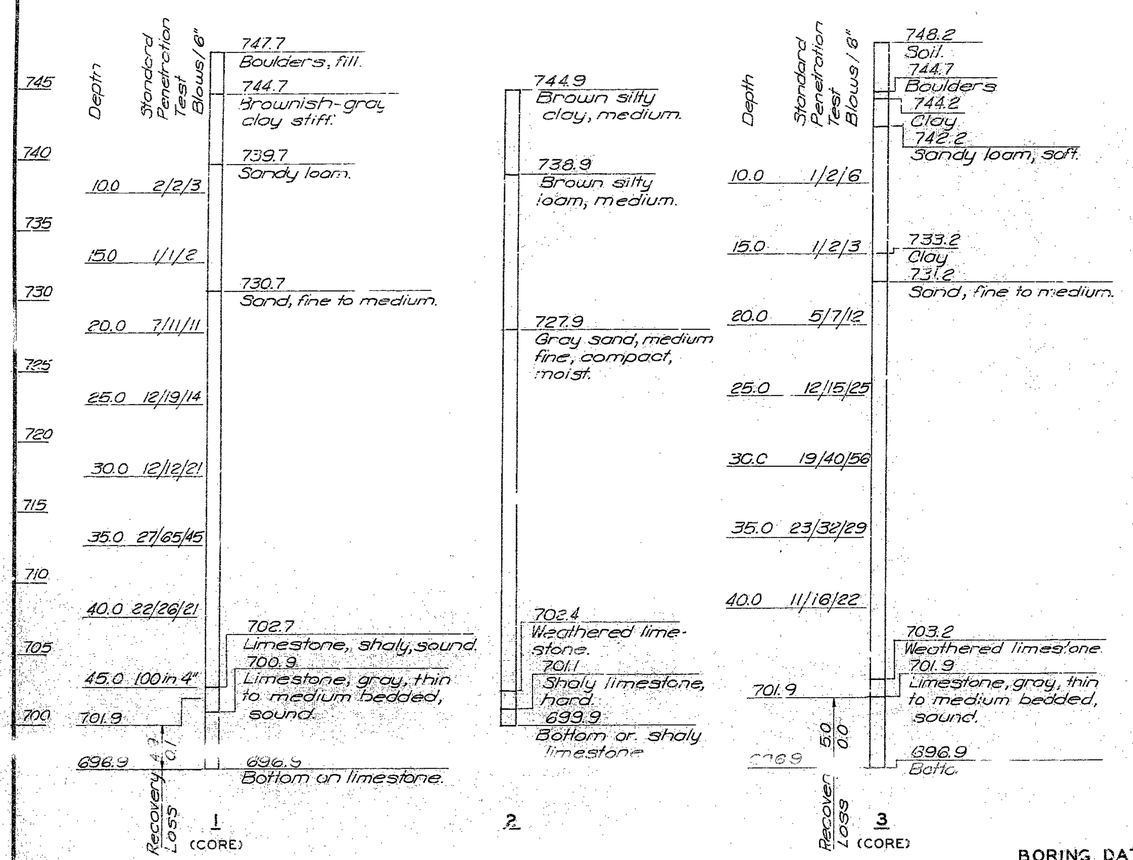
SUBMITTED BY W. A. Carney, BRIDGE ENGINEER DATE 1-24-72
APPROVED BY Robert N. Hunter, CHIEF ENGINEER DATE 1-24-72
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

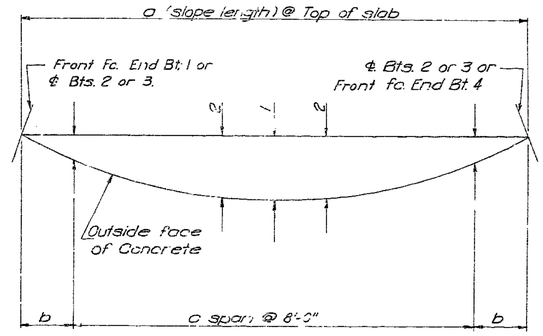
DWG. 611.60
DWG. 706.30A
A-2434

204

MISSOURI STATE HIGHWAY DEPARTMENT

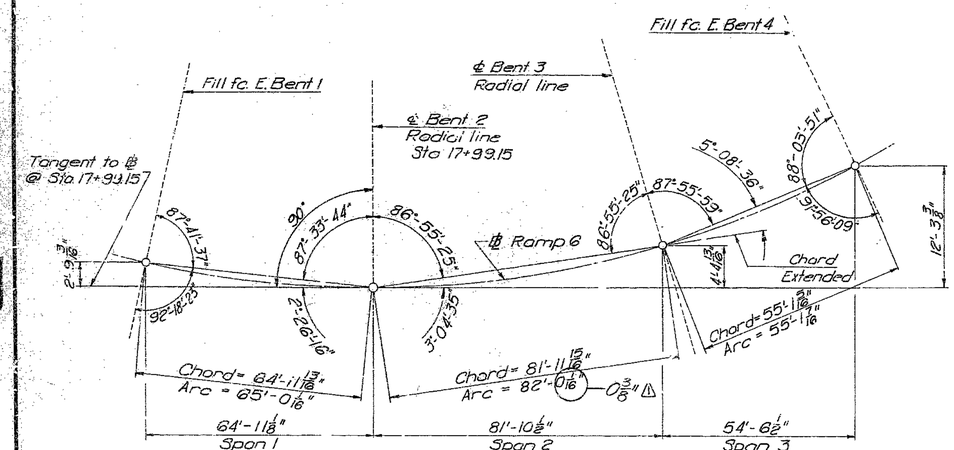
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	16	





	Left Outside Face of Concrete			Right Outside Face of Concrete		
Span	1	2	3	1	2	3
a	63'-7 7/16"	81'-6 3/4"	53'-10 1/16"	65'-10 1/4"	84'-5 5/16"	55'-8 1/4"
b	7'-9 3/8"	8'-9 3/8"	2'-11"	8'-11 1/2"	10'-2 5/8"	3'-10 1/4"
c	6	8	6	6	8	6
1	8"	1'-1 1/8"	5 3/4"	8 1/4"	1'-1 3/8"	5 7/8"
2	7 1/2"	1'-0 3/8"	5 1/4"	7 3/4"	1'-1 1/8"	5 3/8"
3	6	11 1/2"	3 3/8"	6 1/4"	11 5/8"	3 1/2"
4	3 1/2"	8 3/8"	1 1/4"	3 5/8"	9 1/4"	1 1/2"
5	-	5	-	-	5 3/4"	-

CURVE ORDINATES



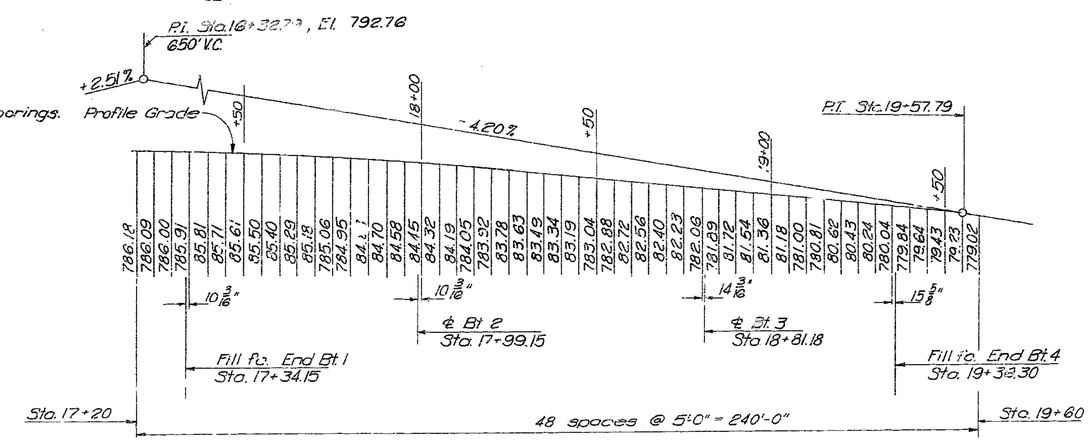
SUBSTRUCTURE LAYOUT

All dimensions are horizontal.

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

BORING DATA

See Sheet 1 for location of borings.



PROFILE GRADE ELEVATIONS

AT TOP OF WEARING SURFACE

PLATTE COUNTY

DETAILED Nov. 1969 BY BS

CHECKED May 1970 BY FJD

Sheet No. 2 of 11 . ⚠ Revised July 24, 1972

HARRINGTON AND CORTELYOU CONSULTING ENGINEERS KANSAS CITY, MO.

A-2434

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FOR INFORMATION ONLY

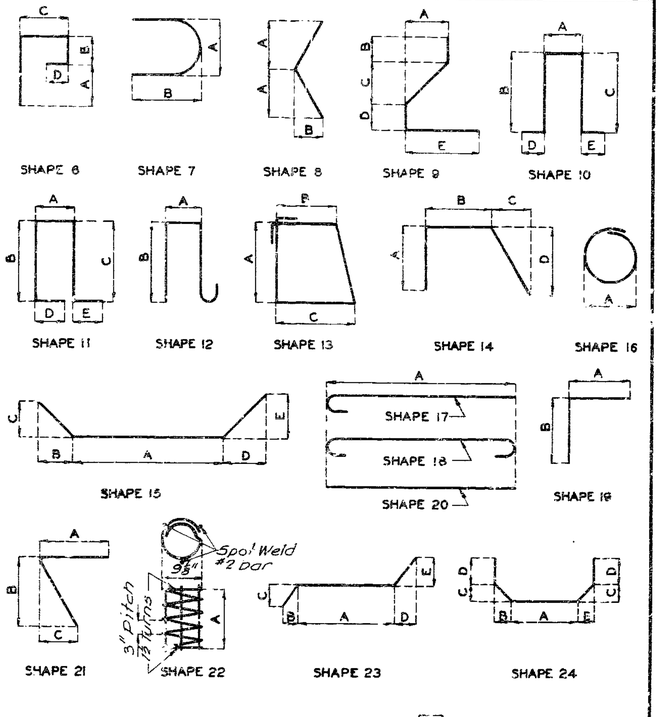
A24343, Sht. 10

MISSOURI STATE HIGHWAY DEPARTMENT

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

NO. REQD.	MARK NO. SIZE	MARK	LOCATION	SHAPE NO.	TIE OR STIR.	SUBSTR.	VARIES	NO. EA.	DIMENSIONS A FT. IN.	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	LENGTH FT. IN.	WEIGHT LBS.
			END BENTS 1 & 4												
20	6	F1	Backwall	15		S			4'-4"	0'-8½"	0'-8½"	0'-8½"	0'-8½"	6'-4"	
16	6	H1	Beam	18		S			26-3					27-7	
8	6	H2	"	20		S			26-3					26-3	
16	4	H3	Backwall	20		S			26-3					26-3	
8	6	H5	Wings	20		S			12-9					12-9	
8	6	T3	Wings	19		S			3-6	6-0				9-4	
56	4	U1	Beam	13	T	S			2-8	2-9	3-2½			11-11	
16	4	U2	"	10	T	S			2-9	0-6	0-6			3-7	
16	4	U3	Wings	10	T	S			0-6	3-4½	3-1½			7-1	
20	7	U4	Beam	14		S			5-7½	1-10½	5-1½	5-1½		14-6	
50	5	U5	Backwall	10		S			0-9	2-1¼	2-1¼			4-9	
100	5	V1	Backwall	20		S			7-0					7-0	
40	5	V2	Wings	20		S			7-7					7-7	
8	6	V4	Beam	20		S			2-9					2-9	
8	4	V5	Wings	20		S			6-0					6-0	
8	2	W1	Anchor Bolt Wells	22		S			1-3					23-0	
20	6	H6	Wings, E. Bt 1	20		S	V	4	11-11					11-11	
			Increment = 1'-8"						.5-3					5-3	
4	6	T1	Wings, E. Bt 1	25		S			1-10	4-8½	7-8	2-0		12-8	
32	4	V3	" E. Bt 1	20		S	V	4	6-4½					6-4½	
			Increment = 7½ inches						2-0					2-0	
16	6	H4	Wings, E. Bt 4	20		S	V	4	12-4					12-4	
			Increment = 2'-0"						6-4					6-4	
4	6	T2	Wings, E. Bt 4	25		S			1-10	3-10½	7-8	2-0		12-3	
32	4	V6	" E. Bt 4	20		S	V	4	6-1					6-1	
			Increment = 7 inches						2-0					2-0	
			BENTS 2 & 3												
6	5	B1	Footing	16		S			5-6					18-5	
48	9	B2	"	20		S			14-3					14-3	
4	9	B3	Footing	10		S			14-0	8-2	8-2			29-10	
9	5	B4	"	20		S			2-10					2-10	
			SUPERSTRUCTURE												
408	5	C1	Curb	10	T				1-1½	1-2¼	1-2¼		0-6	3-8	
52	5	C2	"	10	T				1-1½	1-1¼	1-1¼			3-2	
8	6	C3	"	20					12-3					12-8	
4	6	C4	"	20					32-5					32-5	
4	5	C5	"	20					41-5					41-5	
2	6	C6	"	20					53-5					53-5	
4	5	C7	"	20					33-4					33-4	
4	5	C8	"	30					42-10					42-10	
2	5	C9	Curb	20					55-3					55-3	
8	5	R1	End Post	20					4-9					4-9	
4	5	R2	"	10	T				0-9	2-8⅝	2-8⅝			5-11	
4	5	R3	End Post	10	T				0-9	2-10⅝	2-10½			6-4	
4	5	R4	"	10	T				0-9	3-1	3-1			6-9	
4	5	R5	"	10	T				0-9	3-2	3-2			6-11	
4	5	R6	"	10	T				0-9	3-2⅝ Odd	3-2⅝ Odd			7-0	
4	5	R7	"	10	T				0-9	3-3⅛ Odd	3-3⅛ Odd			7-1	
4	5	R8	"	10	T				0-9	3-4⅛ Odd	3-4⅛ Odd			7-3	
8	5	R9	"	10	T				0-9	3-4⅝ Odd	3-4⅝ Odd			7-4	
16	5	R10	End Post	10	T				0-7¾ Odd	4-9	4-9			9-11	
440	5	R11	Parapet	12	T				0-8½	2-0 Odd				5-1	
14	5	R12	"	10					0-8½	1-7½	1-7½		0-6	4-2	
16	5	R13	"	20					8-7					8-7	
32	5	R14	"	20					9-8					9-8	
4	5	R15	"	20					53-3					53-3	
8	5	R16	"	20					31-3					31-3	
4	5	R17	"	20					43-5					43-5	
4	5	R18	"	20					55-4					55-4	
8	5	R19	"	20					32-8					32-8	
4	5	R20	Parapet	20					45-2					45-2	
208	5	S1	Slab	20					26-6					26-6	
410	5	S2	"	20					8-9					8-9	
306	6	S3	"	20					26-6					26-6	
32	7	S4	"	20					16-0					16-0	
9	7	S5	"	20					57-1					57-1	
24	7	S6	"	20					57-11					57-11	
9	7	S7	"	20					58-6					58-6	
9	7	S8	"	20					50-11					50-11	
24	7	S9	"	20					51-8					51-8	
9	7	S10	"	20					52-2					52-2	
9	7	S11	"	20					52-0					52-0	
24	7	S12	"	20					52-8					52-8	
9	7	S13	"	20					53-3					53-3	
9	7	S14	"	20					46-2					46-2	
24	7	S15	"	20					46-10					46-10	
9	7	S16	"	20					47-4					47-4	
9	7	S17	"	20					17-6					17-6	
24	7	S18	"	20					17-8					17-8	
9	7	S19	"	20					17-10					17-10	
9	6	S20	"	20					33-3					33-3	
24	6	S21	"	20					33-8					33-8	
9	6	S22	"	20					34-0					34-0	
9	6	S23	"	20					50-4					50-4	
24	6	S24	"	20					51-1					51-1	
9	6	S25	"	20					51-7					51-7	
9	6	S26	"	20					51-0					51-0	
24	6	S27	"	20					51-8					51-8	
9	6	S28	"	20					52-2					52-2	
9	6	S29	"	20					37-5					37-5	
24	6	S30	"	20					37-11					37-11	
9	6	S31	"	20					38-3					38-3	
9	7	S32	"	20					19-3					19-3	
24	7	S33	"	20					19-6					19-6	
9	7	S34	Slab	20					19-9					19-9	
EE	5	S35	Slab	17					1-8					2-3	

BENDING DIAGRAMS



Note: All bending dimensions are out to out. Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for detailing reinforced concrete structures.

T- tie or stirrup
S- bar is included in substructure quantities.
Length - Total lengths are measured along centerline bar to the nearest inch.

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.

206

STD. 90.7 JULY 1969 | REVISED SEPT. 1969

Drawn Jan. 1970 by B.S
Checked May 1970 by F.J.D

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

Sheet No. 3 of 11

PLATTE COUNTY

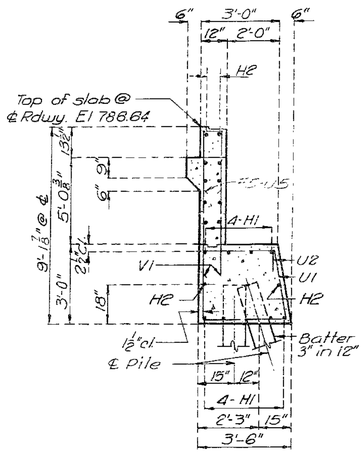
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2434

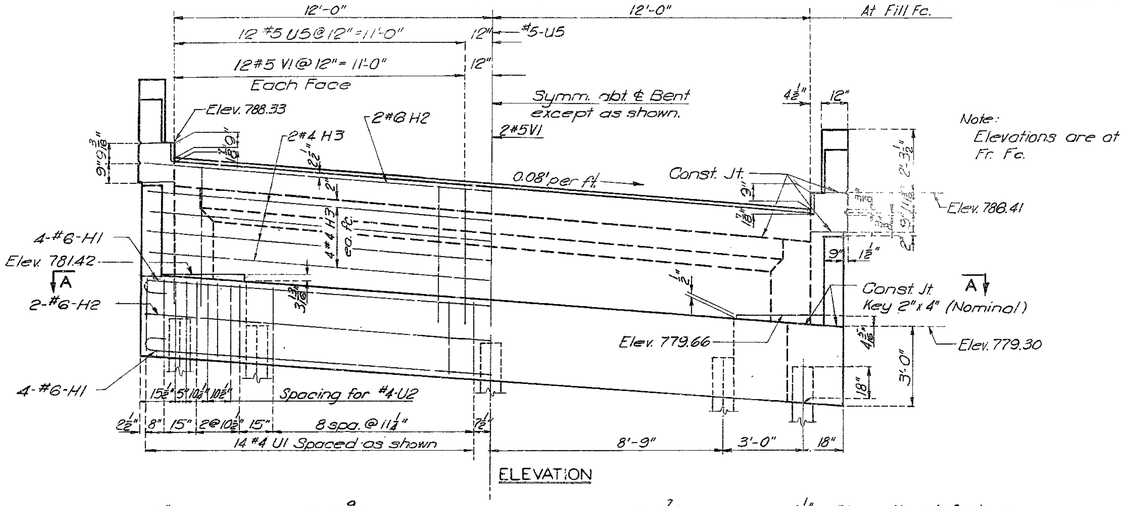
MISSOURI STATE HIGHWAY DEPARTMENT

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

Note: See bridge rail sheet for reinforcement of end posts, parapets and curbs.

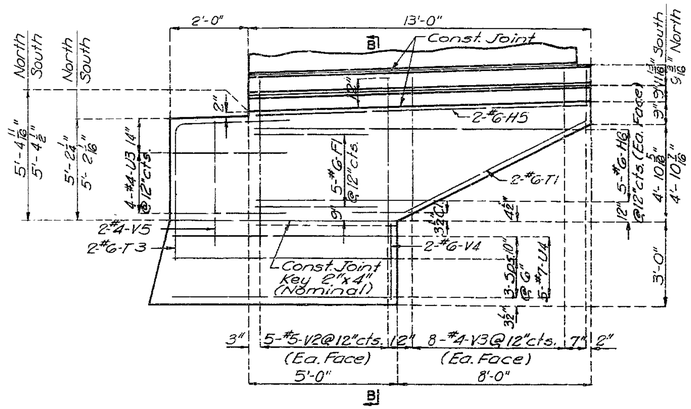


SECTION AT ℄

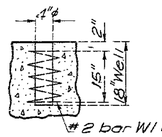


ELEVATION

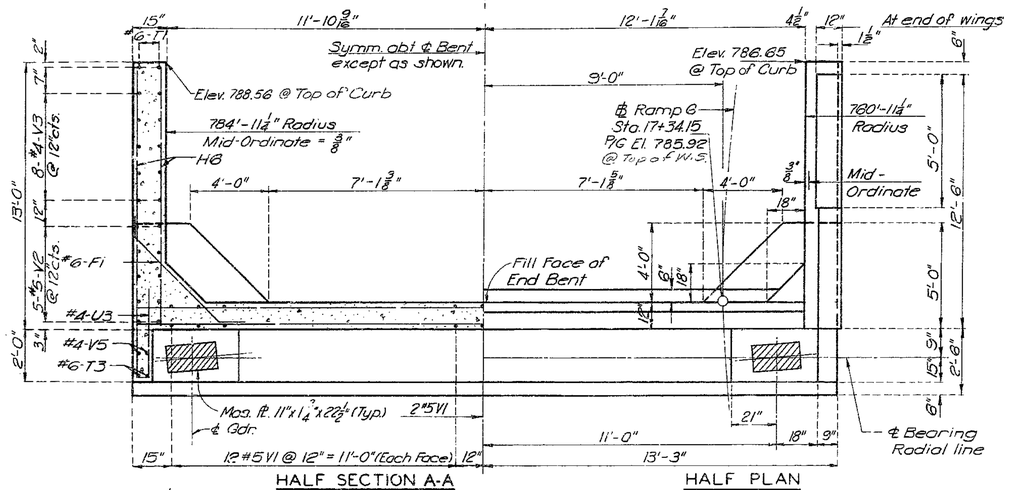
Note: Elevations are at Fr. Fc.

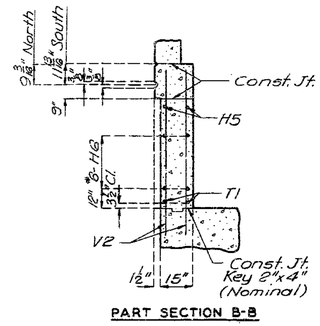


ELEVATION

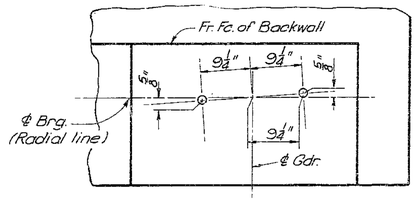


ANCHOR BOLT WELL

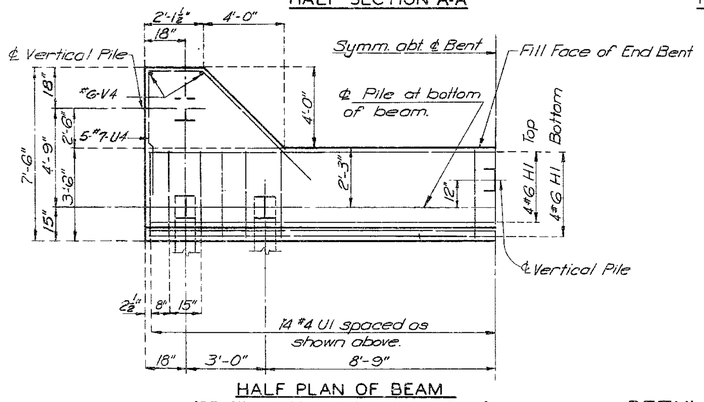




PART SECTION B-B

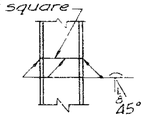


ANCHOR BOLT LAYOUT



HALF PLAN OF BEAM
(BELOW LOWER CONSTRUCTION JOINT)

Butt splice (if required) Top of lower section to be cut square



STEEL PILE SPLICE

Notes:
Top of backwall and expansion device for End Bents 1 and 4 to conform to slope of roadway slab.
All piles are 10BP42.
Backwall is parallel to ℄ Brg.

DETAILS OF END BENT NO. 1

PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2434

207

STD. 12.1.A	REVISED
APRIL 1965	APRIL 1969

DETAILED Dec. 1969 BY B.S.
CHECKED: May 1970 BY F.J.D.

Note: This drawing is not to scale Follow dimensions

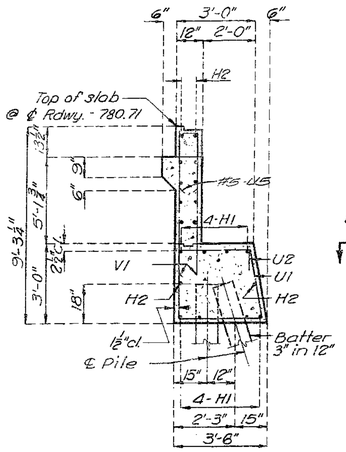
Sheet No. 4 of 11

MISSOURI STATE HIGHWAY DEPARTMENT

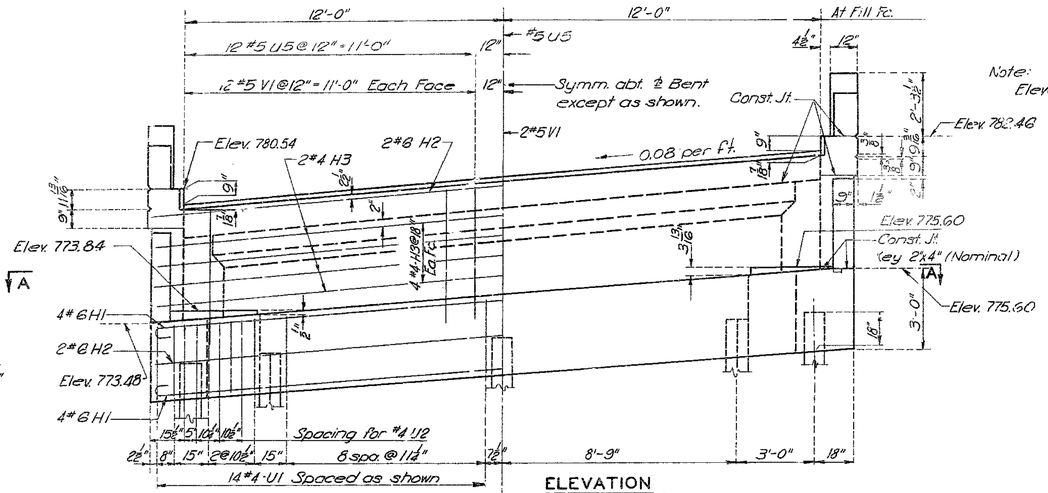
FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO		19	111	

Note: See bridge rail sheet for reinforcement of end posts, parapets and curbs.

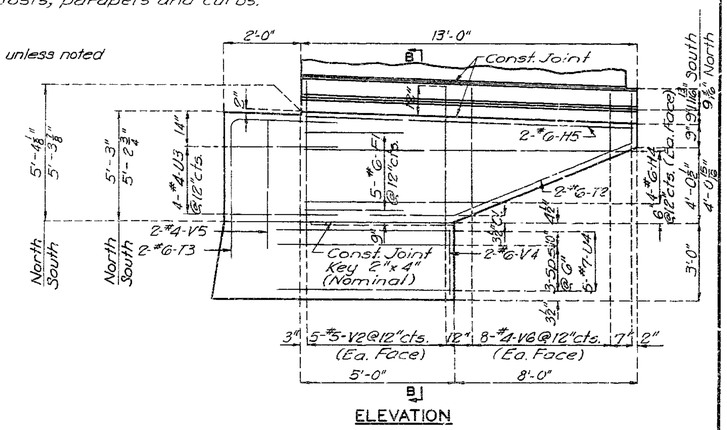
Note: Elevations are at front face unless noted



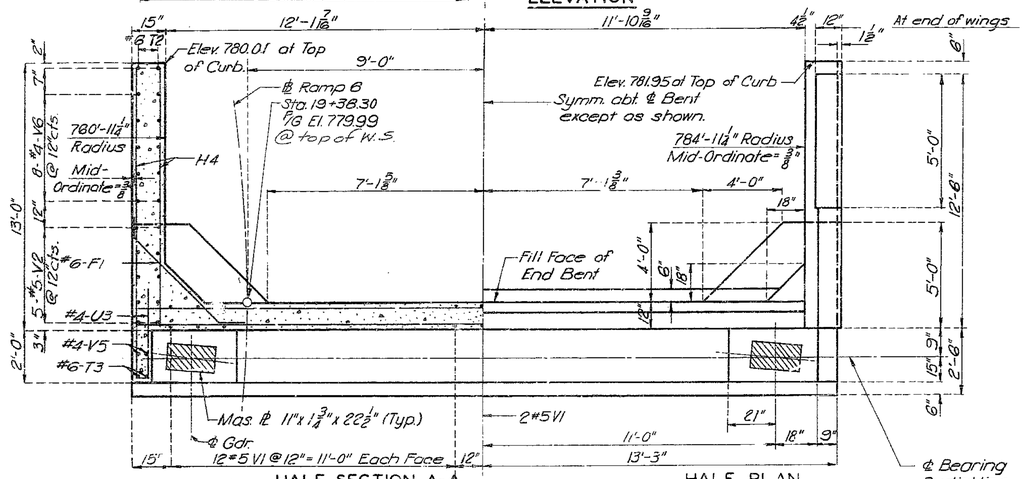
SECTION AT ℄



ELEVATION

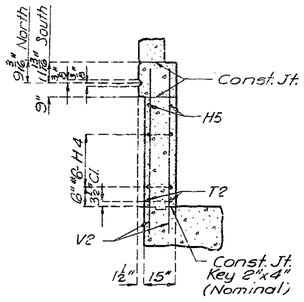


ELEVATION

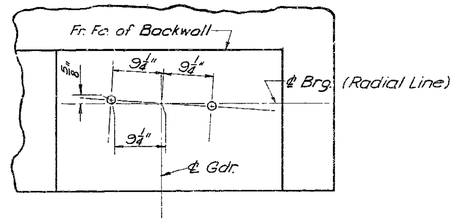


HALF SECTION A-A

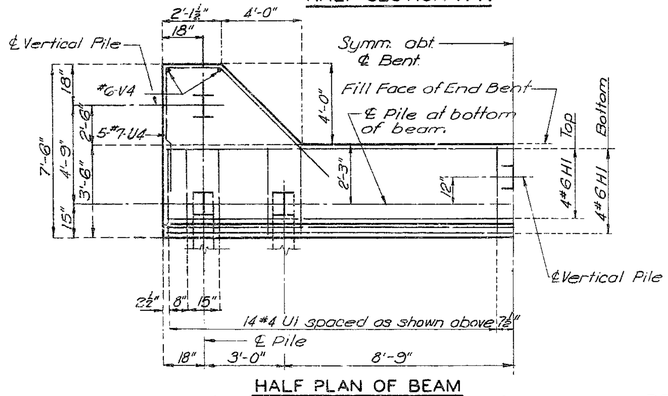
HALF PLAN



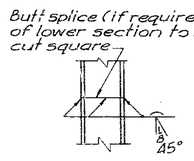
PART SECTION B-B



ANCHOR BOLT LAYOUT



HALF PLAN OF BEAM
(BELOW LOWER CONSTRUCTION JOINT)



STEEL PILE SPLICE

Butt splice (if required) for of lower section to be cut square

Notes:
For notes see Sh. 4.
For Detail of Anchor Bolt Well, see Sh. 4.

DETAILS OF END BENT NO. 4

PLATTE COUNTY

208

STD. 12.1A	REVISED
APRIL 1965	APRIL 1969

DETAILED Dec. 1969 BY BS
CHECKED May 1970 BY FJD

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

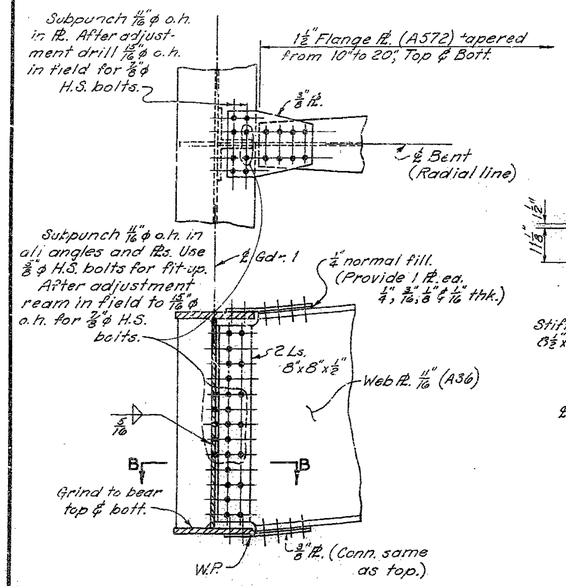
Sheet No. 5 of 11

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

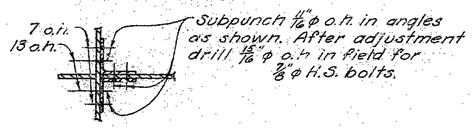
A-2434

MISSOURI STATE HIGHWAY DEPARTMENT

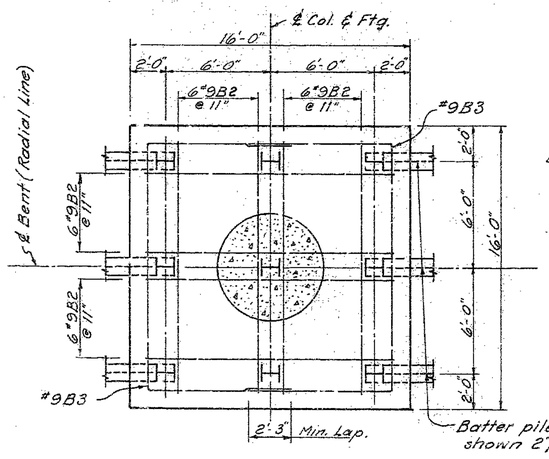
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	11Y	



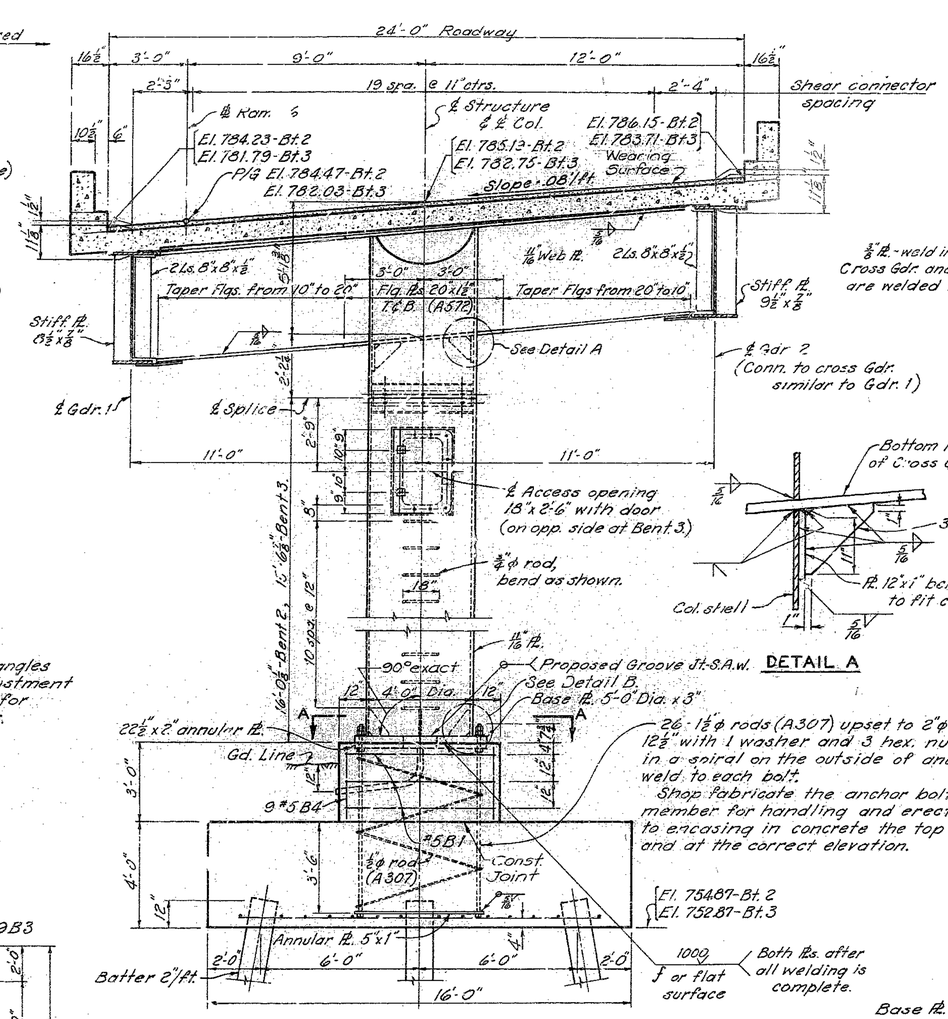
END CONNECTION OF CROSS GIRLER



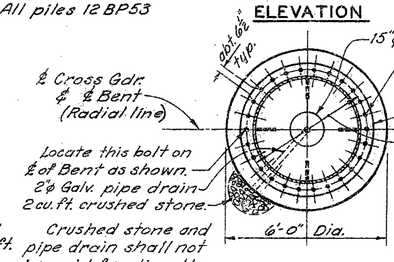
SECTION B-B



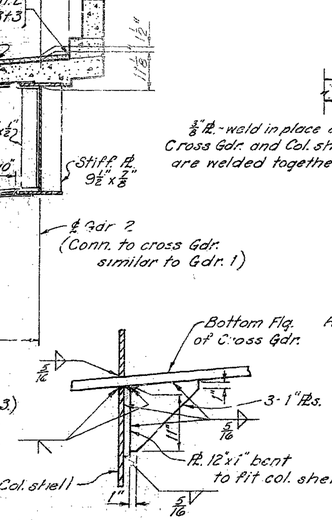
FOOTING PLAN



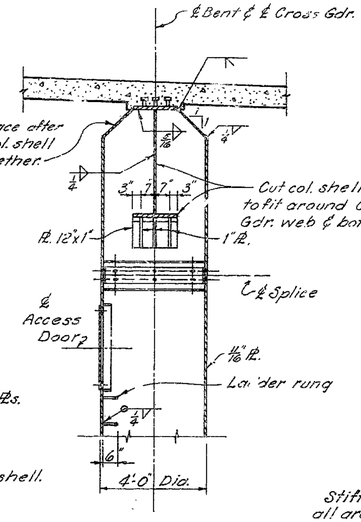
ELEVATION



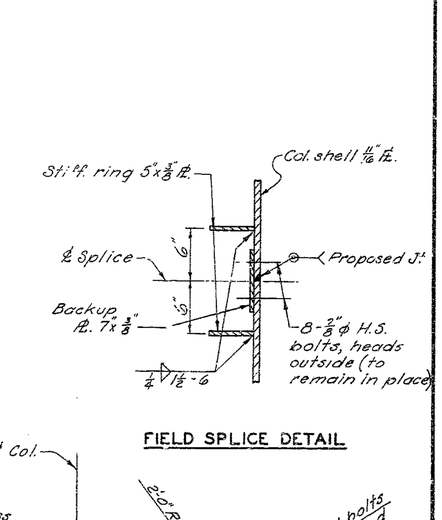
SECTION A-A



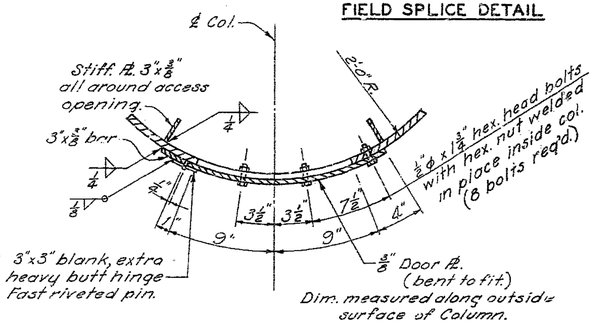
DETAIL A



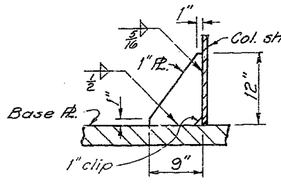
SECTION AT ℄



FIELD SPLICE DETAIL



SECTION THRU ACCESS DOOR



DETAIL B

Notes:-

Cross girder and full height column shall be completely shop fabricated, welded and welds inspected. This includes access door, base plate, ladder rungs and stiffening rings. The column shall then be cut with a mechanically-guided torch at the field splice location after which the backup plate shall be fitted and bolt holes drilled with all parts assembled and then match-marked.

Edge of column shell plates at the field splice shall be protected during shipping and details for the same shall be shown on shop drawings.

Procedure and sequence of making field column splice shall be approved by the Engineer before any welding is done.

Field splice shall be completed and x-rayed before main longitudinal girders are connected to the cross girder.

All welded shop splices required in fabricating the column shall be made with the approval of the Engineer, and finished welds shall be ground smooth.

All steel shall be A36 unless otherwise noted.

For details of shear connectors see Sheet 8.

DETAILS OF INTERMEDIATE BENTS 2&3

PLATTE COUNTY

DETAILED DEC. 1969 BY DHL
CHECKED MAY 1970 BY FJD

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

Sheet No. 6 of 11.

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

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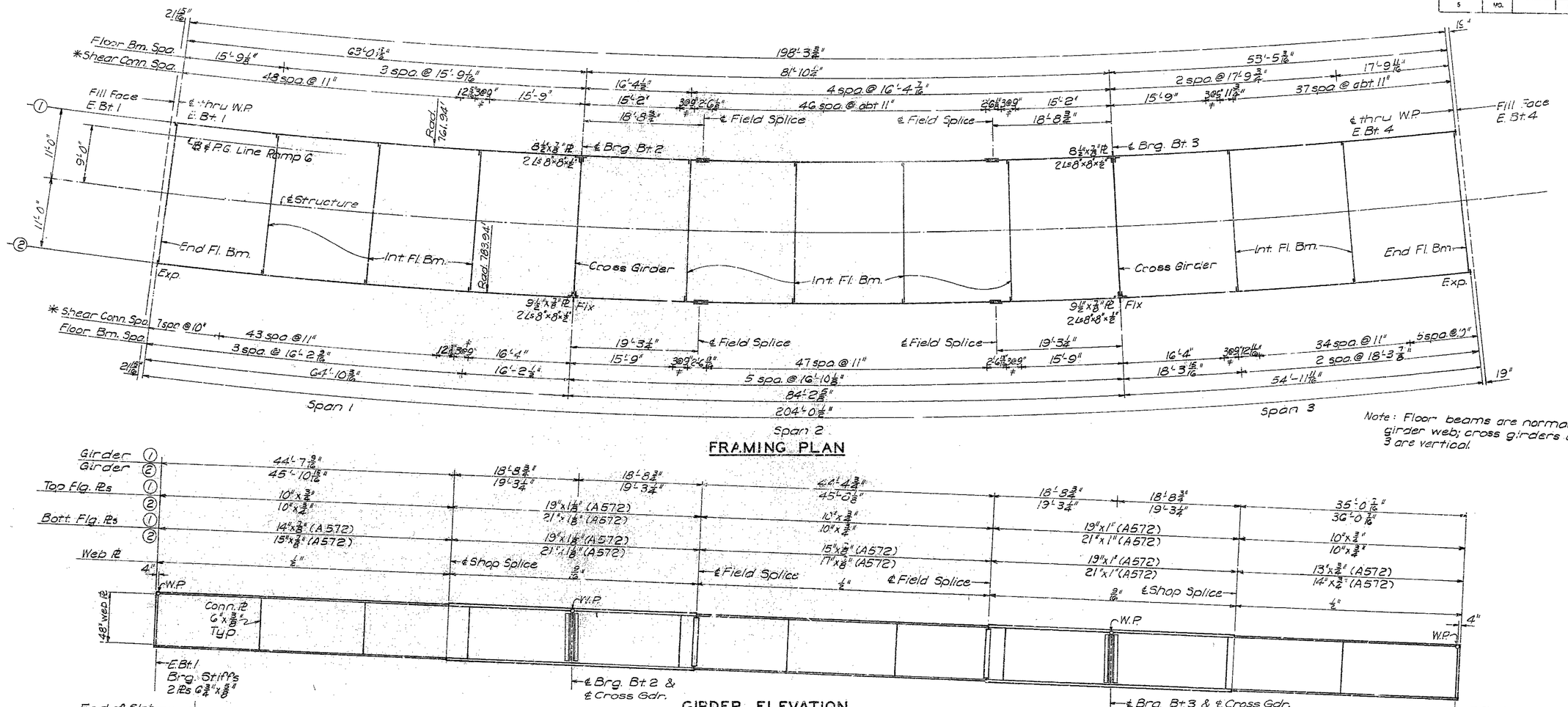
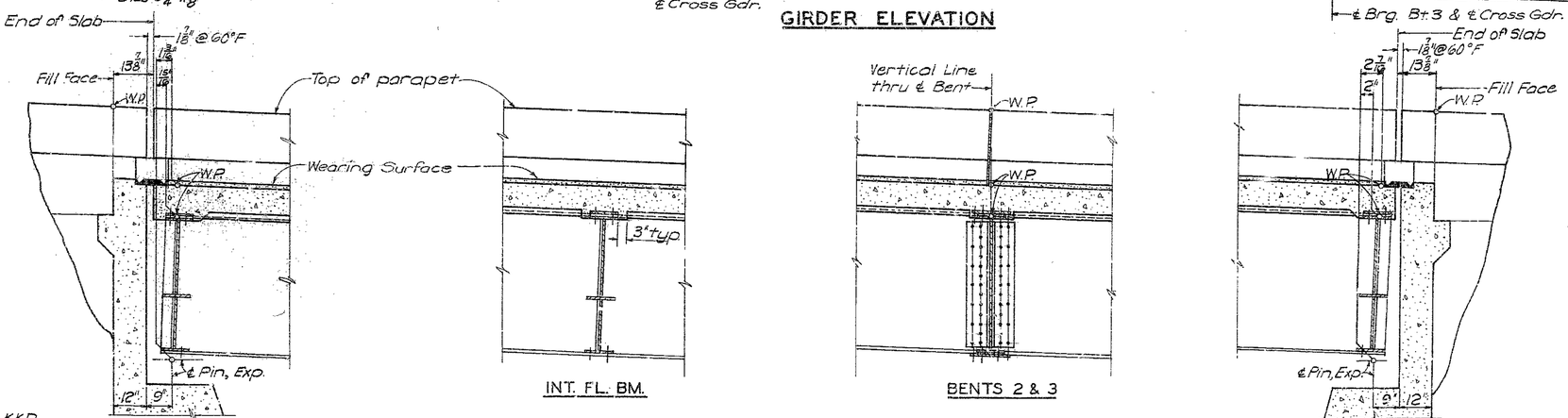
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	11?	



Note: Floor beams are normal to top of girder web; cross girders at Bents 2 and 3 are vertical.



Notes:
Longitudinal dimensions shown are taken along top of girder web.
Plate girders shall be fabricated to conform with Camber Diagram shown on Sheet 9.
All floor beams and cross girders are on radial lines.
All steel A36 except as noted.
All A572 steel shall be Grade 50.
* 3 studs per row except as noted; ‡ indicates 4 studs per row.

DETAILED DEC. 1969 BY K.K.D.
CHECKED MAY 1970 BY F.J.D

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

PART LONGITUDINAL SECTIONS

Sheet No. 7 of 11

PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2434

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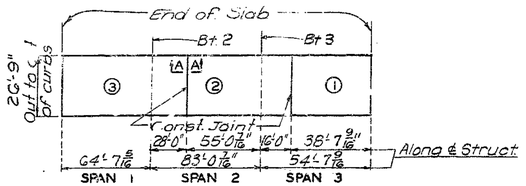
MISSOURI STATE HIGHWAY DEPARTMENT

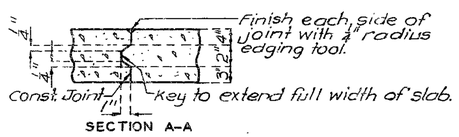
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	11-4	

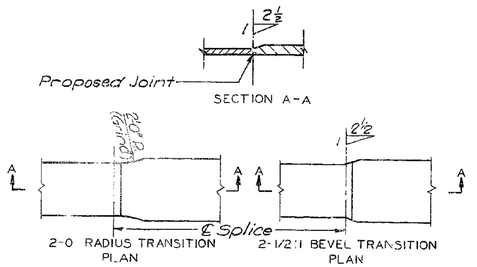


	Sequence of Pours Direction		
	1	2	3
Basic Sequence	End to 2	1 to 3	2 to End
Alternate "A" Pours	1+2		3
	End to 3		2 to End
Alternate "B" Pours	1+2+3		
	End to End		

Note: The contractor shall pour and satisfactorily finish the slab pours at a rate of not less than 31 cubic yards per hour unless he elects to use an approved retarder to retard the set of the concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than 25 cubic yards per hour.

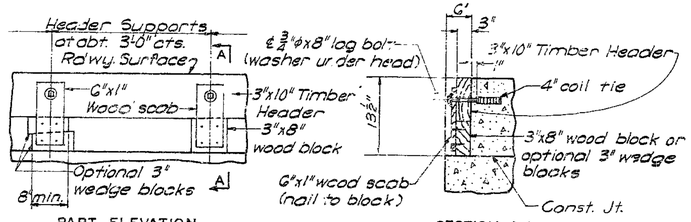
SLAB POURING SEQUENCE





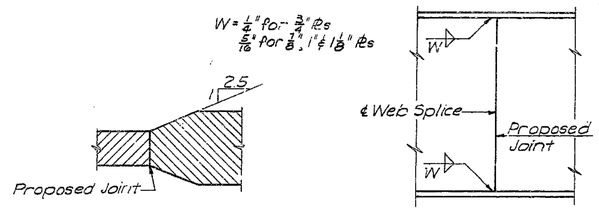
FIELD OR SHOP FLANGE SPLICE

Note: Either transition shown may be used.



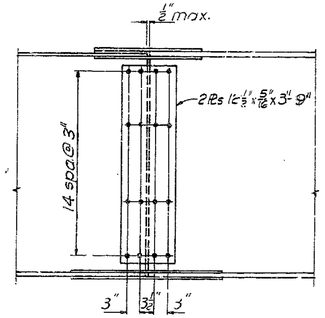
Note: Cost of timber headers complete in place to be included in price bid for concrete.

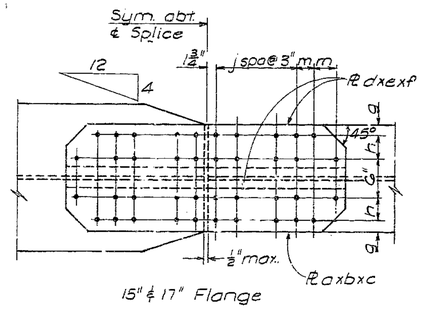
DETAILS OF TIMBER HEADER

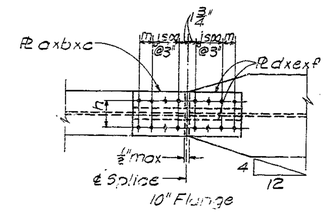


Shop welded web splices may be fabricated by the contractor when detailed on the shop drawings and approved by the engineer. No additional payment will be made for optional shop welded web splices.

SHOP WEB SPLICE AND GIRDER WELDING





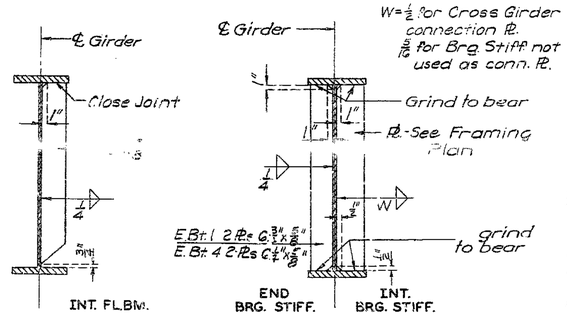


Flange	a	b	c	d	e	f	h	j	g	m	Open Holes No. ea. ℞ One as. ℞	Open Holes No. ea. ℞ One ins. ℞	Fill ℞
10"x 9 3/4"	10"	3/4"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	6"	2	-	3"	16	8	10"x 11/16" x 12" 10"x 3/8" x 12"
15"x 9 3/4"	15"	3/4"	3'-2 1/2"	6 1/2"	15/16"	3'-2 1/2"	3"	3	1 1/2"	3 1/2"	40	20	15"x 11/16" x 19" 15"x 3/8" x 19"
17"x 9 3/4"	17"	3/4"	3'-8 1/2"	7 1/2"	2"	3'-8 1/2"	3"	4	3 1/2"	3 1/2"	48	24	17"x 11/16" x 22" 17"x 3/8" x 22"

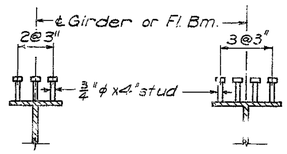
Field Splices: Use 7/8" ϕ high strength bolts with 15/16" ϕ reamed holes. All splice plates shall be A36 steel.

FIELD SPLICES

Field splices may be field welded or field bolted.



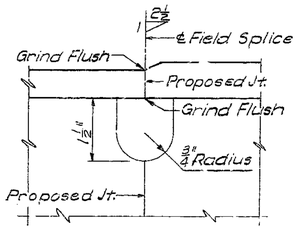
STIFFENER DETAILS



SHEAR CONNECTORS

Weight of 1,093 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel.

See Sheets 6, 7 & 10 for spacing and location of shear connectors.



WELDED FIELD SPLICES

(Plan view same as for Shop Flange Splice.)

PLATTE COUNTY

DETAILED DEC. 1969 BY KKD

CHECKED MAY 1970 BY FJO

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

Sheet No. 8 of 11.

HARRINGTON AND CORTELYOU CONSULTING ENGINEERS KANSAS CITY, MO.

A-2434

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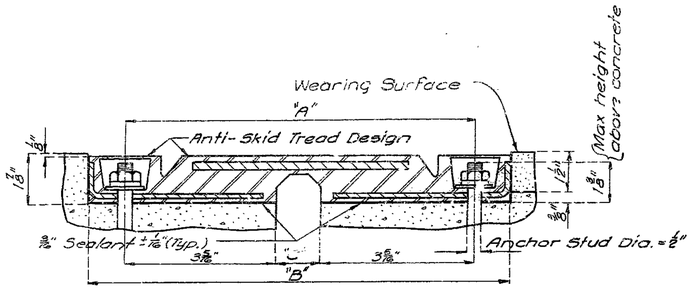
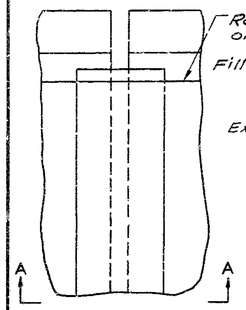
MISSOURI STATE HIGHWAY DEPARTMENT

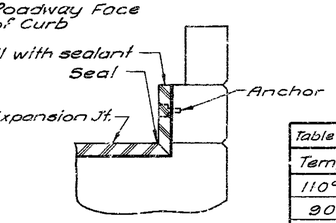
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	11	



SECTION A-A



PART PLAN



SECTION THRU CURB

Table of Variable Dimensions			
Temp.	Dim. "A"	Dim. "B"	Dim. "C" (Max.)
110°F	7 5/8"	9 3/8"	1"
90	8"	9 3/4"	1 1/8"
70	8 1/4"	10"	1 3/8"
60	8 1/2"	10 1/4"	1 7/8"
50	8 5/8"	10 3/8"	2"
40	8 3/4"	10 1/2"	2 1/2"
30	9"	10 3/4"	2 3/8"
10	9 1/4"	11"	2 3/8"
-10°F	9 3/8"	11 1/8"	3"

Joint Seal for 2" movement

Note: Plan dimensions are based on installation at 60° F. Expansion joint width shall be adjusted during installation for compliance with the above table. See Special Provisions.

Note: The expansion joint shall be set, anchored, bonded and sealed as recommended by the manufacturer and as set forth in the Special Provisions. Anchors shall be cone expansion type. Payment for furnishing and installing the expansion joint, including anchor bolt assembly, shall be made under unit price bid per lineal foot of joint.

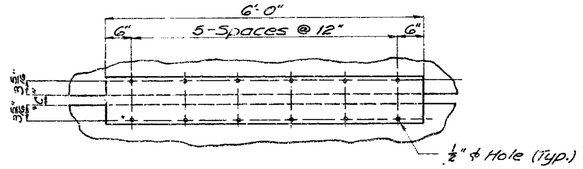
Accurately locate the hole spacing for 1/2" studs (expanding anchor type), on both sides of the expansion void at a distance of 3 5/16" from the edge of the concrete and snap a chalk line on both sides of the expansion void. Layout transverse hole spacing along the chalk line in accordance with the shop drawings and the Typical Layout as shown on this sheet. Insure that the holes are directly opposite each other (square). Drill holes 1/2" ϕ x 2 1/2" deep.

Holes shall not be drilled nor anchor bolts set until the concrete is at least 7 days old.

First section of expansion joint shall be installed starting at ℄ of roadway.

Tighten all nuts to 40 foot pounds. Retighten to 40 foot pounds 30 minutes after initial tightening.

Wire brush bolt cavity and coat with sealant. Fill cavity with sealant to a depth of 2" and push plug down to snap lock. Scrape off all excess sealant.



PART PLAN SHOWING TYPICAL LAYOUT FOR HOLE SPACING

DETAILS OF STEEL REINFORCED ELASTOMERIC EXPANSION JOINT SEAL BENTS NO. 1 & 4

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

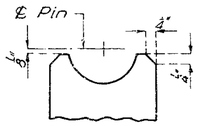
NOTES: TYPE "D" BEARINGS

Lead plates under bearings shall be approximately 1/8" thickness and weigh 8#/sq. ft. Cost of lead plates shall be included in price bid for other items. "Estimated weight" does not include weight of anchor bolts.

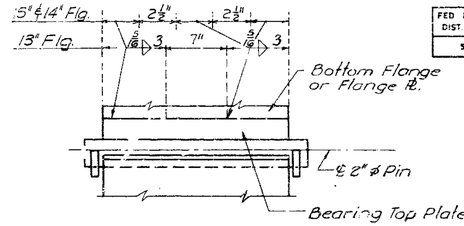
Rockers and pedestals shall be machined after welding.

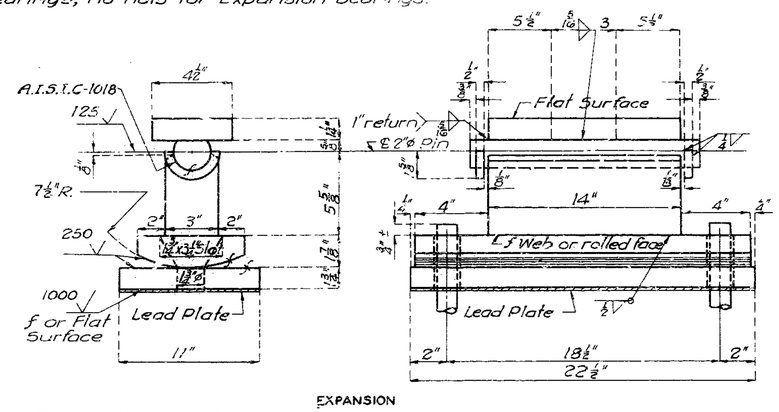
Where flat surface is indicated, tolerance shall be .003 in/in in any direction.

Anchor Bolts for Type "D" Bearings shall be 1 1/2" ϕ swedged bolts and shall extend 15" into concrete, with hexagon nuts and plain washers for Fixed Bearings, no nuts for Expansion Bearings.



END VIEW OF WEB EXPANSION BEARING

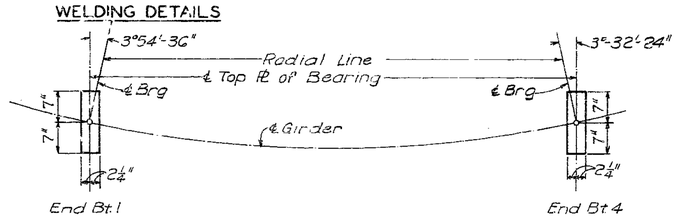




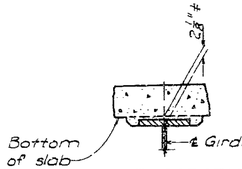
EXPANSION

Required: E. Bt 1 - 2
E. Bt 4 - 2

WELDING DETAILS



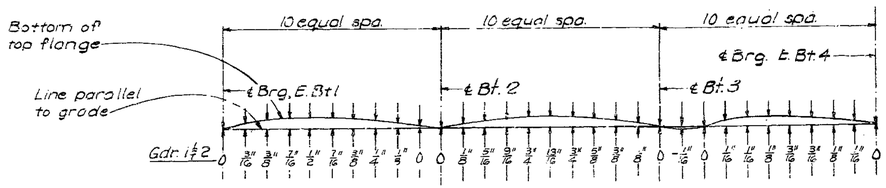
BEARING ORIENTATION



THEORETICAL SLAB HAUNCH

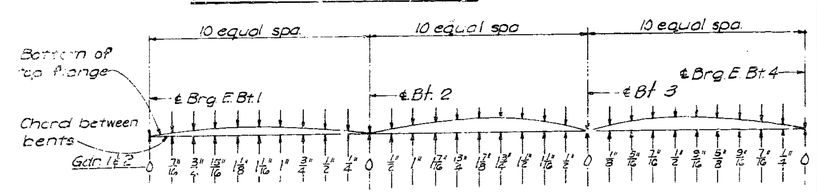
* Dimension may vary if girder camber after erection differs from plan camber by more than the % of D.L. deflection due to weight of structural steel. No payment will be made for additional forming or concrete required for variable haunching.

TYPE "D" BEARINGS
(Estimated Weight 1,130#)



Note: 13% of dead load deflection due to weight of structural steel.

DEAD LOAD DEFLECTION



Note: Camber shown is for vertical curve and dead load deflection of concrete slab and structural steel.

PLATE GIRDER CAMBER DIAGRAM

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DETAILED DEC. 1969 BY KKD
CHECKED MAY 1970 BY FJD

Sheet No. 9 of 11.

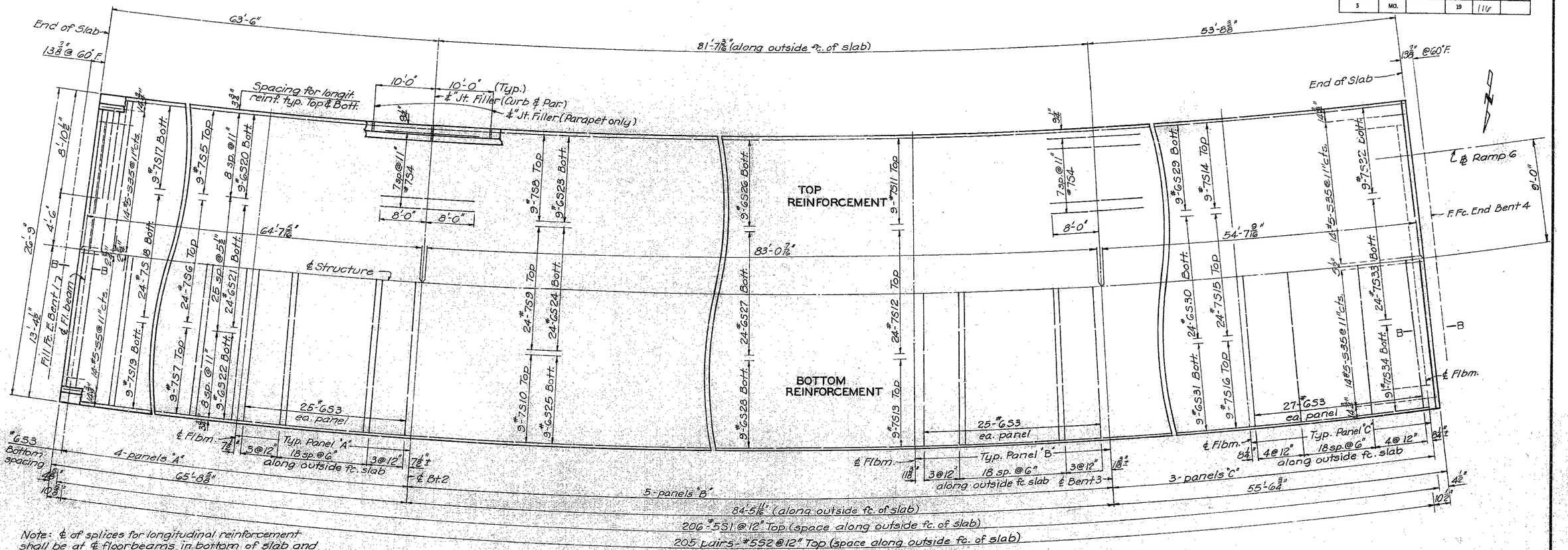
PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2434

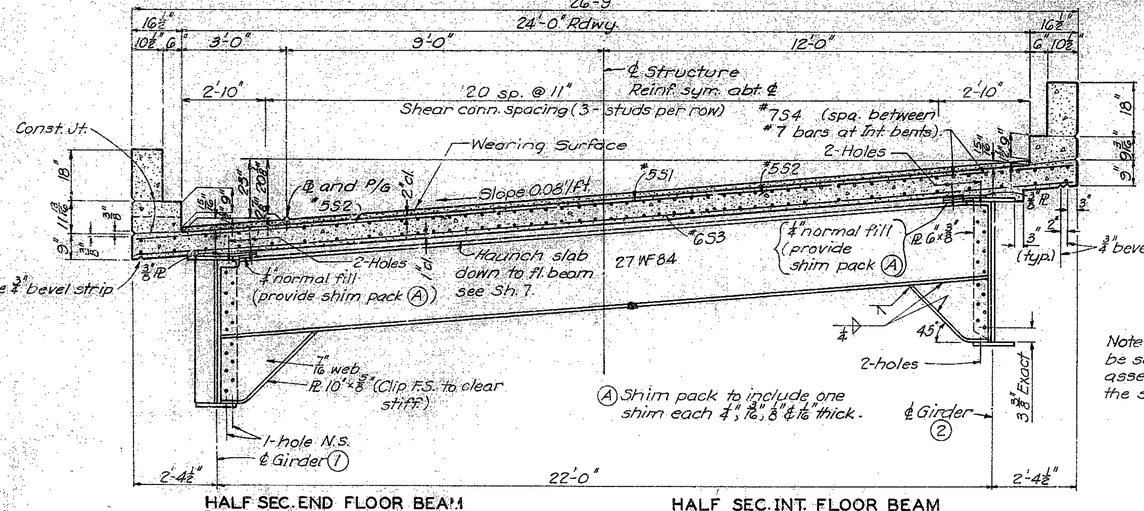
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	116	



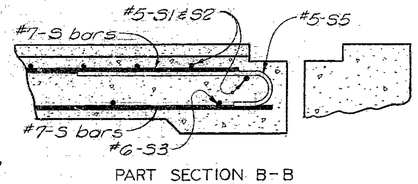
PLAN OF SLAB SHOWING REINFORCEMENT

Note: ℄ of splices for longitudinal reinforcement shall be at ℄ floorbeams in bottom of slab and midway between floorbeams in top of slab.



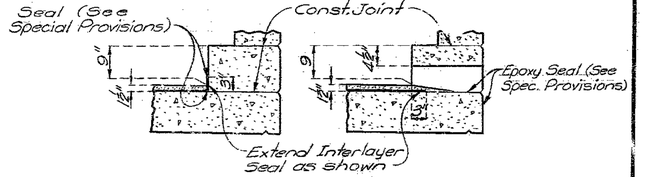
HALF SEC. END FLOOR BEAM (Radial)

HALF SEC. INT. FLOOR BEAM (Radial)



PART SECTION B-B

Note: Location of reinforcement in slab at expansion joints shall be altered sufficiently to clear anchor studs for joints by ½" minimum.



SECTION THRU CURB

SECTION THRU CURB AT OUTLET

Note: Holes for floorbeam field connections shall be subpunched or subdrilled and reamed while assembled in the shop, or may be drilled from the solid with girders and floorbeams assembled.

Note: For details and reinforcement of curb and parapet not shown see sheet 11.
Place transverse reinforcement on radial lines.
For details of shear connectors see sheet 8.
All longitudinal dimensions are slope lengths at top of slab.
For floorbeam spacing see sheet 7.

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DETAILED DEC. 1969 BY JER
CHECKED MAY 1970 BY FJD

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

Sheet No. 10 of 11 .

PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2434

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	117	

GENERAL BRIDGE RAIL NOTES:

All bridge rail posts shall be set normal to grade.

Aluminum tube bridge rail shall be bent to conform to vertical and horizontal alignment of parapet.

Aluminum washer shims between top of parapet and post base may be used for adjusting bridge rail alignment. Maximum thickness of shims to be ⅜". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.

All parts of bridge rail, except anchor bolts, nuts, washers, and set screws are to be of aluminum material.

All fillets ¼" except as noted.

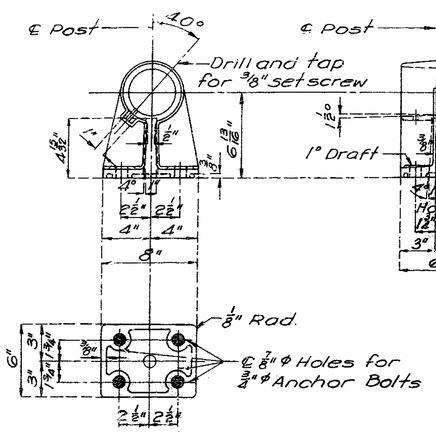
All drafts 3° except as noted.

Omit set screw in side of rail posts adjacent to filled joints in curb and parapet at rail expansion points. Omit set screw in each side of rail post on end bents except where a gap is shown in rail over an expansion device.

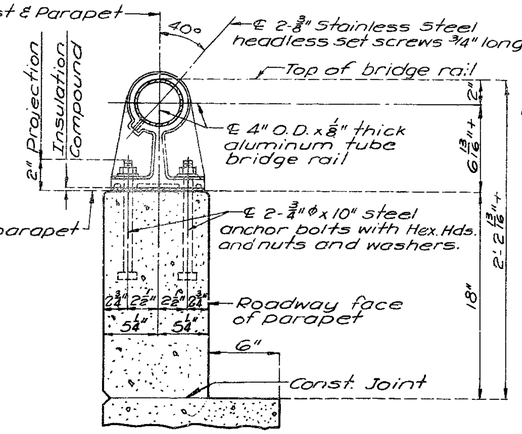
Top of curbs and parapet to be built parallel to grade with curb and parapet joints (except at end bents) normal to grade.

Concrete end posts to be vertical.

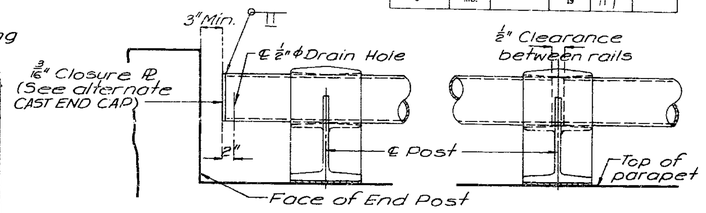
All exposed edges of end posts shall have ½" bevel. All exposed edges of curbs and parapets shall have ½" radius or ⅜" bevel unless otherwise noted.

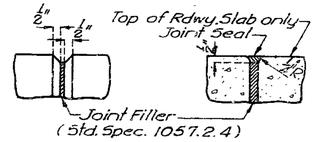


POST DETAILS



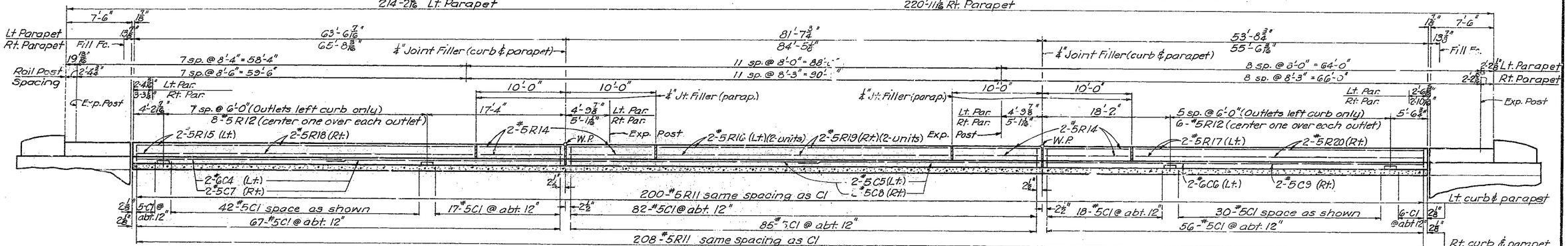
SECTION THRU BRIDGE RAIL





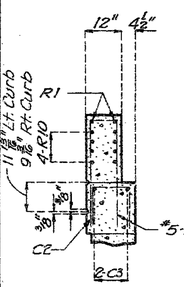
FILLED JOINT DETAILS

ONE TUBE ALUMINUM RAILING

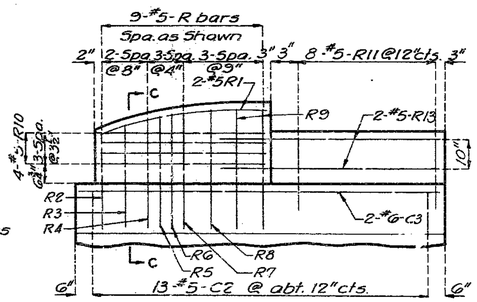


SECTION NEAR LEFT CURB AND PARAPET (Detail for Rt. Curb as noted)

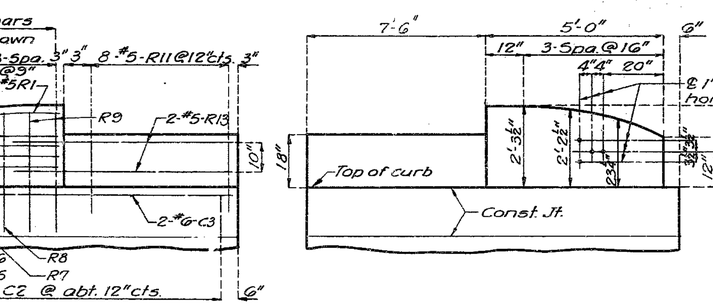
Note: Longitudinal dimensions are slope dimensions taken at top of and along ℄ of parapet.

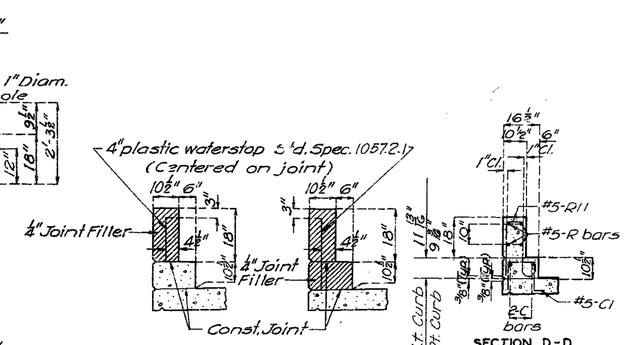


SECTION C-C



ELEVATION OF END POSTS



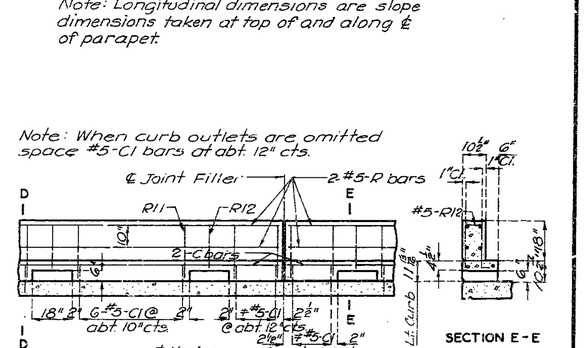


Note: Plastic waterstop shall be placed in all parapet & curb filled joints except on high side super-elevated structures.

Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

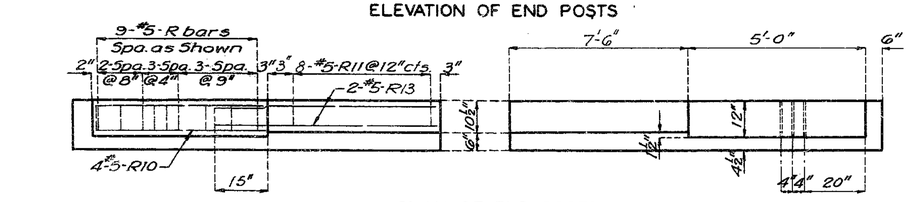
DETAILS OF PLASTIC WATERSTOP

Note: When curb outlets are omitted space #5-C1 bars at abt. 12" cts.



ELEVATION OF CURB & PARAPET

Note: For horizontal curb and parapet bars use a minimum lap of 15" for #5 and 18" for #6.



PLAN OF END POSTS

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

214

STD. 1.5.2	REVISED
MAR. 1964	OCT. 1968

DETAILED DEC. 1969 BY JER

CHECKED MAY 1970 BY FJD

Sheet No. 11 of 11 .

PLATTE COUNTY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-2434

MISSOURI STATE HIGHWAY DEPARTMENT

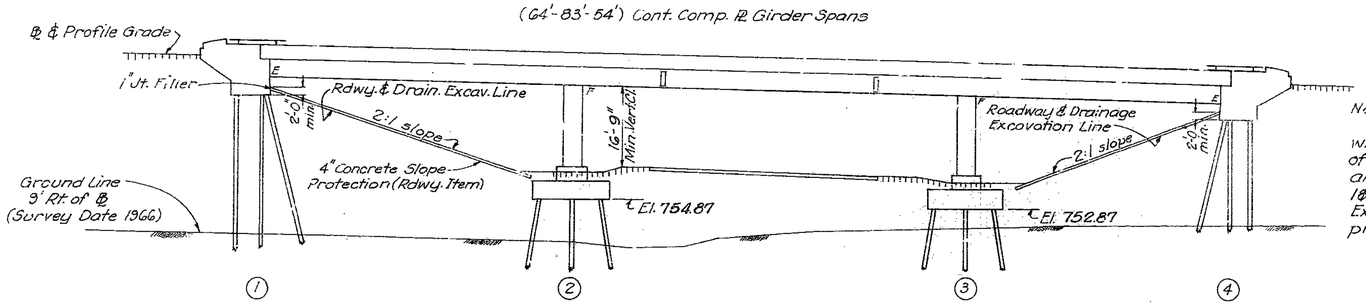
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		

FINAL PLANS

P.I. Sta. 16+32.79
El. 792.76
+2.51% -4.2%
650' V.C.

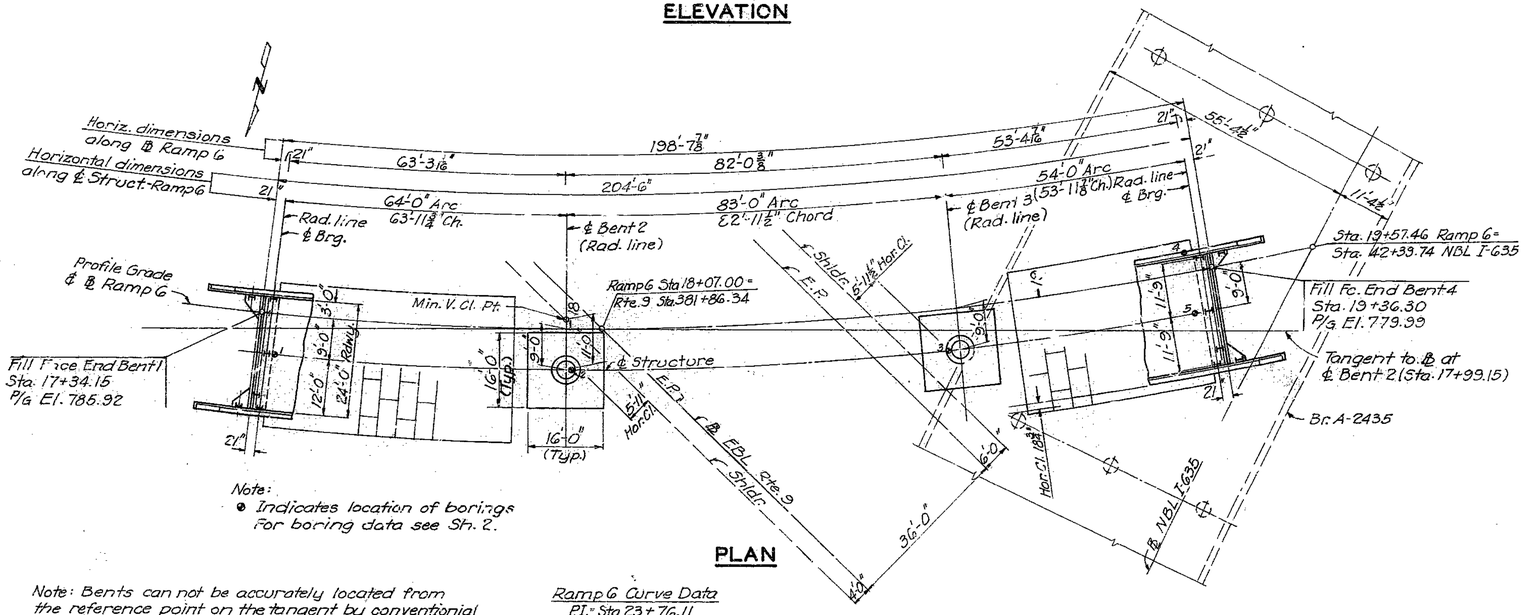
Br. A-2435

(64'-83'-54') Cont. Comp. #2 Girder Spans



Note:
Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front and not less than 1'25' in back of End Bents 1 & 4 and up to Roadway & Drainage Excavation Line at Bents 2 & 3 before piles were driven.

ELEVATION



Note:
● Indicates location of borings
For boring data see Sh. 2.

PLAN

Note: Bents can not be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords.
For substructure layout see Sheet 2.

Ramp 6 Curve Data
P.I. = Sta 23+76.11
Δ = 121°-55'-36" Lt.
D = 7°-30'
T = 1376.11'
L = 1625.68'
R = 763.94'
S.E. = .08'/ft.

Note: Payment for Fabricated Structural Steel, superstructure, based on welded field splices regardless of type actually used.

PILE DATA					
Bent No.		1	2	3	4
Pile Type & Size		10BP42	12BP53	12BP53	10BP42
Number		7	9	9	7
Final Length	Ft.	69-82	54-55	50-53	70-74
Design Bearing	Tons	33	62	62	33
Hammer Energy	Ft. Lbs.	9,700	14,000	14,000	8,800

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

GENERAL NOTES

Design Specifications: AASHO 1969

Design Loading:
HS20-44

Earth 120* Equivalent Fluid Pressure 30#
Fatigue Stress - Case 1

Design Unit Stresses:

Class B Concrete (substructure)	fc = 1,200 psi
Class B1 Concrete (superstructure)	fc = 1,600 psi
Reinforcing Steel	fs = 20,000 psi
Structural Steel (ASTM A36)	fs = 20,000 psi
Structural Steel (ASTM A572) Grade 50	fs = 27,000 psi
Steel Pile	fb = 9,000 psi

Field connections, High Strength Bolts 7/8"ϕ, holes 15/16"ϕ except as noted.
Paint: Shop none; Field, by contractor in accordance with Std. Spec. 712.12.
Minimum clearance to reinforcing steel 1½" unless otherwise shown.
All reinforcing bars in tops of substructure beams or caps spaced to clear anchor bars for bearings by at least ½".
Profile grade elevations are taken at top of wearing surface.

QUANTITIES					
Items		Substr.	Superstr.	Totals	
Class I Excavation	Cu.Yd.	213		213	
Structural Steel Pile (10")	Lin.Ft.	1038		1038	
Structural Steel Pile (12")	Lin.Ft.	956		956	
Class B Concrete	Cu.Yd.	131.9		131.9	
Class B1 Concrete	Cu.Yd.		199.4	199.4	
Reinforcing Steel	Lb.	7590	62440	70030	
Fabricated Structural Carbon Steel	Lb.		68060	68060	
Fabricated Structural Low Alloy Steel	Lb.		32340	32340	
Painting	Ton		69.2	69.2	
Bridge Rail (one tube)	Lin.Ft.		434	434	
Coal Tar Interlayer Protective Coat	Sq.Yd.		537	537	
Special Type "D" Mixture (Asphaltic Conc.)	Ton		37	37	
Stl. Reinforced Elastomeric Exp. Joint Seal	Lin.Ft.		52	52	
Fab. Struct. Carbon Steel (Substr.)	Lb.	32210		32210	
Fab. Struct. Low Alloy Steel (Substr.)	Lb.	6830		6830	

All concrete and reinforcement in end posts, parapets, and curbs is included with superstructure quantities.

Bench Marks:
B.M. - Bolt cast in curb at NE. Wing Br. A-2434
Elev. 788.56
B.M. - Bolt cast in curb at SW Wing Br. A-2434
Elev. 779.98

BRIDGE: RAMP 6 OVER ROUTE 9 E.B.L.

STATE ROAD - INTERSTATE ROUTE 635

IN RIVERSIDE

PROJECT NO. I-IG-635-1(75)(RTE. I-635) **STA.** 17+34.15

PLATTE COUNTY

STATE OF MISSOURI
F. M. CORTELYOU, JR.
NUMBER E-4155
REGISTERED PROFESSIONAL ENGINEER

SUBMITTED BY W. D. Carney DATE 1-24-72
BRIDGE ENGINEER

APPROVED BY Robert N. Hunter 72
CHIEF ENGINEER

HARRINGTON
CONSULTING ENGINEERS
KANSAS CITY, MO.

DESIGNED NOV. 1969 BY H&C
DETAILED DEC. 1969 BY JER
CHECKED MAY 1970 BY FJD

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

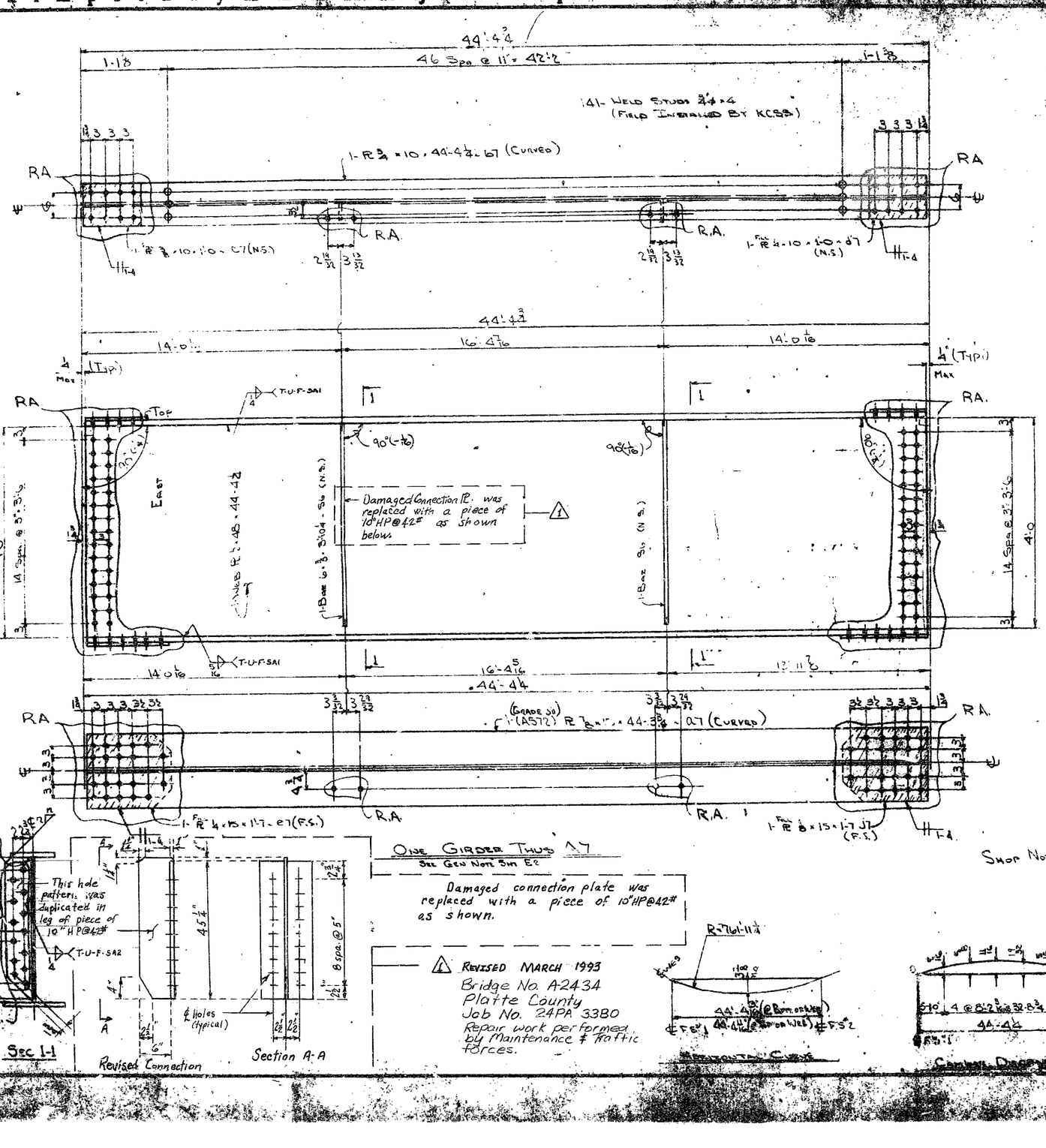
FINAL PLAN Sheet No. 1A of 11 .

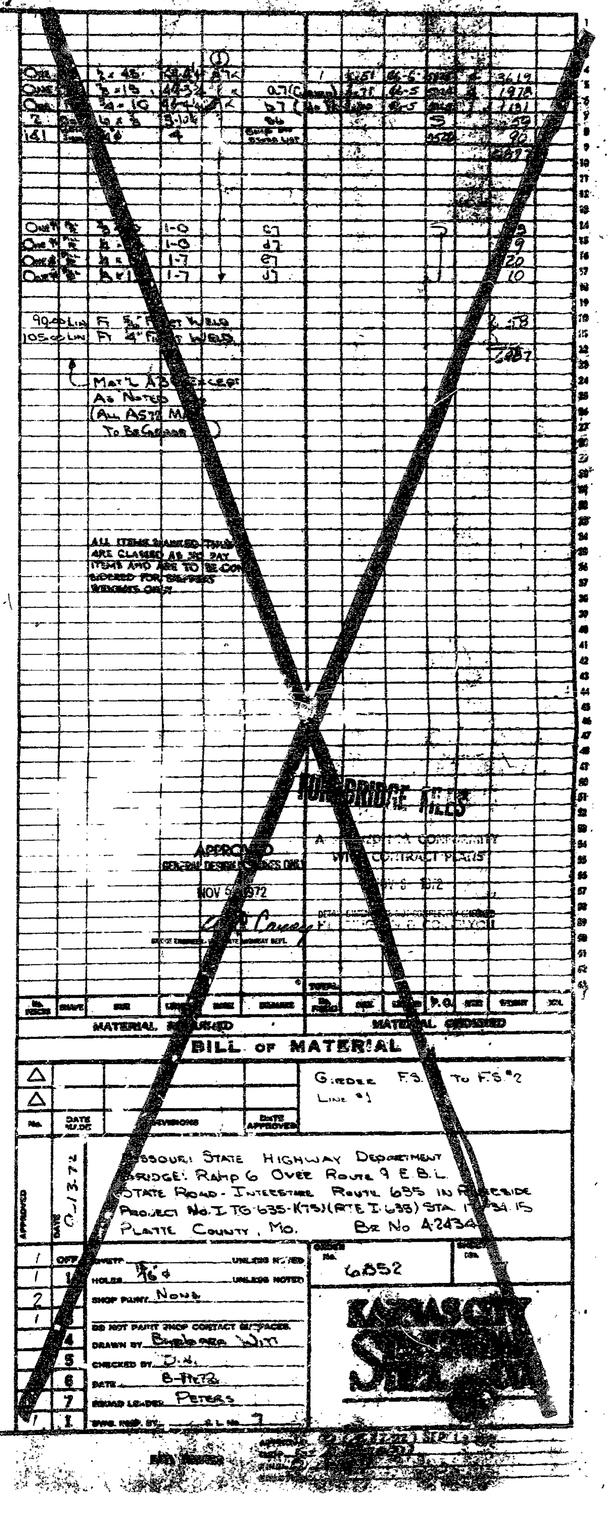
DWG. 611.60
DWG. 706.30A
A-2434

215

FOR INFORMATION ONLY

A24343, Sht. 20

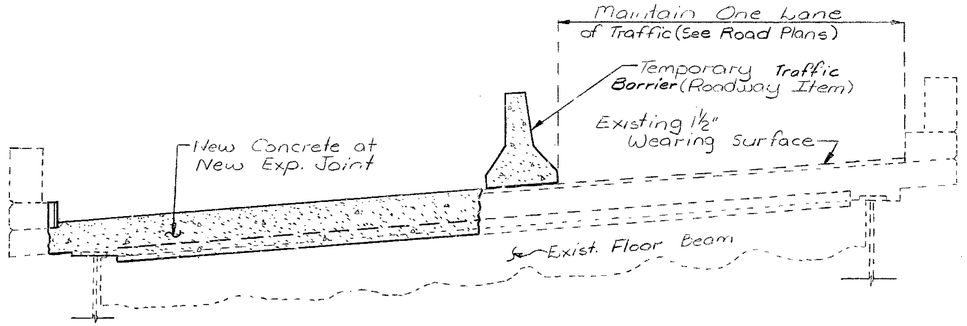




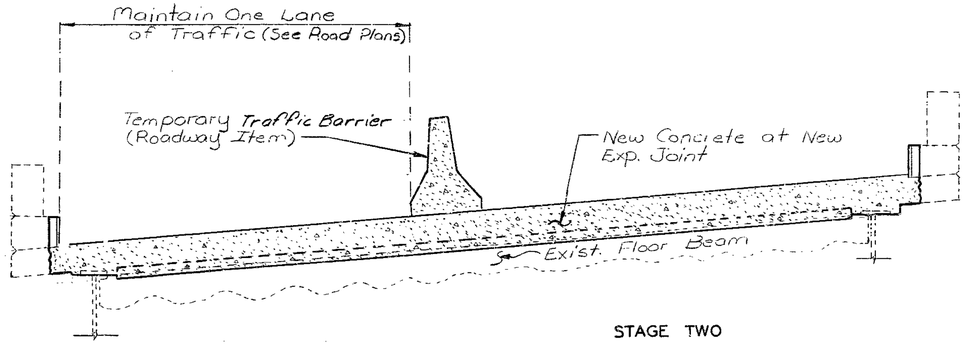
AP 33910A

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.	IR-635-1(208)	18
SEC./SUR. 5	TWP. 50N RGE. 33W	



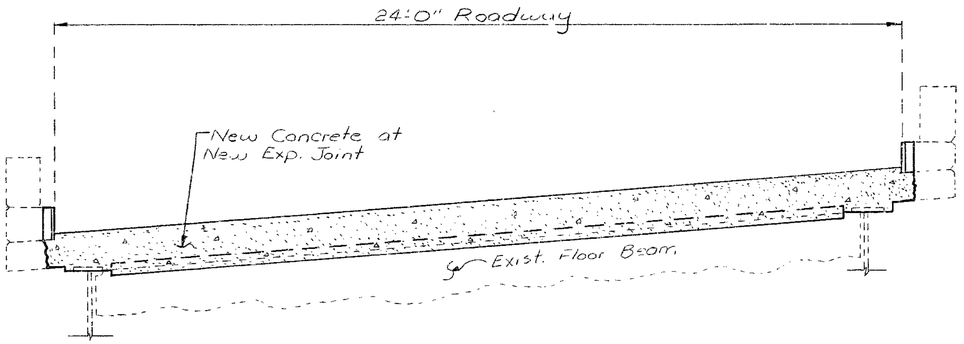
STAGE ONE



STAGE TWO

ESTIMATED QUANTITIES		
ITEM		TOTAL
Special Work	Lump Sum	1
Elastomeric Exp. Jt. Seal (2.0 in.)	Lin. Ft.	48

Note: Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.



FINAL STAGE

PART SECTIONS AT END BENTS NO. 1 & 4
NEAR EXP. DEVICE JOINT

152

DESIGNED Oct. 1984
DETAILED Oct. 1984
CHECKED Nov. 1984

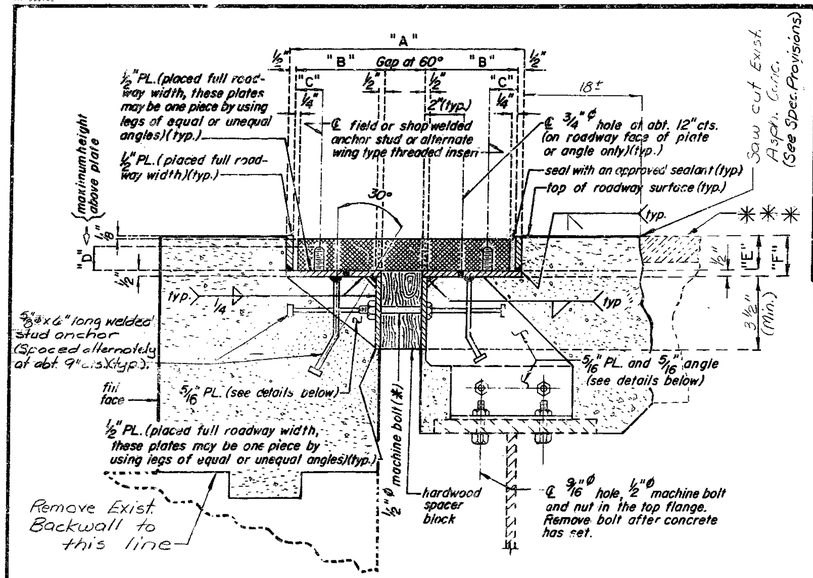
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 2.

REPAIRS TO:
BRIDGE : RAMP 6 OVER ROUTE 9 E.B.L.
STATE ROAD- INTERSTATE ROUTE 635
~~ABOUT~~ IN RIVERSIDE
PROJECT NO. IR-635-1(208) STA. 17+34.15±
JOB NO. 4-1635-763 RTE. I-635
PLATTE COUNTY
DATE JAN. 22, 1985

STD.
STD.
A-2434R

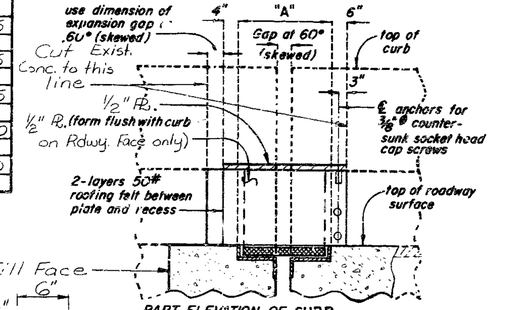
STATE	PROJ NO.	SHEET NO.
MO.	IR-635-1(208)	19



PART SECTION THRU ARMORED JOINT

LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	ANCHOR STUDS "G"
End Bent No. 1 & No. 4	Acme Trojan TR300	2"	11½"	4½"	1¾"	1⅛"	1¾"	2¼"	½"	40
	Delast-i-flex LM200	1½"	11⅞"	4 11/16"	2 3/16"	⅞"	2½"	2⅝"	½"	45
	Gen-Strip CCL 2"	2¼"	11¾"	4½"	1¾"	1⅛"	1¾"	2¼"	⅝"	65
	On-Flex 2.5	1½"	11"	4¼"	1⅝"	1¼"	1⅝"	2⅛"	⅝"	65
	Fel-Span T20 C5	1¼"	11¼"	4½"	1⅛"	1"	1⅜"	1⅞"	½"	50
	Wabo Bendoflex 250	2"	11½"	4¼"	1⅝"	1¼"	1⅞"	2⅜"	½"	50

NOTE: All dimensions are at right angles.
Expansion gap and dimension "A" shall be increased 1/16" for each 10° fall in temperature and decreased 1/16" for each 10° rise in temperature.



PART ELEVATION OF CURB

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE CERTIFIED NUTS AND BOLTS FOR THE ANCHOR STUDS OR WING TYPE THREADED INSERTS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL. APPROVED STUD WELDED ANCHORS (C-1010 THRU C-1020) SHALL BE USED

SEE SPECIAL PROVISIONS FOR PAINTING

ANCHOR BOLTS IN THE BRUSH CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE BRUSH CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT.

FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

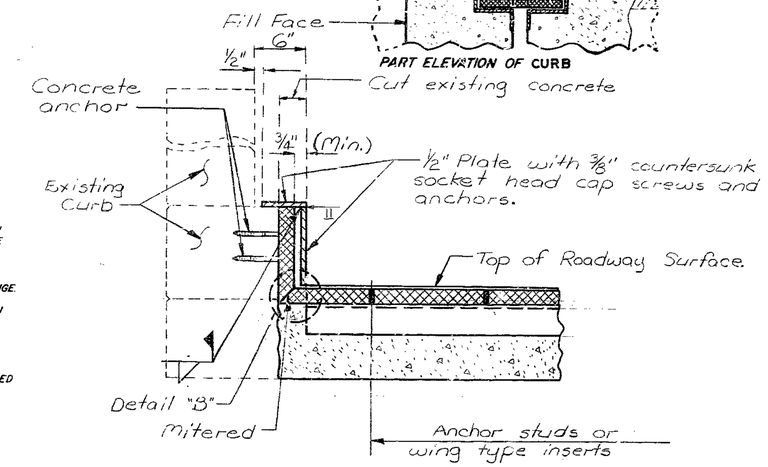
PLATES SHALL BE FIELD ADJUSTED BY ADDING OR REMOVING METAL SHIMS (2" x 3"), AS REQUIRED FOR TEMPERATURE CORRECTION. THE EXPANSION GAP SHALL BE ADJUSTED FOR ANY TEMPERATURE CORRECTION PRIOR TO POURING TOP OF END BENT BACKWALL.

Note: Alt. methods of supporting Exp. Device during installation may be submitted to the engineer for approval.

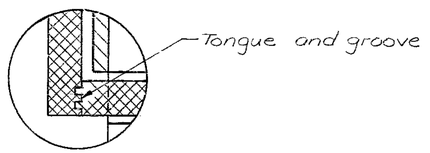
Details and location of splice in armor shall be shown on shop drawings.

Existing reinforcement exposed shall be cleanly stripped and reused. Where reinforcement interferes with installation of Exp. Joint Seal it shall be shifted or removed for clearance. Minimum clearance to reinforcement shall be 1½".

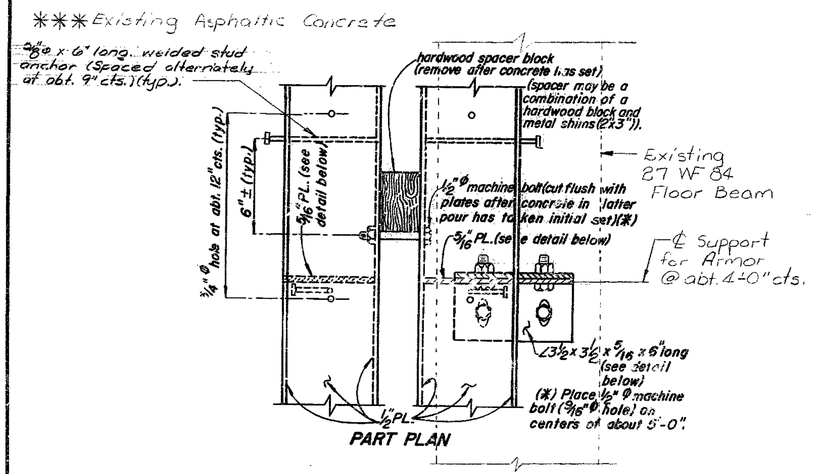
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.



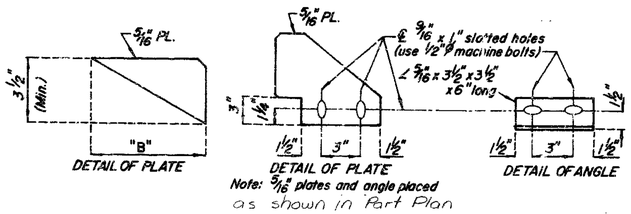
SECTION THRU CURB AT NEW EXP. JT. SEAL

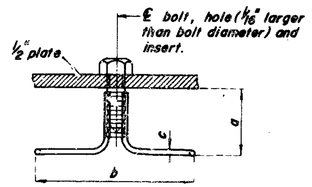


DETAIL "B" (ALTERNATE)



PART PLAN





Bolt Diameter	Safe Load Tension (lbs.) (min.)	Approx. Ult. Cap. Tension (lbs.) (min.)	Dimensions a (min.)	b	c
1/2"	800	8,000	1-5/8"	5"	.218"
5/8"	1,300	9,200	1-5/8"	5"	.218"
3/4"	1,800	13,200	2-1/4"	6"	.262"
7/8"	2,000	16,200	2-1/2"	6-1/2"	.306"
1"	2,000	16,200	2-1/2"	6-1/2"	.306"

DETAILS OF ALTERNATE WING TYPE THREADED INSERT

(Machine bolts need only be used to secure the Wing Type Threaded Inserts to the steel plate until the concrete has attained 3,000 p.s.i.)

153

DETAILED Oct. 1984
CHECKED Oct. 1984

DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL AT BENT NO. 1 & 4

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

Sheet No. 2 of 2

PLATTE COUNTY

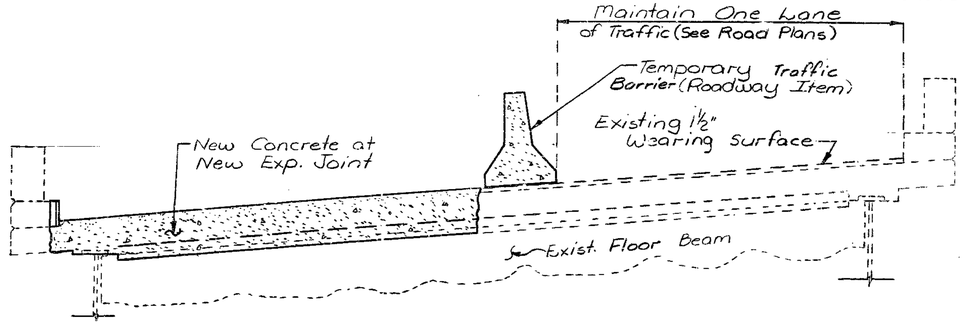
A-2434R

AF 33910A

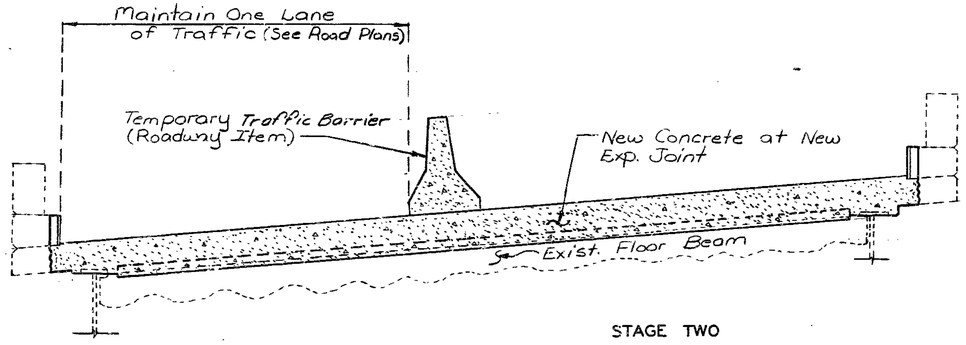
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.	IR-635-1(208)	11
SEC./SUR. 5	TWP. 50N	RGE. 33W

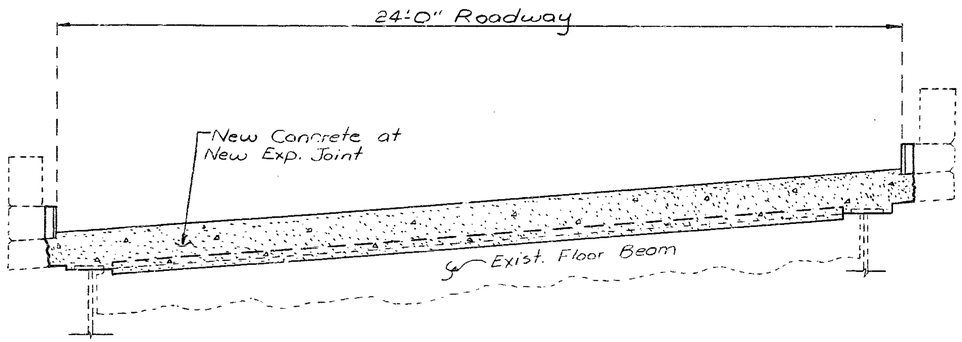
FINAL PLANS



STAGE ONE



STAGE TWO



FINAL STAGE

ESTIMATED QUANTITIES		
ITEM		TOTAL
Special Work	Lump Sum	1
Elastomeric Exp. Jt. Seal (2.0 in.)	Lin. Ft.	48

Note: . Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

PART SECTIONS AT END BENTS NO. 1 & 4
NEAR EXP. DEVICE JOINT

154

DESIGNED Oct. 1984
DETAILED Oct. 1984
CHECKED Nov. 1984

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

Sheet No. 1A of 2.

REPAIRS TO:
BRIDGE : RAMP 6 OVER ROUTE 9 E.B.L.

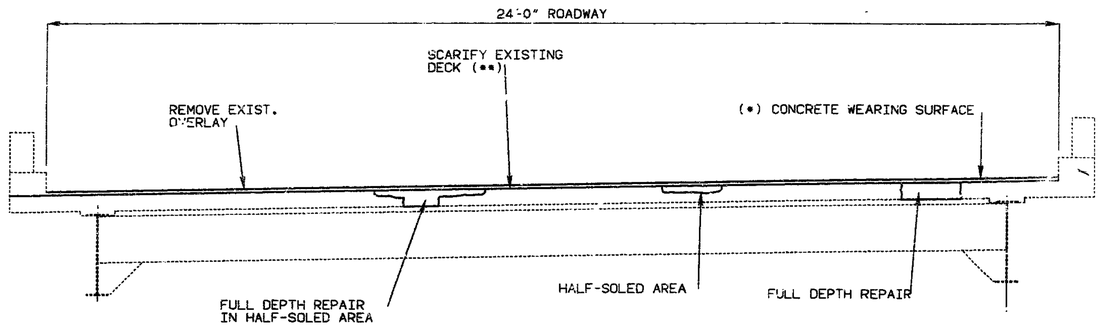
STATE ROAD - INTERSTATE ROUTE 635
~~ABOUT~~ IN RIVERSIDE
PROJECT NO. IR-635-1(208) STA. 17+34.15±
JOB NO. 4-1635-763 RTE. I-635
PLATTE COUNTY

DATE JAN. 22, 1985

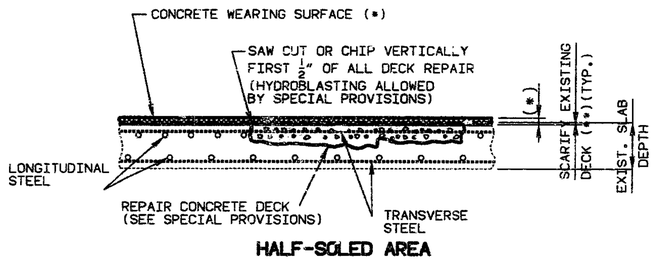
STD.
STD.
A-2434R

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

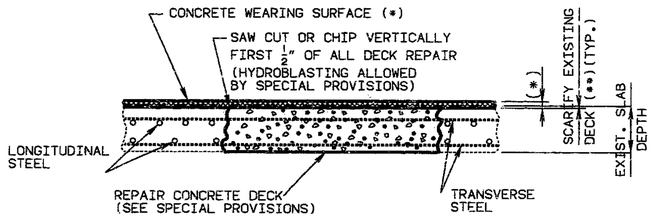
STATE	PROJ. NO.	SHEET NO.
MO.		68
SEC./SUR. 5	TWP. 50N RGE. 33W	



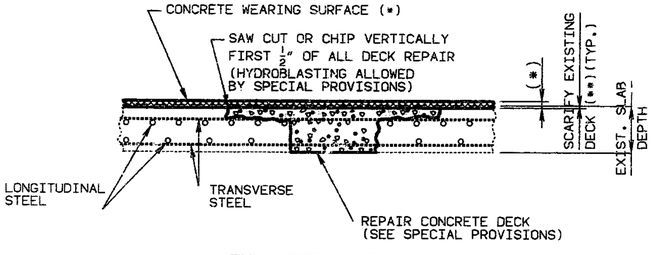
TYPICAL SECTION THRU SLAB



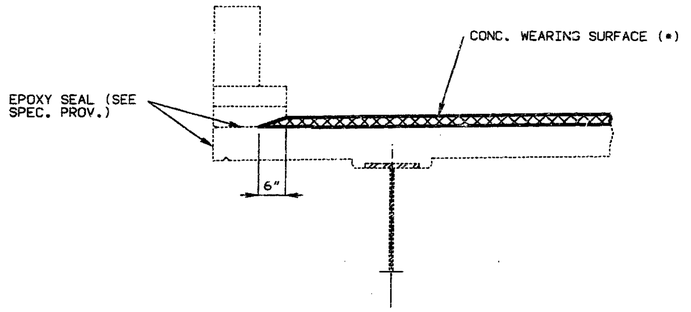
HALF-SOLED AREA



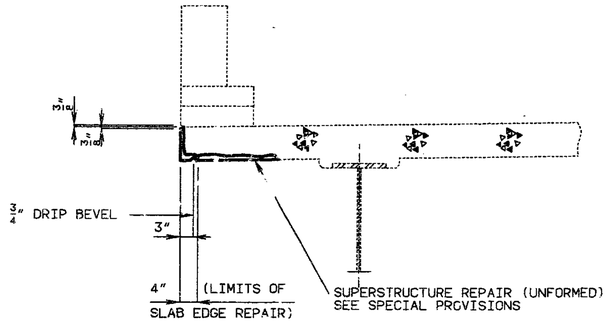
FULL DEPTH REPAIR



FULL DEPTH REPAIR IN HALF-SOLED AREA



DETAIL THRU CURB OUTLET



PART SECTION THRU SLAB

GENERAL NOTES:

DESIGN SPECIFICATIONS: A.A.S.H.T.O.-1989

DESIGN UNIT STRESSES:

CLASS B1 CONCRETE (SUPERSTRUCTURE) F'C=4,000 PSI

REINFORCING STEEL (GRADE 60) FY=60,000PSI

NOTE: OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATES NEW WORK.

ROADWAY SURFACING ADJACENT TO BRIDGE ENDS TO MATCH EXISTING CONCRETE DECK PLUS $1\frac{1}{2}$"±.

REINFORCING STEEL: MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE $1\frac{1}{2}$", UNLESS OTHERWISE SHOWN.

RAMP TO BE CLOSED TO TRAFFIC DURING CONSTRUCTION.(SEE ROADWAY PLANS).

ESTIMATED QUANTITIES

ITEM		TOTAL
SPECIAL WORK (BRIDGES)	LUMP SUM	1
ASPHALT REMOVAL (BRIDGES)	SQ. FT.	4,702
SUPERSTRUCTURE REPAIR (UNFORMED,	SQ. FT.	50
CLASS B1 CONCRETE	CU. YD.	28.6
REPAIRING CONCRETE DECK (HALF-SOLING)	SQ. FT.	100
FULL DEPTH REPAIR	SQ. FT.	50
SLAB EDGE REPAIR (BRIDGES)	LIN. FT.	40
( ) CONCRETE WEARING SURFACE	SQ. YD.	545
REINFORCING STEEL (BRIDGES)	LBS.	670
REINFORCING STEEL (EPOXY COATED)	LBS.	1490

• SEE JOB SPECIAL PROVISIONS FOR ALTERNATE USE OF $1\frac{3}{4}$" (MIN.) LATEX MODIFIED CONCRETE OR 2" (MIN.) LOW SLUMP CONCRETE WEARING SURFACE.

•• SCARIFY EXIST. DECK $\frac{1}{4}$" (MIN.) IF LATEX MODIFIED CONCRETE IS USED, OR $\frac{1}{2}$" (MIN.) IF LOW SLUMP CONCRETE IS USED.

REPAIRS TO BRIDGE: RAMP 6 OVER ROUTE 9 E.B.L.

STATE ROAD FROM STATE LINE TO RTE. I-29 IN RIVERSIDE

PROJECT NO. F.A.-635-1(247) STA. 17+34.15

JOB NO. 4I 990-635 RTE. I-635

PLATTE COUNTY

DATE 2/4/91

STD.
STD. 706.35
A-2434R1

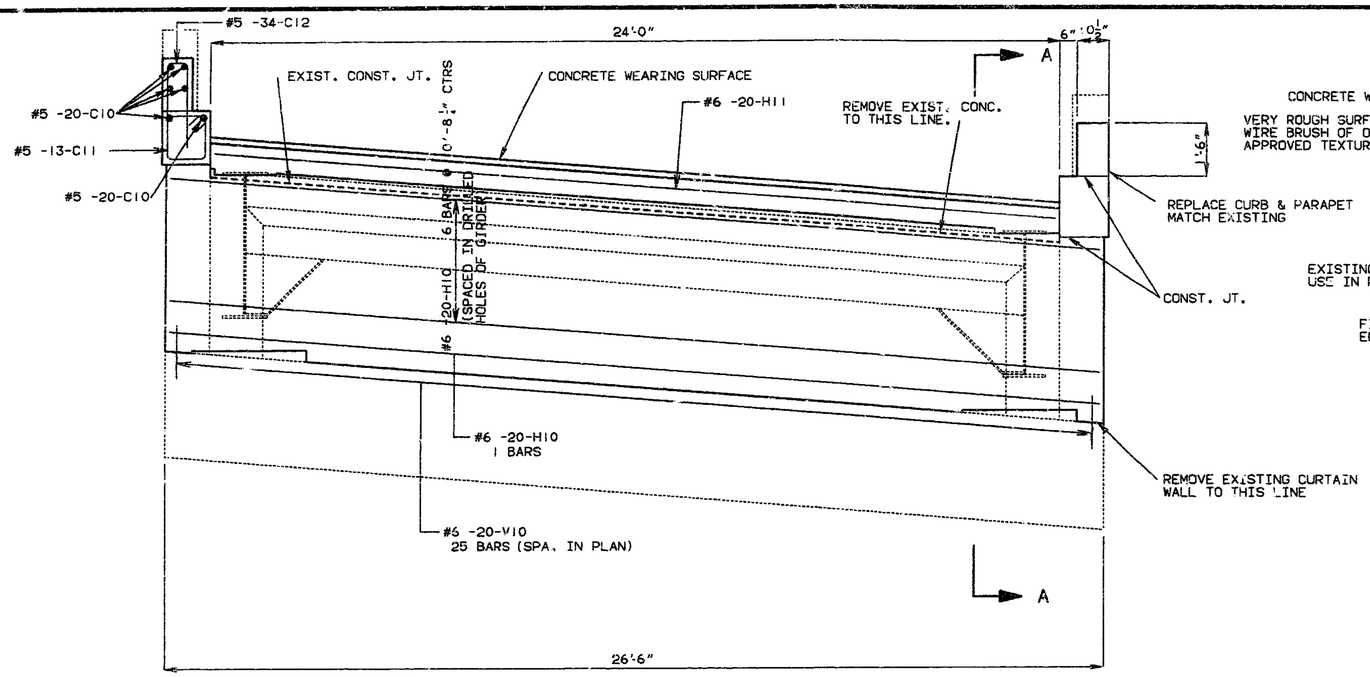
1992 902

DESIGNED AUG. 1990
DETAILED AUG. 1990
CHECKED AUG. 1990

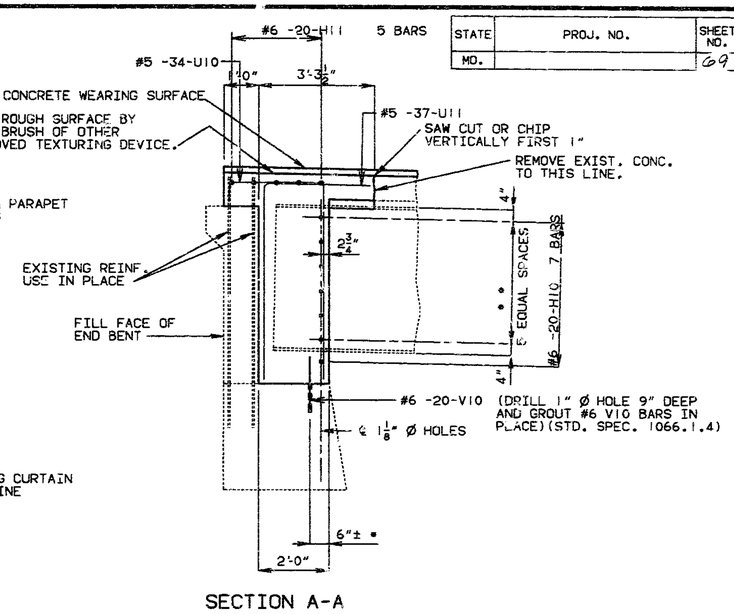
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SEE FINAL PLANS

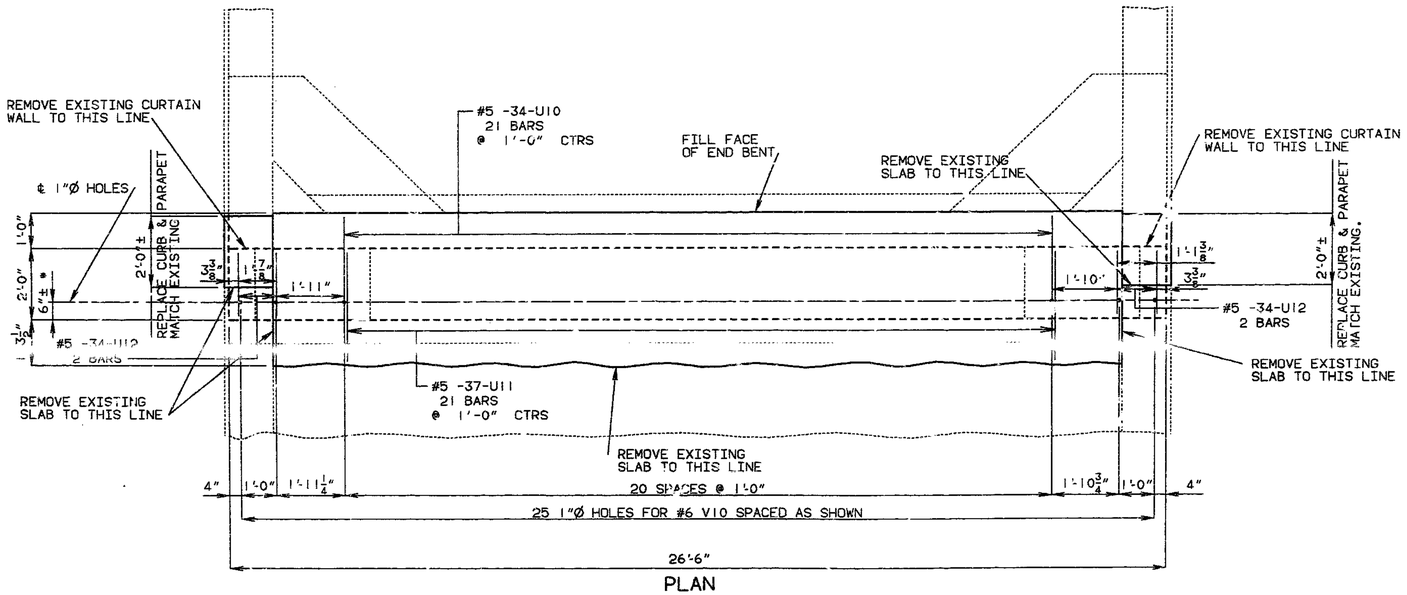
STATE	PROJ. NO.	SHEET NO.
MD.		69



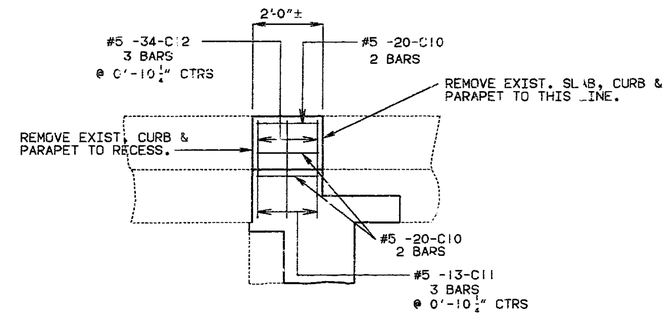
SECTION NEAR END BENT



SECTION A-A



PLAN



PART SECTION NEAR CURB & PARAPET

* SHIFT BARS IF NECESSARY TO AVOID EXISTING BEAM REINFORCEMENT.

• ▪ FIELD DRILL 1⅛"Ø HOLES IN EXISTING GIRDERS.

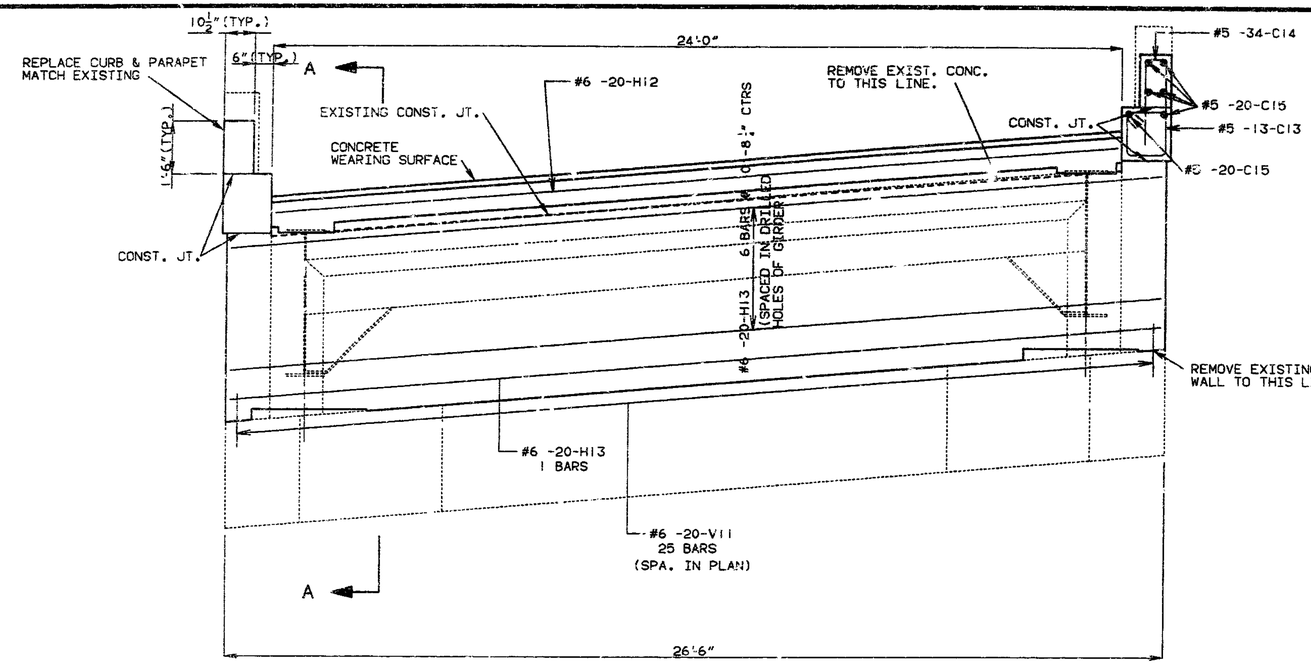
DETAILS OF END BENT NO. 1

403 + 23

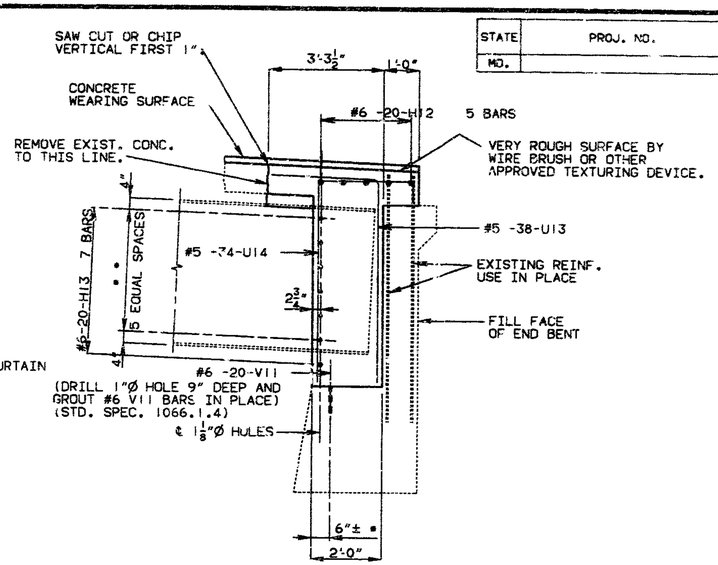
DETAILED AUG. 1990
CHECKED SEPT. 1990

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

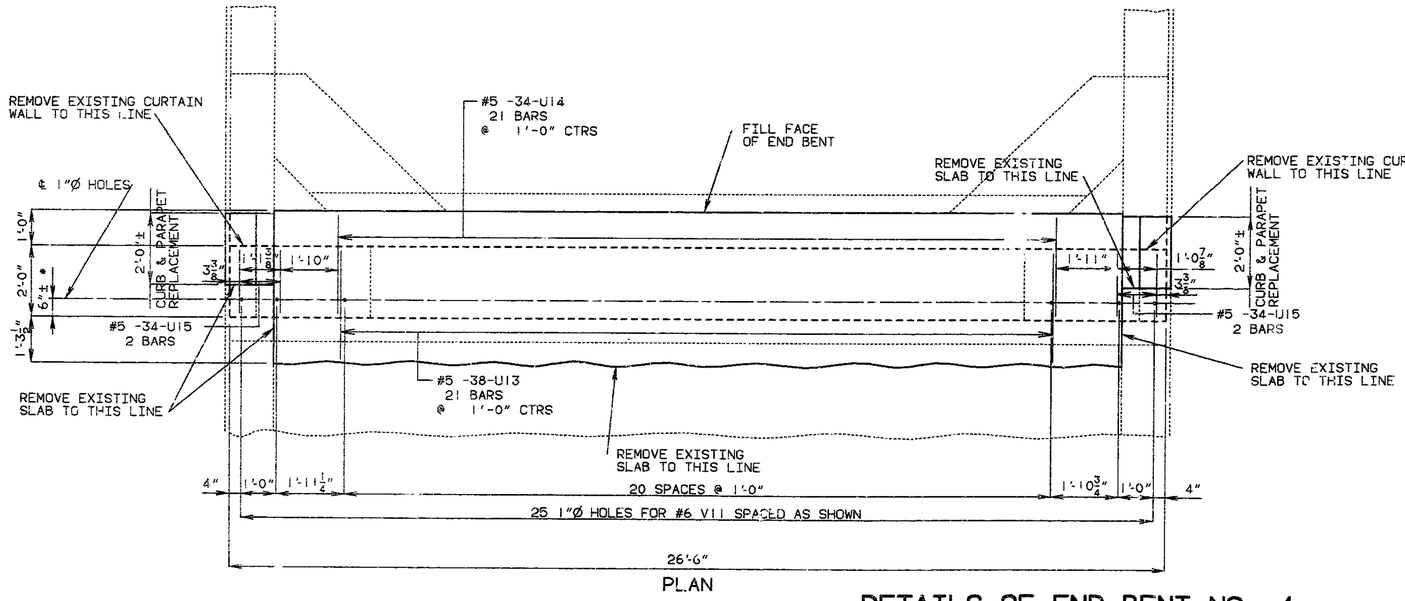
STATE	PROJ. NO.	SHEET NO.
NO.		70



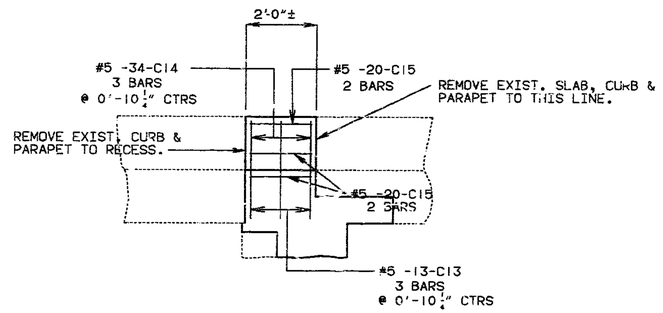
SECTION NEAR END BENT



SECTION A-A



PLAN



PART SECTION NEAR CURB & PARAPET

* SHIFT BARS IF NECESSARY TO AVOID EXISTING BEAM REINFORCEMENT.

** FIELD DRILL 1⅛"Ø HOLES IN EXISTING GIRDERS.

DETAILS OF END BENT NO. 4

DETAILED AUG. 1990
CHECKED SEPT. 1990

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 3 OF 4.

PLATTE COUNTY A-2434R1

COMPLETE BILL OF REINFORCING STEEL

NO. REQD	SIZE	MARK	SHAPE	GRADE	STIRRUP	EPOXY	DIMENSIONS (FEET) B	C	D	E	F	H	K	UNIT LENGTH (FEET)	TOTAL LENGTH (FT)	(IN)	TOTAL WEIGHT
12	5	C10	20	60		E	1.750							1.750	21	1	22
6	5	C11	13	60	S	E	1.125	1.266	1.125	1.266				5.383	32	4	34
6	5	C12	34	60	S	E	2.427	0.625	2.427					5.263	31	7	33
6	5	C13	13	60	S	E	1.125	1.266	1.125	1.266				5.383	32	4	34
6	5	C14	34	60	S	E	2.427	0.625	2.427					5.263	31	7	33
12	5	C15	20	60		E	1.750							1.750	21	1	22
7	6	H10	20	60			26.334							26.334	184	5	277
7	6	H11	20	60		E	23.826							23.826	166	10	251
5	6	H12	20	60		E	23.826							23.826	119	2	179
7	6	H13	20	60			26.334							26.334	184	5	277
21	5	U10	34	60	S	E	0.576	2.750	5.607					8.717	183	1	191
23	5	U11	37	60	S	E	3.051	5.586	5.585	0.112				8.525	196	1	205
4	5	U12	34	60	S	E	5.000	1.750	5.000					11.534	46	2	48
21	5	U13	38	60	S	E	3.061	5.763	5.758	0.232				8.723	183	3	191
21	5	U14	34	60	S	E	0.573	2.750	5.718					8.824	185	4	193
4	5	U15	34	60	S	E	5.000	1.750	5.000					11.534	46	2	48
25	6	V10	20	60			1.500							1.500	37	7	56
25	6	V11	20	60			1.500							1.500	37	7	56
															TOTAL		2149

COMPLETE BILL OF REINFORCING STEEL

NO. REQD	SIZE	MARK	SHAPE	GRADE	STIRRUP	EPOXY	DIMENSIONS (FEET) B	C	D	E	F	H	K	UNIT LENGTH (FEET)	TOTAL LENGTH (FT)	(IN)	TOTAL WEIGHT
															TOTAL		

STATE	PROJ. NO.	SHEET NO.
MO.		7/

NOTES:

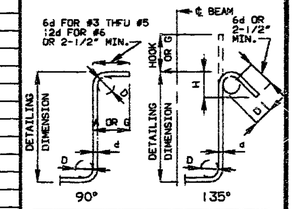
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

VARIES BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.

NO. EA. - NUMBER OF BARS OF EACH LENGTH.

UNIT LENGTHS ARE MEASURED ALONG CENTER-LINE BAR.

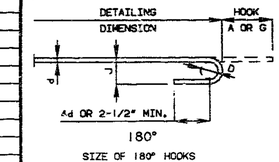


STIRRUP HOOK DIMENSIONS

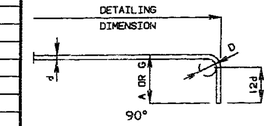
GRADES 40 - 50 - 60 KSI

BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	135° HOOK APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	12"	7-3/4"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS

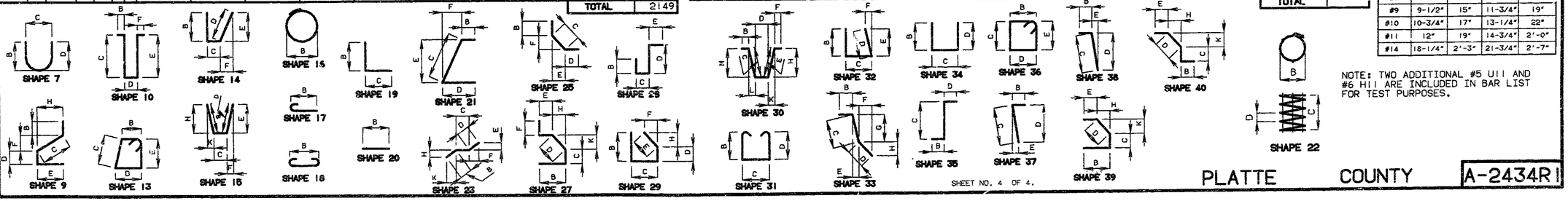


SIZE OF 90° HOOKS

END HOOK DIMENSIONS

BAR SIZE	D (IN.)	180° HOOKS ALL GRADES A OR G	180° HOOKS ALL GRADES J	90° HOOKS ALL GRADES 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"

NOTE: TWO ADDITIONAL #5 U11 AND #6 H11 ARE INCLUDED IN BAR LIST FOR TEST PURPOSES.



PLATTE COUNTY A-2434R1

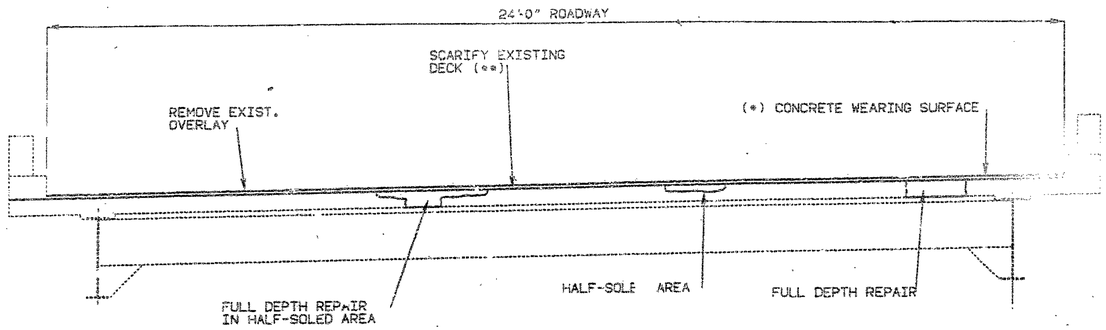
405785

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

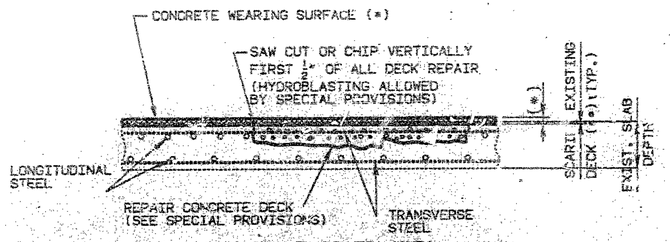
STATE	PROJ. NO.	SHEET NO.
MO.	FA-63. 1(24)	31
SEC./SUR. 5	TWP. 50N RGE. 33W	

(31)

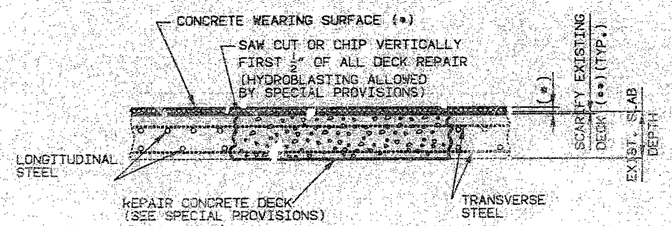
FINAL PLANS



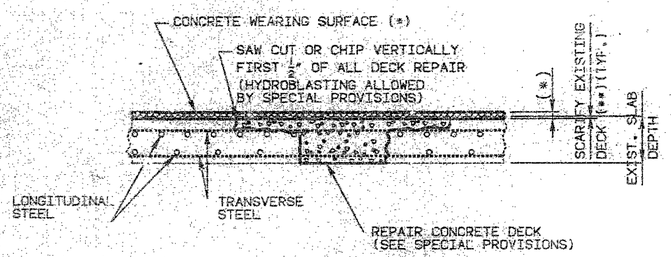
TYPICAL SECTION THRU SLAB



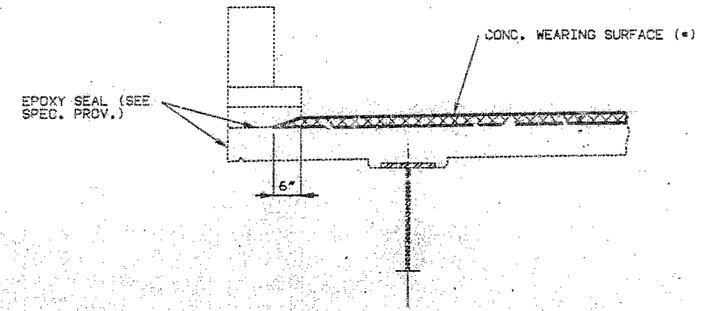
HALF-SOLED AREA



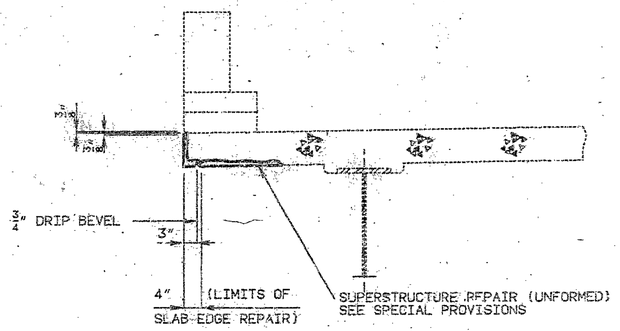
FULL DEPTH REPAIR



FULL DEPTH REPAIR IN HALF-SOLED AREA



DETAIL THRU CURB OUTLET



PART SECTION THRU SLAB

GENERAL NOTES:

DESIGN SPECIFICATIONS: A.A.S.H.T.O.-1.89

DESIGN UNIT STRESSES:

CLASS B1 CONCRETE (SUPERSTRUCTURE) F'C=4,000 PSI

REINFORCING STEEL (GRADE 60) FY=60,000PSI

NOTE: OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATES NEW WORK.

ROADWAY SURFACING ADJACENT TO BRIDGE ENDS TO MATCH EXISTING CONCRETE DECK PLUS ½"±.

REINFORCING STEEL: MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1½", UNLESS OTHERWISE SHOWN.

RAMP TO BE CLOSED TO TRAFFIC DURING CONSTRUCTION. (SEE ROADWAY PLANS).

FINAL QUANTITIES

ITEM		TOTAL
SPECIAL WORK (BRIDGES)	LUMP SUM	1
ASPHALT REMOVAL (BRIDGES)	SQ. FT.	4,702
SUPERSTRUCTURE REPAIR (UNFORMED)	SQ. FT.	42
CLASS B1 CONCRETE	CU. YD.	28.6
REPAIRING CONCRETE DECK (HALF-SOLING)	SQ. FT.	20
FULL DEPTH REPAIR	SQ. FT.	0
SLAB EDGE REPAIR (BRIDGES)	LIN. FT.	69
( ) CONCRETE WEARING SURFACE (LOW SLUMP)	SQ. YD.	545
REINFORCING STEEL (BRIDGES)	LBS.	670
REINFORCING STEEL (EPOXY COATED)	LBS.	1490

* SEE JOB SPECIAL PROVISIONS FOR 2" (MIN.) LOW SLUMP CONCRETE WEARING SURFACE.

** SCARIFY EXIST. DECK ½" (MIN.) FOR LOW SLUMP CONCRETE

REPAIRS TO BRIDGE: RAMP 6 OVER ROUTE 9 E.B.L.

STATE ROAD FROM STATE LINE TO RTE. I-29

IN RIVERSIDE

PROJECT NO. F.A.-635-1(24) STA. 17+34.15

JOB NO. 4I 990-635 RTE. I-635

PLATTE COUNTY

DATE 2/4/91

STD.

STD. 706.35

A-2434R1

DESIGNED AUG. 1990
DETAILED AUG. 1990
CHECKED AUG. 1990

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

(1st Bridge)
HI-J40-932
61'-4"
Dirt 9
406

SEC/SUR 8 TWP 50N RGE 33W

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

U.I.P. & Redeck Existing (56'-112'-71') Continuous Composite Curved Plate Girder Spans

General Notes:

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A

Design Loading:
HS20-44 (1969), HS20 Modified (New Construction)
15#/Sq. Ft. Future Wearing Surface
Fatigue Stress - Case I

Design Unit Stresses:

Class B-1 Concrete (Safety Barrier Curb)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure except Safety Barrier Curb)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

Concrete Protective Coatings:
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Miscellaneous:

All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

Roadway surfacing adjacent to bridge ends shall match new bridge slab surface (Roadway Item).

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Refer to existing bridge plans for other dimensions and information not shown.

Dimensions shown are horizontal unless otherwise noted.

Traffic Handling:
Structure to be closed during construction.

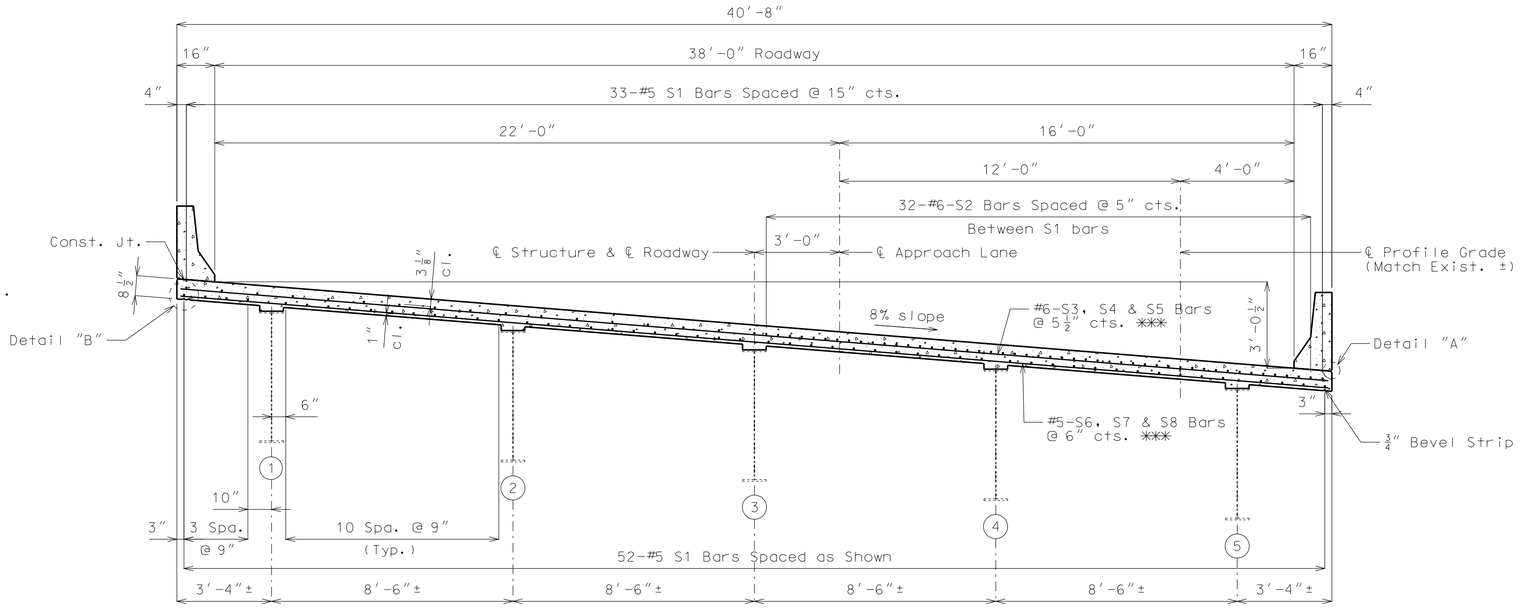
Structural Steel Protective Coating
(All structural steel and bearings)

Protective Coating: System G in accordance with Sec 1081.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G, H or I)". The cost of surface preparation will be considered completely covered by the contract unit price for "Surface Preparation for Recoating Structural Steel".

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price for "Field Application of Inorganic Zinc Primer". Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

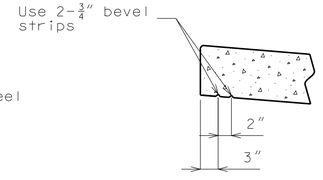
Field Coat: The color of the finish field coat shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract unit price for "Intermediate Field Coat (System G)". The cost of the finish field coat will be considered completely covered by the contract unit price for "Finish Field Coat (System G)".



HALF SECTION NEAR MIDSPAN HALF SECTION NEAR INT. BENT

TYPICAL SECTION THRU SLAB

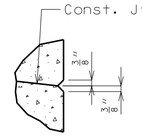
*** S4 & S7 bars located near End bent No. 1.
S5 & S8 bars located near End Bent No. 4.
Cut S3 & S6 bars as necessary to clear curb on wing near End Bent No. 1.



DETAIL "B"

REQUIRED LAP LENGTH FOR BAR SPLICES **	
Bar Size	Splice Length
5	3'-3"
6	3'-10"

** Unless otherwise shown.



DETAIL "A"

Estimated Quantities for Slab on Steel

Item		Total
Class B-2 Concrete	cu. yard	266.8
Reinforcing Steel (Epoxy Coated)	pound	88420

The table of Estimated Quantities for Slab on Steel represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard from end of slab to end of slab and the overall width shown in the Typical Section Thru Slab. Payment for conventional forms or optional stay-in-place forms, all concrete and coated reinforing steel will be considered completely covered by the contract unit price for the slab.

Method of forming the slab shall be in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

Slab shall be cast-in-place with conventional forming or stay-in-place corrugated steel forms. Precast prestressed panels will not be permitted.

For optional Stay-In-Place Form Details, see Sheet No. 2.

Estimated Quantities

	Item		Total
	Removal of Existing Bridge Decks	sq. foot	9905
	Slab on Steel	sq. yard	1089
*	Safety Barrier Curb	linear foot	540
	Protective Coating - Concrete Bents (Epoxy)	lump sum	1
	Expansion Device (Flat Plate)	linear foot	55
	Surface Preparation for Recoating Structural Steel	sq. foot	15000
	Field Application of Inorganic Zinc Primer	sq. foot	15000
	Intermediate Field Coat (System G)	sq. foot	15000
	Finish Field Coat (System G)	sq. foot	4200
	Rehabilitate Bearing	each	1

* Safety barrier curb shall be cast-in-place option or slip-form option.

Cost of any required excavation for bridge will be considered completely covered by the contract unit price for other items.

TABLE SHOWING S2 BAR LENGTHS			
Int. Bent No. 2		Int. Bent No. 3	
Span 1	Span 2	Span 2	Span 3
36'-0"	24'-0"	26'-6"	33'-6"

REPAIRS TO BRIDGE: 69 SB OVER I-635 NB

STATE ROAD FROM RTE. 9 TO MISSOURI RIVER

IN RIVERSIDE

STA. 7+71.90± (Match Existing)

STD. 617.10
STD. 706.35

Detailed Sep. 2012
Checked Oct. 2012

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

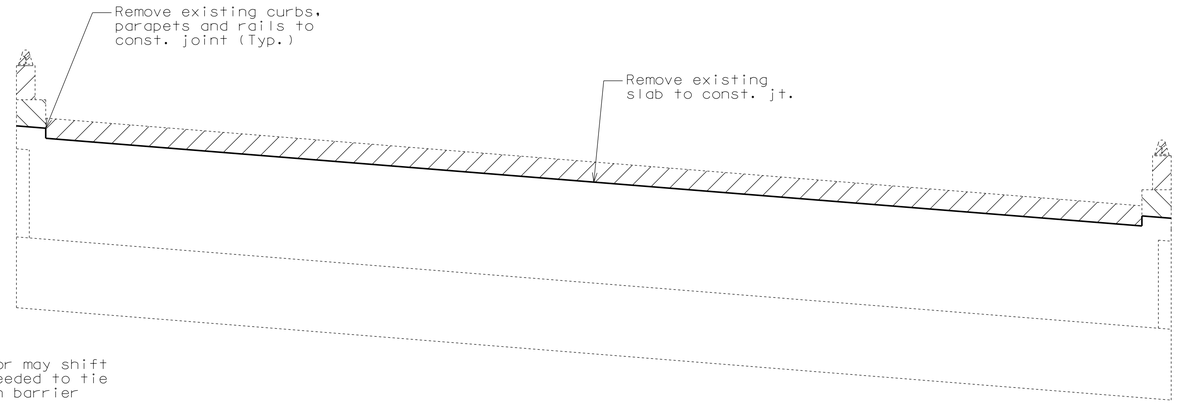
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE 69 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24393

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

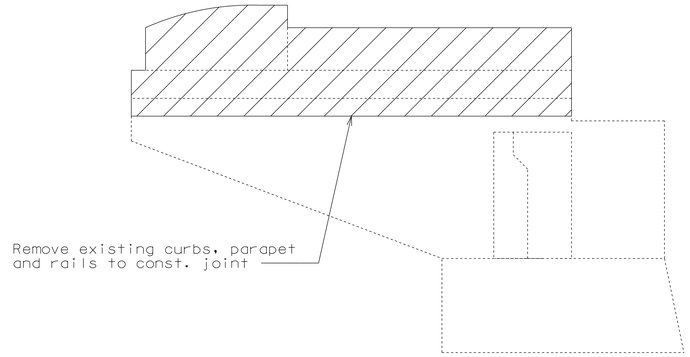
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



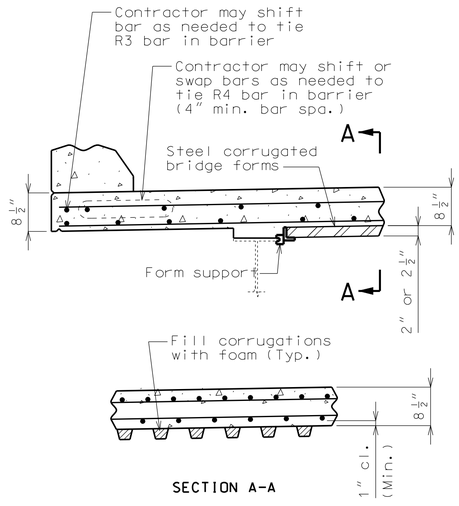
DETAILS OF CONCRETE REMOVAL @ END BENTS

(Looking parallel to ℄ of Roadway)

Note:
Cost of removing curbs, parapets, rails and end posts, as shown will be considered completely covered by the contract unit price for "Removal of Existing Bridge Decks".



ELEVATION OF WING SHOWING CONCRETE REMOVAL LIMITS



SECTION A-A

OPTIONAL STAY-IN-PLACE FORM DETAILS

Notes:
Corrugated steel bridge deck forms, supports closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

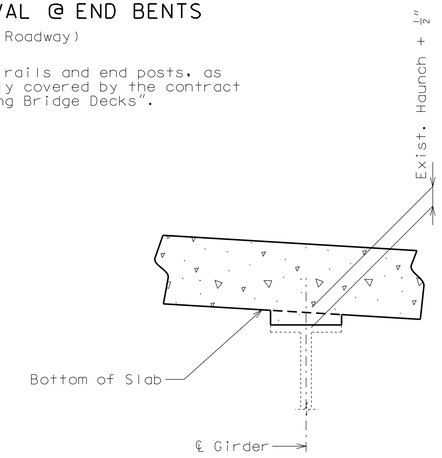
Form sheets shall not rest directly on the top of girders, stringers or floorbeams flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Welding on or drilling holes in the flanges of the girders, stringers or floorbeams will not be permitted. All steel fabrication and construction shall be in accordance with Sec's 1080 and 712. MoDOT certified field welders will not be required for welding of the form supports.

The contractor shall provide temporary bracing as necessary to prevent girders from rotating during slab pour. The cost for temporary bracing shall be considered completely covered by the contract unit price for Slab on Steel.

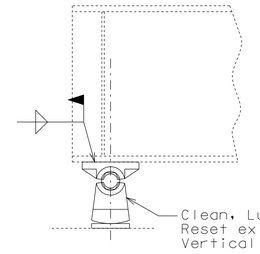
Slab shall be poured upgrade from end to end at a minimum rate of 25 cu. yd./ hr.

Alternate pour sequences may be submitted to the engineer for approval. Keyed construction joints shall be provided between pours.

Slab is to be considered at a uniform depth as shown on the plans. Haunching will vary.



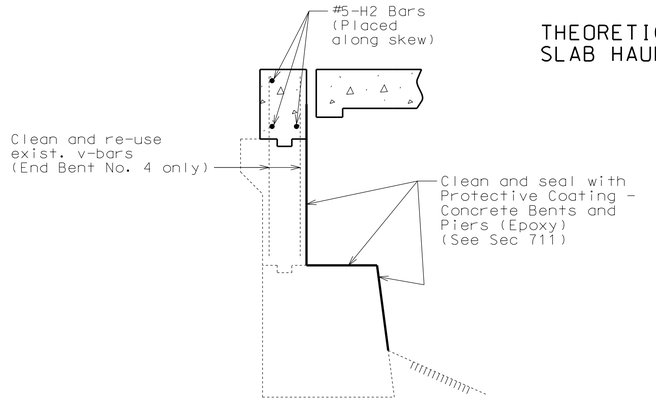
THEORETICAL SLAB HAUNCH



DETAIL SHOWING RESET BEARING AT END BENT 1 - GIRDER NO. 3

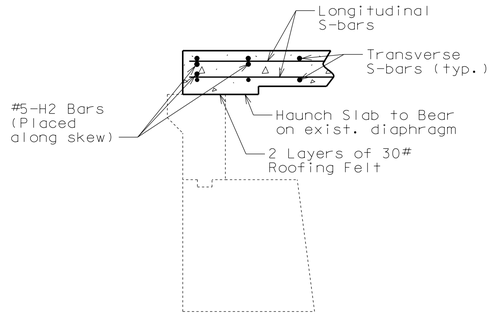
Note: All materials and labor to clean, lubricate and reset bearings as shown will be considered completely covered in the contract unit price for "Rehabilitate Bearing" per each.

Bearings shall be adjusted from vertical $\frac{1}{16}$" towards backwall or away from backwall for every 10° F rise or fall in temperature from 60°F.



TYPICAL SECTION THRU END BENT NO. 4 SHOWING PROTECTIVE COATING

(End Bent No. 1 similar)



PART SECTION THRU SLAB AT END BENT NO. 1

Deflection Note:
The contractor shall determine dead load deflections and haunching based on field measurements and/or existing bridge plans and may be adjusted based on the difference between the new and existing dead load weights.

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DATE PREPARED: 11/19/2012
ROUTE: 69 | STATE: MO
DISTRICT: BR | SHEET NO.: 2
COUNTY: PLATTE
JOB NO.: J4I2373
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A24393

DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Detailed Oct. 2012
Checked Oct. 2012

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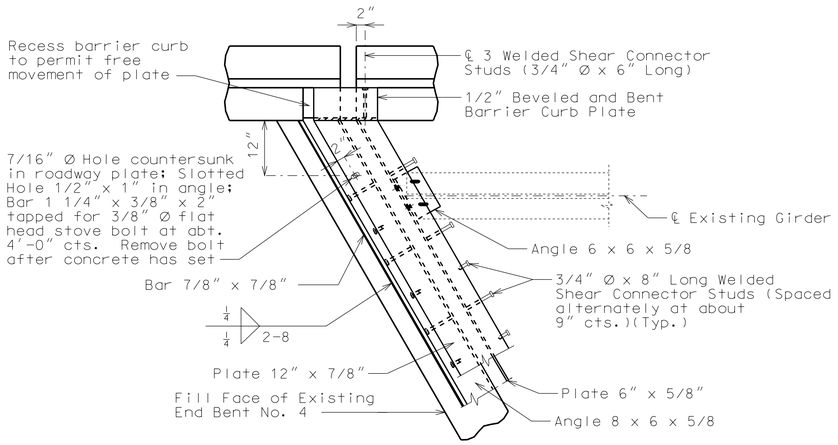
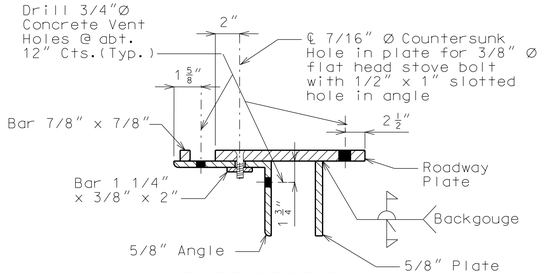
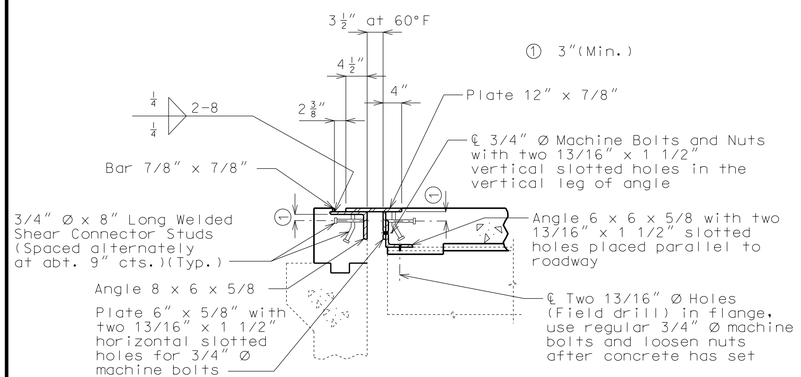


PART PLAN

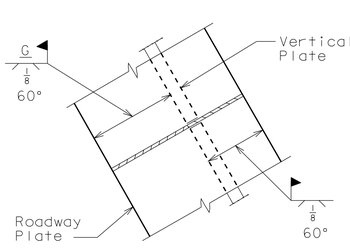
Note: Concrete vent holes not shown for clarity.



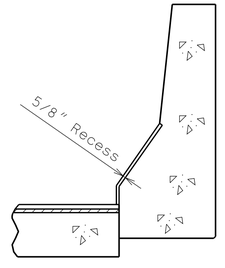
PART SECTION (TYPICAL)



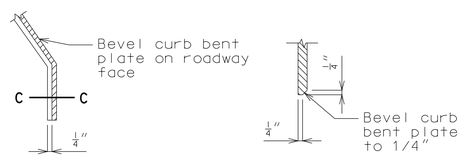
PART SECTION AT END BENT



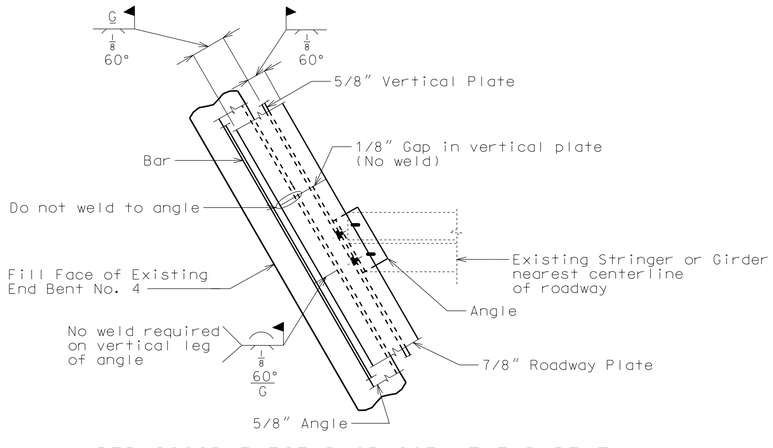
PART PLAN ROADWAY PLATE AND VERTICAL PLATE



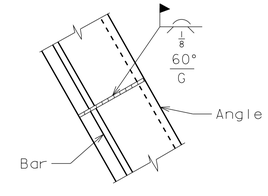
PART SECTION B-B



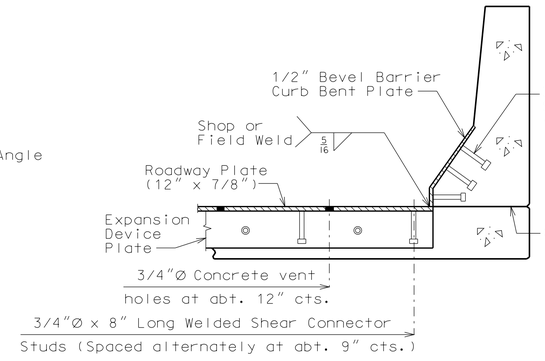
PART ELEVATION AT END OF BEVELED CURB BENT PLATE



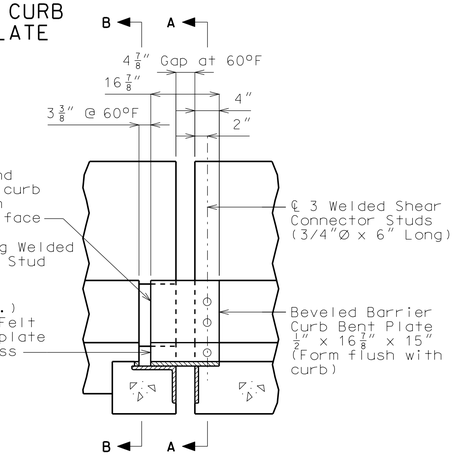
PERMISSIBLE FIELD SPLICE AT END BENT



PART PLAN OF ANGLE AND BAR



PART SECTION A-A



ELEVATION OF BARRIER CURB

DETAILS OF FLAT PLATE EXPANSION DEVICE AT END BENT NO. 4

GENERAL NOTES:

Expansion device shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove weld splice shall be required. Welds shall be ground flush to provide a smooth surface.The expansion device shall be fabricated and installed to the crown and grade of the roadway.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" for each 10° fall or rise in temperature at installation.

Material for the expansion device shall be ASTM A709 Grade 36 structural steel. Anchors for the expansion device shall be in accordance with Sec 1037.

Structural steel for the expansion device and curb plate shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Payment for furnishing, coating or galvanizing and installing the structural steel for the expansion device will be considered completely covered by the contract unit price for Expansion Device (Flat Plate) per linear foot.

Concrete shall be forced under and around flat plate, anchors and angles. Proper consolidation shall be achieved by localized internal vibration. Finishing of the concrete shall be achieved by hand finishing within one foot of the expansion device. The vertical and horizontal concrete vent holes shall be offset from each other. Do not alternate holes at the 12" spacing.

Longitudinal reinforcing steel shall be placed so that ends shall not be more than ±1" from vertical plate and the vertical leg of the angle at the expansion device.

Complete joint penetration welds utilized in the fabrication of the expansion device shall be nondestructively tested by an approved method.

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DATE PREPARED: 11/19/2012
ROUTE: 69 | STATE: MO
DISTRICT: BR | SHEET NO.: 3
COUNTY: PLATTE
JOB NO.: J412373
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A24393

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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Detailed Sep. 2012
Checked Oct. 2012

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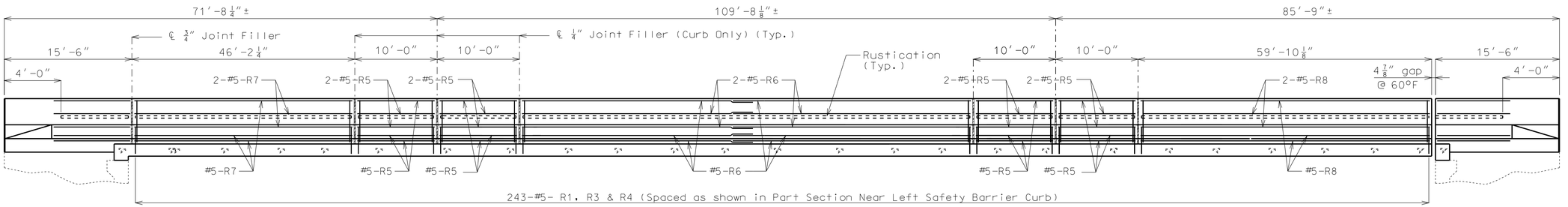
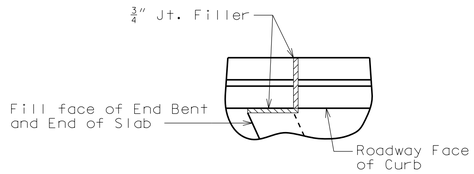
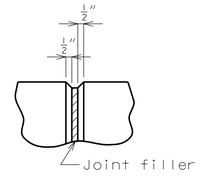


SECTION NEAR LEFT SAFETY BARRIER CURB

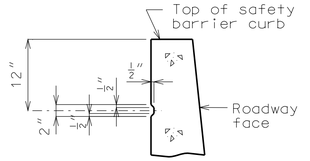
Note: Dimensions shown are parallel to grade.



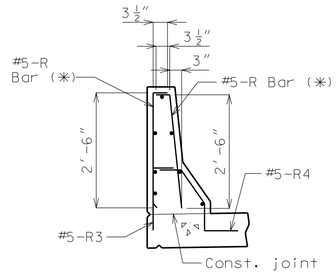
PART PLAN OF SAFETY BARRIER CURB AT END BENT NO. 1 (TYP.)



FILLED JOINT DETAIL

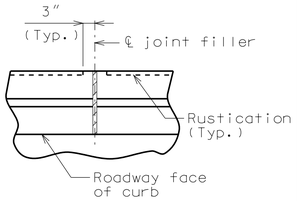


PART SECTION SHOWING RUSTICATION DETAILS

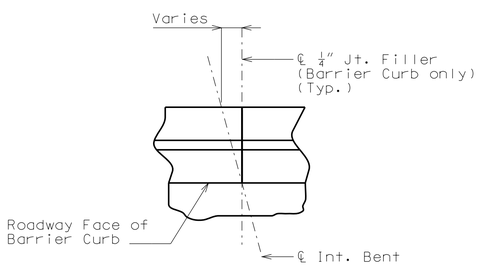


R-BAR PERMISSIBLE ALTERNATE SHAPE

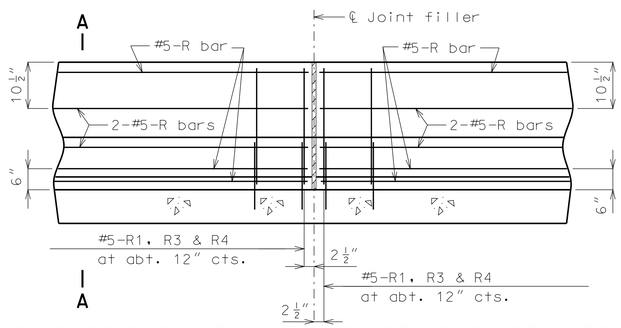
(*) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)



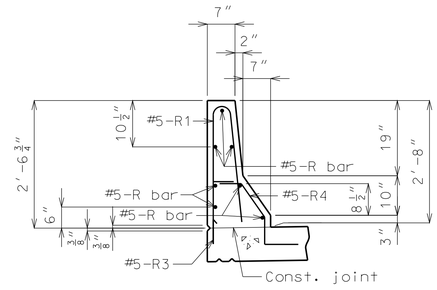
PART PLAN SHOWING SAFETY BARRIER CURB JOINT



PART PLAN OF SAFETY BARRIER CURB NEAR INTERMEDIATE BENT



PART SECTION NEAR LEFT SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



PART SECTION A-A

Notes:

Use a minimum lap of 2′-11″ for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.28 sq. ft.

Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2″ radius or a 3/4″ bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE 69 | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24393

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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Detailed Sep. 2012
Checked Oct. 2012

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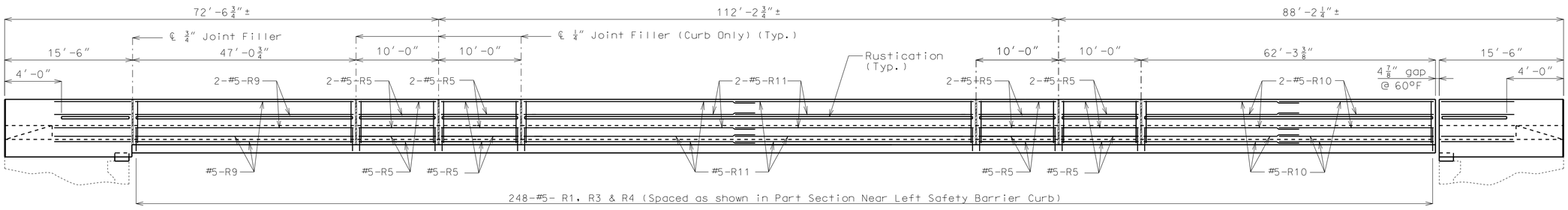
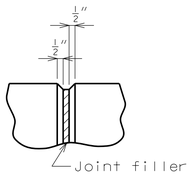
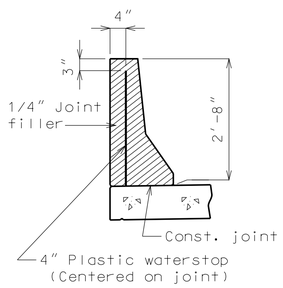


ELEVATION OF RIGHT SAFETY BARRIER CURB

Note: Dimensions shown are parallel to grade.



FILLED JOINT DETAIL

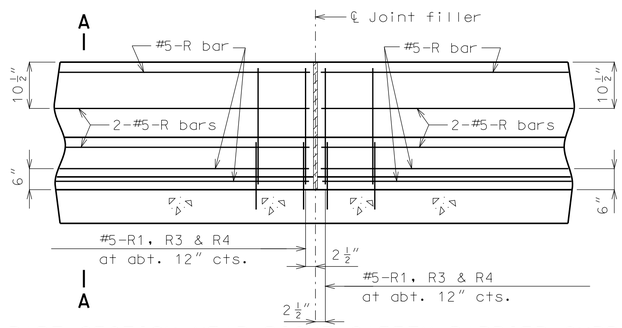


DETAILS OF PLASTIC WATERSTOP

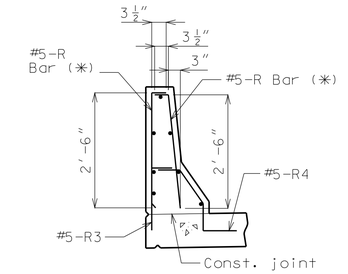
Notes:

Plastic waterstop shall be placed in all safety barrier curb filled joints, except structures with superelevation, use on all lower safety barrier curb joints only.

Cost of plastic waterstop, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb.

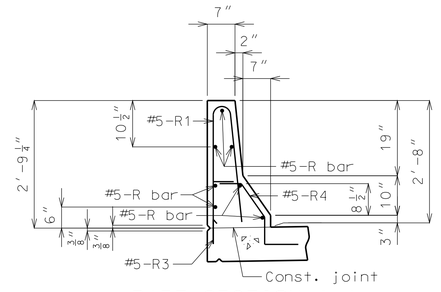


PART SECTION NEAR RIGHT SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



R-BAR PERMISSIBLE ALTERNATE SHAPE

(✳) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)

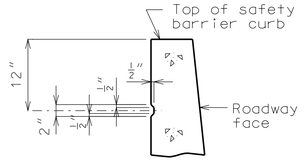


PART SECTION A-A

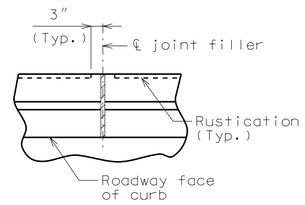
Notes:

Use a minimum lap of 2′-11″ for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.28 sq. ft.



PART SECTION SHOWING RUSTICATION DETAILS



PART PLAN SHOWING SAFETY BARRIER CURB JOINT

Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a ½″ radius or a ⅜″ bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

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DATE PREPARED 11/19/2012
ROUTE 69 | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24393

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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Detailed Sep. 2012
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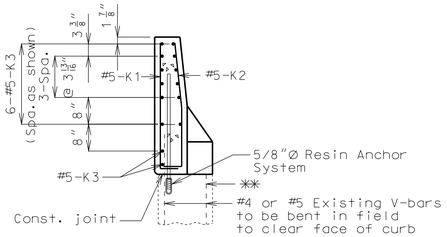
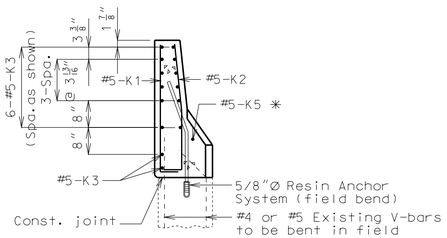
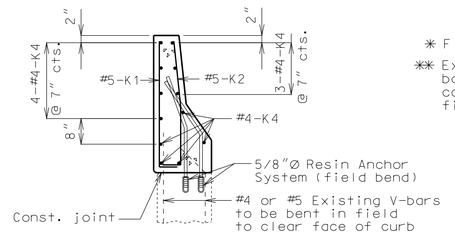


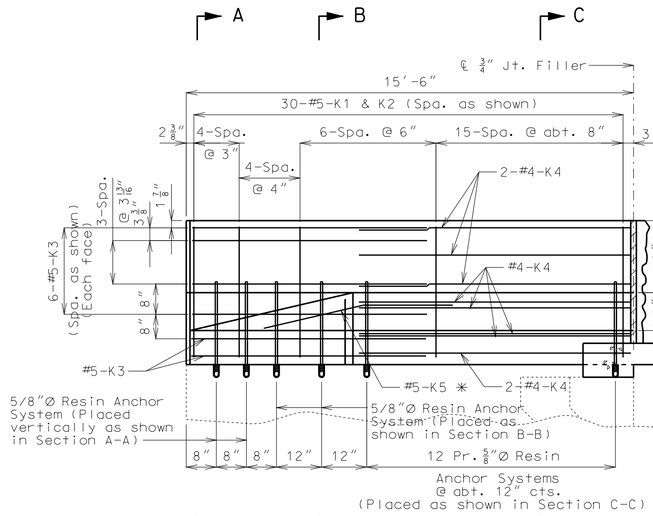
SECTION A-A



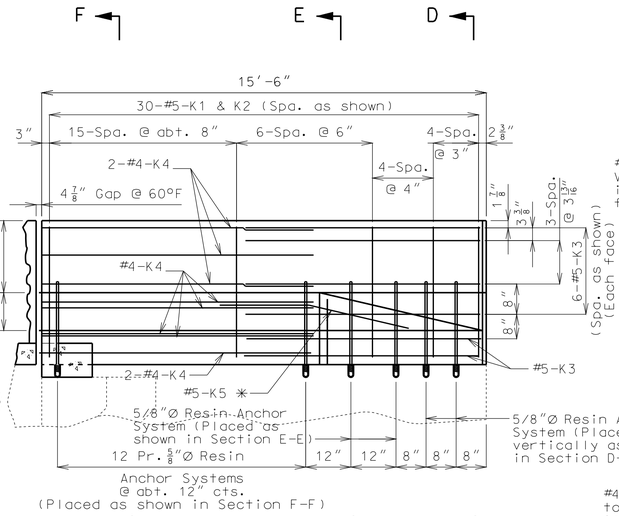
SECTION B-B



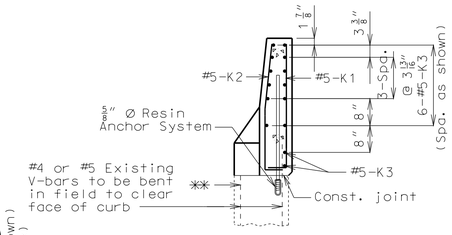
SECTION C-C



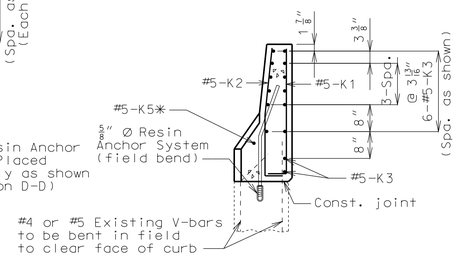
ELEVATION
(End Bent No. 1)



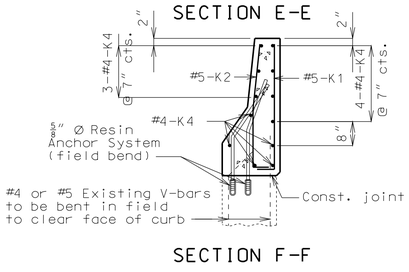
ELEVATION
(End Bent No. 4)



SECTION D-D



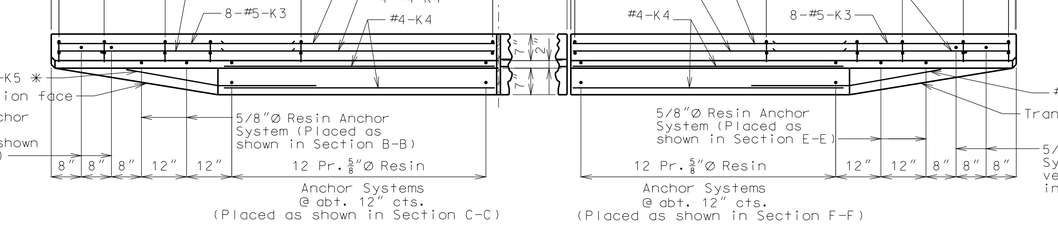
SECTION E-E



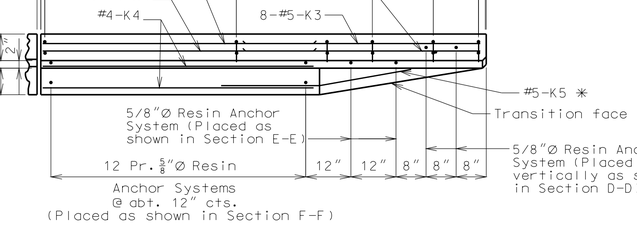
SECTION F-F

* Fit bar to follow transistion face of curb.

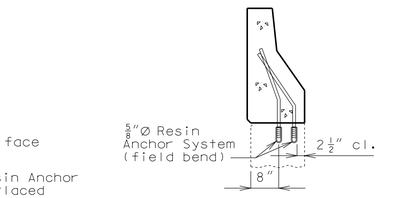
** Existing reinforcement which cannot be bent into the new barrier curb transition shall be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.



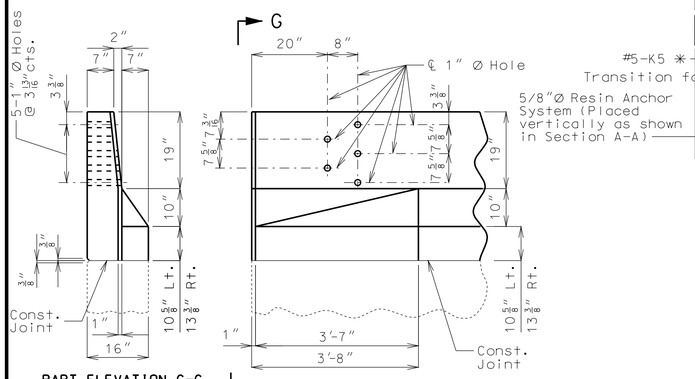
PLAN
(End Bent No. 1)



PLAN
(End Bent No. 4)



ANCHOR SYSTEMS AT SECTIONS C-C & F-F



DETAILS OF GUARD RAIL ATTACHMENT

Notes:
Use a minimum lap of 2'-0" between K3 and K4 bars.

112 - 5/8"Ø Resin Anchors required (length = 2'-3")

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb."

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

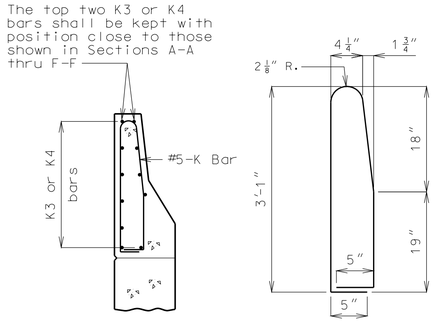
Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

The minimum embedment depth in concrete with f'c = 4.000 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".

DETAILS OF SAFETY BARRIER CURB AT END BENTS

(Left barrier curb shown: right barrier curb similar)

The top two K3 or K4 bars shall be kept with position close to those shown in Sections A-A thru F-F



K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE (**)

(**) The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.

DATE PREPARED 11/19/2012
ROUTE 69 | STATE MO
DISTRICT BR | SHEET NO. 6
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24393

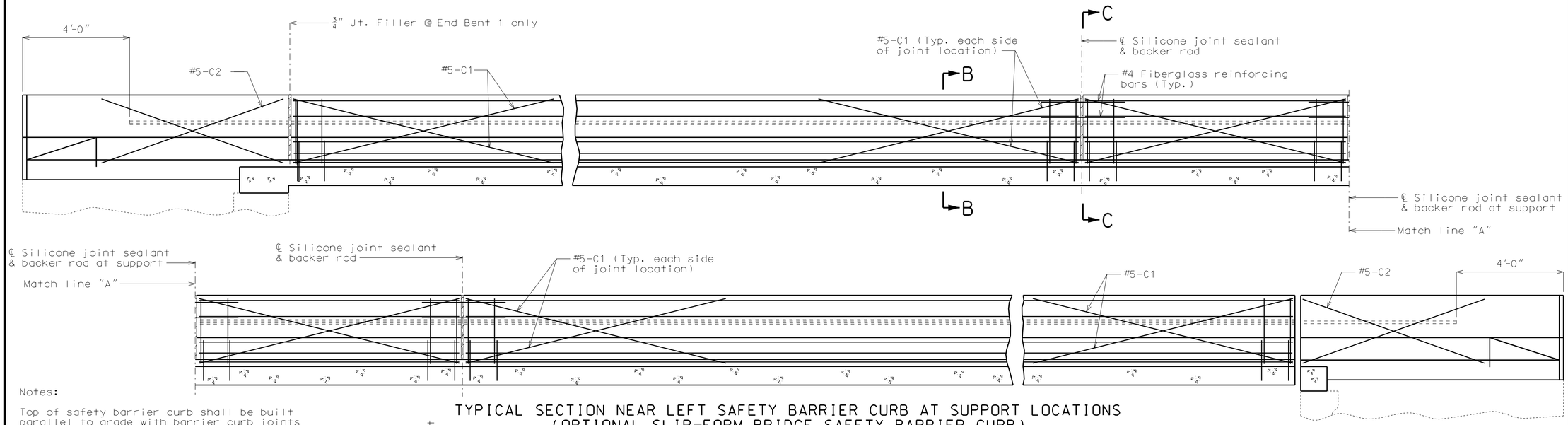
DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

REV.

Detailed Oct. 2012
Checked Oct. 2012

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



TYPICAL SECTION NEAR LEFT SAFETY BARRIER CURB AT SUPPORT LOCATIONS
(OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)

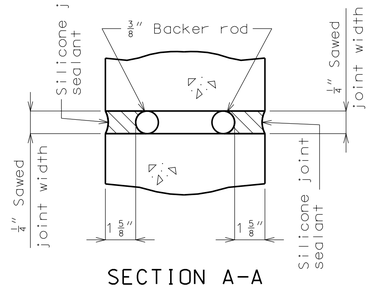
Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.



SECTION A-A

Notes:

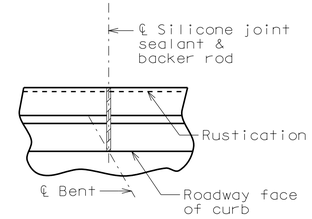
Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

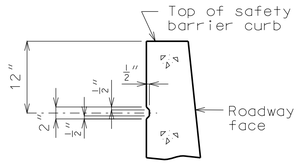
C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb.

For Slip-Form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

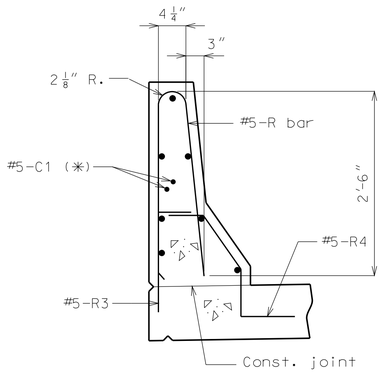


PART PLAN SHOWING SAFETY BARRIER CURB JOINT



PART SECTION SHOWING RUSTICATION DETAILS

RUSTICATION DETAIL
(Use on highway grade separation only)



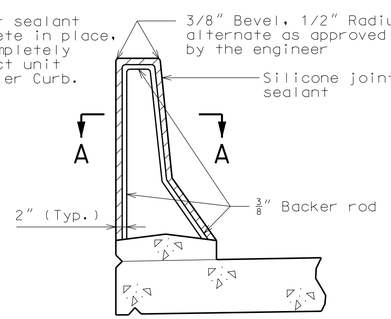
PART SECTION B-B

Note:

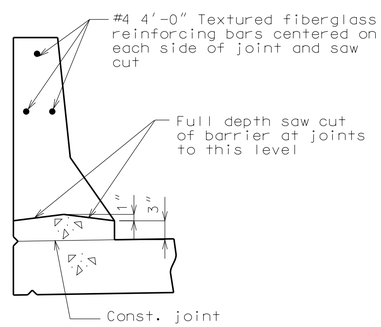
(*) Each side of joint location.

Note:

Cost of silicone joint sealant and backer rod, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb.



SECTION THRU JOINT



PART SECTION C-C

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

(Left barrier curb shown, right barrier curb similar.)

Detailed Oct. 2012
Checked Oct. 2012

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE 69 | STATE MO
DISTRICT BR | SHEET NO. 7
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24393

DESCRIPTION | DATE

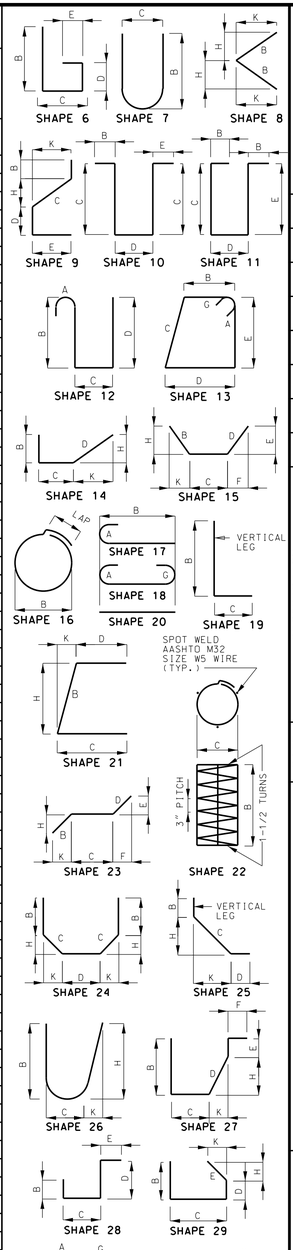
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BILL OF REINFORCING STEEL

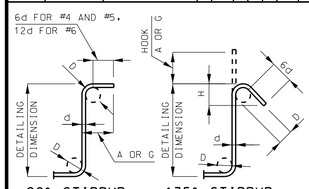
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SLAB																									
425	5	S1	SLAB	E	20					53	3.000													53	3	53	3	23604
128	6	S2	SLAB	E	20					60	0.000													60	0	60	0	11535
466	6	S3	SLAB	E	20					40	5.000													40	5	40	5	28289
52	6	S4	SLAB	E	20			V	1	39	1.000													39	1	39	1	
			INCREMENT =							3	4.000													3	4	3	4	1656
			8.375 INCH																									
82	6	S5	SLAB	E	20			V	1	38	9.000													38	9	38	9	
			INCREMENT =							2	0.000													2	0	2	0	2509
			5.500 INCH																									
425	5	S6	SLAB	E	20					40	5.000													40	5	40	5	17916
45	5	S7	SLAB	E	20			V	1	38	9.000													38	9	38	9	
			INCREMENT =							3	1.000													3	1	3	1	982
			9.750 INCH																									
76	5	S8	SLAB	E	20			V	1	38	9.000													38	9	38	9	
			INCREMENT =							2	1.000													2	1	2	1	1618
			5.875 INCH																									
3	5	H1	SLAB	E	20					44	4.000													44	4	44	4	139
3	5	H2	SLAB	E	20					54	3.000													54	3	54	3	170
			BARRIER CURB																									
120	5	K1	BARRIER CURB	E	19	S				3	0.750	5.125												3	6	3	5	428
120	5	K2	BARRIER CURB	E	14	S					5.125	18.875		19.000						2.000		18.875		3	7	3	6	438
56	5	K3	BARRIER CURB	E	20					5	7.000													5	7	5	7	326
50	4	K4	BARRIER CURB	E	20					11	8.000													11	8	11	8	390
4	5	K5	BARRIER CURB	E	8					2	2.125									2	2.000	2.375		4	4	4	4	18
491	5	R1	BARRIER CURB	E	26					2	6.000	4.250		2 6.125						2	6.000	3.000		5	2	5	2	2646
491	5	R3	BARRIER CURB	E	19	S					17.000	6.000												0	23	0	22	939
491	5	R4	BARRIER CURB	E	27	S						6.000		11.250		7.000		11.250		9.250		6.375		3	0	2	10	1451
58	5	R5	BARRIER CURB	E	20					9	9.000													9	9	9	9	590
14	5	R6	BARRIER CURB	E	20					46	3.000													46	3	46	3	675
7	5	S7	BARRIER CURB	E	20					45	11.000													45	11	45	11	335
7	5	R8	BARRIER CURB	E	20					59	7.000													59	7	59	7	435
7	5	R9	BARRIER CURB	E	20					46	9.000													46	9	46	9	341
14	5	R10	BARRIER CURB	E	20					32	6.000													32	6	32	6	475
14	5	R11	BARRIER CURB	E	20					47	6.000													47	6	47	6	694
40	5	C1	SLIP FORM	E	20					10	0.000													10	0	10	0	417
8	5	C2	SLIP FORM	E	20					11	9.000													11	9	11	9	98
			TOTALS																									
	4			E																								390
	5			E																								54735
	6			E																								43989
			TOTAL																									0
			TOTAL	E																								99114
			Slab on																									

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			Girder																									
	5			E																								44429
	6			E																								43989
			TOTAL																									88418
			Safety																									
			Barrier																									
			Curb																									
	4			E																								390
	5			E																								9791
			TOTAL																									10181
			Slip Form																									
			Option																									
	5			E																								515
			TOTAL																									515

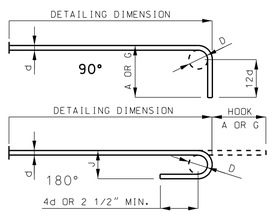


BENDING DIAGRAMS



STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	135° HOOK APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS		90° 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"

TWO ADDITIONAL #4-K4, #5-R5 & #6-S3 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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 FABRICATORS 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.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE 69 | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A24393

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

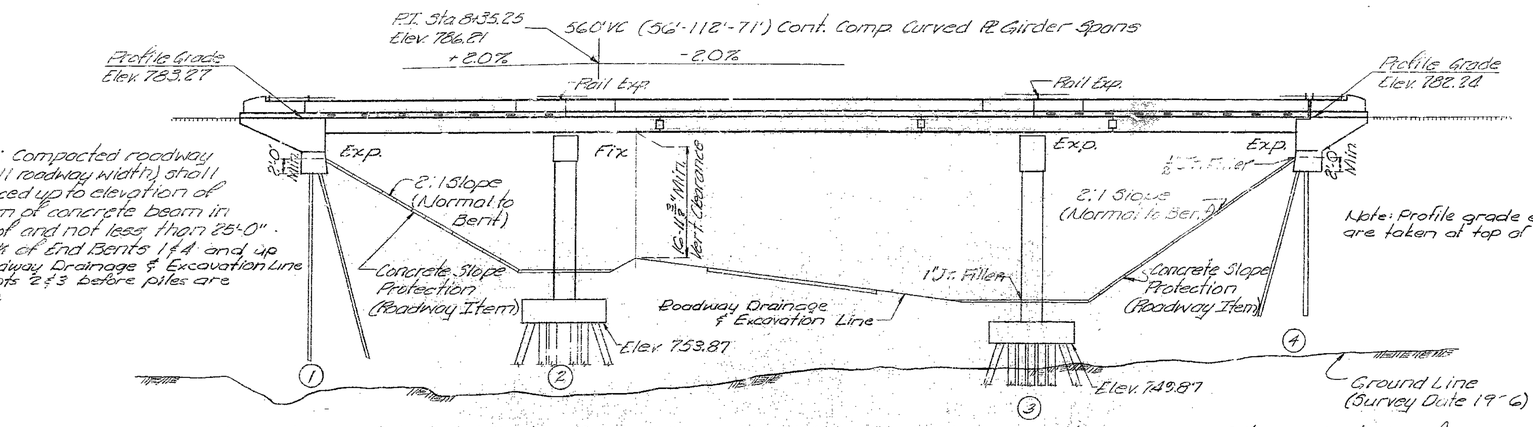
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Detailed Oct. 2012
Checked Oct. 2012

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	17	



Note: Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bents 1 & 4 and up to Roadway Drainage & Excavation Line at Bents 2 & 3 before piles are driven.

Note: Profile grade elevations are taken at top of wearing surface.

Note: For Curve Data see Sheet 2 of 17.
For Footing Data Table See Sheet 2 of 17.

GENERAL ELEVATION

Notes: For Boring Data see sheet No. 3 of 17.
"●" Indicates location of borings.
For substructure Layout see sheet 2 of 17.
All dimensions shown on plans are horizontal.

GENERAL NOTES:

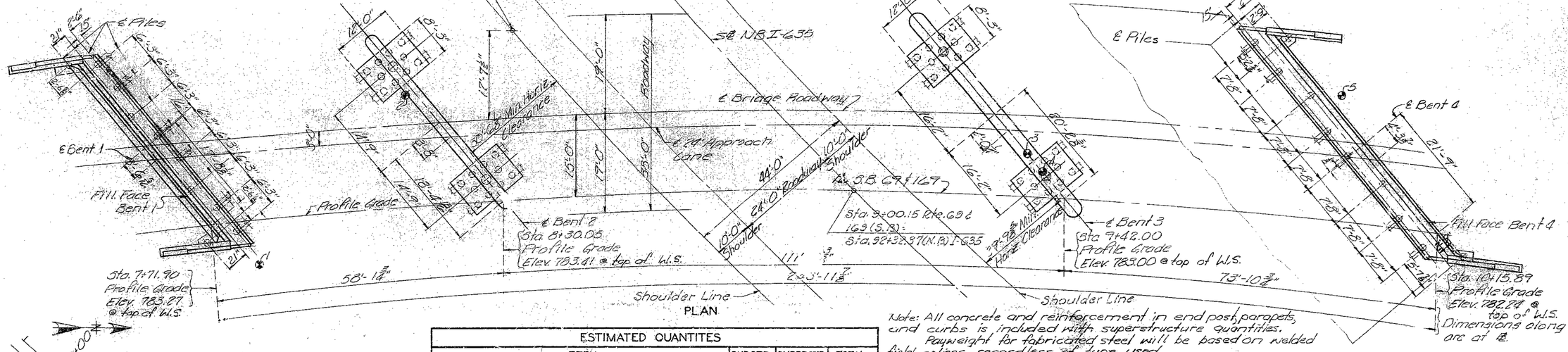
Design Specification:
A.A.S.H.O.-1969
Design Loading:
H S 20-44

Earth 120# Equivalent Fluid Pressure 30#
Fatigue Stress - Case I
Design Unit Stresses:
Class B Concrete (substructure) f_c = 1200 psi
Class B1 Concrete (superstructure) f_c = 1600 psi
Reinforcing Steel f_s = 20,000 psi
Structural Steel f_s = 20,000 psi
Structural Steel (A.S.T.M. A-572-66 Gr. 50) f_s = 27,000 psi

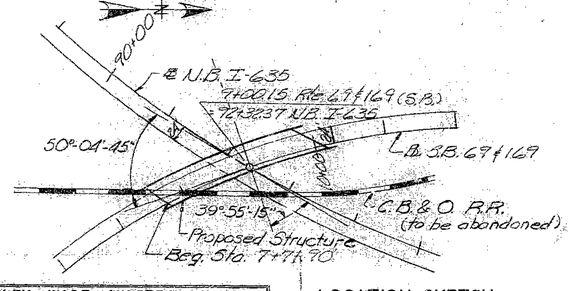
Field connections: High Strength Bolts ¾" ϕ, holes 15/16" ϕ except as noted.
Paint: Shop, none; Field, by contractor in accordance with Std. Spec. 712.12.
Minimum clearance to reinforcing steel shall be 1½" unless otherwise shown.

*See Special Provisions for optional use of Timber Piles or Cast-in-Place for the Int. Bts. Bents cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords (All bents are parallel).

Note: All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least ½".



PLAN



LOCATION SKETCH

Note: All concrete and reinforcement in end post, parapets, and curbs is included with superstructure quantities. Payweight for fabricated steel will be based on welded field splices regardless of type used.

ESTIMATED QUANTITES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class A Excavation	Cu.Yd.	120		120
Cast-in-Place Concrete Piles (End Bents Only)	Lin.Ft.	1730		1730
* Piles (Int. Bts. Only)	Lin.Ft.	2712		2712
Class B Concrete	Cu.Yd.	2195		2195
Class B1 Concrete	Cu.Yd.		229.1	229.1
Reinforcing Steel	Lb.	34,280	85,390	119,670
Painting	Ton		162.0	162.0
Fabricated Structural Carbon Steel	Lb.		134,410	134,410
Fabricated Structural Low Alloy Steel	Lb.		70,590	70,590
Bridge Rail (One Tube)	Lin.Ft.		518	518
Special Type "D" Mixture (Asphaltic Concrete)	Ton		71	71
Stl. Reinf. Elastomeric Exp. Joint Seal	Lin.Ft.		57	57
Coal Tar Interlayer Protective Coat	Sq.Yd.		1021	1021

SUBMITTED BY E. LYN CROWLEY
SIGNATURE E Lyn Crowley
REGISTERED PROFESSIONAL ENGINEER
SERIAL NUMBER E-5993

STATE OF MISSOURI · EARL LYN CROWLEY · NUMBER E-5993 · REGISTERED PROFESSIONAL ENGINEER

B.M. Elev. 749.30 - Painted ℄ on N.E. Corner old concrete bank base, 40' Rt. Sta. 18+10 (S.B. 169).

BRIDGE: ROUTE 69 & 169 S.B.L. UNDERPASS

STATE ROAD - INTERSTATE ROUTE 635

IN RIVERSIDE

PROJECT NO. I-IG-635-1(75)X(RTE. I-635) **STA.** 92+32.37

PLATTE **COUNTY**

SUBMITTED BY W A Crowley BRIDGE ENGINEER DATE 1-24-72

APPROVED BY Robert N. Newton CHIEF ENGINEER DATE 1-24-72

DWG. 611.60
DWG. 702.02
DWG. 706.30A
A-24.39

CROWLEY, WADE, MILSTEAD, INC.
ENGINEERS - ARCHITECTS
INDEPENDENCE, MISSOURI

Designed	R.R. BERKLEY 1969	Checked	E.A. HALLAHAN 1969
Detailed	H.L. WARREN 1969	Checked	T.R. BERKLEY 1969
Quantities	T.R. BERKLEY 1969	Checked	E.A. HALLAHAN 1969

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

Sheet No. 1 of 17.

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FOR INFORMATION ONLY

A24393, Sht. 10

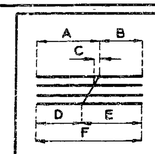
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	22	

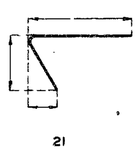
COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE & MARK	LENGTH Ft.-In.	SHAPE	LOCATION
	Superstructure			
480	S-C1	3-8	10T	Curb
64	S-C2	3-2	10T	"
4	S-C3	29-3	—	"
4	S-C5	56-6	—	"
4	S-C6	37-0	—	"
4	S-C7	28-9	—	"
4	S-C8	55 ?	—	"
4	S-C9	36-3	—	"
8	S-C8	15-3	—	"
8	S-R1	8-9	—	End Post
4	S-R2	5-11	10T	"
4	S-R3	6-4	10T	"
4	S-R4	6-9	10T	"
4	S-R5	6-11	10T	"
4	S-R6	7-0	10T	"
4	S-R7	7-1	10T	"
4	S-R8	7-3	10T	"
8	S-R9	7-4	10T	"
16	S-R10	9-11	10-T	"
520	S-R11	5-1	12	Parapet
16	S-R12	4-2	10-T	"
8	S-R14	24-3	—	"
32	S-R15	9-9	—	"
8	S-R16	46-6	—	"
8	S-R17	32-3	—	"
8	S-R18	24-0	—	"
8	S-R19	45-6	—	"
8	S-R20	30-6	—	"
16	S-R21	11-6	—	"
758	S-S1	43-6	—	Slab
41	S-S2	40-8	—	"
70	S-S3	41-4	—	"
252	S-S4	41-9	—	"
80	S-S5	16-0	—	"
287	S-S6	35-6	—	"
2	S-S7	22-8	—	"
2	S-S8	28-0	—	"
36	S-S9	2-5	17	"
	Substructure End Bent 1			
4	G-F1	5-5	15	Wing
4	G-F2	9-0	15	"
2	G-H1	46-6	—	Back Wall
12	G-H2	23-9	—	"
8	G-H3	48-0	18	Beam
2	G-H4	46-0	—	"
4	G-H5	15-3	—	Wing
4	G-H6	21-0	—	"
4	G-H13	21-6	—	"
2	G-T1	15-2	15	Wing
2	G-T2	10-11	19	"
2	G-T3	10-5	19	"
2	G-T4	14-8	15	"
43	4-U1	15-0	13T	Beam
14	4-U2	5-1	10T	"
5	7-U3	9-4	14	Wing
2	4-U4	4-9	10T	"
5	4-U5	7-9	10T	"
3	7-U6	9-9	30	"
1	5-U11	14-7	13T	Beam
90	5-V1	6-3	—	Back Wall
2	6-V2	3-0	—	Beam
11	4-V3	7-9	—	Wing
8	5-V4	8-5	—	"
2	4-V5	6-9	—	"
2	4-V6	7-3	—	"
8	5-V7	8-6	—	"
11	4-V8	8-2	—	"
2	6-V9	8-9	—	Beam
10	2-W1	19-9	22	A.B. Wells

BENDING SKETCHES & CUTTING DIAGRAMS



REMARKS	A	B	C	D	E	F
4 H6 Cut 8	14'-3"	6'-9"	3'-6"	6'-9"	14'-3"	21'-0"
4 H12 Cut 4	14'-6"	5'-9"	23"	8'-9"	14'-6"	23'-3"
4 H13 Cut 4	14'-3"	7'-3"	2'-4"	7'-3"	14'-3"	21'-6"
41 32 Cut 41	39'-1"	19"	11⅞"	19"	39'-1"	40'-8"
70 33 Cut 70	39'-0"	2'-4"	6⅜"	2'-4⅜"	39'-11⅞"	41'-4"
11 V3 Cut 11	5'-9"	2'-0"	4½"	2'-0"	5'-9"	7'-9"
11 V8 Cut 11	6'-2"	2'-0"	6"	2'-0"	6'-2"	8'-2"
10 V14 Cut 10	6'-0"	2'-0"	5⅜"	2'3⅜"	6'-0⅜"	8'-0"
9 V16 Cut 9	6'-9"	2'-2"	6⅛"	2'-2"	6'-9"	8'-11"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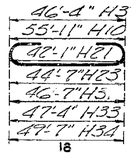

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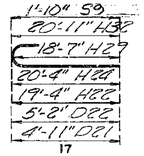

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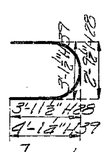

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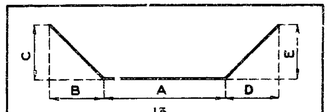
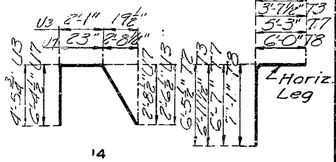


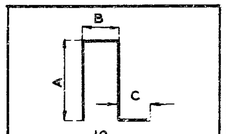
13

MARK	A	B	C	D	E
F1	3'-6½"	5'-3"	10'-½"	5'-3"	10'-½"
F2	7'-0"	5'-3"	10'-½"	5'-3"	10'-½"
F3	5'-2"	4'-7"	11"	4'-7"	11"
F4	8'-8"	4'-7"	11"	4'-7"	11"
T1	11'-8"	20'-8"	8⅝"	8⅝"	19'-7"
T4	11'-0⅜"	21'-5"	8⅝"	7'-8"	21"
T5	11'-6⅜"	20'-5"	8⅝"	8⅝"	19'-8"
T6	10'-2⅜"	18'-5"	10⅜"	10⅜"	18'-8"



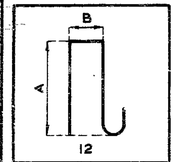
14

19



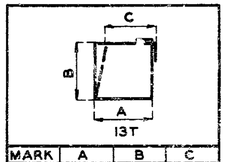
10

MARK	A	B	C
C1	14 ⅛"	13½"	6"
C2	13¼"	13½"	—
F21	4'-1"	11'-0"	—
R2	1'-8⅛"	9"	—
R3	2'-10⅛"	9"	—
R4	3'-1"	9"	—
R5	3'-2"	9"	—
R6	3'-2⅜"	9"	—
R7	3'-3⅜"	9"	—
R8	3'-4⅜"	9"	—
R9	3'-4⅜"	9"	—
R10	4'-7"	7¾"	—
R12	19½"	8½"	—
U4	4'-3⅛"	6"	—
U5	3'-8¾"	6"	—
U9	5'-1⅜"	6"	—
U10	5'-10⅜"	6"	—
U33	6"	3'-3"	—
U2	6"	4'-3⅜"	—
U34	2'-3"	0"	—



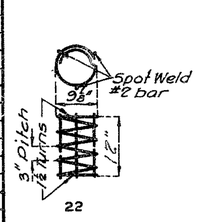
12

MARK	A	B
R11	2'-0⅜"	8½"



13T

MARK	A	B	C
U1	4'-8¾"	2'-8¾"	4'-3⅜"
U21	23"	4'-5½"	23"
U22	2'-6"	4'-5½"	2'-6"
U31	2'-0"	4'-5½"	2'-0"
U32	2'-9"	4'-5½"	2'-9"
U11	4'-5⅜"	2'-8½"	4'-0"
U12	4'-11⅜"	2'-8½"	4'-6"



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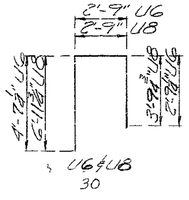


30

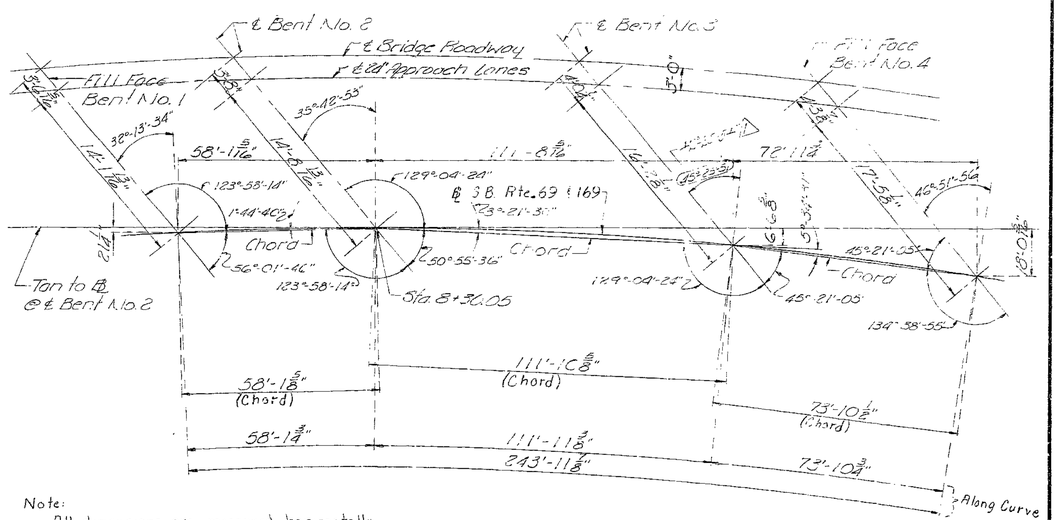
Note: All bending dimensions are out to out.
Total lengths are measured along centerline of bar to the nearest inch.

NO.	SIZE & MARK	LENGTH Ft.-In.	SHAPE	LOCATION
	Substructure Int. Bent 2			
24	10-D21	6-0	17	Footing
4	10-F21	80-3	10	Footing
12	10-F22	11-6	—	"
12	7-F23	7-9	—	"
2	11-H21	44-5	18	Beam
4	11-H22	20-6	17	"
2	11-H23	46-11	18	"
4	11-H24	21-6	17	"
4	6-H25	42-3	—	"
6	11-H26	26-6	—	"
8	11-H27	42-3	—	"
6	2-H28	4-5	7	"
8	11-H29	19-9	17	"
31	3-P1	9-6	16	Col. Ties
100	5-U21	13-5	13T	Beam
2	5-U22	14-7	13T	"
7	4-U23	3-9	10T	"
12	10-V21	20-3	—	Col.
12	10-V22	18-3	—	Col.
10	2-W1	19-9	22	A.B. Wells
	Substructure Int. Bent 3			
32	11-D22	6-4	17	Footing
4	10-F31	20-3	10	Footing
12	10-F32	11-6	—	"
12	7-F33	7-9	—	"
2	11-H31	48-11	18	Beam
8	11-H32	22-1	17	"
2	11-H33	49-8	18	"
2	11-H34	51-11	18	"
4	6-H35	47-0	—	"
6	11-H36	69-3	—	"
10	11-H38	47-0	—	"
8	7-H39	9-11	7	"
40	3-P1	9-6	16	Col. Ties
114	5-U31	13-7	13T	Beam
2	5-U32	15-1	13T	"
8	4-U33	4-1	10T	"
16	11-V31	23-6	—	Col.
16	11-V32	21-6	—	Col.
10	2-W1	19-9	22	A.B. Wells
	Substructure End Bent 4			
4	G-F3	7-0	15	Wing
4	G-F4	10-6	15	"
4	G-H5	15-3	—	Wing
2	G-H8	56-6	—	Back Wall
18	4-H9	29-0	—	"
8	8-H10	57-7	16	"
2	G-H11	56-0	—	"
4	G-H12	23-3	—	Wing
4	G-H16	21-0	—	"
2	G-T5	15-0	15	Wing
2	G-T6	13-3	15	"
2	G-T7	11-8	19	"
2	G-T8	12-11	19	"
30	4-U1	14-7	13T	Beam
17	4-U2	5-1	10T	"
5	7-U7	10-11	14	"
5	7-U8	13-2	30	"
5	4-U9	10-2	10T	Wing

NO.	SIZE & MARK	LENGTH Ft.-In.	SHAPE	LOCATION
5	4-U10	12-2	10T	Wing
1	5-U16	15-7	13T	Beam
4	6-V2	3-0	—	Beam
110	5-V5	7-6	—	Back Wall
2	4-V11	6-9	—	Wing
2	4-V12	7-6	—	"
10	5-V13	7-9	—	"
10	4-V14	8-0	—	"
12	5-V15	8-6	—	"
9	4-V16	8-11	—	"
10	2-W1	19-9	22	A.B. Wells
55	5-U34	5-3	10T	Back Wall

Note: Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for detailing reinforced concrete structures.

The letter T after the shape number, in bending sketches, indicates bars that are to be bent according to CRSI stirrup and tie dimensions.



Note:
All dimensions are measured horizontally.

SUBSTRUCTURE LAYOUT

Curve Data
SB Rte. 69 & 169
P.I. Sta. 10+46.9
Δ = 51°-01'-00" Rt.
D = 6°-00'-00"
T = 455.7 Ft.
L = 850.5 Ft.
R = 954.93 Ft.
S.E. = .08 Ft./Ft.

Curve Data
N.B. I-435
P.I. Sta. 88+72.0
Δ = 75°-58'-00" Lt.
D = 3°-30'-00"
Lc = 1895.4 Ft.
Ts = 1453.4 Ft. South End
Ls = 350 Ft. South End
Ls = 200 Ft. North End
Ts = 1381.1 Ft. North End
R = 1637.02 Ft.
S.E. = .08 Ft./Ft.

PILE DATA					
BENT NO.		1	2	3	4
Type		Found.	Found.	Found.	Found.
Kind		CIP	*	*	CIP
Number		10	20	22	10
Approximate Length	Ft.	83	63	66	90
Design Bearing	Tons	27.5	28.2	28.9	28.2
Min. Tip Penetration	Elev.	692.0	692.0	683.0	684.0
Pile Standard		702.08	702.08	702.08	702.08
Hammer Energy Required Ft-Lbs		8000	8000	8000	8000

Note: All pile shall be driven to the Minimum penetrations and to not less than the design bearing noted.
Minimum energy requirement of hammer based on plan lengths of piles.
* See Special Provisions for optional use of Timber or Cast-in-Place piles for the Int. Bts.
Minimum hammer energy required for optional timber piles is 8000 Ft. Lbs.

PLATTE COUNTY

REVISED	MAY 1969
STD. 90.3A	APRIL 1969

DETAILED Sept. 1969 BY H. L. W.
CHECKED Sept. 1969 BY T.R.B.

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

Sheet No. 2 of 17.

Δ - Feb. 1975 '72

A-2439

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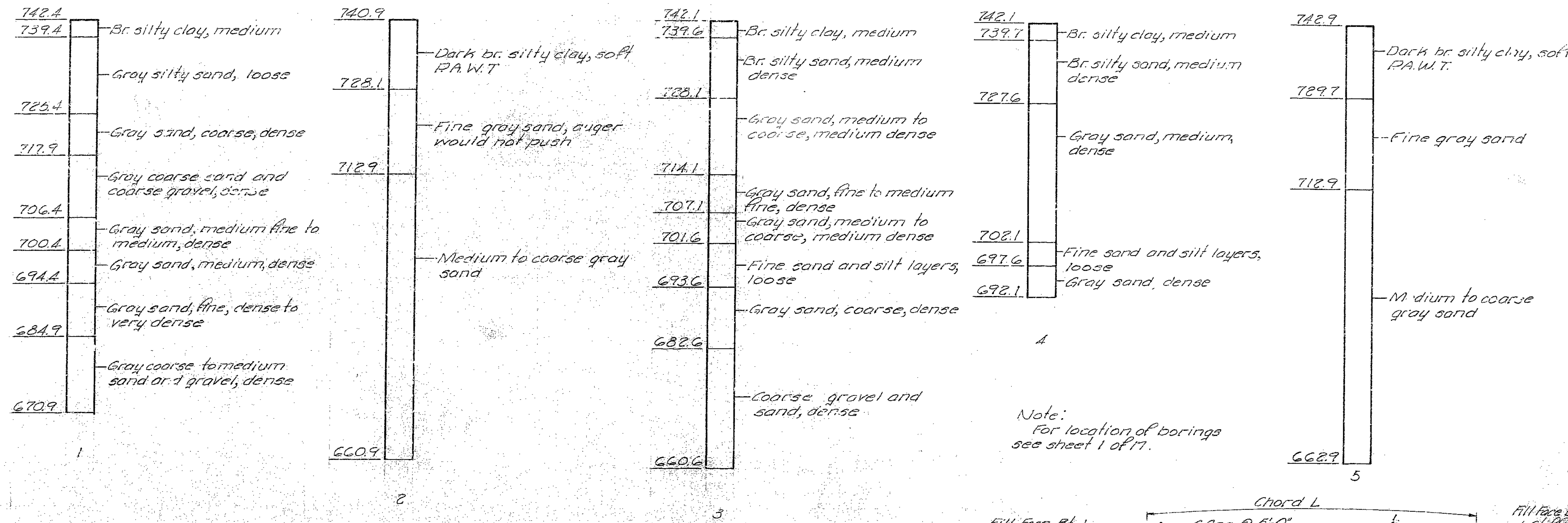
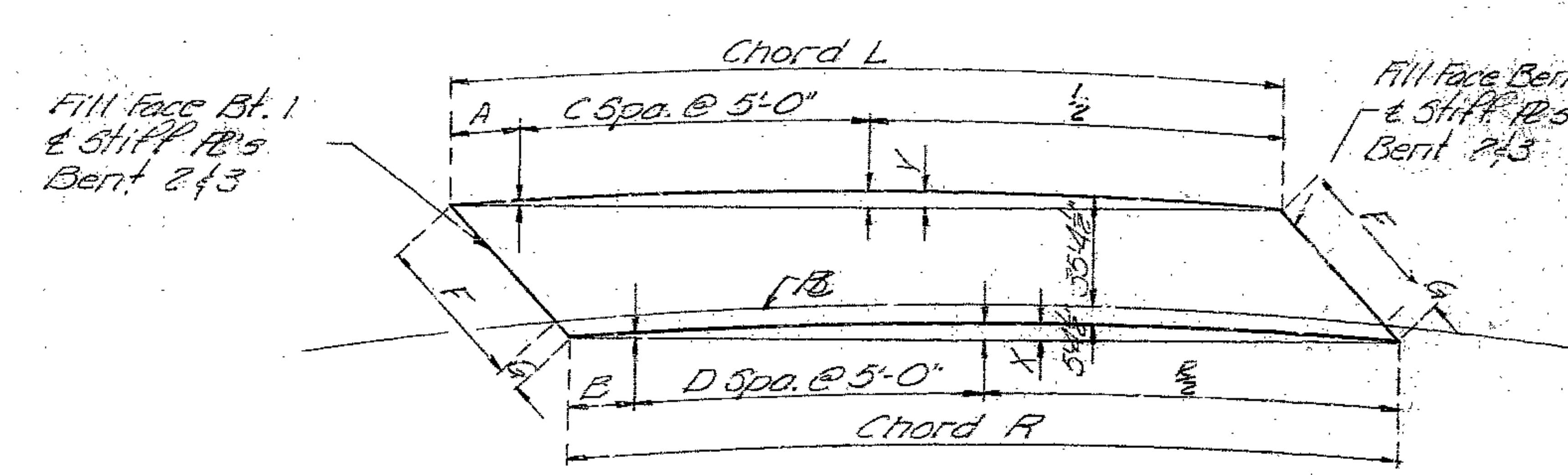
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	34	



Note: For location of borings see sheet 1 of 17.

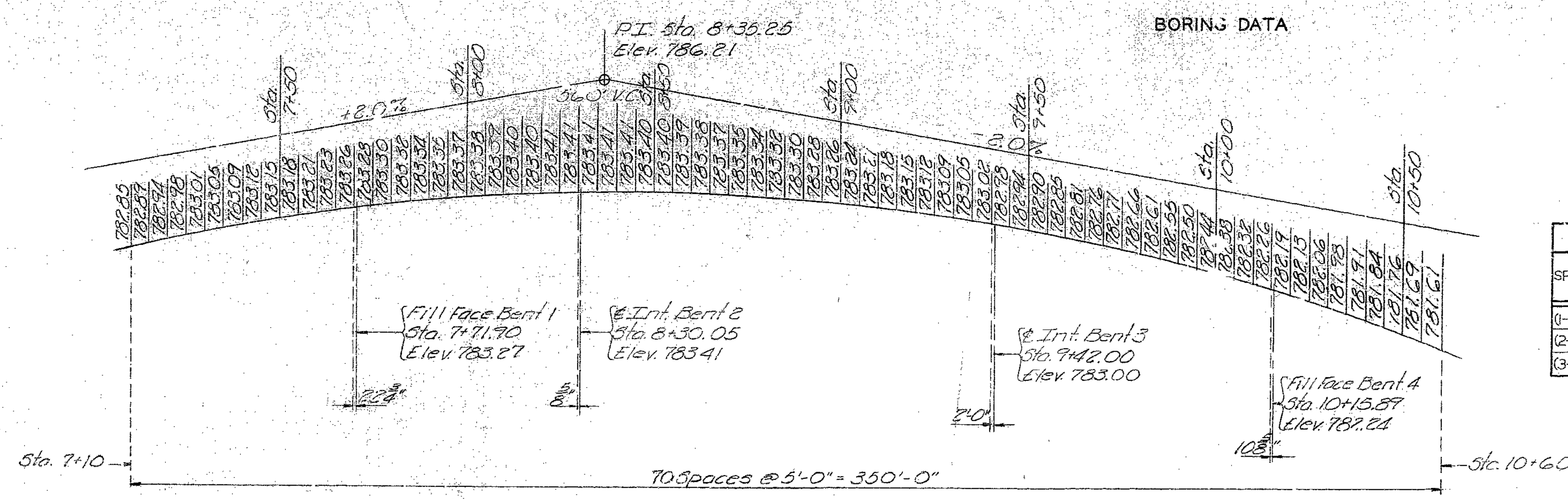
BORING DATA



Note: For chord dimensions along Baseline see sheet 2 of 16.

TABLE OF VARIABLES																												
SPAN	Chords		End Dims.		No. Spa.		Offset Y											Offset X										
	L	R	A	B	C	D	Ctr.	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	Ctr.	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'
(1-2)	57'-3"	58'-3 11/16"	3'-7 1/2"	4'-1 7/8"	5	5	4 15/16	4 13/16	4 3/8"	3 9/16	2 9/16	1 3/16	—	—	—	—	—	5 3/8	5 5/16	[illegible]	3 15/16	2 13/16	1 7/16"	—	—	—	—	—
(2-3)	109'-4 5/16	112'-3 7/16	4'-8 1/8"	6'-1 3/4"	10	10	18 1/8	18"	17 1/2	16 3/4	15 11/16	14 3/8	12 1/16	10 11/16	8 7/16	5 7/8	3 5/16	19 5/16	19 3/4	19 5/16	18 1/2	17 3/8	16"	14 1/4	12 3/16	9 13/16	7 1/8	4 1/8"
(3-4)	71'-5 13/16	74'-3 3/4"	5'-8 7/8	7'-1 7/8"	6	7	7 3/4	7 9/16	7 1/8"	6 3/8	5 5/16	3 15/16	2 5/16	—	—	—	—	8 3/4"	8 7/16	8 1/8	7 5/16	6 3/16	4 3/4"	3 1/16	1"	—	—	—

Bent	F	G
1	41'-4 7/8	6'-4 3/8"
2	43'-2 1/8	6'-7 1/2"
3	47'-0 3/4	7'-3 5/8"
4	50'-8 3/4	7'-10 3/8"



PROFILE GRADE ELEVATION

Note: Profile grade elevations are taken at top of wearing surface.

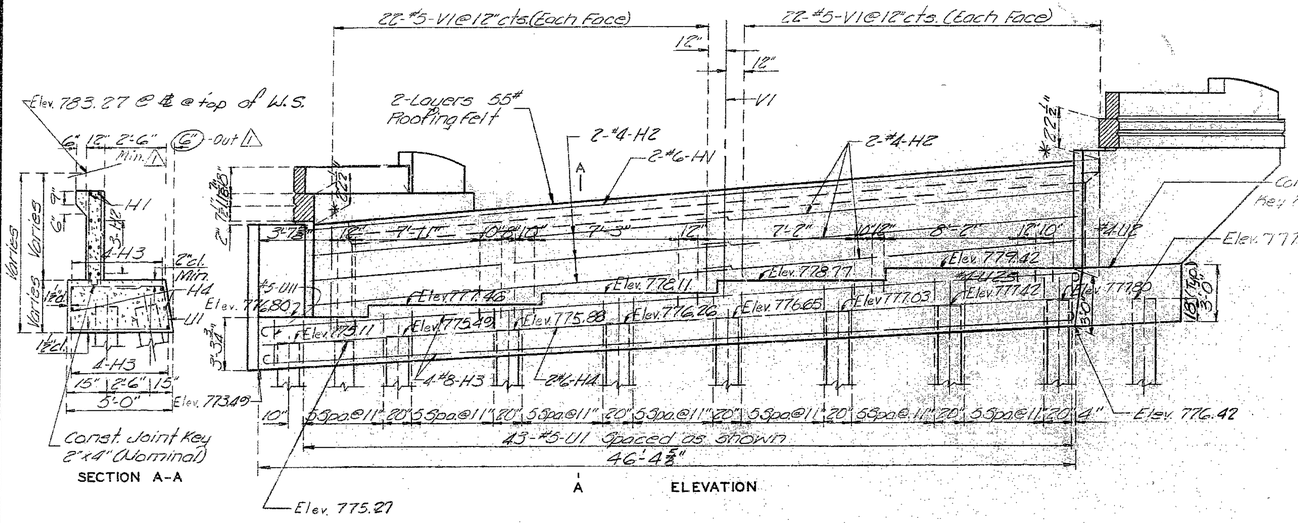
PLATTE COUNTY

DETAILED Aug. 1969 BY H. L. W.
CHECKED Aug. 1969 BY E. A. H.

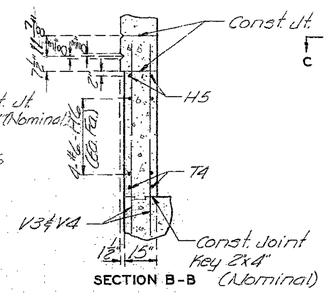
Note: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

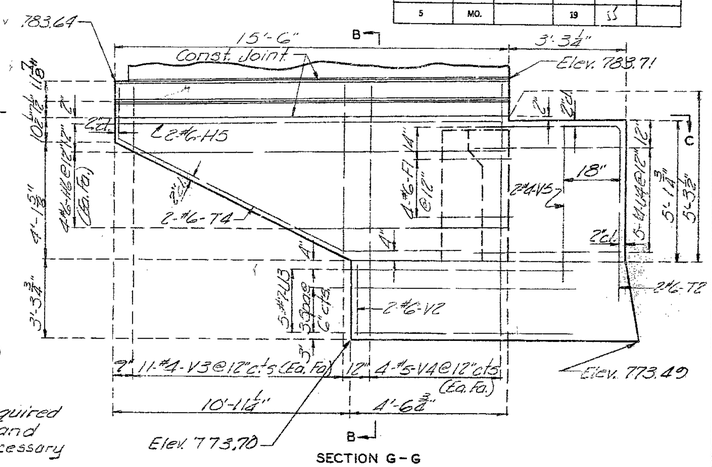
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	55	



SECTION A-A



SECTION B-B

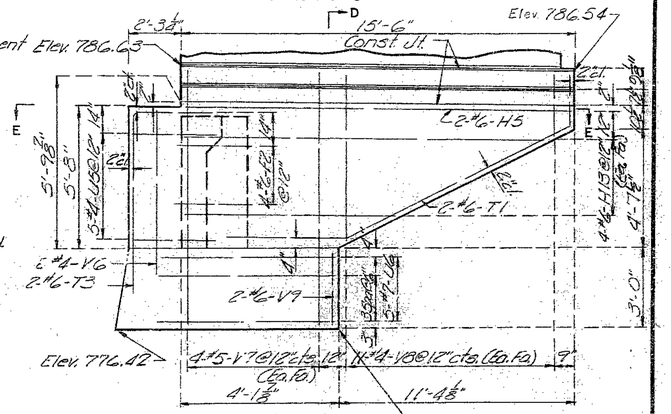


SECTION G-G

Notes: Field bending shall be required at wings for H bars in backwall and F1 and F2 bars in wings when necessary to conform to slope of wing.

See handrail sheet for reinforcement of end post, parapets and curbs.

* Dimensions and Elevations at Fill Face.



SECTION F-F

PLAN

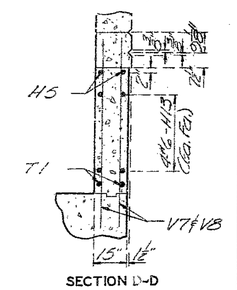
Notes: For angle "W" see sheet 14 of 16.

For angle between Fill Face and chord from Bent 1 to Bent 2 see sheet 2 of 17.

PLAN OF LOWER BEAM

SECTION C-C

SECTION E-E



SECTION D-D

DETAILS OF END BENT NO. 1

PLATTE COUNTY

DETAILED Sept. 1969 BY HLW

CHECKED Sept. 1969 BY T.R.B.

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

Sheet No. 4 of 17.

△-Rev. 7-25-72

A-2439

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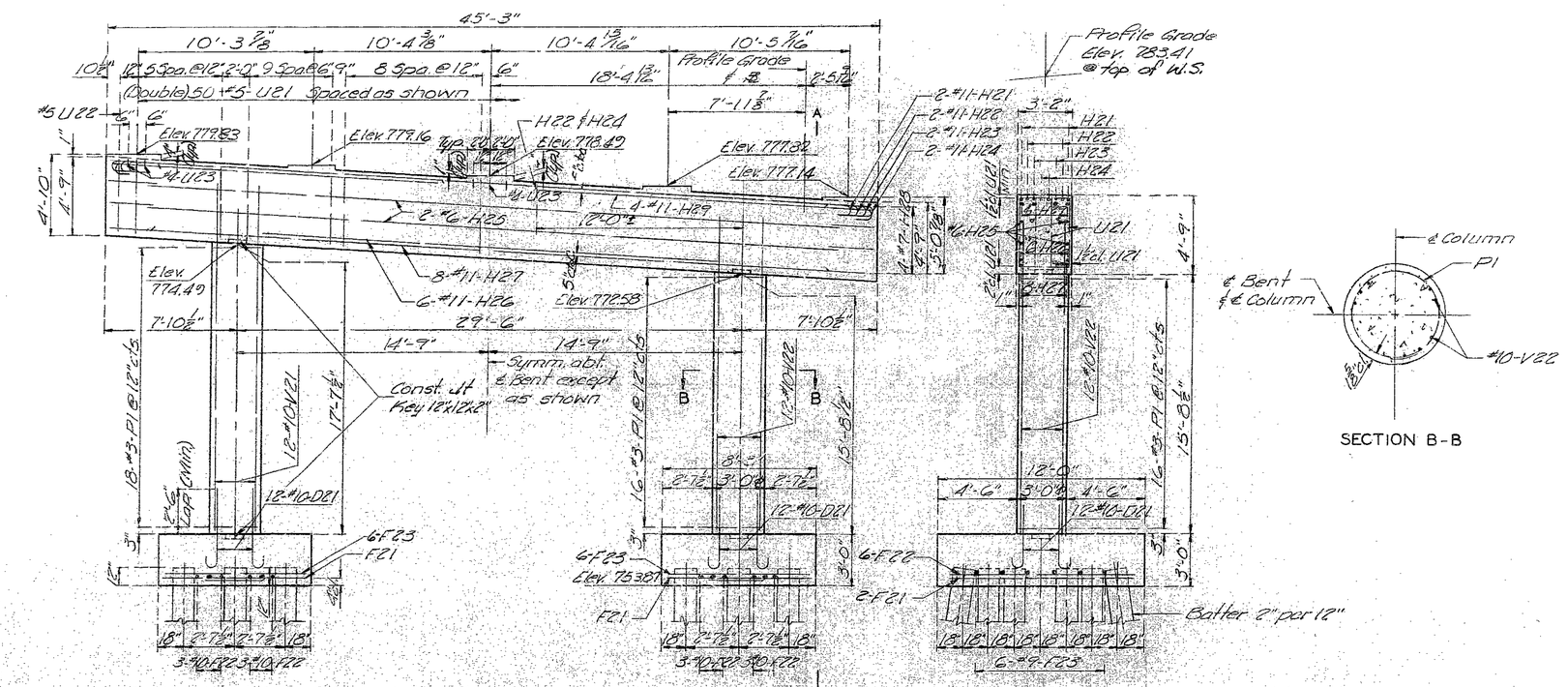
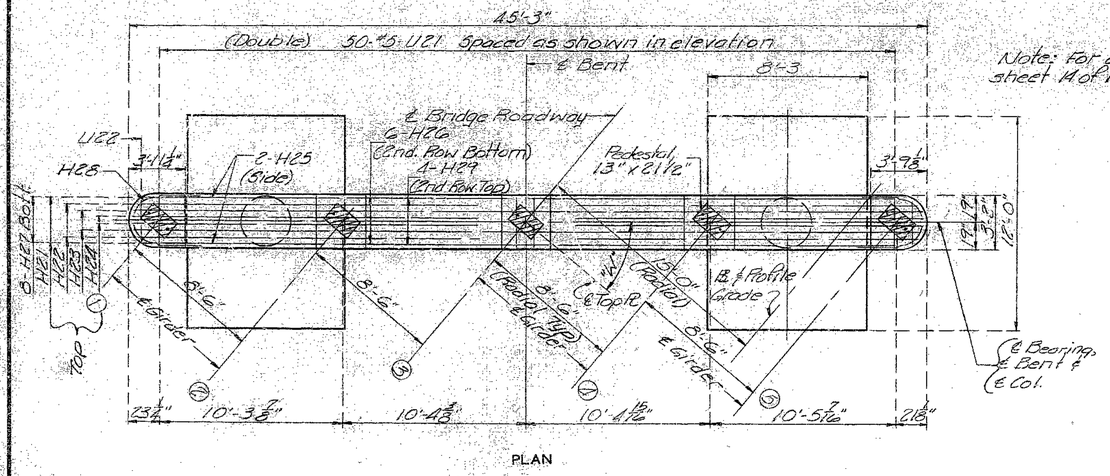
MISSOURI STATE HIGHWAY DEPARTMENT

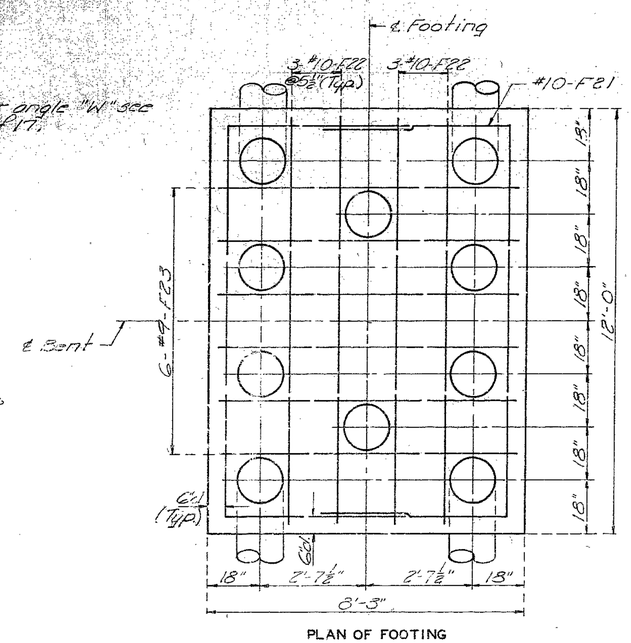
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	5	





Note: For angle "W" see sheet 14 of 17.

Note: For angle between ℄ Bent 2 and chord from Bent 1 to Bent 2 at baseline see sheet 2 of 17.



DETAILS OF INT. BENT NO. 2

PLATTE COUNTY

DETAILED Aug. 1969 BY H.L.W
CHECKED Sept. 1969 BY T.F.B.

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

Sheet No. 5 of 17.

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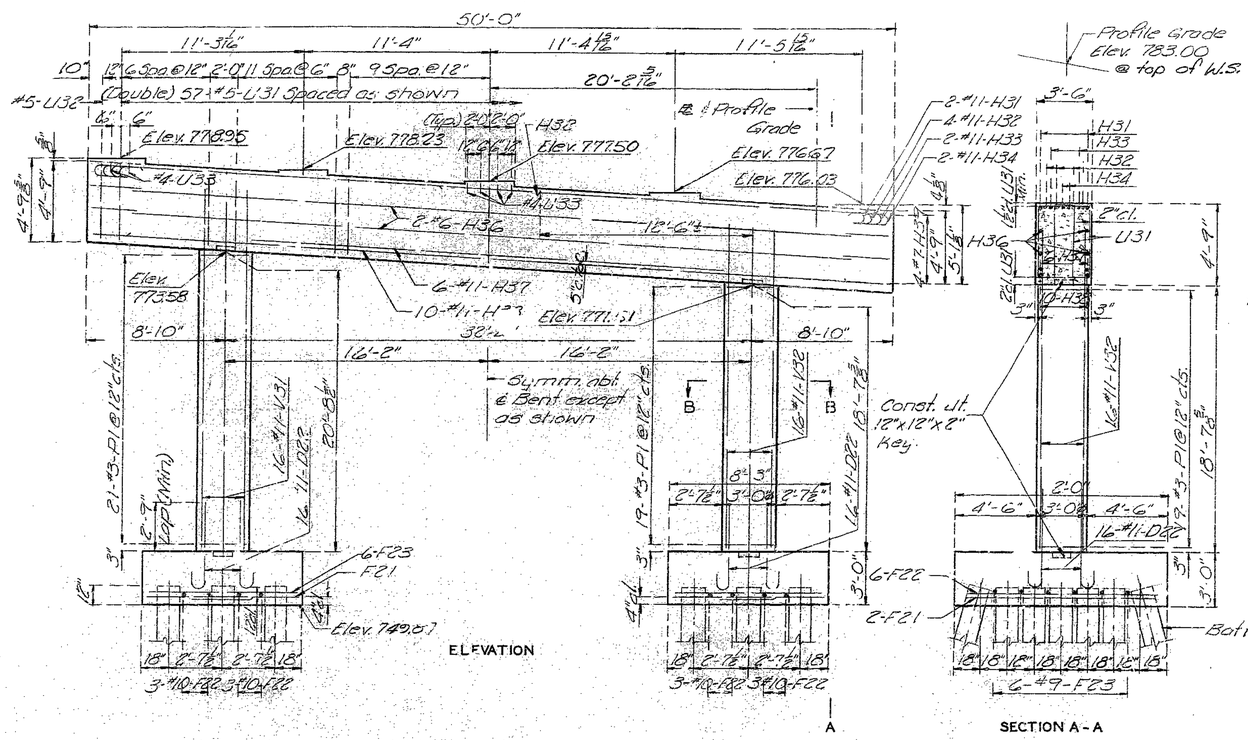
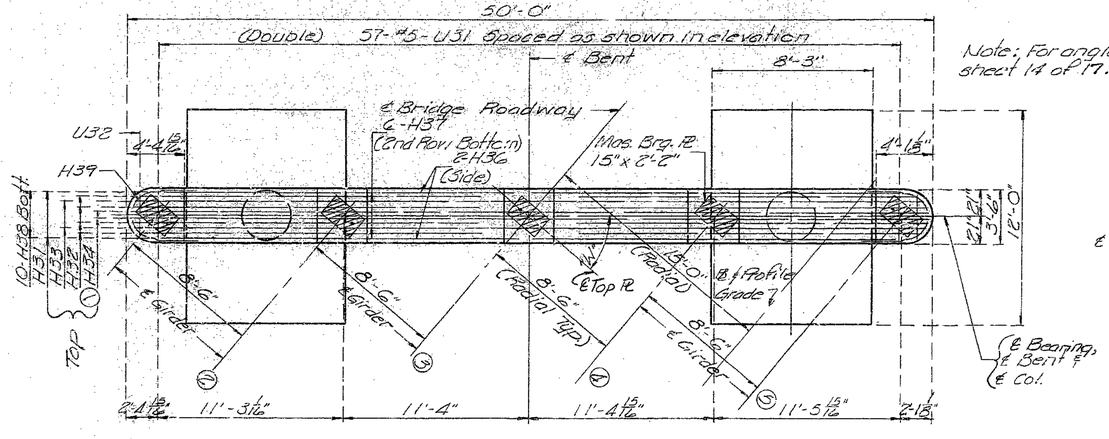
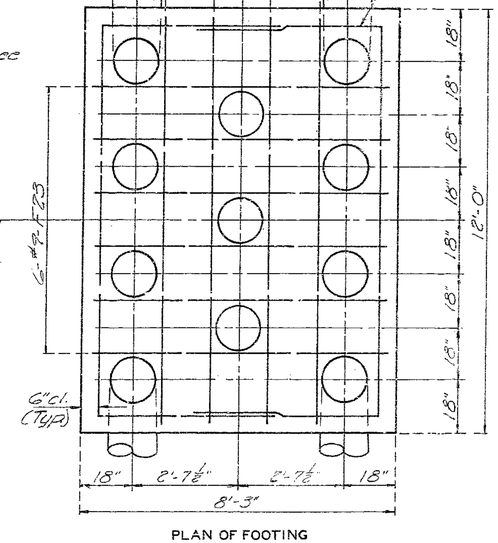
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISC. L. YEAR	SHEET NO.	TOTAL SHEETS
5	10.		19	17	







Note: For angle between ℄ Bent 3 and chord from Bent 2 to Bent 3 at baseline see sheet 2 of 17.

DETAILS OF INT. BENT NO. 3

PLATTE COUNTY

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DETAILED Aug. 1969 BY H.L.W.
CHECKED Sept. 1969 BY T.R.B.

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

Sheet No. 6 of 17.

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FOR INFORMATION ONLY **A24393, Sht. 15**

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	51	

SECTION A-A

ELEVATION

* Dimensions and Elevations at Top of Backwall.

Note: Top of backwall and expansion device for end bent No. 4 to conform to crown of roadway slab.
Backwall above upper construction joint shall not be poured until the structural steel of the expansion device has been installed and slab has been poured in adj. span.

SECTION G-G

SECTION E-E

SECTION B-B

SECTION D-D

SECTION F-F

PLAN

PLAN OF LOWER BEAM

Note: Field bending shall be required at wings for H bars in backwall and F3 and F4 in wings when necessary to conform to slope of wing.
See handrail sheet for reinforcement of end post, parapets and curbs.
For angle "W" see Sheet 14 of 17.

SECTION C-C

PLATTE COUNTY

DETAILED Sept. 1969 BY H.L.W.
CHECKED Sept 1969 BY T.R.B.

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

DETAILS OF END BENT NO. 4

Sheet No. 7 of 17.

△—Rev 7-25-72

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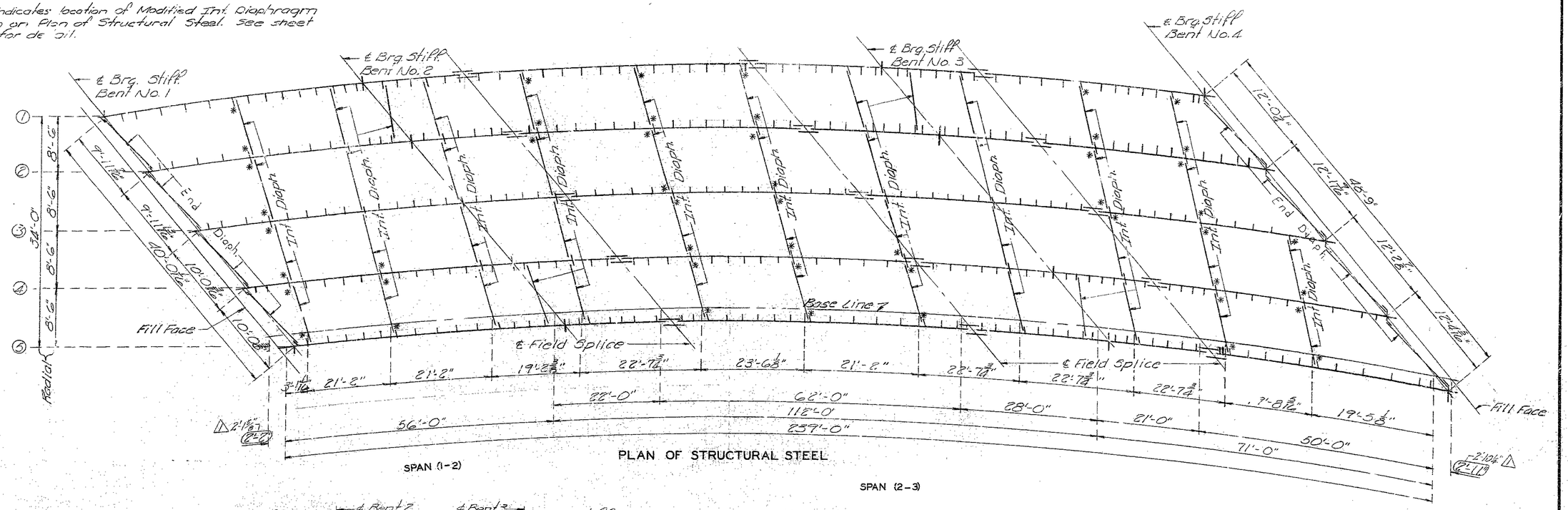
MISSOURI STATE HIGHWAY DEPARTMENT

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

Notes: Transverse dimensions are horizontal.
Longitudinal dimensions are arc dimensions measured along baseline at top of slab parallel to profile grade.
Intermediate diaphragms shall be placed radially.
* Indicates location of Modified Int. Diaphragm Connection on Plan of Structural Steel. See sheet 13 of 17 for detail.

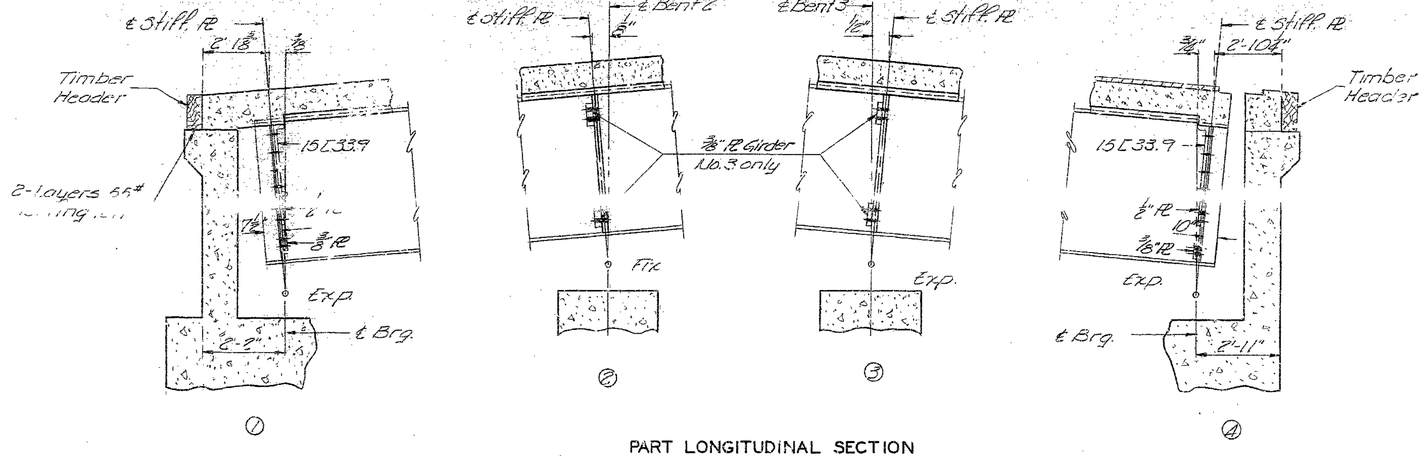


PLAN OF STRUCTURAL STEEL

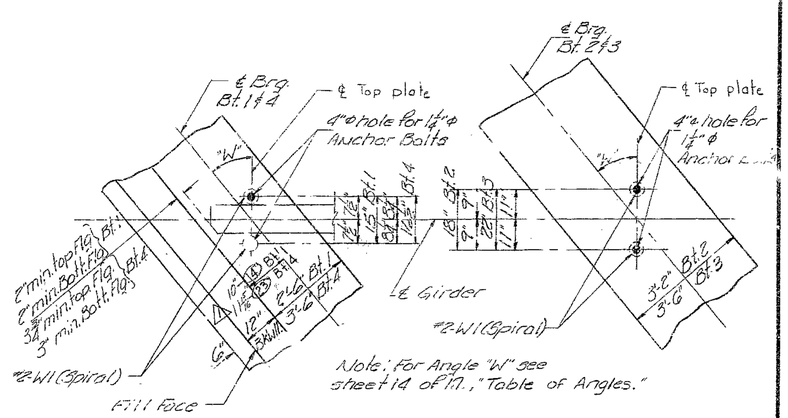
SPAN (1-2)

SPAN (2-3)

SPAN (3-4)



PART LONGITUDINAL SECTION



ANCHOR BOLT PLAN

PLATTE COUNTY

DETAILED Aug. 1969 BY H.L.W.
CHECKED Sept. 1969 BY T.R.B.

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

Sheet No. 8 of 17.

△—Rev. 7-25-72

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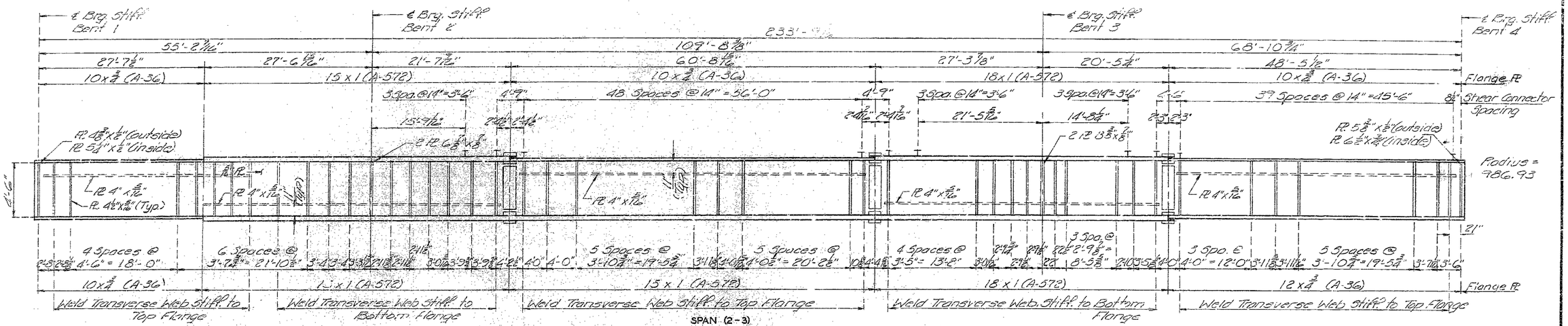
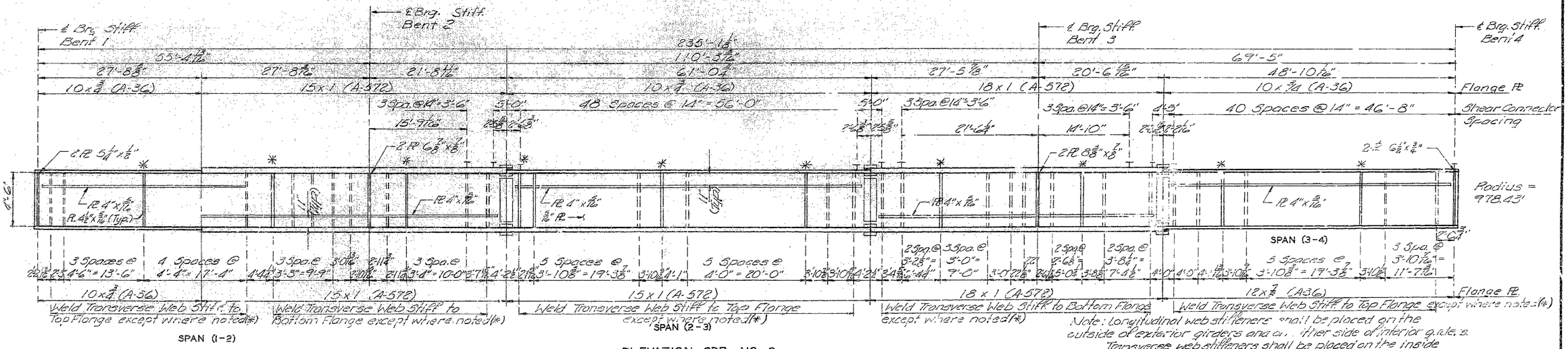
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	10	



ELEVATION GDR. NO 1



ELEVATION GDR. NO. 2

Note: The longitudinal dimensions shown are arc dimensions measured along the ℄ of girder at the top of the concrete slab and are parallel to profile grade.

Note: Longitudinal web stiffeners shall be placed on the outside of exterior girders and on either side of interior girders. Transverse web stiffeners shall be placed on the inside face of exterior girders and on either side of interior girders, except as noted (*).

(*) Transverse web stiffeners on both faces of interior girders. Do not weld to either flange.

Plate girders shall be fabricated to conform with camber Diagram shown on sheet No. 11 of 17.

PLATTE COUNTY

DETAILED Aug. 1969 BY H.L.W.

CHECKED Sept 1969 BY T.R.B.

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

Sheet No. 9 of 17.

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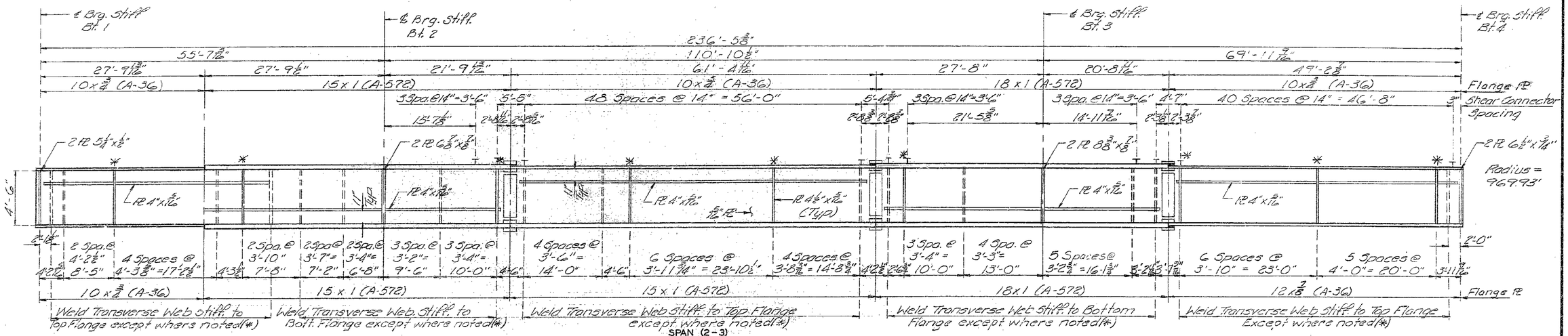
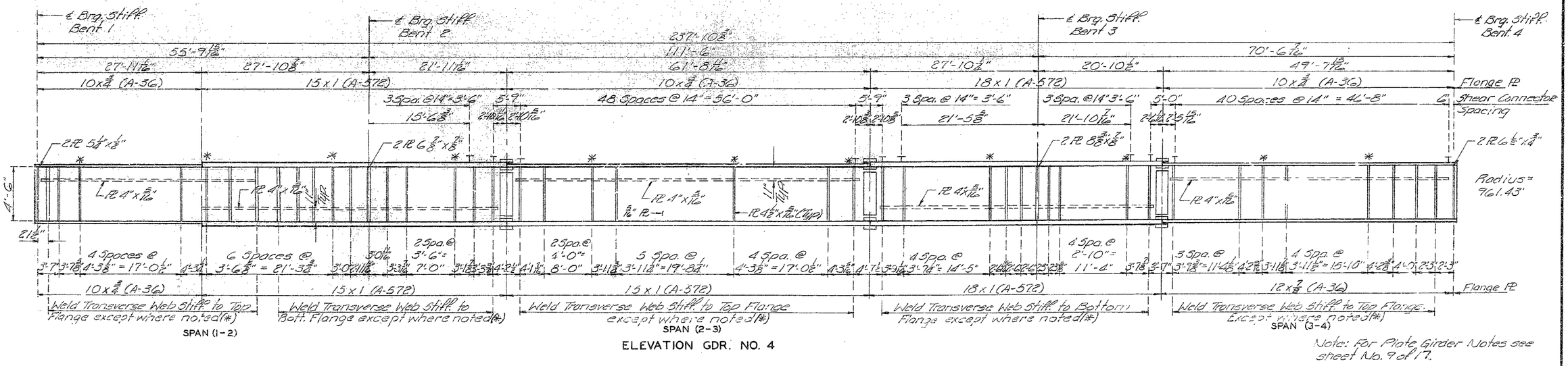
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	41	



SPAN (1-2) SPAN (2-3) SPAN (3-4)

ELEVATION GDR. NO. 3



SPAN (1-2) SPAN (2-3) SPAN (3-4)

ELEVATION GDR. NO. 4

Note: For Plate Girder Notes see sheet No. 9 of 17.

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PLATTE COUNTY

DETAILED Aug. 1969 BY H.L.W.
CHECKED Sept. 1969 BY T.R.B.

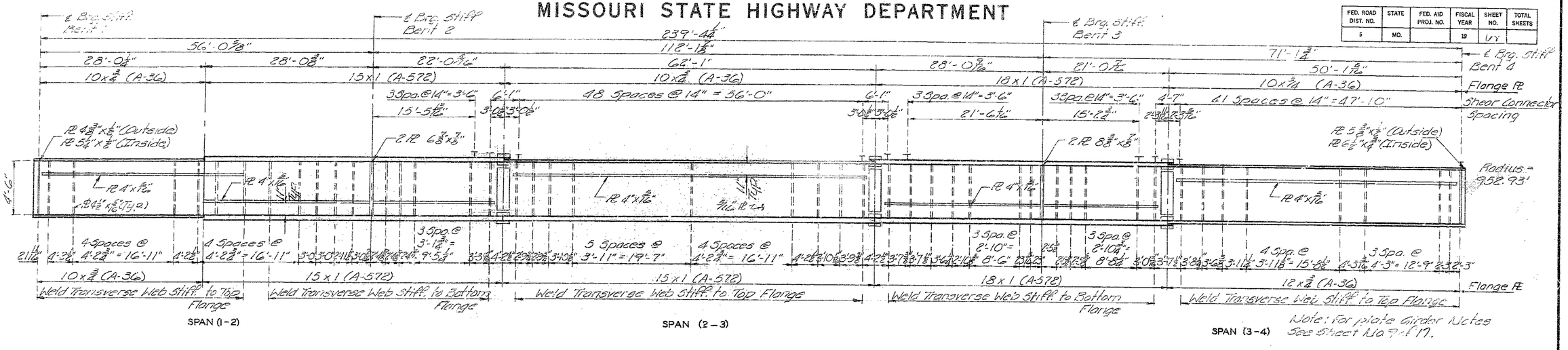
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 17.

A-2439

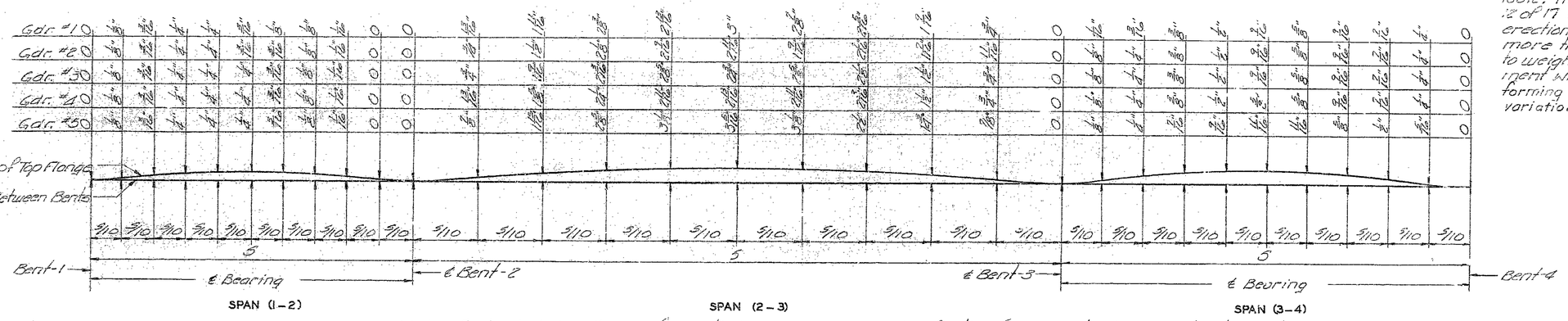
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	17	



Note: For plate Girder Notes See Sheet No 9 of 17.

ELEVATION GDR. NO. 5



Note: Camber includes allowance for vertical curve and dead load deflection for concrete slab and structural steel.

THEORETICAL GIRDER CAMBER DIAGRAM

Note: The 2¼" dimension on "Detail B" sheet 12 of 17 may vary if girder camber after erection differs from plan camber by more than the ¼ of D.L. deflection due to weight of structural steel. No payment will be made for additional forming or concrete required for variation in haunching.

DEAD LOAD DEFLECTION DIAGRAM

Gdr. 1 & 5 13.07#
Gdr. 2, 3 & 4 16.08#
dead load deflection due to weight of structural steel.

PLATTE COUNTY

DETAILED Aug. 1969 BY HLW
CHECKED Sept. 1969 BY TRB.

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

Sheet No. 11 of 17.

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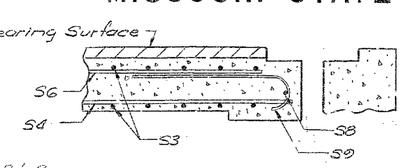
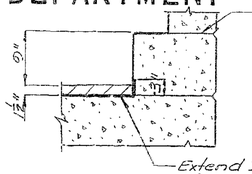
MISSOURI STATE HIGHWAY DEPARTMENT

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

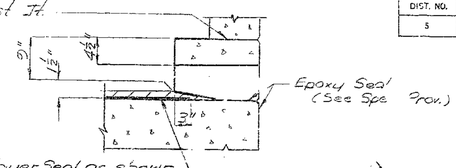
Note: Longitudinal dimensions are arc dimensions along Baseline along top of slab.
Transverse reinforcing steel shall be placed radially with spacing along baseline.
Longitudinal reinforcing steel shall be placed concentric to baseline.
Location of reinforcement in slab at expansion joint shall be altered sufficiently to clear anchor studs for joints by 1½" minimum.



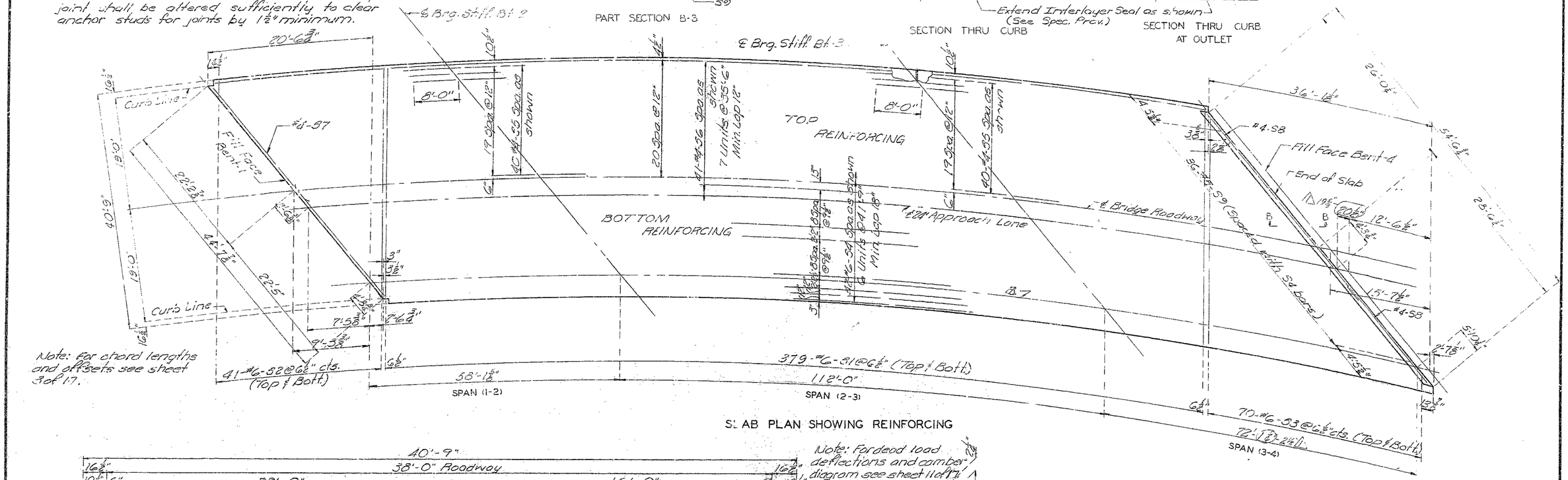
PART SECTION B-3



SECTION THRU CURB

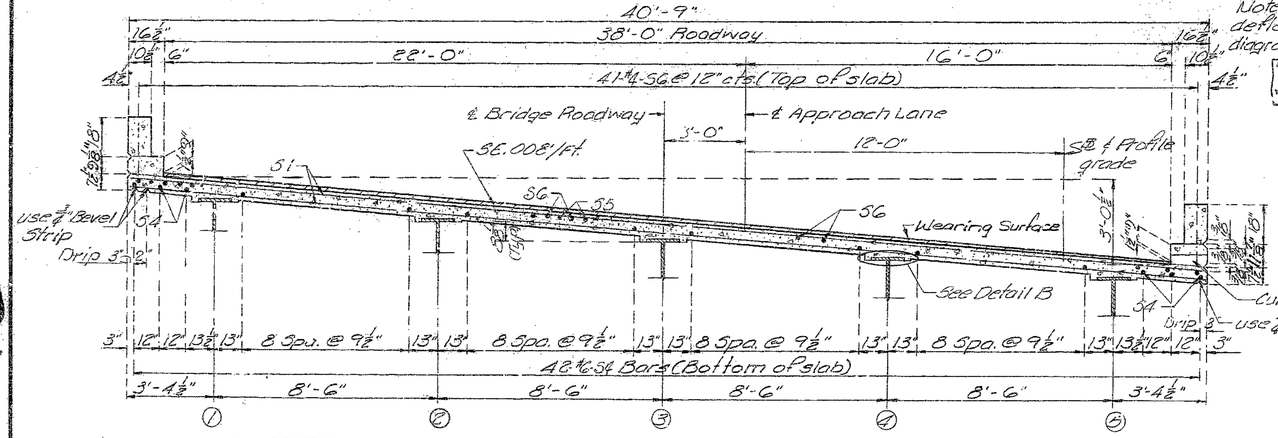


SECTION THRU CURB AT OUTLET



SLAB PLAN SHOWING REINFORCING

Note: For chord lengths and offsets see sheet 3 of 17.

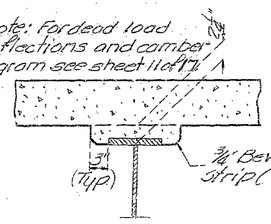


HALF SECTION NEAR INT. BENTS

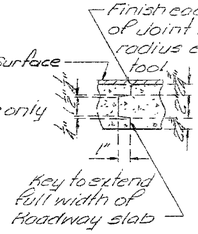
HALF SECTION NEAR CENTER of SPAN

Note: For Details of curb, parapet and Handrail not shown see sheets 15 and 16 of 17.

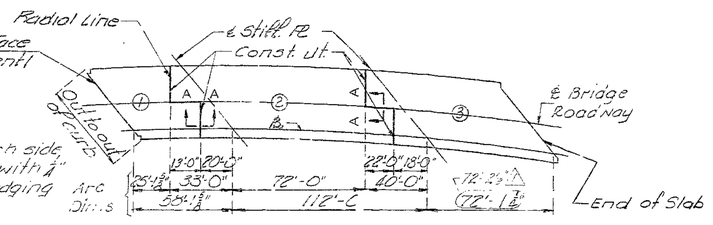
Note: Transverse slab dimensions are radial.



DETAIL B



SECTION A-A



	Sequence of Pours		
	Direction		
	1	2	3
Basic Sequence	End to 2	1 to 3	2 to End
Alternate "A" Pours	1 + 2		3
	End to 3		2 to End
Alternate "B" Pours	1 + 3		3
	End to End		

Note: The contractor shall pour and satisfactorily finish the slab pours at a rate of not less than 53 cubic yards per hour unless he elects to use an approved retarder to retard the set of the concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than 32 cubic yards per hour.

SEQUENCE OF POURS

PLATTE COUNTY

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DETAILED Aug. 1969 BY H L W
CHECKED Sept. 1969 BY T.R.B.

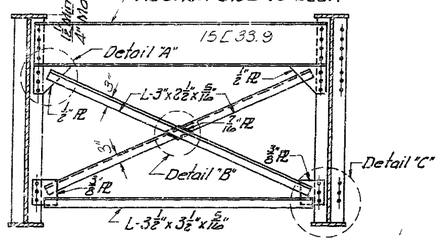
Note: This drawing is not to scale. Follow dimensions.

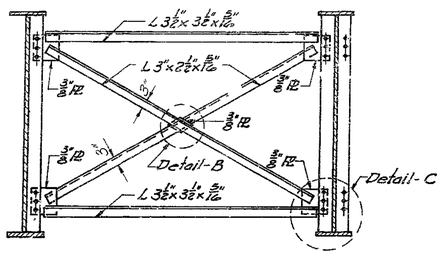
△ - Rev. 7-25-72

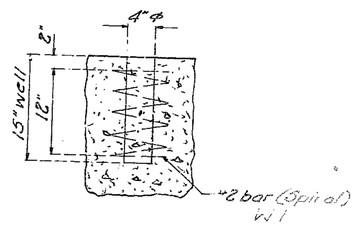
Sheet No. 12 of 17.

MISSOURI STATE HIGHWAY DEPARTMENT

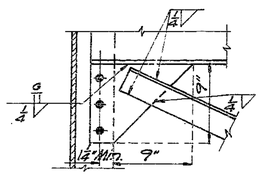
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		



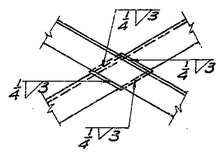




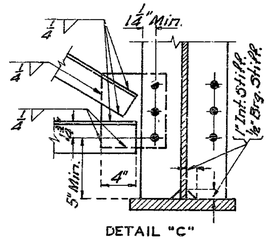
DETAIL OF ANCHOR BOLT, WELLS



DETAIL "A"



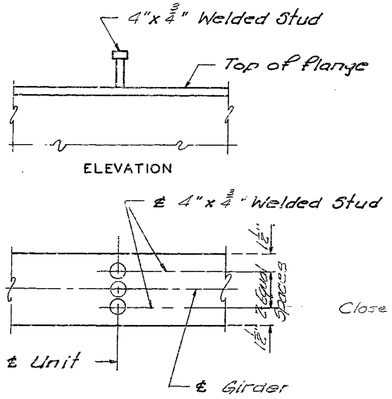
DETAIL "B"



DETAIL "C"

END DIAPHRAGM

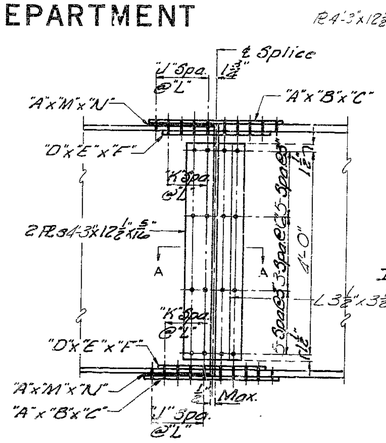
INTERMEDIATE DIAPHRAGMS



PLAN OF STUD CONN.

Note: Weight of 94# of shear conn. is included in weight of Fabricated Structural Carbon Steel.

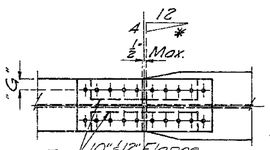
DETAILS OF SHEAR CONNECTORS

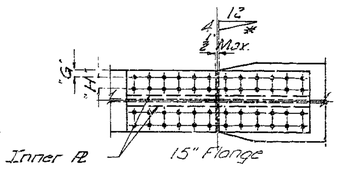


Note: 15/16" ϕ reamed holes for ⅞" high strength bolts.

BOLTED FIELD SPLICE

SECTION A-A



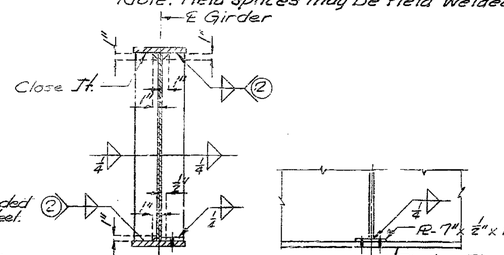


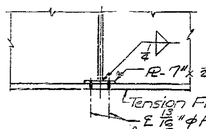
* Bevel, Iange when difference in plate widths exceed 2"

FLG. TO FLG.	A	B	C	D	E	F	G	H	J	K	L	M	N
10"x⅜"	15"x1"	10"	⅜"	2'-0⅝"	4"	½"	2'-0⅝"	2"	—	3	3	3"	¼"	12"
10"x⅞"	18"x1"	10"	⅞"	2'-0⅝"	4"	½"	2'-0⅝"	2"	—	3	3	3"	¼"	12"
15"x1"	15"x1"	15"	½"	4'-0⅜"	6"	⅜"	3'-5⅛"	1½"	3½"	6	5	3½"	—	—
15"x1"	18"x1"	15"	½"	4'-0⅜"	6"	⅜"	3'-5⅛"	1½"	3½"	6	5	3½"	—	—
12"x⅞"	18"x1"	12"	⅞"	3'-6½"	5"	½"	3'-6½"	2½"	—	4	4	3"	¼"	15"

FIELD SPLICE DETAILS
PLATE GIRDER

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

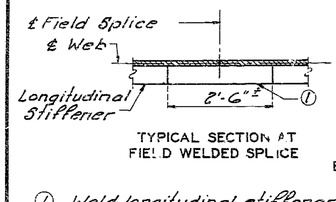




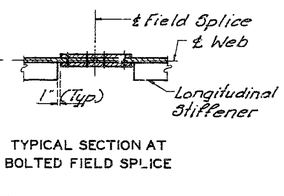
Note: Transverse web stiffeners shall be placed on the inside of exterior girders and on either side of interior girders.

Note: Longitudinal web stiffeners shall be placed on the outside of exterior girders and on either side of interior girders.

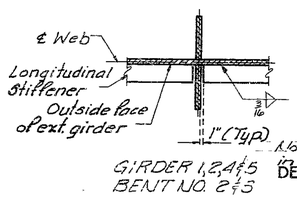
② Weld to compression flange as located on Elevation of Girder. Weld may be omitted on interior girder when Int. Diaph. Conn. PL is required on both sides.



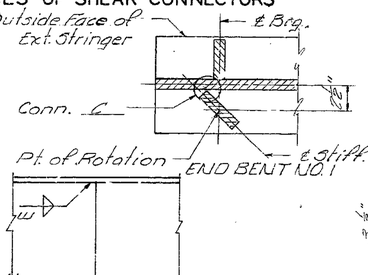
TYPICAL SECTION AT FIELD WELDED SPLICE



TYPICAL SECTION AT BOLTED FIELD SPLICE

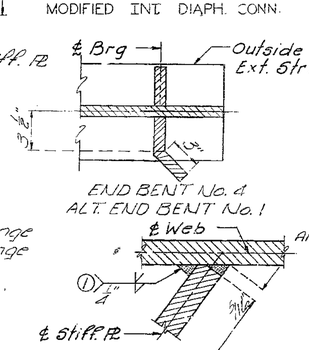


GIRDER 1, 2 & 5
BENT NO. 2 & 3



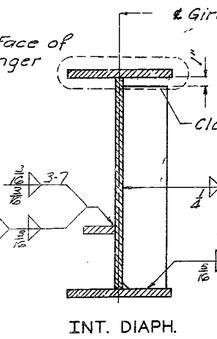
MODIFIED INT. DIAPH. CONN.

SHOP WEB SPLICE

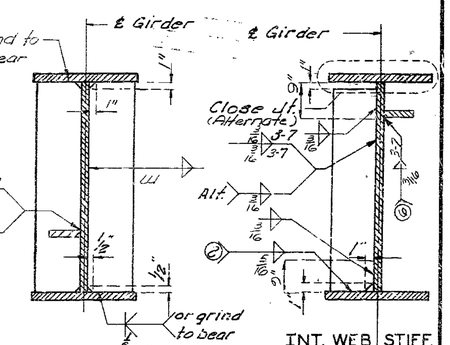


① Groove weld penetration = ¼" Min.

CONN. "C"



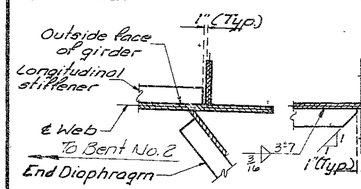
INT. DIAPH. CONN.



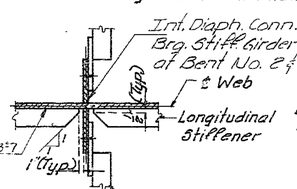
BEARING STIFFENER

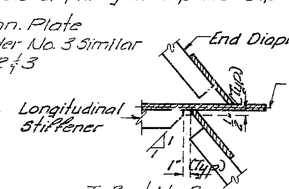
INT. WEB STIFF.

② Intermittent welds applies to interior girders only.



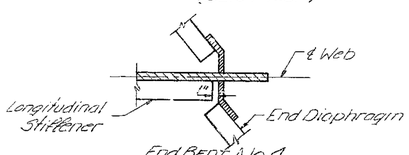
EXTERIOR GIRDERS
(BENT NO. 1)





INTERIOR GIRDER
(BENT No. 1)

INTERIOR GIRDERS



Note: By approval of the engineer the contractor may omit any shop flange splice, if desired, by extending the heavier flange and providing approved modifications of details at field flange splices and elsewhere as required. All costs of any required design, plan revisions or rechecking of shop drawings shall be borne by the contractor. Payweight in any case will be based on material shown on design plans.

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.

SHOP WELDING DETAILS

① Weld longitudinal stiffener across field welded splice after alignment angles have been removed.

Note: Whenever longitudinal stiffeners interfere with bolting the intermediate diaphragms in place clip stiffeners.

BEARING STIFFENER SIZE				
		Girder No.		
	Bent No.	1	2,3 & 4	5	W1
Ext.	1	4⅞"x⅝"	5¾"x⅝"	4⅞"x⅝"	¼"
Int.	1	5¾"x⅝"	"	5¾"x⅝"	¼"
	2	6⅛"x⅝"	6¾"x⅝"	6¾"x⅝"	¼"
	3	8⅛"x⅝"	8¾"x⅝"	8⅛"x⅝"	⅜"
Ext.	4	5⅞"x⅝"	6½"x⅝"	5⅞"x⅝"	¼"
Int.	4	6½"x⅝"	"	6½"x⅝"	¼"

PLATTE COUNTY

DETAILED Sept. 1969 BY H.L.W.
CHECKED Sept. 1969 BY T.R.B.

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

Sheet No. 13 of 17.

A-2439

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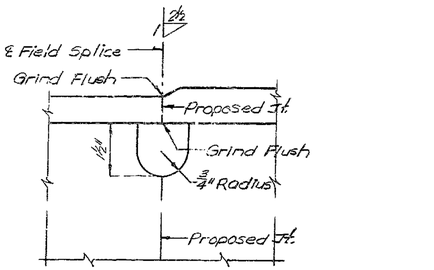
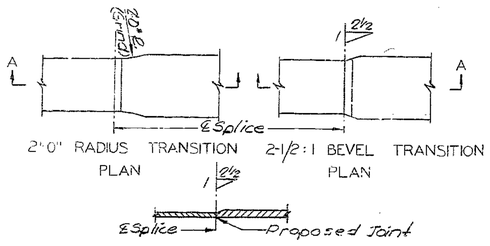
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	16	



WELDED FIELD SPLICE

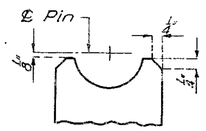


FIELD OR SHOP FLANGE SPLICE

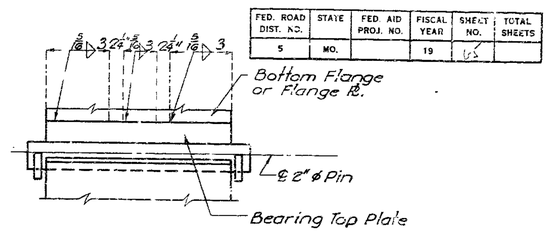
NOTES: TYPE "D" BEARINGS

Lead plates under bearings shall be approximately 8" thickness and weigh 8# / sq. ft. Cost of lead plates shall be included in price bid for other items. "Estimated weight" does not include weight of anchor bolts.

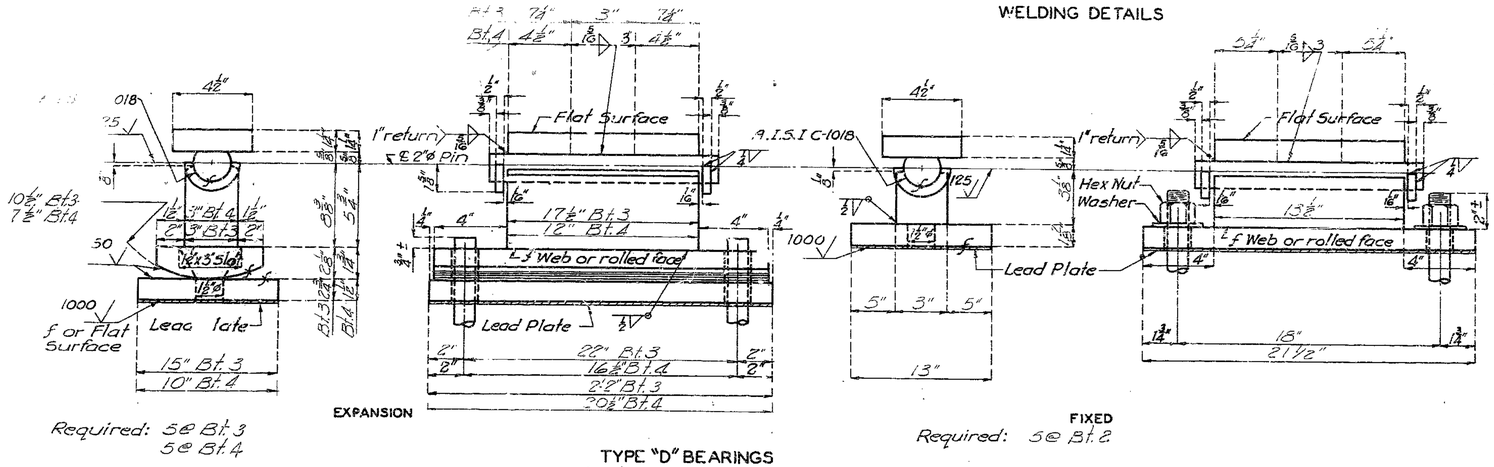
Anchor Bolts for Type "D" Bearings shall be 1¼"ø swedged bolts and shall extend 12" into concrete, with hexagon nuts and plain washers for Fixed Bearings, no nuts for Expansion Bearings.



END VIEW OF WEB EXPANSION BEARING



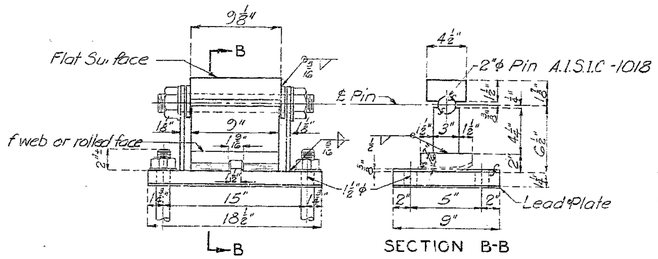
WELDING DETAILS

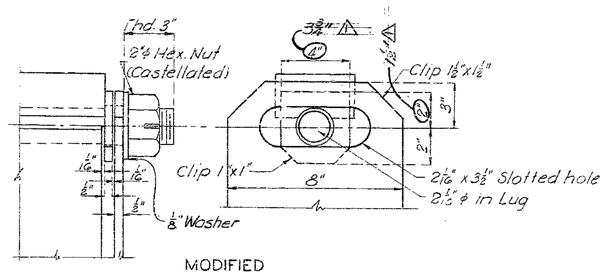


Required: 5 @ Bt. 3
5 @ Bt. 4

Required: 5 @ Bt. 2

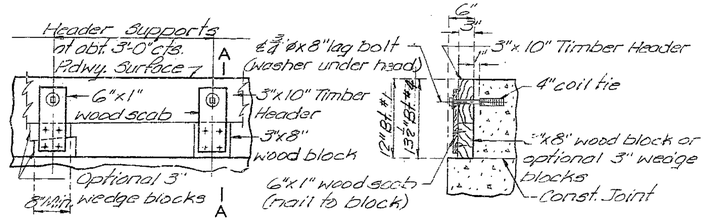
TYPE "D" BEARINGS
(Estimated Weight 4,164#)





MODIFIED
TYPE "D" BEARINGS BENT-1
Required: 5
(Estimated Weight 843 #)

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

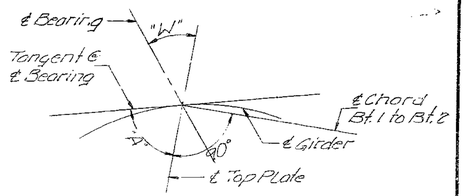


DETAIL OF TIMBER HEADER

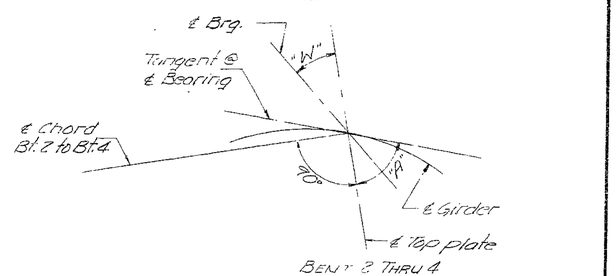
TABLE OF ANGLES

GDR. NO.		1	2	3	4	5
BENT 1	"A"	88°23'-54"	88°22'-42"	88°21'-29"	88°-20'-13"	88°18'-56"
	"W"	32°47'-18"	33°-06'-36"	33°-26'-18"	33°-46'-26"	34°06'-60"
BENT 2	"A"	90°	90°	90°	90°	90°
	"W"	34°-23'-24"	34°-13'-53"	35°-04'-49"	35°-26'-13"	35°-48'-05"
BENT 3	"A"	86°-49'-06"	86°-46'-26"	86°-43'-40"	86°-40'-49"	86°-37'-52"
	"W"	37°-34'-28"	37°-51'-31"	38°-21'-13"	38°-45'-28"	39°-10'-17"
BENT 4	"A"	84°-49'-08"	84°-44'-27"	84°-39'-39"	84°-34'-40"	84°-29'-30"
	"W"	39°-21'-19"	39°-59'-26"	40°-25'-10"	40°-51'-32"	41°-18'-35"

Note: For location of angle "W" see sheet 8 of 17.



BENT 1



BENT 2 THRU 4

PLATTE COUNTY

DETAILED Sept. 1969 BY H.L.W.
CHECKED Sept. 1969 BY T.R.B.

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

Sheet No. 16 of 17.

⚠ Rev. 5-12-72

A-2439

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MISSOURI STATE HIGHWAY DEPARTMENT

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

GENERAL BRIDGE RAIL NOTES:

All bridge rail posts shall be set normal to grade.

Aluminum tube bridge rail shall be bent to conform to vertical and horizontal alignment of parapet.

Aluminum washer shims between top of parapet and post base may be used for adjusting bridge rail alignment. Maximum thickness of shims to be $\frac{1}{8}$". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.

All parts of bridge rail, except anchor bolts, nuts, washers, and set screws are to be of aluminum material.

All fillets $\frac{1}{4}$" except as noted.

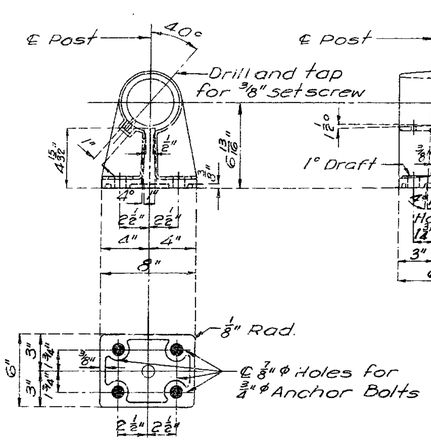
All drafts 3° except as noted

Omit set screw in side of rail posts adjacent to filled joints in curb and parapet at rail expansion points. Omit set screw in each side of rail post on end bents except where a gap is shown in rail over an expansion device.

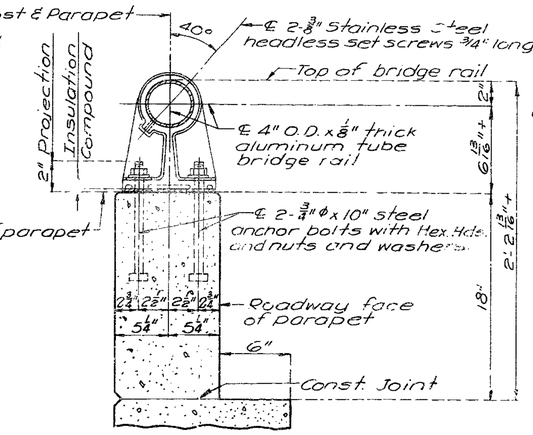
Top of curbs and parapet to be built parallel to grade with curb and parapet joints (except at end bents) normal to grade.

Concrete end posts to be vertical.

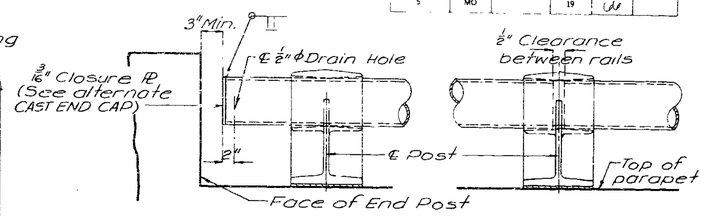
All exposed edges of end posts shall have $\frac{1}{2}$" bevel. All exposed edges of curbs and parapets shall have $\frac{1}{2}$" radius or $\frac{3}{4}$" bevel unless otherwise noted.



POST DETAILS



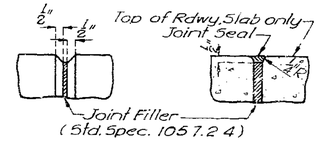
SECTION THRU BRIDGE RAIL.



CAST END CAP
(Drive Fit Type)

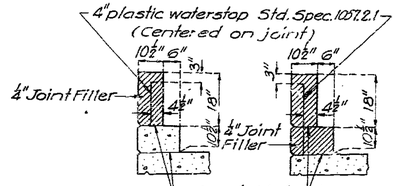
POST RAIL SPLICE OR EXP.

TYPICAL BRIDGE RAIL DETAILS



FILLED JOINT DETAILS

ONE TUBE ALUMINUM RAILING

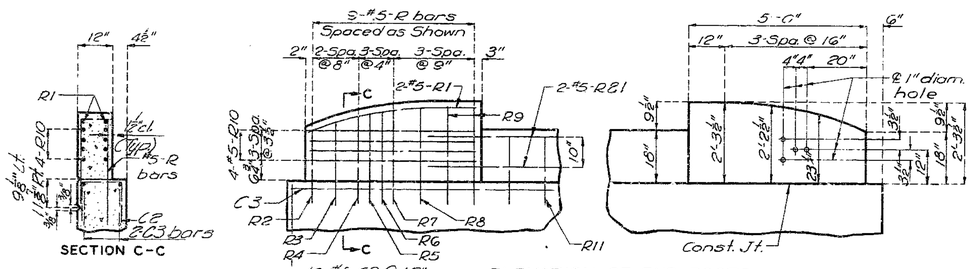


PARAPET JOINT CURB AND PARAPET JT.

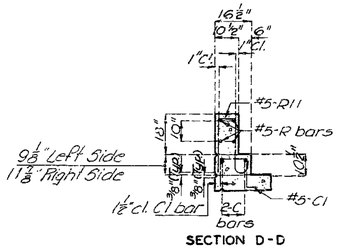
Note: Plastic waterstop shall be placed in all parapet and curb filled joints except on high side of structure.

Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

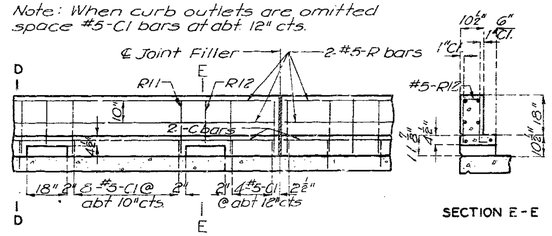
DETAILS OF PLASTIC WATERSTOP



Note: See Sheet No. 12 of 17 for details of Wearing Surface at curbs.



Note: When curb outlets are omitted space #5-C1 bars at abt. 12" cts.



Note: Outlets on right side only.

ELEVATION OF CURB & PARAPET

Note: For horizontal curb and parapet bars use a minimum lap of 15" for #5 and 18" for #6.

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STD. 1.5.2	REVISED
MAR. 1964	OCT 1968

DETAILED Sept. 1967 BY H.L.W.

CHECKED Sept. 1967 BY T.R.B.

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

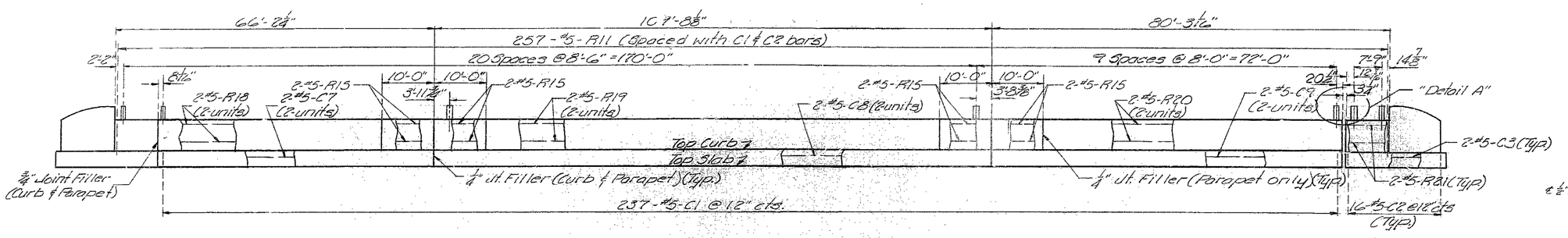
Sheet No. 15 of 17.

PLATTE COUNTY

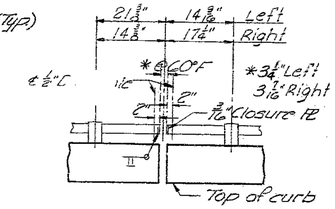
A-2439

MISSOURI STATE HIGHWAY DEPARTMENT

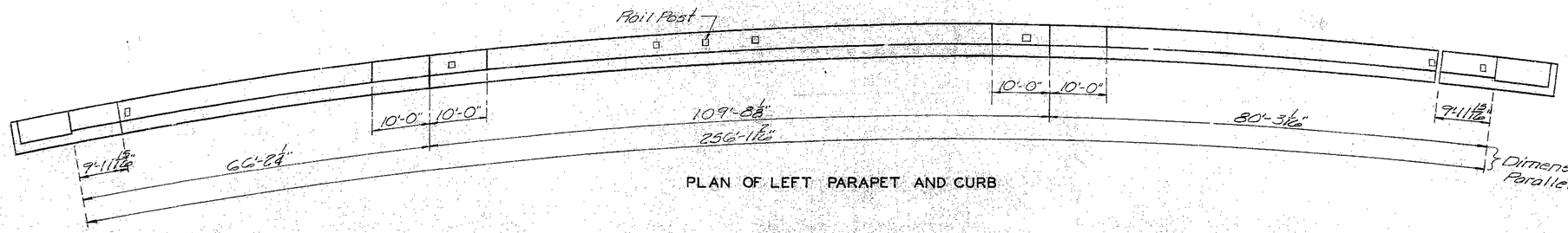
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	67	



ELEVATION

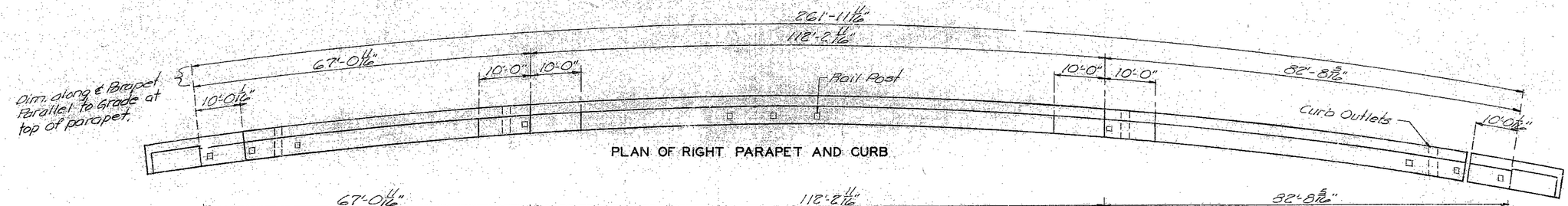


DETAIL A

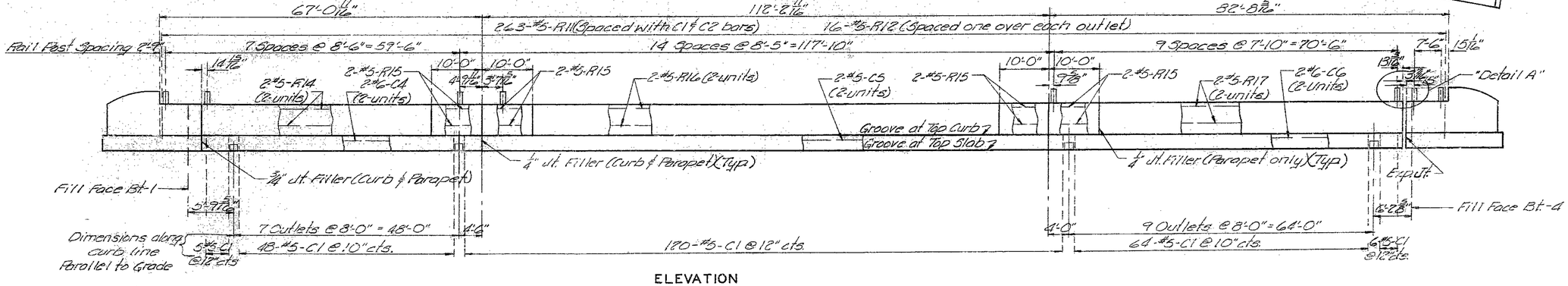


PLAN OF LEFT PARAPET AND CURB

Note: All curb & Parapet Filled joints and curb outlets are on Radial lines.



PLAN OF RIGHT PARAPET AND CURB



ELEVATION

PLATTE **COUNTY**

DETAILED Sept. 1969 BY HLW
CHECKED Sept. 1969 BY T.R.B.

DETAILS SHOWING RAIL POST SPACING WITH CURB AND PARAPET REINFORCING

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

Sheet No. 16 of 17.

A-2439

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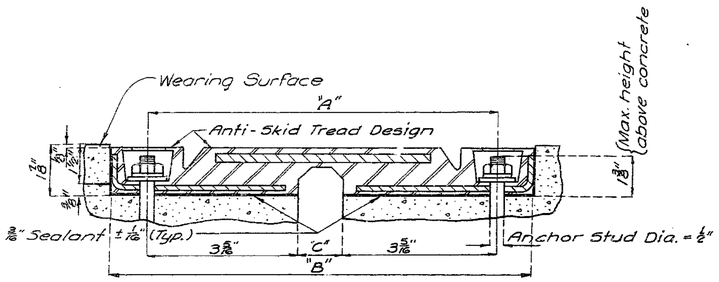
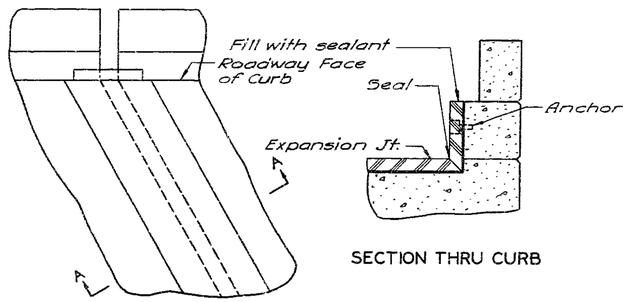
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	17	



SECTION A-A



SECTION THRU CURB

Table of Variable Dimensions			
Temp.	Dim. "A"	Dim. "B"	Dim. "C" (Max.)
110°F	7 3/8"	9 3/8"	1"
90	8"	9 3/4"	1 3/8"
70	8 1/4"	10"	1 5/8"
60	8 1/2"	10 1/4"	1 7/8"
50	8 5/8"	10 3/8"	2"
40	8 3/4"	10 1/2"	2 1/8"
30	9"	10 3/4"	2 3/8"
10	9 1/8"	11"	2 3/8"
-10°F	9 5/8"	11 3/8"	3"

Joint Seal for 2" movement

Note: Plan dimensions are based on installation at 60° F. Expansion joint width shall be adjusted during installation for compliance with the above table. See Special Provisions.

Note: The expansion joint shall be set, anchored, bonded and sealed as recommended by the manufacturer and as set forth in the Special Provisions. Anchors shall be cone expansion type. Payment for furnishing and installing the expansion joint, including anchor bolt assembly, shall be made under unit price bid per lineal foot of joint.

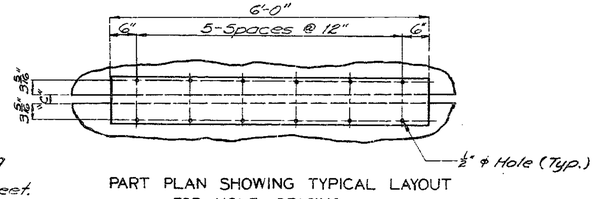
Accuately locate the hole spacing for 1/2" studs (expanding anchor type), on both sides of the expansion void at a distance of 3 3/16" from the edge of the concrete and snap a chalk line on both sides of the expansion void. Layout transverse hole spacing along the chalk line in accordance with the shop drawings and the Typical Layout as shown on this sheet. Insure that the holes are directly opposite each other (square). Drill holes 1/2" ϕ x 2 1/4" deep.

Holes shall not be drilled nor anchor bolts set until the concrete is at least 7 days old.

First section of expansion joint shall be installed starting at ℄ of roadway.

Tighten all nuts to 40 foot pounds. Retighten to 40 foot pounds 30 minutes after initial tightening.

Wire brush bolt cavity and coat with sealant. Fill cavity with sealant to a depth of 1/2" and push plug down to snap lock. Scrape off all excess sealant.



PART PLAN SHOWING TYPICAL LAYOUT FOR HOLE SPACING

DETAILS OF STEEL REINFORCED ELASTOMERIC EXPANSION JOINT SEAL

284

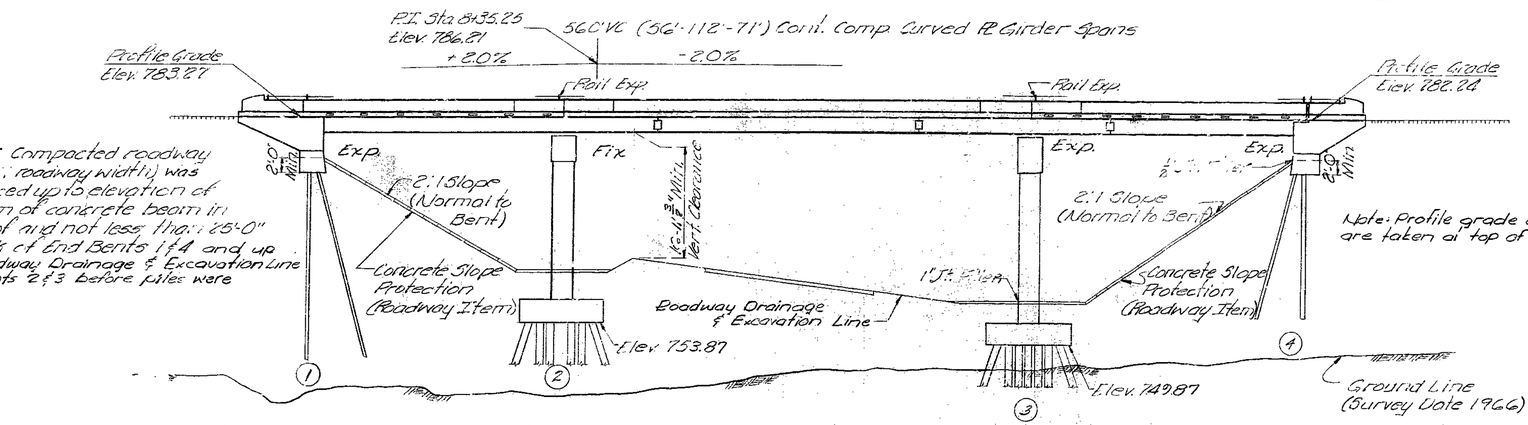
STD. 5.3.2	REVISED
JAN. 1971	JULY 1971

DETAILED JAN. 1972 BY WEAVER
CHECKED JAN. 1972 BY SPENCER

MISSOURI STATE HIGHWAY DEPARTMENT

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

FINAL PLANS



Note: Compacted roadway fill (ie., roadway width) was placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bents 1 & 4 and up to Roadway Drainage & Excavation Line at Bents 2 & 3 before piles were driven.

Note: Profile grade elevations are taken at top of wearing surface.

Note: For Curve Data see Sheet 2 of 17. For Footing Data Table See Sheet 2 of 17.

GENERAL ELEVATION

Notes: For Boring Data see sheet No. 3 of 17. "●" Indicates location of borings. For substructure Layout see Sheet 2 of 17. All dimensions shown on plans are horizontal.

GENERAL NOTES:

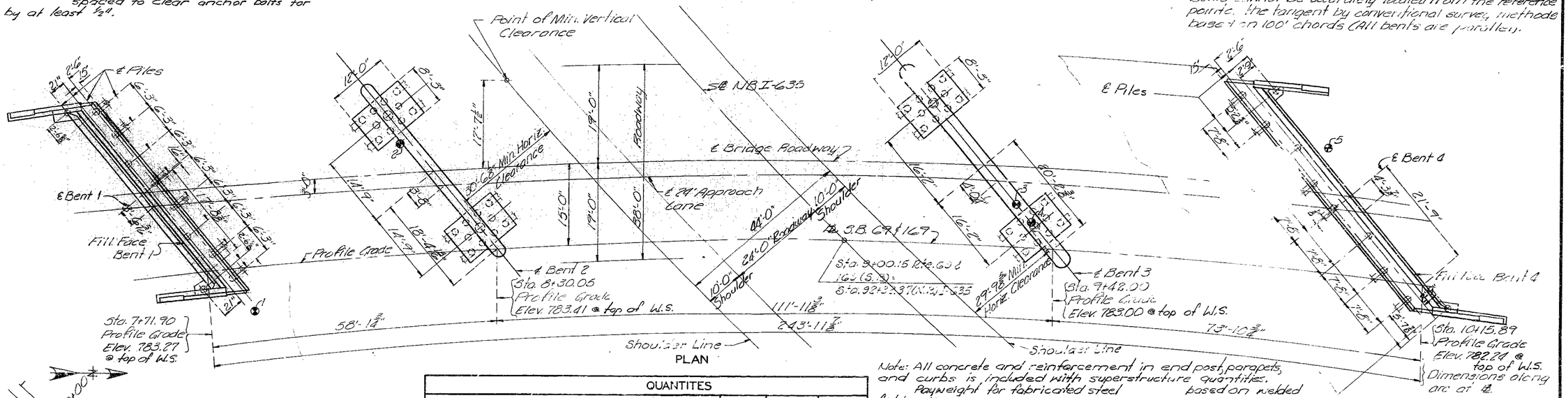
Design Specification:
A.A.S.H.O.-1969
Design Loading:
H520-44

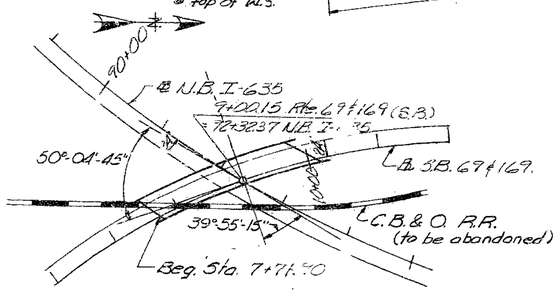
Earth 120# Equivalent Fluid Pressure 30#
Fatigue Stress - Case I
Design Unit Stresses:
Class B Concrete (substructure) f_c = 1200 psi
Class B1 Concrete (superstructure) f_c = 1,600 psi
Reinforcing Steel f_s = 20,000 psi
Structural Steel f_s = 20,000 psi
Structural Steel (A.S.T.M. A-572-66 Gr. 50) f_s = 27000 psi

Field connections: High Strength Bolts ¾" ø holes ⅞" ø except as noted.
Paint: Shop, none; Field: By contractor in accordance with Std. Spec. Sec. 711.
Minimum clearance to reinforcing steel 1½" unless otherwise shown.

*See Special Provisions for optional use of Timber Piles or Cast-in-Place for the Int Bts. Bents cannot be accurately located from the reference points. The tangent by conventional survey methods based on 100' chords (All bents are parallel).

Note: All reinforcing bars in tops of substructure beams or caps spaced to clear anchor bolts for bearings by at least ½".





LOCATION SKETCH

QUANTITES

ITEM		SUBSTR.	SUPERSTR	TOTAL
Class I Excavation	Cu.Yd.	302.5		302.5
Cast-in-Place Concrete Piles (End Bents Only)	Lin.Ft.	894		894
* Piles (Int. Bts. Only)	Lin.Ft.	1073		1073
Class B Concrete	Cu.Yd.	219.5		219.5
Class B1 Concrete	Cu.Yd.		288.1	288.1
Reinforcing Steel	Lb.	34280	85390	119670
Painting	Ton		103.0	103.0
Fabricated Structural Carbon Steel	Lb.		136720	136720
Fabricated Structural Low Alloy Steel	Lb.		70260	70260
Bridge Rail (One Tube)	Lin.Ft.		518	518
* Special Type "D" Mixture (Asphaltic Concrete)	Ton		74	74
Stl. Reinf. Elastomeric Exp. Joint Seal	Lin.Ft.		57	57
Coal Tar Interlayer Protective Coat	Sq.Yd.		1021	1021

Note: All concrete and reinforcement in end post, parapets, and curbs is included with superstructure quantities. Payweight for fabricated steel based on welded field splices.

SUBMITTED BY E. LYN CROWLEY
SIGNATURE E Lyn Crowley
REGISTERED PROFESSIONAL ENGINEER
SERIAL NUMBER E-5993

STATE OF MISSOURI · E. LYN CROWLEY · NUMBER E-5993 · REGISTERED PROFESSIONAL ENGINEER

B.M. - Bolt head in c rb at SW Corner Br. A-2439
Elev. 786.47

BRIDGE: ROUTE 69 & 169 S.B.L. UNDERPASS
STATE ROAD - INTERSTATE ROUTE 635
IN RIVERSIDE
PROJECT NO. I-IG-635-1(75)(RTE. I-635) **STA.** 92+32.37
PLATTE **COUNTY**

SUBMITTED BY W A Crowley (BRIDGE ENGINEER) DATE 1-24-72
APPROVED BY Robert N. Hewitt (CHIEF ENGINEER) DATE 1-24-72

DWG. 611.60
DWG. 702.02
DWG. 706.30A
A-2439

CROWLEY, WADE, WILSTEAD, INC.
ENGINEERS - ARCHITECTS
INDEPENDENCE, MISSOURI

Designed	J.R.	Checked	E.A. MALLAHAN 9/69
Detailed	H.L. WARSON 9/69	Checked	T.R. BEASLEY 9/69
Quantities	T.R. BEASLEY 10/69	Checked	E.A. MALLAHAN

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

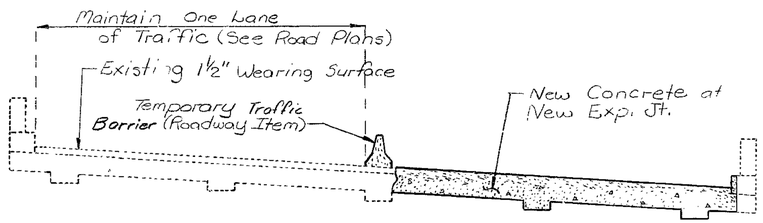
Sheet No. 1A of 17. FINAL PLAN

285

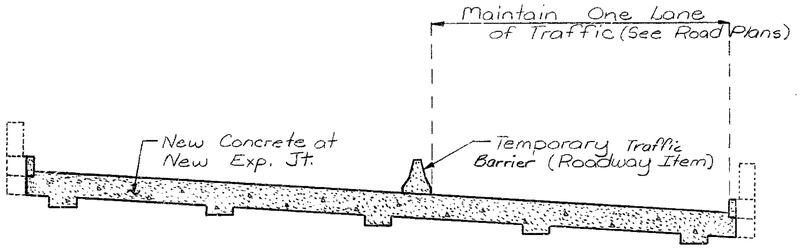
AF 22810A

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

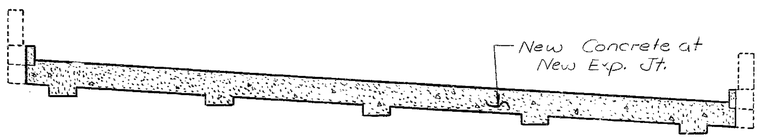
STATE	PROJ NO	SHEET NO
MO	IR-635-1(208)	34
SEC/SUR 8	TWP 50N	RGE 33W



STAGE ONE



STAGE TWO



FINAL STAGE

PART SECTIONS AT END BENT NO.4
NEAR EXP. DEVICE JOINT

ESTIMATED QUANTITIES	
ITEM	TOTAL
Special Work Lump Sum	1
Elastomeric Expansion Joint Seal (2.5 in.) Lin. Ft.	55

Note: Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

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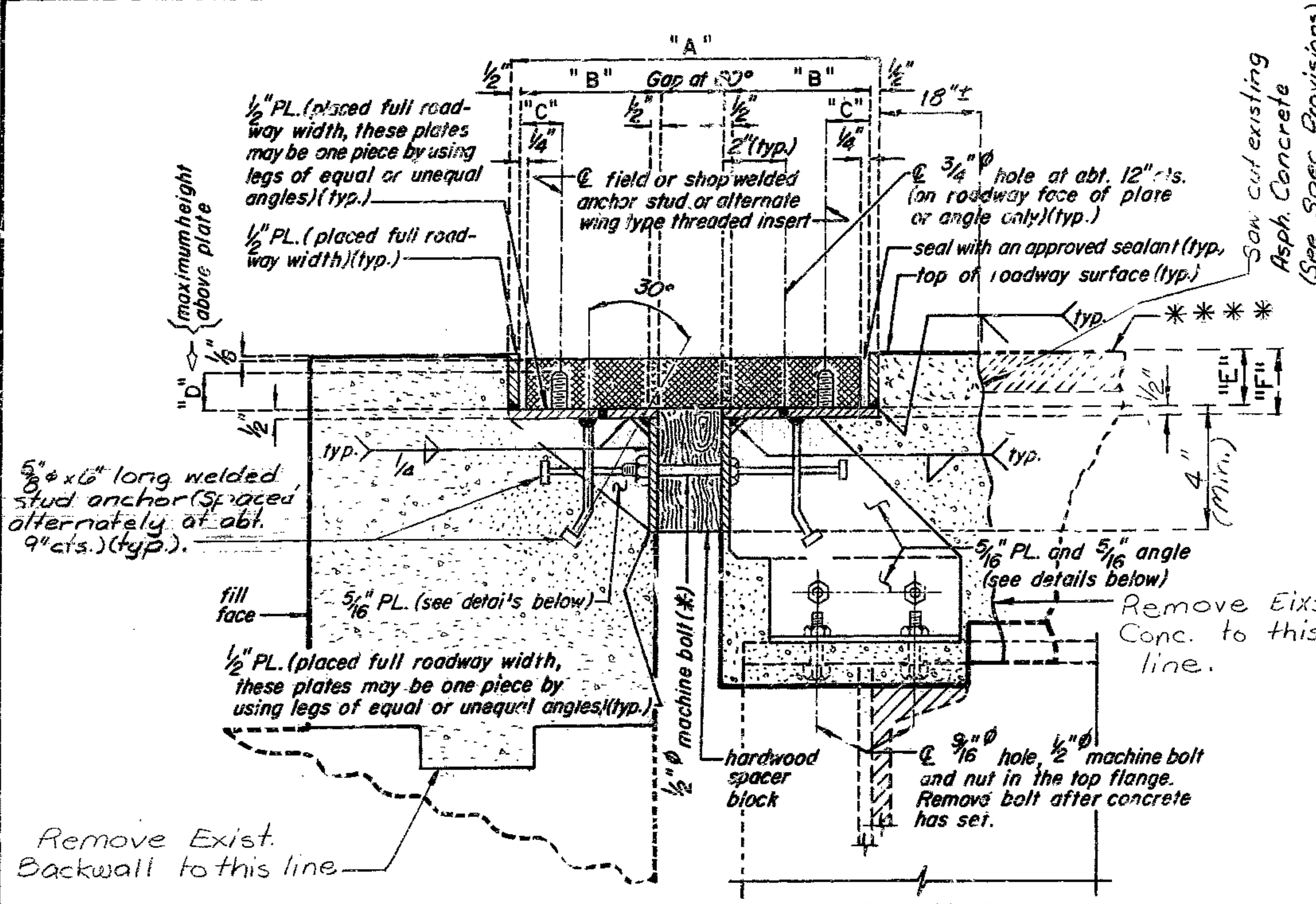
REPAIRS TO
BRIDGE: ROUTE 69 & 169 S.B.L. UNDERPASS
STATE ROAD-INTERSTATE ROUTE 635
~~**ABOUT**~~ IN RIVERSIDE
PROJECT NO. IR-635-1(208) **STA.** 92+32.37±
JOB NO. 4-1635-763 **RTE.** I-635
PLATTE **COUNTY**
DATE JAN. 22, 1985

STD.
STD.
A-2439R

DESIGNED Oct. 1984
DETAILED Oct. 1984
CHECKED Nov. 1984

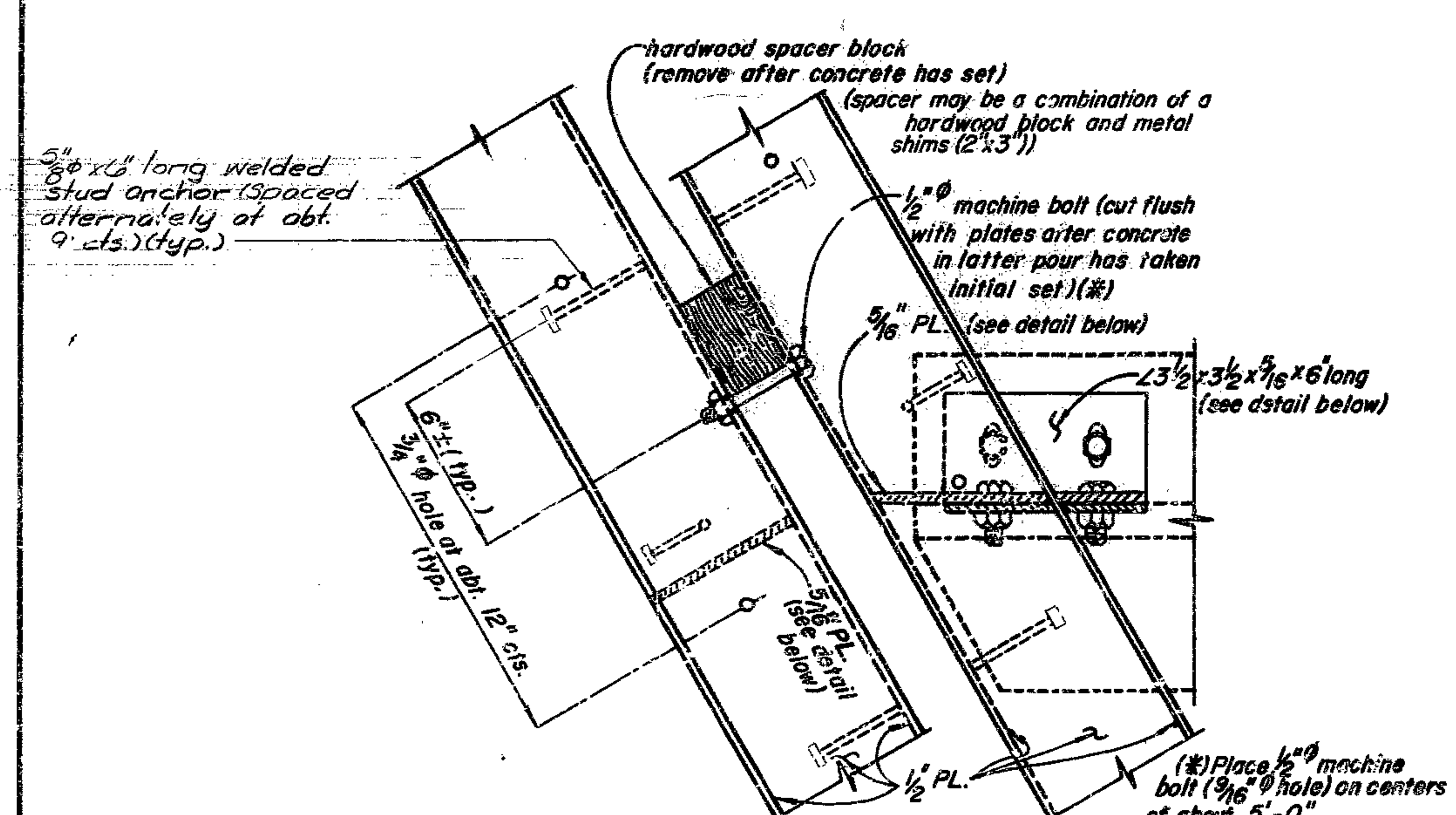
Note: This drawing is not to scale. Follow dimensions.

STATE	PROJ. NO.	SHEET NO.
MO.	IR-635-1(208)	35

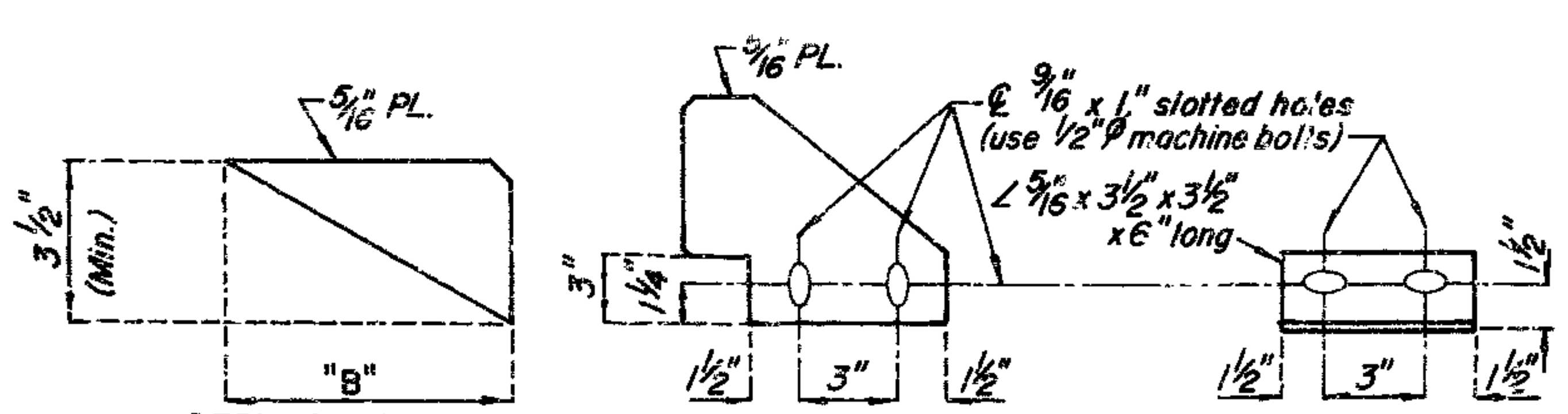


PART SECTION THRU ARMORED JOINT

****Existing Asphaltic Concrete



PART PLAN



Note: 5/16" plates and angle placed at each girder or stringer.

LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	ANCHOR STUDS "G"
End Bent No. 4	Wabo Bendoflex 250	2"	11½"	4¼"	1⅝"	1¼"	1⅞"	2⅜"	½"	50
	Fel-Span T30A CS	1¾"	11¾"	4½"	1⅝"	1¼"	1⅝"	2⅛"	½"	50
	On-Flex 25	1½"	11"	4¼"	1⅝"	1¼"	1⅝"	2⅛"	⅝"	65

TABLE OF DIMENSIONS

NOTE: All dimensions are at right angles. Expansion gap and dimension "A" shall be increased ⅛" for each 10° fall in temperature and decreased ⅛" for each 10° rise in temperature.

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE CERTIFIED NUTS AND BOLTS FOR THE ANCHOR STUDS OR WING TYPE THREADED INSERTS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL. APPROVED STUD WELDED ANCHORS (C-1010 THRU C-1020) SHALL BE USED.

SEE SPECIAL PROVISIONS FOR PAINTING.

ANCHOR BOLTS IN THE BRUSH CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE BRUSH CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT.

FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

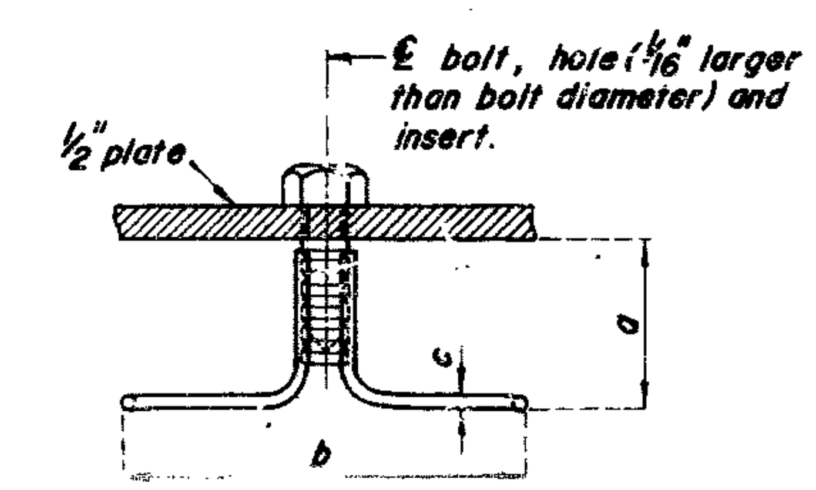
PLATES SHALL BE FIELD ADJUSTED BY ADDING OR REMOVING METAL SHIMS (2" x 3"), AS REQUIRED FOR TEMPERATURE CORRECTION. THE EXPANSION GAP SHALL BE ADJUSTED FOR ANY TEMPERATURE CORRECTION PRIOR TO POURING TOP OF END BENT BACKWALL.

Alt. methods of supporting Exp. Device during Installation may be submitted to the Engineer for approval.

Details and locations of armor splices for Exp. Device shall be shown on Shop drawings.

Existing Reinforcement exposed shall be cleanly stripped and reused. Where reinforcement interferes with installation of Exp. Jt. Seal it shall be shifted or removed for clearance. Minimum clearance to reinforcement shall be 1½".

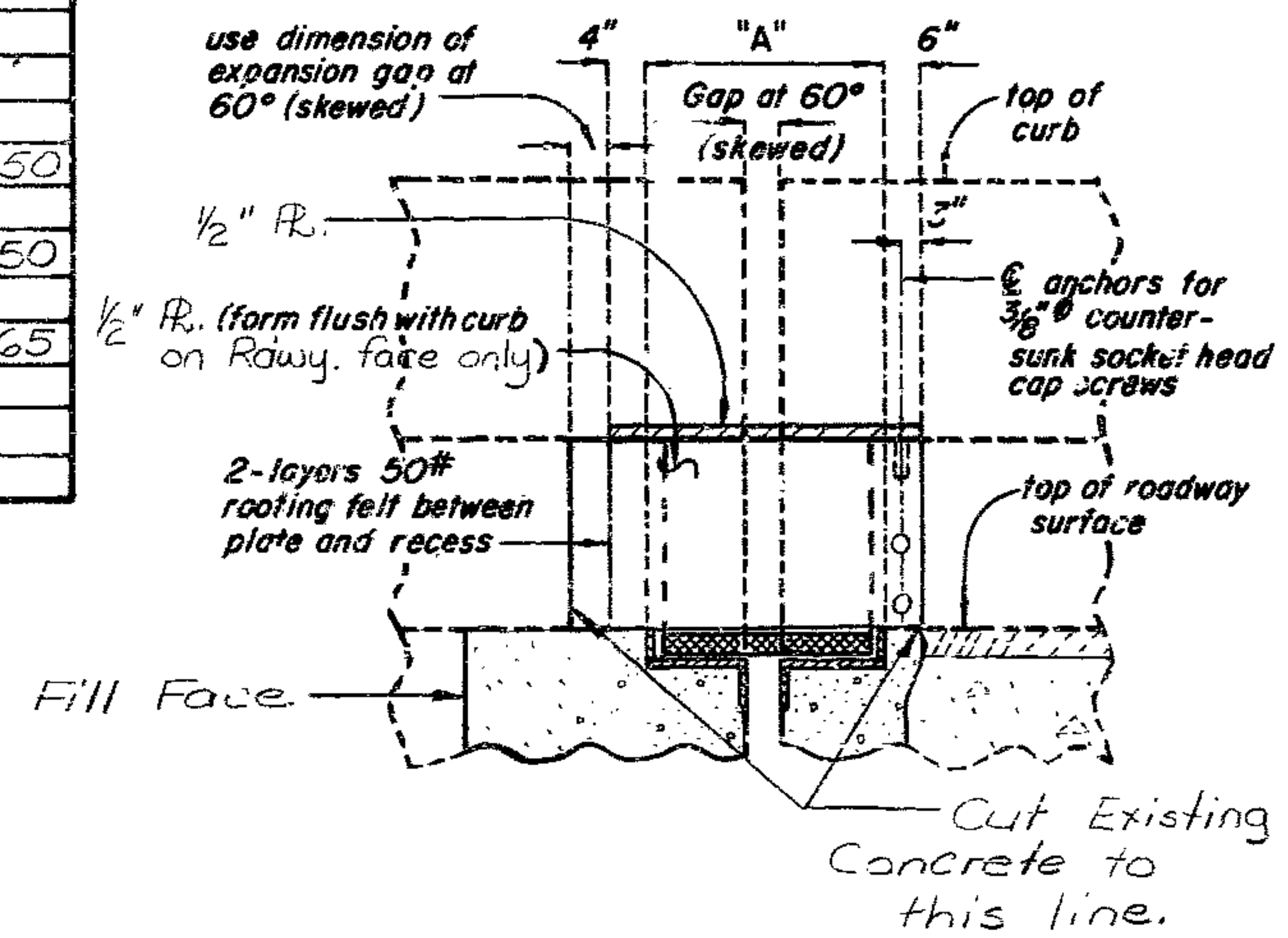
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.



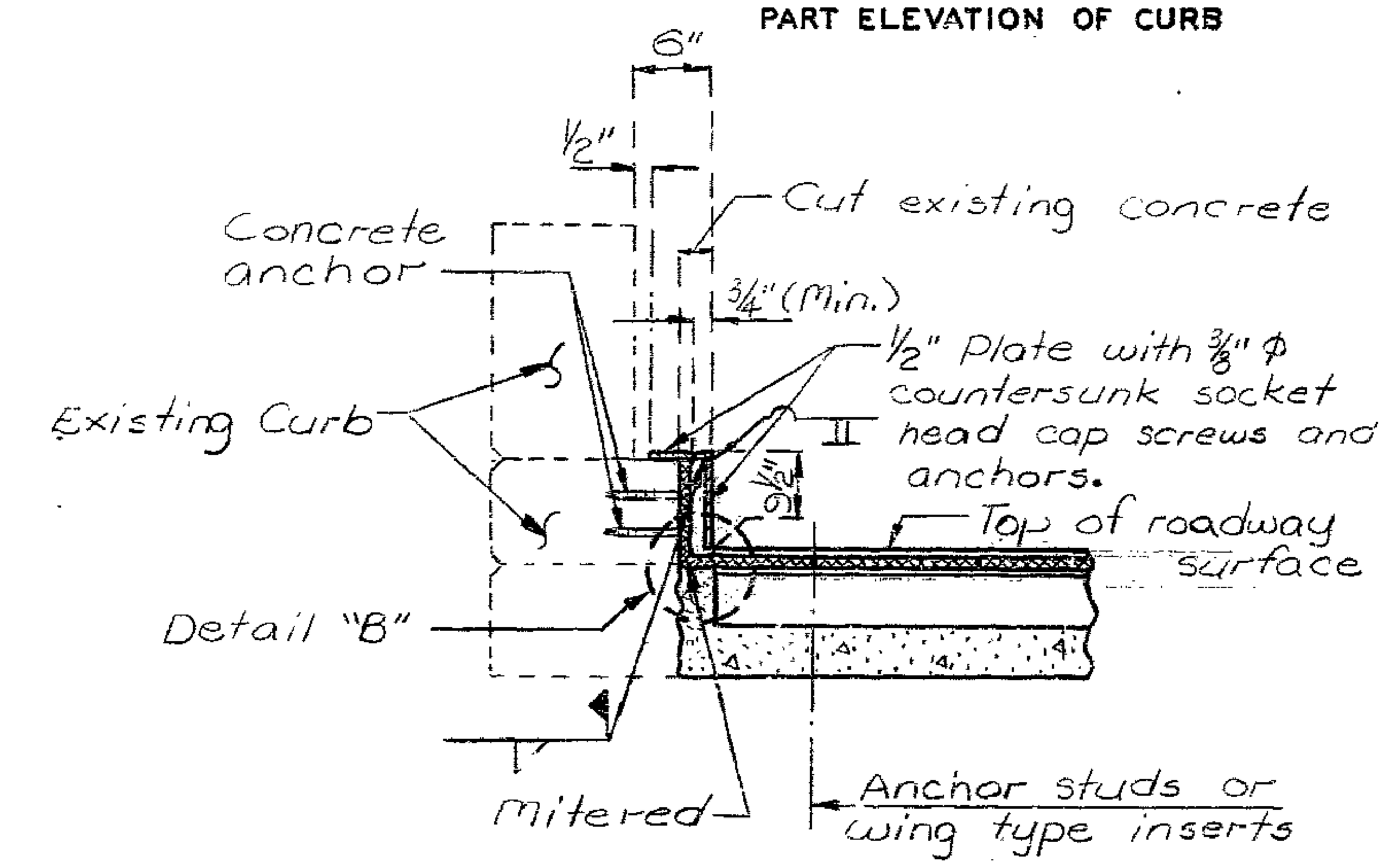
Bolt Diameter	Safe Load Tension (lbs.)(min.)	Approx. Ult. Cap. Tension (lbs.)(min.)	Dimensions a (min.)	Dimensions b	Dimensions c
1/2"	800	8,000	1-5/8"	5"	.218"
5/8"	1,300	9,200	1-5/8"	5"	.218"
3/4"	1,900	13,200	2-1/4"	6"	.262"
7/8"	2,000	16,200	2-1/2"	6-1/2"	.306"
1"	2,000	16,200	2-1/2"	6-1/2"	.306"

DETAILS OF ALTERNATE WING TYPE THREADED INSERT

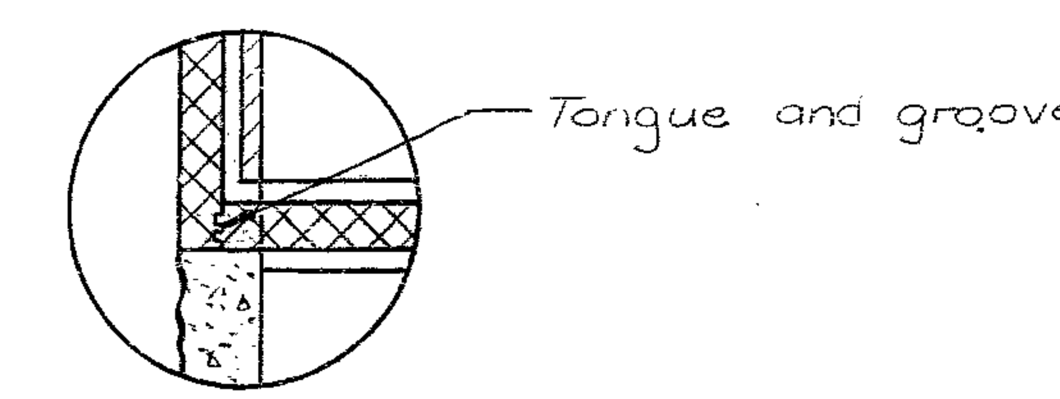
(Machine bolts need only be used to secure the Wing Type Threaded Inserts to the steel plate until the concrete has attained 3,000 p.s.i.)



PART ELEVATION OF CURB



SECTION THRU CURB AT NEW EXP. JT. SEAL



DETAIL "B" (ALTERNATE)

DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL AT BENT NO. 4

SPS - END BT. FEB. 1978 REVISED AUG. 1983

DETAILED Oct. 1984
CHECKED Nov. 1984

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

PLATTE COUNTY

A-2439R

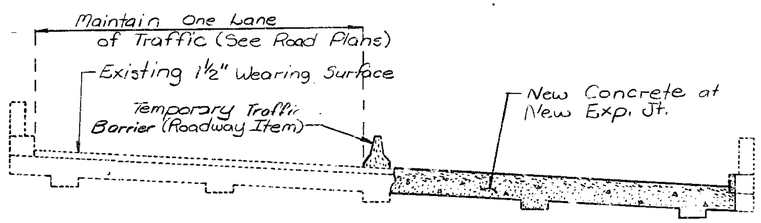
150

AF 339104

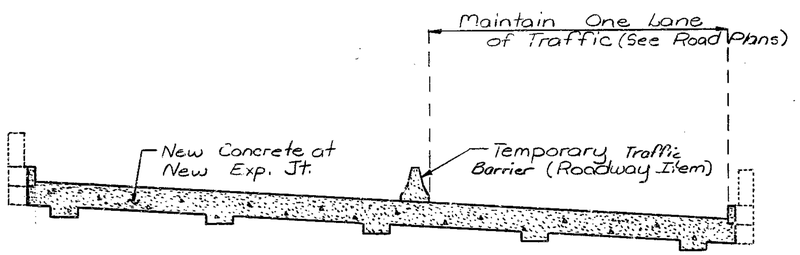
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ NO	SHEET NO.
MO	IR-635-1(208)	16
SEC/SUR 8	TWP 50N RGE 33W	

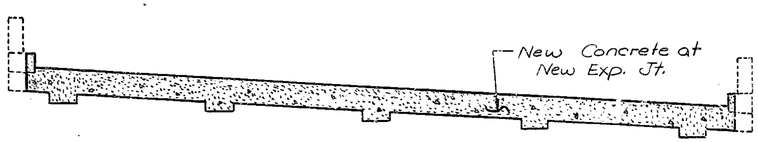
FINAL PLANS



STAGE ONE



STAGE TWO



FINAL STAGE

PART SECTIONS AT END BENT NO.4
NEAR EXP. DEVICE JOINT

ESTIMATED QUANTITIES	
ITEM	TOTAL
Special Work Lump Sum	1
Elastomeric Expansion Joint Seal (2.5 in.) Lin. Ft.	55

Note: Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

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DESIGNED Oct. 1984
DETAILED Oct. 1984
CHECKED Nov. 1984

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

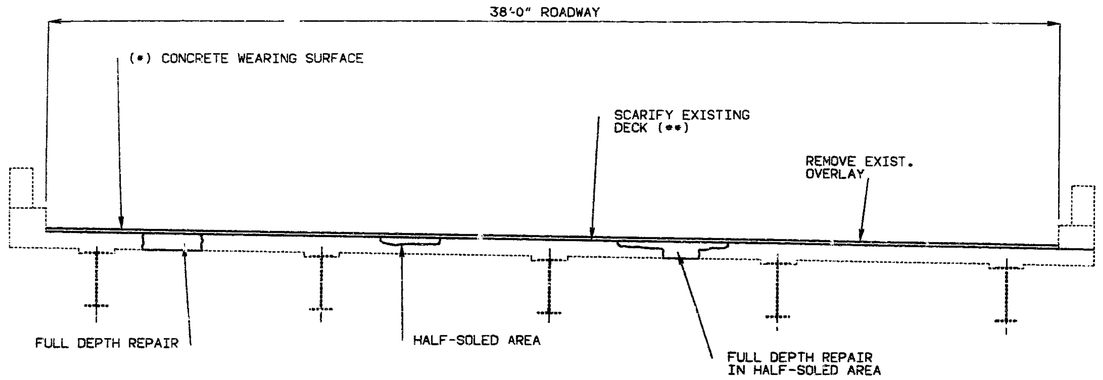
Sheet No. 16 of 2

REPAIRS TO
BRIDGE: ROUTE 69 & 169 S.B.L. UNDERPASS
STATE ROAD-INTERSTATE ROUTE 635
~~ABOUT~~ IN RIVERSIDE
PROJECT NO. IR-635-1(208) STA. 92+32.37±
JOB NO. 4-I 635-763 RTE. I-635
PLATTE COUNTY
DATE JAN. 22, 1985

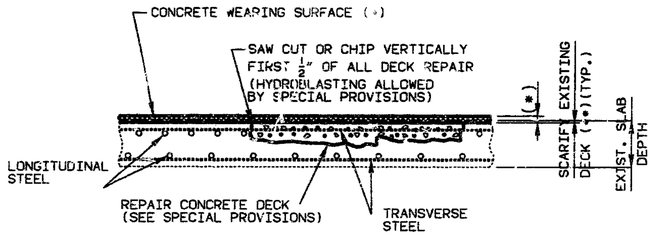
STD.
STD.
A-2439R

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

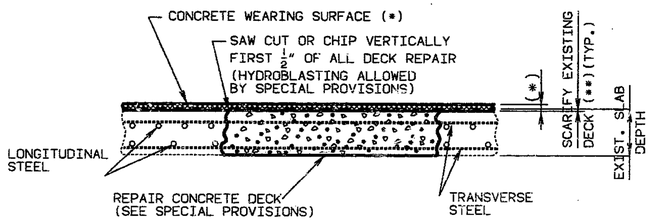
STATE	PROJ. NO.	SHEET NO.
MO.		183
SEC./SUR. 8 TWP. 50N RGE. 33W		



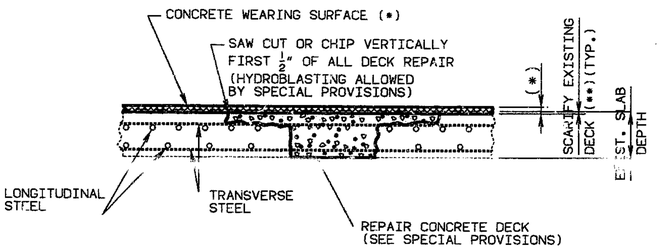
TYPICAL SECTION THRU SLAB



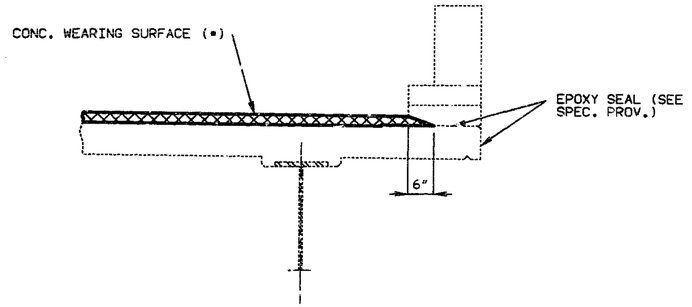
HALF-SOLED AREA



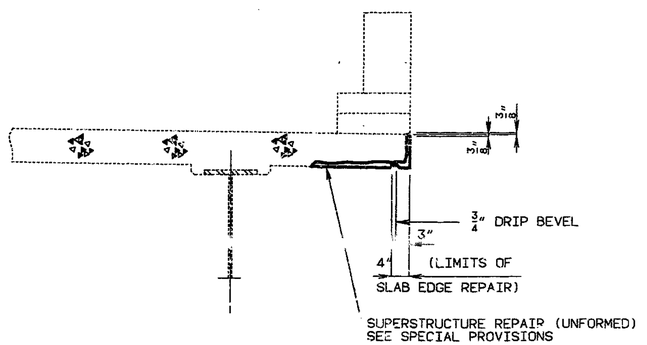
FULL DEPTH REPAIR



FULL DEPTH REPAIR IN HALF-SOLED AREA



DETAIL THRU CURB OUTLET



PART SECTION THRU SLAB

GENERAL NOTES:

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATES NEW WORK.

MAINTAIN TRAFFIC ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS.)

ROADWAY SURFACING ADJACENT TO BRIDGE ENDS TO MATCH EXISTING CONCRETE DECK PLUS 1 1/2"±.

PAINT: SYSTEM C BY CONTRACTOR IN ACCORDANCE WITH STD. SPEC. 712.13. (COLOR OF FINAL FIELD COAT SHALL BE ALUMINUM).

ESTIMATED QUANTITIES		
ITEM		TOTAL
ASPHALT REMOVAL (BRIDGES)	SQ. FT.	9,010
SUPERSTRUCTURE REPAIR (UNFORMED)	SQ. FT.	60
REPAIRING CONCRETE DECK (HALF-SOLING)	SQ. FT.	200
FULL DEPTH REPAIR	SQ. FT.	100
SLAB EDGE REPAIR (BRIDGES)	LIN. FT.	60
( ) CONCRETE WEARING SURFACE	SQ. YD.	1,000

* SEE JOB SPECIAL PROVISIONS FOR ALTERNATE USE OF 1 3/4" (MIN.) LATEX MODIFIED CONCRETE OR 2" (MIN.) LOW SLUMP CONCRETE WEARING SURFACE.

** SCARIFY EXIST. DECK 1/4" (MIN.) IF LATEX MODIFIED CONCRETE IS USED, OR 1/2" (MIN.) IF LOW SLUMP CONCRETE IS USED.

REPAIRS TO BRIDGE: ROUTE 69 & 169 S.B.L. UNDERPASS

STATE ROAD FROM STATE LINE TO RTE. I-29

IN RIVERSIDE

PROJECT NO. F.A.-635-1(247) STA. 92+32.37±

JOB NO. 4I 990-635 RTE. I-635

PLATTE COUNTY

DATE 2/4/91

STD.	
STD.	
A-2439R1	

DESIGNED AUG. 1990
DETAILED AUG. 1990
CHECKED AUG. 1990

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SEE FINAL PLANS

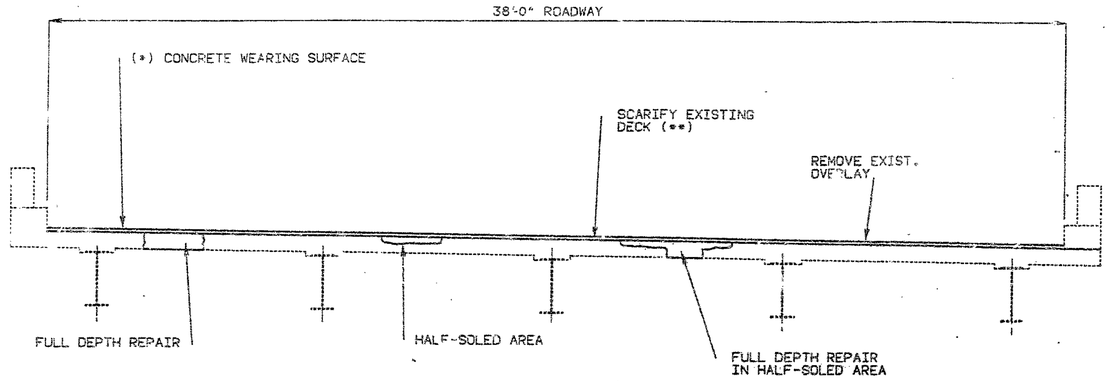
SHEET NO. 1 OF 1.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

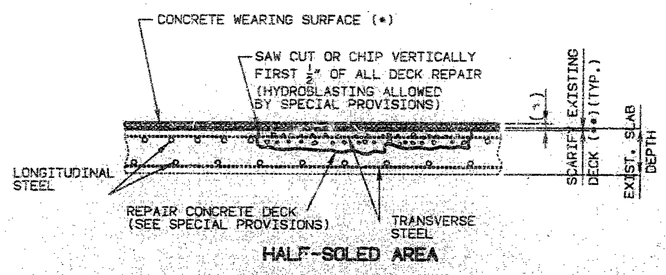
(42)

STATE	PROJ. NO.	SHEET NO.
MO.	FA-635-1(241)	42
SEC./SUR. 8	TWP. 50N	RGE. 33W

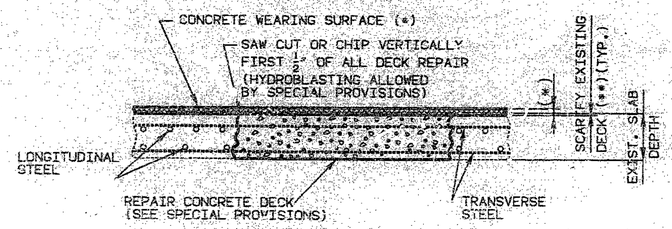
FINAL PLANS



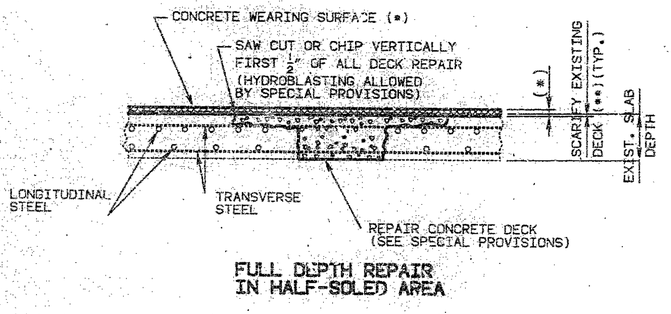
TYPICAL SECTION THRU SLAB



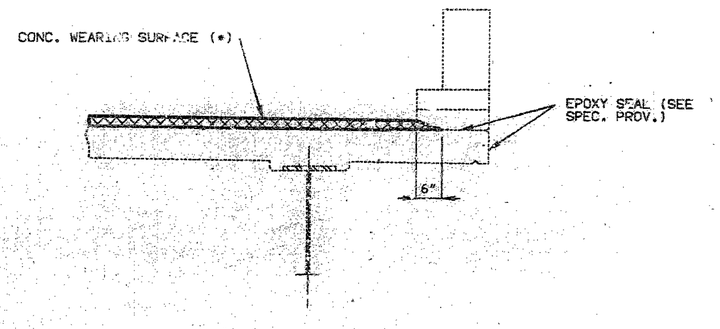
HALF-SOLED AREA



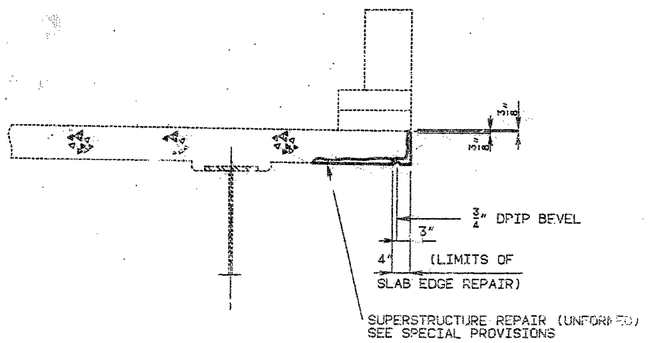
FULL DEPTH REPAIR



FULL DEPTH REPAIR IN HALF-SOLED AREA



DETAIL THRU CURB OUTLET



PART SECTION THRU SLAB

GENERAL NOTES:

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATES NEW WORK.
MAINTAIN TRAFFIC ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS.)
ROADWAY SURFACING ADJACENT TO BRIDGE ENDS TO MATCH EXISTING CONCRETE DECK PLUS $1\frac{1}{2}$"±.
PAINT: SYSTEM C BY CONTRACTOR IN ACCORDANCE WITH STD. SPEC. 712.13. (COLOR OF FINAL FIELD COAT SHALL BE ALUMINUM).

FINAL QUANTITIES

ITEM		TOTAL
ASPHALT REMOVAL (BRIDGES)	SQ. FT.	9,010
SUPERSTRUCTURE REPAIR (UNFORMED)	SQ. FT.	51
REPAIRING CONCRETE DECK (HALF-SOLING)	SQ. FT.	263
FULL DEPTH REPAIR	SQ. FT.	0
SLAB EDGE REPAIR (BRIDGES)	LIN. FT.	77
( ) CONCRETE WEARING SURFACE (Low Slump)	SQ. YD.	1,000

* SEE JOB SPECIAL PROVISIONS FOR 2" (MIN.) LOW SLUMP CONCRETE WEARING SURFACE.

** SCARIFY EXIST. DECK $\frac{1}{2}$" (MIN.) FOR LOW SLUMP CONCRETE

REPAIRS TO BRIDGE: ROUTE 69 & 169 S.B.L. UNDERPASS

STATE ROAD FROM STATE LINE TO RTE. I-29
IN RIVERSIDE
PROJECT NO. F.A.-635-1(247) STA. 92+32.37±
JOB NO. 4I 990-635 RTE. I-635
PLATTE COUNTY

DESIGNED AUG. 1990
DETAILED AUG. 1990
CHECKED AUG. 1990

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 1A OF 1.

DATE 2/4/91

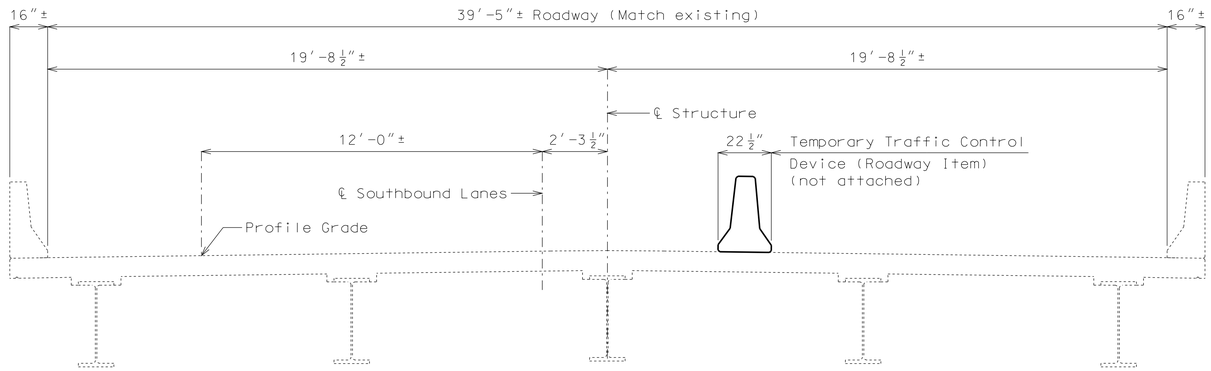
STD.
STD. A-2439R1

4I 990-635

SEC/SUR 14 TWP 52N RGE 34W

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

U.I.P. & Rehabilitate Existing (76'-141'-141'-4')Continuous Composite Plate Girder Spans, (63') Composite Plate Girder Span (54° 21'18" R.A.)



SECTION THRU EXISTING SLAB

General Notes:

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A

Design Loading:
HS20-44 Military 24,000# Tandem Axle (1977 & New Construction)
15#/Sq. Ft. Future Wearing Surface
Fatigue Stress - Case I

Design Unit Stresses:
Class B-2 Concrete (Superstructure and Safety Barrier Curb) f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

General Notes (Cont.):

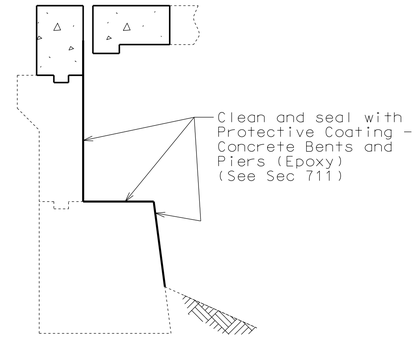
Concrete Protective Coatings:
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Miscellaneous:
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

Traffic Handling:
Traffic over structure to be maintained during construction. See Sheet No. 2 for Stage Details.



TYPICAL SECTION THRU
END BENTS NO. 1 & 5
SHOWING PROTECTIVE COATING

Estimated Quantities

Item		Total
Removal of Existing Expansion Joints & Adjacent Concrete	linear foot	135
Remove and Replace Barrier Curb	linear foot	19
Class B-2 Concrete	cu. yard	13.0
Reinforcing Steel (Epoxy Coated)	pound	1540
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
Expansion Device (Flat Plate)	linear foot	135

Detailed Sep. 2012
Checked Sep. 2012

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

REPAIRS TO BRIDGE: I-435 OVER I-29/71
STATE ROAD FROM RTE. 92 TO I-29
ABOUT 1.3 MILES NORTHWEST OF RTE. D
STA. 669+96.48 ± (Match Existing)

STD. 617.20
STD. 706.35

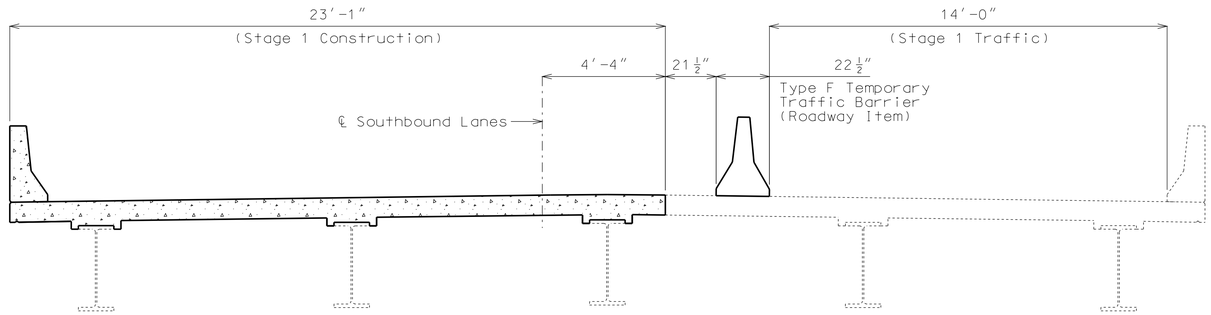
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-435 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A34311

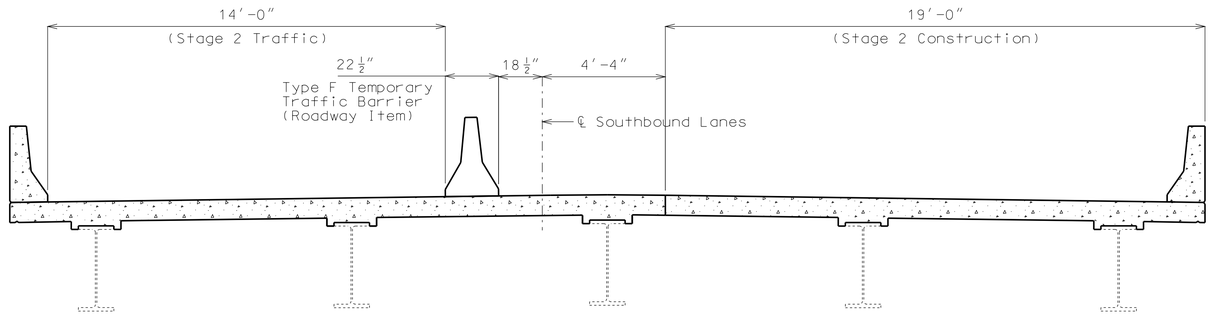
DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION

Note:
Temporary Barrier shall not be attached to the bridge.

DETAILS SHOWING STAGED CONSTRUCTION

Detailed Sep. 2012
Checked Oct. 2012

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED
11/19/2012

ROUTE	STATE
I-435	MO
DISTRICT	SHEET NO.
BR	2

COUNTY
PLATTE

JOB NO.
J412373

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A34311

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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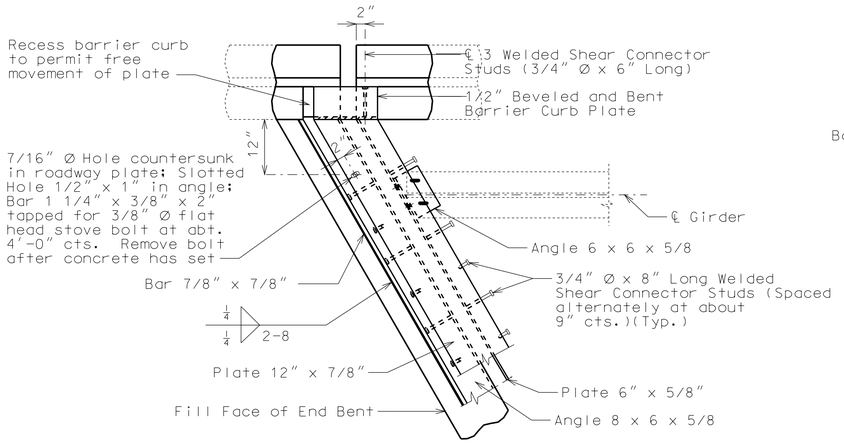
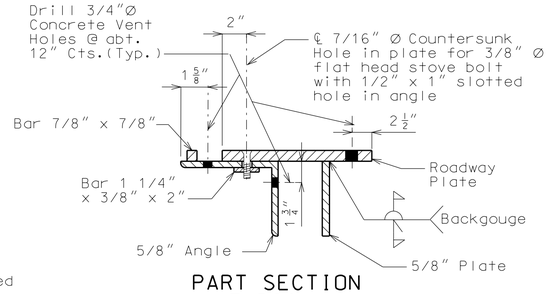


PART PLAN

Note: Concrete vent holes not shown for clarity.



PART SECTION (TYPICAL)

GENERAL NOTES:

Expansion device shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove weld splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion device shall be fabricated and installed to the crown and grade of the roadway.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 5/16" for each 10° fall or rise in temperature at installation.

Material for the expansion device shall be ASTM A709 Grade 36 structural steel. Anchors for the expansion device shall be in accordance with Sec 1037.

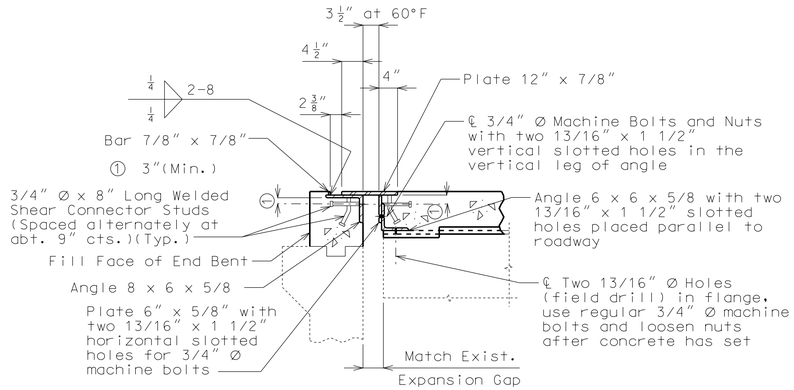
Structural steel for the expansion device and curb plate shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Payment for furnishing, coating or galvanizing and installing the structural steel for the expansion device will be considered completely covered by the contract unit price for Expansion Device (Flat Plate) per linear foot.

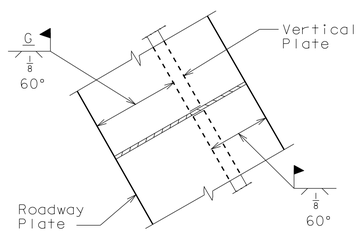
Concrete shall be forced under and around flat plate, anchors and angles. Proper consolidation shall be achieved by localized internal vibration. Finishing of the concrete shall be achieved by hand finishing within one foot of the expansion device. The vertical and horizontal concrete vent holes shall be offset from each other. Do not alternate holes at the 12" spacing.

Longitudinal reinforcing steel shall be placed so that ends shall not be more than ±1" from vertical plate and the vertical leg of the angle at the expansion device.

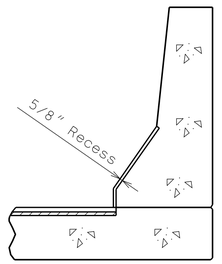
Complete joint penetration welds utilized in the fabrication of the expansion device shall be nondestructively tested by an approved method.



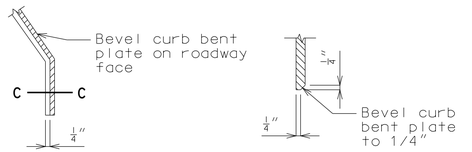
PART SECTION AT END BENT (NORMAL TO GAP)



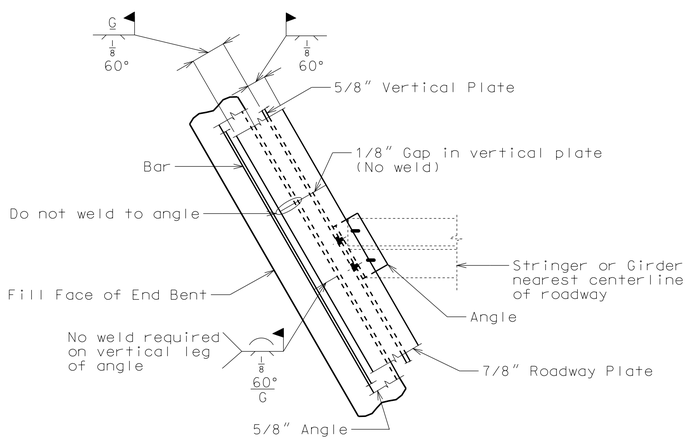
PART PLAN ROADWAY PLATE AND VERTICAL PLATE



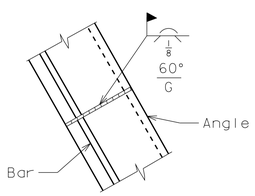
PART SECTION B-B



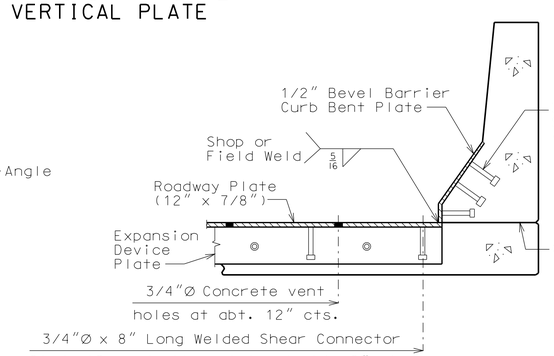
PART ELEVATION AT END OF BEVELED CURB BENT PLATE



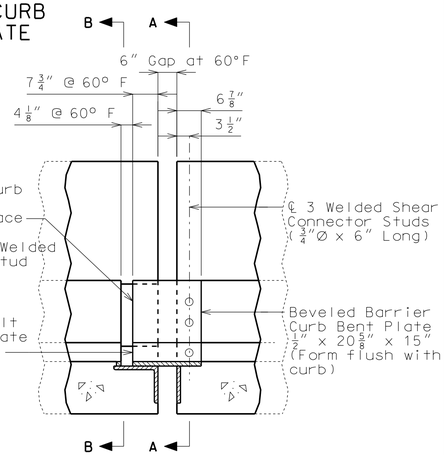
PERMISSIBLE FIELD SPLICE AT END BENT



PART PLAN OF ANGLE AND BAR



PART SECTION A-A



ELEVATION OF BARRIER CURB (NORMAL TO BARRIER CURB)

DETAILS OF FLAT PLATE EXPANSION DEVICE AT END BENTS NO. 1 & 5

Detailed Sep. 2012
Checked Oct. 2012

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

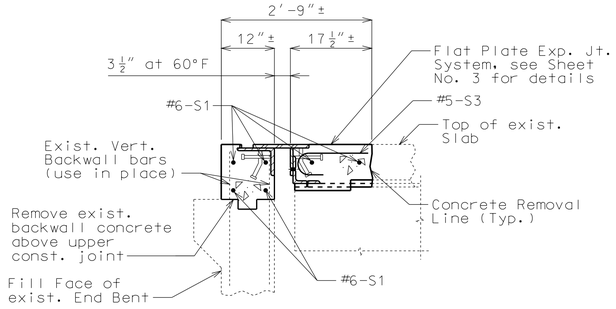
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-435 | STATE MO
DISTRICT BR | SHEET NO. 3
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A34311

DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

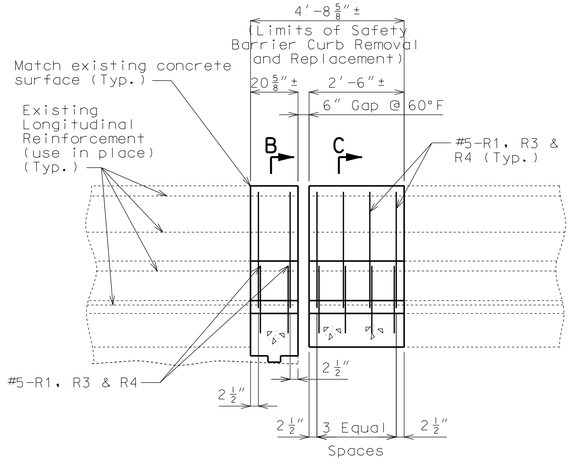
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



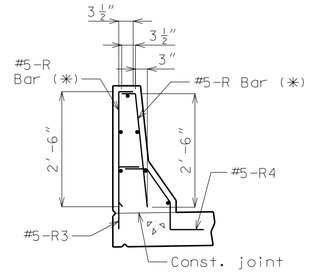
SECTION A-A

Notes:
The contractor shall use a mechanical bar splice for #6-S1 & S2 bars at the specified location. The total bar lengths for bars indicated in the bill of reinforcing steel are determined based on the end of the bars being located flush to the face of the construction joint. No additional payment will be made for any additional bar lengths required for the mechanical bar splices. Mechanical bar splices shall be in accordance with Sec 706 except that no measurement will be made for mechanical bar splice and will be considered completely covered by the contract unit price for the reinforcing steel.

Payment for all concrete and reinforcement for safety barrier curb, complete-in-place, will be considered completely covered by the contract unit price for Remove and Replace Barrier Curb per linear foot.

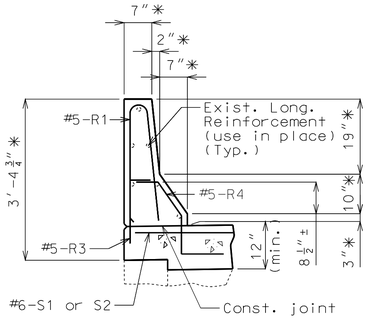


PART SECTION NEAR LEFT SAFETY BARRIER CURB
(Left barrier curb shown, right barrier curb similar)

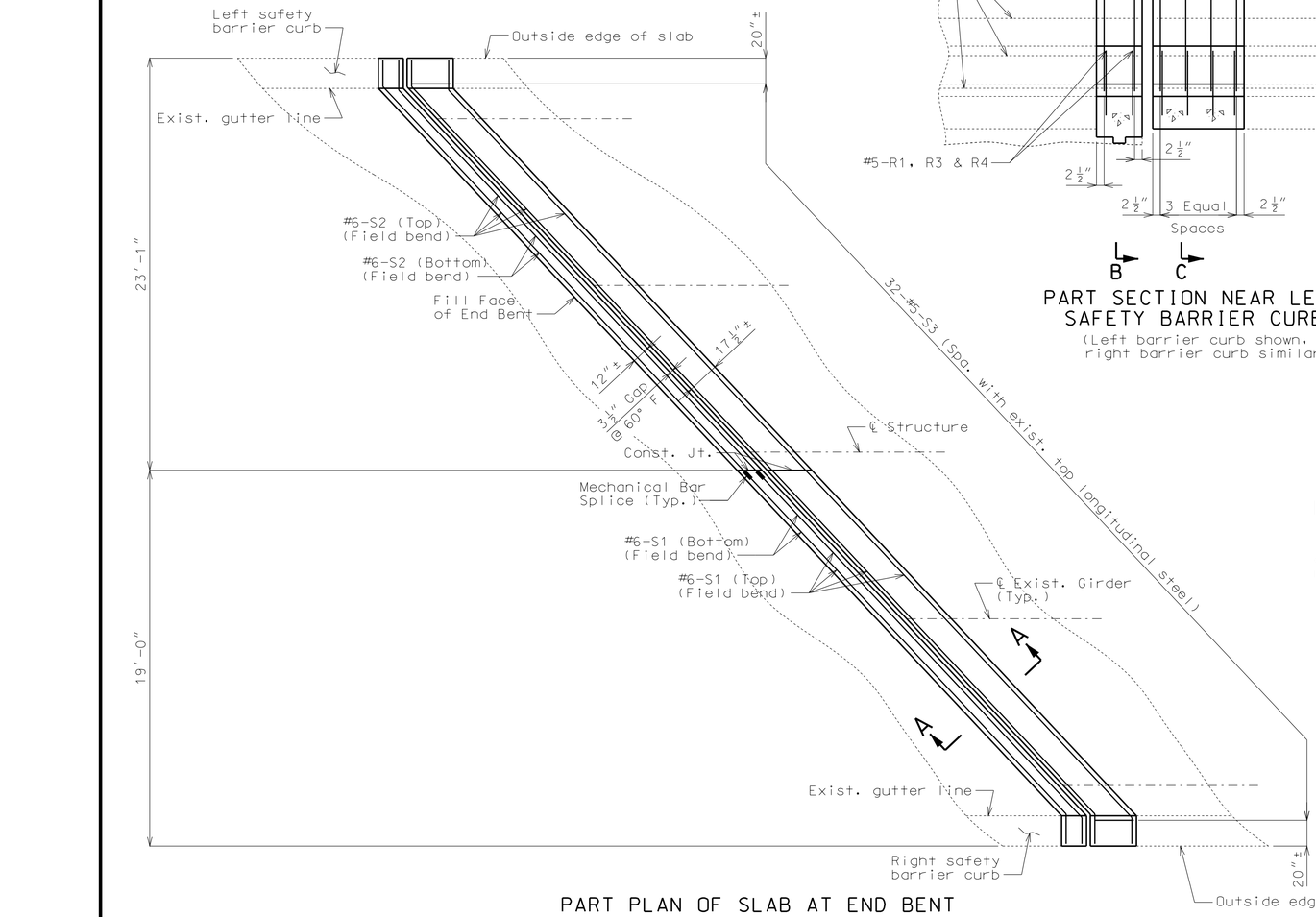


R-BAR PERMISSIBLE ALTERNATE SHAPE

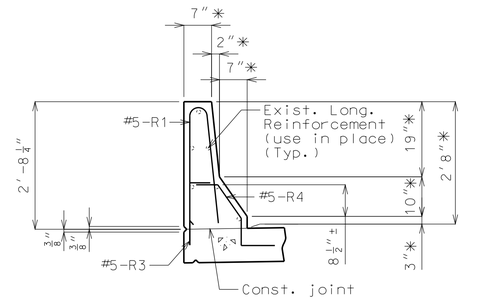
(*) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)



PART SECTION B-B
* Match existing.



PART PLAN OF SLAB AT END BENT
End Bent No. 1 shown, End Bent No. 5 similar.



PART SECTION C-C
* Match existing.

Detailed Sep. 2012
Checked Sep. 2012

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-435 | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A34311

DESCRIPTION | DATE

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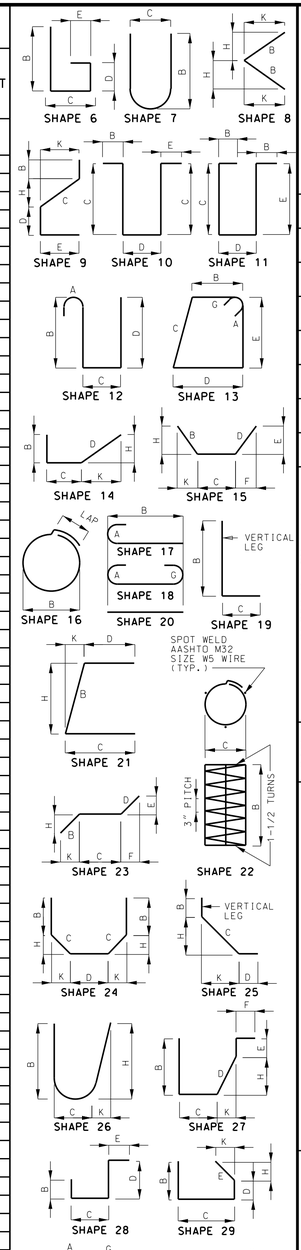
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

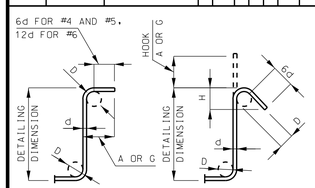
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SLAB																									
14	6	S1	SLAB	E	20					31	10.000													31	10	31	10	669
12	6	S2	SLAB	E	20					38	10.000													38	10	38	10	700
64	5	S3	SLAB	E	17					2	0.000													2	7	2	7	172
26	5	R1	BARRIER CURB	E	26					2	6.000	4.250		2	6.125					2	6.000	3.000		5	2	5	2	140
24	5	R3	BARRIER CURB	E	19	S				19.000		6.000												2	1	2	0	50
24	5	R4	BARRIER CURB	E	27	S						6.000		11.125		9.000		12.000		9.125		6.375		3	2	3	0	75
			TOTALS																									
	5			E																								437
	6			E																								1369
			TOTAL																									0
			TOTAL	E																								1806
			Slab on																									
			Girder																									
	5			E																								172
	6			E																								1369
			TOTAL																									1541
			Safety																									
			Barrier																									
			Curb																									
	5			E																								265
			TOTAL																									265

BILL OF REINFORCING STEEL

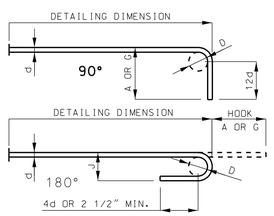
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.





STIRRUP HOOK DIMENSIONS			
GRADES 40 - 50 - 60 KSI			
BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS A OR G	180° HOOKS J	90° HOOKS 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"

TWO ADDITIONAL #6-S1 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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 FABRICATORS 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.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-435 | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A34311

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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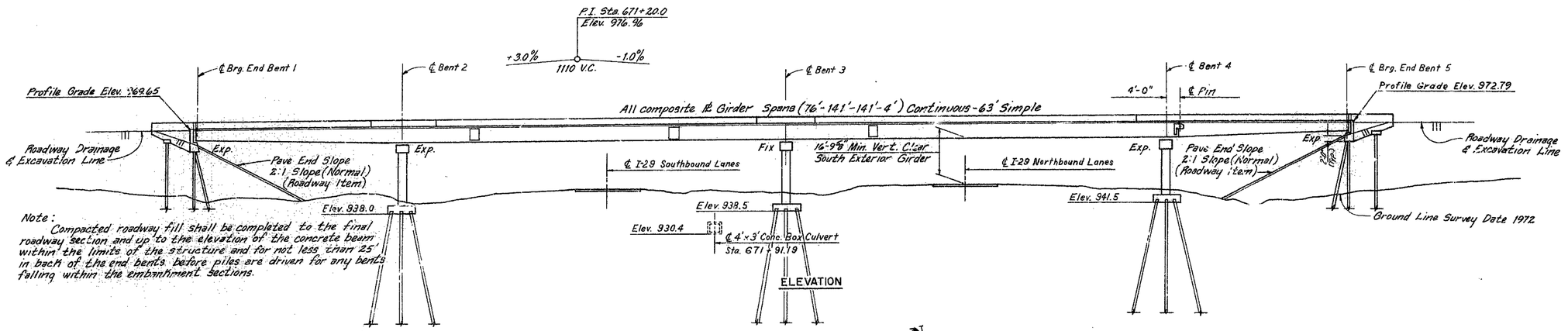
Detailed Oct. 2012
Checked Oct. 2012

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

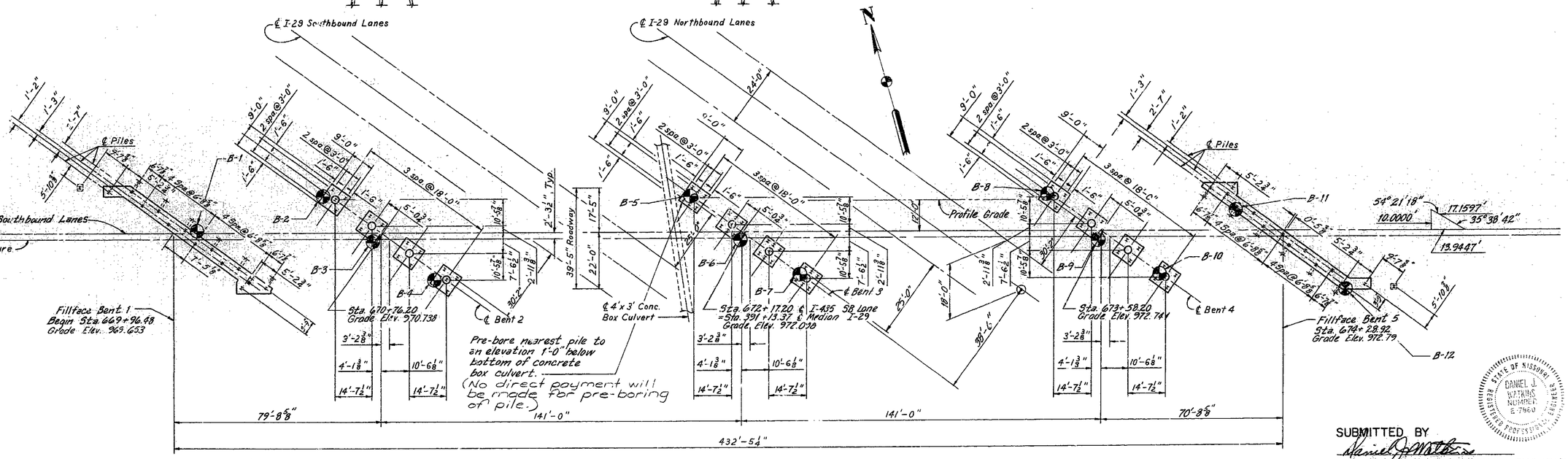
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	25	

SEC. 14 TWP. 52N RGE. 34W



Note: Compacted roadway fill shall be completed to the final roadway section and up to the elevation of the concrete beam within the limits of the structure and for not less than 25' in back of the end bents before piles are driven for any bents falling within the embankment sections.



PLAN

"⊕" Denotes location of Boring.
For Boring Data see Sheets 3 & 4.
For General Notes & Estimated Quantities see Sheet 2.
All dimensions shown are horizontal.
⊙ Denotes point of minimum vertical clearance.
The Contractor is responsible for making his own determinations as to the type, size and location of concrete box culvert as may be necessary to avoid damage thereto.

SUBMITTED BY
Daniel J. Mathias
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. A-7860

B.M. □ On southeast corner of north headwall Culvert 150' left station 671+00.0. Elev. 926.78

BRIDGE I-435 S.B.L. OVER ROUTE I-29

STATE ROAD INTERSTATE 435

ABOUT 0.5 MILES NORTH OF KCI AIRPORT

PROJECT NO. I-435-1(188) **STA.** 669+96.48

JOB NO. 4-1435-8A **RTE** 435

PLATTE **COUNTY**

DATE JUNE 9, 1983

STD. 611.60
STD. 706.35
A-3431

DESIGNED June 1979
DETAILED MHW 1979
CHECKED ALB 1979

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

SEE FINAL PLANS

Sheet No. 1 of 23 Sheets

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	26	

PILE AND FOOTING DATA

	BENT NO.	1	2	3	4	5
BEARING PILE	Pile Type and Size	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42
	Number	14	18	24	18	14
	Approximate Length Ft.	77	47	40	49	64
	Design Bearing Tons	52	53	55	53	52
	Hammer Energy Required	12,800	12,300	13,000	12,300	12,800

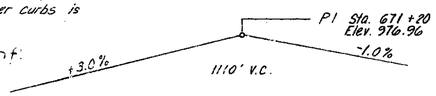
Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All piles shall be driven to practical refusal.

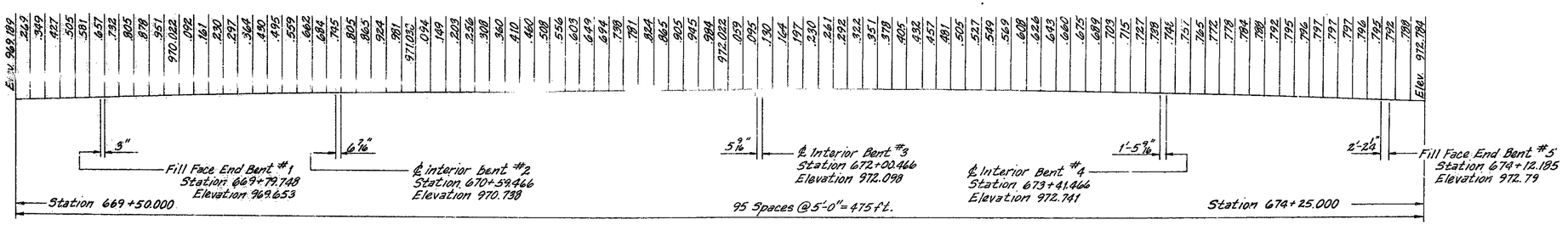
ESTIMATED QUANTITIES

ITEMS		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu. Yds.	300		300
Structural Steel Piles (10")	Lin. Ft.	4669		4669
Class B Concrete	Cu. Yds.	387.6		387.6
Class B1 Concrete	Cu. Yds.		78.5	78.5
Class B2 Concrete	Cu. Yds.		507.4	507.4
Type "N" PTFE Bearing	Each		25	25
Pile Point Reinforcement	Each	14		14
Elastomeric Expansion Joint Seal (2½ inches)	Lin. Ft.		145	145
Reinforcing Steel	Lbs. ⚠ 53900	53,870	50,670	104,540 ⚠ 109140
Reinforcing Steel (Epoxy Coated)	Lbs.		81,100	81,100 ⚠ 88240
Fabricated Structural Carbon Steel Plate Girder	Lbs.	⚠ 55240	488,470	488,470
Painting (System A or B) Aluminium	Tons	⚠ 88240	244.2	244.2
Slab Drains	Each	-	26	26

Note: All concrete and reinforcement in safety barrier curbs is included with superstructure quantities.

Note: Manufactured pile point reinf. shall be used on piles at End Bent #1. (See Special Provisions)





PROFILE GRADE ELEVATIONS

GENERAL NOTES

DESIGN SPECIFICATIONS: AASHTO, 1977 Load Factor Design.

DESIGN LOADING:

HS20-44, 15 lbs./sq. ft. Future Wearing Surface.
Modified 24,000 Tandem Axle.
Ea. th 120 lbs., Equivalent Fluid Pressure 35 lbs.
Fatigue Stress, Case I.

DESIGN UNIT STRESSES:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B1 Concrete (Safety Barrier Curb)	f'c = 4,000 psi
Class B2 Concrete (Superstructure except Safety Barrier Curb)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Structural Carbon Steel	fy = 36,000 psi
Steel Pile	fb = 9,000 psi

FABRICATED STEEL:

Field Connections, High Strength Bolts ¾"ϕ holes 13/16" except as noted.

REINFORCING STEEL:

Minimum clearance to reinforcing steel shall be 1½" unless shown otherwise.
All reinforcing bars in tops of substructure beam or caps shall be spaced to clear anchor bolts for bearings by at least ½.

PAINT:

System A or B by Contractor in accordance with Std. Spec. 712.12. Color of final field coat shall be Aluminum.

CONSTRUCTION CLEARANCE:

A minimum vertical clearance of 14'-6" from crown of existing lanes and a minimum lateral clearance of 28'-00" centered on existing lanes of existing Route I-29 shall be maintained during construction.

TRAFFIC MAINTAINED:

Traffic on existing Route I-29 is to be maintained during construction.

SEE FINAL PLANS

GENERAL NOTES, QUANTITIES & PROFILE GRADE ELEVATIONS

DETAILED R.D.W. 1979
CHECKED JWB 1979

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

⚠ REVISED 8 / 23 / 83

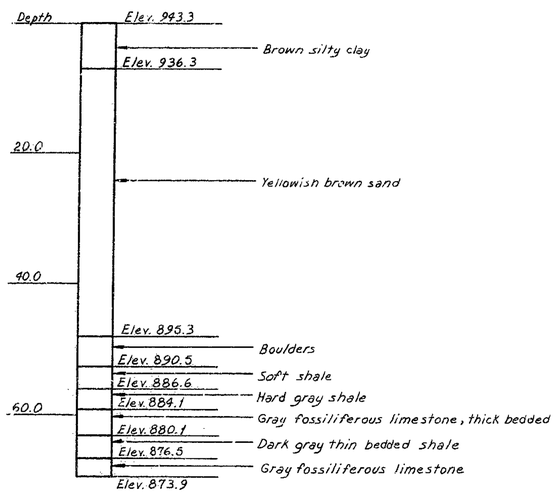
Sheet No. 2 of 23.

PLATTE COUNTY

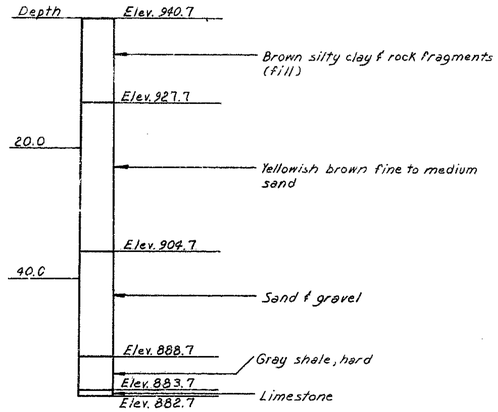
A-3431

463

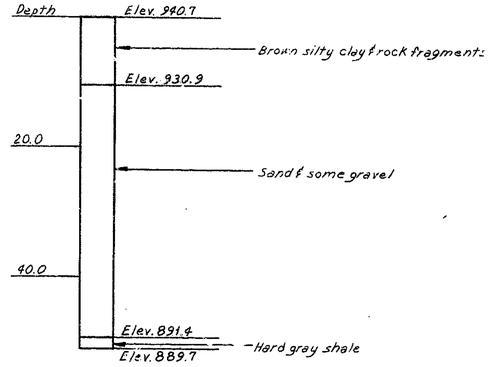
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MD.		19	27	



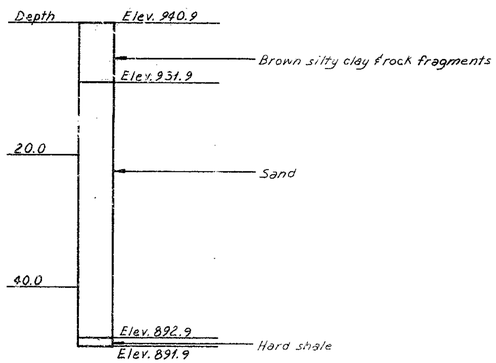
B-1
Station 670+06 ℄



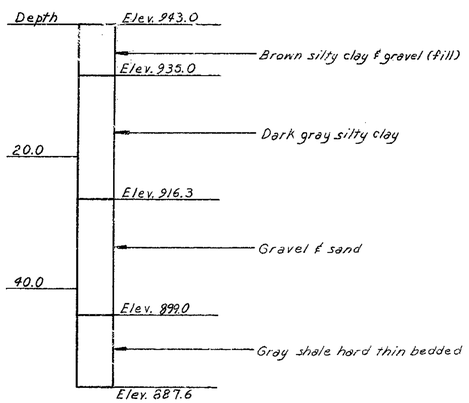
B-2
Station 670+76 29.0 Lt.



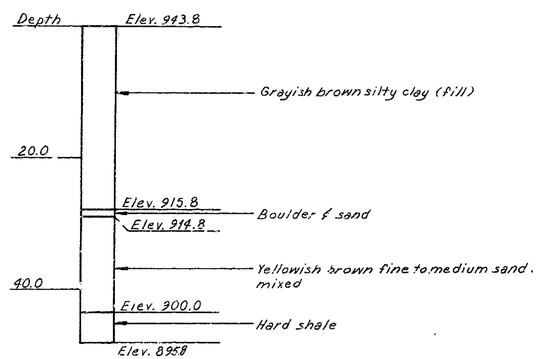
B-3
Station 670+76 3.0 Rt.



B-4
Station 670+76 30.0 Rt.



B-5
Station 672+17 24.0 Lt.



B-6
Station 672+17 3.0 Rt.

BORING DATA
For Location of borings
see sheet 1

BORING LOGS

PLATE

COUNTY

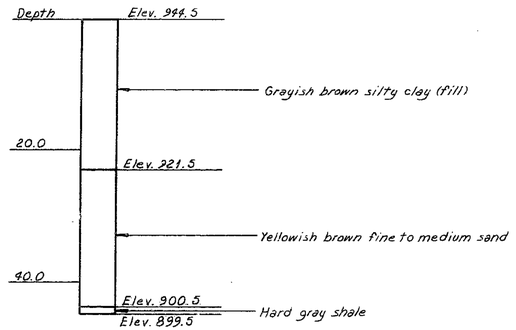
A-3431

DETAILED V.T. 1979
CHECKED MS 1979

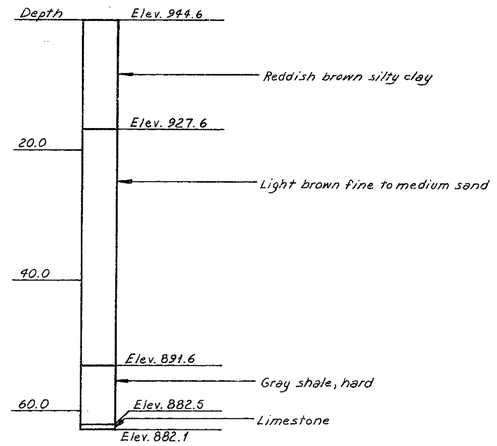
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 25 .

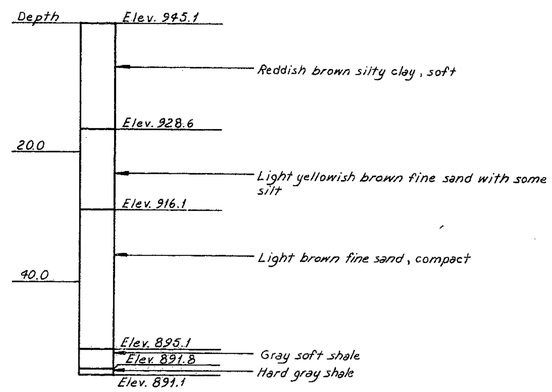
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	28	



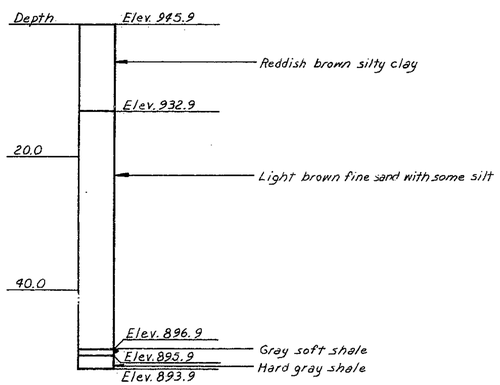
B-7
Station 672+17 30.0 Rt.



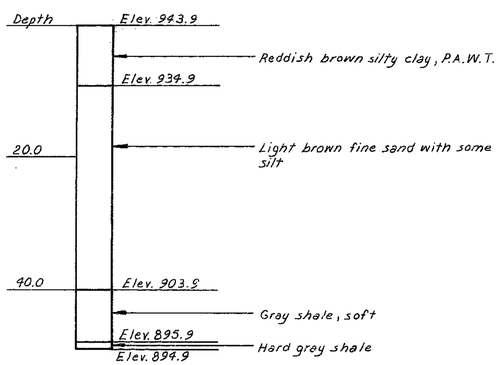
B-8
Station 673+58 24.0 Lt.



B-9
Station 673+58 3.0 Rt.

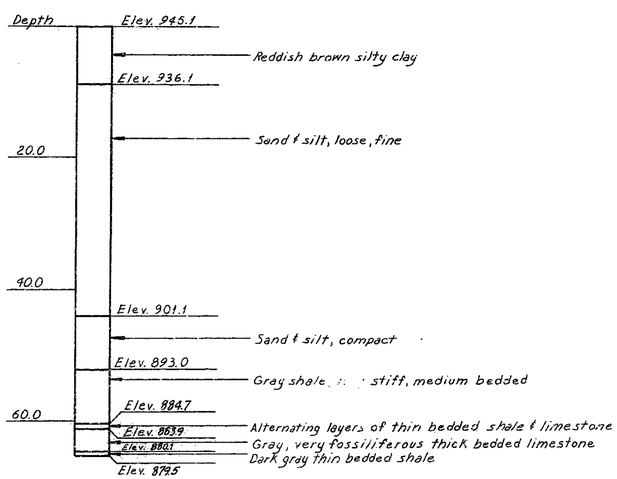


B-10
Station 673+58 30.0 Rt.



B-11
Station 674+20 &

BORING DATA
For Location of borings see sheet 1



B-12
Station 674+20 40.0 Rt.

465

DETAILED V.T. 1979
CHECKED RS 1979

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

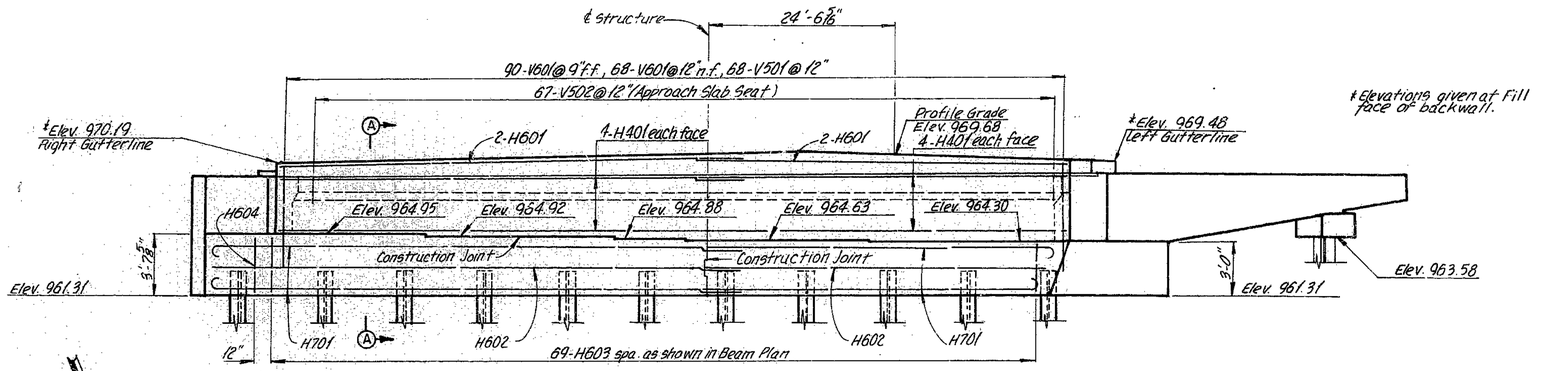
Sheet No. 4 of 23.

BORING LOGS

PLATTE COUNTY

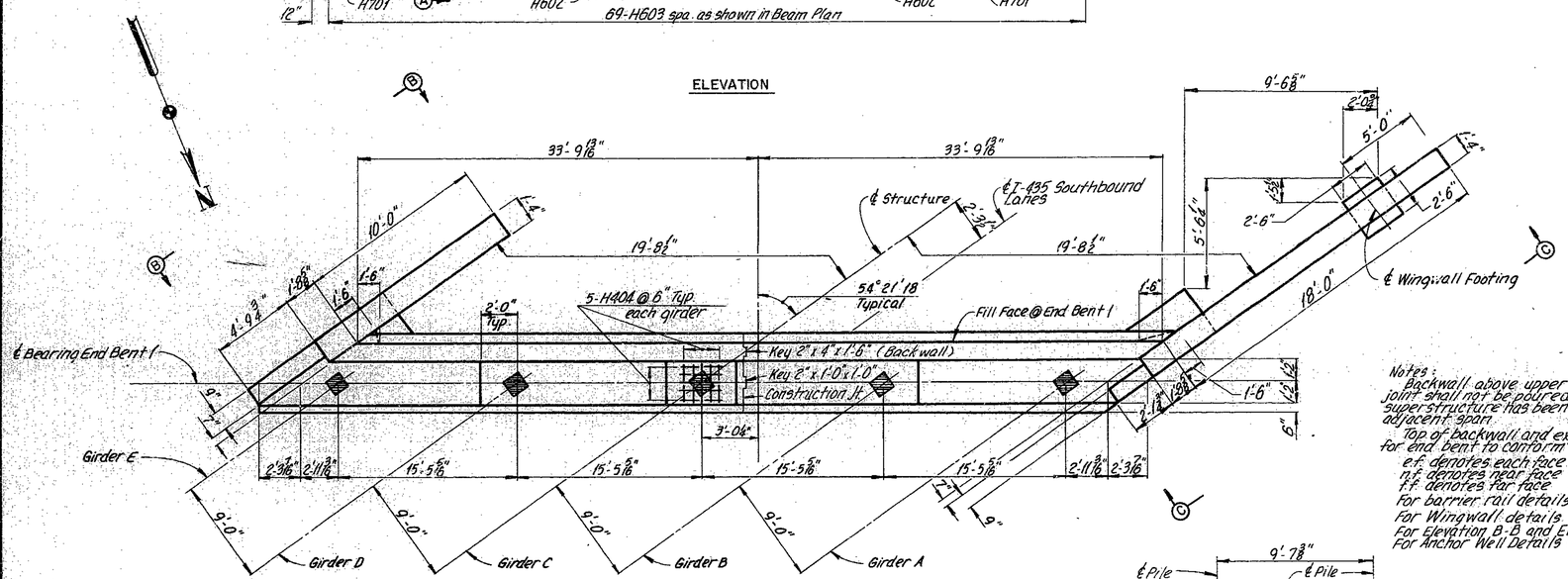
A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		19	29	

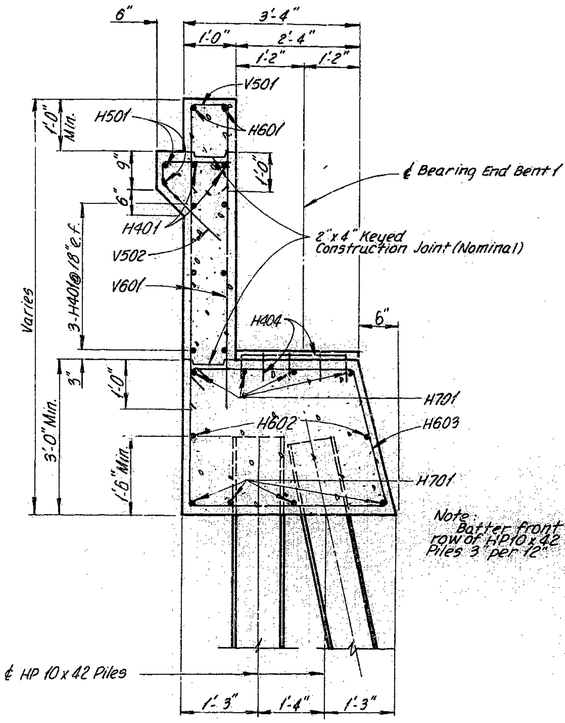


℄Elevations given at fill face or backwall.

ELEVATION

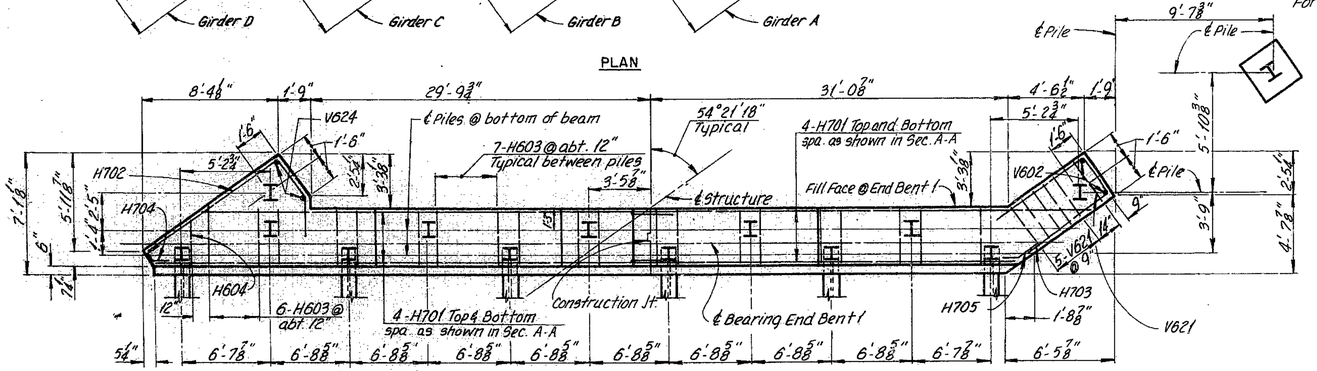


PLAN

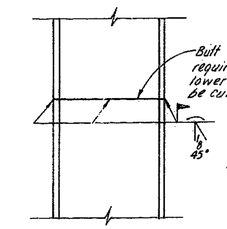


SECTION A-A

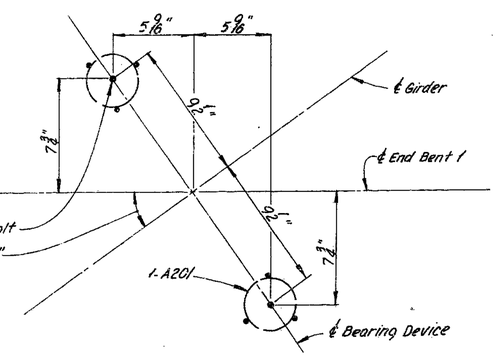
Notes:
Backwall above upper construction joint shall not be poured until the superstructure has been poured in the adjacent span.
Top of backwall and expansion device for end bent to conform to crown of Rdwy. ℄ HP 10x42 Piles
e.f. denotes each face
n.f. denotes near face
f.f. denotes far face
For barrier rail details see sheet 20.
For Wingwall details see sheet 10.
For Elevation B-B and Elevation C-C see sheet 10.
For Anchor Well Details see sheet 6.



PLAN OF BEAM



DETAIL OF STEEL PILE SPLICE



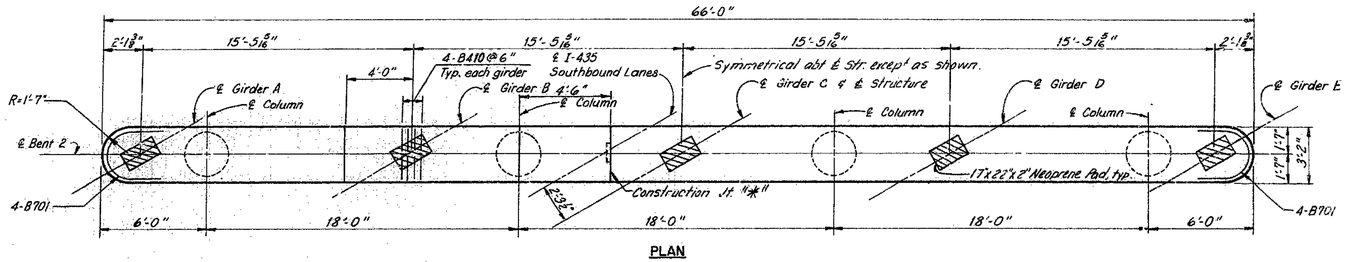
ANCHOR BOLT SETTING PLAN

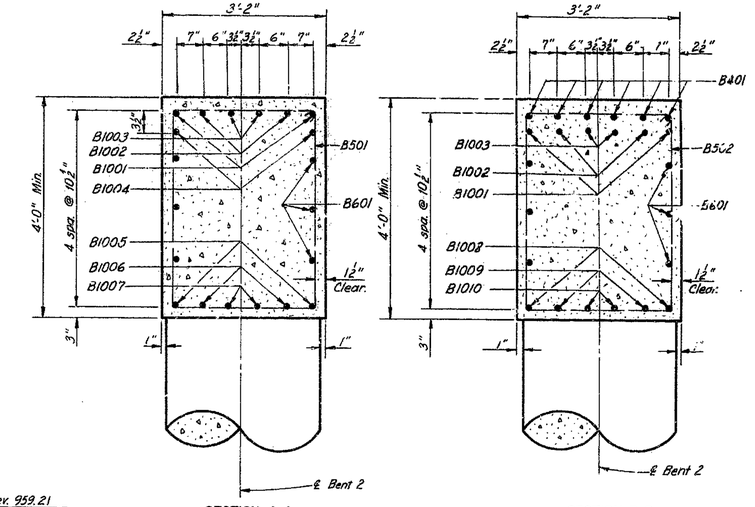
END BENT 1 DETAILS

DETAILED T.S.U. 1979
CHECKED JWB 1979

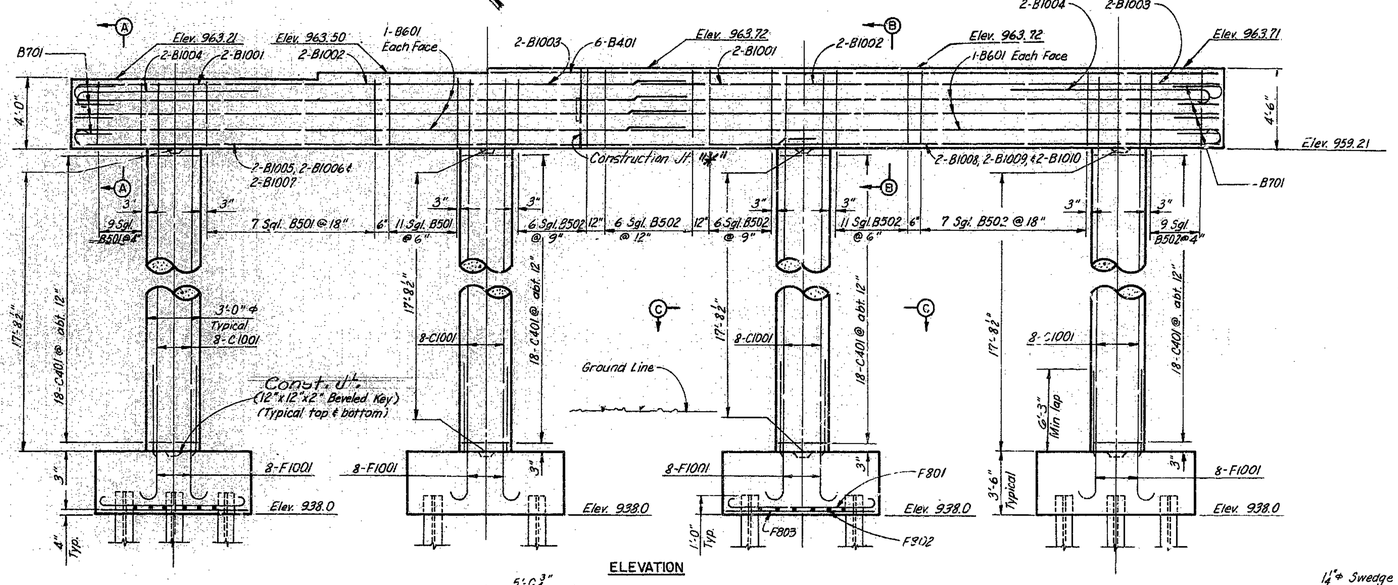
Note: This drawing is not to scale. Follow dimensions.

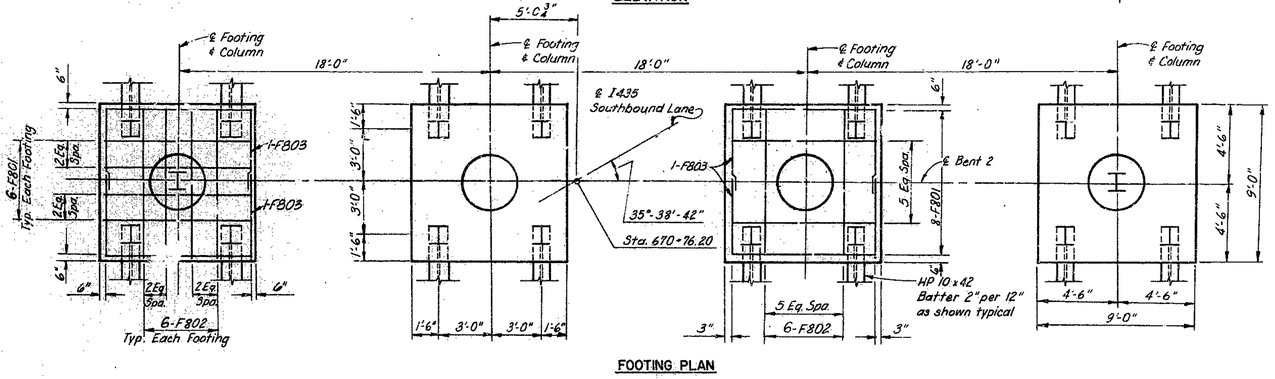
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	30	

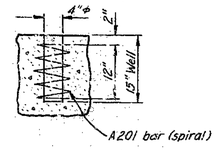




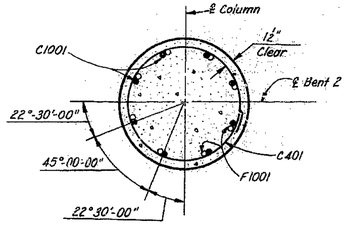
Note 1". Key 12"x16"x2"

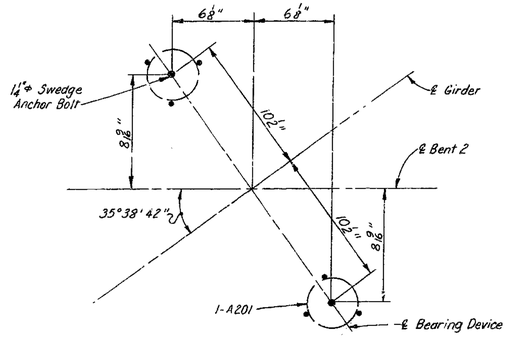






DETAIL OF ANCHOR BOLT WELLS





Notes:
E.F denotes each face.

DETAILED C.K. 19 79
CHECKED R.L.B 19 79

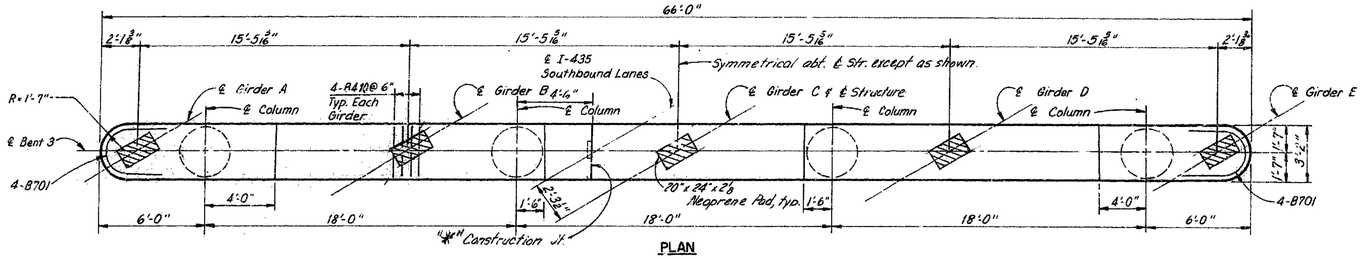
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 6 of 23 .

BENT 2 DETAILS
PLATTE COUNTY

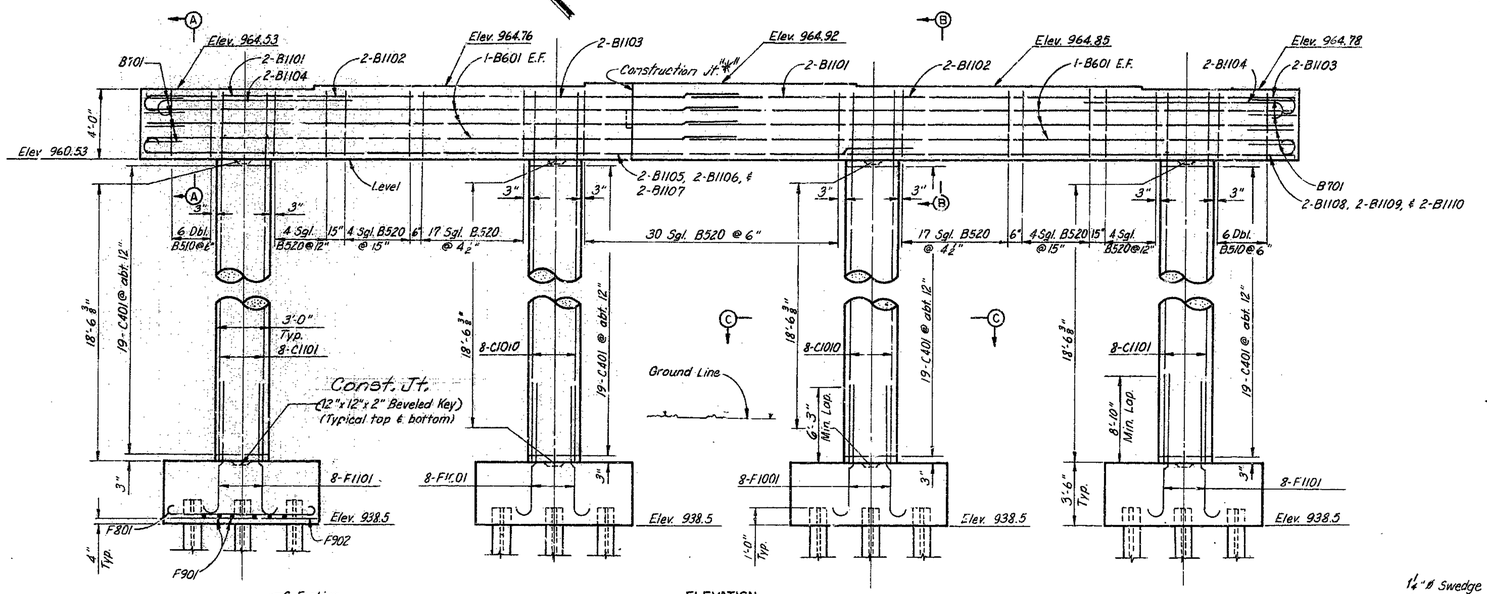
A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		10	31	

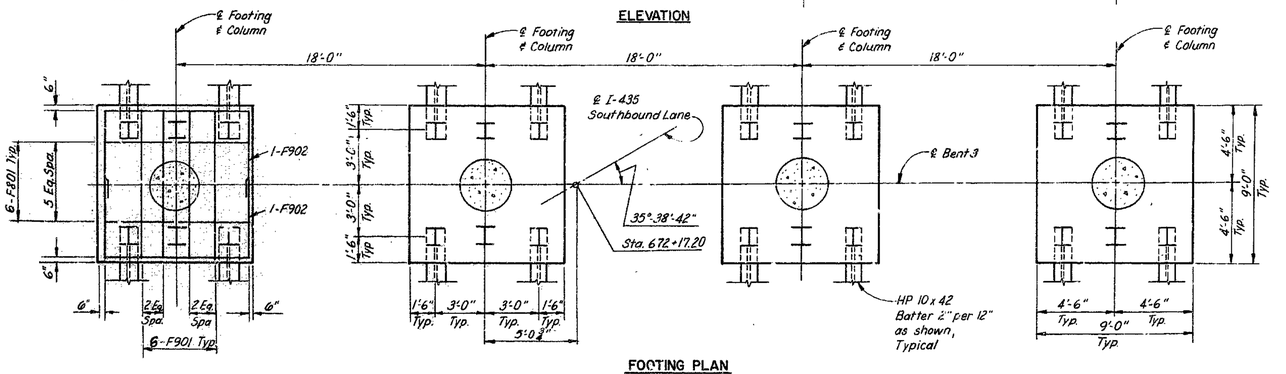


PLAN

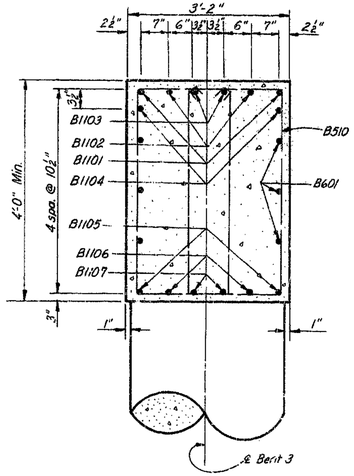
Note: "*" Key 12"x16"x 2"



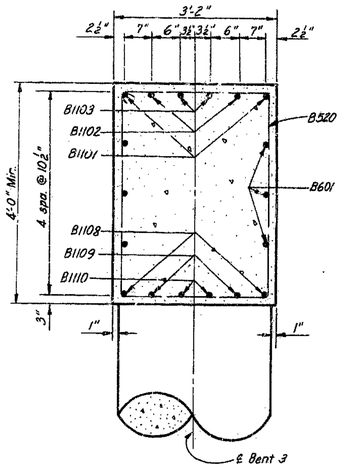
ELEVATION



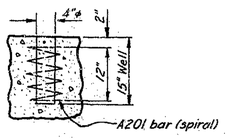
FOOTING PLAN



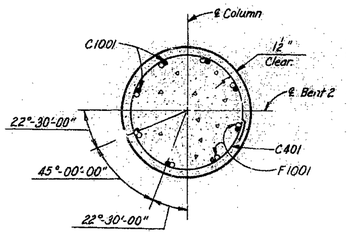
SECTION A-A



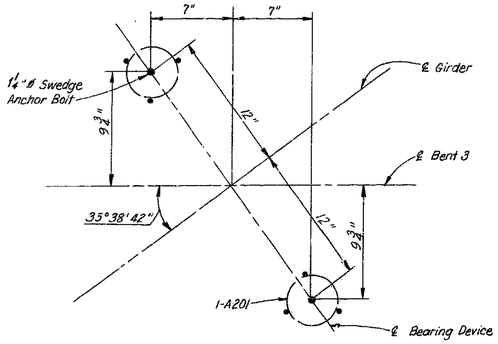
SECTION B-B



DETAIL OF ANCHOR BOLT WELLS



SECTION C-C



ANCHOR BOLT SETTING PLAN

Notes:
E.F. denotes Each Face.

468

DETAILED · C.K. 19 79
CHECKED JWB 1979

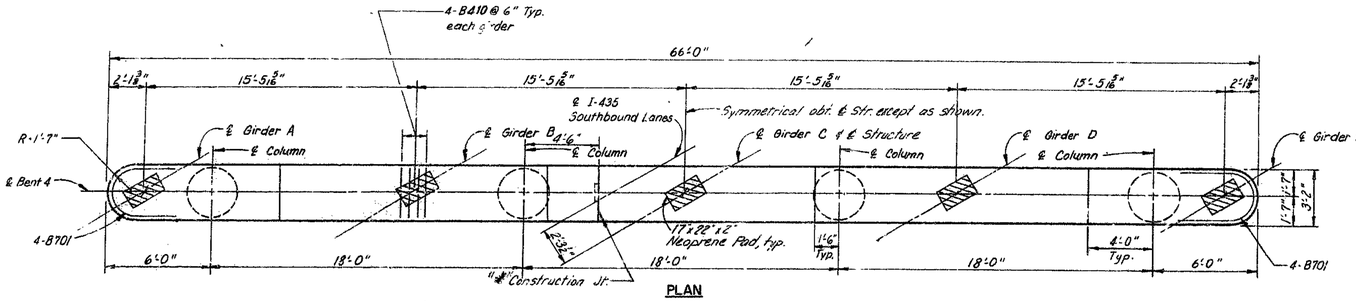
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 23.

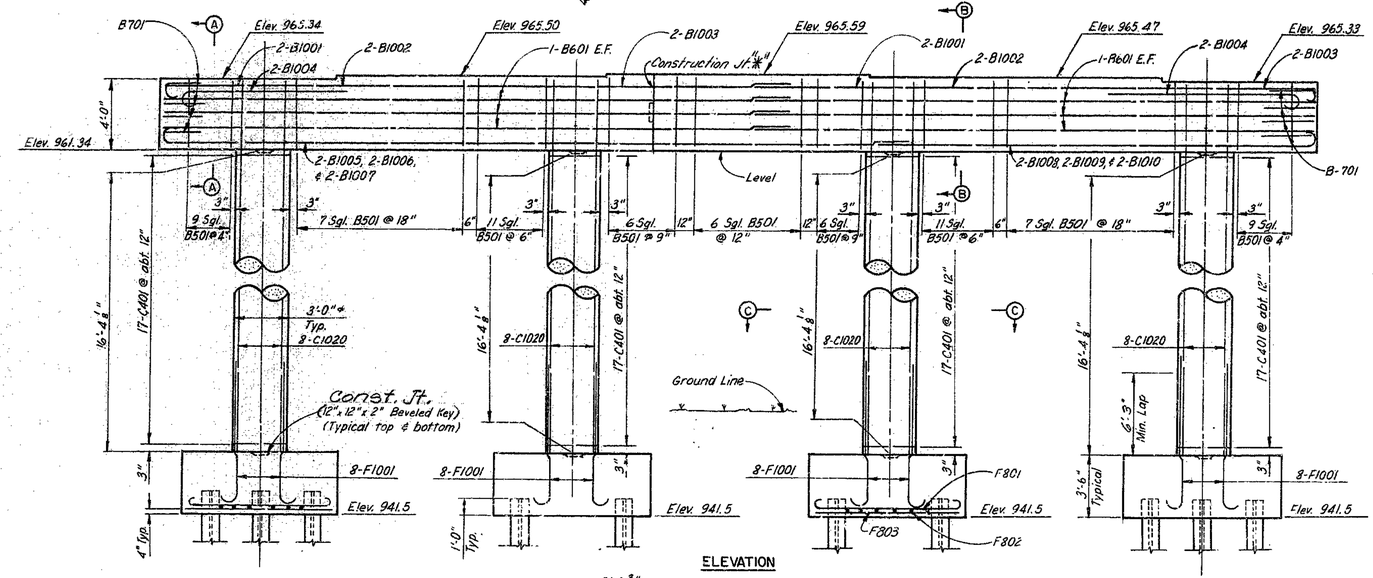
BENT 3 DETAILS
PLATTE COUNTY

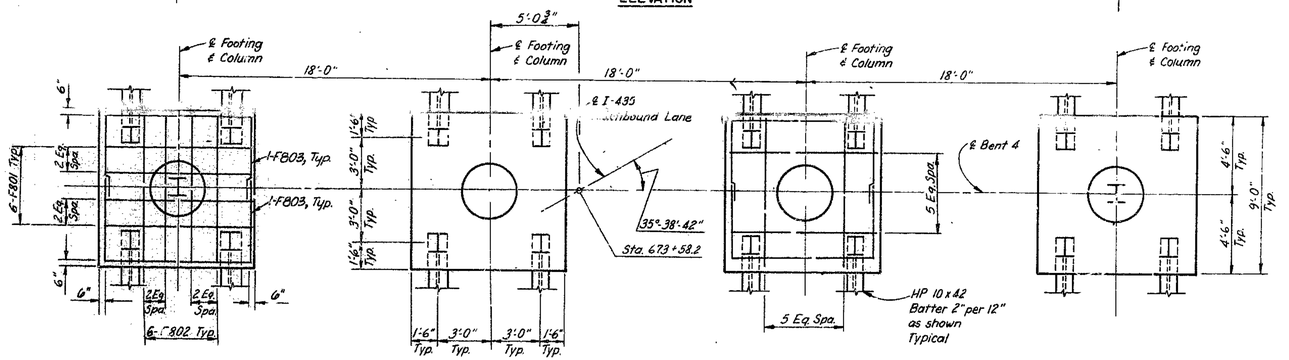
A-3431

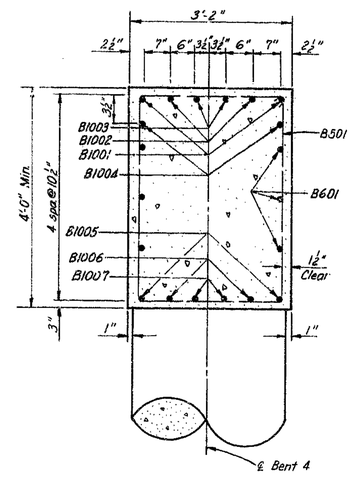
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NEB.		19	32	

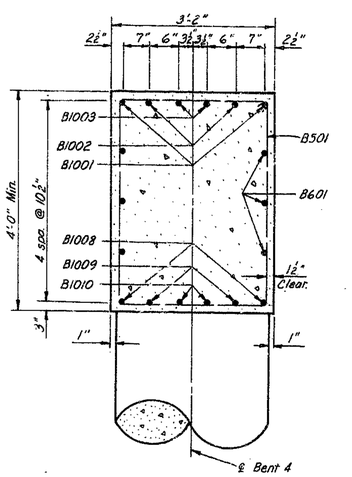


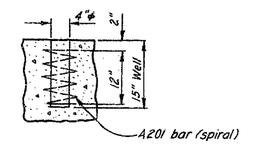
Note: "*" Key 12"x16"x2".

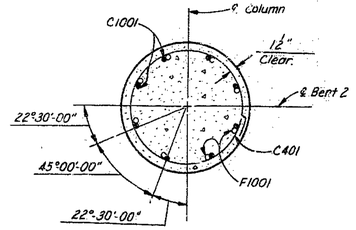


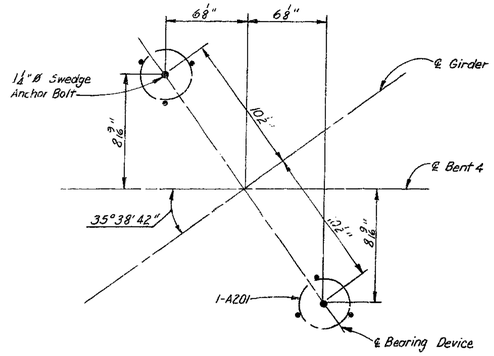












Notes:
E.F. denotes each face.

469

DETAILED C.K. 19 79
CHECKED R.L.B 19 79

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

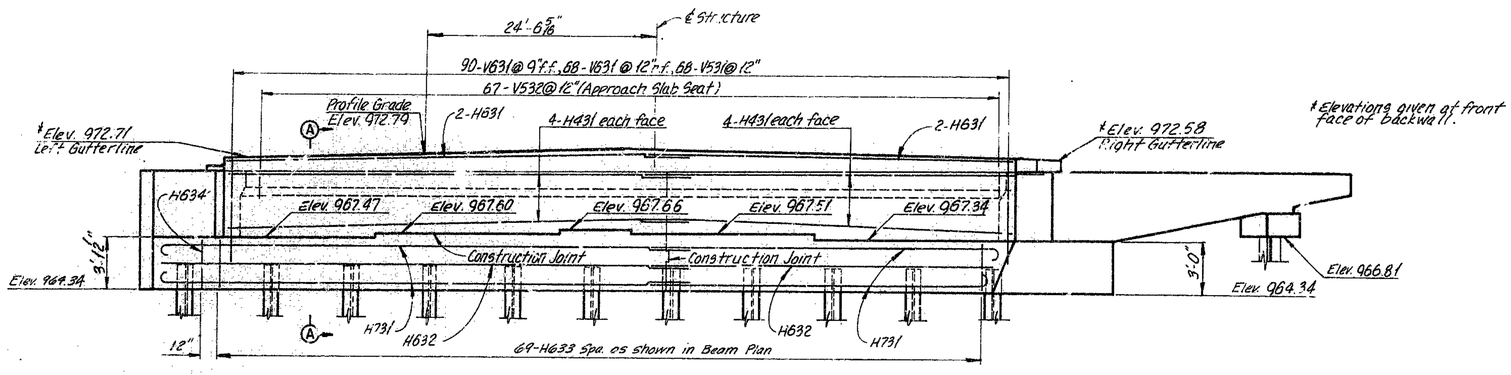
Sheet No. 8 of 23 .

BENT 4 DETAILS

PLATTE COUNTY

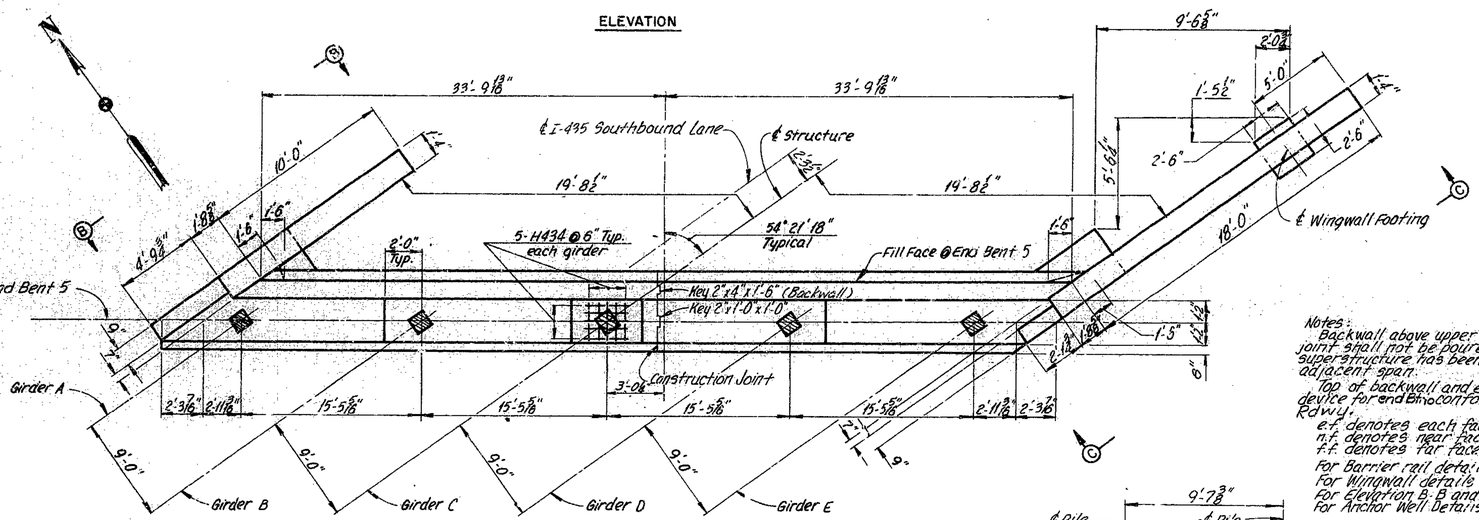
A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	33	

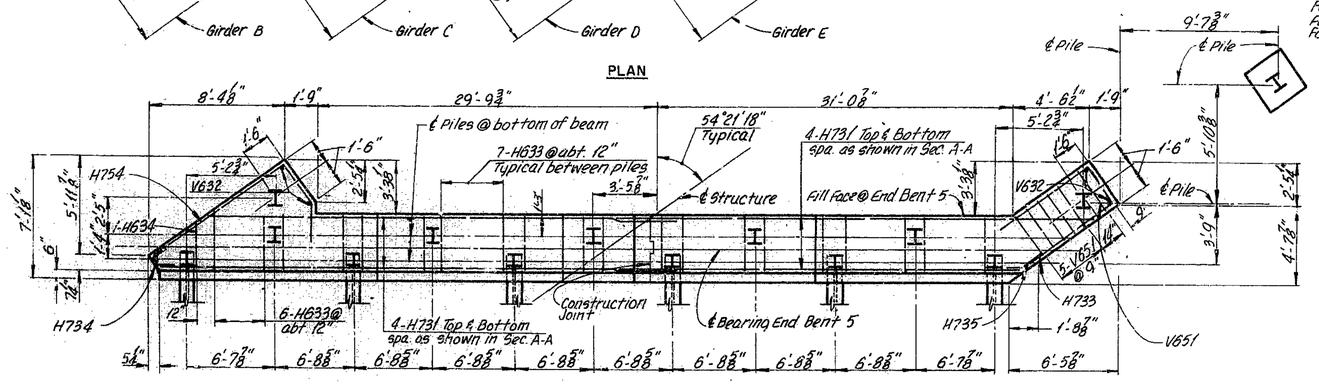


℄ Elevations given at front face of backwall.

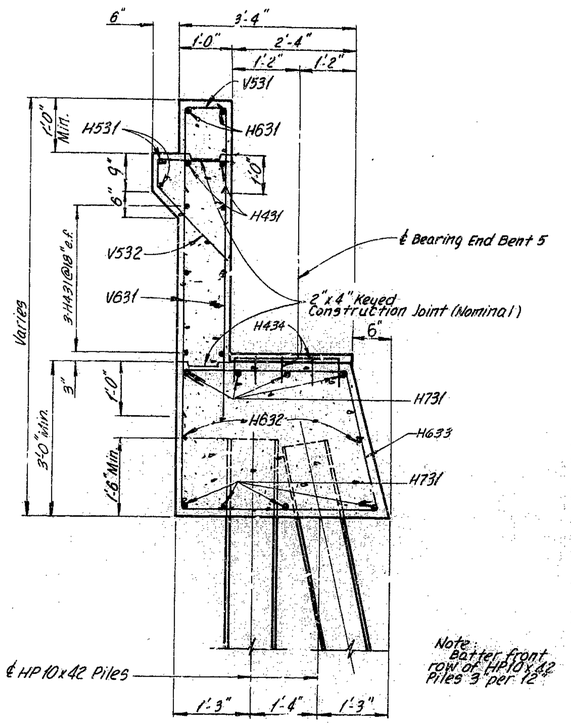
ELEVATION



PLAN



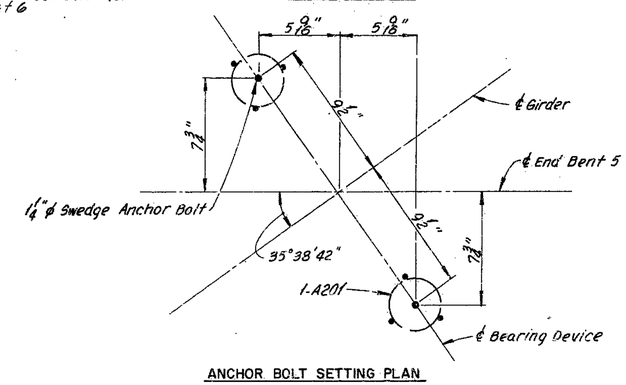
PLAN OF BEAM



Notes:
Backwall above upper construction joint shall not be poured until the superstructure has been poured in the adjacent span.
Top of backwall and expansion device for end Bnto conform to crown of Rdwy.
e.f. denotes each face
n.f. denotes near face
f.f. denotes far face
For Barrier rail details see Sheet 20.
For Wingwall details see Sheet 10.
For Elevation B-B and Elevation C-C see sheet 10.
For Anchor Well Details see sheet 6

Note: Batter front row of HP10x42 Piles 3 per 12".

SECTION A-A



ANCHOR BOLT SETTING PLAN

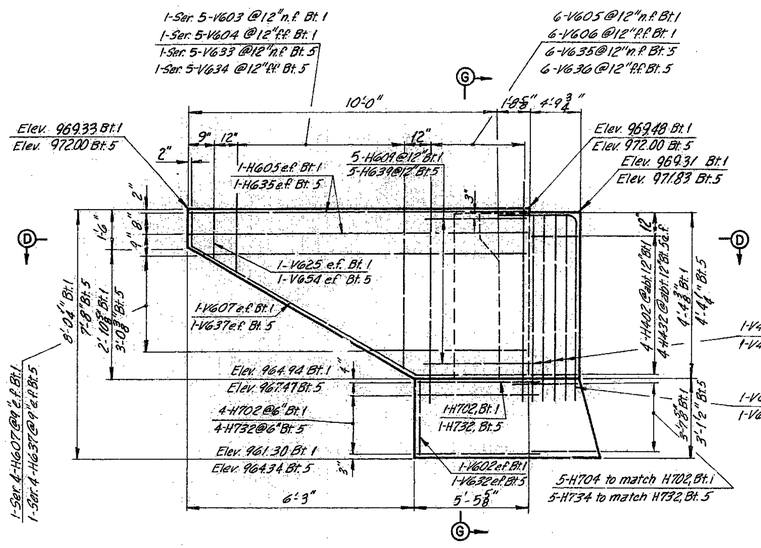
END BENT 5 DETAILS

470

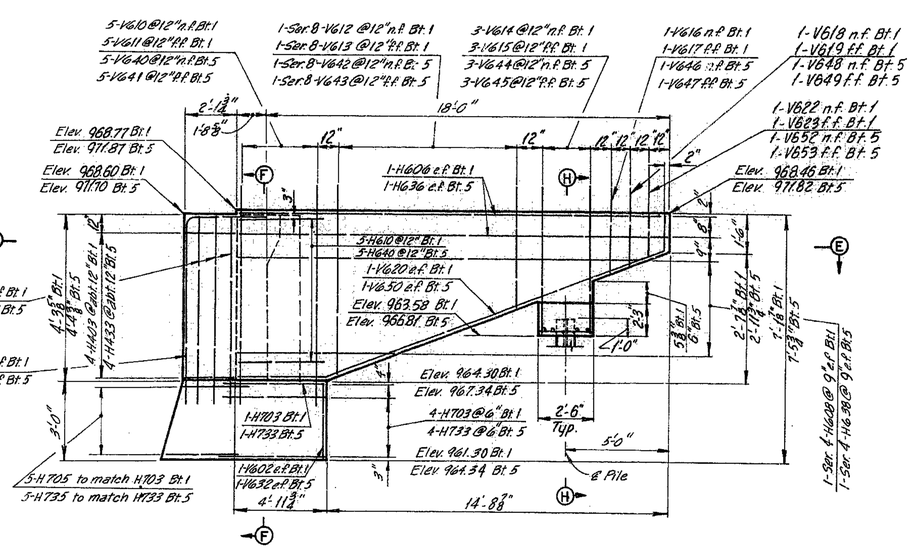
DETAILED TSU 1979
CHECKED JWB 1979

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	34	

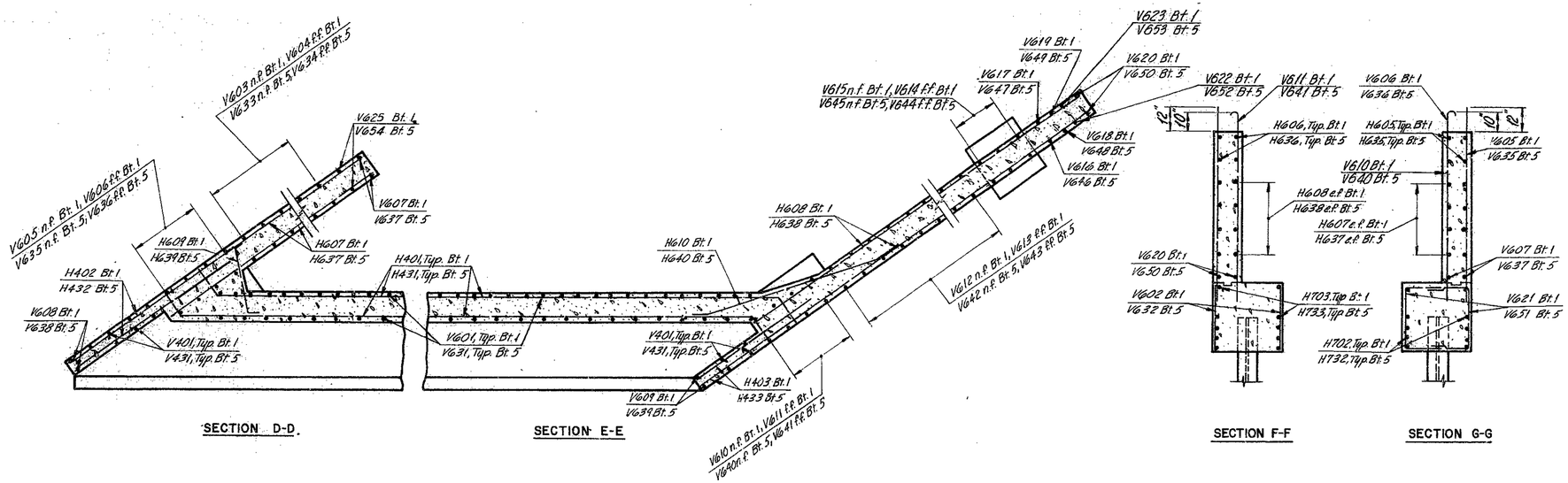


ELEVATION B-B



ELEVATION C-C

Notes:
n.f. denotes near face.
f.f. denotes far face.
e.f. denotes each face.
Field bending shall be required at wings for H401 and H431 bars in backwalls with Expansion Device. and for H610 and H640 bars when necessary to conform to slope of wing.
For barrier curb reinforcing see Sheet 20.



SECTION D-D.

SECTION E-E

SECTION F-F

SECTION G-G

SECTION H-H

DETAILED TSU 1979
CHECKED JWB 1979

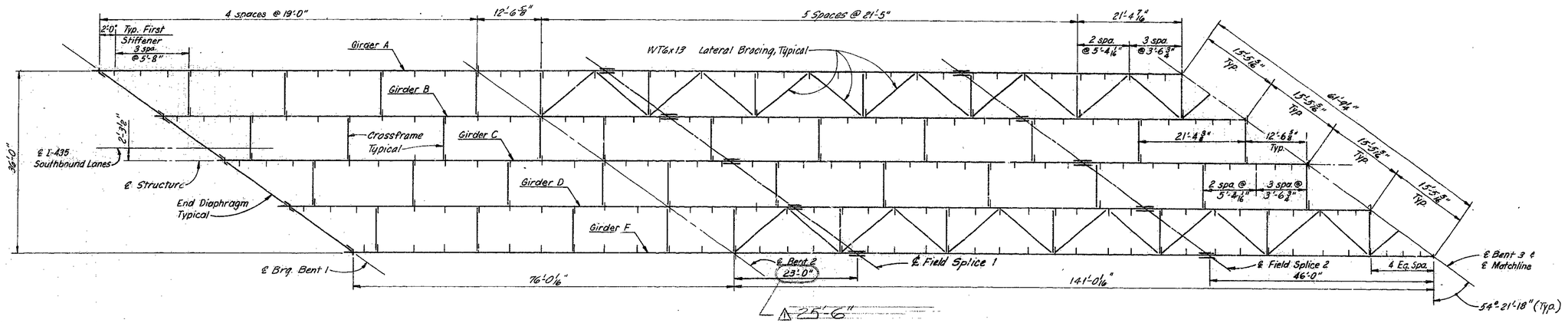
Note: This drawing is not to scale. Follow dimensions.

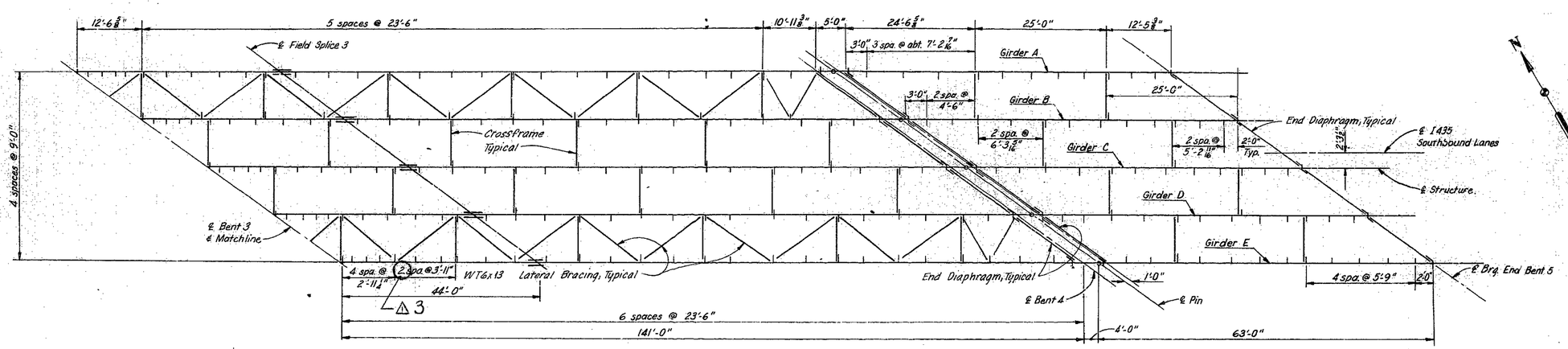
Sheet No. 10 of 23.

END BENT 1 & 5 DETAILS
PLATTE COUNTY

A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NEB.		19	35	





FRAMING PLAN

FIELD SPLICE ELEVATIONS			
	F.S. 1	F.S. 2	F.S. 3
GIRDER A	969.89	970.63	971.29
GIRDER B	970.18	970.88	971.50
GIRDER C	970.42	971.05	971.66
GIRDER D	970.41	971.01	971.58
GIRDER E	970.39	970.96	971.49

1 969.92
1 970.21
1 970.45
1 970.44
1 970.42

LEGEND

Denotes 1 7/16" x 5" Intermediate Stiffener

Denotes Girder Field Splice

Notes:
All intermediate stiffeners are equally spaced between crossframes unless shown otherwise.
For details of Pin Connection see Sh. 14.
For details of Lateral Bracing Connections see Sh. 14.
For Field Splice details see Sh. 13.
Field Splice Elevations are given at top of web.
Transverse web stiffeners shall be placed as detailed.

1 If transverse web stiffener interfere with field splices, clip stiffeners as shown in detail on sht. no. 14.

47R

DETAILED C.K. 1979
CHECKED JWB 1979

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

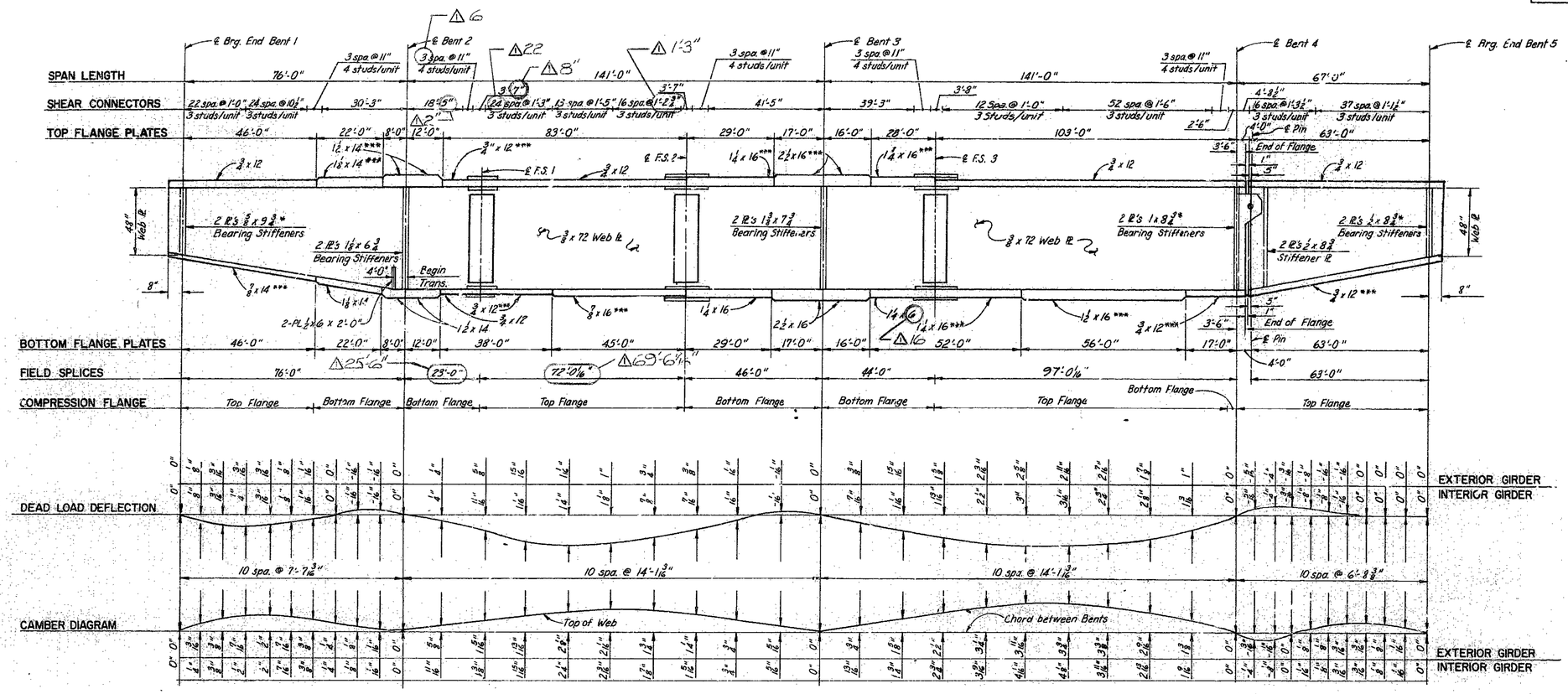
1 Revised 9/7/83

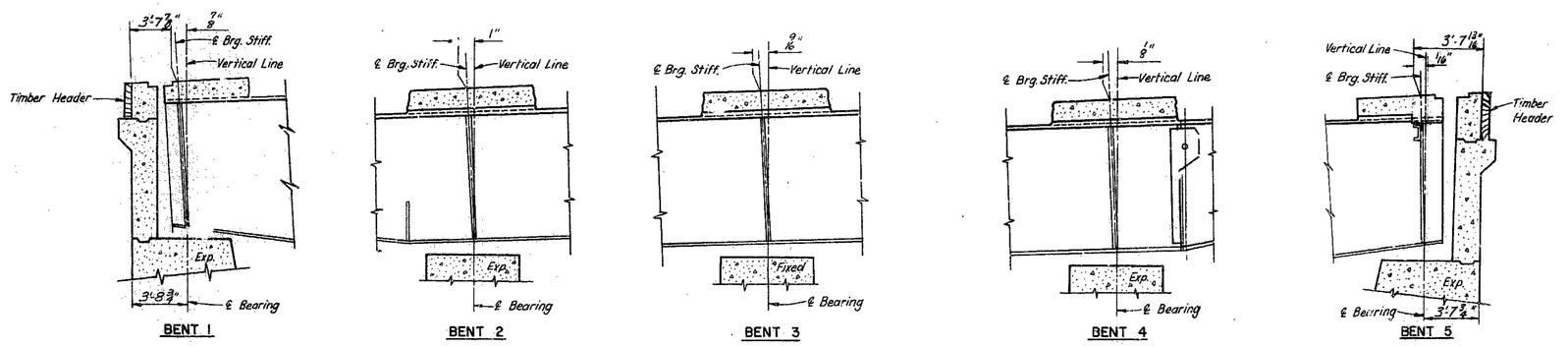
Sheet No. 11 of 23.

FRAMING PLAN
PLATTE COUNTY

A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	36	





GIRDER AS FABRICATED

Notes:

*** Indicates Flange Plates subject to notch toughness requirements. All web plates shall be subject to notch toughness requirements.

* See Sheet 14 for End Bearing Stiffener detail and connection.

Camber includes allowance for vertical curve and for dead load deflection due to concrete slab, curb, and structural steel.

1/8 of dead load deflection due to weight of structural steel.

Dimensions may vary if girder camber after erection differs from plan camber by more than the 1/8 of dead load deflection due to weight of structural steel. No payment will be made for additional forming or concrete required for variation in haunching.

Deflection at hinge connection is -3/8" Interior Girder, -1/2" Exterior Girder.

DETAILED C.K. 19 79
CHECKED JWB 19 79

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

Revised 9/7/83

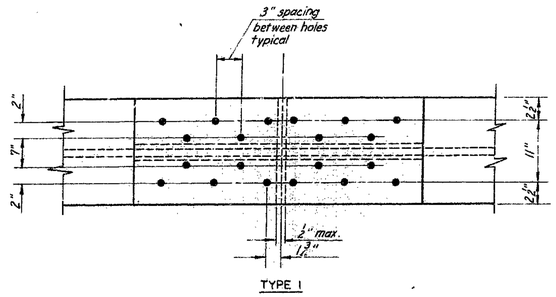
Sheet No. 12 of 23.

GIRDER ELEVATION

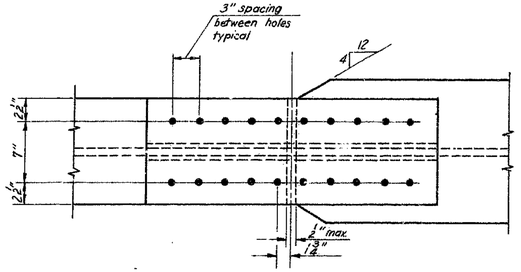
PLATTE COUNTY

A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	37	

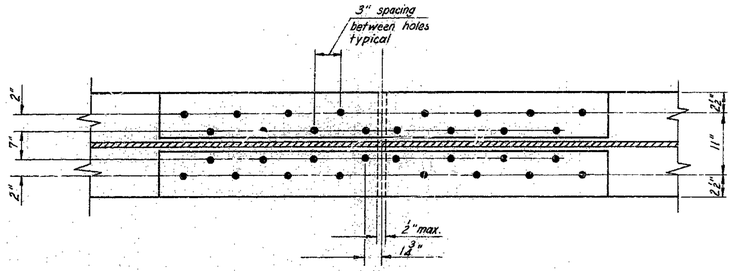


TYPE I

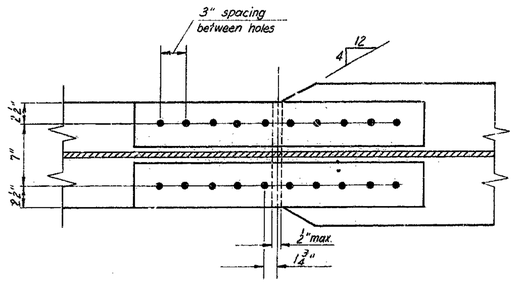


TYPE II

TOP



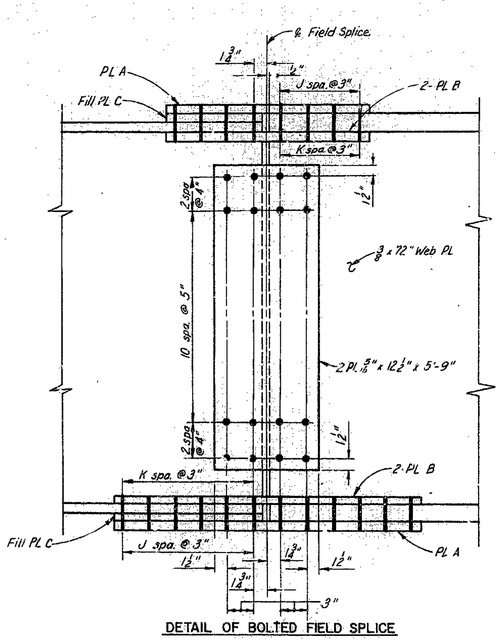
TYPE I



TYPE II

BOTTOM

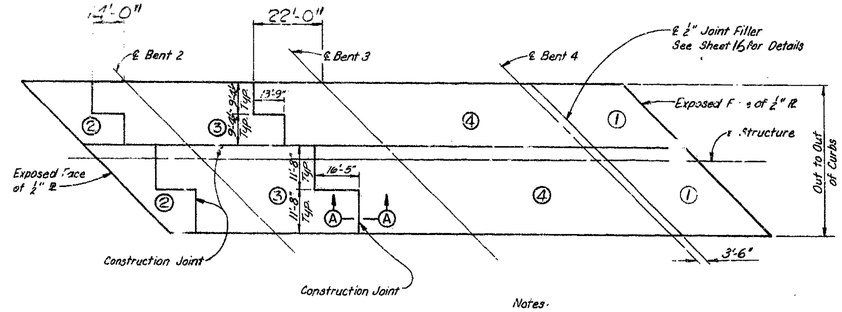
PLAN OF FLANGE SPLICES



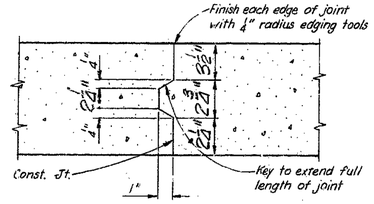
DETAIL OF BOLTED FIELD SPLICE

FIELD SPLICE DATA							
SPLICE NUMBER		A	B	C	HOLE SPACING J	K	TYPE
1	TOP	PL ⅜"x12"x2'-6½"	PL ½"x5"x2'-6½"	——	4	4	II
	BOTTOM	PL ⅜"x12"x2'-6½"	PL ½"x5"x2'-6½"	——	4	4	II
2	TOP	PL ⅜"x12"x2'-6½"	PL ½"x5"x2'-6½"	PL ½"x12"x1'-3"	4	4	II
	BOTTOM	PL ½"x16"x4'-0½"	PL 7/16"x7"x4'-0½"	PL ⅜"x16"x2'-0"	7	7	I
3	TOP	PL ⅜"x12"x2'-6½"	PL ½"x5"x2'-6½"	PL ½"x12"x1'-3"	4	4	II
	BOTTOM	PL ⅝"x16"x5'-6½"	PL ¾"x7"x5'-6½"	——	10	10	I

Notes:
All flange splice plates and web splice plates subject to notch toughness requirements.
Use ⅞" High Strength Bolts with 15/16" reamed holes.



Notes:
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours and shall pour and satisfactorily finish the slab pours at the rate given.



SECTION A-A

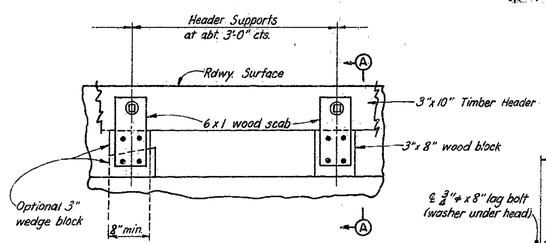
	SEQUENCE OF POURS DIRECTION				*
BASIC SEQUENCE	1	2	3	4	26
	4 to End	End to 3	2 to 4	3 to 1	

Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with section 703.3.12.4 of Missouri Standard Specifications.

ALTERNATE "A" POURS	1	2+3	4	26
	4 to End	End to 4	3 to 1	
ALTERNATE "B" POURS	1	2+3+4		26
	4 to End	End to 1		

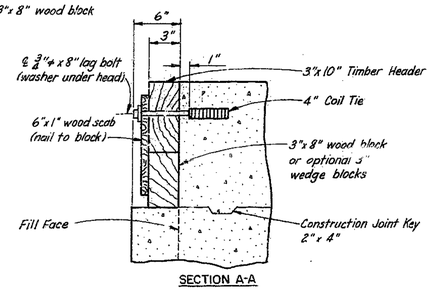
SLAB POURING SEQUENCE

* Min Rate Pour (Cu. Yds./Hr.)



PART ELEVATION

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



SECTION A-A

DETAILS OF TIMBER HEADER AT END BENTS

DETAILED CK 1979
CHECKED JWB 1979

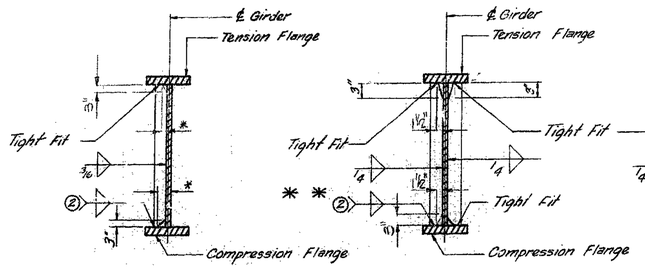
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 13 of 23.

SUPERSTRUCTURE DETAILS
PLATTE COUNTY

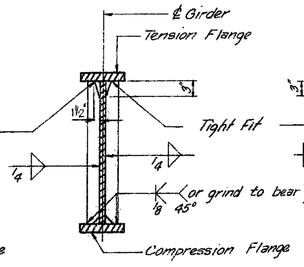
A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	38	

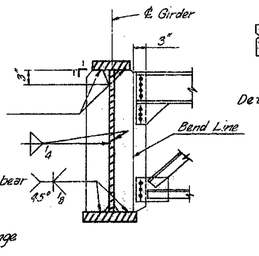


INT. WEB STIFF.

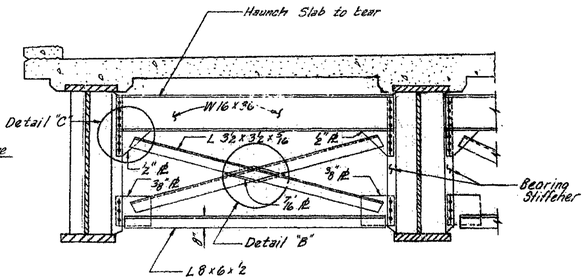
INT. DIAPH. CONN. ℄ & WEB STIFF



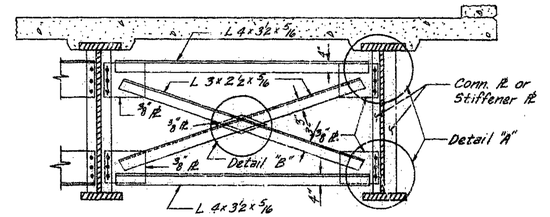
INT. DIAPH. CONN. ℄ ONLY



INT. BRG. STIFF

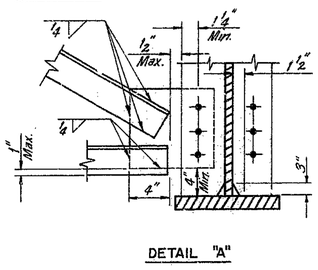


END DIAPHRAGMS

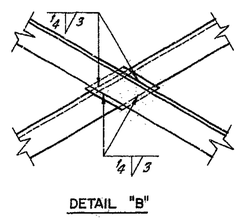


INTERMEDIATE DIAPHRAGMS & CROSSFRAMES

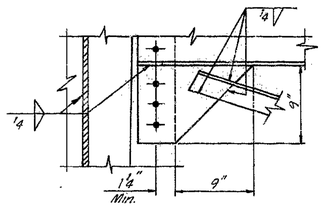
END BRG. STIFF.



DETAIL "A"

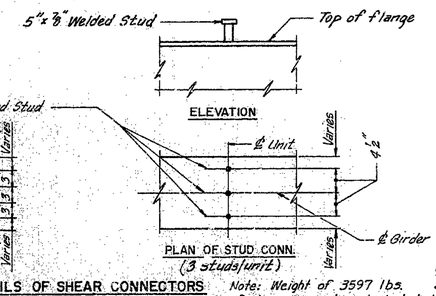


DETAIL "B"



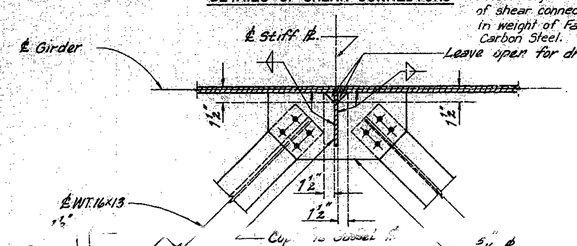
DETAIL "C"

② Weld to compression flange as located on Girder Elevation.
* 1/2 Typical for all Int. Web Stiff., Int. Diaph. Conn. ℄ and Bearing Stiff.
** Weld may be omitted on Interior Girders and tight fit used when Intermediate Diaphragm Connection Plate is required on both sides.

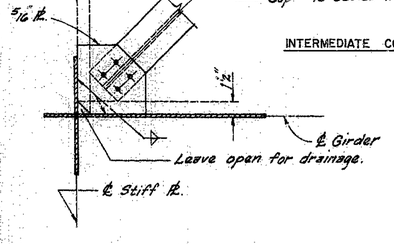


DETAILS OF SHEAR CONNECTORS

Note: Weight of 3597 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel.



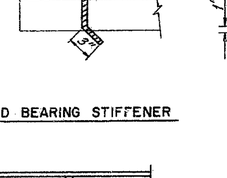
INTERMEDIATE CONNECTION



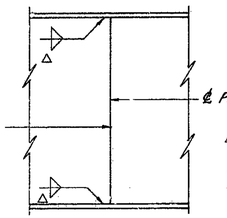
END CONNECTION

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

LATERAL BRACING

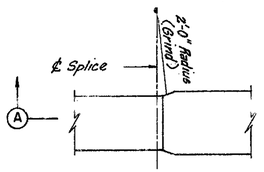


END BEARING STIFFENER

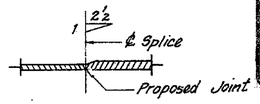


SHOP WEB SPLICE

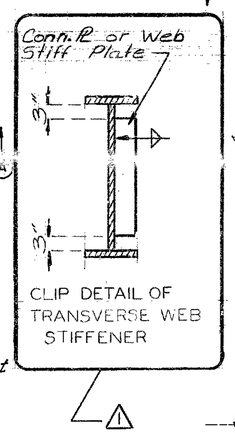
△ 1/4" For Flanges 3/4".
5/16" For Flanges over 3/4" to 1½".
3/8" For Flanges over 1½" to 2¼".

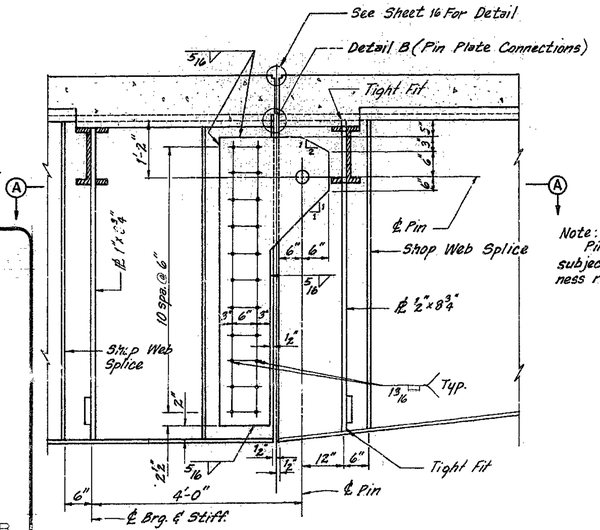


PLAN
2'-0" RADIUS TRANSITION

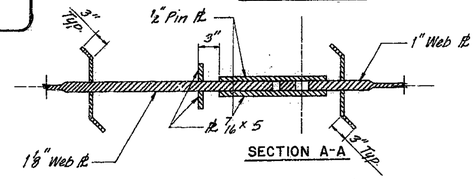


SECTION A-A
SHOP FLANGE SPLICE

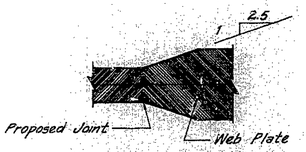




PIN CONNECTION

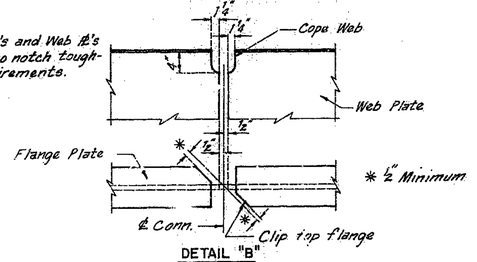


SECTION A-A

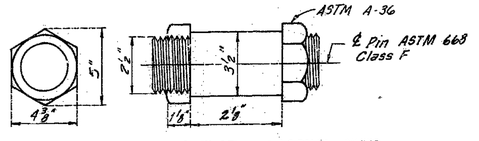


DETAILS OF SHOP WEB SPLICE
(Web splice near pin plate and hanger connection)

Note: Pin ℄'s and Web ℄'s subject to notch toughness requirements.



DETAIL "B"
(Pin Plate Connections)



DETAILS OF PIN AND FLAT HEXAGONAL NUTS

SUPERSTRUCTURE DETAILS

PLATTE COUNTY

A-3431

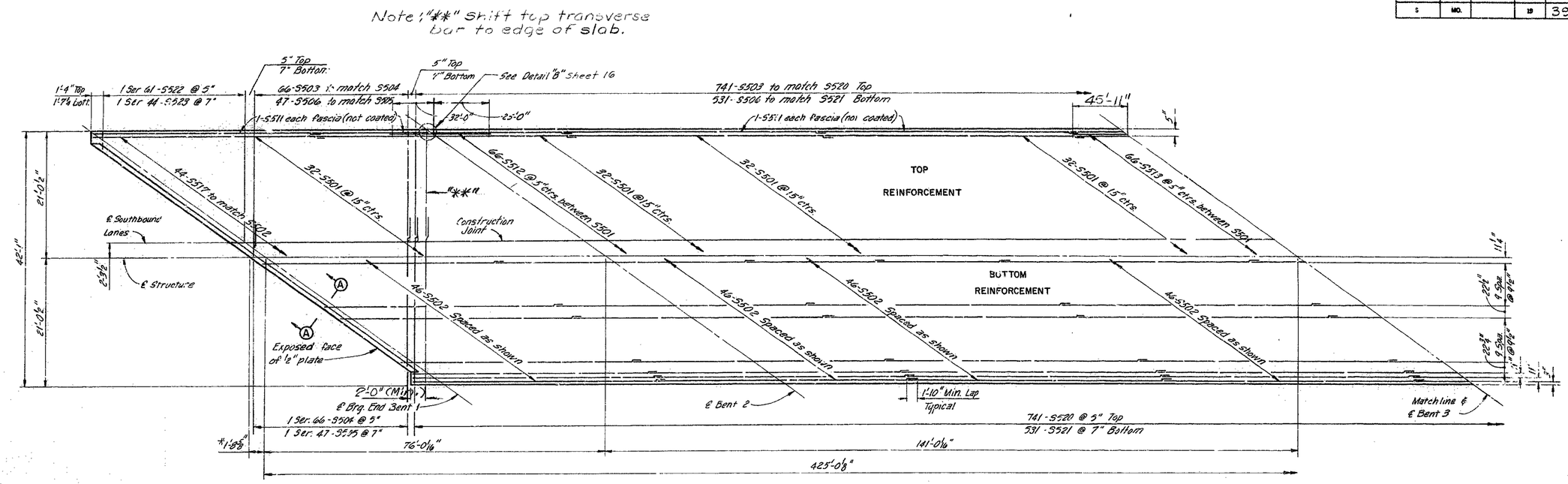
475

DETAILED R.D.W. 1979
CHECKED JWB 1979

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

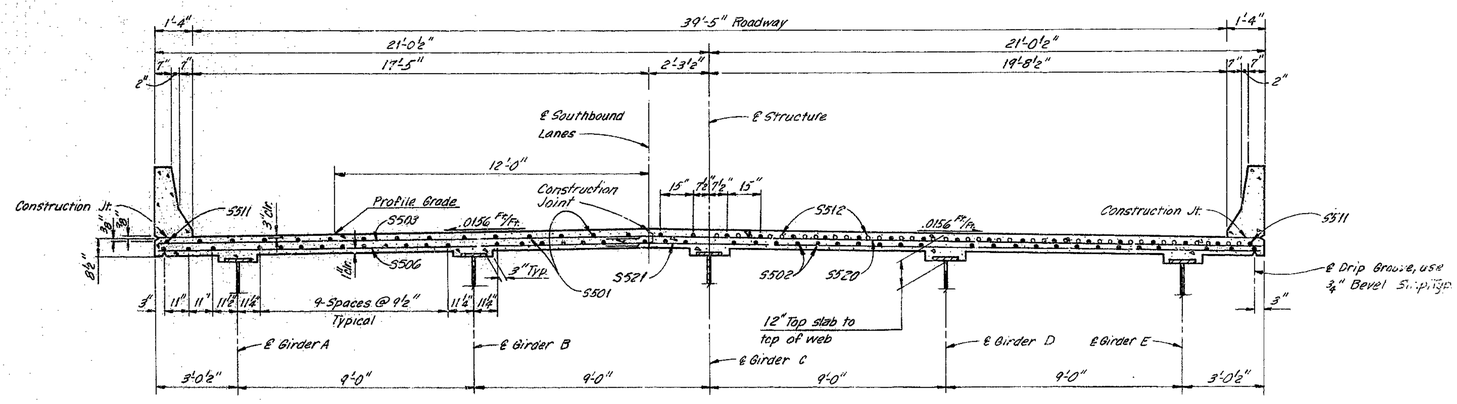
△ Revised 9/7/83

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NEB.		19	39	



SLAB REINFORCING PLAN

SPANS 1-2 & 2-3



HALF SECTION NEAR ℄ SPAN

HALF SECTION NEAR INTERMEDIATE BENT

Notes:

Slab to be built parallel to grade and to a minimum thickness of 8½".

For Slab Pouring Sequence, see Sheet 13.

For details and reinforcement of safety barrier bridge curb not shown see Sheet 20.

All slab steel in the top layer, transverse and longitudinal, shall be epoxy coated, except as shown.

* Dimension based on 2" gap between slab and backwall. Adjust dimensions according to elastomeric joint used. See Sheet 19.

4-76

DETAILED DLB 1979
CHECKED JWB 1979

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

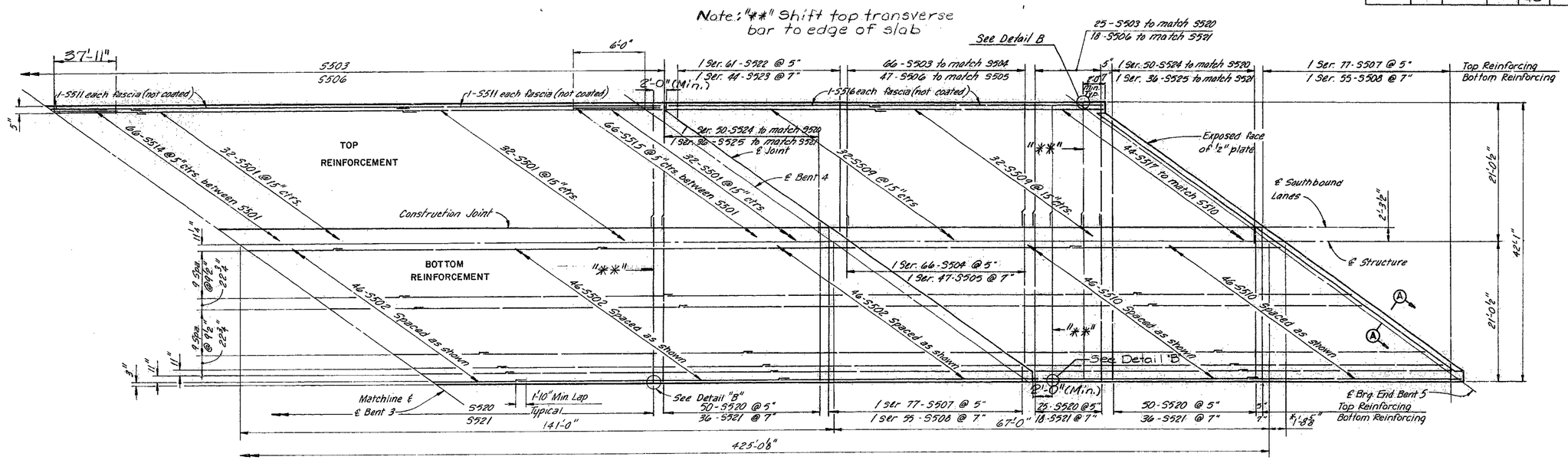
Sheet No. 15 of 23.

SLAB PLAN

PLATTE COUNTY

A-3431

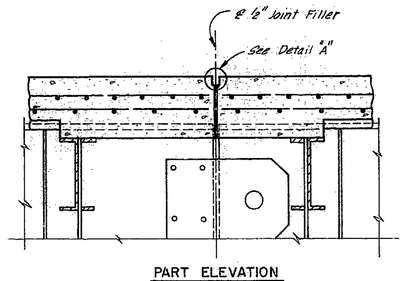
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	40	



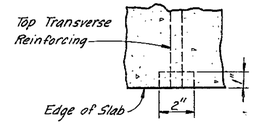
SLAB REINFORCING PLAN

SPANS 3-4 & 4-5

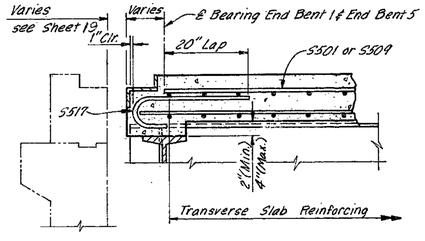
For notes see Sheet 15.



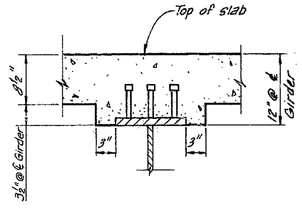
PART ELEVATION
AT PIN PLATE CONNECTION



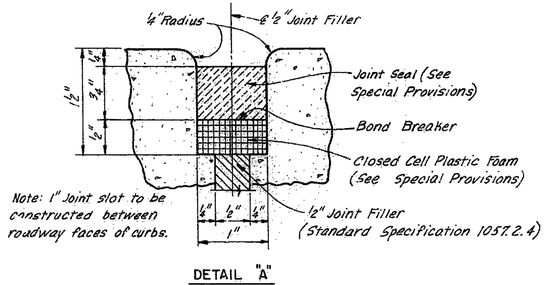
PLAN



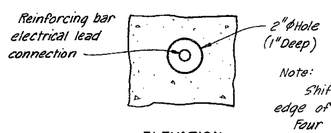
SECTION A-A



HAUNCH DETAIL



DETAIL "A"



ELEVATION

DETAIL "B"

Note:
Shift top transverse bar to edge of slab.
Four electrical lead connections required. Actual locations to be designated by the Engineer as part of the test system.

427

DETAILED DLB 1979
CHECKED JWB 1979

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

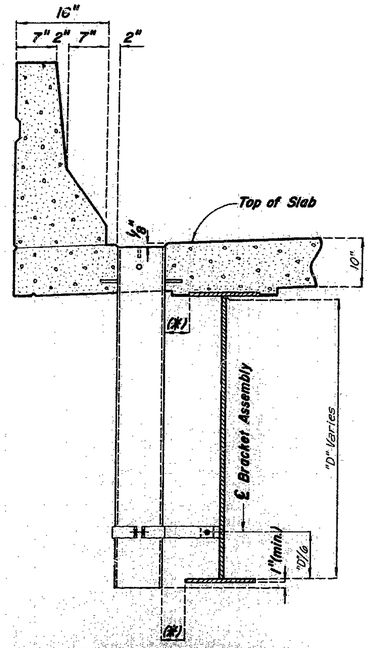
Sheet No. 16 of 23 .

SLAB PLAN

PLATTE COUNTY

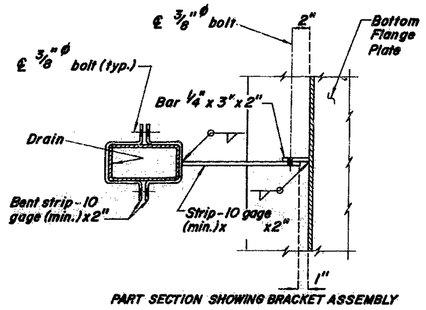
A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	41	

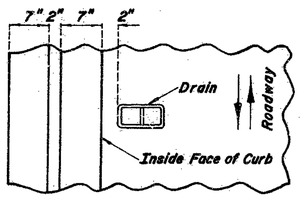


PART ELEVATION OF SLAB

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

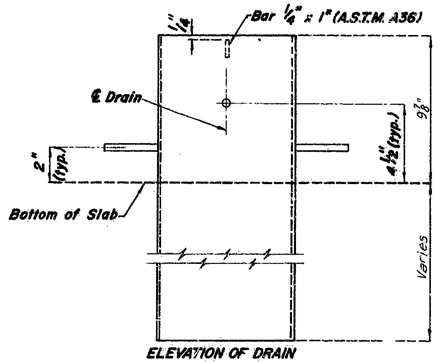


PART SECTION SHOWING BRACKET ASSEMBLY

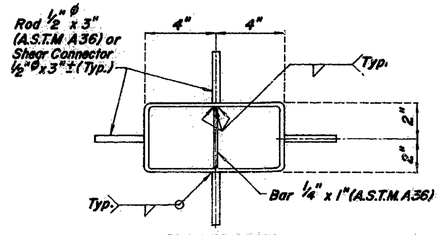


PART PLAN OF DRAIN

DETAILS OF DRAINS TRANSVERSE TO ROADWAY



ELEVATION OF DRAIN



PLAN OF DRAIN

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.

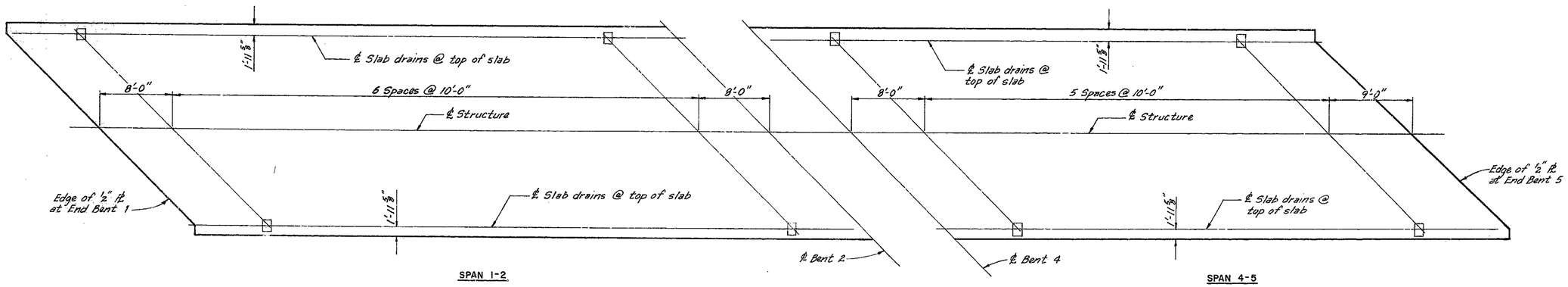
THE DRAINS AND 10 GAGE BRACKET ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A123.

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.

PART PLAN OF SLAB

PLAN



LOCATION OF SLAB DRAINS

K18

DETAILED A.D.W. 1979
CHECKED JWB 1979

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

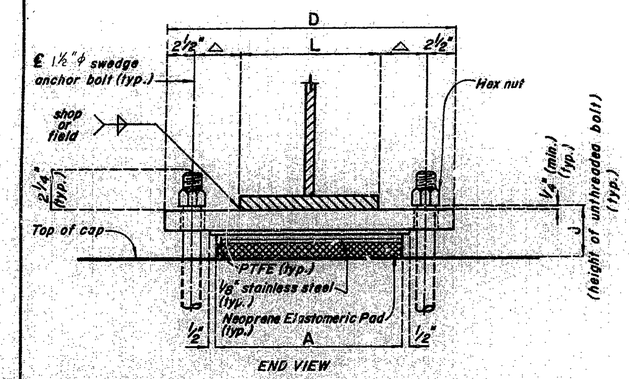
Sheet No. 17 of 23 .

SLAB DRAIN DETAILS

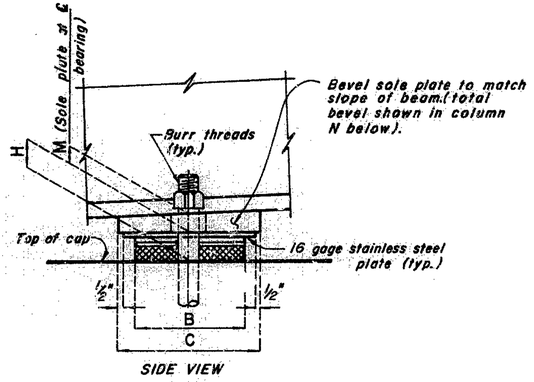
PLATTE COUNTY

A-3431

FED. ROAD DIS. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NEB.		19	42	



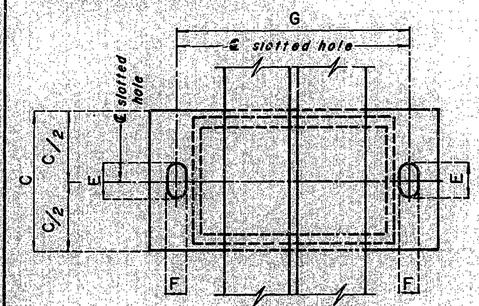
END VIEW



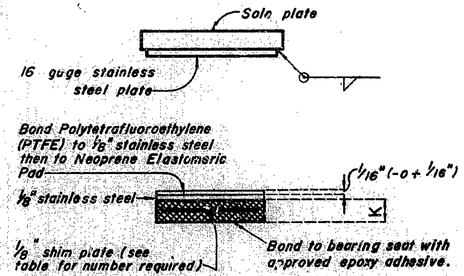
SIDE VIEW

Note: The location of anchor bolts in relation to the slotted holes in the sole plate shall correspond with the temperature at the time of erection. At 60°F. the slotted holes should center on the anchor bolts.

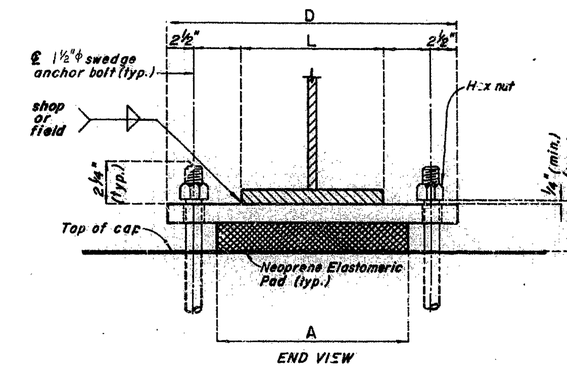
△ 2½" End Bent 1
3½" Bent 2
2½" Bent 4
3½" End Bent 5



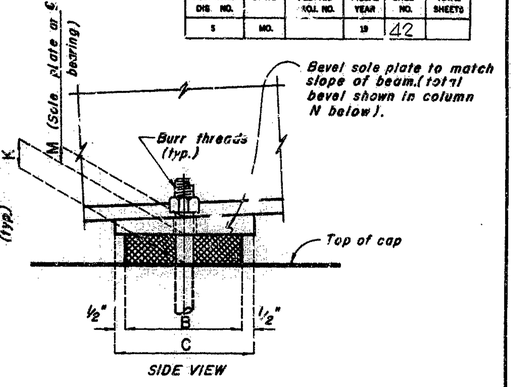
PART PLAN VIEW



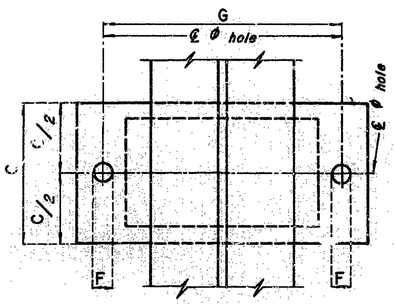
NEOPRENE ELASTOMERIC PAD



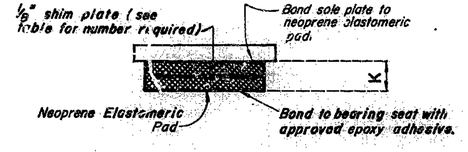
END VIEW



SIDE VIEW



PART PLAN VIEW



NEOPRENE ELASTOMERIC PAD

PTFE SLIDING BEARINGS

BENT NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	NUMBER OF SHIM PLATES (*)
1	15"	10"	13 3/4"	24"	4 1/2"	12 3/4"	19"	1 1/8"	2 5/8"	1"	14"	1 1/8"	3/16"	1
2	17"	22"	24 3/4"	26"	3 1/2"	13 3/4"	21"	2 1/4"	3 5/8"	2"	14"	1 1/8"	1/4"	1
4	17"	22"	24 3/4"	26"	3 1/2"	13 3/4"	21"	2 1/4"	3 5/8"	2"	12"	1"	0	1
5	15"	10"	13 3/4"	24"	4 1/2"	13 3/4"	19"	1 1/8"	2 11/16"	1"	12"	1 3/16"	1/4"	1

NUMBER REQUIRED: 20

(*) The required shim plates shall be placed between equal layers of elastomer and molded together to form an integral unit.

Note:
Clip corners of sole plates 2x2 at End Bents 1 & 5.

GENERAL NOTES:
Anchor Bolts shall be 1½" ϕ swedge bolts and shall extend 15" into concrete with hexagon nuts.

WEIGHT OF ANCHOR BOLTS AND HEXAGON NUTS FOR BEARINGS SHALL BE INCLUDED IN WEIGHT OF FABRICATED STRUCTURAL STEEL.

NEOPRENE ELASTOMERIC PADS SHALL BE 70 DUROMETER.

THE SOLE PLATE SHALL BE FURNISHED WITH THE BEARING AND FIELD OR SHOP WELDED TO THE STRINGERS OR GIRDERS.

STRUCTURAL STEEL FOR SOLE PLATE SHALL BE A-36.

PAYMENT FOR THE SOLE PLATE WILL BE INCLUDED IN THE COST OF THE BEARING ASSEMBLY. SEE SPECIAL PROVISIONS.

ALL ANCHOR BOLTS AND HEXAGON NUTS SHALL BE A-588 STEEL.

THE ACCEPTED QUANTITY OF ELASTOMERIC BEARING ASSEMBLIES, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR TYPE "N" PTFE BEARINGS, EACH.

FIXED BEARINGS

BENT NO.	A	B	C	D	F	G	J	K	L	M	N	NUMBER OF SHIM PLATES (*)
3	20"	24"	25"	29"	2"	24"	3 1/2"	2 1/8"	16"	1/16"	3/16"	1

NUMBER REQUIRED: 5

(*) The required shim plate shall be placed between equal layers of elastomer and molded together to form an integral unit.

TYPE "N" PTFE BEARINGS

SPS-NEB2	REVISED	SEPT 1982
	APRIL 1978	

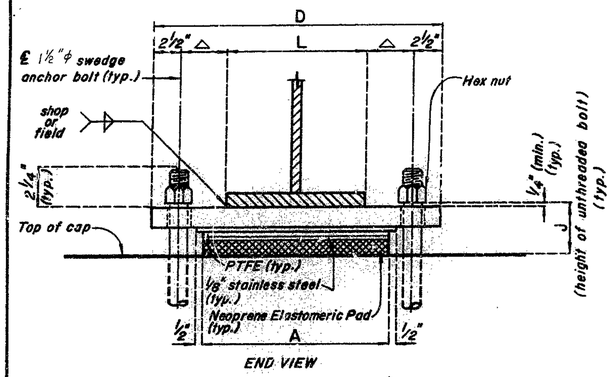
DETAILED APRIL 1983
CHECKED APRIL 1983

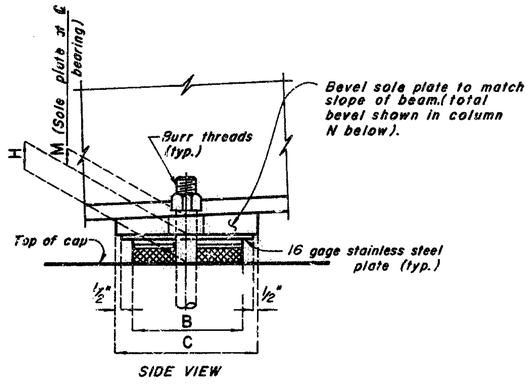
Note: This drawing is not to scale. Follow dimensions.

PLATTE COUNTY

A-3431

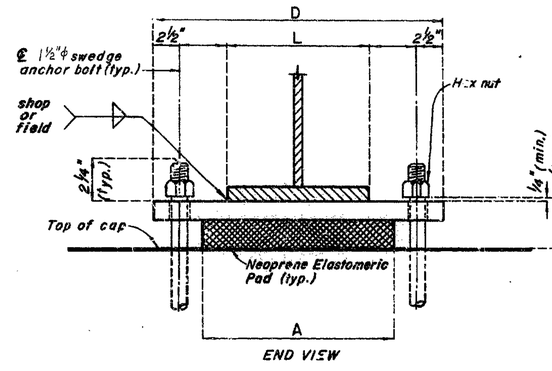
FED. ROAD DIS. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NEB.		19	42	

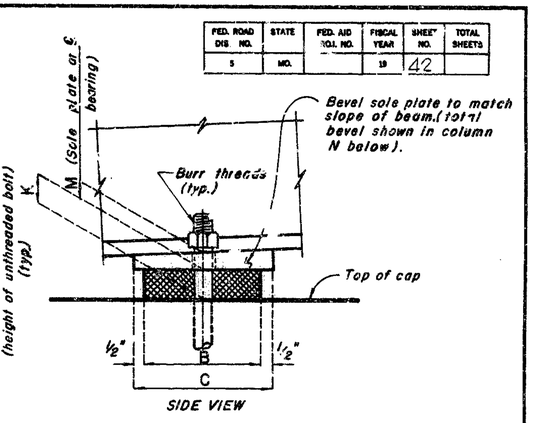


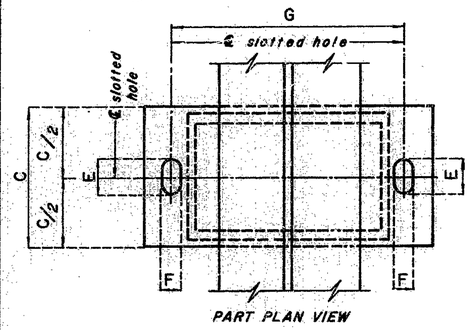


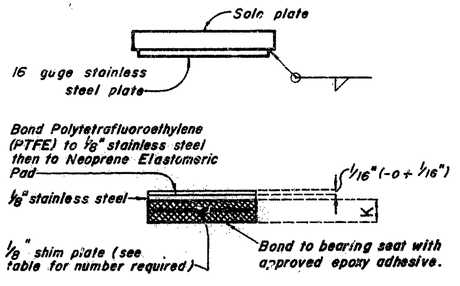
Note: The location of anchor bolts in relation to the slotted holes in the sole plate shall correspond with the temperature at the time of erection. At 60°F. the slotted holes should center on the anchor bolts.

△ 2½" End Bent 1
3½" Bent 2
2½" Bent 4
3½" End Bent 5

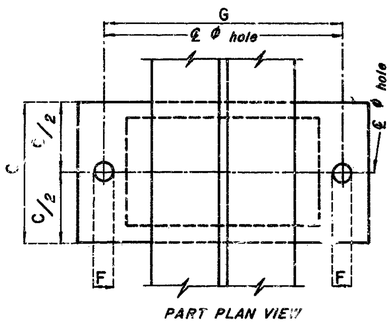


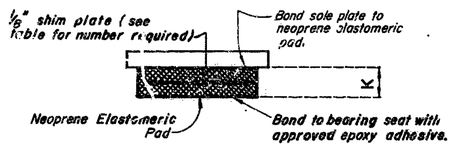






NEOPRENE ELASTOMERIC PAD





NEOPRENE ELASTOMERIC PAD

PTFE SLIDING BEARINGS

PTFE SLIDING BEARINGS														
BENT NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	NUMBER OF SHIM PLATES (*)
1	15"	10"	13¾"	24"	4½"	12¾"	19"	12¼"	2⅝"	1"	14"	1⅛"	3/16"	1
2	17"	22"	24¾"	26"	3½"	12¾"	21"	22¼"	3⅜"	2"	14"	1⅛"	¼"	1
4	17"	22"	24¾"	26"	3½"	12¾"	21"	22¼"	3½"	2"	12"	1"	0	1
5	15"	10"	¾"	24"	4½"	12¾"	19"	12¼"	2 11/16"	1"	12"	1 3/16"	¼"	1

NUMBER REQUIRED: 20

(*) The required shim plates shall be placed between equal layers of elastomer and molded together to form an integral unit.

Note:
Clip corners of sole plates 2x2 at End Bents 1 & 5.

GENERAL NOTES:
Anchor Bolts shall be 1½" ϕ swedge bolts and shall extend 15" into concrete with hexagon nuts.

WEIGHT OF ANCHOR BOLTS AND HEXAGON NUTS FOR BEARINGS SHALL BE INCLUDED IN WEIGHT OF FABRICATED STRUCTURAL STEEL.

NEOPRENE ELASTOMERIC PADS SHALL BE 70 DUROMETER.

THE SOLE PLATE SHALL BE FURNISHED WITH THE BEARING AND FIELD OR SHOP WELDED TO THE STRINGERS OR GIRDERS.

STRUCTURAL STEEL FOR SOLE PLATE SHALL BE A-36.

PAYMENT FOR THE SOLE PLATE WILL BE INCLUDED IN THE COST OF THE BEARING ASSEMBLY. SEE SPECIAL PROVISIONS.

ALL ANCHOR BOLTS AND HEXAGON NUTS SHALL BE A-588 STEEL.

THE ACCEPTED QUANTITY OF ELASTOMERIC BEARING ASSEMBLIES, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR TYPE "N" PTFE BEARINGS, EACH.

FIXED BEARINGS

FIXED BEARINGS												
BENT NO.	A	B	C	D	F	G	J	K	L	M	N	NUMBER OF SHIM PLATES (*)
3	20"	24"	25"	29"	2"	24"	3½"	2⅛"	16"	1/8"	3/16"	1

NUMBER REQUIRED: 5

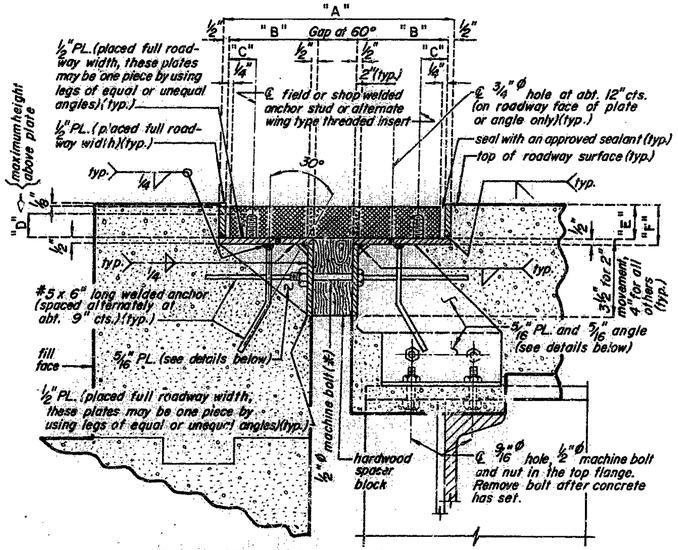
(*) The required shim plate shall be placed between equal layers of elastomer and molded together to form an integral unit.

TYPE "N" PTFE BEARINGS

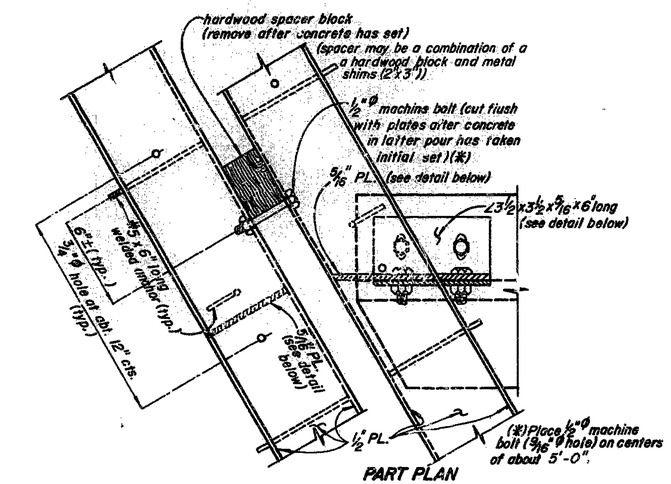
REVISED	SEPT. 1982
SPS-NEBR	APRIL 1978

DETAILED APRIL 1983
CHECKED APRIL 1983

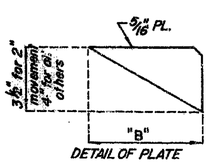
Note: This drawing is not to scale. Follow dimensions.



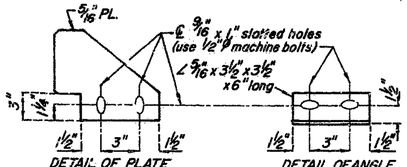
PART SECTION THRU ARMORED JOINT



PART PLAN



DETAIL OF PLATE



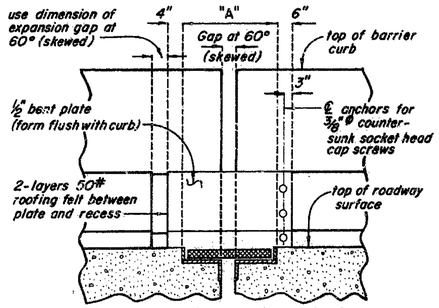
DETAIL OF PLATE

Note: 5/16" plates and angle placed at each girder or stringer.

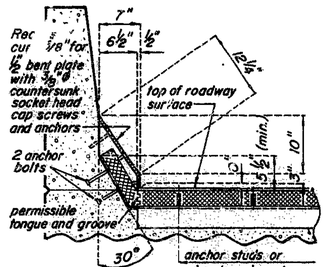
DETAIL OF ANGLE

TABLE OF DIMENSIONS										
LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	ANCHOR STUDS "G"
BENT 1 & 5	ON-FLEX 45	2"	11 1/2"	4 1/4"	1 5/8"	1 1/2"	2 3/4"	3 1/4"	1/2"	65
	WABO BENDOFLEX 450	2"	11 1/2"	4 1/4"	1 5/8"	1 1/2"	2 3/4"	3 1/4"	1/2"	50
	FEL-SPAN T40 CS	2"	12"	4 1/2"	1 5/8"	1 1/2"	2 1/4"	2 3/4"	1/2"	50

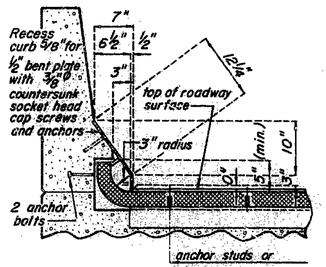
NOTE: All dimensions are at right angles.
Expansion gap and dimension "A" shall be increased 1/8" for each 10° fall in temperature and decreased 1/8" for each 10° rise in temperature.



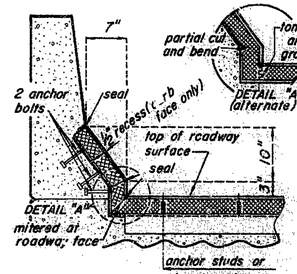
PART ELEVATION OF BARRIER CURB



TYPE "A" CURB

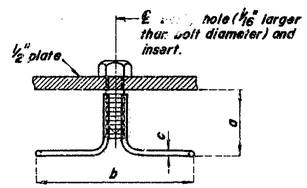


TYPE "B" CURB
(maximum skew of 10°)



TYPE "C" CURB

ALTERNATE CURB TREATMENTS



Bolt Diameter	Safe Load Tension (lbs.)(min.)	Approx. Ult. Cap. Tension (lbs.)(min.)	Dimensions a (min.)	b	c
1/2"	800	8,000	1-5/8"	5"	.218"
5/8"	1,300	9,200	1-5/8"	5"	.218"
3/4"	1,800	13,200	2-1/4"	6"	.262"
7/8"	2,000	16,200	2-1/2"	6-1/2"	.306"
1"	2,000	16,200	2-1/2"	6-1/2"	.306"

DETAILS OF ALTERNATE WING TYPE THREADED INSERT

(Machine bolts need only be used to secure the Wing Type Threaded Inserts to the steel plate until the concrete has attained 3,000 p.s.i.)

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE CERTIFIED NUTS AND BOLTS FOR THE ANCHOR STUDS OR WING TYPE THREADED INSERTS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL. NO. 5 BARS FOR ANCHORS SHALL BE STRUCTURAL GRADE STEEL. APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 5 BARS SHOWN.

SEE SPECIAL PROVISIONS FOR PAINTING.

ANCHOR BOLTS IN THE BARRIER CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE- PANSION TYPE. HOLES IN THE BARRIER CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

PLATES SHALL BE FIELD ADJUSTED BY ADDING OR REMOVING METAL SHIMS (2"± 3"), AS REQUIRED FOR TEMPERATURE CORRECTION. THE EXPANSION GAP SHALL BE ADJUSTED FOR ANY TEMPERATURE CORRECTION PRIOR TO POURING TOP OF END BENT BACKWALL.

CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT.

FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NEB.		19	43	

480

SPS - END AT.	REVISED
FEB. 1978	APRIL 1982

DETAILED APRIL 1983
CHECKED APRIL 1983

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

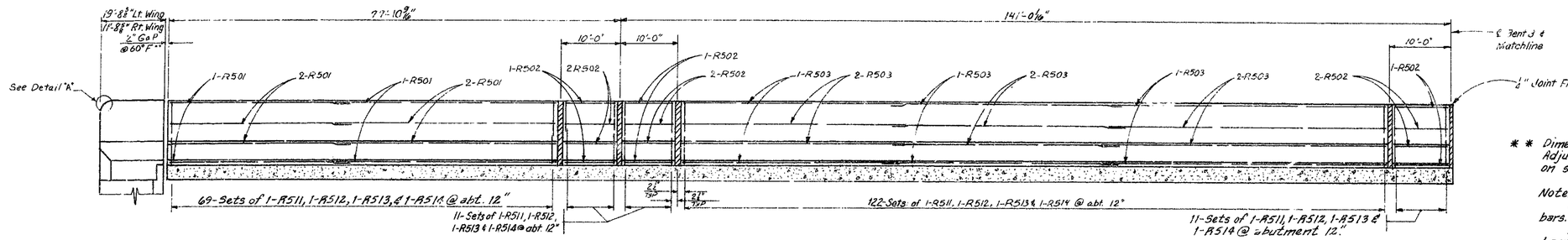
DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL AT BENT NO. 1 & 5

Sheet No. 19 of 23.

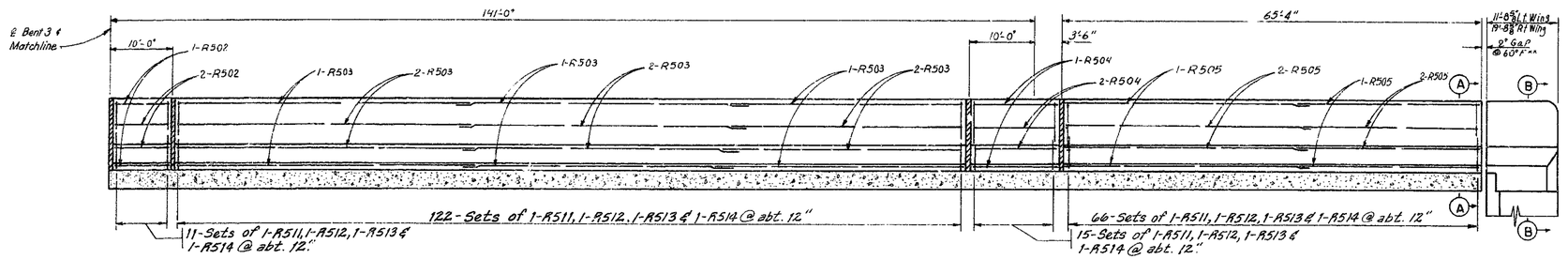
PLATTE COUNTY

A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NO.		19	44	



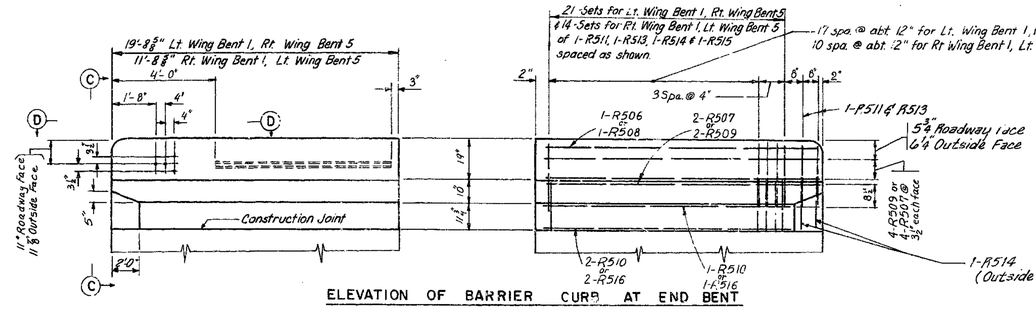
BARRIER CURB ELEVATION



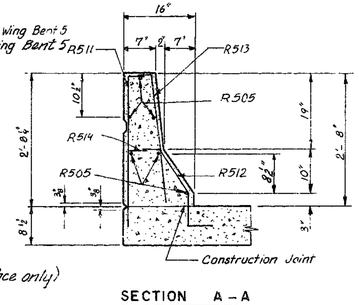
BARRIER CURB ELEVATION

** Dimension based on 2" expansion gap at 60° F. Adjust for any change in expansion gap as noted on sheet.

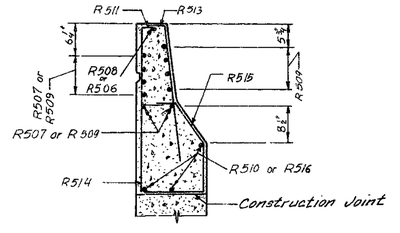
Notes:
Use a minimum lap of 17" for #5 horizontal bars.
Longitudinal dimensions are along top of barrier curb parallel to grade.
Top of barrier curb to be built parallel to grade with barrier curb joints (except end bents) normal to grade.
All exposed edges of barrier curb shall have ½" radius or ⅜ bevel unless otherwise shown.
Concrete in the safety barrier curb to be Class B1.



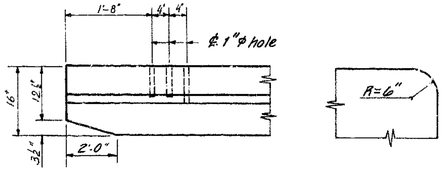
ELEVATION OF BARRIER CURB AT END BENT



SECTION A – A

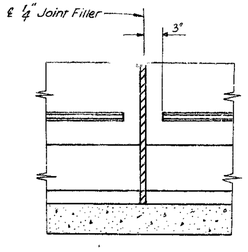


SECTION B-B

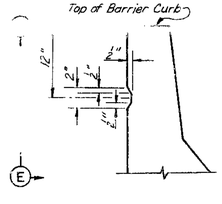


VIEW D-D

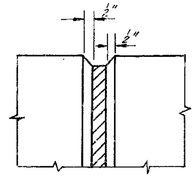
DETAIL A



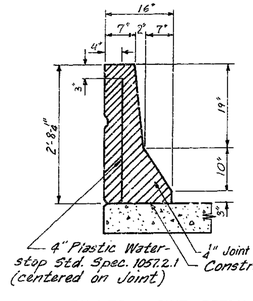
VIEW E-E



RUSTICATION DETAIL

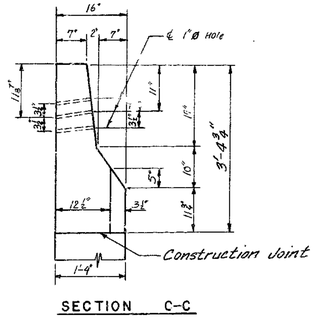


FILLED JOINT DETAIL



FILLED JOINT DETAIL

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.



SECTION C-C

481

DETAILED K.S. 1979
CHECKED JWB 1979

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

Sheet No. 20 of 23.

BARRIER RAIL DETAILS

PLATTE COUNTY

A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	45	

REINFORCING STEEL SCHEDULE

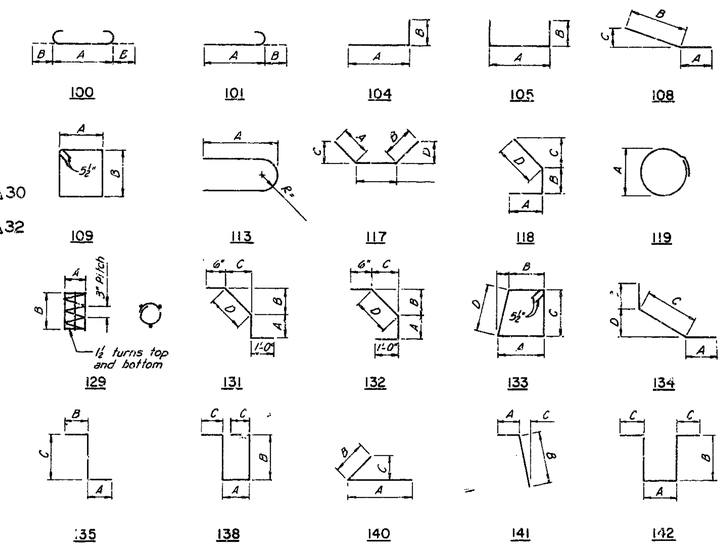
MARK	LOCATION	NO. REQ'D	SHAPE	LENGTH	DIMENSIONS A	B	C	D	SER. INCR.	WEIGHT
				BENT 1						
A201	Beam	10	129	19'-9"	9⅛"	12"				33
H401	Backwall	16	108	36'-8"	1'-2"	35'-6"	28'-10"			392
H402	Maskwall	8	Str.	5'-10"						31
H403	Maskwall	4	105	6'-8"	6"	3'-2"				18
H404	Pad	50	105	2'-10"	2'-0"	6"				95
H601	Backwall	4	Str.	36'-7"						220
H602	Beam	4	Str.	37'-0"						222
H603	Beam	69	133	12'-4"	3'-5"	2'-11"	2'-8"	2'-9"		1276
H604	Beam	1	133	11'-1"	2'-9"	2'-4"	2'-8"	2'-9"		17
H605	Wingwall	4	Str.	11'-6"						69
H606	Wingwall	4	Str.	19'-6"						117
H607	Wingwall	2 Ser. of 4	Str.	6'-5" to 11'-4"					1'-3¾"	107
H608	Wingwall	2 Ser. of 4	Str.	6'-2" to 19'-0"					3'-3⅛"	151
H609	Fillet	5	134	5'-7"	1'-2"	1'-2"	3'-3"			42
H610	Fillet	5	134	9'-7"	1'-2"	1'-2"	7'-3"			72
H611	Wingwall Rg.	8	100	3'-4"	2'-0"	8"				40
H701	Beam	16	101	38'-5"	37'-7"	10"				1256
H702	Beam	5	118	14'-3"	10'-0"	2'-9"	1'-1"	1'-6"		146
H703	Beam	5	105	17'-1"	2'-9"	7'-3"				175
H704	Beam	5	118	3'-1"	1'-2"	9"	10"	1'-2"		32
H705	Beam	5	108	2'-4"	1'-2"	1'-2"	1'-8"			24
V401	Maskwall	14	Str.	5'-3"						49
V501	Backwall	68	105	5'-3"	9"	2'-4"				372
V601	Backwall	158	Str.	5'-0"						1187
V602	Beam	2	Str.	2'-9"						8
V603	Wingwall	1 Ser. of 6	Str. ⚠5	2'-9" to 4'-10"					⚠6.250" (5)	34 ⚠30
V604	Wingwall	1 Ser. of 6	101 ⚠5	3'-3" to 5'-4"	2'-7" to 4'-8"	8"			⚠6.250" (5)	39 ⚠32
V605	Wingwall	6	Str.	6'-5"						58
V606	Wingwall	6	101	6'-11"	6'-3"	8"				62
V607	Wingwall	2	134	10'-8"	1'-6"	2'-4"	6'-10"	2'-10"		32
V608	Maskwall	2	104	13'-1"	5'-5"	7'-9"				39
V609	Maskwall	2	104	10'-7"	5'-5"	5'-3"				32
V610	Wingwall	5	Str.	6'-4"						48
V611	Wingwall	5	101	6'-10"	6'-2"	8"				51
V612	Wingwall	1 Ser. of 8	Str.	3'-2 to 4'-9"					2¾"	48
V613	Wingwall	1 Ser. of 8	101	3'-8" to 5'-3"	3'-0" to 4'-7"	8"			2¾"	54
V614	Wingwall	3	Str.	5'-8"						26
V615	Wingwall	3	101	6'-2"	5'-6"	8"				28
V616	Wingwall	1	Str.	2'-10"						4
V617	Wingwall	1	101	3'-4"	2'-8"	8"				5
V618	Wingwall	1	Str.	2'-7"						4
V619	Wingwall	1	101	3'-1"	2'-5"	8"				5
V620	Wingwall	2	134	18'-10"	1'-6"	2'-4"	15'-0"	3'-4"		57
V621	Beam	12	105	5'-10"	2'-6"	1'-9"				105
V622	Wingwall	1	Str.	2'-7"						4
V623	Wingwall	1	101	3'-1"	2'-5"	8"				5
V624	Beam	2	Str.	3'-4"						10
⚠→V625	WINGWALL	2	STR.	1'-6"						5
									Total	6,903 ⚠6897

REINFORCING STEEL SCHEDULE

MARK	LOCATION	NO. REQ'D	SHAPE	LENGTH	DIMENSIONS A	B	C	D	SER. INCR.	WEIGHT
				BENT 5						
A201	Beam	10	128	19'-9"	9⅛"	12"				33
H431	Backwall	16	106	36'-9"	1'-2"	35'-6"	28'-10"			392
H432	Maskwall	8	Str.	5'-10"						31
H433	Maskwall	4	105	6'-8"	6"	3'-2"				18
H434	Pad	50	105	2'-10"	2'-0"	6"				95
H631	Backwall	4	Str.	36'-7"						220
H632	Beam	4	Str.	37'-0"						222
H633	Beam	69	133	12'-4"	3'-5"	2'-11"	2'-8"	2'-9"		1278
H634	Beam	1	133	11'-1"	2'-9"	2'-4"	2'-8"	2'-9"		17
H635	Wingwall	4	Str.	11'-6"						69
H636	Wingwall	4	Str.	19'-6"						117
H637	Wingwall	2 Ser. of 4	Str.	6'-5" to 11'-4"					1'-3¾"	107
H638	Wingwall	2 Ser. of 4	Str.	6'-2" to 19'-1"					3'-3⅛"	151
H639	Fillet	5	134	5'-7"	1'-2"	1'-2"	3'-3"			42
H640	Fillet	5	134	9'-7"	1'-2"	1'-2"	7'-3"			72
H641	Wingwall Ftg	8	100	3'-4"	2'-0"	8"				40
H731	Beam	16	101	38'-5"	37'-7"	10"				1256
H732	Beam	5	118	14'-3"	10'-0"	2'-9"	1'-1"	1'-6"		146
H733	Beam	5	105	17'-1"	2'-9"	7'-3"				175
H734	Beam	5	118	3'-1"	1'-2"	9"	10"	1'-2"		32
H735	Beam	5	108	2'-4"	1'-2"	1'-2"	1'-8"			24
V431	Maskwall	14	Str.	5'-3"						49
V531	Backwall	68	105	5'-3"	9"	2'-4"				372
V631	Backwall	158	Str.	5'-0"						1187
V632	Beam	4	Str.	2'-9"						17
V633	Wingwall	1 Ser. of 6	Str. ⚠5	2'-9" to 4'-10"					⚠6.250" (5)	34 ⚠30
V634	Wingwall	1 Ser. of 6	101 ⚠5	3'-3" to 5'-4"	2'-7" to 4'-8"	8"			⚠6.250" (5)	39 ⚠32
V635	Wingwall	6	Str.	6'-5"						58
V636	Wingwall	6	101	6'-11"	6'-3"	8"				62
V637	Wingwall	2	134	10'-8"	1'-6"	2'-4"	6'-10"	2'-10"		32
V638	Maskwall	2	104	13'-1"	5'-5"	7'-9"				39
V639	Maskwall	2	104	10'-7"	5'-5"	5'-3"				32
V640	Wingwall	5	Str.	6'-4"						48
V641	Wingwall	5	101	6'-10"	6'-2"	8"				51
V642	Wingwall	1 Ser. of 8	Str.	3'-2" to 4'-9"					2¾"	48
V643	Wingwall	1 Ser. of 8	101	3'-8" to 5'-3"	3'-0" to 4'-7"	8"			2¾"	54
V644	Wingwall	3	Str.	5'-8"						26
V645	Wingwall	3	101	6'-2"	5'-6"	8"				28
V646	Wingwall	1	Str.	2'-10"						4
V647	Wingwall	1	101	3'-4"	2'-8"	8"				5
V648	Wingwall	1	Str.	2'-7"						4
V649	Wingwall	1	101	3'-1"	2'-5"	8"				5
V650	Wingwall	2	134	18'-10"	1'-6"	2'-4"	15'-0"	3'-4"		57
V651	Beam	12	105	5'-10"	2'-9"	2'-9"				105
V652	Wingwall	1	Str.	2'-7"						4
V653	Wingwall	1	101	3'-1"	2'-5"	8"				5
⚠→V654	WINGWALL	2	STR.	1'-7						5
									Total	6,903 ⚠6896

REINFORCING STEEL SCHEDULE

MARK	LOCATION	NO. REQ'D	SHAPE	LENGTH	DIMENSIONS A	B	C	D	SER. INCR.	WEIGHT



BAR BENDING DIAGRAMS

Notes:
Hooks and bends shall be in accordance with ACI procedure.
All lengths shown are based on out to out dimensions.
1" shall be deducted for each 90° benc.

492

DETAILED CK 19 79
CHECKED JWB 19 79

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

⚠ REVISED 8 / 23 / 83

Sheet No. 21 of 23 .

REINFORCING STEEL SCHEDULE

PLATTE COUNTY

A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	46	

REINFORCING STEEL SCHEDULE

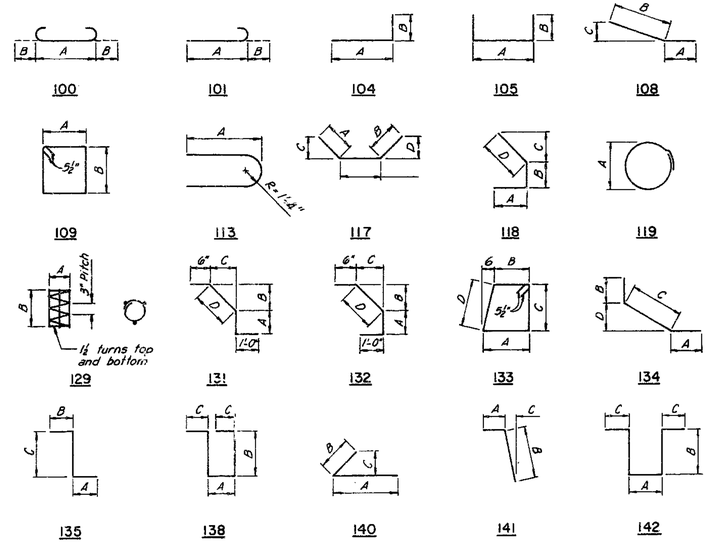
MARK	LOCATION	NO. REQ'D.	SHAPE	LENGTH	DIMENSIONS A	B	C	D	SER. INCR.	WEIGHT
				BENT 2						
A201	Cap beam	10	129	19'-9"	9⅛"	12"				33
B401	Cap beam	6	Str	40'-0"						760
B410	Pad	20	105	4'-9"	2'-11"	1'-0"				63
B501	Cap beam	27	109	13'-11	2'-11"	3'-9"				392
B502	Cap beam	45	109	14'-11	2'-11"	4'-3"				700
B601	Cap beam	12	Str	32'-10"						592
B701	Cap beam	8	113	11'-10	5'-4"					194
B1001	Cap beam	4	101	36'-2"	34'-9"	1'-5"				623
B1002	Cap beam	4	101	37'-1"	35'-8"	1'-5"				638
B1003	Cap beam	4	101	37'-5"	36'-0"	1'-5"				644
B1004	Cap beam	4	101	12'-7"	11'-2"	1'-5"				217
B1005	Cap beam	2	101	44'-4"	42'-11"	1'-5"				382
B1006	Cap beam	2	101	45'-3"	43'-10"	1'-5"				389
B1007	Cap beam	2	101	45'-7"	44'-2"	1'-5"				392
B1008	Cap beam	2	101	26'-4"	24'-11"	1'-5"				227
B1009	Cap beam	2	101	27'-3"	25'-10"	1'-5"				235
B1010	Cap beam	2	101	27'-7"	26'-2"	1'-5"				237
C401	Column	72	119	9'-6"	2'-9"					457
C1001	Column	32	Str	21'-3"						2926
F801	Footing	24	100	10'-4"	8'-6"	11"				662
F802	Footing	24	100	10'-4"	8'-6"	11"				662
F1001	Footing	32	101	12'-3" △10'-10"	10'-10" 9'-5" △	1'-5"			△1491	1469
F803	Footing	8	105	18'-10"	8'-0"	5'-6"				402
									TOTAL	12,696
									△ 12718	

REINFORCING STEEL SCHEDULE

MARK	LOCATION	NO. REQ'D.	SHAPE	LENGTH	DIMENSIONS A	B	C	D	SER. INCR.	WEIGHT
				BENT 3						
A201	Cap Beam	10	129	23'-0"	9⅛"	1'-3"				38
B410	Pad	20	105	4'-9"	2'-11"	1'-0"				63
B510	Cap Beam	24	109	11'-9"	1'-11"	3'-9"				294
B520	Cap Beam	80	109	13'-11"	2'-11"	3'-9"				1161
B601	Cap Beam	12	Str	32'-10"						592
B701	Cap Beam	8	113	11'-10"	5'-4"					193
B1101	Cap Beam	4	101	36'-4"	34'-9"	1'-7"				772
B1102	Cap Beam	4	101	37'-3"	35'-8"	1'-7"				792
B1103	Cap Beam	4	101	37'-7"	36'-0"	1'-7"				799
B1104	Cap Beam	4	101	13'-11"	12'-4"	1'-7"				296
B1105	Cap Beam	2	101	44'-8"	43'-1"	1'-7"				475
B1106	Cap Beam	2	101	45'7"	44'-0"	1'-7"				484
B1107	Cap Beam	2	101	45'-11"	44'-4"	1'-7"				488
B1108	Cap Beam	2	101	26'-8"	25'-1"	1'-7"				283
B1109	Cap Beam	2	101	27'-7"	26'-0"	1'-7"				293
B1110	Cap Beam	2	101	27'-11"	26'-4"	1'-7"				297
C401	Column △76	24	119	9'-6"	2'-9"				△482	469
C1010	Column	16	Str	21'-6"						1480
C1101	Column	16	Str	21'-6"						1828
F801	Footing	24	100	10'-4"	8'-6"	11"				662
F901	Footing	24	100	11'-0"	8'-6"	1'-3"				898
F1001	Footing	16	101	10'-8"	9'-3"	1'-5"				734
F1101	Footing	16	101	13'-5"	11'-10"	1'-7"				1141
F902	Footing	8	105	19'-8"	8'-0"	5'-11"				535
									Total	15,067
									△ 15080	
				BENT 4						
A201	Cap Beam	10	129	19'-9"	9⅛"	12"				33
~~B410~~	~~Pad~~	~~20~~	~~105~~	~~4'-9"~~	~~2'-11"~~	~~1'-0"~~				63
B501	Cap Beam	72	109	13'11"	2'-11"	3'-9"				1045
B601	Cap Beam	12	Str	32'-10"						592
B701	Cap Beam	6	113	11'-10"	5'-4"					194
B1001	Cap beam	4	101	36'-2"	34'-9"	1'-5"				623
B1002	Cap beam	4	101	37'-1"	35'-8"	1'-5"				638
B1003	Cap beam	4	101	37'-5"	36'-0"	1'-5"				644
B1004	Cap beam	4	101	12'-7"	11'-2"	1'-5"				217
B1005	Cap beam	2	101	44'-4"	42'-11"	1'-5"				382
B1006	Cap beam	2	101	45'-3"	43'-10"	1'-5"				389
B1007	Cap beam	2	101	45'-7"	44'-2"	1'-5"				392
B1008	Cap beam	2	101	26'-4"	24'-11"	1'-5"				227
B1009	Cap beam	2	101	27'-3"	25'-10"	1'-5"				235
B1010	Cap beam	2	101	27'-7"	26'-2"	1'-5"				237
C401	Column	68	119	9'-6"	2'-9"					432
C1020	Column	32	Str	20'-1"						2765
F801	Footing	24	100	10'-4"	8'-6"	11"				662
F802	Footing	24	100	10'-4'	8'-6"	11"				662
F1001	Footing	32	101	10'-8"	9'-3"	1'-5"				1469
F803	Footing	8	105	18'-10"	8'-0"	5'-6"				402
									TOTAL	12,303

REINFORCING STEEL SCHEDULE

MARK	LOCATION	NO. REQ'D.	SHAPE	LENGTH	DIMENSIONS A	B	C	D	SER. INCR.	WEIGHT



BAR BENDING DIAGRAMS

Notes:
Hooks and bends shall be in accordance with ACI procedure.
All lengths shown are based on out to out dimensions.
1" shall be deducted for each 90° bend.

483

DETAILED CK 19 79
CHECKED JWB 19 79

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

△ REVISED 8 / 23 / 83

Sheet No. 22 of 23.

REINFORCING STEEL SCHEDULE

PLATTE COUNTY

A-3431

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	47	

REINFORCING STEEL SCHEDULE

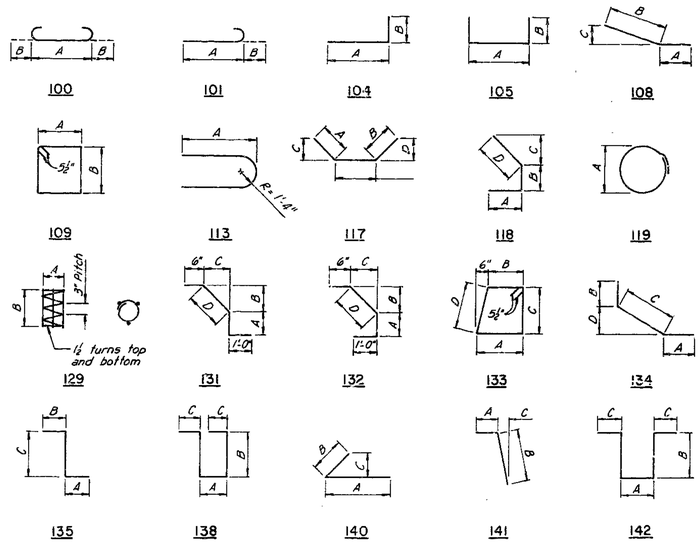
MARK	LOCATION	NO. REQ'D.	SHAPE	LENGTH	DIMENSIONS A	B	C	D	SER. INCR.	WEIGHT
SUPERSTRUCTURE										
S501	Slab	224	Str	53'-6"						12,499
S502	Slab	322	Str	53'-6"						17,968
* S503	Slab ⚠900	755	Str	18'-5"				⚠17288		14,503
S504	Slab	2ser	Str	4'-0"					3 1/8	947
		of 66		to 23'-6"				⚠1893		
S505	Slab	2ser	Str	4'-0"					5	1,348
		of 47		to 23'-6"						
S506	Slab ⚠643	537	Str	18'-5"				⚠12351		10,315
S507	Slab	2ser	Str	2'-0"					3 1/8	2,168
		of 77		to 25'-0"						
S508	Slab	2ser	Str	2'-0"					5	1,549
		of 55		to 25'-0"						
S509	Slab	64	Str	33'-5"						2,231
S510	Slab	92	Str	33'-5"						3,207
S511	Slab	14	Str	53'-6"						781
S512	Slab	66	Str	57'-0"						3,924
S513	Slab	66	Str	47'-0"						3,235
S514	Slab	66	Str	39'-0"						2,685
S515	Slab	66	Str	9'-4"						642
S516	Slab	4	Str	33'-5"						139
S517	Slab	88	101	2'-10"	2'-3"	7"				260
S520	Slab ⚠866	735	Str.	25'-0"				⚠22581		19,165
S521	Slab ⚠621	524	Str.	25'-0"				⚠16193		13,663
S522	Slab	2 Ser.	Str.	2'-0" to					3½"	1,384
		of 61		19'-9"						
S523	Slab	2 ser.	Str.	2'-0" to					5"	998
		of 44		19'-9"						
S524	Slab	2 ser.	Str.	2'-0" to					3½"	973
		of 50		16'-8"						
S525	Slab	2 ser.	Str.	2'-0" to					5"	701
		of 30		16'-8"						

REINFORCING STEEL SCHEDULE

MARK	LOCATION	NO. REQ'D	SHAPE	LENGTH	DIMENSIONS A	B	C	D	SER. INCR.	WEIGHT
SUPERSTRUCTURE										
R501	Barrier Rail	24	Str	34'-5"						862
R502	Barrier Rail	48	Str	9'-9"						488
R503	Barrier Rail	72	Str	41'-1"						3085
R504	Barrier Rail	12	Str	13'-3"						166
R505	Barrier Rail	24	Str	33'-2"						830
R506	Barrier Rail	2	Str	19'-4"						40
R507	Barrier Rail	20	Str	19'-5"						405
R508	Barrier Rail	2	Str	11'-4"						24
R509	Barrier Rail	20	Str	11'-5"						238
R510	Barrier Rail	6	Str	18'-5"						115
R511	Barrier Rail	950	104	2'-8 3/4"	2'-6"	3 3/4"				2604
R512	Barrier Rail	676	131	2'-11"	7"	9 1/4"	6 3/4"	11 3/8"		2605
R513	Barrier Rail	950	141	2'-9 1/2"	3 1/2"	2'-6 1/4"	3"			2766
R514	Barrier Rail	950	104	1'-10"	1'-5	6"				1817
R515	Barrier Rail	70	132	3'-1 1/2"	9 3/8"	9 3/4"	6 1/8"	11 5/8"		228
R516	Barrier Rail	6	Str	10'-5"						65
									TOTAL	131,770
										⚠143476

REINFORCING STEEL SCHEDULE

MARK	LOCATION	NO. REQ'D.	SHAPE	LENGTH	DIMENSIONS A	B	C	D	SER. INCR.	WEIGHT



BAR BENDING DIAGRAMS

Notes:
Hooks and bends shall be in accordance with ACI procedure.
All lengths shown are based on out to out dimensions.
1" shall be deducted for each 90° bend.
* Two additional bars are included for testing.

All S501, S503, S504, S507, S509, S512, S513, S514 S515, S517, S520, S522, and S524 bars shall be epoxy coated.

All Reinforcing in Barrier Rail to be epoxy coated.

REINFORCING STEEL SCHEDULE

PLATTE COUNTY

A-3431

DETAILED CK 19 79
CHECKED JWB 19 79

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

⚠ REVISED 8 / 23 / 83

Sheet No. 23 of 23.

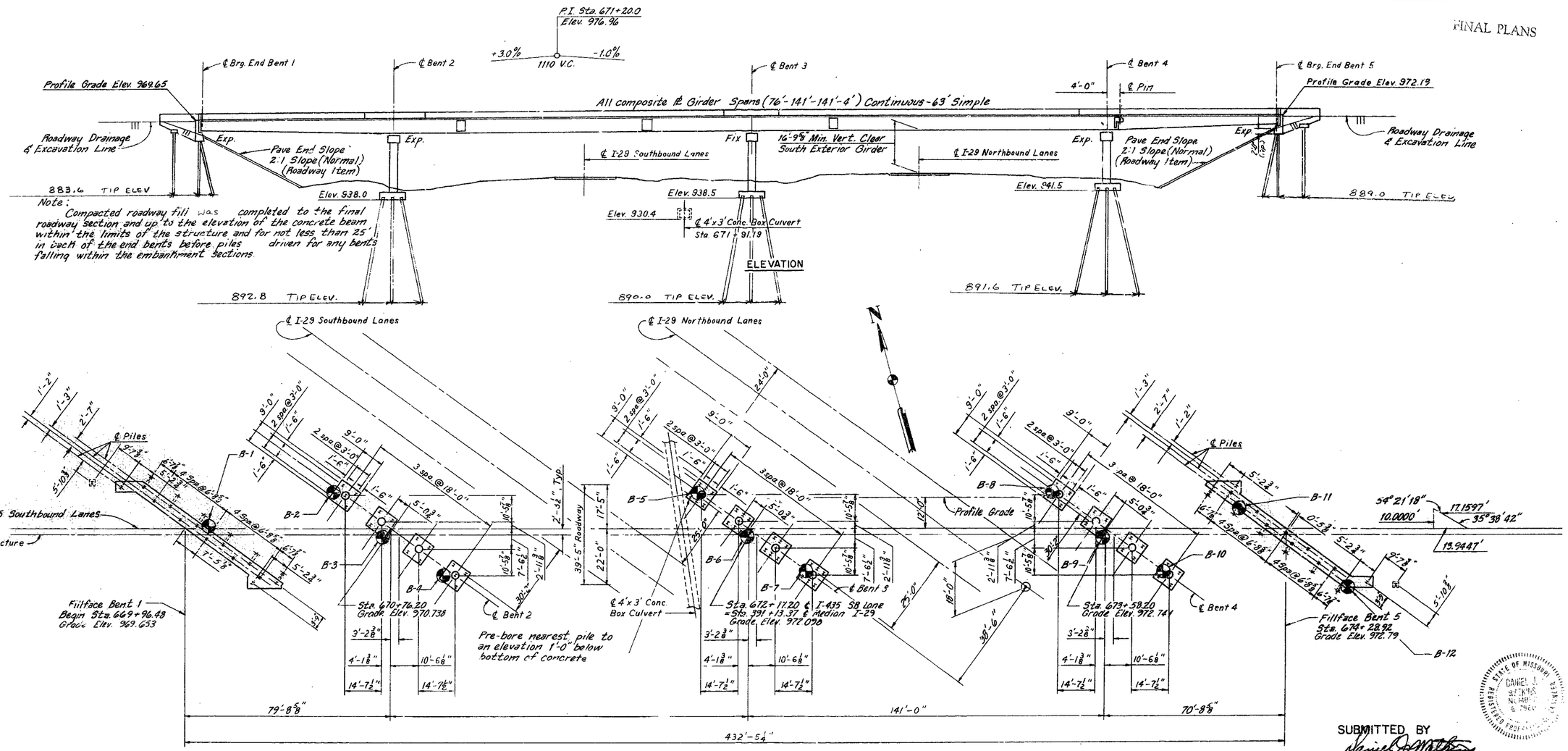
284

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		19	25	

SEC. 14 TWP. 52N RGE. 34W

FINAL PLANS



PLAN

"◔" Denotes location of Boring.
For Boring Data see Sheets 3 & 4.
For General Notes & Estimated Quantities see Sheet 2.
All dimensions shown are horizontal.
⊙ Denotes point of minimum vertical clearance.
The Contractor was responsible for making his own determinations as to the type, size and location of concrete box culvert as necessary to avoid damage thereto.

SUBMITTED BY
Daniel J. Mathews
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. A-7860

B.M. □ ELEV. 972.82 OVAL BOLT HEAD RIGHT BARRIER CURB @ JT 1
ELEV. 975.49 OVAL BOLT HEAD LEFT BARRIER CURB @ BT 5

BRIDGE I-435 S.B.L. OVER ROUTE I-29

STATE ROAD INTERSTATE 435

ABOUT 0.5 MILES NORTH OF KCI AIRPORT

PROJECT NO. I-435-1(188) **STA.** 669+96.48

JOB NO. 4-1435-8A **RTE.** 435

PLATTE **COUNTY**

DATE JUNE 9, 1983

STD. 611.60
STD. 706.35
A-3431

DESIGNED June 1979
DETAILED MHW 1979
CHECKED ALB 1979

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

Sheet No. 1A **of** 23.

485

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		83	26	

FINAL PLANS

PILE AND FOOTING DATA

	BENT NO.		1	2	3	4	5
BEARING PILE	Pile Type and Size		HP10x42	HP10x42	HP10x42	HP10x42	HP10x42
	Number		14	18	24	18	14
	Length	Ft.	79	46	49	31	77
	Bearing	Tons	Refusal @ 120	108	114	108	114
	Hammer Energy		15000	15000	15000	15000	15000

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

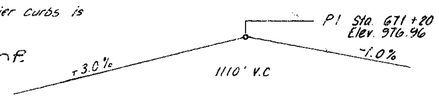
QUANTITIES

ITEMS		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu. Yds.	269.0		269.0
Structural Steel Piles (10")	Lin. Ft.	5120		5120
Class B Concrete	Cu. Yds.	387.6		387.6
Class B1 Concrete	Cu. Yds.		78.5	78.5
Class B2 Concrete	Cu. Yds.		507.4	507.4
Type "N" PTFE Bearing	Each		25	25
Pile Point Reinforcement	Each	14		14
Elastomeric Expansion Joint Seal (2½ inches)	Lin. Ft.		145	145
Reinforcing Steel	Lbs.	* 53900	* 55240	109140
Reinforcing Steel (Epoxy Coated)	Lbs.		* 88240	88240
Fabricated Structural Carbon Steel Plate Girder	Lbs.		504080	504080
Painting (System A or B) Aluminium	Tons		250.2	250.2
Slab Drains	Each		26	26
ConT. 503.01 Pad Adj. Bent 5	F.A.			#2983.90

* See Revised sheets #2, 21, 22 & 23 (8-23-83)

Note: All concrete and reinforcement in safety barrier curbs is included with superstructure quantities

Note: Manufactured pile point reinf. were used on piles at End Bent #1. (See Special Provisions)



GENERAL NOTES

DESIGN SPECIFICATIONS: AASHTO, 1977 Load Factor Design.

DESIGN LOADING:
HS20-44, 15 lbs./sq. ft. Future Wearing Surface.
Modified 20,000 Tandem Axle.
Earth 120 lbs., Equivalent Fluid Pressure 35 lbs.
Fatigue Stress, Case I.

DESIGN UNIT STRESSES:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B1 Concrete (Safety Barrier Curb)	f'c = 4,000 psi
Class B2 Concrete (Superstructure except Safety Barrier Curb)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Structural Carbon Steel	fy = 36,000 psi
Steel Pile	fb = 9,000 psi

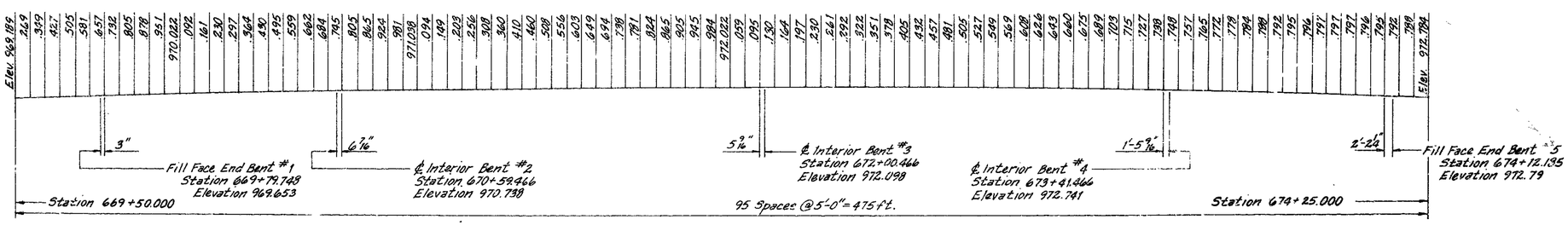
FABRICATED STEEL:
Field Connections, High Strength Bolts ¾" ϕ holes 13/16" ϕ except as noted.

REINFORCING STEEL:
Minimum clearance to reinforcing steel is 1½" unless shown otherwise.
All reinforcing bars in tops of substructure beam or caps were spaced to clear anchor bolts for bearings by at least ½.

PAINT:
System A or B by Contractor in accordance with Std. Spec. 712.12. Color of final field coat shall be Aluminum.

CONSTRUCTION CLEARANCE:
A minimum vertical clearance of 14'-6" from crown of existing lanes and a minimum lateral clearance of 28'-10" centered on existing lanes of existing Route I-29 maintained during construction.

TRAFFIC MAINTAINED:
Traffic on existing Route I-29 maintained during construction.



PROFILE GRADE ELEVATIONS

GENERAL NOTES, QUANTITIES & PROFILE GRADE ELEVATIONS

436

DETAILED R.D.W. 1979
CHECKED JWB 1979

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

Sheet No. 2A of 23.

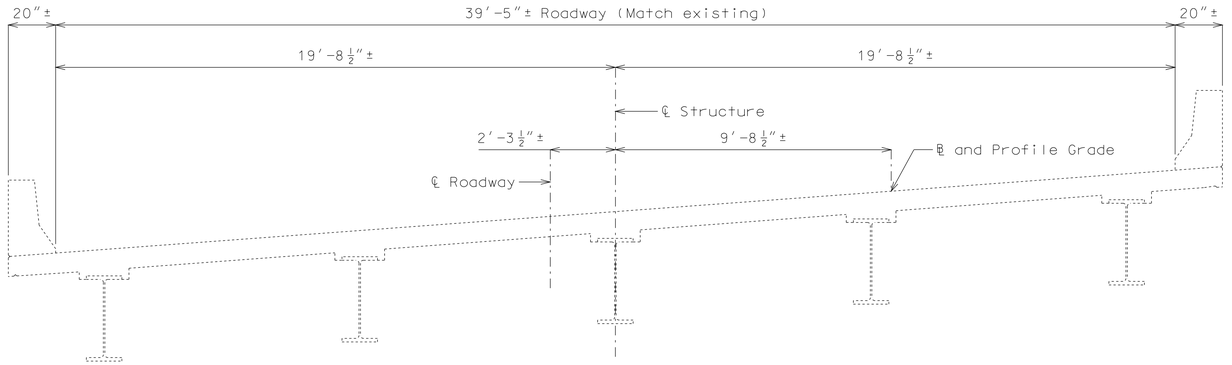
PLATTE COUNTY

A-3431

SEC/SUR 13 TWP 52N RGE 34W

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

U.I.P. & Rehabilitate Existing (61'-84'-89'-59') Continuous Composite Plate Girder Spans



SECTION THRU EXISTING SLAB

General Notes:

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A

Design Loading:
HS20-44 Military 24,000# Tandem Axle (1979 & New Construction)
15#/Sq. Ft. Future Wearing Surface
Fatigue Stress - Case II

Design Unit Stresses:

Class B-2 Concrete (Superstructure and Safety Barrier Curb)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

General Notes (Cont.):

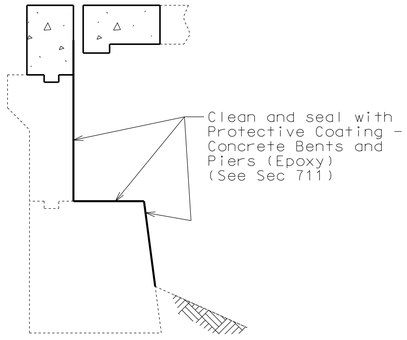
Concrete Protective Coatings:
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Miscellaneous:
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

Traffic Handling:
Structure to be closed to traffic during construction.



TYPICAL SECTION THRU
END BENTS NO. 1 & 5
SHOWING PROTECTIVE COATING

Estimated Quantities

Item		Total
Removal of Existing Expansion Joints & Adjacent Concrete	linear foot	108
Remove and Replace Barrier Curb	linear foot	15
Class B-2 Concrete	cu. yard	8.7
Reinforcing Steel (Epoxy Coated)	pound	1310
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
Expansion Device (Flat Plate)	linear foot	108

REPAIRS TO BRIDGE: RAMP I-435 WB TO RTE. D OVER ROUTE D
STATE ROAD FROM RTE. C TO RTE. D
AT RTE. D
STA. 15+11.00± (Match Existing)

STD. 706.35

Detailed Sep. 2012
Checked Sep. 2012

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

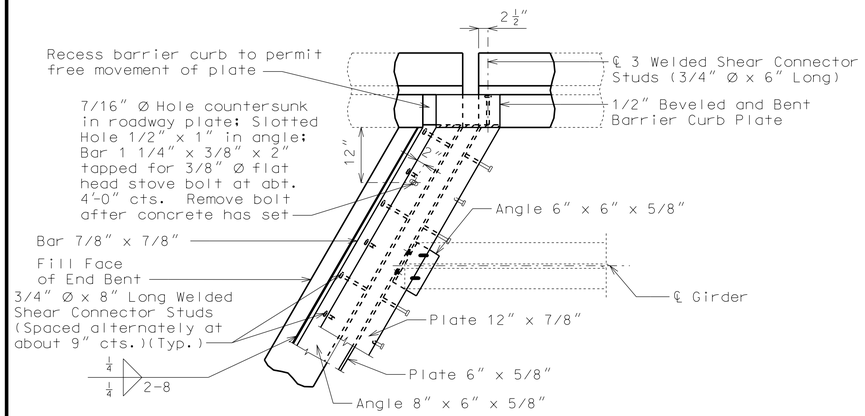
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-435 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A34411

DESCRIPTION | DATE

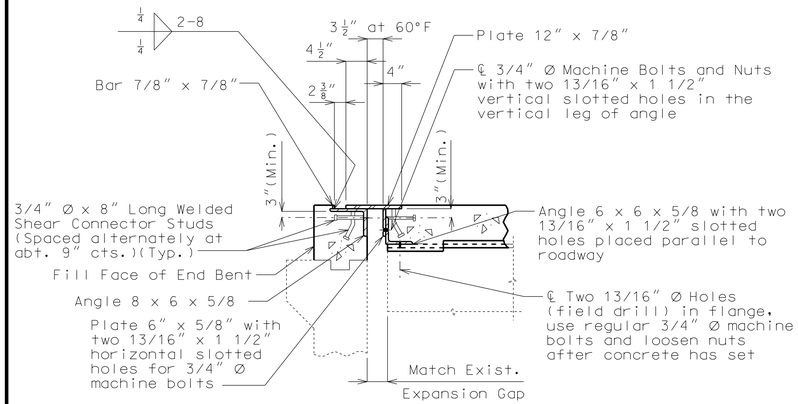
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

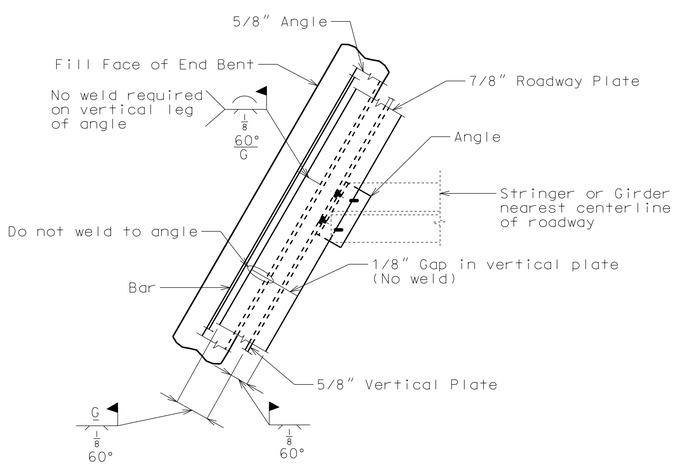


PART PLAN

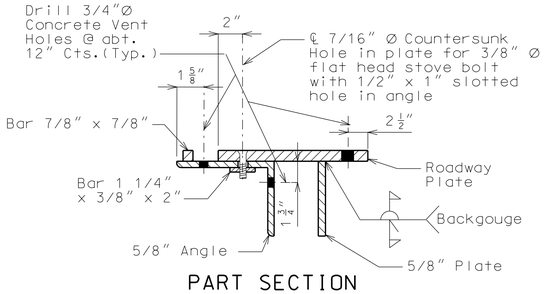
Note: Concrete vent holes not shown for clarity.



PART SECTION AT END BENT (NORMAL TO GAP)

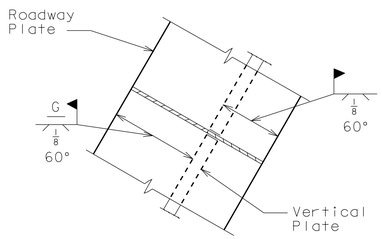


PERMISSIBLE FIELD SPLICE AT END BENT

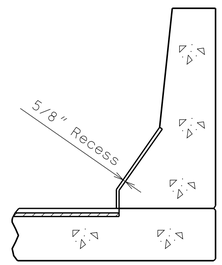


PART SECTION (TYPICAL)

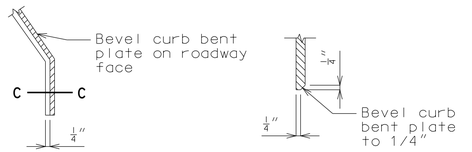
	Bent 1 Left	Bent 1 Right	Bent 5 Left	Bent 5 Right
①	3"	2 7/8"	3 5/8"	3 1/2"
②	5 5/8"	5 1/2"	6 1/8"	6 3/4"
③	4 3/8"	4 1/4"	5 3/8"	5 1/8"
④	5"	4 7/8"	6 1/8"	5 7/8"
⑤	15"	14 5/8"	18 3/8"	17 3/4"



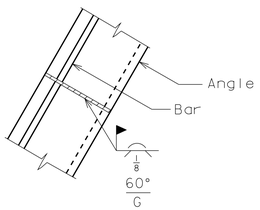
PART PLAN ROADWAY PLATE AND VERTICAL PLATE



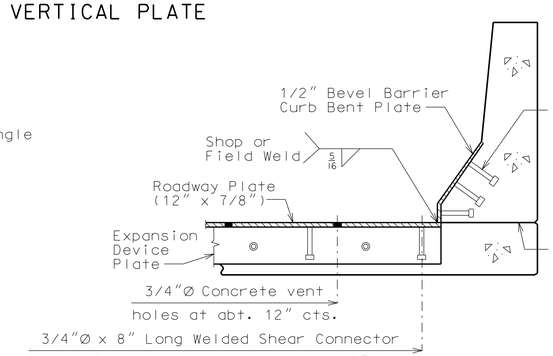
PART SECTION B-B



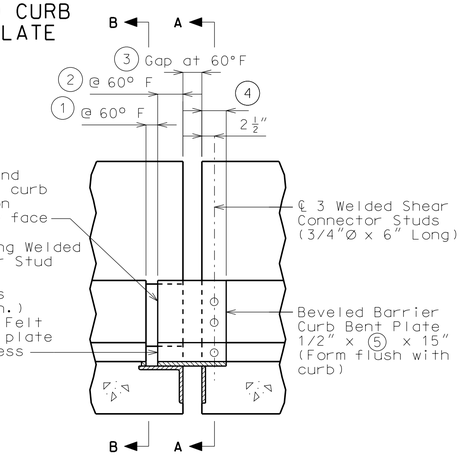
PART ELEVATION AT END OF BEVELED CURB BENT PLATE



PART PLAN OF ANGLE AND BAR



PART SECTION A-A



ELEVATION OF BARRIER CURB (NORMAL TO BARRIER CURB)

DETAILS OF FLAT PLATE EXPANSION DEVICE AT END BENTS NO. 1 & 5

Detailed Sep. 2012
Checked Oct. 2012

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

GENERAL NOTES:

Expansion device shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove weld splice shall be required. Welds shall be ground flush to provide a smooth surface.The expansion device shall be fabricated and installed to the crown and grade of the roadway.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" (Bt. 1), 3/16" (Bt. 5) for each 10° fall or rise in temperature at installation.

Material for the expansion device shall be ASTM A709 Grade 36 structural steel. Anchors for the expansion device shall be in accordance with Sec 1037.

Structural steel for the expansion device and curb plate shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Payment for furnishing, coating or galvanizing and installing the structural steel for the expansion device will be considered completely covered by the contract unit price for Expansion Device (Flat Plate) per linear foot.

Concrete shall be forced under and around flat plate, anchors and angles. Proper consolidation shall be achieved by localized internal vibration. Finishing of the concrete shall be achieved by hand finishing within one foot of the expansion device. The vertical and horizontal concrete vent holes shall be offset from each other. Do not alternate holes at the 12" spacing.

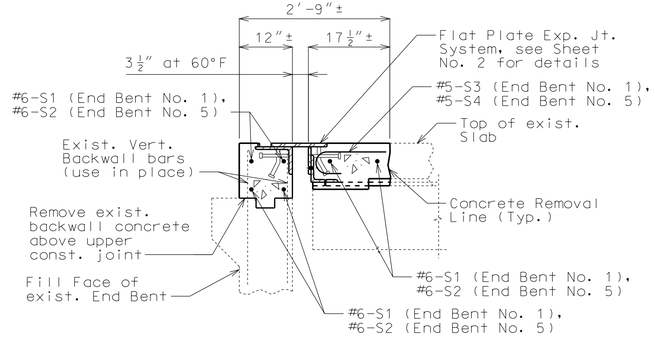
Longitudinal reinforcing steel shall be placed so that ends shall not be more than ±1" from vertical plate and the vertical leg of the angle at the expansion device.

Complete joint penetration welds utilized in the fabrication of the expansion device shall be nondestructively tested by an approved method.

DATE PREPARED 11/19/2012
ROUTE I-435 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A34411

DESCRIPTION | DATE

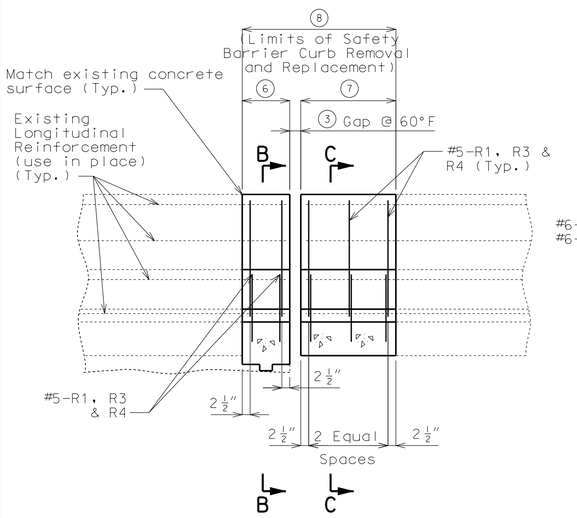
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



SECTION A-A

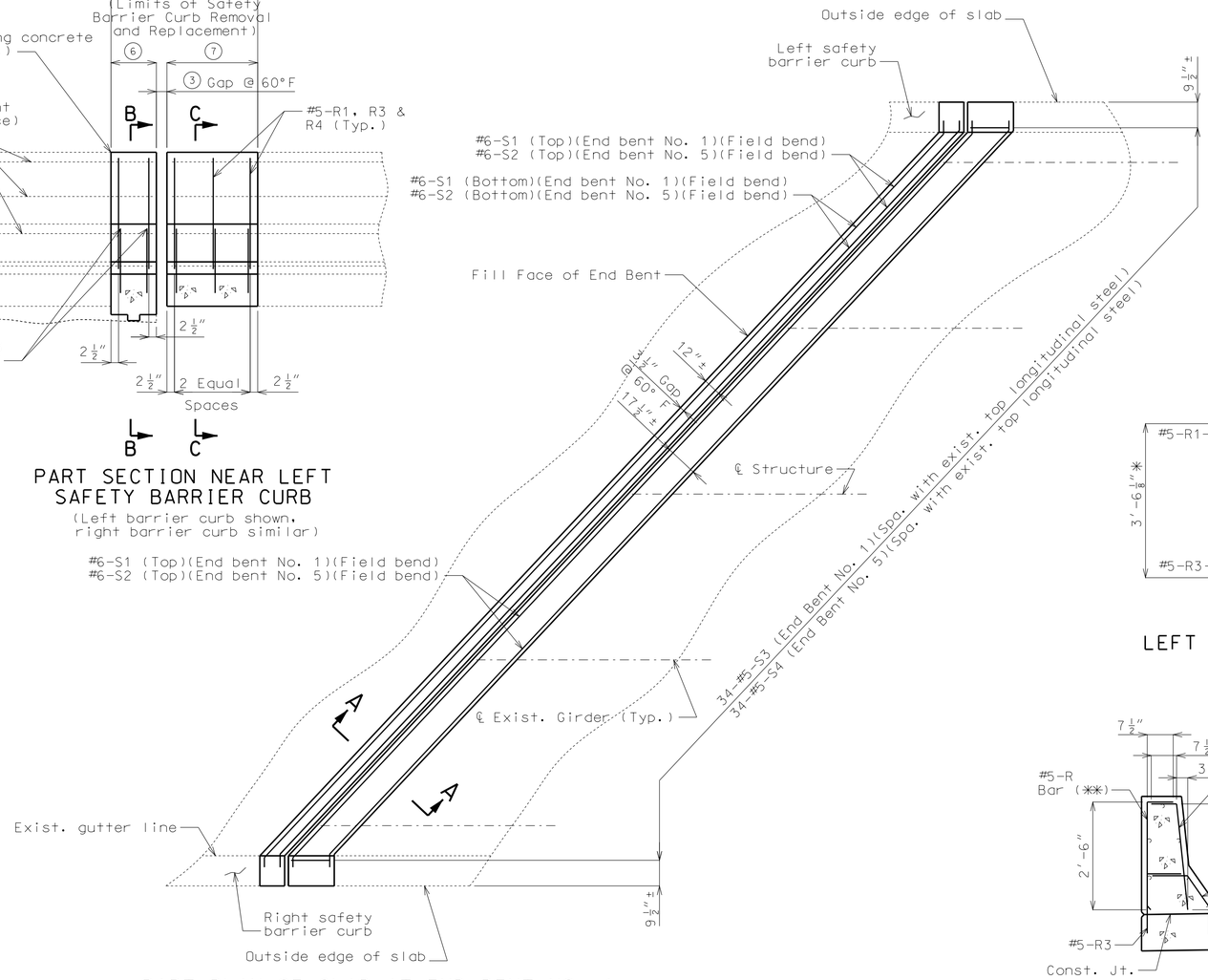
Note:
Payment for all concrete and reinforcement for safety barrier curb, complete-in-place, will be considered completely covered by the contract unit price for Remove and Replace Barrier Curb per linear foot.

	Bent 1 Left	Bent 1 Right	Bent 5 Left	Bent 5 Right
(3)	$4\frac{3}{8}$"	$4\frac{1}{4}$"	$5\frac{3}{8}$"	$5\frac{1}{8}$"
(6)	$14\frac{7}{8}$" ±	$14\frac{5}{8}$" ±	$18\frac{3}{8}$" ±	$17\frac{3}{4}$" ±
(7)	$21\frac{3}{4}$" ±	$21\frac{3}{8}$" ±	2'-$2\frac{3}{4}$" ±	2'-$1\frac{3}{4}$" ±
(8)	3'-5" ±	3'-$4\frac{1}{4}$" ±	4'-$2\frac{1}{2}$" ±	4'-$0\frac{5}{8}$" ±



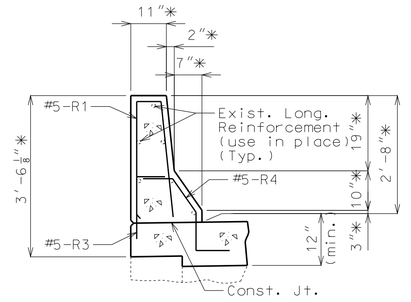
PART SECTION NEAR LEFT SAFETY BARRIER CURB

(Left barrier curb shown, right barrier curb similar)

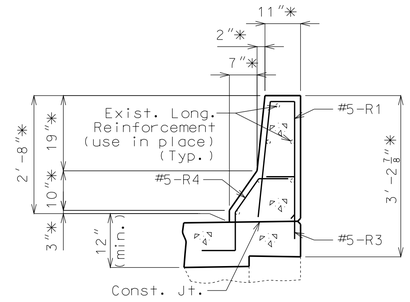


PART PLAN OF SLAB AT END BENT NO. 1

End Bent No. 1 shown, End bent No. 5 similar



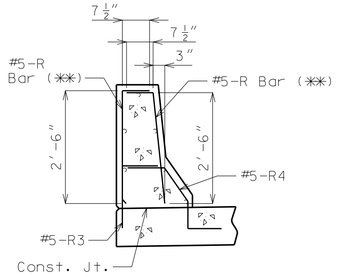
LEFT SAFETY BARRIER CURB



RIGHT SAFETY BARRIER CURB

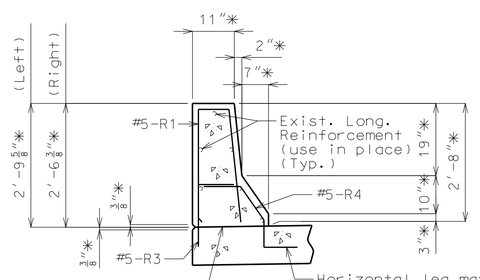
PART SECTION B-B

* Match existing.



R-BAR PERMISSIBLE ALTERNATE SHAPE

(**) The R1 bar may be separated into two bars as shown, at the contractor's option. (All dimensions are out to out.)



PART SECTION C-C

* Match existing.

Detailed Sep. 2012
Checked Oct. 2012

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012

ROUTE	STATE
I-435	MO
DISTRICT	SHEET NO.
BR	3

COUNTY: PLATTE

JOB NO.: J4I2373

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A34411

DATE	DESCRIPTION

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

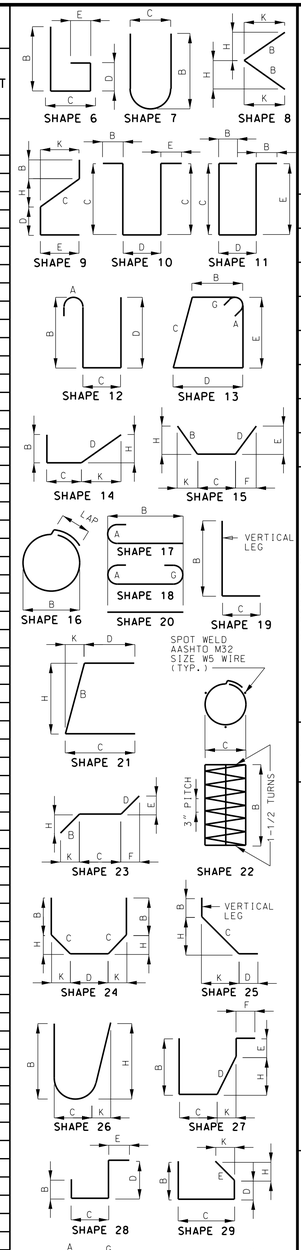
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SLAB																									
8	6	S1	SLAB	E	20					51	6.000													51	6	51	6	619
6	6	S2	SLAB	E	20					60	0.000													60	0	60	0	541
34	5	S3	SLAB	E	17					17.000														2	0	2	0	71
34	5	S4	SLAB	E	17					21.000														2	4	2	4	83
20	5	R1	BARRIER CURB	E	14	S				2	6.000	8.000		2	6.125					2	6.000	3.000		5	8	5	6	115
20	5	R3	BARRIER CURB	E	19	S				17.000		6.000												0	23	0	22	38
20	5	R4	BARRIER CURB	E	27	S						6.000		11.125		9.000		12.000		9.125		6.375		3	2	3	0	63
			TOTALS																									
	5			E																								370
	6			E																								1160
			TOTAL																									0
			TOTAL	E																								1530
			Slab on Girder																									
	5			E																								154
	6			E																								1160
			TOTAL																									1314
			Safety Barrier Curb																									
	5			E																								216
			TOTAL																									216

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.



BENDING DIAGRAMS

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012

ROUTE I-435 | STATE MO

DISTRICT BR | SHEET NO. 4

COUNTY PLATTE

JOB NO. J412373

CONTRACT ID.

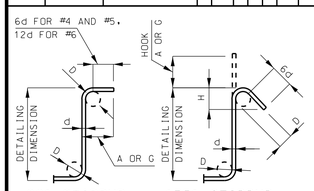
PROJECT NO.

BRIDGE NO. A34411

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

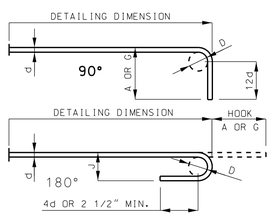
DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



STIRRUP HOOK DIMENSIONS			
GRADES 40 - 50 - 60 KSI			
BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS A OR G	180° HOOKS J	90° HOOKS 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"

TWO ADDITIONAL #6-S1 ARE INCLUDED IN THE BAR BILL FOR TESTING.

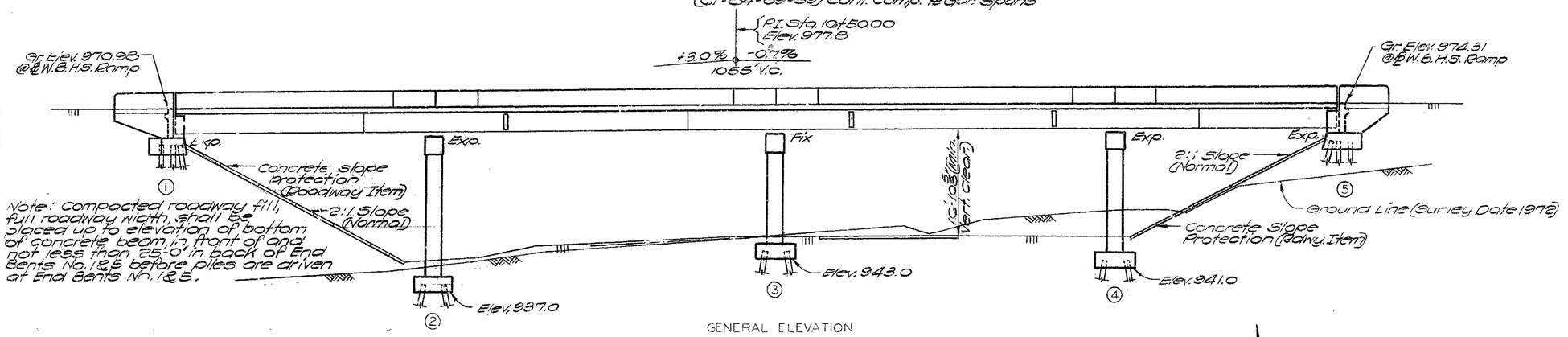
NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
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 FABRICATORS 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.

Detailed Oct. 2012
Checked Oct. 2012

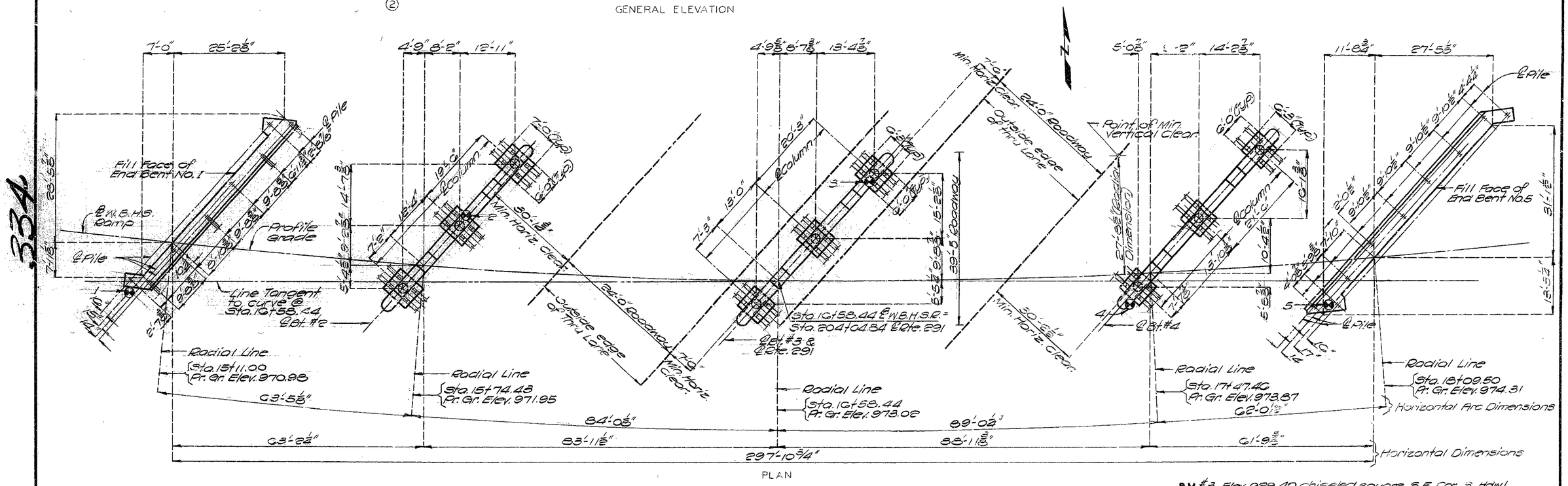
Note: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

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



GENERAL ELEVATION



PLAN

Note: "⊕" Indicates location of boring. For boring data see Sheet No. 14.

Note: For General Notes, Estimated Quantities & Pile Data see Sheet No. 2.

CURVE DATA:
P.I. Sta. 25+20.99
D = 4°18'
℄ = 1348.14'
S = 0.08'/'
T = 1088.95
L = 1831.97'
Δ = 77° 61'-30" Lt.

B.M. #3 Elev. 929.40 chiseled square S.E. Cor. S. Hdwl. of 9' x 24' R.C.B. 300' ± W. of West City Limits of Ferrelview.

BRIDGE WESTBOUND H.S.R. OVER ROUTE 291

STATE ROAD I-435

ABOUT AT K.C.I. NORTH ACCESS INTERCHANGE

PROJECT NO. [redacted] **STA.** 15+11

JOB NO. 4-I-435-50 **RTE.** I-435

PLATTE **COUNTY**

DATE

STD.	611 60
STD.	706 35
	A-3441

DESIGNED June 1976
DETAILED May 1977
CHECKED July 19 77

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

Sheet No. / **of** 23.

SEE FINAL PLANS

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	12	

GENERAL NOTES:

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

Design Loading:
HS 20-44 Future wearing surface - 15#/sq. ft.
Modified 24000# Tandem Axle
Earth 120# Equivalent Fluid Pressure 30#
Fatigue Stress - Case II - Interim 1974

Design Unit Stresses:
Class B Concrete (Substructure) fc = 1,200 p.s.i.
Class BZ Concrete (Superstructure) fc = 1,600 p.s.i.
Reinforcing Steel fs = 20,000 p.s.i. (Substructure)
Reinforcing Steel (Grade 60) fy = 60,000 p.s.i. (Superstructure)

Structural Carbon Steel fs = 20,000 psi
Steel Pile fb = 9000 psi

Fabricated Steel:
Field connections, High Strength Bolts ¾"ϕ, holes 13/16" ϕ except as noted.

Paint: System A or B by contractor in accordance with Std. Spec. 711.2.1 (Color for final field coat for System B shall be aluminum.

Reinforcing Steel: Minimum clearance to reinforcing steel shall be 1½" unless otherwise shown.
All reinforcing bars in tops of substructure beams or caps, shall be spaced to clear anchor bolts by at least ½".

Joint Filler: All joint filler shall meet the requirements of Std. Spec. 1057.2.4.

ESTIMATED QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class I Excavation	Cu. Yd.	160		160
Structural Steel Pile (HP10x42)	Lin. Ft.	2147		2147
Class B Concrete	Cu. Yd.	246.0		246.0
Class BZ Concrete	Cu. Yd.		434.0	434.0
Slab Drains	Each		12	12
Elastomeric Exp. Jt. Seal (2")	Lin. Ft.		105	105
Reinforcing Steel (Grade 60)	Lb.	(37500)	(61750)	(99250)
Reinforcing Steel (Epoxy)	Lb.		(46,020)	(46,020)
Fabricated Structural Carbon Steel	Lb.		309,450	309,450
Painting (System A or B) Aluminum	Ton		153.9	153.9

Note: All concrete and reinforcement in Safety Barrier curbs is included with Superstructure quantities.

PILE & FOOTING DATA

	BENT NO.	1	2	3	4	5
Bearing Pile	Pile Type and size	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42
	Number	8	12	12	12	9
	Approximate Length Ft.	55	29	37	35	55
	Design Bearing Ton	38	52	56	52	40
	Hammer Energy Regd. (Ft. Lbs)	9,400	12,300	14,000	12,300	9,500

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

△1 100,230
△1 45,380
△1 61,850
△1 38,380

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DETAILED June 19 77
CHECKED July 19 77

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

Sheet No. 8 of 63. △1 Revised 10/16/79

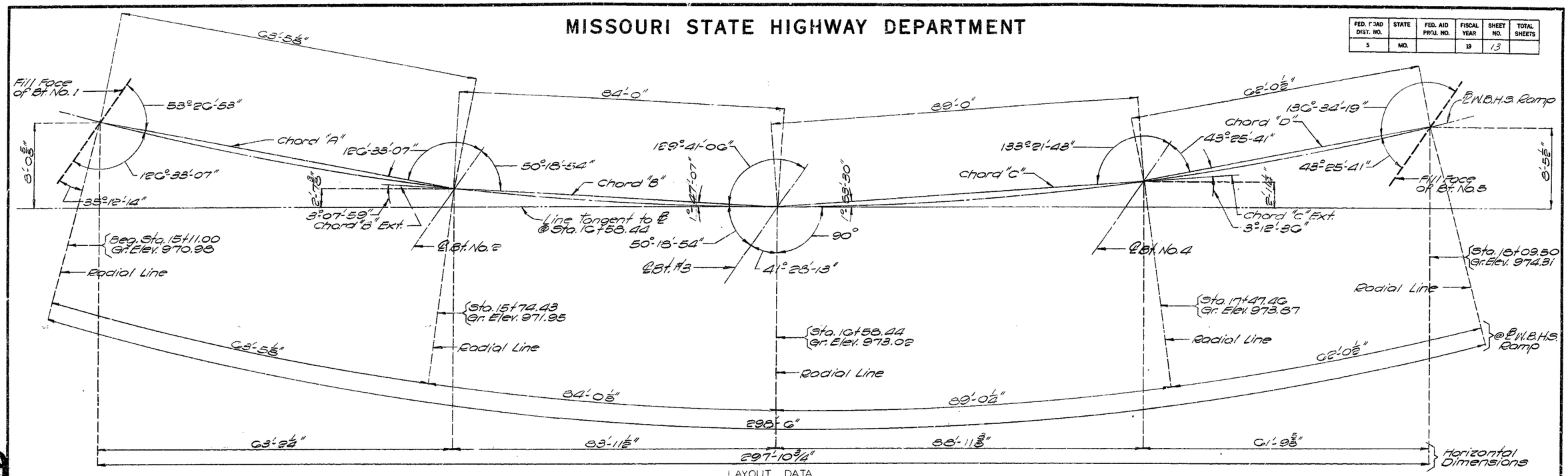
PLATTE COUNTY

A-3441

N3439

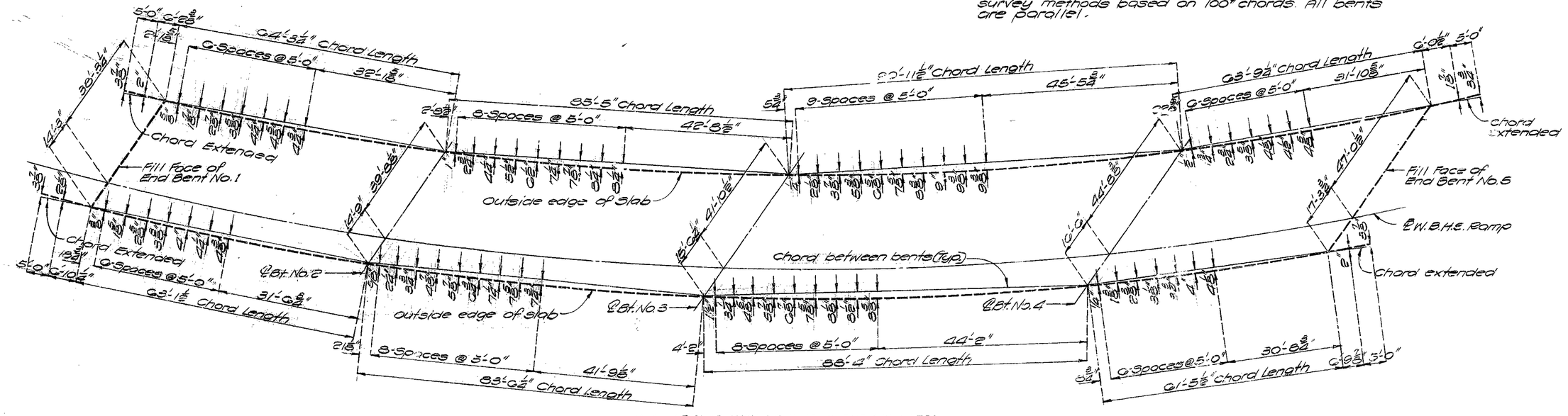
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	13	



LAYOUT DATA
FOR SUBSTRUCTURE

Note: Bents cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords. All bents are parallel.



PLAN OF SLAB SHOWING SLAB CURVE ORDINATES

DETAILED Apr. 1977
CHECKED July 1977

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

Sheet No. 3 of 23.

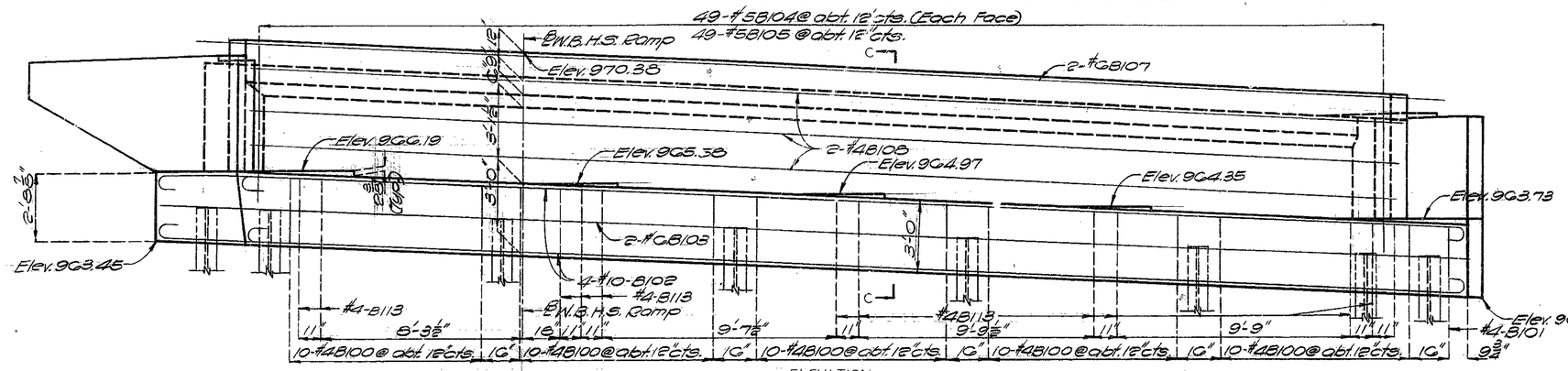
PLATTE COUNTY

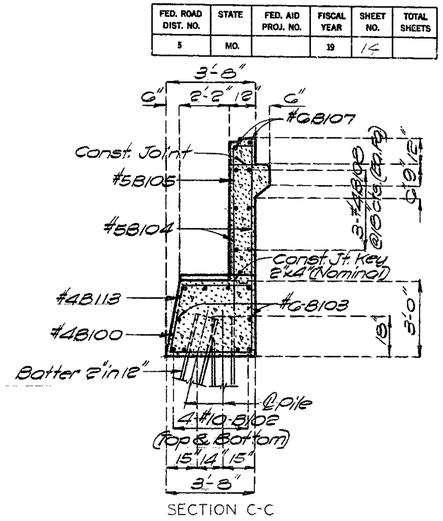
A-3441

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	14	

337



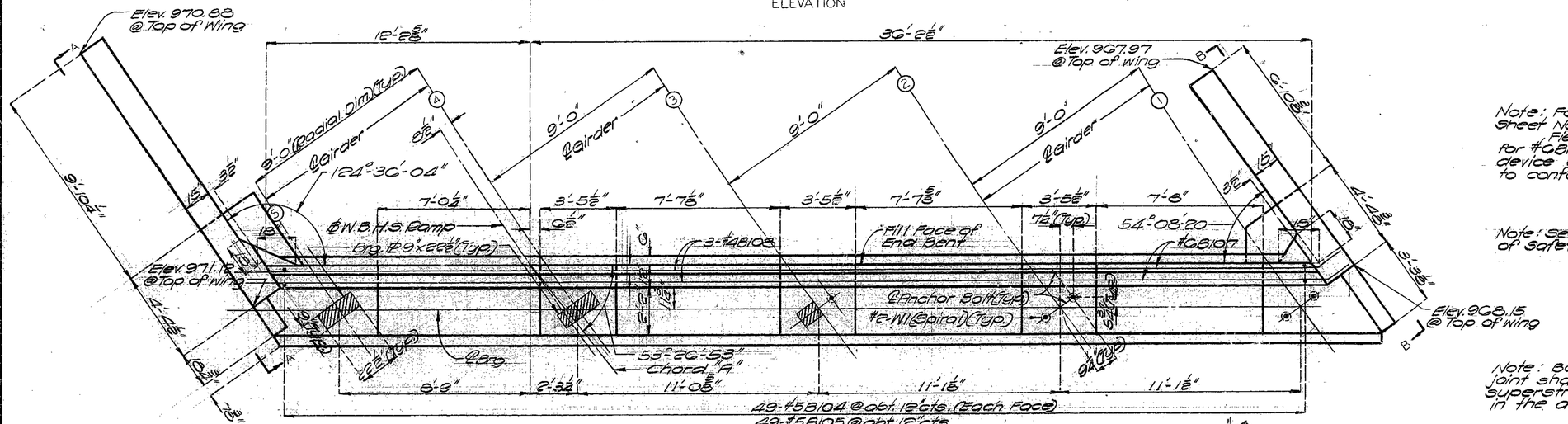


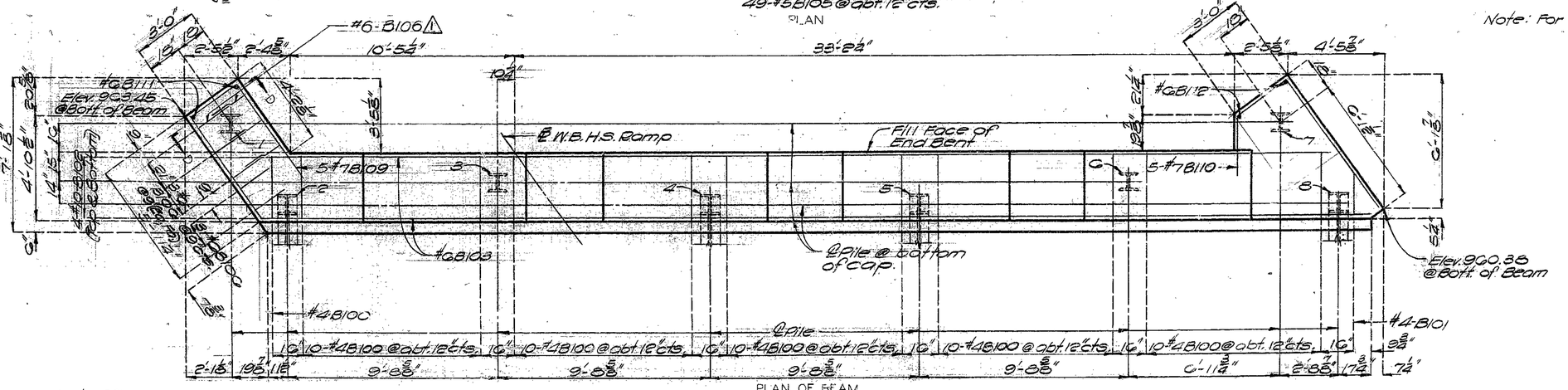
Note: For additional details of wings see Sheet No. 5
Field bending shall be required of wings for #GB107 bars in backwalls with expansion device and for W bars when necessary to conform to slope of wing.

Note: See curb sheet for reinforcement of Safety Barrier curbs.

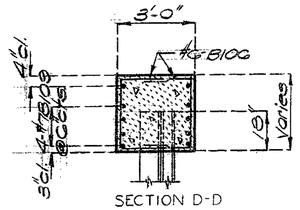
Note: Backwall above upper construction joint shall not be poured, until the superstructure slab has been poured in the adjacent span.

Note: For wing curve ordinates see Sheet No. 3.





PILE NO.	PILE CUT-OFF ELEVATION	PILE NO.	PILE CUT-OFF ELEVATION
1	964.84	5	963.08
2	964.70	6	962.54
3	964.16	7	962.15
4	963.62	8	962.00



DETAILED April 19 77
CHECKED July 19 77

Note: This drawing is not to scale. Follow dimensions. DETAILS OF END BENT NO. 1

Sheet No. 4 of 23. ⚠ Revised 10-10-79 PLATTE COUNTY A-3441

FOR INFORMATION ONLY

A34411, Sht. 9

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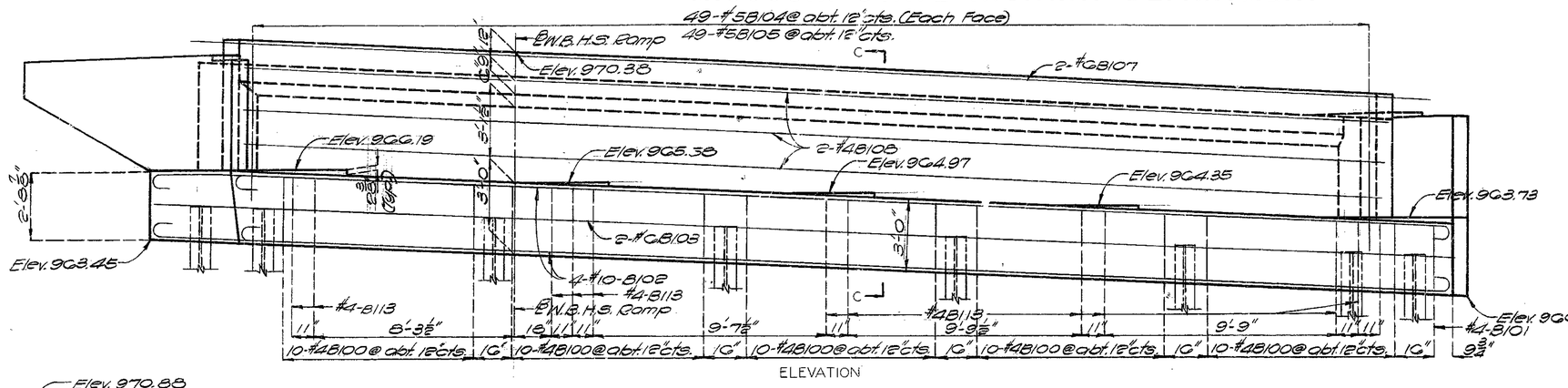
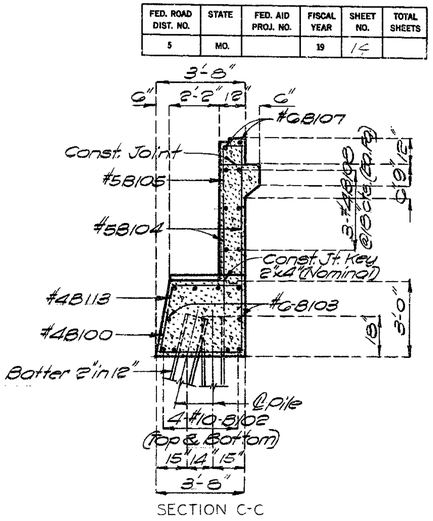
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	14	



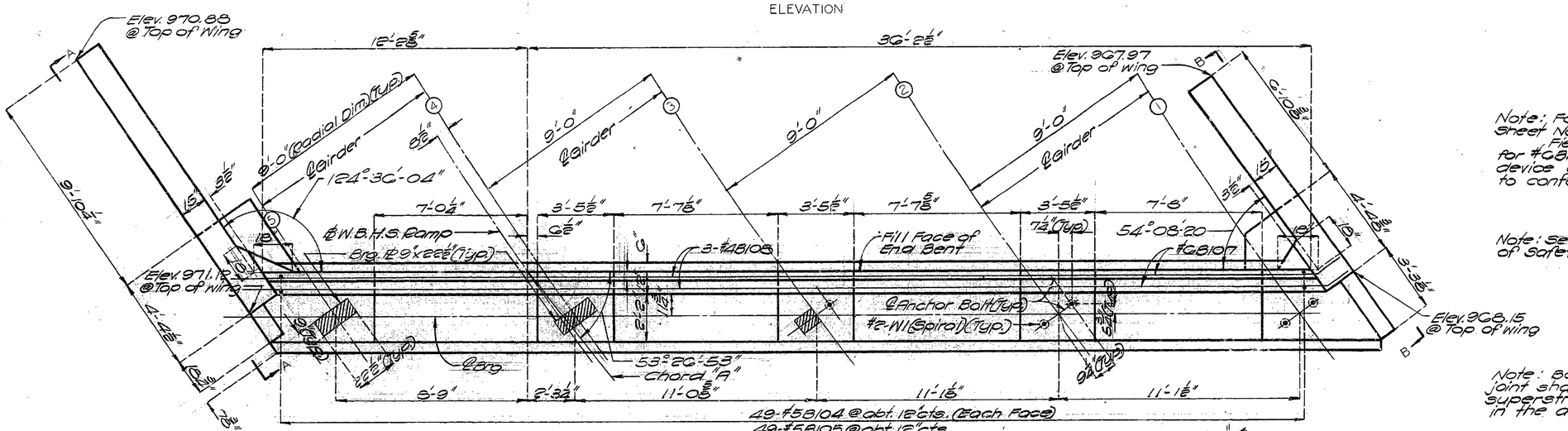


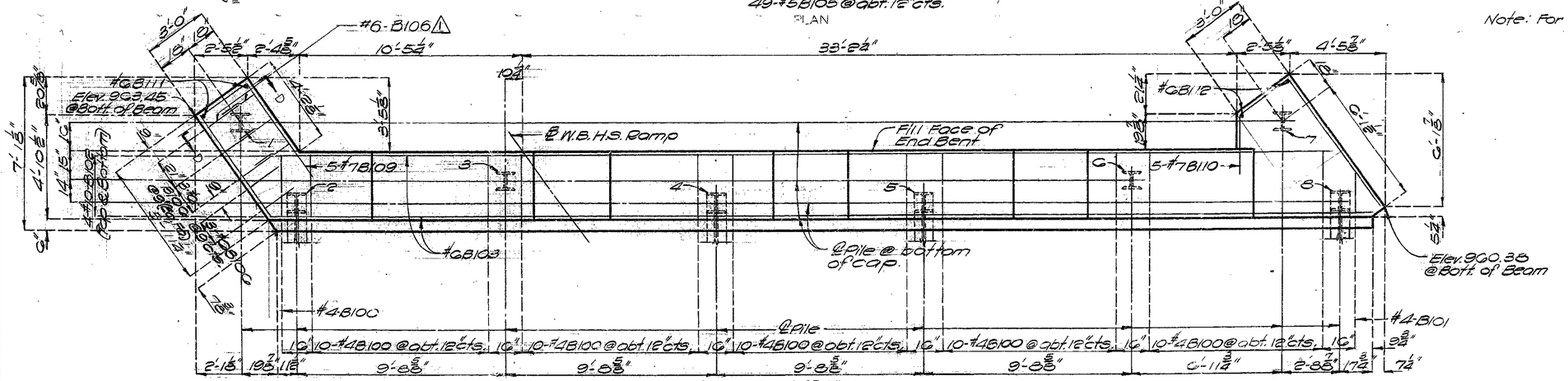
Note: For additional details of wings see Sheet No. 5 Field bending shall be required of wings for #GB107 bars in backwalls with expansion device and for W bars when necessary to conform to slope of wing.

Note: See curb sheet for reinforcement of Safety Barrier curbs.

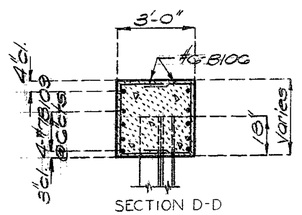
Note: Backwall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.

Note: For wing curve ordinates see Sheet No. 3.





PILE NO.	PILE CUT-OFF ELEVATION	PILE NO.	PILE CUT-OFF ELEVATION
1	964.84	5	963.08
2	964.70	6	962.54
3	964.16	7	962.15
4	963.62	8	962.00



DETAILED April 1979
CHECKED July 1979

Note: This drawing is not to scale. Follow dimensions. DETAILS OF END BENT NO. 1

Sheet No. 4 of 23. Revised 10-10-79 PLATTE COUNTY A-3441

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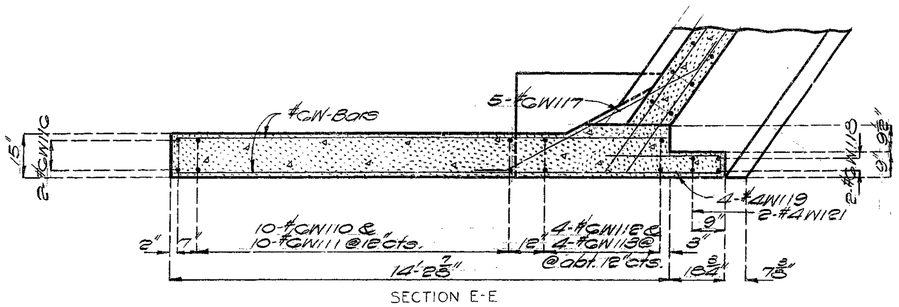
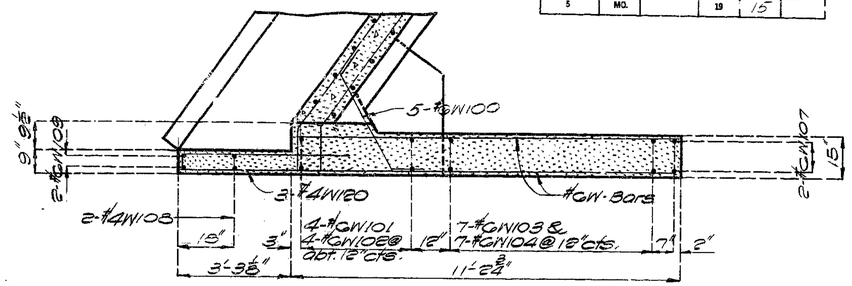
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	15	

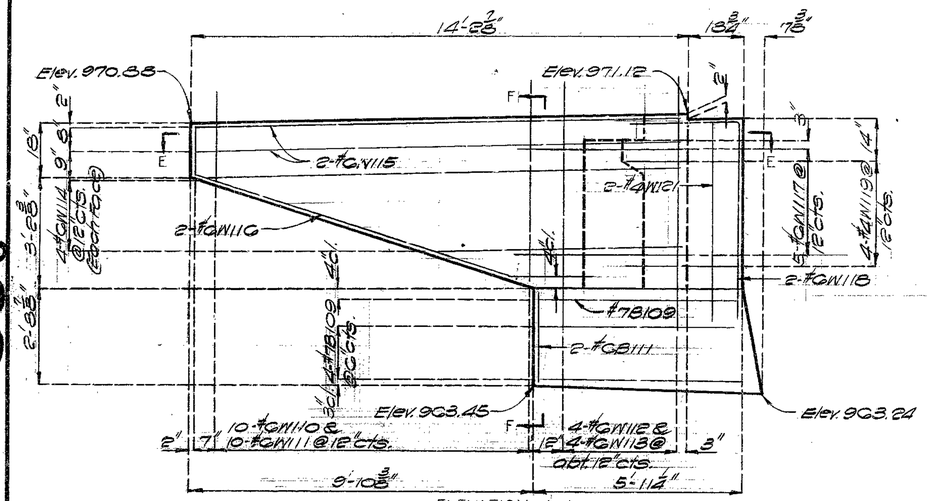


SECTION E-E

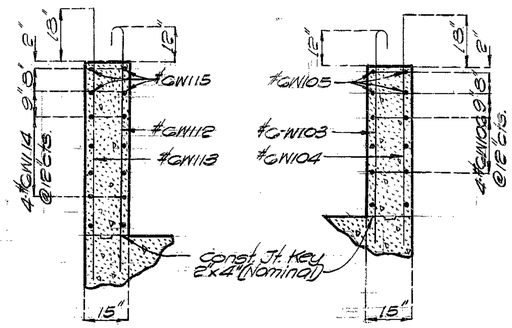
Note: For curb curve ordinates see Sheet No. 3.



SECTION G-G

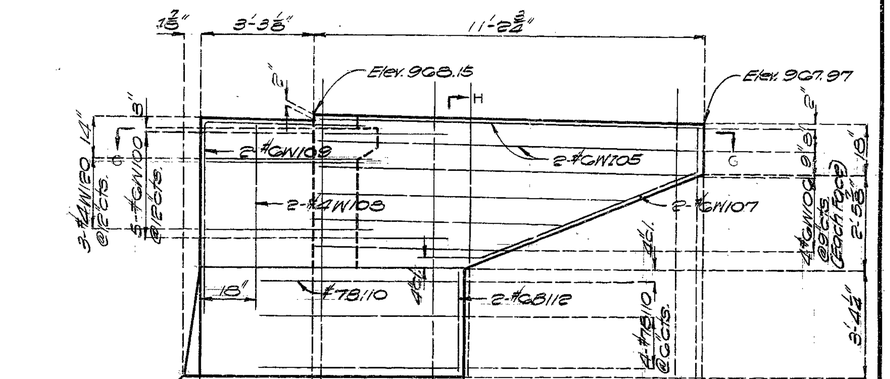


ELEVATION A-A



PART SECTION F-F

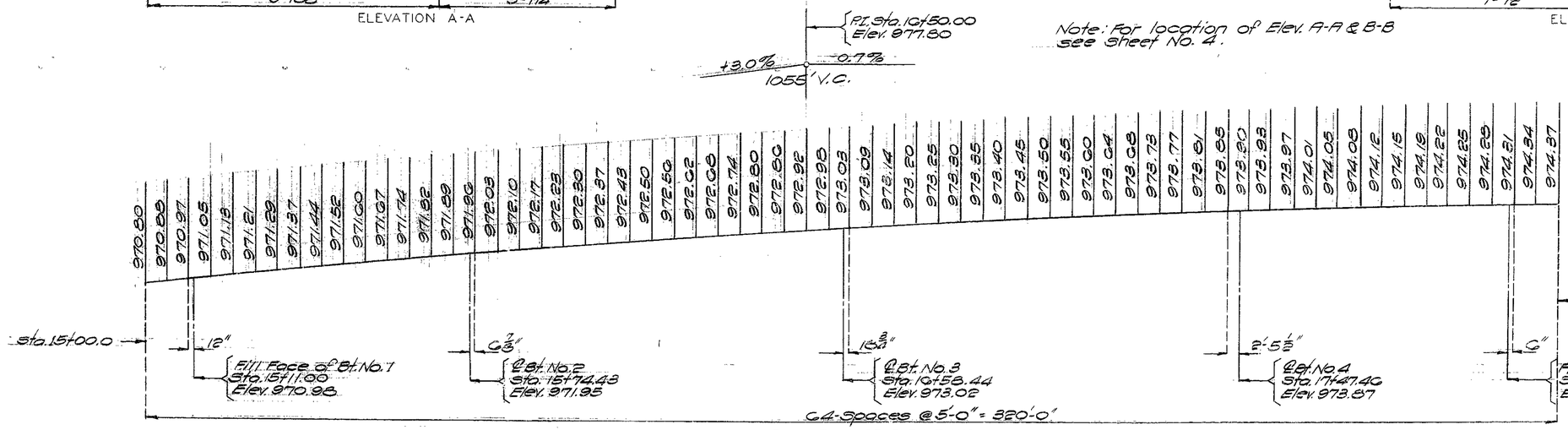
PART SECTION H-H



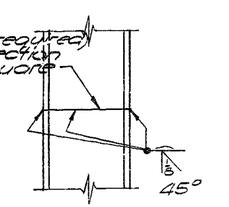
ELEVATION B-B

DETAILS OF WINGS END BENT NO. 1

Note: For location of Elev. A-A & B-B see Sheet No. 4.



PROFILE GRADE ELEVATIONS



DETAILS OF STEEL PILE SPLICE

DETAILED April 1977
CHECKED July 1977

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

Sheet No. 5 of 23.

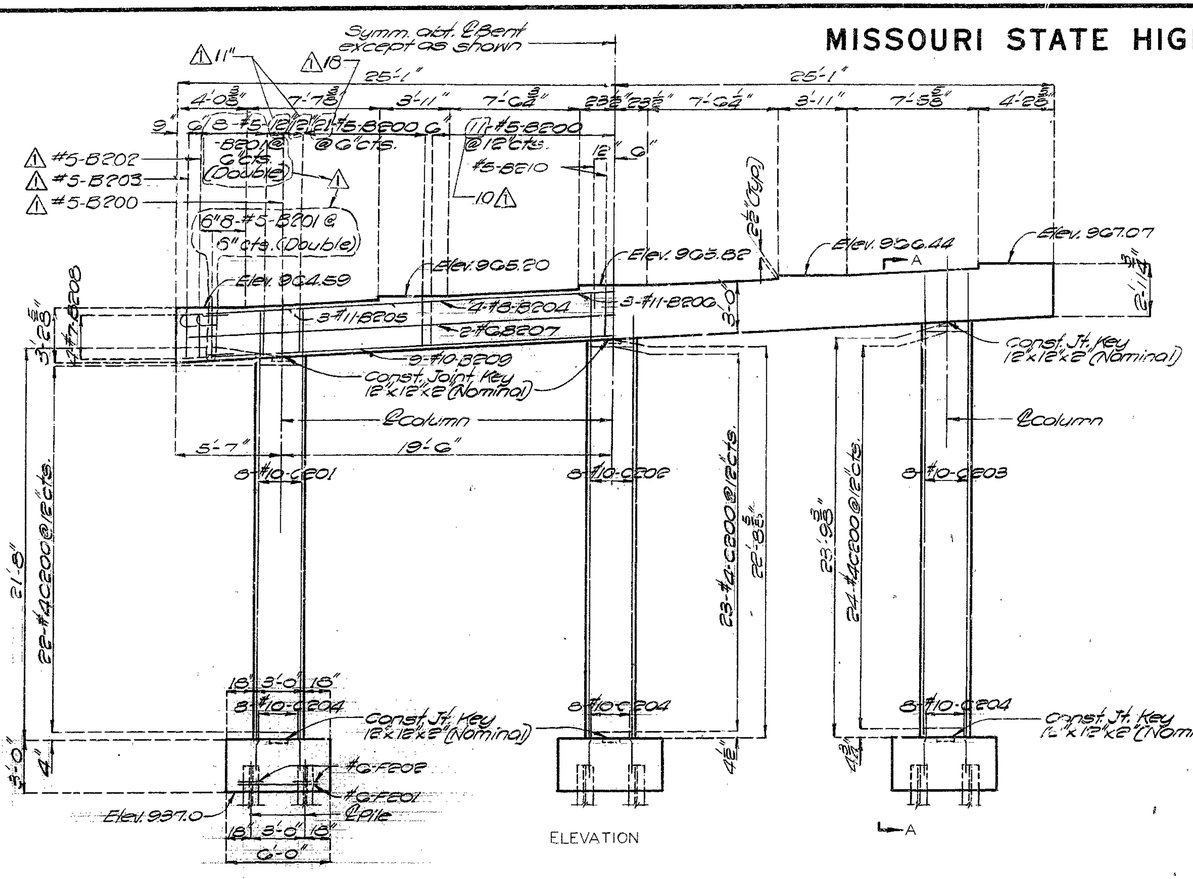
PLATTE **COUNTY**

A-3441

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	16	

33



Note: For detail of pile splice see Sheet No. 5.

DETAILED Jan. 1977
CHECKED July 1977

Note: This drawing is not to scale. Follow dimensions. DETAILS OF INTERMEDIATE BENT NO. 2

Sheet No. 6 of 23 sheets. Revised 10-10-79 PLATTE COUNTY

A-3441

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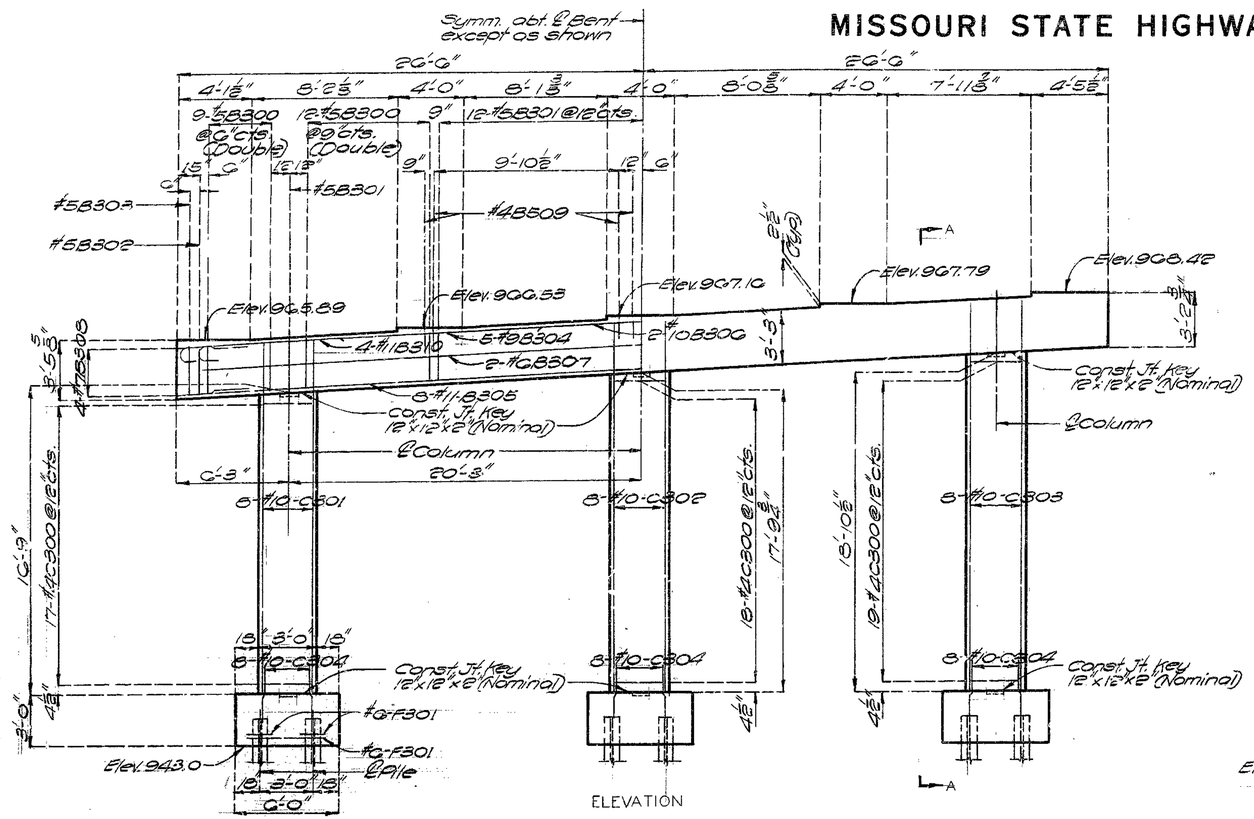
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	17	



DETAILED Jan. 1977
CHECKED July 1977

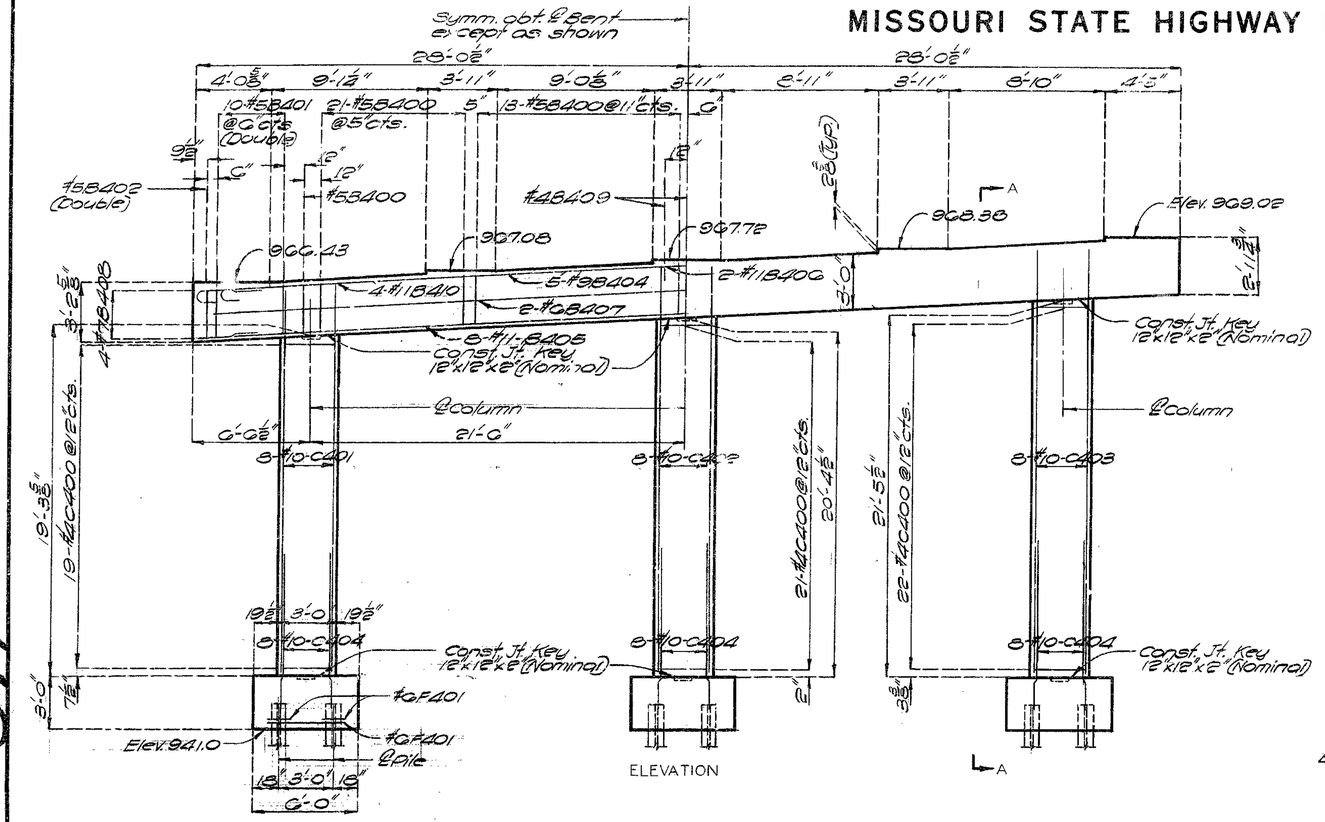
Note: This drawing is not to scale. Follow dimensions. DETAILS OF INTERMEDIATE BENT NO. 3

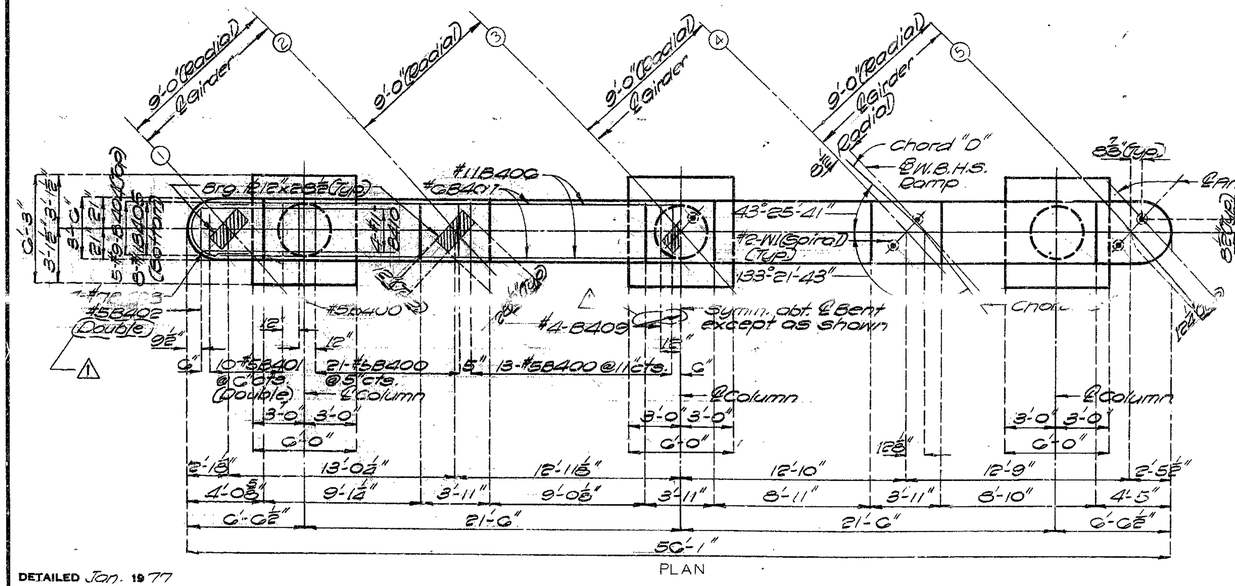
Sheet No. 7 of 23. ⚠ Revised 10-10-79 PLATTE COUNTY

A-3441

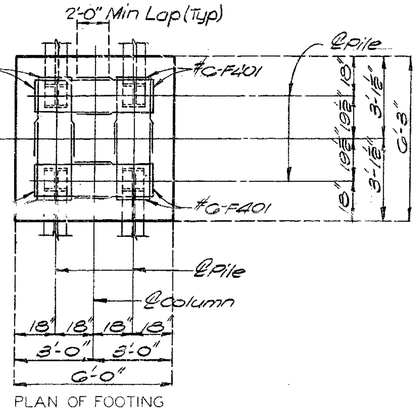
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	13	





Note: For details of steel pile splice see Sheet No. 5.



DETAILED Jan. 1977
CHECKED July 1977

Note: This drawing is not to scale. Follow dimensions. DETAILS OF INERMEDIATE BENT NO. 4

Sheet No. 8 of 23 .

⚠ Revised 10-10-79 PLATTE COUNTY

A-3441

MISSOURI STATE HIGHWAY DEPARTMENT

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

Add

Note: For Elevations J-J & K-K see sht. no. 10.
For Sections R-R & S-S see sht. no. 10.

ELEVATION

Note: For wing curve ordinates see Sheet No. 3.

Note: For pile splice detail see Sheet No. 5.

Delete

Note: For Elevations J-J, K-K, R-R & S-S see Sheet No. 10.

Note: For additional details of wings see Sheet No. 10.

PLAN

Note: For Pile Cutt-off Elevation See Sheet No. 10.

Note: For pile cut-off elevation see Sheet No. 10.

PLAN OF BEAM

Note: Backwall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.

Field bending shall be required of wings for #C8508 in backwalls with expansion device and for W bars when necessary to conform to slope of wings.

Note: See curb sheet for reinforcement of safety Barrier curbs.

DETAILED April 1977
CHECKED July 1977

Note: This drawing is not to scale. Follow dimensions. DETAILS OF END BENT NO. 5

Sheet No. 9 of 23.

Revised 10-10-79

PLATTE COUNTY

A-3441

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	20	

Note: For location of sections R-R & S-S, and Elevations J-J & K-K see Sheet No. 9.

Note: For curb curve ordinates see Sheet No. 8.

PILE NO.	PILE CUT OFF ELEVATION
9	964.75
10	964.87
11	965.44
12	965.95
13	966.42
14	966.80
15	967.59
16	967.87
17	968.39

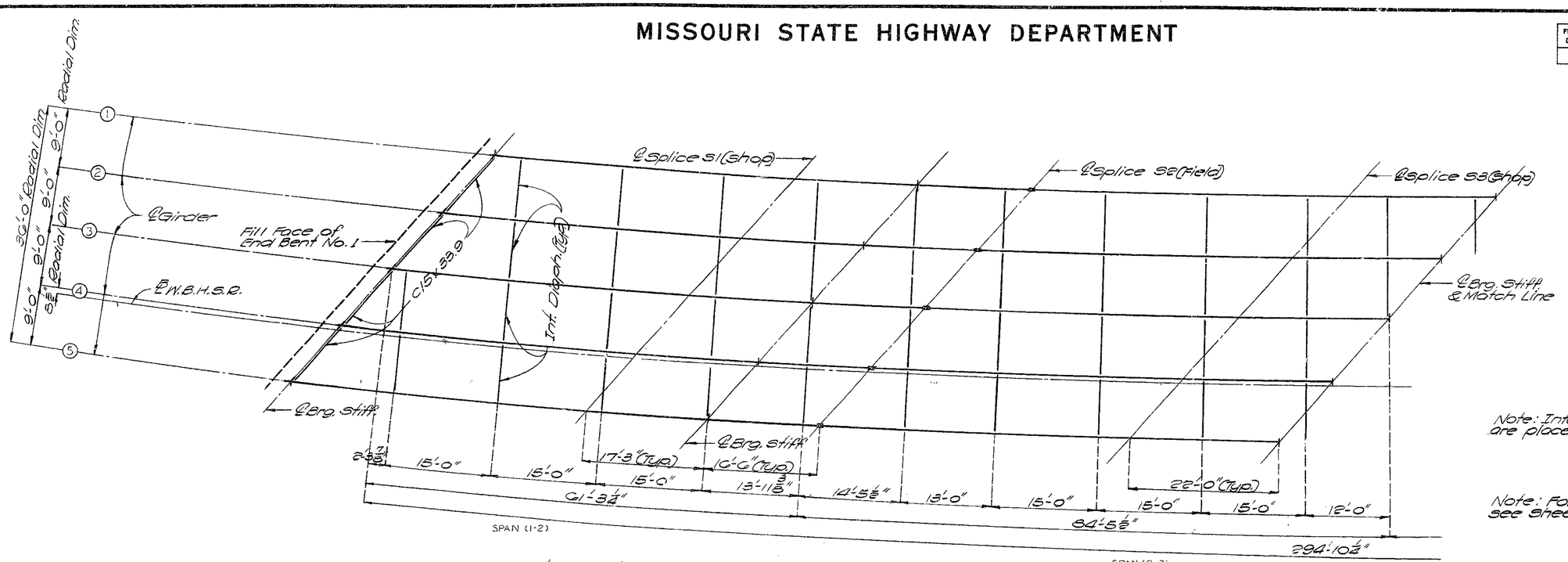
DETAILED May 1977
CHECKED July 1977

Note: This drawing is not to scale. Follow dimensions. DETAILS OF WINGS END BENT NO. 5

Sheet No. 10 of 23. △ Revised 10-10-79 PLATTE COUNTY A-3441

MISSOURI STATE HIGHWAY DEPARTMENT

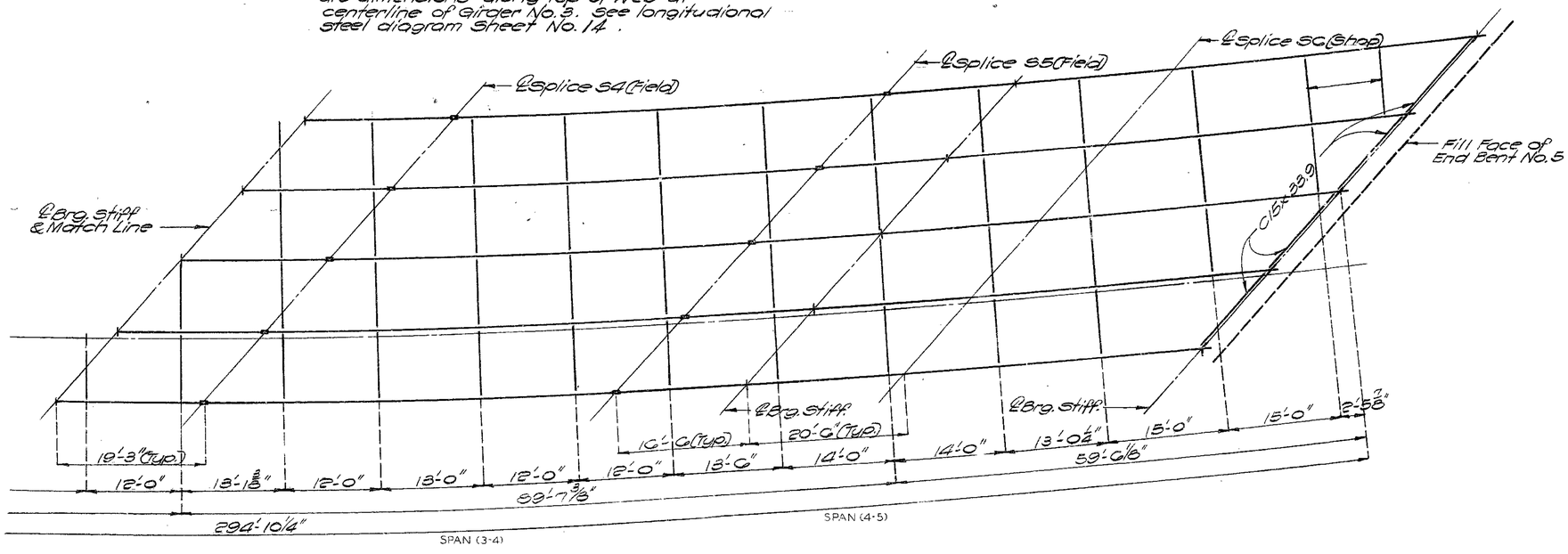
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
5	MO.		19	2	



Note: Intermediate Diaphragms are placed radially.

Note: For exterior girder offsets see Sheet No. 12 .

Note: Longitudinal dimensions shown are arc dimensions along top of web at centerline of Girder No. 3. See longitudinal steel diagram Sheet No. 14 .



DETAILED Dec. 1976
CHECKED July 1977

Note: This drawing is not to scale. Follow dimensions. PLAN OF STRUCTURAL STEEL

Sheet No. 11 of 25 .

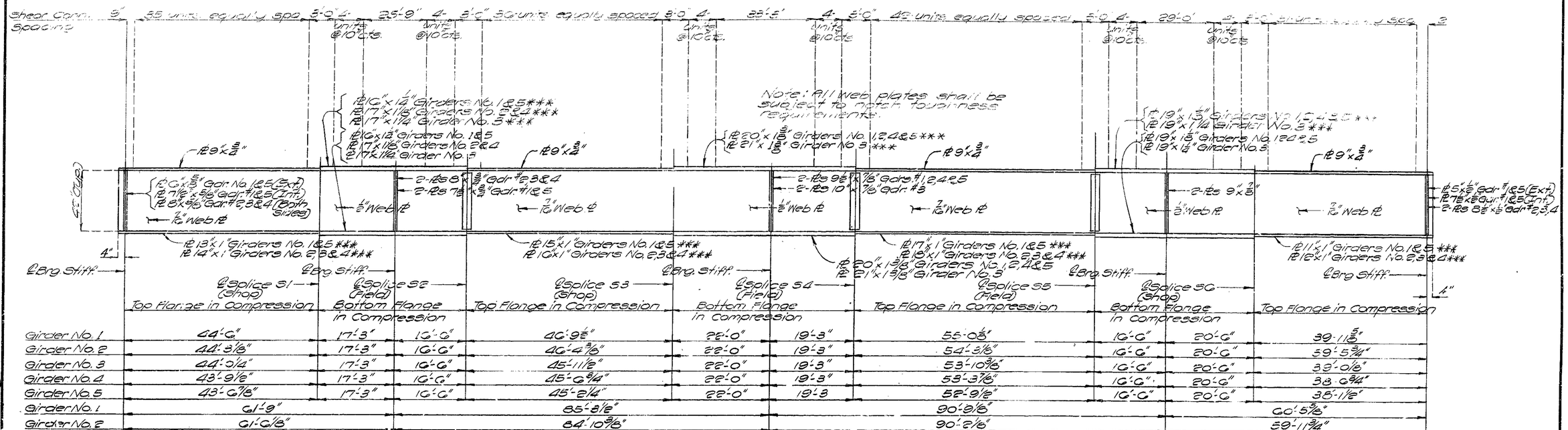
PLATTE **COUNTY**

A-3441

34411

MISSOURI STATE HIGHWAY DEPARTMENT

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

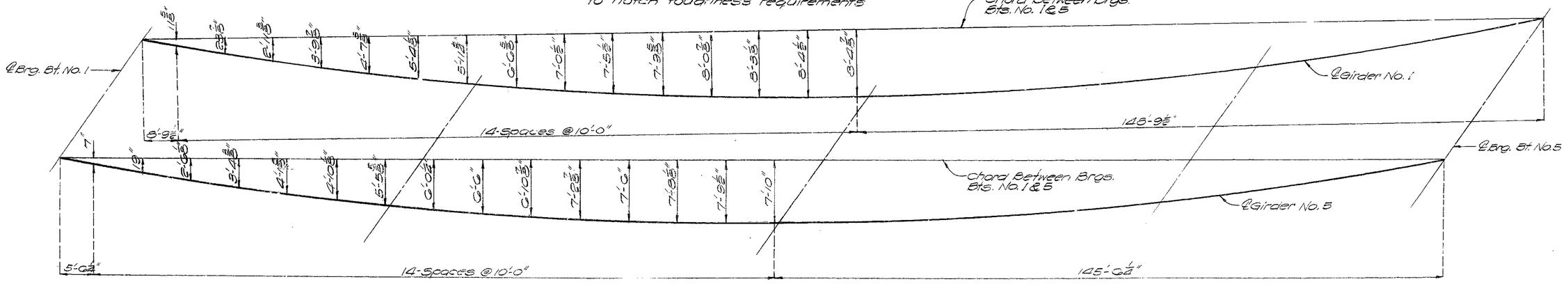


	Top Flange in Compression		Bottom Flange in Compression	Top Flange in Compression	Bottom Flange in Compression	Top Flange in Compression	Bottom Flange in Compression	Top Flange in Compression
Girder No. 1	64'-0"	17'-3"	16'-0"	40'-9 5/8"	22'-0"	19'-3"	55'-0 1/8"	16'-0" 20'-0" 39'-11 5/8"
Girder No. 2	44'-3 1/8"	17'-3"	16'-0"	40'-4 3/8"	22'-0"	19'-3"	54'-3 1/16"	16'-0" 20'-0" 39'-5 3/4"
Girder No. 3	44'-0 1/4"	17'-3"	16'-0"	45'-11/2"	22'-0"	19'-3"	53'-10 9/16"	16'-0" 20'-0" 39'-0 1/8"
Girder No. 4	43'-9 1/16"	17'-3"	16'-0"	45'-6 3/4"	22'-0"	19'-3"	53'-3 7/16"	16'-0" 20'-0" 38'-6 3/4"
Girder No. 5	43'-6 7/8"	17'-3"	16'-0"	45'-2 1/4"	22'-0"	19'-3	52'-9 1/2"	16'-0" 20'-0" 38'-1 1/2"
Girder No. 1	61'-9"			85'-8 1/2"			90'-9 1/8"	60'-5 7/8"
Girder No. 2	61'-6 1/8"			84'-10 9/16"			90'-2 1/8"	59'-11 3/4"
Girder No. 3	61'-3 1/4"			84'-5 1/2"			89'-7 3/8"	59'-6 1/8"
Girder No. 4	61'-0 1/16"			84'-0 3/4"			89'-0 7/8"	59'-0 3/4"
Girder No. 5	60'-9 7/8"			83'-8 1/4"			88'-6 1/8"	58'-7 1/2"
Girder No. 1					298'-3 1/4"			
Girder No. 2					296'-6 3/16"			
Girder No. 3					294'-10 1/4"			
Girder No. 4					293'-2 7/16"			
Girder No. 5					291'-8 1/16"			

ELEVATION OF GIRDERS

Note: Longitudinal dimensions shown are along top of web.

Note: *** - Indicates flange plates subject to notch toughness requirements



Note: Plate girder shall be fabricated to conform with the camber diagram shown on Sheet No. 17.

PART PLAN OF STEEL SHOWING GIRDER OFFSETS

DETAILED Oct. 1976
CHECKED July 1977

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

Sheet No. 12 of 23.

PLATTE COUNTY

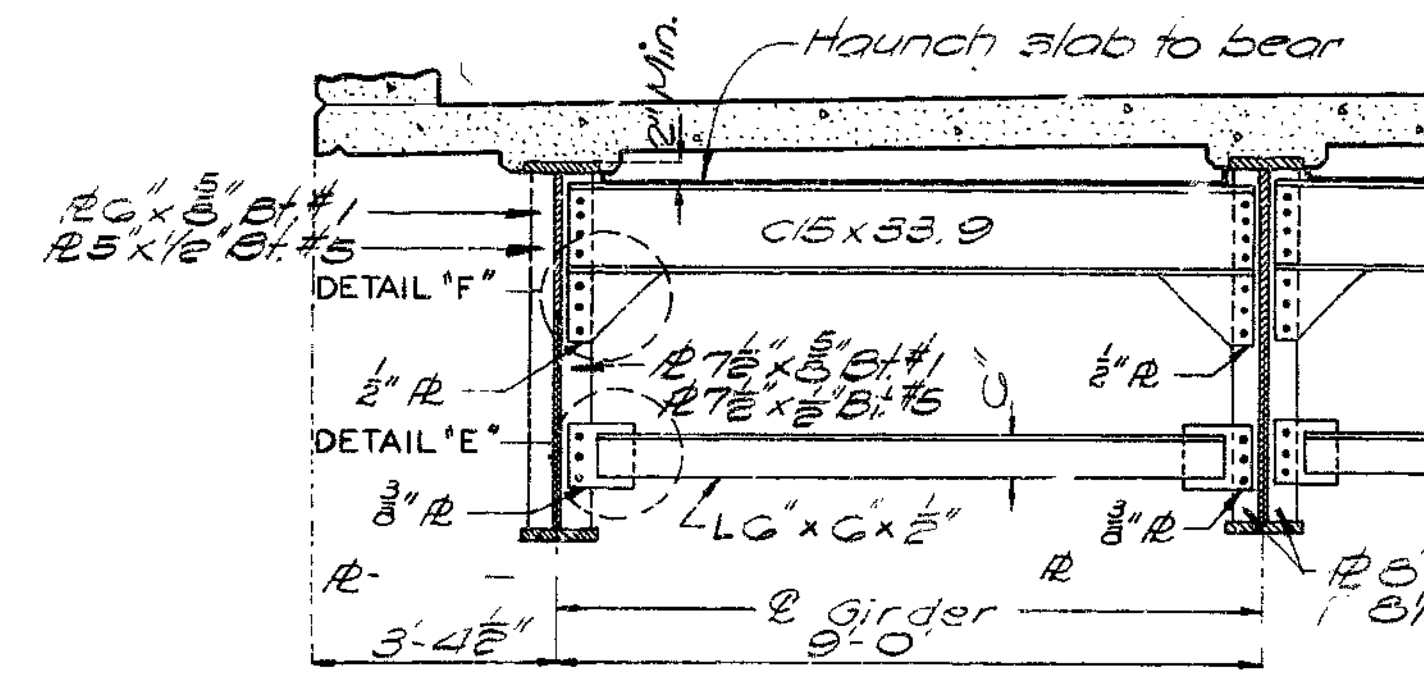
A-3-141

MISSOURI STATE HIGHWAY DEPARTMENT

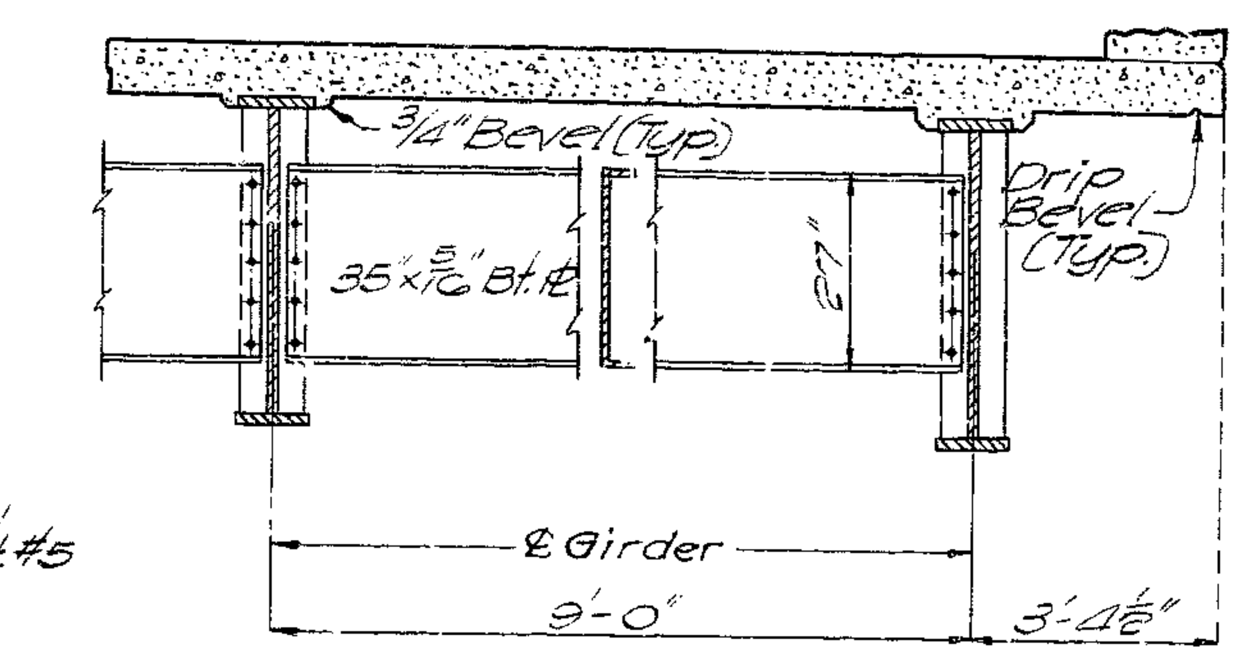
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	23	

TABLE OF DIMENSIONS - FIELD SPLICE

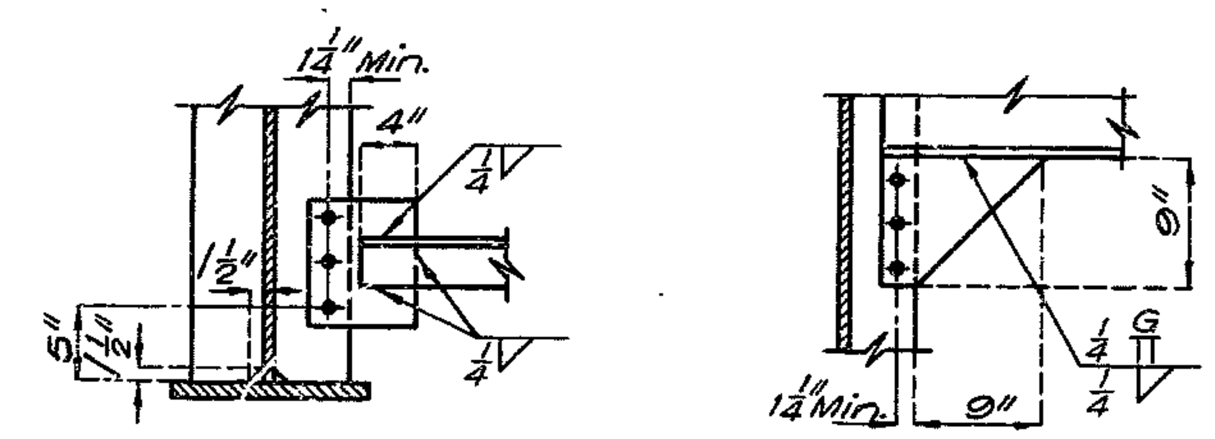
LOCATION	GDR. NO.	"a"	"b"	"c"	"d"	"e"	"f"	"g"	"j"	"k"	"n"	"p"	"q"
S2(Top)	1,3,5	9"	1/2"	2'-0 1/2"	3 1/2"	3/8"	13 1/2"	1 3/4"	3"	2"	1/2"	2'-0 1/2"	9"
S2(Top)	2,4	9"	1/2"	2'-0 1/2"	3 1/2"	3/8"	13 1/2"	1 3/4"	3"	2"	3/8"	2'-0 1/2"	9"
S4(Top)	1,2,3,4,5	9"	1/2"	2'-0 1/2"	3 1/2"	3/8"	13 1/2"	1 3/4"	3"	2"	5/16"	2'-0 1/2"	9"
S5(Top)	1,2,4,5	9"	1/2"	2'-0 1/2"	3 1/2"	3/8"	13 1/2"	1 3/4"	3"	2"	3/8"	2'-0 1/2"	9"
S5(Top)	3	9"	1/2"	2'-0 1/2"	3 1/2"	3/8"	13 1/2"	1 3/4"	3"	2"	1/2"	2'-0 1/2"	9"
S2(Bott.)	1,5	15"	1/2"	4'-0 1/2"	6 1/2"	5/8"	4'-0 1/2"	2 1/4"	7"	7"	1/4"	4'-0 1/2"	15"
S2(Bott.)	2,4	16"	1/2"	4'-6 1/2"	7"	5/8"	4'-6 1/2"	2 1/2"	8"	8"	1/8"	4'-6 1/2"	16"
S2(Bott.)	3	16"	1/2"	4'-6 1/2"	7"	5/8"	4'-6 1/2"	2 1/2"	8"	8"	1/4"	4'-6 1/2"	16"
S4(Bott.)	1,5	17"	1/2"	5'-0 1/2"	7 1/2"	5/8"	4'-6 1/2"	2 3/4"	9"	8"	3/8"	5'-0 1/2"	17"
S4(Bott.)	2,3,4	18"	1/2"	5'-0 1/2"	8"	5/8"	5'-0 1/2"	3"	9"	9"	5/16"	5'-0 1/2"	18"
S5(Bott.)	1,5	17"	1/2"	5'-0 1/2"	7 1/2"	5/8"	4'-6 1/2"	2 3/4"	9"	8"	1/8"	4'-6 1/2"	17"
S5(Bott.)	2,4	18"	1/2"	5'-0 1/2"	8"	5/8"	5'-0 1/2"	3"	9"	9"	1/8"	5'-0 1/2"	18"
S5(Bott.)	3	18"	1/2"	5'-0 1/2"	8"	5/8"	5'-0 1/2"	3"	9"	9"	1/4"	5'-0 1/2"	18"



TYP. PART SECTION SHOWING END DIAPHRAGMS

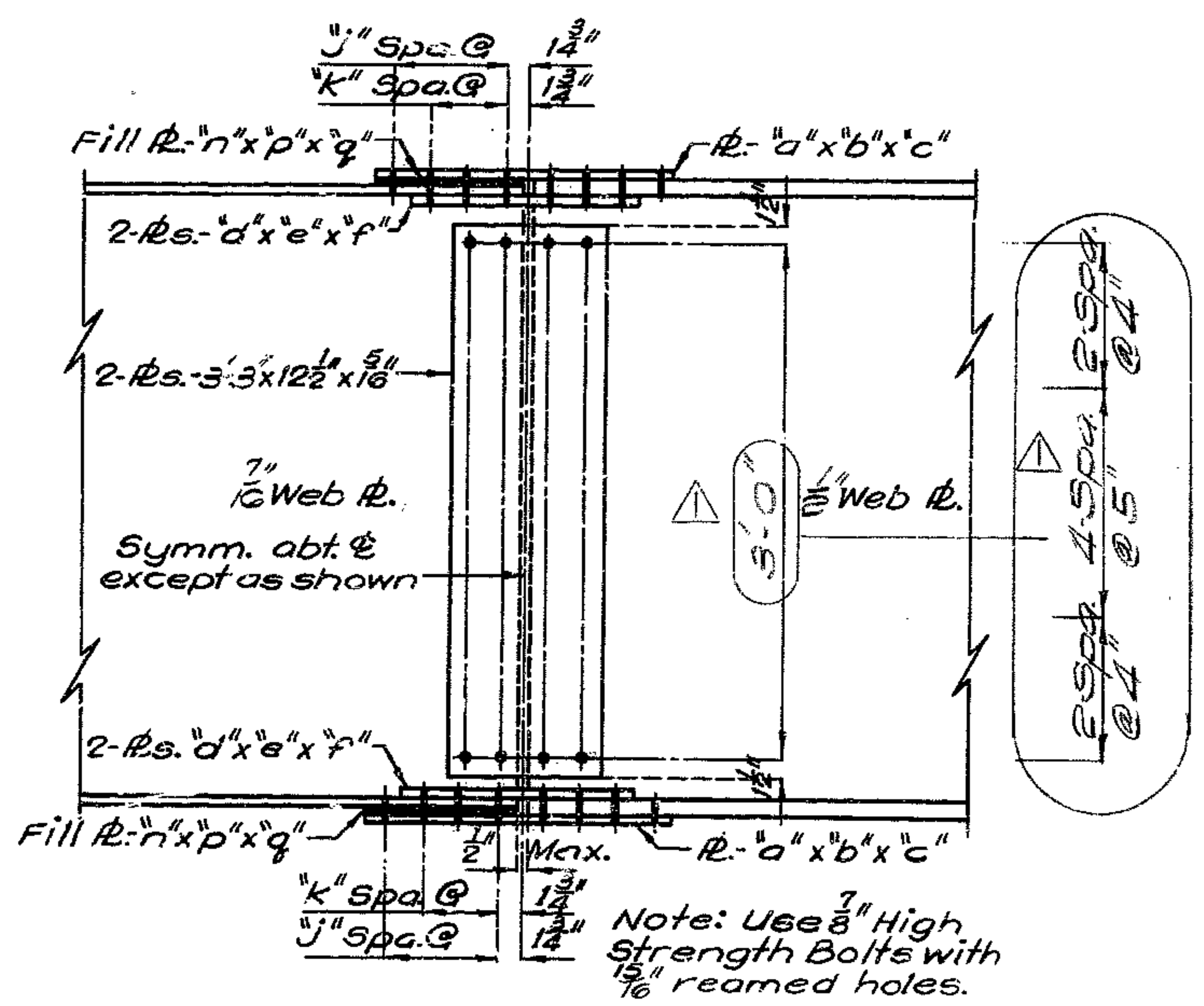


TYP. PART SECTION SHOWING INT. DIAPHRAGM

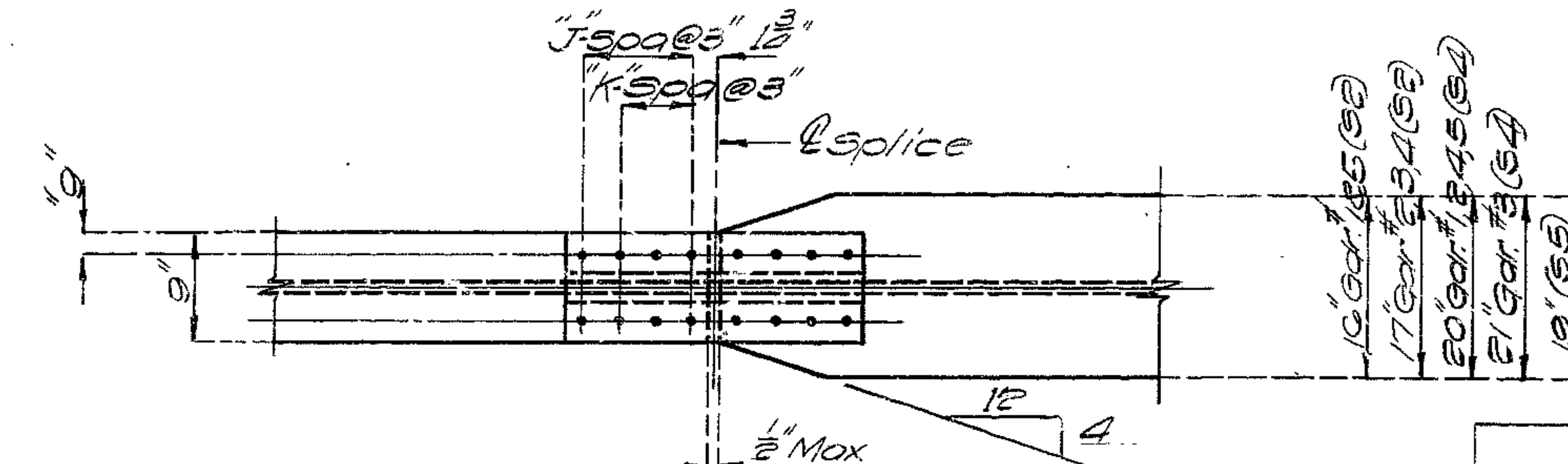


DETAIL "E"

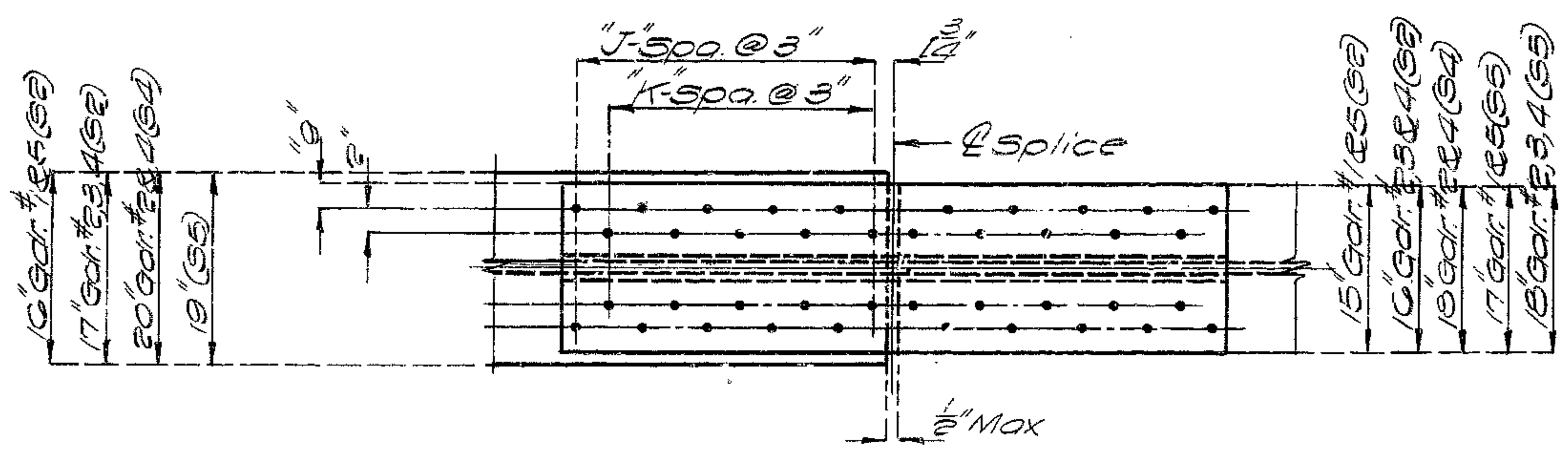
DETAIL "F"



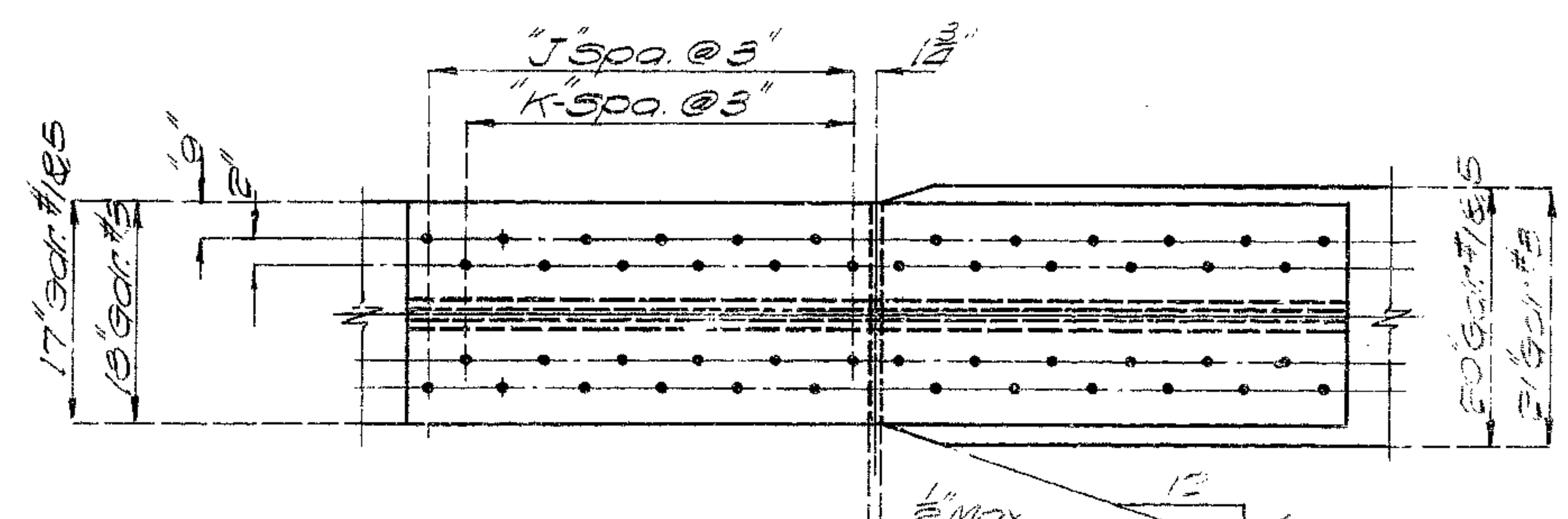
DETAIL OF BOLTED SPLICE



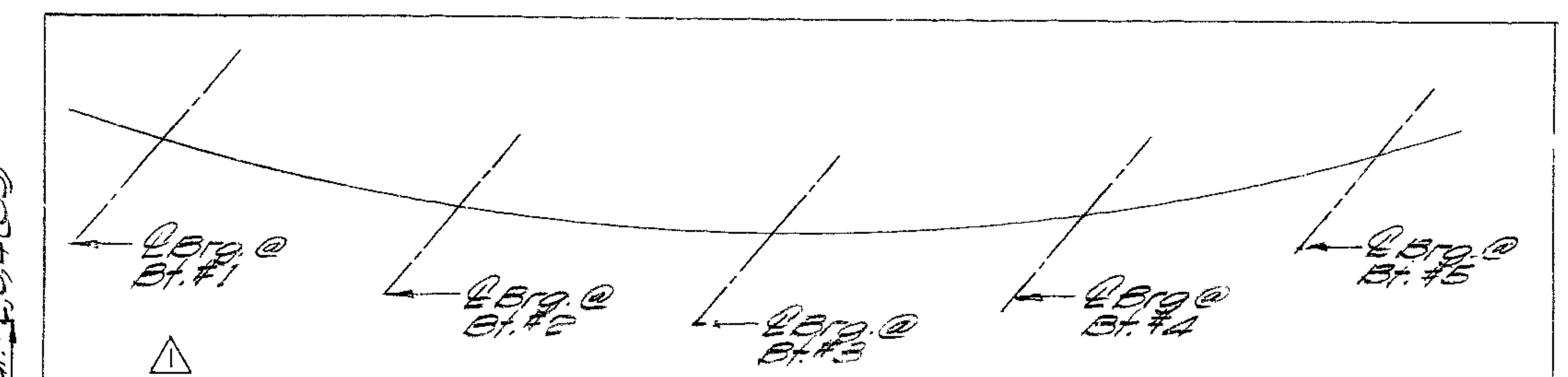
(S2 S4 & S5) TOP FLANGE

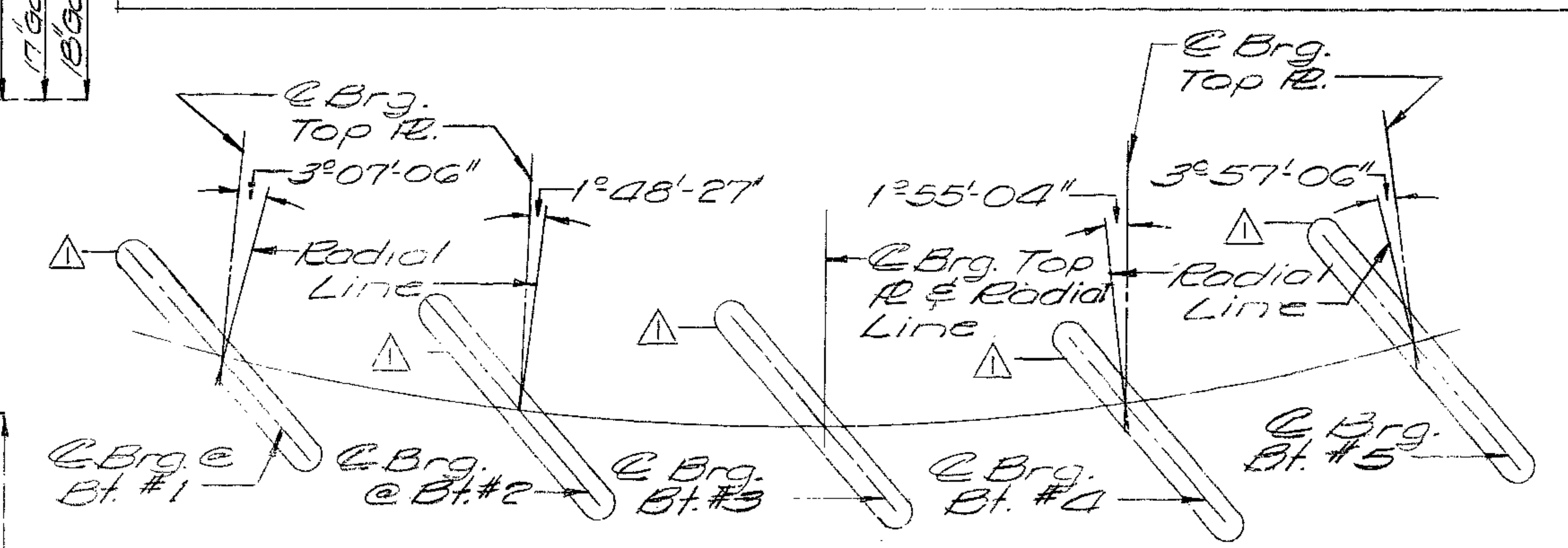


(S2 S4 & S5) BOTTOM FLANGE



(S4) BOTTOM FLANGE





BEARING PLACEMENT ORIENTATION

DETAILED Oct. 1976
CHECKED July 1977

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

Sheet No. 18 of 23 — △ Revised 5/9/79 — PLATTE COUNTY — A-3441

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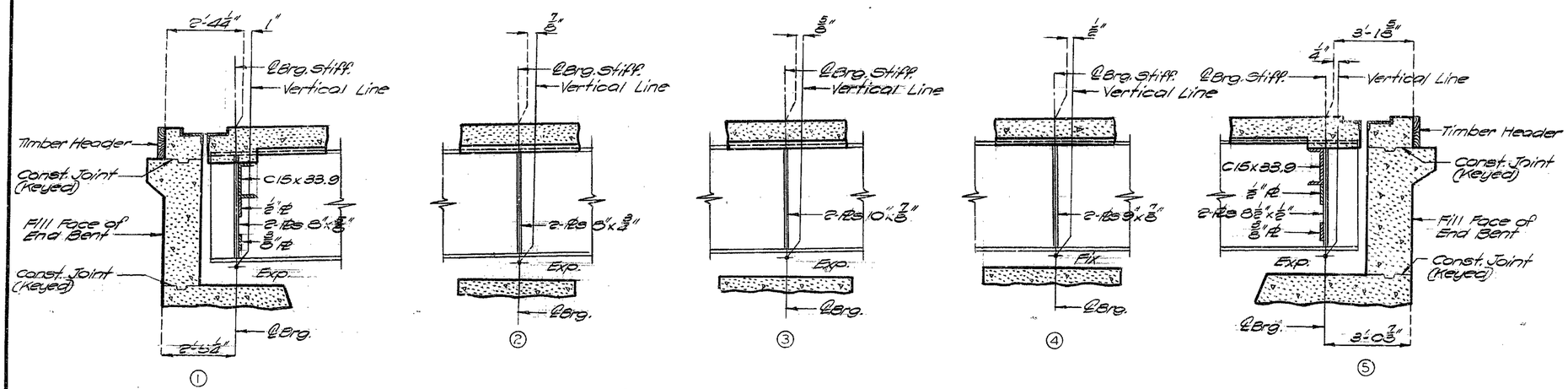
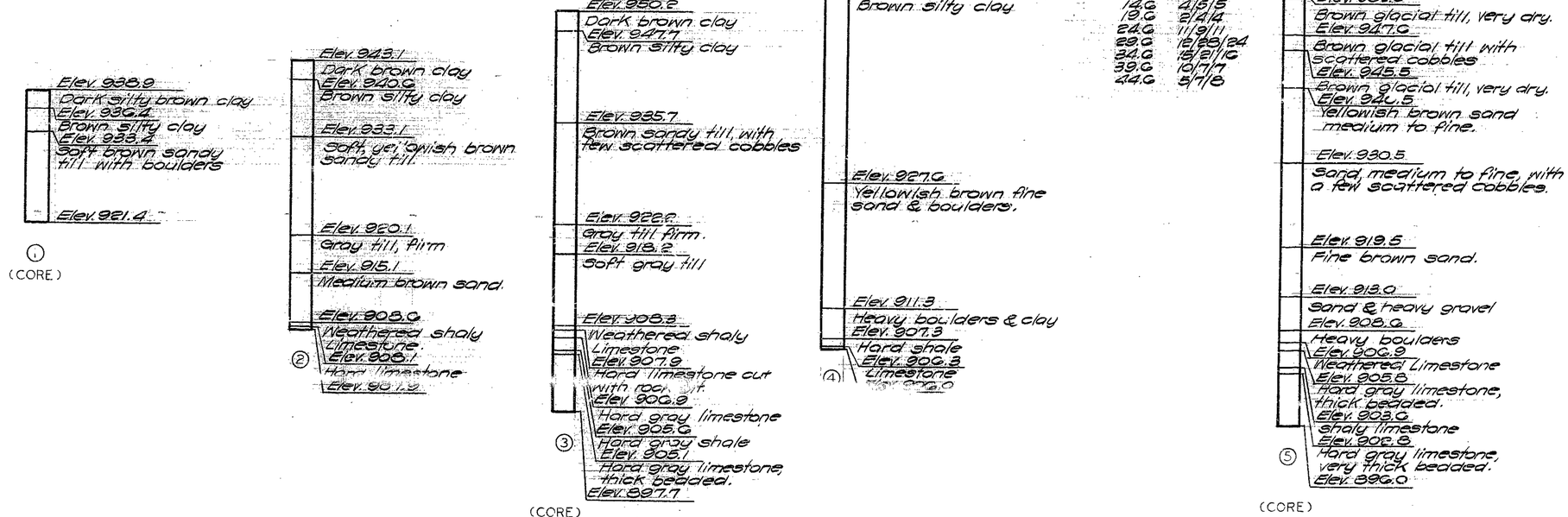
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	24	



PART LONGITUDINAL SECTION NEAR GIRDER NO. 3



BORING DATA

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

DETAILED Feb 1977
CHECKED July 1977

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

Sheet No. 14 of 23.

PLATTE COUNTY

A-3441

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	25	

NOTES: TYPE "D" BEARINGS

ANCHOR BOLTS FOR TYPE "D" BEARINGS SHALL BE 1-1/4"Ø SWEDGED BOLTS AND SHALL EXTEND 12" INTO CONCRETE, WITH HEXAGON NUTS AND PLAIN WASHERS FOR FIXED BEARINGS, NO NUTS FOR EXPANSION BEARINGS.

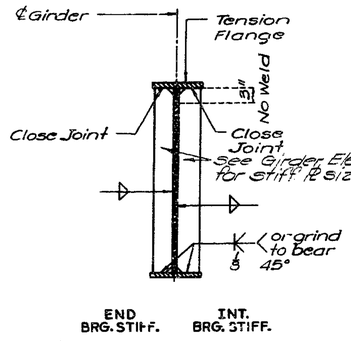
LEAD PLATES (8#/sq. ft.) OR PREFORMED FABRIC PADS UNDER BEARINGS SHALL BE APPROXIMATELY 1 8" THICKNESS. PREFORMED FABRIC PADS SHALL CONSIST OF FABRIC AND RUBBER BODY MADE FROM NEW UNVULCANIZED RUBBER AND UNUSED FABRIC FIBERS IN PROPER PROPORTION TO MAINTAIN STRENGTH AND STABILITY. THE VULCANIZED AND CURED PAD SHALL HAVE A SURFACE HARDNESS OF 80 SHORE "A" DUROMETER ±10 WITH AN ULTIMATE BREAKDOWN LIMIT UNDER COMPRESSIVE LOADS OF NO LESS THAN 7000 PSI.

SHOP DRAWINGS ARE NOT REQUIRED FOR LEAD PLATES AND OR PREFORMED FABRIC PADS.

LEAD PLATES OR PREFORMED FABRIC PADS SHALL BE 1/2" GREATER IN LENGTH AND WIDTH THAN BOTTOM BEARING PLATES.

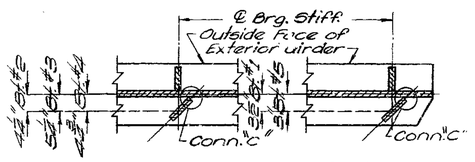
"ESTIMATED WEIGHT" DOES NOT INCLUDE WEIGHT OF ANCHOR BOLTS.

" ✓ " INDICATES MACHINE FINISH SURFACE.

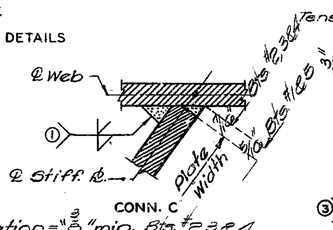


② Weld to compression flange as located on Elevation of Girder: * 1½" Typical for all Int. Web Stiff., Int. Diaph. Conn. Pl. and Brg. Stiff.

WELDING DETAILS

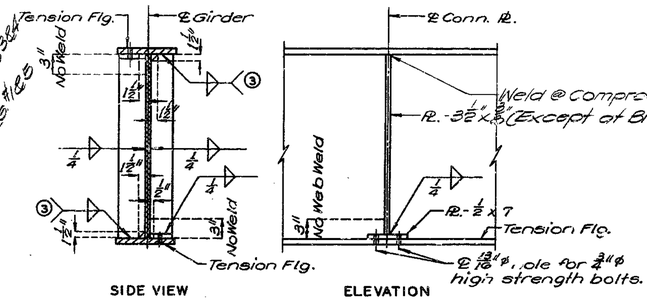


TYPICAL LOCATION DETAILS



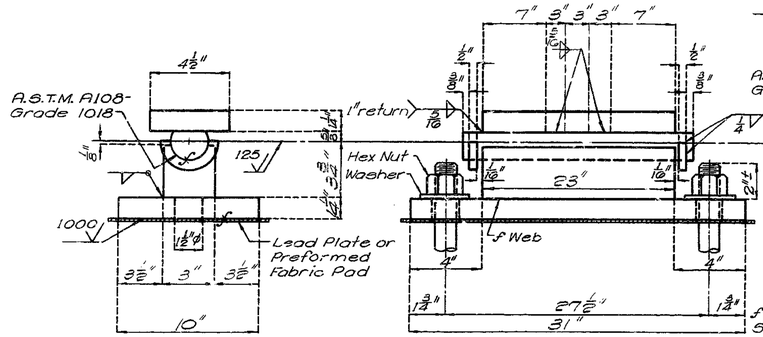
① Groove weld penetration = "⅝" min. Bfs. #3 & 4
= "½" min. Bfs. #1 & 5

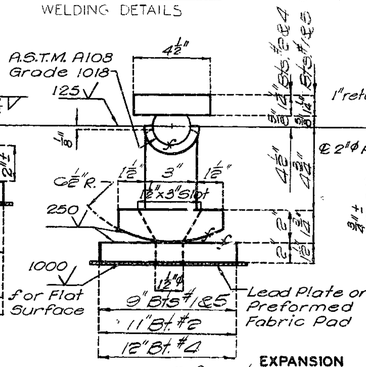
WELDING DETAILS



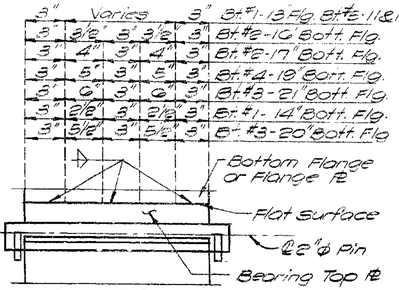
③ Note: Weld to compression flange as located on Elevation of Girder.

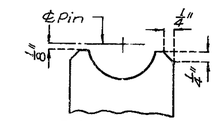
MODIFIED INTERMEDIATE DIAPHRAGM CONNECTION

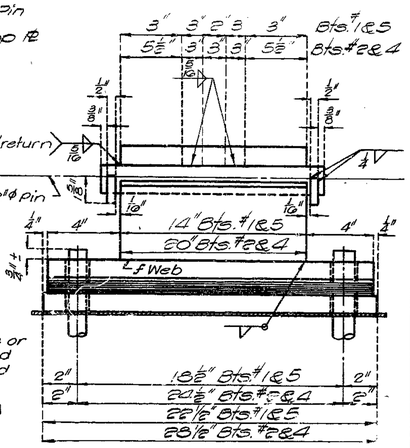




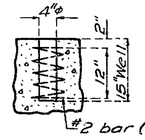
TYPE "D" BEARINGS
(ESTIMATED WEIGHT 7,165)



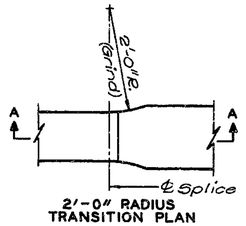




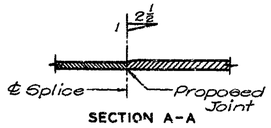
Note: For Bearing Placement Orientation see Sht. #13



DETAIL OF ANCHOR BOLT WELLS

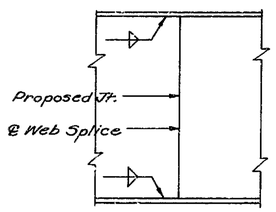


2'-0" RADIUS TRANSITION PLAN

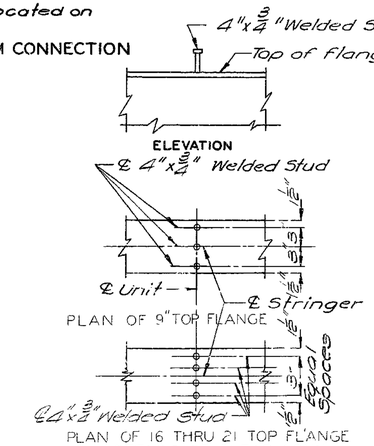


SECTION A-A

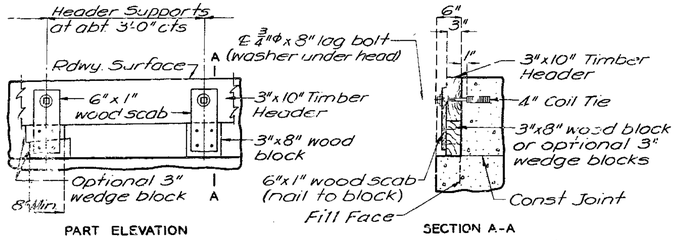
SHOP WELDED FLANGE SPLICE



SHOP WEB SPLICE



Note: Weight of 1643 lbs. of shear connectors is included in the weight of Fabricated Structural Carbon Steel.



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

DETAILS OF TIMBER HEADER AT END BENTS

STD. D.B. REVISED FEB. 1965 JUNE 1976

DETAILED Oct. 1976
CHECKED July 1977

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

Sheet No. 15 of 28.

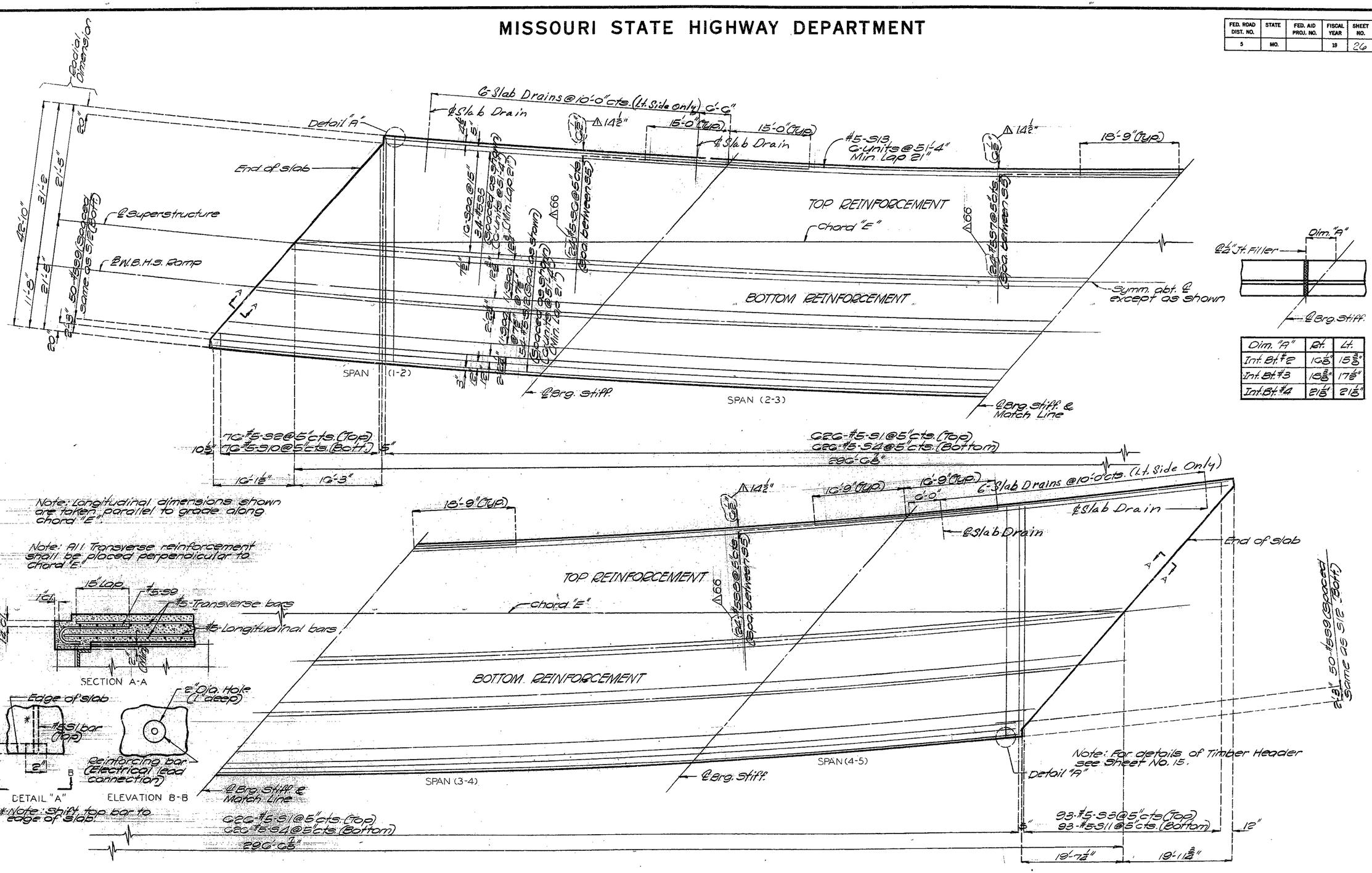
PLATTE COUNTY

A-3441

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	26	

34-49



Dim. "A"	Bt.	Lt.
Int. Bt. #2	10⅝"	15⅜"
Int. Bt. #3	18⅜"	17½"
Int. Bt. #4	21⅛"	21⅛"

DETAILED Feb 1977
CHECKED July 1977

Note: This drawing is not to scale. Follow dimensions. PLAN OF SLAB SHOWING REINFORCEMENT

Sheet No. 16 of 23.

Δ Revised 7-15-80

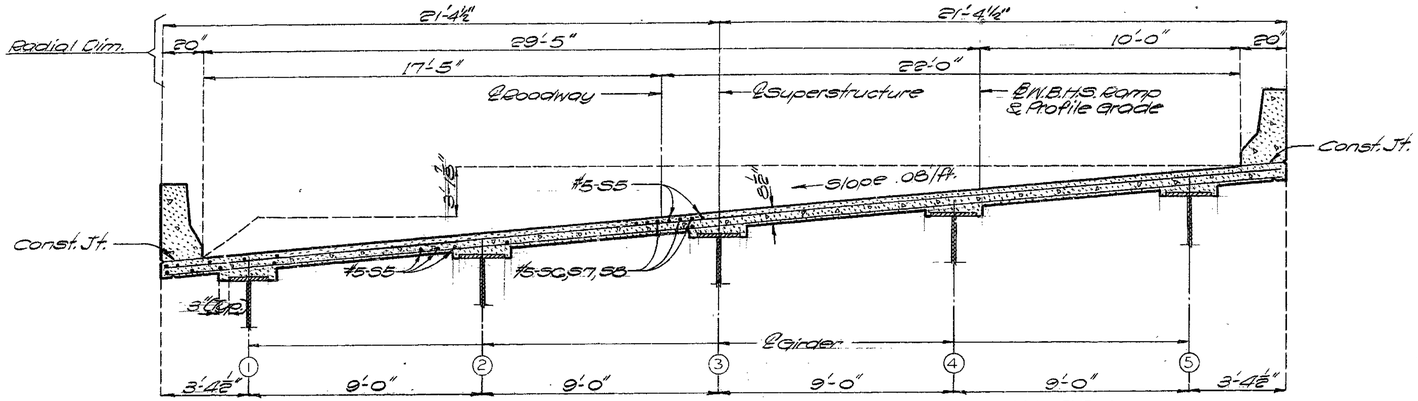
PLATTE COUNTY

A-3441

MISSOURI STATE HIGHWAY DEPARTMENT

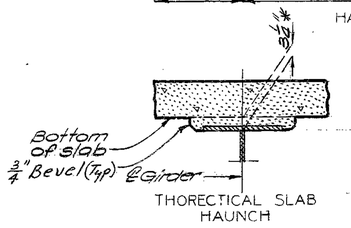
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEL. NO.	TOTAL SHEETS
5	MO.		19	27	

350



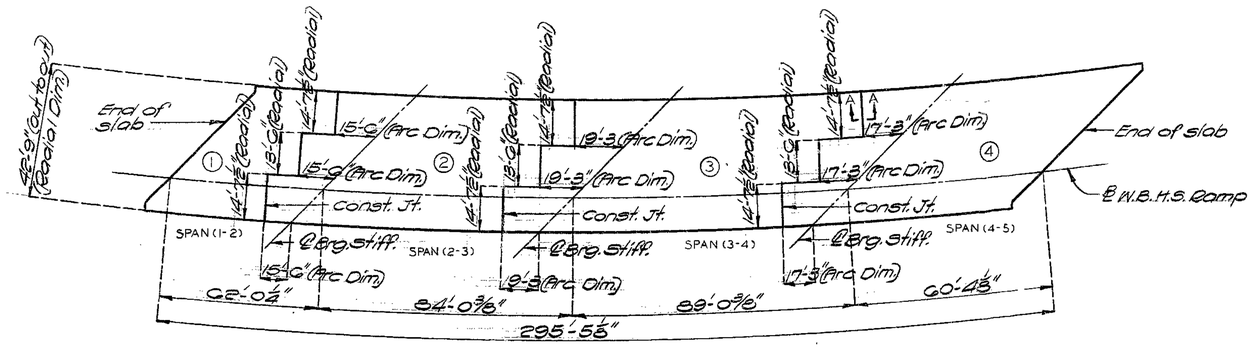
HALF SECTION NEAR INT. BENT

HALF SECTION NEAR INT. DIAPHRAGM

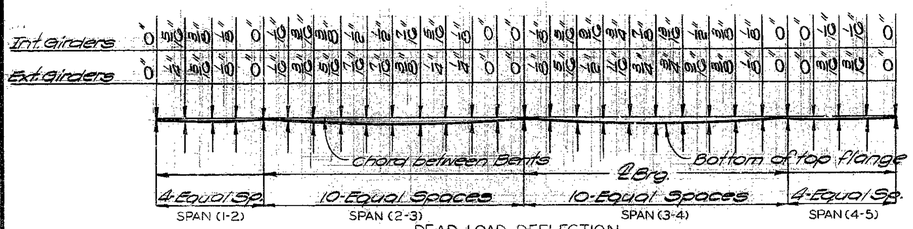


THORECTICAL SLAB HAUNCH

Note: *-Dimension may vary if girder camber after erection differs from plan camber by more than the ⅛ of Dead Load Deflection due to weight of structural steel. No payment will be made for additional forming or concrete required for variable haunching.



POURING SEQUENCE



DEAD LOAD DEFLECTION

Note: 15% of deadload deflection is due to weight of structural steel.

Note: Camber includes allowance for vertical curve, and for dead load deflection due to concrete slab, curb and structural steel.

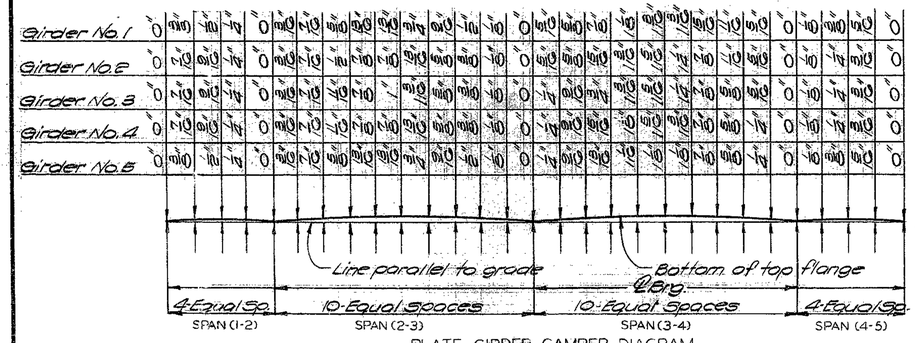
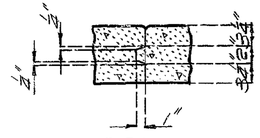


PLATE GIRDER CAMBER DIAGRAM

	SEQUENCE OF POURS			
	DIRECTION			
	1	2	3	4
Basic sequence	End to 2	1 to 3	2 to 4	3 to End
Alternate "A" Pours	1 + 2		3	4
	End to 3		2 to 4	3 to End
Alternate "B" Pours	1 + 2		3 + 4	
	End to 3		2 to End	
Alternate "C" Pours	1 + 2 + 3 + 4			
	End to End			

Note: The contractor shall pour and satisfactorily finish the slab pours at a rate of not less than 50 cubic yards per hour unless he elects to use an approved retarder to retard the set of the concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than 30 cubic yards per hour.



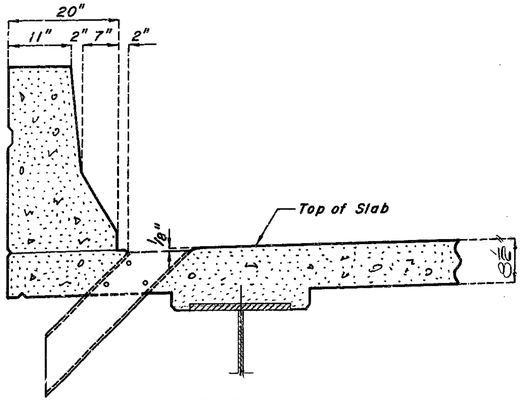
SECTION A-A

DETAILED Feb. 1977
CHECKED July 1977

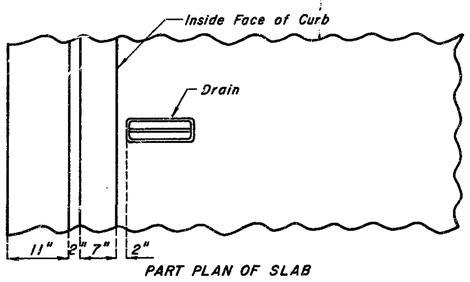
Note: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

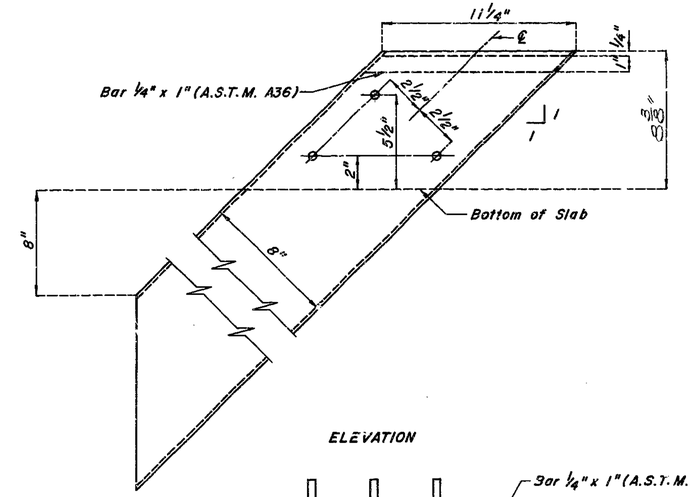
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	28	



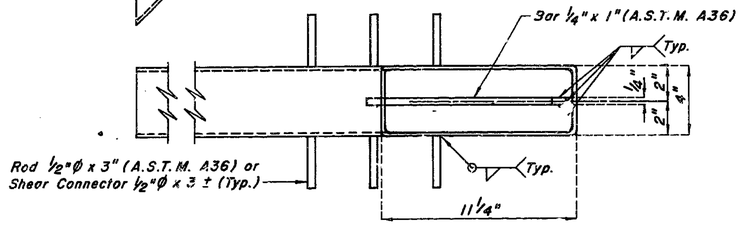
PART ELEVATION OF SLAB



PART PLAN OF SLAB



ELEVATION



PLAN

SLAB DRAIN DETAILS

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"x4".

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 THE SLAB BY DIMENSIONS SHOWN IN THE PART ELEVATION.

SHIFT REINFORCING STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS.

THE DRAINS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A123.

SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE SLAB DRAINS.

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Note: See Sheet No. 10 for location of drains.
Slab drains will be placed on the left side of Spans (1-2) & (4-5) only.

STD. S.D.-N.W.S.	REVISED
FEB. 1975	MAR. 1978

DETAILED May 19 77
CHECKED Jan 19 79

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

PLATE COUNTY A-3441

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	24	

TABLE OF DIMENSIONS

LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	ANCHOR STUDS "G"
Bt. #1 & 5	Fel-Span T20	1 3/8"	11 3/8"	4 1/2"	1 5/8"	1"	1 7/16"	1 15/16"	1/2"	50
	On-Flex 25	1 1/2"	11"	4 1/4"	1 5/8"	1 1/4"	1 11/16"	2 3/16"	1/2"	65
	Wabo-Elastodam	1 1/4"	11 1/4"	4 1/2"	1 5/8"	1"	1 9/16"	1 15/16"	1/2"	40

NOTE: All dimensions are at right angles. Expansion gap and dimension "A" shall be increased for each 10° fall in temperature and decreased for each 10° rise in temperature.

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE NUTS ON THE ANCHOR STUDS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL. NO. 4 BARS FOR ANCHORS SHALL BE STRUCTURAL GRADE STEEL. APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 4 BARS SHOWN.

SEE SPECIAL PROVISIONS FOR PAINTING.

ANCHOR BOLTS IN THE BARRIER CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE BARRIER CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

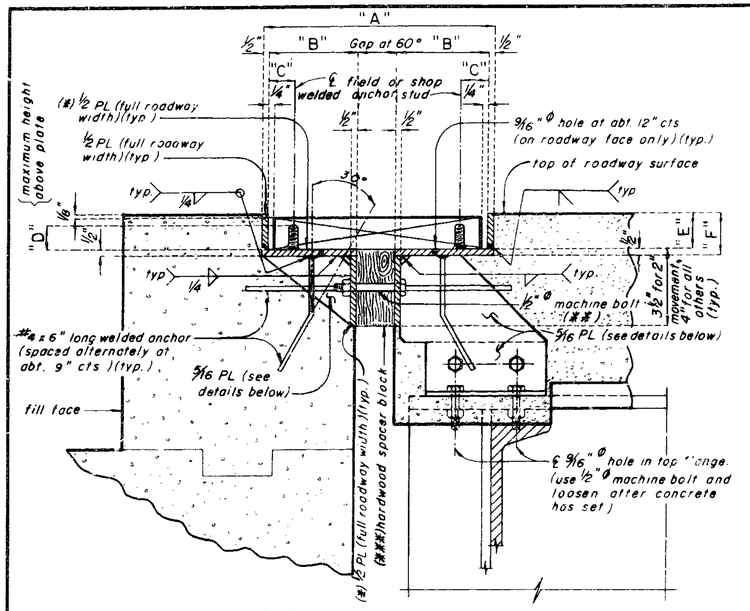
PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

PLATES SHALL BE FIELD ADJUSTED BY ADDING OR REMOVING METAL SHIMS (2 x 3), AS REQUIRED FOR TEMPERATURE CORRECTION. THE EXPANSION GAP SHALL BE ADJUSTED FOR ANY TEMPERATURE CORRECTION PRIOR TO POURING TOP OF END BENT BACKWALL.

CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT BID PRICE PER LINEAR FOOT.

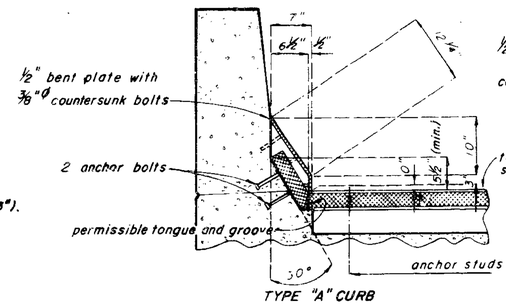
FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT PRICE BID FOR OTHER ITEMS.



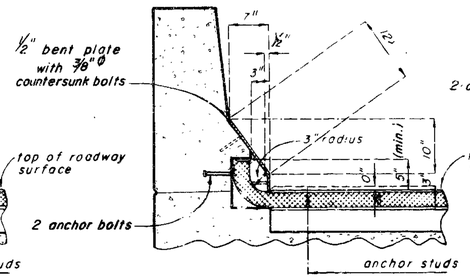
PART SECTION THRU ARMORED JOINT

(*) these plates may be one piece by using legs of equal or unequal angles.

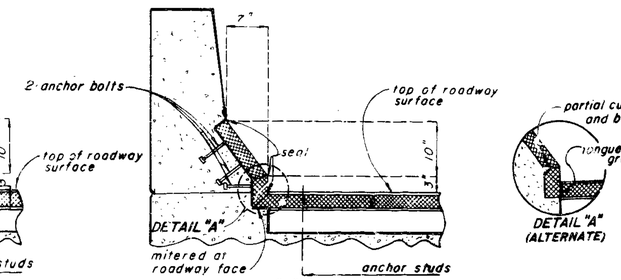
(***) spacer may be a combination of a hardwood block and metal shims (2"x3").



TYPE "A" CURB

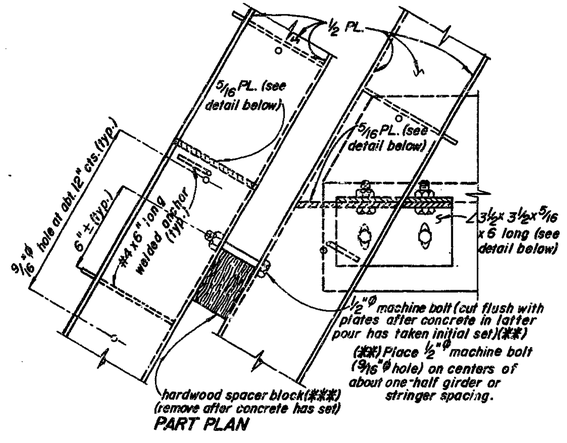


TYPE "B" CURB
(maximum skew 10°)



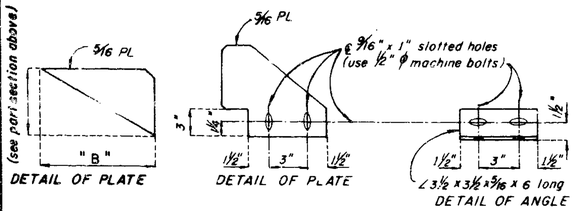
TYPE "C" CURB

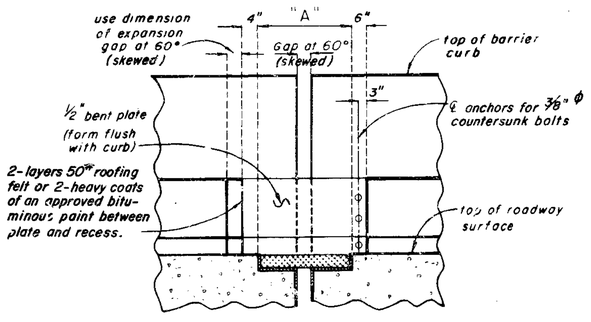
ALTERNATE CURB TREATMENTS



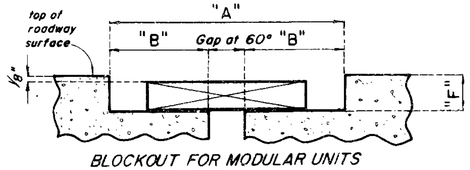
PART PLAN

Note: 5/16 plates and angle placed at each girder or stringer.





PART ELEVATION OF BARRIER CURB



BLOCKOUT FOR MODULAR UNITS

NOTE: WHEN MODULAR UNITS ARE SPECIFIED AS AN ALTERNATE STEEL CURB PLATE TREATMENTS ARE REQUIRED.

DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL AT BENTS NO. 1 & 5

SPS-END-BT.	REVISED
FEB. 1978	AUG. 1978

DETAILED Jan. 1979
CHECKED Jan 1979

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

Sheet No. 19 of 23.

PLATTE COUNTY

A-3441

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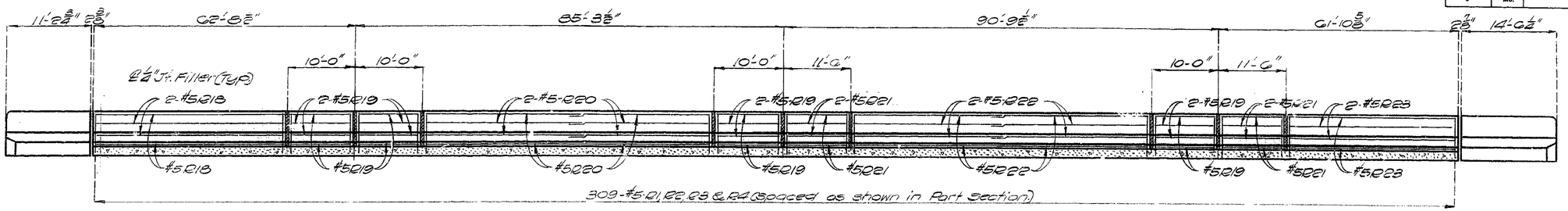

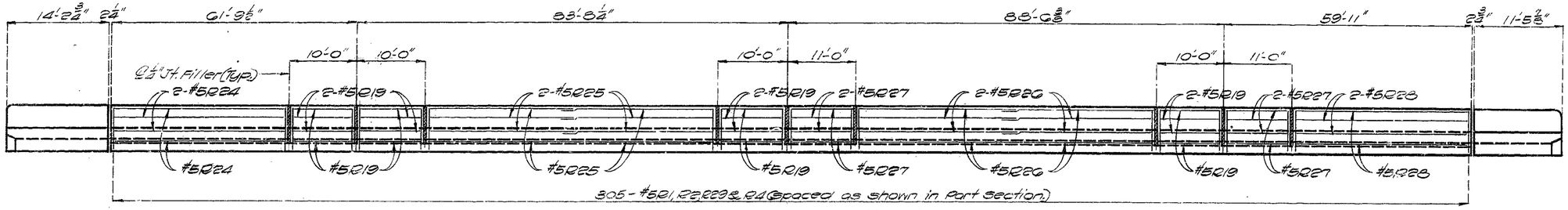

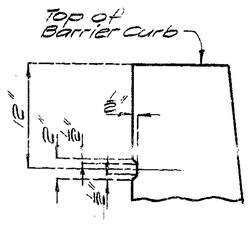

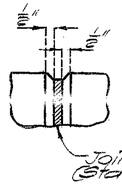

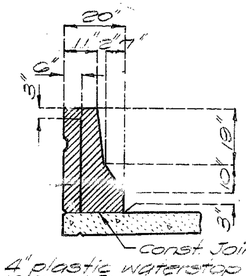

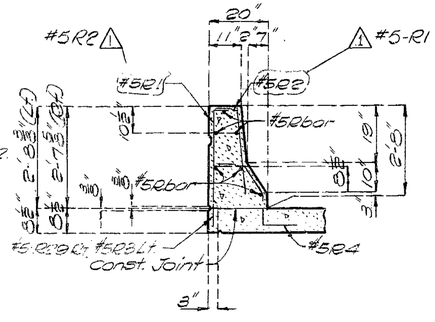

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	30	

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ELEVATION OF LEFT BARRIER CURB

ELEVATION OF RIGHT BARRIER CURB

Note: Longitudional dimensions are arc dimensions along centerline of top of barrier curb parallel to grade.

Top of barrier curb to be built parallel to grade with barrier curb joints (except at End Bents) normal to grade.

All exposed edges of barrier curb shall have ½" radius or ⅜" bevel unless otherwise noted.

Note: For details and reinforcement of Barrier curb not shown see Sheets No. 21 & 22.

Note: Rustication not shown for clarity. For details of Rustication see Sheet No. 21.

RUSTICATION DETAIL

FILLED JOINT DETAIL

4" plastic waterstop Std. Spec. 1057.2. 1057.2.1 (Centered on joint)

Note: Plastic waterstop shall be placed in all Safety Barrier Curbs filled joints.

Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATERSTOP

SECTION C-C

PART SECTION NEAR LEFT BARRIER CURB

STD. 1.7.3	REVISED
NOV. 1974	MAY 1975

DETAILED Feb. 1977
CHECKED July 1977

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

DETAILS OF BARRIER CURB

Sheet No. 20 of 35.

1 Revised 10-10-79

PLATTE COUNTY

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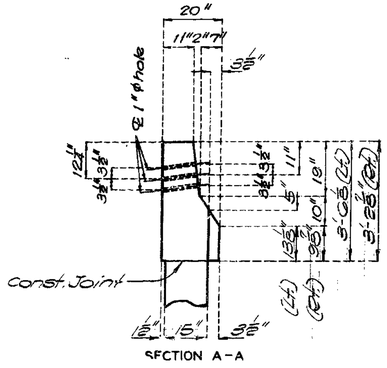
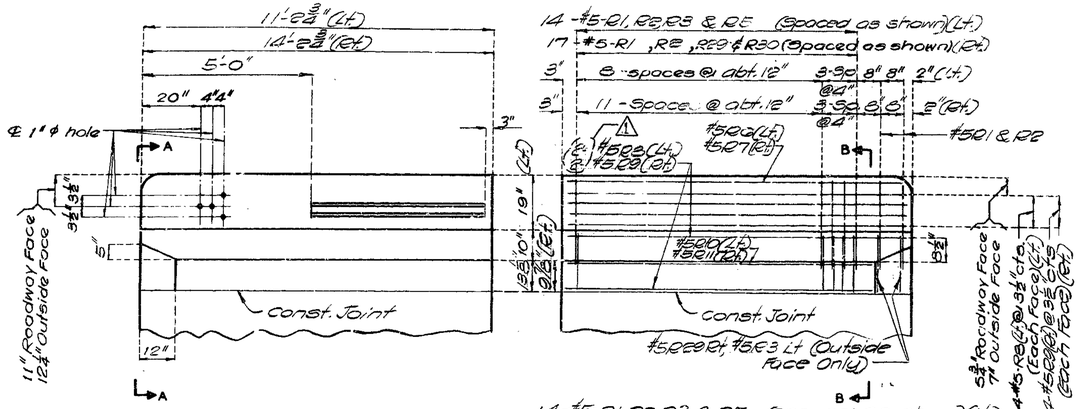
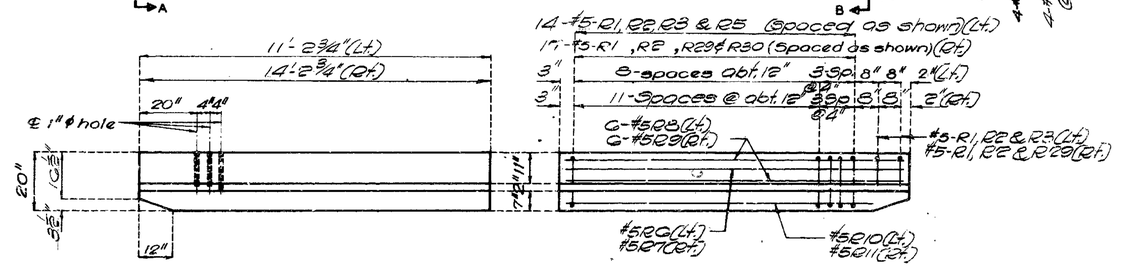
MISSOURI STATE HIGHWAY DEPARTMENT

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

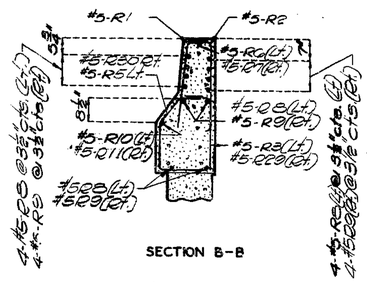


SECTION A-A



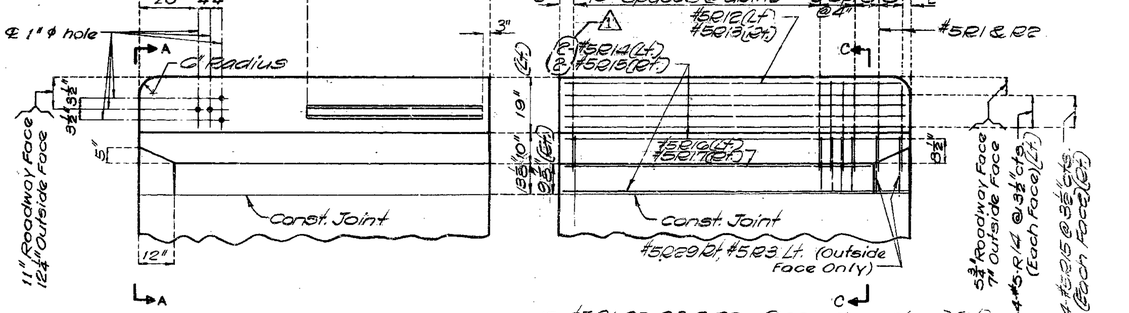


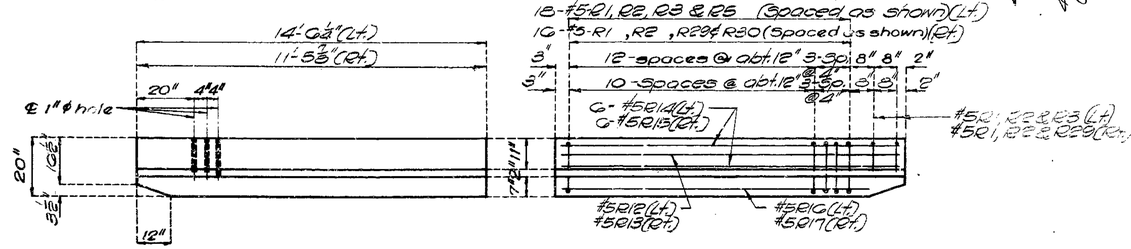
PLAN OF BARRIER CURB AT END BENT NO. 1



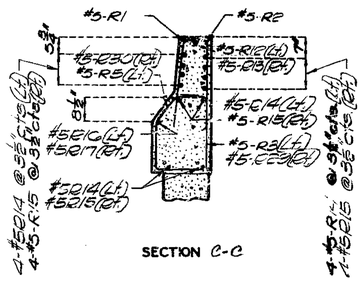
SECTION B-B

Note: Use a minimum lap of 15" for #5 horizontal barrier curb bars.





PLAN OF BARRIER CURB AT END BENT NO. 5



SECTION C-C

DETAILED June 19 77
CHECKED July 19 77

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

Sheet No. 21 of 23.

⚠ Revised 10-10-79

PLATTE **COUNTY**

A-34411

FOR INFORMATION ONLY

A34411, Sht. 27

MISSOURI STATE HIGHWAY DEPARTMENT

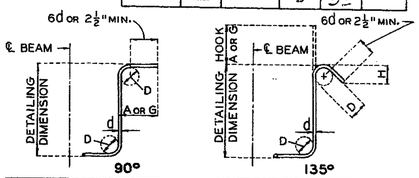
COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.
			SUBSTRUCTURE																						
			END BENT NO.1																						
51	4B100		BEAM	13	S	X			2	11.000	2	9.500	3	5.000	2	9.000							12	8	12	4	420
1	4B101		BEAM	13	S	X			(2 | 6.500)	2	9.625	(2 | 0.000)	2	9.000							10	10	10	7	7
8	10B102		BEAM	18		X			50	9.000	△1 2'-0"		△2 2'-6.5"										52	11	52	11	1822
2	6B103		BEAM	20		X			50	9.000													50	9	50	9	152
98	58104		BEAM	20		X			6	6.000													6	6	6	6	664
49	58105		BEAM △BACKWALL	10	S	X					2	6.000		9.000							6'-0"△		5	9	5	7	285
11 △	(9)	6B106	BEAM	10	S	X				21"△	(2	7.000)	(2	2.000)	△2'-6"						5'-8"△		(7	4)	(7	0)	95
2		6B107	BACKWALL	20		X			51	2.000													51	2	51	2	154
6		4B108	BACKWALL	20		X			48	2.000	△1 5'-8.25										△0		48	2	48	2	193
5		7B109	BEAM	10		X					(6	9.750)	2	7.500							△8		14	(3	13	(11	138△(142)
5		7B110	BEAM	14		X			6	3.000	2	9.375	3	4.375					2	8.500	2	0.000	12	5	12	2	124
2		6B111	BEAM	20		X			2	6.000													2	6	2	6	8
2		6B112	BEAM	20		X			2	9.000													2	9	2	9	8
11		4B113	BEAM	10	S	X					6.000		2	11.000									3	11	3	9	28
5	6W100		WING	15	S	X			12.250		5	1.500	12.250		10.750		5.750		11.000		5.500		7	2	7	0	53
7	6W101		WING	17		X			6	7.000													7	3	7	3	44
4	6W102		WING	20		X			7	1.000													7	1	7	1	43
7	6W103		WING	17		X	V	1	2	8.000													3	4	3	4	
			INCR = 4.375 IN						4	10.000													5	6	5	6	46
7	6W104		WING	20		X	V	1	3	2.000													3	2	3	2	
			INCR = 4.375 IN						5	4.000													5	4	5	4	45
4	6W105		WING	20		X			10	11.000													10	11	10	11	66
8	6W106			20		X	V	2	4	6.000													4	6	4	6	
			INCR = 24.000 IN						10	6.000													10	6	10	6	90
2	6W107			25	S	X			15.500		6	8.375	23.500						2	3.500	6	3.500	9	11	9	10	30
2	4W108			20		X			5	0.000													5	0	5	0	7
2	6W109			19	S	X			5	6.000	4	8.000											10	2	10	0	30
10	6W110			17		X	V	1	2	7.500													3	4	3	4	
			INCR = 4.000 IN						5	7.500													6	4	6	4	73
10	6W111			20		X	V	1	3	1.500													3	2	3	2	
			INCR = 4.125 IN						6	2.500													6	3	6	3	71
4	6W112			17		X			7	4.000													8	0	8	0	48
4	6W113			20		X			7	10.000													7	10	7	10	47
8	6W114			20		X	V	2	6	3.500													6	4	6	4	
			INCR = 28.000 IN						13	4.000													13	4	13	4	118
4	6W115			20		X			13	11.000													13	11	13	11	84
2	6W116			25	S	X			15.000		9	7.750	2	0.000					2	11.250	9	2.250	12	11	12	10	39
5	6W117			15	S	X			12.250		6	10.750	12.125		5.500		10.750		5.500		11.000		8	11	8	11	67
2	6W118			19	S	X			5	3.000	2	11.000											8	2	8	0	24
4	4W119			10	S	X					2	11.000	6.000										6	4	6	2	16
3	4W120			10	S	X					4	8.000	6.000										9	10	9	8	19
2	4W121			20		X			5	3.000													5	3	5	3	7
10	2W1		BEAM	22		X			12.000		9.125												19	9	19	9	33
			END BENT NO.5																								
59	48500		BEAM	13	S	X			3	1.000	2	9.125	3	7.000	2	8.625							12	11	12	8	499
16 △4	10B501		BEAM	17		X			32	0.000	△1 2'-9"										△10		33	1	33	1	2278
5	78502		BEAM	14		X			6	4.000	(2	10.000)	2	8.875					22.500		2	0.000	11	11	11	8	119
(2)	68503		BEAM	20		X			31	6.000											△7		31	6	31	6	(189)△(195)
118	58504		BEAM	20		X			6	10.000													6	10	6	10	841
59	58505		BEAM	10	S	X					2	2.000	9.000										5	1	4	11	303

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.
5	78506		BEAM	10		X					6	6.000	2	9.000									15	9	15	5	158
12	48507		BEAM	20		X			30	1.000													30	1	30	1	241
4	68508		BEAM	20		X			31	8.000													31	8	31	8	190
2	68509		BEAM	20		X			(2	9.000)	△1 2'-6"												2	9	2	9	8
2	68510		BEAM	20		X			3	3.000													3	3	3	3	10
12	68511		BEAM	10	S	X					2	2.000	3	2.000									7	6	7	2	129
1	48512		BEAM	13	S	X			3	1.500	2	9.125	3	7.500	2	8.625							13	0	12	9	9
1	48513		BEAM	13	S	X				20.000	2	9.625	2	4.000	2	8.625							10	3	10	0	7
11	48514		BEAM	10	S	X					6.000		(2	11.000)								4'-1"△	(3	11)	(3	9)	(28)△29
													△1 3'-1"												△3"↑	
4	6W500		WING	10	S	X					5	8.000	6.000										11	10	11	6	69
5	6W501		WING	17		X			7	5.000													8	1	8	1	61
5	6W502		WING	20		X			7	11.000													7	11	7	11	59
7	6W503		WING	17		X	V	1	2	8.000													3	4	3	4	
			INCR = 6.125 IN						5	8.500													6	5	6	5	51
7	6W504		WING	20		X	V	1	3	2.000													3	2	3	2	
			INCR = 6.125 IN						6	2.500													6	3	6	3	50
4	6W505		WING	20		X			11	3.000													11	3	11	3	68
8	6W506		WING	20		X	V	2	6	6.000													6	6	6	6	
			INCR = 17.625 IN						10	11.000													10	11	10	11	105
2	6W507		WING	25	S	X			16.000		7	1.625	22.000						3	3.500	6	4.000	10	4	10	3	31
4	4W508		WING	20		X			5	7.000													5	7	5	7	15
2	6W509		WING	19	S	X			6	2.000	5	8.000											11	10	11	8	35
10	6W510		WING	17		X	V	1	2	7.500													3	4	3	4	
			INCR = 3.750 IN						5	5.500													6	2	6	2	71
10	6W511		WING	20		X	V	1	3	1.500													3	2	3	2	
			INCR = 3.750 IN						5	11.500													6	0	6	0	69
5	6W512		WING	17		X			7	1.000													7	9	7	9	58
5	6W513		WING	20		X			7	7.000													7	7	7	7	57
6	6W514		WING	20		X	V	2	6	6.000													6	6	6	6	
			INCR = 43.500 IN						13	9.000													13	9	13	9	91
4	6W515		WING	20		X			14	4.000	△1 14'-3"										14'-3"△		(14 | 4)	(14 | 4)	86
2	6W516		WING	25	S	X			15.500		9	4.250	2	1.750					2	10.000	8	11.000	12	10	12	8	38
4	6W517		WING	15	S	X			11.750		7	8.000	13.250		6.000		11.750		4.000		11.000		9	9	9	9	59
2	6W518		WING	19	S	X			5	8.000	3	2.000											8	10	8	8	26
3	4W519		WING	10	S	X					3	2.000	6.000										6	10	6	8	13
4	6W520		WING	15	S	X			12.625		3	1.500	11.875		11.000		4.500		11.750		4.500		5	2	5	0	30
10	2W1		BEAM	22		X			12.000		9.125												19	9	19	9	33
			INT. BT. NO.2																								
△57																											
(65)	5B200		BEAM	13	S	X			3	1.000	2	9.000	3	1.000	2	9.000							12	7	12	3	(830)△728
52	58201		BEAM	13	S	X			22.000		2	9.000	22.000		2	9.000							10	1	9	9	325
2	58202		BEAM	13	S	X			2	10.375	2	9.000	2	10.375	2	9.000							12	2	11	10	25
2	58203		BEAM	13	S	X			2	4.000	2	9.000	2	4.000	2	9.000							11	1	10	9	22
4	88204		BEAM	18		X			46	10.000													48	6	48	6	518
6	118205		BEAM	17		X			12	2.000													13	4	13	4	425
3	118206		BEAM	20		X			16	0.000													16	0	16	0	255
2	68207		BEAM	20		X			46	10.000													46	10	46	10	141
8	78208		BEAM	7		X			4	2.000	3	1.000											10	0	10	0	164
9	108209		BEAM	20		X			46	10.000													46	10	46	10	1814
4	48210		BEAM	10	S	X					6.000		3	1.000									4	1	3	11	10
69	4C200		COLUMN	16		X			2	9.000													9	6	9	6	438
8	10C201		COLUMN	20		X			24	5.000													24	5	24	5	841

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	32	

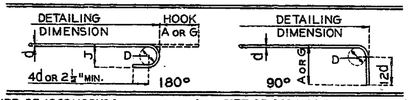


STIRRUP HOOK DIMENSIONS

GRADES 40-50-60 KSI

BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	135° HOOK APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER"D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI)

D = 5d FOR #3 THRU # 11
D = 10d FOR #14 AND # 18

SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)

D = 6d FOR #3 THRU #8
D = 8d FOR #9, #10 AND #11
D = 10d FOR #14 AND #18

END HOOK DIMENSIONS

BAR SIZE	180° HOOKS GRADE 40 A OR G	180° HOOKS GRADE 40 J	180° HOOKS GRADE 60 A OR G	180° HOOKS GRADE 60 J	90° HOOKS ALL GRADES A OR G
#3	5"	2-3/4"	5"	3"	6"
#4	6"	3-1/2"	6"	4"	8"
#5	7"	4-1/2"	7"	5"	10"
#6	8"	5-1/4"	8"	6"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-3/4"	22"
#11	14"	10"	19"	14-1/4"	21'-0"
#14	21'-2"	20-1/2"	21'-2"	20-1/2"	21'-7"
#18	21'-11"	21'-3"	21'-11"	21'-3"	31'-5"

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

S - STIRRUP.

X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.

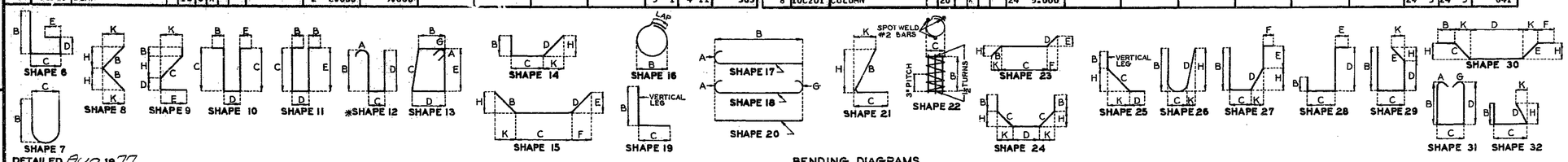
V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.

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 FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D = 5d.



BENDING DIAGRAMS

REVISED	OCT. 1976
STD. 90.8	MAY 1974

DETAILED Aug. 1977

CHECKED Oct. 1977

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

Sheet No. 22 of 23. △ Revised 10-10-79 PLATTE **COUNTY** A-3441

FOR INFORMATION ONLY **A34411, Sht. 28**

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	38	

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.
8	10C202		COLUMN	20	X				25 5.000							25 5	25 5	875
8	10C203		COLUMN	20	X				26 6.000							26 6	26 6	912
24	10C204		COLUMN & FOOTING	20	X				6 9.000							6 9	6 9	697
12	6F201		FOOTING	10	S	X				3 0.000	16.000					7 4	7 0	126
12	6F202		FOOTING	10	S	X				(3 6.000) 4'-0"	16.000				9'-4"	8 4	(8 0) 9'-0"	(144) 162
10	2W1		BEAM	22		X			12.000	9.125						19 9	19 9	33
			INT. BT. NO.3															12
																		12
84	5B300		BEAM	13	S	X			2 2.000	3 0.000	2 2.000	3 0.000				11 3	10 11	956
25	5B301		BEAM	13	S	X			3 3.000	3 0.000	3 3.000	3 0.000				13 5	13 1	341
2	5B302		BEAM	13	S	X			2 11.000	3 0.000	2 11.000	3 0.000				12 9	12 5	26
2	5B303		BEAM	13	S	X			2 4.375	3 0.000	2 4.375	3 0.000				11 8	11 4	24
5	9B304		BEAM	18		X			49 6.000							51 6	51 6	876
8	11B305		BEAM	20		X			49 6.000							49 6	49 6	2104
2	10B306		BEAM	20		X			16 2.000							16 2	16 2	139
2	6B307		BEAM	20		X			49 6.000							49 6	49 6	149
8	7B308		BEAM	7		X			4 3.000	3 3.000						10 3	10 3	168
8	4B309		BEAM	10	S	X				6.000	3 3.000					4 3	4 1	22
8	11B310		BEAM	17		X			14 6.000							15 8	15 8	666
																		12
54	4C300		COLUMN	16		X		2	DELETE (9 0.000)	2'-9"			9'-6" 19'-9"	9'-6" 19'-9"	343 680	29 2	29 2	1052
8	10C301		COLUMN	20		X		19	(9 0.000)	19'-9"			20'-9"	20'-9"	714	9 0	9 0	310
8	10C302		COLUMN	20		X		20	(9 0.000)	20'-9"			21'-9"	21'-9"	749	9 0	9 0	310
8	10C303		COLUMN	20		X		21	(9 0.000)	21'-9"			6'-9"	6'-9"	697	9 0	9 0	310
24	10C304		COLUMN & FOOTING	20		X		6	(9 0.000)	6'-9"						9 0	9 0	929
																		12
24	6F301		FOOTING	10	S	X				3 2.000	16.000					7 8	7 4	264
10	2W1		BEAM	22		X			12.000	9.125						19 9	19 9	33
			INT. BT. NO.4															39
										2'-9"					12			435
70	5B400		BEAM	13	S	X			3 3.000	(3.000)	3 3.000	(3.000)	2'-9"			7 11	7 7	554
40	5B401		BEAM	13	S	X			2 2.000	(3.000)	2 2.000	(3.000)	2'-9"		10	5 9	5 5	226
4	2	5B402	BEAM	13	S	X		2	(2 5.250)	(3.000)	(2 5.250)	(3.000)	2'-9"	9'-3"	9'-7"	6 4	6 0	13
5	9B404		BEAM	18		X			52 7.000	19"		19"				54 7	54 7	928
8	11B405		BEAM	20		X			52 7.000							52 7	52 7	2235
2	11B406		BEAM	20		X			16 3.000							16 3	16 3	173
2	6B407		BEAM	20		X			52 7.000							52 7	52 7	158
8	7B408		BEAM	7		X			4 3.000	3 3.000						10 3	10 3	168
3	4	4B409	BEAM	10	S	X				6.000	3 3.000				9	4 3	4 1	11
8	11B410		BEAM	17		X			14 6.000							15 8	15 8	666
62	4C400		COLUMN	16		X			2 9.000							9 6	9 6	393
8	10C401		COLUMN	20		X			22 3.000							22 3	22 3	766
8	10C402		COLUMN	20		X			23 4.000							23 4	23 4	803
8	10C403		COLUMN	20		X			24 5.000							24 5	24 5	841
24	10C404		COLUMN & FOOTING	20		X			6 9.000							6 9	6 9	697
24	6F401		FOOTING	10	S	X				3 2.000	16.000					7 8	7 4	264

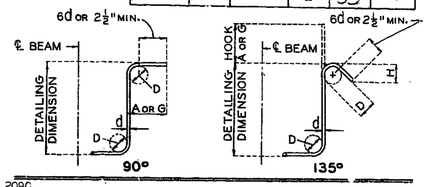
COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.
10	2W1		BEAM		22		X			12.000	9.125						19 9	19 9	33
			SUPERSTRUCTURE							2'-6.125									
										2'-6"									
687	5R1		BARRIER CURB	15	19	S			(2 7.500)	3.500	6"			(2 6.000)	3.000	2 11	2 10	(2030)	2090
687	5R2		BARRIER CURB	19	15	S			(2 7.625)	3.500	6"				3.000	2 11	2 10	(2030)	2090
345	5R3		BARRIER CURB		19	S			(18.000)	9.000				(2 7.500)	DELETE	2 3	2 2	780	
614	5R4		BARRIER CURB		27	S			18.5"	9.000	11.125	8.500	(12.0")	9.125	6.375	2 5	2 4	(1494)	2081
32	5R5		BARRIER CURB		27	S			17.000	10.875	11.125	9.000		6.375	9.125	4 0	3 10	128	
1	2	5R6	BARRIER CURB		20				10 8.000							10 8	10 8	(22)	11
1	2	5R7	BARRIER CURB		20				13 8.000						3'-0"	13 8	13 8	(29)	15
	24	5R8	BARRIER CURB		20				10 11.000						3'-0"	10 11	10 11	(275)	137
	24	5R9	BARRIER CURB		20				13 11.000						2'-4"	13 11	13 11	(348)	174
1		5R10	BARRIER CURB		20				9 11.000						3'-5"	9 11	9 11	10	
1		5R11	BARRIER CURB		20				12 11.000							12 11	12 11	13	
1	2	5R12	BARRIER CURB		20				14 0.000							14 0	14 0	(29)	15
1	2	5R13	BARRIER CURB		20				10 11.000						2'-11"	10 11	10 11	(23)	12
	24	5R14	BARRIER CURB		20				14 3.000						2'-11"	14 3	14 3	(357)	179
	24	5R15	BARRIER CURB		20				11 2.000						2'-2"	11 2	11 2	(280)	140
	1	5R16	BARRIER CURB		20				13 3.000						3'-3"	13 3	13 3	14	
	1	5R17	BARRIER CURB		20				10 2.000							10 2	10 2	11	
	6	5R18	BARRIER CURB		20				52 5.000							52 5	52 5	328	
	48	5R19	BARRIER CURB		20				9 9.000							9 9	9 9	488	
	(6)	5R20	BARRIER CURB		20				33 2.000							33 2	33 2	208	
	12	5R21	BARRIER CURB		20				11 3.000							11 3	11 3	141	
	12	5R22	BARRIER CURB		20				35 3.000							35 3	35 3	441	
	6	5R23	BARRIER CURB		20				50 1.000							50 1	50 1	313	
	6	5R24	BARRIER CURB		20				51 6.000							51 6	51 6	322	
	12	5R25	BARRIER CURB		20				32 3.000						34'-3"	32 3	32 3	404	
	12	5R26	BARRIER CURB		20				(33 8.000)	34'-3"					428	33 8	33 8	(421)	
	(6)	5R27	BARRIER CURB		20				10 9.000							10 9	10 9	67	134
	6	5R28	BARRIER CURB		20				48 8.000							48 8	48 8	305	
342	5R29		BARRIER CURB		19	S			16.000	9.000						2 1	2 0	713	
33	5R30		BARRIER CURB		27	S			17.000	7.625	11.125	9.000		6.375	9.125	3 9	3 7	123	
626	5S1		SLAB	E	20				42 7.000							42 7	42 7	27804	
76	5S2		SLAB	E	20			V	(2) 2 10.000							2 10	2 10		1
919			INCR = 6.000 IN						40 7.000							40 7	40 7	1721	
93	5S3		SLAB	E	20			V	(2) 2 5.000							2 5	2 5		1
			INCR = 5.000 IN						40 8.000							40 8	40 8	2090	
626	5S4		SLAB		20				42 7.000							26 4	26 4	27804	
(2T6)	5S5		SLAB 204	E	20				51 4.000							51 4	51 4	(11565)	10923
(26)	5S6		SLAB (***)	E	20				30 0.000							30 0	30 0	(814)	2128
(24)	5S7		SLAB 68	E	20				37 6.000							37 6	37 6	939	2582
(24)	5S8		SLAB 66	E	20				33 6.000							33 6	33 6	839	2307
100	5S9		SLAB	E	17				22.000							2 5	2 5	252	
76	5S10		SLAB		20			V	(2) 2 10.000							2 10	2 10		
			INCR = 6.00 IN.						40 7.000							40 7	40 7	1721	
93	5S11		SLAB		20			V	(2) 2 5.000							2 5	2 5		
			INCR = 5.00 IN		20				40 8.000							40 8	40 8	2090	
324	5S12		SLAB		20				51 4.000							51 4	51 4	17347	
12	5S13		SLAB		20				51 4.000							51 4	51 4	642	1

(***) INCLUDES TWO ADDITIONAL S6 BARS FOR TEST PURPOSES

1 Revised 10-10-79

2 Revised 7-15-80

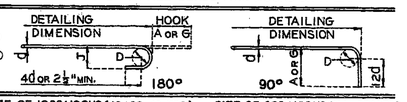


STIRRUP HOOK DIMENSIONS

GRADES 40-50-60 KSI

BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI)
D = 5d FOR #3 THRU #11
D = 10d FOR #14 AND #18

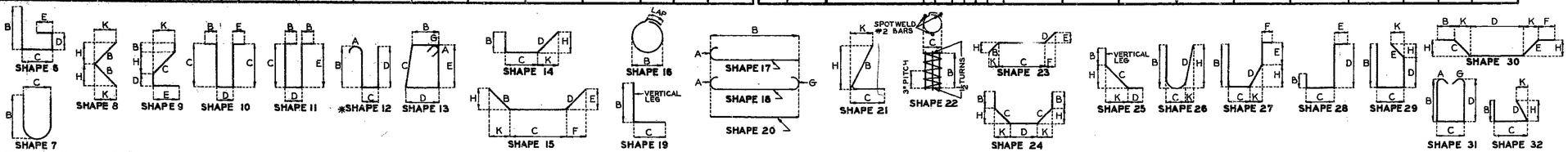
SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)
D = 6d FOR #3 THRU #8
D = 8d FOR #9, #10, AND #11
D = 10d FOR #14 AND #18

END HOOK DIMENSIONS

BAR SIZE	180° HOOKS GRADE 40 A OR G	180° HOOKS GRADE 40 J	180° HOOKS GRADE 60 A OR G	180° HOOKS GRADE 60 J	90° HOOKS ALL GRADES A OR G
#3	5"	2-3/4"	5"	3"	6"
#4	6"	3-1/2"	6"	4"	8"
#5	7"	4-1/2"	7"	5"	10"
#6	8"	5-1/4"	8"	6"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-3/4"	22"
#11	14"	10"	19"	14-1/4"	21-0"
#14	21-2"	20-1/2"	21-2"	20-1/2"	21-7"
#18	21-11"	21-3"	21-11"	21-3"	31-5"

NOTES:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH 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 BARS
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 FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D = 5d.

BENDING DIAGRAMS



DETAILED Aug. 1977
CHECKED Oct. 1977

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

Sheet No. 38 of 38.

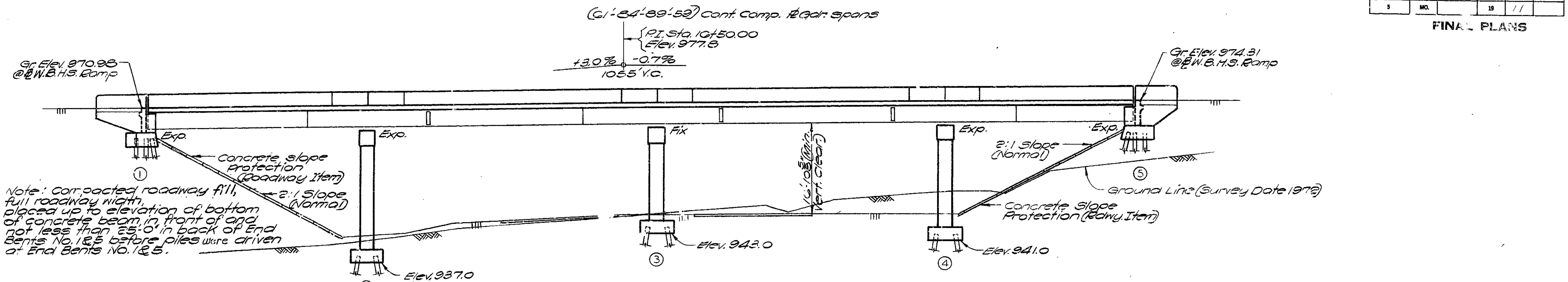
PLATTE **COUNTY** A-3441

REVISED OCT. 1976
STD. 90.8 MAY 1974

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	11	

FINAL PLANS



GENERAL ELEVATION

PLAN

Note: "⊗" Indicates location of boring. For boring data see Sheet No. 14.

Note: For General Notes, Estimated Quantities & Pile Data see Sheet No. 2.

B.M. Elev. 971.67 — Bolt at top of Barrier curb Lt. FF @ Bent No. 1

CURVE DATA:
P.I. Sta. 25+26.99
D = 4°15'
R = 1348.14'
S = 0.08'/'
T = 1088.95
L = 1831.97
Δ = 77°51'-30" Lt.

BRIDGE WESTBOUND H.S.R. OVER ROUTE 291

STATE ROAD I-435

~~ABOUT~~ AT K C I NORTH ACCESS INTERCHANGE

PROJECT NO. ID-435-1(124) STA. 15+11

JOB NO. 4-I-435-50 RTE. I-435

PLATTE COUNTY

DATE

STD. 611.60

STD. 706.35

A-3441

DESIGNED June 1976

DETAILED May 1977

CHECKED July 1977

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

Sheet No. 1 of 23.

357

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	12	

FINAL PLANS

GENERAL NOTES:

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

Design Loading:
HS20-44
Future wearing surface - 15#/sq. ft.
Modified 24,000# Tandem Axle
Earth 120# Equivalent Fluid Pressure 30#
Fatigue Stress - case II - Interim 1974

Design Unit Stresses:
Class B Concrete (Substructure) fc = 1,200 p.s.i.
Class B2 Concrete (Superstructure) fc = 1,400 p.s.i.
Reinforcing Steel fs = 20,000 p.s.i. (Substructure)
Reinforcing Steel (Grade 60) fy = 60,000 p.s.i. (Superstructure)

Structural Carbon Steel fs = 20,000 psi
Steel Pile fb = 9000 psi

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

Paint: System B by contractor in accordance with Std. Spec. 1712.12 Color for final field coat for System B aluminum.

Reinforcing Steel: Minimum clearance to reinforcing steel 1½" unless otherwise shown.
All reinforcing bars in tops of substructure beams or caps spaced to clear anchor bolts by at least ½".

Joint Filler: All joint filler meet the requirements of Std. Spec. 1057.2.4.

FINAL QUANTITIES

ITEM		SUBSTR	SUPERSTR	TOTAL
Class I Excavation	Cu. Yd.	325.5	-	325.5
Structural Steel Pile (HP10x42)	Lin. Ft.	2137		2137
Class B Concrete	Cu. Yd.	235.7		235.7
Class B2 Concrete	Cu. Yd.		434.0	434.0
Slab Drains	Each		12	12
Elastomeric Exp. Jt. Seal (2")	Lin. Ft.		108	108
Reinforcing Steel (Grade 60)	Lb.	38,370	61,850	100,220
Reinforcing Steel (Epoxy)	Lb.		49,810	49,810
Fabricated Structural Carbon Steel	Lb.		310,270	310,270
Painting (System B) Aluminum	Ton		154.5	154.3

Note: All concrete and reinforcement in Safety Barrier curbs included with Superstructure quantities

PILE & FOOTING DATA

BENT NO.		1	2	3	4	5
Bearing Pile	Pile Type and Size	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42
	Number	8	12	12	12	9
	Approximate Length Ft.	55	30	37	35	54
	Design Bearing ton	38	52	56	52	40
	Hammer Energy Reqd. (Ft-Lbs)	9,400	12,300	14,000	12,300	9,800

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

358

DETAILED June 1977
CHECKED July 1977.

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

Sheet No. 23 of 23 Sheets

PLATE

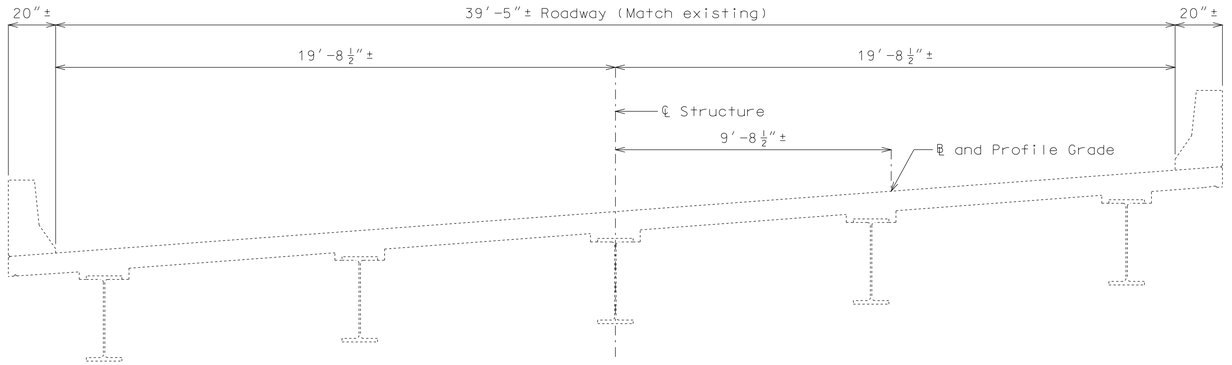
COUNTY

A-3441

SEC/SUR 13 TWP 52N RGE 34W

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

U.I.P. & Rehabilitate Existing (103'-146'-132'-91'-57') Continuous Composite Plate Girder Spans



SECTION THRU EXISTING SLAB

General Notes:

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A

Design Loading:
HS20-44 Military 24,000# Tandem Axle (1979 & New Construction)
15#/Sq. Ft. Future Wearing Surface
Fatigue Stress - Case II

Design Unit Stresses:
Class B-2 Concrete (Superstructure and Safety Barrier Curb) f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

General Notes (Cont.):

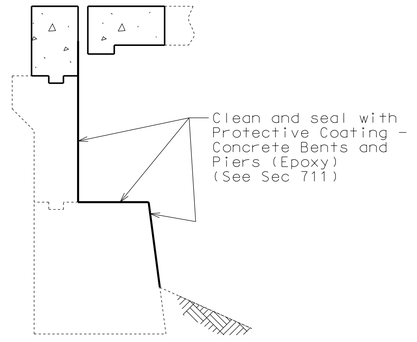
Concrete Protective Coatings:
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Miscellaneous:
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

Traffic Handling:
Structure to be closed to traffic during construction.



TYPICAL SECTION THRU
END BENTS NO. 1 & 6
SHOWING PROTECTIVE COATING

Estimated Quantities

Item		Total
Removal of Existing Expansion Joints & Adjacent Concrete	linear foot	112
Remove and Replace Barrier Curb	linear foot	16
Class B-2 Concrete	cu. yard	8.4
Reinforcing Steel (Epoxy Coated)	pound	1370
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
Expansion Device (Flat Plate)	linear foot	112

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-435 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A34561

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

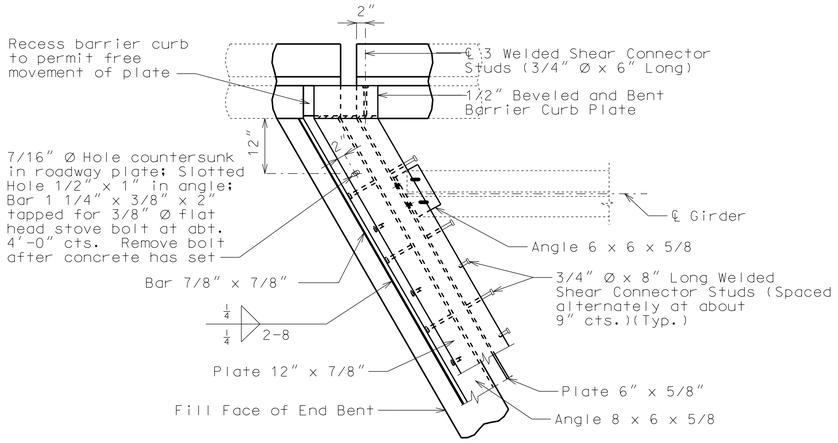
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

REPAIRS TO BRIDGE: RAMP I-435 NB TO RTE. D OVER I-435
STATE ROAD FROM RTE. C TO RTE. D
AT RTE. D
STA. 25+85.64± (Match Existing)

STD. 706.35

Detailed Sep. 2012
Checked Oct. 2012

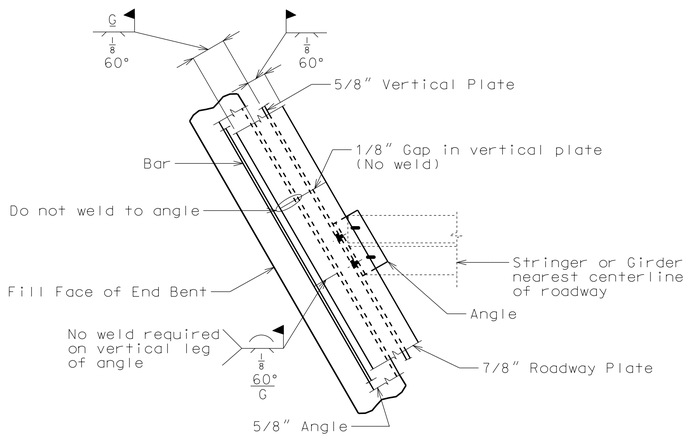
Note: This drawing is not to scale. Follow dimensions.



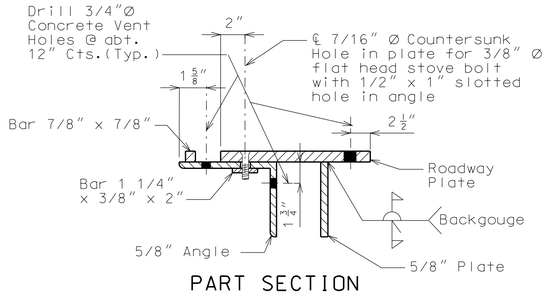
PART PLAN

Note: Concrete vent holes not shown for clarity.

PART SECTION AT END BENT (NORMAL TO GAP)



PERMISSIBLE FIELD SPLICE AT END BENT



PART SECTION (TYPICAL)

	Bent 1 Left	Bent 1 Right	Bent 6 Left	Bent 6 Right
1	4 5/8"	4 1/8"	2 1/2"	2 1/2"
2	8 3/8"	7 7/8"	4 3/4"	4 5/8"
3	6 1/2"	6 1/8"	3 5/8"	3 5/8"
4	7 3/8"	7"	4 1/8"	4 1/8"
5	22 1/4"	21"	12 1/2"	12 3/8"

GENERAL NOTES:

Expansion device shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove weld splice shall be required. Welds shall be ground flush to provide a smooth surface.The expansion device shall be fabricated and installed to the crown and grade of the roadway.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 3/8" (Bt. 1), 1/4" (Bt. 6) for each 10° fall or rise in temperature at installation.

Material for the expansion device shall be ASTM A709 Grade 36 structural steel. Anchors for the expansion device shall be in accordance with Sec 1037.

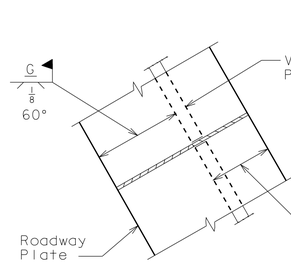
Structural steel for the expansion device and curb plate shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Payment for furnishing, coating or galvanizing and installing the structural steel for the expansion device will be considered completely covered by the contract unit price for Expansion Device (Flat Plate) per linear foot.

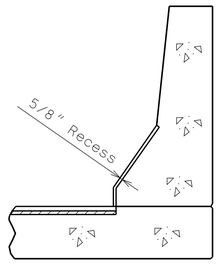
Concrete shall be forced under and around flat plate, anchors and angles. Proper consolidation shall be achieved by localized internal vibration. Finishing of the concrete shall be achieved by hand finishing within one foot of the expansion device. The vertical and horizontal concrete vent holes shall be offset from each other. Do not alternate holes at the 12" spacing.

Longitudinal reinforcing steel shall be placed so that ends shall not be more than ±1" from vertical plate and the vertical leg of the angle at the expansion device.

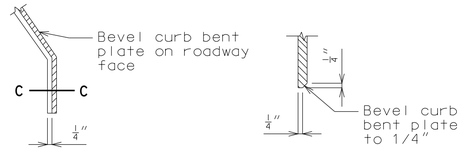
Complete joint penetration welds utilized in the fabrication of the expansion device shall be nondestructively tested by an approved method.



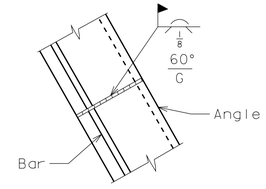
PART PLAN ROADWAY PLATE AND VERTICAL PLATE



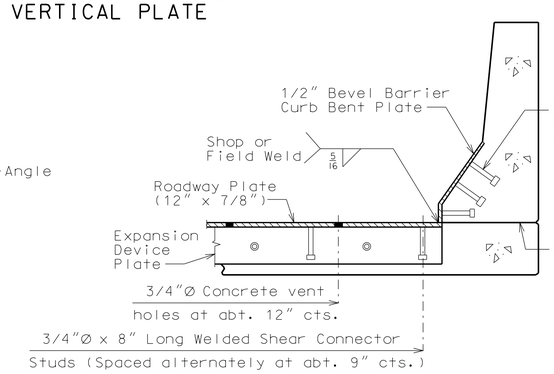
PART SECTION B-B



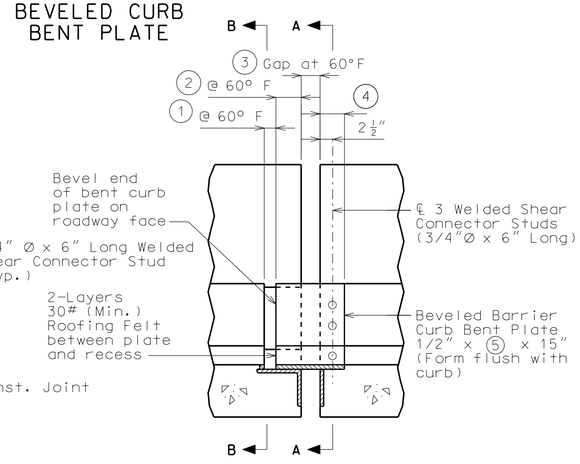
PART ELEVATION AT END OF BEVELED CURB BENT PLATE



PART PLAN OF ANGLE AND BAR



PART SECTION A-A



ELEVATION OF BARRIER CURB (NORMAL TO BARRIER CURB)

DETAILS OF FLAT PLATE EXPANSION DEVICE AT END BENTS NO. 1 & 6

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012

ROUTE I-435 | STATE MO

DISTRICT BR | SHEET NO. 2

COUNTY PLATTE

JOB NO. J412373

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A34561

DESCRIPTION | DATE

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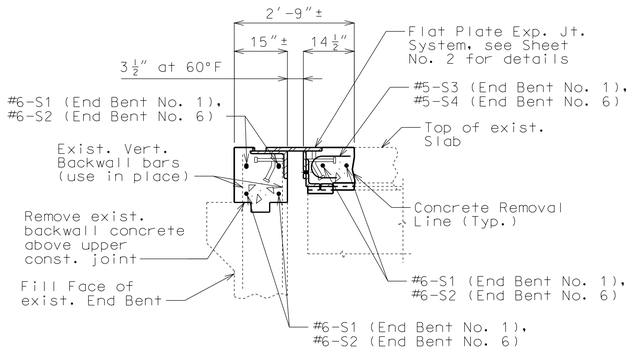
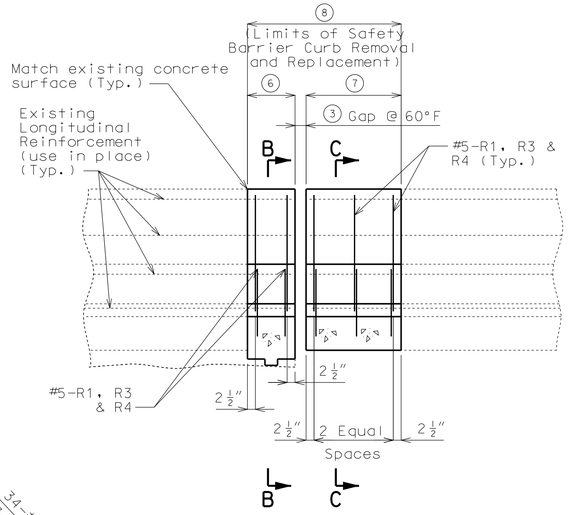
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Note:
Payment for all concrete and reinforcement for safety barrier curb, complete-in-place, will be considered completely covered by the contract unit price for Remove and Replace Barrier Curb per linear foot.

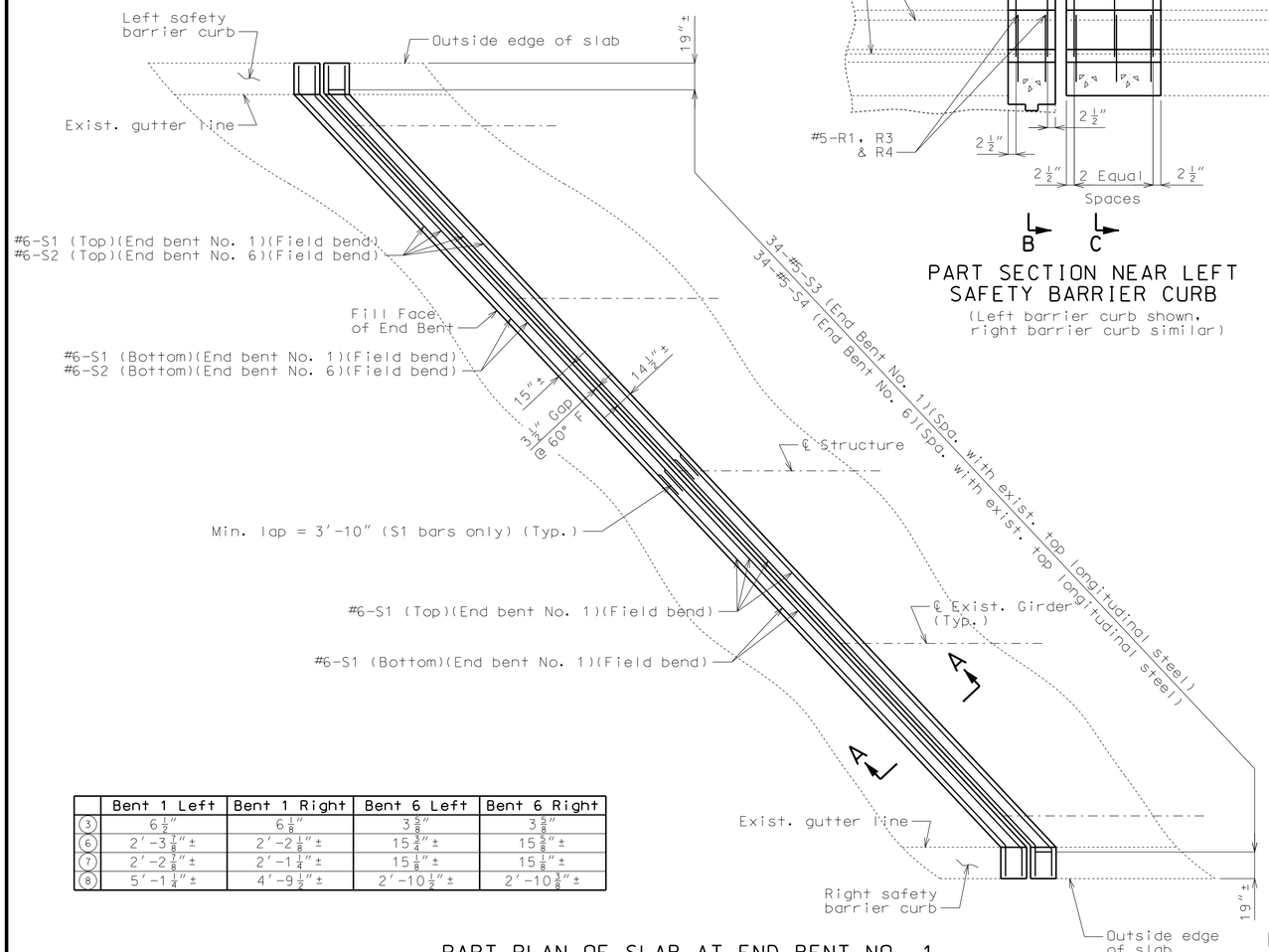


SECTION A-A



PART SECTION NEAR LEFT SAFETY BARRIER CURB

(Left barrier curb shown, right barrier curb similar)

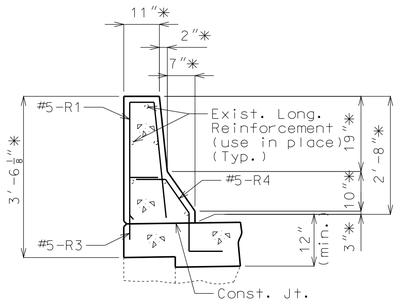


	Bent 1 Left	Bent 1 Right	Bent 6 Left	Bent 6 Right
(3)	6½"	6⅛"	3⅝"	3⅝"
(6)	2'-3⅞"±	2'-2⅛"±	15⅝"±	15⅝"±
(7)	2'-2⅞"±	2'-1¼"±	15¼"±	15¼"±
(8)	5'-1¼"±	4'-9½"±	2'-10½"±	2'-10⅜"±

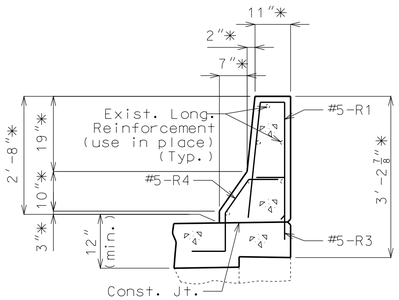
PART PLAN OF SLAB AT END BENT NO. 1

End Bent No. 1 shown, End bent No. 6 similar

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



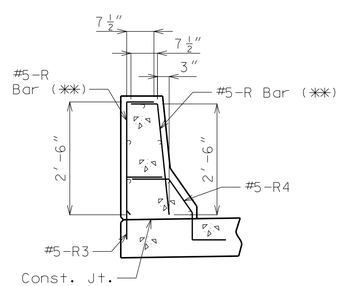
LEFT SAFETY BARRIER CURB



RIGHT SAFETY BARRIER CURB

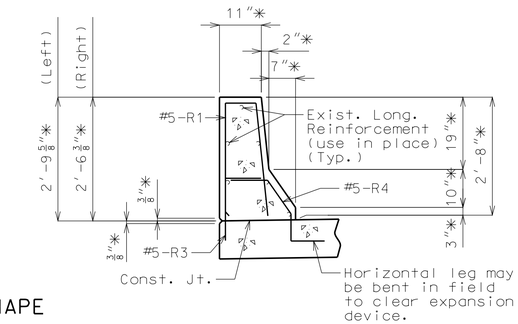
PART SECTION B-B

* Match existing.



R-BAR PERMISSIBLE ALTERNATE SHAPE

(**) The R1 bar may be separated into two bars as shown, at the contractor's option. (All dimensions are out to out.)



PART SECTION C-C

* Match existing.

Detailed Sep. 2012
Checked Oct. 2012

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012

ROUTE I-435 | STATE MO

DISTRICT BR | SHEET NO. 3

COUNTY PLATTE

JOB NO. J412373

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A34561

DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

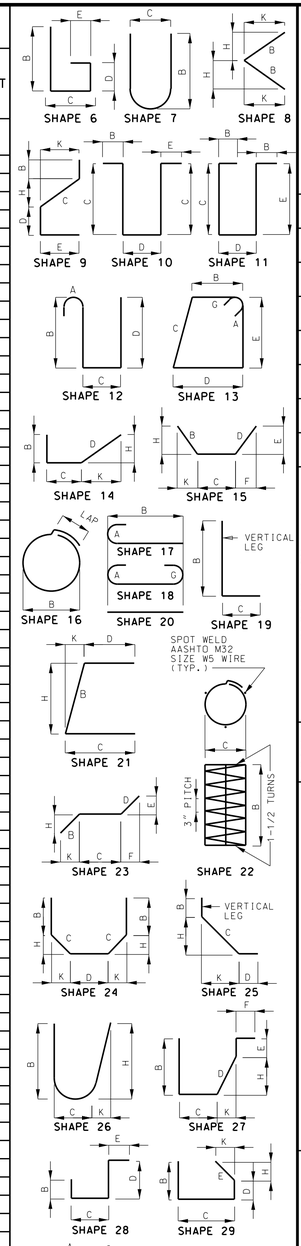
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

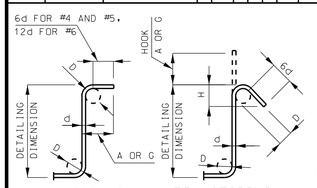
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			SLAB																
12	6	S1	SLAB	E	20					38 11.000							38 11	38 11	701
8	6	S2	SLAB	E	20					44 2.000							44 2	44 2	531
34	5	S3	SLAB	E	17					20.000							2 3	2 3	80
34	5	S4	SLAB	E	17					12.000							0 19	0 19	56
24	5	R1	BARRIER CURB	E	14	S				2 6.000	8.000	2 6.125			2 6.000	3.000	5 8	5 6	138
24	5	R3	BARRIER CURB	E	19	S				17.000	6.000						0 23	0 22	46
24	5	R4	BARRIER CURB	E	27	S					6.000	11.125	9.000	12.000	9.125	6.375	3 2	3 0	75
			TOTALS																
	5			E															395
	6			E															1232
			TOTAL																0
			TOTAL	E															1627
			Slab on Girder																
	5			E															136
	6			E															1232
			TOTAL																1368
			Safety Barrier Curb																
	5			E															259
			TOTAL																259

BILL OF REINFORCING STEEL

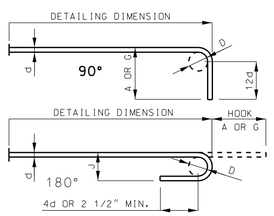
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.





STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES		
		180° HOOKS		90° 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"

TWO ADDITIONAL #6-S2 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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 FABRICATORS 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.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/19/2012
ROUTE I-435 | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY PLATTE
JOB NO. J412373
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A34561

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Detailed Oct. 2012
Checked Oct. 2012

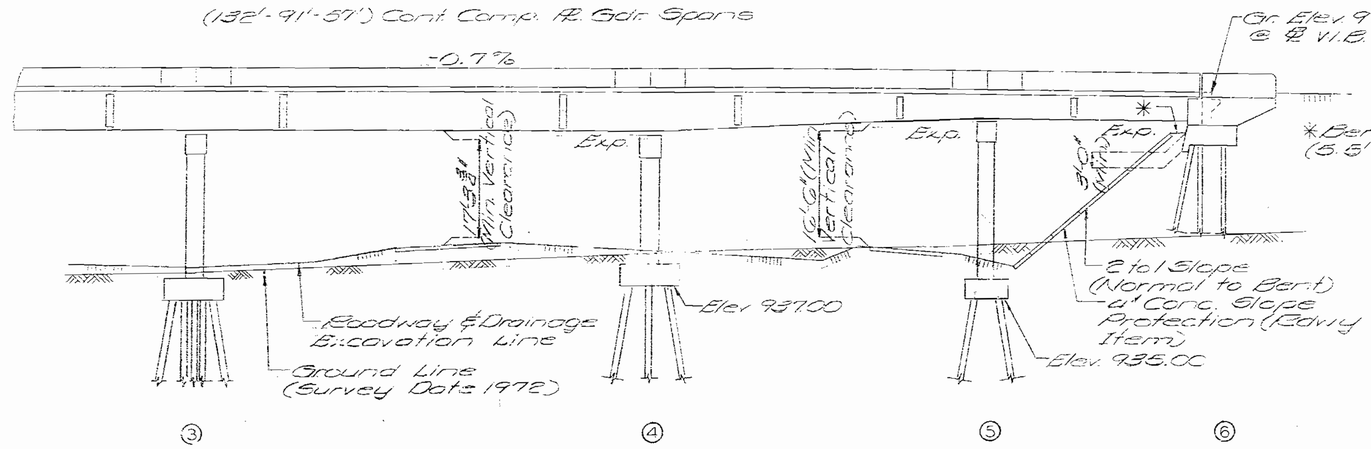
Note: This drawing is not to scale. Follow dimensions.


MISSOURI STATE HIGHWAY DEPARTMENT
(105', 146') Cont. Conc. R. Gdr. Spans
-0.7%
Exp.
Fix
Rdwy & Drainage Excavation Line
2 to 1 Slope (Normal to Bent)
4" Conc. Slope Protection (Rdwy. Item)
Elev. 985.00
Ground Line (Survey Date 1972)
PART GENERAL ELEVATION
Beg. Sta. 25+85.64
CURVE DATA
P.I. Sta. 25+26.99
D = 4°-15'
R = 1348.14'
L = 77°-51'-30" Lt.
S.E. = 0.06'/1
LOCATION SKETCH
Ramp #2
107'-3"
140'-0"
Fill Face of End Bt #1
Sta. 26+92.93
Gr. Elev. 970.50 @ ℄ W.B.H.S.R.
Radial Line
℄ Bent #2
24'-0" Pavement
℄ W.B.H.S.R. & Profile Grade
℄ N.B. Lane I-435
Sta. 28+39.00 ℄ W.B.H.S.R. = Sta. 736+62.65 ℄ Med. I-435
Tangent to ℄ W.B.H.S.R. @ Sta. 25+39.00
Tangent Dimensions
106'-1"
145'-9"
PART PLAN
Note: For Boring Data see Sht. #2
"⊗" Indicates location of Boring.
For General Notes, Estimated Quantities & Pile Data see Sht. #3.
BRIDGE WESTBOUND H.S.R. OVER ROUTE I-435
STATE ROAD I-435
AT K.C.I. NORTH ACCESS INTERCHANGE
PROJECT NO.
STA.
JOB NO.
RTE. I-435
PLATTE
COUNTY
DESIGNED DEC 1976
DETAILED MAY 1977
CHECKED MAY 1977
Note: This drawing is not to scale. Follow dimensions.
Sheet No.
DATE

MISSOURI STATE HIGHWAY DEPARTMENT

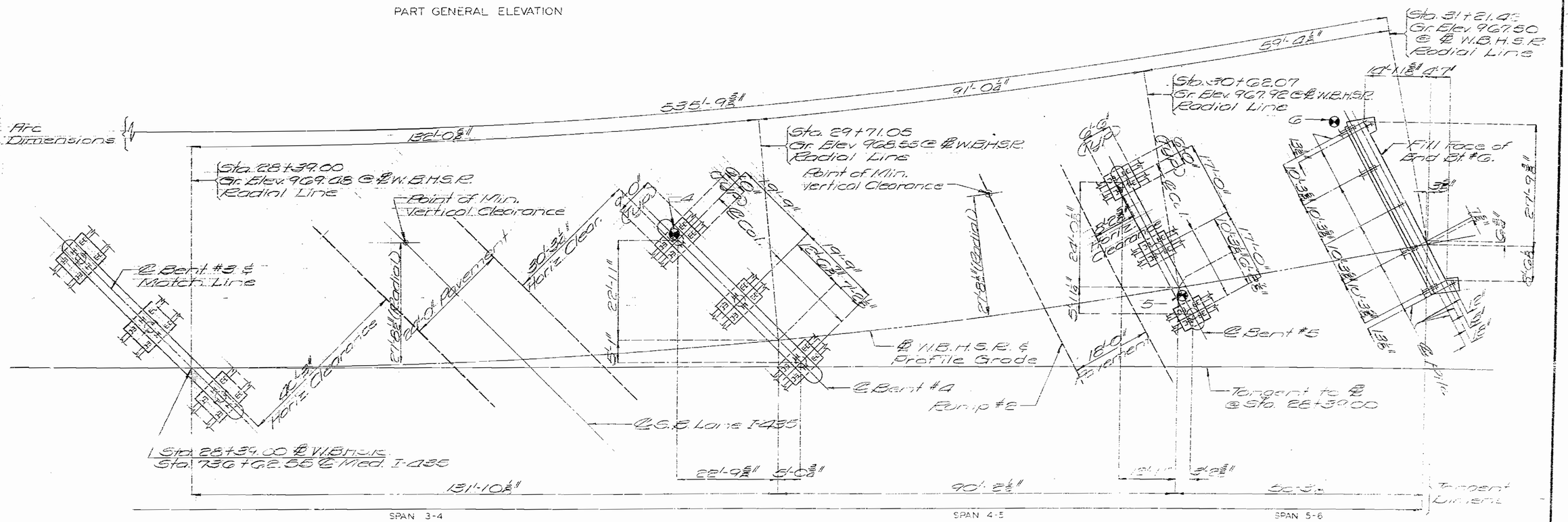
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		19	5E	

(132'-91'-57') Cont. Comp. Pr. Sdr. Spans



Note: Compacted ... of fill shall be completed to the ... of roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure, and for not less than 25' in back of the fill face at the end bents before piles are driven for any bents falling within the embankment section.

PART GENERAL ELEVATION



PART PLAN

Note: For Boring Data, see Sht. #2.
Indicates location of Boring.
For General Notes, Estimated Quantities & Pile Data, see Sht. #2.

DETAILED MAY 1977
CHECKED MAY 1977

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

Sheet No. 2 of 25

PLATTE COUNTY

A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	3	

PILE DATA

BENT NUMBER		1	2	3	4	5	6
PILE TYPE AND SIZE		HP10X42	HP10X42	HP10X42	HP10X42	HP10X42	HP10X42
NUMBER		17	24	24	18	13	7
APPROXIMATE LENGTH	(FT.)	46	19	19	22	45	42
DESIGN BEARING	(TONS)	50	48	50	52	52	51
HAMMER ENERGY REQUIRE	(FT. LBS.)	12,300	11,600	11,700	12,200	12,200	12,600

MINIMUM ENERGY REQUIREMENT OF HAMMER BASED ON PLAN LENGTH AND DESIGN BEARING VALUE OF PILES.
ALL PILE SHALL BE DRIVEN TO PRACTICAL REFUSAL.

ESTIMATED QUANTITIES

ITEM			SUBSTR.	SUPERSTR.	TOTAL
CLASS 1 EXCAVATION		(CU. YD.)	270		270
STRUCTURAL STEEL PILES (HP10X42)		(LIN. FT.)	3,258		3,258
CLASS B CONCRETE		(CU. YD.)	380.6		380.6
CLASS B2 CONCRETE		(CU. YD.)		798.8	798.8
REINFORCING STEEL	(EPOXY)	(POUND)		93650	93650
ELASTOMERIC EXPANSION JOINT SEAL (4")		(LIN. FT.)		117	117
SLAB DRAINS		EACH		15	15
REINFORCING STEEL (GRADE 60)		(POUND)	63070	11200	74270
FABRICATED STRUCTURAL CARBON STEEL		(POUND)		765190	765190
PAINTING (SYSTEM A OR B) ALUMINUM		(TON)		38.5	38.5

NOTE: ALL CONCRETE AND REINFORCEMENT IN SAFETY BARRIER CURBS IS INCLUDED IN SUPERSTRUCTURE QUANTITIES.
PAYWEIGHT FOR FABRICATED STRUCTURAL CARBON STEEL WILL BE BASED ON WELDED SPLICES REGARDLESS OF TYPE USED.

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O. - 1973

DESIGN LOADING:
HS20 - 44
15 LBS. / SQ. FT.
FUTURE WEARING SURFACE
MODIFIED 24,000 LBS. TANDEM AXLE
EARTH 120 LBS.
EQUIVALENT FLUID PRESSURE 30 LBS.
FATIGUE STRESS - CASE II - INTERIM 1974

DESIGN UNIT STRESSES:
CLASS B CONCRETE (SUBSTRUCTURE) f'_c = 1,200 psi
CLASS B2 CONCRETE (SUPERSTRUCTURE) f'_c = 1,600 psi
REINFORCING STEEL f_s = 20,000 psi (SUBSTRUCTURE)
REINFORCING STEEL (GRADE 60) f_y = 60,000 psi (SUPERSTRUCTURE)
STRUCTURAL CARBON STEEL f_a = 20,000 psi
STEEL PILE f_b = 9,000 psi

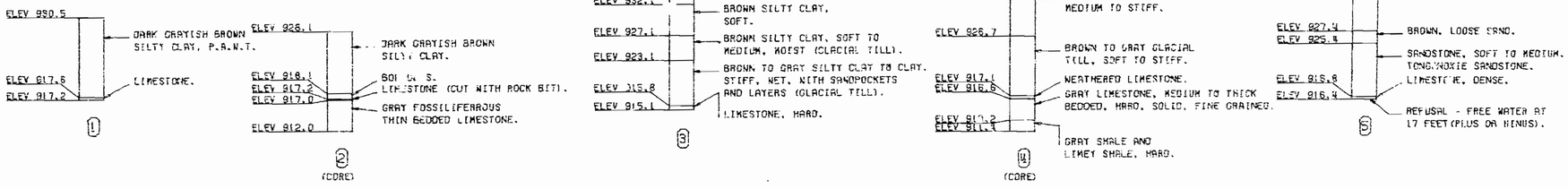
JOINT FILLER:
ALL JOINT FILLER SHALL MEET THE REQUIREMENTS OF STD. SPEC. 1057.2.4.

FABRICATED STEEL:
FIELD CONNECTIONS, HIGH STRENGTH BOLTS 3/4" DIAMETER, HOLES 13/16" DIAMETER EXCEPT AS NOTED.

PAINT:
PAINT: SYSTEM A OR B BY CONTRACTOR IN ACCORDANCE WITH STD. SPEC. 712.12. (COLOR OF THE FINAL FIELD COAT SHALL BE ALUMINUM).

REINFORCING STEEL:
MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1-1/2" UNLESS OTHERWISE SHOWN.

ALL REINFORCING BARS IN TOPS OF SUBSTRUCTURE BEAMS OR CAPS SHALL BE SPACED TO CLEAR ANCHOR BOLTS FOR BEARINGS BY AT LEAST 1/2".



BORING DATA

FOR LOCATION OF BORINGS SEE SHEET NO. 1.

DETAILED JUNE 1977
CHECKED JUNE 1977

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

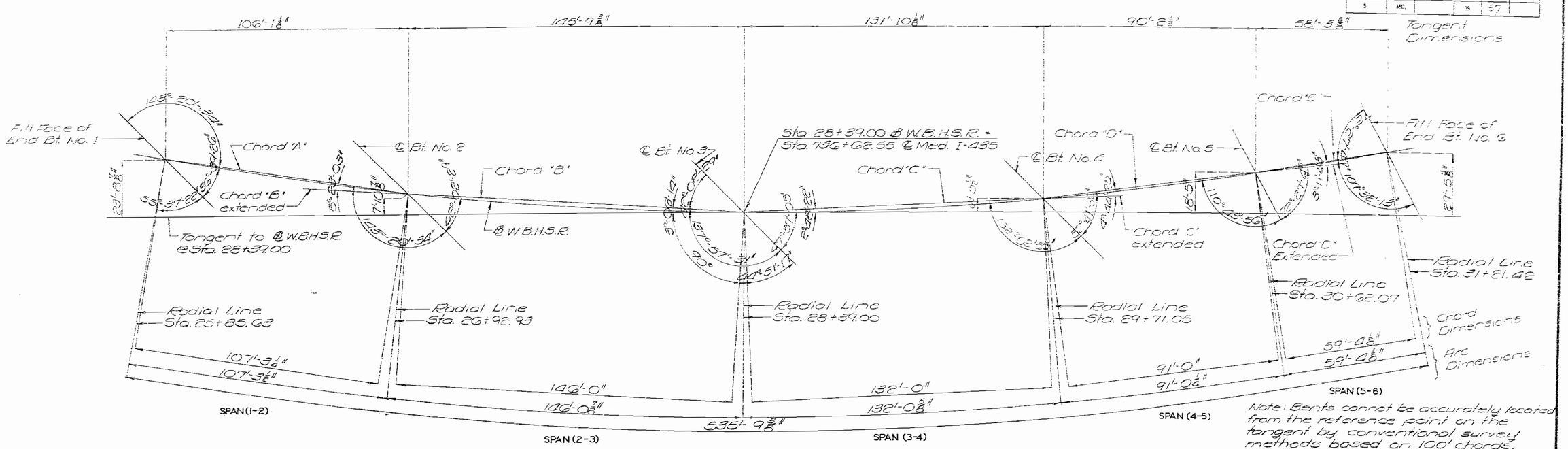
Sheet No. 3 of 38.

PLATTE COUNTY

A34561

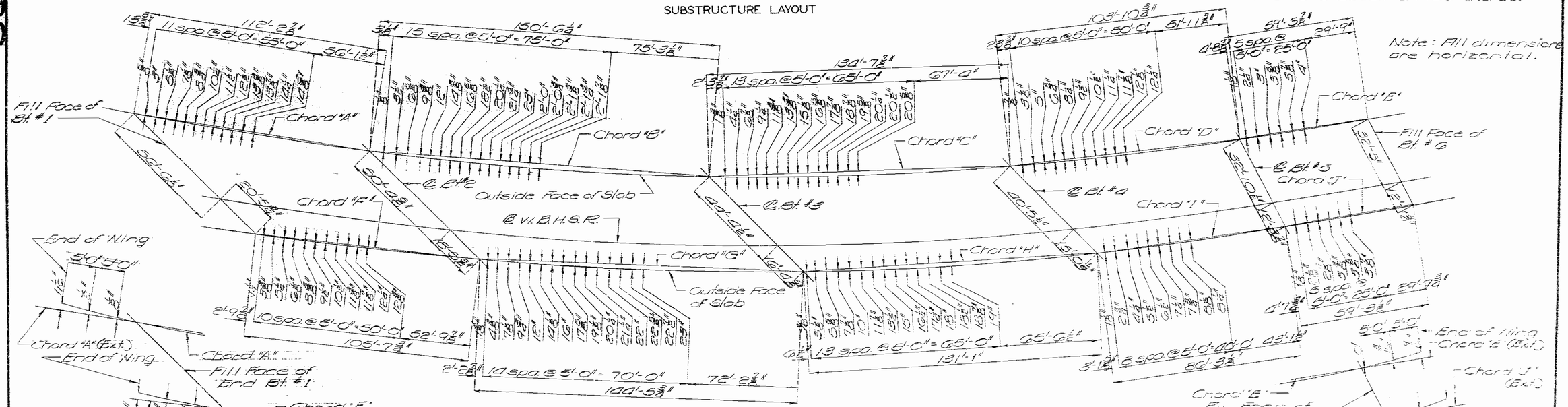
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	57	



Note: Bents cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords.

SUBSTRUCTURE LAYOUT



PLAN OF SLAB SHOWING CURVE ORDINATES

CURB CURVE ORDINATES BT. NO. 1

CURB CURVE ORDINATES BT. NO. 6

Note: All dimensions are horizontal.

DETAILED DEC 1976
CHECKED MAR 1977

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

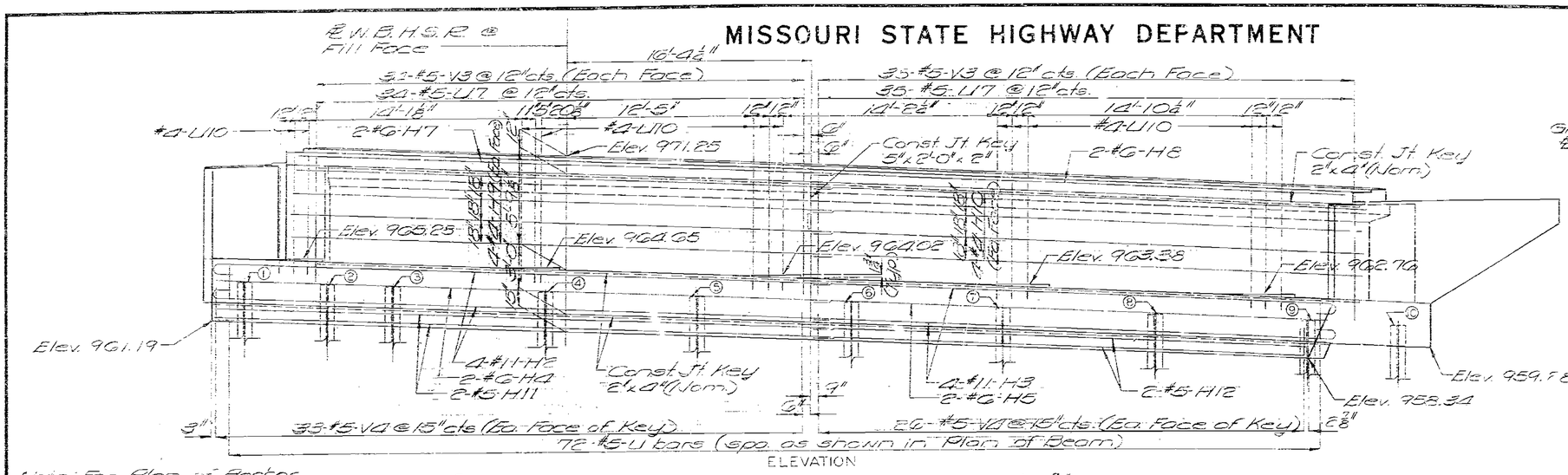
Sheet No. 57 of 83

PLATTE COUNTY

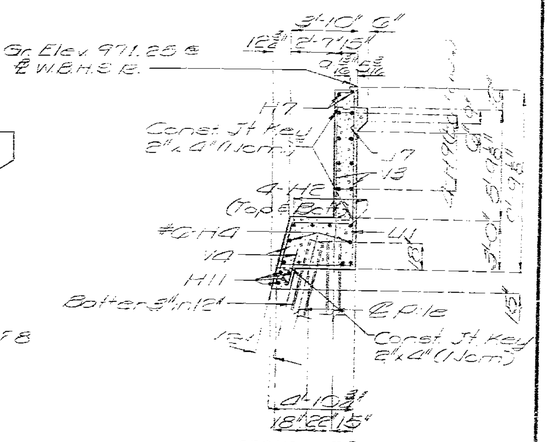
A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		72	33	



ELEVATION

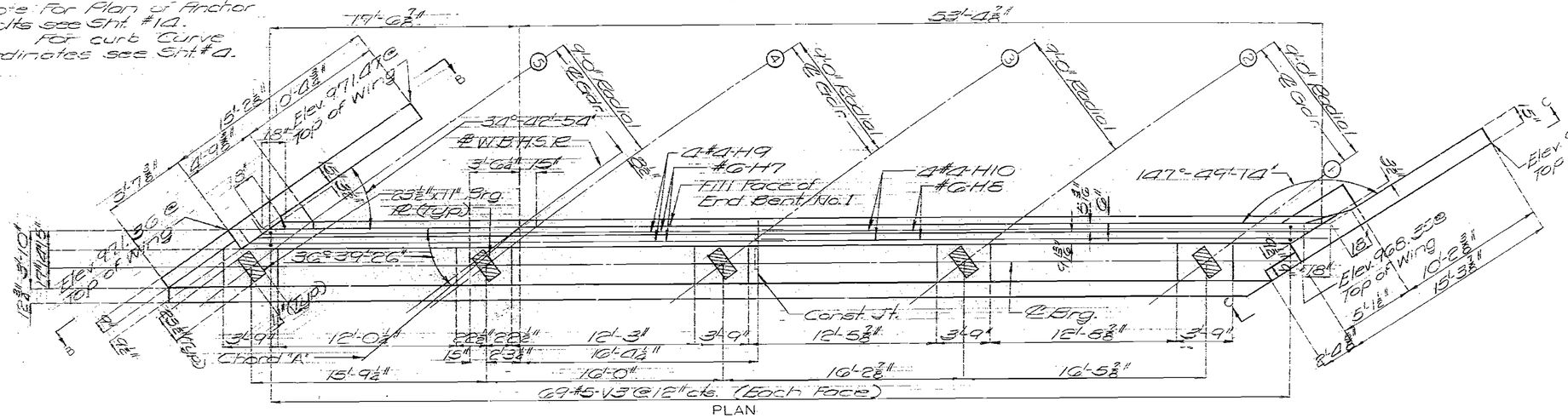


SECTION AT ℄ W.B.H.S.R.

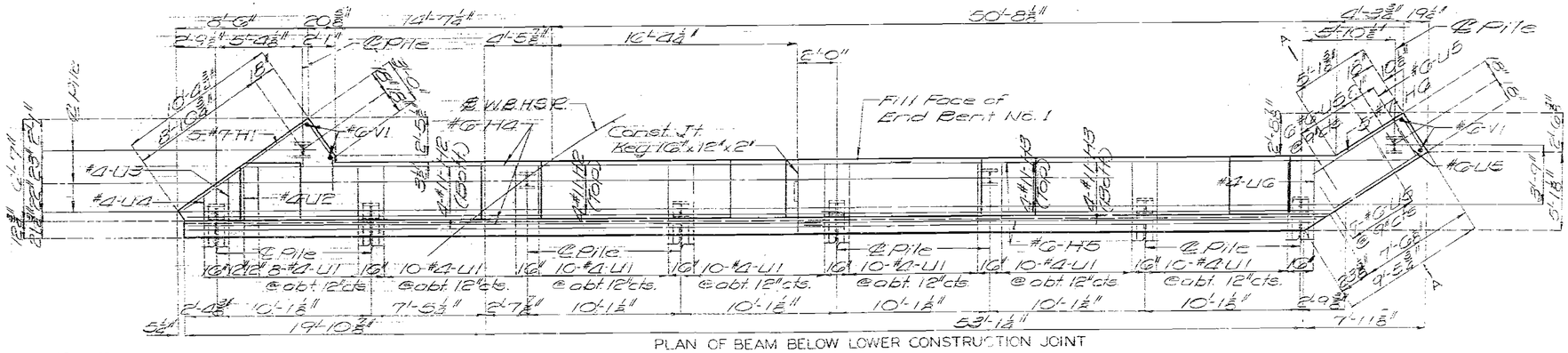
Note: Backwall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.

For Elev. of wings B-B & C-C see Sht No. 6.

Note: For Plan of Anchor Bolts see Sht. #14.
For curb Curve Ordinates see Sht #8.

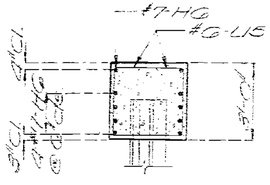


PLAN



PLAN OF BEAM BELOW LOWER CONSTRUCTION JOINT

Pile Cut-off Elevations	
Pile No.	Elev. on
①	963.85
②	963.64
③	963.46
④	963.06
⑤	962.67
⑥	932.28
⑦	961.88
⑧	961.69
⑨	961.10
⑩	960.87



SECTION A-A

DETAILED MAR 1977
CHECKED APRIL 1977

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

DETAILS OF END BENT NO. 1

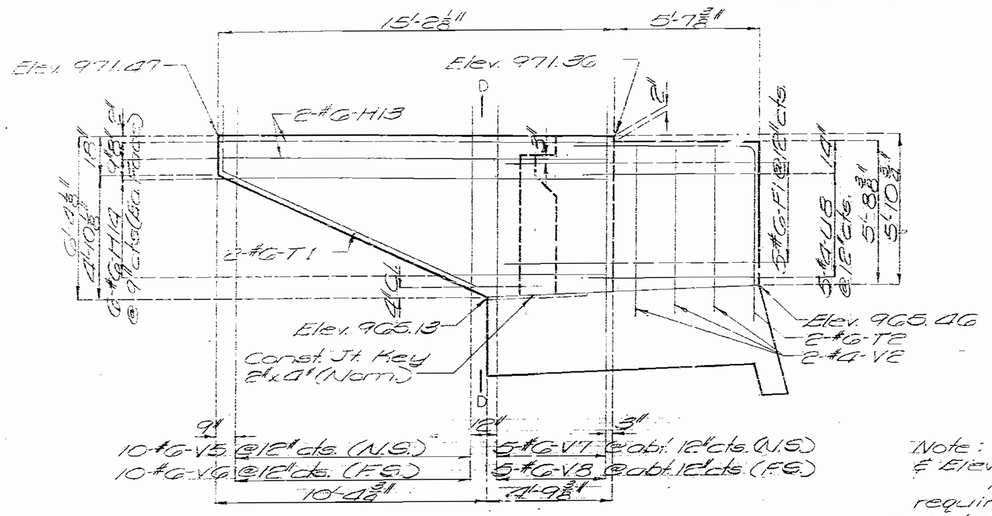
Sheet No. 5 of 33

PLATTE COUNTY

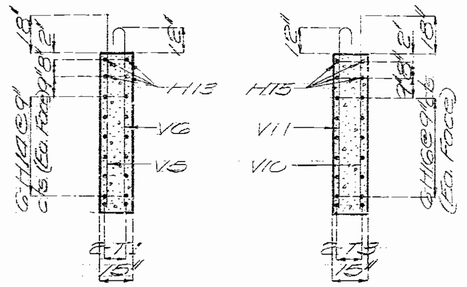
A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		78	27	



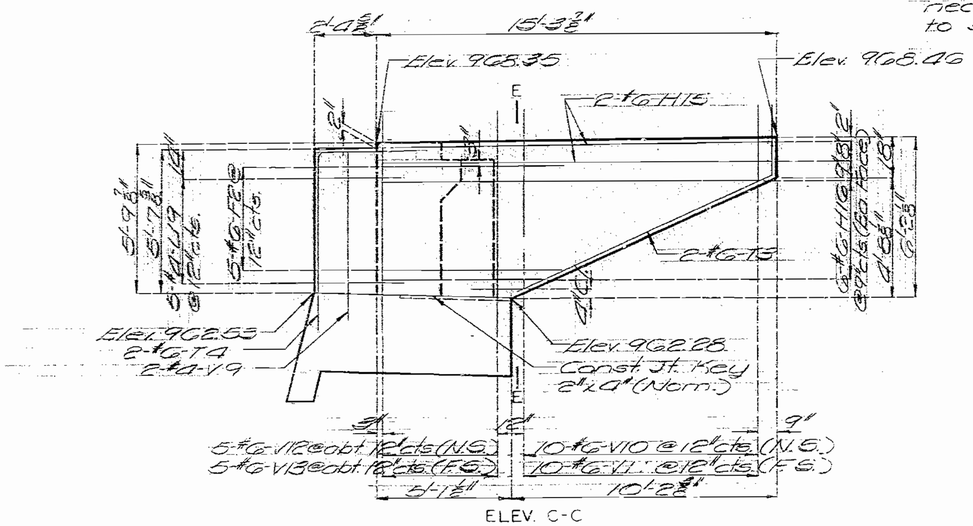
ELEV. B-B



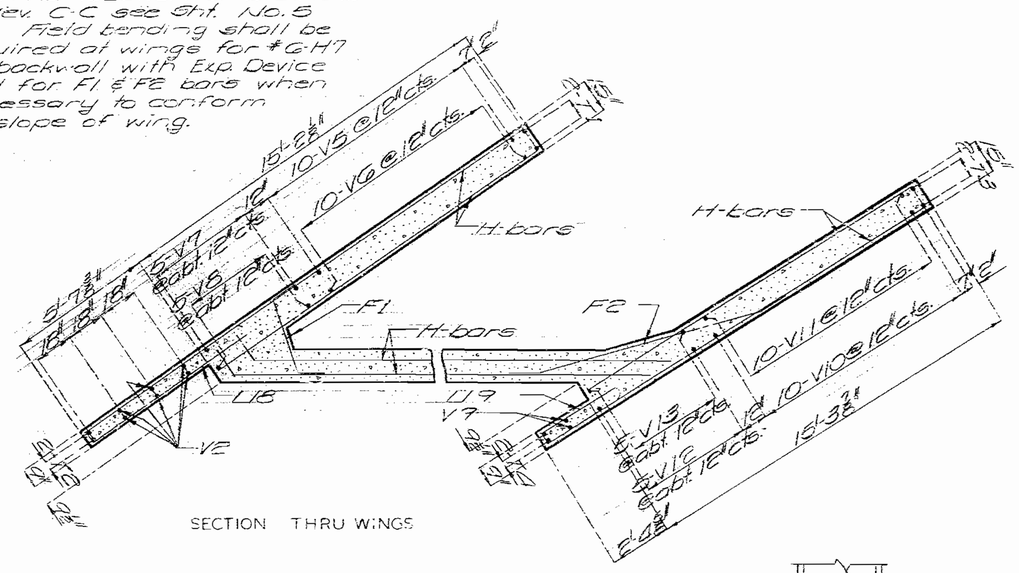
SECTION D-D SECTION E-E

Note: See curb sheet for reinforcement of safety barrier curbs.

Note: For location of Elev. B-B & Elev. C-C see Sht. No. 5
Field bending shall be required of wings for #6-H17 in backwall with Exp. Device and for F1 & F2 bars when necessary to conform to slope of wing.

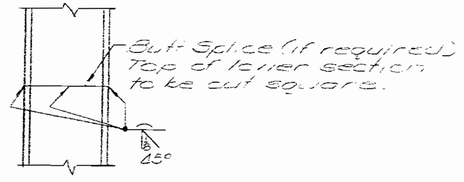


ELEV. C-C



SECTION THRU WINGS

DETAILS OF WINGS FOR BENT NO. 1



DETAIL OF STEEL PILE SPLICE

DETAILED APRIL 1977
CHECKED APRIL 1977

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

Sheet No. 6 of 33

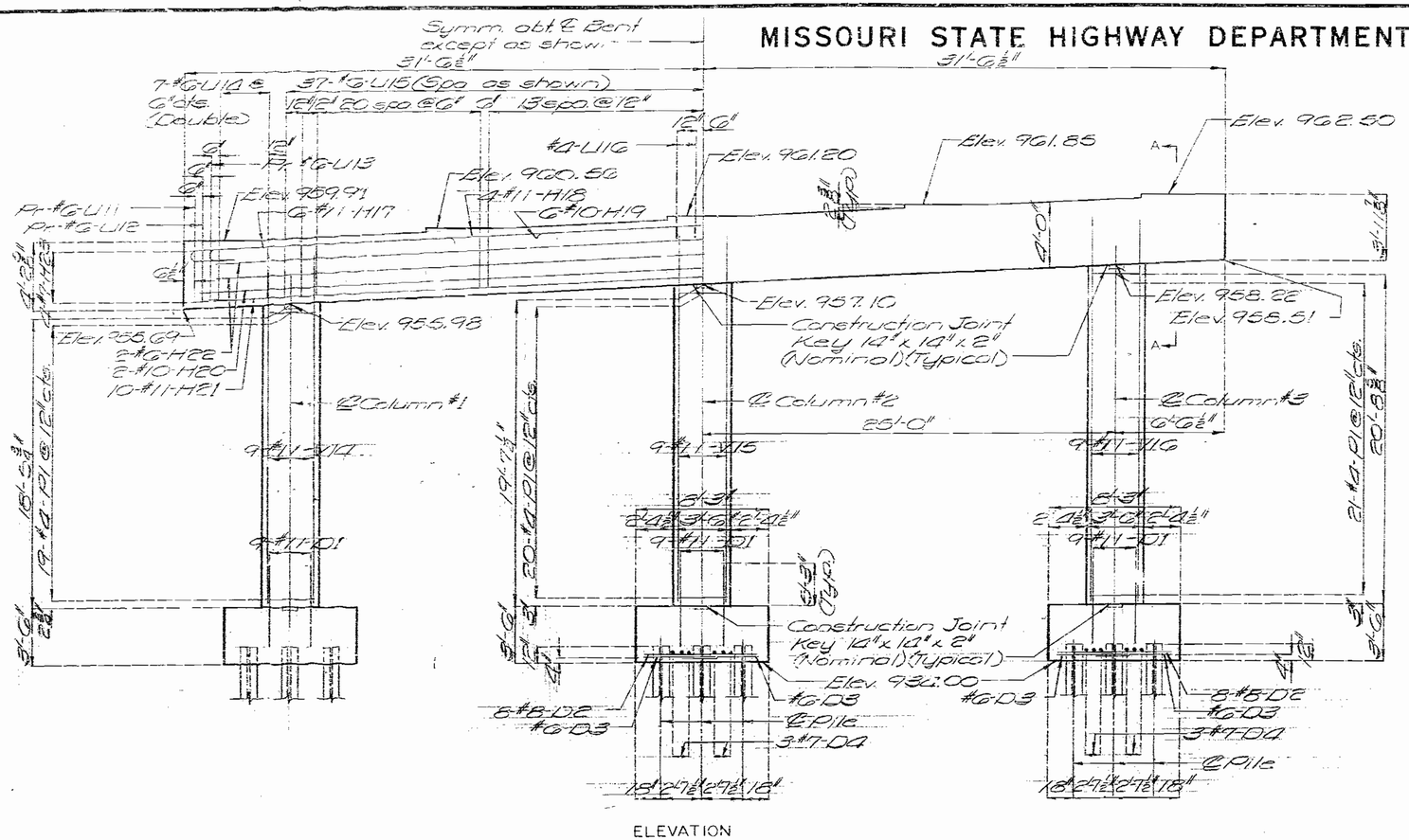
PLATTE COUNTY

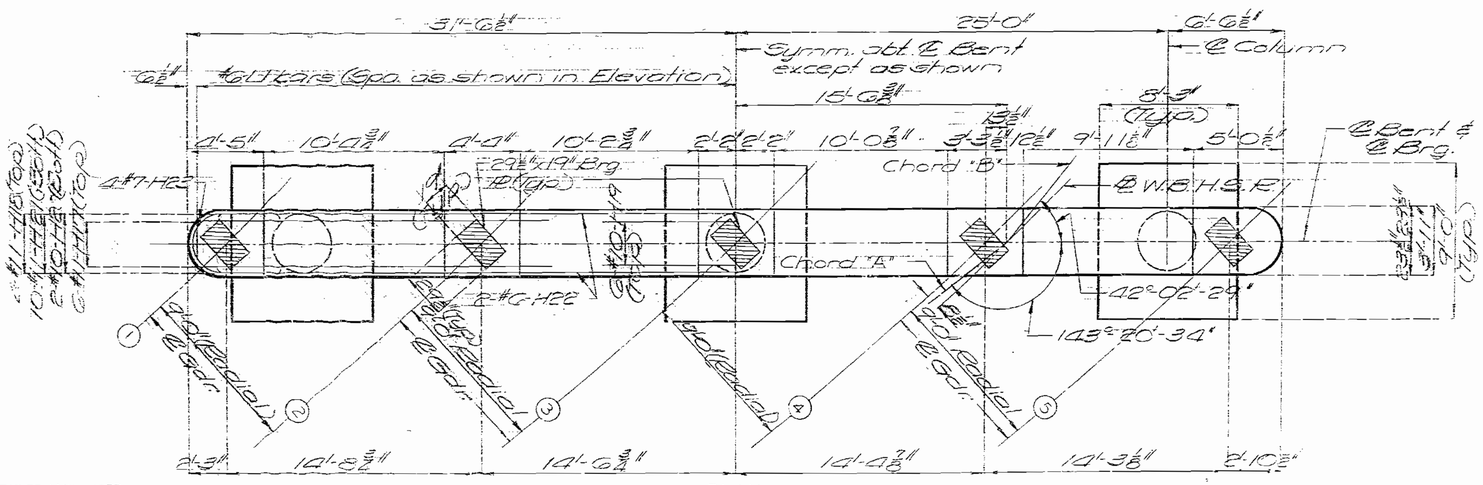
A-3456

365

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		72	50	





Note: For Plan of Anchor Bolts see Sht. No. 10
For Detail of Steel Pile Splice see Sht. No. 6.

DETAILED MAY 1977
CHECKED MAY 1977

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

DETAILS OF INT. BENT NO 2

Sheet No. 7 of 33

PLATTE COUNTY

A-34561

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		78	7	

ELEVATION

SECTION NEAR ℄ BENT

SECTION A-A

TYP. SECTION THRU COLUMNS

PLAN

DETAILS OF INT. BENT NO. 3

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

Note: For Plan of Anchor Bolts see Sht. No. 14
For Plan of Footing showing reinforcement see Sht. No. 7
For Detail of Steel Pile Splice see Sht. No. 6.

DETAILED MAY 1977
CHECKED MAY 1977

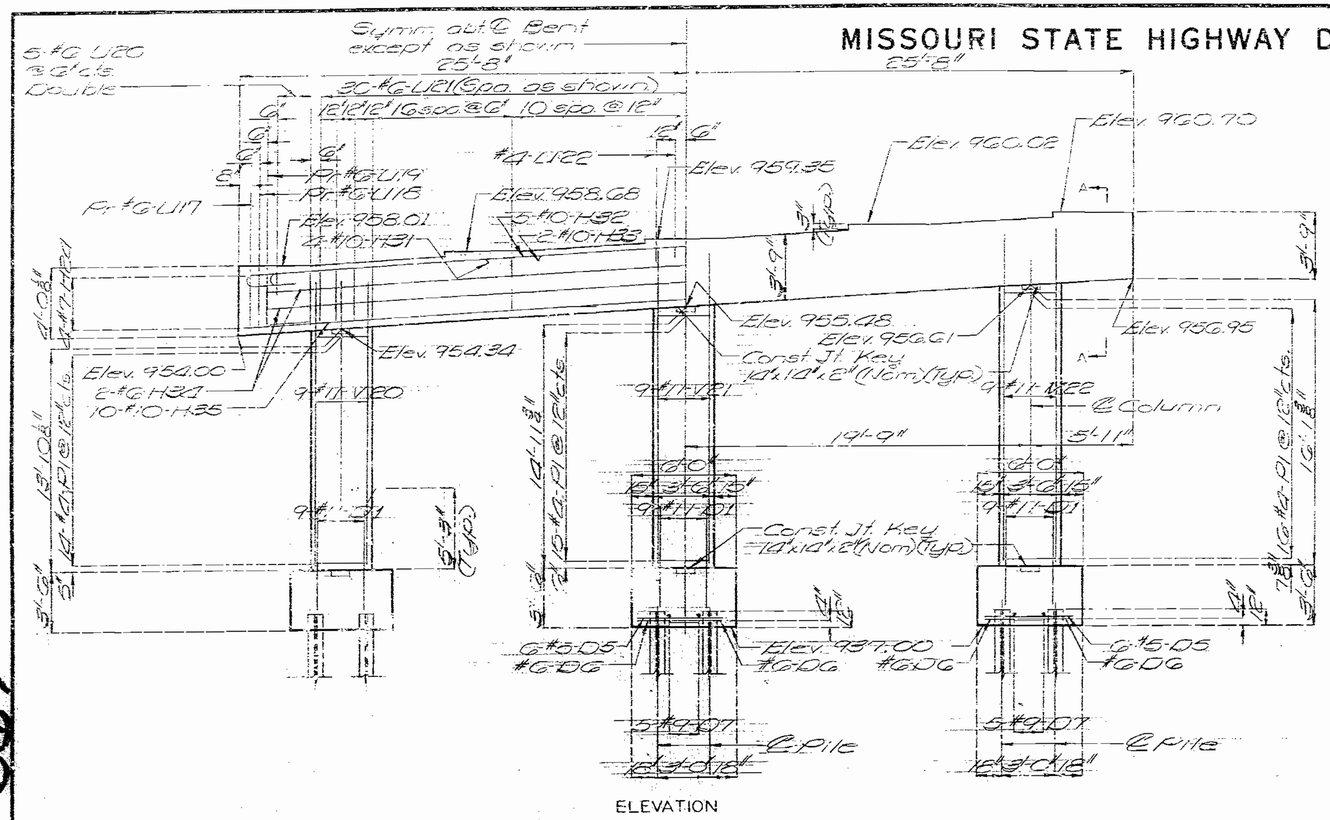
Sheet No. 8 of 33

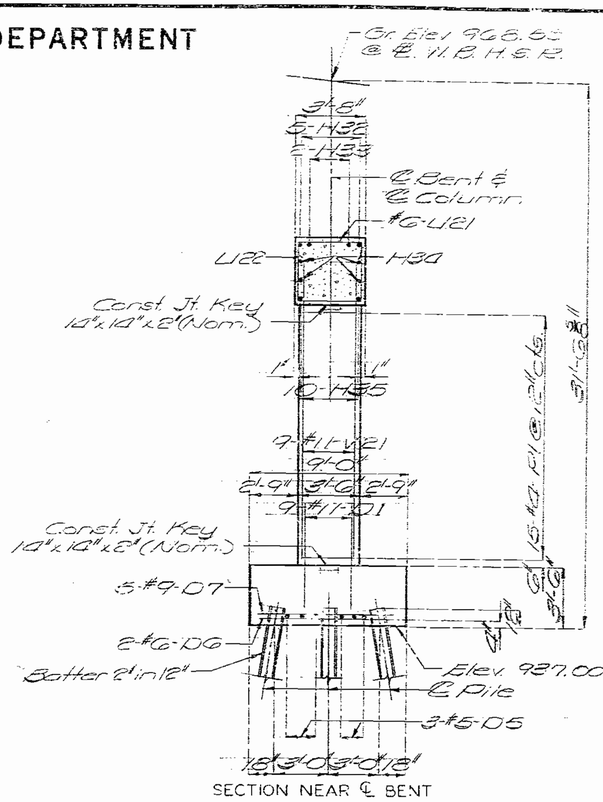
PLATTE COUNTY

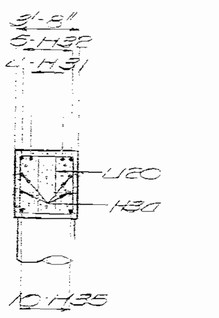
A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

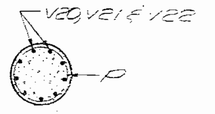
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		15	13	





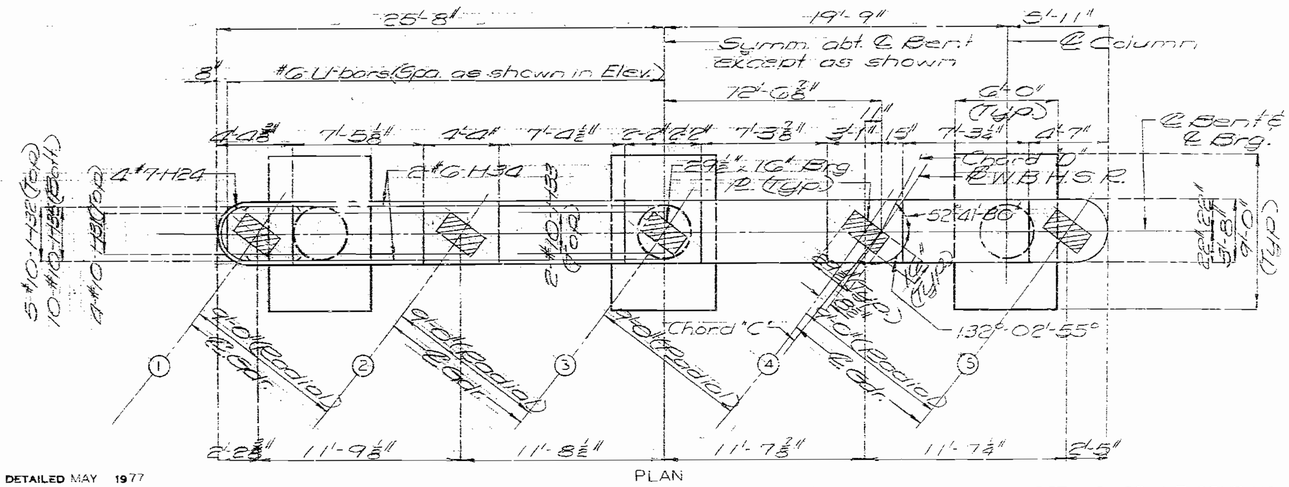


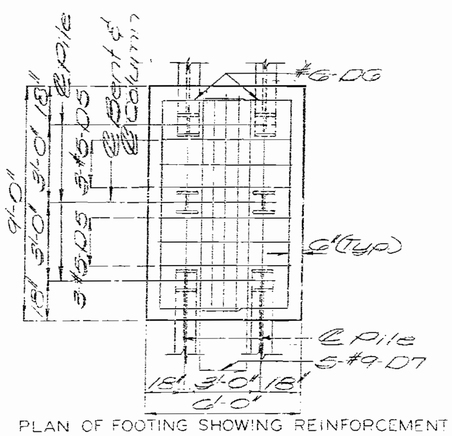
SECTION A-A



TYP. SECTION THRU COLUMNS

Note: For Plan of Anchor Bolts see Sht. No. 10
For Detail of Steel Pile Splice see Sht. No. 6





DETAILED MAY 1977
CHECKED MAY 1977

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

DETAILS OF INT. BENT NO. 4

Sheet No. 9 of 33

PLATTE COUNTY

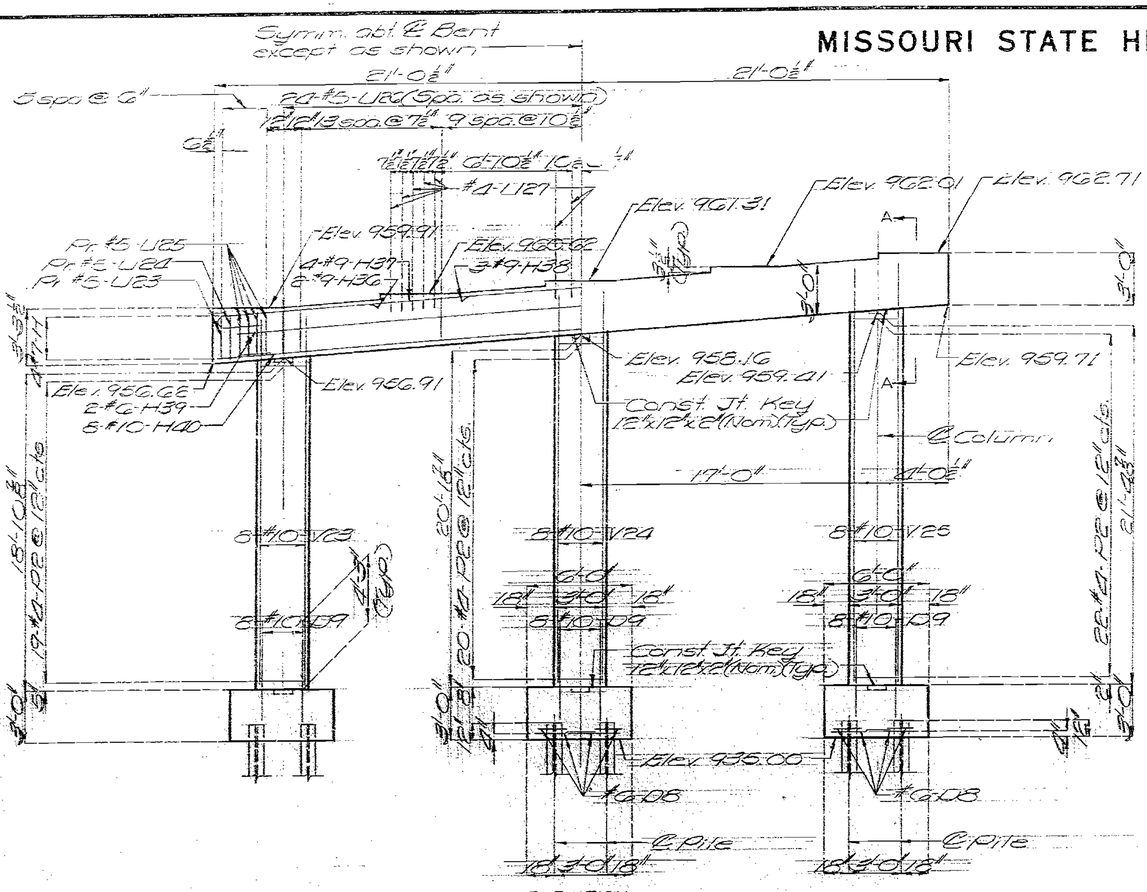
A-3456

397

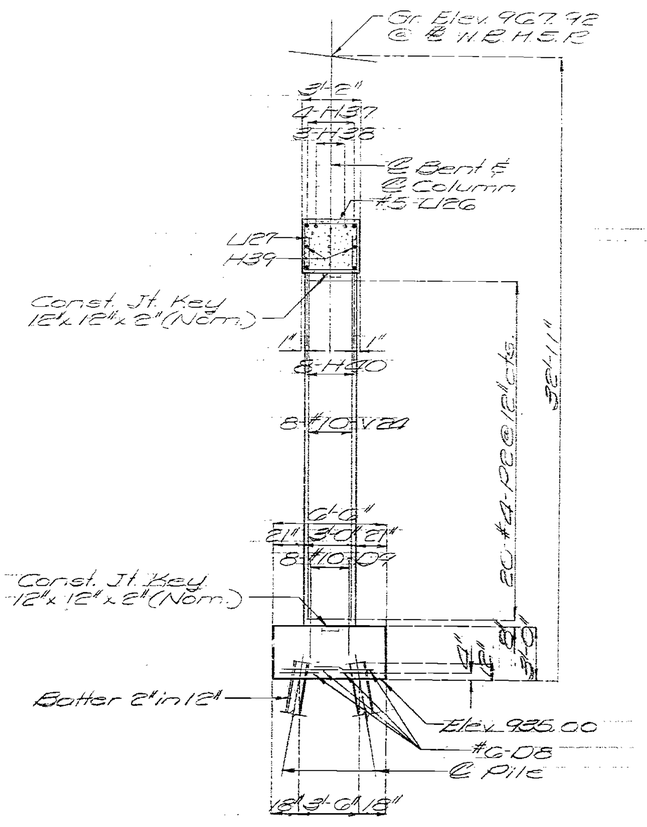
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	23	

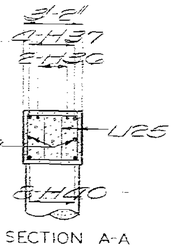
368



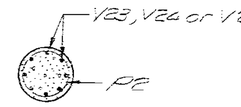
ELEVATION



SECTION NEAR ℄ BENT

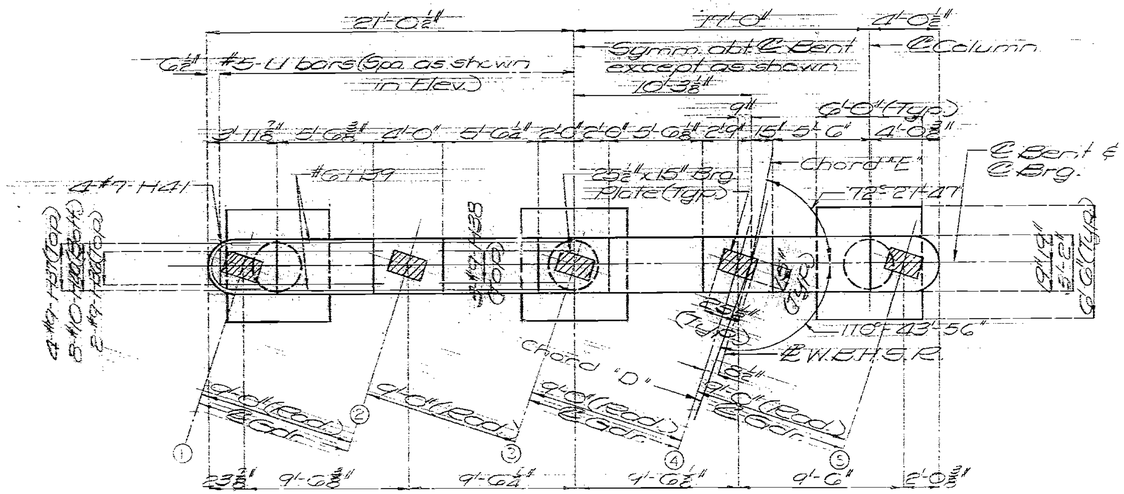


SECTION A-A

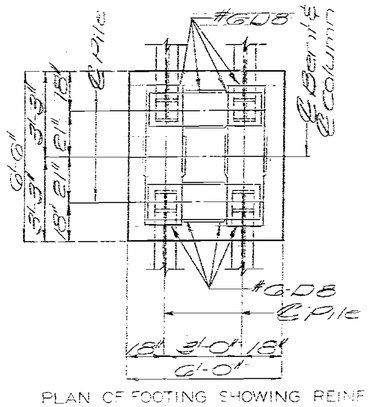


TYP SECTION THRU COLUMN

Note: For Plan of Anchor Bolts see Sht. No. 12
For Detail of Steel Pile Splice see Sht. No. 6



PLAN



PLAN OF FOOTING SHOWING REINF

DETAILED MAY 1977
CHECKED MAY 1977

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

DETAILS OF INT. BENT NO. 5

Sheet No. 10 of 33

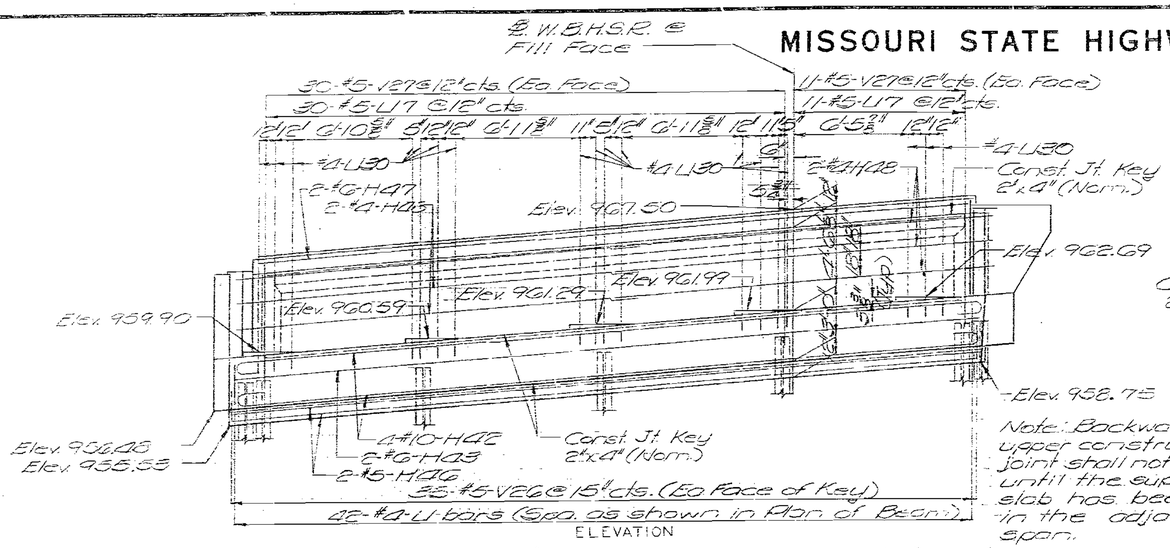
PLATTE COUNTY

A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

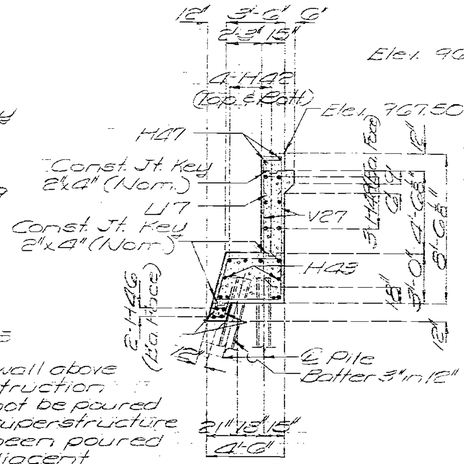
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	11	

369

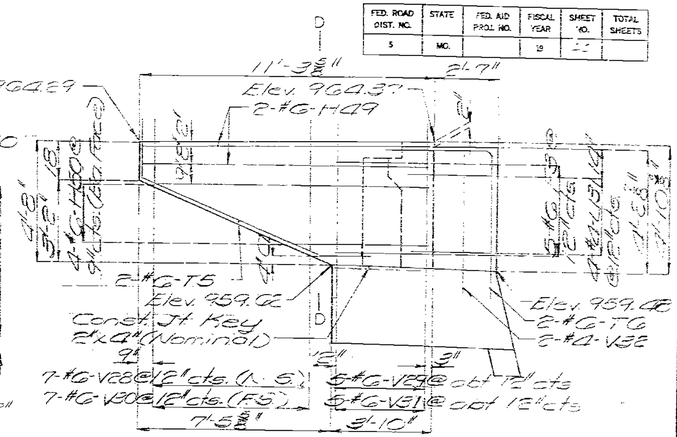


ELEVATION

Note: Backwall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.

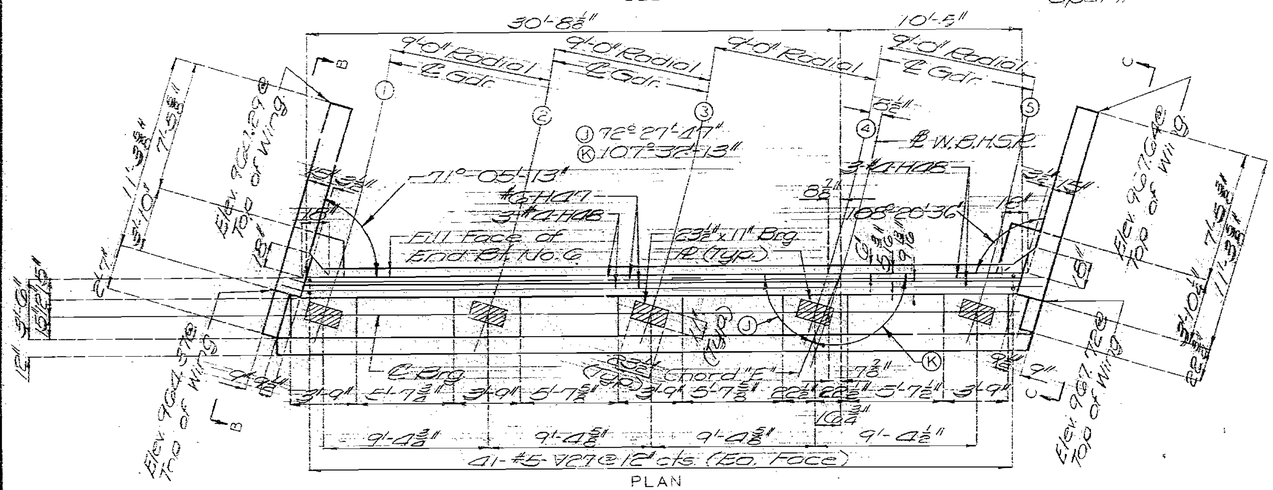


SECTION AT ℄ W.B.H.S.R.

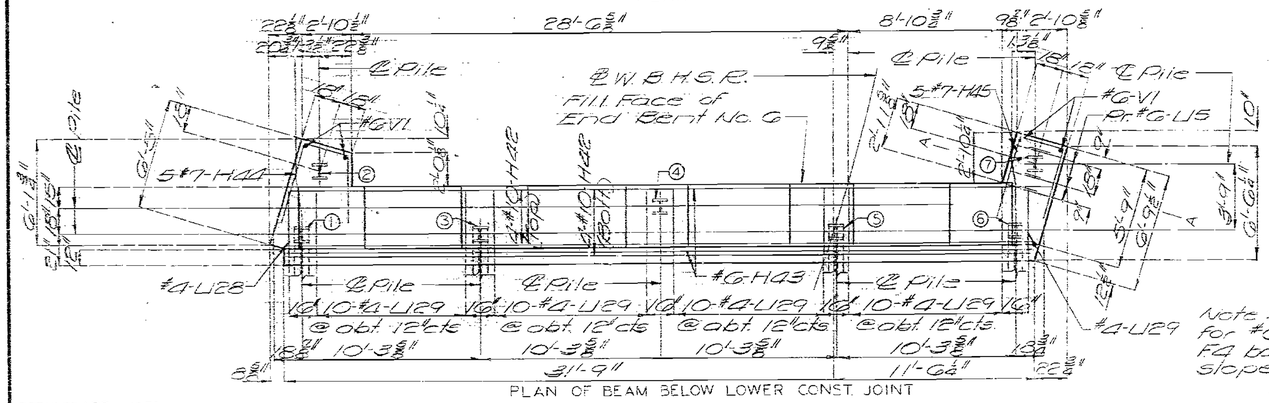


ELEV. B-B

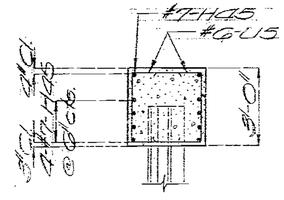
Pile Cut-off Elevations	
Pile No.	Elevation
①	958.09
②	958.17
③	958.86
④	959.62
⑤	960.39
⑥	961.16
⑦	961.24



PLAN

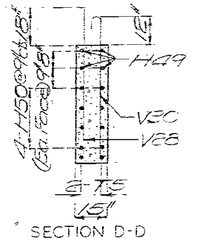


PLAN OF BEAM BELOW LOWER CONST. JOINT

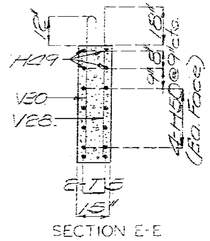


SECTION A-A

Note: See Sheet No. 30 for reinforcement of safety barrier curb. For Curb Curve Ordinates see Sht. No. 4.

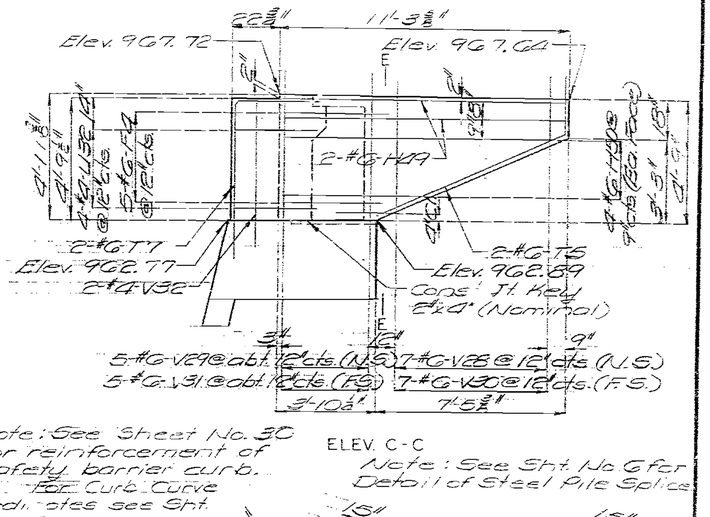


SECTION D-D



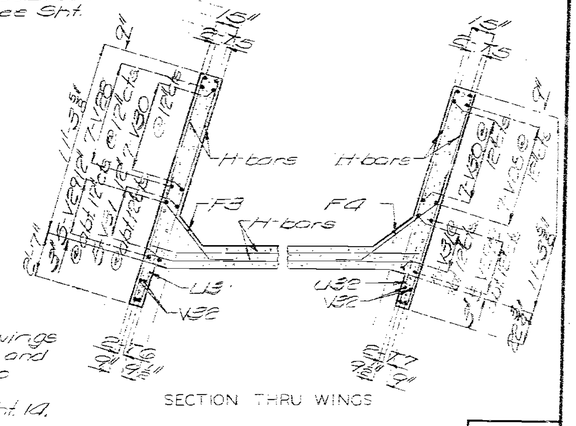
SECTION E-E

Note: Field bending shall be required of wings for #6-H47 bars in backwall and for F3 and F4 bars when necessary to conform to slope of wing.
For location of Anchor Bolts see Sht. 14.



ELEV. C-C

Note: See Sht. No. 6 for Detail of Steel Pile Splice



SECTION THRU WINGS

DETAILED APRIL 1977
CHECKED APRIL 1977

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

DETAILS OF END BENT NO. 6

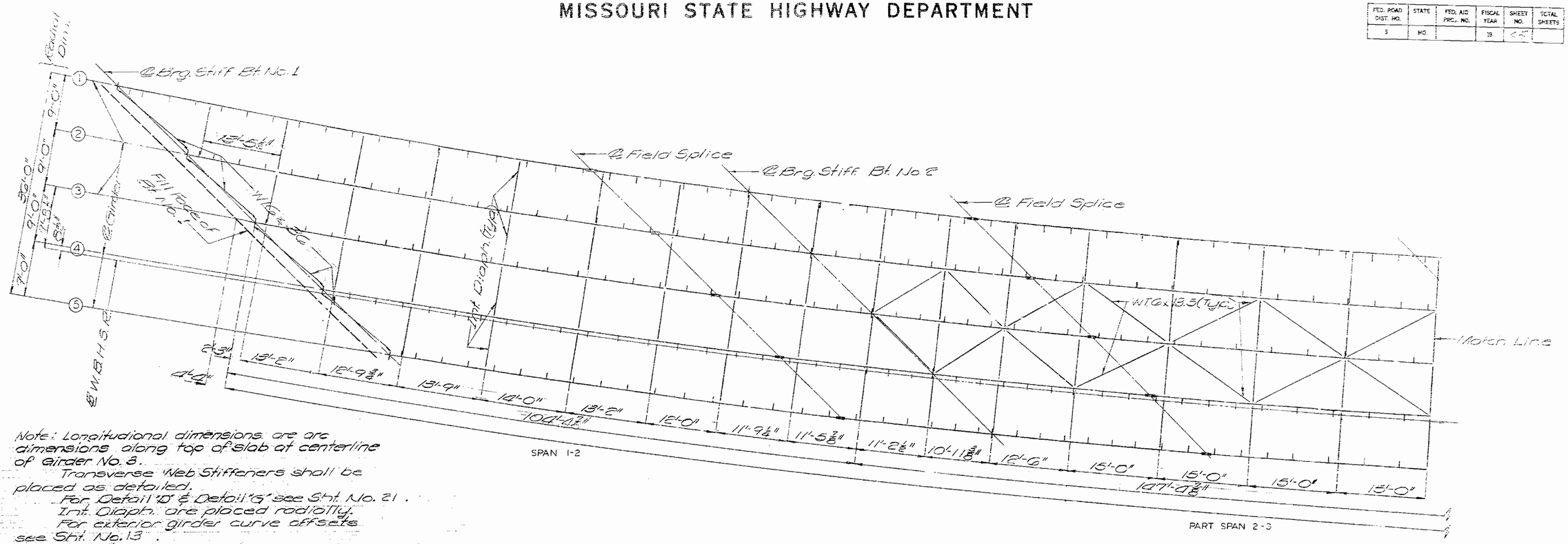
Sheet No. 11 of 33

PLATTE COUNTY

A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		19	12	



Note: Longitudinal dimensions are arc dimensions along top of slab at centerline of Girder No. 3.

Transverse Web Stiffeners shall be placed as detailed.

For Detail 'D' & Detail 'G' see Sht. No. 21.

Int. Diaph. are placed radially.

For exterior girder curve offsets see Sht. No. 13.

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.

PART PLAN OF STRUCTURAL STEEL

DETAILED JAN 1977
CHECKED MAR 1977

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

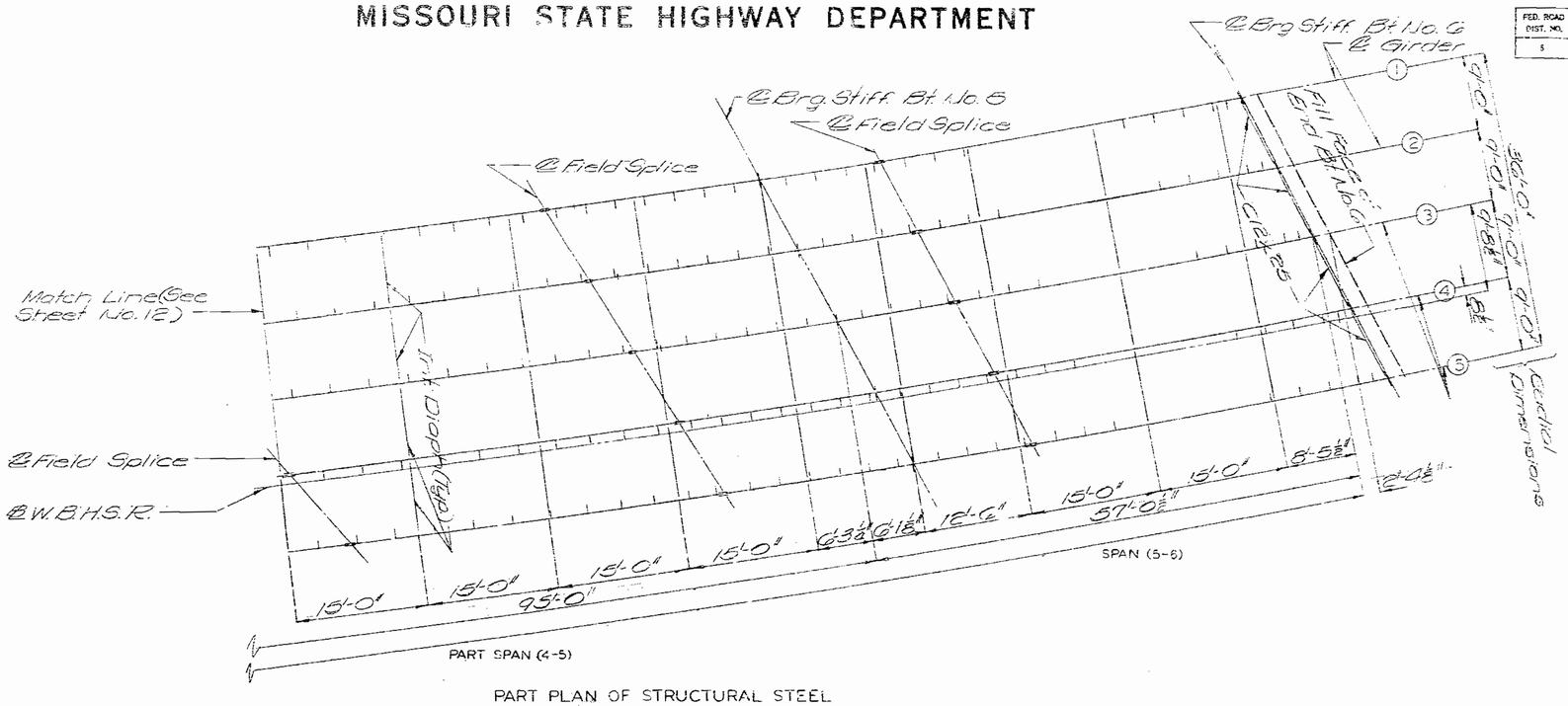
Sheet No. 12 of 25

PLATTE COUNTY

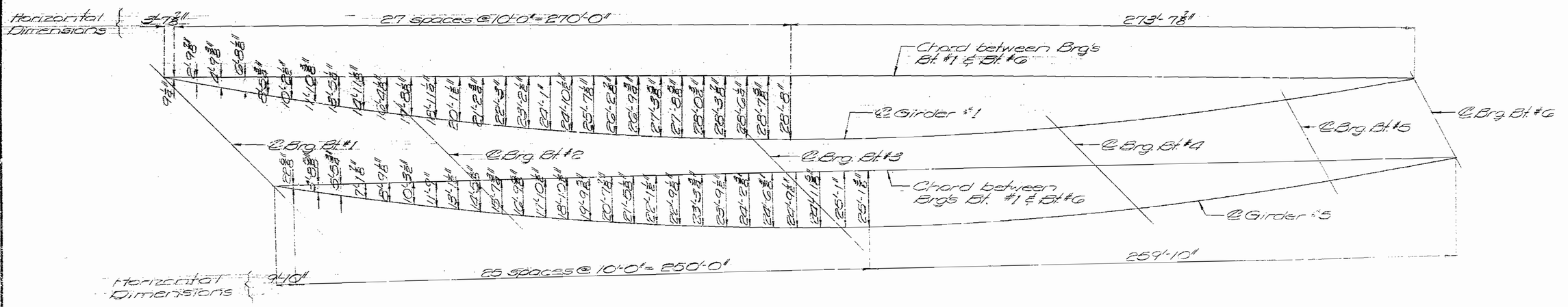
A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	17	



PART PLAN OF STRUCTURAL STEEL



PART PLAN OF STEEL SHOWING GIRDER CURVE OFFSETS

DETAILED JAN 1977
CHECKED MAR 1977

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

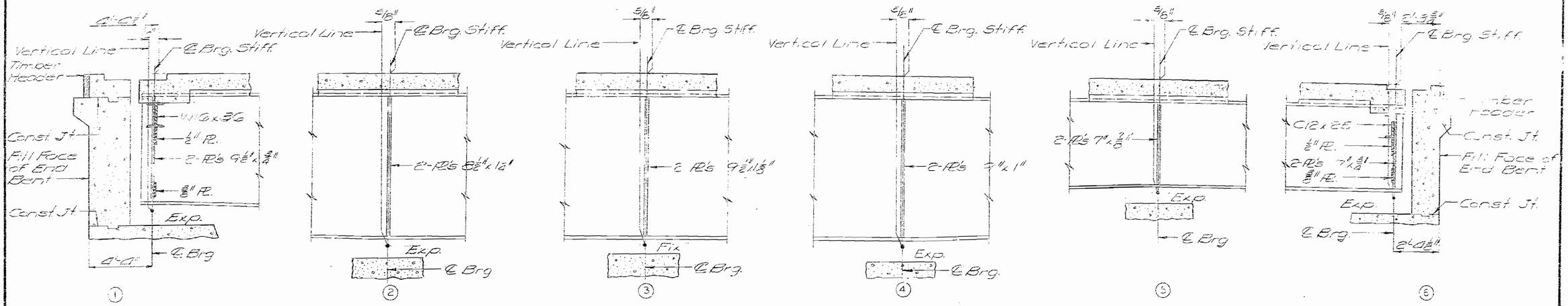
Sheet No. 13 of 33

PLATTE COUNTY

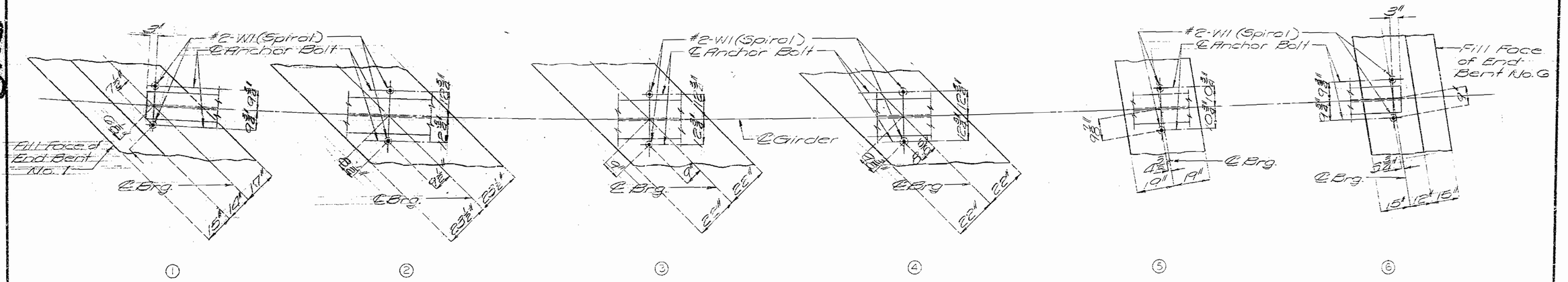
A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		78	17	



PART LONGITUDINAL SECTION NEAR GDR NO. 3



PART ANCHOR BOLT PLAN

Note: For detail of anchor bolt wells see Sht # 22.

DETAILED MAR 1977
CHECKED MAR 1977

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

Sheet No. 17 of 55

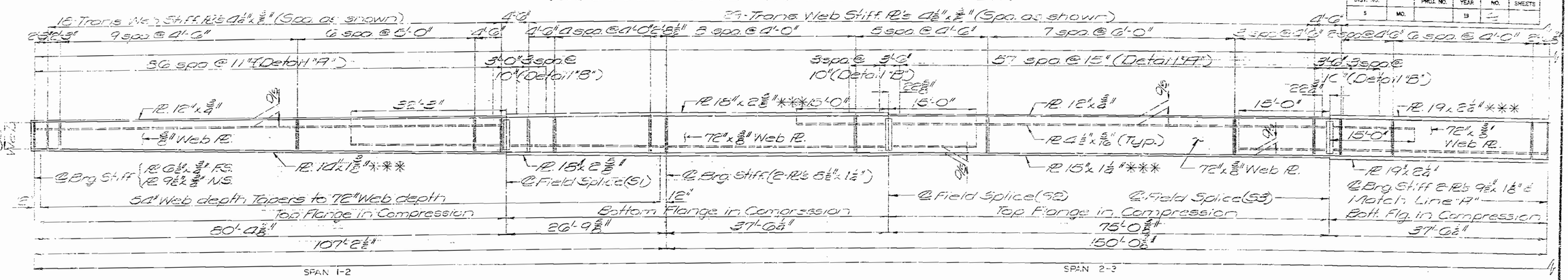
PLATTE COUNTY

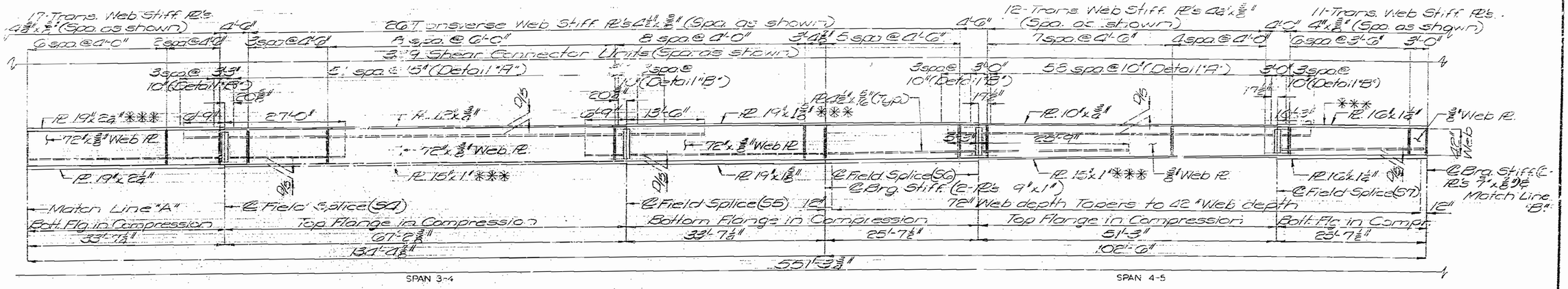
A3456

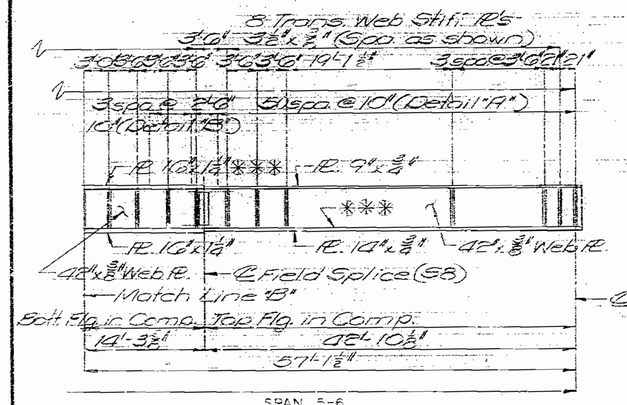
3773

MISSOURI STATE HIGHWAY DEPARTMENT

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







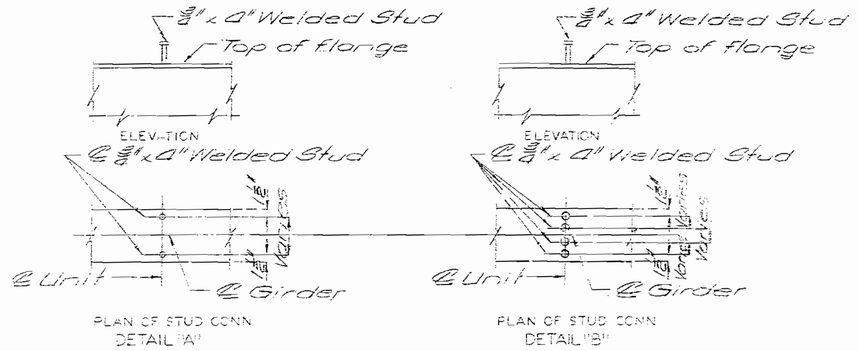
ELEVATION OF GIRDER NO. 1

Note: Longitudinal dimensions are arc dimensions along centerline girder parallel to grade @ top of Web.

*** Indicates Flange Plates subject to notch toughness requirements.

Plate girder shall be fabricated to conform with the camber diagram shown on Sht. No. 23

All web plates shall be subject to notch toughness requirements.



DETAILS OF SHEAR CONNECTORS

Note: Weight of 3230 lbs. of Shear Connectors is included in weight of Fabricated Structural Carbon Steel.

DETAILED JAN 1977
CHECKED MAR 1977

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

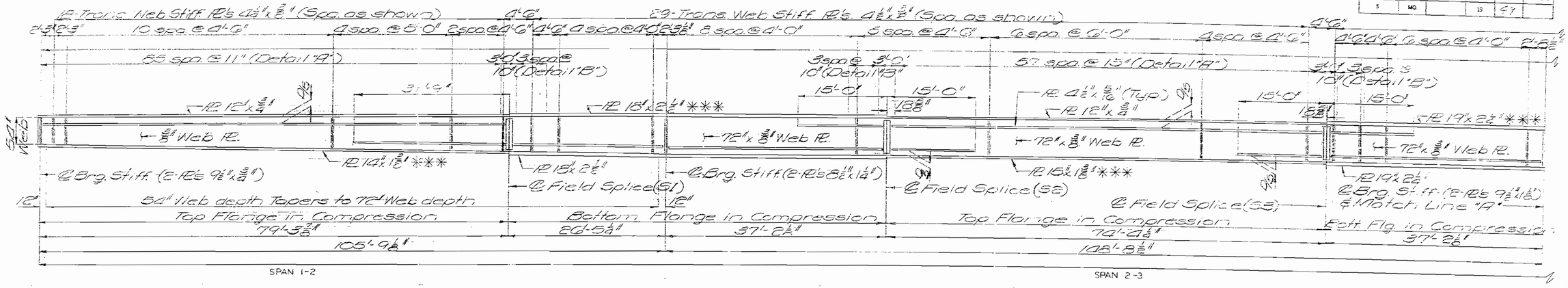
Sheet No. 15 of 23

PLATTE COUNTY

A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	47	



Note: Longitudinal dimensions are arc dimensions along ℄ girder parallel to grade ℄ top of Web.

*** Indicates Flange Plates subject to notch toughness requirements.

Plate girder shall be fabricated to conform with Camber Diagram shown on Sht. No. 23

For details 'A' & 'B' see Sht. No. 15.

All web plates shall be subject to notch toughness requirements.

ELEVATION OF GIRDER NO. 2

DETAILED JAN 19 77
CHECKED MAR 19 77

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

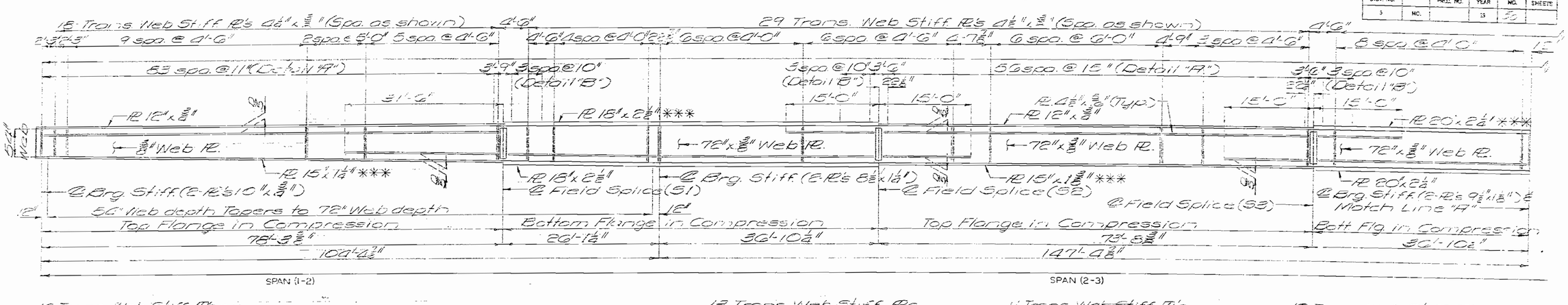
Sheet No. 16 of 33

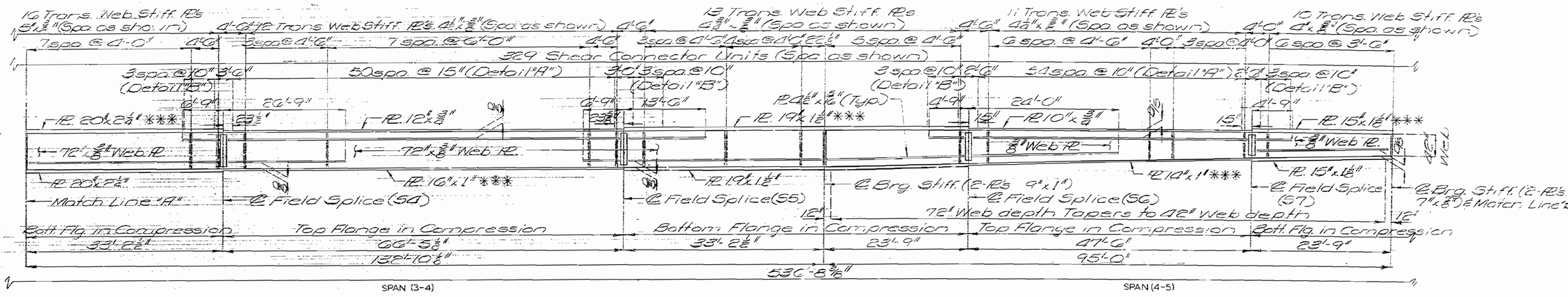
PLATTE COUNTY

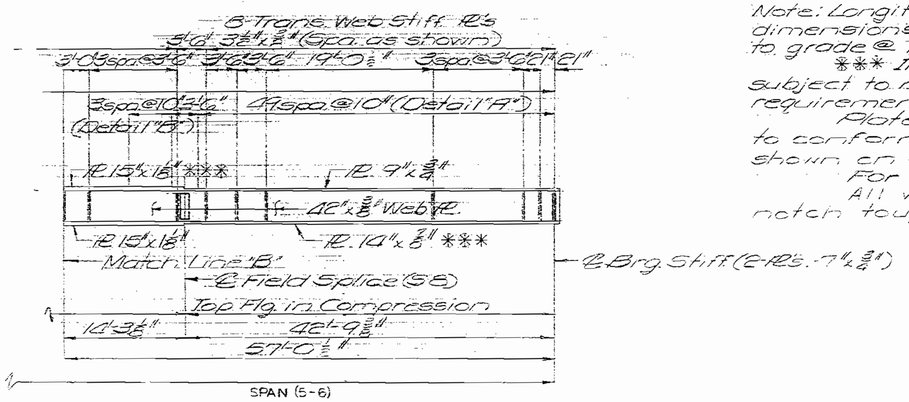
A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		13	35	







Note: Longitudinal dimensions are arc dimensions along ℄ Girder parallel to grade @ Top of Web.

*** Indicates Flange Plates subject to notch toughness requirements.

Plate girder shall be fabricated to conform with Camber Diagram shown on Sht. No. 23.

For details "A" & "B" see Sht. No. 15

All web plates shall be subject to notch toughness requirements.

ELEVATION OF GIRDER NO. 3

375

DETAILED FEB 1977
CHECKED MAR 1977

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

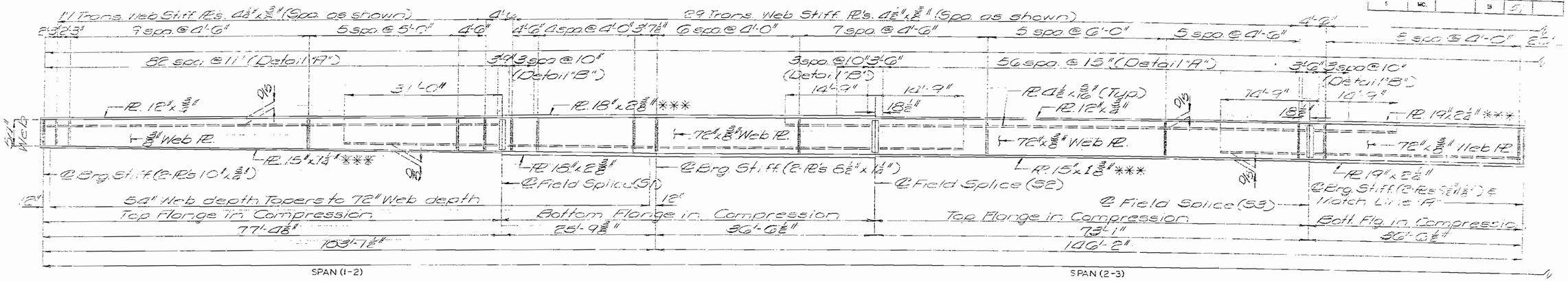
Sheet No. 17 of 33

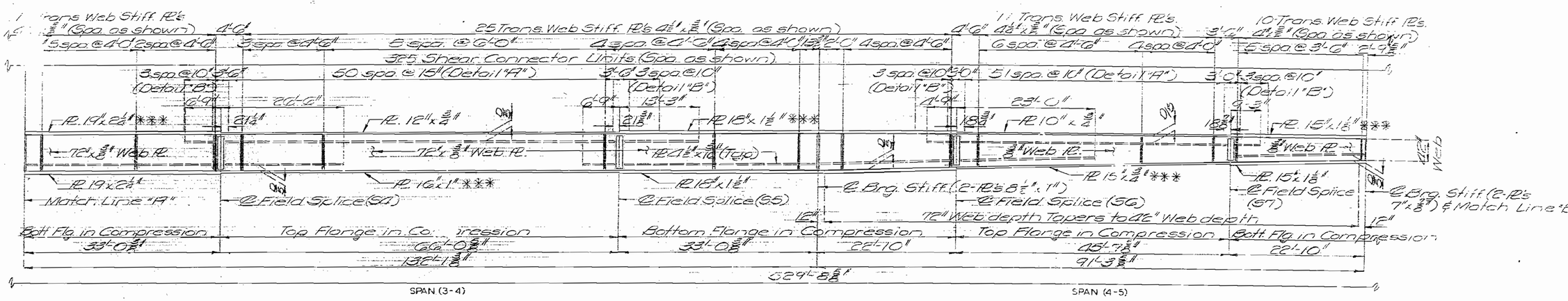
PLATTE COUNTY

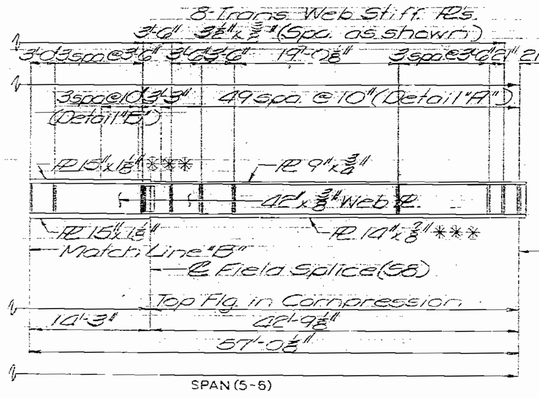
A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

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







Note: Longitudinal dimensions are arc dimensions along ℄ Girder parallel to grade ℄ top of web.

*** Indicates Flange Plates subject to notch toughness requirements.

Plate girder shall be fabricated to conform with Camber Diagram shown on Sht No. 23.

For details "A" & "B" see Sht. No. 16. All web plates shall be subject to notch toughness requirements.

ELEVATION OF GIRDER NO. 4

DETAILED FEB 1977
CHECKED MAR 1977

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

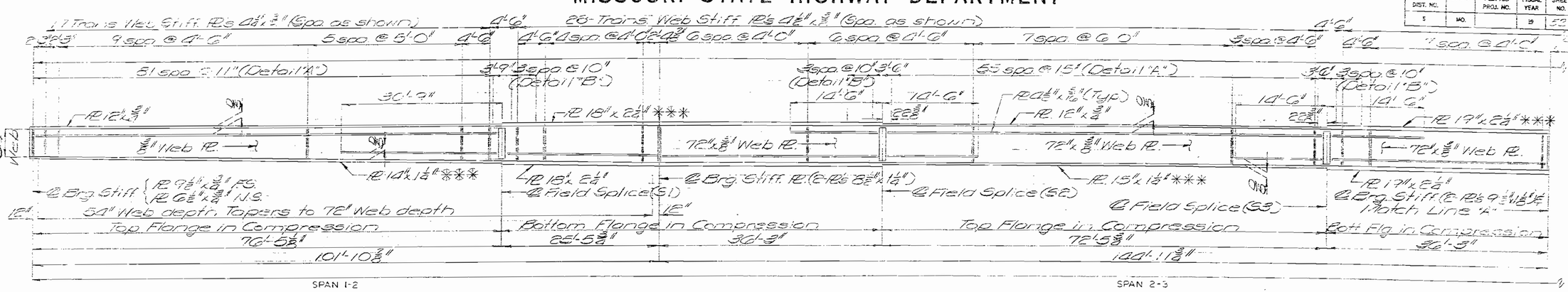
Sheet No. 15 of 33

PLATTE COUNTY

A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	22	



ELEVATION OF GIRDER NO. 5

DETAILED FEB 1977
CHECKED MAR 1977

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

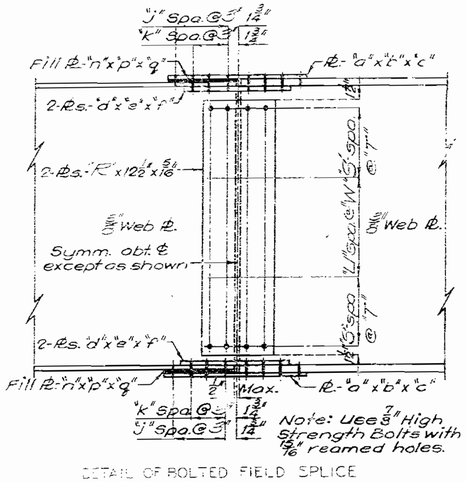
Sheet No. 19 of 33

PLATTE COUNTY

A 3456

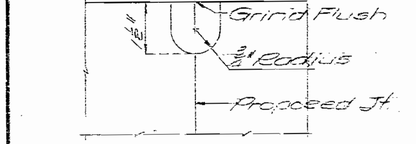
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	55	

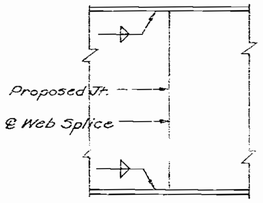


DETAIL OF BOLTED FIELD SPLICE

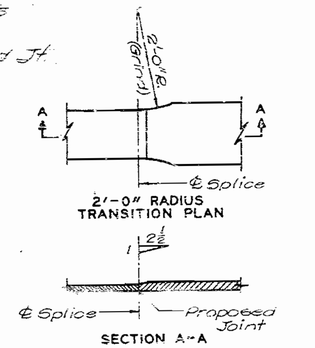
SPLICE LOCATION	"R"	"S"	"T"	"U"	"N"
S1 & S6	5'-3"	4	5'	4	5"
S2, S3, S4 & S5	5'-9"	2	4"	10	5"
S7	3'-9"	1	3 1/2"	7	5"
S8	3'-3"	2	4"	4	5"



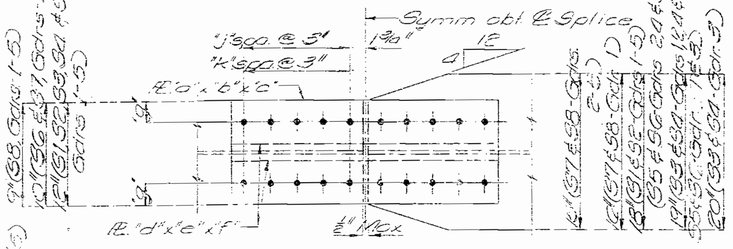
WELDED FIELD SPLICE



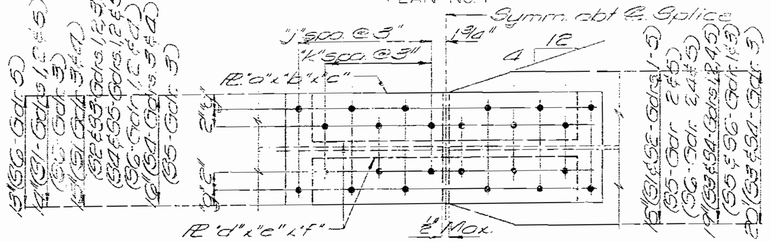
SHOP WEB SPLICE



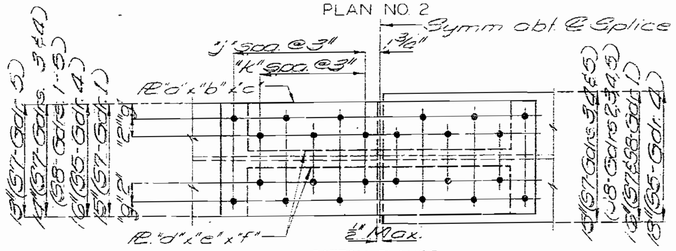
WELDED FIELD FLANGE SPLICE



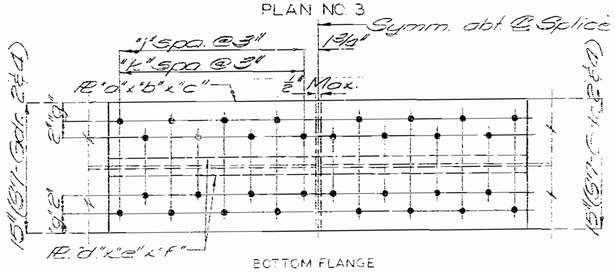
TOP FLANGE
PLAN NO. 1



BOTTOM FLANGE
PLAN NO. 2



BOTTOM FLANGE
PLAN NO. 3



BOTTOM FLANGE
PLAN NO. 4

SPLICE LOCATION	TABLE OF DIMENSIONS FOR FIELD SPLICE "a"	"b"	"c"	"d"	"e"	"f"	"g"	"j"	"k"	"p"	"q"	Plan No.
S1 TOP GDR 1 S2 TOP GDR 1	12"	3/8"	2'-0 3/8"	5"	1/2"	2'-0 1/2"	2 3/8"	4	4		15"	1
S1 TOP GDR. 4 S2 TOP GDR. 4	12"	3/8"	2'-0"	5"	1/2"	2'-0 1/2"	2 3/8"	4	4		"	"
S1 TOP GDR. 5 S2 TOP GDR. 5 S3 TOP GDR. 1,2,3,4&5 S4 TOP GDR. 1 [illegible]	12"	3/8"	2'-0 3/8"	5"	1/2"	2'-0 1/2"	2 3/8"	4	4	15"		1
S5 TOP GDR. 1	12"	3/8"	2'-0 3/8"	5"	1/2"	2'-0 1/2"	2 3/8"	4	4	15"		1
S5 TOP GDR. 2,3&4	12"	3/8"	2'-0 3/8"	5"	1/2"	2'-0 1/2"	2 3/8"	4	4	15"		1
S5 TOP GDR. 5	12"	3/8"	2'-0 3/8"	5"	1/2"	2'-0 1/2"	2 3/8"	4	4	15"		1
S8 TOP GDR. 1	9"	1/2"	2'-0 1/2"	3 1/2"	3/8"	1'-8 1/2"	1 3/8"	3	3	9"	12"	1
S8 TOP GDR. 2,3,4&5	9"	1/2"	2'-0 1/2"	3 1/2"	3/8"	1'-8 1/2"	1 3/8"	3	3	9"	12"	1
S7 TOP GDR. 2,3,4&5	10"	3/8"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	2"	3	3	10"	"	1
S7 TOP GDR. 1	10"	3/8"	2'-0 3/8"	4"	1/2"	2'-0 1/2"	2"	3	3	10"	"	1
S6 TOP GDR. 5	10"	3/8"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	2"	3	3	10"	12"	1
S6 TOP GDR. 2,3&4	10"	3/8"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	2"	3	3	10"	12"	1
S6 TOP GDR. 1	10"	3/8"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	2"	3	3	10"	12"	1
S7 BOTT. GDR. 5	13"	3/4"	3'-0 1/2"	5 1/2"	1/2"	2'-6 1/2"	1 7/8"	5	4	13"	18"	2
S6 BOTT. GDR. 5	13"	3/4"	3'-0 1/2"	5 1/2"	1/2"	2'-6 1/2"	1 7/8"	5	4	13"	18"	2
S6 BOTT. GDR. 1	14"	3/4"	3'-0 1/2"	6"	1/2"	3'-0 1/2"	2"	5	5	14"	18"	3
S7 BOTT. GDR. 4	15"	1/2"	3'-0 1/2"	6"	3/8"	3'-0 1/2"	2 1/8"	5	5	15"	18"	4
S6 BOTT. GDR. 4	15"	1/2"	3'-0 1/2"	6"	3/8"	3'-0 1/2"	2 1/8"	5	5	15"	18"	2
S8 BOTT. GDR. 2,3,4&5	14"	1/2"	3'-0 1/2"	6"	1/2"	3'-0 1/2"	2"	5	5	14"	21"	3
S7 BOTT. GDR. 3	14"	1/2"	4'-0 1/2"	6"	3/8"	3'-0 1/2"	2"	7	6	14"	21'-0"	3
S7 BOTT. GDR. 1	15"	1/2"	4'-0 1/2"	6 1/2"	3/8"	4'-0 1/2"	2 1/8"	7	7	15"	21'-0"	3
S6 BOTT. GDR. 3	14"	1/2"	4'-0 1/2"	6"	3/8"	3'-6 1/2"	2"	7	6	14"	18"	2
S5 & S6 BOTT. GDR. 1	15"	1/2"	4'-0 1/2"	6 1/2"	3/8"	4'-0 1/2"	2 1/8"	7	--	15"	21'-0"	2
S5 & S6 BOTT. GDR. 5 S3 BOTT. GDR. 1&5	15"	5/8"	5'-0 1/2"	6 1/2"	3/4"	5'-0 1/2"	2 5/8"	9	9	15"	21'-6"	2
S1 BOTT. GDR. 5	14"	5/8"	5'-0 1/2"	6"	3/4"	4'-6 1/2"	2"	9	8	14"	21'-6"	2
S1 BOTT. GDR. 4	15"	5/8"	5'-0 1/2"	6 1/2"	3/4"	5'-0 1/2"	2 1/8"	9	9	15"	21'-6"	2
S1 BOTT. GDR. 3	15"	5/8"	5'-0 1/2"	6 1/2"	3/4"	5'-0 1/2"	2 1/8"	9	9	15"	21'-6"	2
S1 BOTT. GDR. 2	14"	5/8"	5'-0 1/2"	6"	3/4"	5'-0 1/2"	2"	10	9	14"	21'-9"	2
S1 BOTT. GDR. 1	14"	3/4"	5'-0 1/2"	6"	3/4"	5'-0 1/2"	2"	10	9	14"	21'-9"	2
S7 BOTT. GDR. 2	13"	1/2"	4'-0 1/2"	6 1/2"	3/8"	4'-0 1/2"	2 1/8"	7	7	13"	21'-0"	4
S5 BOTT. GDR. 5	13"	1/2"	4'-0 1/2"	6 1/2"	3/8"	4'-0 1/2"	2 1/8"	7	7	13"	21'-0"	2
S5 BOTT. GDR. 2 S6 BOTT. GDR. 2	13"	1/2"	4'-0 1/2"	6 1/2"	3/8"	4'-0 1/2"	2 1/8"	7	7	13"	21'-0"	2
S4 BOTT. GDR. 1,2&5	13"	1/2"	4'-0 1/2"	6 1/2"	3/8"	4'-0 1/2"	2 1/8"	7	7	13"	21'-0"	2
S2 BOTT. GDR. 1	13"	3/4"	5'-0 1/2"	6 1/2"	3/4"	5'-0 1/2"	2 1/8"	9	9	13"	21'-6"	2
S3 BOTT. GDR. 2,3&4	13"	3/4"	5'-6 1/2"	6 1/2"	3/4"	5'-6 1/2"	2 1/8"	10	10	13"	21'-9"	2
S2 BOTT. GDR. 4	13"	3/4"	5'-6 1/2"	6 1/2"	3/4"	5'-6 1/2"	2 1/8"	10	10	13"	21'-9"	2
S2 BOTT. GDR. 2&3	13"	3/4"	5'-6 1/2"	6 1/2"	3/4"	5'-6 1/2"	2 1/8"	10	10	13"	21'-9"	2
S2 BOTT. GDR. 5	16"	1/2"	4'-6 1/2"	7"	5/8"	4'-6 1/2"	2 1/8"	8	8	16"	21'-3"	3
S5 BOTT. GDR. 3	16"	1/2"	4'-6 1/2"	7"	5/8"	4'-6 1/2"	2 1/8"	8	8	16"	21'-3"	2
S4 BOTT. GDR. 3&5	16"	1/2"	4'-6 1/2"	7"	5/8"	4'-6 1/2"	2 1/8"	8	8	16"	21'-3"	2
S1 TOP GDR. 2&3 S2 TOP GDR. 2&3	12"	3/8"	2'-0 3/8"	5"	1/2"	2'-0 1/2"	2 3/8"	4	4	12"	15"	1

Note: Field splices may be field welded & field bolted.
To permit sufficient space for field welded splice, field weld adjacent intermediate web stiffener.

DETAILED MARCH 1977
CHECKED MARCH 1977

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

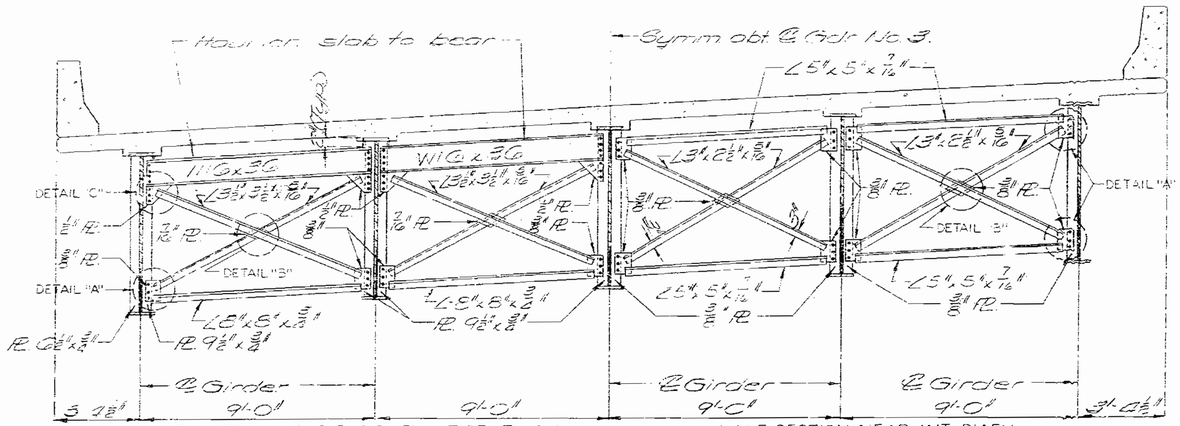
Sheet No. 20 of 33

PLATTE COUNTY

A-3456

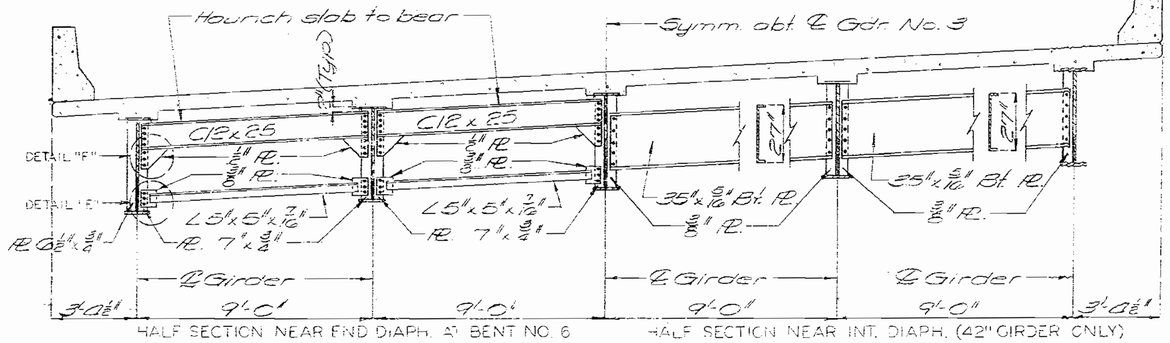
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		19	25	



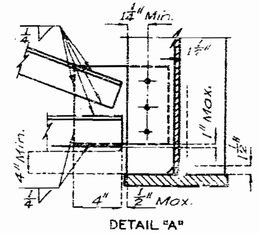
HALF SECTION NEAR END DIAPH. AT BENT NO. 1

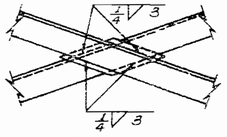
HALF SECTION NEAR INT. DIAPH. (GIRDER DEPTH OVER 42")

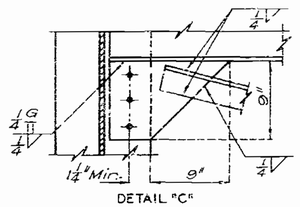


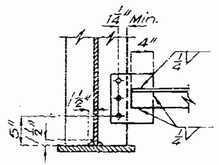
HALF SECTION NEAR END DIAPH. AT BENT NO. 6

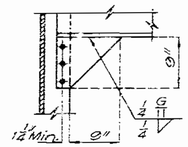
HALF SECTION NEAR INT. DIAPH. (42" GIRDER ONLY)

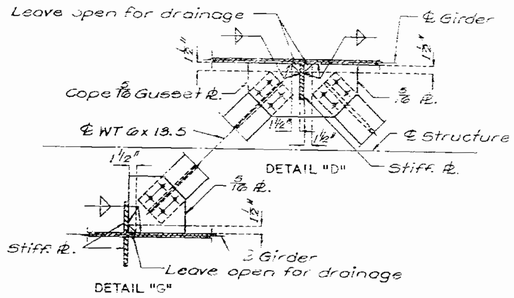






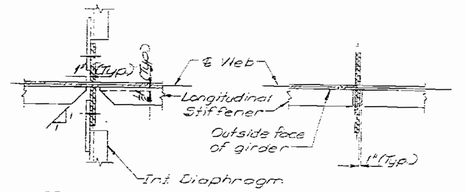


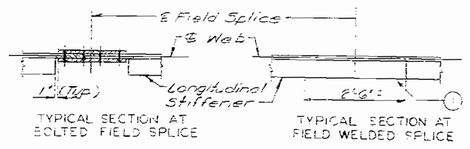




DETAILS OF LATERAL BRACING

Note: For location of Detail "D" & Detail "G" see Sht. No. 12.
5/16" plate shall be placed 19" above top of bottom flange.





DETAILS OF LONGITUDINAL STIFFENERS

Note: Longitudinal web stiff. shall be placed on the outside of exterior girders and on the side opposite Pl. to transverse web stiffener plates for interior girders.

Whenever longitudinal stiffeners interfere with putting the diaphragms in place, clip stiffeners.

Weld longitudinal stiffener across field welded splice after alignment angles have been removed.

DETAILED MAR 1977
CHECKED MAR 1977

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

Sheet No. 25 of 32

PLATTE COUNTY

A34561

MISSOURI STATE HIGHWAY DEPARTMENT

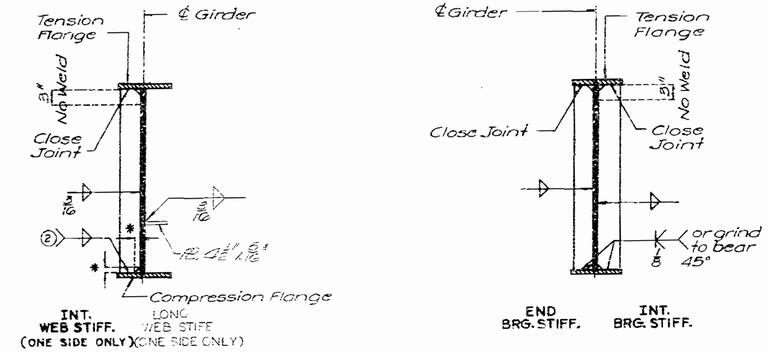
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	55	

NOTES: TYPE "D" BEARINGS

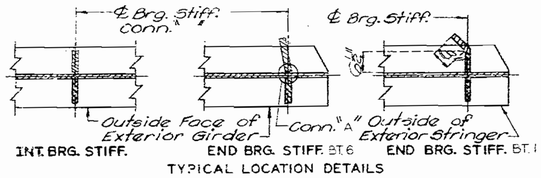
ANCHOR BOLTS FOR TYPE "D" BEARINGS SHALL BE 1-1/4"ø SWEDGED BOLTS AND SHALL EXTEND 12" INTO CONCRETE, WITH HEXAGON NUTS AND PLAIN WASHERS FOR FIXED BEARINGS, NO NUTS FOR EXPANSION BEARINGS.

"ESTIMATED WEIGHT" DOES NOT INCLUDE WEIGHT OF ANCHOR BOLTS.

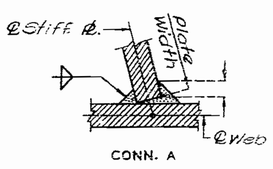
"✓" INDICATES MACHINE FINISH SURFACE



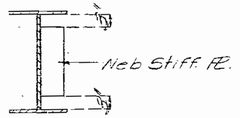
② Weld to compression flange as located on Elevation of Girder.
* 1½" Typical for all Int. Web Stiff., Int. Diaph. Conn. Pl. and Brg. Stiff.



TYPICAL LOCATION DETAILS



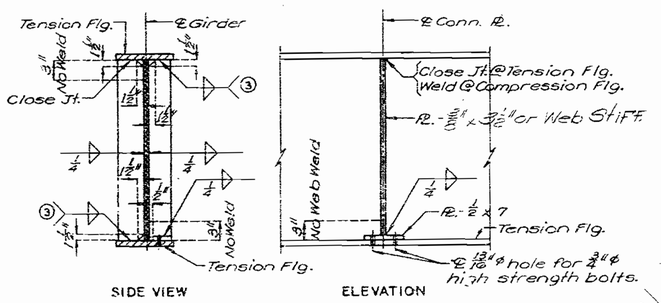
CONN. A



INT. WEB STIFF NEAR FIELD SPLICE

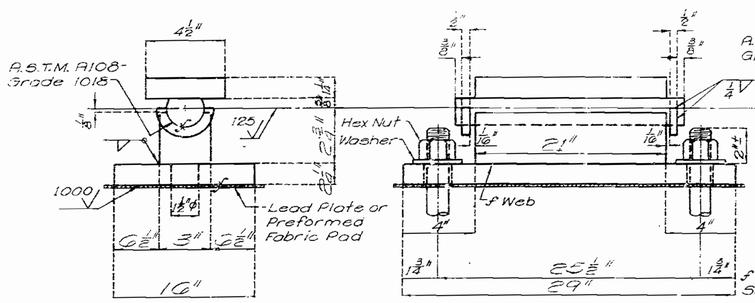
WELDING DETAILS

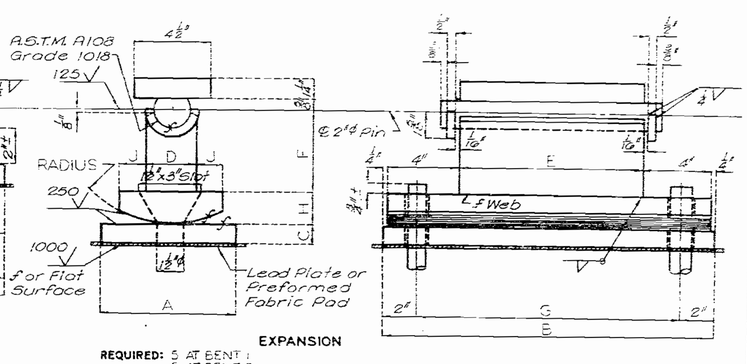
Note: When Int. web stiff. Pl's interfere with Flange Splice Pl's. and bolts clip as shown sufficiently to clear.

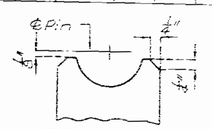


③ Note: Weld to compression flange as located on Elevation of Girder.

MODIFIED INTERMEDIATE DIAPHRAGM CONNECTION

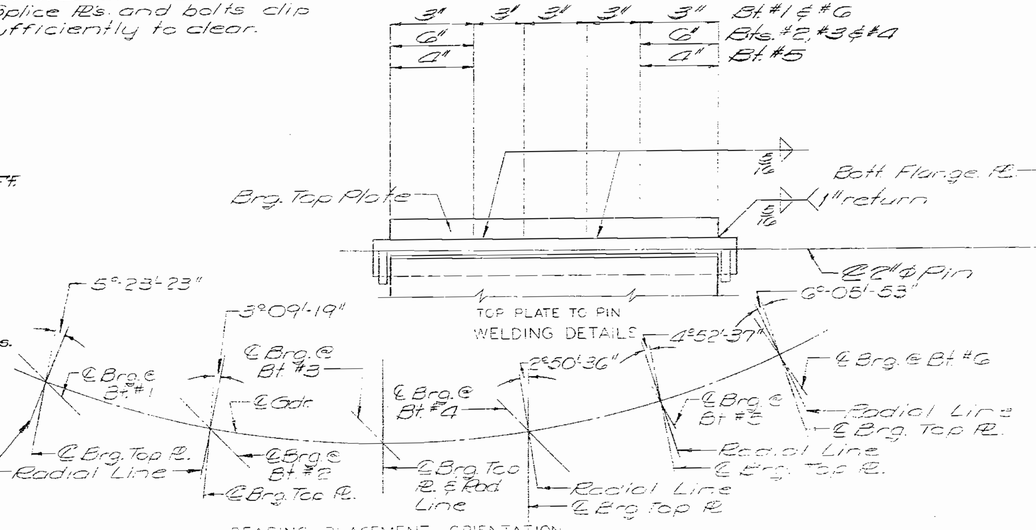


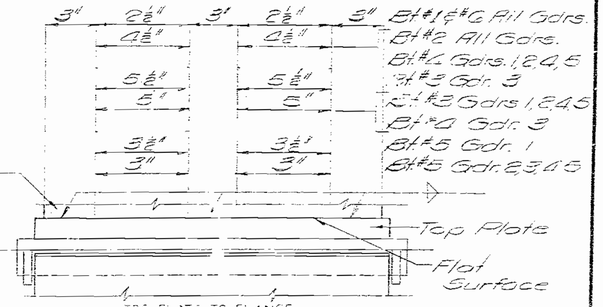


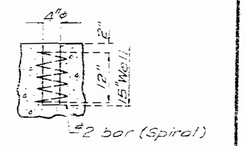


TYPE "D" BEARINGS
(ESTIMATED WEIGHT 15757)

BENT NO.	A	B	C	D	E	F	G	H	J	RADIUS
1	11"	23½"	1⅜"	3"	15"	4½"	19½"	2"	1½"	6½"
2	19"	29½"	3½"	4"	21"	8"	25½"	2½"	1½"	10½"
4	16"	28½"	3"	4"	20"	8"	24½"	2½"	1½"	10½"
5	15"	25½"	2⅜"	4"	17"	7½"	21½"	2½"	1½"	9½"
6	11"	23½"	1½"	4"	15"	4½"	19½"	2½"	1½"	6½"







DETAIL OF ANCHOR BOLT WELLS

380

STD.	D. B.	REVISED
FEB.	1965	NOV. 1976

DETAILED MARCH 1977
CHECKED MARCH 1977

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

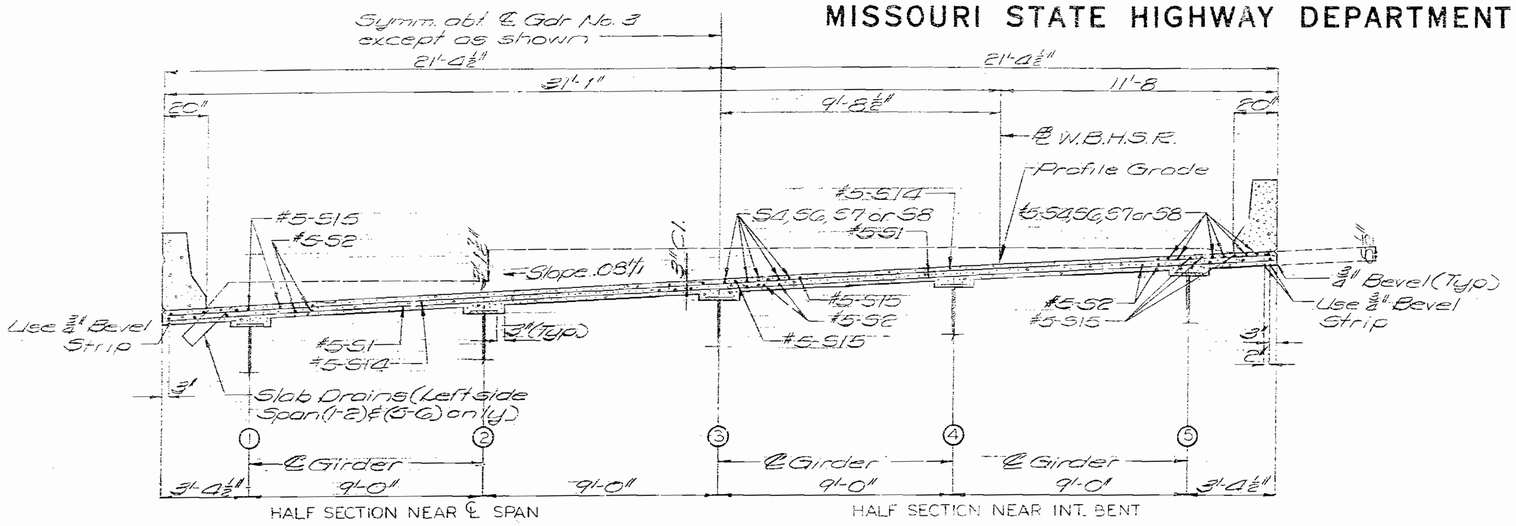
Sheet No. 28 of 53

PLATTE COUNTY

A-P456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	27	



HALF SECTION NEAR ℄ SPAN

HALF SECTION NEAR INT. BENT

Note: For details and reinforcement of barrier curb not shown see Shts. No. 28 & 29.

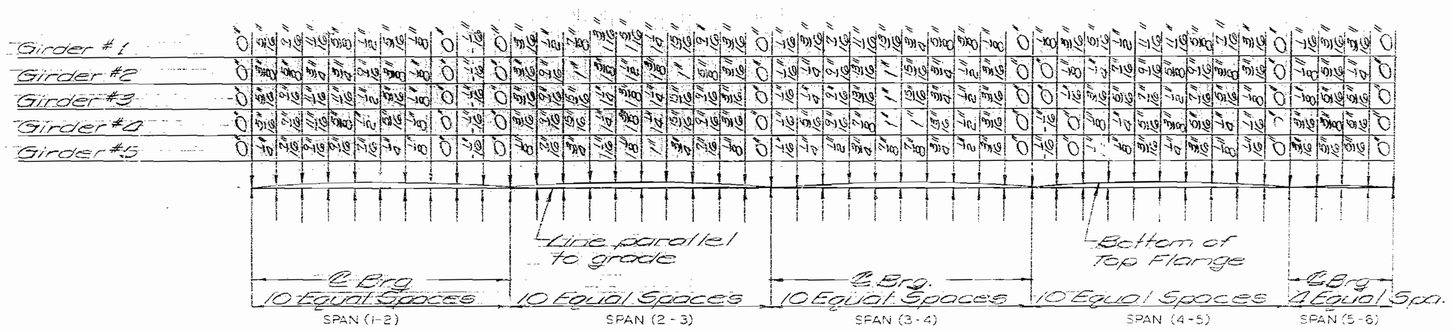
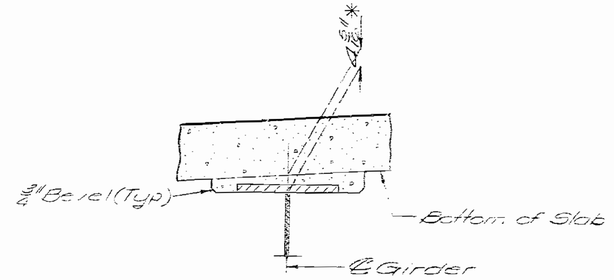


PLATE GIRDER CAMBER DIAGRAM

Note: Camber includes allowance for dead load deflection due to concrete slab, curb & structural steel
16% of dead load deflection due to weight of structural steel.



THEORETICAL SLAB HAUNCH

* Dimension may vary if girder camber after erection differs from plan camber by more than the 7% of Dead Load Deflection due to weight of structural steel. No payment will be made for additional forming or concrete required for variable haunching.

DETAILED MAR 1977
CHECKED MAR 1977

This drawing is not to scale. Follow dimensions.

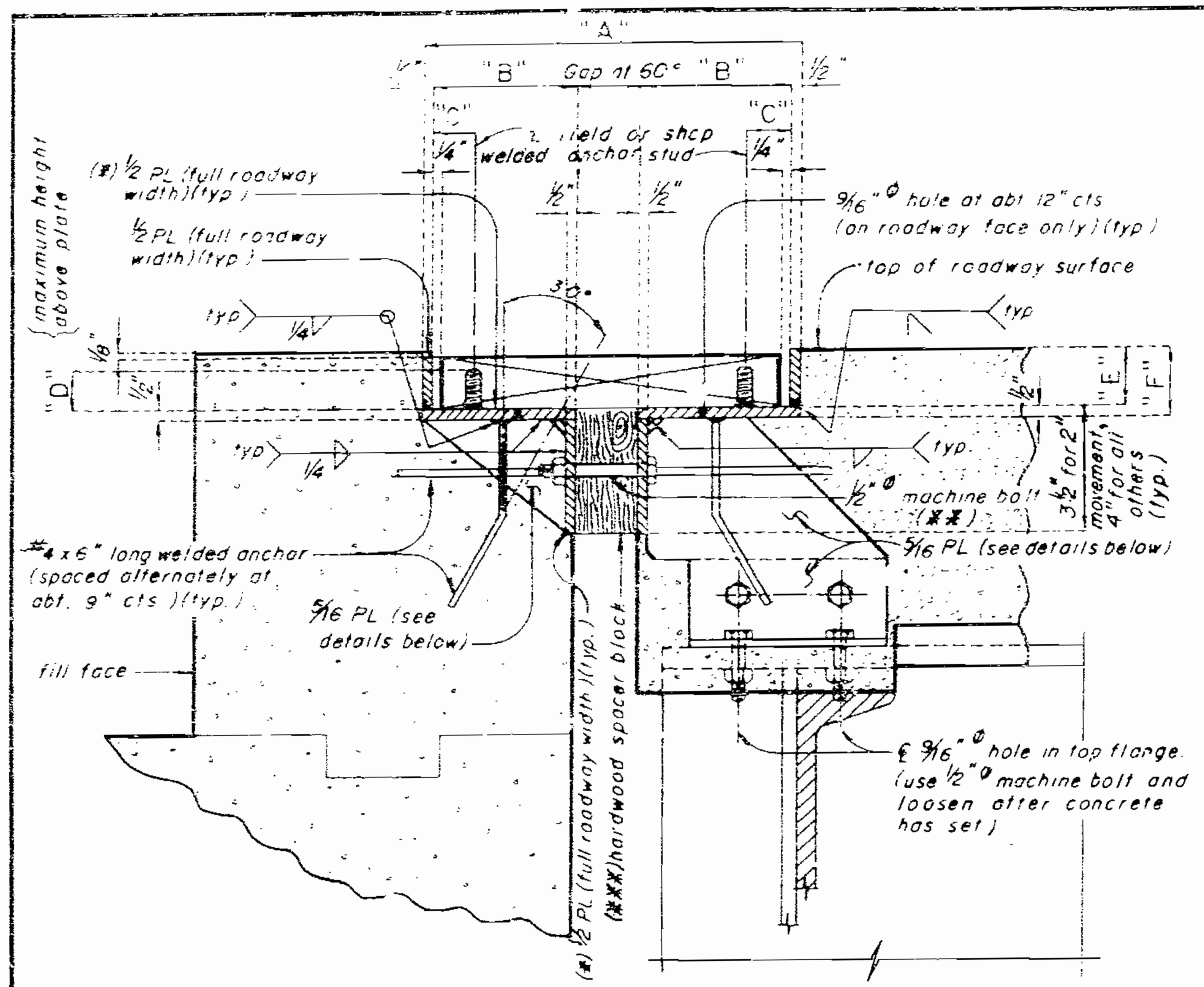
Sheet No. 23 of 33

PLATTE COUNTY

A-3456

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	59	

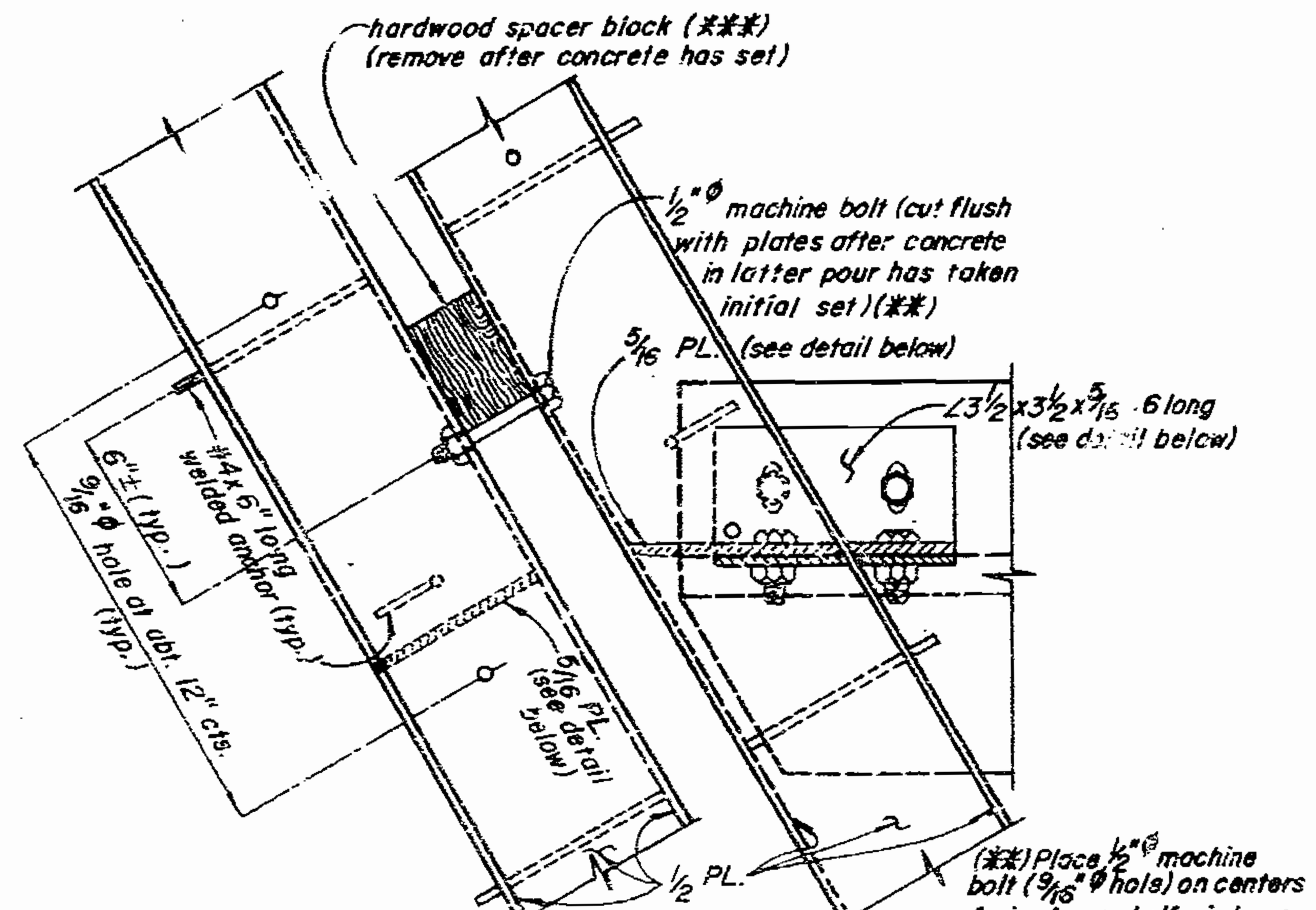
MISSOURI STATE HIGHWAY DEPARTMENT



PART SECTION THRU ARMORED JOINT

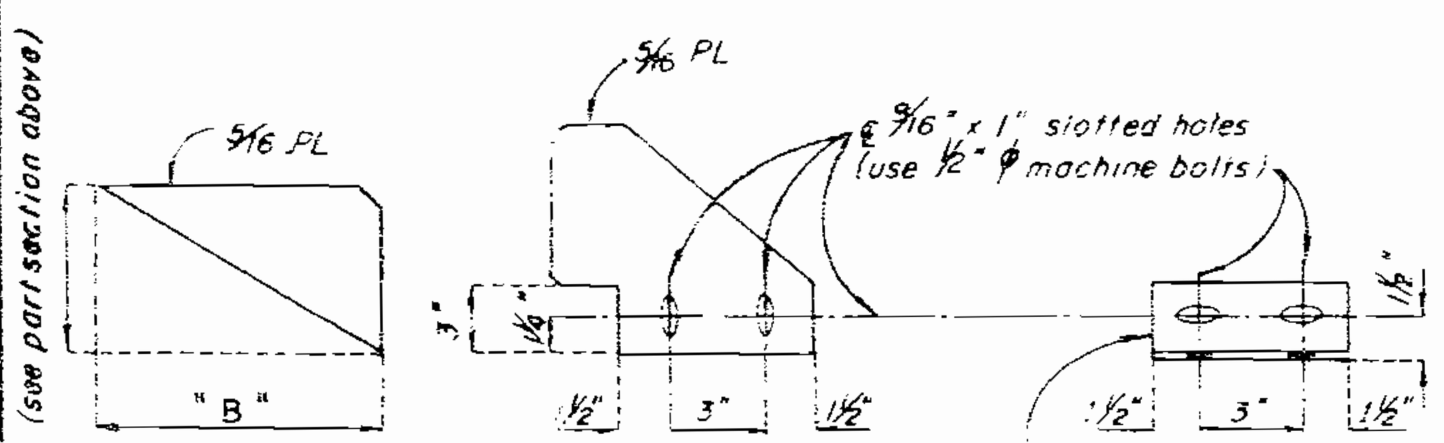
(*) these plates may be one piece by using legs of equal or unequal angles.

(***) spacer may be a combination of a hardwood block and metal shims (2"x3").



PART PLAN

Note: 5/16 plates and angle placed at each girder or stringer.



DETAIL OF PLATE   DETAIL OF PLATE   DETAIL OF ANGLE

LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	ANCHOR STUDS "G"
END BENT NO. 1 & 4	TRANSFLEX 400A	3 7/8"	24 5/8"	9 7/8"	2 1/16"	1 1/2"	2 5/16"	2 13/16"	3/4"	85
	WABO-FLEX SR4A	2 7/8"	24 3/8"	10 1/4"	1 15/16"	1 3/4"	2 5/16"	2 13/16"	3/4"	85

TABLE OF DIMENSIONS

NOTE: *All dimensions are at right angles. Expansion gap and dimension "A" shall be increased 1/16" for each 10° fall in temperature and decreased 1/16" for each 10° rise in temperature.*

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE NUTS ON THE ANCHOR STUDS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL. NO. 4 BARS FOR ANCHORS SHALL BE STRUCTURAL GRADE STEEL. APPROVED STUD WELDED ANCHORS OF DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 4 BARS SHOWN.

SEE SPECIAL PROVISIONS FOR PAINTING.

ANCHOR BOLTS IN THE BARRIER CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE BARRIER CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

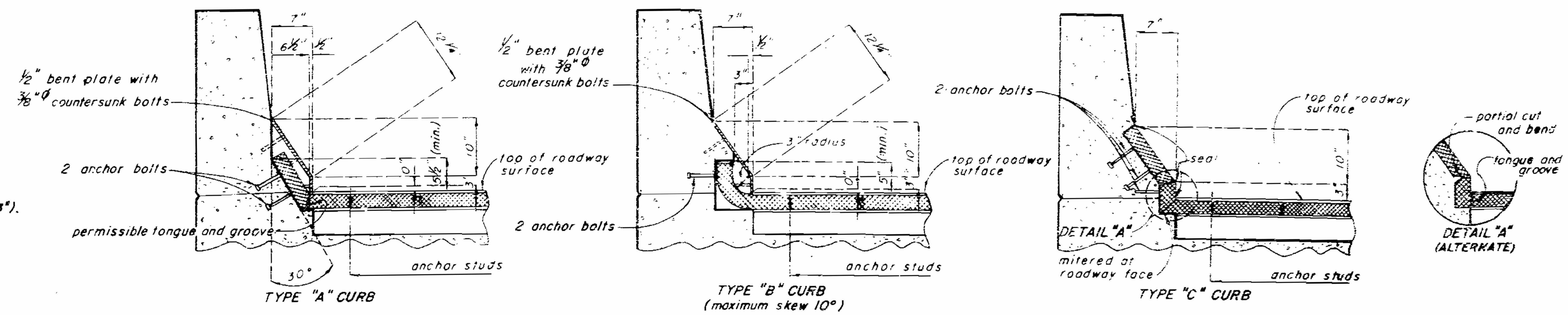
PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

PLATES SHALL BE FIELD ADJUSTED BY ADDING OR REMOVING METAL SHIMS (2 x 3), AS REQUIRED FOR TEMPERATURE CORRECTION. THE EXPANSION GAP SHALL BE ADJUSTED FOR ANY TEMPERATURE CORRECTION PRIOR TO POURING TOP OF END BENT BACKWALL.

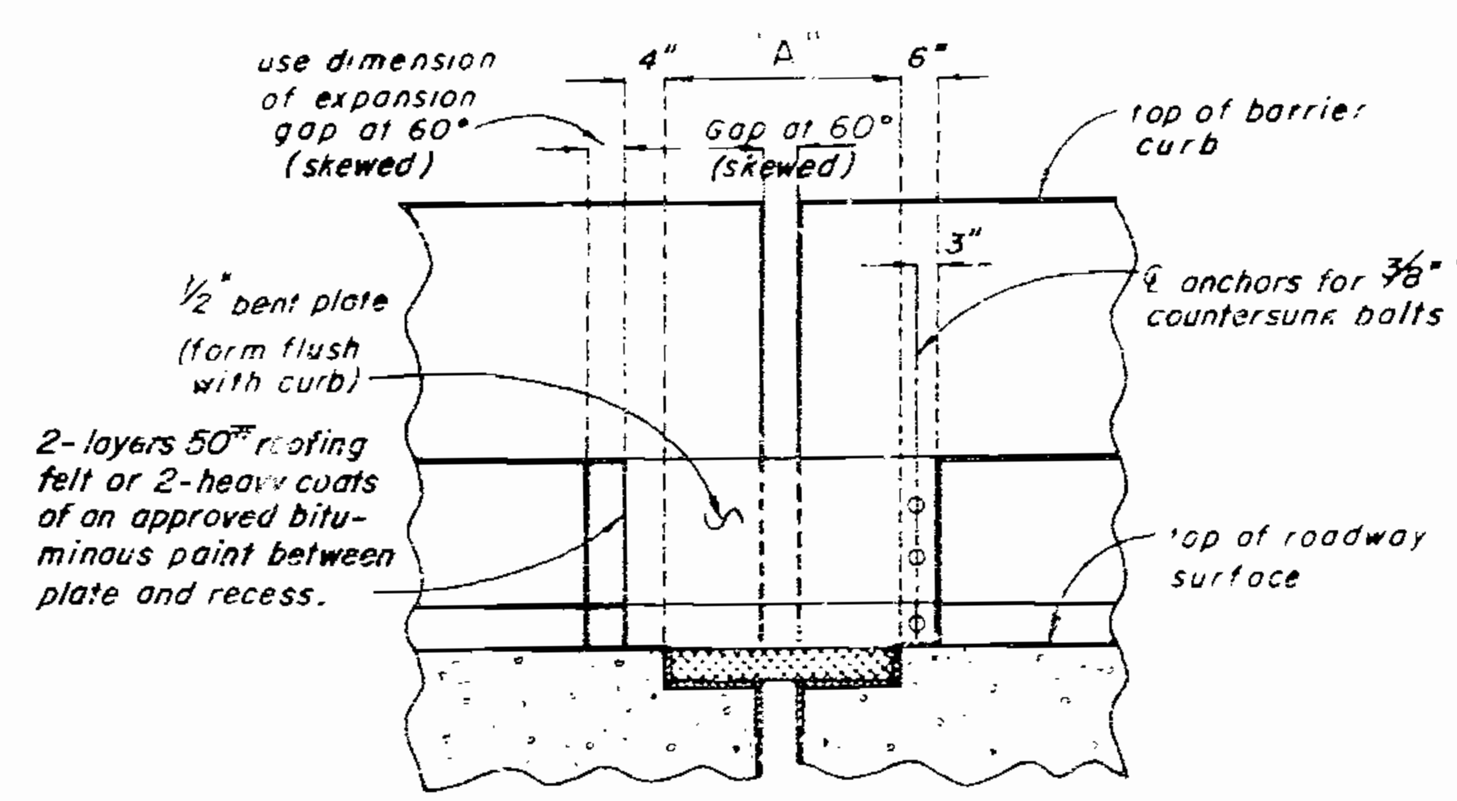
CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT BID PRICE PER LINEAR FOOT.

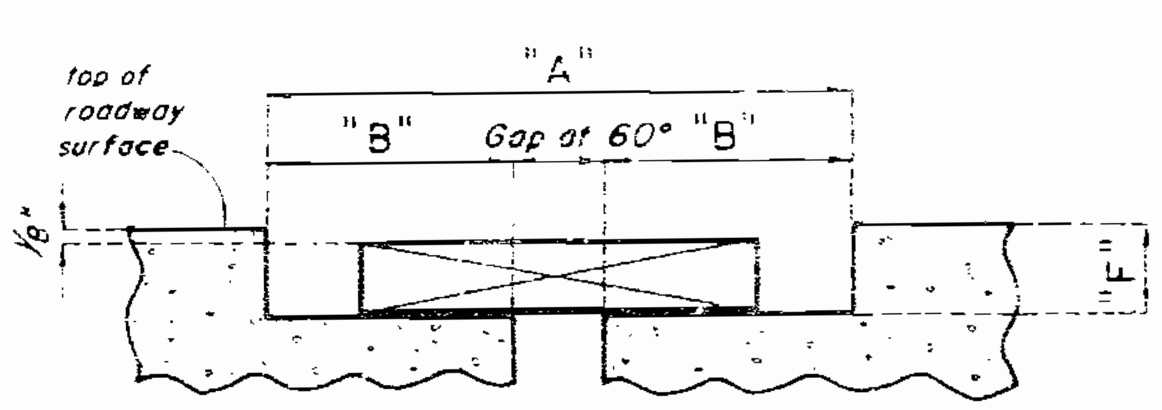
FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT PRICE BID FOR OTHER ITEMS.



ALTERNATE CURB TREATMENTS



PART ELEVATION OF BARRIER CURB



BLOCKOUT FOR MODULAR UNITS

NOTE: WHEN MODULAR UNITS ARE SPECIFIED AS AN ALTERNATE STEEL CURB PLATE TREATMENTS ARE REQUIRED.

382

SPS-END-BT. FEB. 1978 | REVISED AUG. 1978

DETAILED JAN. 1979 CHECKED JAN. 1979

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

DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL AT BENT NO. 1 & 6

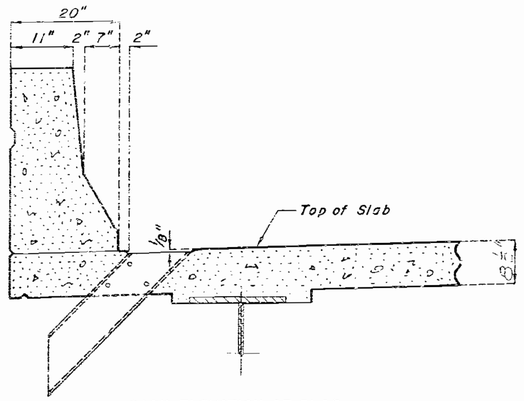
Sheet No. 54 of 59

PLATTE COUNTY

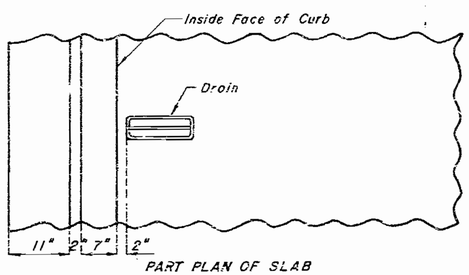
A 3456

MISSOURI STATE HIGHWAY DEPARTMENT

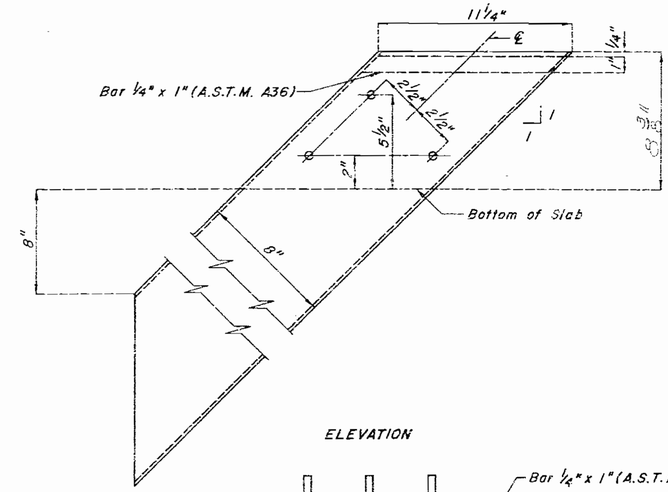
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		19	1[illegible]	



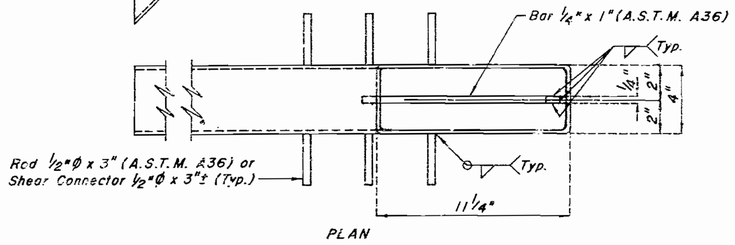
PART ELEVATION OF SLAB



PART PLAN OF SLAB



ELEVATION



PLAN

SLAB DRAIN DETAILS

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"x4".

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 THE SLAB BY DIMENSIONS SHOWN IN THE PART ELEVATION.

SHIFT REINFORCING STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS.

THE DRAINS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A123.

SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE SLAB DRAINS.

353

STD. S. D.-N.W.S.	REVISED
FEB. 1975	MAR. 1978

DETAILED JAN. 19[illegible]
CHECKED JAN. 1979

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

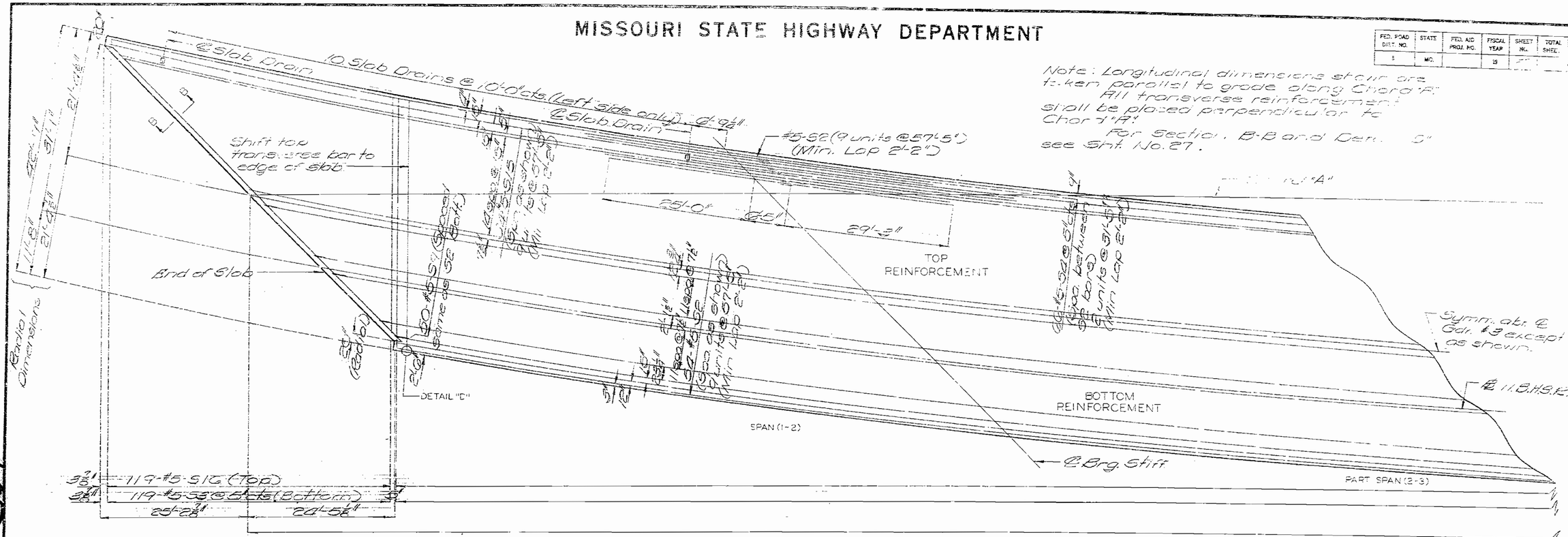
PLATTE COUNTY

J-3456

MISSOURI STATE HIGHWAY DEPARTMENT

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

Note: Longitudinal dimensions shown are taken parallel to grade along Chord "A". All transverse reinforcement shall be placed perpendicular to Chord "A". For Section B-B and Det. "D" see Sht. No. 27.



PART PLAN OF SLAB SHOWING REINFORCEMENT

DETAILED MAR 1977
CHECKED MAR 1977

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

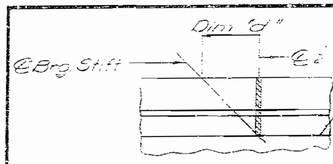
Sheet No. 26 of 53

PLATTE COUNTY

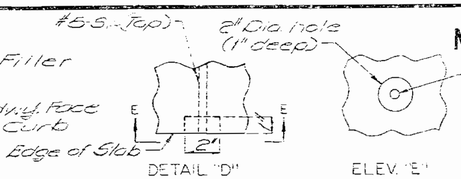
A-3416

MISSOURI STATE HIGHWAY DEPARTMENT

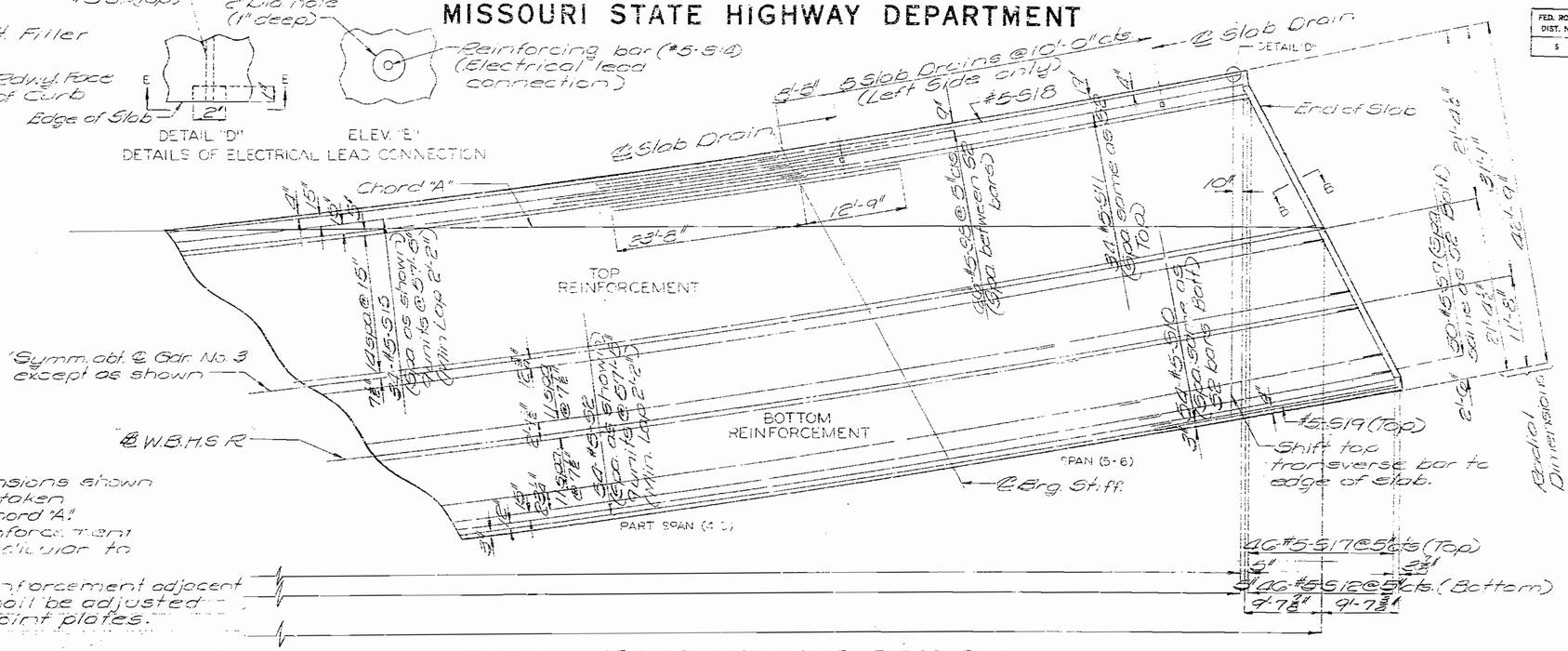
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	53	



Dim. "d"	Rt.	Lt.
Int. Bt. #2	2'-0 2/8"	2'-2 1/8"
Int. Bt. #3	19 5/8"	20 3/8"
Int. Bt. #4	16 5/8"	17"
Int. Bt. #5	6 3/8"	7"



DETAILS OF ELECTRICAL LEAD CONNECTION

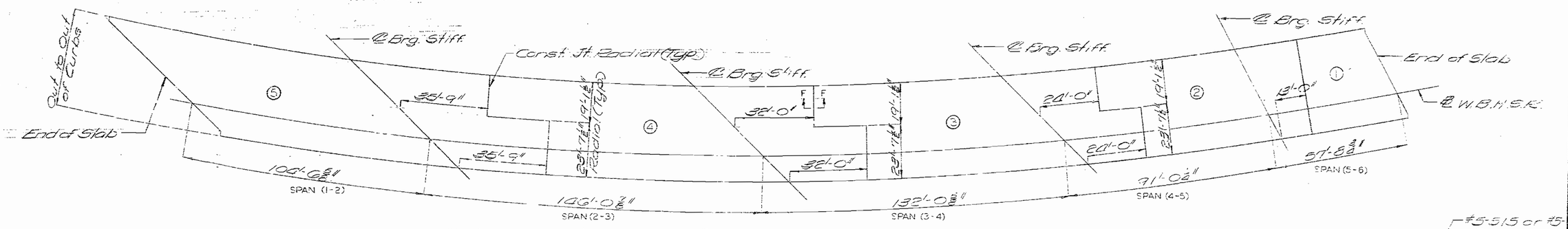


Note: Longitudinal dimensions shown in Part Plan of Slab are taken parallel to grade along chord "A".

All transverse reinforcement shall be placed perpendicular to chord "A".

Position of slab reinforcement adjacent to expansion joints shall be adjusted to clear the armored joint plates.

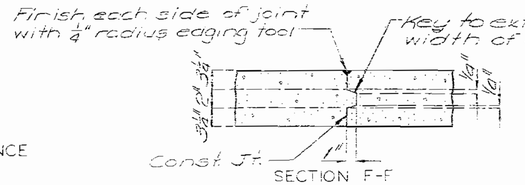
PART PLAN OF SLAB SHOWING REINFORCEMENT



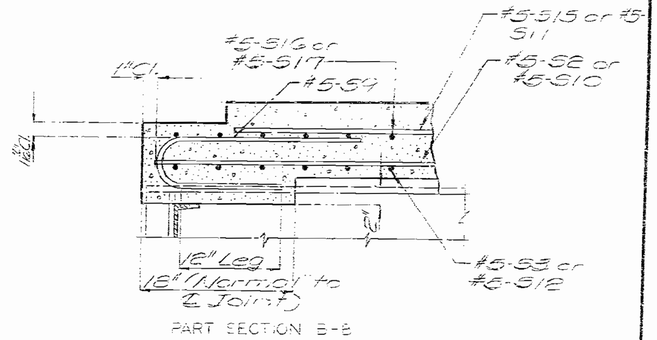
	Sequence of Pours				
	Direction				
	1	2	3	4	5
Basic Sequence	E. D.	1 to 3	2 to 4	3 to 5	4 to End
Alternate "A" Pours	1 + 2		3	4 to 5	
	End to 3		2 to 4	5 to End	
Alternate "B" Pours	1 + 2 + 3			4 + 5	
	End to 4			3 to End	
Alternate "C" Pours	1 + 2 + 3 + 4 + 5				
	End to End				

SLAB POURING SEQUENCE

Note: The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours and shall pour and satisfactorily finish the slab pours at a rate of not less than 49 cubic yards per hour.



SECTION F-F



PART SECTION B-B

DETAILED MAR 1977
CHECKED MAR 1977

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

Sheet No. 27 of 33

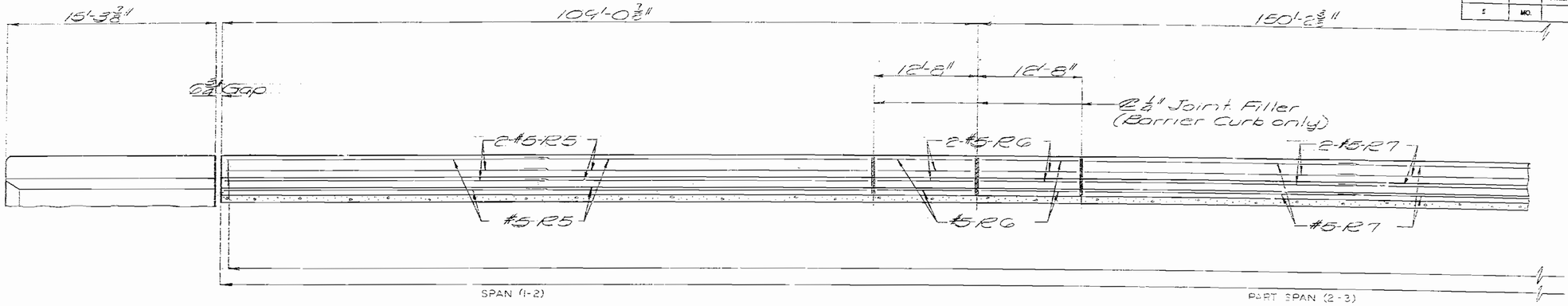
PLATTE COUNTY

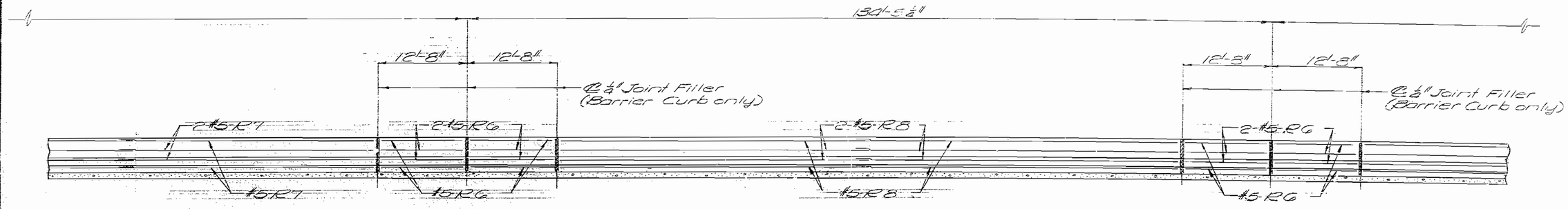
A-3456

3885

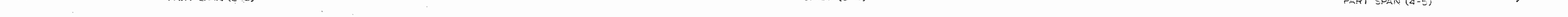
MISSOURI STATE HIGHWAY DEPARTMENT

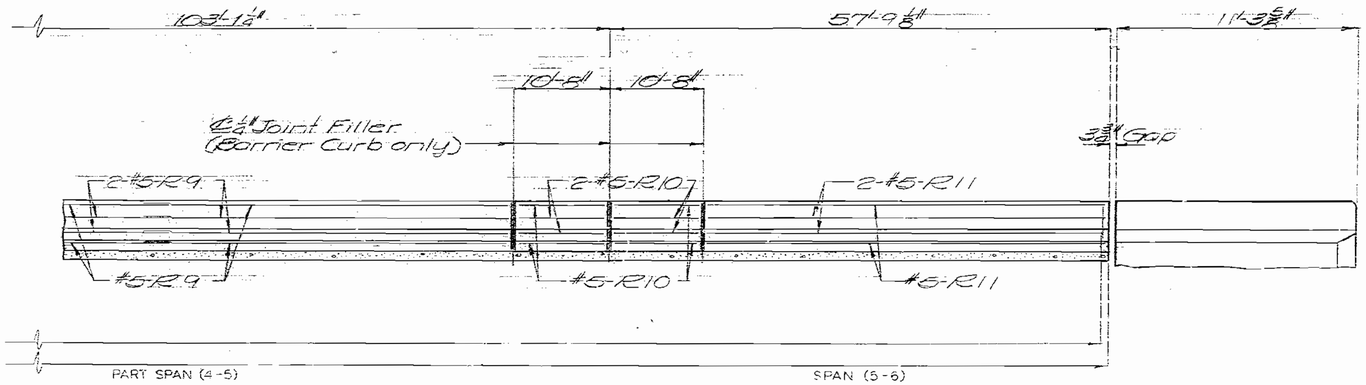
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		15	6	





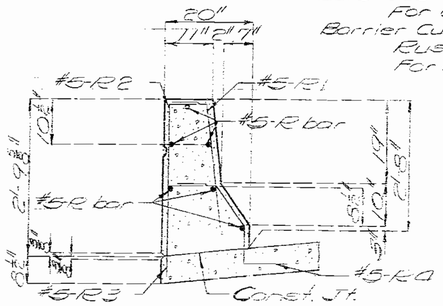
555-#5-R1, R2, R3 & R4 (Spaced as shown in Part Section near Lt. Curb)





SECTION NEAR LEFT BARRIER CURB

Note: Longitudinal dimensions are arc dimensions along centerline of top of barrier curb parallel to grade.
For Part Section Near Left Barrier curb see Sht. No. 31
For details and reinforcement of Barrier Curb not shown see Shts. No. 30 & 31
Rustication not shown for clarity. For details of rustication see Sht. No. 31



TYP SECTION THRU LEFT BARRIER CURB

DETAILED MAR 1977
CHECKED MAR 1977

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

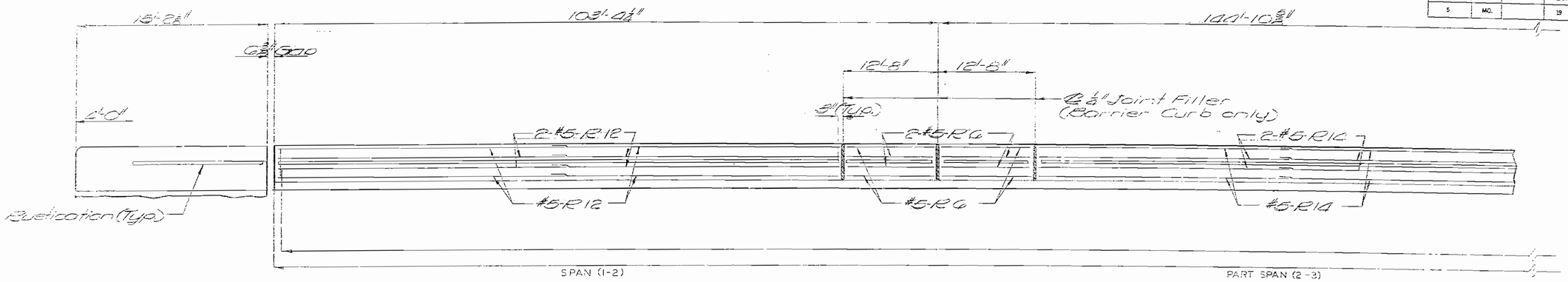
Sheet No. 28 of 33

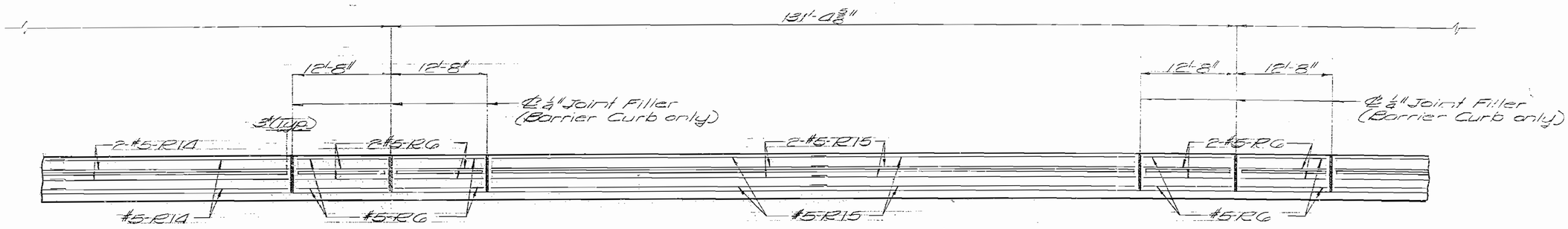
PLATTE COUNTY

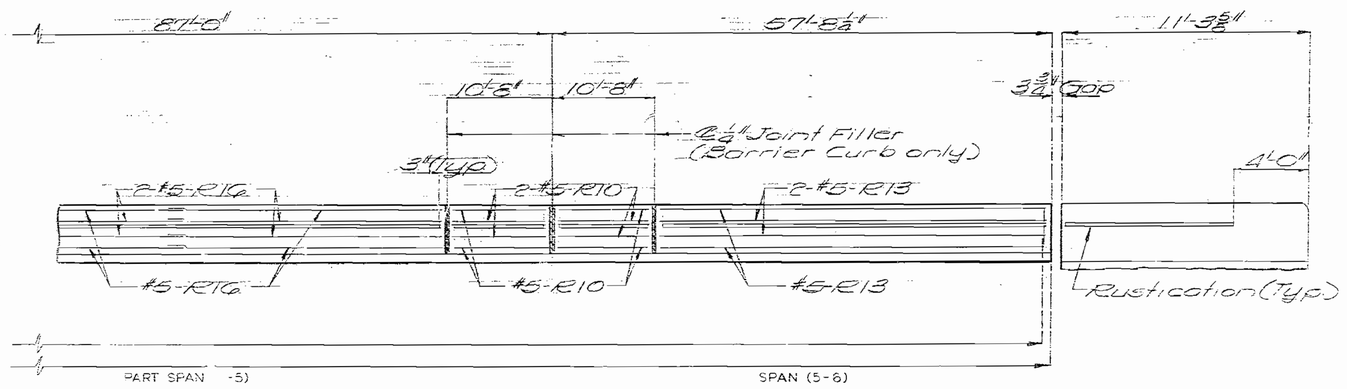
A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	45A	

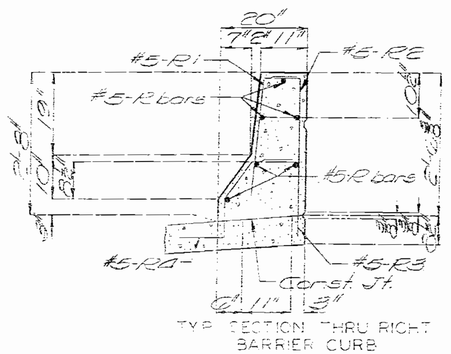






ELEVATION OF RIGHT BARRIER CURB

Note: Longitudinal dimensions are arc dimensions along centerline of top of barrier curb parallel to grade.
For "Part Section Near Left Barrier Curb" see Sht. No. 31
For details and reinforcement of Barrier Curb not shown see Shts No. 30 & 31



TYP. SECTION THRU RIGHT BARRIER CURB

DETAILED MAR 1977
CHECKED MAR 1977

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

Sheet No. 29 of 33

PLATTE COUNTY

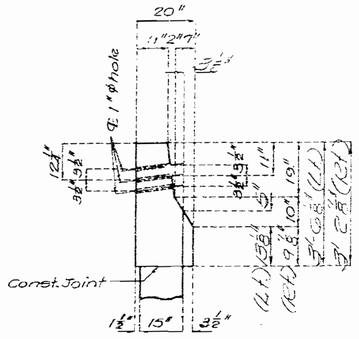
A-3456

3287

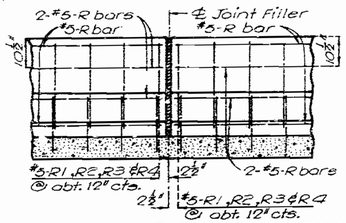
3888

MISSOURI STATE HIGHWAY DEPARTMENT

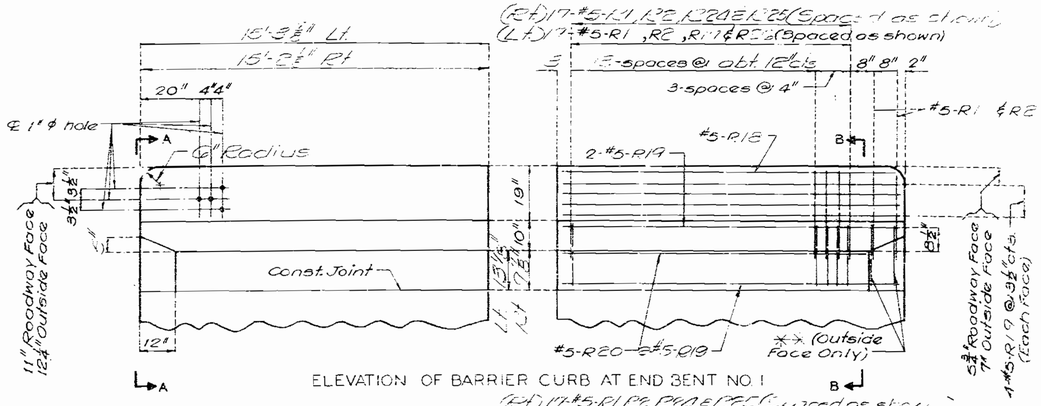
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO		15	64	



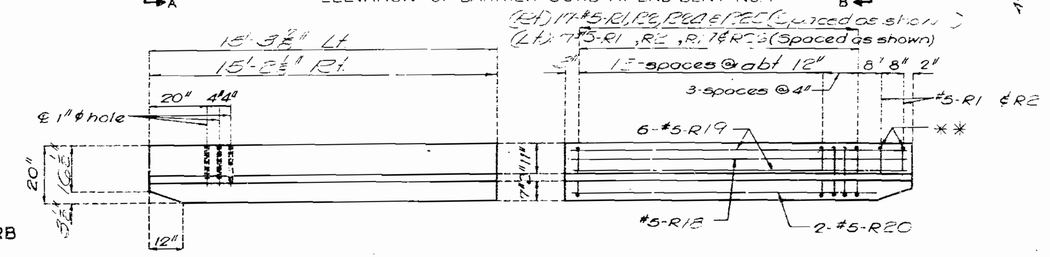
SECTION A-A



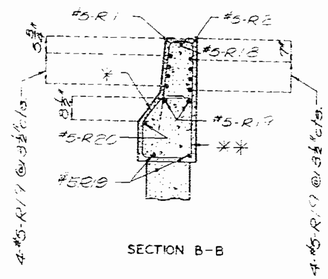
PART SECTION NEAR LEFT BARRIER CURB



ELEVATION OF BARRIER CURB AT END BENT NO. 1

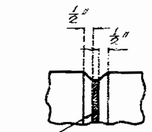


PLAN OF BARRIER CURB AT END BENT NO. 1

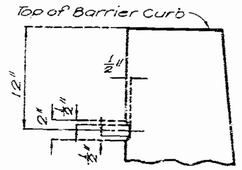


SECTION B-B

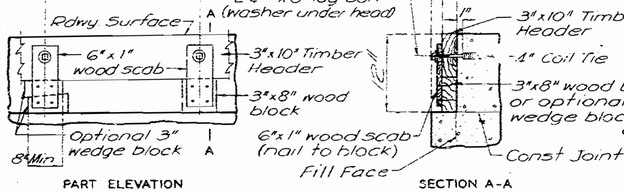
* #5-L11 (Lt.), #5-R20 (Rt.)
** #5-R25 (Rt.), #5-R26 (Lt.)



FILLED JOINT DETAIL



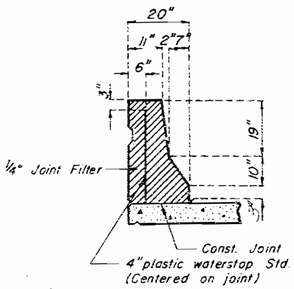
RUSTICATION DETAIL



PART ELEVATION SECTION A-A

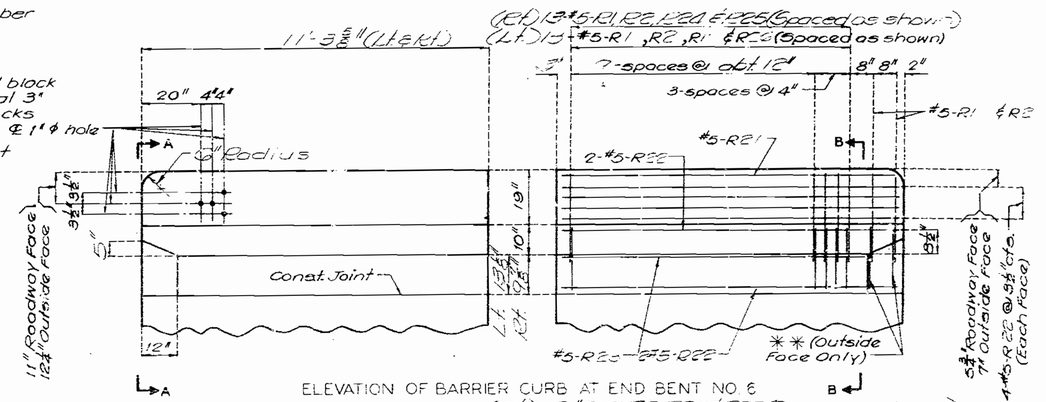
Note: Cost of timber headers complete in place to be included in price bid for concrete.

DETAILS OF TIMBER HEADER AT END BENTS

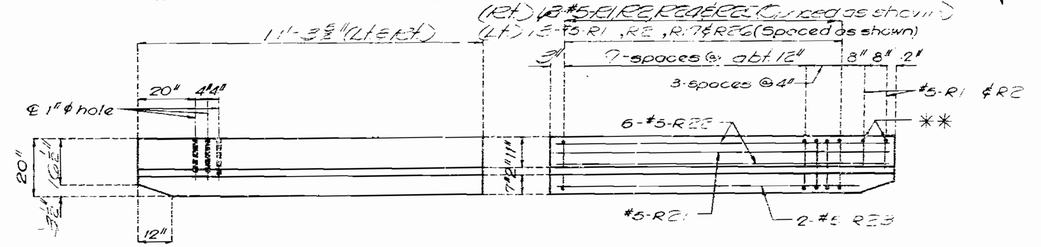


Note: Plastic waterstop shall be placed in all safety barrier curb filled joints.
Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATERSTOP



ELEVATION OF BARRIER CURB AT END BENT NO 6



PLAN OF BARRIER CURB AT END BENT NO 6

* #5-R21 (Lt.), #5-R22 (Rt.)
** #5-R25 (Rt.), #5-R26 (Lt.)

TOP OF BARRIER CURB TO BE BUILT PARALLEL TO GRADE WITH BARRIER CURB JOINTS (EXCEPT AT END BENTS) NORMAL TO GRADE.
ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE 1/2" RADIUS OR 3/8" BEVEL UNLESS OTHERWISE NOTED.

DETAILED MAR 1977
CHECKED MAR 1977

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

Sheet No. 30 of 33

PLATTE COUNTY

A-3456

FOR INFORMATION ONLY

A34561, Sht. 35

MISSOURI STATE HIGHWAY DEPARTMENT

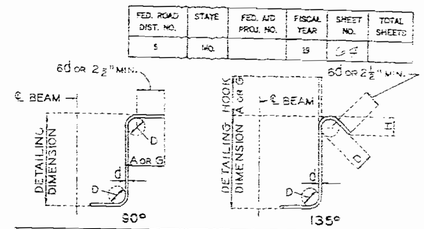
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	35	

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.
			SUBSTRUCTURE																							
			END BT NO 1																							
5	5F1	WING			15		X			12.	750	3	5.000	12.	750	12.	500	2.	500	12.	500	2.	500	5 7	5 4	40
5	6F2	WING			15		X			12.	000	10	8.000	12.	000	4.	750	11.	000	4.	750	11.	000	2 8	12 6	95
5	7H1	BEAM			14		X			10	0.000	2	9.000	2	0.750					14.	500	20.	000	14 10	14 7	149
8	11H3	BEAM			17		X			48	6.000													49 8	49 8	2111
8	11H3	BEAM			17		X			32	0.000													33 2	33 2	1410
2	6H4	BEAM			20		X			48	6.000													48 6	48 6	146
2	6H5	BEAM			20		X			32	0.000													32 0	32 0	96
5	7H6	BEAM			11		X					6	9.000	2	7.500	7	3.000							16 5	16 4	168
2	6H7	BACKWALL			20		X			37	3.000													37 3	37 3	112
2	6H8	BACKWALL			20		X			37	0.000													37 0	37 0	111
8	6H9	BACKWALL			20		X			37	3.000													37 3	37 3	199
8	4H10	BACKWALL			20		X			39	0.000													39 0	39 0	208
4	5H11	BEAM			20		X			42	5.000													42 5	42 5	177
4	5H12	BEAM			20		X			32	0.000													32 0	32 0	134
4	6H13	WING			20		X			14	11.000													14 11	14 11	90
12	6H14	WING			20		X	V	2	14	7.000													14 7	14 7	
		INCR = 19.250 IN								6	6.750													6 7	6 7	191
4	6H15	WING			20		X			15	1.000													15 1	15 1	91
12	6H16	WING			20		X	V	2	14	8.750													14 9	14 9	
		INCR = 19.625 IN								6	6.625													6 7	6 7	192
2	5T1	WING		25	S	X				2	5.500	10	10.250	22.	500					4.	000	9	10.000	15 2	15 1	45
2	6T2	WING		19	S	X				7	0.000	7	0.000											14 0	13 10	42
2	6T3	WING		25	S	X				2	5.500	10	9.125	23.	000					4.	500	9	10.000	15 2	15 1	45
2	6T4	WING		19	S	X				7	2.000	3	9.000											10 11	10 9	32
1	4U1	BEAM		13	S	X				3	7.000	2	10.250	4	4.000	2	9.000							14 3	14 0	636
1	4U2	BEAM		13	S	X				3	5.500	7	10.250	4	2.500	2	9.000							14 0	13 9	9
1	4U3	BEAM		13	S	X				2	9.000	2	10.250	3	6.000	2	9.000							12 7	12 4	8
1	4U4	BEAM		13	S	X				23.	500	2	10.250	2	8.500	2	9.000							11 0	10 9	7
15	6U5	BEAM		10	S	X						21.	000	2	9.000									6 3	5 11	133
1	4U6	BEAM		13	S	X				3	7.000	2	9.750	4	2.000	2	9.000							14 1	13 10	9
69	5U7	BACKWALL		10	S	X						2	1.000	12.	000									5 2	5 0	360
5	4U8	MUDWALL		10	S	X						6	6.000	6.	000									13 6	13 4	42
5	4U9	MUDWALL		10	S	X						3	3.000	6.	000									7 0	6 10	23
15	4H10	BEAM		10	S	X							6.000	2	7.000									4 7	4 5	44
4	6W1	BEAM		20		X				2	9.000													2 9	2 9	17
6	4W2	WING		20		X				6	7.000													6 7	6 7	26
138	5W3	BACKWALL		20		X				8	0.000													8 0	8 0	1151
118	5W4	BEAM		20		X				2	6.000													2 6	2 6	308
10	6W5	WING		20		X	V	1		3	0.750													3 1	3 1	
		INCR = 5.500 IN								7	3.375													7 3	7 3	78
10	6W6	WING		17		X	V	1	2	6.750														3 3	3 3	
		INCR = 5.500 IN								6	9.375													7 5	7 5	80
5	6W7	WING		20		X				9	3.000													9 3	9 3	69
5	5W8	WING		17		X				8	9.000													9 5	9 5	71
2	4W9	WING		20		X				6	8.000													6 8	6 8	9
10	6W10	WING		20		X	V	1	3	0.625														3 1	3 1	
		INCR = 5.500 IN								7	2.125													7 2	7 2	77
10	6W11	WING		17		X	V	1	2	6.625														3 3	3 3	
		INCR = 5.500 IN								6	8.125													7 4	7 4	79
5	6W12	WING		20		X				9	0.750													9 1	9 1	68
5	6W13	WING		17		X				8	6.750													9 3	9 3	69
10	2W1	A B WELL		22		X					12.000		9.125											19 9	19 9	33

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.
			INT BENT NO 2																							
27	11D1	FOOTING			20		X			8	5.000													8 5	8 5	1207
24	8D2	FOOTING			20		X			8	0.000													8 0	8 0	513
6	6D3	FOOTING			10	S	X					4	8.000	8	0.000									17 4	17 0	153
18	7D4	FOOTING			20		X			8	9.000													8 9	8 9	322
12	11H17	BEAM			17		X			16	3.000													17 7	17 7	1121
4	11H18	BEAM			18		X			59	2.000													61 7	61 7	1309
6	10H19	BEAM			20		X			20	0.000													20 0	20 8	516
2	10H20	BEAM			20		X			59	2.000													59 2	59 2	509
10	11H21	BEAM			20		X			59	2.000													59 2	59 2	3144
4	6H22	BEAM			20		X			59	2.000													59 2	59 2	355
8	7H23	BEAM			7		X			4	6.000	3	6.500											10 11	10 11	179
50	4P1	COLUMN			16		X			3	3.000													11 1	11 1	444
4	6U11	BEAM			13	S	X				18.625	3	9.000		18.625	3	9.000							11 9	11 4	68
4	6U12	BEAM			13	S	X			2	1.375	3	9.000	2	1.375	3	9.000							12 11	12 5	75
4	6U13	BEAM			13	S	X			2	4.375	3	9.000	2	4.375	3	9.000							13 5	12 11	78
28	6U14	BEAM			13	S	X			2	5.375	3	9.000	2	5.375	3	9.000							13 7	13 1	550
73	6U15	BEAM			13	S	X			3	8.000	3	9.000	3	3.000	3	9.000							16 0	15 6	1700
4	4U16	BEAM			10	S	X						6.000	3	8.000									4 8	4 6	12
9	11V14	COLUMNS			20		X			22	3.000													22 3	22 3	1064
9	11V15	COLUMNS			20		X			23	3.000													23 3	23 3	1112
9	11V16	COLUMNS			20		X			24	4.000													24 4	24 4	1164
10	2W1	A B WELL			22		X				12.000		9.125											19 9	19 9	33
			INT BENT NO 3																							
36	1101	FOOTING			20		X			8	5.000													8 5	8 5	1610
24	8D2	FOOTING			20		X			8	0.000													8 0	8 0	513
6	6D3	FOOTING			10	S	X					4	8.000	8	0.000									17 4	17 0	153
18	7D4	FOOTING			20		X			8	9.000													8 9	8 9	322
8	7H24	BEAM			7		X			4	4.000	3	3.500											10 5	10 5	170
8	11H25	BEAM			17		X			14	6.000													15 8	15 8	666
5	10H26	BEAM			18		X			52	3.000													54 5	54 5	1171
4	11H27	BEAM			20		X			18	3.000													18 3	18 3	388
4	6H28	BEAM			20		X			52	3.000													52 3	52 3	314
2	11H29	BEAM			20		X			52	3.000													52 3	52 3	555
9	11H30	BEAM			20		X			52	3.000													52 3	52 3	2498
57	4P1	COLUMN			16		X			3	3.000													11 1	11 1	422
4	6U17	BEAM			13	S	X				18.625	3	6.000		18.625	3	6.000							11 3	10 10	65
4	6U18	BEAM			13	S	X			2	0.625	3	6.000	2	0.625	3	6.000							12 3	11 10	71
4	6U19	BEAM			13	S	X			2	3.000	3	6.000	2	3.000	3	6.000							12 8	12 2	73
20	6U20	BEAM			13	S	X			2	3.375	3	6.000	2	3.375	3	6.000							12 9	12 3	368
77	6U21	BEAM			13	S	X			3	5.000	3	6.000	3	5.000	3	6.000							15 0	14 6	1677
4	4U22	BEAM			10	S	X						6.000	3	5.000									4 5	4 3	11
12	11V17	COLUMN			20		X			20	9.000													20 9	20 9	1323
12	11V18	COLUMN			20		X			21	11.000													21 11	21 11	1397
12	11V19	COLUMN			20		X			23	1.000													23 1	23 1	1672
10	2W1	A B WELL			22		X				12.000		9.125											19 9	19 9	33

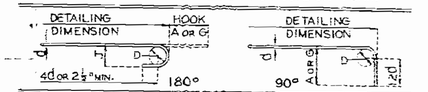


STIRRUP HOOK DIMENSIONS

GRADES 40-50-60 PSI

BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI)
D = 5d FOR #3 THRU # 11
D = 10d FOR #14 AND # 18

SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)
D = 6d FOR #3 THRU #8
D = 8d FOR #9, #10 AND #11
D = 10d FOR #14 AND #18

END HOOK DIMENSIONS

BAR SIZE	180° HOOKS GRADE 40 A OR G	180° HOOKS GRADE 40 J	180° HOOKS GRADE 60 A OR G	180° HOOKS GRADE 60 J	90° HOOKS ALL GRADES A OR G
#3	5"	2-3/4"	5"	3"	6"
#4	6"	3-1/2"	6"	4"	8"
#5	7"	4-1/2"	7"	5"	10"
#6	8"	5-1/4"	8"	6"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-3/4"	22"
#11	14"	10"	19"	14-1/4"	21-0"
#14	21-2"	20-1/2"	21-2"	20-1/2"	21-7"
#18	21-11"	21-0"	21-11"	21-3"	31-5"

NOTES:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH 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.

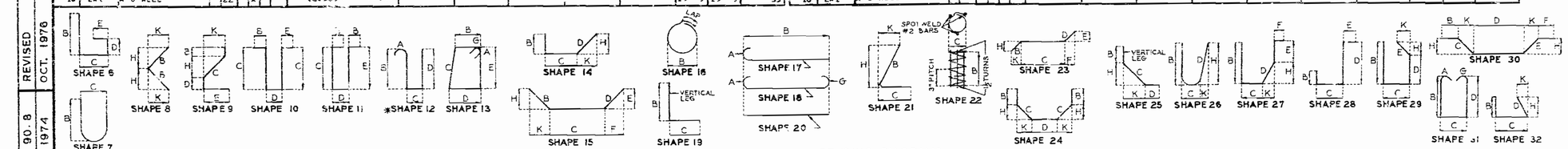
V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.

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 FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

* ADJUSTMENTS TO BENDS FOR S[illegible] (ONLY) ARE BASED ON D = 5d.



BENDING DIAGRAMS

DETAILED JUNE 1977
CHECKED JUNE 1977

STD. 90.8 REVISED OCT. 1976
MAY 1974

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

Sheet No. 21 of 33

PLATTE COUNTY

A34561

FOR INFORMATION ONLY **A34561, Sht. 36**

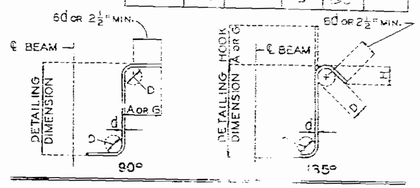
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	36	

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			INT BENT NO 4																							
27	11D1		FOOTING		20		X			8	5.000													8 5	8 5	1207
19	9D5		FOOTING		20		X			5	9.000													5 9	5 9	108
6	8D6		FOOTING		10	S	X					3	6.000	8	0.000									15 0	14 6	132
15	9D7		FOOTING		20		X			8	9.000													8 9	8 9	448
8	7H24		BEAM		7		X			4	4.000	3	3.500											10 5	10 5	139
8	10H31		BEAM		17		X			14	3.000													15 4	15 4	534
5	10H32		BEAM		18		X			47	8.000													49 10	49 10	1072
2	10H33		BEAM		20		X			16	11.000													16 11	16 11	146
2	6H34		BEAM		20		X			47	8.000													47 8	47 8	143
10	10H35		BEAM		20		X			47	8.000													47 8	47 8	2051
45	4P1		COLUMN		16		X			3	3.000													11 1	11 1	333
4	6U17		BEAM		13	S	X				18.625	3	6.000		18.625	3	6.000							11 3	10 10	65
4	6U18		BEAM		13	S	X			2	0.625	3	6.000	2	0.625	3	6.000							12 3	11 10	71
4	6U19		BEAM		13	S	X			2	3.000	3	6.000	2	3.000	3	6.000							12 8	12 2	73
20	6U20		BEAM		13	S	X			2	3.375	3	6.000	2	3.375	3	6.000							12 9	12 3	368
59	6U21		BEAM		13	S	X			3	5.000	3	6.000	3	5.000	3	6.000							15 0	14 6	1285
4	4U22		BEAM		10	S	X						6.000	3	5.000									4 5	4 3	11
9	11V20		COLUMN		20		X			17	3.200													17 3	17 3	825
9	11V21		COLUMN		20		X			18	4.000													18 4	18 4	877
9	11V22		COLUMN		20		X			19	6.000													19 6	19 6	932
10	2W1	A	B WELL		22		X				12.000		9.125											19 9	19 9	33
			INT BENT NO 5																							
24	6D8		FOOTING		10	S	X					3	9.000		16.000									8 10	8 6	306
24	10D9		FOOTING		20		X			7	0.000													7 0	7 0	723
4	9H36		BEAM		17		X			10	11.000													11 11	11 11	162
4	9H37		BEAM		20		X			38	11.000													38 11	38 11	529
3	9H38		BEAM		20		X			14	1.000													14 1	14 1	144
2	6H39		BEAM		20		X			38	11.000													38 11	38 11	117
8	10H40		BEAM		20		X			38	11.000													38 11	38 11	1340
8	7H41		BEAM		7		X			4	1.000	2	9.500											9 8	9 6	158
81	4P2		COLUMN		16		X			2	9.300													9 6	9 6	387
4	5U23		BEAM		13	S	X				16.625	2	9.000		16.625	2	9.000							9 2	8 11	37
4	5U24		BEAM		13	S	X				21.625	2	9.000		21.625	2	9.000							10 0	9 9	41
16	5U25		BEAM		13	S	X				23.875	2	9.000		23.875	2	9.000							10 5	10 1	168
47	5U26		BEAM		13	S	X			2	11.000	2	9.000	2	11.000	2	9.000							12 3	11 11	584
14	4U27		BEAM		10	S	X						6.000	2	11.000									3 11	3 9	35
8	10V23		COLUMN		20		X			21	7.000													21 7	21 7	743
8	10V24		COLUMN		20		X			22	10.000													22 10	22 10	786
8	10V25		COLUMN		20		X			24	1.000													24 1	24 1	829
10	2W1	A	B WELL		22		X				12.000		9.125											19 9	19 9	33

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			END BENT NO 6																							
5	6S3		WING		15	S	X				12.125	4	4.000		12.125		9.750		7.250		9.750		7.250	6 4	6 3	47
5	6F4		WING		15	S	X				11.750	5	9.000		11.750		7.000		9.500		7.000		9.500	7 9	7 8	58
8	10H42		BEAM		18		X			43	6.000													45 8	45 8	1572
2	6H43		BEAM		20		X			43	6.000													43 6	43 6	131
5	7H44		BEAM		14		X			4	7.000	2	9.000	3	7.625									11 0	10 8	109
5	7H45		BEAM		11		X					4	7.000	2	9.000	3	10.000							11 2	10 10	111
4	5H46		BEAM		20		X			43	0.000													43 0	43 0	179
2	6H47		BACKWALL		20		X			40	10.000													40 10	40 10	123
12	4H48		BACKWALL		20		X			23	3.000													23 3	23 3	186
8	6H49		WING		20		X			11	0.000													11 0	11 0	132
16	6H50		WING		20		X	V	4	10	7.875													10 8	10 8	
			INCR = 21.000 IN							5	4.875													5 5	5 5	193
4	6T5		WING		25	S	X			2	5.000	7	5.125	2	0.000							2	11.000	6 10.000	11 10	11 9	71
2	6T6		WING		19	S	X			6	1.000	4	0.000											10 1	9 11	30
2	6T7		WING		19	S	X			6	1.000	3	8.000											9 4	9 2	28
6	6U5		BEAM		10	S	X						21.000	2	9.000									6 3	5 11	53
41	5U7		BACKWALL		10	S	X					2	1.000		12.000									5 2	5 0	214
1	4U28		BEAM		13	S	X			3	2.500	2	10.125	3	11.000	2	9.000							13 6	13 2	9
41	4U29		BEAM		13	S	X			3	3.000	2	10.250	4	0.000	2	9.000							13 7	13 4	365
18	4U30		BEAM		10	S	X						6.000	3	3.000									4 3	4 1	49
4	4U31		WING		10	S	X					3	6.000		6.000									7 6	7 4	20
4	4U32		WING		10	S	X					2	9.000		6.000									6 0	5 10	16
4	6V1		BEAM		20		X			2	9.000													2 9	2 9	17
70	5V26		BEAM		20		X				18.000													18	18	110
82	5V27		BACKWALL		20		X			6	3.000													6 3	6 3	535
14	6V28		WING		20		X	V	2	3	0.000													3 0	3 0	
			INCR = 5.125 IN							5	7.000													5 7	5 7	90
70	5V29		BEAM		20		X			2	3.000													2 3	2 3	164
14	6V30		WING		17		X	V	2	2	6.000													3 2	3 2	
			INCR = 5.125 IN							5	1.000													5 9	5 9	96
10	6V31		WING		17		X			7	3.000													7 11	7 11	119
4	6V32		WING		20		X			5	8.000													5 8	5 8	15
10	2W1	A	B WELL		22		X				12.000		9.125											19 9	19 9	33

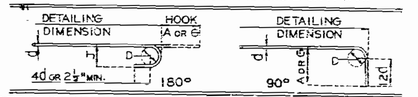


STIRRUP HOOK DIMENSIONS

GRADES 40-50-60 KSI

BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI)
D = 5d FOR #3 THRU #11
D = 10d FOR #14 AND #18

SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)
D = 6d FOR #3 THRU #8
D = 8d FOR #9, #10 AND #11
D = 10d FOR #14 AND #18

END HOOK DIMENSIONS

BAR SIZE	180° HOOKS GRADE 40 A OR G	180° HOOKS GRADE 40 J	180° HOOKS GRADE 60 A OR G	180° HOOKS GRADE 60 J	90° HOOKS ALL GRADES A OR G
#3	5"	2-3/4"	5"	3"	6"
#4	6"	3-1/2"	6"	4"	8"
#5	7"	4-1/2"	7"	5"	10"
#6	8"	5-1/4"	8"	6"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-3/4"	22"
#11	14"	10"	19"	14-1/4"	21'-0"
#14	21'-2"	20-1/2"	21'-2"	20-1/2"	21'-7"
#18	21'-11"	21'-3"	21'-11"	21'-3"	31'-5"

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH 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.

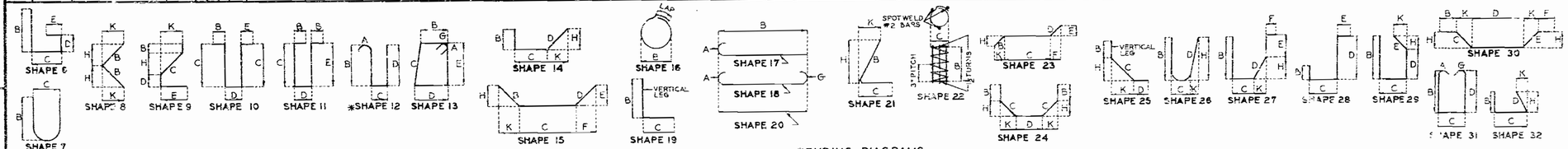
V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.

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 FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D = 5d.



BENDING DIAGRAMS

REVISED	OCT 1976
STD. 90.8	MAY 1974

DETAILED JUNE 1977
CHECKED JUNE 1977

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

Sheet No. 32 of 33

PLATTE COUNTY

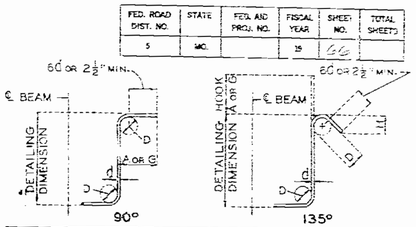
A3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		75	66	

COMPLETE BILL OF REINFORCING STEEL

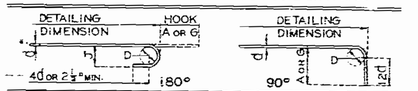
NO. REQD.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (K)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SUPERSTRUCTURE																									
1154		5R1	BARRIER CURB		15	S			2	8	125	6	000							2	5.000	3	000	3	2	3	1	3711
1154		5R2	BARRIER CURB		15	S			2	8	000	6	000											3	2	3	1	3711
1086		5R3	BARRIER CURB		19	S				19	000	9	000											2	4	2	3	2549
1086		5R4	BARRIER CURB		27	S						9	000	11	125	9	000	12	000	9	125	6	375	3	5	3	3	3681
12		5R5	BARRIER CURB		20				48	7	000													48	7	48	7	608
72		5R6	BARRIER CURB		20				12	5	000													12	5	12	5	932
18		5R7	BARRIER CURB		20				42	1	000													42	1	42	1	790
12		5R8	BARRIER CURB		20				55	0	000													55	0	55	0	683
12		5R9	BARRIER CURB		20				40	4	000													40	4	40	4	505
24		5R10	BARRIER CURB		20				10	5	000													10	5	10	5	261
3		5R11	BARRIER CURB		20				46	11	000													46	11	46	11	294
12		5R12	BARRIER CURB		20				45	9	000													45	9	45	9	573
6		5R13	BARRIER CURB		20				46	9	000													46	9	46	9	293
18		5R14	BARRIER CURB		20				40	5	000													40	5	40	5	759
12		5R15	BARRIER CURB		20				53	5	000													53	5	53	5	669
12		5R16	BARRIER CURB		20				32	3	000													32	3	32	3	404
30		5R17	BARRIER CURB		27	S				12	000	11	500	11	125	9	000			6	375	9	125	3	8	3	6	110
		5R18	BARRIER CURB		20				14	8	000													14	8	14	8	31
		5R19	BARRIER CURB		20				14	11	000													14	11	14	11	311
4		5R20	BARRIER CURB		20				13	11	000													13	11	13	11	58
2		5R21	BARRIER CURB		20				10	5	000													10	8	10	8	22
20		5R22	BARRIER CURB		20				11	0	000													11	0	11	0	229
4		5R23	BARRIER CURB		20				10	0	000													10	0	10	0	42
30		5R24	BARRIER CURB		27	S				12	000	8	500	11	125	9	000			6	375	9	125	3	5	3	3	102
34		5R25	BARRIER CURB		19	S				17	500	9	000											2	3	2	1	74
34		5R26	BARRIER CURB		19	S				20	500	9	000											2	6	2	4	83
1203		5S1	SLAB		20				42	6	300													42	6	42	6	53326
504		5S2	SLAB		20				57	5	000													57	5	57	5	30182
119		5S3	SLAB		20			V	1	21	000														21		21	
			INCR = 4.000 IN							41	1.500													41	2	41	2	2664
134		5S4	SLAB	E	20					31	5.000													31	5	31	5	4391
132		5S6	SLAB	E	20					34	10.000													34	10	34	10	4796
66		5S7	SLAB	E	20					55	7.000													55	7	55	7	3826
66		5S8	SLAB	E	20					36	5.000													36	5	36	5	2507
100		5S9	SLAB	E	26						12.000	9.000		15.000						15.000				2	7	2	7	269
54		5S10	SLAB		20			V	1	57	11.000													57	11	57	11	
			INCR = 6.750 IN							28	0.000													28	0	28	0	2417
34		5S11	SLAB	E	20			V	1	57	0.500													57	1	57	1	
			INCR = 10.250 IN							28	10.500													28	11	28	11	1523
46		5S12	SLAB		20			V	1	2	1.000													2	1	2	1	
			INCR = 10.250 IN							40	8.000													40	8	40	8	1026
1203		5S14	SLAB	E	20					42	6.000													42	6	42	6	53326
306		5S15	SLAB	E	20					57	5.000													57	5	57	5	18325
119		5S16	SLAB	E	20			V	1	21	000														21		21	
			INCR. = 4.000 IN.							41	1.500													41	2	41	2	2664
46		5S17	SLAB	E	20			V	1	2	1.000													2	1	2	1	
			INCR. = 10.25 IN.							40	8.000													40	8	40	8	1026
1		5S18	SLAB		20					57	11.000													57	11	57	11	60
1		5S19	SLAB		20					28	0.000													28	0	28	0	29



STIRRUP HOOK DIMENSIONS
GRADES 40 - 50 - 60 KSI

BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI)
D = 5d FOR #3 THRU # 11
D = 10d FOR #14 AND # 18

SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)
D = 6d FOR #3 THRU #8
D = 8d FOR #9, #10 AND #11
D = 10d FOR #14 AND #18

END HOOK DIMENSIONS

BAR SIZE	180° HOOKS GRADE 40 A OR G	180° HOOKS GRADE 40 J	180° HOOKS GRADE 60 A OR G	180° HOOKS GRADE 60 J	90° HOOKS ALL GRADES A OR G
#3	5"	2-3/4"	5"	3"	6"
#4	6"	3-1/2"	6"	4"	8"
#5	7"	4-1/2"	7"	5"	10"
#6	8"	5-1/4"	8"	6"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-1/4"	22"
#11	14"	10"	19"	14-1/4"	21-0"
#14	21-2"	20-1/2"	21-2"	20-1/2"	21-7"
#18	21-11"	21-3"	21-11"	21-3"	31-5"

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

S - STIRRUP.

K - 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.

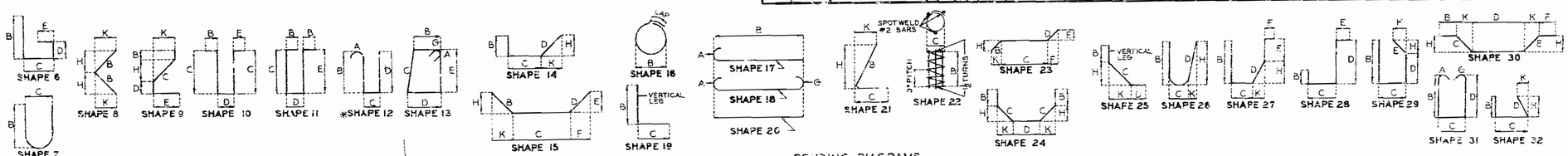
NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

E - EPOXY COATED REINFORCEMENT

* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D = 5d.

Note: Two additional #5 S4 are included in bar bill for testing. See Special Provision



BENDING DIAGRAMS

STD. 90.8.5 MAY 1974	REVISED OCT. 1978

DETAILED JUNE 1977
CHECKED JUNE 1977

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

Sheet No. 33 of 38

PLATTE COUNTY

A-34561

MISSOURI STATE HIGHWAY DEPARTMENT


(103',146') Cont. Comp. PL Gdr. Spans
-0.7%
Exp
Fix
Rdwy. & Drainage Excavation Line
2 to 1 Slope (Normal to Bent)
4" Conc. Slope Protection (Rdwy. Item)
Elev. 930.00
Elev. 935.00
Ground Line (Survey Date 1976)
PART GENERAL ELEVATION
CURVE DATA
P.I. Sta. 25+26.99
D = 4°-15'
R = 1348.14'
Δ = 71°-51'-30" Lt.
S.E. = 0.08'/'
Beg. Sta. 25+85.64
Sta. 25+39.00 ℄ W.B.H.S.R.
Sta. 730+62.55 ℄ Med. I-435
Prop. Struct. A3456
℄ W.B.H.S.R.
Tangent @ Sta. 25+39.00
Ramp #2
℄ Median I-435
Radial Line
LOCATION SKETCH
Beg. Sta. 25+85.64
Gr. Elev. 971.25 @ ℄ W.B.H.S.R.
Radial Line
Sta. 26+45.93
Gr. Elev. 970.50 @ ℄ W.B.H.S.R.
Radial Line
Sta. 28+39.00
Gr. Elev. 969.45 @ ℄ W.B.H.S.R.
Radial Line
Arc Dimensions
Fill Face of End Bt. #1
℄ Bent #2
℄ Bent #3 & Match Line
℄ W.B.H.S.R. & Prof. Grade
Tangent to ℄ W.B.H.S.R. @ Sta. 25+39.00
Sta. 25+39.00 ℄ W.B.H.S.R. =
Sta. 730+62.55 ℄ Med. I-435
Tangent Dimensions
PART PLAN
B.M.

Note: For Boring Data see Sht. #3
"⊗" Indicates location of Boring.
For General Notes, Estimated Quantities & Pile Data see Sht. #3

B.M. Elev. 974.60 Bolt Top Barrier Rt. at F.F. Bent 1.

FINAL PLANS

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

BRIDGE WESTBOUND H.S.R. OVER ROUTE I-435

STATE ROAD I-435

AT K.C.I. NORTH ACCESS INTERCHANGE

PROJECT NO. **STA.** 25+85.64

JOB NO. **RTE.** I-435

PLATTE **COUNTY**

DATE

STD. 611.80
STD. 706.30
A-3456

DESIGNED DEC. 1976
DETAILED MAY 1977
CHECKED MAY 197_

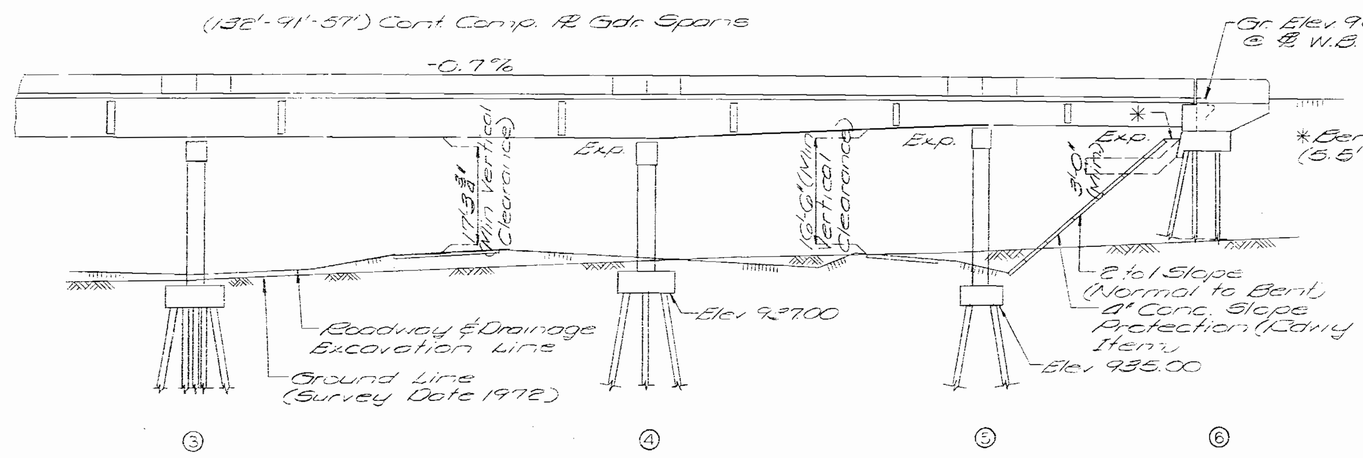
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1A of 33.

MISSOURI STATE HIGHWAY DEPARTMENT

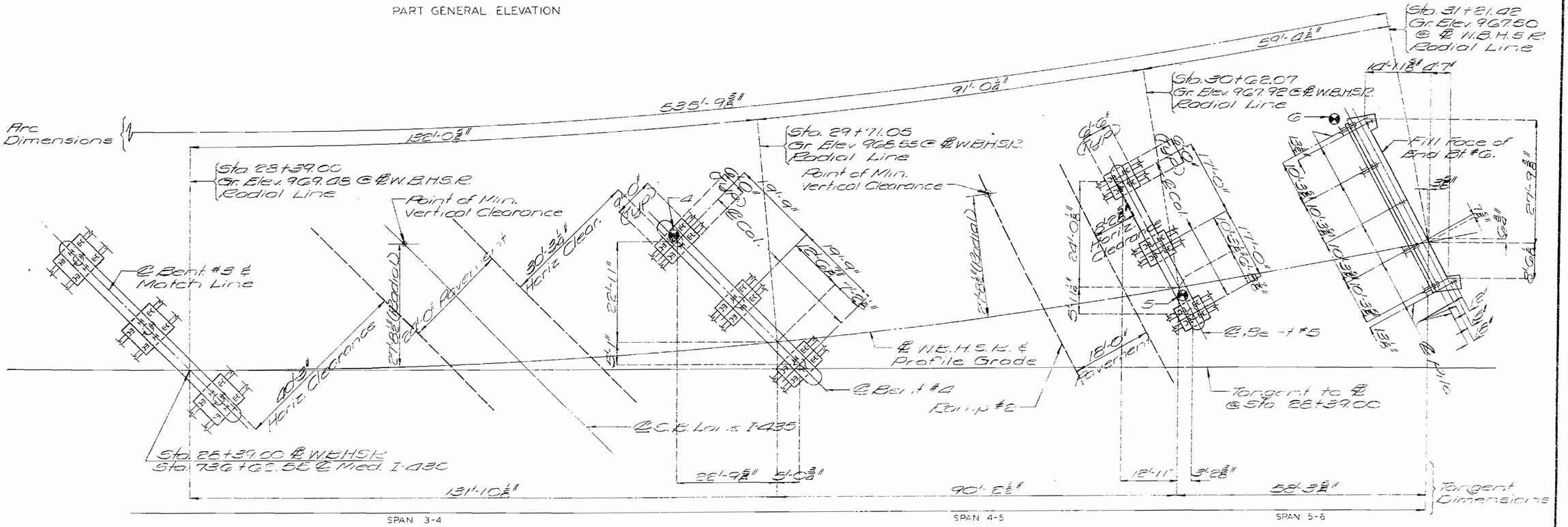
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		73	55	

FINAL PLANS



PART GENERAL ELEVATION

Note: Compacted roadway fill completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25' in back of the fill face of the end bents before piles are driven for any bents falling within the embankment section.



PART PLAN

Note: For Boring Data, see Sht #2.
'B' Indicates location of Boring
For General Notes, Estimated Quantities & Pile Data see Sht #3.

DETAILED MAY 1977
CHECKED MAY 1977

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

Sheet No. 24 of 33

PLATTE COUNTY

A-3456

MISSOURI STATE HIGHWAY DEPARTMENT

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	34	

FIN

PILE DATA

BENT NUMBER		1	2	3	4	5	6
PILE TYPE AND SIZE		HP10X42	HP10X42	HP10X42	HP10X42	HP10X42	HP10X42
NUMBER		10	20	24	18	12	7
APPROXIMATE LENGTH	(FT.)	45	45	20	21	20	45
DESIGN BEARING	(TONS)	50	49	50	52	52	51
HAMMER ENERGY REQUIRE	(FT. LBS.)	12,300	11,600	11,700	12,200	12,200	12,600

MINIMUM ENERGY REQUIREMENT OF HAMMER BASED ON PLAN LENGTH AND DESIGN BEARING VALUE OF PILES.

ALL PILE DRIVEN TO PRACTICAL REFUSAL.

QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
CLASS A EXCAVATION	(CU. YD.)	474.5		474.5
STRUCTURAL STEEL PILES (HP10X42)	(LIN. FT.)	2300		2300
CLASS B CONCRETE	(CU. YD.)	380.6		380.6
CLASS B2 CONCRETE	(CU. YD.)		798.8	798.8
REINFORCING STEEL (EPOXY)	(POUND)		92650	92650
ELASTOMERIC EXPANSION JOINT SEAL (4")	(LIN. FT.)		117	117
SLAB DRAINS	EACH		15	15
REINFORCING STEEL (GRADE 60)	(POUND)	63070	111200	174270
FABRICATED STRUCTURAL CARBON STEEL	(POUND)		765790	765790
PAINTING (SYSTEM A OR B) ALUMINUM	(TON)		381.8	381.8

NOTE: ALL CONCRETE AND REINFORCEMENT IN SAFETY BARRIER CURBS INCLUDED IN SUPERSTRUCTURE QUANTITIES

PAYWEIGHT FOR FABRICATED STRUCTURAL CARBON STEEL BASED ON WELDED SPLICES REGARDLESS OF TYPE USED.

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O. - 1973

DESIGN LOADING:
HS20 - 44
15 LBS. / SQ. FT.
FUTURE WEARING SURFACE
MODIFIED 24,000 LBS. TANDEM AXLE
EARTH 120 LBS.
EQUIVALENT FLUID PRESSURE 30 LBS.
FATIGUE STRESS - CASE II - INTERIM 1974

DESIGN UNIT STRESSES:
CLASS B CONCRETE (SUBSTRUCTURE) f'_c = 1,200 psi
CLASS B2 CONCRETE (SUPERSTRUCTURE) f'_c = 1,500 psi
REINFORCING STEEL f_s = 20,000 psi (SUBSTRUCTURE)
REINFORCING STEEL (GRADE 60) f_y = 60,000 psi (SUPERSTRUCTURE)
STRUCTURAL CARBON STEEL f_s = 20,000 psi
STEEL PILE f_b = 9,000 psi

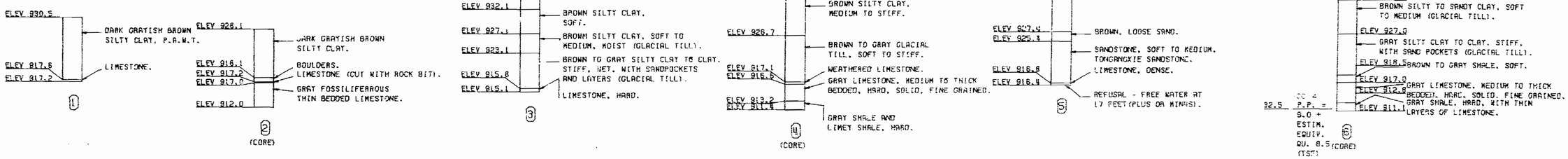
JOINT FILLER:
ALL JOINT FILLER MEET THE REQUIREMENTS OF STD. SPEC. 1057.2.4.

FABRICATED STEEL:
FIELD CONNECTIONS, HIGH STRENGTH BOLTS 3/4" DIAMETER, HOLES 13/16" DIAMETER EXCEPT AS NOTED.

PAINT:
PAINT: SYSTEM A OR B BY CONTRACTOR IN ACCORDANCE WITH STD. SPEC. 712.12. (COLOR OF THE FINAL FIELD COAT ALUMINUM).

REINFORCING STEEL:
MINIMUM CLEARANCE TO REINFORCING STEEL 1-1/2" UNLESS OTHERWISE SHOWN.

ALL REINFORCING BARS IN TOPS OF SUBSTRUCTURE BEAMS OR CAPS SPACED TO CLEAR ANCHOR BOLTS FOR BEARINGS BY AT LEAST 1/2".



BORING DATA

FOR LOCATION OF BORINGS SEE SHEET NO. 1.

DETAILED JUNE 1977
CHECKED JUNE 1977

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

Sheet No. 34 of 23.

PLATTE COUNTY

A-3456