

DESIGN DESIGNATION

A.A.D.T. - 2023 = 2,591
 A.A.D.T. - 2043 = 3,489
 D.H.V. = 11.39%
 T = 7.71%
 V = 35 M.P.H.
 D = 50.2%

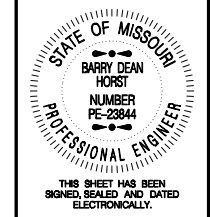
FUNCTIONAL CLASSIFICATION-RURAL MAJOR COLLECTOR

NORMAL RIGHT OF WAY

**MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
 PLANS FOR PROPOSED
 STATE HIGHWAY
 CAPE GIRARDEAU COUNTY**

INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (1 SHEET)--	2
QUANTITIES (QU) (3 SHEETS)-----	3
PLAN-PROFILE (PP)-----	4-5
REFERENCE POINTS (RP)-----	6
COORDINATE POINTS (CP)-----	6
SPECIAL SHEETS (SS)-----	7-9
TRAFFIC CONTROL SHEETS (TC)-----	10-12
EROSION CONTROL SHEETS (EC)-----	13-15
BRIDGE DRAWINGS (B)	
A9349-----	1-44
A9350-----	1-7
CROSS SECTIONS (XS)-----	1-13



DATE PREPARED	2/20/2026
ROUTE	Z
STATE	MO
DISTRICT	SE
SHEET NO.	1
COUNTY	CAPE GIRARDEAU
JOB NO.	J953738
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)

LENGTH OF PROJECT

BEGINNING OF PROJECT	676+00
END OF PROJECT	692+50.8
APPARENT LENGTH	1650.80 FEET
EQUATIONS AND EXCEPTIONS:	

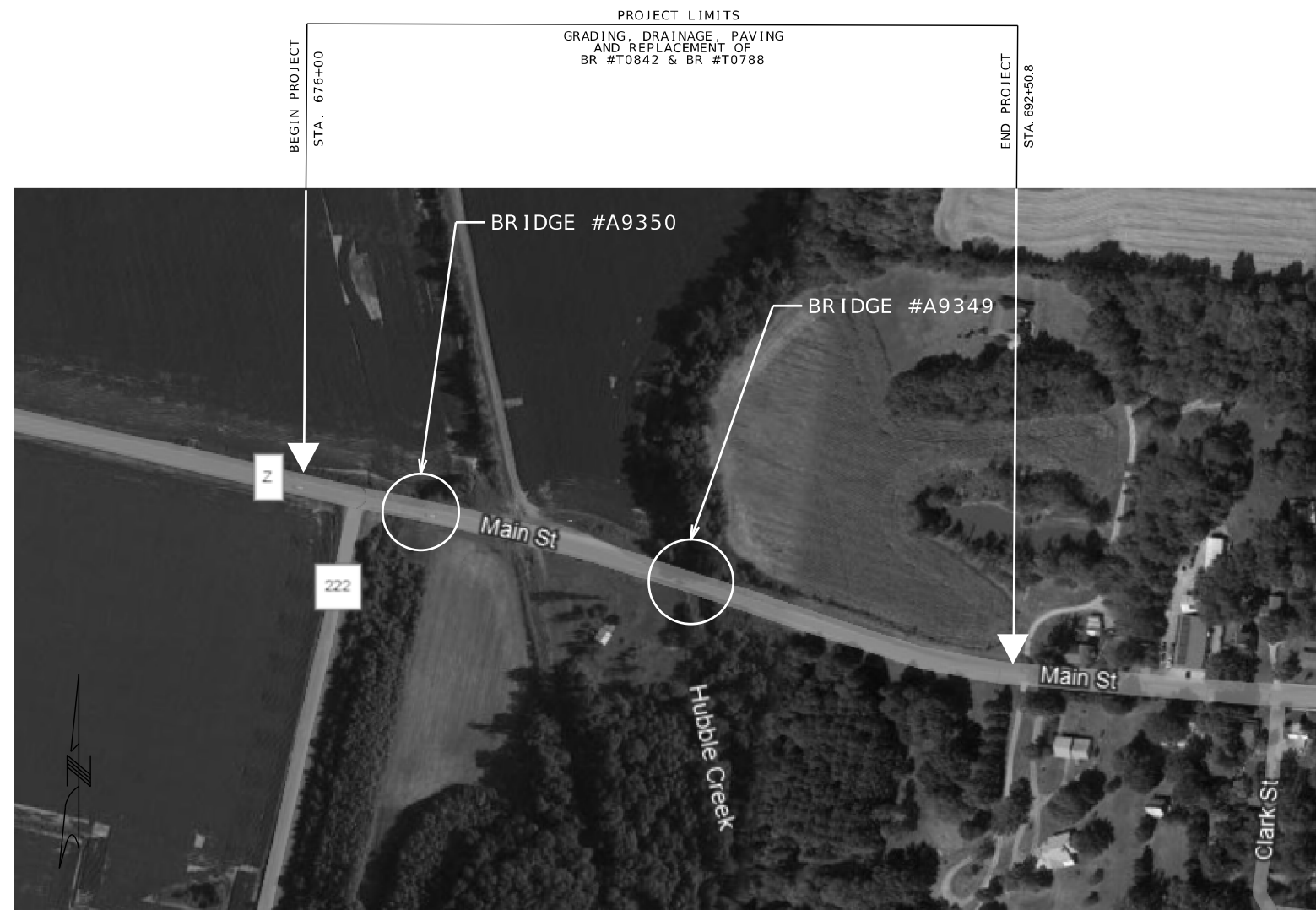
TOTAL CORRECTIONS	0.00 FEET
NET LENGTH OF PROJECT	1650.80 FEET
STATE LENGTH	0.3 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	2.0 ACRES

Cape Girardeau, MO Office
 3437 William St., Cape Girardeau, MO 63701
 Certificate of Authority: F2007028644
 Phones: 573-222-5632 / BFWengineering.com
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**CONVENTIONAL SYMBOLS
 (USED IN PLANS)**

	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	-FO-
OVERHEAD CABLE TV	-OTV-	-OTV-
UNDERGROUND CABLE TV	-UTV-	-UTV-
OVERHEAD TELEPHONE	-OT-	-OT-
UNDERGROUND TELEPHONE	-UT-	-UT-
OVERHEAD POWER	-OE-	-OE-
UNDERGROUND POWER	-UE-	-UE-
SANITARY SEWER	-S-	-S-
STORM SEWER	-SS-	-SS-
GAS	-G-	-G-
WATER	-W-	-W-
MANHOLE		
FIRE HYDRANT		
WATER VALVE		
WATER METER		
DROP INLET		
DITCH BLOCK		
GROUND MOUNTED SIGN		
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL		
FENCE		
CHAIN LINK		
WOVEN WIRE		
GATE POST		
BENCHMARK		



THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION. IT IS, THEREFORE, THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE, LOCATION AND STATUS OF ANY FACILITY. SUCH VERIFICATION INCLUDES DIRECT CONTACT WITH THE LISTED UTILITIES.

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

REMOVAL OF IMPROVEMENTS			
STA	STA	LOC	DESCRIPTION
668+50		RT	ONE LANE BRIDGE SIGN
676+00	679+18	CL	PAVEMENT REMOVAL
677+46.42	679+11.52	LT	GUARDRAIL
677+82.32		RT	YIELD SIGN
677+82.32		RT	TO ONCOMING TRAFFIC
678+53.84		RT	RELOCATE CR 222 SIGN
679+18		RT	3-TYPE III OBJECT MARKERS
680+18		RT	2-TYPE III OBJECT MARKERS
680+18	684+91	CL	PAVEMENT REMOVAL
680+19.40	681+87.51	LT	GUARDRAIL
680+45		RT	TYPE III OBJECT MARKER
682+06		LT	YIELD SIGN
682+06		LT	TO ONCOMING TRAFFIC
682+13		RT	RR CROSSING SIGNAL
682+26		LT & RT	2-150' RR RAILS
682+28		LT	RR CROSSING SIGNAL
683+06		RT	35 MPH SIGN
683+29.10	684+31.73	RT	GUARDRAIL
686+00	692+50.7	CL	PAVEMENT REMOVAL
686+99.00	688+70.03	LT	GUARDRAIL
683+69		RT	YIELD SIGN
683+69		RT	TO ONCOMING TRAFFIC
684+44		RT	LOAD LIMIT SIGN
684+89		LT	3-TYPE III OBJECT MARKERS
687+72		LT	LOAD LIMIT SIGN
689+50		LT	YIELD SIGN
689+50		LT	TO ONCOMING TRAFFIC
692+63		LT	ONE LANE BRIDGE SIGN
693+00		RT	25' - 15" CMP
693+40		RT	37' - 12" RCP
LOCATIONS AND QUANTITIES ARE APPROXIMATE FOLLOW SEC 20.30 NO DIRECT PAYMENT WILL BE MADE FOR SAW CUT REQUIRED FOR REMOVAL			
LUMP SUM - 1			

EARTHWORK							
SHEET	BEGIN STATION	END STATION	CLASS A EXCAVATION (CY)	COMPACTING EMBANKMENT (CY)	EMBANKMENT IN PLACE (CY)	COMPACTING IN CUT (STA)	REMARKS
4-5	676+00	684+53.07	722	578	8373		
5	687+56.93	692+15	115	92	2731		
4-5	676+00	679+18.75				3.2	
5	690+50	692+50.8				2.0	
Total			837	670	11104	5.2	

POROUS BACKFILL						
SHEET	STA	STA	DEPTH (FT)	WIDTH (FT)	(CY)	REMARKS
14	684+48.07	684+53.07	6.5	5	33.7	
14	687+56.93	687+61.93	6.5	5	33.7	
TOTAL					67.4	
PAY TOTAL					68	

BASE AND PAVEMENT						
SHEET	STA	STA	LOCATION	TYPE 5 AGGREGATE FOR BASE 6" THICK (S.Y.)	OPTIONAL PAVEMENT (S.Y.)	REMARKS
4-5	676+00.00	684+33.07	CL	2406.6	2406.6	
5	687+76.93	692+50.70	CL	1369	1369	
4	0+13	1+30	CR 222	550	550	
TOTAL				4325.6	4325.6	
PAY TOTAL				4326.0	4325.6	

CONTRACTOR FURNISHED SURVEYING AND STAKING

LUMP SUM - 1

MOBLIZATION

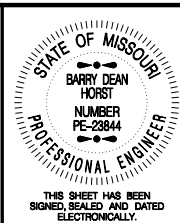
LUMP SUM - 1

LINEAR GRADING					
SHEET	STA	STA	LOCATION	MODIFIED LINEAR GRADING CLASS 2 (STA)	REMARKS
8	677+64.4	678+70.8	CR 222 TEMPORARY ENTRANCE	2	INSTALLATION & REMOVAL EST. QUANTITY 519 CY
5	693+17 R2		ENTRANCES RIGHT	0.25	
TOTAL				2.25	
PAY TOTAL				2.3	

SHEET	STA	STA	THICKNESS (FT)	TYPE 1 ROCK DITCH LINER		TYPE 2 ROCK BLANKET		PERMANENT EROSION CONTROL GEOTEXTILE (SY)	DISCRIPTION
				FURNISHING (CY)	PLACING (CY)	FURNISHING (CY)	PLACING (CY)		
13	679+23.2	680+25.9	2			157	157	235.5	
13	679+74.9	680+83.4	2			155.8	155.8	233.6	
13	679.87.1	680+50.9	2	38.7	38.7				
13	679+57.3	680+15.4	2	55.3	55.3				
14	684+26.7	685+83.2	2			494.1	494.1	741.1	
14	686+30.6	687+80.8	2			535	535	802.6	
TOTAL				94	94	1341.9	1341.9	2012.8	
PAY TOTALS				94	94	1342	1342	2013	

GUARDRAIL							
SHEET	STA	STA	LOC	MGS GUARDRAIL (LF)	MGS BRIDGE APPROACH SECTION (EACH)	TYPE A CRASHWORTHY END TERMINAL (EACH)	REMARKS
4	687+81.59	688+66.87	LT	25	1	1	
4	687+81.59	688+41.87	RT	12.5	1	1	
5	683+31.89	684+32.64	RT	25	1	1	
5	683+65.37	684+32.74	LT	12.5	1	1	
TOTAL				75	4	4	

SUMMARY OF QUANTITIES
SHEET 1 OF 3



DATE PREPARED
1/30/2026

ROUTE Z STATE MO
DISTRICT SE SHEET NO. 3

COUNTY
CAPE GIRARDEAU

JOB NO.
J9S3738

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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

WARNING SIGNS										GUIDE SIGNS										EFFECTIVE: 07-01-2025		STATE OF MISSOURI BARRY DEAN HORST NUMBER PE-23844 PROFESSIONAL ENGINEER THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY. DATE PREPARED 1/30/2026 ROUTE Z MO DISTRICT SE SHEET NO. 3 COUNTY CAPE GIRARDEAU JOB NO. J9S3738 CONTRACT ID. PROJECT NO. BRIDGE NO.	
SIGN	SIZE	AREA	QTY	TOTAL	QTY	TOTAL	SIGN	DESCRIPTION	SIGN	SIZE	AREA	QTY	TOTAL	QTY	TOTAL	SIGN	DESCRIPTION	ITEM	TOTAL	DESCRIPTION	DATE		
IN.	SQ. FT.	EACH	SQ. FT.	EACH	SQ. FT.	NO.			IN.	SQ. FT.	EACH	SQ. FT.	EACH	SQ. FT.	NO.			NUMBER	QTY				
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)	E05-1	36X48	12.00						GORE EXIT	6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)			
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)	E05-2	48X36	12.00						EXIT OPEN	6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)			
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)	E05-2a	48X36	12.00						EXIT CLOSED	6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)			
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)	GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES	6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)			
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)	GO20-2	48X24	8.00						END ROAD WORK	6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)			
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)	GO20-4	36X18	4.50						PILOT CAR FOLLOW ME	6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)			
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)	GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW	6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)			
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)	GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW	6122020		REPLACEMENT SAND BARREL			
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)	GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)	6122030		IMPACT ATTENUATOR (RELOCATION)			
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)	GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)	6122040		WORK ZONE CRASH CUSHION (NARROW)			
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)	MO4-8a	24X18	3.00	1	3		52		END DETOUR	6122041		WORK ZONE CRASH CUSHION (RELOCATION)			
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)	MO4-9L	48X36	12.00						DETOUR (LEFT)	6122041		WORK ZONE CRASH CUSHION (RELOCATION)			
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)	MO4-9R	48X36	12.00						DETOUR (RIGHT)	6123001		TRUCK MOUNTED ATTENUATOR (TMA)			
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)	MO4-9P	48X12	4.00						STREET NAME (PLAQUE)	6161012		BUOYS (BOATS KEEP OUT)			
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)	MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)	6161012		BUOYS (NO WAKE)			
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)	MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)	6161013		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)			
WO1-8	18X24	3.00						CHEVRON (SYMBOL)										6161020		CHANNELIZER (DRUM-LIKE)			
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)										6161022		CHANNELIZER (CONE)			
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)	R1-1	48X48	13.25						STOP	6161025		CHANNELIZER (TRIM-LINE)			
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)	R1-2	48TRI.	6.93						YIELD	6161026		CHANNELIZER (VERTICAL PANEL)			
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)	R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)	6161030	16	TYPE 3 MOVEABLE BARRICADE			
WO3-4	48X48	16.00						BE PREPARED TO STOP	R1-3P	30X12	2.50						ALL WAY (PLAQUE)	6161033		DIRECTION INDICATOR BARRICADE			
WO3-5	48X48	16.00						SPEED LIMIT AHEAD	R2-1	36X48	12.00						SPEED LIMIT XX	6161040		FLASHING ARROW PANEL			
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)	R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)	6161047		TYPE 3 OBJECT MARKER			
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)	R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)	6161055		SEQUENTIAL FLASHING WARNING LIGHT			
WO4-1aL	48X48	16.00						MERGE (LEFT)	R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)	6161070		TUBULAR MARKER			
WO4-1aR	48X48	16.00						MERGE (RIGHT)	R3-3	36X36	9.00						NO TURNS	6161070		TUBULAR MARKER			
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS	R3-4	48X48	16.00						NO U-TURN (SYMBOL)	6161095		RADAR SPEED ADVISORY SYSTEM			
WO5-3	48X48	16.00						ONE LANE BRIDGE	R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT	6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED			
WO5-5	48X48	16.00						NARROW LANES	R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT	6161096		CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED			
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)	R4-1	36X48	12.00						DO NOT PASS	6161098A		CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED			
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)	R4-2	36X48	12.00						PASS WITH CARE	6161099	2	CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED			
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)	R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)	6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM			
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)	R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)	6162002		TEMPORARY LONG-TERM RUMBLE STRIPS			
WO8-1	48X48	16.00						BUMP	R5-1	30X30	6.25						DO NOT ENTER	6173600D		TEMPORARY TRAFFIC BARRIER, CONTRACTOR FURNISHED/RETAINED			
WO8-2	48X48	16.00						DIP	R5-1a	36X24	6.00						WRONG WAY	6173700B		TEMPORARY TRAFFIC BARRIER, CONTRACTOR FURNISHED/RETAINED			
WO8-3	48X48	16.00						PAVEMENT ENDS	R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)	6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION, CONTRACTOR FURNISHED/RETAINED			
WO8-4	48X48	16.00						SOFT SHOULDER	R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)	6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION, CONTRACTOR FURNISHED/RETAINED			
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)	R6-2L	24X30	5.00						ONE WAY (LEFT)	6174000A		RELOCATING TEMP. TRAFFIC BARRIER			
WO8-6	48X48	16.00						TRUCK CROSSING	R6-2R	24X30	5.00						ONE WAY (RIGHT)	6175010A		RELOCATING TEMP. TRAFFIC BARRIER			
WO8-6c	48X48	16.00						TRUCK ENTRANCE	R9-9	24X12	2.00						SIDEWALK CLOSED	6175011B		RELOCATING TEMP. TRAFFIC BARRIER			
WO8-7	36X36	9.00						LOOSE GRAVEL	R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE	6175012A		RELOCATING TEMP. TRAFFIC BARRIER			
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL	R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE	6175020A		RELOCATING TEMP. TRAFFIC BARRIER			
WO8-9	48X48	16.00						LOW SHOULDER	R10-6	24X36	6.00						STOP HERE ON RED (45° ARROW)	6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS			
WO8-11	48X48	16.00						UNEVEN LANES	R11-2	48X30	10.00	3	30		29		ROAD CLOSED	6175020A		RELOCATING TEMP. TRAFFIC BARRIER			
WO8-12	48X48	16.00						NO CENTER LINE	R11-3a	60X30	12.50	3	37.5		20C		ROAD CLOSED XX MILES AHEAD	6208064A		TEMPORARY RAISED PAVEMENT MARKER			
WO8-15	48X48	16.00						GROOVED PAVEMENT	R11-4	60X30	12.50						LOCAL TRAFFIC ONLY	9029400		TEMPORARY TRAFFIC SIGNALS			
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)	CONST-3A	60X48	20.00						ROAD CLOSED TO THRU TRAFFIC	9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING			
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)	CONST-3X	56X12	4.67						FINE SIGN						
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)									SPEEDING/PASSING (PLATE)						
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)															
W10-1	42RND.	9.62						RAILROAD CROSSING															
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)	CONST-5	48X36	12.00						POINT OF PRESENCE						
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)	CONST-5	96X48	32.00	2	64		60		POINT OF PRESENCE						
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)	CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE						
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)	SPECIAL	96X48	32.00	4	128		48								
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD	SPECIAL	36X78	19.50	31	604.5		50								
WO12-5	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						ROAD/BRIDGE/RAMP WORK AHEAD															
WO20-2	48X48	16.00	3	48		18		DETOUR AHEAD															
WO20-3	48X48	16.00	5	80		20		ROAD CLOSED AHEAD	616-10.05								TOTAL						
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD	CONSTRUCTION SIGNS								995.0						
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD	616-10.10								TOTAL						
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD	RELOCATED SIGNS								0						
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED															
WO20-7a	48X48	16.00						FLAGGER (SYMBOL)															
WO21-2	36X36	9.00						FRESH OIL															
WO21-5	48X48	16.00						SHOULDER WORK / 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															
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)															

SUMMARY OF QUANTITIES
SHEET 3 OF 3

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.
DATE PREPARED 1/30/2026
ROUTE Z MO
DISTRICT SE SHEET NO. 3
COUNTY CAPE GIRARDEAU
JOB NO. J9S3738
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MoDOT

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BFW

670

BENCHMARKS

BM "A"	ELEV 376.88
CUT "A" ON THE NE CORNER CONCRETE	
BASE OF RR SIGNAL CONTROL BOX	
STA. 682+62.55	33.97'RT
BM "B"	ELEV 373.06
COTTON PICKER SPINDLE IN BASE OF	
UTILITY POLE LOCATED IN SW QUAD OF	
INTERSECTION OF HWY Z AND CR 222	
STA. 678+55.32	43.5'RT

RIGHT OF WAY LIMITS FOR THIS PROJECT
EXTEND FROM STA. 676+00 TO STA. 692+50.70,
A DISTANCE OF 0.31 MILE

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.

U.S.P.S. 250
T31-R12E

BEGIN PROJECT J9S3738
IMPROVEMENT BEGINS AT A POINT
2,977.44 FT N00°19'29"E OF THE
CORNER OF U.S.S. SURVEY 243, IN
PART OF SURVEYS 242 & 243,
T30 & 31 N, R12E, RECORDED IN
SURVEYORS RECORD BOOK 15, PG 681

STA. 679+18.75 BRIDGE NO. T0842
REMOVE 101.5', 33'-33'-33'
1-BEAM BRIDGE OVER HUBBLE CREEK OVERFLOW

JEFFREY WALTER LORBERG

0.17 AC NEW R/W
76.33 AC +/- REMAINING

JACKSON, GORDONVILLE & DELTA
RAILROAD COMPANY

0.07 AC NEW R/W LT
0.09 AC NEW R/W RT
0.1 AC TEMP EASM'T (CONST) LT
61.35 AC +/- REMAINING LT
4.08 AC +/- REMAINING RT

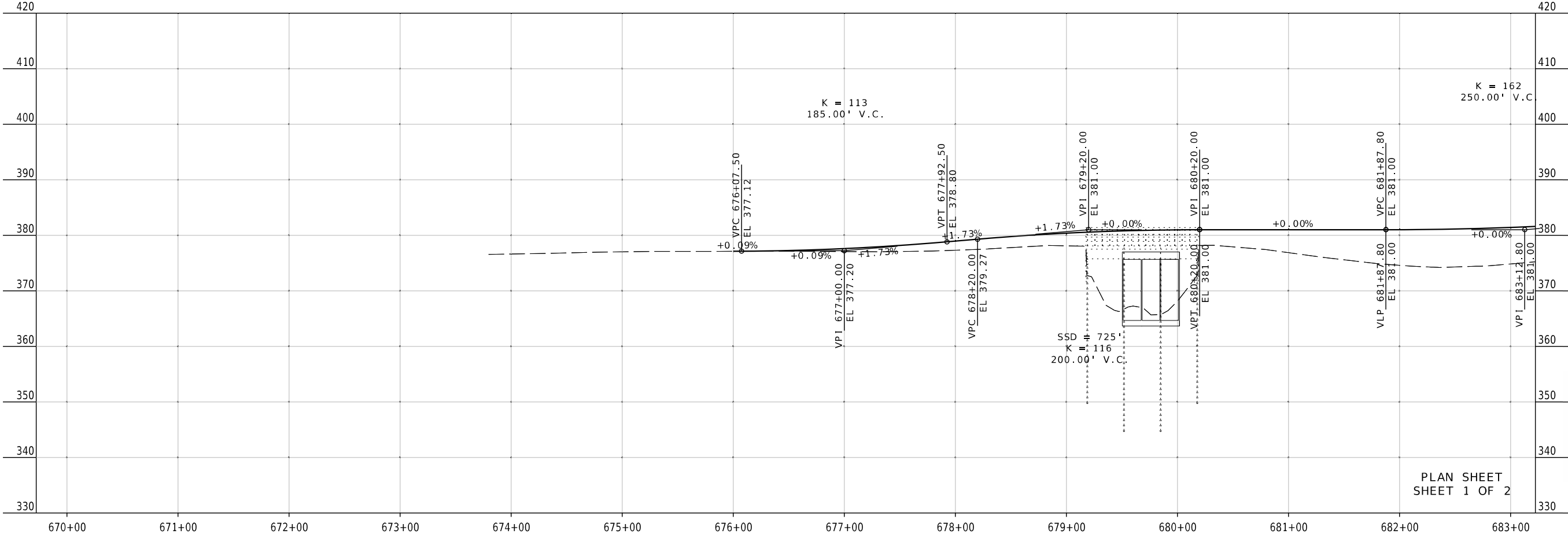
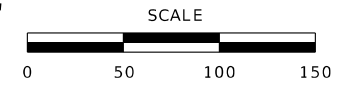
O. RICHARD KIEHNE
REVOCABLE TRUST

U.S.P.S. 241
T31-R12E

JEFFREY WALTER LORBERG

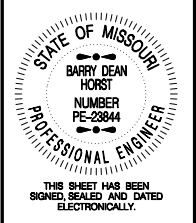
0.19 AC NEW R/W
47.71 AC +/- REMAINING

PROPOSED STRUCTURE A9350
STA 680+01.17
3(16'x12') REINFORCED CONCRETE BOX CULVERT
SKEW: 25° LEFT ADVANCE



PLAN SHEET
SHEET 1 OF 2

MATCHLINE 683+47.45



DATE PREPARED
1/30/2026

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
SE	4
COUNTY	
CAPE GIRARDEAU	
JOB NO.	
J9S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION

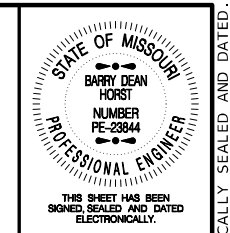
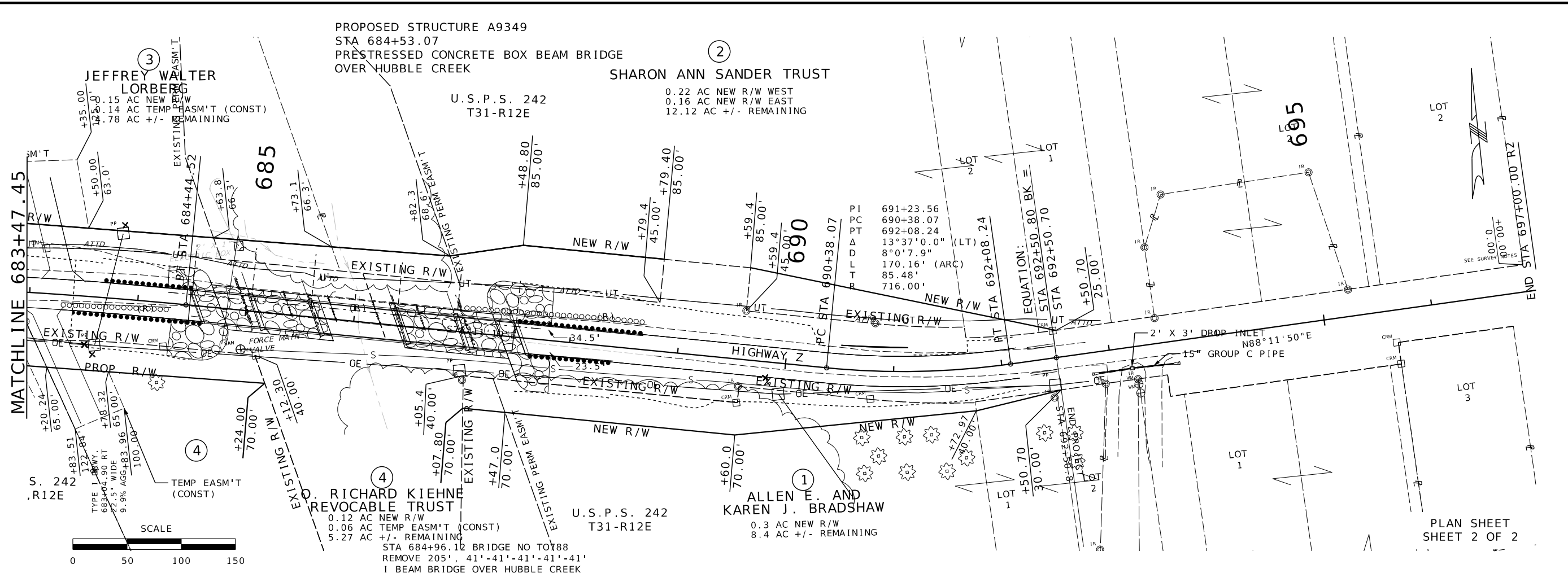
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

Cape Girardeau, MO Office
3437 William St, Cape Girardeau, MO 63701
Certificate of Authority: F2007028644
Phone: 573-222-5632 / BFWengineers.com
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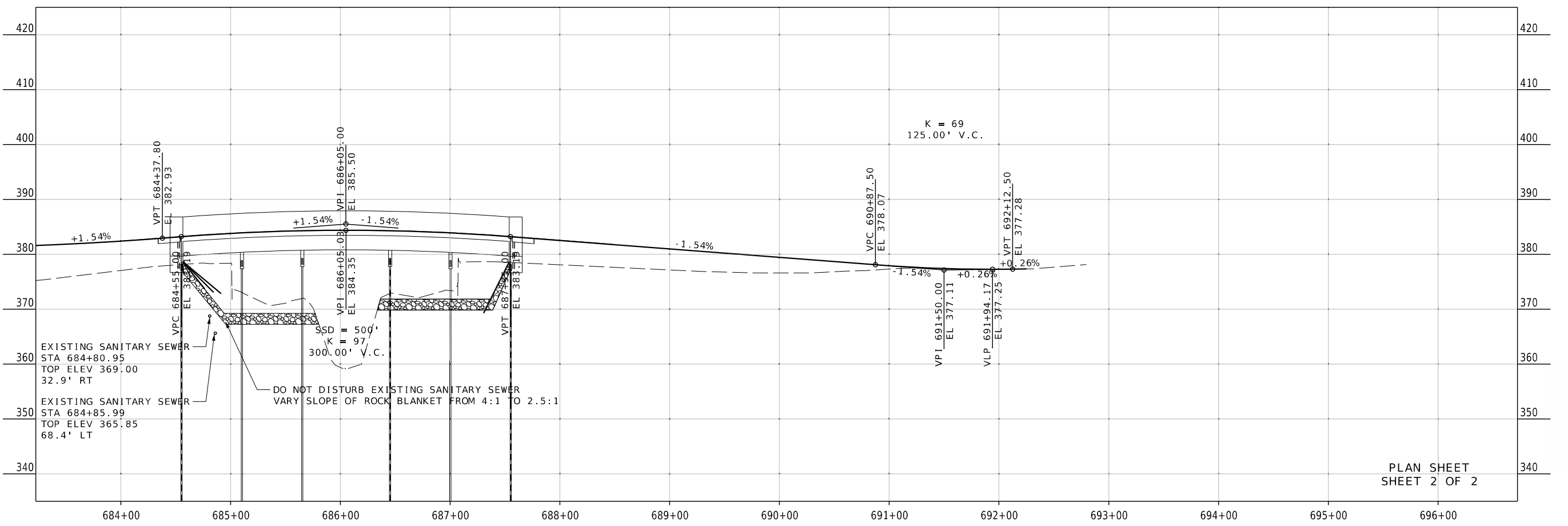


IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



DATE PREPARED 1/30/2026	
ROUTE Z	STATE MO
DISTRICT SE	SHEET NO. 5
COUNTY CAPE GIRARDEAU	
JOB NO. J9S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION



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DATE PREPARED
2/20/2026

ROUTE STATE
Z MO

DISTRICT SHEET NO.
SE 6

COUNTY
CAPE GIRARDEAU

JOB NO.
J9S3738

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)



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

ALL PROJECT COORDINATES HAVE BEEN PROJECTED FROM THE MISSOURI STATE PLANE COORDINATE (SPC) SYSTEM OF 1983 USING AN AVERAGE PROJECT PROJECTION (GRID TO GROUND) FACTOR. TO GET BACK TO STATE PLANE COORDINATES MULTIPLY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.

PROJECT COORDINATE INFORMATION

Table with 2 columns: Field Name, Value. Includes COORDINATE SYSTEM (MO SPC 1983 EAST), HORIZONTAL DATUM (NAD 83 2011), VERTICAL DATUM (NAVD88), GEOID MODEL (XX), ELEVATIONS DETERMINED BY (XX), PROJECT PROJECTION FACTOR (1.0000156860).

REFERENCE CONTROL INFORMATION

Table with 2 columns: Field Name, Value. Includes COORDINATE SYSTEM (MO SPC 1983), CONTROL STATION (XX), DESIGNATION (XX), CORS_ID (XX), PID (DK5334), LATITUDE (XX), LONGITUDE (XX), NORTHING (M) (XX), EASTING (M) (XX), ZONE (MO E), PROJECT AVERAGE GRID FACTOR (0.9999843140).

EXAMPLE OF PROJECT COORDINATE TO S.P.C.

PROJECT NORTHING X AVERAGE GRID FACTOR = STATE PLANE NORTHING
PROJECT EASTING X AVERAGE GRID FACTOR = STATE PLANE EASTING

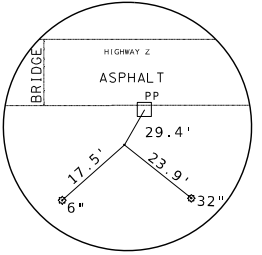
EXAMPLE: CONTROL POINT #_1
N 538976.897 X 1.000015686 = N 538985.351
E 1057792.659 X 1.000015686 = E 1057809.252

LINEAR UNIT CONVERSION

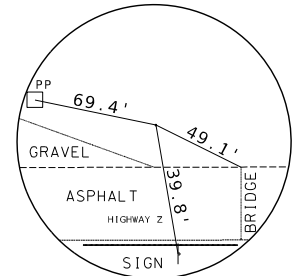
1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

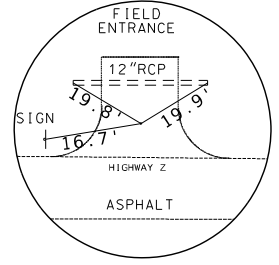
Main table with columns: SHEET NO, STATION, LOCATION, OFFSET (USFT), NORTHING (US SURVEY FT), EASTING (US SURVEY FT), ELEVATION (US SURVEY FT), DESCRIPTION, GPK POINT ID. Contains data for PROJECT CONTROL POINTS and ALIGNMENTS.



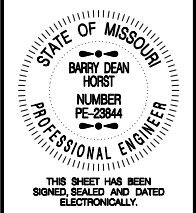
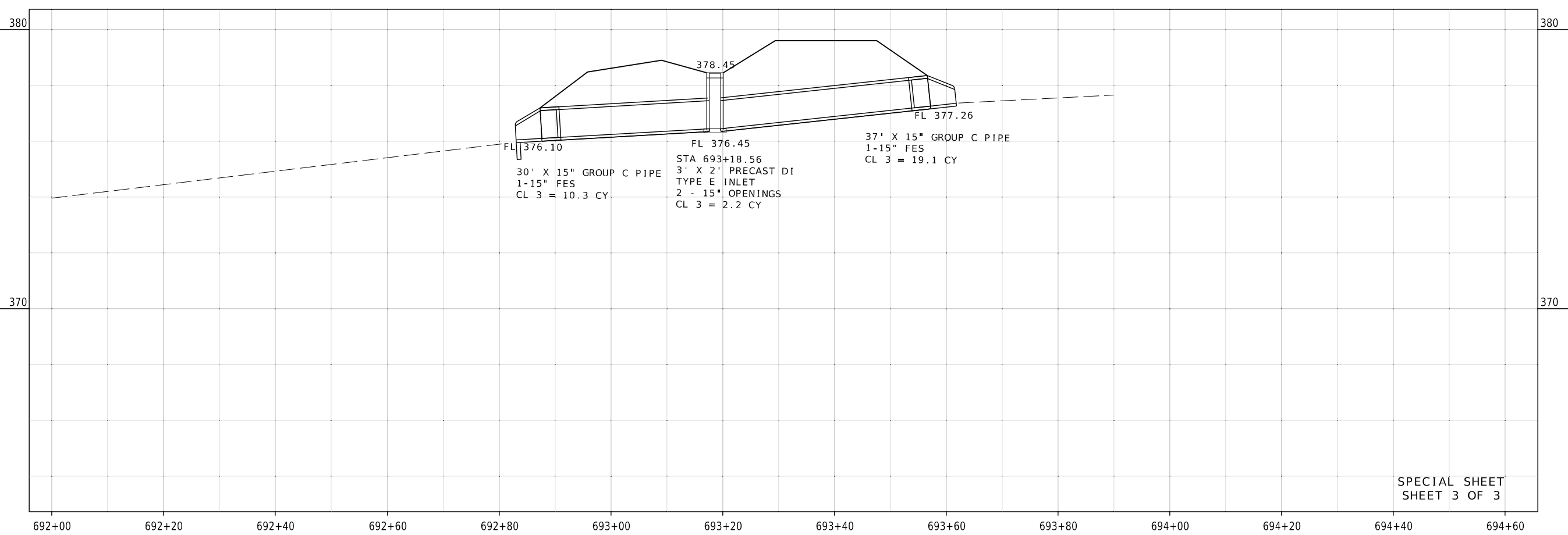
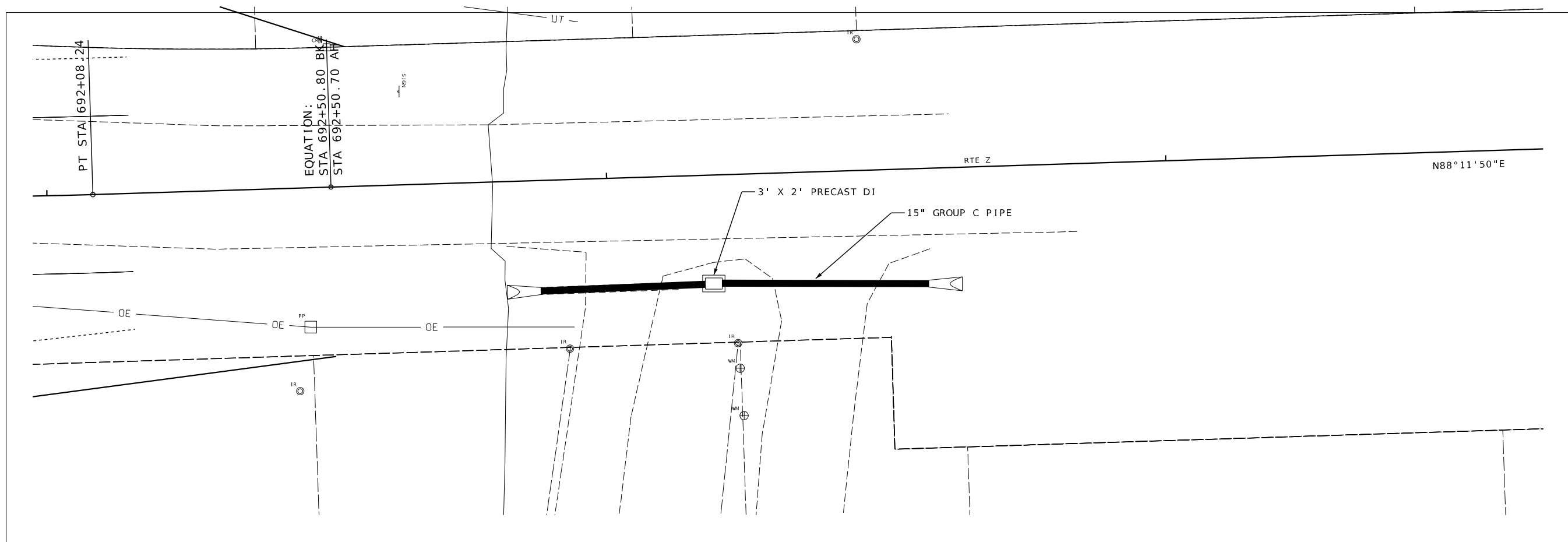
CONTROL PT #1
N 538985.351 STA 692+41.14
E 1057809.252 OFF 53.75' RT
Z 377.80



CONTROL PT #2
N 539205.264 STA 684+45.15
E 1057029.748 OFF 31.29' LT
Z 377.45



CONTROL PT #3
N 539316.361 STA 675+31.19
E 1056121.148 OFF 24.95' LT
Z 374.94



DATE PREPARED
1/30/2026

ROUTE Z STATE MO

DISTRICT SE SHEET NO. 9

COUNTY
CAPE GIRARDEAU

JOB NO.
19S3738

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

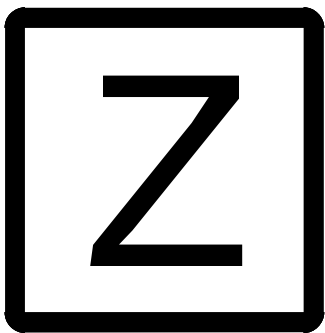
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

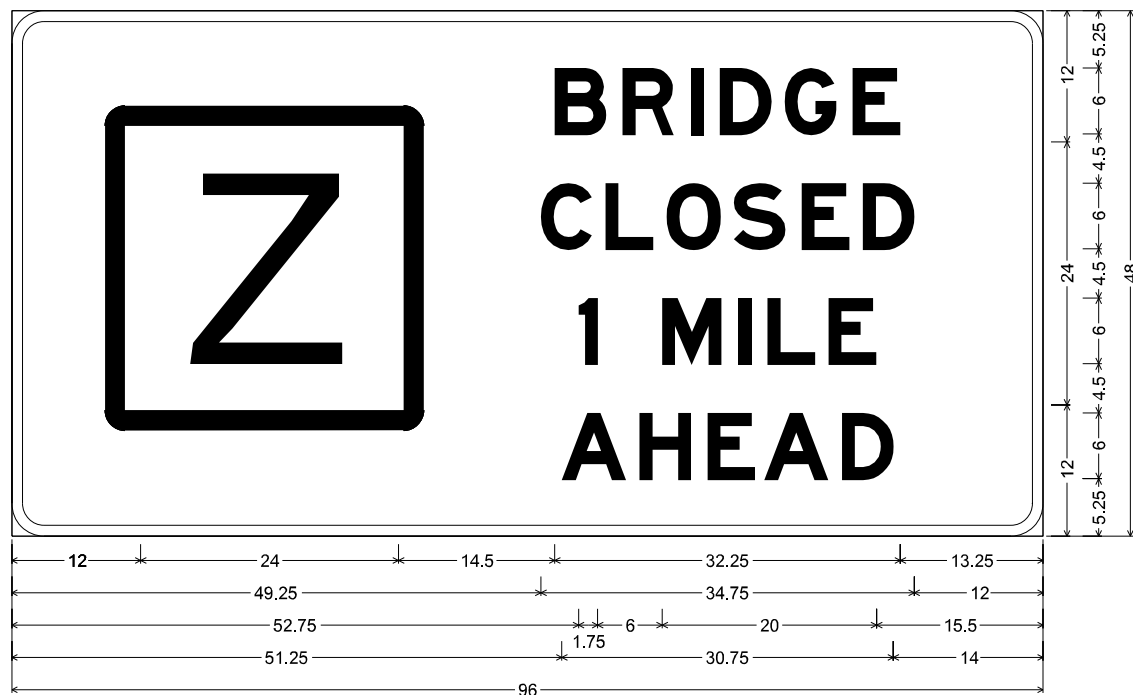
Cape Girardeau, MO Office
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SPECIAL SHEET
SHEET 3 OF 3



BRIDGE
CLOSED
1 MILE
AHEAD

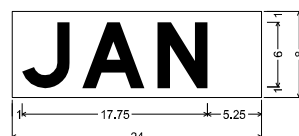


SPECIAL SIGN PLAQUES

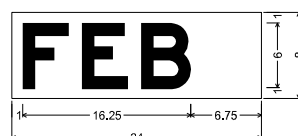
MO4-13 SHF-FLAT SHEET FLUORESCENT;
3.000" Radius, 1.000" Border, Black on, Orange;
"BRIDGE", E Mod; "CLOSED", E Mod; "1 MILE", E Mod; "AHEAD", E Mod;
Table of letter and object lefts

Table of letter and object lefts for MO4-13 sign

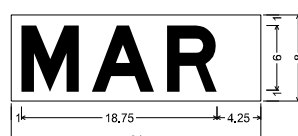
48



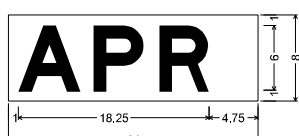
SHF-FLAT SHEET FLUORESCENT;
No border, Black on Orange;
[JAN] E Mod;
Table of letter and object lefts.



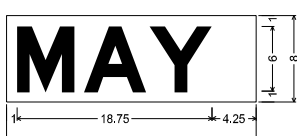
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No border, Black on Orange;
[FEB] E Mod;
Table of letter and object lefts.



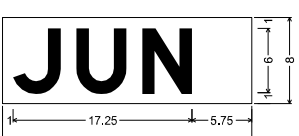
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No border, Black on Orange;
[MAR] E Mod;
Table of letter and object lefts.



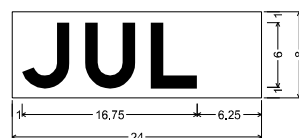
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No border, Black on Orange;
[APR] E Mod;
Table of letter and object lefts.



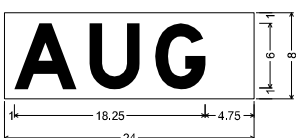
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No border, Black on Orange;
[MAY] E Mod 75% spacing;
Table of letter and object lefts.



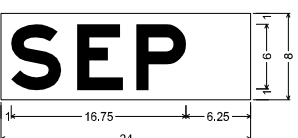
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No border, Black on Orange;
[JUN] E Mod;
Table of letter and object lefts.



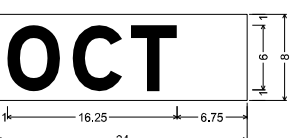
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No border, Black on Orange;
[JUL] E Mod;
Table of letter and object lefts.



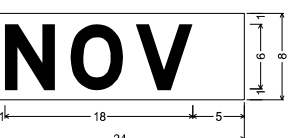
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No border, Black on Orange;
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Table of letter and object lefts.



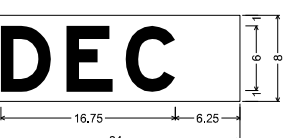
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No border, Black on Orange;
[SEP] E Mod;
Table of letter and object lefts.



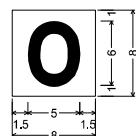
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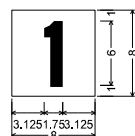
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Table of letter and object lefts.



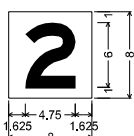
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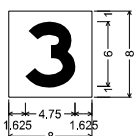
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Table of letter and object lefts.



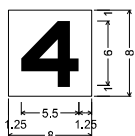
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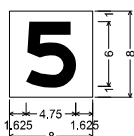
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Table of letter and object lefts.



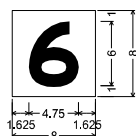
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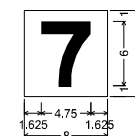
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Table of letter and object lefts.



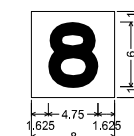
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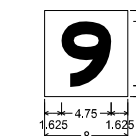
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Table of letter and object lefts.



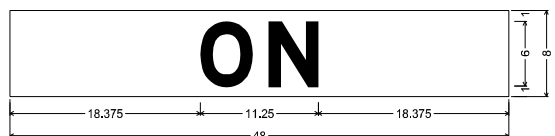
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No border, Black on Orange;
[7] E Mod;
Table of letter and object lefts.



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[8] E Mod;
Table of letter and object lefts.

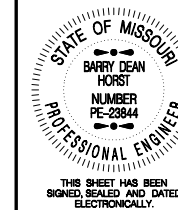


SHF-FLAT SHEET FLUORESCENT;
No border, Black on Orange;
[9] E Mod;
Table of letter and object lefts.



SHF-FLAT SHEET FLUORESCENT; No border, Black on Orange;
[ON] E Mod;
Table of letter and object lefts.

TRAFFIC CONTROL SHEET
SHEET 3 OF 3



DATE PREPARED
1/30/2026

ROUTE STATE
Z MO

DISTRICT SHEET NO.
SE 12

COUNTY
CAPE GIRARDEAU

JOB NO.
J9S3738

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

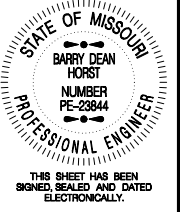
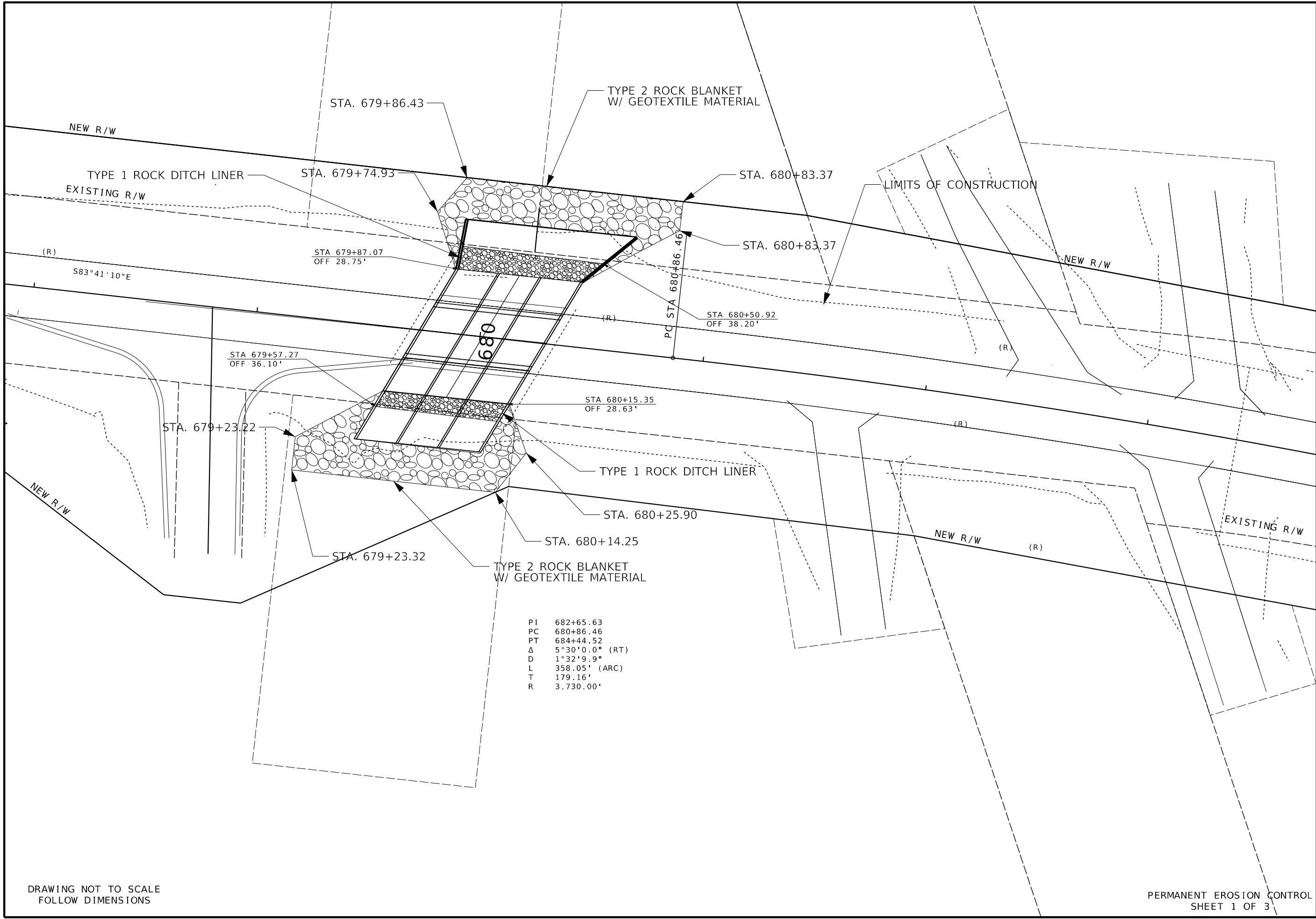
Table with columns: DESCRIPTION, DATE

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



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Certificate of Authority: F000702844
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DATE PREPARED
1/30/2026

ROUTE STATE
Z MO

DISTRICT SHEET NO.
SE 13

COUNTY
CAPE GIRARDEAU

JOB NO.
J9S3738

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)

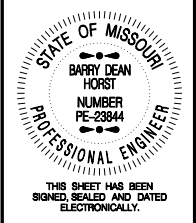
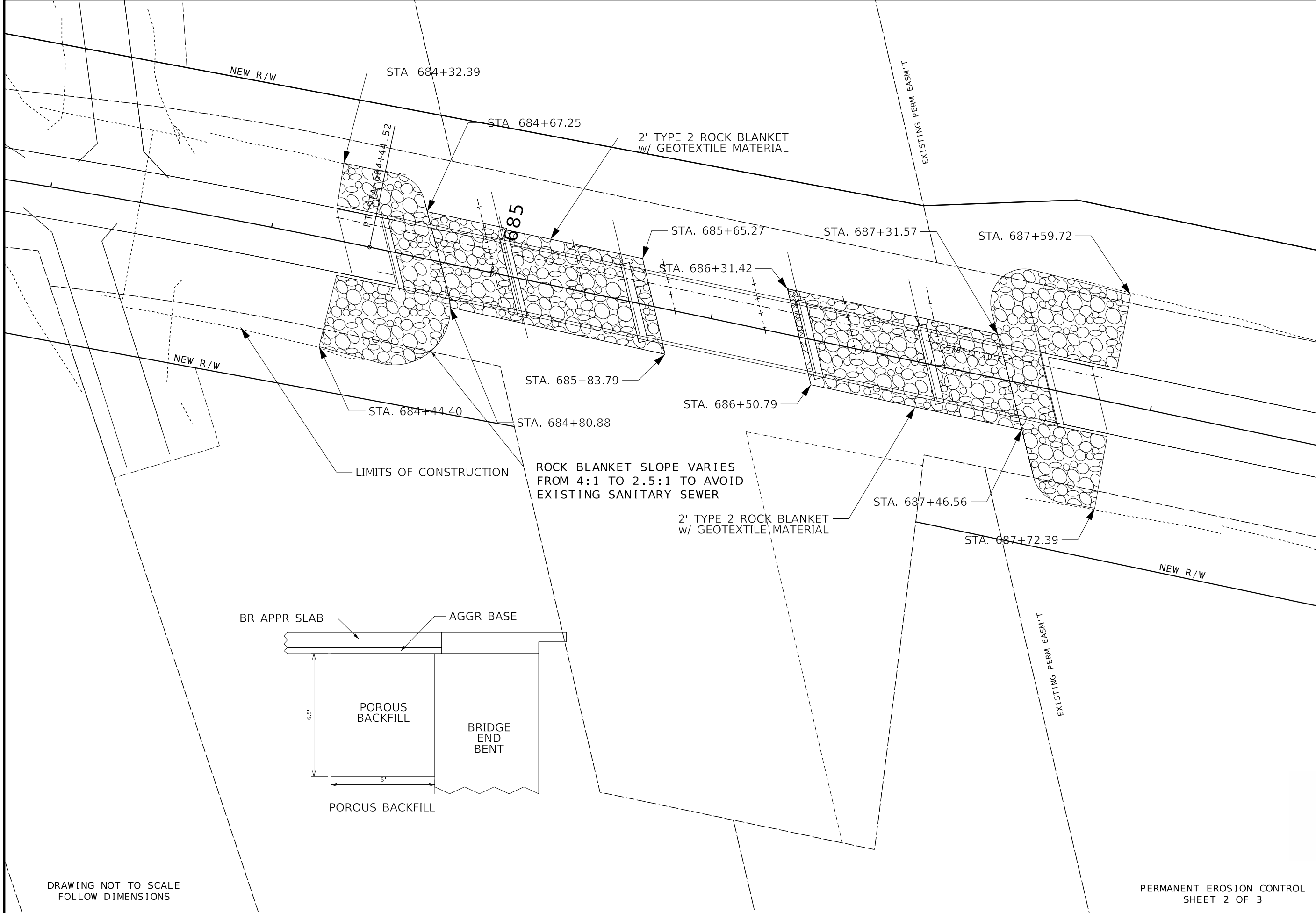
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Certificate of Authority: F2007028644
Phone: 573-777-5637 / BFWengineers.com
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PI 682+65.63
PC 680+86.46
PT 684+44.52
Δ 5°30'0.0" (RT)
D 1°32'9.9"
L 358.05' (ARC)
T 179.16'
R 3,730.00'

DRAWING NOT TO SCALE
FOLLOW DIMENSIONS

PERMANENT EROSION CONTROL
SHEET 1 OF 3



DATE PREPARED	
1/30/2026	
ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
SE	14
COUNTY	
CAPE GIRARDEAU	
JOB NO.	
J9S3738	
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)

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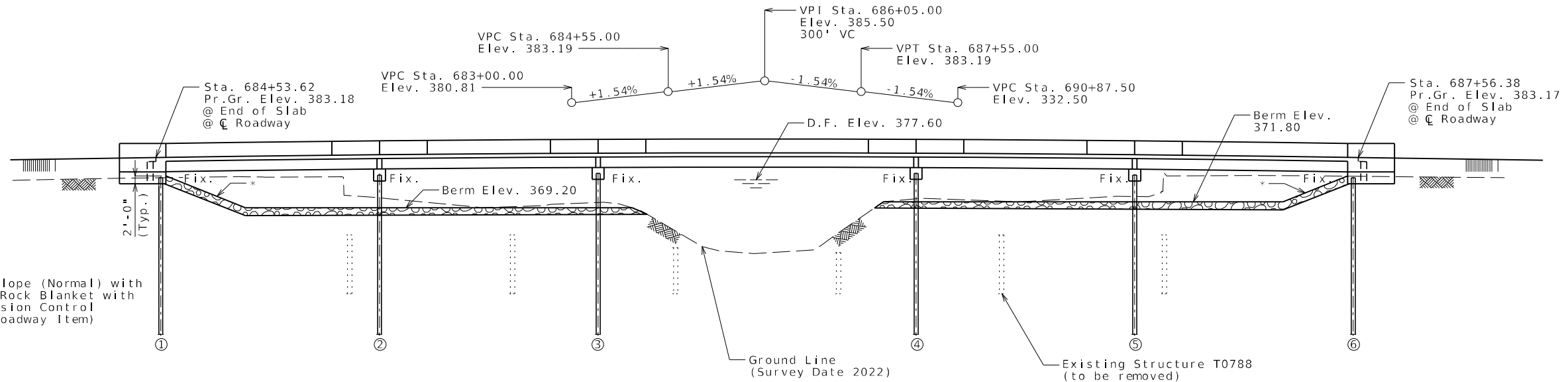
DRAWING NOT TO SCALE
FOLLOW DIMENSIONS

PERMANENT EROSION CONTROL
SHEET 2 OF 3

(55'-55'-80'-55'-55') PRESTRESSED CONCRETE SPREAD BOX BEAMS SPANS

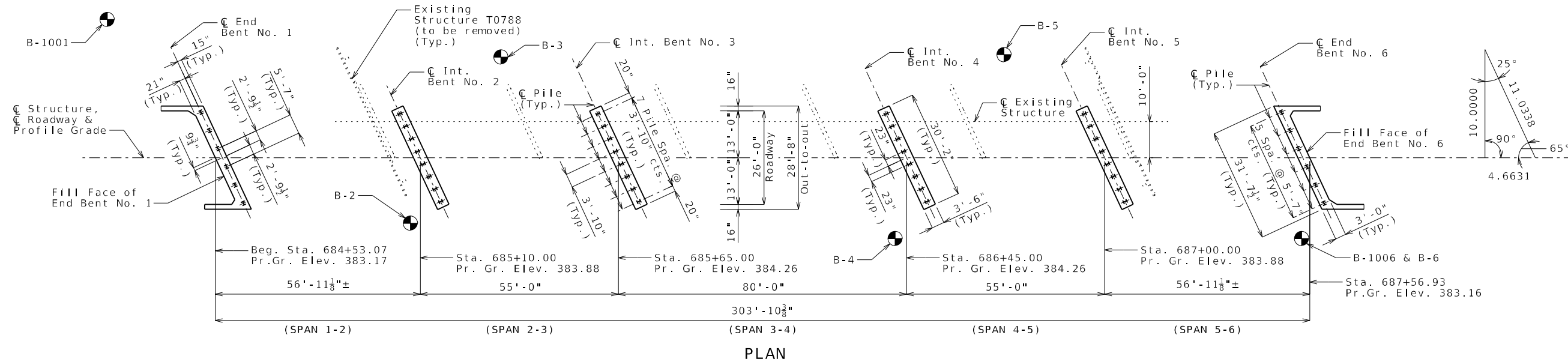


DATE PREPARED 01/12/2026	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY CAPE GIRARDEAU	
JOB NO. J9S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	



GENERAL ELEVATION

* 2.5:1 (H:V) Slope (Normal) with 2'-0" Type 2 Rock Blanket with Permanent Erosion Control Geotextile (Roadway Item)



PLAN

⊗ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheets No. 36 thru 44 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

Notes:

For General Notes, Hydrologic Data, Foundation Data, Estimated Quantities, Estimated Quantities for Slab on Concrete Beam, and Location Sketch, see Sheet No. 2.

Existing roadway fill under the ends of the bridge shall be removed as shown. Removal of existing roadway fill will be considered completely covered by the contract unit price for roadway excavation.

Roadway fill shall be 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 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.

B.M. "A" ELEV 376.88
CUT "L" ON THE NE CORNER CONCRETE BASE
OF RR SIGNAL CONTROL BOX
STATION 682+62.55, 33.97' RT

BRIDGE: ROUTE Z OVER HUBBLE CREEK

ROUTE Z FROM ROUTE 00 TO ROUTE 25
ABOUT 1.1 MILES WEST OF ROUTE 25
BEGINNING STATION 684+53.07

Designed July 2024
Detailed Aug. 2024
Checked Sep. 2024

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

Sheet No. 1 of 44

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.) and 2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details).
 Seismic Design Category = C (Seismic Details Only).
 Design earthquake response spectral acceleration coefficient at 1.0 second period, $SD1 = 0.42$.
 Acceleration Coefficient (effective peak ground acceleration coefficient), $A_s = 0.47$.

Design Loading:

Vehicular = HL-93
 Future Wearing Surface = 35 lb/sf
 Earth = 120 lb/cf
 Equivalent Fluid Pressure = 45 lb/cf (minimum)
 Superstructure: Non-Composite for dead load.
 Composite for live load.

Design Unit Stresses:

Class B Concrete (Substructure) $f'c = 3,000$ psi
 Class B-1 Concrete (Type D Barrier) $f'c = 4,000$ psi
 Class B-2 Concrete (Superstructure, except Prestressed Box Beams and Type D Barrier) $f'c = 4,000$ psi
 Reinforcing Steel (ASTM A706 Grade 60) $f_y = 60,000$ psi
 Structural Steel (ASTM A709 Grade 50) $f_y = 50,000$ psi
 For prestressed box beam stresses, see Sheets No. 19 thru 21.
 For precast prestressed panel stresses, see Sheet No. 23.

Neoprene Pads:

Neoprene Bearing Pads shall be 60 durometer and shall be in accordance with Sec 716.

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.

Traffic Handling:

Structure to be closed during construction. Traffic to be maintained on other routes during construction. See roadway plans for traffic control.

Miscellaneous:

MoDOT Construction personnel will indicate the type of joint filler option used under the precast panels for this structure:

- Constant Joint Filler
- Variable Joint Filler

Outline of existing work is indicated by light dash lines. Heavy lines indicate new work.

Hydrologic Data		
	A9349	A9350
Drainage Area (mi ²)	29	
Design Flood Frequency (years)	50	
Design Flood Discharge (cfs)	18,600	3000
Design Flood (D.F.) Elevation	377.6	378.0
Base Flood (100-year)		
Base Flood Elevation	378.1	378.5
Base Flood Discharge (cfs)	21,400	3500
Estimated Backwater (ft)	0.2	0.3
Average Velocity thru Opening (ft/s)	5.6	-
Outlet Velocity (ft/s)	-	3.8
Freeboard (50-year)		
Freeboard (ft)	2.0	-
Roadway Overtopping		
Overtopping Flood Discharge (cfs)	15,400	2900
Overtopping Flood Frequency (years)	25	
Overtopping Flood Elevation	376.0	

Estimated Quantities				
Item	Substr.	Superstr.	Total	
Class 1 Excavation	cu. yard	35	35	
Removal of Bridges (T0788)	lump sum		1	
Bridge Approach Slab (Minor)	sq. yard	117	117	
Galvanized Structural Steel Piles (14 in.)	linear foot	2766	2766	
Pile Point Reinforcement	each	44	44	
Class B Concrete (Substructure)	cu. yard	76.8	76.8	
Type D Barrier	linear foot	644	644	
Slab on Concrete Beam	sq. yard	965	965	
27 in., Prestressed Concrete Spread Box Beam	linear foot	1193	1193	
Reinforcing Steel (Bridges)	pound	6900	6900	
Slab Drain	each	32	32	
Vertical Drain at End Bents	each	2	2	
Plain Neoprene Bearing Pad	each	8	8	
Laminated Neoprene Bearing Pad	each	32	32	

* Type D Barrier shall be cast-in-place or slip-form option.

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete Beam.

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Beam.

All reinforcement in the intermediate bent concrete diaphragms except reinforcement embedded in the beam cap is included in the Estimated Quantities for Slab on Concrete Beam.

All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Beam.

Cost of L4x4 ASTM A709 Grade 36 HP pile anchors and 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts, complete in place, will be considered completely covered by the contract unit price for Galvanized Structural Steel Piles (14 in.).

Estimated Quantities for Slab on Concrete Beam		
Item		Total
Class B-2 Concrete	cu. yard	271
Reinforcing Steel (Epoxy Coated)	pound	68,700

The table of Estimated Quantities for Slab on Concrete Beam 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 longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for prestressed panels, conventional forms, all concrete and epoxy coated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

Method of forming the slab shall be as shown on the plans and 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.

Class B-2 Concrete quantity is based on minimum top flange thickness and minimum joint material thickness.

The Estimated Quantities for Slab on Concrete Beam are based on skewed precast prestressed end panels.

The prestressed panel quantities are not included in the table of Estimated Quantities for Slab on Beam.

Note:
 HP piles are anticipated to be driven to refusal on rock. Review all borings for depth of rock and restrict driving as appropriate to comply with hard rock driving criteria in accordance with Sec 702. When pile refusal on rock occurs, as approved by the engineer, the minimum nominal axial compressive resistance is verified and no additional pile driving verification method is required.

Foundation Data							
Type	Design Data	Bent Number					
		1	2	3	4	5	6
Load Bearing Pile	Pile Type and Size	HP 14x89	HP 14x89	HP 14x89	HP 14x89	HP 14x89	HP 14x89
	Number	6	8	8	8	8	6
	Approximate Length Per Each	ft 96	65	57	57	55	53
	Pile Point Reinforcement	ea All	All	All	All	All	All
	Est. Max. Scour Depth (Elev.)	ft -	342	342	350	349	-
	Minimum Tip Penetration (Elev.)	ft 286	330	327	328	329	348
	Criteria for Min. Tip Penetration	**	**	**	**	**	**
	Min. Galvanized Penetration (Elev.)	ft Full Length	Full Length	Full Length	Full Length	Full Length	Full Length
	Pile Driving Verification Method	DF	DF	DF	DF	DF	DF
	Resistance Factor	0.4	0.4	0.4	0.4	0.4	0.4
	Minimum Nominal Axial Compressive Resistance	kip 365	423	484	484	423	365

DF = FHWA-Modified Gates Dynamic Pile Formula

Minimum Nominal Axial Compressive Resistance = $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factor}}$

** - Penetration of anticipated soft geotechnical layers

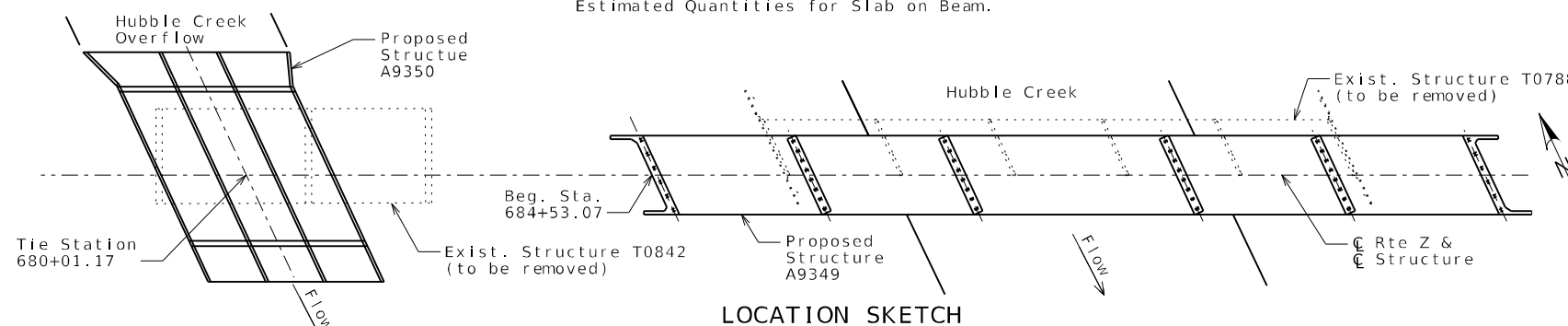
All piles shall be galvanized down to the minimum galvanized penetration (elevation).

Pile point reinforcement need not be galvanized. Shop drawings will not be required for pile point reinforcement.

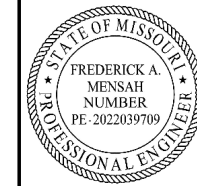
The contractor shall make every effort to achieve the minimum galvanized penetration (elevation) shown on the plans for all piles. Deviations in penetration less than 5 feet of the minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetration is achieved on subsequent piles.

Detailed Aug. 2024
 Checked Sep. 2024

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



Sheet No. 2 of 44



DATE PREPARED
 02/09/2026

ROUTE Z STATE MO
 DISTRICT BR SHEET NO. 2

COUNTY
 CAPE GIRARDEAU

JOB NO.
 J9S3738
 CONTRACT ID.

PROJECT NO.

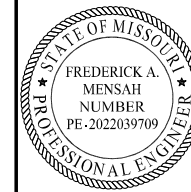
BRIDGE NO.
 A9349

DESCRIPTION	DATE

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DATE PREPARED
09/22/2025

ROUTE Z STATE MO
DISTRICT BR SHEET NO. 3

COUNTY
CAPE GIRARDEAU

JOB NO.
19S3738

CONTRACT ID.

PROJECT NO.

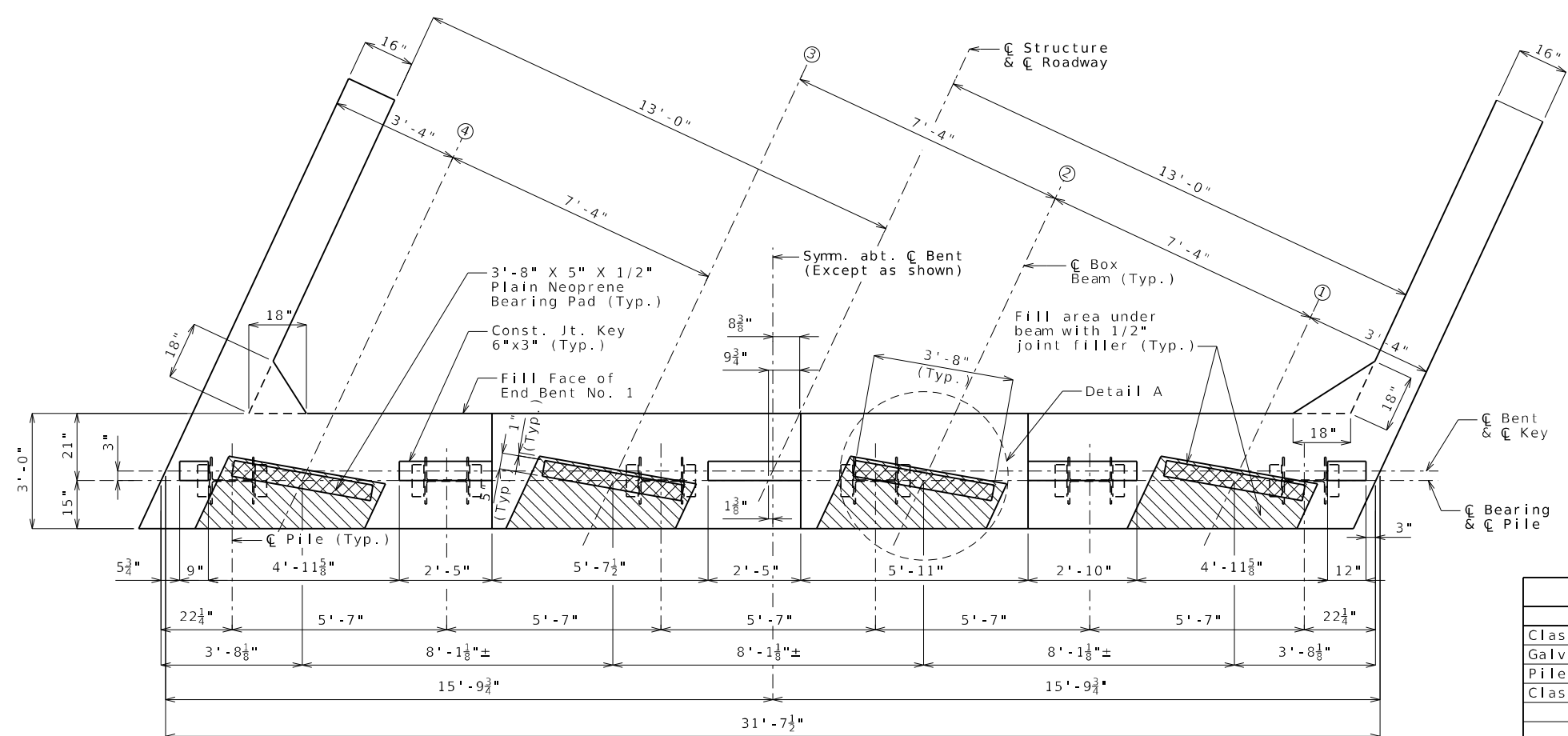
BRIDGE NO.
A9349

DESCRIPTION	DATE

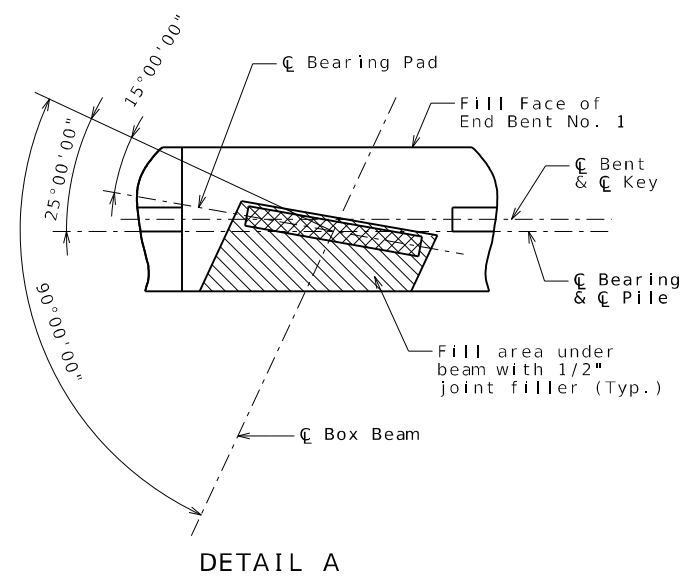
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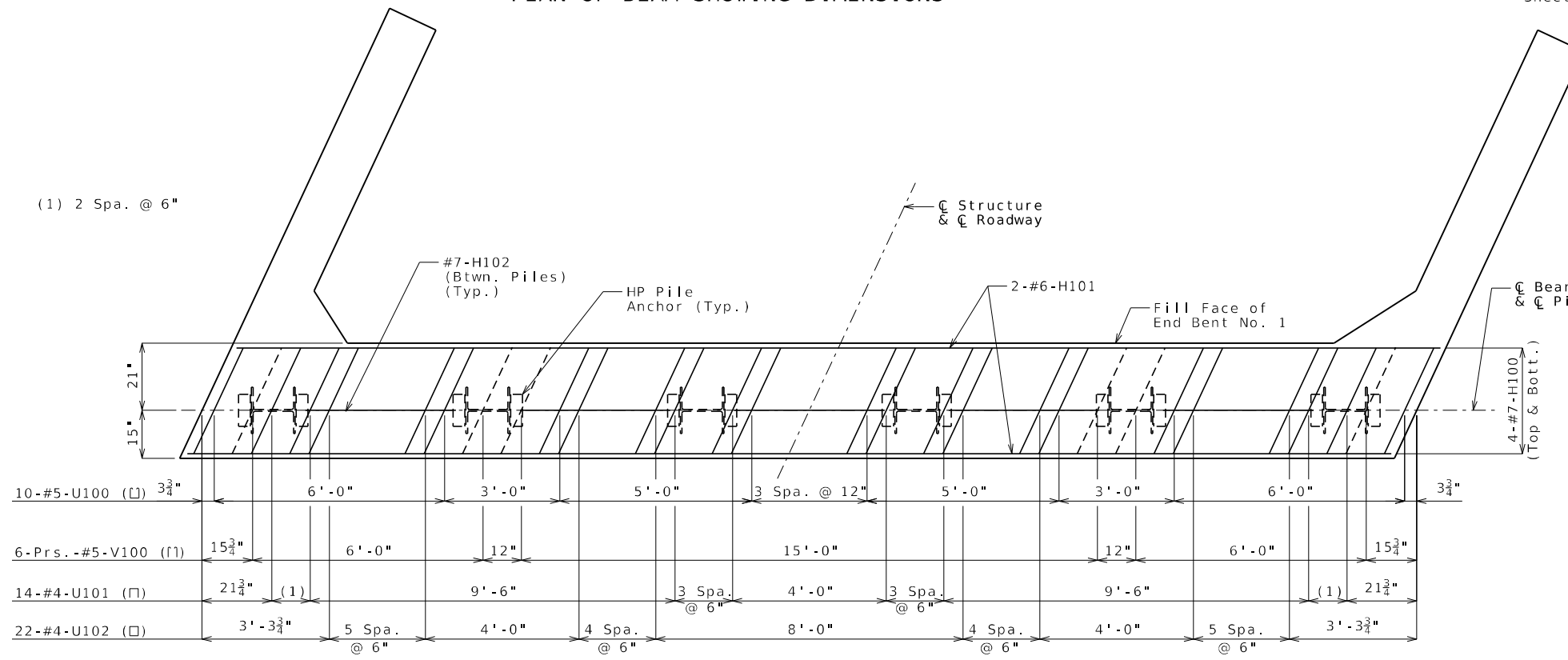
PLAN OF BEAM SHOWING DIMENSIONS



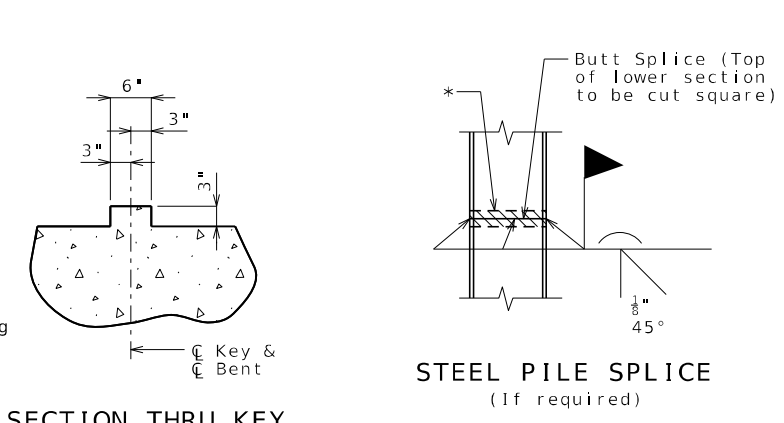
DETAIL A

Item	Quantity
Class 1 Excavation	cu. yard 15
Galvanized Structural Steel Pile (14 in.)	linear foot 576
Pile Point Reinforcement	each 6
Class B Concrete (Substructure)	cu. yard 14.1

These quantities are included in the Estimated Quantities table on Sheet No. 2.



PLAN OF BEAM SHOWING REINFORCEMENT
(Steps & Keys not shown for clarity)



SECTION THRU KEY

STEEL PILE SPLICE
(If required)

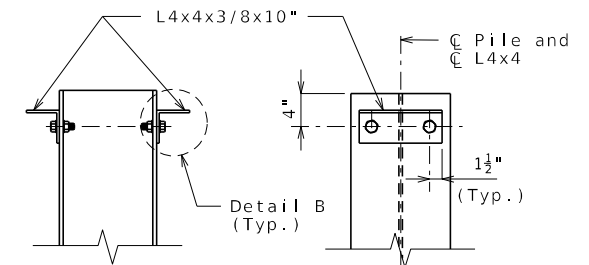
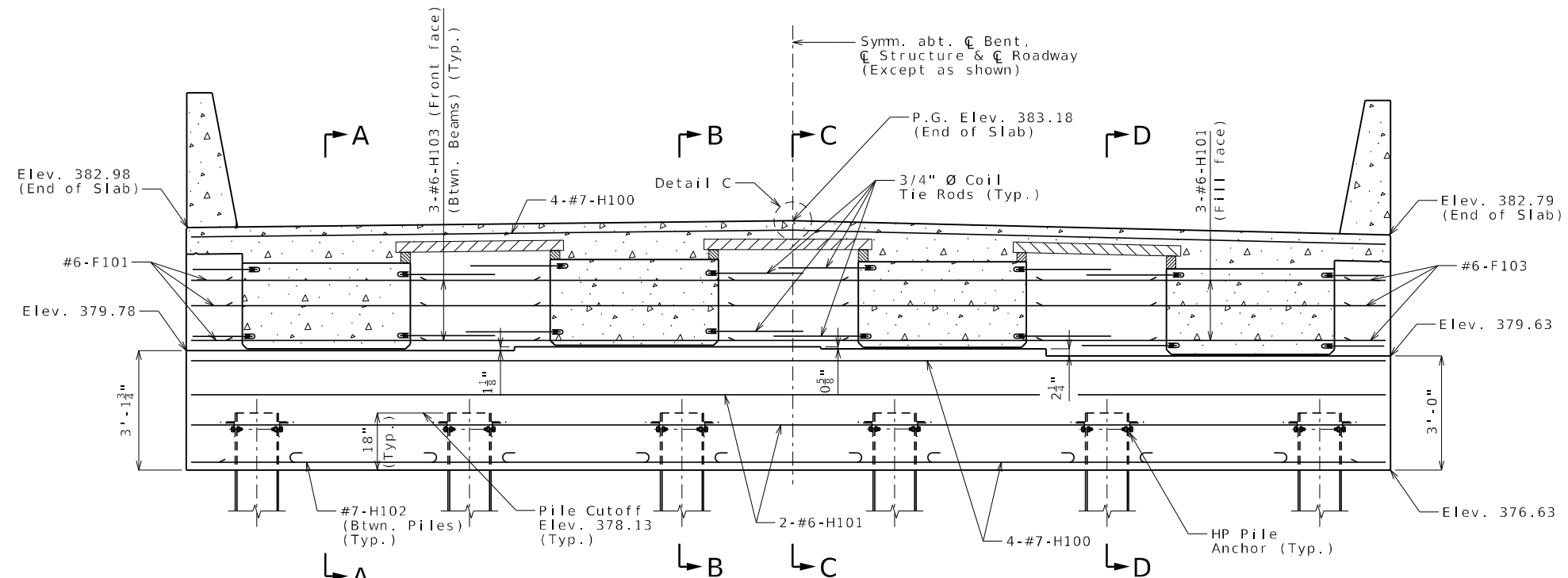
* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

Notes:
Work this sheet with Sheets No. 4 & 5.
For details of vertical drains at end ends, See Sheet No. 6.
All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
Reinforcing steel shall be shifted to clear piles. U bars shall be shifted to clear piles by at least 1 1/2".
The U-bars and pairs of V-bars shall be placed parallel to the centerline of roadway.
For details of HP Pile Anchors, see Sheet No. 4.

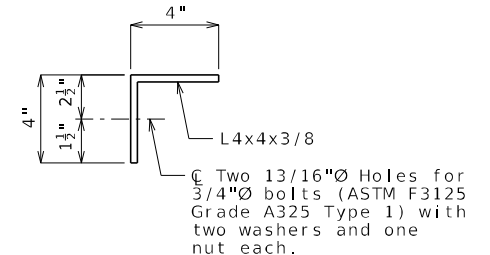
Detailed Aug. 2024
Checked Sep. 2024

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

Sheet No. 3 of 44

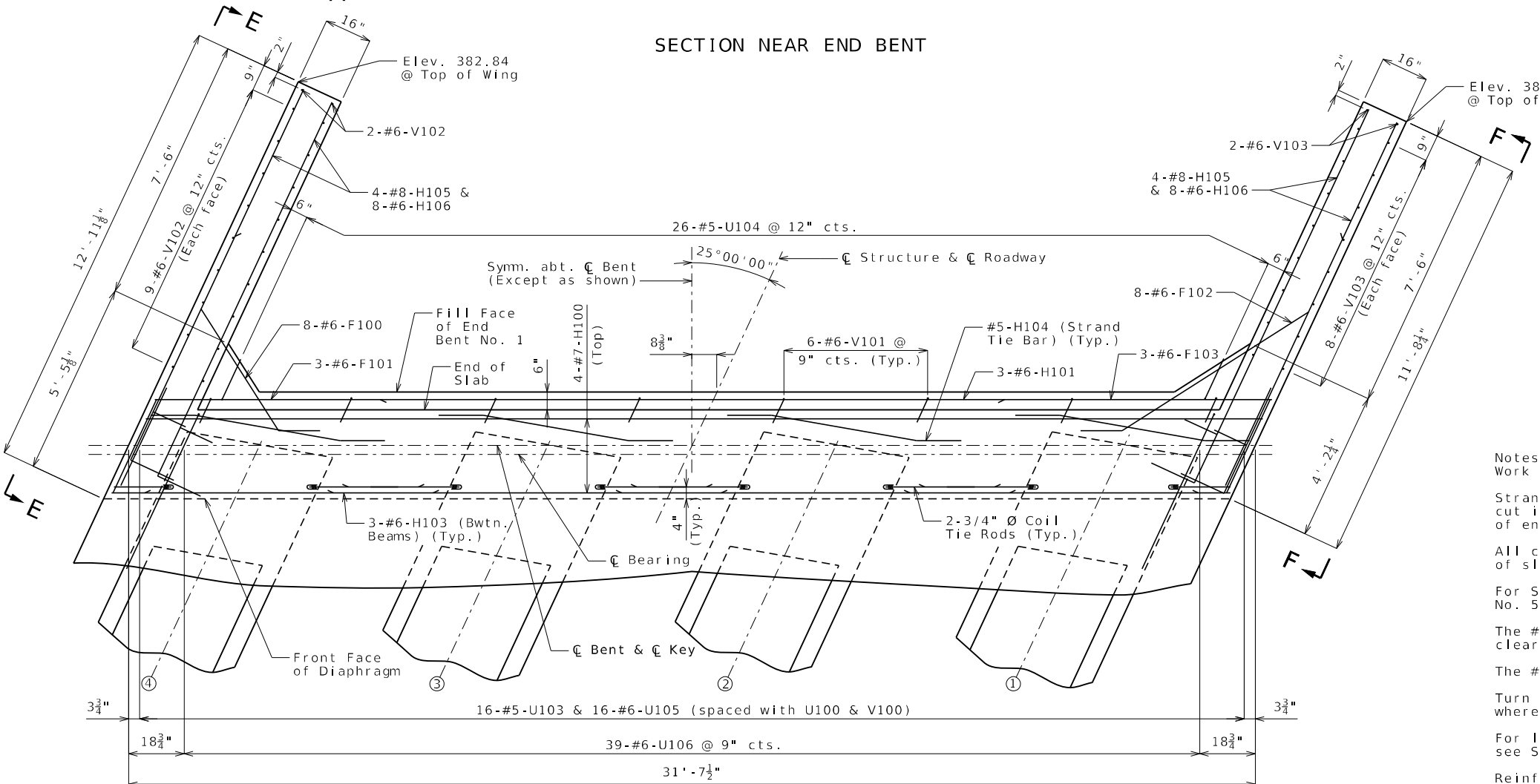


DETAILS OF HP PILE ANCHORS



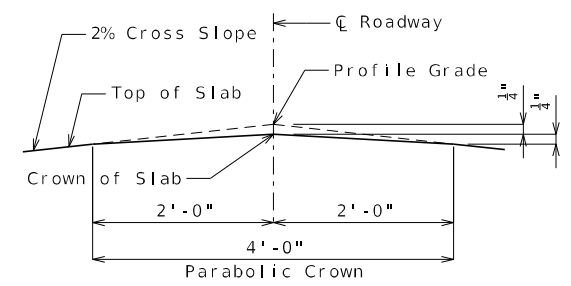
DETAIL B

Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.



PART PLAN

DETAILS OF END BENT NO. 1



DETAIL C

Notes:
 Work this sheet with Sheets No. 3 & 5.
 Strands at ends of beams shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent.
 All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
 For Sections A-A thru D-D and Elevation E-E & F-F, see Sheet No. 5.
 The #6-F100 and #6-F102 bars shall be bent in the field to clear beams.
 The #6-H106 bars shall be bent in the field to clear piles.
 Turn the interior #6-H106 bars within diaphragm to clear beams where necessary.
 For location of coil tie rods and #5-H104 (strand tie bar), see Sheets No.19 thru 21.
 Reinforcing steel shall be shifted to clear piles. U bars shall be shifted to clear piles by at least 1 1/2".
 The U-bars and pairs of V-bars shall be placed parallel to the centerline of roadway.

Detailed Aug. 2024
 Checked Sep. 2024

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

Sheet No. 4 of 44



DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 4
COUNTY CAPE GIRARDEAU	
JOB NO. 19S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	

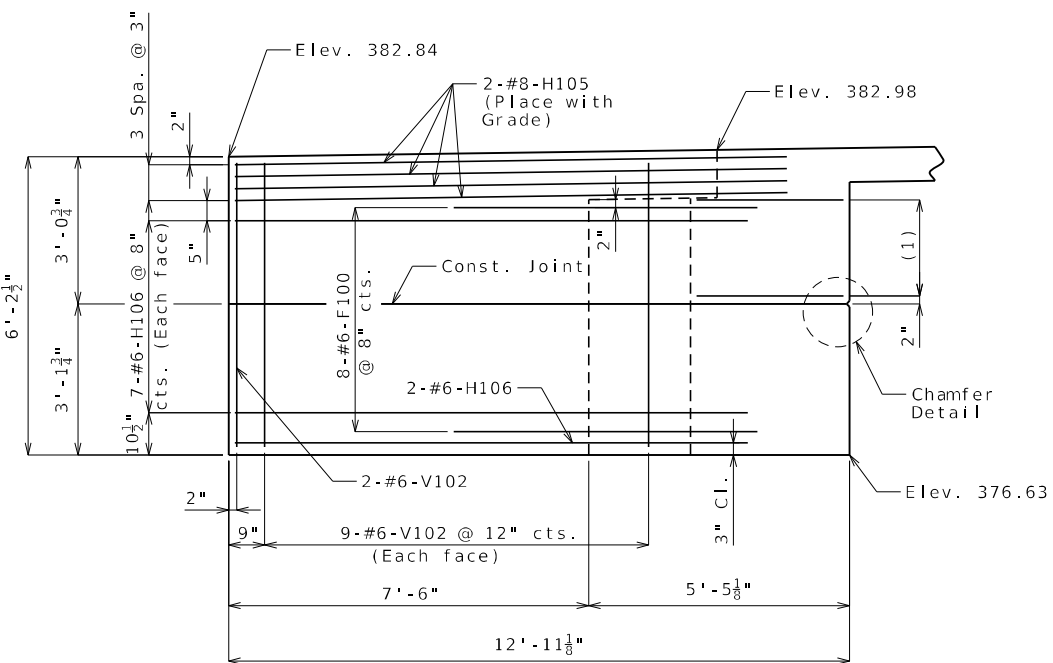
DESCRIPTION	DATE

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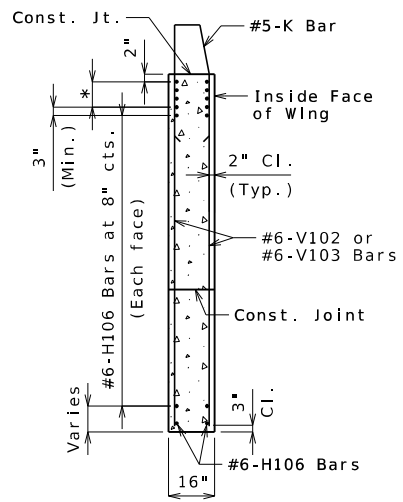
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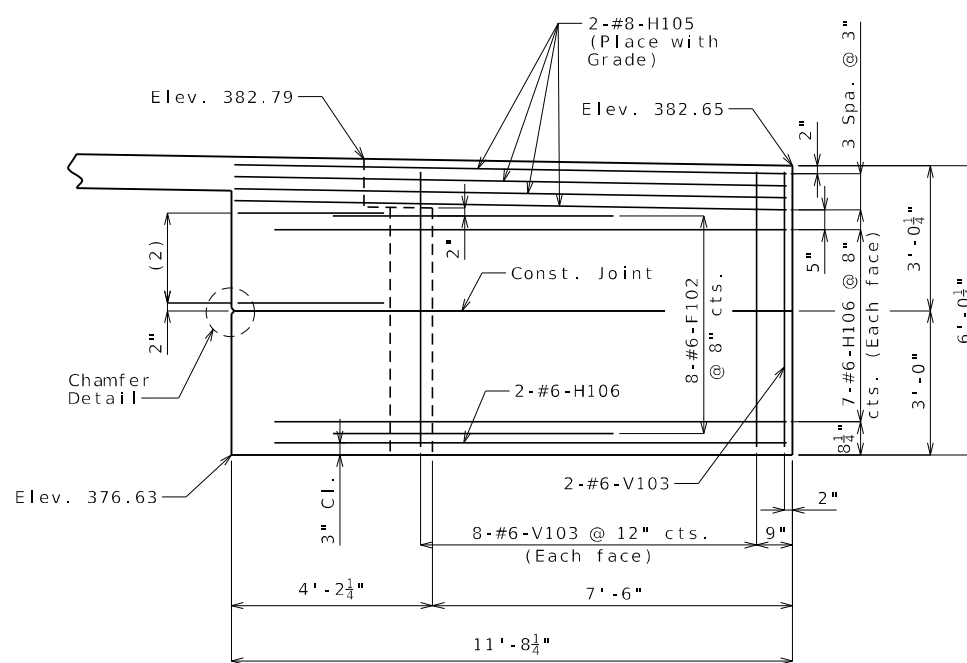
ELEVATION E-E



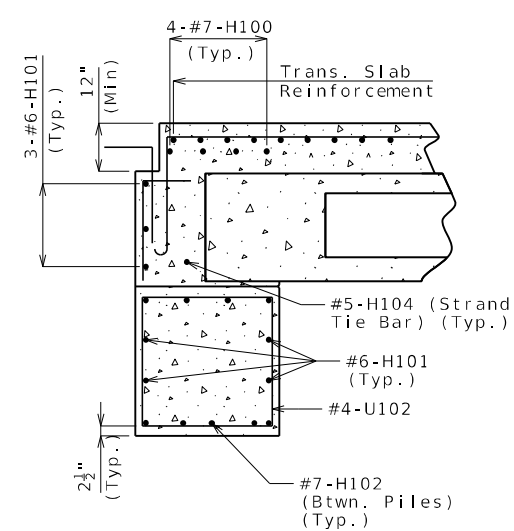
TYPICAL SECTION THRU WING

* #8-H105 Bars at 3" cts. (Each face) (Place with grade)

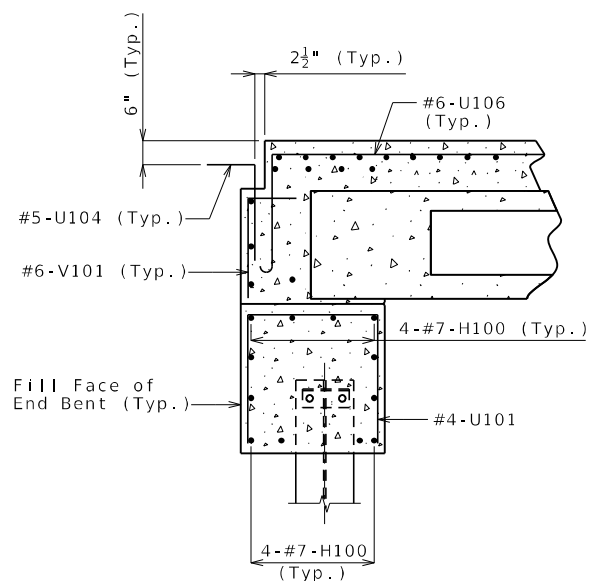
- (1) 3-#6-F101 @ 12 cts.
- (2) 3-#6-F103 @ 12 cts.



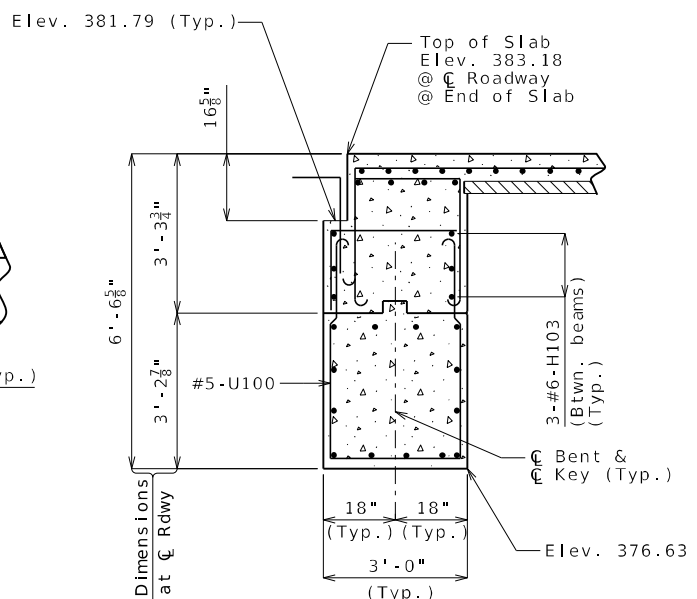
ELEVATION F-F



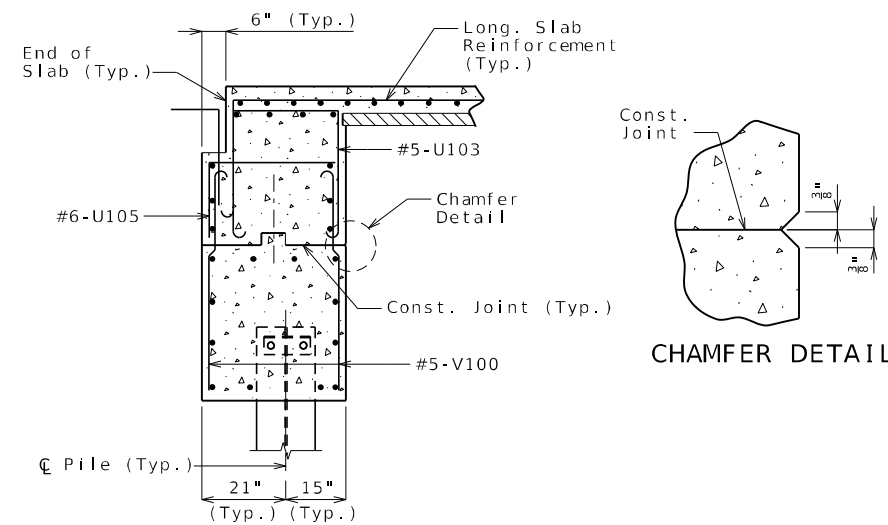
SECTION A-A



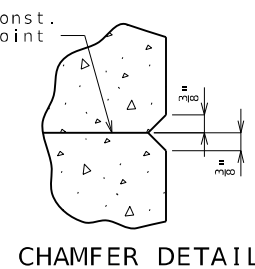
SECTION B-B



SECTION C-C



SECTION D-D



CHAMFER DETAIL

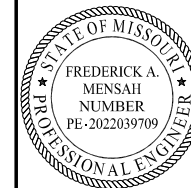
Notes:
 Work this sheet with Sheets No. 3 & 4.
 For reinforcement of Type D Barrier not shown, see Sheet No. 29.
 For details of Bridge Approach Slab, see Sheet No. 31.
 Reinforcing steel shall be shifted to clear piles, U-bars shall clear by at least 1 1/2".
 For details of HP Pile Anchors, see Sheet No. 4.

Detailed Aug. 2024
 Checked Sep. 2024

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

Sheet No. 5 of 44

DETAILS OF END BENT NO. 1



DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 5
COUNTY CAPE GIRARDEAU	
JOB NO. 19S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	

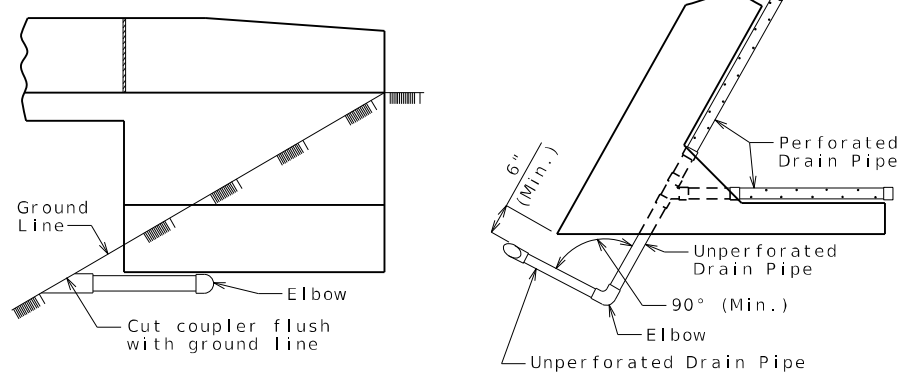
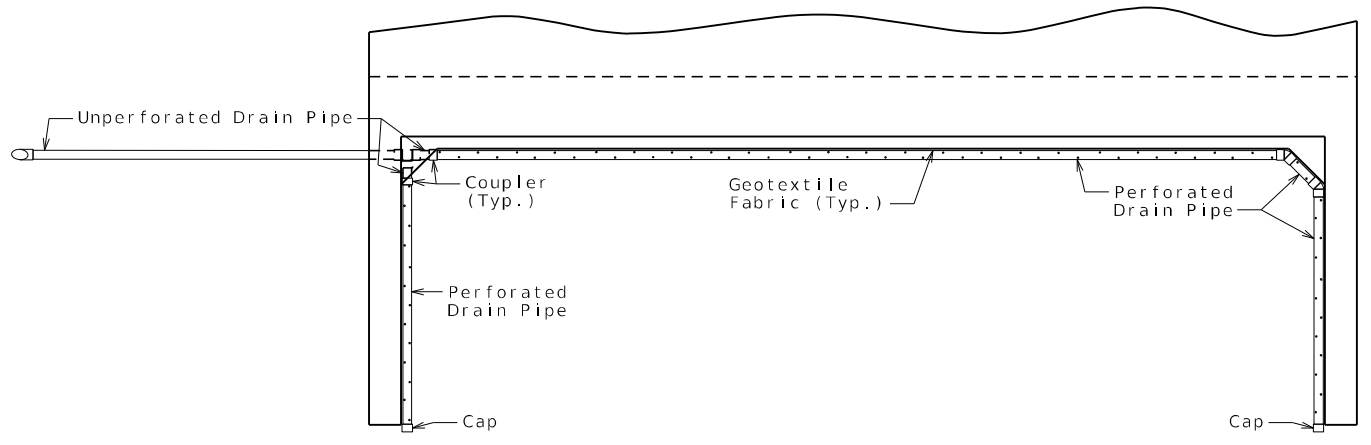
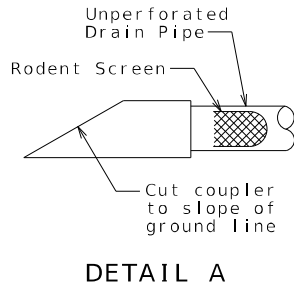
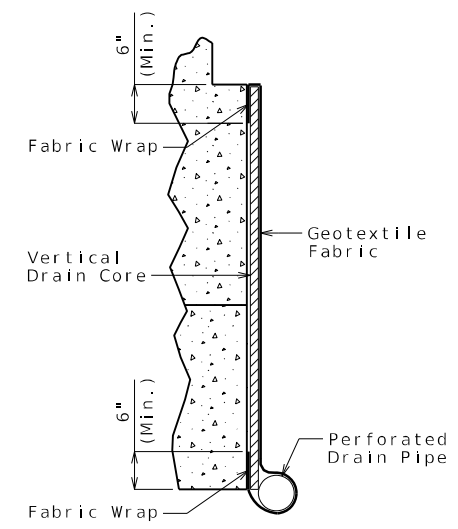
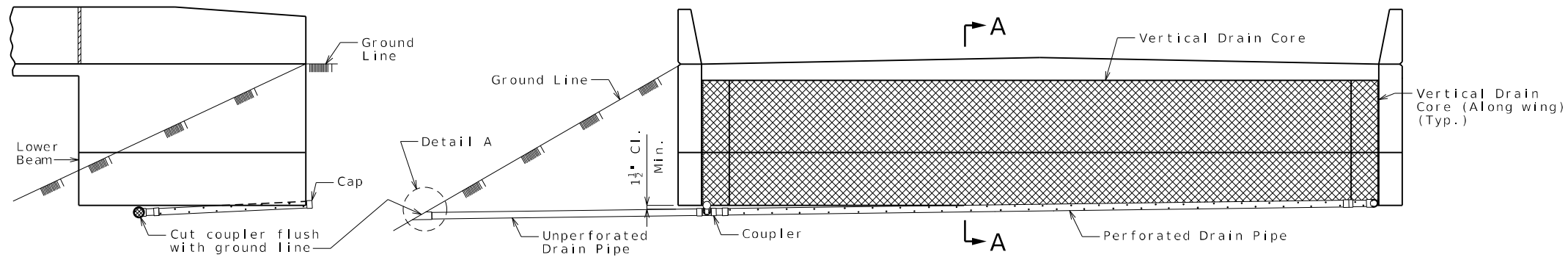
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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OPTIONAL TURNED DRAIN
(Use only when straight drain is not practical.)

VERTICAL DRAIN AT END BENTS
(Squared end bent shown, skewed end bent similar)

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.

Drain pipe shall be placed at fill face of end bent and inside face of wings. The pipe shall slope to lowest grade of ground line, also missing the lower beam of end bent by a minimum of 1 1/2 inches.

Perforated pipe shall be placed at fill face side and inside face of wings at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.



DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 6
COUNTY CAPE GIRARDEAU	
JOB NO. J9S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	

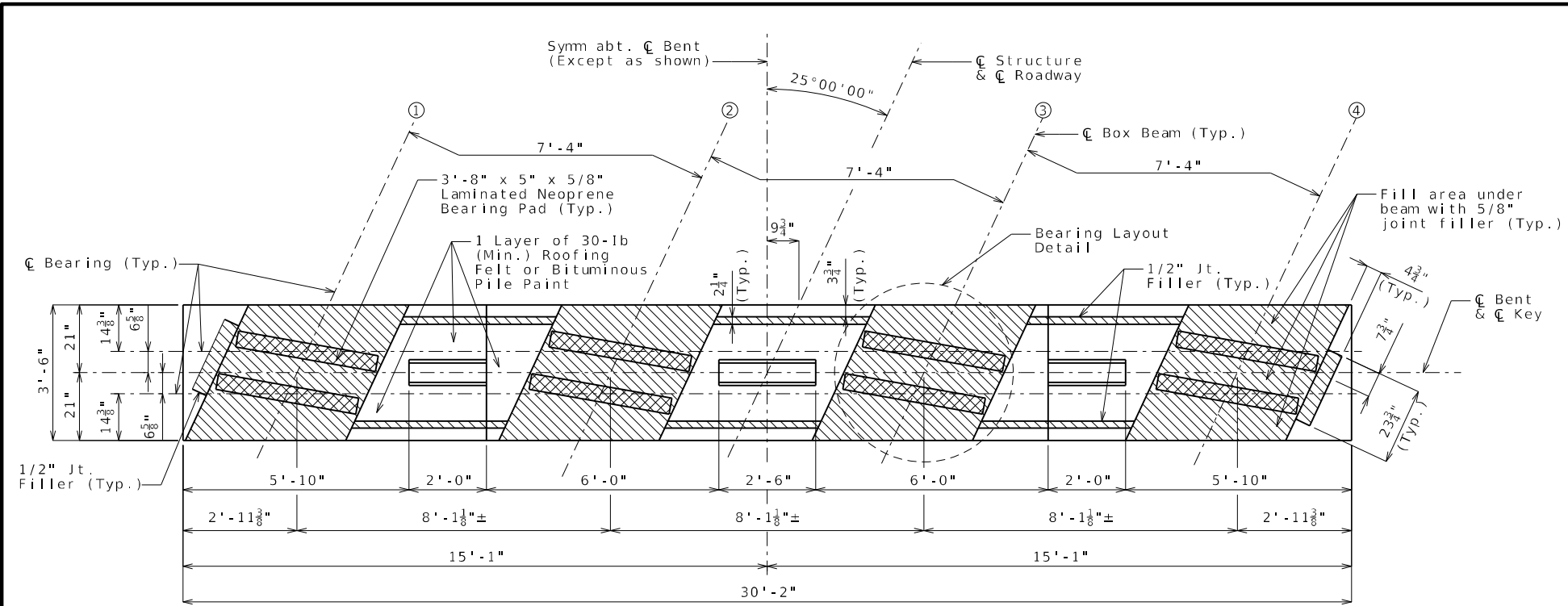
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

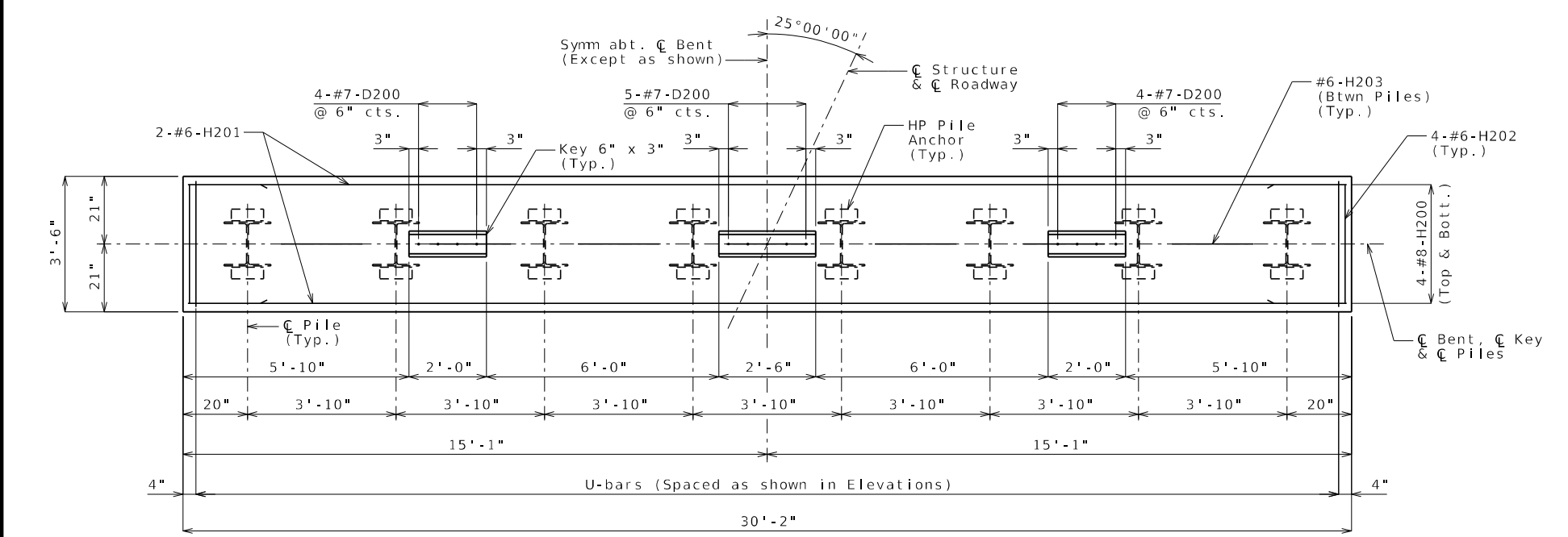
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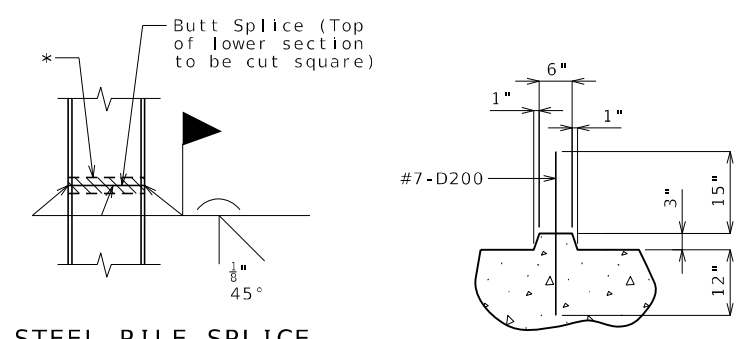
PLAN OF BEAM SHOWING DIMENSIONS



PLAN OF BEAM SHOWING REINFORCEMENT

Substructure Quantity Table for Bent No. 2		
Item	Unit	Quantity
Galvanized Structural Steel Pile (14 in.)	linear foot	520
Pile Point Reinforcement	each	8
Class B Concrete (Substructure)	cu. yard	12.2
Reinforcing Steel (Bridges)	pound	1725

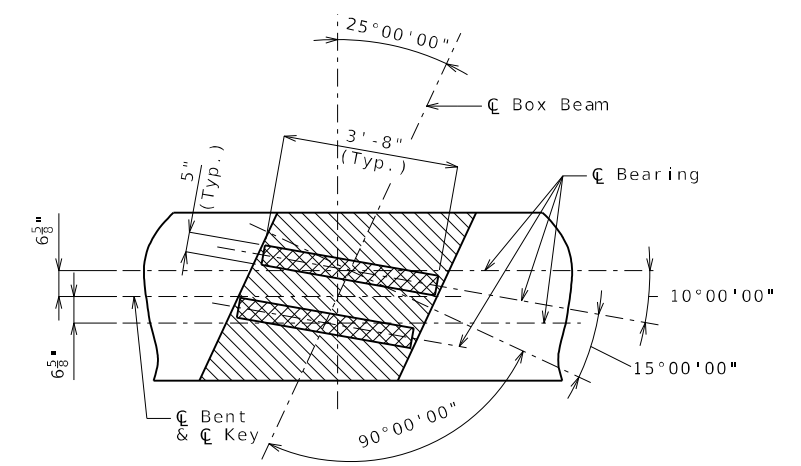
These quantities are included in the Estimated Quantities table on Sheet No. 2.



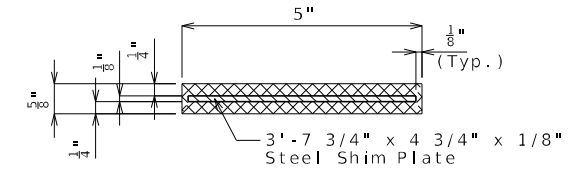
STEEL PILE SPLICE
(If required)

SECTION THRU KEY

* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.



BEARING LAYOUT DETAIL



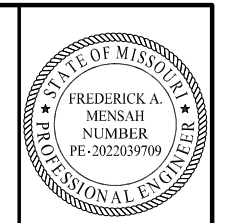
SECTION THRU LAMINATED NEOPRENE BEARING PAD

Notes:
 Work this sheet with Sheet No. 8.
 For details of HP Pile Anchors, see Sheet No. 8.
 Reinforcing steel shall be shifted to clear piles, U-bars shall clear by at least 1 1/2".
 For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.

Detailed Aug. 2024
 Checked Sep. 2024

DETAILS OF INTERMEDIATE BENT NO. 2

Note: This drawing is not to scale. Follow dimensions. Sheet No. 7 of 44



DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 7
COUNTY CAPE GIRARDEAU	
JOB NO. 19S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	

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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DATE PREPARED	
09/22/2025	
ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	8
COUNTY	
CAPE GIRARDEAU	
JOB NO.	
19S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9349	

DESCRIPTION
DATE

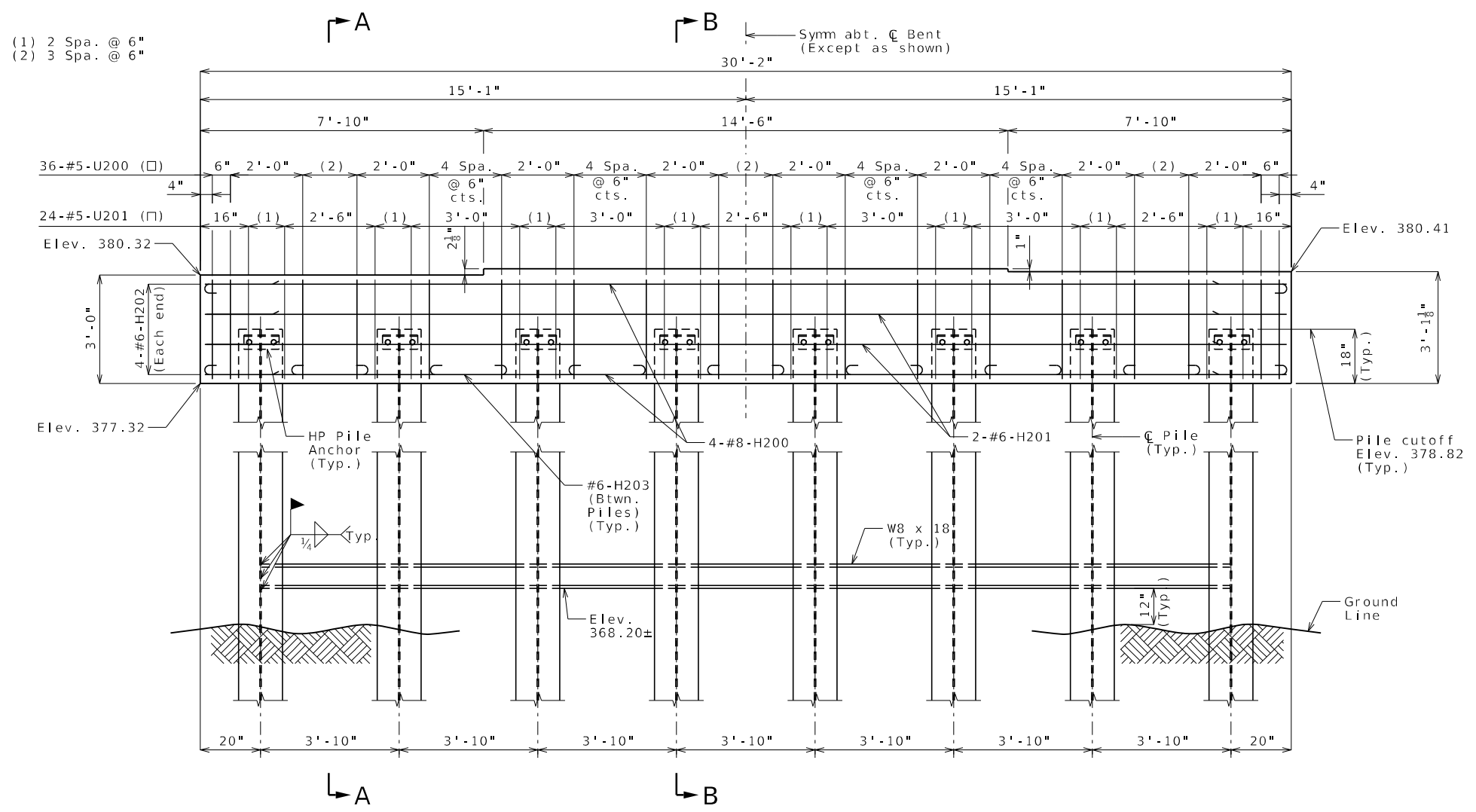
DESCRIPTION
DATE

DESCRIPTION
DATE

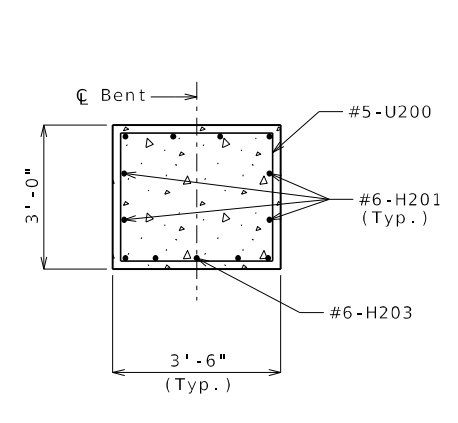
DESCRIPTION
DATE



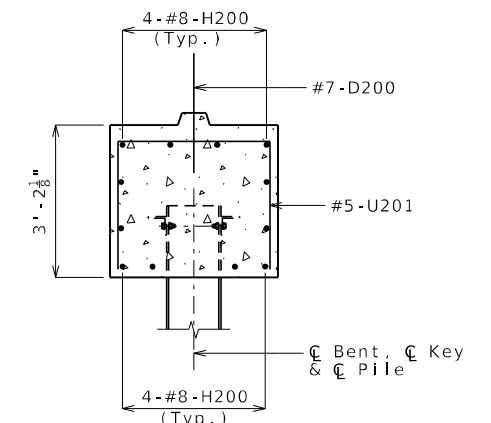
- (1) 2 Spa. @ 6"
- (2) 3 Spa. @ 6"



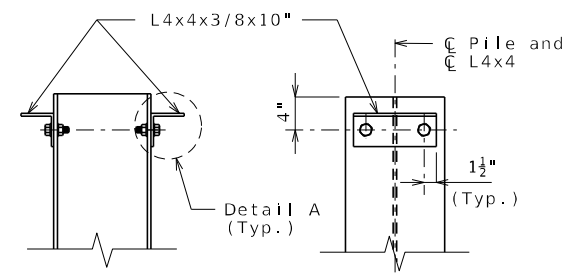
ELEVATION
(Looking Ahead Station)
(Beams keys not shown for clarity)



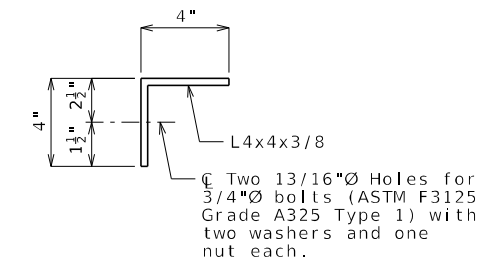
SECTION A-A



SECTION B-B



DETAILS OF HP PILE ANCHORS

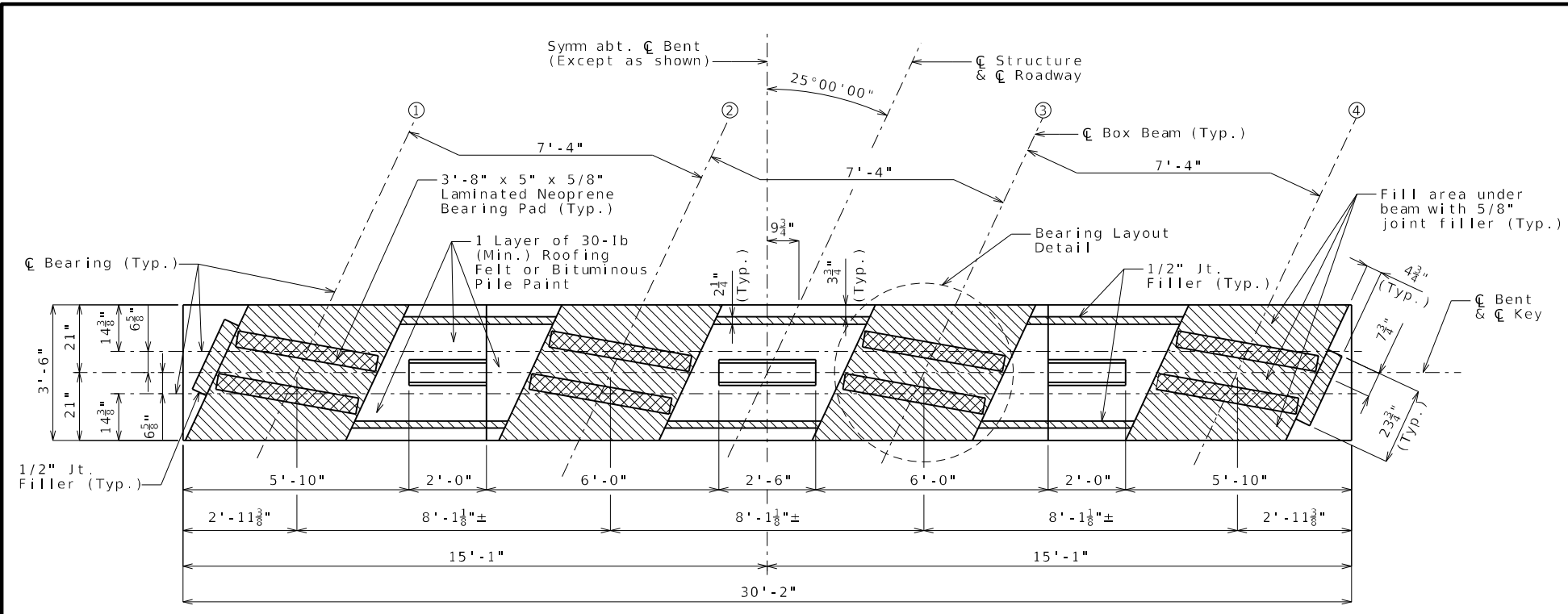


DETAIL A

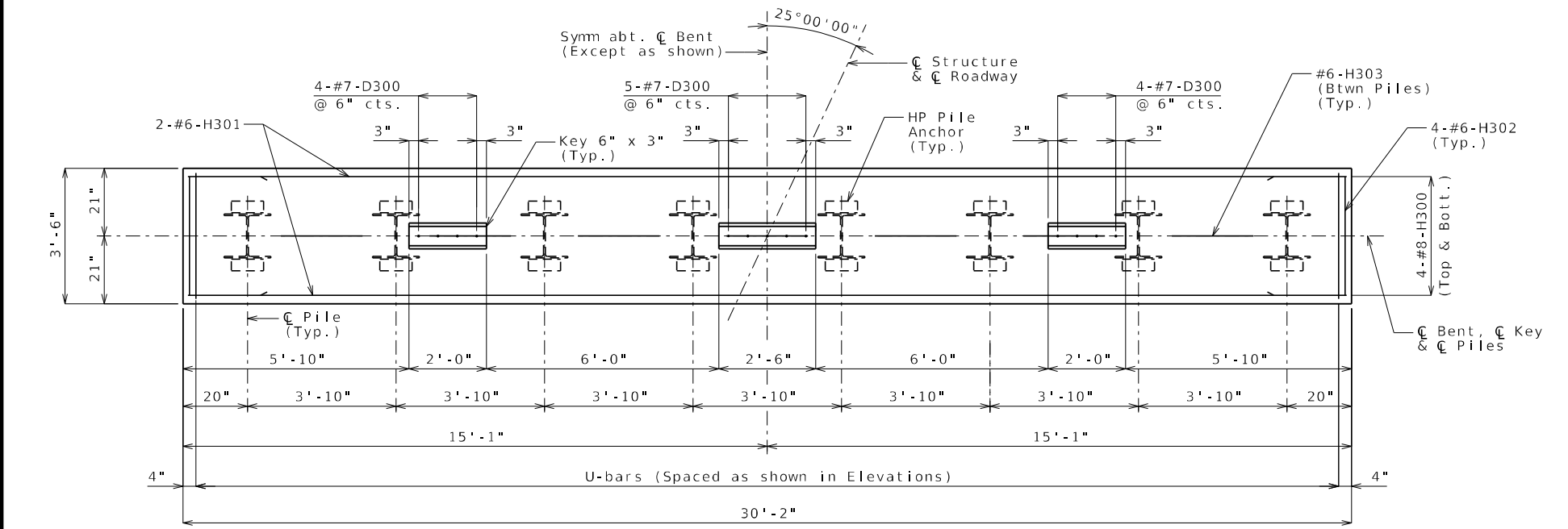
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

Notes:
Work this sheet with Sheet No. 7.
Reinforcing steel shall be shifted to clear piles, U-bars shall clear by at least 1 1/2".

DETAILS OF INTERMEDIATE BENT NO. 2



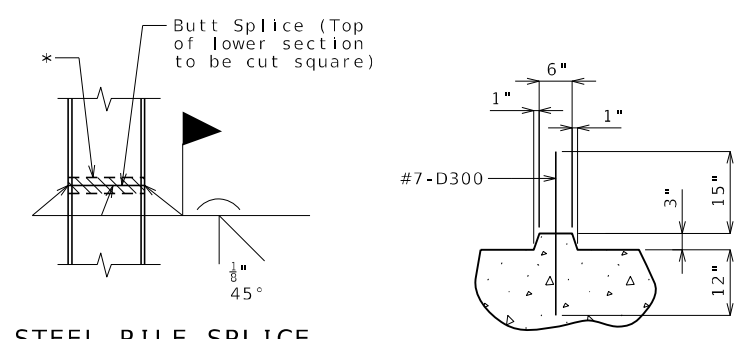
PLAN OF BEAM SHOWING DIMENSIONS



PLAN OF BEAM SHOWING REINFORCEMENT

Substructure Quantity Table for Bent No. 3		
Item	Unit	Quantity
Galvanized Structural Steel Pile (14 in.)	linear foot	456
Pile Point Reinforcement	each	8
Class B Concrete (Substructure)	cu. yard	12.1
Reinforcing Steel (Bridges)	pound	1725

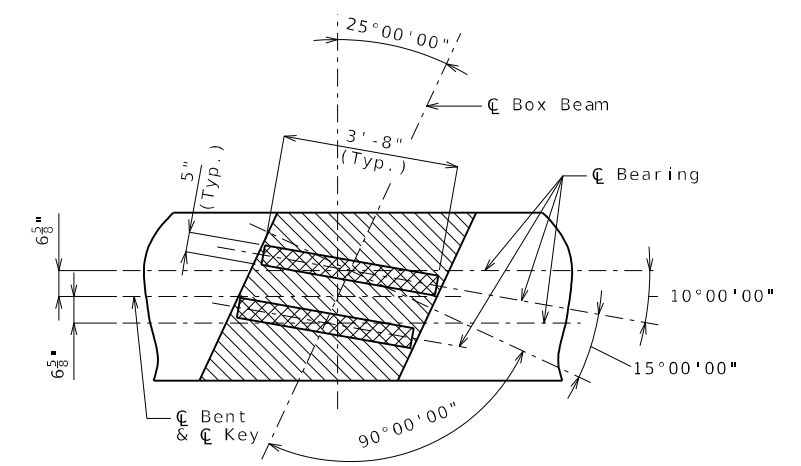
These quantities are included in the Estimated Quantities table on Sheet No. 2.



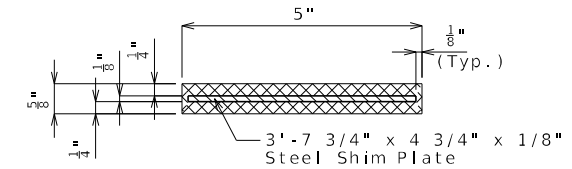
STEEL PILE SPLICE
(If required)

SECTION THRU KEY

* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.



BEARING LAYOUT DETAIL



SECTION THRU LAMINATED NEOPRENE BEARING PAD

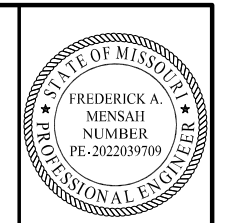
Notes:
 Work this sheet with Sheet No. 10.
 For details of HP Pile Anchors, see Sheet No. 10.
 Reinforcing steel shall be shifted to clear piles, U-bars shall clear by at least 1 1/2".
 For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.

Detailed Aug. 2024
 Checked Sep. 2024

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

DETAILS OF INTERMEDIATE BENT NO. 3

Sheet No. 9 of 44



DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 9
COUNTY CAPE GIRARDEAU	
JOB NO. 19S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	

DESCRIPTION	DATE

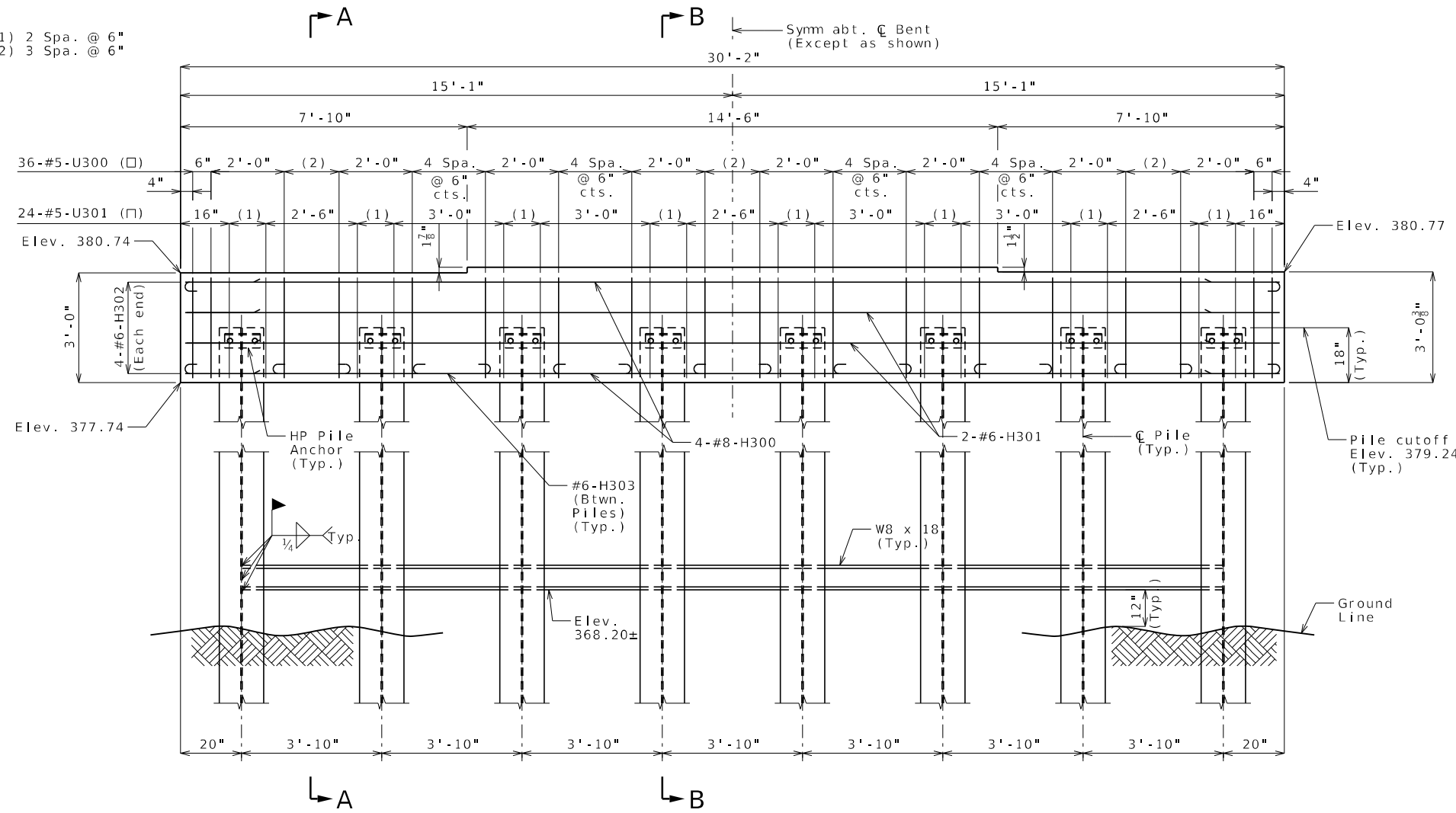
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

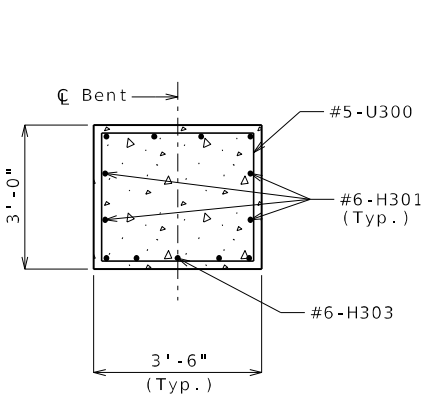
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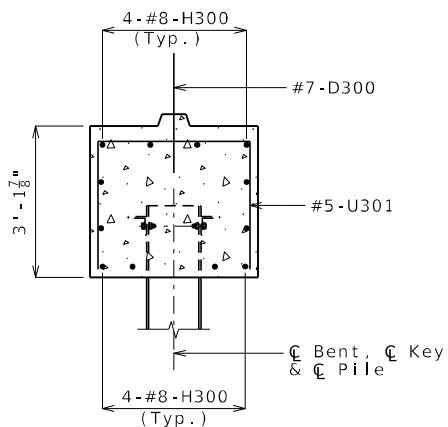
- (1) 2 Spa. @ 6"
- (2) 3 Spa. @ 6"



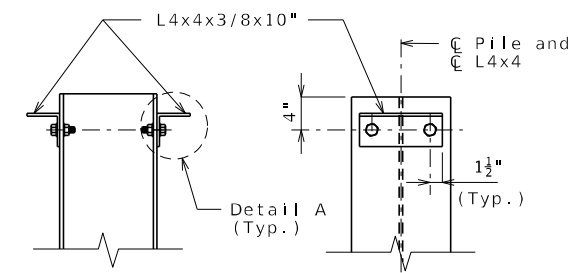
ELEVATION
(Looking Ahead Station)
(Beams keys not shown for clarity)



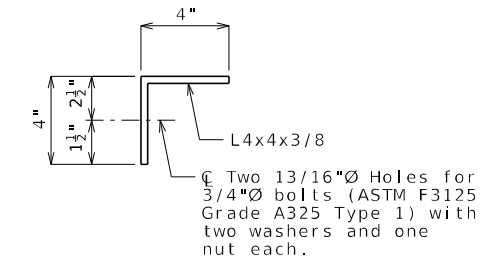
SECTION A-A



SECTION B-B



DETAILS OF HP PILE ANCHORS



DETAIL A

Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

Notes:
Work this sheet with Sheet No. 9.

Reinforcing steel shall be shifted to clear piles, U-bars shall clear by at least 1 1/2".



DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 10
COUNTY CAPE GIRARDEAU	
JOB NO. J9S3738	
CONTRACT ID.	

PROJECT NO.
BRIDGE NO. A9349

DESCRIPTION	DATE

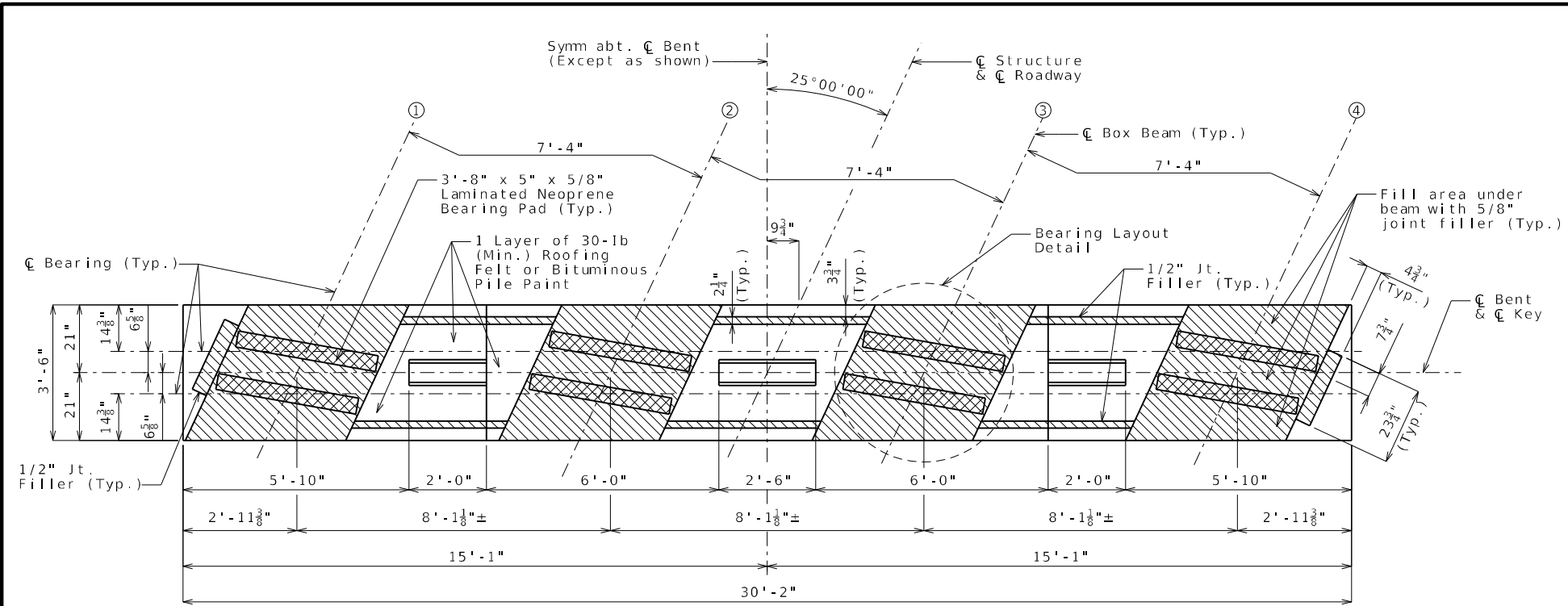
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

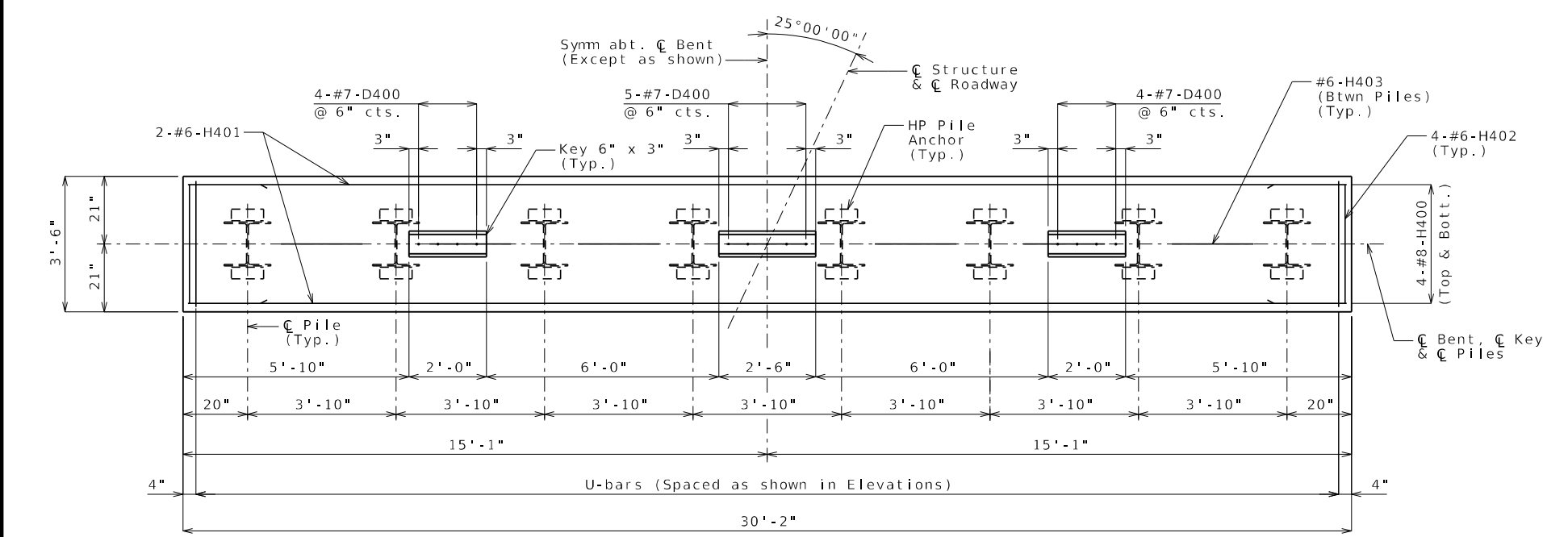
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DETAILS OF INTERMEDIATE BENT NO. 3



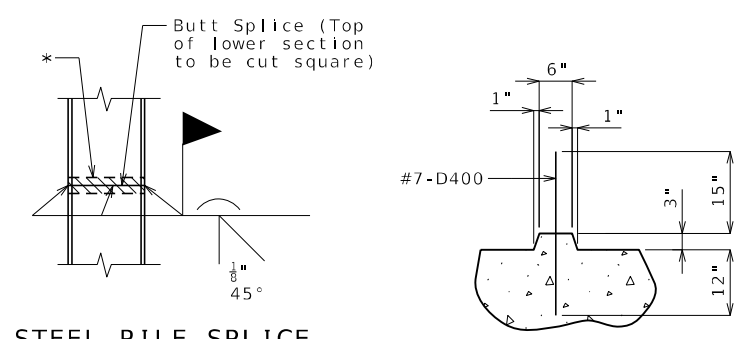
PLAN OF BEAM SHOWING DIMENSIONS



PLAN OF BEAM SHOWING REINFORCEMENT

Substructure Quantity Table for Bent No. 4		
Item	Unit	Quantity
Galvanized Structural Steel Pile (14 in.)	linear foot	456
Pile Point Reinforcement	each	8
Class B Concrete (Substructure)	cu. yard	12.1
Reinforcing Steel (Bridges)	pound	1725

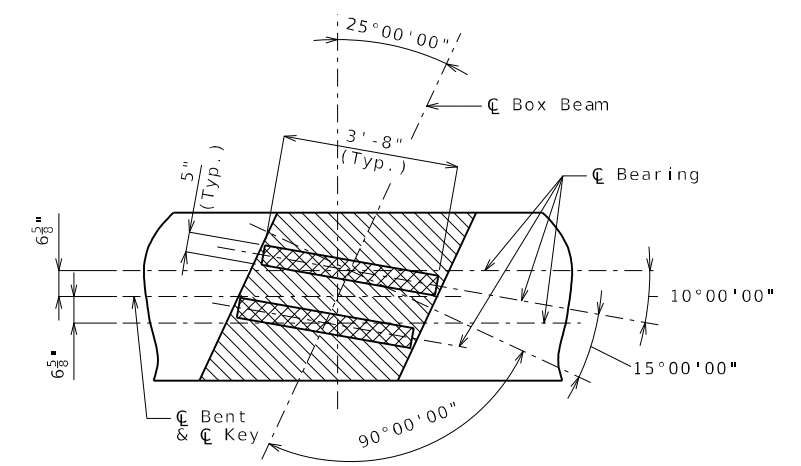
These quantities are included in the Estimated Quantities table on Sheet No. 2.



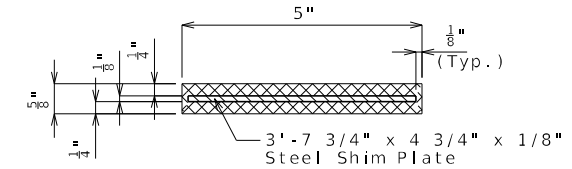
STEEL PILE SPLICE
(If required)

SECTION THRU KEY

* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.



BEARING LAYOUT DETAIL



SECTION THRU LAMINATED NEOPRENE BEARING PAD

Notes:
 Work this sheet with Sheet No. 12.
 For details of HP Pile Anchors, see Sheet No. 12.
 Reinforcing steel shall be shifted to clear piles, U-bars shall clear by at least 1 1/2".
 For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.

Detailed Aug. 2024
 Checked Sep. 2024

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

DETAILS OF INTERMEDIATE BENT NO. 4

Sheet No. 11 of 44



DATE PREPARED
 09/22/2025
 ROUTE Z STATE MO
 DISTRICT BR SHEET NO. 11
 COUNTY CAPE GIRARDEAU
 JOB NO. J9S3738
 CONTRACT ID.

PROJECT NO.
 BRIDGE NO. A9349

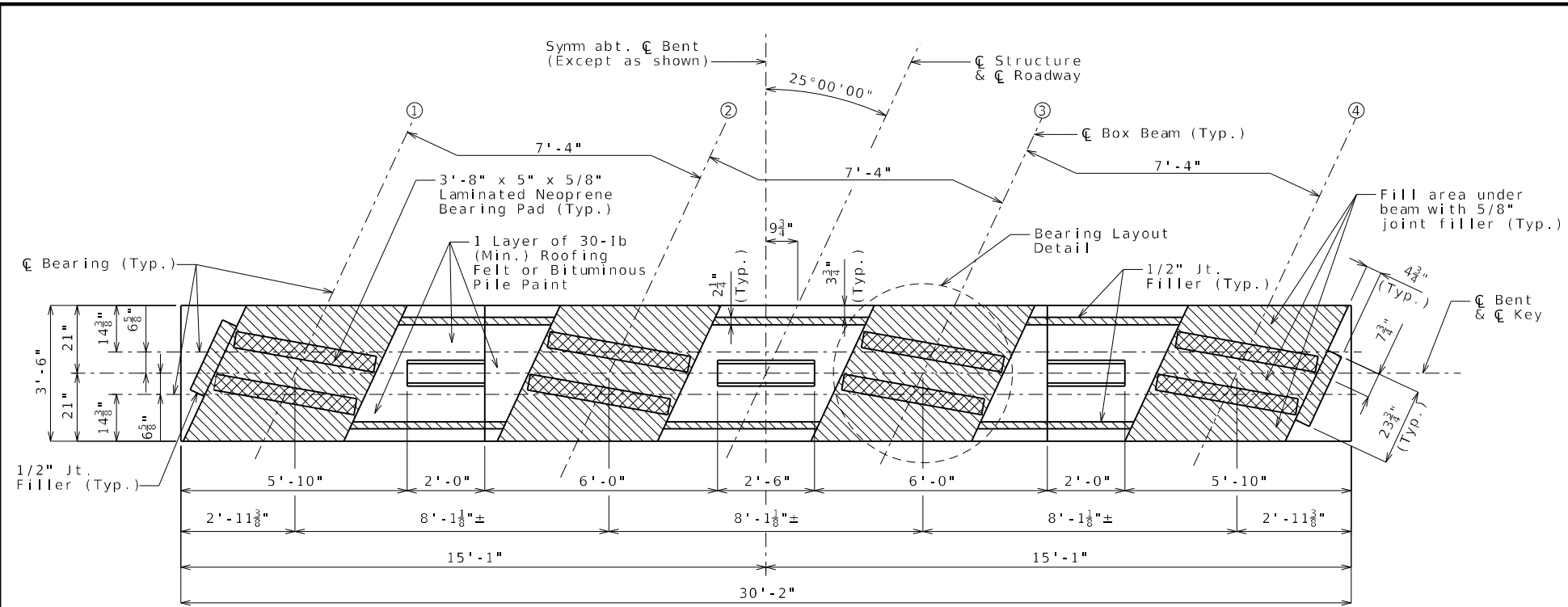
DESCRIPTION	DATE

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

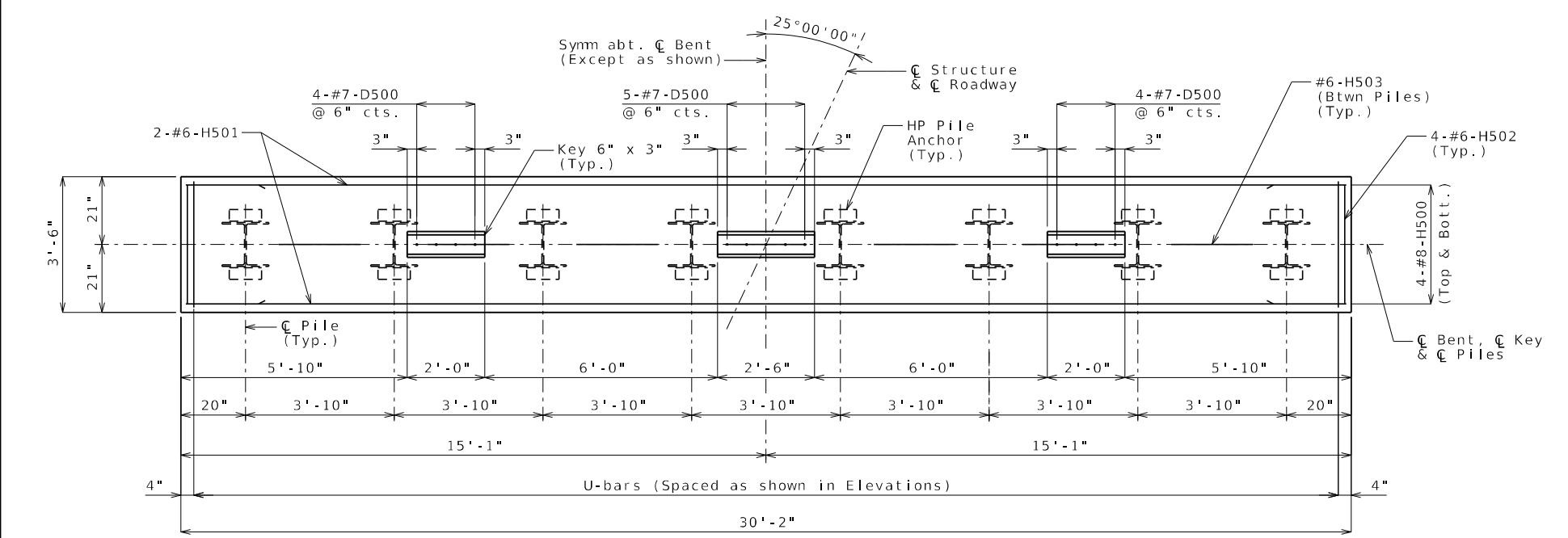


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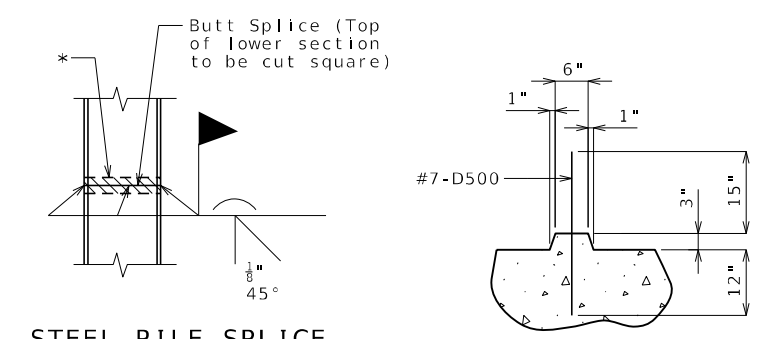
PLAN OF BEAM SHOWING DIMENSIONS



PLAN OF BEAM SHOWING REINFORCEMENT

Substructure Quantity Table for Bent No. 5		
Item	Unit	Quantity
Galvanized Structural Steel Pile (14 in.)	linear foot	440
Pile Point Reinforcement	each	8
Class B Concrete (Substructure)	cu. yard	12.2
Reinforcing Steel (Bridges)	pound	1725

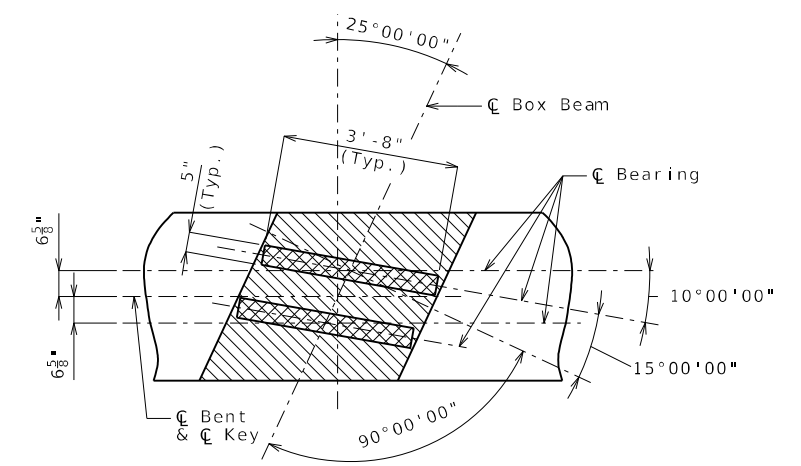
These quantities are included in the Estimated Quantities table on Sheet No. 2.



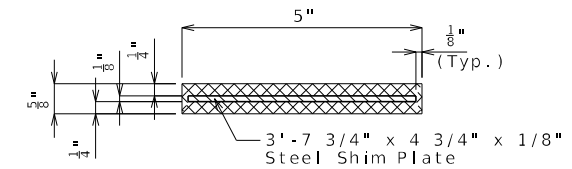
STEEL PILE SPLICE
(If required)

SECTION THRU KEY

* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.



BEARING LAYOUT DETAIL



SECTION THRU LAMINATED NEOPRENE BEARING PAD

Notes:
 Work this sheet with Sheet No. 14.
 For details of HP Pile Anchors, see Sheet No. 14.
 Reinforcing steel shall be shifted to clear piles, U-bars shall clear by at least 1 1/2".
 For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.

DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 13
COUNTY CAPE GIRARDEAU	
JOB NO. J9S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	
DESCRIPTION	DATE
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	105 WEST CAPITOL JEFFERSON CITY, MO 65102



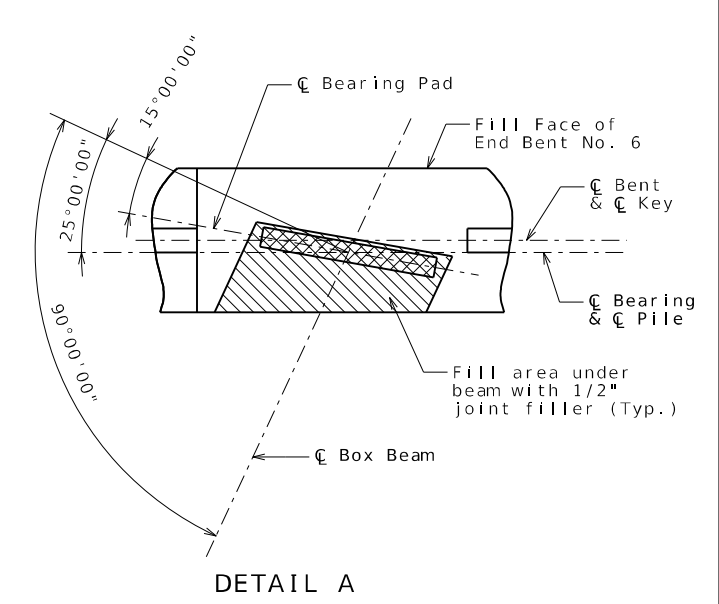
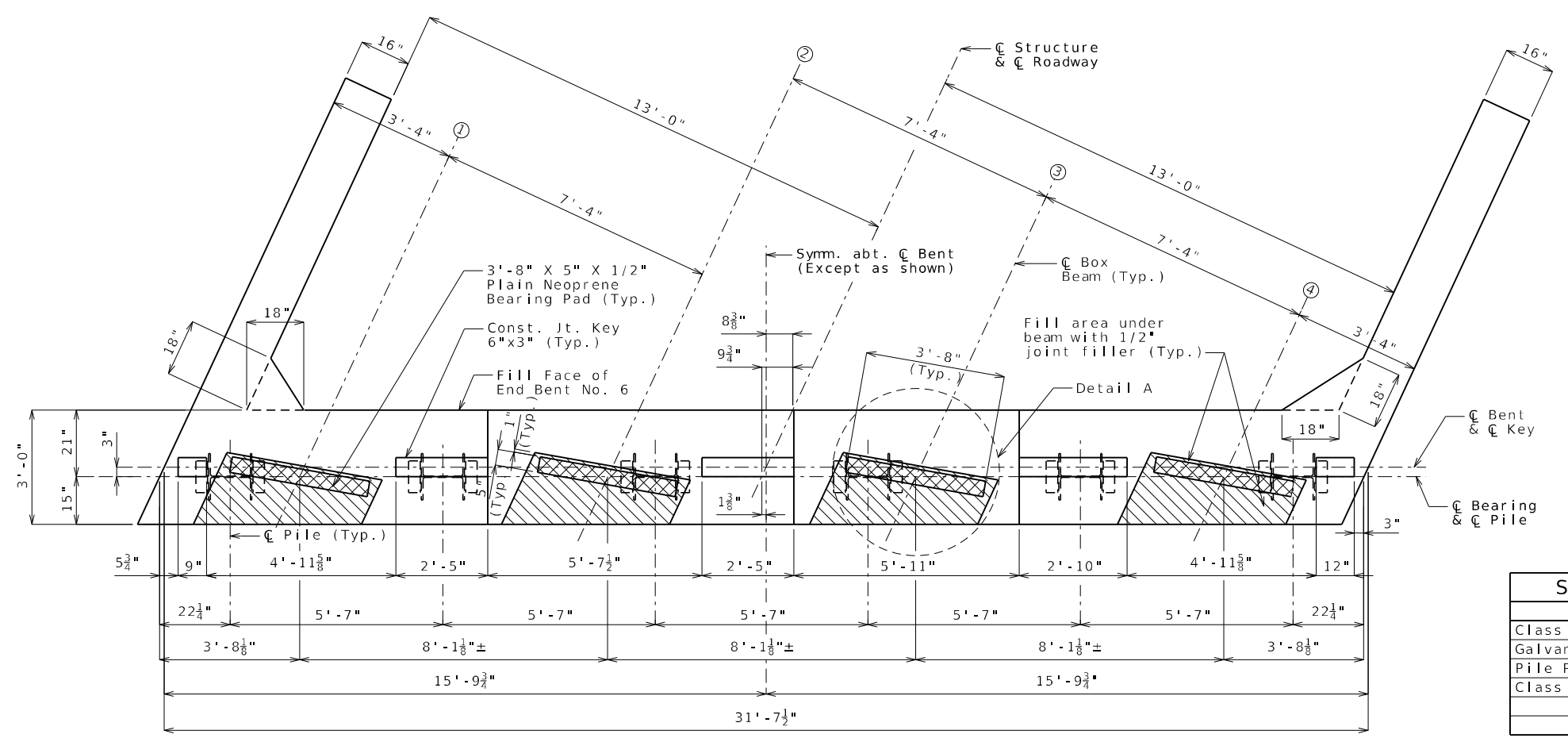
DATE PREPARED
09/22/2025
ROUTE Z STATE MO
DISTRICT BR SHEET NO. 15
COUNTY
CAPE GIRARDEAU
JOB NO.
J9S3738
CONTRACT ID.

PROJECT NO.
BRIDGE NO.
A9349

DATE	DESCRIPTION

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

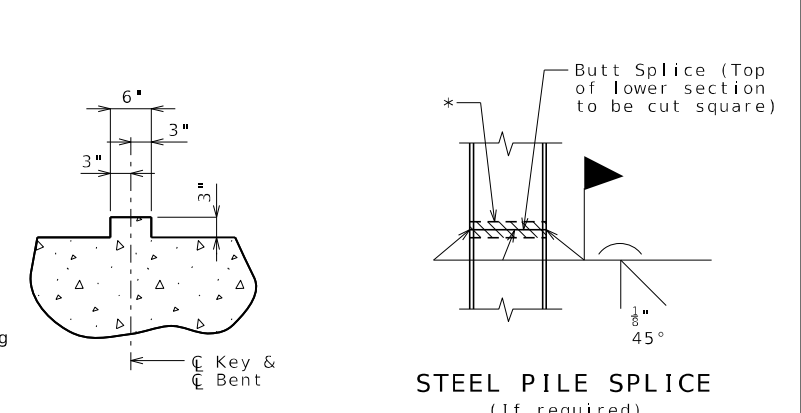
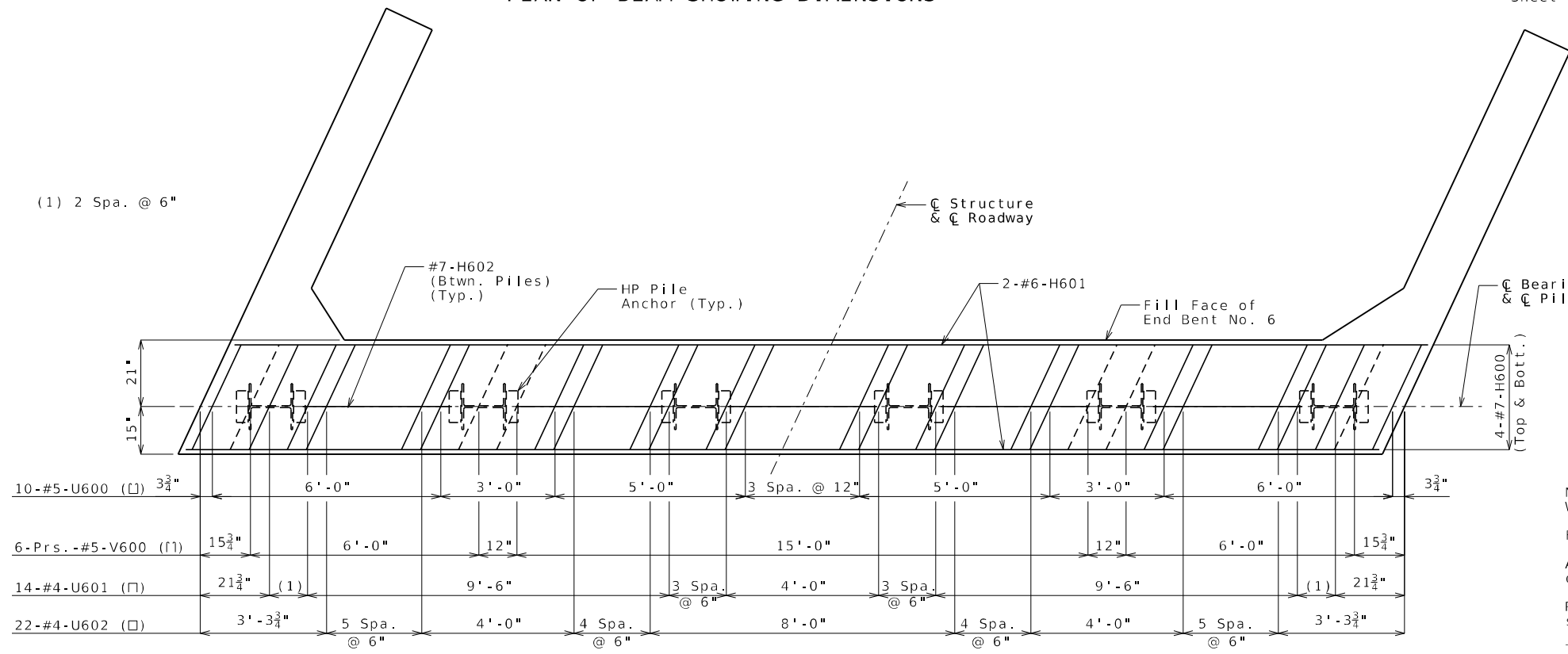
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Item	Quantity
Class 1 Excavation	cu. yard 20.0
Galvanized Structural Steel Pile (14 in.)	linear foot 318
Pile Point Reinforcement	each 6
Class B Concrete (Substructure)	cu. yard 14.1

These quantities are included in the Estimated Quantities table on Sheet No. 2.

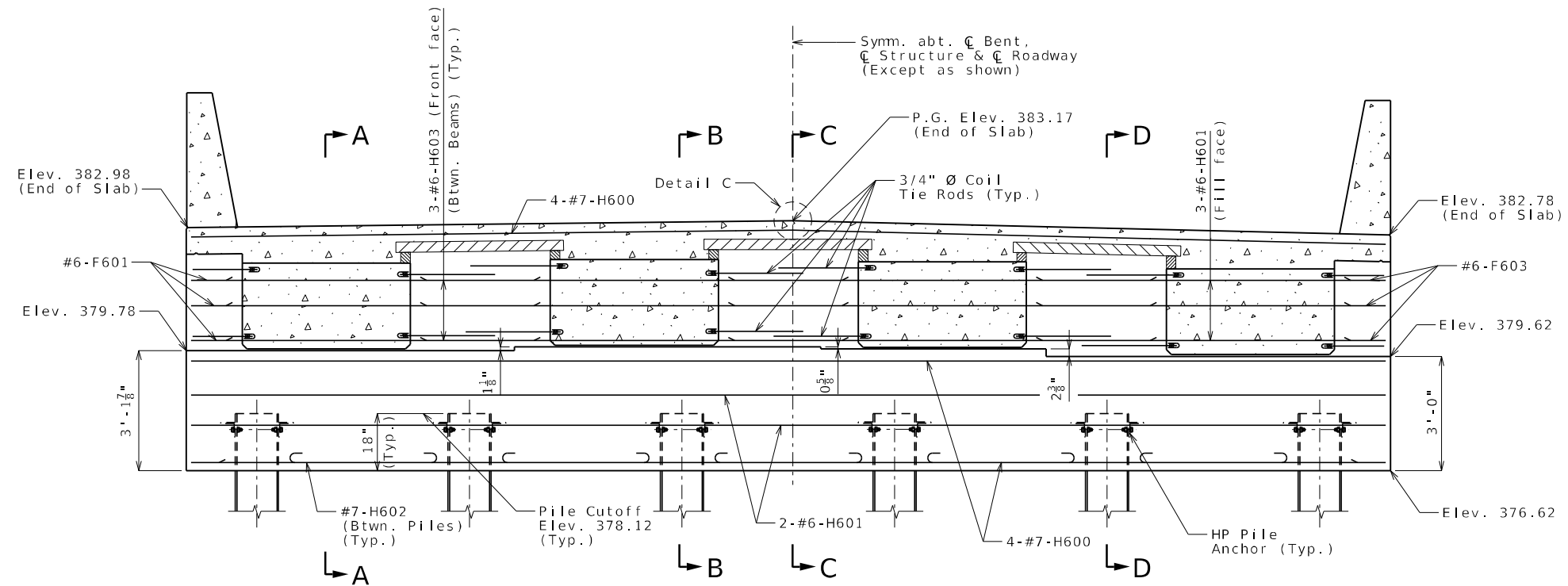
PLAN OF BEAM SHOWING DIMENSIONS



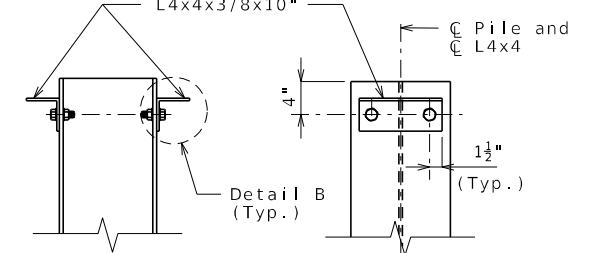
DETAILS OF END BENT NO. 6

Notes:
Work this sheet with Sheets No. 16 & 17.
For details of vertical drains at end ends, See Sheet No. 6.
All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
Reinforcing steel shall be shifted to clear piles. U bars shall be shifted to clear piles by at least 1 1/2\"/>

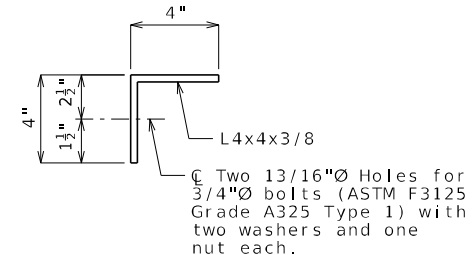
Detailed Aug. 2024
Checked Sep. 2024



SECTION NEAR END BENT

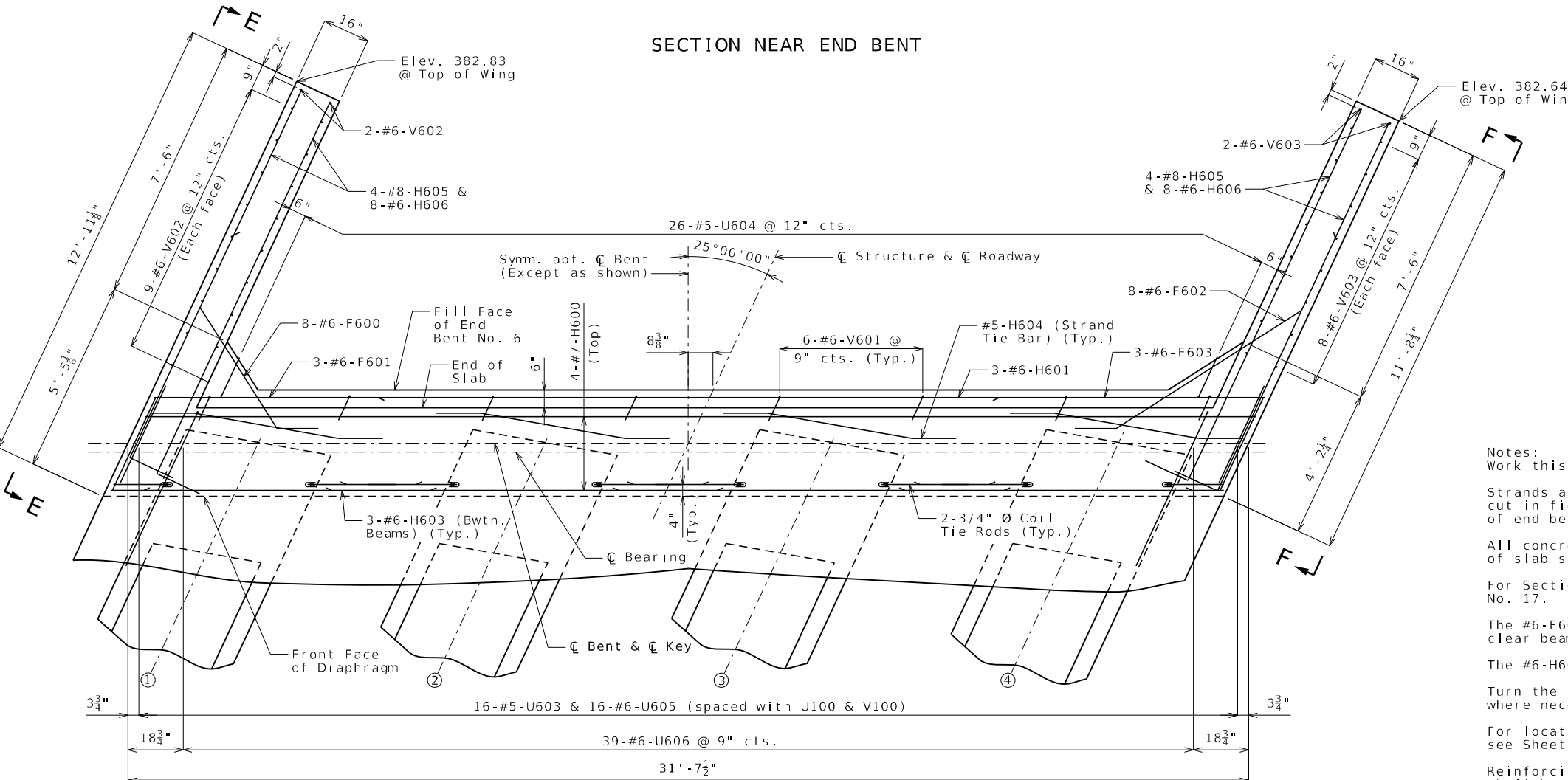


DETAILS OF HP PILE ANCHORS



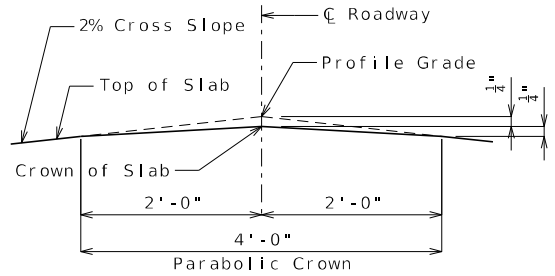
DETAIL B

Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.



PART PLAN

DETAILS OF END BENT NO. 6



DETAIL C

Notes:
 Work this sheet with Sheets No. 15 & 17.
 Strands at ends of beams shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent.
 All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
 For Sections A-A thru D-D and Elevation E-E & F-F, see Sheet No. 17.
 The #6-F600 and #6-F602 bars shall be bent in the field to clear beams.
 The #6-H606 bars shall be bent in the field to clear piles.
 Turn the interior #6-H606 bars within diaphragm to clear beams where necessary.
 For location of coil tie rods and #5-H604 (strand tie bar), see Sheets No.19 thru 21.
 Reinforcing steel shall be shifted to clear piles. U bars shall be shifted to clear piles by at least 1 1/2".
 The U-bars and pairs of V-bars shall be placed parallel to the centerline of roadway.

Detailed Aug. 2024
 Checked Sep. 2024

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

Sheet No. 16 of 44



DATE PREPARED
 09/22/2025
 ROUTE Z STATE MO
 DISTRICT BR SHEET NO. 16

COUNTY
 CAPE GIRARDEAU
 JOB NO.
 J9S3738
 CONTRACT ID.

PROJECT NO.
 BRIDGE NO.
 A9349

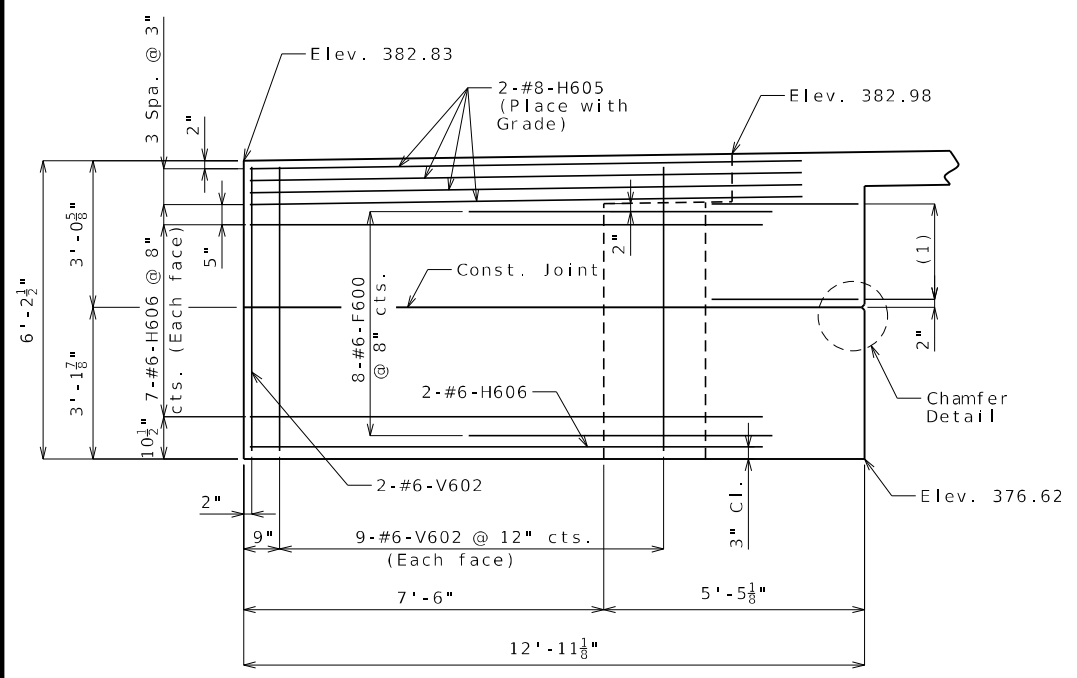
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

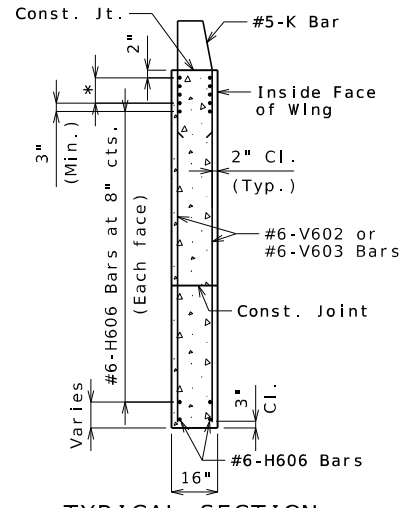
 105 WEST CAPITOL JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)

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 3437 William St. Cape Girardeau, MO 63701
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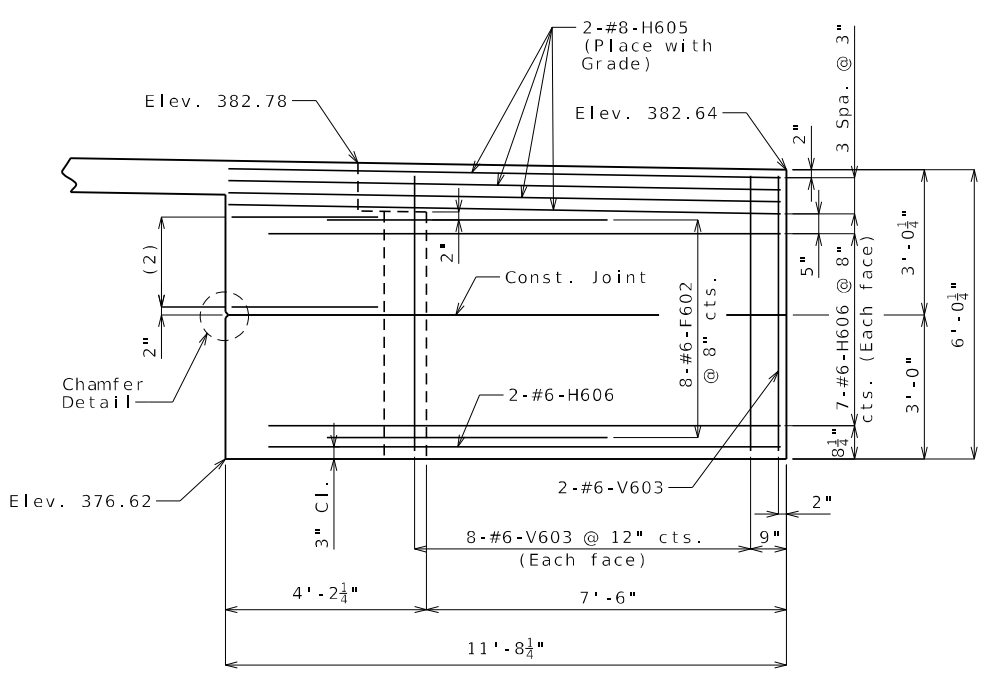


ELEVATION E-E

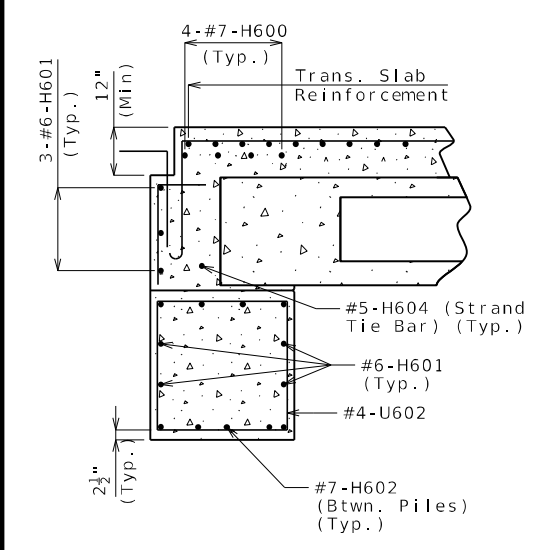


TYPICAL SECTION THRU WING

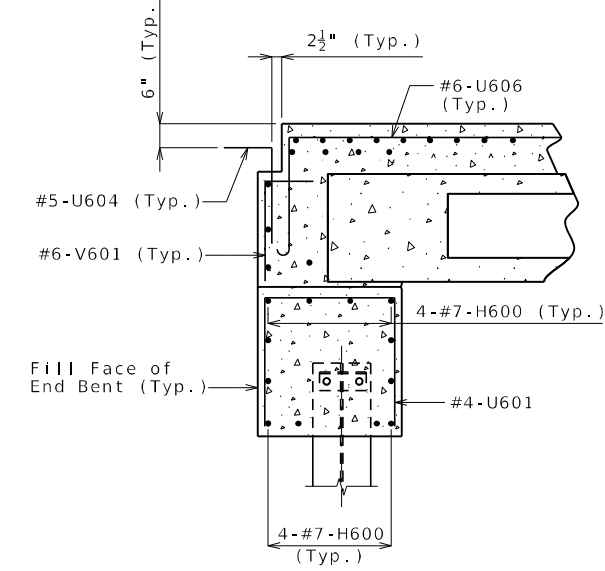
* #8-H605 Bars at 3" cts. (Each face) (Place with grade)
 (1) 3-#6-F601 @ 12 cts.
 (2) 3-#6-F603 @ 12 cts.



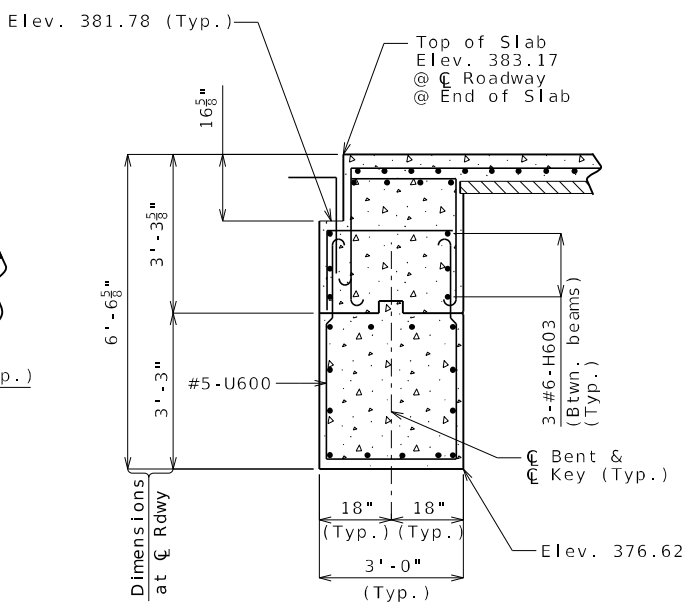
ELEVATION F-F



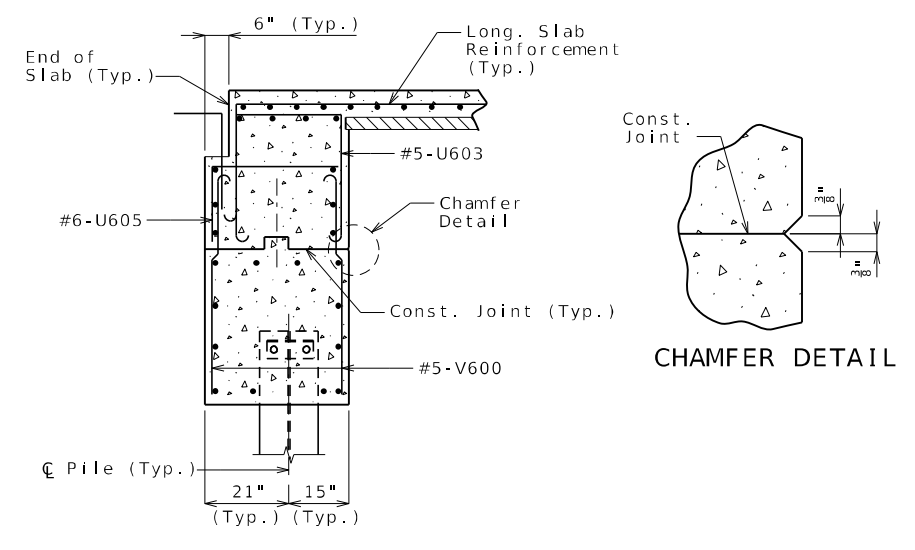
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

Notes:
 Work this sheet with Sheets No. 15 & 16.
 For reinforcement of Type D Barrier not shown, see Sheet No. 29.
 For details of Bridge Approach Slab, see Sheet No. 31.
 Reinforcing steel shall be shifted to clear piles, U-bars shall clear by at least 1 1/2".
 For details of HP Pile Anchors, see Sheet No. 16.

Detailed Aug. 2024
 Checked Sep. 2024

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

DETAILS OF END BENT NO. 6

Sheet No. 17 of 44



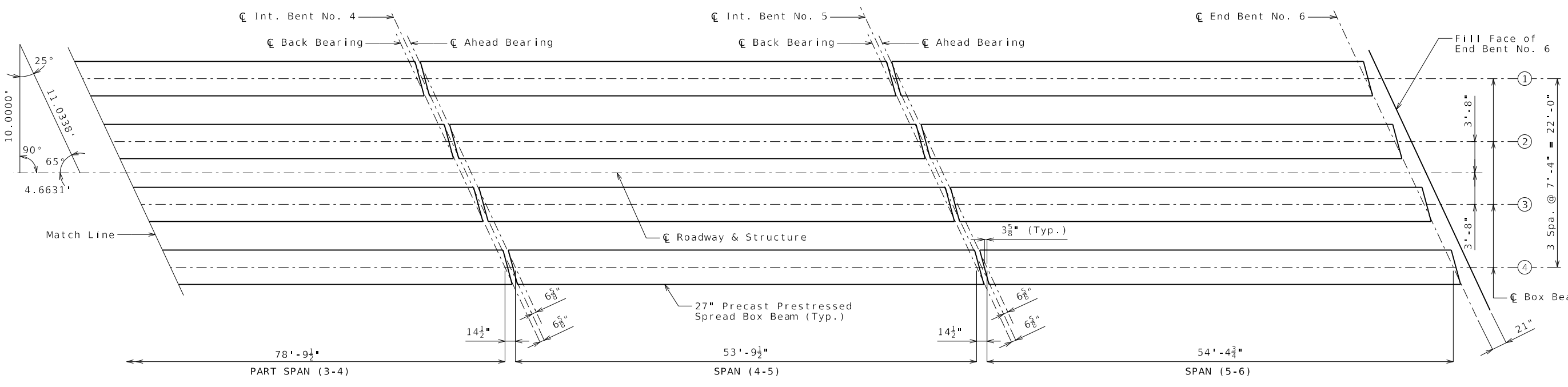
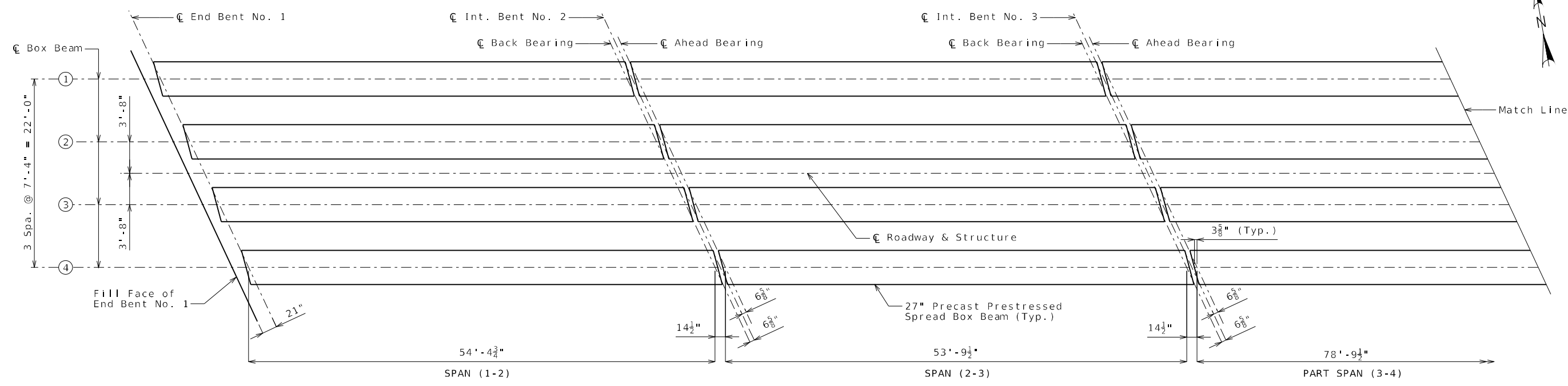
DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 17
COUNTY CAPE GIRARDEAU	
JOB NO. J9S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	

DESCRIPTION	DATE

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



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Notes:
 Longitudinal dimensions shown are horizontal.
 All bents are parallel.
 For box beams details, see Sheets No. 19 thru 21.

FRAMING PLAN

Detailed Aug. 2024
 Checked Sep. 2024

Note: This drawing is not to scale. Follow dimensions

Sheet No. 18 of 44



DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 18
COUNTY CAPE GIRARDEAU	
JOB NO. J9S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	

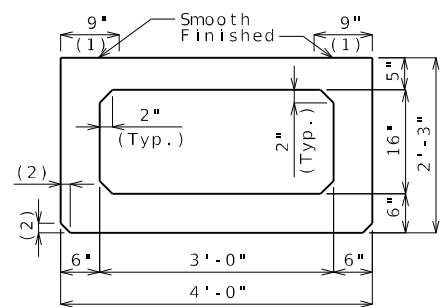
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
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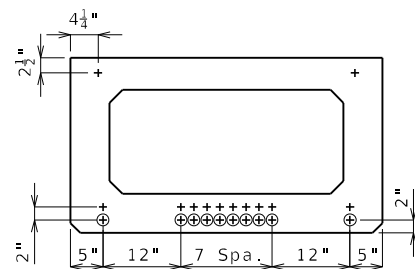
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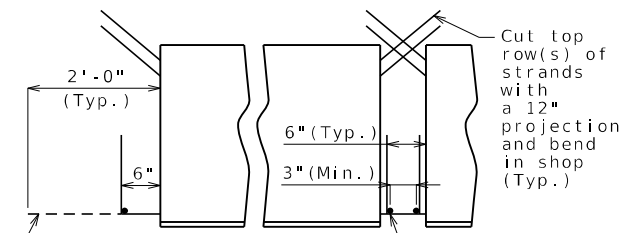
DIMENSIONS

- (1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.
- (2) 1 1/2" (Typ.) (3/4" Optional)



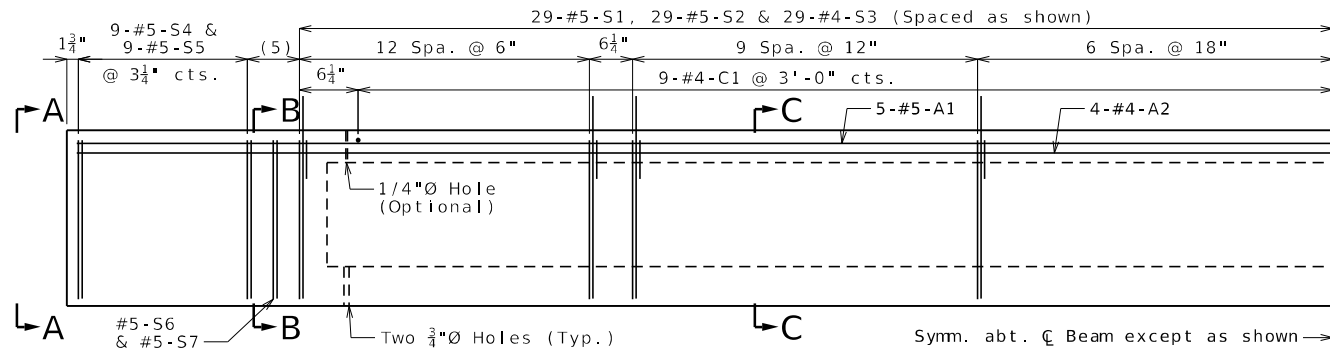
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.
 + Indicates prestressing strand.
 O Indicates cut and shop bend with 2'-0" projection.



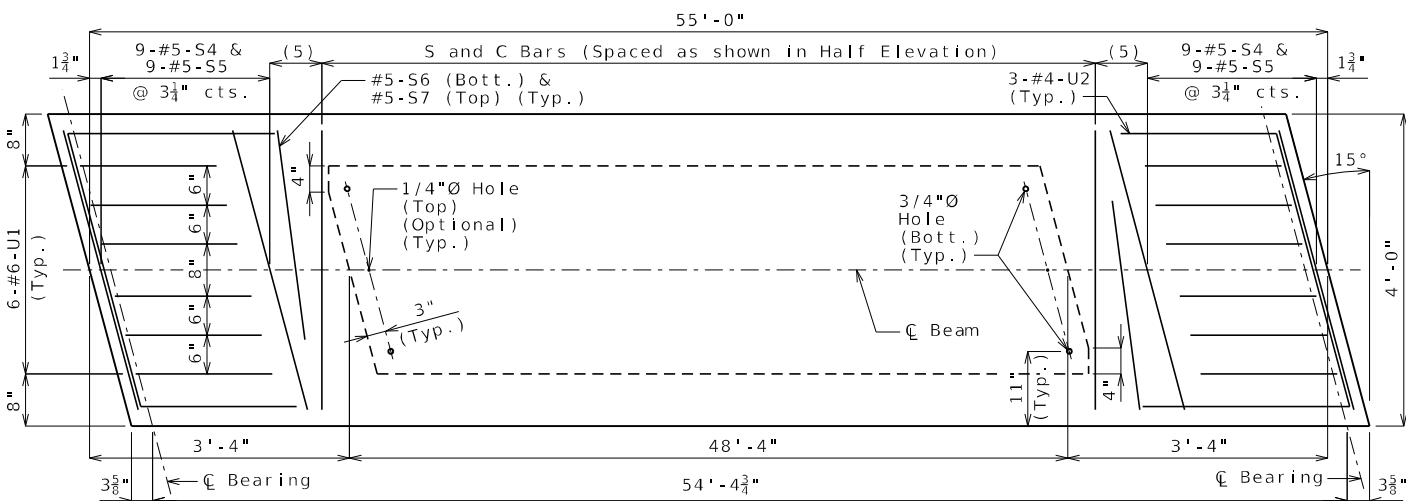
STRANDS AT BEAM ENDS

BILL OF REINFORCING STEEL - EACH BEAM							
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM			
5	5 A1	54'-9"	20	(S1) 3'-7"	(S5) 3'-8 1/2"		
4	4 A2	54'-9"	20	(S4) 3'-8 1/2"	(S7) 2'-8 1/2"		
17	4 C1	3'-7"	20	(S6) 2'-8 1/2"			
				(S1, S4, S6)	(S5, S7)		
57	5 S1	7'-4"	10S			SHAPE 10S	
57	5 S2	7'-9"	51S				
57	4 S3	4'-6"	50S				
18	5 S4	7'-6"	10S			SHAPE 10S	
18	5 S5	7'-6"	10S			SHAPE 21S	
2	5 S6	6'-6"	10S			SHAPE 20	
2	5 S7	6'-6"	10S				
12	6 U1	5'-1"	10S			SHAPE 50S	
6	4 U2	8'-4"	21S			SHAPE 51S	



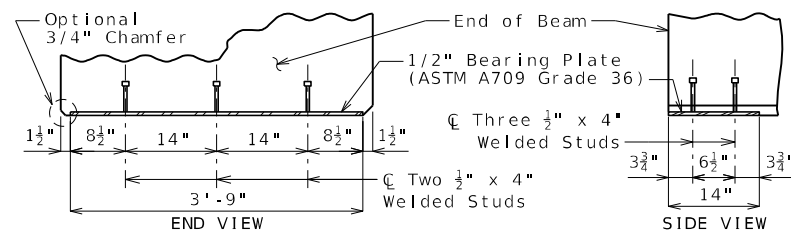
HALF ELEVATION
 Dimensions taken along C Beam.

(5) 2 Spa. @ 4"



PART PLAN

Mirror about C Beam for left advanced.

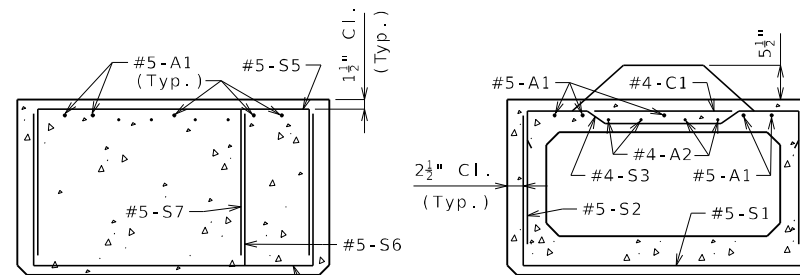


BEARING PLATE

SPREAD BOX BEAMS - SPANS (1-2) AND (5-6)

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

Strands not shown for clarity.

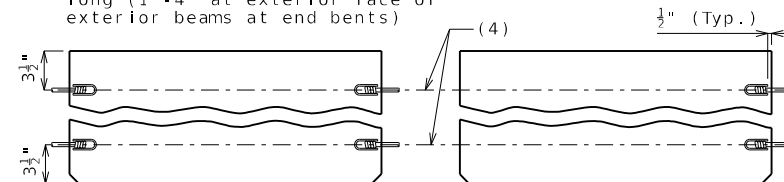


SECTION B-B

Mirror for left advanced.

SECTION C-C

- (4) C 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (1'-4" at exterior face of exterior beams at end bents)



COIL TIES

All dimensions are out to out. Use symmetry for dimensions not shown.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures. Stirrup and Tie Dimensions.

Actual lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch, unless otherwise shown.

All reinforcement shall be ASTM A615 or A706 Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8,000 psi and f'ci = 6,500 psi.

Use 22 strands, 0.6"Ø Grade 270, with an initial prestress force of 967 kips.

Pretensioned members shall be in accordance with Sec 1029.

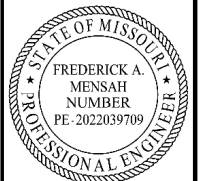
Fabricator shall be responsible for location and design of lifting devices.

Exterior and interior beams are the same except: coil ties, application of bond breaker, coil inserts for slab drains.

For Beam Camber Diagram, see Sheet No. 25.

For location of coil inserts at slab drains, see Sheet No. 24.

For location of coil ties at concrete bent diaphragms, see Sheets No. 4, 16, and 22.



DATE PREPARED
01/12/2026

ROUTE **Z** STATE **MO**

DISTRICT **BR** SHEET NO. **19**

COUNTY
CAPE GIRARDEAU

JOB NO.
J9S3738

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9349

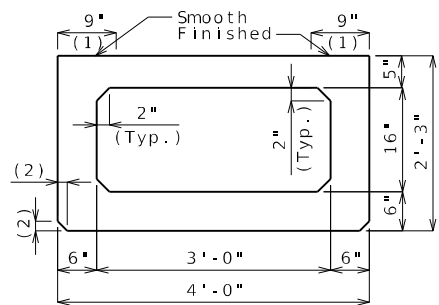
DESCRIPTION	DATE

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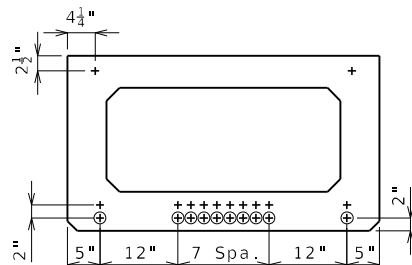
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DIMENSIONS

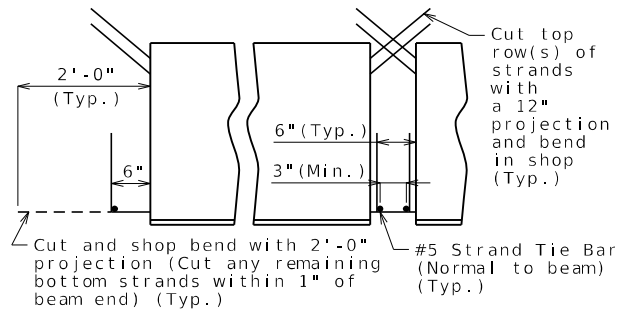
(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.

(2) 1 1/2" (Typ.) (3/4" Optional)



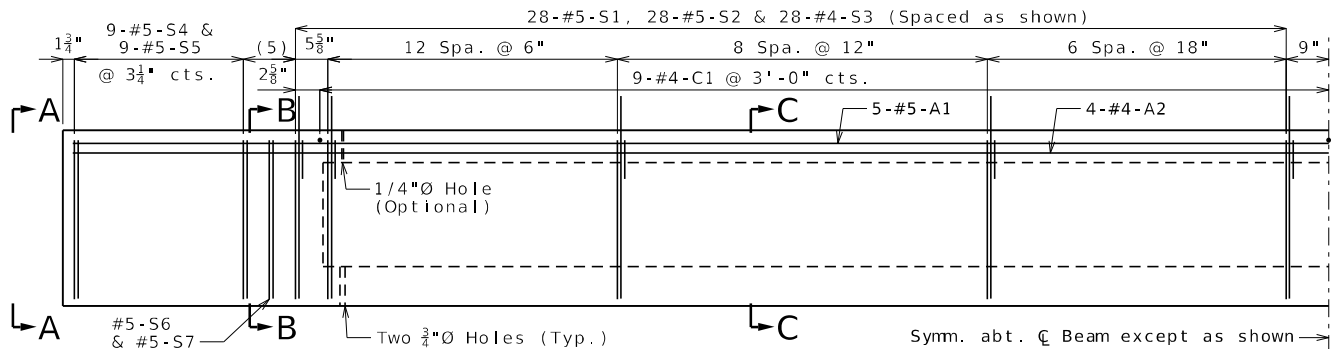
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.
 + Indicates prestressing strand.
 O Indicates cut and shop bend with 2'-0" projection.



STRANDS AT BEAM ENDS

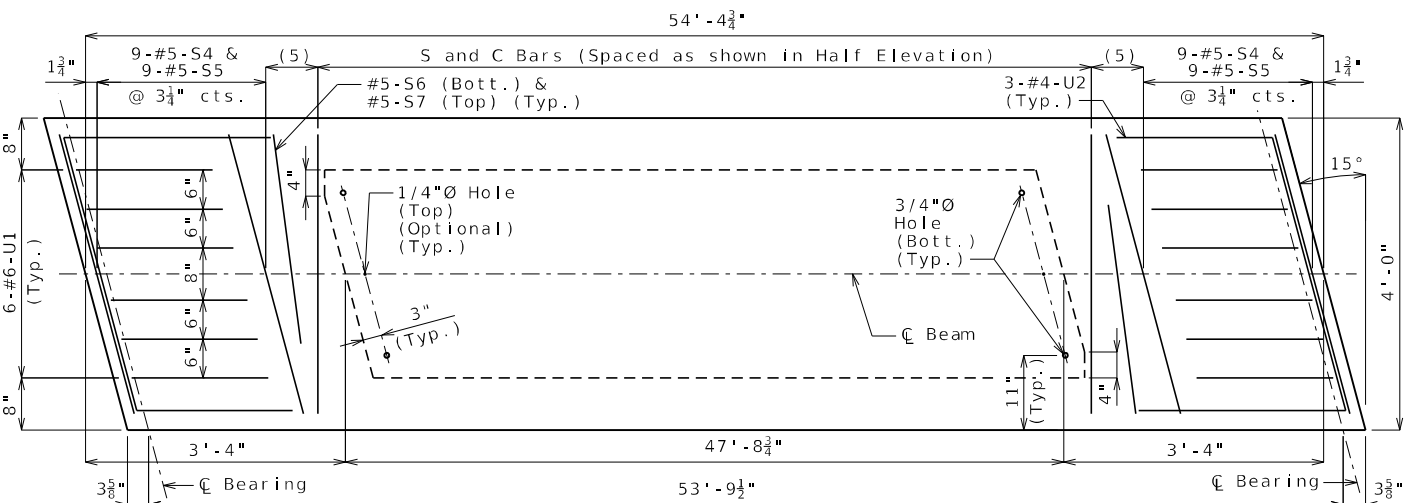
BILL OF REINFORCING STEEL - EACH BEAM									
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM					
5	5 A1	54'-2"	20	(S1) 3'-7"	(S5) 3'-8 1/2"				
4	4 A2	54'-2"	20	(S4) 3'-8 1/2"	(S7) 2'-8 1/2"				
17	4 C1	3'-7"	20	(S6) 2'-8 1/2"					
56	5 S1	7'-4"	10S	SHAPE 10S					
56	5 S2	7'-9"	51S	SHAPE 51S					
56	4 S3	4'-6"	50S	SHAPE 50S					
18	5 S4	7'-6"	10S	SHAPE 10S					
18	5 S5	7'-6"	10S	SHAPE 10S					
2	5 S6	6'-6"	10S	SHAPE 20					
2	5 S7	6'-6"	10S	SHAPE 20					
12	6 U1	5'-1"	10S	SHAPE 50S					
6	4 U2	8'-4"	21S	SHAPE 21S					



HALF ELEVATION

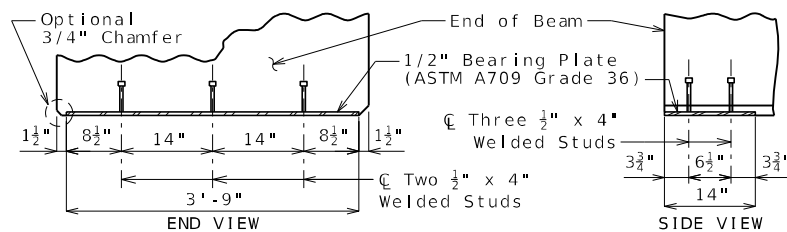
Dimensions taken along C Beam.

(5) 2 Spa. @ 4"



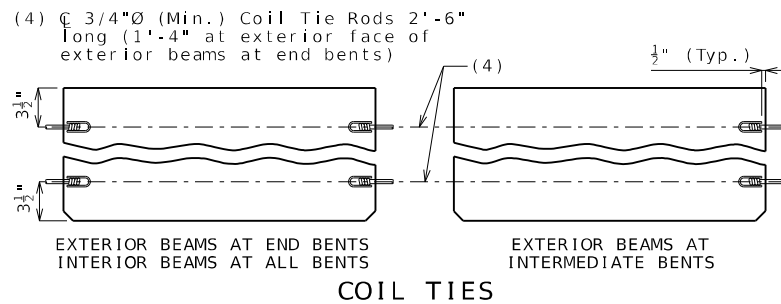
PART PLAN

Mirror about C Beam for left advanced.



BEARING PLATE

SPREAD BOX BEAMS - SPANS (2-3) AND (4-5)



COIL TIES

(4) C 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (1'-4" at exterior face of exterior beams at end bents)

Strands not shown for clarity.

All dimensions are out to out. Use symmetry for dimensions not shown.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures. Stirrup and Tie Dimensions.

Actual lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch, unless otherwise shown.

All reinforcement shall be ASTM A615 or A706 Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8,000 psi and f'ci = 6,500 psi.

Use 22 strands, 0.6"Ø Grade 270, with an initial prestress force of 967 kips.

Pretensioned members shall be in accordance with Sec 1029.

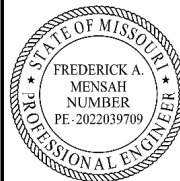
Fabricator shall be responsible for location and design of lifting devices.

Exterior and interior beams are the same except: coil ties, application of bond breaker, coil inserts for slab drains.

For Beam Camber Diagram, see Sheet No. 25.

For location of coil inserts at slab drains, see Sheet No. 24.

For location of coil ties at concrete bent diaphragms, see Sheets No. 4, 16, and 22.



DATE PREPARED
01/12/2026

ROUTE Z STATE MO

DISTRICT BR SHEET NO. 20

COUNTY CAPE GIRARDEAU

JOB NO. J9S3738

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9349

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

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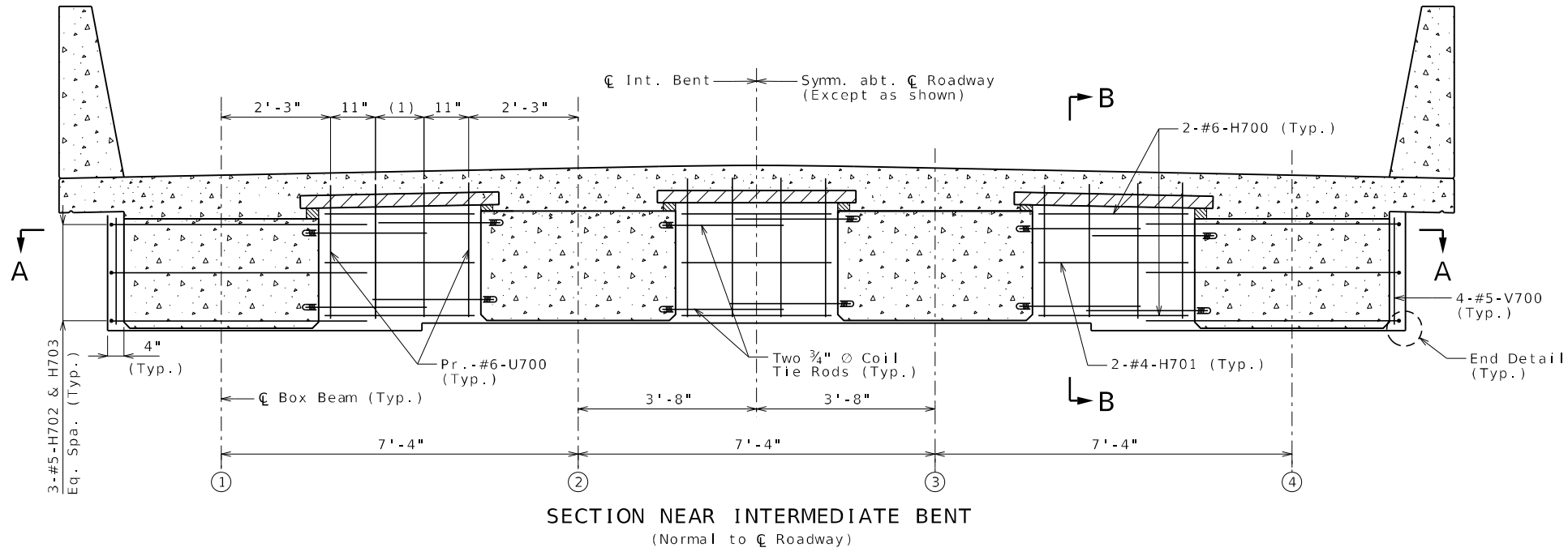
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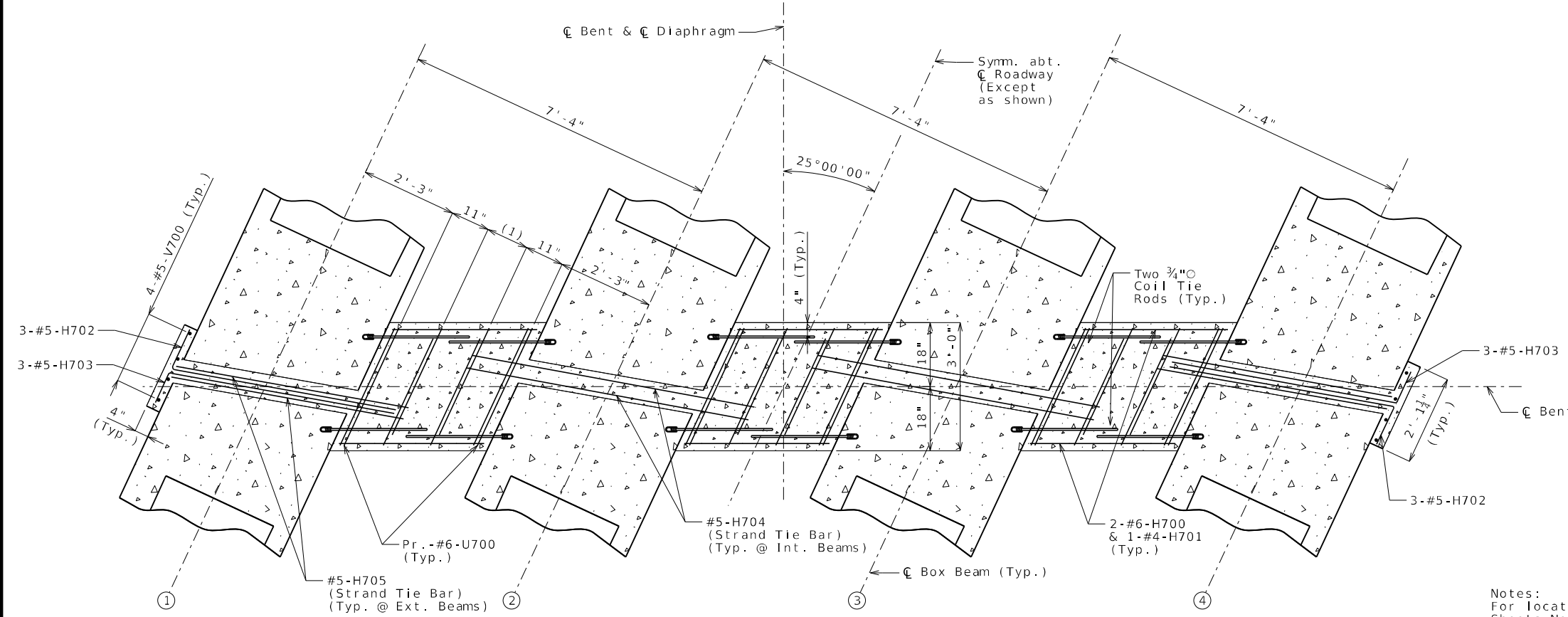
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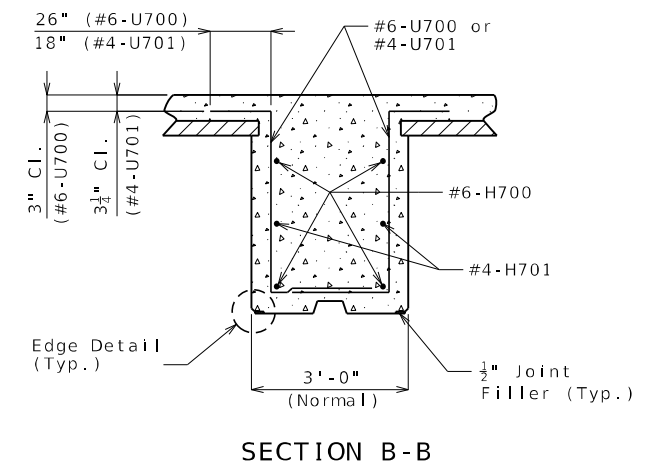
SECTION NEAR INTERMEDIATE BENT
(Normal to ζ Roadway)

(1) 2 Pr. -#4-U701 @ 12" cts.

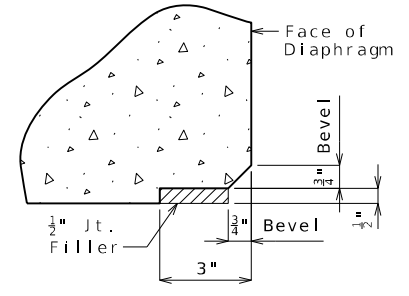


SECTION A-A

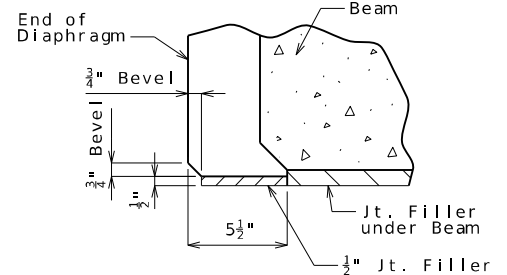
DETAILS OF DIAPHRAGMS AT INTERMEDIATE BENTS



SECTION B-B

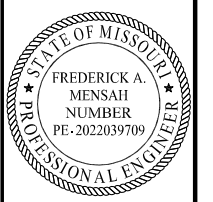


EDGE DETAIL



END DETAIL

Notes:
For location of Strand Tie Bars and Coil Tie Rods, See Sheets No. 19 thru 21.
Diaphragms at intermediate bents shall be built vertical.
All U-bars in the diaphragms are to be placed parallel to ζ Roadway.



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PROJECT NO.	
BRIDGE NO. A9349	

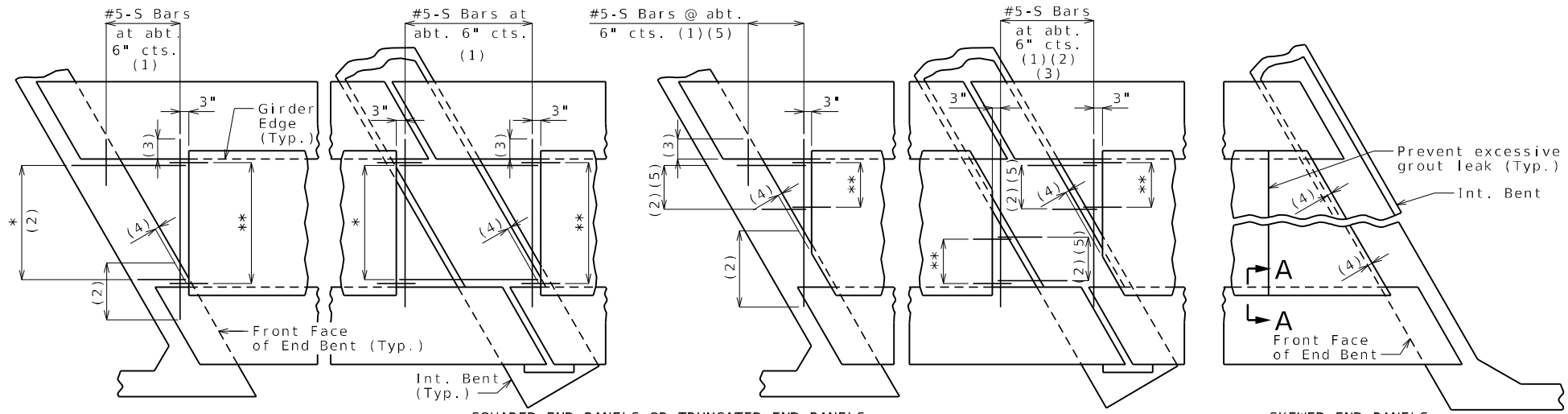
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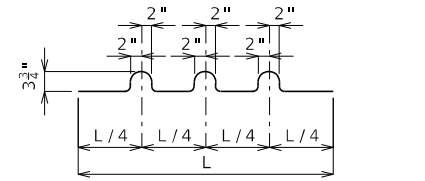
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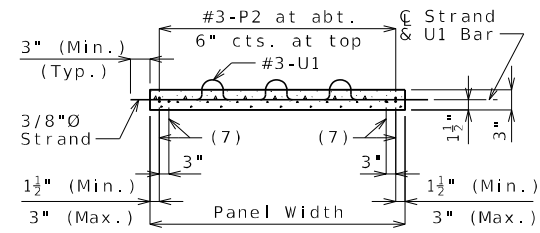
PLAN SHOWING PANEL PLACEMENT

* #5-S Bars at abt. 9" cts. (1)
 ** #3-P1 at 12" cts. (End panels only)

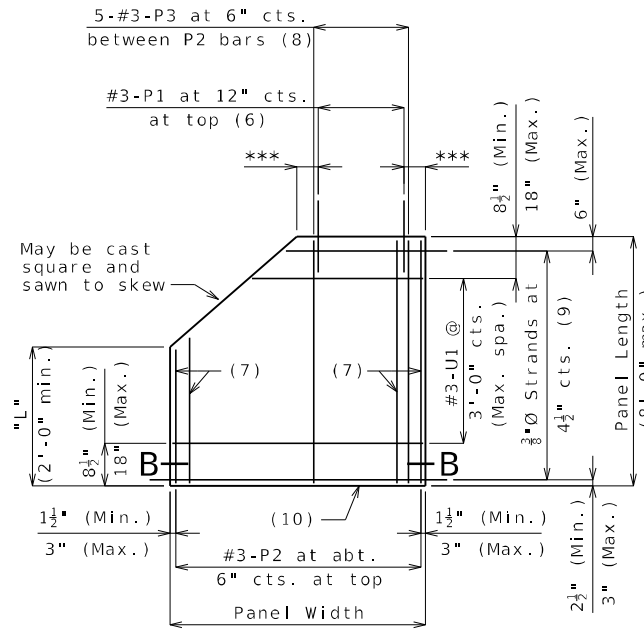


BENDING DIAGRAM FOR U1 BAR

U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars.

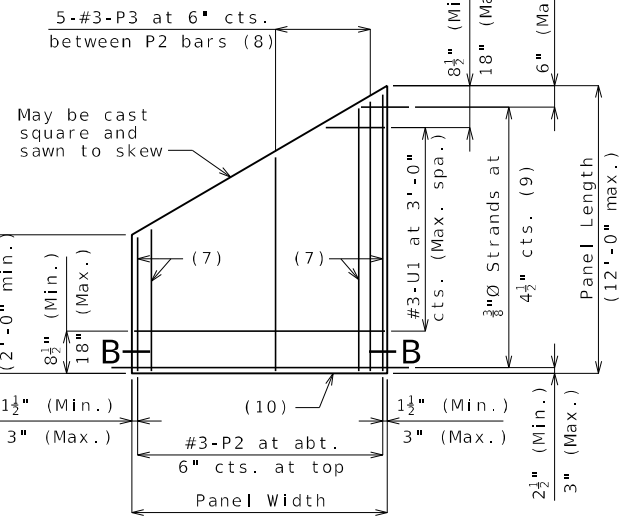


SECTION B-B

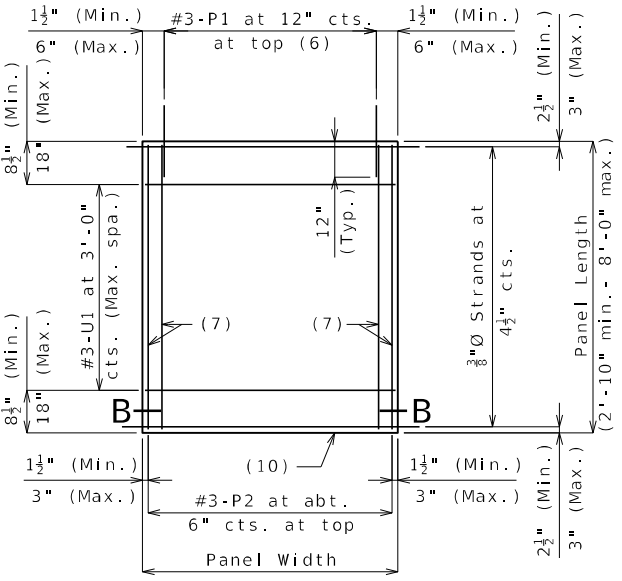


PLAN OF OPTIONAL TRUNCATED END PANEL

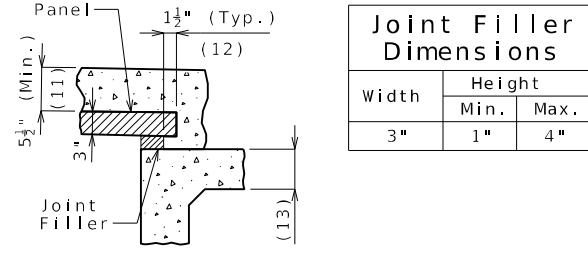
*** 3" (Min.), 6" (Max.)



PLAN OF OPTIONAL SKEWED END PANEL



PLAN OF SQUARED PANEL



SECTION A-A Reference Notes:

- Plan of Panel Placement:
 (1) S-bars shown as bottom steel in slab between panels and used with squared and truncated end panels only.
 (2) Extend S-bars 18 inches beyond the front face of end bents and int. bents for squared and truncated end panels only.
 (3) Extend S-bars 9 inches beyond edge of girder (Typ.).
 (4) End panels shall be dimensioned 1/2" min. to 1 1/2" max. from the inside face of diaphragm.
 (5) For truncated end panels, use a min. of #5-S bars at 6" crossings in openings, or min. 4x4-W7xW7.

- Plans of Panels:
 (6) For end panels only, P1 bars shall be 2'-0" in length and embedded 12". P1 bars will not be required for panels at squared integral end bents.
 (7) #3-P2 bars near edge of panel at bottom (under strands).
 (8) Use #3-P3 bars if panel is skewed 45° or greater.
 (9) Any strand 2'-0" or shorter shall have a #4 reinforcing bar on each side of it, centered between strands. Strands 2'-0" or shorter may then be debonded at the fabricator's option.

- Section A-A:
 (10) Optional 1/2" x 45° Chamfer one or both sides at bottom.
 (11) Slab thickness over prestressed panels varies due to beam camber. In order to maintain minimum slab thickness, it may be necessary to raise the grade uniformly throughout the structure. No payment will be made for additional labor or materials required for necessary grade adjustment.
 (12) Contractor shall ensure proper consolidation under and between panels.

- (13) At the contractor's option, the variation in slab thickness over prestressed panels may be eliminated or reduced by increasing and varying the girder top flange thickness. Dimensions shall be shown on the shop drawings.

PRESTRESSED PANELS

General Notes:

Prestressed Panels:
 Concrete for prestressed panels shall be Class A-1 with f'c = 6,000 psi, f'ci = 4,000 psi.
 The top surface of all panels shall receive a scored finish with a depth of scoring of 1/8" perpendicular to the prestressing strands in the panels.

Prestressing tendons shall be high-tensile strength, uncoated, seven-wire, low-relaxation strands for prestressed concrete in accordance with AASHTO M 203 Grade 270, with nominal diameter of strand = 3/8" and nominal area = 0.085 sq.in. and minimum ultimate strength = 22.95 kips (270 ksi). Larger strands may be used with the same spacing and initial tension.

Initial prestressing force = 17.2 kips/strand.
 The method and sequence of releasing the strands shall be shown on the shop drawings.

Suitable anchorage devices for lifting panels may be cast in panels, provided the devices are shown on the shop drawings and approved by the engineer. Panel lengths shall be determined by the contractor and shown on the shop drawings.

When squared end panels are used at skewed bents, the skewed portion shall be cast full depth. No separate payment will be made for additional concrete and reinforcing required.

Support from diaphragm forms is required under the optional skewed end until cast-in-place concrete has reached 3,000 psi compressive strength.

Prestressed panels shall be brought to saturated surface-dry (SSD) condition just prior to the deck pour. There shall be no free standing water on the panels or in the area to be cast.

The prestressed panel quantities are not included in the table of estimated quantities for the slab.

Reinforcing Steel:
 All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

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

If U1 bars interfere with placement of slab steel, U1 loops may be bent over, as necessary, to clear slab steel.

Deformed welded wire reinforcement (WWR) providing a minimum area of reinforcing perpendicular to strands of 0.22 sq in./ft, with spacing parallel to strands sufficient to ensure proper handling, may be used in lieu of the #3-P2 bars shown. Wire diameter shall not be larger than 0.375 inch. The above alternative reinforcement criteria may be used in lieu of the #3-P3 bars, when required, and placed over a width not less than 2 feet.

The following reinforcing steel shall be tied securely to the strands with the following maximum spacing in each direction:
 #3-P2 bars at 16 inches.
 WWR at 24 inches.

The #3-U1 bars shall be tied securely to #3-P2 bars, to WWR or to strands (when placed between P1 bars) at about 3-foot centers.

Minimum reinforcement steel length shall be 2'-0".

All reinforcement other than prestressing strands shall be epoxy coated.

Precast panels may be in contact with stirrup reinforcing in diaphragms.

S-bars are not listed in the bill of reinforcing.

Cost of S-bars will be considered completely covered by the contract unit price for the slab.

Joint Filler:
 Joint filler shall be preformed fiber expansion joint material in accordance with Sec 1057 or expanded or extruded polystyrene bedding material in accordance with Sec 1073.

Use Slab Haunching Diagram on Sheet No. 25 for determining thickness of joint filler within the limits noted in the table of Joint Filler Dimensions.

Thicker material may be used on one or both sides of the girder to reduce cast-in-place concrete thickness to within tolerances.

The same thickness of preformed fiber expansion joint material shall be used under any one edge of any panel except at locations where top flange thickness may be stepped. The maximum change in thickness between adjacent panels shall be 1/2 inch. The polystyrene bedding material may be cut with a transition to match haunch height above top of flange.

Joint filler shall be glued to the girder. When thickness exceeds 1 1/2 inches, the joint filler shall be glued top and bottom. The glue used shall be the type recommended by the joint filler manufacturer.

Edges of panels shall be uniformly seated on the joint filler before slab reinforcement is placed.



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PROJECT NO.	
BRIDGE NO. A9349	

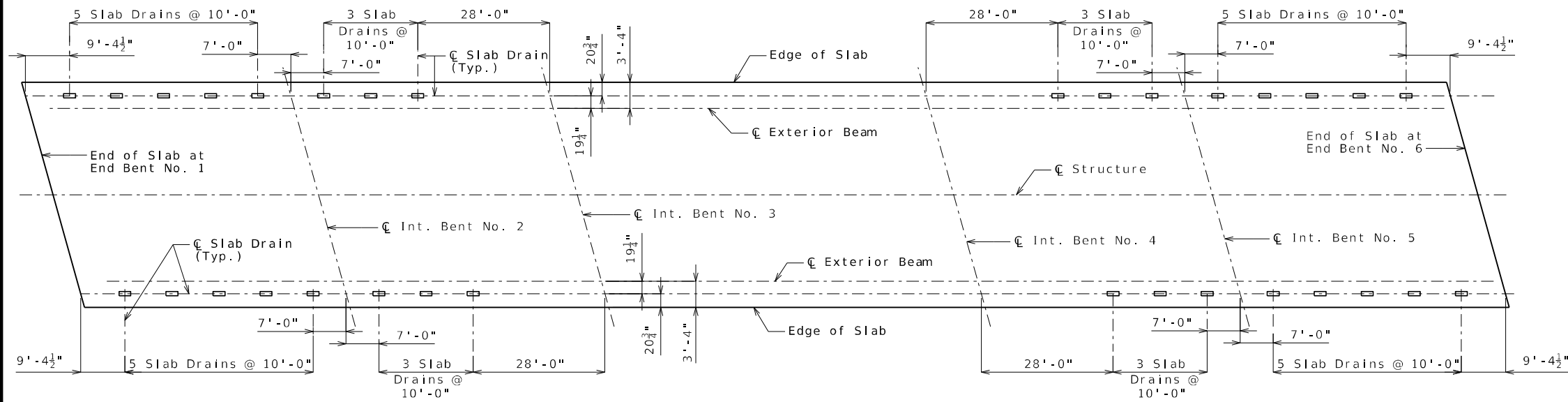
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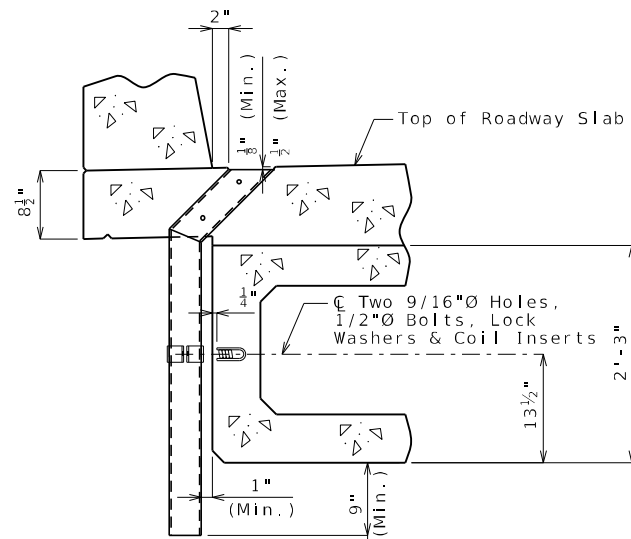
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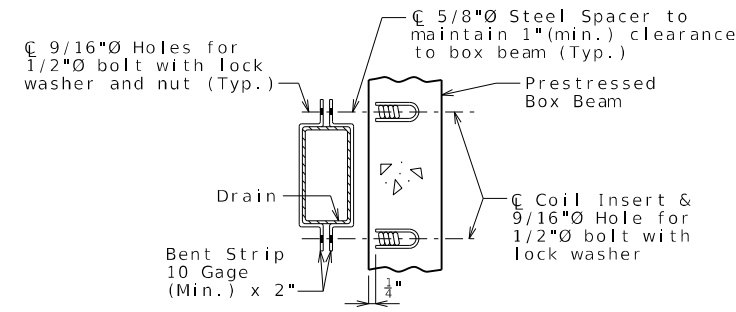




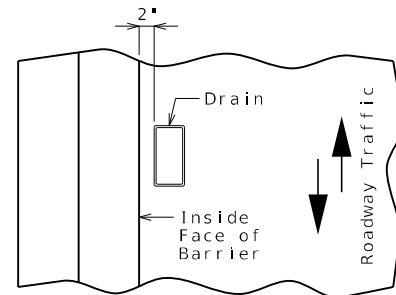
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



PART SECTION NEAR DRAIN

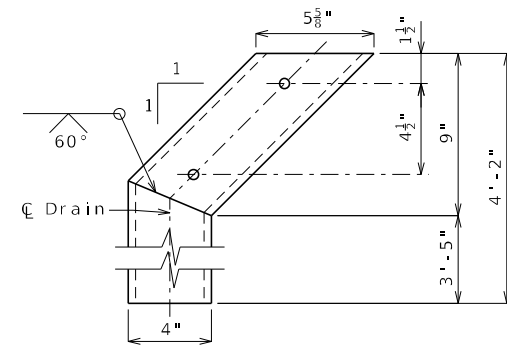


PART SECTION SHOWING BRACKET ASSEMBLY

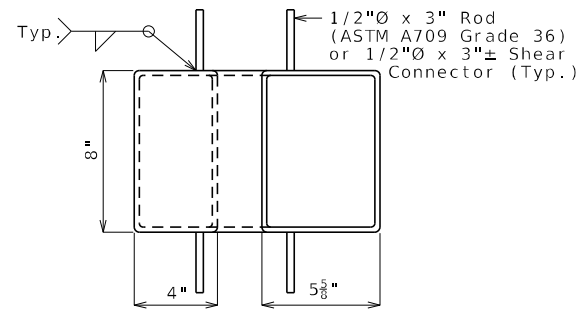


PART PLAN OF SLAB AT DRAIN

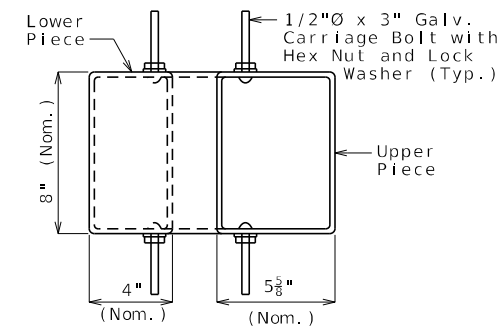
SLAB DRAINS



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

General Notes:

Contractor shall have the option to construct either steel or FRP slab drains. All drains shall be of same type.

Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.

Locate drains in slab by dimensions shown in Part Section Near Drain.

Reinforcing steel shall be shifted to clear drains.

The coil inserts and bracket assembly shall be galvanized in accordance with ASTM A123.

All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

All 1/2"Ø bolts shall be ASTM A307.

Shop drawings will not be required for the slab drains and the bracket assembly.

The coil inserts required for the bracket assembly attachment shall be located on the prestressed beam shop drawings.

Coil inserts shall have a concrete pull-out strength (ultimate load) of at least 2,500 pounds in 5,000 psi concrete.

The bolts required to attach the slab drain bracket assembly to the prestressed beam shall be supplied by the prestressed beam fabricator.

Notes for Steel Drain:

Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

Drains shall be machine filament-wound thermosetting resin tubing meeting the requirements of ASTM D2996 with the following exceptions:

Shape of drains shall be rectangular with outside nominal dimensions of 8" x 4".

Minimum reinforced wall thickness shall be 1/4 inch.

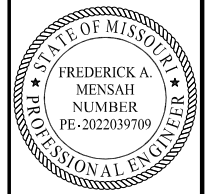
The resin used shall be ultraviolet (UV) resistant and/or have UV inhibitors mixed throughout. Drains may have an exterior coating for additional UV resistance.

The color of the slab drain shall be gray (Federal Standard 26373). The color shall be uniform throughout the resin and any coating used.

The combination of materials used in the manufacture of the drains shall be tested for UV resistance in accordance with ASTM D4329 Cycle A. The representative material shall withstand at least 500 hours of testing with only minor discoloration and without any physical deterioration. The contractor shall furnish the results of the required ultraviolet testing prior to acceptance of the slab drains.

At the contractor's option, drains may be field cut. The method of cutting FRP slab drain shall be as recommended by the manufacturer to ensure a smooth, chip free cut.

Both upper and lower drain pieces shall be rigidly connected to each other. Drain flow shall not be obstructed. Approval of the engineer is required.



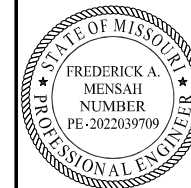
DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 24
COUNTY CAPE GIRARDEAU	
JOB NO. J9S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	

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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DATE PREPARED
09/22/2025

ROUTE Z STATE MO

DISTRICT BR SHEET NO. 25

COUNTY
CAPE GIRARDEAU

JOB NO.
19S3738

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9349

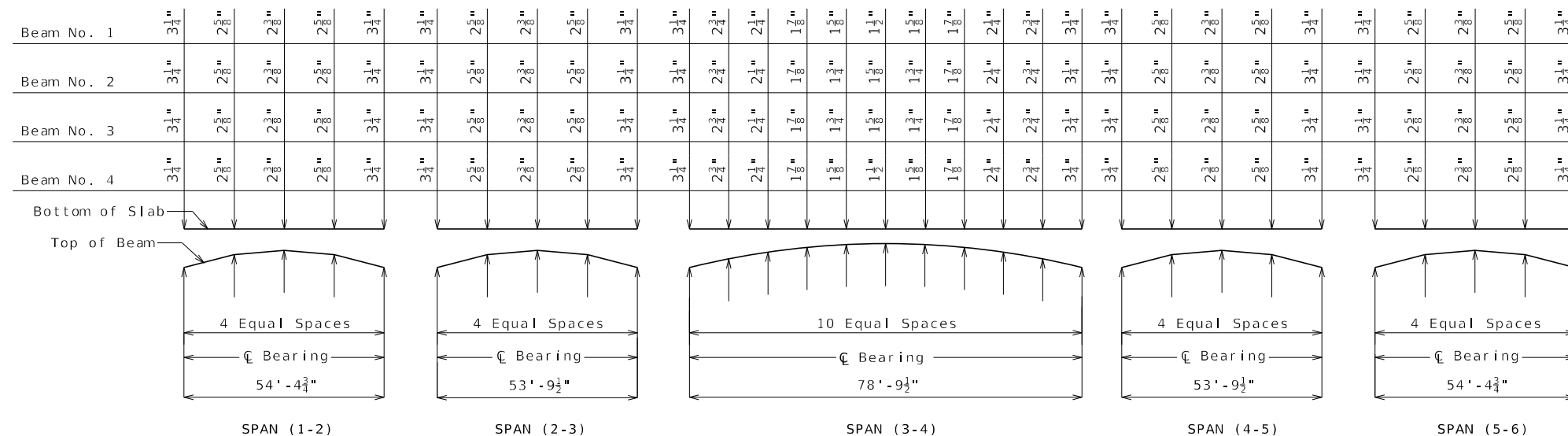
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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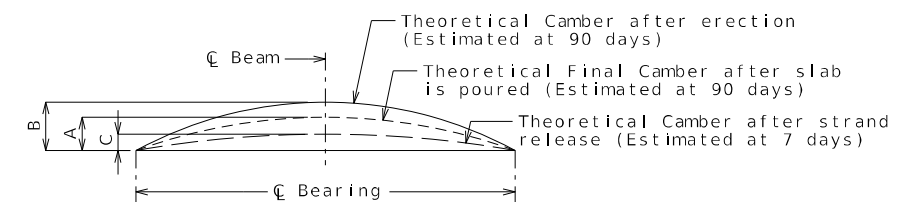
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THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If beam camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete Beam.



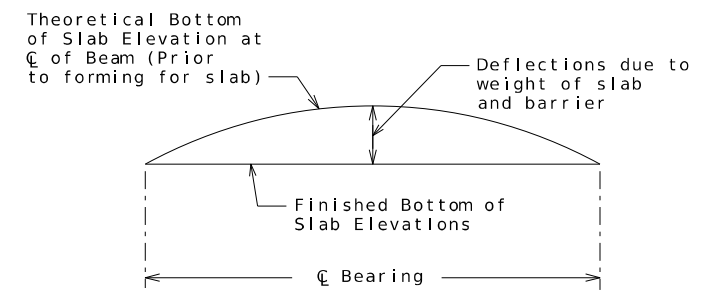
Beam	Span (1-2)			Span (2-3)			Span (3-4)			Span (4-5)			Span (5-6)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Exterior	7/8"	1 3/8"	3/4"	1"	1 3/8"	3/4"	1 3/8"	3/8"	2 1/4"	1"	1 3/8"	3/4"	1 3/8"	1"	3/4"
Interior	7/8"	1 3/8"	3/4"	1"	1 3/8"	3/4"	1 3/8"	3/8"	2 1/4"	7/8"	1 3/8"	3/4"	1 3/8"	1"	3/4"

BEAM CAMBER DIAGRAM

Conversion Factors for Beam Camber (Estimated at 90 days):

- 0.1 pt. = 0.314 x 0.5 pt.
- 0.2 pt. = 0.593 x 0.5 pt.
- 0.3 pt. = 0.813 x 0.5 pt.
- 0.4 pt. = 0.952 x 0.5 pt.

0.25 pt. = 0.7125 x 0.5 pt.



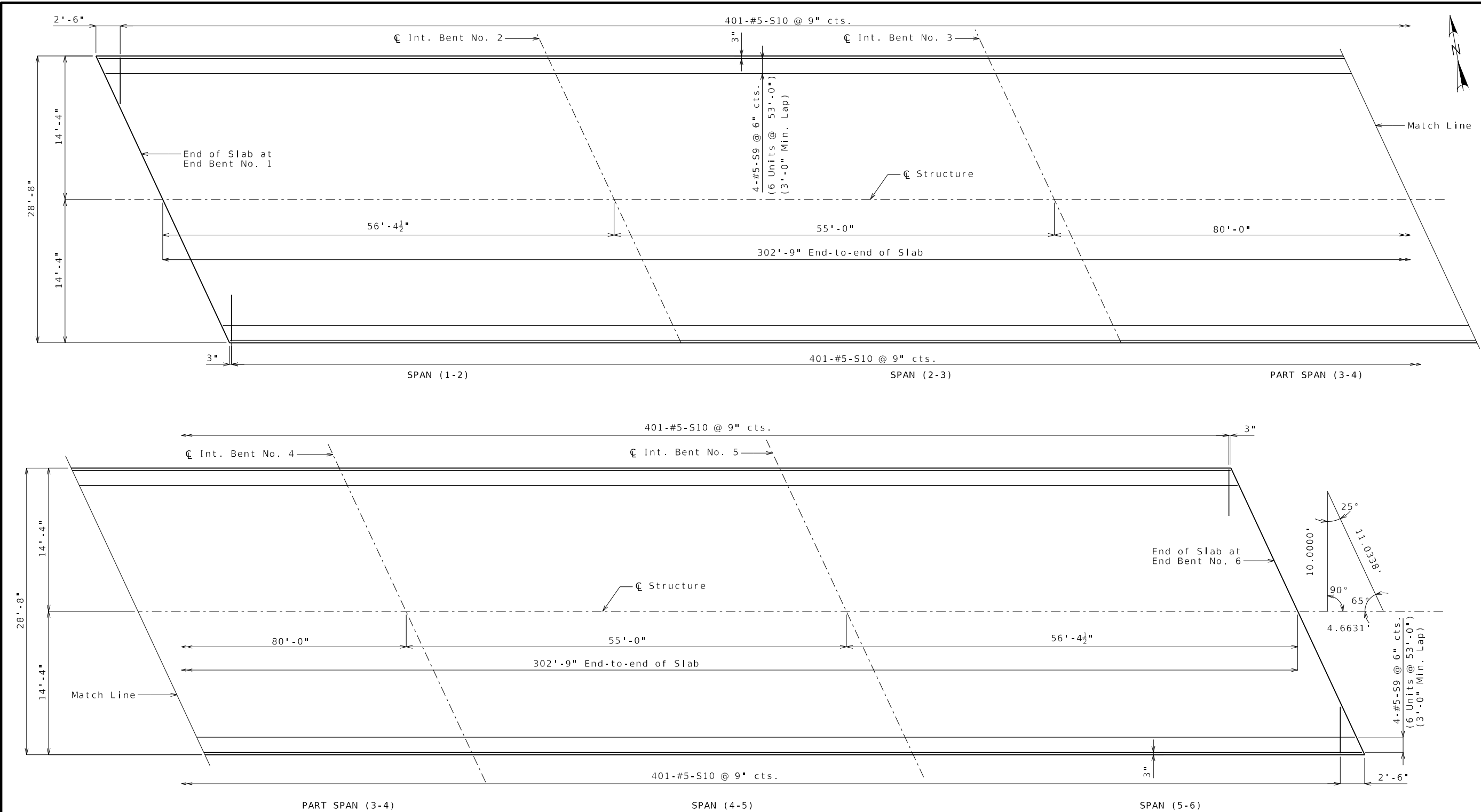
TYPICAL SLAB ELEVATIONS DIAGRAM

Theoretical Bottom of Slab Elevations at Centerline of Beam (Prior to forming for slab) (Estimated at 90 days)

Beam Number	Span (1-2) (54'-4 3/4" C Brg. - C Brg.)											
	C Brg.	.25	.50	.75	C Brg.							C Brg.
1	382.19	382.42	382.62	382.78	382.90							382.90
2	382.39	382.61	382.81	382.96	383.08							383.08
3	382.43	382.66	382.85	383.00	383.11							383.11
4	382.34	382.56	382.75	382.89	383.00							383.00
Beam Number	Span (2-3) (53'-9 1/2" C Brg. - C Brg.)											
	C Brg.	.25	.50	.75	C Brg.							C Brg.
1	382.91	383.07	383.19	383.27	383.31							383.31
2	383.09	383.24	383.36	383.43	383.47							383.47
3	383.12	383.27	383.38	383.45	383.49							383.49
4	383.01	383.15	383.26	383.32	383.35							383.35
Beam Number	Span (3-4) (78'-9 1/2" C Brg. - C Brg.)											
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.	
1	383.31	383.40	383.48	383.54	383.58	383.59	383.58	383.55	383.50	383.44	383.36	
2	383.48	383.57	383.64	383.70	383.74	383.75	383.74	383.71	383.65	383.58	383.49	
3	383.49	383.58	383.65	383.71	383.74	383.75	383.74	383.70	383.64	383.57	383.48	
4	383.36	383.44	383.50	383.55	383.58	383.59	383.58	383.54	383.48	383.40	383.31	
Beam Number	Span (4-5) (53'-9 1/2" C Brg. - C Brg.)											
	C Brg.	.25	.50	.75	C Brg.							C Brg.
1	383.35	383.32	383.26	383.15	383.01							383.01
2	383.49	383.45	383.38	383.27	383.12							383.12
3	383.47	383.43	383.36	383.24	383.09							383.09
4	383.31	383.27	383.19	383.07	382.91							382.91
Beam Number	Span (5-6) (54'-4 3/4" C Brg. - C Brg.)											
	C Brg.	.25	.50	.75	C Brg.							C Brg.
1	383.00	382.89	382.75	382.56	382.34							382.34
2	383.11	383.00	382.85	382.66	382.43							382.43
3	383.08	382.96	382.81	382.61	382.38							382.38
4	382.90	382.78	382.62	382.42	382.18							382.18

Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier.

SLAB HAUNCHING DIAGRAM AND BOTTOM OF SLAB ELEVATION



DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 27
COUNTY CAPE GIRARDEAU	
JOB NO. J9S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9349	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Cape Girardeau, MO Office
3437 William St. Cape Girardeau, MO 63701
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Notes:
 Longitudinal slab dimensions are measured horizontally.
 For details of Precast Prestressed Panels, see Sheet No. 23.
 For details and location of Slab Drains, see Sheet No. 24.
 For Theoretical Slab Haunching Diagram and Theoretical Bottom of Slab Elevations, see Sheet No. 25.
 For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 28.
 For details and reinforcement of the Type D Barrier, see Sheet No. 29 & 30.
 Transverse reinforcement shall be placed perpendicular to $\text{\textcircled{C}}$ Roadway.
 For Slab Top reinforcement, see Sheet No. 26.

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

Detailed Aug. 2024
Checked Sep. 2024

Note: This drawing is not to scale. Follow dimensions

Sheet No. 27 of 44



DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 30
COUNTY CAPE GIRARDEAU	
JOB NO. 19S3738	
CONTRACT ID.	

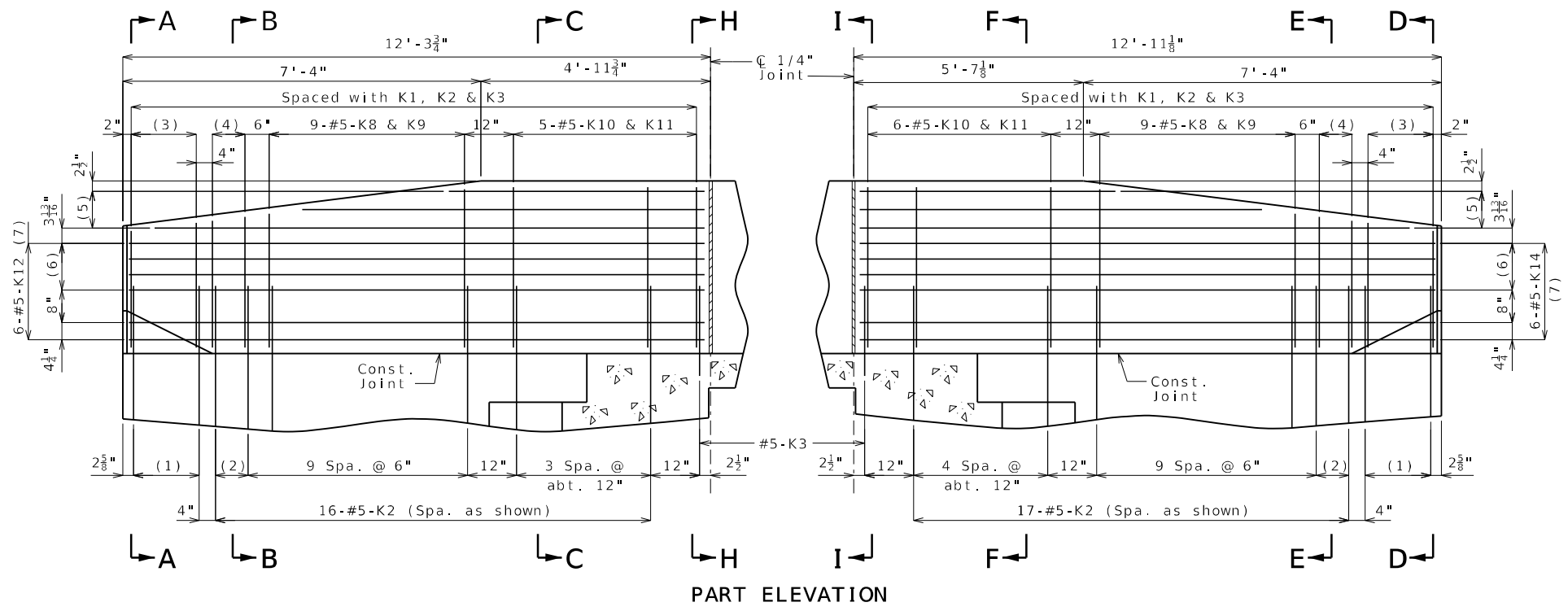
PROJECT NO.	
BRIDGE NO. A9349	

DESCRIPTION
DATE

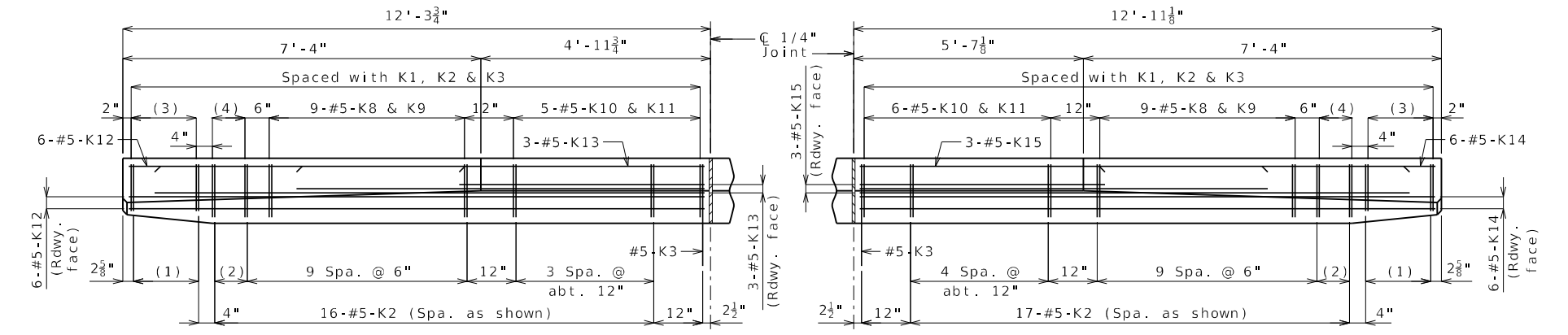
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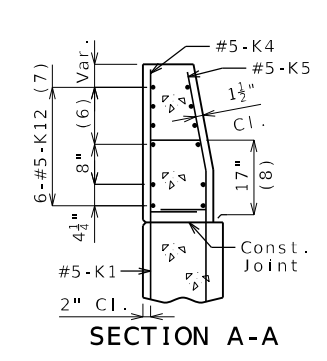
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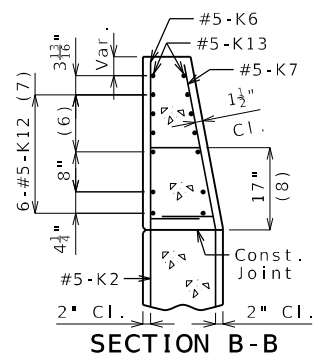
PART ELEVATION



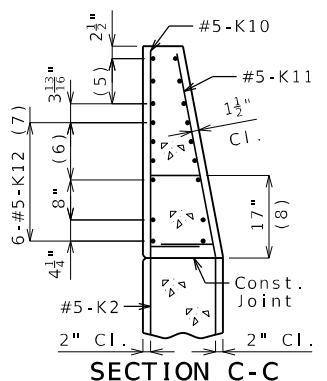
PART PLAN



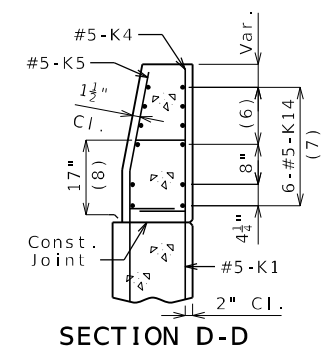
SECTION A-A



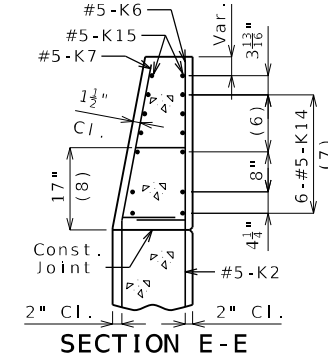
SECTION B-B



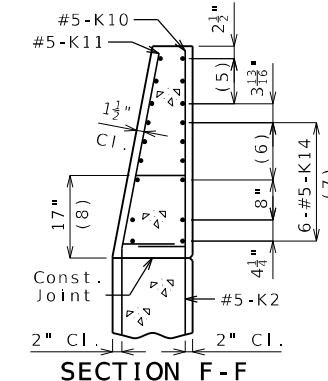
SECTION C-C



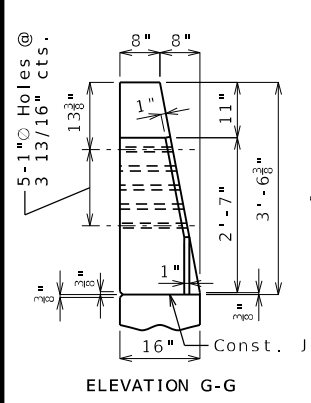
SECTION D-D



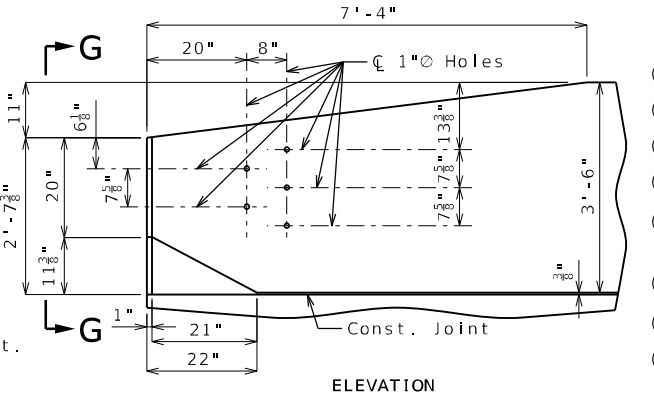
SECTION E-E



SECTION F-F

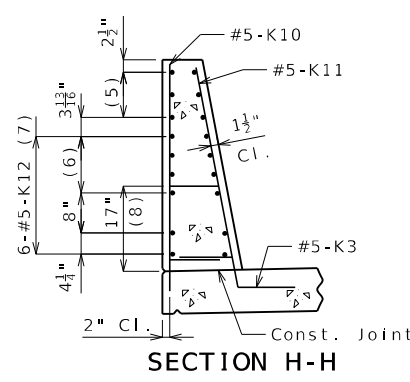


ELEVATION G-G

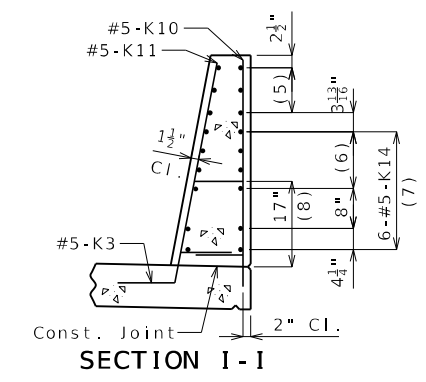


ELEVATION

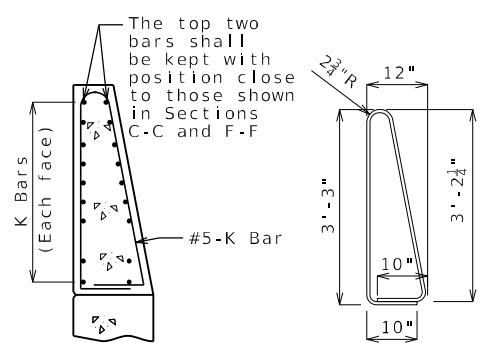
- (1) 5-#5-K1 @ 4" cts.
- (2) 2 spaces @ 4"
- (3) 5-#5-K4 & K5
- (4) 3-#5-K6 & K7
- (5) 3-#5-K13 or K15 @ 4 1/2" cts., each face
- (6) 3 spaces @ 3 1/8"
- (7) Spaced as shown, each face
- (8) To top of bar



SECTION H-H



SECTION I-I



K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(Other K bars not shown for clarity)

The K10-K11 bar combination may be furnished as one bar as shown, at the contractor's option.

All dimensions are out to out.

General Notes:

Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Type D Barrier.

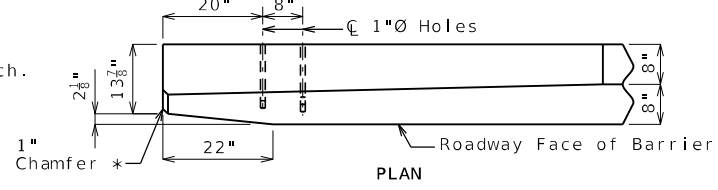
Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent.

TYPE D BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

DETAILS OF GUARD RAIL ATTACHMENT



PLAN

* Transition to zero at Type A curb for gutter lines to match.

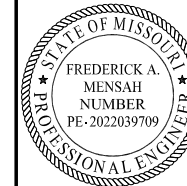
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 30 of 44

Detailed Aug. 2024
Checked Sep. 2024

Bill of Reinforcing Steel														
No. Req.	Size/ Mark	Location	Dimensions							Nom. Length ft in.	Actual Length ft in.	Weight lb		
			Codes C SH V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.				K ft in.	
SUBSTRUCTURE														
INTERMEDIATE BENT NO. 2														
13	7	D200	BEAM KEY	20	2 6.000									
8	8	H200	BEAM	18	29 11.000							31 9	31 9	678
4	6	H201	BEAM	20	29 11.000							29 11	29 11	180
8	6	H202	BEAM	10S		22.000	3 3.000					6 11	6 7	79
7	6	H203	BEAM	18	2 1.250							3 6	3 6	37
36	5	U200	BEAM	13S	3 3.000	2 9.000	3 3.000	2 9.000				13 0	12 7	472
24	5	U201	BEAM	10S		2 9.000	3 3.000					8 9	8 6	213
INTERMEDIATE BENT NO. 3														
13	7	D300	BEAM KEY	20	2 6.000							2 6	2 6	66
8	8	H300	BEAM	18	29 11.000							31 9	31 9	678
4	6	H301	BEAM	20	29 11.000							29 11	29 11	180
8	6	H302	BEAM	10S		22.000	3 3.000					6 11	6 7	79
7	6	H303	BEAM	18	2 1.250							3 6	3 6	37
36	5	U300	BEAM	13S	3 3.000	2 9.000	3 3.000	2 9.000				13 0	12 7	472
24	5	U301	BEAM	10S		2 9.000	3 3.000					8 9	8 6	213
INTERMEDIATE BENT NO. 4														
13	7	D400	BEAM KEY	20	2 6.000							2 6	2 6	66
8	8	H400	BEAM	18	29 11.000							31 9	31 9	678
4	6	H401	BEAM	20	29 11.000							29 11	29 11	180
8	6	H402	BEAM	10S		22.000	3 3.000					6 11	6 7	79
7	6	H403	BEAM	18	2 1.250							3 6	3 6	37
36	5	U400	BEAM	13S	3 3.000	2 9.000	3 3.000	2 9.000				13 0	12 7	472
24	5	U401	BEAM	10S		2 9.000	3 3.000					8 9	8 6	213
INTERMEDIATE BENT NO. 5														
13	7	D500	BEAM KEY	20	2 6.000							2 6	2 6	66
8	8	H500	BEAM	18	29 11.000							31 9	31 9	678
4	6	H501	BEAM	20	29 11.000							29 11	29 11	180
8	6	H502	BEAM	10S		22.000	3 3.000					6 11	6 7	79
7	6	H503	BEAM	18	2 1.250							3 6	3 6	37
36	5	U500	BEAM	13S	3 3.000	2 9.000	3 3.000	2 9.000				13 0	12 7	472
24	5	U501	BEAM	10S		2 9.000	3 3.000					8 9	8 6	213
SUPERSTRUCTURE														
END BENT NO. 1														
8	6	F100	WING	E 15S	2 3.000	4 0.750	14.000	11.750	7.500	22.750	14.500	7 6	7 5	89
3	6	F101	DIAPHRAGM	E 21S	6 5.375	2 11.000	12.125			2 7.750	14.500	10 5	9 11	45
8	6	F102	WING	E 15S	2 3.000	6 2.750	14.000	7.500	11.750	14.500	22.750	9 8	9 7	115
3	6	F103	DIAPHRAGM	E 21S	7 7.375	2 11.000	12.125			2 7.750	14.500	11 7	11 1	50
12	7	H100	BEAM & DIAPHRAGM	E 20	31 4.500							31 5	31 5	771
7	6	H101	BEAM & DIAPHRAGM	E 20	31 4.500							31 5	31 5	330
5	7	H102	BEAM	E 18	3 11.000							5 7	5 7	57
9	6	H103	DIAPHRAGM	E 20	3 1.500							3 2	3 2	43
4	5	H104	STRAND TIE	E 23S	15.000	4 1.750	15.000	2.625	14.750	2.625	14.750	6 8	6 8	28
16	8	H105	WING	E 19	11 6.000	16.000						12 10	12 8	541
32	6	H106	WING	E 19	10 8.000	12.000						11 8	11 6	553

Bill of Reinforcing Steel														
No. Req.	Size/ Mark	Location	Dimensions							Nom. Length ft in.	Actual Length ft in.	Weight lb		
			Codes C SH V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.				K ft in.	
END BENT NO. 1 (CONT.)														
10	5	U100	BEAM & DIAPHRAGM	E 31S	4 7.000	3 0.000	4 7.000					13 2	12 11	135
14	4	U101	BEAM	E 10S		2 8.000	3 0.000					8 4	8 2	76
22	4	U102	BEAM	E 13S	3 0.000	2 8.000	3 0.000	2 8.000				12 1	11 9	173
16	5	U103	DIAPHRAGM	E 31S	2 10.000	2 5.000	2 10.000					9 0	8 10	147
26	5	U104	DIAPHRAGM	E 19S	2 0.000	15.000						3 3	3 1	84
16	6	U105	DIAPHRAGM	E 19S	20.000	3 0.000						4 8	4 6	108
39	6	U106	DIAPHRAGM	E 19	2 10.000	4 10.000						7 8	7 6	439
12	5	V100	BEAM & DIAPHRAGM	E 17S	4 7.000							5 1	5 1	64
24	6	V101	DIAPHRAGM	E 19S	20.000	9.000						2 5	2 3	81
20	6	V102	WING	E 20	5 11.000							5 11	5 11	178
18	6	V103	WING	E 20	5 8.750							5 9	5 9	155
END BENT NO. 6														
8	6	F600	WING	E 15S	2 3.000	4 0.750	14.000	11.750	7.500	22.750	14.500	7 6	7 5	89
3	6	F601	DIAPHRAGM	E 21S	6 5.375	2 11.000	12.125			2 7.750	14.500	10 5	9 11	45
8	6	F602	WING	E 15S	2 3.000	6 2.750	14.000	7.500	11.750	14.500	22.750	9 8	9 7	115
3	6	F603	DIAPHRAGM	E 21S	7 7.375	2 11.000	12.125			2 7.750	14.500	11 7	11 1	50
12	7	H600	BEAM & DIAPHRAGM	E 20	31 4.500							31 5	31 5	771
7	6	H601	BEAM & DIAPHRAGM	E 20	31 4.500							31 5	31 5	330
5	7	H602	BEAM	E 18	3 11.000							5 7	5 7	57
9	6	H603	DIAPHRAGM	E 20	3 1.500							3 2	3 2	43
4	5	H604	STRAND TIE	E 23S	15.000	4 1.750	15.000	2.625	14.750	2.625	14.750	6 8	6 8	28
16	8	H605	WING	E 19	11 6.000	16.000						12 10	12 8	541
32	6	H606	WING	E 19	10 8.000	12.000						11 8	11 6	553
10	5	U600	BEAM & DIAPHRAGM	E 31S	4 7.000	3 0.000	4 7.000					13 2	12 11	135
14	4	U601	BEAM	E 10S		2 8.000	3 0.000					8 4	8 2	76
22	4	U602	BEAM	E 13S	3 0.000	2 8.000	3 0.000	2 8.000				12 1	11 9	173
16	5	U603	DIAPHRAGM	E 31S	2 10.000	2 5.000	2 10.000					9 0	8 10	147
26	5	U604	DIAPHRAGM	E 19S	2 0.000	15.000						3 3	3 1	84
16	6	U605	DIAPHRAGM	E 19S	20.000	3 0.000						4 8	4 6	108
39	6	U606	DIAPHRAGM	E 19	2 10.000	4 10.000						7 8	7 6	439
12	5	V600	BEAM & DIAPHRAGM	E 17S	4 7.000							5 1	5 1	64
24	6	V601	DIAPHRAGM	E 19S	20.000	9.000						2 5	2 3	81
20	6	V602	WING	E 20	5 11.000							5 11	5 11	178
18	6	V603	WING	E 20	5 8.750							5 9	5 9	155
INTERMEDIATE BENT DIAPHRAGM														
48	6	H700	DIAPHRAGM	E 20	3 5.000							3 5	3 5	246
24	4	H701	DIAPHRAGM	E 20	3 5.000							3 5	3 5	55
24	5	H702	DIAPHRAGM	E 21		9.000	5 4.250			8.750	2.375	6 1	5 11	148
24	5	H703	DIAPHRAGM	E 23		9.000				8.750	2.375	6 1	6 0	150
16	5	H704	STRAND TIE BAR	E 20	6 8.000							6 8	6 8	111
16	5	H705	STRAND TIE BAR	E 20	5 5.000							5 5	5 5	90
48	6	U700	DIAPHRAGM	E 28S		2 2.000	2 7.875	2 9.000				7 7	7 3	523
48	4	U701	DIAPHRAGM	E 28S		18.000	2 7.875	2 6.000				6 8	6 6	208
32	5	V700	DIAPHRAGM	E 20	2 10.000							2 10	2 10	95
SLAB														
579	6	S1	SLAB	E 20	28 5.000							28 5	28 5	24713
48	6	S2	SLAB	E 20 V	2 11.000							2 11	2 11	1099
			INCR. = 12.875 IN									27 7	27 7	
100	5	S3	SLAB	E 20	44 3.000							44 3	44 3	4615
75	7	S4	SLAB	E 20	49 6.000							49 6	49 6	7588
44	8	S5	SLAB	E 20	26 0.000							26 0	26 0	3054
44	8	S6	SLAB	E 20	31 0.000							31 0	31 0	3642
44	8	S7	SLAB	E 20	33 3.000							33 3	33 3	3906
44	8	S8	SLAB	E 20	28 0.000									



DATE PREPARED	
09/22/2025	
ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	37
COUNTY	
CAPE GIRARDEAU	
JOB NO.	
19S3738	
CONTRACT ID.	

PROJECT NO.	
BRIDGE NO.	
A9349	

DESCRIPTION	
DATE	

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

1-888-ASK-MODOT (1-888-275-6636)

Cape Girardeau, MO Office
 3437 William St. Cape Girardeau, MO 63701
 Certificate of Authority: F2007028644
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**Missouri Department of Transportation
Construction and Materials**

BORING NO. B-1001
Page 3 of 4

Job No.: 22578
 Design: _____
 Bent: 1
 Station: 684+22.43
 Offset: 28.3716 LT
 Elevation: 377.0
 Requested Station: _____
 Requested Offset: _____
 Requested Elevation: _____
 Drill No.: BFW 365794

County: Cape Girardeau Route: Z
 Skew: _____ Location: _____
 Logged By: M. Kaufman Operator: R. Shuburt
 Northing: 539206.747 Date of Work: 06/08/23-06/08/23
 Easting: 1057008.005 Depth to Water: 12.0
 Requested Northing: _____ Depth Hole Open: _____
 Requested Easting: _____ Time Change: 0 hours
 Equipment: CME 45C Split-Spoon Sampler
 Location Note: _____
 Hammer Efficiency: 88.7% Drilling Method: Hollow Stem Auger and Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
50		48.0-53.0' POORLY GRADED SAND (SP): Light brown, fine grained, with gravel (continued)	325		100	0-3-2 (7)			MC = 28.9%
55		53.0-63.0' CLAYEY SAND (SC): Light brown to yellowish brown, very fine grained	320		100	0-0-0 (0)			MC = 29.4%
60			315		100	0-0-0 (0)			MC = 29.8%
65		63.0-90.0' SANDY LEAN CLAY (CL): Yellowish brown	310		100	0-0-0 (0)			MC = 26.7%
70			305		67	0-0-0 (0)			MC = 44.5%
75									

N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
 (1) = Assumed, (2) = Actual
 Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 0.9999843140
 Coordinate Datum: _____ Coordinate Units: U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

(Continued Next Page)

**Missouri Department of Transportation
Construction and Materials**

BORING NO. B-1001
Page 4 of 4

Job No.: 22578
 Design: _____
 Bent: 1
 Station: 684+22.43
 Offset: 28.3716 LT
 Elevation: 377.0
 Requested Station: _____
 Requested Offset: _____
 Requested Elevation: _____
 Drill No.: BFW 365794

County: Cape Girardeau Route: Z
 Skew: _____ Location: _____
 Logged By: M. Kaufman Operator: R. Shuburt
 Northing: 539206.747 Date of Work: 06/08/23-06/08/23
 Easting: 1057008.005 Depth to Water: 12.0
 Requested Northing: _____ Depth Hole Open: _____
 Requested Easting: _____ Time Change: 0 hours
 Equipment: CME 45C Split-Spoon Sampler
 Location Note: _____
 Hammer Efficiency: 88.7% Drilling Method: Hollow Stem Auger and Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
75		63.0-90.0' SANDY LEAN CLAY (CL): Yellowish brown (continued)	300		100	0-1-1 (3)			MC = 54.0%
80			295						
85			290						
90		90.0-90.5' WEATHERED SANDSTONE: Gray Refusal at 90.4 feet. Bottom of borehole at 90.4 feet.			100	50/0.4'			MC = 17.8%

N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
 (1) = Assumed, (2) = Actual
 Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 0.9999843140
 Coordinate Datum: _____ Coordinate Units: U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

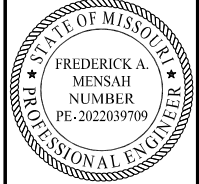
BORING DATA

Note: For locations of borings, see Sheet No. 1.

Detailed Aug. 2024
 Checked Sep. 2024

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

Sheet No. 37 of 44



Missouri Department of Transportation Construction and Materials

BORING NO. B-2 Page 1 of 3

Job No.: 22578 County: Cape Girardeau Route: Z Design: Bent: 2 Station: 685+09.33 Offset: 28.1849 RT Elevation: 372.6 Requested Station: Requested Offset: Requested Elevation: Drill No.: BFW 234

Skew: Location: Logged By: M. Kaufman Operator: R. Shuburt Date of Work: 09/11/23-09/11/23 Northing: 539133.628 Easting: 1057081.66 Depth to Water: 15.0 Depth Hole Open: Time Change: 0 hours Equipment: Diedrich D50 Split-Spoon Sampler, Shelby Tube Location Note: Hammer Efficiency: 86.7% Drilling Method: Hollow Stem Auger and Mud Rotary

Table with 7 columns: Depth (ft), Graphic, Description, Elevation (ft), Sample Type, REC % (ROD %), Blow Counts (N60), Shear Data, Field Tests, Index Tests. Includes soil layer descriptions like '0.0-0.3' GRASS AND TOPSOIL' and '23.5-43.0' SILT (ML): Bluish gray'.

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 0.9999843140 Coordinate Datum: Coordinate Units: U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

(Continued Next Page)

Missouri Department of Transportation Construction and Materials

BORING NO. B-2 Page 2 of 3

Job No.: 22578 County: Cape Girardeau Route: Z Design: Bent: 2 Station: 685+09.33 Offset: 28.1849 RT Elevation: 372.6 Requested Station: Requested Offset: Requested Elevation: Drill No.: BFW 234

Skew: Location: Logged By: M. Kaufman Operator: R. Shuburt Date of Work: 09/11/23-09/11/23 Northing: 539133.628 Easting: 1057081.66 Depth to Water: 15.0 Depth Hole Open: Time Change: 0 hours Equipment: Diedrich D50 Split-Spoon Sampler, Shelby Tube Location Note: Hammer Efficiency: 86.7% Drilling Method: Hollow Stem Auger and Mud Rotary

Table with 7 columns: Depth (ft), Graphic, Description, Elevation (ft), Sample Type, REC % (ROD %), Blow Counts (N60), Shear Data, Field Tests, Index Tests. Includes soil layer descriptions like '23.5-43.0' SILT (ML): Bluish gray' and '43.0-55.1' WEATHERED SANDSTONE'.

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 0.9999843140 Coordinate Datum: Coordinate Units: U.S. Survey Feet

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(Continued Next Page)

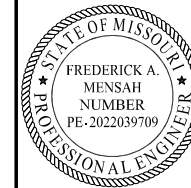
DATE PREPARED: 09/22/2025 ROUTE: Z STATE: MO DISTRICT: BR SHEET NO.: 38 COUNTY: CAPE GIRARDEAU JOB NO.: 19S3738 CONTRACT ID.: PROJECT NO.: BRIDGE NO.: A9349

Table with 2 columns: DATE, DESCRIPTION. Includes Missouri Highways and Transportation Commission logo and address: 105 WEST CAPITOL JEFFERSON CITY, MO 65102

Cape Girardeau, MO Office: 3437 William St. Cape Girardeau, MO 63701. BFW logo at the bottom.

BORING DATA

Note: For locations of borings, see Sheet No. 1.



DATE PREPARED
09/22/2025

ROUTE STATE
Z MO

DISTRICT SHEET NO.
BR 39

COUNTY
CAPE GIRARDEAU

JOB NO.
19S3738

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9349

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION



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

Cape Girardeau, MO Office
3437 William St. Cape Girardeau, MO 63701
Certificate of Authority: F2007028644
Phone: 573-222-5637 / BFWEngineers.com
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Missouri Department of Transportation
Construction and Materials

BORING NO. B-2
Page 3 of 3

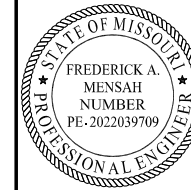
Job No.: 22578 County: Cape Girardeau Route: Z
 Design: Skew: Location:
 Bent: 2 Logged By: M. Kaufman Operator: R. Shuburt
 Station: 685+09.33 Northing: 539133.628 Date of Work: 09/11/23-09/11/23
 Offset: 28.1849 RT Easting: 1057081.66 Depth to Water: 15.0
 Elevation: 372.6 Requested Northing: Depth Hole Open:
 Requested Station: Requested Easting: Time Change: 0 hours
 Requested Offset: Equipment: Diedrich D50 Split-Spoon Sampler, Shelby Tube
 Requested Elevation: Location Note:
 Drill No.: BFW 234 Hammer Efficiency: 86.7% Drilling Method: Hollow Stem Auger and Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
50		43.0-55.1' WEATHERED SANDSTONE: Orange and yellow, fine grained, with broken chert (continued)	320		100	50/0.4'			MC = 12.3%
55		Refusal at 55.1 feet. Bottom of borehole at 55.1 feet.			100	50/0.1'			

N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
 (1) = Assumed, (2) = Actual
 Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 0.9999843140
 Coordinate Datum: Coordinate Units: U.S. Survey Feet
 * Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

BORING DATA

Note: For locations of borings, see Sheet No. 1.



BORING NO. B-5
Page 2 of 2

Missouri Department of Transportation
Construction and Materials

Job No.: 22578
 County: Cape Girardeau
 Route: Z
 Design: _____
 Skew: _____
 Location: _____
 Bent: 5
 Logged By: M. Kaufman
 Operator: R. Shuburt
 Station: 686+72.04
 Northing: 539155.91
 Date of Work: 09/12/23-09/12/23
 Offset: 28.6137 LT
 Easting: 1057252.558
 Depth to Water: 14.0
 Elevation: 372.8
 Requested Northing: _____
 Depth Hole Open: _____
 Requested Easting: _____
 Time Change: 24 hours
 Equipment: Diedrich D50 Split-Spoon Sampler, Shelby Tube
 Requested Station: _____
 Requested Elevation: _____
 Location Note: _____

DATE PREPARED	
09/22/2025	
ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	42
COUNTY	
CAPE GIRARDEAU	
JOB NO.	
19S3738	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9349	

Job No.: 22578
 County: Cape Girardeau
 Route: Z
 Design: _____
 Skew: _____
 Location: _____
 Bent: 5
 Logged By: M. Kaufman
 Operator: R. Shuburt
 Station: 686+72.04
 Northing: 539155.91
 Date of Work: 09/12/23-09/12/23
 Offset: 28.6137 LT
 Easting: 1057252.558
 Depth to Water: 14.0
 Elevation: 372.8
 Requested Northing: _____
 Depth Hole Open: _____
 Requested Easting: _____
 Time Change: 24 hours
 Equipment: Diedrich D50 Split-Spoon Sampler, Shelby Tube
 Requested Station: _____
 Requested Elevation: _____
 Location Note: _____

Drill No.: BFW 234 Hammer Efficiency: 86.7% Drilling Method: Hollow Stem Auger and Mud Rotary

Drill No.: BFW 234 Hammer Efficiency: 86.7% Drilling Method: Hollow Stem Auger and Mud Rotary

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



Cape Girardeau, MO Office
 3437 William St. Cape Girardeau, MO 63701
 Certificate of Authority: F2007028644
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BORING NO. B-5
Page 1 of 2

Missouri Department of Transportation
Construction and Materials

Job No.: 22578
 County: Cape Girardeau
 Route: Z
 Design: _____
 Skew: _____
 Location: _____
 Bent: 5
 Logged By: M. Kaufman
 Operator: R. Shuburt
 Station: 686+72.04
 Northing: 539155.91
 Date of Work: 09/12/23-09/12/23
 Offset: 28.6137 LT
 Easting: 1057252.558
 Depth to Water: 14.0
 Elevation: 372.8
 Requested Northing: _____
 Depth Hole Open: _____
 Requested Easting: _____
 Time Change: 24 hours
 Equipment: Diedrich D50 Split-Spoon Sampler, Shelby Tube
 Requested Station: _____
 Requested Elevation: _____
 Location Note: _____

Drill No.: BFW 234 Hammer Efficiency: 86.7% Drilling Method: Hollow Stem Auger and Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0		0.0-0.3' GRASS AND TOPSOIL - 3 inches							MC = 20.3%
		0.3-2.0' EXISTING FILL: Brown, lean silty clay, with roots			61	3-4-4 (12)			
		2.0-7.5' SILT (ML): Light brown, trace orange staining and black organics	370		78	2-2-3 (7)			MC = 23.0%
		7.5-9.5' LEAN CLAY (CL): Gray and brown, trace orange staining and organics	365		100	0-0-0 (0)			LL = 27 PL = 22 MC = 20.3% Sieve Analysis Sieve # % Passing #4 100.0 #10 99.8 #16 99.7 #30 99.1 #40 98.5 #60 97.8 #100 97.2 #200 96.5 MC = 26.5% MC = 26.2%
		9.5-13.5' LEAN SILTY CLAY (CL-ML): Light brown and bluish gray, some black organics	360		100	3-3-3 (9)			
		13.5-38.5' LEAN CLAY (CL): Bluish gray	355		100	0-0-0 (0)			MC = 30.6%
		44.0-45.5' WEATHERED SANDSTONE: Light gray, fine grained, broken/fragmented	350		100	0-0-0 (0)			MC = 33.7%

N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
 (1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 0.9999843140
 Coordinate Datum: _____ Coordinate Units: U.S. Survey Feet

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(Continued Next Page)

BORING DATA

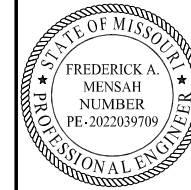
Note: For locations of borings, see Sheet No. 1.

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

Sheet No. 42 of 44

Detailed Aug. 2024
 Checked Sep. 2024

LETTER BOREHOLE - MODOT 20150728.GDT - 3/15/24 09:42 - C:\USERS\SLIVINGSTONE\BACON FARMER WORKMAN\BFW\GEO\TECHNICAL\DEPARTMENT - DOCUMENTS\GINT\PROJECTS\22578 - MODOT ROUTE Z OVER HUBBLE CREEK.GPJ



DATE PREPARED
09/22/2025

ROUTE Z STATE MO
DISTRICT BR SHEET NO. 43

COUNTY
CAPE GIRARDEAU

JOB NO.
19S3738

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9349

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

1-888-ASK-MODOT (1-888-275-6636)

Cape Girardeau, MO Office
3437 William St. Cape Girardeau, MO 63701
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FILES STIMES SDATES

Missouri Department of Transportation Construction and Materials

BORING NO. B-1006
Page 1 of 2

Job No.: 22578
Design: _____
Bent: 6
Station: 687+54.67
Offset: 32.4525 RT
Elevation: 371.8
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: BFW 365794

County: Cape Girardeau
Route: Z
Skew: _____
Location: _____
Logged By: M. Kaufman
Operator: R. Shuburt
Date of Work: 06/09/23-06/09/23
Northing: 539079.221
Easting: 1057320.932
Depth to Water: 3.0
Requested Northing: _____
Requested Easting: _____
Time Change: At Time of Drilling
Equipment: CME 45C, Split-Spoon Sampler, Shelby Tube
Location Note: _____
Hammer Efficiency: 88.7%
Drilling Method: Hollow Stem Auger and Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0		0.0-0.1' TOPSOIL: 1 inch							
		0.1-7.3' LEAN CLAY (CL): Light brownish gray, with organics	370		78	3-2-2 (6)			MC = 23.0%
					89	0-1-2 (4)			MC = 27.2%
			365		100				LL = 32 PL = 20 MC = 28.4%
		7.3-18.3' SILT (ML): Brown and gray, trace organics			100	0-2-2 (6)			LL = 28 PL = 23 MC = 25.6% Sieve Analysis Sieve # % Passing #10 100.0 #40 99.9 #100 99.3 #200 98.4 MC = 27.1%
					100	1-1-2 (4)			
		15.0' Becomes gray	355		100	0-0-2 (3)			MC = 28.1%
		18.3-25.0' SANDY LEAN CLAY (CL): Gray			100	0-0-0 (0)			MC = 20.6%
25			350						

N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 0.9999843140
Coordinate Datum: _____ Coordinate Units: U.S. Survey Feet

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(Continued Next Page)

Missouri Department of Transportation Construction and Materials

BORING NO. B-1006
Page 2 of 2

Job No.: 22578
Design: _____
Bent: 6
Station: 687+54.67
Offset: 32.4525 RT
Elevation: 371.8
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: BFW 365794

County: Cape Girardeau
Route: Z
Skew: _____
Location: _____
Logged By: M. Kaufman
Operator: R. Shuburt
Date of Work: 06/09/23-06/09/23
Northing: 539079.221
Easting: 1057320.932
Depth to Water: 3.0
Requested Northing: _____
Requested Easting: _____
Time Change: At Time of Drilling
Equipment: CME 45C, Split-Spoon Sampler, Shelby Tube
Location Note: _____
Hammer Efficiency: 88.7%
Drilling Method: Hollow Stem Auger and Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
25			345		100	1-4-6 (15)			MC = 23.2%
		25.0-36.5' POORLY GRADED SAND (SP): Yellowish brown, fine grained			78	17-20-13 (49)			MC = 14.1%
			340						
					100	3-8-11 (28)			MC = 18.7%
35									
		Bottom of borehole at 36.5 feet.							

N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 0.9999843140
Coordinate Datum: _____ Coordinate Units: U.S. Survey Feet

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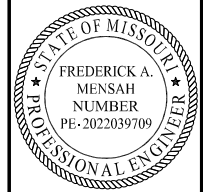
BORING DATA

Note: For locations of borings, see Sheet No. 1.

Detailed Aug. 2024
Checked Sep. 2024

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

Sheet No. 43 of 44



Missouri Department of Transportation Construction and Materials

BORING NO. B-6 Page 1 of 2

Job No.: 22578 County: Cape Girardeau Route: Z
Design: Skew: Location:
Bent: 6 Logged By: M. Kaufman Operator: R. Shuburt
Station: 687+54.67 Northing: 539079.221 Date of Work: 09/14/23-09/14/23
Offet: 32.4525 RT Easting: 1057320.932 Depth to Water: 9.0
Elevation: 371.8 Requested Northing: Depth Hole Open:
Requested Station: Requested Easting: Time Change: 0 hours
Requested Offset: Equipment: Diedrich D50 Split-Spoon Sampler, Shelby Tube
Requested Elevation: Location Note:
Drill No.: BFW 234 Hammer Efficiency: 86.7% Drilling Method: Hollow Stem Auger and Mud Rotary

Table with 8 columns: Depth (ft), Graphic, Description, Elevation (ft), Sample Type, REC % (ROD %), Blow Counts (N60), Shear Data, Field Tests, Index Tests. Rows include soil layers like GRASS AND TOPSOIL, LEAN CLAY, Trace black organics, LEAN SILTY CLAY, LEAN SANDY CLAY, and POORLY GRADED SAND.

N60 = (Em/60)Nm N60 - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual
Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 0.9999843140
Coordinate Datum: Coordinate Units: U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

(Continued Next Page)

Missouri Department of Transportation Construction and Materials

BORING NO. B-6 Page 2 of 2

Job No.: 22578 County: Cape Girardeau Route: Z
Design: Skew: Location:
Bent: 6 Logged By: M. Kaufman Operator: R. Shuburt
Station: 687+54.67 Northing: 539079.221 Date of Work: 09/14/23-09/14/23
Offet: 32.4525 RT Easting: 1057320.932 Depth to Water: 9.0
Elevation: 371.8 Requested Northing: Depth Hole Open:
Requested Station: Requested Easting: Time Change: 0 hours
Requested Offset: Equipment: Diedrich D50 Split-Spoon Sampler, Shelby Tube
Requested Elevation: Location Note:
Drill No.: BFW 234 Hammer Efficiency: 86.7% Drilling Method: Hollow Stem Auger and Mud Rotary

Table with 8 columns: Depth (ft), Graphic, Description, Elevation (ft), Sample Type, REC % (ROD %), Blow Counts (N60), Shear Data, Field Tests, Index Tests. Rows include soil layers like POORLY GRADED SAND, Trace clay, With clay, WEATHERED SANDSTONE, and Refusal at 42.1 feet.

N60 = (Em/60)Nm N60 - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual
Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 0.9999843140
Coordinate Datum: Coordinate Units: U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

DATE PREPARED: 09/22/2025
ROUTE: Z STATE: MO
DISTRICT: BR SHEET NO.: 44
COUNTY: CAPE GIRARDEAU
JOB NO.: J9S3738
CONTRACT ID.

PROJECT NO.:
BRIDGE NO.: A9349

Table with 2 columns: DATE, DESCRIPTION. Multiple empty rows for recording data.

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

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3437 William St. Cape Girardeau, MO 63701
Certificate of Authority: F2007028644
Phone: 573-222-5633 / BFWengineers.com
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BORING DATA

Note: For locations of borings, see Sheet No. 1.

Detailed Aug. 2024
Checked Sep. 2024

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

Sheet No. 44 of 44

3(16'X12') CONCRETE BOX CULVERT

SEC/SUR 242 TWP 31N RGE 12E



DATE PREPARED
02/09/2026
ROUTE Z STATE MO
DISTRICT BR SHEET NO. 1
COUNTY CAPE GIRARDEAU
JOB NO. J9S3738
CONTRACT ID.

PROJECT NO.
BRIDGE NO. A9350

DESCRIPTION	DATE

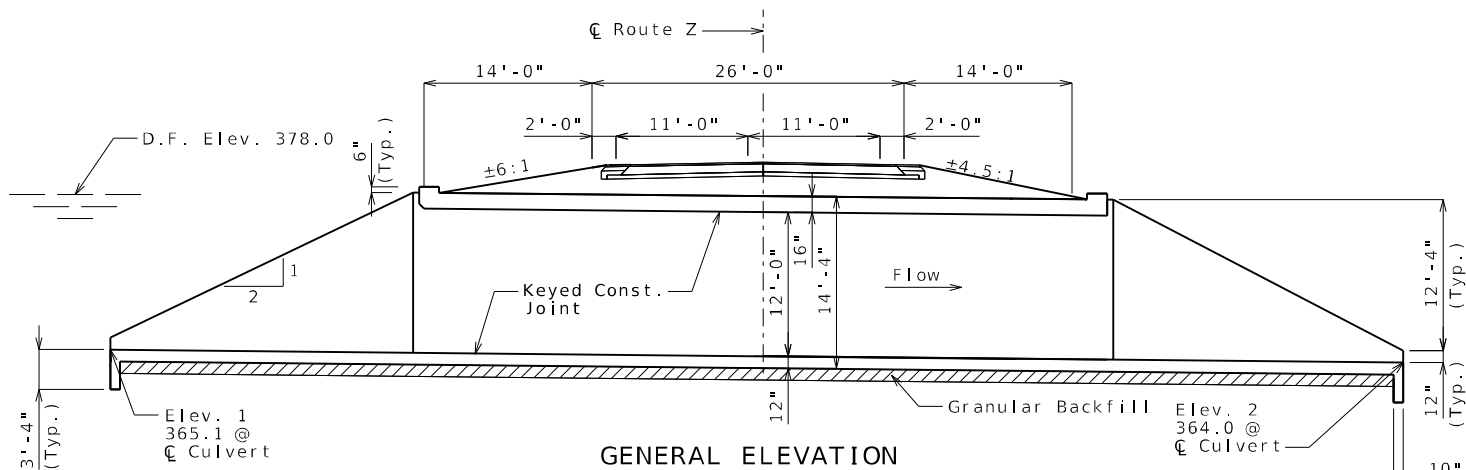
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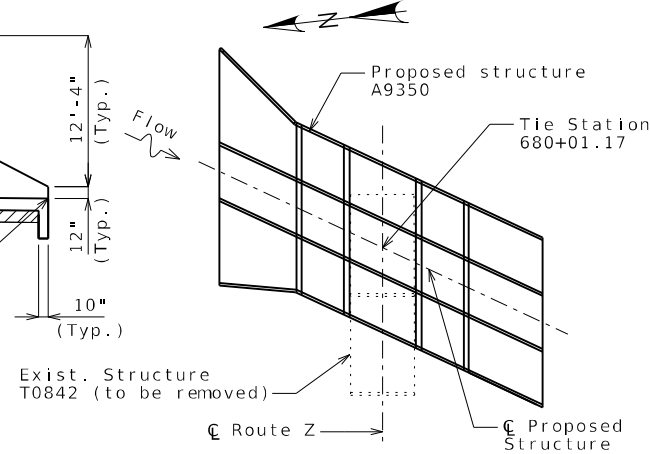


Estimated Quantities			Final Quantities
Class 4 Excavation	cu. yard	1435	
Misc. Dewatering	lump sum	1.0	
Removal of Bridges (T0842)	lump sum	1.0	
Class B-1 Concrete (Culverts-Bridge)	cu. yard	554.8	
Reinforcing Steel (Culverts-Bridge)	pound	80,140	

Fill Heights
 @ Rdwy at @ Culvert = 2.85 ft
 Design (All units) = 3.0 ft
 Fill heights are measured from the top of top slab to the top of earth fill or roadway.



Construction joint key not shown for clarity, see Sheet 5 of 7 for details.
 If any part of the barrel is exposed, the roadway fill shall be warped to provide 12 inches minimum cover. (Roadway Item)
 If unsuitable material is encountered, excavation of unsuitable material and furnishing and placing of granular backfill shall be in accordance with Sec 206.



LOCATION SKETCH

Hydrologic Data		
Drainage Area (mi ²)	A9349	A9350
Design Flood Frequency (years)	50	
Design Flood Discharge (cfs)	18,600	3000
Design Flood (D.F.) Elevation	377.6	378.0
Base Flood (100-year)		
Base Flood Elevation	378.1	378.5
Base Flood Discharge (cfs)	21,400	3500
Estimated Backwater (ft)	0.2	0.3
Average Velocity thru Opening (ft/s)	5.6	-
Outlet Velocity (ft/s)	-	3.8
Freeboard (50-year)		
Freeboard (ft)	2.0	-
Roadway Overtopping		
Overtopping Flood Discharge (cfs)	15,400	2900
Overtopping Flood Frequency (years)	25	
Overtopping Flood Elevation	376.0	

GENERAL NOTES:

Design Specifications:
 2010 AASHTO LRFD Bridge Design Specifications and 2010 Interim Revisions.

Design Loading:
 Vehicular = HL-93 minus lane load. Earth = 120 lb/cf
 Equivalent Fluid Pressure = 30 lb/cf (min.), 60 lb/cf (max.)

Design Unit Stresses
 Class B-1 Concrete (Box Culvert) f'c = 4,000 psi
 Reinforcing Steel (ASTM A615 Grade 60) fy = 60,000 psi

Reinforcing Steel
 Minimum clearance to reinforcing steel shall be 1 1/2".

Standard Plans:
 703.83, 703.87, and 703.37.

Miscellaneous:
 MoDOT Construction personnel will indicate the type of box culvert constructed:

- Precast Concrete Box used
- Cast-in-Place Concrete Box used

When alternate precast concrete box sections are used, the minimum distance from inside face of headwalls to precast sections measured along the shortest wall shall be 3 feet. Reinforcement and dimensions for wings and headwalls shall be in accordance with Missouri Standard Plans.

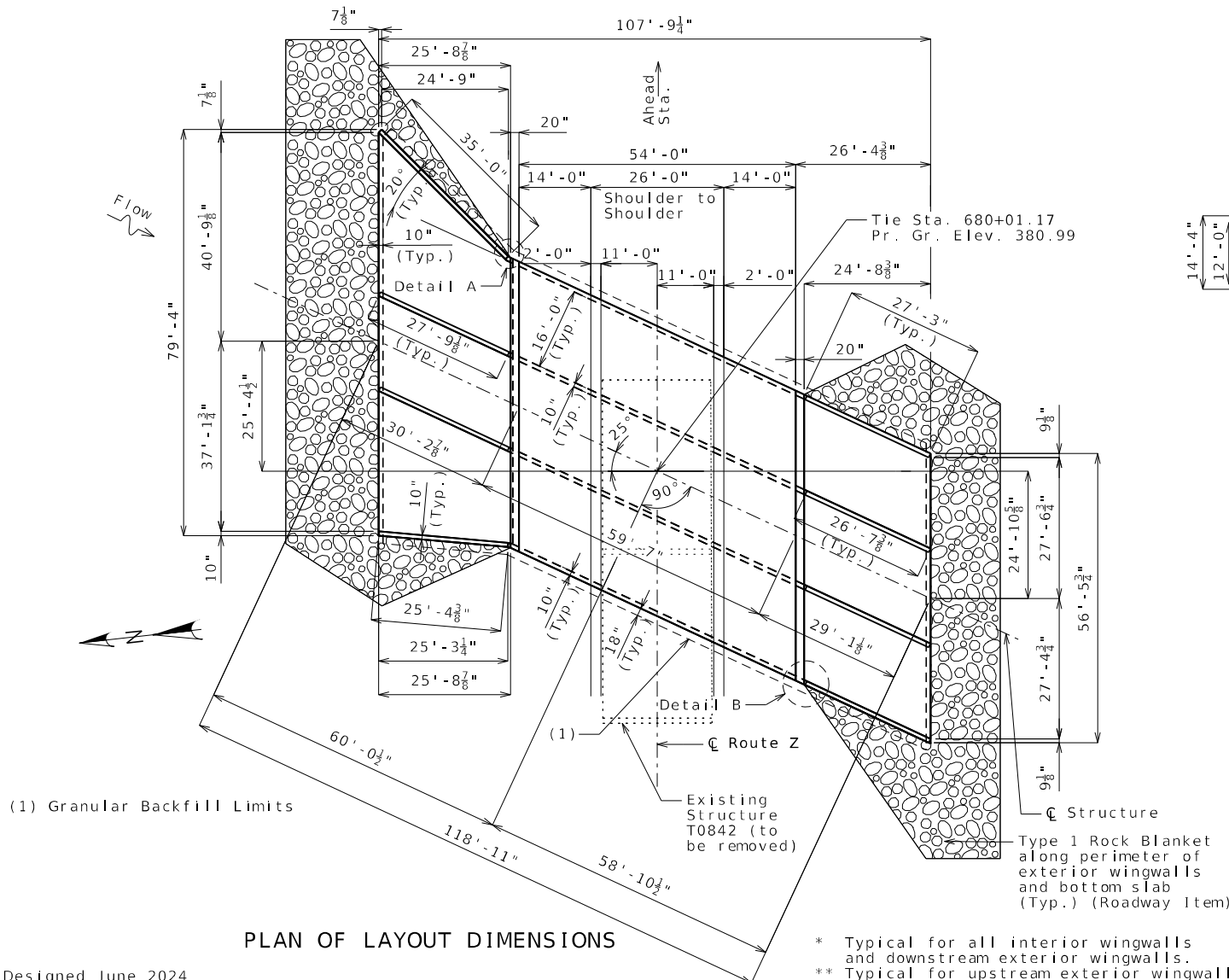
Channel bottom shall be graded within the right of way for transition of channel bed to culvert openings. Channel banks shall be tapered to match culvert openings. (Roadway Item)

Traffic Handling:
 Structure to be closed during construction. Traffic to be maintained on other routes during construction. See roadway plans for traffic control.

B.M. "B" ELEV 373.06
 COTTON PICKER SPINDLE IN BASE OF UTILITY POLE LOCATED IN SW QUAD OF INTERSECTION OF HWY Z AND CR 222 STA. 678+55.32

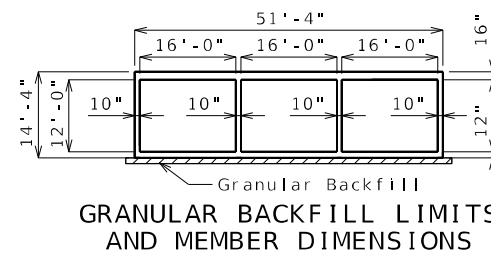
BRIDGE: ROUTE Z OVER HUBBLE CREEK OVERTFLOW

ROUTE Z FROM ROUTE 00 TO ROUTE 25
 ABOUT 1.1 MILES WEST OF ROUTE 25
 TIE STATION 680+01.17

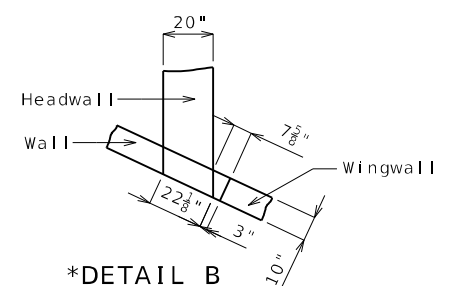


(1) Granular Backfill Limits

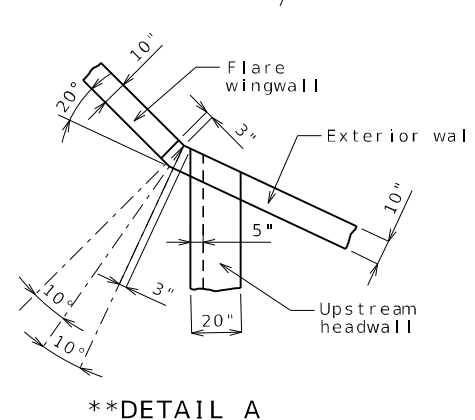
Designed June 2024
 Detailed June 2024
 Checked June 2024



GRANULAR BACKFILL LIMITS AND MEMBER DIMENSIONS



*DETAIL B



**DETAIL A

* Typical for all interior wingwalls and downstream exterior wingwalls.
 ** Typical for upstream exterior wingwalls.

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

Sheet No. 1 of 7



DATE PREPARED 09/22/2025	
ROUTE Z	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY CAPE GIRARDEAU	
JOB NO. J9S3738	
CONTRACT ID.	

PROJECT NO.
BRIDGE NO. A9350

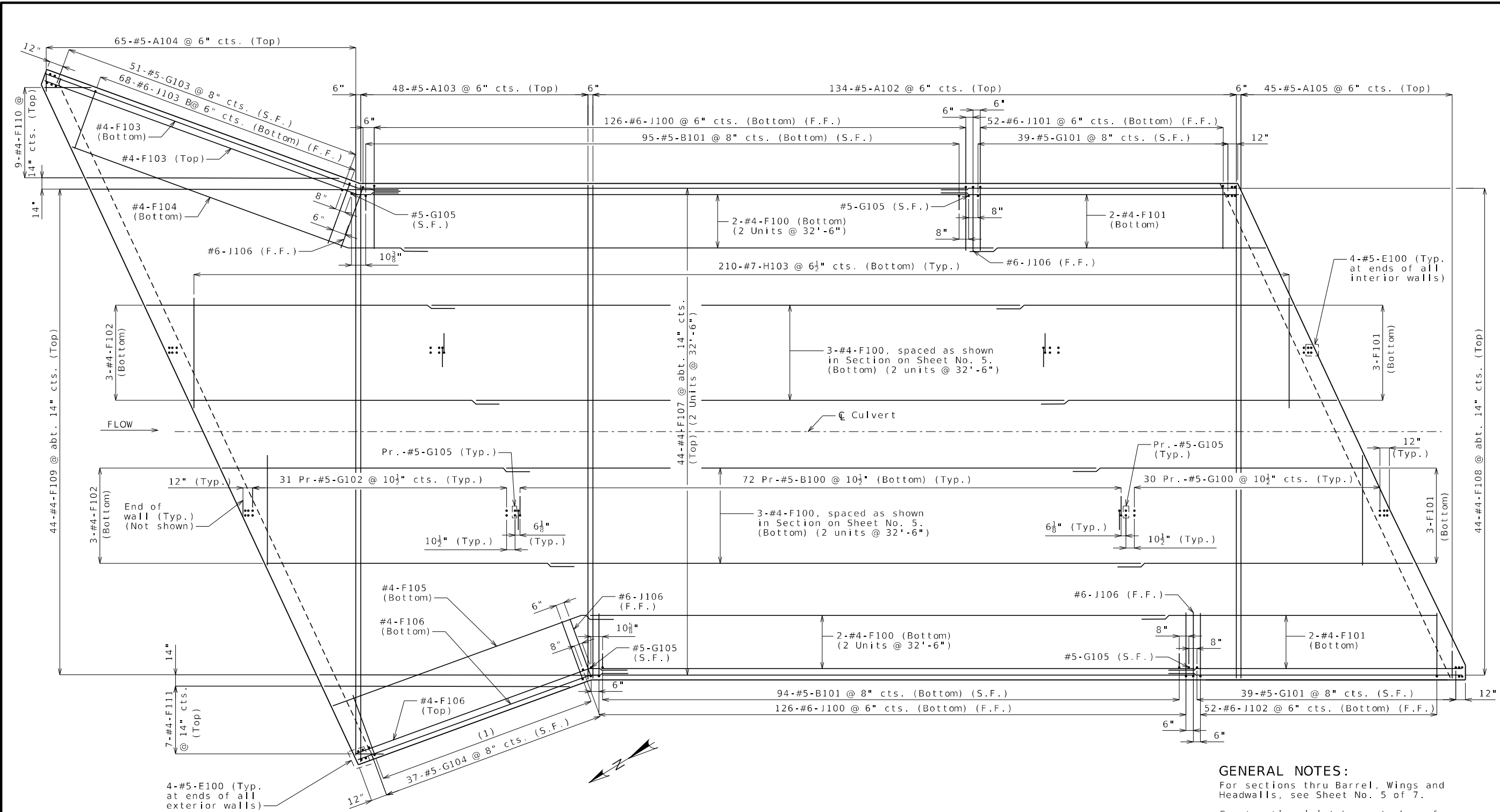
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



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PLAN OF BOTTOM SLAB

GENERAL NOTES:

- For sections thru Barrel, Wings and Headwalls, see Sheet No. 5 of 7.
- Construction joint key not shown for clarity in Plan. See Sheet No. 5 of 7 for details.
- Minimum clearance to reinforcing steel shall be 1 1/2".
- Lap longitudinal bars a minimum of 23" at splices.
- Beveled Headwall shall be located upstream end.
- Cut and bend #6-J102 and #6-J103 bars in field where necessary to conform to structure alignment.
- S.F. = Stream Face.
- F.F. = Fill Face.

(1) 49-#6-J104 @ 6" cts. (Bottom) (S.F.)



DATE PREPARED
09/22/2025

ROUTE Z STATE MO
DISTRICT BR SHEET NO. 4

COUNTY
CAPE GIRARDEAU

JOB NO.
19S3738

CONTRACT ID.

PROJECT NO.

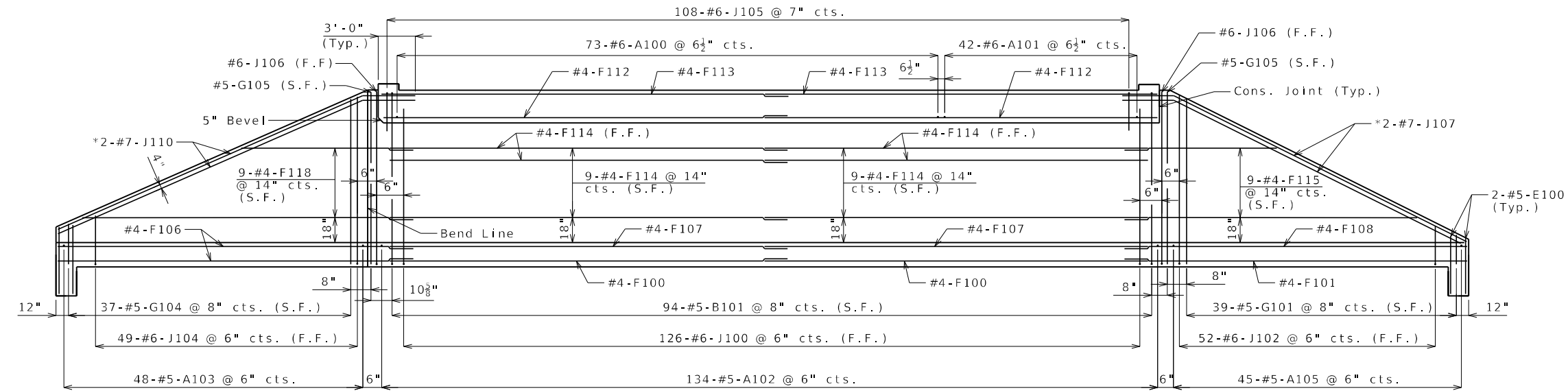
BRIDGE NO.
A9350

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

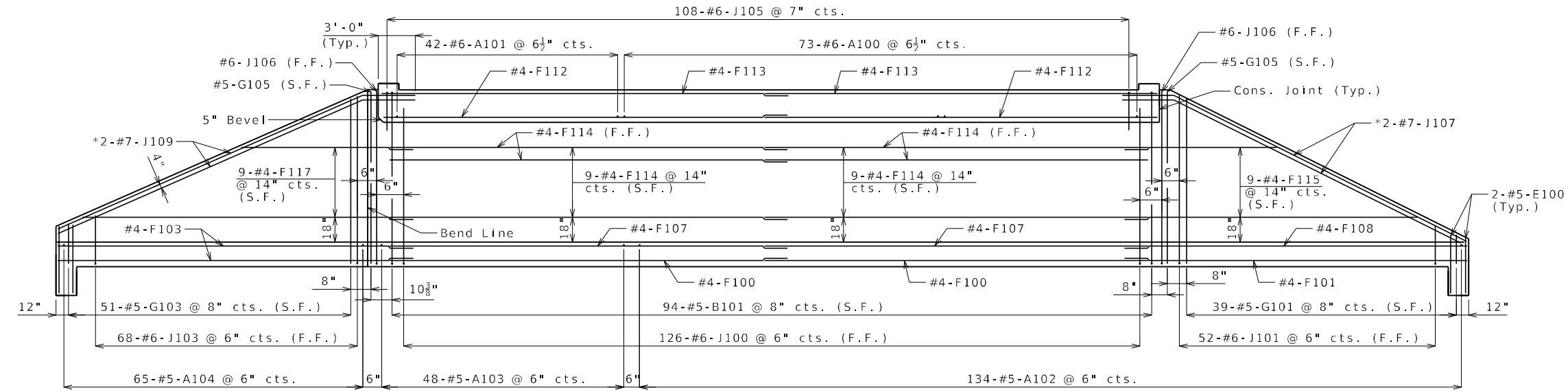
MoDOT

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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DEVELOPED ELEVATION OF WEST EXTERIOR WALL

* May be bent in field or shop.



DEVELOPED ELEVATION OF EAST EXTERIOR WALL

GENERAL NOTES:

- For sections thru Barrel, Wings and Headwalls, see Sheet No. 5 of 7.
- Construction joint key not shown for clarity in Plan. See Sheet No. 5 of 7 for details.
- Minimum clearance to reinforcing steel shall be 1 1/2".
- Lap longitudinal bars a minimum of 23" at splices.
- Beveled Headwall shall be located upsteam end.
- Cut and bend #6-J102 and #6-J103 bars in field where necessary to conform to structure alignment.
- S.F. = Stream Face.
- F.F. = Fill Face.

