MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
FINAL PLANS FOR PROPOSED
STATE HIGHWAY
TEXAS COUNTY

DESIGN DESIGNATION

A.A.D.T. - 2025 = 498
A.A.D.T. - 2045 = 551
D.H.V. = 9.68%
T = 9.02%
V = 55 M.P.H.
D = 51.1% N/48.9% S

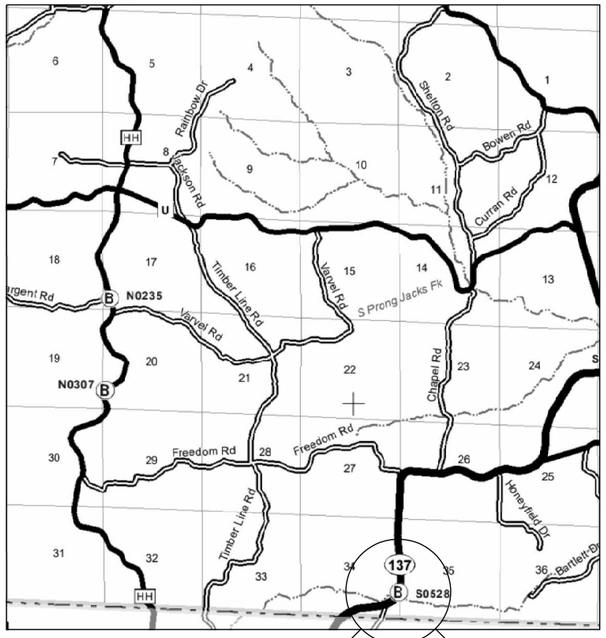
FUNCTIONAL CLASSIFICATION- RURAL MAJOR COLLECTOR

PERMANENT RIGHT OF WAY WILL BE ACQUIRED FOR THIS PROJECT

KEY MAP
SHOWING LOCATION OF COUNTY

NOT TO SCALE

S34 T28N R9W / S35 T28N R9W



BEGIN PROJECT STA. 52+70.00

END PROJECT STA. 59+70.00

PROJECT LIMITS
REPLACE
EX BR# S0528

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	SAN	
FIRE HYDRANT	HYD	
WATER VALVE	WV	
WATER METER	WM	
DROP INLET		
DITCH BLOCK		
GROUND MOUNTED SIGN	SIGN	
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL	PED	
FENCE		
CHAIN LINK	V	
WOVEN WIRE	X	
GATE POST		
BENCHMARK	BM	

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

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.

INDEX OF SHEETS

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 52+70.00	
END OF PROJECT	STA. 59+70.00	
APPARENT LENGTH	700.00	FEET
EQUATIONS AND EXCEPTIONS:		
TOTAL CORRECTIONS	0	FEET
NET LENGTH OF PROJECT	700.00	FEET
STATE LENGTH	0.133	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	1.07	ACRES

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED: 10/18/2024
ROUTE: 137 | STATE: MO
DISTRICT: SE | SHEET NO.: 1
COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION	DATE

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

OATES ASSOCIATES

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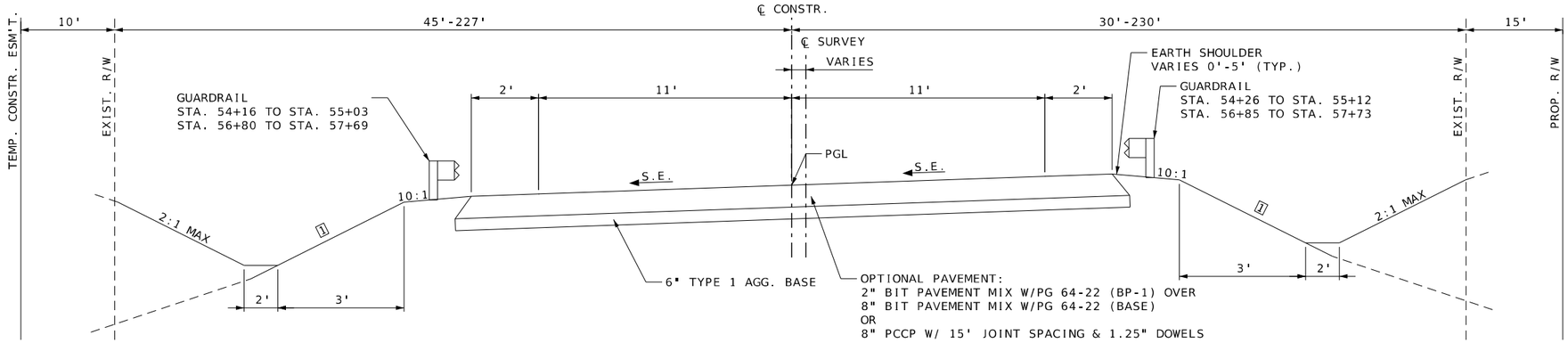
MISSOURI DESIGN FIRM PE-001166

REV.

NOTE: STATIONS BASED ON CONSTRUCTION CL

[1] 2.5:1 GRADE TO GROUND
STA. 52+70 TO STA. 56+85
STA. 58+50 TO STA. 59+70
2:1 SLOPE TO FLAT BOTTOM DITCH
STA. 56+85 TO STA. 58+50

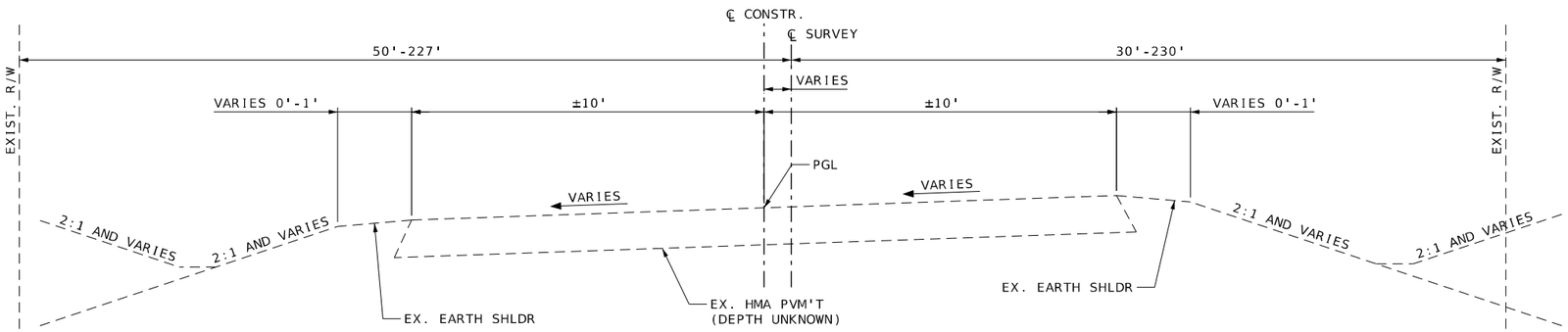


PROPOSED SECTION ON SUPERLEVATED CURVE

PROPOSED ROUTE 137
STA. 52+70 TO STA. 59+70
(BRIDGE OMISSION STA. 55+16 TO STA. 56+74)

S.E. TABLE

STATION	DESCRIPTION	X-SLOPE LT	X-SLOPE RT
52+70.00	MATCH EX	10.2%	7.0%
53+30.00	BEGIN SE	7.8%	7.8%
58+90.00	END SE	7.8%	7.8%
59+70.00	MATCH EX	11.8%	6.4%



EXISTING SECTION ON SUPERELEVATED CURVE

EXISTING ROUTE 137
STA. 52+70 TO STA. 59+70
(BRIDGE OMISSION STA. ±55+23 TO STA. ±56+67)

TYPICAL SECTIONS
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	2

COUNTY
TEXAS

JOB NO.
JSE0027

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9393

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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MISSOURI DESIGN FIRM PE-001166

REV.

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	OFFSET	LENGTH (L.F.)	AREA (S.Y.)	EACH (EACH)	REMARKS
5	52+70	55+26	LT/RT		570		ASPHALT PAVEMENT
5	52+80	53+25	LT		90		FIELD ENTRANCE
5	53+86	55+27	RT	141			48" BARBED WIRE FENCE
5	54+86	55+21	LT/RT			6	SIGNS (OBJECT MARKER)
5	56+65	57+09	LT/RT			6	SIGNS (OBJECT MARKER)
5	56+65	59+70	RT		700		ASPHALT PAVEMENT
5	57+05	58+62	LT	157			48" BARBED WIRE FENCE
5	58+05	58+88	RT		118		AGGREGATE ENTRANCE
5	58+75	58+97	LT		28		AGGREGATE ENTRANCE
5	58+88	59+70	RT		104		AGGREGATE ENTRANCE
			SUBTOTAL	298	1610	12	
			PAY TOTAL	**1 LUMP SUM**			

EARTHWORK

SHEET	STATION	STATION	OFFSET	ESTIMATED CUT (NOTE 1) (C.Y.)	ESTIMATED FILL (NOTE 1) (C.Y.)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) (NOTE 1) (C.Y.)	MODIFIED LINEAR GRADING, CLASS 2 (STA)	REMARKS
XS 1- XS 3	52+70	54+96	LT/RT	146	387	-242	2.3	SOUTH SIDE OF BR #A9393
XS 4 - XS 6	56+94	59+70	LT/RT	685	48	637	2.8	NORTH SIDE OF BR #A9393
			SUBTOTAL	831	436	396	5.1	
			PAY TOTAL	**0**	**0**	**0**	**5.1**	

EARTHWORK NOTES:
1. CUT AND FILL VOLUMES PROVIDED FOR INFORMATION ONLY. INCLUDED IN COST OF MODIFIED LINEAR GRADING CLASS 2.
2. EXISTING PAVEMENT THICKESS IS UNKNOWN. A THICKNESS OF 8" WAS ASSUMED ON THE CROSS-SECTIONS FOR EARTHWORK CALCULATION PURPOSES.
3. MODIFIED LINEAR GRADING CLASS 2 CALCULATED THROUGH LIMITS OF BRIDGE APPROACH SLABS.

PAVEMENT AND BASE

SHEET	STATION	STATION	OFFSET	TYPE 1 AGGREGATE FOR BASE (6 IN. THICK) (S.Y.)	GRAVEL (A) (S.Y.)	OPTIONAL PAVEMENT (S.Y.)	REMARKS
5	52+70	55+00	LT/RT	664		614	
5	55+92	59+70	LT/RT	818		760	
5	58+12	58+88	RT		109		PRIVATE ENTRANCE
5	58+88	59+70	RT		105		PRIVATE ENTRANCE
			SUBTOTAL	1482	214	1374	
			PAY TOTAL	**1482**	**214**	**1374**	

PAVEMENT NOTES:
1. SEE TYPICAL SECTIONS FOR OPTIONAL PAVEMENT DESIGN.

ROCK BLANKET

SHEET	STATION	STATION	OFFSET	FURNISHING TYPE 2 ROCK BLANKET (C.Y.)	PLACING TYPE 2 ROCK BLANKET (C.Y.)	ROCK BLANKET EXCAVATION (NOTES 2 & 3) (C.Y.)	PERMANENT EROSION CONTROL GEOTEXTILE (S.Y.)	REMARKS
10	54+97	55+51	LT/RT	277.3	277.3	277.3	415.9	SOUTH BRIDGE SLOPE
10	56+34	56+91	LT/RT	269.7	269.7	269.7	404.5	NORTH BRIDGE SLOPE
			SUBTOTAL	547.0	547.0	547.0	820.4	
			PAY TOTAL	**547**	**547**	**0**	**820**	

ROCK BLANKET NOTES:
1. ROCK QUANTITY MAY BE OBTAINED FROM REMOVED BRIDGE DECK IF BROKEN OR CRUSHED TO MEET SPECIFICATION WITH NO EXPOSED REBAR OR ASPHALT MATERIAL.
2. THE EXCAVATION QUANTITY SHOWN IS FOR INFORMATION ONLY. THE COST TO EXCAVATE THE SOIL FOR THE PLACEMENT OF THE ROCK BLANKET IS INCLUDED IN THE COST FOR PLACING TYPE 2 ROCK BLANKET.
3. THE EXCAVATION QUANTITY FOR ROCK BLANKET IS NOT INCLUDED IN THE EARTHWORK QUANTITIES. THE SUITABILITY OF THE MATERIAL FOR USE AS FILL MUST BE APPROVED BY THE ENGINEER.

CLEARING AND GRUBBING

PAY TOTAL = 1 ACRE

MOBILIZATION

PAY TOTAL = 1 LUMP SUM

CONTRACTOR FURNISHED SURVEYING AND STAKING

PAY TOTAL = 1 LUMP SUM

NOTE: STATIONS BASED ON CONSTRUCTION CL

SUMMARY OF QUANTITIES
SHEET 1 OF 3

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	3

COUNTY TEXAS

JOB NO. JSE0027

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9393

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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MISSOURI DESIGN FIRM PE-001166

PAVEMENT MARKING

SHEET	STATION	STATION	OFFSET	4 IN. WHITE STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS (L.F.)	4 IN. YELLOW STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS (L.F.)	REMARKS
N/A	52+70	59+70	CL		1400	DOUBLE SOLID CENTERLINE
N/A	52+70	59+70	LT	700		SOLID EDGE LINE
N/A	52+70	59+70	RT	700		SOLID EDGE LINE
			SUBTOTAL	1400	1400	
			PAY TOTAL	**1400**	**1400**	

GUARDRAIL

SHEET	STATION	STATION	OFFSET	MGS BRIDGE APPROACH TRANSITION SECTION (REGULAR/NO CURB) (EACH)	TYPE A CRASHWORTHY END TERMINAL (MASH) (EACH)	REMARKS
5	54+16	55+03	LT	1	1	SW CORNER BR #A9393
5	54+26	55+12	RT	1	1	SE CORNER BR #A9393
5	56+80	57+69	LT	1	1	NW CORNER BR #A9393
5	56+85	57+73	RT	1	1	NE CORNER BR #A9393
			SUBTOTAL	4	4	
			PAY TOTAL	**4**	**4**	

EROSION CONTROL

SHEET	STATION	STATION	OFFSET	ROCK DITCH CHECK (L.F.)	SEDIMENT REMOVAL (C.Y.)	SILT FENCE (L.F.)	TYPE C BERM (L.F.)	TYPE 2D EROSION CONTROL BLANKET (S.Y.)	REMARKS
10	53+29	54+97	LT		1.7	165		331	
10	53+76	55+06	RT		1.5	146		404	
10	54+97	55+61	LT/RT				175		SOUTH BRIDGE SLOPE
10	56+27	56+90	LT/RT				182		NORTH BRIDGE SLOPE
10	56+86	58+65	LT	40	6.8	178		581	5 CHECKS @ 43' SPACING
10	56+90	58+19	RT	24	4.4	136		351	3 CHECKS @ 43' SPACING
10	59+05	59+70	LT		0.8	77		73	
			SUBTOTAL	64	15.2	702	357	1740	
			PAY TOTAL	**64**	**15**	**702**	**357**	**1740**	

EROSION CONTROL NOTES:
1. SEDIMENT REMOVAL QUANTITY ASSUMES 1 CY PER 100 LF OF SILT FENCE AND 1 CY PER DITCH CHECK.

SEEDING AND MULCHING

STATION	STATION	STATION	OFFSET	MULCHING (ACRE)	SEEDING - COOL SEASON GRASSES (ACRE)	TEMPORARY SEEDING (ACRE)	REMARKS
10	52+70	54+97	LT	0.2	0.1	0.1	
10	52+70	55+06	RT	0.2	0.1	0.1	
10	56+86	59+70	LT	0.2	0.1	0.1	
10	56+91	59+13	RT	0.2	0.1	0.1	
			SUBTOTAL	0.8	0.4	0.4	
			PAY TOTAL	**0.8**	**0.4**	**0.4**	

POROUS BACKFILL

SHEET	STATION	STATION	OFFSET	POROUS BACKFILL (C.Y.)	REMARKS
7	55+06	55+20	LT/RT	30.0	ASSUMED 5'x6'x27'
7	56+72	56+82	LT/RT	30.0	ASSUMED 5'x6'x27'
			SUBTOTAL	60.0	
			PAY TOTAL	**60**	

STEEL POST- FURNISH AND INSTALL

SHEET	STATION	STATION	OFFSET	6 IN. STEEL POST (EACH)	REMARKS
N/A	56+80		LT	1	LOCATION IS APPROXIMATE
N/A	56+85		RT	1	LOCATION IS APPROXIMATE
			SUBTOTAL	2	
			PAY TOTAL	**2**	

STEEL POST - FURNISH AND INSTALL NOTES:
1. SEE JSP'S

SUMMARY OF QUANTITIES
SHEET 2 OF 3

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
12/4/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	3

COUNTY
TEXAS

JOB NO.
JSE0027

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9393

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
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MISSOURI DESIGN FIRM PE-001166

EFFECTIVE: 04-01-2023

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT ARROW)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT ARROW)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT ARROW)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT ARROW)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT ARROW)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT ARROW)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT ARROW)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT ARROW)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (ARROW SYMBOL)
WO4-1aR	48X48	16.00						MERGE (ARROW SYMBOL)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING (WITH FLAGS)
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL/LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17	48X48	16.00						SHOULDER DROP-OFF (SYMBOL)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2X	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
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						DETOUR AHEAD
WO20-3	48X48	16.00	13	208.00			20	ROAD CLOSED AHEAD (500 FT-2, AHEAD-11)
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL, WITH FLAGS)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	2	6.00			52	END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT ARROW)
MO4-9R	48X36	12.00						DETOUR (RIGHT ARROW)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR (ARROW LEFT)
MO4-10R	48X18	6.00						DETOUR (ARROW RIGHT)
REGULATORY SIGNS								
R1-1	48X48	16.00						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20.00			29	ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-7	48X24	8.00						RATE OUR WORK ZONE
CONST-7	72X36	18.00						RATE OUR WORK ZONE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	96X48	32.00	2	64.00			56	MO 137 CLOSED 0.5 MILES AHEAD
SPECIAL	96X48	32.00	2	64.00			56A	MO 137 CLOSED 1.5 MILES AHEAD
M1-5	24X12	2.00	20	40.00			17	MO 137 SHIELD
MO4-8	24X12	2.00	20	40.00			17	DETOUR
M5-1L	21X15	2.20	6	13.20			17B, 20C	ADVANCE TURN ARROW (90° LEFT)
M5-1R	21X15	2.20	7	15.40			17A, 20B	ADVANCE TURN ARROW (90° RIGHT)
M6-1L	21X15	2.20	7	15.40			17C	LEFT TURN ARROW
M6-1R	21X15	2.20	7	15.40			17D	RIGHT TURN ARROW
6161005 CONSTRUCTION SIGNS				TOTAL 501.40				
6161010 RELOCATED SIGNS						TOTAL **		

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161008	4	ADVANCED WARNING RAIL SYSTEM
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161025	10	CHANNELIZER (TRIM LINE)
6161030	6	TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
6191000		PAVEMENT EDGE TREATMENT
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

** NO DIRECT PAY FOR RELOCATING TEMPORARY TRAFFIC CONTROL DEVICES

SUMMARY OF QUANTITIES
SHEET 3 OF 3

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	3

COUNTY: TEXAS

JOB NO.: JSE0027

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9393

DATE	DESCRIPTION

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

OATES ASSOCIATES

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100 Lanter Court, Suite 1
Collinsville, IL 62234
618.345.2200

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720 Olive, Suite 700
St. Louis, MO 63101
314.588.8581

Belleville
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Belleville, IL 62220
618.416.4688

St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.6277

www.oatesassociates.com

MISSOURI DESIGN FIRM PE-001166

LAND TIE:
STA. 330+00.00 SURVEY CENTERLINE STATE HIGHWAY 137 IS S54°32'11"W, 7,196.44' FROM THE COMMON CORNERS OF SECTIONS 26, 25, 35, & 36, TOWNSHIP 28 NORTH, RANGE 9 WEST, CORNER MARKED WITH A $\frac{5}{8}$" REBAR WITH ALUMINUM CAP AS DESCRIBED IN DOC #600-83513

NOTE: STATIONS AND OFFSETS BASED OFF OF SURVEY CL

ELEMENT	STATION	NORTHING	EASTING
START	50+00.00	445116.740	1812545.493
PCC	50+15.40	445124.021	1812559.066
PCC	52+65.40	445260.721	1812768.050
PCC	57+77.05	445653.490	1813089.212
PT	60+27.05	445889.412	1813169.692
END	60+77.63	445939.021	1813179.566

CONST. CURVE 1
PI 50+07.70
PC 50+00.00
PT 50+15.40
Δ 0°35'32.3" (LT)
D 3°50'43.3"
L 15.40 (ARC)
T 7.70'
R 1,490.00'

CONST. CURVE 2
PI 51+40.68
PC 50+15.40
PT 52+65.40
Δ 9°21'43.4" (LT)
D 3°44'41.4"
L 250.00' (ARC)
T 125.28'
R 1,530.00'

CONST. CURVE 3
PI 55+25.61
PC 52+65.40
PT 57+77.05
Δ 25°42'53.4" (LT)
D 5°1'33.4"
L 511.64' (ARC)
T 260.20'
R 1,140.00'

CONST. CURVE 4
PI 59+02.78
PC 57+77.05
PT 60+27.05
Δ 15°9'27.4" (LT)
D 6°3'47.0"
L 250.00' (ARC)
T 125.73'
R 945.00'

TANGENT CURVE
PI 330+37.20
PC 330+00.00
PT 330+74.39
Δ 2°18'29.9" (LT)
D 3°6'10.8"
L 74.39' (ARC)
T 37.20'
R 1,846.46'

SURVEY CURVE 1
PI 326+94.60
PC 323+03.40
PT 330+74.39
Δ 23°55'25.5" (LT)
D 3°6'10.8"
L 770.99' (ARC)
T 391.19'
R 1,846.46'

SURVEY CURVE 2
PI 337+58.30
PC 330+74.39
PT 343+07.65
Δ 61°38'36.0" (LT)
D 4°59'54.3"
L 1,233.26' (ARC)
T 683.91'
R 1,146.28'

BEGIN PROJECT
CL CONSTR. STA. 52+70.00
CL SURVEY STA. 332+34.14

END PROJECT
CL CONSTR. STA. 59+70.00
CL SURVEY STA. 339+34.96

ALIGNMENT
SHEET 1 OF 1

SCALE 0 50 100 150

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/18/2024
ROUTE 137 | STATE MO
DISTRICT SE | SHEET NO. 4
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

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

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
St. Louis: 720 Olive, Suite 700, St. Louis, MO 63101, 314.588.8381
St. Charles: 820 South Main, Suite 309, St. Charles, MO 63301, 636.493.6277
Collinsville: 100 Lumber Court, Suite 1, Collinsville, IL 62234, 618.345.2200
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4688
www.oatesassociates.com

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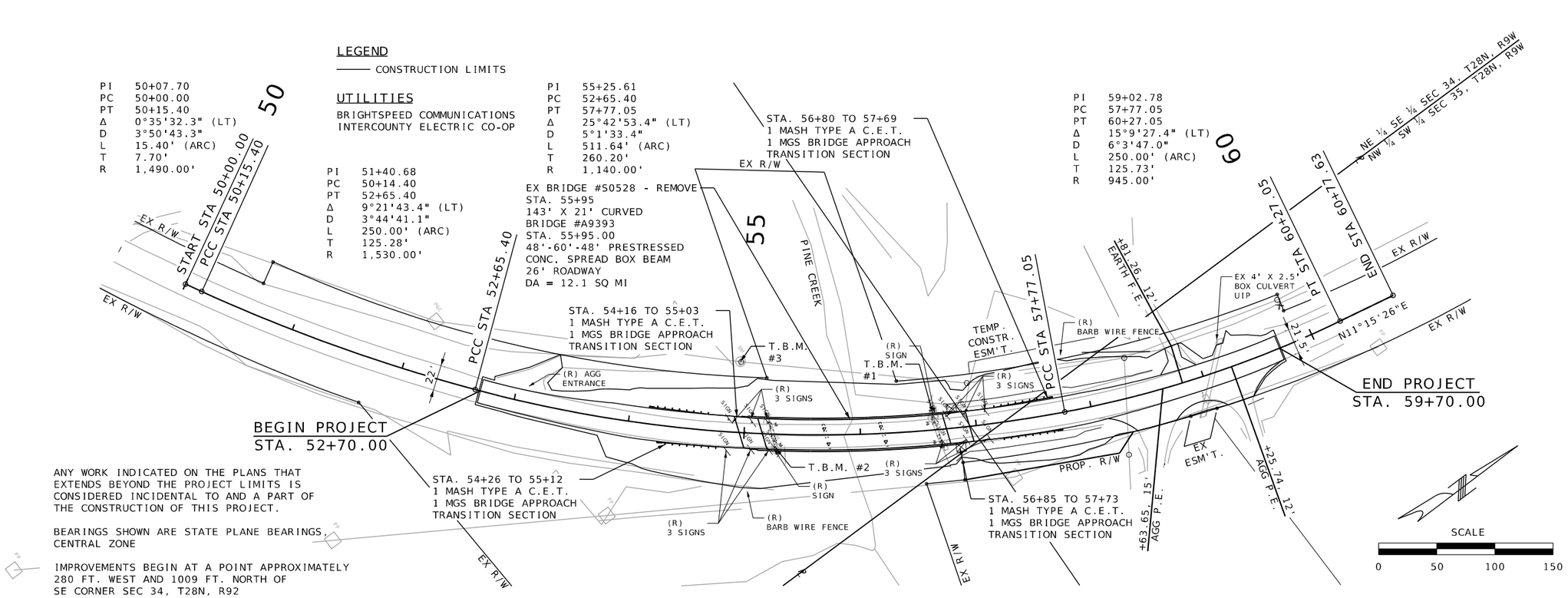

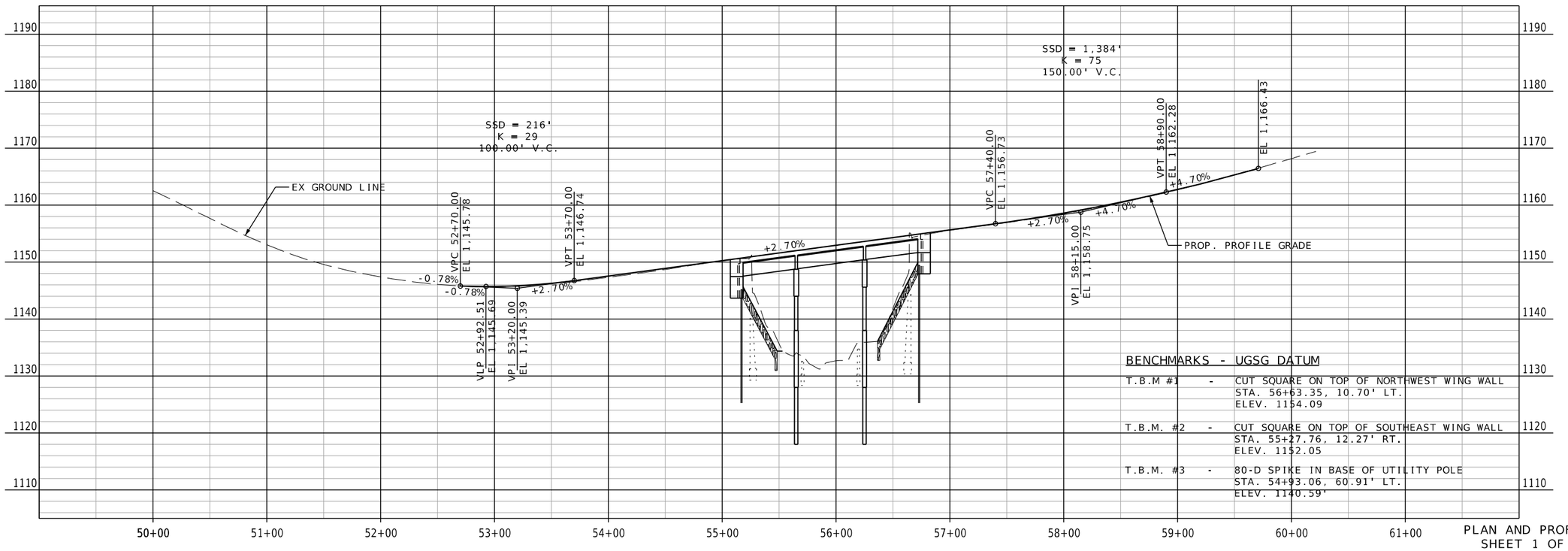

PLAN AND PROFILE
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
TEXAS

JOB NO.
JSE0027

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9393

DESCRIPTION	DATE

REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

OATES ASSOCIATES

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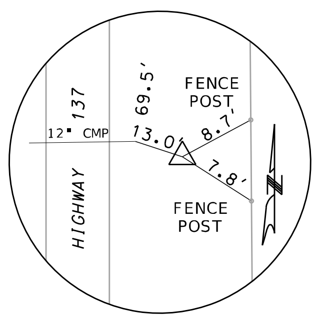
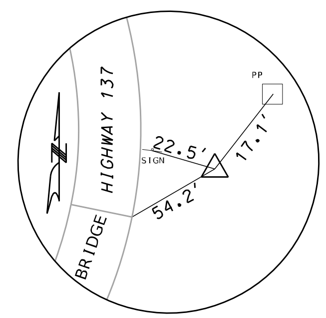
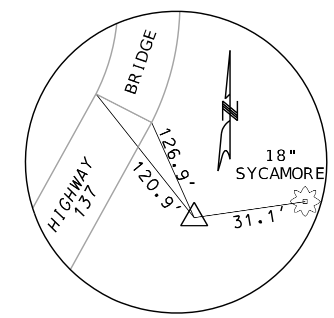


CONTROL POINT NO.1
SET IRON ROD W/CAP
STA 58+77.32
OFF: 25.90' RT
N: 445736.495
E: 1813153.264
ELEV: 1161.37



CONTROL POINT NO.2
SET IRON ROD W/CAP
STA 57+17.94
OFF: 33.31' RT
N: 445584.915
E: 1813090.578
ELEV: 1161.69



CONTROL POINT NO.3
SET IRON ROD W/CAP
STA 54+03.85
OFF: 15.14' RT
N: 445341.394
E: 1812882.590
ELEV: 1148.03

NOTE: STATIONS AND OFFSETS
BASED OFF OF CONSTRUCTION CL

HORIZONTAL AND VERICAL CONTROL STATEMENT

COORDINATE BASE IS MODIFIED STATE PLANE CENTRAL ZONE.
MODIFIED ABOUT THE ORIGIN OF N=0, E=0.
RECIP. FACTOR OF 1.0000832833 TO BRING GRID UP TO GROUND VALUES,

BEARING SYSTEM IS NAD 83 ESTABLISHED WITH GPS UTILIZING
THE MODOT GNSS NETWORK.

VERTICAL DATUM IS NAVD 88 AS BROADCAST WITH THE MODOT GNSS
NETWORK

COORDINATE POINTS - SURVEY CL			
ELEMENT	STATION	NORTHING	EASTING
START	314+78.70	444828.047	1811098.661
POT	317+81.76	444864.681	1811399.496
PC	323+03.40	444924.111	1811917.746
PCC	330+74.39	445169.214	1812643.165
PT	343+07.65	446201.834	1813203.040
PC	354+27.34	447320.574	1813156.951
PT	358+32.29	447724.416	1813128.416
END	363+07.31	448196.889	1813079.077

COORIDNATE POINTS - CONSTRUCTION CL			
ELEMENT	STATION	NORTHING	EASTING
START	50+00.00	445116.740	1812545.493
PCC	50+15.40	445124.021	1812559.066
PCC	52+65.40	445260.721	1812768.050
PCC	57+77.05	445653.490	1813089.212
PT	60+27.05	445889.412	1813169.692
END	60+77.63	445939.021	1813179.566

CONTROL POINTS
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/18/2024	
ROUTE 137	STATE MO
DISTRICT SE	SHEET NO. 6
COUNTY TEXAS	
JOB NO. JSE0027	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9393	

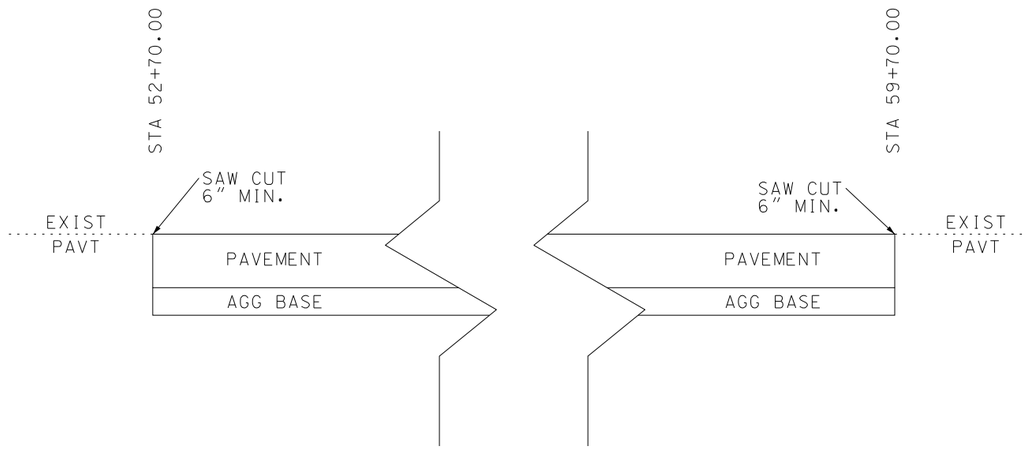
DESCRIPTION
DATE

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

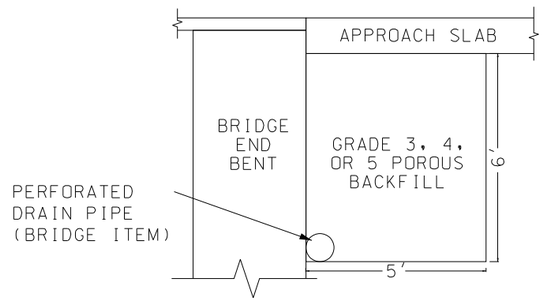
OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166

REV.

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



SAW CUT



POROUS BACKFILL

SPECIAL SHEETS
SHEET 1 OF 1

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
TEXAS

JOB NO.
JSE0027

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9393

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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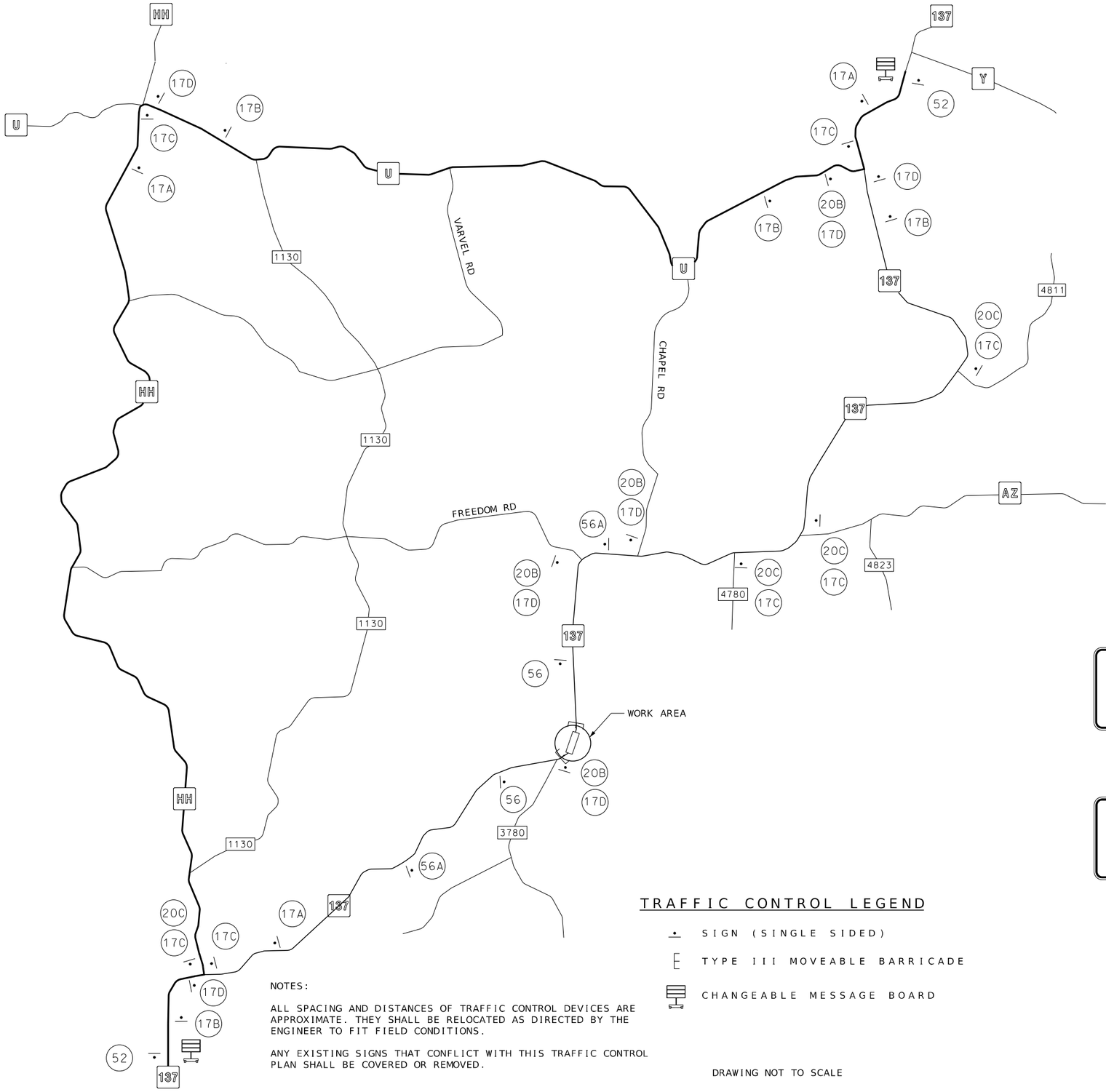
REV.



TRAFFIC CONTROL LEGEND

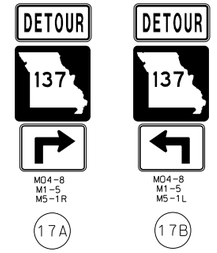
- SIGN (SINGLE SIDED)
- TYPE III MOVEABLE BARRICADE
- CHANGEABLE MESSAGE BOARD

NOTES:

ALL SPACING AND DISTANCES OF TRAFFIC CONTROL DEVICES ARE APPROXIMATE. THEY SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

ANY EXISTING SIGNS THAT CONFLICT WITH THIS TRAFFIC CONTROL PLAN SHALL BE COVERED OR REMOVED.

DRAWING NOT TO SCALE



TRAFFIC CONTROL SHEETS
SHEET 1 OF 2

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/18/2024

ROUTE	STATE
137	MO

DISTRICT	SHEET NO.
SE	8

COUNTY: TEXAS

JOB NO.: JSE0027

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9393

DESCRIPTION	DATE

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

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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MISSOURI DESIGN FIRM PE-001166

REV.

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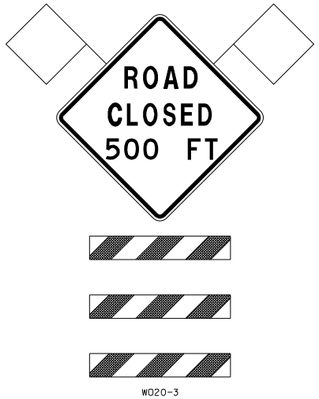
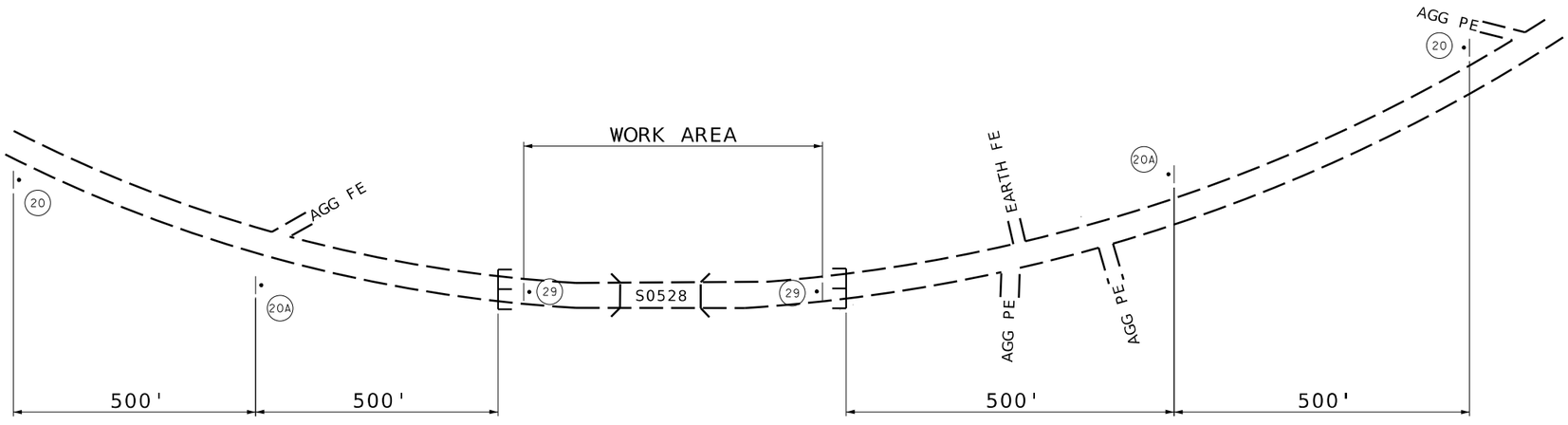


20A

20B

20C



NOTES:

ALL SPACING AND DISTANCES OF TRAFFIC CONTROL DEVICES ARE APPROXIMATE. THEY SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

ANY EXISTING SIGNS THAT CONFLICT WITH THIS TRAFFIC CONTROL PLAN SHALL BE COVERED OR REMOVED.

NO DIRECT PAYMENT SHALL BE MADE FOR FLAGS ON SIGNS ENHANCED WITH AWRS ON MAINLINE.

SIGN SPACING IS 500'.

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- TYPE III MOVEABLE BARRICADE

DRAWING NOT TO SCALE

TRAFFIC CONTROL SHEETS
SHEET 2 OF 2

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	9

COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT
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MISSOURI DESIGN FIRM PE-001166

REV.

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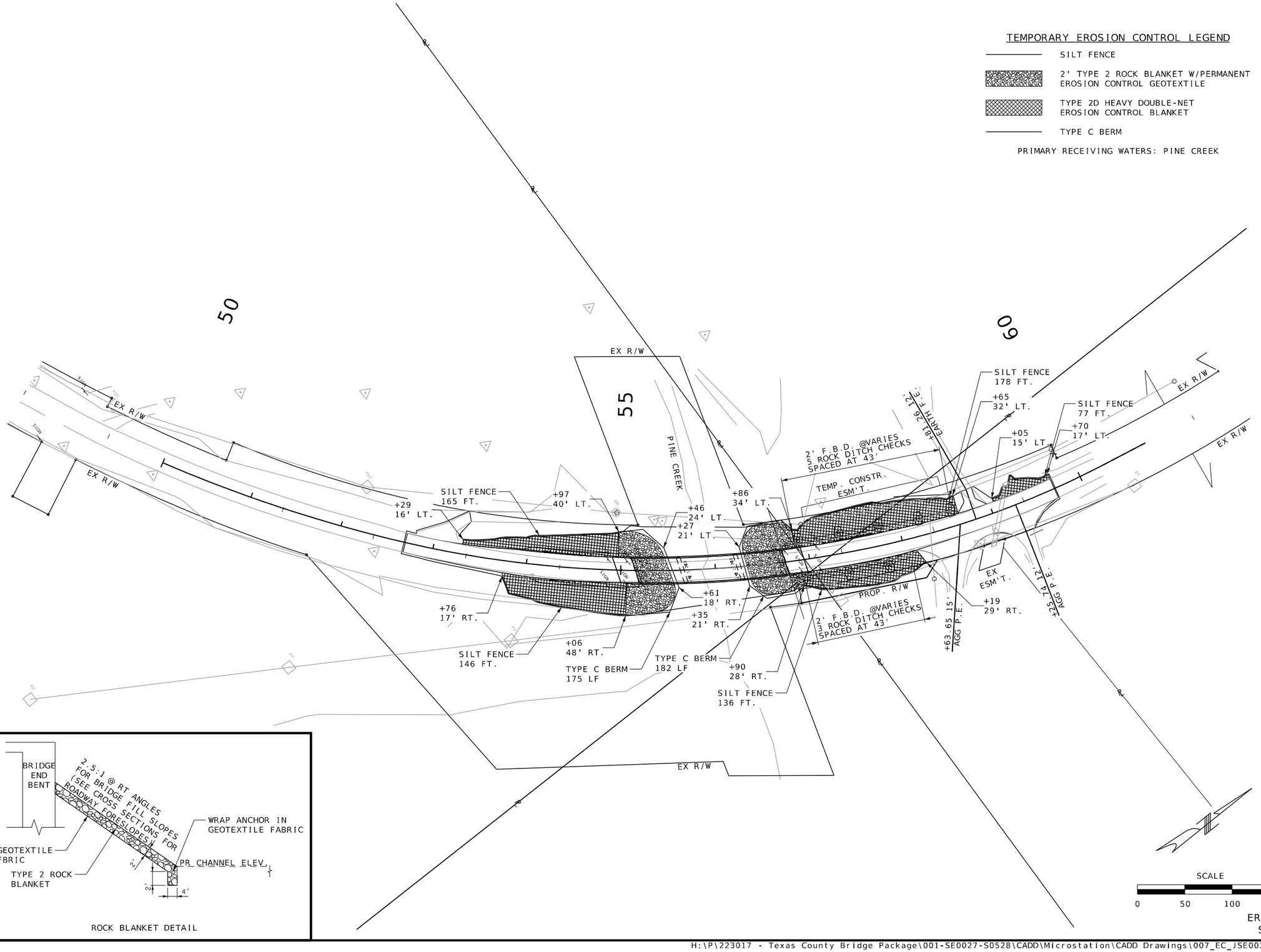
TEMPORARY EROSION CONTROL LEGEND

- SILT FENCE
- 2' TYPE 2 ROCK BLANKET W/PERMANENT EROSION CONTROL GEOTEXTILE
- TYPE 2D HEAVY DOUBLE-NET EROSION CONTROL BLANKET
- TYPE C BERM

PRIMARY RECEIVING WATERS: PINE CREEK



ROCK BLANKET DETAIL

EROSION CONTROL
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

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

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	10

COUNTY
TEXAS

JOB NO.
JSE0027

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9393

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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MISSOURI DESIGN FIRM PE-001166

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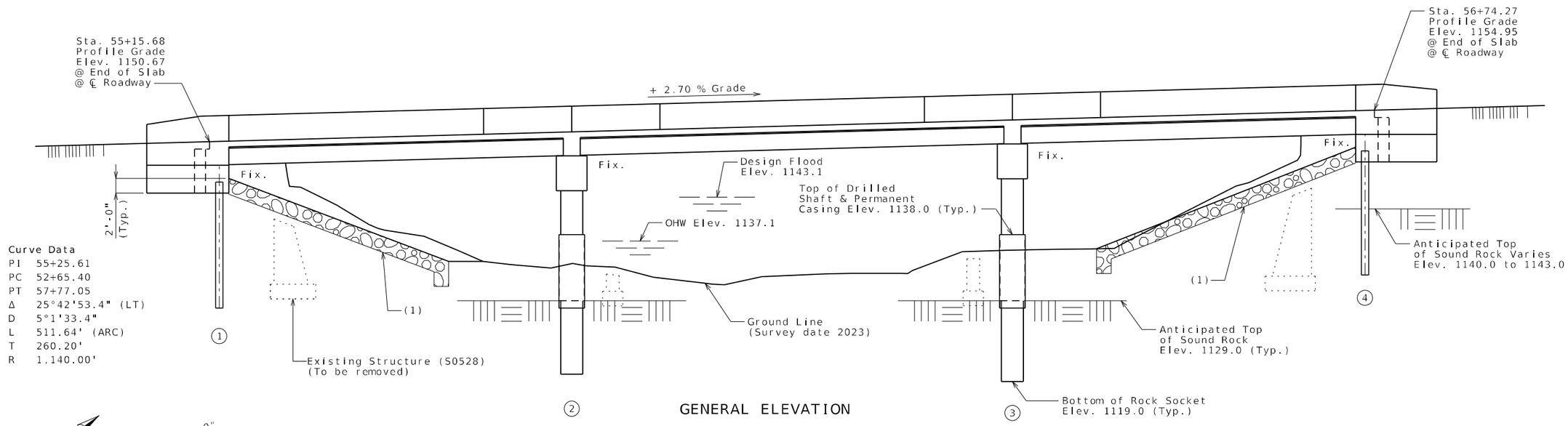
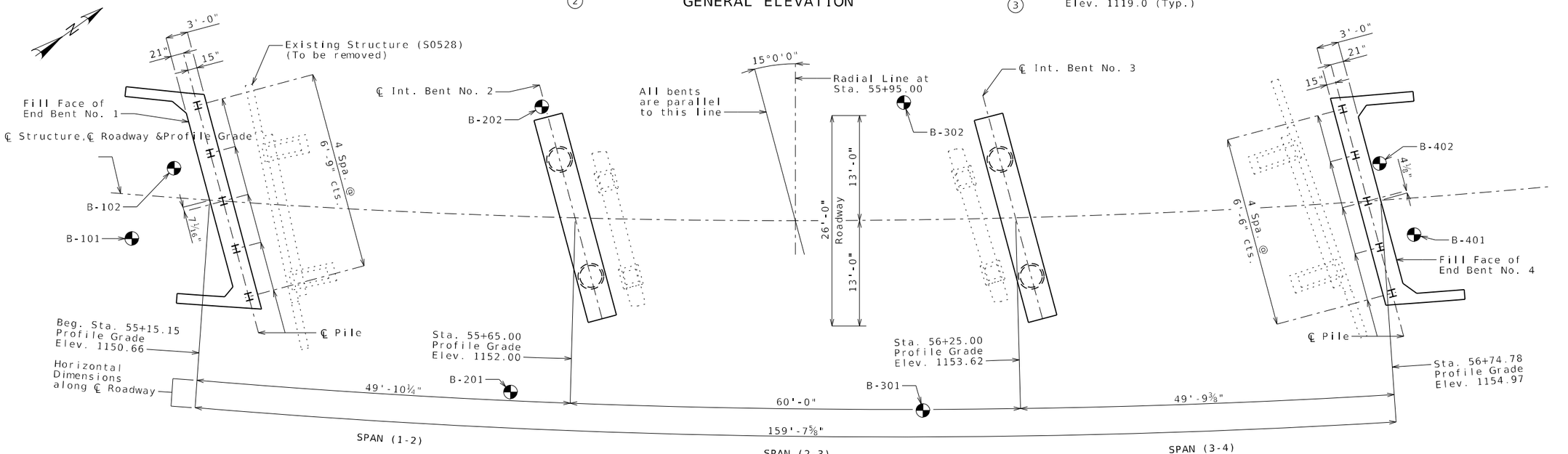
(48'-60'-48') PRESTRESSED CONCRETE SPREAD BOX BEAM SPANS

SEC/SUR 34 TWP 28N RGE 9W



GENERAL ELEVATION



PLAN

℄ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on this sheet.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. 30-34 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.

Designed Jun. 2024
Detailed Jun. 2024
Checked Aug. 2024

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

All bents are parallel.

Reference Notes:
(1) 2.5:1 Slope (Normal) with 2'-0" thick Type 2 Rock Blanket with Permanent Erosion Control Geotextile (Roadway Item)

T.B.M. #1 - CUT SQUARE ON TOP OF NORTHWEST WING WALL.
STA. 56+63.35, 10.70' LT.
ELEV. 1154.09

BRIDGE: ROUTE 137 OVER PINE CREEK

ROUTE 137 FROM ROUTE AZ TO ROUTE HH
ABOUT 2.7 MILES SOUTH OF ROUTE AZ
BEGINNING STATION 55+15.15

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	124		124
Removal of Bridges (S0528)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		119	119
Drilled Shafts (3 ft. 6 in. Dia.)	linear foot	36.0		36.0
Rock Sockets (3 ft 0 in. Dia.)	linear foot	40.0		40.0
Video Camera Inspection	each	4		4
Foundation Inspection Holes	linear foot	80.0		80.0
Sonic Logging Testing	each	4		4
Galvanized Structural Steel Piles (12 in)	linear foot	170		170
Pre-Bore for Piling	linear foot	77		77
Pile Point Reinforcement	each	10		10
Class B Concrete (Substructure)	cu. yard	76.3		76.3
Type D Barrier	linear foot		351	351
Slab on Concrete Beam	sq. yard		505	505
27 in., Prestressed Concrete Spread Box Beam	linear foot		465	465
Reinforcing Steel (Bridges)	pound	16,620		16,620
Vertical Drain at End Bents	each	2		2
Laminated Neoprene Bearing Pad (Tapered)	each		18	18

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 Concrete Beam.

All reinforcement in the intermediate bent concrete diaphragm 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 Concrete 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 (12 in).

Estimated Quantities for Slab on Concrete Beam

Item		Total
Class B-2 Concrete	cu. yard	167
Reinforcing Steel (Epoxy Coated)	pound	51,580

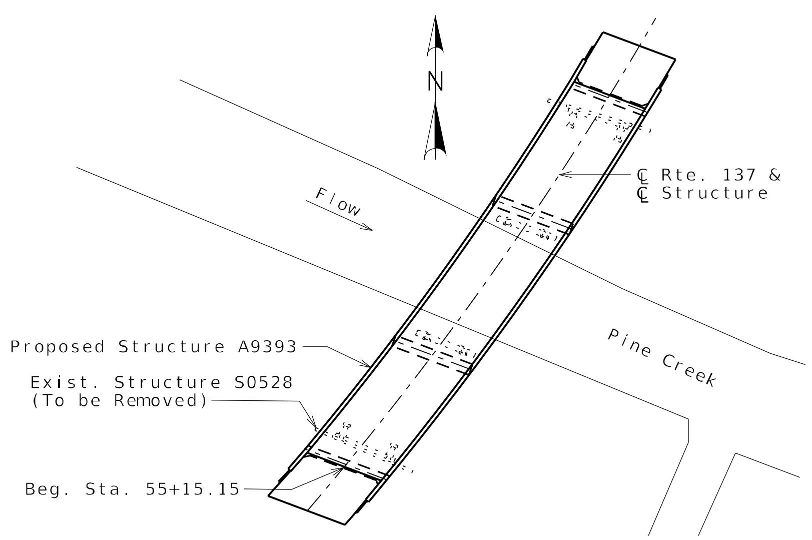
The table of Estimated Quantities for Slab on Concrete Beam represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for stay-in-place corrugated steel forms, 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.

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

Hydrologic Data

Drainage Area = 12.1 mi
Design Flood Frequency = 50 years
Design Flood Discharge = 5,940 cfs
Design Flood (D.F.) Elevation = 1143.1
Base Flood (100-year)
Base Flood Elevation = 1043.9
Base Flood Discharge = 7,010 cfs
Estimated Backwater = 0.6 ft
Average Velocity thru Opening = 8.3 ft/s
Freeboard (50-year)
Freeboard = 3.5 ft
Roadway Overtopping
Overtopping Flood Discharge > 9,520 cfs
Overtopping Flood Frequency > 500 years
500-Year Flood Elevation = 1045.7



LOCATION SKETCH

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

Detailed Jun. 2024
Checked Aug. 2024

Foundation Data

Type	Design Data			Bent 1	Bent 2	Bent 3	Bent 4
Load Bearing Pile	Pile Type and Size			HP 12x53	-	-	HP 12x53
	Number		ea	5	-	-	5
	Approximate Length Per Each (Avg.)		ft	17	-	-	17
	Pile Point Reinforcement		ea	ALL	-	-	ALL
	Min. Galvanized Penetration (Elev.)		ft	Full Length	-	-	Full Length
	Pile Driving Verification Method			DF	-	-	DF
	Resistance Factor			0.40	-	-	0.40
	Minimum Nominal Axial Compressive Resistance		kip	390	-	-	390
Rock Socket	Number		ea	-	2	2	-
	Layer 1	Foundation Material		-	Rock	Rock	-
		Elevation Range	ft	-	1125-1119	1125-1119	-
		Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	-	14.0	14.0	-
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)		ksf	-	80.5	80.5	-

DF = FHWA-modified Gates Dynamic Pile Formula

Load Bearing Pile:
Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor

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

HP piles are anticipated to be driven to refusal to 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.

Prebore for piles at Bent No. 4 to elevation 1132.5.

Rock Socket (Drilled Shaft):
Minimum Nominal Axial Compressive Resistance (Side Resistance + Tip Resistance) = Maximum Factored Loads/Resistance Factor

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd. Ed.) and 2014 Interim Revision (Seismic Details)
Seismic Design Category A
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.14
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.13

Design Loading:

Vehicular = HL-93
Future Wearing Surface = 35 lb/sf
Earth = 120 lb/cf
Equivalent Fluid Pressure = 45 lb/cf (Min.)
Superstructure: Simply-supported, non-composite for dead load. Continuous composite for live load.

Design Unit Stresses:

Class B Concrete (Substructure, except Drilled Shafts & Rock Sockets)	f'c = 3,000 psi
Class B-2 Concrete (Drilled Shafts & Rock Sockets)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Beams or Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Structural Steel HP Piles (ASTM A709 Grade 50S)	fy = 50,000 psi

For prestressed beam stresses, see Sheets No. 14 & 15.

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.

GENERAL NOTES & QUANTITIES

Sheet No. 2 of 34

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/16/2024
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY	TEXAS
JOB NO.	JSE0027
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9393

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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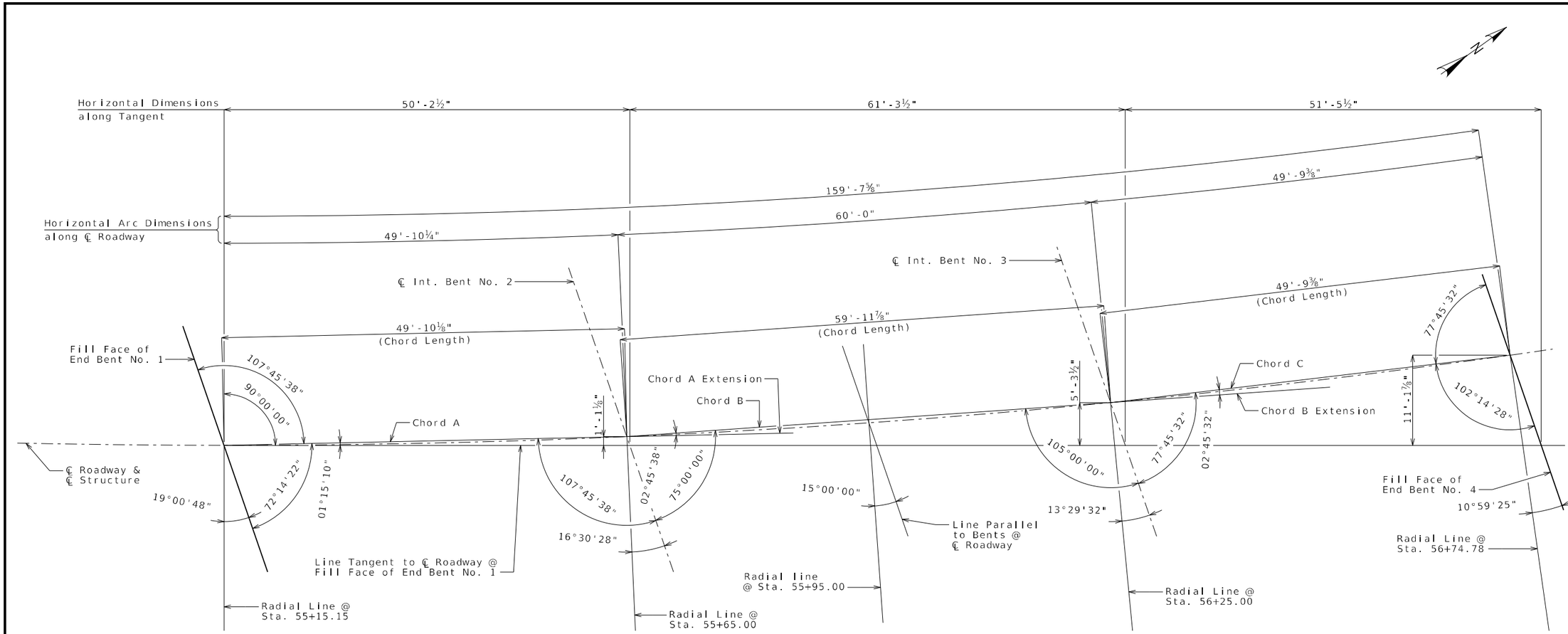

PLAN

General Notes:
All bents are parallel.

All dimensions are horizontal.

SUBSTRUCTURE LAYOUT

Detailed Jun. 2024
Checked Aug. 2024

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

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	3

COUNTY
TEXAS

JOB NO.
JSE0027

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9393

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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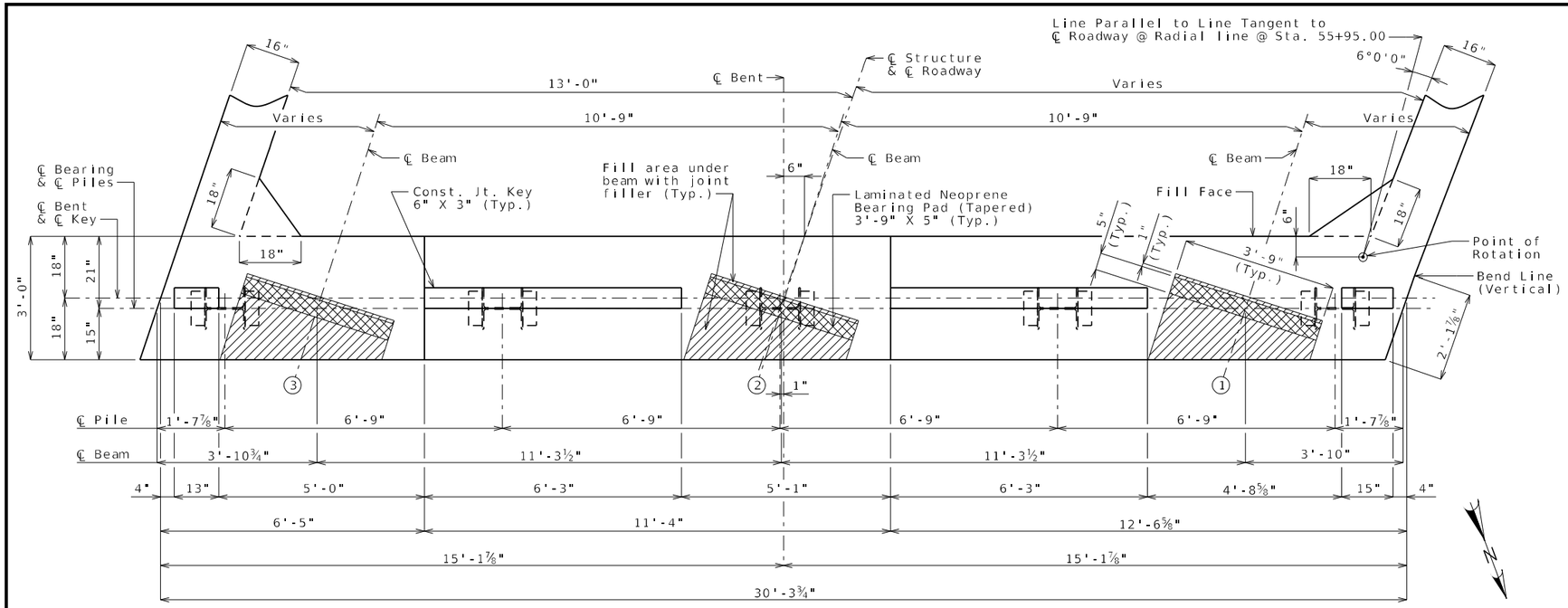
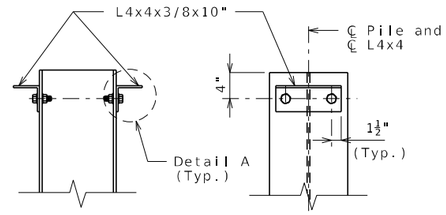
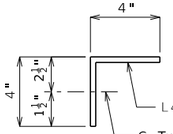


PLAN OF BEAM

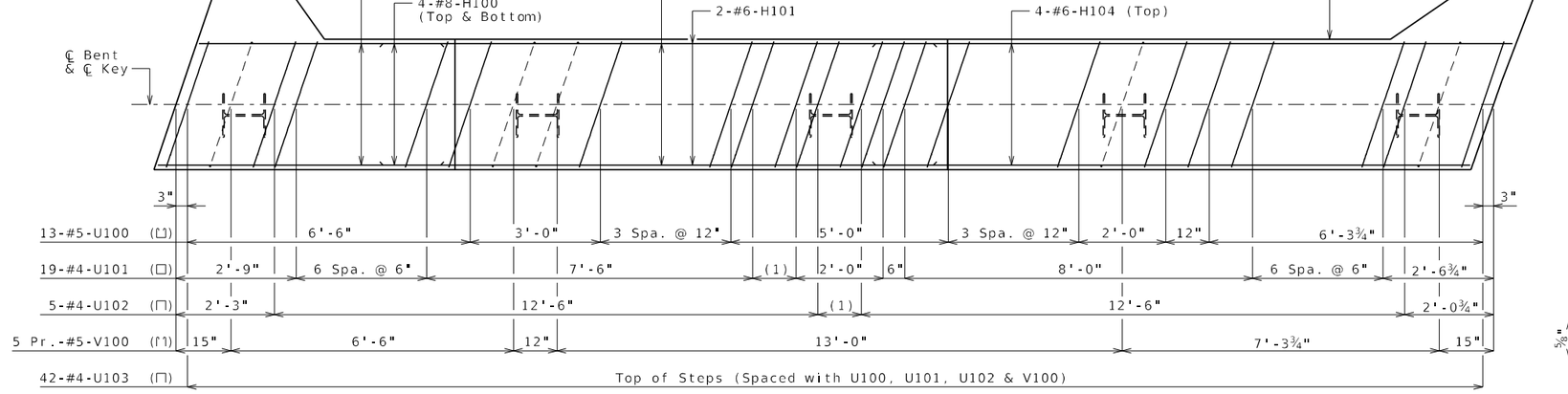


DETAILS OF HP PILE ANCHORS

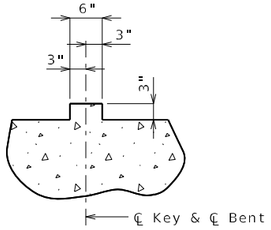


DETAIL A

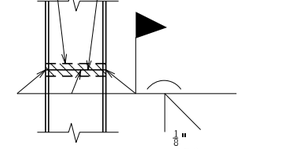
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.



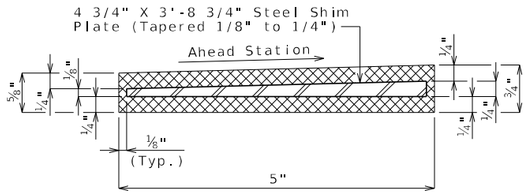
PLAN OF BEAM SHOWING REINFORCEMENT
(Keys not shown for clarity)



SECTION THRU KEY



STEEL PILE SPLICE
(If required)



SECTION THRU LAMINATED NEOPRENE
BEARING PAD (TAPERED)

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	64
Galvanized Structural Steel Pile (12 in)	linear foot	85
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	15.5

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

Reference Notes:
(1) 2 Spa. @ 6"
(2) Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

General Notes:
For details of End Bent No. 1 not shown, see Sheets No. 5 & 6.

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

All U bars and pairs of V bars shall be placed parallel to centerline of roadway.

DETAILS OF END BENT NO. 1

Detailed Jun. 2024
Checked Aug. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	4

COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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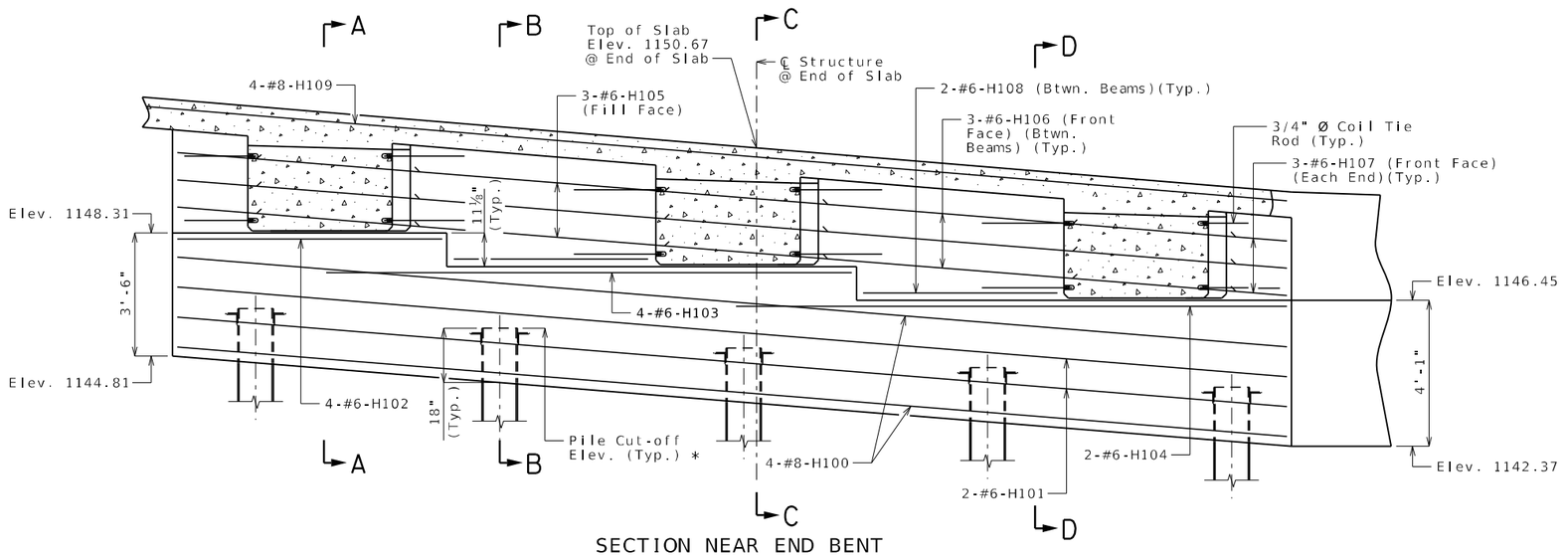
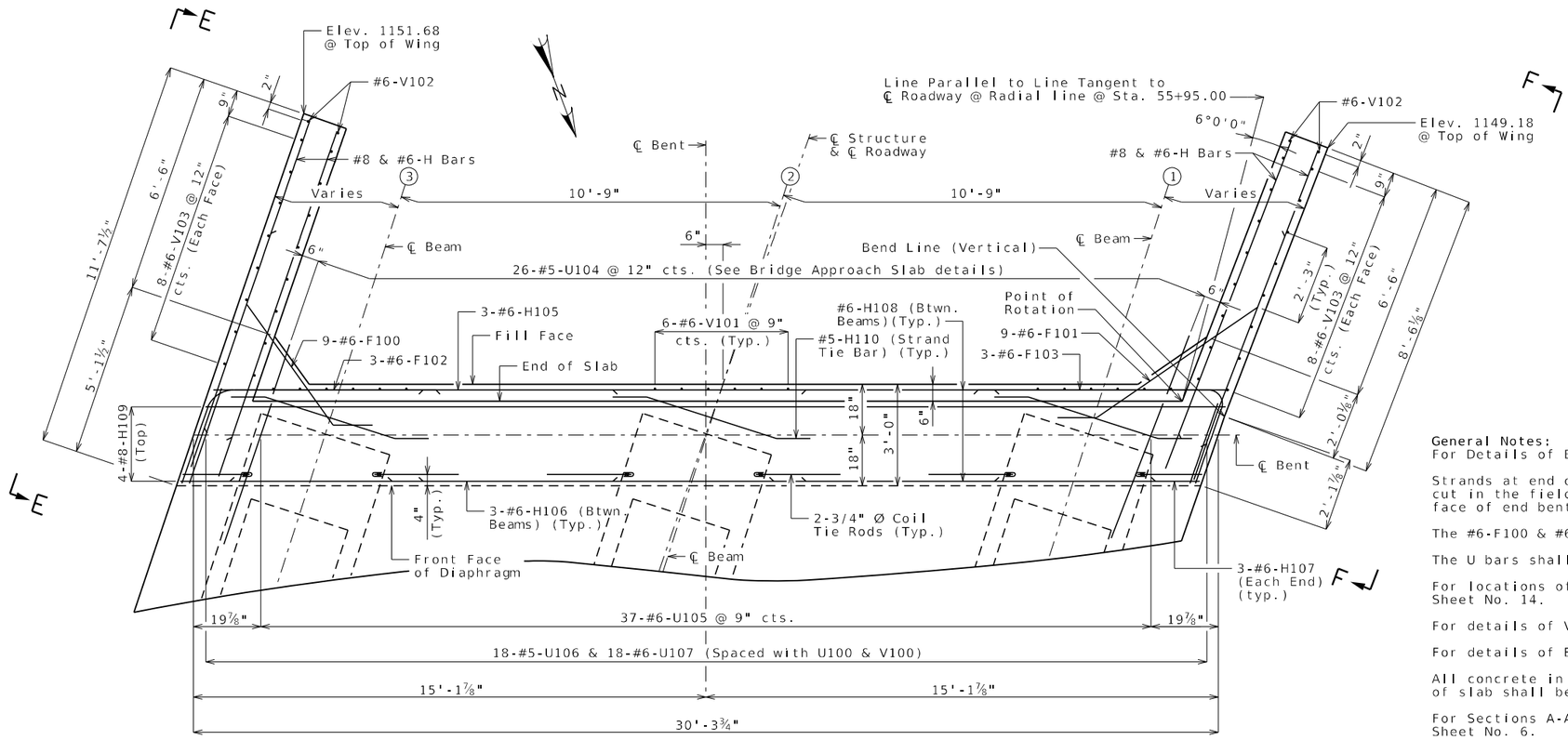


SECTION NEAR END BENT

* See Table for Pile Cut-Off elevations.

Pile No.	Cut-Off Elev.
1	1144.00
2	1144.55
3	1145.09
4	1145.63
5	1146.18

Note: For Pile Numbering, see Sheet No. 29.



PART PLAN

General Notes:

For Details of End Bent No. 1 not shown, see Sheets No. 4 & 6.

Strands at end of the beams shall be field bent or, if necessary, cut in the field to maintain 1 1/2-inch minimum clearance to fill face of end bent

The #6-F100 & #6-F101 bars shall be bent in the field to clear beams.

The U bars shall be placed parallel to centerline of roadway.

For locations of Coil Tie Rods and #5-H110 (Strand Tie Bar), see Sheet No. 14.

For details of Vertical Drain at End Bents, see Sheet No. 7.

For details of Bridge Approach Slab, see Sheet No. 25.

All concrete in the end bent above the top of beam and below top of slab shall be Class B-2.

For Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 6.

DETAILS OF END BENT NO. 1

Detailed Jun. 2024
Checked Aug. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

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DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	5

COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION | DATE

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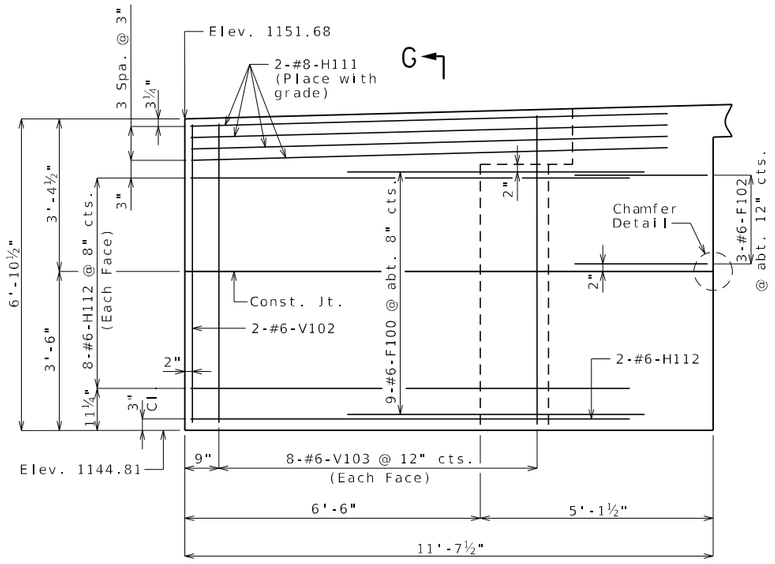
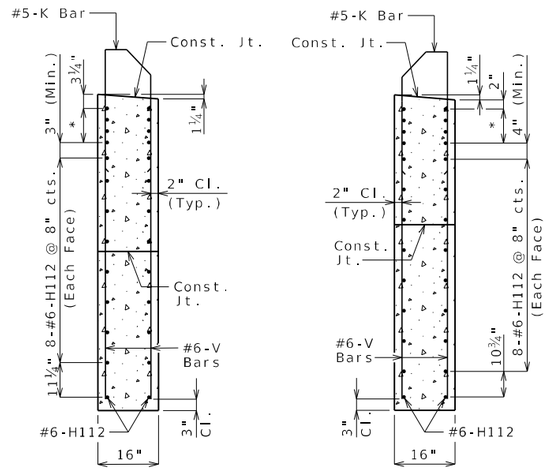
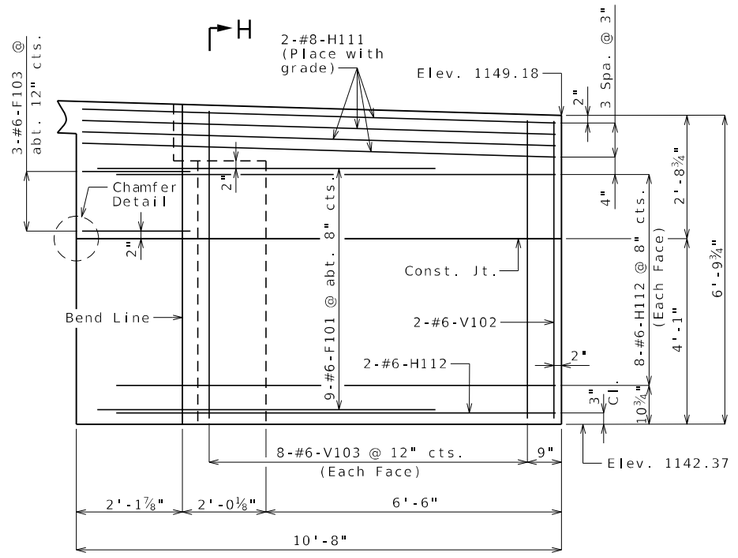


ELEVATION E-E

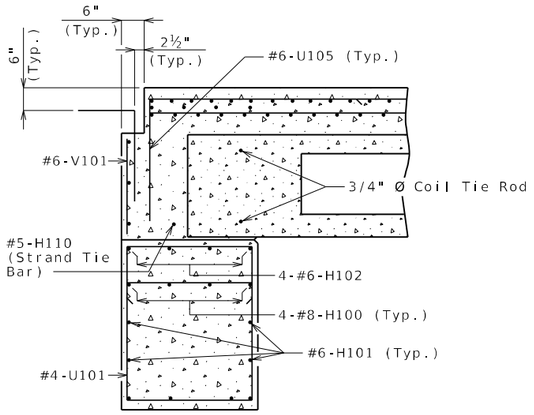


*#8-H111 @ 3" cts. (Each Face)(Place with grade)

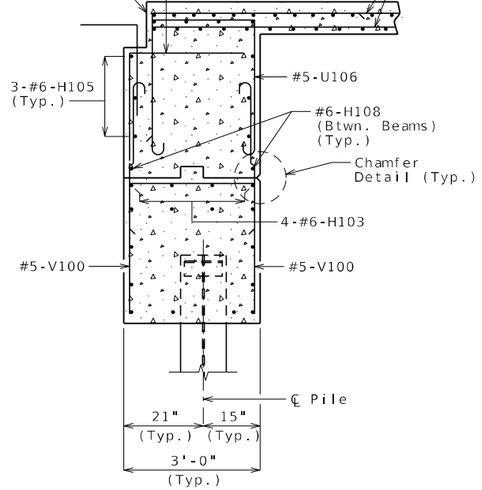
SECTION G-G SECTION H-H



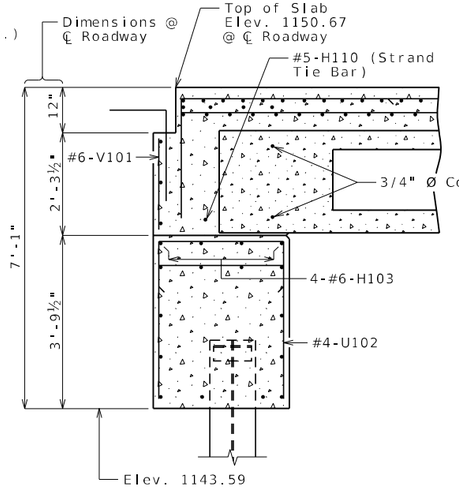
ELEVATION F-F



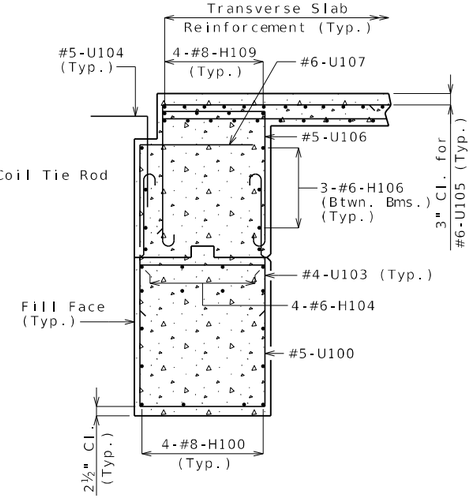
SECTION A-A



SECTION B-B



SECTION C-C



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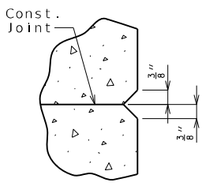

CHAMFER DETAIL

General Notes:
For details of End Bent No. 1 not shown, see Sheets No. 4 & 5.

For locations of Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 5.

For reinforcement of the barrier, see Sheets No. 23 & 24.

DETAILS OF END BENT NO. 1

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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DATE PREPARED	
10/16/2024	
ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	6
COUNTY	
TEXAS	
JOB NO.	
JSE0027	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9393	

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166

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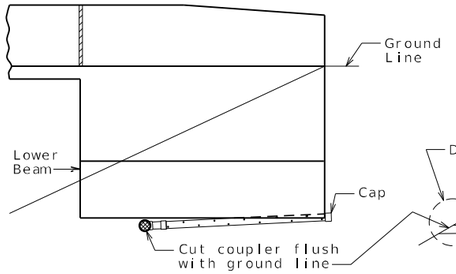
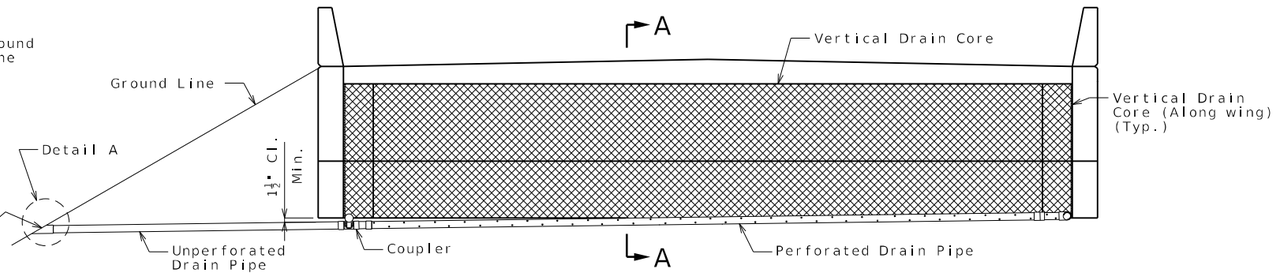
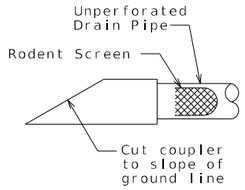


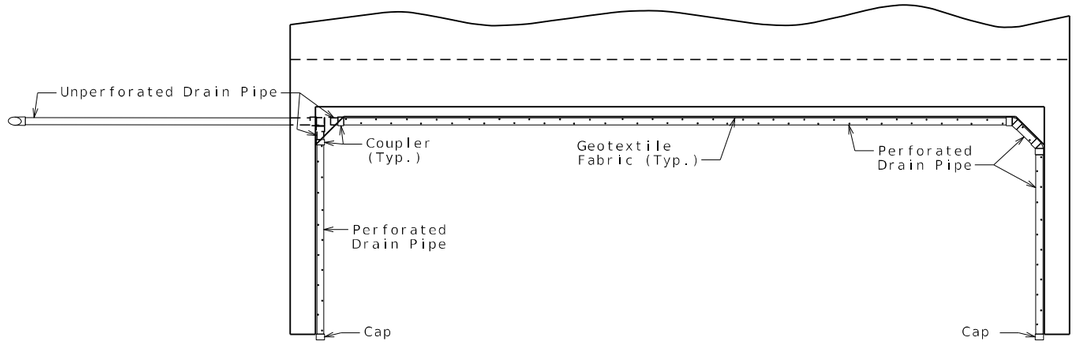
ELEVATION OF WING



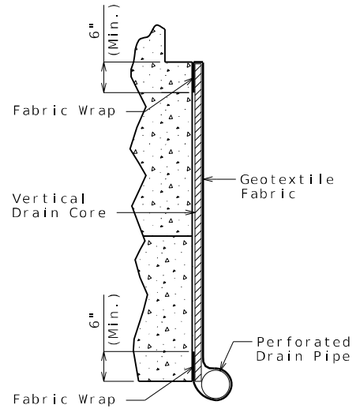
ELEVATION OF END BENT



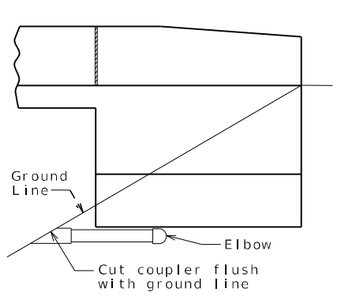
DETAIL A



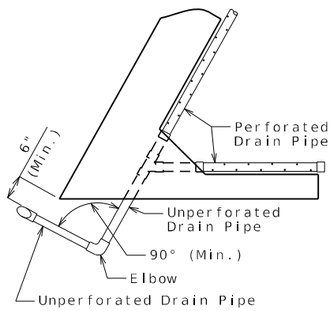
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

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.

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

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DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	7

COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION | DATE

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

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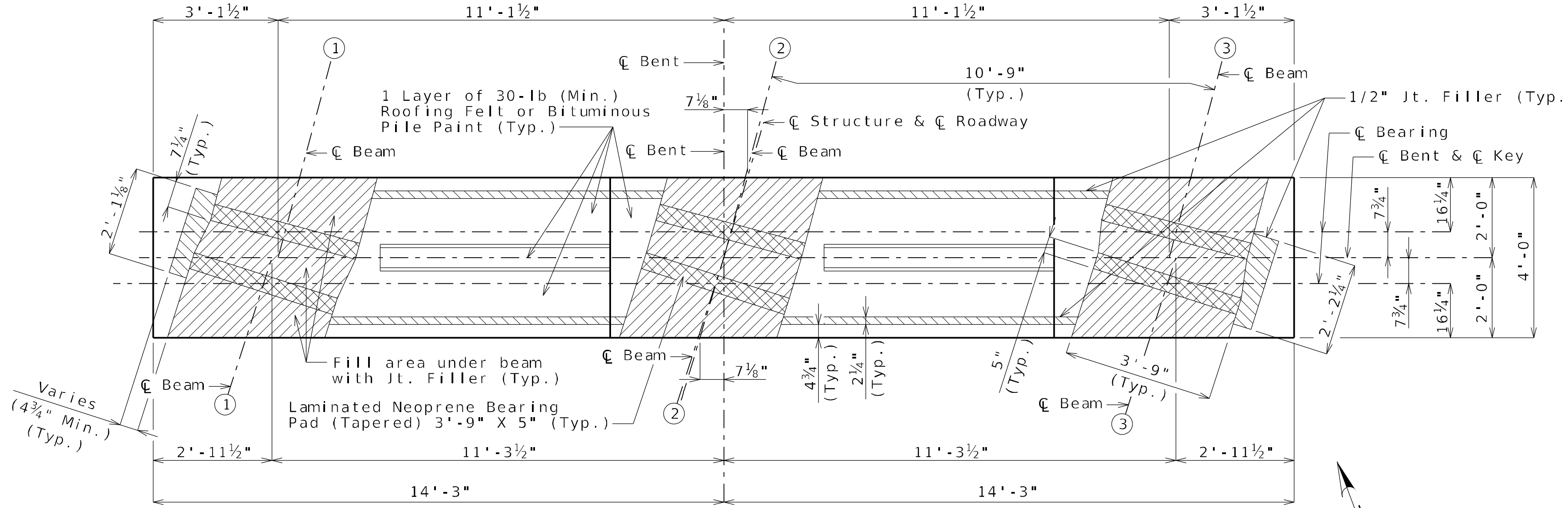
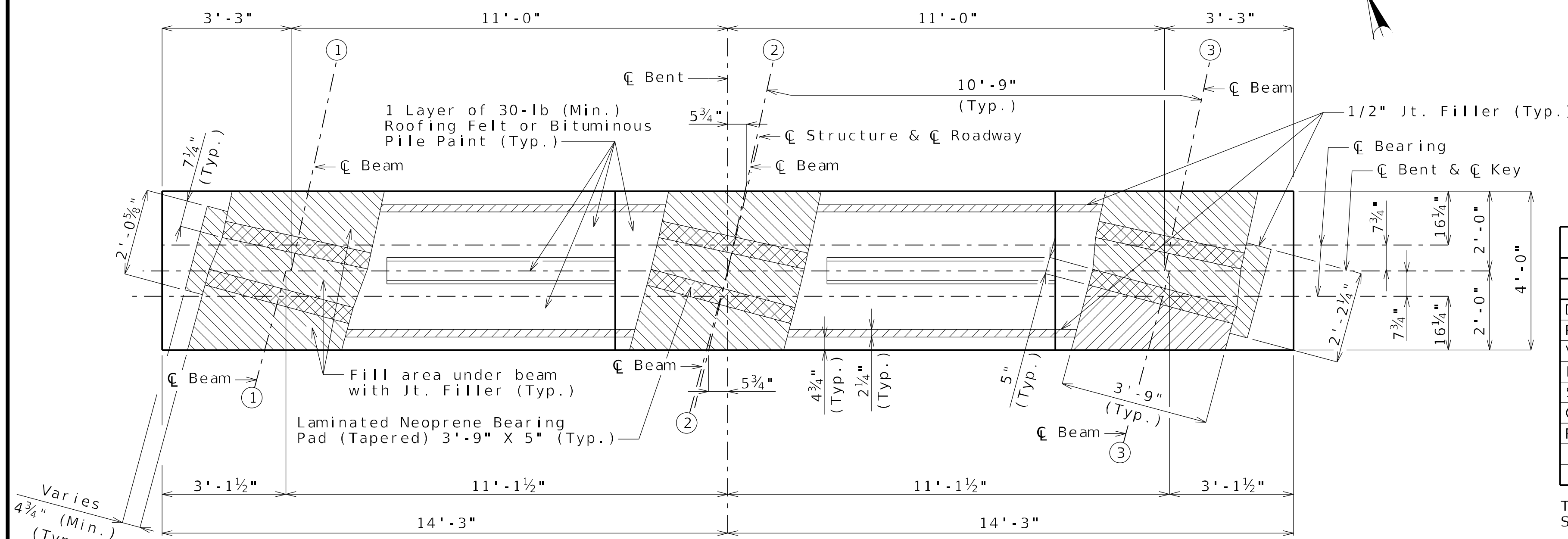
Detailed Jun. 2024
Checked Aug. 2024

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

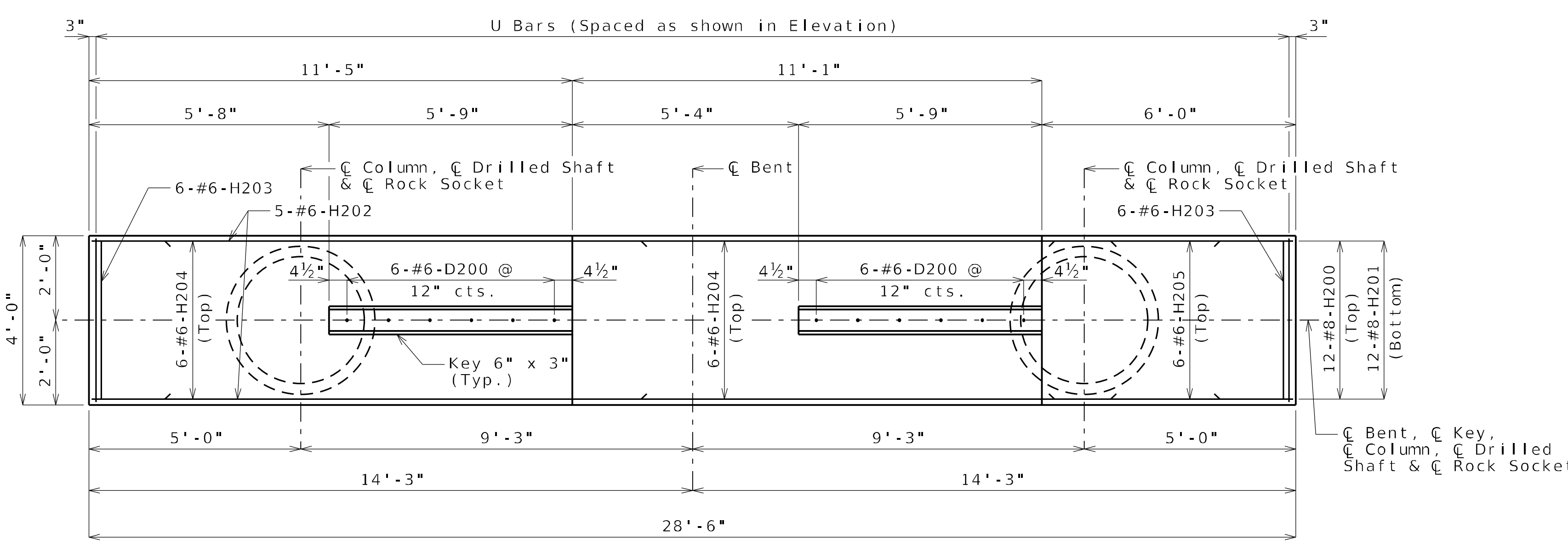
H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_007_JSE0027_Vertical Drain at End Bents.dgn 4:34:44 PM 10/16/2024



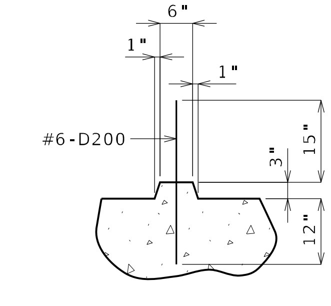
PLAN OF BEAM (INT. BENT NO. 2)



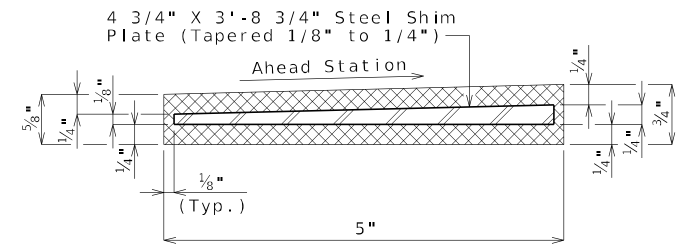
PLAN OF BEAM (INT. BENT NO. 3)



PLAN OF BEAM SHOWING REINFORCEMENT



SECTION THRU KEY



SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)

Substructure Quantity Table for Bents No. 2 & 3			
		Quantity	
Item		Int. Bent 2	Int. Bent 3
Drilled Shafts (3 ft. 6 in. Dia.)	linear foot	18.0	18.0
Rock Sockets (3 ft 0 in. Dia.)	linear foot	20.0	20.0
Video Camera Inspection	each	2	2
Foundation Inspection Holes	linear foot	40.0	40.0
Sonic Logging Testing	each	2	2
Class B Concrete (Substructure)	cu. yard	22.5	23.3
Reinforcing Steel (Bridges)	pound	8,220	8,400

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

All reinforcement in the drilled shafts and rock sockets is included in the substructure quantities.

General Notes:
For details of Intermediate Bents No. 2 & 3 not shown, see Sheet No. 9.

For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.

This sheet shall be used as a template for Bents No. 2 & 3. Bent No. 2 bar marks shown. The Bill of Reinforcing Steel uses separate bar marks for each bent. The first number in the bar mark matches the corresponding Bent No.

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed Jun. 2024
Checked Aug. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/16/2024
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 8
COUNTY	TEXAS
JOB NO.	JSE0027
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9393

DESCRIPTION

DATE

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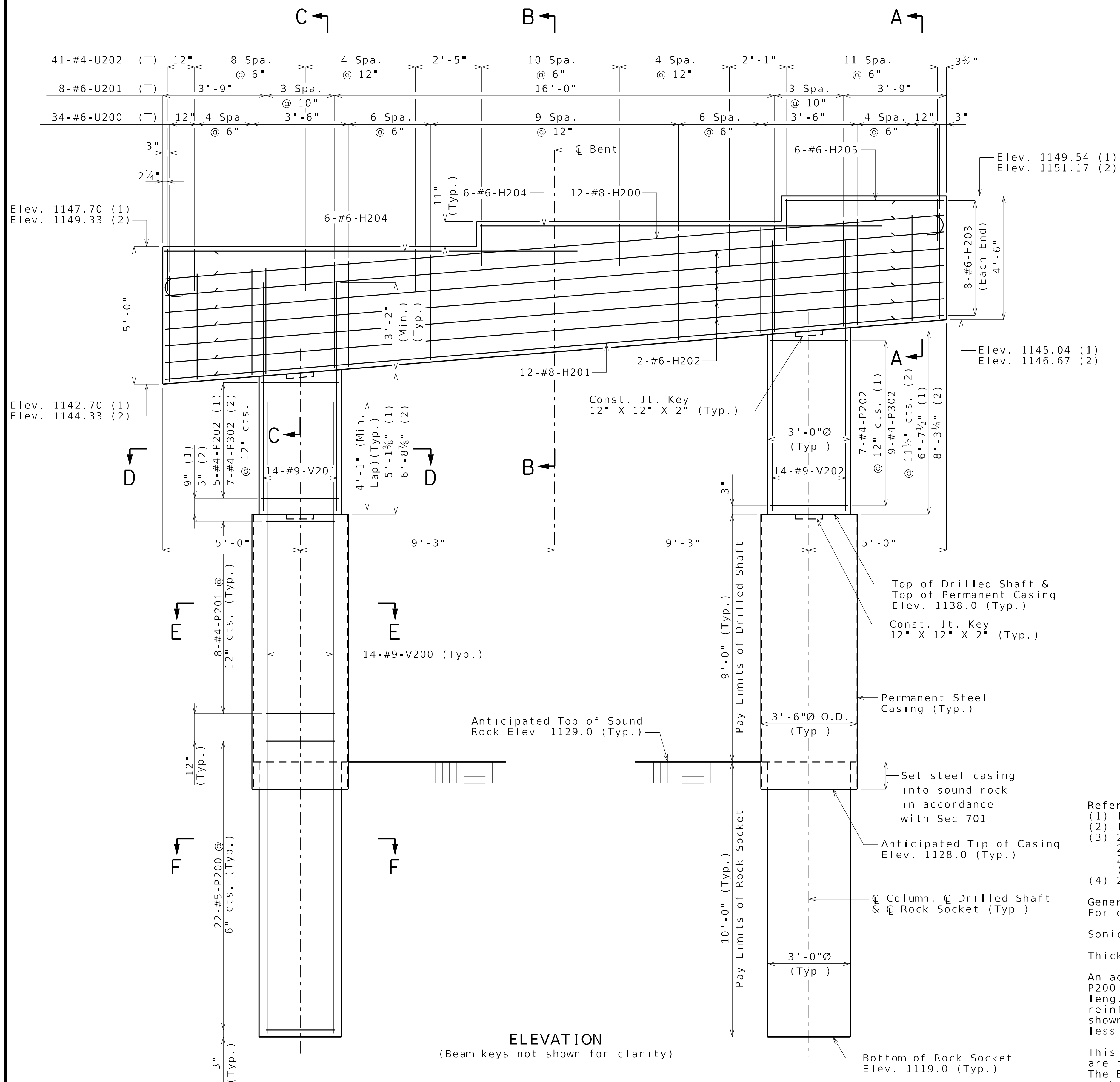

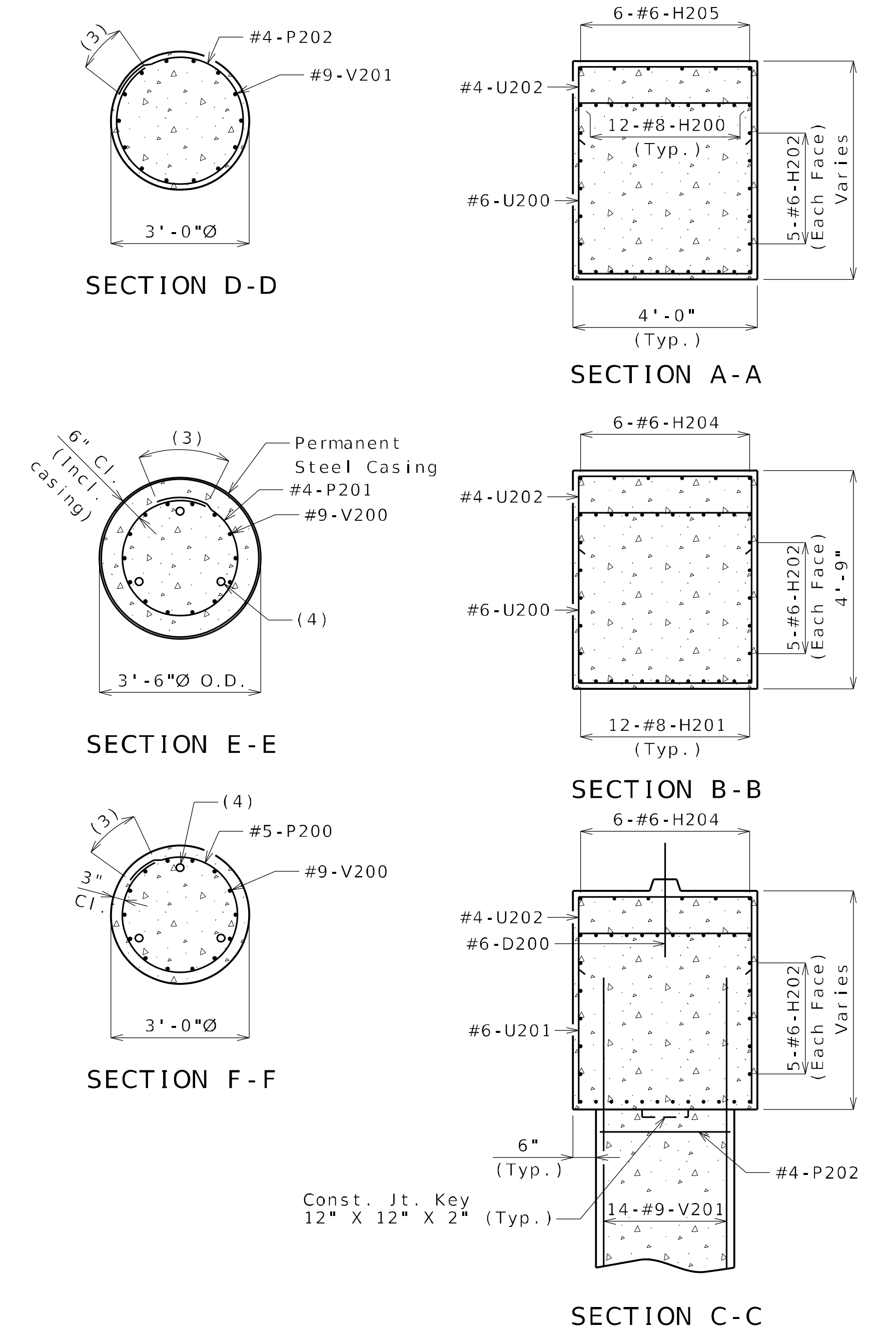

Reference Notes:
(1) Intermediate Bent No. 2
(2) Intermediate Bent No. 3
(3) 2'-7" Min. Lap (#5-P200)
2'-1" Min. Lap (#4-P201)
2'-5" Min. Lap (#4-P202)
(Stagger adjacent bar splices)
(4) 2" Ø Steel Pipe for sonic logging testing (3 each shaft).

General Notes:
For details of Intermediate Bents No. 2 & 3 not shown, see Sheet No. 10.

Sonic logging testing shall be performed on all drilled shafts and rock sockets.

Thickness of permanent steel casing shall be in accordance to Sec 701.

An additional 4 feet has been added to V200 bar lengths and additional 8-#5-P200 bars have been added for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap if not required. The P bars shall be spaced similarly to that shown in Elevation, if required, or a lesser spacing if not required but not less than 6-inch centers.

This sheet shall be used as a template for Bents No. 2 & 3. Bent No. 2 bar marks are typically shown. Bent No. 3 bar marks shown as necessary for clarification. The Bill of Reinforcing Steel uses separate bar marks for each bent. The first number in the bar mark matches the corresponding Bent No.

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed Jun. 2024
Checked Aug. 2024

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

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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DATE PREPARED	
10/16/2024	
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 9
COUNTY TEXAS	
JOB NO. JSE0027	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9393	

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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MISSOURI DESIGN FIRM PE-001166
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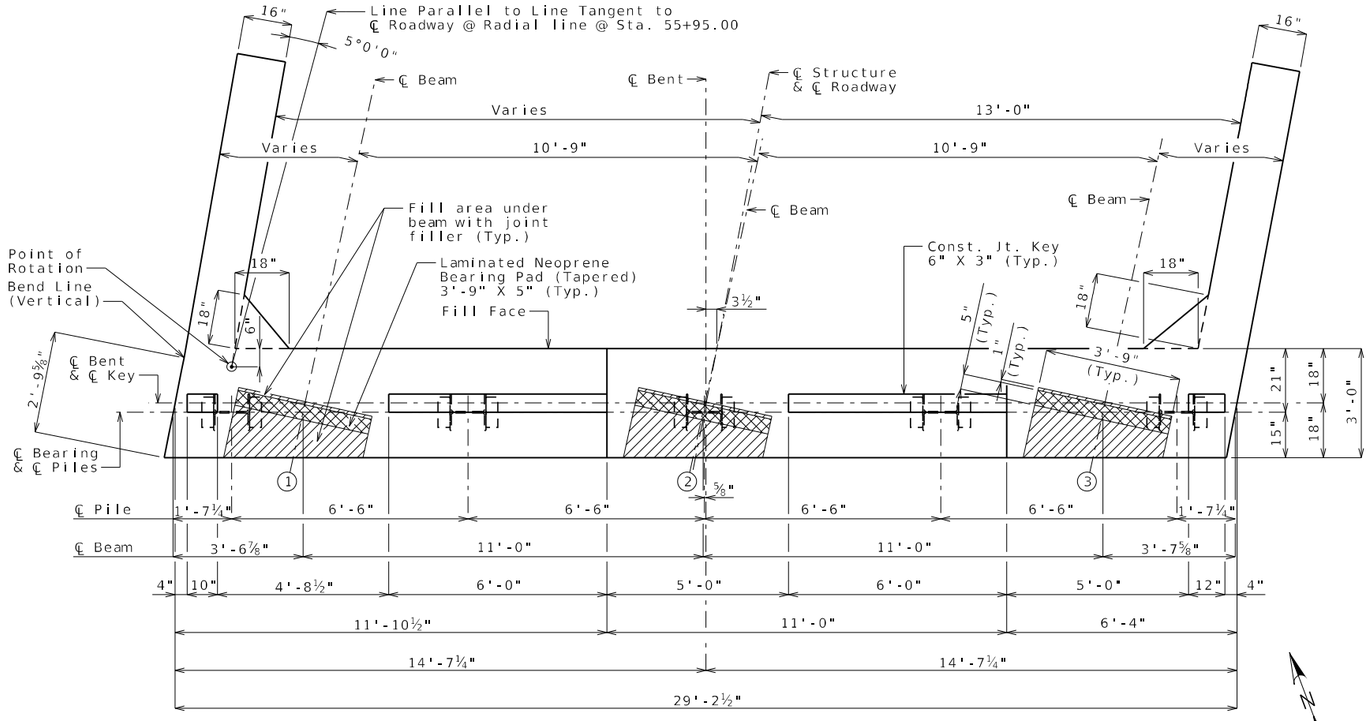
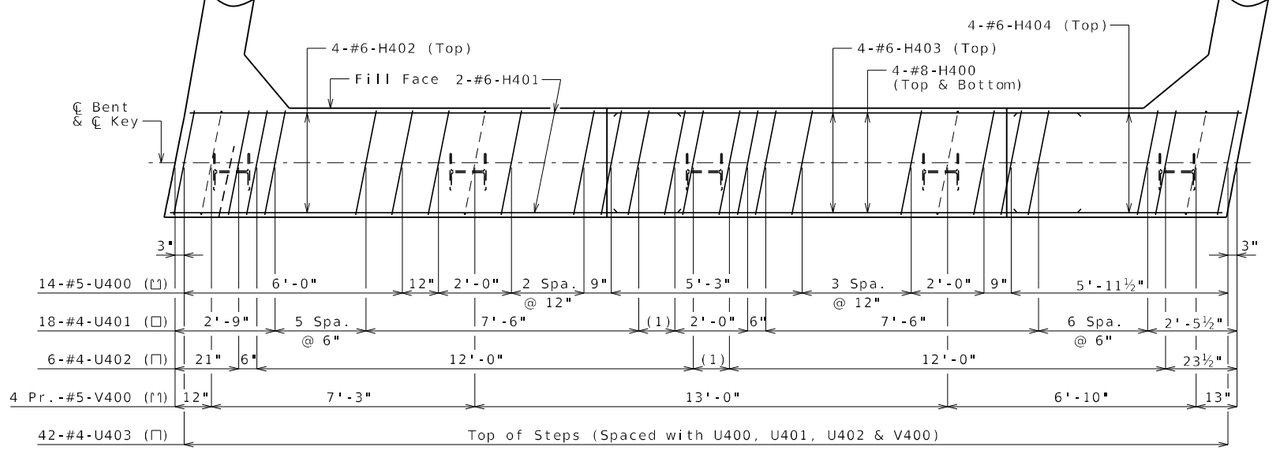


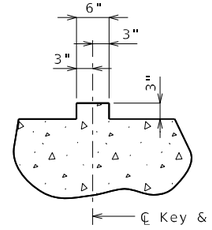
PLAN OF BEAM



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

Substructure Quantity Table for Bent No. 4		
Item		Quantity
Class 1 Excavation	cu. yard	60
Galvanized Structural Steel Pile (12 in)	linear foot	85
Pre-Bore for Piling	linear foot	77
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	15.0

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



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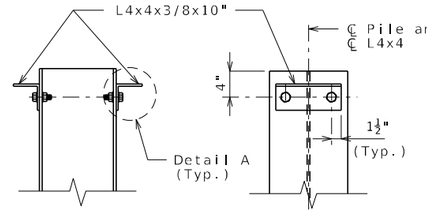
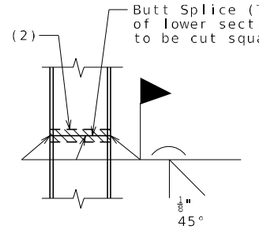
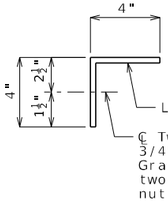


DETAILS OF HP PILE ANCHORS

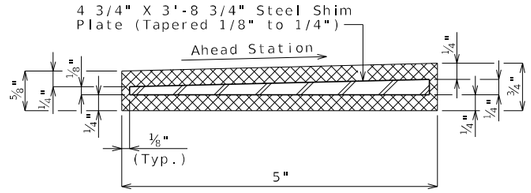


STEEL PILE SPLICE
(If required)



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.



SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)

Reference Notes:
(1) 2 Spa. at 6"
(2) Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

General Notes:
For details of End Bent No. 4 not shown, see Sheets No. 11 & 12.

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

All U bars and pairs of V bars shall be placed parallel to centerline of roadway.

DETAILS OF END BENT NO. 4

Detailed Jun. 2024
Checked Aug. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	10

COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION | DATE

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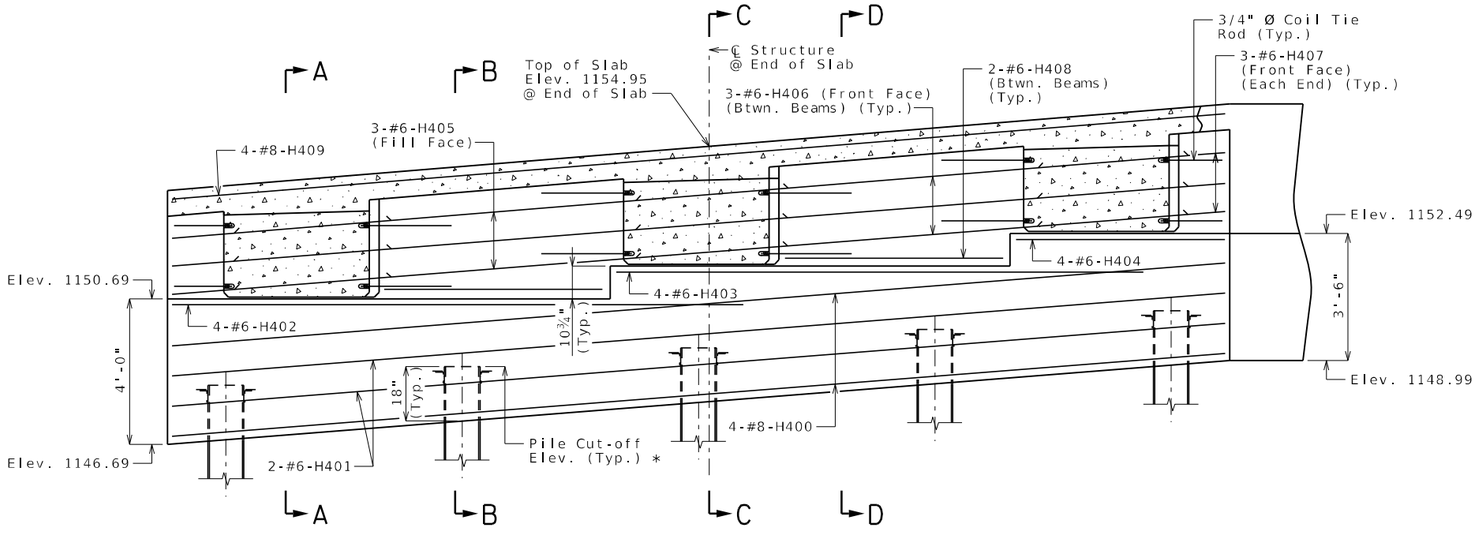
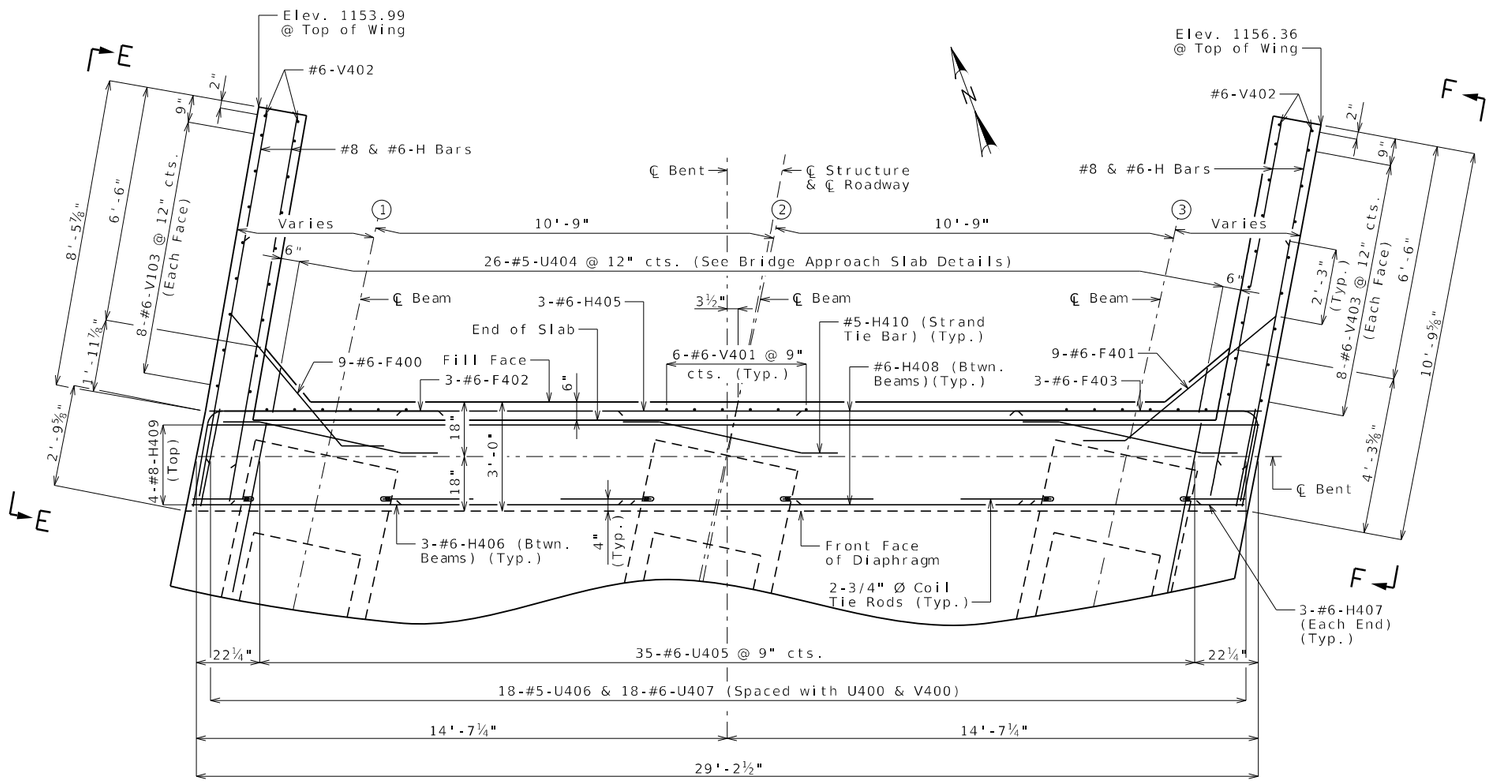


SECTION NEAR END BENT

* See Table for Pile Cut-Off elevations.

Pile No.	Cut-Off Elev.
6	1148.32
7	1148.83
8	1149.34
9	1149.85
10	1150.36

Note: For Pile Numbering, see Sheet No. 29.



PART PLAN

General Notes:

For Details of End Bent No. 4 not shown, see Sheets No. 10 & 12.

Strands at end of the beams shall be field bent or, if necessary, cut in the field to maintain 1 1/2-inch minimum clearance to fill face of end bent

The #6-F400 & #6-F401 bars shall be bent in the field to clear beams.

The U bars shall be placed parallel to centerline of roadway.

For locations of Coil Tie Rods and #5-H410 (Strand Tie Bar), see Sheet No. 14.

For details of Vertical Drain at End Bents, see Sheet No. 7.

For details of Bridge Approach Slab, see Sheet No. 25.

All concrete in the end bent above the top of beam and below top of slab shall be Class B-2.

For Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 12.

DETAILS OF END BENT NO. 4

Detailed Jun. 2024
Checked Aug. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	11

COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION | DATE

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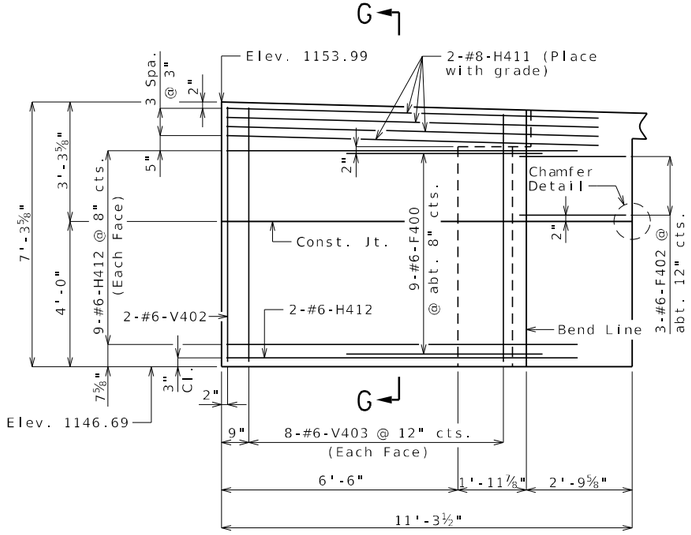
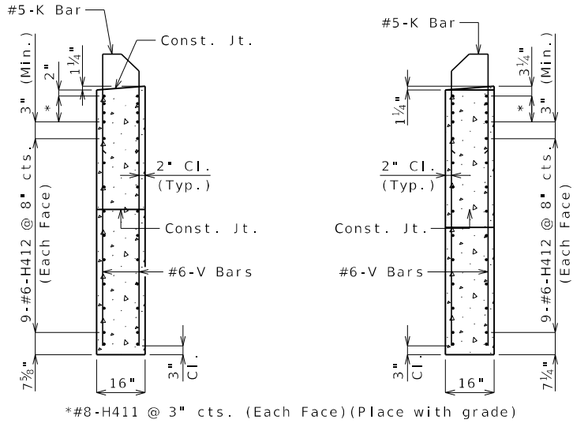
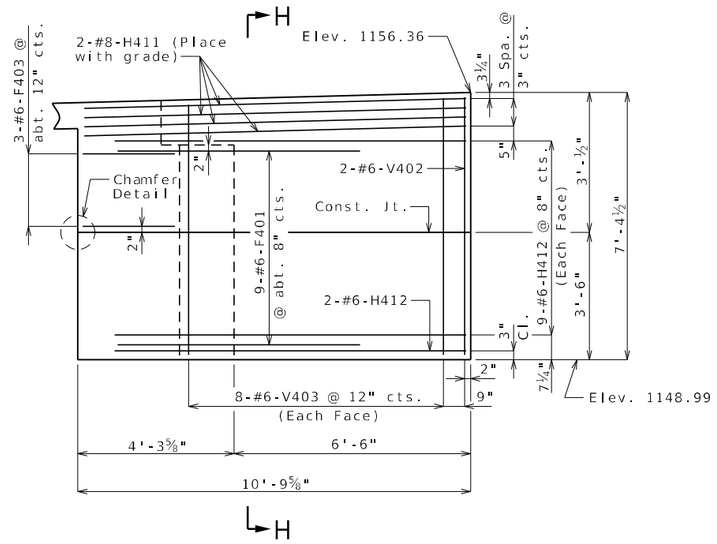


ELEVATION E-E

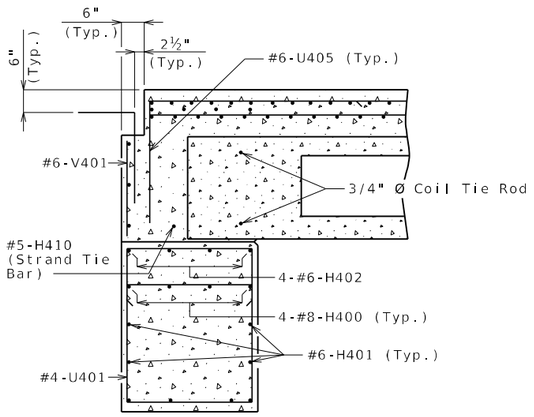


ELEVATION G-G

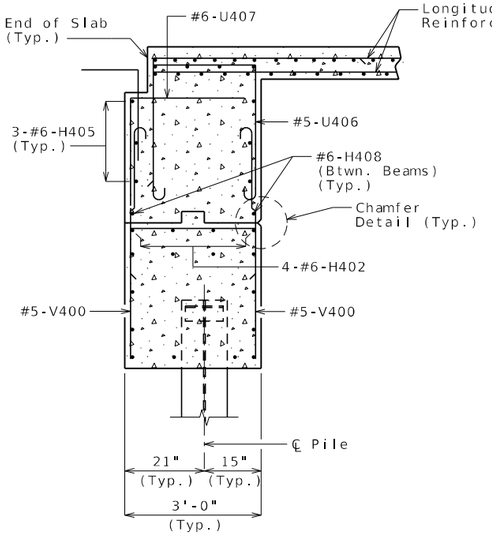
ELEVATION H-H



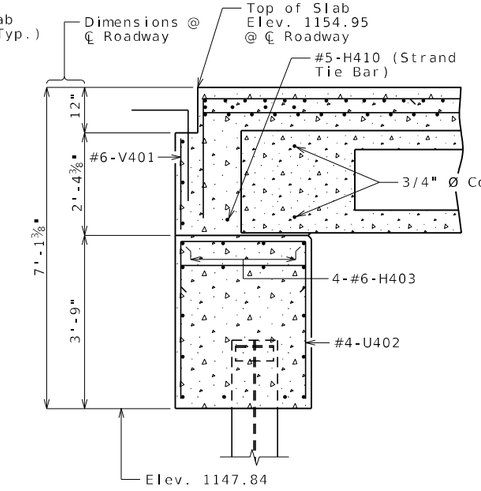
ELEVATION F-F



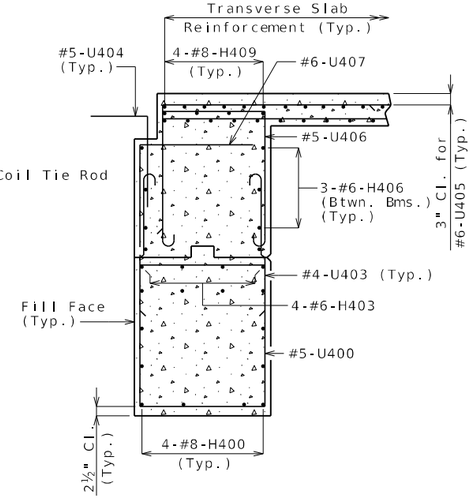
SECTION A-A



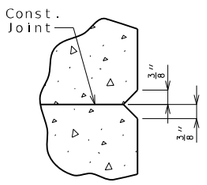
SECTION B-B



SECTION C-C



SECTION D-D



CHAMFER DETAIL

General Notes:
For details of End Bent No. 4 not shown, see Sheets No. 10 & 11.

For locations of Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 11.

For reinforcement of the barrier, see Sheets No. 23 & 24.

DETAILS OF END BENT NO. 4

Detailed Jun. 2024
Checked Aug. 2024

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

H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_012_JSE0027_Details of End Bent No. 4.dgn 4:35:30 PM 10/16/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/16/2024
ROUTE: 137 | STATE: MO
DISTRICT: BR | SHEET NO.: 12
COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION | DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
Collinsville: 100 Lamer Court, Suite 1, Collinsville, IL 62234, 618.345.8200
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4488
St. Louis: 720 Olive, Suite 700, St. Louis, MO 63101, 314.588.8381
St. Charles: 820 South Main, Suite 399, St. Charles, MO 63301, 636.493.5277
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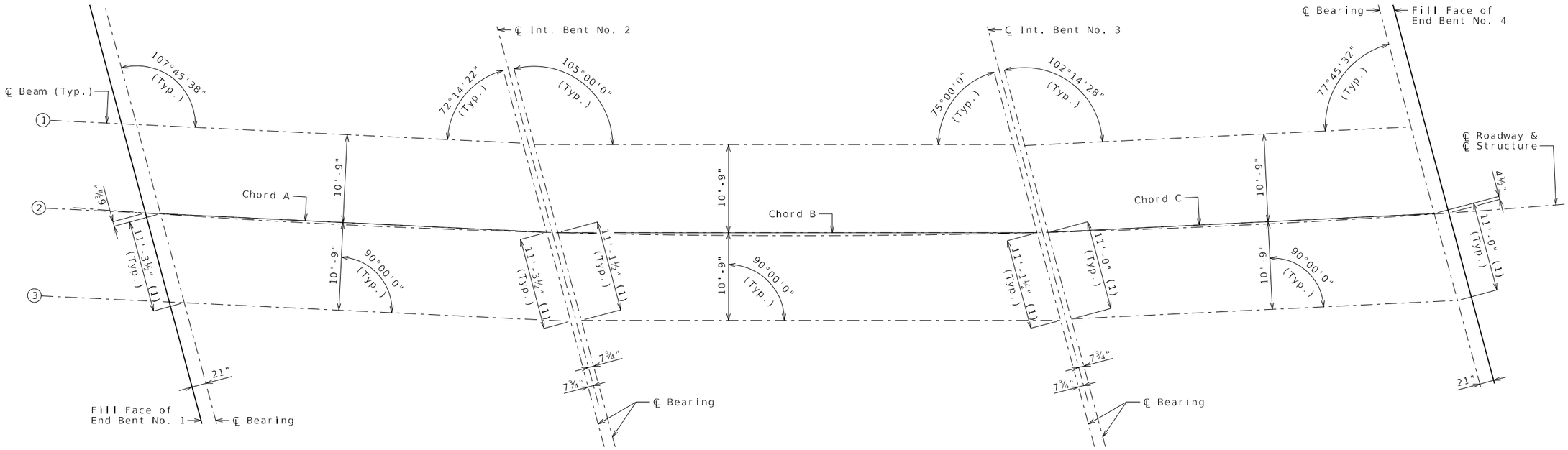

PLAN

Reference Notes:
(1) Dimensions along centerline of bearings are to Chords A, B & C.

General Notes:
All dimensions are horizontal.

All bents are parallel.

Beam within a span are parallel to chords. ℄ Beam 2 is along Chords A, B & C.

BEAM LAYOUT

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

JASON A. DREYER
NUMBER PE-2013038971
STATE OF MISSOURI
PROFESSIONAL ENGINEER

DATE PREPARED	10/16/2024
ROUTE	137
STATE	MO
DISTRICT	BR
SHEET NO.	13
COUNTY	TEXAS
JOB NO.	JSE0027
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9393

DESCRIPTION | DATE

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

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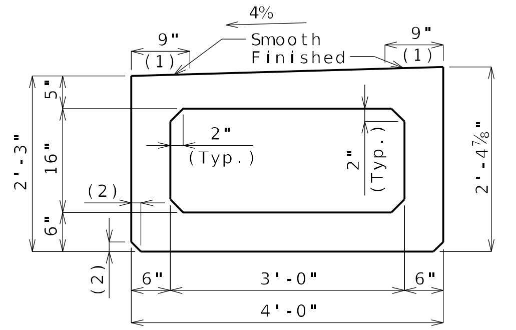
Detailed Jun. 2024
Checked Aug. 2024

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

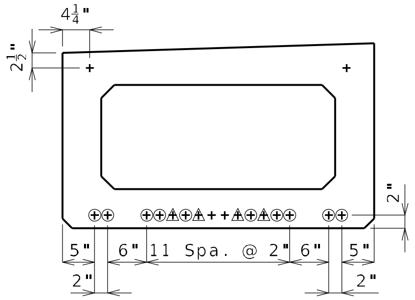
H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_013_JSE0027_Beam Layout.dgn 4:35:39 PM 10/16/2024



DIMENSIONS

(1) Fabricator shall apply a bond breaker to this region.

(2) 1½" (Typ.) (¾" Optional)



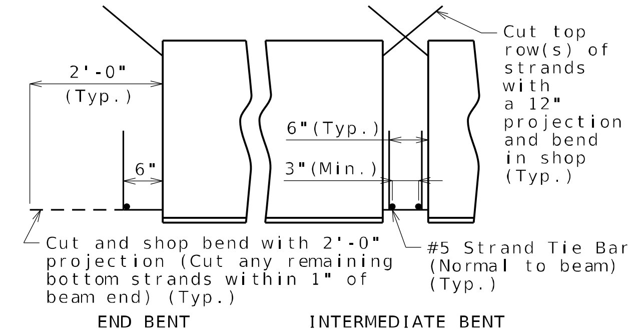
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

○ Indicates cut and shop bend with 2'-0" projection.

△ Indicates debonded for 2'-0" from end of beam.

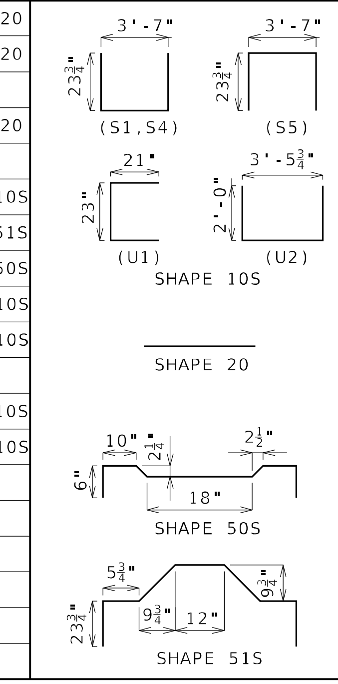


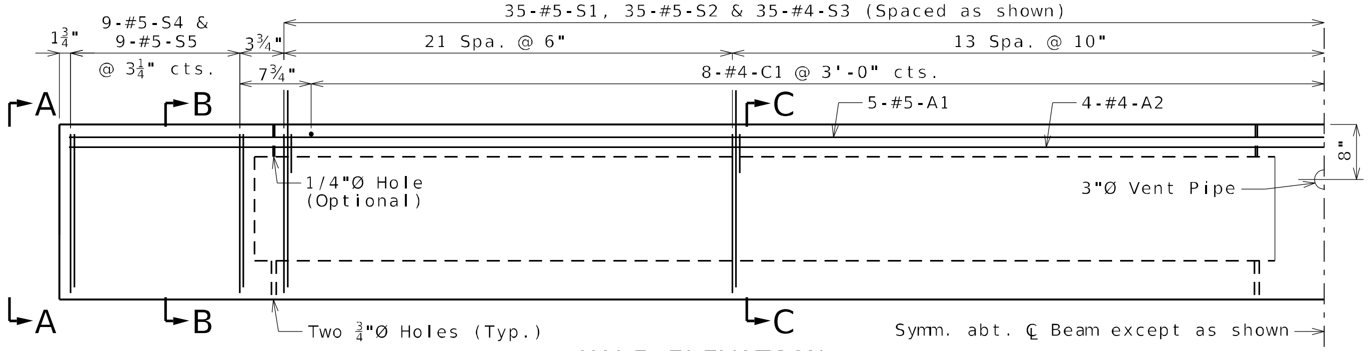
STRANDS AT BEAM ENDS

BILL OF REINFORCING STEEL - EACH BEAM

NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE
5	5 A1	47'-8"	20
4	4 A2	47'-8"	20
15	4 C1	3'-7"	20
69	5 S1	7'-4"	10S
69	5 S2	7'-9"	51S
69	4 S3	4'-6"	50S
18	5 S4	7'-4"	10S
18	5 S5	7'-4"	10S
12	6 U1	5'-1"	10S
6	4 U2	7'-4"	10S

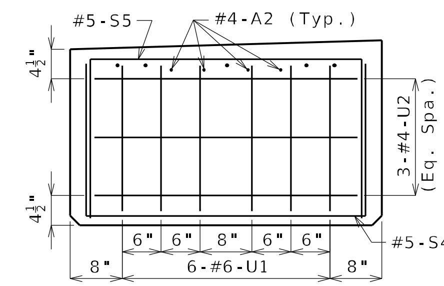
BENDING DIAGRAM





HALF ELEVATION

Strands not shown for clarity.



ELEVATION A-A

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

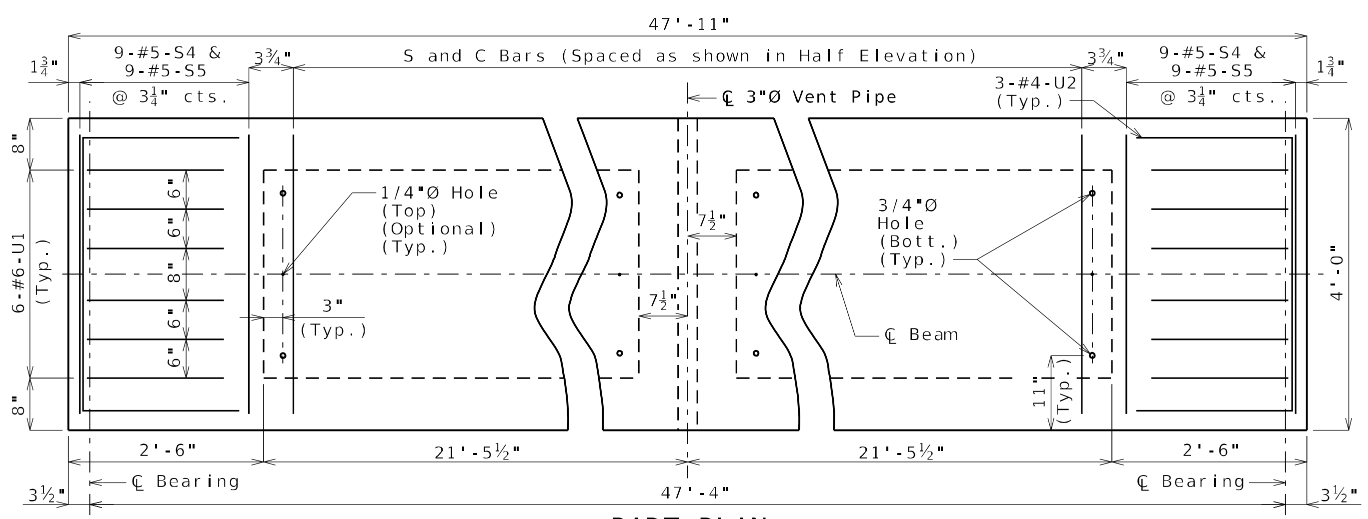
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

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

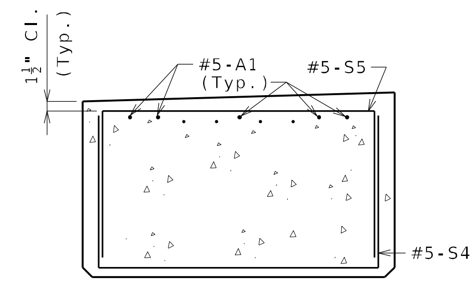
Minimum clearance to reinforcing shall be one inch, unless otherwise shown.

All reinforcement shall be Grade 60.

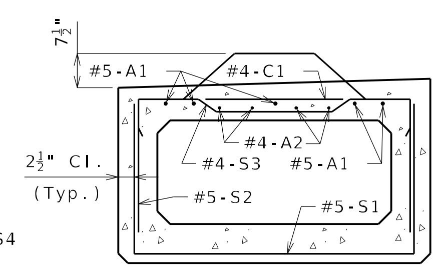
All S2 bars shall be epoxy coated.



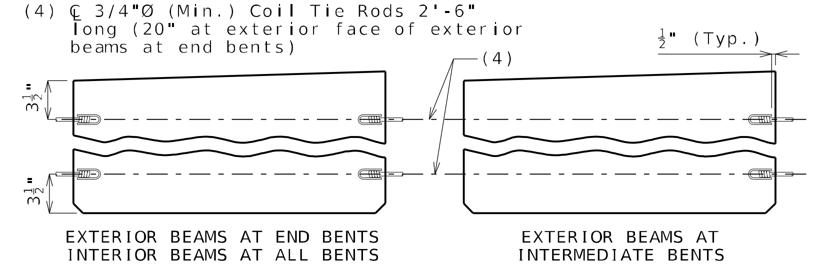
PART PLAN



SECTION B-B



SECTION C-C



COIL TIES

General Notes:

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

Use 18 strands, 0.6" Ø Grade 270, with an initial prestress force of 791 kips.

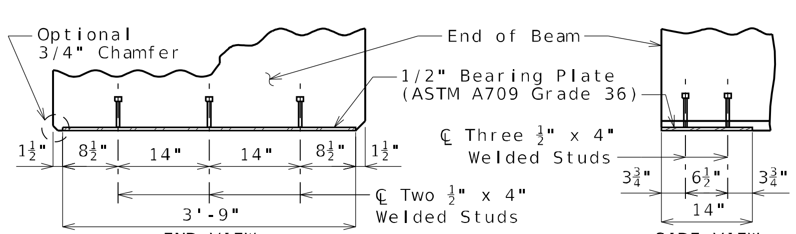
Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior beams are the same except: coil ties.

For Beam Camber Diagram, see Sheet No. 18.

For location of coil ties at concrete bent diaphragms, see Sheets No. 4-6, 10-12 & 16.



BEARING PLATE

SPREAD BOX BEAMS - SPANS (1-2) & (3-4)

Detailed Jun. 2024
Checked Aug. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/16/2024
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 14
COUNTY	TEXAS
JOB NO.	JSE0027
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9393

DESCRIPTION

DATE

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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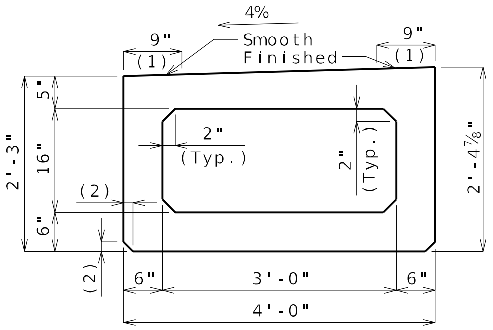
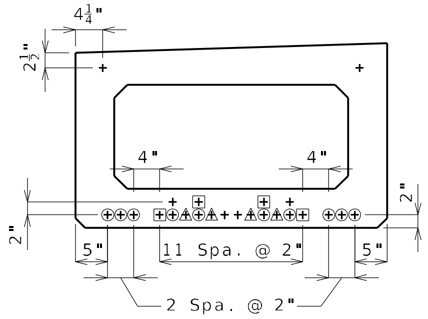


DIMENSIONS

(1) Fabricator shall apply a bond breaker to this region.

(2) 1½" (Typ.) (¾" Optional)



STRAND ARRANGEMENT

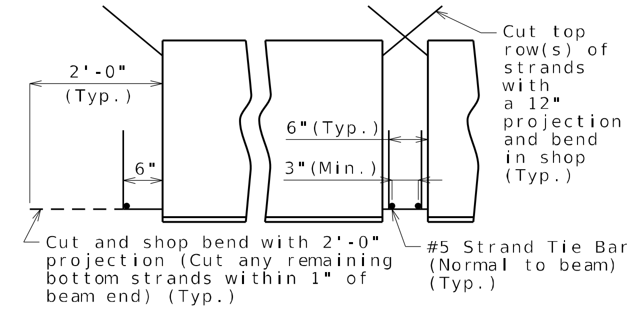
All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

○ Indicates cut and shop bend with 2'-0" projection.

△ Indicates debonded for 2'-0" from end of beam.

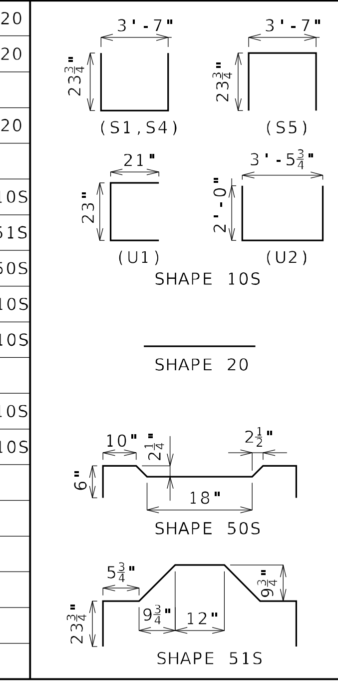
□ Indicates debonded for 5'-0" from end of beam.

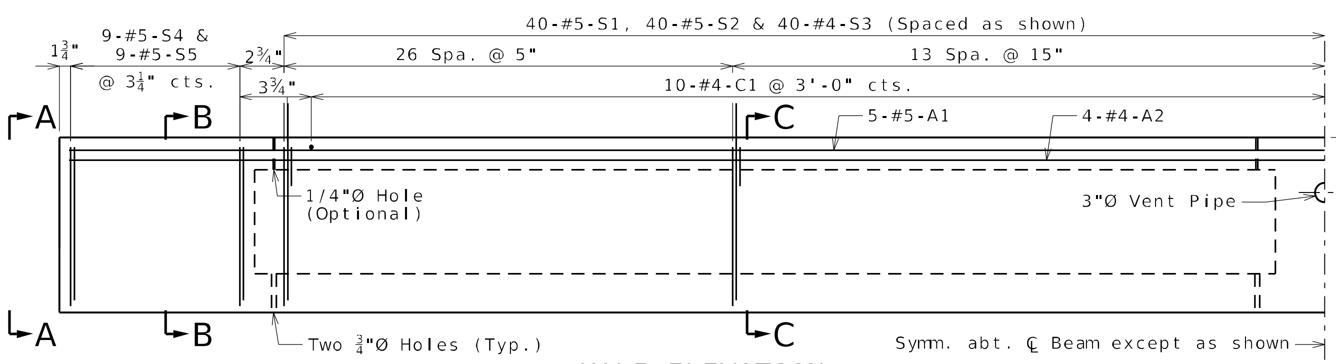


STRANDS AT BEAM ENDS

BILL OF REINFORCING STEEL - EACH BEAM			
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE
5	5 A1	59'-0"	20
4	4 A2	59'-0"	20
19	4 C1	3'-7"	20
79	5 S1	7'-4"	10S
79	5 S2	7'-9"	51S
79	4 S3	4'-6"	50S
18	5 S4	7'-4"	10S
18	5 S5	7'-4"	10S
12	6 U1	5'-1"	10S
6	4 U2	7'-4"	10S

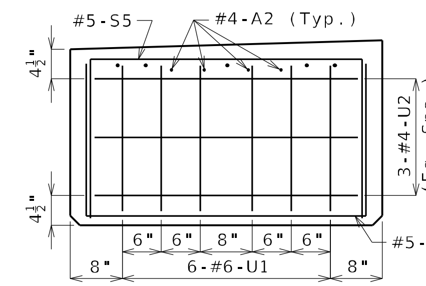
BENDING DIAGRAM





HALF ELEVATION

Strands not shown for clarity.



ELEVATION A-A

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

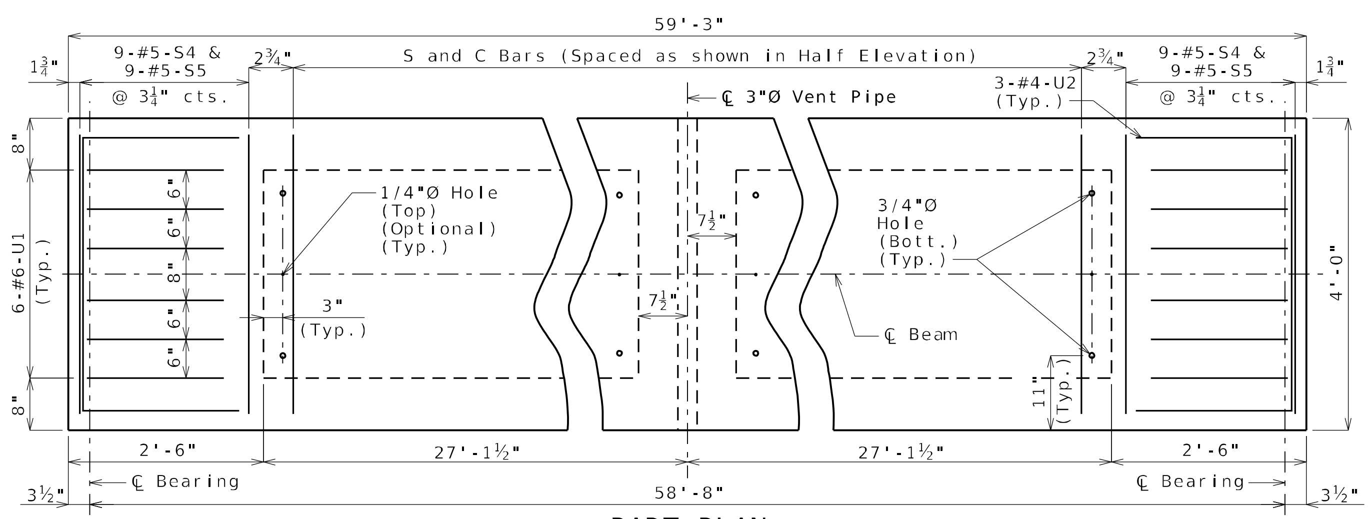
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

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

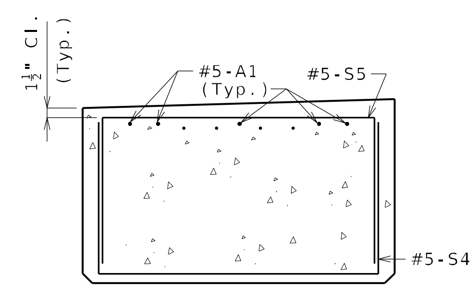
Minimum clearance to reinforcing shall be one inch, unless otherwise shown.

All reinforcement shall be Grade 60.

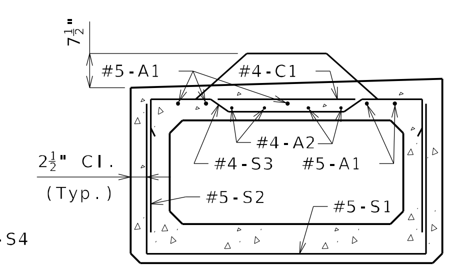
All S2 bars shall be epoxy coated.



PART PLAN

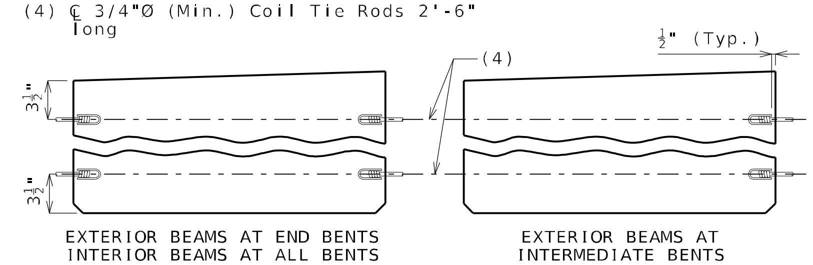


SECTION B-B



SECTION C-C

(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long



COIL TIES

General Notes:

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

Use 24 strands, 0.6" Ø Grade 270, with an initial prestress force of 1,055 kips.

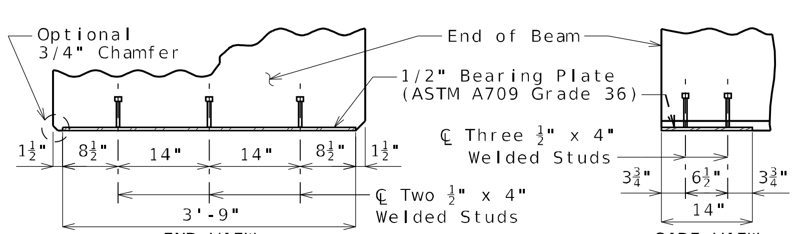
Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior beams are the same except: coil ties.

For Beam Camber Diagram, see Sheet No. 18.

For location of coil ties at concrete bent diaphragms, see Sheet No. 16.



BEARING PLATE

Detailed Jun. 2024
Checked Aug. 2024

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

SPREAD BOX BEAMS - SPAN (2-3)

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

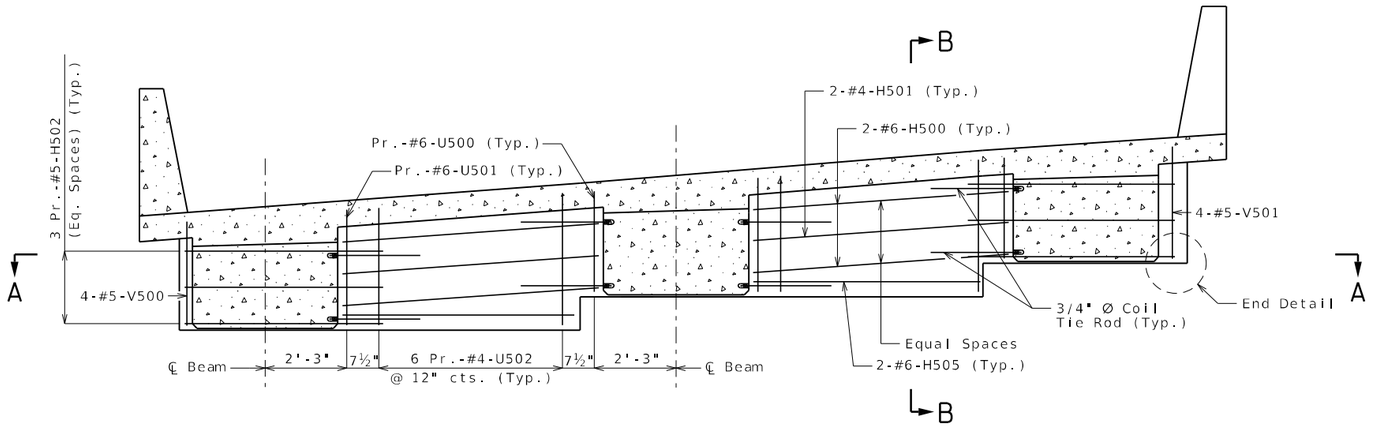
DATE PREPARED	
10/16/2024	
ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	15
COUNTY	
TEXAS	
JOB NO.	
JSE0027	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9393	

DESCRIPTION

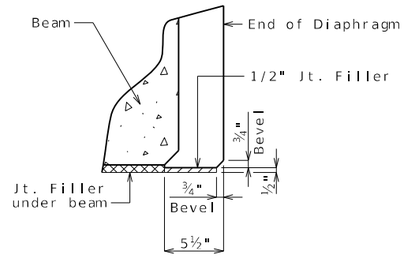
DATE

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

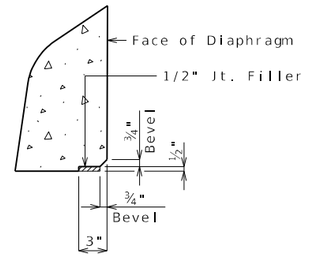
OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166



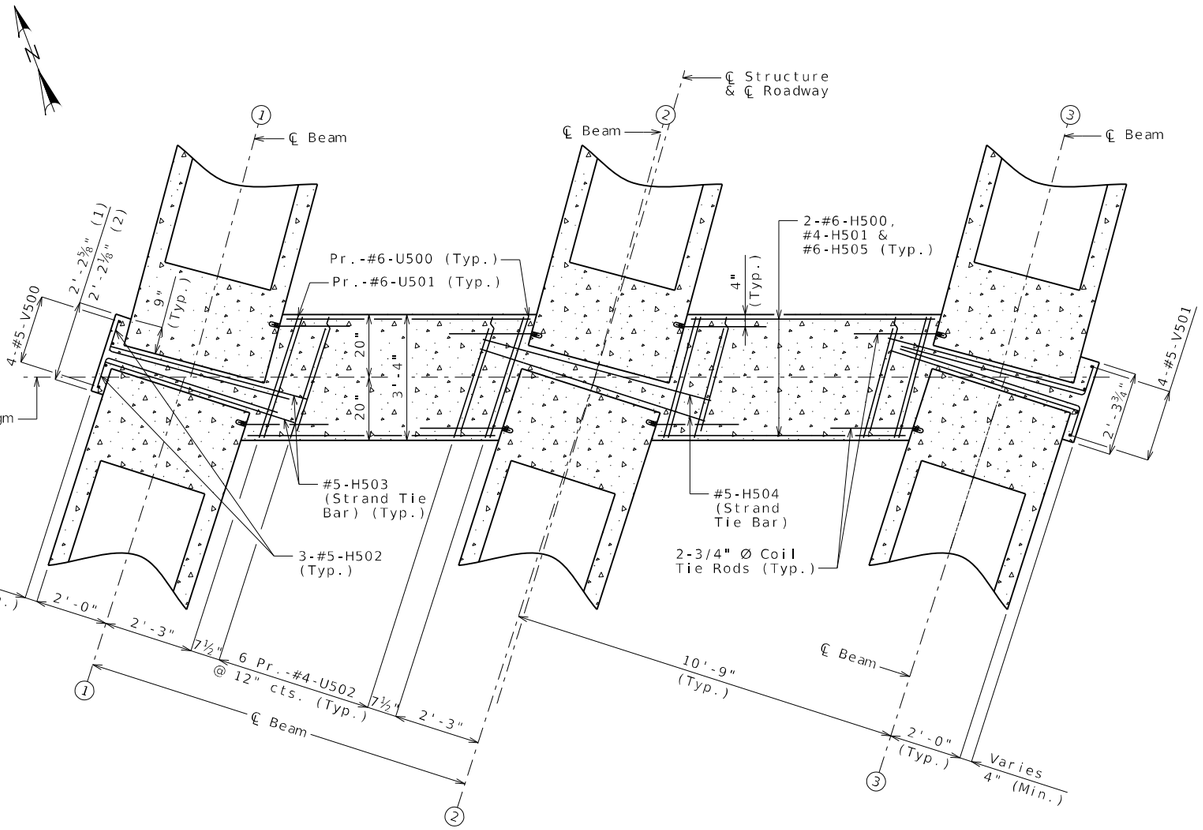
SECTION NEAR INTERMEDIATE BENT



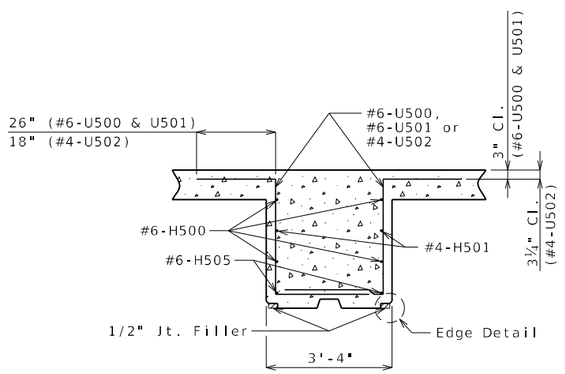
END DETAIL



EDGE DETAIL



SECTION A-A



SECTION B-B

Reference Notes:
(1) Intermediate Bent No. 2
(2) Intermediate Bent No. 3

General Notes:
For locations of Strand Tie Bars and Coil Tie Rods, see Sheets No. 14 & 15.

Diaphragms at intermediate bents shall be built vertical.

The U bars shall be placed parallel to centerline of roadway.

CONCRETE DIAPHRAGMS AT INTERMEDIATE BENTS NO. 2 & 3

Detailed Jun. 2024
Checked Aug. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	16

COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

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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Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.417.4488
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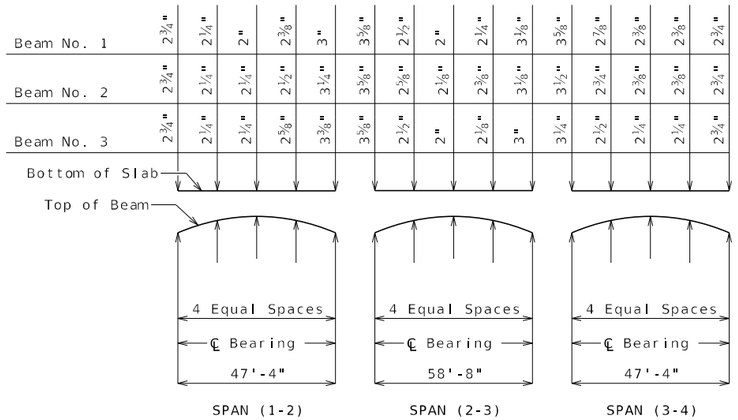
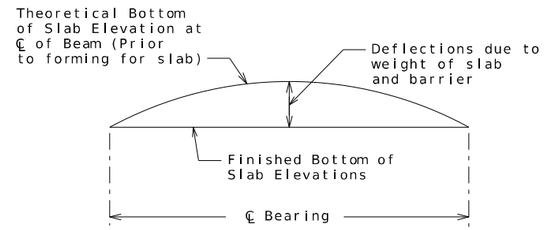


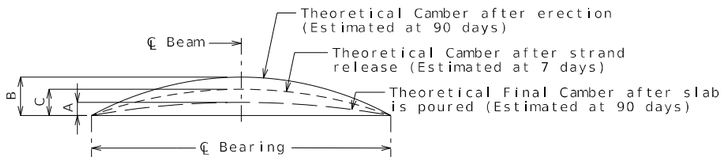
THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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.



TYPICAL SLAB ELEVATIONS DIAGRAM



Beam	Span (1-2)			Span (2-3)			Span (3-4)		
	A	B	C	A	B	C	A	B	C
Exterior	⅜"	1"	⅝"	1"	1¾"	1⅛"	⅝"	1"	⅝"
Interior	½"			⅞"			½"		

BEAM CAMBER DIAGRAM

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

0.25 pt. = 0.7125 x 0.5 pt.

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

Beam Number	Span (1-2) (47'-4" ℄ Brg. - ℄ Brg.)					Span (2-3) (58'-8" ℄ Brg. - ℄ Brg.)					Span (3-4) (47'-4" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	1149.06	1149.39	1149.71	1150.03	1150.34	1150.39	1150.81	1151.22	1151.61	1151.98	1152.03	1152.35	1152.68	1152.99	1153.31
2	1149.99	1150.32	1150.65	1150.96	1151.27	1151.31	1151.74	1152.15	1152.53	1152.89	1152.93	1153.26	1153.58	1153.90	1154.21
3	1150.93	1151.25	1151.57	1151.89	1152.20	1152.23	1152.65	1153.06	1153.44	1153.81	1153.83	1154.16	1154.48	1154.79	1155.10

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 stay-in-place forms) and barrier.

SLAB ELEVATIONS, HAUNCHING, & CAMBER

Detailed Jun. 2024
Checked Aug. 2024

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

H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_017_JSE0027_Slab Elevations, Haunching & Camber.dgn 4:36:21 PM 10/16/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 17
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

DESCRIPTION | DATE

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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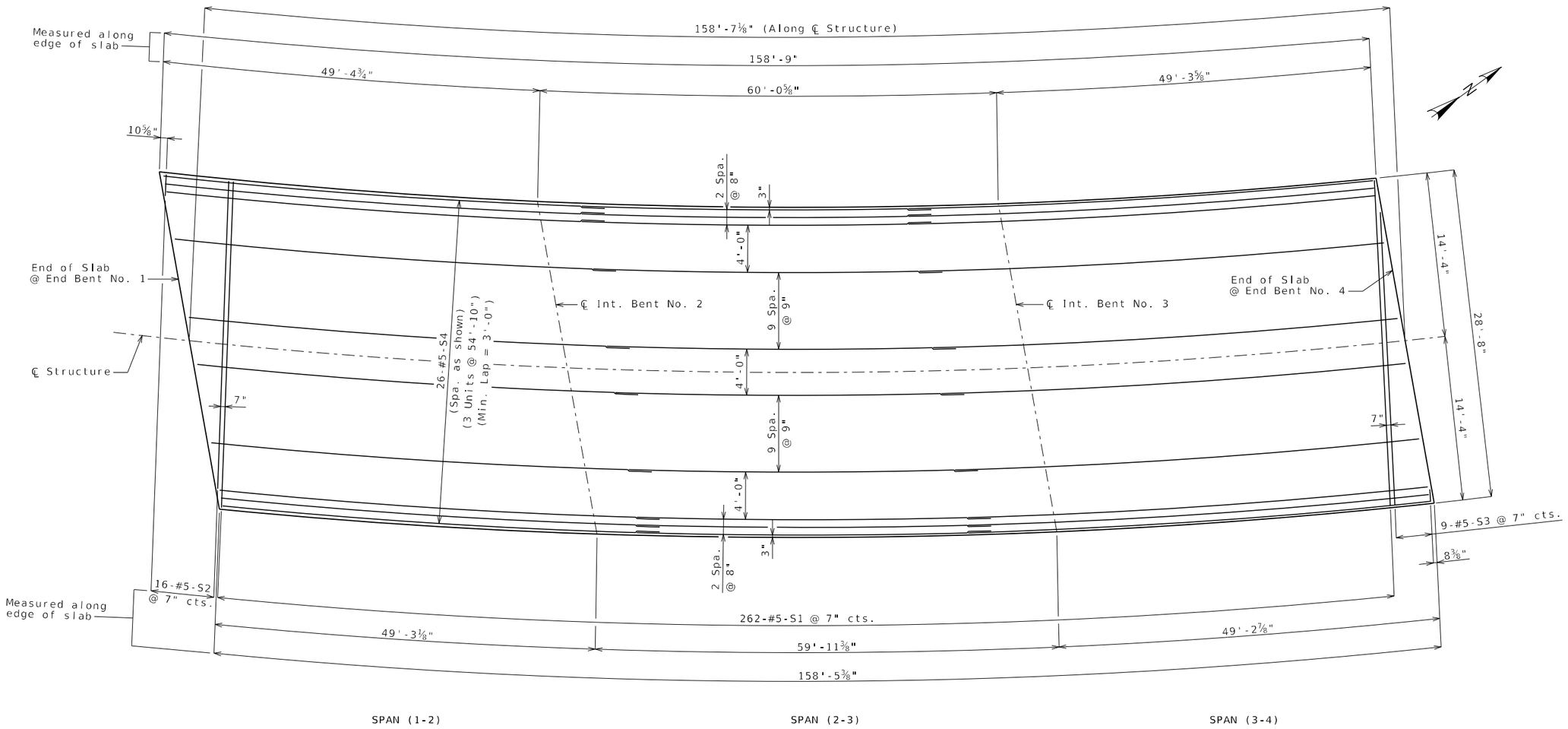

General Notes:
Longitudinal slab dimensions are horizontal arc dimensions.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 20.

For details and reinforcement of barrier not shown, see Sheets No. 22-24.

For Theoretical Slab Haunching Diagram and Theoretical Bottom of Slab Elevations, see Sheet No. 17.

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

Detailed Jun. 2024
Checked Aug. 2024

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

H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_018_JSE0027_Plan of Slab Showing Bottom Reinforcement.dgn 4:36:29 PM 10/16/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/16/2024
ROUTE: 137 | STATE: MO
DISTRICT: BR | SHEET NO.: 18
COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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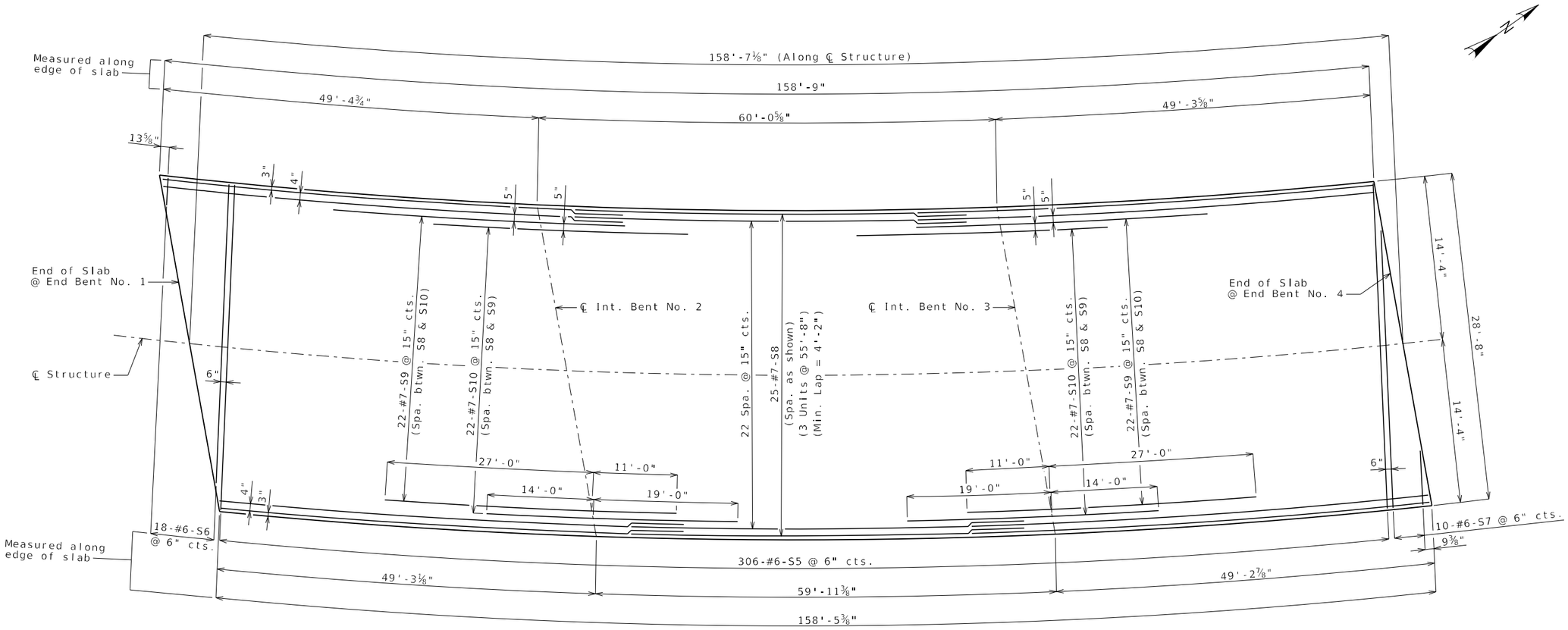

General Notes:
Longitudinal slab dimensions are horizontal arc dimensions.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 20.

For details and reinforcement of barrier not shown, see Sheets No. 22-24.

For Theoretical Slab Haunching Diagram and Theoretical Bottom of Slab Elevations, see Sheet No. 17.

PLAN OF SLAB SHOWING TOP REINFORCEMENT

Detailed Jun. 2024
Checked Aug. 2024

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

H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_019_JSE0027_Plan of Slab Showing Top Reinforcement.dgn 4:36:37 PM 10/16/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	19

COUNTY
TEXAS

JOB NO.
JSE0027

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9393

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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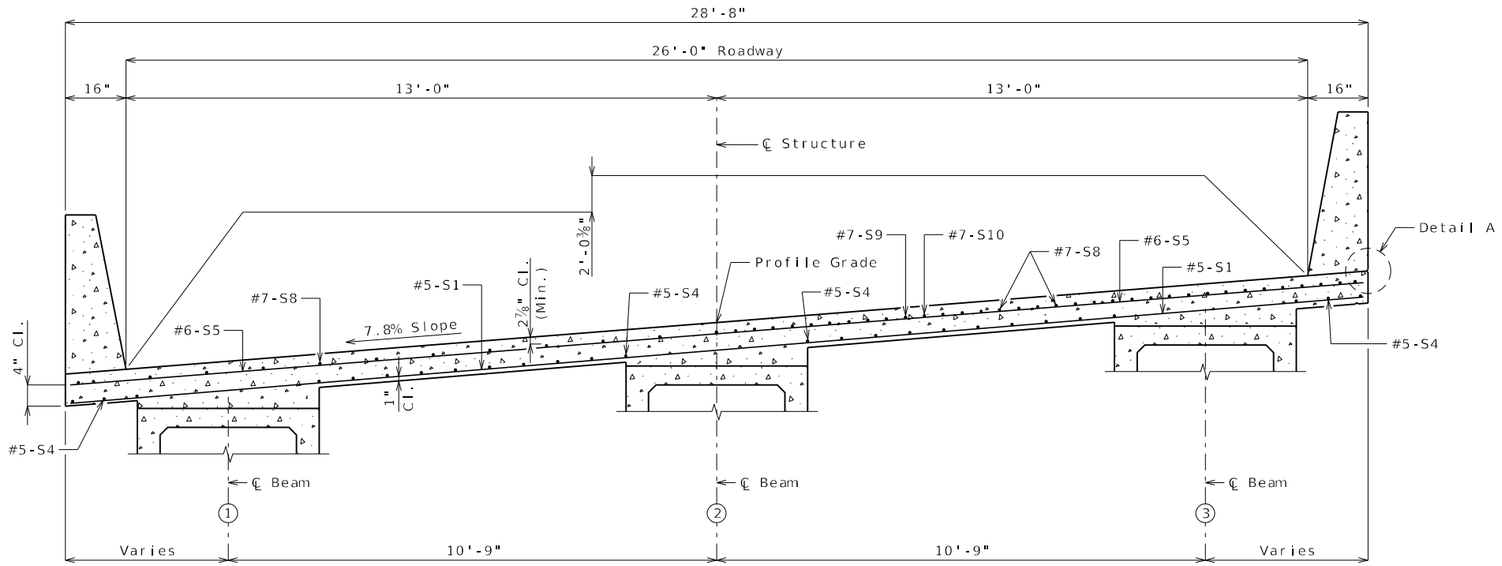
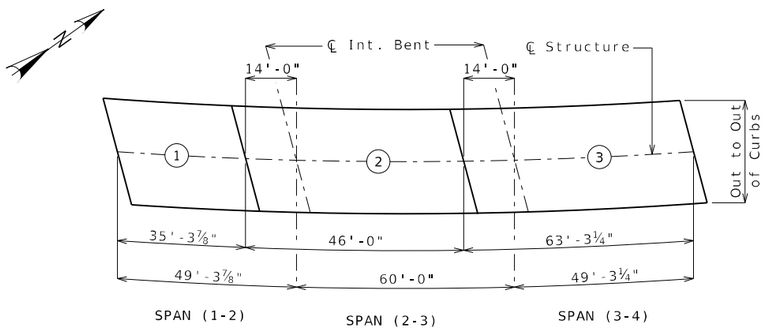


HALF SECTION NEAR MIDSPAN HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB

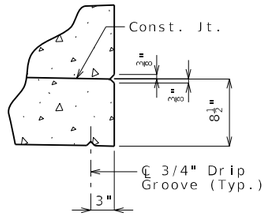


	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1	2	3	25
	End to 2	1 to 3	2 to End	
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1 + 2		3	25
	End to 3		2 to End	
Alternate B Pours	1 + 2 + 3			25
	End to End			

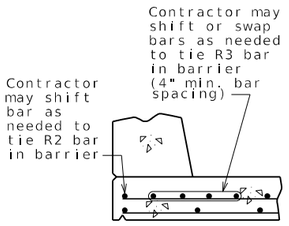
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

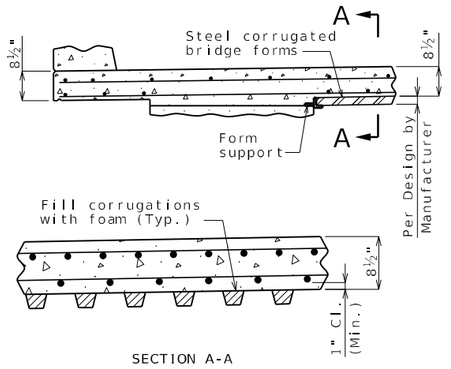
SLAB POURING SEQUENCE



DETAIL A



OPTIONAL SHIFTING TOP BARS AT BARRIER



SECTION A-A

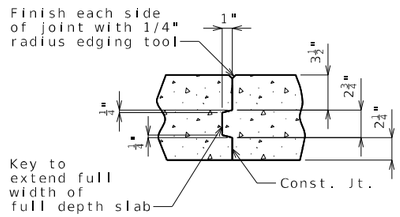
OPTIONAL STAY-IN-PLACE FORM DETAILS

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

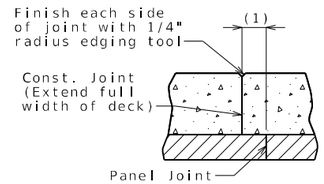
Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

Form sheets shall not rest directly on the top of beam. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the top of beam. Drilling holes in the beam will not be permitted. All steel fabrication and construction shall be in accordance with Sec 1080 and 712. Certified field welders will not be required for welding of the form supports.

The design of stay-in-place corrugated steel forms is per manufacturer which shall be in accordance with Sec 703 for false work and forms. Maximum actual weight of corrugated steel forms allowed shall be 4 psf assumed for beam loading.



FULL DEPTH SLAB



SLAB ON PANELS

SLAB CONSTRUCTION JOINT

Reference Notes:
(1) Adjust construction joint to a clearance of 6 inches minimum from the panel joint.

General Notes:
For details and reinforcement of barrier, see Sheets No. 22-24.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 17.

For Plan of Slab Showing Reinforcement, see Sheets No. 18 & 19.

SLAB DETAILS

STATE OF MISSOURI — JASON A. DREYER — NUMBER PE-2013038971 — PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	20

COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION | DATE

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

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Detailed Jun. 2024
Checked Aug. 2024

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

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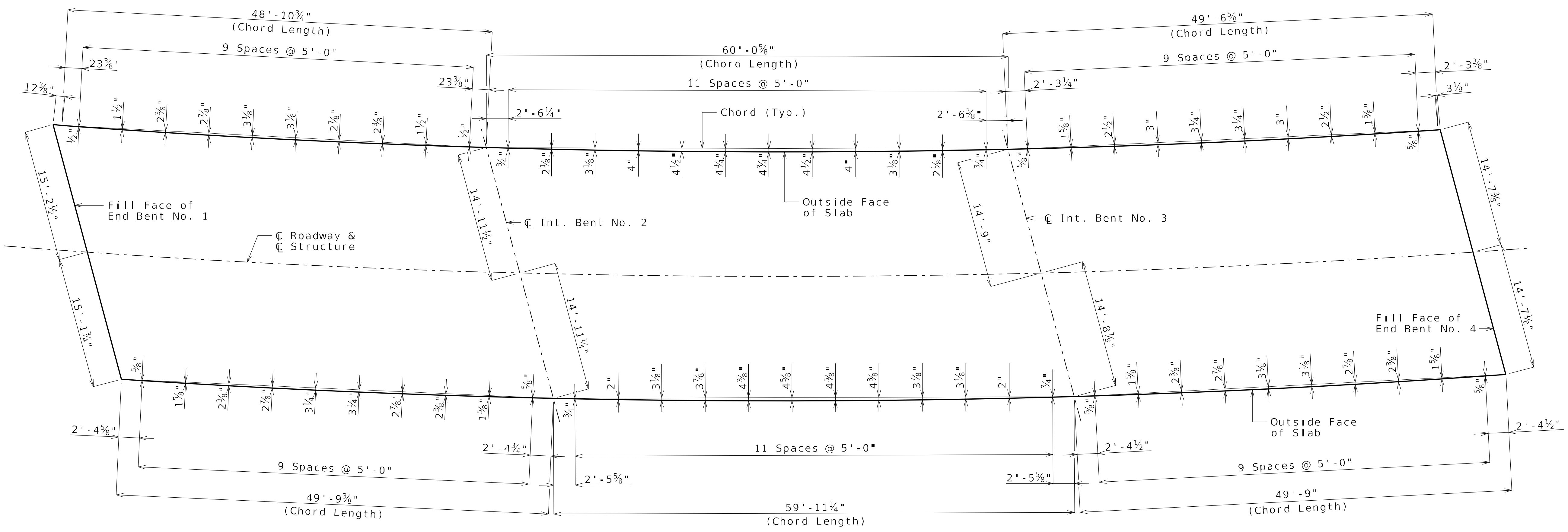

PLAN

All dimensions are horizontal.
All bents are parallel.

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/16/2024	
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 21
COUNTY TEXAS	
JOB NO. JSE0027	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9393	

DATE | DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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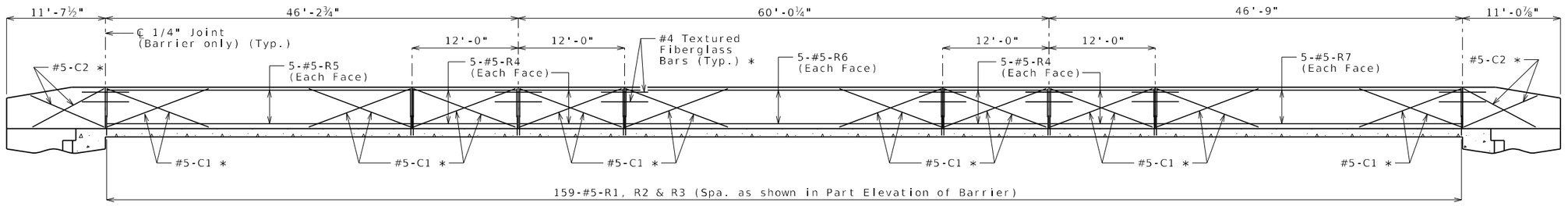
SLAB CURVE ORDINATES

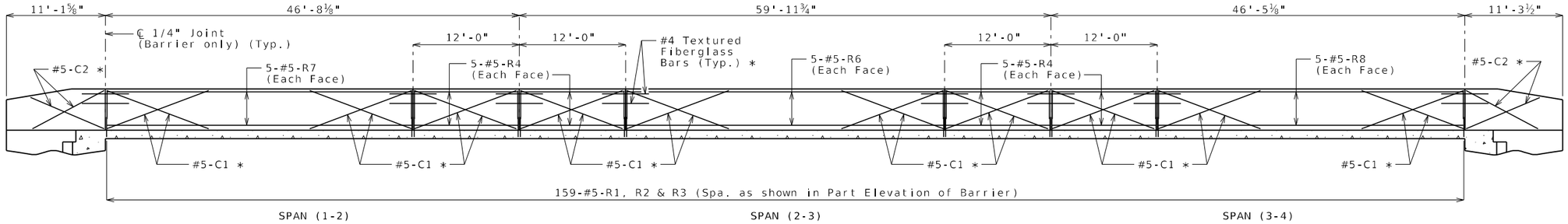
Detailed Jun. 2024
Checked Aug. 2024

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



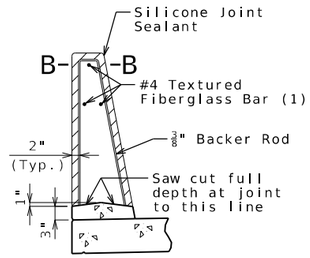
ELEVATION OF RIGHT BARRIER

Longitudinal dimensions are horizontal arc dimensions measured along outside edge of slab.

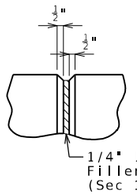


ELEVATION OF LEFT BARRIER

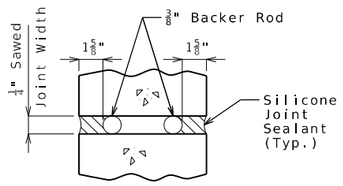
Longitudinal dimensions are horizontal arc dimensions measured along outside edge of slab.



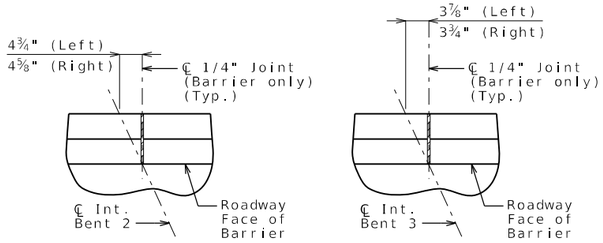
SECTION THRU SAW CUT JOINT



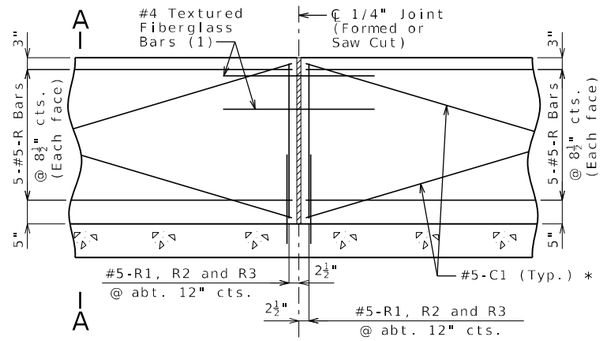
PART ELEVATION AT FORMED JOINT



SECTION B-B

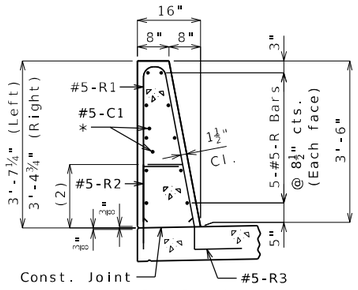


PART PLAN SHOWING JOINT LOCATION



PART ELEVATION OF BARRIER

(1) Four feet long, centered on joint, slip-formed option only



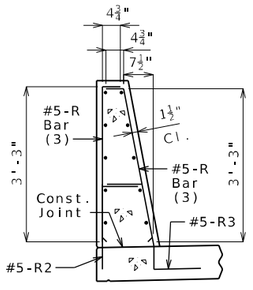
SECTION A-A

Use a minimum lap of 3'-1" for #5 horizontal barrier bars.

The cross-sectional area above the slab is (4) square feet.

(2) To top of bar, 16" (Left), 13½" (Right).

(4) 3.57 (Left), 3.43 (Right)



R-BAR PERMISSIBLE ALTERNATE SHAPE

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

General Notes:

* Slip-formed option only.

Conventional forming or slip forming may be used. Saw cut joints may be used with conventional forming.

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

All exposed edges of barrier shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

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

Concrete in barrier shall be Class B-1.

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

Concrete traffic barrier delineators shall be placed on top of the 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.

Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

For slip-formed option, both sides of barrier shall have a vertically broomed finish and the top shall have a transversely broomed finish.

TYPE D BARRIER

Detailed Jun. 2024
Checked Aug. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 22
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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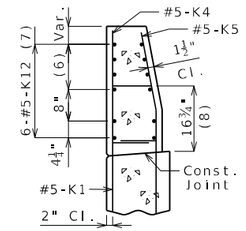
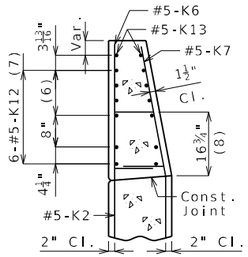
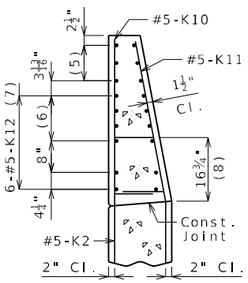


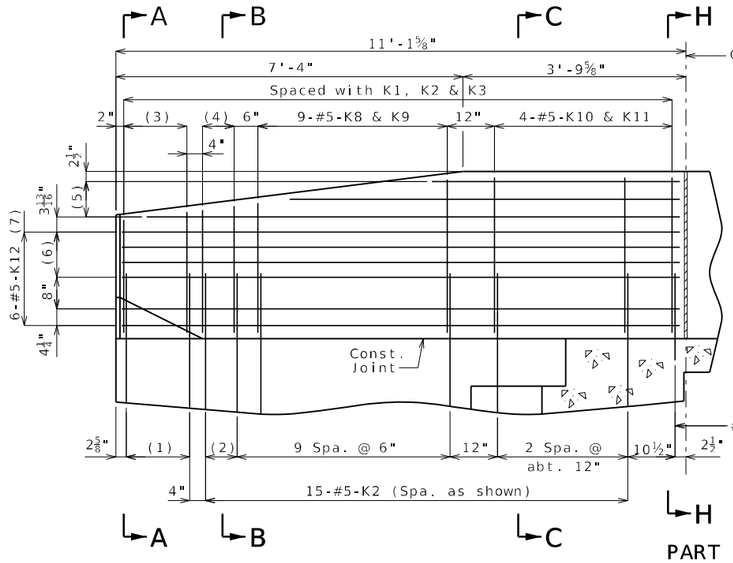
SECTION A-A



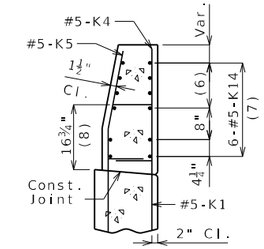
SECTION B-B



SECTION C-C



PART ELEVATION



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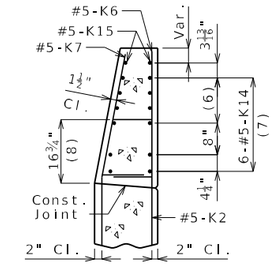

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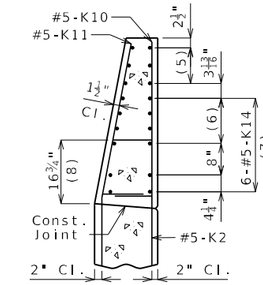

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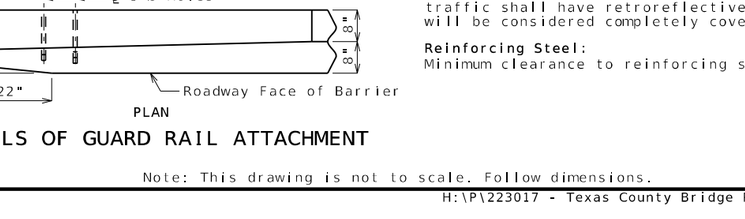
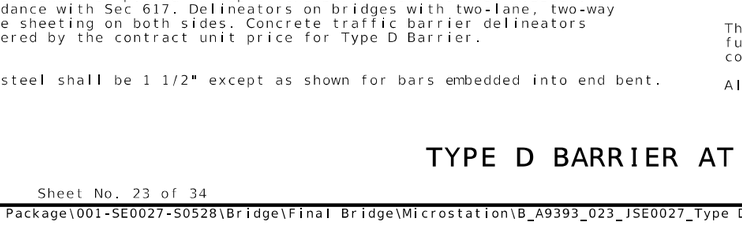
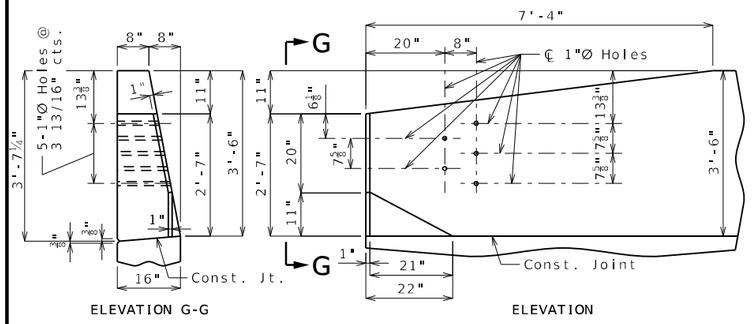
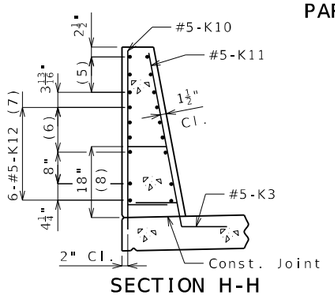




PART PLAN

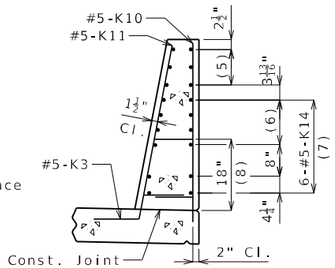


ELEVATION G-G ELEVATION

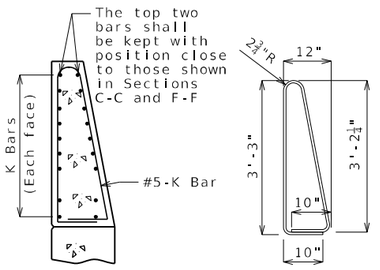


SECTION H-H

(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 @ 4½" cts., each face
(6) 3 spaces @ 3 13/16"
(7) Spaced as shown, each face
(8) To top of bar



SECTION I-I

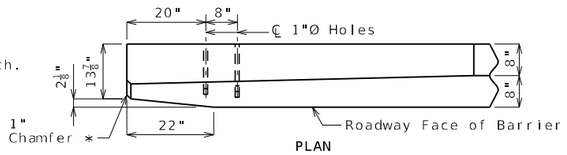


K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(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.



PLAN

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

DETAILS OF GUARD RAIL ATTACHMENT

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)

Detailed Jun. 2024
Checked Aug. 2024

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

H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_023_JSE0027_Type D Barrier at End Bents (Left).dgn 4:37:30 PM 10/16/2024

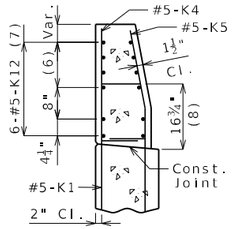
STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 23
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

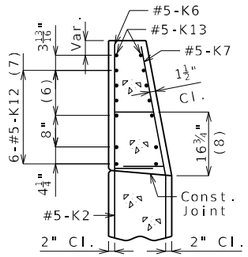
DESCRIPTION | DATE

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

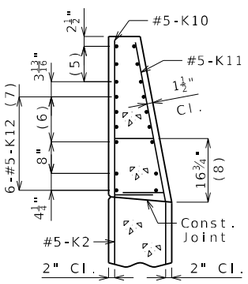
OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
St. Louis: 720 Olive, Suite 700, St. Louis, MO 63101, 314.588.8331
St. Charles: 820 South Main, Suite 399, St. Charles, MO 63301, 636.493.5277
Collinsville: 100 Lanter Court, Suite 1, Collinsville, IL 62234, 618.345.2200
Belleville: 1 South Church, Suite 700, Belleville, IL 62220, 618.416.4488
www.oatesassociates.com



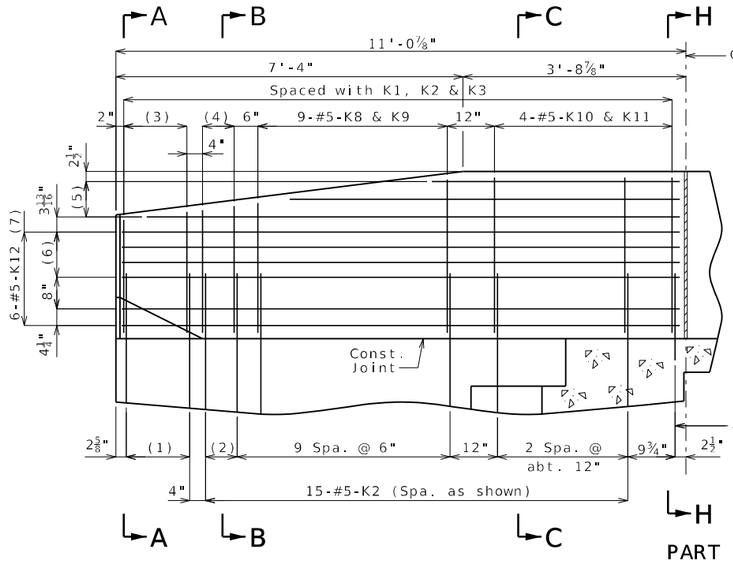
SECTION A-A



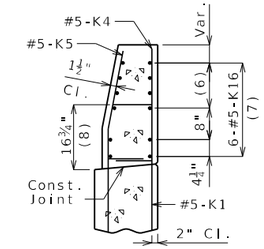
SECTION B-B



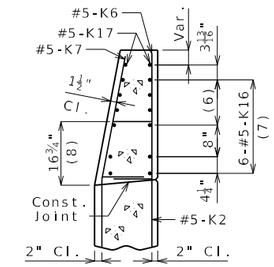
SECTION C-C



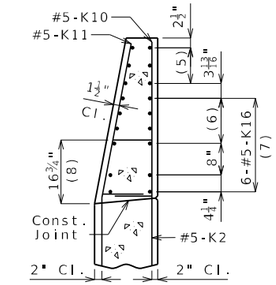
PART ELEVATION



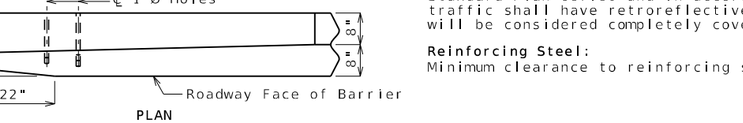
SECTION D-D

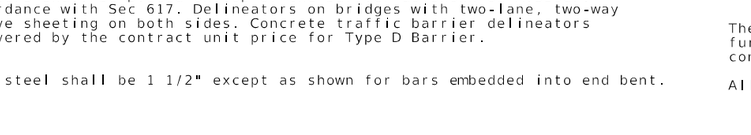


SECTION E-E

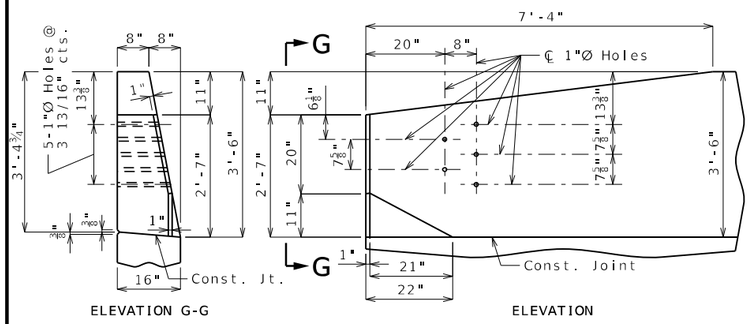


SECTION F-F



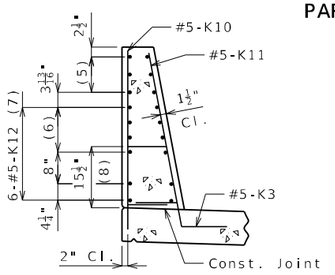


PART PLAN



ELEVATION G-G

ELEVATION



SECTION H-H

(1) 5-#5-K1 @ 4" cts.

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

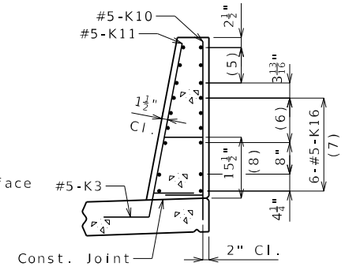
(4) 3-#5-K6 & K7

(5) 3-#5-K13 or K17 @ 4½" cts., each face

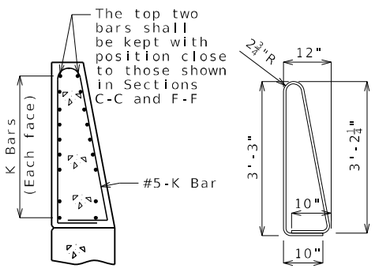
(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) To top of bar



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.

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

PLAN

DETAILS OF GUARD RAIL ATTACHMENT

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 (RIGHT)

Detailed Jun. 2024
Checked Aug. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 24
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

DESCRIPTION | DATE

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

OATES ASSOCIATES
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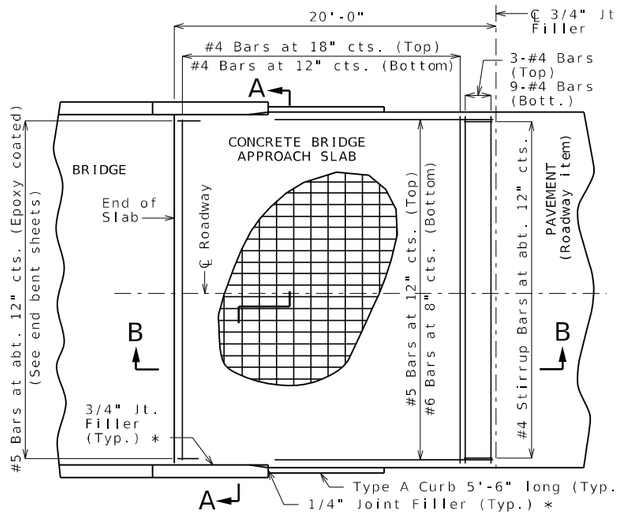
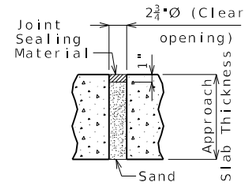
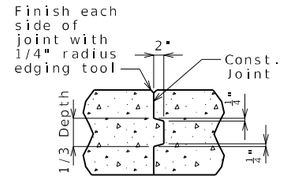


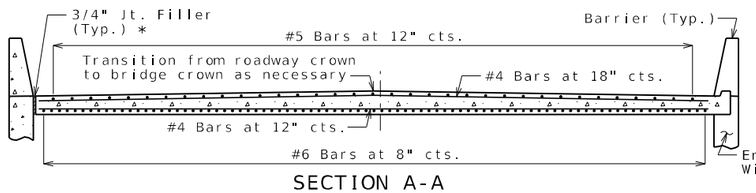
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



UNDERSEAL ACCESS HOLE DETAIL
(If required)

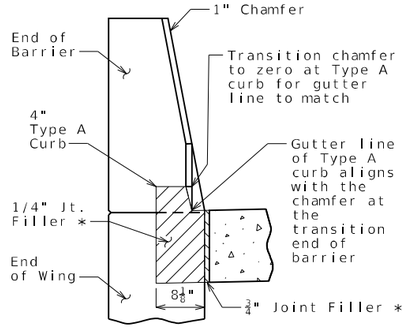


CONSTRUCTION JOINT DETAIL



SECTION A-A

With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

All concrete for the bridge approach slab shall be in accordance with Sec 503 (f'c = 4,000 psi).

The reinforcing steel in the bridge approach slab shall be epoxy coated Grade 60 with fy = 60,000 psi.

Longitudinal construction joints in bridge approach slab shall be aligned with longitudinal construction joints in bridge slab.

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

The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 23 inches for #4 bars, or by mechanical bar splice.

Mechanical bar splices shall be in accordance with Sec 710.

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.

Payment for furnishing all materials, labor and excavation necessary to construct the concrete bridge approach slab, including the timber header, underdrain, Type 5 aggregate base, joint filler, and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.

See Missouri Standard Plan 609.00 for details of Type A curb.

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

* Seal joint between vertical face of approach slab and wing with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

General Notes:

Contractor shall have the option to construct either slab except as noted.

The contractor shall pour and satisfactorily finish the bridge slab before placing the bridge approach slab.

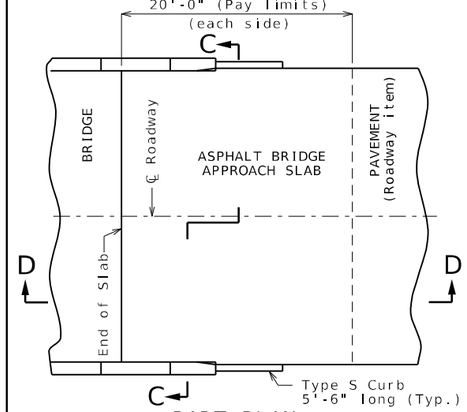
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

☐ Concrete Bridge Approach Slab
☐ Asphalt Bridge Approach Slab

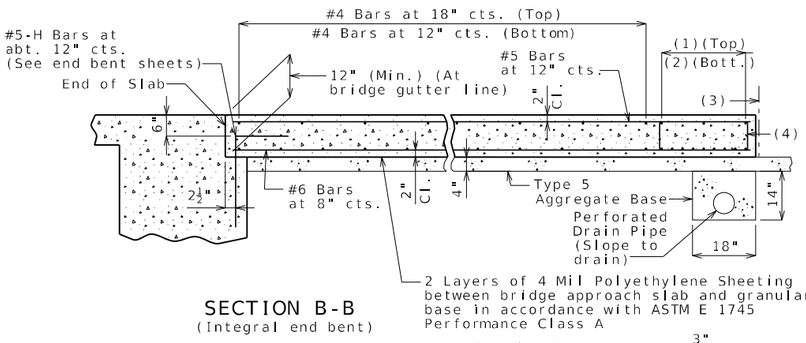
Notes For Asphalt Slab Only:

Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.

Application of tack is required between lifts per Sec 403.

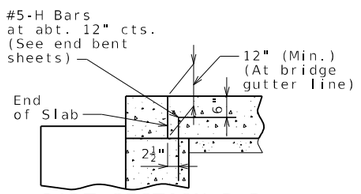


PART PLAN
(Squared structure shown, skewed structure similar)

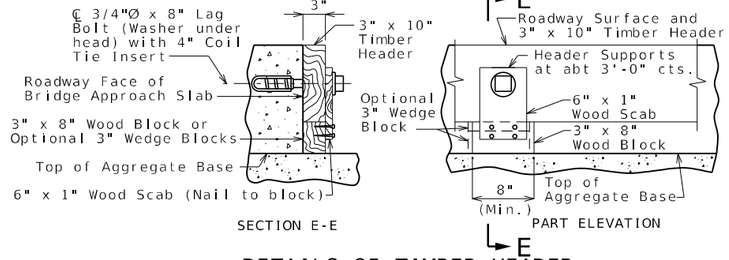


(1) 3-#4 Bars
(2) 9-#4 Bars
(3) ℄ 3/4" Jt. Filler
(4) #4 Stirrup Bars at abt. 12" cts.; 2'-0"x 8" (Min.) out to out; Actual length = 5'-10" (Min.); 90° stirrup hook at bottom; Stirrup height (8") and actual length vary due to crown.

SECTION B-B
(Integral end bent)

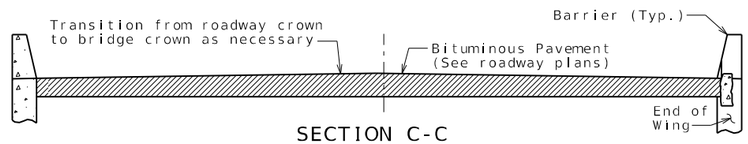


PART SECTION B-B
(Non-integral end bent)



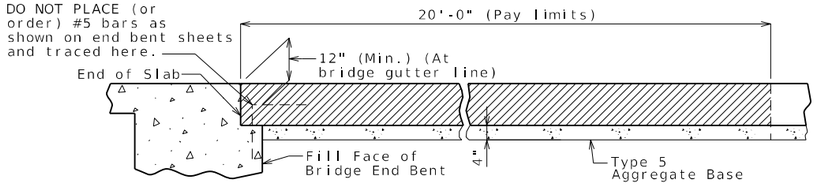
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

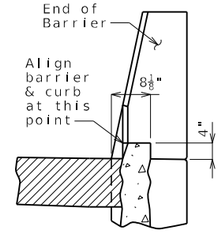


SECTION C-C

With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



SECTION D-D



4" TYPE S CURB
See Missouri Standard Plan 609.00 for details of Type S curb.

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

BRIDGE APPROACH SLAB (MINOR)

Integral end bents shown, non-integral end bent similar.

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 25
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

DESCRIPTION | DATE

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

OATES ASSOCIATES
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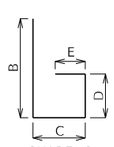
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

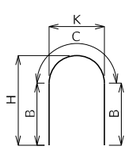
Detailed Jun. 2024
Checked Aug. 2024

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

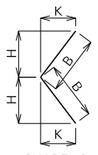
H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_025_JSE0027_Bridge Approach Slab (Minor).dgn 4:37:53 PM 10/16/2024



SHAPE 6
or 6S



SHAPE 7



SHAPE 8
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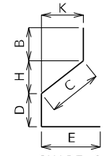
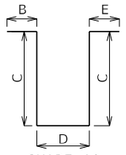
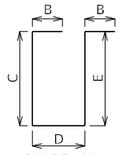


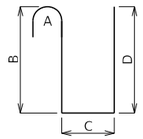
SHAPE 9
or 9S



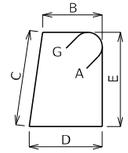
SHAPE 10
or 10S



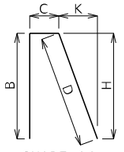
SHAPE 11
or 11S



SHAPE 12



SHAPE 13S



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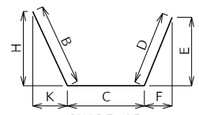
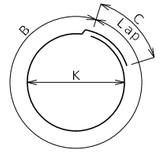


SHAPE 15
or 15S



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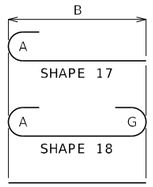
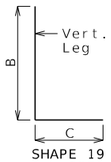
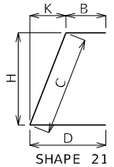


SHAPE 17
SHAPE 18
SHAPE 20



SHAPE 19
or 19S



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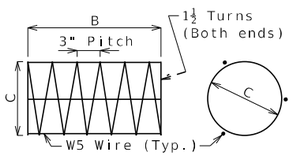
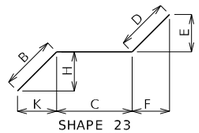
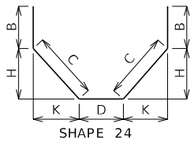


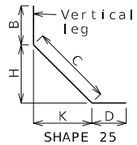
SHAPE 22



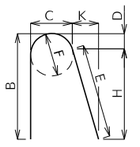
SHAPE 23
or 23S



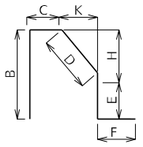
SHAPE 24
or 24S



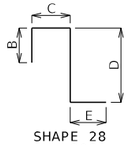
SHAPE 25
or 25S



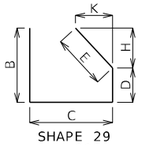
SHAPE 26



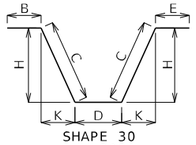
SHAPE 27S



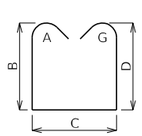
SHAPE 28
or 28S



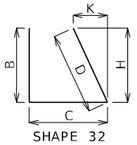
SHAPE 29
or 29S



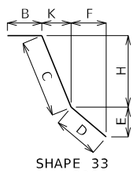
SHAPE 30
or 30S



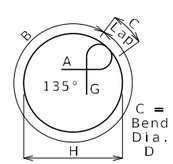
SHAPE 31S



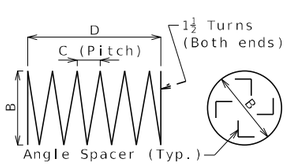
SHAPE 32
or 32S



SHAPE 33
or 33S



SHAPE 34S



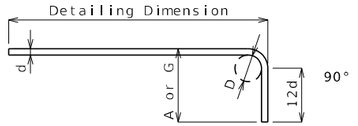
SHAPE 35 (1)

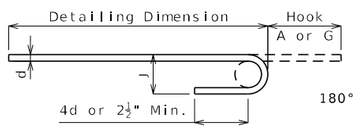
SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¾"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36½"	28½"



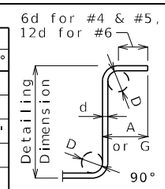


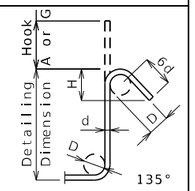
Stirrup Pin Bend Shapes (S)

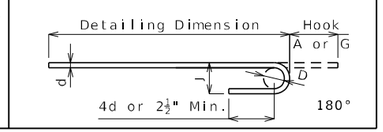
Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4½"	4½"	5"	2⅝"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5⅝"	5⅝"	5⅝"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅝"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

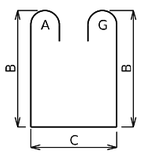
Applicable for all grades of steel.

Case 1 applies to all reinforcement. Case 2 applies to all reinforcement except for galvanized bars. Case 3 applies to galvanized bars only.

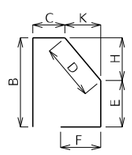








SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

Shapes ending with an S shall be bent in accordance with stirrup pin bend shapes.

Unless otherwise noted, finished bending diameter D is the same for all bends of a shape.

(1) Shall be a deformed or plain spiral bar or wire.

Four angle or channel spacers are required for each column spiral. Spacers are to be placed on inside of spirals. Length and weight of column spirals do not include splices or spacers.

Reinforcing Steel Totals (Pounds)

	Size	Substructure		Superstructure				Entire Bridge	
				Slab			Slip		
		Plain	Epoxy	Plain	Epoxy	Barrier	Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	775	0	0	949	0	0	775	949
	5	1,294	0	0	13,936	9,352	574	1,294	23,862
	6	3,770	0	0	18,974	0	0	3,770	18,974
	7	0	0	0	14,920	0	0	0	14,920
	8	3,750	0	0	2,791	0	0	3,750	2,791
	9	7,036	0	0	0	0	0	7,036	0
	10	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0
By Type		16,625	0	0	51,570	9,352	574	16,625	61,496

All superstructure reinforcing steel shall be epoxy coated unless otherwise specified.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Jun. 2024
Checked Aug. 2024

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

H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_026_JSE0027_Bending Diagrams and Reinforcing Steel Totals.dgn 4:38:04 PM 10/16/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	26

COUNTY
TEXAS

JOB NO.
JSE0027

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9393

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
St. Louis
720 Olive, Suite 700
St. Louis, MO 63101
314.588.8381
St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.993.8277
Collinsville
160 Jamer Court, Suite 1
Collinsville, IL 62234
618.345.4200
Belleville
1 South Church, Suite 200
Belleville, IL 62220
618.416.4688
www.oatesassociates.com

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		SUBSTRUCTURE													
		INT. BENT 2													
12	6 D200	BEAM		20		2 6.000							2 6	2 6	45
12	8 H200	BEAM		18		28 4.000							30 2	30 2	967
12	8 H201	BEAM		20		28 4.000							28 4	28 4	908
10	6 H202	BEAM		20		28 4.000							28 4	28 4	426
16	6 H203	BEAM		10S			22.000	3 7.500					7 4	7 0	168
12	6 H204	BEAM		20		13 9.000							13 9	13 9	248
6	6 H205	BEAM		20		5 9.000							5 9	5 9	52
60	5 P200	SHAFT		16		7 10.250	2 7.000					2 6.000	10 4	10 4	647
16	4 P201	SHAFT		16		7 10.250	2 1.000					2 6.000	9 10	9 10	105
12	4 P202	COLUMN		16		8 7.625	2 5.000					2 9.000	10 11	10 11	88
34	6 U200	BEAM		13S		3 9.000	3 9.750	3 9.000	3 9.750				16 5	15 11	813
8	6 U201	BEAM		10S			3 9.750	3 9.000					11 5	11 1	133
41	4 U202	BEAM		10S			18.000	3 9.000					6 9	6 7	180
28	9 V200	SHAFT		20		27 1.000							27 1	27 1	2578
14	9 V201	COLUMN		20		8 4.000							8 4	8 4	397
14	9 V202	COLUMN		20		9 10.000							9 10	9 10	468
		INT. BENT 3													
12	6 D300	BEAM		20		2 6.000							2 6	2 6	45
12	8 H300	BEAM		18		28 4.000							30 2	30 2	967
12	8 H301	BEAM		20		28 4.000							28 4	28 4	908
10	6 H302	BEAM		20		28 4.000							28 4	28 4	426
16	6 H303	BEAM		10S			22.000	3 7.500					7 4	7 0	168
12	6 H304	BEAM		20		13 9.000							13 9	13 9	248
6	6 H305	BEAM		20		5 9.000							5 9	5 9	52
60	5 P300	SHAFT		16		7 10.250	2 7.000					2 6.000	10 4	10 4	647
16	4 P301	SHAFT		16		7 10.250	2 1.000					2 6.000	9 10	9 10	105
16	4 P302	COLUMN		16		8 7.625	2 5.000					2 9.000	10 11	10 11	117
34	6 U300	BEAM		13S		3 9.000	3 9.750	3 9.000	3 9.750				16 5	15 11	813
8	6 U301	BEAM		10S			3 9.750	3 9.000					11 5	11 1	133
41	4 U302	BEAM		10S			18.000	3 9.000					6 9	6 7	180
28	9 V300	SHAFT		20		27 1.000							27 1	27 1	2578
14	9 V301	COLUMN		20		9 11.000							9 11	9 11	472
14	9 V302	COLUMN		20		11 5.000							11 5	11 5	543
		SUPERSTRUCTURE													
		End Bent 1													
9	6 F100	WING BRACE	E	15		2 3.000	4 4.000	14.000	11.375	8.125	22.000	15.625	7 9	7 8	104
9	6 F101	WING BRACE	E	15		14.000	5 9.000	2 3.000	15.250	22.250	7.875	11.500	9 2	9 2	124
3	6 F102	DIAPHRAGM	E	21		6 9.000	2 10.000				2 8.250	10.875	9 7	9 6	43
3	6 F103	DIAPHRAGM	E	21			2 10.000	7 7.000			2 8.125	11.125	10 5	10 2	46
8	8 H100	BEAM	E	20		30 1.000							30 1	30 1	643
4	6 H101	BEAM	E	20		30 1.000							30 1	30 1	181
4	6 H102	BEAM	E	20	1	5 8.000							5 8	5 8	37
		INCREMENT =				6 7.000							6 7	6 7	
		3.625 INCH													
4	6 H103	BEAM	E	20		14 9.000							14 9	14 9	89
4	6 H104	BEAM	E	20		16 0.000							16 0	16 0	96
3	6 H105	DIAPHRAGM	E	20		30 1.000							30 1	30 1	136
6	6 H106	DIAPHRAGM	E	20		6 10.000							6 10	6 10	62
6	6 H107	DIAPHRAGM	E	20		18.000							18	18	14
4	6 H108	DIAPHRAGM	E	20		6 0.000							6 0	6 0	36
4	8 H109	DIAPHRAGM	E	20		30 1.000							30 1	30 1	321
3	5 H110	STRAND TIE	E	23		15.000	4 0.000	15.000	4.500	14.250	4.500	14.250	6 6	6 6	20
16	8 H111	WINGWALL	E	20		10 6.000							10 6	10 6	449
36	6 H112	WINGWALL	E	20		9 8.000							9 8	9 8	523

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
13	5 U100	BEAM	E	37S		5 8.000	2 11.000						15 3	15 0	203
19	4 U101	BEAM	E	13S		2 11.000	2 8.500	2 11.000	2 8.500				12 0	11 9	149
5	4 U102	BEAM	E	10S			2 8.500	2 11.000					8 4	8 2	27
42	4 U103	BEAM	E	10S			20.000	2 11.000					6 3	6 1	171
26	5 U104	DIAPHRAGM	E	19S		2 0.000	15.000						3 3	3 2	86
37	6 U105	DIAPHRAGM	E	19S		2 8.000	4 8.000						7 4	7 2	398
18	5 U106	DIAPHRAGM	E	37S		2 6.000	2 4.500						8 4	8 2	153
18	6 U107	DIAPHRAGM	E	12S		22.000	2 4.000						4 10	4 8	126
10	5 V100	BEAM	E	17		5 8.000							6 3	6 3	65
18	6 V101	DIAPHRAGM	E	20		22.000							22	22	50
4	6 V102	WINGWALL	E	20		6 7.000							6 7	6 7	40
32	6 V103	WINGWALL	E	20	4	6 7.000							6 7	6 7	322
		INCREMENT =				6 10.000							6 10	6 10	
		0.375 INCH													
		END BENT 4													
9	6 F400	WING BRACE	E	15		2 3.000	4 7.000	14.000	10.750	9.000	20.625	17.375	8 0	7 11	107
9	6 F401	WING BRACE	E	15		14.000	5 3.000	2 3.000	17.250	20.750	8.875	10.750	8 8	8 7	116
3	6 F402	DIAPHRAGM	E	21		6 8.000	2 8.000				2 7.375	6.250	9 4	9 3	42
3	6 F403	DIAPHRAGM	E	21			2 8.000	7 3.000			2 7.375	6.125	9 11	9 8	44
8	8 H400	BEAM	E	20		29 0.000							29 0	29 0	619
4	6 H401	BEAM	E	20		29 0.000							29 0	29 0	174
4	6 H402	BEAM	E	20		15 4.000							15 4	15 4	92
4	6 H403	BEAM	E	20		14 7.000							14 7	14 7	88
4	6 H404	BEAM	E	20	1	5 10.000							5 10	5 10	37
		INCREMENT =				6 4.000							6 4	6 4	
		2.000 INCH													
3	6 H405	DIAPHRAGM	E	20		29 0.000							29 0	29 0	131
6	6 H406	DIAPHRAGM	E	20		6 8.000							6 8	6 8	60
6	6 H407	DIAPHRAGM	E	20		16.000							16	16	12
4	6 H408	DIAPHRAGM	E	20		6 3.000							6 3	6 3	38
4	8 H409	DIAPHRAGM	E	20		29 0.000							29 0	29 0	310
3	5 H410	STRAND TIE	E	23		15.000	4 0.000	15.000	3.125	14.625	3.125	14.625	6 6	6 6	20
16	8 H411	WINGWALL	E	20		10 6.000							10 6	10 6	449
40	6 H412	WINGWALL	E	20		9 8.000							9 8	9 8	581
14	5 U400	BEAM	E	37S		5 8.000	2 9.500						15 1	14 11	218
18	4 U401	BEAM	E	13S		2 9.500	2 8.500	2 9.500	2 8.500				11 9	11 6	138
6	4 U402	BEAM	E	10S			2 8.500	2 9.500					8 3	8 1	32
42	4 U403	BEAM	E	10S			20.000	2 9.500					6 2	6 0	168
26	5 U404	DIAPHRAGM	E	19S		2 0.000	15.000						3 3	3 2	86
35	6 U405	DIAPHRAGM	E	19S		2 8.000	4 8.000						7 4	7 2	377
18	5 U406	DIAPHRAGM	E	37S		2 6.000	2 3.500						8 3	8 1	152
18	6 U407	DIAPHRAGM	E	19S		23.000	2 9.500						4 9	4 7	124
8	5 V400	BEAM	E	17		5 8.000							6 3	6 3	52
18	6 V401	DIAPHRAGM	E	20		22.000							22	22	50
4	6 V402	WINGWALL	E	20		7 0.000							7 0	7 0	42
32	6 V403	WINGWALL	E	20	4	6 9.000							6 9	6 9	330
		INCREMENT =				7 0.000							7 0	7 0	
		0.375 INCH													
		INT. BENT													
		2 & 3 DIAPH.													
16	6 H500	DIAPHRAGM	E	20		6 9.000							6 9	6 9	162
8	4 H501	DIAPHRAGM	E	20		6 9.000							6 9	6 9	36
24	5 H502	DIAPHRAGM	E	19S		5 5.000	9.000						6 2	6 1	152
8	5 H503	STRAND TIE	E	20		5 8.000							5 8	5 8	47
4	5 H504	STRAND TIE	E	20		6 6.000							6 6	6 6	27
8	6 H505	DIAPHRAGM	E	20		5 8.000							5 8	5 8	68
8	6 U500	DIAPHRAGM	E	28S			3 2.000	2 9.000	2 2.000				8 1	7 9	93
8	6 U501	DIAPHRAGM	E	28S			3 2.000	3 2.000	2 2.000				8 6	8 2	98
48	4 U502	DIAPHRAGM	E	28S	8		2 7.000	3 0.000	18.000				7 1	6 11	228
		INCREMENT =					2 7.000	3 5.000	18.000				7 6	7 4	
		1.000 INCH													
8	5 V500	DIAPHRAGM	E	20		2 10.000							2 10	2 10	24
8	5 V501	DIAPHRAGM	E	20		3 2.000							3 2	3 2	26

Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed to the nearest inch for fabricator's use. Actual lengths are measured along centerline bar to the nearest inch. Weights are based on actual lengths.

For bending diagrams and steel reinforcing totals, see Sheet No. 26.

All bars shall be Grade 60.

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.

SH = Required shape, see bending diagrams.

V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

Detailed Jun. 2024
Checked Aug. 2024

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

BILL OF REINFORCING STEEL

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 27
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

OATES ASSOCIATES
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Bill of Reinforcing Steel

No. Req.	Size/Mark	Location	Codes C	Codes SH	Codes V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		SLAB													
262	5 S1	SLAB	E	20		28 5.000							28 5	28 5	7765
16	5 S2	SLAB	E	20	1	2 0.000							2 0	2 0	243
		INCREMENT =				27 1.000							27 1	27 1	
		20.125 INCH													
9	5 S3	SLAB	E	20	1	2 8.000							2 8	2 8	136
		INCREMENT =				26 4.000							26 4	26 4	
		35.500 INCH													
78	5 S4	SLAB	E	20		54 10.000							54 10	54 10	4461
306	6 S5	SLAB	E	20		28 5.000							28 5	28 5	13061
18	6 S6	SLAB	E	20	1	2 8.000							2 8	2 8	402
		INCREMENT =				27 1.000							27 1	27 1	
		17.250 INCH													
10	6 S7	SLAB	E	20	1	3 1.000							3 1	3 1	218
		INCREMENT =				25 11.000							25 11	25 11	
		30.500 INCH													
75	7 S8	SLAB	E	20		55 8.000							55 8	55 8	8534
44	7 S9	SLAB	E	20		38 0.000							38 0	38 0	3418
44	7 S10	SLAB	E	20		33 0.000							33 0	33 0	2968
		TYPE D BARRIER													
20	5 K1	BARRIER	E	27S		3 8.000	9.250	5.375	3 2.750		5.250	1.000	8 1	7 11	165
61	5 K2	BARRIER	E	27S		3 8.000	9.250	14.500	2 5.750		14.250	2.750	8 2	7 11	504
4	5 K3	BARRIER	E	27S		22.500	9.250	14.500	7.750	12.000	14.250	2.750	5 6	5 3	22
20	5 K4	BARRIER	E	19S	4	2 4.250	10.000						3 2	3 1	66
		INCREMENT =				2 6.250	10.000						3 4	3 3	
		0.500 INCH													
20	5 K5	BARRIER	E	38S	4			18.500	9.500	8.250	18.000	4.000	3 0	2 11	63
		INCREMENT =						20.500	9.500	8.250	20.000	4.500	3 2	3 1	
		0.500 INCH													
12	5 K6	BARRIER	E	19S		2 6.750	10.000						3 5	3 4	42
12	5 K7	BARRIER	E	21S			2 6.625	10.000			2 6.000	6.250	3 5	3 3	41
36	5 K8	BARRIER	E	19S	4	2 8.500	10.000						3 7	3 5	138
		INCREMENT =				3 2.500	10.000						4 1	3 11	
		0.750 INCH													
36	5 K9	BARRIER	E	21S	4		2 8.500	10.000			2 7.750	6.750	3 7	3 5	138
		INCREMENT =					3 2.500	10.000			3 1.750	7.750	4 1	3 11	
		0.750 INCH													
17	5 K10	BARRIER	E	19S		3 3.000	10.000						4 1	4 0	71
17	5 K11	BARRIER	E	21S			3 3.000	10.000			3 2.250	7.750	4 1	3 11	69
24	5 K12	BARRIER	E	20		10 10.000							10 10	10 10	271
12	5 K13	BARRIER	E	20	4	4 1.000							4 1	4 1	89
		INCREMENT =				10 1.000							10 1	10 1	
		36.000 INCH													
12	5 K14	BARRIER	E	20		11 0.000							11 0	11 0	138
6	5 K15	BARRIER	E	20	2	4 3.000							4 3	4 3	45
		INCREMENT =				10 3.000							10 3	10 3	
		36.000 INCH													
12	5 K16	BARRIER	E	20		11 4.000							11 4	11 4	142
6	5 K17	BARRIER	E	20	2	4 7.000							4 7	4 7	47
		INCREMENT =				10 7.000							10 7	10 7	
		36.000 INCH													
318	5 R1	BARRIER	E	26		3 3.000	5.500	2.250	3 1.375	5.500	3 0.750	6.750	6 9	6 9	2239
318	5 R2	BARRIER	E	19S		20.500	9.500						2 6	2 5	802
318	5 R3	BARRIER	E	27S			9.500	15.250	5.000	12.000	15.000	3.000	3 6	3 4	1106
80	5 R4	BARRIER	E	20		11 9.000							11 9	11 9	980
10	5 R5	BARRIER	E	20		33 11.000							33 11	33 11	354
20	5 R6	BARRIER	E	20		35 9.000							35 9	35 9	746
20	5 R7	BARRIER	E	20		34 5.000							34 5	34 5	718
10	5 R8	BARRIER	E	20		34 2.000							34 2	34 2	356
		SLIP FORM BARRIER													
40	5 C1	BARRIER	E	20		12 0.000							12 0	12 0	501
8	5 C2	BARRIER	E	20		8 9.000							8 9	8 9	73

Bill of Reinforcing Steel

No. Req.	Size/Mark	Location	Codes C	Codes SH	Codes V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb

Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed to the nearest inch for fabricator's use. Actual lengths are measured along centerline bar to the nearest inch. Weights are based on actual lengths.

For bending diagrams and steel reinforcing totals, see Sheet No. 26.

All bars shall be Grade 60.

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.

SH = Required shape, see bending diagrams.

V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

Detailed Jun. 2024
Checked Aug. 2024

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 28
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

DESCRIPTION
DATE

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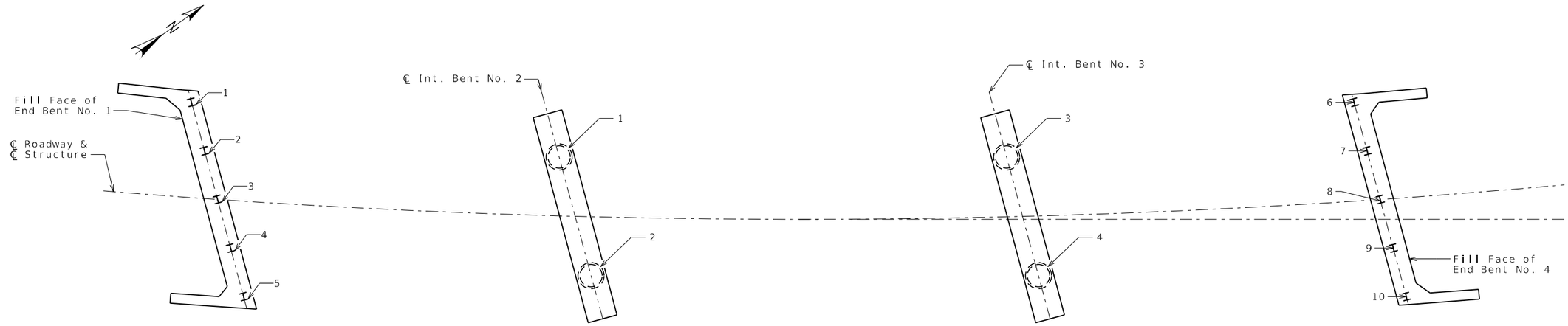

PART PLAN SHOWING PILE & DRILLED SHAFT NUMBERING FOR RECORDING
AS-BUILT PILE DATA & AS-BUILT DRILLED SHAFT DATA

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 1
1			
2			
3			
4			
5			
			End Bent No. 4
6			
7			
8			
9			
10			

As-Built Drilled Shaft Data				
Shaft No.	Top of Sound Rock (Elev.)	Tip of Casing (Elev.)	Bottom of Rock Socket (Elev.)	Remarks
				Intermediate Bent No. 2
1				
2				
				Intermediate Bent No. 3
3				
4				

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal

This sheet to be completed by MoDOT construction personnel.

AS BUILT PILE & DRILLED SHAFT DATA

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	29

COUNTY
TEXAS

JOB NO.
JSE0027

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9393

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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Detailed Jun. 2024
Checked Aug. 2024

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

H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_029_JSE0027_As Built Pile & Drilled Shaft Data.dgn 4:38:33 PM 10/16/2024

Missouri Department of Transportation
Construction and Materials

BORING NO. B-101
Page 1 of 1

Job No.: SE0027 (SCI No. 2023-0152.10) **County:** Texas **Route:** SR137
Design: A9393 **Skew:** 15 degrees Right **Location:** Texas County, Missouri
Bent: End Bent #1 **Logged By:** Brian Ratajczyk **Operator:** Midwest Drilling, Inc.
Station: 55+05 **Northing:** 445423.049 **Date of Work:** 02/26/24
Offset: 6' Rt. **Easting:** 1812945.21 **Depth to Water:** 18.0
Elevation: 1151.0 **Requested Northing:** 445432.99 **Depth Hole Open:** 20.5
Requested Station: 55+20 **Requested Easting:** 1812956.17 **Time Change:** 0 hours
Requested Offset: 8' Rt. **Equipment:** CME 750 ,Split-Spoon Sampler
Requested Elevation: **Location Note:** On top of SR-137 near End Bent #1
Drill No.: 255648 **Hammer Efficiency:** 90.7% **Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.5' 6" ASPHALTIC CONCRETE							
		0.5-1.0' 6" CRUSHED ROCK	1150						
		1.0-8.5' (FILL) Brown, GRAVELLY CLAYEY SAND, fine- to coarse-grained, gravel is fine to coarse, clay is lean			39	6-7-8 (23)			
5					44	9-6-8 (21)			
			1145						
		6.0' *GRAIN SIZE ANALYSIS TEST PERFORMED*			56	3-4-3 (11)			
		8.5-12.0' (CH) Reddish brown, FAT CLAY, trace fine- to coarse-grained sand, trace fine to coarse gravel			61	3-3-6 (14)		PP = 2.75 tsf	MC = 44.8%
10		9.5' becomes gray							
			1140						
		12.0-14.0' (CL) Tan, SANDY LEAN CLAY, with fine to coarse gravel, sand is fine- to coarse-grained							
		14.0-20.5' (GW) Brown, WELL GRADED GRAVEL WITH SAND, fine to coarse, some silt, some clay, sand is fine- to coarse-grained			50	20-22-17 (59)			
15									
		16.0' Very hard to auger between approximately 14.5 feet to 15.5 feet. Between 15.5 feet to 18.5 feet, augering still hard and intermittently easy (possible gravels to boulders).	1135						
					33	3-17-20 (56)			
20		Refusal at 20.5 feet. Bottom of borehole at 20.5 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000083283
Coordinate Datum: NAD 1983 **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.

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-102
Page 1 of 1

Job No.: SE0027 (SCI No. 2023-0152.10) **County:** Texas **Route:** SR137
Design: A9393 **Skew:** 15 degrees Right **Location:** Texas County, Missouri
Bent: End Bent #1 **Logged By:** Brian Ratajczyk **Operator:** Midwest Drilling, Inc.
Station: 55+10 **Northing:** 445432.9159 **Date of Work:** 02/26/24
Offset: 4' Lt. **Easting:** 1812940.42 **Depth to Water:** 18.0
Elevation: 1150.0 **Requested Northing:** 445438.03 **Depth Hole Open:** 21.0
Requested Station: 55+15 **Requested Easting:** 1812942.18 **Time Change:** 0 hours
Requested Offset: 6' Lt. **Equipment:** CME 750 ,Split-Spoon Sampler
Requested Elevation: **Location Note:** On top of SR-137 near End Bent #1
Drill No.: 255648 **Hammer Efficiency:** 90.7% **Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.5' 6" ASPHALTIC CONCRETE	1150						
		0.5-8.5' (FILL) Brown, SANDY LEAN CLAY, some fine to coarse gravel, sand is fine- to coarse-grained			50	6-7-9 (24)		PP >4.50 tsf	MC = 8.9%
5			1145		56	7-4-4 (12)		PP >4.50 tsf	MC = 15.5%
					22	3-4-2 (9)		PP = 2.50 tsf	MC = 14.4%
		8.5-13.5' (GC) Reddish brown, CLAYEY SANDY GRAVEL, fine to coarse, sand is fine- to coarse-grained, clay is fat			33	4-4-3 (11)			
10		8.5' *GRAIN SIZE ANALYSIS TEST PERFORMED*	1140						
		13.5-18.5' (CH) Reddish brown, FAT CLAY, some fine- to coarse-grained sand trace fine to coarse gravel, becomes hard to auger - possible cobbles and gravel			28	12-14-18 (48)		PP = 2.50 tsf	MC = 10.8%
15			1135						
		18.5-21.0' (GW) Brown, WELL GRADED GRAVEL WITH SAND, with clay, sand is fine- to coarse-grained			28	10-10-12 (33)			
20		Refusal at 21.0 feet. Bottom of borehole at 21.0 feet.	1130						

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000083283
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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JASON A. DREYER
NUMBER PE-2013038971
STATE OF MISSOURI
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 30
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

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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BORING DATA

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

Detailed Jun. 2024
Checked Aug. 2024

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

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Missouri Department of Transportation Construction and Materials

BORING NO. B-201
Page 1 of 1

Job No.: SE0027 (SCI No. 2023-0152.10)	**County:** Texas	**Route:** SR137
Design: A9393	**Skew:** 15 degrees Right	**Location:** Texas County, Missouri
Bent: Interior Bent #2	**Logged By:** Brian Ratajczyk	**Operator:** Midwest Drilling, Inc.
Station: 55+57	**Northing:** 445452.9087	**Date of Work:** 02/28/24
Offset: 24' Rt.	**Easting:** 1812991.88	**Depth to Water:** 3.0
Elevation: 1134.0	**Requested Northing:** 445470.51	**Depth Hole Open:** 14.5
Requested Station: 55+67	**Requested Easting:** 1812985.01	**Time Change:** 0 hours
Requested Offset: 7.5' Rt.	**Equipment:** CME 750 ,NQ	
Requested Elevation:	**Location Note:** On creek bed near Interior Bent #2	
Drill No.: 255648	**Hammer Efficiency:** 90.7%	**Drilling Method:** Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-4.0' (GW) Brown, WELL GRADED GRAVEL WITH SAND, fine to coarse, with boulders and cobbles, sand is fine- to coarse-grained (materials are loose).							
		4.0-4.5' WEAK ROCK, likely dolomite	1130						
5		4.5-14.5' DOLOMITE: Gray, hard to very hard, aphanitic to very finely crystalline, thin to medium bedded, slightly weathered, slightly pitted to dense, with chert and trace iron pyrite or sulfur (yellowish particles) near upper portion. Average core time 4.2 min/ft.			96 (40)		Qu Test Results UCS = 412 ksf; γ_{moist} = 138.4 pcf		
10		9.0' Good water return, no drops observed, and 500 psi down pressure observed during coring.	1125		98 (98)		Qu Test Results UCS = 488 ksf; γ_{moist} = 170.8 pcf		
		Refusal at 4.0 feet. Bottom of borehole at 14.5 feet.	1120						

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

Coordinate System: U.S. State Plane 1983	**Coordinate Zone:** Missouri Central	**Coordinate Proj. Factor:** 1.000083283
Coordinate Datum: NAD 1983	**Coordinate Units:** U.S. Survey Feet	

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Missouri Department of Transportation Construction and Materials

BORING NO. B-202
Page 1 of 1

Job No.: SE0027 (SCI No. 2023-0152.10)	**County:** Texas	**Route:** SR137
Design: A9393	**Skew:** 15 degrees Right	**Location:** Texas County, Missouri
Bent: Interior Bent #2	**Logged By:** Brian Ratajczyk	**Operator:** Midwest Drilling, Inc.
Station: 55+60	**Northing:** 445478.7861	**Date of Work:** 02/28/24
Offset: 15' Lt.	**Easting:** 1812963.09	**Depth to Water:** 2.0
Elevation: 1133.0	**Requested Northing:** 445475.34	**Depth Hole Open:** 14.0
Requested Station: 55+64	**Requested Easting:** 1812973.62	**Time Change:** 0 hours
Requested Offset: 4.5' Lt.	**Equipment:** CME 750 ,NQ	
Requested Elevation:	**Location Note:** On creek bed near Interior Bent #2	
Drill No.: 255648	**Hammer Efficiency:** 90.7%	**Drilling Method:** Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-3.5' (GW) Brown, WELL GRADED GRAVEL WITH SAND, fine to coarse, with boulders and cobbles, sand is fine- to coarse-grained (materials are loose).	1130						
		3.5-4.0' WEAK ROCK, likely dolomite							
5		4.0-14.0' DOLOMITE: Gray, hard to very hard, aphanitic to very finely crystalline, thin to medium bedded, slightly weathered, dense, with chert and trace iron pyrite or sulfur (yellowish particles) near upper portion. Average core time 4.9 min/ft.	1125		98 (65)		Qu Test Results UCS = 772 ksf; γ_{moist} = 157.9 pcf		
10		9.0' Good water return, no drops observed, and 500 psi down pressure observed during coring.	1120		95 (88)				
		Refusal at 3.5 feet. Bottom of borehole at 14.0 feet.							

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

Coordinate System: U.S. State Plane 1983	**Coordinate Zone:** Missouri Central	**Coordinate Proj. Factor:** 1.000083283
Coordinate Datum: NAD 1983	**Coordinate Units:** U.S. Survey Feet	

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/16/2024
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 31
COUNTY	TEXAS
JOB NO.	JSE0027
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9393

DESCRIPTION | DATE

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

MoDOT

St. Louis | St. Charles | Collinsville | Belleville
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MISSOURI DESIGN FIRM PE-001166

OATES ASSOCIATES

BORING DATA

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

Detailed Jun. 2024
Checked Aug. 2024

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

H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_031_JSE0027_Boring Data.dgn 4:39:08 PM 10/16/2024

Missouri Department of Transportation
Construction and Materials

BORING NO. B-301
Page 1 of 1

Job No.: SE0027 (SCI No. 2023-0152.10)
County: Texas
Route: SR137
Design: A9393
Skew: 15 degrees Right
Location: Texas County, Missouri
Bent: Interior Bent #3
Logged By: Brian Ratajczyk
Operator: Midwest Drilling, Inc.
Station: 56+12
Northing: 445496.4457
Date of Work: 02/28/24
Offset: 26' Rt.
Easting: 1813026.73
Depth to Water: 1.0
Elevation: 1133.0
Requested Northing: 445519.97
Depth Hole Open: 14.5
Requested Station: 56+27
Requested Easting: 1813019.63
Time Change: 0 hours
Requested Offset: 7' Rt.
Equipment: CME 750 ,NQ
Requested Elevation:
Location Note: On creek bed near Interior Bent #3
Drill No.: 255648
Hammer Efficiency: 90.7%
Drilling Method: Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-4.0' (GW) (GW) Brown, WELL GRADED GRAVEL WITH SAND, fine to coarse, with boulders and cobbles, sand is fine- to coarse-grained (materials are loose).	1130						
5		4.0-4.5' WEAK ROCK, likely dolomite 4.5-14.5' DOLOMITE: Gray, hard to very hard, micritic to very finely crystalline, thin to medium bedding, slightly weathered, pitted to dense, with chert, trace iron pyrite or sulfur (yellowish particles) near upper portion. Average core time 3.3 min/ft.	1125		94 (66)		Qu Test Results UCS = 680 ksf γ_{moist} = 163.2 pcf		
10		9.0' medium to thick bedding 9.0' Good water return, no drops observed, and 500 psi down pressure observed during coring.	1120		92 (76)		Qu Test Results UCS = 814 ksf γ_{moist} = 166.5 pcf		
		Refusal at 4.0 feet. Bottom of borehole at 14.5 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000083283
Coordinate Datum: NAD 1983 **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.

Missouri Department of Transportation
Construction and Materials

BORING NO. B-302
Page 1 of 1

Job No.: SE0027 (SCI No. 2023-0152.10)
County: Texas
Route: SR137
Design: A9393
Skew: 15 degrees Right
Location: Texas County, Missouri
Bent: Interior Bent #3
Logged By: Brian Ratajczyk
Operator: Midwest Drilling, Inc.
Station: 56+10
Northing: 445519.2169
Date of Work: 02/29/24
Offset: 16' Lt.
Easting: 1812990.85
Depth to Water: 2.0
Elevation: 1134.0
Requested Northing: 445524.20
Depth Hole Open: 14.0
Requested Station: 56+24
Requested Easting: 1813008.00
Time Change: 0 hours
Requested Offset: 5' Lt.
Equipment: CME 750 ,NQ
Requested Elevation:
Location Note: On creek bed near Interior Bent #3
Drill No.: 255648
Hammer Efficiency: 90.7%
Drilling Method: Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-4.0' (GW) Brown, WELL GRADED GRAVEL WITH SAND, fine to coarse, with boulders and cobbles, sand is fine- to coarse-grained	1130						
5		4.0-14.0' DOLOMITE: Gray, hard to very hard, micritic to very finely crystalline, thin to medium bedding, slightly weathered, dense, with chert, trace iron pyrite or sulfur (yellowish particles) near upper portion. Average core time 5.5 min/ft.	1125		100 (69)		Qu Test Results UCS = 1130 ksf γ_{moist} = 167.3 pcf		
10		9.0' Good water return, no drops observed, and 500 psi down pressure observed during coring.	1120		100 (93)		Qu Test Results UCS = 728 ksf γ_{moist} = 148.4 pcf		
		Refusal at 4.0 feet. Bottom of borehole at 14.0 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000083283
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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LETTER BOREHOLE - MODOT 20150728.GDT - 6/18/24 07:53 - N:\LABORATORY\ACTIVE GINT PROJECTS\2023-0152.10 SR137 OVER PINE CREEK.GPJ

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 32
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393
DESCRIPTION
DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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St. Charles 820 South Main, Suite 309 St. Charles, MO 63301 636.493.0277
Collinsville 101 Lenert Court, Suite 1 Collinsville, IL 62234 618.345.4200
Belleville 1 South Church, Suite 200 Belleville, IL 62220 618.416.5466
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BORING DATA

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

Detailed Jun. 2024
Checked Aug. 2024

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

Missouri Department of Transportation
Construction and Materials

BORING NO. B-401
Page 1 of 1

Job No.: SE0027 (SCI No. 2023-0152.10)
County: Texas
Route: SR137
Design: A9393
Skew: 15 degrees Right
Location: Texas County, Missouri
Bent: End Bent #4
Logged By: Brian Ratajczyk
Operator: Midwest Drilling, Inc.
Station: 56+79
Northing: 445564.3502
Date of Work: 02/26/24
Offset: 5' Rt.
Easting: 1813046.1
Depth to Water: None
Elevation: 1155.0
Requested Northing: 445560.26
Depth Hole Open: 12.0
Requested Station: 56+74
Requested Easting: 1813044.38
Time Change: 0 hours
Requested Offset: 6' Rt.
Equipment: CME 750 ,Split-Spoon Sampler
Requested Elevation:
Location Note: On top of SR-137 near End Bent #4
Drill No.: 255648
Hammer Efficiency: 90.7%
Drilling Method: Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.3' 4" ASPHALTIC CONCRETE	1155						
		0.3-5.5' (FILL) Reddish brown, FAT CLAY, some fine- to coarse-grained sand, trace fine to coarse gravel			44	6-5-4 (14)		PP = 2.00 tsf	MC = 18.8%
5			1150		39	3-2-4 (9)		PP = 1.00 tsf	MC = 18.5%
		5.5-8.0' (FILL): Reddish-brown, GRAVELLY CLAYEY SAND, fine- to coarse-grained, gravel is fine to coarse, clay is fat			33	2-1-2 (5)			
		6.0' *GRAIN SIZE ANALYSIS TEST PERFORMED*							
		7.0' Insufficient cohesive sample for meaningful strength testing							
10		8.0-12.0' (CL) Reddish brown, LEAN CLAY, some fine- to coarse-grained sand, some fine to coarse gravel	1145		44	2-2-2 (6)		PP = 1.50 tsf	LL = 41 PL = 15 MC = 17.8%
		Refusal at 12.0 feet. Bottom of borehole at 12.0 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000083283
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-402
Page 1 of 1

Job No.: SE0027 (SCI No. 2023-0152.10)
County: Texas
Route: SR137
Design: A9393
Skew: 15 degrees Right
Location: Texas County, Missouri
Bent: End Bent #4
Logged By: Brian Ratajczyk
Operator: Midwest Drilling, Inc.
Station: 56+75
Northing: 445566.6893
Date of Work: 02/26/24
Offset: 5' Lt.
Easting: 1813035.77
Depth to Water: None
Elevation: 1154.0
Requested Northing: 445564.85
Depth Hole Open: 14.0
Requested Station: 56+72
Requested Easting: 1813033.11
Time Change: 0 hours
Requested Offset: 6' Lt.
Equipment: CME 750 ,Split-Spoon Sampler, Shelby Tube
Requested Elevation:
Location Note: On top of SR-137 near End Bent #4
Drill No.: 255648
Hammer Efficiency: 90.7%
Drilling Method: Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.3' 6" ASPHALTIC CONCRETE							
		0.3-5.5' (FILL) Reddish brown, GRAVELLY SANDY FAT CLAY, sand is fine- to coarse-grained, gravel is fine to coarse			44	3-4-6 (15)		PP = 4.25 tsf	MC = 13.7%
		3.5' *GRAIN SIZE ANALYSIS TEST PERFORMED*	1150		50	2-1-1 (3)		PP = 0.25 tsf	MC = 23.7%
5		5.5-14.0' (CH) Reddish brown, GRAVELLY SANDY FAT CLAY, sand is fine- to coarse-grained, gravel is fine to coarse			46				
		8.5' *GRAIN SIZE ANALYSIS TEST PERFORMED*	1145		39	1-1-1 (3)		PP <0.25 tsf	MC = 18.0%
10									
			1140		100	50/0.3'			
		Refusal at 14.0 feet. Bottom of borehole at 14.0 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000083283
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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JASON A. DREYER
NUMBER PE-2013038971
STATE OF MISSOURI
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 33
COUNTY TEXAS
JOB NO. JSE0027
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9393

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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314.588.8381

St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.5277

www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

OATES ASSOCIATES

BORING DATA

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

Detailed Jun. 2024
Checked Aug. 2024

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

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130 Point West Boulevard
St. Charles, Missouri 63301
636-949-8200
www.sciengineering.com

BORING LOG LEGEND AND NOMENCLATURE

Depth is in feet below ground surface. **Elevation** is in feet mean sea level, site datum, or as otherwise noted.

Sample Type

- **SS** Split-spoon sample, disturbed, obtained by driving a 2-inch-O.D. split-spoon sampler (ASTM D 1586).
- **NX** Diamond core bit, nominal 2-inch-diameter rock sample (ASTM D 2113).
- **ST** Thin-walled (Shelby) tube sample, relatively undisturbed, obtained by pushing a 3-inch-diameter, tube (ASTM D 1587).
- **CS** Continuous sample tube system, relatively undisturbed, obtained by split-barrel sampler in conjunction with auger advancement.
- **SV** Shear vane, field test to determine strength of cohesive soil by pushing or driving a 2-inch-diameter vane, and then shearing by torquing soil in existing and remolded states (ASTM D 2573).
- **BS** Bag sample, disturbed, obtained from cuttings.

Recovery is expressed as a ratio of the length recovered to the total length pushed, driven, cored.

Blows Numbers indicate blows per 6 inches of split-spoon sampler penetration when driven with a 140-pound hammer falling freely 30 inches. The number of total blows obtained for the second and third 6-inch increments is the N value (Standard Penetration Test or SPT) in blows per foot (ASTM D 1586). Practical refusal is considered to be 50 or more blows without achieving 6 inches of penetration and is expressed as a ratio of 50 to actual penetration, e.g., 50/2 (50 blows for 2 inches).

For analysis, the N value is used when obtained by a cathead and rope system. When obtained by an automatic hammer, the N value may be increased by a factor of 1.3.

Vane Shear Strength is expressed as the peak strength (existing state) / the residual strength (remolded state).

Description indicates soil constituents and other classification characteristics (ASTM D 2488) and the Unified Soil Classification (ASTM D 2487). Secondary soil constituents (expressed as a percentage) are described as follows:

Trace	<5
Few	5-15
With	>15-30

Stratigraphic Breaks may be observed or interpreted and are indicated by a dashed line. Transition between described materials may be gradual.

Laboratory Test Results

- Natural moisture content (ASTM D 2216) in percent.
- Dry density in pounds per cubic foot (pcf).
- Hand penetrometer value of apparently intact cohesive sample in kips per square foot (ksf).
- Unconfined compressive strength (ASTM D 2166) in kips per square foot (ksf).
- Liquid and Plastic Limits (ASTM D 4318) in percent.

RQD (Rock Quality Designation) is the ratio between the total length of core segments 4 inches or more in length and the total length of core drilled. RQD (expressed as a percentage) indicates insitu rock quality as follows:

Excellent	90 to 100
Good	75 to 90
Fair	50 to 75
Poor	25 to 50
Very Poor	0 to 25

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St. Charles, Missouri 63301
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www.sciengineering.com

ROCK CORE DESCRIPTIONS

Descriptions of rock core are defined as follows:

Hardness

Very Soft	Easily indented with the thumb.
Soft	Able to be scratched with a fingernail.
Moderately Hard	Easily scratched with a knife.
Hard	Difficult to scratch with a knife.
Very Hard	Cannot be scratched with a knife.

Crystallinity

Aphanitic (Micritic)	Crystals cannot be distinguished with the naked eye.
Very Finely Crystalline	Crystals are barely discernible with the naked eye.
Finely Crystalline	Crystals are easily discernible with the naked eye.
Medium Crystalline	Crystals are medium size; up to 1/8 inch in diameter.
Coarsely Crystalline	Crystals are 1/8 inch to ¼ inch in diameter.
Very Coarsely Crystalline	Crystals are larger than ¼ inch in diameter.

Mass Bedding

Parting	Thinner than 0.02 feet (< 0.60 cm).
Band	0.02 to 0.2 feet (0.60 to 6.1 cm).
Thin Bed	0.2 to 0.5 feet (6.1 to 15.2 cm).
Medium Bed	0.5 to 1.0 feet (15.2 to 30.5 cm).
Thick Bed	1.0 to 2.0 feet (30.2 to 61.0 cm).
Massive	Thicker than 2.0 feet (> 61.0 cm).

Weathering

Fresh	No visible signs of decomposition or discoloration.
Slightly Weathered	Slight discoloration inward from open fractures.
Moderately Weathered	Discoloration throughout, some loss of strength, texture intact.
Highly Weathered	Specimens easily broken by hand, texture indistinct.

Voids

Dense	Usually not discernible with the naked eye.
Pit (Pitted)	Discernible to ¼ inch.
Vug (Vuggy)	¼ inch to diameter of the core.
Cavity	Larger than 6 inches in diameter.

Geologic Definitions

Argillaceous A term applied to all rocks or substances composed of clay minerals or having a notable portion (> 30 percent) clay in composition.

Fissility A property of splitting along closely spaced parallel planes.

Calcareous A term applied to rocks containing calcium carbonate.

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	34

COUNTY: TEXAS
JOB NO.: JSE0027
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9393

DESCRIPTION | DATE

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

OATES ASSOCIATES
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St. Charles: 820 South Main, Suite 309, St. Charles, MO 63301, 636.493.0277
Collinsville: 108 Lanter Court, Suite 1, Collinsville, IL 62234, 618.345.2200
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.5466
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

BORING DATA

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

Detailed Jun. 2024
Checked Aug. 2024

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

H:\P\223017 - Texas County Bridge Package\001-SE0027-S0528\Bridge\Final Bridge\Microstation\B_A9393_034_JSE0027_Boring Data.dgn 4:40:32 PM 10/16/2024

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

FINAL PLANS FOR PROPOSED

STATE HIGHWAY 137

TEXAS COUNTY

DESIGN DESIGNATION

A.A.D.T. - 2025 = 204
A.A.D.T. - 2045 = 225
D.H.V. = 9.51%
T = 22.40%
V = 55 M.P.H.
D = 50%

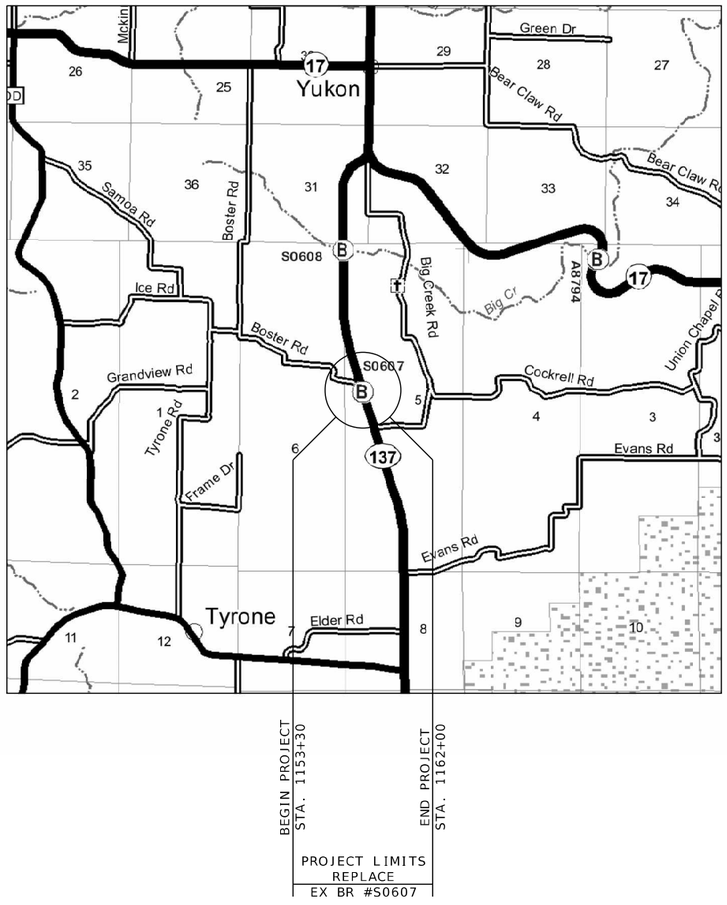
FUNCTIONAL CLASSIFICATION- RURAL MAJOR COLLECTOR

NO NEW R/W WILL BE ACQUIRED FOR THIS PROJECT

KEY MAP
SHOWING LOCATION OF COUNTY

NOT TO SCALE

SEC 5 T29N R8W



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	SAN	
FIRE HYDRANT	HYD	
WATER VALVE	WV	
WATER METER	WM	
DROP INLET	D	
DITCH BLOCK		
GROUND MOUNTED SIGN	SIGN	
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL	PED	
FENCE		
CHAIN LINK	-V-	
WOVEN WIRE	-X-	
GATE POST		
BENCHMARK	BM	

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

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.

INDEX OF SHEETS

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 1153+30
END OF PROJECT	STA. 1162+00
APPARENT LENGTH	870 FEET
EQUATIONS AND EXCEPTIONS:	
STATION EQUATION	STA. 1159+00 BK = STA. 1160+00 AH
TOTAL CORRECTIONS	100 FEET
NET LENGTH OF PROJECT	770 FEET
STATE LENGTH	0.146 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0.72 ACRES

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED: 10/18/2024

ROUTE	STATE
137	MO

DISTRICT	SHEET NO.
SE	1

COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

DESCRIPTION | DATE

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

OATES ASSOCIATES

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St. Charles
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618.345.2200

Belleville
1 South Church, Suite 200
Belleville, IL 62220
618.416.4688

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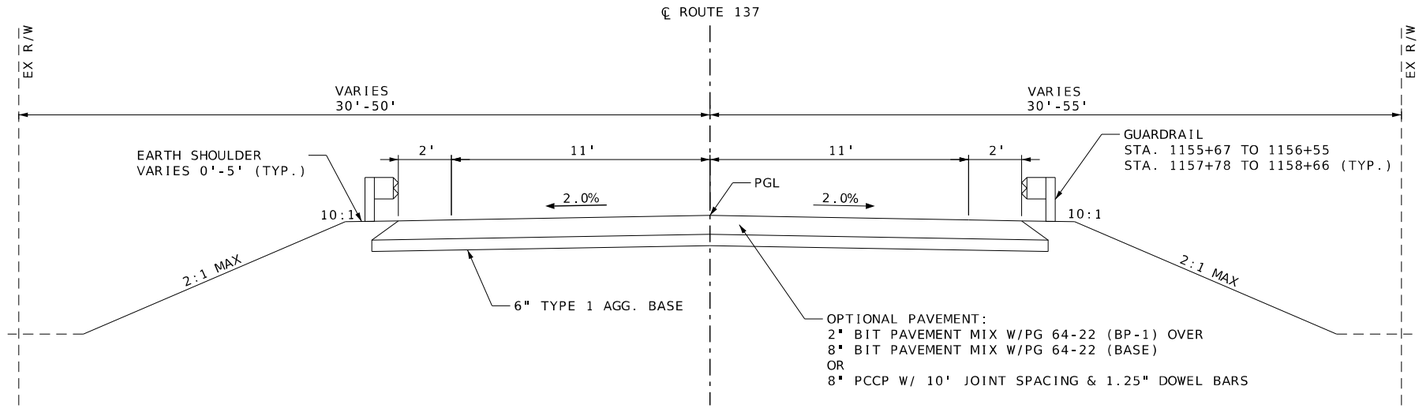
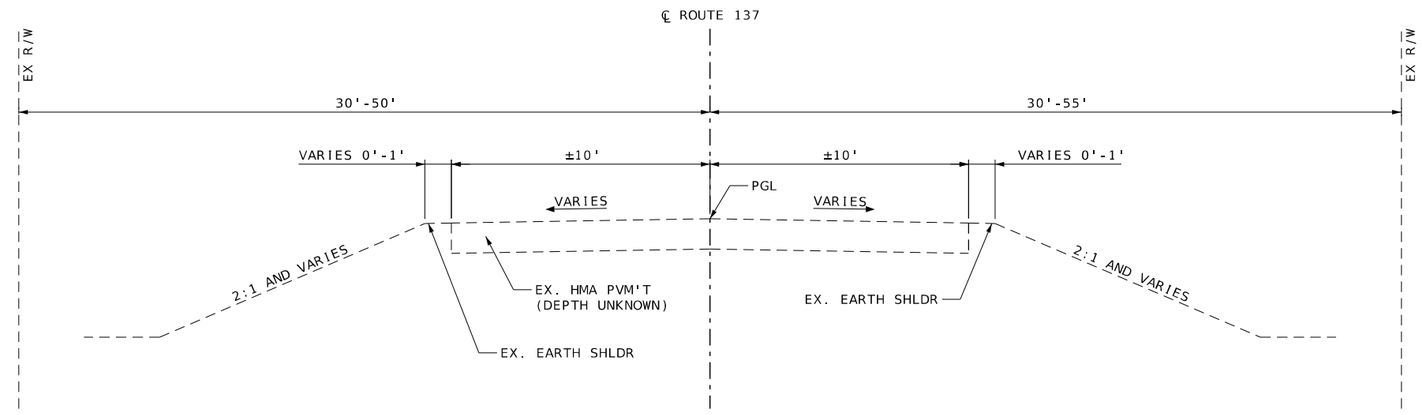
MISSOURI DESIGN FIRM PE-001166

H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\CADD\Microstation\CADD Drawings\001_TL_JSE0028_l1.dgn 1:56:16 PM 10/18/2024



SECTION ON TANGENT

PROPOSED ROUTE 137
STA. 1153+30 TO STA. 1162+00
(BRIDGE OMISSION STA. 1156+59.75 TO STA. 1157+73.25)



SECTION ON TANGENT

EXISTING ROUTE 137
STA. 1153+30 TO STA. 1162+00
(BRIDGE OMISSION STA. ±1156+65 TO STA. ±1157+68)

TYPICAL SECTION SHEET
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	2

COUNTY
TEXAS

JOB NO.
JSE0028

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9394

DESCRIPTION	DATE

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

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

OATES ASSOCIATES

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St. Charles
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St. Charles, MO 63301
636.493.6277

www.oatesassociates.com

MISSOURI DESIGN FIRM PE-001166

H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\CADD\Microstation\CADD Drawings\002_TS_JSE0028_I1.dgn 1:59:25 PM 10/18/2024

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	OFFSET	LENGTH (L.F)	AREA (S.Y)	EACH (EACH)	REMARKS
4	1153+30		LT/RT	20			SAWCUT
4	1153+30	1156+65	LT/RT		708		ASPHALT PAVEMENT
4	1154+64		RT			1	SIGN (YIELD)
4	1156+25		LT/RT			2	SIGNS (OBJECT MARKER)
4	1156+44		LT/RT			2	SIGNS (OBJECT MARKER)
4	1156+65		LT/RT			2	SIGNS (OBJECT MARKER)
4	1157+69		LT/RT			2	SIGNS (OBJECT MARKER)
4	1157+89		LT			1	SIGN (OBJECT MARKER)
4	1157+90		RT			1	SIGN (OBJECT MARKER)
4	1157+68	1162+00	LT/RT		700		ASPHALT PAVEMENT
4	1158+10		LT/RT			2	SIGNS (OBJECT MARKER)
4	1160+77		LT			1	SIGN (YIELD)
4	1162+00		LT/RT	21			SAWCUT
			SUBTOTAL	41	1408	14	
			PAY TOTAL	**1 LUMP SUM**			

EARTHWORK

SHEET	STATION	STATION	ESTIMATED CUT (C.Y.)	ESTIMATED FILL (C.Y.)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) (NOTE 1) (C.Y.)	MODIFIED LINEAR GRADING CLASS 2 (STA)	REMARKS
XS 1 - XS 3	1153+30	1156+40	217	229	-12	3.3	SOUTH SIDE OF BR #A9394
XS 3 - XS 5	1157+93	1162+00	148	341	-193	3.3	NORTH SIDE OF BR #A9394
		SUBTOTAL	365	570	-205	6.6	
		PAY TOTAL	**0**	**0**	**0**	**6.6**	

EARTHWORK NOTES:
1. CUT AND FILL VOLUMES PROVIDED FOR INFORMATION ONLY. INCLUDED IN COST OF MODIFIED LINEAR GRADING CLASS 2.
2. EXISTING PAVEMENT THICKESS IS UNKNOWN. A THICKNESS OF 8" WAS ASSUMED ON THE CROSS-SECTIONS FOR EARTHWORK CALCULATION PURPOSES.
3. MODIFIED LINEAR GRADING CLASS 2 CALCULATED THROUGH LIMITS OF BRIDGE APPROACH SLABS.

PAVEMENT AND BASE

SHEET	STATION	STATION	OFFSET	TYPE 1 AGGREGATE FOR BASE (6 IN. THICK) (S.Y.)	OPTIONAL PAVEMENT (S.Y.)	REMARKS
4	1153+30	1156+40	LT/RT	916.5	847.6	
4	1157+93	1162+00	LT/RT	924.5	856.3	
			SUBTOTAL	1841.0	1703.9	
			PAY TOTAL	**1841**	**1704**	

PAVEMENT NOTES:
1. SEE TYPICAL SECTIONS FOR OPTIONAL PAVEMENT DESIGN.

ROCK BLANKET

SHEET	STATION	STATION	OFFSET	FURNISHING TYPE 2 ROCK BLANKET (C.Y.)	PLACING TYPE 2 ROCK BLANKET (C.Y.)	ROCK BLANKET EXCAVATION (NOTES 2 & 3) (C.Y.)	PERMANENT EROSION CONTROL GEOTEXTILE (S.Y.)	REMARKS
9	1156+54	1156+79	LT/RT	107.1	107.1	107.1	160.7	SOUTH BRIDGE CONE
9	1157+53	1157+79	LT/RT	107.3	107.3	107.3	160.9	NORTH BRIDGE CONE
			SUBTOTAL	214.4	214.4	214.4	321.6	
			PAY TOTAL	**214**	**214**	**0**	**322**	

ROCK BLANKET NOTES:
1. ROCK QUANTITY MAY BE OBTAINED FROM REMOVED BRIDGE DECK IF BROKEN OR CRUSHED TO MEET SPECIFICATION WITH NO EXPOSED REBAR OR ASPHALT MATERIAL.
2. THE EXCAVATION QUANTITY SHOWN IS FOR INFORMATION ONLY. THE COST TO EXCAVATE THE SOIL FOR THE PLACEMENT OF THE ROCK BLANKET IS INCLUDED IN THE COST FOR PLACING TYPE 2 ROCK BLANKET.
3. THE EXCAVATION QUANTITY FOR ROCK BLANKET IS NOT INCLUDED IN THE EARTHWORK QUANTITIES. THE SUITABILITY OF THE MATERIAL FOR USE AS FILL MUST BE APPROVED BY THE ENGINEER.

CLEARING AND GRUBBING

PAY TOTAL = 1 ACRE

MOBILIZATION

PAY TOTAL = 1 LUMP SUM

CONTRACTOR FURNISHED SURVEYING AND STAKING

PAY TOTAL = 1 LUMP SUM

SUMMARY OF QUANTITIES
SHEET 1 OF 3

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/18/2024
ROUTE 137 | STATE MO
DISTRICT SE | SHEET NO. 3
COUNTY TEXAS
JOB NO. JSE0028
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9394

DESCRIPTION | DATE

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

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

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MISSOURI DESIGN FIRM PE-001166

PERMANENT PAVEMENT MARKING - PAINT

SHEET	STATION	STATION	OFFSET	4 IN. WHITE STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS (L.F.)	4 IN. YELLOW STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS (L.F.)	REMARKS
N/A	1153+30	1162+00	LT/RT	1540		SOLID EDGE LINES
N/A	1153+30	1162+00	CL		1540	DOUBLE SOLID CENTERLINE
			SUBTOTAL	1540	1540	
			PAY TOTAL	**1540**	**1540**	

GUARDRAIL

SHEET	STATION	STATION	OFFSET	MGS BRIDGE APPROACH TRANSITION SECTION (REGULAR/NO CURB) (EACH)	TYPE A CRASHWORTHY END TERMINAL (MASH) (EACH)	REMARKS
4	1155+67	1156+55	RT	1	1	SE CORNER BR #A9394
4	1155+67	1156+55	LT	1	1	SW CORNER BR #A9394
4	1157+78	1158+66	RT	1	1	NE CORNER BR #A9394
4	1157+78	1158+66	LT	1	1	NW CORNER BR #A9394
			SUBTOTAL	4	4	
			PAY TOTAL	**4**	**4**	

EROSION CONTROL

SHEET	STATION	STATION	OFFSET	SEDIMENT REMOVAL (C.Y)	SILT FENCE (L.F.)	TYPE C BERM (L.F.)	TYPE 2D EROSION CONTROL BLANKET (S.Y.)	REMARKS
9	1153+30	1156+55	RT	3.3	328		257	
9	1153+30	1156+55	LT	3.3	328		308	
9	1156+54	1156+80	LT/RT			123		SOUTH BRIDGE SLOPE
9	1157+51	1157+81	LT/RT			129		NORTH BRIDGE SLOPE
9	1157+79	1162+00	RT	3.2	324		291	
9	1157+79	1162+00	LT	3.2	324		250	
			SUBTOTAL	13.0	1304	252	1106	
			PAY TOTAL	**13**	**1304**	**252**	**1106**	

EROSION CONTROL NOTES:

1. SEDIMENT REMOVAL QUANTITY ASSUMES 1 CY PER 100 LF OF SILT FENCE.

SEEDING AND MULCHING

SHEET	STATION	STATION	OFFSET	MULCHING (ACRE)	SEEDING-COOL SEASON GRASSES (ACRE)	TEMPORARY SEEDING (ACRE)	REMARKS
9	1153+30	1156+55	RT	0.2	0.1	0.1	
9	1153+30	1156+55	LT	0.2	0.1	0.1	
9	1157+79	1162+00	RT	0.2	0.1	0.1	
9	1157+79	1162+00	LT	0.2	0.1	0.1	
			SUBTOTAL	0.8	0.4	0.4	
			PAY TOTAL	**0.8**	**0.4**	**0.4**	

POROUS BACKFILL

SHEET	STATION	STATION	OFFSET	POROUS BACKFILL (C.Y)	REMARKS
N/A	1156+54	1156+59	LT/RT	19.3	ASSUMED 5'x4'x26'
N/A	1157+74	1157+79	LT/RT	19.3	ASSUMED 5'x4'x26'
			SUBTOTAL	38.6	
			PAY TOTAL	**39**	

STEEL POST- FURNISH AND INSTALL

SHEET	STATION	STATION	OFFSET	6 IN. STEEL POST (EACH)	REMARKS
N/A	1156+54		LT/RT	2	LOCATION IS APPROXIMATE
N/A	1157+79		LT/RT	2	LOCATION IS APPROXIMATE
			SUBTOTAL	4	
			PAY TOTAL	**4**	

STEEL POST - FURNISH AND INSTALL NOTES:

1. SEE JSP'S

SUMMARY OF QUANTITIES
SHEET 2 OF 3

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
12/4/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	3

COUNTY
TEXAS

JOB NO.
JSE0028

CONTRACT ID.

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MISSOURI DESIGN FIRM PE-001166

EFFECTIVE: 04-01-2023

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT ARROW)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT ARROW)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT ARROW)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT ARROW)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT ARROW)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT ARROW)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT ARROW)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT ARROW)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (ARROW SYMBOL)
WO4-1aR	48X48	16.00						MERGE (ARROW SYMBOL)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING (WITH FLAGS)
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL/LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17	48X48	16.00						SHOULDER DROP-OFF (SYMBOL)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2X	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
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						DETOUR AHEAD
WO20-3	48X48	16.00	15	240.00			20	ROAD CLOSED AHEAD (AHEAD-13, 500 FT-2)
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL, WITH FLAGS)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	2	6.00			52	END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT ARROW)
MO4-9R	48X36	12.00						DETOUR (RIGHT ARROW)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR (ARROW LEFT)
MO4-10R	48X18	6.00						DETOUR (ARROW RIGHT)
REGULATORY SIGNS								
R1-1	48X48	16.00						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20.00			29	ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-7	48X24	8.00						RATE OUR WORK ZONE
CONST-7	72X36	18.00						RATE OUR WORK ZONE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	96X48	32.00	2	64.00			56	MO 137 CLOSED 0.5 MILES AHEAD
SPECIAL	96X48	32.00	2	64.00			56A	MO 137 CLOSED 1.5 MILES AHEAD
M1-5	24X12	2.00	28	56.00			17, 20	MO 137 SHIELD
M5-1	21X15	2.20	1	2.20			17	ADVANCE STRAIGHT ARROW
MO4-8	24X12	2.00	17	34.00			17	DETOUR
M5-1L	21X15	2.20	10	22.00			17B, 20C	ADVANCE TURN ARROW (90° LEFT)
M5-1R	21X15	2.20	9	19.80			17A, 20B	ADVANCE TURN ARROW (90° RIGHT)
M6-1L	21X15	2.20	4	8.80			17D	LEFT TURN ARROW
M6-1R	21X15	2.20	4	8.80			17C	RIGHT TURN ARROW
6161005 CONSTRUCTION SIGNS				TOTAL 545.6				
6161010 RELOCATED SIGNS						TOTAL **		

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161008	4	ADVANCED WARNING RAIL SYSTEM
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161025	10	CHANNELIZER (TRIM LINE)
6161030	6	TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
6191000		PAVEMENT EDGE TREATMENT
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

** NO DIRECT PAY FOR RELOCATING TEMPORARY TRAFFIC CONTROL DEVICES

SUMMARY OF QUANTITIES
SHEET 3 OF 3

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED: 10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	3

COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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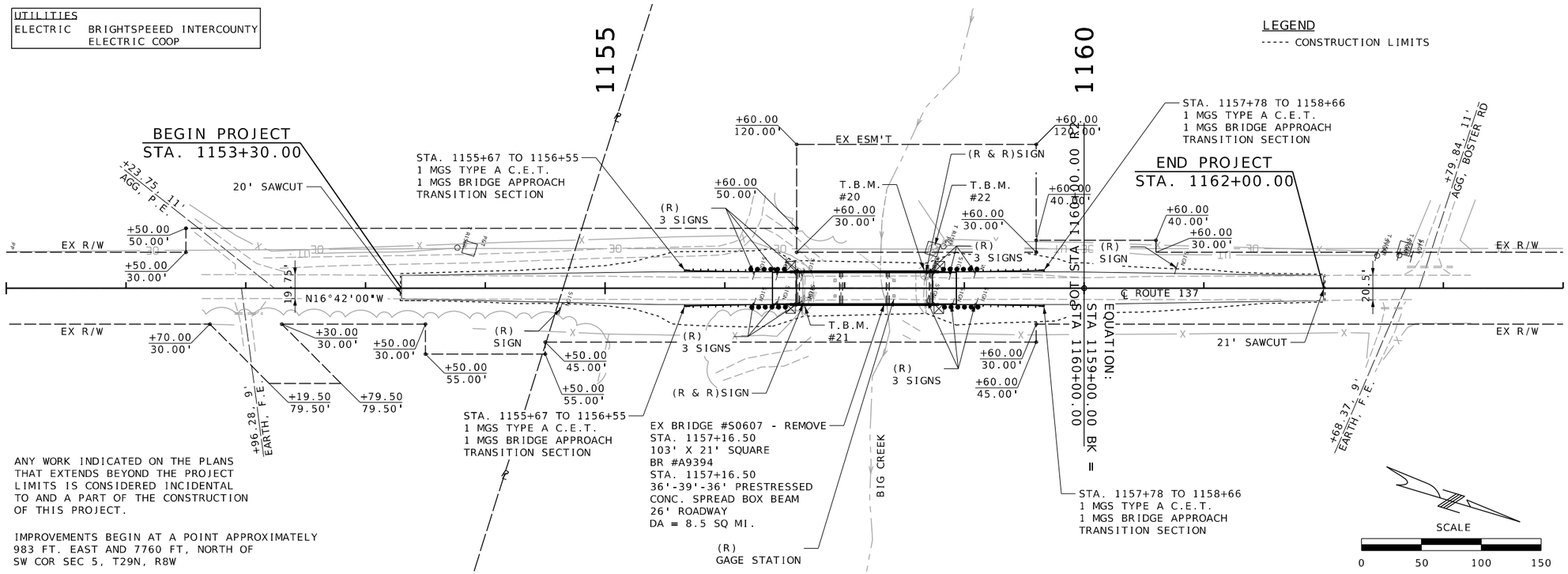
MISSOURI DESIGN FIRM PE-001166

UTILITIES
ELECTRIC BRIGHTSPEEED INTERCOUNTY ELECTRIC COOP



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.

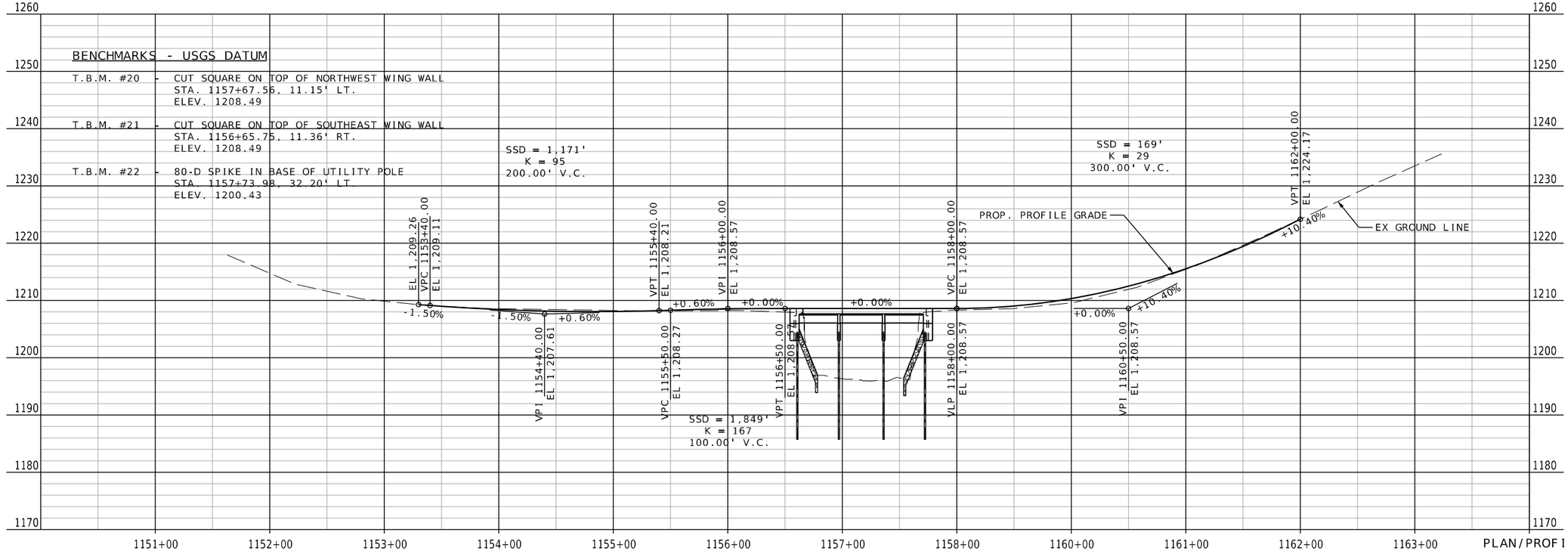
IMPROVEMENTS BEGIN AT A POINT APPROXIMATELY 983 FT. EAST AND 7760 FT, NORTH OF SW COR SEC 5, T29N, R8W

BENCHMARKS - USGS DATUM

T.B.M. #20 - CUT SQUARE ON TOP OF NORTHWEST WING WALL
STA. 1157+67.56, 11.15' LT.
ELEV. 1208.49

T.B.M. #21 - CUT SQUARE ON TOP OF SOUTHEAST WING WALL
STA. 1156+65.75, 11.36' RT.
ELEV. 1208.49

T.B.M. #22 - 80-D SPIKE IN BASE OF UTILITY POLE
STA. 1157+73.98, 32.20' LT.
ELEV. 1200.43



PLAN/PROFILE SHEET
SHEET 1 OF 1

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STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

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DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	4

COUNTY
TEXAS

JOB NO.
JSE0028

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9394

REV.	DESCRIPTION	DATE

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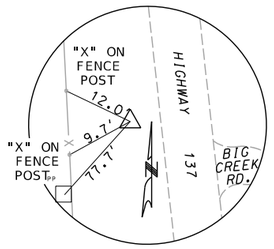
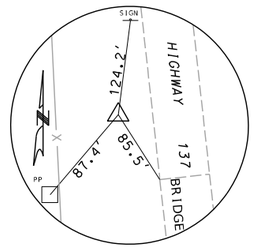
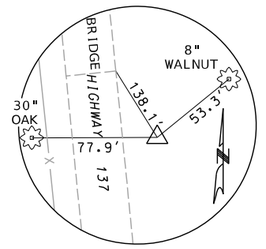


CONTROL POINT NO.20
SET IRON ROD W/CAP
STA 1143+98.5
OFFSET 24.2'RT
N: 508924.883
E: 1830130.684
ELEV: 1266.99



CONTROL POINT NO.21
SET IRON ROD W/CAP
STA 1158+53.3
OFFSET 13.0'RT
N: 510321.321
E: 1829723.456
ELEV: 1207.68



CONTROL POINT NO.22
SET IRON ROD W/CAP
STA 155+27.2
OFFSET 13.4'LT
N: 510016.937
E: 1829842.836
ELEV: 1207.31

HORIZONTAL AND VERTICAL CONTROL STATEMENT

COORDINATE BASE IS MODIFIED STATE PLANE CENTRAL ZONE.
MODIFIED ABOUT THE ORIGIN OF N=0, E=0.
RECIP. FACTOR OF 1.0000788254 TO BRING GRID UP TO GROUND VALUES

BEARING SYSTEM IS NAD 83 EXTABLISHED WITH GPS UTILIZING
THE MODOT GNSS NETWORK

VERTICAL DATUM IS NAVD 88 AS BROADCAST WITH THE MODOT GNSS NETWORK

COORDINATE POINTS				
NAME	LOC	STA	NORTHING	EASTING
EXCL	POB	1131+20.00	507,707.272	1,830,521.229
EXCL	PI	1160+00.00	510,370.019	1,829,722.367
EXCL	POE	1177+76.70	512,071.782	1,829,211.814

COORDINATE POINTS SHEET
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
TEXAS

JOB NO.
JSE0028

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9394

DESCRIPTION	DATE

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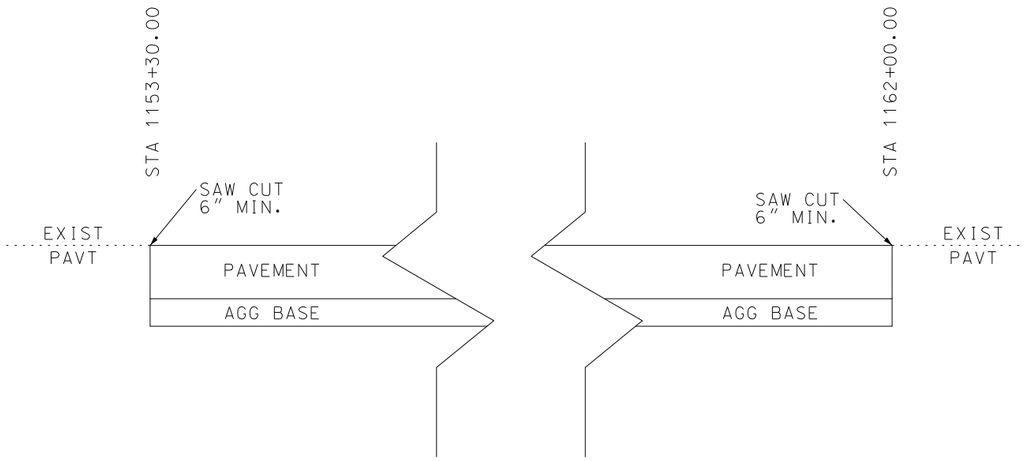
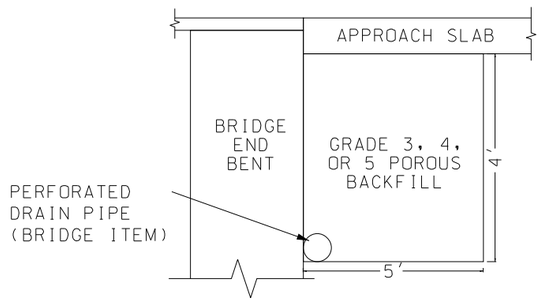


SAW CUT



POROUS BACKFILL

SPECIAL SHEETS
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	6

COUNTY
TEXAS

JOB NO.
JSE0028

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9394

DESCRIPTION	DATE

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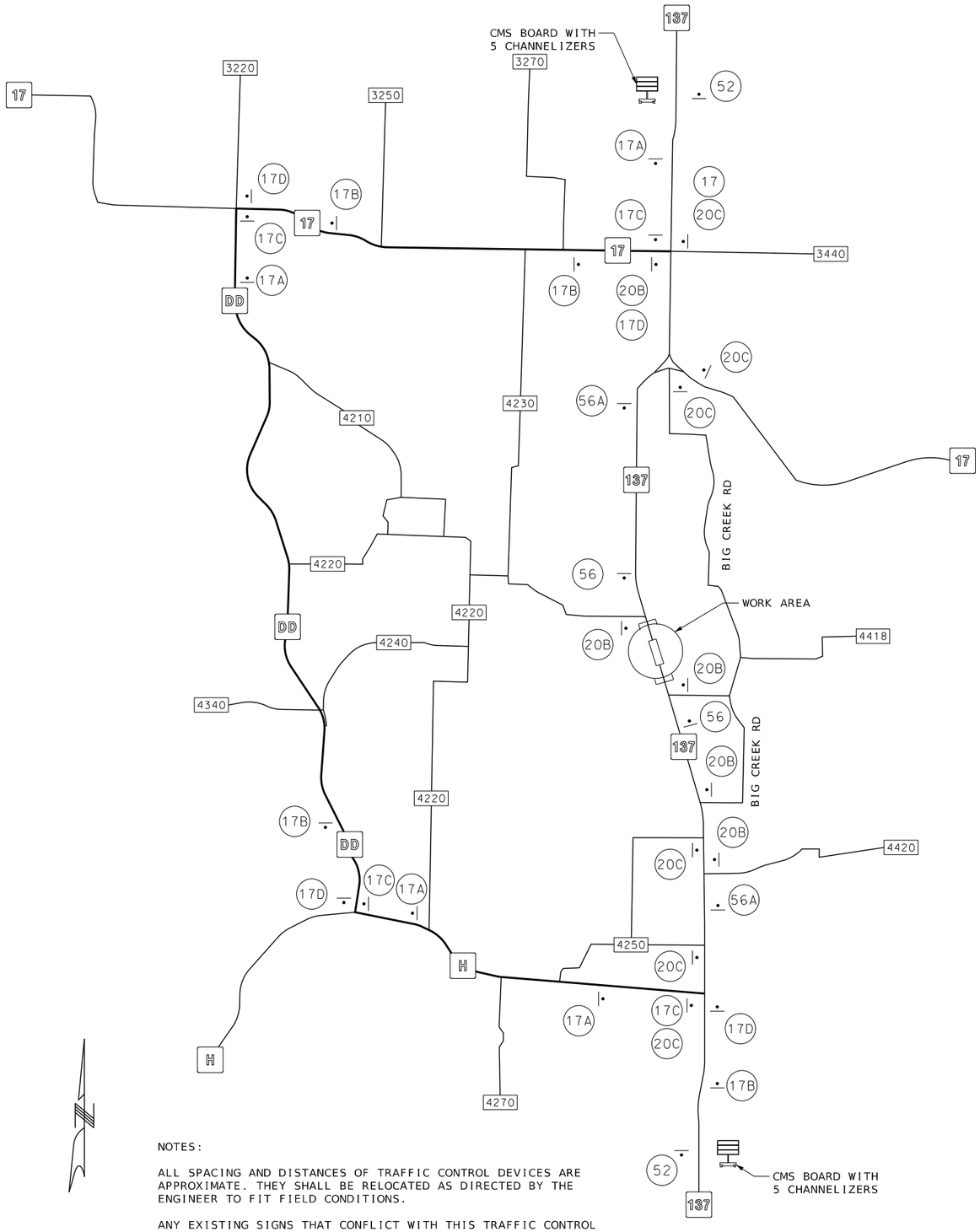
MISSOURI DESIGN FIRM PE-001166

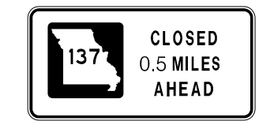


NOTES:

ALL SPACING AND DISTANCES OF TRAFFIC CONTROL DEVICES ARE APPROXIMATE. THEY SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

ANY EXISTING SIGNS THAT CONFLICT WITH THIS TRAFFIC CONTROL PLAN SHALL BE COVERED OR REMOVED.

DRAWING NOT TO SCALE



SPECIAL

56

SPECIAL

56A

M04-8
M1-5
M5-1R

17A

M04-8
M1-5
M5-1L

17B

M04-8
M1-5
M6-1R

17C

M04-8
M1-5
M6-1L

17D

M04-8a

52

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- TYPE III MOVEABLE BARRICADE
- CHANGEABLE MESSAGE BOARD

W020-3
M1-5
M5-1L

20C

W020-3
M1-5
M5-1R

20B

M04-8
M1-5
M5-1

17

TRAFFIC CONTROL SHEETS
SHEET 1 TO 2

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
TEXAS

JOB NO.
JSE0028

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9394

DESCRIPTION	DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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MISSOURI DESIGN FIRM PE-001166

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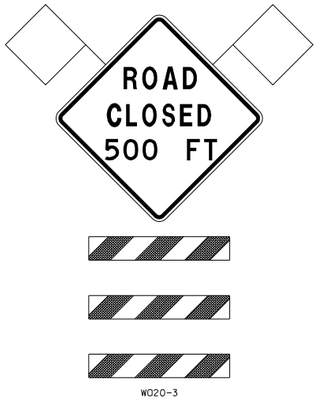
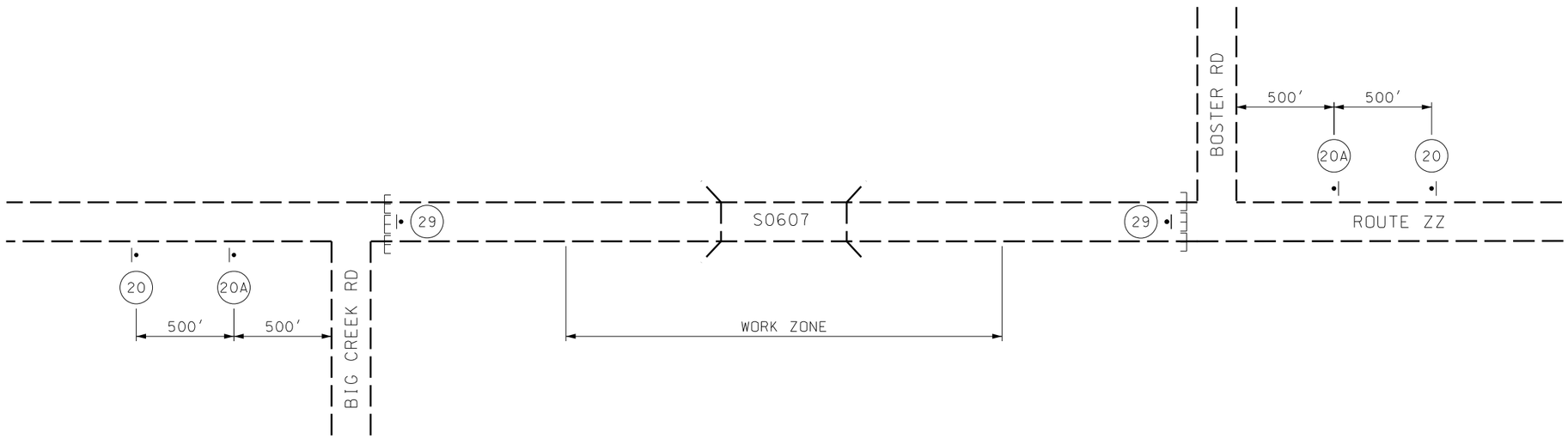
29

20



20A

20B



NOTES:

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ANY EXISTING SIGNS THAT CONFLICT WITH THIS TRAFFIC CONTROL PLAN SHALL BE COVERED OR REMOVED.

NO DIRECT PAYMENT SHALL BE MADE FOR FLAGS ON SIGNS ENHANCED WITH AWRS ON MAINLINE.

SIGN SPACING IS 500'.

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- TYPE III MOVEABLE BARRICADE

DRAWING NOT TO SCALE

TRAFFIC CONTROL SHEETS
SHEET 2 OF 2

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/18/2024

ROUTE	STATE
137	MO

DISTRICT	SHEET NO.
SE	8

COUNTY: TEXAS

JOB NO.: JSE0028

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9394

DESCRIPTION	DATE

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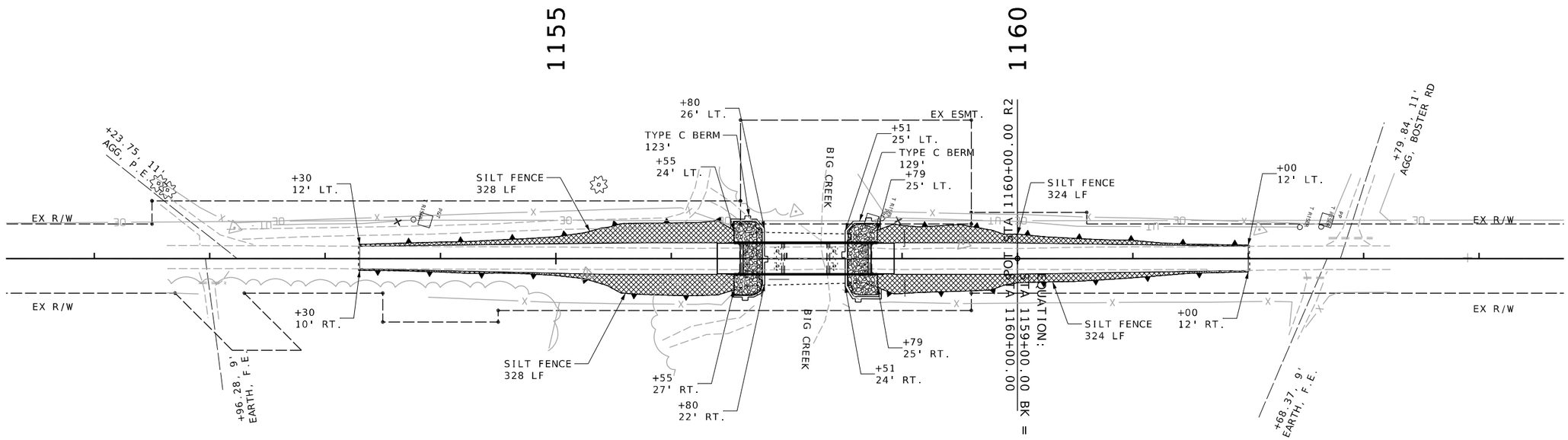
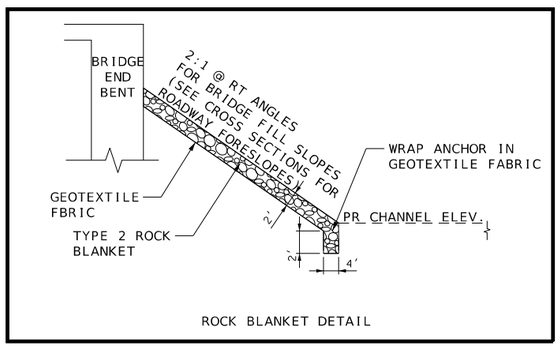
MISSOURI DESIGN FIRM PE-001166

TEMPORARY EROSION CONTROL LEGEND

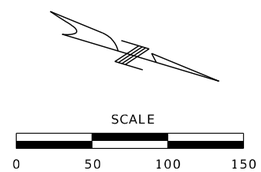
- SILT FENCE
- 2' TYPE 2 ROCK BLANKET W/PERMANENT EROSION CONTROL GEOTEXTILE
- TYPE 2D HEAVY DOUBLE-NET EROSION CONTROL BLANKET
- TYPE C BERM

PRIMARY RECEIVING WATERS: BIG CREEK





ROCK BLANKET DETAIL



EROSION CONTROL SHEET
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

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DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	9

COUNTY
TEXAS

JOB NO.
JSE0028

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9394

DESCRIPTION	DATE

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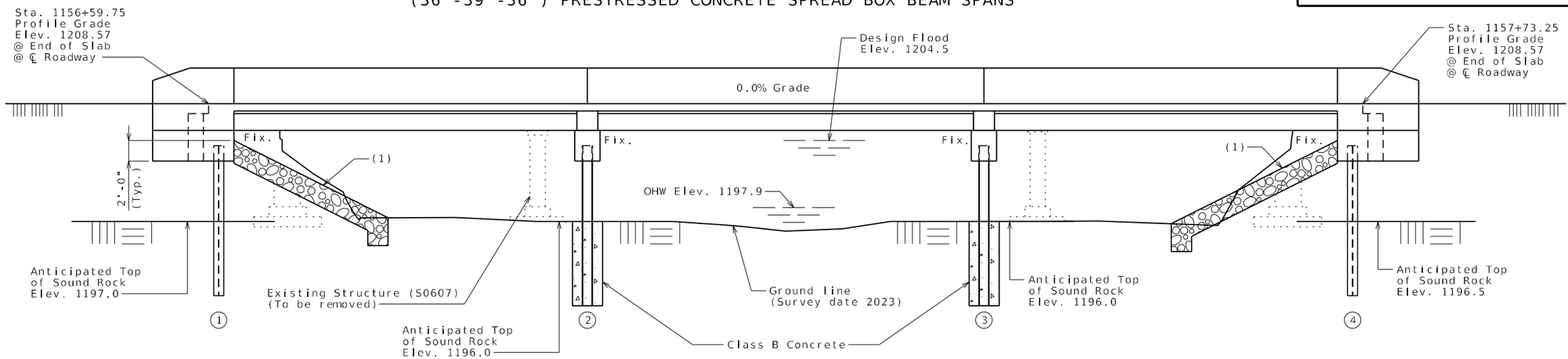
MISSOURI DESIGN FIRM PE-001166

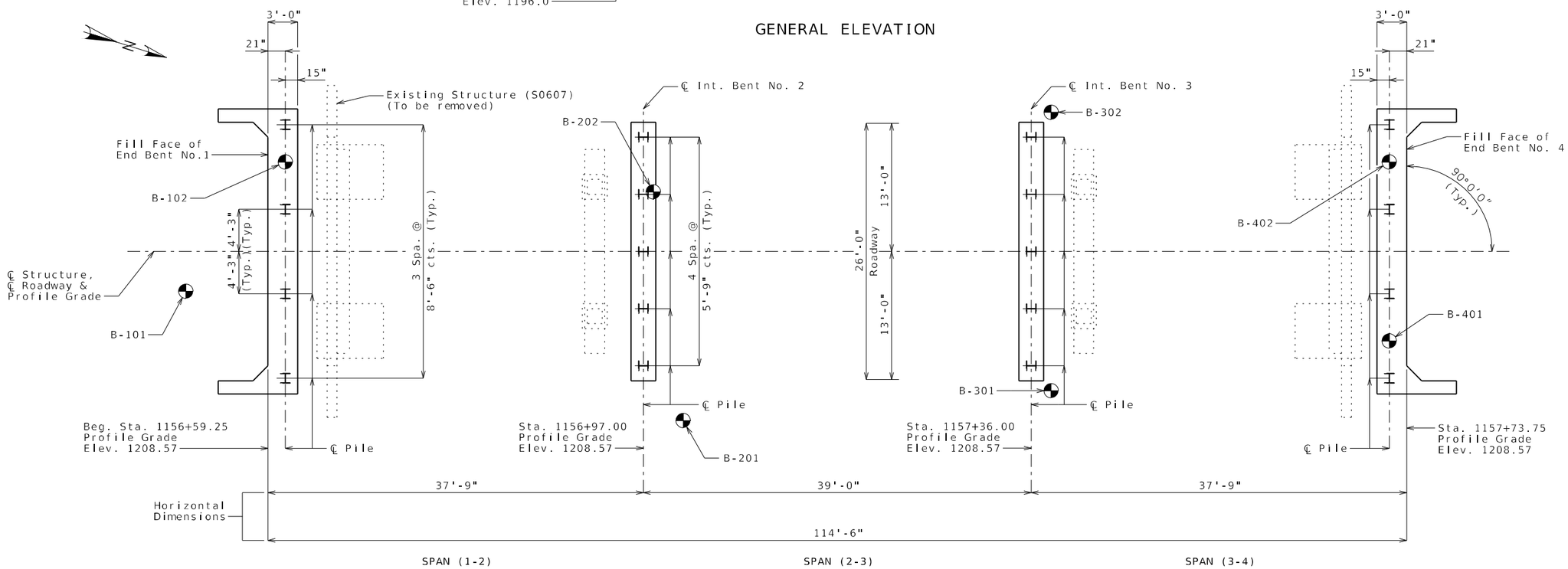
REV.

SEC/SUR 5 TWP 29N RGE 8W

(36'-39'-36') PRESTRESSED CONCRETE SPREAD BOX BEAM SPANS



GENERAL ELEVATION



PLAN

℄ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on this sheet.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. 23-27 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.

Designed Feb. 2024
Detailed Feb. 2024
Checked Jun. 2024

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

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

Reference Notes:
(1) 2:1 Slope (Normal) with 2'-0" thick Type 2 Rock Blanket with Permanent Erosion Control Geotextile (Roadway Item)

T.B.M. #20 - CUT SQUARE ON TOP OF NORTHWEST WING WALL
STA. 1157+67.56, 11.15' LT.
ELEV. 1208.49

BRIDGE: ROUTE 137 OVER BIG CREEK

ROUTE 137 FROM ROUTE 17 TO ROUTE H
ABOUT 2.1 MILES SOUTH OF ROUTE 17
BEGINNING STATION 1156+59.25

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY TEXAS
JOB NO. JSE0028
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9394

DESCRIPTION | DATE

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OATES ASSOCIATES

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	69		69
Removal of Bridges (S0607)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		116	116
Galvanized Structural Steel Piles (12 in)	linear foot	318		318
Pre-Bore for Piling	linear foot	220		220
Pile Point Reinforcement	each	18		18
Class B Concrete (Substructure)	cu. yard	37.8		37.8
Type D Barrier	linear foot		249	249
Slab on Concrete Beam	sq. yard		362	362
17 in., Prestressed Concrete Spread Box Beam	linear foot		331	331
Reinforcing Steel (Bridges)	pound	2,360		2,360
Slab Drain	each		18	18
Vertical Drain at End Bents	each	2		2
Plain Neoprene Bearing Pad	each		6	6
Laminated Neoprene Bearing Pad	each		12	12

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 Concrete 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 Concrete 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 (12 in).

Estimated Quantities for Slab on Concrete Beam

Item		Total
Class B-2 Concrete	cu. yard	96
Reinforcing Steel (Epoxy Coated)	pound	28,150

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.

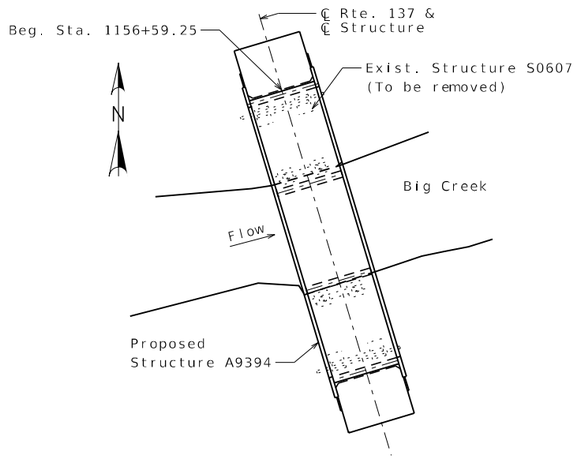
Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

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

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

Hydrologic Data

Drainage Area = 8.5 mi^2
Design Flood Frequency = 50 years
Design Flood Discharge = 5560 cfs
Design Flood (D.F.) Elevation = 1204.5
Base Flood (100-year)
Base Flood Elevation = 1206.9
Base Flood Discharge = 6580 cfs
Estimated Backwater = 2.0 ft
Average Velocity thru Opening = 7.3 ft/s
Freeboard (50-year)
Freeboard = 1.5 ft
Roadway Overtopping
Overtopping Flood Discharge > 8990 cfs
Overtopping Flood Frequency > 500 years
500-Year Flood Elevation = 1207.6



LOCATION SKETCH

Foundation Data

Type	Design Data		Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		HP 12x53	HP 12x53	HP 12x53	HP 12x53
	Number	ea	4	5	5	4
	Approximate Length Per Each	ft	16.5	18.5	18.5	16.5
	Pile Point Reinforcement	ea	All	All	All	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	Full Length	Full Length	Full Length
	Pile Driving Verification Method		DF	**	**	DF
	Resistance Factor		0.4	0.4	0.4	0.4
	Minimum Nominal Axial Compressive Resistance	kip	358	390	390	358

DF = FHWA-modified Gates Dynamic Pile Formula

Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor

** All piles shall bear on rock. Piles shall be placed in predrilled holes. Ensure the piles are seated on bedrock and not rubble in bottom of the hole. The annular space around the pile shall be backfilled with Class B concrete as shown. Concrete below water line shall be placed with tremie. Verification of pile driving is not required. Cost of Class B concrete will be completely covered by the contract unit price for Pre-Bore for Piling.

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

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.

Prebore for piles at Bents No. 1, 2, 3 & 4 to elevations 1188, 1186, 1186, and 1188, respectively.

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)
Seismic Design Category = A
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.14
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.13

Design Loading:

Vehicular = HL-93
Future Wearing Surface = 35 lb/sf
Earth = 120 lb/cf
Equivalent Fluid Pressure = 45 lb/cf (Min.)
Superstructure: Simply-supported, non-composite for dead load.
Continuous composite for live load.

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Beams and Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50S)	fy = 50,000 psi

For precast prestressed panel stresses, see Sheet No. 12.
For prestressed beam stresses, see Sheets No. 9 & 10.

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.

Minimum clearance between galvanized piles and uncoated (plain) reinforcing steel including bar supports shall be 1 1/2". Nylon, PVC, or polyethylene spacers shall be used to maintain clearance. Nylon cable ties shall be used to bind the spacers to the reinforcement.

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

GENERAL NOTES & QUANTITIES

Detailed Feb. 2024
Checked Jun. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY TEXAS
JOB NO. JSE0028
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9394

DESCRIPTION | DATE

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

OATES ASSOCIATES
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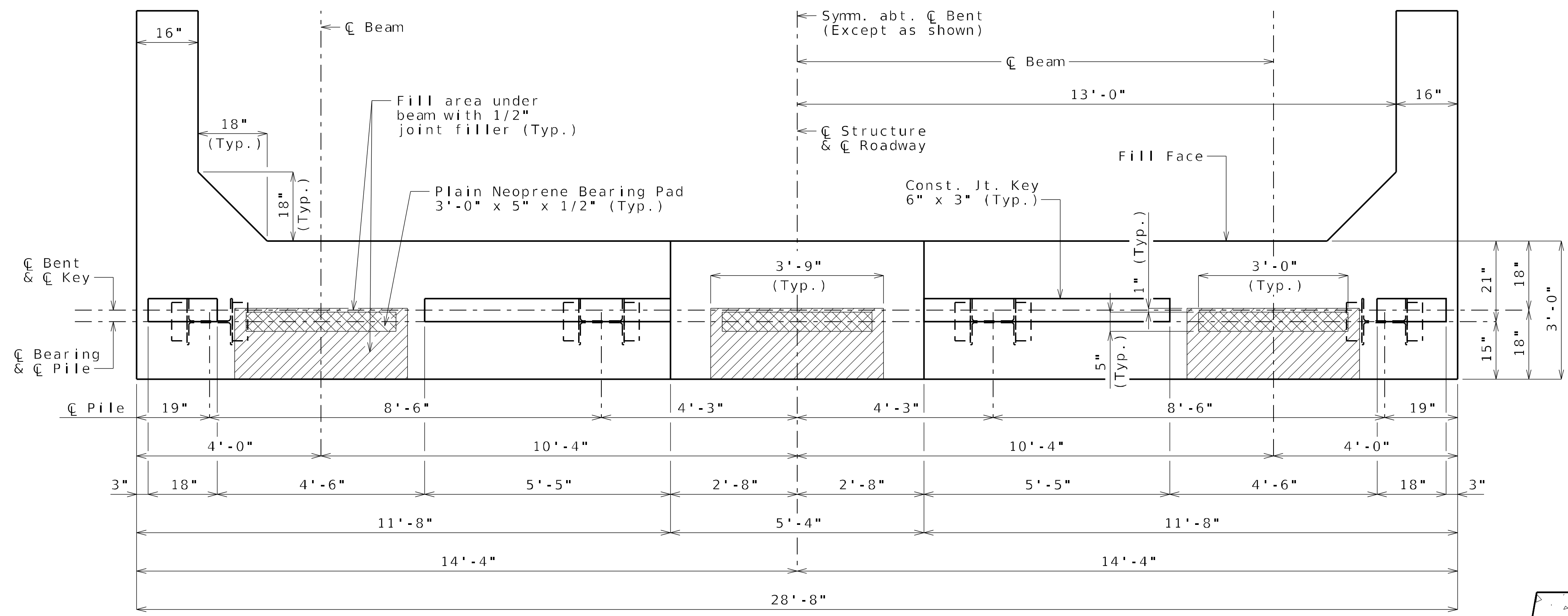
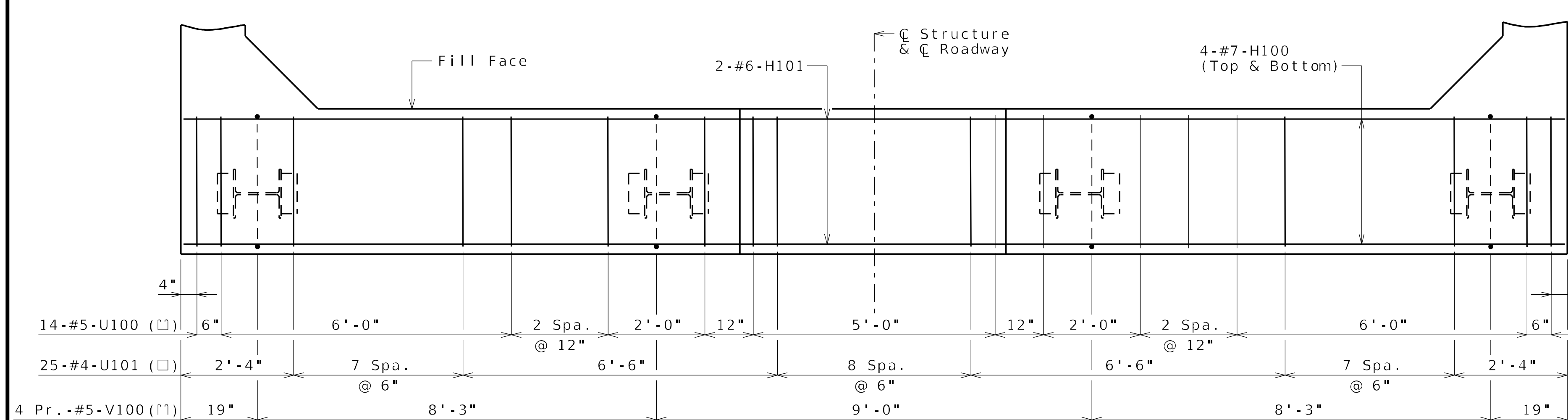
MISSOURI DESIGN FIRM PE-001166



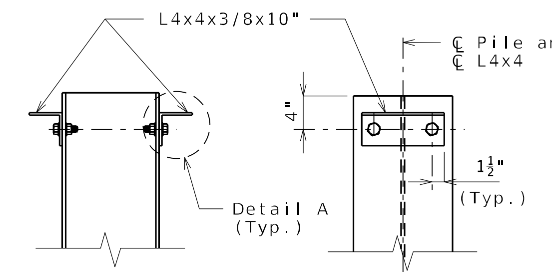
PLAN OF BEAM



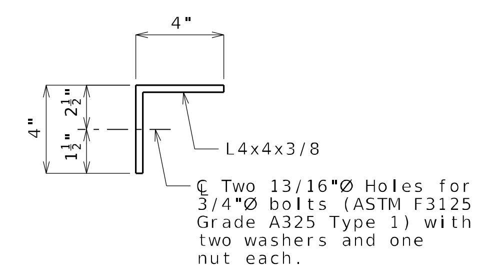
PLAN OF BEAM SHOWING REINFORCEMENT
(Keys not shown for clarity)

Substructure Quantity Table for Bents No. 1 & 4			
		Quantity	
Item		End Bent 1	End Bent 4
Class 1 Excavation	cu. yard	35	35
Galvanized Structural Steel Pile (12 in)	linear foot	66	66
Pre-Bore for Piling	linear foot	60	60
Pile Point Reinforcement	each	4	4
Class B Concrete (Substructure)	cu. yard	11.5	11.5

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

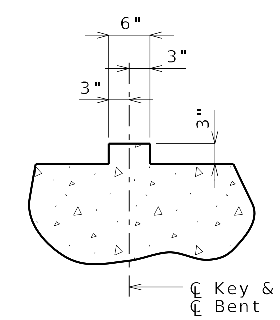


DETAILS OF HP PILE ANCHORS



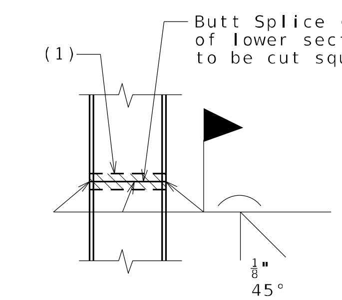
DETAIL A

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.



SECTION THRU KEY

End Bent No. 1 End Bent No. 4



STEEL PILE SPLICE
(If required)

Reference Notes:
(1) Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

General Notes:
Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.

For details of End Bents No. 1 & 4 not shown, see Sheets No. 4 & 5.

DETAILS OF END BENTS NO. 1 & 4

Detailed Feb. 2024
Checked Jun. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/16/2024	
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 3
COUNTY TEXAS	
JOB NO. JSE0028	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9394	

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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MoDOT

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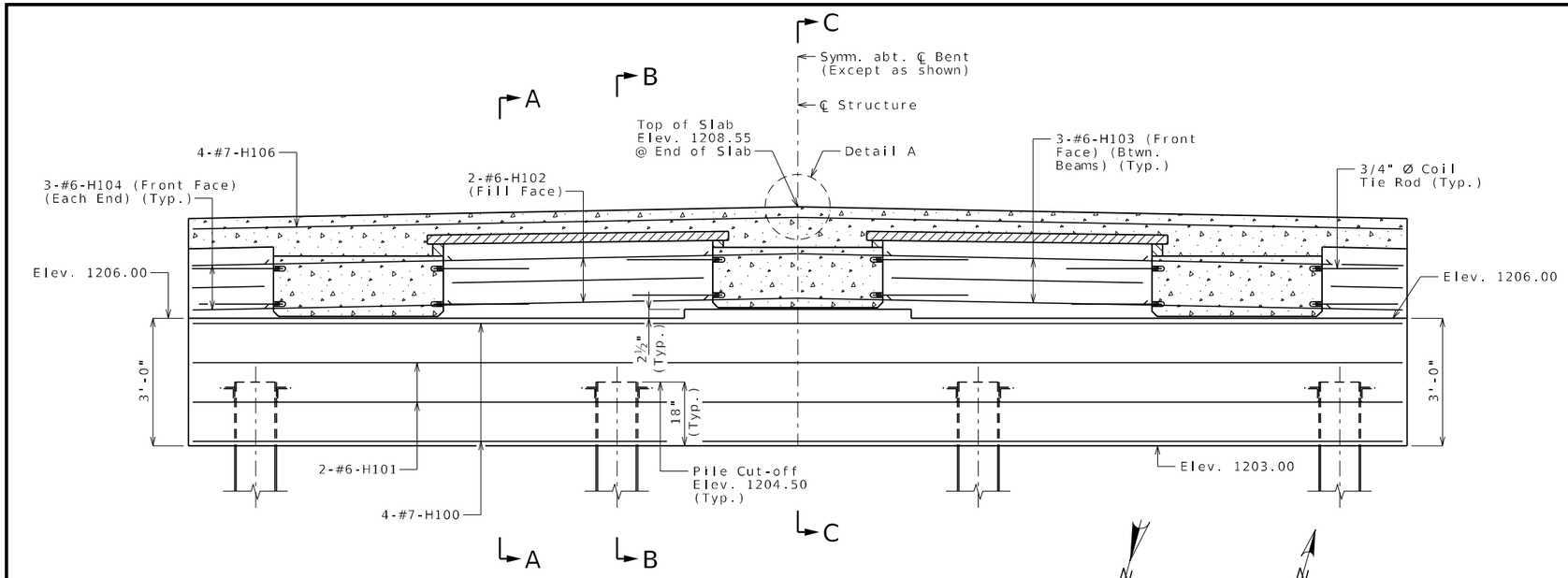
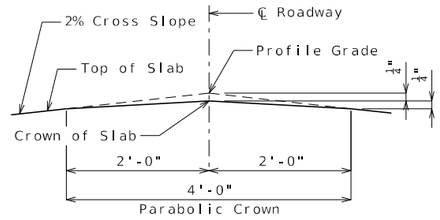
OATES ASSOCIATES



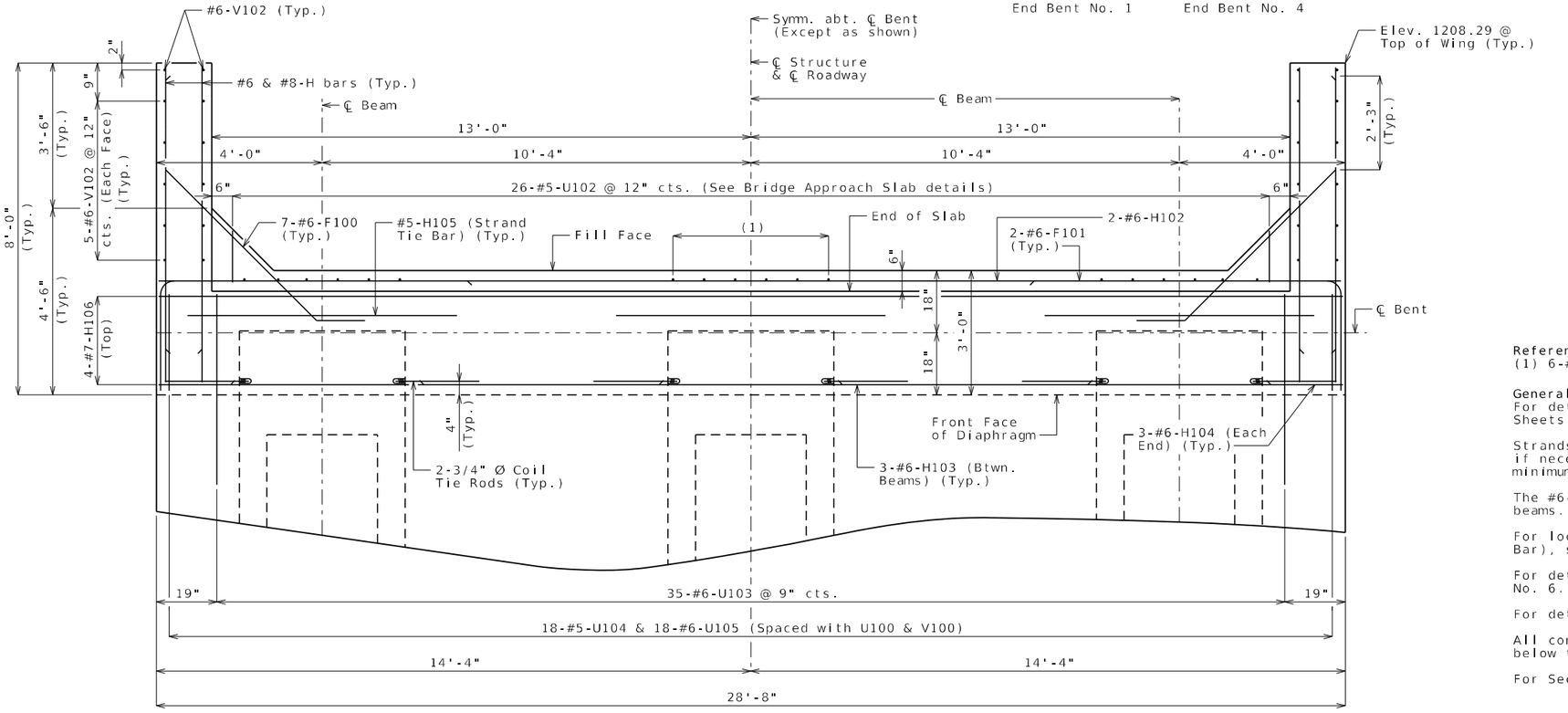
SECTION NEAR END BENT



DETAIL A

End Bent No. 1

End Bent No. 4



PART PLAN

Reference Notes:
(1) 6-#6-V101 @ 9" cts. (Typ.)

General Notes:
For details of End Bents No. 1 & 4 not shown, see Sheets No. 3 & 5.

Strands at end of the beams shall be field bent or, if necessary, cut in the field to maintain 1 1/2-inch minimum clearance to fill face of end bent.

The #6-F100 bars shall be bent in the field to clear beams.

For locations of Coil Tie Rods and #5-H105 (Strand Tie Bar), see Sheet No. 9.

For details of Vertical Drain at End Bents, see Sheet No. 6.

For details of Bridge Approach Slab, see Sheet No. 19.

All concrete in the end bent above the top of beam and below top of slab shall be Class B-2.

For Section A-A, B-B, & C-C, see Sheet No. 5.

DETAILS OF END BENTS NO. 1 & 4

Detailed Feb. 2024
Checked Jun. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/16/2024
ROUTE: 137 | STATE: MO
DISTRICT: BR | SHEET NO.: 4
COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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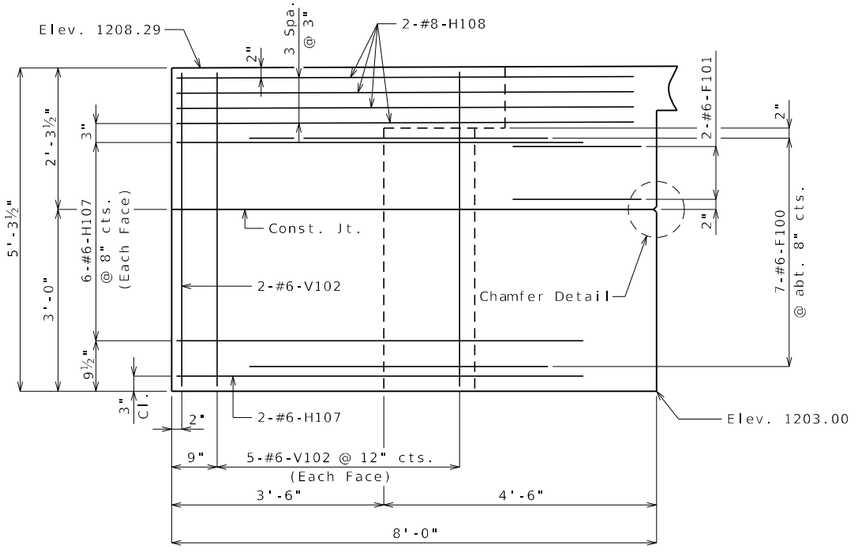
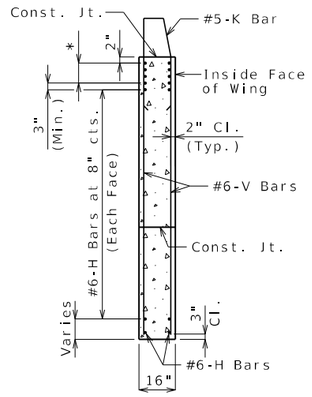
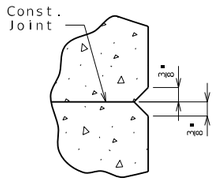


TYPICAL WINGWALL ELEVATION

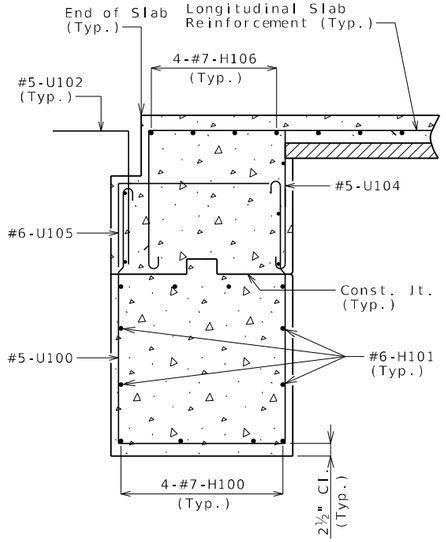


* #8-H Bars at 3" cts. (Each Face)
(Place with grade)

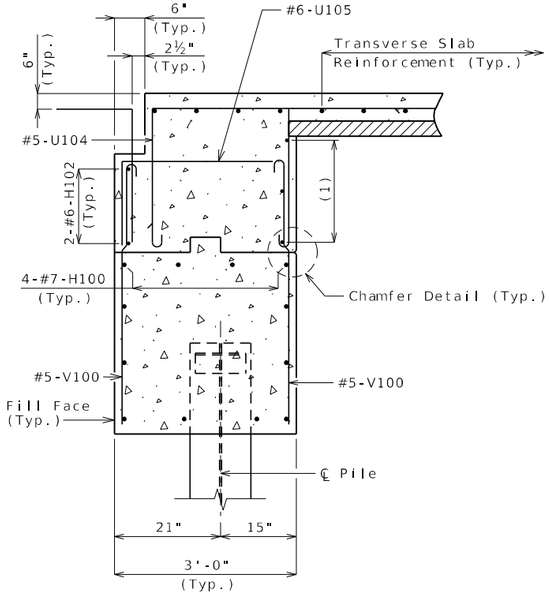
TYPICAL SECTION
THRU WING



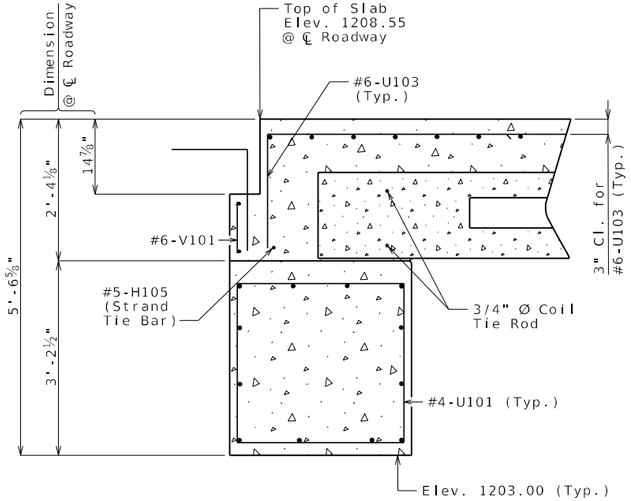
CHAMFER DETAIL



SECTION A-A



SECTION B-B



SECTION C-C

Reference Notes:
(1) 3-#6-H103 (Btwn. Beams) (Typ.)

General Notes:
For details of End Bents No. 1 & 4 not shown, see Sheets No. 3 & 4.

For locations of Sections A-A, B-B, & C-C, see Sheet No. 4.

For reinforcement of the barrier, see Sheet No. 18.

DETAILS OF END BENTS NO. 1 & 4

Detailed Feb. 2024
Checked Jun. 2024

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

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DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	5

COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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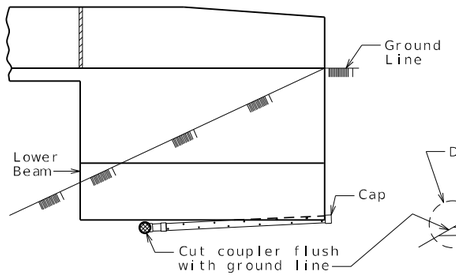
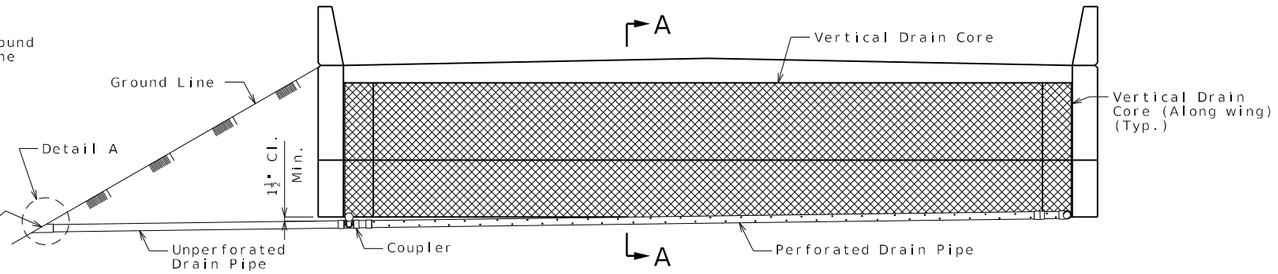
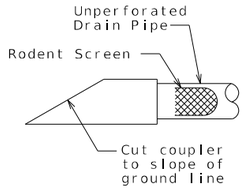


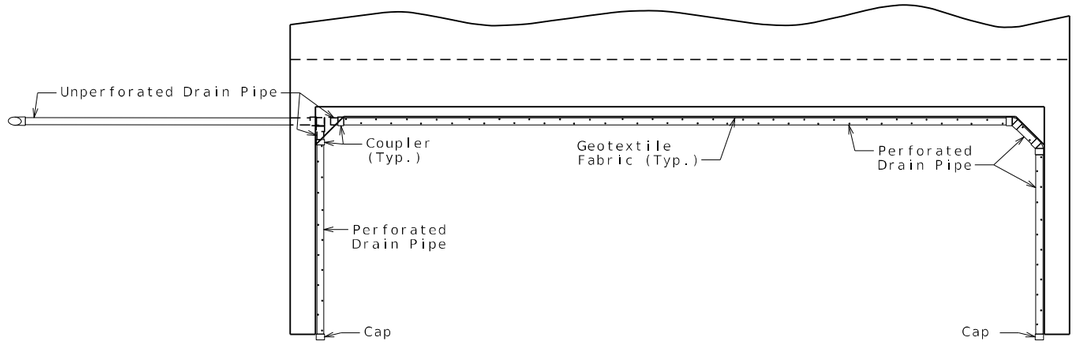
ELEVATION OF WING



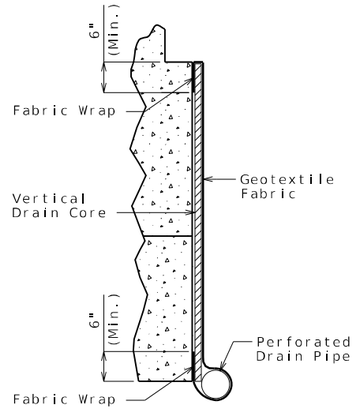
ELEVATION OF END BENT



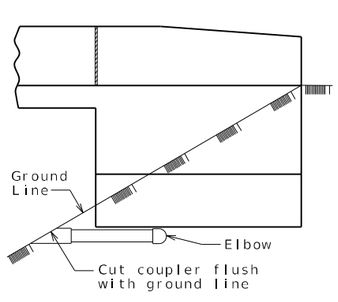
DETAIL A



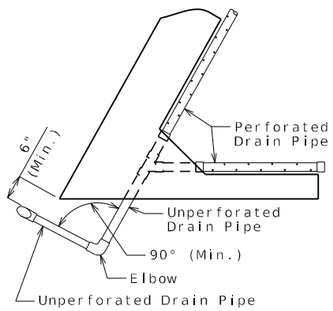
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

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.

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	6

COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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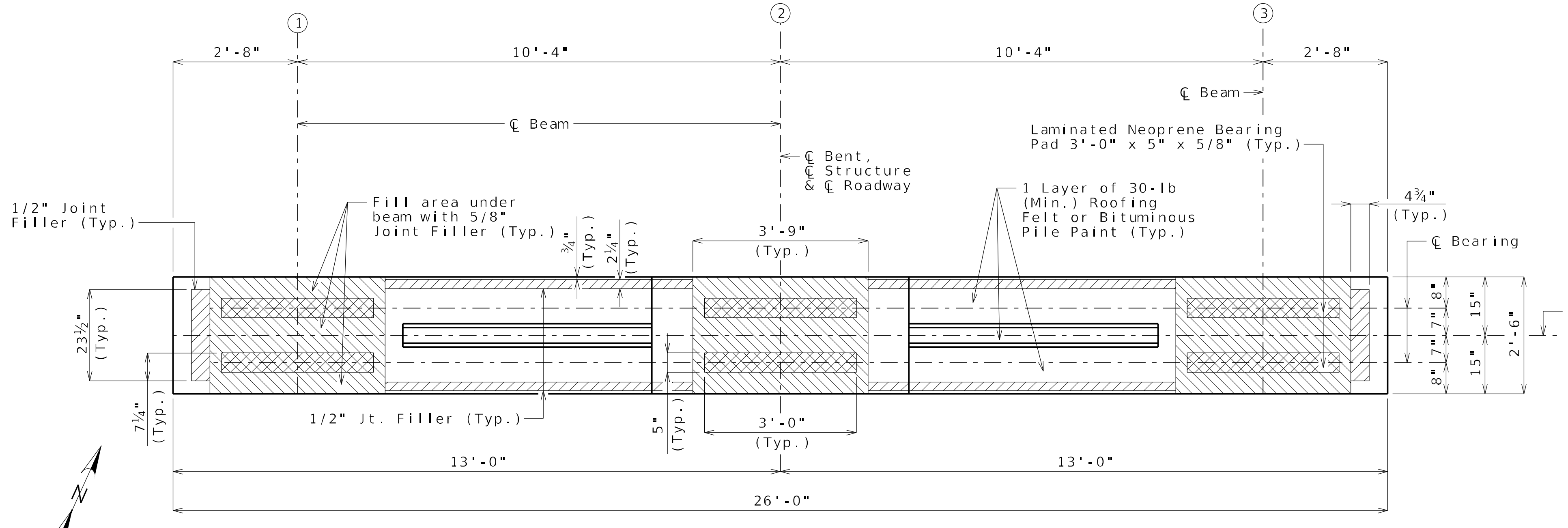
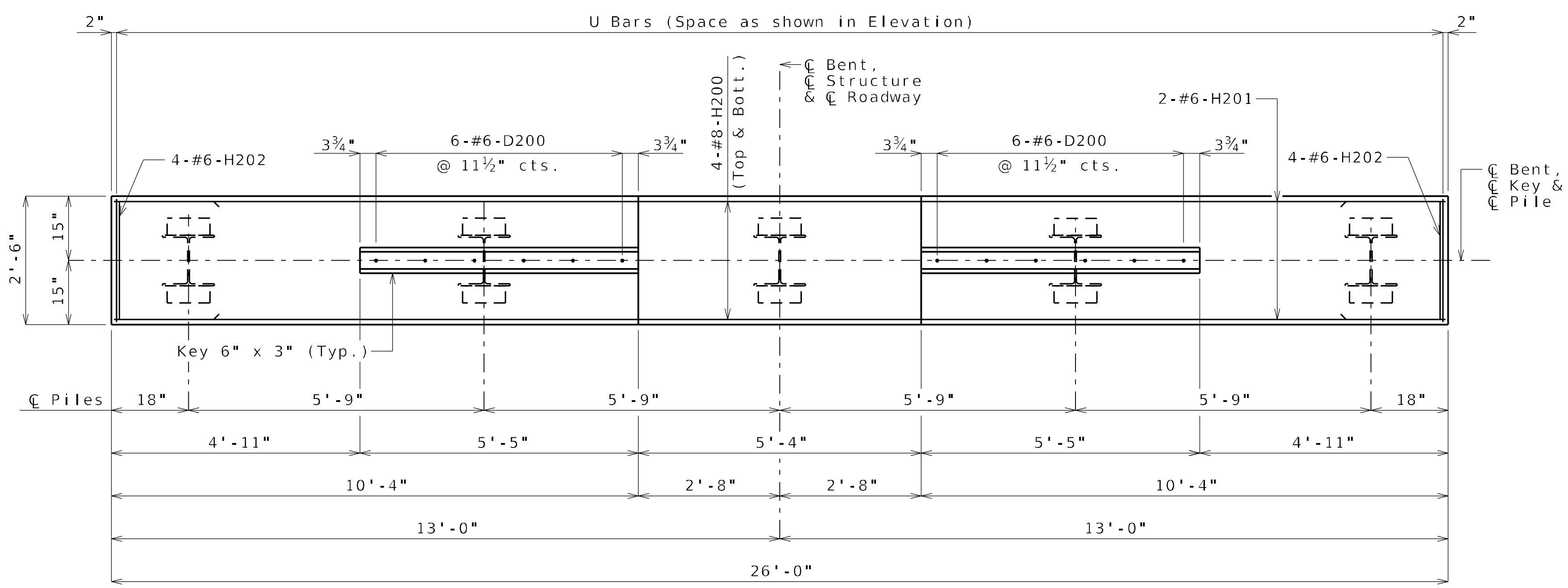
Detailed Feb. 2024
Checked Jun. 2024

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

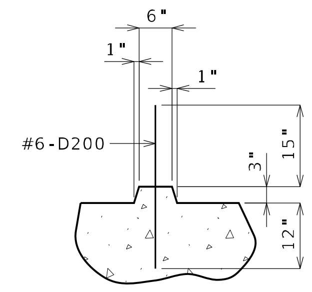
H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_006_JSE0028_Vertical Drain at End Bents.dgn 11:53:50 PM 10/16/2024



PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT



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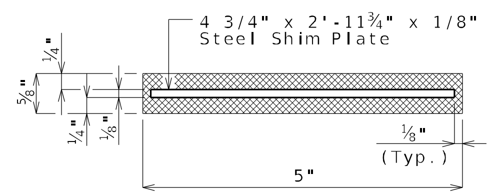

SECTION THRU LAMINATED NEOPRENE BEARING PAD

Substructure Quantity Table for Bents No. 2 & 3			
Item		Quantity	
		Int. Bent 2	Int. Bent 3
Galvanized Structural Steel Pile (12 in)	linear foot	93	93
Pre-Bore for Piling	linear foot	50	50
Pile Point Reinforcement	each	5	5
Class B Concrete (Substructure)	cu. yard	7.4	7.4
Reinforcing Steel (Bridges)	pound	1,180	1,180

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

General Notes:
For details of Intermediate Bents No. 2 & 3 not shown, see Sheet No. 8.

For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed Feb. 2024
Checked Jun. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/16/2024
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 7
COUNTY	TEXAS
JOB NO.	JSE0028
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9394

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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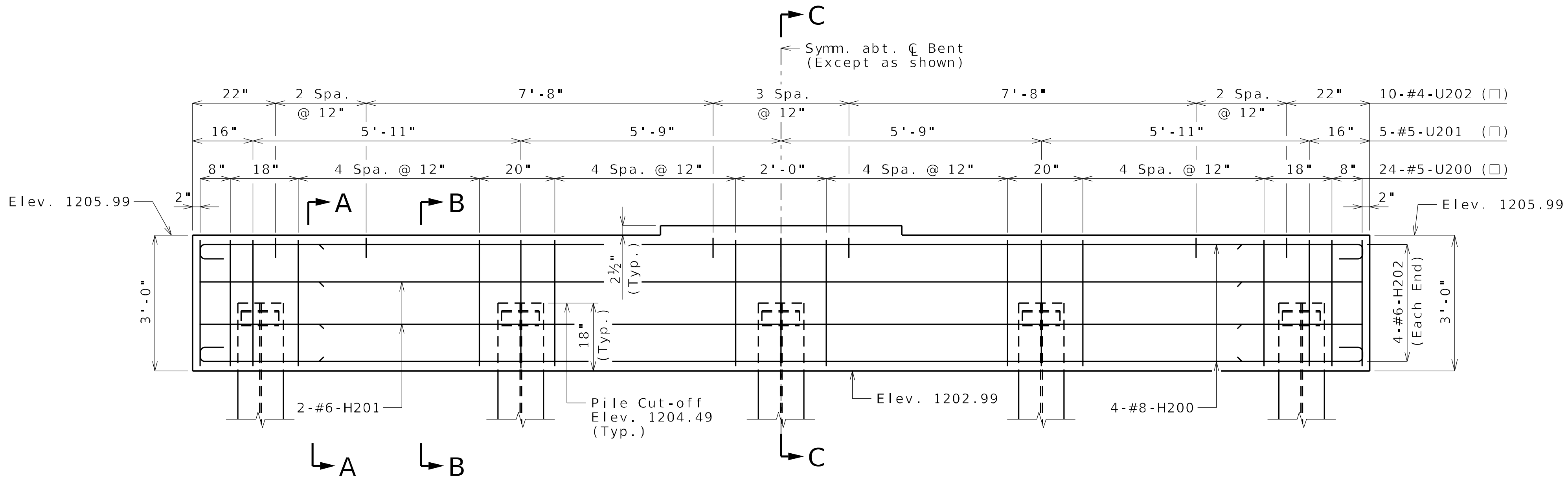
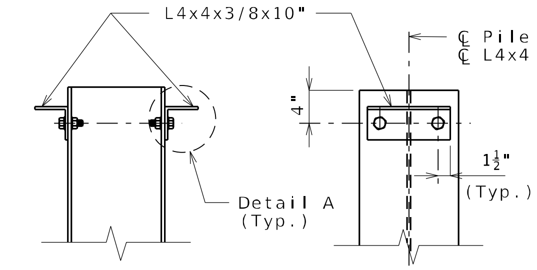
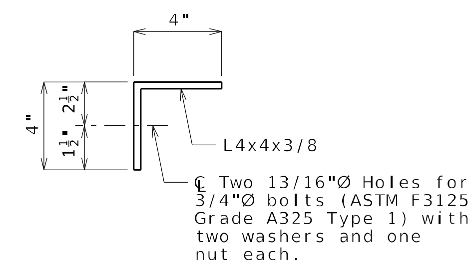
MISSOURI DESIGN FIRM PE-001166



ELEVATION
(Keys not shown for clarity)

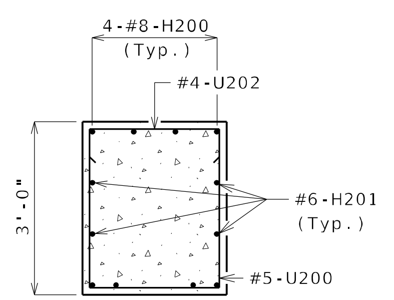


DETAILS OF HP PILE ANCHORS

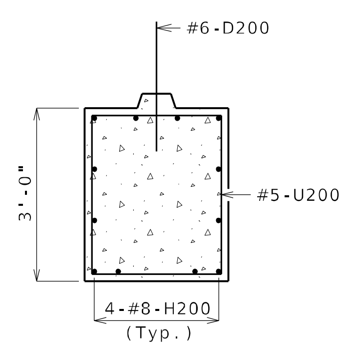


DETAIL A

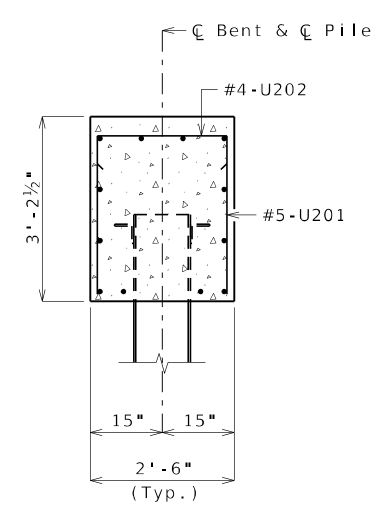
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.



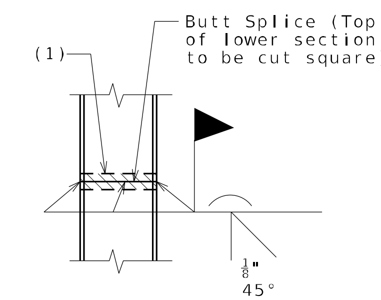
SECTION A-A



SECTION B-B



SECTION C-C



STEEL PILE SPLICE
(If required)

Reference Notes:
(1) Galvanizing materials shall be omitted or removed one inch clear of locations in accordance with Sec. 702.

General Notes:
For details of Intermediate Bents No. 2 & 3 not shown, see Sheet No. 7.

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/16/2024
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 8
COUNTY	TEXAS
JOB NO.	JSE0028
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9394

DESCRIPTION

DATE

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

MoDOT

Collinsville
St. Louis
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MISSOURI DESIGN FIRM PE-001166

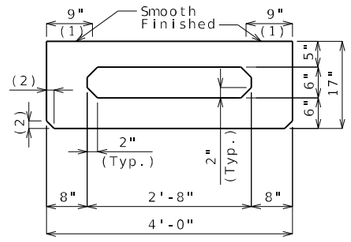
OATES ASSOCIATES

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed Feb. 2024
Checked Jun. 2024

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

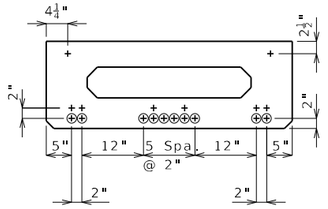
H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_008_JSE0028_Details of Intermediate Bents No. 2 & 3.dgn 11:54:07 PM 10/16/2024



DIMENSIONS

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

(2) $1\frac{1}{2}$" (Typ.) ($\frac{3}{4}$" Optional)

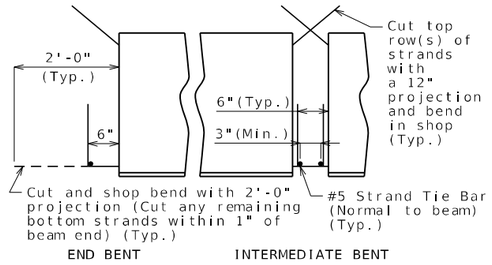


STRAND ARRANGEMENT

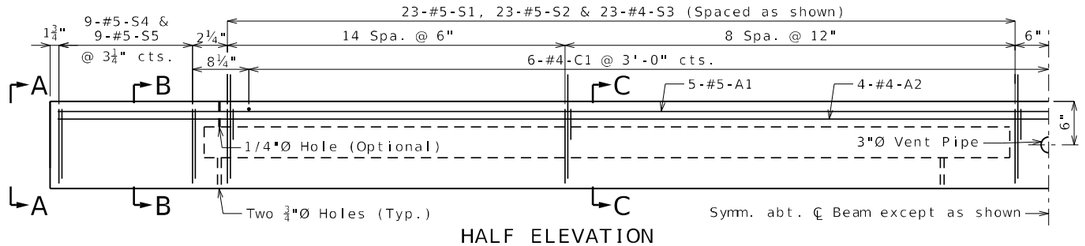
All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

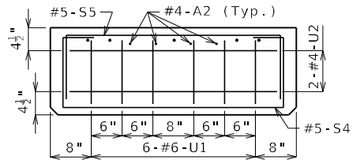
○ Indicates cut and shop bend with 2'-0" projection.



STRANDS AT BEAM ENDS

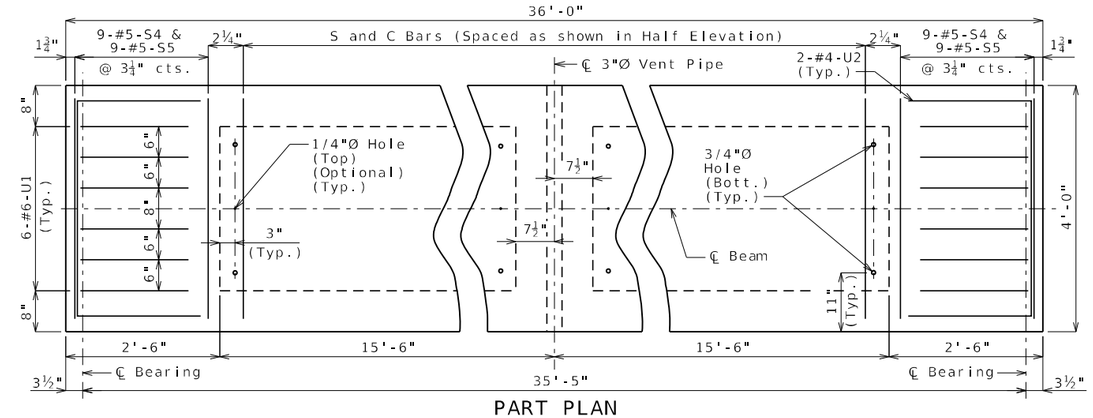


HALF ELEVATION

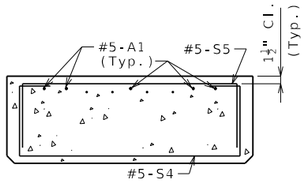


ELEVATION A-A

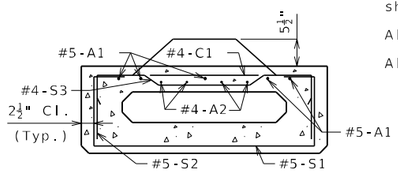
Strands not shown for clarity.



PART PLAN

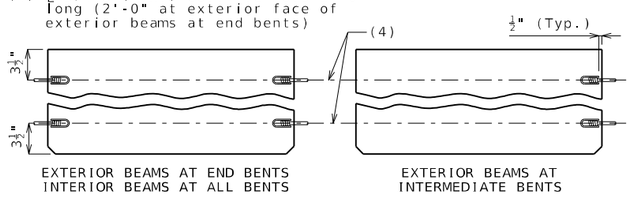


SECTION B-B



SECTION C-C

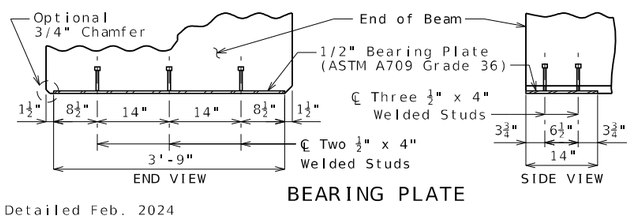
(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (2'-0" at exterior face of exterior beams at end bents)



EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

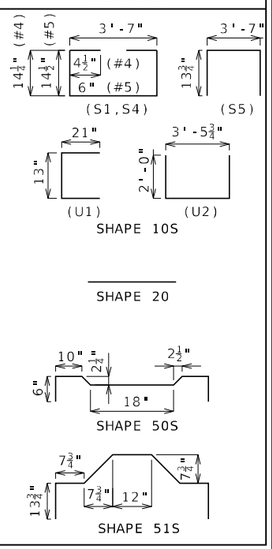
EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES



BEARING PLATE

BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	35'-9"	20	
4	4 A2	35'-9"	20	
11	4 C1	3'-7"	20	
46	5 S1	6'-7"	10S	
46	5 S2	6'-1"	51S	
46	4 S3	4'-6"	50S	
18	5 S4	6'-7"	10S	
18	5 S5	5'-8"	10S	
12	6 U1	4'-3"	10S	
4	4 U2	7'-4"	10S	



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 Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 6,000 psi and f'ci = 4,500 psi.

Use 18 strands, 0.6"Ø Grade 270, with an initial prestress force of 791 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. 14.

For location of coil inserts at slab drains, see Sheet No. 13.

For location of coil ties at concrete bent diaphragms, see Sheets No. 4 & 11.

SPREAD BOX BEAMS - SPANS (1-2) & (3-4)

Detailed Feb. 2024
Checked Jun. 2024

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

H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_009_JSE0028_Spread Box Beam - Spans (1-2) & (3-4).dgn 11:54:15 PM 10/16/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 9
COUNTY TEXAS
JOB NO. JSE0028
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9394

DESCRIPTION | DATE

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

OATES ASSOCIATES
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Belleville 1 South Church, Suite 300 Belleville, IL 62220 618.416.5466
St. Louis 720 Olive, Suite 700 St. Louis, MO 63101 314.588.8391
St. Charles 820 South Main, Suite 309 St. Charles, MO 63301 636.493.6277
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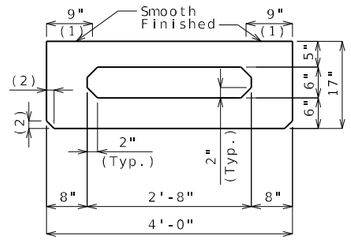
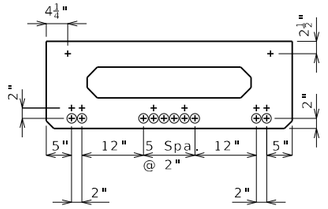
MISSOURI DESIGN FIRM PE-001166



DIMENSIONS

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

(2) $1\frac{1}{2}$" (Typ.) ($\frac{3}{4}$" Optional)

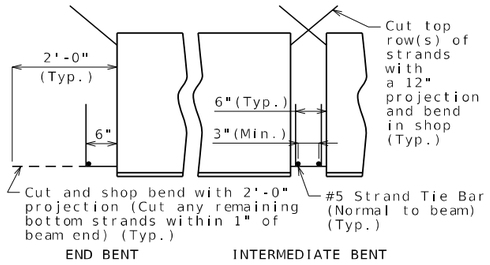


STRAND ARRANGEMENT

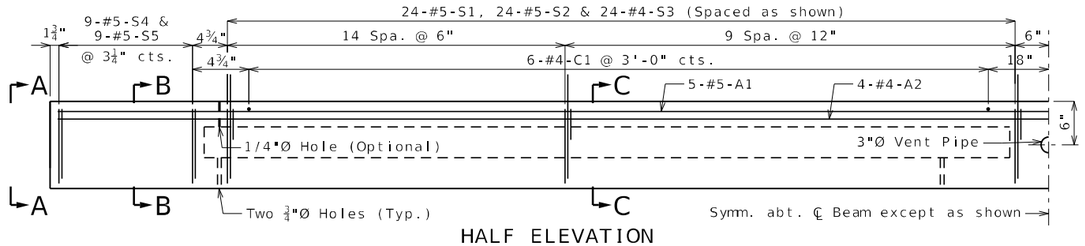
All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

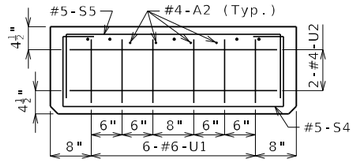
○ Indicates cut and shop bend with 2'-0" projection.



STRANDS AT BEAM ENDS

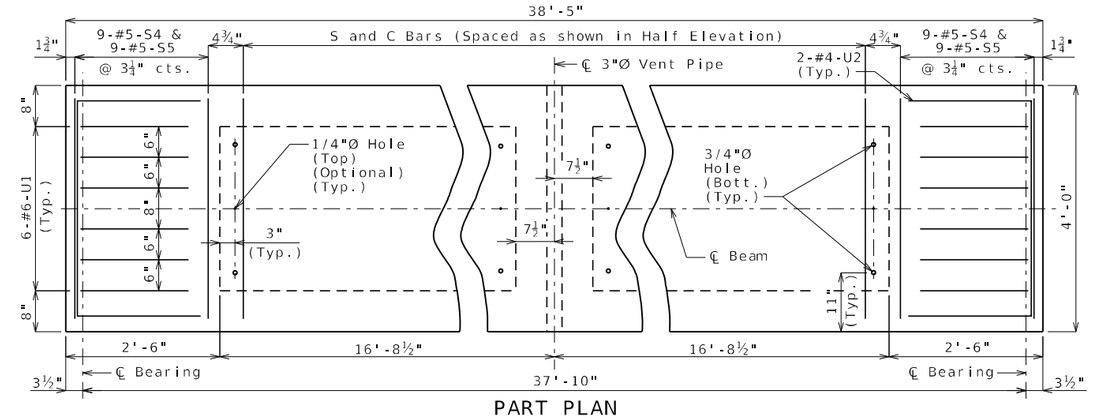


HALF ELEVATION

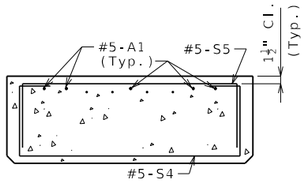


ELEVATION A-A

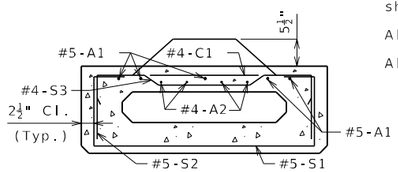
Strands not shown for clarity.



PART PLAN

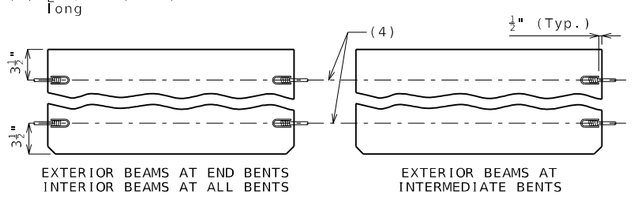


SECTION B-B



SECTION C-C

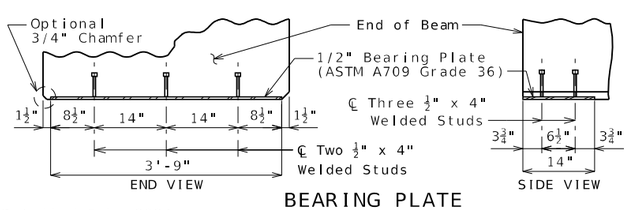
(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long



EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

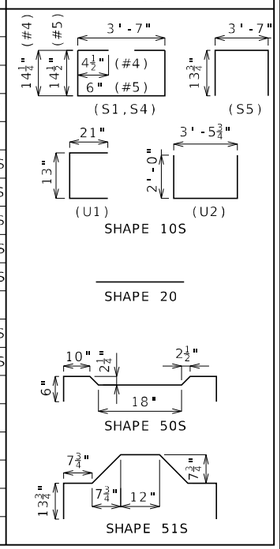
EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES



BEARING PLATE

BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	38'-2"	20	
4	4 A2	38'-2"	20	
12	4 C1	3'-7"	20	
48	5 S1	6'-7"	10S	
48	5 S2	6'-1"	51S	
48	4 S3	4'-6"	50S	
18	5 S4	6'-7"	10S	
18	5 S5	5'-8"	10S	
12	6 U1	4'-3"	10S	
4	4 U2	7'-4"	10S	



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 Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 6,000 psi and f'ci = 4,500 psi.

Use 18 strands, 0.6"Ø Grade 270, with an initial prestress force of 791 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. 14.

For location of coil inserts at slab drains, see Sheet No. 13.

For location of coil ties at concrete bent diaphragms, see Sheets No. 4 & 11.

SPREAD BOX BEAMS - SPAN (2-3)

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 10
COUNTY TEXAS
JOB NO. JSE0028
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9394

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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OATES ASSOCIATES
Collinsville 108 Lamter Court, Suite 1 Collinsville, IL 62234 618.345.4200
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St. Charles 820 South Main, Suite 309 St. Charles, MO 63301 636.493.5277
Belleville 1 South Church, Suite 300 Belleville, IL 62220 618.416.5466
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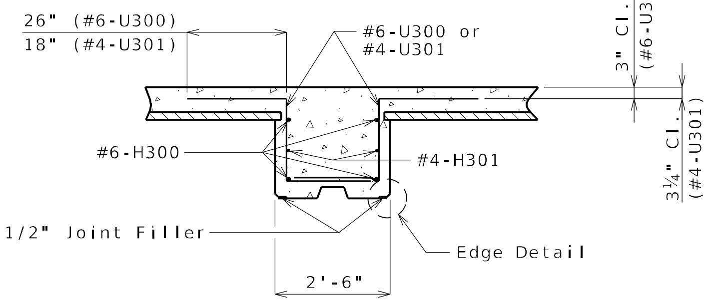
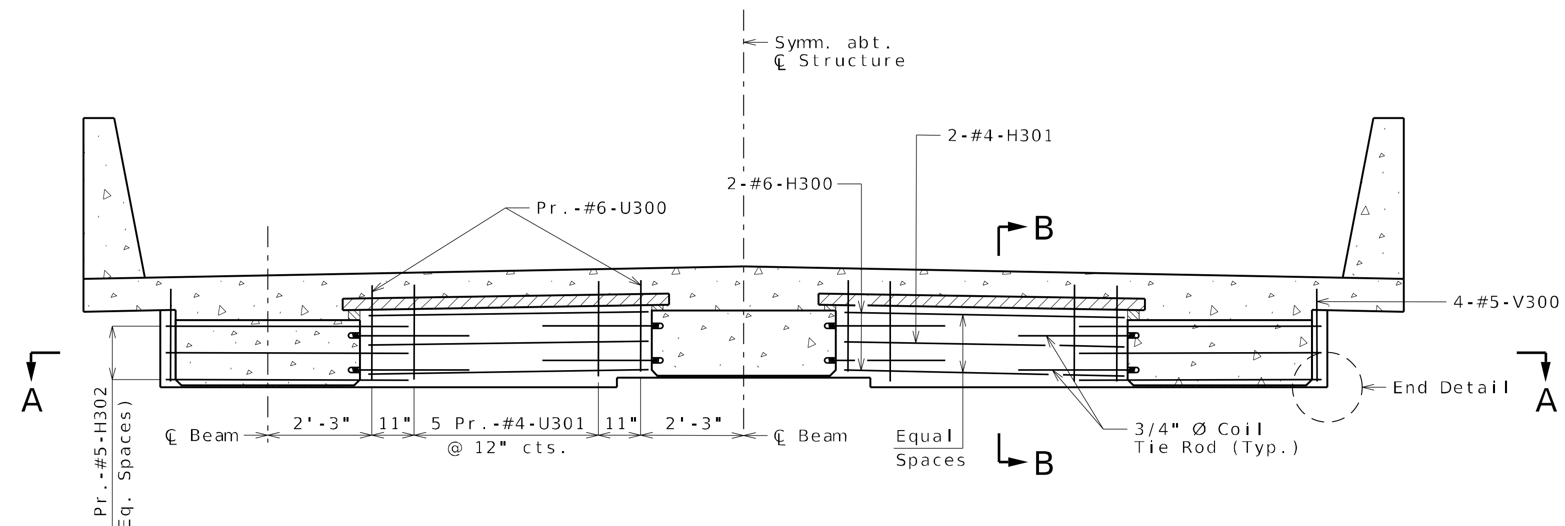
MISSOURI DESIGN FIRM PE-001166

Detailed Feb. 2024
Checked Jun. 2024

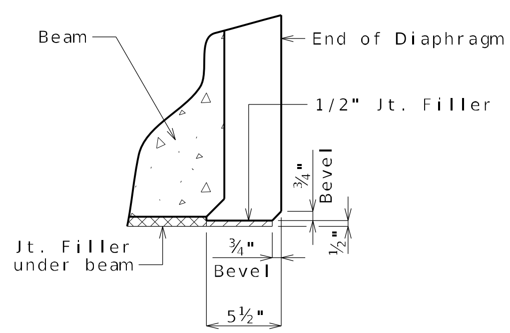
Note: This drawing is not to scale. Follow dimensions.



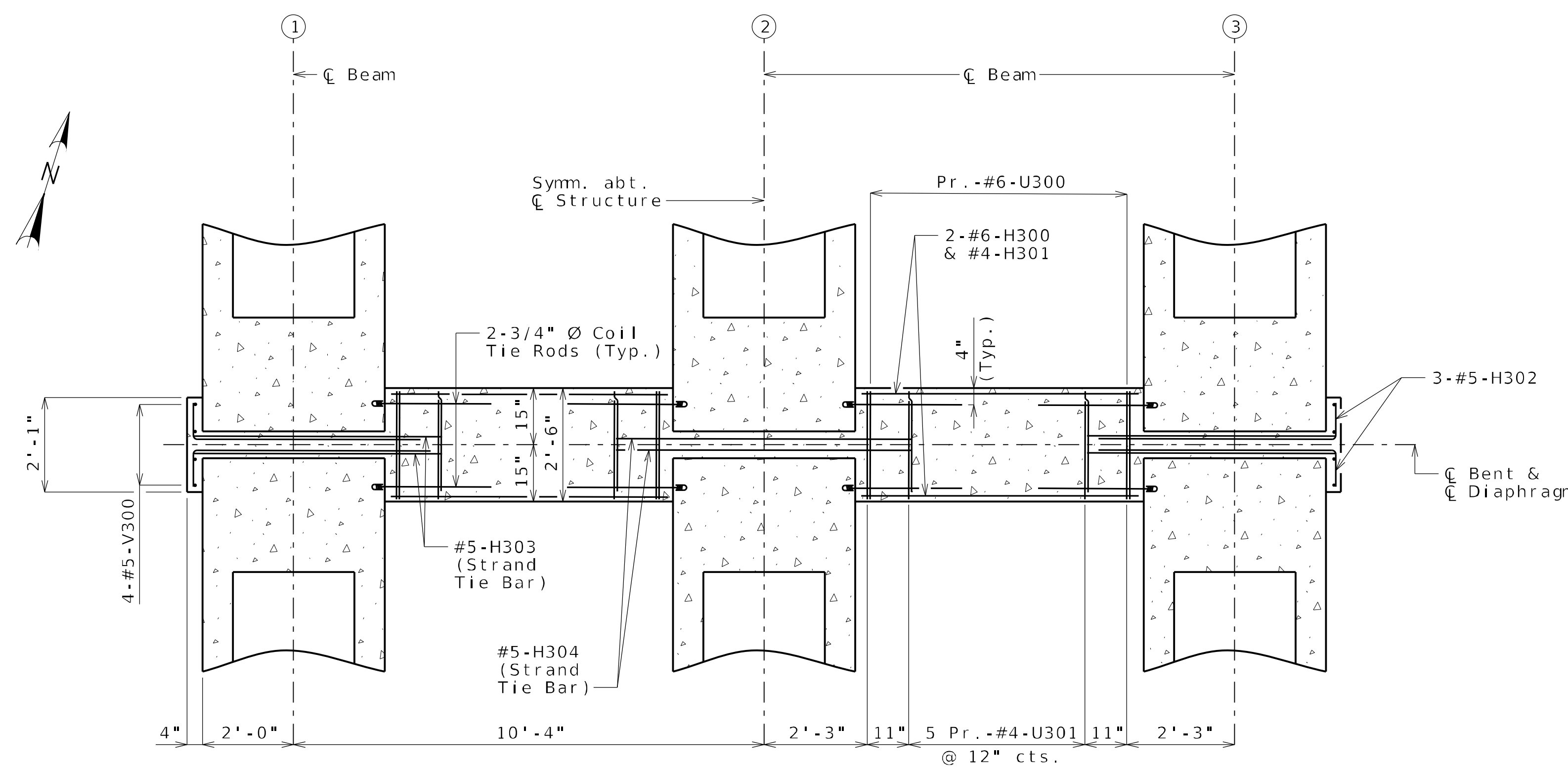
SECTION B-B



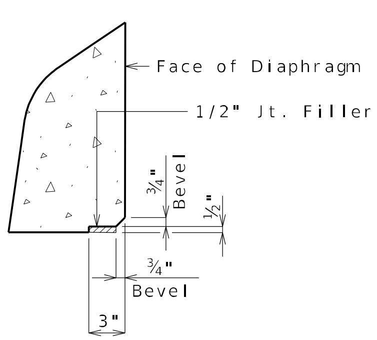
SECTION NEAR INTERMEDIATE BENT



END DETAIL



SECTION A-A



EDGE DETAIL

General Notes:
For locations of Strand Tie Bars and Coil Tie Rods, see Sheets No. 9 & 10.

Diaphragms at intermediate bents shall be built vertical.

CONCRETE DIAPHRAGMS AT INTERMEDIATE BENTS NO. 2 & 3

Detailed Feb. 2024
Checked Jun. 2024

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

H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_011_JSE0028_Details of Concrete Diaphragms at Intermediate Bents No. 2 & 3.dgn 11:54:33 PM 10/16/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/16/2024	
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 11
COUNTY TEXAS	
JOB NO. JSE0028	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9394	

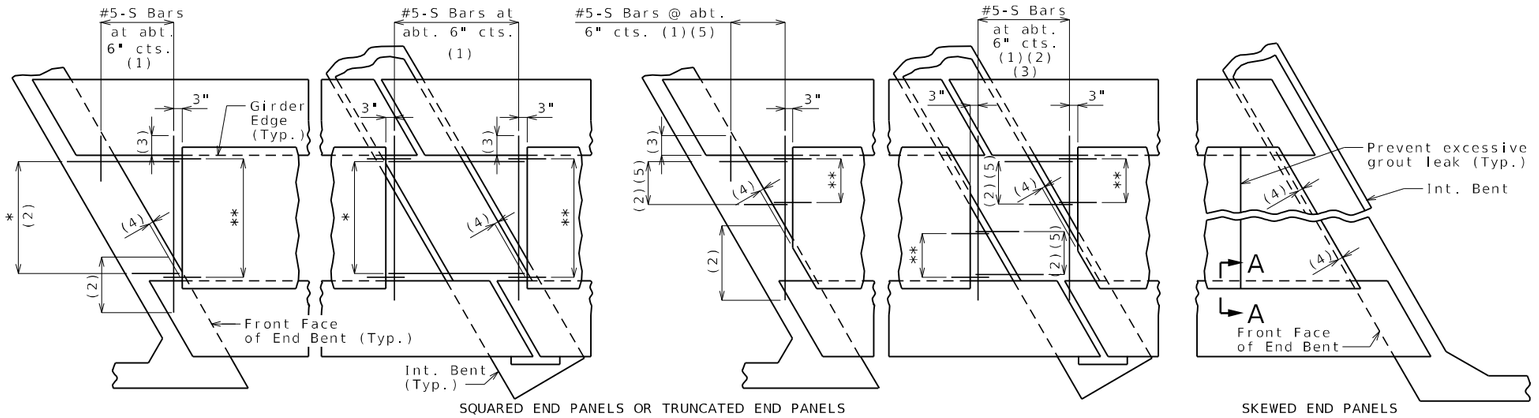
DESCRIPTION

DATE

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

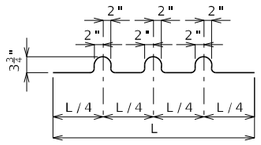
MoDOT

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166



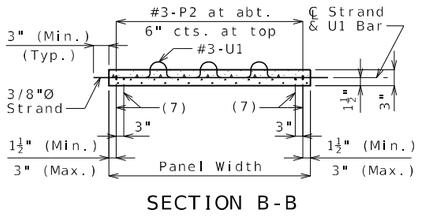
SQUARED END PANELS OR TRUNCATED END PANELS

SKEWED END PANELS



BENDING DIAGRAM FOR U1 BAR

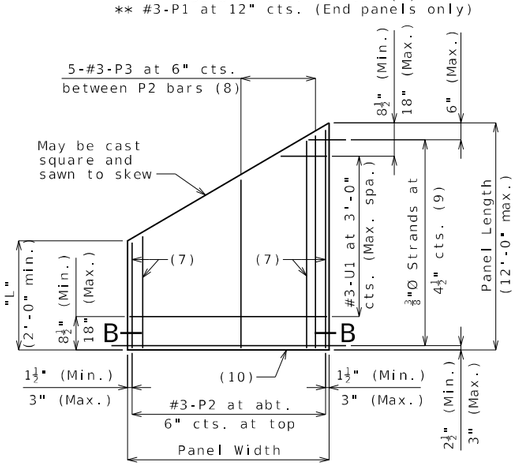
U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars.



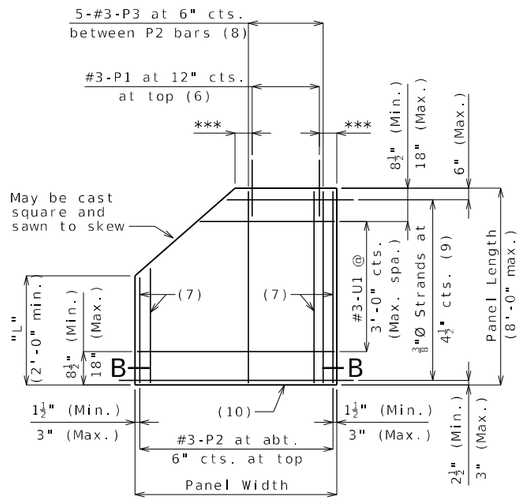
SECTION B-B

PLAN SHOWING PANEL PLACEMENT

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

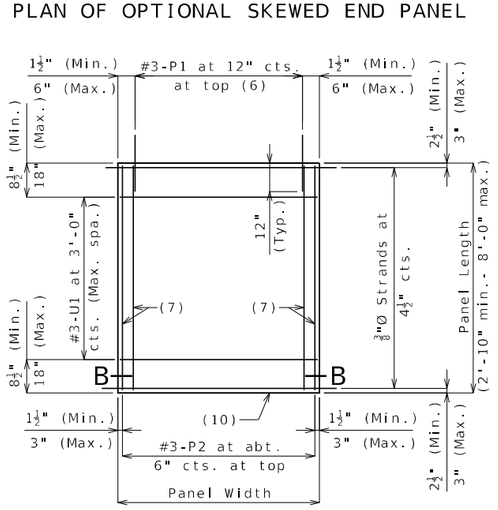


PLAN OF OPTIONAL SKEWED END PANEL

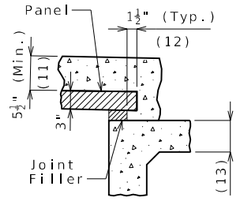


PLAN OF OPTIONAL TRUNCATED END PANEL

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



PLAN OF SQUARED PANEL



SECTION A-A

Joint Filler Dimensions		
Width	Height	
	Min.	Max.
3"	1"	4"

Reference Notes:

Plan of Panel Placement:
(1) S-bars shown are 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 beam (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.

(10) Optional 1/2" x 45° Chamfer one or both sides at bottom.

Section A-A:
(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 beam top flange thickness. Dimensions shall be shown on the shop drawings.

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. 14 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 beam 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 beam. 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.

PRESTRESSED PANELS

Detailed Feb. 2024
Checked Jun. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	12

COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

DESCRIPTION | DATE

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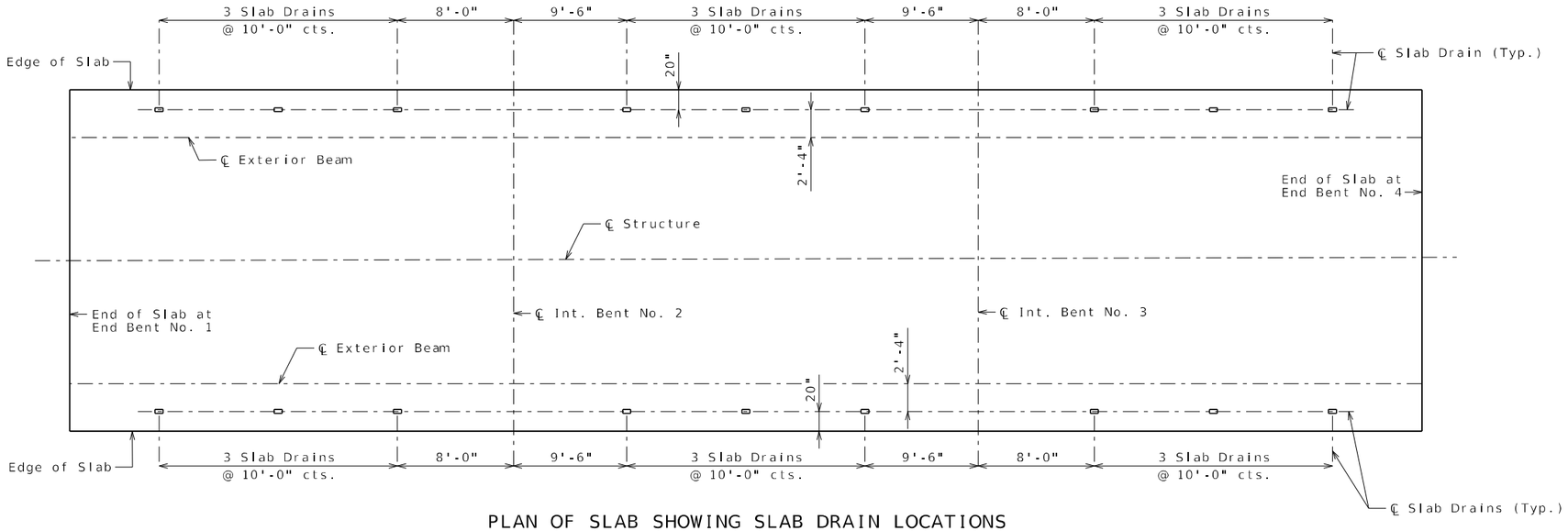
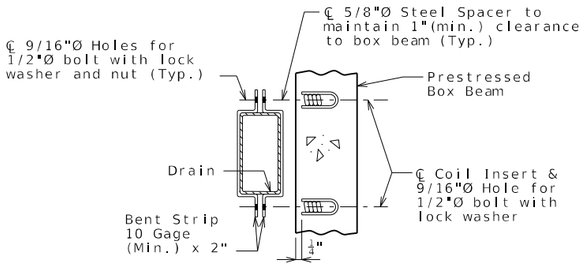
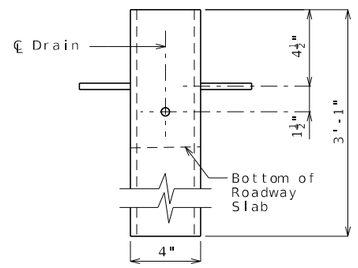


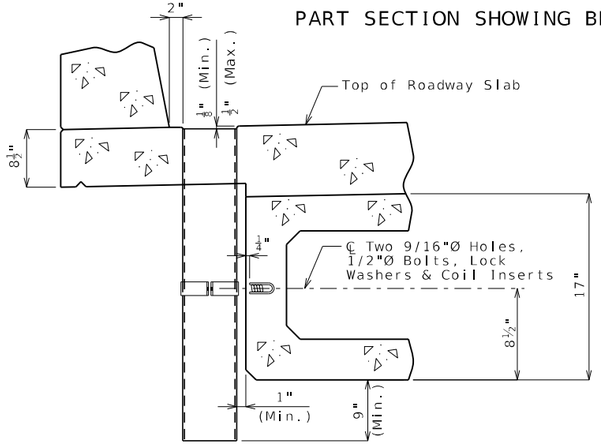
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



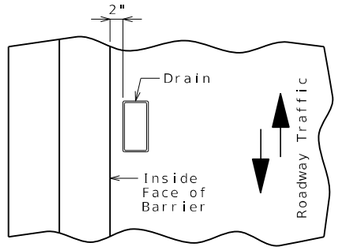
PART SECTION SHOWING BRACKET ASSEMBLY



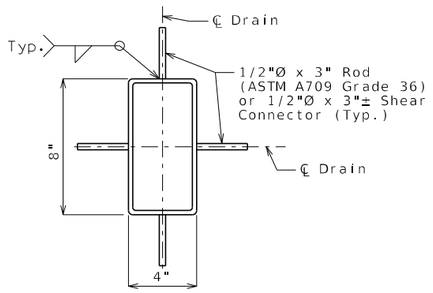
ELEVATION OF DRAIN



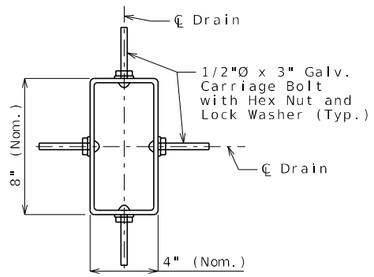
PART SECTION NEAR DRAIN



PART PLAN OF SLAB AT 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.

SLAB DRAINS

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PROFESSIONAL ENGINEER
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DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 13
COUNTY TEXAS
JOB NO. JSE0028
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9394

DESCRIPTION | DATE

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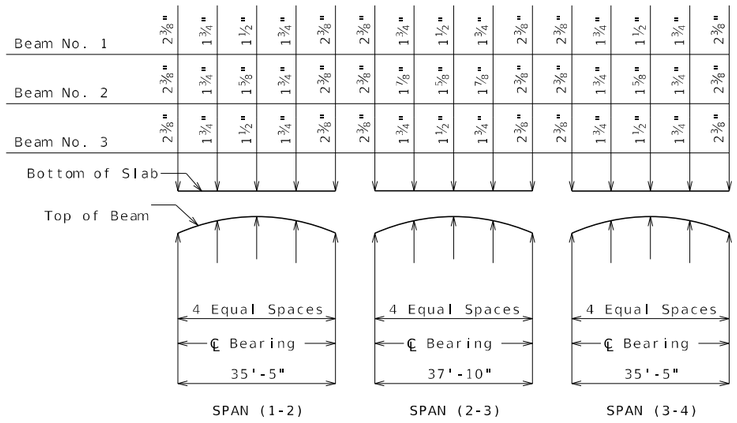
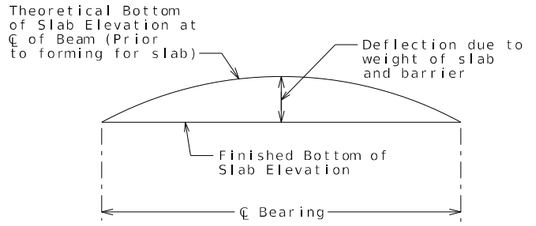


THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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.

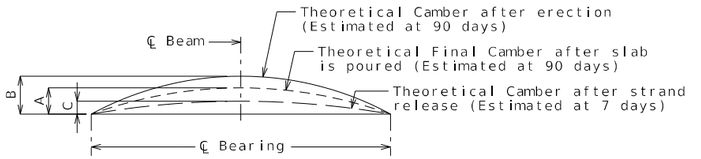


TYPICAL SLAB ELEVATION DIAGRAM

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

Beam Number	Span (1-2) (35'-5" ℄ Brg. - ℄ Brg.)					Span (2-3) (37'-10" ℄ Brg. - ℄ Brg.)					Span (3-4) (35'-5" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	1207.66	1207.68	1207.69	1207.68	1207.66	1207.66	1207.69	1207.70	1207.69	1207.66	1207.66	1207.68	1207.69	1207.68	1207.66
2	1207.86	1207.89	1207.90	1207.89	1207.86	1207.86	1207.90	1207.92	1207.90	1207.86	1207.86	1207.89	1207.90	1207.89	1207.86
3	1207.66	1207.68	1207.69	1207.68	1207.66	1207.66	1207.69	1207.70	1207.69	1207.66	1207.66	1207.68	1207.69	1207.68	1207.66

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.



Beam	Span (1-2)			Span (2-3)			Span (3-4)		
	A	B	C	A	B	C	A	B	C
Exterior	⅞"	1¼"	¾"	⅞"	1⅜"	¾"	⅞"	1¼"	¾"
Interior	⅞"			¾"			⅞"		

BEAM CAMBER DIAGRAM

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

0.25 pt. = 0.7125 x 0.5 pt.

SLAB ELEVATIONS, HAUNCHING & CAMBER

Detailed Feb. 2024
Checked Jun. 2024

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

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STATE OF MISSOURI
JASON A. DREYER
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PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/16/2024
ROUTE: 137 | STATE: MO
DISTRICT: BR | SHEET NO.: 14
COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

DESCRIPTION | DATE

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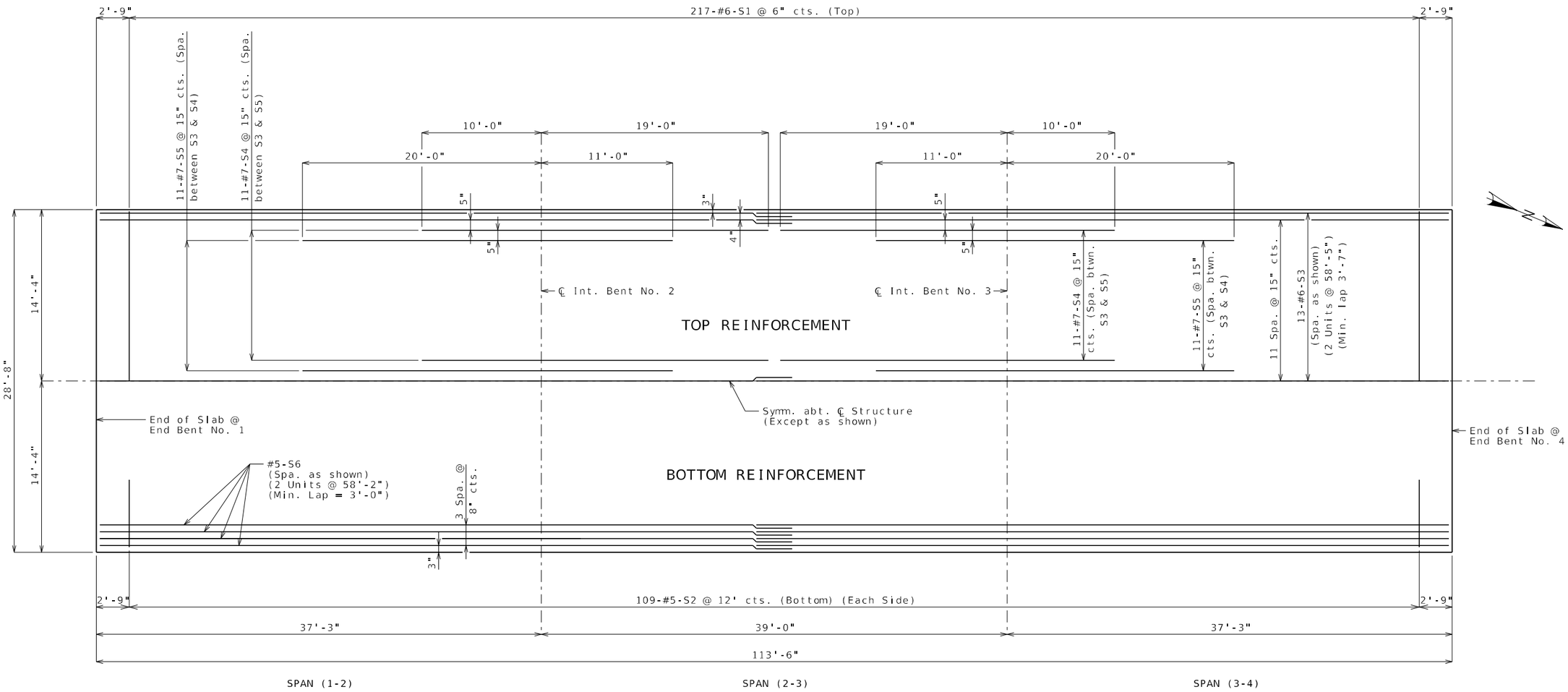

General Notes:
Longitudinal slab dimensions are measured horizontally.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 16.

For details and reinforcement of barrier not shown, see Sheets No. 17 & 18.

For Theoretical Slab Haunching Diagram and Theoretical Bottom of Slab Elevations, see Sheet No. 14.

For details of Prestressed Panels, see Sheet No. 12.

For details and locations of Slab Drains, see Sheet No. 13.

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Feb. 2024
Checked Jun. 2024

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

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JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

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DATE PREPARED
10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	15

COUNTY
TEXAS

JOB NO.
JSE0028

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9394

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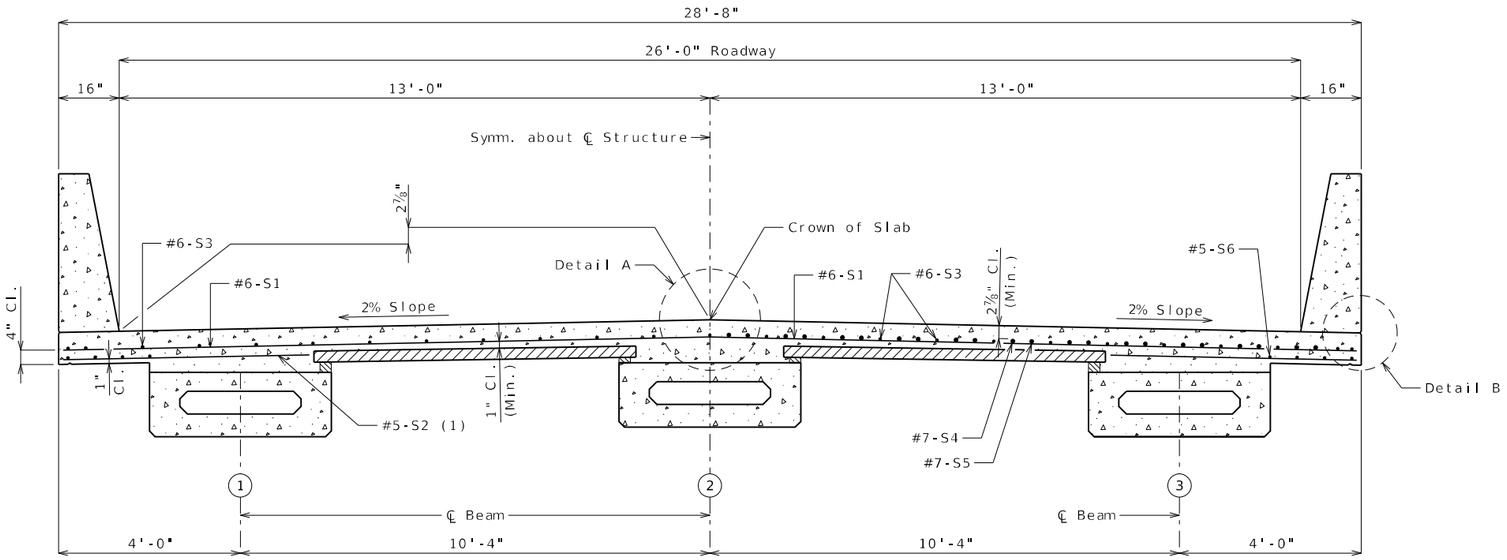
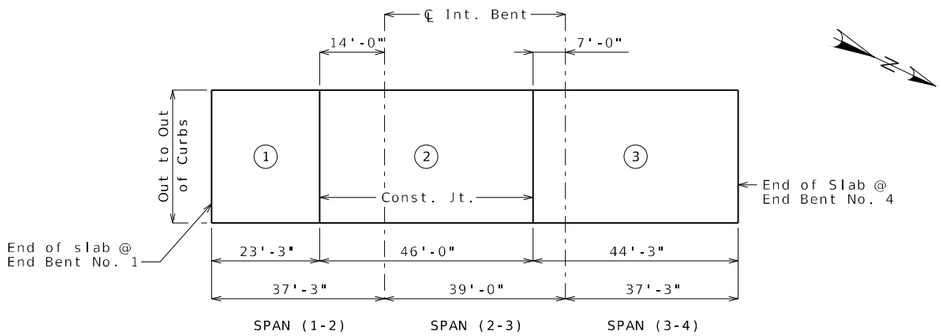


HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB

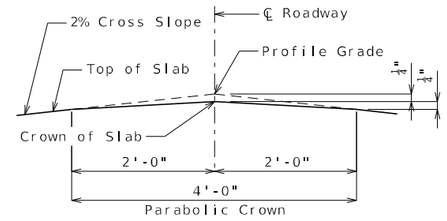


	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1 End to 2	2 1 to 3	3 2 to End	25
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1 + 2 End to 3		3 2 to End	25
Alternate B Pours	1 + 3 + 2 End to End			25

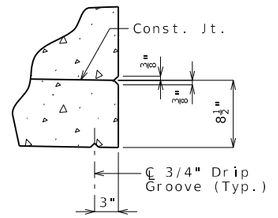
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

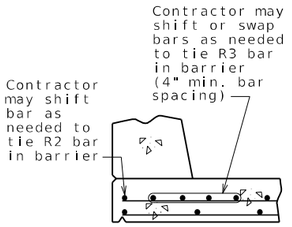
SLAB POURING SEQUENCE



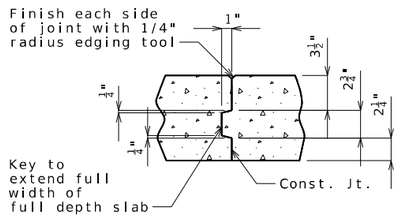
DETAIL A



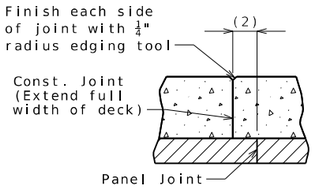
DETAIL B



OPTIONAL SHIFTING TOP BARS AT BARRIER



FULL DEPTH SLAB



SLAB ON PANELS

SLAB CONSTRUCTION JOINT

Reference Notes:
(1) Alternate bar shape available, see barrier sheet.
(2) Adjust the construction joint to a clearance of 6 inches minimum from the panel joint.

General Notes:
For details of Prestressed Panels, see Sheet No. 12.

For details and reinforcement of barrier now shown, see Sheets No. 17 & 18.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 14.

For Plan of Slab Showing Reinforcement, see Sheet No. 15.

SLAB DETAILS

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	16

COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

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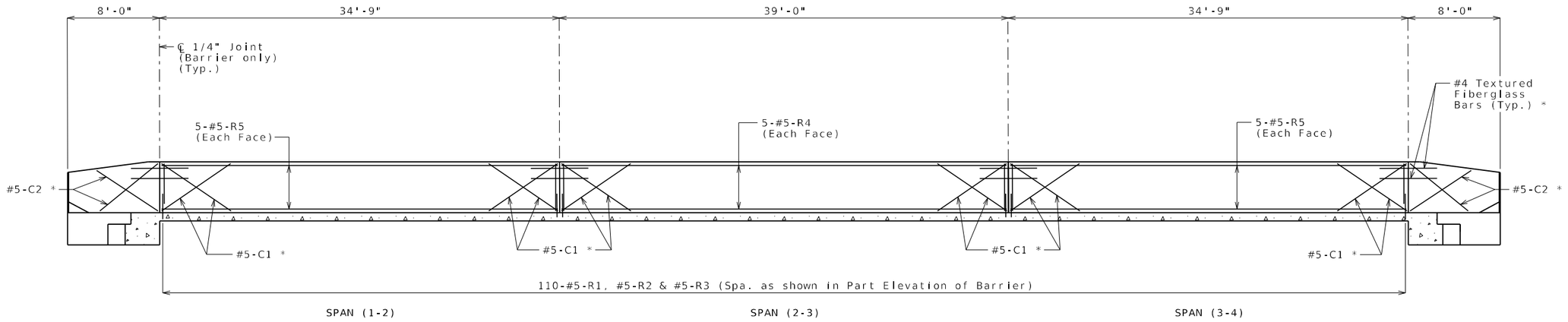
Note: This drawing is not to scale. Follow dimensions.

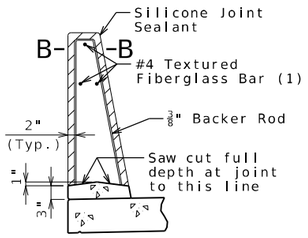
H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_016_JSE0028_Slab Details.dgn 11:55:24 PM 10/16/2024



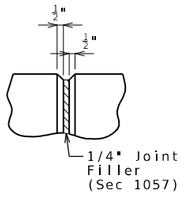
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

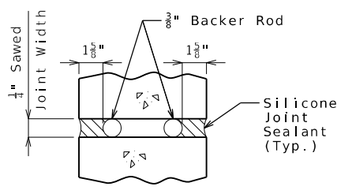
Longitudinal dimensions are horizontal.



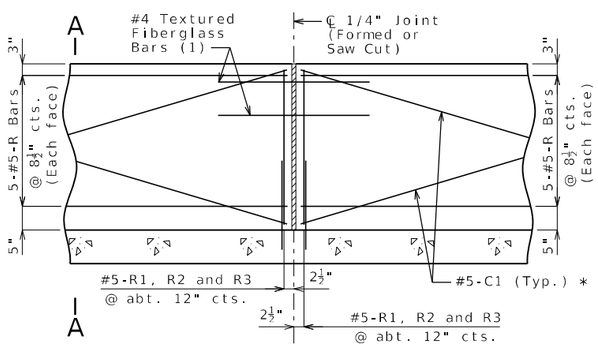
SECTION THRU SAW CUT JOINT



PART ELEVATION AT FORMED JOINT

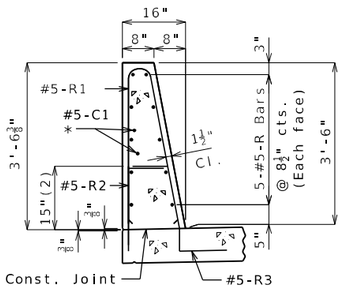


SECTION B-B



PART ELEVATION OF BARRIER

(1) Four feet long, centered on joint, slip-formed option only

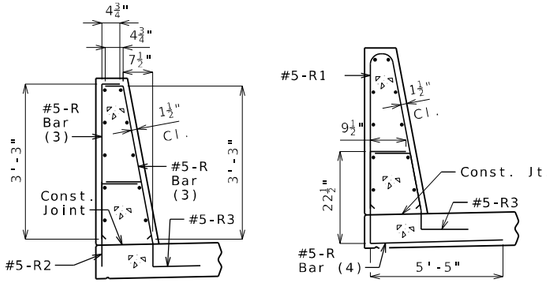


SECTION A-A

Use a minimum lap of 3'-1" for #5 horizontal barrier bars.

The cross-sectional area above the slab is 3.52 square feet.

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

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

(4) The R2 bar and #5 bottom transverse slab bar in cantilever (prestressed panels only) combination may be furnished as one bar as shown, at the contractor's option.

General Notes:

* Slip-formed option only.

Conventional forming or slip forming may be used. Saw cut joints may be used with conventional forming.

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

All exposed edges of barrier shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

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

Concrete in barrier shall be Class B-1.

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

Concrete traffic barrier delineators shall be placed on top of the 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.

Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

For slip-formed option, both sides of barrier shall have a vertically broomed finish and the top shall have a transversely broomed finish.

TYPE D BARRIER

Detailed Feb. 2024
Checked Jun. 2024

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

H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_017_JSE0028_Type D Barrier.dgn 11:55:33 PM 10/16/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

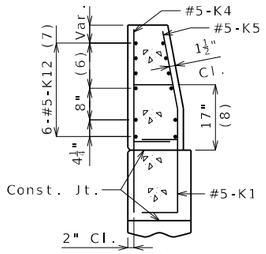
ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	17

COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

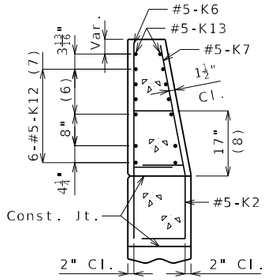
DESCRIPTION | DATE

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

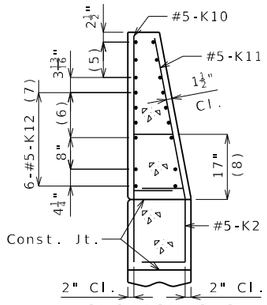
OATES ASSOCIATES
Collinsville 100 Lamer Court, Suite 1 Collinsville, IL 62234 618.345.2200
Belleville 1 South Church, Suite 700 Belleville, IL 62220 618.416.4488
St. Louis 720 Olive, Suite 700 St. Louis, MO 63101 314.588.8331
St. Charles 820 South Main, Suite 309 St. Charles, MO 63301 636.493.0277
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166



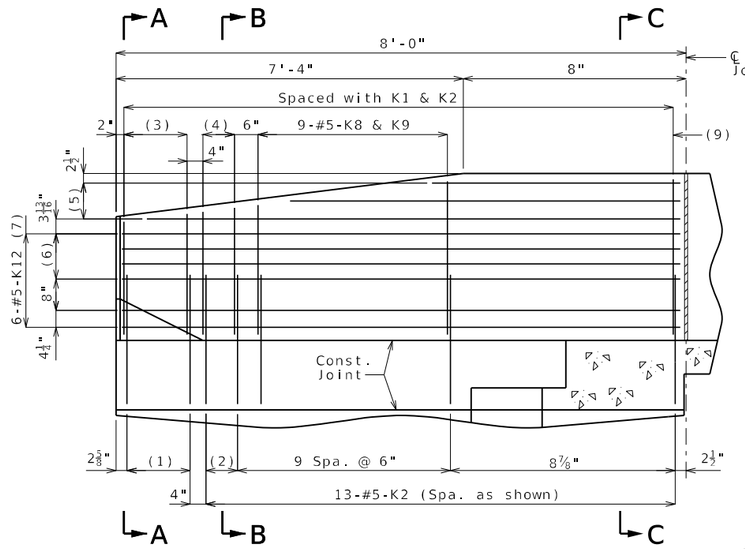
SECTION A-A

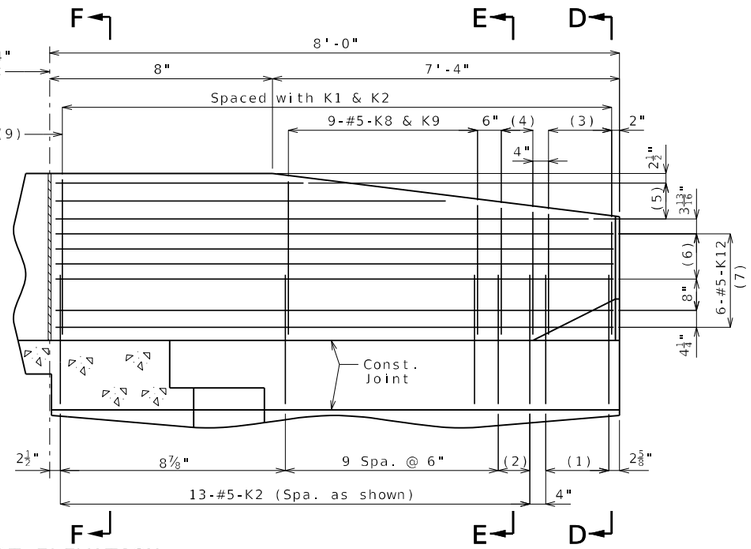


SECTION B-B

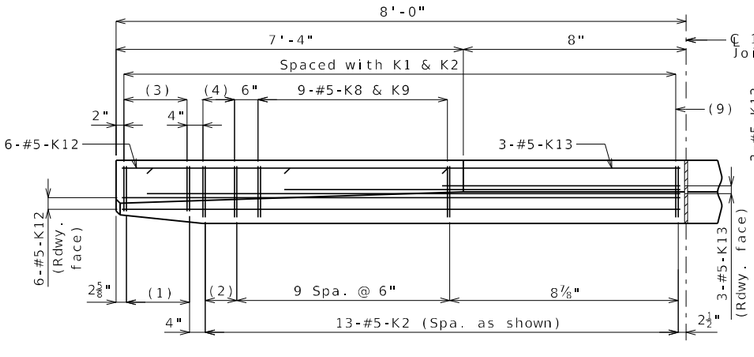


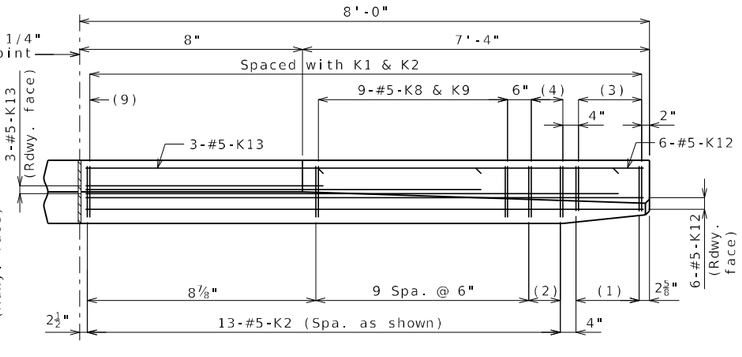
SECTION C-C



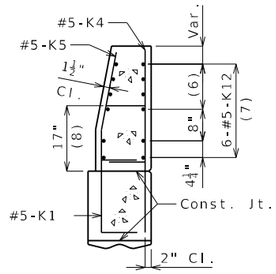


PART ELEVATION

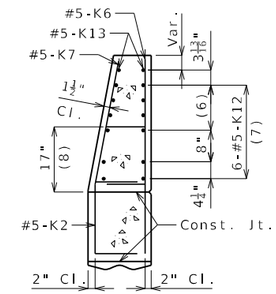




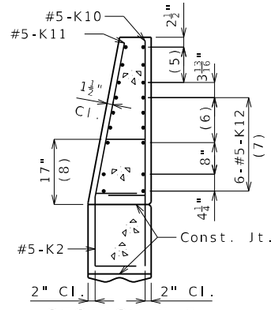
PART PLAN



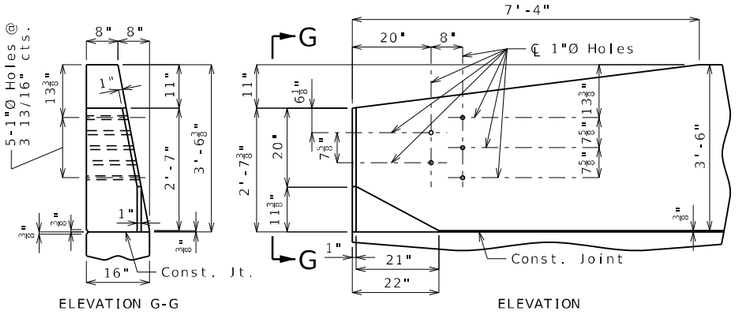
SECTION D-D



SECTION E-E



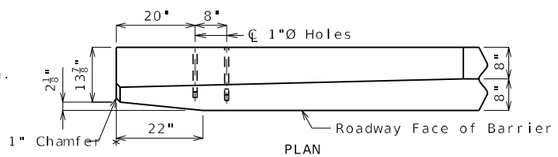
SECTION F-F



ELEVATION G-G

ELEVATION

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



PLAN

DETAILS OF GUARD RAIL ATTACHMENT

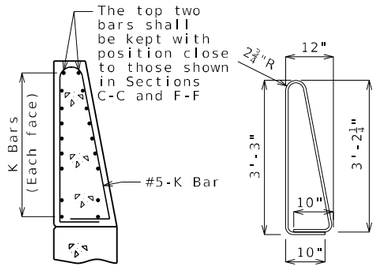
(1) 5-#5-K1 @ 4" cts.
(2) 2 spaces @ 4"
(3) 5-#5-K4 & K5
(4) 3-#5-K6 & K7
(5) 3-#5-K13 cts., each face
(6) 3 spaces @ 3 13/16"
(7) Spaced as shown, each face
(8) To top of bar
(9) 1-#5-K10 & K11

General Notes:

Reinforcing Steel:

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.

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



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.

TYPE D BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Detailed Feb. 2024
Checked Jun. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 18
COUNTY TEXAS
JOB NO. JSE0028
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9394

DESCRIPTION | DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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St. Louis 720 Olive, Suite 700 St. Louis, MO 63101 314.588.8381
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St. Charles 820 South Main - Suite 309 St. Charles, MO 63301 636.493.0277
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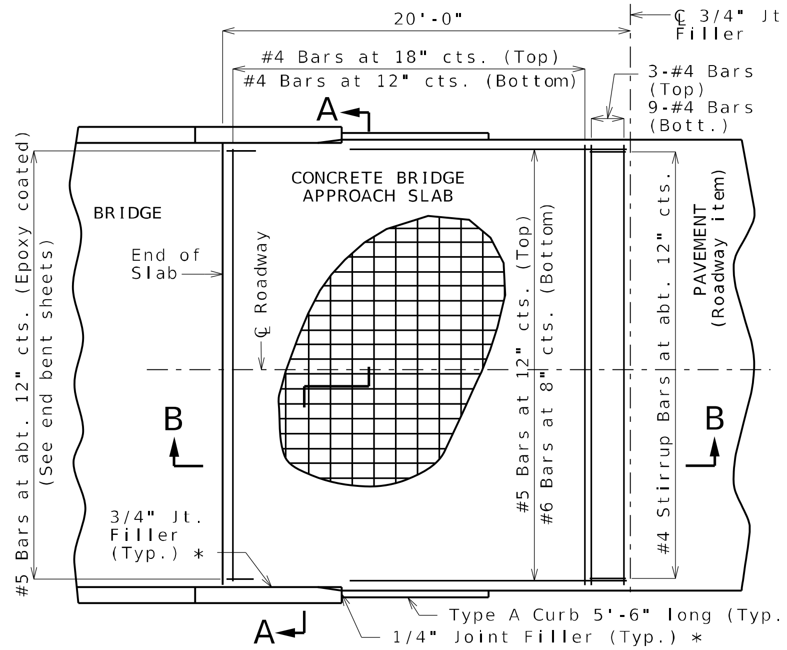
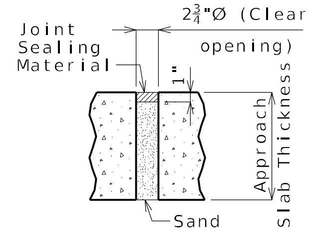
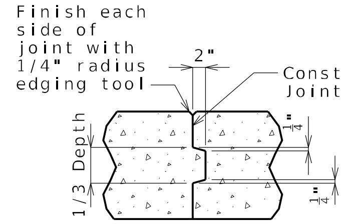


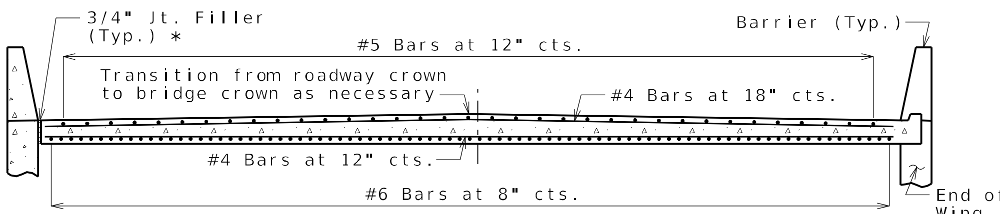
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



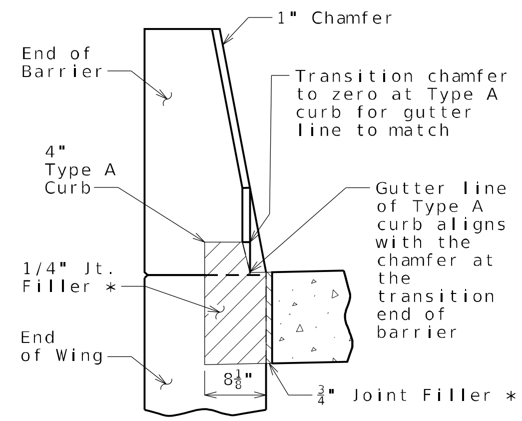
UNDERSEAL ACCESS HOLE DETAIL
(If required)



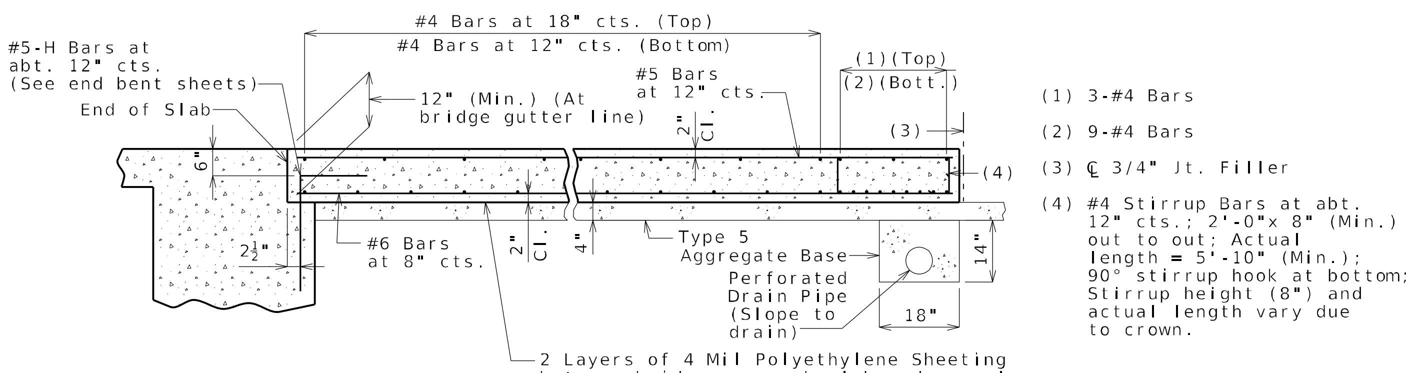
CONSTRUCTION JOINT DETAIL



SECTION A-A
With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.

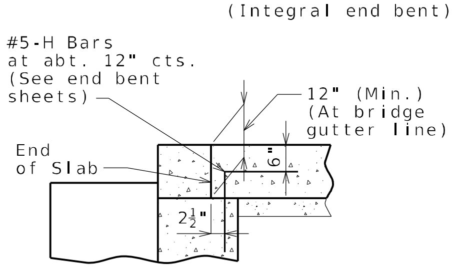


SECTION BETWEEN CURB AND BARRIER

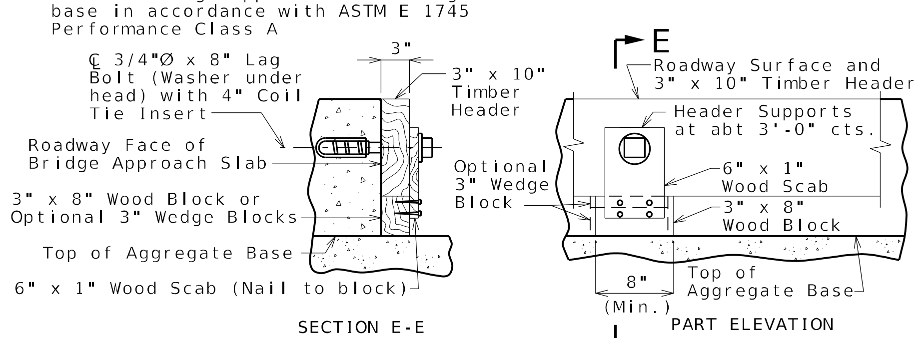


(1) 3-#4 Bars
(2) 9-#4 Bars
(3) ℄ 3/4" Jt. Filler
(4) #4 Stirrup Bars at abt. 12" cts.; 2'-0"x 8" (Min.) out to out; Actual length = 5'-10" (Min.); 90° stirrup hook at bottom; Stirrup height (8") and actual length vary due to crown.

SECTION B-B
(Integral end bent)



PART SECTION B-B
(Non-integral end bent)



DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

Notes For Concrete Slab Only:

All concrete for the bridge approach slab shall be in accordance with Sec 503 (f'c = 4,000 psi).

The reinforcing steel in the bridge approach slab shall be epoxy coated Grade 60 with fy = 60,000 psi.

Longitudinal construction joints in bridge approach slab shall be aligned with longitudinal construction joints in bridge slab.

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

The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 23 inches for #4 bars, or by mechanical bar splice.

Mechanical bar splices shall be in accordance with Sec 710.

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.

Payment for furnishing all materials, labor and excavation necessary to construct the concrete bridge approach slab, including the timber header, underdrain, Type 5 aggregate base, joint filler, and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.

See Missouri Standard Plan 609.00 for details of Type A curb.

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

* Seal joint between vertical face of approach slab and wing with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

General Notes:

Contractor shall have the option to construct either slab except as noted.

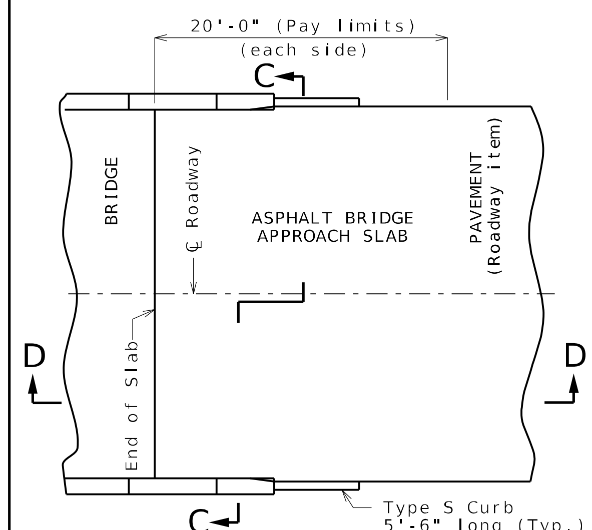
The contractor shall pour and satisfactorily finish the bridge slab before placing the bridge approach slab.

MoDOT Construction personnel will indicate the bridge approach slab used for this structure:
☐ Concrete Bridge Approach Slab
☐ Asphalt Bridge Approach Slab

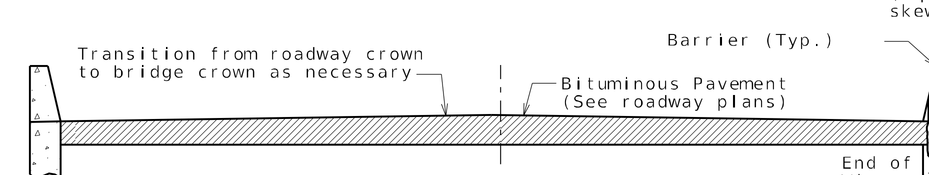
Notes For Asphalt Slab Only:

Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.

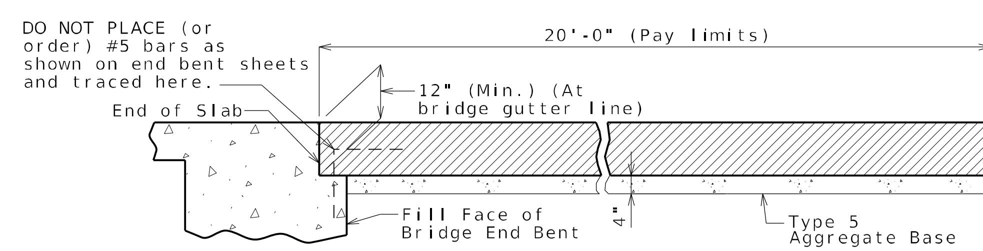
Application of tack is required between lifts per Sec 403.



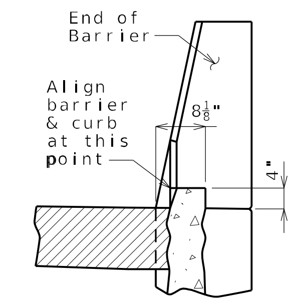
PART PLAN
(Squared structure shown, skewed structure similar)



SECTION C-C
With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



SECTION D-D



4" TYPE S CURB
See Missouri Standard Plan 609.00 for details of Type S curb.

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

JASON A. DREYER, NUMBER PE-2013038971, STATE OF MISSOURI, PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/16/2024
ROUTE	137
STATE	MO
DISTRICT	BR
SHEET NO.	19
COUNTY	TEXAS
JOB NO.	JSE0028
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9394

DESCRIPTION | DATE

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

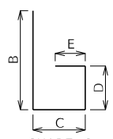
OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166

BRIDGE APPROACH SLAB (MINOR)
Integral end bents shown, non-integral end bent similar.

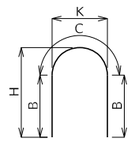
Detailed Feb. 2024
Checked Jun. 2024

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

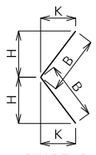
H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_019_JSE0028_Bridge Approach Slab (Minor).dgn 11:55:59 PM 10/16/2024



SHAPE 6
or 6S



SHAPE 7



SHAPE 8
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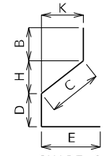
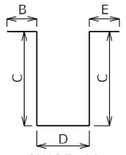
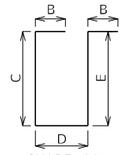


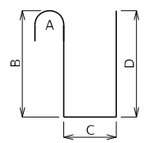
SHAPE 9
or 9S



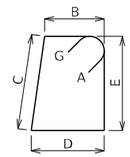
SHAPE 10
or 10S



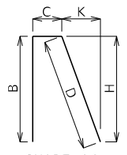
SHAPE 11
or 11S



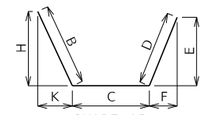
SHAPE 12



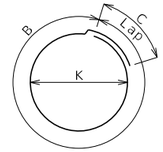
SHAPE 13S



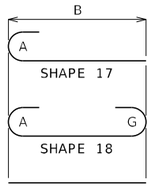
SHAPE 14
or 14S



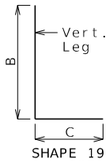
SHAPE 15
or 15S



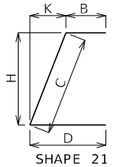
SHAPE 16



SHAPE 17
SHAPE 18
SHAPE 20



SHAPE 19
or 19S



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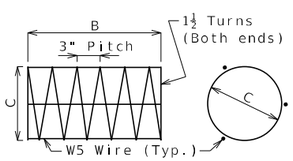
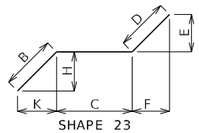
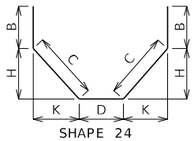
or 21S



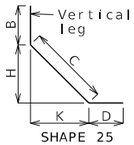
SHAPE 22



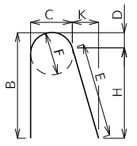
SHAPE 23
or 23S



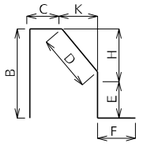
SHAPE 24
or 24S



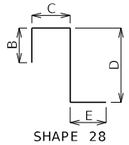
SHAPE 25
or 25S



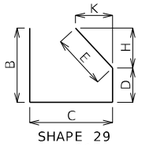
SHAPE 26



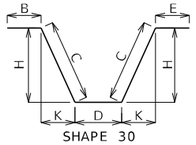
SHAPE 27S



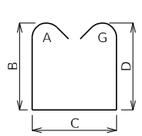
SHAPE 28
or 28S



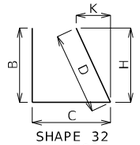
SHAPE 29
or 29S



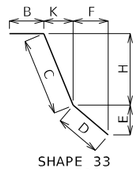
SHAPE 30
or 30S



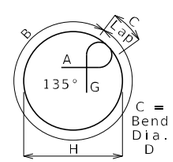
SHAPE 31S



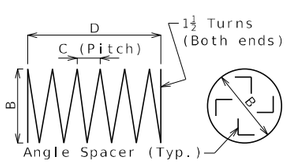
SHAPE 32
or 32S



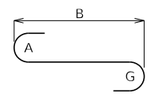
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

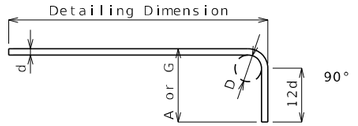


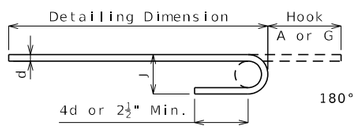
SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¾"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36½"	28½"



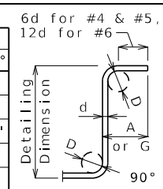


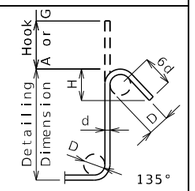
Stirrup Pin Bend Shapes (S)

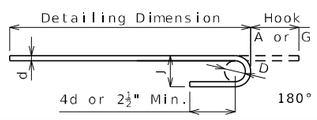
Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4½"	4½"	5"	2⅝"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5⅝"	5⅝"	5⅝"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅝"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

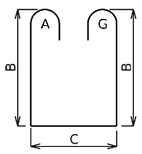
Applicable for all grades of steel.

Case 1 applies to all reinforcement. Case 2 applies to all reinforcement except for galvanized bars. Case 3 applies to galvanized bars only.

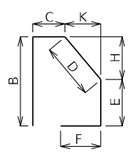








SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

Shapes ending with an S shall be bent in accordance with stirrup pin bend shapes.

Unless otherwise noted, finished bending diameter D is the same for all bends of a shape.

(1) Shall be a deformed or plain spiral bar or wire.

Four angle or channel spacers are required for each column spiral. Spacers are to be placed on inside of spirals. Length and weight of column spirals do not include splices or spacers.

Reinforcing Steel Totals (Pounds)

	Size	Substructure		Superstructure				Entire Bridge	
				Slab					
		Plain	Epoxy	Plain	Epoxy	Barrier	Slip Form	Plain	Epoxy
By Size	4	41	-	-	550	-	-	41	550
	5	613	-	-	3,289	6,762	348	613	10,399
	6	531	-	-	16,878	-	-	531	16,878
	7	-	-	-	6,790	-	-	-	6,790
	8	1,178	-	-	641	-	-	1,178	641
By Type		2,363	-	-	28,148	6,762	348	2,363	35,258

All superstructure reinforcing steel shall be epoxy coated unless otherwise specified.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Feb. 2024
Checked Jun. 2024

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

H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_020_JSE0028_Bending Diagrams and Reinforcing Steel Totals.dgn 11:56:10 PM 10/16/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	20

COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

DESCRIPTION / DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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St. Louis, MO 63101
314.588.8381
St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.5277
Collinsville
160 Jamer Court, Suite 1
Collinsville, IL 62234
618.345.4200
Belleville
1 South Church, Suite 200
Belleville, IL 62220
618.416.4488
www.oatesassociates.com

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		SUBSTRUCTURE													
24	6 D200	BEAM		20		2 6.000							2 6	2 6	90
16	8 H200	BEAM		18		25 9.000							27 7	27 7	1178
8	6 H201	BEAM		20		25 9.000							25 9	25 9	309
16	6 H202	BEAM		10S			22.000	2 1.750					5 10	5 6	132
48	5 U200	BEAM		13S		2 3.000	2 9.000	2 3.000	2 9.000				11 0	10 8	534
10	5 U201	BEAM		10S			2 9.000	2 3.000					7 9	7 7	79
20	4 U202	BEAM		10S			6.000	2 3.000					3 3	3 1	41
		SUPERSTRUCTURE													
		END BENTS 1 & 4													
28	6 F100	WING BRACE	E	15		2 3.000	5 0.000	14.000	9.875	9.875	19.125	19.125	8 5	8 4	350
8	6 F101	DIAPHRAGM	E	6		7 5.000	2 8.000						10 1	9 11	119
16	7 H100	BEAM	E	20		28 5.000							28 5	28 5	929
8	6 H101	BEAM	E	20		28 5.000							28 5	28 5	341
4	6 H102	DIAPHRAGM	E	20		28 5.000							28 5	28 5	171
12	6 H103	DIAPHRAGM	E	20		6 1.000							6 1	6 1	110
12	6 H104	DIAPHRAGM	E	20		21.000							21	21	32
6	5 H105	STRAND TIE	E	20		6 6.000							6 6	6 6	41
8	7 H106	DIAPHRAGM	E	20		28 5.000							28 5	28 5	465
56	6 H107	WINGWALL	E	20		6 8.000							6 8	6 8	561
32	8 H108	WINGWALL	E	20		7 6.000							7 6	7 6	641
28	5 U100	BEAM	E	37S		3 11.500	2 9.000						11 8	11 5	333
50	4 U101	BEAM	E	13S		2 9.000	2 8.000	2 9.000	2 8.000				11 7	11 4	379
52	5 U102	DIAPHRAGM	E	19S		20.000	15.000						2 11	2 10	154
70	6 U103	DIAPHRAGM	E	19S		23.000	4 7.000						6 6	6 4	666
36	5 U104	DIAPHRAGM	E	37S		23.000	2 3.000						7 3	7 1	266
36	6 U105	DIAPHRAGM	E	19S		11.000	2 9.000						3 8	3 6	189
8	5 V100	BEAM	E	17		3 11.500							4 6	4 6	38
36	6 V101	DIAPHRAGM	E	20		11.000							11	11	50
48	6 V102	WINGWALL	E	20		4 11.000							4 11	4 11	354
		INT. BENT 2 & 3 DIAPH.													
16	6 H300	DIAPHRAGM	E	20		6 1.000							6 1	6 1	146
8	4 H301	DIAPHRAGM	E	20		6 1.000							6 1	6 1	33
24	5 H302	DIAPHRAGM	E	19S		5 3.000	9.000						6 0	5 11	148
8	5 H303	STRAND TIE	E	20		5 6.000							5 6	5 6	46
4	5 H304	STRAND TIE	E	20		6 6.000							6 6	6 6	27
16	6 U300	DIAPHRAGM	E	28S			2 3.000	21.000	2 2.000				6 2	5 10	140
40	4 U301	DIAPHRAGM	E	28S			2 1.000	21.000	18.000				5 4	5 2	138
16	5 V300	DIAPHRAGM	E	20		2 0.000							2 0	2 0	33
		SLAB													
217	6 S1	SLAB	E	20		28 5.000							28 5	28 5	9262
218	5 S2	SLAB	E	20		5 5.000							5 5	5 5	1232
50	6 S3	SLAB	E	20		58 5.000							58 5	58 5	4387
44	7 S4	SLAB	E	20		29 0.000							29 0	29 0	2608
44	7 S5	SLAB	E	20		31 0.000							31 0	31 0	2788
16	5 S6	SLAB	E	20		58 2.000							58 2	58 2	971
		TYPE D BARRIER													
20	5 K1	BARRIER	E	38S		3 7.000	9.250	5.375	3 1.750	9.500	5.250	1.000	8 9	8 5	176
52	5 K2	BARRIER	E	38S		3 7.000	9.250	14.500	2 4.750	10.000	14.250	2.750	8 10	8 6	461
20	5 K4	BARRIER	E	19S	4	2 4.250	10.000						3 2	3 1	66
		INCREMENT = 0.500 INCH				2 6.250	10.000						3 4	3 3	
20	5 K5	BARRIER	E	38S	4			18.500	9.500	8.250	18.000	4.000	3 0	2 11	63
		INCREMENT = 0.500 INCH						20.500	9.500	8.250	20.000	4.500	3 2	3 1	

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
12	5 K6	BARRIER	E	19S		2 6.750	10.000						3 5	3 4	42
12	5 K7	BARRIER	E	21S			2 6.625	10.000			2 6.000	6.250	3 5	3 3	41
36	5 K8	BARRIER	E	19S	4	2 8.500	10.000						3 7	3 5	138
		INCREMENT = 0.750 INCH				3 2.500	10.000						4 1	3 11	
36	5 K9	BARRIER	E	21S	4		2 8.500	10.000			2 7.750	6.750	3 7	3 5	138
		INCREMENT = 0.750 INCH					3 2.500	10.000			3 1.750	7.750	4 1	3 11	
4	5 K10	BARRIER	E	19S		3 3.000	10.000						4 1	4 0	17
4	5 K11	BARRIER	E	21S			3 3.000	10.000			3 2.250	7.750	4 1	3 11	16
48	5 K12	BARRIER	E	20		7 9.000							7 9	7 9	388
24	5 K13	BARRIER	E	20	8	12.000							12	12	100
		INCREMENT = 36.000 INCH				7 0.000							7 0	7 0	
220	5 R1	BARRIER	E	26		3 3.000	5.500	2.250	3 1.375	5.500	3 0.750	6.750	6 9	6 9	1549
220	5 R2	BARRIER	E	19S		20.500	9.500						2 6	2 5	555
220	5 R3	BARRIER	E	27S			9.500	15.250	5.000	12.000	15.000	3.000	3 6	3 4	765
20	5 R4	BARRIER	E	20		38 9.000							38 9	38 9	808
40	5 R5	BARRIER	E	20		34 6.000							34 6	34 6	1439
		SLIP FORM BARRIER													
24	5 C1	BARRIER	E	20		12 0.000							12 0	12 0	300
8	5 C2	BARRIER	E	20		5 9.000							5 9	5 9	48

Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed to the nearest inch for fabricator's use. Actual lengths are measured along centerline bar to the nearest inch. Weights are based on actual lengths.

For bending diagrams and steel reinforcing totals, see Sheet No. 20.

All bars shall be Grade 60.

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.

SH = Required shape, see bending diagrams.

V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

BILL OF REINFORCING STEEL

Detailed Feb. 2024
Checked Jun. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE 137 | STATE MO

DISTRICT BR | SHEET NO. 21

COUNTY TEXAS

JOB NO. JSE0028

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9394

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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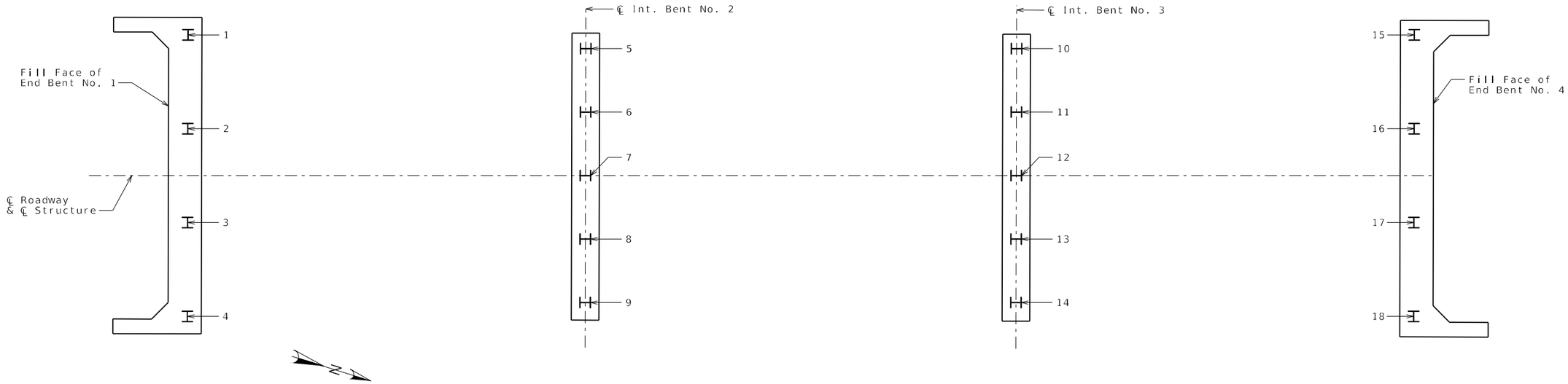
MISSOURI DESIGN FIRM PE-001166



PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 1
1			
2			
3			
4			
			Intermediate Bent No. 2
5			
6			
7			
8			
9			
			Intermediate Bent No. 3
10			
11			
12			
13			
14			
			End Bent No. 4
15			
16			
17			
18			

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE DATA

Detailed Feb. 2024
Checked Jun. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO

DISTRICT	SHEET NO.
BR	22

COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

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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MISSOURI DESIGN FIRM PE-001166

Missouri Department of Transportation
Construction and Materials

BORING NO. B-101
Page 1 of 1

Job No.: SE0028 (SCI No. 2023-0152.12)
County: Texas
Route: SR137
Design: A9394
Skew: Square
Location: Texas County
Bent: End Bent #1
Logged By: Brian Ratajczyk
Operator: Midwest Drilling, Inc.
Station: 1156+51
Northing: 510132.5871
Date of Work: 02/27/24
Offset: 4' Rt.
Easting: 1829797.78
Depth to Water: None
Elevation: 1208.0
Requested Northing: 510143.69
Depth Hole Open: 11.0
Requested Station: 1156+61
Requested Easting: 1829799.67
Time Change: N/A
Requested Offset: 9' Rt.
Equipment: CME 750 ,Split-Spoon Sampler
Requested Elevation:
Location Note: On top of SR-137 near End Bent #1
Drill No.: 255648
Hammer Efficiency: 90.7%
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.7' 8" ASPHALTIC CONCRETE							
		0.7-3.0' (FILL) Brown, LEAN CLAY, some fine- to coarse-grained sand, some fine to coarse gravel			56	6-7-7 (21)		PP >4.50 tsf	MC = 11.1%
			1205						
		3.0-8.0' (FILL) Brown, CLAYEY GRAVELLY SAND, fine- to coarse-grained, gravel is fine to coarse, clay is lean 3.5' *GRAIN SIZE ANALYSIS TEST PERFORMED*			39	5-4-3 (11)			
5					39	5-6-6 (18)			
			1200						
		8.0-11.0' (FILL) Brown, SANDY LEAN CLAY, trace fine to coarse gravel, sand is fine- to coarse-grained 8.5' *GRAIN SIZE ANALYSIS TEST PERFORMED*			61	2-3-4 (11)		PP = 2.50 tsf	LL = 28 PL = 16 MC = 18.7%
10		Refusal at 11.0 feet. Bottom of borehole at 11.0 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000078825
Coordinate Datum: NAD 1983 **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.

LETTER BOREHOLE - MODOT 20150728.GDT - 7/17/24 15:33 - N:\LABORATORY\ACTIVE GINT PROJECTS\2023-0152.12 SR137 OVER BIG CREEK.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. B-102
Page 1 of 1

Job No.: SE0028 (SCI No. 2023-0152.12)
County: Texas
Route: SR137
Design: A9394
Skew: Square
Location: Texas County
Bent: End Bent #1
Logged By: Brian Ratajczyk
Operator: Midwest Drilling, Inc.
Station: 1156+61
Northing: 510138.5131
Date of Work: 02/27/24
Offset: 9' Lt.
Easting: 1829782.43
Depth to Water: None
Elevation: 1207.0
Requested Northing: 510138.51
Depth Hole Open: 11.0
Requested Station: 1156+61
Requested Easting: 1829782.43
Time Change: N/A
Requested Offset: 9' Lt.
Equipment: CME 750 ,Split-Spoon Sampler
Requested Elevation:
Location Note: On top of SR-137 near End Bent #1
Drill No.: 255648
Hammer Efficiency: 90.7%
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.7' 8" ASPHALTIC CONCRETE							
		0.7-8.0' (FILL) Brown, SANDY LEAN CLAY, some fine to coarse gravel, sand is fine- to coarse-grained	1205		44	6-8-11 (29)		PP >4.50 tsf	MC = 6.0%
5					44	5-7-6 (20)		PP >4.50 tsf	MC = 4.7%
		6.0' with fine to coarse gravel							
			1200		44	5-6-8 (21)		PP >4.50 tsf	MC = 9.2%
		8.0-11.0' (CL) Grayish brown, LEAN CLAY, some fine- to coarse-grained sand							
10					67	4-4-4 (12)		PP = 4.00 tsf	MC = 16.7%
		Refusal at 11.0 feet. Bottom of borehole at 11.0 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000078825
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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LETTER BOREHOLE - MODOT 20150728.GDT - 7/17/24 15:33 - N:\LABORATORY\ACTIVE GINT PROJECTS\2023-0152.12 SR137 OVER BIG CREEK.GPJ

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 23
COUNTY TEXAS
JOB NO. JSE0028
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9394

DESCRIPTION
DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166

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1 South Church, Suite 200
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St. Charles, MO 63301
636.493.5277

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Detailed Feb. 2024
Checked Jun. 2024

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

Sheet No. 23 of 27

BORING DATA

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

H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_023_JSE0028_Boring Data.dgn 11:56:41 PM 10/16/2024

Missouri Department of Transportation
Construction and Materials

BORING NO. B-201
Page 1 of 1

Job No.: SE0028 (SCI No. 2023-0152.12) **County:** Texas **Route:** SR137
Design: A9394 **Skew:** Square **Location:** Texas County
Bent: Interior Bent #2 **Logged By:** Brian Ratajczyk **Operator:** Midwest Drilling, Inc.
Station: 1157+01 **Northing:** 510184.577 **Date of Work:** 03/05/24
Offset: 17' Rt. **Easting:** 1829795.95 **Depth to Water:** 0.0
Elevation: 1196.0 **Requested Northing:** 510177.31 **Depth Hole Open:** 15.0
Requested Station: 1156+97 **Requested Easting:** 1829786.45 **Time Change:** 0 hours
Requested Offset: 6' Rt. **Equipment:** CME 750 ,NQ
Requested Elevation: **Location Note:** On creek bed near Interior Bent #2
Drill No.: 255648 **Hammer Efficiency:** 90.7% **Drilling Method:** N/A

Depth (ft)	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0	0.0-1.4' SANDSTONE: Gray, hard to very hard, very finely grained, thin to medium bedding, slightly weathered, dense. Average core time 2.0 minutes/ft.	1195						
	1.4-15.0' DOLOMITE: Gray, hard to very hard, micritic to very finely crystalline, thin to medium bedding, slightly to moderately weathered, pitted to dense. Average core time 3 minutes/ft Run 1 and 2.9 minutes/ft Runs 2 and 3. 2.0' -3.0' About 3 inch of drop observed in between these depths. 3.0' Lost return water to boring termination.			77 (44)		Qu Test Results UCS = 516 ksf; γ_{moist} = 144 pcf		
5		1190						
	7.0' About 2 inch drop observed while coring.			60 (28)		Qu Test Results UCS = 594 ksf; γ_{moist} = 166.3 pcf		
10	9.5' with chert	1185		95 (53)				
15	15.0' 500 psi downpressure observed while coring. Refusal at 0.0 feet. Bottom of borehole at 15.0 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000078825
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-202
Page 1 of 1

Job No.: SE0028 (SCI No. 2023-0152.12) **County:** Texas **Route:** SR137
Design: A9394 **Skew:** Square **Location:** Texas County
Bent: Interior Bent #2 **Logged By:** Brian Ratajczyk **Operator:** Midwest Drilling, Inc.
Station: 1156+98 **Northing:** 510174.883 **Date of Work:** 03/04/24
Offset: 6' Lt. **Easting:** 1829774.7 **Depth to Water:** 0.0
Elevation: 1196.0 **Requested Northing:** 510173.86 **Depth Hole Open:** 15.0
Requested Station: 1156+97 **Requested Easting:** 1829774.95 **Time Change:** 0 hours
Requested Offset: 6' Lt. **Equipment:** CME 750 ,NQ
Requested Elevation: **Location Note:** On creek bed near Interior Bent #2
Drill No.: 255648 **Hammer Efficiency:** 90.7% **Drilling Method:** N/A

Depth (ft)	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0	0.0-1.4' SANDSTONE: Gray, hard to very hard, very finely grained, thinly to mediumly bedded, slightly weathered, dense. Average core time 2.0 minutes/ft.	1195						
	1.4-15.0' DOLOMITE: Gray, hard to very hard, micritic to very finely crystalline, thinly to mediumly bedded, slightly to moderately weathered, pitted to dense. Average core time 2.9 minutes/ft Run 1, 1.6 minutes/ft Run 2, and 3.5 minutes/ft Run 3. 1.5' - 2.0' intermittent drops observed			97 (59)		Qu Test Results UCS = 1530 ksf; γ_{moist} = 153.8 pcf		
5	5.5' -7.0' intermittent drops observed	1190						
	8.0' -8.5' about 0.5 ft drop observed, with chert			49 (0)		Qu Test Results UCS = 302 ksf; γ_{moist} = 157.3 pcf		
10		1185		92 (76)				
15	14.8' 500 psi downpressure and good water return observed Refusal at 0.0 feet. Bottom of borehole at 15.0 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000078825
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 24
COUNTY TEXAS
JOB NO. JSE0028
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9394

DESCRIPTION | DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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St. Charles 820 South Main, Suite 399 St. Charles, MO 63301 636.493.5277
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Detailed Feb. 2024
Checked Jun. 2024

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

Sheet No. 24 of 27

BORING DATA

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

Docusign Envelope ID: 920DC6DD-42D0-47FC-B96E-9F47A3392BB7

Missouri Department of Transportation
Construction and Materials

BORING NO. B-301
Page 1 of 1

Job No.: SE0028 (SCI No. 2023-0152.12)	**County:** Texas	**Route:** SR137
Design: A9394	**Skew:** Square	**Location:** Texas County
Bent: Interior Bent #3	**Logged By:** Brian Ratajczyk	**Operator:** Midwest Drilling, Inc.
Station: 1157+38	**Northing:** 510218.6632	**Date of Work:** 03/04/24
Offset: 14' Rt.	**Easting:** 1829782.89	**Depth to Water:** 0.0
Elevation: 1196.0	**Requested Northing:** 510214.66	**Depth Hole Open:** 15.0
Requested Station: 1157+36	**Requested Easting:** 1829775.24	**Time Change:** 0 hours
Requested Offset: 6' Rt.	**Equipment:** CME 750 ,NQ	
Requested Elevation:	**Location Note:** On creek bed near Interior Bent #3	
Drill No.: 255648	**Hammer Efficiency:** 90.7%	**Drilling Method:** N/A

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-1.3' SANDSTONE: Gray, hard to very hard, very finely grained, thin to medium bedding, slightly weathered, dense. Average core time 1.5 minutes/ft. 0.8' 2 inch of drop observed	1195		84 (47)		Qu Test Results UCS = 582 ksf; γ_{moist} = 160.2 pcf		
		1.3-15.0' DOLOMITE: Gray, hard to very hard, micritic to very finely crystalline, thin to medium bedding, slightly to moderately weathered, pitted to dense. Average core time 2.4 minutes/ft for Run 1, 2.8 minutes/ft for Run 2, and 2.7 minutes/ft for Run 3. 3.0' Lost return water to boring termination. 3.3' Approximate 2 inch drop observed while coring.							
5		7.3' Approximate 3 inch drop observed while coring. 7.8' Approximate 9 inch drop observed while coring. 8.0' with chert	1190		85 (45)		Qu Test Results UCS = 312 ksf; γ_{moist} = 156.3 pcf		
10			1185		93 (66)		Qu Test Results UCS = 520 ksf; γ_{moist} = 146.8 pcf		
15		14.8' 500 psi downpressure observed while coring.							

Refusal at 0.0 feet.
Bottom of borehole at 15.0 feet.

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000078825
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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Docusign Envelope ID: 920DC6DD-42D0-47FC-B96E-9F47A3392BB7

Missouri Department of Transportation
Construction and Materials

BORING NO. B-302
Page 1 of 1

Job No.: SE0028 (SCI No. 2023-0152.12)	**County:** Texas	**Route:** SR137
Design: A9394	**Skew:** Square	**Location:** Texas County
Bent: Interior Bent #3	**Logged By:** Brian Ratajczyk	**Operator:** Midwest Drilling, Inc.
Station: 1157+38	**Northing:** 510210.8585	**Date of Work:** 03/04/24
Offset: 14' Lt.	**Easting:** 1829755.44	**Depth to Water:** 0.0
Elevation: 1196.0	**Requested Northing:** 510211.21	**Depth Hole Open:** 15.5
Requested Station: 1157+36	**Requested Easting:** 1829763.75	**Time Change:** 0 hours
Requested Offset: 6' Lt.	**Equipment:** CME 750 ,NQ	
Requested Elevation:	**Location Note:** On creek bed near Interior Bent #3	
Drill No.: 255648	**Hammer Efficiency:** 90.7%	**Drilling Method:** N/A

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-1.4' SANDSTONE: Gray, hard to very hard, very finely grained, thin to medium bedding, slightly weathered, dense. Average core time 1.2 minutes/ft.	1195		90 (51)		Qu Test Results UCS = 846 ksf; γ_{moist} = 147.5 pcf		
		1.4-15.0' DOLOMITE: Gray, hard to very hard, micritic to very finely crystalline, thin to medium bedding, slightly to moderately weathered, pitted to dense. Average core time 1.4 minutes/ft for Run 1, 1.3 minutes/ft for Run 2, and 2.1 minutes/ft for Run 3. 1.8' Approximate 3 inch drop observed while coring.							
5		2.8' Approximate 6 inch drop observed while coring. 4.5' Approximate 2 inch drop observed while coring. 6.0' Approximate 2.5 ft drop observed while coring. 8.0' with chert	1190		30 (15)		Qu Test Results UCS = 444 ksf; γ_{moist} = 153.1 pcf		
10			1185		90 (53)		Qu Test Results UCS = 264 ksf; γ_{moist} = 151.1 pcf		
15		14.8' 500 psi downpressure and good water return observed while coring.							

Refusal at 0.0 feet.
Bottom of borehole at 15.5 feet.

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000078825
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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LETTER BOREHOLE - MODOT 20150728.GDT - 7/17/24 15:33 - N:\LABORATORY\ACTIVE GINT PROJECTS\2023-0152.12 SR137 OVER BIG CREEK.GPJ

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/16/2024
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 25
COUNTY	TEXAS
JOB NO.	JSE0028
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9394

DESCRIPTION

DATE

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

MISSOURI DESIGN FIRM PE-001166

OATES ASSOCIATES

BORING DATA

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

Detailed Feb. 2024
Checked Jun. 2024

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

H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_025_JSE0028_Boring Data.dgn 11:57:36 PM 10/16/2024

Missouri Department of Transportation
Construction and Materials

BORING NO. B-401
Page 1 of 1

Job No.: SE0028 (SCI No. 2023-0152.12)
County: Texas
Route: SR137
Design: A9394
Skew: Square
Location: Texas County
Bent: End Bent #4
Logged By: Brian Ratajczyk
Operator: Midwest Drilling, Inc.
Station: 1157+72
Northing: 510250.0039
Date of Work: 02/27/24
Offset: 9' Rt.
Easting: 1829767.77
Depth to Water: None
Elevation: 1207.0
Requested Northing: 510250.00
Depth Hole Open: 11.5
Requested Station: 1157+72
Requested Easting: 1829767.77
Time Change: 0 hours
Requested Offset: 9' Rt.
Equipment: CME 750 ,Split-Spoon Sampler
Requested Elevation:
Location Note: On top of SR-137 near End Bent #4
Drill No.: 255648
Hammer Efficiency: 90.7%
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.4' 5" ASPHALTIC CONCRETE							
		0.4-6.0' (FILL) Brown, CLAYEY GRAVELLY SAND, fine- to coarse-grained, gravel is fine to coarse, clay is lean	1205		50	3-4-6 (15)			
		3.5' *GRAIN SIZE ANALYSIS TEST PERFORMED*			44	3-2-1 (5)			
5		6.0-8.0' (CL) Brown, GRAVELLY SANDY LEAN CLAY, gravel is fine to coarse, sand is fine- to coarse-grained	1200		33	2-3-3 (9)		PP = 6.50 tsf	MC = 12.3%
		8.0-11.5' (SC) Brown, CLAYEY GRAVELLY SAND, fine- to coarse-grained, gravel is fine to coarse, clay is lean			56	9-9-7 (24)			
10		Refusal at 11.5 feet. Bottom of borehole at 11.5 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000078825
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-402
Page 1 of 1

Job No.: SE0028 (SCI No. 2023-0152.12)
County: Texas
Route: SR137
Design: A9394
Skew: Square
Location: Texas County
Bent: End Bent #4
Logged By: Brian Ratajczyk
Operator: Midwest Drilling, Inc.
Station: 1157+72
Northing: 510244.8316
Date of Work: 02/27/24
Offset: 9' Lt.
Easting: 1829750.53
Depth to Water: None
Elevation: 1207.0
Requested Northing: 510244.83
Depth Hole Open: 11.5
Requested Station: 1157+72
Requested Easting: 1829750.53
Time Change: 0 hours
Requested Offset: 9' Lt.
Equipment: CME 750 ,Split-Spoon Sampler
Requested Elevation:
Location Note: On top of SR-137 near End Bent #4
Drill No.: 255648
Hammer Efficiency: 90.7%
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.4' 5" ASPHALTIC CONCRETE							
		0.4-3.5' (FILL) Brown, SANDY LEAN CLAY, trace fine to coarse gravel, sand is fine- to coarse-grained	1205		44	3-4-4 (12)		PP = 3.50 tsf	MC = 13.7%
		3.5-8.0' (FILL) Brown, CLAYEY GRAVELLY SAND, fine- to coarse-grained, gravel is fine to coarse, clay is lean 3.8' *GRAIN SIZE ANALYSIS TEST PERFORMED*			50	5-4-3 (11)			
5			1200		44	3-3-4 (11)			
		8.0-11.5' (FILL) Brown, SANDY LEAN CLAY, trace fine to coarse gravel, sand is fine- to coarse-grained			56	3-4-7 (17)		PP = 3.75 tsf	MC = 12.0%
10		Refusal at 11.5 feet. Bottom of borehole at 11.5 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 1.000078825
Coordinate Datum: NAD 1983 **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 10/16/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 26
COUNTY TEXAS
JOB NO. JSE0028
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9394

DESCRIPTION | DATE | REVISION

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

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Belleville 1 South Church, Suite 700 Belleville, IL 62220 618.416.4488
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

BORING DATA

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

SCI ENGINEERING, INC.
130 Point West Boulevard
St. Charles, Missouri 63301
636-949-8200
www.sciengineering.com

BORING LOG LEGEND AND NOMENCLATURE

Depth is in feet below ground surface. **Elevation** is in feet mean sea level, site datum, or as otherwise noted.

Sample Type

- **SS** Split-spoon sample, disturbed, obtained by driving a 2-inch-O.D. split-spoon sampler (ASTM D 1586).
- **NX** Diamond core bit, nominal 2-inch-diameter rock sample (ASTM D 2113).
- **ST** Thin-walled (Shelby) tube sample, relatively undisturbed, obtained by pushing a 3-inch-diameter, tube (ASTM D 1587).
- **CS** Continuous sample tube system, relatively undisturbed, obtained by split-barrel sampler in conjunction with auger advancement.
- **SV** Shear vane, field test to determine strength of cohesive soil by pushing or driving a 2-inch-diameter vane, and then shearing by torquing soil in existing and remolded states (ASTM D 2573).
- **BS** Bag sample, disturbed, obtained from cuttings.

Recovery is expressed as a ratio of the length recovered to the total length pushed, driven, cored.

Blows Numbers indicate blows per 6 inches of split-spoon sampler penetration when driven with a 140-pound hammer falling freely 30 inches. The number of total blows obtained for the second and third 6-inch increments is the N value (Standard Penetration Test or SPT) in blows per foot (ASTM D 1586). Practical refusal is considered to be 50 or more blows without achieving 6 inches of penetration and is expressed as a ratio of 50 to actual penetration, e.g., 50/2 (50 blows for 2 inches).

For analysis, the N value is used when obtained by a cathead and rope system. When obtained by an automatic hammer, the N value may be increased by a factor of 1.3.

Vane Shear Strength is expressed as the peak strength (existing state) / the residual strength (remolded state).

Description indicates soil constituents and other classification characteristics (ASTM D 2488) and the Unified Soil Classification (ASTM D 2487). Secondary soil constituents (expressed as a percentage) are described as follows:

Trace	<5
Few	5-15
With	>15-30

Stratigraphic Breaks may be observed or interpreted and are indicated by a dashed line. Transition between described materials may be gradual.

Laboratory Test Results

- Natural moisture content (ASTM D 2216) in percent.
- Dry density in pounds per cubic foot (pcf).
- Hand penetrometer value of apparently intact cohesive sample in kips per square foot (ksf).
- Unconfined compressive strength (ASTM D 2166) in kips per square foot (ksf).
- Liquid and Plastic Limits (ASTM D 4318) in percent.

RQD (Rock Quality Designation) is the ratio between the total length of core segments 4 inches or more in length and the total length of core drilled. RQD (expressed as a percentage) indicates insitu rock quality as follows:

Excellent	90 to 100
Good	75 to 90
Fair	50 to 75
Poor	25 to 50
Very Poor	0 to 25

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130 Point West Boulevard
St. Charles, Missouri 63301
636-949-8200
www.sciengineering.com

ROCK CORE DESCRIPTIONS

Descriptions of rock core are defined as follows:

Hardness

Very Soft	Easily indented with the thumb.
Soft	Able to be scratched with a fingernail.
Moderately Hard	Easily scratched with a knife.
Hard	Difficult to scratch with a knife.
Very Hard	Cannot be scratched with a knife.

Crystallinity

Aphanitic (Micritic)	Crystals cannot be distinguished with the naked eye.
Very Finely Crystalline	Crystals are barely discernible with the naked eye.
Finely Crystalline	Crystals are easily discernible with the naked eye.
Medium Crystalline	Crystals are medium size; up to 1/8 inch in diameter.
Coarsely Crystalline	Crystals are 1/8 inch to ¼ inch in diameter.
Very Coarsely Crystalline	Crystals are larger than ¼ inch in diameter.

Mass Bedding

Parting	Thinner than 0.02 feet (< 0.60 cm).
Band	0.02 to 0.2 feet (0.60 to 6.1 cm).
Thin Bed	0.2 to 0.5 feet (6.1 to 15.2 cm).
Medium Bed	0.5 to 1.0 feet (15.2 to 30.5 cm).
Thick Bed	1.0 to 2.0 feet (30.2 to 61.0 cm).
Massive	Thicker than 2.0 feet (> 61.0 cm).

Weathering

Fresh	No visible signs of decomposition or discoloration.
Slightly Weathered	Slight discoloration inward from open fractures.
Moderately Weathered	Discoloration throughout, some loss of strength, texture intact.
Highly Weathered	Specimens easily broken by hand, texture indistinct.

Voids

Dense	Usually not discernible with the naked eye.
Pit (Pitted)	Discernible to ¼ inch.
Vug (Vuggy)	¼ inch to diameter of the core.
Cavity	Larger than 6 inches in diameter.

Geologic Definitions

Argillaceous A term applied to all rocks or substances composed of clay minerals or having a notable portion (> 30 percent) clay in composition.

Fissility A property of splitting along closely spaced parallel planes.

Calcareous A term applied to rocks containing calcium carbonate.

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/16/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	27

COUNTY: TEXAS
JOB NO.: JSE0028
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9394

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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St. Charles 820 South Main, Suite 399 St. Charles, MO 63301 636.493.9277
MISSOURI DESIGN FIRM PE-001166

BORING DATA

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

Detailed Feb. 2024
Checked Jun. 2024

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

H:\P\223017 - Texas County Bridge Package\002-SE0028-S0607\Bridge\Final Bridge\Microstation\B_A9394_027_JSE0028_Boring Data.dgn 11:58:27 PM 10/16/2024

DESIGN DESIGNATION

A.A.D.T. - 2025 = 172
A.A.D.T. - 2045 = 190
D.H.V. = 10.11%
T = 12.65%
V = 55 M.P.H.
D = 48.2% N / 51.8% S

FUNCTIONAL CLASSIFICATION- RURAL MAJOR COLLECTOR

PERMANENT RIGHT OF WAY
WILL BE ACQUIRED FOR
THIS PROJECT

CONVENTIONAL SYMBOLS
(USED IN PLANS)

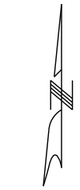
	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	FO
OVERHEAD CABLE TV	-OTV-	OTV
UNDERGROUND CABLE TV	-UTV-	UTV
OVERHEAD TELEPHONE	-OT-	OT
UNDERGROUND TELEPHONE	-UT-	UT
OVERHEAD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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
FINAL PLANS FOR PROPOSED
STATE HIGHWAY

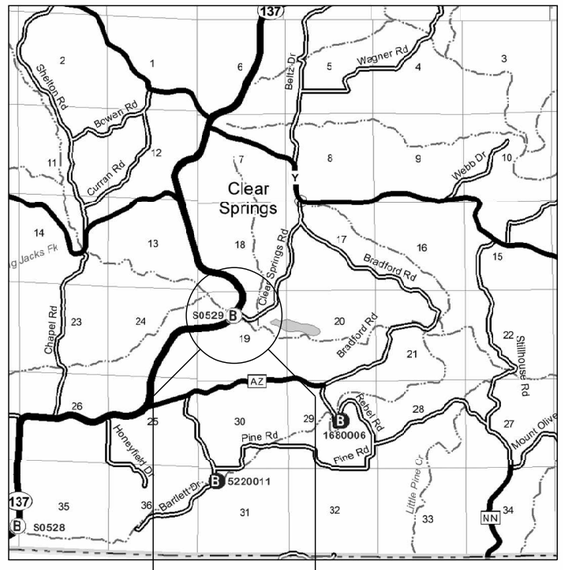
TEXAS COUNTY

KEY MAP
SHOWING LOCATION OF COUNTY



NOT TO SCALE

SEC 19 T28N R8W



BEGIN PROJECT
STA. 561+50.00

END PROJECT
STA. 570+85.00

PROJECT LIMITS
REPLACE
EX BR #S0529

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.

INDEX OF SHEETS

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA.	561+50.00
END OF PROJECT	STA.	570+85.00
APPARENT LENGTH		935.00 FEET
EQUATIONS AND EXCEPTIONS:		
TOTAL CORRECTIONS		0.00 FEET
NET LENGTH OF PROJECT		935.00 FEET
STATE LENGTH		0.177 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES		1.53 ACRES

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED: 10/18/2024
ROUTE: 137 | STATE: MO
DISTRICT: SE | SHEET NO.: 1
COUNTY: TEXAS
JOB NO.: JSE0029
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9395

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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REV.

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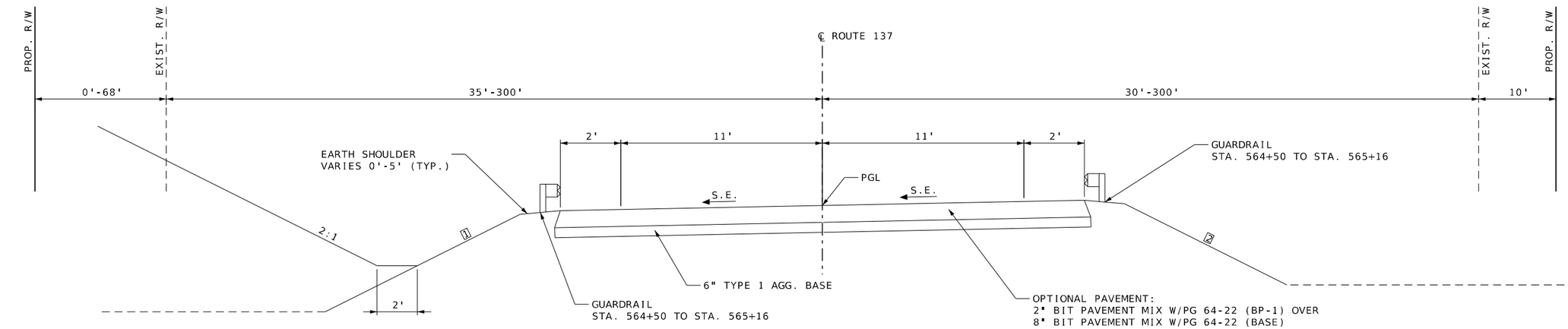


1 2:1 562+10 TO 564+60

2.5:1 564+60 TO 565+16

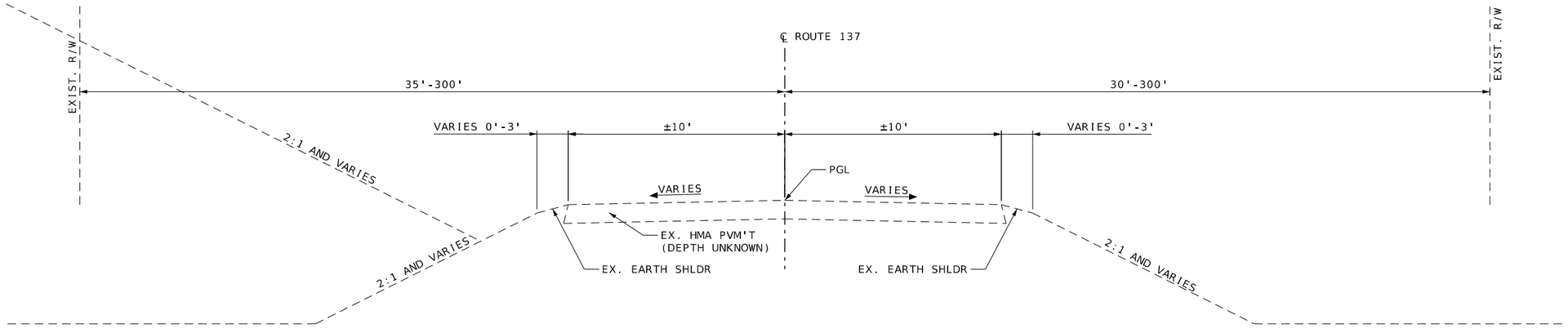
2 10:1 562+10 TO 564+33

2.5:1 564+33 TO 565+16

SECTION ON TANGENT
PROPOSED ROUTE 137
STA. 562+10 TO STA. 565+16

S.E. TABLE

STATION	DESCRIPTION	X-SLOPE LT	X-SLOPE RT
562+10.00	MATCH EX	10.0%	8.0%
562+50.00	FULL S.E.	8.0%	8.0%
563+24.00	TRANS START	8.0%	8.0%
564+40.00	END LT	2.0%	2.0%
565+16.00	END RT	2.0%	-2.0%



SECTION ON TANGENT
EXISTING ROUTE 137
STA. 561+50 TO STA. 570+85
(BRIDGE OMMISION STA. ±565+48 TO STA. ±567+48)

TYPICAL SECTION
SHEET 1 OF 2

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	2

COUNTY: TEXAS

JOB NO.: JSE0029

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9395

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
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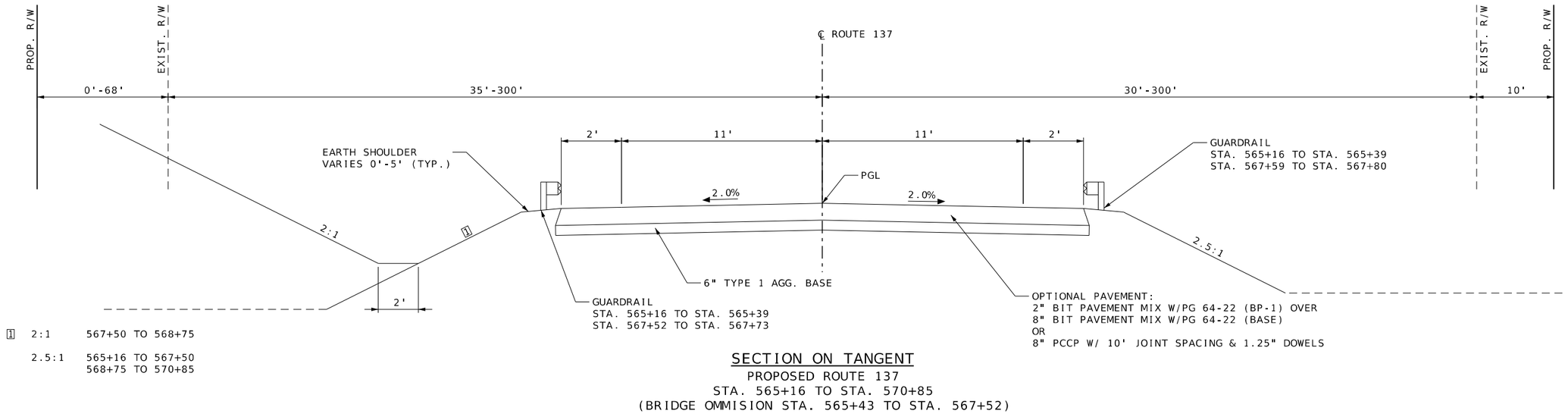

1 2:1 567+50 TO 568+75

2.5:1 565+16 TO 567+50
568+75 TO 570+85

SECTION ON TANGENT

PROPOSED ROUTE 137
STA. 565+16 TO STA. 570+85
(BRIDGE OMMISION STA. 565+43 TO STA. 567+52)

TYPICAL SECTION
SHEET 2 OF 2

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	2

COUNTY
TEXAS

JOB NO.
JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9395

DESCRIPTION	DATE

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

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MISSOURI DESIGN FIRM PE-001166

REV.

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	OFFSET	LENGTH (L.F.)	AREA (S.Y.)	EACH (EACH)	REMARKS
4	562+10		LT/RT	20			SAWCUT
4	562+10	565+48	LT/RT		747		ASPHALT PAVEMENT
4	563+21		RT			1	SIGN (YEILD)
4	565+05	565+48	LT/RT			6	SIGNS (OBJECT MARKER)
4	567+49	567+94	LT	135			3 x 24" PIPE CULVERT
4	567+50	567+70	LT/RT			6	SIGNS (OBJECT MARKER)
4	567+63	568+00	LT	50			48" BARBED WIRE
4	567+48	570+85	LT/RT		722		ASPHALT PAVEMENT
4	567+97	568+84	RT		196		AGGREGATE ENTRANCE
4	569+63		LT			1	SIGN (YIELD)
4	570+85		LT/RT	20			SAWCUT
			SUBTOTAL	225	1665	14	
			PAY TOTAL	**1 LUMP SUM**			

EARTHWORK

SHEET	STATION	STATION	ESTIMATED CUT (NOTE 1) (C.Y.)	ESTIMATED FILL (NOTE 1) (C.Y.)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) (NOTE 1) (C.Y.)	MODIFIED LINEAR GRADING CLASS 2 (STA)	REMARKS
XS 1 - XS 5	562+09	564+50	2239	369	1870	3.1	SOUTH SIDE OF BR #A9395
XS 6 - XS 7	565+00	569+50	735	461	274	3.1	NORTH SIDE OF BR #A9395
		SUBTOTAL	2974	830	2144	6.2	
		PAY TOTAL	**0**	**0**	**0**	**6.2**	

EARTHWORK NOTES:
1. CUT AND FILL VOLUMES PROVIDED FOR INFORMATION ONLY. INCLUDED IN COST OF MODIFIED LINEAR GRADING CLASS 2.
2. EXISTING PAVEMENT THICKESS IS UNKNOWN. A THICKNESS OF 8" WAS ASSUMED ON THE CROSS-SECTIONS FOR EARTHWORK CALCULATION PURPOSES.
3. MODIFIED LINEAR GRADING CLASS 2 CALCULATED THROUGH LIMITS OF BRIDGE APPROACH SLABS.

PAVEMENT AND BASE

SHEET	STATION	STATION	OFFSET	TYPE 1 AGGREGATE FOR BASE (6 IN. THICK) (S.Y.)	GRAVEL (A) (S.Y.)	OPTIONAL PAVEMENT (S.Y.)	REMARKS
4	562+10	565+24	LT/RT	917		847	
4	567+72	570+85	LT/RT	922		853	
4	567+97	568+82	RT		135		GRAVEL ENTRANCE
			SUBTOTAL	1839	135	1700	
			PAY TOTAL	**1840**	**135**	**1700**	

PAVEMENT NOTES:
1. SEE TYPICAL SECTIONS FOR OPTIONAL PAVEMENT DESIGN.

ROCK BLANKET

SHEET	STATION	STATION	OFFSET	FURNISHING TYPE 2 ROCK DITCH LINER (C.Y.)	PLACING TYPE 2 ROCK DITCH LINER (C.Y.)	FURNISHING TYPE 2 ROCK BLANKET (C.Y.)	PLACING TYPE 2 ROCK BLANKET (C.Y.)	ROCK BLANKET EXCAVATION (NOTES 2&3) (C.Y.)	PERMANENT EROSION CONTROL GEOTEXTILE (S.Y.)	REMARKS
8	565+35	565+79	LT/RT			133.1	133.1	133.1	357.1	SOUTH BRIDGE CONE
8	567+19	567+57	LT/RT			112.0	112.0	112.0	300.6	NORTH BRIDGE CONE
8	567+39	567+69	LT	15.6	15.6					CULVERT OUTLET 14'x30'x1'
			SUBTOTAL	15.6	15.6	245.1	245.1	245.1	657.7	
			PAY TOTAL	**15.6**	**15.6**	**245**	**245**	**0**	**658**	

ROCK BLANKET NOTES:
1. ROCK QUANTITY MAY BE OBTAINED FROM REMOVED BRIDGE DECK IF BROKEN OR CRUSHED TO MEET SPECIFICATION WITH NO EXPOSED REBAR OR ASPHALT MATERIAL.
2. THE EXCAVATION QUANTITY SHOWN IS FOR INFORMATION ONLY. THE COST TO EXCAVATE THE SOIL FOR THE PLACEMENT OF THE ROCK BLANKET IS INCLUDED IN THE COST FOR PLACING TYPE 2 ROCK BLANKET.
3. THE EXCAVATION QUANTITY FOR ROCK BLANKET IS NOT INCLUDED IN THE EARTHWORK QUANTITIES. THE SUITABILITY OF THE MATERIAL FOR USE AS FILL MUST BE APPROVED BY THE ENGINEER.

CLEARING AND GRUBBING

PAY TOTAL = 1 ACRE

MOBILIZATION

PAY TOTAL = 1 LUMP SUM

CONTRACTOR FURNISHED SURVEYING AND STAKING

PAY TOTAL = 1 LUMP SUM

SUMMARY OF QUANTITIES
SHEET 1 OF 3

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/27/2024
ROUTE 137 | STATE MO
DISTRICT SE | SHEET NO. 3
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

DESCRIPTION | DATE

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

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

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Collinsville: 100 Lanter Court, Suite 1, Collinsville, IL 62234, 618.343.2200
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4688
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REV.

PERMANENT PAVEMENT MARKING

SHEET	STATION	STATION	OFFSET	4 IN. WHITE STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS (L.F.)	4 IN. YELLOW STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS (L.F.)	REMARKS
N/A	562+10	570+85	CL		1750	DOUBLE SOLID CENTERLINE
N/A	562+10	570+85	LT	875		SOLID EDGE LINE
N/A	562+10	570+85	RT	875		SOLID EDGE LINE
			SUBTOTAL	1750	1750	
			PAY TOTAL	**1750**	**1750**	

DRAINAGE STRUCTURES

SHEET	STATION	STATION	OFFSET	24 IN. PIPE GROUP C (L.F.)	24 IN. OR ALLOWED SUBSTITUTE GROUP C FLARED END SECTION (EACH)	REMARKS
4	567+68		LT		3	
4	567+68	568+21	LT	156		3x24"
4	568+21		LT		3	
			SUBTOTAL	156	6	
			PAY TOTAL	**156**	**6**	

GUARDRAIL

SHEET	STATION	STATION	OFFSET	MGS BRIDGE APPROACH TRANSITION SECTION (REGULAR/NO CURB) (EACH)	TYPE A CRASHWORTHY END TERMINAL (MASH) (EACH)	TYPE C CRASHWORTHY END TERMINAL (MASH) (EACH)	REMARKS
4	564+50	565+39	RT	1	1		SE CORNER BR #A93945
4	564+50	565+39	LT	1	1		SW CORNER BR #A93945
4	567+52	567+73	LT			1	NW CORNER BR #A93945
4	567+59	567+80	RT			1	NE CORNER BR #A93945
			SUBTOTAL	2	2	2	
			PAY TOTAL	**2**	**2**	**2**	

EROSION CONTROL

SHEET	STATION	STATION	OFFSET	ROCK DITCH CHECK (L.F.)	TYPE B BERM (L.F.)	SLOPE DRAINS (L.F.)	SEDIMENT REMOVAL (C.Y.)	SILT FENCE (L.F.)	TYPE C BERM (L.F.)	TYPE 2D EROSION CONTROL BLANKET (S.Y.)	REMARKS
8	562+04	564+65	LT		297						
8	562+10		LT			35					
8	562+10	565+36	LT	84			12.0				12 CHECKS @ 20' SPACING
8	562+10	565+36	LT							1986	
8	564+33	565+35	RT				0.8	268		367	
8	564+65	565+43	LT				2.7	79			
8	565+35	565+80	LT/RT						146		SOUTH BRIDGE SLOPE
8	567+20	567+57	LT/RT						114		NORTH BRIDGE SLOPE
8	567+44	567+52	LT				0.4	38			
8	567+45	567+84	LT							135	
8	567+57	568+23	RT				0.8	82			
8	567+60	568+27	RT							116	
8	567+62	570+85	LT				3.4	342		797	
8	568+56	570+00	RT	7			1.7	168		134	1 CHECK
			SUBTOTAL	91	297	35	21.8	975	260	3535	
			PAY TOTAL	**91**	**297**	**35**	**22**	**975**	**260**	**3535**	

EROSION CONTROL NOTES:

1. SEDIMENT REMOVAL QUANTITY ASSUMES 1 CY PER 100 LF OF SILT FENCE AND 1 CY PER DITCH CHECK.

SEEDING AND MULCHING

SHEET	STATION	STATION	OFFSET	MULCHING (ACRE)	SEEDING - COOL SEASON GRASSES (ACRE)	TEMPORARY SEEDING (ACRE)	REMARKS
4	562+10	565+36	LT/RT	1.0	0.5	0.5	
4	567+47	567+87	LT/RT	0.6	0.3	0.3	
			SUBTOTAL	1.6	0.8	0.8	
			PAY TOTAL	**1.6**	**0.8**	**0.8**	

POROUS BACKFILL

SHEET	STATION	STATION	OFFSET	POROUS BACKFILL (C.Y.)	REMARKS
6	565+38	565+43	LT/RT	21.7	ASSUMED 5'x4.5'x26'
6	567+53	567+58	LT/RT	21.7	ASSUMED 5'x4.5'x26'
			SUBTOTAL	43.4	
			PAY TOTAL	**43**	

SUMMARY OF QUANTITIES
SHEET 2 OF 3

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 12/4/2024

ROUTE	STATE
137	MO

DISTRICT	SHEET NO.
SE	3

COUNTY: TEXAS
JOB NO.: JSE0029
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9395

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

DESCRIPTION | DATE | REV.

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

OATES ASSOCIATES
St. Louis: 720 Olive, Suite 700, St. Louis, MO 63101, 314-588-8381
St. Charles: 820 South Main, Suite 309, St. Charles, MO 63301, 636-493-8277
Collinsville: 100 Lanter Court, Suite 1, Collinsville, IL 62234, 618-345-2200
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618-416-6688
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

EFFECTIVE: 04-01-2023

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT ARROW)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT ARROW)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT ARROW)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT ARROW)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT ARROW)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT ARROW)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT ARROW)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT ARROW)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (ARROW SYMBOL)
WO4-1aR	48X48	16.00						MERGE (ARROW SYMBOL)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING (WITH FLAGS)
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL/LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17	48X48	16.00						SHOULDER DROP-OFF (SYMBOL)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
W012-2X	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
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						DETOUR AHEAD
WO20-3	48X48	16.00	13	208.00			20	ROAD CLOSED (500 FT.-2, AHEAD-11)
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL, WITH FLAGS)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	2	6.00			52	END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT ARROW)
MO4-9R	48X36	12.00						DETOUR (RIGHT ARROW)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR (ARROW LEFT)
MO4-10R	48X18	6.00						DETOUR (ARROW RIGHT)
REGULATORY SIGNS								
R1-1	48X48	16.00						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20.00			29	ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-7	48X24	8.00						RATE OUR WORK ZONE
CONST-7	72X36	18.00						RATE OUR WORK ZONE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	96X48	32.00	2	64.00			56	MO 137 CLOSED 0.5 MILES AHEAD
SPECIAL	96X48	32.00	2	64.00			56A	MO 137 CLOSED 1.5 MILES AHEAD
M1-5	24X12	2.00	20	40.00			17	MO 137 SHIELD
MO4-8	24X12	2.00	20	40.00			17	DETOUR
M5-1L	21X15	2.20	6	13.20			17B, 20C	ADVANCE TURN ARROW (90° LEFT)
M5-1R	21X15	2.20	7	15.40			17A, 20B	ADVANCE TURN ARROW (90° RIGHT)
M6-1L	21X15	2.20	7	15.40			17C	LEFT TURN ARROW
M6-1R	21X15	2.20	7	15.40			17D	RIGHT TURN ARROW
6161005 CONSTRUCTION SIGNS				TOTAL 501.40				
6161010 RELOCATED SIGNS						TOTAL **		

** NO DIRECT PAY FOR RELOCATING TEMPORARY TRAFFIC CONTROL DEVICES

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161008	4	ADVANCED WARNING RAIL SYSTEM
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161025	10	CHANNELIZER (TRIM LINE)
6161030	6	TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
6191000		PAVEMENT EDGE TREATMENT
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

SUMMARY OF QUANTITIES
SHEET 3 OF 3

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	3

COUNTY: TEXAS
JOB NO.: JSE0029
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9395

DESCRIPTION	DATE

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

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

OATES ASSOCIATES
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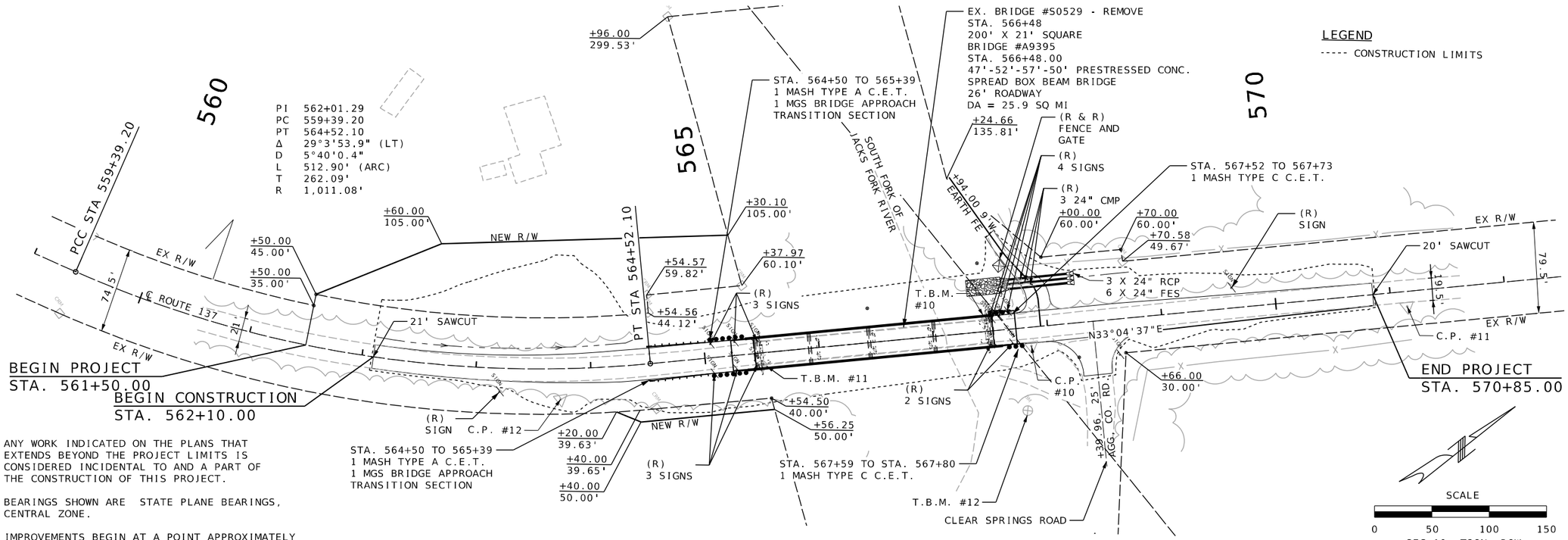
St. Charles: 820 South Main, Suite 309, St. Charles, MO 63301, 636.493.5277
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

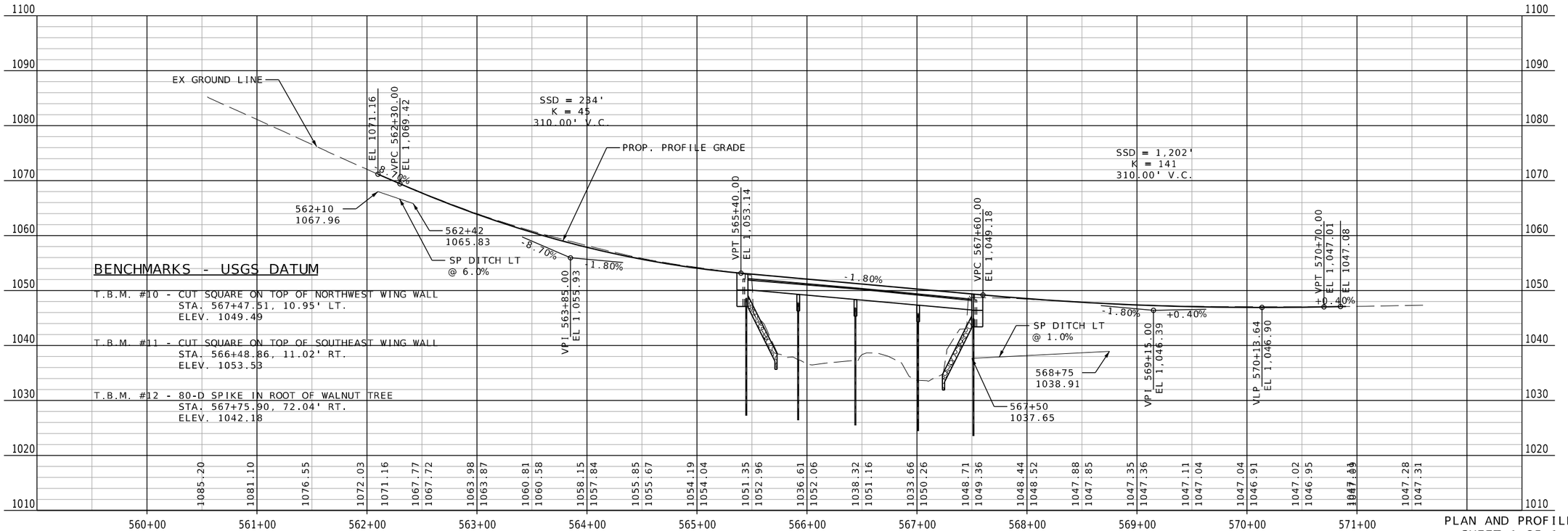
REV.



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.

BEARINGS SHOWN ARE STATE PLANE BEARINGS, CENTRAL ZONE.

IMPROVEMENTS BEGIN AT A POINT APPROXIMATELY 3322 FT. WEST AND 3513 FT. NORTH OF SE COR SEC 19, T28N, R8W



BENCHMARKS - USGS DATUM

T.B.M. #10 - CUT SQUARE ON TOP OF NORTHWEST WING WALL
STA. 567+47.51, 10.95' LT.
ELEV. 1049.49

T.B.M. #11 - CUT SQUARE ON TOP OF SOUTHEAST WING WALL
STA. 566+48.86, 11.02' RT.
ELEV. 1053.53

T.B.M. #12 - 80-D SPIKE IN ROOT OF WALNUT TREE
STA. 567+75.90, 72.04' RT.
ELEV. 1042.18

PLAN AND PROFILE
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	4

COUNTY
TEXAS

JOB NO.
JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9395

REV.	DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

OATES ASSOCIATES

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720 Olive, Suite 700
St. Louis, MO 63101
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St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
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Collinsville
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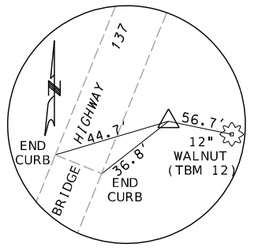
Collinsville, IL 62234
618.343.2200

Belleville
1 South Church, Suite 200
Belleville, IL 62220
618.416.4688

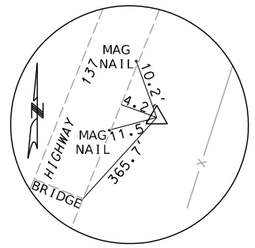
www.oatesassociates.com

MISSOURI DESIGN FIRM PE-001166

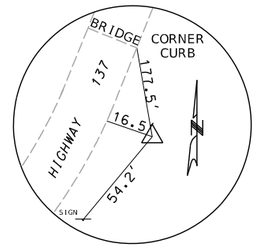
H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\CADD\Microstation\CADD Drawings\004_PP_JSE0029_I50.dgn 2:11:19 PM 10/18/2024



CONTROL POINT NO.10
SET IRON ROD W/CAP
STA 567+84.41
OFF: 16.25' RT
N: 458302.820
E: 1826113.027
ELEV: 1047.30



CONTROL POINT NO.11
SET IRON ROD W/CAP
STA 571+13.05
OFF: 13.16' RT
N: 458580.553
E: 1826290.238
ELEV: 1046.69



CONTROL POINT NO.12
SET IRON ROD W/CAP
STA 563+73.35
OFF: 26.63' RT
N: 457952.758
E: 1825893.655
ELEV: 1060.17

HORIZONTAL AND VERTICAL CONTROL STATEMENT

COORDINATE BASE IS MODIFIED STATE PLANE CENTRAL ZONE
MODIFIED ABOUT THE ORIGIN OF N=0, E=0.
RECIP. FACTOR OF 1.0000730720 TO BRING GRID UP TO GROUND VALUES

BEARING SYSTEM IS NAD 83 ESTABLISHED WITH GPS UTILIZING
THE MODOT GNSS NETWORK

VERTICAL DATUM IS NAVD 88 AS BROADCAST WITH THE MODOT GNSS
NETWORK

COORDINATE POINTS				
NAME	LOC	STA	NORTHING	EASTING
EXCL	POB	540+00.00	457,328.892	1,823,657.315
EXCL	POT	545+90.00	457,367.580	1,824,246.045
EXCL	PC	547+91.60	457,380.800	1,824,447.211
EXCL	PCC	559+39.20	457,691.141	1,825,543.283
EXCL	PT	564+52.10	458,033.232	1,825,918.045
EXCL	PC	572+81.80	458,728.469	1,826,370.867
EXCL	PT	582+65.10	459,653.366	1,826,348.909
EXCL	POE	586+43.80	459,960.527	1,826,127.402

COORDINATE POINTS
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
TEXAS

JOB NO.
JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9395

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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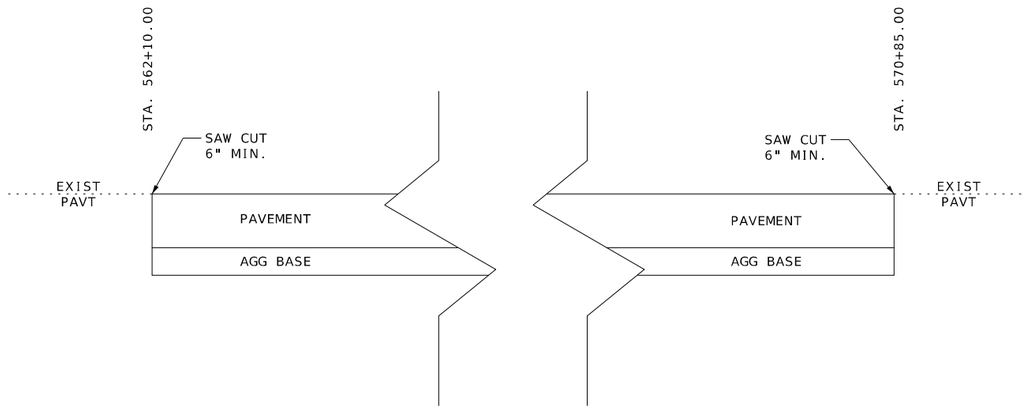

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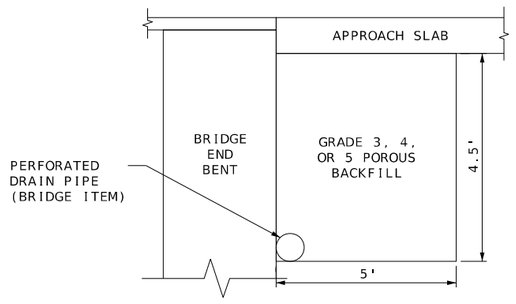

POROUS BACKFILL

SPECIAL SHEETS
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	6

COUNTY
TEXAS

JOB NO.
JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9395

DESCRIPTION	DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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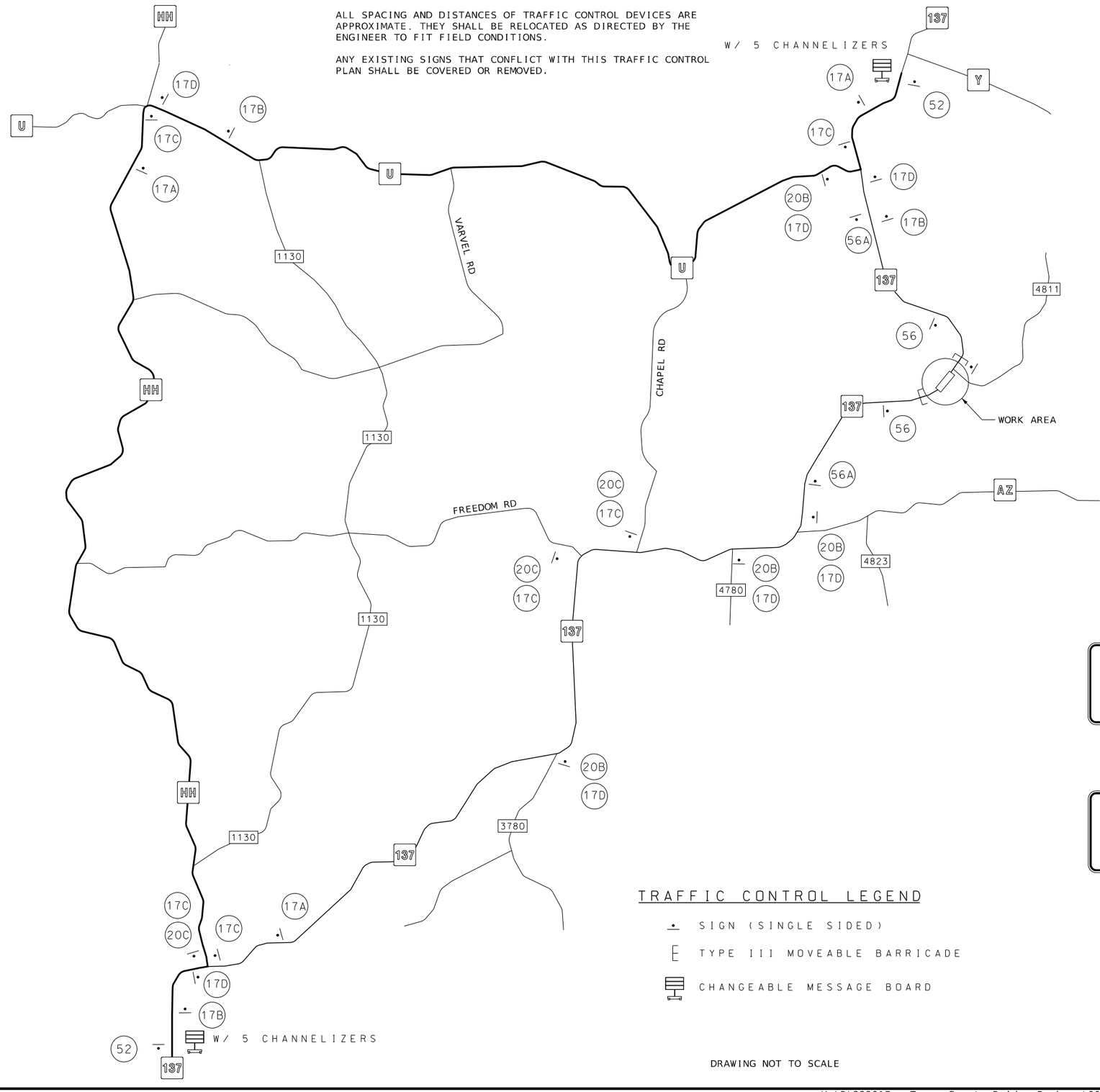
MISSOURI DESIGN FIRM PE-001166

REV.

NOTES:

ALL SPACING AND DISTANCES OF TRAFFIC CONTROL DEVICES ARE APPROXIMATE. THEY SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

ANY EXISTING SIGNS THAT CONFLICT WITH THIS TRAFFIC CONTROL PLAN SHALL BE COVERED OR REMOVED.



DRAWING NOT TO SCALE

SPECIAL

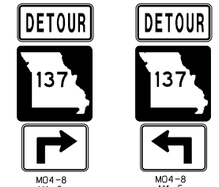
56

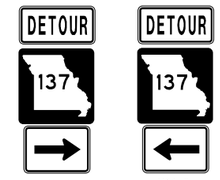
SPECIAL

56A

M04-8a

52





STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
TEXAS

JOB NO.
JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9395

DESCRIPTION	DATE

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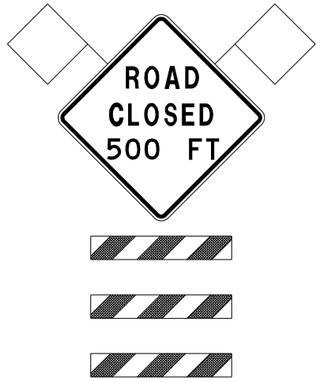
MISSOURI DESIGN FIRM PE-001166

REV.

TRAFFIC CONTROL
SHEET 1 OF 2

29

20



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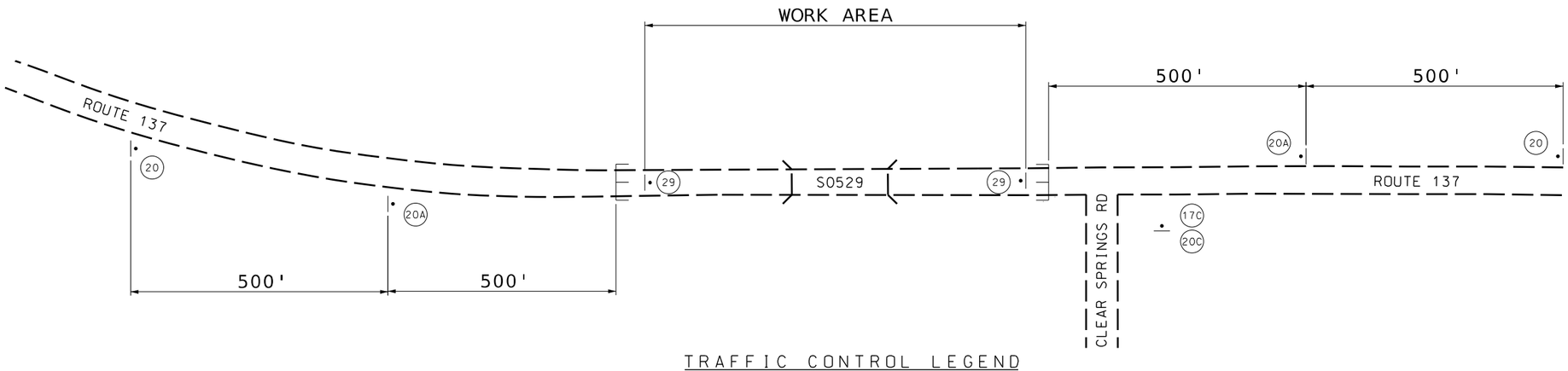

NOTES:

ALL SPACING AND DISTANCES OF TRAFFIC CONTROL DEVICES ARE APPROXIMATE. THEY SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

ANY EXISTING SIGNS THAT CONFLICT WITH THIS TRAFFIC CONTROL PLAN SHALL BE COVERED OR REMOVED.

NO DIRECT PAYMENT SHALL BE MADE FOR FLAGS ON SIGNS ENHANCED WITH AWRS ON MAINLINE.

SIGN SPACING IS 500'.

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- TYPE III MOVEABLE BARRICADE

DRAWING NOT TO SCALE

TRAFFIC CONTROL
SHEET 2 OF 2

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/18/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	8

COUNTY
TEXAS

JOB NO.
JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9395

DESCRIPTION	DATE

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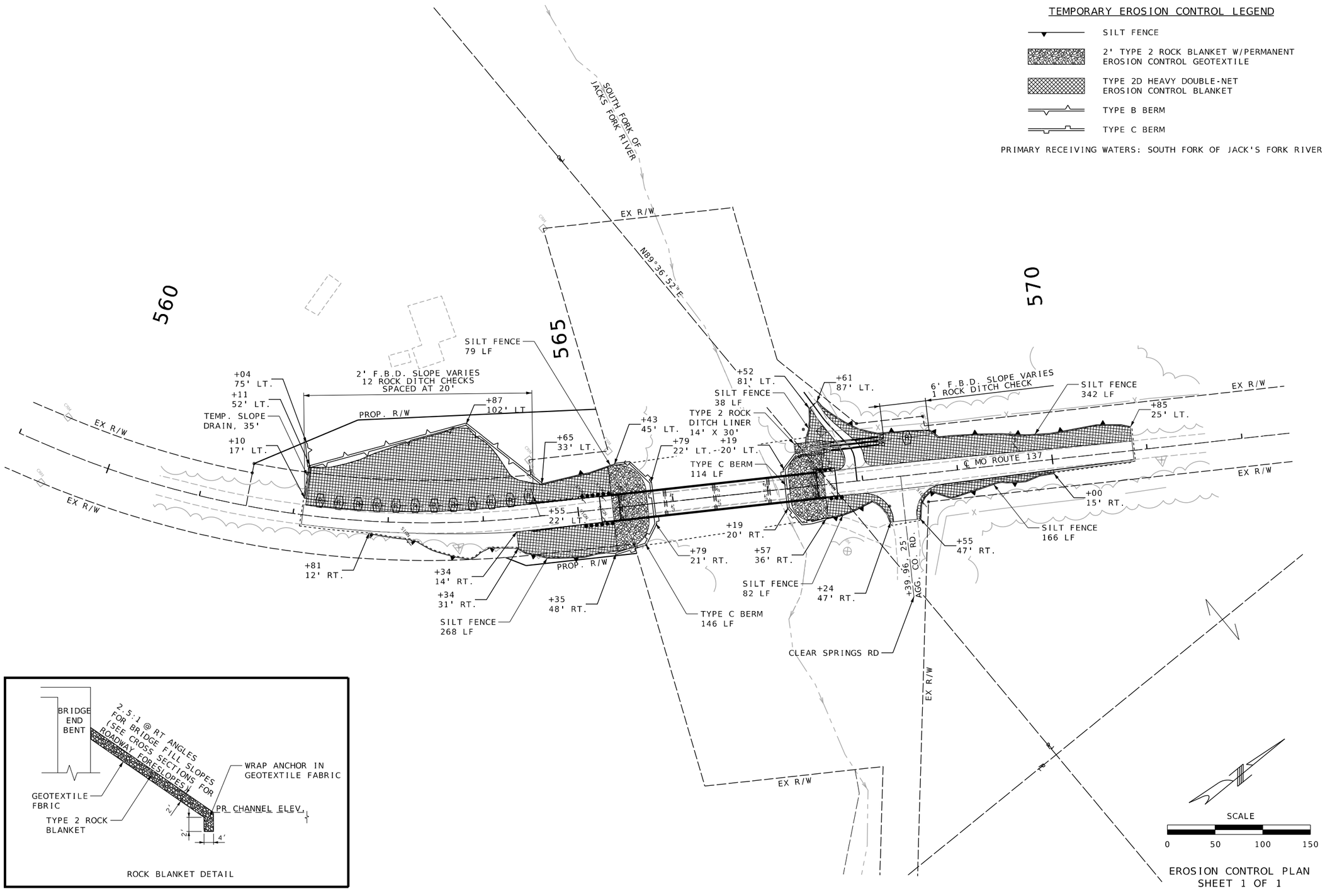
MISSOURI DESIGN FIRM PE-001166

REV.

TEMPORARY EROSION CONTROL LEGEND

- SILT FENCE
- 2' TYPE 2 ROCK BLANKET W/PERMANENT EROSION CONTROL GEOTEXTILE
- TYPE 2D HEAVY DOUBLE-NET EROSION CONTROL BLANKET
- TYPE B BERM
- TYPE C BERM

PRIMARY RECEIVING WATERS: SOUTH FORK OF JACK'S FORK RIVER



ROCK BLANKET DETAIL

SCALE
0 50 100 150

EROSION CONTROL PLAN
SHEET 1 OF 1

STATE OF MISSOURI
MICHAEL D. BUSCH
NUMBER PE-2006012366
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED	
10/18/2024	
ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
SE	9
COUNTY	
TEXAS	
JOB NO.	
JSE0029	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9395	

DATE	DESCRIPTION

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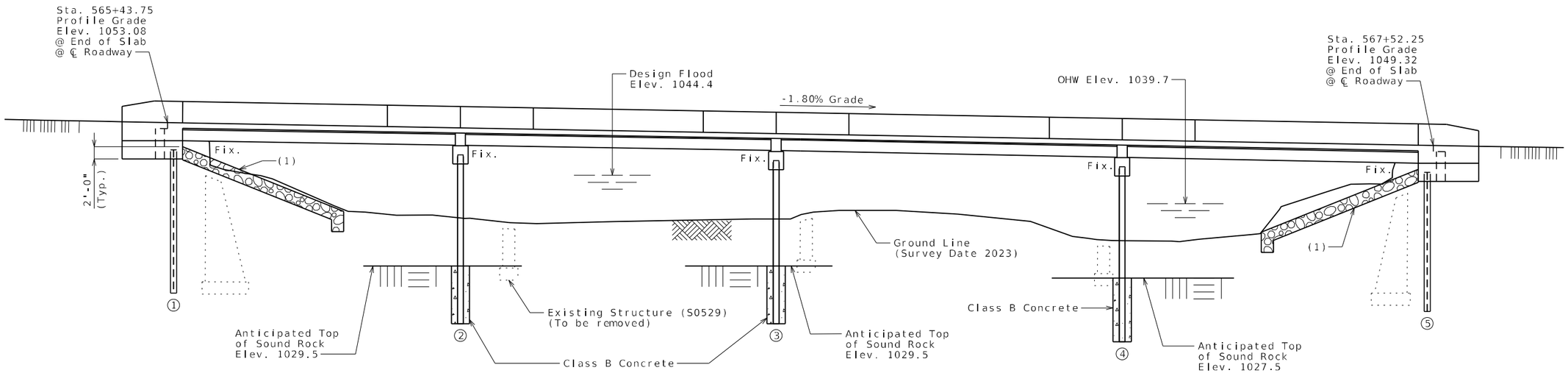
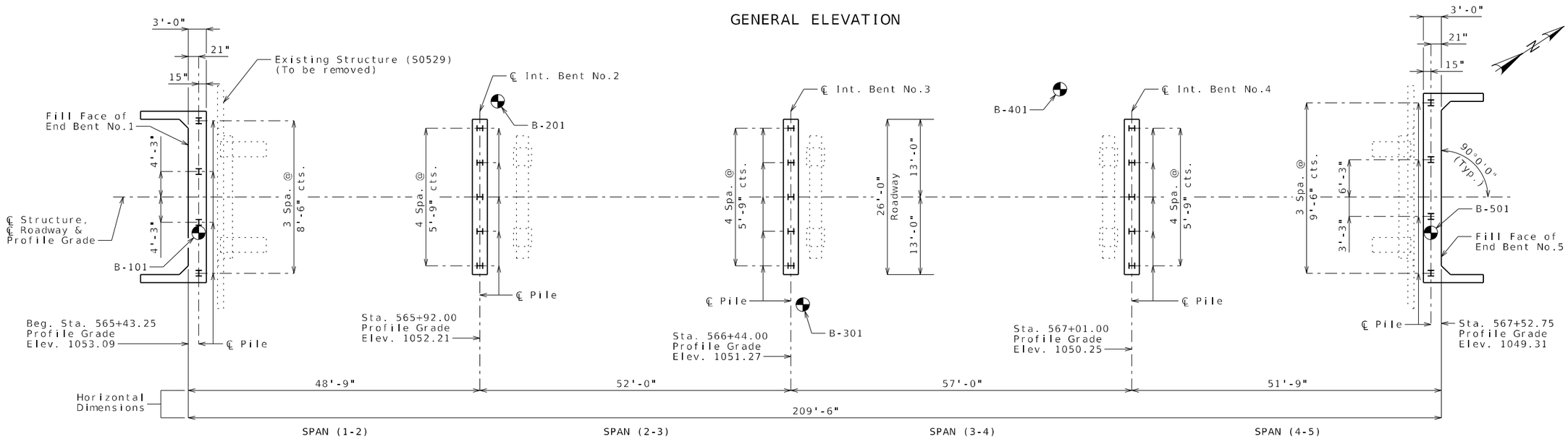
SEC/SUR 19 TWP 28N RGE 8W

(47'-52'-57'-50') PRESTRESSED CONCRETE SPREAD BOX BEAM SPANS



GENERAL ELEVATION



PLAN

℄ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on this sheet.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. 28-32 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.

Designed Apr. 2024
Detailed Apr. 2024
Checked Jul. 2024

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

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

Reference Notes:
(1) 2.5:1 Slope (Normal) with 2'-0" thick Type 2 Rock Blanket with Permanent Erosion Control Geotextile (Roadway Item).

T.B.M. #10 - CUT SQUARE ON TOP OF NORTHWEST WING WALL.
STATION 567+47.51, 10.95' LT.
ELEV. 1049.49

BRIDGE: RTE. 137 OVER SOUTH FORK OF JACKS FORK RIVER

ROUTE 137 FROM ROUTE AZ TO ROUTE U
ABOUT 1.6 MILES NORTH OF ROUTE AZ
BEGINNING STATION 565+43.25

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

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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Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	91		91
Removal of Bridges (S0529)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		124	124
Galvanized Structural Steel Piles (12 in)	linear foot	604		604
Pre-Bore for Piling	linear foot	258		258
Pile Point Reinforcement	each	23		23
Class B Concrete (Substructure)	cu. yard	47.4		47.4
Type D Barrier	linear foot		440	440
Slab on Concrete Beam	sq. yard		664	664
21 in., Prestressed Concrete Spread Box Beam	linear foot		615	615
Reinforcing Steel (Bridges)	pound	3,540		3,540
Vertical Drain at End Bents	each	2		2
Plain Neoprene Bearing Pad	each		6	6
Laminated Neoprene Bearing Pad	each		18	18

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 Concrete 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 Concrete Beam.

Cost of L4X4 ASTM A709 Grade 36 HP pile anchor 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 (12 in)

Estimated Quantities for Slab on Concrete Beam

Item		Total
Class B-2 Concrete	cu. yard	170
Reinforcing Steel (Epoxy Coated)	pound	56,040

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.

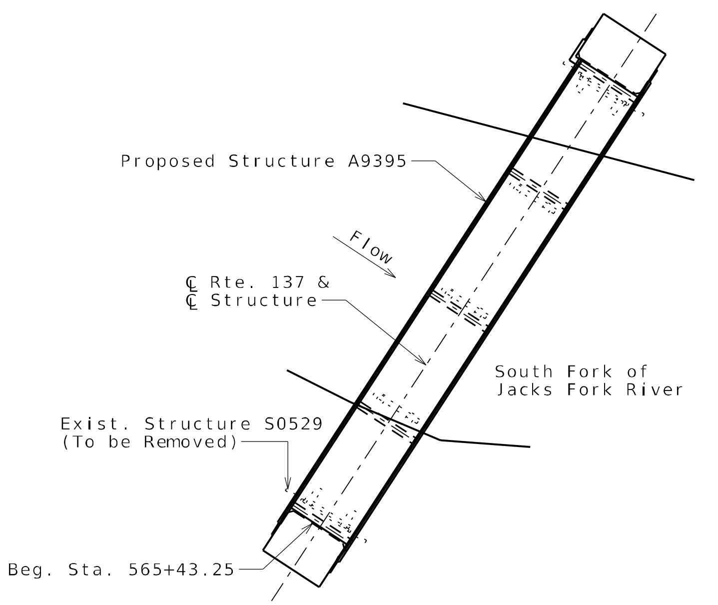
Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

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

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

Hydrologic Data

Drainage Area = 25.9 mi^2
Design Flood Frequency = 50 years
Design Flood Discharge = 10,300 cfs
Design Flood (D.F.) Elevation = 1044.4
Base Flood (100-year)
Base Flood Elevation = 1045.1
Base Flood Discharge = 12,100 cfs
Estimated Backwater = 0.6 ft
Average Velocity thru Opening = 8.2 ft/s
Freeboard (50-year)
Freeboard = 2.0 ft
Roadway Overtopping
Overtopping Flood Discharge > 16,500 cfs
Overtopping Flood Frequency > 500 years
500-Year Flood Elevation = 1046.5



LOCATION SKETCH

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

Detailed Apr. 2024
Checked Jul. 2024

Foundation Data

Type	Design Data		Bent Number 1	2	3	4	5
Load Bearing Pile	Pile Type and Size		HP 12x53	HP 12x53	HP 12x53	HP 12x53	HP 12x53
	Number	ea	4	5	5	5	4
	Approximate Length Per Each	ft	24	28	27	29	22
	Pile Point Reinforcement	ea	ALL	ALL	ALL	ALL	ALL
	Min. Galvanized Penetration (Elev.)	ft	Full Length	Full Length	Full Length	Full Length	Full Length
	Pile Driving Verification Method		DF	**	**	**	DF
	Resistance Factor		0.40	0.40	0.40	0.40	0.40
	Minimum Nominal Axial Compressive Resistance	kip	415	490	507	520	429

DF = FHWA-modified Gates Dynamic Pile Formula

Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor

** All piles shall bear on rocks. Piles shall be placed in predrilled holes. Ensure the piles are seated on bedrock and not rubble in bottom of the hole. The annular space around the pile shall be backfilled with Class B concrete as shown. Concrete below the water line shall be placed with tremie. Verification of pile driving is not required. Cost of Class B concrete will be completely covered by the contract unit price for Pre-Bore for Piling.

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

HP piles are anticipated to be driven to refusal to 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.

Prebore for piles at Bents No. 2, 3 & 4 to elevations 1020, 1020 & 1017, respectively.

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)
Seismic Design Category = A
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.14
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.13

Design Loading:

Vehicular = HL-93
Future Wearing Surface = 35 lb/sf
Earth = 120 lb/cf
Equivalent Fluid Pressure = 45 lb/cf (Min.)
Superstructure: Simply-supported, non-composite for dead load. Continuous composite for live load.

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Beams and Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Structural Steel HP Piles (ASTM A709 Grade 50S)	fy = 50,000 psi

For precast prestressed panel stresses, see Sheet No. 17.
For prestressed beam stresses, see Sheets No. 12 - 15.

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.

Minimum clearance between galvanized piles and uncoated (plain) reinforcing steel including bar supports shall be 1 1/2". Nylon, PVC, or polyethylene spacers shall be used to maintain clearance. Nylon cable ties shall be used to bind the spacers to the reinforcement.

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

GENERAL NOTES & QUANTITIES

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/17/2024
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY	TEXAS
JOB NO.	JSE0029
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9395

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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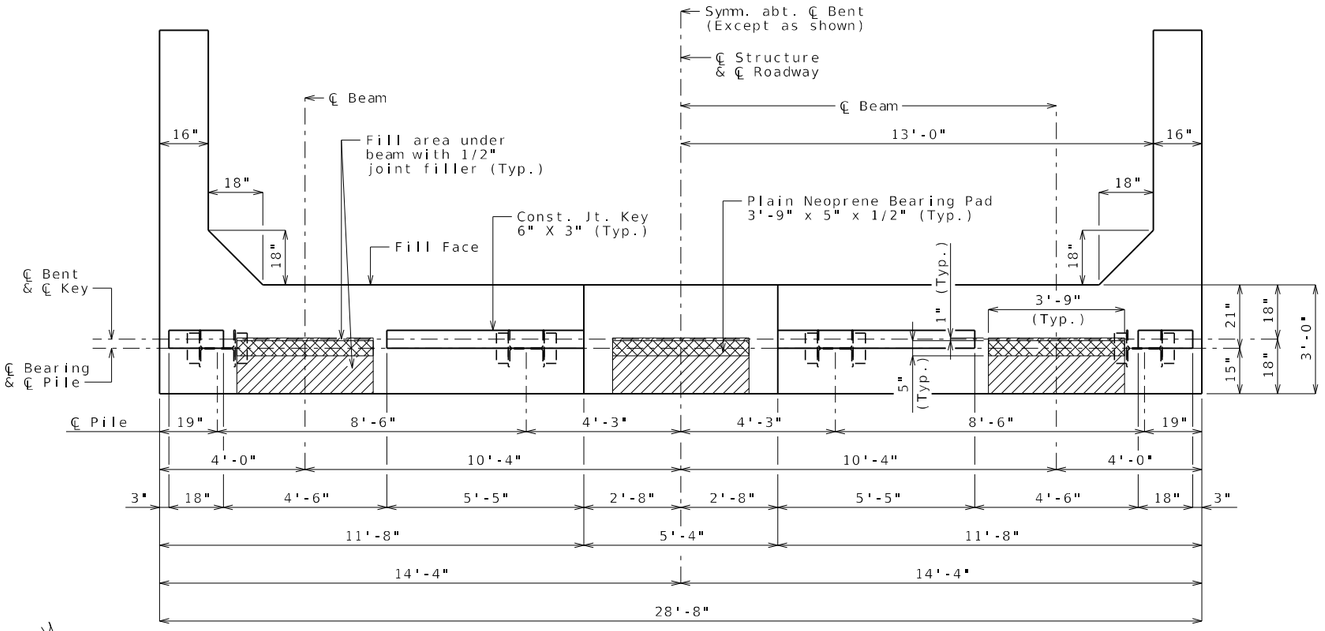
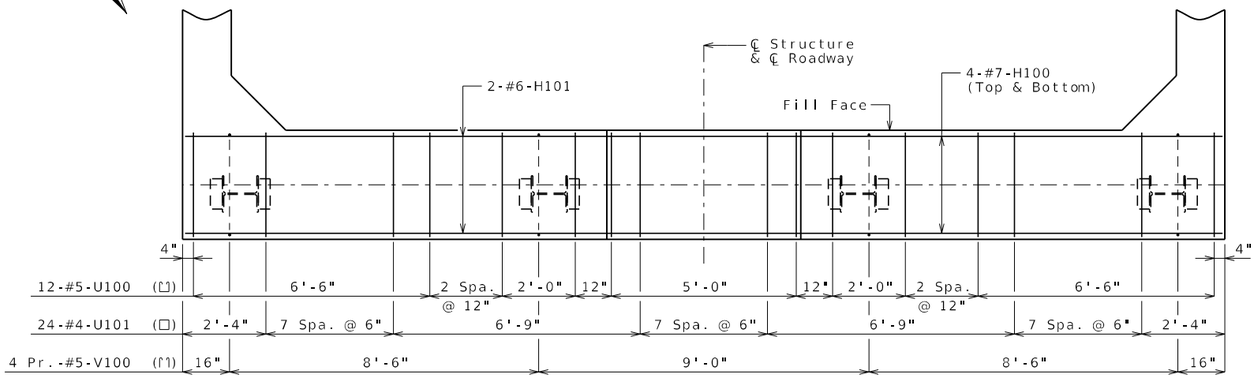
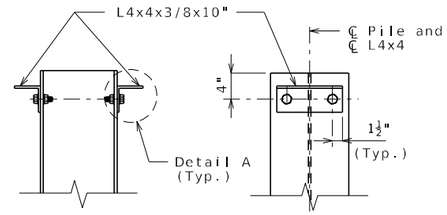
OATES ASSOCIATES



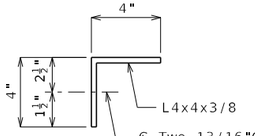
PLAN OF BEAM



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

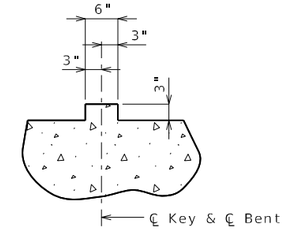


DETAILS OF HP PILE ANCHORS

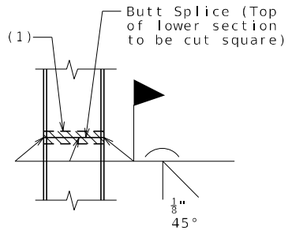


DETAIL A

Angles should 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.



SECTION THRU KEY



STEEL PILE SPLICE
(If required)

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	45
Galvanized Structural Steel Pile (12 in)	linear foot	96
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	12.1

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

Reference Notes:
(1) Galvanized material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

General Notes:
For details of End Bent No. 1 not shown, see Sheets No. 4 & 5.

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

DETAILS OF END BENT NO. 1

Detailed Apr. 2024
Checked Jul. 2024

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

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 3
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

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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618.345.2200
Belleville
1 South Church, Suite 700
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618.416.4488
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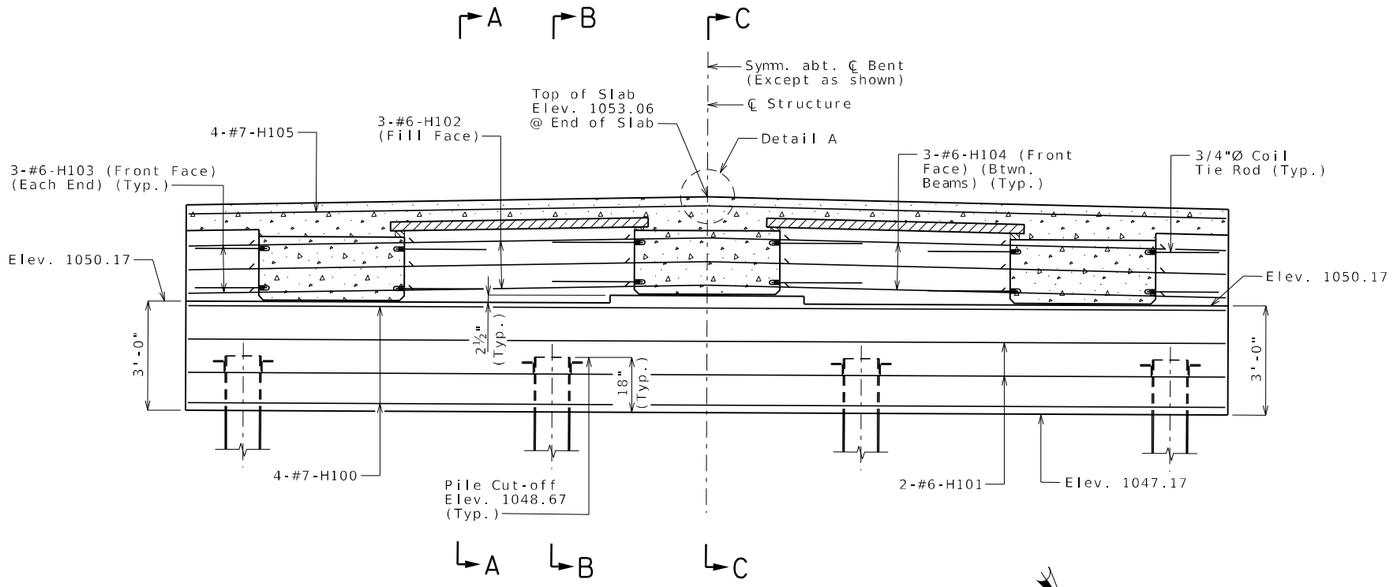
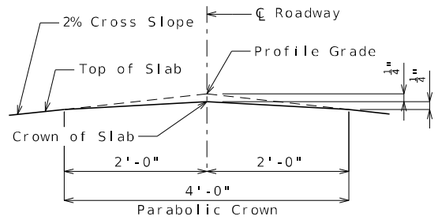
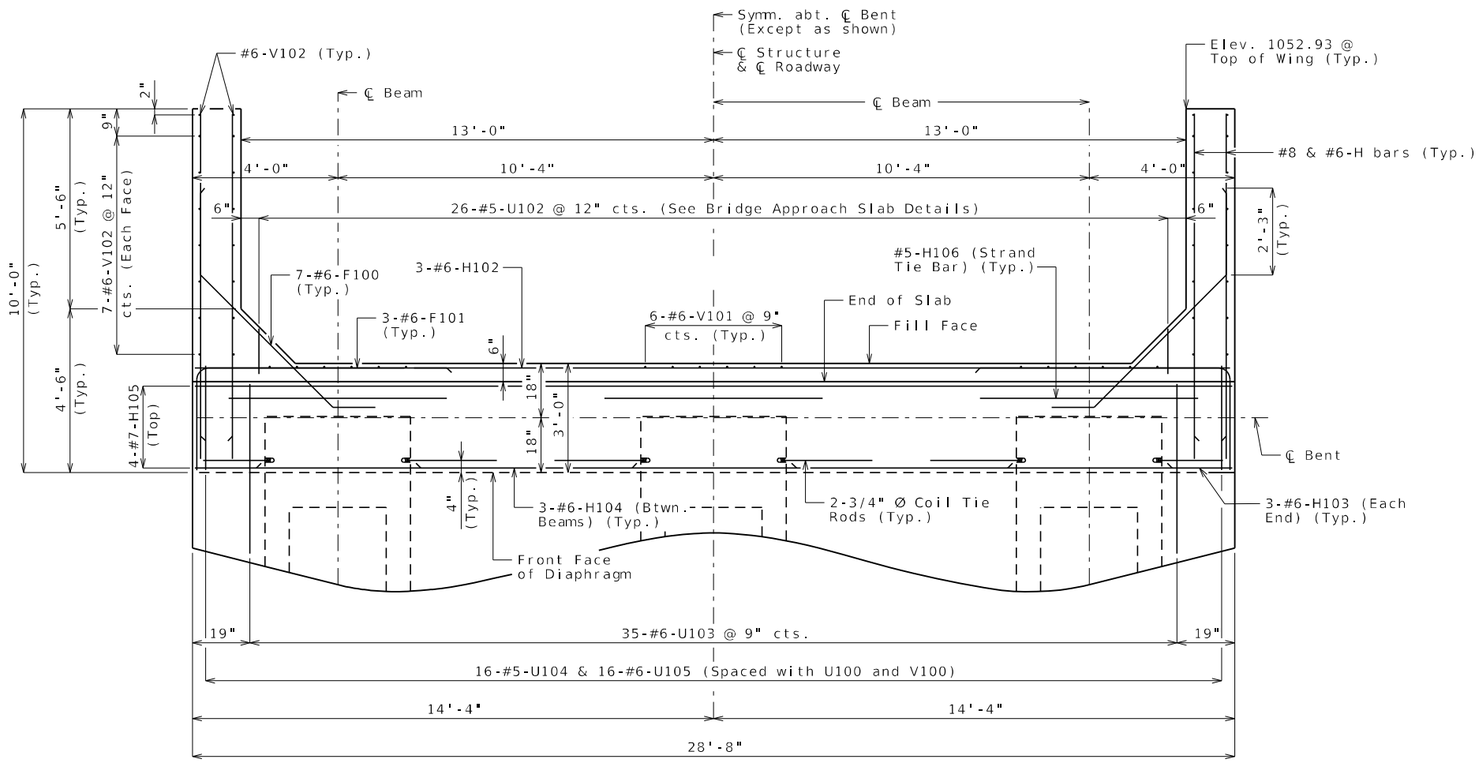


SECTION NEAR END BENT



DETAIL A



PART PLAN

General Notes:
For details of End Bent No. 1 not shown, see Sheets No. 3 & 5.

Strands at end of the beams shall be field bent or, if necessary, cut in the field to maintain 1 1/2-inch minimum clearance to fill face of end bent.

The #6-F100 bars shall be bent in the field to clear beams.

For locations of Coil Tie Rods and #5-H106 (Strand Tie Bar), see Sheet No. 12 - 15.

For details of Vertical Drain at End Bents, see Sheet No. 6.

For details of Bridge Approach Slab, see Sheet No. 24.

All concrete in the end bent above the top of beam and below top of slab shall be Class B-2.

For Sections A-A, B-B & C-C, see Sheet No. 5.

DETAILS OF END BENT NO. 1

Detailed Apr. 2024
Checked Jul. 2024

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

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ROUTE 137
STATE MO
DISTRICT BR
SHEET NO. 4
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

DESCRIPTION | DATE

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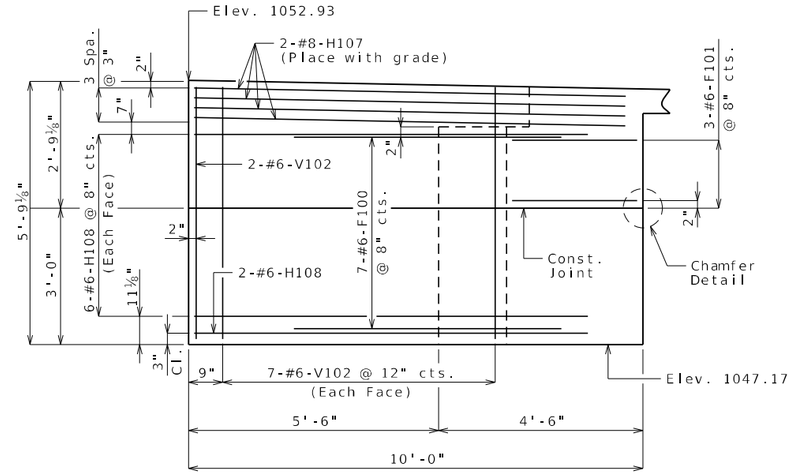
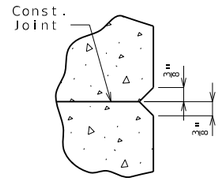
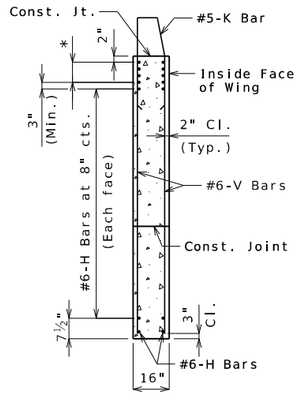


TYPICAL WINGWALL ELEVATION

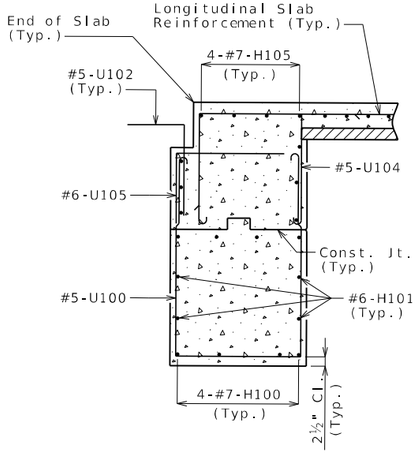


CHAMFER DETAIL

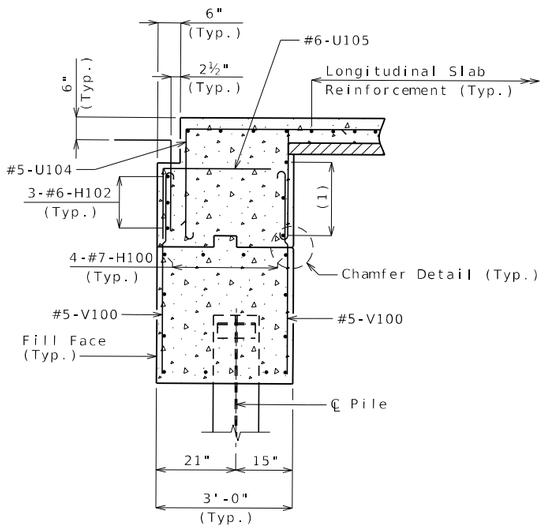


* #8-H Bars at 3" cts. (Each Face)
(Place with grade)

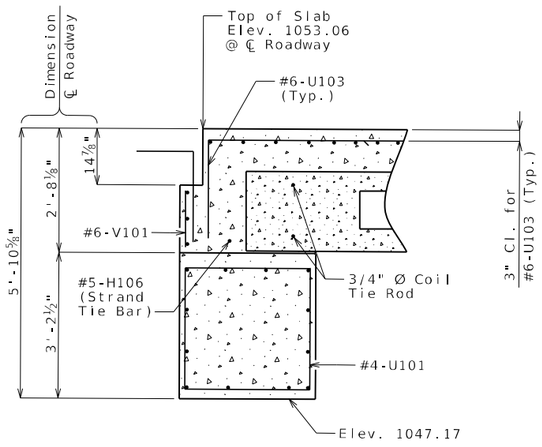
TYPICAL SECTION
THRU WING



SECTION A-A



SECTION B-B



SECTION C-C

Reference Notes:
(1) 3-#6-H104 (Btwn. Beams) (Typ.)

General Notes:
For details of End Bent No. 1 not shown, see Sheets No. 3 & 4.

For locations of Sections A-A, B-B & C-C, see Sheet No. 4.

For reinforcement of the barrier, see Sheets No. 21 & 23.

DETAILS OF END BENT NO. 1

Detailed Apr. 2024
Checked Jul. 2024

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

H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_005_JSE0029_Details of End Bent No. 1.dgn 4:23:56 PM 10/17/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

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DATE PREPARED 10/17/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

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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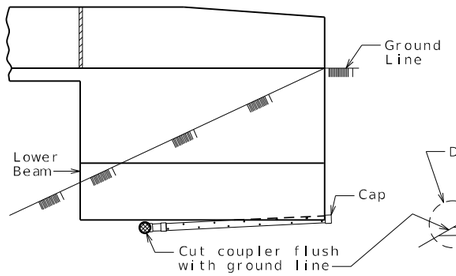
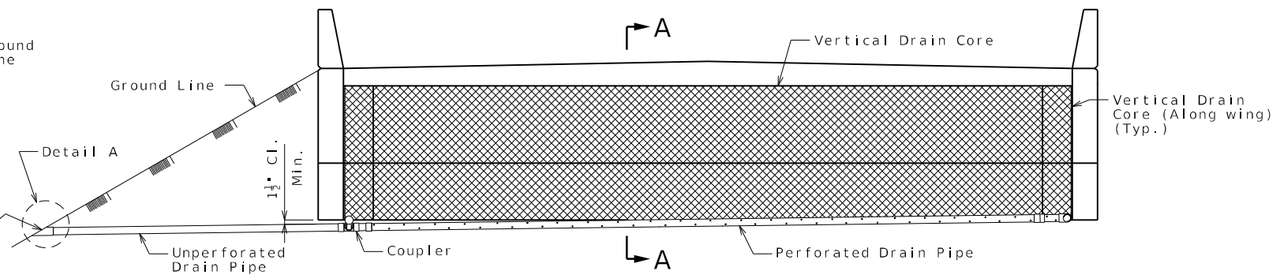
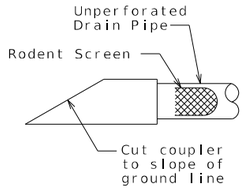


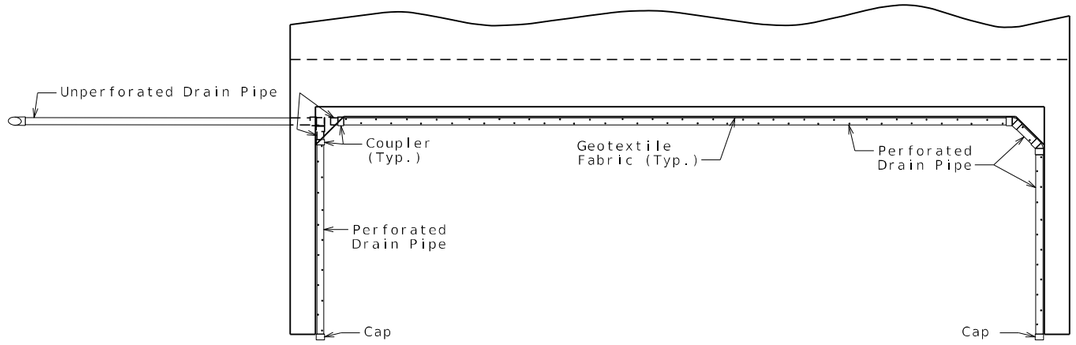
ELEVATION OF WING



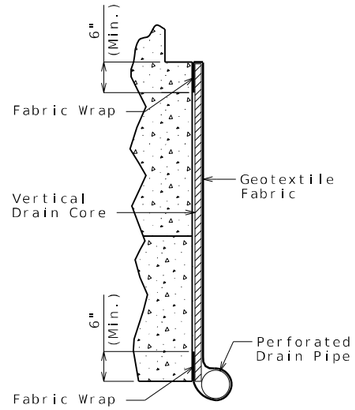
ELEVATION OF END BENT



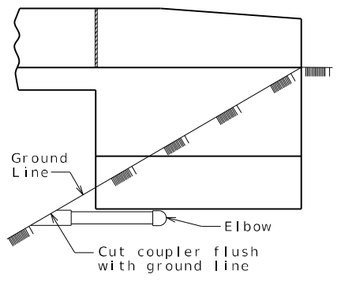
DETAIL A



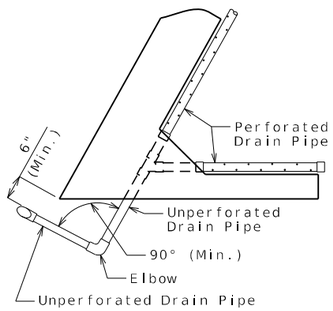
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

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.

VERTICAL DRAIN AT END BENTS
(End Bent No.1 shown, End Bent No. 5 similar)

STATE OF MISSOURI
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10/17/2024	
ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	6
COUNTY	
TEXAS	
JOB NO.	
JSE0029	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9395	

DESCRIPTION | DATE

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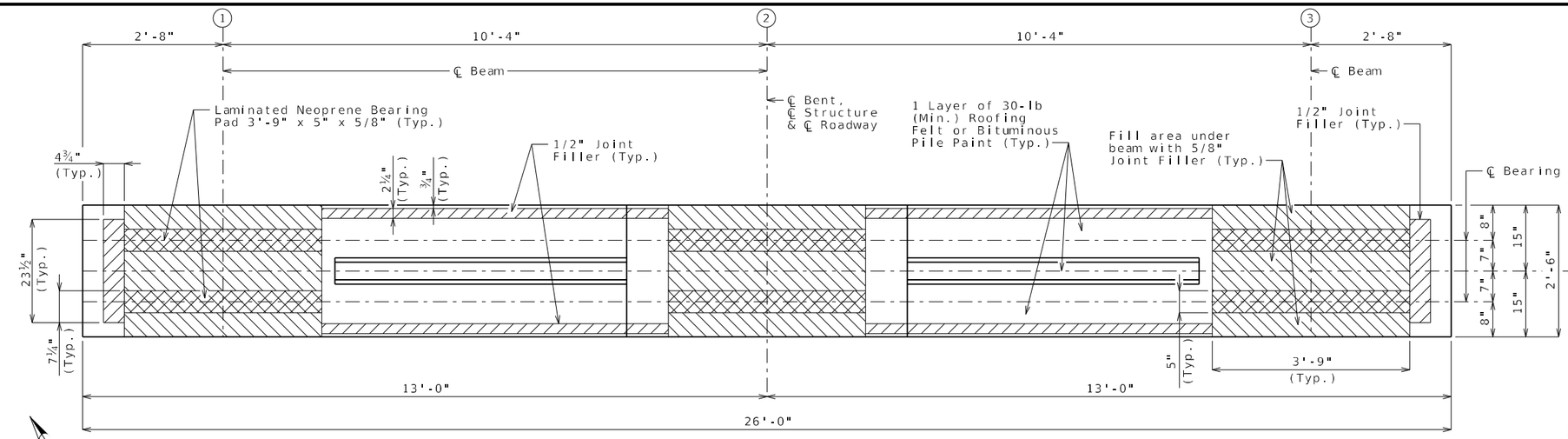
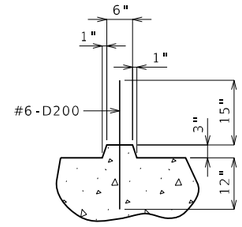


PLAN OF BEAM



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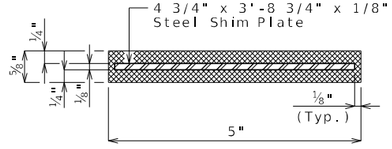
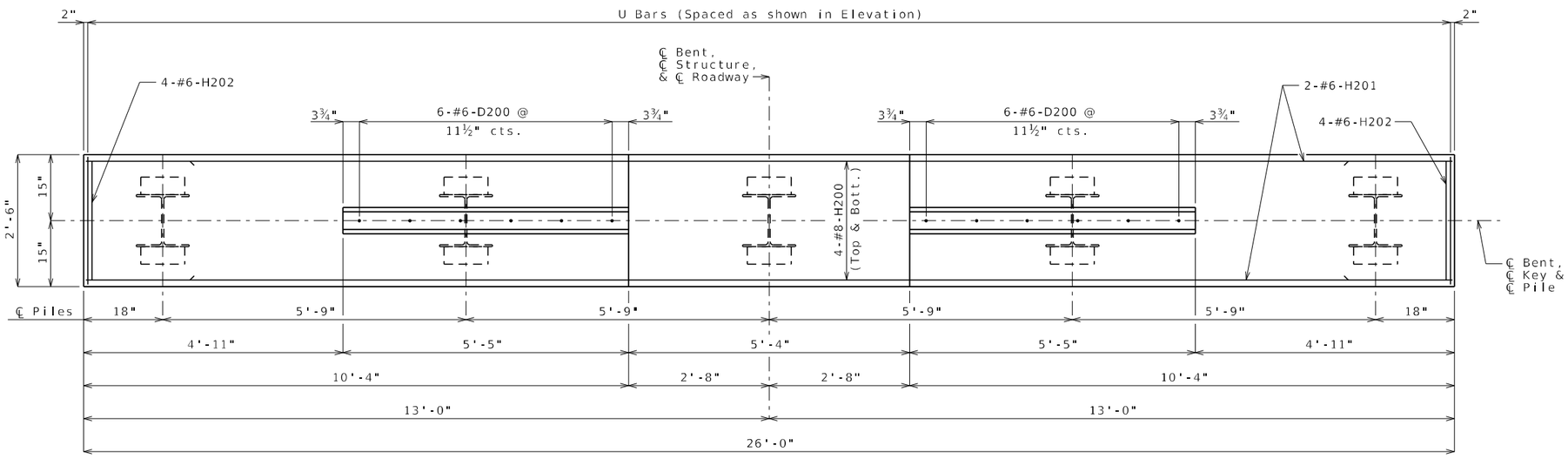


SECTION THRU LAMINATED NEOPRENE BEARING PAD



PLAN OF BEAM SHOWING REINFORCEMENT

Substructure Quantity Table for Bents No. 2, 3 & 4				
		Quantity		
Item		Int. Bent 2	Int. Bent 3	Int. Bent 4
Galvanized Structural Steel Pile (12 in)	linear foot	140	135	145
Pre-Bore for Piling	linear foot	88	86	84
Pile Point Reinforcement	each	5	5	5
Class B Concrete (Substructure)	cu. yard	7.4	7.4	7.4
Reinforcing Steel (Bridges)	pound	1,180	1,180	1,180

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

General Notes:
For details of Intermediate Bents No. 2, 3 & 4 not shown, see Sheet No. 8.

For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.

DETAILS OF INTERMEDIATE BENTS NO. 2, 3 & 4

Detailed Apr. 2024
Checked Jul. 2024

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

H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_007_JSE0029_Details of Intermediate Bents No. 2, 3 & 4.dgn 4:24:15 PM 10/17/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

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DATE PREPARED 10/17/2024
ROUTE 137
STATE MO
DISTRICT BR
SHEET NO. 7
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

DESCRIPTION

DATE

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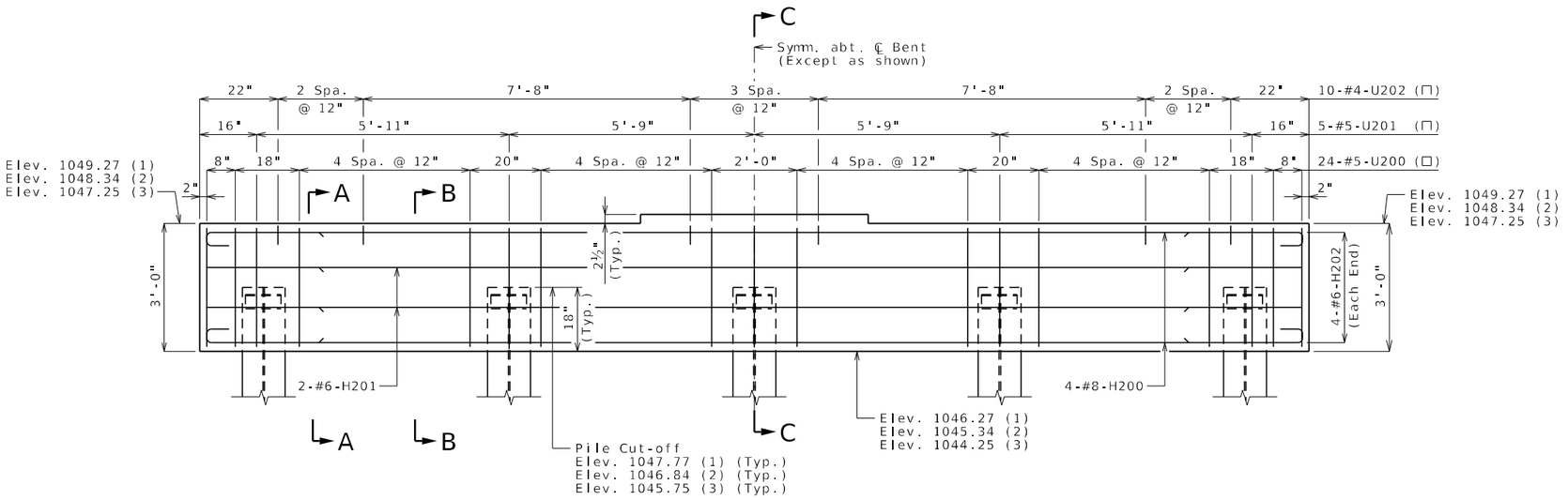
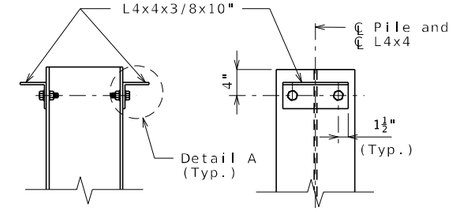
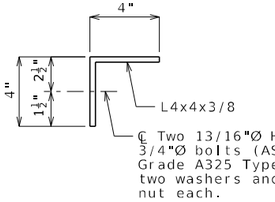


ELEVATION
(Keys not shown for clarity)

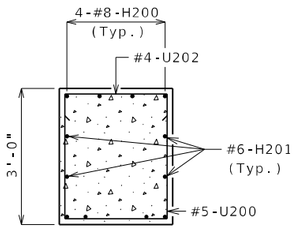


DETAILS OF HP PILE ANCHORS

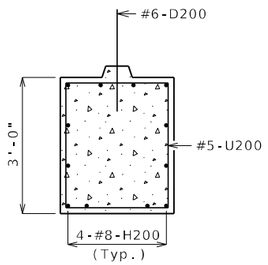


DETAIL A

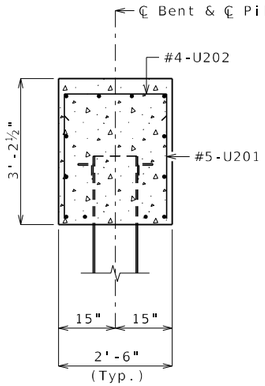
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.



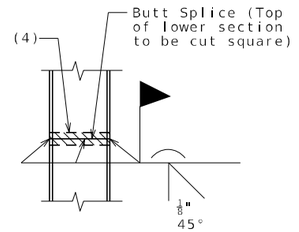
SECTION A-A



SECTION B-B



SECTION C-C



STEEL PILE SPLICE
(If required)

Reference Notes:
(1) Intermediate Bent No. 2.
(2) Intermediate Bent No. 3.
(3) Intermediate Bent No. 4.
(4) Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

General Notes:
For details of Intermediate Bents No. 2, 3 & 4 not shown, see Sheet No. 7.

DETAILS OF INTERMEDIATE BENTS NO. 2, 3 & 4

Detailed Apr. 2024
Checked Jul. 2024

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

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ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

DESCRIPTION | DATE

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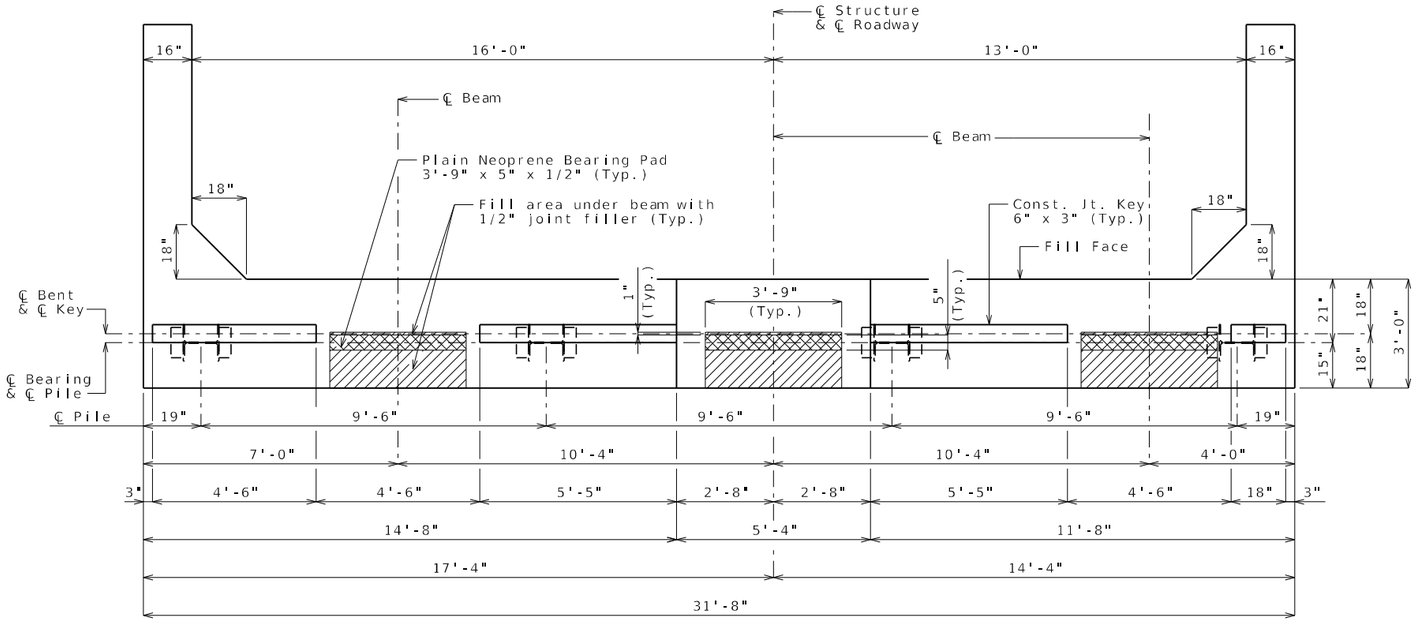
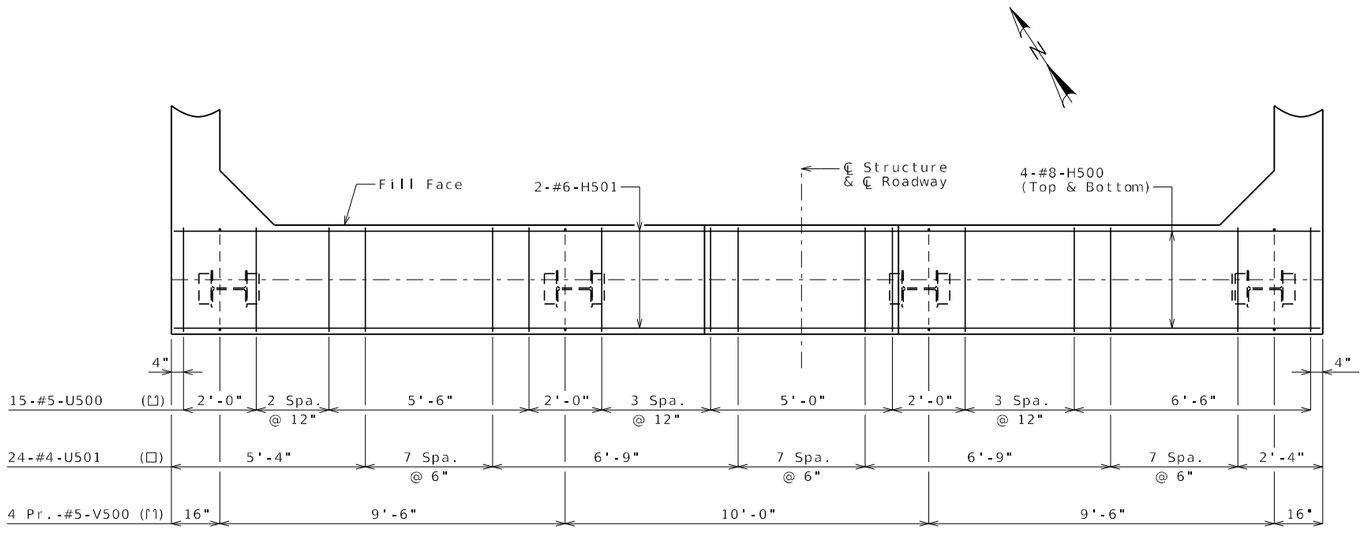
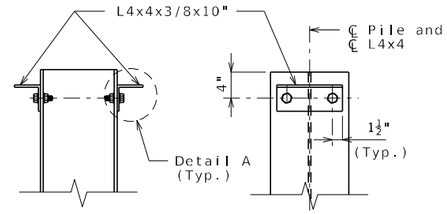


PLAN OF BEAM

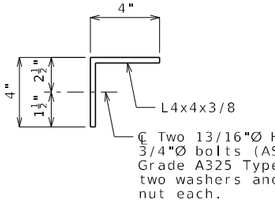


PLAN OF BEAM SHOWING REINFORCEMENT

(Keys not shown for clarity)

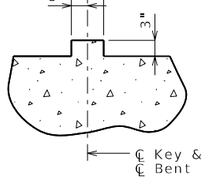


DETAILS OF HP PILE ANCHORS



DETAIL A

Angles should 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.



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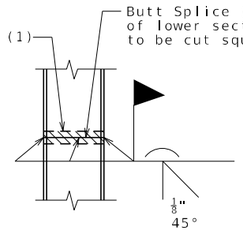

STEEL PILE SPLICE

(If required)

Substructure Quantity Table for Bent No. 5

Item		Quantity
Class 1 Excavation	cu. yard	46
Galvanized Structural Steel Pile (12 in)	linear foot	88
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	13.1

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

Reference Notes:
(1) Galvanized material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

General Notes:
For details of End Bent No. 5 not shown, see Sheets No. 10 & 11.

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

DETAILS OF END BENT NO. 5

STATE OF MISSOURI
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ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 9
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

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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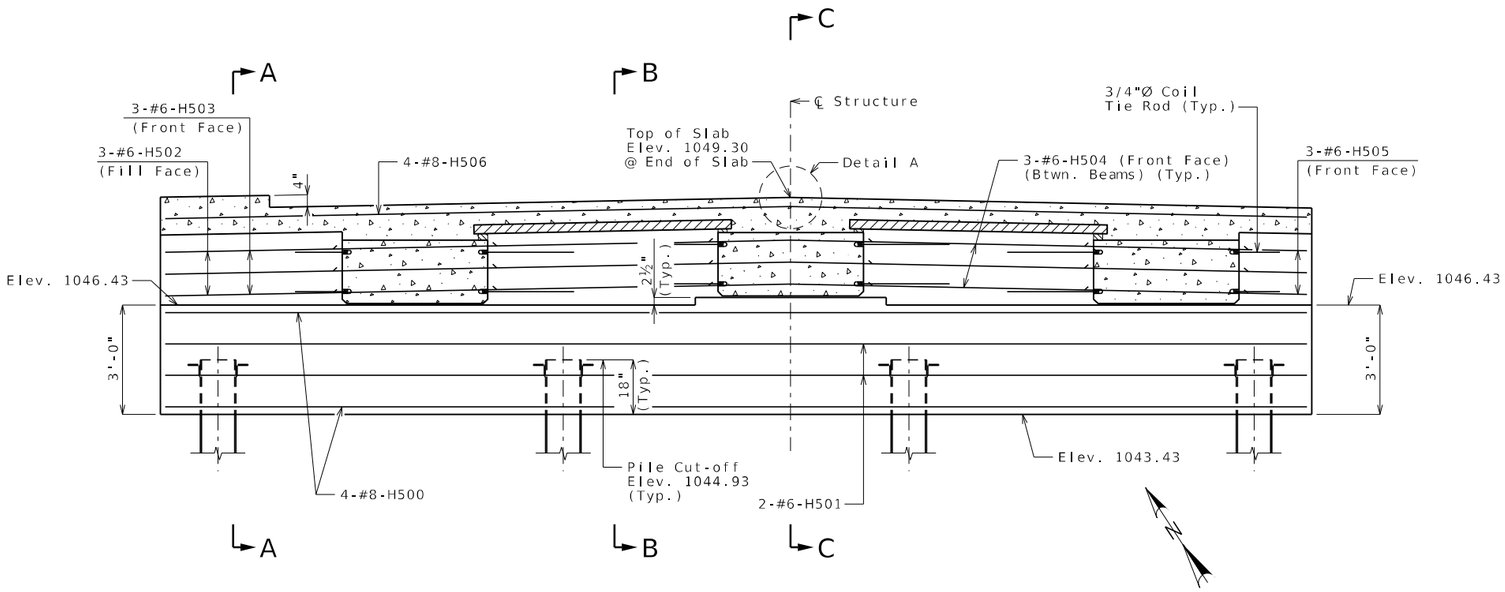
St. Louis 720 Olive, Suite 700 St. Louis, MO 63101 314.588.8331
St. Charles 820 South Main, Suite 399 St. Charles, MO 63301 636.493.5277
Collinsville 100 Lanter Court, Suite 1 Collinsville, IL 62234 618.345.2200
Belleville 1 South Church, Suite 700 Belleville, IL 62220 618.416.4888
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

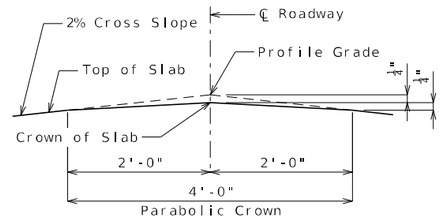
Detailed Apr. 2024
Checked Jul. 2024

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

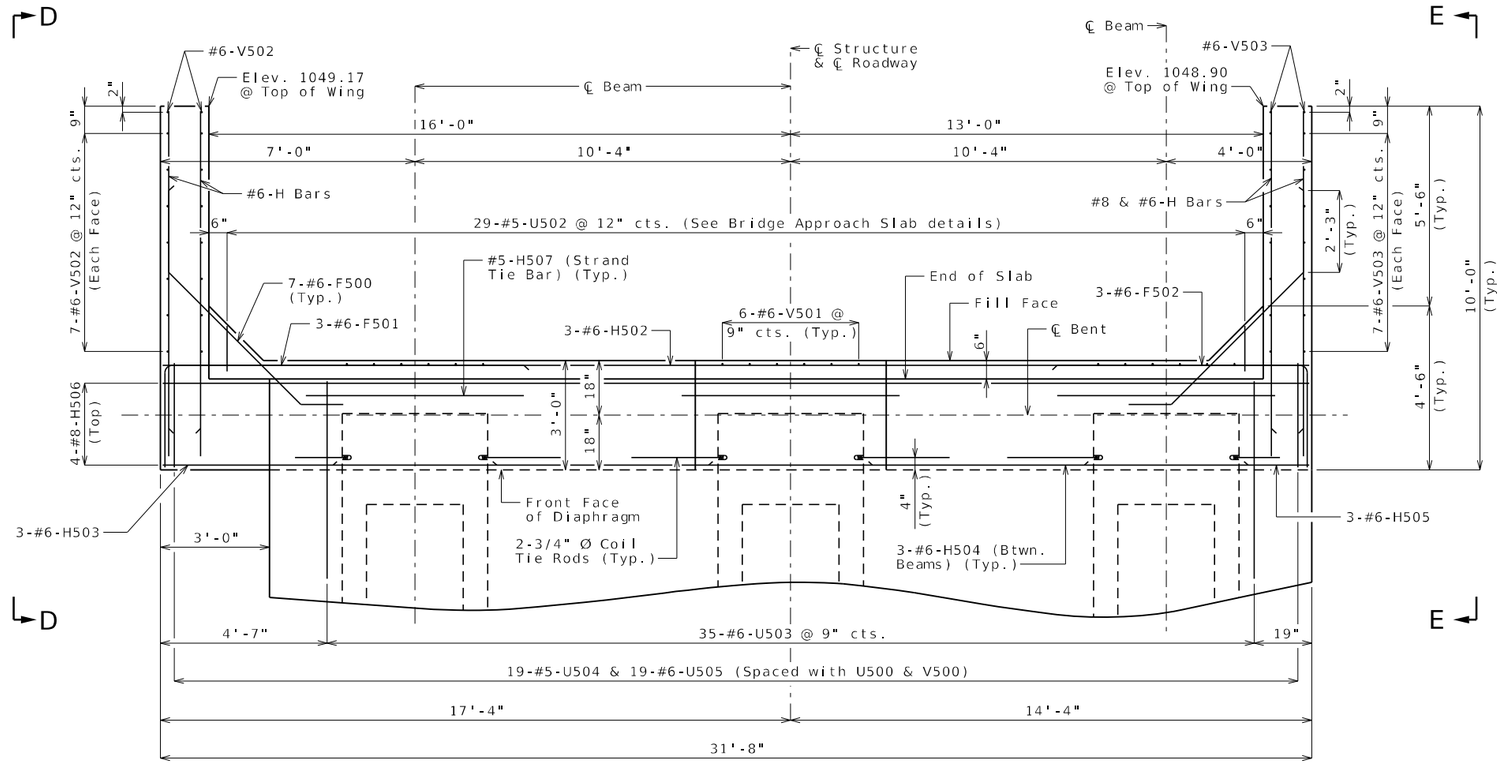
H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_009_JSE0029_Details of End Bent No. 5.dgn 4:24:38 PM 10/17/2024



SECTION NEAR END BENT



DETAIL A



PART PLAN

General Notes:

For details of End Bent No. 5 not shown, see Sheets No. 9 & 11.

Strands at end of the beams shall be field bent or, if necessary, cut in the field to maintain 1 1/2-inch minimum clearance to fill face of end bent.

The #6-F500 shall be bent in the field to clear beams.

For locations of Coil Tie Rods and #5-H507 (Strand Tie Bar), see Sheet No. 15.

For details of Vertical Drains at End Bents, see Sheet No. 6.

For details of Bridge Approach Slab, see Sheet No. 24.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

For Sections A-A, B-B & C-C and Elevations D-D & E-E, see Sheet No. 11.

DETAILS OF END BENT NO. 5

Detailed Apr. 2024
Checked Jul. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/17/2024
ROUTE: 137
STATE: MO
DISTRICT: BR
SHEET NO.: 10
COUNTY: TEXAS
JOB NO.: JSE0029
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9395

DESCRIPTION
DATE

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

OATES ASSOCIATES
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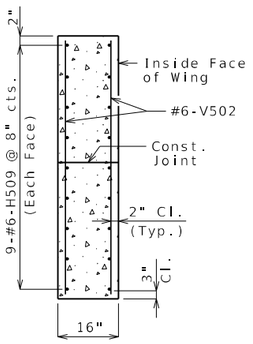
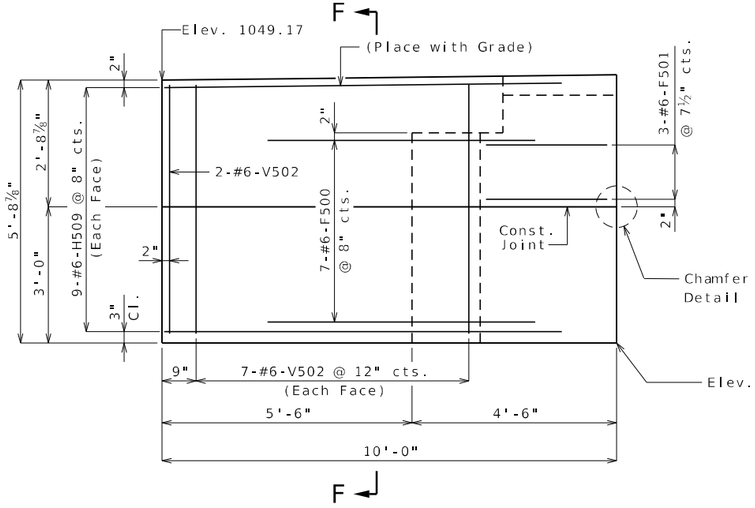
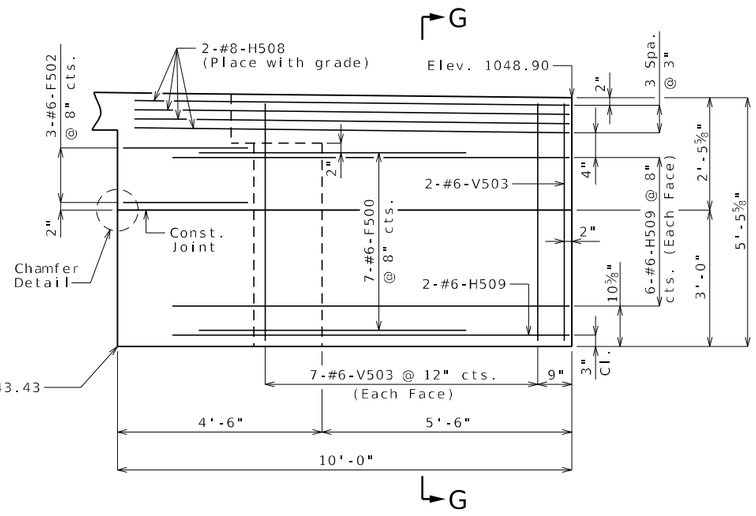
Collinsville: 100 Lamter Court, Suite 1, Collinsville, IL 62234, 618.345.4200
Belleville: 1 South Church, Suite 700, Belleville, IL 62220, 618.413.4368
www.oatesassociates.com



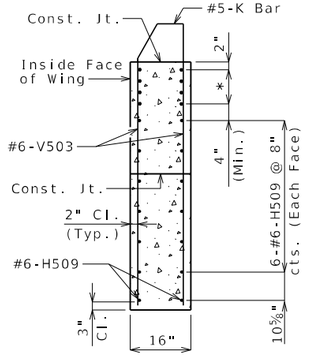
SECTION F-F



ELEVATION D-D

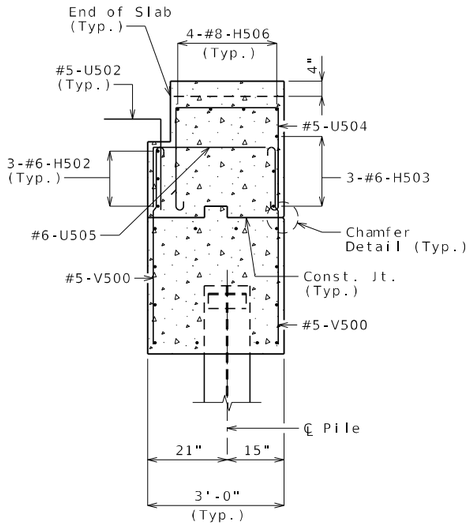


ELEVATION E-E

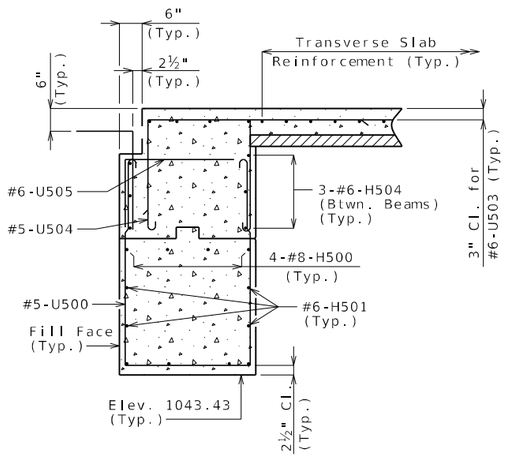


SECTION G-G

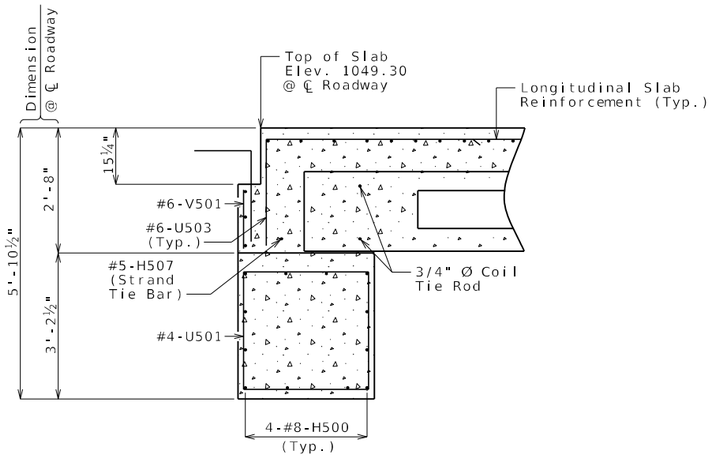
∗ 4-#8-H508 @ 3" cts.
(Each Face)
(Place with grade)



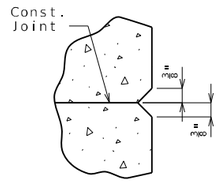
SECTION A-A



SECTION B-B



SECTION C-C



CHAMFER DETAIL

General Notes:
For details of End Bent No. 5 not shown, see Sheets No. 9 & 10.

For locations of Sections A-A, B-B & C-C and Elevations D-D & E-E, see Sheet No. 10.

For reinforcement of the barrier, see Sheets No. 22 & 23.

DETAILS OF END BENT NO. 5

Detailed Apr. 2024
Checked Jul. 2024

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

H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_011_JSE0029_Details of End Bent No. 5.dgn 4:24:57 PM 10/17/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/17/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	11

COUNTY
TEXAS

JOB NO.
JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9395

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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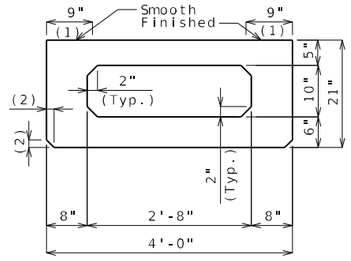
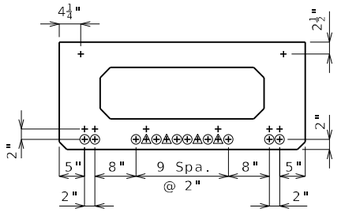


DIMENSIONS

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



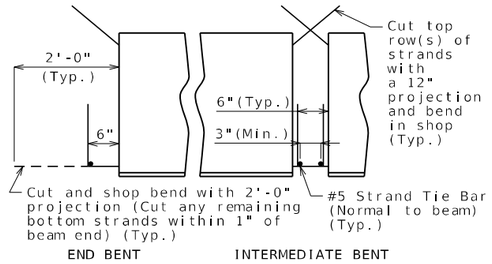
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

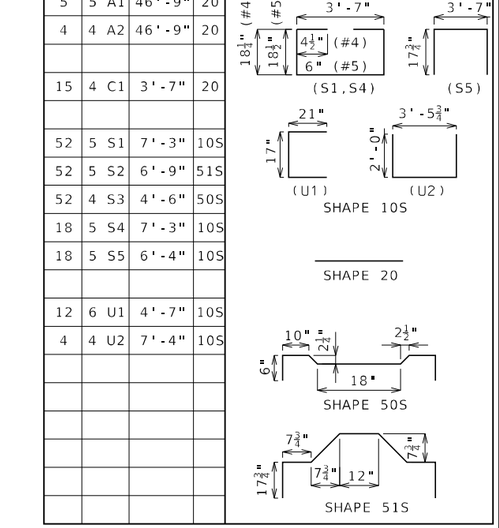
○ Indicates cut and shop bend with 2'-0" projection.

△ Indicates debonded for 2'-0" from end of beam.

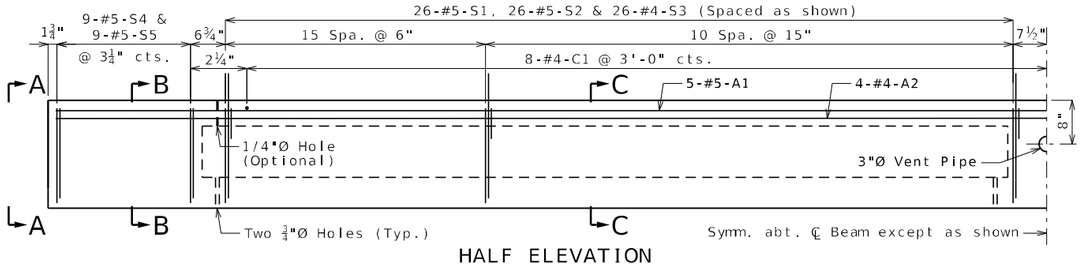


STRANDS AT BEAM ENDS

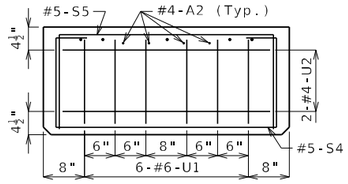
BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	46'-9"	20	
4	4 A2	46'-9"	20	
15	4 C1	3'-7"	20	
52	5 S1	7'-3"	10S	
52	5 S2	6'-9"	51S	
52	4 S3	4'-6"	50S	
18	5 S4	7'-3"	10S	
18	5 S5	6'-4"	10S	
12	6 U1	4'-7"	10S	
4	4 U2	7'-4"	10S	



(2) 1½" (Typ.) (¾" Optional)

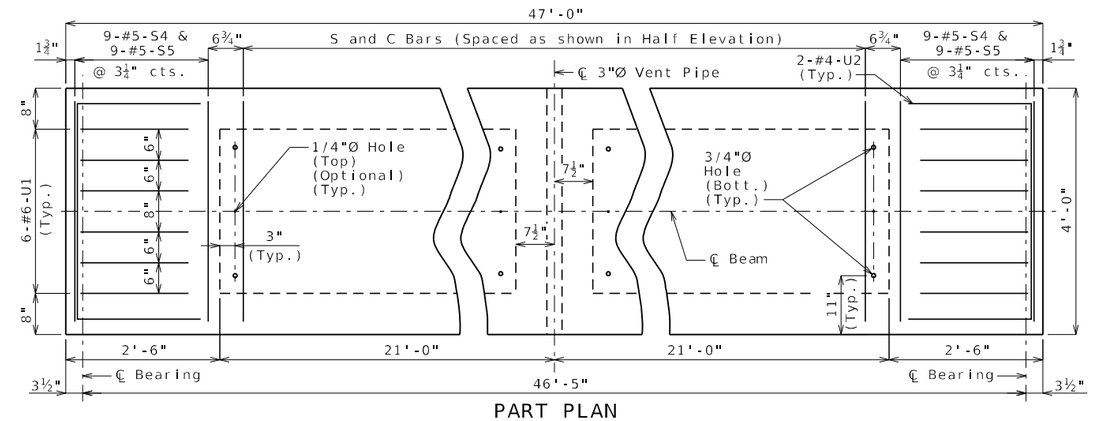


HALF ELEVATION

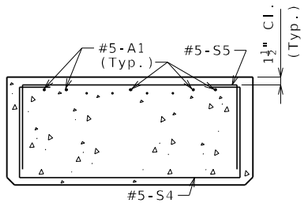


ELEVATION A-A

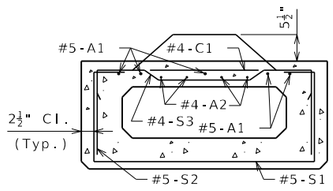
Strands not shown for clarity.



PART PLAN

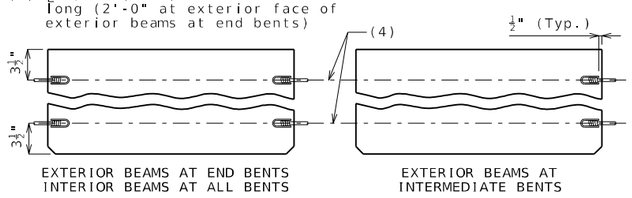


SECTION B-B



SECTION C-C

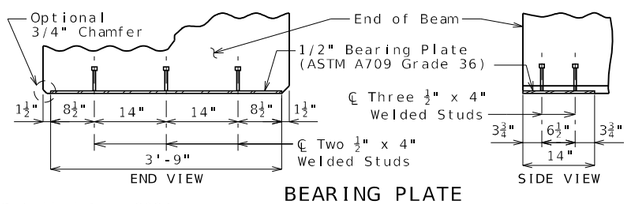
(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (2'-0" at exterior face of exterior beams at end bents)



EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES



BEARING PLATE

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 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.

For Beam Camber Diagram, see Sheet No. 18.

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

SPREAD BOX BEAMS - SPAN (1-2)

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	12

COUNTY: TEXAS
JOB NO.: JSE0029
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9395

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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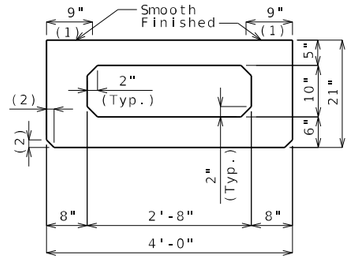
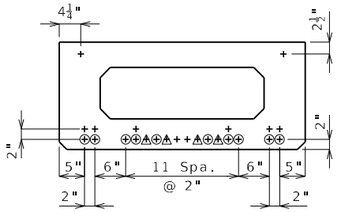
St. Louis, MO 63101
314.588.8391
St. Charles
820 South Main, Suite 399
St. Charles, MO 63301
636.493.8277
MISSOURI DESIGN FIRM PE-001166



DIMENSIONS

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



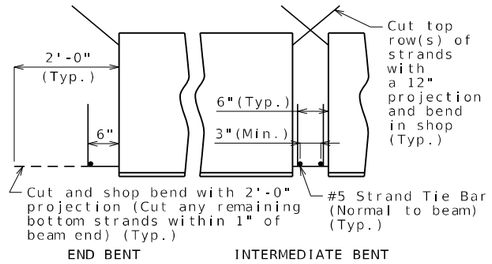
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

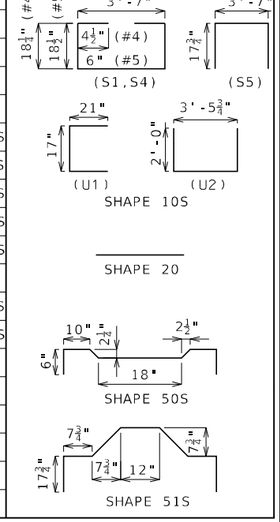
○ Indicates cut and shop bend with 2'-0" projection.

△ Indicates debonded for 2'-0" from end of beam.

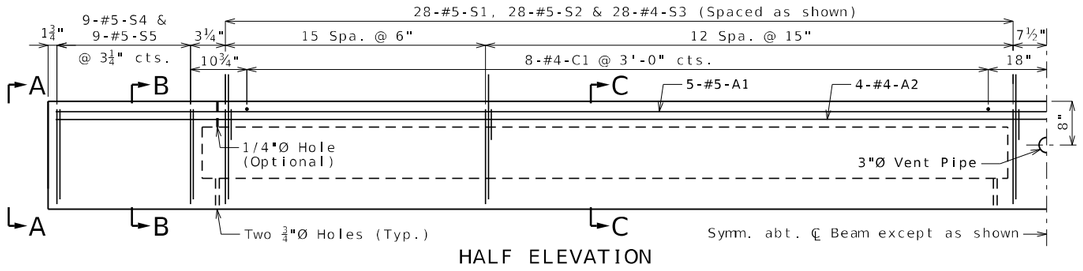


STRANDS AT BEAM ENDS

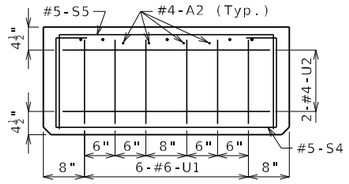
BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	51'-2"	20	
4	4 A2	51'-2"	20	
16	4 C1	3'-7"	20	
56	5 S1	7'-3"	10S	
56	5 S2	6'-9"	51S	
56	4 S3	4'-6"	50S	
18	5 S4	7'-3"	10S	
18	5 S5	6'-4"	10S	
12	6 U1	4'-7"	10S	
4	4 U2	7'-4"	10S	



(2) 1½" (Typ.) (¾" Optional)

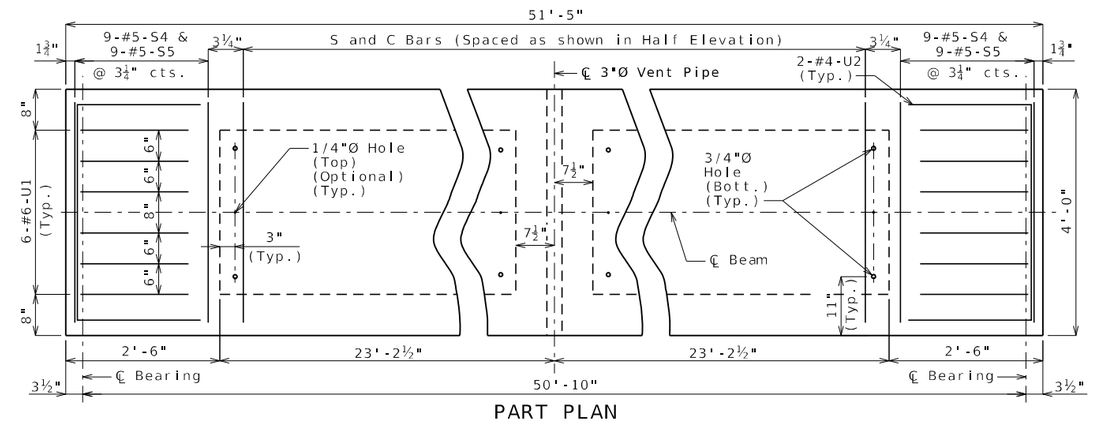


HALF ELEVATION

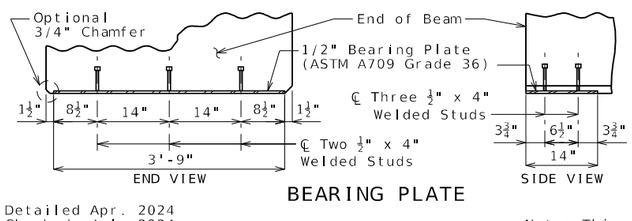


ELEVATION A-A

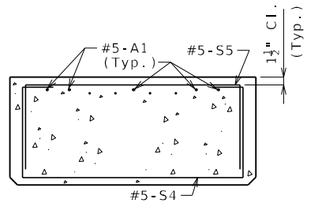
Strands not shown for clarity.



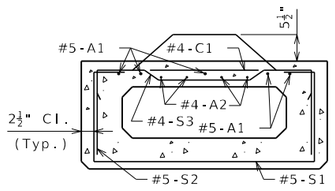
PART PLAN



BEARING PLATE

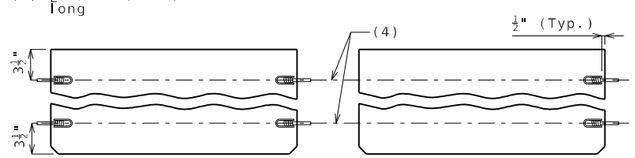


SECTION B-B



SECTION C-C

(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long



EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

EXTERIOR BEAMS AT INTERMEDIATE 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 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 24 strands, 0.6"Ø Grade 270, with an initial prestress force of 1,055 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.

For Beam Camber Diagram, see Sheet No. 18.

For location of coil ties at concrete bent diaphragms, see Sheet No. 16.

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024

ROUTE 137 | STATE MO

DISTRICT BR | SHEET NO. 13

COUNTY TEXAS

JOB NO. JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9395

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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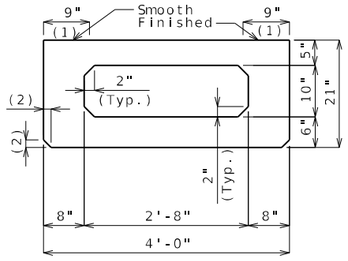
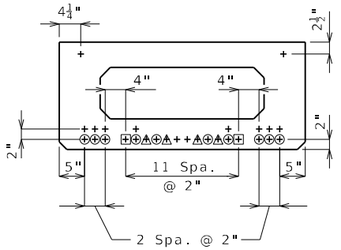
MISSOURI DESIGN FIRM PE-001166

SPREAD BOX BEAMS - SPAN (2-3)



DIMENSIONS

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



STRAND ARRANGEMENT

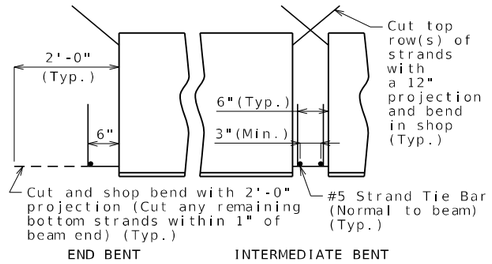
All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

○ Indicates cut and shop bend with 2'-0" projection.

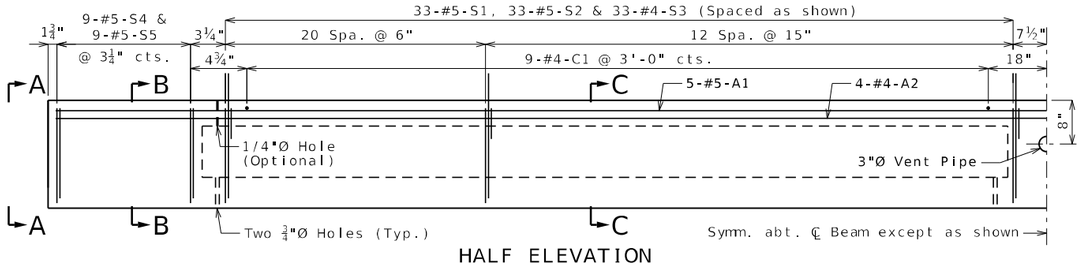
△ Indicates debonded for 2'-0" from end of beam.

□ Indicates debonded for 5'-0" from end of beam.

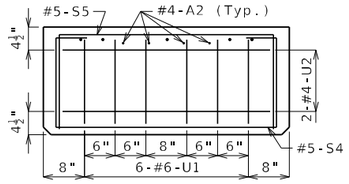


STRANDS AT BEAM ENDS

(2) 1½" (Typ.) (¾" Optional)

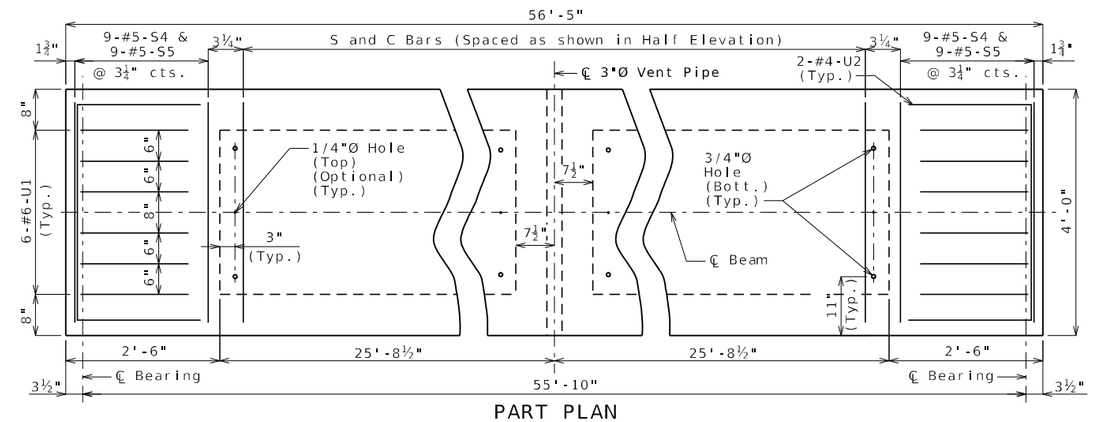


HALF ELEVATION

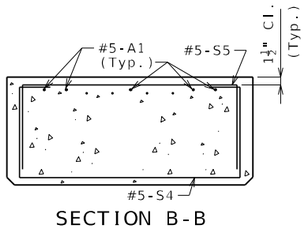


ELEVATION A-A

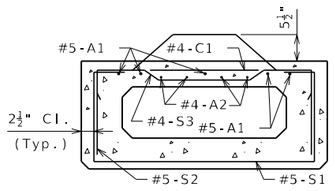
Strands not shown for clarity.



PART PLAN

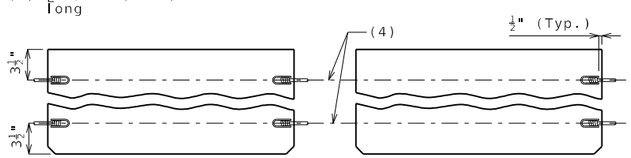


SECTION B-B



SECTION C-C

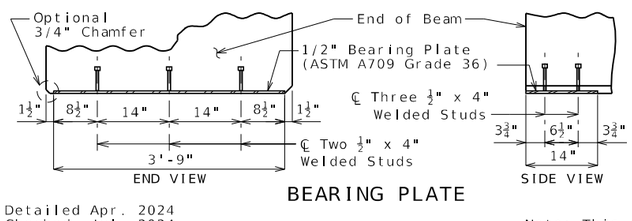
(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long



EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

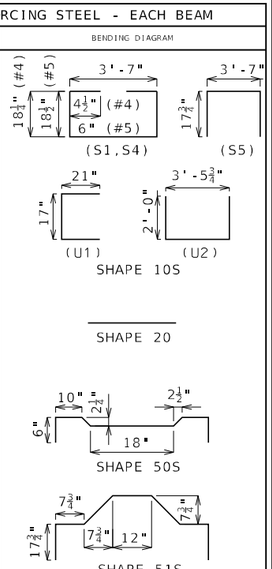
EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES



BEARING PLATE

BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	56'-2"	20	
4	4 A2	56'-2"	20	
18	4 C1	3'-7"	20	
66	5 S1	7'-3"	10S	
66	5 S2	6'-9"	51S	
66	4 S3	4'-6"	50S	
18	5 S4	7'-3"	10S	
18	5 S5	6'-4"	10S	
12	6 U1	4'-7"	10S	
4	4 U2	7'-4"	10S	



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 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 28 strands, 0.6 "Ø Grade 270, with an initial prestress force of 1,230 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.

For Beam Camber Diagram, see Sheet No. 18.

For location of coil ties at concrete bent diaphragms, see Sheet No. 16.

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 14
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

DESCRIPTION | DATE

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

OATES ASSOCIATES
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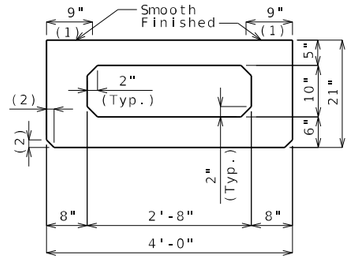
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

Detailed Apr. 2024
Checked Jul. 2024

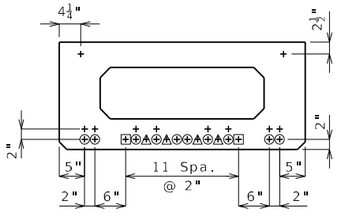
Note: This drawing is not to scale. Follow dimensions.

SPREAD BOX BEAMS - SPAN (3-4)



DIMENSIONS

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



STRAND ARRANGEMENT

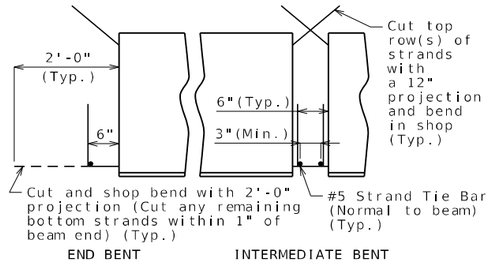
All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

○ Indicates cut and shop bend with 2'-0" projection.

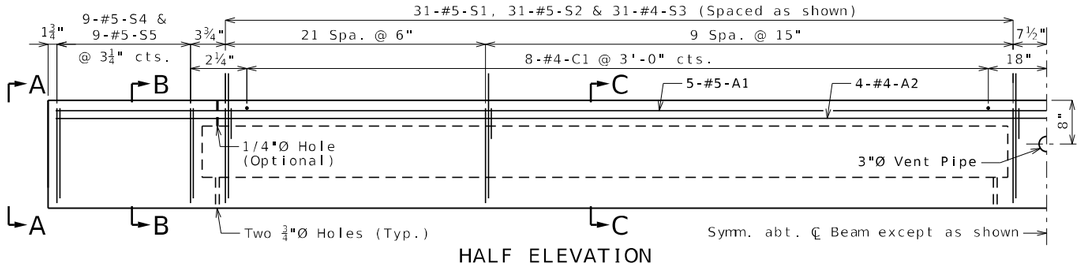
△ Indicates debonded for 2'-0" from end of beam.

□ Indicates debonded for 5'-0" from end of beam.

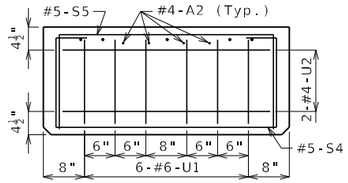


STRANDS AT BEAM ENDS

(2) 1½" (Typ.) (¾" Optional)

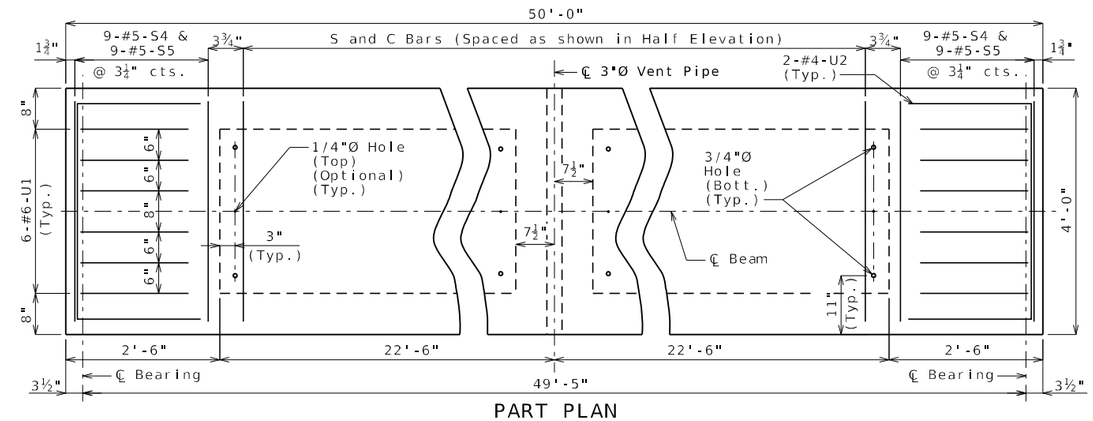


HALF ELEVATION

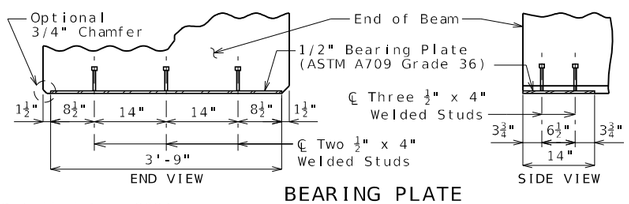


ELEVATION A-A

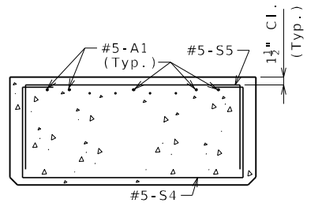
Strands not shown for clarity.



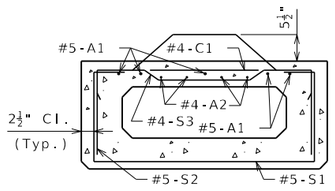
PART PLAN



BEARING PLATE

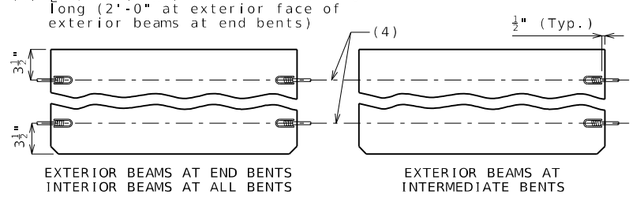


SECTION B-B



SECTION C-C

(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (2'-0" at exterior face of exterior beams at end bents)

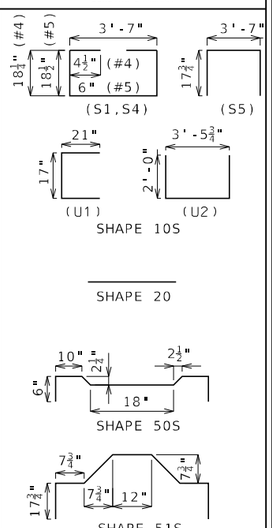


EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES

BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	49'-9"	20	
4	4 A2	49'-9"	20	
16	4 C1	3'-7"	20	
62	5 S1	7'-3"	10S	
62	5 S2	6'-9"	51S	
62	4 S3	4'-6"	50S	
18	5 S4	7'-3"	10S	
18	5 S5	6'-4"	10S	
12	6 U1	4'-7"	10S	
4	4 U2	7'-4"	10S	



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 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 26 strands, 0.6 "Ø Grade 270, with an initial prestress force of 1,143 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.

For Beam Camber Diagram, see Sheet No. 18.

For location of coil ties at concrete bent diaphragms, see Sheets No. 10 & 16.

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 15
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

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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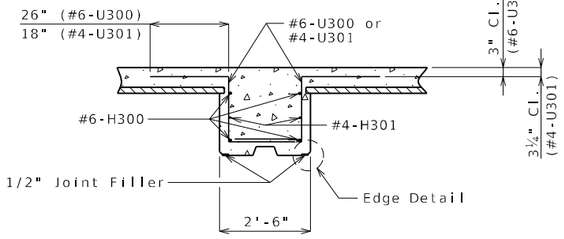
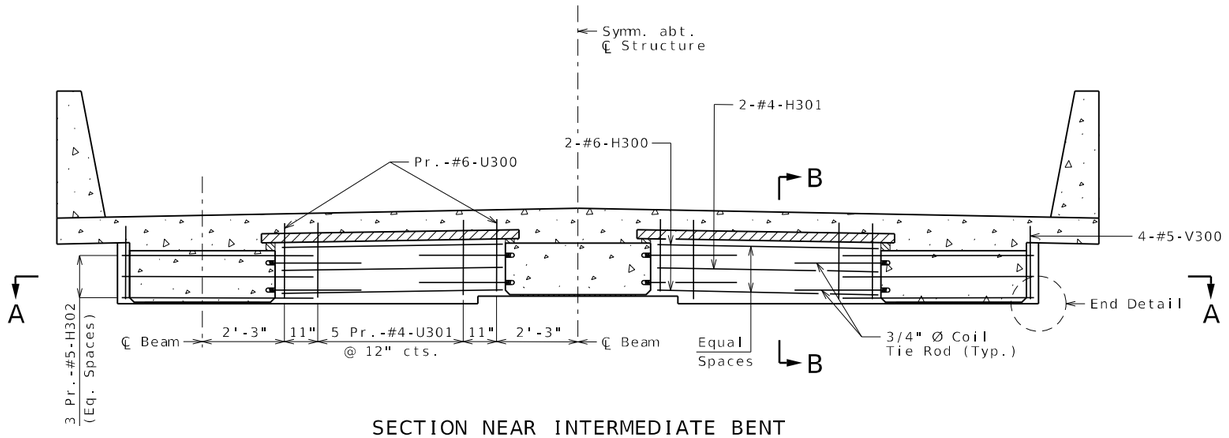
SPREAD BOX BEAMS - SPAN (4-5)

Detailed Apr. 2024
Checked Jul. 2024

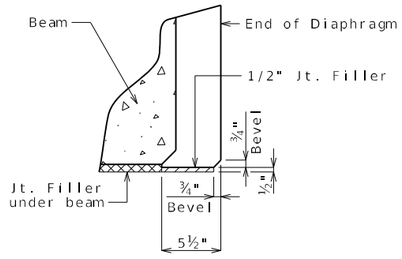
Note: This drawing is not to scale. Follow dimensions.



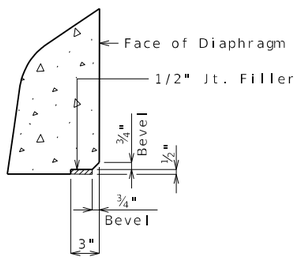
SECTION B-B



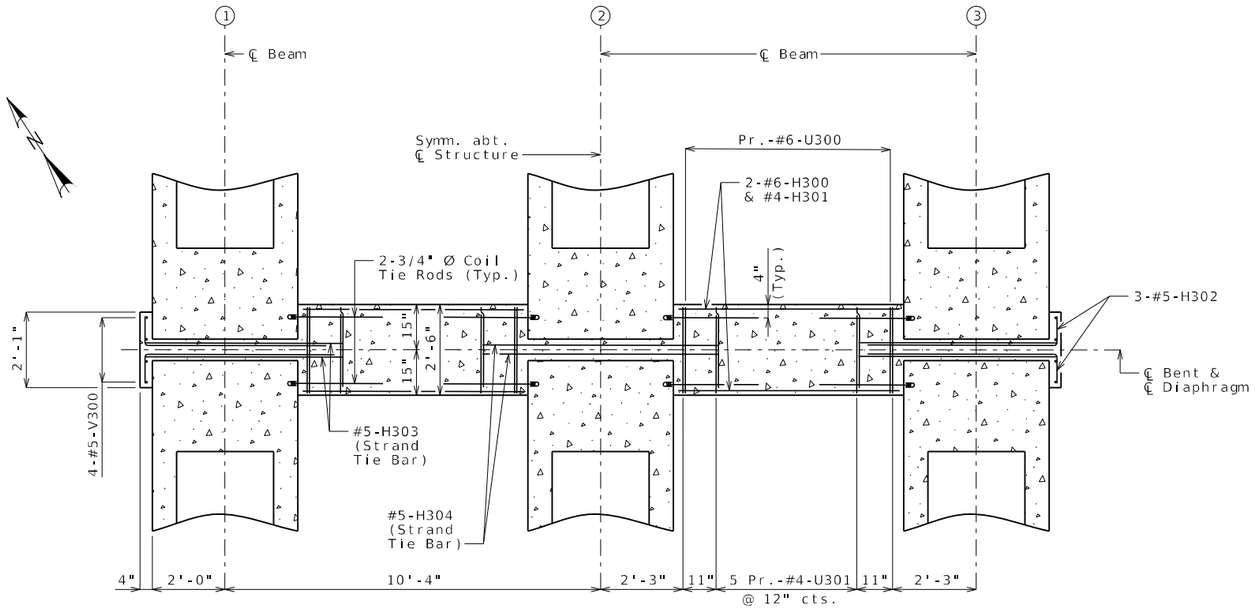
SECTION NEAR INTERMEDIATE BENT



END DETAIL



EDGE DETAIL



SECTION A-A

General Notes:
For locations of Strand Tie Bars and Coil Tie Rods, see Sheets No. 12-15.

Diaphragms at intermediate bents shall be built vertical.

DETAILS OF CONCRETE DIAPHRAGMS AT INTERMEDIATE BENTS NO. 2, 3 & 4

Detailed Apr. 2024
Checked Jul. 2024

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

H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_016_JSE0029_Details of Concrete Diaphragms at Intermediate Bents No. 2, 3 & 4.dgn 4:25:59 PM 10/17/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	16

COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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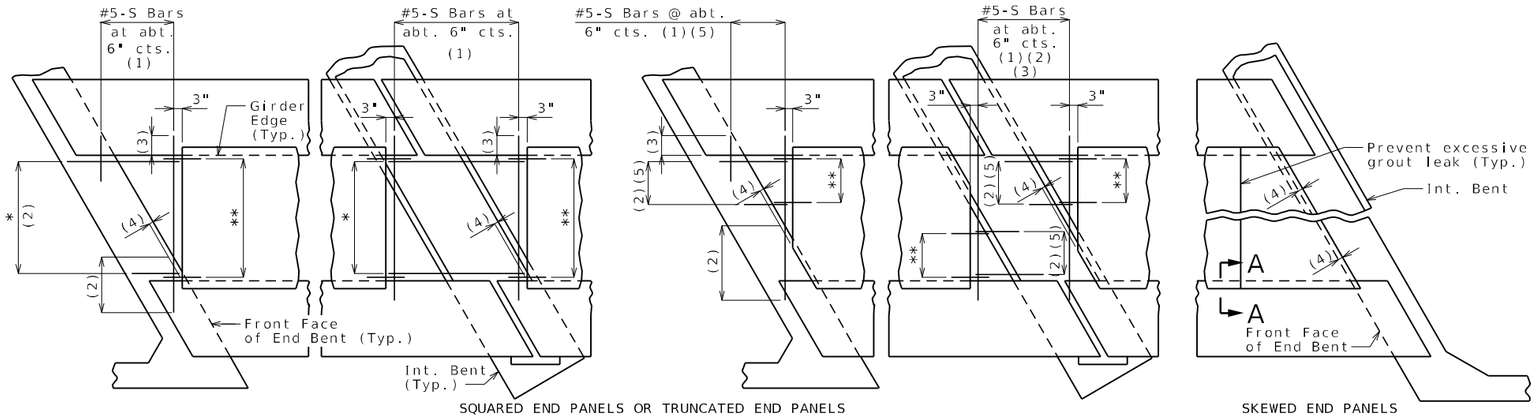
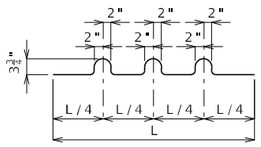


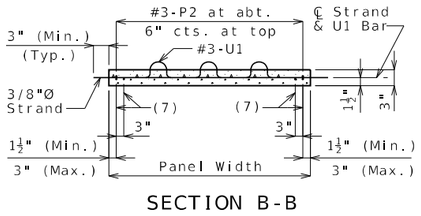
SQUARED END PANELS OR TRUNCATED END PANELS

SKEWED END PANELS



BENDING DIAGRAM FOR U1 BAR

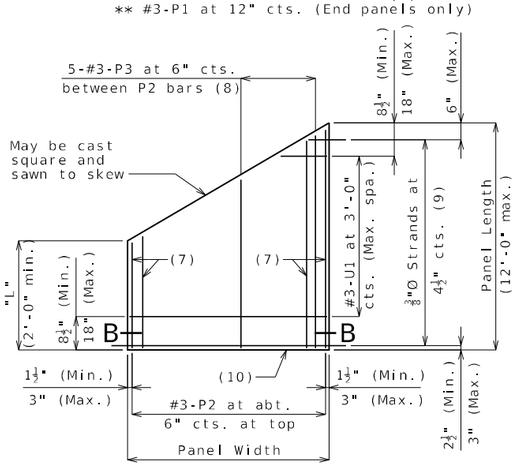
U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars.



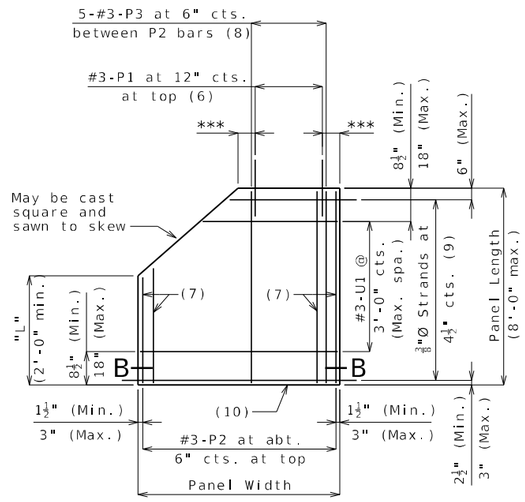
SECTION B-B

PLAN SHOWING PANEL PLACEMENT

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

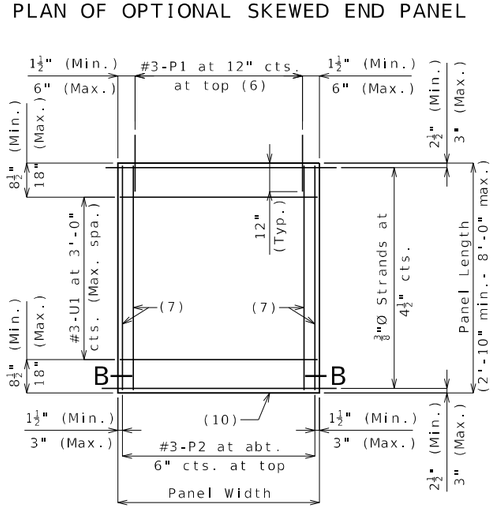


PLAN OF OPTIONAL SKEWED END PANEL

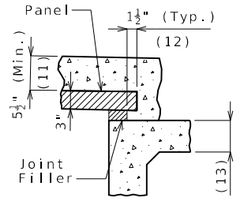


PLAN OF OPTIONAL TRUNCATED END PANEL

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



PLAN OF SQUARED PANEL



SECTION A-A

Joint Filler Dimensions		
Width	Height	
	Min.	Max.
3"	1"	4"

Reference Notes:

Plan of Panel Placement:
(1) S-bars shown are 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.

(10) Optional 1/2" x 45° Chamfer one or both sides at bottom.

Section A-A:
(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.

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. 18 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.

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 17
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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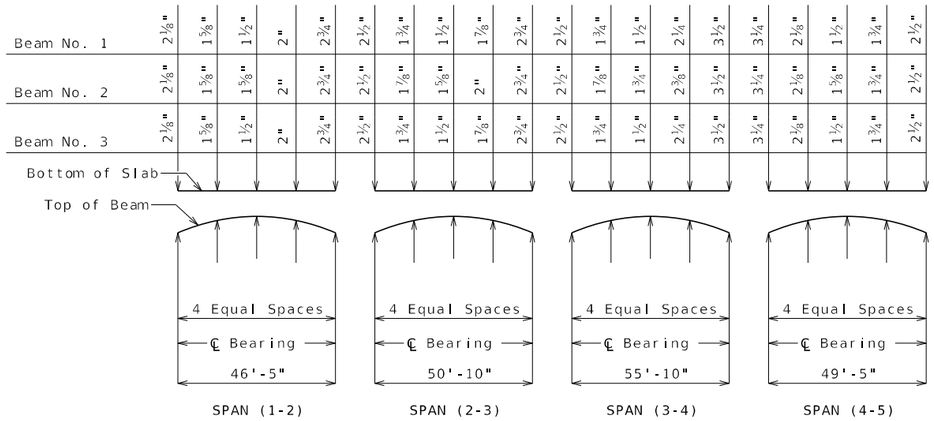
MISSOURI DESIGN FIRM PE-001166

PRESTRESSED PANELS

Detailed Apr. 2024
Checked Jul. 2024

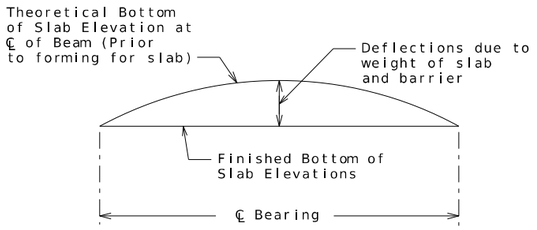
Note: This drawing is not to scale. Follow dimensions.



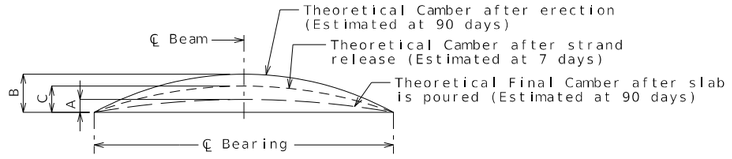
THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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.



TYPICAL SLAB ELEVATIONS DIAGRAM



Beam	Span (1-2)			Span (2-3)			Span (3-4)			Span (4-5)		
	A	B	C	A	B	C	A	B	C	A	B	C
Exterior	1"	1½"	1"	1⅛"	2"	1¼"	1½"	2¾"	1⅝"	1⅜"	2⅛"	1¼"
Interior	⅞"			1"			1⅜"			1¼"		

BEAM CAMBER DIAGRAM

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

0.25 pt. = 0.7125 x 0.5 pt.

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

Beam Number	Span (1-2) (46'-5" ℄ Brg. - ℄ Brg.)					Span (2-3) (50'-10" ℄ Brg. - ℄ Brg.)					Span (3-4) (55'-10" ℄ Brg. - ℄ Brg.)					Span (4-5) (49'-5" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	1052.14	1051.97	1051.77	1051.55	1051.30	1051.28	1051.10	1050.90	1050.65	1050.37	1050.35	1050.17	1049.95	1049.67	1049.34	1049.32	1049.14	1048.94	1048.70	1048.43
2	1052.35	1052.18	1051.98	1051.76	1051.51	1051.49	1051.32	1051.11	1050.86	1050.57	1050.55	1050.38	1050.17	1049.88	1049.55	1049.53	1049.36	1049.16	1048.91	1048.64
3	1052.14	1051.97	1051.77	1051.55	1051.30	1051.28	1051.10	1050.90	1050.65	1050.37	1050.35	1050.17	1049.95	1049.67	1049.34	1049.32	1049.14	1048.94	1048.70	1048.43

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 ELEVATIONS, HAUNCHING & CAMBER

Detailed Apr. 2024
Checked Jul. 2024

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

H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_018_JSE0029_Slab Elevations, Haunching & Camber.dgn 4:26:23 PM 10/17/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/17/2024
ROUTE: 137 | STATE: MO
DISTRICT: BR | SHEET NO.: 18
COUNTY: TEXAS
JOB NO.: JSE0029
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9395

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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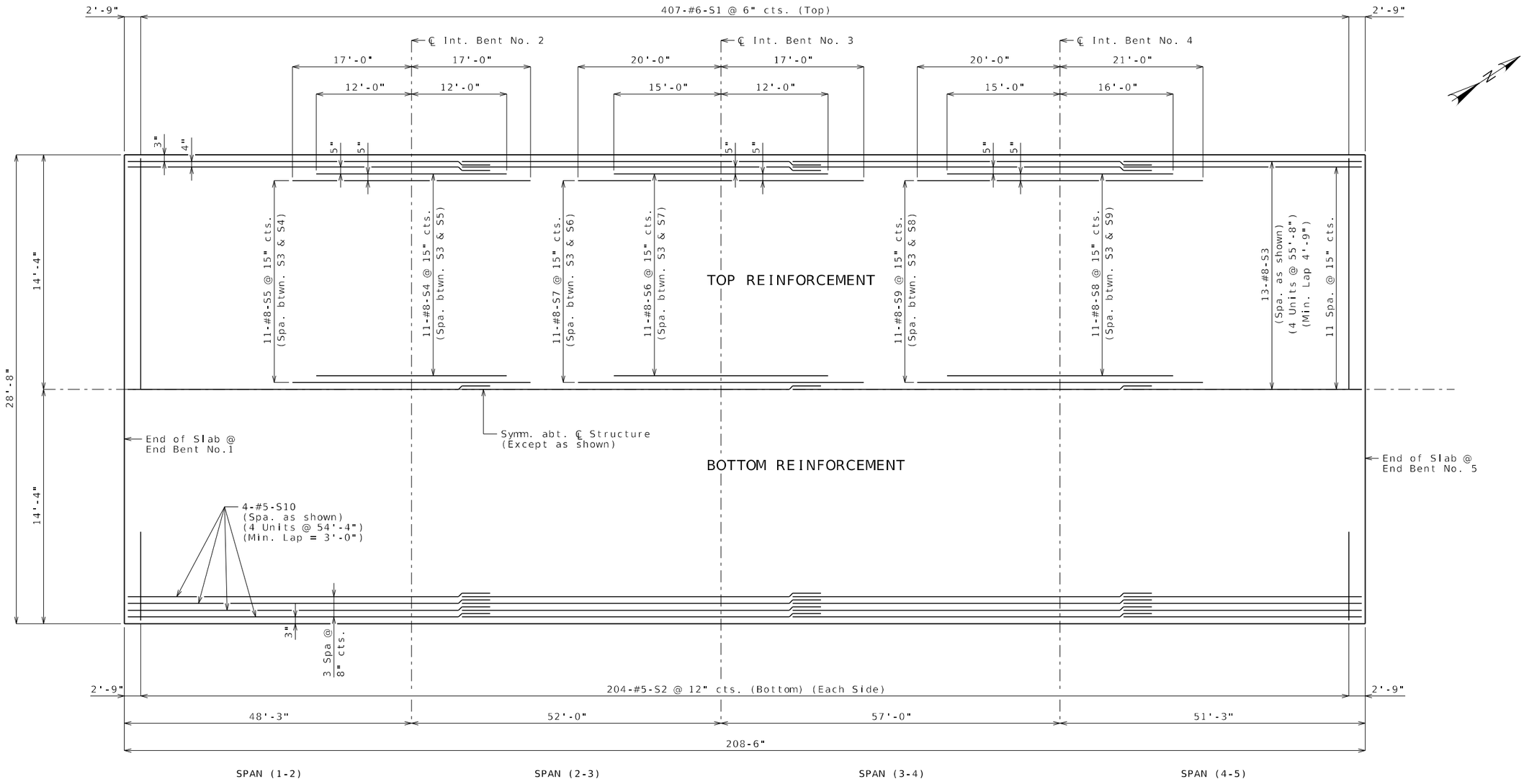

General Notes:
Longitudinal slab dimensions are measured horizontally.

For Sections Thru Slab and Slab Pouring Sequence, see Sheet No. 20.

For details and reinforcement of barrier not shown, see Sheets No. 21-23.

For Theoretical Slab Haunching Diagram and Theoretical Bottom of Slab Elevations, see Sheet No. 18.

For details of Prestressed Panels, see Sheet No. 17.

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Apr. 2024
Checked Jul. 2024

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

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/17/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	19

COUNTY: TEXAS
JOB NO.: JSE0029
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9395

DESCRIPTION	DATE

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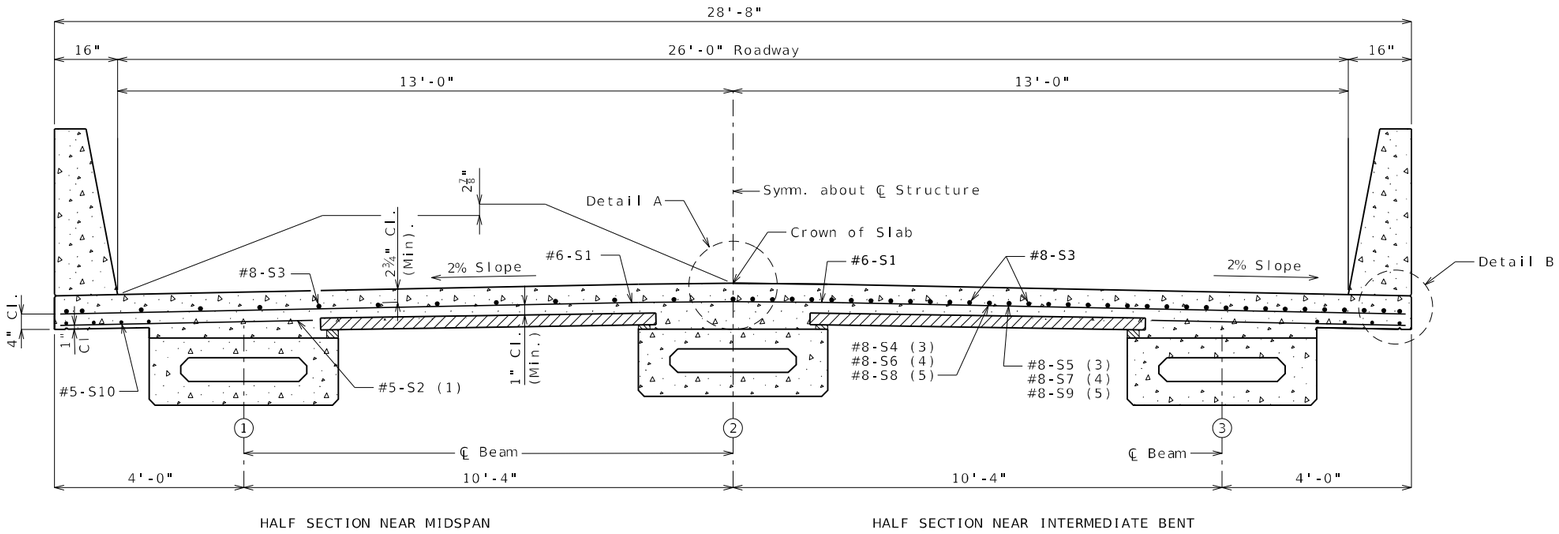
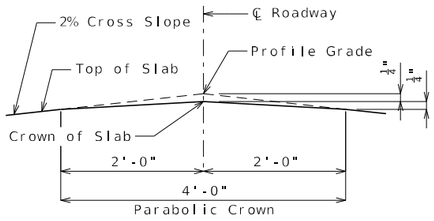


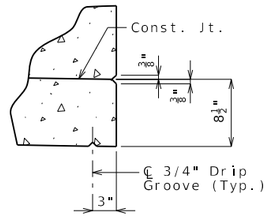
HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INTERMEDIATE BENT

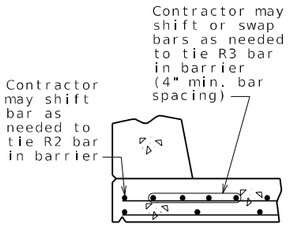
SECTION THRU SLAB



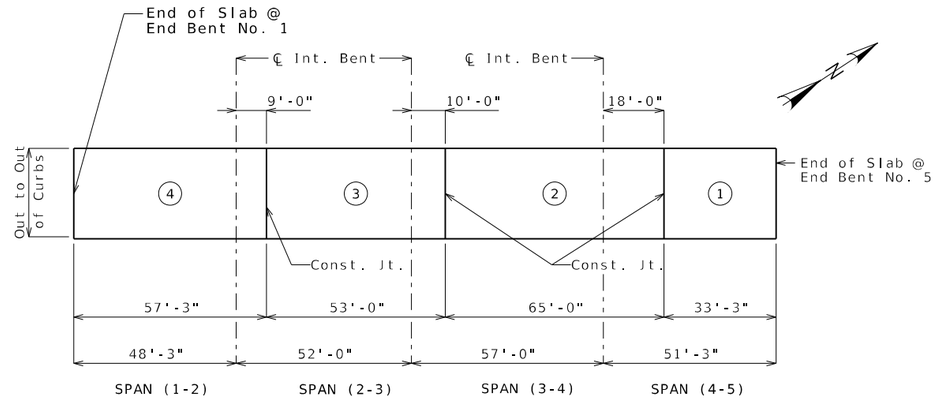
DETAIL A



DETAIL B



OPTIONAL SHIFTING TOP BARS AT BARRIER

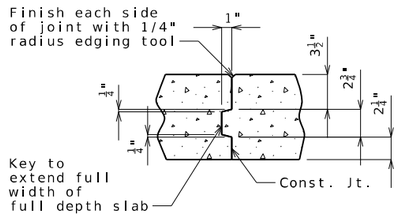


	Sequence of Pours				Min. Rate of Pour Cu. Yds./Hr.
	Direction				With Retarder
Basic Sequence	1 End to 2	2 1 to 3	3 2 to 4	4 3 to End	25
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.					
Alternate A Pours	1 + 2 End to 3		3 2 to 4	4 3 to End	25
Alternate B Pours	1 + 2 End to 3		3 + 4 2 to End		25
Alternate C Pours	1 + 2 + 3 + 4 End to End				25

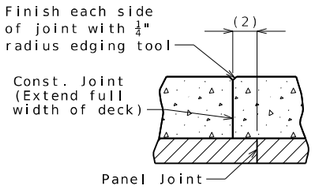
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE



FULL DEPTH SLAB



SLAB ON PANELS

SLAB CONSTRUCTION JOINT

Reference Notes:
(1) Alternate shape available, see Sheet No. 21.
(2) Adjust construction joint to a clearance of 6 inches minimum from the panel joint.
(3) At Intermediate Bent No. 2.
(4) At Intermediate Bent No. 3.
(5) At Intermediate Bent No. 4.

General Notes:
For details of Prestressed Panels, see Sheet No. 17.

For details and reinforcement of barrier not shown, see Sheets No. 21-23.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 18.

For Plan of Slab Showing Reinforcement, see Sheet No. 19.

SLAB DETAILS

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	20

COUNTY: TEXAS
JOB NO.: JSE0029
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9395

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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Detailed Apr. 2024
Checked Jul. 2024

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

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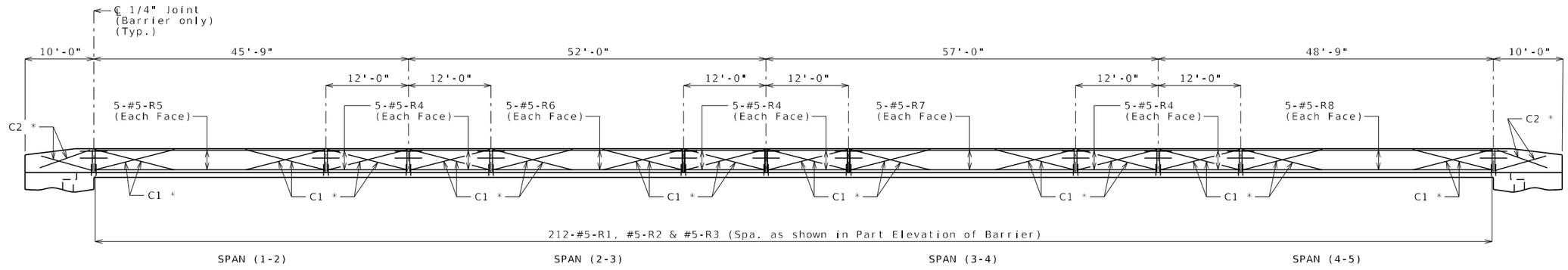
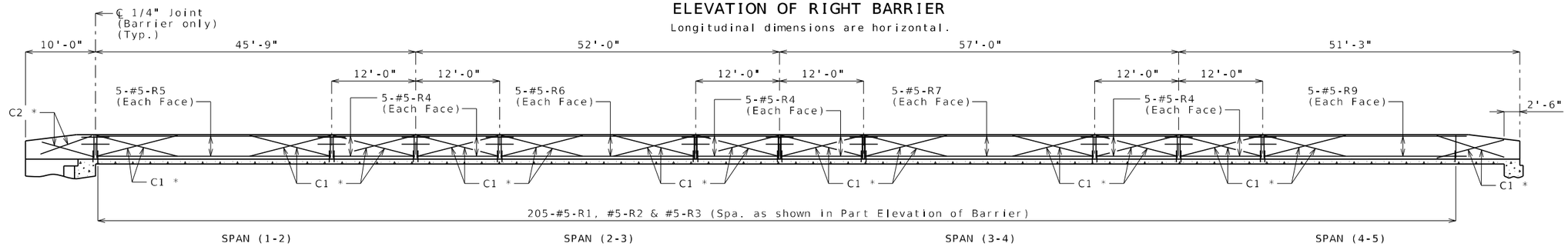


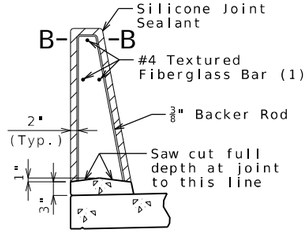
ELEVATION OF RIGHT BARRIER

Longitudinal dimensions are horizontal.

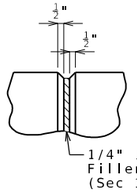


ELEVATION OF LEFT BARRIER

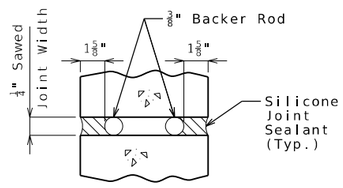
Longitudinal dimensions are horizontal.



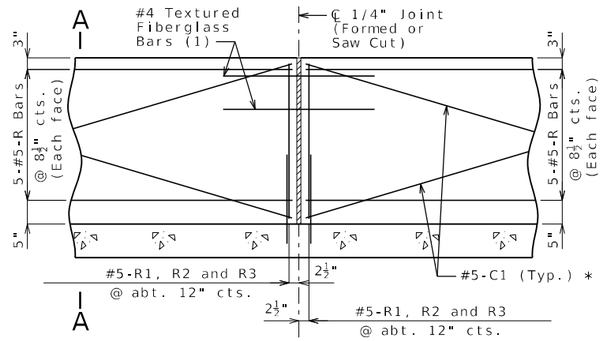
SECTION THRU SAW CUT JOINT



PART ELEVATION AT FORMED JOINT

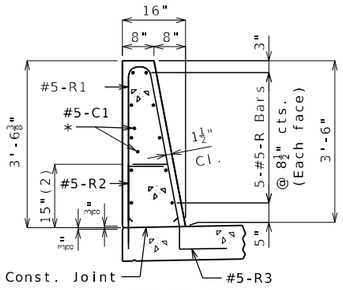


SECTION B-B



PART ELEVATION OF BARRIER

(1) Four feet long, centered on joint, slip-formed option only

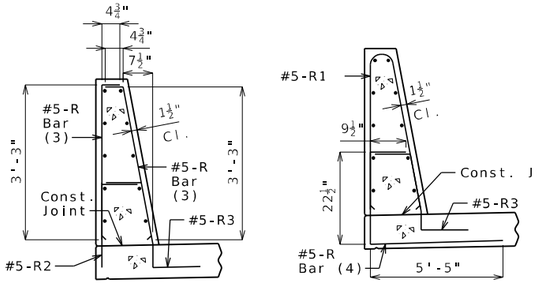


SECTION A-A

Use a minimum lap of 3'-1" for #5 horizontal barrier bars.

The cross-sectional area above the slab is 3.52 square feet.

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

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

(4) The R2 bar and #5 bottom transverse slab bar in cantilever (prestressed panels only) combination may be furnished as one bar as shown, at the contractor's option.

General Notes:

* Slip-formed option only.

Conventional forming or slip forming may be used. Saw cut joints may be used with conventional forming.

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

All exposed edges of barrier shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

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

Concrete in barrier shall be Class B-1.

Measurement of barrier is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing at right barrier and from end of wing to end of slab at left barrier.

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.

Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

For slip-formed option, both sides of barrier shall have a vertically broomed finish and the top shall have a transversely broomed finish.

TYPE D BARRIER

Detailed Apr. 2024
Checked Jul. 2024

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/17/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	21

COUNTY
TEXAS

JOB NO.
JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9395

DESCRIPTION

DATE

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618.345.2200
Belleville
1 South Church, Suite 200
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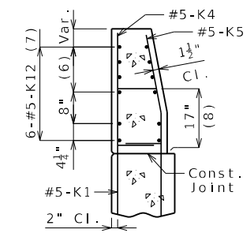
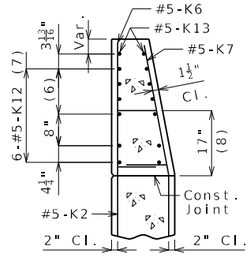
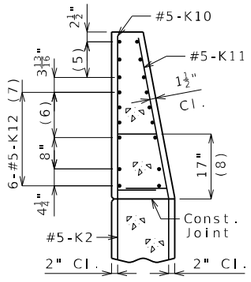


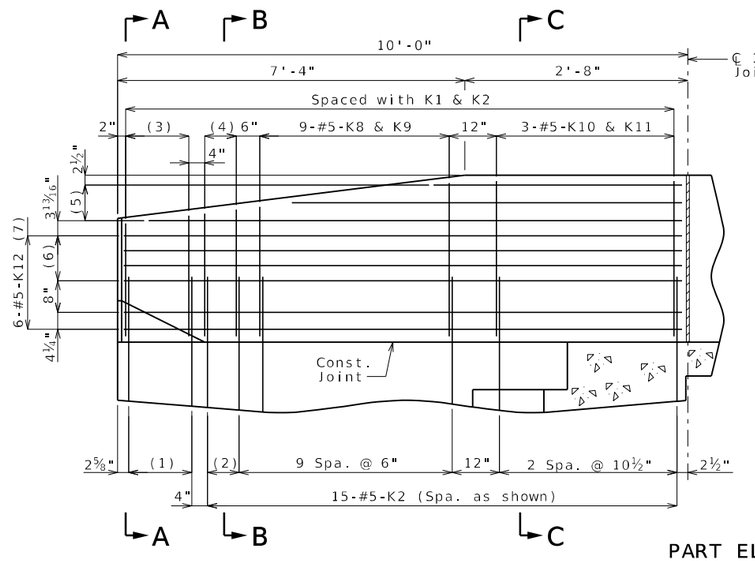
SECTION A-A

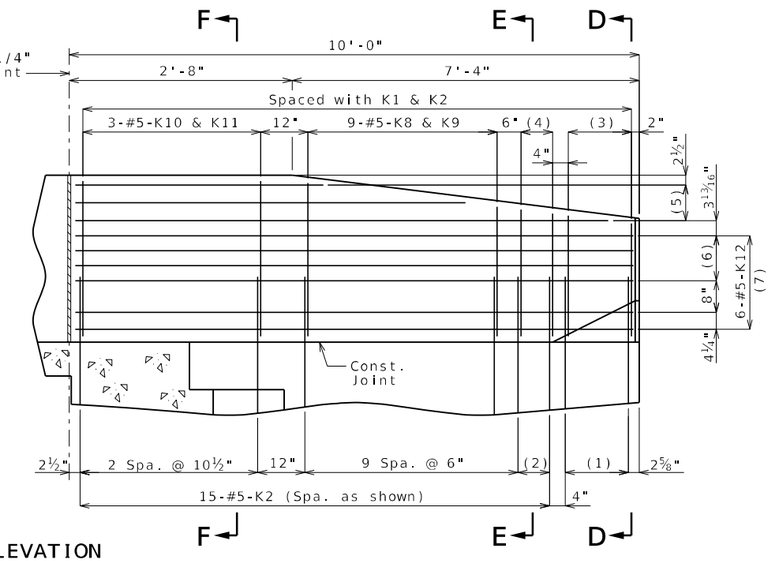


SECTION B-B

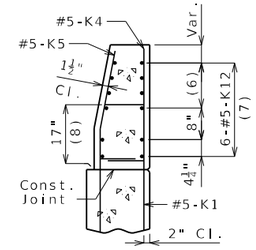


SECTION C-C

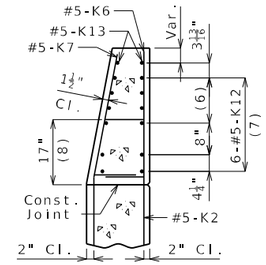




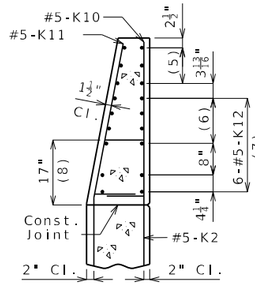
PART ELEVATION



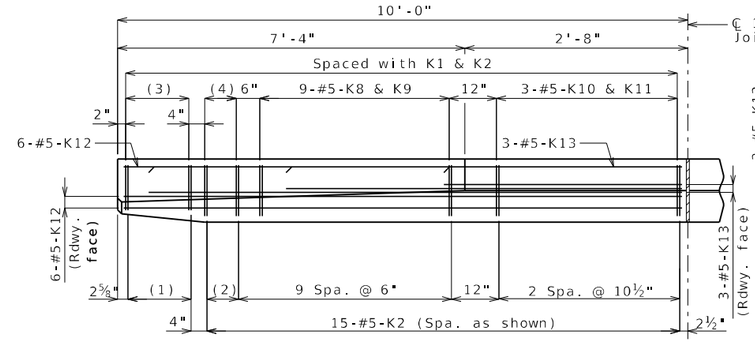
SECTION D-D

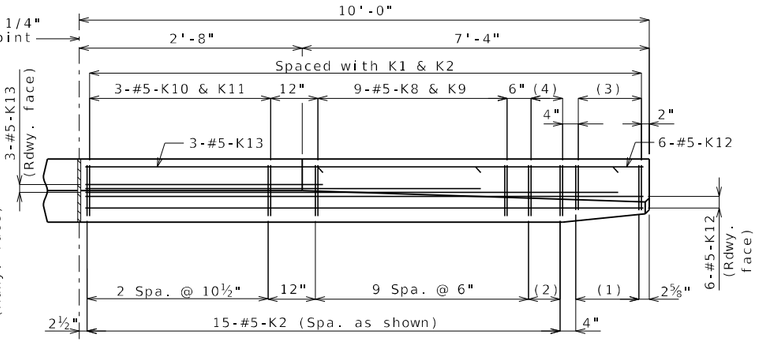


SECTION E-E

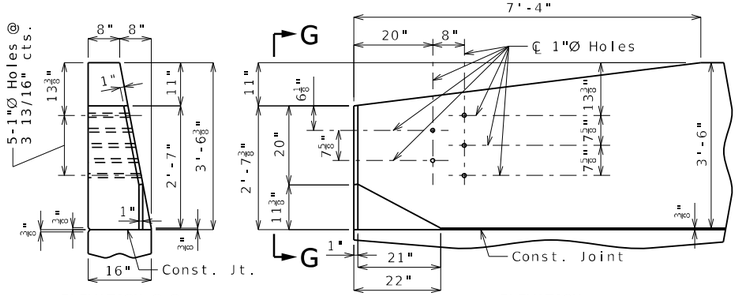


SECTION F-F





PART PLAN



(1) 5-#5-K1 @ 4" cts.

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

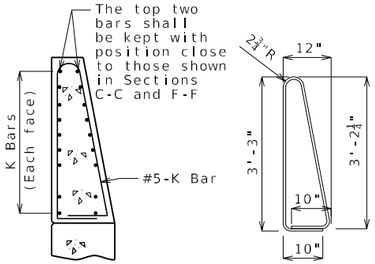
(4) 3-#5-K6 & K7

(5) 3-#5-K13 @ 4½" cts., each face

(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) To top of bar

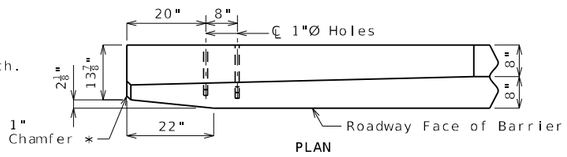


K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(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.



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

DETAILS OF GUARD RAIL ATTACHMENT

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 (RIGHT)

Detailed Apr. 2024
Checked Jul. 2024

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

H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_022_JSE0029_Type D Barriers at End Bents (Right).dgn 4:27:31 PM 10/17/2024

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024

ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	22

COUNTY: TEXAS
JOB NO.: JSE0029
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9395

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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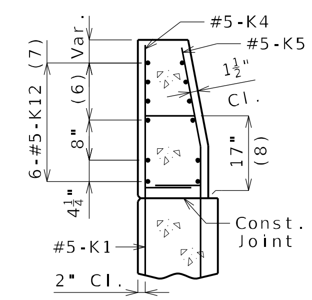
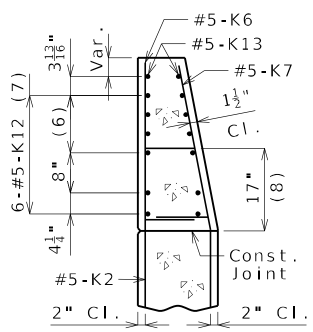
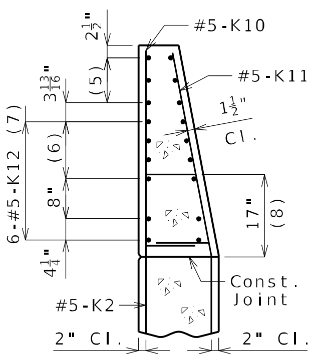
720 Olive, Suite 700
St. Louis, MO 63101
314.588.8281
St. Charles
820 South Main, Suite 399
St. Charles, MO 63301
636.493.5077
MISSOURI DESIGN FIRM PE-001166



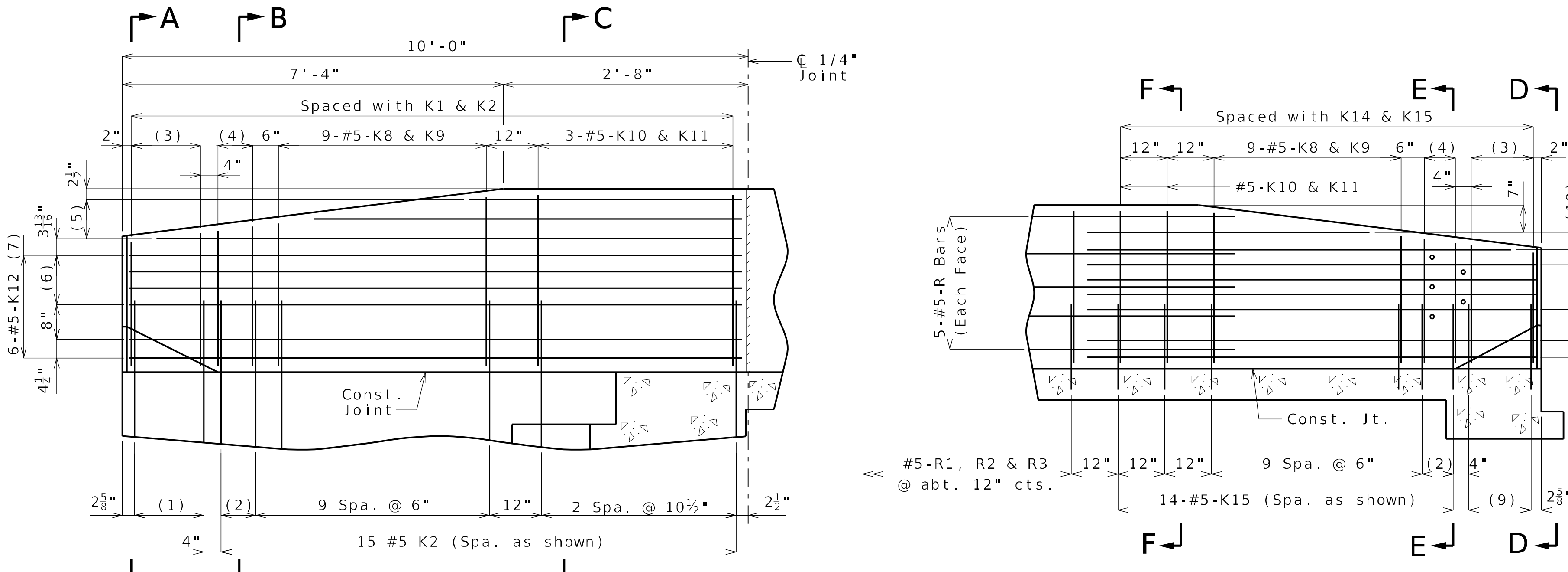
SECTION A-A



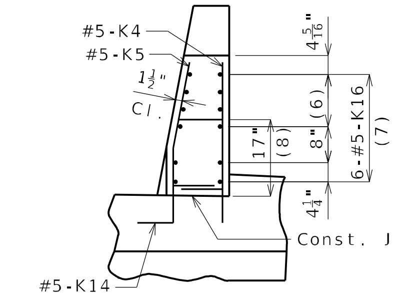
SECTION B-B



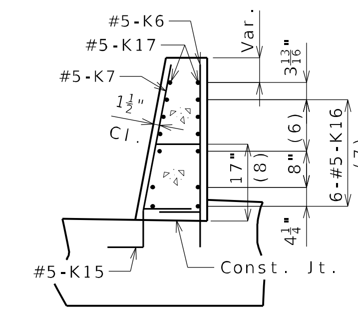
SECTION C-C



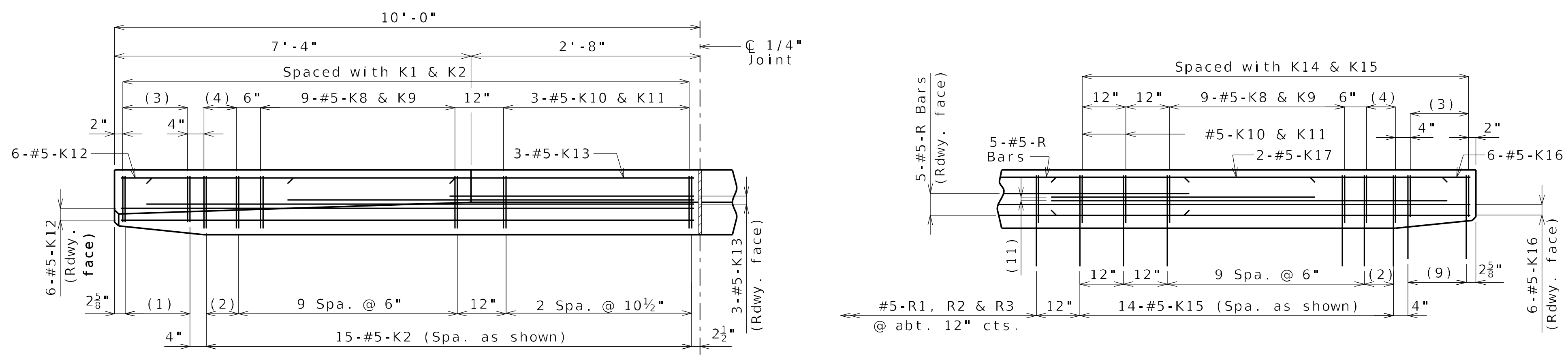
PART ELEVATION



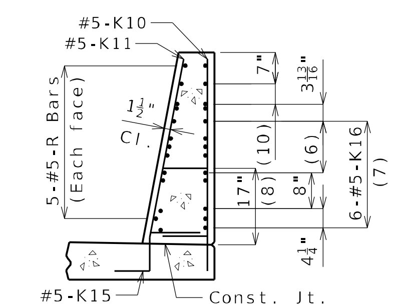
ELEVATION D-D



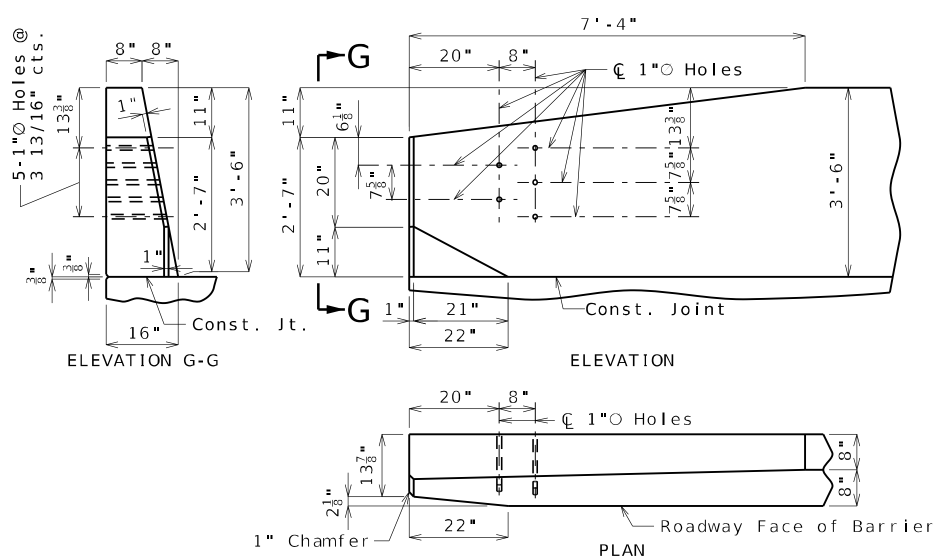
SECTION E-E



PART PLAN



SECTION F-F



DETAILS OF GUARD RAIL ATTACHMENT

(Barrier on slab shown. For barrier on wing, see Sheet No. 22)

(1) 5-#5-K1 @ 4" cts.

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

(4) 3-#5-K6 & K7

(5) 3-#5-K13 @ 4½" cts., each face

(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) To top of bar

(9) 5-#5-K14 @ 4" cts.

(10) 2-#5-K17 @ 4 1/2" cts., each face

(11) 2-#5-K17 (Roadway face)

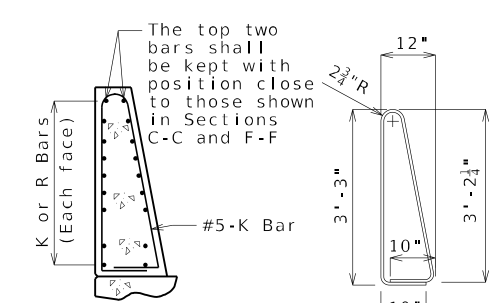
General Notes:

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.

Use a minimum lap of 3'-1" between horizontal K bars and R bars.



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.

TYPE D BARRIER AT END BENTS (LEFT)

Detailed Apr. 2024
Checked Jul. 2024

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

STATE OF MISSOURI JASON A. DREYER NUMBER PE-2013038971 PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/17/2024
ROUTE	137
STATE	MO
DISTRICT	BR
SHEET NO.	23
COUNTY	TEXAS
JOB NO.	JSE0029
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9395

DESCRIPTION

DATE

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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St. Charles 820 South Main, Suite 309 St. Charles, MO 63301 636.493.6277
Collinsville 100 Lanter Court, Suite 1 Collinsville, IL 62234 618.345.2200
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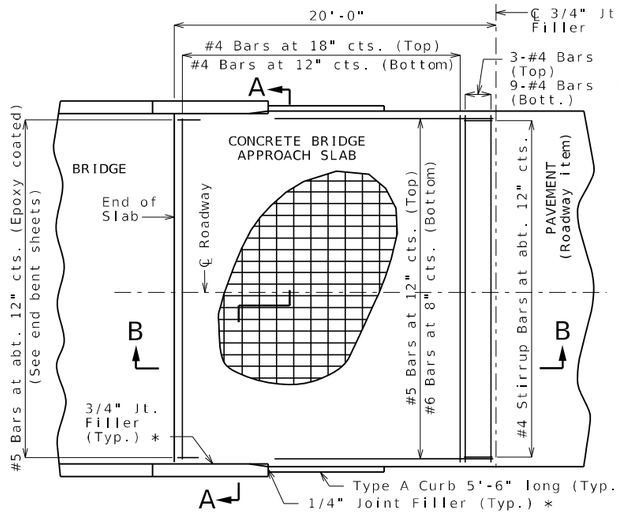
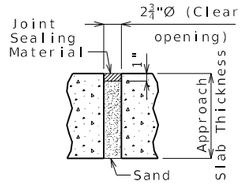
H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_023_JSE0029_Type D Barriers at End Bents (Left).dgn 4:27:45 PM 10/17/2024



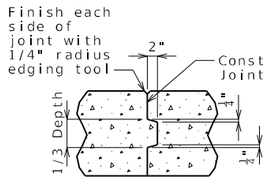
PART PLAN

(End Bent No. 1 shown, End Bent No. 5 similar)

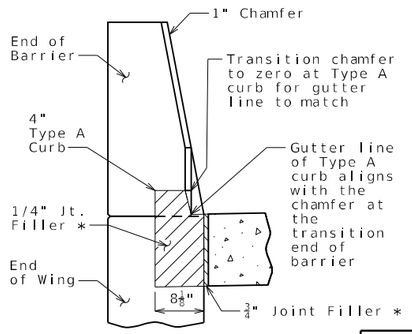


UNDERSEAL ACCESS HOLE DETAIL

(If required)



CONSTRUCTION JOINT DETAIL



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

All concrete for the bridge approach slab shall be in accordance with Sec 503 (f'c = 4,000 psi).

The reinforcing steel in the bridge approach slab shall be epoxy coated Grade 60 with fy = 60,000 psi.

Longitudinal construction joints in bridge approach slab shall be aligned with longitudinal construction joints in bridge slab.

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

The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 23 inches for #4 bars, or by mechanical bar splice.

Mechanical bar splices shall be in accordance with Sec 710.

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.

Payment for furnishing all materials, labor and excavation necessary to construct the concrete bridge approach slab, including the timber header, underdrain, Type 5 aggregate base, joint filler, and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.

See Missouri Standard Plan 609.00 for details of Type A curb.

North approach slab and curb may need to be modified due to crash cushion foundations. Crash cushion foundations per crash cushion supplier. Northwest crash cushion may be mounted to approach slab. See roadway plans for locations of crash cushions. See Part Plan @ End Bent No. 5 for modified slab geometry.

* Seal joint between vertical face of approach slab and wing with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

General Notes:

Contractor shall have the option to construct either slab except as noted.

The contractor shall pour and satisfactorily finish the bridge slab before placing the bridge approach slab.

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

MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

☐ Concrete Bridge Approach Slab

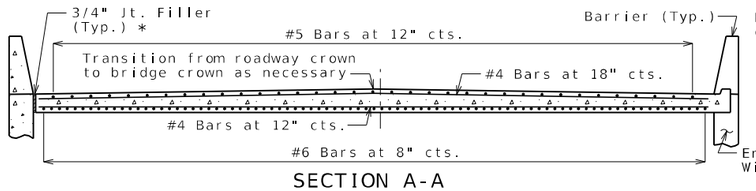
☐ Asphalt Bridge Approach Slab

Notes For Asphalt Slab Only:

Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.

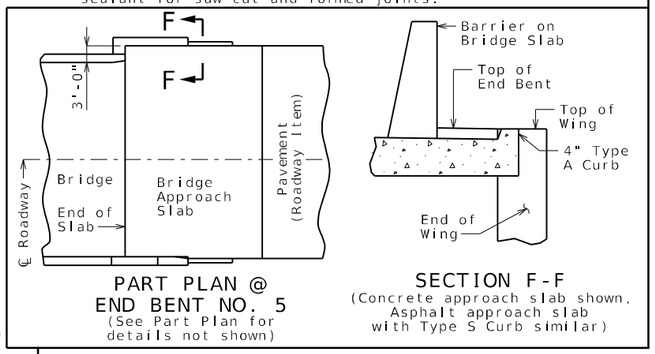
Application of tack is required between lifts per Sec 403.

North approach slab and curb may need to be modified due to crash cushion foundations. Crash cushion foundations per crash cushion supplier. See roadway plans for locations of crash cushions. See Part Plan @ End Bent No. 5 for modified slab geometry.



SECTION A-A

With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.

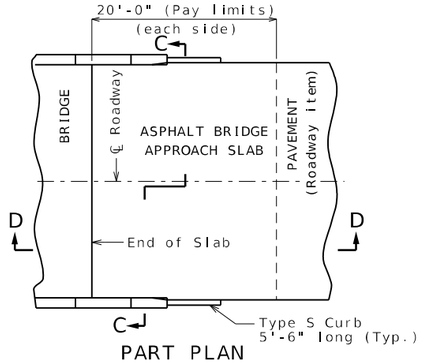


PART PLAN @ END BENT NO. 5

(See Part Plan for details not shown)

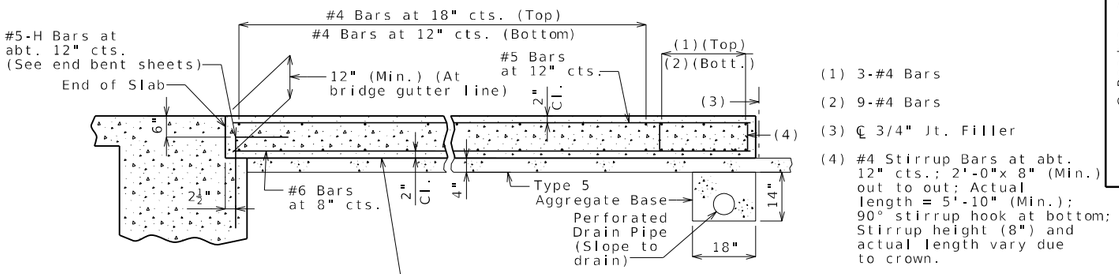
SECTION F-F

(Concrete approach slab shown, Asphalt approach slab with Type S Curb similar)



PART PLAN

(End Bent No. 1 shown, End Bent No. 5 similar)



(1) 3-#4 Bars

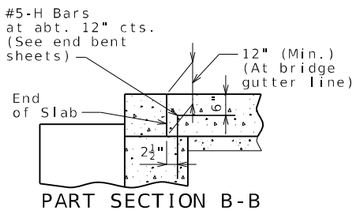
(2) 9-#4 Bars

(3) ℄ 3/4" Jt. Filler

(4) #4 Stirrup Bars at abt. 12" cts.; 2'-0"x 8" (Min.) out to out; Actual length = 5'-10" (Min.); 90° stirrup hook at bottom; Stirrup height (8") and actual length vary due to crown.

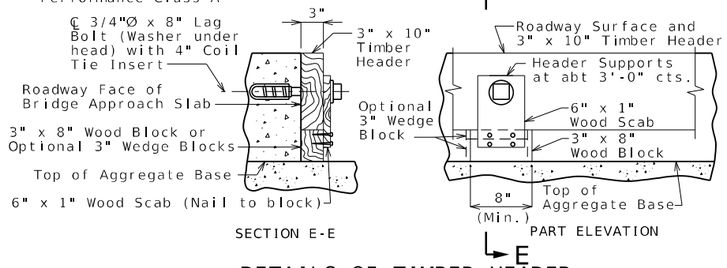
SECTION B-B

(Integral end bent)



PART SECTION B-B

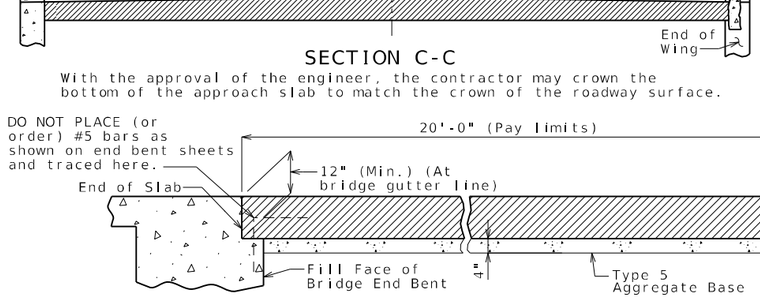
(Non-integral end bent)



DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

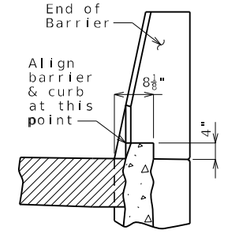
OPTIONAL CONCRETE SLAB



SECTION C-C

With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.

SECTION D-D



4" TYPE S CURB

See Missouri Standard Plan 609.00 for details of Type S curb.

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

BRIDGE APPROACH SLAB (MINOR)

Integral end bents shown, non-integral end bents similar.

Detailed Apr. 2024
Checked Jul. 2024

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

H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_024_JSE0029_Bridge Approach Slab (Minor).dgn 9:56:26 AM 10/18/2024

STATE OF MISSOURI — JASON A. DREYER — NUMBER PE-2013038971 — PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/18/2024

ROUTE 137 | STATE MO

DISTRICT BR | SHEET NO. 24

COUNTY TEXAS

JOB NO. JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9395

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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OATES ASSOCIATES
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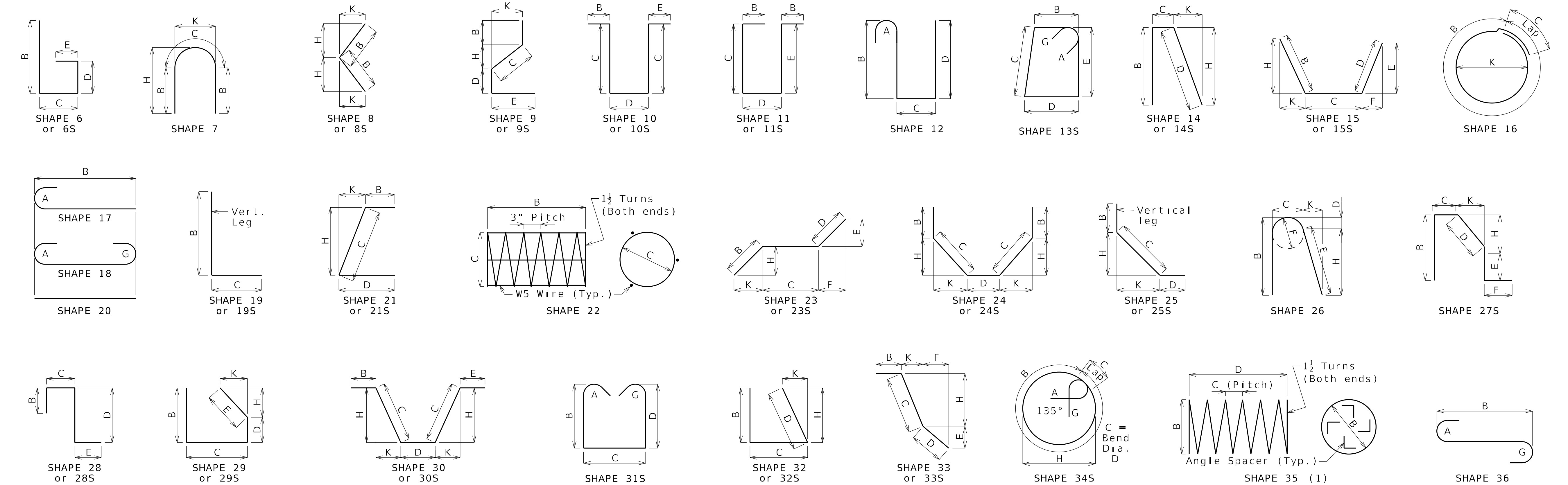
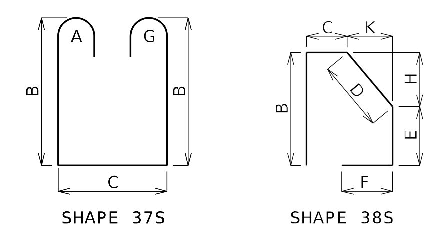


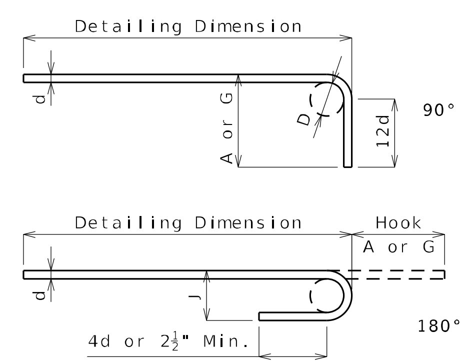


BENDING DIAGRAMS

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G 90°	A or G 180°	J 180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¼"	28½"

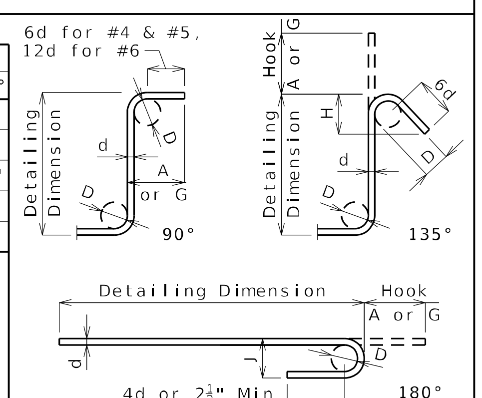


Stirrup Pin Bend Shapes (S)

Size	Case	D	A or G 90°	A or G 135°	A or G 180°	H 135°	J 180°
#4	2	2"	4½"	4½"	5"	2⅞"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5¾"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

Applicable for all grades of steel.

Case 1 applies to all reinforcement. Case 2 applies to all reinforcement except for galvanized bars. Case 3 applies to galvanized bars only.



All dimensions are out to out.

Shapes ending with an S shall be bent in accordance with stirrup pin bend shapes.

Unless otherwise noted, finished bending diameter D is the same for all bends of a shape.

(1) Shall be a deformed or plain spiral bar or wire.

Four angle or channel spacers are required for each column spiral. Spacers are to be placed on inside of spirals. Length and weight of column spirals do not include splices or spacers.

Reinforcing Steel Totals (Pounds)

	Size	Substructure Plain	Substructure Epoxy	Superstructure Slab Plain	Superstructure Slab Epoxy	Superstructure Barrier	Superstructure Slip Form	Entire Bridge Plain	Entire Bridge Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	62	0	0	633	0	0	62	633
	5	920	0	0	5,424	11,398	750	920	17,572
	6	797	0	0	21,408	0	0	797	21,408
	7	0	0	0	697	0	0	0	697
	8	1,768	0	0	27,874	0	0	1,768	27,874
	9	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0
By Type		3,547	0	0	56,036	11,398	750	3,547	68,184

All superstructure reinforcing steel shall be epoxy coated unless otherwise specified.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Apr. 2024
Checked Jul. 2024

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

STATE OF MISSOURI JASON A. DREYER NUMBER PE-2013038971 PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/18/2024	
ROUTE 137	STATE MO
DISTRICT BR	SHEET NO. 25
COUNTY TEXAS	
JOB NO. JSE0029	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9395	

DESCRIPTION

DATE

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

OATES ASSOCIATES
Collinsville 100 Lanter Court, Suite 1 Collinsville, IL 62234 618.345.2200
St. Louis 720 Olive, Suite 700 St. Louis, MO 63101 314.588.8381
Belleville 1 South Church, Suite 200 Belleville, IL 62220 618.416.4688
St. Charles 820 South Main, Suite 309 St. Charles, MO 63301 636.493.2477
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	Codes SH	Codes V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		SUBSTRUCTURE													
		INT. BENTS 2, 3 & 4													
36	6 D200	BEAM		20		2 6.000							2 6	2 6	135
24	8 H200	BEAM		18		25 9.000							27 7	27 7	1768
12	6 H201	BEAM		20		25 9.000							25 9	25 9	464
24	6 H202	BEAM		10S			22.000	2 1.75					5 10	5 6	198
72	5 U200	BEAM		13S		2 3.000	2 9.000	2 3.000	2 9.000				11 0	10 8	801
15	5 U201	BEAM		10S			2 9.000	2 3.000					7 9	7 7	119
30	4 U202	BEAM		10S			6.000	2 3.000					3 3	3 1	62
		SUPERSTRUCTURE													
		END BENT 1													
14	6 F100	WING BRACE	E	15		2 3.000	5 0.000	14.000	9.875	9.875	19.125	19.125	8 5	8 4	175
6	6 F101	DIAPHRAGM	E	6		7 5.000	2 8.000						10 1	9 11	89
8	7 H100	BEAM	E	20		28 5.000							28 5	28 5	465
4	6 H101	BEAM	E	20		28 5.000							28 5	28 5	171
3	6 H102	BEAM	E	20		28 5.000							28 5	28 5	128
6	6 H103	DIAPHRAGM	E	20		21.000							21	21	16
6	6 H104	DIAPHRAGM	E	20		6 1.000							6 1	6 1	55
4	7 H105	DIAPHRAGM	E	20		28 5.000							28 5	28 5	232
3	5 H106	STRAND TIE	E	20		6 6.000							6 6	6 6	20
16	8 H107	WINGWALL	E	20		9 6.000							9 6	9 6	406
28	6 H108	WINGWALL	E	20		8 8.000							8 8	8 8	364
12	5 U100	BEAM	E	37S		4 4.000	2 9.000						12 5	12 2	152
24	4 U101	BEAM	E	13S		2 9.000	2 8.000	2 9.000	2 8.000				11 7	11 4	182
26	5 U102	DIAPHRAGM	E	19S		2 0.000	15.000						3 3	3 2	86
35	6 U103	DIAPHRAGM	E	19S		2 3.000	4 7.000						6 10	6 8	350
16	5 U104	DIAPHRAGM	E	37S		2 3.000	2 3.000						7 9	7 6	125
16	6 U105	DIAPHRAGM	E	19S		15.000	2 9.000						4 0	3 11	94
8	5 V100	BEAM	E	17		4 4.000							4 10	4 10	40
18	6 V101	DIAPHRAGM	E	20		15.000							15	15	34
32	6 V102	WINGWALL	E	20		5 5.000							5 5	5 5	260
		END BENT 5													
14	6 F500	WING BRACE	E	15		2 3.000	5 0.000	14.000	9.875	9.875	19.125	19.125	8 5	8 4	175
3	6 F501	DIAPHRAGM	E	6		10 5.000	2 8.000						13 1	12 11	58
3	6 F502	DIAPHRAGM	E	6		7 5.000	2 8.000						10 1	9 11	45
8	8 H500	BEAM	E	20		31 5.000							31 5	31 5	671
4	6 H501	BEAM	E	20		31 5.000							31 5	31 5	189
3	6 H502	DIAPHRAGM	E	20		31 5.000							31 5	31 5	142
3	6 H503	DIAPHRAGM	E	20		4 9.000							4 9	4 9	21
6	6 H504	DIAPHRAGM	E	20		6 1.000							6 1	6 1	55
3	6 H505	DIAPHRAGM	E	20		21.000							21	21	8
4	8 H506	DIAPHRAGM	E	20		31 5.000							31 5	31 5	336
3	5 H507	STRAND TIE	E	20		6 6.000							6 6	6 6	20
8	8 H508	WINGWALL	E	20		9 6.000							9 6	9 6	203
32	6 H509	WINGWALL	E	20		8 8.000							8 8	8 8	417
15	5 U500	BEAM	E	37S		4 3.000	2 9.000						12 3	12 0	188
24	4 U501	BEAM	E	13S		2 9.000	2 8.000	2 9.000	2 8.000				11 8	11 5	182
29	5 U502	DIAPHRAGM	E	19S		2 0.000	15.000						3 3	3 2	96
35	6 U503	DIAPHRAGM	E	19S		2 3.000	4 7.000						6 10	6 8	350
19	5 U504	DIAPHRAGM	E	37S		2 3.000	2 3.000						7 9	7 6	149
19	6 U505	DIAPHRAGM	E	12		14.000	2 9.000						3 11	3 10	109
8	5 V500	END BENT	E	17		4 3.000							4 9	4 9	40
18	6 V501	DIAPHRAGM	E	20		14.000							14	14	32
16	6 V502	WINGWALL	E	20		5 6.000							5 6	5 6	132
16	6 V503	WINGWALL	E	20		5 3.000							5 3	5 3	126

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	Codes SH	Codes V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		INT. BENT													
		2, 3 & 4 DIAPH.													
24	6 H300	DIAPHRAGM	E	20		6 1.000							6 1	6 1	219
12	4 H301	DIAPHRAGM	E	20		6 1.000							6 1	6 1	49
36	5 H302	DIAPHRAGM	E	19S		5 3.000	9.000						6 0	5 11	222
12	5 H303	STRAND TIE	E	20		5 6.000							5 6	5 6	69
6	5 H304	STRAND TIE	E	20		6 6.000							6 6	6 6	41
24	6 U300	DIAPHRAGM	E	28S			2 3.000	2 1.000	2 2.000				6 6	6 2	222
60	4 U301	DIAPHRAGM	E	28S			2 1.000	2 1.000	18.000				5 8	5 6	220
24	5 V300	DIAPHRAGM	E	20		2 4.000							2 4	2 4	58
		SLAB													
407	6 S1	SLAB	E	20		28 5.000							28 5	28 5	17372
408	5 S2	SLAB	E	20		5 5.000							5 5	5 5	2305
100	8 S3	SLAB	E	20		55 8.000							55 8	55 8	14863
22	8 S4	SLAB	E	20		24 0.000							24 0	24 0	1410
22	8 S5	SLAB	E	20		34 0.000							34 0	34 0	1997
22	8 S6	SLAB	E	20		27 0.000							27 0	27 0	1586
22	8 S7	SLAB	E	20		37 0.000							37 0	37 0	2173
22	8 S8	SLAB	E	20		31 0.000							31 0	31 0	1821
22	8 S9	SLAB	E	20		41 0.000							41 0	41 0	2408
32	5 S10	SLAB	E	20		54 4.000							54 4	54 4	1813
		TYPE D BARRIER													
15	5 K1	BARRIER	E	27S		3 8.000	9.250	5.375	3 2.750		5.250	1.000	8 1	7 11	124
45	5 K2	BARRIER	E	27S		3 8.000	9.250	14.500	2 5.750		14.250	2.750	8 2	7 11	372
20	5 K4	BARRIER	E	19S	4	2 4.250	10.000						3 2	3 1	66
		INCREMENT =				2 6.250	10.000						3 4	3 3	
		0.500 INCH													
20	5 K5	BARRIER	E	38S	4			18.500	9.500	8.250	18.000	4.000	3 0	2 11	63
		INCREMENT =						20.500	9.500	8.250	20.000	4.500	3 2	3 1	
		0.500 INCH													
12	5 K6	BARRIER	E	19S		2 6.750	10.000						3 5	3 4	42
12	5 K7	BARRIER	E	21S			2 6.625	10.000			2 6.000	6.250	3 5	3 3	41
36	5 K8	BARRIER	E	19S	4	2 8.500	10.000						3 7	3 5	138
		INCREMENT =				3 2.500	10.000						4 1	3 11	
		0.750 INCH													
36	5 K9	BARRIER	E	21S	4		2 8.500	10.000			2 7.750	6.750	3 7	3 5	138
		INCREMENT =					3 2.500	10.000			3 1.750	7.750	4 1	3 11	
		0.750 INCH													
11	5 K10	BARRIER	E	19S		3 3.000	10.000						4 1	4 0	46
11	5 K11	BARRIER	E	21S			3 3.000	10.000			3 2.250	7.750	4 1	3 11	45
36	5 K12	BARRIER	E	20		9 9.000							9 9	9 9	366
18	5 K13	BARRIER	E	20	6	3 0.000							3 0	3 0	113
		INCREMENT =				9 0.000							9 0	9 0	
		36.000 INCH													
5	5 K14	BARRIER	E	27S		22.500	9.250	5.375	16.750	12.000	5.250	1.000	5 6	5 2	27
14	5 K15	BARRIER	E	27S		22.500	9.250	17.250	5.000	12.000	17.000	3.250	5 6	5 3	77
12	5 K16	BARRIER	E	20		9 7.000							9 7	9 7	120
4	5 K17	BARRIER	E	20	2	5 10.000							5 10	5 10	31
		INCREMENT =				8 10.000							8 10	8 10	
		36.000 INCH													
417	5 R1	BARRIER	E	26		3 3.000	5.500	2.250	3 1.375	5.500	3 0.750	6.750	6 9	6 9	2936
417	5 R2	BARRIER	E	19S		20.500	9.500						2 6	2 5	1051
417	5 R3	BARRIER	E	27S			9.500	15.250	5.000	12.000	15.000	3.000	3 6	3 4	1450
120	5 R4	BARRIER	E	20		11 9.000							11 9	11 9	1471
20	5 R5	BARRIER	E	20		33 6.000							33 6	33 6	699
20	5 R6	BARRIER	E	20		27 9.000							27 9	27 9	579
20	5 R7	BARRIER	E	20		32 9.000							32 9	32 9	683
10	5 R8	BARRIER	E	20		36 6.000							36 6	36 6	381
10	5 R9	BARRIER	E	20		32 6.000							32 6	32 6	339
		SLIP FORM BARRIER													
56	5 C1	BARRIER	E	20		12 0.000							12 0	12 0	701
6	5 C2	BARRIER	E	20		7 9.000							7 9	7 9	49

Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed to the nearest inch for fabricator's use. Actual lengths are measured along centerline bar to the nearest inch. Weights are based on actual lengths.

For bending diagrams and steel reinforcing totals, see Sheet No. 25.

All bars shall be Grade 60.

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.

SH = Required shape, see bending diagrams.

V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

Detailed Apr. 2024
Checked Jul. 2024

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/18/2024

ROUTE 137 | STATE MO

DISTRICT BR | SHEET NO. 26

COUNTY TEXAS

JOB NO. JSE0029

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9395

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Collinsville 100 Lanter Court, Suite 1 Collinsville, IL 62234 618.345.2200
Belleville 1 South Church, Suite 200 Belleville, IL 62220 618.416.4688
St. Louis 720 Olive, Suite 700 St. Louis, MO 63101 314.588.8381
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MISSOURI DESIGN FIRM PE-001166
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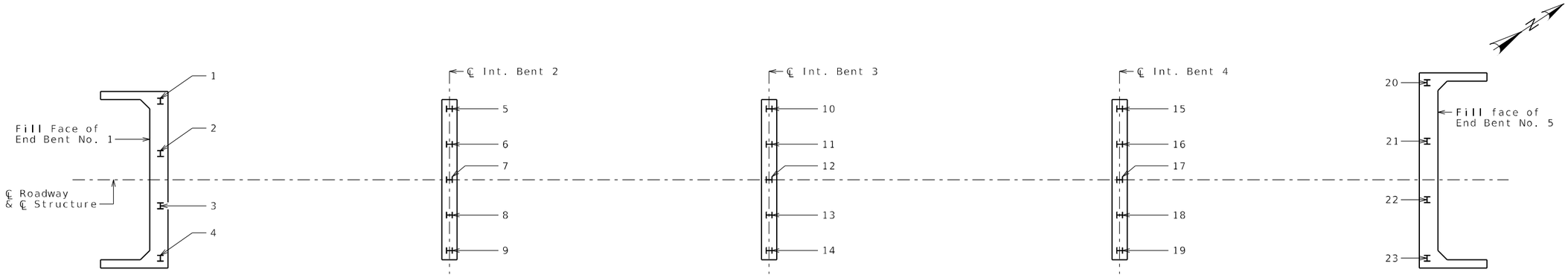
H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_026_JSE0029_Bill of Reinforcing Steel.dgn 10:25:21 AM 10/18/2024



PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 1
1			
2			
3			
4			
			Intermediate Bent No. 2
5			
6			
7			
8			
9			
			Intermediate Bent No. 3
10			
11			
12			
13			
14			
			Intermediate Bent No. 4
15			
16			
17			
18			
19			
			End Bent No. 5
20			
21			
22			
23			

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE DATA

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/17/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 27
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

DESCRIPTION | DATE

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

OATES ASSOCIATES
St. Louis: 720 Olive, Suite 700, St. Louis, MO 63101, 314.588.8281
St. Charles: 820 South Main, Suite 309, St. Charles, MO 63301, 636.493.0277
Collinsville: 160 Lamer Court, Suite 1, Collinsville, IL 62234, 618.345.4200
Belleville: 1 South Church, Suite 700, Belleville, IL 62220, 618.418.4888
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MISSOURI DESIGN FIRM PE-001166

Detailed Apr. 2024
Checked Jul. 2024

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-101
Page 1 of 2

Job No.: SE0029 (SCI No. 2023-0152.11)
Design: Bridge #A9395
Bent: End Bent #1 (South Abutment)
Station: 565+45
Offset: 6' Rt.
Elevation: 1053.0
Requested Station: 565+45
Requested Offset: 6' Rt.
Requested Elevation: N/A
Drill No.: 255648

County: Texas
Skew: Square
Logged By: Brian Ratajczyk
Northing: 458107.8
Easting: 1825973.77
Requested Northing: 458107.8
Requested Easting: 1825973.78
Equipment: CME 750 ,Split-Spoon Sampler
Location Note: On top of the pavement
Hammer Efficiency: 90.7%

Route: SR 137
Location: Texas County
Operator: Midwest Drilling, Inc.
Date of Work: 02/26/24-02/27/24
Depth to Water: 18.0
Depth Hole Open: 25.0
Time Change: N/A
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.5' 6" ASPHALTIC CONCRETE							
		0.5-8.0' (FILL) Brown, SANDY CLAYEY GRAVEL, fine to coarse, sand is fine- to coarse-grained, clay is lean	1050		33	3-3-6 (14)			
5		3.5' *PERCENT PASSING THE NUMBER 200 SEIVE: 22.4%*			39	3-3-3 (9)			
		6.0' *PERCENT PASSING THE NUMBER 200 SEIVE: 15.0%*			28	2-3-3 (9)			
		8.0-25.0' (GW) Brown, WELL GRADED SANDY GRAVEL, fine to coarse, with lean clay, sand is fine- to coarse-grained	1045						
10		9.0' Possible fill in spt at depth.			22	4-5-5 (15)			
			1040						
15		13.5' Poor recovery - possible coarse gravel/cobble blocking shoe. Catcher also changed.			11	8-7-8 (23)			
			1035						
20		18.5' *PERCENT PASSING THE NUMBER 200 SEIVE: 7.8%*			17	3-1-4 (8)			

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 0.999926933
Coordinate Datum: NAD 1983 **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.

LETTER BOREHOLE - MODOT 20150728.GDT - 4/22/24 12:18 - N:\LABORATORY\ACTIVE GINT PROJECTS\2023-0152.11 SR137 OVER S PRONG JACKS FORK CREEK.GPJ

DocuSign Envelope ID: 6A68EB05-1BC9-4554-8BBC-954144291220

Missouri Department of Transportation
Construction and Materials

BORING NO. B-101
Page 2 of 2

Job No.: SE0029 (SCI No. 2023-0152.11)
Design: Bridge #A9395
Bent: End Bent #1 (South Abutment)
Station: 565+45
Offset: 6' Rt.
Elevation: 1053.0
Requested Station: 565+45
Requested Offset: 6' Rt.
Requested Elevation: N/A
Drill No.: 255648

County: Texas
Skew: Square
Logged By: Brian Ratajczyk
Northing: 458107.8
Easting: 1825973.77
Requested Northing: 458107.8
Requested Easting: 1825973.78
Equipment: CME 750 ,Split-Spoon Sampler
Location Note: On top of the pavement
Hammer Efficiency: 90.7%

Route: SR 137
Location: Texas County
Operator: Midwest Drilling, Inc.
Date of Work: 02/26/24-02/27/24
Depth to Water: 18.0
Depth Hole Open: 25.0
Time Change: N/A
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
20		8.0-25.0' (GW) Brown, WELL GRADED SANDY GRAVEL, fine to coarse, with lean clay, sand is fine- to coarse-grained *(continued)*	1030						
25					29	4-4-50/0.4'			
		Refusal at 25.0 feet. Bottom of borehole at 25.0 feet.							

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 0.999926933
Coordinate Datum: NAD 1983 **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.

LETTER BOREHOLE - MODOT 20150728.GDT - 4/22/24 12:18 - N:\LABORATORY\ACTIVE GINT PROJECTS\2023-0152.11 SR137 OVER S PRONG JACKS FORK CREEK.GPJ

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/17/2024	
ROUTE	STATE
137	MO
DISTRICT	SHEET NO.
BR	28
COUNTY	
TEXAS	
JOB NO.	
JSE0029	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9395	

DESCRIPTION | DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166

Collinsville	St. Louis
100 Lamer Court, Suite 1 Collinsville, IL 62234 618.345.2200	720 Olive, Suite 700 St. Louis, MO 63101 314.588.8381
Belleville	**St. Charles**
1 South Church, Suite 200 Belleville, IL 62220 618.416.4488	820 South Main, Suite 399 St. Charles, MO 63301 636.493.5277

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Detailed Apr. 2024
Checked Jul. 2024

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

Sheet No. 28 of 32

BORING DATA

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

H:\P\223017 - Texas County Bridge Package\003-SE0029-S0529\Bridge\Final Bridge\Microstation\B_A9395_028_JSE0029_Boring Data.dgn 4:28:49 PM 10/17/2024

Missouri Department of Transportation
Construction and Materials

BORING NO. B-201
Page 1 of 1

Job No.: SE0029 (SCI No. 2023-0152.11)
Design: Bridge #A9395
Bent: Interior Bent #2
Station: 565+95
Offset: 16' Lt.
Elevation: 1037.0
Requested Station: 565+92
Requested Offset: 6' Lt.
Requested Elevation: N/A
Drill No.: 255648

County: Texas
Skew: Square
Logged By: Brian Ratajczyk
Northing: 458161.71
Easting: 1825982.63
Requested Northing: 458153.73
Requested Easting: 1825989.37
Equipment: CME 750 ,NQ
Location Note: On river bed
Hammer Efficiency: 90.7%

Route: SR 137
Location: Texas County
Operator: Midwes Drilling, Inc.
Date of Work: 02/29/24-02/29/24
Depth to Water: 3.5
Depth Hole Open: 17.5
Time Change: N/A
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-7.5' (GW) Brown, WELL GRADED GRAVEL WITH SAND, fine to coarse, with boulders, cobbles, and clay, sand is fine- to coarse-grained Appeared loose on the ground surface	1035						
5			1030						
10		7.5-11.3' DOLOMITE: Gray, hard to very hard, micritic, thin bedding, slightly weathered, pitted to dense. Average core time 3.0 min/ft. 8.0' 500 psi downpressure observed during coring. 8.5' *PERCENT PASSING THE NUMBER 200 SEIVE: 42.2%* 10.0' Good water return until 10 feet. About 9 inch drop from 10 ft to 10.75 ft. Clay filled void and water return was reduced. 11.3-17.5' SANDSTONE: Gray, hard to very hard, very finely grained, medium bedding, slightly weathered, dense. Average core time 3.6 min/ft. 13.5' No return water at 13.5 ft - possible loss at bottom of gravel deposit.	1025		80 (25)		Qu Test Results UCS = 1550 ksf γ_{moist} = 157.4 pcf		
15			1020		97 (89)		Qu Test Results UCS = 812 ksf γ_{moist} = 150.2 pcf		
		Refusal at 7.5 feet. Bottom of borehole at 17.5 feet.							

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

Coordinate System: U.S. State Plane 1983
Coordinate Zone: Missouri Central
Coordinate Proj. Factor: 0.999926933
Coordinate Datum: NAD 1983
Coordinate Units: U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-301
Page 1 of 1

Job No.: SE0029 (SCI No. 2023-0152.11)
Design: Bridge #A9395
Bent: Interior Bent #3
Station: 566+46
Offset: 18' Rt.
Elevation: 1038.0
Requested Station: 566+44
Requested Offset: 6' Rt.
Requested Elevation: N/A
Drill No.: 255648

County: Texas
Skew: Square
Logged By: Brian Ratajczyk
Northing: 458185.88
Easting: 1826038.95
Requested Northing: 458190.76
Requested Easting: 1826027.81
Equipment: CME 750 ,NQ
Location Note: On river bed
Hammer Efficiency: 90.7%

Route: SR 137
Location: Texas County
Operator: Midwes Drilling, Inc.
Date of Work: 03/01/24-03/01/24
Depth to Water: 4.0
Depth Hole Open: 18.5
Time Change: N/A
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-8.5' (GW) Brown, WELL GRADED GRAVEL WITH SAND, fine to coarse, with boulders, cobbles and clay, sand is fine- to coarse-grained Appeared loose on the ground surface	1035						
5			1030						
10		8.5-9.5' DOLOMITE: Gray, hard to very hard, micritic, thin bedding, slightly weathered, dense Average core time 2.0 min/ft. 9.0' 500 psi downpressure, no drops, and good water return observed during coring. 9.5-13.5' SANDSTONE: Gray, hard to very hard, very finely grained, thick bedding, slightly weathered, dense. Average core time 5.4 min/ft. 11.5' Good return water until 11.5 ft, no return water - possible loss at bottom of gravel deposit. 12.0' Good return water at 13.5 ft.	1025		100 (78)		Qu Test Results UCS = 596 ksf γ_{moist} = 155.1 pcf		
15		13.5-18.5' DOLOMITE: Gray, hard to very hard, micritc to very finely crystalline, thinly to thickly bedded, slightly weathered, pitted to dense (vug observed at about 17 ft). Average core time 3.3 min/ft.	1020		97 (79)		Qu Test Results UCS = 1240 ksf γ_{moist} = 157.9 pcf		
		Refusal at 8.5 feet. Bottom of borehole at 18.5 feet.							

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

Coordinate System: U.S. State Plane 1983
Coordinate Zone: Missouri Central
Coordinate Proj. Factor: 0.999926933
Coordinate Datum: NAD 1983
Coordinate Units: U.S. Survey Feet

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JASON A. DREYER
NUMBER PE-2013038971
STATE OF MISSOURI
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/17/2024
ROUTE: 137 | STATE: MO
DISTRICT: BR | SHEET NO.: 29
COUNTY: TEXAS
JOB NO.: JSE0029
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9395

DESCRIPTION	DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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St. Charles: 820 South Main - Suite 309, St. Charles, MO 63301, 636.493.0277
Collinsville: 161 Lamert Court, Suite 1, Collinsville, IL 62234, 618.345.4200
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.415.4888
www.oatesassociates.com

Detailed Apr. 2024
Checked Jul. 2024

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

BORING DATA

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-401
Page 1 of 1

Job No.: SE0029 (SCI No. 2023-0152.11)	**County:** Texas	**Route:** SR 137
Design: Bridge #A9395	**Skew:** Square	**Location:** Texas County
Bent: Interior Bent #3	**Logged By:** Brian Ratajczyk	**Operator:** Midwes Drilling, Inc.
Station: 566+89	**Northing:** 458241.56	**Date of Work:** 02/29/24
Offset: 18' Lt.	**Easting:** 1826032.25	**Depth to Water:** 3.0
Elevation: 1036.0	**Requested Northing:** 458245.07	**Depth Hole Open:** 18.5
Requested Station: 567+01	**Requested Easting:** 1826048.86	**Time Change:** N/A
Requested Offset: 6' Lt.	**Equipment:** CME 750 ,NQ	
Requested Elevation: N/A	**Location Note:** On river bed	
Drill No.: 255648	**Hammer Efficiency:** 90.7%	**Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0–8.5		0.0-8.5' (GW) Brown, WELL GRADED GRAVEL WITH SAND, fine to coarse, with boulders and cobbles, sand is fine- to coarse-grained	1035, 1030						
8.5–13.5		8.5-18.0' SANDSTONE: Gray, hard to very hard, very finely grained, medium to thick bedding, slightly weathered, dense. Average core time 2.8 min/ft. 9.0' 500 psi downpressure, no drops, and good water return observed during coring.	1025		97 (77)		Qu Test Results UCS = 1340 ksf; γ_{moist} = 157.5 pcf		
13.5–18.5			1020		99 (81)		Qu Test Results UCS = 340 ksf; γ_{moist} = 166.5 pcf		
18.0–18.5		18.0-18.5' DOLOMITE: Gray, hard to very hard, micritic to very finely crystalline, thin bedding, slightly weathered, dense							

Refusal at 8.5 feet.
Bottom of borehole at 18.5 feet.

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 0.999926933
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/17/2024
ROUTE	137
STATE	MO
DISTRICT	BR
SHEET NO.	30
COUNTY	TEXAS
JOB NO.	JSE0029
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9395

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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Belleville, IL 62220
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St. Louis, MO 63101
314.588.8381

St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.6277

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MISSOURI DESIGN FIRM PE-001166

OATES ASSOCIATES

BORING DATA

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

Detailed Apr. 2024
Checked Jul. 2024

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-501
Page 1 of 2

Job No.: SE0029 (SCI No. 2023-0152.11)
Design: Bridge #A9395
Bent: End Bent #5 (North Abutment)
Station: 567+51
Offset: 6' Rt.
Elevation: 1049.0
Requested Station: 567+51
Requested Offset: 6' Rt.
Requested Elevation: N/A
Drill No.: 255648

County: Texas
Skew: Square
Logged By: Brian Ratajczyk
Northing: 458280.42
Easting: 1826086.2
Requested Northing: 458280.42
Requested Easting: 1826086.20
Equipment: CME 750 ,Split-Spoon Sampler
Location Note: On top of the pavement
Hammer Efficiency: 90.7%

Route: SR 137
Location: Texas County
Operator: Midwest Drilling, Inc.
Date of Work: 02/27/24
Depth to Water: 14.0
Depth Hole Open: 23.0
Time Change: N/A
Drilling Method: Continuous Flight Auger

Depth (ft)	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0	0.0-0.5' 6" ASPHALTIC CONCRETE							
	0.5-12.0' (CL) (FILL) Brown, SANDY LEAN CLAY, with fine to coarse gravel, sand is fine- to coarse-grained			56	6-6-7 (20)			LL = 32 PL = 15 MC = 12.1%
		1045		56	3-3-3 (9)		PP = 1.50 tsf	MC = 13.0%
5	6.0' trace fine to coarse gravel			50	3-4-5 (14)		PP = 3.25 tsf	MC = 13.3%
		1040		39	3-4-4 (12)		PP = 1.75 tsf	MC = 12.2%
10	12.0-22.0' (GW) Brown, WELL GRADED SANDY GRAVEL, fine to coarse, with clay, sand is fine- to coarse-grained ▽ Very hard to auger 13.5' *PERCENT PASSING THE NUMBER 200 SIEVE: 6.4%*							
		1035		33	6-7-5 (18)			
15								
		1030		11	5-6-12 (27)			
20								

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:** 0.999926933
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-501
Page 2 of 2

Job No.: SE0029 (SCI No. 2023-0152.11)
Design: Bridge #A9395
Bent: End Bent #5 (North Abutment)
Station: 567+51
Offset: 6' Rt.
Elevation: 1049.0
Requested Station: 567+51
Requested Offset: 6' Rt.
Requested Elevation: N/A
Drill No.: 255648

County: Texas
Skew: Square
Logged By: Brian Ratajczyk
Northing: 458280.42
Easting: 1826086.2
Requested Northing: 458280.42
Requested Easting: 1826086.20
Equipment: CME 750 ,Split-Spoon Sampler
Location Note: On top of the pavement
Hammer Efficiency: 90.7%

Route: SR 137
Location: Texas County
Operator: Midwest Drilling, Inc.
Date of Work: 02/27/24
Depth to Water: 14.0
Depth Hole Open: 23.0
Time Change: N/A
Drilling Method: Continuous Flight Auger

Depth (ft)	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
20	22.0-23.0' WEAK ROCK, likely dolomite							
	Refusal at 23.0 feet. Bottom of borehole at 23.0 feet.							

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

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DATE PREPARED 10/17/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 31
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

DESCRIPTION | DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166

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St. Charles, MO 63301
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www.oatesassociates.com

Detailed Apr. 2024
Checked Jul. 2024

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

BORING DATA

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

SCI ENGINEERING, INC.
130 Point West Boulevard
St. Charles, Missouri 63301
636-949-8200
www.sciengineering.com

ROCK CORE DESCRIPTIONS

Descriptions of rock core are defined as follows:

Hardness

Very Soft	Easily indented with the thumb.
Soft	Able to be scratched with a fingernail.
Moderately Hard	Easily scratched with a knife.
Hard	Difficult to scratch with a knife.
Very Hard	Cannot be scratched with a knife.

Crystallinity

Aphanitic (Micritic)	Crystals cannot be distinguished with the naked eye.
Very Finely Crystalline	Crystals are barely discernible with the naked eye.
Finely Crystalline	Crystals are easily discernible with the naked eye.
Medium Crystalline	Crystals are medium size; up to 1/8 inch in diameter.
Coarsely Crystalline	Crystals are 1/8 inch to ¼ inch in diameter.
Very Coarsely Crystalline	Crystals are larger than ¼ inch in diameter.

Mass Bedding

Parting	Thinner than 0.02 feet (< 0.60 cm).
Band	0.02 to 0.2 feet (0.60 to 6.1 cm).
Thin Bed	0.2 to 0.5 feet (6.1 to 15.2 cm).
Medium Bed	0.5 to 1.0 feet (15.2 to 30.5 cm).
Thick Bed	1.0 to 2.0 feet (30.2 to 61.0 cm).
Massive	Thicker than 2.0 feet (> 61.0 cm).

Weathering

Fresh	No visible signs of decomposition or discoloration.
Slightly Weathered	Slight discoloration inward from open fractures.
Moderately Weathered	Discoloration throughout, some loss of strength, texture intact.
Highly Weathered	Specimens easily broken by hand, texture indistinct.

Voids

Dense	Usually not discernible with the naked eye.
Pit (Pitted)	Discernible to ¼ inch.
Vug (Vuggy)	¼ inch to diameter of the core.
Cavity	Larger than 6 inches in diameter.

Geologic Definitions

Argillaceous A term applied to all rocks or substances composed of clay minerals or having a notable portion (> 30 percent) clay in composition.

Fissility A property of splitting along closely spaced parallel planes.

Calcareous A term applied to rocks containing calcium carbonate.

BORING DATA

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

DATE PREPARED 10/17/2024
ROUTE 137 | STATE MO
DISTRICT BR | SHEET NO. 32
COUNTY TEXAS
JOB NO. JSE0029
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9395

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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