DESIGN DESIGNATION

A.A.D.T. - 2024 = 2086 (CONSTRUCTION)
A.A.D.T. - 2044 = 3859 (DESIGN)
V = 55 M.P.H.
T = 11.1%

FUNCTION CLASSIFICATION - MAJOR COLLECTOR

NO NEW R/W REQUIRED

KEY MAP
LOCATION OF MORGAN COUNTY

CONVENTIONAL SYMBOLS
(USED IN PLANS)

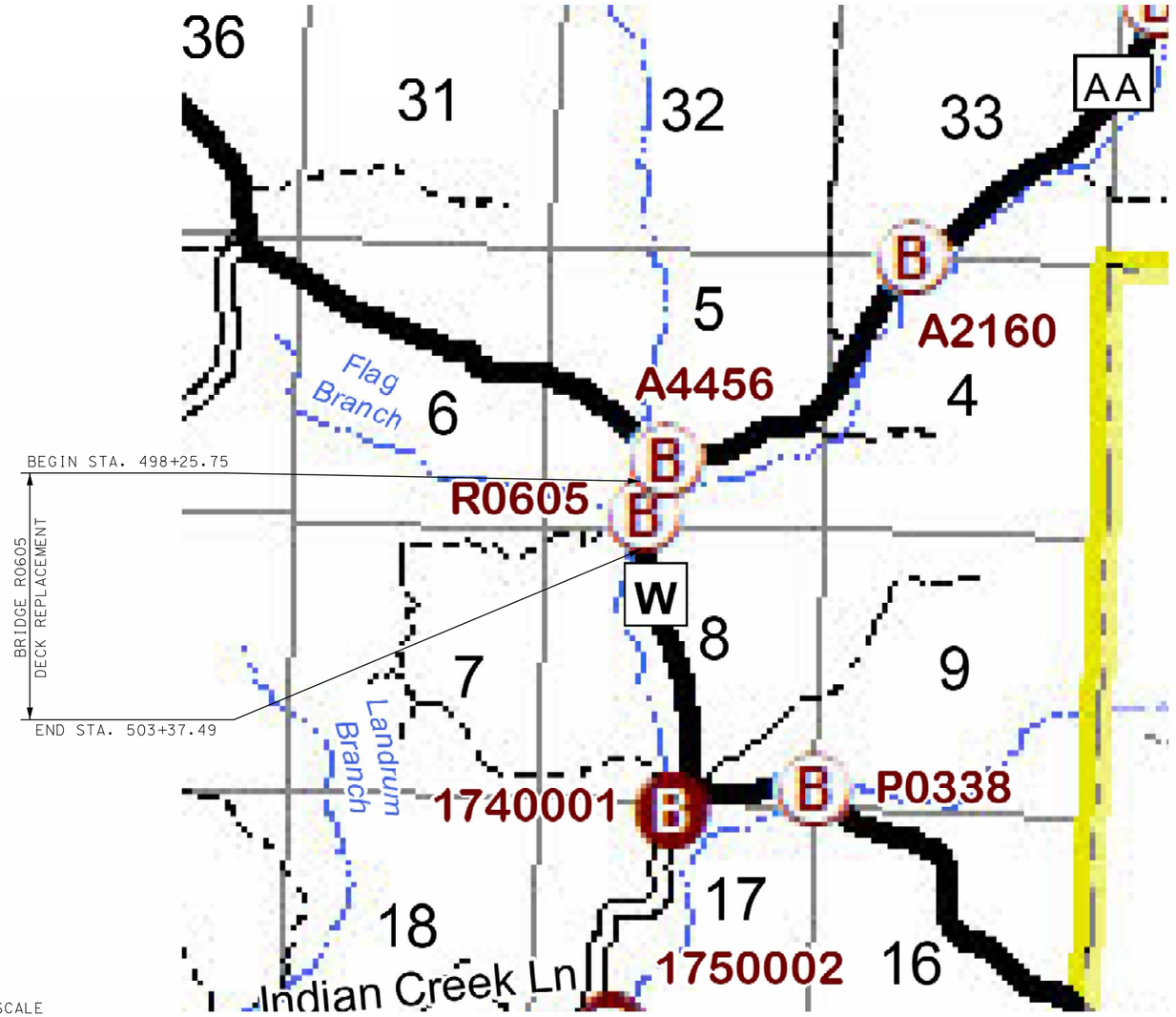
	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	FO
OVERHEAD CABLE TV	-OTV-	OTV
UNDERGROUND CABLE TV	-UTV-	UTV
OVERHEAD TELEPHONE	-OT-	OT
UNDERGROUND TELEPHONE	-UT-	UT
OVERHEAD 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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

MORGAN COUNTY



NOT TO SCALE

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. 498+25.75
END OF PROJECT	STA. 503+37.49
APPARENT LENGTH	511.74 FEET
EQUATIONS AND EXCEPTIONS:	
NONE	
TOTAL CORRECTIONS	0.00 FEET
NET LENGTH OF PROJECT	511.74 FEET
STATE LENGTH	0.097 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0.04 ACRES

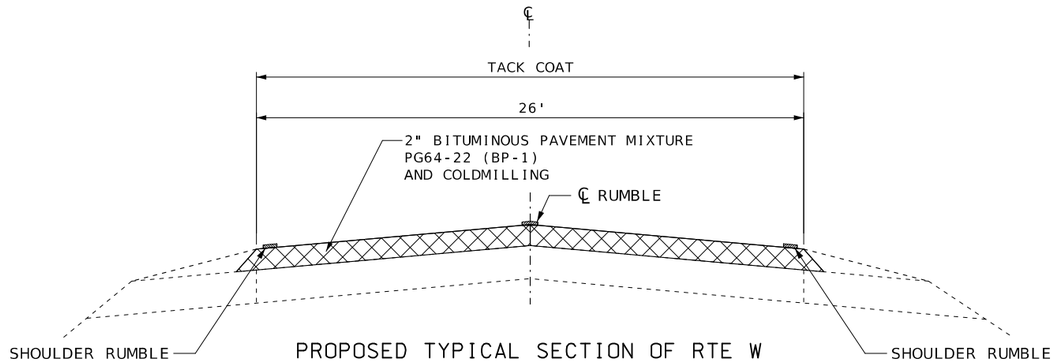
STATE OF MISSOURI
RYAN JOSEPH LIBBERT
NUMBER PE-2006019679
PROFESSIONAL ENGINEER
10/27/2025 1:35:44 PM
RYAN JOSEPH LIBBERT - CIVIL
MO-PE-2006019679

DATE PREPARED: 10/27/2025
ROUTE: W | STATE: MO
DISTRICT: CD | SHEET NO.: 1
COUNTY: MORGAN
JOB NO.: J5S3536
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE

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

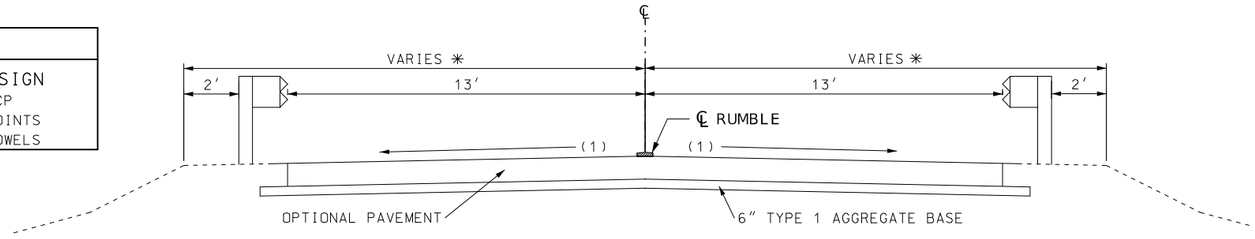
TITLE SHEET



PROPOSED TYPICAL SECTION OF RTE W

APPROACH PAVEMENT STA. 498+25.75 TO STA. 499+25.75
APPROACH PAVEMENT STA. 502+37.49 TO STA. 503+37.49

OPTIONAL PAVEMENT	
HMA DESIGN	PCCP DESIGN
2 IN. BP-1 (PG 64-22)	8" PCCP
OVER	15 FT. JOINTS
8 IN. BIT BASE (PG 64-22)	1¼ IN. DOWELS

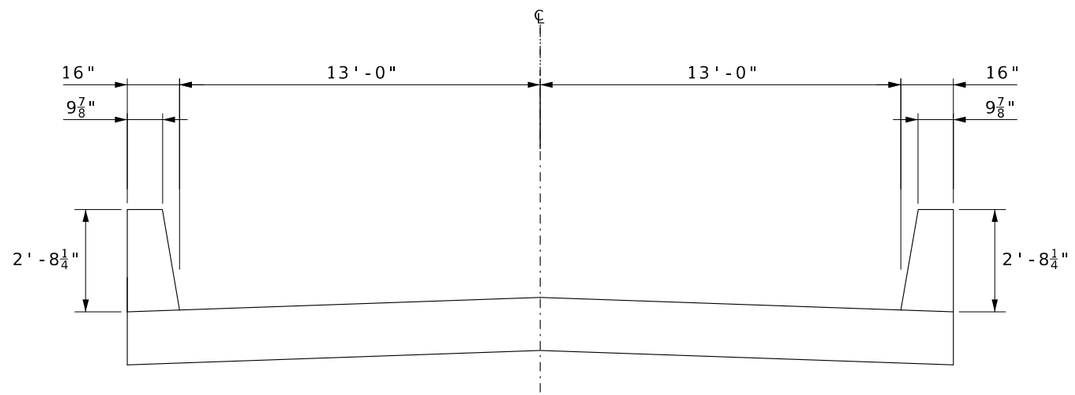


✳ USE STANDARD GRADING LIMITS FOR CRASHWORTHY END TERMINALS AND BRIDGE APPROACH TRANSITIONS PER STD. PLAN 606.81B.

PROPOSED TYPICAL SECTION OF RTE W

APPROACH PAVEMENT STA. 499+25.75 TO STA. 499+90.00
APPROACH PAVEMENT STA. 501+73.24 TO STA. 502+37.49

(1) TRANSITION CROSS SLOPE FROM EXISTING CROSS SLOPE TO BRIDGE DECK CROSS SLOPE



TYPICAL SECTION THROUGH BRIDGE R0605

STA. 499+90.00 TO STA. 501+73.24

ESTIMATE FACTORS
BITUMINOUS PAVEMENT MIXTURE (BP-1) = 2.000 TONS/CY
TACK (EXIST. ASPHALT SURFACE) = 0.08 GAL/SY
TACK (COLDMILLED ASPHALT) = 0.10 GAL/SY

TYPICAL SECTION
SHEET 1 OF 1

STATE OF MISSOURI
RYAN JOSEPH LIBBERT
NUMBER PE-2006019679
PROFESSIONAL ENGINEER
10/27/2025 1:41:11 PM
RYAN.JOSEPH.LIBBERT - CIVIL
MO-PE-2006019679

DATE PREPARED
10/27/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
CD	2

COUNTY
MORGAN

JOB NO.
J5S3536

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

TYPICAL SECTION SHEET
SHEET 1 OF 1

REMOVAL OF IMPROVEMENTS

APPROX STATION	LOCATION	ITEM	QTY	REMARKS
499+38.25	ROUTE W - LT.	GUARDRAIL BRIDGE ATTACHMENT	37.5 LF	EAST SIDE BRIDGE ATTACHMENT NORTH OF STATE BRIDGE R0605
499+66.75	ROUTE W - RT.	GUARDRAIL BRIDGE ATTACHMENT	37.5 LF	WEST SIDE BRIDGE ATTACHMENT NORTH OF STATE BRIDGE R0605
501+58.99	ROUTE W - LT.	GUARDRAIL BRIDGE ATTACHMENT	37.5 LF	EAST SIDE BRIDGE ATTACHMENT NORTH OF STATE BRIDGE R0605
501+87.49	ROUTE W - RT.	GUARDRAIL BRIDGE ATTACHMENT	37.5 LF	WEST SIDE BRIDGE ATTACHMENT NORTH OF STATE BRIDGE R0605
499+25.75	ROUTE W	PAVEMENT REMOVAL	125.78 SQYD	SECTION NORTH OF BRIDGE
501+58.99	ROUTE W	PAVEMENT REMOVAL	125.78 SQYD	SECTION SOUTH OF BRIDGE
499+90.00	ROUTE W	CONCRETE SLOPE PROTECTION	79.64 SQYD	SEE SPECIAL SHEET
		TOTAL	1 LUMP SUM	

MOBILIZATION

1 LUMP SUM

PAVEMENT

STATION FROM	STATION TO	LOCATION	LENGTH FT.	WIDTH FT.	AVERAGE WIDTH FT.	AREA SQ. FT.	THICKNESS IN.	OPTIONAL PAVEMENT SQ. YDS.	BITUMINOUS PAVEMENT (BP-1) PG 64-22 TONS	TACK COAT GAL	REMARKS
498+25.75	499+25.75	ROUTE W	100	26.00	26	2600	2		32.10	28.89	ASPHALT PAVEMENT FOR MILL/FILL AREA - APPROX. 288.89 SQ. YDS.
499+25.75	499+75.75	ROUTE W	50	26.00	26	1300		144.44			OPTIONAL PAVEMENT NORTH OF BRIDGE
499+75.75	500+04.25	ROUTE W	28.50	26.00 TO 0.00	13	370.5		41.17			OPTIONAL PAVEMENT NORTH OF BRIDGE
501+58.99	501+87.49	ROUTE W	28.50	0.00 TO 26.00	13	370.5		41.17			OPTIONAL PAVEMENT SOUTH OF BRIDGE
501+87.49	502+37.49	ROUTE W	50	26.00	26	1300		144.44			OPTIONAL PAVEMENT SOUTH OF BRIDGE
502+37.49	503+37.49	ROUTE W	100	26.00	26	2600	2		32.10	28.89	ASPHALT PAVEMENT FOR MILL/FILL AREA - APPROX. 288.89 SQ. YDS.
							TOTAL	371.22	64.20	57.78	
							USE	371.2	64.2	58	

COLDMILLING

STATION FROM	STATION TO	LOCATION	LENGTH FT	WIDTH FT	COLDMILLING BITUMINOUS PAVEMENT (3" THICK OR LESS) SQYD	REMARKS
498+25.75	499+25.75	ROUTE W	100	26	288.89	2 IN. COLDMILL NORTH OF BRIDGE
502+37.49	503+37.49	ROUTE W	100	26	288.89	2 IN. COLDMILL SOUTH OF BRIDGE
				TOTAL	577.78	
				USE	578	

TYPE 1 AGGREGATE FOR BASE (6" THICK)

STATION FROM	STATION TO	LOCATION	LENGTH FT.	WIDTH FT.	AVERAGE WIDTH FT.	AREA SQ. FT.	AGGREGATE SQ. YDS.	REMARKS
499+25.75	499+75.75	ROUTE W	50	26.00	26	1300	144.44	AGG. BASE NORTH OF BRIDGE
499+75.75	500+04.25	ROUTE W	28.5	26.00 TO 0.00	13	370.5	41.17	AGG. BASE NORTH OF BRIDGE
501+58.99	501+87.49	ROUTE W	28.5	0.00 TO 26.00	13	370.5	41.17	AGG. BASE SOUTH OF BRIDGE
501+87.49	502+37.49	ROUTE W	50	26.00	26	1300	144.44	AGG. BASE SOUTH OF BRIDGE
						TOTAL	371.22	
						USE	371	

GRAVEL (A) OR CRUSHED STONE (B)

STATION FROM	STATION TO	LOCATION	GRAVEL (A) OR CRUSHED STONE (B) TONS	REMARKS
501+78.24	502+38.24	ROUTE W	5	GRAVEL ENTRANCE SOUTH OF BRIDGE
		TOTAL	5	
		USE	5	

CONTRACTOR FURNISHED SURVEYING AND STAKING

1 LUMP SUM

ADDITIONAL MOBILIZATION FOR SEEDING

4 EACH

SUMMARY OF QUANTITIES
SHEET 1 OF 3

STATE OF MISSOURI
RYAN JOSEPH LIBBERT
NUMBER PE-2006019679
PROFESSIONAL ENGINEER
11/3/2025 11:14:05 AM
RYAN JOSEPH LIBBERT - CIVIL
MO-PE-2006019679

DATE PREPARED
11/13/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
CD	3

COUNTY
MORGAN

JOB NO.
J5S3536

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

QUANTITY SHEET
SHEET 1 OF 3

GUARDRAIL

STATION FROM	STATION TO	LOCATION	MGS BRIDGE APPROACH TRANS. SECT. (REG./ NO CURB) EA	REMARKS
499+38.25	499+75.75	ROUTE W - LT.	1	REPLACE BRIDGE ATTACHMENT ONLY
499+66.75	500+04.25	ROUTE W - RT.	1	REPLACE BRIDGE ATTACHMENT ONLY
501+58.99	501+96.49	ROUTE W - LT.	1	REPLACE BRIDGE ATTACHMENT ONLY
501+87.49	502+24.99	ROUTE W - RT.	1	REPLACE BRIDGE ATTACHMENT ONLY
		TOTAL	4	
		USE	4	

RUMBLE STRIPS

STATION FROM	STATION TO	LOCATION	BITUMINOUS SHOULDER RUMBLE STRIP STA.	BITUMINOUS CENTERLINE RUMBLE STRIP STA.	REMARKS
498+25.75	499+90.00	ROUTE W		1.64	CENTERLINE RUMBLE STRIP NORTH OF BRIDGE R0605
498+25.75	498+62.75	ROUTE W	0.37		RIGHT EDGELINE RUMBLE STRIP NORTH OF BRIDGE R0605
501+73.24	503+37.49	ROUTE W		1.64	CENTERLINE RUMBLE SOUTH OF BRIDGE R0605
		TOTAL	0.37	3.28	
		USE	0.4	3.3	

PAVEMENT MARKING

STATION FROM	STATION TO	LOCATION	LENGTH (FT)	CLASS 1 PVMT MARK. PAINT, (18-MIL, TYPE P BEADS) 4" YELLOW LF	4" WHITE LF	REMARKS
498+25.75	503+37.49	ROUTE W	512	640.0	1024.0	WHITE EDGE LINES AND ONE SOLID, ONE INTERMITTENT YELLOW CENTERLINE
			TOTAL	640.0	1024.0	
			USE	640	1024	

MULCHING AND SEEDING

STATION FROM	STATION TO	LOCATION	LENGTH FT	SEEDING AND MULCHING COOL SEASON GRASSES ACRE	REMARKS
499+15.00	499+90.00	ROUTE W	75	0.017	MULCHING AND SEEDING ON BOTH SIDES OF ROADWAY
501+73.24	502+73.24	ROUTE W	100	0.023	MULCHING AND SEEDING ON BOTH SIDES OF ROADWAY
			TOTAL	1 LUMP SUM	

PERMANENT EROSION CONTROL

STATION FROM	STATION TO	LOCATION	FURNISHING TYPE 2 ROCK BLANKET CUYD	PLACING TYPE 2 ROCK BLANKET CUYD	FURNISHING TYPE 1 ROCK DITCH LINER CUYD	PLACING TYPE 1 ROCK DITCH LINER CUYD	PERMENANT EROSION CONTROL GEOTEXTILE SQYD	REMARKS
499+90.00	500+15.00	ROUTE W	53.09	53.09			104.94	ROCK BLANKET AT NORTH ABUTMENT
499+72.75	499+75.75	ROUTE W - LT.			1.63	1.63	11.04	EAST DRAIN FLUME AT NORTH END OF BRIDGE R0605
500+01.25	500+04.25	ROUTE W - RT.			1.48	1.48	10.07	WEST DRAIN FLUME AT NORTH END OF BRIDGE R0606
		TOTAL	53.09	53.09	3.11	3.11	126.05	
		USE	53	53	3	3	126	

TEMPORARY EROSION CONTROL

STATION FROM	STATION TO	LOCATION	SEDIMENT REMOVAL CUYD	SILT FENCE LF	ALT. DITCH CHECK LF	REMARKS
498+75.75	499+75.75	ROUTE W - LT.	1.00	100.00	10.00	SEE EROSION CONTROL SHEET
499+29.25	500+04.25	ROUTE W - RT.	0.75	75.00	10.00	SEE EROSION CONTROL SHEET
499+90.00	500+15.00	ROUTE W - RT.	0.41	41.00		SEE EROSION CONTROL SHEET
501+58.99	502+33.99	ROUTE W - LT.	0.75	75.00	10.00	SEE EROSION CONTROL SHEET
501+87.49	502+87.49	ROUTE W - RT.	1.00	100.00	10.00	SEE EROSION CONTROL SHEET
		TOTAL	3.91	391	40	
		USE	4	391	40	

SUMMARY OF QUANTITIES
SHEET 2 OF 3

STATE OF MISSOURI
RYAN JOSEPH LIBBERT
NUMBER PE-2006019679
PROFESSIONAL ENGINEER
10/27/2025 1:41:39 PM
RYAN.JOSEPH.LIBBERT - CIVIL
MO-PE-2006019679

DATE PREPARED
10/27/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
CD	3

COUNTY
MORGAN

JOB NO.
J5S3536

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

QUANTITY SHEET
SHEET 2 OF 3

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
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 (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
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
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)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
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	2	32.00			2	ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00	2	32.00			18	DETOUR AHEAD
WO20-3	48X48	16.00	4	64.00			19/20	ROAD CLOSED AHEAD (500FT PLAQUE)
WO20-4	48X48	16.00	2	32.00			7	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	2	32.00			8	FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	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)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
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	13.25						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
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (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	2	25.00			55	ROAD CLOSED 3 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-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	36X60	15.00	26	390.00			VAR	DETOUR ROUTE ASSEMBLY

616-10.05 CONSTRUCTION SIGNS	TOTAL	
	633	
616-10.10 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)
6122040		WORK ZONE CRASH CUSHION (NARROW)
6122041		WORK ZONE CRASH CUSHION (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONE)
6161025	27	CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	8	TYPE 3 MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE 3 OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096	2	CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A		CHANGEABLE MESSAGE SIGN WITHOUT 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
6173700B		TEMP. TRAFFIC BARRIER ANCHORED, CONTRACTOR FURNISHED/RETAINED
6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION CONTRACTOR FURNISHED/RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION, CONTRACTOR FURNISHED/RETAINED
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

50A = 14
50B = 3
50C = 4
50D = 1
50E = 3
50G = 1
TOTAL = 26

EFFECTIVE: 07-01-2025

STATE OF MISSOURI
RYAN JOSEPH LIBBERT
NUMBER PE-2006019679
PROFESSIONAL ENGINEER
10/27/2025 1:41:52 PM
RYAN JOSEPH LIBBERT - CIVIL
MO-PE-2006019679

DATE PREPARED: 10/27/2025
ROUTE: W
STATE: MO
DISTRICT: CD
SHEET NO.: 3
COUNTY: MORGAN
JOB NO.: J5S3536
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION
DATE

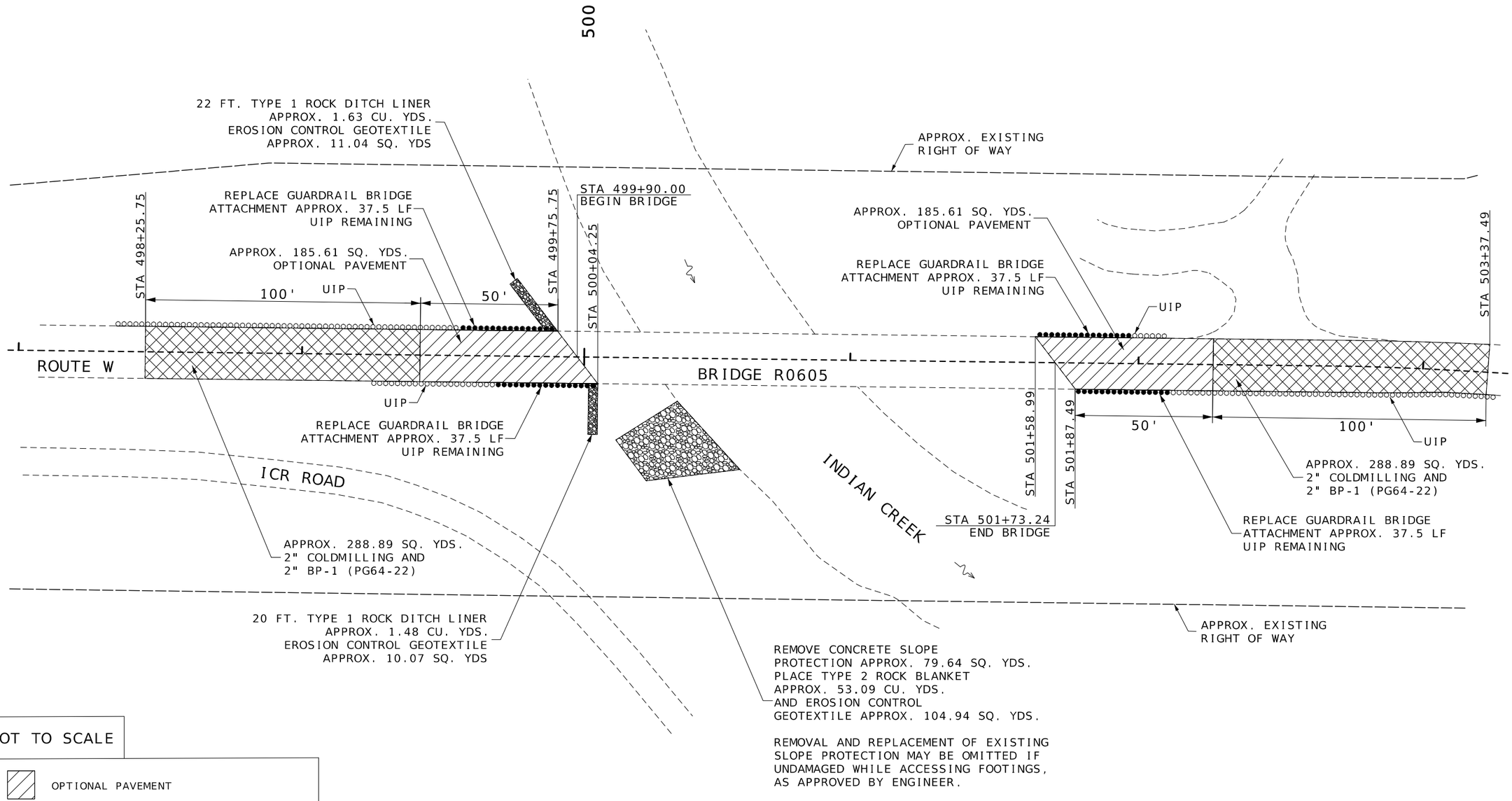
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

QUANTITY SHEET
SHEET 3 OF 3

SUMMARY OF QUANTITIES
SHEET 3 OF 3

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.

IF TREES OR LIMBS GREATER THAN THREE (3) INCHES IN DIAMETER MUST BE CLEARED TO ACCESS THIS WORK, THEY SHALL BE REMOVED BETWEEN OCTOBER 16 AND MARCH 31. SEE JSP.



NOT TO SCALE

- OPTIONAL PAVEMENT
- 2" COLDMILLING AND BP-1 (PG64-22)
- TYPE 2 ROCK BLANKET
- TYPE 1 ROCK DITCH LINER

ROUTE W STATE BRIDGE R0605

PLAN SHEET
1 OF 1

STATE OF MISSOURI
RYAN JOSEPH LIBBERT
NUMBER PE-2006019679
PROFESSIONAL ENGINEER
10/27/2025 1:43:31 PM
RYAN.JOSEPH.LIBBERT - CIVIL
MO-PE-2006019679

DATE PREPARED
10/27/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
CD	4

COUNTY
MORGAN

JOB NO.
J5S3536

CONTRACT ID.

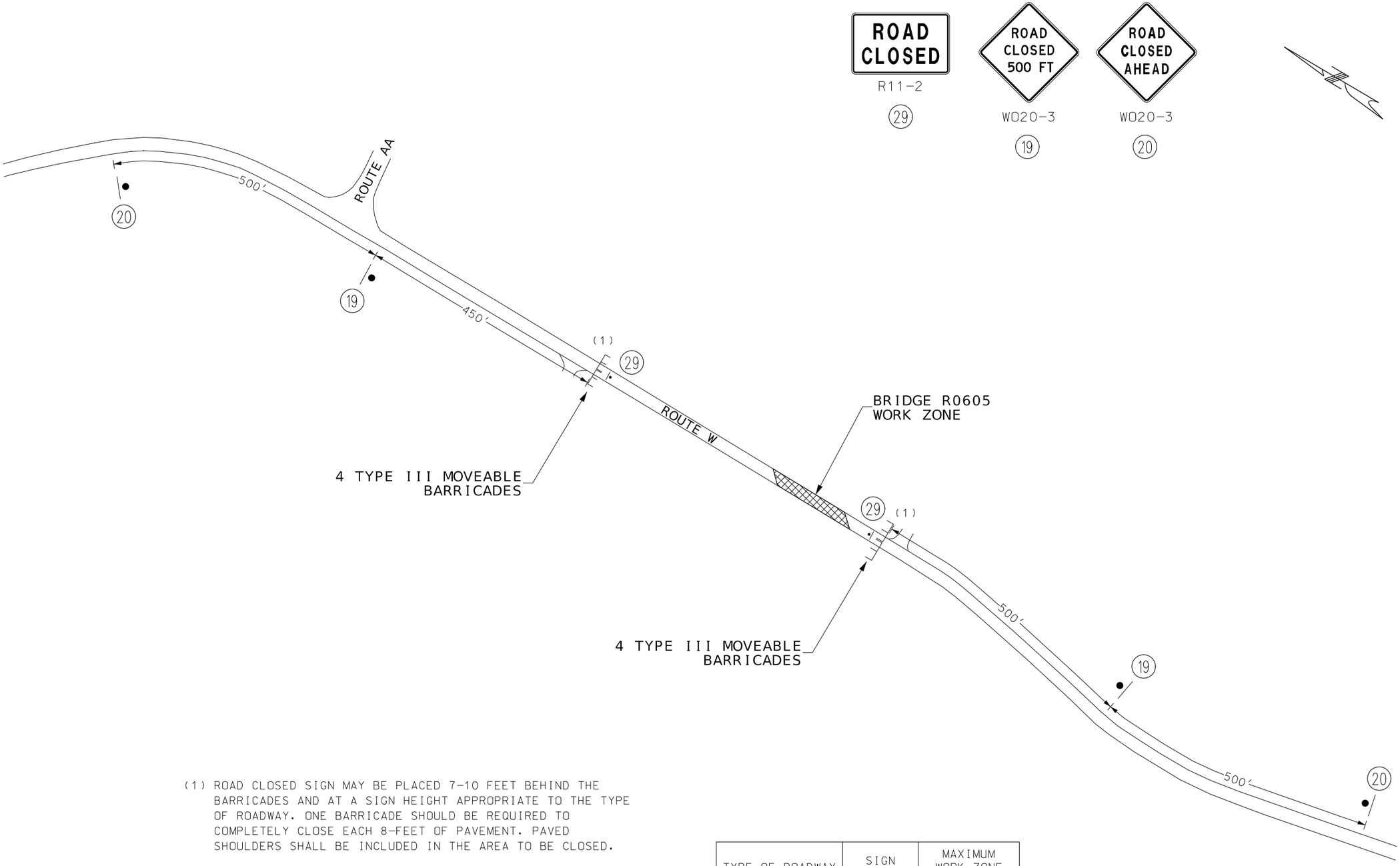
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

PLAN SHEET
SHEET 1 OF 1



(1) ROAD CLOSED SIGN MAY BE PLACED 7-10 FEET BEHIND THE BARRICADES AND AT A SIGN HEIGHT APPROPRIATE TO THE TYPE OF ROADWAY. ONE BARRICADE SHOULD BE REQUIRED TO COMPLETELY CLOSE EACH 8-FEET OF PAVEMENT. PAVED SHOULDERS SHALL BE INCLUDED IN THE AREA TO BE CLOSED.

REFER TO STANDARD PLAN 610.10 FOR PLACEMENT OF BARRICADES

TRAFFIC CONTROL SHOULD BE REMOVED AS SOON AS PRACTICAL AFTER CONDITIONS FOR THE CLOSURE NO LONGER EXISTS.

NOT TO SCALE

TYPE OF ROADWAY	SIGN HEIGHT	MAXIMUM WORK ZONE LENGTH (L)
URBAN	1' PORTABLE 7' POST	1 MILE
RURAL UNDIVIDED	1' PORTABLE 5' POST	3 MILES

TEMPORARY TRAFFIC CONTROL SHEET
SHEET 1 OF 3

STATE OF MISSOURI
RYAN JOSEPH LIBBERT
NUMBER PE-2006019679
PROFESSIONAL ENGINEER
10/27/2025 1:44:05 PM
RYAN JOSEPH LIBBERT - CIVIL
MO-PE-2006019679

DATE PREPARED
10/27/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
CD	5

COUNTY
MORGAN

JOB NO.
J5S3536

CONTRACT ID.

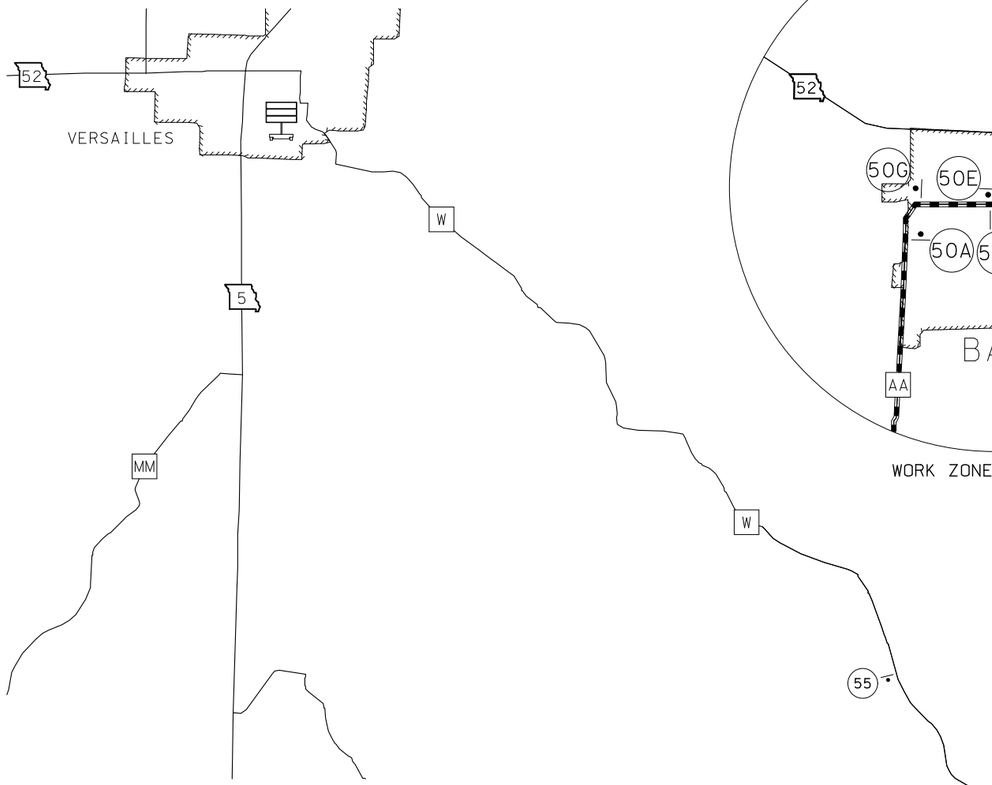
PROJECT NO.

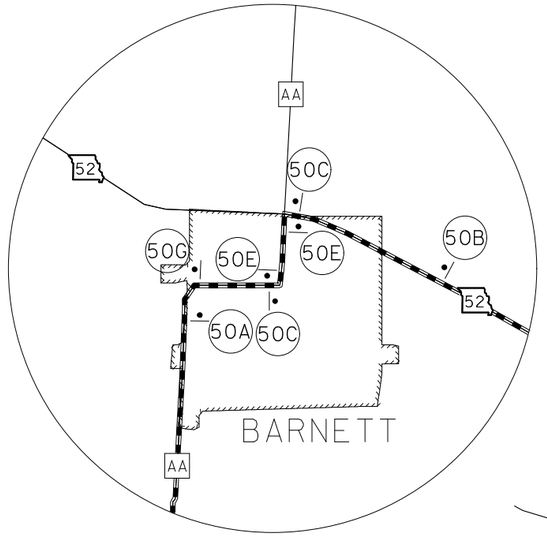
BRIDGE NO.

DESCRIPTION	DATE

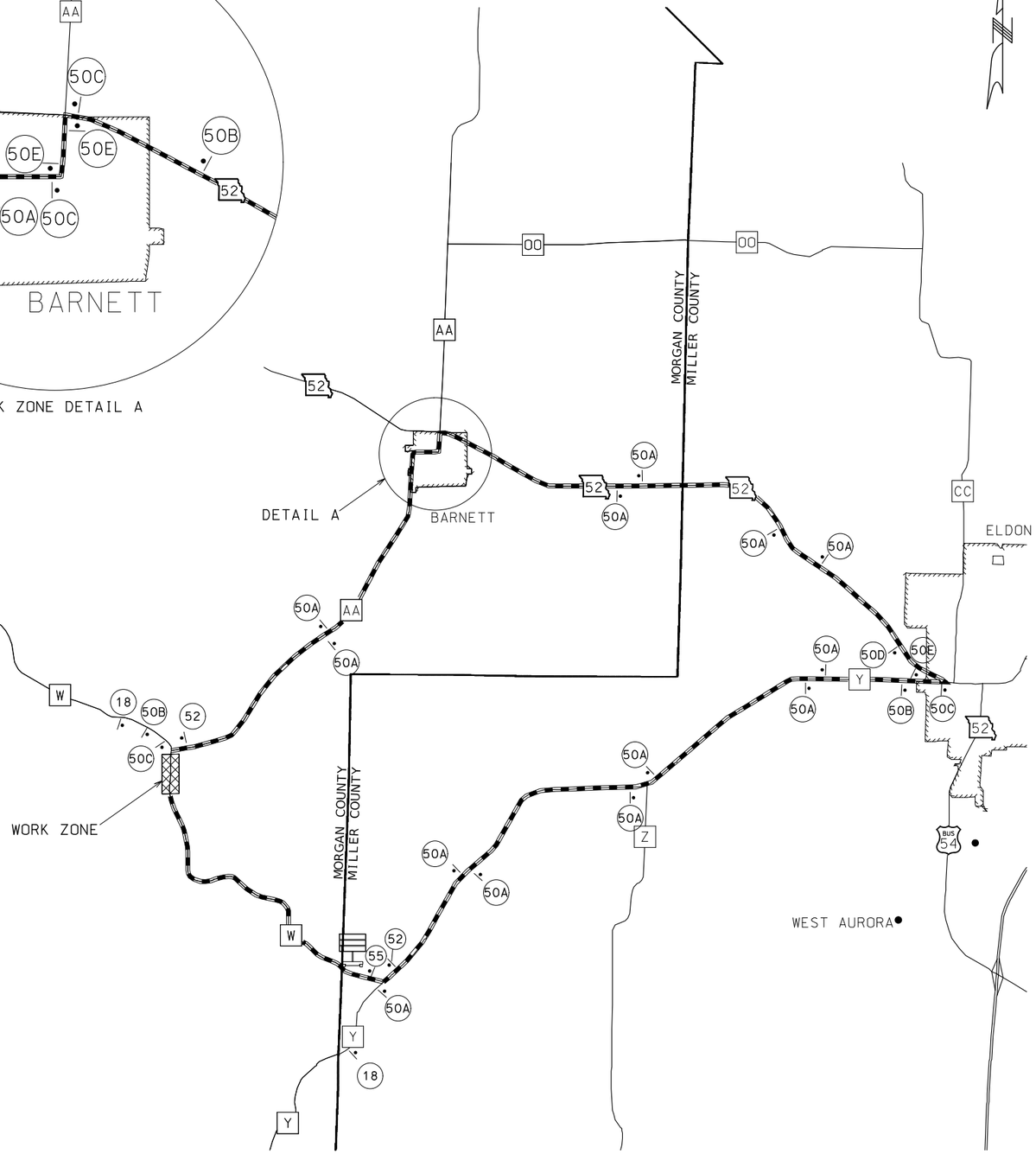
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

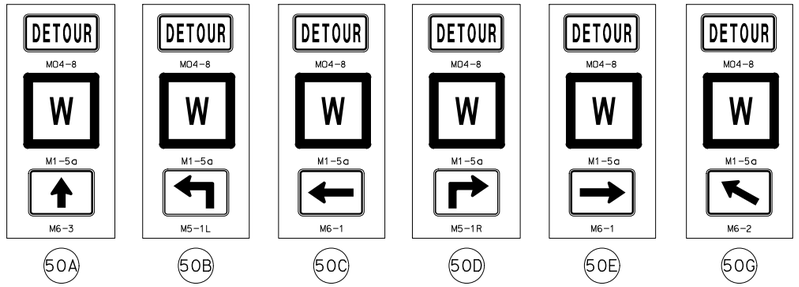
TRAFFIC CONTROL SHEET
SHEET 1 OF 3

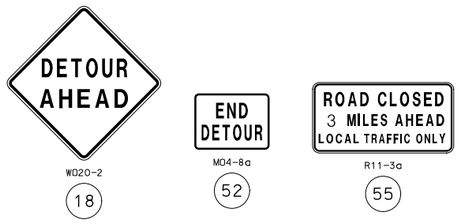




WORK ZONE DETAIL A







STATE OF MISSOURI
RYAN JOSEPH LIBBERT
NUMBER PE-2006019679
PROFESSIONAL ENGINEER

10/27/2025 1:44:25 PM
RYAN JOSEPH LIBBERT - CIVIL
MO-PE-2006019679

DATE PREPARED
10/27/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
CD	6

COUNTY
MORGAN

JOB NO.
J5S3536

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

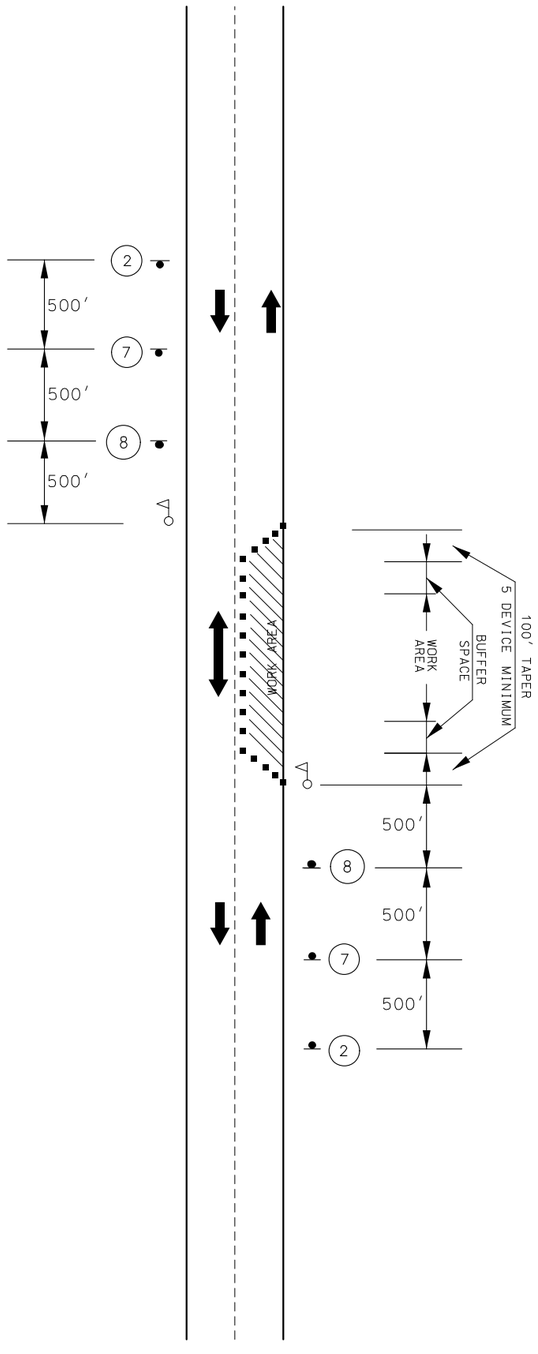
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

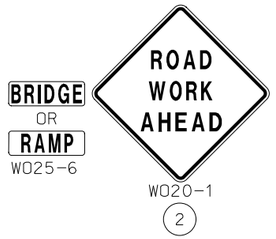
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

TRAFFIC CONTROL SHEET
SHEET 2 OF 3



LANE CLOSURE ON TWO-LANE
ROAD USING FLAGGERS



NOTES:

AUTOMATED FLAGGER ASSISTANCE DEVICES (AFAD) AND PORTABLE SIGNAL FLAGGING DEVICES (PSFD) MAY BE USED AS AND ALTERNATIVE FLAGGING OPERATION.

IF USED AT NIGHT, THE FLAGGER STATIONS SHALL BE ILLUMINATED WITH AN AVERAGE MAINTAINED INTENSITY OF 0.6 FOOT CANDLES (6.5 LUX).

TEMPORARY TRAFFIC CONTROL SHEET
LANE CLOSURE ON 2-LANE ROAD
USING FLAGGERS
SHEET 3 OF 3

STATE OF MISSOURI
RYAN JOSEPH LIBBERT
NUMBER PE-2006019679
PROFESSIONAL ENGINEER
10/27/2025 1:44:37 PM
RYAN.JOSEPH.LIBBERT - CIVIL
MO-PE-2006019679

DATE PREPARED
10/27/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
CD	7

COUNTY
MORGAN

JOB NO.
J5S3536

CONTRACT ID.

PROJECT NO.

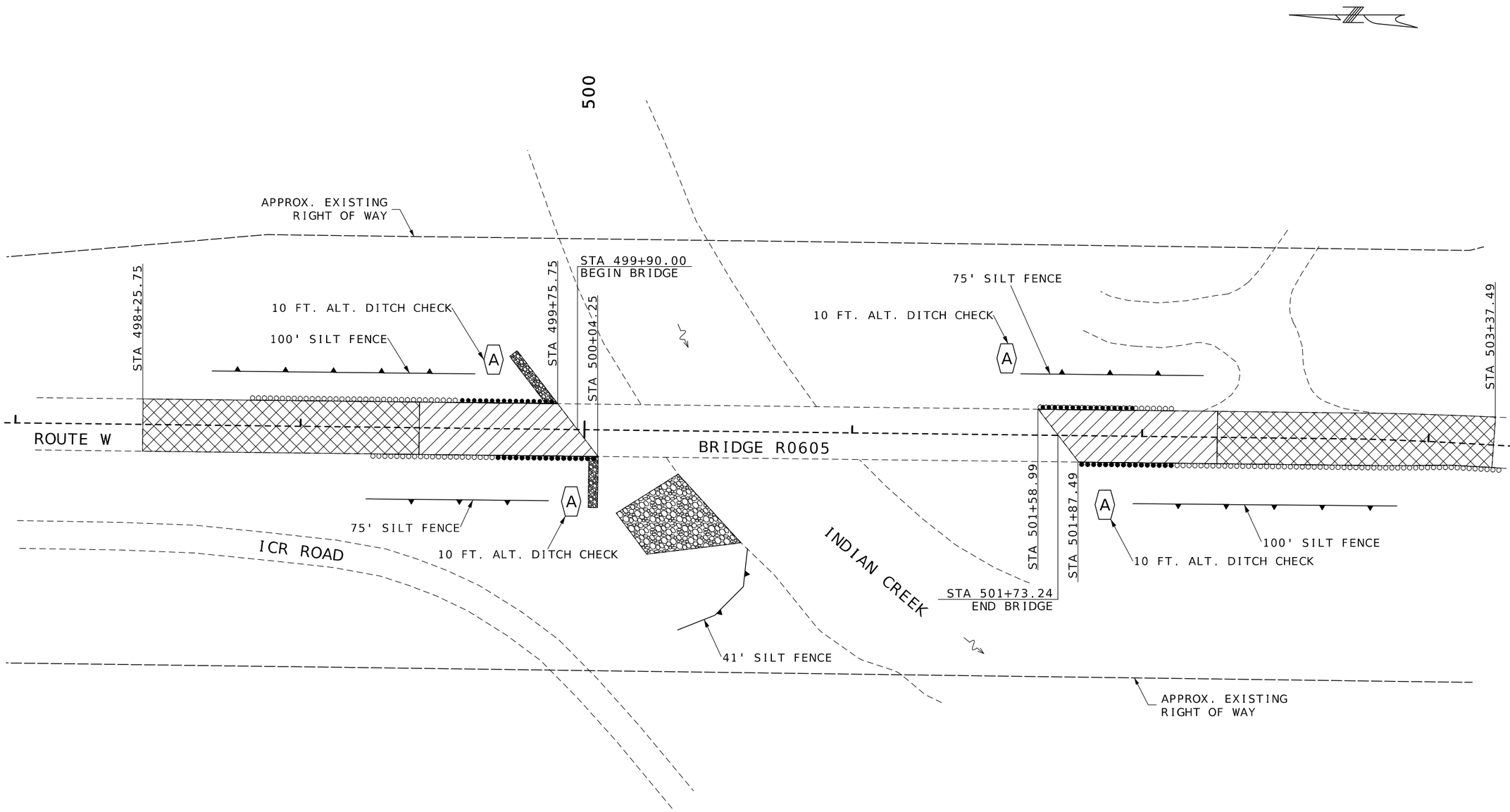
BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

TRAFFIC CONTROL SHEET
SHEET 3 OF 3



NOT TO SCALE

SILT FENCE

A ALT. DITCH CHECK

ROUTE W STATE BRIDGE R0605

EROSION CONTROL SHEET
1 OF 1

STATE OF MISSOURI
RYAN JOSEPH LIBBERT
NUMBER PE-2006019679
PROFESSIONAL ENGINEER

10/27/2025 1:45:00 PM
RYAN JOSEPH LIBBERT - CIVIL
MO-PE-2006019679

DATE PREPARED
10/27/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
CD	8

COUNTY
MORGAN

JOB NO.
J5S3536

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

EROSION CONTROL SHEET
SHEET 1 OF 1

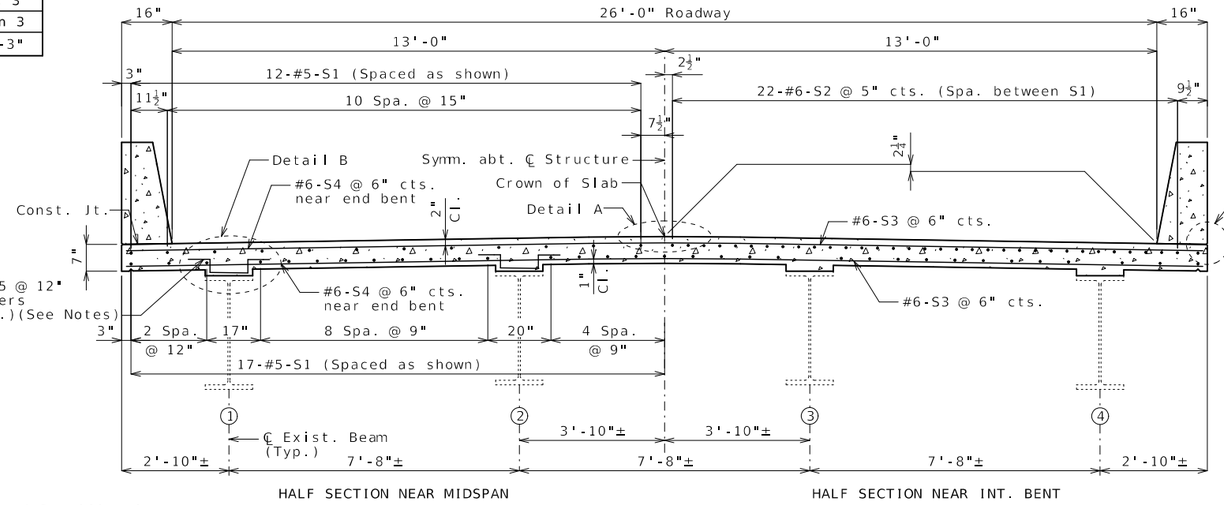
SEC/SUR 5 TWP 41 RGE 16W

U.I.P., REDECK & REHABILITATE EXISTING (54'-70'-54') CONTINUOUS COMP. WIDE FLANGE BEAM SPANS (SKEW:45°00',00"R.A.)

Table Showing S2 Bar Lengths			
Int. Bent No. 2		Int. Bent No. 3	
Span 1	Span 2	Span 2	Span 3
18'-3"	14'-3"	14'-3"	18'-3"

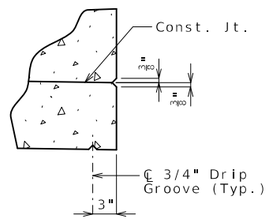
Required Lap Length For Bar Splices **	
Bar Size	Splice Length
4	2'-7"
5	3'-3"
6	3'-10"
7	4'-11"

** Unless otherwise shown.

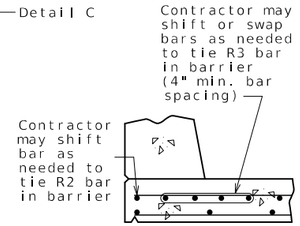


HALF SECTION NEAR MIDSPAN HALF SECTION NEAR INT. BENT

TYPICAL SECTION THRU SLAB



DETAIL C



OPTIONAL SHIFTING TOP BARS AT BARRIER

General Notes:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications
Seismic Performance Category A

Design Loading:

H15-44 (1961) (Existing)
HS20-44 (New Construction)
35 lb/sf Future Wearing Surface
Earth - 120 lb/cf, Equivalent Fluid Pressure 45 lb/cf
Fatigue Stress - Case III

Design Unit Stresses:

Class B Concrete Substructure	f'c = 3,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Class B-2 Concrete (End Bents & Superstructure, except Barrier)	f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60)	fy = 60,000 psi

Joint Filler:

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

Reinforcing Steel:

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

#4 - S5 hairpin bars to be placed at 12" cts. where dimension (A) is greater than or equal to 2" in existing shear connector regions. Hairpin bars may be placed at an angle to meet clearances. Estimated 544 hairpins required."

Concerte Protective Coating

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

Miscellaneous:

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

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

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

Contractor shall verify all dimensions in field before finalizing the shop drawings.

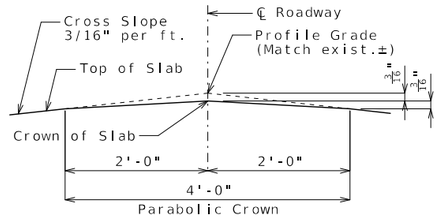
The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

For adjusted beam deflection due to the weight of the new deck and barriers, see Bridge Electronic Deliverables.

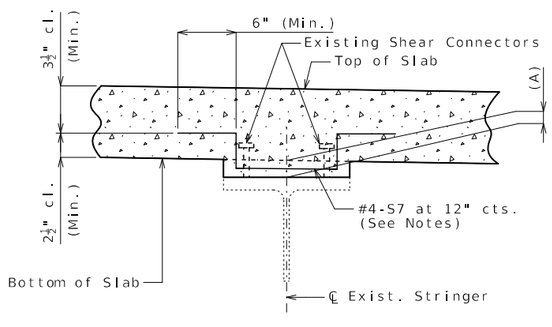
Vibratory screeds will not be allowed to finish the bridge deck surface.

Traffic Handling:

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



DETAIL A



DETAIL B

Estimated Quantities		
Item		Total
Removal of Miscellaneous ACM (Non-Friable)	sq. foot	17
Temporary Shoring	lump sum	1
Dewatering	lump sum	1
Removal of Existing Bridge Deck	sq. foot	5223
Class B Concrete (Substructure)	cu. yard	50
Slab on Steel	sq. yard	580
Type H Barrier	linear foot	367
Substructure Repair (Formed)	sq. foot	10
Substructure Repair (Unformed)	sq. foot	40
Reinforcing Steel (Bridges)	pound	4720
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
Shear Connectors	each	208
Strengthening Existing Beams	lump sum	1
Slab Drain	each	14
Non-Destructive Testing	linear foot	45
Vertical Drain at End Bents	each	1

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

Estimated Quantities for Slab on Steel		
Item		Total
Class B-2 Concrete	cu. yard	140
Reinforcing Steel (Epoxy Coated)	pound	51,250

The table of Estimated Quantities for Slab on Steel represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard 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 in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness Class SC 4 and a finish Type I, II or III.

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

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

REPAIRS TO BRIDGE: ROUTE W OVER INDIAN CREEK

ROUTE W FROM ROUTE AA TO ROUTE Y
ABOUT 0.2 MILES SOUTH OF ROUTE Y
BEGINNING STATION 499+90.00± (MATCH EXISTING)

Detailed Mar. 2025
Checked Jun. 2025

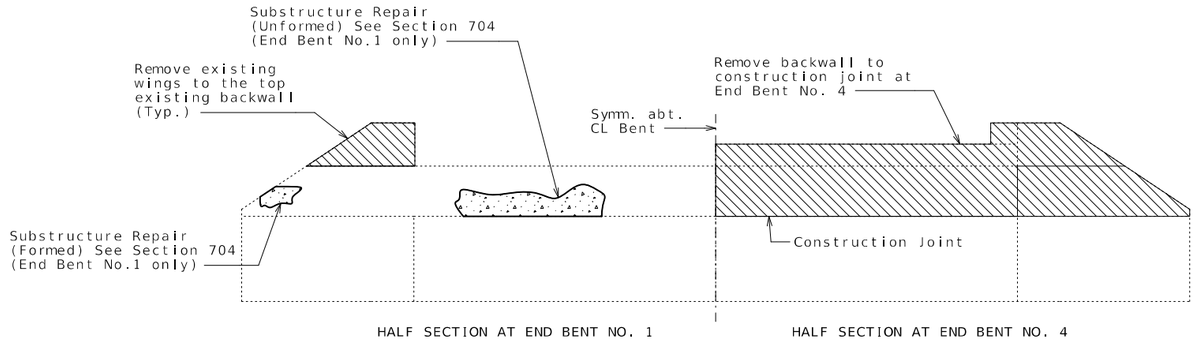
Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/12/2025
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY MORGAN
JOB NO. J5S3536
CONTRACT ID.
PROJECT NO.
BRIDGE NO. R06051

DESCRIPTION | DATE

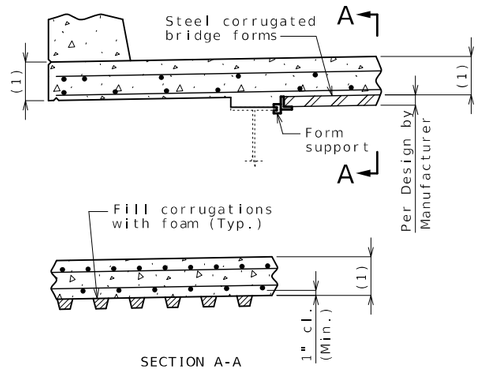
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



DETAILS OF CONCRETE REMOVAL AT END BENTS

The cost of concrete removal as shown will be considered completely covered by the contract unit price for Removal of Existing Bridge Deck. Vertical backwall and wingwall reinforcement to be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

A smooth, level surface shall be provided at removal lines.



OPTIONAL STAY-IN-PLACE FORM DETAILS

General Notes:

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 flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Welding on or drilling holes in the beam flanges 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.

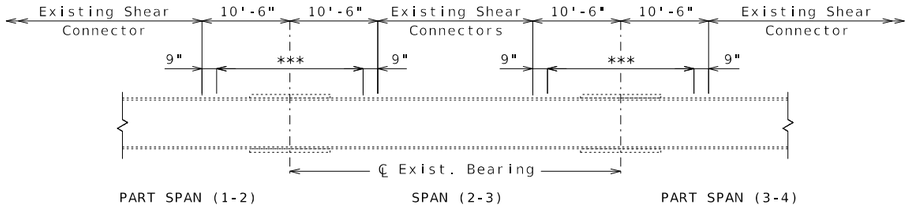
The contractor shall provide a method of preventing the direct contact of the stay-in-place forms and connection components with uncoated weathering steel members that is approved by the engineer.

Pouring and Finishing Slab:

The contractor shall provide bracing necessary for lateral and torsional stability of the beams during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not weld on or drill holes in the beams. The cost for furnishing, installing, and removing bracing will be considered completely covered by the contract unit price for Slab on Steel.

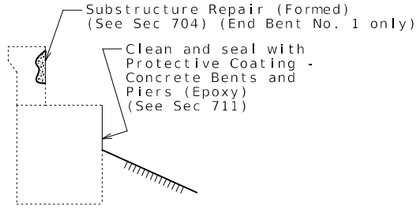
Slab shall be poured upgrade from end to end at a minimum rate of 25 cubic yards per hour.

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

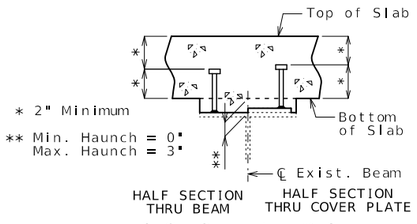


*** 26 Shear Connector Units @ 9" cts.
(2' - 7/8"Ø x 4" S.C. per unit)

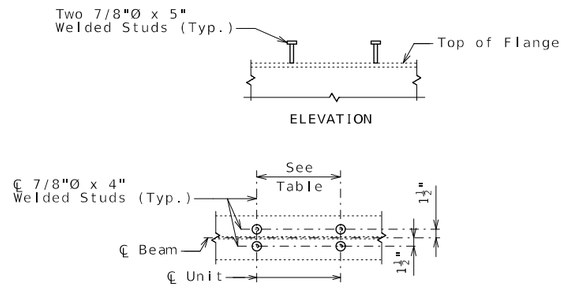
PART ELEVATION SHOWING SHEAR CONNECTOR SPACING



TYPICAL SECTION THRU END BENTS NO. 1 & 4 SHOWING PROTECTIVE COATING



SECTION THRU EXIST. BEAM SHOWING SHEAR CONNECTORS



DETAILS OF SHEAR CONNECTORS

The cost of supplying and installing shear connectors will be considered completely covered by the contract unit price for Shear Connectors.

Shear connectors shall be in accordance with Sec 712, 1037 & 1080.

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

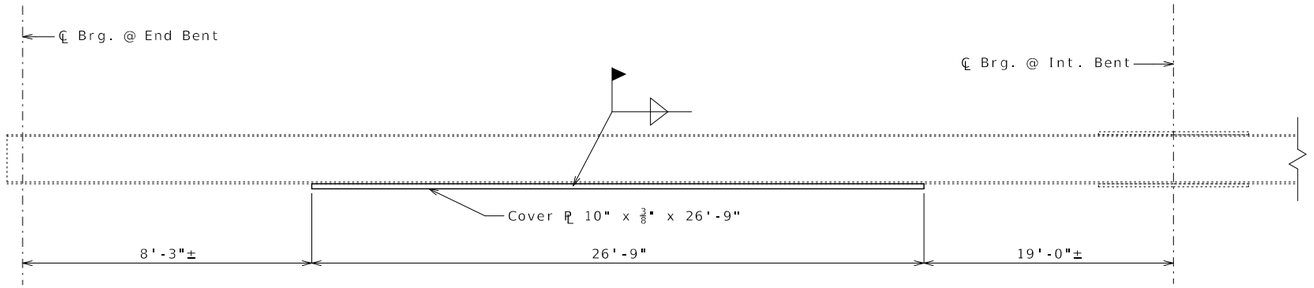
DATE PREPARED: 11/12/2025
ROUTE: W | STATE: MO
DISTRICT: BR | SHEET NO.: 2
COUNTY: MORGAN
JOB NO.: J5S3536
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: R06051

DESCRIPTION | DATE

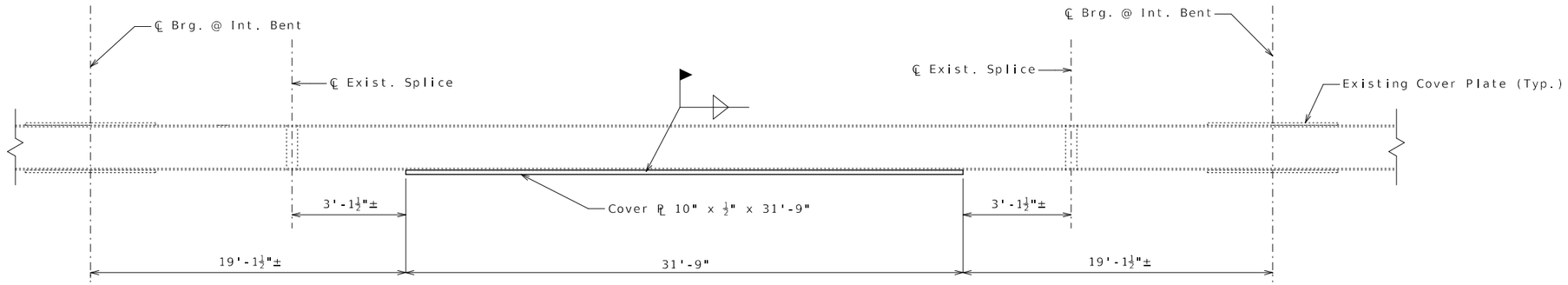
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Detailed Mar. 2025
Checked Jun. 2025

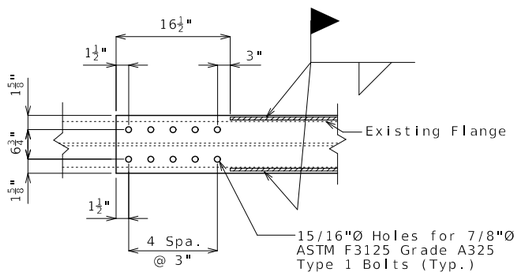
Note: This drawing is not to scale. Follow dimensions.



PART ELEVATION OF EXTERIOR BEAM SHOWING COVER PLATE INSTALLATION
SPAN (1-2) AND SPAN (4-3)



PART ELEVATION OF EXTERIOR BEAM SHOWING COVER PLATE INSTALLATION
SPAN (2-3)



TYPICAL DETAIL OF THE
ENDS OF COVER PLATES
(BOTTOM VIEW)

Notes:

Beam with end-bolted cover plates shall be installed in the following sequence after existing bridge deck is removed:

1. Drill holes in cover plate and flange.
2. Clean faying surfaces. (See Special Provisions)
3. Install and tighten bolts.
4. Weld cover plate to flange.

Fabricated Structural Steel shall be ASTM A709 Grade 50, except as noted.

Payment for 4,891 pounds of new cover plates, complete in place, will be considered completely covered by the contract lump sum price for Strengthening Existing Beams.

Notch toughness is required for all cover plates.

Contractor shall verify all dimensions in field before finalizing the shop drawings.

STRENGTHENING EXISTING BEAMS

Detailed Jun. 2025
Checked Jun. 2025

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/12/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	3

COUNTY
MORGAN

JOB NO.
J5S3536

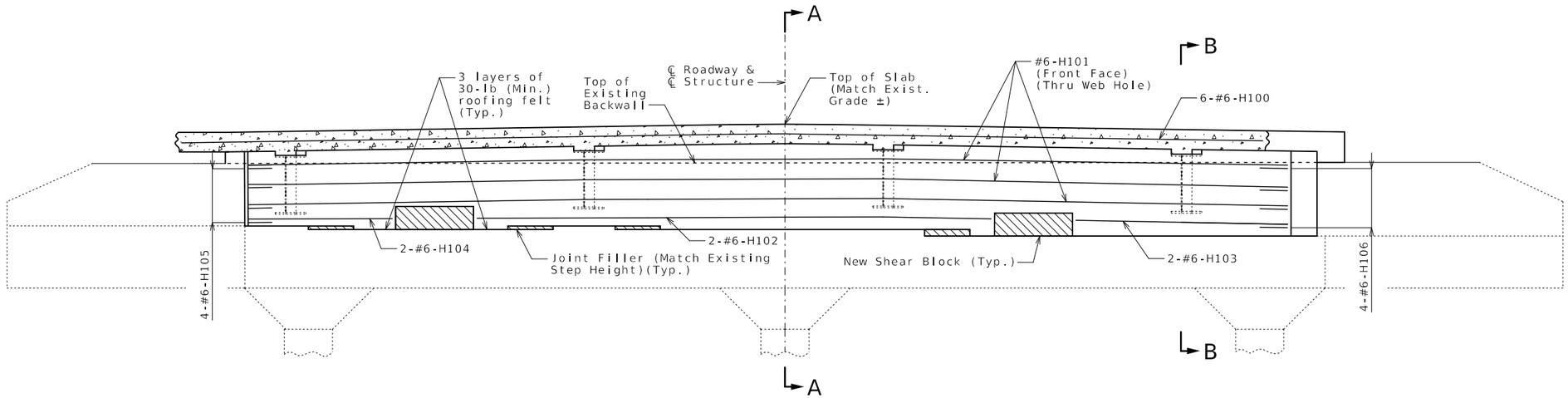
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
R06051

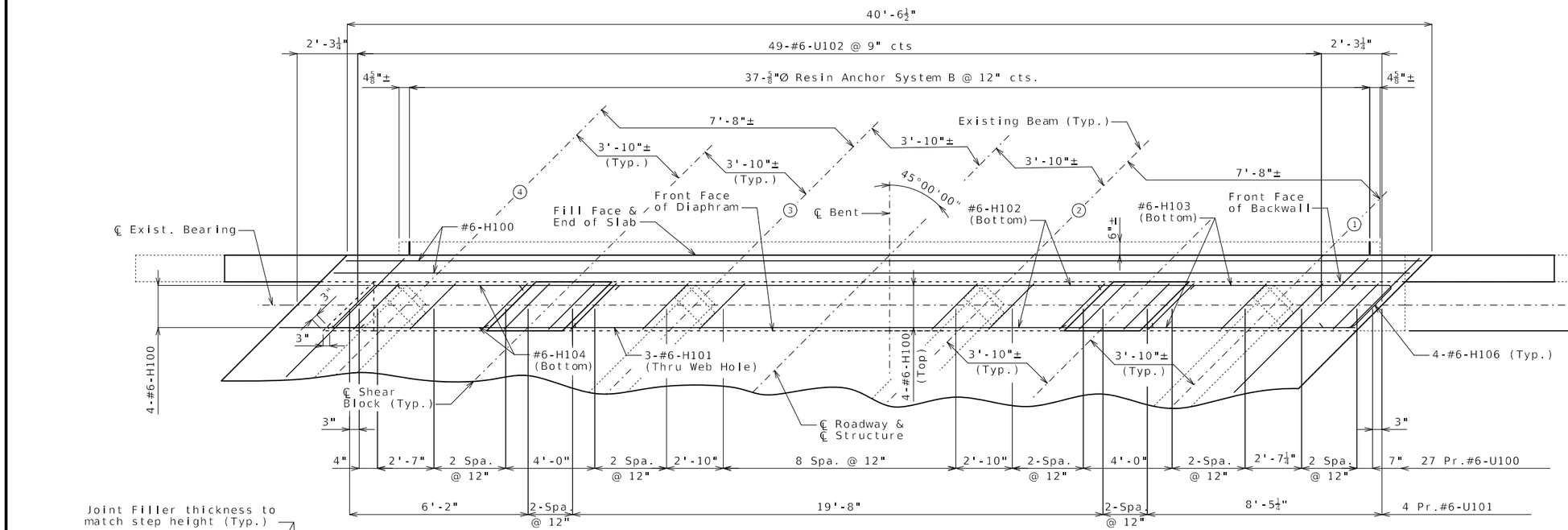
DESCRIPTION	DATE

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



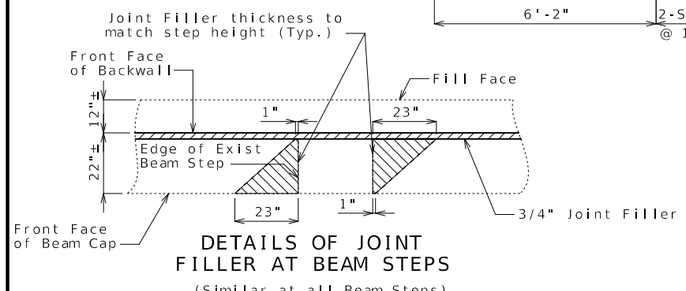
SECTION NEAR END BENT

(Shear Block reinforcement not shown for clarity.)



PART PLAN

(Shear Block reinforcement and Joint Filler adjacent to Beam Cap steps are not shown for clarity.)



DETAILS OF JOINT FILLER AT BEAM STEPS

(Similar at all Beam Steps)

DETAILS OF END BENT NO.1

Notes:

Work this sheet with Sheet No. 5.

All U-Bars shall be placed parallel to CL Roadway

Detailed Apr. 2025
Checked Jun. 2025

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

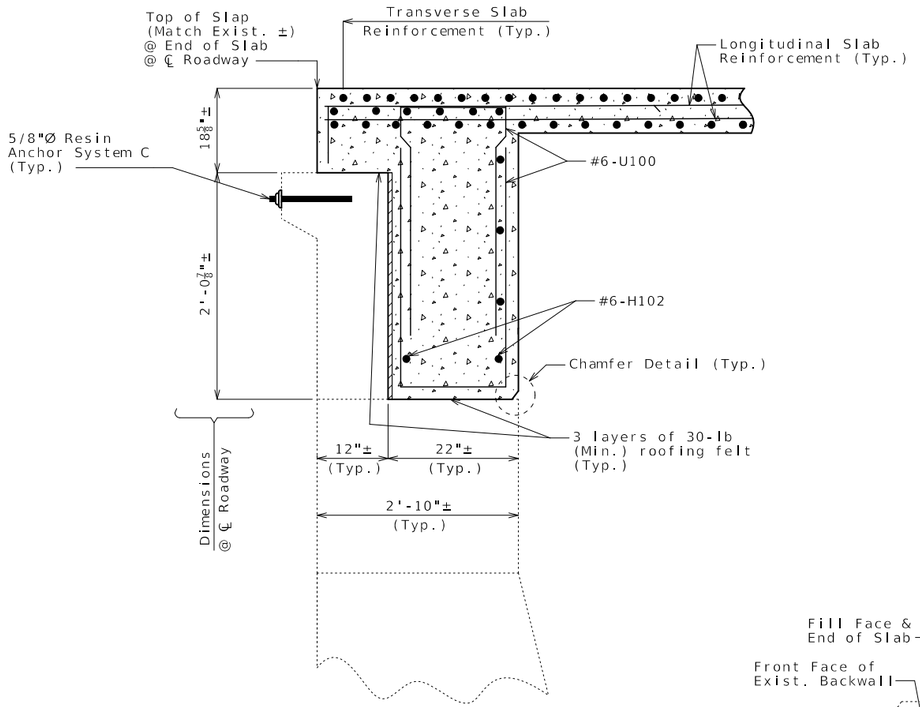
DATE PREPARED: 11/12/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	4

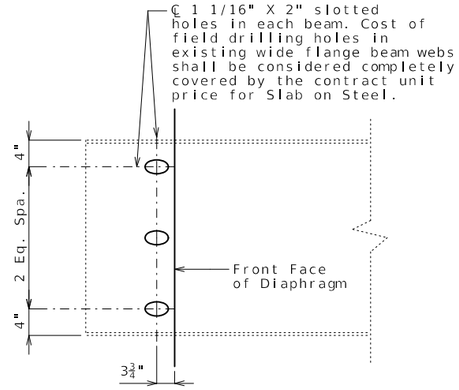
COUNTY: MORGAN
JOB NO.: J5S3536
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: R06051

DESCRIPTION	DATE

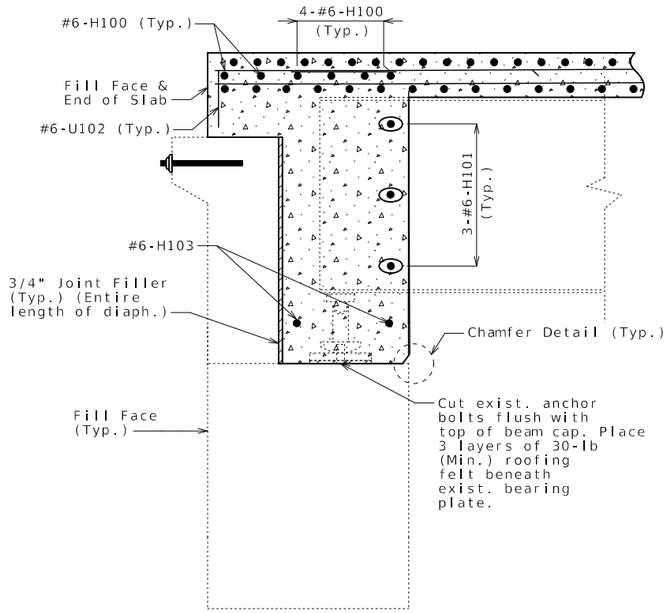
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



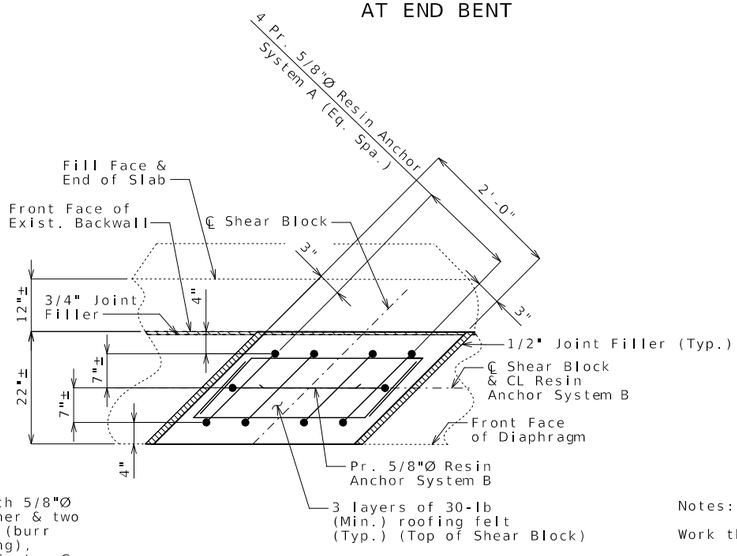
SECTION A-A



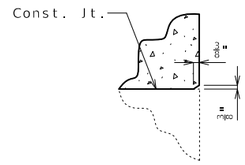
DETAILS OF WEB HOLES
AT END BENT



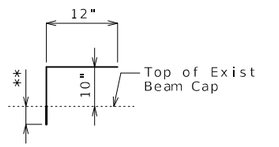
SECTION B-B



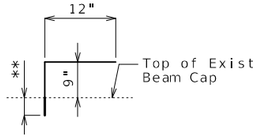
PLAN OF SHEAR BLOCK



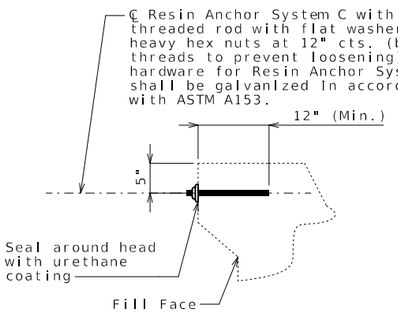
CHAMFER DETAIL



System A
(8 req'd per shear block)
(16 Total for End Bent No. 1)
(Field Bend)



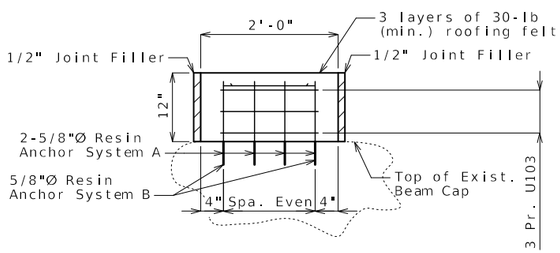
System B
(2 req'd per shear block)
(4 Total for End Bent No. 1)
(Field Bend)



System C
(37 req'd
per bent)

** Manufacturer's recommended
embedment length (5" min.)

DETAILS OF RESIN ANCHOR SYSTEMS



ELEVATION OF SHEAR BLOCK

Notes:

Work this sheet with Sheet No. 4.

The U-bars shall be placed parallel to ℄ of Roadway.

All concrete and reinforcement in the end bent diaphragm, complete in place, will be considered compietely covered by the contract unit price for Slab on Steel, and is included in the Table of Estimated Quantities for Slab on Steel.

Cost of cutting exlsting anchor bolts, temporary support and placing roofing felt and joint filler will be considered completely covered by the contract unit price for Slab on Steel.

The exposed and accessible surfaces of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry film thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for beams shall extend a minimum of one foot outside the face of the beam encasement. Payment for cleaning and coating steel to be encased will be completely covered by the contract unit price for Slab on Steel.

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

Cost of furnishing and installing the resin anchor systems, complete in place, will be considered completely covered by the contract unit price for Slab on Steel.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar as shown shall be substituted for the 5/8"Ø threaded rod for Systems A & B.

For details and reinforcement of Type H Barrier not shown, see Sheets No. 11 & 12.

DETAILS OF END BENTS NO. 1

Detailed Mar. 2025
Checked Jun. 2025

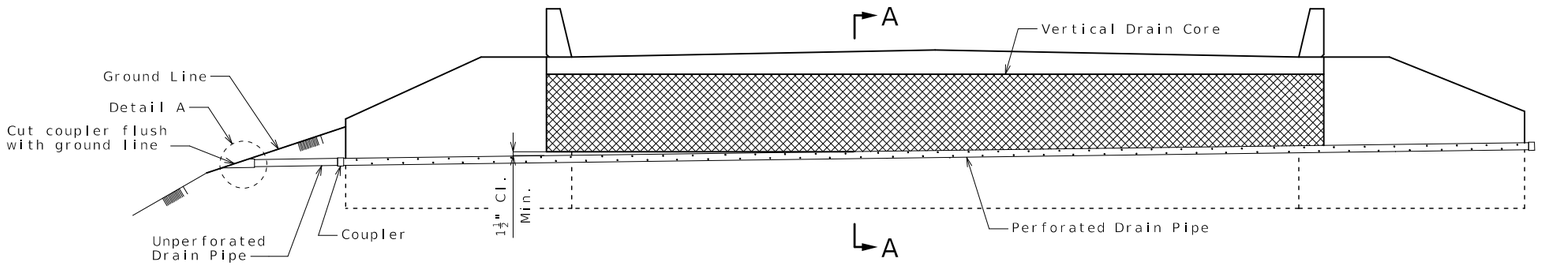
Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

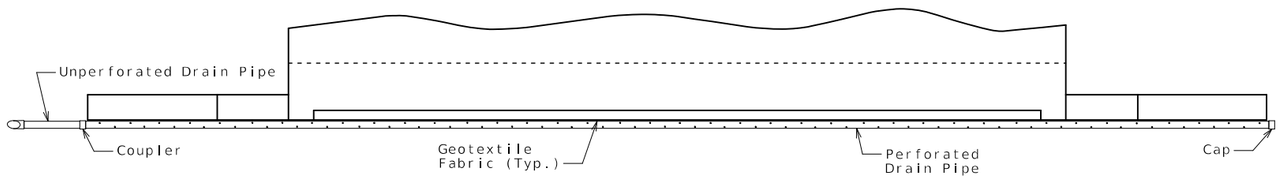
DATE PREPARED 11/12/2025
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY MORGAN
JOB NO. J5S3536
CONTRACT ID.
PROJECT NO.
BRIDGE NO. R06051

DESCRIPTION | DATE

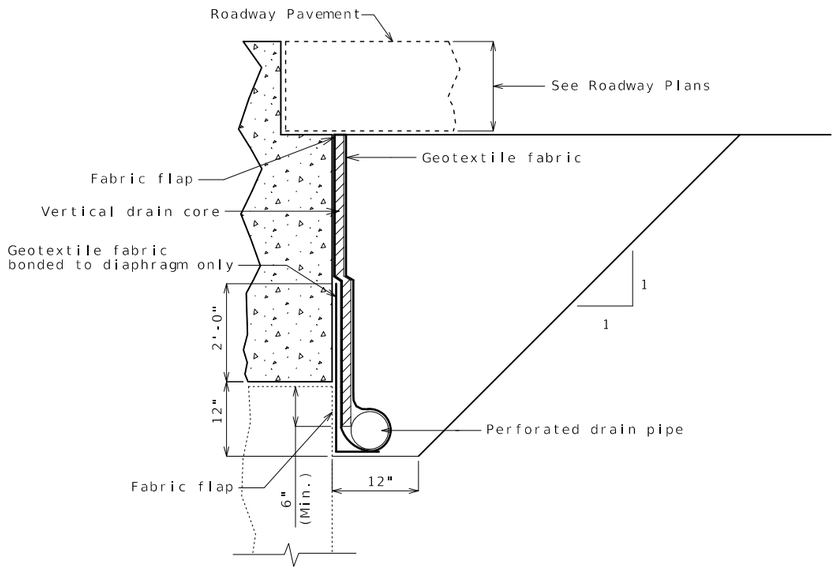
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



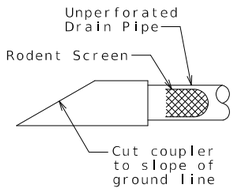
ELEVATION OF END BENT



PLAN OF END BENT



PART SECTION A-A



DETAIL A

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.

Cost of furnishing and installing Porous Backfill shall be considered completely incidental to other items. No direct payment will be made.

VERTICAL DRAIN AT END BENT NO. 4

(Squared end bent shown, skewed end bent similar)

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 11/12/2025

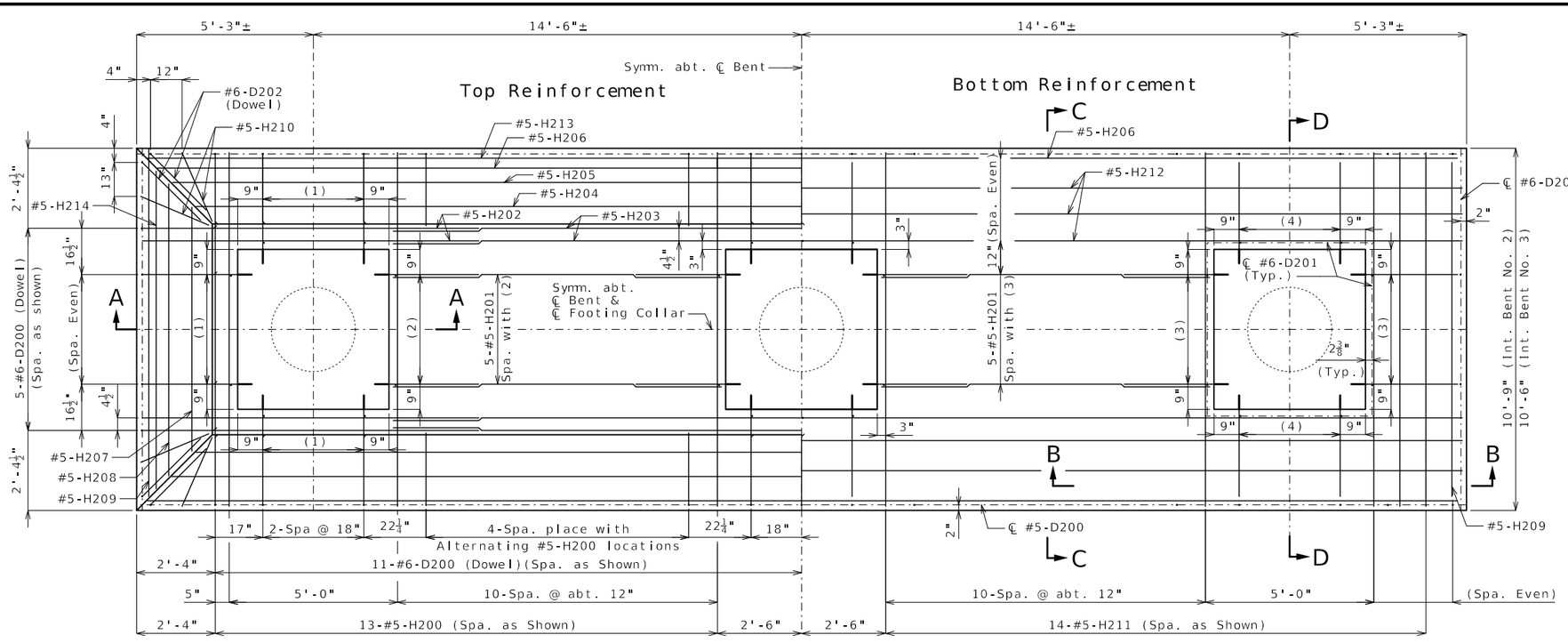
ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	6

COUNTY: MORGAN
JOB NO.: J5S3536
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: R06051

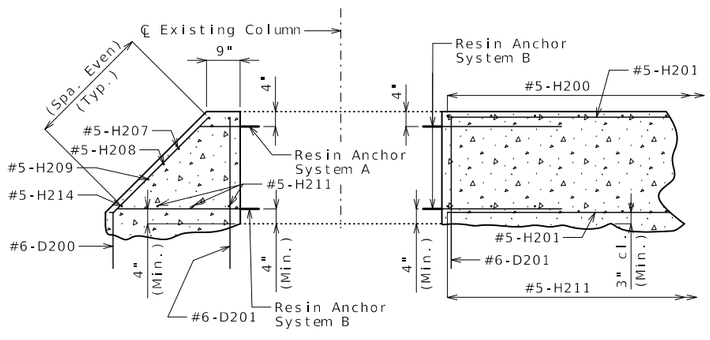
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

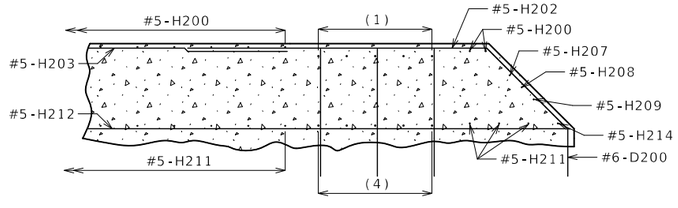


PLAN

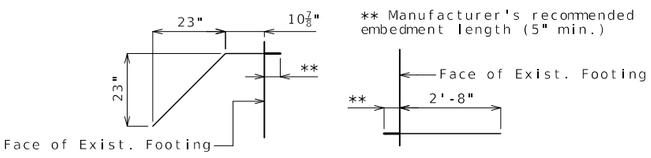


SECTION A-A

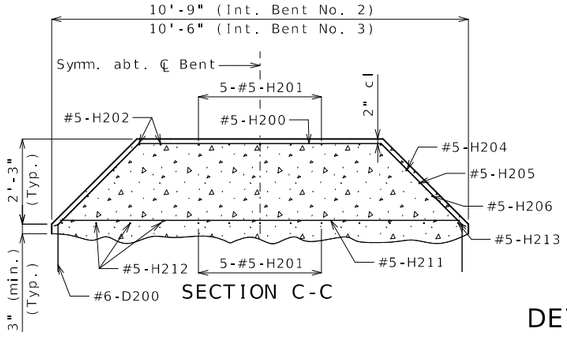
(1) 5-3/4"∅ Resin Anchor System A (Spa. Even)(Typ.)
(2) 5-3/4"∅ Resin Anchor System B (Spa. Even)(Typ.)
(3) 5-3/4"∅ Resin Anchor System B (Spa. Even) & 3-#6-D201 Dowels @ alternating Resin Anchor System B locations (Typ.)
(4) 5-3/4"∅ Resin Anchor System B (Spa. Even) & 3-#6-D201 Dowels @ alternating Resin Anchor System B locations (Typ.)



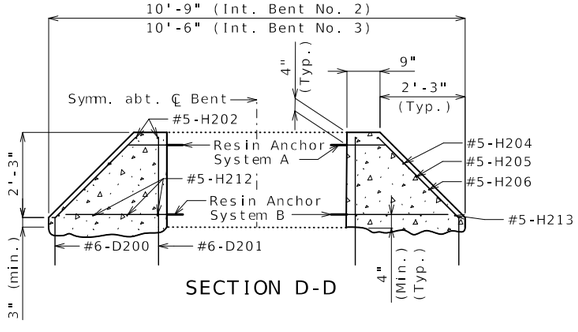
SECTION B-B



DETAILS OF RESIN ANCHOR SYSTEMS



SECTION C-C



SECTION D-D

Notes

All deteriorated concrete shall be removed prior to installing new concrete. All reinforcing steel exposed shall have a minimum of 1 Inch beyond the Inside edge removed.

Bar marks for Intermediate Bent No. 2 are shown, bar marks for Intermediate Bent No. 3 are the same but are in the 300 series.

Sandblasting shall be required on existing concrete surface that will be In contract with new concrete,

The cost of removing deteriorated concrete and installing new concrete, complete in place, will be considered completely covered by the contract unit price for Class B Concrete.

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

Cost of furnishing and Installing the resin anchor system, complete in place, with be considered completely covered by the contract unit price for Class B Concrete.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5 Inches.

#6 ASTM A615 Grade 60 reinforcing bar may be substituted for the 3/4" Ø threaded rod.

#6-D Bars (Dowels) shall set into sound rock 12" minimum and shall have a tight fit into drilled holes. Trim excess dowels lengths as necessary.

DETAILS OF FOOTING COLLAR @ INTERMEDIATE BENT NO. 2

(Intermediate Bent No. 3 is similar except as shown)

Detailed Oct. 2025
Checked Oct. 2025

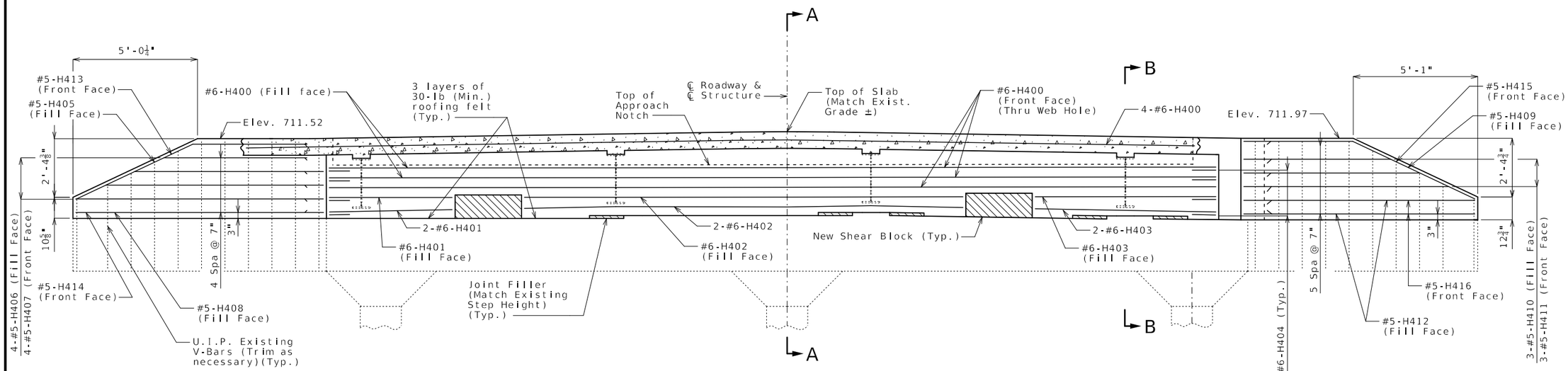
Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/12/2025
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 7
COUNTY MORGAN
JOB NO. J5S3536
CONTRACT ID.
PROJECT NO.
BRIDGE NO. R06051

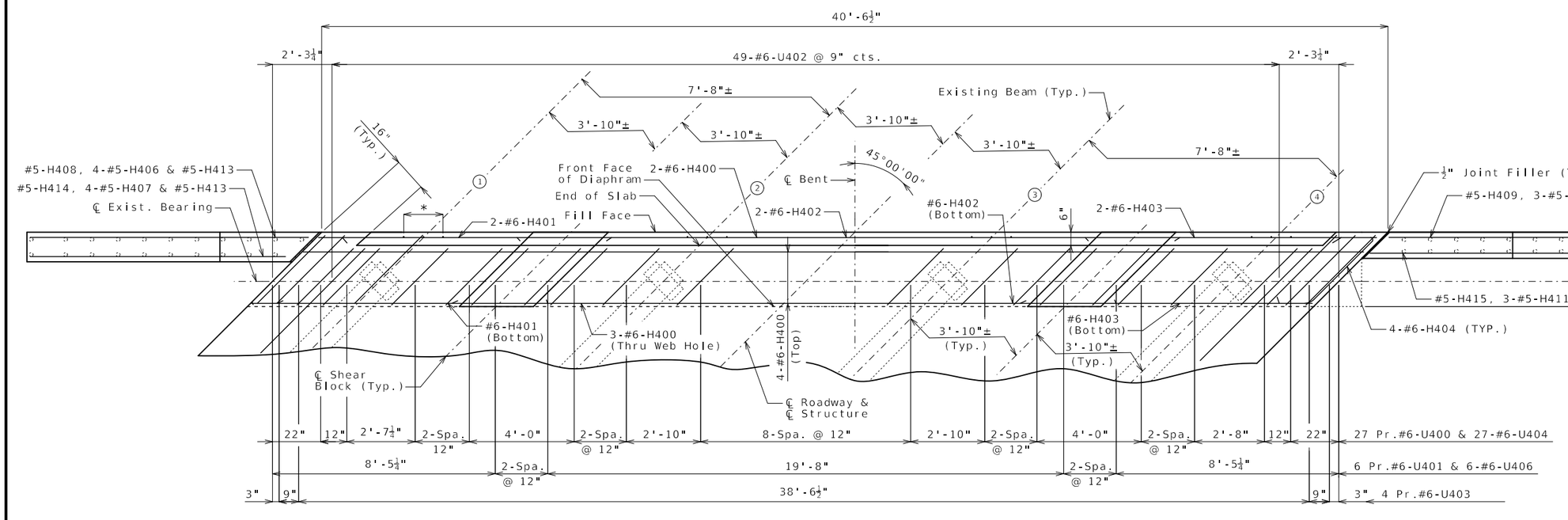
DESCRIPTION | DATE

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



SECTION NEAR END BENT

(Shear Block reinforcement not shown for clarity)



PART PLAN

(Shear Block reinforcement and Joint Filler adjacent to Beam Cap Steps are not shown for clarity)

∗ 3-#6-V400 centered behind beams @ 9" cts.

DETAILS OF END BENT NO. 4

Note:

Work this sheet with Sheet No. 9.

All U-Bars shall be placed parallel to CL Roadway

Detailed Apr. 2025
Checked Jun. 2025

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/12/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	8

COUNTY MORGAN

JOB NO. J5S3536

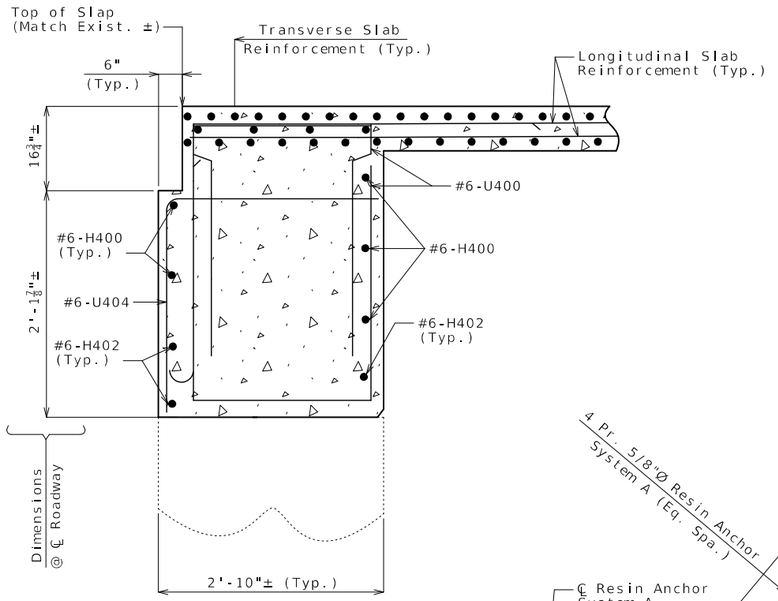
CONTRACT ID.

PROJECT NO.

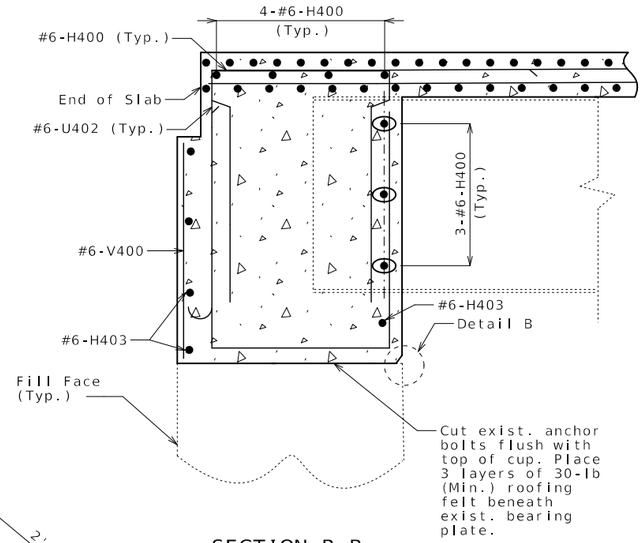
BRIDGE NO. R06051

DESCRIPTION	DATE

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

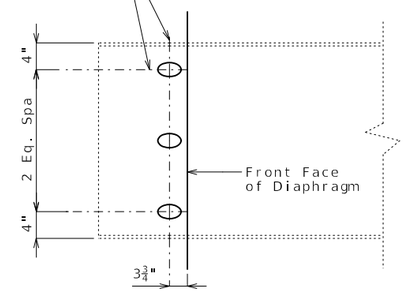


SECTION A-A

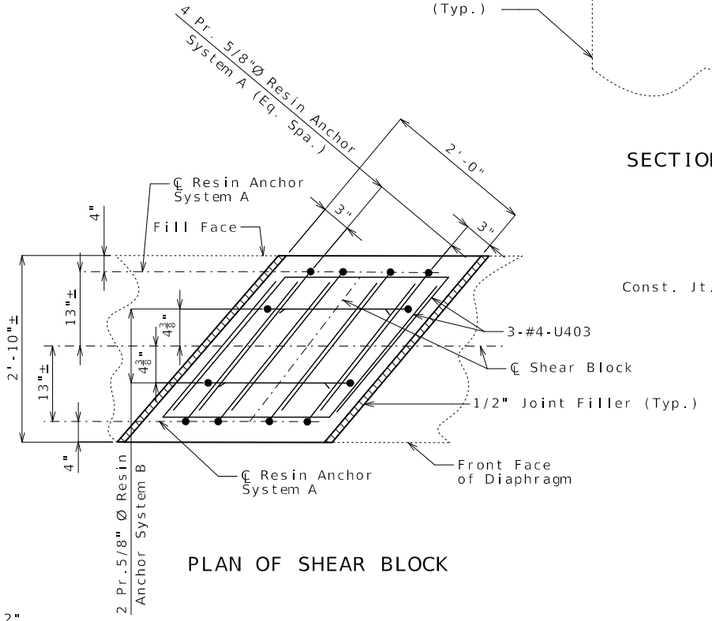


SECTION B-B

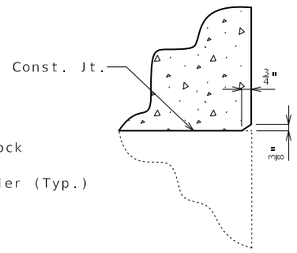
℄ 1 1/16" X 2" slotted holes in each beam. Cost of field drilling holes in existing wide flange beam webs shall be considered completely covered by the contract unit prise for Slab on Steel.



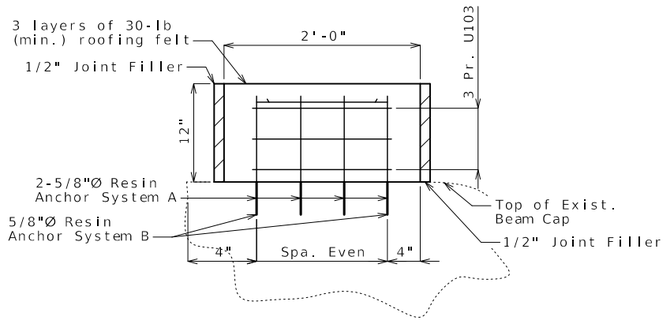
DETAILS OF WEB HOLES AT END BENT



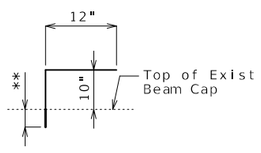
PLAN OF SHEAR BLOCK



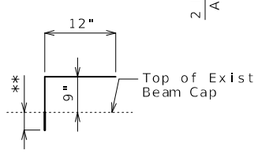
DETAIL B



ELEVATION OF SHEAR BLOCK



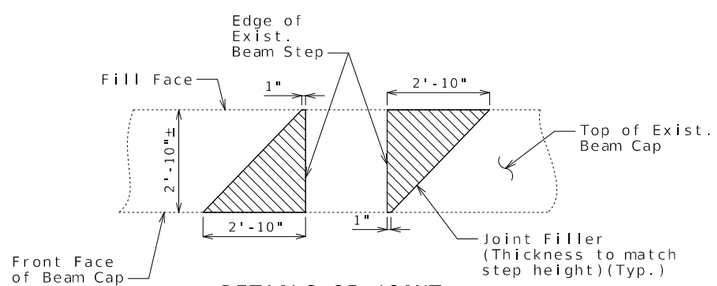
System A
(8 req'd per shear block)
(16 Total for End Bent No. 4)
(Field Bend)



System B
(4 req'd per shear block)
(8 Total for End Bent No. 4)
(Field Bend)

** Manufacturer's recommended embedment length (5" min.)

DETAILS OF RESIN ANCHOR SYSTEMS



DETAILS OF JOINT FILLER AT BEAM STEPS

(Similar at all Beam Steps)

Notes:

Work this sheet with Sheet No. 8.

The U-bars shall be placed parallel to ℄ of Roadway.

All concrete and reinforcement in the end bent diaphragm, complete in place, will be considered compietely covered by the contract unit price for Slab on Steel, and is included in the Table of Estimated Quantities for Slab on Steel.

Cost of cutting exlsting anchor bolts, temporary support and placing roofing felt and joint filler will be considered completely covered by the contract unit price for Slab on Steel.

The exposed and accessible surfaces of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry film thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for beams shall extend a minimum of one foot outside the face of the beam encasement. Payment for cleaning and coating steel to be encased will be completely covered by the contract unit price for Slab on Steel.

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

Cost of furnishing and installing the resin anchor systems, complete in place, will be considered completely covered by the contract unit price for Slab on Steel.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar as shown shall be substituted for the 5/8"Ø threaded rod for Systems A & B.

For details and reinforcement of Type H Barrier not shown, see Sheets No. 11 & 12.

DETAILS OF END BENTS NO. 4

Detailed Mar. 2025
Checked Jun. 2025

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/12/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	9

COUNTY
MORGAN

JOB NO.
J5S3536

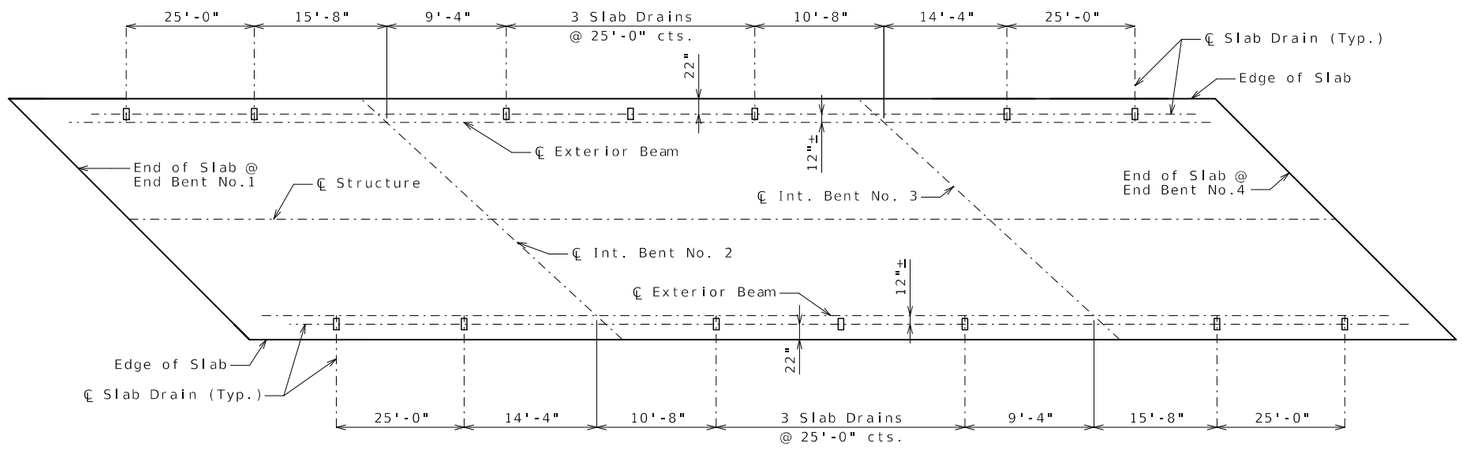
CONTRACT ID.

PROJECT NO.

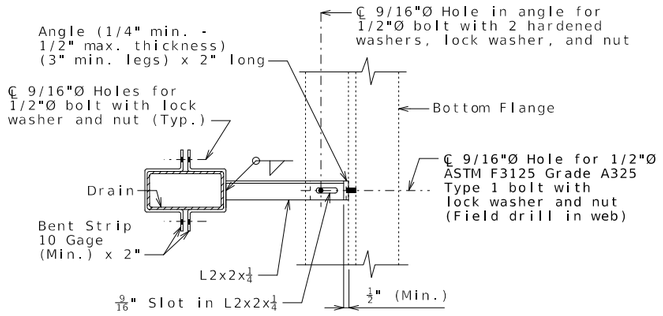
BRIDGE NO.
R06051

DESCRIPTION	DATE

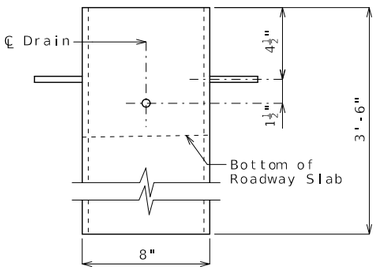
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



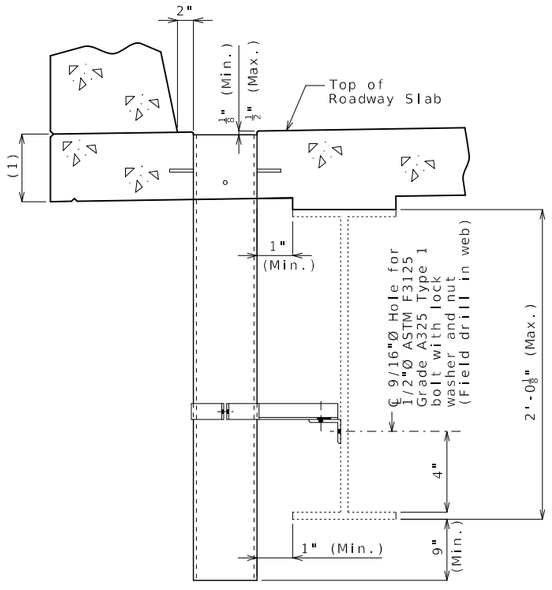
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



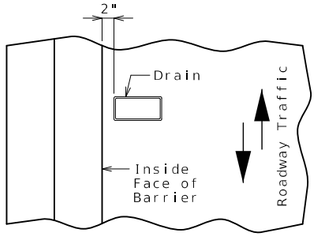
PART SECTION SHOWING BRACKET ASSEMBLY



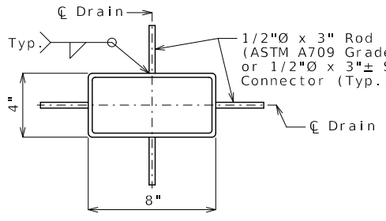
ELEVATION OF DRAIN



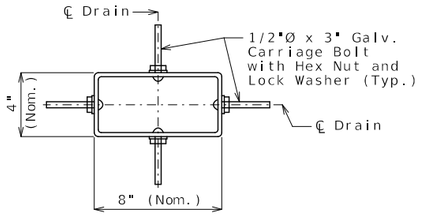
PART SECTION NEAR DRAIN



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 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, except as shown.

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

The bolt hole for the bracket assembly attachment shall be shifted to the minimum extent necessary to field drill in the existing web.

(1) See front sheet for slab thickness.

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 recommended by the manufacturer to ensure a smooth, chip free cut.

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ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	10

COUNTY MORGAN

JOB NO. J5S3536

CONTRACT ID.

PROJECT NO.

BRIDGE NO. R06051

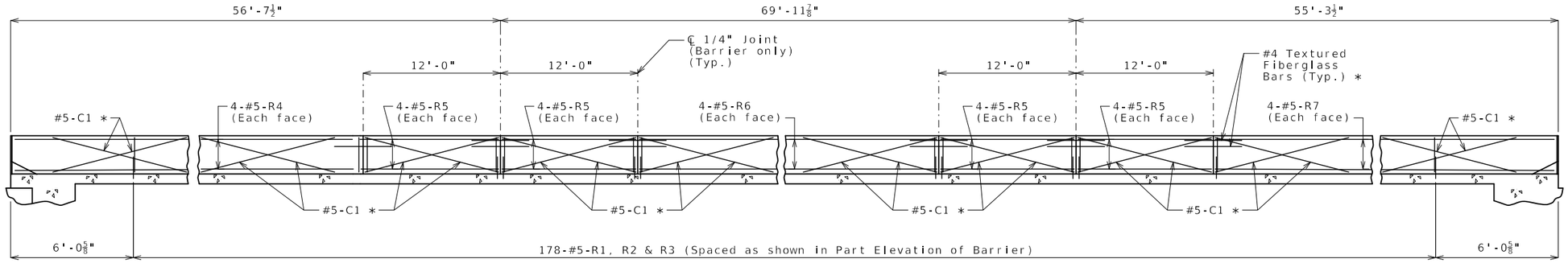
DESCRIPTION	DATE

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

Detailed Jun. 2025
Checked Jun. 2025

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

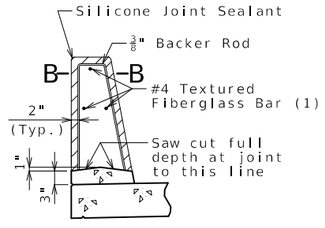
SLAB DRAINS



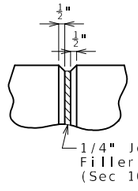
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar by 180° rotational)

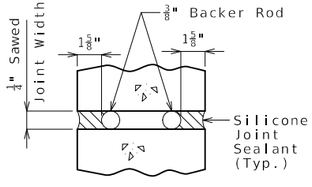
Longitudinal dimensions are horizontal.



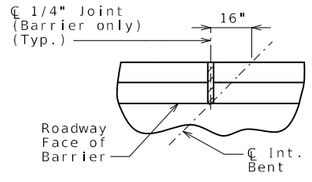
SECTION THRU SAW CUT JOINT



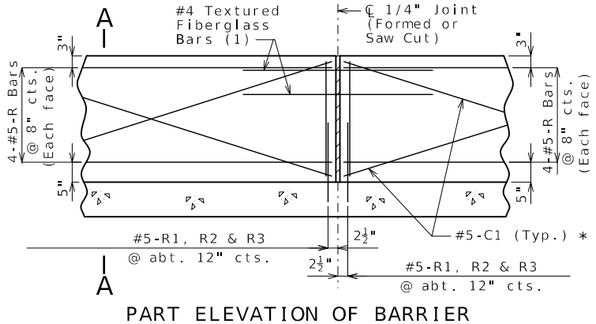
PART ELEVATION AT FORMED JOINT



SECTION B-B

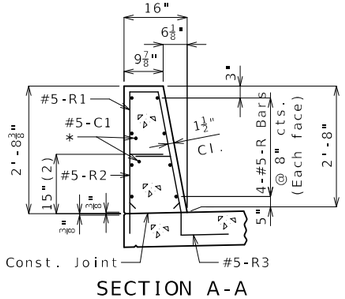


PART PLAN SHOWING JOINT LOCATION



PART ELEVATION OF BARRIER

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

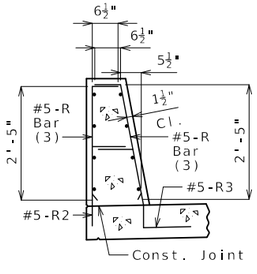


SECTION A-A

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

The cross-sectional area above the slab is 2.89 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.)

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 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 H 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 slab to end of slab.

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 H 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.

Plastic waterstop shall not be used with saw cut joints.

TYPE H BARRIER

Detailed Mar. 2025
Checked Jun. 2025

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ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	11

COUNTY MORGAN

JOB NO. J5S3536

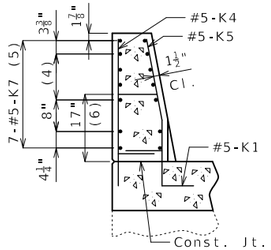
CONTRACT ID.

PROJECT NO.

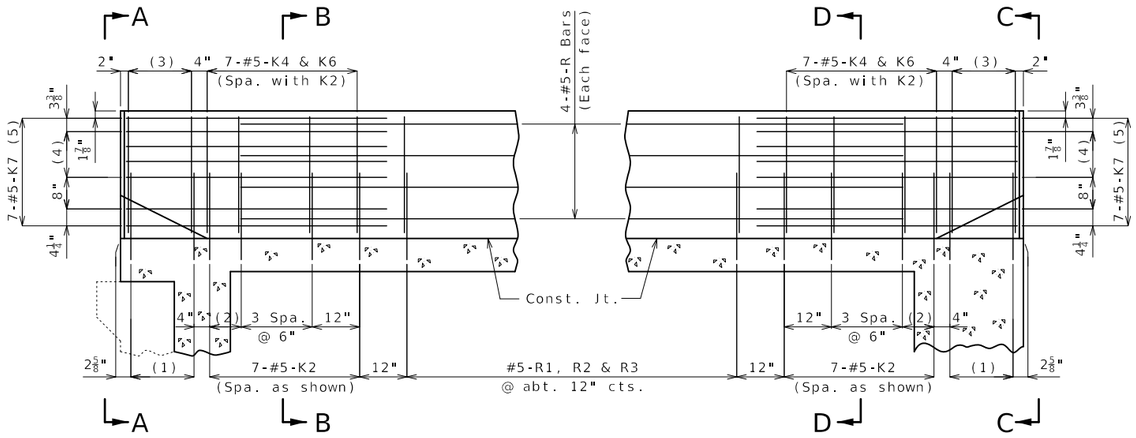
BRIDGE NO. R06051

DESCRIPTION	DATE

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



ELEVATION A-A



PART ELEVATION

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

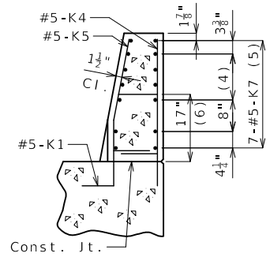
(2) 2 Spaces @ 4"

(3) 5-#5-K4 and 5-#5-K5, spaced with K1

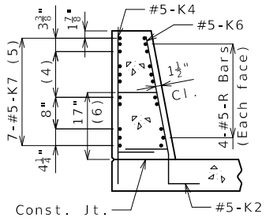
(4) 3 Spaces @ $3\frac{13}{16}$"

(5) Spaced as shown, each face

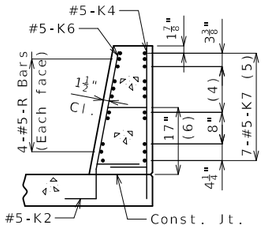
(6) To top of bar



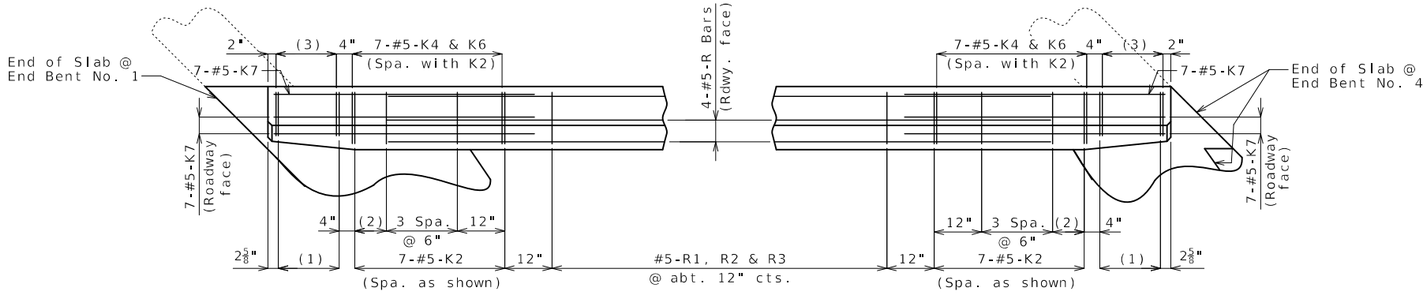
ELEVATION C-C



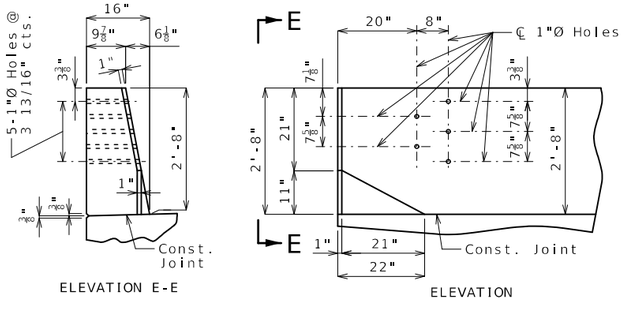
SECTION B-B



SECTION D-D



PART 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 H Barrier.

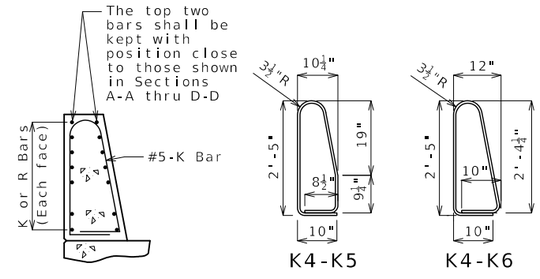
Reinforcing Steel:

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

Use a minimum lap of 3'-1" between K7 bars and R bars.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)



PERMISSIBLE ALTERNATE SHAPES

(Other K bars not shown for clarity)

The K4-K5 and K4-K6 bar combination may be furnished as one bar as shown, at the contractor's option.

All dimensions are out to out.

Detailed Mar. 2025
Checked Jun. 2025

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TRENTON B. CRAWFORD
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PROFESSIONAL ENGINEER
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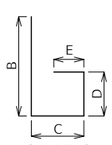
ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	12

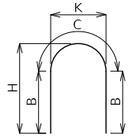
COUNTY: MORGAN
JOB NO.: J5S3536
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: R06051

DESCRIPTION | DATE

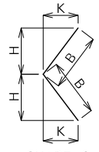
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



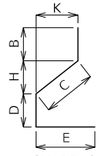
SHAPE 6
or 6S



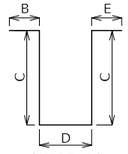
SHAPE 7



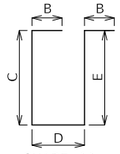
SHAPE 8
or 8S



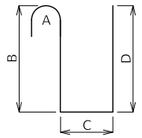
SHAPE 9
or 9S



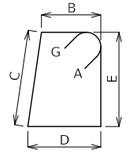
SHAPE 10
or 10S



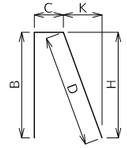
SHAPE 11
or 11S



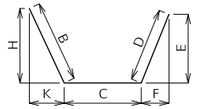
SHAPE 12



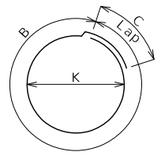
SHAPE 13S



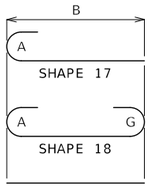
SHAPE 14
or 14S



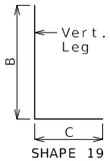
SHAPE 15
or 15S



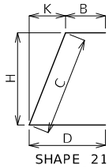
SHAPE 16



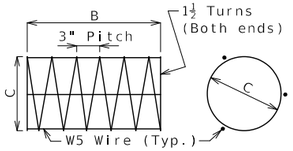
SHAPE 17
SHAPE 18
SHAPE 20



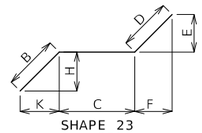
SHAPE 19
or 19S



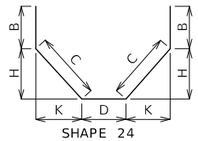
SHAPE 21
or 21S



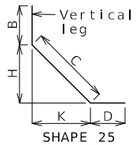
SHAPE 22



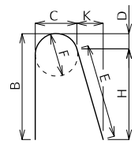
SHAPE 23
or 23S



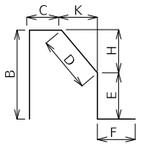
SHAPE 24
or 24S



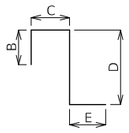
SHAPE 25
or 25S



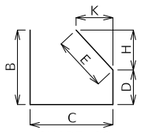
SHAPE 26



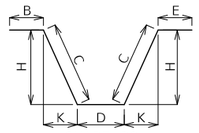
SHAPE 27S



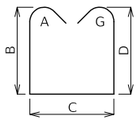
SHAPE 28
or 28S



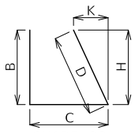
SHAPE 29
or 29S



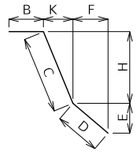
SHAPE 30
or 30S



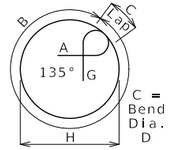
SHAPE 31S



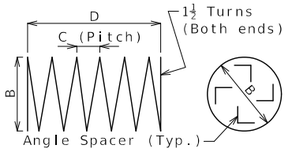
SHAPE 32
or 32S



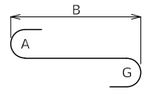
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

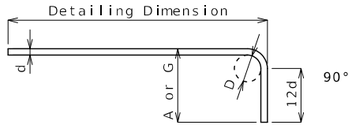


SHAPE 36

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"	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"	36¾"	28½"

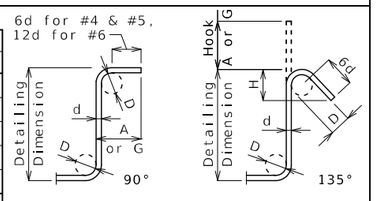


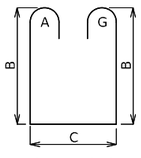
Stirrup Pin Bend Shapes (S)

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"	5¾"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

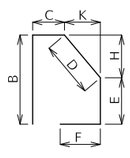
Applicable for all grades of steel.

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





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	
		Plain	Epoxy	Slab	Barrier	Slip Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0
	4	0	0	67	0	0	0	67
	5	0	3,252	14,594	7,781	501	0	26,128
	6	0	1,472	36,587	0	0	0	38,059
	7	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0
	9	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0
By Type		0	4,724	51,248	7,781	501	0	64,254

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 11/12/2025
ROUTE: W | STATE: MO
DISTRICT: BR | SHEET NO.: 13
COUNTY: MORGAN
JOB NO.: J5S3536
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: R06051

DESCRIPTION | DATE

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed May. 2025
Checked Jun. 2025

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

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													
26	5 H200	FOOTING COLLAR		15		3 0.75	6 1.00	3 0.75	2 2.00	2 2.00	2 2.00	2 2.00	12 3	12 2	330
20	5 H201	FOOTING COLLAR		20		9 9.00							9 9	9 9	203
8	5 H202	FOOTING COLLAR		15		3 0.75	7 11.00				2 2.00	2 2.00	11 0	10 10	90
4	5 H203	FOOTING COLLAR		20		24 3.00							24 3	24 3	101
2	5 H204	FOOTING COLLAR		20		35 9.00							35 9	35 9	75
2	5 H205	FOOTING COLLAR		20		36 11.00							36 11	36 11	77
2	5 H206	FOOTING COLLAR		20		38 0.00							38	38	79
2	5 H207	FOOTING COLLAR		20		7 0.00							7	7	15
2	5 H208	FOOTING COLLAR		20		8 2.00							8 2	8 2	17
2	5 H209	FOOTING COLLAR		20		9 3.00							9 3	9 3	19
8	5 H210	FOOTING COLLAR		20		3 0.00							3	3	25
28	5 H211	FOOTING COLLAR		20		10 2.00							10 2	10 2	297
6	5 H212	FOOTING COLLAR		20		39 1.00							39 1	39 1	245
2	5 H213	FOOTING COLLAR		20		38 11.00							38 11	38 11	81
2	5 H214	FOOTING COLLAR		20		10 2.00							10 2	10 2	21
52	6 D200	FOOTING COLLAR		15		2 2.75	3 0.00				19.00	19.00	5 3	5 1	397
36	6 D201	FOOTING COLLAR		20		5 0.00							5	5	270
8	6 D202	FOOTING COLLAR		15		2 3.25	3 8.00				22.25	15.75	5 11	5 9	69
		Int Bent 3													
26	5 H300	FOOTING COLLAR		15		3 0.75	5 10.75				2 2.00	2 2.00	9	8 10	240
20	5 H301	FOOTING COLLAR		20		9 9.00							9 9	9 9	203
8	5 H302	FOOTING COLLAR		15		3 0.75	7 11.00				2 2.00	2 2.00	11	10 10	90
4	5 H303	FOOTING COLLAR		20		24 3.00							24 3	24 3	101
2	5 H304	FOOTING COLLAR		20		35 9.00							35 9	35 9	75
2	5 H305	FOOTING COLLAR		20		36 11.00							36 11	36 11	77
2	5 H306	FOOTING COLLAR		20		38 0.00							38	38	79
2	5 H307	FOOTING COLLAR		20		6 9.00							6 9	6 9	14
2	5 H308	FOOTING COLLAR		20		7 11.00							7 11	7 11	17
2	5 H309	FOOTING COLLAR		20		9 0.00							9	9	19
8	5 H310	FOOTING COLLAR		20		3 0.00							3	3	25
28	5 H311	FOOTING COLLAR		20		9 11.00							9 11	9 11	290
6	5 H312	FOOTING COLLAR		20		39 1.00							39 1	39 1	245
2	5 H313	FOOTING COLLAR		20		38 11.00							38 11	38 11	81
2	5 H314	FOOTING COLLAR		20		9 11.00							9 11	9 11	21
52	6 D300	FOOTING COLLAR		15		2 2.75	3 0.00				19.00	19.00	5 3	5 1	397
36	6 D301	FOOTING COLLAR		20		5 0.00							5	5	270
8	6 D302	FOOTING COLLAR		15		2 3.25	3 8.00				22.25	15.75	5 11	5 9	69
		Superstructure													
		End Bent 1													
6	6 H100	DIAPHRAGM	E	20		40 2.00							40 2	40 2	362
3	6 H101	DIAPHRAGM	E	20		37 11.00							37 11	37 11	171
2	6 H102	DIAPHRAGM	E	20		18 6.00							18 6	18 6	56
2	6 H103	DIAPHRAGM	E	20		7 7.00							7 7	7 7	23
2	6 H104	DIAPHRAGM	E	20		5 4.00							5 4	5 4	16
4	6 H105	DIAPHRAGM	E	21S		12.00	22.75	12.00			16.00	16.00	3 11	3 2	19
4	6 H106	DIAPHRAGM	E	21S		12.00	22.75	12.00			16.00	16.00	3 11	3 2	19
54	6 U100	DIAPHRAGM	E	10S			2 10.00	2 1.00					7 9	7 5	602
6	6 U101	DIAPHRAGM	E	10S			2 1.00	2 1.00					6 3	5 11	53
49	6 U102	DIAPHRAGM	E	19S		7.00	5 8.00						6 3	6 1	448
12	6 U103	SHEAR BLOCK	E	21S		22.00	2 3.50	22.00			19.50	19.50	6	5 3	95
		End Bent 4													
9	6 H400	DIAPHRAGM	E	20		40 2.00							40 2	40 2	543
3	6 H401	DIAPHRAGM	E	20		7 8.00							7 8	7 8	35
3	6 H402	DIAPHRAGM	E	20		18 6.00							18 6	18 6	83
3	6 H403	DIAPHRAGM	E	20		7 8.00							7 8	7 8	35
8	6 H404	DIAPHRAGM	E	21S		12.00	3 4.75	12.00			2 4.75	2 4.75	5 5	4 8	56
1	5 H405	WING	E	15S		5 5.50	2 8.75				2 4.00	4 11.25	8 2	8 1	8
4	5 H406	WING	E	20	1	7 7.00							7 7	7 7	
		Incr. = 15.000"				3 10.00							3 10	3 10	24
4	5 H407	WING	E	20	1	6 10.00							6 10	6 10	
		Incr. = 14.375"				3 3.00							3 3	3 3	21
1	5 H408	WING	E	20		7 8.00							7 8	7 8	8

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
1	5 H409	WING	E	15S		5 6.25	3 0.25				2 4.25	5 0.00	8 7	8 5	9
3	5 H410	WING	E	20	1	7 9.00							7 9	7 9	
		Incr. = 19.000"				4 7.00							4 7	4 7	19
3	5 H411	WING	E	20	1	7 9.25							7 9	7 9	
		Incr. = 15.000"				5 3.00							5 3	5 3	20
2	5 H412	WING	E	20		8 0.00							8	8	17
1	5 H413	WING	E	15S		5 5.50	2 0.75				2 4.00	4 11.25	7 6	7 5	8
1	5 H414	WING	E	20		7 0.00							7	7	7
1	5 H415	WING	E	15S		5 6.25	3 8.25				2 4.25	5 0.00	9 3	9 1	9
1	5 H416	WING	E	20		7 0.00							7	7	7
54	6 U400	DIAPHRAGM	E	10S			2 10.00	2 11.25					8 7	8 3	669
12	6 U401	DIAPHRAGM	E	10S			2 1.00	2 11.00					7 1	6 9	122
49	6 U402	DIAPHRAGM	E	19S		3 0.00	4 1.00						7 1	6 11	509
12	4 U403	SHEAR BLOCK	E	21S		3 3.00	2 4.00	3 3.00			19.75	19.75	8 10	8 5	67
27	6 U404	DIAPHRAGM	E	19S		22.00	2 7.00						4 5	4 3	172
8	6 U405	DIAPHRAGM	E	10			2 10.00	3 7.75					9 4	9	108
6	6 U406	DIAPHRAGM	E	19S		10.00	2 7.00						3 5	3 3	29
		Slab													
228	5 S1	SLAB	E	20		48 2.00							48 2	48 2	11,454
88	5 S2	SLAB	E	20		32 6.00							32 6	32 6	2,983
616	6 S3	SLAB	E	20		28 5.00							28 5	28 5	26,292
212	6 S4	SLAB	E	20	4	2 0.00							2	2	
		Incr. = 6.000"				28 0.00							28	28	4,776
544	6 S5	SLAB	E	10S		6.00	4.25	6.00	6.00				2 3	1 7	1,294
		Barrier													
		Type H													
20	5 K1	BARRIER	E	27S		21.00	9.25	12.25	15.25	12.00	5.25	11.00	5 10	5 6	115
28	5 K2	BARRIER	E	27S		21.00	9.25	17.25	3.50	12.00	17.00	3.25	5 3	4 11	144
48	5 K4	BARRIER	E	19S		2 5.00	10.00						3 3	3 2	159
20	5 K5	BARRIER	E	38S				19.25	9.50	8.25	18.75	4.25	3 1	3	63
28	5 K6	BARRIER	E	21S			2 5.00	10.00			2 4.25	6.00	3 3	3 2	92
56	5 K7	BARRIER	E	20		5 6.00							5 6	5 6	321
356	5 R1	BARRIER	E	14S		2 5.00	6.50	2 5.50			2 5.00	5.50	5 5	5 3	1,949
356	5 R2	BARRIER	E	19S		19.00	9.50						2 5	2 3	835
356	5 R3	BARRIER	E	27S			9.50	15.25	3.50	12.00	15.00	3.00	3 4	3 2	1,176
16	5 R4	BARRIER	E	20		42 3.00							42 3	42 3	705
64	5 R5	BARRIER	E	20		11 8.00							11 8	11 8	779
16	5 R6	BARRIER	E	20		45 8.00							45 8	45 8	762
16	5 R7	BARRIER	E	20		40 10.00							40 10	40 10	681
		Slip-Form													
40	5 C1	SLIP FORM	E	20		12 0.00							12	12	501

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. 13.

Detailed May. 2025
Checked Jun. 2025

All bars shall be ASTM A615 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

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

STATE OF MISSOURI
TRENTON B. CRAWFORD
NUMBER PE-2012018053
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/12/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	14

COUNTY
MORGAN

JOB NO.
J5S3536

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
R06051

DESCRIPTION	DATE

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

DESIGN DESIGNATION

A.A.D.T. - 2022 = 654
A.A.D.T. - 2042 = 948
T = 16%
V = 55 M.P.H.

FUNCTIONAL CLASSIFICATION - MAJOR COLLECTOR

NO NEW RIGHT OF WAY OR EASEMENTS REQUIRED

DISCLAIMER
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CONVENTIONAL SYMBOLS
(USED IN PLANS)

	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	FO
OVERHEAD CABLE TV	-OTV-	OTV
UNDERGROUND CABLE TV	-UTV-	UTV
OVERHEAD TELEPHONE	-OT-	OT
UNDERGROUND TELEPHONE	-UT-	UT
OVERHEAD POWER	-OE-	OE
UNDERGROUND POWER	-UE-	UE
SANITARY SEWER	-S-	S
STORM SEWER	-SS-	SS
GAS	-G-	G
WATER	-W-	W
MANHOLE	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	

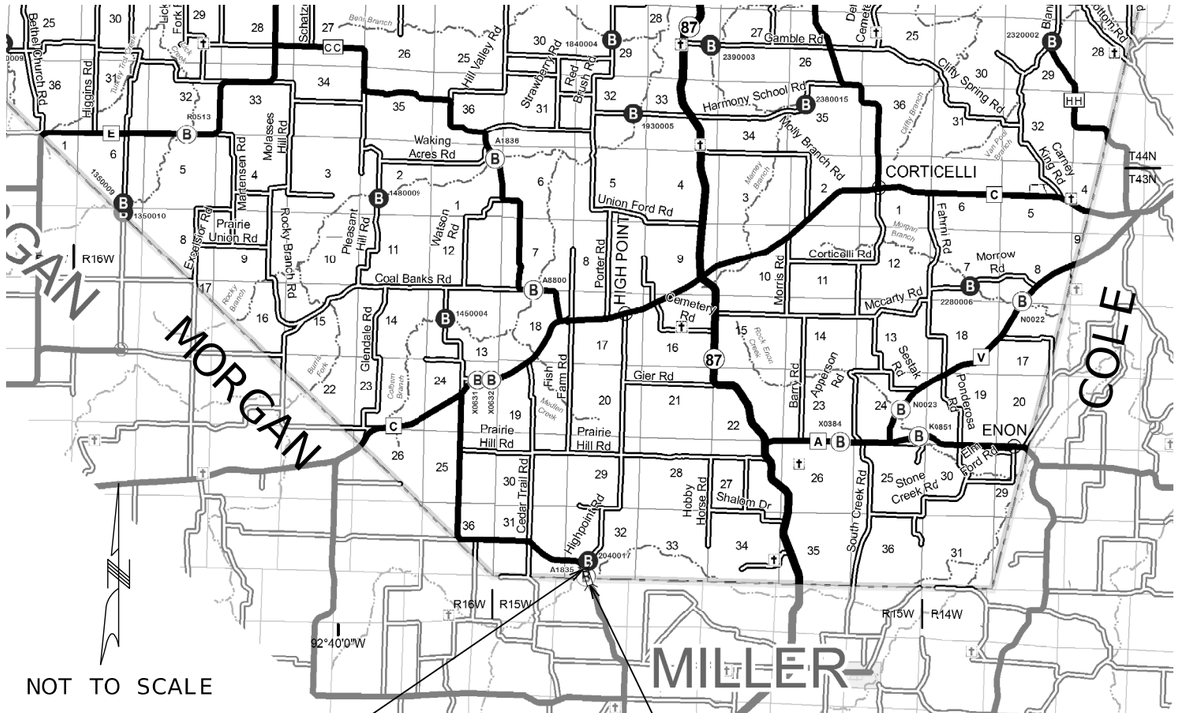
NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

MONITEAU COUNTY

KEY MAP
LOCATION OF MONITEAU COUNTY



PROJECT LIMITS
ROUTE CC OVER SOUTH MOREAU CREEK
BRIDGE REDECKING

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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. 213+06
END OF PROJECT	STA. 217+15
APPARENT LENGTH	409.00 FEET
EQUATIONS AND EXCEPTIONS:	
TOTAL CORRECTIONS	0.00 FEET
NET LENGTH OF PROJECT	409 FEET
STATE LENGTH	0.077 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0.5 ACRES

STATE OF MISSOURI
ALISON N. GRAVES
NUMBER PE-2011015778
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

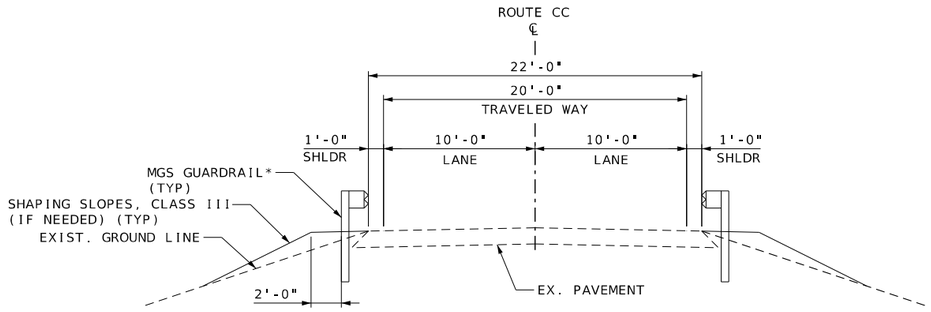
DATE PREPARED: 9/15/2025
ROUTE: CC | STATE: MO
DISTRICT: CD | SHEET NO.: 1
COUNTY: MONITEAU
JOB NO.: J5S3555
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION	DATE

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

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

5220 Oakland Ave.
St. Louis, MO 63110
(314) 863-5570
CDI CIVIL DESIGN INC.
Missouri State Certificate of Authority #2002006804

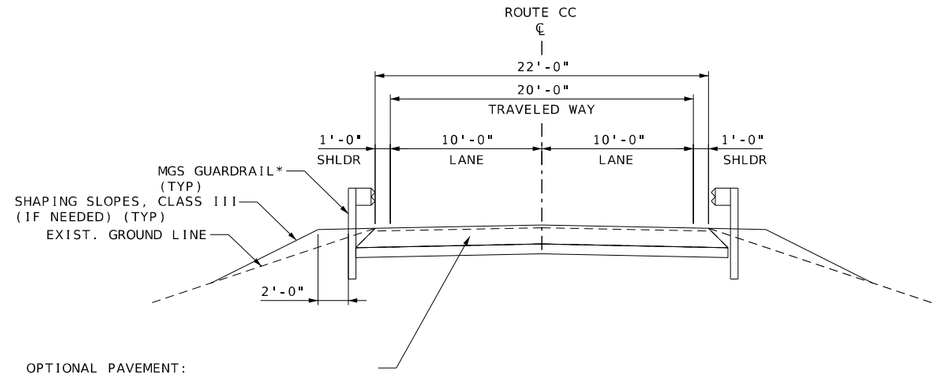


TYPICAL SECTION
ROUTE CC

STA. 213+06 TO STA. 213+76
STA. 216+24 TO STA. 217+15
* SEE PLAN SHEET FOR GUARDRAIL STATION RANGES

APPLICATION RATES:

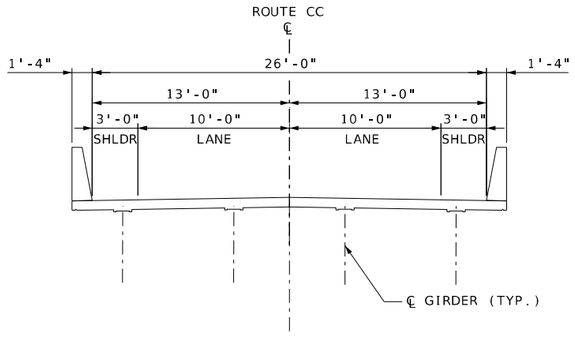
BP-1 (PG64-22) 1.948 TON/CUYD COMPACTED MIXTURE
TACK COAT 0.05 GAL/SQYD



OPTIONAL PAVEMENT:
2" BIT PAVEMENT MIX (BP-1) PG64-22 OVER
8" BIT PAVEMENT MIX (BASE) PG64-22
OR
8" JPCP WITH 10' JOINT SPACING
AND 1.25" DOWELS
OVER 4" TYPE 1 AGGREGATE BASE

TYPICAL SECTION
ROUTE CC
FULL DEPTH PAVEMENT

STA. 213+76 TO STA. 214+01
STA. 215+99.33 TO STA. 216+24
* SEE PLAN SHEET FOR GUARDRAIL STATION RANGES



BRIDGE TYPICAL SECTION
ROUTE CC

STA. 214+01 TO STA. 215+99.33

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TYPICAL SECTIONS
SHEET 1 OF 1

STATE OF MISSOURI
ALISON N. GRAVES
NUMBER PE-2011015778
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 9/15/2025
ROUTE CC | STATE MO
DISTRICT CD | SHEET NO. 2
COUNTY MONITEAU
JOB NO. J5S3555
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION	DATE

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

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

5220 Oakland Ave.
St. Louis, MO 63110
(314) 863-5570
CIVIL DESIGN INC.
Missouri State Certificate of Authority #2002006804

REMOVAL OF IMPROVEMENTS

PLAN SHEET	BEGIN STATION	END STATION	SIDE	DESCRIPTION	QUANTITY		
					EA	LF	SY
4	213+76		LT&RT	SAW CUT		22	
4	213+76	214+01	LT&RT	PAVEMENT			66
4	214+01		LT&RT	OBJECT MARKER SIGN	2		
4	215+99		LT&RT	OBJECT MARKER SIGN	2		
4	215+99.33	216+24	LT&RT	PAVEMENT			66
4	216+24		LT&RT	SAW CUT		22	
				SUBTOTAL	4	44	132
				TOTAL	1 LUMP SUM		

PAVEMENT

PLAN SHEET	BEGIN STATION	END STATION	OPTIONAL PAVEMENT	TYPE 1 AGGREGATE FOR BASE (4 IN. THICK)	SUBGRADING & SHOULDERING CLASS 1
			SY	SY	100F
4	213+76	214+01	65.6	65.6	0.50
4	215+99.33	216+24	65.6	65.6	0.50
		TOTAL	131.2	131	1

GUARDRAIL

PLAN SHEET	BEGIN STATION	END STATION	SIDE	MGS GUARDRAIL	MGS BRIDGE APPR. TRANSITION SECTION (REGULAR/NO CURB)	TYPE A CRASHWORTHY END TERMINAL (MASH)	MGS END ANCHOR	SHAPING SLOPES CLASS III
				LF	EA	EA	EA	100F
4	213+15	214+03	LT		1	1		1.13
4	213+06	213+99	RT	62.5	1		1	1.13
4	214+02	217+15	LT	25.0	1	1		1.38
4	215+97	216+86	RT		1	1		1.13
			TOTAL	88	4	3	1	5

NOTE: GUARDRAIL LENGTHS DO NOT INCLUDE LENGTHS FOR END, TERMINAL, ANCHOR, TRANSITION SECTIONS OR BULLNOSE

PERMANENT PAVEMENT MARKING

PLAN SHEET	BEGIN STATION	END STATION	SIDE	CLASS 1 PAVEMENT MARKING PAINT (18-MIL, TYPE P BEADS)		REMARKS
				4 IN. YELLOW	4 IN. WHITE	
				LF	LF	
4	213+76	216+24	CENTER	62		YELLOW DASHED
4	213+74	216+22	RT		248	SOLID WHITE
4	213+78	216+26	LT		248	SOLID WHITE
			TOTAL	62	496	

TEMPORARY EROSION CONTROL

PLAN SHEET	BEGIN STATION	END STATION	SIDE	SILT FENCE	ROCK DITCH CHECK	SEDIMENT REMOVAL
				LF	LF	CY
6	213+09	213+99	RT	97	10	2
6	213+07	214+03	LT	99	10	2
6	215+97	216+95	RT	100	10	2
6	216+02	217+24	LT	125	10	3
6	214+05	214+27	RT/LT			
6	215+73	215+97	RT/LT			
			TOTAL	421	40	9

NOTE: SEDIMENT REMOVAL IS BASED ON 1 CY PER DITCH CHECK, 1 CY PER 100 FT OF SILT FENCE

CLEARING AND GRUBBING

TOTAL (ACRE)	1

CONTRACTOR FURNISHED SURVEYING AND STAKING

TOTAL = 1 LUMP SUM

MOBILIZATION

TOTAL = 1 LUMP SUM

SEEDING

SEEDING AND MULCHING - COOL SEASON GRASSES

TOTAL = 1 LUMP SUM

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SUMMARY OF QUANTITIES
SHEET 1 OF 2

STATE OF MISSOURI
ALISON N. GRAVES
NUMBER PE-2011015778
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: 10/9/2025

ROUTE	STATE
CC	MO
DISTRICT	SHEET NO.
CD	3

COUNTY: MONITEAU

JOB NO.: J5S3555

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

5220 Oakland Ave.
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(314) 863-5570

CDI ENGINEERING
CIVIL DESIGN ENGINEERING

Missouri State Certificate of Authority #2002006804

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
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 (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
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
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)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
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	2	32.00			18	DETOUR AHEAD
WO20-3	48X48	16.00	2	32.00			20A	ROAD CLOSED 500 FT
WO20-3	48X48	16.00	2	32.00			20B	ROAD CLOSED AHEAD
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)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	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)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
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	13.25						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
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (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	2	25.00			55A/B	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	2	25.00			55C	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-8	48X36	12.00						WORK ZONE NO PHONE ZONE
CONST-10	36X60	15.00	7	105.00			50A	DETOUR RTE CC STRAIGHT
CONST-11	36X60	15.00	2	30.00			50C	DETOUR RTE CC RIGHT
CONST-12	36X60	15.00	3	45.00			50E	DETOUR RTE CC LEFT

616-10.05 CONSTRUCTION SIGNS	TOTAL
	352

616-10.10 RELOCATED SIGNS	TOTAL
	0

ITEM NUMBER	TOTAL QTY	EFFECTIVE: 07-01-2025 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)
6122040		WORK ZONE CRASH CUSHION (NARROW)
6122041		WORK ZONE CRASH CUSHION (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONE)
6161025		CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	10	TYPE 3 MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE 3 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 WITHOUT 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
6173700B		TEMP. TRAFFIC BARRIER ANCHORED, CONTRACTOR FURNISHED/RETAINED
6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION CONTRACTOR FURNISHED/RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION, CONTRACTOR FURNISHED/RETAINED
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

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SUMMARY OF QUANTITIES
SHEET 2 OF 2

STATE OF MISSOURI
ALISON N. GRAVES
NUMBER PE-2011015778
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 9/15/2025

ROUTE	STATE
CC	MO
DISTRICT	SHEET NO.
CD	3

COUNTY MONITEAU

JOB NO. J5S3555

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

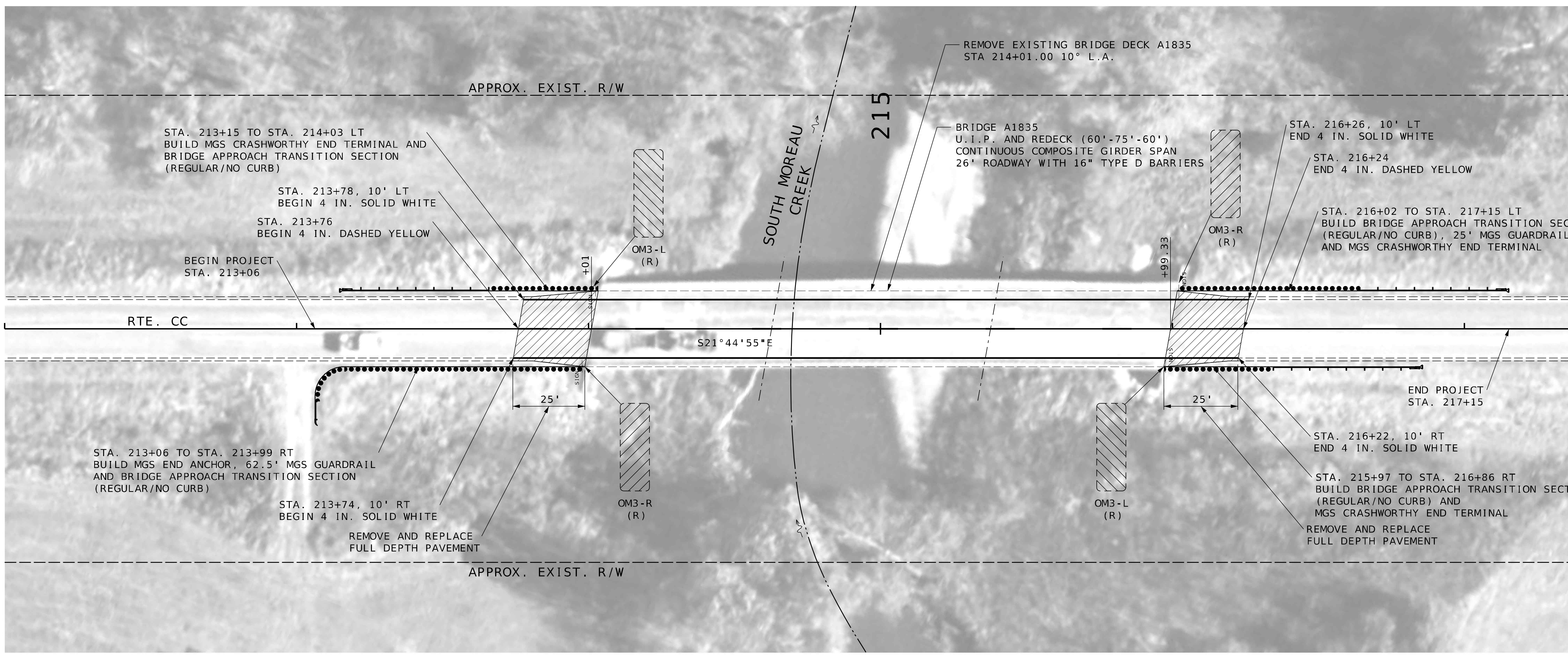
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

5220 Oakland Ave.
St. Louis, MO 63110
(314) 863-5570

CDI ENGINEERS, INC.
Missouri State Certificate of Authority #2002004804

SCALE

0 20 40 60



OPTIONAL PAVEMENT

NOTES:

1. RTE CC ALIGNMENT APPROXIMATED BASED ON AERIAL PHOTO AND AS-BUILT PLANS. SURVEY CONNTROL WAS NOT ESTABLISHED FOR THIS PROJECT, THEREFORE COORDINATES ARE NOT PROVIDED.
2. PROFILE GRADE TO MATCH EXISTING ±0.5"
3. ALL PAINT IS CLASS 1 PAVEMENT MARKING WITH TYPE P BEADS.
4. CONTRAST MARKING WILL BE REQUIRED FOR THE CONCRETE OPTION AT NO DIRECT PAY.
5. 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.

PLAN SHEET
SHEET 1 OF 1

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STATE OF MISSOURI
ALISON N. GRAVES
NUMBER PE-2011015778
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 9/15/2025	
ROUTE CC	STATE MO
DISTRICT CD	SHEET NO. 4
COUNTY MONITEAU	
JOB NO. J5S3555	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

5220 Oakland Ave.
St. Louis, MO 63110
(314) 863-5570

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Missouri State Certificate of Authority #2002006804

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P:\7XXX\70XX-71XX\7179 - MoDOT Moniteau County Bridge\28-Trans\CADD\004_PL_01_J5S3555_I20.dgn 3:51:05 PM 9/15/2025

WO20-2

18

WO20-3

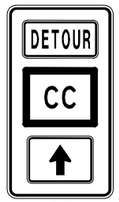
20A

WO20-3

20B

R11-2

29



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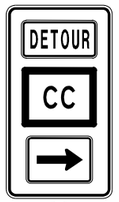
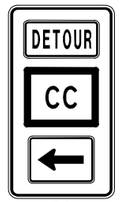


50C



50E

MO4-8a

52

R11-3a

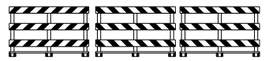
55A

R11-3a

55B

R11-4

55C



TYPE III MOVEABLE BARRICADES
FULL CLOSURE

TRAFFIC CONTROL LEGEND

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

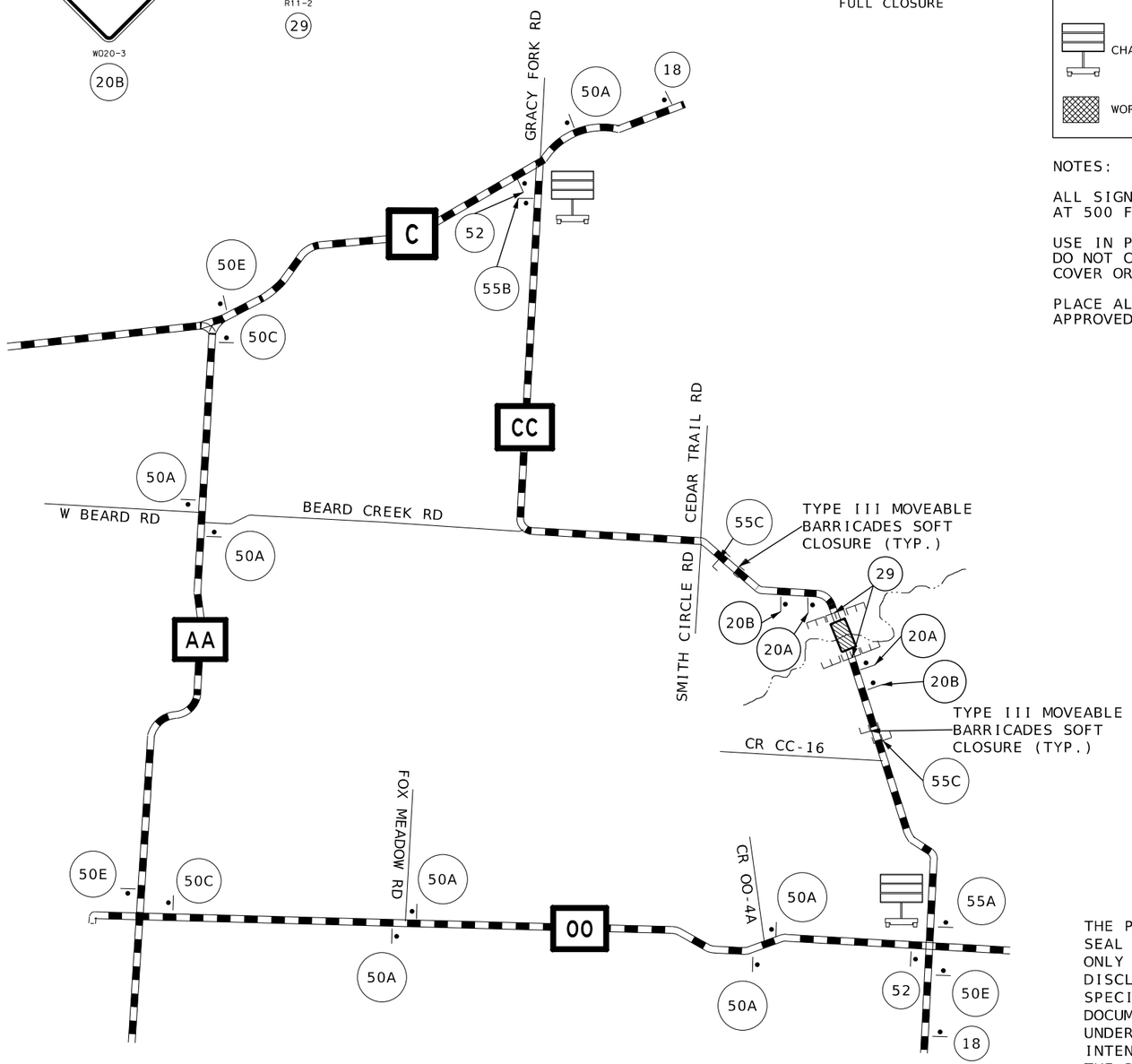
NOT TO SCALE

NOTES:

ALL SIGNS SHALL BE SPACED
AT 500 FEET UNLESS OTHERWISE NOTED.

USE IN PLACE ALL SIGNS WHICH
DO NOT CONFLICT WITH THIS PLAN.
COVER OR REMOVE CONFLICTING SIGNS.

PLACE ALL SIGNS AS SHOWN OR AS
APPROVED BY THE ENGINEER.



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TEMPORARY TRAFFIC CONTROL
SHEET 1 OF 1

STATE OF MISSOURI
ALISON N. GRAVES
NUMBER PE-2011015778
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 9/15/2025

ROUTE	STATE
CC	MO
DISTRICT	SHEET NO.
CD	5

COUNTY: MONITEAU
JOB NO.: J5S3555
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DATE	DESCRIPTION

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

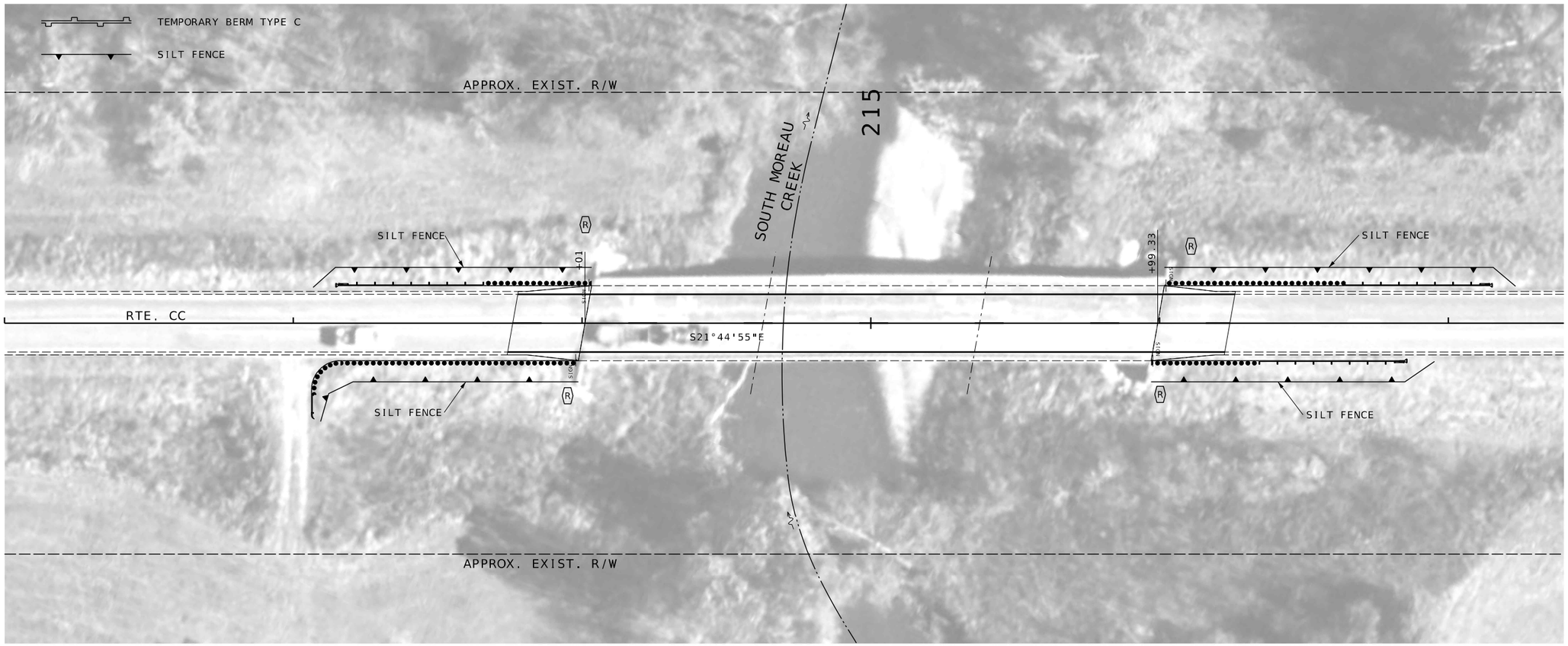
5220 Oakland Ave.
St. Louis, MO 63110
(314) 863-5570

CDI CIVIL DESIGN INC.
Missouri State Certificate of Authority #2002006804

TEMPORARY EROSION CONTROL LEGEND

- (A) ALTERNATE DITCH CHECK
- (C) CURB INLET CHECK
- (R) ROCK DITCH CHECK
- (S) SEDIMENT TRAP
- ENERGY DISSIPATOR
- TEMPORARY BERM TYPE B
- TEMPORARY BERM TYPE C
- SILT FENCE

SCALE
0 20 40 60



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NOTES:

1. RTE CC ALIGNMENT APPROXIMATED BASED ON AERIAL PHOTO AND AS-BUILT PLANS. SURVEY CONNTROL WAS NOT ESTABLISHED FOR THIS PROJECT, THEREFORE COORDINATES ARE NOT PROVIDED.

EROSION CONTROL SHEET
SHEET 1 OF 1

STATE OF MISSOURI
ALISON N. GRAVES
NUMBER PE-2011015778
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: 9/15/2025
ROUTE: CC | STATE: MO
DISTRICT: CD | SHEET NO.: 6
COUNTY: MONITEAU
JOB NO.: J5S3555
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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5220 Oakland Ave.
St. Louis, MO 63110
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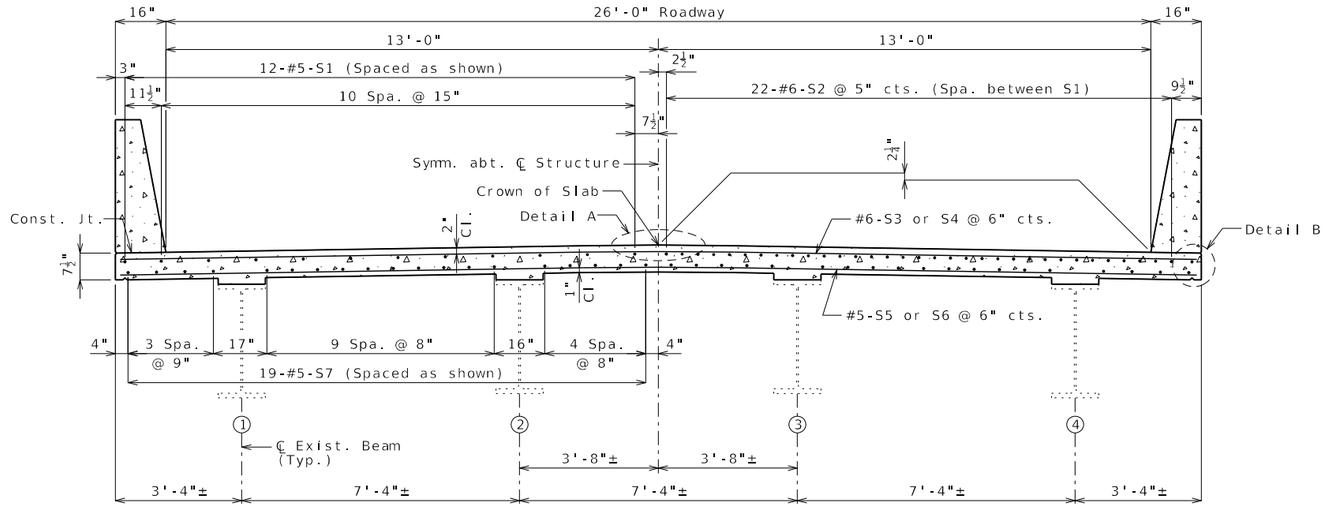
SEC/SUR 32 TWP 43N RGE 15W

U.I.P. AND REDECK EXISTING (60'- 75'- 60') CONTINUOUS COMPOSITE WIDE FLANGE BEAM SPANS

Table Showing S2 Bar Lengths			
Int. Bent No. 2		Int. Bent No. 3	
Span 1	Span 2	Span 2	Span 3
20'-8"	21'-7"	21'-7"	20'-8"

Required Lap Length For Bar Splices **	
Bar Size	Splice Length
4	2'-7"
5	3'-3"
6	3'-10"
7	4'-11"

** Unless otherwise shown.



HALF SECTION NEAR MIDSPAN HALF SECTION NEAR INT. BENT

TYPICAL SECTION THRU SLAB

General Notes:

Design Specifications:
2002 AASHTO LFD (17th Ed.) Standard Specifications
Seismic Performance Category A

Design Loading:
HS15-44 (1961) (Existing)
HS20-44 (New Construction)
35 lb/sf Future Wearing Surface
Earth - 120 lb/cf, Equivalent Fluid Pressure 45 lb/cf
Fatigue Stress - Case III

Design Unit Stresses:
Class B-1 Concrete (Barrier) f'c = 4,000 psi
Class B-2 Concrete (End Bents & Superstructure, except Barrier) f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60) fy = 60,000 psi

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

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

Miscellaneous:

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

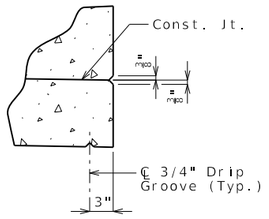
Roadway surfacing adjacent to bridge ends shall match new bridge slab surface. (Roadway item)

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

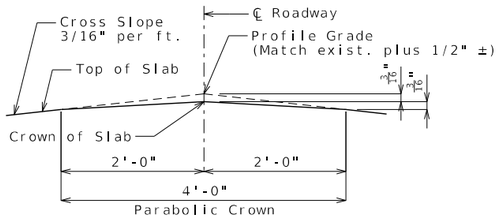
The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

For adjusted beam deflection due to the weight of the new deck and barriers, see Bridge Electronic Deliverables.

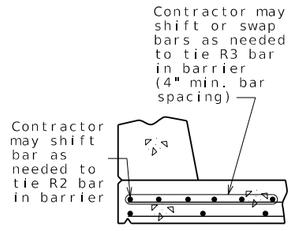
Traffic Handling:
Structure to be closed during construction.
See roadway plans for traffic control.



DETAIL B



DETAIL A



OPTIONAL SHIFTING TOP BARS AT BARRIER

Estimated Quantities		
Item		Total
Removal of Miscellaneous ACM (Non-Friable)	sq. foot	17
Removal of Existing Bridge Deck	sq. foot	5666
Slab on Steel	sq. yard	633
Type D Barrier	linear foot	397
Substructure Repair (Formed)	sq. foot	25
Substructure Repair (Unformed)	sq. foot	25
Slab Drain	each	34
Surface Preparation for Applying Epoxy-Mastic Primer	lump sum	1
Gray Epoxy-Mastic Primer	lump sum	1
Non-Destructive Testing	linear foot	48

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

Estimated Quantities for Slab on Steel		
Item		Total
Class B-2 Concrete	cu. yard	149.3
Reinforcing Steel (Epoxy Coated)	pound	49,420

The table of Estimated Quantities for Slab on Steel represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard 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 in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness Class SC 4 and a finish Type I, II or III.

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

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

REPAIRS TO BRIDGE: ROUTE CC OVER S. MOREAU CREEK

ROUTE CC FROM ROUTE C TO ROUTE OO
ABOUT 4 MILES SOUTH OF ROUTE C
BEGINNING STATION 214+01.00± (MATCH EXISTING)

STATE OF MISSOURI
KIMBERLY ANNE STREICHER
NUMBER PE-2003001105
PROFESSIONAL ENGINEER
10/08/2025 09:12:18
Kimberly Streicher - Civil
MO PE-2003001105

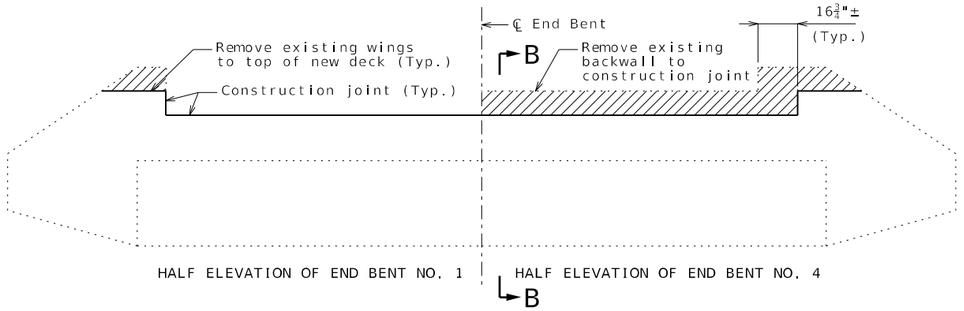
DATE PREPARED 10/8/2025
ROUTE CC | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY MONITEAU
JOB NO. J5S3555
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A18351

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CDI CIVIL DESIGN, INC. WBE | DBE
5220 Oakland Avenue
St. Louis, MO 63110
314.863.5570
Missouri State Certificate of Authority #2002006804

Detailed JULY 2025
Checked JULY 2025

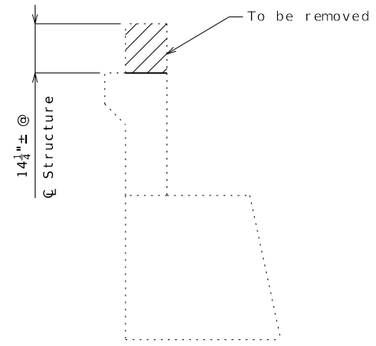
Note: This drawing is not to scale. Follow dimensions.



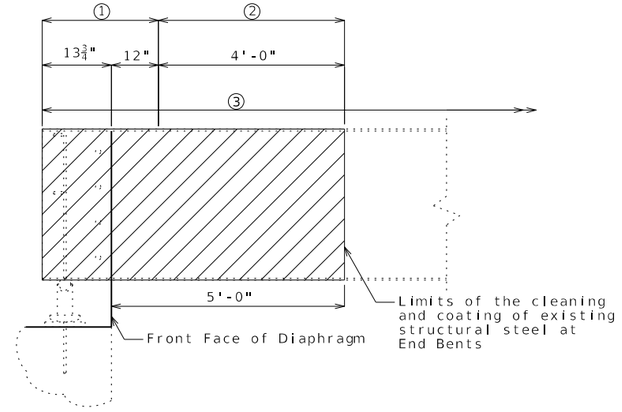
DETAILS OF CONCRETE REMOVAL AT END BENTS

The cost of concrete removal as shown as well as removal of existing barrier on wings will be considered completely covered by the contract unit price for Removal of Existing Bridge Deck. Vertical backwall and wingwall reinforcement to be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

A smooth, level surface shall be provided at Bent No. 4 removal lines.



SECTION B-B



DETAILS OF CLEANING AND COATING

(End Bents No. 1 & 4)(Shear Connectors not shown)

The exposed and accessible surfaces of the existing structural steel and bearings, within the limits shown above and denoted in Sec. 216.50.2.2, shall be cleaned with a minimum of SSPC-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry film thickness of no less than 3 mils before concrete is poured. The surface preparation and coating shall extend a minimum of 5 feet from the end of the beam for all structural steel and bearings. Structural steel includes beams, end diaphragms, bearing stiffeners, and all plates, channels and connections and components thereof. Beam top flange cleaning and coating, as denoted in Sec 216.50.2.2, shall extend the entire length of all beams from End Bents No. 1 to End Bent No. 4.

① Within the limits shown, surface preparation and gray epoxy-mastic primer shall be considered completely covered by the contract unit price for Slab on Steel, except as included in ③ (top flange).

② Within the limits shown, surface preparation and gray epoxy-mastic primer shall be considered completely covered by the contract unit price for Surface Preparation for Applying Epoxy-Mastic Primer and Gray Epoxy-Mastic Primer, except as included in ③ (top flange).

③ Within the limits shown, top flange surface preparation and gray epoxy-mastic primer, as defined in Sec. 216.50.2.2, shall be completely covered by the contract unit price for Removal of Existing Bridge Deck.

General Notes:

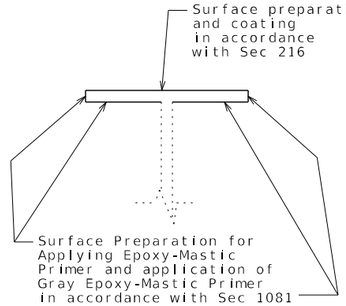
Stay-In-Place Forms:

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.

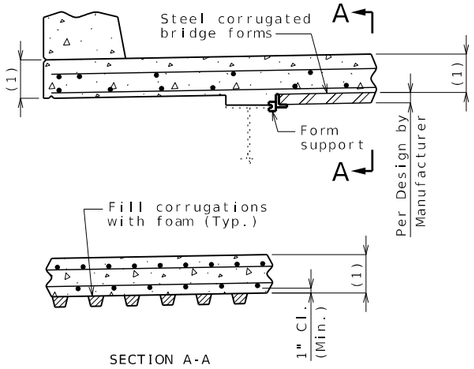
Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

Form sheets shall not rest directly on the top of beam flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Welding on or drilling holes in the beam flanges 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.



DETAILS SHOWING LIMITS OF TOP FLANGE COATING



OPTIONAL STAY-IN-PLACE FORM DETAILS

Pouring and Finishing Slab:

The contractor shall provide bracing necessary for lateral and torsional stability of the beams during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not weld on or drill holes in the beams. The cost for furnishing, installing, and removing bracing will be considered completely covered by the contract unit price for Slab on Steel.

Slab shall be poured from end to end at a minimum rate of 25 cubic yards per hour.

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

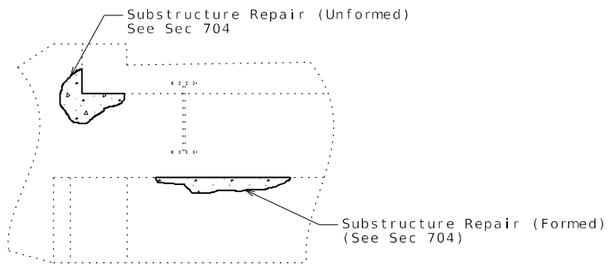
Bridge deck surface may be finished with a vibratory screed.

Haunching:

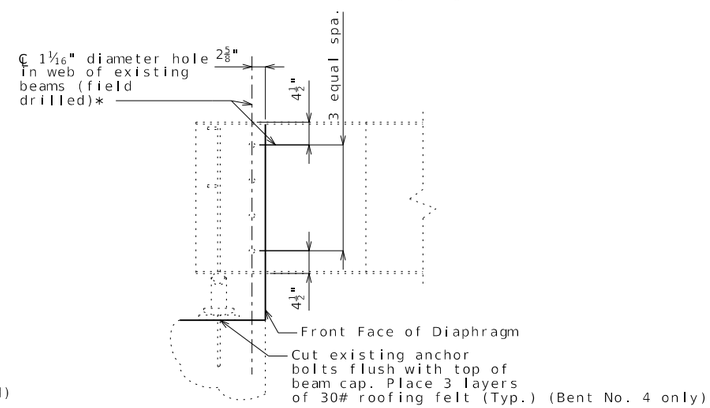
(1) Slab is to be considered a uniform thickness as shown on the plans. Haunching will vary. See front sheet for slab thickness.

Structural Steel Protective Coating:

All surfaces of the top flanges of the existing structural steel beams shall be coated with one 6-mil thickness of aluminum gray epoxy-mastic primer applied over an SSPC-SP3 surface preparation in accordance with Sec 1081. The cost of surface preparation will be considered completely covered by the contract lump sum price for Surface Preparation for Applying Epoxy-Mastic Primer. The cost of the aluminum gray epoxy mastic primer and bituminous coating will be considered completely covered by the contract lump sum price for Gray Epoxy-Mastic Primer.



DETAILS OF CONCRETE REPAIR AT END BENT NO. 4



DETAILS OF WEB HOLES AND BEARING MODIFICATIONS

(End Bents No. 1 & 4)

* Cost of field drilling holes in existing wide flange beam webs will be considered completely covered by contract unit price for Slab on Steel.

Detailed JULY 2025
Checked JULY 2025

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

STATE OF MISSOURI
KIMBERLY ANNE STREICHER
NUMBER PE-2003001105
PROFESSIONAL ENGINEER
10/08/2025 09:13:23
Kimberly Streicher - Civil
MO PE-2003001105

DATE PREPARED 10/8/2025
ROUTE CC | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY MONITEAU
JOB NO. J5S3555
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A18351

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CDI CIVIL DESIGN, INC. WBE | DBE
5220 Oakland Avenue
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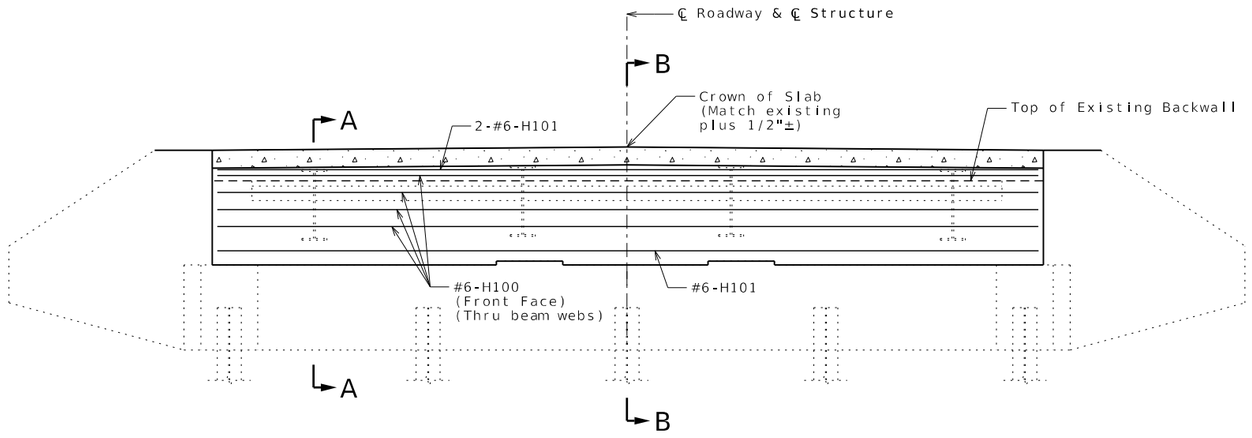
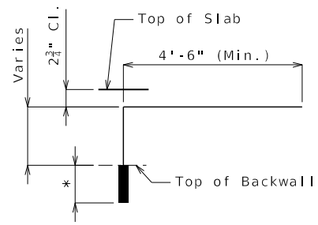
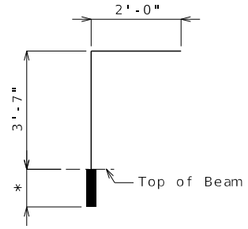


SECTION NEAR END BENT

Existing steel end diaphragms, exist. bearings, slab reinforcement and Resin Anchors not shown for clarity.



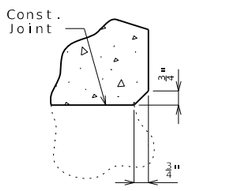
System A
(24 req'd)
(Field bend)



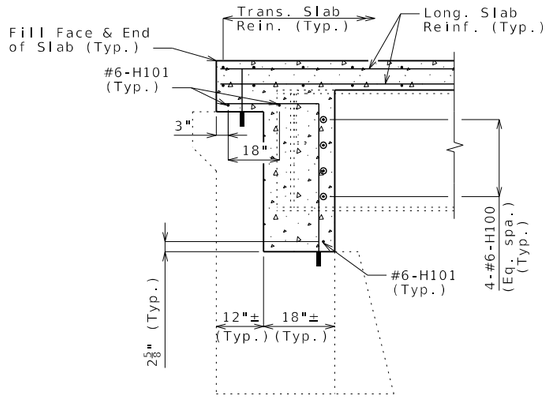
System B
(24 req'd)

DETAILS OF RESIN ANCHOR SYSTEMS

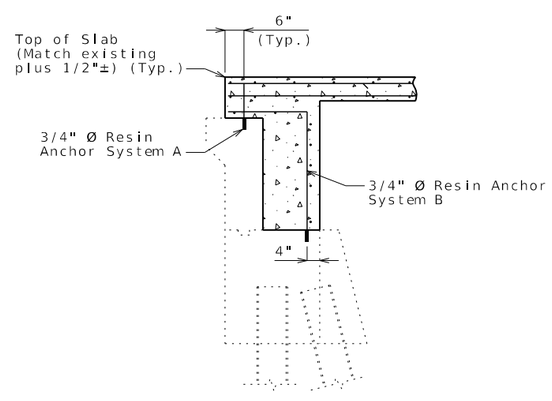
* Manufacturer's recommended embedment length (5" min.)



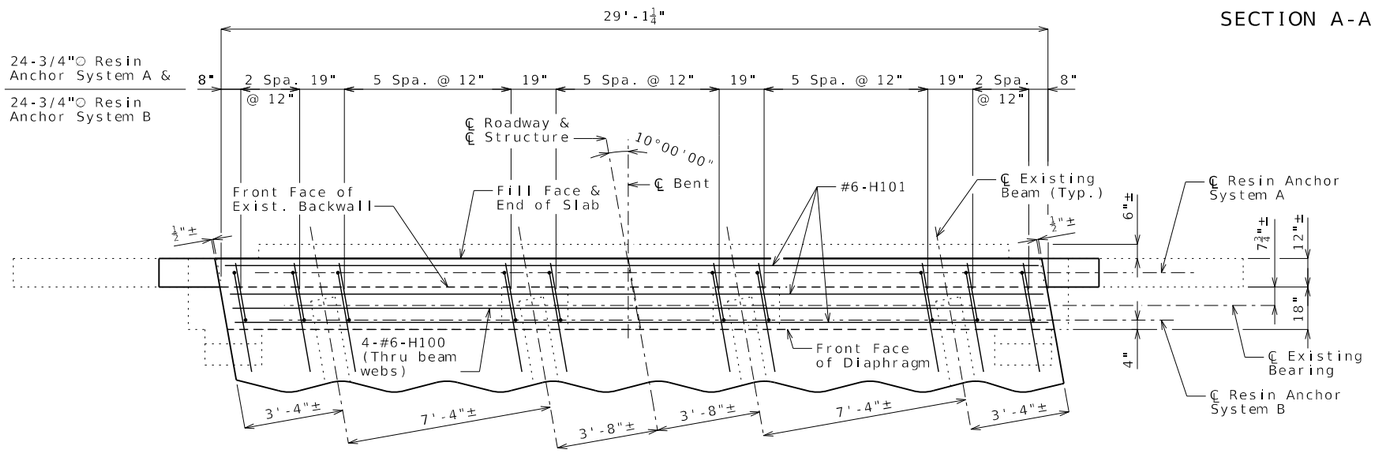
CHAMFER DETAIL



SECTION A-A



SECTION B-B



PART PLAN SHOWING CONCRETE DIAPHRAGM

Notes:

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

Cost of furnishing and installing the resin anchor systems, Complete in place, will be considered completely covered by the contract unit price for Slab on Steel.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #6 Grade 60 reinforcing bar shall be substituted for the 3/4"○ threaded rod.

Cost of field drilling holes in existing I-beam webs will be considered completely covered by the contract unit price for Slab on Steel.

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

All concrete used in the end bents is included in the Estimated Quantities for Slab on Steel.

For details and reinforcement of Type D Barrier not shown, see Sheets No. 6 & 7.

For details of slab reinforcement, see Sheet No. 1.

DETAILS OF END BENT NO. 1

Sheet No. 3 of 9

Detailed AUG 2025
Checked AUG 2025

Note: This drawing is not to scale. Follow dimensions

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DATE PREPARED
10/8/2025

ROUTE	STATE
CC	MO
DISTRICT	SHEET NO.
BR	3

COUNTY
MONITEAU

JOB NO.
J5S3555

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A18351

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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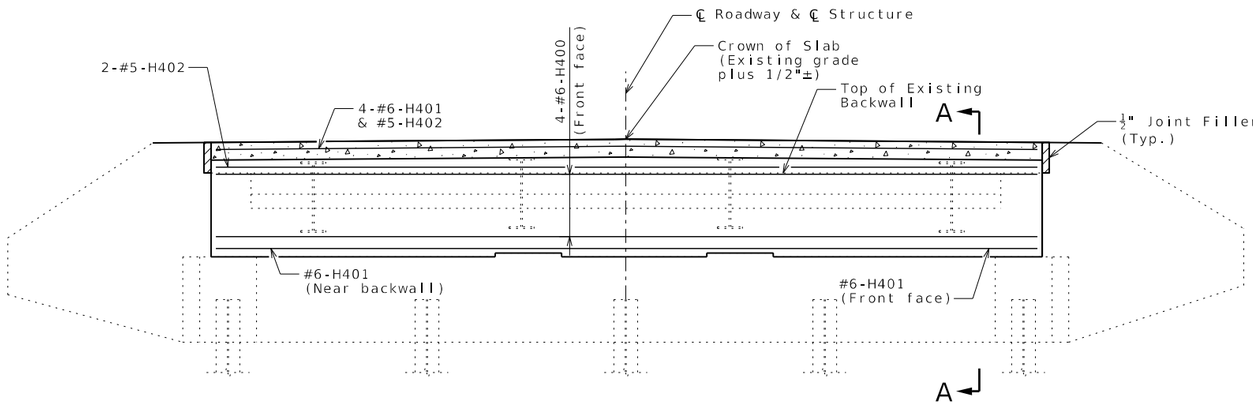
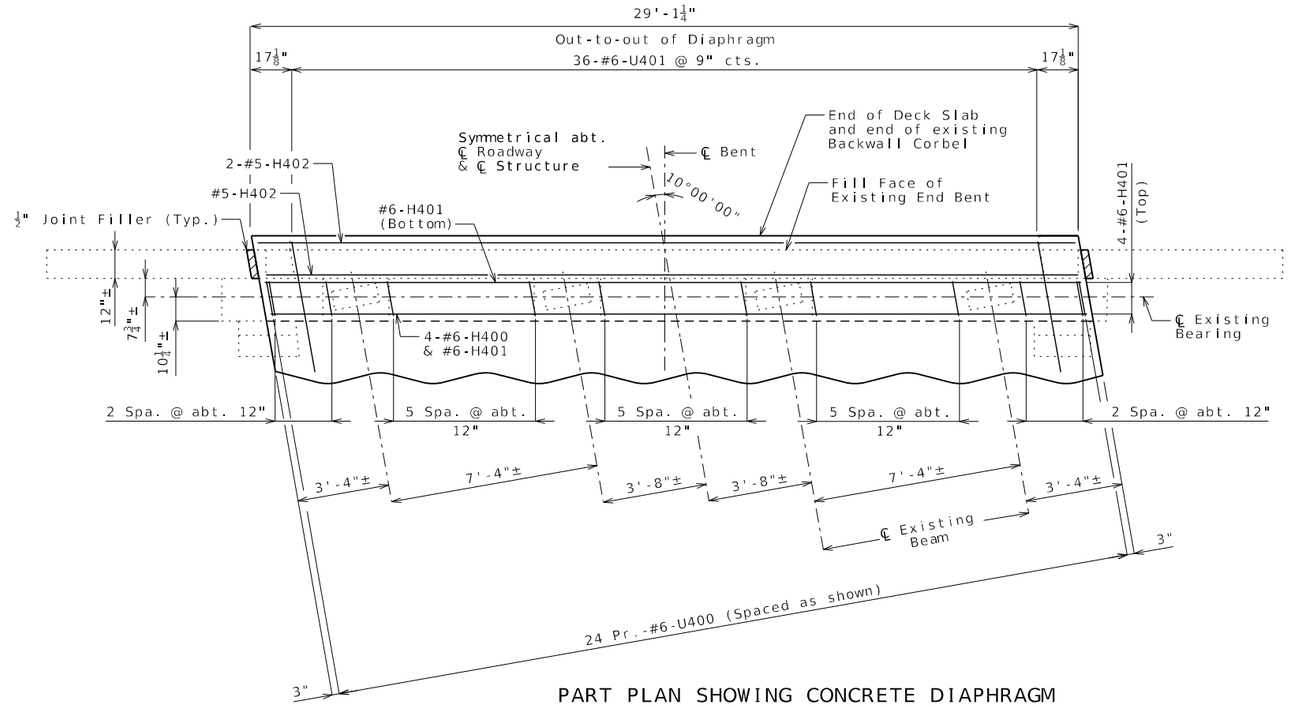
P:\7XXX\70XX-71XX\7179 - MoDOT Moniteau County Bridge\24-Structures\CAD-ORD 10.12\Sheets\B_A18351_003_J5S3555_End_Bent_1.dgn 8:48:15 AM 10/8/2025

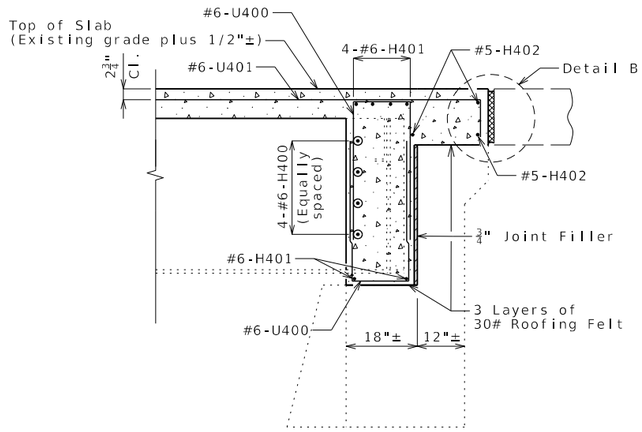


SECTION NEAR END BENT SHOWING CONCRETE DIAPHRAGM

Slab reinforcement, bearings, and existing steel end diaphragms (U.I.P.) not shown for clarity.

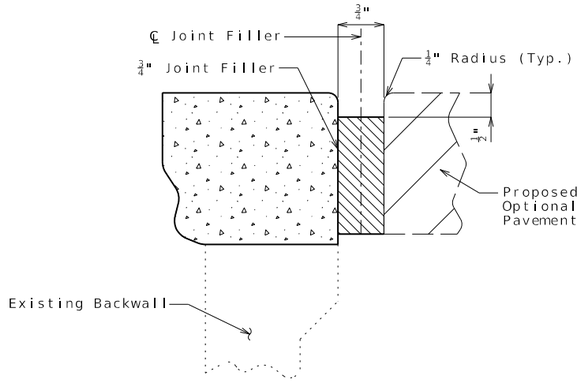


PART PLAN SHOWING CONCRETE DIAPHRAGM



SECTION A-A

Slab reinforcement and steel diaphragm not shown for clarity.



DETAIL B

Extend joint filler from gutter line to gutter line

Notes:

For details and reinforcement of Type D Barrier at End Bents, see Sheet No. 7.

For details of cleaning and coating, see Sheet No. 2.

All concrete and reinforcement in the concrete diaphragms at end bents is included in Estimated Quantities for Slab on Steel.

The cost of joint filler will be considered completely covered by the contract unit price for Slab on Steel.

Roofing felt shall overlap to ensure that roofing felt shall be continuous from outside of the bearing to under the bearing.

DETAILS OF END BENT NO. 4

Detailed AUG 2025
Checked AUG 2025

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

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ROUTE CC | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY MONITEAU
JOB NO. J5S3555
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A18351

DESCRIPTION | DATE

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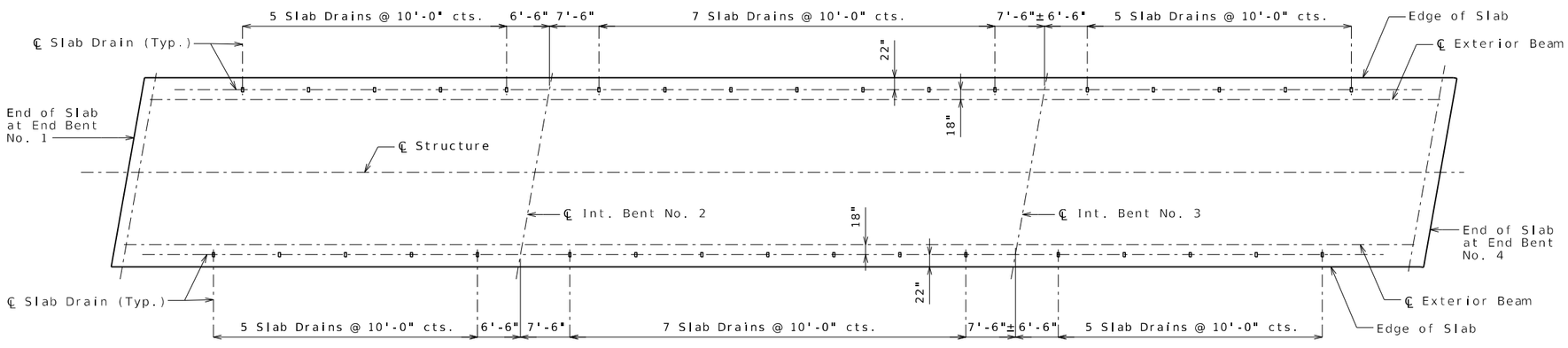
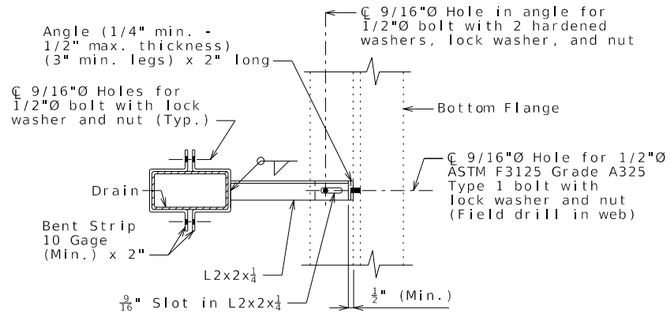
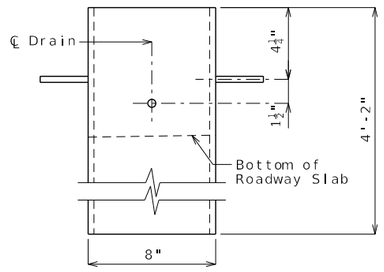


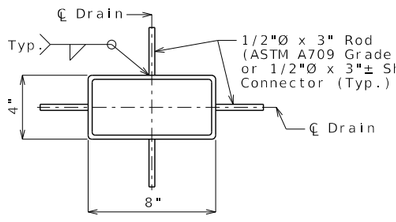
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



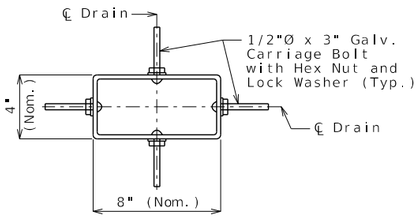
PART SECTION SHOWING BRACKET ASSEMBLY



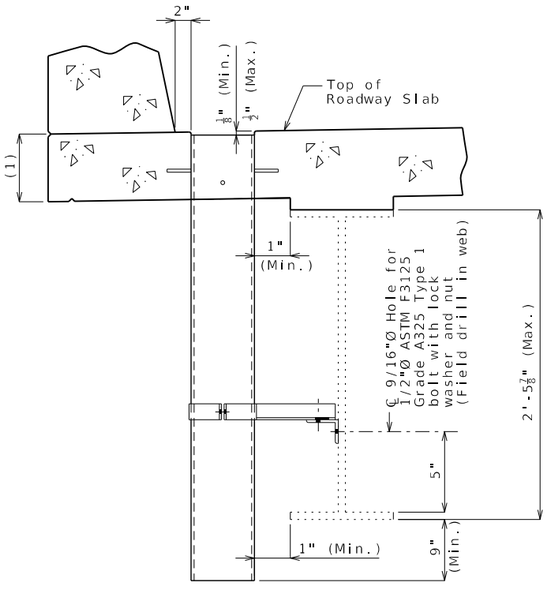
ELEVATION OF DRAIN



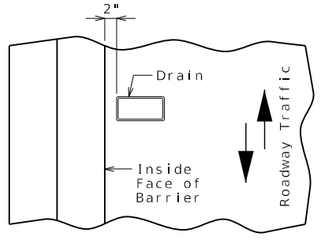
PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION



PART SECTION NEAR DRAIN



PART PLAN OF SLAB AT DRAIN

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 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, except as shown.

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

The bolt hole for the bracket assembly attachment shall be shifted to the minimum extent necessary to field drill in the existing web.

(1) See front sheet for slab thickness.

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 recommended by the manufacturer to ensure a smooth, chip free cut.

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ROUTE	STATE
CC	MO
DISTRICT	SHEET NO.
BR	5

COUNTY MONITEAU

JOB NO. J5S3555

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A18351

DESCRIPTION | DATE

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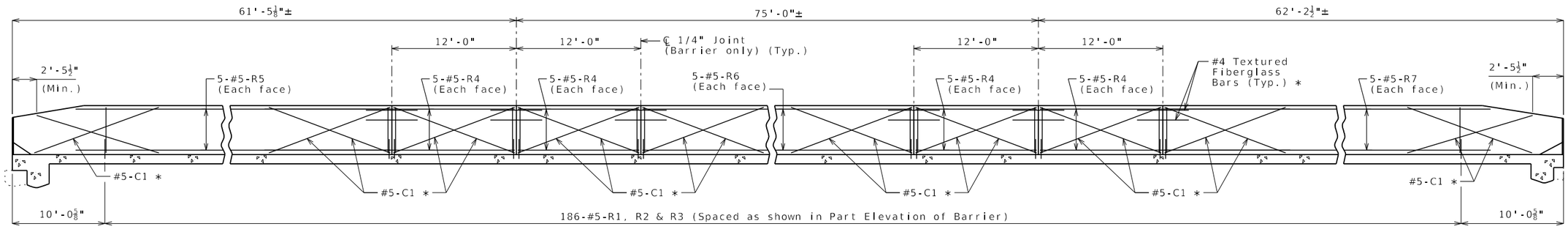
Detailed AUG 2025
Checked AUG 2025

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

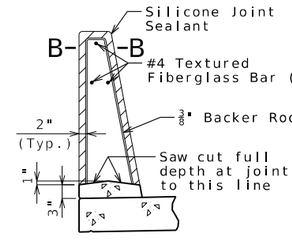
SLAB DRAINS



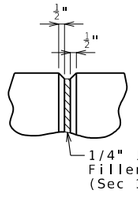
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

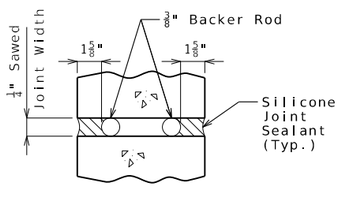
Longitudinal dimensions are horizontal.



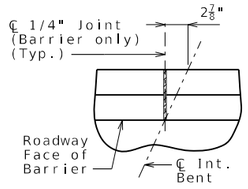
SECTION THRU SAW CUT JOINT



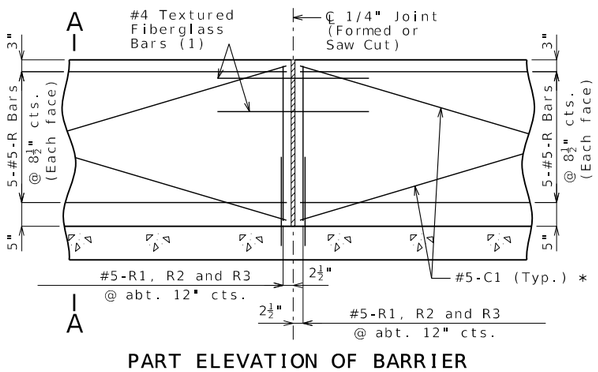
PART ELEVATION AT FORMED JOINT



SECTION B-B

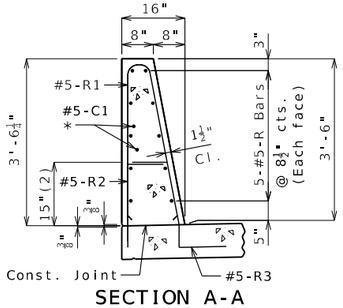


PART PLAN SHOWING JOINT LOCATION



PART ELEVATION OF BARRIER

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

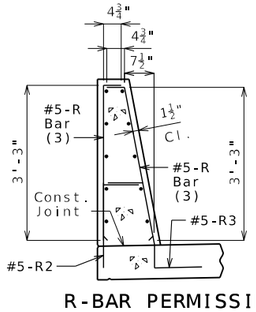


SECTION A-A

Use a minimum lap of 2'-6" 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.)

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 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 slab to end of slab.

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 AUG 2025
Checked AUG 2025

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

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DATE PREPARED 10/8/2025

ROUTE	STATE
CC	MO
DISTRICT	SHEET NO.
BR	6

COUNTY MONITEAU

JOB NO. J5S3555

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A18351

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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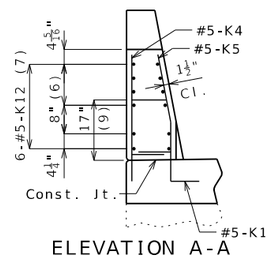
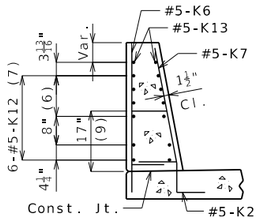
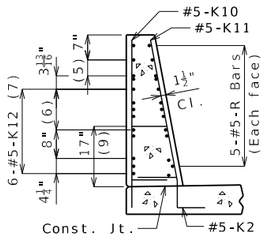


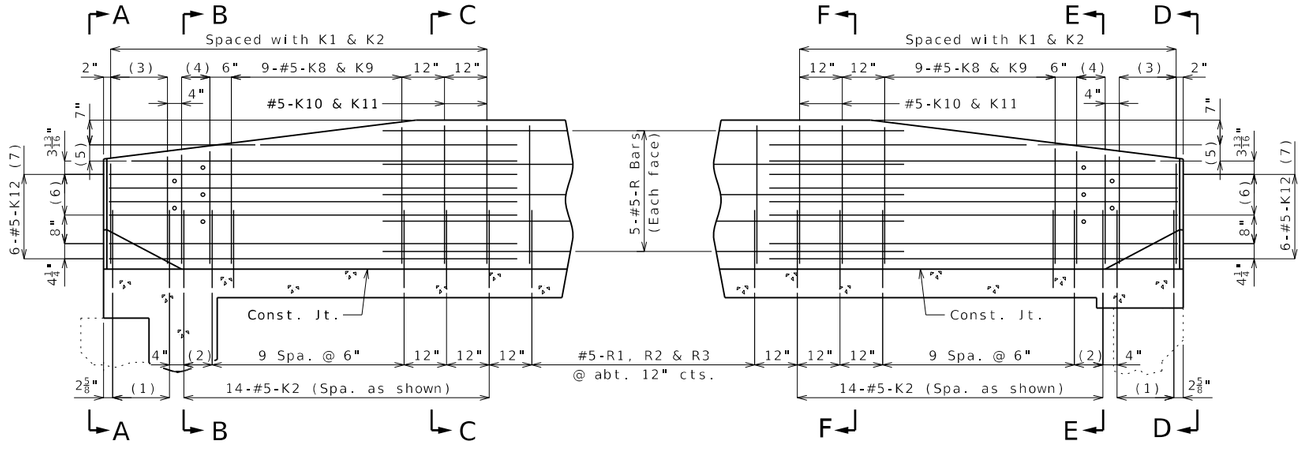
ELEVATION A-A



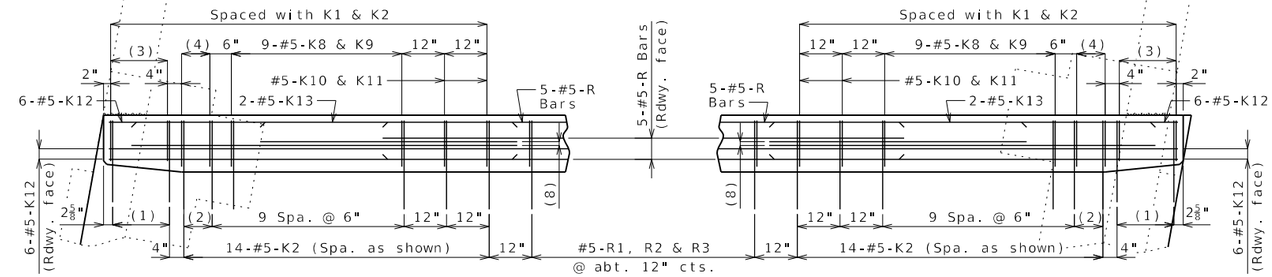
SECTION B-B



SECTION C-C

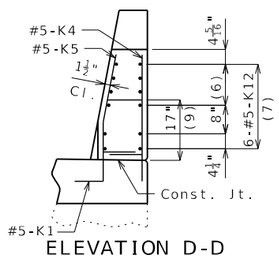


PART ELEVATION

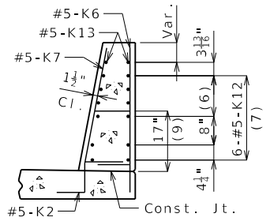


PART PLAN

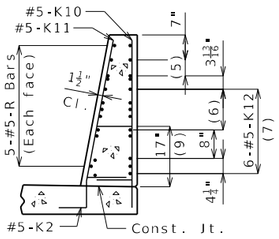
(Top of barrier not shown for clarity.)



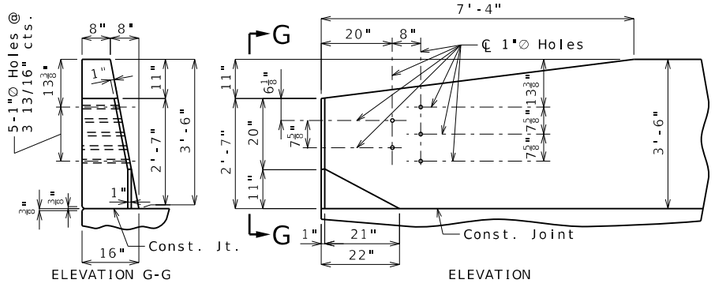
ELEVATION D-D

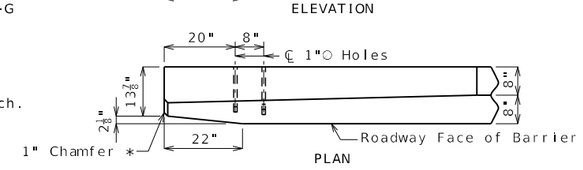


SECTION E-E



SECTION F-F





DETAILS OF GUARD RAIL ATTACHMENT

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

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

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

(4) 3-#5-K6 & K7

(5) 2-#5-K13 @ 4½" cts., each face

(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) 2-#5-K13 (Roadway face)

(9) To top of bar

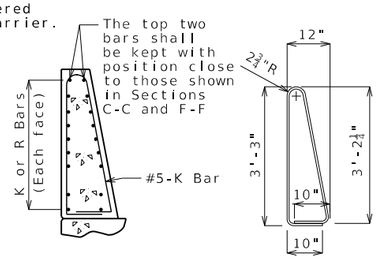
General Notes:

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".

Use a minimum lap of 2'-6" 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 barrier shown, right barrier similar)

Detailed AUG 2025
Checked AUG 2025

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

P:\7XXX\70XX-71XX\7179 - MoDOT Moniteau County Bridge\24-Structures\CAD-ORD 10.12\Sheets\B_A18351_007_J5S3555_Barrier_2.dgn 9:04:39 AM 10/8/2025

STATE OF MISSOURI
KIMBERLY ANNE STREICHER
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DATE PREPARED 10/8/2025

ROUTE CC | STATE MO

DISTRICT BR | SHEET NO. 7

COUNTY MONITEAU

JOB NO. J5S3555

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A18351

DESCRIPTION	DATE

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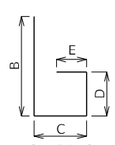
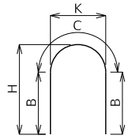
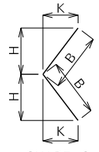


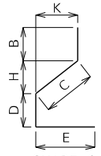
SHAPE 6
or 6S



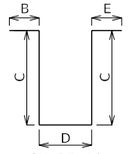
SHAPE 7



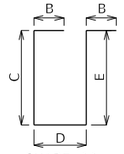
SHAPE 8
or 8S



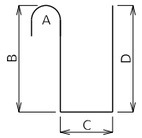
SHAPE 9
or 9S



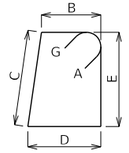
SHAPE 10
or 10S



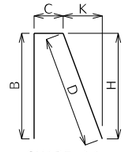
SHAPE 11
or 11S



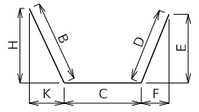
SHAPE 12



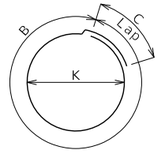
SHAPE 13S



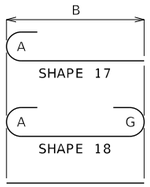
SHAPE 14
or 14S



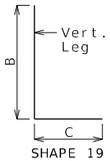
SHAPE 15
or 15S



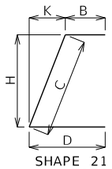
SHAPE 16



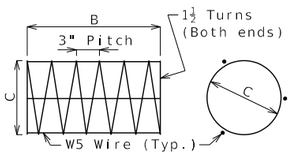
SHAPE 17
SHAPE 18
SHAPE 20



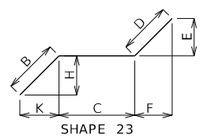
SHAPE 19
or 19S



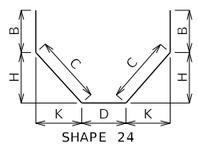
SHAPE 21
or 21S



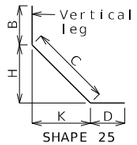
SHAPE 22



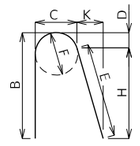
SHAPE 23
or 23S



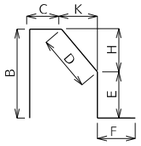
SHAPE 24
or 24S



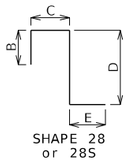
SHAPE 25
or 25S



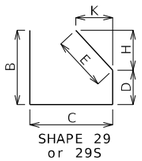
SHAPE 26



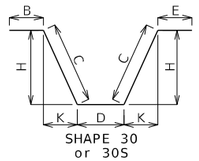
SHAPE 27S



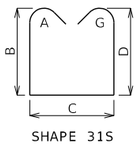
SHAPE 28
or 28S



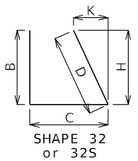
SHAPE 29
or 29S



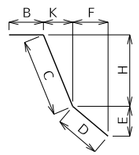
SHAPE 30
or 30S



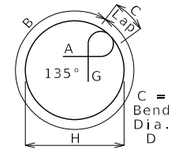
SHAPE 31S



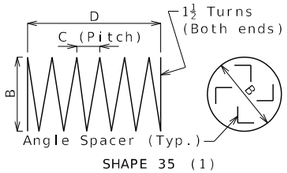
SHAPE 32
or 32S



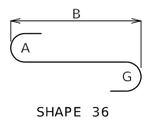
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

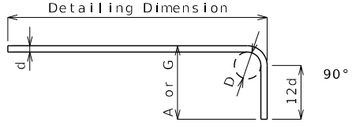


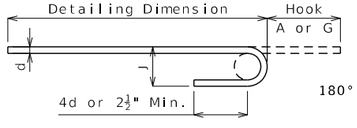
SHAPE 36

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"	9⅜"	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"	36¾"	28½"



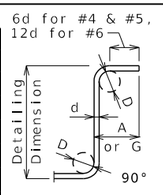


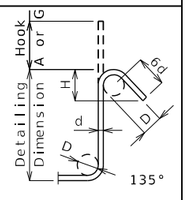
Stirrup Pin Bend Shapes (S)

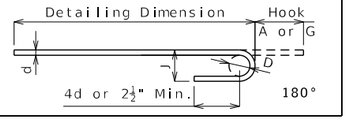
Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4½"	4½"	5"	2⅝"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5¾"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

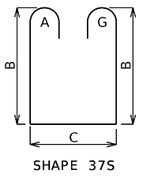
Applicable for all grades of steel.

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

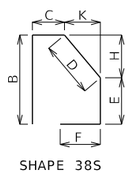








SHAPE 37S



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 Form		
		Plain	Epoxy	Plain	Epoxy	Barrier		Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	25335	10038	501	0	35874
	6	0	0	0	24082	0	0	0	24082
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0
	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		0	0	0	49417	10038	501	0	59956

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed AUG 2025
Checked AUG 2025

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

STATE OF MISSOURI
KIMBERLY ANNE STREICHER
NUMBER PE-2003001105
PROFESSIONAL ENGINEER
10/08/2025 09:18:35
Kimberly Streicher - Civil
MO PE-2003001105

DATE PREPARED 10/8/2025
ROUTE CC | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY MONITEAU
JOB NO. J5S3555
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A18351

DESCRIPTION | DATE

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

CIVIL DESIGN, INC.
WBE | DBE
5220 Oakland Avenue
St. Louis, MO 63110
314.863.5570
Missouri State Certificate of Authority #2002006804

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B	C	D	E	F	H	K	Nom. Length	Actual Length	Weight lb
		SUPERSTRUCTURE													
		END BENT 1													
4	6 H100	DIAPHRAGM	E	20		28 10.750							28 11	28 11	174
3	6 H101	DIAPHRAGM	E	20		28 10.750							28 11	28 11	130
		END BENT 4													
4	6 H400	DIAPHRAGM	E	20		28 10.000							28 10	28 10	173
6	6 H401	DIAPHRAGM	E	20		28 10.000							28 10	28 10	303
3	5 H402	SLAB	E	20		28 10.000							28 10	28 10	90
48	6 U400		E	10S			3 0.000	0 14.000					7 2	6 10	493
36	6 U401		E	19S		0 5.25	4 8.000						5 1	4 11	266
		SLAB													
96	5 S1	SLAB	E	20		52 2.000							52 2	52 2	5227
88	6 S2	SLAB	E	20		42 3.000							42 3	42 3	5588
388	6 S3	SLAB	E	20		28 5.000							28 5	28 5	16572
18	6 S4	SLAB	E	20	V	25 6.000							25 6	25 6	383
		INCR:34.000INCH				2 9.750							2 10	2 10	
388	5 S5	SLAB	E	20		28 5.000							28 5	28 5	11508
18	5 S6	SLAB	E	20	V	25 6.000							25 6	25 6	240
		INCR:34.000INCH				2 9.750							2 10	2 10	
152	5 S7	SLAB	E	20		52 2.000							52 2	52 2	8270
		BARRIER													
20	5 K1	BARRIER CURB	E	27S		21.500	9.250		15.7500	12.000	5.250	1.000	5 4	5 0	104
56	5 K2	BARRIER CURB	E	27S		21.500	9.250		4.000	12.000	17.000	3.250	5 4	5 0	292
	K3	NOT USED													
20	5 K4	BARRIER CURB	E	19S	V	2 6.250	10.000						3 4	3 3	66
		INCR:0.500INCH				2 4.250	10.000						3 2	3 1	
20	5 K5	BARRIER CURB	E	38S	V				9.500	8.250	20.000	4.500	3 2	3 1	63
		INCR:0.500INCH							9.500	8.250	18.000	4.000	3 0	2 11	
12	5 K6	BARRIER CURB	E	19S		2 6.750	10.000						3 5	3 3	41
12	5 K7	BARRIER CURB	E	21S				10.000			2 6.000	6.250	3 5	3 3	41
36	5 K8	BARRIER CURB	E	19S	V	3 2.500	10.000						4 1	3 11	138
		INCR:0.750INCH				2 8.500	10.000						3 7	3 5	
36	5 K9	BARRIER CURB	E	21S	V			10.000			3 1.750	7.750	4 1	3 11	138
		INCR:0.750INCH						10.000			2 7.750	6.750	3 6	3 5	
8	5 K10	BARRIER CURB	E	19S		3 3.000	10.000						4 1	3 11	33
8	5 K11	BARRIER CURB	E	21S				10.000			3 2.250	7.750	4 1	3 11	33
48	5 K12	BARRIER CURB	E	20		9 7.000							9 7	9 7	480
16	5 K13	BARRIER CURB	E	20	V	8 10.000							8 10	8 10	122
		INCR:36.000INCH				5 10.000							5 10	5 10	
372	5 R1	BARRIER CURB	E	26		3 3.000	5.500	2.250		5.500	3 0.750	6.750	6 10	6 7	2556
372	5 R2	BARRIER CURB	E	19S		19.500	9.500						2 5	2 3	874
372	5 R3	BARRIER CURB	E	27S			9.500		4.000	12.000	15.000	3.000	3 5	3 2	1230
80	5 R4	BARRIER CURB	E	20		11 8.000							11 8	11 8	974
20	5 R5	BARRIER CURB	E	20		42 7.000							42 7	42 7	889
20	5 R6	BARRIER CURB	E	20		50 8.000							50 8	50 8	1058
20	5 R7	BARRIER CURB	E	20		43 4.500							43 5	43 5	906
		SLIP FORM													
40	5 C1	SLIP FORM	E	20		12 0.000							12 0	12 0	501

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B	C	D	E	F	H	K	Nom. Length	Actual Length	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. 8.

All bars shall be ASTM A615 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 AUG 2025
Checked AUG 2025

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

STATE OF MISSOURI
KIMBERLY ANNE STREICHER
NUMBER PE-2003001105
PROFESSIONAL ENGINEER
10/08/2025 09:19:28
Kimberly Streicher - Civil
MO PE-2003001105

DATE PREPARED 10/8/2025
ROUTE CC | STATE MO
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