DESIGN DESIGNATION

A.A.D.T. - 2023 = 450
A.A.D.T. - 2034 = 450
D.H.V. = 52
T = 10.7%
V = 55 M.P.H.

FUNCTIONAL CLASSIFICATION - SUPPLEMENTARY

NO RIGHT OF WAY
ACQUISITION NEEDED

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	

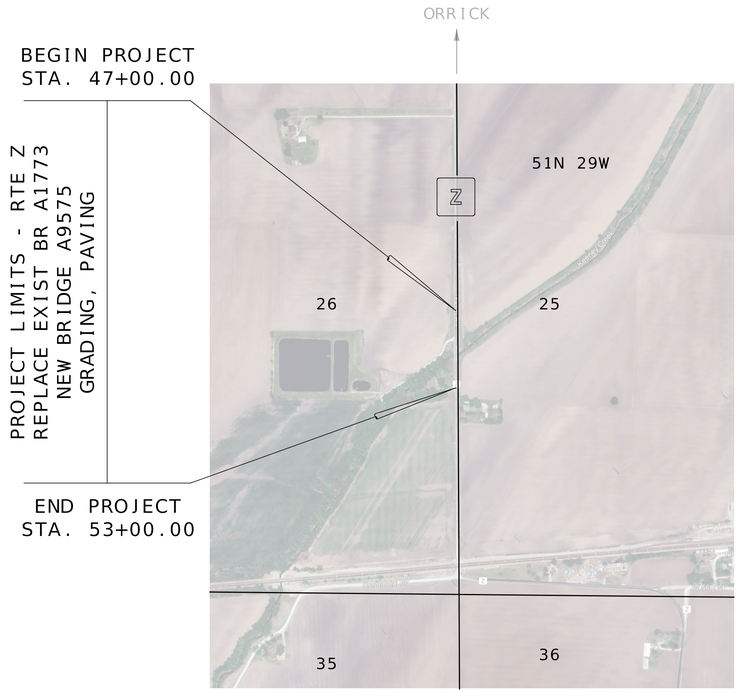
NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

RAY COUNTY

KEY MAP
LOCATION OF RAY 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. 47 + 00.00	
END OF PROJECT	STA. 53 + 00.00	
APPARENT LENGTH	600.00	FEET
EQUATIONS AND EXCEPTIONS:		
TOTAL CORRECTIONS	0	FEET
NET LENGTH OF PROJECT	600.00	FEET
STATE LENGTH	0.114	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0.2466	ACRES

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR.
NUMBER PE-2003015005
PROFESSIONAL ENGINEER
10/02/2025 7:36:39 AM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED: 10/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
KC	1

COUNTY: RAY
JOB NO.: JKR0103
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9575

DESCRIPTION	DATE

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

OPTIONAL PAVEMENT

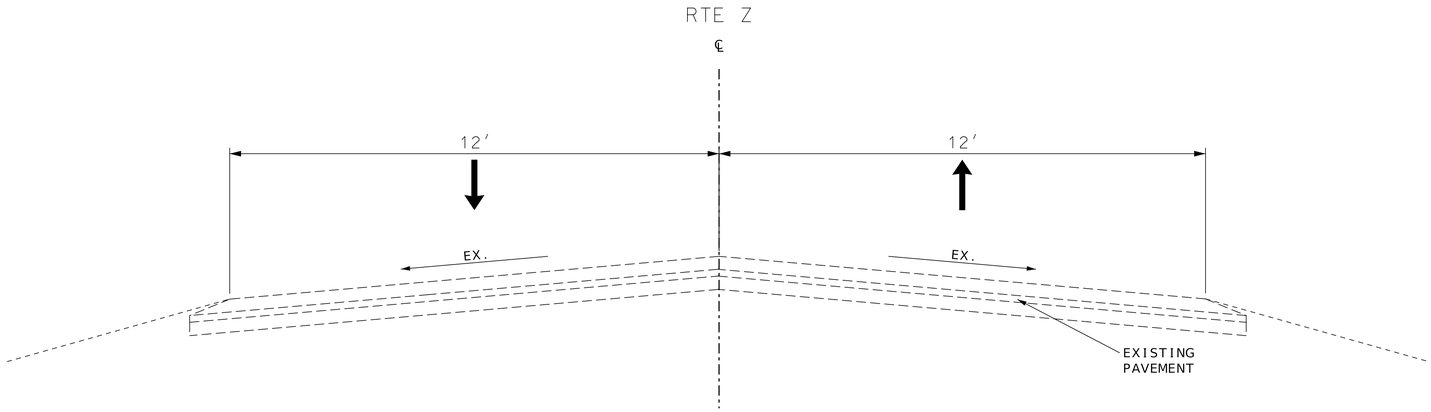
HMA DESIGN

9″ HMA
2″ BP-1 w/PG 64-22 (1.984 TON/CY)
OVER 7″ BB w/PG 64-22 (1.997 TON/CY)
6″ TYPE 5 AGGREGATE BASE
SHOULDERS
FULL DEPTH AS PART OF THE TRAVELWAY

PCCP DESIGN

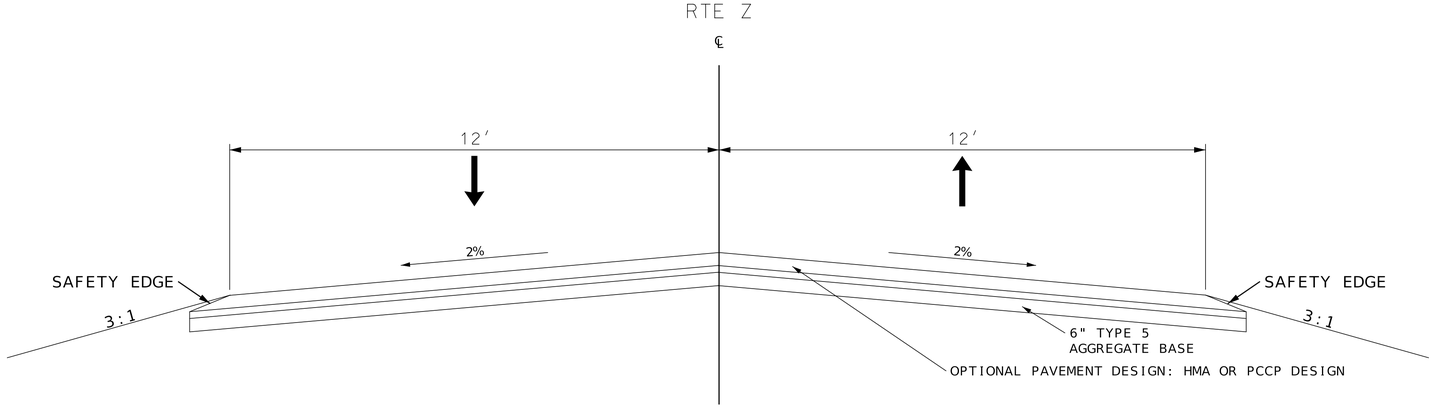
8.5″ JPCP NON-WIDEN SLAB
15 FT JOINT SPACING, 1 1/4″ DOWELS
SHOULDERS
FULL DEPTH AS PART OF THE TRAVEL WAY
BASE
6″ TYPE 5 AGGREGATE BASE

NOTE:
EARTHWORK QUANTITIES ARE CALCULATED BASED ON HMA OPTIONAL PAVEMENT SECTION



EXISTING
TYPICAL SECTION
OF ROADWAY

STA. 47+00.00 TO 49+67.00
STA. 50+77.75 TO 53+00.00



TYPICAL SECTION
PROPOSED

STA. 47+00.00 TO 48+90.84
STA. 48+90.84 TO 49+11.07 LEFT LANE WIDENS FROM 12′
STA. 49+11.07 TO 49+37.44 RIGHT LANE WIDENS FROM 12′
STA. 49+37.44 TO 49+37.50 LEFT LANE WIDENING ENDS AT 14.33′
STA. 49+37.50 TO 49+46.60 CENTERLINE ENDS
STA. 49+46.60 TO 49+57.67 RIGHT LANE WIDENING ENDS AT 14.33′

STA. 50+88.11 TO 50+98.11 LEFT LANE NARROWS FROM 14.33′
STA. 50+98.11 TO 51+07.22 CENTERLINE BEGINS
STA. 51+07.22 TO 51+34.71 RIGHT LANE NARROWS FROM 14.33′
STA. 51+34.71 TO 51+34.77 LEFT LANE NARROWING ENDS AT 12′
STA. 51+34.77 TO 51+53.82
STA. 51+53.82 TO 51+53.88 RIGHT LANE NARROWING ENDS AT 12′
STA. 51+53.88 TO 53+00.00

NOT TO SCALE

TYPICAL SECTION SHEET
SHEET 1 OF 2

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR.
NUMBER PE-2003015005
PROFESSIONAL ENGINEER
Benjamin Stephen McCabe Sr
03/04/2025 9:09:21 PM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED
3/4/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
KC	2

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

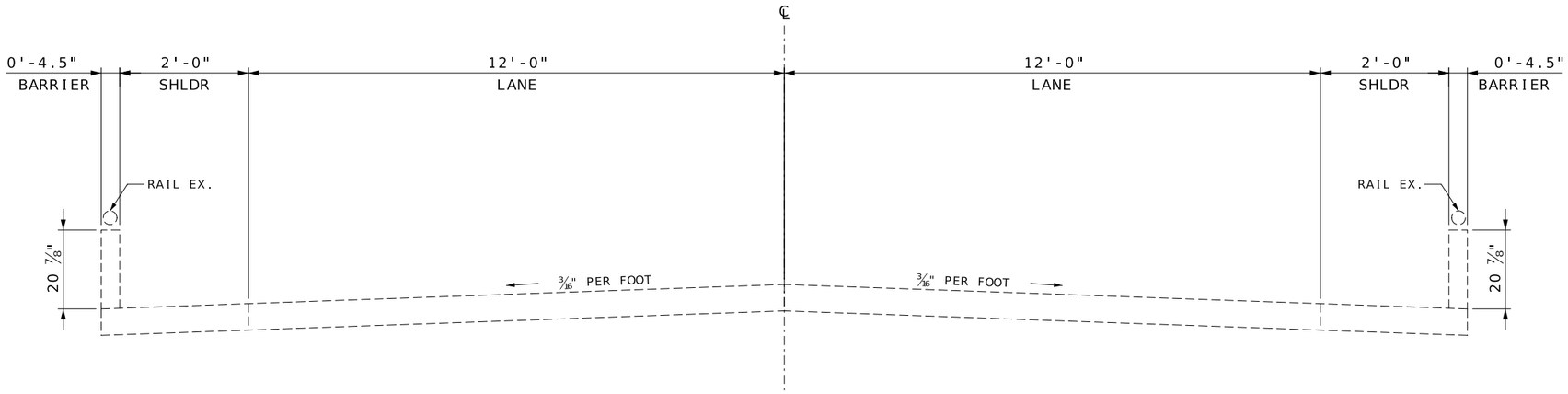
BRIDGE NO.
A9575

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

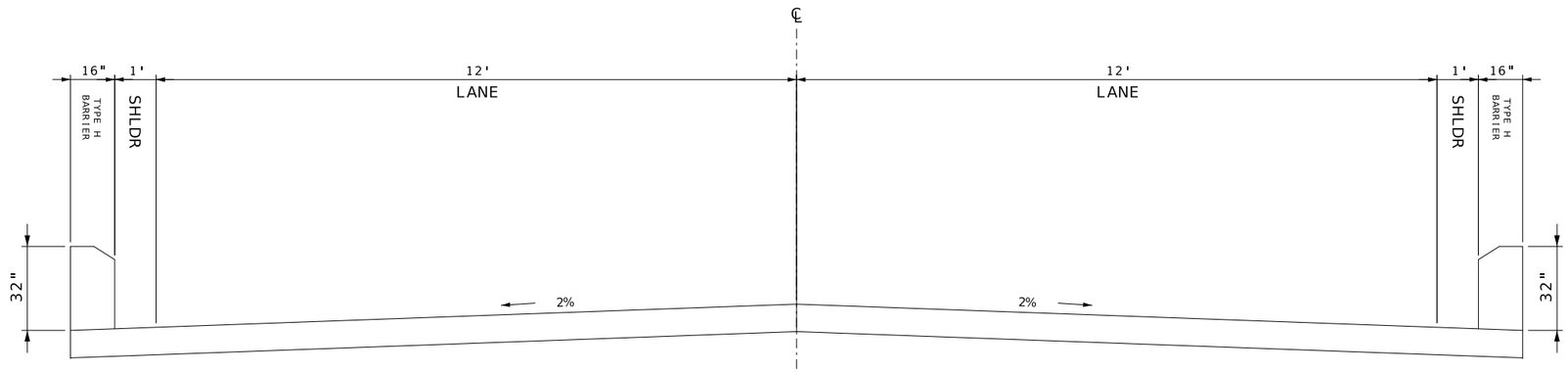
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

RTE Z



EXISTING BRIDGE TYPICAL SECTION
STA. 49+67.00 TO STA. 50+77.75

RTE Z



BRIDGE TYPICAL SECTION
STA. 49+73.90 TO STA. 50+64.92

NOT TO SCALE

TYPICAL SECTION SHEET
SHEET 2 OF 2

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR. NUMBER PE-2003015005
PROFESSIONAL ENGINEER
11/03/2025 11:20:25 AM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED
11/3/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
KC	2

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9575

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

PAVEMENT AND BASE

LOCATION START STA	LOCATION END STA	LENGTH FT	OPTIONAL PAVEMENT SY	6 IN TYPE 5 AGG BASE SY	TYPE 5 AGGREGATE FOR ENTRANCE TON	NOTES
47+00.	48+90.84	190.84	509	509	0	PROJECT BEGINNING
48+90.84	49+11.07	20.23	55	55	0	LEFT LANE WIDENS FROM 12'
49+11.07	49+37.44	26.37	77	77	0	RIGHT LANE WIDENS FROM 12'
49+37.44	49+37.5	0.06	0.2	0.2	0	LEFT LANE WIDENING ENDS AT 14.33'
49+37.5	49+46.6	9.10	21	21	0	CENTERLINE ENDS
49+46.6	49+57.67	11.07	7	7	0	RIGHT LANE WIDENING ENDS AT 14.33'
50+88.11	50+98.11	10.00	8	8	0	LEFT LANE NARROWS FROM 14.33'
50+98.11	51+07.22	9.11	23	23	0	CENTERLINE BEGINS
51+07.22	51+34.71	27.49	78	78	0	RIGHT LANE NARROWS FROM 14.33'
51+34.71	51+34.77	0.06	0.2	0.2	0	LEFT LANE NARROWING ENDS AT 12'
51+34.77	51+53.82	19.05	52	52	0	
51+53.82	51+53.88	0.06	0.2	0.2	0	RIGHT LANE NARROWING ENDS AT 12'
51+53.88	53+00.	146.12	390	390	0	PROJECT END
49+15.00		33.46	0	0	1.5	ORRICK WWTP GRAVEL ENTRANCE, WEST SIDE NEAR BRIDGE
		TOTAL	1,220.6	1,220.6	1.5	
		PAYTOTAL	1220	1220	1.5	

CONTRACTOR FURNISHED SURVEYING AND STAKING

1 LUMP SUM

MOBILIZATION

1 LUMP SUM

PAVEMENT MARKINGS

STA START	STA END	LENGTH FT	4" CL 1 WHITE STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS LF	4" CL 1 YELLOW STANDARD WATERBORNE PAVEMENT MARKING PAINT TYPE P BEADS LF	NOTES
47+00.00	48+75.00	175.0	350.0	218.8	WHITE EOP, SOLID AND INTERMITTENT YELLOW
48+75.00	51+75.00	300.0	600.0	600.0	WHITE EOP, DOUBLE CENTER YELLOW
51+75.00	53+00.00	125.0	250.0	156.3	WHITE EOP, SOLID AND INTERMITTENT YELLOW
		TOTAL	1,200	975	

REMOVAL OF IMPROVEMENTS

START STA	END STA	LOCATION	UNITS	QUANTITIES	ITEM
47+00.00	49+77.56	NORTHSIDE	SY	669	EX. PAVEMENT
50+64.22	53+00.00	SOUTHSIDE	SY	551	EX. PAVEMENT
49+46.76	50+95.73	NORTH AND SOUTHSIDE	EA	4	EX. BRIDGE SIGNS FOR DELINEATION
47+00.00	47+00.00	NORTHSIDE	LF	24	NORTHSIDE SAWCUT
53+00.00	53+00.00	SOUTHSIDE	LF	24	SOUTHSIDE SAWCUT
49+52.84	49+81.01	NE OVERBANK	LS	1	CONCRETE DEBRIS REMOVAL (23 SY)
				1 LUMP SUM	

GUARDRAIL

START STA	END STA	MGS CRASHWORTHY END TERMINAL (MASH) EACH	MGS BRIDGE APPROACH SECTION (THRIE-BEAM) EACH	MGS GUARDRAIL, 8 FT POSTS, 6 FT. - 3 IN. SPACING LF	TYPE A GUARDRAIL, 8 FT POSTS 6 FT. - 3 IN. SPACING LF	ASYMMETRICAL TRANSITION SECTION EACH	END ANCHOR EACH	RUN LOCATION
47+71.90	49+46.90	1	1	75	0	0	0	NE
49+29.43	49+64.97	0	1	0	50	1	1	NW
50+77.40	52+52.40	1	1	75	0	0	0	SE
50+95.24	52+70.24	1	1	75	0	0	0	SW
	TOTAL	3	4	225	50	1	1	TOTAL

TEMPORARY EROSION CONTROL

LOCATION START STA	LOCATION END STA	ALTERNATE DITCH CHECK LF	SILT FENCE LF	SEDIMENT REMOVAL CY	NOTES
47+00.00	48+92.00		200	2	ALONG NORTHWEST ROADWAY
47+00.00	50+00.00		300	3	ALONG NORTHEAST ROADWAY
49+31.00	50+22.00		98	1	ALONG NORTHWEST ROADWAY BEAR END BENT
50+34.00	53+00.00		220	2	ALONG SOUTHWEST ROADWAY
50+47.00	52+67.00		266	3	ALONG SOUTHEAST ROADWAY
47+00.00		25		0.3	NORTHWEST DITCH CHECKS
48+77.00		25		0.3	NORTHWEST DITCH CHECKS
49+62.00		25		0.3	NORTHWEST DITCH CHECKS
51+11.00		10		0.1	SOUTHWEST DITCH CHECK
47+00.00		20		0.2	NORTHEAST DITCH CHECKS
48+00.00		20		0.2	NORTHEAST DITCH CHECKS
48+95.00		35		0.4	NORTHEAST DITCH CHECKS
50+63.00		35		0.4	SOUTHEAST DITCH CHECK
TOTAL		195	1084	13.2	
PAY TOTAL		195	1084	14	

EARTHWORK

LOCATION	*TOTAL EXCAVATION CY	*UNSUITABLE MATERIAL CY	CLASS A EXCAVATION CY	*NECESSARY FILL CY	COMPACTING EMBANKMENT CY	*EXCESS USABLE MATERIAL CY
RTE Z	1079.9	499	580.6	88.1	105.7	474.9
PAY TOTAL			581		106	

*INFORMATIONAL PURPOSES ONLY

SEEDING

START STA	END STA	LOCATION	SIDE	AREA SF	EROSION CONTROL BLANKET SY	SEEDING COOL SEASON MIXTURES ACRES	REMARKS
47+00.00	49+67.92	RTE Z	LT	2596.06	290	0.06	NW SIDE OF BRIDGE
47+00.00	49+67.92	RTE Z	LT	1588.27	194	0.04	NE SIDE OF BRIDGE
50+74.23	53+00.00	RTE Z	RT	803.85	97	0.02	SW SIDE OF BRIDGE
50+74.23	53+00.00	RTE Z	RT	283.91	48	0.01	SE SIDE OF BRIDGE
				TOTAL	629	0.13	
				PAY TOTAL	629	0.2	

ROCK BLANKET

START STA	END STA	LOCATION	AREA SF	FURNISHING TYPE 2 ROCK BLANKET CY	PLACING TYPE 2 ROCK BLANKET CY	PERMANENT EROSION CONROL GEOTEXTILE SY	NOTES
49+11.50	50+19.36	RTE Z	3176.30	235.28	235.28	352.92	NORTH SIDE OF BRIDGE
50+26.73	51+20.00	RTE Z	2294.40	169.96	169.96	254.93	SOUTH SIDE OF BRIDGE
			TOTAL	405.24	405.24	607.85	
			PAY TOTAL	406	406	608	

SUMMARY OF QUANTITIES
SHEET 1 OF 2

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR.
NUMBER PE-2003015005
PROFESSIONAL ENGINEER
10/02/2025 7:39:27 AM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED 10/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
KC	3

COUNTY: RAY
JOB NO.: JKR0103
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9575

DESCRIPTION	DATE

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

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
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				ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3a	48X48	16.00	2	32.00				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 NUM.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00						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	3	30.00				ROAD CLOSED
R11-3a	60X30	12.50	2	25.00				ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	3	37.5				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
								BRIDGE

616-10.05 CONSTRUCTION SIGNS	TOTAL 157
616-10.10 RELOCATED SIGNS	TOTAL 0

ITEM NUMBER	TOTAL QTY	EFFECTIVE: 07-01-2024 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)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161008		ADVANCED WARNING RAIL SYSTEM
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161025		CHANNELIZER (TRIM LINE)
6161030		TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A		CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE- CONTRACTOR FURNISHED/RETAINED
6161099	3	CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE- CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING
6161030	10	TYPE III MOVEABLE BARRICADE

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR. NUMBER PE-2003015005
PROFESSIONAL ENGINEER
Benjamin Stephen McCabe Sr
03/26/2025 8:34:52 AM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED 3/25/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
KC	3

COUNTY RAY

JOB NO. KR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9575

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

SUMMARY OF QUANTITIES
SHEET 2 OF 2

TYPE 2 ROCK BLANKET W/GEOTEXTILE
BUILD 2 FT. THICK TYPE 2 ROCK BLANKET WITH PERMANENT EROSION CONTROL GEOTEXTITLE AT BOTH ENDS ALONG THE FULL HEIGHT OF SPILLS SLOPES.

*DETAILS FOR TYPE 2 ROCK BLANKET W/ GEOTEXTILE ON TEMPORARY EROSION CONTROL SHEET

PAVEMENT MARKING: 4" SOLID WHITE PERM. EDGELINE PAVEMENT MARKING
STA. 47+00.00 TO 53+00.00
4" DOUBLE SOLID YELLOW PERM. PAVEMENT MARKING
STA. 48+75.00 TO 41+75.00
4" SOLID AND INTERMITTENT PERM. PAVEMENT MARKING
STA. 47+00.00 TO 48+75.00 AND
STA. 51+75.00 TO 53+00.00

LAND TIE
CP #1 IS ⅝" BAR W/ A PINK MODOT CAP LOCATED ALONG Z HWY AT THE KEENEY CREEK BRIDGE BURIED +/- 0.5' BELOW GROUND
MODIFIED STATE PLANE:
NORTHING 1103839.395
EASTING 2897217.291
ELEV. 723.89'
STA. 49+42.14
PROJ. FACTOR 1.0000711

ACCESS TO CITY OF ORRICK'S WWTP AND PRIVATE DRIVE TO CREASON, ROBERT, & KAREN (TRUST) PROPERTY SHALL BE MAINTAINED FOR DURATION OF CONSTRUCTION. IF NEEDED, TEMPORARY SURFACING TO BE PLACED BY THE ENGINEER AT NO ADDITIONAL COST.

NO AQUISITION
(1)
TOWNSEND, THOMAS D. & DEANNE L. PROP OWNER

25-51N-29W

NO AQUISITION
(2)
ROBERTS, TERRY RAY PROP OWNER

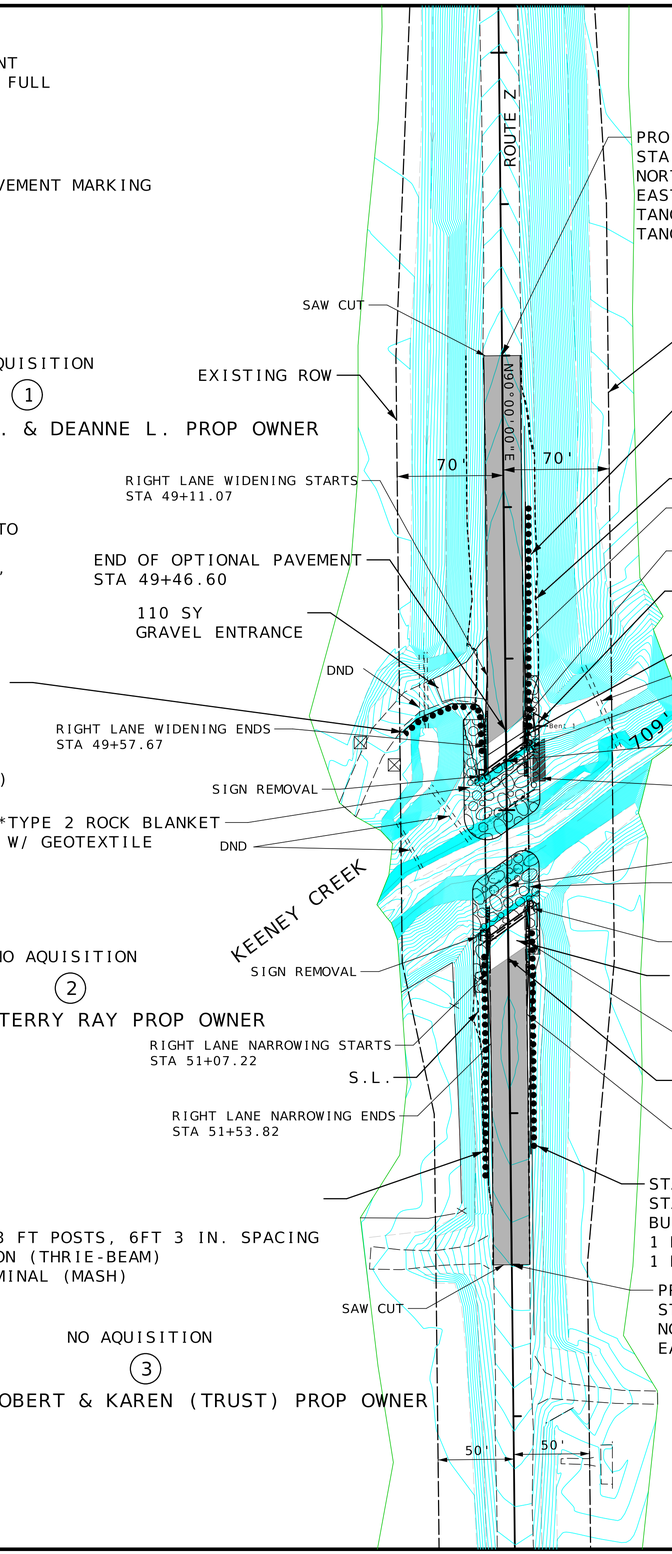
NO AQUISITION
(3)
CREASON, ROBERT & KAREN (TRUST) PROP OWNER

NO AQUISITION
(4)
CLARK FAMILY FARMS LP

26-51N-29W

NO AQUISITION
(5)
COULSON, STACEY

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.



NEW ROADWAY IMPROVEMENTS

TYPE 2 ROCK BLANKET W/ GEOTEXTILE

SCALE
0 50 100 150

PLAN SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR.
NUMBER PE-2003015005
PROFESSIONAL ENGINEER
03/04/2025 9:11:48 PM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED
3/4/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
KC	4

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

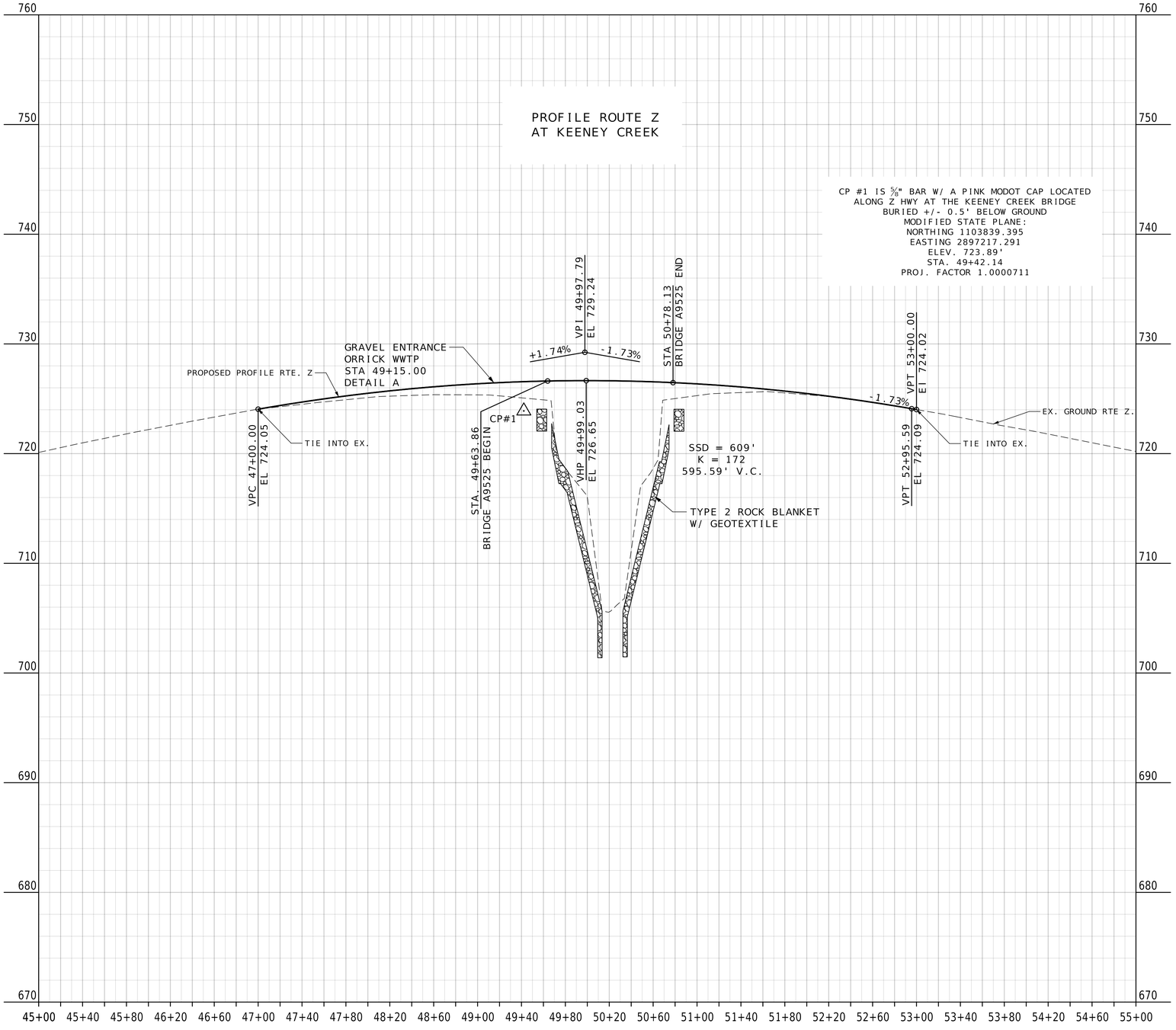
PROJECT NO.

BRIDGE NO.
A9575

DESCRIPTION	DATE

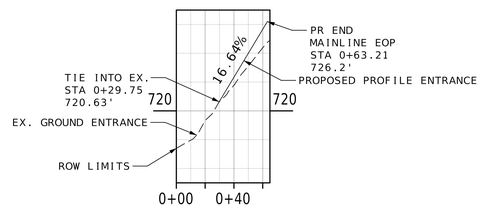
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

PROFILE ROUTE Z AT KEENEY CREEK



CP #1 IS ⅝" BAR W/ A PINK MODOT CAP LOCATED
ALONG Z HWY AT THE KEENEY CREEK BRIDGE
BURIED +/- 0.5' BELOW GROUND
MODIFIED STATE PLANE:
NORTHING 1103839.395
EASTING 2897217.291
ELEV. 723.89'
STA. 49+42.14
PROJ. FACTOR 1.0000711

PROFILE GRAVEL ENTRACE
ORRICK WWTP
STA 49+15.00
DETAIL A



ROUTE Z
PROFILE SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR. NUMBER PE-2003015005
PROFESSIONAL ENGINEER
Benjamin Stephen McCabe Sr
03/04/2025 9:13:57 PM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

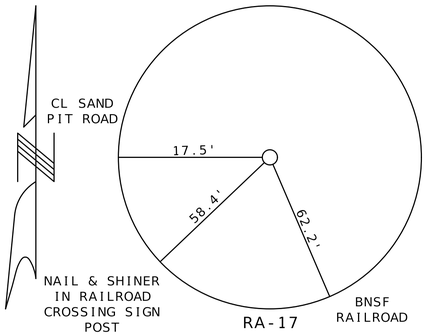
DATE PREPARED	3/4/2025
ROUTE	Z
STATE	MO
DISTRICT	KC
SHEET NO.	5
COUNTY	RAY
JOB NO.	JKR0103
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9575

DESCRIPTION	DATE

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

RA-17 IS A NAIL & SHINER IN UTILITY POLE
WITH CARSONITE WITNESS POST AT 3.9'

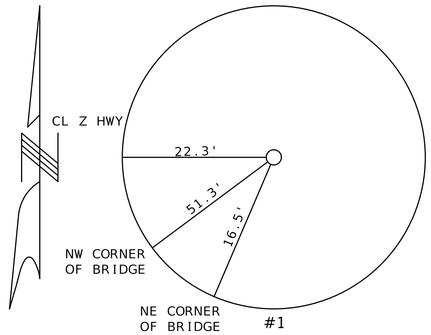
RTE Z



MODIFIED STATE PLANE:
NORTHING 1102895.215
EASTING 2904646.952
ELEV. 717.71
PROJ. FACTOR 1.0000711

#1 IS A 5/8" BAR W/ A PINK MODOT CAP LOCATED
ALONG Z HWY AT THE KEENEY CREEK BRIDGE
BURIED +/- 0.5' BELOW GROUND

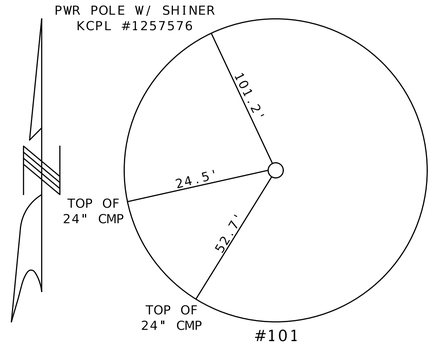
RTE Z



MODIFIED STATE PLANE:
NORTHING 1103839.395
EASTING 2897217.291
ELEV. 723.89'
PROJ. FACTOR 1.0000711

#101 IS A SECTION CORNER THAT LIES
NEAR THE CENTERLINE OF Z HWY WITH
AN ALUMINUM CAP. IT IS FLUSH WITH THE SURFACE
OF THE ROAD. THE MONUMENT IS ABOUT
900' +\- NORTH OF THE KEENEY CREEK BRIDGE

RTE Z



MODIFIED STATE PLANE:
NORTHING 1104731.158
EASTING 2897187.172
ELEV. 714.60'
PROJ. FACTOR 1.0000711

REFERENCE POINT SHEET
1 OF 1

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR.
NUMBER PE-2003015005
PROFESSIONAL ENGINEER

Benjamin Stephen McCabe Sr
03/04/2025 9:14:27 PM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED
3/4/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
KC	6

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9525

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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

PROJECT COORDINATE INFORMATION

COORDINATE SYSTEM	MODIFIED STATE PLANE(GROUND)
HORIZONTAL DATUM	NAD83
VERTICAL DATUM	NAVD88
GEOID MODEL	GEOID18
ELEVATIONS DETERMINED BY	GPS OBSERVATION
PROJECT PROJECTION FACTOR	1.00007110

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	MO COORDINATE SYSTEM OF 1983
CONTROL STATION	MO GEOGRAPHIC REFERENCE SYSTEM
DESIGNATION	RA 17
CORS_ID	
PID	DK7485
LATITUDE	39°11'40.80955"
LONGITUDE	094°05'29.92080"
NORTHING (M)	336139.2320
EASTING (M)	885275.2030
ZONE	WEST
PROJECT AVERAGE GRID FACTOR	0.99992891

EXAMPLE OF PROJECT COORDINATE TO S.P.C.

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

EXAMPLE: CONTROL POINT #1
N 1,103,839.40 X 0.99992891 = N 1,103,760.93
E 2,897,217.29 X 0.99992891 = E 2,897,011.33

LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION	GPK POINT ID
PROJECT CONTROL POINTS								
RA-17		SAND PIT RD	17.5	1,102,895.22	2,904,646.95	717.71	NAIL & SHINER IN UTILITY POLE	
#1		RTE Z	22.25	1,103,839.40	2,897,217.29	723.89	5/8" BAR W/ PINK MODOT CAP	
#101		RTE Z	0	1,104,731.16	2,897,187.17	714.60	SECTION CORNER NEAR CENTERLINE	
ALIGNMENTS								
	47+00	RTE Z	0	1,104,081.25	2,897,192.83	724.05	NORTH LIMITS	
	53+00	RTE Z	0	1,103,481.29	2,897,199.23	724.02	SOUTH LIMITS	

COORDINATE POINT SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR. NUMBER PE-2003015005
PROFESSIONAL ENGINEER
Benjamin Stephen McCabe Sr
03/26/2025 8:33:56 AM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED: 3/25/2025
ROUTE: Z
STATE: MO
DISTRICT: KC
SHEET NO.: 7
COUNTY: RAY
JOB NO.: JKR0103
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9575

DESCRIPTION | DATE

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

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

SIGN SPACING FOR ADVANCE SIGN SERIES (1) (2)		
PERMANENT POSTED SPEED MPH	UNDIVIDED HIGHWAYS (S)	DIVIDED HIGHWAYS (S)
0-35	200′	200′
40-45	350′	500′
50-55	500′	1000′
60-70	1000′	SA - 1000′ SB - 1500′ SC - 2640′

TAPER LENGTHS AND END TREATMENTS FOR CONCRETE BARRIER				
PERMANENT POSTED SPEED MPH	MINIMUM LANE TAPER LENGTH (3) 10′	11′	12′	END TREATMENT (4)
<40	160′	168′	176′	BARRIER HEIGHT TRANSITION
>40	160′	168′	176′	APPROVED CRASH CUSHION

TAPER LENGTHS AND SPACING FOR CHANNELIZERS							
PERMANENT POSTED SPEED MPH	MINIMUM LANE TAPER LENGTH (L) (3) 10′	11′	12′	MINIMUM SHOULDER TAPER LENGTH (T1) BASED ON 10′ SHOULDER	BUFFER LENGTH FT	MAXIMUM CHANNELIZER SPACING THROUGH TAPER	THROUGH WORK AREA
0-35	205′	225′	245′	70′	280′	35′	40′
40-45	450′	495′	540′	150′	400′	40′	80′
50-55	550′	605′	660′	185′	560′	50′	80′
60-70	700′	770′	840′	235′	840′	60′	120′

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

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

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

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

DETAILS NOTES:

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

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

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

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

TAPER LENGTH (L)

L = W X P FOR 40 MPH OR MORE

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

L = TAPER LENGTH IN FEET

W = LATERAL SHIFT IN FEET

P = POSTED SPEED PRIOR TO ROAD WORK IN MPH

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- FLAGGER
- CHANNELIZER
- PROTECTIVE VEHICLE WITH WORK SIGN, FLASHING ARROW PANEL AND REAR-MOUNTED IMPACT ATTENUATOR UNIT.
- FLASHING ARROW PANEL
- CHANGEABLE MESSAGE BOARD
- BARRICADE

LEGEND NOTE:

THE PROTECTIVE VEHICLE SIGN SHALL BE MOUNTED AT A RECOMMENDED HEIGHT OF 48 IN. ABOVE THE ROAD SURFACE.

GENERAL NOTES:

1. SEE STANDARD PLAN 616.10 FOR DETAILS AND ITEMS NOT SHOWN.
2. EXISTING SIGNS SHALL BE COVERED DURING WORKING HOURS ONLY IF IN CONFLICT WITH TRAFFIC CONTROL PLANS.
3. NO DIRECT PAYMENT WILL BE MADE FOR RELOCATING, COVERING, UNCOVERING OR REMOVING SIGNS.
4. CONES ALLOWABLE FOR DAYTIME OPERATIONS ON MINOR ROUTES ONLY.
5. LOCATE FLASHING ARROW PANEL AT BEGINNING OF TAPER WHEN FEASIBLE, ARROW PANELS ARE ALWAYS LOCATED BEHIND CHANNELIZERS OR CONES.

EPG TABLE 616.12 RECOMMENDED MAXIMUM SPEED REDUCTIONS	
ACTIVITY (I.E. WORKERS, EQUIPMENT OR MATERIAL) LOCATION	RECOMMENDED WORK ZONE SPEED REDUCTION (WHEN APPLICABLE)
10 FT. BEYOND EDGE OF TRAVELWAY TO EDGE OF RIGHT OF WAY	NO SPEED REDUCTION
IN TRAFFIC LANE OR WITHIN 10FT. OF THE TRAFFIC LANE	10 MPH
HEAD-TO-HEAD ON MULTILANE	10 MPH
SPECIAL CIRCUMSTANCES WITHIN A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY WARRANT A LOWER SPEED LIMIT THAN RECOMMENDED ABOVE. ALL SPEED LIMIT REDUCTIONS GREATER THAN 10 MPH SHALL BE DOCUMENTED, SUBMITTED TO AND APPROVED BY THE DISTRICT WORK ZONE COORDINATOR.	

TEMPORARY TRAFFIC CONTROL SHEET 1 OF 2

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR.
NUMBER PE-2003015005
PROFESSIONAL ENGINEER
Benjamin Stephen McCabe Sr
03/04/2025 9:15:24 PM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED 3/4/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
KC	8

COUNTY RAY

JOB NO. JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9575

DESCRIPTION | DATE

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

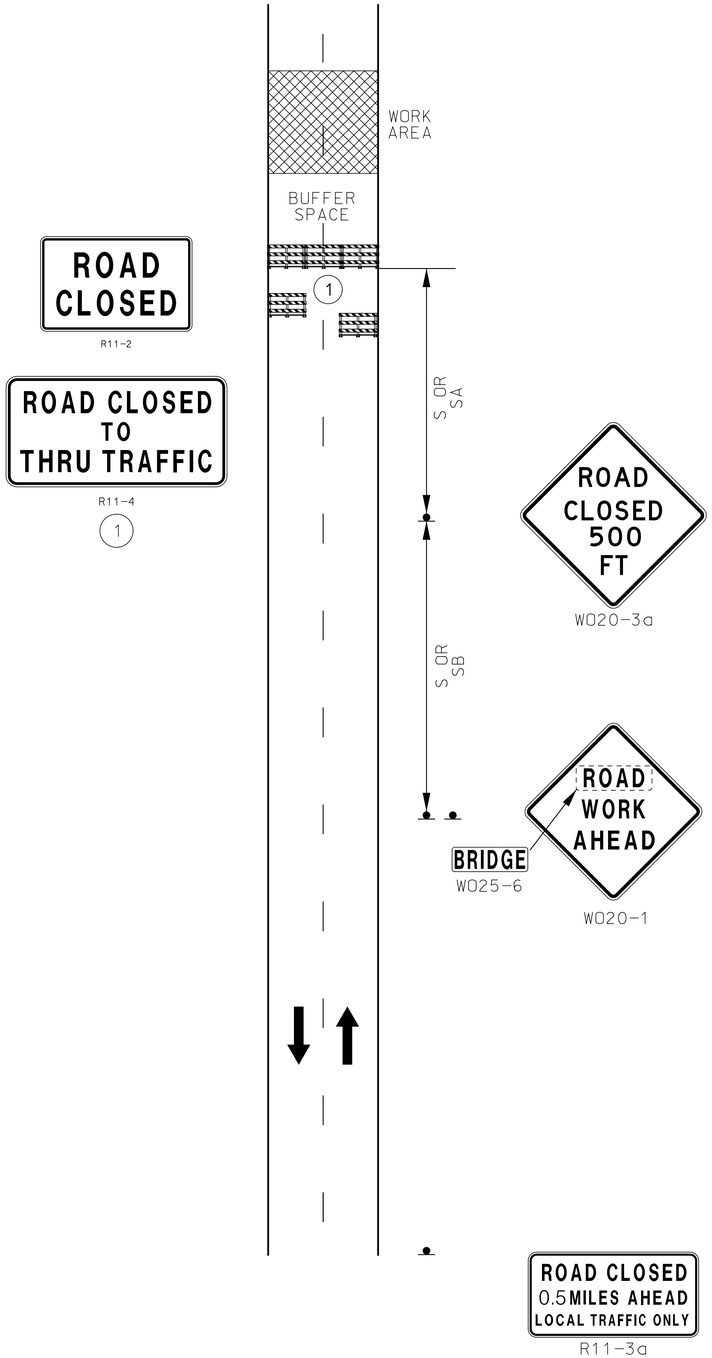
NOTES: SEE TRAFFIC CONTROL SHEET 1 FOR WORK ZONE SPEED LIMIT GUIDELINES.

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

"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.

IF USED, THE "ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY" OR "ROAD CLOSED TO THRU TRAFFIC" SIGN SHOULD BE LOCATED AT THE FIRST STATE ROUTE OR, UPON THE DISCRETION OF THE ENGINEER, ANY OTHER INTERSECTION IN ADVANCE OF THE CLOSURE. ADDITIONAL BARRICADES MAY BE USED AND OFFSETTED TO FACILITATE ACCESS FOR WORK VEHICLES, LOCAL TRAFFIC, ETC.

CHANGEABLE MESSAGE SIGNS WITH TRIMLINE CHANNELIZERS PLACED EAST ON 210, WEST ON 210, AND AT W 52ND ST INTERSECTIONS DISPLAYING "RTE Z CLOSED NO ASSIGNED DETOUR FIND ALT RTE" AS APPROVED BY THE ENGINEER. CHANNELIZERS ARE INCIDENTAL



HIGHWAY
CLOSURE
ON UNDIVIDED HIGHWAY
TEMPORARY
TRAFFIC CONTROL
SHEET 2 OF 2

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR.
NUMBER PE-2003015005
PROFESSIONAL ENGINEER
03/04/2025 9:15:48 PM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED 3/4/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
KC	9

COUNTY RAY

JOB NO. JKR0103

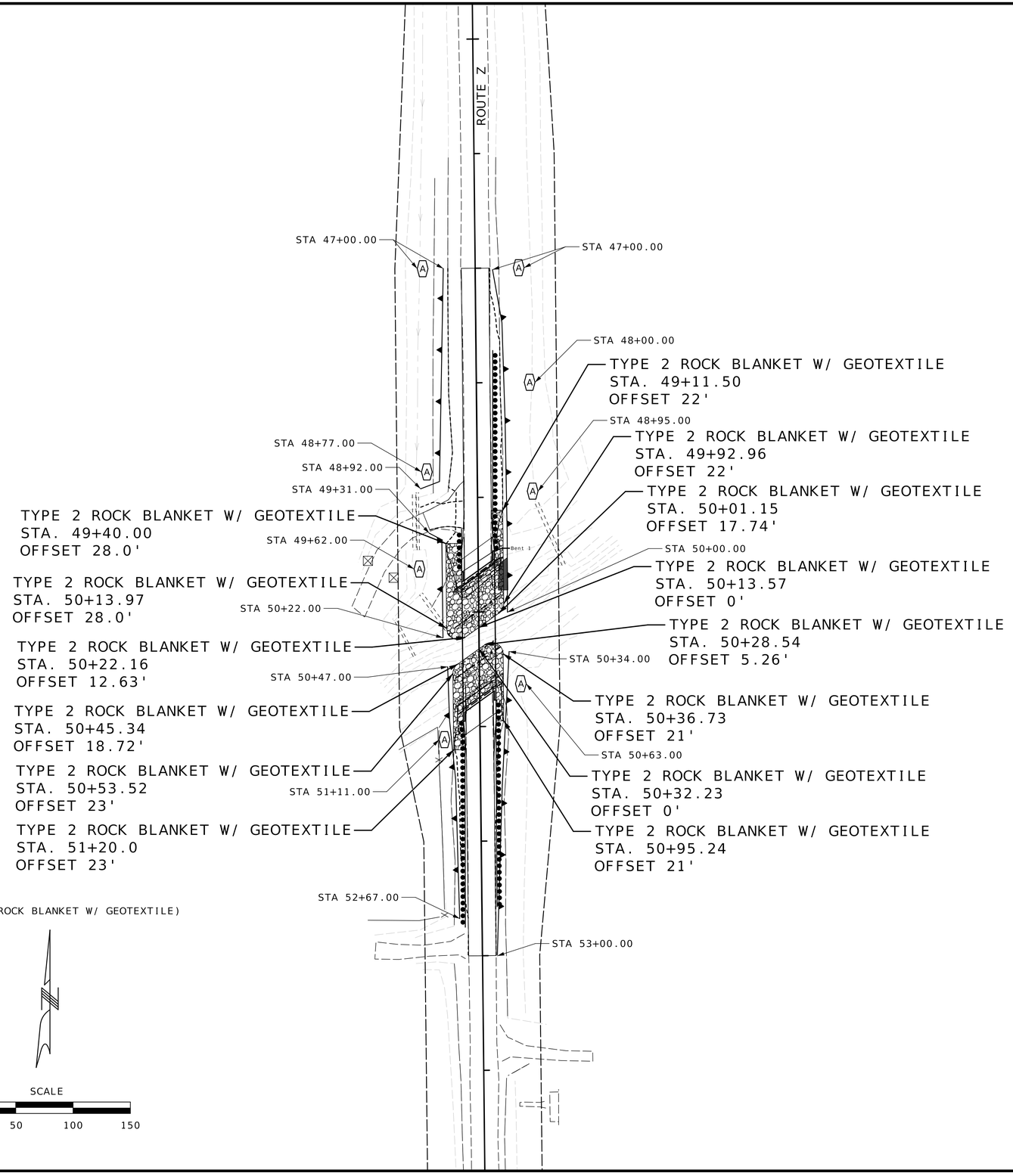
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9575

DESCRIPTION	DATE

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



TEMPORARY EROSION CONTROL LEGEND

- ALTERNATE DITCH CHECK
- SILT FENCE
- PERMANENT SEDIMENT BASIN (TYPE 2 ROCK BLANKET W/ GEOTEXTILE)

SCALE

0 50 100 150

TEMPORARY EROSION CONTROL SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BENJAMIN STEPHEN MCCABE SR.
NUMBER PE-2003015005
PROFESSIONAL ENGINEER

Benjamin Stephen McCabe Sr

03/04/2025 9:16:16 PM
BENJAMIN STEPHEN MCCABE SR - CIVIL
MO-PE-2003015005

DATE PREPARED
3/4/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
KC	10

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

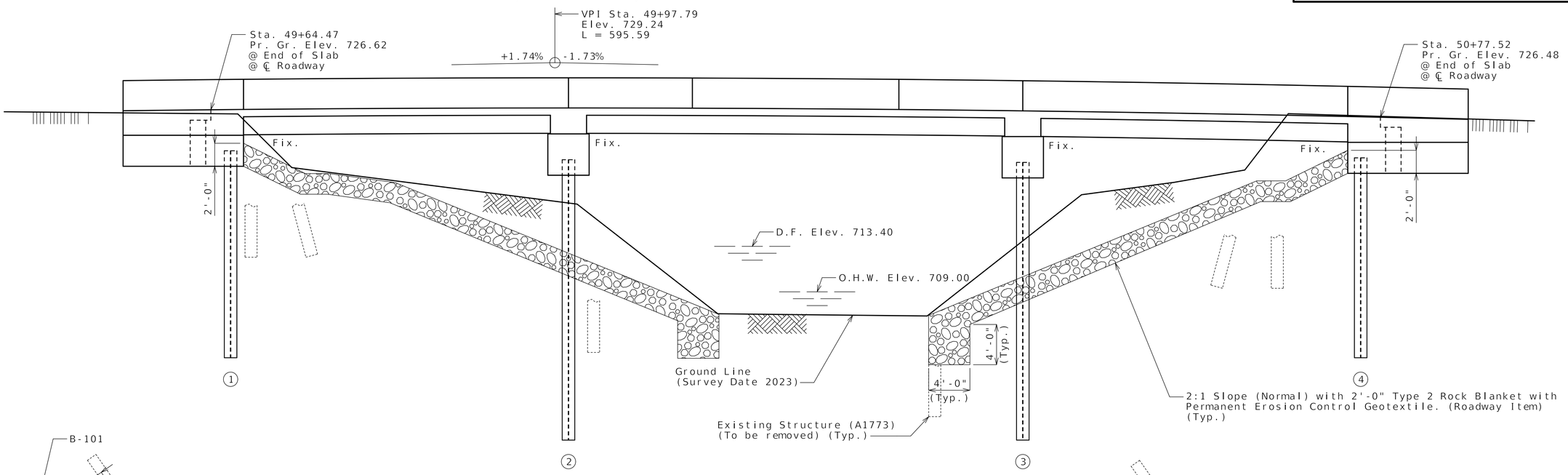
BRIDGE NO.
A9575

DESCRIPTION | DATE

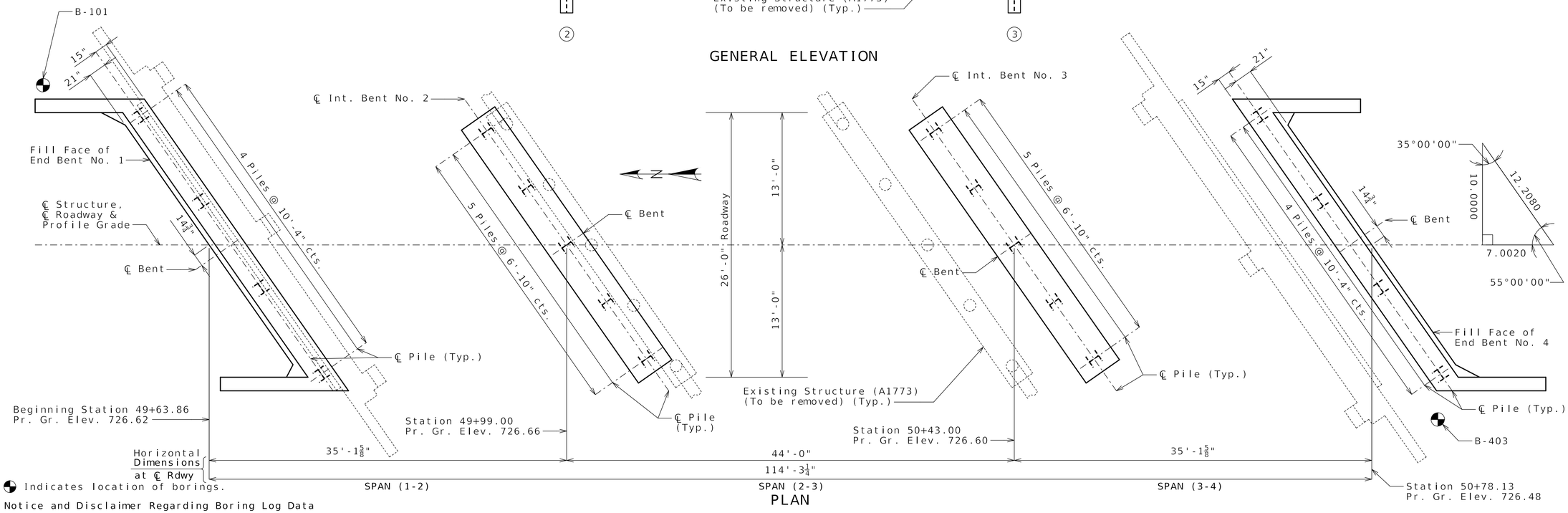
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

(33'-44'-33') PRESTRESSED CONCRETE SPREAD BOX BEAM SPANS

SEC/SUR 26 TWP 51N RGE 29W



GENERAL ELEVATION



Indicates location of borings.

PLAN

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheet(s) No. 22 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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

Designed Feb. 2025
Detailed Feb. 2025
Checked Mar. 2025

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

B.M. #1 - 5/8" BAR W/ PINK MODOT CAP AT KEENY CREEK BRIDGE

B.M. #101 - SECTION CORNER NEAR CENTERLINE OF ROUTE Z
ALUMINUM CAP FLUSH WITH ROAD SURFACE
MONUMENT ABOUT 900' NORTH OF BRIDGE

BRIDGE: ROUTE Z OVER KEENEY CREEK

ROUTE Z FROM ROUTE 210 TO END OF STATE MAINT.
ABOUT 2.0 MILES SOUTH OF ROUTE 210
BEGINNING STATION 49+63.86

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
Ted Koester
04/01/2025 12:11:25 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	1

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9575

DESCRIPTION	DATE

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

Foundation Data

Type	Design Data		Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		HP 14x73	HP 14x73	HP 14x73	HP 14x73
	Number	ea	4	5	5	4
	Approximate Length Per Each	ft	103	102	101	99
	Pile Point Reinforcement	ea	ALL	ALL	ALL	ALL
	Min. Galvanized Penetration (Elev.)	ft	700.80	691.39	690.00	700.66
	Est. Max. Scour Depth 100 (Elev.)	ft	-	701.4	700.0	-
	Minimum Tip Penetration (Elev.)	ft	670	668	675	670
	Criteria for Min. Tip Penetration		Lateral Stability	Lateral Stability	Lateral Stability	Lateral Stability
	Pile Driving Verification Method		DF	DF	DF	DF
	Resistance Factor		0.40	0.40	0.40	0.40
	Minimum Nominal Axial Compressive Resistance	kip	350	415	415	350

DF = FHWA-Modified Gates Dynamic Formula

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

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

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

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

Hydrologic Data

Drainage Area = 7.3 mi^2
Design Flood Frequency = 50 years
Design Flood Discharge = 2300 cfs
Design Flood (D.F.) Elevation = 713.4 (ft)
Base Flood (100-year)
Base Flood Elevation = 719.6 (ft)
Base Flood Discharge = 2800 cfs
Estimated Backwater = 0.2 ft
Average Velocity thru Opening = 8.7 ft/s
Freeboard (50-year)
Freeboard = 4.6 ft
Roadway Overtopping
Overtopping Flood Discharge = 3600 cfs
Overtopping Flood Frequency = 392.6 years
500-year Flood Elevation = 714.6

Estimated Quantities

Item		Substr.	Superstr.	Total
Removal of Miscellaneous ACM (Non-Friable)	sq. foot			9
Class 1 Excavation	cu. yard	70		70
Removal of Bridges (A1773)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		122	122
Galvanized Structural Steel Piles (14 in.)	linear foot	1823		1823
Pile Point Reinforcement	each	18		18
Class B Concrete (Substructure)	cu. yard	65.6		65.6
Type H Barrier	linear foot		261	261
Slab on Concrete Beam	sq. yard		360	360
21 in., Prestressed Concrete Spread Box Beam	linear foot		328	328
Reinforcing Steel (Bridges)	pound	5,200		5,200
Slab Drain	each		16	16
Vertical Drain at End Bents	each			2
Plain Neoprene Bearing Pad	each		6	6
Laminated Neoprene Bearing Pad	each		12	12

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

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

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

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

General Notes:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd ED.)
Seismic Design Category = A (Nonseismic Details)
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 < 0.15 = 0.129g
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.082g

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

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Beams and Barrier)	f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60)	fy = 60,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50)	fy = 50,000 psi

For prestressed box beam stresses, see Sheets No. 9 & 10.

Neoprene Pads:
Neoprene bearing pads shall be 60 durometer and shall be in accordance with Sec 716.

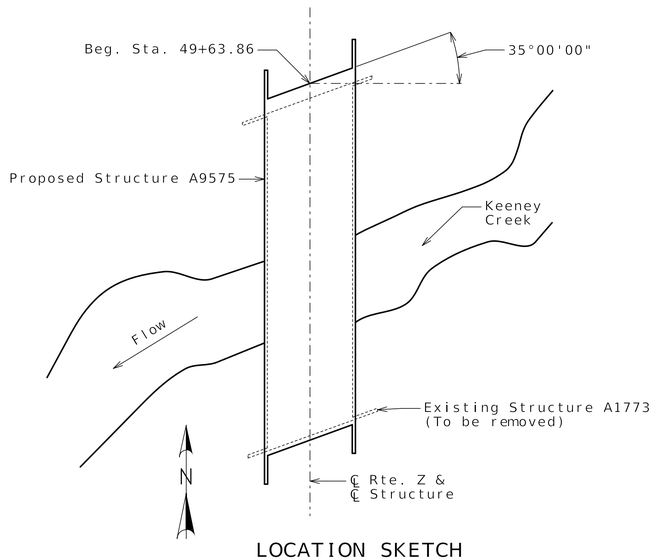
Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

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

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

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

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



LOCATION SKETCH

Estimated Quantities for Slab on Concrete Beam

Item		Total
Class B-2 Concrete	cu. yard	113
Reinforcing Steel (Epoxy Coated)	pound	32,870

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

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

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
Ted Koester
04/02/2025 7:03:57 AM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	2

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9575

DESCRIPTION	DATE

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

Detailed Feb. 2025
Checked Mar. 2025

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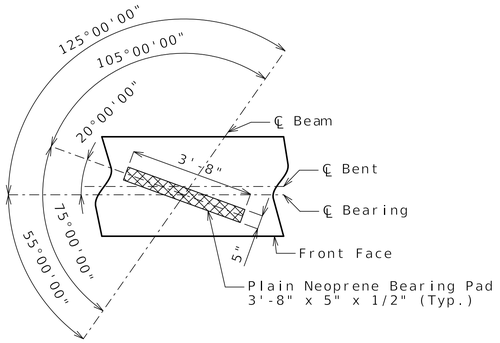
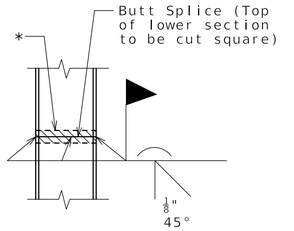


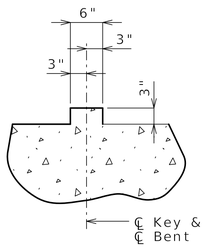
DETAIL A



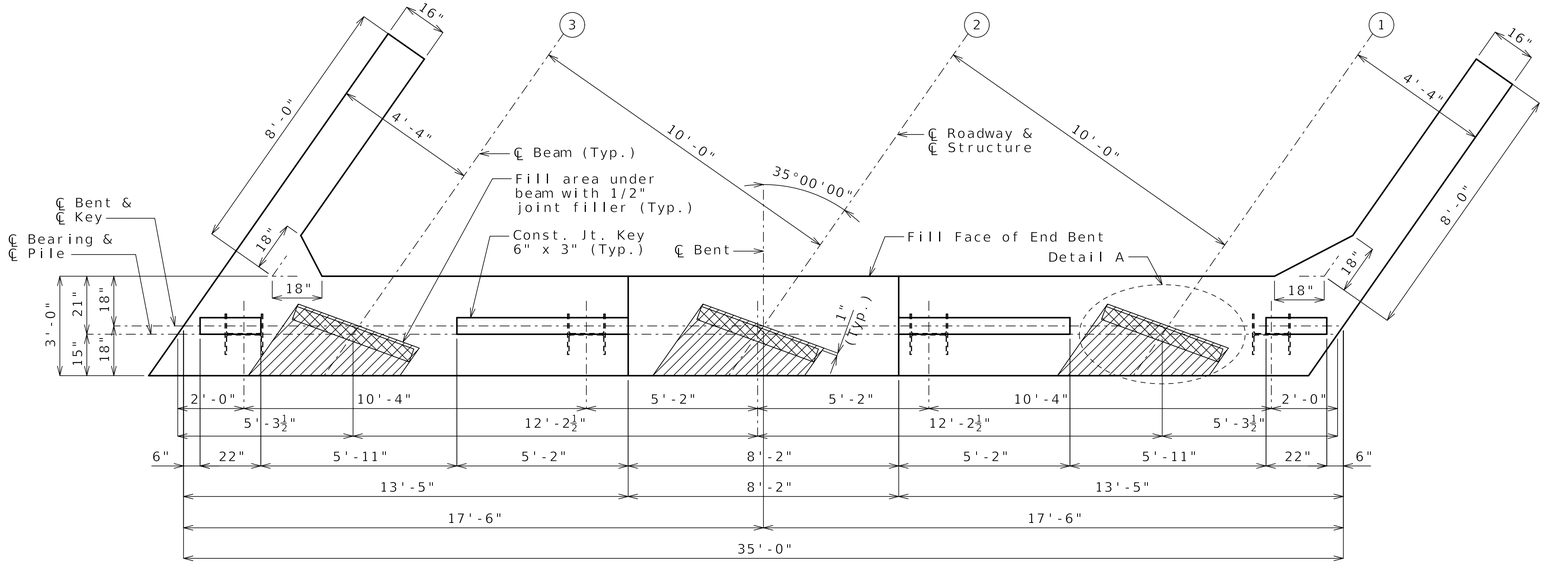
STEEL PILE SPLICE

(If required)

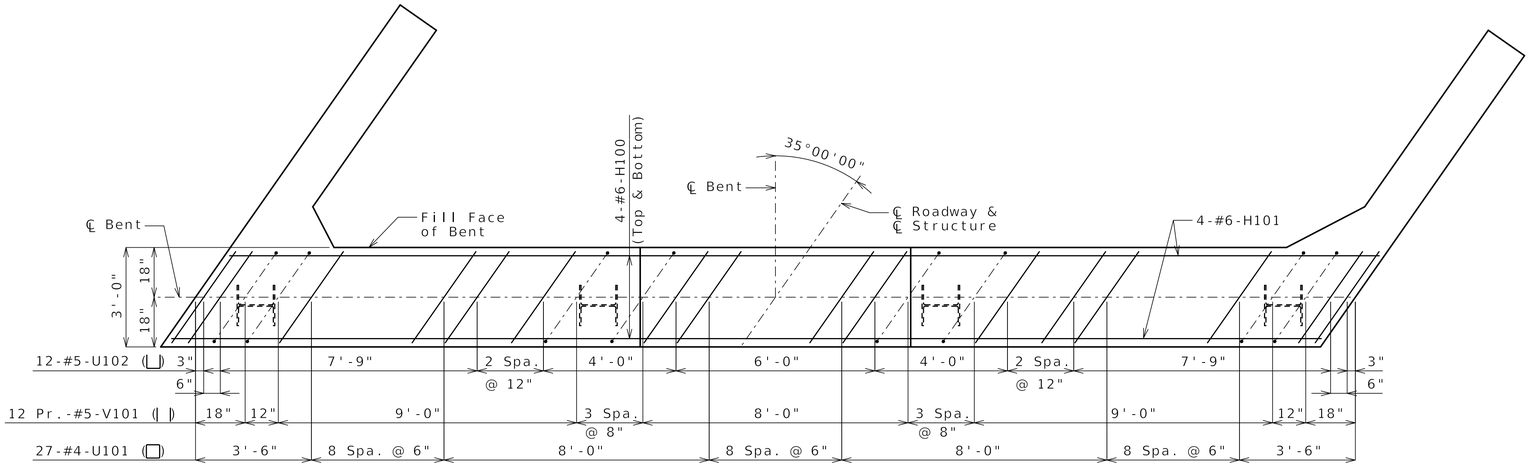
* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.



SECTION THRU KEY



PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT

* 2 Spa. @ 6"

Notes:

Work this sheet with Sheets No. 4 & 5.

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

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

Substructure Quantity Table for Bent No. 1 & 4			
Item		Bent 1 Quantity	Bent 4 Quantity
Class 1 Excavation	cu. yard	35	35
Galvanized Structural Steel Piles (14 in.)	linear foot	412	396
Pile Point Reinforcement	each	4	4
Class B Concrete (Substructure)	cu. yard	14.6	14.6

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

END BENTS NO. 1 & 4

Detailed Feb. 2025
Checked Mar. 2025

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STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
Ted Koester
04/01/2025 12:12:10 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	3

COUNTY
RAY

JOB NO.
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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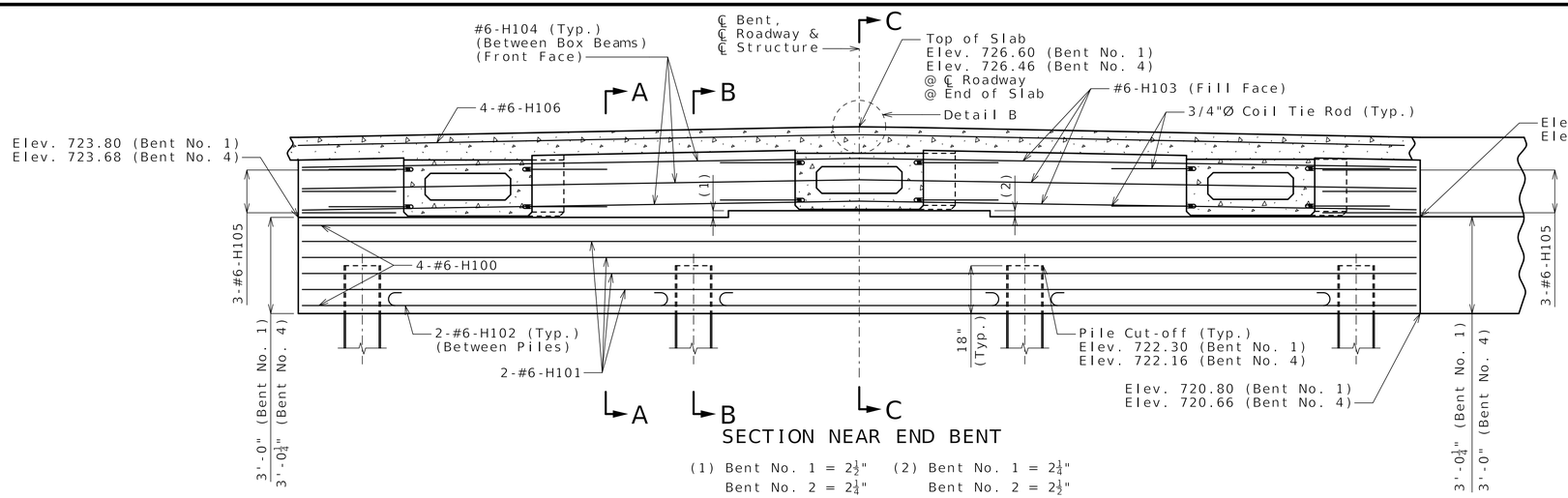
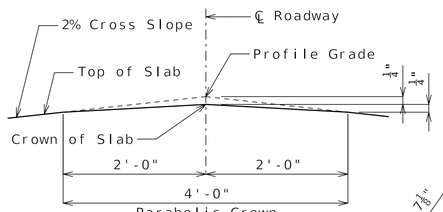
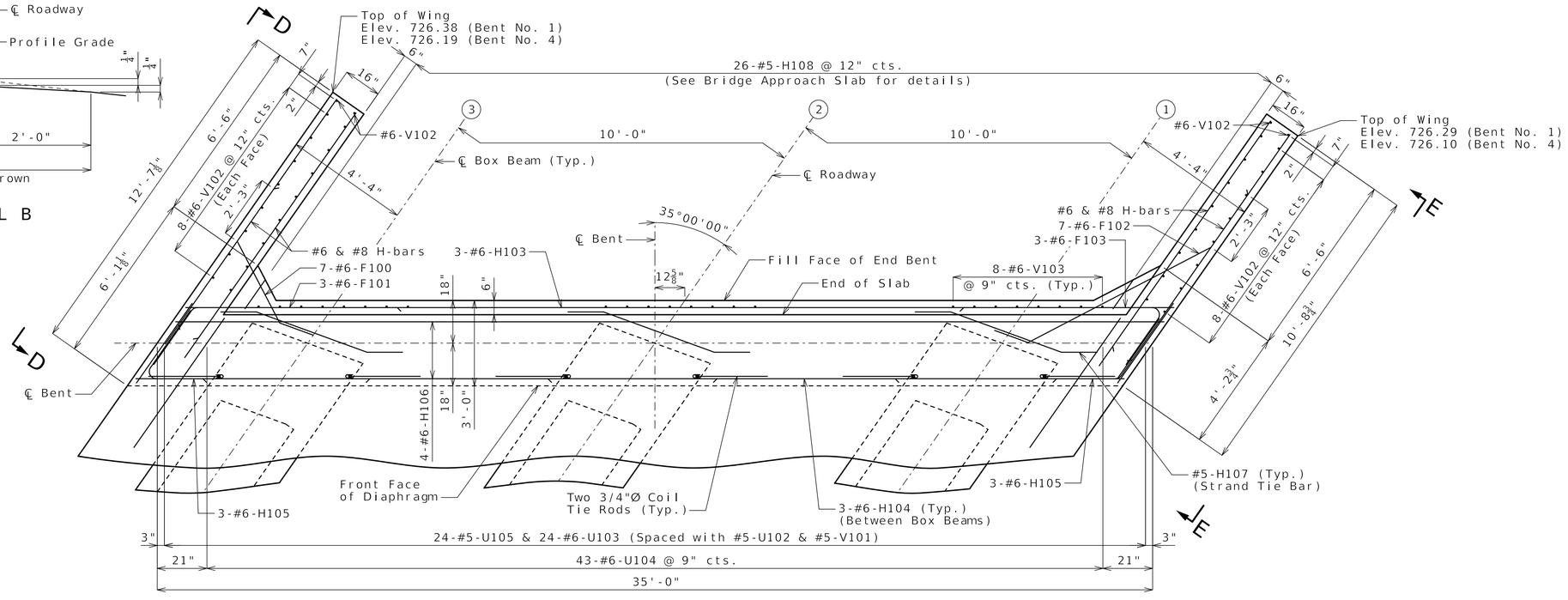


SECTION NEAR END BENT

(1) Bent No. 1 = 2½" (2) Bent No. 1 = 2¼"
Bent No. 2 = 2¼" Bent No. 2 = 2½"



DETAIL B



PART PLAN
(Bent No. 1 shown, Bent No. 4 similar)

Notes:

The #6-F100 and #6-F102 bars shall be bent in the field to clear box beams.

The U bars and #5-H108 shall be placed parallel to centerline of roadway.

For location of Coil Tie Rods and #5-H107 (Strand Tie Bar), see Sheets No. 9 & 10.

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

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

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

For Sections A-A thru C-C, Elevations D-D and E-E and Section Thru Wings, see Sheet No. 5.

For details of Bridge Approach Slab, see Sheet No. 18.

Work this sheet with Sheets No. 3 & 5.

END BENTS NO. 1 & 4

Detailed Feb. 2025
Checked Mar. 2025

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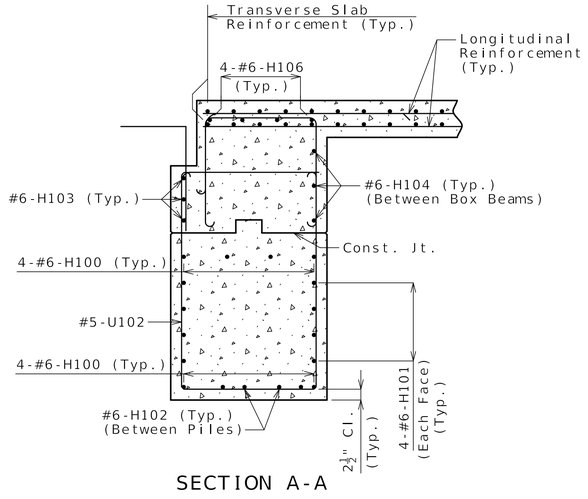
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
04/01/2025 12:12:31 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

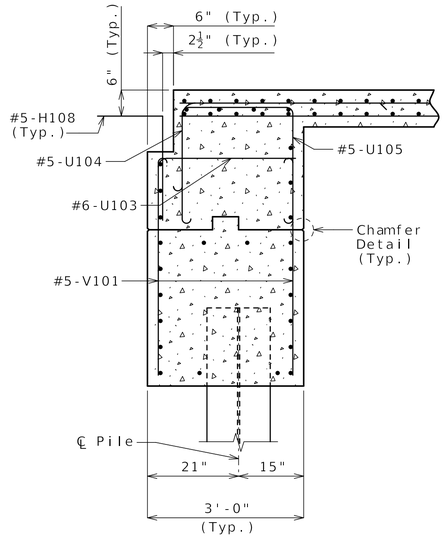
ROUTE Z | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY RAY
JOB NO. JKR0103
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9575

DESCRIPTION | DATE

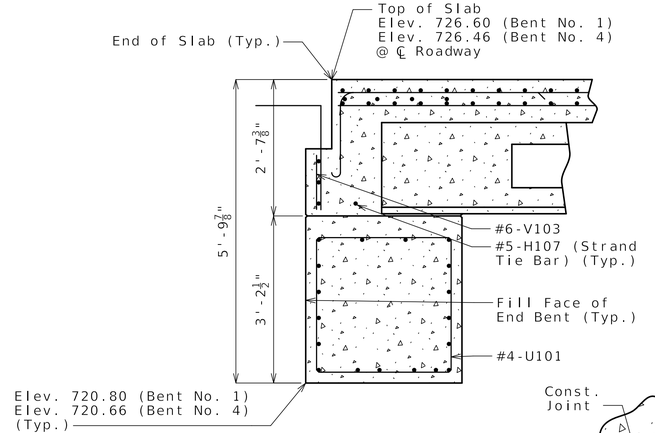
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



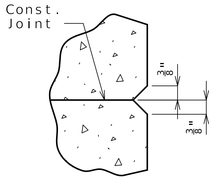
SECTION A-A



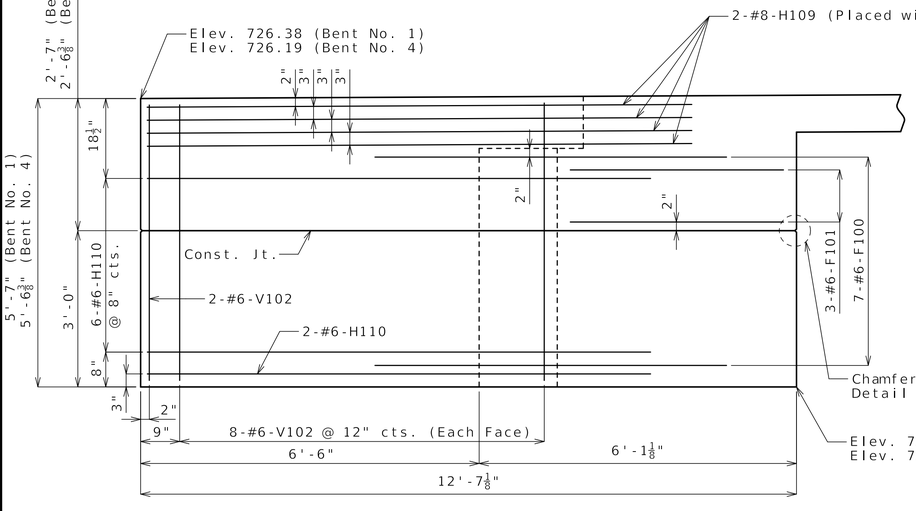
SECTION B-B



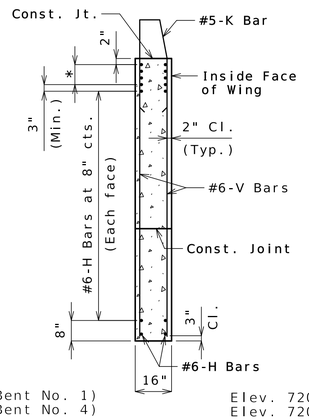
SECTION C-C



CHAMFER DETAIL

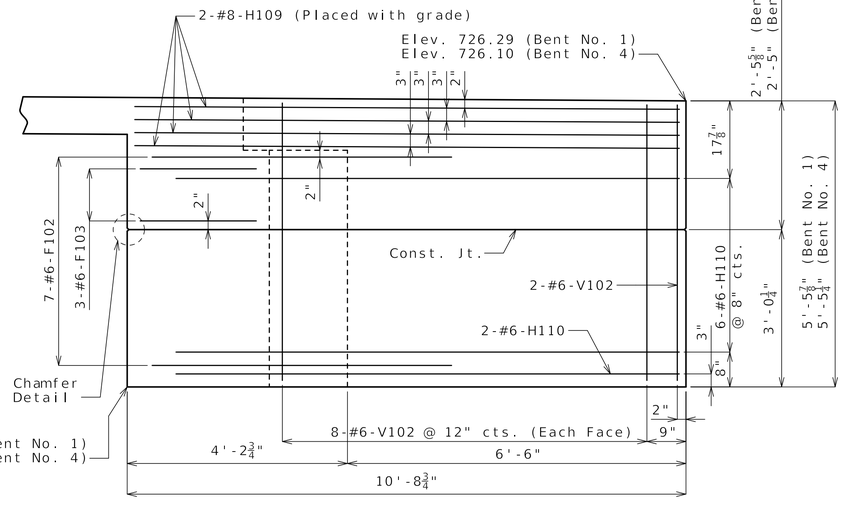


ELEVATION D-D



TYPICAL SECTION THRU WING

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



ELEVATION E-E

Notes:

For details and reinforcement of Type H Barrier, see Sheets No. 16 & 17.

For location of Sections A-A thru C-C and Elevations D-D and E-E, see Sheet No. 4.

Work this sheet with Sheets No. 3 & 4.

END BENTS NO. 1 & 4

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TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
Ted Koester
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TED S. KOESTER - CIVIL
MO-PE-2013000591

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ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	5

COUNTY
RAY

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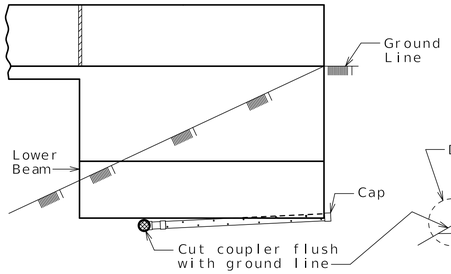
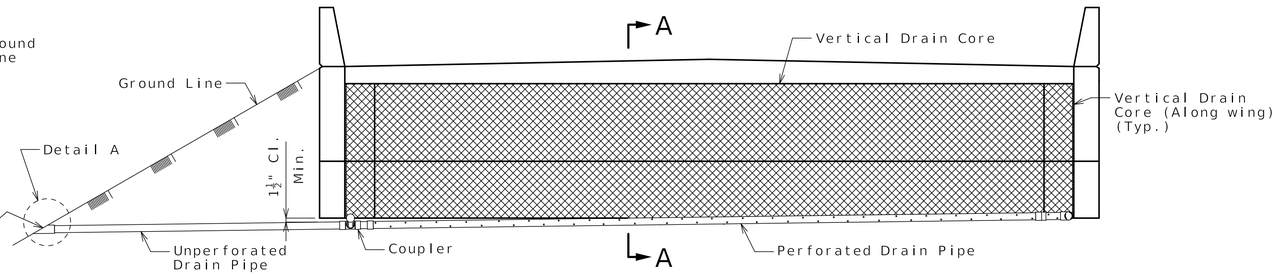
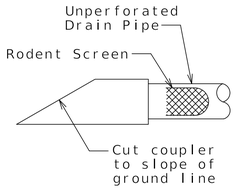


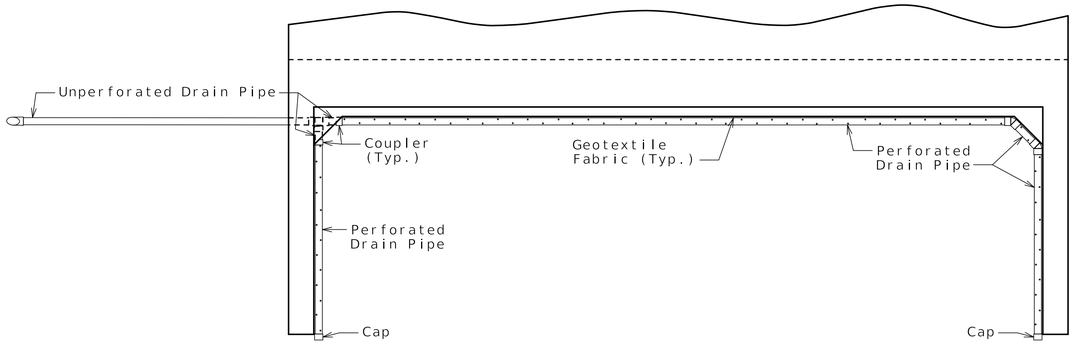
ELEVATION OF WING



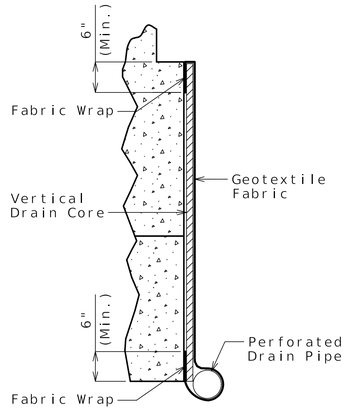
ELEVATION OF END BENT



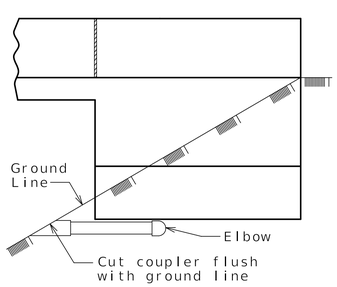
DETAIL A



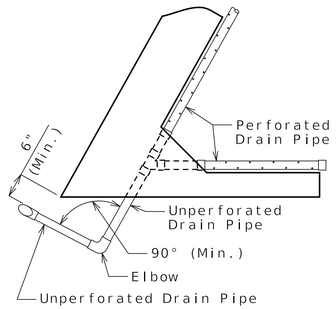
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

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TED S. KOESTER
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PROFESSIONAL ENGINEER
04/01/2025 12:13:20 PM
TED S. KOESTER - CIVIL
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ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	6

COUNTY: RAY
JOB NO.: JKR0103
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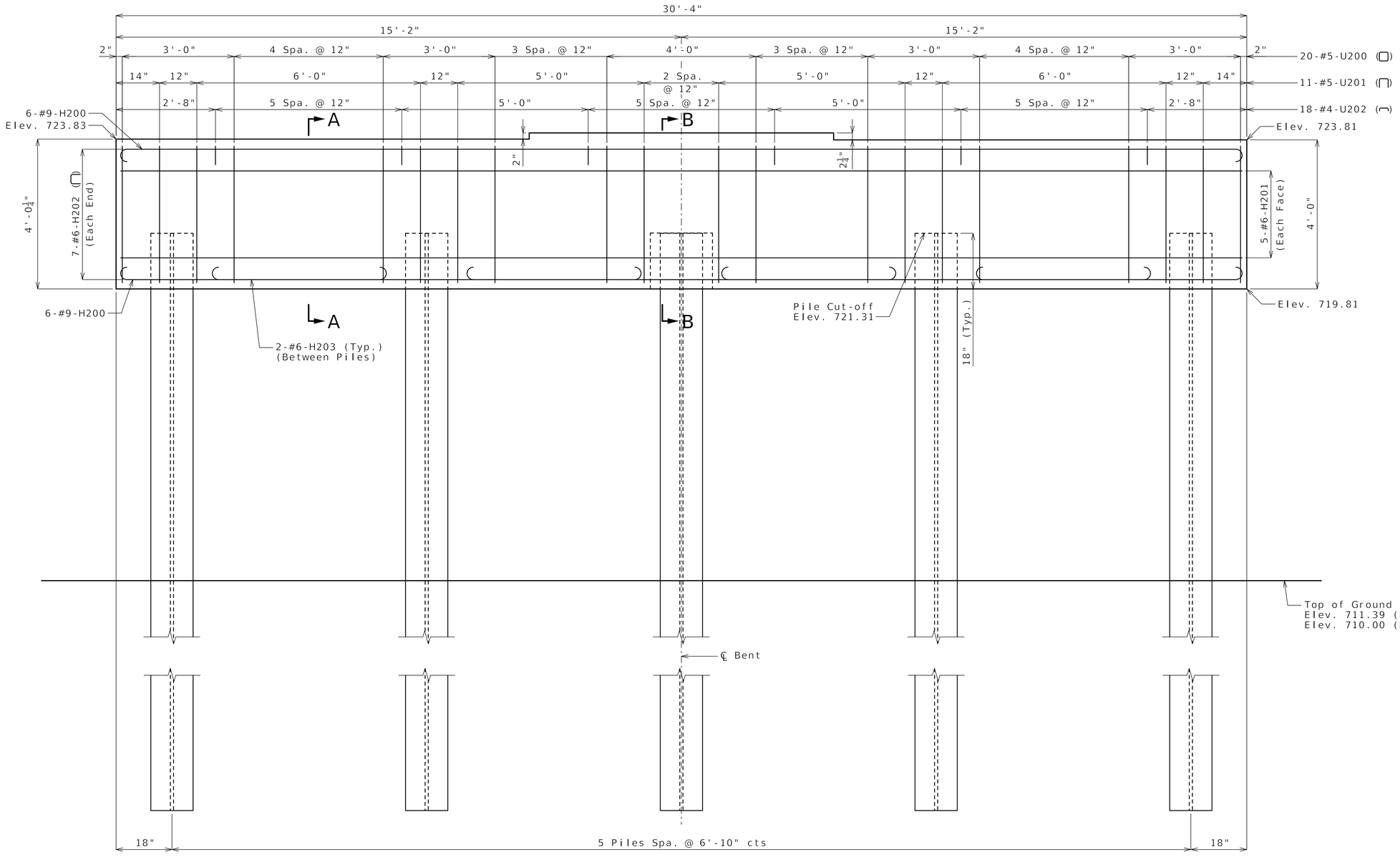
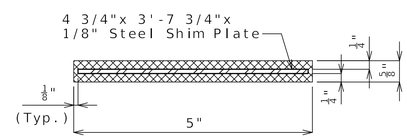


ELEVATION

Notes:

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

Work this sheet with Sheet No. 8.



TYPICAL SECTION
THRU LAMINATED
NEOPRENE BEARING PAD

INTERMEDIATE BENTS NO. 2 & 3

Detailed Feb. 2025
Checked Mar. 2025

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
04/01/2025 12:13:42 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	7

COUNTY
RAY

JOB NO.
JKR0103

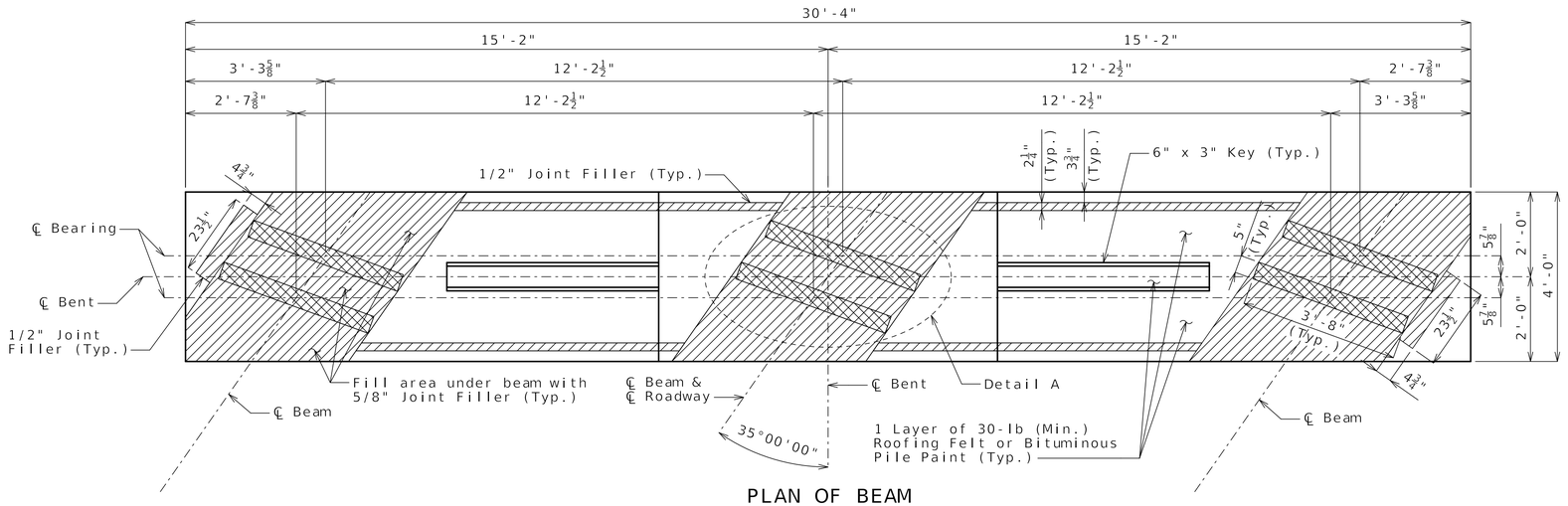
CONTRACT ID.

PROJECT NO.

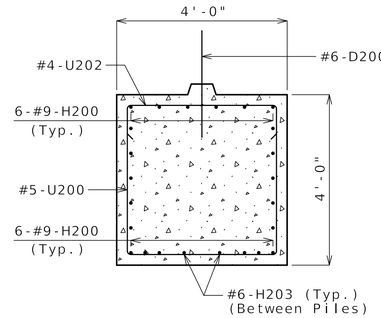
BRIDGE NO.
A9575

DESCRIPTION	DATE

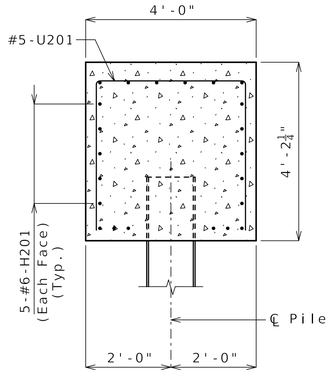
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



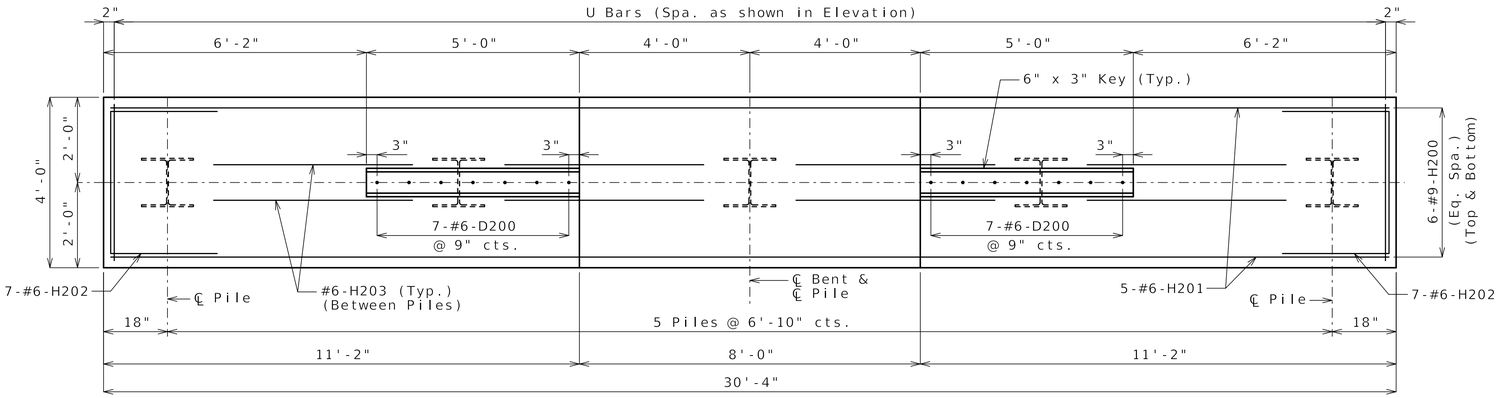
PLAN OF BEAM



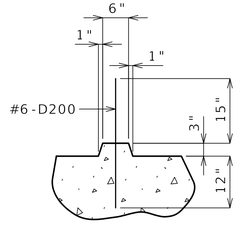
SECTION A-A



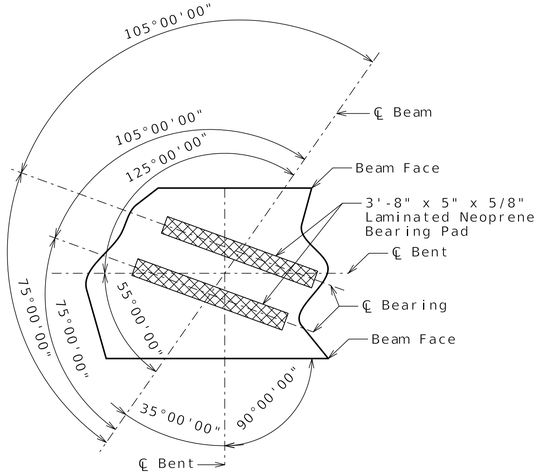
SECTION B-B



PLAN OF BEAM
SHOWING REINFORCEMENT



SECTION THRU KEY



DETAIL A

Substructure Quantity Table for Bent No. 2 & 3			
Item		Bent 2 Quantity	Bent 3 Quantity
Galvanized Structural Steel Piles (14 in.)	linear foot	510	505
Pile Point Reinforcement	each	5	5
Class B Concrete (Substructure)	cu. yard	18.3	18.3
Reinforcing Steel (Bridges)	pound	2,600	2,600

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

Notes:

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

Work this sheet with Sheet No. 7.

INTERMEDIATE BENTS NO. 2 & 3

Detailed Feb. 2025
Checked Mar. 2025

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STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
04/02/2025 7:09:49 AM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	8

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

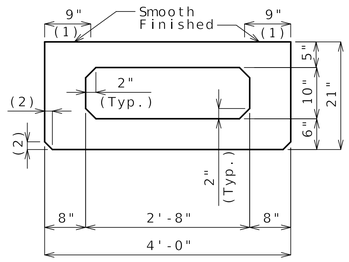
PROJECT NO.

BRIDGE NO.
A9575

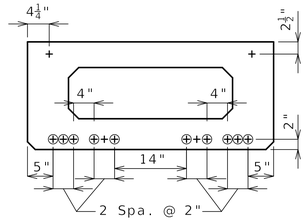
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



DIMENSIONS

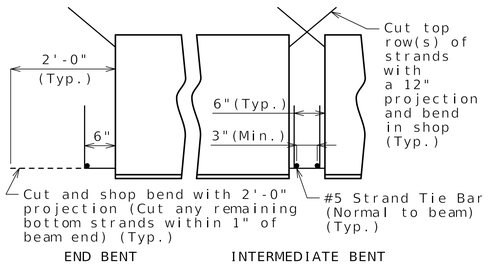


STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

\+ Indicates prestressing strand.

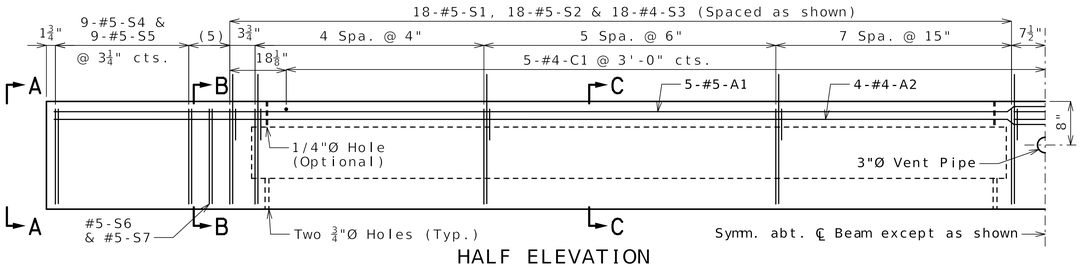
○ Indicates cut and shop bend with 2'-0" projection.



STRANDS AT BEAM ENDS

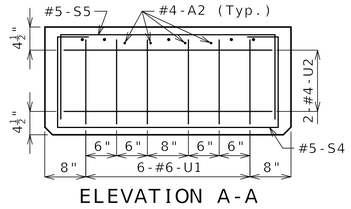
(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.

(2) 1½" (Typ.) (¾" Optional)



HALF ELEVATION

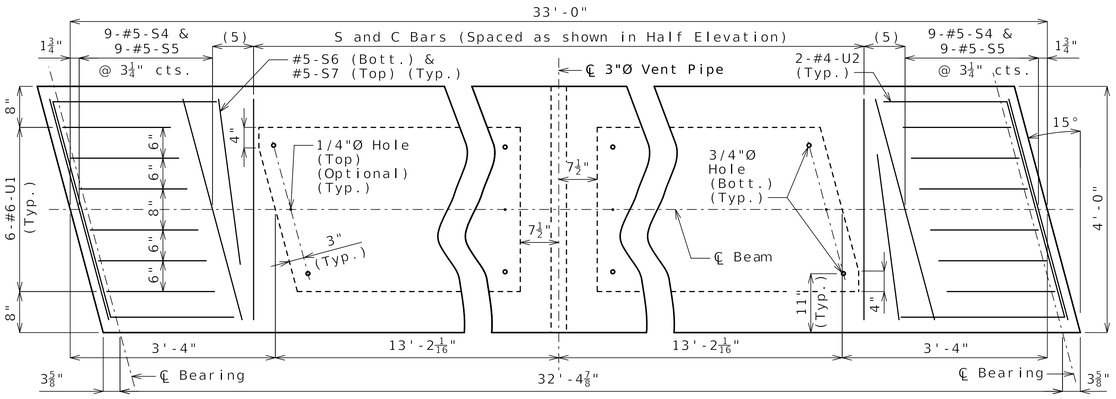
Dimensions taken along ℄ Beam.



ELEVATION A-A

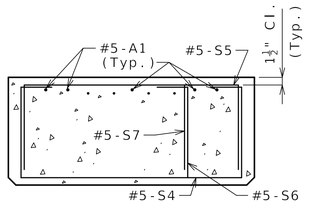
(5) 2 Spa. @ 4"

Strands not shown for clarity.



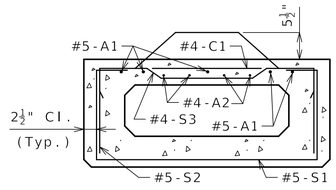
PART PLAN

Mirror about ℄ Beam for left advanced.



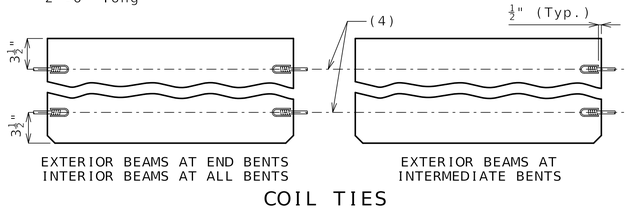
SECTION B-B

Mirror for left advanced.

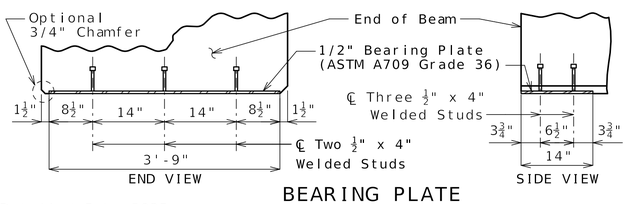


SECTION C-C

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



COIL TIES



BEARING PLATE

BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
10	5 A1	32'-10"	20	
8	4 A2	32'-10"	20	
9	4 C1	3'-7"	20	
36	5 S1	7'-3"	10S	(S1)3'-7" (S4)3'-8½" (S6)2'-8½" (#4) (#5) 18¼" 18½" 4½" (#4) 6" (#5) (S1,S4,S6)
36	5 S2	6'-9"	51S	
36	4 S3	4'-6"	50S	
18	5 S4	7'-4"	10S	
18	5 S5	6'-6"	10S	(S5) 3'-8½" (S7) 2'-8½" 17¾" (S5,S7) SHAPE 10S
2	5 S6	6'-4"	10S	
2	5 S7	5'-6"	10S	
12	6 U1	4'-7"	10S	21" 17" (U1) SHAPE 10S
4	4 U2	8'-4"	21S	3'-5¾" 2'-11¼" 24" 11¼" SHAPE 21S
				SHAPE 20
				10" 2½" 2¼" 6" 18" SHAPE 50S
				7¾" 7¾" 17¾" 7¾" 12" SHAPE 51S

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

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

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

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

All reinforcement shall be Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8000 psi and f'ci = 6500 psi.

Use 14 strands, 0.60"Ø Grade 270, with an initial prestress force of 615 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

For Beam Camber Diagram, see Sheet No. 13.

For location of coil inserts at slab drains, see Sheet No. 12.

For location of coil ties at concrete bent diaphragms, see Sheet No. 4.

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
04/01/2025 12:14:24 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	9

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9575

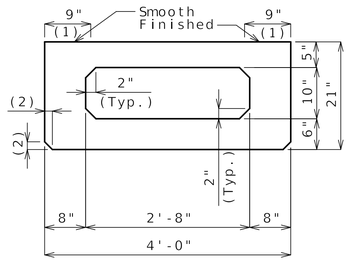
DESCRIPTION	DATE

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

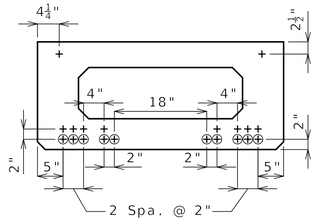
Detailed Feb. 2025
Checked Mar. 2025

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

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



DIMENSIONS

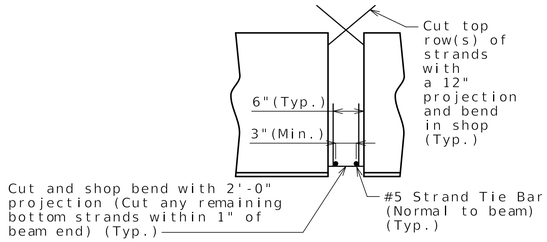


STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

\+ Indicates prestressing strand.

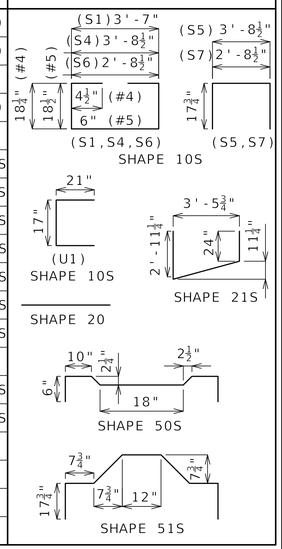
○ Indicates cut and shop bend with 2'-0" projection.



INTERMEDIATE BENT

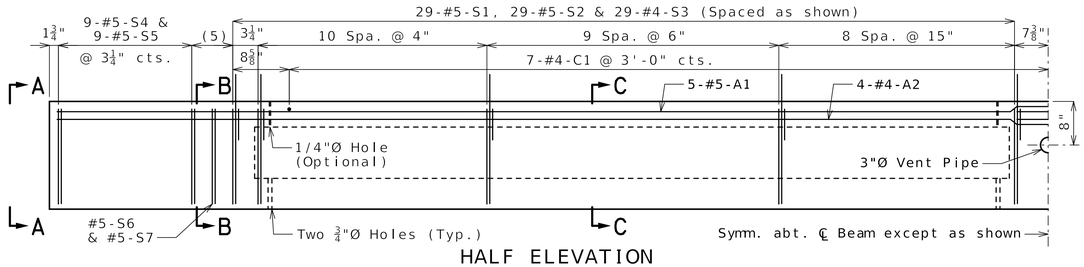
STRANDS AT BEAM ENDS

BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
10	5 A1	43'-2¾"	20	
8	4 A2	43'-2¾"	20	
13	4 C1	3'-7"	20	
58	5 S1	7'-3"	10S	
58	5 S2	6'-9"	51S	
58	4 S3	4'-6"	50S	
18	5 S4	7'-4"	10S	
18	5 S5	6'-6"	10S	
2	5 S6	6'-4"	10S	
2	5 S7	5'-6"	10S	
12	6 U1	4'-7"	10S	
4	4 U2	8'-4"	21S	



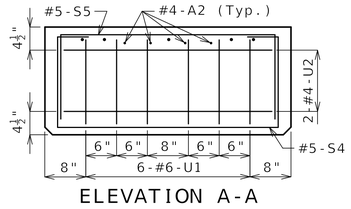
(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.

(2) 1½" (Typ.) (¾" Optional)



HALF ELEVATION

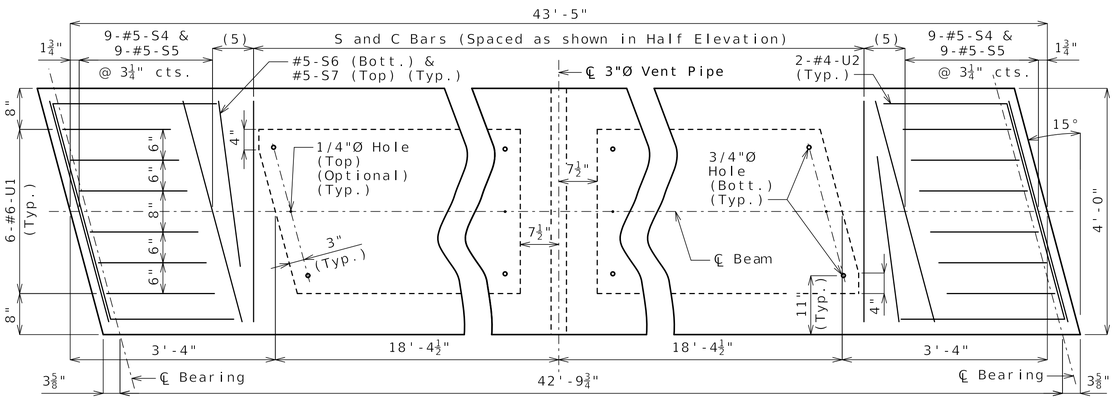
Dimensions taken along ℄ Beam.



ELEVATION A-A

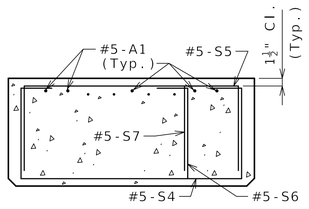
(5) 2 Spa. @ 4"

Strands not shown for clarity.



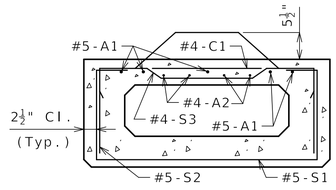
PART PLAN

Mirror about ℄ Beam for left advanced.



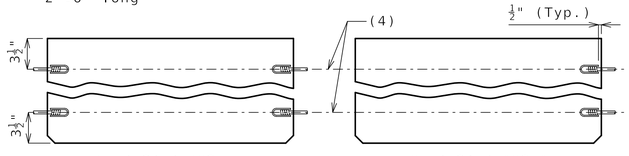
SECTION B-B

Mirror for left advanced.



SECTION C-C

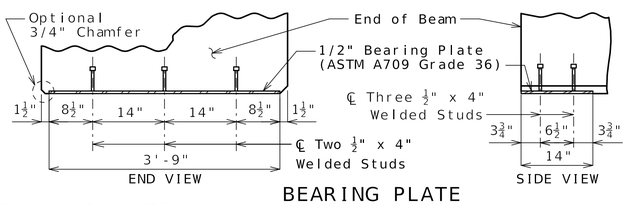
(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long



INTERIOR BEAMS AT INTERMEDIATE BENTS

EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES



BEARING PLATE

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

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

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

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

All reinforcement shall be Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8000 psi and f'ci = 6500 psi.

Use 20 strands, 0.60"Ø Grade 270, with an initial prestress force of 878 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

For Beam Camber Diagram, see Sheet No. 13.

For location of coil inserts at slab drains, see Sheet No. 12.

For location of coil ties at concrete bent diaphragms, see Sheet No. 4.

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
04/01/2025 12:14:46 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	10

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9575

DESCRIPTION	DATE

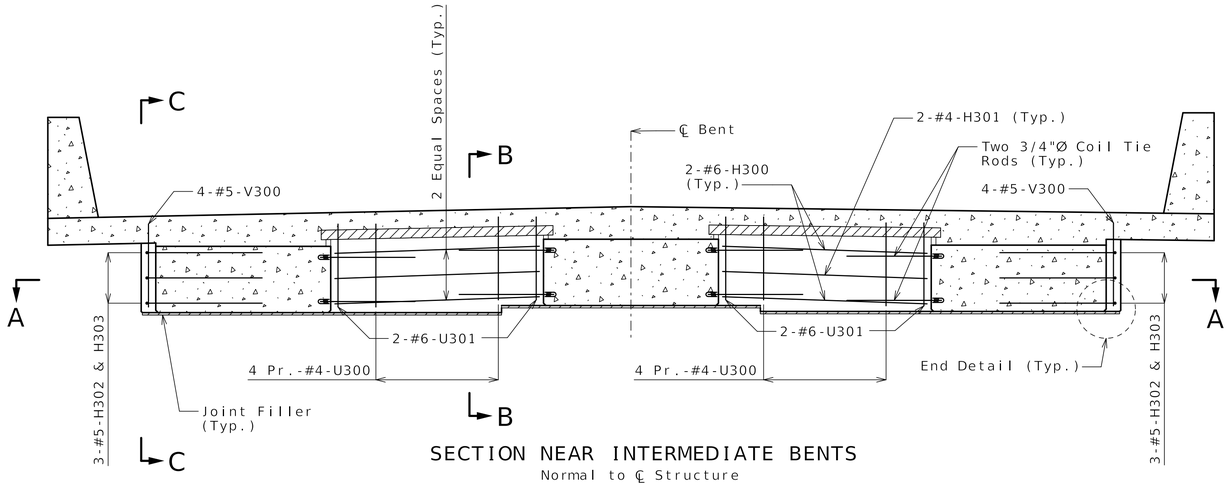
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

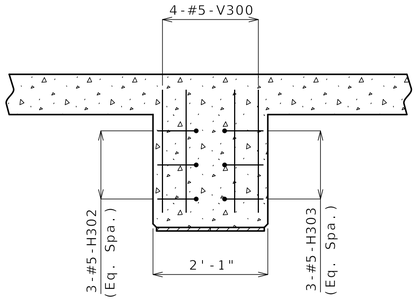
Detailed Feb. 2025
Checked Mar. 2025

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

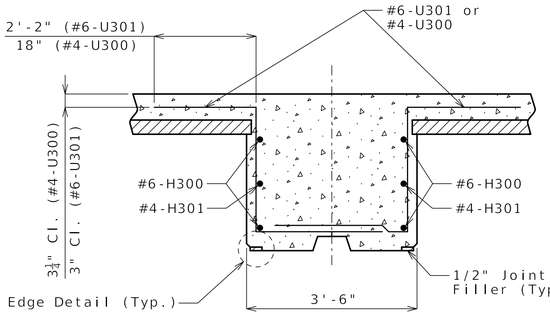
SPREAD BOX BEAMS - SPAN (2-3)



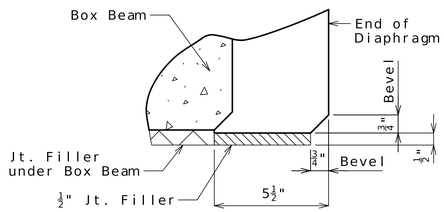
SECTION NEAR INTERMEDIATE BENTS
Normal to ℄ Structure



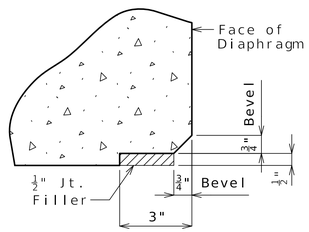
SECTION C-C



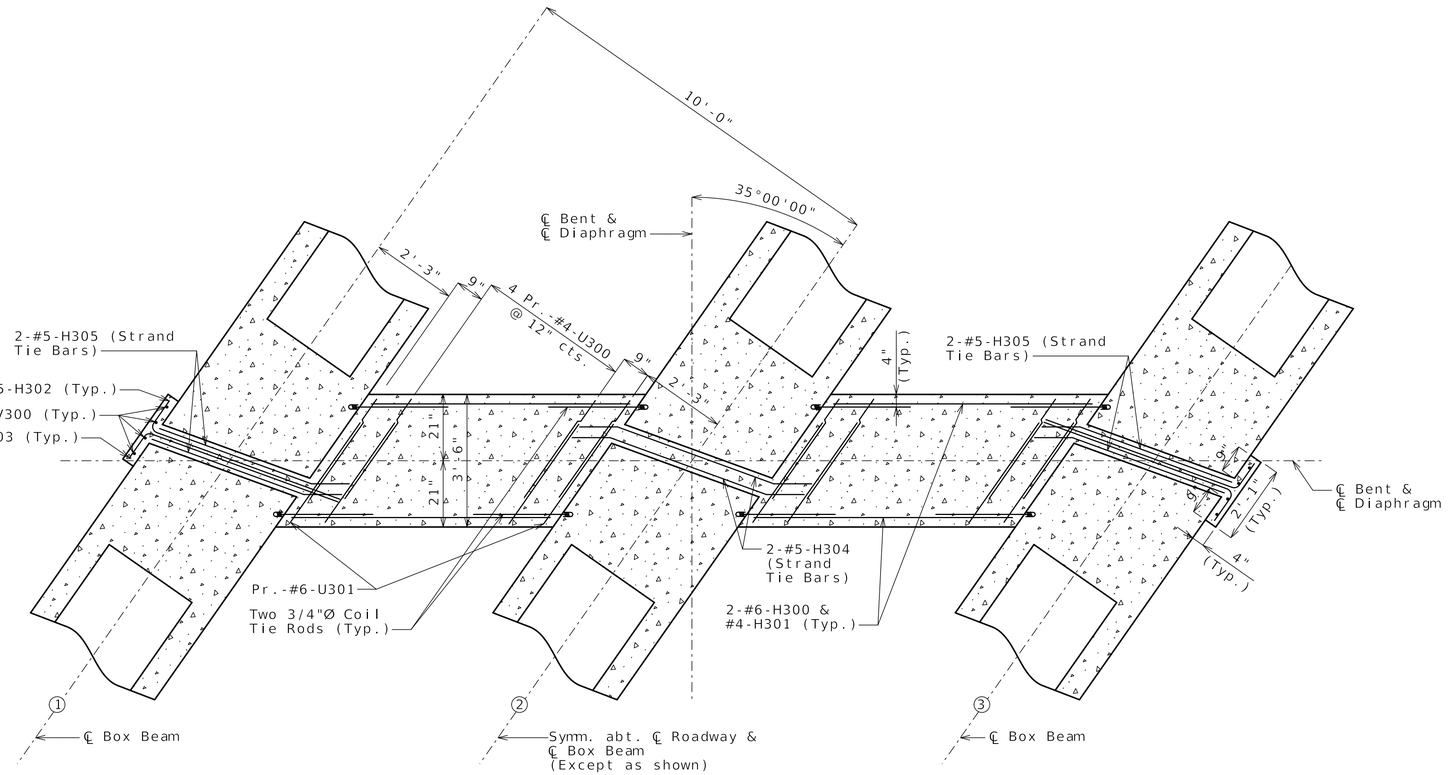
SECTION B-B



END DETAIL



EDGE DETAIL



SECTION A-A

Notes:

Bents No. 2 & 3 will both have 300 series bar marks in the barbill. Contractor shall review barbill and split up bars accordingly.

For location of Strand Tie Bars and Coil Tie Rods, see Sheets No. 9 & 10.

Diaphragms at intermediate bents shall be built vertical.

All U-bars in diaphragm shall be placed parallel to ℄ Roadway.

DIAPHRAGMS AT INTERMEDIATE BENTS NO. 2 & 3

Detailed Feb. 2025
Checked Mar. 2025

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

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TED S. KOESTER
NUMBER PE-2013000591
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04/01/2025 12:15:10 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	11

COUNTY
RAY

JOB NO.
JKR0103

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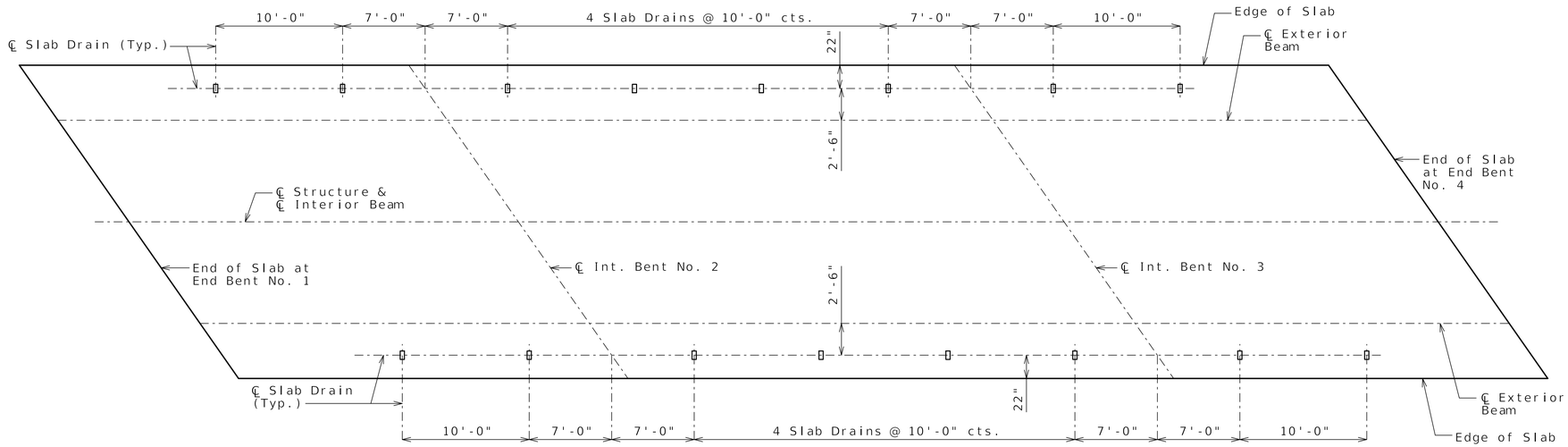
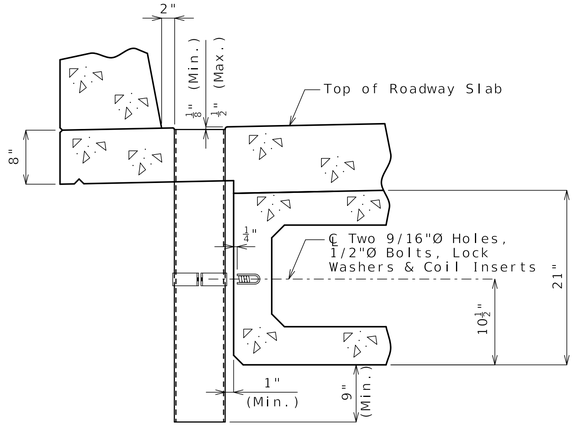
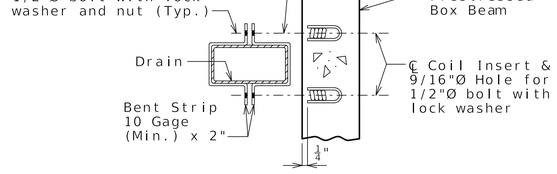
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



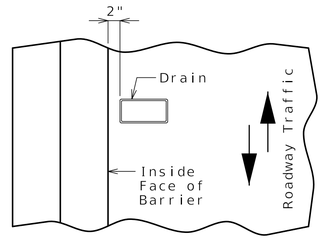
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



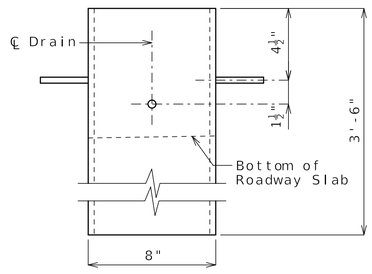
PART SECTION NEAR DRAIN



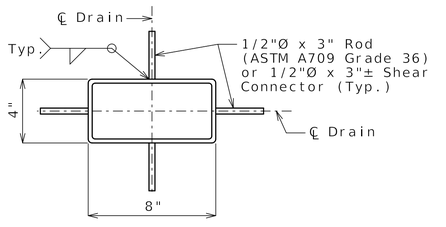
PART SECTION SHOWING BRACKET ASSEMBLY



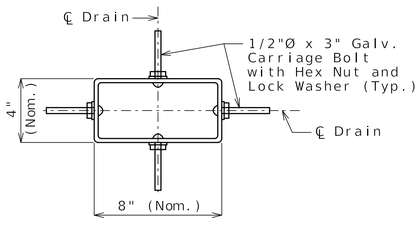
PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2"Ø bolts shall be ASTM A307.

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

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

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

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

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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

SLAB DRAINS

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
04/01/2025 12:15:31 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

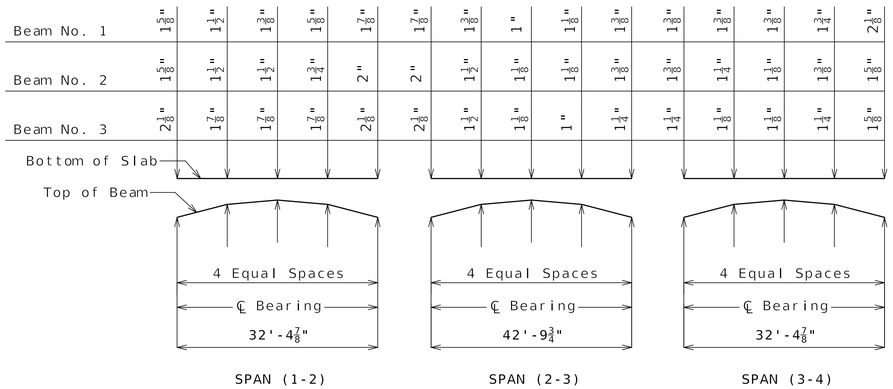
DATE PREPARED 4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	12

COUNTY: RAY
JOB NO.: JKR0103
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9575

DESCRIPTION | DATE

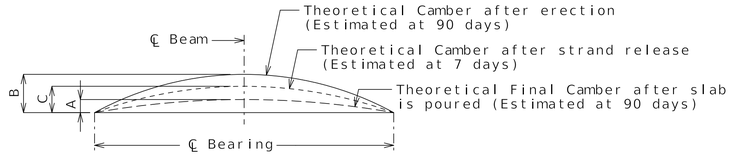
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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

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



Beam	Span (1-2)			Span (2-3)			Span (3-4)		
	A	B	C	A	B	C	A	B	C
Exterior	0	1/2"	0	1/4"	1 1/4"	1/4"	0	1/2"	0
Interior	0			1/4"			0		

BEAM CAMBER DIAGRAM

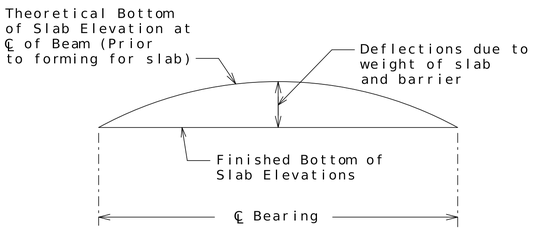
Conversion Factors for Beam Camber (Estimated at 90 days):

0.25 pt. = 0.7125 x 0.5 pt.

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

Beam Number	Span (1-2) (32'-4 7/8" ℄ Brg. - ℄ Brg.)					Span (2-3) (42'-9 3/4" ℄ Brg. - ℄ Brg.)					Span (3-4) (32'-4 7/8" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	725.74	725.77	725.79	725.79	725.79	725.79	725.81	725.82	725.79	725.75	725.75	725.74	725.72	725.69	725.65
2	725.94	725.96	725.97	725.98	725.97	725.97	725.99	725.99	725.96	725.91	725.91	725.90	725.87	725.84	725.80
3	725.77	725.79	725.80	725.80	725.79	725.79	725.80	725.80	725.77	725.71	725.71	725.69	725.67	725.63	725.58

Elevations are based on a constant slab thickness of 8" and include allowance for theoretical dead load deflections due to weight of slab and barrier.



TYPICAL SLAB ELEVATIONS DIAGRAM

Detailed Feb. 2025
Checked Mar. 2025

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

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TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
04/01/2025 12:15:57 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED: 4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	13

COUNTY: RAY
JOB NO.: JKR0103
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9575

DESCRIPTION | DATE

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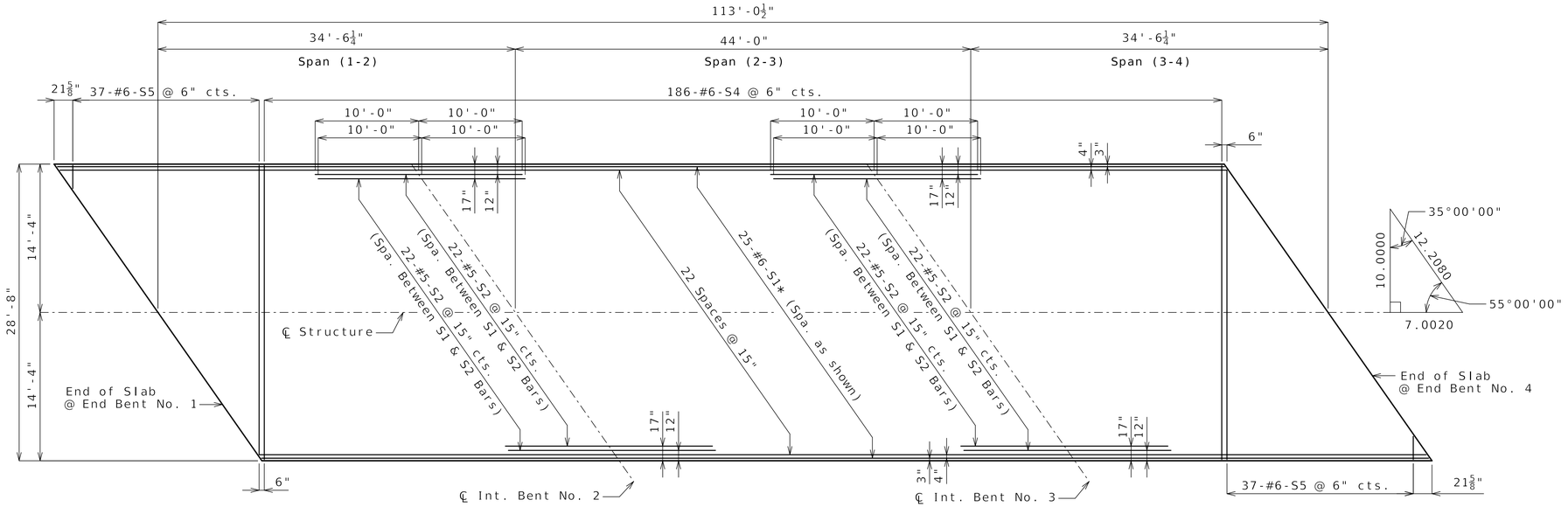
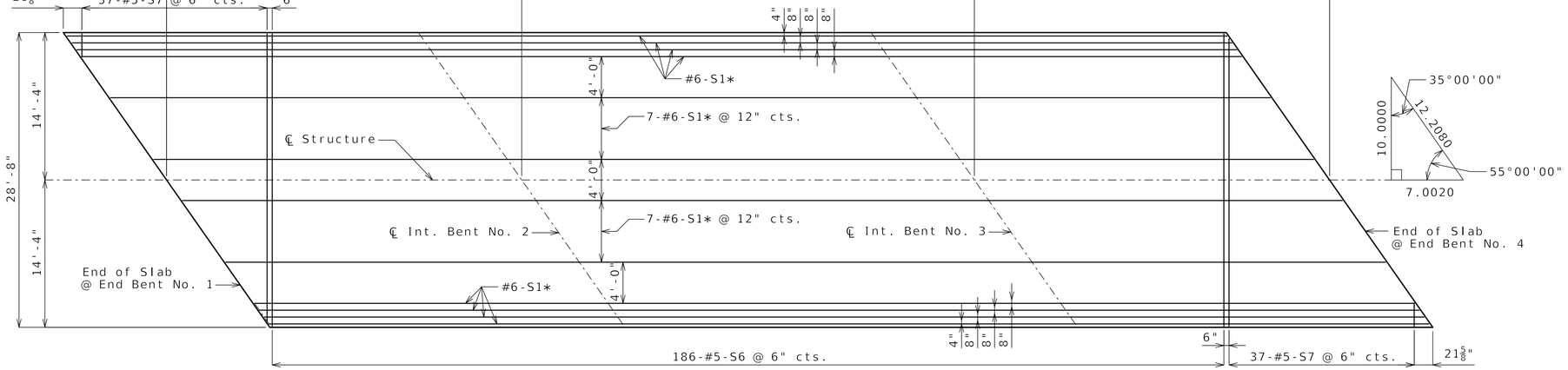
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



PLAN OF SLAB SHOWING TOP REINFORCEMENT



PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

∗ 2 units @ 58'-3", Min Lap = 3'-7"

Notes:

For details and reinforcement of Type H Barrier, see Sheets No. 16 & 17.

Longitudinal slab dimensions are measured horizontally.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 15.

For details and locations of Slab Drains, see Sheet No. 12.

For Theoretical Bottom of Slab Elevations, Beam Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 13.

SLAB DETAILS

Detailed Feb. 2025
Checked Mar. 2025

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

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TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
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TED S. KOESTER - CIVIL
MO-PE-2013000591

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ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	14

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
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DESCRIPTION	DATE

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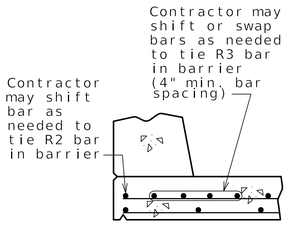
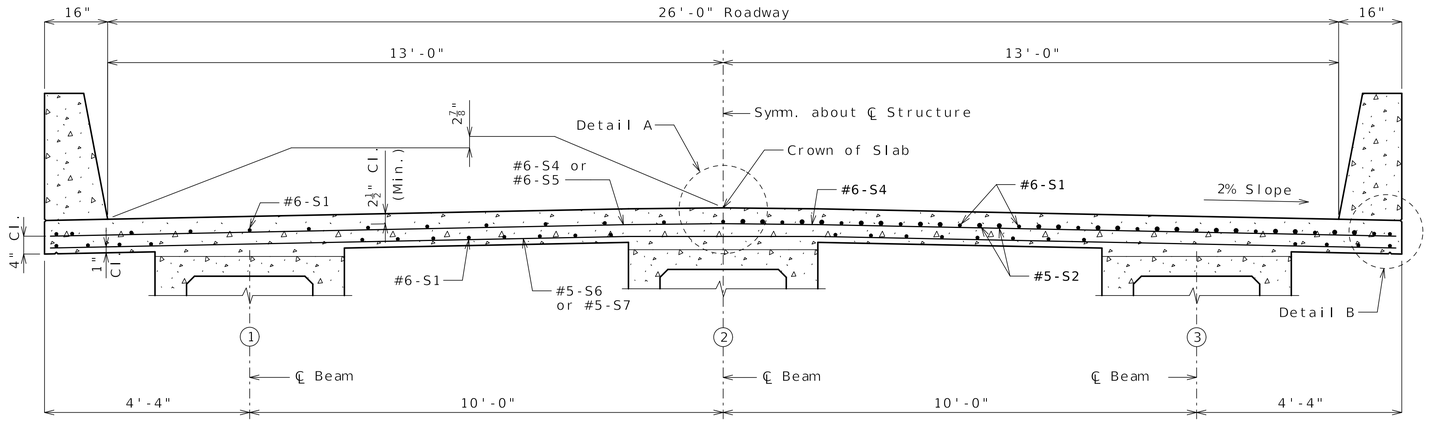
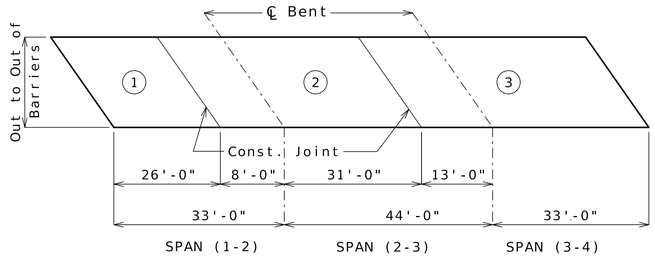


OPTIONAL SHIFTING TOP BARS AT BARRIER



HALF SECTION NEAR MIDSPAN HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB

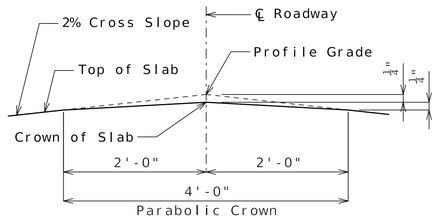


	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1 End to 2	2 1 to 3	3 2 to End	25
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1 + 2 End to 3		3 2 to End	25
Alternate B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

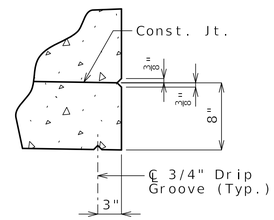
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

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

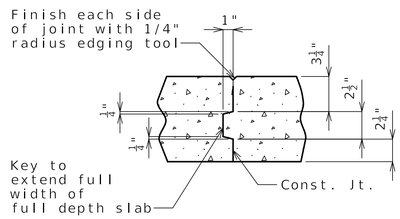
SLAB POURING SEQUENCE



DETAIL A



DETAIL B



FULL DEPTH SLAB

SLAB CONSTRUCTION JOINT

Notes:

For reinforcement of barrier not shown, see Sheets No. 16 & 17.

For Theoretical Bottom of Slab Elevations, Beam Camber Diagram and Theoretic Slab Haunching Diagram, see Sheet No. 13.

For Plan of Slab Showing Reinforcement, see Sheet No. 14.

SLAB DETAILS

Detailed Feb. 2025
Checked Mar. 2025

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

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TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
Ted Koester
04/01/2025 12:16:42 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED 4/1/2025
ROUTE Z | STATE MO
DISTRICT BR | SHEET NO. 15
COUNTY RAY
JOB NO. JKR0103
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9575

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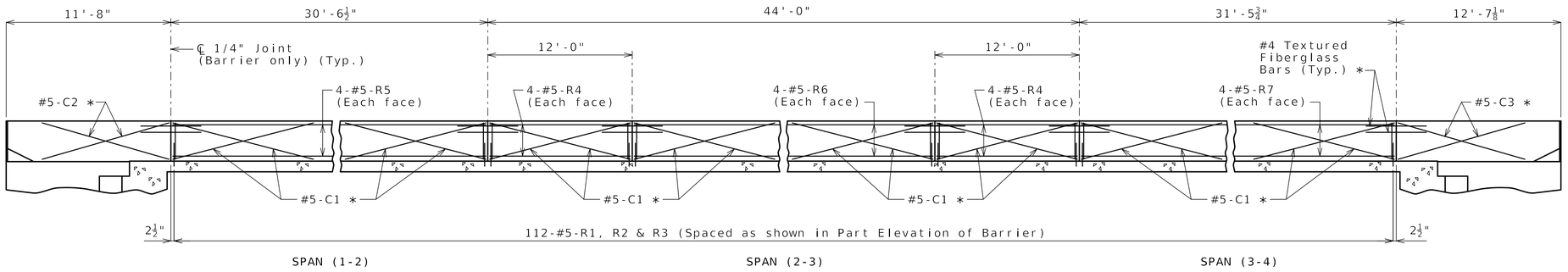
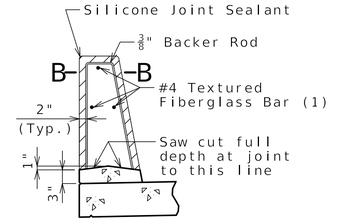
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



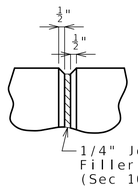
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

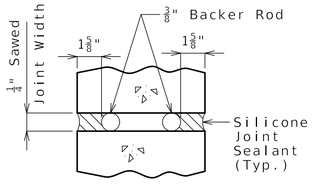
Longitudinal dimensions are horizontal.



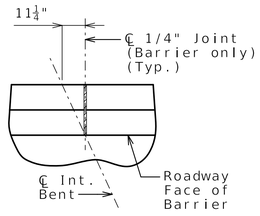
SECTION THRU
SAW CUT JOINT



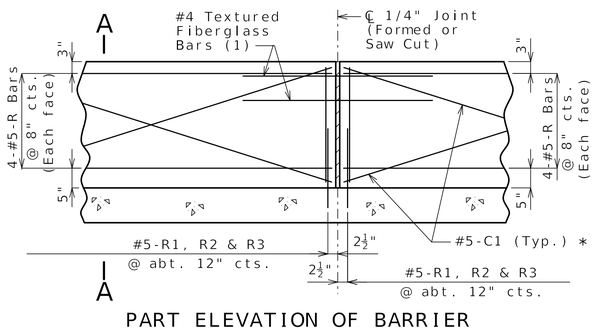
PART ELEVATION
AT FORMED JOINT



SECTION B-B

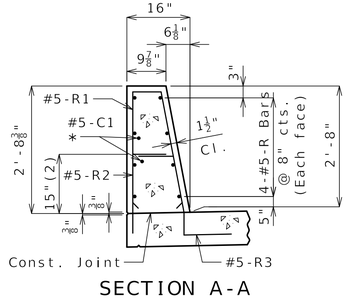


PART PLAN SHOWING
JOINT LOCATION



PART ELEVATION OF BARRIER

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

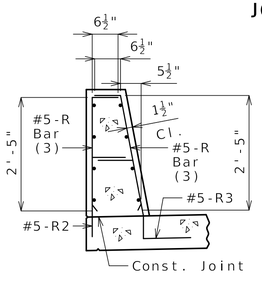


SECTION A-A

Use a minimum lap of 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 (except at end bents) normal to grade.

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

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Type 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 wing to end of wing.

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
Ted Koester
04/01/2025 12:17:07 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED 4/1/2025
ROUTE Z | STATE MO
DISTRICT BR | SHEET NO. 16
COUNTY RAY
JOB NO. JKR0103
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9575

DESCRIPTION
DATE

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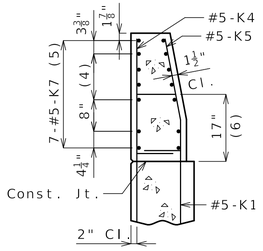
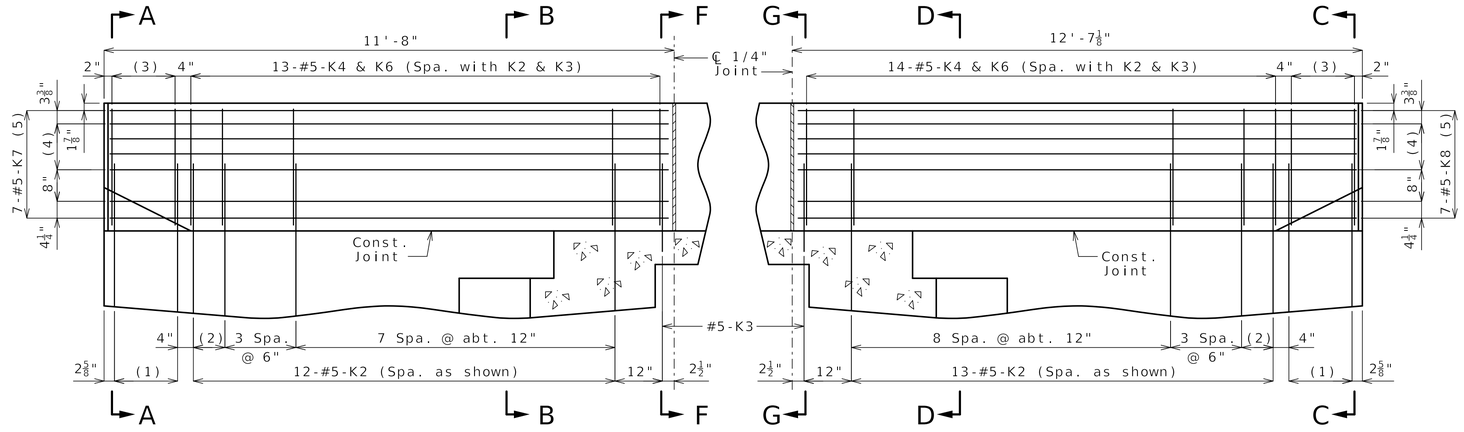
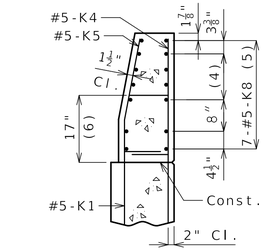
TYPE H BARRIER



SECTION A-A



PART ELEVATION



SECTION C-C

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

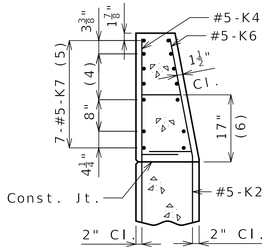
(2) 2 Spaces @ 4"

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

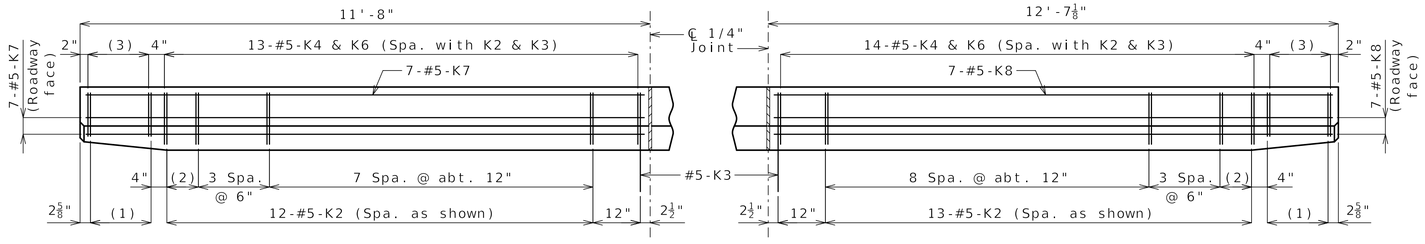
(4) 3 Spaces @ $3\frac{13}{16}$"

(5) Spaced as shown, each face

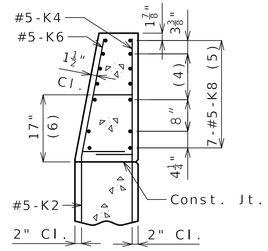
(6) To top of bar



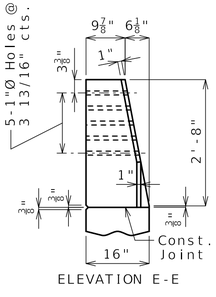
SECTION B-B



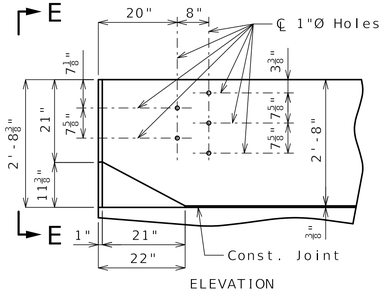
PART PLAN



SECTION D-D



ELEVATION E-E



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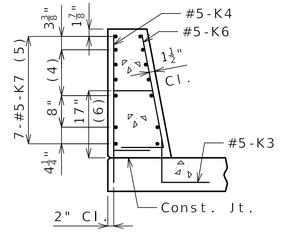
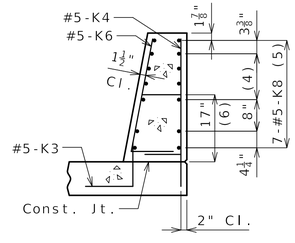
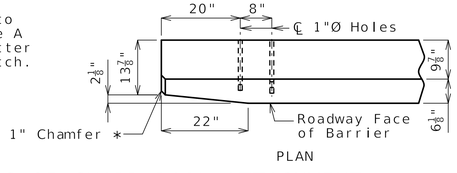


SECTION F-F



SECTION G-G



PLAN

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

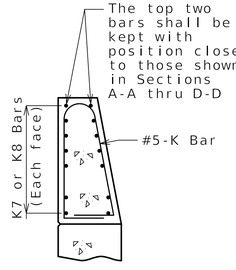
DETAILS OF GUARD RAIL ATTACHMENT

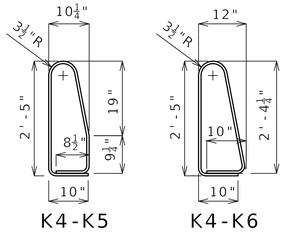
General Notes:

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

Reinforcing Steel:

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





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.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Detailed Feb. 2025
Checked Mar. 2025

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
04/01/2025 12:17:32 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

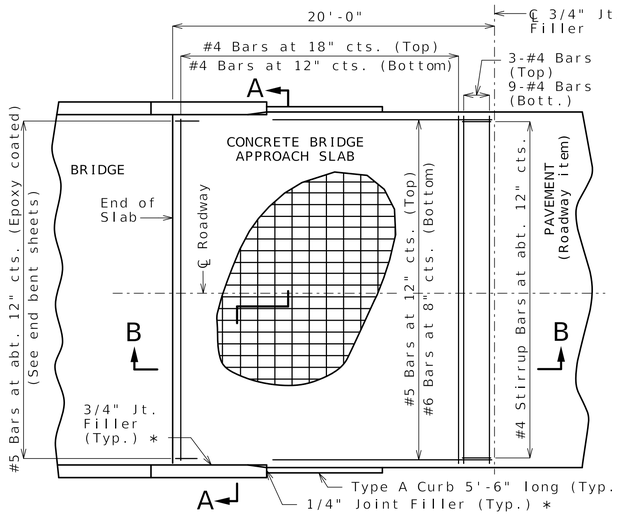
DATE PREPARED: 4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	17

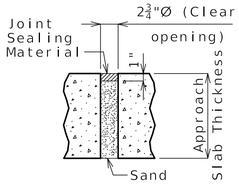
COUNTY: RAY
JOB NO.: JKR0103
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9575

DESCRIPTION | DATE

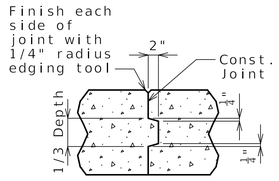
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



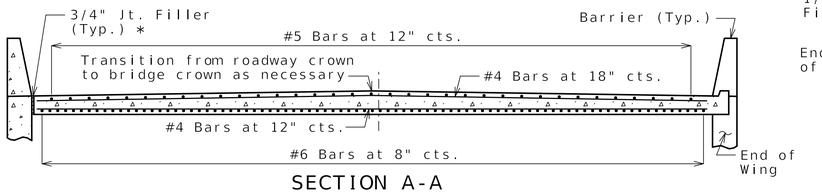
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



UNDERSEAL ACCESS HOLE DETAIL
(If required)

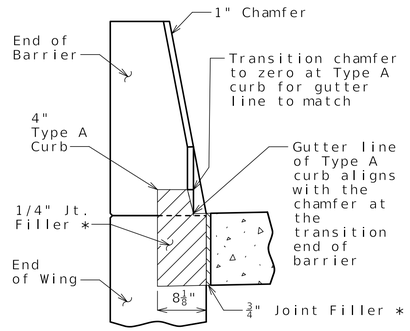


CONSTRUCTION JOINT DETAIL



SECTION A-A

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



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

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

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

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

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

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

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

General Notes:

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

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

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

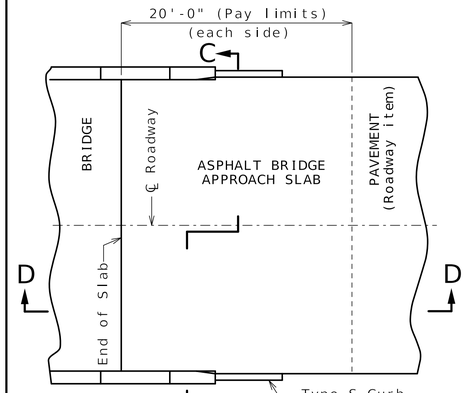
☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

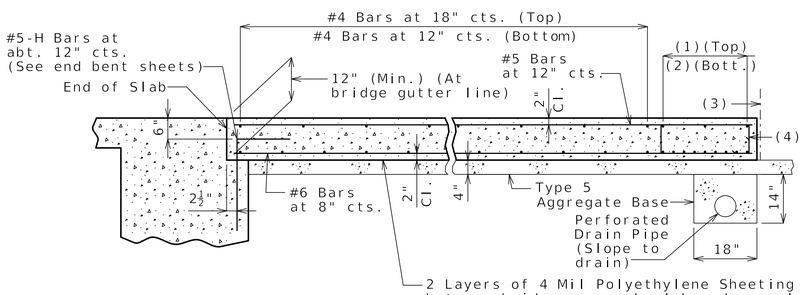
Notes For Asphalt Slab Only:

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

Application of tack is required between lifts per Sec 403.



PART PLAN
(Squared structure shown, skewed structure similar)



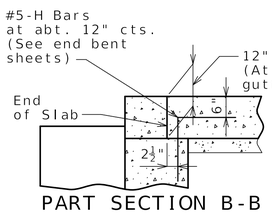
(1) 3-#4 Bars

(2) 9-#4 Bars

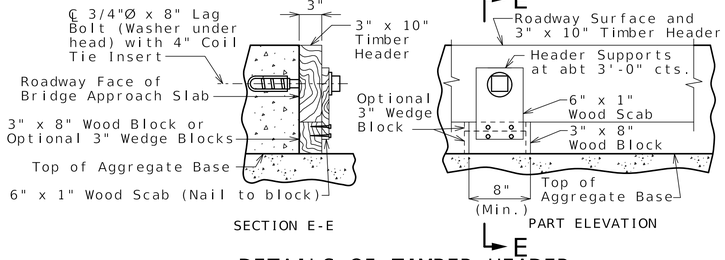
(3) ℄ 3/4" Jt. Filler

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

SECTION B-B
(Integral end bent)

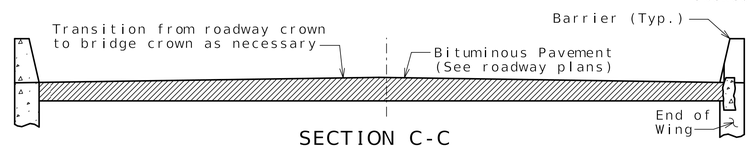


PART SECTION B-B
(Non-integral end bent)



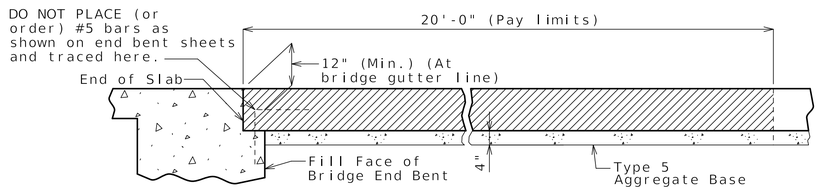
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

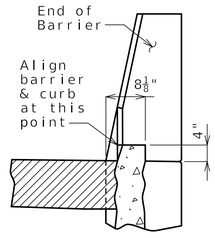


SECTION C-C

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



SECTION D-D



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

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

BRIDGE APPROACH SLAB (MINOR)

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

Detailed Feb. 2025
Checked Mar. 2025

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
04/01/2025 12:17:56 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

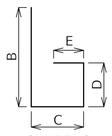
DATE PREPARED 4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	18

COUNTY: RAY
JOB NO.: JKR0103
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9575

DESCRIPTION	DATE

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



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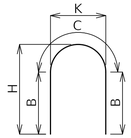
or 6S



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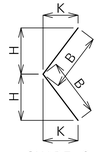

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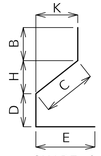

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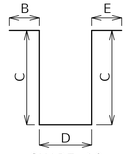

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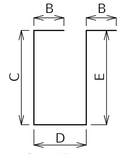

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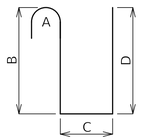

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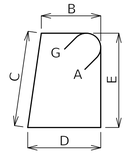

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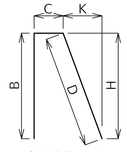

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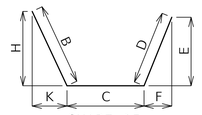

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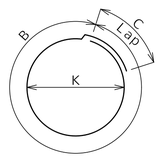

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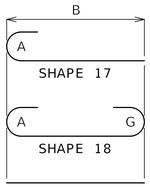
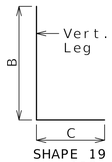


SHAPE 17
SHAPE 18
SHAPE 20



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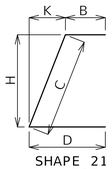

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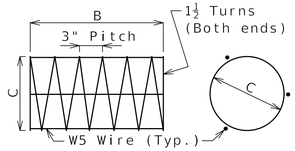

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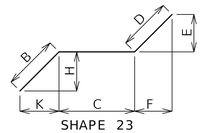

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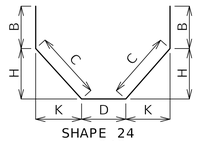

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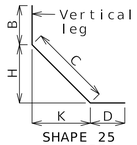

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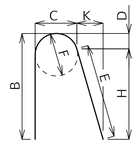

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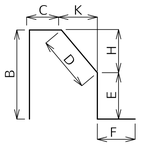

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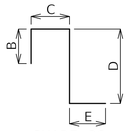

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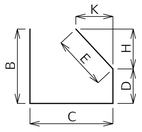

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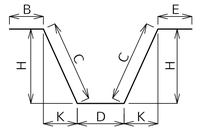

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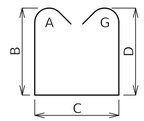

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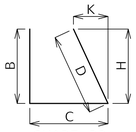

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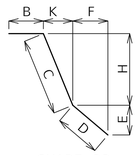

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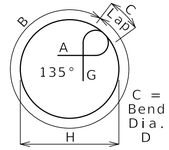

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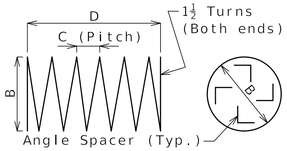

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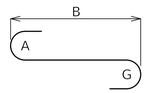
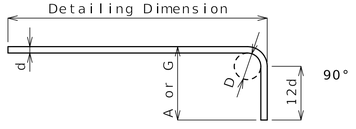


SHAPE 36

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"

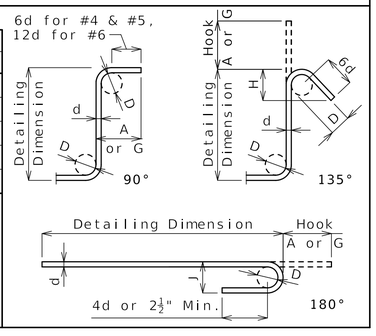


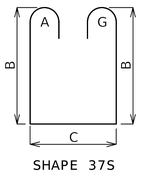
Stirrup Pin Bend Shapes (S)

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"

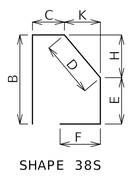
Applicable for all grades of steel.

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)

		Substructure		Superstructure			Entire Bridge	
	Size	Plain	Epoxy	Slab	Barrier	Slip Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0
	4	134	0	642	0	0	134	642
	5	902	0	16,298	6,049	479	902	22,796
	6	1,503	0	15,056	0	0	1,503	15,056
	7	0	0	0	0	0	0	0
	8	0	0	897	0	0	0	897
	9	2,659	0	0	0	0	2,659	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		5,198	0	32,863	6,049	479	5,198	39,391

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Feb. 2025
Checked Mar. 2025

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

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TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
04/02/2025 7:04:27 AM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	19

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9575

DESCRIPTION	DATE

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

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	Codes SH	Codes 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													
28	6 D200	BEAM		20		2 6.00							2 6	2 6	105
24	9 H200	BEAM		18		30 1.00							32 7	32 7	2,659
20	6 H201	BEAM		20		30 1.00							30 1	30 1	904
28	6 H202	BEAM		10S			2 6.00	3 7.50					8 8	8 4	350
16	6 H203	BEAM		18		4 8.00							6	6	144
40	5 U200	BEAM		13S		3 9.00	3 9.00	3 9.00	3 9.00				15 11	15 7	650
22	5 U201	BEAM		10S			3 9.00	3 9.00					11 3	11	252
36	4 U202	BEAM		10S			12.00	3 9.00					5 9	5 7	134
		Superstructure													
		End Bent 1													
14	6 F100	WING BRACE	E	15S		14.75	3 2.75	2 3.00	2 0.00	12.50	10.00	11.00	6 9	6 8	140
6	6 F101	DIAPHRAGM	E	19S		3 2.00	7 3.00						10 5	10 3	92
14	6 F102	WING BRACE	E	15S		2 3.00	7 3.00	14.75	11.00	10.00	12.50	2 0.00	10 9	10 8	224
6	6 F103	DIAPHRAGM	E	19S		3 2.00	7 3.00						10 5	10 3	92
16	6 H100	BEAM	E	20		34 8.00							34 8	34 8	833
16	6 H101	BEAM	E	20		34 8.00							34 8	34 8	833
12	6 H102	BEAM	E	18		8 8.00							10	10	180
6	6 H103	DIAPHRAGM	E	20		34 8.00							34 8	34 8	312
12	6 H104	DIAPHRAGM	E	20		6 6.00							6 6	6 6	117
12	6 H105	DIAPHRAGM	E	19		2 5.00	2 11.00						5 4	5 2	93
8	6 H106	DIAPHRAGM	E	20		34 8.00							34 8	34 8	417
6	5 H107	STRAND TIE	E	23S		12.00	4 5.00	12.00	4.25	11.25	4.25	11.25	6 5	6 5	40
52	5 H108	APPROACH NOTCH	E	19S		2 0.00	15.00						3 3	3 2	172
32	8 H109	WING	E	20		10 6.00							10 6	10 6	897
56	6 H110	WING	E	20		9 8.00							9 8	9 8	813
54	4 U101	BEAM	E	13S		3 4.00	2 7.00	3 4.00	2 7.00				12 7	12 4	445
24	5 U102	BEAM	E	10S			4 2.00	3 4.00					11 8	11 5	286
48	6 U103	DIAPHRAGM	E	19S		14.00	3 4.00						4 6	4 4	312
86	5 U104	DIAPHRAGM	E	12		20.00	4 6.00						6 9	6 7	591
48	5 U105	DIAPHRAGM	E	37S		2 0.00	2 11.00						7 11	7 8	384
48	5 V101	BEAM	E	17		4 2.00							4 9	4 9	238
72	6 V102	WING	E	20		5 2.00							5 2	5 2	559
48	6 V103	DIAPHRAGM	E	20		12.00							1	1	72
		Int Diaphragms													
16	6 H300	DIAPHRAGM	E	20		6 10.00							6 10	6 10	164
8	4 H301	DIAPHRAGM	E	20		6 10.00							6 10	6 10	37
12	5 H302	DIAPHRAGM	E	21S			11.00	5 6.00			10.75	2.75	6 5	6 4	79
12	5 H303	DIAPHRAGM	E	23S		11.00	5 6.00				10.75	2.75	6 5	6 3	78
8	5 H304	STRAND TIE	E	23S		12.00	4 5.00	12.00	4.25	11.25	4.25	11.25	6 5	6 5	54
16	5 H305	STRAND TIE	E	23S		12.00	4 5.00				4.25	11.25	5 5	5 4	89
32	4 U300	DIAPHRAGM	E	28S			18.00	2 2.00	4 0.00				7 8	7 6	160
16	6 U301	DIAPHRAGM	E	28S			2 2.00	2 2.00	4 0.00				8 4	8	192
16	5 V300	DIAPHRAGM	E	20		2 2.00							2 2	2 2	36
		Slab													
94	5 S1	SLAB	E	20		58 3.00							58 3	58 3	5,711
88	5 S2	SLAB	E	20		20 0.00							20	20	1,836
186	6 S4	SLAB	E	20		28 5.00							28 5	28 5	7,939
74	6 S5	SLAB	E	20	2	27 11.00							27 11	27 11	
		Incr. = 8.625"				2 2.00							2 2	2 2	1,672
186	5 S6	SLAB	E	20		28 5.00							28 5	28 5	5,513
74	5 S7	SLAB	E	20	2	27 11.00							27 11	27 11	
		Incr. = 8.625"				2 2.00							2 2	2 2	1,161
		Barrier													
		Type H													
20	5 K1	BARRIER	E	27S		3 8.00	9.25	5.25	3 2.75		5.25	1.00	8 1	7 11	165
50	5 K2	BARRIER	E	27S		3 8.00	9.25	14.50	2 5.75		14.25	2.75	8 2	7 11	413
4	5 K3	BARRIER	E	27S		22.00	9.25	14.50	7.25	12.00	14.25	2.75	5 5	5 1	21

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	Codes SH	Codes 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
74	5 K4	BARRIER	E	19S		2 5.00	10.00						3 3	3 2	244
20	5 K5	BARRIER	E	38S		8.25	9.50	19.25			18.75	4.25	3 1	2 9	57
54	5 K6	BARRIER	E	21S			2 5.00	10.00			2 4.25	6.00	3 3	3 2	178
28	5 K7	BARRIER	E	20		11 5.00							11 5	11 5	333
28	5 K8	BARRIER	E	20		12 4.00							12 4	12 4	360
224	5 R1	BARRIER	E	14S		2 5.00	6.50	2 5.50			2 5.00	5.50	5 5	5 3	1,227
224	5 R2	BARRIER	E	19S		20.00	9.50						2 6	2 4	545
224	5 R3	BARRIER	E	27S			9.50	15.25	4.50	12.00	15.00	3.00	3 5	3 3	759
32	5 R4	BARRIER	E	20		11 9.00							11 9	11 9	392
16	5 R5	BARRIER	E	20		30 3.00							30 3	30 3	505
16	5 R6	BARRIER	E	20		19 9.00							19 9	19 9	330
16	5 R7	BARRIER	E	20		31 2.00							31 2	31 2	520
		Slip-Form													
32	5 C1	SLIP FORM	E	20		12 0.00							12	12	401
4	5 C2	SLIP FORM	E	20		8 9.00							8 9	8 9	37
4	5 C3	SLIP FORM	E	20		9 9.00							9 9	9 9	41

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. 19.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

Detailed Feb. 2025
Checked Mar. 2025

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
Ted Koester
04/01/2025 12:18:47 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

DATE PREPARED
4/1/2025

ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	20

COUNTY
RAY

JOB NO.
JKR0103

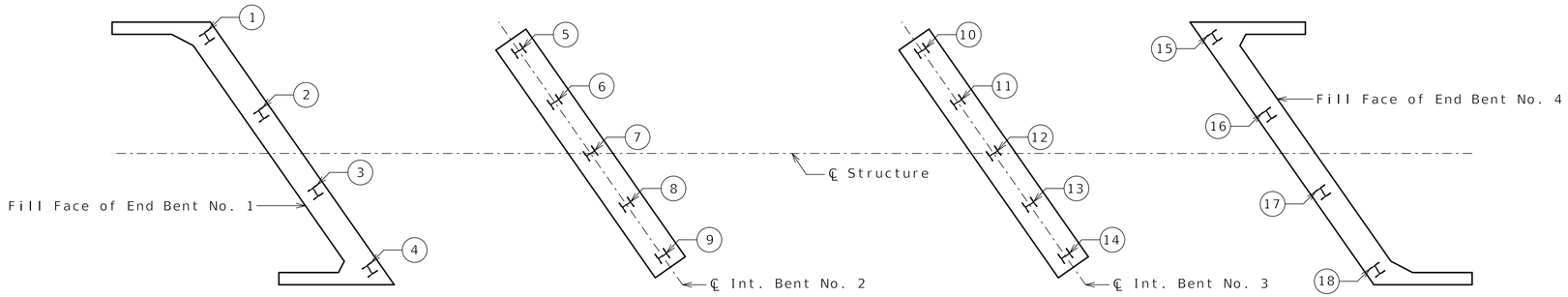
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9575

DESCRIPTION	DATE

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



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

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

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			Int. Bent No. 3
10			
11			
12			
13			
14			
			End Bent No. 4
15			
16			
17			
18			

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

This sheet to be completed by MoDOT construction personnel.

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TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
Ted Koester
04/01/2025 12:19:19 PM
TED S. KOESTER - CIVIL
MO-PE-2013000591

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ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	21

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9575

DESCRIPTION	DATE

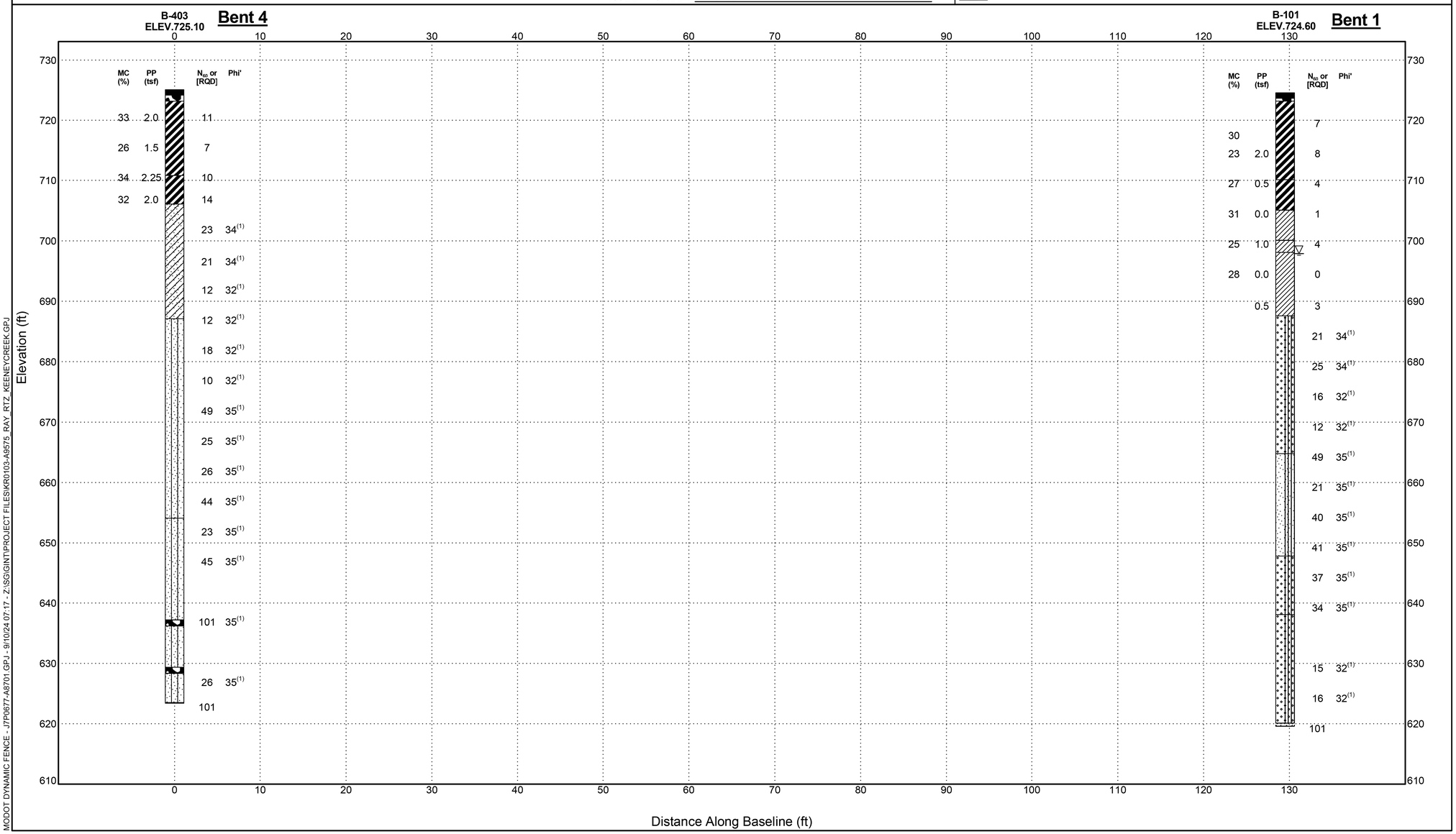
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT-Geotechnical Section
1617 Missouri Blvd
Jefferson City, MO 65109

SUBSURFACE DIAGRAM

PROJECT NAME Bridge Replacement-MGK
PROJECT LOCATION Over Keeney Creek
CLIENT
PROJECT NUMBER KR0103

Asphalt
USCS Low Plasticity Clay
Bedrock
Boulders and cobbles
USCS Well-graded Gravel
USCS Well-graded Sand with Silt
USCS Clayey Sand
USCS High Plasticity Clay
USCS Poorly-graded Sand with Silt
USCS Silty Sand



MODOT DYNAMIC FENCE - JTP0677-A8701.GPJ - 9/10/24 07:17 - Z:\SG\GINT\PROJECT FILES\KR0103-A9575_RAY_RTZ_KEENEYCREEK.GPJ

BORING DATA

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

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

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Checked Mar. 2025

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TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
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TED S. KOESTER - CIVIL
MO-PE-2013000591

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ROUTE	STATE
Z	MO
DISTRICT	SHEET NO.
BR	22

COUNTY
RAY

JOB NO.
JKR0103

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
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DESCRIPTION

DATE

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