DESIGN DESIGNATION

A.A.D.T. - 2023 = 46
A.A.D.T. - 2043 = 51
D.H.V. = 13%
T = 19%
V = 55 M.P.H.
D = 50%
FUNCTIONAL CLASSIFICATION-MINOR COLLECTOR

NO NEW RIGHT OF WAY

CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

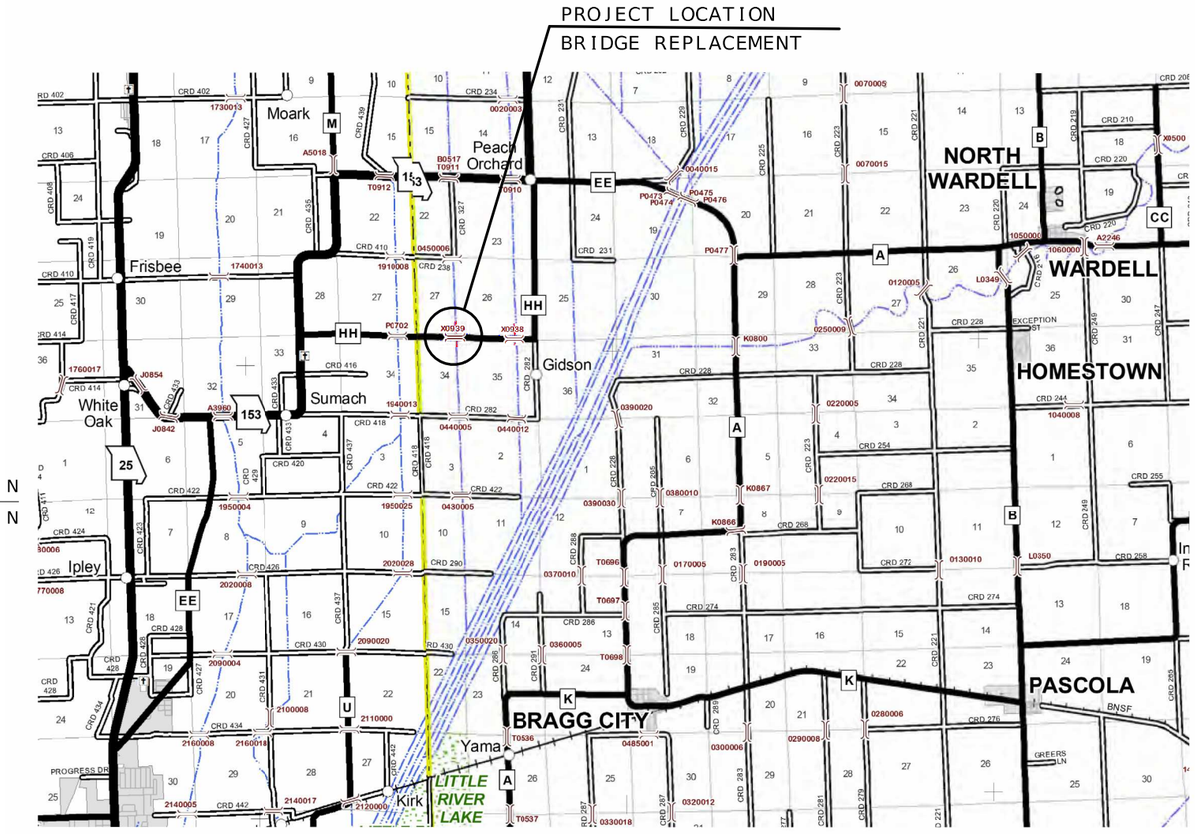
NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY PEMISCOT COUNTY



KEY MAP
LOCATION OF PEMISCOT COUNTY



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

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (1 SHEET)	2
QUANTITIES (QU) (2 SHEETS)	3
PLAN-PROFILE (PP)	4-5
REFERENCE POINTS (RP)	6
SPECIAL SHEETS (SS)	7-9
TRAFFIC CONTROL SHEETS (TC)	10
EROSION CONTROL SHEETS (EC)	11
SIGNING (SN)	12
BRIDGE DRAWINGS (B)	
A9235	1-20

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 161 + 50.00	
END OF PROJECT	STA. 165 + 00.00	
APPARENT LENGTH	350.00	FEET
EQUATIONS AND EXCEPTIONS:		
TOTAL CORRECTIONS	0.00	FEET
NET LENGTH OF PROJECT	350.00	FEET
STATE LENGTH	0.066	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0.6	ACRES

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:40:21 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
SE	1

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

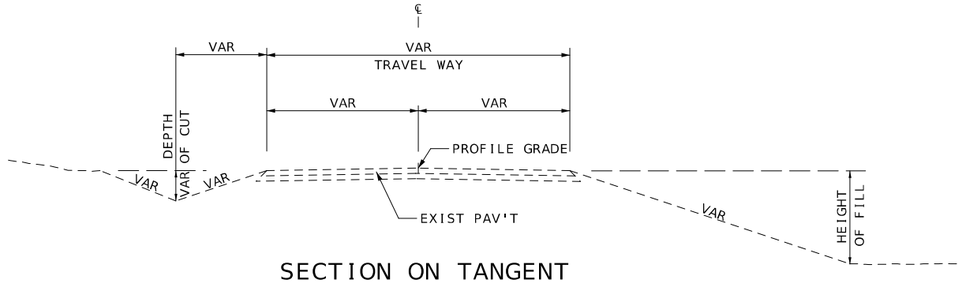
PROJECT NO.

BRIDGE NO.

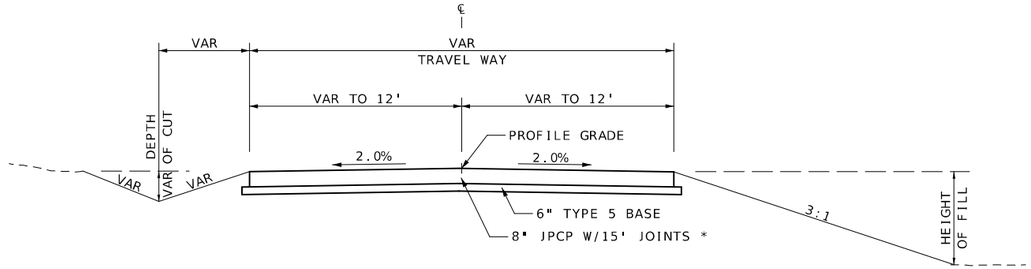
DESCRIPTION	DATE

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

REV.

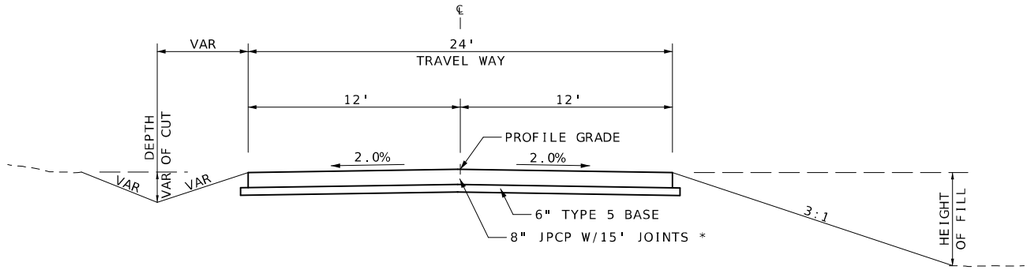


SECTION ON TANGENT
EXISTING TYPICAL SECTION RTE HH
STA 161+50.00 TO STA 165+00.00



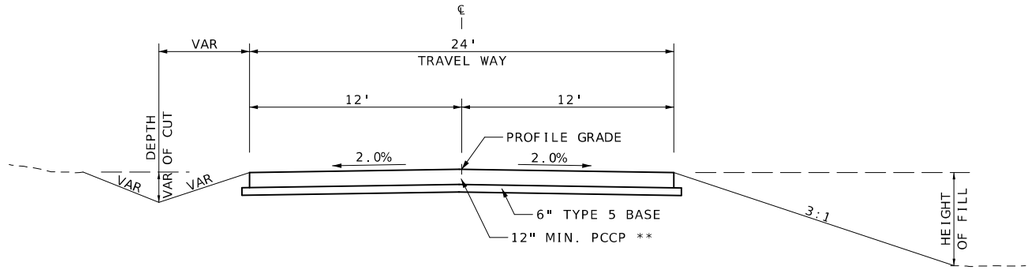
SECTION ON TANGENT
PROPOSED TYPICAL SECTION RTE HH
STA 161+50.00 TO STA 162+52.08
STA 164+04.58 TO STA 165+00.00

* OPTIONAL PVMT: 1¾" BP-1 OVER
8¼" PMBB
(PG 64-22)



SECTION ON TANGENT
PROPOSED TYPICAL SECTION RTE HH
STA 162+52.08 TO STA 162+72.08
STA 163+84.58 TO STA 164+04.58

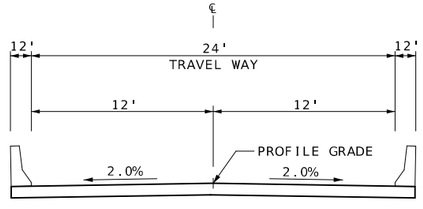
* OPTIONAL PVMT: 1¾" BP-1 OVER
8¼" PMBB
(PG 64-22)



SECTION ON TANGENT
PROPOSED TYPICAL SECTION RTE HH
APPROACH SLAB BRIDGE A9235 ***
STA 162+72.08 TO STA 162+92.08
STA 163+64.58 TO STA 163+84.58

** OPTIONAL PVMT: 1¾" BP-1 OVER
10¼" PMBB
(PG 64-22)

*** SEE BRIDGE PLANS



SECTION ON TANGENT
PROPOSED TYPICAL SECTION BRIDGE A9235 ***
STA 162+91.58 TO STA 163+65.08

NOTE: MINOR GRADING MAY BE REQUIRED FOR APPROACH SLAB (TO BE PAID FOR AS LINEAR GRADING)

DRAWING NOT TO SCALE

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:40:41 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED: 11/29/2023
ROUTE: HH | STATE: MO
DISTRICT: SE | SHEET NO.: 2
COUNTY: PEMISCOT
JOB NO.: J9S3593
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE

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

TYPICAL SECTION
SHEET 1 OF 1

MOBILIZATION - LUMP SUM 1

CONTRACTOR FURNISHED SURVEYING AND STAKING - LUMP SUM 1

REMOVAL OF IMPROVEMENTS

SHEET	STA	LOC	DESCRIPTION	REMARKS
		RT	ONE LANE BRIDGE SIGN	
		RT	YIELD SIGN/ONCOMING TRAFFIC SIGN	
4	162+69.26	LT	37' X 18" CMP	DRIVEWAY PIPE
4	162+70.92	RT	65' X 24" CMP	DRIVEWAY PIPE
4		LT/RT	6 OBJECT MARKERS	BR X0939
4		LT/RT	6 OBJECT MARKERS	BR X0939
4	163+99.17	LT	40' X 36" CMP	DRIVEWAY PIPE
4	164+00.31	RT	45' X 18" CMP	DRIVEWAY PIPE
		LT	YIELD SIGN/ONCOMING TRAFFIC SIGN	
		LT	ONE LANE BRIDGE SIGN	
			LUMP SUM 1	

MODIFIED LINEAR GRADING CLASS 2

SHEET	STA	STA	LOC	LINEAR GRADING CLASS 2 STA	REMARKS
4	161+50.00	165+00.00	LT & RT	3.5	BR A9235
			TOTAL	3.5	

OPTIONAL PAVEMENT AND AGGREGATE BASE

SHEET	STA	STA	DEPTH FT	WIDTH FT	LENGTH FT	OPTIONAL* PAVEMENT SY	6" TYPE 5 AGG BASE SY	GRADE 1 POROUS BACKFILL CY	REMARKS
7	161+50.00	162+52.08	0.83	21.10	102.08	239.3	239.3		E END OF BRIDGE A9235
7	162+52.08	162+72.08	0.83	24.00	20.00	53.3	53.3		E END OF BRIDGE A9235
7	163+84.58	164+04.58	0.83	24.00	20.00	53.3	53.3		W END OF BRIDGE A9235
7	164+04.58	165+00.00	0.83	20.80	95.42	220.5	220.5		W END OF BRIDGE A9235
7			6.00	24.67	5.00			27.4	E END OF BRIDGE A9235
7			6.00	24.67	5.00			27.4	W END OF BRIDGE A9235
					TOTAL	566.4	567	55	

* OPTIONAL PAVEMENT: 10" ASPHALT PAVEMENT OR 8" JPCP

DRIVEWAY

SHEET	STA	LOC	TYPE	GRADE	DEPTH FT	LENGTH FT	WIDTH FT	MODIFIED LINEAR GRADING CL 2 STA	GRAVEL A OR CRUSHED STONE B 1.75 TON/CY TON	REMARKS
4	162+47.34	LT	TYPE I	-3.73%	2	50	20	0.50	111.1	
4	162+55.38	RT	TYPE I	-5.03%	2	44	18	0.44	97.8	
4	163+99.17	RT	TYPE I	-0.59%	2	42	17	0.42	93.2	
4	164+00.31	LT	TYPE I	-3.03%	2	42	17	0.42	93.9	
							TOTAL	1.8	396	

DRIVEWAYS SHALL HAVE 4:1 SIDESLOPES WITHIN CLEAR ZONE ON APPROACH SIDE AND 3:1 SLOPES ON THE OPPOSITE SIDE

ROCK BLANKET

SHEET	FROM	TO	DEPTH FT	LENGTH FT	WIDTH FT	TYPE 2 ROCK BLANKET FURNISH CY	TYPE 2 ROCK BLANKET PLACE CY	GEOTEXTILE FABRIC SY	REMARKS
8	162+79.58	162+94.58	2	15	16.9	18.8	18.8	44.1	C
8	162+79.58	162+94.58	2	15	16.9	18.8	18.8	44.1	D
8	162+94.58	163+24.98	2	65.0	32.4	156.0	156.0	294.4	A-A
8	163+41.68	163+62.08	2	65.0	22.4	107.9	107.9	217.7	B-B
8	163+62.08	163+77.08	2	15	16.9	18.8	18.8	44.1	E
8	163+62.08	163+77.08	2	15	16.9	18.8	18.8	44.1	F
					TOTAL	340	340	689	

ROCK QUANTITY MAY BE OBTAINED FROM REMOVED BRIDGE DECK IF BROKEN OR CRUSHED TO MEET SPECS WITH NO EXPOSED REBAR

PAVEMENT MARKING

STA	STA	LOCATION	STANDARD WATERBORNE 4" SOLID WHITE LF	4" YELLOW LF	4" INTER YELLOW LF	REMOVALS LF	REMARKS
153+50.00	162+52.08	RTE HH		902	226		NO PASSING WB
162+52.08	164+32.30	RTE HH	360		45		BR A9235
164+32.30	174+50.00	RTE HH		1018	254		NO PASSING EB
153+50.00	159+00.00	RTE HH				1100	DOUBLE YELLOW (550')
160+50.00	167+00.00	RTE HH				1300	WHITE (EACH SIDE)
169+00.00	174+50.00	RTE HH				1100	DOUBLE YELLOW (550')
		TOTAL	360	1920	525	3500	

STATIONS ARE APPROXIMATE

TEMPORARY EROSION CONTROL

SHEET	SILT FENCE LF	TYPE C BERM LF	ROCK DITCH CHECK LF	SEDIMENT REMOVAL CY	TEMP SEED AC	MULCH AC	REMARKS
11	364	150	44	7.6	0.56	0.56	BR A9235
TOTAL	364	150	44	8	0.6	0.6	

SEEDING AND MULCHING

SHEET	STA	STA	LOC	SEED COOL SEASON AC	MULCH AC	REMARKS
4	161+50.00	165+00.00	LT & RT	0.56	0.56	BR A9235
			TOTAL	0.6	0.6	
			USE	1.0	1.0	

PIPE AND FLAP GATE

SHEET	STA	LOC	GROUP C PIPE* 18" LF	24" LF	36" LF	FLAP GATE 18" EACH	24" EACH	36" EACH	REMARKS
8	162+69.26	LT	90.0			1.0			BR A9235 DRIVEWAY
8	162+70.92	RT		85.0			1.0		BR A9235 DRIVEWAY
8	163+87.21	RT			76.0			1.0	BR A9235 DRIVEWAY
8	163+90.17	LT	71.0			1.0			BR A9235 DRIVEWAY
		TOTAL	161	85	76	2	1	1	

*SEE JSP FOR PIPE TYPE RESTRICTION

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:40:59 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED: 11/29/2023
ROUTE: HH | STATE: MO
DISTRICT: SE | SHEET NO.: 3
COUNTY: PEMISCOT
JOB NO.: J9S3593
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

SUMMARY OF QUANTITIES
SHEET 1 OF 2

EFFECTIVE: 04-01-2024

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						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00	4	64				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	2	20				ROAD CLOSED
R11-3a	60X30	12.50	2	25				ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-7	48X24	8.00						RATE OUR WORK ZONE
CONST-7	72X36	18.00						RATE OUR WORK ZONE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE

616-10.05 CONSTRUCTION SIGNS	TOTAL
	109

616-10.10 RELOCATED SIGNS	TOTAL
	0

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
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	6	TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:41:30 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
2/20/2024

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
SE	3

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

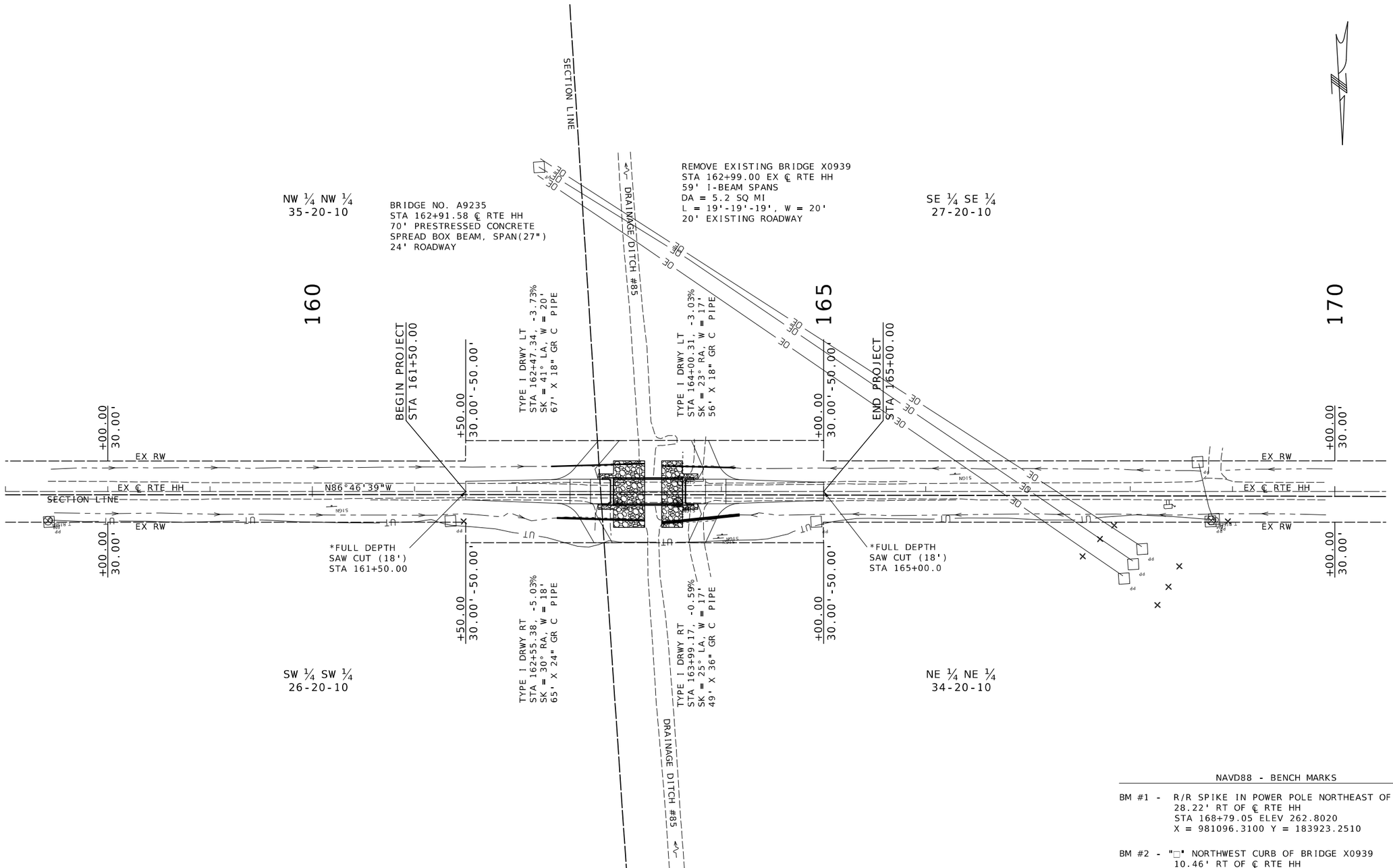
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

SUMMARY OF QUANTITIES
SHEET 2 OF 2



SEE THE JOB SPECIAL PROVISIONS FOR A LIST OF UTILITY COMPANIES ON OR WITHIN THE VICINITY OF THE PROJECT LIMITS.

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.

ALL BEARINGS BASED ON GRID NORTH, MISSOURI COORDINATE SYSTEM OF 1983, EAST ZONE.

PROPERTY LINES LOCATIONS ARE APPROXIMATE ONLY.

* FULL DEPTH SAW CUT
AT NO DIRECT PAY

NAVD88 - BENCH MARKS

BM #1 - R/R SPIKE IN POWER POLE NORTHEAST OF CP 100
28.22' RT OF ℄ RTE HH
STA 168+79.05 ELEV 262.8020
X = 981096.3100 Y = 183923.2510

BM #2 - "□" NORTHWEST CURB OF BRIDGE X0939
10.46' RT OF ℄ RTE HH
STA 163+57.40 ELEV 265.8870
X = 981616.1400 Y = 183876.1900

BM #3 - "□" NORTHEAST CURB OF BRIDGE X0939
10.57' RT OF ℄ RTE HH
STA 162+98.99 ELEV 265.9440
X = 981674.4640 Y = 183873.0230

BM #4 - R/R SPIKE NORTH OF CP 103
28.47' RT OF ℄ RTE HH
STA 157+41.55 ELEV 261.8160
X = 982232.0270 Y = 183859.5590

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:42:05 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
SE	4

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

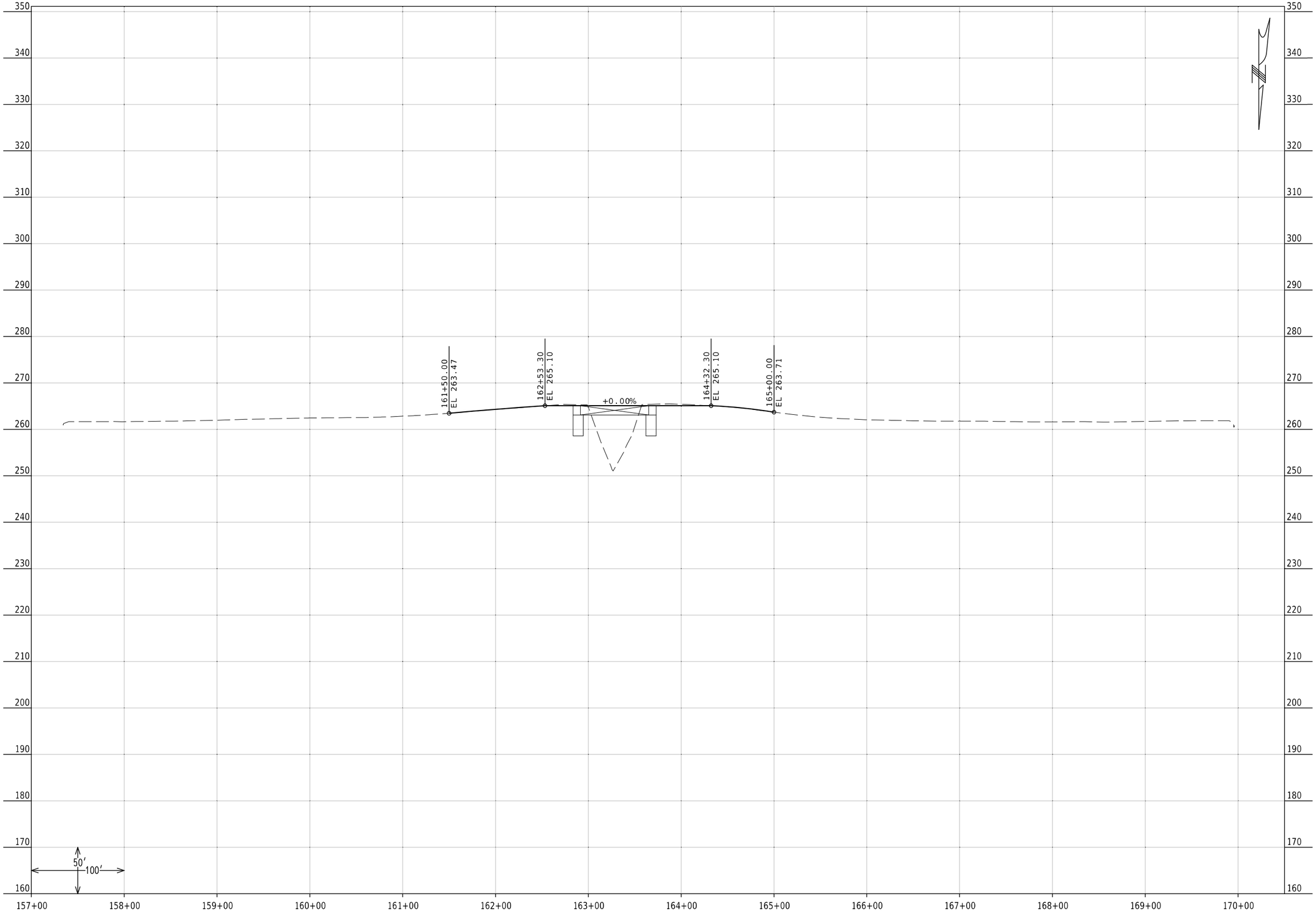
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:42:19 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

PLAN-PROFILE
SHEET 2 OF 2

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	MCS 1983 East
HORIZONTAL DATUM	NAD83 (2011)
VERTICAL DATUM	NAVD88
GEOID MODEL	2018
ELEVATIONS DETERMINED BY	GPS Derived and Differential Levels
PROJECT PROJECTION FACTOR	1.00004480

REFERENCE CONTROL INFORMATION	
COORDINATE SYSTEM	MCS 1983 East
CONTROL STATION	MODOT Dexter CORS ARP
DESIGNATION	MoDOT Dexter CORS ARP
CORS_ID	MODX
PID	DM4672
LATITUDE	36 48 24.82023(N)
LONGITUDE	089 58 42.95873(W)
NORTHING (M)	108150.8000
EASTING (M)	296524.8990
ZONE	East
PROJECT AVERAGE GRID FACTOR	0.99995520

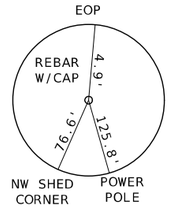
PROJECT NORTHING X AVERAGE GRID FACTOR
= STATE PLANE NORTHING
PROJECT EASTING X AVERAGE GRID FACTOR
= STATE PLANE EASTING

EXAMPLE: CONTROL POINT # CP100
N 183878.45 X 0.9999552 = N 183870.21
E 980938.62 X 0.9999552 = E 980894.67

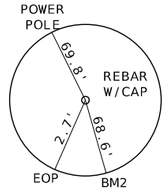
LINEAR UNIT CONVERSION
1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

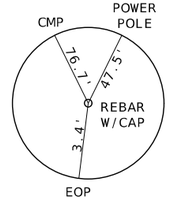
SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION	POINT ID
PROJECT CONTROL POINTS								
	CP100	RTE HH LT	14.69	183878.45	980938.62	260.57	5/8" Rebar w/ Plastic MoDOT Cap	CP100
	CP101	RTE HH RT	11.63	183872.98	984504.28	263.40	5/8" Rebar w/ Plastic MoDOT Cap	CP101
	CP102	RTE HH RT	11.89	183859.42	981749.33	262.78	5/8" Rebar w/ Plastic MoDOT Cap	CP102
	CP103	RTE HH LT	12.44	183835.22	982188.91	260.70	5/8" Rebar w/ Plastic MoDOT Cap	CP103
ALIGNMENTS								
	110+61.10	℄ RTE HH		986903.48	183568.03		POT	
	189+63.60	℄ RTE HH		979013.26	184012.26		POT	



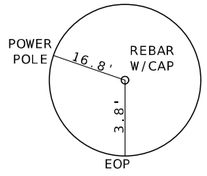
CONTROL PT #100



CONTROL PT #101



CONTROL PT #102



CONTROL PT #103

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/27/2024 8:14:20 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
2/27/2024

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
SE	6

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

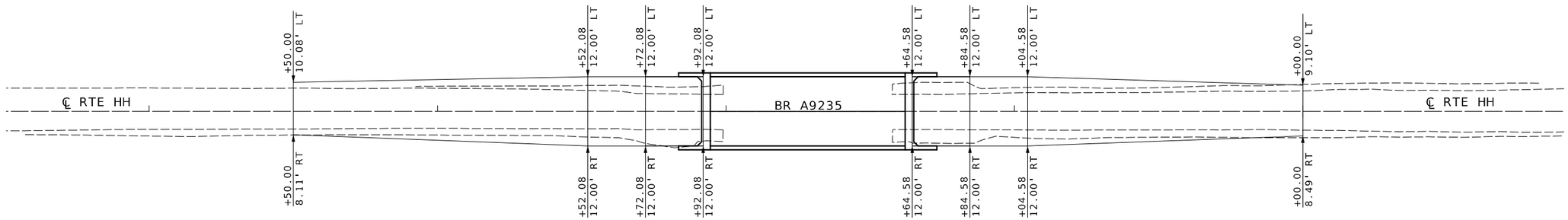
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

REFERENCE POINTS
CONTROL POINTS
SHEET 1 OF 1

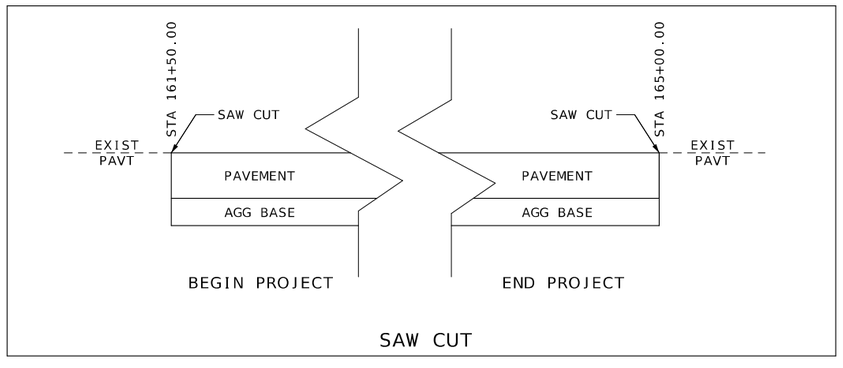


PAVEMENT TRANSITION

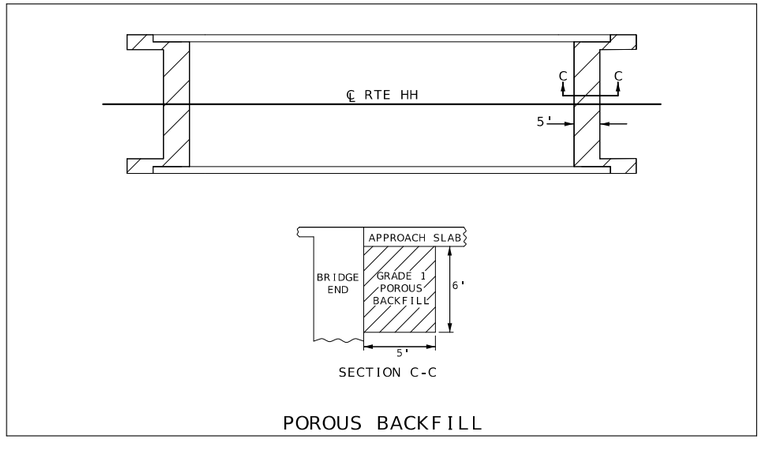
* OPTIONAL PAVEMENT
1 ¾" BP-1 PG 64-22 OVER
8 ¼" PMBB PG 64-22 OVER
6" TYPE 5 AGGR

OR

8" JPCP W/15' JOINTS OVER
6" TYPE 5 AGGR



SAW CUT



POROUS BACKFILL

NOTES:

SEE BRIDGE SHEETS FOR BRIDGE APPROACH SLAB DETAIL

NO DIRECT PAYMENT WILL BE MADE FOR ANY SAW CUTS

DRAWING NOT TO SCALE

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:43:26 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

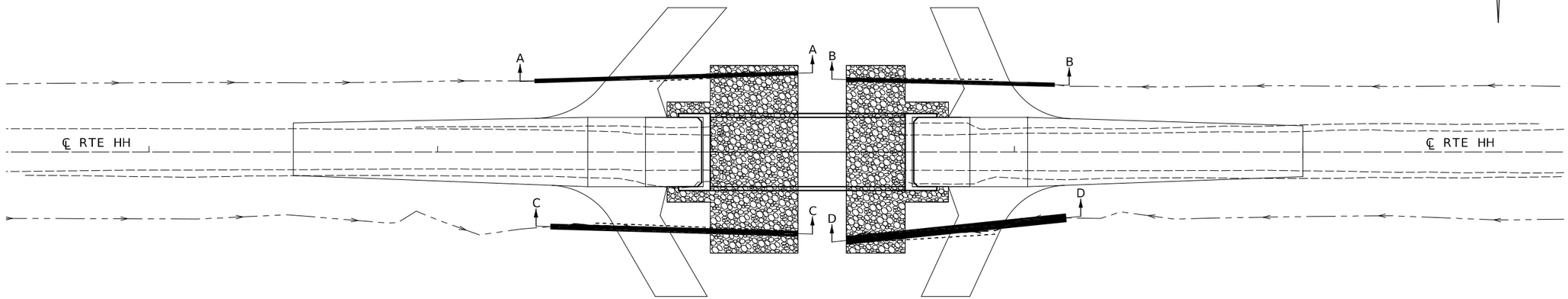
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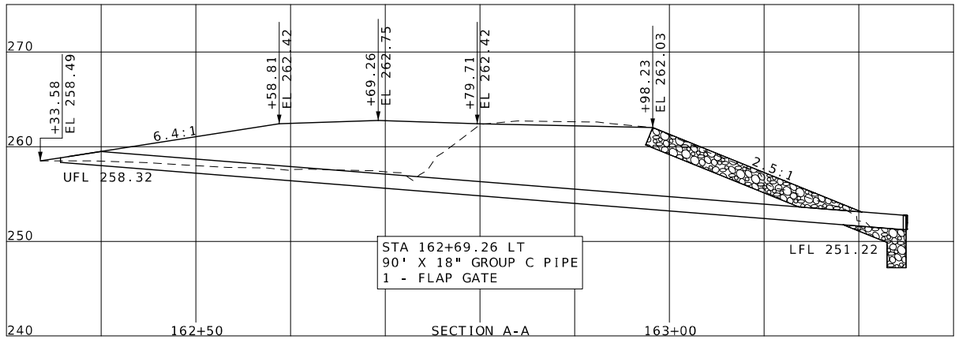
BRIDGE NO.

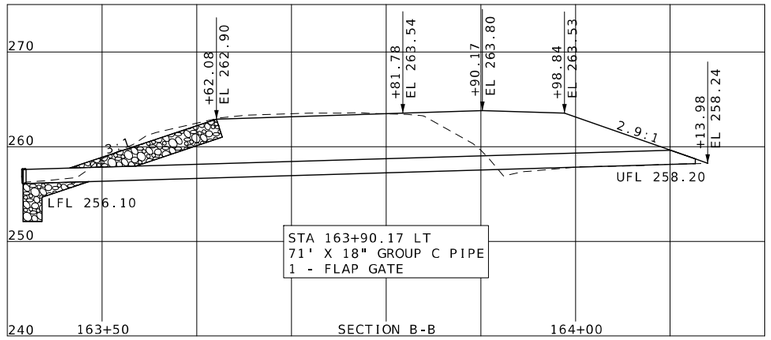
DESCRIPTION	DATE

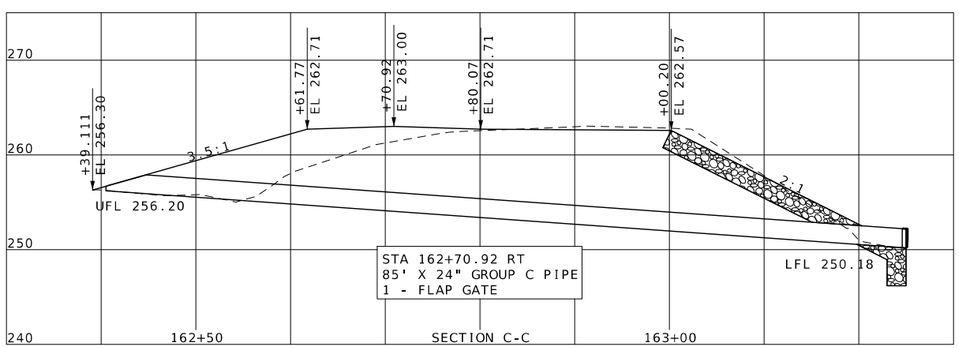
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

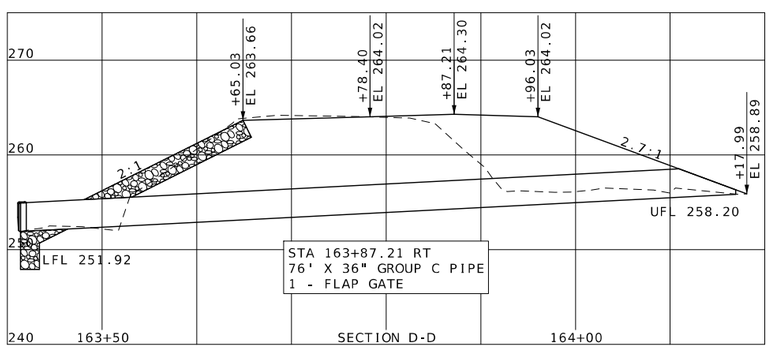
SPECIAL SHEET
PAVEMENT DETAIL
SHEET 1 OF 3











DRAWING NOT TO SCALE

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:43:53 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
SE	8

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

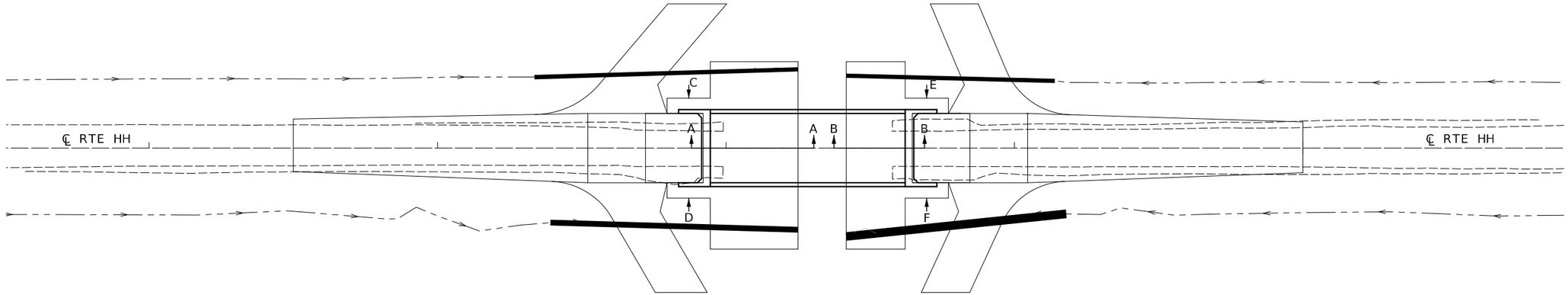
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

SPECIAL SHEET
DRIVEWAY PIPE DETAIL
SHEET 2 OF 3

165

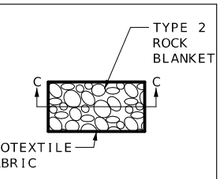




ROCK BLANKET SECTIONS A-A

ROCK BLANKET SECTIONS B-B

ROCK BLANKET DETAIL



ROCK BLANKET SECTIONS C,D,E,& F

ROCK BLANKET DETAIL

ROCK BLANKET						
SEC	FORE SLOPE	WIDTH (FT)	DEPTH (FT)	LENGTH (FT)	ROCK BLANKET (CY)	PERMANENT GEOTEXTILE (SY)
A-A	2:1	32.4	2.0	65.0	156	294
B-B	2:1	22.4	2.0	65.0	108	218
C	3:1	16.9	2.0	15.0	19	44
D	3:1	16.9	2.0	15.0	19	44
E	3:1	16.9	2.0	15.0	19	44
F	3:1	16.9	2.0	15.0	19	44

NOTES:

ANY CLEARING & GRUBBING OR EARTHWORK REQUIRED FOR REMOVAL OR PLACEMENT OF PAVEMENT OR ROCK SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

DRAWING NOT TO SCALE

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 8:44:08 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
SE	9

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

PROJECT NO.

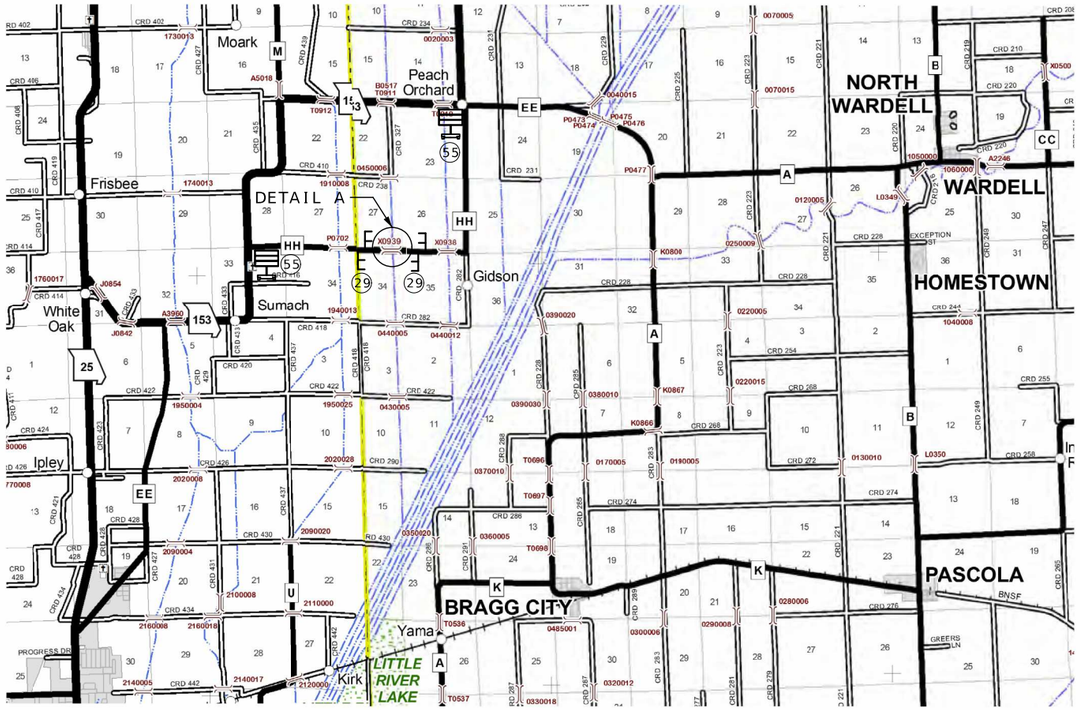
BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

SPECIAL SHEET
ROCK BLANKET DETAIL
SHEET 3 OF 3





WO20-3

(20)



WO20-3

(20a)



R11-2

(29)



R11-3a

(57)



R11-3a

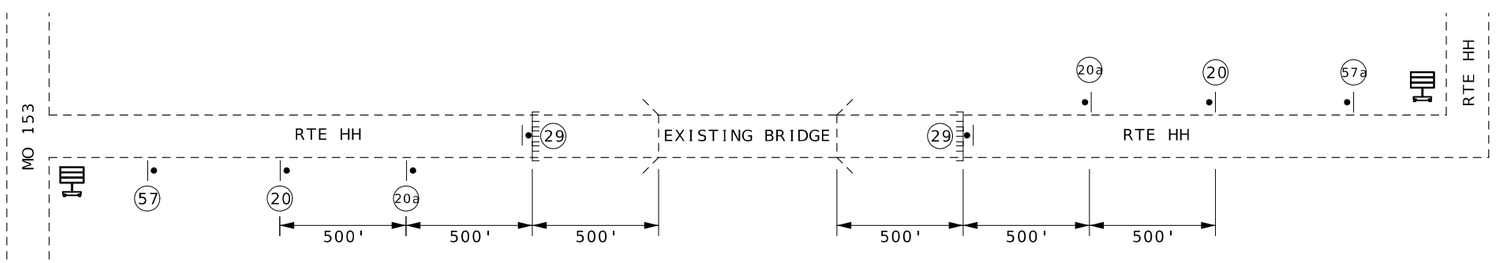
(57a)

NOTES:

SIGNS SPACING IS 500FT.

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

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



DETAIL A
WORK ZONE NEAR BRIDGE

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- BARRICADE
- CHANGEABLE MESSAGE BOARD

DRAWING NOT TO SCALE

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:44:23 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED	
2/20/2024	
ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
SE	10

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

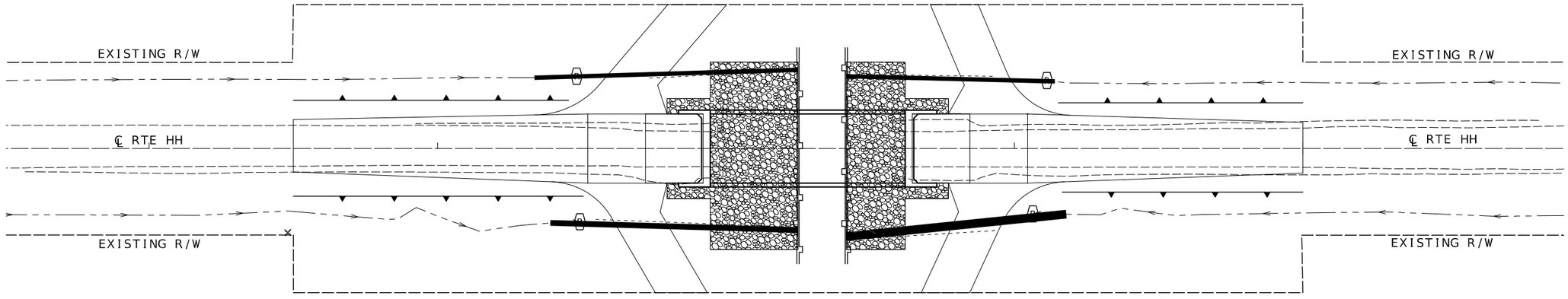
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

TRAFFIC CONTROL
SHEET 1 OF 1

165



TEMPORARY EROSION CONTROL LEGEND

- ROCK DITCH CHECK (44 LF)
- TEMPORARY BERM TYPE C (150 LF)
- SILT FENCE (364 LF)

NOTES: EROSION CONTROL ITEMS ARE FOR FINAL LAYOUT. ITEMS MAY BE ACTIVELY PLACED OR RELOCATED IN ORDER TO EFFECTIVELY CONTROL EROSION AND SEDIMENT DISCHARGE.

SCALE

0 20 40 60

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:45:04 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
HH	MO

DISTRICT	SHEET NO.
SE	11

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

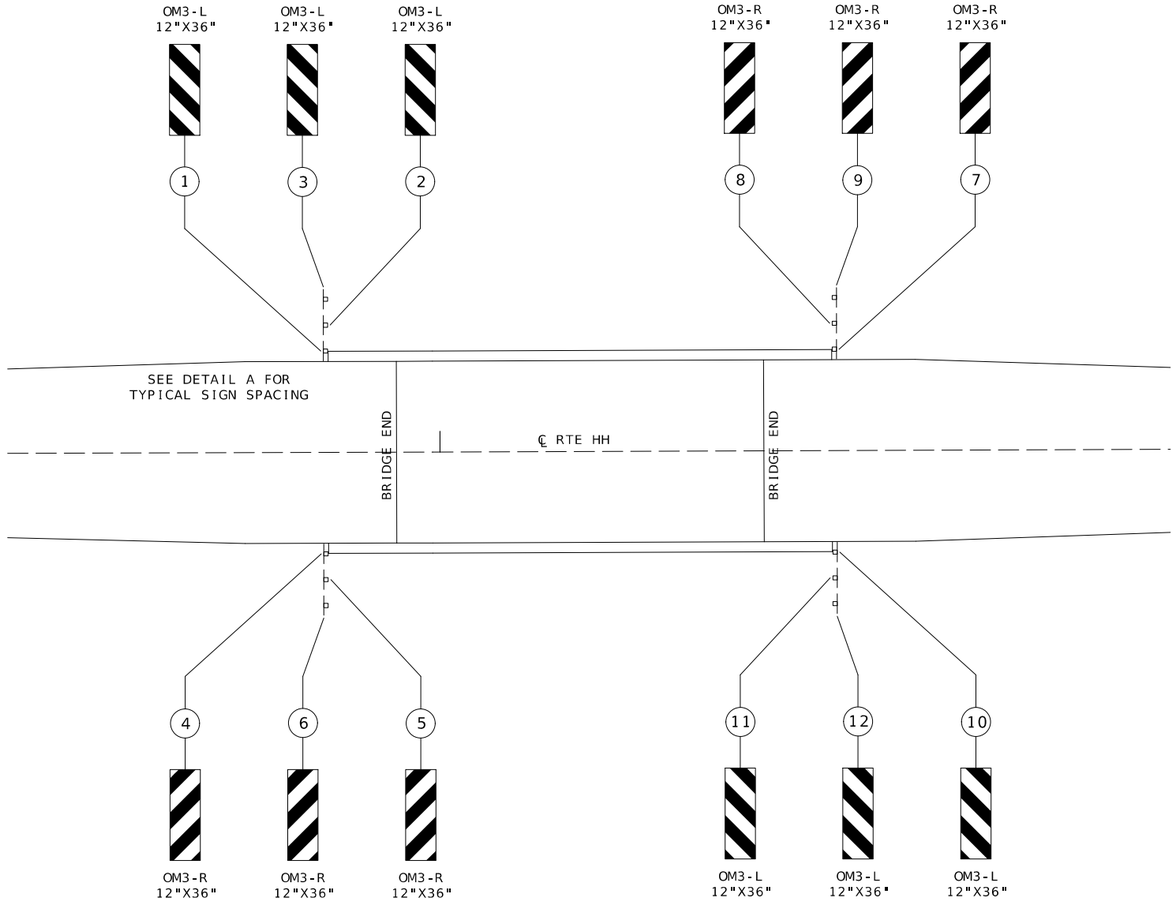
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

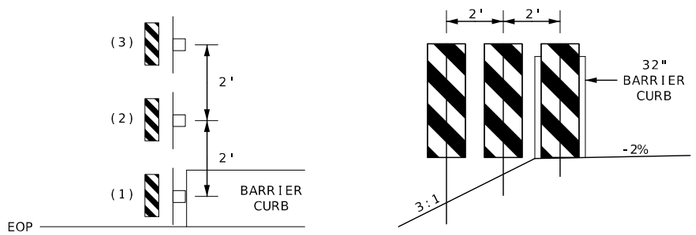
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EROSION CONTROL
SHEET 1 OF 1



SIGNS				PERFORATED SQUARE STEEL TUBE		
				2 IN POST		
SIGN NO	SIGN SIZE	LOCATION	SIGN DETAIL SHEET NO	POST NO 1	TOTAL ITEM NO 9031270A	ANCHOR 12 GA ITEM NO 9031271A
				LF	LF	EA
1	12"X36"	LT ℄ RTE HH	STD	3.5	3.5	1
2	12"X36"	LT ℄ RTE HH	STD	4.0	4.0	1
3	12"X36"	LT ℄ RTE HH	STD	4.75	4.75	1
4	12"X36"	RT ℄ RTE HH	STD	3.5	3.5	1
5	12"X36"	RT ℄ RTE HH	STD	4.0	4.0	1
6	12"X36"	RT ℄ RTE HH	STD	4.75	4.75	1
7	12"X36"	LT ℄ RTE HH	STD	3.5	3.5	1
8	12"X36"	LT ℄ RTE HH	STD	4.0	4.0	1
9	12"X36"	LT ℄ RTE HH	STD	4.75	4.75	1
10	12"X36"	RT ℄ RTE HH	STD	3.5	3.5	1
11	12"X36"	RT ℄ RTE HH	STD	4.0	4.0	1
12	12"X36"	RT ℄ RTE HH	STD	4.75	4.75	1
			TOTAL		49	12

STANDARD SIGN ASSEMBLIES			
SIGN NUMBER	LOCATION	FLAT SHEET FLUORESCENT SIGN DESCRIPTION, SIZES & NUMBER OF EACH	
		OM3-L (12"X36")	OM3-R (12"X36")
1	LT ℄ RTE HH	1	
2	LT ℄ RTE HH	1	
3	LT ℄ RTE HH	1	
4	RT ℄ RTE HH		1
5	RT ℄ RTE HH		1
6	RT ℄ RTE HH		1
7	LT ℄ RTE HH	1	
8	LT ℄ RTE HH	1	
9	LT ℄ RTE HH	1	
10	RT ℄ RTE HH		1
11	RT ℄ RTE HH		1
12	RT ℄ RTE HH		1
	TOTAL	6	6



DETAIL A

SIGN SUMMARY				
STANDARD SIGN	SIGN DETAIL SHEET NO	NO EACH	SIZE, TYPE & SQ FT	
			SIZE	FLAT SHEET FLUORESCENT* ITEM NO 9035069A
OM3-L	STD	6	12"X36"	18
OM3-R	STD	6	12"X36"	18
		TOTAL		36

* ORANGE, YELLOW, & YELLOW/GREEN

NOTES

TOP OF OBJECT MARKER SHALL BE INSTALLED AT SAME HEIGHT AS BRIDGE BARRIER CURB

MOUNTING HEIGHTS FOR OJBECT MARKERS

- OBJECT MARKER (1) MOUNTED ON BARRIER CURB
- OBJECT MARKER (2) & (3) MOUNTED AT LEVEL OF OBJECT MARKER (1)

DRAWING NOT TO SCALE. FOLLOW DIRECTIONS.

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:45:44 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED: 11/29/2023
ROUTE: HH | STATE: MO
DISTRICT: SE | SHEET NO.: 12
COUNTY: PEMISCOT
JOB NO.: J9S3593
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

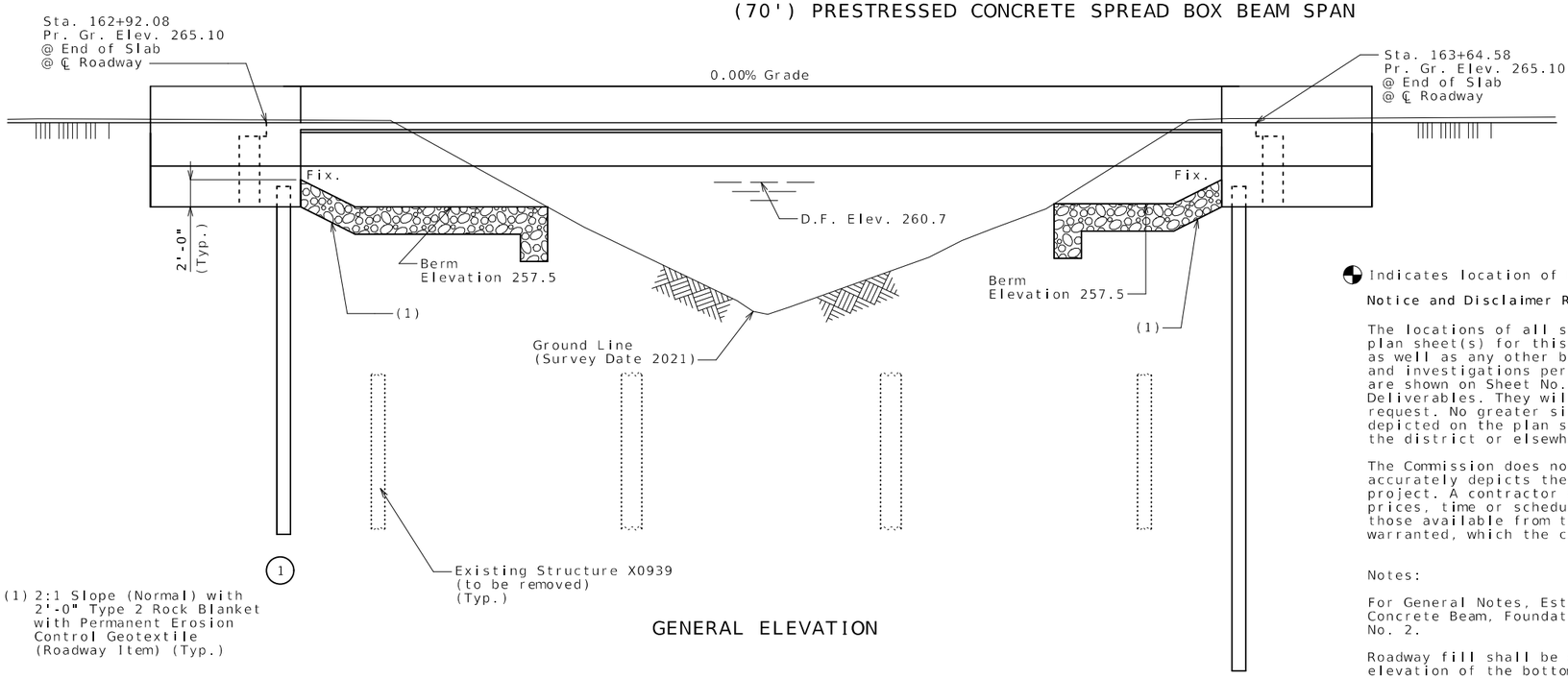
DESCRIPTION | DATE

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

SIGNING SHEET
TYPE 3 OBJECT MARKERS
SHEET 1 OF 1

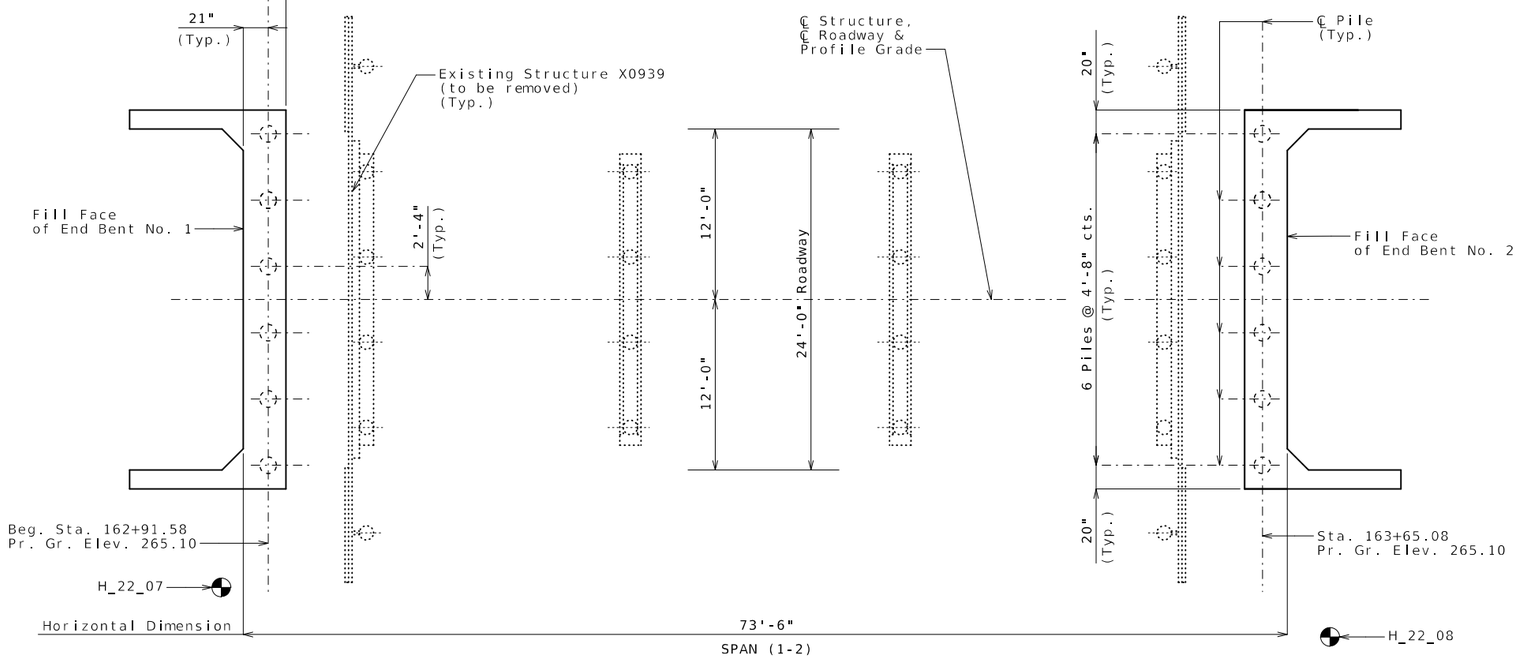
SEC/SUR 26 TWP 20N RGE 10E

(70') PRESTRESSED CONCRETE SPREAD BOX BEAM SPAN



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

GENERAL ELEVATION



PLAN

Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on 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 No.20 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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

Notes:

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

Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.

B.M.#1 - R/R SPIKE IN POWER POLE NORTHEAST OF CP 100
28.22' RT OF ℄ RTE HH
STA 168+79.05 ELEV. 262.8020
X = 981096.3100 Y = 183923.2510

B.M.#2 - "□" NORTHWEST CURB OF BRIDGE X0939
10.46' RT OF ℄ RTE HH
STA 163+57.40 ELEV. 265.8870
X = 981616.1400 Y = 183876.1900

B.M.#3 - "□" NORTHEAST CURB OF BRIDGE X0939
10.57' RT OF ℄ RTE HH
STA 162+98.99 ELEV. 265.9440
X = 981674.4640 Y = 183873.0230

B.M.#4 - R/R SPIKE NORTH OF CP 103
28.47' RT OF ℄ RTE HH
STA 157+41.55 ELEV. 261.8160
X = 982232.0270 Y = 183859.5590

BRIDGE: ROUTE HH OVER DRAINAGE DITCH NO. 85

ROUTE HH FROM ROUTE 153 TO ROUTE EE
ABOUT 2 MILES EAST OF ROUTE EE
BEGINNING STATION 162+91.58

Detailed Jan. 2023
Checked Feb. 2023

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/8/2023
ROUTE HH | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY PEMISCOT
JOB NO. J9S3593
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9235

DESCRIPTION	DATE

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

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

General Notes:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)
Seismic Design Category = D

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

Design Unit Stresses:

Class B Concrete (Substructure, except CIP Concrete Piles)	f'c = 3,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Box Beams & Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Barrier & CIP Concrete Piles)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi

For steel shell stresses for CIP Piles, see Sheet No. 3.

For prestressed box beam stresses, see Sheet No. 11.

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

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

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

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

Estimated Quantities for Slab on Concrete Beam

Item		Total
Class B-2 Concrete	cu. yard	68
Reinforcing Steel (Epoxy Coated)	pound	18,550

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

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

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

For details of stay-in-place corrugated steel forms, see Sheet No. 13.

Foundation Data

Type	Design Data		Bent Number 1	Bent Number 2
Load Bearing Pile	Pile Type and Size		CECIP 14"	CECIP 14"
	Number	ea	6	6
	Approximate Length Per Each	ft	24	34
	Pile Point Reinforcement	ea	ALL	ALL
	Min. Galvanized Penetration (Elev.)	ft	FULL LENGTH	FULL LENGTH
	Est. Max. Scour Depth (Elev.)	ft	-	-
	Minimum Tip Penetration (Elev.)	ft	243.1	239.1
	Criteria for Min. Tip Penetration		LS	LS
	Pile Driving Verification Method		DT	DT
	Resistance Factor		0.65	0.65
	Minimum Nominal Axial Compressive Resistance	kip	207	207

CECIP = Closed Ended Cast-In-Place Concrete Pile

DT - Dynamic Testing

LS - Lateral Stability

Minimum Nominal Axial Compressive Resistance = $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factors}}$
(Side Resistance + Tip Resistance)

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

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

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

Dynamic Testing shall be performed on the first pile installed at each bent.

Estimated Quantities

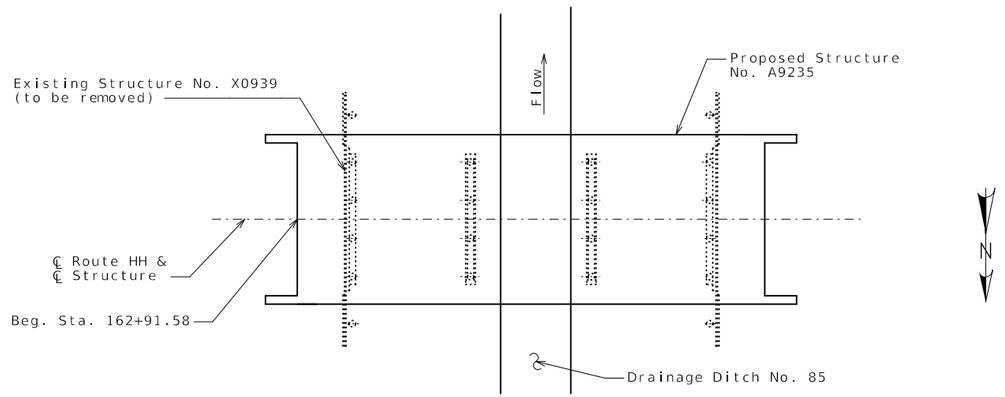
Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	60		60
Removal of Bridges (X0939)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		108	108
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	348		348
Dynamic Pile Testing	each	2		2
Pile Point Reinforcement	each	12		12
Class B Concrete (Substructure)	cu. yard	23.4		23.4
Type H Barrier	linear foot		179	179
Slab on Concrete Beam	sq. yard		215	215
27 in., Prestressed Concrete Spread Box Beam	linear foot		212	212
Slab Drain	each		12	12
Vertical Drain at End Bents	each			2
Plain Neoprene Bearing Pad	each		6	6

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

All reinforcement in the end bents and all reinforcement in cast-in-place pile at end bents is included in the Estimated Quantities for Slab on Concrete Beam.

Hydrologic Data

Drainage Area = 5.4 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 450 cfs
Design Flood (D.F.) Elevation = 260.7
Base Flood (100-year)
Base Flood Elevation = 260.9
Base Flood Discharge = 470 cfs
Estimated Backwater = 0 ft
Average Velocity thru Opening = 1.5 ft/s
Freeboard (50-year)
Freeboard = 1.2 ft
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency > 500 years
500-Year Flood Elevation = 260.9



LOCATION SKETCH

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/8/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
BR	2

COUNTY PEMISCOT

JOB NO. J9S3593

CONTRACT ID.

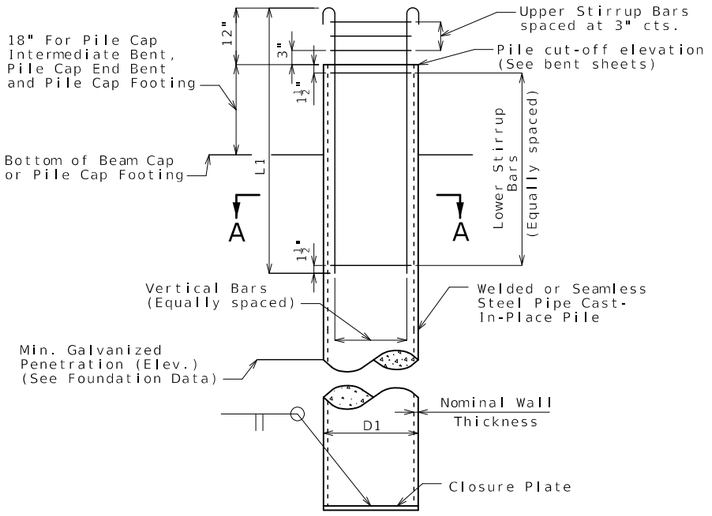
PROJECT NO.

BRIDGE NO. A9235

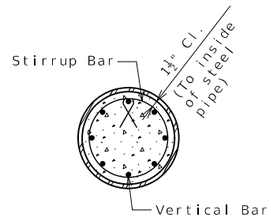
DESCRIPTION	DATE

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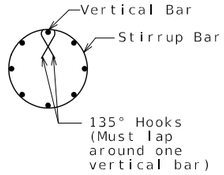
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE WITHOUT PILE POINT REINFORCEMENT



SECTION A-A



DETAIL OF SEISMIC STIRRUP BAR

Galvanized Closed Ended Cast-In-Place (CECIP) Concrete Pile Data		
Bent Number	1	2
D1, CECIP Pile (O.D.)	14"	14"
Min. Nominal Wall Thickness	1/2"	1/2"
Closure Plate Thickness	3/4"	3/4"
Pile Point Reinforcement	Conical	Conical
Vertical Bars	6-#5-V103	6-#5-V203
L1, Length of Vertical Bars	5'-3"	5'-3"
Upper Stirrup Bars	3-#4-P100	3-#4-P200
Lower Stirrup Bars	5-#4-P100	5-#4-P200

Notes:

Welded or seamless steel shell (pipe) shall be ASTM A252 Grade 3 (fy = 45,000 psi).

Concrete for cast-in-place pile shall be Class B-1.

Steel for closure plate shall be ASTM A709 Grade 50.

Steel casting for conical pile point reinforcement shall be ASTM A27 Grade 65-35.

The minimum wall thickness of any spot or local area of any type shall not be more than 12.5% under the specified nominal wall thickness.

The contractor shall determine the pile wall thickness required to avoid damage from all driving activities, but wall thickness shall not be less than the minimum specified. No additional payment will be made for furnishing a thicker pile wall than specified on the plans.

Closure plate shall not project beyond the outside diameter of the pipe pile. Satisfactory weldments may be made by beveling tip end of pipe or by use of inside backing rings. In either case, proper gaps shall be used to obtain weld penetration full thickness of pipe. Payment for furnishing and installing closure plate will be considered completely covered by the contract unit price for Galvanized Cast-In-Place Concrete Piles.

Splices of pipe for cast-in-place concrete pile shall be made watertight and to the full strength of the pipe above and below the splice to permit hard driving without damage. Pipe damaged during driving shall be replaced without cost to the state. Pipe sections used for splicing shall be at least 5 feet in length.

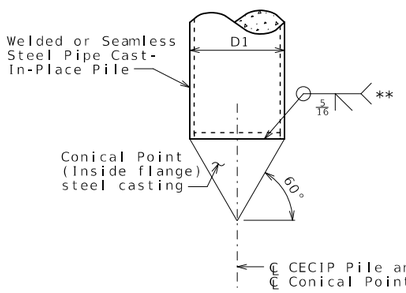
The hooks of vertical bars embedded in the beam cap should not be turned outward, away from the pile core.

Closure plate need not be galvanized.

Reinforcing steel for cast-in-place piles is included in the Bill of Reinforcing Steel.

All reinforcement for cast-in-place pile is included in the estimated quantities for bents.

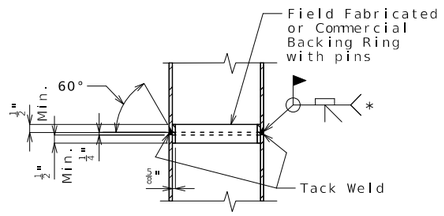
For Foundation Data table, see Sheet No. 2.



MANUFACTURED CONICAL PILE POINT

(Omit closure plate)

** If the conical pile point is not pre-beveled, place a 3/8" bevel at 40 degrees on the pipe.



STEEL PIPE PILE SPLICE

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/8/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
BR	3

COUNTY PEMISCOT

JOB NO. J9S3593

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9235

DESCRIPTION	DATE

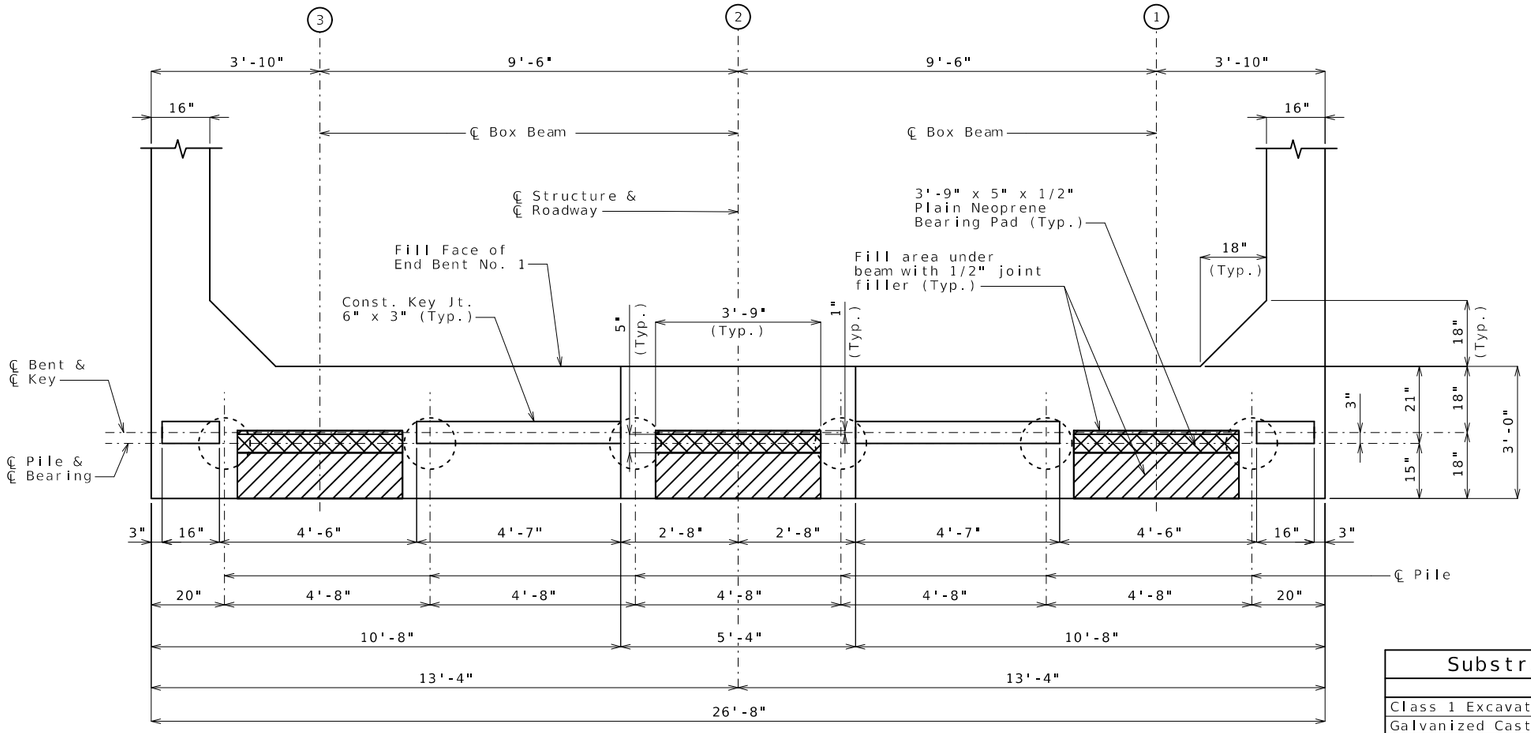
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105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

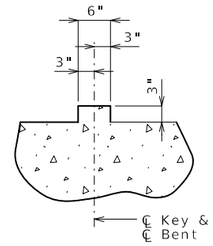
GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE

Detailed Jan. 2023
Checked Feb. 2023

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



PLAN OF BEAM SHOWING DIMENSIONS

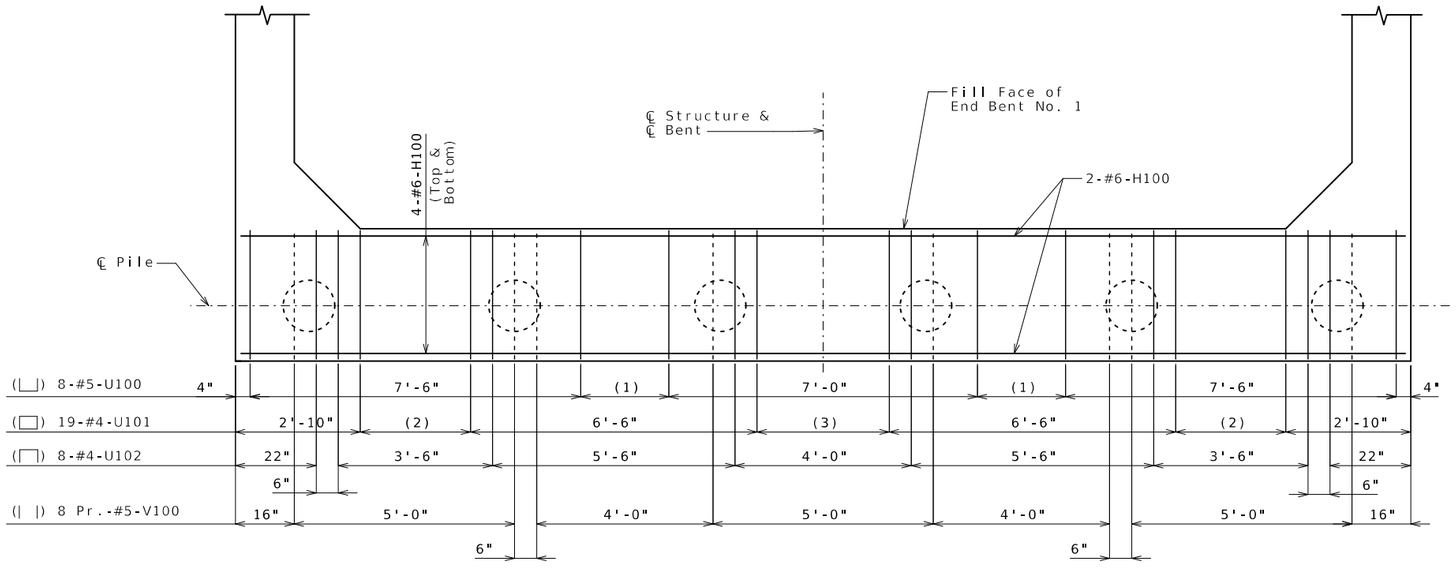


SECTION THRU KEY

Substructure Quantity Table for Bent No. 1

Item		Quantity
Class 1 Excavation	cu. yard	30
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	144
Dynamic Pile Testing	each	1
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yard	11.7

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



(1) 2 Spa. @ 12"

(2) 5 Spa. @ 6"

(3) 6 Spa. @ 6"

PLAN OF BEAM SHOWING REINFORCEMENT

Note: Keys & steps not shown for clarity.

Notes:

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

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

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

For details of Galvanized Cast-In-Place Conrete Piles, see Sheet No. 3.

DETAILS OF END BENT NO. 1

Detailed Jan. 2023
Checked Feb. 2023

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/8/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
BR	4

COUNTY PEMISCOT

JOB NO. J9S3593

CONTRACT ID.

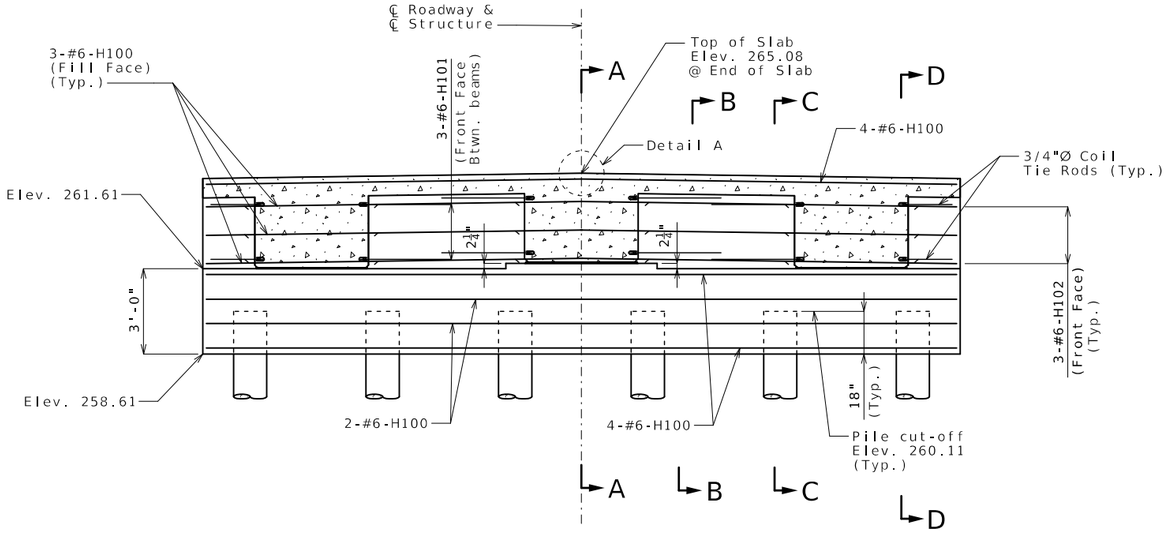
PROJECT NO.

BRIDGE NO. A9235

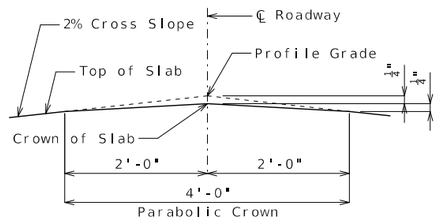
DESCRIPTION | DATE

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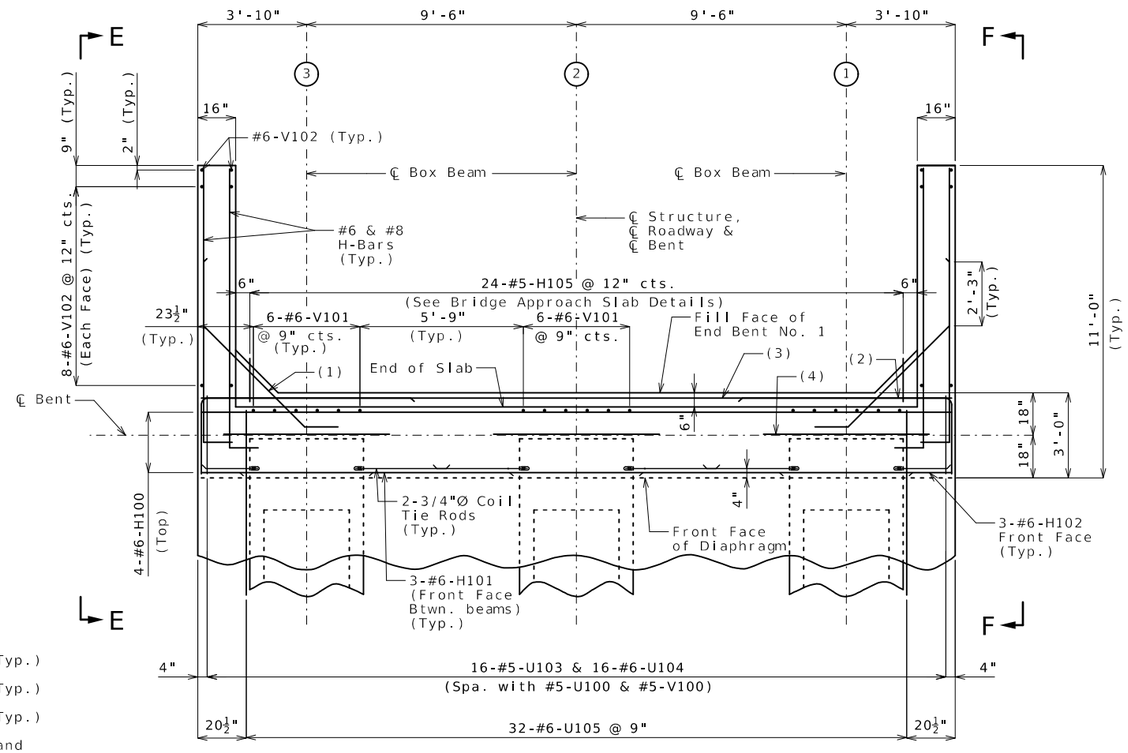
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



SECTION NEAR END BENT



DETAIL A



(1) 8-#6-F100 (Typ.)

(2) 3-#6-F101 (Typ.)

(3) 3-#6-H100 (Typ.)

(4) #5-H106 Strand
Tie Bar (Typ.)

PART PLAN

Notes:

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

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

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

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

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

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

For location of Coil Tie Rods and #5-H102 (Strand Tie Bar), see Sheet No.11.

DETAILS OF END BENT NO.1

Detailed Jan. 2023
Checked Feb. 2023

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
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DATE PREPARED
3/8/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
BR	5

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

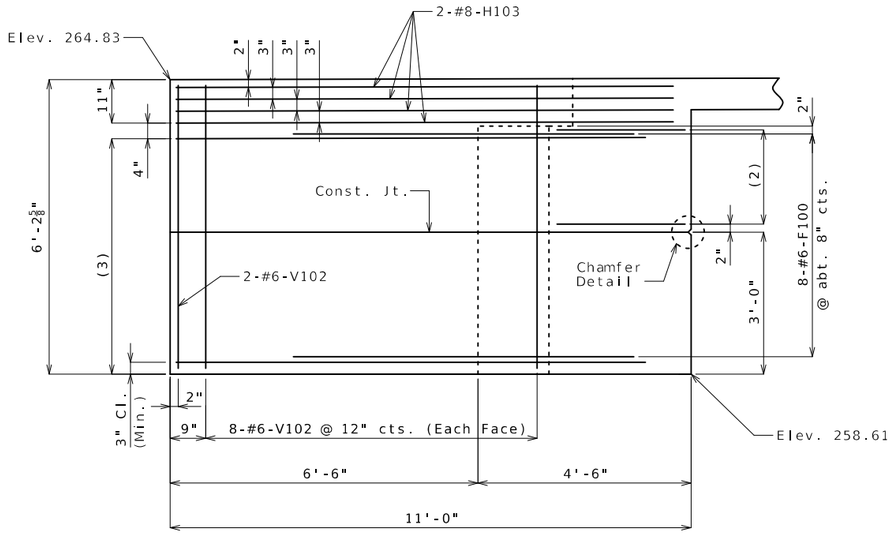
PROJECT NO.

BRIDGE NO.
A9235

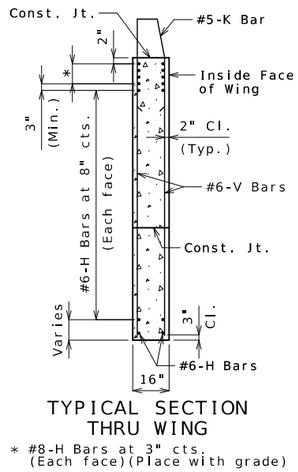
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105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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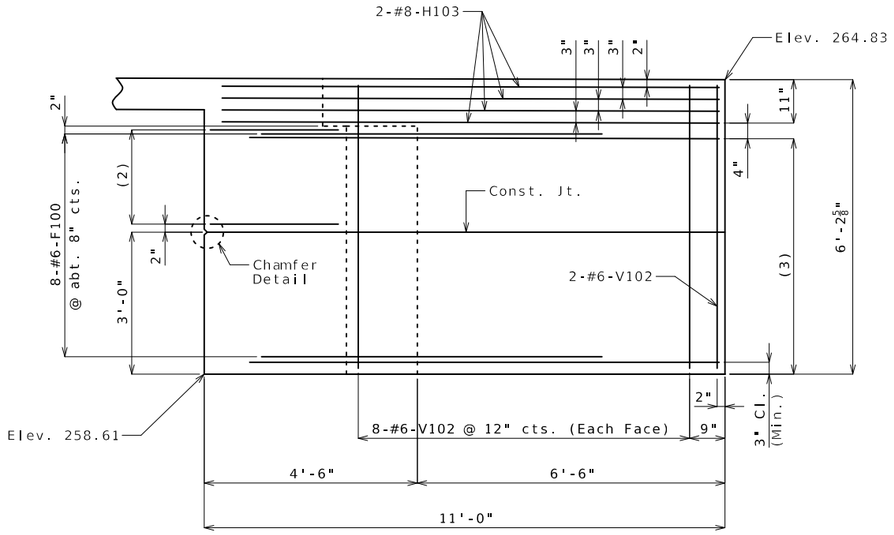


ELEVATION E-E



TYPICAL SECTION THRU WING

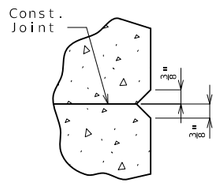
* #8-H Bars at 3" cts. (Each face)(Place with grade)



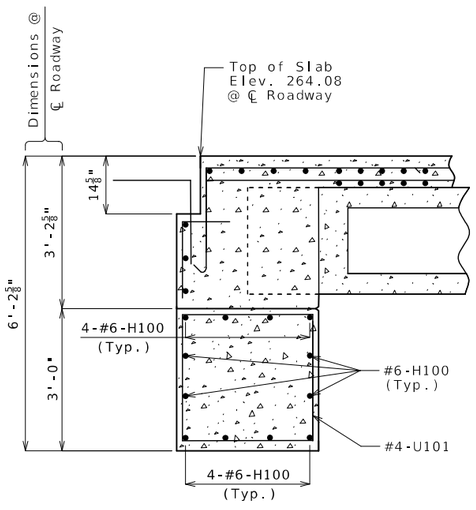
ELEVATION F-F

(2) 3-#6-F101 @ abt. 12" cts.

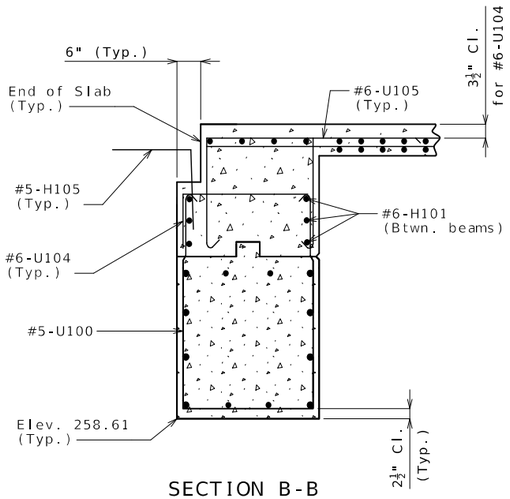
(3) 8-#6-H104 @ abt. 8" cts. (Each Face)



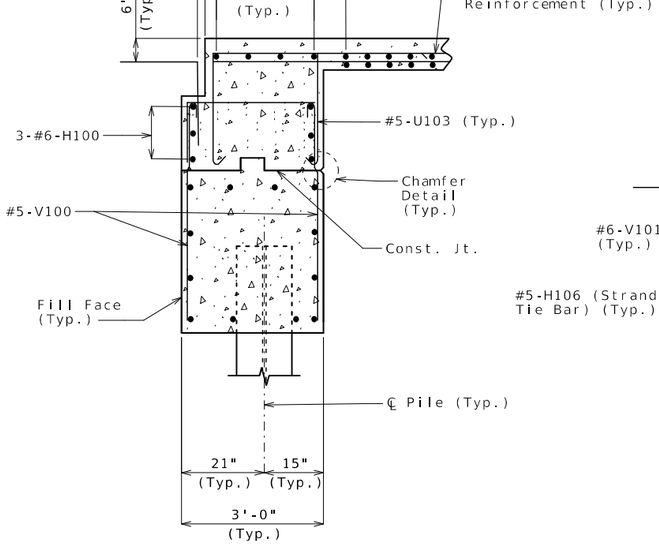
CHAMFER DETAIL



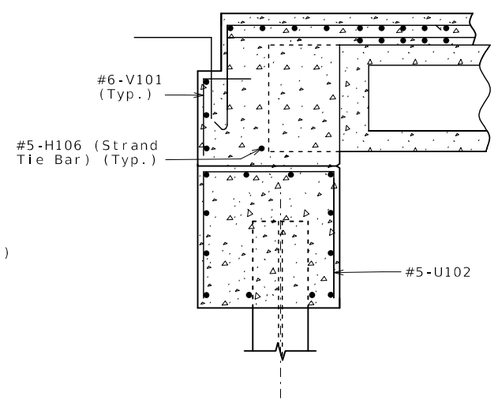
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

Notes:

Work this sheet with Sheets No. 4 & 5.

For details and reinforcemnet of Type H Barrier not shown, see Sheets No. 15 & 16.

DETAILS OF END BENT NO. 1

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
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DATE PREPARED 3/8/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
BR	6

COUNTY PEMISCOT

JOB NO. J9S3593

CONTRACT ID.

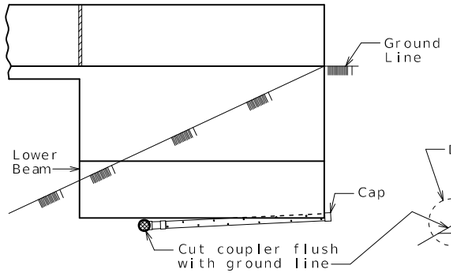
PROJECT NO.

BRIDGE NO. A9235

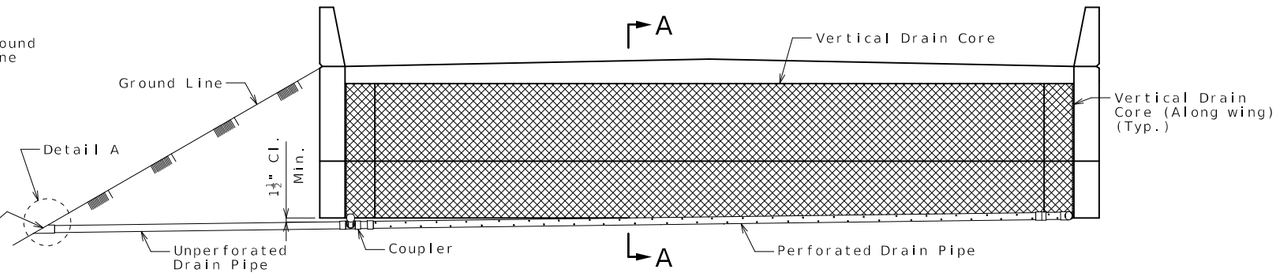
DESCRIPTION	DATE

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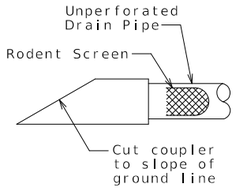
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



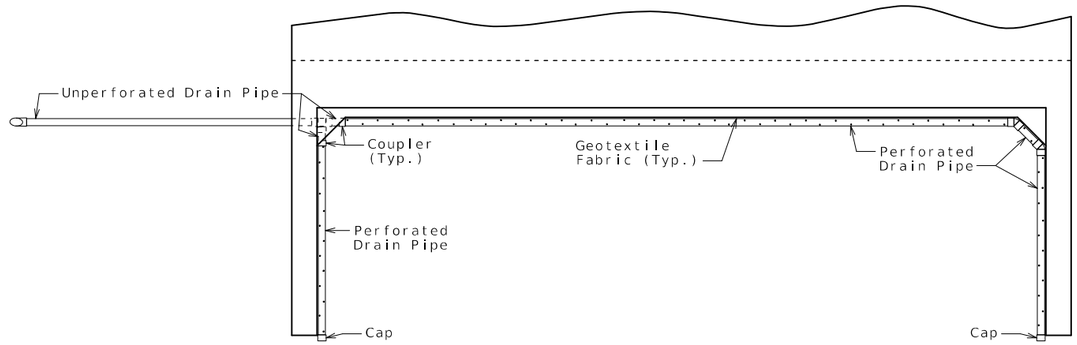
ELEVATION OF WING



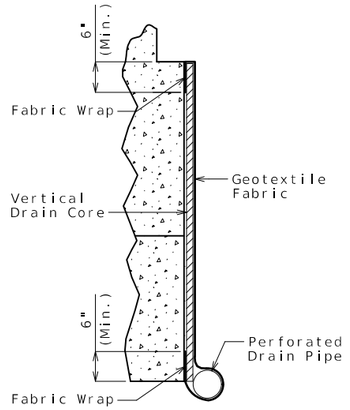
ELEVATION OF END BENT



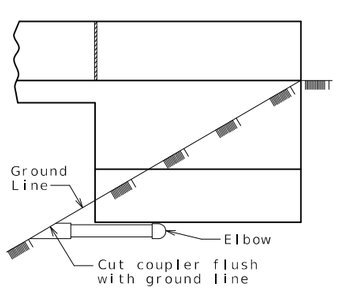
DETAIL A



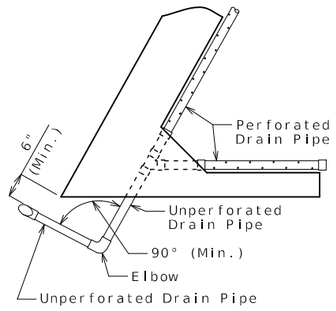
PLAN OF END BENT



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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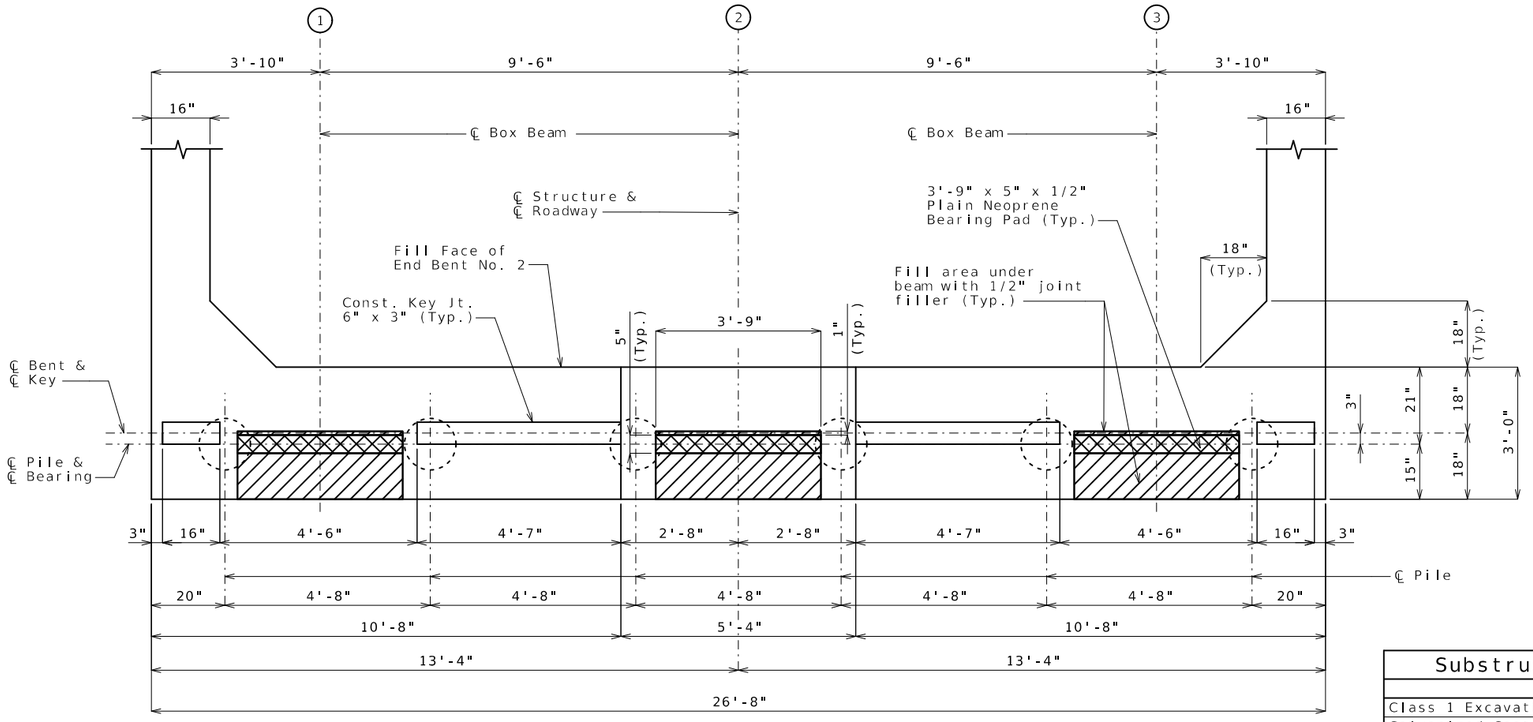
STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 3/8/2023
ROUTE: HH | STATE: MO
DISTRICT: BR | SHEET NO.: 7
COUNTY: PEMISCOT
JOB NO.: J9S3593
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9235

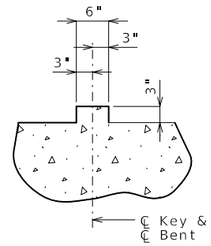
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105 WEST CAPITOL
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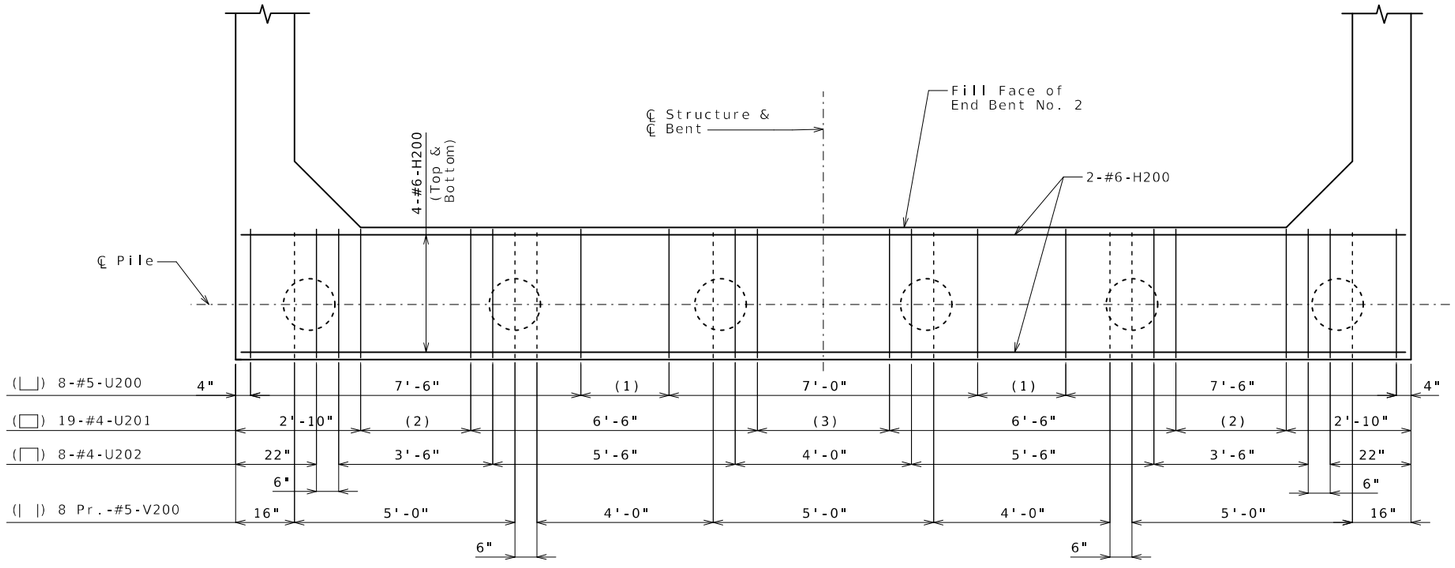
PLAN OF BEAM SHOWING DIMENSIONS



SECTION THRU KEY

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Class 1 Excavation	cu. yard	30
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	204
Dynamic Pile Testing	each	1
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yard	11.7

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



(1) 2 Spa. @ 12"
(2) 5 Spa. @ 6"
(3) 6 Spa. @ 6"

PLAN OF BEAM SHOWING REINFORCEMENT
Note: Keys & steps not shown for clarity.

Notes:

For details of End Bent No. 2 not shown, see Sheets No. 9 & 10.

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

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

For details of Galvanized Cast-In-Place Concrete Piles, see Sheet No. 3.

DETAILS OF END BENT NO. 2

Detailed Jan. 2023
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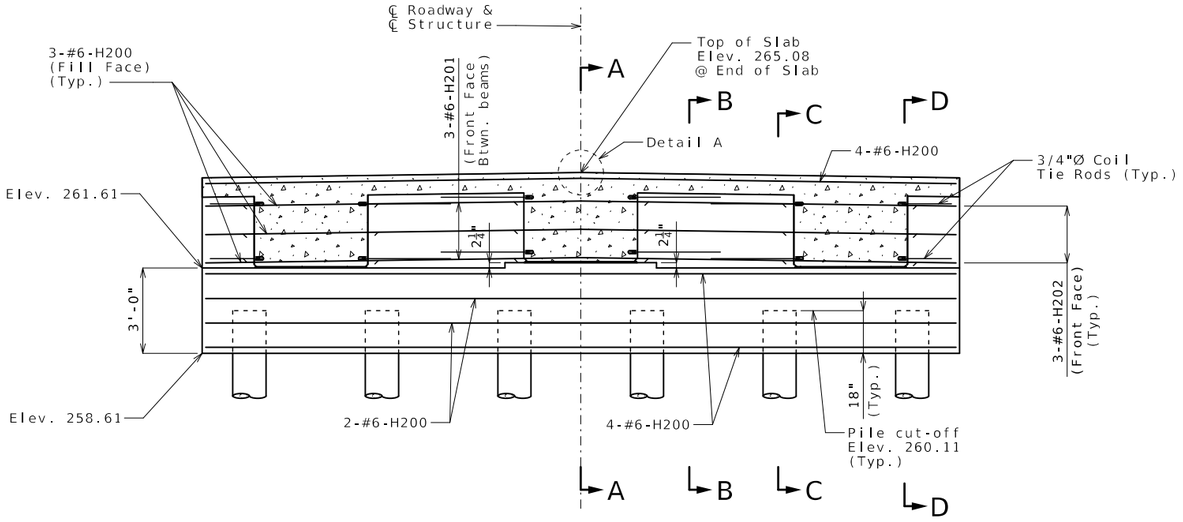
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DATE PREPARED: 3/8/2023
ROUTE: HH | STATE: MO
DISTRICT: BR | SHEET NO.: 8
COUNTY: PEMISCOT
JOB NO.: J9S3593
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9235

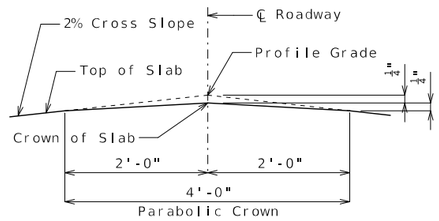
DESCRIPTION | DATE

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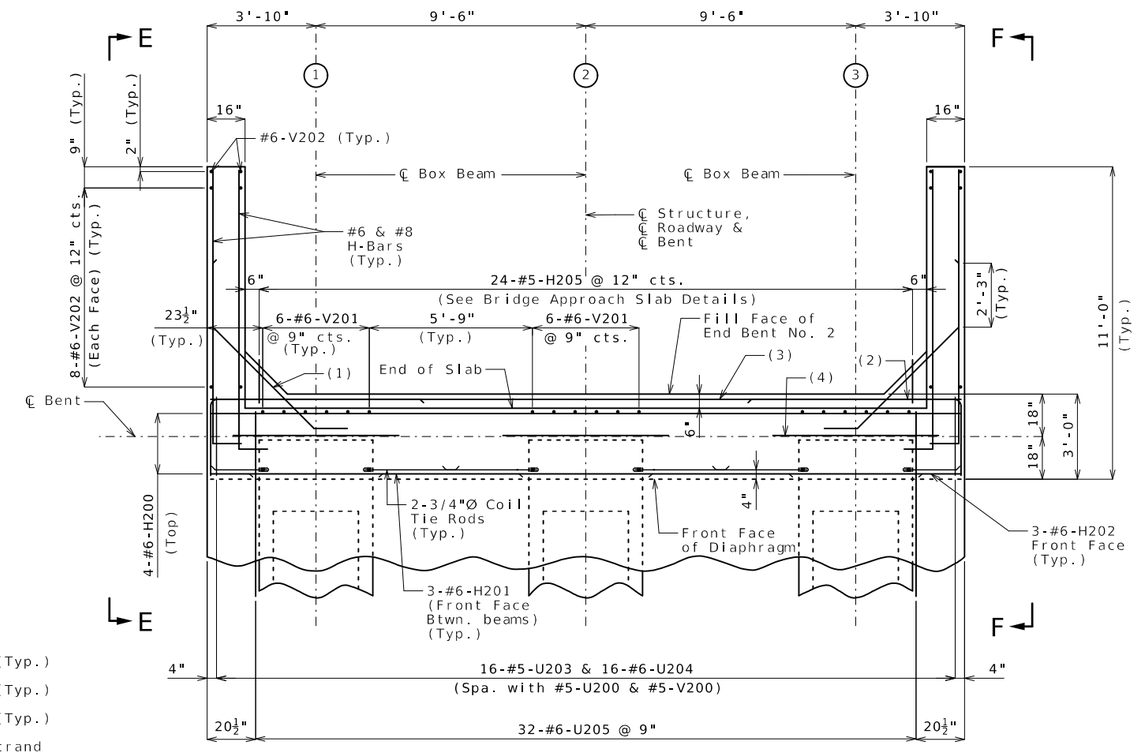
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SECTION NEAR END BENT



DETAIL A



(1) 8-#6-F200 (Typ.)

(2) 3-#6-F201 (Typ.)

(3) 3-#6-H200 (Typ.)

(4) #5-H206 (Strand Tie Bar) (Typ.)

PART PLAN

Notes:

For Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 10.

For details of End Bent No. 2 not shown, see Sheets No. 9 & 10.

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

The #6-F200 bars shall be bent in the field to clear beam.

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

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

For location of Coil Tie Rods and #5-H202 (Strand Tie Bar), see Sheet No. 11.

DETAILS OF END BENT NO. 2

Detailed Jan. 2023
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DATE PREPARED
3/8/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
BR	9

COUNTY
PEMISCOT

JOB NO.
J9S3593

CONTRACT ID.

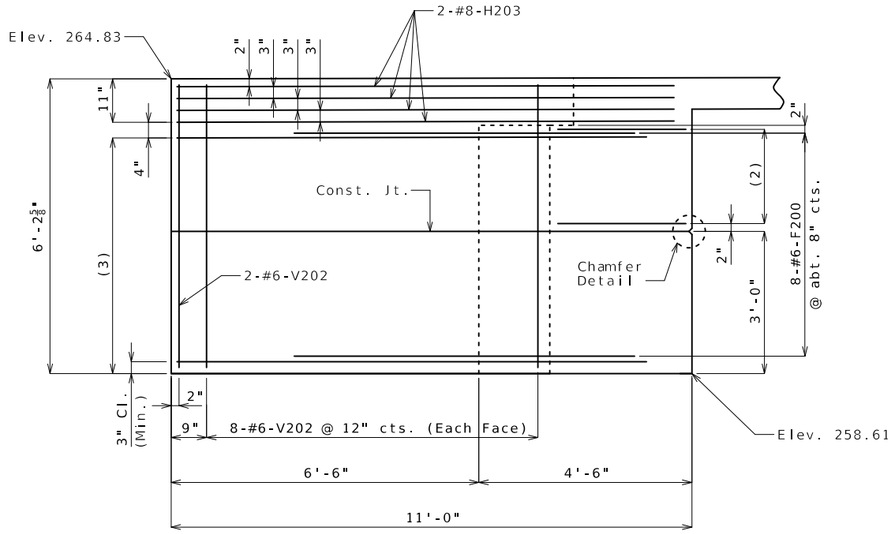
PROJECT NO.

BRIDGE NO.
A9235

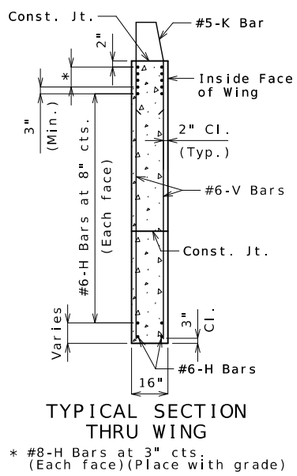
DESCRIPTION	DATE

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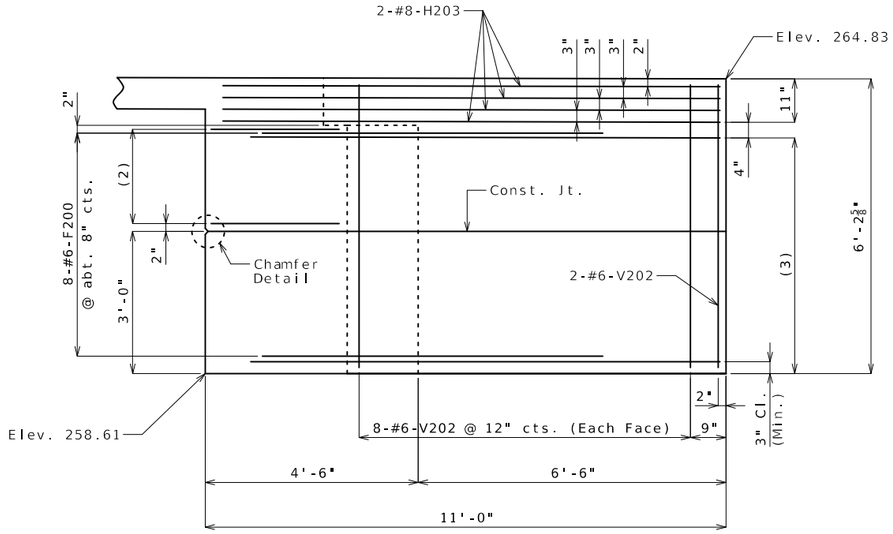


ELEVATION E-E



TYPICAL SECTION THRU WING

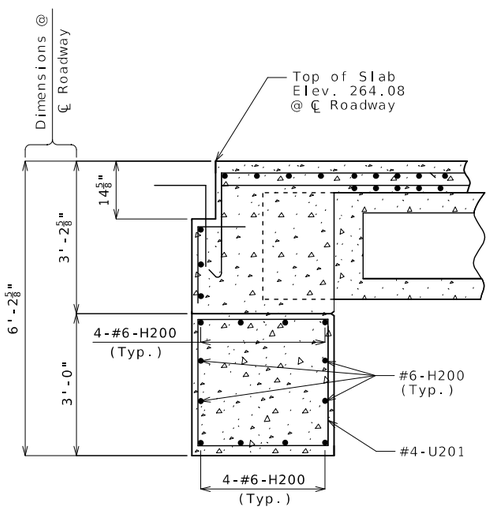
* #8-H Bars at 3" cts. (Each face)(Place with grade)



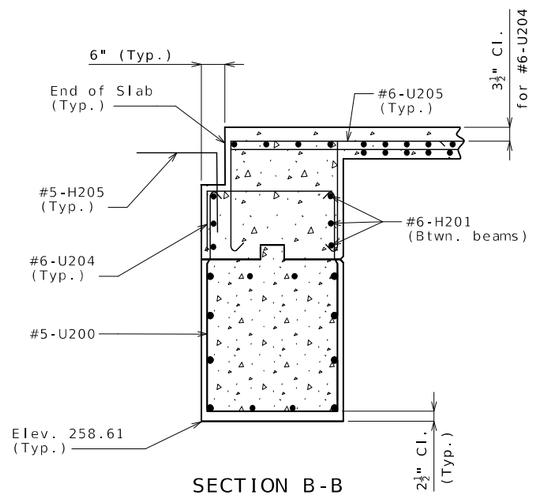
ELEVATION F-F

(2) 3-#6-F201 @ abt. 12" cts.

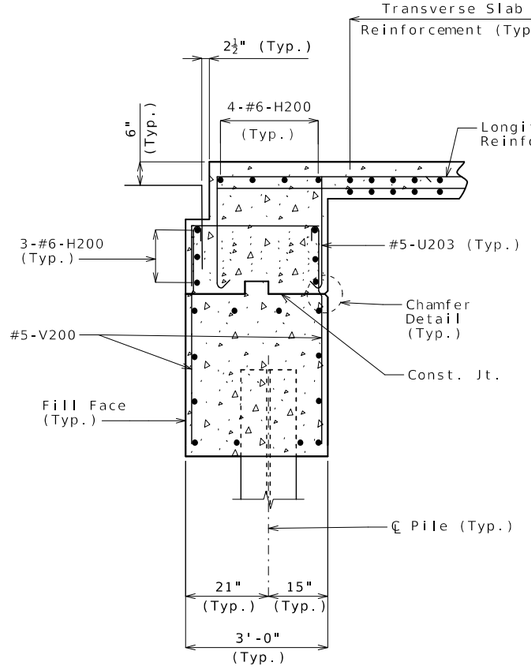
(3) 8-#6-H204 @ abt. 8" cts. (Each Face)



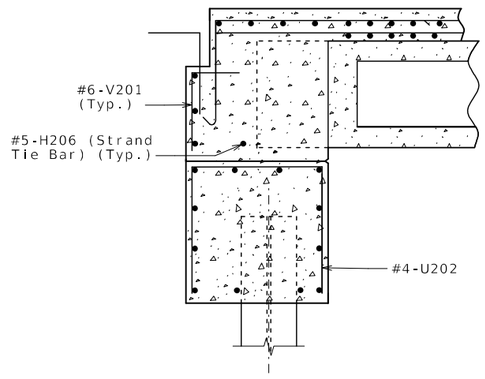
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

Notes:

Work this sheet with Sheets No. 8 & 9.

For details and reinforcement of Type H Barrier, see Sheets No. 15 & 16.

DETAILS OF END BENT NO. 2

Detailed Jan. 2023
Checked Feb. 2023

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DATE PREPARED 3/8/2023

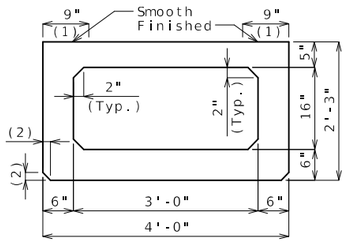
ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
BR	10

COUNTY: PEMISCOT
JOB NO.: J9S3593
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9235

DESCRIPTION	DATE

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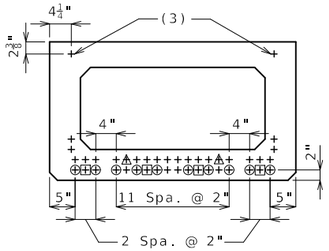
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DIMENSIONS

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

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



STRAND ARRANGEMENT

(3) 3/8"Ø Support Strands (Required) (Tensioned to 8 kips/strand)

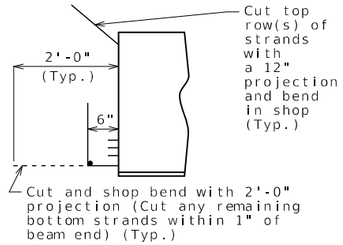
All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

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

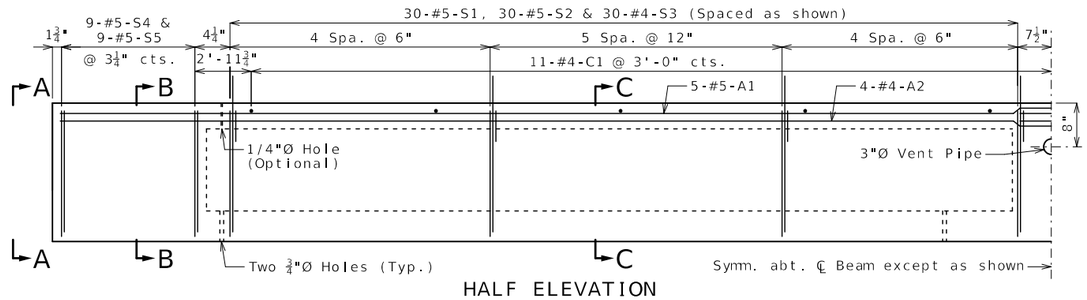
□ Indicates debonded for 12'-0" from end of beam.

△ Indicates debonded for 9'-0" from end of beam.

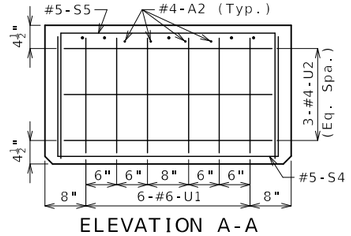


END BENT

STRANDS AT BEAM ENDS



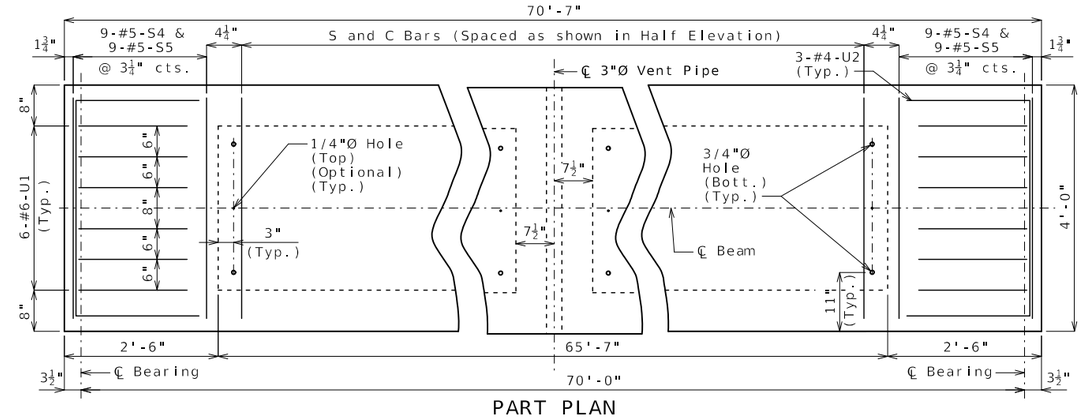
HALF ELEVATION



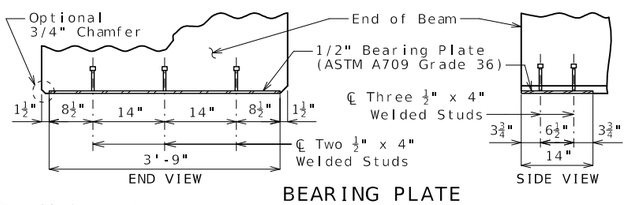
ELEVATION A-A

Strands

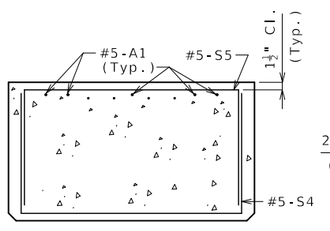
Strands not shown for clarity.



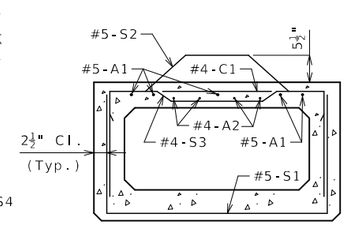
PART PLAN



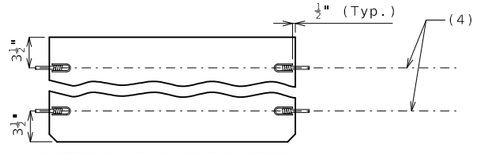
BEARING PLATE



SECTION B-B



SECTION C-C

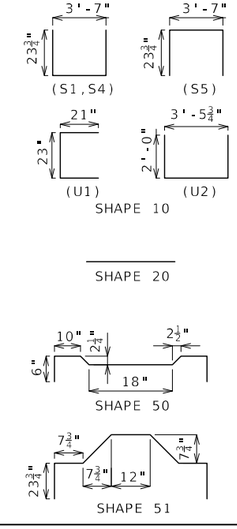


EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

COIL TIES

(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (20" at exterior face of exterior beams at end bents)

BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
10	5 A1	36'-6"	20	
8	4 A2	36'-3"	20	
11	4 C1	3'-7"	20	
30	5 S1	7'-4"	10	
30	5 S2	7'-9"	51	
30	4 S3	4'-6"	50	
18	5 S4	7'-4"	10	
18	5 S5	7'-4"	10	
12	6 U1	5'-1"	10	
6	4 U2	7'-4"	10	



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 1", unless otherwise shown.

All reinforcement shall be Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8,500 psi and f'ci = 7,000 psi.

Use 42 strands, 0.6"Ø Grade 270, with an initial prestress force of 1494 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

For Beam Camber Diagram, see Sheet No. 13.

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

For location of coil ties at concrete bent diaphragms, see Sheets No. 5 and 9.

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
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ROUTE HH | STATE MO
DISTRICT BR | SHEET NO. 11
COUNTY PEMISCOT
JOB NO. J9S3593
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9235

DESCRIPTION | DATE

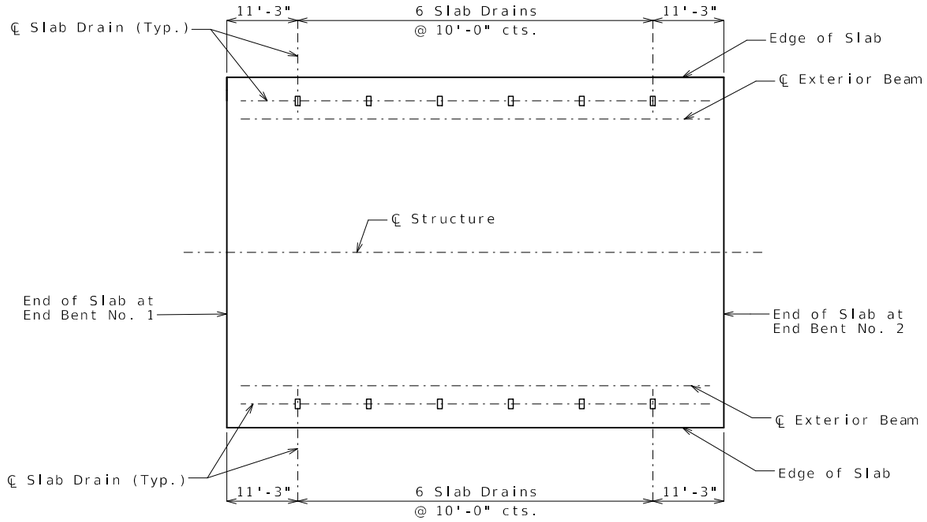
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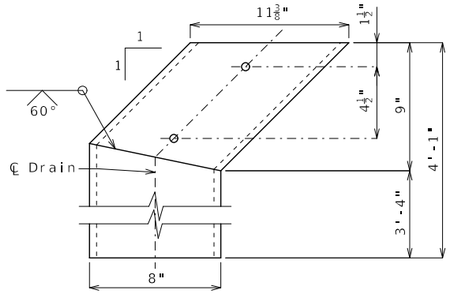
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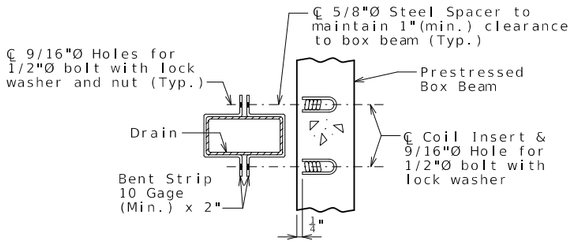
SPREAD BOX BEAMS - SPAN (1-2)



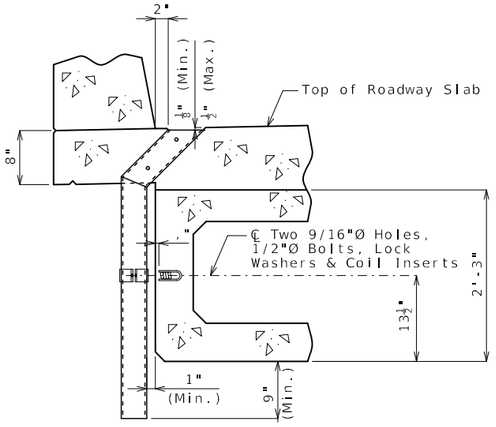
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



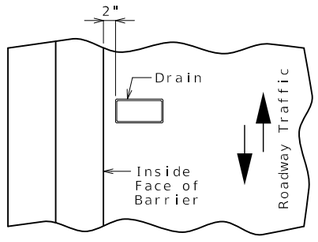
ELEVATION OF DRAIN



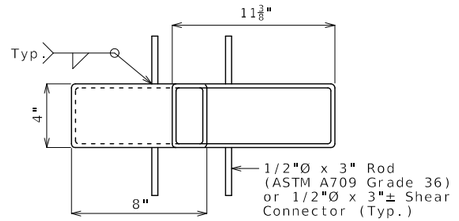
PART SECTION SHOWING BRACKET ASSEMBLY



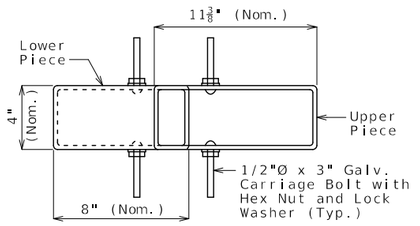
PART SECTION NEAR DRAIN



PART PLAN OF SLAB AT DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2"Ø bolts shall be ASTM A307.

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

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

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

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

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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

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

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HH	MO
DISTRICT	SHEET NO.
BR	12

COUNTY: PEMISCOT

JOB NO.: J9S3593

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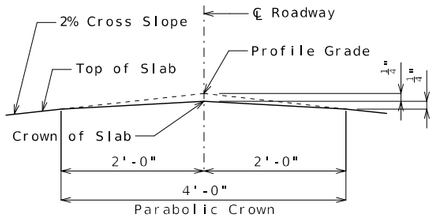
PROJECT NO.:

BRIDGE NO.: A9235

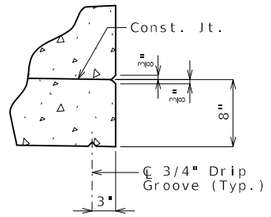
DESCRIPTION	DATE

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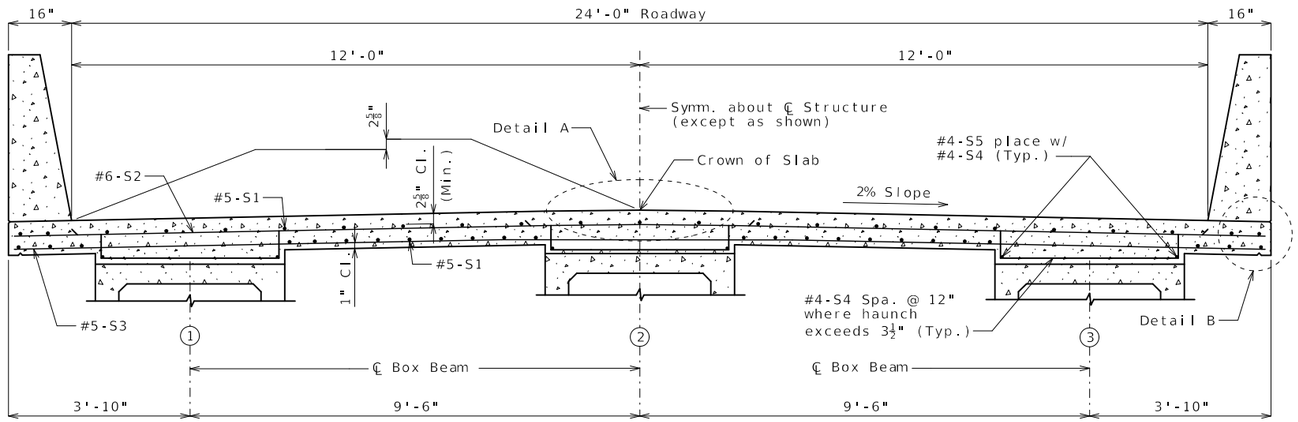
SLAB DRAINS



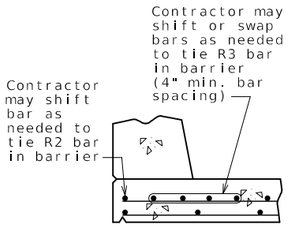
DETAIL A



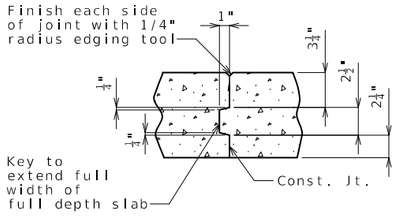
DETAIL B



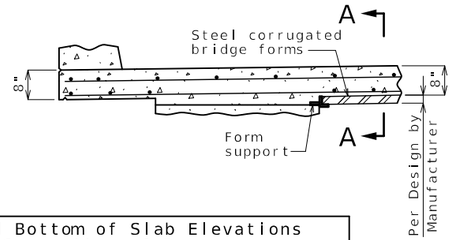
SECTION THRU SLAB

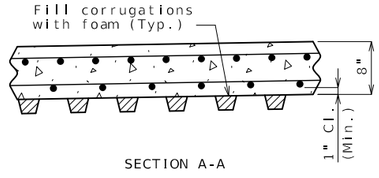


OPTIONAL SHIFTING TOP BARS AT BARRIER



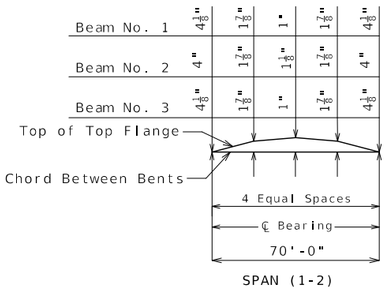
SLAB CONSTRUCTION JOINT





SECTION A-A

OPTIONAL STAY-IN-PLACE FORM DETAILS

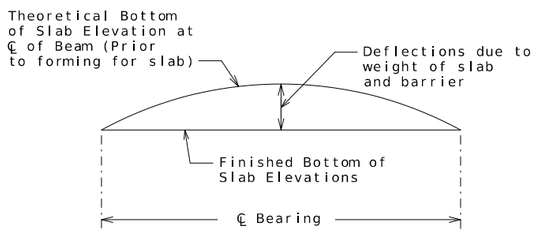


SPAN (1-2)

THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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

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

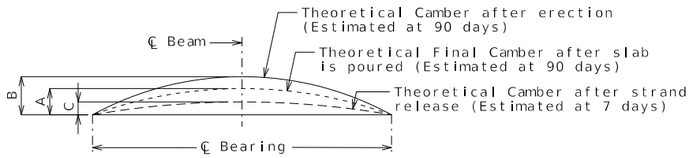


TYPICAL SLAB ELEVATIONS DIAGRAM

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

Beam Number	Span (1-2) (70'-0" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.
1	264.24	264.33	264.36	264.33	264.24
2	264.41	264.51	264.54	264.51	264.41
3	264.24	264.33	264.36	264.33	264.24

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.



Beam	Span (1-2)		
	A	B	C
Exterior	3⅛"	4½"	3⅛"
Interior	2⅞"		

BEAM CAMBER DIAGRAM

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

0.25 pt. = 0.7125 x 0.5 pt.

General Notes:

Stay-In-Place Forms:

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

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

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

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

Notes:

For details and reinforcement of Type H Barrier not shown, see Sheet No. 15.

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

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PROFESSIONAL ENGINEER
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CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9235

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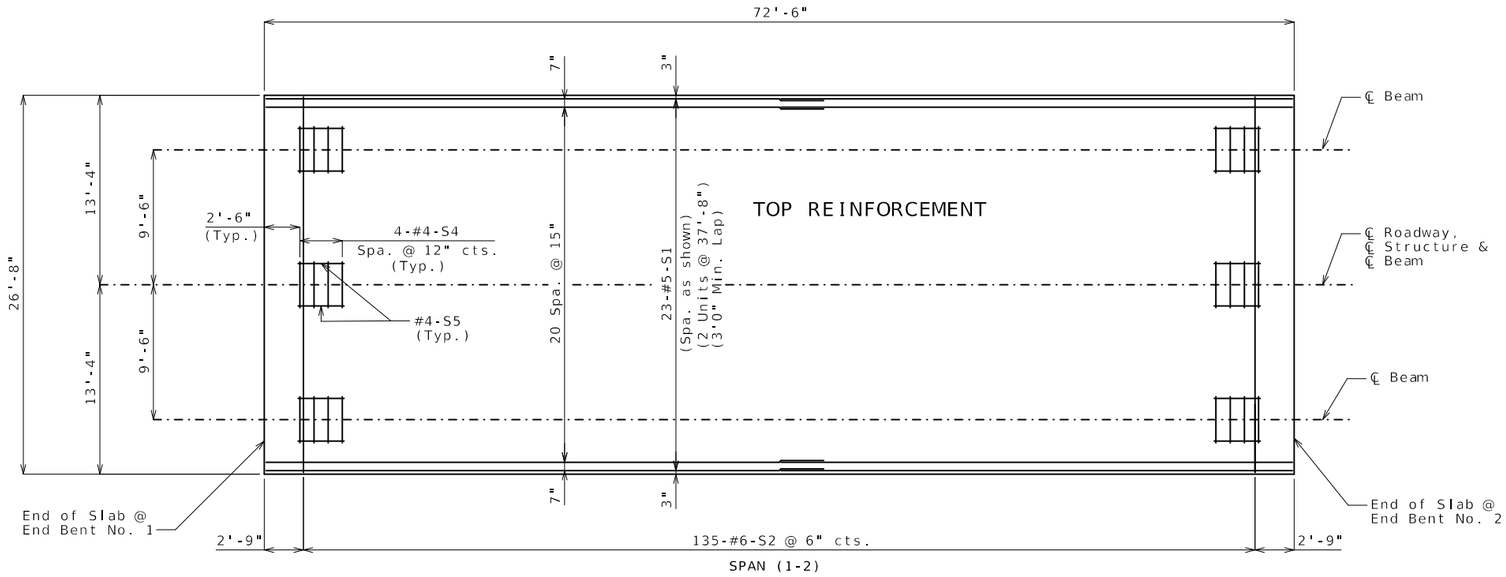
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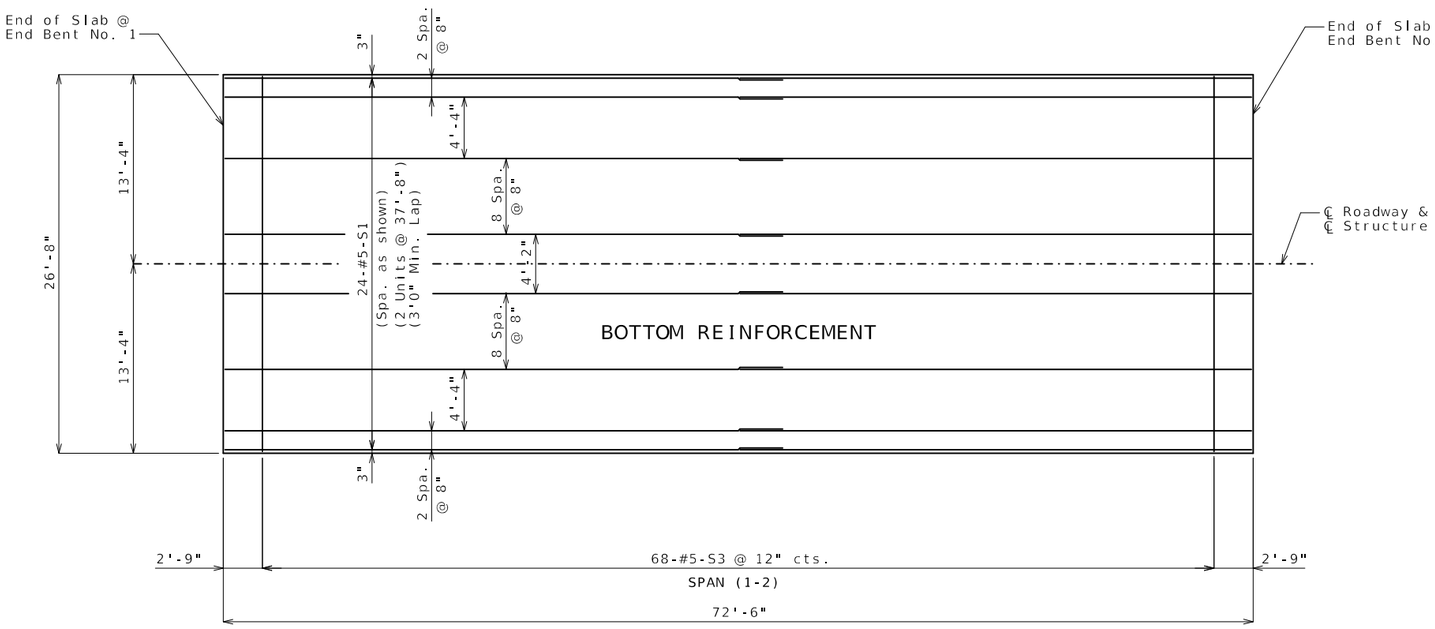
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SLAB DETAILS





General Notes:

Longitudinal slab dimensions are measured horizontally.

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

For details and reinforcement of Type H Barrier not shown, see Sheets No. 15 & 16.

PLAN OF SLAB SHOWING REINFORCEMENT

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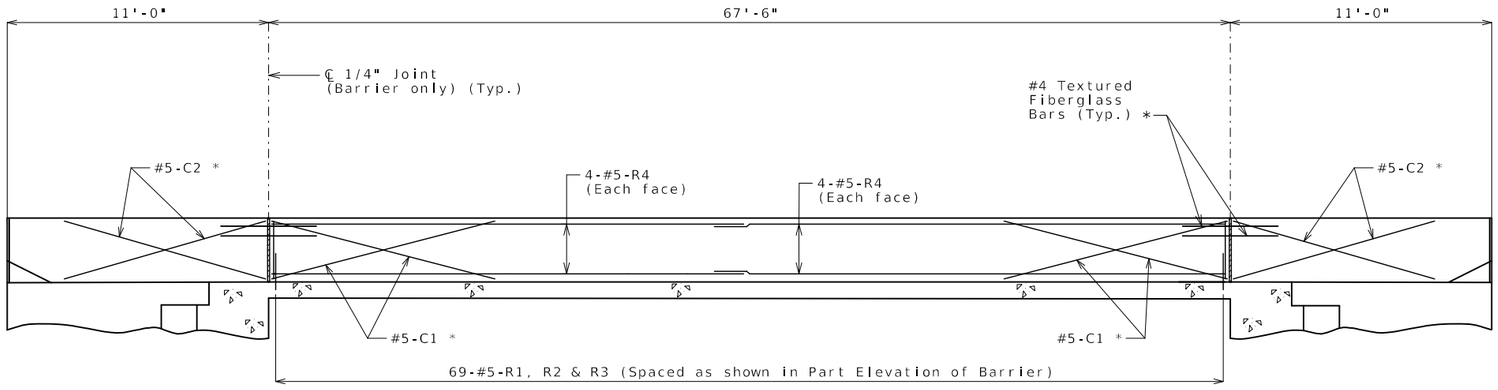
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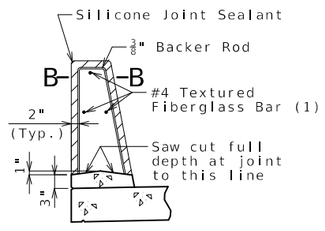
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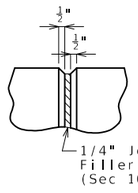
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

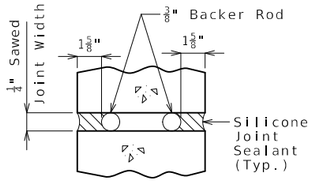
Longitudinal dimensions are horizontal.



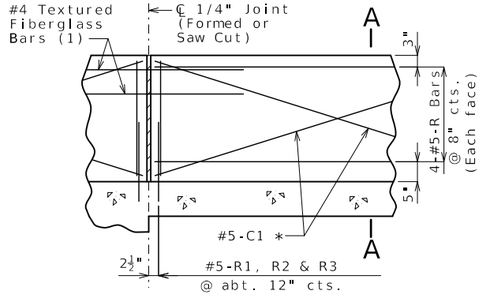
SECTION THRU
SAW CUT JOINT



PART ELEVATION
AT FORMED JOINT

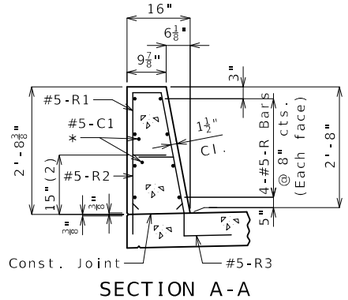


SECTION B-B



PART ELEVATION OF BARRIER

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

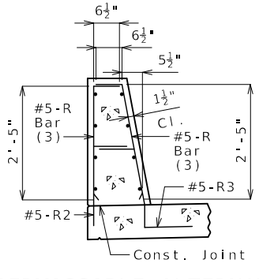


SECTION A-A

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

The cross-sectional area above the slab is 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 Tyep 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.

TYPE H BARRIER

Detailed Jan. 2023
Checked Feb. 2023

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COUNTY PEMISCOT

JOB NO. J9S3593

CONTRACT ID.

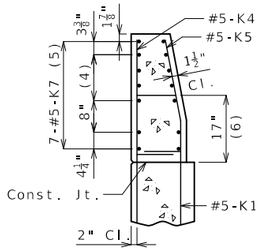
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BRIDGE NO. A9235

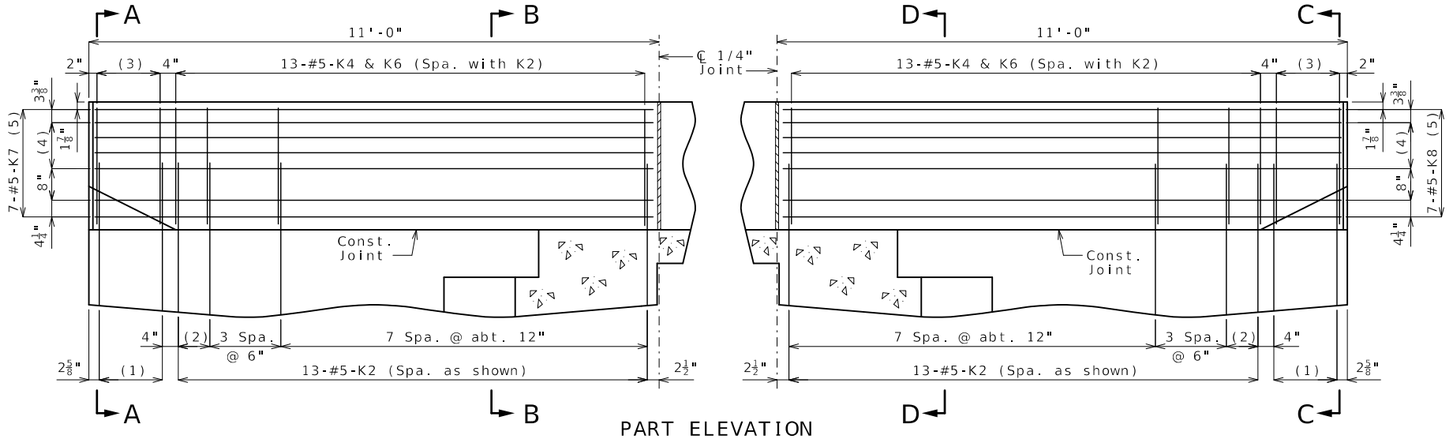
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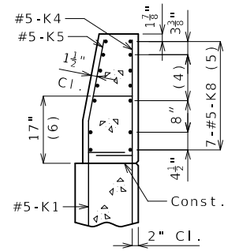
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SECTION A-A



PART ELEVATION



SECTION C-C

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

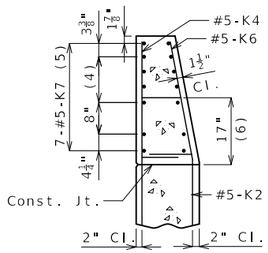
(2) 2 Spaces @ 4"

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

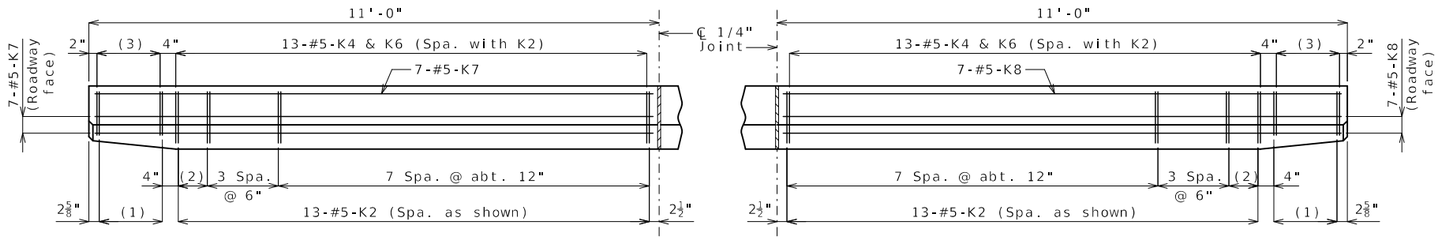
(4) 3 Spaces @ $3\frac{13}{16}$"

(5) Spaced as shown, each face

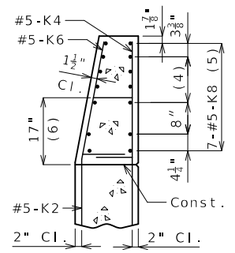
(6) To top of bar



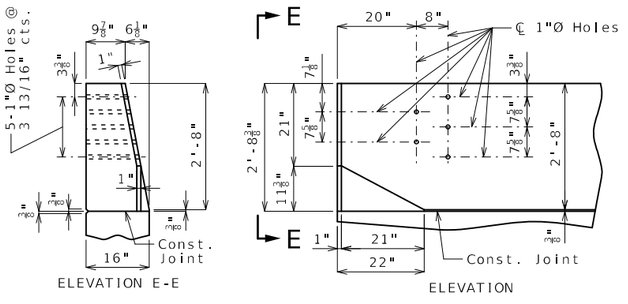
SECTION B-B



PART PLAN



SECTION D-D



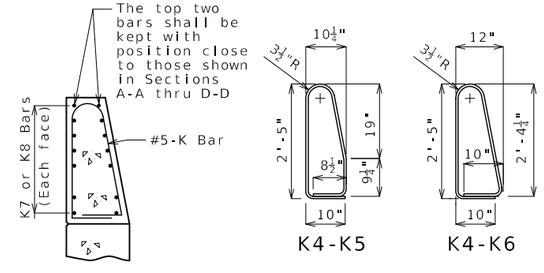
DETAILS OF GUARD RAIL ATTACHMENT

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)

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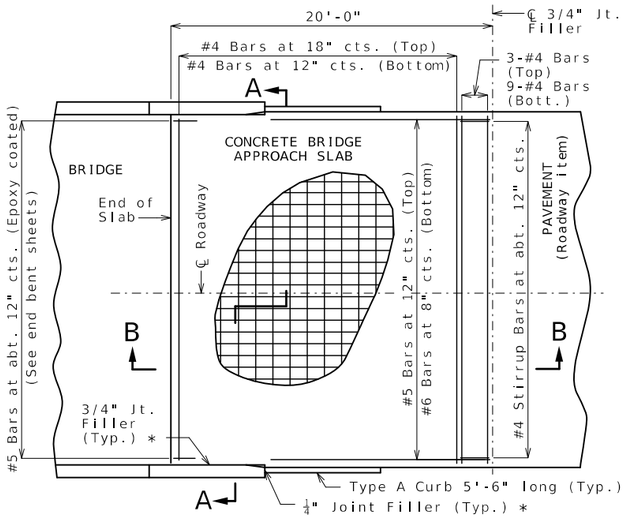
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PROJECT NO.:
BRIDGE NO.: A9235

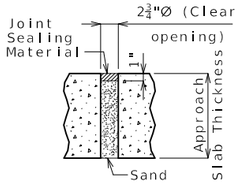
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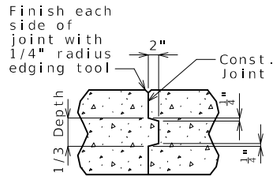
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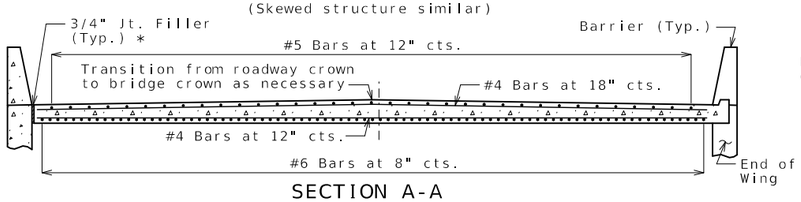
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



UNDERSEAL ACCESS HOLE DETAIL
(If required)

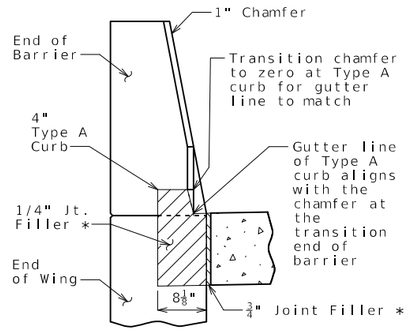


CONSTRUCTION JOINT DETAIL



SECTION A-A

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



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

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

General Notes:

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

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

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

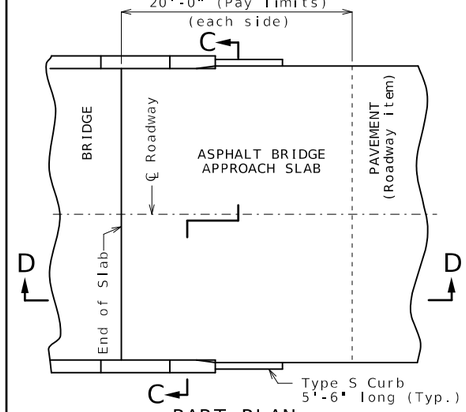
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

☐ Concrete Bridge Approach Slab
☐ Asphalt Bridge Approach Slab

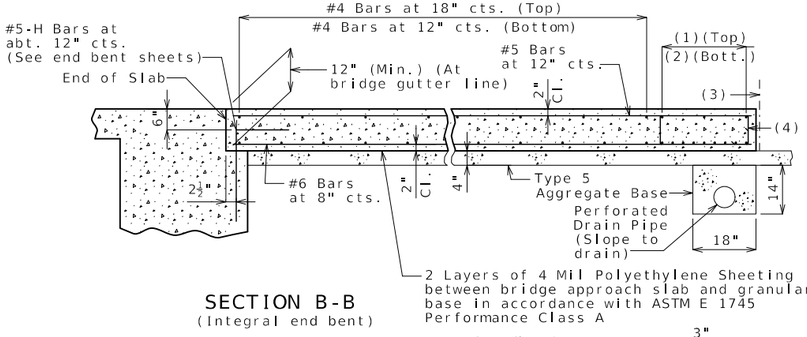
Notes For Asphalt Slab Only:

Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, underdrain 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.

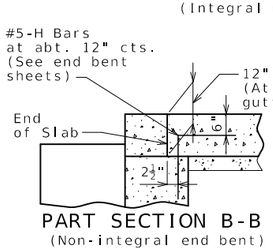


PART PLAN
(Squared structure shown, skewed structure similar)

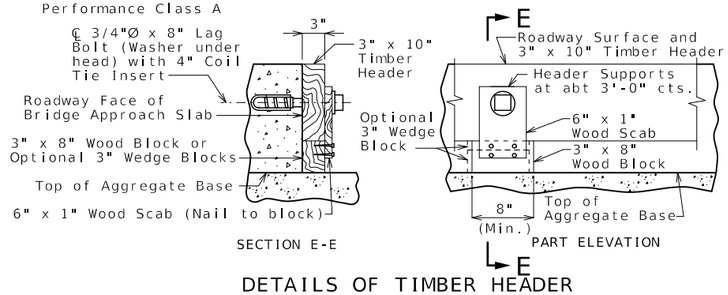


(1) 3-#4 Bars
(2) 9-#4 Bars
(3) ℄ ¾" Jt. Filler
(4) #4 Stirrup Bars at abt. 12" cts.; 2'-0"x 8" (Min.) out to out; Actual length = 5'-10" (Min.); 90° stirrup hook at bottom; Stirrup height (8") and actual length vary due to crown.

SECTION B-B
(Integral end bent)



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

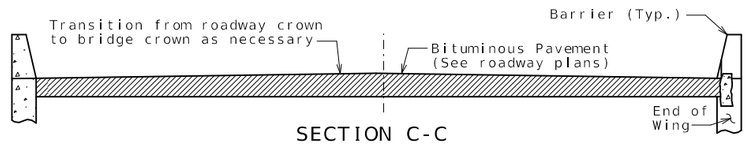


SECTION E-E

PART ELEVATION

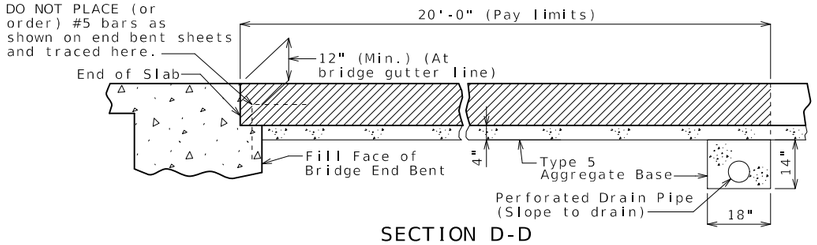
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

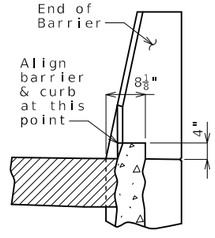


SECTION C-C

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 Jan. 2023
Checked Feb. 2023

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/8/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
BR	17

COUNTY: PEMISCOT
JOB NO.: J9S3593
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9235

DESCRIPTION	DATE

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

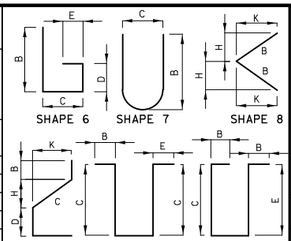
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BILL OF REINFORCING STEEL

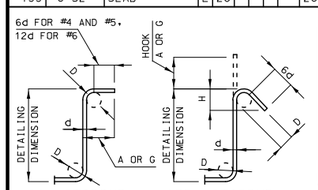
NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SUPERSTR																									
			END BENT 1																									
16	6	F100	WING BRACE	E	15	S				14	000	4	10.000	2	3.000	19.125		19.125		9.875		9.875		8	3	8	2	196
6	6	F101	DIAPHRAGM	E	19	S				2	7.000	7	2.000											9	9	9	7	86
19	6	H100	BEAM	E	20					26	5.000													26	5	26	5	754
6	6	H101	BEAM	E	20					5	3.000													5	3	5	3	47
6	6	H102	BEAM	E	20					19	000													0	19	0	19	14
16	8	H103	WING	E	20					10	6.000													10	6	10	6	449
32	6	H104	WING	E	20					9	8.000													9	8	9	8	465
24	5	H105	APPROACH TIE	E	19	S				2	0.000		15.000											3	3	3	2	79
3	5	H106	STRAND TIE	E	20	S				6	6.000													6	6	6	6	20
48	4	P100	PILE	E	34	S				10	000													3	6	3	6	112
8	5	U100	BEAM	E	31	S				4	6.000	2	9.000	4	6.000									12	8	12	6	104
19	4	U101	BEAM	E	13	S				2	9.000	2	8.000	2	9.000	2	8.000							11	7	11	4	144
8	4	U102	BEAM	E	10	S						2	8.000	2	9.000									8	1	7	11	42
16	5	U103	DIAPHRAGM	E	31	S				2	10.000	2	3.000	2	10.000									8	10	8	8	145
16	6	U104	DIAPHRAGM	E	19	S				20	000	2	9.000											4	5	4	3	102
32	6	U105	DIAPHRAGM	E	19	S				2	10.000	4	7.000											7	5	7	3	348
16	5	V100	BEAM	E	20					4	6.000													4	6	4	6	75
18	6	V101	DIAPHRAGM	E	19	S				21	000		14.000											2	11	2	9	74
32	6	V102	WING	E	20					6	0.000													6	0	6	0	288
36	5	V103	PILE	E	17					5	3.000													5	10	5	10	219
			END BENT 2																									
16	6	F200	WING BRACE	E	15	S				14	000	4	10.000	2	3.000	19.125		19.125		9.875		9.875		8	3	8	2	196
6	6	F201	DIAPHRAGM	E	19	S				2	7.000	7	2.000											9	9	9	7	86
19	6	H200	BEAM	E	20					26	5.000													26	5	26	5	754
6	6	H201	BEAM	E	20					5	3.000													5	3	5	3	47
6	6	H202	BEAM	E	20					19	000													0	19	0	19	14
16	8	H203	WING	E	20					10	6.000													10	6	10	6	449
32	6	H204	WING	E	20					9	8.000													9	8	9	8	465
24	5	H205	APPROACH TIE	E	19	S				2	0.000		15.000											3	3	3	2	79
3	5	H206	STRAND TIE	E	20	S				6	6.000													6	6	6	6	20
48	4	P200	PILE	E	34	S				10	000													3	6	3	6	112
8	5	U200	BEAM	E	31	S				4	6.000	2	9.000	4	6.000									12	8	12	6	104
19	4	U201	BEAM	E	13	S				2	9.000	2	8.000	2	9.000	2	8.000							11	7	11	4	144
8	4	U202	BEAM	E	10	S						2	8.000	2	9.000									8	1	7	11	42
16	5	U203	DIAPHRAGM	E	31	S				2	10.000	2	3.000	2	10.000									8	10	8	8	145
16	6	U204	DIAPHRAGM	E	19	S				20	000	2	9.000											4	5	4	3	102
32	6	U205	DIAPHRAGM	E	19	S				2	10.000	4	7.000											7	5	7	3	348
16	5	V200	BEAM	E	20					4	6.000													4	6	4	6	75
18	6	V201	DIAPHRAGM	E	19	S				21	000		14.000											2	11	2	9	74
32	6	V202	WING	E	20					6	0.000													6	0	6	0	288
36	5	V203	PILE	E	17					5	3.000													5	10	5	10	219
			SLAB																									
94	5	S1	SLAB	E	20					37	8.000													37	8	37	8	3693
135	6	S2	SLAB	E	20					26	5.000													26	5	26	5	5357

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
68	5	S3	SLAB	E	20					26	5.000													26	5	26	5	1874
24	4	S4	SLAB	E	10						6.000	5.875		3	0.000	6.000								5	0	4	7	73
12	4	S5	SLAB	E	20					3	3.000													3	3	3	3	26
			BARRIER																									
20	5	K1	BARRIER	E	27	S				3	8.000	9.250		5.375		3	2.750	5.375		5.250		1.000		8	7	8	3	172
52	5	K2	BARRIER	E	27	S				3	8.000	9.250		14.500		2	5.750			14.250		2.750		8	2	7	11	429
72	5	K4	BARRIER	E	19	S				2	5.000	10.000												3	3	3	2	238
20	5	K5	BARRIER	E	14	S					8.250	9.500		19.250						4.250		18.750		3	1	3	0	63
52	5	K6	BARRIER	E	21	S				2	4.875	10.000								2	4.250	6.000		3	3	3	1	167
28	5	K7	BARRIER	E	20					10	9.000													10	9	10	9	314
28	5	K8	BARRIER	E	20					10	9.000													10	9	10	9	314
138	5	R1	BARRIER	E	14	S				2	5.000	6.500		2	5.500					2	5.000	5.500		5	5	5	3	756
138	5	R2	BARRIER	E	19	S					20.000	9.500												2	6	2	4	336
138	5	R3	BARRIER	E	27	S						9.500		15.250		4.500		12.000		15.000		3.000		3	5	3	3	468
32	5	R4	BARRIER	E	20					35	2.000													35	2	35	2	1174
			SLIP FORM																									
8	5	C1	SLIP FORM	E	20					12	0.000													12	0	12	0	100
8	5	C2	SLIP FORM	E	20					8	9.000													8	9	8	9	73
			TOTALS																									
	4			E																								695
	5			E																								11455
	6			E																								10105
	8			E																								898
			TOTAL																									0
			TOTAL	E																								23153
			Slab on																									
			Girder																									
	4			E																								695
	5			E																								6851
	6			E																								10105
	8			E																								898
			TOTAL																									18549
			Type																									
			H																									
			Barrier																									
	5			E																								4431
			TOTAL																									4431
			Slip Form																									
			Option																									
	5			E																								173
			TOTAL																									173

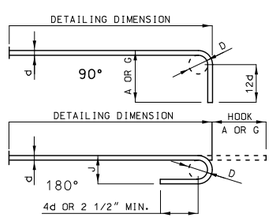


BENDING DIAGRAMS



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

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



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES		
		180° HOOKS		90° HOOKS
		A OR G	J	A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

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

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.

NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.

REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

Detailed Jan. 2023
Checked Feb. 2023

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

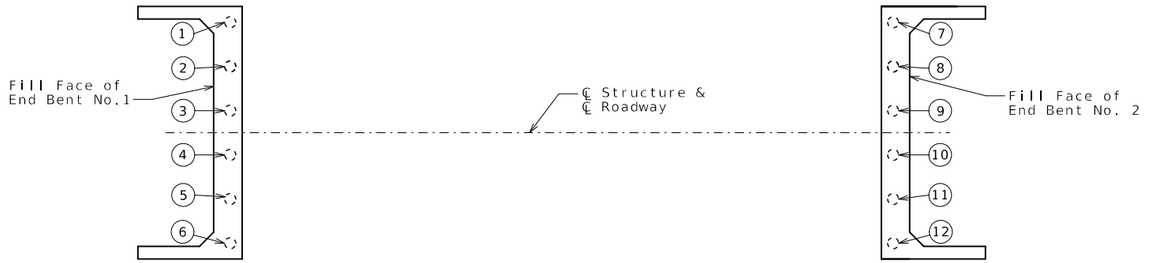
STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/8/2023
ROUTE HH | STATE MO
DISTRICT BR | SHEET NO. 18
COUNTY PEMISCOT
JOB NO. J9S3593
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9235

DESCRIPTION | DATE

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

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



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

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No. 1
1					
2					
3					
4					
5					
6					

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No. 2
7					
8					
9					
10					
11					
12					

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal
D. PDA test pile
E. Minimum tip elevation controlled
(Use when actual blow count is less than PDA blow count due to minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating actual value is higher than PDA value.)

This sheet to be completed by MoDOT construction personnel.

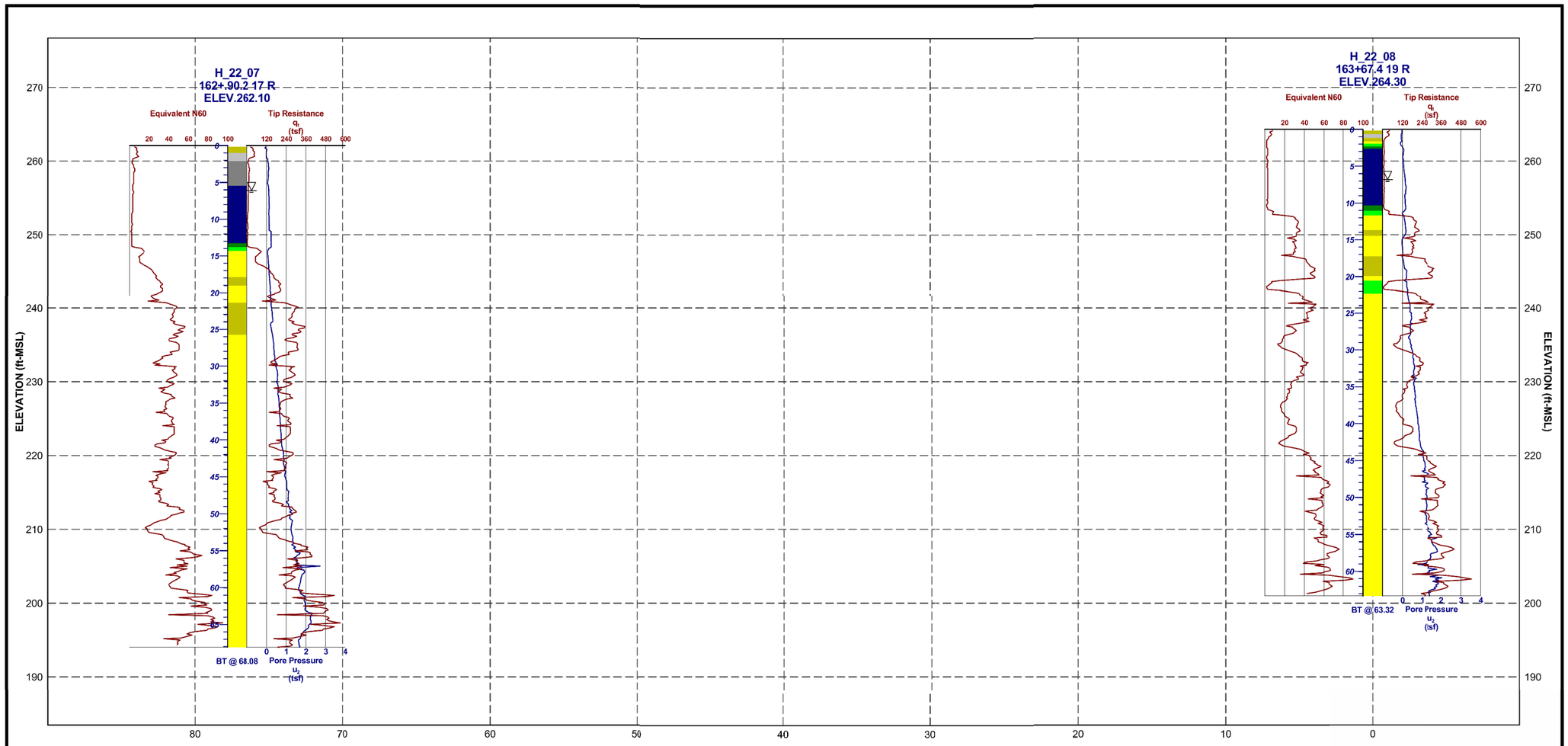
STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/8/2023
ROUTE HH | STATE MO
DISTRICT BR | SHEET NO. 19
COUNTY PEMISCOT
JOB NO. J9S3593
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9235

DESCRIPTION | DATE

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

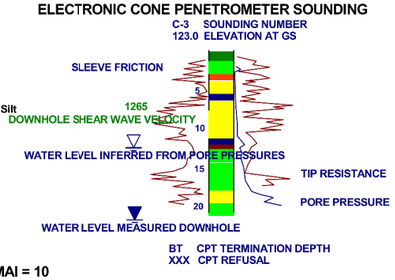
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



CPT MATERIAL GRAPHICS

- Sensitive, Fine Grained Soils
- Organic Soils, Peats
- Clays-Clay to Silty Clay
- Silt Mixtures-Clay Silt to Silty Clay
- Sand Mixtures-Silty Sand to Sandy Silt
- Sands-Clean Sand to Silty Sand
- Gravelly Sand to Sand
- Very Stiff Clay to Clayey Sand
- Very Stiff Fine Grained Soils

ELECTRONIC CONE PENETROMETER SOUNDING



Robertson et al (1990) Q_t vs F_r - MAI = 10

SUBSURFACE PROFILE	PROJECT NUMBER
PROJECT:	J9S3593_A9235
	DATE
LOCATION: 3.25 Miles Southwest of Peach Orchard	10/18/22

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/8/2023

ROUTE	STATE
HH	MO
DISTRICT	SHEET NO.
BR	20

COUNTY PEMISCOT

JOB NO. J9S3593

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9235

DESCRIPTION | DATE

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

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

BORING DATA

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

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

DESIGN DESIGNATION

A.A.D.T. - 2023 = 92
A.A.D.T. - 2043 = 104
D.H.V. = 14%
T = 12%
V = 55 M.P.H.
D = 50%
FUNCTIONAL CLASSIFICATION-MINOR COLLECTOR

NEW RIGHT OF WAY

CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

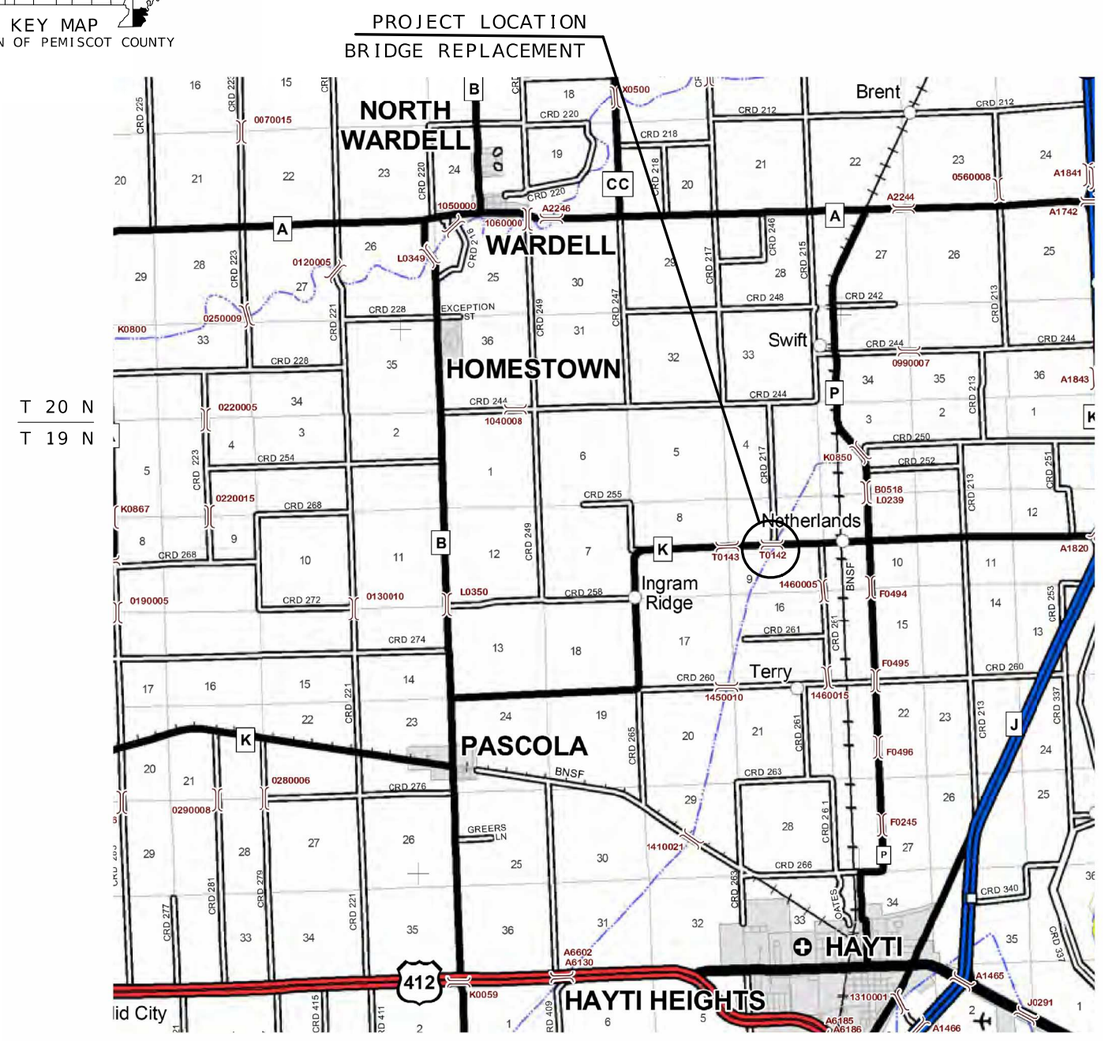
NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY PEMISCOT COUNTY



KEY MAP
LOCATION OF PEMISCOT COUNTY



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

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (1 SHEET)	2
QUANTITIES (QU) (2 SHEETS)	3
PLAN-PROFILE (PP)	4-5
REFERENCE POINTS (RP)	6
SPECIAL SHEETS (SS)	7-8
TRAFFIC CONTROL SHEETS (TC)	9
EROSION CONTROL SHEETS (EC)	10
SIGNING (SN)	11
BRIDGE DRAWINGS (B)	
A9245	1-27

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA.	183 + 55.30
END OF PROJECT	STA.	190 + 78.52
APPARENT LENGTH		723.22 FEET
EQUATIONS AND EXCEPTIONS:		
TOTAL CORRECTIONS		0.00 FEET
NET LENGTH OF PROJECT		723.22 FEET
STATE LENGTH		0.137 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES		1.2 ACRES

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:50:51 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	1

COUNTY
PEMISCOT

JOB NO.
J9S3595

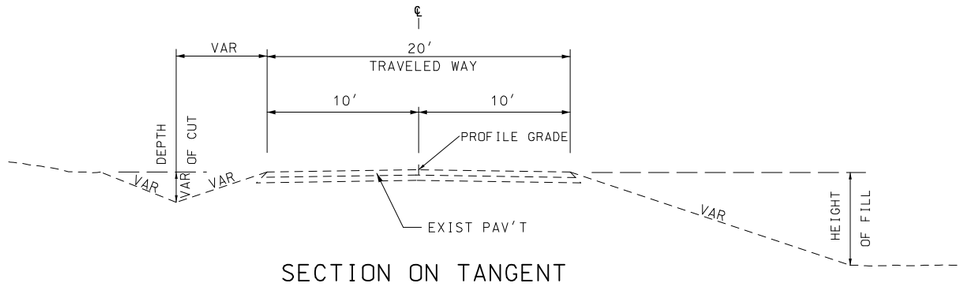
CONTRACT ID.

PROJECT NO.

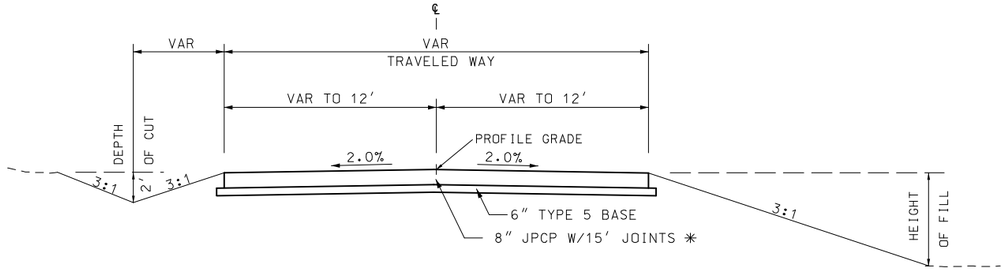
BRIDGE NO.

REV.	DESCRIPTION	DATE

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

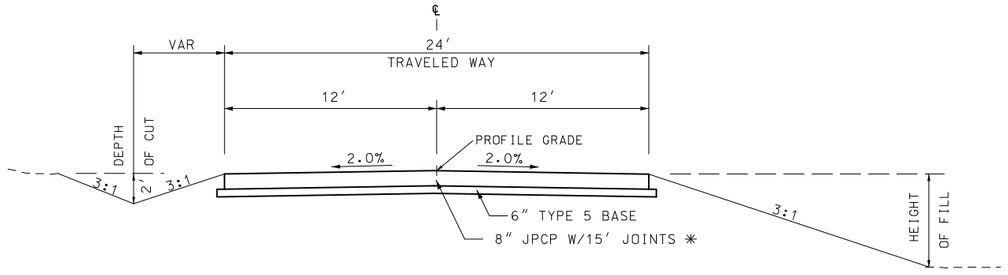


SECTION ON TANGENT
EXISTING TYPICAL SECTION RTE K
STA 183+55.30 TO STA 190+78.52



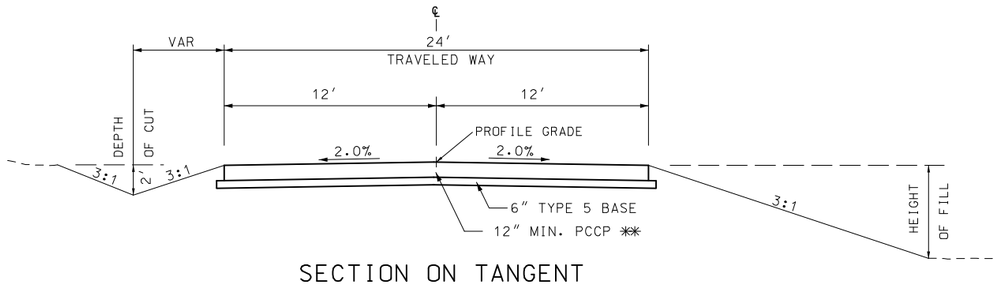
SECTION ON TANGENT
PROPOSED TYPICAL SECTION RTE K
STA 183+55.30 TO STA 186+00.00
STA 189+00.00 TO STA 190+78.52

✳ OPTIONAL PVMT: 1¾″ BP-1 OVER
8¼″ PMBB
(PG 64-22)



SECTION ON TANGENT
PROPOSED TYPICAL SECTION RTE K
STA 186+00.00 TO STA 186+28.92 @ 30°SK
STA 188+38.00 @ 30°SK TO STA 189+00.00

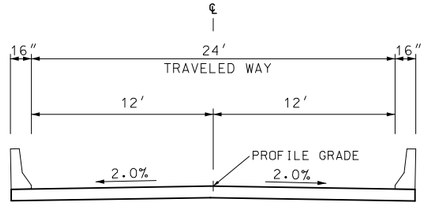
✳ OPTIONAL PVMT: 1¾″ BP-1 OVER
8¼″ PMBB
(PG 64-22)



SECTION ON TANGENT
PROPOSED TYPICAL SECTION RTE K
APPROACH SLAB BR# A9245 ✳✳✳
STA 186+28.92 @ 30°SK TO STA 186+52.02 @ 30°SK
STA 188+14.90 @ 30°SK TO STA 188+38.00 @ 30°SK

✳✳ OPTIONAL PVMT: 1¾″ BP-1 OVER
10¼″ PMBB
(PG 64-22)

✳✳✳ SEE BRIDGE PLANS



SECTION ON TANGENT
PROPOSED TYPICAL SECTION BRIDGE A9245 ✳✳✳
STA 186+51.44 @ 30°SK TO STA 188+15.48 @ 30°SK

NOTE: MINOR GRADING MAY BE REQUIRED
FOR APPROACH SLAB
(TO BE PAID FOR AS LINEAR GRADING)

DRAWING NOT TO SCALE

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:51:18 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	2

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

TYPICAL SECTION
SHEET 1 OF 1

MOBILIZATION - LUMP SUM 1

CONTRACTOR FURNISHED SURVEYING AND STAKING - LUMP SUM 1

CLEARING AND GRUBBING

NO DIRECT PAY FOR CLEARING AND GRUBBING

REMOVAL OF IMPROVEMENTS

SHEET	LOC	DESCRIPTION	REMARKS
4	LT/RT	6 OBJECT MARKERS	BR T0142
4	LT/RT	6 OBJECT MARKERS	BR T0142
		LUMP SUM 1	

MODIFIED LINEAR GRADING CLASS 2

SHEET	STA	STA	LOC	LINEAR GRADING CLASS 2 STA	REMARKS
4	183+55.30	190+78.52	LT & RT	7.2	BR A9245
4	185+79.39		RT	0.1	DRIVEWAY
4	185+83.85		LT	0.2	DRIVEWAY
4	188+44.76		RT	0.1	DRIVEWAY
4	188+66.11		LT	0.1	DRIVEWAY
			TOTAL	7.7	

OPTIONAL PAVEMENT AND AGGREGATE BASE

SHEET	STA	STA	DEPTH FT	WIDTH FT	LENGTH FT	OPTIONAL* PAVEMENT SY	6" TYPE 5 AGG BASE SY	GRADE 1 POROUS BACKFILL CY	REMARKS
7	183+55.30	186+00.00	0.83	22.67	244.70	616.4	616.4		E END OF BRIDGE A9245
7	186+00.00	186+28.92	0.83	24.00	28.92	77.1	77.1		E END OF BRIDGE A9245
7	188+38.00	189+00.00	0.83	24.00	62.00	165.3	165.3		W END OF BRIDGE A9245
7	189+00.00	190+78.52	0.83	21.93	178.52	435.0	435.0		W END OF BRIDGE A9245
7			6.00	24.67	5.00			27.4	E END OF BRIDGE A9245
7			6.00	24.67	5.00			27.4	W END OF BRIDGE A9245
					TOTAL	1293.8	1294	55	

* OPTIONAL PAVEMENT: 10" ASPHALT PAVEMENT OR 8" JPCP

GRAVEL A OR CRUSHED STONE B

SHEET	STA	LOC	THICK IN	GRAVEL A CRUSHED STONE B TON	REMARKS
4	185+79.39	RT	4	3.4	DRIVEWAY
4	185+83.85	LT	4	8.1	DRIVEWAY
4	188+44.76	RT	4	8.6	DRIVEWAY
4	188+66.11	LT	4	5.7	DRIVEWAY
			TOTAL	26	

* LOCATIONS TO BE DETERMINED BY THE ENGINEER.

PAVEMENT MARKING

STA	STA	LOCATION	STANDARD WATERBORNE 4" SOLID WHITE LF	4" SOLID YELLOW LF	4" INTER YELLOW LF	REMARKS
183+55.30	190+78.52	RTE K	1446	723	181	BR A9245
		TOTAL	1446	723	181	

STATIONS ARE APPROXIMATE
EXACT LOCATIONS TO BE DETERMINED BY THE CONTRACTOR IN ACCORDANCE WITH THE PAVEMENT MARKING LOG JSP

SEEDING AND MULCHING

SHEET	STA	STA	LOC	SEED COOL SEASON AC	MULCH AC	REMARKS
4	183+55.30	190+78.52	LT & RT	1.16	1.16	BR A9245
			TOTAL	1.2	1.2	

TEMPORARY EROSION CONTROL

SHEET	SILT FENCE LF	TYPE C BERM LF	ROCK DITCH CHECK LF	SEDIMENT REMOVAL CY	TEMP SEED AC	MULCH AC	REMARKS
10	1011	362	108	19.1	1.16	1.16	BR A9245
TOTAL	1011	362	108	20	1.2	1.2	

ROCK BLANKET

SHEET	FROM	TO	DEPTH FT	LENGTH FT	WIDTH FT	TYPE 2 ROCK BLANKET FURNISH CY	TYPE 2 ROCK BLANKET PLACE CY	GEOTEXTILE FABRIC SY	REMARKS
8	185+83.98	186+42.71	2	30	60	133.3	133.3	234.2	B-B
8	185+99.54	186+77.89	2	70	80	414.8	414.8	674.2	C-C
8	186+54.90	188+12.02	2	160	165	1955.6	1955.6	1712.9	A-A
8	187+88.72	188+19.80	2	60	35	155.6	155.6	263.1	D-D
8	188+35.42	188+66.29	2	70	35	181.5	181.5	304.2	E-E
					TOTAL	2841	2841	3189	

ROCK QUANTITY MAY BE OBTAINED FROM REMOVED BRIDGE DECK IF BROKEN OR CRUSHED TO MEET SPECIFICATIONS WITH NO EXPOSED REBAR

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:51:38 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	3

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

DATE

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

SUMMARY OF QUANTITIES
SHEET 1 OF 2

EFFECTIVE: 04-01-2024

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						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00	4	64				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	2	20				ROAD CLOSED
R11-3a	60X30	12.50	2	25				ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-7	48X24	8.00						RATE OUR WORK ZONE
CONST-7	72X36	18.00						RATE OUR WORK ZONE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE

616-10.05 CONSTRUCTION SIGNS	TOTAL
	109

616-10.10 RELOCATED SIGNS	TOTAL
	0

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
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	6	TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:51:59 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
2/20/2024

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	3

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

PROJECT NO.

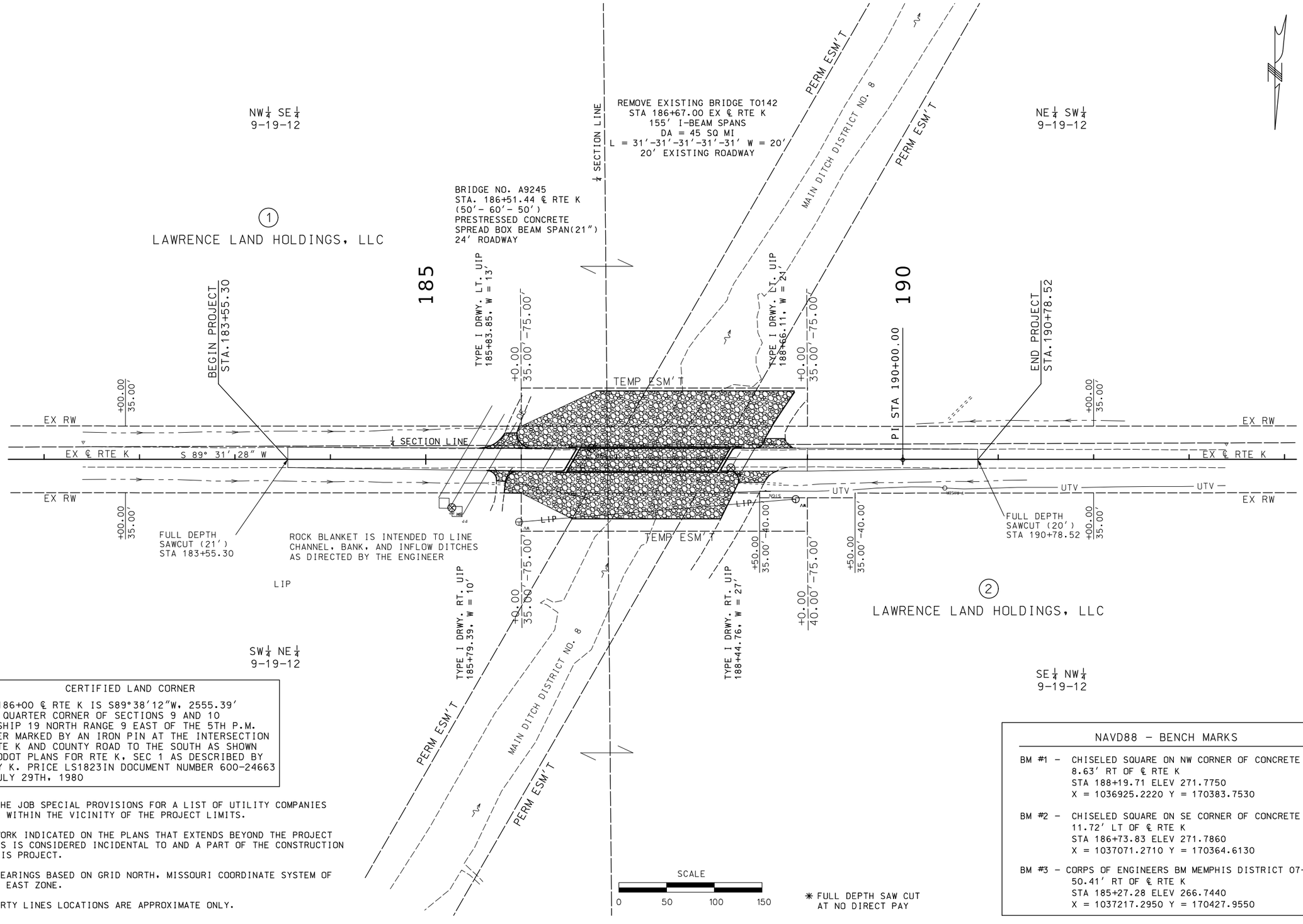
BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

SUMMARY OF QUANTITIES
SHEET 2 OF 2



CERTIFIED LAND CORNER

STA 186+00 ℄ RTE K IS S89°38'12"W, 2555.39' FROM QUARTER CORNER OF SECTIONS 9 AND 10 TOWNSHIP 19 NORTH RANGE 9 EAST OF THE 5TH P.M. CORNER MARKED BY AN IRON PIN AT THE INTERSECTION OF RTE K AND COUNTY ROAD TO THE SOUTH AS SHOWN ON MODOT PLANS FOR RTE K, SEC 1 AS DESCRIBED BY JERRY K. PRICE LS1823IN DOCUMENT NUMBER 600-24663 ON JULY 29TH, 1980

SEE THE JOB SPECIAL PROVISIONS FOR A LIST OF UTILITY COMPANIES ON OR WITHIN THE VICINITY OF THE PROJECT LIMITS.

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.

ALL BEARINGS BASED ON GRID NORTH, MISSOURI COORDINATE SYSTEM OF 1983, EAST ZONE.

PROPERTY LINES LOCATIONS ARE APPROXIMATE ONLY.

✱ FULL DEPTH SAW CUT AT NO DIRECT PAY

NAVD88 – BENCH MARKS

BM #1 – CHISELED SQUARE ON NW CORNER OF CONCRETE CURB
8.63' RT OF ℄ RTE K
STA 188+19.71 ELEV 271.7750
X = 1036925.2220 Y = 170383.7530

BM #2 – CHISELED SQUARE ON SE CORNER OF CONCRETE CURB
11.72' LT OF ℄ RTE K
STA 186+73.83 ELEV 271.7860
X = 1037071.2710 Y = 170364.6130

BM #3 – CORPS OF ENGINEERS BM MEMPHIS DISTRICT 07-12-91
50.41' RT OF ℄ RTE K
STA 185+27.28 ELEV 266.7440
X = 1037217.2950 Y = 170427.9550

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:52:20 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351
DATE PREPARED
1/23/2024

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	4

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

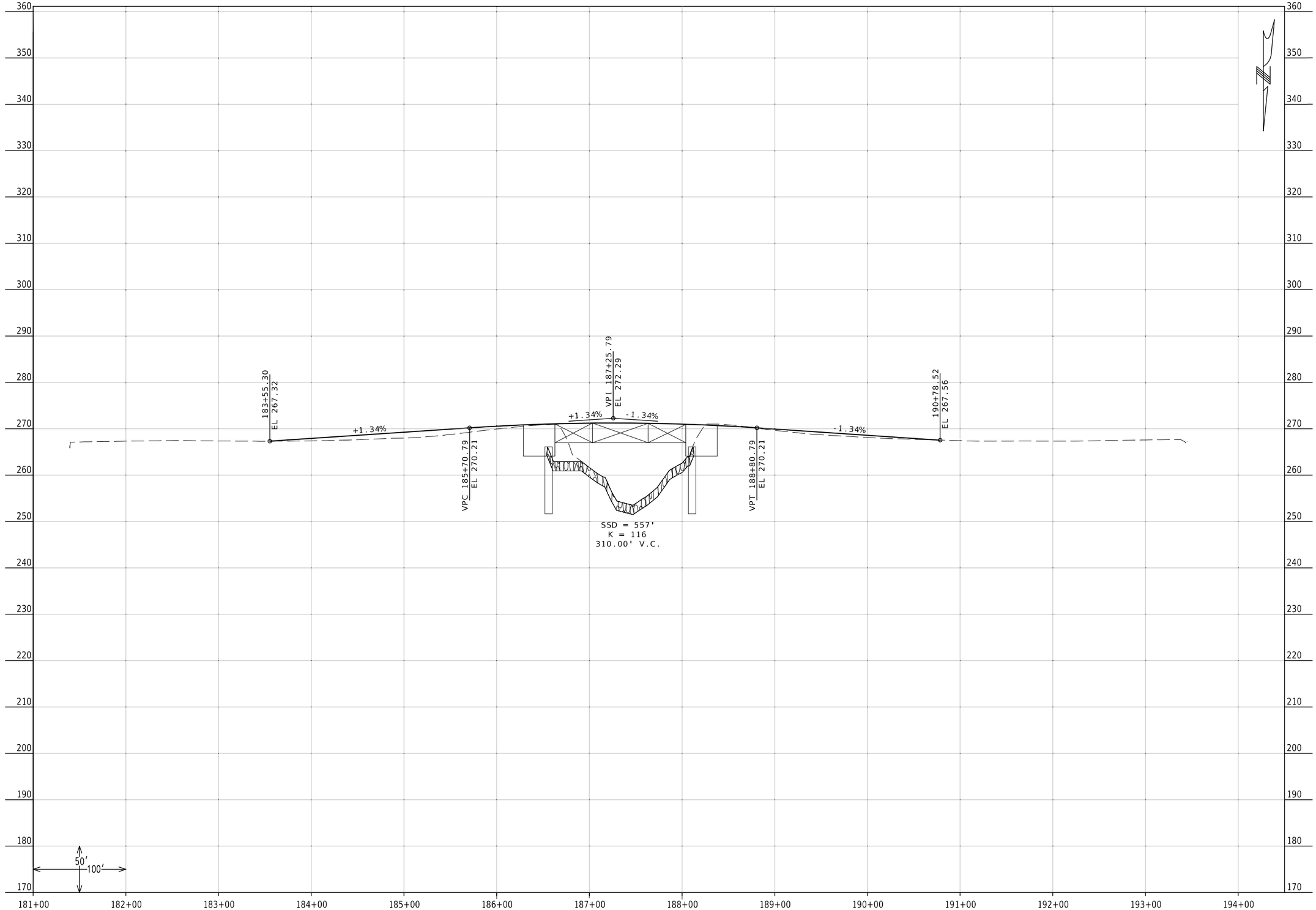
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

PLAN-PROFILE
SHEET 1 OF 2



STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER

02/21/2024 6:52:40 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

PLAN-PROFILE
SHEET 2 OF 2

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	MCS 1983 East
HORIZONTAL DATUM	NAD83 (2011)
VERTICAL DATUM	NAVD88
GEOID MODEL	2018
ELEVATIONS DETERMINED BY	GPS Derived and Differential Levels
PROJECT PROJECTION FACTOR	1.00002120

REFERENCE CONTROL INFORMATION	
COORDINATE SYSTEM	MCS 1983 East
CONTROL STATION	MODOT Hayti CORS ARP
DESIGNATION	MODOT Hayti CORS ARP
CORS_ID	MOHT
PID	DN6083
LATITUDE	36 14 37.9524 (N)
LONGITUDE	089 43 41.8553 (W)
NORTHING (M)	45826.7960
EASTING (M)	319361.0880
ZONE	East
PROJECT AVERAGE GRID FACTOR	0.9999788

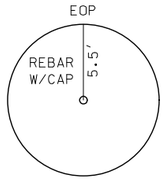
PROJECT NORTHING X AVERAGE GRID FACTOR
= STATE PLANE NORTHING
PROJECT EASTING X AVERAGE GRID FACTOR
= STATE PLANE EASTING

EXAMPLE: CONTROL POINT # CP100
N 170354.26 X 0.9999788 = N 170350.65
E 1036406.06 X 0.9999788= E 1036384.09

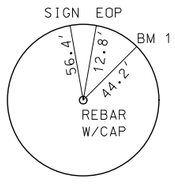
LINEAR UNIT CONVERSION
1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

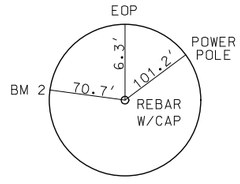
SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION	POINT ID
PROJECT CONTROL POINTS								
	CP100	RTE K LT	16.06	170354.26	1036406.06	266.59	5/8" Rebar w/ Plastic MoDOT Cap	CP100
	CP101	RTE K RT	21.55	170353.31	1036893.40	270.39	5/8" Rebar w/ Plastic MoDOT Cap	CP101
	CP102	RTE K RT	17.15	170359.77	1037141.08	268.62	5/8" Rebar w/ Plastic MoDOT Cap	CP102
	CP103	RTE K LT	18.05	170362.70	1037604.08	265.62	5/8" Rebar w/ Plastic MoDOT Cap	CP103
ALIGNMENTS								
	160+44.61	℄ RTE K		170393.16	1039700.33		POT	
	239+85.00	℄ RTE K		170306.54	1031760.49		POT	



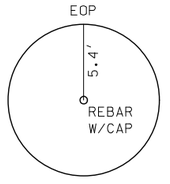
CONTROL PT #100



CONTROL PT #101



CONTROL PT #102



CONTROL PT #103

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/27/2024 8:15:03 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
2/27/2024

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	6

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

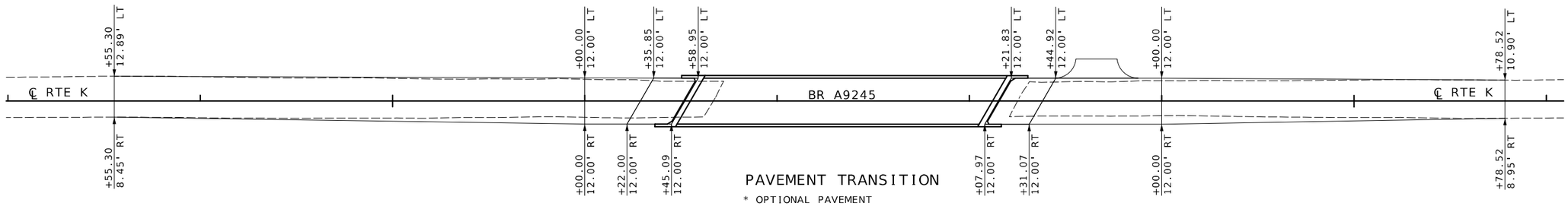
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

REFERENCE POINTS
CONTROL POINTS
SHEET 1 OF 1

185

190

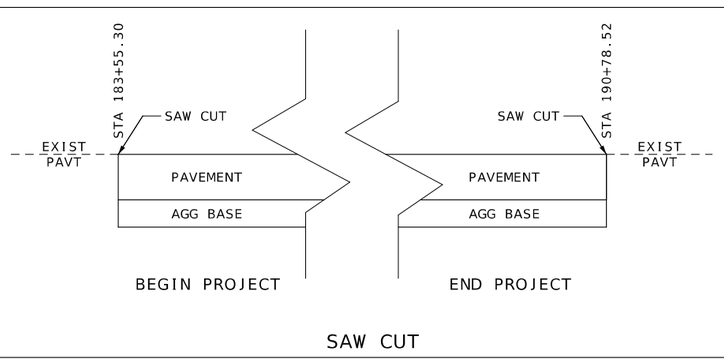


PAVEMENT TRANSITION

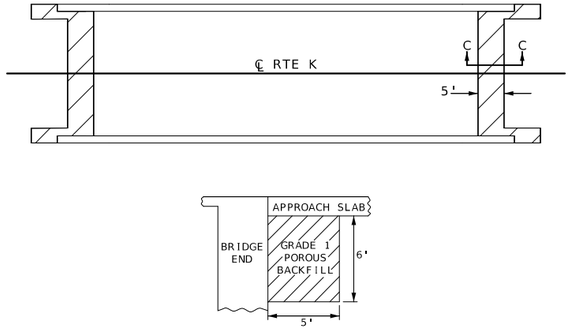
* OPTIONAL PAVEMENT
1 ¾" BP-1 PG 64-22 OVER
8 ¼" PMBB PG 64-22 OVER
6" TYPE 5 AGGR

OR

8" JPCP W/15' JOINTS OVER
6" TYPE 5 AGGR



SAW CUT



POROUS BACKFILL

NOTES:

SEE BRIDGE SHEETS FOR BRIDGE APPROACH SLAB DETAIL

NO DIRECT PAYMENT WILL BE MADE FOR ANY SAW CUTS

DRAWING NOT TO SCALE

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:53:23 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

PROJECT NO.

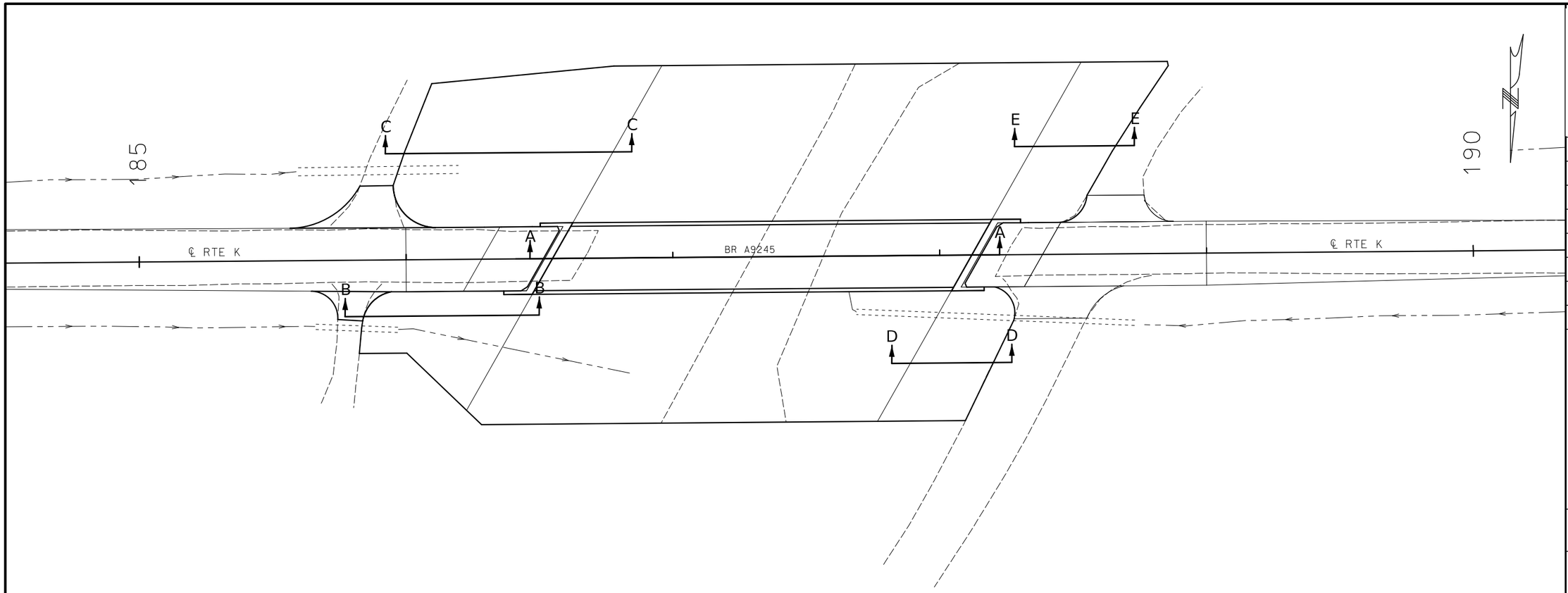
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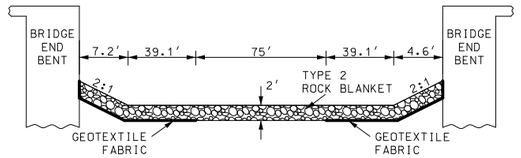
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

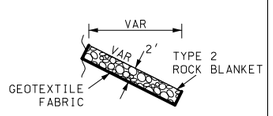
SPECIAL SHEET
SHEET 1 OF 2





ROCK BLANKET
SECTIONS A-A

ROCK BLANKET DETAIL



ROCK BLANKET
SECTIONS B,C,D,& E

ROCK BLANKET DETAIL

ROCK BLANKET

SEC	FORE SLOPE	WIDTH (FT)	DEPTH (FT)	LENGTH (FT)	ROCK BLANKET (CY)	PERMANENT GEOTEXTILE (SY)
A-A	VAR	165	2	160	1955.6	1712.9
B-B	VAR	60	2	30	133.3	234.2
C-C	VAR	80	2	70	414.8	674.2
D-D	VAR	35	2	60	155.6	263.1
E-E	VAR	35	2	70	181.5	304.2

NOTES:

ANY CLEARING & GRUBBING OR EARTHWORK REQUIRED FOR REMOVAL OR PLACEMENT OF PAVEMENT OR ROCK SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

DRAWING NOT TO SCALE

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:53:40 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	8

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

PROJECT NO.

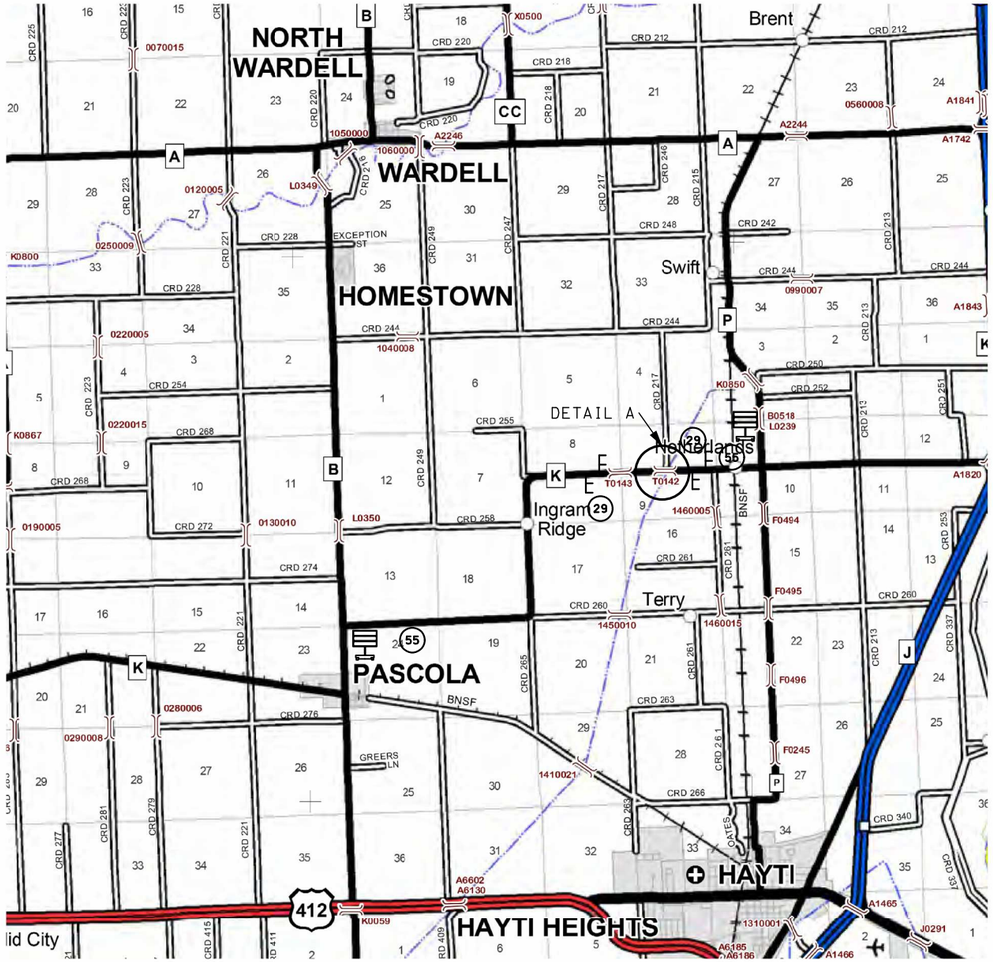
BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

SPECIAL SHEET
ROCK BLANKET DETAIL
SHEET 2 OF 2





WO20-3
(20)



WO20-3
(20a)



R11-2
(29)



R11-3a
(57)



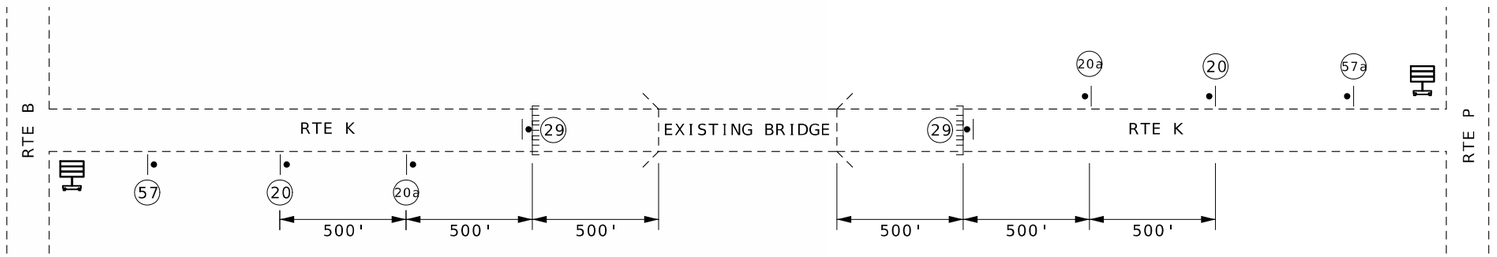
R11-3a
(57a)

NOTES:

SIGNS SPACING IS 500FT.

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

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



DETAIL A
WORK ZONE NEAR BRIDGE

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- BARRICADE
- CHANGEABLE MESSAGE BOARD

DRAWING NOT TO SCALE

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:53:59 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
2/20/2024

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	9

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

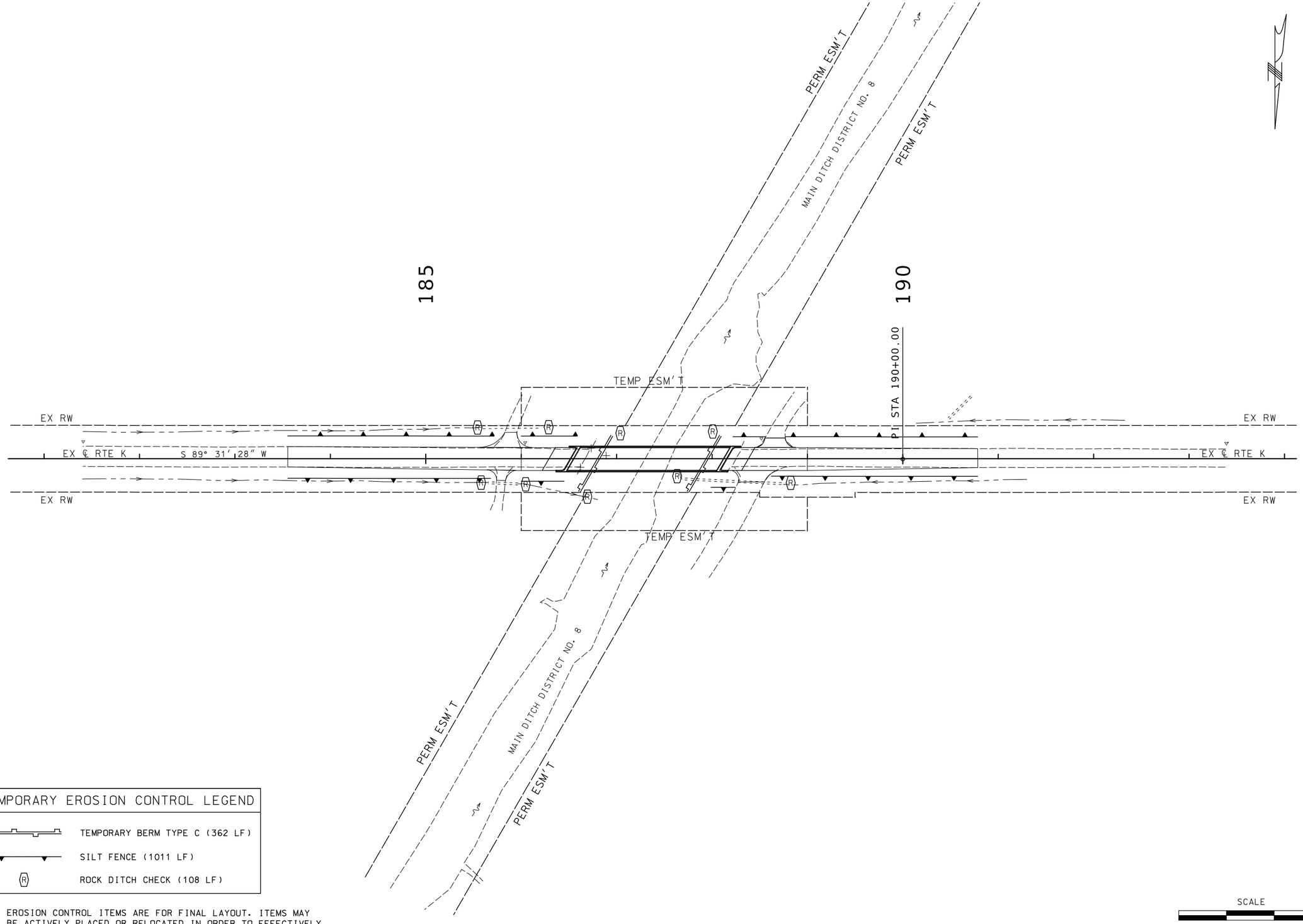
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

TRAFFIC CONTROL
SHEET 1 OF 1



TEMPORARY EROSION CONTROL LEGEND

- TEMPORARY BERM TYPE C (362 LF)
- SILT FENCE (1011 LF)
- (R) ROCK DITCH CHECK (108 LF)

NOTES: EROSION CONTROL ITEMS ARE FOR FINAL LAYOUT. ITEMS MAY BE ACTIVELY PLACED OR RELOCATED IN ORDER TO EFFECTIVELY CONTROL EROSION AND SEDIMENT DISCHARGE.

SCALE
0 50 100 150

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT
NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 8:54:18 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	10

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

PROJECT NO.

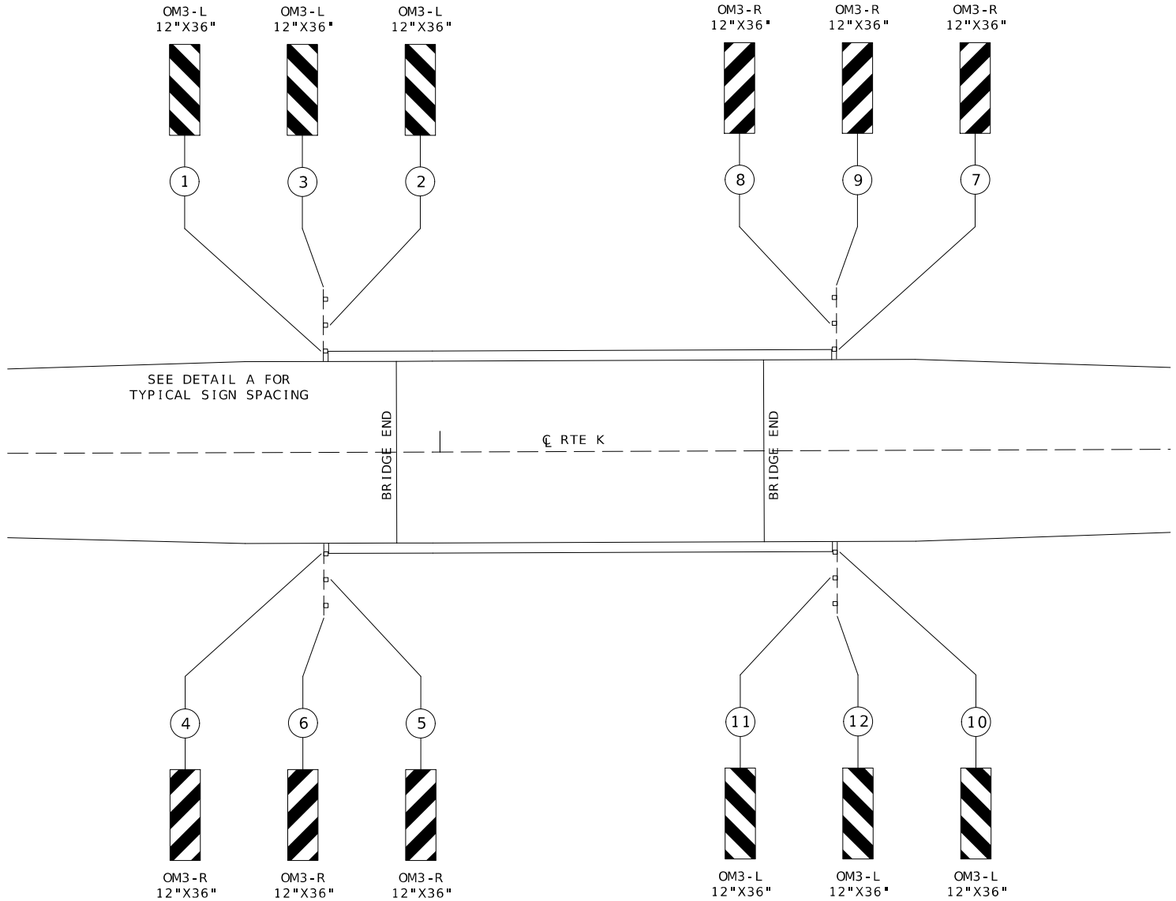
BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

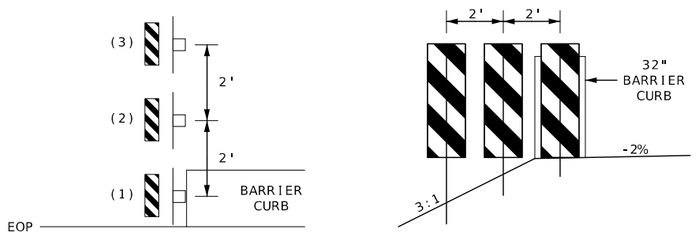
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EROSION CONTROL
SHEET 1 OF 1



SIGNS				PERFORATED SQUARE STEEL TUBE		
				2 IN POST		
SIGN NO	SIGN SIZE	LOCATION	SIGN DETAIL SHEET NO	POST NO 1	TOTAL ITEM NO 9031270A	ANCHOR 12 GA ITEM NO 9031271A
				LF	LF	EA
1	12"X36"	LT ℄ RTE K	STD	3.5	3.5	1
2	12"X36"	LT ℄ RTE K	STD	4.0	4.0	1
3	12"X36"	LT ℄ RTE K	STD	4.75	4.75	1
4	12"X36"	RT ℄ RTE K	STD	3.5	3.5	1
5	12"X36"	RT ℄ RTE K	STD	4.0	4.0	1
6	12"X36"	RT ℄ RTE K	STD	4.75	4.75	1
7	12"X36"	LT ℄ RTE K	STD	3.5	3.5	1
8	12"X36"	LT ℄ RTE K	STD	4.0	4.0	1
9	12"X36"	LT ℄ RTE K	STD	4.75	4.75	1
10	12"X36"	RT ℄ RTE K	STD	3.5	3.5	1
11	12"X36"	RT ℄ RTE K	STD	4.0	4.0	1
12	12"X36"	RT ℄ RTE K	STD	4.75	4.75	1
			TOTAL		49	12

STANDARD SIGN ASSEMBLIES			
SIGN NUMBER	LOCATION	FLAT SHEET FLUORESCENT SIGN DESCRIPTION, SIZES & NUMBER OF EACH	
		OM3-L (12"X36")	OM3-R (12"X36")
1	LT ℄ RTE K	1	
2	LT ℄ RTE K	1	
3	LT ℄ RTE K	1	
4	RT ℄ RTE K		1
5	RT ℄ RTE K		1
6	RT ℄ RTE K		1
7	LT ℄ RTE K	1	
8	LT ℄ RTE K	1	
9	LT ℄ RTE K	1	
10	RT ℄ RTE K		1
11	RT ℄ RTE K		1
12	RT ℄ RTE K		1
	TOTAL	6	6



DETAIL A

NOTES

TOP OF OBJECT MARKER SHALL BE INSTALLED AT SAME HEIGHT AS BRIDGE BARRIER CURB

MOUNTING HEIGHTS FOR OJBECT MARKERS

- OBJECT MARKER (1) MOUNTED ON BARRIER CURB
- OBJECT MARKER (2) & (3) MOUNTED AT LEVEL OF OBJECT MARKER (1)

SIGN SUMMARY				
			SIZE, TYPE & SQ FT	
STANDARD SIGN	SIGN DETAIL SHEET NO	NO EACH	SIZE	FLAT SHEET FLUORESCENT* ITEM NO 9035069A
OM3-L	STD	6	12"X36"	18
OM3-R	STD	6	12"X36"	18
		TOTAL		36

* ORANGE, YELLOW, & YELLOW/GREEN

DRAWING NOT TO SCALE. FOLLOW DIRECTIONS.

STATE OF MISSOURI
TIMOTHY CHRISTOPHER PICKETT NUMBER PE-2017000351
PROFESSIONAL ENGINEER
02/21/2024 6:54:36 AM
TIMOTHY CHRISTOPHER PICKETT - CIVIL
MO-PE-2017000351

DATE PREPARED
11/29/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	11

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

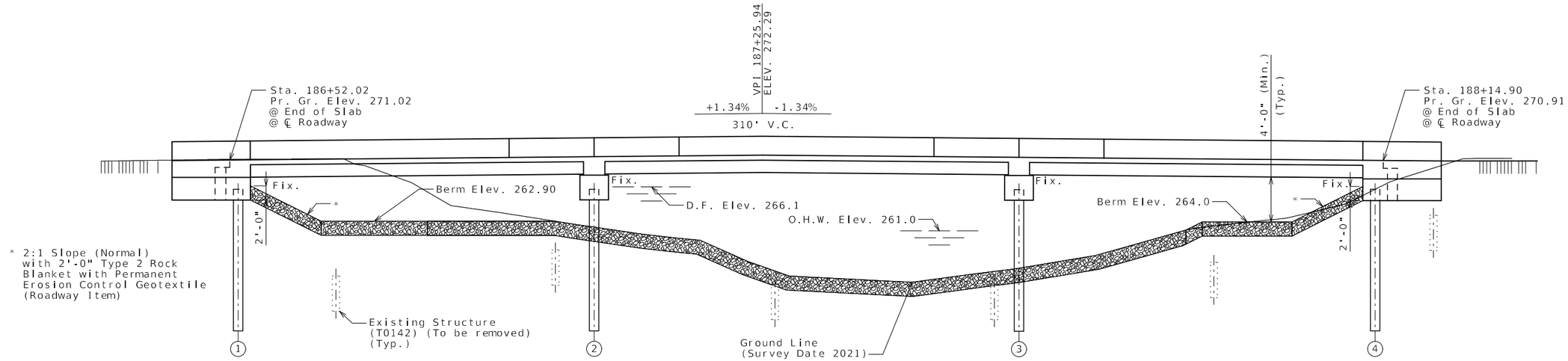
DESCRIPTION | DATE

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

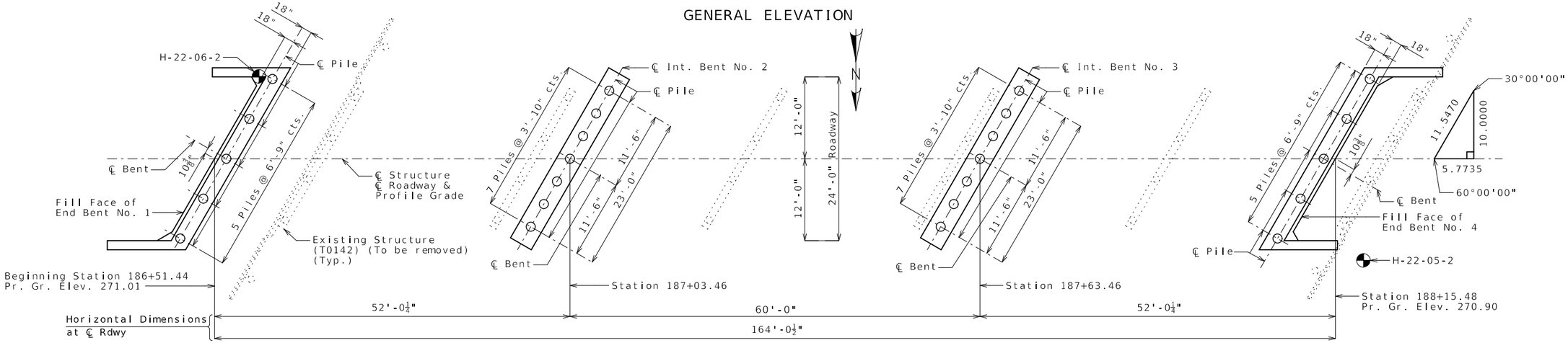
SIGNING SHEET
TYPE 3 OBJECT MARKERS
SHEET 1 OF 1

SEC/SUR 9 TWP 19N RGE 12E

(50'-60'-50') PRESTRESSED CONCRETE SPREAD BOX BEAM SPANS (SKEW: 30° L.A.)



GENERAL ELEVATION



PLAN

◔ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on 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. 27 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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

Notes:

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

Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.

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

B.M. #1 - CHISELED SQUARE ON NW CORNER OF CONCRETE CURB
8.63' RT OF ℄ RTE K
STA 188+19.71 ELEV 271.7750
X = 1036925.2220 Y = 170383.7530

B.M. #2 - CHISELED SQUARE ON SE CORNER OF CONCRETE CURB
11.72' LT OF ℄ RTE K
STA 186+73.83 ELEV 271.7860
X = 1037071.2710 Y = 170364.6130

B.M. #3 - CORPS OF ENGINEERS BM MEMPHIS DISTRICT 07-12-91
50.41' RT OF ℄ RTE K
STA 185+27.28 ELEV 266.7440
X = 1037217.2950 Y = 170427.9550

BRIDGE: ROUTE K
OVER MAIN DITCH DISTRICT NO. 8

ROUTE K FROM ROUTE P TO ROUTE B
ABOUT 1.0 MILE WEST OF ROUTE P
BEGINNING STATION 186+51.44

Designed Feb. 2023
Detailed Feb. 2023
Checked Feb. 2023

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/25/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	1

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9245

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		CECIP 16"	CECIP 16"	CECIP 16"	CECIP 16"
	Number	ea	5	7	7	5
	Approximate Length Per Each	ft	52	52	52	52
	Pile Point Reinforcement	ea	ALL	ALL	ALL	ALL
	Min. Galvanized Penetration (Elev.)	ft	Full Length	Full Length	Full Length	Full Length
	Est. Max. Scour Depth 100 (Elev.)	ft	-	250.3	250.3	-
	Minimum Tip Penetration (Elev.)	ft	217.00	217.00	217.00	217.00
	Criteria for Min. Tip Penetration		Liquefaction	Liquefaction	Liquefaction	Liquefaction
	Pile Driving Verification Method		DT	DT	DT	DT
	Resistance Factor		0.65	0.65	0.65	0.65
	Minimum Nominal Axial Compressive Resistance	kip	202	219	219	202

CECIP = Closed Ended Cast-In-Place concrete pile

DT = Dynamic Testing

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

Estimated Maximum Scour Depth (Elevation) shown is for verifying Minimum Nominal Axial Compressive Resistance using dynamic testing only where pile resistance contribution above this elevation shall not be considered.

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.

General Notes:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)
Seismic Design Category = D
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.656g
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.884g

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

Design Unit Stresses:

Class B Concrete (Substructure except CECIP)	f'c = 3,000 psi
Class B-1 Concrete (Type H Barrier & CECIP)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Beams and Barrier)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Welded or Seamless Steel Shell (pipe) for CIP Pile (ASTM A252 Grade 3)	fy = 45,000 psi

For precast prestressed panel stresses, see Sheet No. 16.

For prestressed box beam stresses, see Sheets No. 13 & 14.

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.

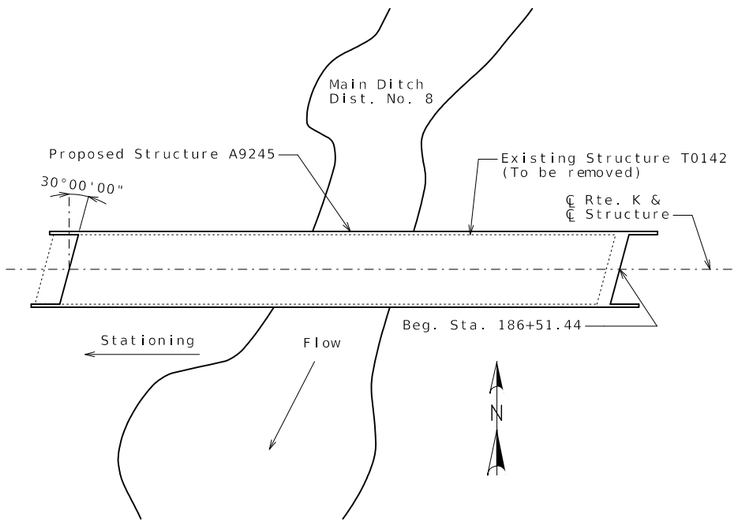
Minimum clearance between galvanized piles and uncoated (plain) reinforcing steel including bar supports shall be 1 1/2". Nylon, PVC, or polyethylene spacers shall be used to maintain clearance. Nylon cable ties shall be used to bind the spacers to the reinforcement.

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.

Hydrologic Data

Drainage Area = 45 mi^2
Design Flood Frequency = 50 years
Design Flood Discharge = 1990 cfs
Design Flood (D.F.) Elevation = 266.1
Base Flood (100-year)
Base Flood Elevation = 266.5
Base Flood Discharge = 2140 cfs
Estimated Backwater = 0 ft
Average Velocity thru Opening = 2.2 ft/s
Freeboard (50-year)
Freeboard = 2.1 ft
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency > 500 years
500-year Flood Elevation = 267.3



LOCATION SKETCH

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	60		60
Removal of Bridges (T0142)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		109	109
Galvanized Cast-In-Place Concrete Piles (16 in.)	linear foot	1248		1248
Dynamic Pile Testing	each	4		4
Dynamic Pile Restrike Testing	each	4		4
Pile Point Reinforcement	each	24		24
Class B Concrete (Substructure)	cu. yard	51.0		51.0
Type H Barrier	linear foot		360	360
Slab on Concrete Beam	sq. yard		483	483
21 in., Prestressed Concrete Spread Box Beam	linear foot		478	478
Reinforcing Steel (Bridges)	pound	7780		7780
Slab Drain	each		16	16
Vertical Drain at End Bents	each		2	2
Plain Neoprene Bearing Pad	each		6	6
Laminated Neoprene Bearing Pad	each		12	12

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

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

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

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

All reinforcement in cast-in-place pile at intermediate bents is included in Reinforcing Steel (Bridges). All reinforcement for cast-in-place pile at end bents is included in the superstructure quantities for Slab on Concrete Beam.

Estimated Quantities for Slab on Concrete Beam

Item		Total
Class B-2 Concrete	cu. yard	136
Reinforcing Steel (Epoxy Coated)	pound	37,840

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

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

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

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

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

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

☐ Constant Joint Filler
☐ Variable Joint Filler

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
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DATE PREPARED 3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	2

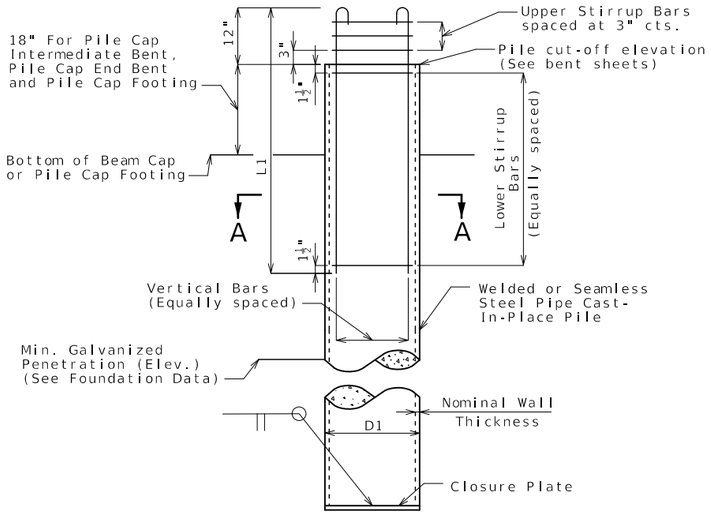
COUNTY: PEMISCOT
JOB NO.: J9S3595
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9245

DESCRIPTION	DATE

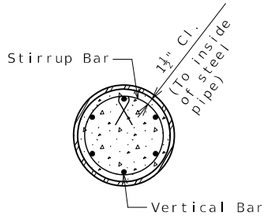
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Detailed Feb. 2023
Checked Feb. 2023

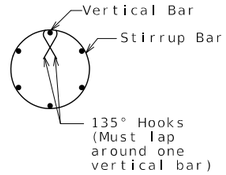
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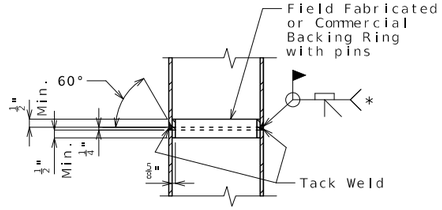
GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE
WITHOUT PILE POINT REINFORCEMENT



SECTION A-A

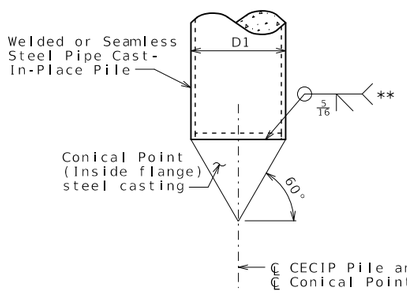


DETAIL OF SEISMIC STIRRUP BAR



STEEL PIPE PILE SPLICE

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



MANUFACTURED CONICAL PILE POINT

(Omit closure plate)

** If the conical pile point is not pre-beveled, place a 3/8" bevel at 40 degrees on the pipe.

Galvanized Closed Ended Cast-In-Place (CECIP) Concrete Pile Data				
Bent Number	1	2	3	4
D1, CECIP Pile (O.D.)	16"	16"	16"	16"
Min. Nominal Wall Thickness	½"	½"	½"	½"
Closure Plate Thickness	¾"	¾"	¾"	¾"
Pile Point Reinforcement	Conical	Conical	Conical	Conical
Vertical Bars	6-#7-V500	6-#7-V501	6-#7-V501	6-#7-V500
L1, Length of Vertical Bars	19'-2"	19'-2"	19'-2"	19'-2"
Upper Stirrup Bars	3-#4-U500	3-#4-U501	3-#4-U501	3-#4-U500
Lower Stirrup Bars	19-#4-U500	19-#4-U501	19-#4-U501	19-#4-U500

Notes:

Welded or seamless steel shell (pipe) shall be ASTM A252 Grade 3 (fy = 45,000 psi).

Concrete for cast-in-place pile shall be Class B-1.

Steel for closure plate shall be ASTM A709 Grade 50.

Steel casting for conical pile point reinforcement shall be ASTM A148 Grade 90-60.

The minimum wall thickness of any spot or local area of any type shall not be more than 12.5% under the specified nominal wall thickness.

The contractor shall determine the pile wall thickness required to avoid damage from all driving activities, but wall thickness shall not be less than the minimum specified. No additional payment will be made for furnishing a thicker pile wall than specified on the plans.

Closure plate shall not project beyond the outside diameter of the pipe pile. Satisfactory weldments may be made by beveling tip end of pipe or by use of inside backing rings. In either case, proper gaps shall be used to obtain weld penetration full thickness of pipe. Payment for furnishing and installing closure plate will be considered completely covered by the contract unit price for Galvanized Cast-In-Place Concrete Piles.

Splices of pipe for cast-in-place concrete pile shall be made watertight and to the full strength of the pipe above and below the splice to permit hard driving without damage. Pipe damaged during driving shall be replaced without cost to the state. Pipe sections used for splicing shall be at least 5 feet in length.

The hooks of vertical bars embedded in the beam cap should not be turned outward, away from the pile core.

Closure plate need not be galvanized.

Reinforcing steel for cast-in-place piles is included in the Bill of Reinforcing Steel.

All reinforcement for cast-in-place pile at intermediate bents is included in Reinforcing Steel (Bridges). All reinforcement for cast-in-place pile at end bents is included in the superstructure quantities for Slab on Concrete Beam.

For Foundation Data table, see Sheet No. 2.

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	3

COUNTY PEMISCOT

JOB NO. J9S3595

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9245

DESCRIPTION	DATE

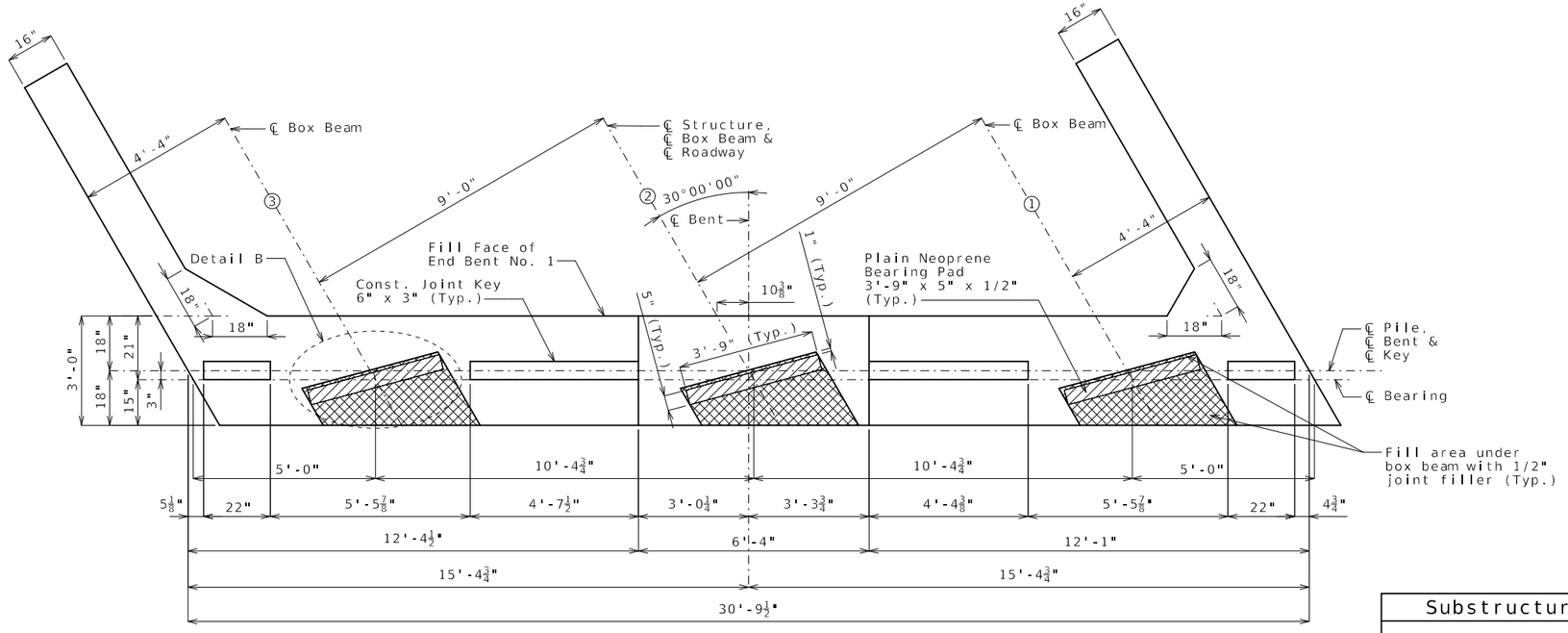
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105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE

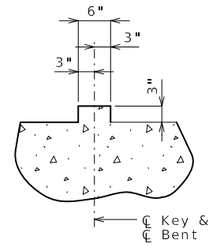
Detailed Feb. 2023
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PLAN OF BEAM SHOWING DIMENSIONS

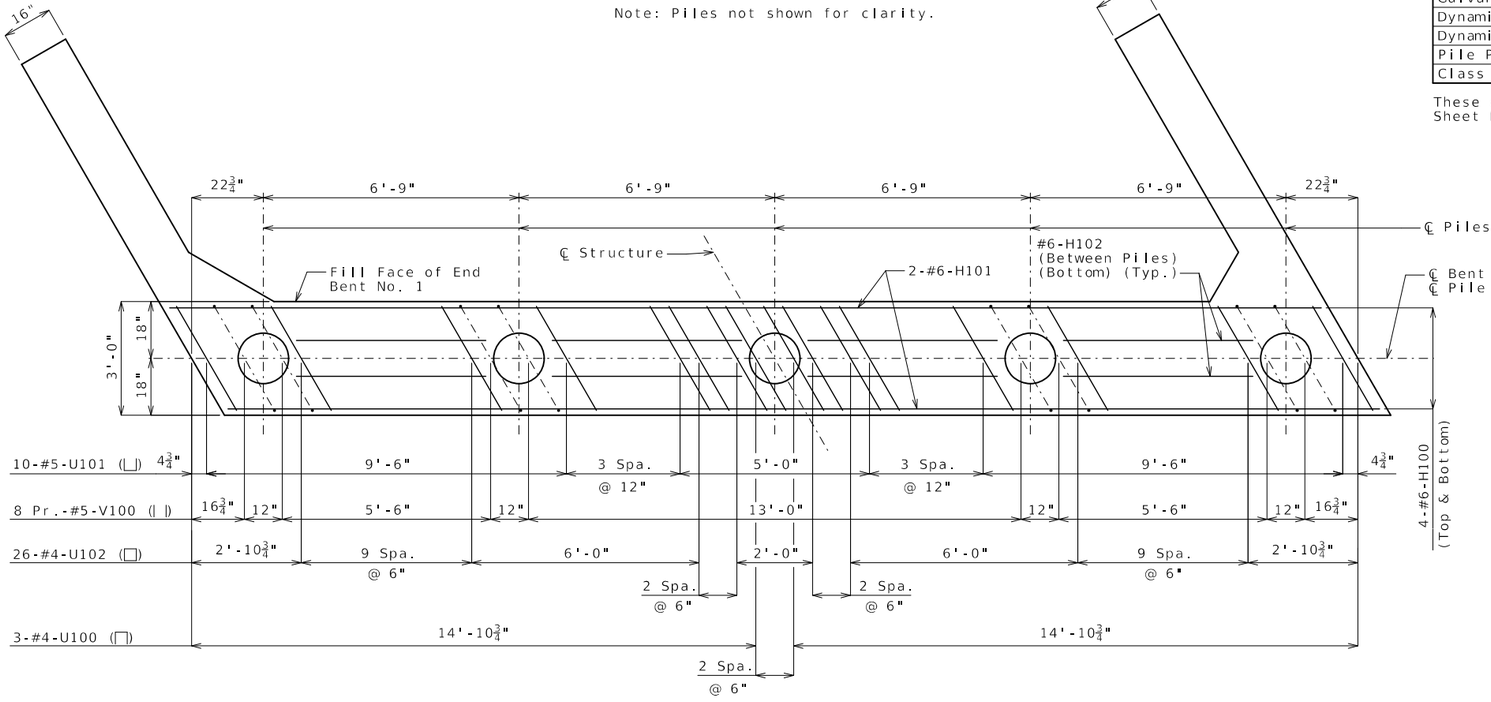
Note: Piles not shown for clarity.



SECTION THRU KEY

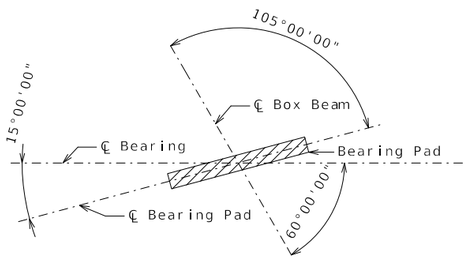
Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	30
Galvanized Cast-In-Place Concrete Piles (16 in.)	linear foot	260
Dynamic Pile Testing	each	1
Dynamic Pile Restrike Testing	each	1
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	13.2

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



PLAN OF BEAM SHOWING REINFORCEMENT

Note: Keys and steps not shown for clarity.



DETAIL B

Notes:

Work this sheet with Sheets No. 5 & 6.

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

The U-bars, pairs of V-bars and #5-H109 bars shall be placed parallel to ℄ Roadway.

END BENT NO. 1

Detailed Feb. 2023
Checked Feb. 2023

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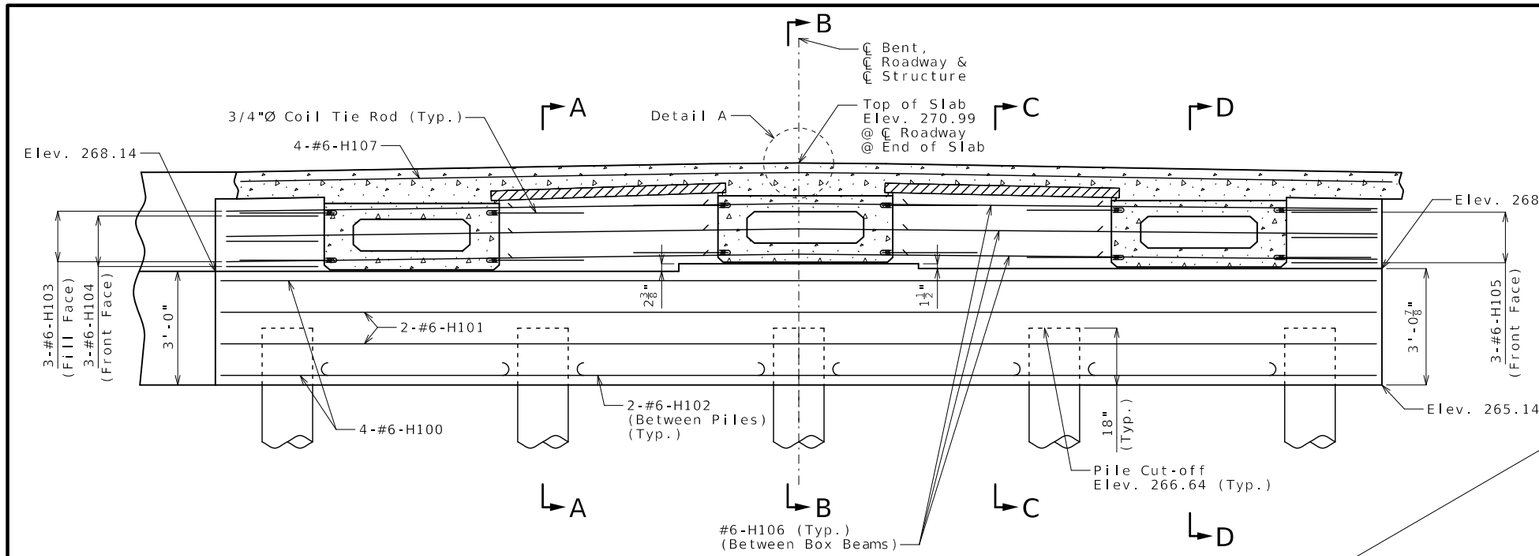
STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
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DATE PREPARED: 3/3/2023
ROUTE: K | STATE: MO
DISTRICT: BR | SHEET NO.: 4
COUNTY: PEMISCOT
JOB NO.: J9S3595
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9245

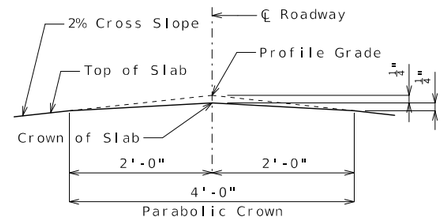
DESCRIPTION | DATE

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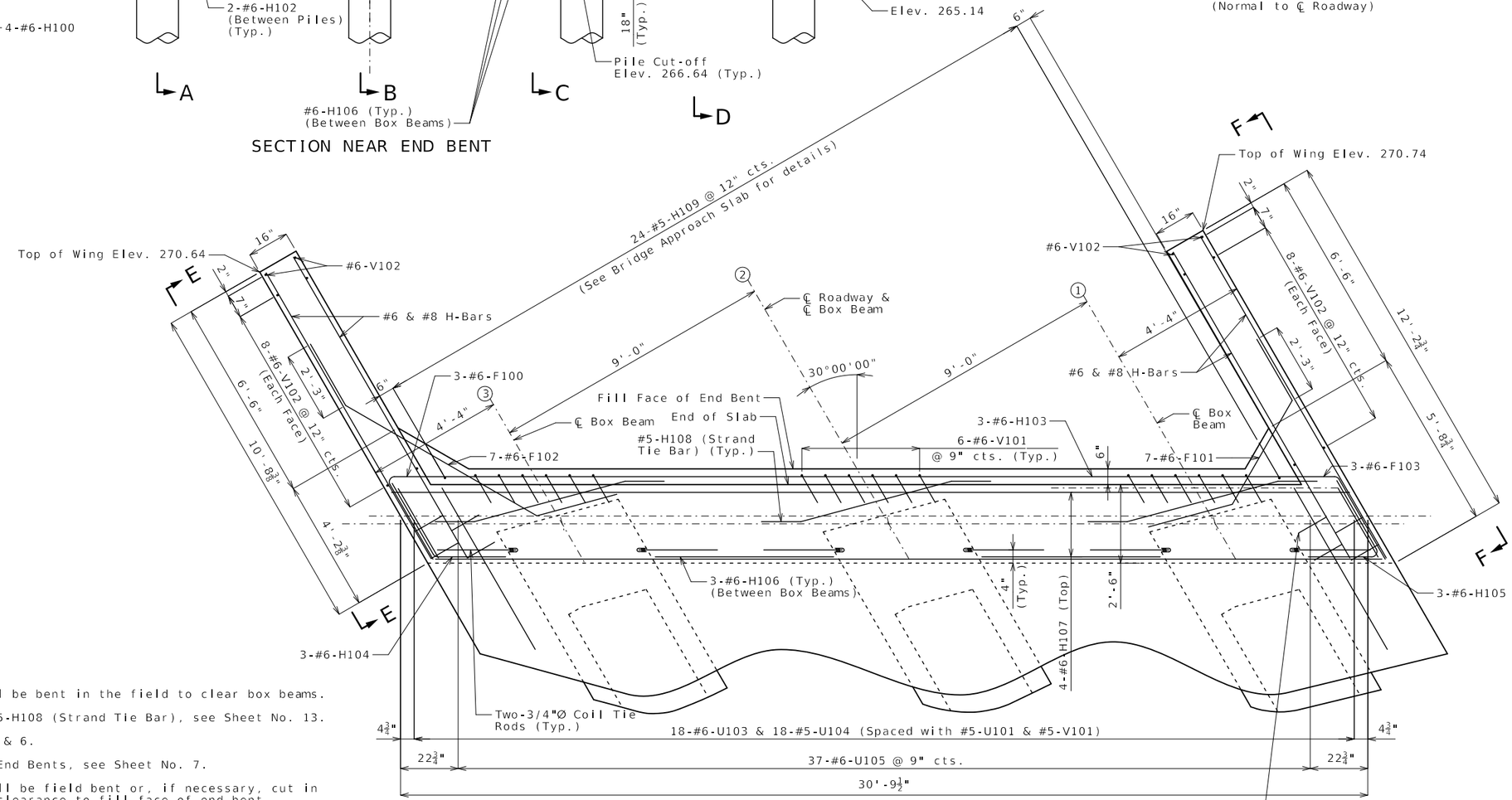
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JEFFERSON CITY, MO 65102
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SECTION NEAR END BENT



DETAIL A
(Normal to ℄ Roadway)



PART PLAN

Notes:

The #6-F101 and #6-F102 bars shall be bent in the field to clear box beams.

For location of Coil Tie Rods & #5-H108 (Strand Tie Bar), see Sheet No. 13.

Work this sheet with Sheets No. 4 & 6.

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

Strands at the end of girders 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 Elevations E-E and F-F, Sections A-A, B-B, C-C and D-D, and Section Thru Wings, see Sheet No. 6.

For detail of Bridge Approach Slab, see Sheet No. 23.

END BENT NO. 1

Detailed Feb. 2023
Checked Feb. 2023

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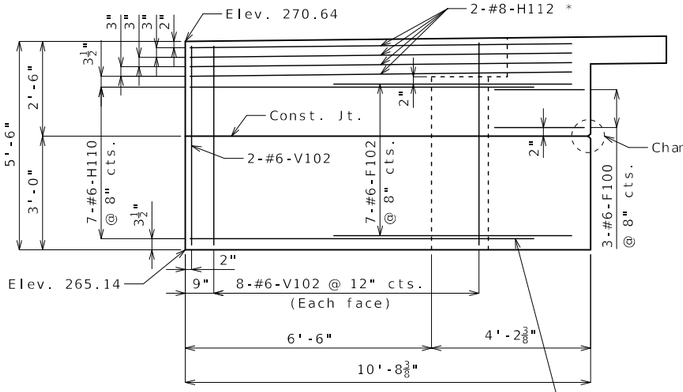
DATE PREPARED 3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	5

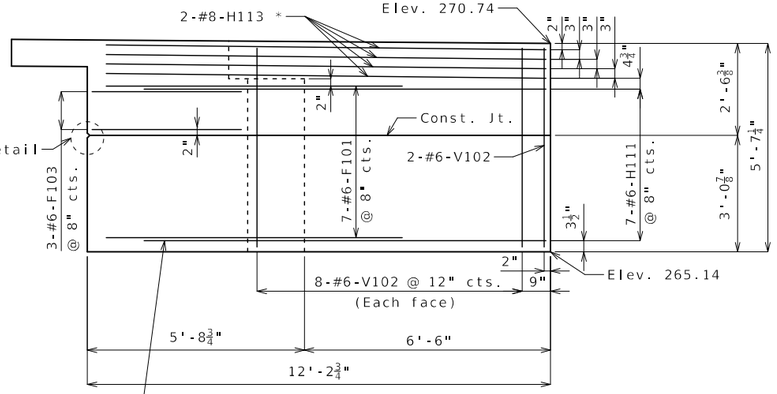
COUNTY: PEMISCOT
JOB NO.: J9S3595
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9245

DESCRIPTION	DATE

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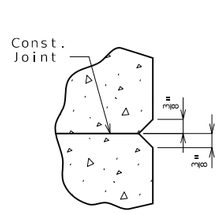


ELEVATION E-E

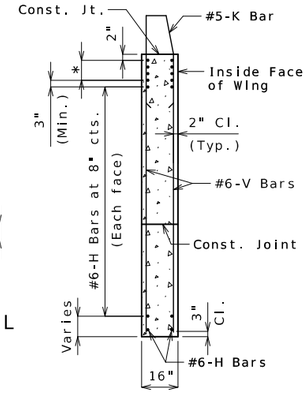


ELEVATION F-F

Bend in Field where required for H-bars to clear piles by 1 1/2" (Typ.)

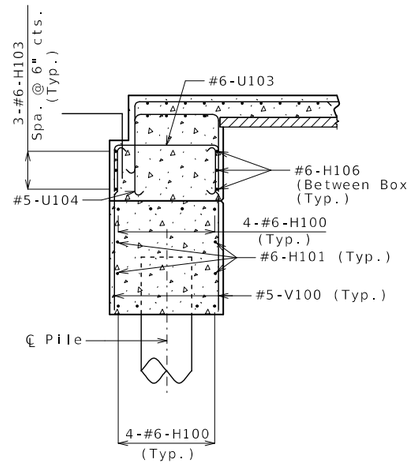


CHAMFER DETAIL

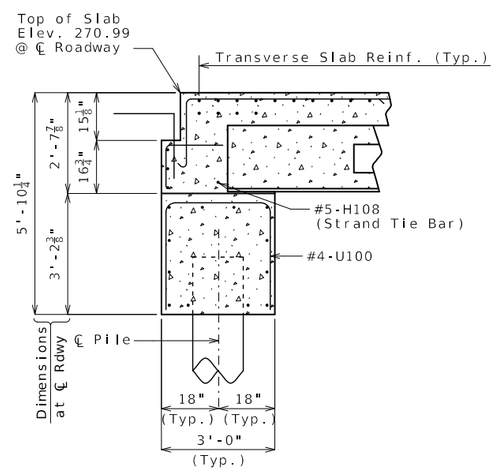


TYPICAL SECTION THRU WING

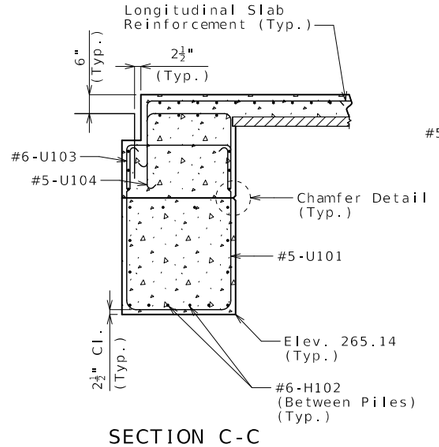
* #8-H Bars at 3" cts. (Each face)(Place with grade)



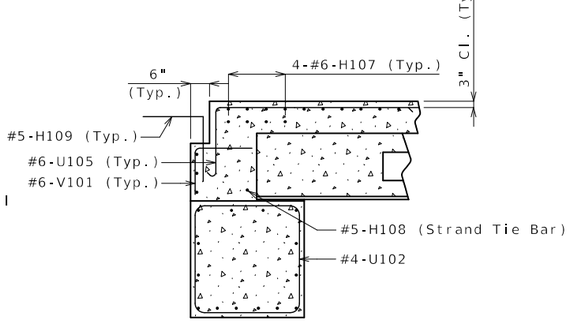
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

Notes:

Work this sheet with Sheets No. 4 & 5.

For details and reinforcement of Type H Barrier, see Sheet No. 22.

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

END BENT NO. 1

Detailed Feb. 2023
Checked Feb. 2023

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	6

COUNTY PEMISCOT

JOB NO. J9S3595

CONTRACT ID.

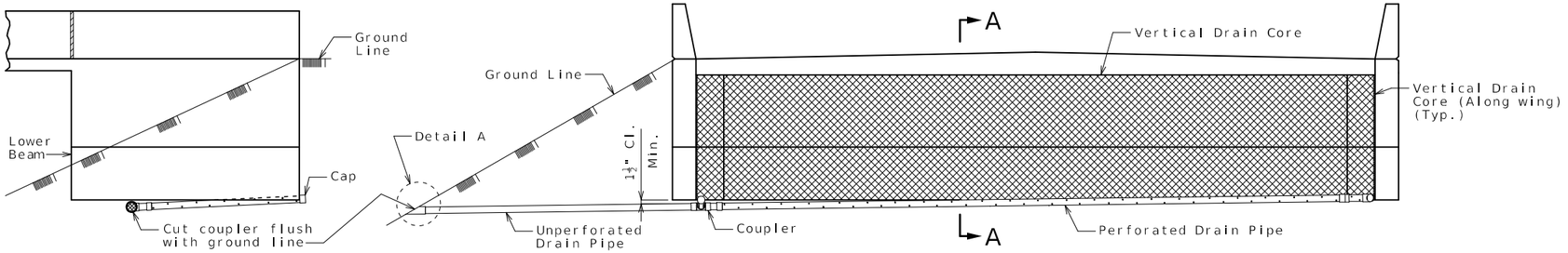
PROJECT NO.

BRIDGE NO. A9245

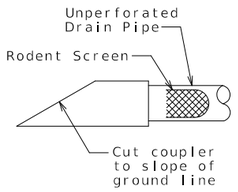
DESCRIPTION	DATE

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

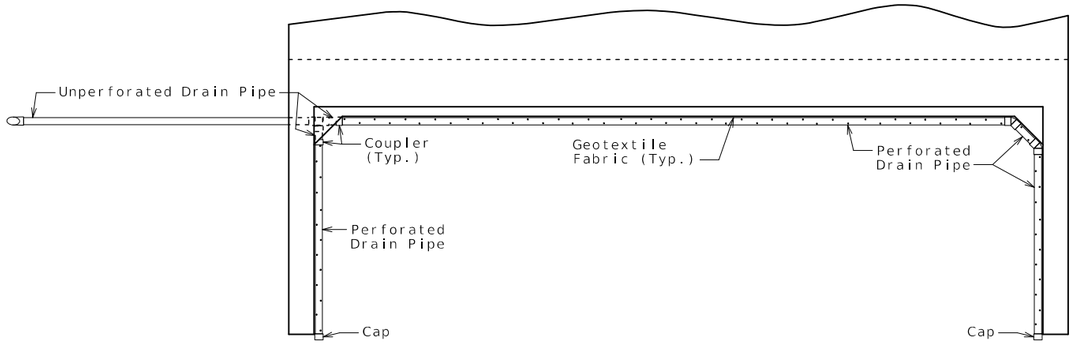
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



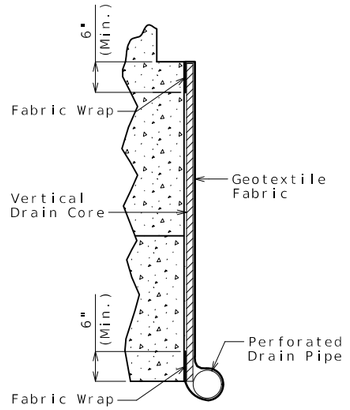
ELEVATION OF END BENT



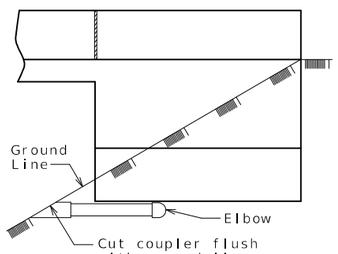
DETAIL A



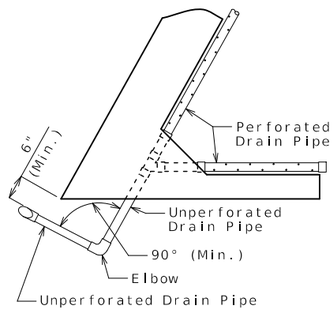
PLAN OF END BENT



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)

Detailed Feb. 2023
Checked Feb. 2023

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TED S. KOESTER
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DATE PREPARED 3/3/2023

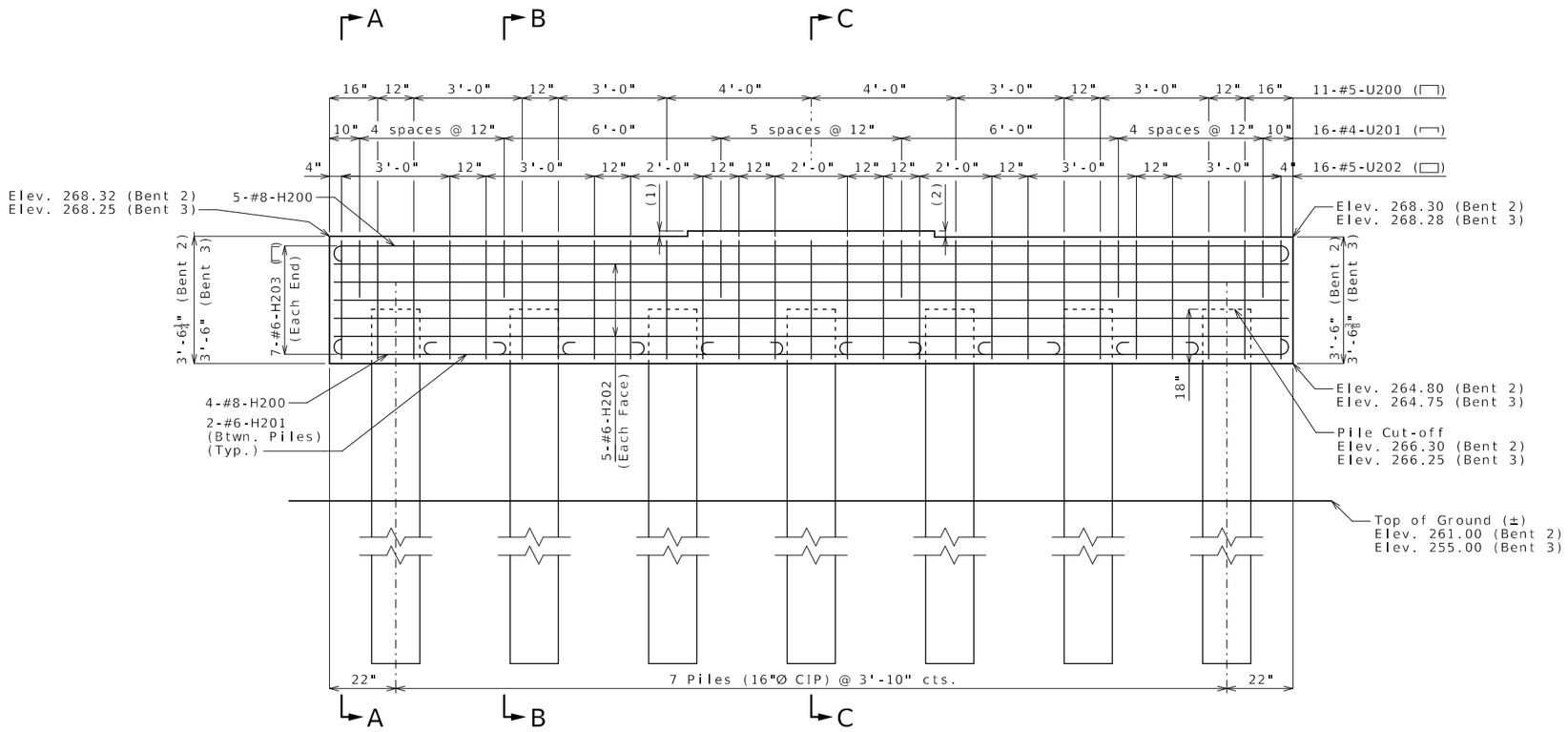
ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	7

COUNTY: PEMISCOT
JOB NO.: J9S3595
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9245

DESCRIPTION	DATE

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

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

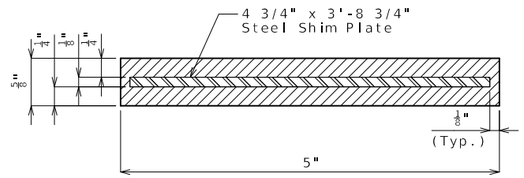


ELEVATION OF INT. BENT

Keys not shown for clarity.

(1) 1 3/4" (Bent 2)
2 1/4" (Bent 3)

(2) 2" (Bent 2)
1 7/8" (Bent 3)



TYPICAL SECTION THRU 5" X 5/8" X 3'-9"
LAMINATED NEOPRENE BEARING PAD

Notes:

For details of Cast-In-Place Concrete Piles, see Sheet No. 3.

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

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

Exposed surfaces of steel casing shall not be coated.

Bents No. 2 & 3 will both have 200 series bar marks in the barbill. Contractor shall review barbill and split up bars accordingly.

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

INTERMEDIATE BENTS NO. 2 & 3

Detailed Feb. 2023
Checked Feb. 2023

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TED S. KOESTER
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DATE PREPARED
3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	8

COUNTY
PEMISCOT

JOB NO.
J9S3595

CONTRACT ID.

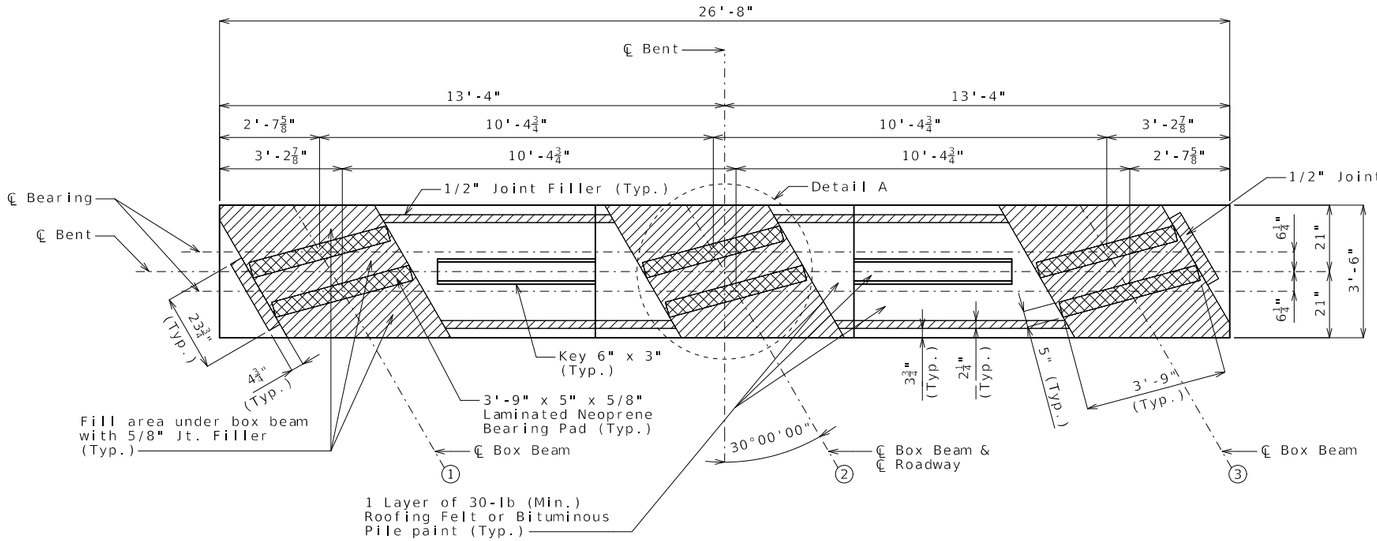
PROJECT NO.

BRIDGE NO.
A9245

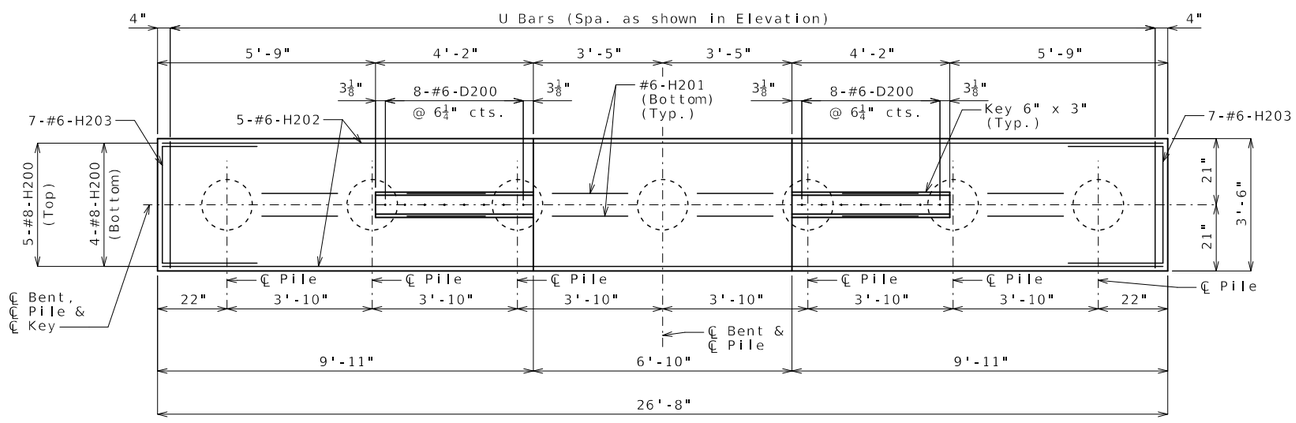
DESCRIPTION	DATE

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

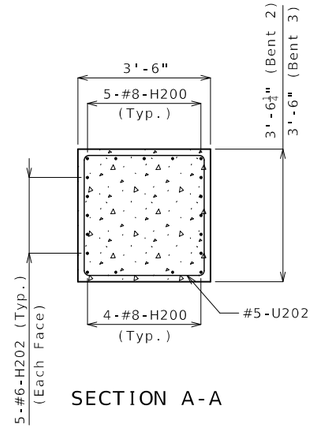
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



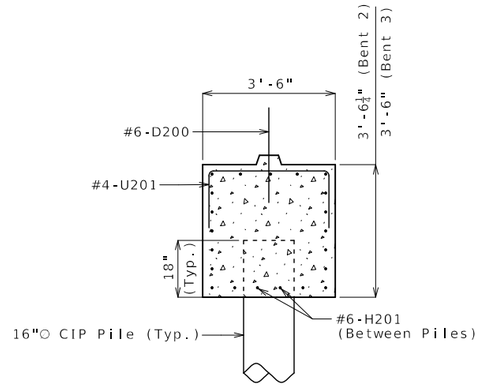
PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT



SECTION A-A

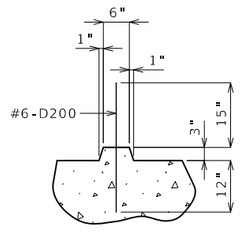


SECTION B-B

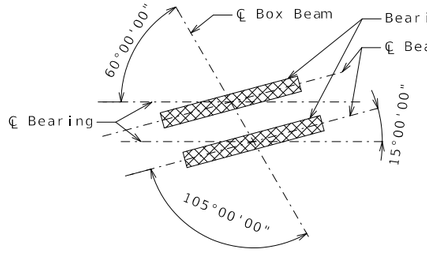
Substructure Quantity Table for Bent No. 2 & 3			
Item		Bent 2 Quantity	Bent 3 Quantity
Galvanized Cast-In-Place Concrete Piles (16 in.)	linear foot	364	364
Dynamic Pile Testing	each	1	1
Dynamic Pile Restrike Testing	each	1	1
Pile Point Reinforcement	each	7	7
Class B Concrete (Substructure)	cu. yard	12.3	12.3
Reinforcing Steel (Bridges)	pound	3890	3890

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

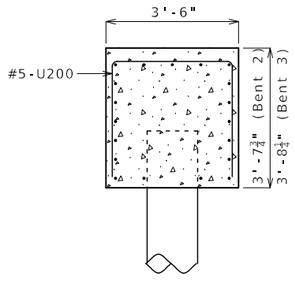
For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.



SECTION THRU KEY



DETAIL A



SECTION C-C

INTERMEDIATE BENTS NO. 2 & 3

Detailed Feb. 2023
Checked Feb. 2023

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

Sheet No. 9 of 27

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	9

COUNTY PEMISCOT

JOB NO. J9S3595

CONTRACT ID.

PROJECT NO.

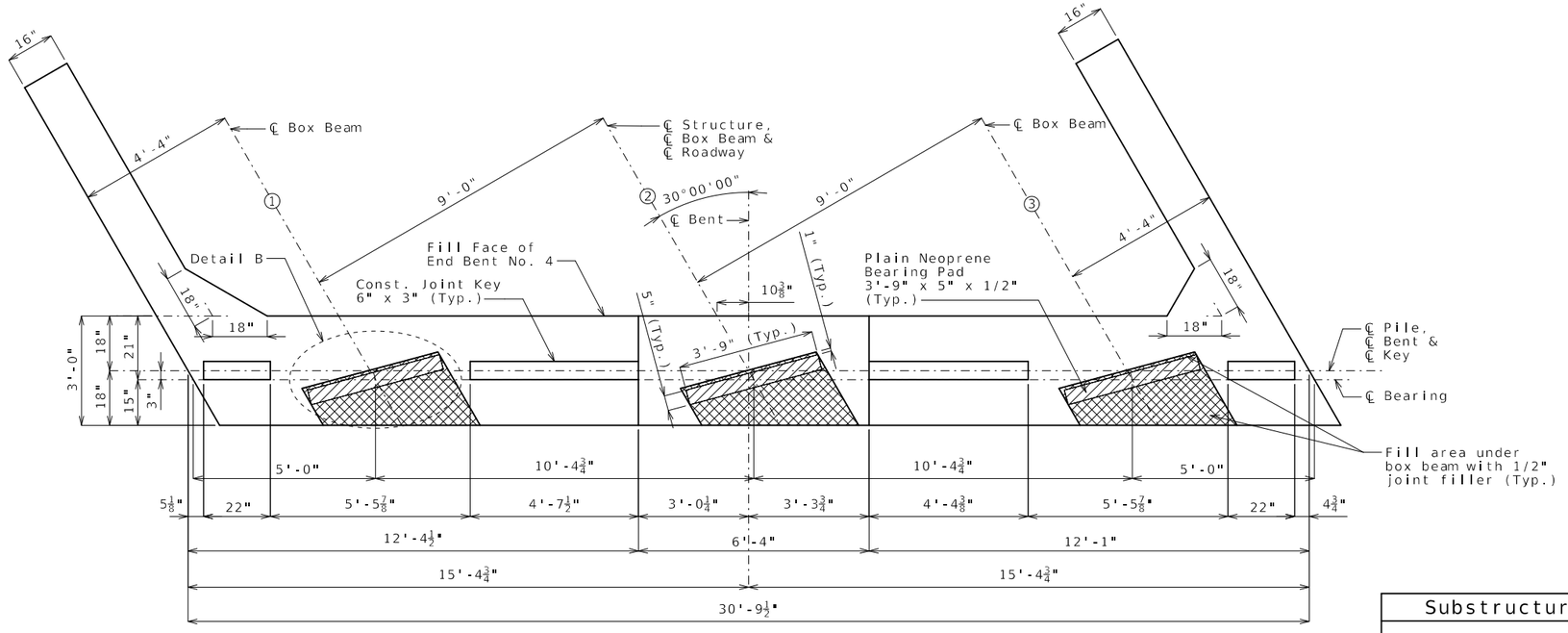
BRIDGE NO. A9245

DESCRIPTION

DATE

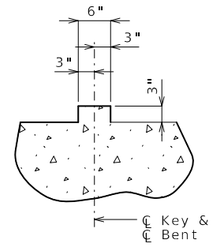
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105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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PLAN OF BEAM SHOWING DIMENSIONS

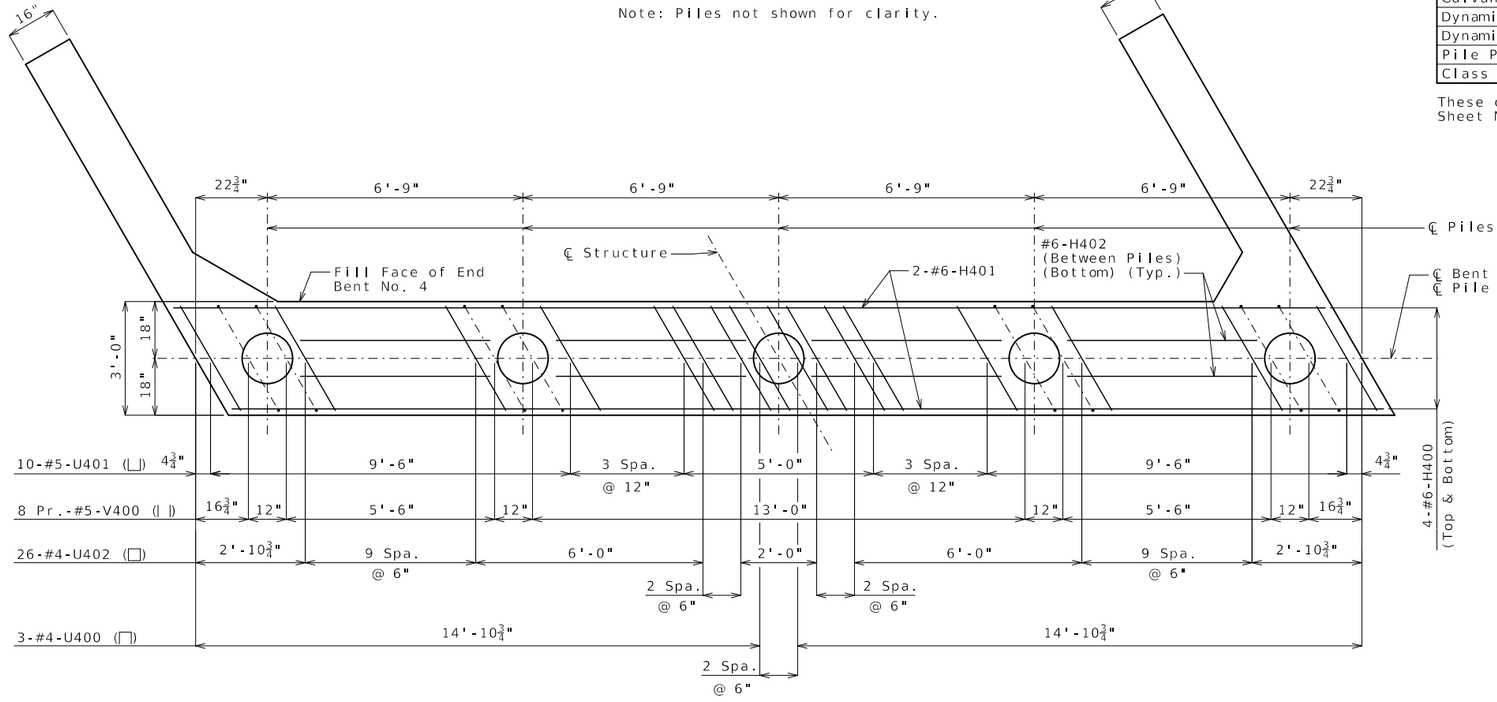
Note: Piles not shown for clarity.



SECTION THRU KEY

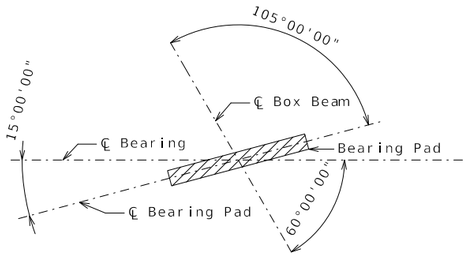
Substructure Quantity Table for Bent No. 4		
Item		Quantity
Class 1 Excavation	cu. yard	30
Galvanized Cast-In-Place Concrete Piles (16 in.)	linear foot	260
Dynamic Pile Testing	each	1
Dynamic Pile Restrike Testing	each	1
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	13.2

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



PLAN OF BEAM SHOWING REINFORCEMENT

Note: Keys and steps not shown for clarity.



DETAIL B

Notes:

Work this sheet with Sheets No. 11 & 12.

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

The U-bars, pairs of V-bars and #5-H409 bars shall be placed parallel to ℄ Roadway.

END BENT NO. 4

Detailed Feb. 2023
Checked Feb. 2023

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STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
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DATE PREPARED 3/3/2023

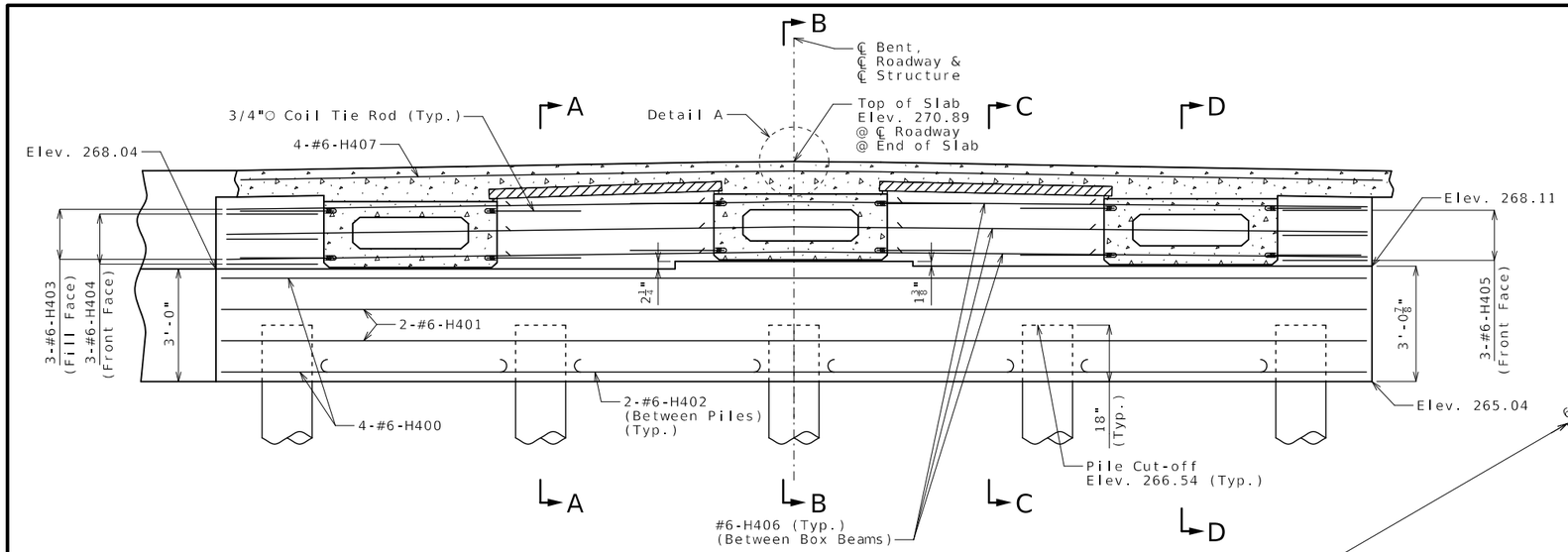
ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	10

COUNTY PEMISCOT
JOB NO. J9S3595
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9245

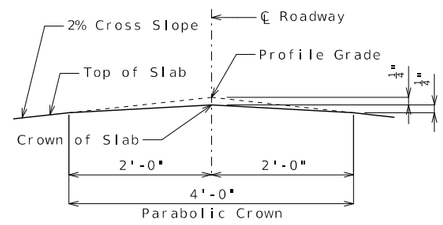
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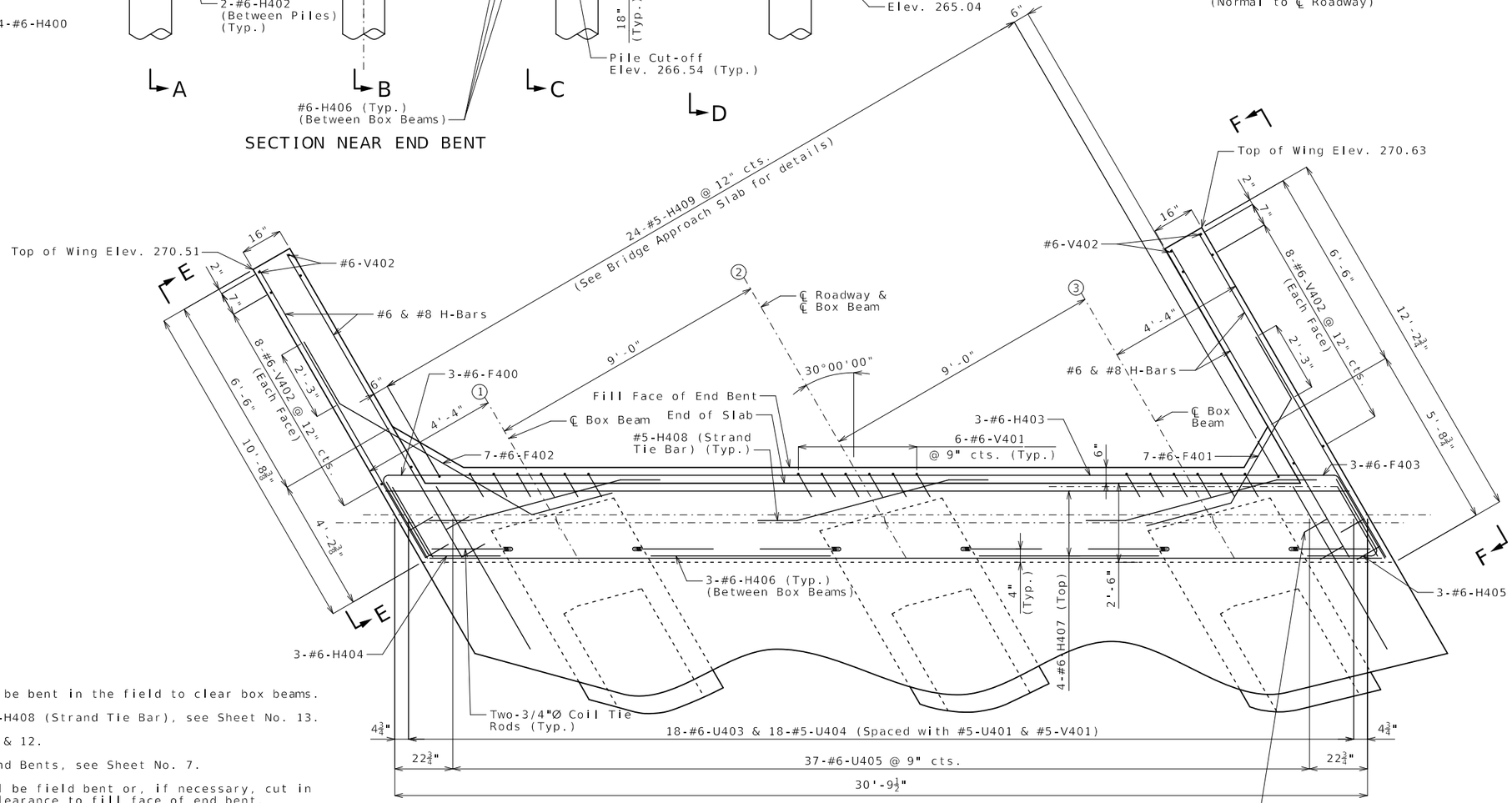
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JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



SECTION NEAR END BENT



DETAIL A
(Normal to ℄ Roadway)



PART PLAN

Notes:

The #6-F401 and #6-F402 bars shall be bent in the field to clear box beams.

For location of Coil Tie Rods & #5-H408 (Strand Tie Bar), see Sheet No. 13.

Work this sheet with Sheets No. 10 & 12.

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

Strands at the end of girders 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 Elevations E-E and F-F, Sections A-A, B-B, C-C and D-D, and Section Thru Wings, see Sheet No. 12.

For detail of Bridge Approach Slab, see Sheet No. 23.

END BENT NO. 4

Detailed Feb. 2023
Checked Feb. 2023

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DATE PREPARED 3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	11

COUNTY PEMISCOT

JOB NO. J9S3595

CONTRACT ID.

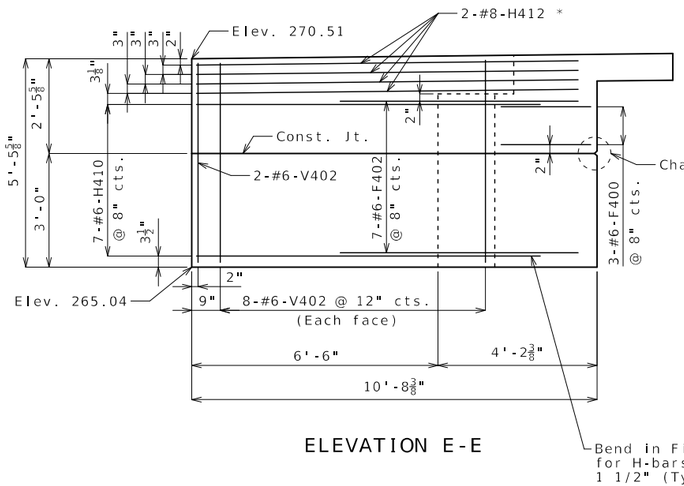
PROJECT NO.

BRIDGE NO. A9245

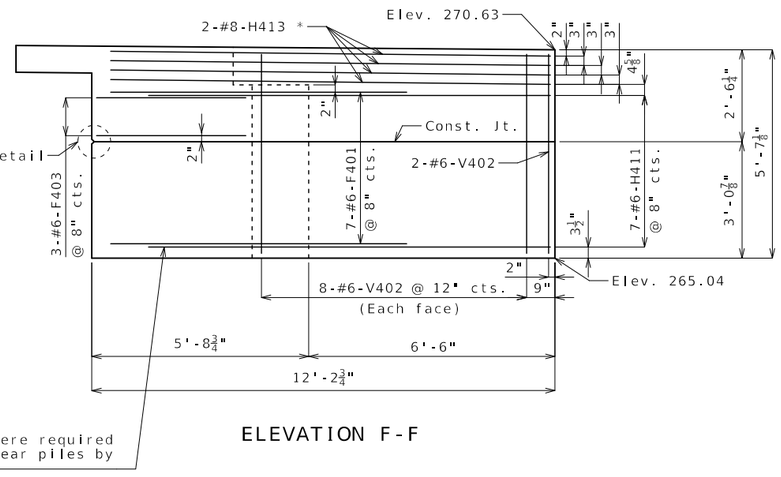
DESCRIPTION	DATE

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

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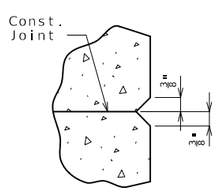


ELEVATION E-E

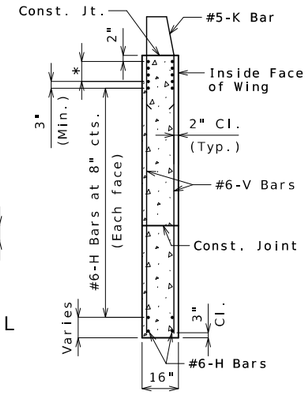


ELEVATION F-F

Bend in Field where required for H-bars to clear piles by 1 1/2" (Typ.)

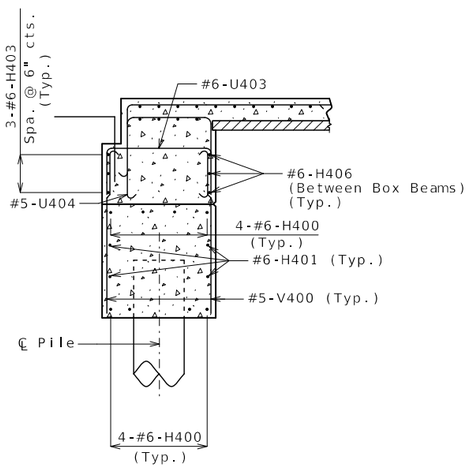


CHAMFER DETAIL

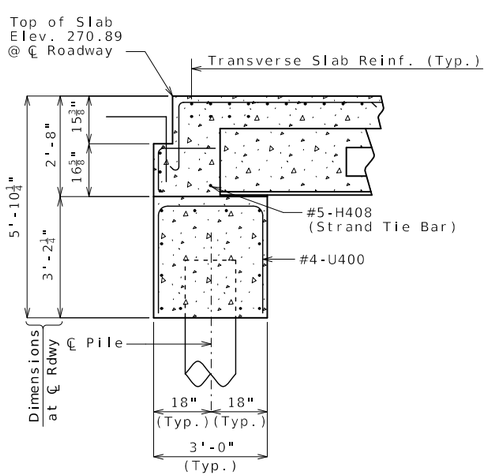


TYPICAL SECTION THRU WING

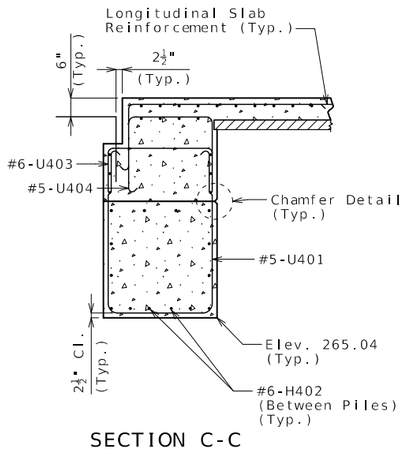
* #8-H Bars at 3" cts. (Each face)(Place with grade)



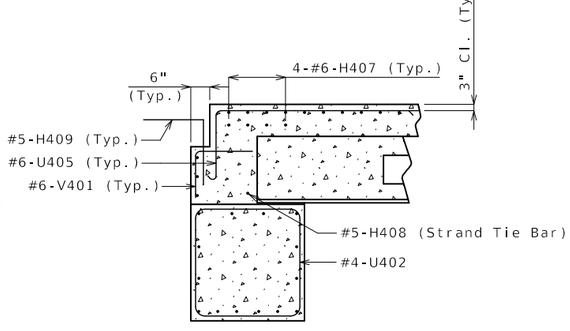
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

Notes:

Work this sheet with Sheets No. 10 & 11.

For details and reinforcement of Type H Barrier, see Sheet No. 22.

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

END BENT NO. 4

Detailed Feb. 2023
Checked Feb. 2023

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TED S. KOESTER
NUMBER PE-2013000591
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DATE PREPARED: 3/3/2023

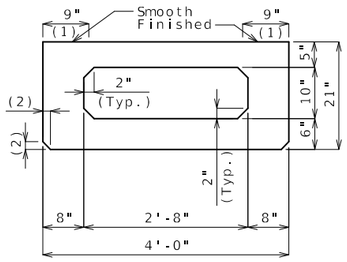
ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	12

COUNTY: PEMISCOT
JOB NO.: J9S3595
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9245

DESCRIPTION	DATE

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

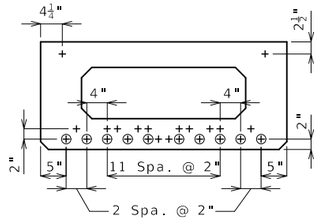
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



DIMENSIONS

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

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

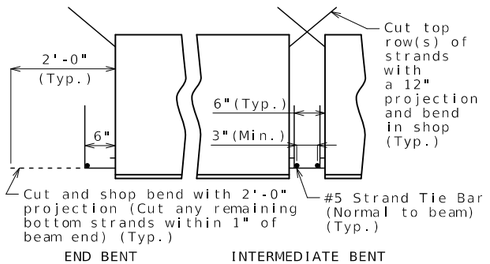


STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

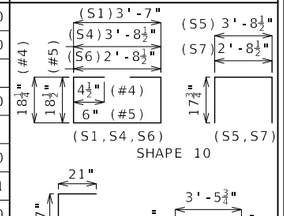
+ Indicates prestressing strand.

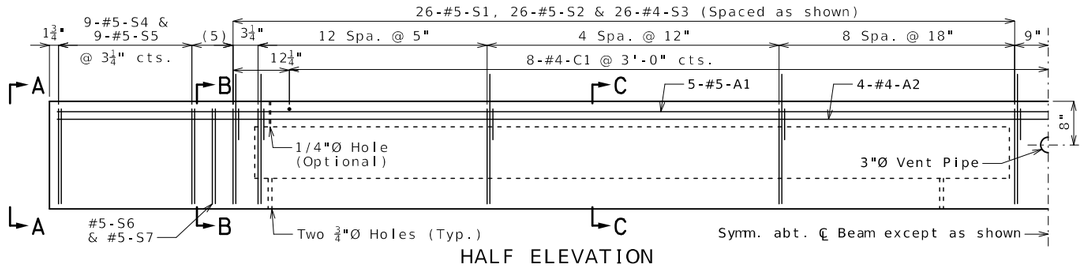
○ Indicates cut and shop bend with 2'-0" projection.



STRANDS AT BEAM ENDS

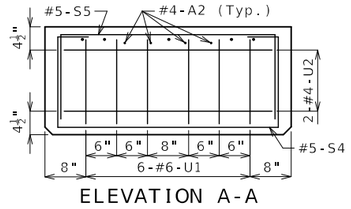
BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	49'-9"	20	
4	4 A2	49'-9"	20	
15	4 C1	3'-7"	20	
52	5 S1	7'-3"	10	
52	5 S2	6'-9"	51	
52	4 S3	4'-6"	50	
18	5 S4	7'-4"	10	
18	5 S5	6'-6"	10	
2	5 S6	6'-4"	10	
2	5 S7	5'-6"	10	
12	6 U1	4'-7"	10	
4	4 U2	8'-4"	21	





HALF ELEVATION

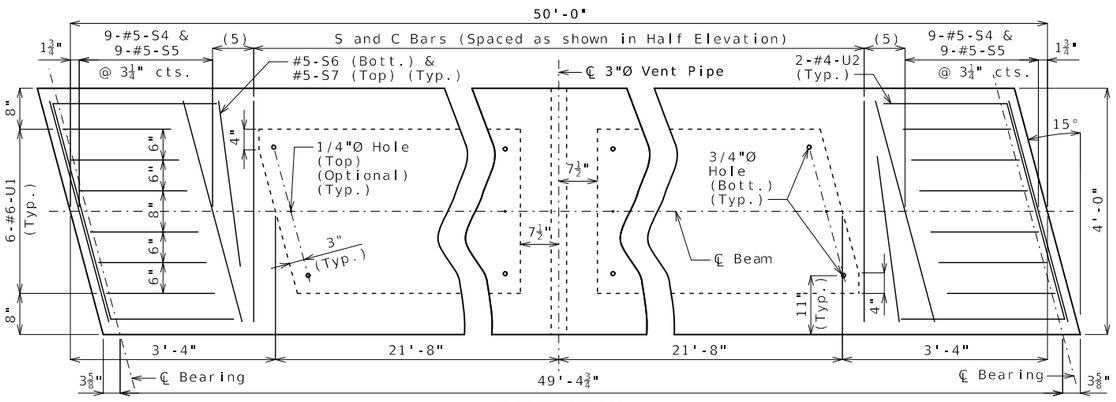
Dimensions taken along ℄ Beam.



ELEVATION A-A

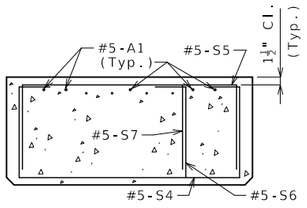
(5) 2 Spa. @ 4"

Strands not shown for clarity.



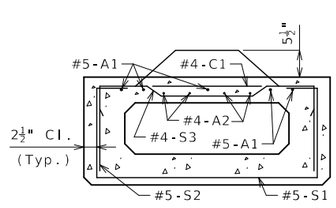
PART PLAN

Mirror about ℄ Beam for left advanced.



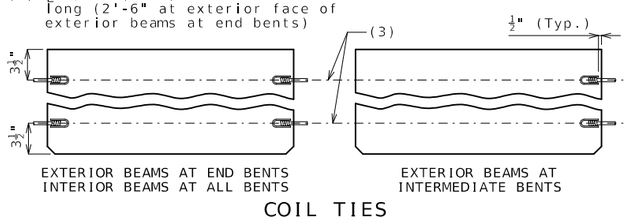
SECTION B-B

Mirror for left advanced.



SECTION C-C

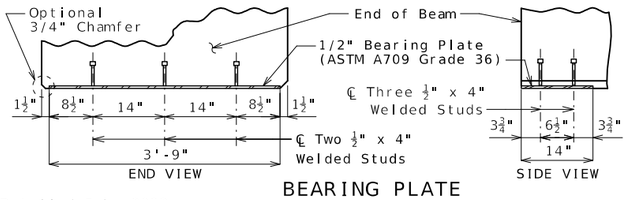
(3) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (2'-6" at exterior face of exterior beams at end bents)



EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES



BEARING PLATE

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

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

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

Minimum clearance to reinforcing shall be 1", 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 24 strands, 0.6"Ø Grade 270, with an initial prestress force of 1055 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

For Beam Camber Diagram, see Sheet No. 18.

For location of coil inserts at slab drains, see Sheet No. 17.

For location of coil ties at concrete bent diaphragms, see Sheets No. 5, 11 and 15.

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED 3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	13

COUNTY: PEMISCOT

JOB NO.: J9S3595

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9245

DESCRIPTION	DATE

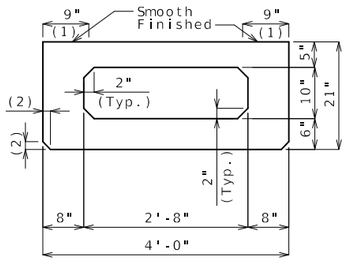
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Detailed Feb. 2023
Checked Feb. 2023

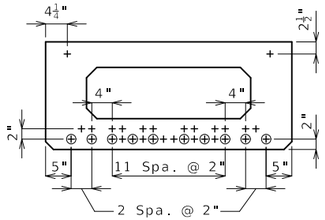
Note: This drawing is not to scale. Follow dimensions.

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



DIMENSIONS

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

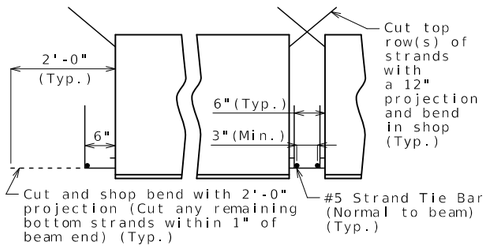


STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

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



STRANDS AT BEAM ENDS

BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	59'-2"	20	
4	4 A2	59'-2"	20	
19	4 C1	3'-7"	20	
52	5 S1	7'-3"	10	
52	5 S2	6'-9"	51	
52	4 S3	4'-6"	50	
18	5 S4	7'-4"	10	
18	5 S5	6'-6"	10	
2	5 S6	6'-4"	10	
2	5 S7	5'-6"	10	
12	6 U1	4'-7"	10	
4	4 U2	8'-4"	21	

(S1)3'-7" (S4)3'-8½" (S6)2'-8½" (#4) (#5) 18¼" 18½" 4½" (#4) 6" (#5) (S5) 3'-8½" (S7) 2'-8½" 17¼" (S1,S4,S6) (S5,S7) SHAPE 10

21" 17" (U1) SHAPE 10

3'-5¾" 2'-11¼" 2¼" 11¼" SHAPE 21

SHAPE 20

10" 2¼" 2¼" 6" 18" SHAPE 50

7¾" 7¾" 7¾" 17¾" 12" SHAPE 51

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.

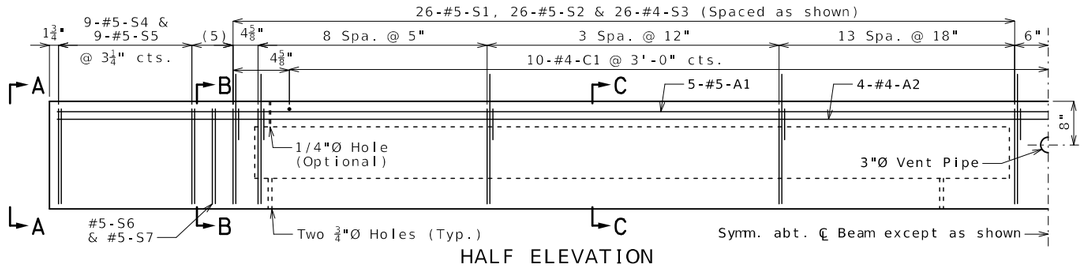
Actual lengths are measured along centerline of bar to the nearest inch.

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

All reinforcement shall be Grade 60.

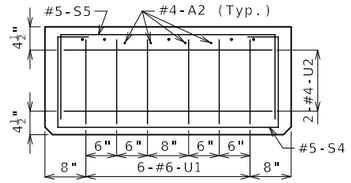
All S2 bars shall be epoxy coated.

(2) 1½" (Typ.) (¾" Optional)



HALF ELEVATION

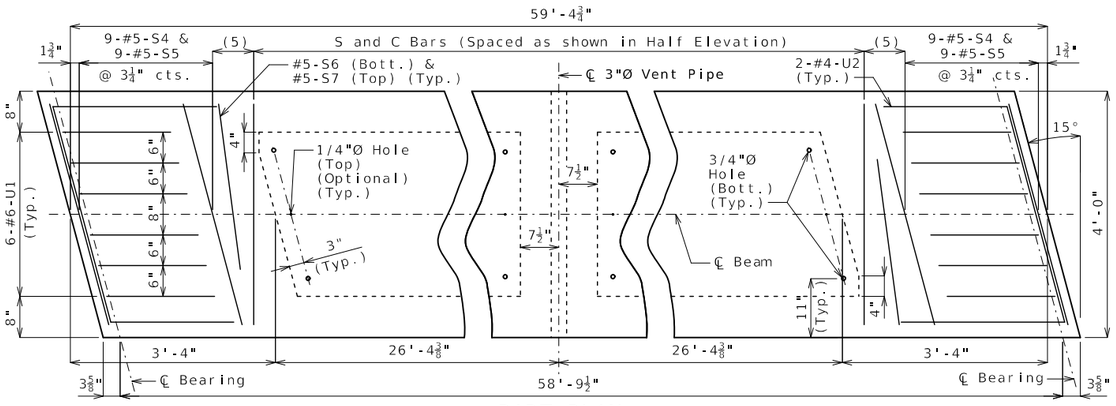
Dimensions taken along ℄ Beam.



ELEVATION A-A

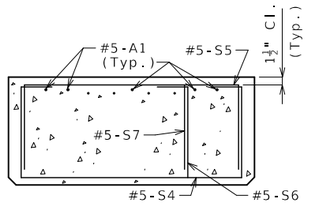
(5) 2 Spa. @ 4"

Strands not shown for clarity.



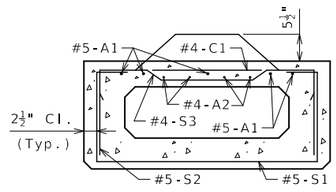
PART PLAN

Mirror about ℄ Beam for left advanced.



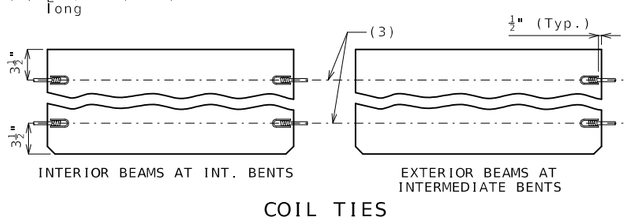
SECTION B-B

Mirror for left advanced.



SECTION C-C

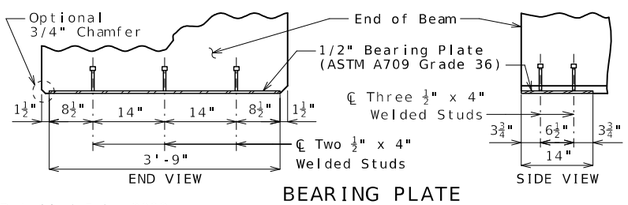
(3) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long



INTERIOR BEAMS AT INT. BENTS

EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES



BEARING PLATE

General Notes:

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

Use 30 strands, 0.6"Ø Grade 270, with an initial prestress force of 1318 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

For Beam Camber Diagram, see Sheet No. 18.

For location of coil inserts at slab drains, see Sheet No. 17.

For location of coil ties at concrete bent diaphragms, see Sheet No. 15.

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	14

COUNTY PEMISCOT

JOB NO. J9S3595

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9245

DESCRIPTION | DATE

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

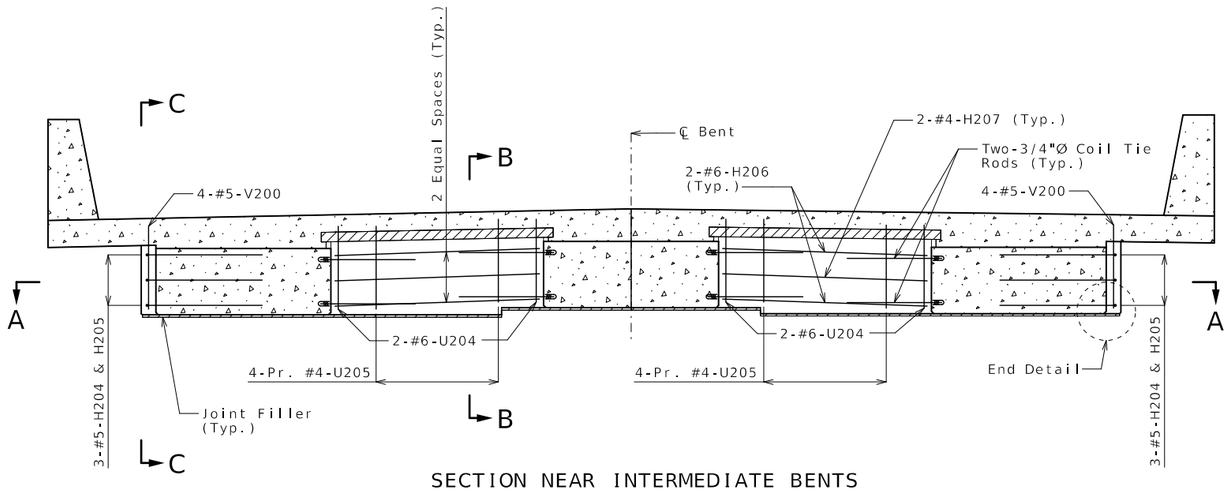
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

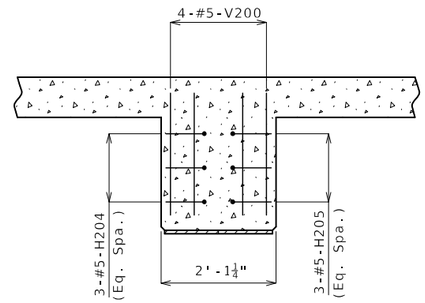
Detailed Feb. 2023
Checked Feb. 2023

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

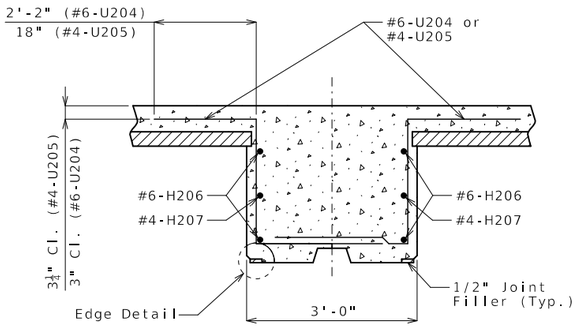
SPREAD BOX BEAMS - SPAN (2-3)



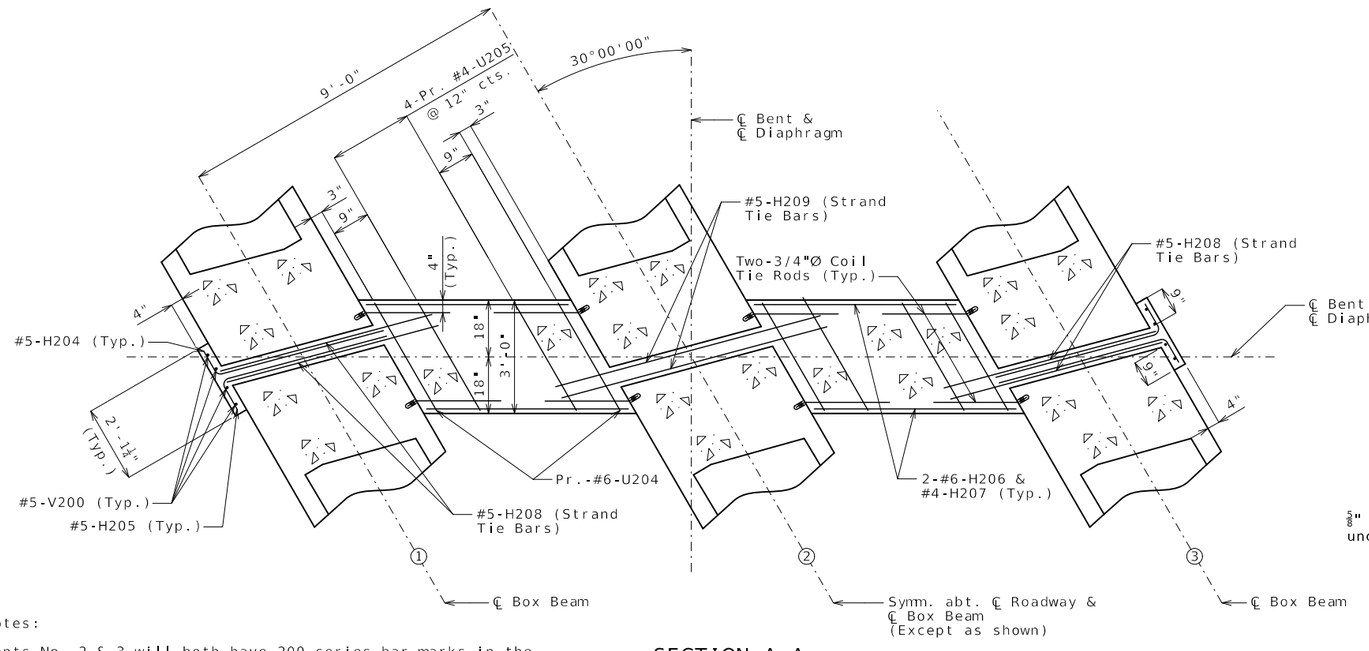
SECTION NEAR INTERMEDIATE BENTS



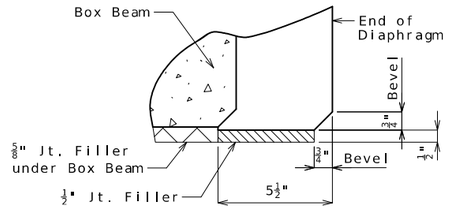
SECTION C-C



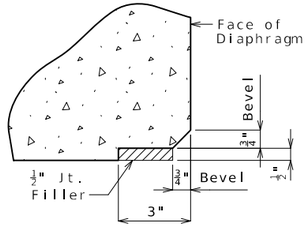
SECTION B-B



SECTION A-A



END DETAIL



EDGE DETAIL

Notes:

Bents No. 2 & 3 will both have 200 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 Sheet No. 14.

Diaphragms at Intermediate Bents shall be built vertical.

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

DIAPHRAGMS AT INTERMEDIATE BENTS NO. 2 & 3

Detailed Feb. 2023
Checked Feb. 2023

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

STATE OF MISSOURI
TED S. KOESTER
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PROFESSIONAL ENGINEER
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DATE PREPARED 3/3/2023

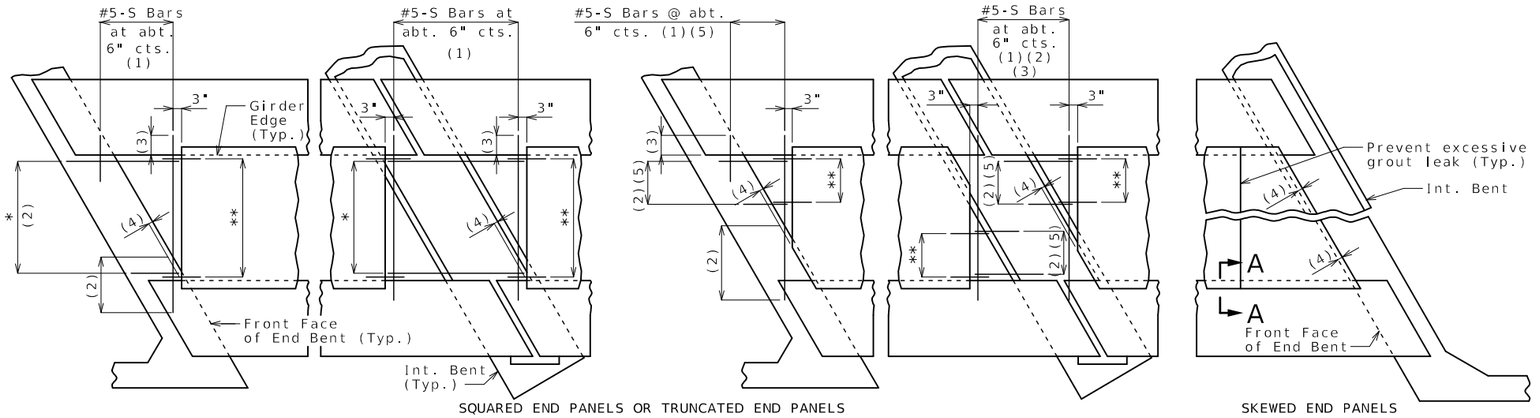
ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	15

COUNTY PEMISCOT
JOB NO. J9S3595
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9245

DESCRIPTION	DATE

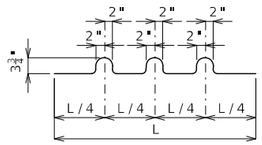
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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



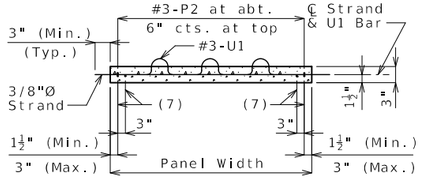
SQUARED END PANELS OR TRUNCATED END PANELS

SKEWED END PANELS



BENDING DIAGRAM FOR U1 BAR

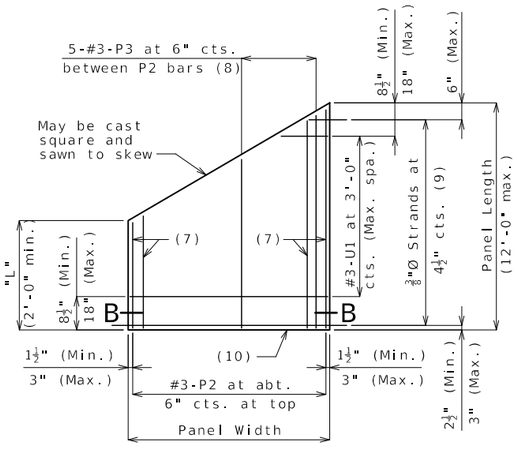
U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars.



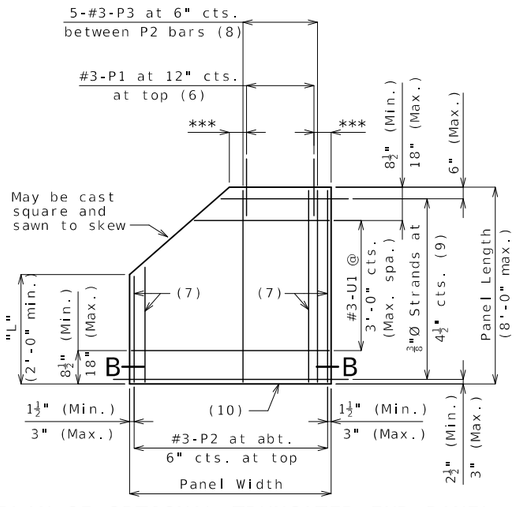
SECTION B-B

PLAN SHOWING PANELS PLACEMENT

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

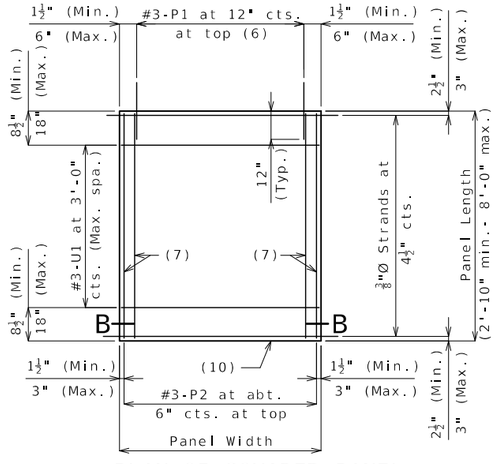


PLAN OF OPTIONAL SKEWED END PANEL

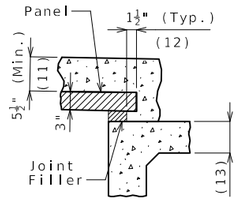


PLAN OF OPTIONAL TRUNCATED END PANEL

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



PLAN OF SQUARED PANEL



SECTION A-A

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

Reference Notes:

Plan of Panels Placement:
(1) S-bars shown are bottom steel in slab between panels and used with squared and truncated end panels only.

(2) Extend S-bars 18 inches beyond the front face of end bents and int. bents for squared and truncated end panels only.

(3) Extend S-bars 9 inches beyond edge of girder (Typ.).

(4) End panels shall be dimensioned 1/2" min. to 1 1/2" max. from the inside face of diaphragm.

(5) For truncated end panels, use a min. of #5-S bars at 6" crossings in openings, or min. 4x4-W7xW7.

Plans of Panels:
(6) For end panels only, P1 bars shall be 2'-0" in length and embedded 12". P1 bars will not be required for panels at squared integral end bents.

(7) #3-P2 bars near edge of panel at bottom (under strands).

(8) Use #3-P3 bars if panel is skewed 45° or greater.

(9) Any strand 2'-0" or shorter shall have a #4 reinforcing bar on each side of it, centered between strands. Strands 2'-0" or shorter may then be debonded at the fabricator's option.

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

Section A-A:
(11) Slab thickness over prestressed panels varies due to beam camber. In order to maintain minimum slab thickness, it may be necessary to raise the grade uniformly throughout the structure. No payment will be made for additional labor or materials required for necessary grade adjustment.

(12) Contractor shall ensure proper consolidation under and between panels.

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

General Notes:

Prestressed Panels:
Concrete for prestressed panels shall be Class A-1 with f'c = 6,000 psi, f'ci = 4,000 psi.

The top surface of all panels shall receive a scored finish with a depth of scoring of 1/8" perpendicular to the prestressing strands in the panels.

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

Initial prestressing force = 17.2 kips/strand.

The method and sequence of releasing the strands shall be shown on the shop drawings.

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

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

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

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

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

Reinforcing Steel:
All dimensions are out to out.

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

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

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

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

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

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

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

All reinforcement other than prestressing strands shall be epoxy coated.

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

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

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

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

Use Slab Haunching Diagram on Sheet No. 18 for determining thickness of joint filler within the limits noted in the table of Joint Filler Dimensions.

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

The same thickness of preformed fiber expansion joint material shall be used under any one edge of any panel except at locations where top flange thickness may be stepped. The maximum change in thickness between adjacent panels shall be 1/4 inch. The polystyrene bedding material may be cut with a transition to match haunch height above top of flange.

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

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

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DISTRICT	SHEET NO.
BR	16

COUNTY: PEMISCOT
JOB NO.: J9S3595
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9245

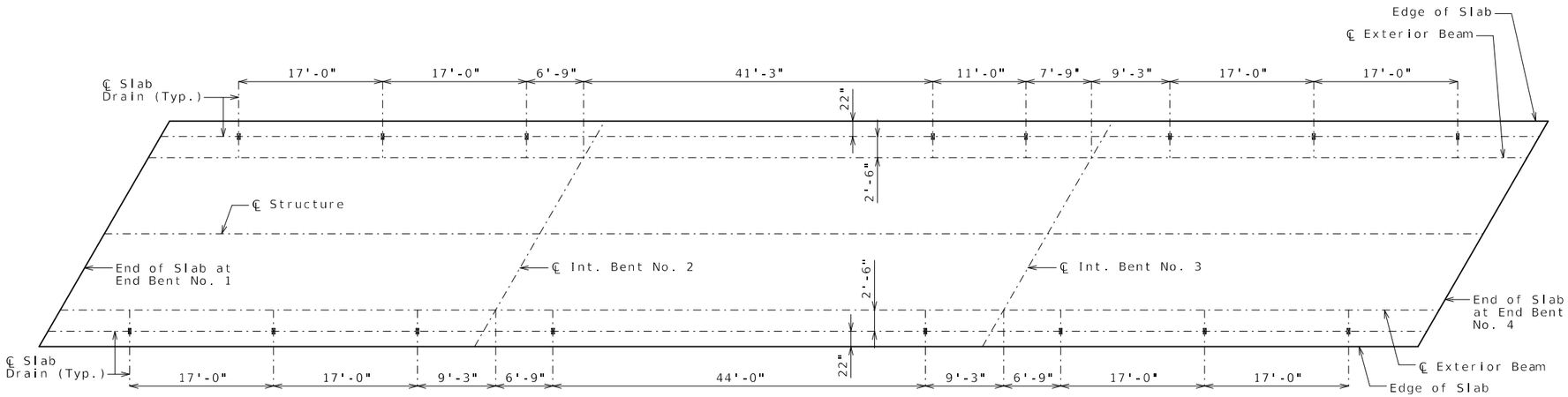
DATE	DESCRIPTION

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

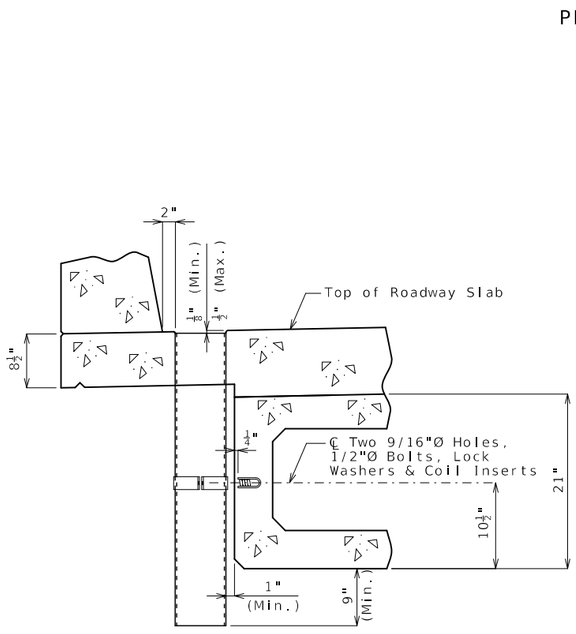
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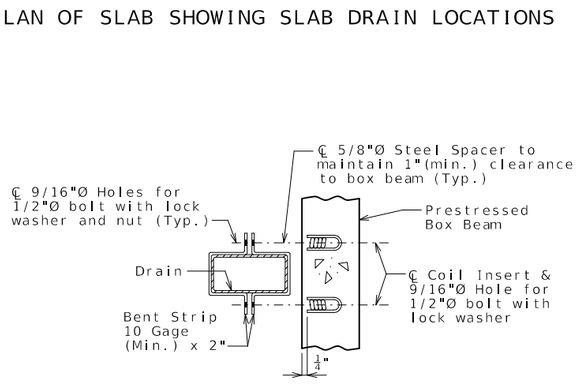
DETAILS OF PRESTRESSED PANELS



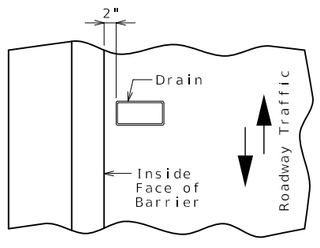
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



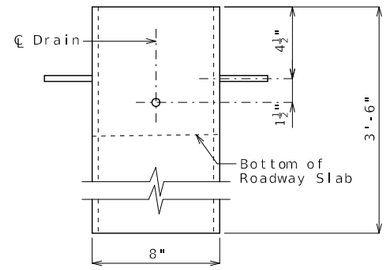
PART SECTION NEAR DRAIN



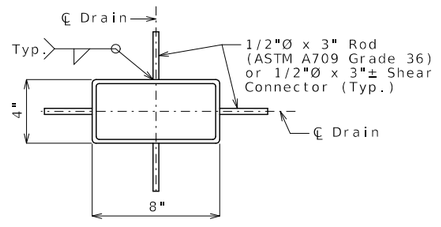
PART SECTION SHOWING BRACKET ASSEMBLY



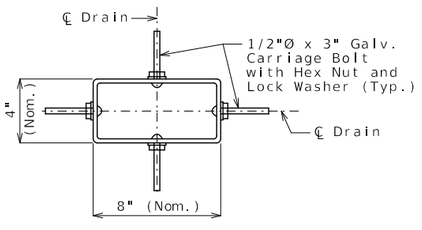
PART PLAN OF SLAB AT DRAIN



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.

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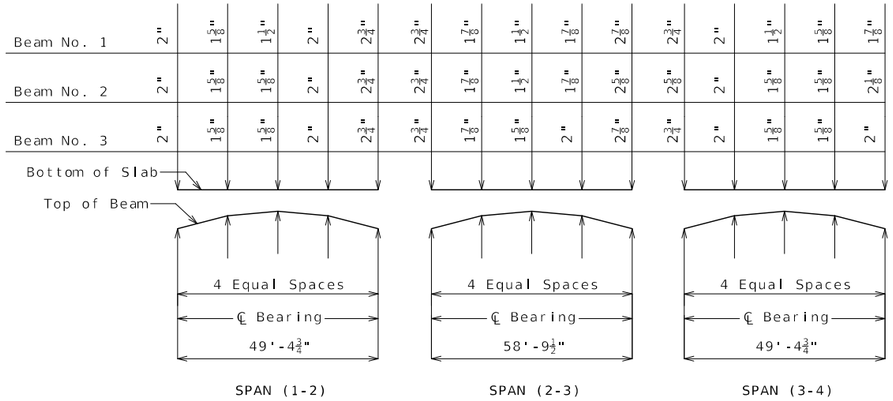
DATE PREPARED 3/3/2023
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DISTRICT BR | SHEET NO. 17
COUNTY PEMISCOT
JOB NO. J9S3595
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9245

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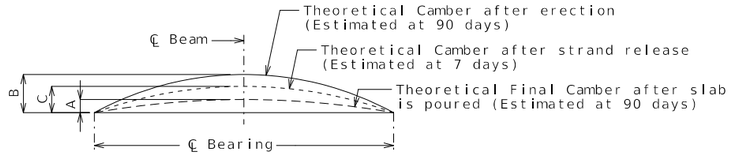
SLAB DRAINS



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	1⅛"	1⅞"	1¼"	1⅝"	3⅛"	2⅝"	1⅛"	1⅞"	1¼"
Interior	1⅛"			1⅝"			1⅛"		

BEAM CAMBER DIAGRAM

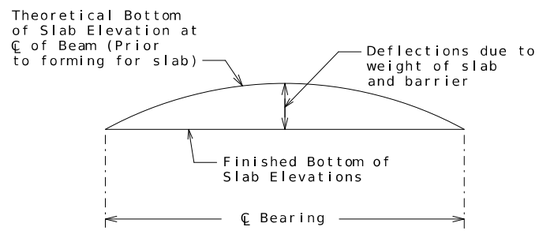
Conversion Factors for Beam Camber (Estimated at 90 days):

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) (49'-4¾" ℄ Brg. - ℄ Brg.)					Span (2-3) (58'-9½" ℄ Brg. - ℄ Brg.)					Span (3-4) (49'-4¾" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	270.17	270.28	270.35	270.37	270.35	270.35	270.45	270.48	270.42	270.29	270.28	270.27	270.22	270.13	269.99
2	270.30	270.41	270.48	270.51	270.50	270.50	270.61	270.64	270.59	270.46	270.46	270.46	270.41	270.32	270.19
3	270.10	270.22	270.30	270.33	270.33	270.33	270.44	270.48	270.44	270.32	270.32	270.32	270.28	270.19	270.07

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



TYPICAL SLAB ELEVATIONS DIAGRAM

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DISTRICT	SHEET NO.
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COUNTY: PEMISCOT

JOB NO.: J9S3595

CONTRACT ID.:

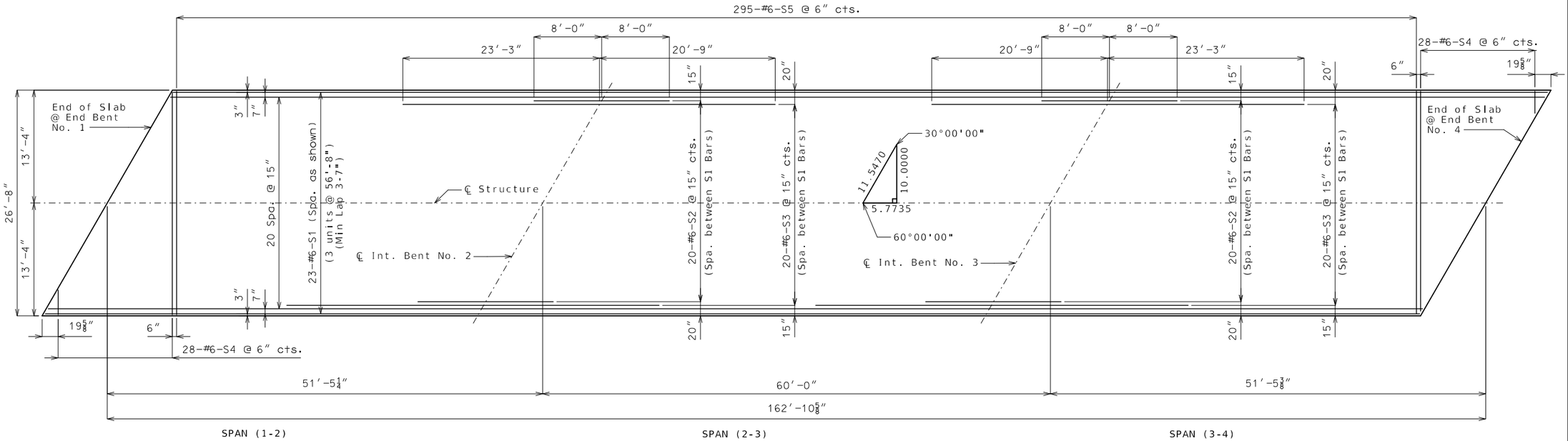
PROJECT NO.:

BRIDGE NO.: A9245

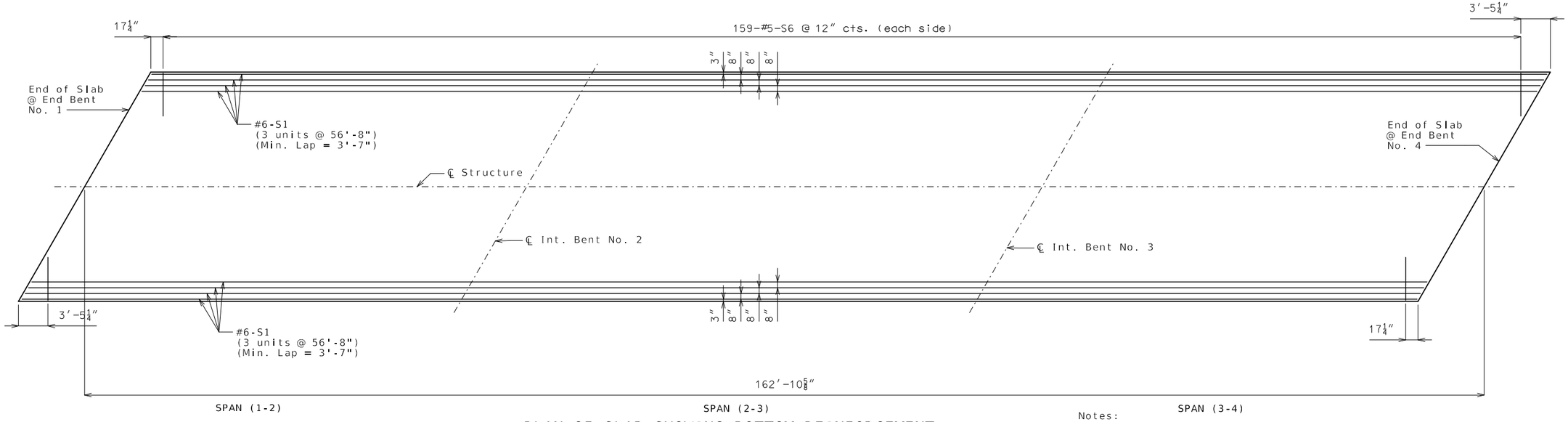
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PLAN OF SLAB SHOWING TOP REINFORCEMENT



PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

Notes:

For details and reinforcement of Type H Barrier, see Sheets No. 21 & 22.

Longitudinal slab dimensions are measured horizontally.

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

For details and location of Slab Drains, see Sheet No. 17.

For details of Precast Prestressed Panels, see Sheet No. 16.

For Theoretical Bottom of Slab Elevations, Box Beam Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 18.

SLAB DETAILS

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Checked Feb. 2023

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

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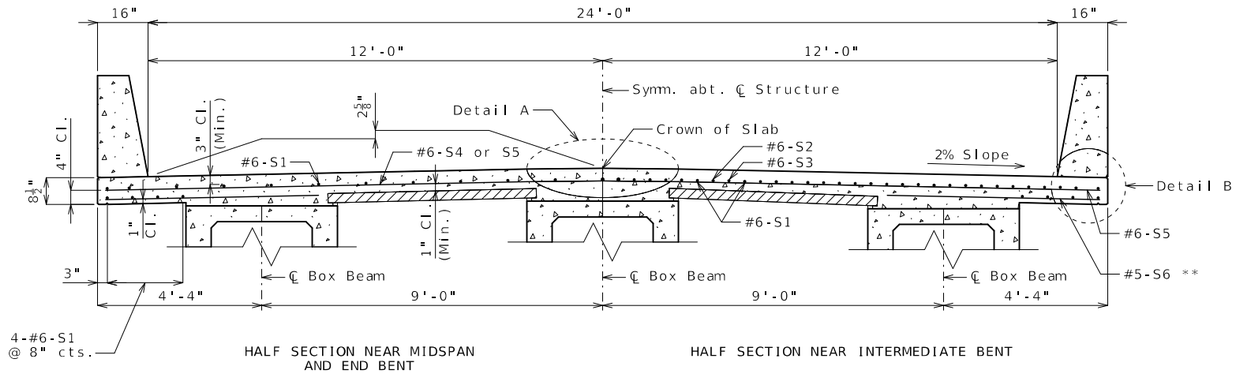
ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
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COUNTY PEMISCOT
JOB NO. J9S3595
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9245

DESCRIPTION	DATE

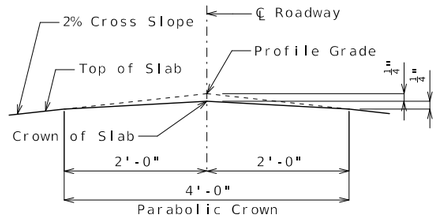
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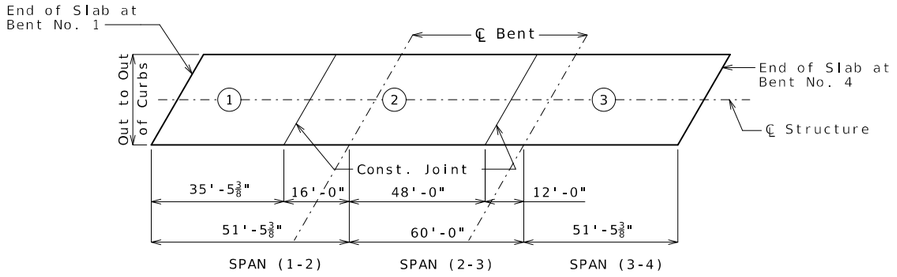


SECTION THRU SLAB

** Alternate bar shape available, see Sheet No. 21.



DETAIL A

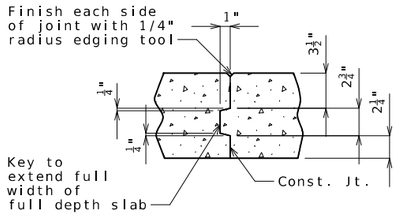


	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1	2	3	25
	End to 2	1 to 3	2 to End	
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1 + 2		3	25
	End to 3		2 to End	
Alternate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

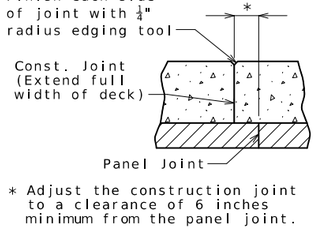
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

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

SLAB POURING SEQUENCE



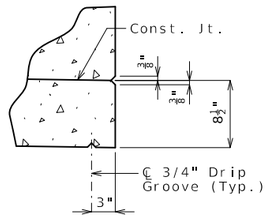
FULL DEPTH SLAB



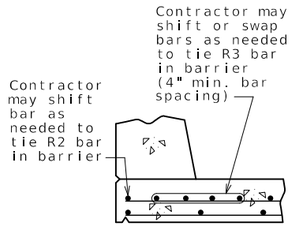
* Adjust the construction joint to a clearance of 6 inches minimum from the panel joint.

SLAB ON PANELS

SLAB CONSTRUCTION JOINT



DETAIL B



OPTIONAL SHIFTING TOP BARS AT BARRIER

Notes:

For details of Precast Prestressed Panels, see Sheet No. 16.

For details and reinforcement of Type H Barrier not shown, see Sheets No. 21 & 22.

For Theorectical Bottom of Slab Elevations, Girder Camber Diagram and Theorectical Slab Haunching Diagram, see Sheet No. 18.

For Plan of Slab Showing Reinforcement, see Sheet No. 19.

SLAB DETAILS

Detailed Feb. 2023
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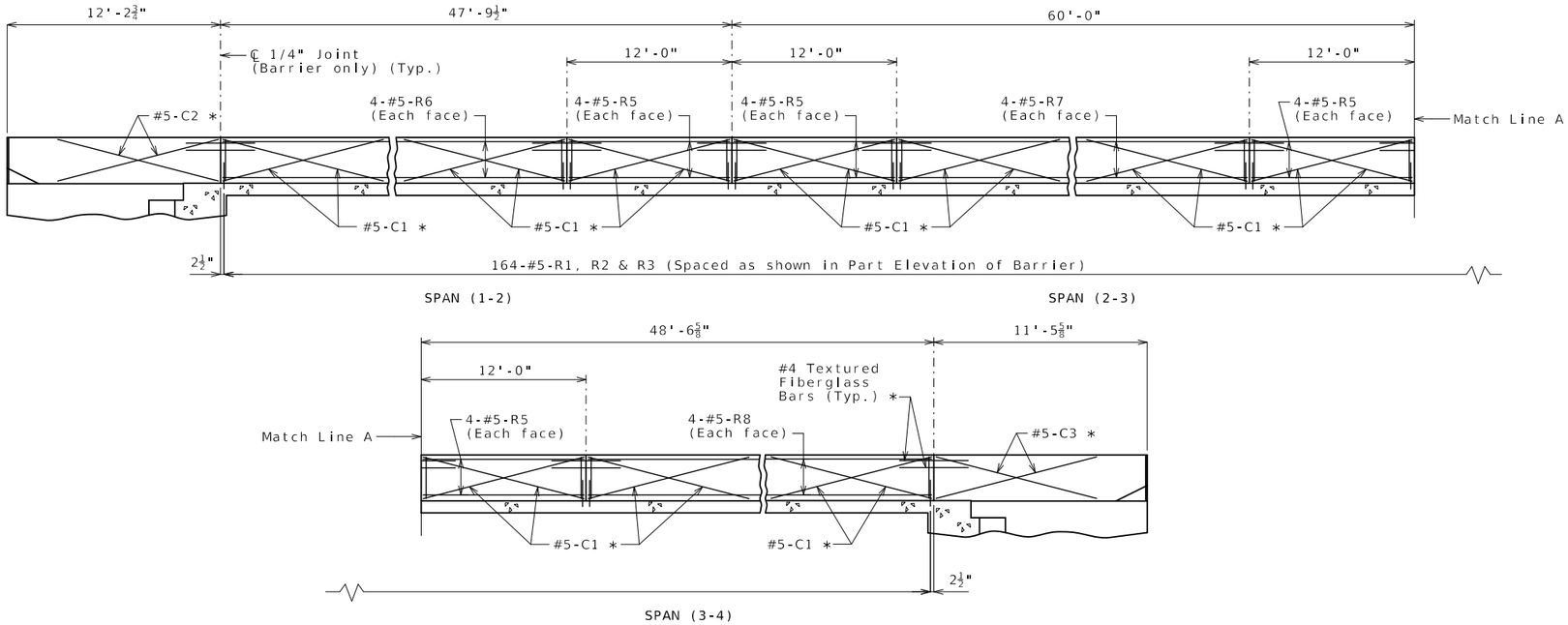
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BR	20

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JOB NO. J9S3595
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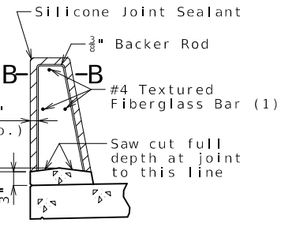
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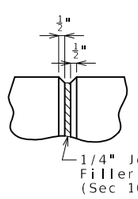
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

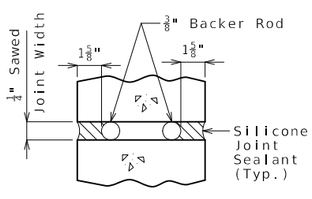
Longitudinal dimensions are horizontal.



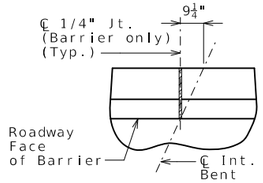
SECTION THRU
SAW CUT JOINT



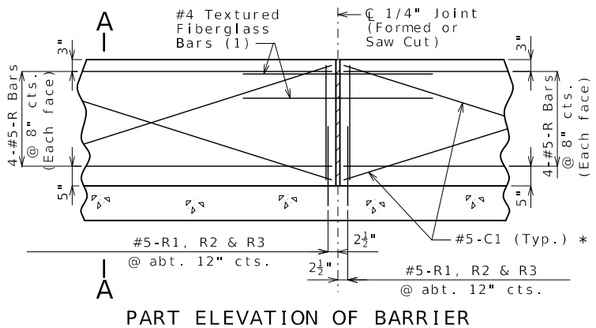
PART ELEVATION
AT FORMED JOINT



SECTION B-B

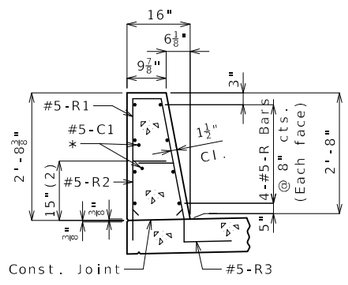


PART PLAN SHOWING
JOINT LOCATION



PART ELEVATION OF BARRIER

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

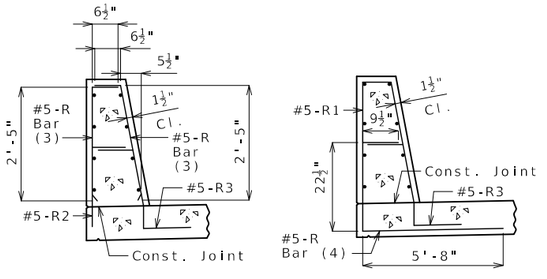


SECTION A-A

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.)

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

General Notes:

* Slip-formed option only.

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

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

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

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

TYPE H BARRIER

Detailed Feb. 2023
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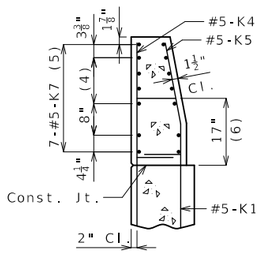
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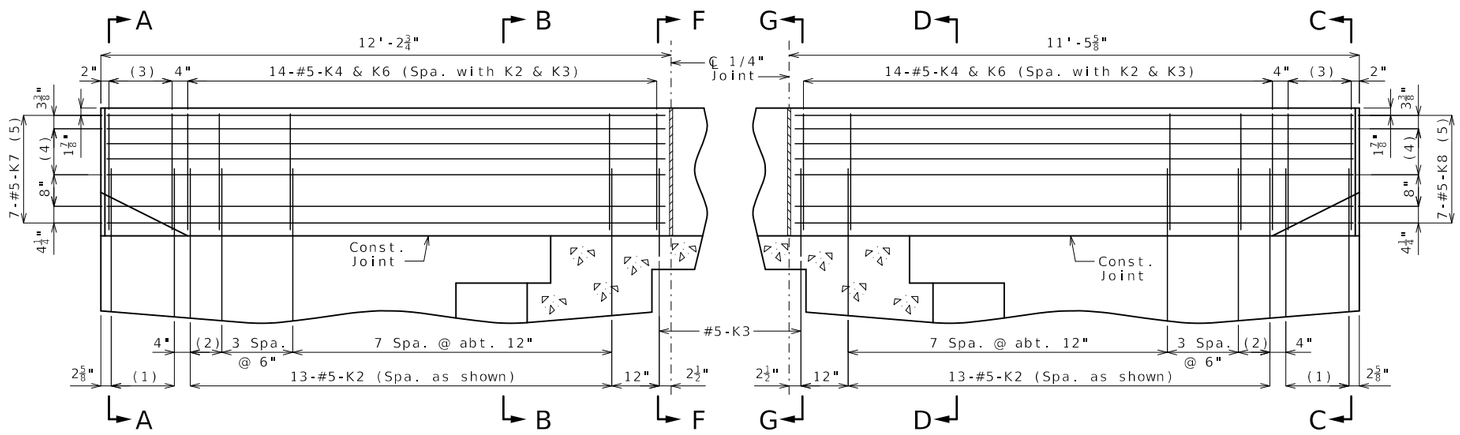
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JOB NO.: J9S3595
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9245

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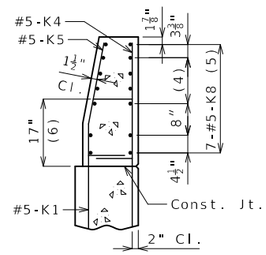
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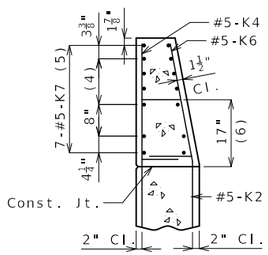
SECTION A-A



PART ELEVATION



SECTION C-C



SECTION B-B

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

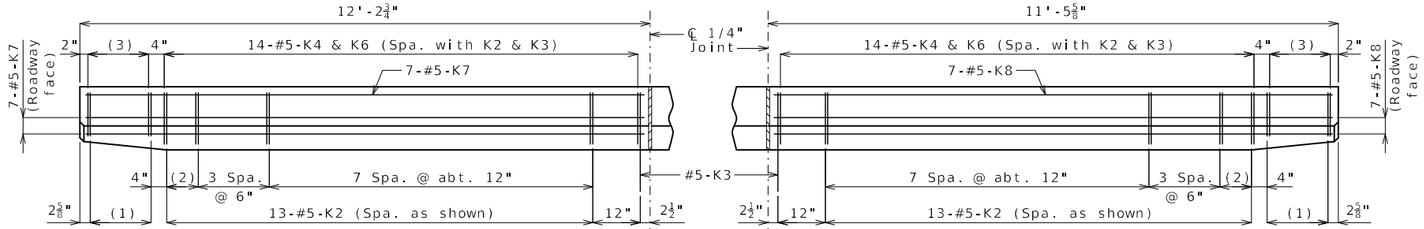
(2) 2 Spaces @ 4"

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

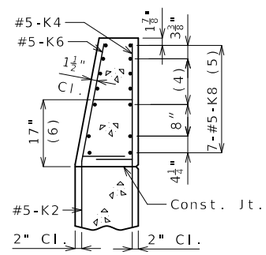
(4) 3 Spaces @ $3\frac{13}{16}$"

(5) Spaced as shown, each face

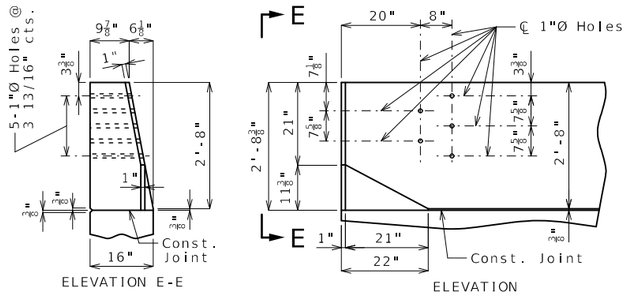
(6) To top of bar

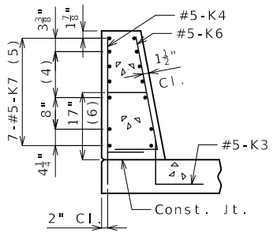


PART PLAN

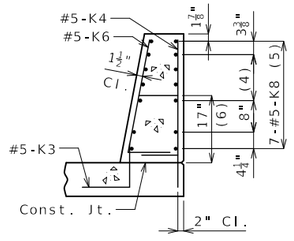


SECTION D-D



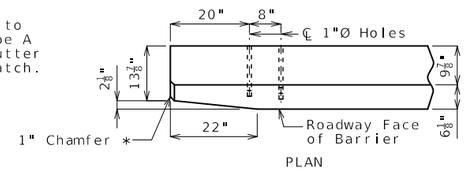


SECTION F-F



SECTION G-G

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



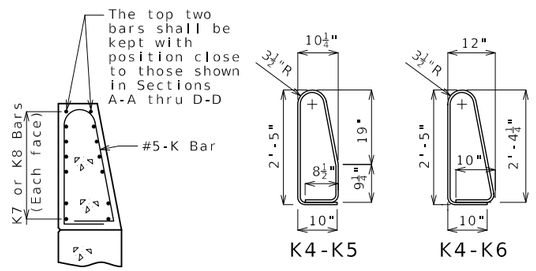
DETAILS OF GUARD RAIL ATTACHMENT

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. 2023
Checked Feb. 2023

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	22

COUNTY PEMISCOT

JOB NO. J9S3595

CONTRACT ID.

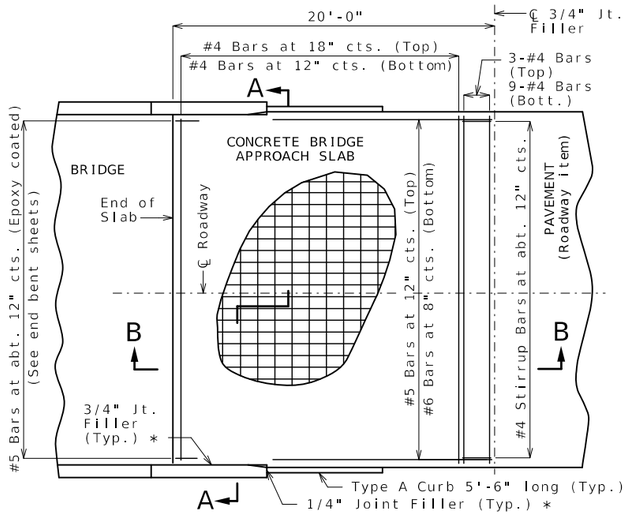
PROJECT NO.

BRIDGE NO. A9245

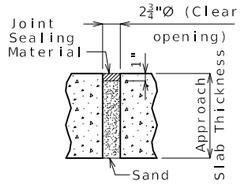
DATE	DESCRIPTION

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

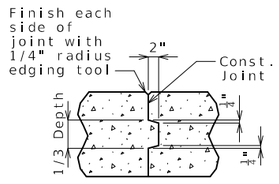
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



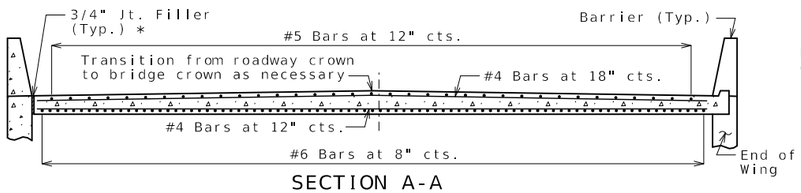
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



UNDERSEAL ACCESS HOLE DETAIL
(If required)

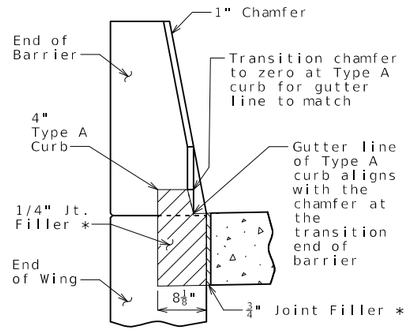


CONSTRUCTION JOINT DETAIL



SECTION A-A

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



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

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

General Notes:

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

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

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

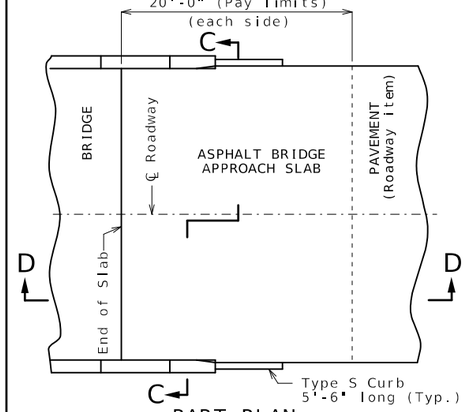
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

☐ Concrete Bridge Approach Slab
☐ Asphalt Bridge Approach Slab

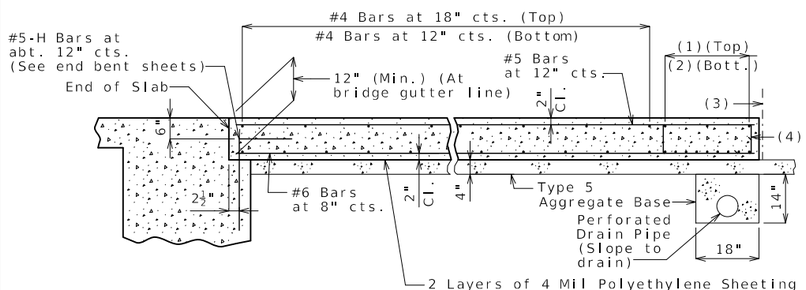
Notes For Asphalt Slab Only:

Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, underdrain 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.

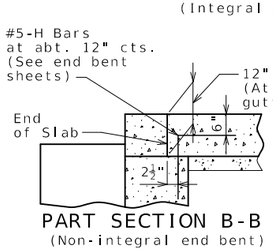


PART PLAN
(Squared structure shown, skewed structure similar)

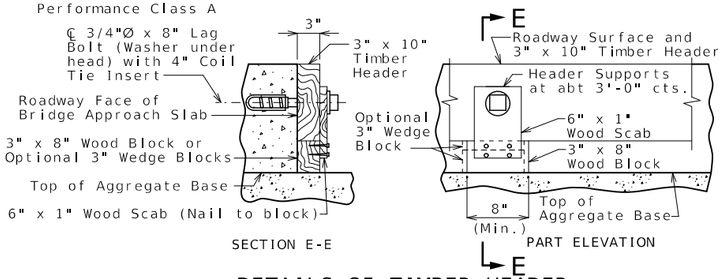


(1) 3-#4 Bars
(2) 9-#4 Bars
(3) ℄ 3/4" Jt. Filler
(4) #4 Stirrup Bars at abt. 12" cts.; 2'-0"x 8" (Min.) out to out; Actual length = 5'-10" (Min.); 90° stirrup hook at bottom; Stirrup height (8") and actual length vary due to crown.

SECTION B-B
(Integral end bent)



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

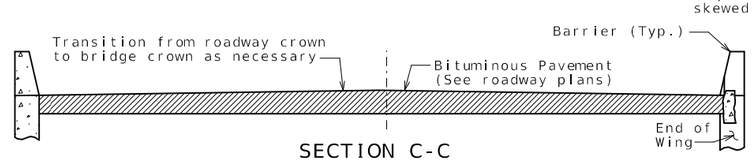


SECTION E-E

PART ELEVATION

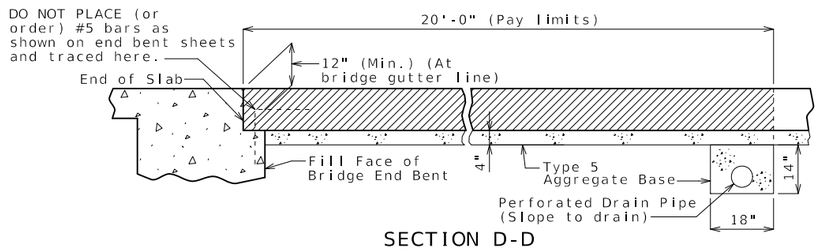
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

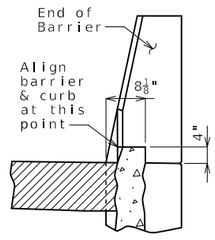


SECTION C-C

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. 2023
Checked Feb. 2023

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 3/3/2023
ROUTE: K | STATE: MO
DISTRICT: BR | SHEET NO.: 23
COUNTY: PEMISCOT
JOB NO.: J9S3595
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9245

DESCRIPTION | DATE

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

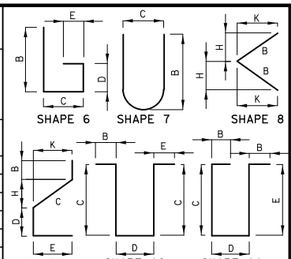
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SUBSTRUCTURE																									
			INT. BENT																									
			NO. 2 & 3																									
32	6	D200	BEAM		20		X			2	6.000													2	6	2	6	120
18	8	H200	BEAM		18		X			26	5.000													28	3	28	3	1358
24	6	H201	BEAM		18		X			2	0.000													3	4	3	4	120
20	6	H202	BEAM		20		X			26	5.000													26	5	26	5	794
28	6	H203	BEAM		10	S	X					3	0.000	3	1.750									9	2	8	10	371
22	5	U200	BEAM		10	S	X					3	3.000	3	3.000									9	9	9	7	220
32	4	U201	BEAM		10	S	X					6.000		3	3.000									4	3	4	1	87
32	5	U202	BEAM		13	S	X			3	3.000	3	3.000	3	3.000	3	3.000							13	11	13	7	453
308	4	U501	PILES		34	S	X			12.000														4	0	4	0	823
84	7	V501	PILES		17		X			19	2.000													20	0	20	0	3434
			SUPERSTR																									
			END BEND NO																									
			1																									
3	6	F100	DIAPHRAGM	E	21					3	0.250	9	2.000							2	7.500	18.000	12	2	11	9	53
7	6	F101	WING	E	15					2	3.125	3	10.000	2	3.000	19.125		19.125		23.500		13.500		8	4	8	3	87
7	6	F102	WING	E	15					2	3.125	7	0.000	2	3.000	19.125		19.125		13.500		23.500		11	6	11	5	120
3	6	F103	DIAPHRAGM	E	15					3	0.250	7	8.000							2	7.500	18.000		10	8	10	8	48
8	6	H100	BEAM	E	20					30	6.000													30	6	30	6	366
4	6	H101	BEAM	E	20					30	6.000													30	6	30	6	183
8	6	H102	BEAM	E	18					5	0.000													6	4	6	4	76
3	6	H103	DIAPHRAGM	E	20					30	6.000													30	6	30	6	137
3	6	H104	DIAPHRAGM	E	15					2	4.000	2	4.000							2	0.250	14.000		4	8	4	7	21
3	6	H105	DIAPHRAGM	E	21	S				3	1.500	2	4.000							2	8.875	18.000		5	6	5	1	23
6	6	H106	DIAPHRAGM	E	20					5	5.000													5	5	5	5	49
4	6	H107	DIAPHRAGM	E	20					30	6.000													30	6	30	6	183
3	5	H108	STRAND TIE	E	23						15.000	4	2.000		15.000		3.875		14.500		3.875		14.500	6	8	6	8	21
24	5	H109	APPROACH TIE	E	19	S				2	0.000		15.000											3	3	3	2	79
14	6	H110	WING	E	19	S				9	8.000		12.000											10	8	10	6	221
14	6	H111	WING	E	19	S				11	2.000		12.000											12	2	12	0	252
8	8	H112	WING	E	19					10	6.000		15.000											11	9	11	7	247
8	8	H113	WING	E	19					11	10.000		15.000											13	1	12	11	276
3	4	U100	BEAM	E	10	S						2	10.000	3	2.000									8	10	8	8	17
10	5	U101	BEAM	E	31	S				4	3.000	3	2.000	4	3.000									12	7	12	5	130
26	4	U102	BEAM	E	13	S				3	2.000	2	8.000	3	2.000	2	8.000							12	5	12	2	211
18	6	U103	DIAPHRAGM	E	19	S					13.000	3	2.000											4	3	4	1	110
18	5	U104	DIAPHRAGM	E	31	S				2	0.000	2	7.000	2	0.000									7	6	7	4	138
37	6	U105	DIAPHRAGM	E	12					2	3.000	5	0.000											7	11	7	9	431
110	4	U500	PILES	E	34	S				12.000														4	0	4	0	294
16	5	V100	BEAM	E	17					4	3.000													4	10	4	10	81
18	6	V101	DIAPHRAGM	E	19	S				13.000		10.000												0	23	0	21	47
36	6	V102	WING	E	20					5	3.000													5	3	5	3	284
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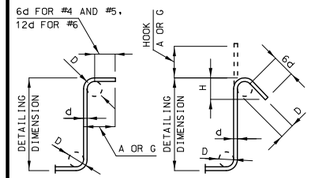
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			DIAPHRAGMS																									
			AT INT. BENT																									
			NO. 2 & 3																									
12	5	H204	DIAPHRAGM	E	15	S				10.000		5	5.000							9.625		2.625		6	3	6	2	77
12	5	H205	DIAPHRAGM	E	21	S				11.250		5	5.000							10.875		2.875		6	4	6	2	77
16	6	H206	DIAPHRAGM	E	20					5	5.000													5	5	5	5	130
8	4	H207	DIAPHRAGM	E	20					5	5.000													5	5	5	5	29
8	5	H208	STRAND TIE	E	20					5	6.000													5	6	5	6	46
4	5	H209	STRAND TIE	E	20					6	8.000													6	8	6	8	28
16	6	U204	DIAPHRAGM	E	28	S						3	2.000	2	0.000	2	2.000							7	4	7	0	168
32	4	U205	DIAPHRAGM	E	28	S						3	0.000	2	0.000	18.000								6	6	6	4	135
16	5	V200	DIAPHRAGM	E	20					2	2.000													2	2	2	2	36
			END BEND NO																									
			4																									
3	6	F400	DIAPHRAGM	E	21					3	0.250	9	2.000							2	7.500	18.000		12	2	11	9	53
7	6	F401	WING	E	15					2	3.125	3	10.000	2	3.000	19.125		19.125		23.500		13.500		8	4	8	3	87
7	6	F402	WING	E	15					2	3.125	7	0.000	2	3.000	19.125		19.125		13.500		23.500		11	6	11	5	120
3	6	F403	DIAPHRAGM	E	15					3	0.250	7	8.000							2	7.500	18.000		10	8	10	8	48
8	6	H400	BEAM	E	20					30	6.000													30	6	30	6	366
4	6	H401	BEAM	E	20					30	6.000													30	6	30	6	183
8	6	H402	BEAM	E	18					5	0.000													6	4	6	4	76
3	6	H403	DIAPHRAGM	E	20					30	6.000													30	6	30	6	137
3	6	H404	DIAPHRAGM	E	15					2	4.000	2	4.000							2	0.250	14.000		4	8	4	7	21
3	6	H405	DIAPHRAGM	E	21	S				3	1.500	2	4.000							2	8.875	18.000		5	6	5	1	23
6	6	H406	DIAPHRAGM	E	20					5	5.000													5	5	5	5	49
4	6	H407	DIAPHRAGM	E	20					30	6.000													30	6	30	6	183
3	5	H408	STRAND TIE	E	23						15.000	4	2.000		15.000		3.875		14.500		3.875		14.500	6	8	6	8	21
24	5	H409	APPROACH TIE	E	19	S				2	0.000		15.000											3	3	3	2	79
14	6	H410	WING	E	19	S				9	8.000		12.000											10	8	10	6	221
14	6	H411	WING	E	19	S				11	2.000		12.000											12	2	12	0	252
8	8	H412	WING	E	19					10	6.000		15.000											11	9	11	7	247
8	8	H413	WING	E	19					11	10.000		15.000											13	1	12	11	276
3	4	U400	BEAM	E	10	S						2	10.000	3	2.000									8	10	8	8	17
10	5	U401	BEAM	E	31	S				4	3.000	3	2.000	4	3.000									12	7	12	5	130
26	4	U402	BEAM	E	13	S				3	2.000	2	8.000	3	2.000	2	8.000							12	5	12	2	211
18	6	U403	DIAPHRAGM	E	19	S					13.000	3	2.000											4	3	4	1	110
18	5	U404	DIAPHRAGM	E	31	S				2	0.000	2	7.000	2	0.000									7	6	7	4	138
37	6	U405	DIAPHRAGM	E	12					2	3.000	5	0.000											7	11	7	9	431
110	4	U500	PILES	E	34	S				12.000														4	0	4	0	294
16	5	V400	BEAM	E	17					4	3.000													4	10	4	10	81
18	6	V401	DIAPHRAGM	E	19	S				13.000		10.000												0	23	0	21	47
36	6	V402	WING	E	20					5	3.000													5	3	5	3	284
30	7	V500	PILES	E	17					19	2.000													20	0	20	0	1226
			SLAB																									
93	6	S1	SLAB	E	20					56	8.000													56	8	56	8	7916
40	6	S2	SLAB	E	20					16	0.000													16	0	16	0	961



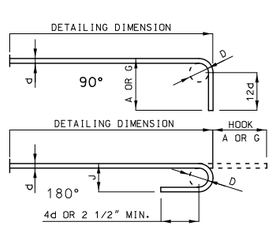
SPOT WELD AASHTO M32 SIZE W5 WIRE (TYP.)

BENDING DIAGRAMS



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

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



END HOOK DIMENSIONS				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS		90° HOOKS
		A OR G	J	A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

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

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.

NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.

REINFORCING STEEL (GRADE 60) FY = 60.000 PSI.

Detailed Feb. 2023
Checked Feb. 2023

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

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/3/2023
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 24
COUNTY PEMISCOT
JOB NO. J9S3595
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9245

DESCRIPTION | DATE

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

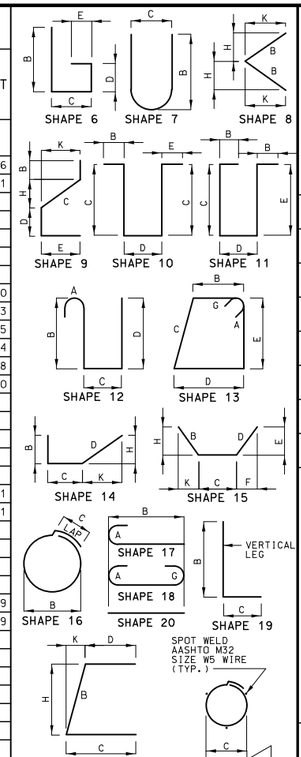
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BILL OF REINFORCING STEEL

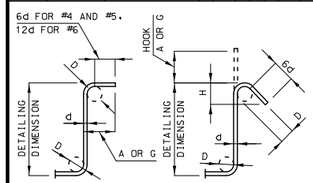
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
40	6	S3	SLAB	E	20					44	0.000													44	0	44	0	2644
56	6	S4	SLAB	E	20			V	2	25	10.000													25	10	25	10	
			INCREMENT =							2	5.000													2	5	2	5	1188
			10.375 INCH																									
295	6	S5	SLAB	E	20					26	5.000													26	5	26	5	11705
318	5	S6	SLAB	E	20					5	8.000													5	8	5	8	1879
			TYPE H																									
			BARRIER																									
20	5	K1	BARRIER	E	27	S				3	8.000	9.250		14.250		3	2.750			14.250		1.000		8	10	8	8	181
52	5	K2	BARRIER	E	27	S				3	8.000	9.250		14.500		2	5.750			14.250		2.750		8	2	7	11	429
4	5	K3	BARRIER	E	27	S					22.500	9.250		14.500		7.750		12.000		14.250		2.750		5	6	5	3	22
76	5	K4	BARRIER	E	19	S				2	5.000	10.000												3	3	3	2	251
20	5	K5	BARRIER	E	14	S					8.250	9.500		19.250						4.250		18.750		3	1	3	0	63
56	5	K6	BARRIER	E	21	S				2	4.875	10.000								2	4.250	6.000		3	3	3	1	180
28	5	K7	BARRIER	E	20					11	11.000													11	11	11	11	348
28	5	K8	BARRIER	E	20					11	2.000													11	2	11	2	326
328	5	R1	BARRIER	E	14	S				2	5.000	6.500		2	5.500					2	5.000	5.500		5	5	5	3	1796
328	5	R2	BARRIER	E	19	S					20.500	9.500												2	6	2	5	827
328	5	R3	BARRIER	E	27	S						9.500		15.250		5.000		12.000		15.000		3.000		3	6	3	4	1140
64	5	R5	BARRIER	E	20					11	9.000													11	9	11	9	784
16	5	R6	BARRIER	E	20					35	6.000													35	6	35	6	592
16	5	R7	BARRIER	E	20					35	9.000													35	9	35	9	597
16	5	R8	BARRIER	E	20					36	3.000													36	3	36	3	605
			SLIP FORM																									
40	5	C1	SLIP FORM	E	20					12	0.000													12	0	12	0	501
4	5	C2	SLIP FORM	E	20					9	9.000													9	9	9	9	41
4	5	C3	SLIP FORM	E	20					8	9.000													8	9	8	9	37
			TOTALS																									
	4																											910
	4			E																								1208
	5																											673
	5			E																								11761
	6																											1405
	6			E																								30094
	7																											3434
	7			E																								2452
	8																											1358
	8			E																								1046
			TOTAL																									7780
			TOTAL	E																								46561
			Slab on																									
			Girder																									
	4			E																								1208
	5			E																								3041
	6			E																								30094
	7			E																								2452

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
	8			E																								
			TOTAL																									37841
			Reinforcing																									
			Steel																									
			(Bridges)																									
	4																											910
	5																											673
	6																											1405
	7																											3434
	8																											1358
			TOTAL																									7780
			Type H																									
			Barrier																									
	5			E																								8141
			TOTAL																									8141
			Slip Form																									
			Option																									
	5			E																								579
			TOTAL																									579



BENDING DIAGRAMS

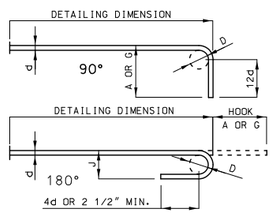


STIRRUP HOOK DIMENSIONS

GRADES 40 - 50 - 60 KSI

BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	135° HOOK APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

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



END HOOK DIMENSIONS

BAR SIZE	D (IN.)	ALL GRADES 180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

NOTE:
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E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.

NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

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REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

Detailed Feb. 2023
Checked Feb. 2023

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

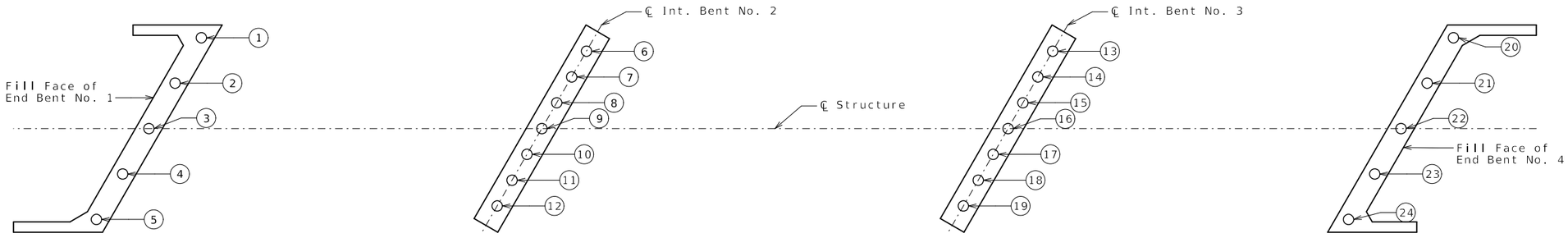
STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/3/2023
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 25
COUNTY PEMISCOT
JOB NO. J9S3595
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9245

DESCRIPTION | DATE

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

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



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

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No. 1
1					
2					
3					
4					
5					
					Intermediate Bent No. 2
6					
7					
8					
9					
10					
11					
12					
					Intermediate Bent No. 3
13					
14					
15					
16					
17					
18					
19					

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No. 4
20					
21					
22					
23					
24					

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal
D. PDA test pile
E. Minimum tip elevation controlled
(Use when actual blow count is less than PDA blow count due to minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating actual value is higher than PDA value.)

This sheet to be completed by MoDOT construction personnel.

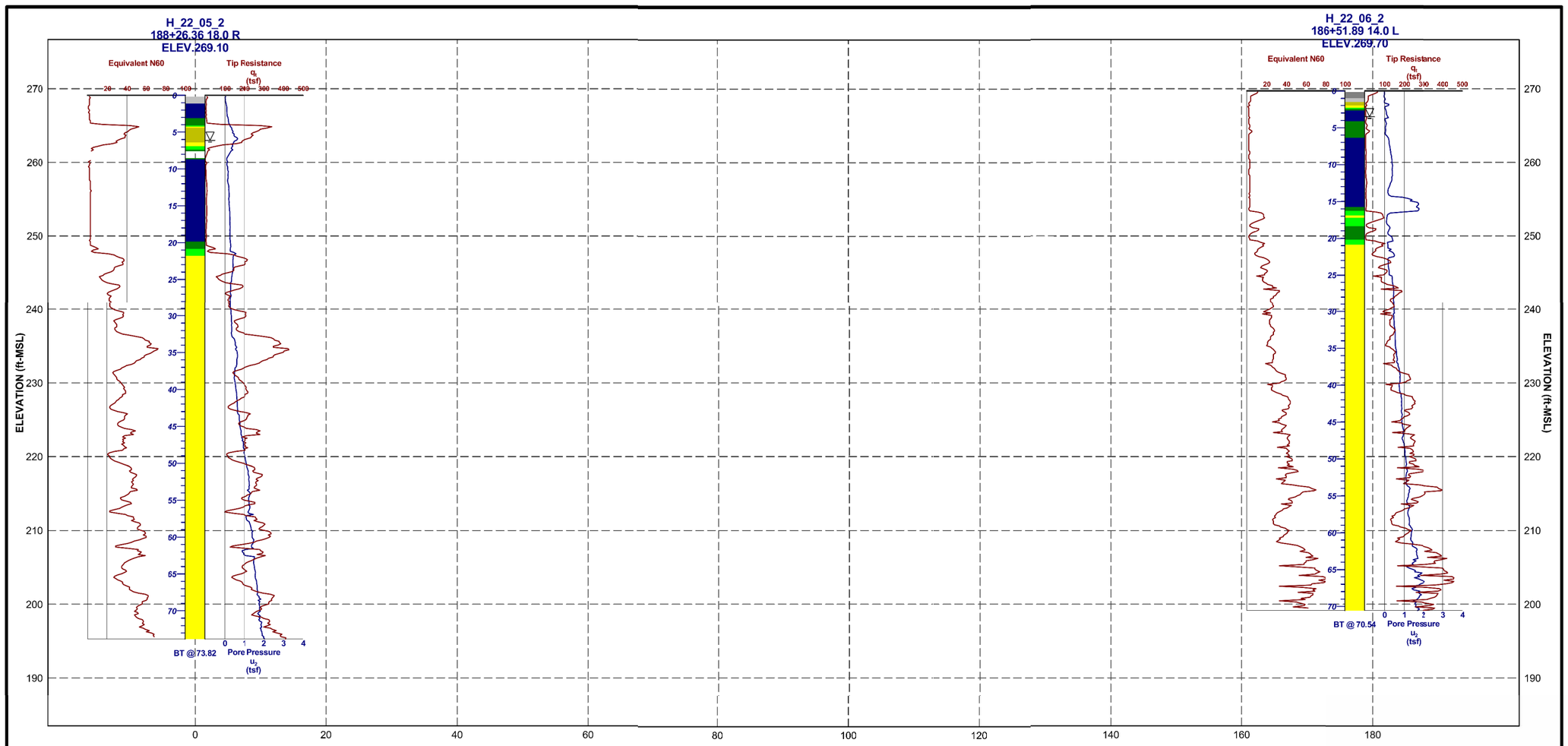
STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 3/3/2023
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 26
COUNTY PEMISCOT
JOB NO. J9S3595
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9245

DESCRIPTION | DATE

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

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

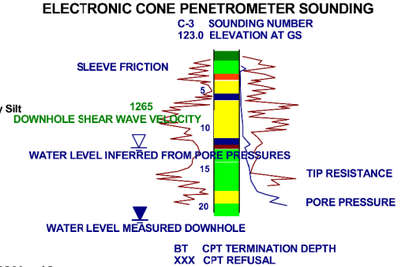


CPT MATERIAL GRAPHICS

- Sensitive, Fine Grained Soils
- Organic Soils, Peats
- Clays-Clay to Silty Clay
- Silt Mixtures-Clay Silt tc Silty Clay
- Sand Mixtures-Silty Sand to Sandy Silt
- Sands-Clean Sand to Silty Sand
- Gravelly Sand to Sand
- Very Stiff Clay to Clayey Sand
- Very Stiff Fine Grained Soils

Robertson et al (1990) Q_t vs F_r - MAI = 10

ELECTRONIC CONE PENETROMETER SOUNDING



SUBSURFACE PROFILE

PROJECT:

LOCATION: 0.75 Miles West of Netherlands

PROJECT NUMBER J9S3595_A9245

DATE 10/13/22

BORING DATA

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

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

Detailed Feb. 2023
Checked Feb. 2023

STATE OF MISSOURI
TED S. KOESTER
NUMBER PE-2013000591
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED 3/3/2023

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	27

COUNTY PEMISCOT

JOB NO. J9S3595

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9245

DESCRIPTION	DATE

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

DESIGN DESIGNATION

A.A.D.T. - 2023 = 332
A.A.D.T. - 2043 = 371
D.H.V. =9.42%
T = 4.45%
V = 55 M.P.H.
D = 50.0%
FUNCTIONAL CLASSIFICATION-MINOR COLLECTOR

NO NEW RIGHT OF WAY

CONVENTIONAL SYMBOLS
(USED IN PLANS)

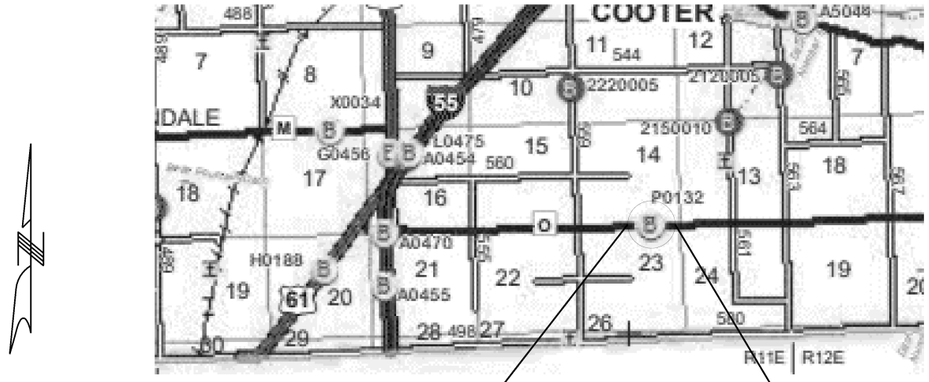
	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	FO
OVERHEAD CABLE TV	-OTV-	OTV
UNDERGROUND CABLE TV	-UTV-	UTV
OVERHEAD TELEPHONE	-OT-	OT
UNDERGROUND TELEPHONE	-UT-	UT
OVERHEAD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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLANS FOR PROPOSED
STATE HIGHWAY

PEMISCOT COUNTY

T16N-R11E



STA 151+50.00

STA 154+75.00

PROJECT LIMITS

GRADING, DRAINAGE, PAVING AND REPLACEMENT OF BRIDGE NO. P0132

SOUTHEAST DISTRICT
PEMISCOT COUNTY



Scale
0 1 2 3 4 Miles

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

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (01 SHEETS)	2
QUANTITIES (QU) (02 SHEETS)	3
PLAN-PROFILE (PP)	4
RIGHT OF WAY (RW)	XX-XX
REFERENCE POINTS (RP)	XX-XX
COORDINATE POINTS (CP)	5
SPECIAL SHEETS (SS)	6
TRAFFIC CONTROL SHEETS (TC)	7
EROSION CONTROL SHEETS (EC)	8-9
LIGHTING (LT)	XX-XX
SIGNALS (SG)	XX-XX
SIGNING (SN)	XX-XX
PAVEMENT MARKING (PM)	XX-XX
CULVERT SECTIONS (CS)	XX-XX
BRIDGE DRAWINGS (B)	
A9310	1-4
A#####	XX-XX
A#####	XX-XX
A#####	XX-XX
CROSS SECTIONS (XS)	1-5

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 151+50.00	
END OF PROJECT	STA. 154+75.00	
APPARENT LENGTH	325	FEET
EQUATIONS AND EXCEPTIONS:		
TOTAL CORRECTIONS	0	FEET
NET LENGTH OF PROJECT	325	FEET
STATE LENGTH	0.06	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0.5	ACRE

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-2004
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE: 05/04/23
DATE PREPARED

ROUTE	STATE
O	MO
DISTRICT	SHEET NO.
SE	1

COUNTY: PEMISCOT
JOB NO.: J9S3669
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9310

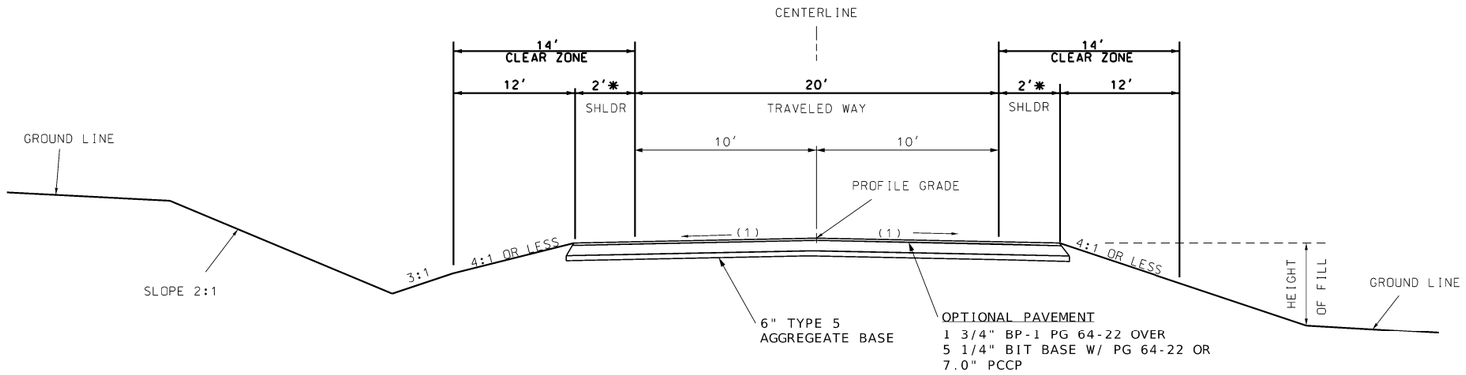
DESCRIPTION	DATE

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

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

$FILE$ $TIME$ $DATE$

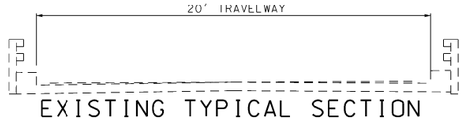


CROSS SLOPE

(1) 2.0%

SECTION ON TANGENT
TYPICAL SECTION RTE. O

STA. 151+50.00 TO STA. 154+75.00



EXISTING TYPICAL SECTION
(TO BE REMOVED)
BRIDGE P0132

STA. 152+61.83 TO STA. 153+40.49

* VARY SHOULDER WIDTH AT START AND END JOB TO TIE INTO EXISTING PAVEMENT WIDTHS

TYPICAL SECTION SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 06/28/23

ROUTE	STATE
O	MO
DISTRICT	SHEET NO.
SE	2

COUNTY: PEMISCOT

JOB NO.: J9S3669

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9310

DESCRIPTION	DATE

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

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

$FILE$ $TIME$ $DATE$

REMOVAL OF IMPROVEMENTS

STATION	STATION	LOCATION	DESCRIPTION
152+15	152+63	LT	50'-36" CMP
152+20	152+70	RT	51'-24" CMP
153+20	153+65	RT	45' -24" CMP
150+38		18' RT	SIGN
152+57		LT & RT	OBJECT MARKERS
152+59		LT & RT	OBJECT MARKERS
152+61		LT & RT	OBJECT MARKERS
153+41		LT & RT	OBJECT MARKERS
153+43		LT & RT	OBJECT MARKERS
153+46		LT & RT	OBJECT MARKERS
151+50	152+66	CL	FULL DEPTH PAVEMENT REMOVAL
153+45	154+75	CL	FULL DEPTH PAVEMENT REMOVAL
LOCATIONS AND QUANTITIES ARE APPROXIMATE FOLLOW SEC 202.30 NO DIRECT PAYMENT WILL BE MADE FOR SAW CUTS REQUIRED FOR REMOVAL			
LUMP SUM - 1			

EARTHWORK

SHEET	BEGIN STATION	END STATION	CLASS A EXCAVATION (CY)	EMBANKMENT IN PLACE (CY)	COMPACTING EMBANKMENT (CY)	REMARKS
4	151+50	154+75	173.0	1,791.8	144.2	
	SUBTOTALS		173.0	1,791.8	144.2	
	PAY TOTALS		173.0	1,792	145	

GRAVEL (A) OR CRUSHED STONE (B)

SHEET	STA	LOC	DRIVEWAY TYPE	GRAVEL A OR CRUSHED STONE B TON	REMARKS
4	152+35	RT	1	22	
4	152+40	LT	1	16	
	TOTALS			38	

BASE AND PAVEMENT

SHEET	STA	STA	LOCATION	TYPE 5 AGGREGATE FOR BASE 6" THICK (S.Y.)	OPTIONAL PAVEMENT (S.Y.)	REMARKS
4	151+50	154+75	RT O	867	867	LT & RT
			SUBTOTAL	867	867	
			PAY TOTALS	867	867	

TYPE 1 ROCK BLANKET & GEOTEXTILE MATERIAL

SHEET	STA	STA	THICKNESS (FT)	FURNISHING (CY)	PLACING (CY)	PERMANENT EROSION CONTROL GEOTEXTILE (SY)	DESCRIPTION
6	152+69	153+28	2	65.3	65.3	98	SOUTH CULVERT OUTLET
6	152+73	153+36	2	70.3	70.3	105.4	NORTH CULVERT OUTLET
		TOTALS		135.6	135.6	203.4	
		PAY TOTALS		136	136	204	

TYPE 2 ROCK DITCH LINER

SHEET	STA	STA	LOC	THICKNESS (FT)	SLOPE	FURNISHING (CY)	PLACING (CY)	DESCRIPTION
	152+16		LT	1		4	4	PIPE INLET
	152+20		RT	1		3	3	PIPE INLET
6	152+96	153+13	LT	VAR	VAR	8	8	
6	152+91	153+08	RT	VAR	VAR	8	8	
	153+66	153+76	RT	1		3	3	PIPE INLET
	154+33		LT	1		4	4	PIPE INLET
	TOTALS					30.0	30.0	

REMOVAL OF BRIDGES

LUMP SUM -1

MOBILIZATION

LUMP SUM -1

EROSION CONTROL

SHEET	STA	STA	LOCATION	SILT FENCE (LF)	SEDIMENT REMOVAL (CY)	ROCK DITCH CHECK (LF)	DESCRIPTION
7	151+50	154+75	LT	265	2.7	16	
7	151+50	154+75	RT	289	2.9	16	
		SUBTOTALS		554	5.6	32	
		PAY TOTALS		554	6	32	

PAVEMENT MARKING

SHEET	BEGIN STATION	END STATION	PAVEMENT MARKING LOCATION	4" WHITE STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS (LF)	4" YELLOW STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS (LF)	REMARKS
4	150+50	155+50	RTE O EOP	500		LEFT EDGE LINE
4	150+50	155+50	RTE O EOP	500		RIGHT EDGE LINE
4	142+21	163+75	RTE O CL		538.5	DASHED CENTERLINE
		TOTALS		1000	538.5	
		PAY TOTALS		1000	539	

CONTRACTOR FURNISHED SURVEYING AND STAKING

LUMP SUM - 1

PAVEMENT MARKING REMOVAL

SHEET	LOC	LF	REMARKS
4	CL	2000	DOUBLE YELLOW CL
4	LT & RT	1000	12" WHITE EDGE LINE
	TOTAL	3000	

PIPE CULVERTS

SHEET	STA	STA	LOC	24" GROUP C PIPE (FT)	30" GROUP C PIPE (FT)	36" GROUP C PIPE (FT)	BEVEL SLOPE	DESCRIPTION
4	152+16	152+89	LT			77	3:1	
4	152+20	152+80	RT		61		3:1	
4	153+17	153+66	RT	52			3:1	
4	153+23	154+33	LT			111	3:1	
	TOTALS			52	61	188		
	PAY TOTALS			52	61	188		

ROUTE O BOX CULV

[redacted]

SHEET	STA	SKEW	FILL FT	SIZE	LENGTH FT	CL B-1 CONC CY
4	153+02.01	6° LA	2	10' X 12'	79	123.1
				TOTAL		123.1

SEEDING

SHEET	STA	STA	LOCATION	SEEDING (ACRES)	DESCRIPTION
7	151+50	154+75	LT & RT	1.0	
		SUBTOTAL		1.0	
		TOTAL		1.0	

SUMMARY OF QUANTITIES
SHEET 1 OF 2

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 6/28/2023

ROUTE	STATE
O	MO
DISTRICT	SHEET NO.
SE	A009

COUNTY PEMISCOT
JOB NO. J9S3669
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9310

DESCRIPTION	DATE

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

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

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$FILE$ $TIME$ $DATE$

EFFECTIVE: 04-01-2023

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT ARROW)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT ARROW)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT ARROW)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT ARROW)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT ARROW)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT ARROW)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT ARROW)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT ARROW)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (ARROW SYMBOL)
WO4-1aR	48X48	16.00						MERGE (ARROW SYMBOL)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING (WITH FLAGS)
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL/LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17	48X48	16.00						SHOULDER DROP-OFF (SYMBOL)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2X	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00	4	64			20	ROAD CLOSED AHEAD /500 FT
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL, WITH FLAGS)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00						END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT ARROW)
MO4-9R	48X36	12.00						DETOUR (RIGHT ARROW)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR (ARROW LEFT)
MO4-10R	48X18	6.00						DETOUR (ARROW RIGHT)
REGULATORY SIGNS								
R1-1	48X48	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
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20			29	ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	2	25			55	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	2	24			60	POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-7	48X24	8.00						RATE OUR WORK ZONE
CONST-7	72X36	18.00						RATE OUR WORK ZONE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	96X48	32.00	2	64			48	BRIDGE CLOSED 3 MILES AHEAD

616-10.05 CONSTRUCTION SIGNS	TOTAL
	197

616-10.10 RELOCATED SIGNS	TOTAL
	0

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161008	2	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	10	TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

SUMMARY OF QUANTITIES
SHEET 2 OF 2

$FILE$ $TIME$ $DATE$

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

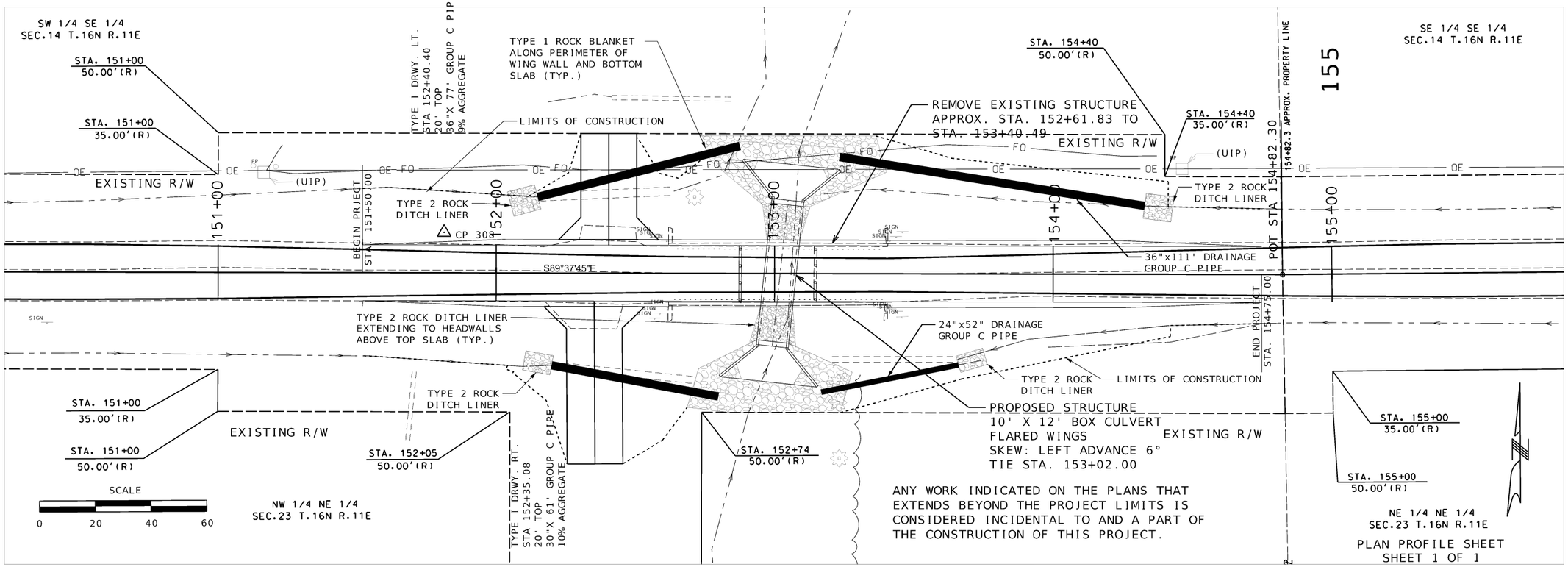
DATE PREPARED 06/27/23
ROUTE O | STATE MO
DISTRICT SE | SHEET NO. 3
COUNTY PEMISCOT
JOB NO. J9S3669
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9310

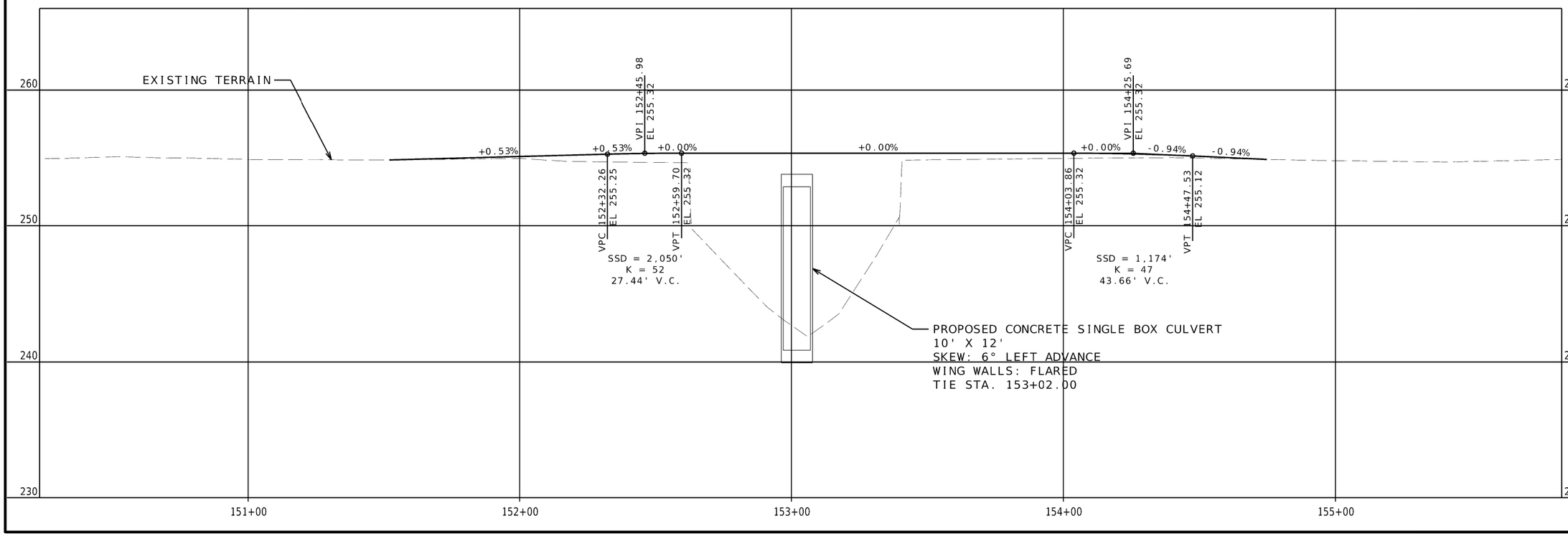
DESCRIPTION | DATE

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

BACON|FARMER|WORKMAN ENGINEERING & TESTING, INC.
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Phone: 573-222-3632





STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23944
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
05/04/23

ROUTE	STATE
O	MO
DISTRICT	SHEET NO.
SE	4

COUNTY
PEMISCOT

JOB NO.
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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	1983 STATE PLANE - MO EAST
HORIZONTAL DATUM	NAD 83
VERTICAL DATUM	NAVD 88
GEOID MODEL	GEOID18
ELEVATIONS DETERMINED BY	GPS
PROJECT PROJECTION FACTOR	1.000029151

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	1983 STATE PLANE - MO EAST
CONTROL STATION	MISSOURI CORS
DESIGNATION	MODOT HAYTI CORS ARP
CORS_ID	MOHT
PID	DN6083
LATITUDE	N36°14'37.95246"
LONGITUDE	W89°43'41.85523"
NORTHING (M)	-5150034.288
EASTING (M)	24422.569
ZONE	MO EAST
PROJECT AVERAGE GRID FACTOR	0.99997085

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

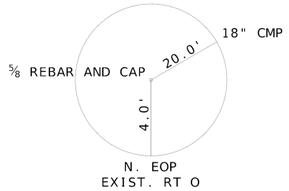
EXAMPLE: CONTROL POINT #308
N 67122.823 X 1.000029151 = N 67124.7797
E 1018483.76 X 1.000029151 = E 1018513.45

LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)

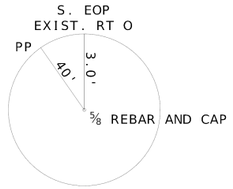
COORDINATE POINT LISTING

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								
4	151+81.28	RTE O	14.50' LT	67124.7797	1018513.4500	254.20	5/8 REBAR AND CAP	308
4	154+80.75	RTE O	11.00' RT	67097.3469	1018812.7400	253.79	5/8 REBAR AND CAP	309
4	147+88.76	RTE O	13.58' RT	67099.2319	1018120.6400	254.59	5/8 REBAR AND CAP	310
ALIGNMENTS								
4	151+50.00	RTE O	℄	67110.4864	1018482.0721		START JOB	
4	154+75.00	RTE O	℄	67108.3836	1018807.0653		END JOB	
4	154+82.30	RTE O	℄	67108.3364	1018814.3651		POT STA.	



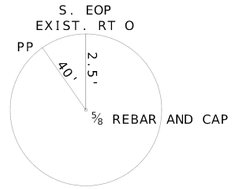
CONTROL POINT #308

X 1018513.4500 STA 151+81.28
Y 67124.7797 OFF 14.50' LT
Z 254.20



CONTROL POINT #309

X 1018812.7400 STA 154+80.75
Y 67097.3469 OFF 11.00' RT
Z 253.79



CONTROL POINT #310

X 1018120.6400 STA 147+88.76
Y 67099.2319 OFF 13.58' RT
Z 254.59

COORDINATE POINT SHEET
SHEET 1 OF 1

[redacted]

$FILE$ $TIME$ $DATE$

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

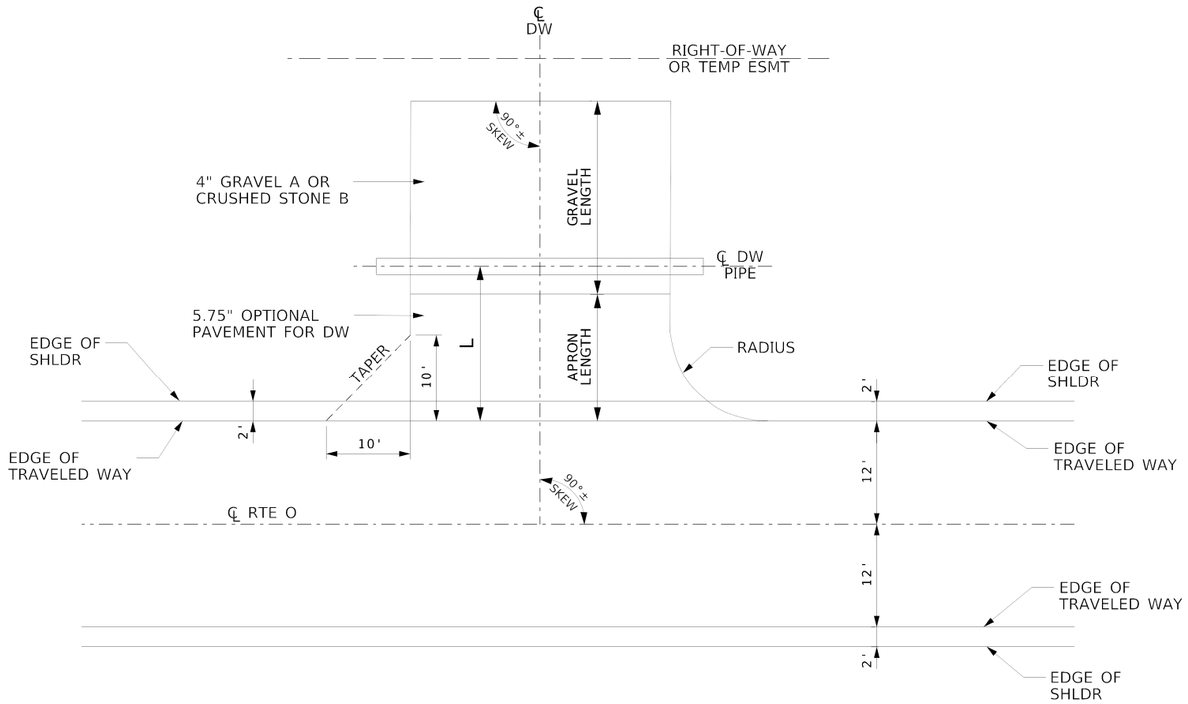
DATE PREPARED 06/29/23
ROUTE O | STATE MO
DISTRICT SE | SHEET NO. 5
COUNTY PEMISCOT
JOB NO. J9S3669
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9310

DESCRIPTION | DATE

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

BACON|FARMER|WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

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PLAN

NOTES:

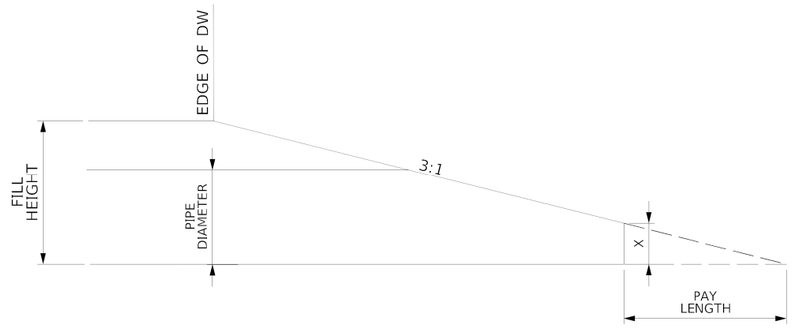
ALL DRIVEWAY LENGTHS ARE MEASURED ALONG ℄ DW.

DRIVEWAY SIDE SLOPES MATCH BEVEL SLOPES SHOWN IN QUANTITIES AND ARE 3:1 UNLESS OTHERWISE NOTED.

SEE CROSS SECTIONS FOR DRIVEWAY PROFILES.

OPTIONAL PAVEMENT FOR DRIVEWAYS SHALL BE COMPOSED OF 5.75" NRPCCP OR 5.75" PMBB.

APRON LENGTH SHALL BE A MINIMUM OF 10' UNLESS OTHERWISE SHOWN IN QUANTITIES. NO DIRECT PAYMENT WILL BE MADE FOR ANY SAW CUTS AS REQUIRED PLACE APRON.



PIPE

NOTES:

X = 6" FOR PIPES 21" OR LESS

X = 25% OF PIPE DIAMETER FOR PIPES LARGER THAN 21"

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

SPECIAL DETAIL SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
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DATE PREPARED
02/28/2024

ROUTE	STATE
O	MO
DISTRICT	SHEET NO.
SE	6

COUNTY
PEMISCOT

JOB NO.
J9S3669

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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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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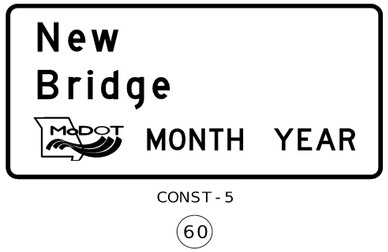
$FILE$ $TIME$ $DATE$

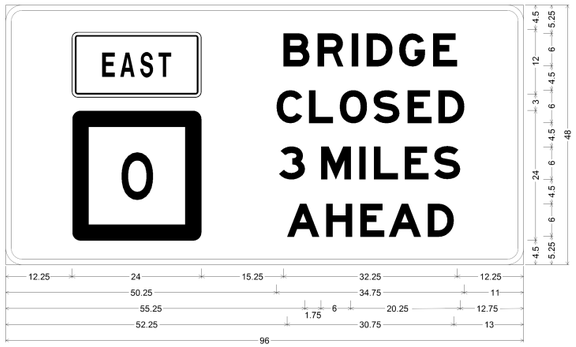








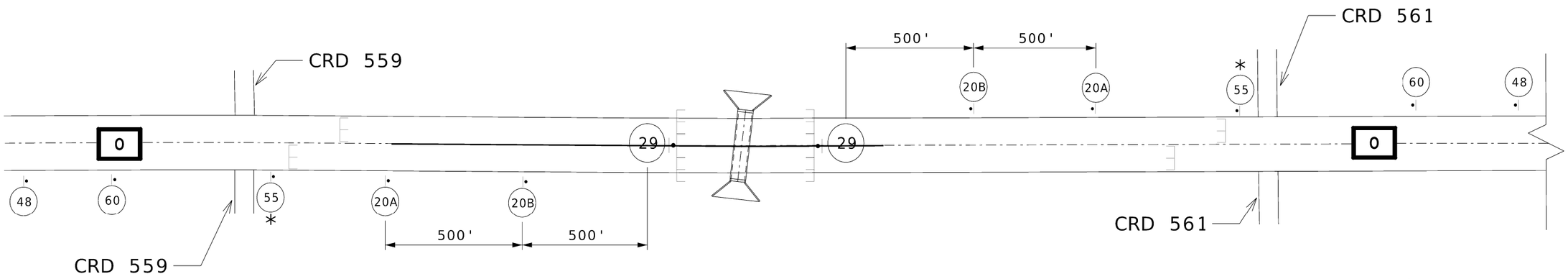




MO4-13 SHF-FLAT SHEET FLUORESCENT;
3.000" Radius, 1.000" Border, Black on, Orange;
"BRIDGE", E Mod; "CLOSED", E Mod; "1 MILE", E Mod; "AHEAD", E Mod;
Table of letter and object lefts

□ 12.250	B 51.500	R 57.875	I 64.125	D 66.875	G 72.875	E 79.250
C 50.250	L 56.250	O 62.000	S 68.250	E 74.500	D 80.250	
3 50.750	M 58.250	I 65.500	L 68.000	E 74.000	S 79.500	
A 52.250	H 59.375	E 65.750	A 71.000	D 78.250		

48



TRAFFIC CONTROL LEGEND

SIGN (SINGLE SIDED)

TYPE 3 BARRICADE

NOTES:

ALL SIGNS SHALL BE SPACED AT 500' OR AS FIELD CONDITIONS DICTATE, AS DIRECTED BY ENGINEER.

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

MESSAGE BOARD LOCATIONS TO BE DETERMINED BY ENGINEER 2 WEEKS PRIOR TO ROAD CLOSURE.

DRAWING NOT TO SCALE
USE DIMENSIONS

TRAFFIC CONTROL PLAN
SHEET 1 OF 1

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
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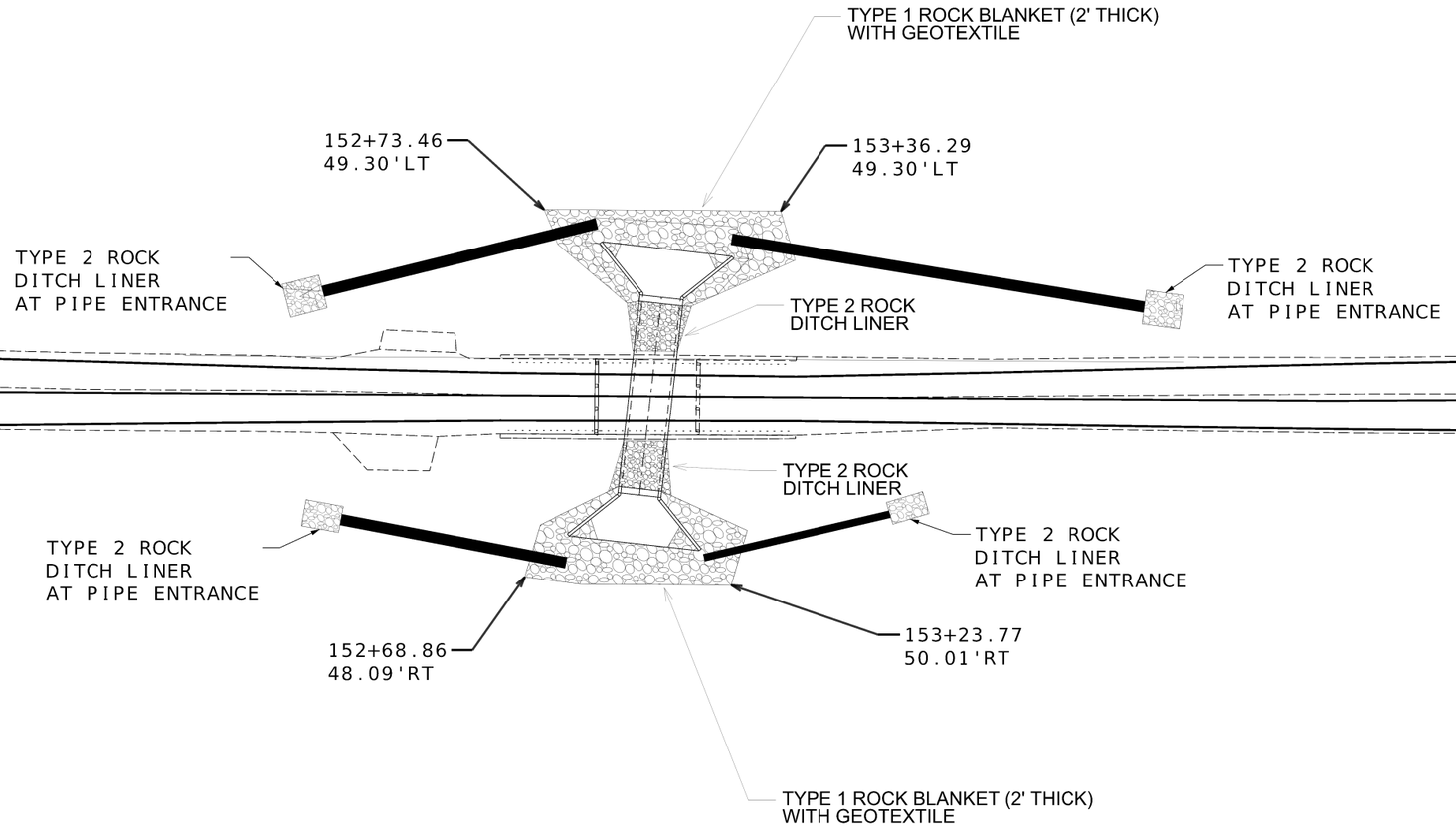
DATE PREPARED: 06/27/23
ROUTE: O | STATE: MO
DISTRICT: SE | SHEET NO.: 7
COUNTY: PEMISCOT
JOB NO.: J9S3669
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9310

DESCRIPTION	DATE

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

BACON | FARMER | WORKMAN
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3437 William Street
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Certificate of Authority: F2007028644
Phone: 573-222-5632

$FILE$ $TIME$ $DATE$



PERMANENT EROSION CONTROL

EROSION CONTROL SHEET
SHEET 1 OF 2

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
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DATE PREPARED
06/27/23

ROUTE	STATE
O	MO
DISTRICT	SHEET NO.
SE	8

COUNTY
PEMISCOT

JOB NO.
J9S3669

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9310

DESCRIPTION	DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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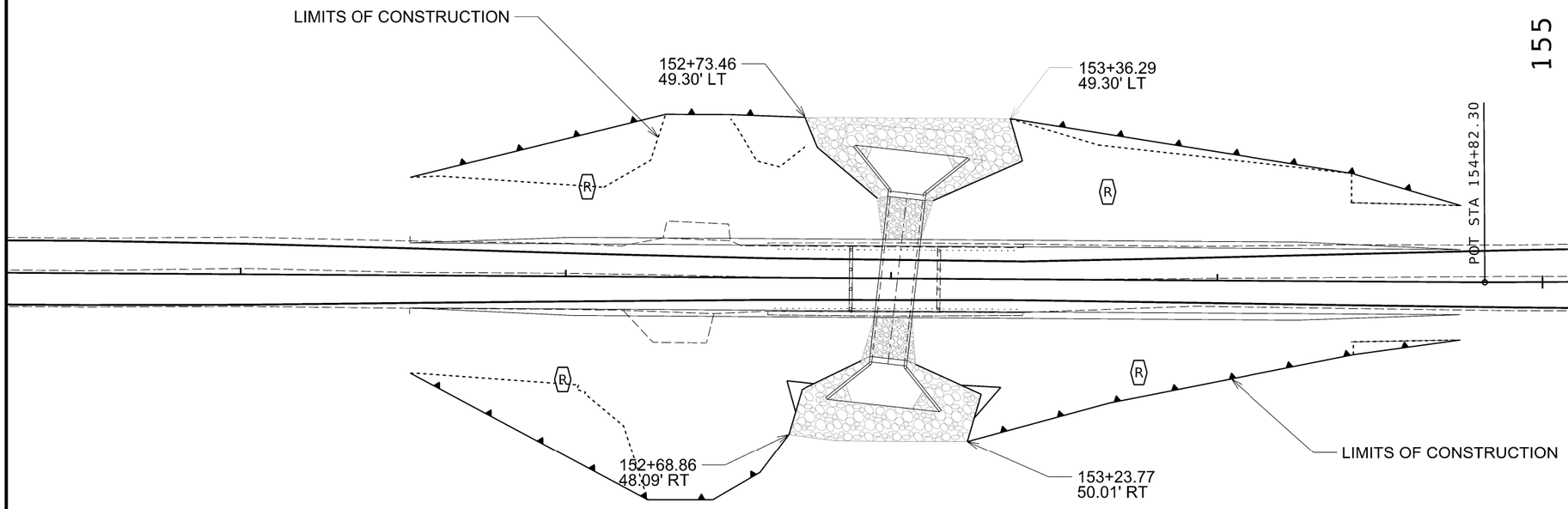
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Phone: 573-222-9632

$FILE$ $TIME$ $DATE$

TEMPORARY EROSION CONTROL LEGEND

SILT FENCE

(R) ROCK DITCH CHECK



TEMPORARY EROSION CONTROL

EROSION CONTROL SHEET
SHEET 2 OF 2

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 06/27/23

ROUTE	STATE
O	MO

DISTRICT	SHEET NO.
SE	9

COUNTY: PEMISCOT

JOB NO.: J9S3669

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9310

DESCRIPTION	DATE

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

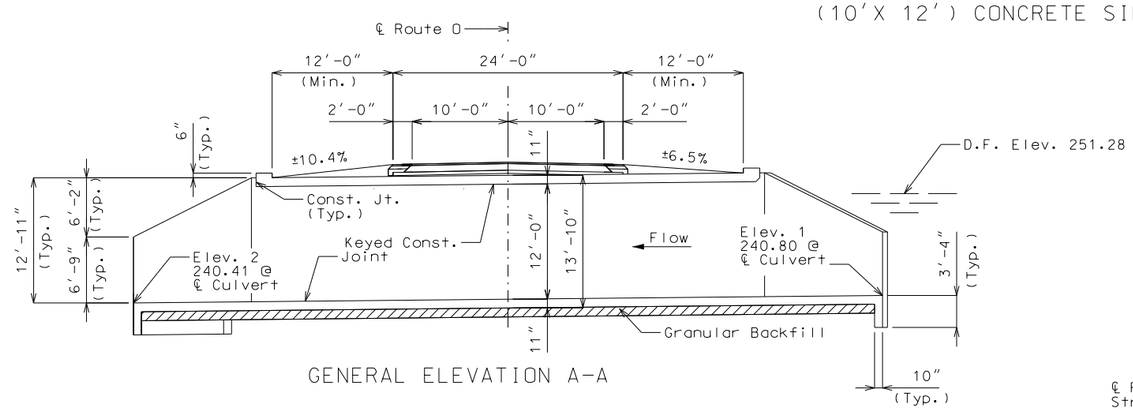
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$FILE$ $TIME$ $DATE$

SEC/SUR 14 TWP 15N RGE 11E

(10'X 12') CONCRETE SINGLE BOX CULVERT



GENERAL ELEVATION A-A

Construction joint key not shown for clarity, see Sheet No. 3 of 4 for details.

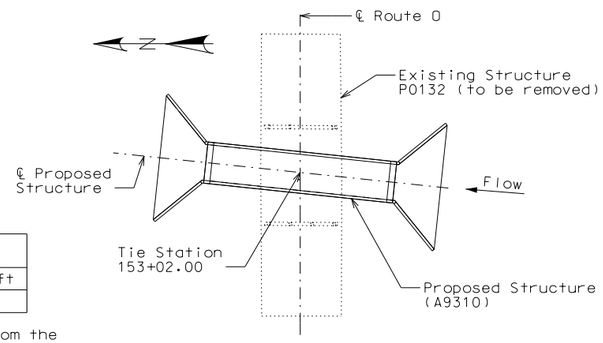
If any part of the barrel is exposed, the roadway fill shall be warped to provide 12 inches minimum cover. (Roadway Item)

If unsuitable material is encountered, excavation of unsuitable material and furnishing and placing of granular backfill shall be in accordance with Sec 206.

Fill Heights
℄ Rdwy at ℄ Culvert = 1.80 ft
Design (All units) = 2.0 ft

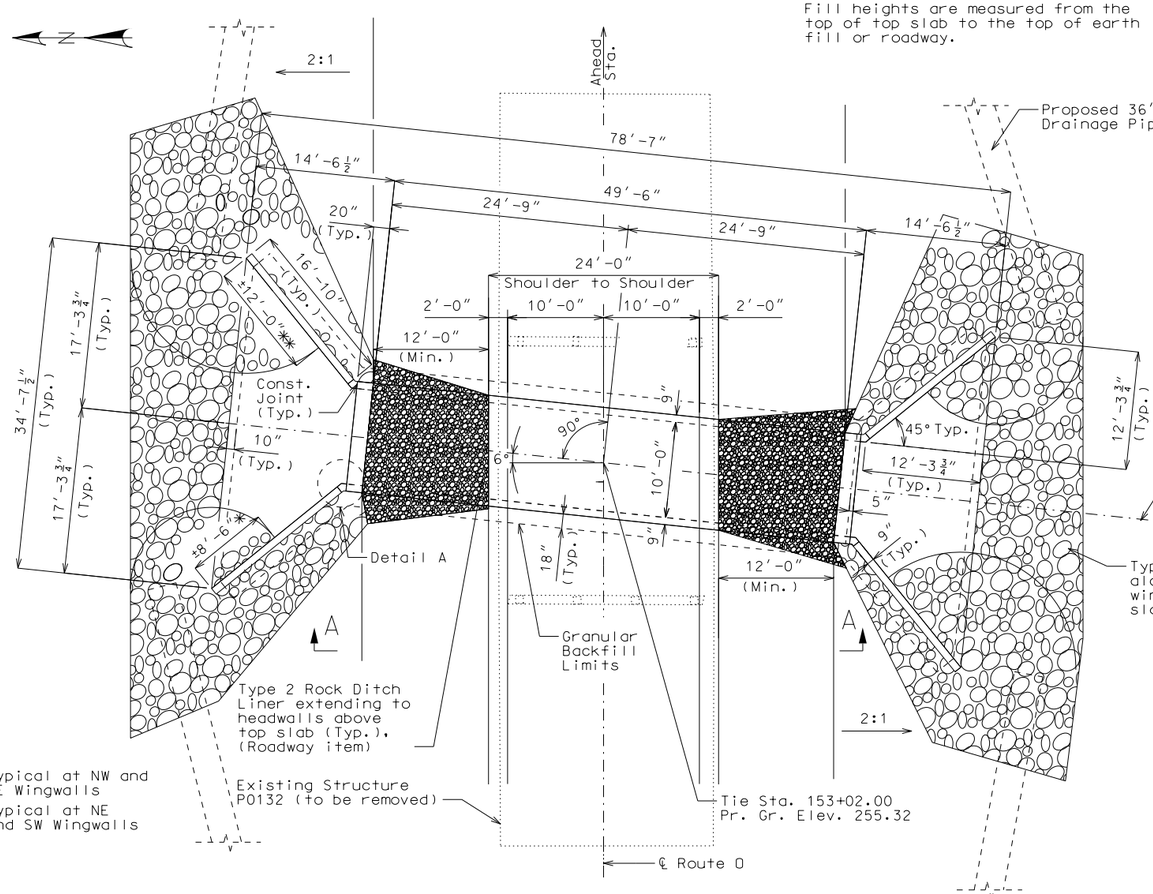
Fill heights are measured from the top of top slab to the top of earth fill or roadway.

Estimated Quantities			Final Quantities
Class 4 Excavation	cu. yard	160	
Misc. Dewatering	lump sum	1.0	
Removal of Bridges (P0132)	lump sum	1.0	
Class B-1 Concrete (Culverts-Bridge)	cu. yard	123.1	
Reinforcing Steel (Culverts-Bridge)	pound	24,900	

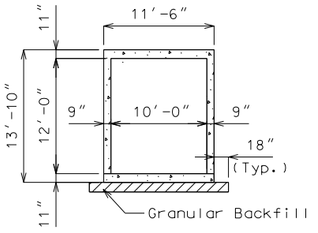


LOCATION SKETCH

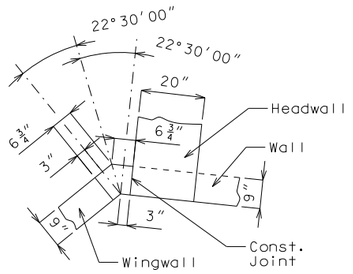
Hydrologic Data
Drainage Area = 3.46 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 330 cfs
Design Flood (D.F.) Elevation = 251.28
Base Flood (100-year)
Base Flood Elevation = 253.16
Base Flood Discharge = 350 cfs
Estimated Backwater = N/A
Outlet Velocity = 4.6 ft/s
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency = N/A
N/A - Flood Elevation = N/A



PLAN OF LAYOUT DIMENSIONS



GRANULAR BACKFILL LIMITS AND MEMBER DIMENSIONS



DETAIL A

GENERAL NOTES

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

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

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

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

Standard Plans:
703.13, 703.17 and 703.37.

Miscellaneous:

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

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

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

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

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

B.M. CONTROL (GPK) POINT ID. 309., 5/8" REBAR & CAP, STA. 154+75.00, OFF. 11.00' RT, ELEV. 253.79

CULVERT-BRIDGE: ROUTE O OVER PEMISCOT BAYOU

ROUTE O FROM ROUTE I-55 TO ROUTE DD
ABOUT 2.5 MILES EAST OF ROUTE I-55
TIE STA. 153+02.00

Designed June 2023
Detailed June 2023
Checked June 2023

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

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

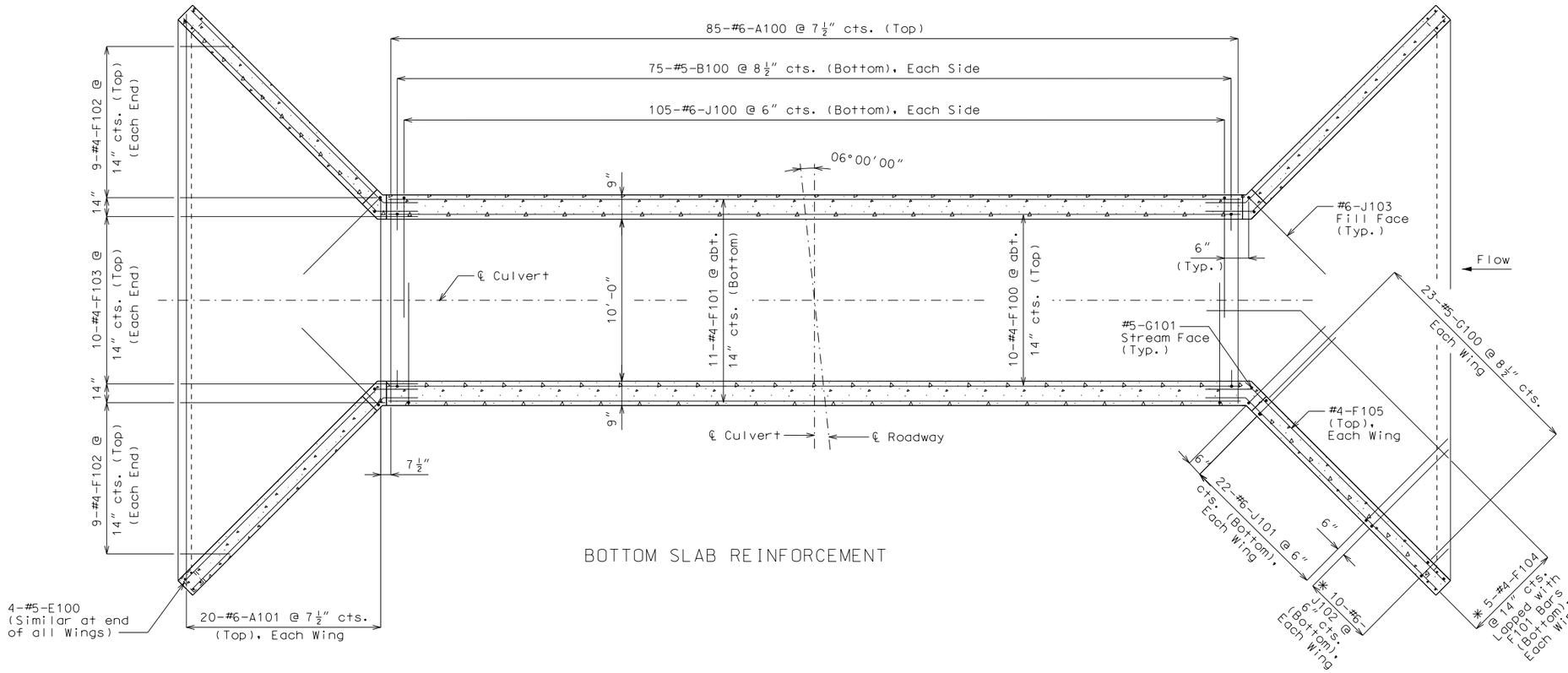
DATE PREPARED 02-20-2024
ROUTE O | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY PEMISCOT
JOB NO. J9S3669
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9310

DESCRIPTION	DATE

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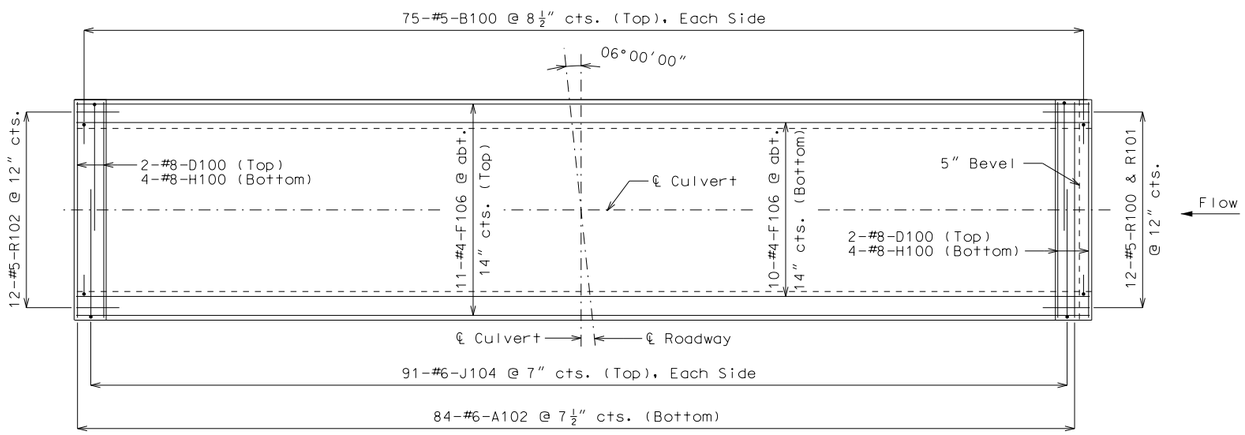
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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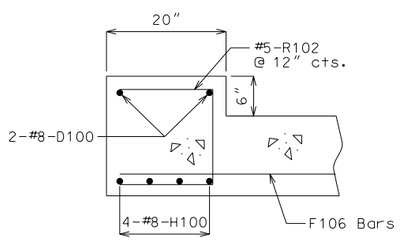


BOTTOM SLAB REINFORCEMENT

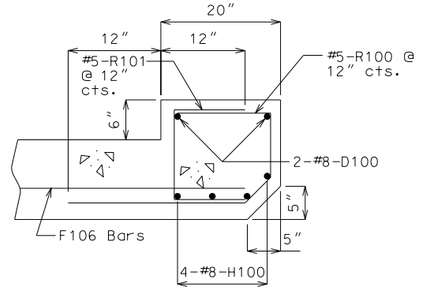
* Cut & bend bars in field to conform to structure alignment



TOP SLAB REINFORCEMENT



SECTION THRU DOWNSTREAM HEADWALL



SECTION THRU UPSTREAM HEADWALL

GENERAL NOTES:

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

Lap longitudinal bars a minimum of 23" at splices.

See Sheet No. 3 of 4 for Developed Elevation.

For reinforcement details in Sections thru Barrel, Upstream & Downstream Wings, see Sheet No. 3 of 4.

Beveled Headwall shall be located at the upstream end.

Construction joint key not shown for clarity. See Sheet No. 3 of 4 for details.

Detailed June 2023
Checked June 2023

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

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

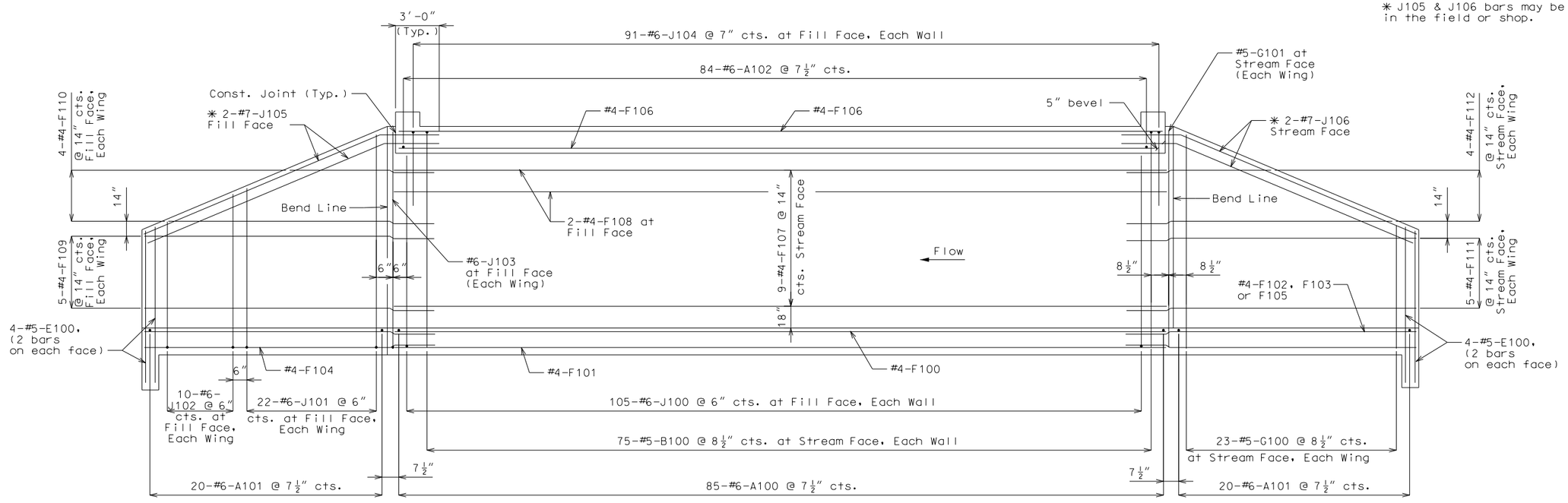
DATE PREPARED 02-20-2024
ROUTE 0 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY PEMISCOT
JOB NO. J9S3669
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9310

DESCRIPTION | DATE

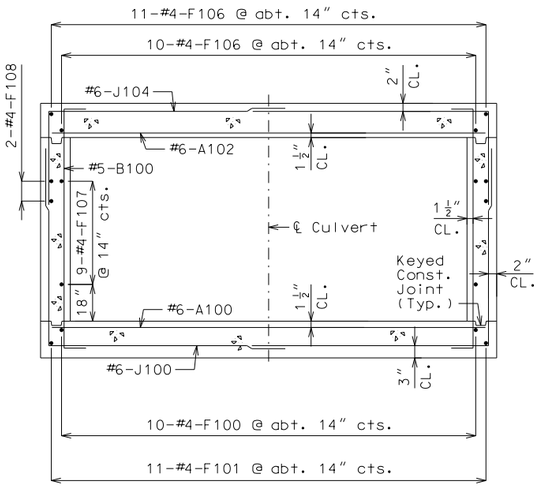
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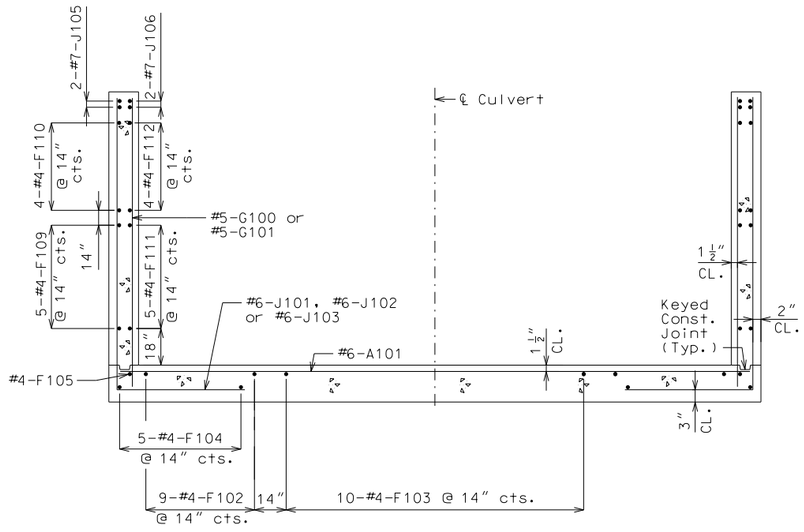
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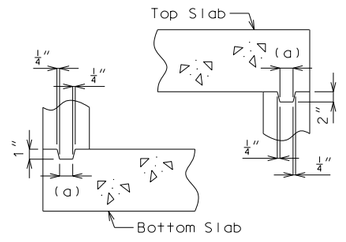
DEVELOPED ELEVATION



BARREL REINFORCEMENT



UPSTREAM AND DOWNSTREAM FLARED WINGS REINFORCEMENT



KEYED CONSTRUCTION JOINT

(a) Approximately one-third of wall thickness

GENERAL NOTES:

Barrel and wings sections are symmetrical about and normal to ℄ culvert. Headwall sections are normal to long direction of headwall.

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

Lap longitudinal bars a minimum of 23" at splices.

STATE OF MISSOURI
PROFESSIONAL ENGINEER
FREDERICK A. MENSAH
NUMBER PE-2022039709

DATE PREPARED: 02-20-2024

ROUTE	STATE
0	MO
DISTRICT	SHEET NO.
BR	3

COUNTY: PEMISCOT

JOB NO.: J9S3669

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9310

DESCRIPTION	DATE

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Detailed June 2023
Checked June 2023

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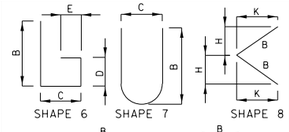
barbill_i Effective: May 2016 Supersedes: Aug. 2008

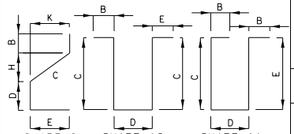
BILL OF REINFORCING STEEL

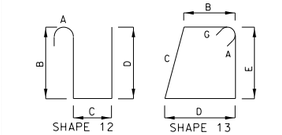
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			BOX CULVERT																									
85	6	A100	BOTTOM SLAB		20					11	3.000													11	3	11	3	1436
40	6	A101	APRON		20			V		11	7.000													11	7	11	7	
			INCREMENT =							35	4.000													35	4	35	4	1409
			15.0 INCH																									
84	6	A102	TOP SLAB		20					11	3.000													11	3	11	3	1419
150	5	B100	WALLS/SLABS		10							12.000	13	5.000										15	5	15	3	2386
4	8	D100	HEADWALLS		20					11	3.000													11	3	11	3	120
16	5	E100	WINGS		20					9	8.000													9	8	9	8	161
10	4	F100	BOTTOM SLAB		20					52	7.000													52	7	52	7	351
11	4	F101	BOTTOM SLAB		20					53	11.000													53	11	53	11	396
36	4	F102	APRON		20			V		2	4.000													2	4	2	4	
			INCREMENT =							11	8.000													11	8	11	8	168
			14.0 INCH																									
20	4	F103	APRON		20					14	11.000													14	11	14	11	199
20	4	F104	APRON		21					17	1.000			3	11.000					12	1.000	12	1.000	21	0	20	11	279
4	4	F105	APRON		21					17	2.000			2	3.000					12	1.875	12	1.875	19	5	19	4	52
21	4	F106	TOP SLAB		20					52	7.000													52	7	52	7	738
18	4	F107	WALLS		20					52	7.000													52	7	52	7	632
4	4	F108	WALLS		20					52	7.000													52	7	52	7	141
20	4	F109	WINGS		21					17	1.000			2	0.000					12	1.000	12	1.000	19	1	19	0	254
16	4	F110	WINGS		21			V		5	8.250			2	0.000					4	0.250	4	0.250	7	8	7	7	
			INCREMENT =							15	3.000			2	0.000					10	9.375	10	9.375	17	3	17	2	132
			38.25 INCH																									
20	4	F111	WINGS		21			V		17	2.000			2	3.000					12	1.875	12	1.875	19	5	19	4	258
16	4	F112	INCREMENT =							5	10.000			2	3.000					4	1.500	4	1.500	8	1	8	0	
			38.25 INCH							15	4.750			2	3.000					10	10.625	10	10.625	17	8	17	7	137
92	5	G100	WINGS		20			V		7	7.500													7	8	7	8	
			INCREMENT =							13	4.250													13	4	13	4	1008
			3.125 INCH																									
4	5	G101	WINGS		20					13	5.000													13	5	13	5	56
8	8	H100	HEADWALLS		20					11	3.000													11	3	11	3	240
210	6	J100	WALLS/SLABS		19					12	7.000	6	8.000											19	3	19	1	6019
88	6	J101	APRON/WINGS		19			V		9	5.500	6	8.000											16	2	16	0	
			INCREMENT =							13	4.750	6	8.000											20	1	19	11	2374
			2.250 INCH																									
40	6	J102	APRON/WINGS		19			V		7	8.250	6	8.000											14	4	14	2	
			INCREMENT =							9	4.500	6	8.000											16	1	15	11	904
			2.250 INCH																									
4	6	J103	WINGS		19					13	5.000	6	8.000											20	1	19	10	119
182	6	J104	WALLS/SLABS		19					3	3.000	6	8.000											9	11	9	9	2665
8	7	J105	WINGS		21					18	3.000			3	3.000					12	10.875	12	10.875	21	6	21	4	349
8	7	J106	WINGS		21					18	4.000			3	6.000					12	11.625	12	11.625	21	10	21	8	354
12	5	R100	HEADWALLS		27	S				1	5.000		9.750		6.000	2	2.500				4.250		4.250	4	11	4	9	59
12	5	R101	HEADWALLS		10	S							10.500	1	2.000									2	11	2	9	34
12	5	R102	HEADWALLS		10	S						1	5.000	1	2.000									4	0	3	10	48

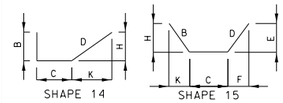
BILL OF REINFORCING STEEL

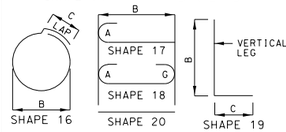
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			TOTALS																									
	4																											3737
	5																											3752
	6																											16345
	7																											703
	8																											360
			TOTAL																									24897
			TOTAL	E																								0

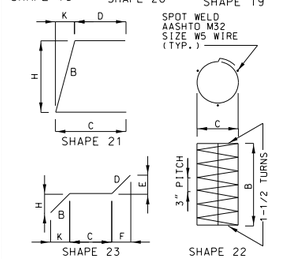


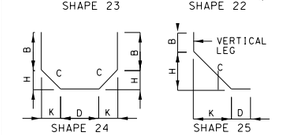


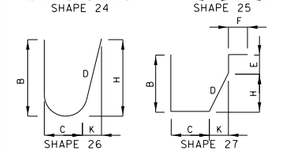


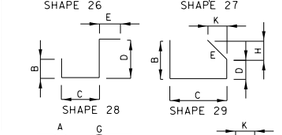


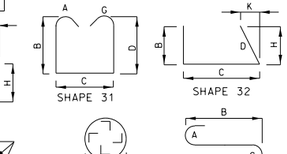


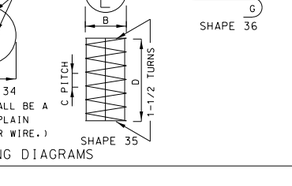




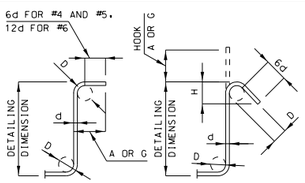






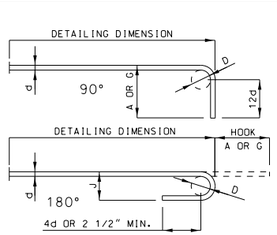


BENDING DIAGRAMS



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

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



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES		
		180° HOOKS		90° HOOKS
		A OR G	J	A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

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

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.

NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.

REINFORCING STEEL (GRADE 60) FY = 60.000 PSI.

STATE OF MISSOURI
PROFESSIONAL ENGINEER
FREDERICK A. MENSAH
NUMBER PE-2022039709

DATE PREPARED: 02-20-2024
ROUTE: 0 | STATE: MO
DISTRICT: BR | SHEET NO.: 4
COUNTY: PEMISCOT
JOB NO.: J9S3669
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9310

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

BACON|FARMER|WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

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

Detailed Nov. 2022
Checked Nov. 2022

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLANS FOR PROPOSED
STATE HIGHWAY
DUNKLIN COUNTY

T63N-R16W

DESIGN DESIGNATION

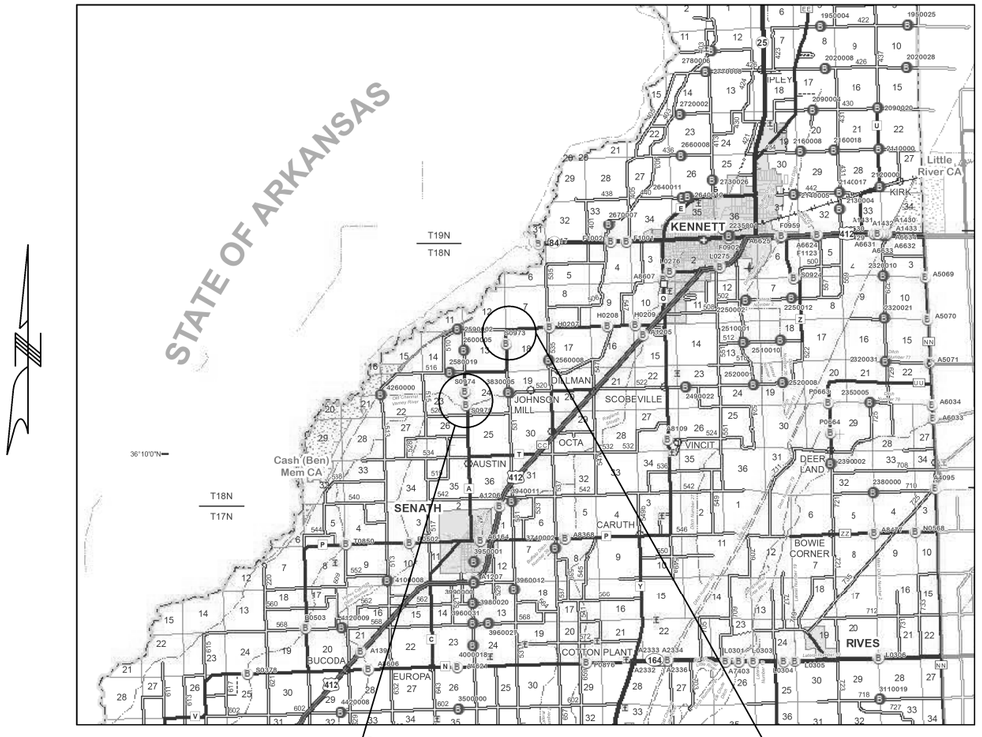
A.A.D.T. - 2023 = 437
A.A.D.T. - 2043 = 441
D.H.V. = 8.97%
T = 8.93%
V = 55 M.P.H.
D = 50.7%
FUNCTIONAL CLASSIFICATION- RURAL MAJOR COLLECTOR

NO NEW RIGHT OF WAY

CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES



SOUTHEAST DISTRICT
DUNKLIN COUNTY



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

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (01 SHEETS)	2
QUANTITIES (QU) (03 SHEETS)	3
PLAN-PROFILE (PP)	4-7
RIGHT OF WAY (RW)	XX-XX
REFERENCE POINTS (RP)	XX-XX
COORDINATE POINTS (CP)	8
SPECIAL SHEETS (SS)	9
TRAFFIC CONTROL SHEETS (TC)	10-16
EROSION CONTROL SHEETS (EC)	17-20
LIGHTING (LT)	XX-XX
SIGNALS (SG)	XX-XX
SIGNING (SN)	21
PAVEMENT MARKING (PM)	XX-XX
CULVERT SHEETS (CS)	22-31
BRIDGE DRAWINGS (B)	
A9312	1-21
A####	XX-XX
A####	XX-XX
A####	XX-XX
CROSS SECTIONS (XS)	1-16

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 225+50.00	
END OF PROJECT	STA. 356+50.00	
APPARENT LENGTH	13.100	FEET
EQUATIONS AND EXCEPTIONS:		
CULVERT REPLACEMENT OF S0973 STA. 225+50.00 TO 229+00.00	350	FEET
BRIDGE REPLACEMENT A9312 STA. 330+85.00 TO 343+16.00	1,231	FEET
CULVERT REPLACEMENT OF S0975 STA. 352+00.00 TO 356+50.00	450	FEET
TOTAL CORRECTIONS	11,550	FEET
NET LENGTH OF PROJECT	1,550	FEET
STATE LENGTH	0.3	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	1.5	ACRE

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

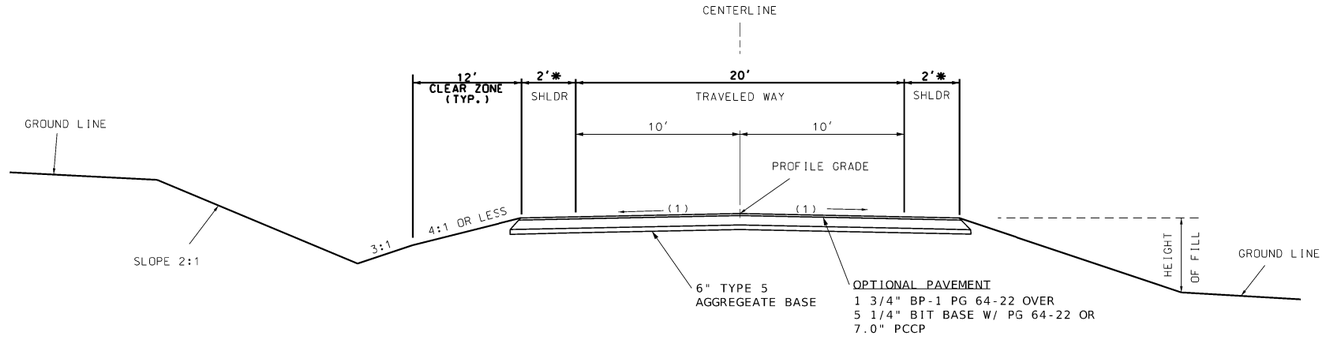
DATE PREPARED 7/11/2023
ROUTE A | STATE MO
DISTRICT SE | SHEET NO. 1
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

DESCRIPTION	DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028844
Phone: 573-222-5632

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



CROSS SLOPE

(1) 2.0%

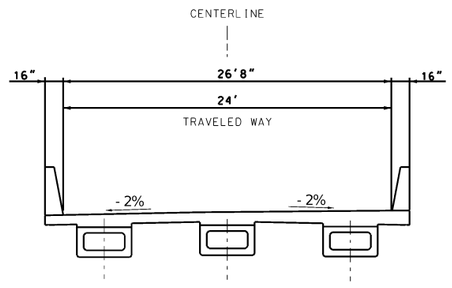
SECTION ON TANGENT

TYPICAL SECTION RTE. A (AT EXISTING BRIDGES 0974,0974,0975)

0973: STA. 225+50.00 TO STA. 229+00.00

0974: STA. 330+85.00 TO STA. 337+19.75.00
STA. 337+95.25 TO STA. 343+16.00

0975: STA. 351+00.00BK/352+00.00AH TO STA. 356+50.00



PROPOSED TYPICAL SECTION
AT BRIDGE S-974 REPLACEMENT
STA. 337+19.75.00 TO STA. 337+95.25

EXISTING TYPICAL SECTION
(TO BE REMOVED)
BRIDGE S-973
STA. 227+24.84 TO STA. 227+92.26

(TO BE REMOVED)
BRIDGE S-974
STA. 337+21.68 TO STA. 337+93.18

(TO BE REMOVED)
BRIDGE S-975
STA. 353+58.70 TO STA. 354+34.73

S0974 Superelevation	
PC	333+75.65
PT	336+82.57
Speed Limit	55 mph
Radius	3250 ft
L1	102 ft
e	4.00%

Section		Station
A-A	Normal/Normal	332+56.65
B-B	Zero/Normal	333+07.65
C-C	Reverse/Normal	333+58.65
D-D	Full Super	334+09.65
D-D	Full Super	336+48.57
C-C	Reverse/Normal	336+99.57
C-C	Reverse/Normal	338+10.00
B-B	Zero/Normal	338+61.00
A-A	Normal/Normal	339+12.00

Notes
Carry section C-C through entire bridge.
(Sta. 336+99.57 to Sta. 338+10.00)

SEE STANDARDS 203.20, 606.00 AND 609.40 FOR SHOULDER WIDENING.

* BACKSLOPE DETERMINED BY SOIL SURVEY.

** THE FILL SLOPE SHALL BE 4:1 OR FLATTER WHEN THE FILL HEIGHT IS EQUAL TO OR LESS THAN 2 FEET (I.E., THE OFFSET FROM THE TOE OF FILL TO THE SHOULDER POINT IS A MINIMUM OF 8 FEET). THE SLOPE MAY VARY TO MEET THIS REQUIREMENT. FOR FILL HEIGHTS GREATER THAN 2 FEET, THE SLOPE SHALL NOT EXCEED THE MAXIMUM SLOPE DETERMINED BY THE SOIL SURVEY.

*** 4' DITCH DEPTH PREFERRED IF ALTERNATE 18" ROCK BASE IS USED. SIDESLOPE WIDTH SHALL BE 16' FOR 4' DITCH DEPTH.

D-64F	
FUNCTION	MINOR RURAL ROADWAY
ADT	N/A
TRAVELED WAY WIDTH	24' +
ROADBED WIDTH	28' - 32' +
FORESLOPE	4:1
DITCH	2'

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
07/11/2023

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	2

COUNTY
DUNKLIN

JOB NO.
J9S37676

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9312

DESCRIPTION

DATE

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

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: P2007028644
Phone: 573-222-5632

REMOVAL OF IMPROVEMENTS

STATION	STATION	LOCATION	DESCRIPTION
226+68	227+34	LT	65' - 24" CMP
226+88	227+48	RT	59' - 24" CMP
227+74	228+35	LT	60' - 18" CMP
227+83	228+50	RT	67' - 18" CMP
227+19		LT	OBJECT MARKER
227+20		LT	OBJECT MARKER
227+26		RT	OBJECT MARKERS (2)
227+27		RT	OBJECT MARKER
227+92		LT	OBJECT MARKERS (3)
227+96		RT	OBJECT MARKER
227+97		RT	OBJECT MARKERS (2)
225+50	227+24	CL	FULL DEPTH PAVEMENT REMOVAL
227+92	229+00	CL	FULL DEPTH PAVEMENT REMOVAL
336+79	337+36	LT	56' - 36" CMP
337+88	338+37	RT	49' - 18" CMP
338+00	338+50	LT	50' - 36" CMP
330+85	337+23	CL	FULL DEPTH PAVEMENT REMOVAL
337+93	343+16	CL	FULL DEPTH PAVEMENT REMOVAL
352+42	352+83	LT	41' - 36" CMP
353+20	353+80	LT	60' - 21" CMP
352+57		RT	OBJECT MARKERS (3)
352+58		LT	OBJECT MARKERS (2)
352+59		LT	OBJECT MARKER
353+36		LT & RT	OBJECT MARKERS (4)
353+35		RT	OBJECT MARKER
353+37		RT	OBJECT MARKER
352+00	352+60	CL	FULL DEPTH PAVEMENT REMOVAL
353+33	356+50	CL	FULL DEPTH PAVEMENT REMOVAL

LOCATIONS AND QUANTITIES ARE APPROXIMATE FOLLOW SEC 202.30 NO DIRECT PAYMENT WILL BE MADE FOR SAW CUTS REQUIRED FOR REMOVAL

LUMP SUM - 1

GRAVEL (A) OR CRUSHED STONE (B)

SHEET	STA	LOC	DRIVEWAY TYPE	GRAVEL A OR CRUSHED STONE B TON	REMARKS
4	228+93	LT	1	16	
5	334+24	RT	1	8	DRIVEWAY
6	335+53	RT	1	8	DRIVEWAY
		TOTAL		32	

PAVEMENT MARKING REMOVAL

SHEET	LOC	LF	REMARKS
4	CL	950	NO PASSING CENTERLINE (DRAINAGE DITCH NO. 5)
5-6	CL	1673	NO PASSING CENTERLINE (MAIN DITCH A9312)
7	CL	1264	NO PASSING CENTERLINE (LEVEE DITCH)
TOTAL		3887	

BASE AND PAVEMENT

SHEET	STA	STA	LOCATION	TYPE 5 AGGREGATE FOR BASE 6" THICK (S.Y.)	OPTIONAL PAVEMENT (S.Y.)	REMARKS
4	225+50	229+00	RTE A	942	942	DRAINAGE DITCH NO. 5
5-6	333+87.01	340+07.16	RTE A	1350	1350	MAIN DITCH A9312
7	352+00	356+50	RTE A	1200	1200	LEVEE DITCH
			SUBTOTAL	3492	3492	
			PAY TOTALS	3492	3492	

EARTHWORK

SHEET	BEGIN STATION	END STATION	CLASS A EXCAVATION CY	COMPACTING EMBANKMENT CY	COMPACTING IN CUT STA	REMARKS
4	225+00	230+00	1285	135	2	DRAINAGE DITCH NO. 5
5-6	333+87.01	340+07.16	1090	320	2.5	MAIN DITCH
7	352+00	356+00	235	35	2.7	LEVEE DITCH
	TOTAL		2610	490	7.2	

GUARDRAIL

SHEET	STA	STA	LOC	MGS LONGSPAN GUARDRAIL SECTION EACH	TYPE A CRASHWORTHY END TERMINAL EACH	REMARKS
4	226+52	228+64.5	LT	9	2	DRAINAGE DITCH NO. 5
			TOTAL	9	2	

DEWATERING

DRAINAGE DITCH NO. 5, MAIN DITCH & LEVEE DITCH
LUMP SUM -1

CONTRACTOR FURNISHED SURVEYING AND STAKING

LUMP SUM - 1

PIPE CULVERTS

SHEET	STA	STA	LOC	18" GROUP C PIPE (FT)	24" GROUP C PIPE (FT)	36" GROUP C PIPE (FT)	BEVEL SLOPE	DESCRIPTION
4	226+68.5	227+30	LT		62			DRAINAGE DITCH NO. 5
4	226+88	227+65	RT		72		3:1	DRAINAGE DITCH NO. 5
4	227+68	228+35	LT	69				DRAINAGE DITCH NO. 5
4	228+68	229+17	LT	48			3:1	DRAINAGE DITCH NO. 5
6	336+79	337+36	LT			56		MAIN DITCH A9312
6	337+88	338+37	RT	49				MAIN DITCH A9312
6	338+00	338+50	LT			50		MAIN DITCH A9312
7	352+42	352+83	LT			41		LEVEE DITCH
7	353+20	353+80	LT		60			LEVEE DITCH
	TOTALS			166	194	147		
	PAY TOTALS			166	194	147		

TYPE 1 ROCK BLANKET & GEOTEXTILE MATERIAL

SHEET	STA	STA	THICKNESS (FT)	FURNISHING (CY)	PLACING (CY)	PERMANENT EROSION CONTROL GEOTEXTILE (SY)	DESCRIPTION
4	227+16	227+77	2	59	59	88	EAST DRAINAGE DITCH NO. 5 OUTLET
4	227+46	227+90	2	50	50	74	WEST DRAINAGE DITCH NO. 5 OUTLET
6	337+01	337+49	2	275	275	412	EAST MAIN DITCH SLOPE
6	337+65	338+14	2	282	282	422	WEST MAIN DITCH SLOPE
7	353+79	354+18	3	64	64	576	EAST LEVEE DITCH OUTLET
7	353+81	354+22	3	70	70	633	WEST LEVEE DITCH OUTLET
		TOTAL		800	800	2205	

MOBILIZATION

LUMP SUM -1

REMOVAL OF BRIDGES

REMOVE BRIDGES S0973 & S0975
LUMP SUM -1

TYPE 2 ROCK DITCH LINER

SHEET	STA	STA	LOC	THICKNESS (FT)	SLOPE	FURNISHING (CY)	PLACING (CY)	DESCRIPTION
4	226+50	226+65	LT	1	VAR	3	3	DRAINAGE DITCH NO. 5
4	226+75	226+85	RT	1	VAR	2	2	DRAINAGE DITCH NO. 5
4	227+50	227+65	LT	VAR	VAR	4.2	4.2	DRAINAGE DITCH NO. 5
4	227+57	227+74	RT	VAR	VAR	7.3	7.3	DRAINAGE DITCH NO. 5
4	228+35	228+68	LT	1	VAR	13	13	DRAINAGE DITCH NO. 5
4	229+19	229+29	LT	1	VAR	2	2	DRAINAGE DITCH NO. 5
6	336+35	336+79	LT	1	VAR	33	33	MAIN DITCH
7	353+92	354+02	LT	VAR	VAR	17.5	17.5	LEVEE DITCH
7	353+92	354+02	RT	VAR	VAR	17.5	17.5	LEVEE DITCH
				TOTAL		100	100	

POROUS BACKFILL

SHEET	STA	STA	DEPTH FT	WIDTH FT	CY	REMARKS
4	227+51		7	5	47	DRAINAGE DITCH NO.5
4	227+70		7	5	47	DRAINAGE DITCH NO.5
6	337+33	337+38	6	5	29.6	MAIN DITCH
6	337+87	337+92	6	5	29.6	MAIN DITCH
7	353+83		9	5	78	LEVEE DITCH
7	354+11		9	5	78	LEVEE DITCH
	SUBTOTAL				309.2	
	PAY TOTAL				310.0	

SUMMARY OF QUANTITIES
SHEET 1 OF 3

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 02/14/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	3

COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9312

DESCRIPTION	DATE

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

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

BACON|FARMER|WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-225-5632

SEEDING

SHEET	STA	STA	LOCATION	SEEDING (ACRE)	MULCH (ACRE)	TEMPORARY SEEDING (ACRE)	DESCRIPTION
4	225+00	229+00	LT & RT	0.5	0.5	0.3	
5-7	333+87	340+07	LT & RT	0.6	0.6	0.3	
8	352+00	356+50	LT & RT	0.4	0.4	0.2	
8-Apr					1		TEMPORARY
		TOTAL		1.5	2.5	1	

EROSION CONTROL

SHEET	STA	STA	LOCATION	SILT FENCE (LF)	TEMPORARY BERM TYPE C (LF)	SEDIMENT REMOVAL (CY)	ROCK DITCH CHECK (LF)	DESCRIPTION
17	225+00	227+50	RT	465		9	12	DRAINAGE DITCH NO. 5
17	225+00	227+50	LT	468		9	12	DRAINAGE DITCH NO. 5
19	333+87.01	340+07.16	RT	468		9	12	MAIN DITCH
19	333+87.01	340+07.16	LT	425		9	12	MAIN DITCH
19	337+41.61		CL		37			MAIN DITCH
19	337+72.41		CL		37			MAIN DITCH
20	352+00	356+50	RT	550		10	12	LEVEE DITCH
20	352+00	365+50	LT	525		9	12	LEVEE DITCH
		TOTAL		2901	74	55	72	

OBJECT MARKERS

SHEET	STA	LOC	OBJECT MARKERS (SF)	2 IN. PSST POST 12 GA (LF)	DRIVEN POST ANCHRO FOR 2 IN. PSST 12GA (EA)	REMARKS
6	337+20	LT & RT	18	37.5	6	MAIN DITCH
6	337+95	LT & RT	18	37.5	6	MAIN DITCH
		TOTAL	36	75	12	

CULVERT OVER DRAINAGE DITCH NO. 5

SHEET	STA	SKEW	FILL (FT)	SIZE	LENGTH (FT)	CL B-1 CONC (CY)	REINFORCED STEEL (LBS)	CLASS 4 EXCAVATION (CY)	GRANULAR BACKFILL @ 6" (CY)	REMARKS
20-25	227+61.20	14° RA	1	10' X 7'	73' 5"	76.4	15330	68	23	
					TOTAL	76.4	15330	68	NO DIRECT PAY	

PAVEMENT MARKING

SHEET	BEGIN STATION	END STATION	PAVEMENT MARKING LOCATION	4" WHITE STANDARD WATERBORNE PAVEMENT MARKING PAINT TYPE P BEADS (LF)	4" YELLOW STANDARD WATERBORNE PAVEMENT MARKING PAINT TYPE P BEADS (LF)	REMARKS
4	225+50	229+00	RTE A EOP	350		LEFT EDGE LINE DRAINAGE DITCH NO. 5
4	225+50	229+00	RTE A EOP	350		RIGHT EDGE LINE DRAINAGE DITCH NO. 5
5-6	333+87.01	340+07.16	RTE A EOP	621		LEFT EDGE LINE MAIN DITCH A9312
5-6	333+87.01	340+07.16	RTE A EOP	621		RIGHT EDGE LINE MAIN DITCH A9312
7	352+00	356+50	RTE A EOP	450		LEFT EDGE LINE LEVEE DITCH
7	352+00	356+50	RTE A EOP	450		RIGHT EDGE LINE LEVEE DITCH
4	221+50	235+00	RTE A CL		350	YELLOW DASH
5-6	323+11	346+04	RTE A CL		575	YELLOW DASH
7	345+24	363+38	RTE A CL		430	YELLOW DASH
		TOTAL		2842	1355	
		PAY TOTAL		2842	1355	

CULVERT LEVEE DITCH

SHEET	STA	SKEW	FILL (FT)	SIZE	LENGTH (FT)	CL B-1 CONC (CY)	REINFORCED STEEL (LBS)	CLASS 4 EXCAVATION (CY)	GRANULAR BACKFILL @ 6" (CY)	REMARKS
25-29	352+97.26	0	1.5	10' X 9'	86' 8"	89.1	16340	95	24	
					TOTAL	89.1	16340	95	NO DIRECT PAY	

SUMMARY OF QUANTITIES
SHEET 2 OF 3

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 02/14/2024
ROUTE A | STATE MO
DISTRICT SE | SHEET NO. 3
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

DESCRIPTION | DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

EFFECTIVE: 04-01-2023

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT ARROW)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT ARROW)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT ARROW)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT ARROW)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT ARROW)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT ARROW)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT ARROW)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT ARROW)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (ARROW SYMBOL)
WO4-1aR	48X48	16.00						MERGE (ARROW SYMBOL)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING (WITH FLAGS)
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL/LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17	48X48	16.00						SHOULDER DROP-OFF (SYMBOL)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2X	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00	3	48			18	DETOUR AHEAD
WO20-3	48X48	16.00	4	64			20	ROAD CLOSED AHEAD (500FT)
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL, WITH FLAGS)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	1	3			52	END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT ARROW)
MO4-9R	48X36	12.00						DETOUR (RIGHT ARROW)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR (ARROW LEFT)
MO4-10R	48X18	6.00						DETOUR (ARROW RIGHT)
REGULATORY SIGNS								
R1-1	48X48	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
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20			29	ROAD CLOSED
R11-3a	60X30	12.50	1	12.50			20C	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	2	25			55	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	2	64			60	POINT OF PRESENCE
CONST-7	48X24	8.00						RATE OUR WORK ZONE
CONST-7	72X36	18.00						RATE OUR WORK ZONE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	96X48	32.00	6	192				BRIDGE CLOSED XX MILES AHEAD
SPECIAL	36X78	19.50	26	507			50	NUMBERED ROUTE ASSEMBLY

616-10.05 CONSTRUCTION SIGNS	TOTAL	935.5
616-10.10 RELOCATED SIGNS	TOTAL	

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161008	2	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	14	TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

SUMMARY OF QUANTITIES
SHEET 3 OF 3

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 07/12/23

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	3

COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9312

DESCRIPTION	DATE

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

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

BACON|FARMER|WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

SW 1/4 NW 1/4
SEC.18 T.18N R.9E

PROPOSED GUARDRAIL WITH
LONG-SPAN NESTED W-BEAM
-POST SKIP AT BOX

TYPE 2 ROCK
DITCH LINER

DITCH 5

PROPOSED STRUCTURE
10' X 7' BOX CULVERT
FLARED WINGS
SKEW: RIGHT ADVANCE 14°
TIE STA. 227+61.20

S89°50'32"W

TYPE I DRWY., LT.
STA 228+93
35' TOP

18"x149' GROUP B PIPE

TYPE 2 ROCK
DITCH LINER

225

230

225+00
40.00'

N0°06'50"W 520.76'

EXISTING R/W

EXISTING ESM'T

225+00
35.00'

START IMPROVEMENTS
STA. 225+50.00

SURVEY CENTERLINE

PC STA 226+84.84

230+00
40.00'

230+00
35.00'

EXISTING R/W

PROPOSED ALIGNMENT: RTEAS0973PR

S00°22'44"E

225+00

226+00

227+00

228+00

229+00

230+00

REMOVE EXISTING STRUCTURE
APPROX. STA. 227+61.20
TO 227+92.20

225+00
35.00'

24"x78' GROUP B PIPE

TYPE 2 ROCK
DITCH LINER

EXISTING R/W

225+00
50.00'

TYPE 2 DITCH
LINER

EXISTING ESM'T

EXISTING ESM'T

TYPE 1 ROCK BLANKET ALONG
PERIMETER OF WING WALL AND
BOTTOM SLAB (TYP.)

230+00
35.00'

EXISTING R/W

230+00
50.00'

SE 1/4 NE 1/4
SEC.13 T.18N R.9E

SCALE
0 20 40 60

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

PLAN SHEET
SHEET 1 OF 4

270
260
250
240

SSD = INF'
K = 115
116.81' V.C.

SSD = 654'
K = 114
228.00' V.C.

SSD = INF'
K = 115
105.94' V.C.

EXISTING TERRAIN AT ℄

VPT 225+60.58
EL 258.27

VPI 225+02.18
EL 257.68

VPI 227+58.36
EL 260.24

VPC 226+44.36
EL 259.10

VPC 229+02.88
EL 258.80

VPT 228+72.36
EL 259.10

VPI 229+55.85
EL 258.27

VPT 230+08.82
EL 258.23

-0.02%
+1.00%
+1.00%
+1.00%
-1.00%
-1.00%
-1.00%
-0.08%
-0.08%

PROPOSED PROFILE: RTEAS0973PR

PROPOSED STRUCTURE
10' X 7' BOX CULVERT
FLARED WINGS
SKEW: RIGHT ADVANCE 14°
TIE STA. 227+61.20

225+00 226+00 227+00 228+00 229+00 230+00

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-2004
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE
05/04/23
DATE PREPARED

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	4

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

PROJECT NO.

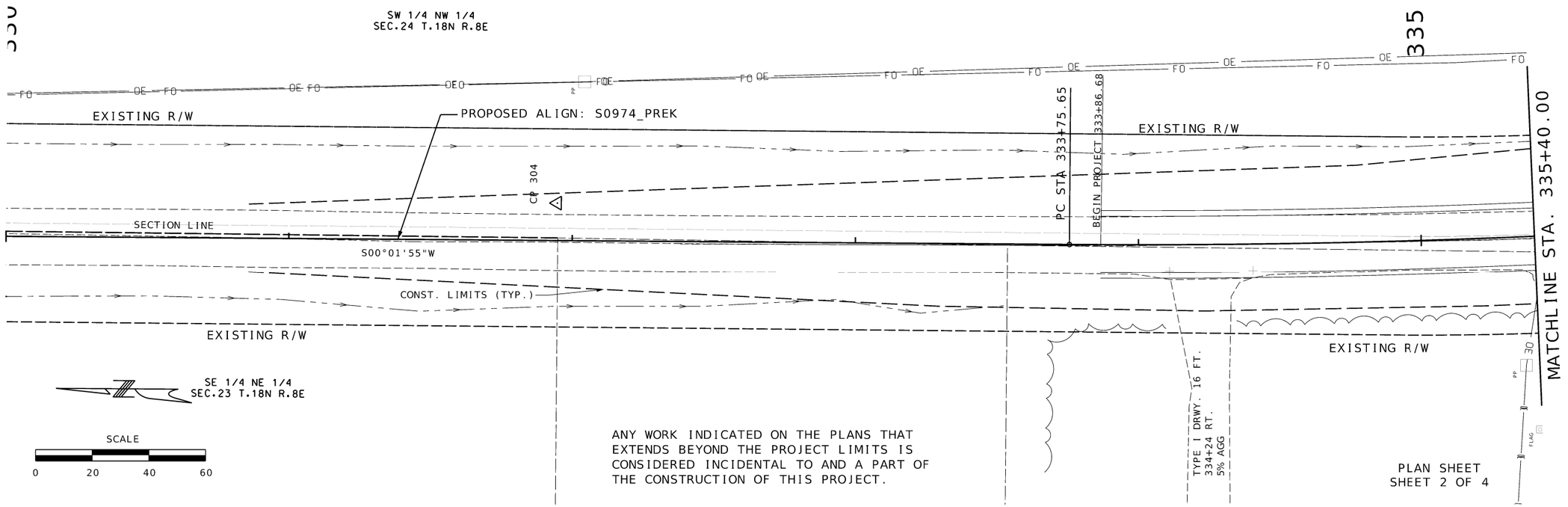
BRIDGE NO.

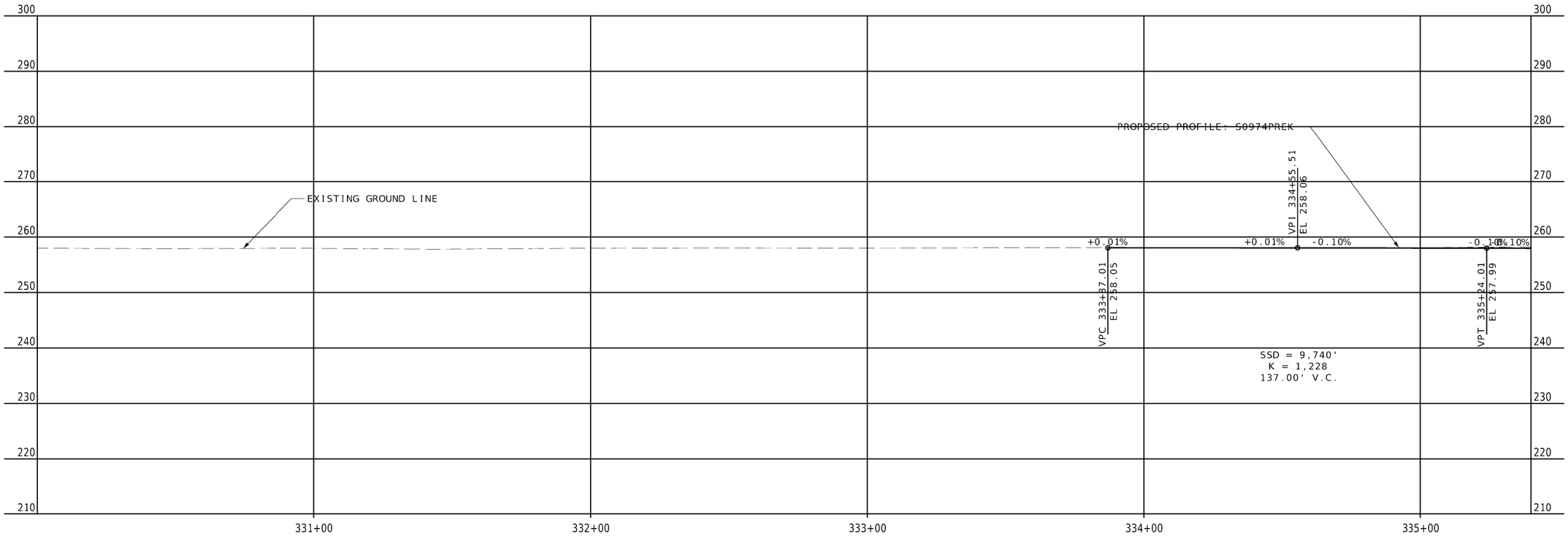
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DESCRIPTION	DATE

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

BACON|FARMER|WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632





STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
7/11/2023

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

PROJECT NO.

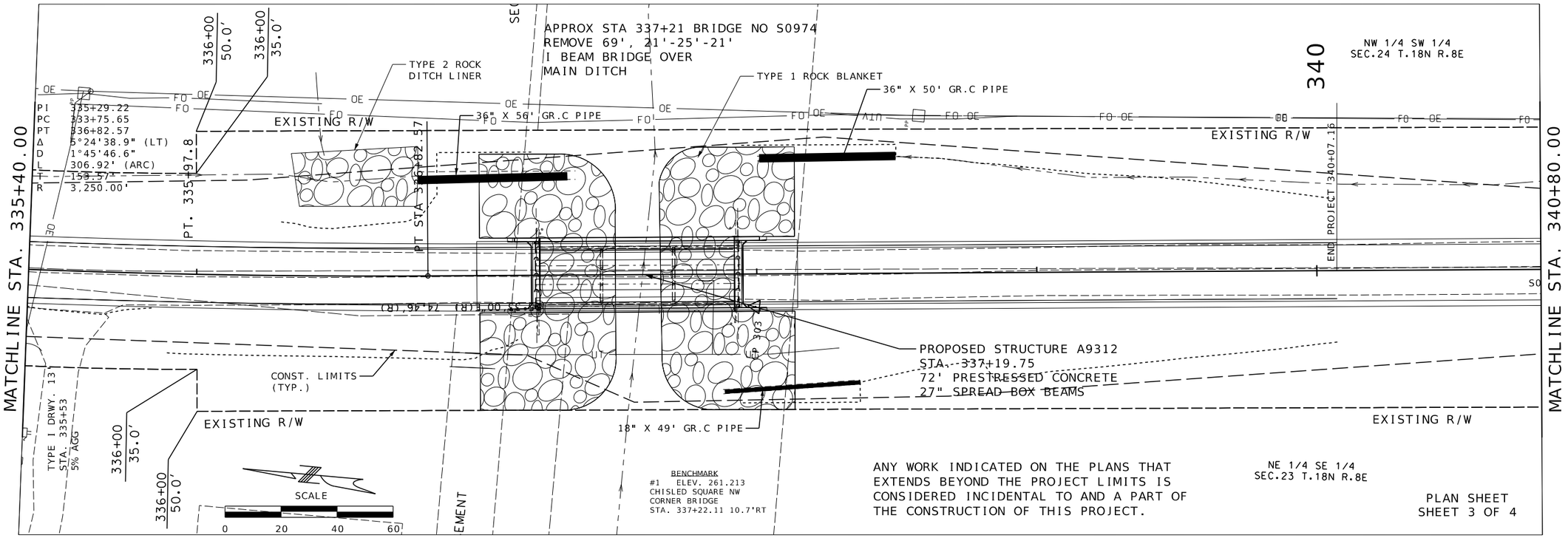
BRIDGE NO.
A9312

DESCRIPTION	DATE

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

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632



STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
7/11/2023

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	6

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

PROJECT NO.

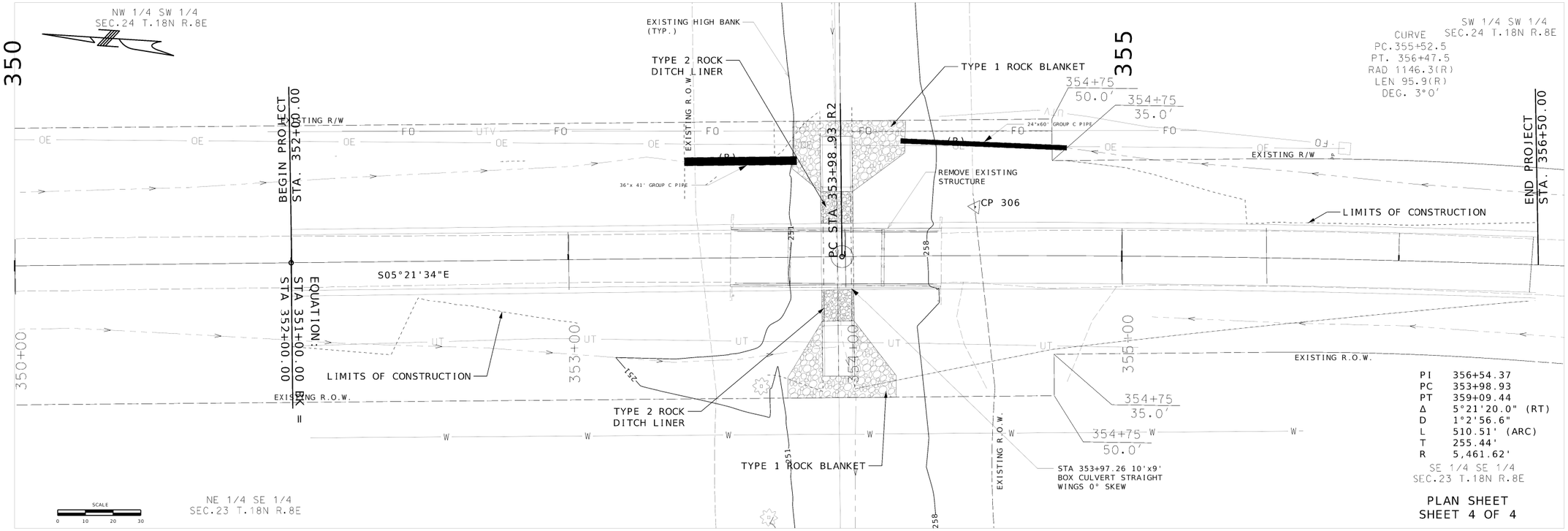
BRIDGE NO.
A9312

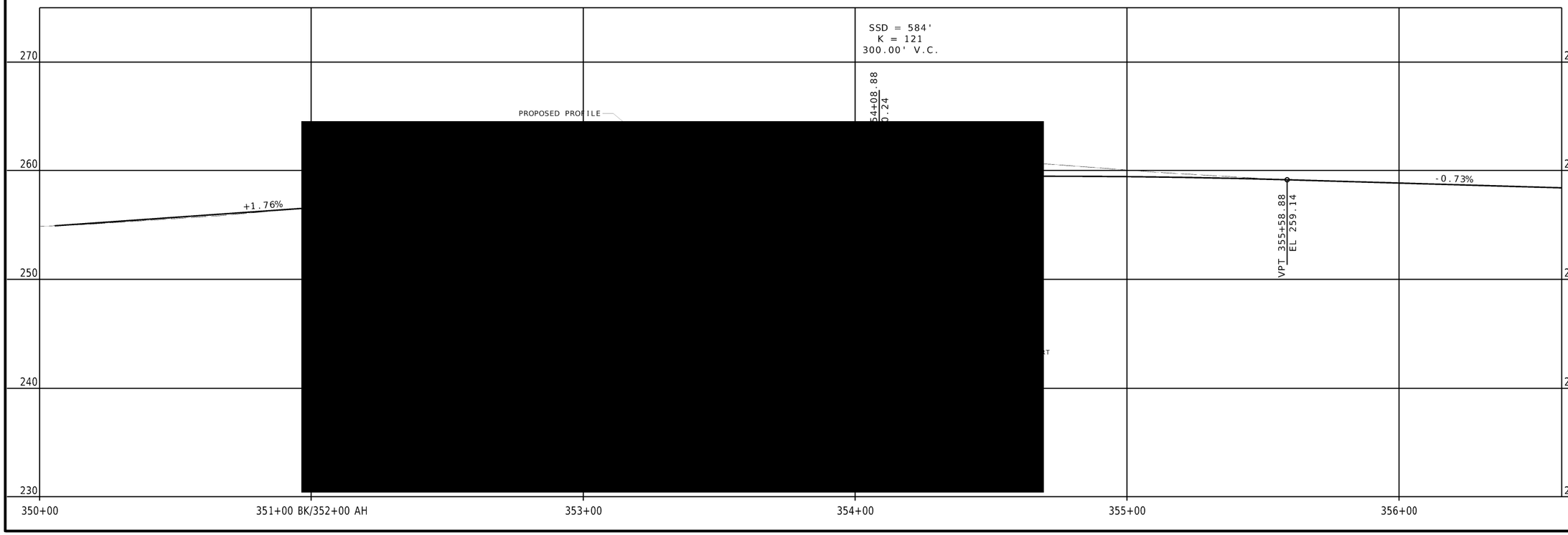
DATE	DESCRIPTION

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-2004
PROFESSIONAL ENGINEER
THIS SHEET WAS SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE

DATE PREPARED
7/11/2023

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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

DESCRIPTION	DATE

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

BACON|FARMER|WORKMAN
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Phone: 573-222-5632

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	1983 STATE PLANE - MO EAST
HORIZONTAL DATUM	NAD 83
VERTICAL DATUM	NAVD 88
GEOID MODEL	GEOID18
ELEVATIONS DETERMINED BY	GPS
PROJECT PROJECTION FACTOR	1.000062273

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	1983 STATE PLANE - MO EAST
CONTROL STATION	MISSOURI CORS
DESIGNATION	MODOOT KENNETT CORS ARP
CORS_ID	MOKE
PID	DL6892
LATITUDE	N36°13'17.10459"
LONGITUDE	W90°04'24.46781"
NORTHING (M)	-5151558.604
EASTING (M)	-6605.209
ZONE	MO EAST
PROJECT AVERAGE GRID FACTOR	0.999937731

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

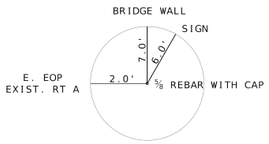
EXAMPLE: CONTROL POINT #300
N 134466.157 X 1.000062273 = N 134474.5306
E 925885.754 X 1.000062273 = E 925943.4117

LINEAR UNIT CONVERSION

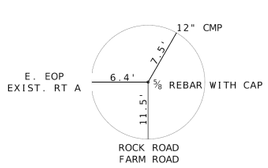
1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

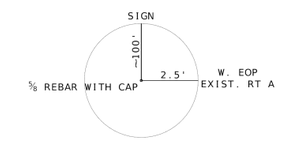
SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION	GPK POINT ID
PROJECT CONTROL POINTS								
4	220+99.06	RTE A	12.56' LT	135172.4061	925918.2731	257.64	5/8 REBAR WITH CAP	302
4	227+97.04	RTE A	10.46' RT	134474.5306	925943.4117	261.21	5/8 REBAR WITH CAP	300
4	228+04.85	RTE A	27.41' LT	134466.4681	925905.5963	261.20	5/8 REBAR WITH CAP	104
4	235+63.21	RTE A	14.84' RT	133708.4219	925952.9163	257.63	5/8 REBAR WITH CAP	301
5	331+94.71	RTE A	14.91' RT	128913.9894	920629.7808	257.37	5/8 REBAR WITH CAP	304
6	337+99.71	RTE A	10.71' LT	128309.0297	920630.1848	260.06	5/8 REBAR WITH CAP	303
7	347+23.73	RTE A	17.88' RT	127391.8086	920745.0230	253.89	5/8 REBAR WITH CAP	305
8	353+47.02	RTE A	17.59' RT	126770.9839	920802.8036	261.01	5/8 REBAR WITH CAP	306
8	361+80.65	RTE A	13.84' LT	125936.4180	920791.0409	255.90	5/8 REBAR WITH CAP	307
ALIGNMENTS								
4	225+50.00	RTE A	℄	134721.5122	925931.8959		START JOB (S0973)	
4	226+84.84	RTE A	℄	134586.6590	925932.2133		POT STA. (S0973)	
4	229+00.00	RTE A	℄	134371.5039	925933.6363		END JOB (S0973)	
5	330+85.00	RTE A	℄	129023.0991	920616.6501		START JOB (S0974)	
5	333+75.65	RTE A	℄	128733.0313	920616.4886		PC (S0974)	
6	336+82.57	RTE A	℄	128426.5503	920630.8003		PT (S0974)	
7	343+16.00	RTE A	℄	127795.8666	920690.1832		END JOB (S0974)	
8	352+00.00	RTE A	℄	126915.8896	920771.7535		START JOB (S0975)	
8	356+50.00	RTE A	℄	126467.0440	920802.5329		END JOB (S0975)	



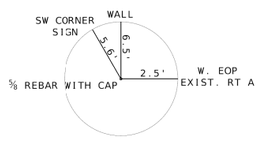
CONTROL PT. #300
X 925943.4117 STA 227+97.04
Y 134474.5306 OFF 10.46' RT
Z 261.21



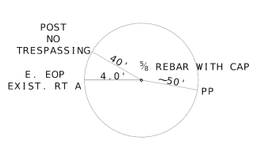
CONTROL PT. #301
X 925952.9163 STA 235+63.21
Y 133708.4219 OFF 14.84' RT
Z 257.63



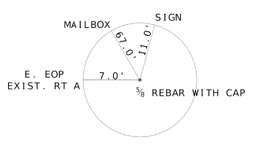
CONTROL PT. #302
X 925918.2731 STA 220+99.06
Y 135172.4061 OFF 12.56' LT
Z 257.64



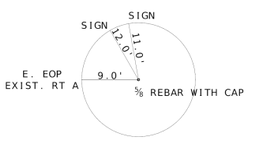
CONTROL PT. #303
X 920630.1848 STA 337+99.71
Y 128309.0297 OFF 10.71' LT
Z 260.06



CONTROL PT. #304
X 920629.7808 STA 331+94.71
Y 128913.9894 OFF 14.91' RT
Z 257.37



CONTROL PT. #305
X 920745.0230 STA 347+23.73
Y 127391.8086 OFF 17.88' RT
Z 253.89



CONTROL PT. #306
X 920802.8036 STA 353+47.02
Y 126770.9839 OFF 17.49' RT
Z 261.01



CONTROL PT. #307
X 920791.0409 STA 361+80.65
Y 125936.4180 OFF 13.84' LT
Z 255.90

COORDINATE POINT SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/27/2023
ROUTE A | STATE MO
DISTRICT SE | SHEET NO. 8
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

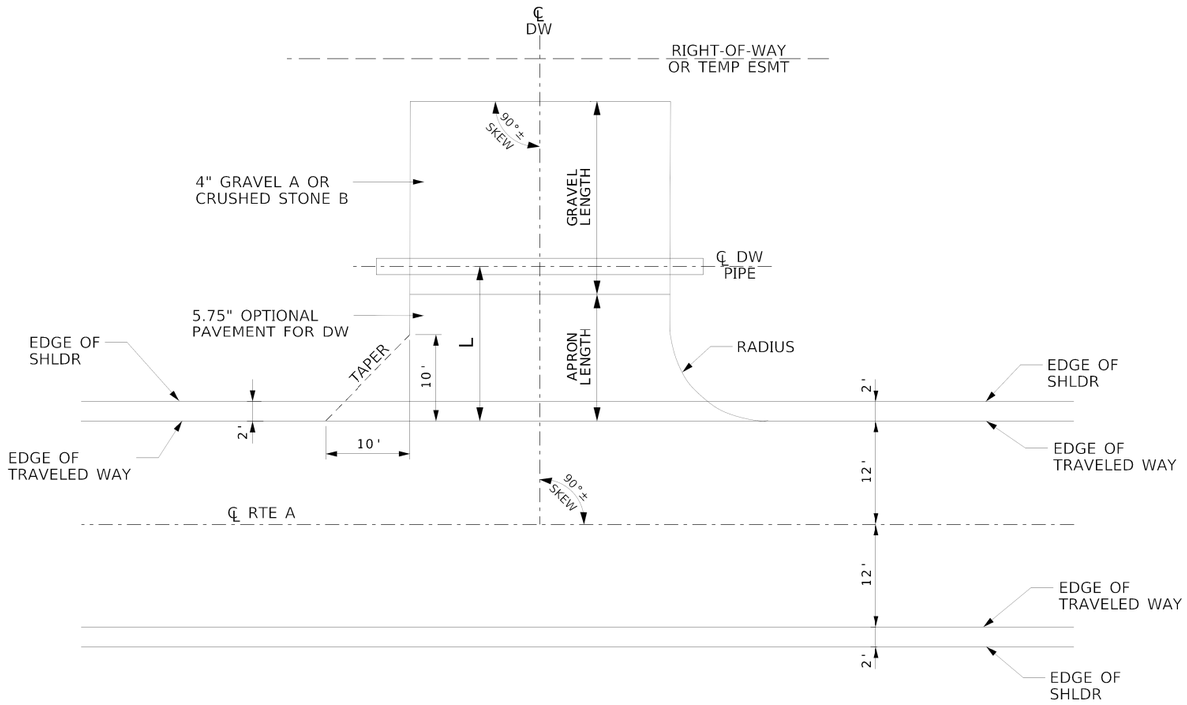
DESCRIPTION | DATE

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

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

BACON | FARMER | WORKMAN | ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

$FILE$ $TIME$ $DATE$



PLAN

NOTES:

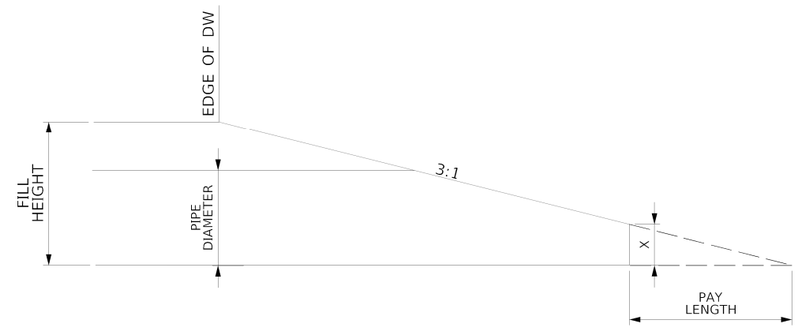
ALL DRIVEWAY LENGTHS ARE MEASURED ALONG ℄ DW.

DRIVEWAY SIDE SLOPES MATCH BEVEL SLOPES SHOWN IN QUANTITIES AND ARE 3:1 UNLESS OTHERWISE NOTED.

SEE CROSS SECTIONS FOR DRIVEWAY PROFILES.

OPTIONAL PAVEMENT FOR DRIVEWAYS SHALL BE COMPOSED OF 5.75" NRPCCP OR 5.75" PMBB.

APRON LENGTH SHALL BE A MINIMUM OF 10' UNLESS OTHERWISE SHOWN IN QUANTITIES. NO DIRECT PAYMENT WILL BE MADE FOR ANY SAW CUTS AS REQUIRED PLACE APRON.



PIPE

NOTES:

X = 6" FOR PIPES 21" OR LESS

X = 25% OF PIPE DIAMETER FOR PIPES LARGER THAN 21"

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

SPECIAL DETAIL SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED: 02/28/2024
ROUTE: A | STATE: MO
DISTRICT: SE | SHEET NO.: 9
COUNTY: DUNKLIN
JOB NO.: J9S3696
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9312

DESCRIPTION	DATE

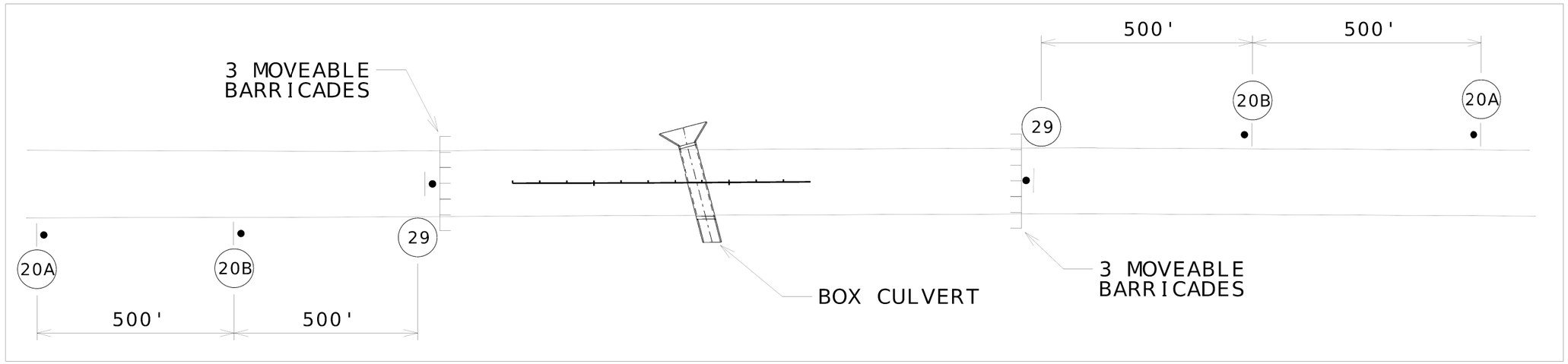
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
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Certificate of Authority: P2007028644
Phone: 573-222-9632

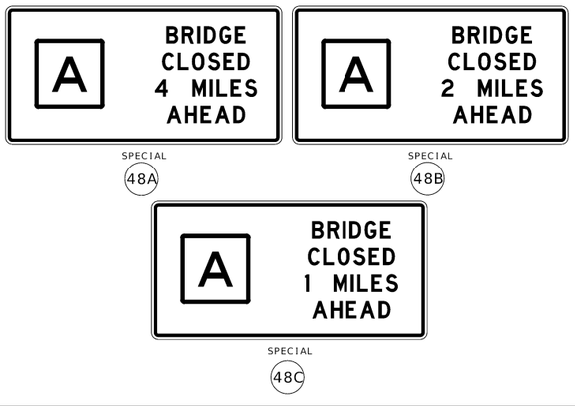
$FILE$ $TIME$ $DATE$

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- BARRICADE



POST-CLOSURE SIGNS
WITH PLAQUES REMOVED





SPECIAL WITH CLOSURE PLATES

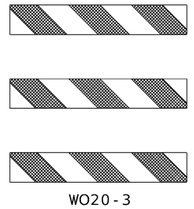
48

PRE-CLOSURE SIGNS WITH PLAQUES ATTACHED



WO20-3

20B



WO20-3

20A





R11-2

29



R11-3a

20C



R11-4

55

DRAWING NOT TO SCALE
USE DIMENSIONS

DITCH 5 TRAFFIC CONTROL
SHEET 1 OF 7

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED 07/10/23

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	10

COUNTY: DUNKLIN

JOB NO.: J9S3676

CONTRACT ID.:

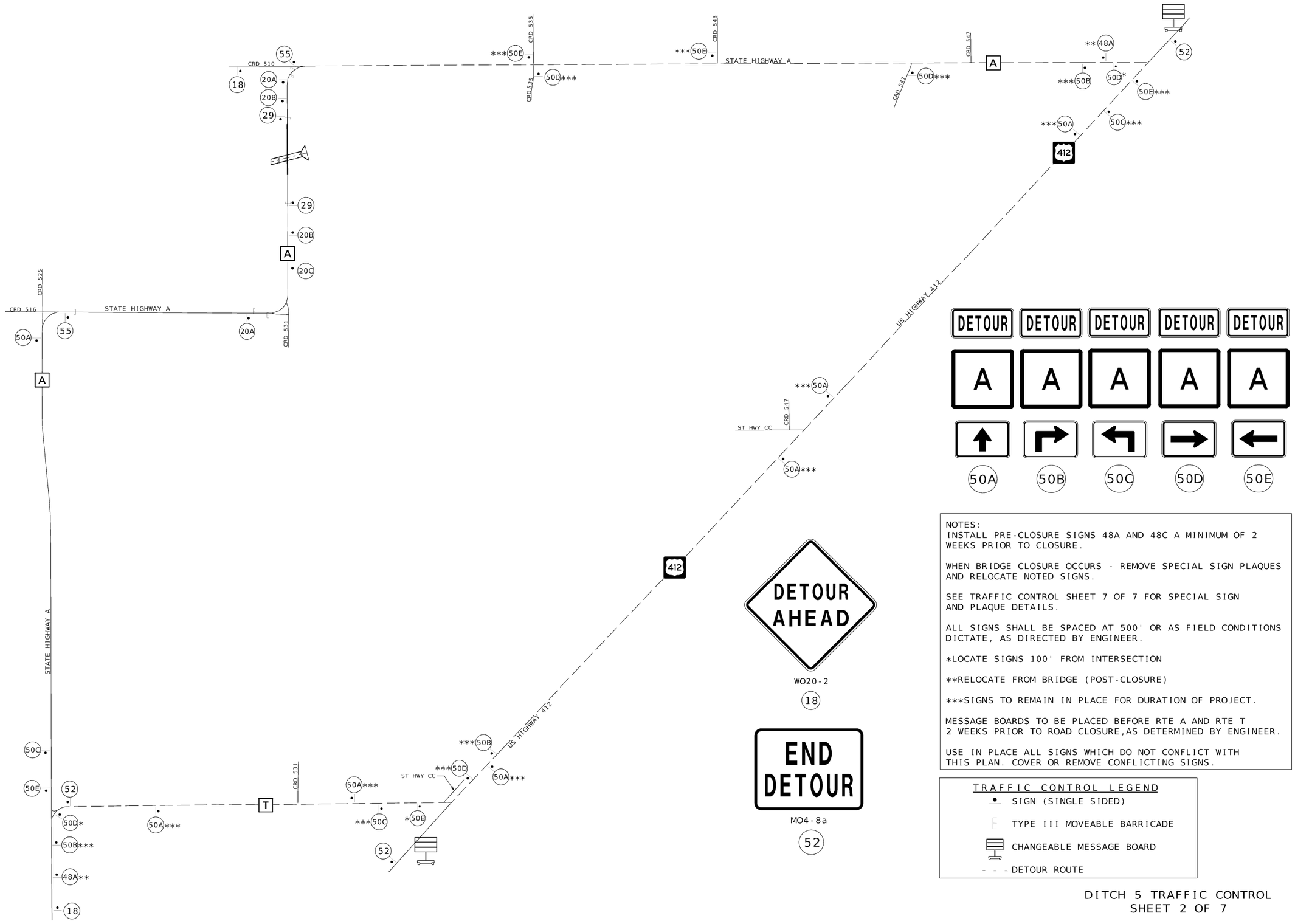
PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
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Phone: 573-222-5632



NOTES:
INSTALL PRE-CLOSURE SIGNS 48A AND 48C A MINIMUM OF 2 WEEKS PRIOR TO CLOSURE.

WHEN BRIDGE CLOSURE OCCURS - REMOVE SPECIAL SIGN PLAQUES AND RELOCATE NOTED SIGNS.

SEE TRAFFIC CONTROL SHEET 7 OF 7 FOR SPECIAL SIGN AND PLAQUE DETAILS.

ALL SIGNS SHALL BE SPACED AT 500' OR AS FIELD CONDITIONS DICTATE, AS DIRECTED BY ENGINEER.

*LOCATE SIGNS 100' FROM INTERSECTION

**RELOCATE FROM BRIDGE (POST-CLOSURE)

***SIGNS TO REMAIN IN PLACE FOR DURATION OF PROJECT.

MESSAGE BOARDS TO BE PLACED BEFORE RTE A AND RTE T 2 WEEKS PRIOR TO ROAD CLOSURE,AS DETERMINED BY ENGINEER.

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

WO20-2

18

MO4-8a

52

TRAFFIC CONTROL LEGEND

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

DITCH 5 TRAFFIC CONTROL
SHEET 2 OF 7

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 07/10/23

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	11

COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DATE	DESCRIPTION

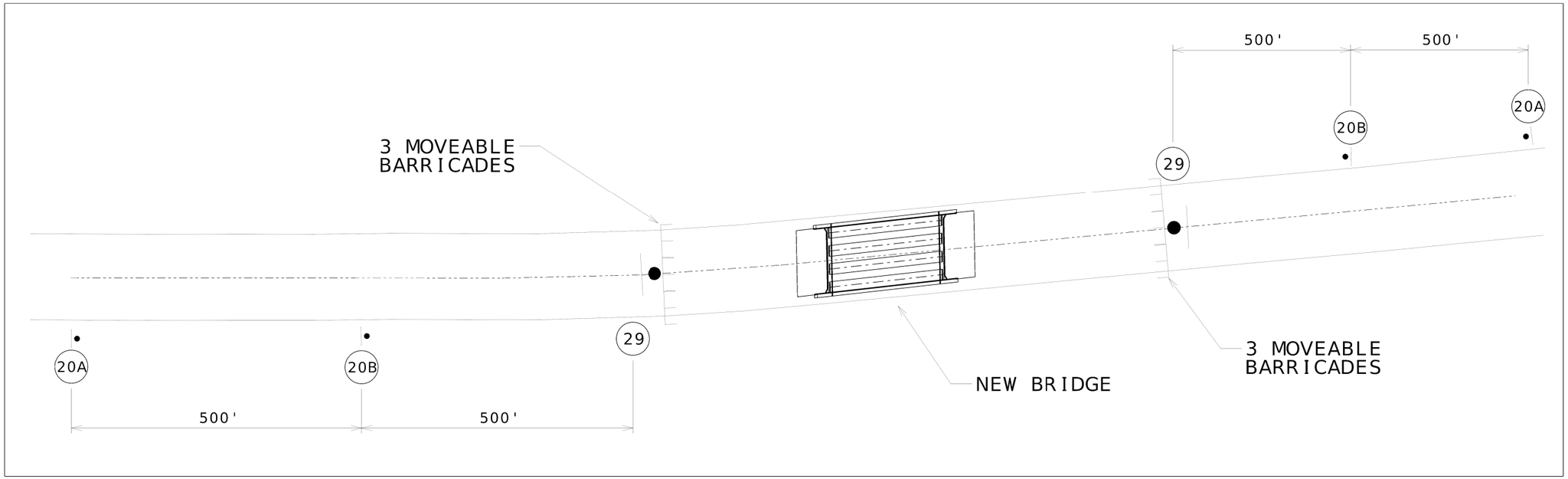
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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

- SIGN (SINGLE SIDED)
- BARRICADE



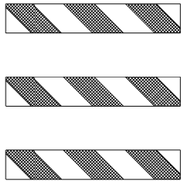


SPECIAL WITH CLOSURE PLATES

(48)

PRE-CLOSURE SIGNS WITH PLAQUES ATTACHED





WO20-3

(20A)



WO20-3

(20B)



R11-2

(29)



R11-3a

(20C)

DRAWING NOT TO SCALE
USE DIMENSIONS

MAIN DITCH TRAFFIC CONTROL
SHEET 3 OF 7

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
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IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DATE PREPARED: 07/11/23

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	12

COUNTY: DUNKLIN

JOB NO.: J9S3696

CONTRACT ID.:

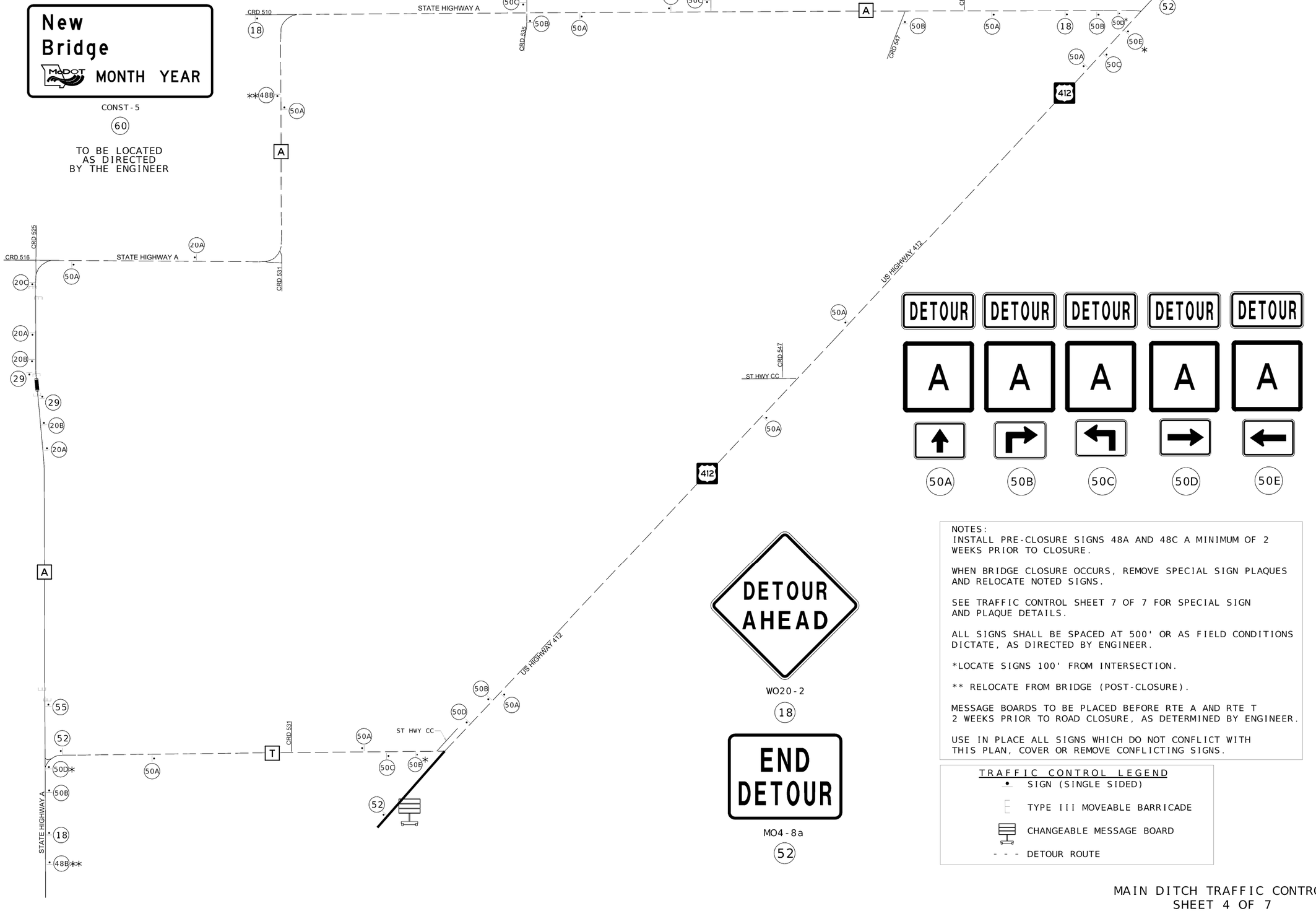
PROJECT NO.:

BRIDGE NO.: A9312

DESCRIPTION	DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632



NOTES:
INSTALL PRE-CLOSURE SIGNS 48A AND 48C A MINIMUM OF 2 WEEKS PRIOR TO CLOSURE.

WHEN BRIDGE CLOSURE OCCURS, REMOVE SPECIAL SIGN PLAQUES AND RELOCATE NOTED SIGNS.

SEE TRAFFIC CONTROL SHEET 7 OF 7 FOR SPECIAL SIGN AND PLAQUE DETAILS.

ALL SIGNS SHALL BE SPACED AT 500' OR AS FIELD CONDITIONS DICTATE, AS DIRECTED BY ENGINEER.

*LOCATE SIGNS 100' FROM INTERSECTION.

** RELOCATE FROM BRIDGE (POST-CLOSURE).

MESSAGE BOARDS TO BE PLACED BEFORE RTE A AND RTE T 2 WEEKS PRIOR TO ROAD CLOSURE, AS DETERMINED BY ENGINEER.

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

TRAFFIC CONTROL LEGEND

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

MAIN DITCH TRAFFIC CONTROL
SHEET 4 OF 7

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23944
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED: 07/11/23
ROUTE: A | STATE: MO
DISTRICT: SE | SHEET NO.: 13
COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9312

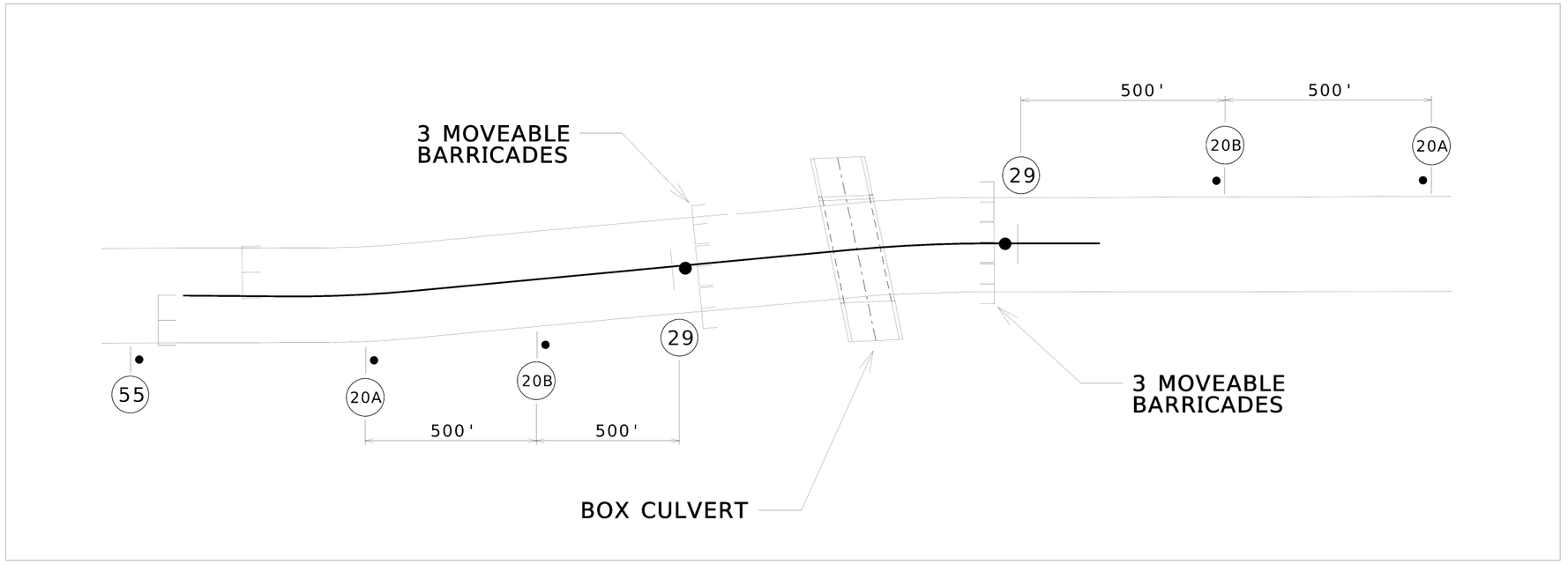
DESCRIPTION | DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: P2007028644
Phone: 573-222-9632

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- BARRICADE



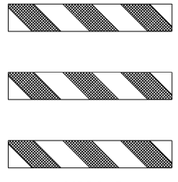


SPECIAL WITH CLOSURE PLATES

(48)

PRE-CLOSURE SIGNS WITH PLAQUES ATTACHED





WO20-3

(20A)



WO20-3

(20B)



R11-2

(29)



R11-4

(55)

DRAWING NOT TO SCALE
USE DIMENSIONS

LEVEE DITCH TRAFFIC CONTROL
SHEET 5 OF 7

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 07/12/23

ROUTE	STATE
A	MO

DISTRICT	SHEET NO.
SE	14

COUNTY: DUNKLIN

JOB NO.: J9S3676

CONTRACT ID.:

PROJECT NO.:

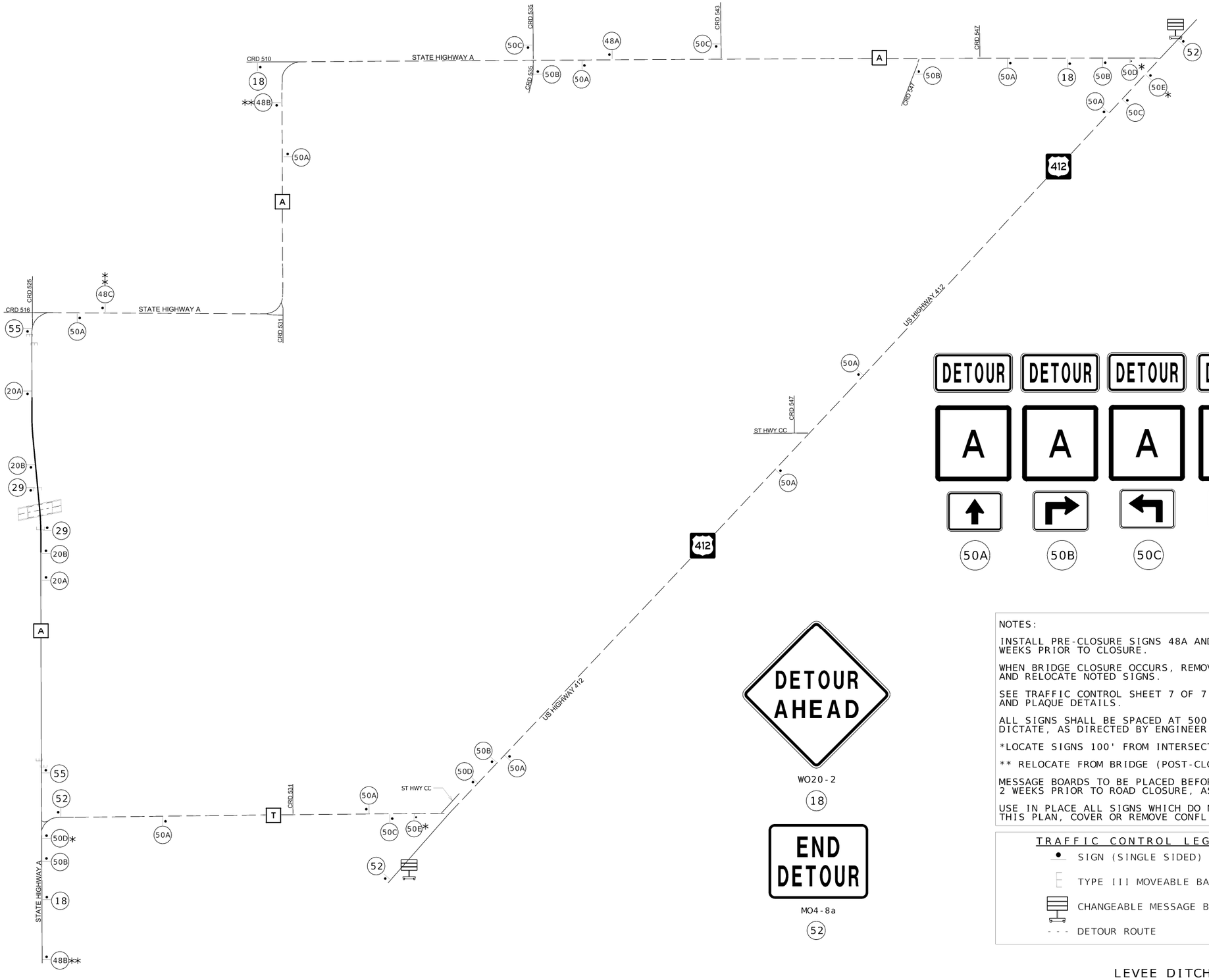
BRIDGE NO.:

DESCRIPTION	DATE

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

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632



WO20-2

18

MO4-8a

52

NOTES:

INSTALL PRE-CLOSURE SIGNS 48A AND 48C A MINIMUM OF 2 WEEKS PRIOR TO CLOSURE.

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SEE TRAFFIC CONTROL SHEET 7 OF 7 FOR SPECIAL SIGN AND PLAQUE DETAILS.

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*LOCATE SIGNS 100' FROM INTERSECTION.

** RELOCATE FROM BRIDGE (POST-CLOSURE).

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

TRAFFIC CONTROL LEGEND

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

LEVEE DITCH TRAFFIC CONTROL
SHEET 6 OF 7

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED: 07/12/23

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	15

COUNTY: DUNKLIN

JOB NO.: J9S3676

CONTRACT ID.:

PROJECT NO.:

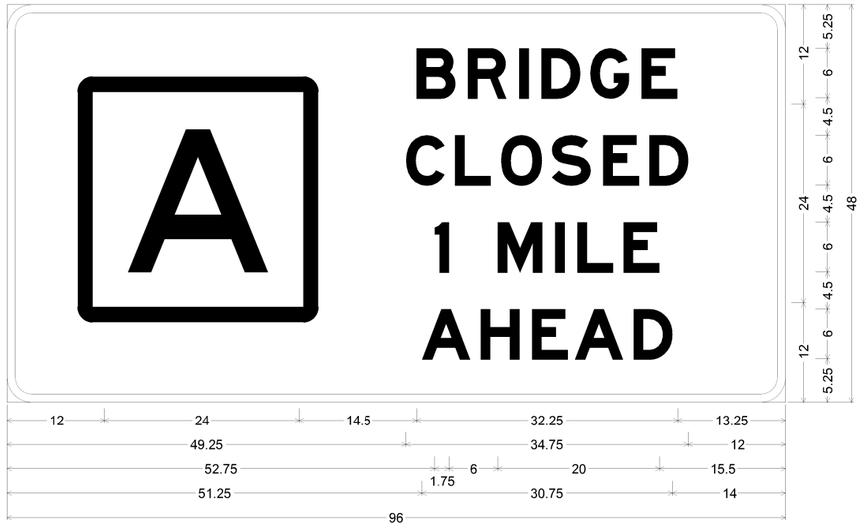
BRIDGE NO.:

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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

A	B	R	I	D	G	E
12.000	50.500	56.875	63.125	65.875	71.875	78.250
C	**L**	**O**	**S**	**E**	**D**	
49.250	55.250	61.000	67.250	73.500	79.250	
I	**M**	**I**	**L**	**E**		
52.750	60.500	67.625	70.375	76.000		
A	**H**	**E**	**A**	**D**		
51.250	58.375	64.750	70.000	77.250		

48

SPECIAL SIGN PLAQUES



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

J	A	N
1.000	6.750	14.000



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

F	E	B
1.000	6.750	12.375



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

M	A	R
1.000	7.750	15.000



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

A	P	R
1.000	8.250	14.500



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

M	A	Y
1.000	7.500	13.750



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

J	U	N
1.000	7.125	13.375



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

J	U	L
1.000	7.000	13.375



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

A	U	G
1.000	8.250	14.500



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

S	E	P
1.000	7.250	13.000



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

O	C	T
1.000	7.250	12.875



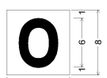
SHF-FLAT SHEET FLUORESCENT;
No border, Black on Orange;
[NOV] E Mod;
Table of letter and object lefts.

N	O	V
1.000	7.250	13.500



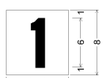
SHF-FLAT SHEET FLUORESCENT;
No border, Black on Orange;
[DEC] E Mod;
Table of letter and object lefts.

D	E	C
1.000	7.250	13.000



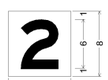
SHF-FLAT SHEET FLUORESCENT;
No border, Black on Orange;
[0] E Mod;
Table of letter and object lefts.

O
1.500



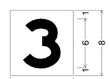
SHF-FLAT SHEET FLUORESCENT;
No border, Black on Orange;
[1] E Mod;
Table of letter and object lefts.

I
3.125



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

2
1.625



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

3
1.625



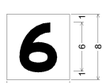
SHF-FLAT SHEET FLUORESCENT;
No border, Black on Orange;
[4] E Mod;
Table of letter and object lefts.

4
1.250



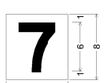
SHF-FLAT SHEET FLUORESCENT;
No border, Black on Orange;
[5] E Mod;
Table of letter and object lefts.

5
1.625



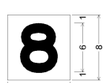
SHF-FLAT SHEET FLUORESCENT;
No border, Black on Orange;
[6] E Mod;
Table of letter and object lefts.

6
1.625



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

7
1.625



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

8
1.625



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

9
1.625



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

O	N
18.375	24.875

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

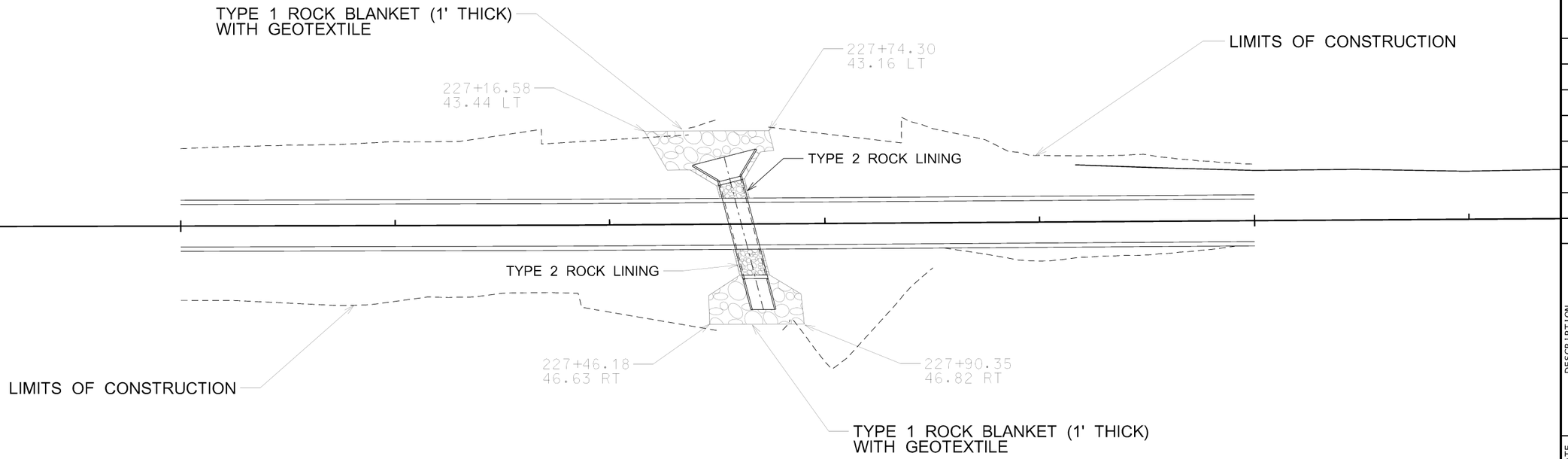
DATE PREPARED	
07/10/23	
ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	16

COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

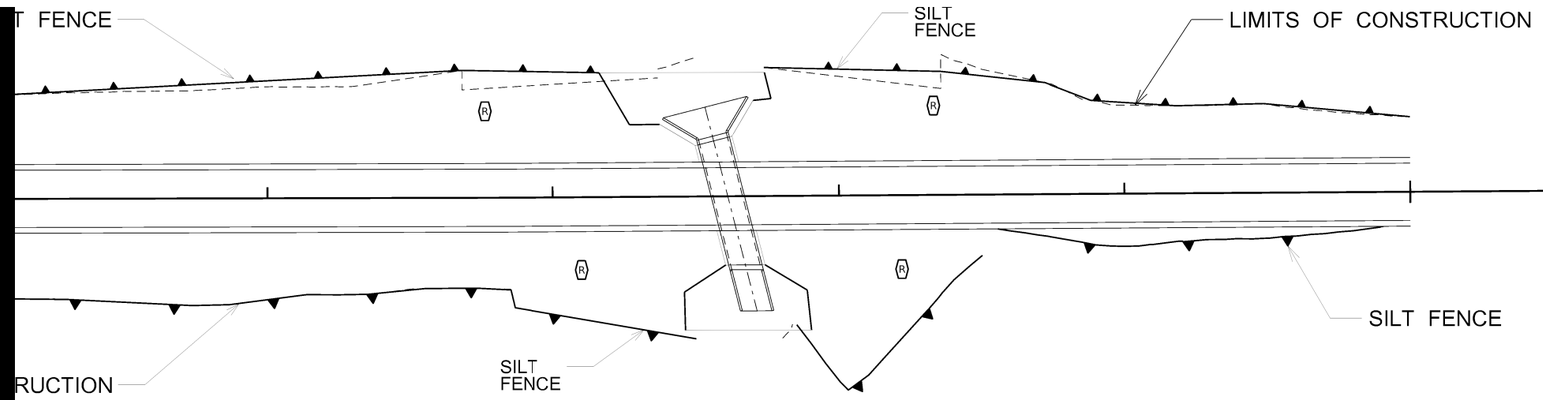
DESCRIPTION	DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632



PERMANENT EROSION CONTROL



EGEND

DITCH E EROSION CONTROL
T 1 OF 4

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

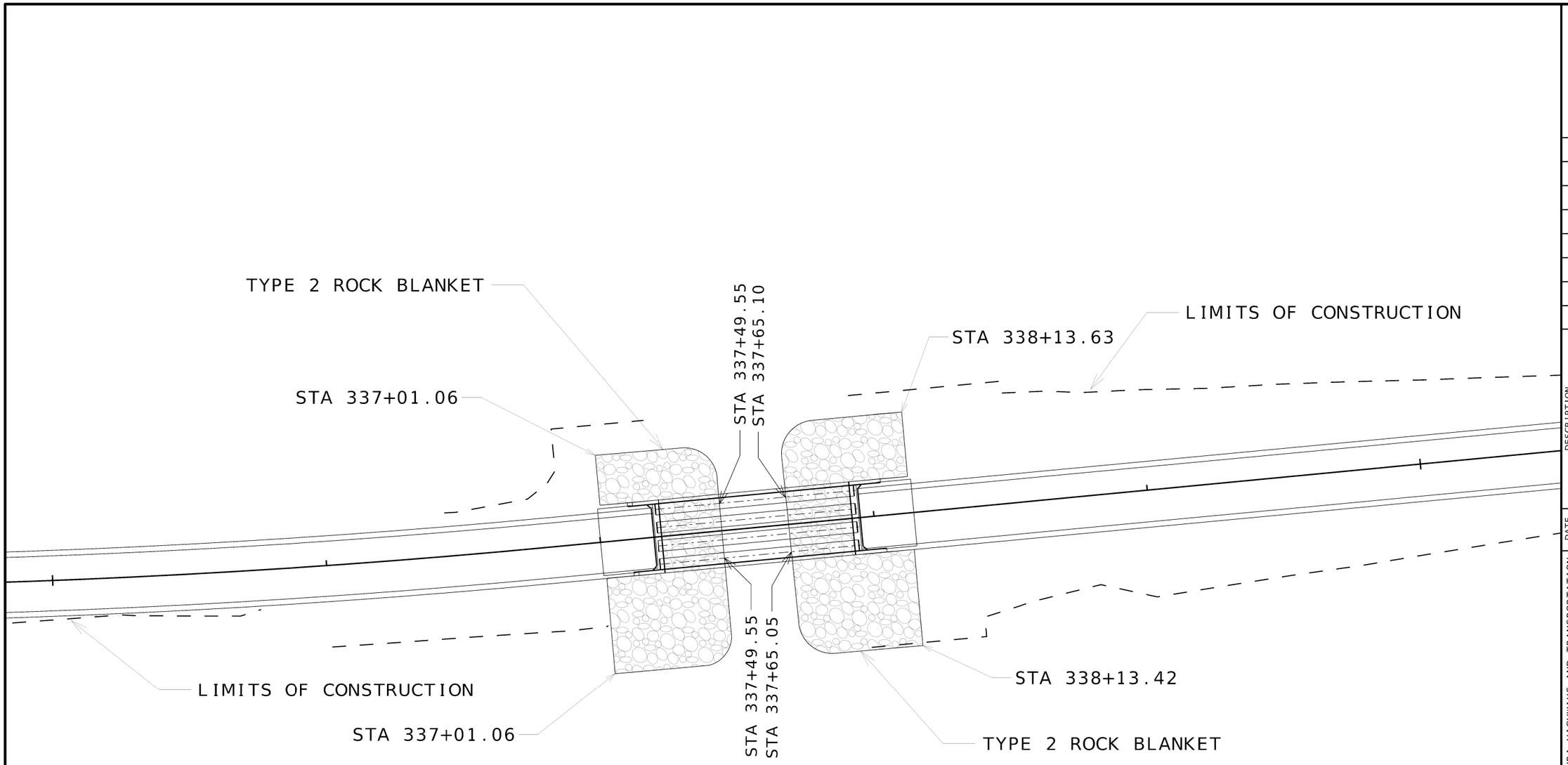
DATE PREPARED 07/17/23
ROUTE A | STATE MO
DISTRICT SE | SHEET NO. 17
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

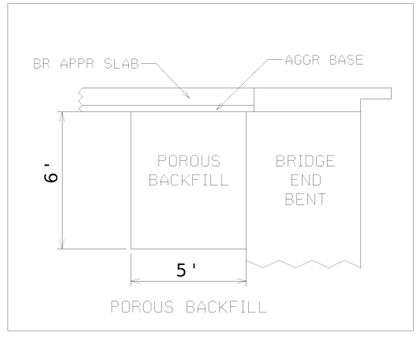
DESCRIPTION | DATE

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

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632





PERMANENT EROSION CONTROL
NOT TO SCALE FOLLOW DIMENSIONS

MAIN DITCH
EROSION CONTROL SHEET
SHEET 2 OF 4

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 07/18/23

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	18

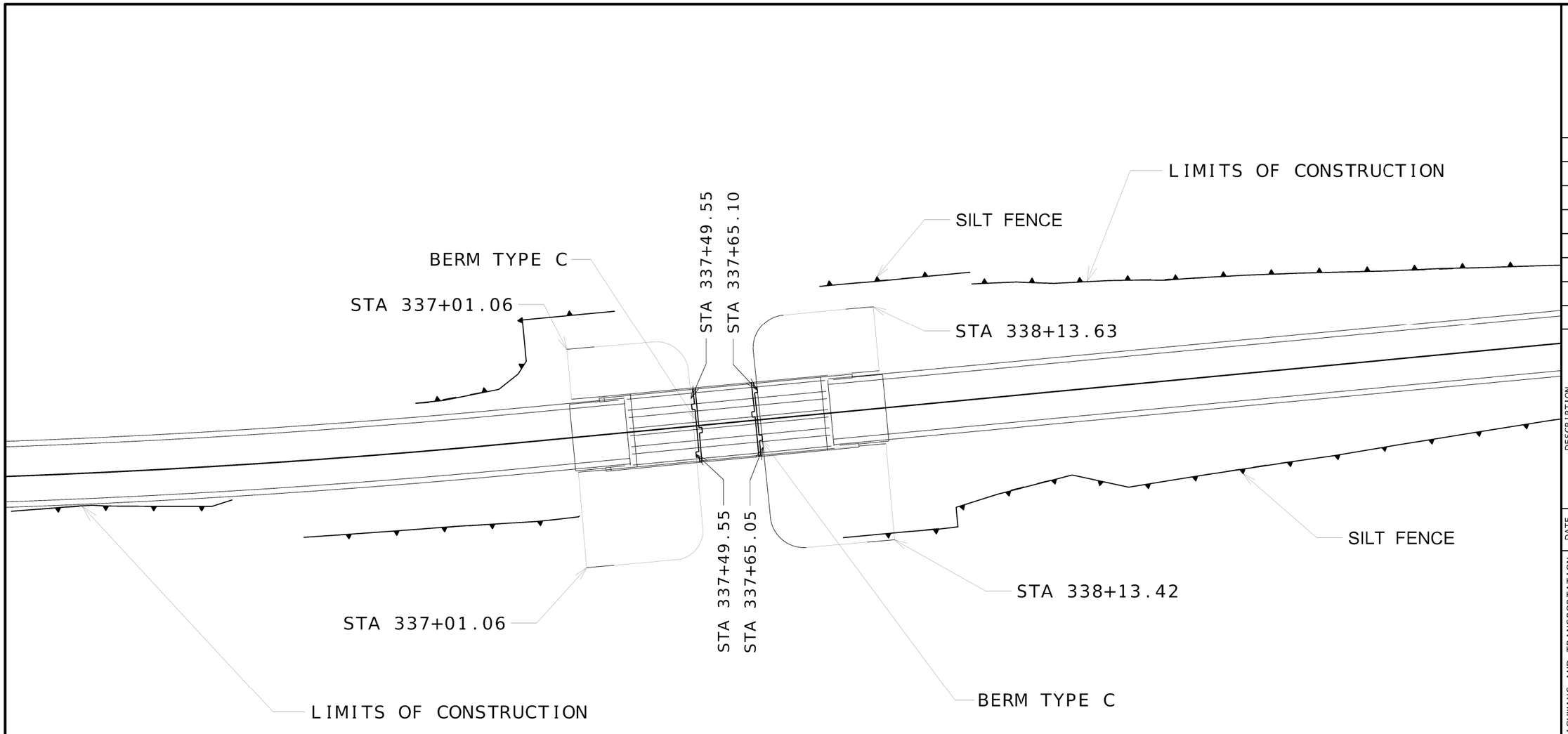
COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9312

DESCRIPTION	DATE

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

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632



TEMPORARY EROSION CONTROL LEGEND

TEMPORARY BERM TYPE C

SILT FENCE

NOT TO SCALE FOLLOW DIMENSIONS

MAIN DITCH
EROSION CONTROL SHEET
SHEET 3 OF 4

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 07/18/23

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	19

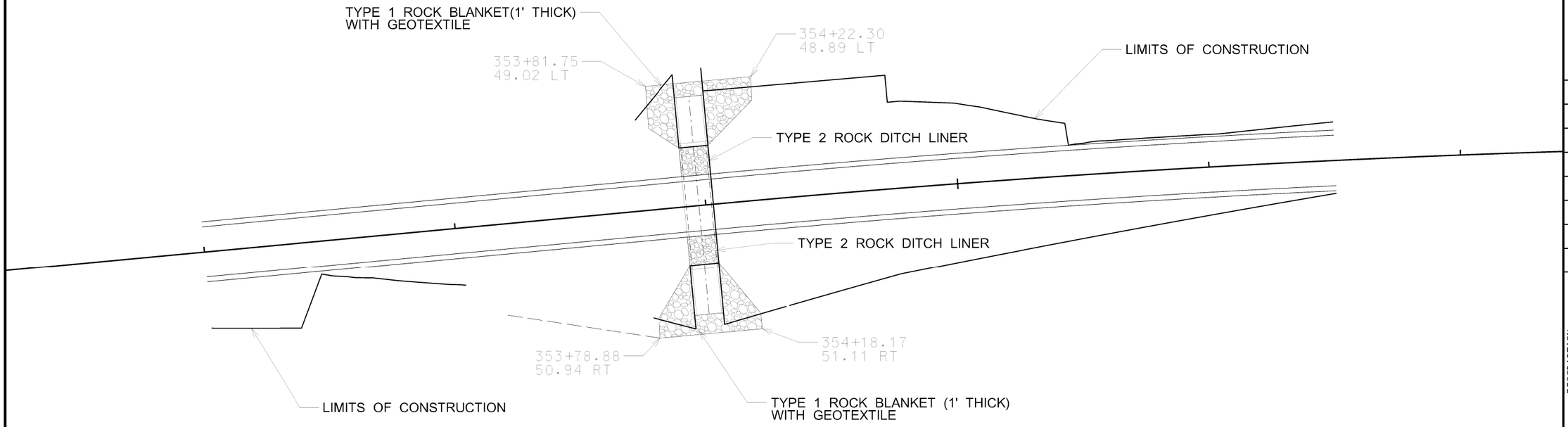
COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9312

DESCRIPTION	DATE

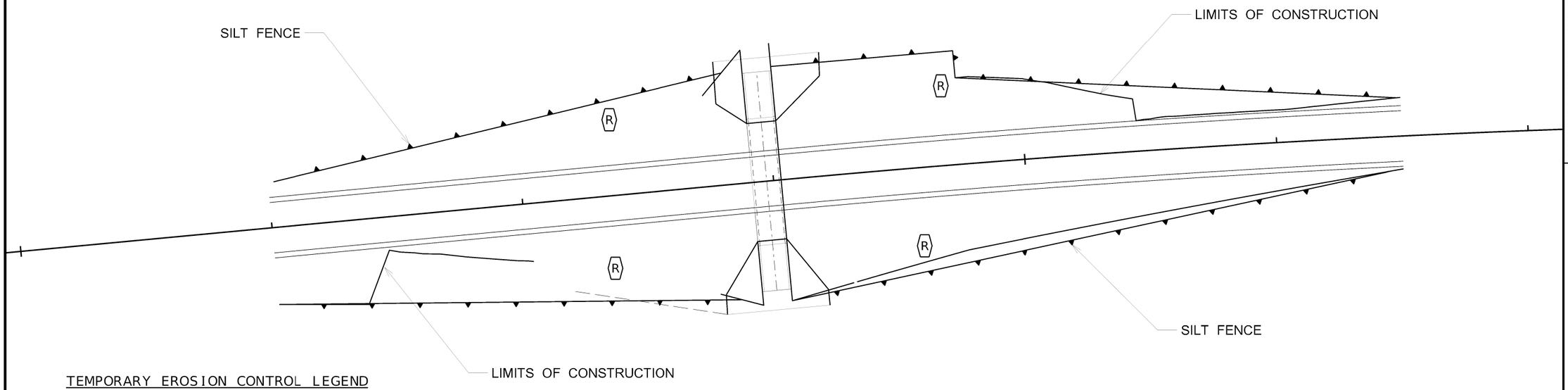
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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3437 William Street
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Certificate of Authority: F2007028644
Phone: 573-222-5632



PERMANENT EROSION CONTROL



TEMPORARY EROSION CONTROL LEGEND

SILT FENCE

R ROCK DITCH CHECK

LEVEE DITCH EROSION CONTROL
SHEET 4 OF 4

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 07/24/23

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	20

COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

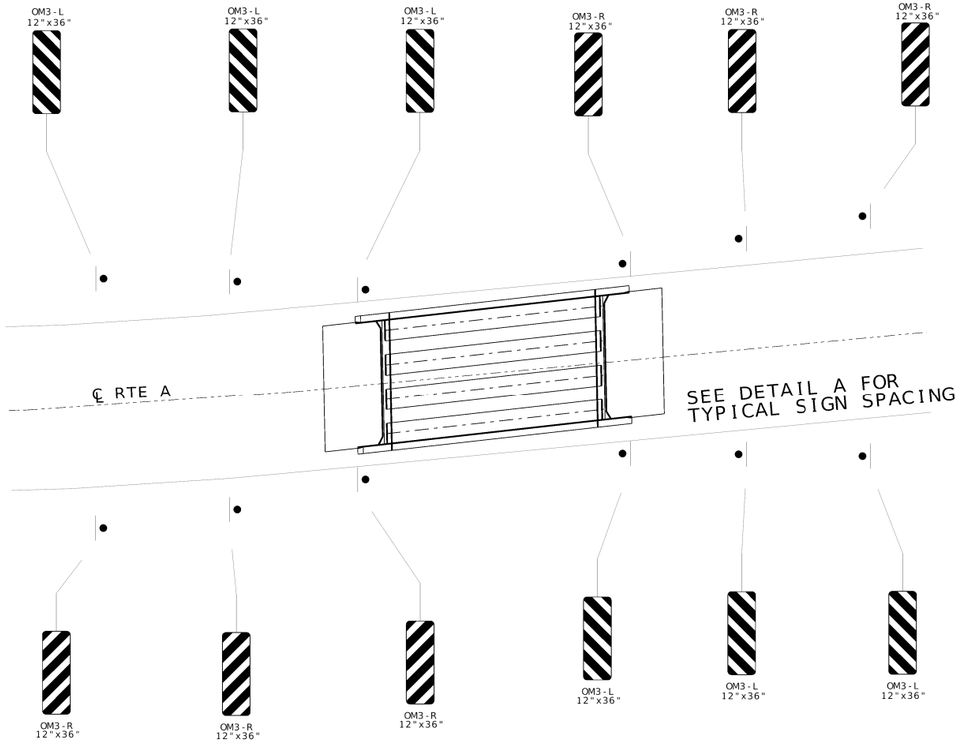
DESCRIPTION	DATE

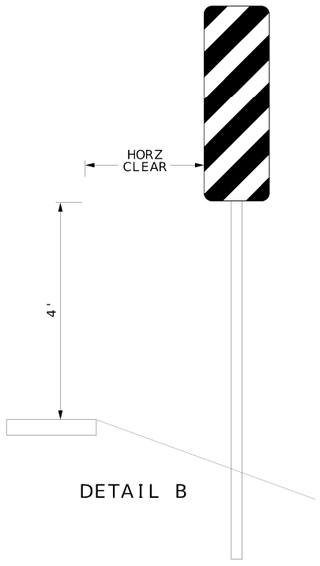
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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

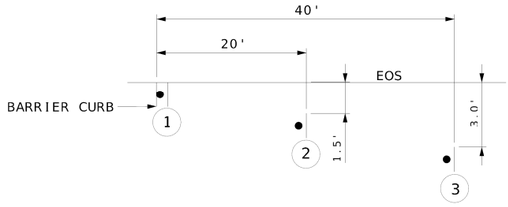
BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5832

SIGNS				PERFORATED SQUARE STEEL TUBE		REMARKS
				2 IN. POST		
SIGN NO.	SIGN SIZE	HORZ CLEAR IF NOT STD	LOC	POST ITEM NO. 9031270A LF	ANCHORS DRIVEN 12-GA. ITEM NO. 9031271A EA	
1	12x36	3.00	LT	8.75	1	S0472
2	12x36	3.00	RT	8.75	1	S0472
3	12x36	1.50	LT	6.25	1	S0472
4	12x36	1.50	RT	6.25	1	S0472
5	12x36	0.00	LT	3.75	1	S0472
6	12x36	0.00	RT	3.75	1	S0472
7	12x36	0.00	RT	3.75	1	S0472
8	12x36	0.00	LT	3.75	1	S0472
9	12x36	1.50	RT	6.25	1	S0472
10	12x36	1.50	LT	6.25	1	S0472
11	12x36	3.00	RT	8.75	1	S0472
12	12x36	3.00	LT	8.75	1	S0472
			TOTAL	75.00	12	





DETAIL B



DETAIL A

NOTE:

1. INSTALL OBJECT MARKER SAME HEIGHT AS BRIDGE BARRIER CURB
2. INSTALL OBJECT MARKER AT 1/2 STANDAR HEIGHT
3. INSTALL OBJECT MARKER AT STANDARD HEIGHT

**ADJUST SIGNS AS DIRECTED THEBY ENGINEER TO AVOID ENTRANCES

DRAWING NOT TO SCALE.
FOLLOW DIMENSIONS.

SIGN SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

DATE PREPARED
02/15/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	21

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9312

DESCRIPTION	DATE

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

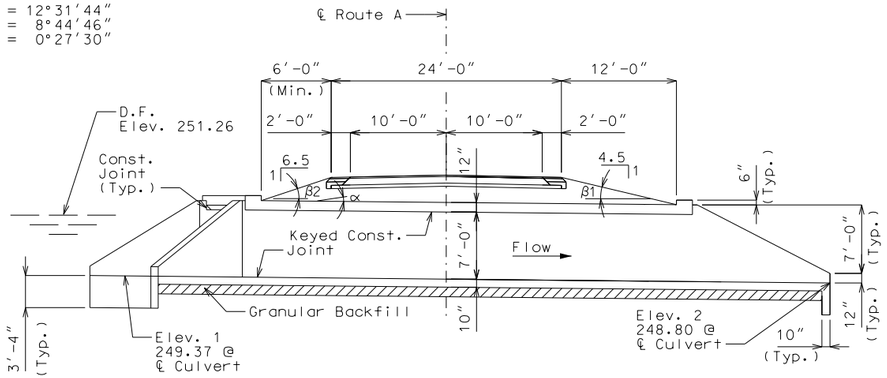
BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

$FILE$ $TIME$ $DATE$

SEC/SUR 13/18 TWP 18N RGE 9E

(10′ X 7′) CONCRETE SINGLE BOX CULVERT

β1 = 12°31′44″
β2 = 8°44′46″
α = 0°27′30″



GENERAL ELEVATION A-A

Construction joint key not shown for clarity, see Sheet No. 3 of 4 for details.

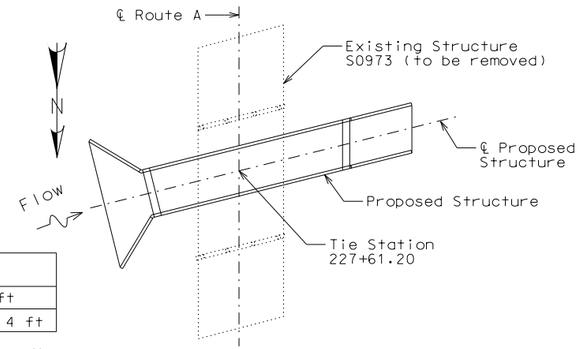
If any part of the barrel is exposed, the roadway fill shall be warped to provide 12 inches minimum cover. (Roadway Item)

If unsuitable material is encountered, excavation of unsuitable material and furnishing and placing of granular backfill shall be in accordance with Sec 206.

Estimated Quantities			Final Quantities
Class 4 Excavation	cu. yard	125	
Misc. Dewatering	lump sum	1.0	
Removal of Bridges (S0973)	lump sum	1.0	
Class B-1 Concrete (Culverts)	cu. yard	76.4	
Reinforcing Steel (Culverts)	pound	15,330	

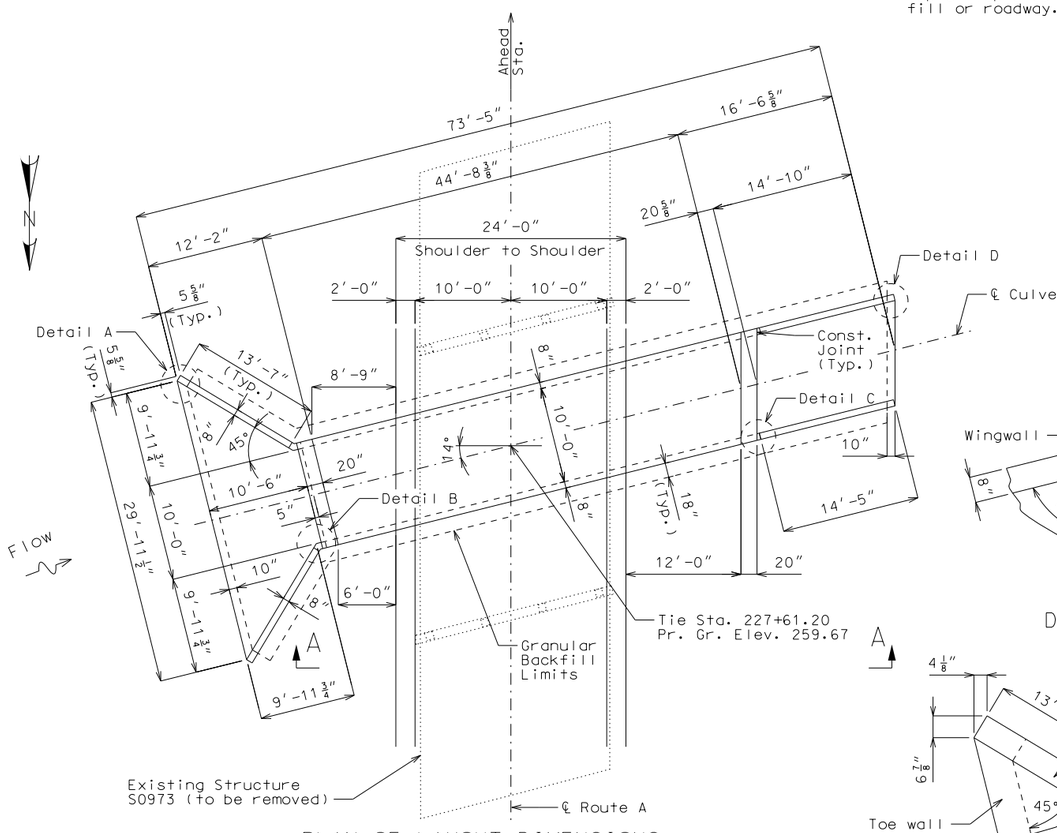
Fill Heights
℄ Rdwy at ℄ Culvert = 2.55 ft
Design (All units) = 2.0 to 4 ft

Fill heights are measured from the top of top slab to the top of earth fill or roadway.

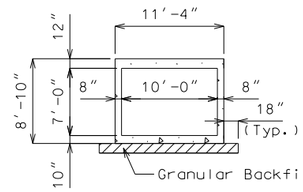


LOCATION SKETCH

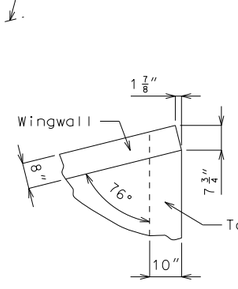
Hydrologic Data
Drainage Area = 0.24 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 50.5 cfs
Design Flood (D.F.) Elevation = 251.26
Base Flood (100-year)
Base Flood Elevation = 251.28
Base Flood Discharge = 52.9 cfs
Estimated Backwater = 0
Outlet Velocity = 3.12 ft/s
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency = N/A
Flood Elevation (1′ below shldr.) = 258.43



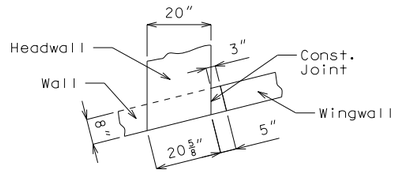
PLAN OF LAYOUT DIMENSIONS
Drainage pipes, Type 1 Rock Blanket and Type 2 Rock Liner not shown for clarity.



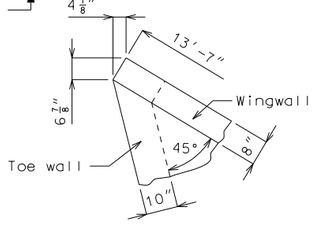
GRANULAR BACKFILL LIMITS AND MEMBER DIMENSIONS



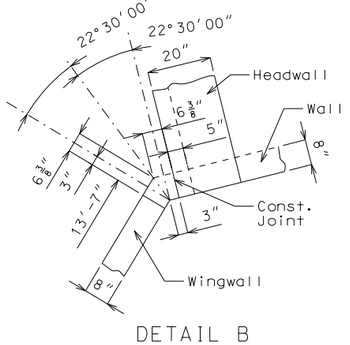
DETAIL D



DETAIL C



DETAIL A



DETAIL B

GENERAL NOTES

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

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

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

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

Standard Plans:
703.15, 703.17, and 703.37.

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

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

Drawing not to scale. Follow dimensions.

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

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

See roadway plans for drainage pipes location and size.

Place Type 1 Rock Blanket along perimeter of wingwalls and bottom slab at each end of the culvert. See roadway plans for details.(Roadway Item)

Provide Type 2 Rock Ditch Liner extending to headwalls above top slab. See roadway plans for details. (Roadway Item)

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

CULVERT: ROUTE A OVER DRAINAGE DITCH NO. 5

ROUTE A FROM 412 TO ROUTE T
ABOUT 6.6 MILES WEST OF ROUTE 412
TIE STA. 227+61.20

Designed August 2023
Detailed August 2023
Checked August 2023

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

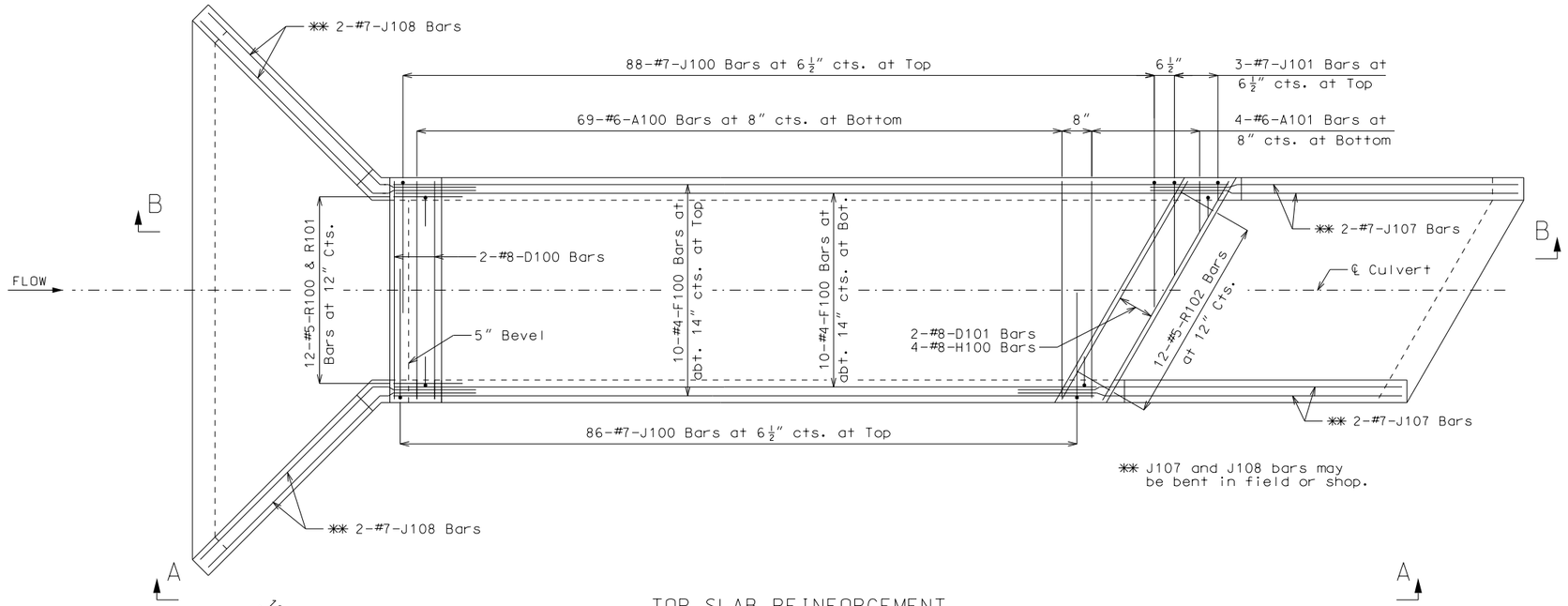
STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT SE | SHEET NO. 22
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

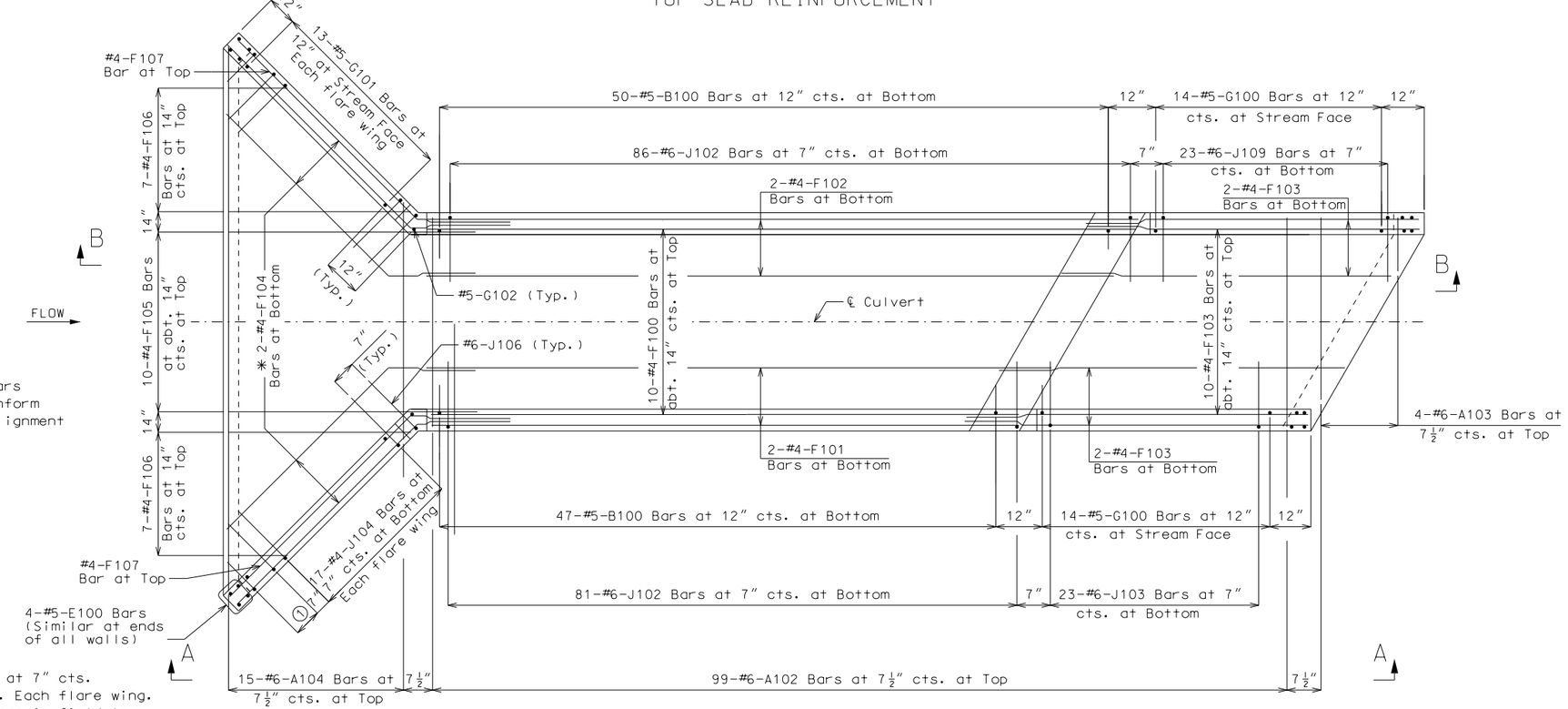
DESCRIPTION | DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007029644
Phone: 573-222-5632



TOP SLAB REINFORCEMENT



* Cut and bend bars in field to conform to structure alignment

BOTTOM SLAB REINFORCEMENT

GENERAL NOTES:

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

Drawing not to scale. Follow dimensions.

Lap longitudinal bars a minimum of 23" at splices.

See Sheet No. 3 of 4 for developed elevations A-A & B-B.

Beveled Headwall shall be located at the upstream end.

For reinforcement details in Sections thru barrel, Upstream & Downstream wings, see Sheet No. 3 of 4.

Construction joint key not shown for clarity. See Sheet No. 3 of 4 for details.

FREDERICK A. MENSAH NUMBER PE-2022039709
STATE OF MISSOURI PROFESSIONAL ENGINEER

DATE PREPARED: 02-28-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	23

COUNTY: DUNKLIN

JOB NO.: J9S3676

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

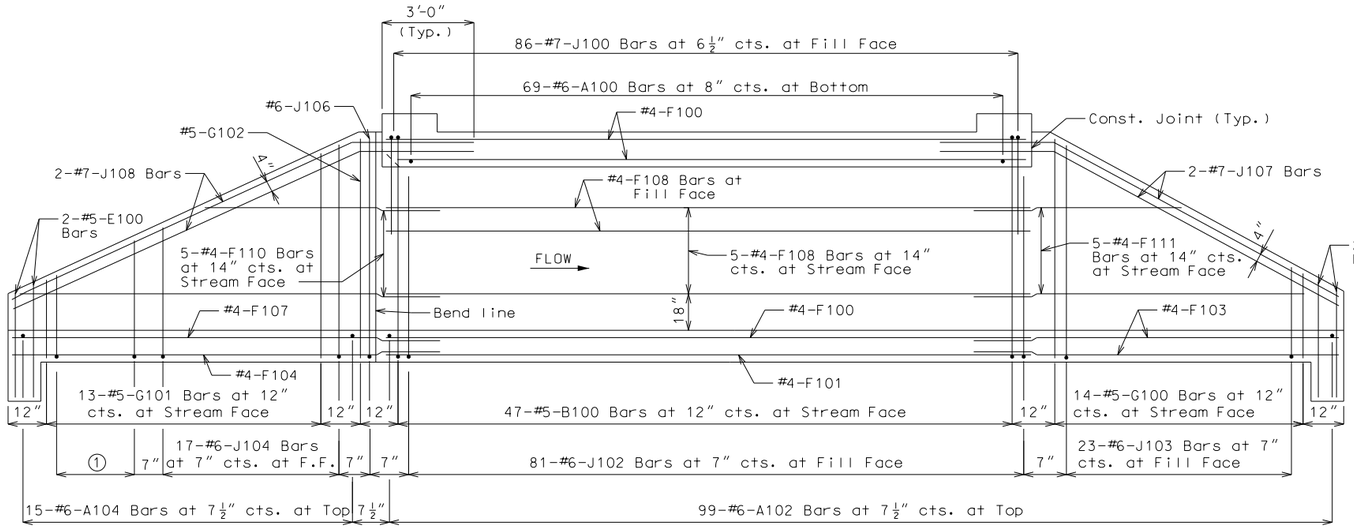
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BACON | FARMER | WORKMAN
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Cape Girardeau, Missouri
Certificate of Authority: F2007028644
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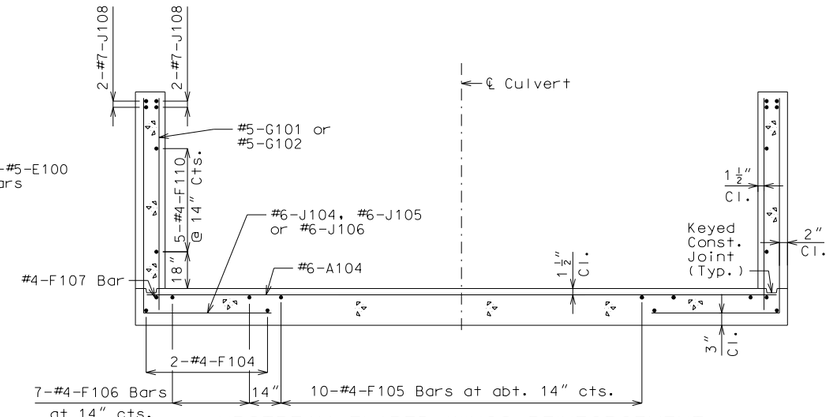
Detailed August 2023
Checked August 2023

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

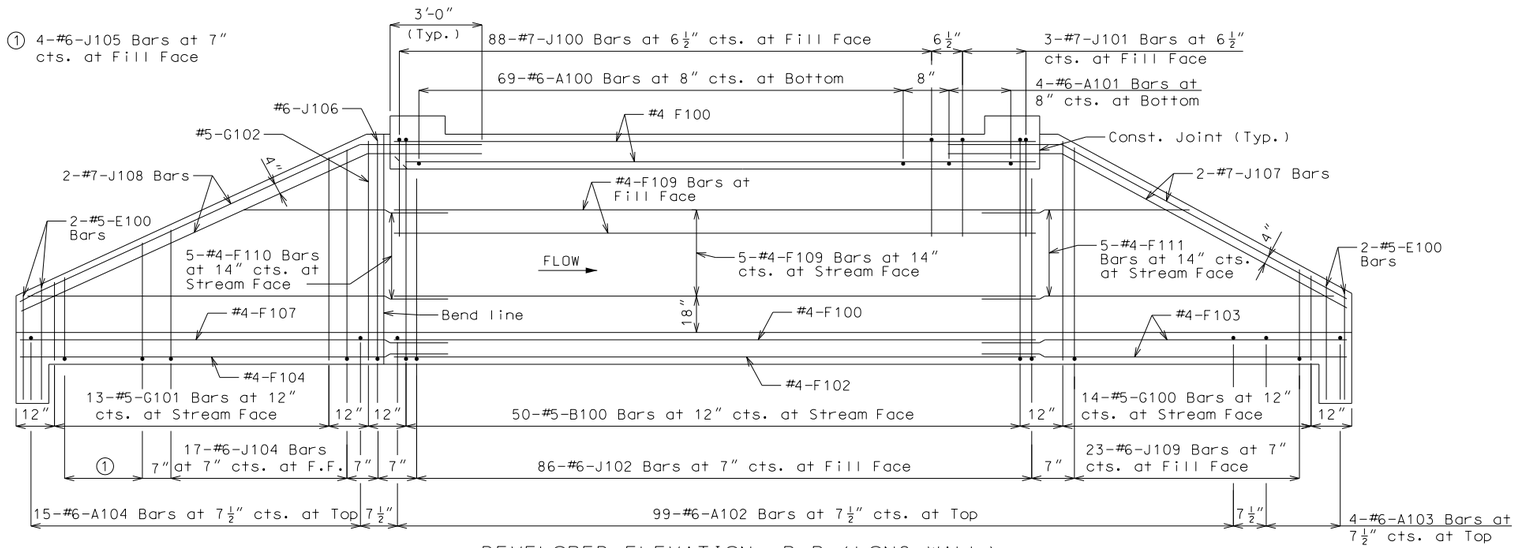
Culvert Sheet
Sheet No. 2 of 4



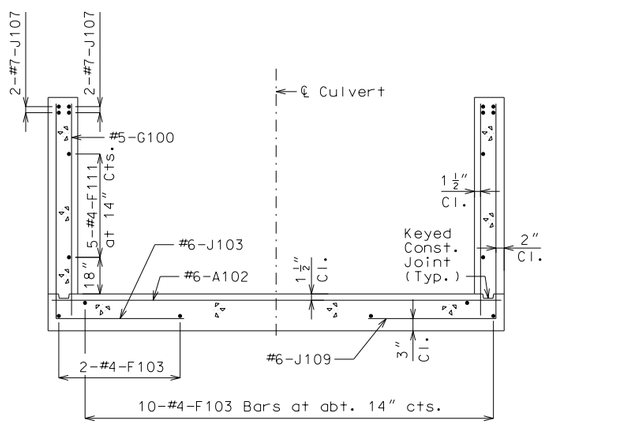
DEVELOPED ELEVATION A-A (SHORT WALL)



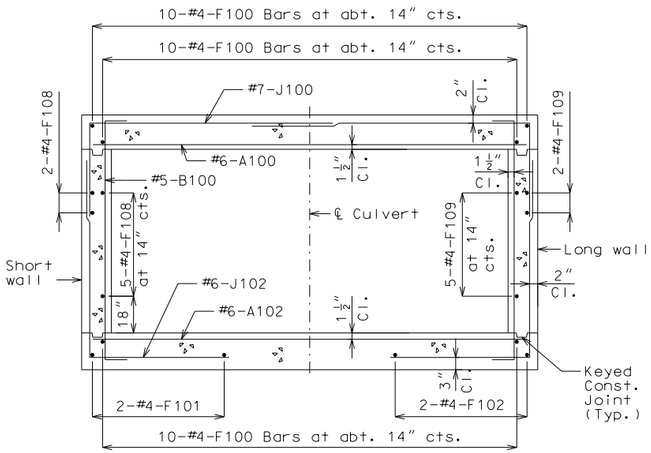
UPSTREAM FLARED WINGS REINFORCEMENT



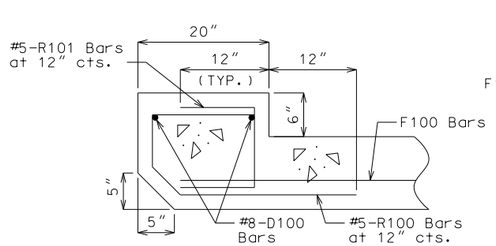
DEVELOPED ELEVATION B-B (LONG WALL)



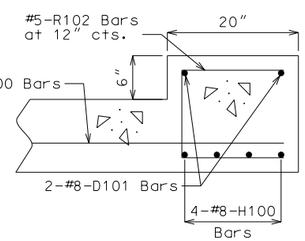
DOWNSTREAM WINGS REINFORCEMENT



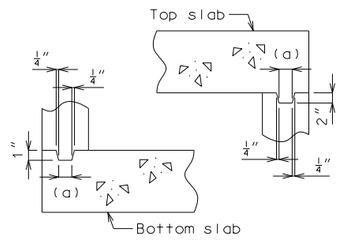
BARREL REINFORCEMENT
(Looking upstream)



UPSTREAM HEADWALL REINFORCEMENT



DOWNSTREAM HEADWALL REINFORCEMENT



KEYED CONSTRUCTION JOINT
(a) Approximately one-third of wall thickness

GENERAL NOTES:

Barrel and wings sections are symmetrical about and normal to ℄ culvert unless stated otherwise. Headwall sections are normal to long direction of headwall.

Drawing not to scale. Follow dimensions.

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

Lap longitudinal bars a minimum of 23" at splices.

J107 and J108 Bars may be bent in field or shop.

F.F. denotes Fill Face

Detailed August 2023
Checked August 2023

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

Culvert Sheet
Sheet No. 3 of 4

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED	02-28-2024
ROUTE	A
STATE	MO
DISTRICT	SE
SHEET NO.	24
COUNTY	DUNKLIN
JOB NO.	J9S3676
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION | DATE

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

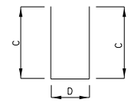
BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: P2007028644
Phone: 573-222-5632

BILL OF REINFORCING STEEL

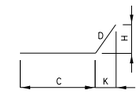
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	SHAPE NO.	STIRRUP (S)	EPOXY (E)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	C FT.	D or F FT.	E FT.	H FT.	K FT.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			BOX CULVERT														
69	6	A100	TOP SLAB	20					11 0.000						11 0	11 0	1140
4	6	A101	TOP SLAB	20			V	1	2 10.000						2 10	2 10	41
			INCR. = 32.125 INCH						10 10.375						10 10	10 10	
99	6	A102	BOTTOM SLAB	20					11 0.000						11 0	11 0	1636
4	6	A103	BOTTOM SLAB	20			V	1	3 4.000						3 4	3 4	43
			INCR. = 30.125 INCH						10 10.375						10 10	10 10	
15	6	A104	BOTTOM SLAB	20			V	1	12 6.375						12 6	12 6	479
			INCR. = 15.000 INCH						30 0.375						30 0	30 0	
97	5	B100	WALLS/SLABS	10						12.000	8 5.000				10 5	10 2	1029
2	8	D100	HEADWALL	20					11 1.000						11 1	11 1	59
2	8	D101	HEADWALL	20					11 5.000						11 5	11 5	61
16	5	E100	WINGS	20					3 11.000						3 11	3 11	65
30	4	F100	SLABS	20			V	3	46 5.500						46 6	46 6	958
			INCR. = 3.500 INCH						49 1.000						49 1	49 1	
2	4	F101	BOTTOM SLAB	20					47 3.000						47 3	47 3	63
2	4	F102	BOTTOM SLAB	20					49 1.000						49 1	49 1	66
14	4	F103	APRON	20					17 0.000						17 0	17 0	159
4	4	F104	APRON	15						13 9.125	4 0.000		2 10.000	2 10.000	17 9	17 8	47
10	4	F105	APRON	20					12 8.000						12 8	12 8	85
14	4	F106	APRON	20			V	2	2 2.000						2 2	2 2	53
			INCR. = 14.000 INCH						9 2.000						9 2	9 2	
2	4	F107	WINGS	15						13 10.500	2 8.000		22.625	22.625	16 7	16 6	22
7	4	F108	WALLS	20					49 1.000						49 1	49 1	230
7	4	F109	WALLS	20					46 5.000						46 5	46 5	217
10	4	F110	WINGS	15			V	2		3 8.875	2 8.000		22.625	22.625	6 5	6 4	72
			INCR. = 27.125 INCH							12 9.375	2 8.000		22.625	22.625	15 5	15 4	
10	4	F111	WINGS	20			V	2	5 9.000						5 9	5 9	70
			INCR. = 28.750 INCH						15 4.000						15 4	15 4	
28	5	G100	WINGS	20			V	2	22.750						23	23	148
			INCR. = 5.875 INCH						8 3.125						8 3	8 3	
26	5	G101	WINGS	20			V	2	23.500						2 0	2 0	137
			INCR. = 6.125 INCH						8 1.000						8 1	8 1	
2	5	G102	WINGS	20					8 5.000						8 5	8 5	18
4	8	H100	HEADWALL	20					11 5.000						11 5	11 5	122
174	7	J100	TOP SLAB	19					3 8.000	6 5.000					10 1	9 11	3527
3	7	J101	TOP SLAB	19			V	1	3 8.000	18.000					5 2	5 0	44
			INCR. = 26.125 INCH						3 8.000	5 10.250					9 6	9 4	
167	6	J102	BOTTOM SLAB	19					7 6.000	3 9.000					11 3	11 1	2780
23	6	J103	WINGS	19			V	1	2 0.250	3 9.000					5 9	5 7	301
			INCR. = 3.375 INCH						8 2.500	3 9.000					12 0	11 10	
34	6	J104	WINGS	19			V	2	3 4.500	3 9.000					7 2	7 0	481
			INCR. = 3.625 INCH						8 2.500	3 9.000					12 0	11 10	
8	6	J105	WINGS	19			V	2	2 2.125	3 9.000					5 11	5 9	75
			INCR. = 3.625 INCH						3 1.000	3 9.000					6 10	6 8	
2	6	J106	WINGS	19					8 5.000	3 9.000					12 2	12 0	36
8	7	J107	WINGS	15						15 10.750	3 4.500		17.750	3 0.500	19 3	19 2	313
8	7	J108	WINGS	15						15 1.625	3 5.500		2 5.625	2 5.625	18 7	18 6	303
23	6	J109	WINGS	19			V	1	2 2.000	3 9.000					5 11	5 9	305
			INCR. = 3.375 INCH						8 4.250	3 9.000					12 1	11 11	

BILL OF REINFORCING STEEL

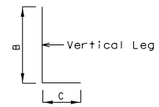
NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	SHAPE NO.	STIRRUP (S)	EPOXY (E)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	C FT.	D or F FT.	E FT.	H FT.	K FT.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
12	5	R100	HEADWALLS	27	S				17.000	10.750	6.000	2 2.500	4.250	4.250	5 0	4 9	59
12	5	R101	HEADWALLS	10	S					10.500	15.000				3 0	2 9	34
12	5	R102	HEADWALLS	10	S					17.000	15.000				4 1	3 10	48
			TOTALS														
	4																2042
	5																1539
	6																7316
	7																4187
	8																242
			TOTAL														15326



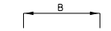
SHAPE 10



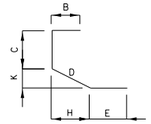
SHAPE 15



SHAPE 19



SHAPE 20

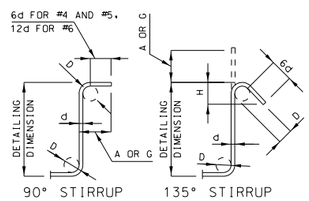


SHAPE 27

SPLICE LENGTH	
BAR SIZE	NON-EPOXY
#4	21 IN.
#5	26 IN.
#6	31 IN.
#7	39 IN.
#8	51 IN.
#9	65 IN.
#10	82 IN.
#11	101 IN.

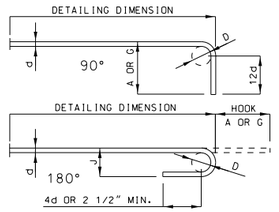
MAX BAR LENGTH	
BAR SIZE	NON-EPOXY
#4	60 FT.
#5	60 FT.
#6	60 FT.
#7	60 FT.
#8	60 FT.
#9	60 FT.
#10	60 FT.
#11	60 FT.

NOTE:
THE BAR LIST IS BASED ON THE MISSOURI STANDARD PLANS.
THIS BAR LIST IS FOR QUANTITY ESTIMATION PURPOSE ONLY AND SHALL BE VERIFIED OR MODIFIED BY THE CONTRACTOR.



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

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



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	GRADE 60		
		180° HOOKS		90° HOOKS
		A OR G	J	A OR G
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	24"

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
FB = BARS MAY BE BENT IN FIELD TO FIT.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE. A BLANK IN THE SECOND LINE REPRESENTS THE SAME BAR DIMENSION AS THAT IN THE FIRST LINE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADD A SPLICE LENGTH TO A BAR LENGTH WHICH EXCEEDS ITS MAXIMUM ALLOWABLE LENGTH.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

Detailed August 2023
Checked August 2023

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

Culvert Sheet
Sheet No. 4 of 4

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

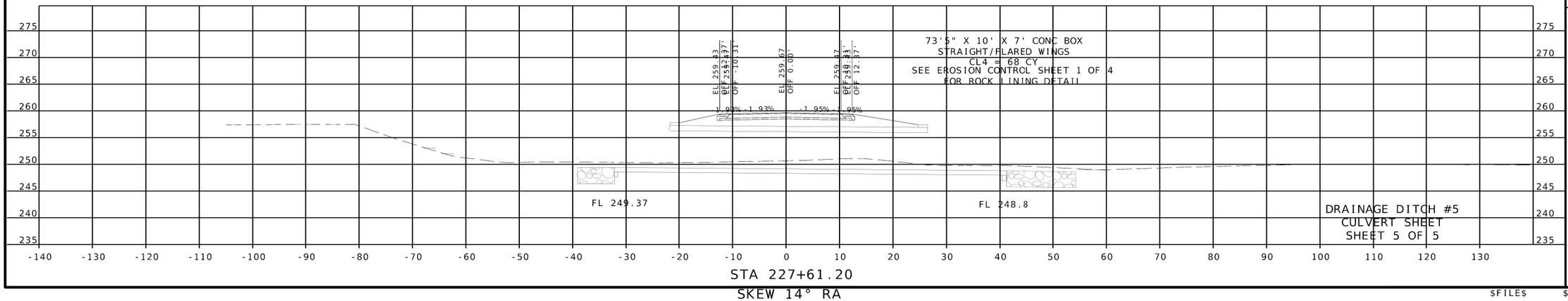
DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT SE | SHEET NO. 25
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION	DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority F2007028644
Phone: 573-222-5502
BFW

$FILE$ $TIME$ $DATE$



STA 227+61.20

SKEW 14° RA

$FILE$ $TIME$ $DATE$

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/28/23

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	26

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5832

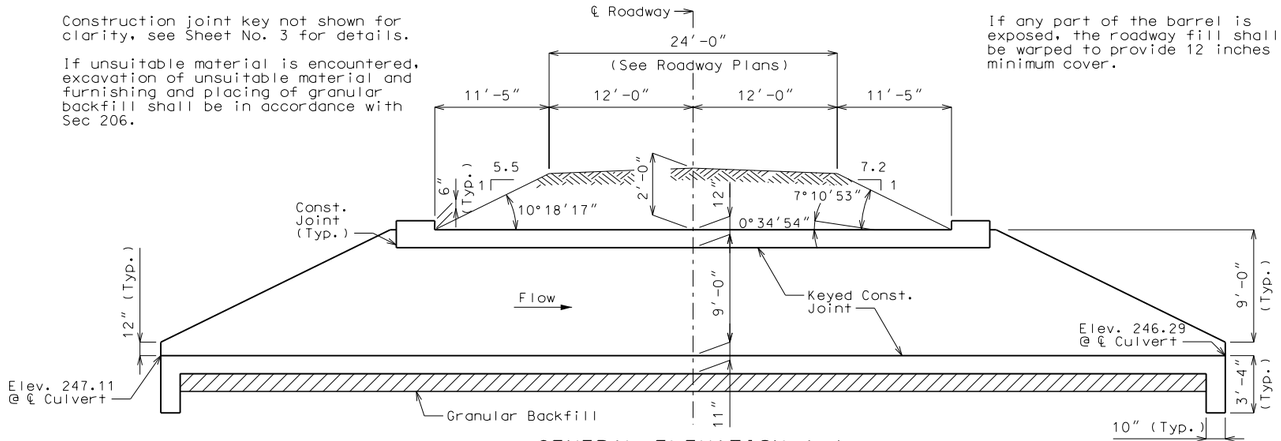
SEC/SUR 24 TWP 18N RGE 8E

(10'x9') CONCRETE BOX CULVERT

Construction joint key not shown for clarity, see Sheet No. 3 for details.

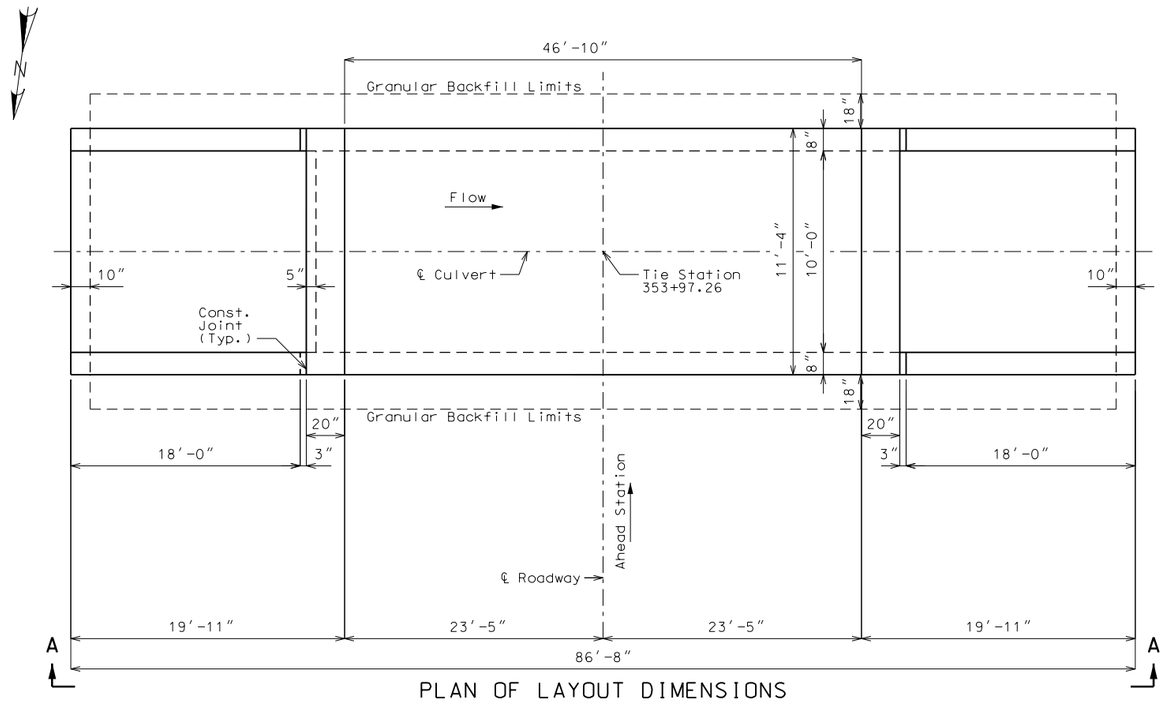
If unsuitable material is encountered, excavation of unsuitable material and furnishing and placing of granular backfill shall be in accordance with Sec 206.

If any part of the barrel is exposed, the roadway fill shall be warped to provide 12 inches minimum cover.



GENERAL ELEVATION A-A

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



PLAN OF LAYOUT DIMENSIONS

Hydrologic Data
Drainage Area = 0.51 sq. mi.
Design High Water (DHW) Elevation = 254.36
Design High Water Frequency = 50 years
Design High Water Discharge = 85.80 cfs
Backwater/Base Flood (100-year)
Base Flood Elevation = 254.52
Base Flood Discharge = 90.10 cfs
Estimated Backwater = 0 ft
Outlet Velocity = 0.42 ft/s
Roadway Overtopping
Design Elev. (1' below shoulder) = 257
Design Discharge = N/A
Design Frequency = N/A

Estimated Quantities For Box Culvert			Final Quantities
Class 4 Excavation	cu. yard	95	
Removal of Bridges (S0975)	lump sum	1	
Class B-1 Concrete (Culverts)	cu. yard	89.1	
Reinforcing Steel (Culverts)	pound	16,340	
Miscellaneous Dewatering	lump sum	1	

GENERAL NOTES:

DESIGN SPECIFICATIONS:
2010 AASHTO LRFD Bridge Design Specifications And 2010 Interim Revisions

DESIGN LOADING:
Vehicular = HL-93 Minus Lane Load, Earth = 120 lb/cf
Equivalent Fluid Pressure = 30 lb/cf (min.), 60 lb/cf (max.)

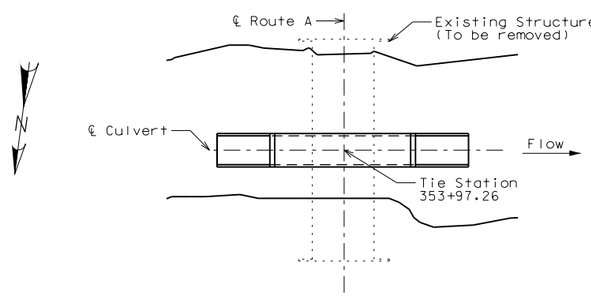
DESIGN UNIT STRESSES:
Class B-1 Concrete (Box Culvert) f'c = 4,000 psi
Reinforcing Steel (Grade 60) Fy = 60,000 psi

MISCELLANEOUS:
For Reinforcement Details, See Sheet No. 2. For Section Details, See Sheet No. 3.

Drawing not to scale. Follow dimensions.

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

TRAFFIC HANDLING:
Structure to be closed during construction. See roadway plans for traffic control.



LOCATION SKETCH

B.M. ELEV. 261.21 CUT SQUARE ON THE NORTHWEST CORNER OF BRIDGE S0975

CULVERT: ROUTE A OVER LEVEE DITCH

ROUTE A FROM ROUTE 412 TO ROUTE P
ABOUT 2.9 MILES NORTH OF ROUTE P
TIE STATION 353+97.26

Designed AUG 2023
Detailed AUG 2023
Checked AUG 2023

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

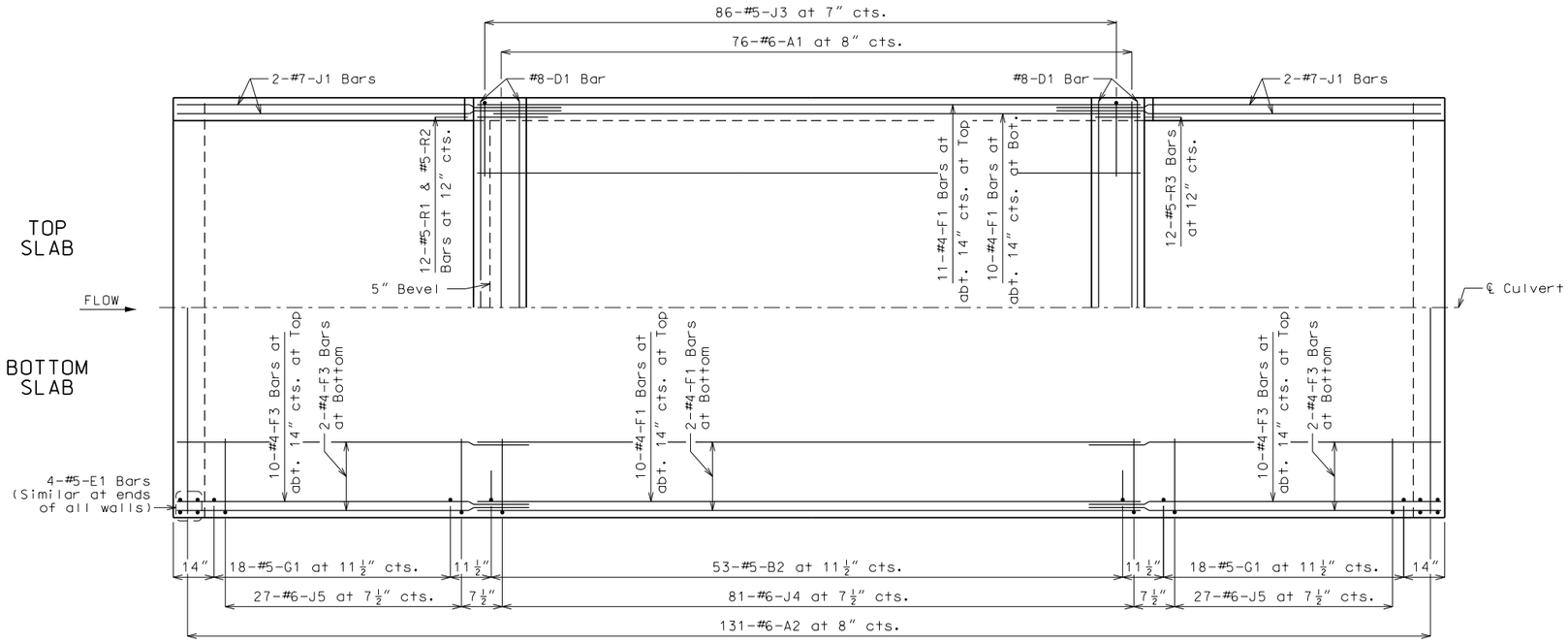
STATE OF MISSOURI
KIMBERLY ANNE STREICHER
NUMBER PE-2003001105
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED 2/28/2024
ROUTE A | STATE MO
DISTRICT SE | SHEET NO. 27
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

REV. | DESCRIPTION | DATE

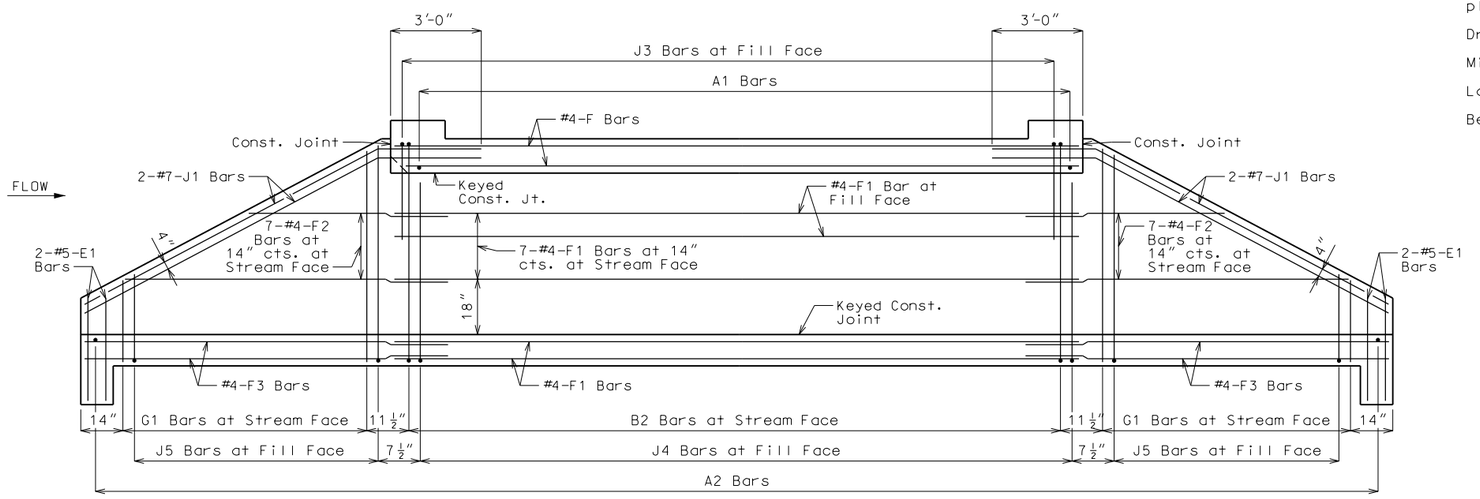
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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



HALF PLANS

Half Plans Are Symmetrical About ℄ Culvert.



ELEVATION

J1 bars may be bent in field or shop.

GENERAL NOTES:

For sections thru barrel, wings and headwalls, See Sheet No. 3.

Construction joint key not shown for clarity in half plans and elevation. See Sheet No. 3 for details.

Drawing not to scale. Follow dimensions.

Minimum clearance to reinforcing steel shall be 1½".

Lap longitudinal bars a minimum of 23" at splices.

Beveled headwall shall be located at upstream end.

STATE OF MISSOURI
KIMBERLY ANNE STREICHER
NUMBER PE-2003001105
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 2/28/2024
ROUTE: A | STATE: MO
DISTRICT: SE | SHEET NO.: 28
COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

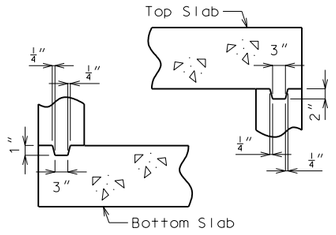
DESCRIPTION | DATE | REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
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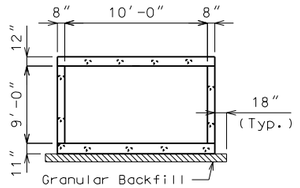
Detailed JUL 2023
Checked JUL 2023

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

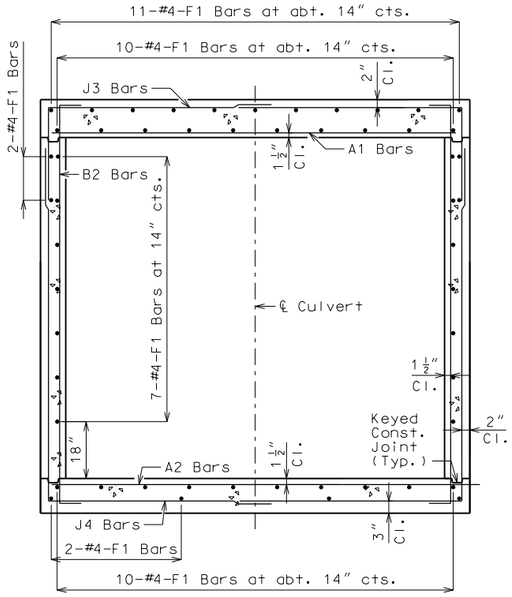
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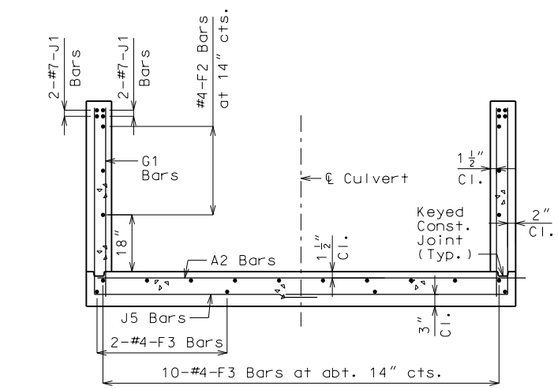
KEYED CONSTRUCTION JOINT



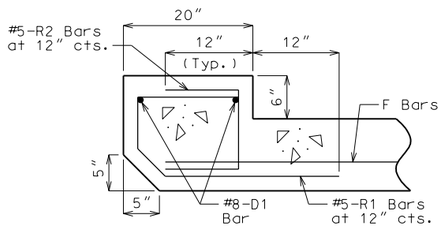
GRANULAR BACKFILL LIMITS AND MEMBER DIMENSIONS



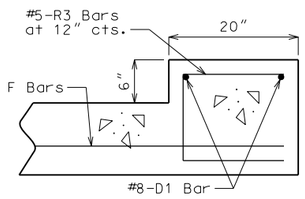
BARREL REINFORCEMENT



UPSTREAM AND DOWNSTREAM WINGS REINFORCEMENT



UPSTREAM HEADWALL REINFORCEMENT



DOWNSTREAM HEADWALL REINFORCEMENT

GENERAL NOTES:

Barrel and wings sections are symmetrical about and normal to ℄ culvert. Headwall sections are normal to long direction of headwall.

Drawing not to scale. Follow dimensions.

Minimum clearance to reinforcing steel shall be 1½".

STATE OF MISSOURI
KIMBERLY ANNE STREICHER
NUMBER PE-2003001105
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 2/28/2024
ROUTE: A | STATE: MO
DISTRICT: SE | SHEET NO.: 29
COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE | REV.

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

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5220 Oakland Avenue
St. Louis, MO 63110
314.863.5570
Missouri State Certificate of Authority #2002006804

BILL OF REINFORCING STEEL

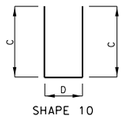
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BOX CULVERT																												
76	6	A1	TOP SLAB		20					11	0.000													11	0	11	0	1256
131	6	A2	BOTTOM SLAB		20					11	0.000													11	0	11	0	2164
106	5	B2	WALLS		10							12	0.000	10	6.000									12	6	12	4	1364
4	8	D1	HEADWALLS		20					11	0.000													11	0	11	0	117
16	5	E1	TOEWALLS		20					3	11.000													3	11	3	11	65
53	4	F1	BARREL		20					49	10.000													49	10	49	10	1764
28	4	F2	END SECTION		20			V	4	18	10.000													18	10	18	10	221
			INCR = 28"							4	10.000													4	10	4	10	
28	4	F3	END SECTION		20					19	11.000													19	11	19	11	373
72	5	G1	END WALLS		20			V	4	10	1.500													10	2	10	2	457
			INCR = 5.75"							2	0.000													2	0	2	0	
16	7	J1	WINGS		15					3	2.500	20	0.000							17.250		2	10.250	23	3	23	2	756
		J2	NOT USED																									
172	5	J3	TOP SLAB		19					3	0.500	6	5.000											9	6	9	4	1674
162	6	J4	BOTTOM SLAB		19					9	7.000	6	7.500											16	3	16	1	3913
108	6	J5	WINGS		19			V	4	10	4.000	6	7.500											17	0	16	10	2075
			INR = 3.75"							2	2.500	6	7.500											8	10	8	9	
12	5	R1	US HEADWALL		27	S					17.000		10.750			2	2.500			4.250		4.250		5	0	4	9	59
12	5	R2	US HEADWALL		10	S							10.500		15.000									3	0	2	9	34
12	5	R3	DS HEADWALL		10	S							17.000		15.000									4	1	3	10	48

SUMMARY

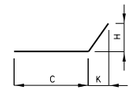
	TOTALS	
4		2358
5		3701
6		9408
7		756
8		117
	TOTAL	16340

BILL OF REINFORCING STEEL

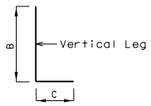
NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.



SHAPE 10



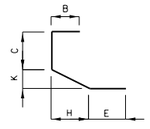
SHAPE 15



SHAPE 19



SHAPE 20

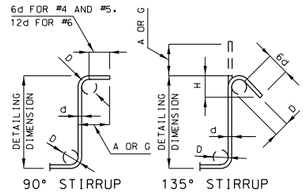


SHAPE 27

SPLICE LENGTH	
BAR SIZE	NON-EPOXY
#4	21 IN.
#5	26 IN.
#6	31 IN.
#7	39 IN.
#8	51 IN.
#9	65 IN.
#10	82 IN.
#11	101 IN.

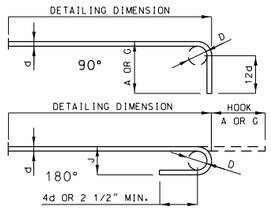
MAX BAR LENGTH	
BAR SIZE	NON-EPOXY
#4	60 FT.
#5	60 FT.
#6	60 FT.
#7	60 FT.
#8	60 FT.
#9	60 FT.
#10	60 FT.
#11	60 FT.

NOTE:
THE BAR LIST IS BASED ON THE MISSOURI STANDARD PLANS.
THIS BAR LIST IS FOR QUANTITY ESTIMATION PURPOSE ONLY AND SHALL BE VERIFIED OR MODIFIED BY THE CONTRACTOR.



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

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



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	GRADE 60		
		180° HOOKS		90° HOOKS
		A OR G	J	A OR G
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	24"

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
FB = BARS MAY BE BENT IN FIELD TO FIT.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE. A BLANK IN THE SECOND LINE REPRESENTS THE SAME BAR DIMENSION AS THAT IN THE FIRST LINE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADD A SPLICE LENGTH TO A BAR LENGTH WHICH EXCEEDS ITS MAXIMUM ALLOWABLE LENGTH.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

Detailed JUL 2023
Checked JUL 2023

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

STATE OF MISSOURI
KIMBERLY ANNE STREICHER
NUMBER PE-2003001105
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

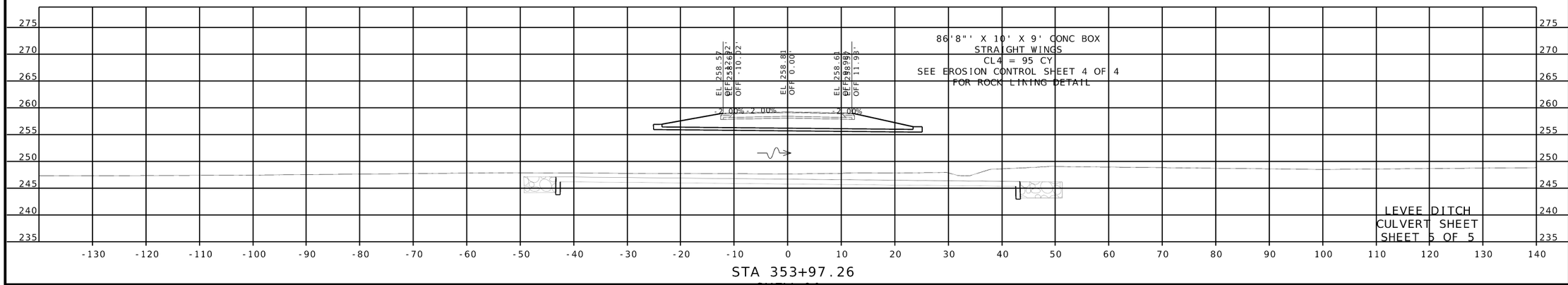
DATE PREPARED 2/28/2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
SE	30

COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION | DATE | REV.

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



86'8"' X 10' X 9' CONC BOX
STRAIGHT WINGS
CL4 = 95 CY
SEE EROSION CONTROL SHEET 4 OF 4
FOR ROCK LINING DETAIL

LEVEE DITCH
CULVERT SHEET
SHEET 5 OF 5

STA 353+97.26
SKEW 0°

$FILE$ $TIME$ $DATE$

STATE OF MISSOURI
BARRY DEAN HORST
NUMBER PE-23844
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/28/23

ROUTE	STATE
A	MO

DISTRICT	SHEET NO.
SE	31

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

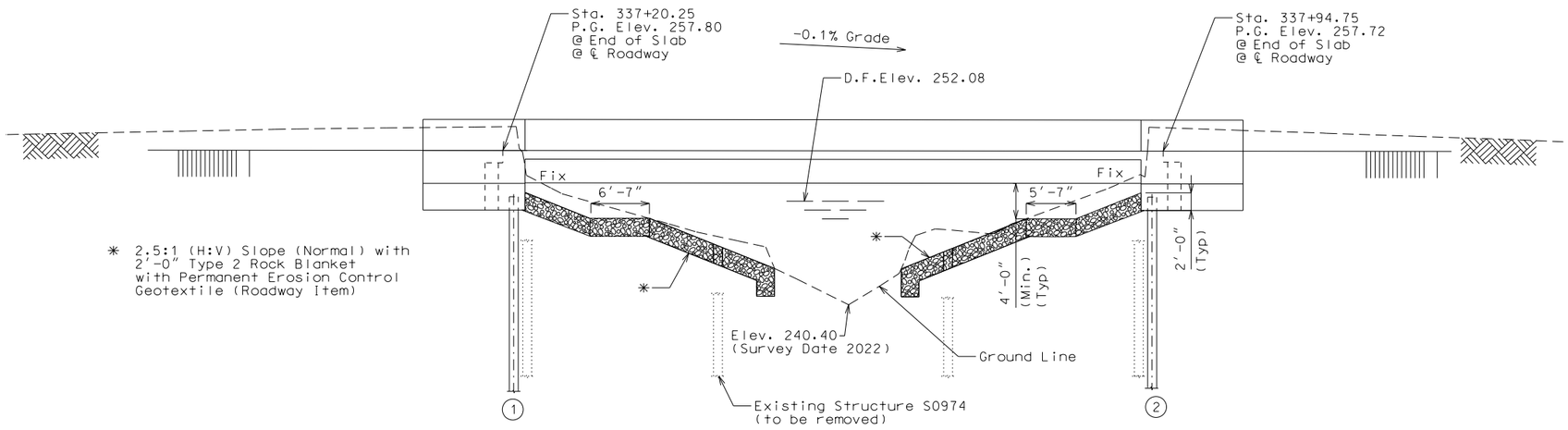
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BACON|FARMER|WORKMAN
ENGINEERING & TESTING, INC.
3437 William Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

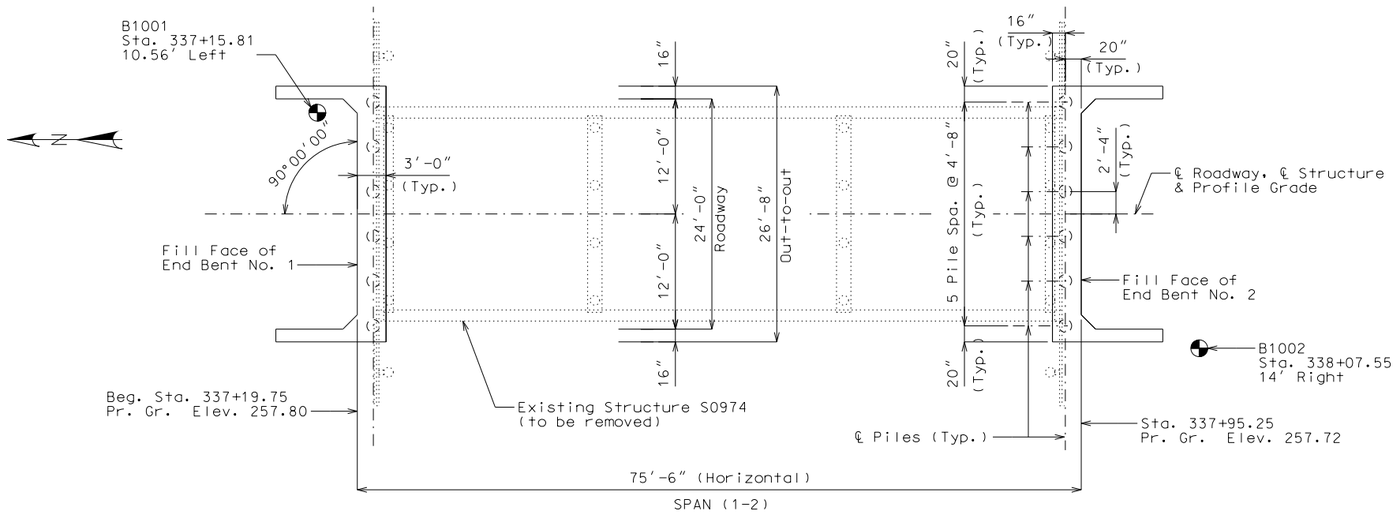
SEC/SUR 23/24 TWP 18N RGE 8E

(72′) PRESTRESSED CONCRETE SPREAD BOX BEAM SPAN



GENERAL ELEVATION

Hydrologic Data
Drainage Area = 35.9 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 1710 cfs
Design Flood (D.F.) Elevation = 252.08
Base Flood (100-year)
Base Flood Elevation = 252.36
Base Flood Discharge = 1830 cfs
Estimated Backwater = N/A
Average Velocity thru Opening = 4.0 ft/s
Freeboard (50-year)
Freeboard = 2.0 ft
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency = N/A
N/A Flood Elevation = N/A



PLAN

Designed June 2023
Detailed July 2023
Checked July 2023

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

◓ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(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. 20 & 21 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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

Notes:

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

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

Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.

B.M.- Elev. 261.213 "□" Chiseled on N.W. Corner of Bridge S0974, Station 337+22.11, 10.7′ RT

BRIDGE: ROUTE A OVER MAIN DRAIN DITCH

ROUTE A FROM ROUTE 412 TO ROUTE T
ABOUT 4 MILES WEST OF ROUTE 412
BEGINNING STATION 337+19.75

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER
PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED
02-28-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	1

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9312

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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General Notes:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.) and 2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details).
Seismic Design Category = D (Seismic Details Only).
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.55.
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.67.

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

Design Unit Stresses:

Class B Concrete (Substructure, except for CIP pile)	f'c = 3,000 psi
Class B-1 Concrete (Type H Barrier)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Box Beams and Type H Barrier)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi

For cast-in-place pile stresses, see Sheet No. 3.
For prestressed box beam stresses, see Sheet No. 11.

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

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

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

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

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

Foundation Data

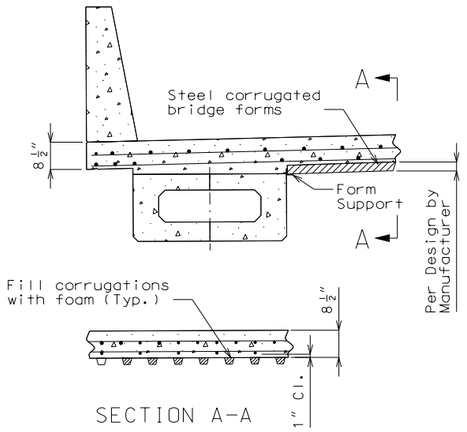
Type	Design Data		Bent Number 1	Bent Number 2
Load Bearing Pile	Pile Type and Size		CECIP 16"	CECIP 16"
	Number	ea	6	6
	Approximate Length Per Each	ft	55	55
	Pile Point Reinforcement	ea	None	None
	Min. Galvanized Penetration (Elev.)	ft	Full length	Full length
	Minimum Tip Penetration (Elev.)	ft	202	202
	Criteria for Min. Tip Penetration		①	①
	Pile Driving Verification Method		DT	DT
	Resistance Factor		0.65	0.65
	Minimum Nominal Axial Compressive Resistance	kip	250	250

① Lateral Stability due to liquefaction effects
CECIP = Closed Ended Cast-In-Place concrete pile
DT = Dynamic Testing

Load Bearing Pile

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

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



STAY-IN-PLACE FORM DETAILS

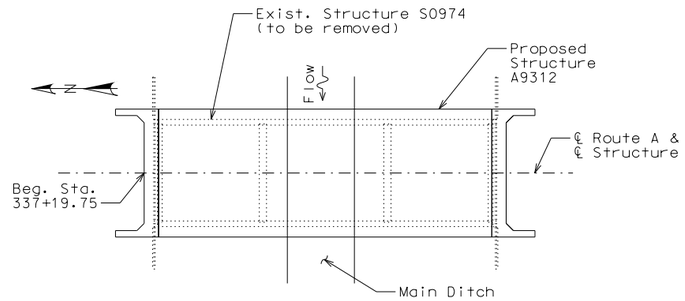
Notes:

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

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

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

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



LOCATION SKETCH

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	70		70
Removal of Bridges (S0974)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard			108
Galvanized Cast-In-Place Concrete Piles (16 in.)	linear foot	660		660
Dynamic Pile Testing	each	2		2
Class B Concrete (Substructure)	cu. yard	25.0		25.0
Type H Barrier	linear foot		185	185
Slab on Concrete Beam	sq. yard		221	221
27 in., Prestressed Concrete Spread Box Beam	linear foot		291	291
Slab Drain	each		7	7
Vertical Drains at End Bents	each			2
Plain Neoprene Bearing Pad	each		8	8

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 cast-in-place pile at end bents is included in the Estimated Quantities for Slab on Concrete Beam.

Estimated Quantities for Slab on Concrete Beam

Item		Total
Class B-2 Concrete	cu. yard	78
Reinforcing Steel (Epoxy Coated)	pound	20,320

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

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

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

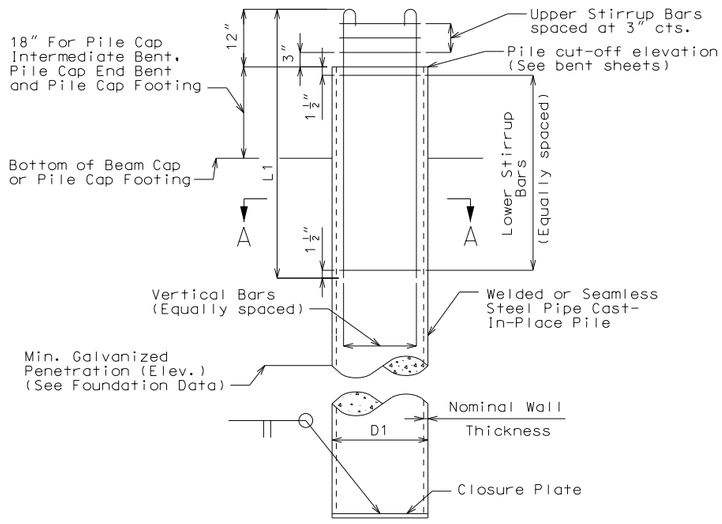
Class B-2 Concrete quantity is based on minimum top flange thickness and minimum joint material thickness.

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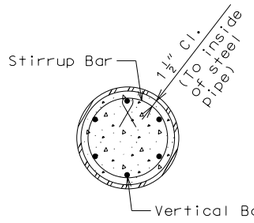
DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

DESCRIPTION | DATE

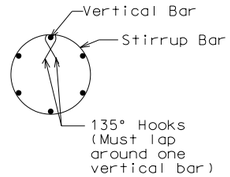
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105 WEST CAPITOL
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3065 Williams Street
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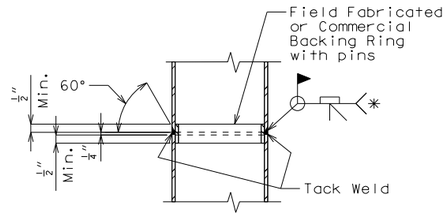
GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE
WITHOUT PILE POINT REINFORCEMENT



SECTION A-A



DETAIL OF SEISMIC STIRRUP BAR



STEEL PIPE PILE SPLICE

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

Galvanized Closed Ended Cast-In-Place (CECIP) Concrete Pile Data		
Bent Number	1	2
D1, CECIP Pile (O.D.)	16"	16"
Min. Nominal Wall Thickness	1/2"	1/2"
Closure Plate Thickness	3/4"	3/4"
Pile Point Reinforcement	None	None
Vertical Bars	6-#6-V104	6-#6-V204
L1, Length of Vertical Bars	5'-3"	5'-3"
Upper Stirrup Bars	3-#4-P100	3-#4-P200
Lower Stirrup Bars	5-#4-P100	5-#4-P200

Notes:

Welded or seamless steel shell (pipe) shall be ASTM A252 Grade 3 (fy = 45,000 psi).

Concrete for cast-in-place pile shall be Class B-1.

Steel for closure plate shall be ASTM A709 Grade 50.

The minimum wall thickness of any spot or local area of any type shall not be more than 12.5% under the specified nominal wall thickness.

The contractor shall determine the pile wall thickness required to avoid damage from all driving activities, but wall thickness shall not be less than the minimum specified. No additional payment will be made for furnishing a thicker pile wall than specified on the plans.

Closure plate shall not project beyond the outside diameter of the pipe pile. Satisfactory weldments may be made by beveling tip end of pipe or by use of inside backing rings. In either case, proper gaps shall be used to obtain weld penetration full thickness of pipe. Payment for furnishing and installing closure plate will be considered completely covered by the contract unit price for Galvanized Cast-In-Place Concrete Piles.

Splices of pipe for cast-in-place concrete pile shall be made watertight and to the full strength of the pipe above and below the splice to permit hard driving without damage. Pipe damaged during driving shall be replaced without cost to the state. Pipe sections used for splicing shall be at least 5 feet in length.

The hooks of vertical bars embedded in the beam cap should not be turned outward, away from the pile core.

Closure plate need not be galvanized.

Reinforcing steel for cast-in-place piles is included in the Bill of Reinforcing Steel.

All reinforcement for cast-in-place pile is included in the estimated quantities for bents.

For Foundation Data table, see Sheet No. 2.

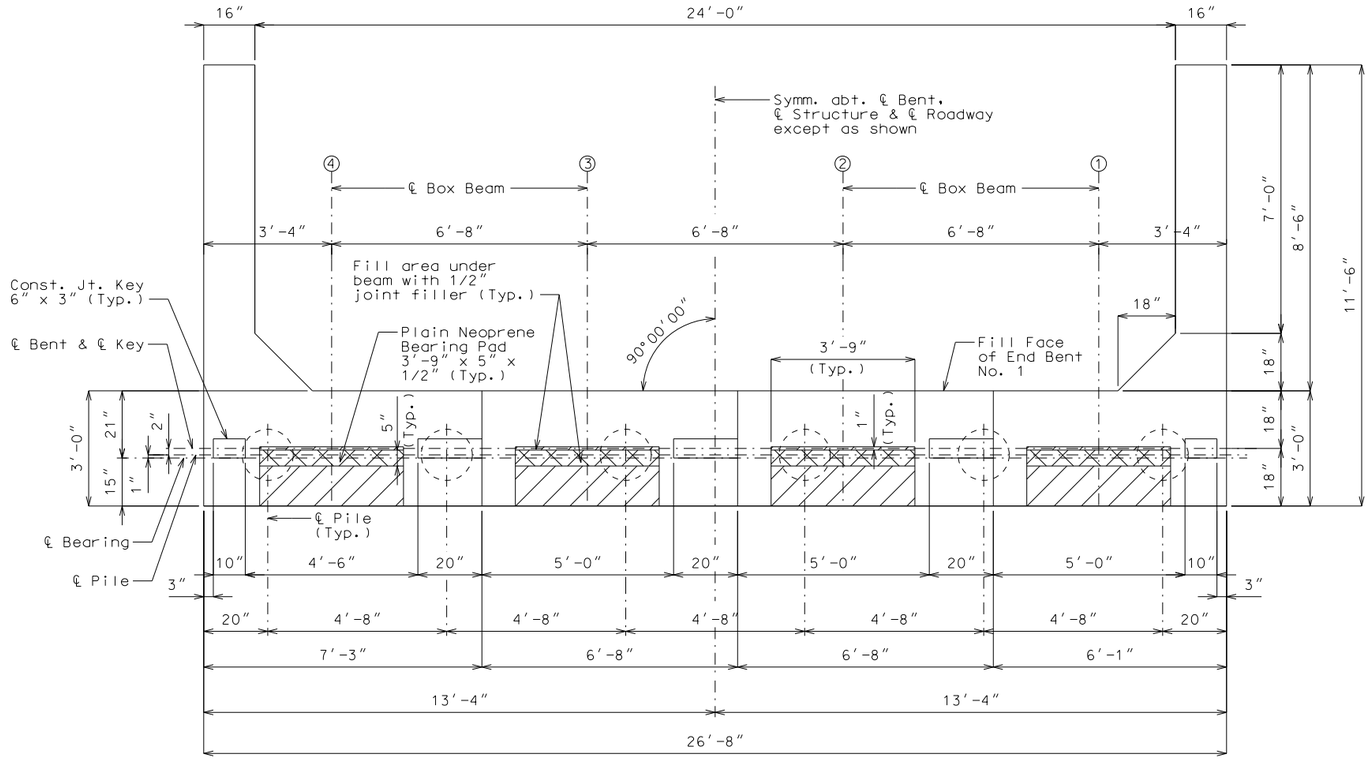
STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 3
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

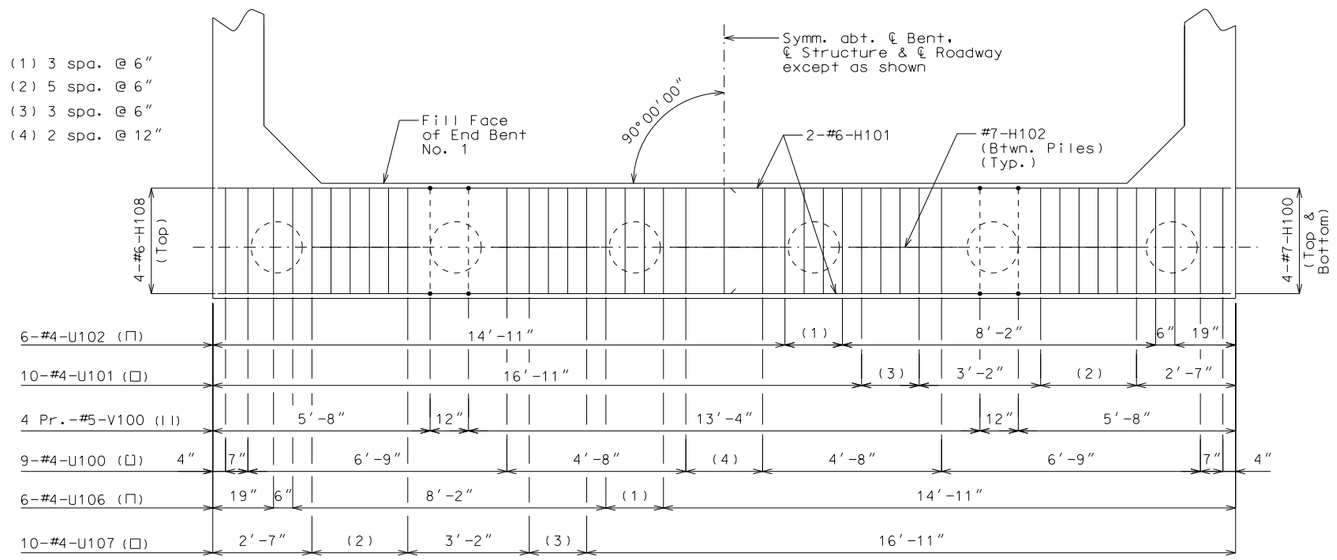
DESCRIPTION | DATE

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105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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BACON | FARMER | WORKMAN
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3065 Williams Street
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Phone: 573-222-5632

Detailed July 2023
Checked July 2023

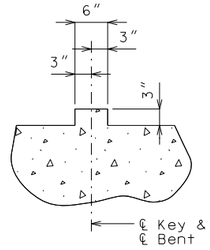


PLAN OF BEAM SHOWING DIMENSIONS



PLAN OF BEAM SHOWING REINFORCEMENT

Keys and steps not shown for clarity.



SECTION THRU KEY

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	35
Galvanized Cast-In-Place Concrete Piles (16 in.)	linear foot	330
Dynamic Pile Testing	each	1
Class B Concrete (Substructure)	cu. yard	12.5

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

Notes:

Work this sheet with Sheets No. 5 & 6.

For details of Galvanized Cast-in-Place Concrete Piles, see Sheet No. 3.

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

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

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

DETAILS OF END BENT NO. 1

Detailed July 2023
Checked July 2023

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

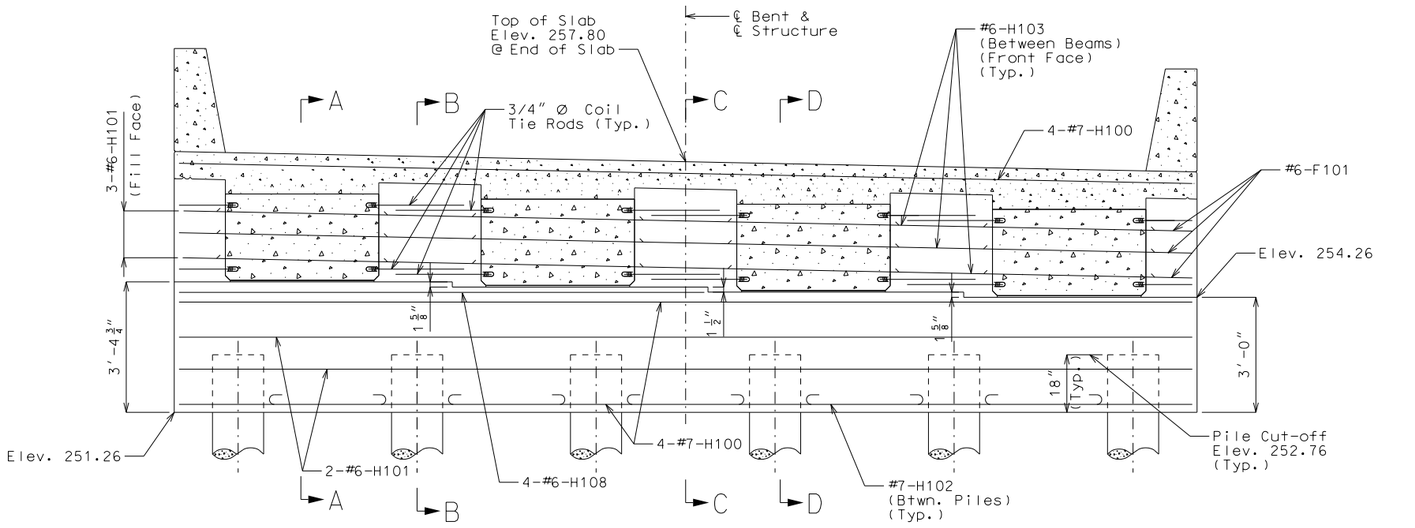
STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

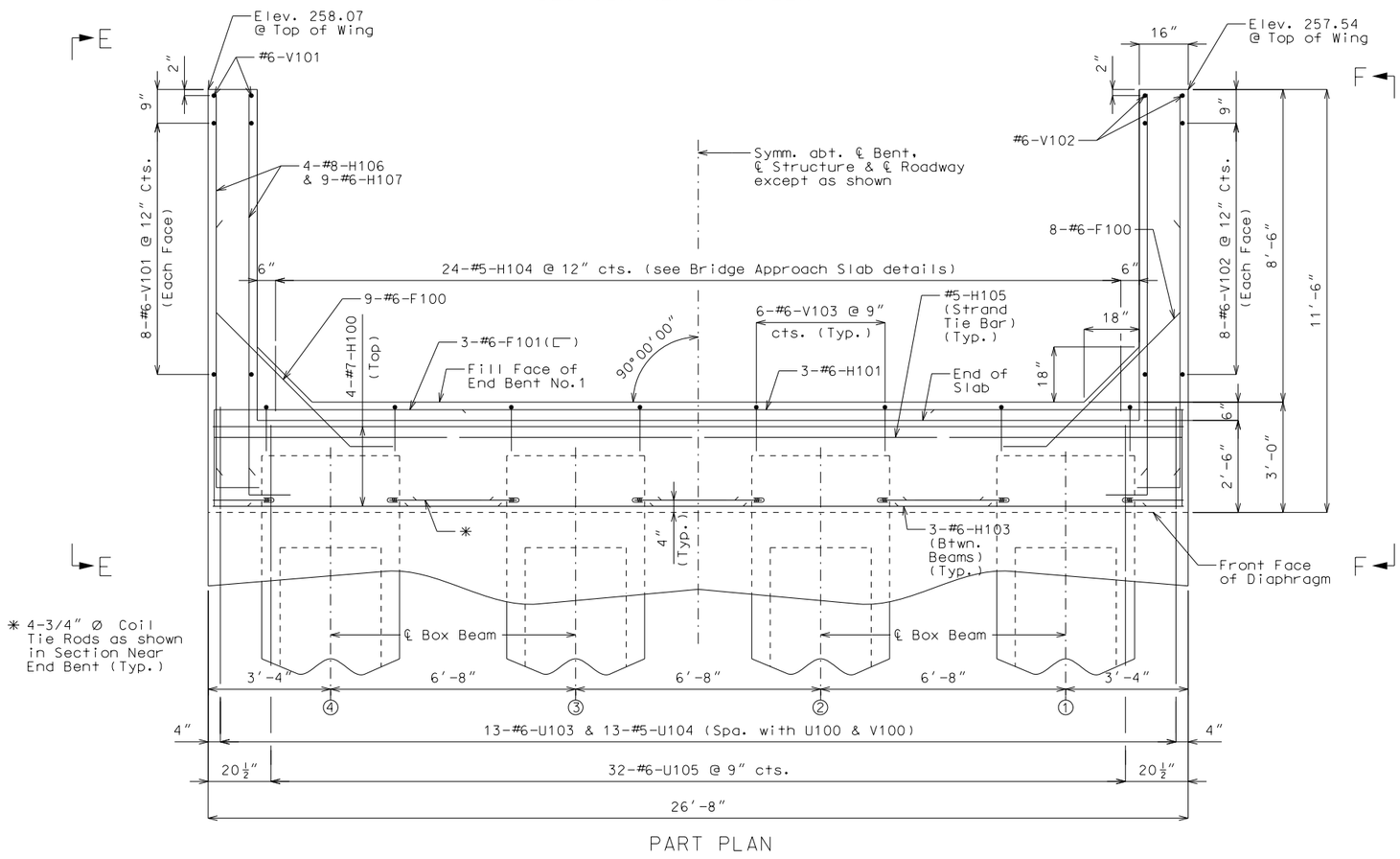
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105 WEST CAPITOL
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3065 Williams Street
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SECTION NEAR END BENT



PART PLAN

DETAILS OF END BENT NO. 1

Notes:

Work this sheet with Sheets No. 4 & 6.

For location of Sections A-A thru D-D and Elevations E-E & F-F, see Sheet No. 6.

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

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

Turn the interior #6-H107 bars within diaphragm to clear beams.

For location of coil tie rods and #5-H105 (Strand Tie Bar), see Sheet No. 11.

For details of bridge approach slab, see Sheet No. 17.

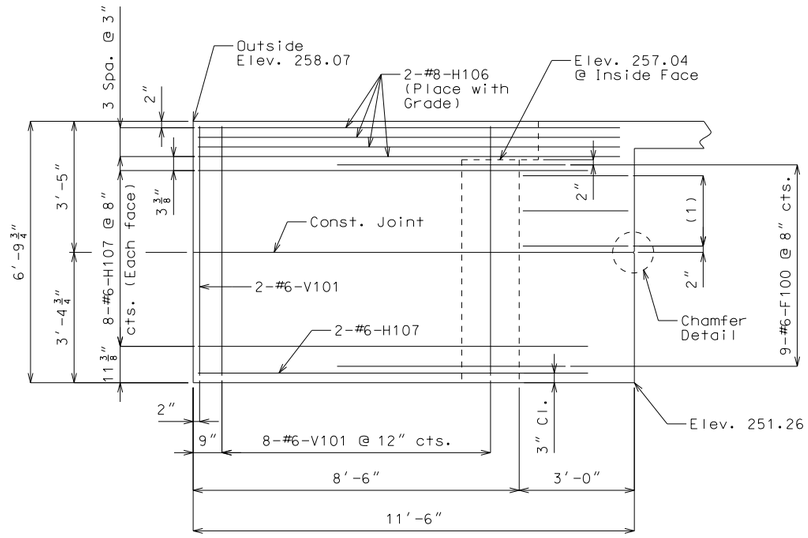
FREDERICK A. MENSAH
NUMBER PE-2022039709
STATE OF MISSOURI
PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

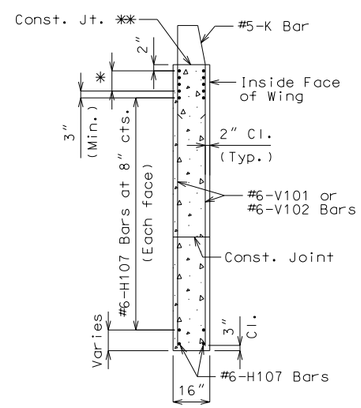
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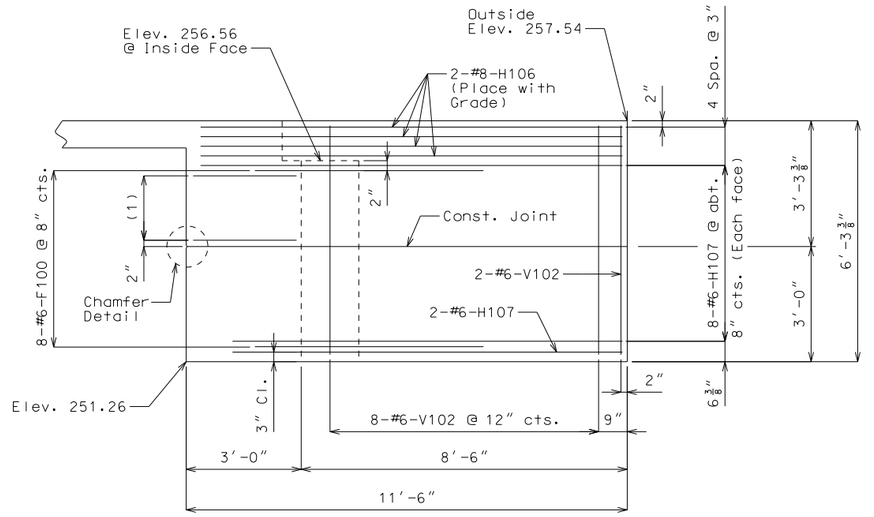
ELEVATION E-E



TYPICAL SECTION
THRU WING

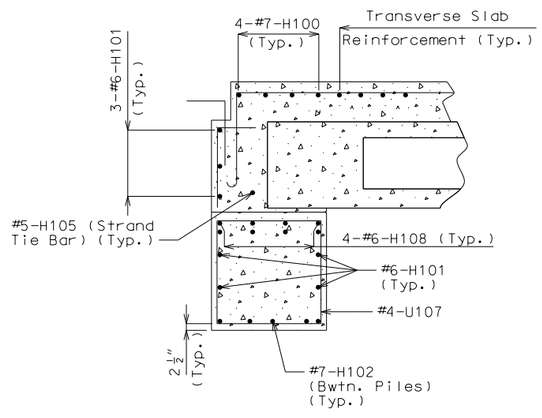
* #8-H106 Bars at 3″ cts.
(Each face)(Place with grade)

** Slope to match superelevation

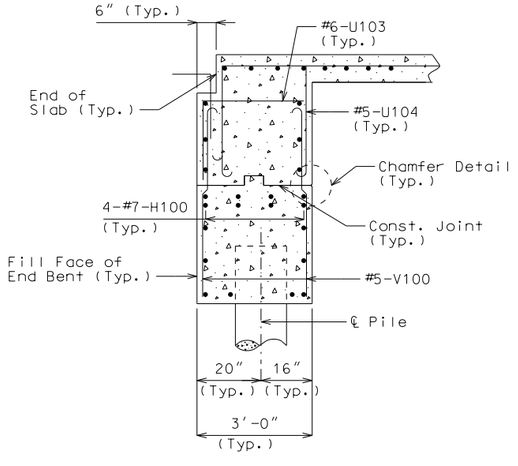


ELEVATION F-F

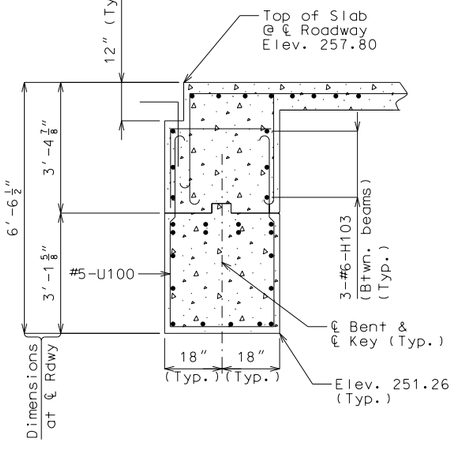
(1) 3-#6-F101 @ 12″ cts.



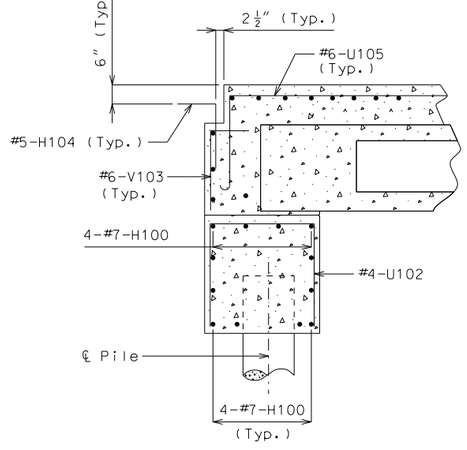
SECTION A-A



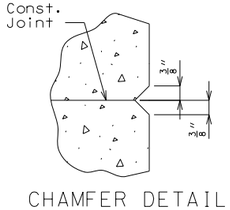
SECTION B-B



SECTION C-C



SECTION D-D



CHAMFER DETAIL

Notes:

Work this sheet with Sheets No. 4 & 5.

For reinforcement of Type H Barrier not shown, see Sheet No. 16.

For reinforcement in cast-in-place piles, see Sheet No. 3.

DETAILS OF END BENT NO. 1

Detailed July 2023
Checked July 2023

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

FREDERICK A. MENSAH
NUMBER PE-2022039709
STATE OF MISSOURI
PROFESSIONAL ENGINEER

DATE PREPARED
02-28-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	6

COUNTY
DUNKLIN

JOB NO.
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CONTRACT ID.

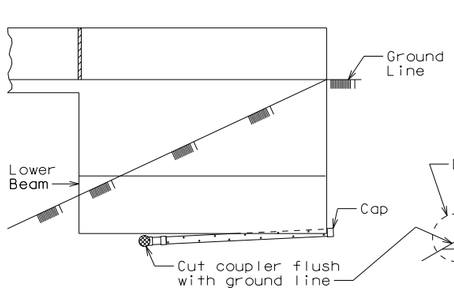
PROJECT NO.

BRIDGE NO.
A9312

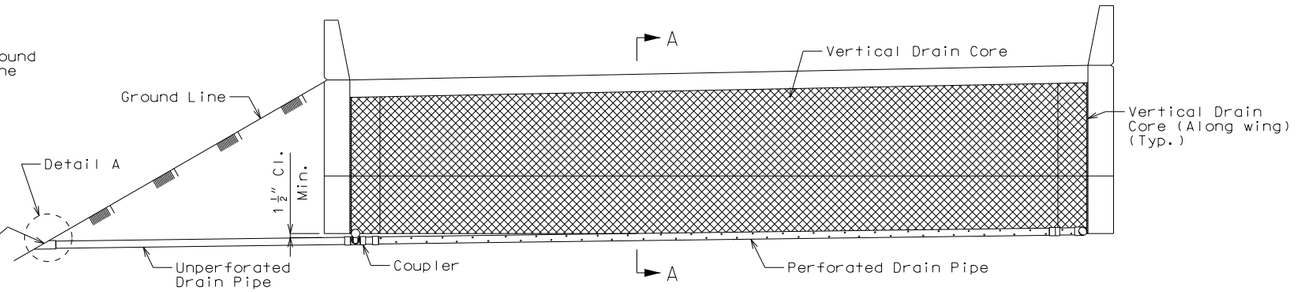
DESCRIPTION	DATE

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

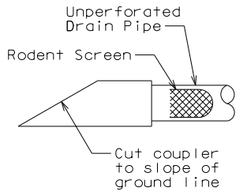
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3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007029644
Phone: 573-222-5632



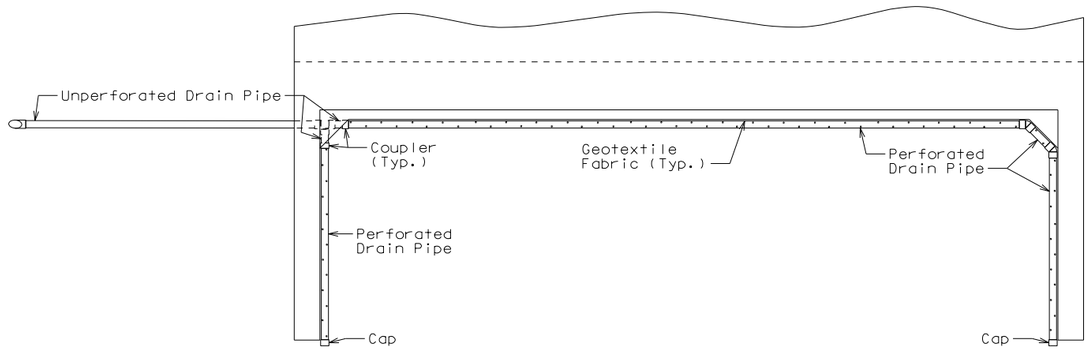
ELEVATION OF WING



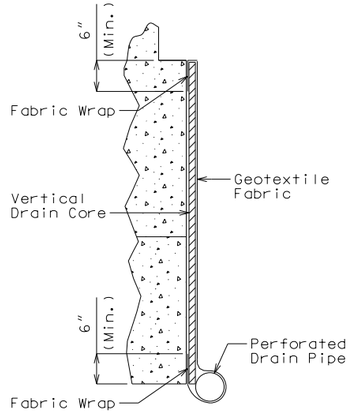
ELEVATION OF END BENT



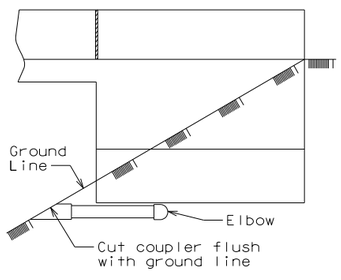
DETAIL A



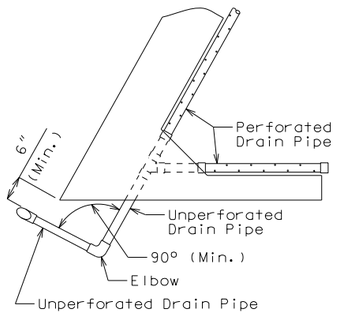
PLAN OF END BENT



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)

Detailed July 2023
Checked July 2023

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

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FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

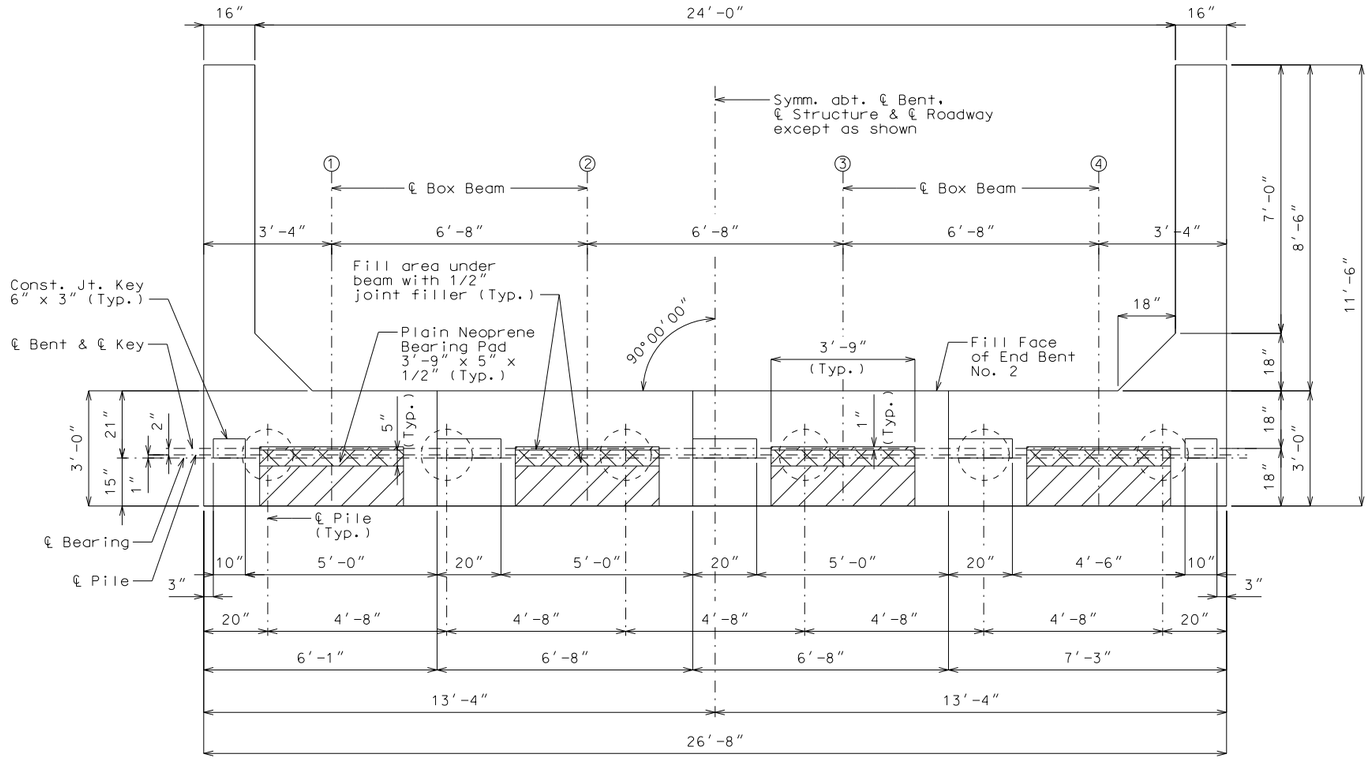
DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 7
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

DESCRIPTION | DATE

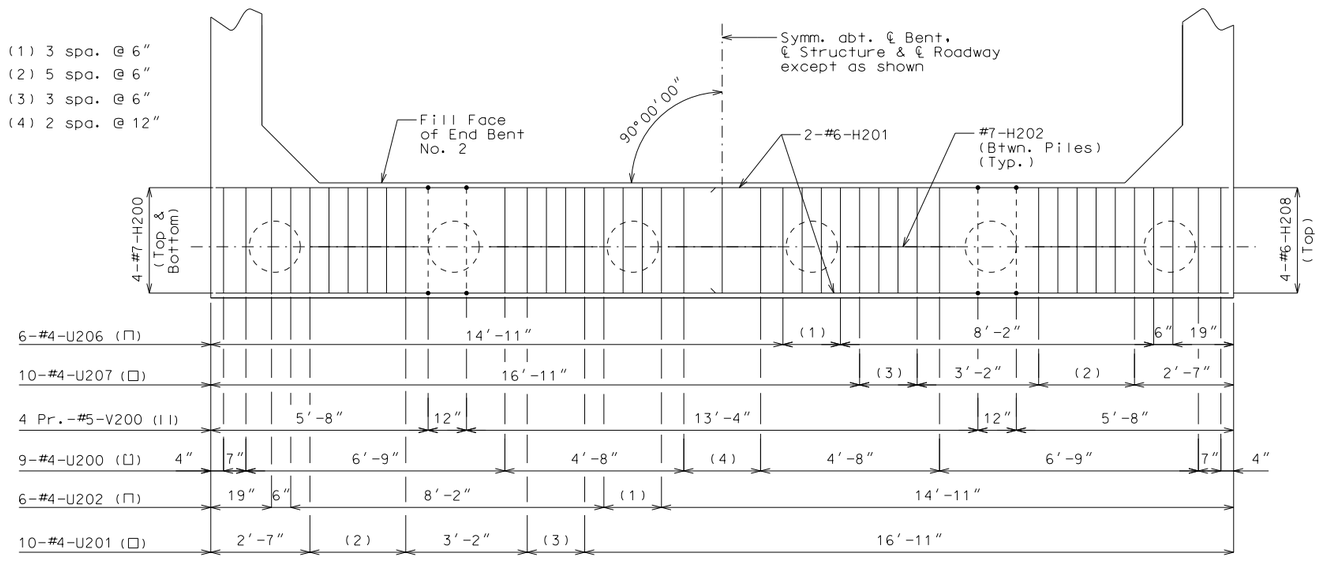
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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$FILE$ $TIME$ $DATE$

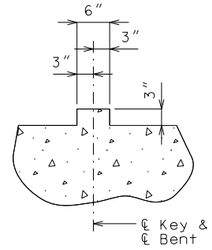


PLAN OF BEAM SHOWING DIMENSIONS



PLAN OF BEAM SHOWING REINFORCEMENT

Keys and steps not shown for clarity.



SECTION THRU KEY

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Class 1 Excavation	cu. yard	35
Galvanized Cast-In-Place Concrete Piles (16 in.)	linear foot	330
Dynamic Pile Testing	each	1
Class B Concrete (Substructure)	cu. yard	12.5

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

Notes:

Work this sheet with Sheets No. 9 & 10.

For details of Galvanized Cast-in-Place Concrete Piles, see Sheet No. 3.

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

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

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

DETAILS OF END BENT NO. 2

Detailed July 2023
Checked July 2023

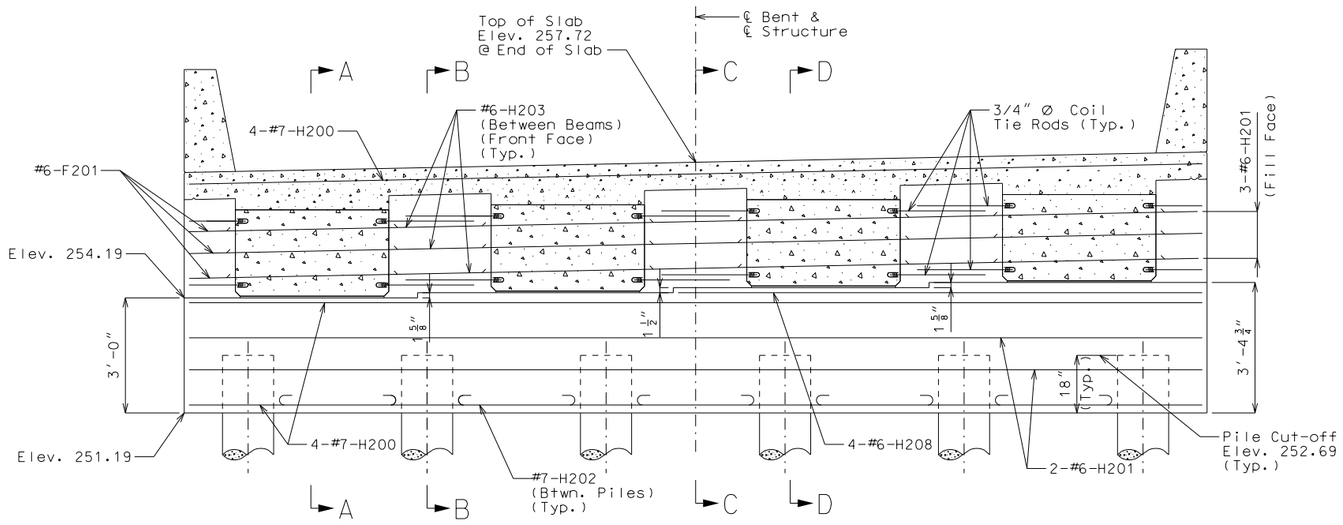
Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

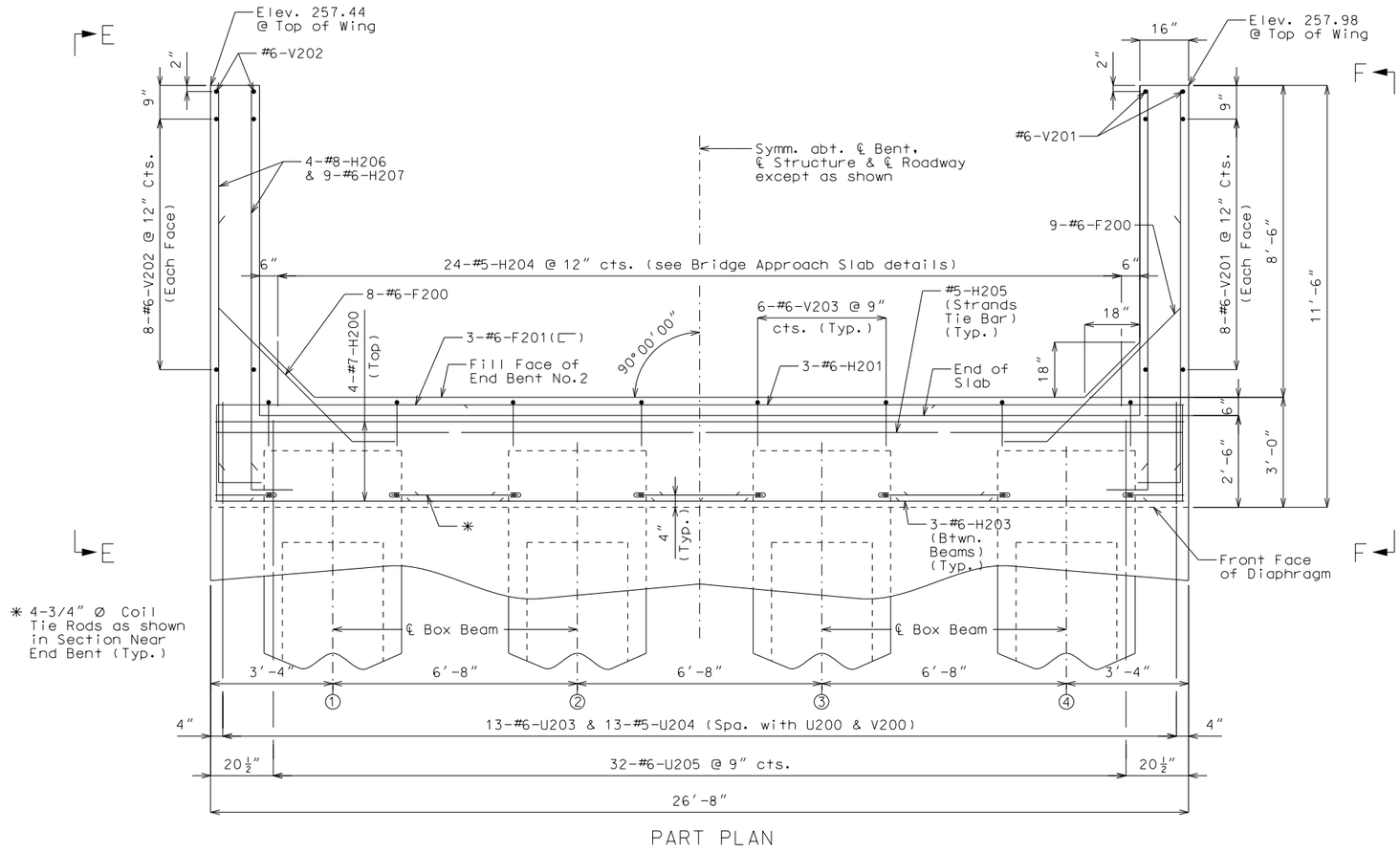
DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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SECTION NEAR END BENT



PART PLAN

DETAILS OF END BENT NO. 2

Notes:

Work this sheet with Sheets No. 8 & 10.

For location of Sections A-A thru D-D and Elevations E-E & F-F, see Sheet No. 10.

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

The #6-F200 bars shall be bent in the field to clear beams.

Turn the interior #6-H207 bars within diaphragm to clear beams.

For location of coil tie rods and #5-H205 (Strand Tie Bar), see Sheet No. 11.

For details of bridge approach slab, see Sheet No. 17.

Detailed July 2023
Checked July 2023

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

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED
02-28-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	9

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

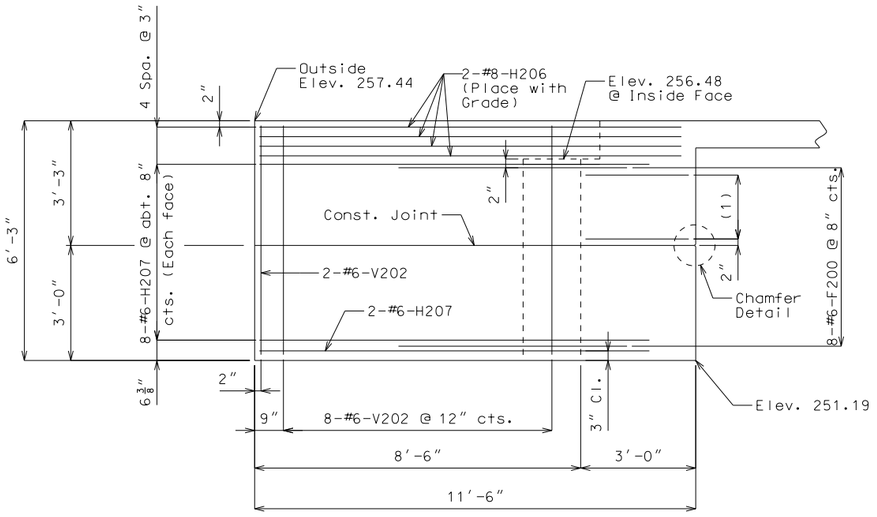
PROJECT NO.

BRIDGE NO.
A9312

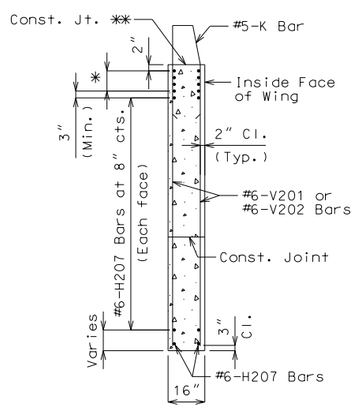
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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Phone: 573-222-3632



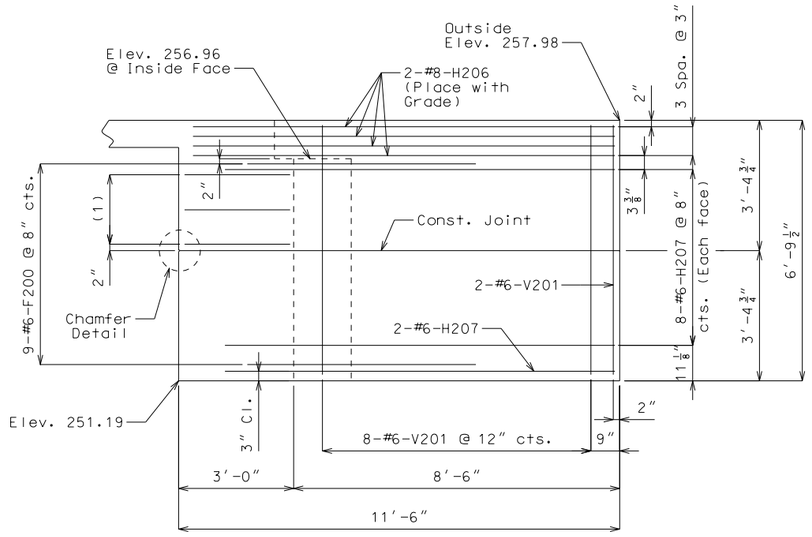
ELEVATION E-E



TYPICAL SECTION
THRU WING

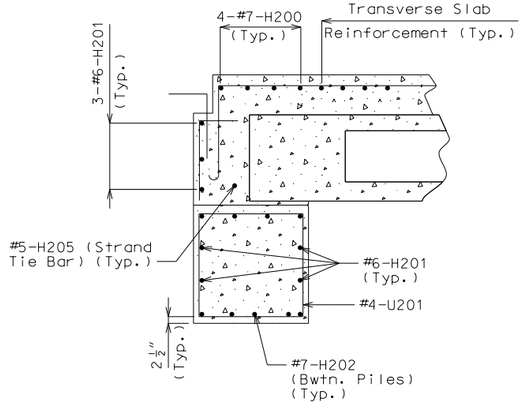
* #8-H206 Bars at 3" cts.
(Each face)(Place with grade)

** Slope to match superelevation

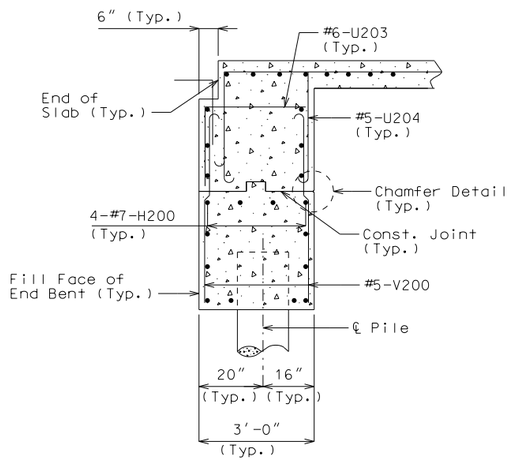


ELEVATION F-F

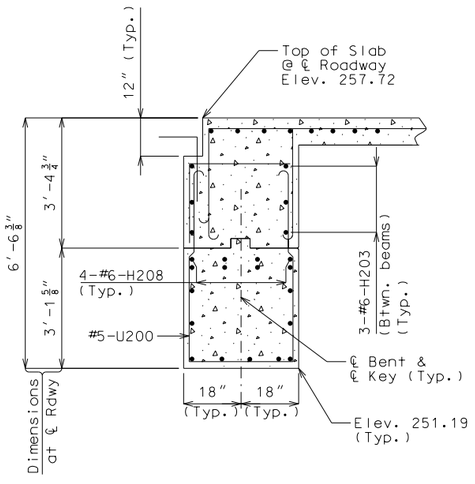
(1) 3-#6-F201 @ 12" cts.



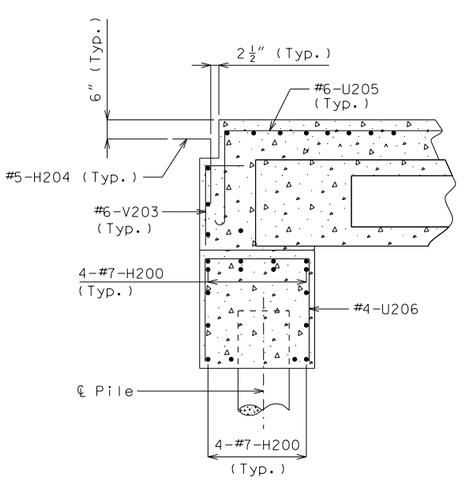
SECTION A-A



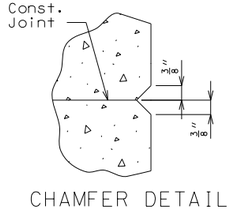
SECTION B-B



SECTION C-C



SECTION D-D



CHAMFER DETAIL

Notes:

Work this sheet with Sheets No. 8 & 9.

For reinforcement of Type H Barrier not shown, see Sheet No. 16.

For reinforcement in cast-in-place piles, see Sheet No. 3.

DETAILS OF END BENT NO. 2

Detailed July 2023
Checked July 2023

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

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED
02-28-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	10

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

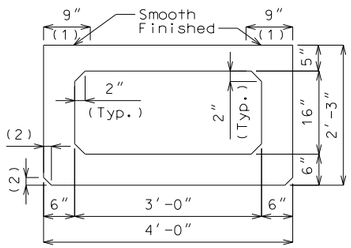
PROJECT NO.

BRIDGE NO.
A9312

DATE	DESCRIPTION

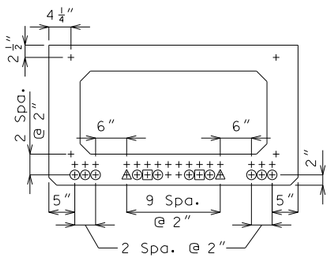
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DIMENSIONS

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



STRAND ARRANGEMENT

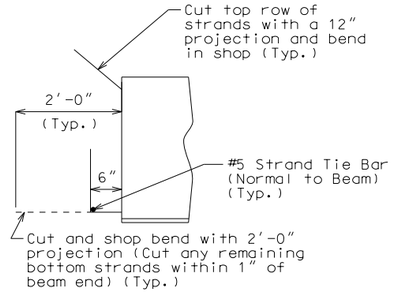
All strands are fully bonded unless otherwise noted.

\+ Indicates prestressing strand.

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

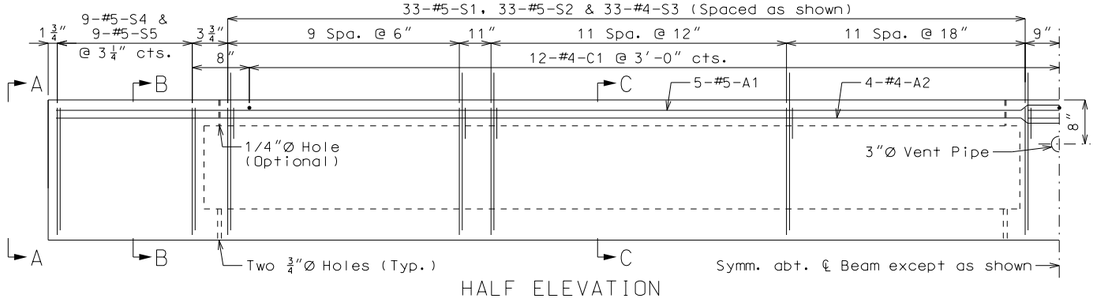
□ Indicates debonded for 8'-0" from end of beam.

△ Indicates debonded for 14'-0" from end of beam.

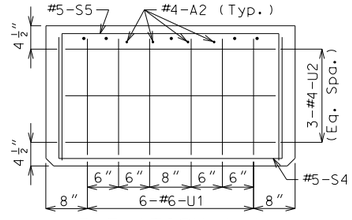


STRANDS AT BEAM ENDS

(2) 1½" (Typ.) (¾" Optional)

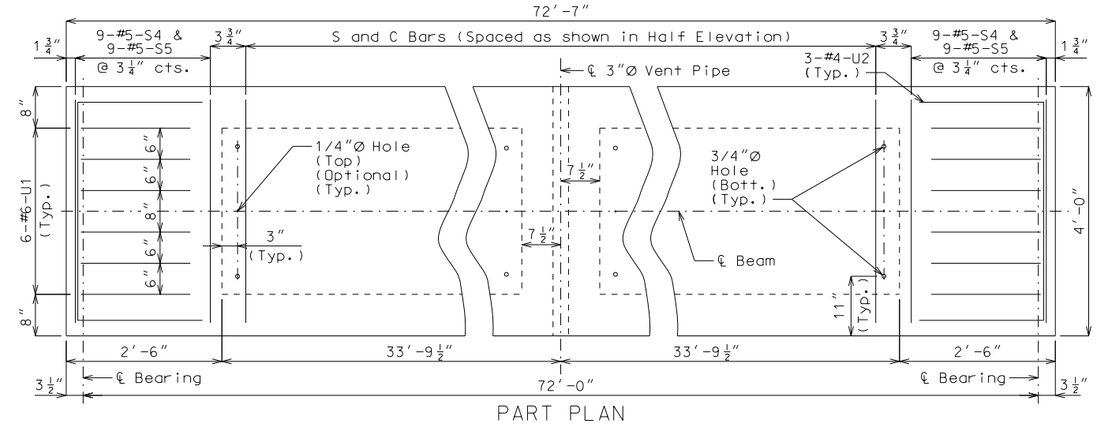


HALF ELEVATION

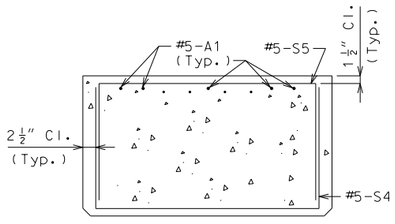


ELEVATION A-A

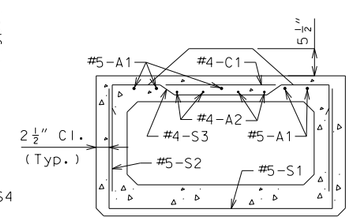
Strands not shown for clarity.



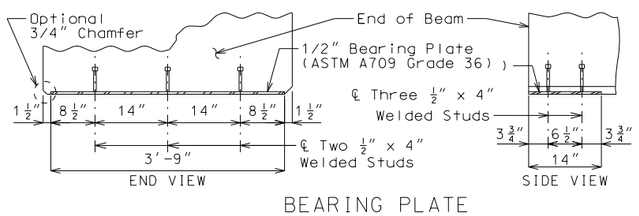
PART PLAN



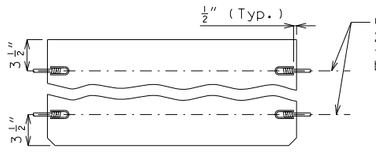
SECTION B-B



SECTION C-C



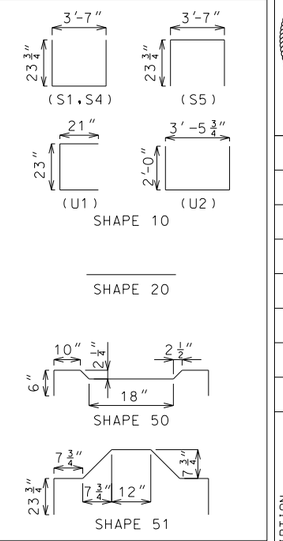
BEARING PLATE



COIL TIES

BILL OF REINFORCING STEEL - EACH BEAM

NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
10	5 A1	37'-6"	20	
8	4 A2	37'-3"	20	
23	4 C1	3'-7"	20	
66	5 S1	7'-4"	10	
66	5 S2	7'-9"	51	
66	4 S3	4'-6"	50	
18	5 S4	7'-4"	10	
18	5 S5	7'-4"	10	
12	6 U1	5'-1"	10	
6	4 U2	7'-4"	10	



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 1", unless otherwise shown.

All reinforcement shall be Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

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

Use 36 strands, 0.6"Ø Grade 270, with an initial prestress force of 1582 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

For Beam Camber Diagram, see Sheet No. 14.

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

For location of coil ties at concrete bent diaphragms, see Sheets No. 5 and 9.

FREDERICK A. MENSAH NUMBER PE-2022039709
STATE OF MISSOURI PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 11
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

DESCRIPTION | DATE

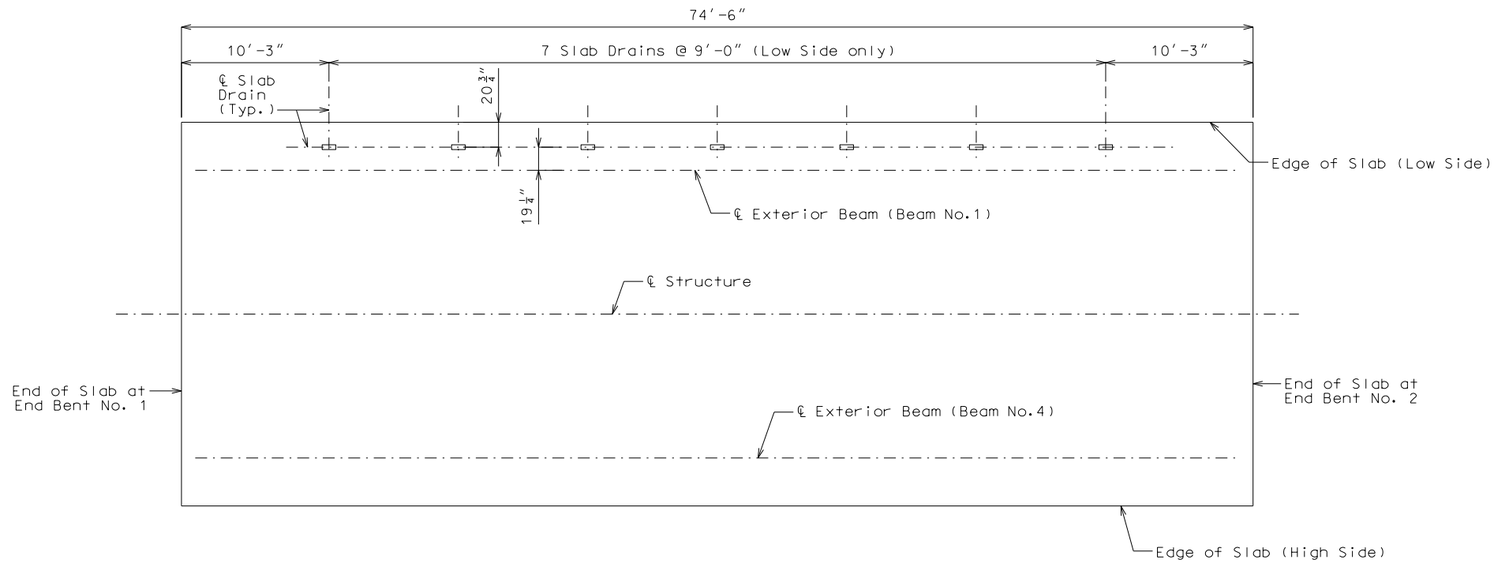
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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BACON | FARMER | WORKMAN
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3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: P2007028644
Phone: 573-222-5632

Detailed July 2023
Checked July 2023

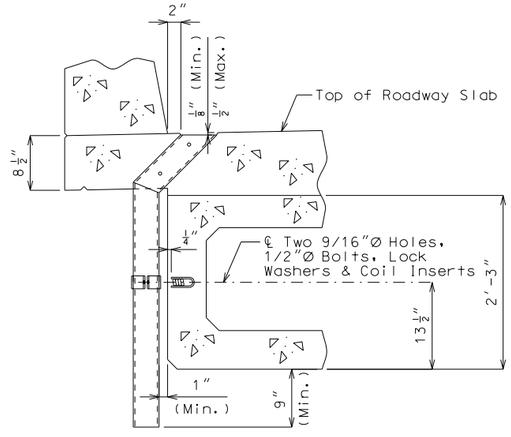
Note: This drawing is not to scale. Follow dimensions.

SPREAD BOX BEAMS - SPAN (1-2)

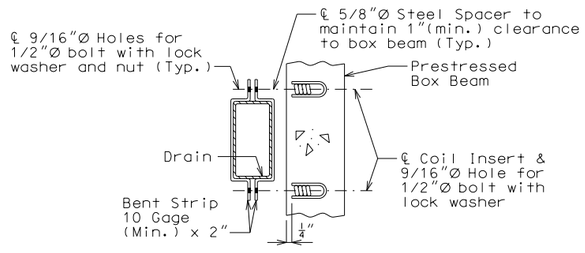
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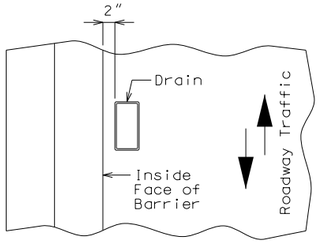
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



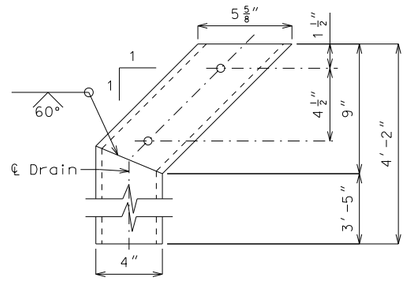
PART SECTION NEAR DRAIN



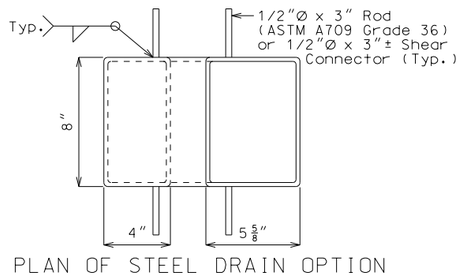
PART SECTION SHOWING BRACKET ASSEMBLY



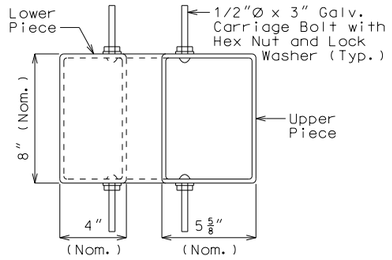
PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

SLAB DRAINS

General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2″Ø bolts shall be ASTM A307.

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

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

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

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

Notes for Steel Drain:

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

Outside dimensions of drains are 8″ x 4″.

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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

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

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 12
COUNTY DUNKLIN
JOB NO. JS93676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

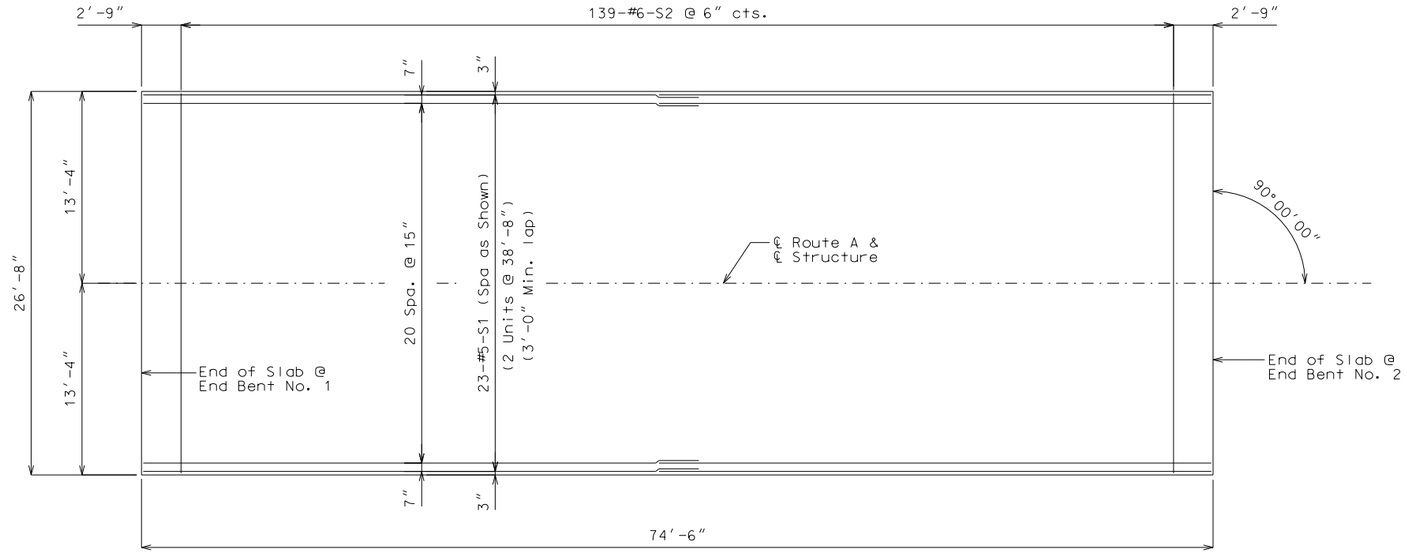
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

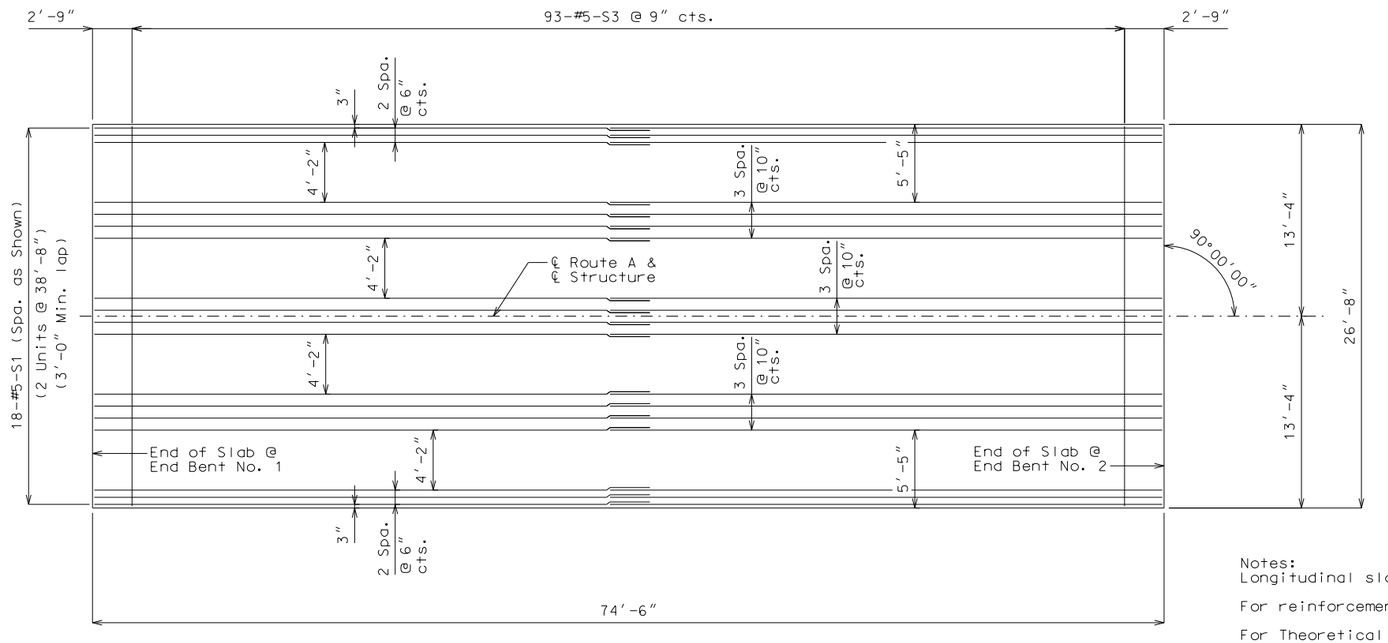
Detailed July 2023
Checked July 2023

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

$FILE$ $TIME$ $DATE$



TOP REINFORCEMENT



BOTTOM REINFORCEMENT

PLAN OF SLAB SHOWING REINFORCEMENT

Notes:
Longitudinal slab dimensions are measured horizontally.

For reinforcement of barrier not shown, see Sheets No. 15 & 16.

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

For details of Section Thru Slab, see Sheet No. 14.

For details and locations of slab drains, see Sheet No. 12.

Detailed July 2023
Checked July 2023

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

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED
02-28-2024

ROUTE	STATE
A	MO

DISTRICT	SHEET NO.
BR	13

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

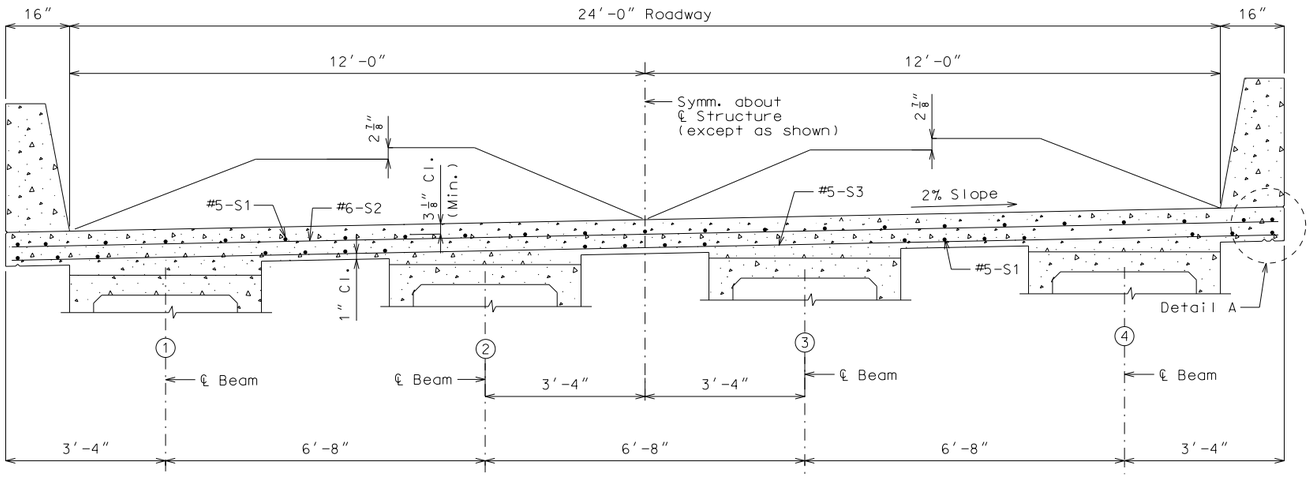
PROJECT NO.

BRIDGE NO.
A9312

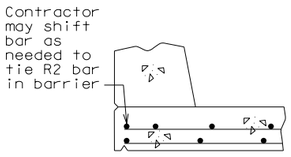
DESCRIPTION	DATE

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

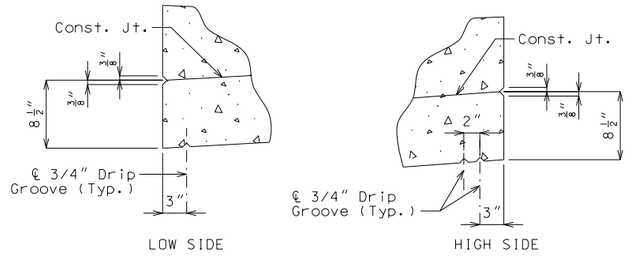
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SECTION THRU SLAB



OPTIONAL SHIFTING TOP BARS AT BARRIER

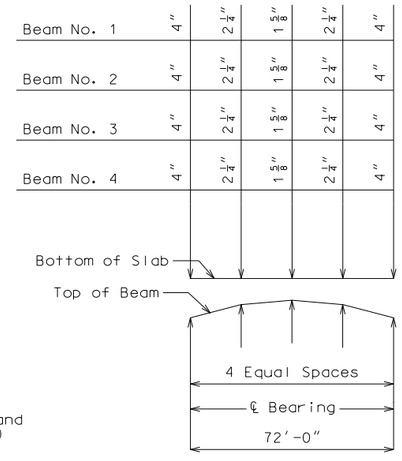


DETAIL A

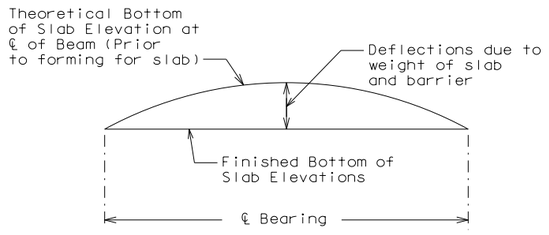
Theoretical Bottom of Slab Elevations at Centerline of Beam (Prior to forming for slab) (Estimated at 90 days)

Beam Number	Span (1-2) (72′-0″ ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.
1	256.89	256.96	256.98	256.93	256.81
2	257.02	257.10	257.12	257.06	256.95
3	257.15	257.23	257.25	257.19	257.08
4	257.29	257.36	257.38	257.33	257.21

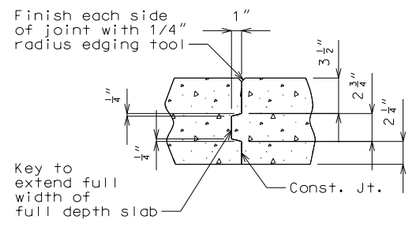
Elevations are based on a constant slab thickness of 8 1/2″ and include allowance for theoretical dead load deflections due to weight of slab and barrier.



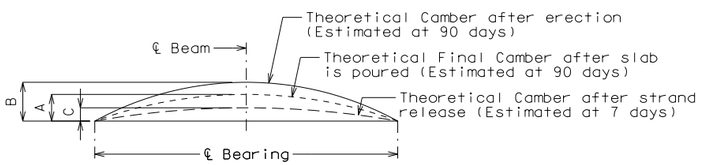
THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)



TYPICAL SLAB ELEVATIONS DIAGRAM



SLAB CONSTRUCTION JOINT



Beam	Span (1 - 2)		
	A	B	C
Exterior	2 3/8″	4″	2 1/4″
Interior	2 3/8″		

BEAM CAMBER DIAGRAM

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

0.25 pt. = 0.7125 x 0.5 pt.

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.

Notes:
For reinforcement of barrier not shown, see Sheets No. 15 & 16.

For Plan of Slab Showing Reinforcement, see Sheet No. 13.

The contractor shall pour up grade and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour.

SLAB DETAILS

Detailed July 2023
Checked July 2023

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

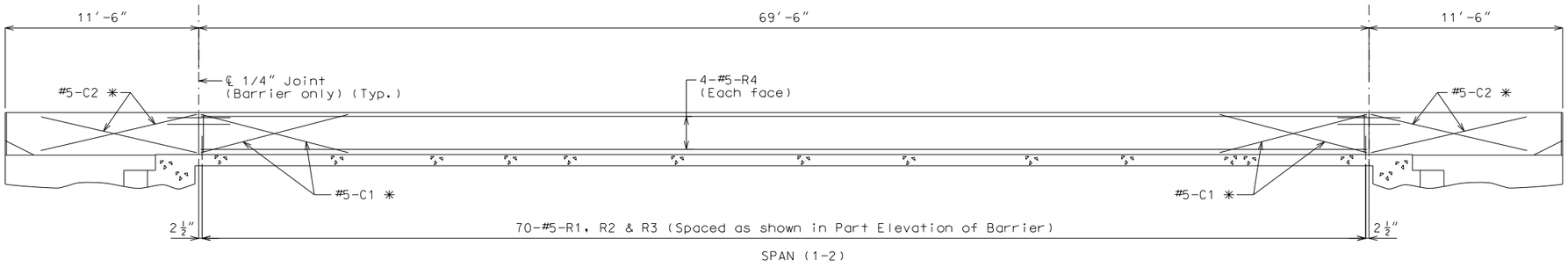
STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 14
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

DESCRIPTION | DATE

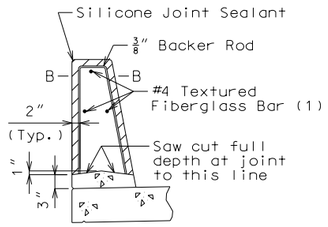
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT
BACON|FARMER|WORKMAN
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3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5602
BFW

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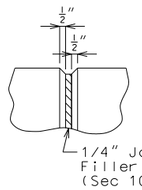


ELEVATION OF BARRIER

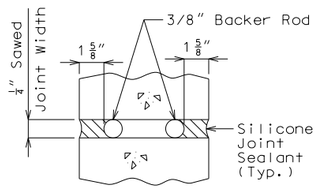
(Left barrier shown, right barrier similar)
Longitudinal dimensions are horizontal.



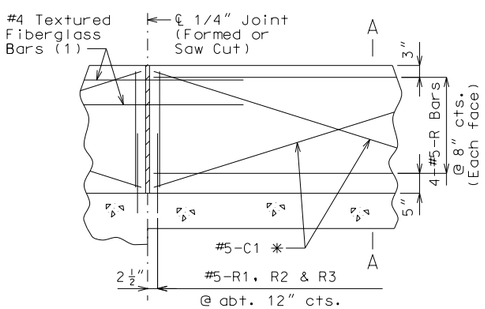
SECTION THRU
SAW CUT JOINT



PART ELEVATION
AT FORMED JOINT

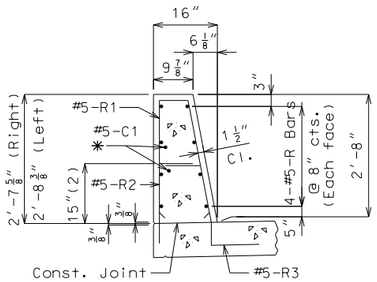


SECTION B-B



PART ELEVATION OF BARRIER

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

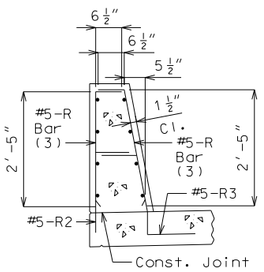


SECTION A-A

Use a minimum lap of 3′-1″ for #5 horizontal barrier bars.

The cross-sectional area above the slab is 2.91 square feet for left barrier and 2.87 square feet for right barrier.

(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.

TYPE H BARRIER

Detailed July 2023
Checked July 2023

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

$FILE$ $TIME$ $DATE$

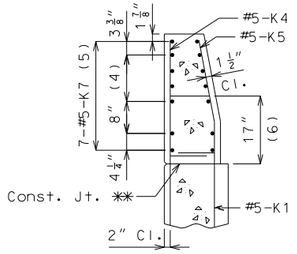
STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 15
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

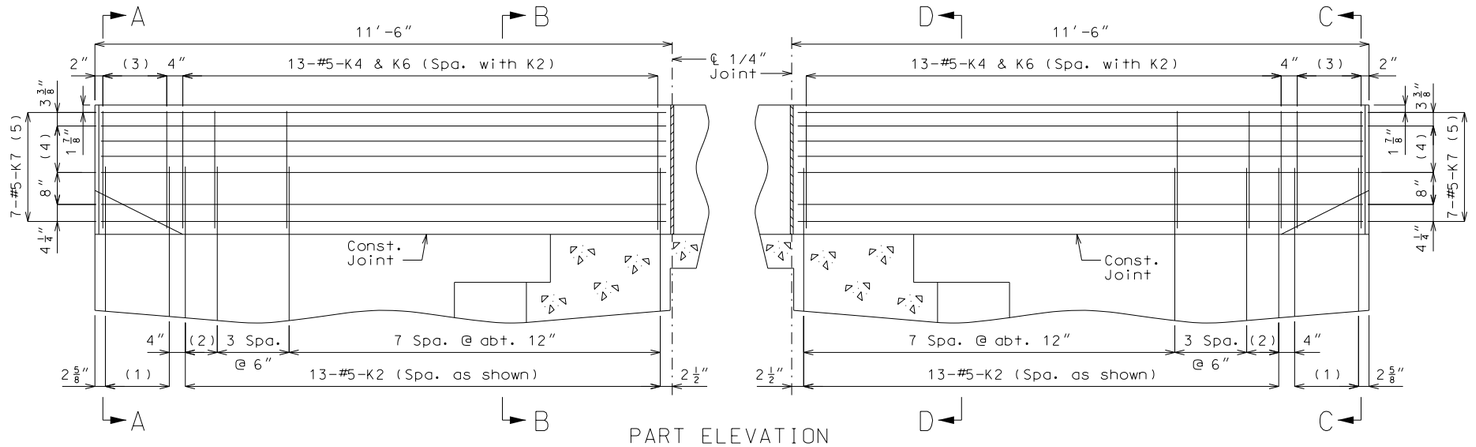
DESCRIPTION | DATE

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

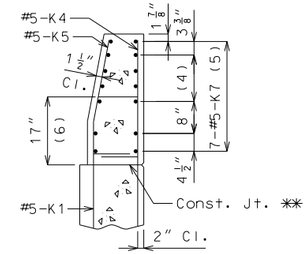
BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: P2007928644
Phone: 573-222-5632



SECTION A-A



PART ELEVATION



SECTION C-C

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

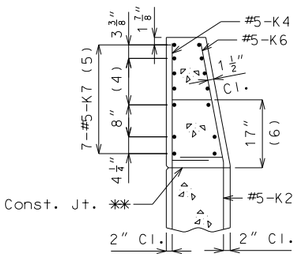
(2) 2 Spaces @ 4"

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

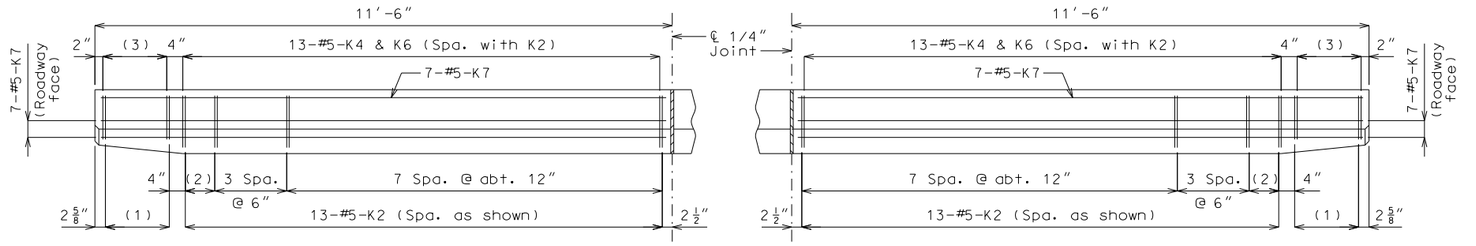
(4) 3 Spaces @ 3 13/16"

(5) Spaced as shown, each face

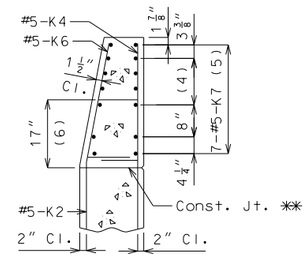
(6) To top of bar



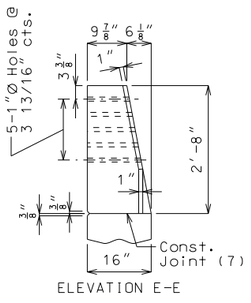
SECTION B-B



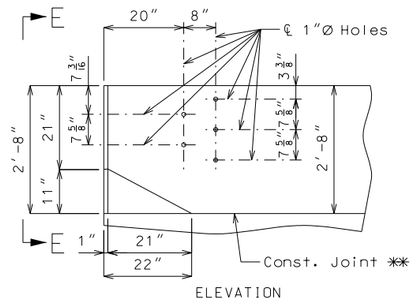
PART PLAN



SECTION D-D

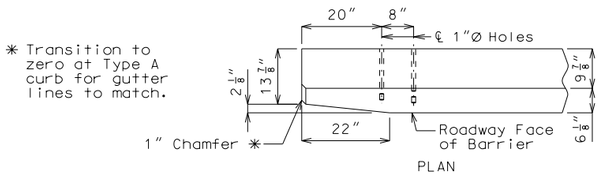


ELEVATION E-E



ELEVATION

** Slope to match superelevation



PLAN

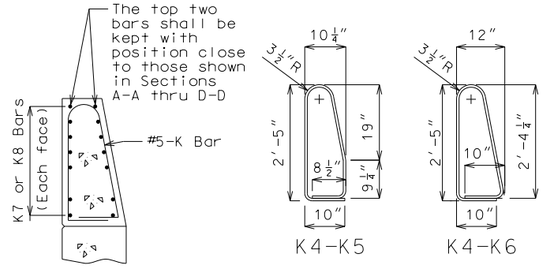
DETAILS OF GUARD RAIL ATTACHMENT

General Notes:

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

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2" 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 July 2023
Checked July 2023

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

$FILE$ $TIME$ $DATE$

FREDERICK A. MENSAH NUMBER PE-2022039709 — STATE OF MISSOURI — PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	16

COUNTY: DUNKLIN

JOB NO.: J9S3676

CONTRACT ID.:

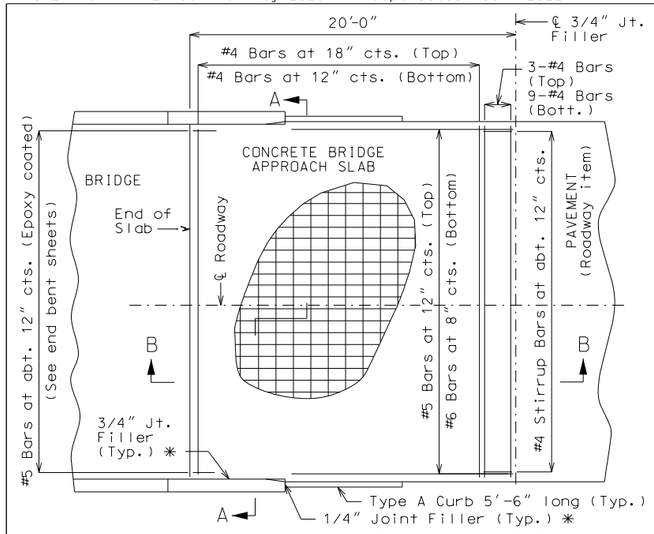
PROJECT NO.:

BRIDGE NO.: A9312

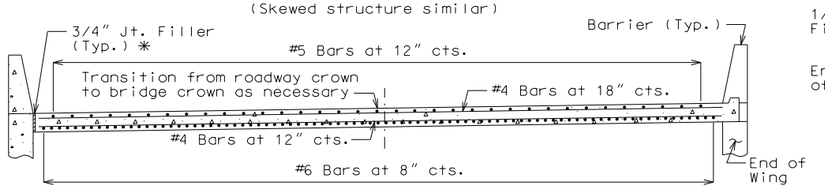
DESCRIPTION | DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

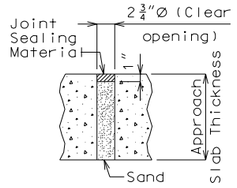


PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)

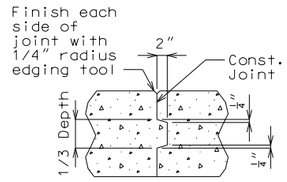


SECTION A-A

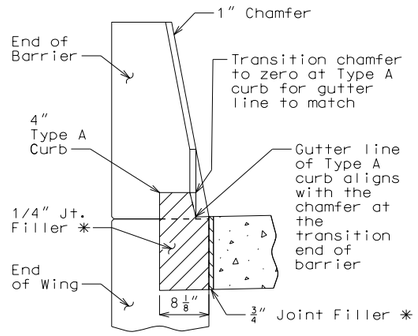
With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



UNDERSEAL ACCESS HOLE DETAIL
(If required)



CONSTRUCTION JOINT DETAIL



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

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

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

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

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

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

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

General Notes:

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

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

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

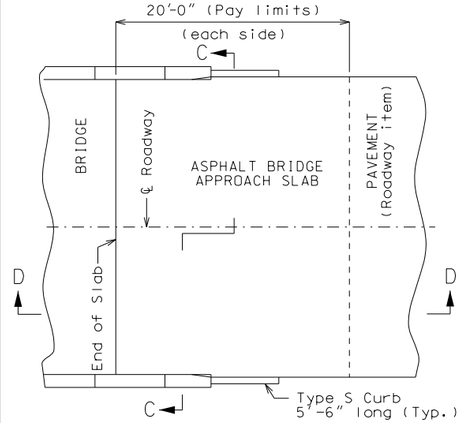
☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

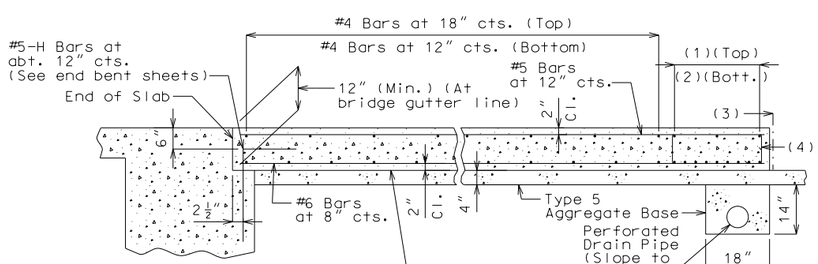
Notes For Asphalt Slab Only:

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

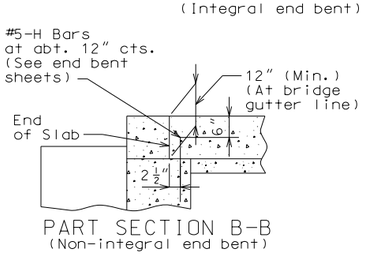
Application of tack is required between lifts per Sec 403.



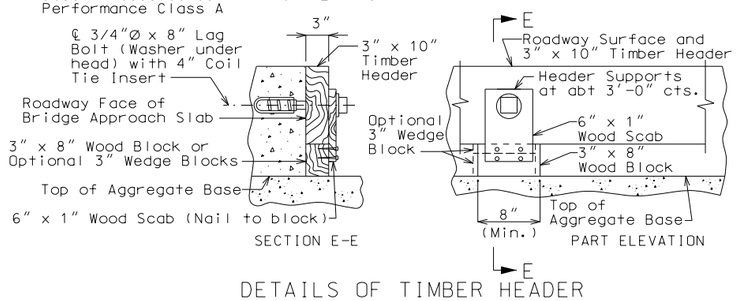
PART PLAN
(Squared structure shown, skewed structure similar)



SECTION B-B
(Integral end bent)

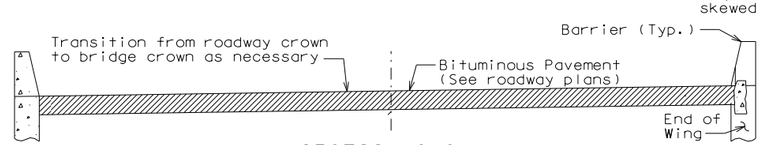


PART SECTION B-B
(Non-integral end bent)



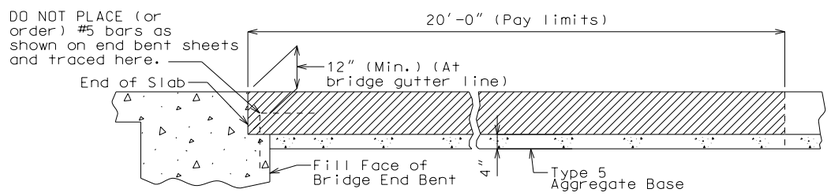
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

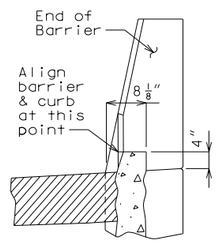


SECTION C-C

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 July 2023
Checked July 2023

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

$FILE$ $TIME$ $DATE$

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	17

COUNTY: DUNKLIN
JOB NO.: J9S3676
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9312

DATE	DESCRIPTION

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007029644
Phone: 573-222-5632

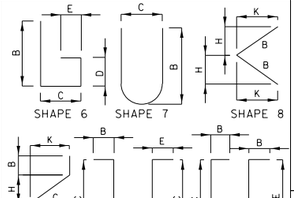
barbill_i Effective: May 2016 Supersedes: Aug. 2008

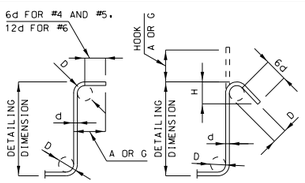
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SUPERSTRUCTURE																									
			END BENT 1																									
17	6	F100	WING	E	15	S				2	3.000	5	0.750	14.000		9.875		9.875		19.125		19.125		8	6	8	5	215
6	6	F101	DIAPHRAGM	E	6	S				6	9.000	2	7.500	12.000										10	5	10	1	91
12	7	H100	BEAM & DIAPH	E	20					26	5.000													26	5	26	5	648
7	6	H101	BEAM & DIAPH	E	20					26	5.000													26	5	26	5	278
5	7	H102	BEAM	E	18					2	10.000													4	6	4	6	46
9	6	H103	DIAPHRAGM	E	20					2	5.000													2	5	2	5	33
24	5	H104	DIAPHRAGM	E	19	S				2	0.000		15.000											3	3	3	1	77
4	5	H105	STRAND TIE	E	20					6	4.000													6	4	6	4	26
16	8	H106	WING	E	19					11	0.000		12.000											12	0	11	10	506
36	6	H107	WING	E	19					10	2.000		12.000											11	2	11	0	595
4	6	H108	BEAM	E	20					13	8.000													13	8	13	8	82
48	4	P100	CIP PILE	E	34	S					12.000													3	11	3	11	126
9	5	U100	BEAM	E	31	S				4	9.000	2	9.000	4	9.000									13	2	13	0	122
10	4	U101	BEAM	E	13	S				2	9.000	2	8.000	2	9.000	2	8.000							11	7	11	4	76
6	4	U102	BEAM	E	10	S						2	8.000	2	9.000									8	1	7	11	32
13	6	U103	DIAPHRAGM	E	19	S				2	0.000	2	9.000											4	9	4	7	89
13	5	U104	DIAPHRAGM	E	31	S				2	11.000	2	3.000	2	11.000									9	0	8	10	120
32	6	U105	DIAPHRAGM	E	12					2	11.000	4	7.000											8	2	8	0	385
6	4	U106	BEAM	E	10	S						2	11.000	2	9.000									8	7	8	5	34
10	4	U107	BEAM	E	13	S				2	9.000	2	11.000	2	9.000	2	11.000							12	1	11	10	79
			END BENT 2																									
17	6	F200	WING	E	15	S				2	3.000	5	0.750	14.000		9.875		9.875		19.125		19.125		8	6	8	5	215
6	6	F201	DIAPHRAGM	E	6	S				6	9.000	2	7.500	12.000										10	5	10	1	91
12	7	H200	BEAM & DIAPH	E	20					26	5.000													26	5	26	5	648
7	6	H201	BEAM & DIAPH	E	20					26	5.000													26	5	26	5	278
5	7	H202	BEAM	E	18					2	10.000													4	6	4	6	46
9	6	H203	DIAPHRAGM	E	20					2	5.000													2	5	2	5	33
24	5	H204	DIAPHRAGM	E	19	S				2	0.000		15.000											3	3	3	1	77
4	5	H205	STRAND TIE	E	20					6	4.000													6	4	6	4	26
16	8	H206	WING	E	19					11	0.000		12.000											12	0	11	10	506
36	6	H207	WING	E	19					10	2.000		12.000											11	2	11	0	595
4	6	H208	BEAM	E	20					13	8.000													13	8	13	8	82
48	4	P200	CIP PILE	E	34	S					12.000													3	11	3	11	126
9	5	U200	BEAM	E	31	S				4	9.000	2	9.000	4	9.000									13	2	13	0	122
10	4	U201	BEAM	E	13	S				2	9.000	2	8.000	2	9.000	2	8.000							11	7	11	4	76
6	4	U202	BEAM	E	10	S						2	8.000	2	9.000									8	1	7	11	32
13	6	U203	DIAPHRAGM	E	19	S				2	0.000	2	9.000											4	9	4	7	89
13	5	U204	DIAPHRAGM	E	31	S				2	11.000	2	3.000	2	11.000									9	0	8	10	120
32	6	U205	DIAPHRAGM	E	12					2	11.000	4	7.000											8	2	8	0	385
6	4	U206	BEAM	E	10	S						2	11.000	2	9.000									8	7	8	5	34
10	4	U207	BEAM	E	13	S				2	9.000	2	11.000	2	9.000	2	11.000							12	1	11	10	79

BILL OF REINFORCING STEEL

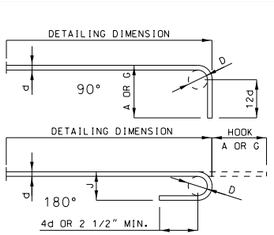
NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			END BENT 2 (CONT.)																									
8	5	V200	BEAM	E	17					4	9.000													5	4	5	4	45
18	6	V201	WING	E	20					6	6.000													6	6	6	6	176
18	6	V202	WING	E	20					5	11.000													5	11	5	11	160
24	6	V203	DIAPHRAGM	E	19	S				2	0.000		13.000											3	1	2	11	105
36	6	V204	CIP PILE	E	17					5	3.000													5	11	5	11	320
			SLAB																									
82	5	S1	SLAB	E	20					38	8.000													38	8	38	8	3307
139	6	S2	SLAB	E	20					26	5.000													26	5	26	5	5515
93	5	S3	SLAB	E	20					26	5.000													26	5	26	5	2562
			TYPE H BARRIER																									
20	5	K1	BARRIER	E	27	S				3	8.000	9.250		5.375		3	2.750			5.250		1.000		8	1	7	11	165
52	5	K2	BARRIER	E	27	S				3	8.000	9.250		14.500		2	5.750			14.250		2.750		8	2	7	11	429
72	5	K4	BARRIER	E	19	S				2	5.000	10.000												3	3	3	2	238
20	5	K5	BARRIER	E	14	S					8.250	9.500		19.250						4.250		18.750		3	1	2	11	61
52	5	K6	BARRIER	E	21	S				2	4.875	10.000								2	4.250	6.000		3	3	3	2	172
56	5	K7	BARRIER	E	20					11	3.000													11	3	11	3	657
140	5	R1	BARRIER	E	26					2	5.000	6.500		2	5.500					2	5.000	5.500		5	5	5	3	767
140	5	R2	BARRIER	E	19	S					20.500	9.500												2	6	2	5	353
140	5	R3	BARRIER	E	27	S						9.500		15.250		5.000		12.000		15.000		3.000		3	6	3	4	487
32	5	R4	BARRIER	E	20					36	2.000													36	2	36	2	1207
			SLIP FORM																									
			OPTION																									
8	5	C1	SLIP FORM	E	20					12	0.000													12	0	12	0	100
8	5	C2	SLIP FORM	E	20					8	9.000													8	9	8	9	73
			OPTION																									
			TOTALS																									
4				E																								694
5				E																								11358
6				E																								10573
7				E																								1388
8				E																								1012
			TOTAL	E																								25025
			SLAB ON GIRDER																									
4				E																								694
5				E																								6649
6				E																								10573
7				E																								1388
8				E																								1012
			TOTAL	E																								20316
			TYPE H BARRIER																									
5				E																								4536
			TOTAL	E																								4536





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

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



END HOOK DIMENSIONS					
BAR SIZE	D (IN.)	ALL GRADES			
		180° HOOKS		90° HOOKS	
		A OR G	J	A OR G	
#3	2 1/4"	5"	3"	6"	
#4	3"	6"	4"	8"	
#5	3 3/4"	7"	5"	10"	
#6	4 1/2"	8"	6"	12"	
#7	5 1/4"	10"	7"	14"	
#8	6"	11"	8"	16"	
#9	9 1/2"	15"	11 3/4"	19"	
#10	10 3/4"	17"	13 1/4"	22"	
#11	12"	19"	14 3/4"	2'-0"	
#14	18 1/4"	2'-3"	21 3/4"	2'-7"	

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

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.

NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.

REINFORCING STEEL (GRADE 60) FY = 60.000 PSI.

BENDING DIAGRAMS

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED
02-28-2024

ROUTE	STATE
A	MO

DISTRICT	SHEET NO.
BR	18

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9312

DESCRIPTION	DATE

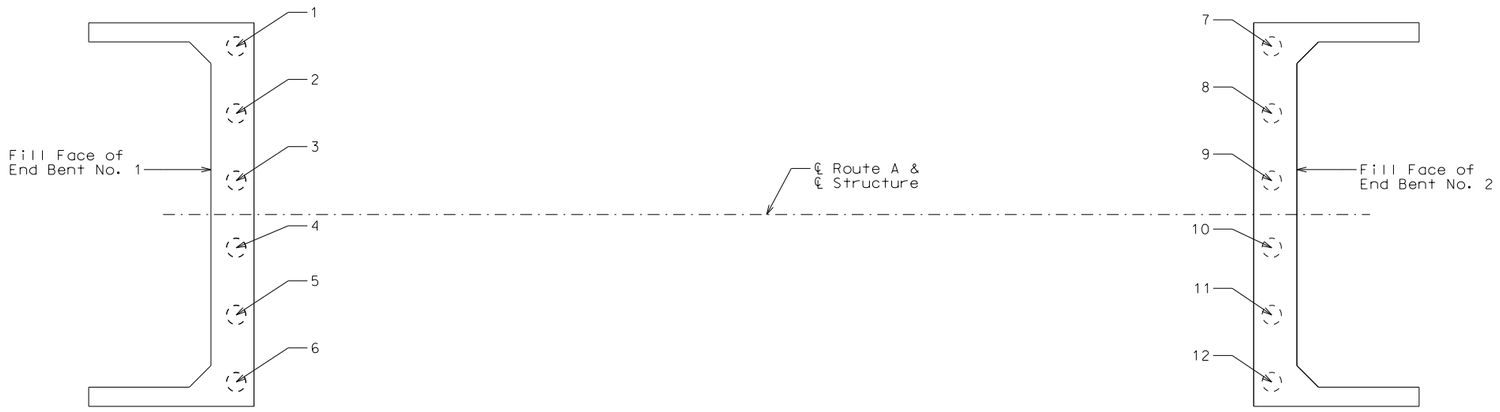
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3005 Williams Street
Cape Girardeau, Missouri
Certificate of Authority F2007028644
Phone: 573-222-5632

Detailed July 2023
Checked July 2023

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

$FILE$ $TIME$ $DATE$



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

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No. 1
1					
2					
3					
4					
5					
6					

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No. 2
7					
8					
9					
10					
11					
12					

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal
D. PDA test pile
E. Minimum tip elevation controlled
(Use when actual blow count is less than PDA blow count due to minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating actual value is higher than PDA value.)

This sheet to be completed by MoDOT construction personnel.

Detailed July 2023
Checked July 2023

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

FREDERICK A. MENSAH
NUMBER PE-2022039709
STATE OF MISSOURI
PROFESSIONAL ENGINEER

DATE PREPARED
02-28-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	19

COUNTY
DUNKLIN

JOB NO.
J9S3676

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9312

DATE	DESCRIPTION

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

BORING NUMBER B-1001 (N. Abut.)

Bacon Farmer Workman Engineering & Testing, Inc.
500 S 17th St
Paducah, KY 4203
Telephone: 270-443-1995

CLIENT MODOT **PROJECT NAME** MODOT- Bridge A9312 - Route A over Main Ditch
PROJECT NUMBER 22394 **PROJECT LOCATION** Dunklin County
DATE STARTED 6/5/23 **COMPLETED** 6/5/23 **GROUND ELEVATION** 255 +/- **HOLE SIZE** 6 inches
DRILLING CONTRACTOR BFW **DRILLED BY** R. Shuburt **GROUND WATER LEVELS:**
DRILLING METHOD Hollow Stem Auger and Mud Rotary (CME45, track-mounted) **AT TIME OF DRILLING** ---
LOGGED BY M. Kaufman **CHECKED BY** M.Kaufman **AT END OF DRILLING** ---
NORTHING **EASTING** **AFTER DRILLING** 15.00 ft

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. & (SHEAR) (tsf)	DRY UNIT WT. (pcf)	SPT N VALUE / PL MC LL / FINES CONTENT (%)
0		POORLY GRADED SAND (SP): Brown to gray, fine grained, with silt	SPT SS-1	72	8-10-7 (17)			
			SPT SS-2	61	2-1-2 (3)			
			SPT SS-3	67	2-1-2 (3)			
			SPT SS-4	72	1-2-2 (4)			
10			SPT SS-5	83	2-2-3 (5)			
			SPT SS-6	89	2-3-3 (6)			
20			SPT SS-7	72	5-9-10 (19)			
			SPT SS-8	72	4-8-9 (17)			
30			SPT SS-9	83	4-3-5 (8)			
			SPT SS-10	89	6-6-7 (13)			
40		WELL GRADED SAND (SW): Gray, fine to medium grained, trace gravel	SPT SS-11	78	6-7-8 (15)			
			SPT SS-12	72	7-8-7 (15)			
50		POORLY GRADED SAND (SP): Gray, fine grained, trace gravel	SPT		9-13-15			

(Continued Next Page)

BORING NUMBER B-1001 (N. Abut.)

Bacon Farmer Workman Engineering & Testing, Inc.
500 S 17th St
Paducah, KY 4203
Telephone: 270-443-1995

CLIENT MODOT **PROJECT NAME** MODOT- Bridge A9312 - Route A over Main Ditch
PROJECT NUMBER 22394 **PROJECT LOCATION** Dunklin County

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. & (SHEAR) (tsf)	DRY UNIT WT. (pcf)	SPT N VALUE / PL MC LL / FINES CONTENT (%)
		POORLY GRADED SAND (SP): Gray, fine grained, trace gravel *(continued)*	SS-13	56	(28)			
			SPT SS-14	61	10-11-17 (28)			
60		SILTY SAND (SM): Gray, very fine grained	SPT SS-15	78	14-15-17 (32)			
		POORLY GRADED SAND (SP): Gray, fine to medium grained sand, trace gravel, with black organics	SPT SS-16	67	5-7-8 (15)			
70		No organics	SPT SS-17	61	8-12-14 (26)			
			SPT SS-18	67	8-14-15 (29)			
80		WELL GRADED SAND (SW): Gray, very fine to fine sand, trace gravel	SPT SS-19	78	6-11-17 (28)			
			SPT SS-20	61	5-7-10 (17)			
90			SPT SS-21	67	9-10-10 (20)			
		Trace clay	SPT SS-22	56	10-10-11 (21)			
100		No clay	SPT SS-23	61	12-12-11 (23)			
		Bottom of borehole at 101.5 feet.						

FREDERICK A. MENSAH NUMBER PE-2022039709 — STATE OF MISSOURI — PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 20
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

DESCRIPTION | DATE

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

BORING DATA

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

Detailed July 2023
Checked July 2023

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

$FILE$ $TIME$ $DATE$

Bacon Farmer Workman Engineering & Testing, Inc.
500 S 17th St
Paducah, KY 4203
Telephone: 270-443-1995

BORING NUMBER B-1002 (S. Abut.)

CLIENT MODOT **PROJECT NAME** MODOT- Bridge A9312 - Route A over Main Ditch
PROJECT NUMBER 22394 **PROJECT LOCATION** Dunklin County
DATE STARTED 6/5/23 **COMPLETED** 6/5/23 **GROUND ELEVATION** 255 +/- **HOLE SIZE** 6 inches
DRILLING CONTRACTOR BFW **DRILLED BY** R. Shuburt **GROUND WATER LEVELS:**
DRILLING METHOD Hollow Stem Auger and Mud Rotary (CME45, track-mounted) **AT TIME OF DRILLING** ---
LOGGED BY M. Kaufman **CHECKED BY** M.Kaufman **AT END OF DRILLING** ---
NORTHING _____ **EASTING** _____ **AFTER DRILLING** 18.30 ft

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. & (SHEAR) (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ○ FINES CONTENT (%) ○ 20 40 60 80
0		EXISTING FILL: Light grayish brown, clayey sand, with organics, some asphalt pieces	SPT SS-1	100	5-10-11 (21)			
			SPT SS-2	91	38-50/5"			>>
		SILTY SAND (SM): Brownish gray, very fine grained	SPT SS-3	100	0-1-2 (3)			
		CLAYEY SAND (SC): Dark brown, very fine grained	SPT SS-4	100	0-1-3 (4)			
10		FAT CLAY (CH): Dark gray, with brown organics	SPT SS-5	100	0-0-0 (0)			
		LEAN CLAY (CL): Gray, with silt, with plant matter	SPT SS-6	100	0-0-0 (0)			
			ST ST-1	75				68
20		FAT CLAY (CH): Gray, with sand seams	SPT SS-7	100	0-0-0 (0)			
		WELL GRADED SAND (SW): Dark gray, fine to medium grained, trace gravel	SPT SS-8	56	4-4-7 (11)			
30			SPT SS-9	67	6-9-11 (20)			
			SPT SS-10	67	6-6-5 (11)			
40			SPT SS-11	67	6-7-9 (16)			
		With gravel	SPT SS-12	78	5-7-8 (15)			
50		Trace gravel	SPT		5-10-14			

(Continued Next Page)

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. & (SHEAR) (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ○ FINES CONTENT (%) ○ 20 40 60 80
		WELL GRADED SAND (SW): Dark gray, fine to medium grained, trace gravel *(continued)*	SS-13	100	(24)			
			SPT SS-14	61	8-8-8 (16)			
60		SILTY SAND (SM): Gray, very fine grained, trace gravel	SPT SS-15	56	15-16-11 (27)			
		WELL GRADED SAND (SW): Gray, fine to coarse grained, trace gravel	SPT SS-16	67	7-9-12 (21)			
70			SPT SS-17	44	6-8-11 (19)			
			SPT SS-18	67	6-12-18 (30)			
80			SPT SS-19	100	8-10-14 (24)			
		With gravel	SPT SS-20	100	10-8-10 (18)			
90			SPT SS-21	56	13-13-15 (28)			
			SPT SS-22	44	9-10-10 (20)			
100			SPT SS-23	39	7-9-12 (21)			
		Bottom of borehole at 101.5 feet.						

STATE OF MISSOURI
FREDERICK A. MENSAH
NUMBER PE-2022039709
PROFESSIONAL ENGINEER

DATE PREPARED 02-28-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 21
COUNTY DUNKLIN
JOB NO. J9S3676
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9312

DATE	DESCRIPTION

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

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
3065 Williams Street
Cape Girardeau, Missouri
Certificate of Authority: F2007028644
Phone: 573-222-5632

BORING DATA

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

Detailed July 2023
Checked July 2023

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

$FILE$ $TIME$ $DATE$

GEOTECH BH PLOTS - GINT STD US LAB 2021.GDT - 7/14/23 14:37 - C:\PW\WORKDIR\D0132924\22394- MODOT - ROUTE A OVER DRAINAGE DITCH 5.GPJ