DESIGN DESIGNATION

A.A.D.T. - 2026 = 1,037
A.A.D.T. - 2046 = 1,172
D.H.V. = 10%
T = 6.97%
V = 55 MPH
D = 51.3%/48.7%
FUNCTIONAL CLASSIFICATION- RURAL MAJOR COLLECTOR

NORMAL 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	D	
DITCH BLOCK		
GROUND MOUNTED SIGN	SIGN	
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL	PED	
FENCE		
CHAIN LINK	-V-	
WOVEN WIRE	-X-	
GATE POST		
BENCHMARK	BM	

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

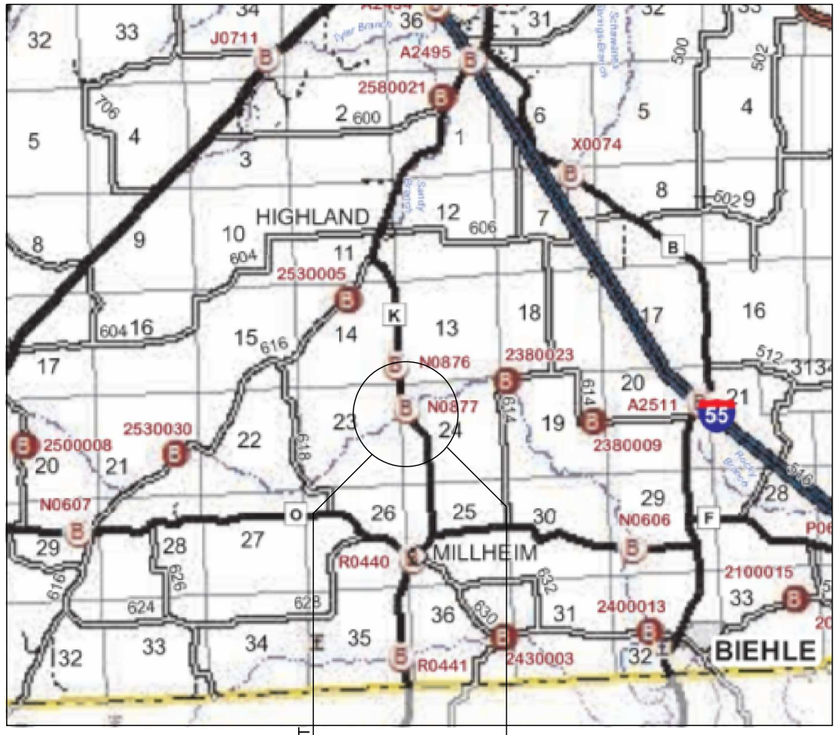
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
FINAL PLANS FOR PROPOSED
STATE HIGHWAY K
PERRY COUNTY



KEY MAP
SHOWING LOCATION OF COUNTY

NOT TO SCALE

S24 T34N R10E



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) (3 SHEETS)	3
PLAN-PROFILE (PP)	4
REF/COORD POINTS (RC/CP)	5-6
SPECIAL SHEETS (SS)	
CONSTRUCTION DETAILS	7
ENTRANCE DETAILS	8
TRAFFIC CONTROL SHEETS (TC)	9-10
EROSION CONTROL SHEETS (EC)	11
BRIDGE DRAWINGS (B)	
A9576	1-24
CROSS SECTIONS (XS)	1-4

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 214+10
END OF PROJECT	STA. 221+50
APPARENT LENGTH	740 FEET
EQUATIONS AND EXCEPTIONS:	
TOTAL CORRECTIONS	0 FEET
NET LENGTH OF PROJECT	740 FEET
STATE LENGTH	0.140 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	1.27 ACRES

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

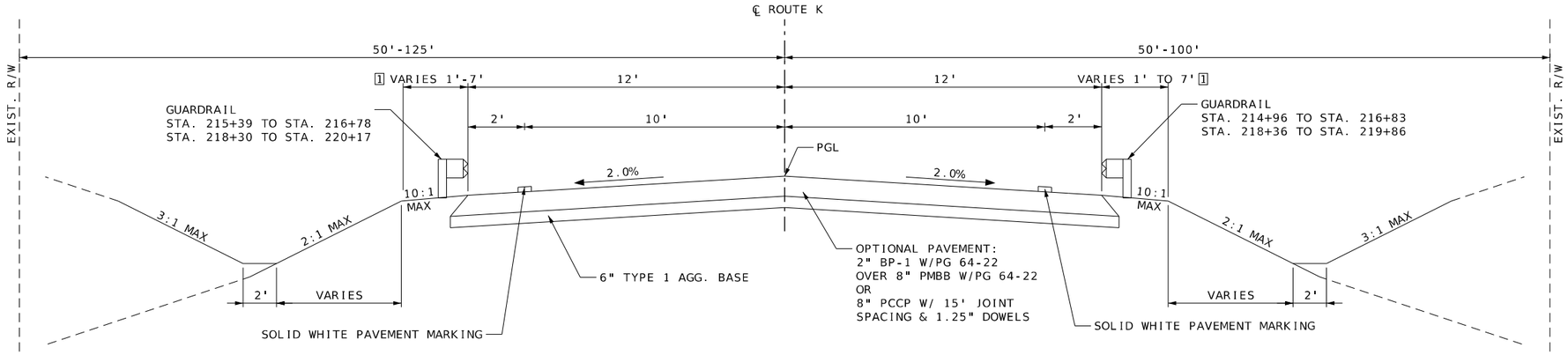
DATE PREPARED 2/25/2026
ROUTE K | STATE MO
DISTRICT SE | SHEET NO. 1
COUNTY PERRY
JOB NO. J9S3671
CONTRACT ID. .
PROJECT NO. .
BRIDGE NO. .

DESCRIPTION | DATE | REV.

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

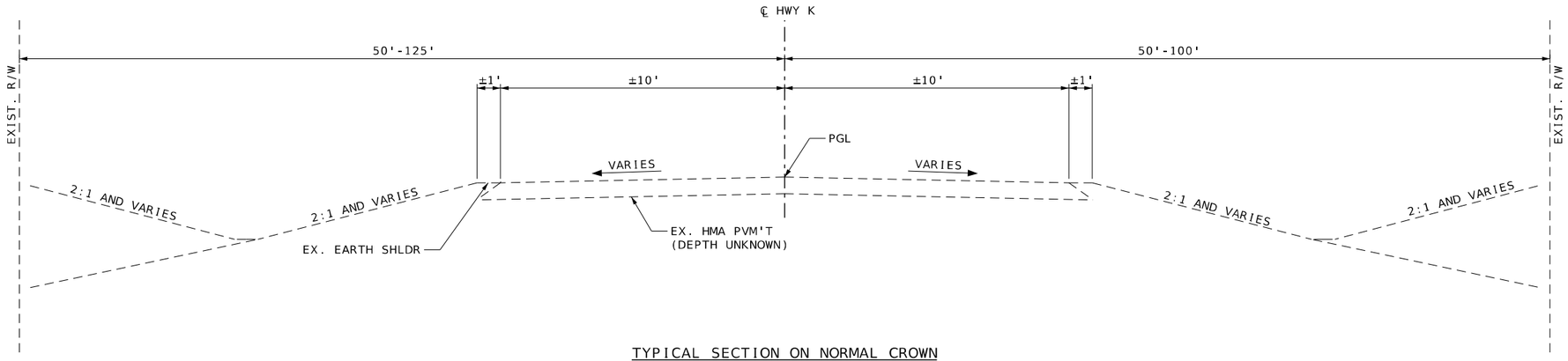
OATES ASSOCIATES
Collinsville: 1 Mason Court, Suite 1, Collinsville, IL 62234, 618.345.2200
St. Louis: 2200 West Port Plaza Dr., Suite 700, Chesterfield, MO 63017, 314.588.8381
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4466
St. Charles: 820 South Main, Suite 309, St. Charles, MO 63301, 636.493.8277
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

[1] EARTH SHOULDER TRANSITIONS:
FROM 1' TO 7' FROM STA. 215+05 TO STA. 215+35 (LT)
FROM 7' TO 4' FROM STA. 215+35 TO STA. 215+85 (LT)
FROM 4' TO 7' FROM STA. 219+74 TO STA. 220+22 (LT)
FROM 7' TO 1' FROM STA. 220+22 TO STA. 220+52 (LT)
FROM 1' TO 7' FROM STA. 214+62 TO STA. 214+92 (RT)
FROM 7' TO 4' FROM STA. 214+92 TO STA. 215+43 (RT)
FROM 4' TO 7' FROM STA. 219+40 TO STA. 219+90 (RT)
FROM 7' TO 1' FROM STA. 219+90 TO STA. 220+20 (RT)



TYPICAL SECTION ON NORMAL CROWN

PROPOSED ROUTE K
STA. 214+10 TO STA. 221+00
(BRIDGE OMISSION STA. 216+75.71 TO STA. 218+37.29)



TYPICAL SECTION ON NORMAL CROWN

EXISTING ROUTE K
STA. 214+10 TO STA. 221+00
(BRIDGE OMISSION STA. 216+95.71 TO STA. 218+17.29)

TYPICAL SECTION SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
2/25/2026

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	2

COUNTY
PERRY

JOB NO.
J9S3671

CONTRACT ID.
.

PROJECT NO.
.

BRIDGE NO.
.

DESCRIPTION	DATE
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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St. Charles
820 South Main, Suite 399
St. Charles, MO 63301
636.493.5077
MISSOURI DESIGN FIRM PE-001166

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	OFFSET	LENGTH (LF)	AREA (SQYD)	EACH (EA)	REMARKS
4	214+10		LT/RT	24			SAWCUT
4	214+10	216+99	LT/RT		650		PAVEMENT REMOVAL
4	215+21		LT			1	TREE
4	216+30		LT			1	TREE
4	216+58		LT			1	SIGN (OBJECT MARKER)
4	216+60		RT			1	SIGN (OBJECT MARKER)
4	216+61		LT			1	TREE
4	216+77		LT			1	SIGN (OBJECT MARKER)
4	216+82		RT			1	SIGN (OBJECT MARKER)
4	216+96		LT			1	SIGN (OBJECT MARKER)
4	216+99		RT			1	SIGN (OBJECT MARKER)
4	216+99		RT			1	SIGN (CREEK NAME)
4	217+94		LT			1	TREE
4	218+15		LT			1	SIGN (CREEK NAME)
4	218+15		LT			1	SIGN (OBJECT MARKER)
4	218+14	221+00	LT/RT		632		PAVEMENT REMOVAL
4	218+23		RT			1	TREE
4	218+32		LT			1	SIGN (OBJECT MARKER)
4	218+37		RT			1	SIGN (OBJECT MARKER)
4	218+51		LT			1	SIGN (OBJECT MARKER)
4	218+57		RT			1	SIGN (OBJECT MARKER)
4	219+08		RT			1	TREE
4	219+52		RT			1	TREE
4	219+77		RT			1	TREE
4	219+97		RT			1	TREE
4	220+42		RT			1	TREE
4	220+42		RT			1	TREE
4	220+66		RT			1	TREE
4	220+66		RT			1	TREE
4	221+00		LT/RT	24			SAWCUT
			SUBTOTAL	48	1282	26	
			PAY TOTAL	1 LUMP SUM			

EARTHWORK

SHEET	STATION	STATION	ESTIMATED CUT (NOTE 1) (CUYD)	ESTIMATED FILL (NOTE 1) (CUYD)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) (NOTE 1) (CUYD)	MODIFIED LINEAR GRADING CLASS 2 (STA)	REMARKS
XS 1 - XS 2	214+10	216+95.71	548	1219	-671	2.86	NORTH SIDE OF BR#A9576
XS 2 - XS 4	218+17.29	221+00	676	1202	-526	2.83	SOUTH SIDE OF BR#A9576
8	225+57	225+93				1.36	GRAVEL ENTRANCE
		SUBTOTAL	1224	2421	-1197	7.05	
		PAY TOTAL	0	0	-1197	7.1	

EARTHWORK NOTES:
1. CUT AND FILL VOLUMES PROVIDED FOR INFORMATION ONLY. INCLUDED IN COST OF MODIFIED LINEAR GRADING CLASS 2.
2. EXISTING PAVEMENT THICKESS IS UNKNOWN. A THICKNESS OF 4" WAS ASSUMED ON THE CROSS-SECTIONS FOR EARTHWORK CALCULATION PURPOSES.
3. MODIFIED LINEAR GRADING CLASS 2 CALCULATED THROUGH LIMITS OF BRIDGE APPROACH SLABS.

PAVEMENT AND BASE

SHEET	STATION	STATION	OFFSET	TYPE 1 AGGREGATE FOR BASE (6 IN. THICK) (SQYD)	OPTIONAL PAVEMENT (SQYD)	GRAVEL (A) OR CRUSHED STONE (B) (SQYD)	REMARKS
4	213+86	214+16	RT			13	
4	214+10	216+76	LT/RT	768	708.55		
4	216+37	221+00	LT/RT	759	700.55		
4	220+57	221+23	LT			69	
8	225+13	225+71	RT			73	
			SUBTOTAL	1527	1409.1	155	
			PAY TOTAL	1527	1409.1	155	

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

MOBILIZATION

PAY TOTAL = 1 LUMP SUM

CONTRACTOR FURNISHED SURVEYING AND STAKING

PAY TOTAL = 1 LUMP SUM

POROUS BACKFILL

SHEET	STATION	STATION	OFFSET	POROUS BACKFILL (CUYD)	REMARKS
6	216+90	216+95	LT/RT	41.7	ASSUMED 5'x9'x25'
6	218+18	218+23	LT/RT	41.7	ASSUMED 5'x9'x25'
			SUBTOTAL	83.4	
			PAY TOTAL	83	

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/14/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	3

COUNTY: PERRY
JOB NO.: J9S3671
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)

OATES ASSOCIATES
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MISSOURI DESIGN FIRM PE-001166

SUMMARY OF QUANTITIES
SHEET 1 OF 3

PERMANENT PAVEMENT MARKING

SHEET	STATION	STATION	OFFSET	4 IN. WHITE CLASS 1 PAVEMENT MARKING PAINT (18-MIL, TYPE P BEADS) (LF)	4 IN. YELLOW CLASS 1 PAVEMENT MARKING PAINT (18-MIL, TYPE P BEADS) (LF)	REMARKS
4	214+10	221+00	RT	690		SOLID EDGE LINE
4	214+10	221+00	LT	690		SOLID EDGE LINE
4	214+10	221+00	CL		1380	DOUBLE SOLID CENTERLINE
			SUBTOTAL	1380	1380	
			PAY TOTAL	**1380**	**1380**	

ROCK BLANKET

SHEET	STATION	STATION	OFFSET	FURNISHING TYPE 2 ROCK BLANKET (CUYD)	PLACING TYPE 2 ROCK BLANKET (CUYD)	ROCK BLANKET EXCAVATION (NOTES 2 & 3) (CUYD)	PERMANENT EROSION CONTROL GEOTEXTILE (SQYD)	REMARKS
10	216+57	217+41	LT/RT	452.9	452.9	452.9	774.6	NORTH BRIDGE CONE
10	217+88	218+60	LT/RT	323.7	323.7	323.7	562.2	SOUTH BRIDGE CONE
10	218+30	220+10	LT	450.8	450.8	450.8	760.8	SIDE SLOPE
8	224+85	225+23	RT	17.0	17.0	17.0	52.8	ENTRANCE CULVERT
8	225+60	225+93	RT	14.5	14.5	14.5	46.2	ENTRANCE CULVERT
			SUBTOTAL	1258.9	1258.9	1227.4	2196.6	
			PAY TOTAL	**1259**	**1259**	**0**	**2197**	

ROCK BLANKET NOTES:

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

EROSION CONTROL

SHEET	STATION	STATION	OFFSET	ROCK DITCH CHECK (LF)	SEDIMENT REMOVAL (CUYD)	SILT FENCE (LF)	TYPE C BERM (LF)	TYPE 2C EROSION CONTROL BLANKET (SQYD)	REMARKS
10	214+10	216+57	LT		2.5	248		890.8	
10	214+16	217+90	RT		2.8	280		1188.0	
10	214+23	216+89	RT	112	8.0				8 CHECKS @ 38' SPACING
10	216+57	217+41	LT/RT				237		NORTH BRIDGE SLOPE
10	217+88	218+60	LT/RT				206		SOUTH BRIDGE SLOPE
10	218+30	220+10	LT		2.2	222			
10	218+26	218+87	LT	36	3.0				3 CHECKS @ 30' SPACING
10	218+60	221+00	RT		2.4	241		1252.7	
10	218+53	220+78	RT	56	4.0				4 CHECKS @ 75' SPACING
			SUBTOTAL	204	24.9	991	443	3331.5	
			PAY TOTAL	**204**	**25**	**991**	**443**	**3332**	

EROSION CONTROL NOTES:

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

GUARDRAIL

SHEET	STATION	STATION	OFFSET	MGS GUARDRAIL (LF)	MGS BRIDGE APPROACH TRANSITION SECTION (REGULAR/NO CURB) (EA)	TYPE A CRASHWORTHY END TERMINAL (MASH) (EA)	REMARKS
4	214+96	216+83	RT	50	1	1	NW CORNER BR#A9576
4	215+39	216+77	LT	100	1	1	NE CORNER BR#A9576
4	218+30	220+17	LT	100	1	1	SE CORNER BR#A9576
4	218+36	219+86	RT	62.5	1	1	SW CORNER BR#A9576
			SUBTOTAL	**312.5**	4	4	
			PAY TOTAL	**313**	**4**	**4**	

SEEDING AND MULCHING

SHEET	STATION	STATION	OFFSET	MULCHING (ACRE)	SEEDING - COOL SEASON GRASSES (ACRE)	TEMPORARY SEEDING (ACRE)	REMARKS
4	214+10	216+66	LT	0.34	0.17	0.17	
4	214+15	216+90	RT	0.46	0.23	0.23	
4	218+47	221+00	RT	0.50	0.25	0.25	
			SUBTOTAL	**1.30**	**0.65**	**0.65**	
			PAY TOTAL	**2.0**	**1.0**	**1.0**	

DRAINAGE STRUCTURES

SHEET	STATION	STATION	OFFSET	36 IN. PIPE GROUP A (LF)	36 IN. OR ALLOWED SUBSTITUTE GROUP A FLARED END SECTION (EA)	REMARKS
8	225+15	225+68	RT	38	2	
			SUBTOTAL	38	2	
			PAY TOTAL	**38**	**2**	

SUMMARY OF QUANTITIES
SHEET 2 OF 3

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

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DATE PREPARED 10/14/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	3

COUNTY PERRY

JOB NO. J9S3671

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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Belleville
1 South Church, Suite 200
Belleville, IL 62220
618.416.4666

www.oatesassociates.com

OATES ASSOCIATES

MISSOURI DESIGN FIRM PE-001166

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00	2	32.00			18	DETOUR AHEAD
WO20-3	48X48	16.00	4	64.00			20	ROAD CLOSED AHEAD (AHEAD-2, 500 FT-2)
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	2	6.00			52	END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)
REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20.00			29	ROAD CLOSED
R11-3a	60X30	12.50	2	25.00			55	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY (1 MI, 5 MI)
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	96X48	32.00	1	32.00			56	ROUTE K CLOSED 1 MILES AHEAD
M1-5a	24X12	2.00	19	38.00			17	STATE ROUTE K
M5-1	21X15	2.20	10	22.00			17A,17B	ADVANCE STRAIGHT ARROW
MO4-8	24X12	2.00	19	38.00			17	DETOUR
M5-1L	21X15	2.20	1	2.20			17D	ADVANCE TURN ARROW (90° LEFT)
M5-1R	21X15	2.20	2	4.40			17C	ADVANCE TURN ARROW (90° RIGHT)
M6-1L	21X15	2.20	3	6.60			17G,17H	LEFT TURN ARROW
M6-1R	21X15	2.20	3	6.60			17E,17F	RIGHT TURN ARROW
M3-1	24X12	2.00	10	20.00			17A,17C	CARDINAL DIRECTION NORTH
M3-3	24X12	2.00	9	18.00			17B,17D 17F,17H	CARDINAL DIRECTION SOUTH

616-10.05 CONSTRUCTION SIGNS	TOTAL	335
616-10.10 RELOCATED SIGNS	TOTAL	* *

* * NO DIRECT PAY FOR RELOCATING TEMPORARY TRAFFIC CONTROL DEVICES

ITEM NUMBER	TOTAL QTY	EFFECTIVE: 07-01-2025 DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6122040		WORK ZONE CRASH CUSHION (NARROW)
6122041		WORK ZONE CRASH CUSHION (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONE)
6161025	10	CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	10	TYPE 3 MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE 3 OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002	2	TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER, CONTRACTOR FURNISHED/RETAINED
6173700B		TEMP. TRAFFIC BARRIER ANCHORED, CONTRACTOR FURNISHED/RETAINED
6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION CONTRACTOR FURNISHED/RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION, CONTRACTOR FURNISHED/RETAINED
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

SUMMARY OF QUANTITIES
SHEET 3 OF 3

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/14/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	3

COUNTY
PERRY

JOB NO.
J9S3671

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)

OATES ASSOCIATES

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3535 Duke, Suite 200
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314.588.8381

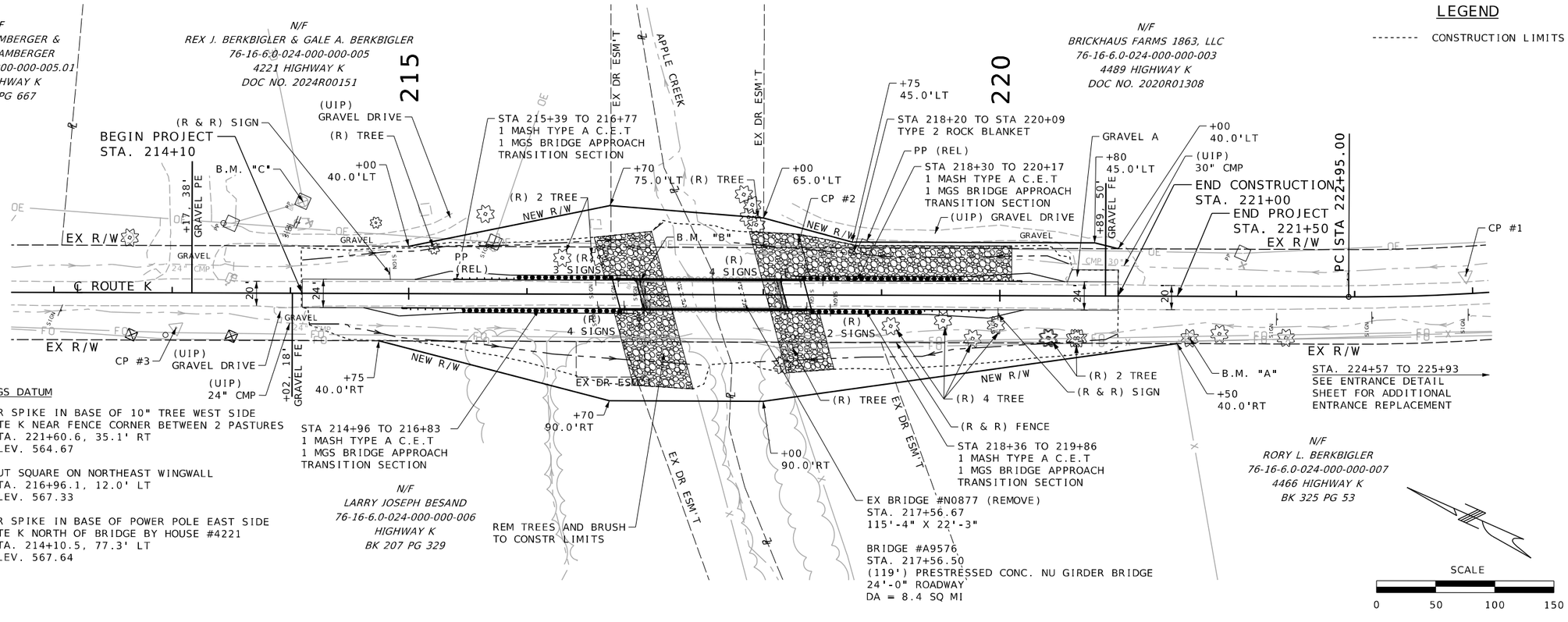
St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.1577

Collinsville
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Collinsville, IL 62234
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MISSOURI DESIGN FIRM PE-001166

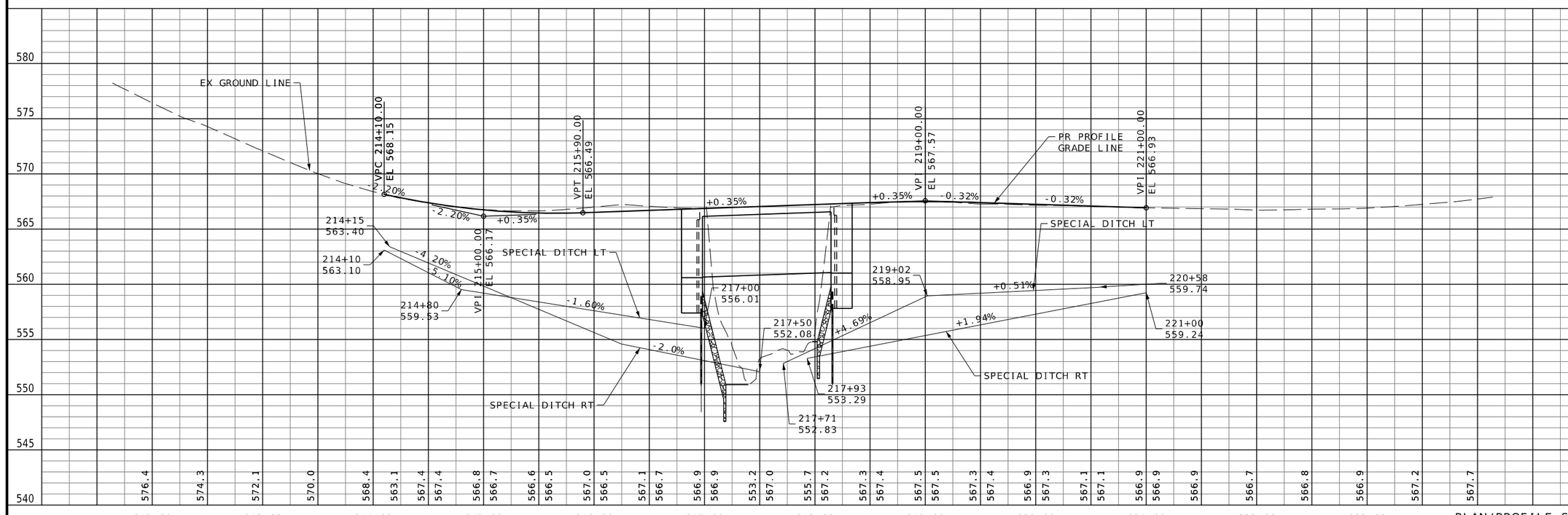


BENCHMARKS-USGS DATUM

B.M. "A" RR SPIKE IN BASE OF 10" TREE WEST SIDE
RTE K NEAR FENCE CORNER BETWEEN 2 PASTURES
STA. 221+60.6, 35.1' RT
ELEV. 564.67

B.M. "B" CUT SQUARE ON NORTHEAST WINGWALL
STA. 216+96.1, 12.0' LT
ELEV. 567.33

B.M. "C" RR SPIKE IN BASE OF POWER POLE EAST SIDE
RTE K NORTH OF BRIDGE BY HOUSE #4221
STA. 214+10.5, 77.3' LT
ELEV. 567.64



PLAN/PROFILE SHEET
SHEET 1 OF 1

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER
STATE OF MISSOURI

DATE PREPARED	10/14/2025
ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	4
COUNTY	PERRY
JOB NO.	J9S3671
CONTRACT ID.	.
PROJECT NO.	.
BRIDGE NO.	.

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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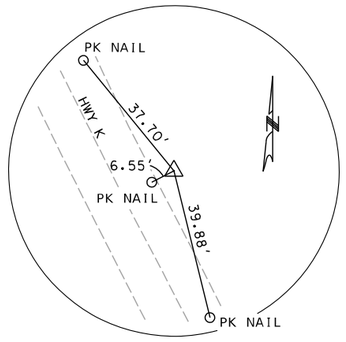
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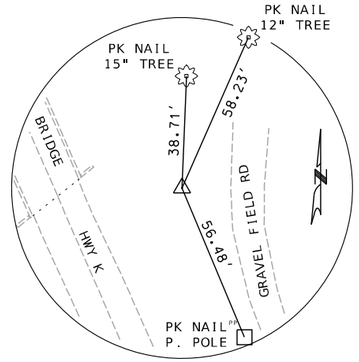
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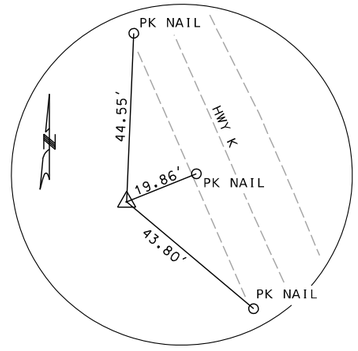
MISSOURI DESIGN FIRM PE-001166



CONTROL POINT #1
SET IRON ROD WITH ALUMINUM CAP
5'± EAST OF EOP ON HIGHWAY K
N: 657419.8769
E: 997522.3023
ELEV: 566.41



CONTROL POINT #2
SET IRON ROD WITH ALUMINUM CAP
33'± EAST OF EOP ON HIGHWAY K &
20'± SOUTH OF BRIDGE
N: 657946.3230
E: 997316.8459
ELEV: 558.26



CONTROL POINT #3
SET IRON ROD WITH ALUMINUM CAP
20'± WEST OF EOP ON HIGHWAY K &
400'± NORTH OF BRIDGE
N: 658398.7683
E: 997039.8626
ELEV: 572.26

HORIZONTAL AND VERTICAL CONTROL STATEMENT

STATE PLANE COORDINATES ON THIS PROJECT WERE ESTABLISHED UTILIZING THE MISSOURI HIGHWAYS AND TRANSPORTATION COMISSION GLOBAL NAVIGATION SATELLITE REAL TIME NETWORK FOR CONTINUOUSLY OPERATING REFERENCE STATIONS DURING APRIL, 2024 AND ARE BASED ON THE MISSOURI COORDIANTE SYSTEM OF 1983. EAST ZONE. THE AVERAGE COMBINED PROJECT GRID FACTOR IS 0.9999470073

COORDINATE BASE ARE MODIFIED MISSOURI STATE PLANE COORDINATES AND WERE ESTABLISHED BY APPLYING THE INVERSE OF THE PROJECT GRID FACTOR (1.0000529955) ABOUT THE ORIGIN (0,0)

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

COORDINATE POINTS SHEET
SHEET 1 OF 2

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/14/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
PERRY

JOB NO.
J9S3671

CONTRACT ID.
.

PROJECT NO.
.

BRIDGE NO.
.

DATE	DESCRIPTION
.	.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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MISSOURI DESIGN FIRM PE-001166

OATES ASSOCIATES

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	MOD. MO STATE PLANE (GROUND)
HORIZONTAL DATUM	NAD-83
VERTICAL DATUM	NAVD-88
GEOID MODEL	GEOID 18
ELEVATIONS DETERMINED BY	GPS AND DIFFERENTIAL LEVELING
PROJECT PROJECTION FACTOR	1.0000529955

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	COORDINATE SYSTEM OF 1983
CONTROL STATION	MODOT VRS
DESIGNATION	MOPT PATTON CORS GRP
CORS_ID	MOPT
PID	DR7393
LATITUDE	N37°31'27.91539"
LONGITUDE	W090°00'47.19032"
NORTHING (M)	187761.666
EASTING (M)	293036.844
ZONE	2401 (MO-EAST)
PROJECT AVERAGE GRID FACTOR	0.9999470073

EXAMPLE OF PROJECT COORDINATE TO S.P.C.

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

EXAMPLE: CONTROL POINT #_1_
N 657419.8769 X 0.9999470073 = N 657385.04
E 997522.3023 X 0.9999470073 = E 997469.44

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	223+94.80	RTE K	15.24 LT	657419.8769	997522.3023	566.41	SET IRON ROD WITH ALUMINUM CAP	CP#1
4	218+29.19	RTE K	41.95 LT	657946.3230	997316.8459	558.26	SET IRON ROD WITH ALUMINUM CAP	CP#2
4	213+03.54	RTE K	29.60 RT	658398.7683	997039.8626	572.26	SET IRON ROD WITH ALUMINUM CAP	CP#3
ALIGNMENTS								
	207+18.42	RTE K	CL	658967.182	996903.473		PC CURVE #1	
	209+10.49	RTE K	CL	658775.146	996906.791		PI CURVE #1	
	210+97.50	RTE K	CL	658599.312	996984.062		PT CURVE #1	
	222+94.99	RTE K	CL	657503.001	997465.84		PC CURVE #2	
	226+83.29	RTE K	CL	657147.514	997622.06		PI CURVE #2	
	230+57.51	RTE K	CL	656900.037	997921.277		PT CURVE #2	

COORDINATE POINTS SHEET
SHEET 2 OF 2

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/14/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	6

COUNTY
PERRY

JOB NO.
J9S3671

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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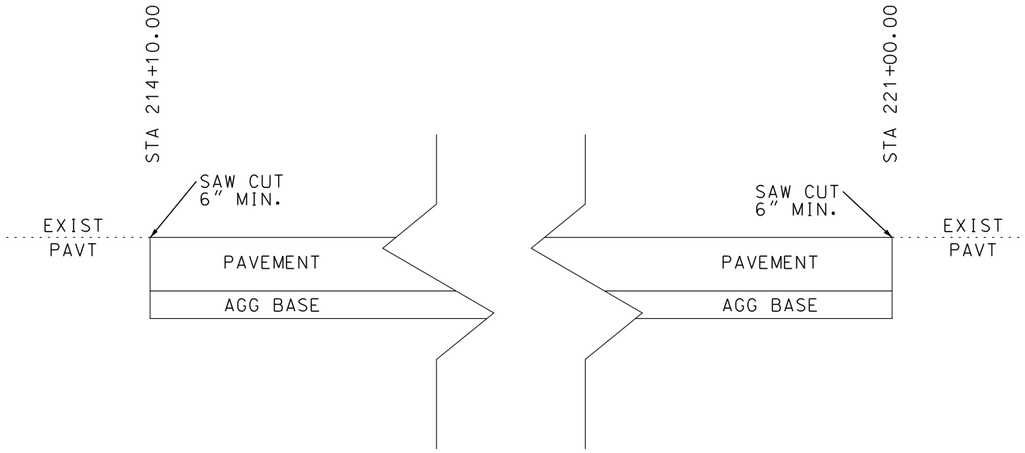
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St. Louis, MO 63105
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Belleville, IL 62220
618.416.4666

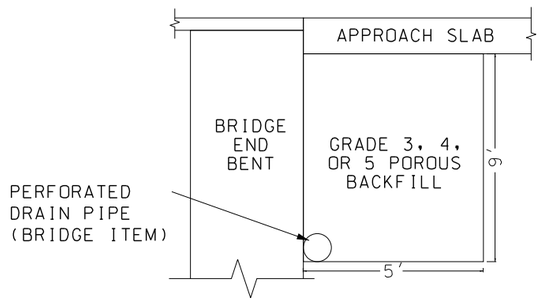
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St. Charles, MO 63301
636.493.5577

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MISSOURI DESIGN FIRM PE-001166



SAW CUT



POROUS BACKFILL

SPECIAL SHEETS
CONSTRUCTION DETAILS
SHEET 1 OF 1

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/14/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
PERRY

JOB NO.
J9S3671

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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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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618.345.2200

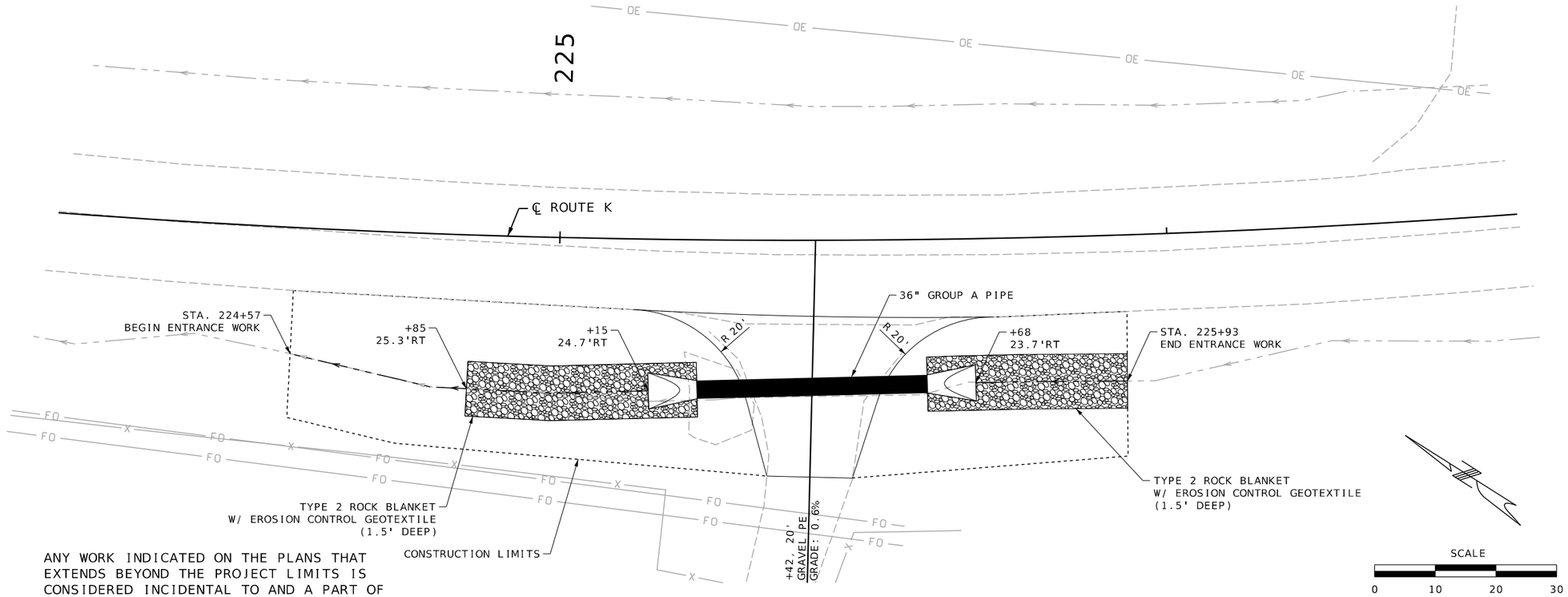
St. Louis
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St. Louis, MO 63131
314.588.8381

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Belleville, IL 62220
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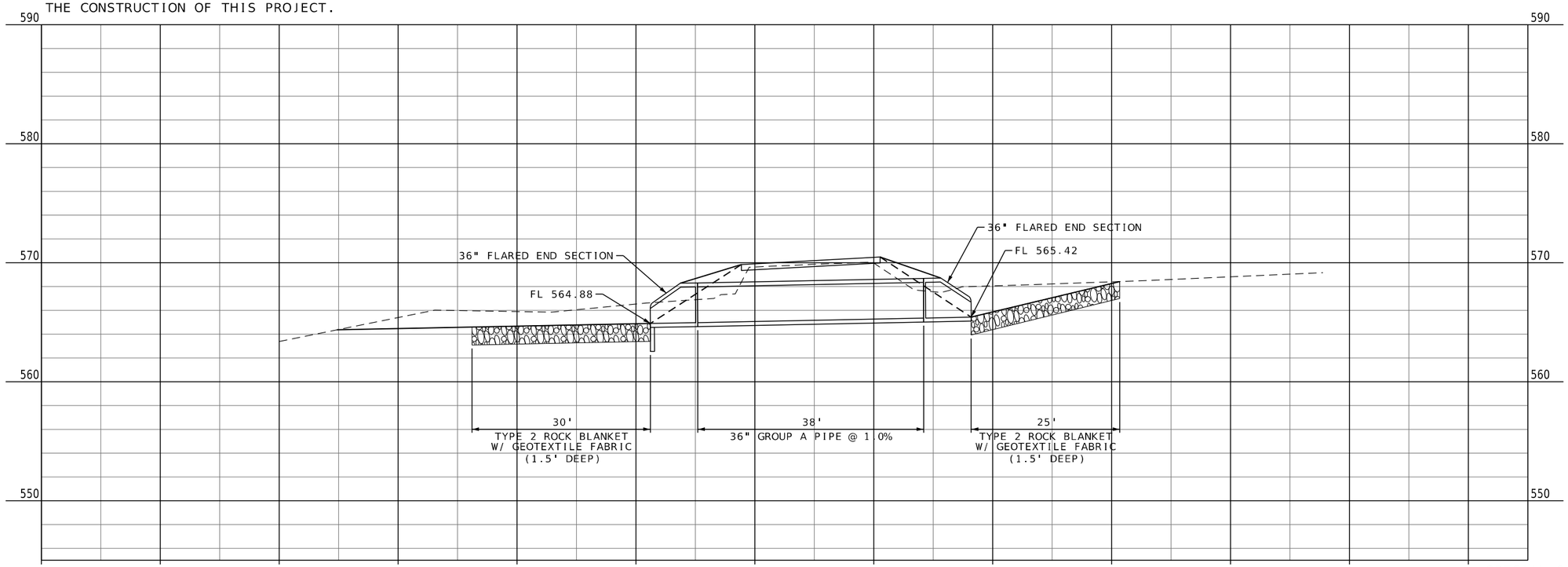
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St. Charles, MO 63301
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MISSOURI DESIGN FIRM PE-001166



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.



SPECIAL SHEETS
ENTRANCE DETAIL
SHEET 1 OF 1

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/14/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	8

COUNTY
PERRY

JOB NO.
J9S3671

CONTRACT ID.
.

PROJECT NO.
.

BRIDGE NO.
A9576

DESCRIPTION	DATE
.	.

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

OATES ASSOCIATES

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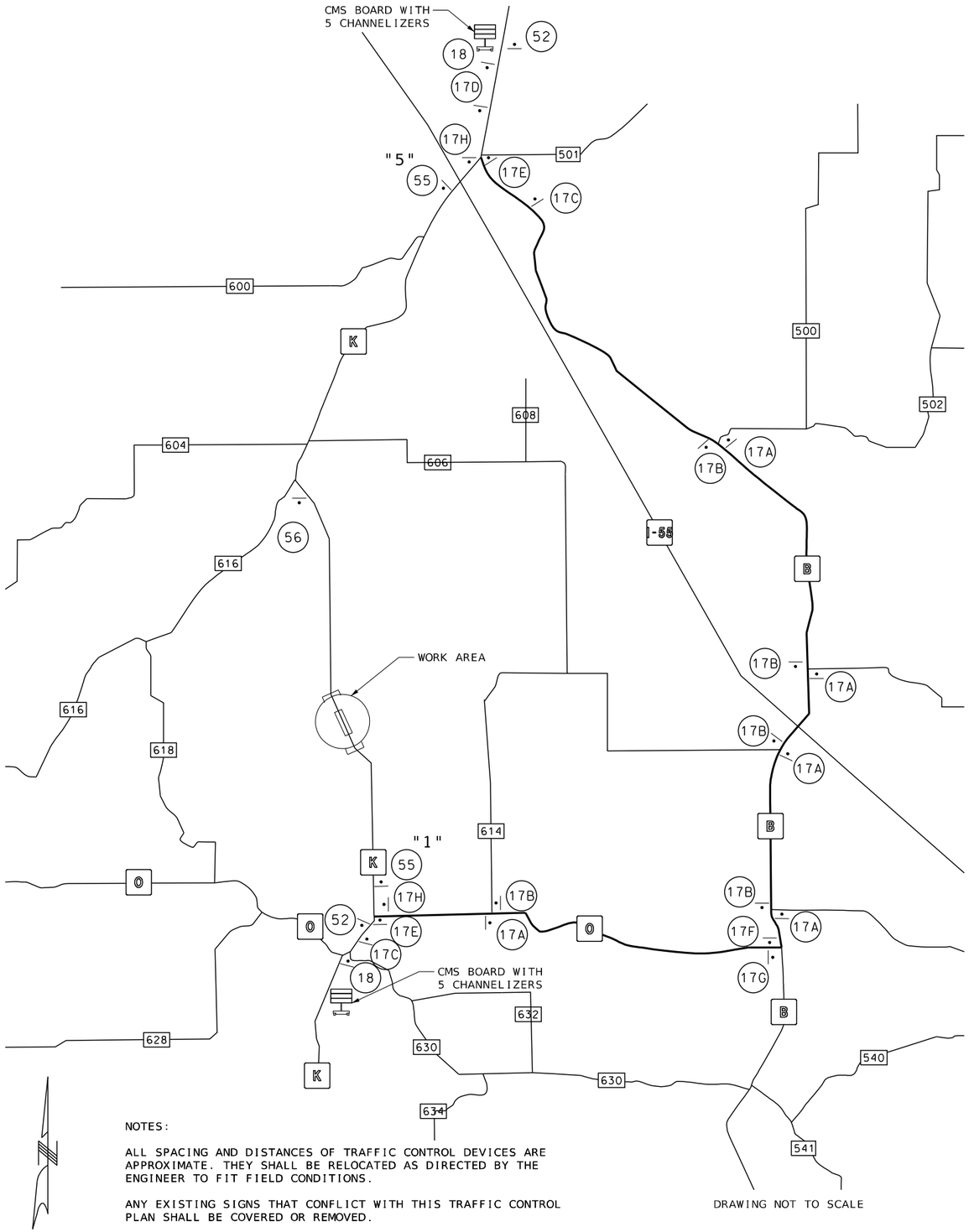
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St. Charles, MO 63301
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MISSOURI DESIGN FIRM PE-001166

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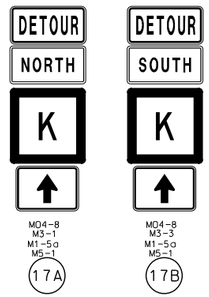


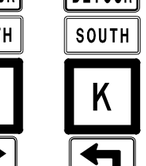
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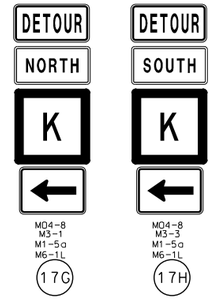
ALL SPACING AND DISTANCES OF TRAFFIC CONTROL DEVICES ARE APPROXIMATE. THEY SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

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

DRAWING NOT TO SCALE









SPECIAL

56



WO20-2

18



R11-3a

55

"X" EQUALS MILES NOTED NEXT TO SIGN NUMBER

TRAFFIC CONTROL LEGEND

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

TRAFFIC CONTROL SHEETS
SHEET 1 TO 2

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/14/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	9

COUNTY
PERRY

JOB NO.
J9S3671

CONTRACT ID.
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PROJECT NO.
.

BRIDGE NO.
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DESCRIPTION	DATE
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R11-2

PLACE 10' BEHIND
BARRICADE ON
PORTABLE MOUNT

29



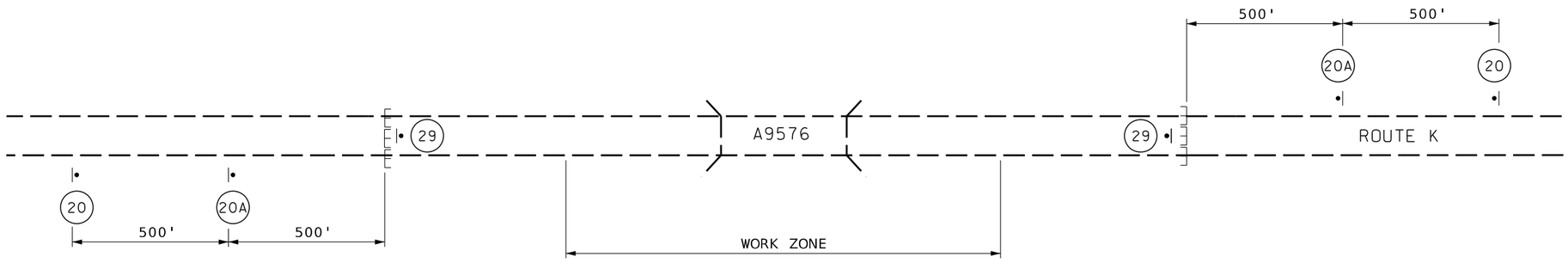
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W020-3

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NOTES:

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

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

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

SIGN SPACING IS 500'.

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- TYPE III MOVEABLE BARRICADE

DRAWING NOT TO SCALE

TRAFFIC CONTROL SHEETS
SHEET 2 OF 2

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/14/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	10

COUNTY
PERRY

JOB NO.
J9S3671

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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DESCRIPTION	DATE
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618.416.4656

St. Charles
820 South Main, Suite 399
St. Charles, MO 63301
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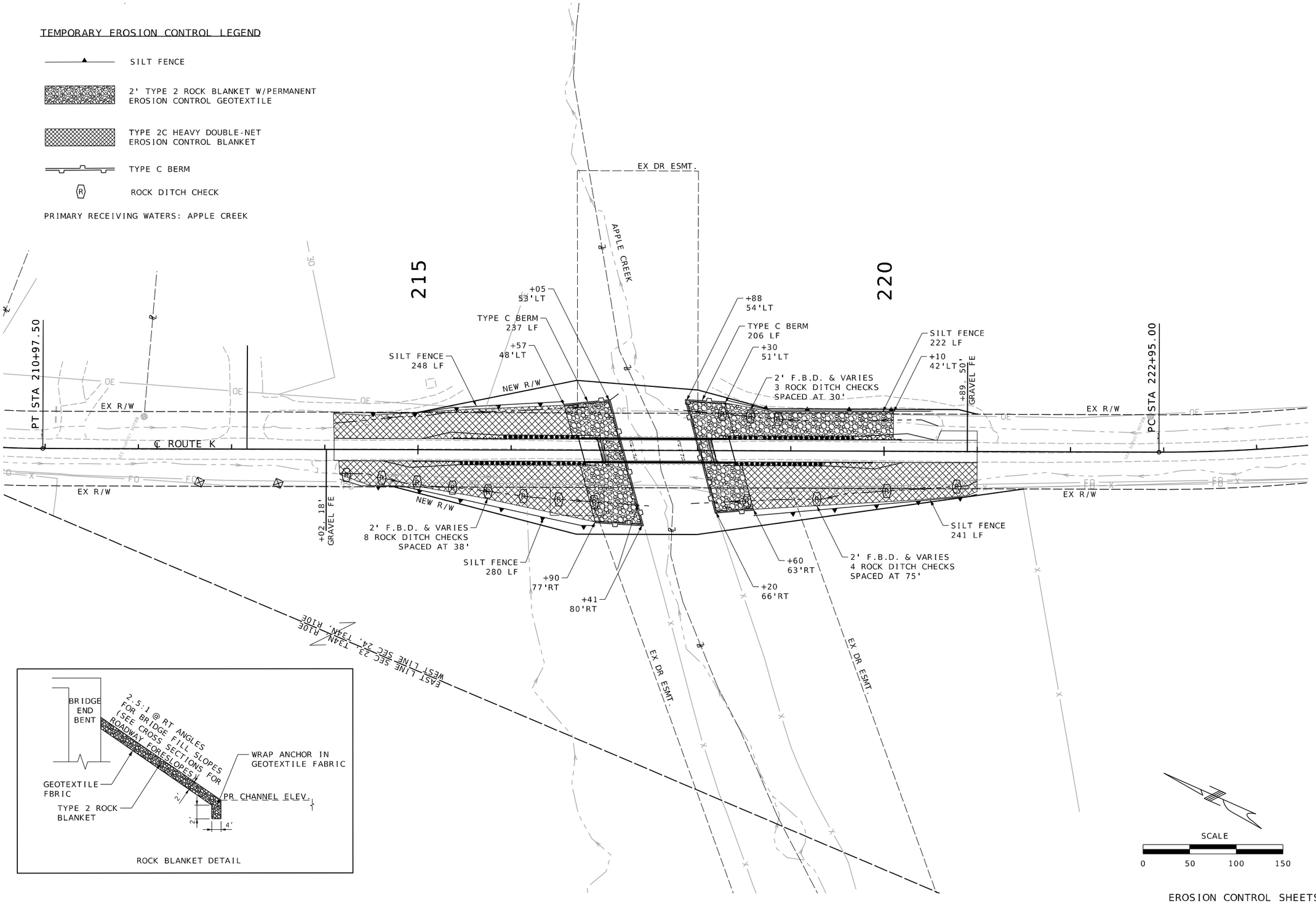
MISSOURI DESIGN FIRM PE-001166

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TEMPORARY EROSION CONTROL LEGEND

- SILT FENCE
- 2' TYPE 2 ROCK BLANKET W/PERMANENT EROSION CONTROL GEOTEXTILE
- TYPE 2C HEAVY DOUBLE-NET EROSION CONTROL BLANKET
- TYPE C BERM
- (R) ROCK DITCH CHECK

PRIMARY RECEIVING WATERS: APPLE CREEK



ROCK BLANKET DETAIL

EROSION CONTROL SHEETS
SHEET 1 OF 1

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/14/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
SE	11

COUNTY
PERRY

JOB NO.
J9S3671

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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636.493.0277

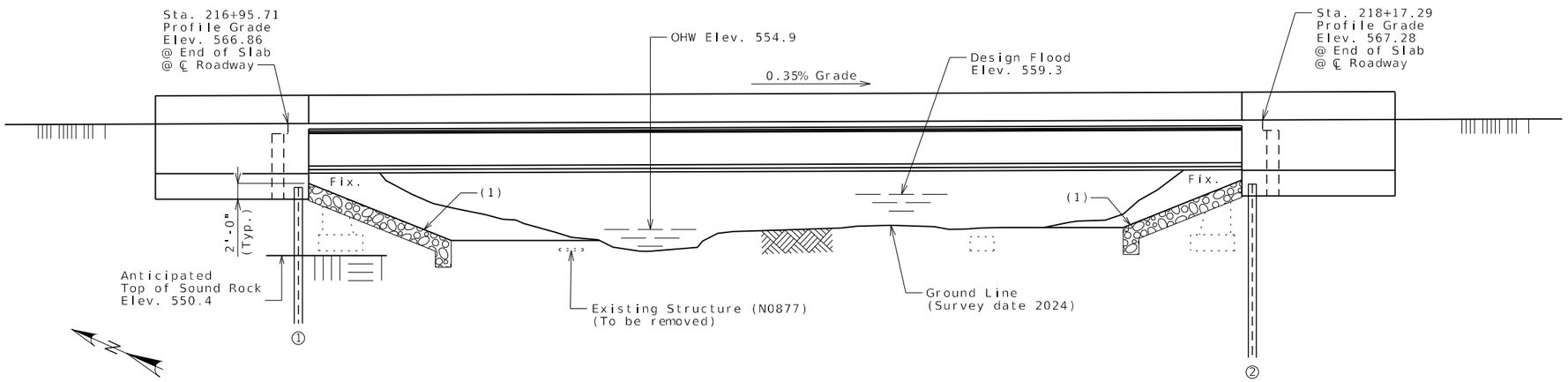
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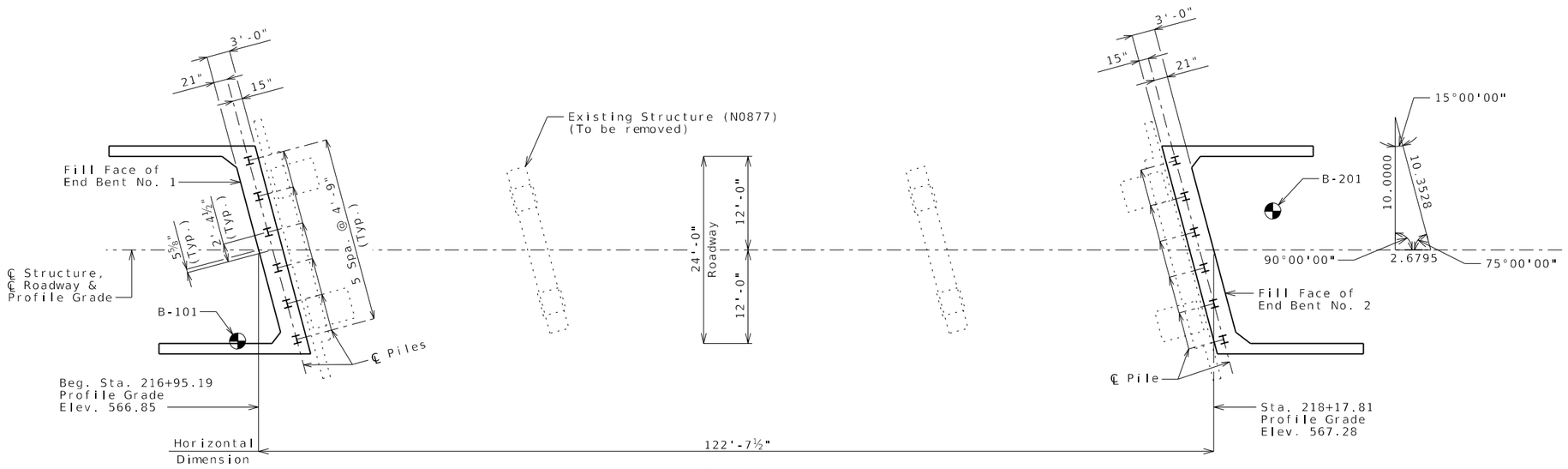
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SEC/SUR 24 TWP 34N RGE 10E

(119') PRESTRESSED CONCRETE NU-GIRDER SPAN



GENERAL ELEVATION



SPAN (1-2)

PLAN

⊕ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on this sheet. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheets No. 21-24 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.

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

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

B.M. "B" - CUT SQUARE ON TOP OF NORTHEAST WING WALL
STA. 216+96.10, 12.0' LT.
ELEV. 567.33

BRIDGE: ROUTE K OVER APPLE CREEK

ROUTE K FROM ROUTE O TO ROUTE B
ABOUT 1.3 MILES NORTH OF ROUTE O
BEGINNING STA. 216+95.19

Designed Dec. 2024
Detailed Dec. 2024
Checked Apr. 2025

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

Sheet No. 1 of 24

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

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	1

COUNTY: PERRY
JOB NO.: J9S3671
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9576

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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618.345.2200

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618.416.4688

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Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	203		203
Removal of Bridges (N0877)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		108	108
Galvanized Structural Steel Piles (12 in)	linear foot	330		330
Pre-Bore for Piling	linear foot	92		92
Pile Point Reinforcement	each	12		12
Class B Concrete (Substructure)	cu. yard	28.8		28.8
Type H Barrier	linear foot		309	309
Slab on Concrete NU-Girder	sq. yard		360	360
NU 63, Prestressed Concrete NU-Girder	linear foot		360	360
Steel Intermediate Diaphragm for P/S Concrete Girders	each		4	4
Slab Drain	each		24	24
Vertical Drain at End Bents	each	2		2
Plain Neoprene Bearing Pad	each		6	6

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

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

Cost of L4x4 ASTM A709 Grade 36 HP pile anchor and 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts, complete in place, will be considered completely covered by the contract unit price for Galvanized Structural Steel Piles (12 in).

Estimated Quantities for Slab on Concrete NU-Girder

Item		Total
Class B-2 Concrete	cu. yard	135
Reinforcing Steel (Epoxy Coated)	pound	28,000

The table of Estimated Quantities for Slab on Concrete NU-Girder 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.

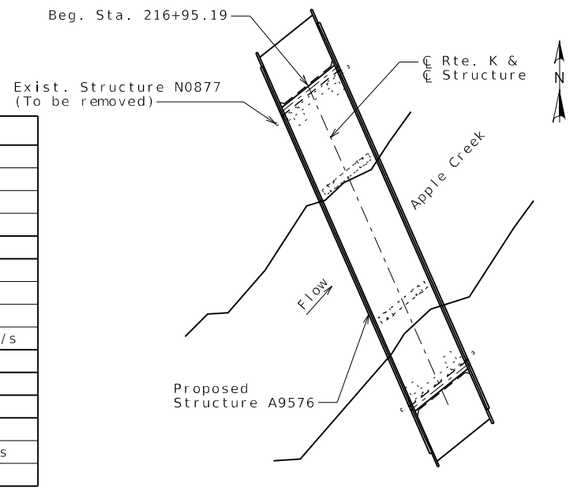
Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

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

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

Hydrologic Data

Drainage Area = 8.4 mi^2
Design Flood Frequency = 50 years
Design Flood Discharge = 4,220 cfs
Design Flood (D.F.) Elevation = 559.3
Base Flood (100-year)
Base Flood Elevation = 559.7
Base Flood Discharge = 4,970 cfs
Estimated Backwater = 0.1 ft
Average Velocity thru Opening = 7.9 ft/s
Freeboard (50-year)
Freeboard = 1.1 ft
Roadway Overtopping
Overtopping Flood Discharge = N/A cfs
Overtopping Flood Frequency > 500 years
500-Year Flood Elevation = 560.9



LOCATION SKETCH

Foundation Data

Type	Design Data		Bent Number 1	Bent Number 2
Load Bearing Pile	Pile Type and Size		HP 12x53	HP 12x53
	Number	ea	6	6
	Approximate Length Per Each	ft	17	38
	Pile Point Reinforcement	ea	All	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	Full Length
	Pile Driving Verification Method		DF	DF
	Resistance Factor		0.4	0.4
	Minimum Nominal Axial Compressive Resistance	kip	528	528

DF = FHWA-modified Gates Dynamic Pile Formula

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

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

HP Piles are anticipated to be drived to refusal to rock. Review all boring depth of rock and restrict driving as appropriate to comply with hard rock driving criteria in accordance with Sec. 702.

Prebore for piles at Bent No. 1 to elevation 542.

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd Ed.)
Seismic Design Category = B (Seismic Details)
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.23
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.36

Design Loading:

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

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Girders and Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Reinforcing Steel (ASTM A706 Grade 60)	fy = 60,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50)	fy = 50,000 psi

For precast prestressed panel stresses, see Sheet No. 11.
For prestressed girder stresses, see Sheets No. 7 & 8.

Neoprene Pads:

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

Joint Filler:

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

Reinforcing Steel:

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

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

Traffic Handling:

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

Miscellaneous:

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

☐ Constant Joint Filler
☐ Variable Joint Filler

GENERAL NOTES & QUANTITIES

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

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 11/18/2025
ROUTE: K | STATE: MO
DISTRICT: BR | SHEET NO.: 2
COUNTY: PERRY
JOB NO.: J9S3671
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9576

DESCRIPTION | DATE

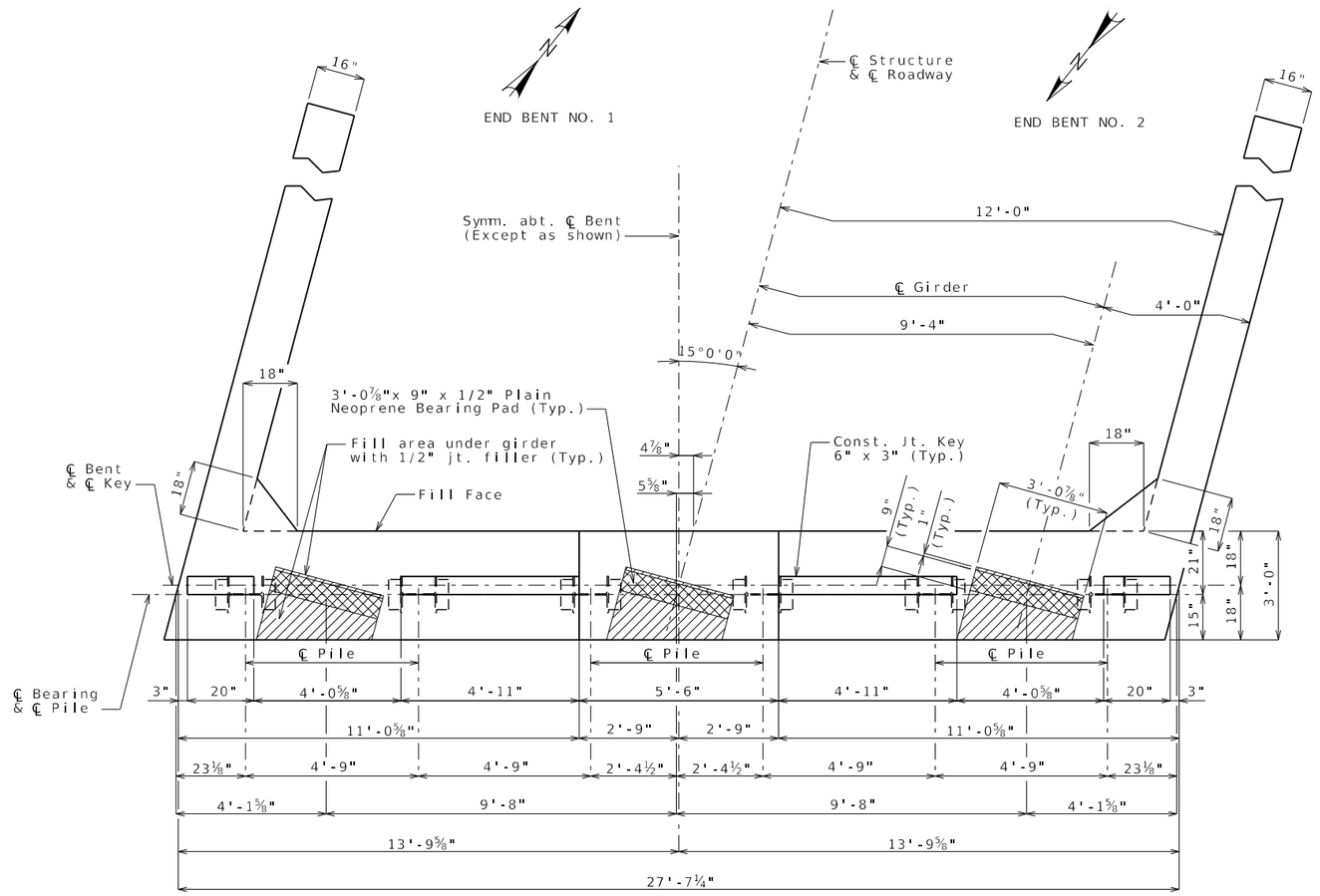
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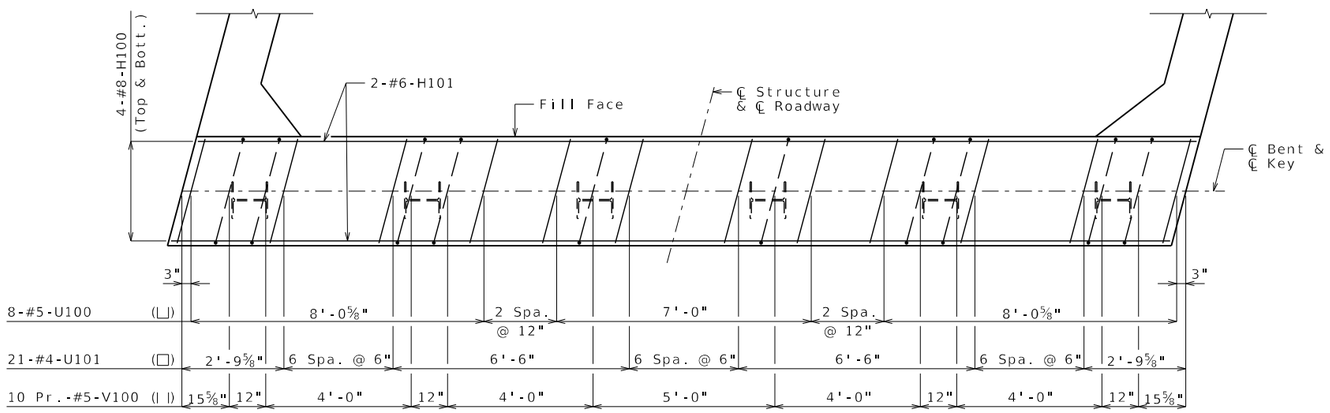
Detailed Dec. 2024
Checked Apr. 2025

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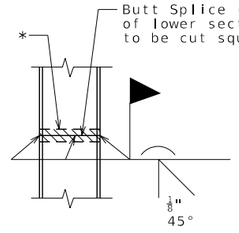
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PLAN OF BEAM

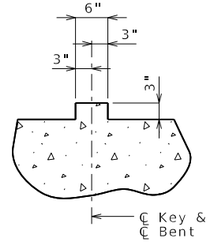


PLAN OF BEAM SHOWING REINFORCEMENT
(Keys not shown for clarity)

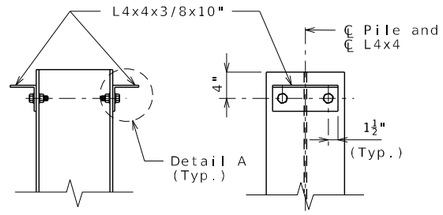


STEEL PILE SPLICE
(If required)

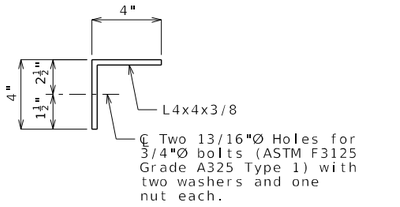
* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.



SECTION THRU KEY



DETAILS OF HP PILE ANCHORS



DETAIL A

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

General Notes:
For details of End Bents No. 1 & 2 not shown, see Sheets No. 4 & 5.

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

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

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	104
Galvanized Structural Steel Pile (12 in)	linear foot	102
Pre-Bore for Piling	linear foot	92
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yard	14.4

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Class 1 Excavation	cu. yard	99
Galvanized Structural Steel Pile (12 in)	linear foot	228
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yard	14.4

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

DETAILS OF END BENTS NO. 1 & 2

Detailed Jan. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JASON A. DREYER
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PROFESSIONAL ENGINEER
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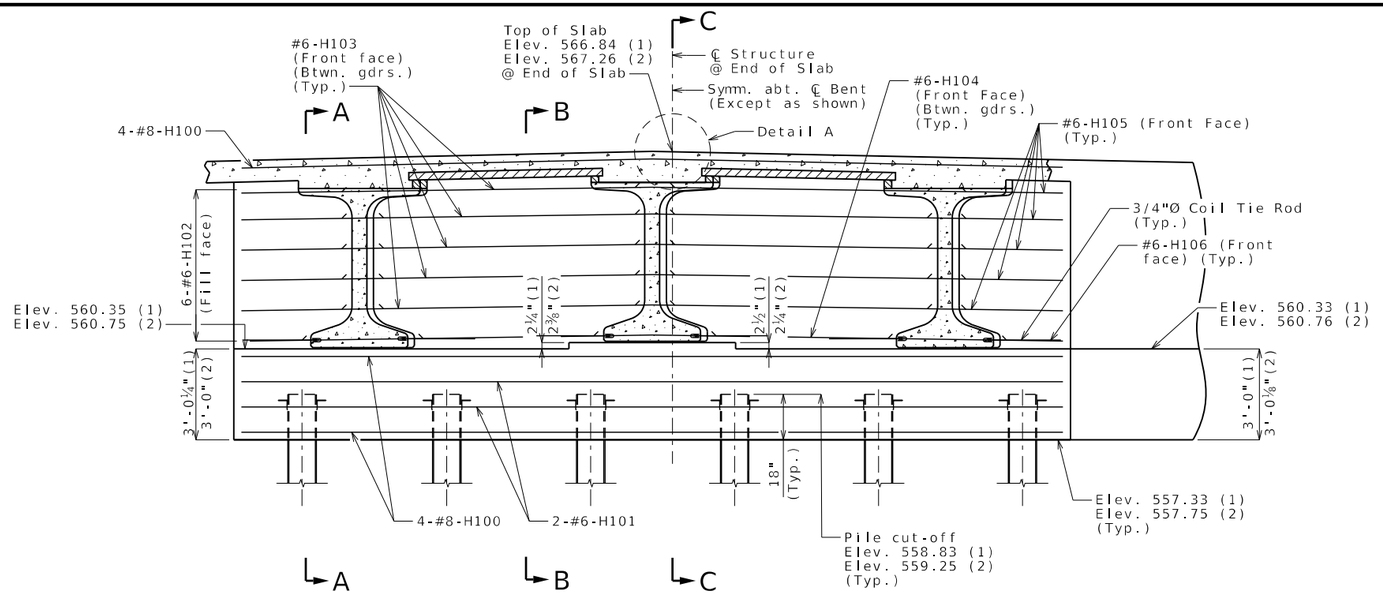
ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	3

COUNTY: PERRY
JOB NO.: J9S3671
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9576

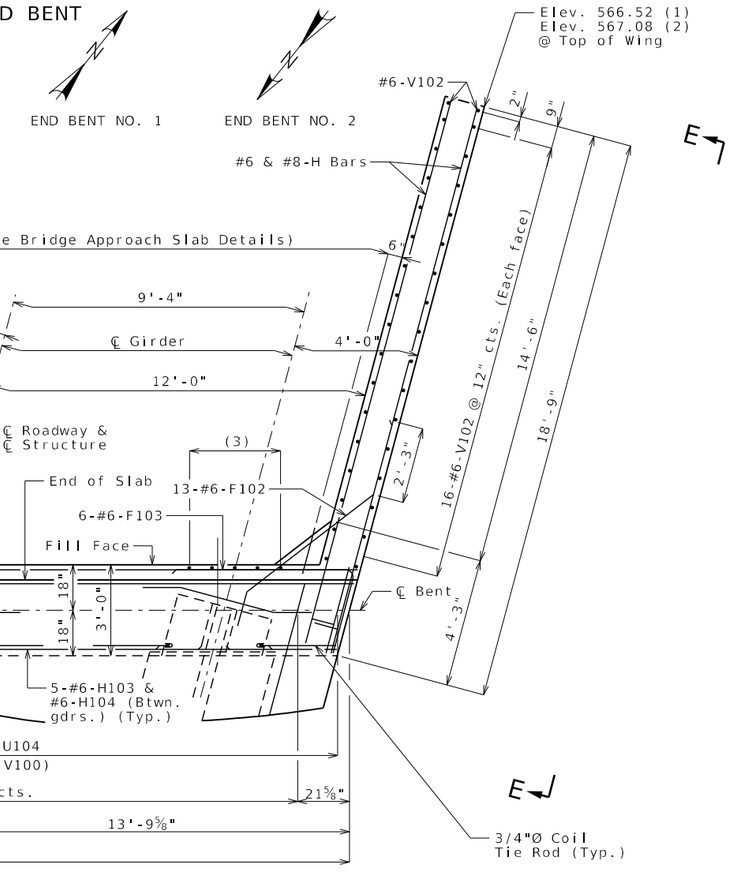
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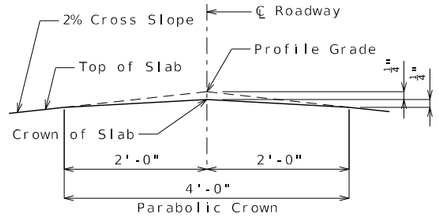
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618.416.4688
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MISSOURI DESIGN FIRM PE-001166



SECTION NEAR END BENT



PART PLAN



DETAIL A

Reference Notes:
(1) End Bent No. 1
(2) End Bent No. 2
(3) 5-#6-V101 @ 9" cts. (Typ.)

General Notes:
For details of End Bents No. 1 & 2 not shown, see Sheets No. 3 & 5

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

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

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

Strands at end of girders 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-H107 (Strand tie bar), see Sheets No. 7 & 8.

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

For details of Bridge Approach Slab, see Sheet No. 17.

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

DETAILS OF END BENTS NO. 1 & 2

Detailed Jan. 2025
Checked Apr. 2025

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

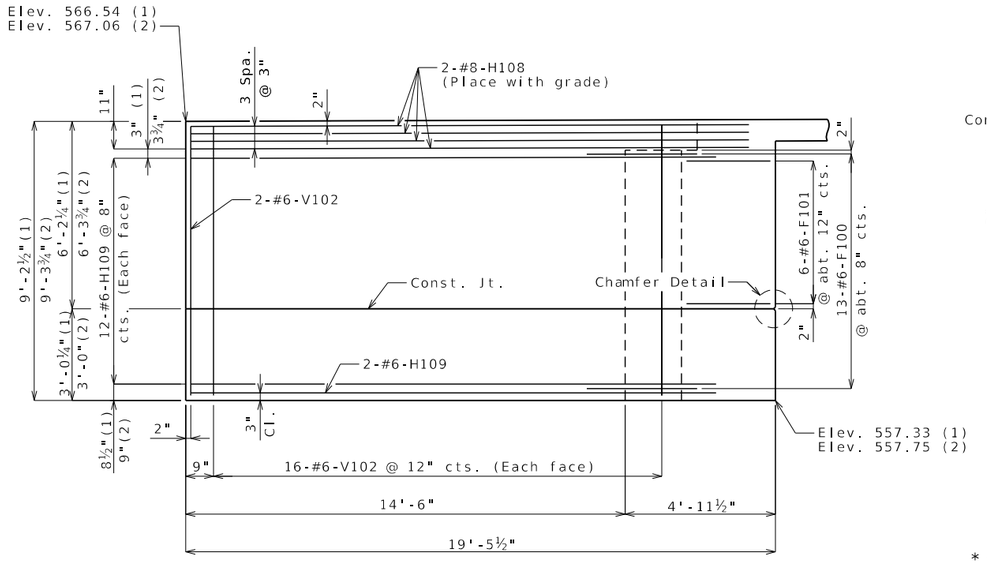
STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY PERRY
JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9576

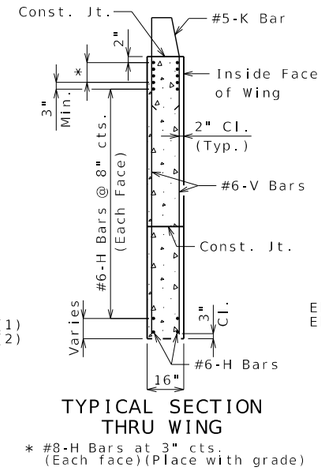
DESCRIPTION | DATE

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

OATES ASSOCIATES
Collinsville 100 Lamert Court, Suite 1 Collinsville, IL 62234 618.345.2200
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MISSOURI DESIGN FIRM PE-001166

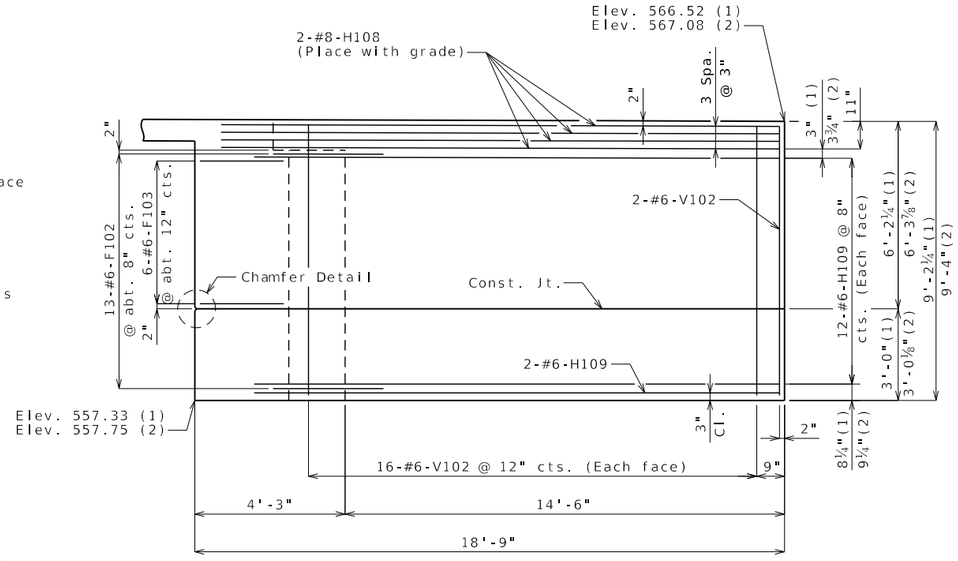


ELEVATION D-D

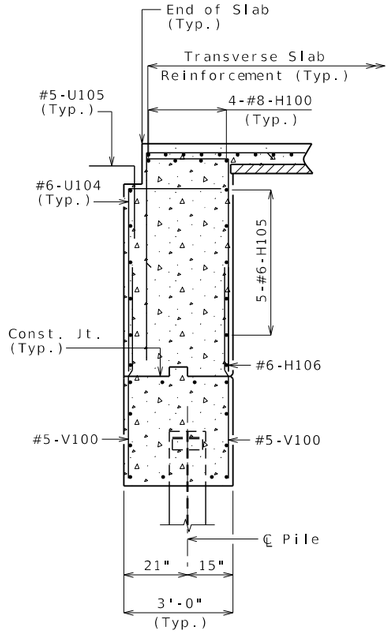


TYPICAL SECTION
THRU WING

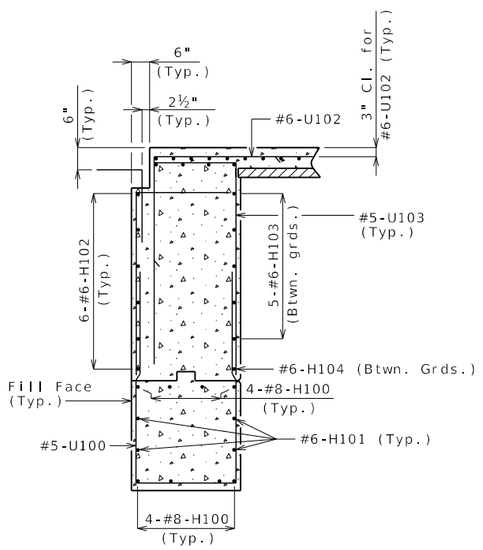
* #8-H Bars at 3" cts.
(Each face)(Place with grade)



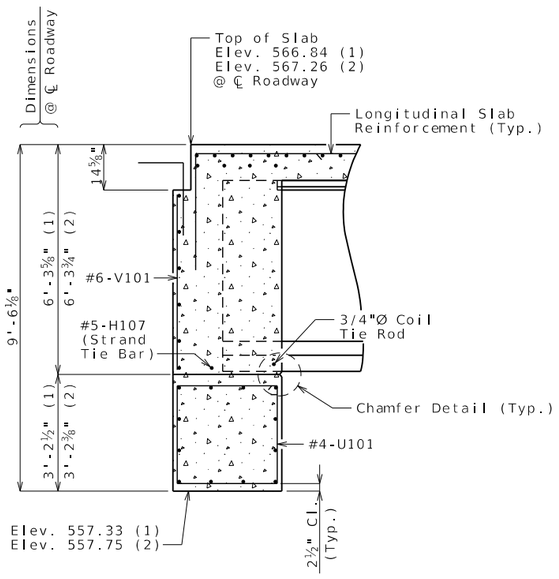
ELEVATION E-E



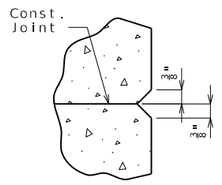
SECTION A-A



SECTION B-B



SECTION C-C



CHAMFER DETAIL

Reference Notes:
(1) End Bent No. 1
(2) End Bent No. 2

General Notes:
For details of End Bents No. 1 & 2 not shown, see Sheets No. 3 & 4.

For locations of Sections A-A,B-B,& C-C and Elevations D-D & E-E, see Sheet No. 4.

For reinforcement of the barrier, see Sheets No. 15 & 16.

DETAILS OF END BENTS NO. 1 & 2

Detailed Jan. 2025
Checked Apr. 2025

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

H:\P\224034 - SE District Bridge Package\002-J9S3671-N0877\Bridge\Final Bridge\Microstation\B_A9576_005_J9S3671_Details of End Bents No. 1 & 2.dgn 11:09:19 AM 11/18/2025

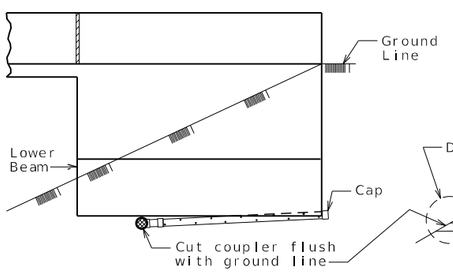
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
STATE OF MISSOURI
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY PERRY
JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9576

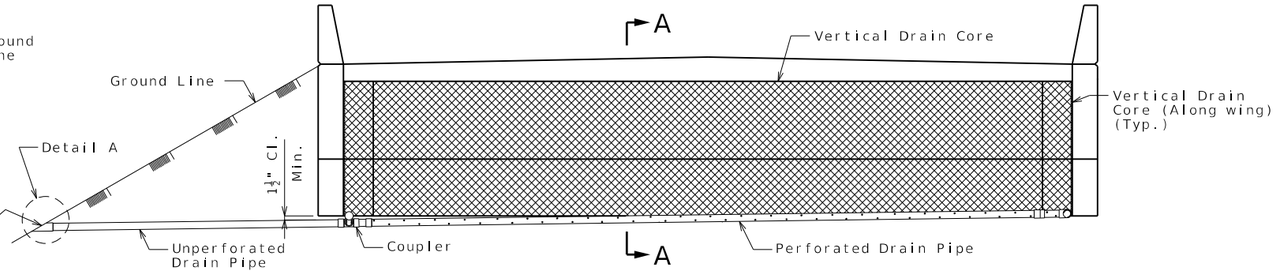
DESCRIPTION | DATE

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

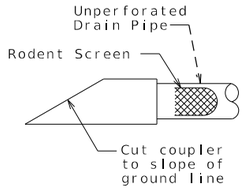
OATES ASSOCIATES
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Belleville 1 South Church, Suite 200 Belleville, IL 62220 618.416.4488
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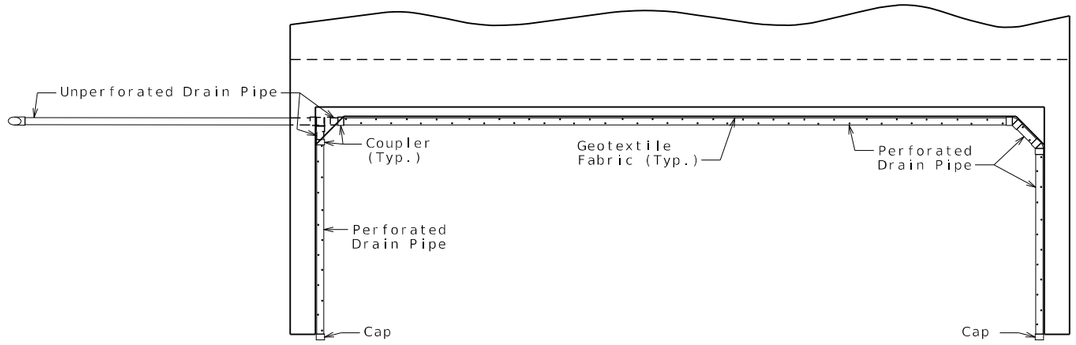
ELEVATION OF WING



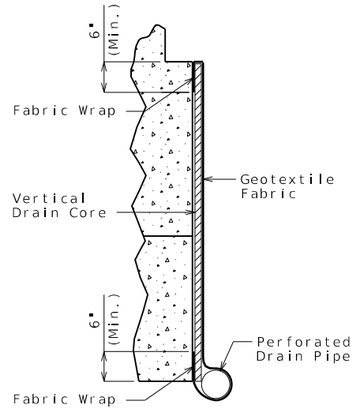
ELEVATION OF END BENT



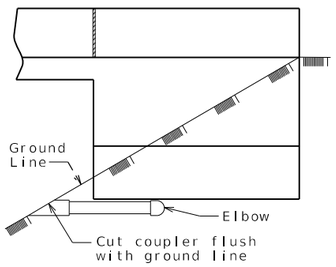
DETAIL A



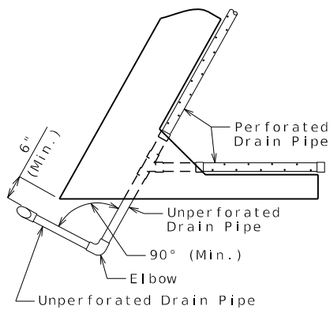
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

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

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

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	6

COUNTY: PERRY
JOB NO.: J9S3671
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9576

DESCRIPTION | DATE

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

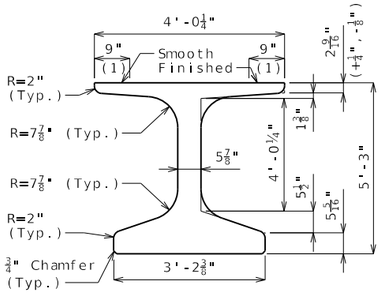
OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
St. Louis: 720 Olive, Suite 700, St. Louis, MO 63101, 314.588.8381
St. Charles: 820 South Main, Suite 309, St. Charles, MO 63301, 636.493.0277
Collinsville: 106 Lumber Court, Suite 1, Collinsville, IL 62234, 618.346.2200
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4488
www.oatesassociates.com

Detailed Dec. 2024
Checked Apr. 2025

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

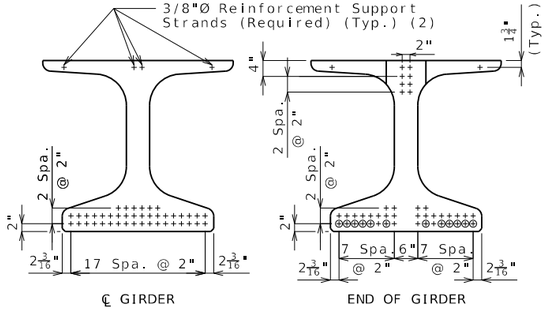
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(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.



DIMENSIONS

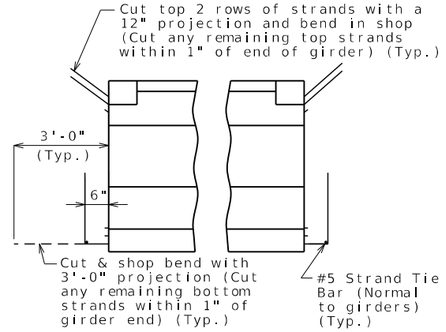
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



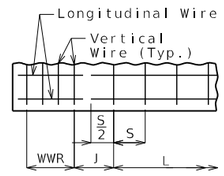
STRAND ARRANGEMENT

+ Indicates prestressing strand.

○ Indicates cut & shop bend with 3'-0" projection.



STRANDS AT GIRDER ENDS



WELDED WIRE PLACEMENT

S = Vertical wire spacing

L = Length of WWR mats

J = Distance between WWR mats

Bill of Reinforcing Steel

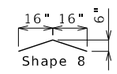
Bars Each Girder

No.	Size/Mark		Length	Shape
142	3	G1	2'-10"	8
2	4	G3	4'-0"	20
4	4	G6	Varies	20

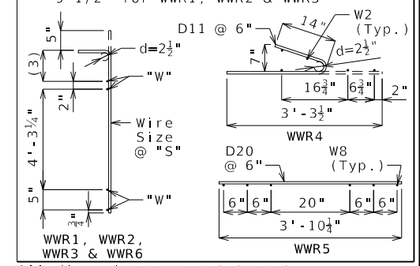
Welded Wire Each Girder

Mark	Size	S	W	L	J
WWR1	D20	4"	W8	5'-8"	8"
WWR2	D20	8"	W8	10'-8"	7¾"
WWR3	D20	12"	W8	81'-0"	--
WWR6	D31	2"	W12	16"	4"

Bending Diagrams



(3) 8 1/2" for WWR6
9 1/2" for WWR1, WWR2 & WWR3



All dimensions are out to out.

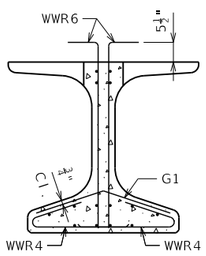
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

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

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

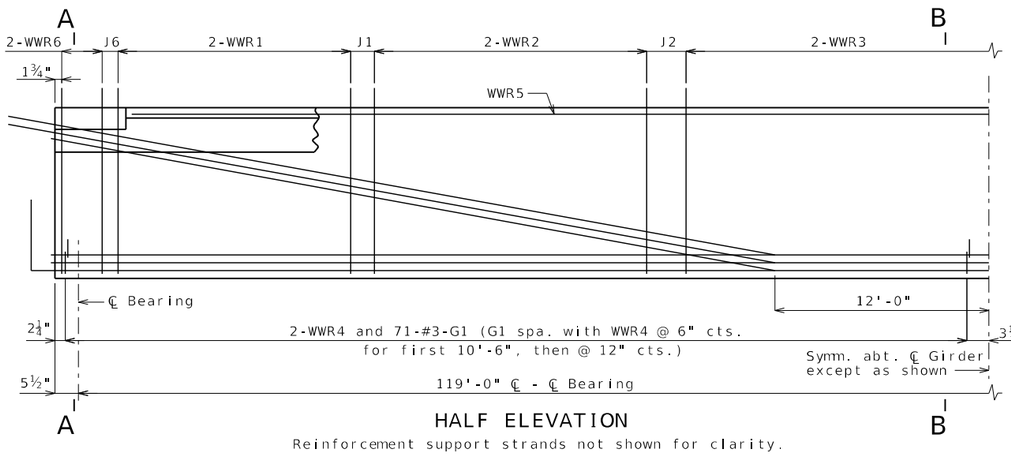
All bar reinforcement shall be Grade 60.

WWR shall not be epoxy coated.



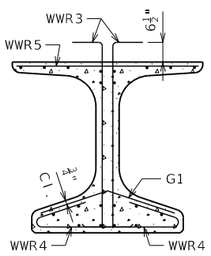
SECTION A-A

Strands not shown for clarity.



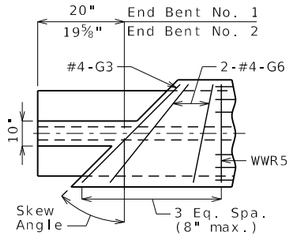
HALF ELEVATION

Reinforcement support strands not shown for clarity.



SECTION B-B

Strands not shown for clarity.



TOP FLANGE BLOCKOUT

Mirror for right advanced.

General Notes:

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

Use 42 strands, 0.6"Ø Grade 270, with an initial prestress force of 1845 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior girders are the same except: application of bond breaker, coil inserts for slab drains, and holes for steel intermediate diaphragms.

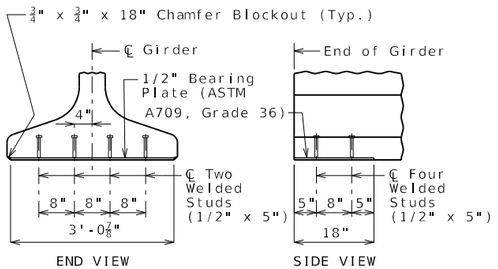
For Girder Camber Diagram, see Sheet No. 13.

The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheets No. 9 & 10.

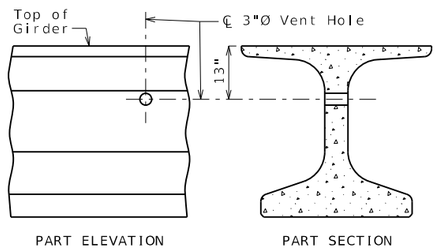
For location of coil inserts at slab drains, see Sheet No. 12.

For location of coil ties at integral bents, see Sheet No. 4.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.

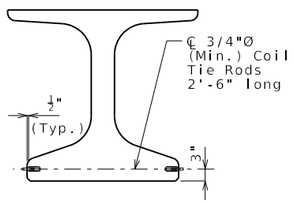


BEARING PLATE



VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum and steel intermediate diaphragm bolt connections by 6" minimum.



COIL TIES

NU-GIRDERS - SPAN (1-2)

Detailed Dec. 2024
Checked Feb. 2025

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

H:\P\224034 - SE District Bridge Package\002-J9S3671-N0877\Bridge\Final Bridge\Microstation\B_A9576_007_J9S3671_NU-Girders - Span (1-2).dgn 11:09:22 AM 11/18/2025

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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DATE PREPARED
11/18/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	7

COUNTY
PERRY

JOB NO.
J9S3671

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9576

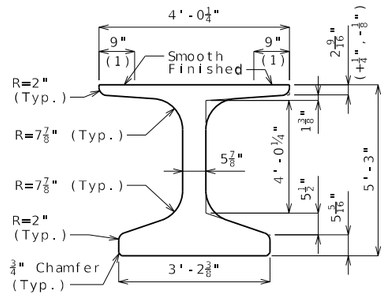
DESCRIPTION

DATE

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

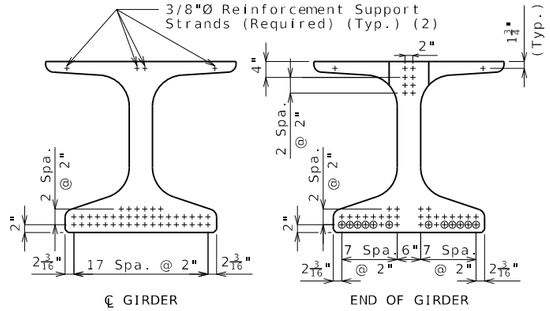
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Belleville, IL 62220
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St. Louis
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314.588.8383
St. Charles
820 South Main, Suite 309
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MISSOURI DESIGN FIRM PE-001166

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



DIMENSIONS

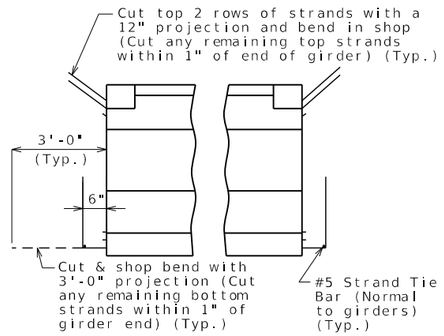
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



STRAND ARRANGEMENT

+ Indicates prestressing strand.

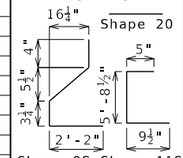
○ Indicates cut & shop bend with 3'-0" projection.



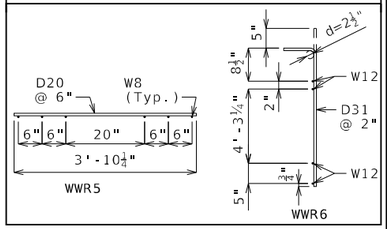
STRANDS AT GIRDER ENDS

Bill of Reinforcing Steel - Each Girder			
No.	Size/ Mark	Length	Shape
272	4 B1	6'-9"	11S
292	4 D1	4'-0"	9S
2	4 G3	4'-0"	20
4	4 G6	Varies	20

Bending Diagrams



Welded Wire Reinforcement - Each Girder



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.

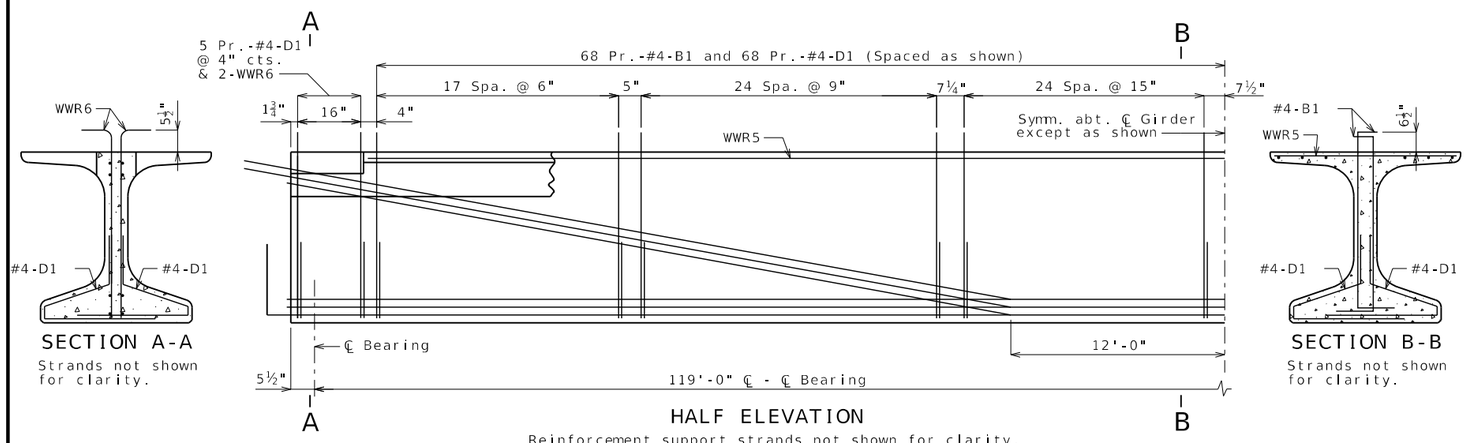
Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch.

All bar reinforcement shall be Grade 60.

The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.



SECTION A-A

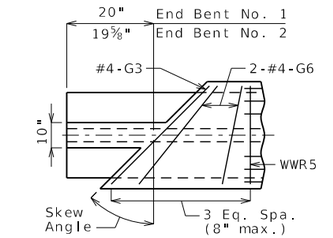
Strands not shown for clarity.

SECTION B-B

Strands not shown for clarity.

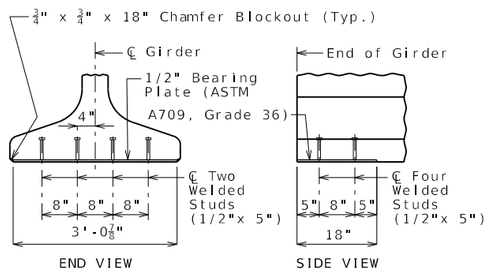
HALF ELEVATION

Reinforcement support strands not shown for clarity.

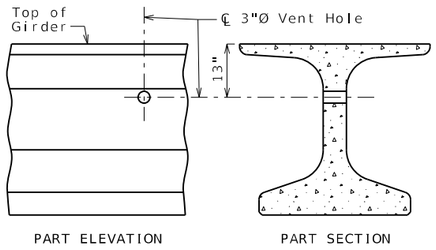


TOP FLANGE BLOCKOUT

Mirror for right advanced.

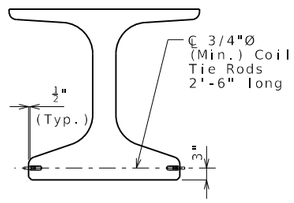


BEARING PLATE

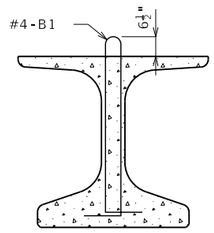


VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum and steel intermediate diaphragm bolt connections by 6" minimum.



COIL TIES



B1 BAR PERMISSIBLE ALTERNATE SHAPE

General Notes:

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

Use 42 strands, 0.6"Ø Grade 270, with an initial prestress force of 1845 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior girders are the same except: application of bond breaker, coil inserts for slab drains, and holes for steel intermediate diaphragms.

For Girder Camber Diagram, see Sheet No. 13.

The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheets No. 9 & 10.

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

For location of coil ties at integral bents, see Sheet No. 4.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.

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

DATE PREPARED 11/18/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	8

COUNTY: PERRY
JOB NO.: J9S3671
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9576

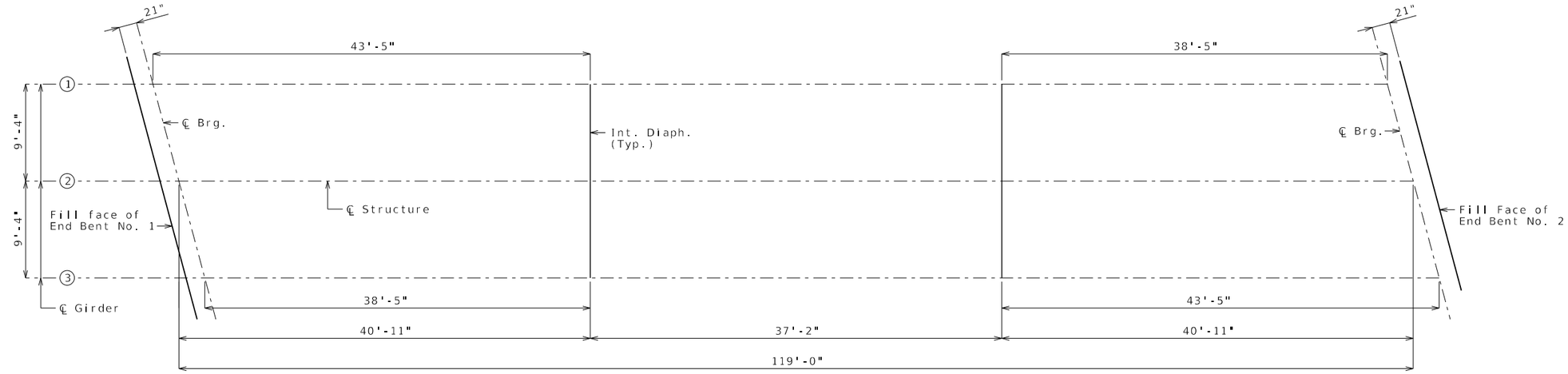
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NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPAN (1-2)

Detailed Dec. 2024
Checked Feb. 2025

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



SPAN (1-2)

PLAN SHOWING LOCATION OF STEEL INTERMEDIATE DIAPHRAGMS

Longitudinal dimensions are horizontal.

STEEL INTERMEDIATE DIAPHRAGMS

Detailed Mar. 2025
Checked Apr. 2025

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

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

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DATE PREPARED
11/18/2025

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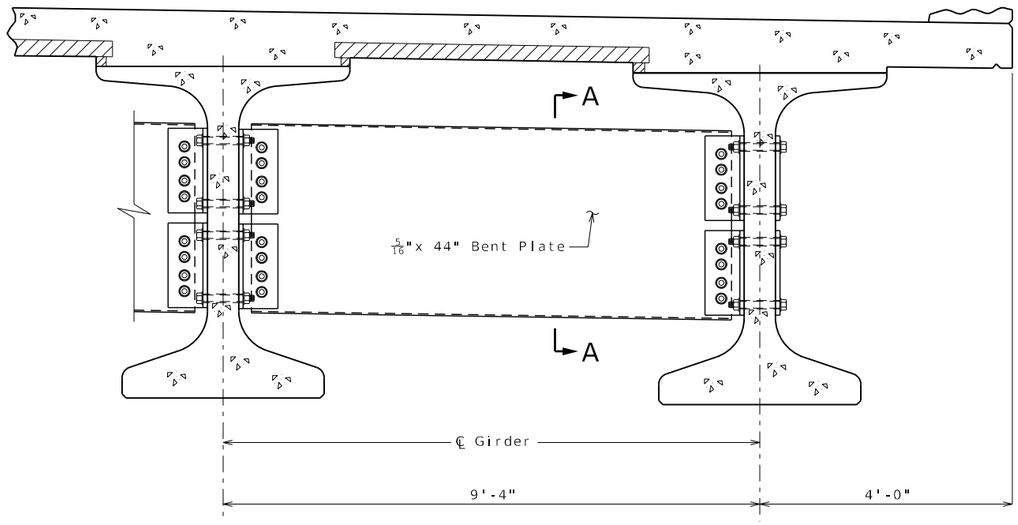
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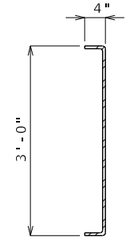
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636.493.9277

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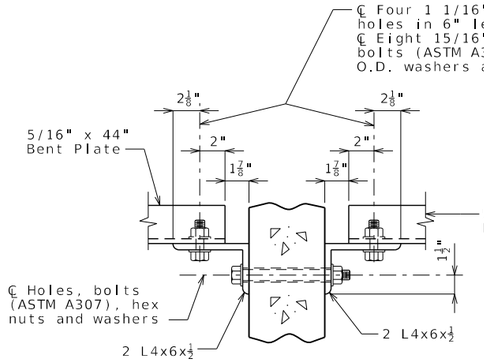
MISSOURI DESIGN FIRM PE-001166



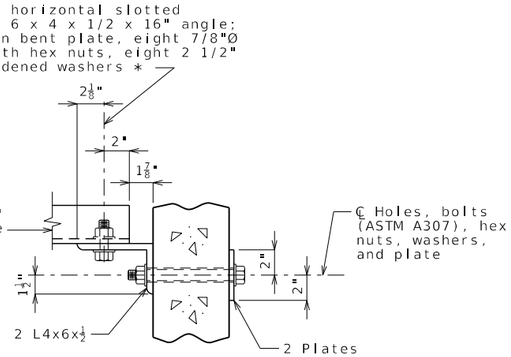
PART SECTION SHOWING
INTERMEDIATE DIAPHRAGMS



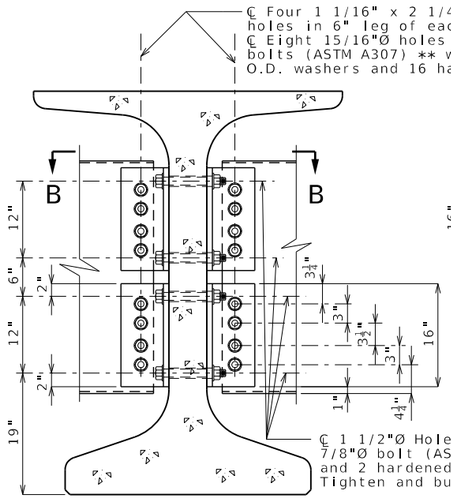
SECTION A-A



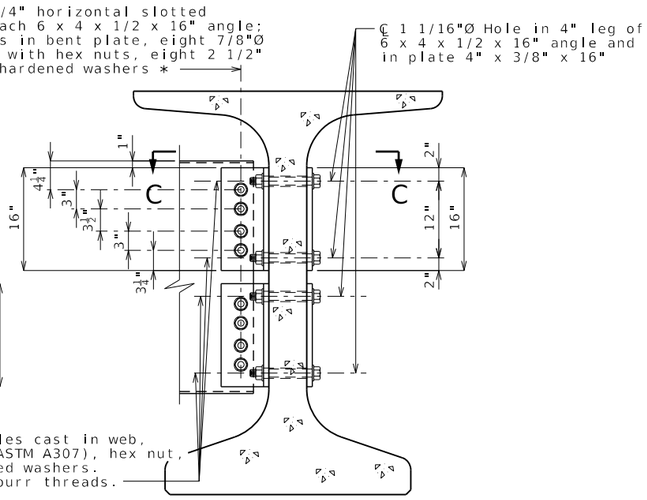
SECTION B-B



SECTION C-C



SECTION THRU INT. GIRDER
AT DIAPHRAGM



SECTION THRU EXT. GIRDER
AT DIAPHRAGM

STEEL DIAPHRAGM NOTES:

* In lieu of 2 1/2" outside diameter washers, contractor may substitute a 3/16" (Min. thickness) plate with four 15/16"Ø holes and one hardened washer per bolt.

** Bolts shall be tightened to provide a tension of one-half that specified in Sec 712 for high strength bolt installation. ASTM F3125 Grade A325 Type 1 bolts may be substituted for and installed in accordance with the requirements for the specified ASTM A307 bolts.

All diaphragm materials including bolts, nuts, and washers shall be galvanized.

Fabricated structural steel shall be ASTM A709 Grade 36 except as noted.

Payment for furnishing and installing steel intermediate diaphragms will be considered completely covered by the contract unit price for Steel Intermediate Diaphragm for P/S Concrete Girders.

Shop drawings will not be required for steel intermediate diaphragms and angle connections.

For location of intermediate diaphragms, see Sheet No. 9.

STEEL INTERMEDIATE DIAPHRAGMS

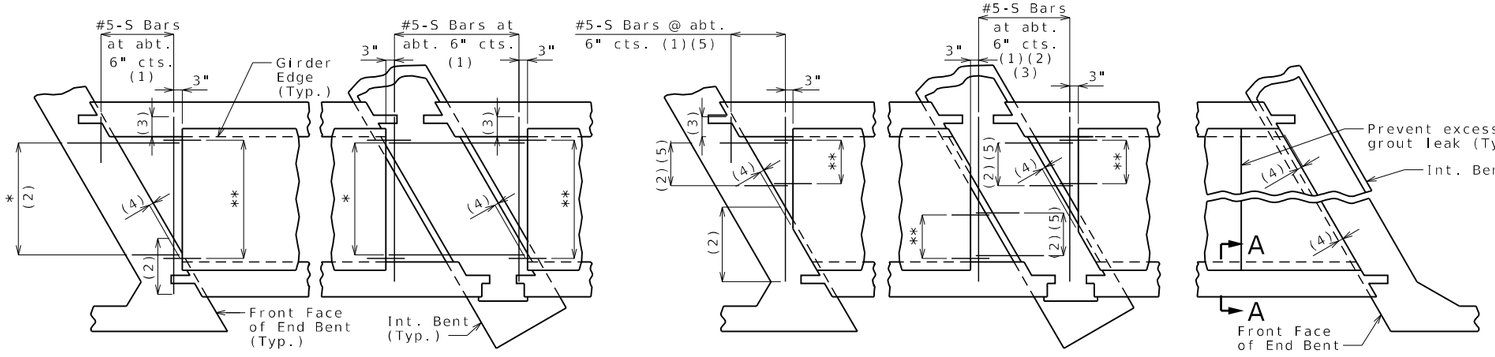
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JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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COUNTY PERRY
JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9576

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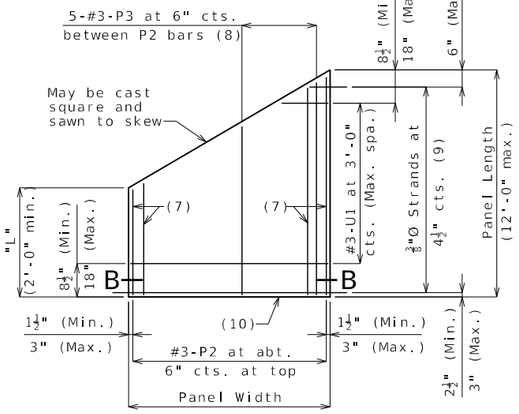
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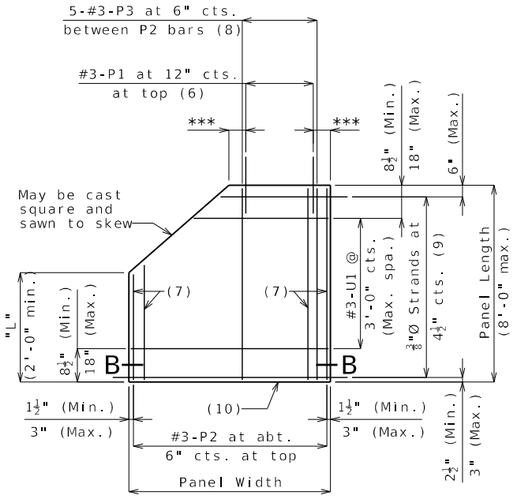
SQUARED END PANELS OR TRUNCATED END PANELS

PLAN SHOWING PANEL PLACEMENT

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

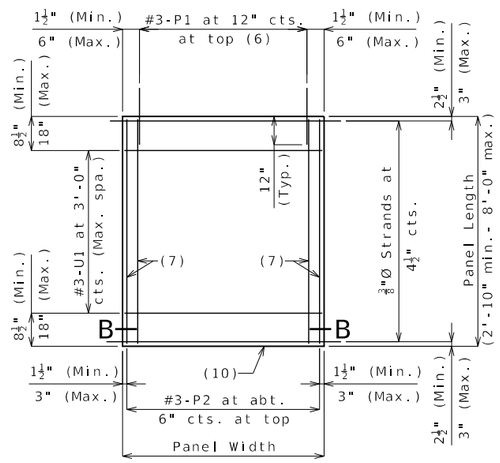


PLAN OF OPTIONAL SKEWED END PANEL



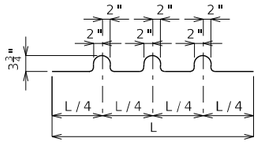
PLAN OF OPTIONAL TRUNCATED END PANEL

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

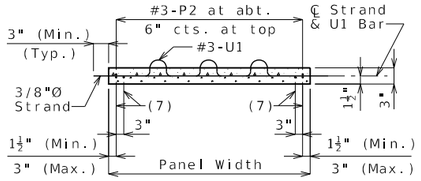


PLAN OF SQUARED PANEL

BENDING DIAGRAM FOR U1 BAR



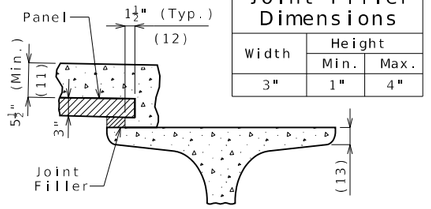
U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars.



SECTION B-B

SKEWED END PANELS

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



SECTION A-A

Reference Notes:

Plan of Panel Placement:

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

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

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

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

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

Plans of Panels:

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

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

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

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

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

Section A-A:

(11) Slab thickness over prestressed panels varies due to girder 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. 13 for determining thickness of joint filler within the limits noted in the table of Joint Filler Dimensions.

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

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

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

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

PRESTRESSED PANELS

Detailed Dec. 2024
Checked Apr. 2025

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

STATE OF MISSOURI
JASON A. DREYER
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PROFESSIONAL ENGINEER
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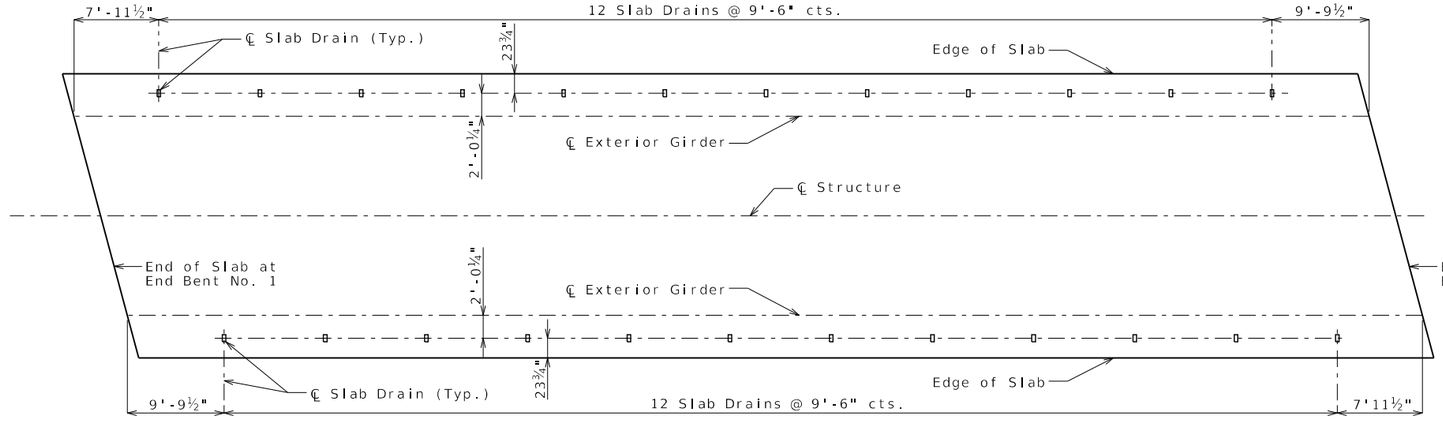
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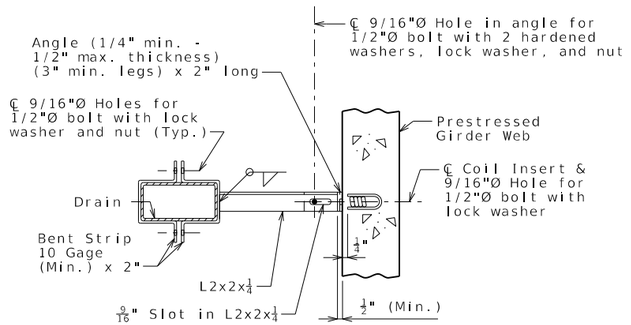
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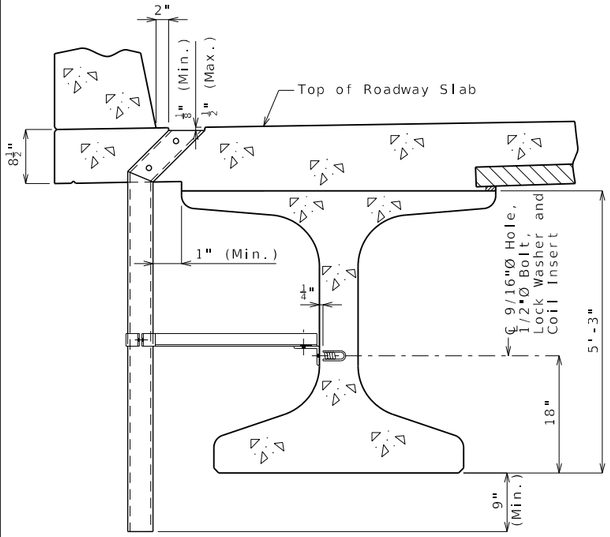
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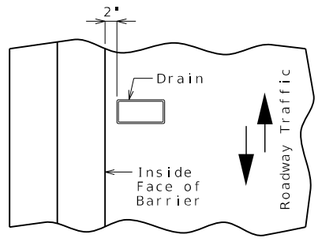
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



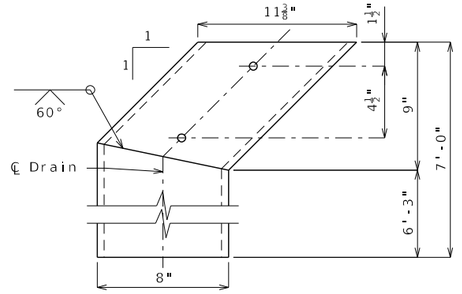
PART SECTION SHOWING BRACKET ASSEMBLY



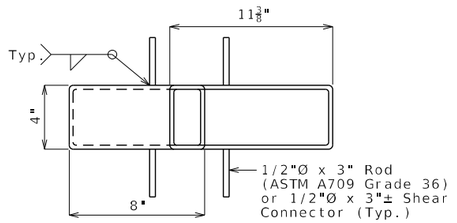
PART SECTION NEAR DRAIN



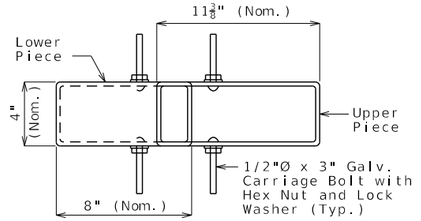
PART PLAN OF SLAB AT DRAIN



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 insert required for the bracket assembly attachment shall be located on the prestressed girder 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 bolt required to attach the slab drain bracket assembly to the prestressed girder web shall be supplied by the prestressed girder fabricator.

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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

SLAB DRAINS

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JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9576

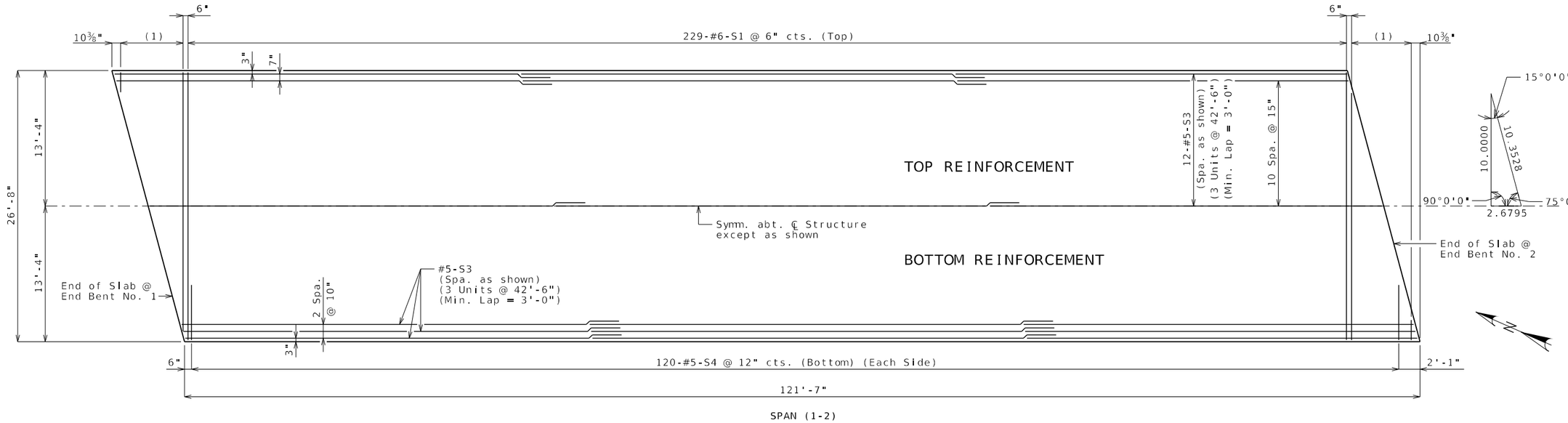
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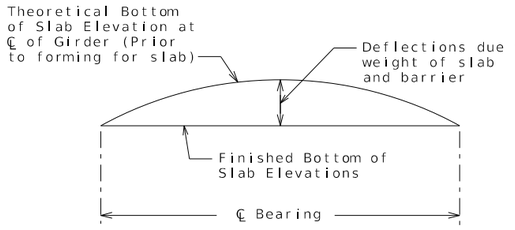
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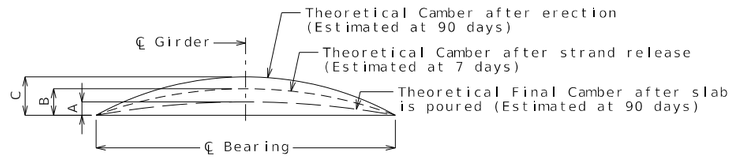
Detailed Dec. 2024
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Note: This drawing is not to scale. Follow dimensions.





TYPICAL SLAB ELEVATIONS DIAGRAM

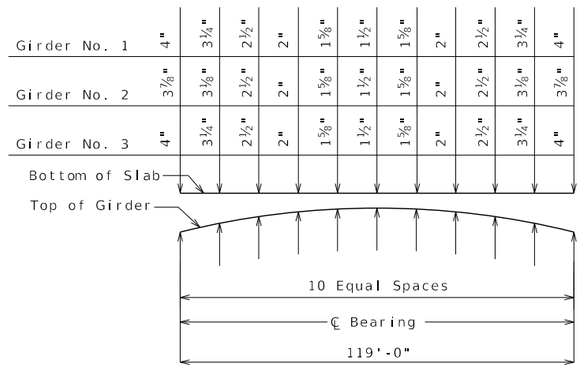


Girder	Span (1-2)		
	A	B	C
Exterior	2¾"	4⅝"	2¾"
Interior	2⅝"		

GIRDER CAMBER DIAGRAM

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

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



THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If girder 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 NU-Girder.

Reference Notes:
(1) 13-#6-S2 @ 6"cts. (Top)

General Notes:
Longitudinal slab dimensions are measured horizontally.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 14.

For details and reinforcement of barrier not shown, see Sheets No. 15 & 16.

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

For details of Prestressed Panels, see Sheet No. 11.

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

Girder Number	Span (1-2) (119'-0" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	565.96	566.05	566.14	566.22	566.29	566.34	566.37	566.39	566.39	566.39	566.37
2	566.15	566.25	566.34	566.43	566.49	566.54	566.57	566.59	566.59	566.58	566.57
3	565.97	566.07	566.16	566.24	566.30	566.35	566.39	566.40	566.41	566.40	566.39

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.

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Oct. 2024
Checked Feb. 2025

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

H:\P\224034 - SE District Bridge Package\002-J9S3671-N0877\Bridge\Final Bridge\Microstation\B_A9576_013_J9S3671_Plan of Slab Showing Reinforcement.dgn 11:09:31 AM 11/18/2025

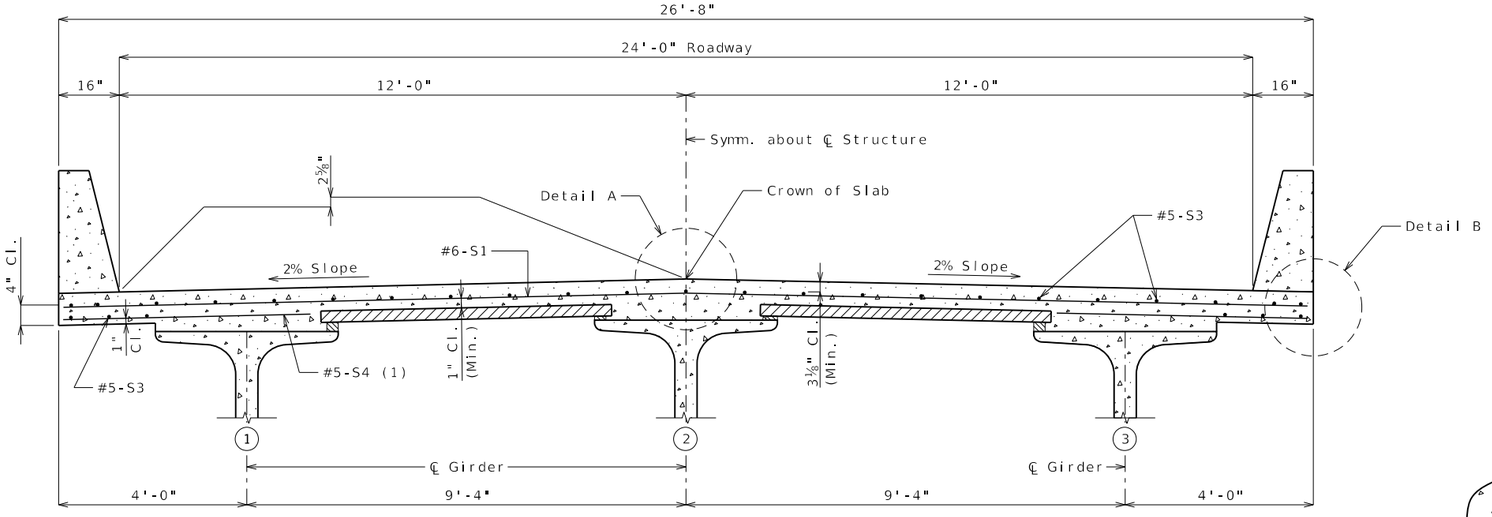
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JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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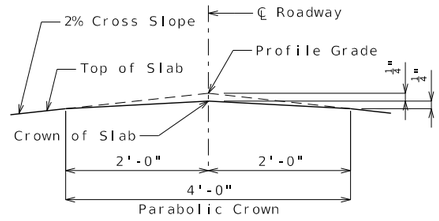
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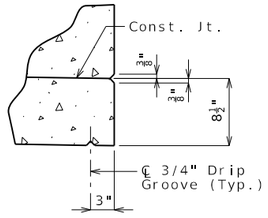
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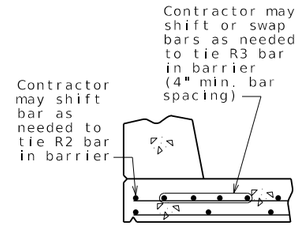
SECTION THRU SLAB



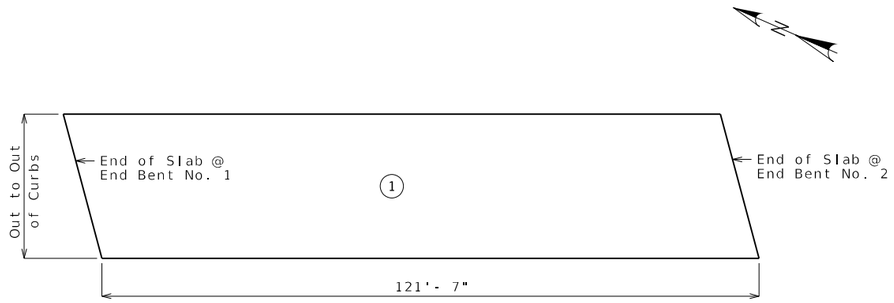
DETAIL A



DETAIL B



OPTIONAL SHIFTING TOP BARS AT BARRIER



SPAN (1-2)

	Sequence of Pours	Min. Rate of Pour Cu. Yds./Hr.
	Direction (Up grade from End Bent No. 1 toward End Bent No. 2)	With Retarder
Basic Sequence	1	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 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

Reference Notes:
(1) Alternate shape available, see barrier sheet.

General Notes:
For details of Prestressed Panels, see Sheet No. 11.

For details and reinforcement of barrier not shown, see Sheets No. 15 & 16.

For Plan of Slab Showing Reinforcement, Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 13.

SLAB DETAILS

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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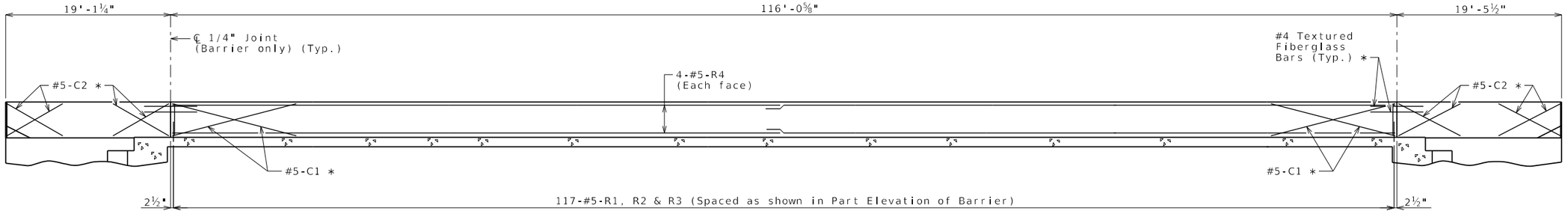
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Detailed Nov. 2024
Checked Feb. 2025

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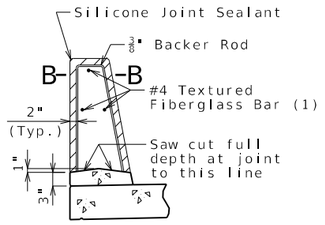
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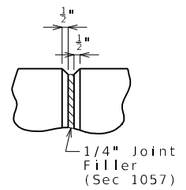
SPAN (1-2)

ELEVATION OF BARRIER

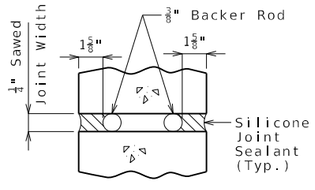
(Left barrier shown, right barrier similar)
Longitudinal dimensions are horizontal.



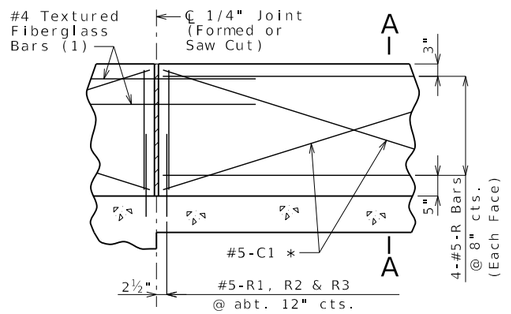
SECTION THRU
SAW CUT JOINT



PART ELEVATION
AT FORMED JOINT

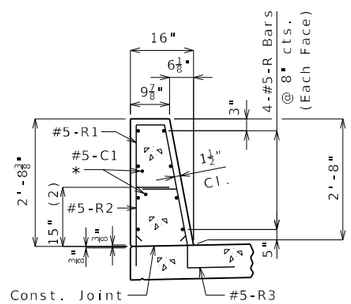


SECTION B-B



PART ELEVATION OF BARRIER

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

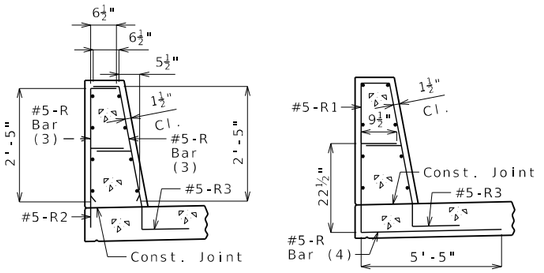


SECTION A-A

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.)

(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 Dec. 2024
Checked Apr. 2025

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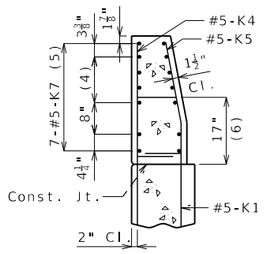
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JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
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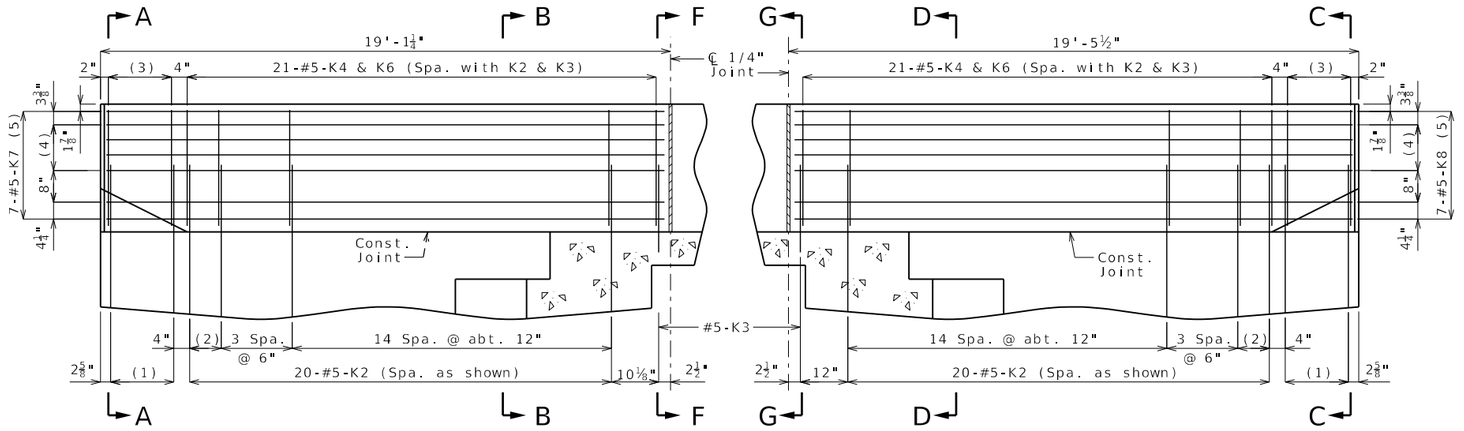
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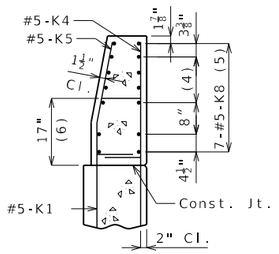
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SECTION A-A



PART ELEVATION



SECTION C-C

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

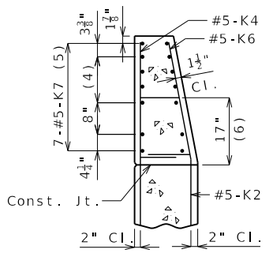
(2) 2 Spaces @ 4"

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

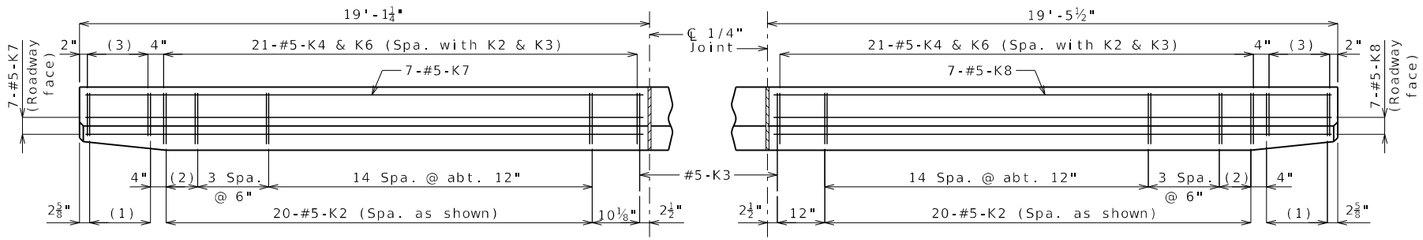
(4) 3 Spaces @ 3 13/16"

(5) Spaced as shown, each face

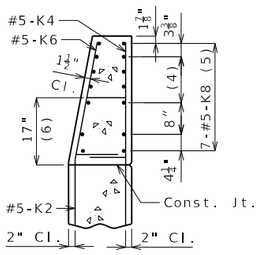
(6) To top of bar



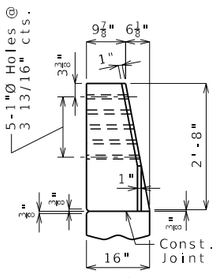
SECTION B-B



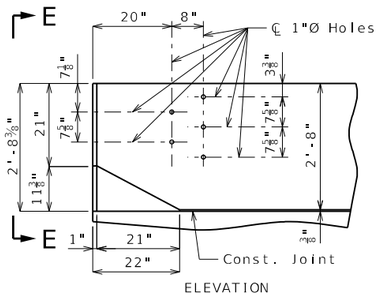
PART PLAN



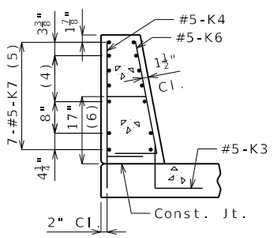
SECTION D-D



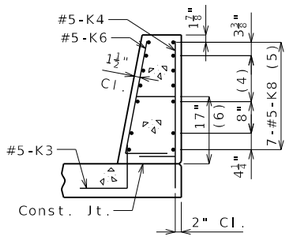
ELEVATION E-E



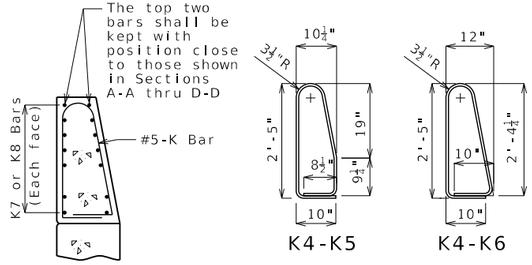
ELEVATION



SECTION F-F



SECTION G-G

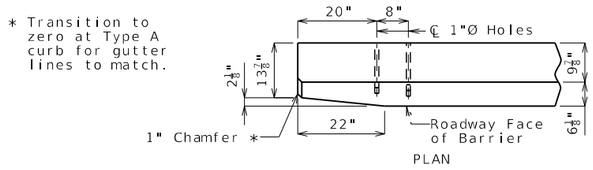


PERMISSIBLE ALTERNATE SHAPES

(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.



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.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Detailed Dec. 2024
Checked Apr. 2025

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

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JASON A. DREYER
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PROFESSIONAL ENGINEER

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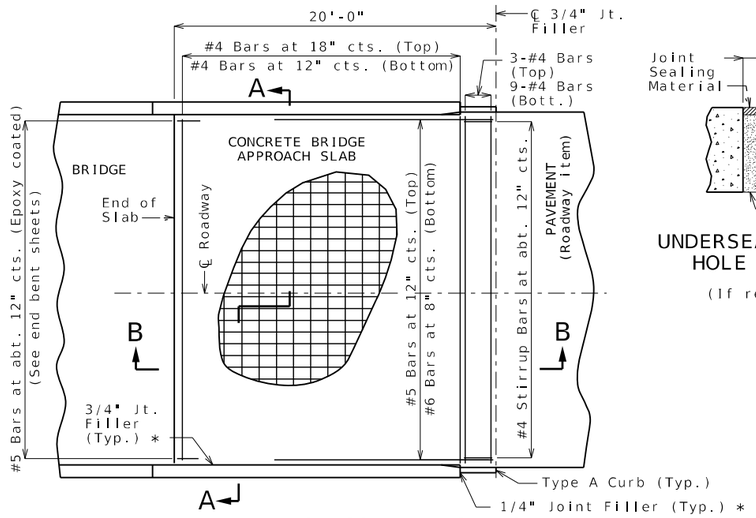
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DISTRICT	SHEET NO.
BR	16

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JOB NO.: J9S3671
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PROJECT NO.:
BRIDGE NO.: A9576

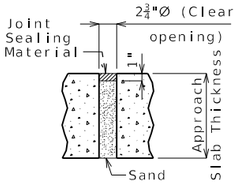
DESCRIPTION | DATE

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

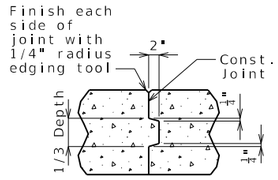
OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
St. Louis: 720 Olive, Suite 700, St. Louis, MO 63101, 314.588.8181
St. Charles: 820 South Main, Suite 309, St. Charles, MO 63301, 636.493.0277
Collinsville: 100 Lenox Court, Suite 1, Collinsville, IL 62234, 618.345.2200
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4488
www.oatesassociates.com



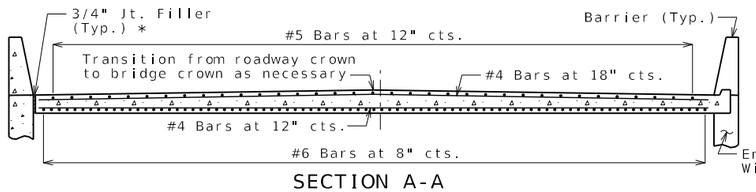
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



UNDERSEAL ACCESS HOLE DETAIL
(If required)

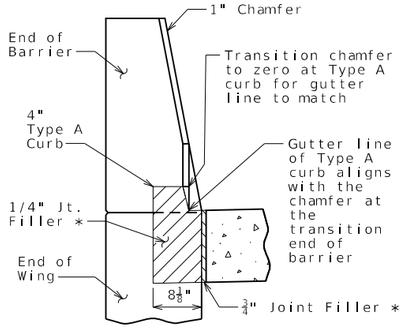


CONSTRUCTION JOINT DETAIL



SECTION A-A

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



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

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

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

General Notes:

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

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

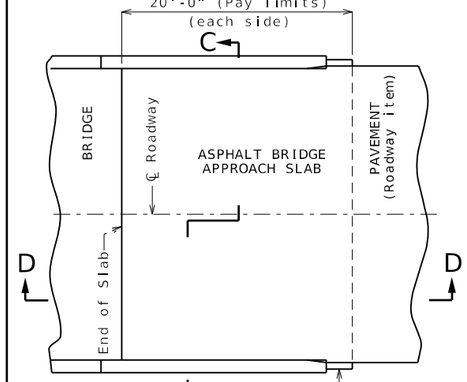
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

☐ Concrete Bridge Approach Slab
☐ Asphalt Bridge Approach Slab

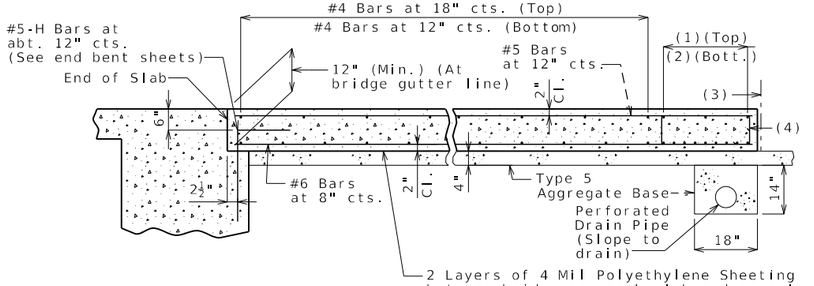
Notes For Asphalt Slab Only:

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

Application of tack is required between lifts per Sec 403.

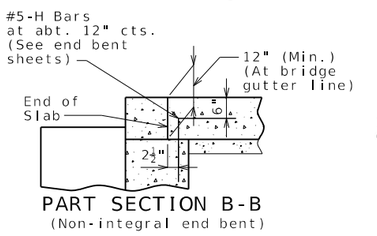


PART PLAN
(Squared structure shown, skewed structure similar)

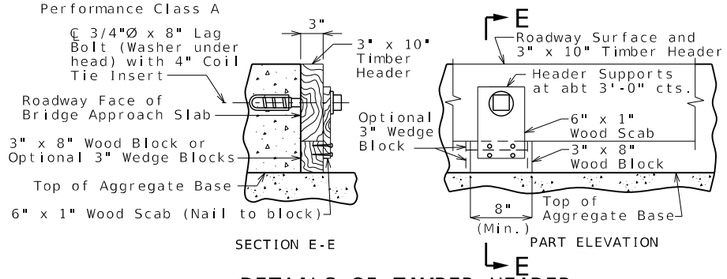


SECTION B-B
(Integral end bent)

(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.

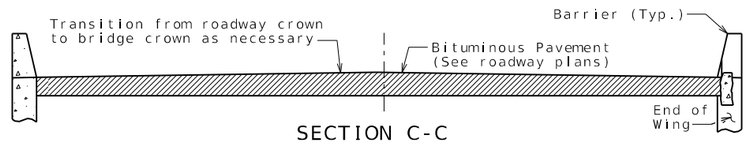


PART SECTION B-B
(Non-integral end bent)



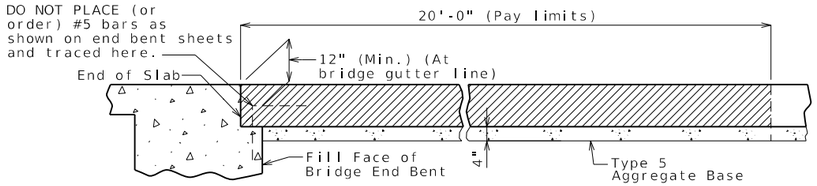
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

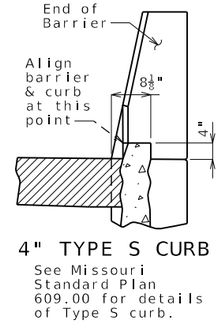


SECTION C-C

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)

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

DATE PREPARED 11/18/2025
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 17
COUNTY PERRY
JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9576

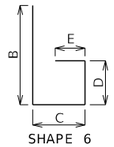
DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT
OATES ASSOCIATES
St. Louis: 720 Olive, Suite 700, St. Louis, MO 63101, 314.588.8331
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Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4688
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MISSOURI DESIGN FIRM PE-001166

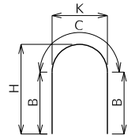
Detailed Dec. 2024
Checked Apr. 2025

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

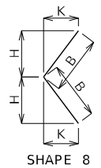
BRIDGE APPROACH SLAB (MINOR)
Integral end bents shown, non-integral end bent similar.



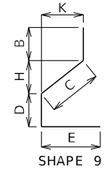
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or 6S



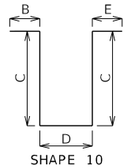
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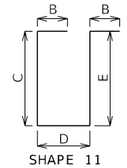
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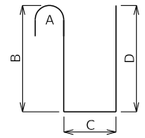
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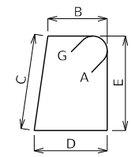
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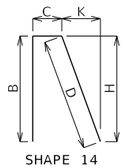
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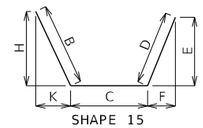
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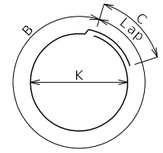
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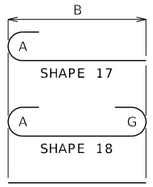
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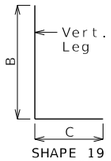
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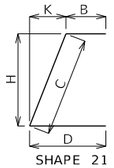
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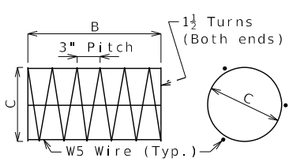
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SHAPE 18
SHAPE 20



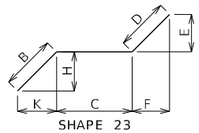
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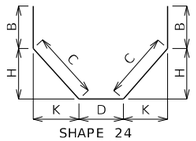
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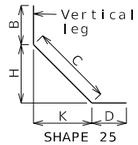
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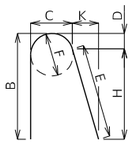
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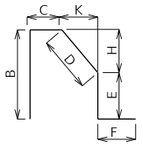
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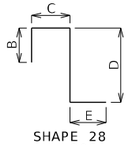
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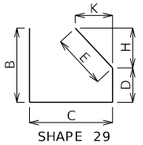
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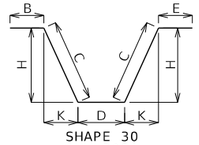
SHAPE 27S



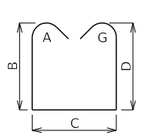
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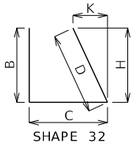
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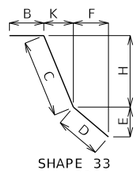
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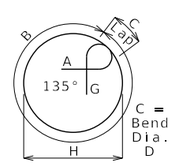
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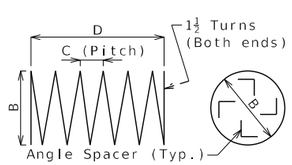
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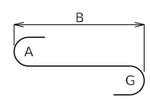
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SHAPE 34S



SHAPE 35 (1)

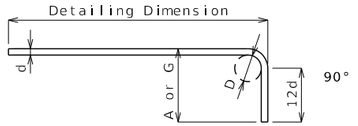


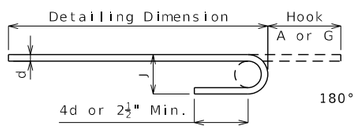
SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¾"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¼"	28½"



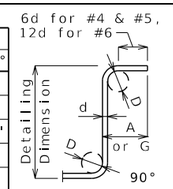


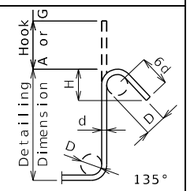
Stirrup Pin Bend Shapes (S)

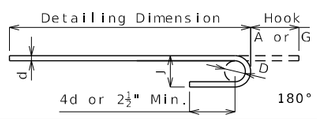
Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4¼"	4¼"	5"	2⅝"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5⅜"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

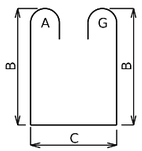
Applicable for all grades of steel.

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

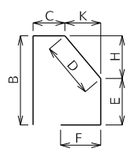








SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)

		Substructure		Superstructure				Entire Bridge	
				Slab			Slip		
	Size	Plain	Epoxy	Plain	Epoxy	Barrier	Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	0	0	0	320	0	0	0	320
	5	0	0	0	6,427	7,308	234	0	13,969
	6	0	0	0	17,917	0	0	0	17,917
	7	0	0	0	0	0	0	0	0
	8	0	0	0	3,333	0	0	0	3,333
	9	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0
By Type		0	0	0	27,997	7,308	234	0	35,539

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

All bars shall be ASTM A706 Grade 60.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

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

DATE PREPARED 11/18/2025
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 18
COUNTY PERRY
JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9576

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
OATES ASSOCIATES
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Collinsville 101 Lamer Court, Suite 1 Collinsville, IL 62234 618.345.2200
St. Charles 820 South Main, Suite 309 St. Charles, MO 63301 636.493.5277
Belleville 1 South Church, Suite 200 Belleville, IL 62220 618.416.4688
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B	C	D	E	F	H	K	Nom. Length	Actual Length	Weight
						ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	lb
		SUPERSTRUCTURE													
		END BENT 1 & 2													
26	6 F100	WING BRACE	E	23		2 3.000	4 2.000	14.000	11.125	8.500	21.375	16.375	7 7	7 6	293
12	6 F101	DIAPHRAGM	E	21		5 6.000	2 9.000				2 7.875	8.500	8 3	8 2	147
26	6 F102	WING BRACE	E	23		14.000	5 5.000	2 3.000	16.375	21.375	8.500	11.125	8 10	8 9	342
12	6 F103	DIAPHRAGM	E	21			2 9.000	6 1.000			2 7.875	8.500	8 10	8 7	155
24	8 H100	BEAM/DIAPHRAGM	E	20		27 4.000							27 4	27 4	1752
8	6 H101	BEAM	E	20		27 4.000							27 4	27 4	328
12	6 H102	DIAPHRAGM	E	20		27 4.000							27 4	27 4	493
20	6 H103	DIAPHRAGM	E	20		8 11.000							8 11	8 11	268
4	6 H104	DIAPHRAGM	E	20		6 1.000							6 1	6 1	37
20	6 H105	DIAPHRAGM	E	20		3 7.000							3 7	3 7	108
4	6 H106	DIAPHRAGM	E	20		2 3.000							2 3	2 3	14
6	5 H107	STRAND TIE	E	23		15.000	3 3.000	15.000	3.875	14.500	3.875	14.500	5 9	5 9	36
32	8 H108	WINGWALL	E	20		18 6.000							18 6	18 6	1581
104	6 H109	WINGWALL	E	6S		17 8.000	12.000						18 8	18 6	2890
16	5 U100	BEAM	E	10S			6 2.000	2 10.000					15 2	15 0	250
42	4 U101	BEAM	E	13S		2 10.000	2 8.000	2 10.000	2 8.000				11 9	11 5	320
66	6 U102	DIAPHRAGM	E	19S		3 2.000	4 8.000						7 10	7 8	760
36	5 U103	DIAPHRAGM	E	10S			5 9.000	2 4.000					13 10	13 8	513
36	6 U104	DIAPHRAGM	E	19S		5 0.000	2 10.000						7 10	7 8	415
48	5 U105	DIAPHRAGM	E	19S		2 0.000	15.000						3 3	3 2	159
40	5 V100	BEAM	E	20		6 2.000							6 2	6 2	257
30	6 V101	DIAPHRAGM	E	20		5 0.000							5 0	5 0	225
136	6 V102	WINGWALL	E	20		8 11.000							8 11	8 11	1821
		SLAB													
229	6 S1	SLAB	E	20		26 5.000							26 5	26 5	9086
26	6 S2	SLAB	E	20	2	2 6.000							2 6	2 6	535
		INCREMENT =				24 11.000							24 11	24 11	
		22.375 INCH													
87	5 S3	SLAB	E	20		42 6.000							42 6	42 6	3856
240	5 S4	SLAB	E	20		5 5.000							5 5	5 5	1356
		TYPE H BARRIER													
20	5 K1	BARRIER	E	27S		3 8.000	9.250	5.375	3 2.750		5.250	1.000	8 1	7 11	165
80	5 K2	BARRIER	E	27S		3 8.000	9.250	14.500	2 5.750		14.250	2.750	8 2	7 11	661
4	5 K3	BARRIER	E	27S		22.500	9.250	14.500	7.750	12.000	14.250	2.750	5 6	5 3	22
104	5 K4	BARRIER	E	19S		2 5.000	10.000						3 3	3 2	343
20	5 K5	BARRIER	E	38S				19.250	9.500	8.250	18.750	4.250	3 1	3 0	63
84	5 K6	BARRIER	E	21S			2 4.875	10.000			2 4.250	6.000	3 3	3 1	270
28	5 K7	BARRIER	E	20		18 10.000							18 10	18 10	550
28	5 K8	BARRIER	E	20		19 2.000							19 2	19 2	560
234	5 R1	BARRIER	E	14S		2 5.000	6.500	2 5.500			2 5.000	5.500	5 5	5 3	1281
234	5 R2	BARRIER	E	19S		20.500	9.500						2 6	2 5	590
234	5 R3	BARRIER	E	27S			9.500	15.250	5.000	12.000	15.000	3.000	3 6	3 4	814
32	5 R4	BARRIER	E	20		59 7.000							59 7	59 7	1989
		SLIP FORM BARRIER													
8	5 C1	BARRIER	E	20		12 0.000							12 0	12 0	100
16	5 C2	BARRIER	E	20		8 0.000							8 0	8 0	134

Bill of Reinforcing Steel

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

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

For bending diagrams and steel reinforcing totals, see Sheet No. 16.

All bars shall be ASTM A706 Grade 60.

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

SH = Required shape, see bending diagrams.

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

BILL OF REINFORCING STEEL

Detailed Feb. 2025
Checked Apr. 2025

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

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

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025

ROUTE K | STATE MO

DISTRICT BR | SHEET NO. 19

COUNTY PERRY

JOB NO. J9S3671

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9576

DESCRIPTION | DATE

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

OATES ASSOCIATES

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MISSOURI DESIGN FIRM PE-001166



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

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

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

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE DATA

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

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/18/2025

ROUTE	STATE
K	MO
DISTRICT	SHEET NO.
BR	20

COUNTY
PERRY

JOB NO.
J9S3671

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9576

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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MISSOURI DESIGN FIRM PE-001166

Missouri Department of Transportation
Construction and Materials

BORING NO. B-101
Page 1 of 2

Job No.: J9S3671 (SCI No. 2024-0652.11)
Design: A9576
Bent: End Bent #1
Station: 216+92.50
Offset: 11.69 Right
Elevation: 565.9
Requested Station:
Requested Offset:
Requested Elevation:
Drill No.: 255648

County: Perry
Skew:
Logged By: Patrick Szopinski
Northing: 658049.8781
Easting: 997212.7385
Requested Northing:
Requested Easting:
Equipment: CME 750 ,Split-Spoon Sampler, Shelby Tube, NX
Location Note:
Hammer Efficiency: 93.7%

Route: Route K over Apple Creek
Location: Perry County, Missouri
Operator: Midwest Drilling, Inc
Date of Work: 08/13/24
Depth to Water: 9.5
Depth Hole Open: 40.5
Time Change:
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.3' 2.5" ASPHALTIC CONCRETE	565						
		0.3-0.7' 6" CRUSHED ROCK							
		0.7-3.0' (FILL) Brown, SANDY LEAN CLAY, trace fine to coarse gravel, sand is fine- to coarse-grained			78	4-4-5 (14)			MC = 13.9%
5		3.0-5.5' (FILL) Brown, CLAYEY SAND, fine- to coarse-grained, few fine to coarse gravel, clay is lean	560		67	4-3-2 (8)			
		4.3' *PERCENT PASSING THE NUMBER 200 SIEVE: 29.9%*			100		Qu Test Results UCS = 0.400 ksf MC = 23.5% γ_{moist} = 123.9 pcf		LL = 29 PL = 19
		5.5-8.0' (CL) Brown, LEAN CLAY, some fine to coarse gravel			56	11-4-5 (14)			MC = 14.8%
10		8.0-12.0' (CL) Brown, SANDY LEAN CLAY, with fine to coarse gravel, sand is fine- to coarse-grained	555						
		12.0-15.5' (SP) Brown, CLAYEY SAND, fine- to coarse-grained, with fine to coarse gravel			44	9-15-18 (52)			
15		15.5-32.5' SANDSTONE: Brown and gray, fine-grained, thick bedding, moderately weathered	550		15				
						15 (8)			
20			545			20 (0)			
		23.0' With dolomite and chert							
25			540			13 (0)			
30									
			535						
35		32.5-37.8' DOLOMITE: Gray, moderately hard, very finely crystalline, thick bedding, slightly weathered, dense			57 (42)		Qu Test Results UCS = 1220 ksf MC = 0% γ_{moist} = 172.4 pcf		

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000052996
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

LETTER BOREHOLE - MODOT 20150728.GDT - 3/6/25 15:15 - N:\LABORATORY\ACTIVE GINT PROJECTS\2024-0652.11 MODOT ROUTE K OVER APPLE CREEK.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. B-101
Page 2 of 2

Job No.: J9S3671 (SCI No. 2024-0652.11)
Design: A9576
Bent: End Bent #1
Station: 216+92.50
Offset: 11.69 Right
Elevation: 565.9
Requested Station:
Requested Offset:
Requested Elevation:
Drill No.: 255648

County: Perry
Skew:
Logged By: Patrick Szopinski
Northing: 658049.8781
Easting: 997212.7385
Requested Northing:
Requested Easting:
Equipment: CME 750 ,Split-Spoon Sampler, Shelby Tube, NX
Location Note:
Hammer Efficiency: 93.7%

Route: Route K over Apple Creek
Location: Perry County, Missouri
Operator: Midwest Drilling, Inc
Date of Work: 08/13/24
Depth to Water: 9.5
Depth Hole Open: 40.5
Time Change:
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35		32.5-37.8' DOLOMITE: Gray, moderately hard, very finely crystalline, thick bedding, slightly weathered, dense *(continued)*	530		43 (38)		pcf Qu Test Results UCS = 1220 ksf MC = 0% γ_{moist} = 173.2 pcf		
40		37.8-40.5' WEAK ROCK, likely sandstone 37.8' No recovery in core barrel below 37.8 ft Refusal at 15.5 feet. Bottom of borehole at 40.5 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000052996
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

LETTER BOREHOLE - MODOT 20150728.GDT - 3/6/25 15:15 - N:\LABORATORY\ACTIVE GINT PROJECTS\2024-0652.11 MODOT ROUTE K OVER APPLE CREEK.GPJ

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

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 21
COUNTY PERRY
JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9576

DESCRIPTION
DATE

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

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MISSOURI DESIGN FIRM PE-001166

Detailed Mar. 2025
Checked Apr. 2025

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

Sheet No. 21 of 24

BORING DATA

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

H:\P\224034 - SE District Bridge Package\002-J9S3671-N0877\Bridge\Final Bridge\Microstation\B_A9576_021_J9S3671_Boring Data.dgn 11:09:41 AM 11/18/2025

Missouri Department of Transportation
Construction and Materials

BORING NO. B-201
Page 1 of 2

Job No.: J9S3671 (SCI No. 2024-0652.11) **County:** Perry **Route:** Route K over Apple Creek
Design: A9576 **Skew:** **Location:** Perry County, Missouri
Bent: End Bent #2 **Logged By:** Patrick Szopinski **Operator:** Midwest Drilling, Inc
Station: 218+25.41 **Northing:** 657934.9119 **Date of Work:** 08/12/24
Offset: 4.98 Left **Easting:** 997281.4729 **Depth to Water:** 13.5
Elevation: 567.2 **Requested Northing:** **Depth Hole Open:** 69.0
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** CME 750 ,Split-Spoon Sampler, Shelby Tube, NX
Requested Elevation: **Location Note:**
Drill No.: 255648 **Hammer Efficiency:** 93.7% **Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.3' 4" ASPHALTIC CONCRETE 0.3-0.8' 5" CRUSHED ROCK							
		0.8-5.5' (FILL) Brown, CLAYEY SAND, fine- to coarse-grained, trace fine to coarse gravel, clay is lean	565		17	5-3-4 (11)			
5					67	3-3-4 (11)			MC = 23.4%
		5.5-8.0' (FILL) Brown, SANDY LEAN CLAY, with fine to coarse gravel, sand is fine- to coarse-grained	560		100		Qu Test Results UCS = 1.00 ksf MC = 18.1% γ_{moist} = 127.6 pcf		LL = 28 PL = 20
10		8.0-12.0' (GP) Brown, SANDY GRAVEL, fine to coarse, with lean clay, sand is fine- to coarse-grained			6	7-3-4 (11)			
		12.0-17.0' (GP) Gray, POORLY GRADED GRAVEL, fine to coarse, with fine- to coarse-grained sand, with lean clay	555		39	18-16-16 (50)			
15									
		17.0-37.0' (SC) Brown, CLAYEY SAND, fine- to coarse-grained, trace fine gravel, clay is lean	550		78	6-6-7 (20)			
20									
			545		39	8-9-8 (27)			
25		27.0' With fine to coarse gravel							
			540		56	5-11-11 (34)			
30									
			535		44	3-4-3 (11)			
35									

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000052996
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

LETTER BOREHOLE - MODOT 20150728.GDT - 3/6/25 15:15 - N:\LABORATORY\ACTIVE GINT PROJECTS\2024-0652.11 MODOT ROUTE K OVER APPLE CREEK.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. B-201
Page 2 of 2

Job No.: J9S3671 (SCI No. 2024-0652.11) **County:** Perry **Route:** Route K over Apple Creek
Design: A9576 **Skew:** **Location:** Perry County, Missouri
Bent: End Bent #2 **Logged By:** Patrick Szopinski **Operator:** Midwest Drilling, Inc
Station: 218+25.41 **Northing:** 657934.9119 **Date of Work:** 08/12/24
Offset: 4.98 Left **Easting:** 997281.4729 **Depth to Water:** 13.5
Elevation: 567.2 **Requested Northing:** **Depth Hole Open:** 69.0
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** CME 750 ,Split-Spoon Sampler, Shelby Tube, NX
Requested Elevation: **Location Note:**
Drill No.: 255648 **Hammer Efficiency:** 93.7% **Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35		17.0-37.0' (SC) Brown, CLAYEY SAND, fine- to coarse-grained, trace fine gravel, clay is lean *(continued)*	530						
		37.0-42.0' (CL) Brown, SANDY LEAN CLAY, trace fine gravel, sand is fine- to coarse-grained			33	2-2-4 (9)			
40			525						
		42.0-44.0' WEAK ROCK, likely sandstone			40	3-50/0.3'			
45		44.0-46.3' DOLOMITE: Gray, moderately hard, very finely crystalline, thick bedding, slightly weathered, dense							
		46.3-56.5' SANDSTONE: With dolomite and chert	520		47 (47)		Qu Test Results UCS = 279 ksf MC = 0% γ_{moist} = 172 pcf		
50									
			515		10 (0)				
55									
		56.5-61.8' DOLOMITE: Gray, moderately hard, very finely crystalline, thick bedding, slightly weathered, dense	510		45 (43)				
60							Qu Test Results UCS = 468 ksf MC = 0% γ_{moist} = 159.9 pcf		
		61.8-65.5' WEAK ROCK, likely sandstone 61.8' No recovery in core barrel from 61.8 to 65.5 ft	505		59 (57)				
65									
		65.5-69.0' DOLOMITE: Gray, moderately hard, very finely crystalline, thick bedding, slightly weathered, dense	500		64 (63)		Qu Test Results UCS = 465 ksf MC = 0% γ_{moist} = 158.2 pcf		
		Refusal at 44.0 feet. Bottom of borehole at 69.0 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000052996
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

LETTER BOREHOLE - MODOT 20150728.GDT - 3/6/25 15:15 - N:\LABORATORY\ACTIVE GINT PROJECTS\2024-0652.11 MODOT ROUTE K OVER APPLE CREEK.GPJ

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

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 22
COUNTY PERRY
JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9576

DESCRIPTION
DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166

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St. Louis, MO 63101
314.588.8331

St. Charles
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St. Charles, MO 63301
636.493.5277

Collinsville
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Collinsville, IL 62234
618.345.2200

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

www.oatesassociates.com

BORING DATA

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

Detailed Mar. 2025
Checked Apr. 2025

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

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

BORING LOG LEGEND AND NOMENCLATURE

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

Sample Type

- **SS** Split-spoon sample, disturbed, obtained by driving a 2-inch-O.D. split-spoon sampler (ASTM D 1586).
- **NX** Diamond core bit, nominal 2-inch-diameter rock sample (ASTM D 2113).
- **NQ** Diamond core bit, nominal 1 7/8-inch diameter rock sample
- **ST** Thin-walled (Shelby) tube sample, relatively undisturbed, obtained by pushing a 3-inch-diameter, tube (ASTM D 1587).
- **CS** Continuous sample tube system, relatively undisturbed, obtained by split-barrel sampler in conjunction with auger advancement.
- **SV** Shear vane, field test to determine strength of cohesive soil by pushing or driving a 2-inch-diameter vane, and then shearing by torquing soil in existing and remolded states (ASTM D 2573).
- **BS** Bag sample, disturbed, obtained from cuttings.
- **MC** Modified California Sampler, disturbed, obtained by driving a 2.5-inch O.D. ring-lined split-barrel sampler (ASTM D 3550).

Recovery is expressed as the sample length recovered / the total length pushed, driven, or cored.

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

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

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

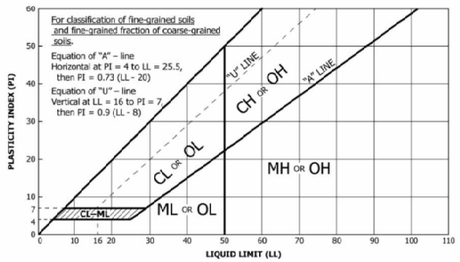
Description indicates soil constituents and other classification characteristics (ASTM D 2488) and the Unified Soil Classification (ASTM D 2487).

SOIL GRAIN SIZE

Soil Component	Particle Size Range
Boulders	> 12 in.
Cobbles	12 in. -3 in.
Gravel	3 in. - #4 sieve (4.75 mm)
Coarse Gravel	3 in. - ¾ in.
Fine Gravel	¾ in. - #4 sieve (4.75 mm)
Sand	#4 sieve (4.75 mm) - #200 sieve (0.075 mm)
Coarse Sand	#4 sieve (4.75 mm) - #10 sieve (2 mm)
Medium Sand	#10 sieve (2 mm) - #40 sieve (0.425 mm)
Fine Sand	#40 sieve (0.425 mm) - #200 sieve (0.075 mm)
Fines (Silt & Clay)	< #200 sieve (0.075 mm)

in – inches
mm – millimeters

PLASTICITY CHART



BORING LOG LEGEND AND NOMENCLATURE

Strength of Cohesive Soils			Density of Granular Soils	
Consistency	*N-Value*	*Unconfined Comp. Strength (ksf)*	*Descriptive Term*	*N-Value*
Very Soft	0 – 2	< 0.50	Very Loose	0 – 4
Soft	3 – 4	0.50 – 1.00	Loose	5 – 10
Medium Stiff	5 – 8	1.0 – 2.0	Medium Dense	11 – 29
Stiff	9 – 15	2.0 – 4.0	Dense	30 – 49
Very Stiff	16 – 30	4.0 – 6.0	Very Dense	Over 50
Hard	Over 30	> 8.0		

ksf – kips per square foot

USCS SOIL CLASSIFICATION

		Major Divisions		Group Symbol	Typical Names
Coarse-Grained Soils (Less than 50% Passing the #200 Sieve)	Gravels	Clean Gravels		GW	Well graded gavels, gravel-sand mixture
				GP	Poorly graded gravels, gravel-sand mixture
		Gravels with fines	Limits plot below "A" line on plasticity chart	GM	Silty gravels, gravel-sand-silt mixture
			Limits plot above "A" line on plasticity chart	GC	Clayey gravels, gravel-sand-clay mixture
	Sands	Clean Sands		SW	Well graded sands, gravelly sands
				SP	Poorly graded sands, gravelly sands
		Sands with fines	Limits plot below "A" line on plasticity chart	SM	Silty sands, sand-silt mixture
			Limits plot above "A" line on plasticity chart	SC	Clayey sands, sand-clay mixture
Fine-Grained Soils (50% or More Passing #200 Sieve)	Silts	Silts of low plasticity (LL<50)		ML	Inorganic silts, clayey silts
		Silts of high plasticity (LL≥50)		MH	Inorganic silts, elastic silts
	Clays	Clays of low plasticity (LL<50)		CL	Inorganic lean clays, sandy and silty clays
		Clays of high plasticity (LL≥50)		CH	Inorganic fat clays, sandy clays
	Organic Silts and Clays	Organic silts and clays of low plasticity (LL<50)		OL	Organic silts and lean clays
		Organic silts and clays of high plasticity (LL≥50)		OH	Organic silts and fat clays
Organic Soils		Primarily organic matter		PT	Peat

*Table per Unified Soil Classification System (USCS)

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

DATE PREPARED 11/18/2025
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 23
COUNTY PERRY
JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9576

DESCRIPTION | DATE

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

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St. Charles 820 South Main, Suite 309 St. Charles, MO 63301 636.493.5277
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

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

Detailed Mar. 2025
Checked Apr. 2025
Note: This drawing is not to scale. Follow dimensions.

H:\P\224034 - SE District Bridge Package\002-J9S3671-N0877\Bridge\Final Bridge\Microstation\B_A9576_023_J9S3671_Boring Data.dgn 11:10:56 AM 11/18/2025

BORING LOG LEGEND AND NOMENCLATURE

SECONDARY SOIL CONSTITUENT RELATIVE COMPOSITION

If Primary Soil Constituent is	Clay or Silt		Sand or Gravel	
	Trace	0-5%	Trace	0-5%
	Few	6-15%	With	6-12%
	With	>15%	Silty/Clayey/Gravelly/Sandy	>12%
	Sandy/Gravelly	>30%		

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

Laboratory Test Results

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

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

Excellent	90 - 100%
Good	75 – 90%
Fair	50 – 75%
Poor	25 – 50%
Very Poor	0 – 25%

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636-949-8200
www.sciengineering.com

ROCK CORE DESCRIPTIONS

Hardness	
Very weak	Easily indented with the thumb
Weak	Broken by hand into pieces
Moderate	Easily scratched with a knife
Strong	Difficult to scratch with a knife
Very Strong	Cannot be scratched with a knife

Voids	
Dense	Usually not discernible with naked eye
Pit (pitted)	Discernible to 1/4 in.
Vug (vuggy)	1/4 in. to diameter of the core
Cavity	Larger than 6 in. in diameter

in. – inch

Mass Bedding	
Parting	Thinner than 0.02 ft (< 0.60 cm)
Band	0.02 ft - 0.2 ft (0.60 - 6.1 cm)
Thin Bed	0.2 ft - 0.5 ft (6.1 - 15.2 cm)
Medium Bed	0.5 ft - 1.0 ft (15.2 - 30.5 cm)
Thick Bed	1.0 ft - 2.0 ft (30.5 - 61.0 cm)
Massive	Thicker than 2.0 ft (> 61.0 cm)

ft – feet
cm – centimeter

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

Crystallinity*	
Aphanitic – Igneous Micritic – Carbonates	Crystals cannot be distinguished with naked eye
Very Finely Crystalline	Crystals are barely discernible with naked eye
Finely Crystalline	Crystals are easily discernible with naked eye
Medium Crystalline	Crystals are medium size; up to 1/8 in. in diameter
Coarsely Crystalline	Crystals are 1/8 in. to 1/4 in. in diameter
Very Coarsely Crystalline	Crystals are larger than 1/4 in. in diameter

*Use grain size for Sandstones
in. – inch

Geologic Definitions

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

Fissile– A property of splitting along closely spaced parallel planes.

Calcareous – A term applied to rocks containing calcium carbonate.

Fossiliferous – A rock that contains noticeable quantities of fossils.

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

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE K | STATE MO
DISTRICT BR | SHEET NO. 24
COUNTY PERRY
JOB NO. J9S3671
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9576

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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Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4688
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

BORING DATA

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

Detailed Mar. 2025
Checked Apr. 2025

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

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

DESIGN DESIGNATION

A.A.D.T. - 2026 = 1,289
A.A.D.T. - 2046 = 1,572
D.H.V. = 12.49%
T = 10.85%
V = 55 M.P.H.
D = 59.1%/40.9%

FUNCTIONAL CLASSIFICATION- RURAL MAJOR COLLECTOR

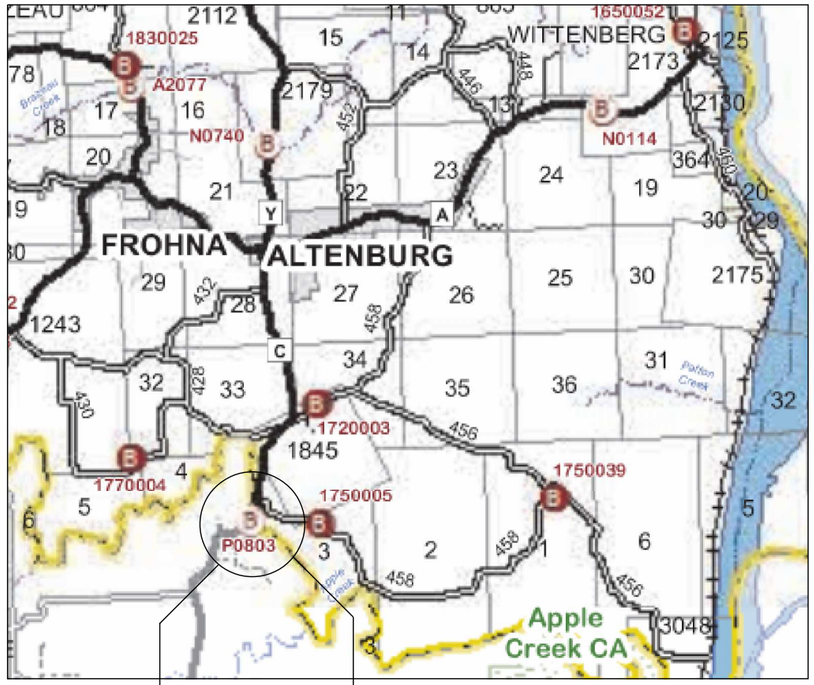
NORMAL RIGHT OF WAY



KEY MAP
SHOWING LOCATION OF COUNTY

NOT TO SCALE

S3 T33N R13E
S4 T33N R13E



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	DI	
DITCH BLOCK		
GROUND MOUNTED SIGN	SIGN	
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL	PED	
FENCE		
CHAIN LINK	-V-	
WOVEN WIRE	-X-	
GATE POST		
BENCHMARK	BM	

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

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

INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (1 SHEET)	2
QUANTITIES (QU) (3 SHEETS)	3
ALIGNMENT (AL)	4
PLAN-PROFILE (PP)	5-6
COORDINATE POINTS (CP)	7-8
SPECIAL SHEETS (SS)	9
TRAFFIC CONTROL SHEETS (TC)	10-16
EROSION CONTROL SHEETS (EC)	17-18
BRIDGE DRAWINGS (B)	
A9410	1-34
CROSS-SECTIONS (XS)	1-8

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA.	300+00
END OF PROJECT	STA.	319+75
APPARENT LENGTH		1,975 FEET
EQUATIONS AND EXCEPTIONS:		
TOTAL CORRECTIONS		0 FEET
NET LENGTH OF PROJECT		1,975 FEET
STATE LENGTH		0.374 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES		4.09 ACRES

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 2/25/2026
ROUTE: C | STATE: MO
DISTRICT: SE | SHEET NO.: 1
COUNTY: PERRY
JOB NO.: JSE0056
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

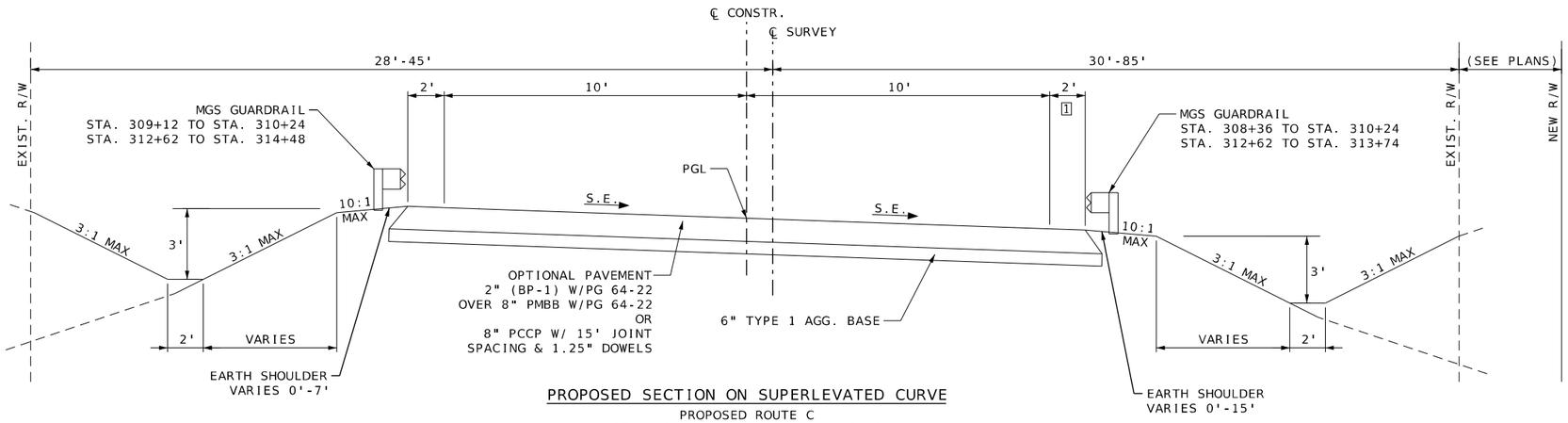
REV.	DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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MISSOURI DESIGN FIRM PE-001166

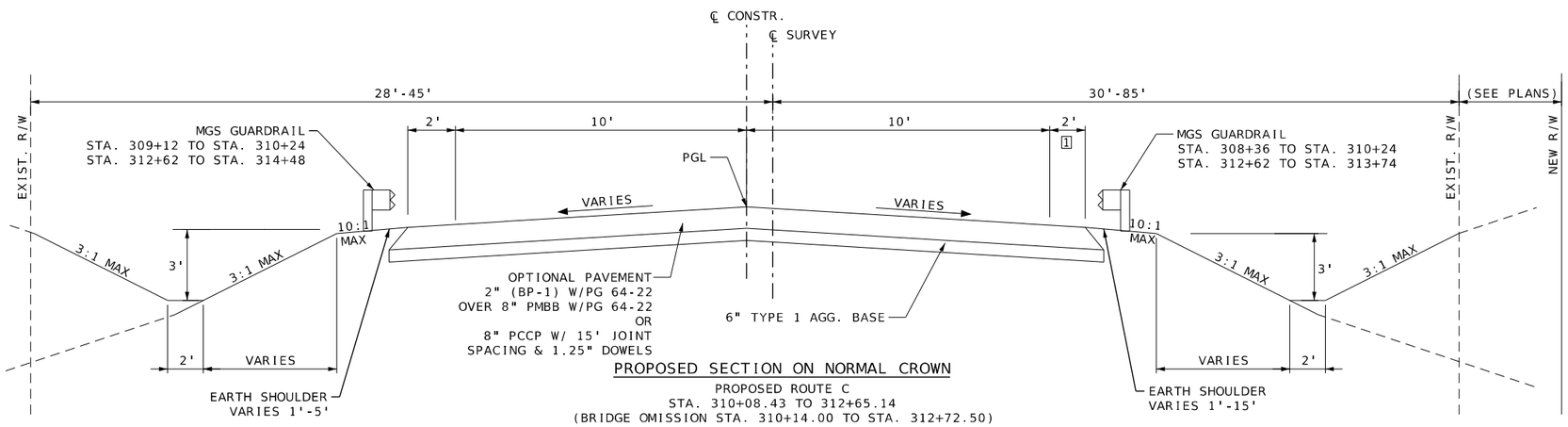
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NOTE: STATIONS BASED ON CONSTRUCTION CL



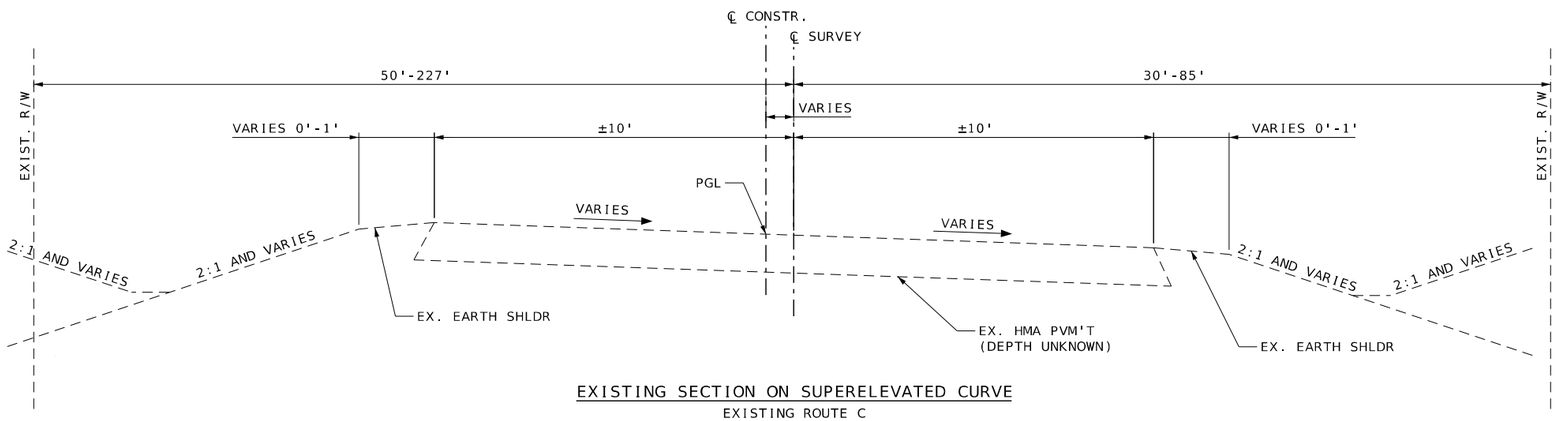
PROPOSED SECTION ON SUPERLEVATED CURVE

PROPOSED ROUTE C
STA. 300+00.00 TO STA. 310+08.43
STA. 312+65.14 TO STA. 319+50.00
(BRIDGE OMISSION STA. 310+14.00 TO STA. 312+72.50)



PROPOSED SECTION ON NORMAL CROWN

PROPOSED ROUTE C
STA. 310+08.43 TO 312+65.14
(BRIDGE OMISSION STA. 310+14.00 TO STA. 312+72.50)



EXISTING SECTION ON SUPERELEVATED CURVE

EXISTING ROUTE C
STA. 300+00 TO STA. 319+50
(BRIDGE OMISSION STA. ± 310+28 TO STA. ± 312+36)

S.E. TABLE				
STATON	LT	DESCRIPTION	RT	DESCRIPTION
300+00.00	-1.9%	MATCH EX (IN)	-3.9%	MATCH EX (IN)
300+79.17	0.0%	LEVEL CROWN (IN)	-2.0%	NORMAL CROWN
301+27.17	2.0%	REVERSE CROWN (IN)	-2.0%	NORMAL CROWN (IN)
302+23.17	6.0%	FULL SUPER (IN)	-6.0%	FULL SUPER (IN)
308+16.43	6.0%	FULL SUPER (OUT)	-6.0%	FULL SUPER (OUT)
309+12.43	2.0%	REVERSE CROWN (OUT)	-2.0%	NORMAL CROWN (OUT)
309+60.43	0.0%	LEVEL CROWN (OUT)	-2.0%	NORMAL CROWN
310+08.43	-2.0%	NORMAL CROWN (OUT)	-2.0%	NORMAL CROWN
312+65.14	-2.0%	NORMAL CROWN (IN)	-2.0%	NORMAL CROWN
313+07.41	0.0%	LEVEL CROWN (IN)	-2.0%	NORMAL CROWN
313+49.41	2.0%	REVERSE CROWN (IN)	-2.0%	NORMAL CROWN (IN)
314+33.41	6.0%	FULL SUPER (IN)	-6.0%	FULL SUPER (IN)
317+54.32	6.0%	FULL SUPER (OUT)	-6.0%	FULL SUPER (OUT)
318+38.32	2.0%	REVERSE CROWN (OUT)	-2.0%	NORMAL CROWN (OUT)
318+08.32	0.0%	LEVEL CROWN (OUT)	-2.0%	NORMAL CROWN
319+50.00	-2.8%	MATCH EX (OUT)	-4.7%	MATCH EX (OUT)

TYPICAL SECTIONS
SHEET 1 OF 1

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
2/25/2026

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	2

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
.

PROJECT NO.
.

BRIDGE NO.
.

DESCRIPTION	DATE
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.	.
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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Belleville, IL 62220
618.416.4666

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MISSOURI DESIGN FIRM PE-001166

OATES ASSOCIATES

REV.

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	OFFSET	LENGTH (LF)	AREA (SQYD)	EACH (EA)	REMARKS
5	OUTSIDE PROJECT LIMITS		RT			1	SIGN (HORIZ. ALIGN.) (ADV. SPEED)
5	300+00	310+29	LT/RT		2415		PAVEMENT
5	300+62	304+19	LT	365			FENCE
5	301+81		LT			1	SIGN (CHEVRON)
5	302+58		LT			1	SIGN (CHEVRON)
5	302+94	302+95	LT/RT	34			DRAINAGE PIPE
5	303+42		LT			1	SIGN (CHEVRON)
5	304+24		LT			1	SIGN (CHEVRON)
5	304+46		RT			1	SIGN (TRUCK)
5	304+51		LT				FLARED END SECTION
5	304+52	304+89	LT		76		ENTRANCE
5	304+53	304+93	LT	41			DRAINAGE PIPE
5	304+60		RT			1	SIGN
5	305+00		LT			1	SIGN (CHEVRON)
5	305+75		RT			1	SIGN (UTILITY)
5	305+91		LT			1	SIGN (CHEVRON)
5	306+68		RT			1	SIGN (CHEVRON)
5	307+98		RT			2	SIGN (YIELD) (SIGN)
5	309+89		RT			2	SIGN (OBJECT MARKER)
6	310+09		RT			2	SIGN (OBJECT MARKER)
6	310+28		RT			3	SIGN (OBJECT MARKER X2) (COUNTY)
6	312+37	319+50	LT/RT		1669		PAVEMENT
6	312+37		RT			1	SIGN (OBJECT MARKER)
6	312+38		RT			1	SIGN (OBJECT MARKER)
6	312+43		RT			1	SIGN (COUNTY)
6	312+55		RT			1	SIGN (OBJECT MARKER)
6	312+56		RT			1	SIGN (OBJECT MARKER)
6	312+75		RT			1	SIGN (OBJECT MARKER)
6	312+76		RT			1	SIGN (OBJECT MARKER)
6	314+55		RT			2	SIGN (YIELD) (SIGN)
6	314+71		RT			1	SIGN (CHEVRON)
6	315+00		RT			1	SIGN (UTILITY)
6	315+56		RT			1	SIGN (CHEVRON)
6	316+42		RT			1	SIGN (CHEVRON)
6	317+19		LT			1	SIGN (CHEVRON)
6	317+51	318+33	RT		93		ENTRANCE
6	318+01		LT			1	SIGN (CHEVRON)
6	318+26		LT			1	SIGN (TRUCK)
6	318+85		LT			1	SIGN (CHEVRON)
6	318+99	318+99	LT/RT	40			DRAINAGE PIPE
6	OUTSIDE PROJECT LIMITS		LT			1	SIGN (HORIZ. ALIGN.) (ADV. SPEED)
			SUBTOTAL	**480**	**4253**	**38**	
			PAY TOTAL	1 LUMP SUM			

GUARDRAIL

SHEET	STATION	STATION	OFFSET	MGS GUARDRAIL (LF)	MGS BRIDGE APPROACH TRANSITION (EA)	TYPE A CRASHWORTHY END TERMINAL (MASH) (EA)	REMARKS
5-6	308+36	310+24	RT	100	1	1	NW CORNER BR #9410
5-6	309+12	310+24	LT	25	1	1	NE CORNER BR #9410
6	312+62	313+74	RT	25	1	1	SW CORNER BR #9410
6	312+62	314+48	LT	100	1	1	SE CORNER BR #9410
			SUBTOTAL	**250**	**4**	**4**	
			PAY TOTAL	**250**	**4**	**4**	

SEEDING AND MULCHING

SHEET	STATION	STATION	OFFSET	MULCHING (ACRE)	SEEDING - COOL SEASON GRASSES (ACRE)	TEMPORARY SEEDING (ACRE)	REMARKS
17-18	300+00	310+14	LT/RT	2.74	1.37	1.37	
18	312+73	319+50	LT/RT	1.80	0.90	0.90	
			SUBTOTAL	**4.54**	**2.27**	**2.27**	
			PAY TOTAL	**4.5**	**2.3**	**2.3**	

PAVEMENT MARKING

SHEET	STATION	STATION	OFFSET	4 IN. WHITE CLASS 1 PAVEMENT MARKING PAINT (18-MIL, TYPE P BEADS) (LF)	4 IN. YELLOW CLASS 1 PAVEMENT MARKING PAINT (18-MIL, TYPE P BEADS) (LF)	REMARKS
N/A	300+00	319+50	LT	1950		SOLID EDGE LINE
N/A	300+00	319+50	RT	1950		SOLID EDGE LINE
N/A	300+00	319+50	CL		3900	DOUBLE SOLID CENTERLINE
			SUBTOTAL	**3900**	**3900**	
			PAY TOTAL	**3900**	**3900**	

DRAINAGE

SHEET	STATION	STATION	OFFSET	15 IN. PIPE GROUP B (LF)	18 IN. PIPE GROUP B (LF)	15 IN. OR ALLOWED SUBSTITUTE GROUP B FLARED END SECTION (EA)	18 IN. OR ALLOWED SUBSTITUTE GROUP B FLARED END SECTION (EA)	REMARKS
5	302+95	303+55	LT/RT		70		2	
5	304+58	305+12	LT	50		2		
6	318+99	318+99	LT/RT		41		2	
			SUBTOTAL	**50**	**111**	**2**	**4**	
			PAY TOTAL	**50**	**111**	**2**	**4**	

PAVEMENT AND BASE

SHEET	STATION	STATION	OFFSET	TYPE 1 AGGREGATE FOR BASE (6 IN. THICK) (SQYD)	GRAVEL (A) OR CRUSHED STONE (B) (SQYD)	OPTIONAL PAVEMENT (SQYD)	TEMPORARY OPTIONAL PAVEMENT (SQYD)	REMARKS
5	299+50	304+50	RT	101.4			101.39	TC STAGE 1
5-6	300+00	310+14	LT/RT	2929.3		2704.00		
5-6	304+62	305+09	LT		96.8			GRAVEL ENTRANCE
6	312+73	319+50	LT/RT	1957.2		1806.67		
6	317+49	318+42	RT		114.2			GRAVEL ENTRANCE
6	318+50	320+00	RT	25.6			22.59	TC STAGE 1
			SUBTOTAL	**5013.5**	**211.0**	**4510.67**	**123.98**	
			PAY TOTAL	**5014**	**211**	**4510.7**	**124.0**	

PAVEMENT AND BASE NOTES:
1. SEE TYPICAL SECTIONS FOR OPTIONAL PAVEMENT DESIGN.
2. ANY REQUIRED AGGREGATE FOR TEMPORARY OPTIONAL PAVEMENT SHALL BE CONSIDERED INCIDENTAL TO TEMPORARY OPTIONAL PAVEMENT.

SIGNING AND POST

SHEET	STATION	STATION	OFFSET	2 IN. PSST POST - 12 GA. (LF)	DRIVEN POST ANCHOR FOR 2 IN. PSST - 12 GA. (EA)	SHF-FLAT SHEET FLOURESCENT (SQFT)	REMARKS
N/A	300+00	319+50	LT	120.0	10	42.0	W1-8 (14)
N/A	300+00	319+50	LT/RT	32.0	2	17.0	W1-2R/L (R-1, L-1) W13-1 (2)
			SUBTOTAL	**152.0**	**12**	**59.0**	
			PAY TOTAL	**152**	**12**	**59**	

SIGNING AND POST NOTES:
1. SIGN AND POST LOCATIONS TO BE FIELD VERIFIED BY ENGINEER

SUMMARY OF QUANTITIES
SHEET 1 OF 3

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 2/25/2026

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	3

COUNTY: PERRY
JOB NO.: JSE0056
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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Collinsville
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1 South Church, Suite 200
Belleville, IL 62220
618.416.4656

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MISSOURI DESIGN FIRM PE-001166

OATES ASSOCIATES

EROSION CONTROL

SHEET	STATION	STATION	OFFSET	ROCK DITCH CHECK (LF)	SEDIMENT REMOVAL (CUYD)	SILT FENCE (LF)	TYPE C BERM (LF)	TYPE 2 TURF REINFORCEMENT MAT (SQYD)	REMARKS
17	301+50	302+50	RT	24.0	2				2 CHECKS @ 100' SPACING
17	302+50		RT	12.0	1				1 CHECK
17	304+50		LT	12.0	1				1 CHECK
17	305+00	305+60	RT	24.0	2				2 CHECKS @ 60' SPACING
17	305+50	306+50	LT	36.0	3				3 CHECKS @ 50' SPACING
17	305+70	307+30	RT					258.7	
17	306+00	307+05	RT	96.0	8				8 CHECKS @ 15' SPACING
17	306+70	308+90	LT					371.7	
17	307+00	308+80	LT	120.0	10				10 CHECKS @ 20' SPACING
17	307+70	308+30	RT	24.0	2				2 CHECKS @ 60' SPACING
17	309+80		RT	12.0	1				1 CHECK
17-18	309+00	310+15	LT		1.2	115.0			
18	310+14	310+91	LT/RT				288.0		
18	312+00	316+50	LT	324.0	27				27 CHECKS @ 17' SPACING
18	312+01	312+73	LT/RT				266.0		
18	312+73	317+70	RT		4.6	460.0			
18	312+73	318+30	LT					1306.7	
18	316+50	317+50	LT	36.0	3				3 CHECKS @ 38' SPACING
18	318+00	319+50	RT		1.5	150.0			
			SUBTOTAL	720.0	67.3	725.0	554.0	1937.1	
			PAY TOTAL	720	67	725	554	1937	

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

ROCK BLANKET

SHEET	STATION	STATION	OFFSET	FURNISHING TYPE 2 ROCK BLANKET (CUYD)	PLACING TYPE 2 ROCK BLANKET (CUYD)	ROCK BLANKET EXCAVATION (NOTE 2 & 3) (CUYD)	PERMANENT EROSION CONTROL GEOTEXTILE (SQYD)	REMARKS
17	302+91	302+99	RT	14.4	14.4	14.4	36.8	18" CULVERT OUTLET
18	310+00	310+95	LT/RT	788.0	788	788	1287.8	NORTH BRIDGE CONE
18	311+95	312+73	LT/RT	698.4	698.4	698.4	1147.3	SOUTH BRIDGE CONE
18	318+97	319+01	RT	3.7	3.7	3.7	12.9	18" CULVERT OUTLET
			SUBTOTAL	1504.5	1504.5	1504.5	2484.8	
			PAY TOTAL	1505	1505	0	2485	

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

TEMPORARY PAVEMENT MARKING

SHEET	STATION	STATION	OFFSET	TEMPORARY REMOVABLE MARKING TAPE 4 IN., WHITE (LF)	TEMPORARY REMOVABLE MARKING TAPE 4 IN., YELLOW (LF)	TEMPORARY REMOVABLE MARKING TAPE, 24 IN., WHITE (LF)	PAVEMENT MARKING REMOVAL (LF)	REMARKS
10-13	300+00	319+50	LT/RT	4812			6812	STAGE 1
10-13	300+00	319+50	LT/RT	4897			4897	STAGE 2
10-13	300+00	319+50	LT/RT		2000	24		STAGE 1 & 2
			SUBTOTAL	9709	2000	24	11709	
			PAY TOTAL	9709	2000	24	11709	

EARTHWORK

SHEET	STATION	STATION	OFFSET	ESTIMATED CUT (CUYD)	ESTIMATED FILL (CUYD)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) (NOTE 1&2) (CUYD)	CLASS A EXCAVATION (CUYD)	EMBANKMENT IN PLACE (CUYD)	COMPACTING EMBANKMENT (CUYD)	COMPACTING IN CUT (NOTE 3) (STA)	REMARKS
XS 1-XS 8	300+00	319+50	LT/RT	3306.6	6669.5	-4189.5	3306.6	4189.5	2480.0	2.59	TC STAGE 1
XS 1-XS 8	300+00	319+50	LT/RT	3326.6	539.6	1955.4	3326.6	0.0	539.6		TC STAGE 2
						SUBTOTAL	6633.2	4189.5	3019.6	2.59	
						PAY TOTAL	6633	4190	3020	2.6	

EARTHWORK NOTES:
1. ESTIMATED SHRINKAGE FACTOR APPLIED TO CUT= 25%.
2. APPROXIMATE EARTHWORK BALANCE IS SHOWN FOR INFORMATION ONLY.
3. COMPACTING IN CUT BEGINS AT STA. 314+84. ONLY PAID FOR DURING STAGE 1 CONSTRUCTION.
4. BRIDGE OMISSION BETWEEN STA. 310+14.00 AND 312+72.50.

POROUS BACKFILL

SHEET	STATION	STATION	OFFSET	POROUS BACKFILL (CUYD)	REMARKS
9	310+29	310+34	LT/RT	26.7	ASSUMED 5'x6'x24'
9	312+53	312+58	LT/RT	26.7	ASSUMED 5'x6'x24'
			SUBTOTAL	53.4	
			PAY TOTAL	53	

CLEARING AND GRUBBING

PAY TOTAL = 1 ACRE

MOBILIZATION

PAY TOTAL = 1 LUMP SUM

CONTRACTOR FURNISHED SURVEYING AND STAKING

PAY TOTAL = 1 LUMP SUM

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/23/2025
ROUTE: C | STATE: MO
DISTRICT: SE | SHEET NO.: 3
COUNTY: PERRY
JOB NO.: JSE0056
CONTRACT ID.: .
PROJECT NO.: .
BRIDGE NO.: .

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

SUMMARY OF QUANTITIES
SHEET 2 OF 3

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00	2	32.00				SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00	2	32.00				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	2	32.00				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	1	16.00				SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00	1	16.00				SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00	2	10.00				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	2	12.50				ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00	2	32.00				ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00						ROAD CLOSED AHEAD (AHEAD-2, 500 FT-2)
WO20-4	48X48	16.00	2	32.00				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	2	32.00				FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00	2	32.00				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	4	8.76				WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00						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	2	12.00				STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00						ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY (1 MI, 5 MI)
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	96X48	32.00						ROUTE K CLOSED 1 MILES AHEAD
M1-5a	24X12	2.00						STATE ROUTE K
M5-1	21X15	2.20						ADVANCE STRAIGHT ARROW
MO4-8	24X12	2.00						DETOUR
M5-1L	21X15	2.20						ADVANCE TURN ARROW (90° LEFT)
M5-1R	21X15	2.20						ADVANCE TURN ARROW (90° RIGHT)
M6-1L	21X15	2.20						LEFT TURN ARROW
M6-1R	21X15	2.20						RIGHT TURN ARROW
M3-1	24X12	2.00						CARDINAL DIRECTION NORTH
M3-3	24X12	2.00						CARDINAL DIRECTION SOUTH

616-10.05 CONSTRUCTION SIGNS	TOTAL 300
616-10.10 RELOCATED SIGNS	TOTAL * *

* * NO DIRECT PAY FOR RELOCATING TEMPORARY TRAFFIC CONTROL DEVICES

ITEM NUMBER	TOTAL QTY	EFFECTIVE: 07-01-2025 DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6122040		WORK ZONE CRASH CUSHION (NARROW)
6122041		WORK ZONE CRASH CUSHION (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONE)
6161025	65	CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	10	TYPE 3 MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE 3 OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6162000A	1	WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER, CONTRACTOR FURNISHED/RETAINED
6173700B		TEMP. TRAFFIC BARRIER ANCHORED, CONTRACTOR FURNISHED/RETAINED
6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION CONTRACTOR FURNISHED/RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION, CONTRACTOR FURNISHED/RETAINED
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

SUMMARY OF QUANTITIES
SHEET 3 OF 3

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/23/2025

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	3

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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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)

St. Louis
2270 Chain Park Dr., Suite 200
Chesterfield, MO 63017
314.588.8381

Collinsville
101 Eastport Plaza, Suite 1
Collinsville, IL 62234
618.345.2200

St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.0277

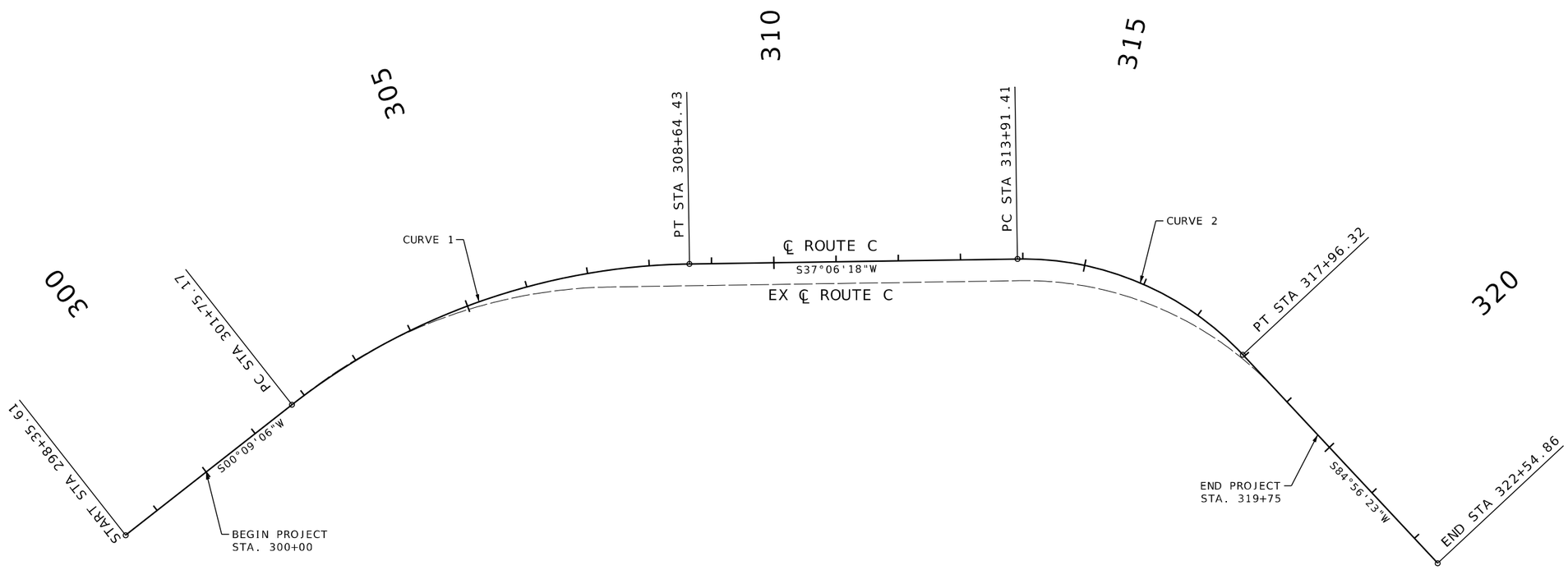
Belleville
1 South Church, Suite 200
Belleville, IL 62220
618.416.4664

www.oatesassociates.com

MISSOURI DESIGN FIRM PE-001166

OATES ASSOCIATES

ELEMENT	STATION	NORTHING	EASTING
START	298+35.61	642545.512	1080526.443
PC	301+75.17	642205.954	1070527.341
PT	308+64.43	641563.676	1080312.73
PC	313+91.41	641143.397	1079994.819
PT	317+96.32	640952.876	1079650.795
END	322+54.587	640912.431	1079194.048



SCALE

0 100 200 300 400 500

CURVE 1

PI 305+32.48
PC 301+75.17
PT 308+64.43
Δ 37°15'23.4" (RT)
D 5°24'18.9"
L 689.26' (ARC)
T 357.31'
R 1,060.00'

CURVE 2

PI 316+06.51
PC 313+91.41
PT 317+96.32
Δ 47°50'51" (RT)
D 11°48'48.8"
L 404.91' (ARC)
T 215.10'
R 485.00'

ALIGNMENT SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

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DATE PREPARED
2/25/2026

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	4

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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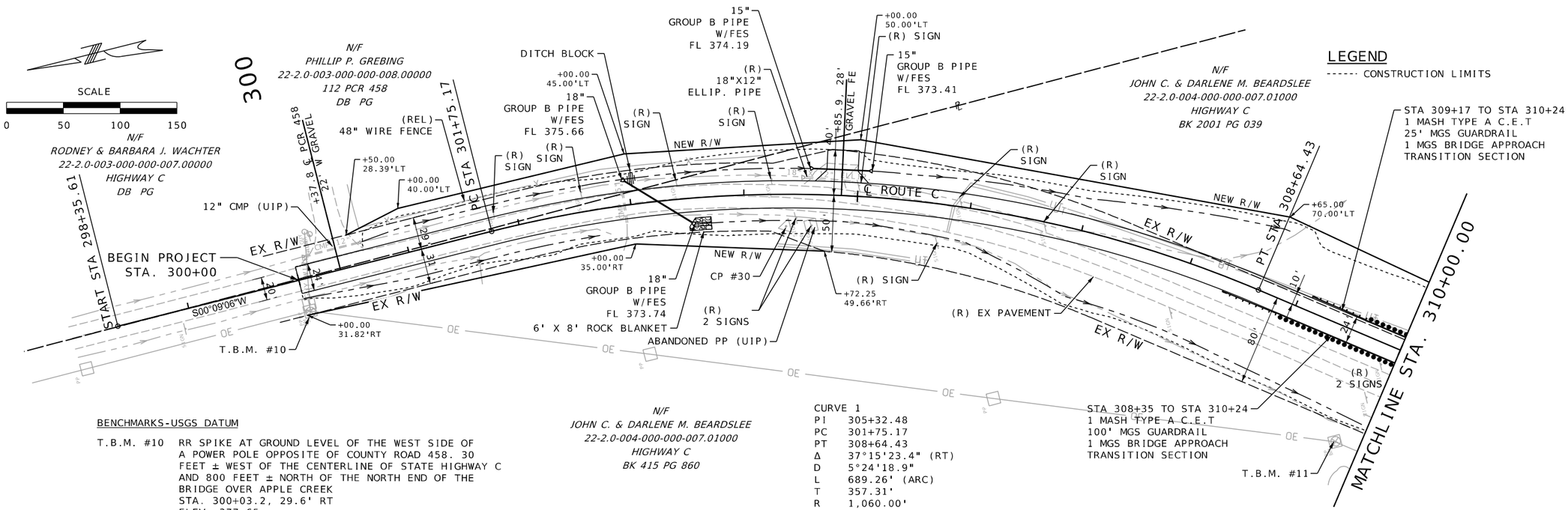
PROJECT NO.
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BRIDGE NO.
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DESCRIPTION	DATE
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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OATES ASSOCIATES
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618.416.4666
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St. Louis, MO 63101
314.588.8381
St. Charles
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636.493.1577
MISSOURI DESIGN FIRM PE-001166



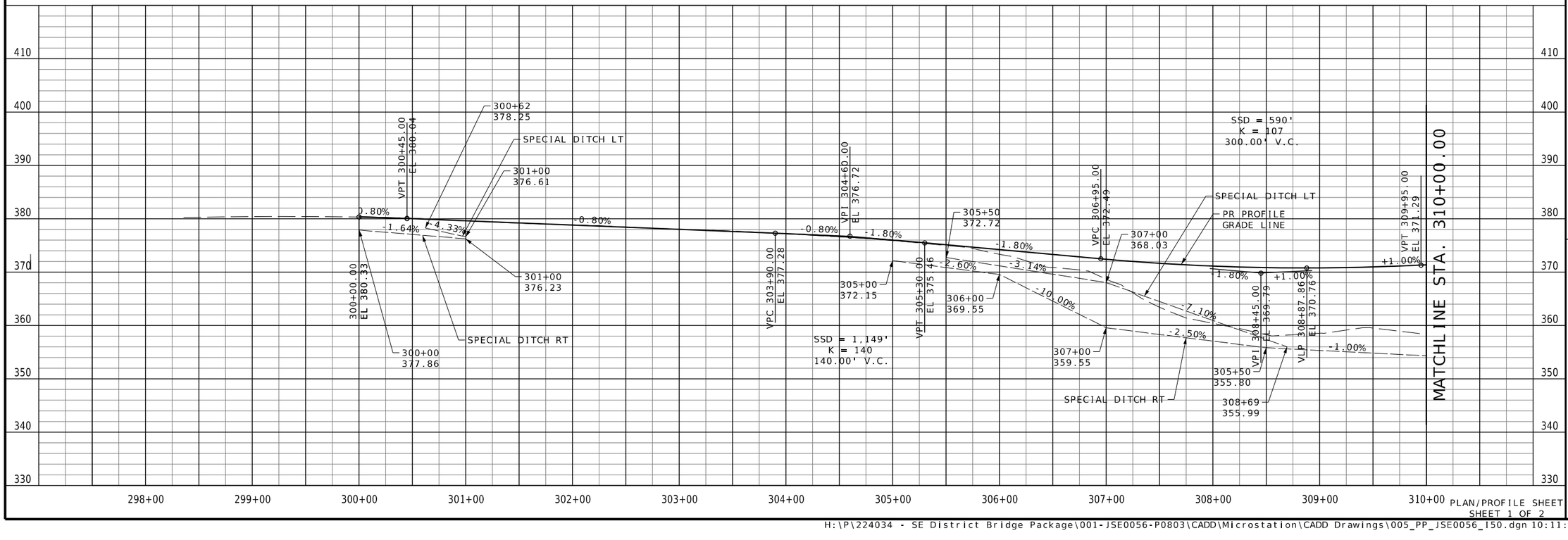
BENCHMARKS-USGS DATUM

T.B.M. #10 RR SPIKE AT GROUND LEVEL OF THE WEST SIDE OF A POWER POLE OPPOSITE OF COUNTY ROAD 458. 30 FEET ± WEST OF THE CENTERLINE OF STATE HIGHWAY C AND 800 FEET ± NORTH OF THE NORTH END OF THE BRIDGE OVER APPLE CREEK
STA. 300+03.2, 29.6' RT
ELEV. 377.65

T.B.M. #11 RR SPIKE AT GROUND LEVEL IN THE EAST SIDE OF A POWER POLE. 50 FEET ± NORTH OF THE NORTH END OF THE BRIDGE OVER APPLE CREEK AND 75 FEET ± WEST OF THE CENTERLINE OF STATE HIGHWAY C.
STA. 309+79.1, 96.1' RT
ELEV. 356.29

CURVE 1
PI 305+32.48
PC 301+75.17
PT 308+64.43
Δ 37°15'23.4" (RT)
D 5°24'18.9"
L 689.26' (ARC)
T 357.31'
R 1,060.00'
SE 6.00%

ANY WORK INDICATED ON THE PLANS THAT EXTENDS BEYOND THE PROJECT LIMIITS IS CONSIDERED INCIDENTAL TO AND A PART OF THE CONSTRUCTION OF THIS PROJECT.



PLAN/PROFILE SHEET
SHEET 1 OF 2

H:\P\224034 - SE District Bridge Package\001-JSE0056-P0803\CADD\Microstation\CADD Drawings\005_PP_JSE0056_I50.dgn 10:11:22 AM 2/27/2026

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

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2/27/2026

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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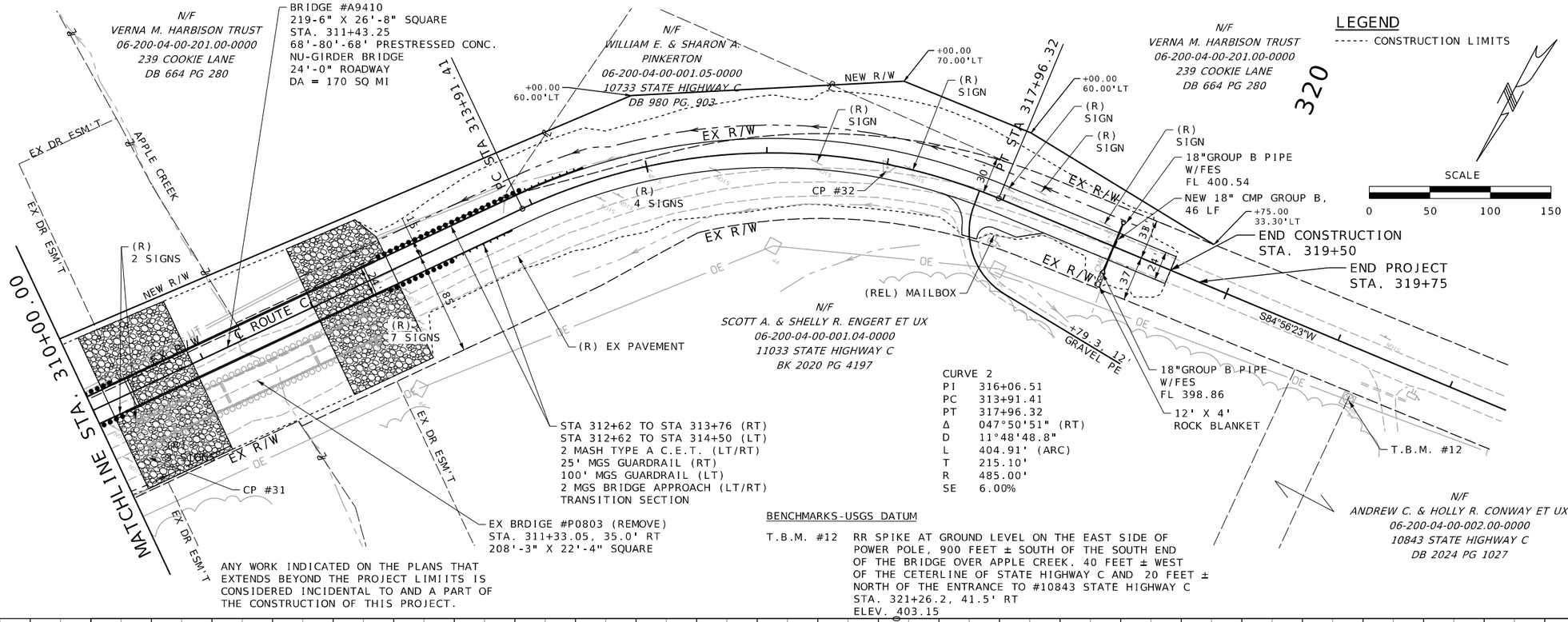
PROJECT NO.
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BRIDGE NO.
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DATE	DESCRIPTION
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

OATES ASSOCIATES
Collinsville
100 Troy City Park, Suite 1
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618.345.2200
St. Louis
720 Olive St., Ste 750
St. Louis, MO 63101
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Belleville
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Belleville, IL 62220
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St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.5077
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166



PLAN/PROFILE SHEET
SHEET 2 OF 2

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STATE OF MISSOURI
BENTLEY M. GEDRIS
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PROFESSIONAL ENGINEER

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DATE PREPARED
2/27/2026

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	6

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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DESCRIPTION	DATE
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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JEFFERSON CITY, MO 65102
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OATES ASSOCIATES

Collinsville
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St. Charles, MO 63301
636.493.0277

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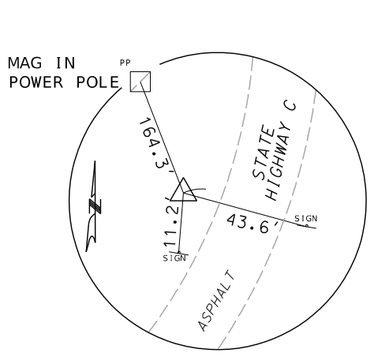
MISSOURI DESIGN FIRM PE-001166

HORIZONTAL AND VERTICAL STATEMENT

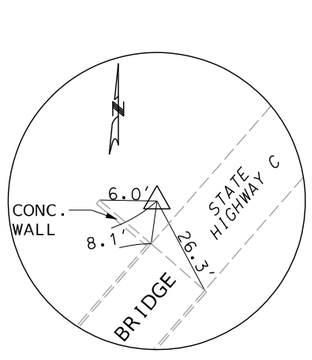
STATE PLANE COORDINATES ON THIS PROJECT WERE ESTABLISHED UTILIZING THE MISSOURI HIGHWAYS AND TRANSPORTATION COMISSION GLOBAL NAVIGATION SATELLITE REAL TIME NETWORK FOR CONTINUOUSLY OPERATING REFERENCE STATIONS DURING JUNE, 2024 AND ARE BASED ON THE MISSOURI COORDIANTE SYSTEM OF 1983, EAST ZONE. THE AVERAGE COMBINED PROJECT GRID FACTOR IS 0.999997206.

PROJECT COORDINATES ARE MODIFIED MISSOURI STATE PLANE COORDINATES AND WERE ESTABLISHED BY APPLYING THE INVERSE OF THE PROJECT GRID FACTOR (1.000027936) ABOUT THE ORIGIN (0,0), AS CALCULATED BY EFK MOEN, LLC.

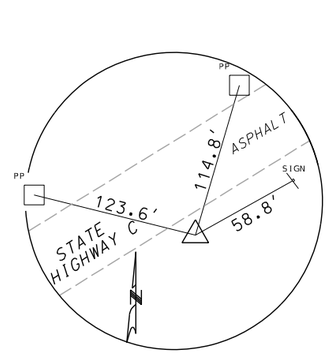
VERTICAL DATUM IS NAVD 88 AS BROADCAST WITH THE MODOT GNSS NETWORK



CONTROL POINT NO. 30
SET IRON ROD W/ALUMINUM CAP
N: 641953.479
E: 1080468.518
ELEV: 376.75
STA. 138+63.48
25.21' RT. STATE HIGHWAY C



CONTROL POINT NO. 31
SET IRON ROD W/ALUMINUM CAP
N: 641468.062
E: 1080177.204
ELEV: 368.85
STA. 144+41.53
15.40' RT. STATE HIGHWAY C



CONTROL POINT NO. 32
SET IRON ROD W/ALUMINUM CAP
N: 640973.104
E: 1079743.881
ELEV: 400.68
STA. 151+05.60
10.08' LT. STATE HIGHWAY C

COORDINATE POINTS SHEET
SHEET 1 OF 2

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/23/2025

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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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)

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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Belleville
1 South Church, Suite 200
Belleville, IL 62220
618.416.4666
www.oatesassociates.com
St. Louis
2200 West Port Plaza Dr., Suite 290
St. Louis, MO 63131
314.588.8381
St. Charles
820 South Main, Suite 399
St. Charles, MO 63301
636.493.0177

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	MOD. MO STATE PLANE (GROUND)
HORIZONTAL DATUM	NAD-83
VERTICAL DATUM	NAVD-88
GEOID MODEL	GEOID 18
ELEVATIONS DETERMINED BY	GPS AND DIFFERENTIAL LEVELING
PROJECT PROJECTION FACTOR	1.000002794

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	COORDINATE SYSTEM OF 1983
CONTROL STATION	MODOT VRS
DESIGNATION	FROHNA
CORS_ID	FROHNA
PID	HB-1764
LATITUDE	N37°38'21.22940"
LONGITUDE	W89°37'409.52589"
NORTHING (M)	200756.888
EASTING (M)	327725.940
ZONE	EAST
PROJECT AVERAGE GRID FACTOR	0.999997206

EXAMPLE OF PROJECT COORDINATE TO S.P.C.

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

EXAMPLE: CONTROL POINT #_1_
N 657419.8769 X 0.99994700073 = N 657385.04
E 997522.3023 X 0.99994700073 = E 997469.44

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								
·	138+63.48	RTE C	25.21 RT	641953.479	1080468.518	376.75	SET IRON ROD WITH ALUMINUM CAP	CP#30
·	144+41.53	RTE C	15.40 RT	641468.062	1080177.204	368.85	SET IRON ROD WITH ALUMINUM CAP	CP#31
·	151+05.60	RTE C	10.08 LT	640973.104	1079743.881	400.68	SET IRON ROD WITH ALUMINUM CAP	CP#32
ALIGNMENTS								
·	301+75.17	RTE C	CL	642205.954	1080527.341	·	PC CURVE #1	·
·	305+32.48	RTE C	CL	641848.644	1080528.287	·	PI CURVE #1	·
·	308+64.43	RTE C	CL	641563.676	1080312.73	·	PT CURVE #1	·
·	313+91.41	RTE C	CL	641143.397	1079994.819	·	PC CURVE #2	·
·	316+06.51	RTE C	CL	640971.849	1079865.055	·	PI CURVE #2	·
·	317+96.32	RTE C	CL	640952.876	1079650.795	·	PT CURVE #2	·

STATE OF MISSOURI
BENTLEY M. GEDRIS
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PROFESSIONAL ENGINEER
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DATE PREPARED
10/23/2025

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	8

COUNTY
PERRY

JOB NO.
JSE0056

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)

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166

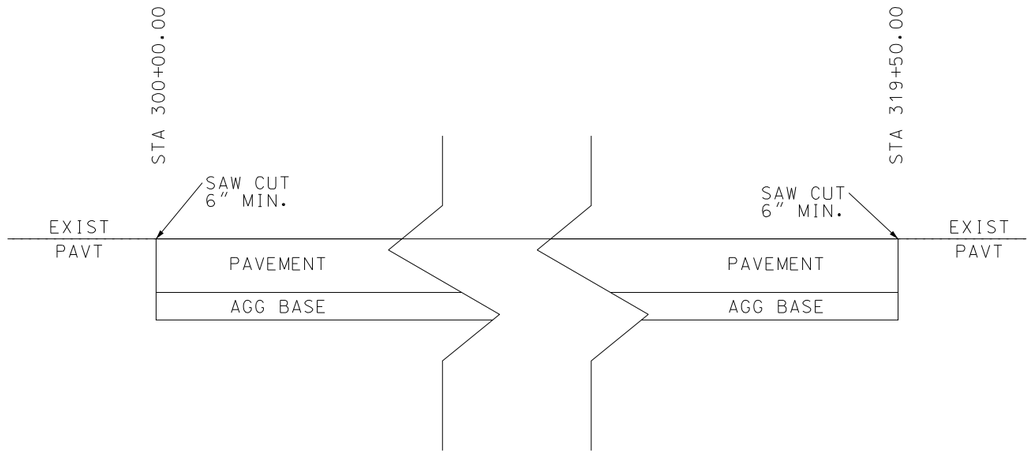
St. Louis
2701 Chambers Rd., Suite 290
St. Louis, MO 63101
314.588.8381

St. Charles
820 South Main, Suite 309
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636.493.5577

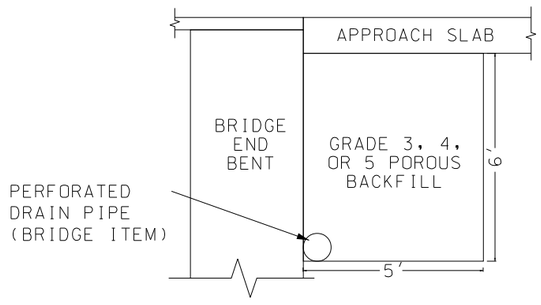
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Collinsville, IL 62234
618.345.2200

Belleville
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Belleville, IL 62220
618.416.4666

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SAW CUT



POROUS BACKFILL

SPECIAL SHEETS
CONSTRUCTION DETAILS
SHEET 1 OF 1

STATE OF MISSOURI
BENTLEY M. GEDRIS
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C	MO
DISTRICT	SHEET NO.
SE	9

COUNTY
PERRY

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
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720 Olive Street, Suite 700
St. Louis, MO 63101
314.588.8281

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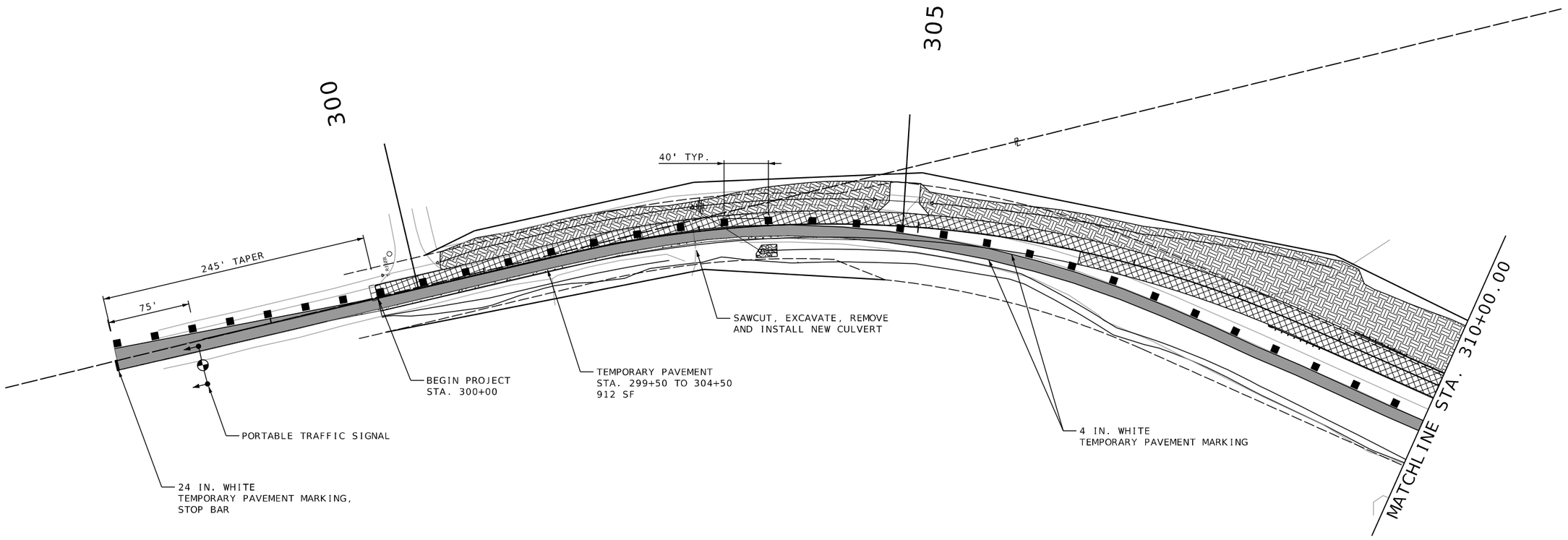
MISSOURI DESIGN FIRM PE-001166

TEMPORARY TRAFFIC CONTROL LEGEND

- SINGLE TRAVEL LANE
- CONSTRUCTION
- GRADING
- CHANNELIZER
- TYPE 3 MOVEABLE BARRICADE

SCALE

0 50 100 150



STAGE 1

GENERAL NOTES:

1. SAWCUT FOR CULVERT REMOVAL UNDER TRAFFIC. REMOVE AND REPLACE CULVERT KEEPING ONE LANE OPEN TO TRAFFIC DURING REPLACEMENT USING SIGNING AND FLAGGERS.
2. CONSTRUCT TEMPORARY PAVEMENT ON SOUTH APPROACH.
3. SET UP CHANNELIZERS, BARRIER WALL, SIGNALS, PAVEMENT MARKING, AND SIGNAGE FOR ONE LANE TRAFFIC.
4. CONSTRUCT NEW BRIDGE, NORTH BOUND LANE FROM BEGINNING TO END OF PROJECT, AND THE SOUTH BOUND LANE FROM STA. 306+50 TO 316+00.
5. CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AT ALL TIMES.

TRAFFIC CONTROL SHEET
SHEET 1 OF 7

STATE OF MISSOURI
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Collinsville
101 Corporate Center Drive, Suite 1
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1 South Church, Suite 200
Belleville, IL 62220
618.416.4488

St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.1077

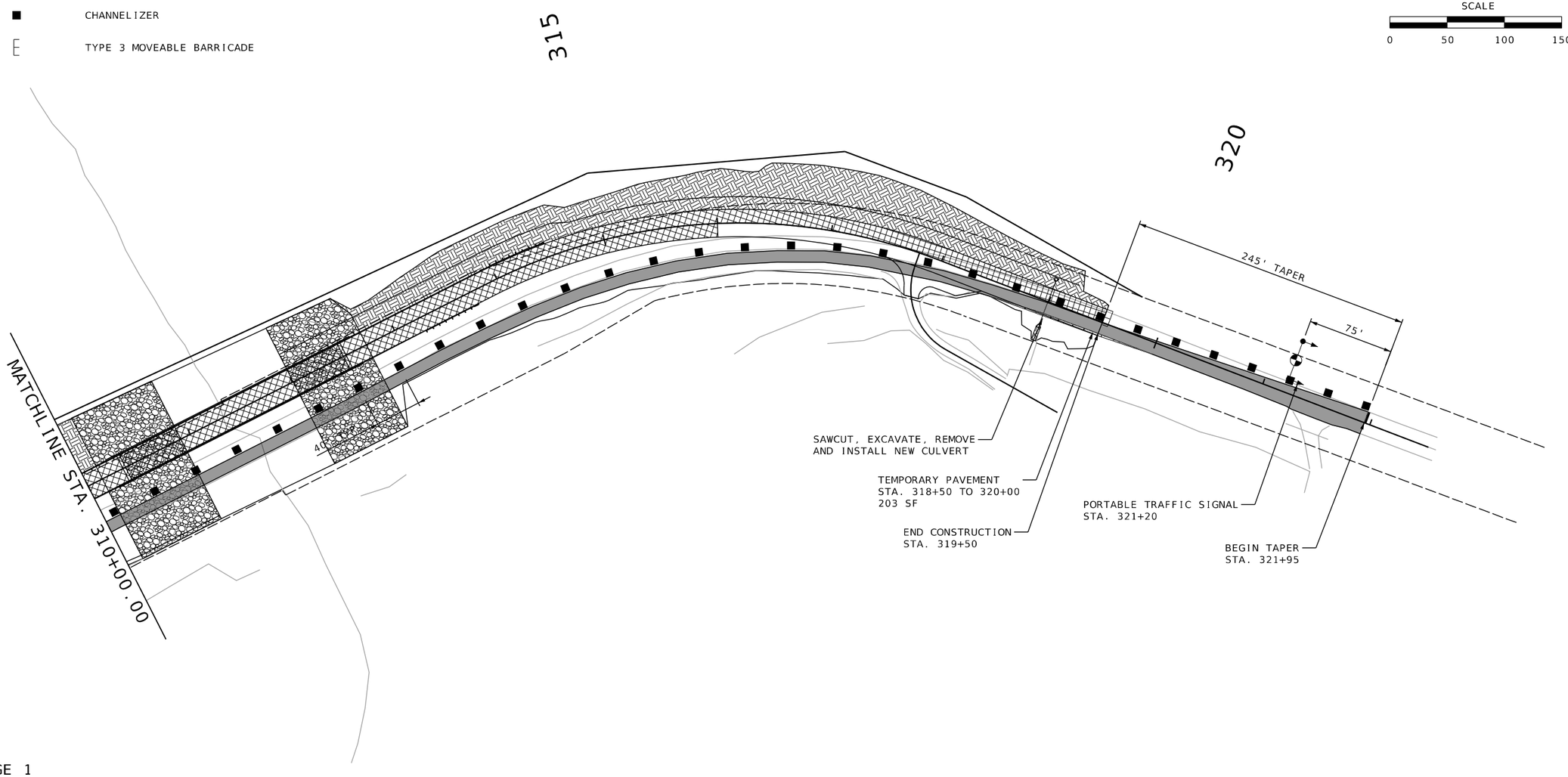
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TEMPORARY TRAFFIC CONTROL LEGEND

- SINGLE TRAVEL LANE
- CONSTRUCTION
- GRADING
- CHANNELIZER
- TYPE 3 MOVEABLE BARRICADE

SCALE
0 50 100 150



STAGE 1

GENERAL NOTES:

1. SAWCUT FOR CULVERT REMOVAL UNDER TRAFFIC. REMOVE AND REPLACE CULVERT KEEPING ONE LANE OPEN TO TRAFFIC DURING REPLACEMENT USING SIGNING AND FLAGGERS.
2. CONSTRUCT TEMPORARY PAVEMENT ON BOTH APPROACHES.
3. SET UP CHANNELIZERS, BARRIER WALL, SIGNALS, PAVEMENT MARKING, AND SIGNAGE FOR ONE LANE TRAFFIC.
4. CONSTRUCT NEW BRIDGE, NORTH BOUND LANE FROM BEGINNING TO END OF PROJECT, AND THE SOUTH BOUND LANE FROM STA. 306+50 TO 316+00.
5. CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AT ALL TIMES.

TRAFFIC CONTROL SHEET
SHEET 2 OF 7

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/23/2025

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	11

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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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)

Collinsville
101 West Main St., Suite 1
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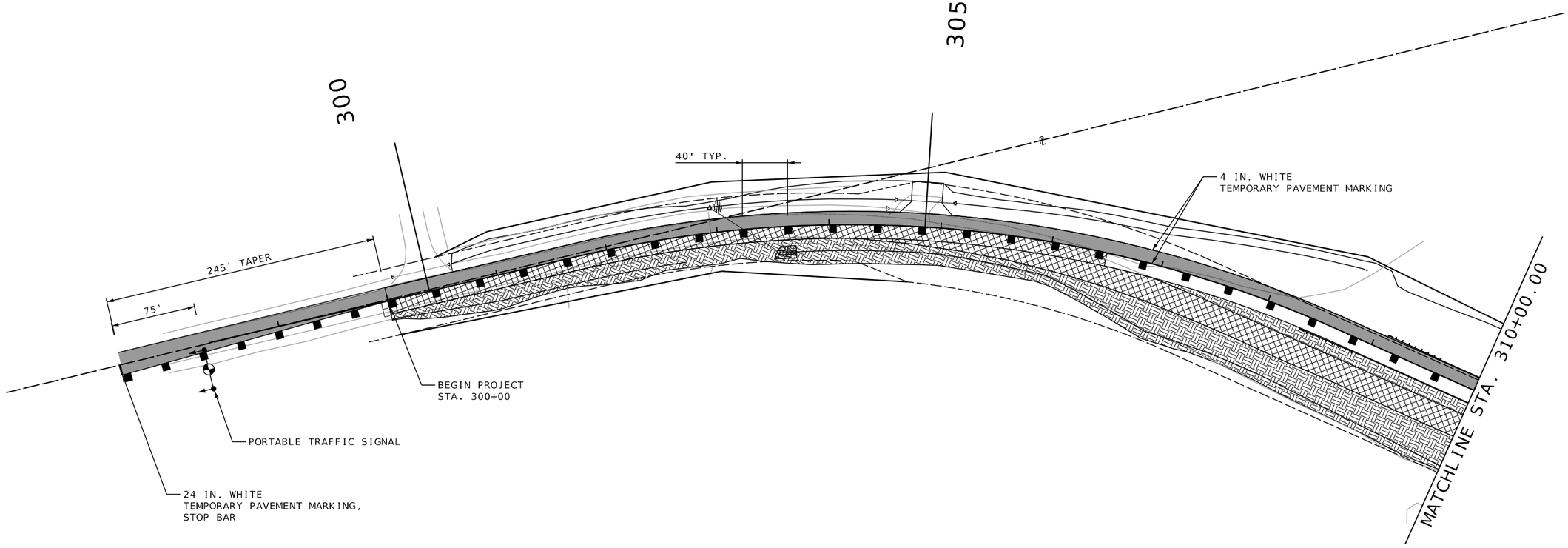
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TEMPORARY TRAFFIC CONTROL LEGEND

- SINGLE TRAVEL LANE
- CONSTRUCTION
- GRADING
- CHANNELIZER
- TYPE 3 MOVEABLE BARRICADE

SCALE
0 50 100 150



STAGE 2

GENERAL NOTES:

1. REMOVE TEMPORARY TRAFFIC BARRIER AND TEMPORARY PAVEMENT.
2. MOVE TRAFFIC TO NORTHBOUND LANE. ADJUST CHANNELIZERS ACCORDINGLY.
3. PERFORM REMOVALS IN THE WORK ZONE.
4. COMPLETE FINAL GRADING, SHAPING, SEEDING, AND MULCHING FOR DISTURBED AREAS.
5. CONSTRUCT SOUTHBOUND LANES FROM STA. 300+00 TO 306+00 AND FROM STA. 316+00 TO 319+50
6. COMPLETE SIGNING AND STRIPING.
7. REMOVE TRAFFIC CONTROL AND OPEN TO TRAFFIC.
8. CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AT ALL TIMES.

TRAFFIC CONTROL SHEET
SHEET 3 OF 7

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

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DATE PREPARED
10/23/2025

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	12

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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DESCRIPTION	DATE
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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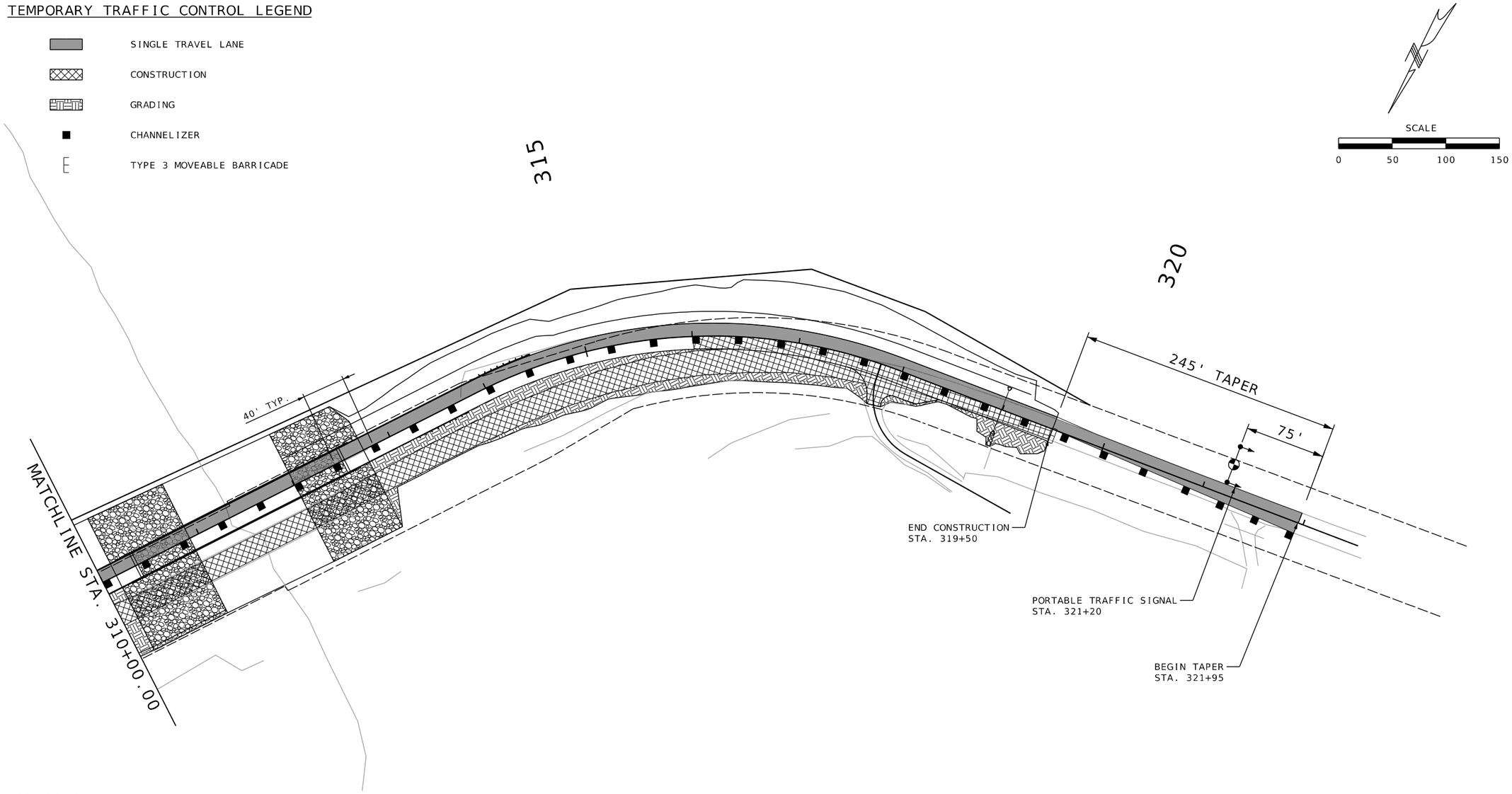
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TEMPORARY TRAFFIC CONTROL LEGEND

- SINGLE TRAVEL LANE
- CONSTRUCTION
- GRADING
- CHANNELIZER
- TYPE 3 MOVEABLE BARRICADE



STAGE 2

GENERAL NOTES:

1. REMOVE TEMPORARY TRAFFIC BARRIER AND TEMPORARY PAVEMENT.
2. MOVE TRAFFIC TO NORTHBOUND LANE. ADJUST CHANNELIZERS ACCORDINGLY.
3. PERFORM REMOVALS IN THE WORK ZONE.
4. COMPLETE FINAL GRADING, SHAPING, SEEDING, AND MULCHING FOR DISTURBED AREAS.
5. CONSTRUCT SOUTHBOUND LANES FROM STA. 300+00 TO 306+00 AND FROM STA. 316+00 TO 319+50
6. COMPLETE SIGNING AND STRIPING.
7. REMOVE TRAFFIC CONTROL AND OPEN TO TRAFFIC.
8. CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AT ALL TIMES.

TRAFFIC CONTROL SHEET
SHEET 4 OF 7

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

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DATE PREPARED
10/23/2025

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	13

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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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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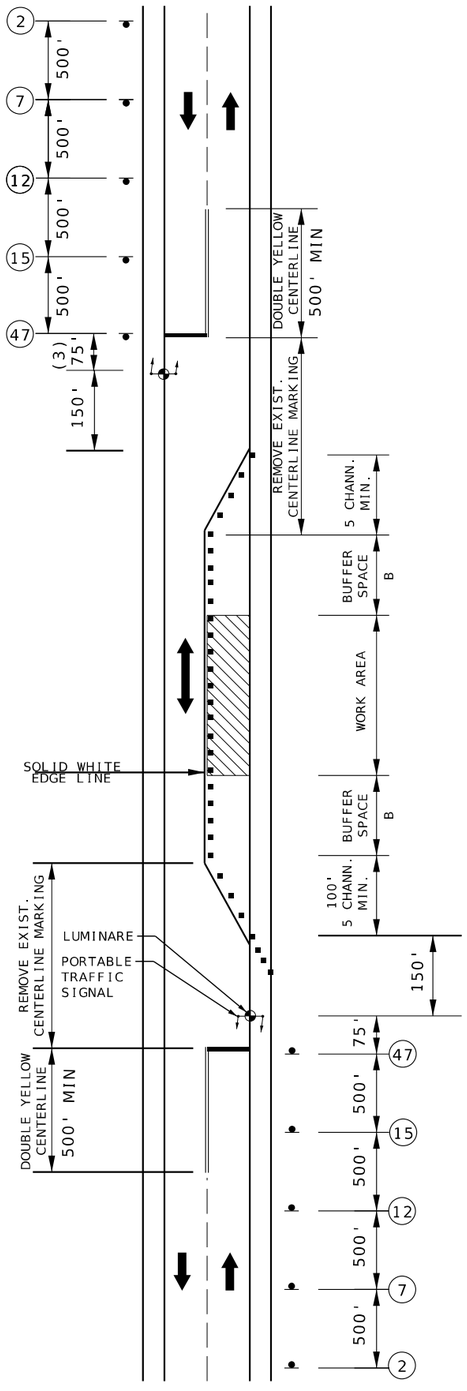
Collinsville
Kaskaskia Plaza, Suite 1
Collinsville, IL 62234
618.345.2200

St. Louis
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St. Louis, MO 63101
314.588.8381

Belleville
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LANE CLOSURE ON TWO-LANE ROAD
USING TRAFFIC CONTROL SIGNALS



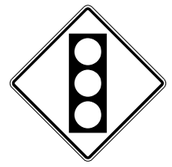
W020-1
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W5-3
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W3-3
(15)



R10-6L
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TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER (TRIM-LINE)
- WORK AREA
- PORTABLE TRAFFIC SIGNAL & LUMINARE
- 12" WIDE STOP BAR

NOT TO SCALE

NOTES:

TEMPORARY TRAFFIC CONTROL SIGNALS SHALL BE INSTALLED AND OPEARTED IN ACCORDANCE WITH THE PROVISIONS OF PART 4. TEMPORARY TRAFFIC CONTROL SIGNALS SHALL MEET THE PHYSICAL DISPLAY AND OPERATIONAL REQUIREMENTS OF CONVENTIONAL TRAFFIC CONTROL SIGNLAS.

TEMPORARY TRAFFIC CONTROL SIGNAL TIMING SHALL BE ESTABLISHED BY AUTHORIZED OFFICIALS. DURATIONS OF RED CLEARANCE INTERVALS SHALL BE ADEQUATE TO CLEAR THE ONE LANW SECTION OF CONFLICTING VEHICLES.

WHEN THE TEMPORARY TRAFFIC CONTROL SIGNAL IS CHANGED TO THE FLASHING MODE, EITHER MANUALLY OR AUTOMATICALLY, RED SIGNAL INDICATIONS SHALL BE FLASHED TO BOTH APPROACHES.

STOP LINES SHALL BE INSTALLED WITH TEMPORARY TRAFFIC CONTROL SIGNALS FOR INTERMADIATE AND LONG-TERM CLOSURES. EXISTING CONFLICTING PAVEMENT MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS BETWEEN THE ACTIVITY AREA AND THE STOP LINE SHALL BE REMOVED. AFTER THE TEMPORARY TRAFFIC CONTROL SIGNAL IS REMOVED, THE STOP LINES AND OTHER TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED AND THE PERMANENT PAVEMENT MARKINGS RESTORED.

SAFEGUARDS SHALL BE INCORPORATED TO AVOID THE POSSIBILITY OF CONFLICTING SIGNAL INDICATIONS AT EACH END OF THE TTC ZONE.

TRAFFIC CONTROL SHEETS
SHEET 5 OF 7

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

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DATE PREPARED
10/23/2025

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C	MO
DISTRICT	SHEET NO.
SE	14

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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DESCRIPTION	DATE
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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701 Market, Suite 700
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St. Charles
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St. Charles, MO 63301
636.493.8277

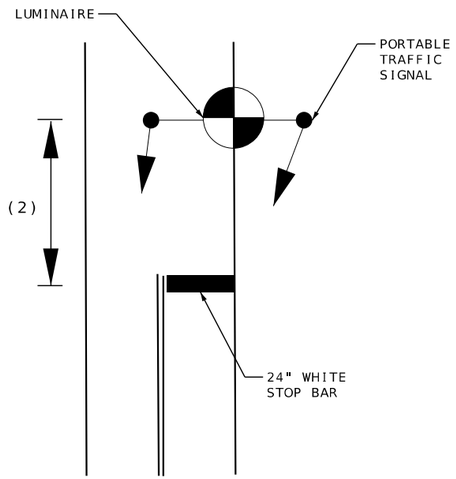
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10 Collinsville Centre, Suite I
Collinsville, IL 62234
618.345.2200

Belleville
1 South Church, Suite 200
Belleville, IL 62220
618.416.4468

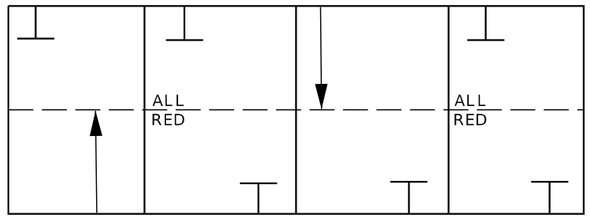
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MISSOURI DESIGN FIRM PE-001166

PORTABLE TRAFFIC SIGNAL, TEMPORARY TRAFFIC SIGN, AND CONCRETE BARRIER DETAILS



PORTABLE TRAFFIC SIGNAL DETAIL (1)



PHASE A PHASE B

PHASE A AND B SHALL ALWAYS BE FOLLOWED BY AN ALL RED PHASE OF INTERVAL.

NOTES:

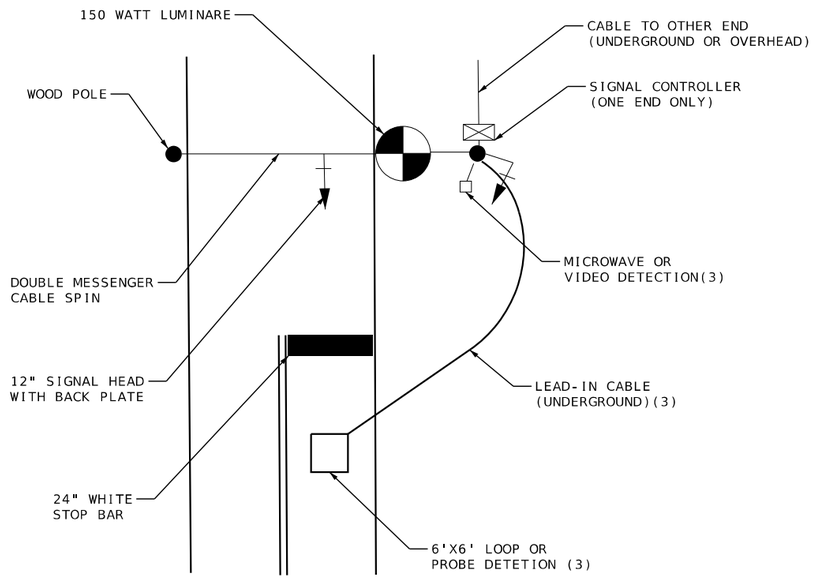
(1) SIGNING AND PAVEMENT MARKING IDENTICAL ON BOTH APPROACHES.

(2) 75 FEET RECOMMENDED SPACING. SPACING MAY BE BETWEEN 40 FEET AND 150 FEET.

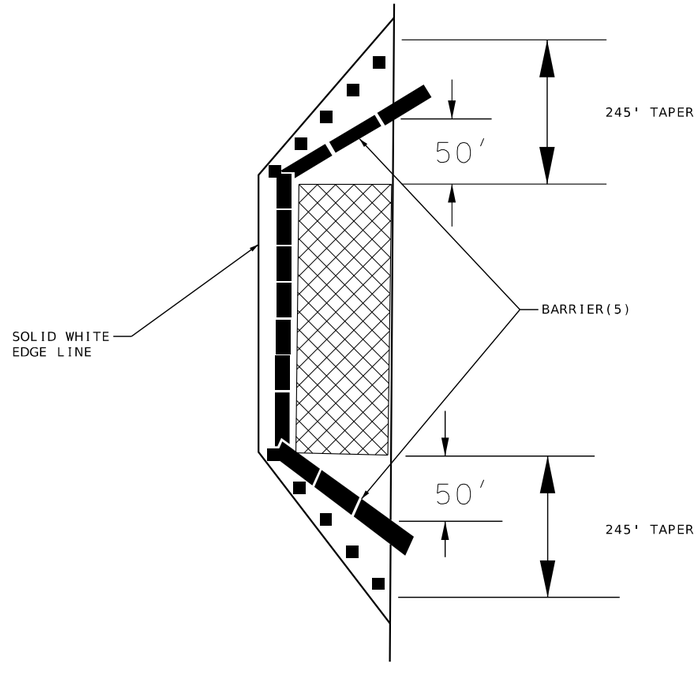
(3) NON-INTRUSIVE DETECTION IS PREFERRED. HOWEVER, IF OTHER VEHICLE INTERFERENCE IS PRESENT (ie PARKING LOTS OR SIDE ROAD ACTIVITY), THEN OTHER DETECTION METHODS MAY BE USED.

(4) IF SIDE ROADS OR DRIVEWAYS OCCUR WITHIN THE LIMITS OF THE STOP BARS, ADDITIONAL INDICATIONS AND PHASING ARE REQUIRED. FURTHERMORE, RIGHT TURNS SHALL BE PROHIBITED FROM THESE ACCESS POINTS DURING THE RED INTERVAL.

(5) FLARE BARRIER TO EXTEND BEYOND CLEAR ZONE OR FLARE BARRIER TO EDGE LINE AND USE APPROVED END TREATMENT.



TEMPORARY TRAFFIC SIGNAL DETAIL (1)



TEMPORARY TRAFFIC SIGNAL DETAIL WITH BARRIER (1)

NOT TO SCALE

TRAFFIC CONTROL SHEETS
SHEET 6 OF 7

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/23/2025

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	15

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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DESCRIPTION	DATE
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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MISSOURI DESIGN FIRM PE-001166



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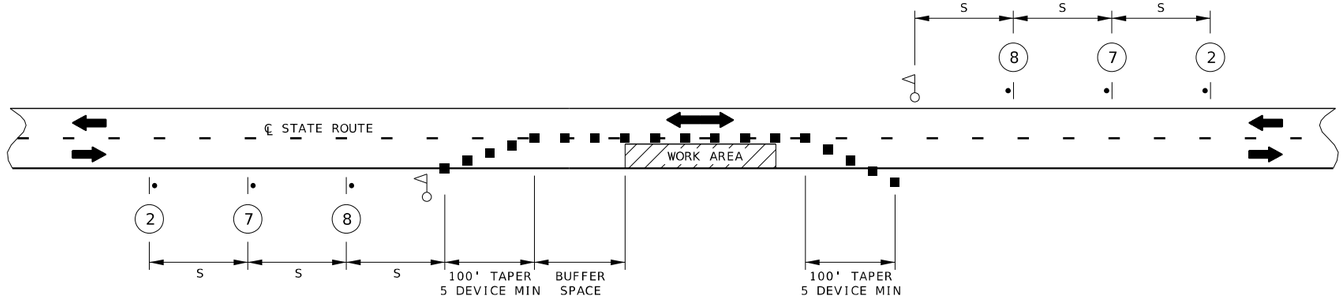


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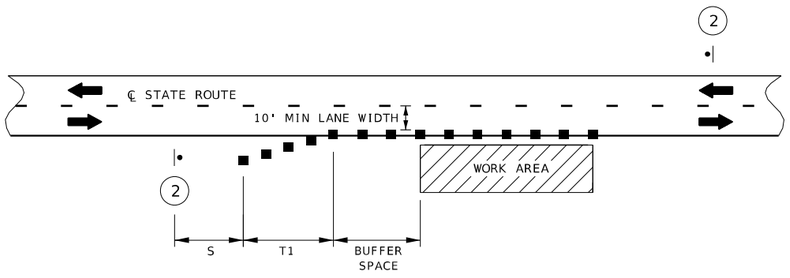
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TRAFFIC CONTROL LEGEND

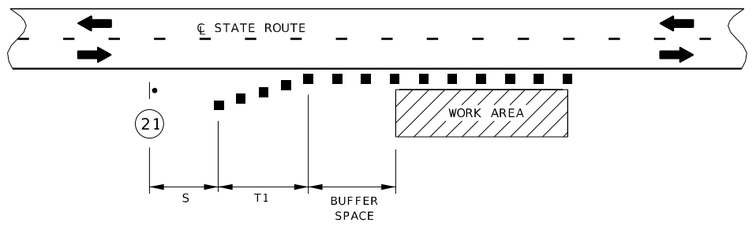
- SIGN (SINGLE SIDED)
- CHANNELIZER
- FLAGGER



LANE CLOSURE WITH FLAGGER CONTROL



SHOULDER WORK WITH MINOR ENCROACHMENT



SHOULDER WORK

NOTES:

DAYLIGHT FLAGGING OPERATIONS ONLY.

DISTANCE MAY BE ADJUSTED ACCORDING TO FIELD CONDITIONS.

NO PAYMENT WILL BE MADE FOR RELOCATION OF CONSTRUCTION SIGNS.

ANY EXISTING SIGNING THAT CONFLICTS WITH THE TRAFFIC CONTROL SIGNING SHALL BE COMPLETELY COVERED OR REMOVED.

AUTOMATED FLAGGER ASSISTANCE DEVICES AND PORTABLE SIGNAL FLAGGING DEVICES MAY BE USED AS AN ALTERNATIVE FLAGGING OPERATION.

FOR ADDITIONAL TRAFFIC CONTROL PLANS FOR THIS PROJECT, USE STANDARD PLANS 616.20 (SHEETS 1 THROUGH 5).

DRAWING NOT TO SCALE. FOLLOW DIMENSIONS.

PERMANENT POSTED SPEED (MPH)	SIGN SPACING (1) (FT)	
	NON-DIVIDED HIGHWAYS (S)	DIVIDED HIGHWAYS (S)
0 - 35	200 FT	200 FT
40 - 45	350 FT	500 FT
50 - 55	500 FT	1000 FT
60 - 70	1000 FT	SA - 1000 FT SB - 1500 FT SC - 2640 FT

(1) SPACING BETWEEN SIGNS, BETWEEN LAST SIGN AND FLAGGER, BEGINNING OF TAPER OR SIGNED CONDITION. SPACINGS MAY BE ADJUSTED AS NECESSARY TO MEET FIELD CONDITIONS.

TAPER LENGTH AND SPACING							
PERMANENT POSTED SPEED (MPH)	TAPER LENGTH T1 SHOULDER (1)	TAPER LENGTH L FOR LATERAL SHIFTS (2)			BUFFER SPACE LENGTH	CHANNELIZER SPACING (3)	
		10 FT	11 FT	12 FT		TAPERS	BUFFER SPACE WORK AREA
0 - 35	70 FT	205 FT	225 FT	245 FT	280 FT	35 FT (4)	40 FT (4)
40 - 45	150 FT	450 FT	495 FT	540 FT	400 FT	40 FT (4)	80 FT (4)
50 - 55	185 FT	550 FT	605 FT	660 FT	560 FT	50 FT (5)	80 FT (5)
60 - 70	235 FT	700 FT	770 FT	840 FT	840 FT	60 FT (5)	120 FT (5)

(1) SHOULDER TAPER LENGTH BASED ON 10' (STANDARD SHOULDER WIDTH) OFFSET.

(2) TAPER LENGTHS MAY BE ADJUSTED TO ACCOMMODATE CROSSROADS, CURVES, RAMPS, INTERSECTIONS, OR OTHER GEOMETIC FEATURES.

(3) SPACING MAY BE REDUCED TO DISCOURAGE TRAFFIC ENCROACHMENT.

(4) SPACING REDUCED TO ONE-HALF AT INTERSECTIONS.

(5) SPACING MAY BE REDUCED TO ONE-HALF AT INTERSECTIONS.

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/23/2025

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	16

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.
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PROJECT NO.
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BRIDGE NO.
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DESCRIPTION	DATE
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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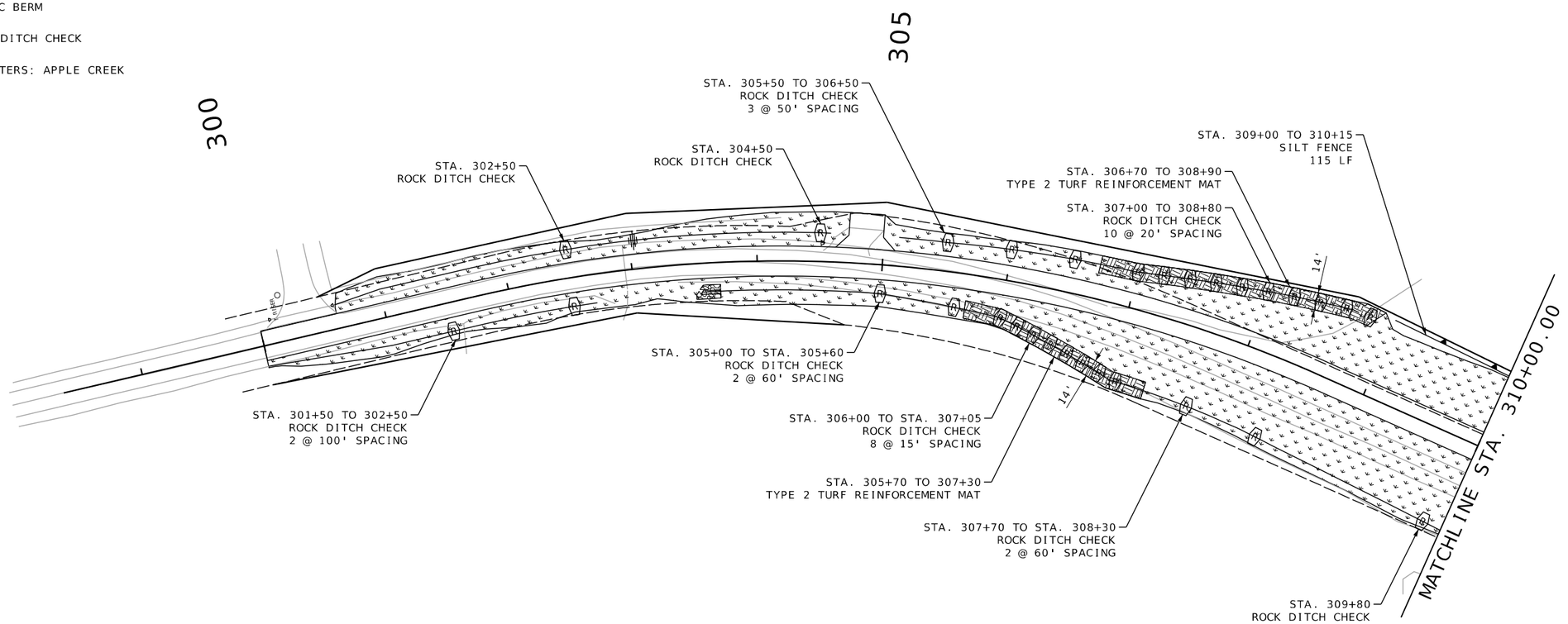
MISSOURI DESIGN FIRM PE-001166

TEMPORARY EROSION CONTROL LEGEND

- SILT FENCE
- 2' TYPE 2 ROCK BLANKET W/PERMANENT EROSION CONTROL GEOTEXTILE
- TYPE 2 TURF REINFORCEMENT MAT
- SEEDING AND MULCHING
- TYPE C BERM
- (R) ROCK DITCH CHECK

PRIMARY RECEIVING WATERS: APPLE CREEK

SCALE
0 50 100 150



EROSION CONTROL SHEETS
SHEET 1 OF 2

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER
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ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
SE	17

COUNTY
PERRY

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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Collinsville, IL 62234
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Belleville, IL 62220
618.416.4888

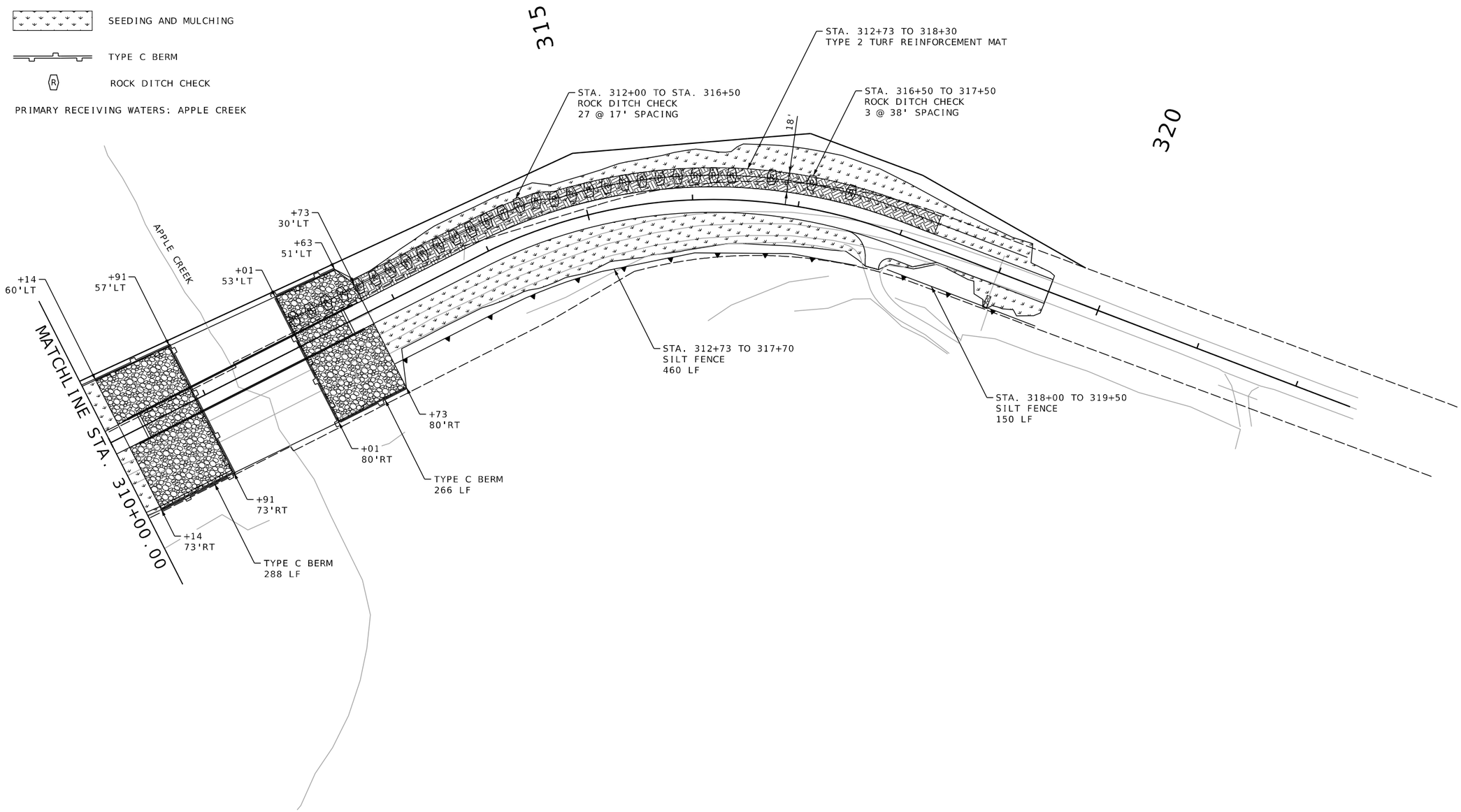
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TEMPORARY EROSION CONTROL LEGEND

- SILT FENCE
- 2' TYPE 2 ROCK BLANKET W/PERMANENT EROSION CONTROL GEOTEXTILE
- TYPE 2 TURF REINFORCEMENT MAT
- SEEDING AND MULCHING
- TYPE C BERM
- (R) ROCK DITCH CHECK

PRIMARY RECEIVING WATERS: APPLE CREEK

SCALE
0 50 100 150



EROSION CONTROL SHEETS
SHEET 2 OF 2

STATE OF MISSOURI
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DISTRICT	SHEET NO.
SE	18

COUNTY
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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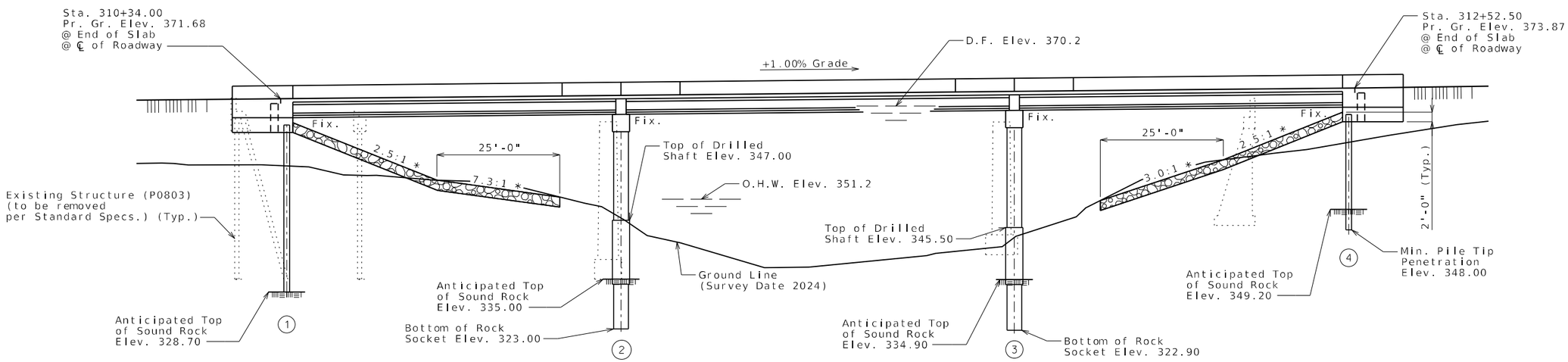
Belleville
1 South Church, Suite 200
Belleville, IL 62220
618.345.2200

St. Charles
820 South Main, Suite 399
St. Charles, MO 63301
636.493.1077

www.oatesassociates.com

SEC/SUR 4 TWP 33N RGE 13E

(68'-80'-68') PRESTRESSED CONCRETE NU-GIRDER SPANS



GENERAL ELEVATION

℄ 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. 30 thru 34 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

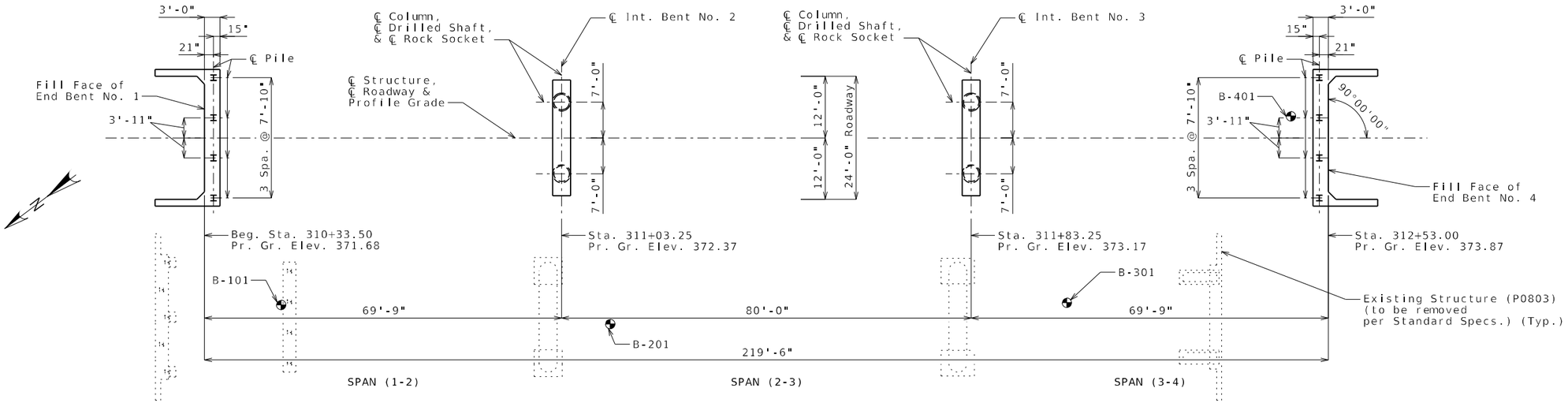
The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those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

* 2'-0" Type 2 Rock Blanket with Permanent Erosion Control Geotextile (Roadway Item)

Notes:

For General Notes, Foundation Data, Estimated Quantities, Estimated Quantities for Slab on Concrete NU-Girder, 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.



PLAN

TBM #11 - RR SPIKE AT GROUND LEVEL IN THE EAST SIDE OF A POWER POLE, 50 FEET ± NORTH OF THE NORTH END OF THE BRIDGE OVER APPLE CREEK AND 75 FEET ± WEST OF THE CENTERLINE OF STATE HIGHWAY C.
STA. 309+79.10, 96.1' RT
ELEV 356.29

BRIDGE: ROUTE C OVER APPLE CREEK

ROUTE C FROM ROUTE A TO ROUTE CC
ABOUT 2.7 MILES SOUTH OF ROUTE A
BEGINNING STATION 310+33.50

Designed Feb. 2025
Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	1

COUNTY PERRY
JOB NO. JSE0056
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9410

DESCRIPTION | DATE

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

MODJESKI and MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

Estimated Quantities

Item		Substr.	Superstr.	Total
Removal of Bridges (P0803)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		107	107
Drilled Shafts (3 ft. 6 in. Dia.)	linear foot	45.2		45.2
Rock Sockets (3 ft. 0 in. Dia.)	linear foot	48.0		48.0
Video Camera Inspection	each	4		4
Foundation Inspection Holes	linear foot	88.0		88.0
Sonic Logging Testing	each	4		4
Galvanized Structural Steel Piles (14 in.)	linear foot	228		228
Pre-Bore for Piling	linear foot	112		112
Pile Point Reinforcement	each	8		8
Class B Concrete (Substructure)	cu. yard	64.6		64.6
Type H Barrier	linear foot		478	478
Slab on Concrete NU-Girder	sq. yard		648	648
NU 35, Prestressed Concrete NU-Girder	linear foot		647	647
Reinforcing Steel (Bridges)	pound	31220		31220
Slab Drain	each		10	10
Vertical Drain at End Bents	each			2
Plain Neoprene Bearing Pad	each		18	18

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

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

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 NU-Girder.

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

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

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

General Notes:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd Ed.)
Seismic Design Category = C (Seismic Details)
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.248g
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.402g

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

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-2 Concrete (Drilled Shafts & Rock Sockets)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Girders and Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Reinforcing Steel (ASTM A706 Grade 60)	fy = 60,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50)	fy = 50,000 psi

For precast prestressed panel stresses, see Sheet No. 19.
For prestressed girder stresses, see Sheets No. 14 thru 17.

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:
Traffic to be maintained on existing structure during construction. See roadway plans for traffic control.

Miscellaneous:
MoDOT Construction personnel will indicate the type of joint filler option used under the precast panels for this structure:
□ Constant Joint Filler
□ Variable Joint Filler

Foundation Data

Type	Design Data		Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		HP 14x73	-	-	HP 14x73
	Number	ea	4	-	-	4
	Approximate Length Per Each	ft	37	-	-	20
	Pile Point Reinforcement	ea	All	-	-	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	-	-	Full Length
	Minimum Tip Penetration (Elev.)	ft	343	-	-	348
	Criteria for Min. Tip Penetration		Min. Embed	-	-	Min. Embed
	Pile Driving Verification Method	ft	DF	-	-	DF
	Resistance Factor		0.4	-	-	0.4
	Minimum Nominal Axial Compressive Resistance	kip	494	-	-	494
Rock Socket	Number	ea	-	2	2	-
	Foundation Material		-	Limestone	Dolomite/ Limestone	-
	Elevation Range	ft	-	334-320	334-320	-
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	-	14.7	14.7	-
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf	-	-	-	-

DF = FHWA-modified Gates Dynamic Formula

Rock Socket (Drilled Shafts):
Minimum Nominal Axial Compressive Resistance = $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factor}}$
(Side Resistance + Tip Resistance)

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

Prebore for piles at Bents No. 1 and 4 to elevations 356.00 and 348.00, respectively.

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 reinforement.

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 nessesary corrections to ensure the minumum penetration is achieved on subsequent piles.

Estimated Quantities for Slab on Concrete NU-Girder

Item		Total
Class B-2 Concrete	cu. yard	184
Reinforcing Steel (Epoxy Coated)	pound	49250

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

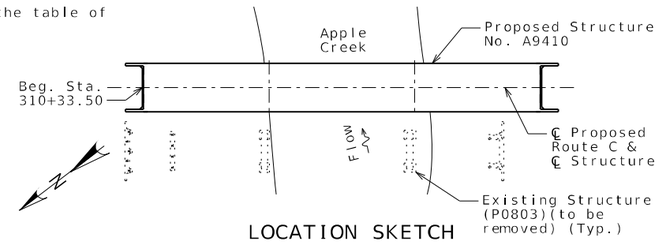
Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

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

The prestressed panel quantities are not included in the table of Estimated Quanities for Slab and Concrete NU-Girder.

Hydrologic Data

Drainage Area = 170 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 26300 cfs
Design Flood (D.F.) Elevation = 370.2
Base Flood (100-year)
Base Flood Elevation = 372.4
Base Flood Discharge = 30600 cfs
Estimated Backwater = 1.6 ft
Average Velocity thru Opening = 9.3 ft/s
Freeboard (50-year)
Freeboard = -1.1 ft
Roadway Overtopping
Overtopping Flood Discharge = 32700
Overtopping Flood Frequency = 180 years
500-year Flood Elevation = 377.2



LOCATION SKETCH

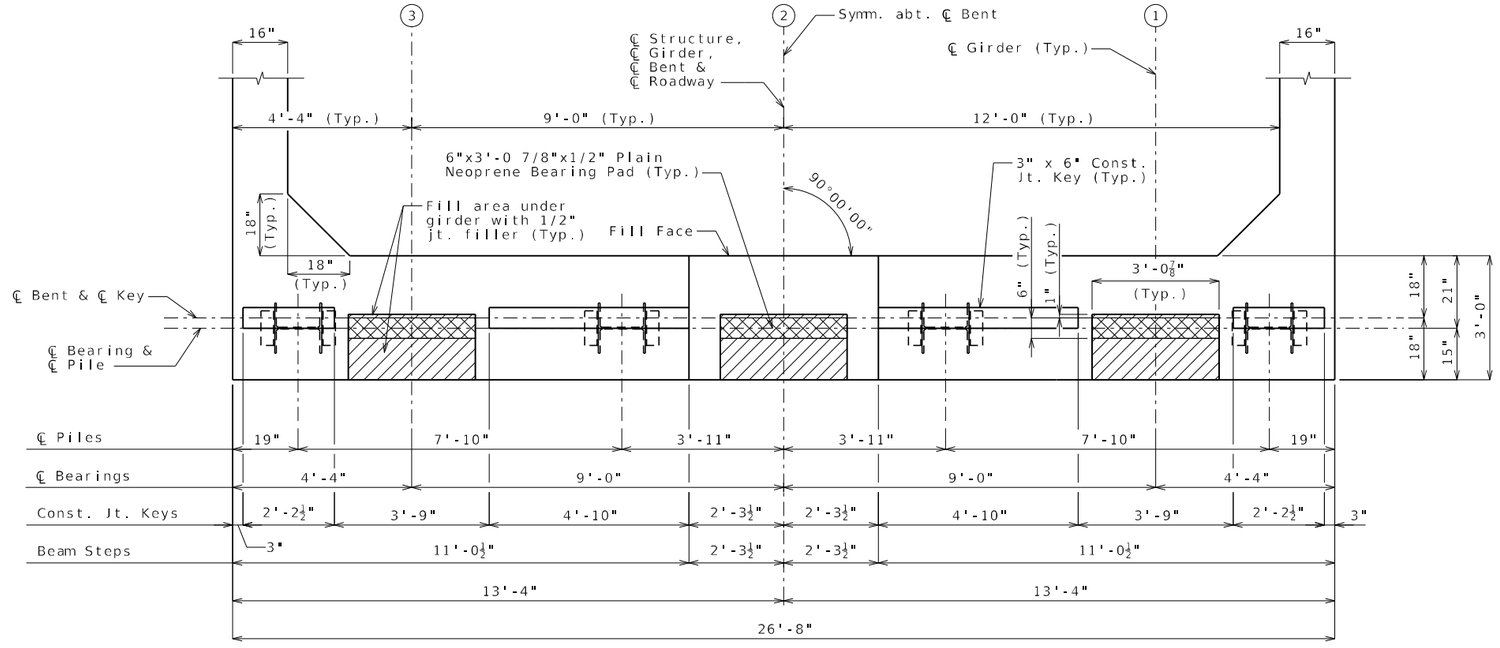
STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25
ROUTE C | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY PERRY
JOB NO. JSE0056
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9410

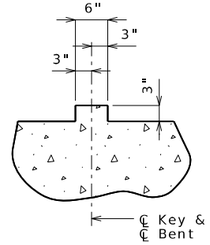
DESCRIPTION	DATE

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

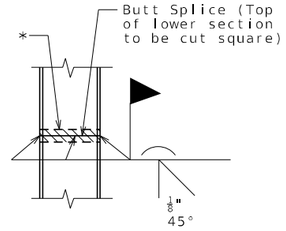
MODJESKI and MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



PLAN OF BEAM



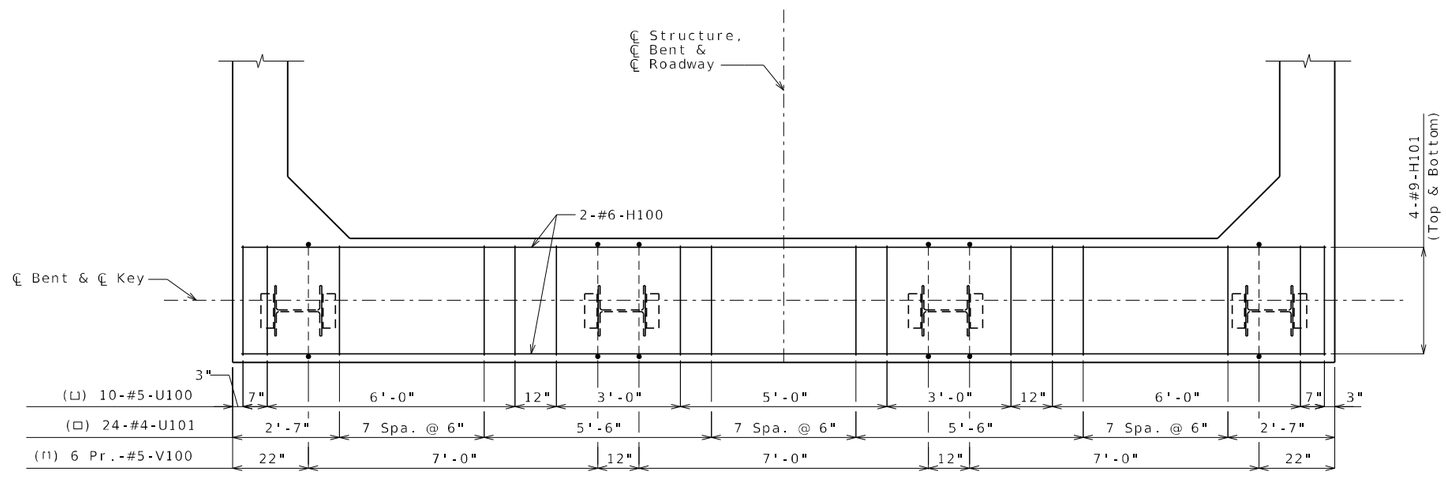
SECTION THRU KEY



STEEL PILE SPLICE

(If required)

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



PLAN OF BEAM SHOWING REINFORCEMENT

Keys not shown for clarity.

NOTES:

Work this sheet with Sheets No. 4 & 5.

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

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

Substructure Quantity Table for Bent No. 1

Item		Quantity
Galvanized Structural Steel Pile (14 in.)	linear foot	148
Pre-Bore for Piling	linear foot	36
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	10.8

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

DETAILS OF END BENT NO. 1

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
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DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	3

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

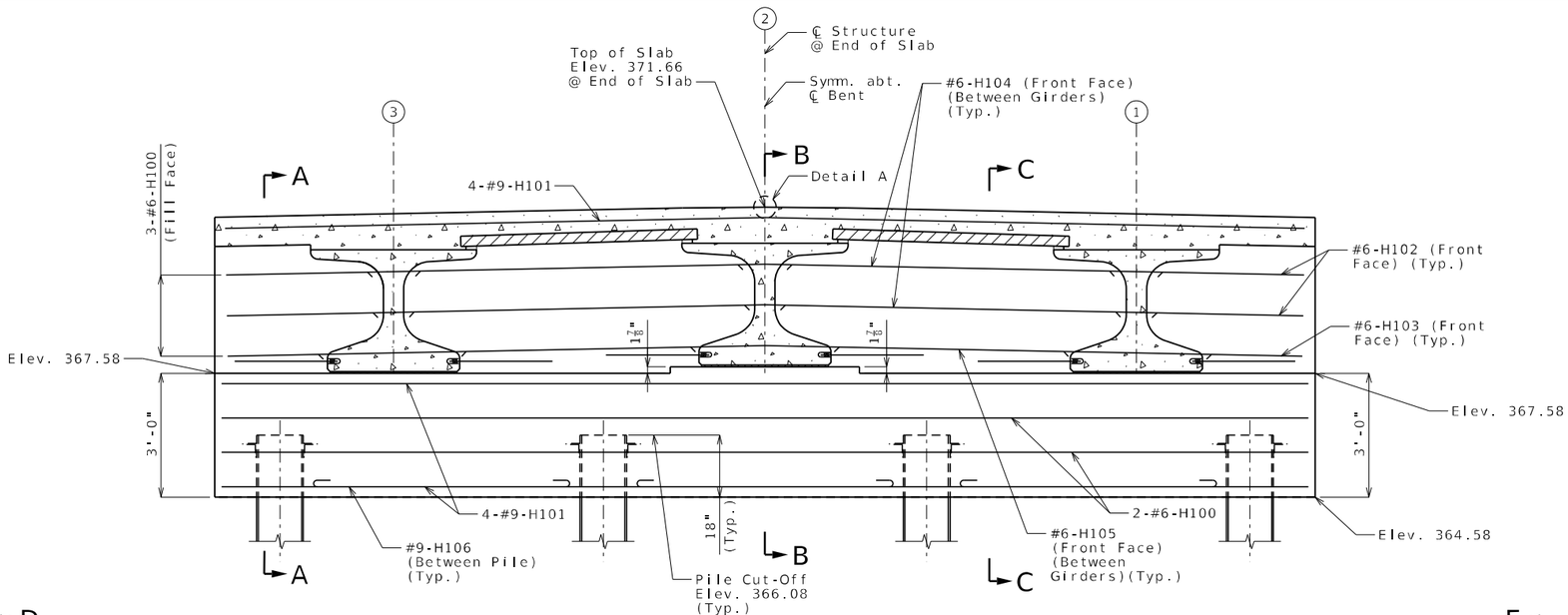
PROJECT NO.

BRIDGE NO. A9410

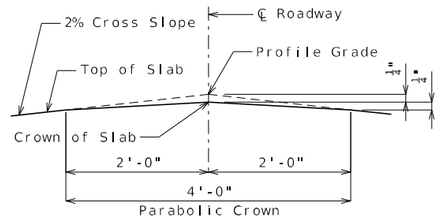
DESCRIPTION | DATE

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

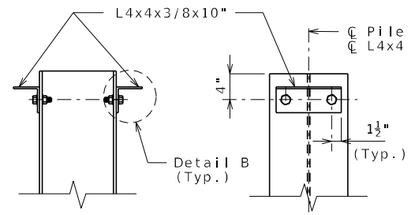
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333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



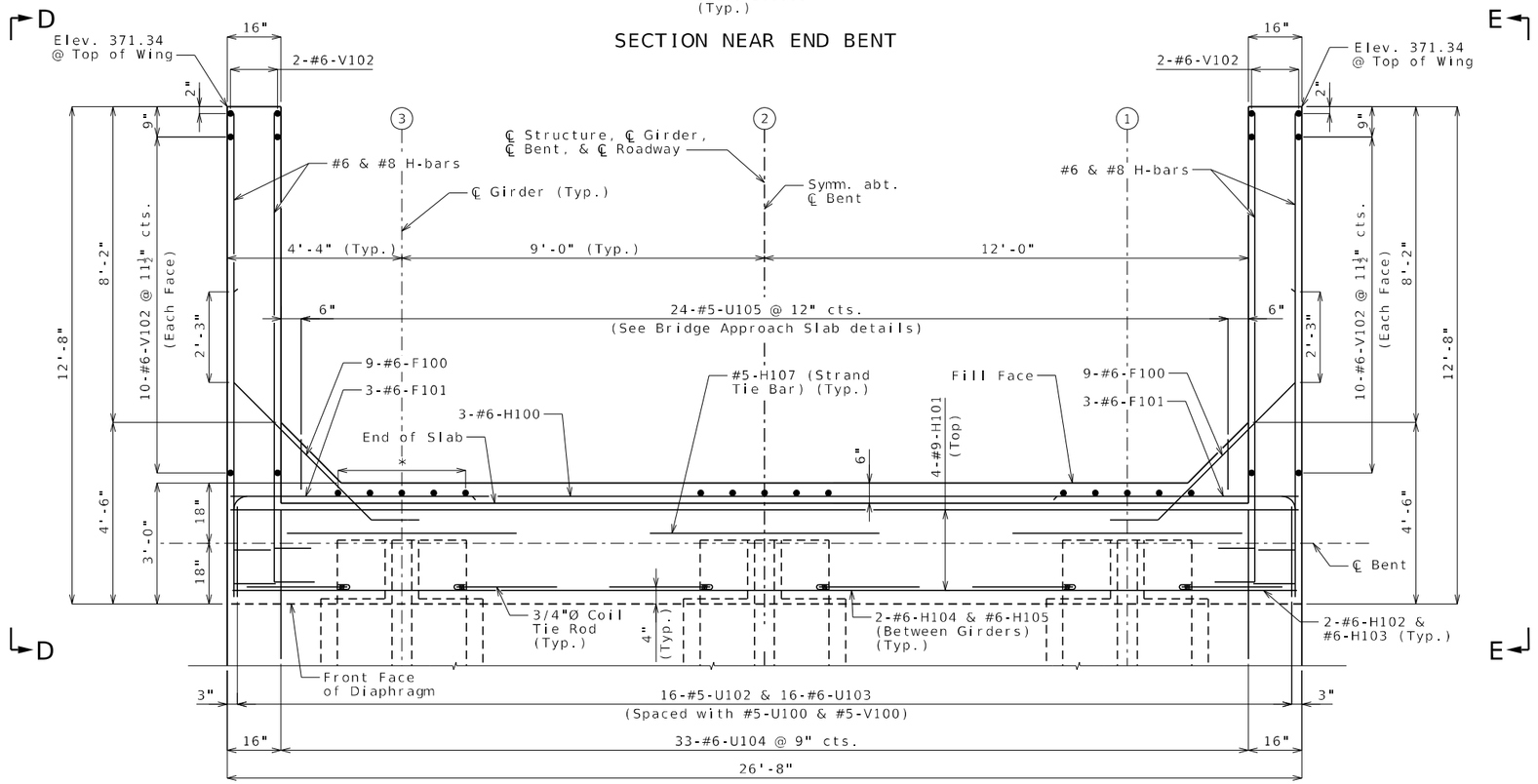
SECTION NEAR END BENT



DETAIL A



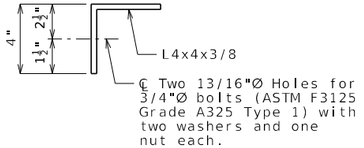
DETAILS OF HP PILE ANCHORS



PART PLAN

∗ 5-#6-V101 @ 9" cts. (Each Girder) (Typ.)

DETAILS OF END BENT NO. 1



DETAIL B

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

NOTES:

Work this sheet with Sheets No. 3 & 5.

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

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

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

Strands at end of girders 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-H107 (strand tie bar), see Sheet No. 14 & 15.

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

For details of bridge approach slab, see Sheet No. 26.

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	4

COUNTY: PERRY
JOB NO.: JSE0056
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9410

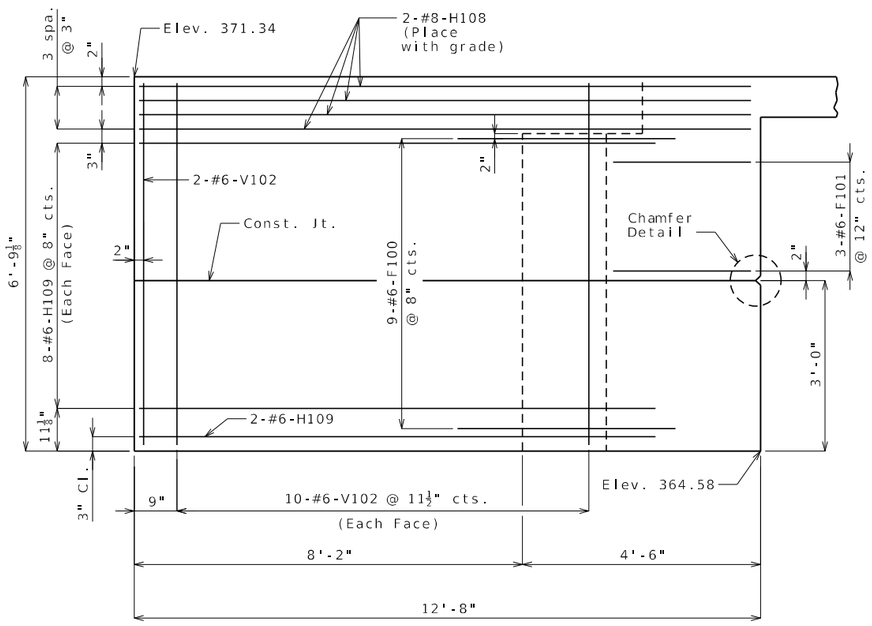
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT
MODJESKI and MASTERS
333 SOUTH 18TH STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

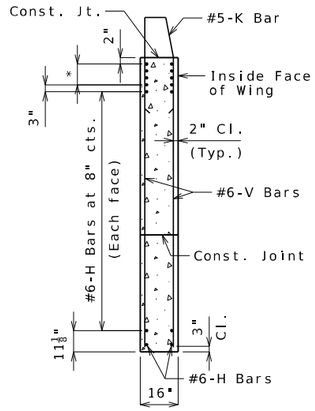
Detailed Feb. 2025
Checked Apr. 2025

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

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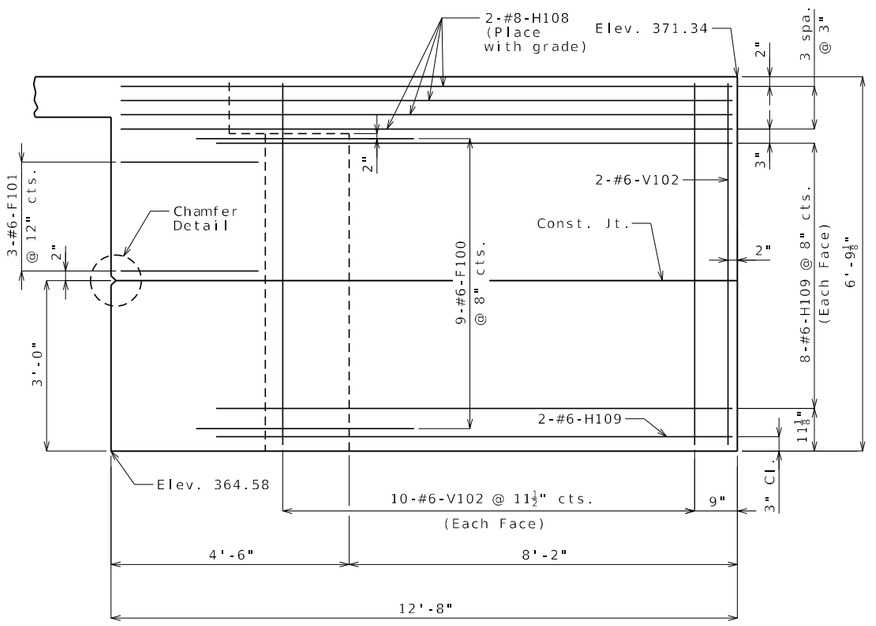


ELEVATION D-D

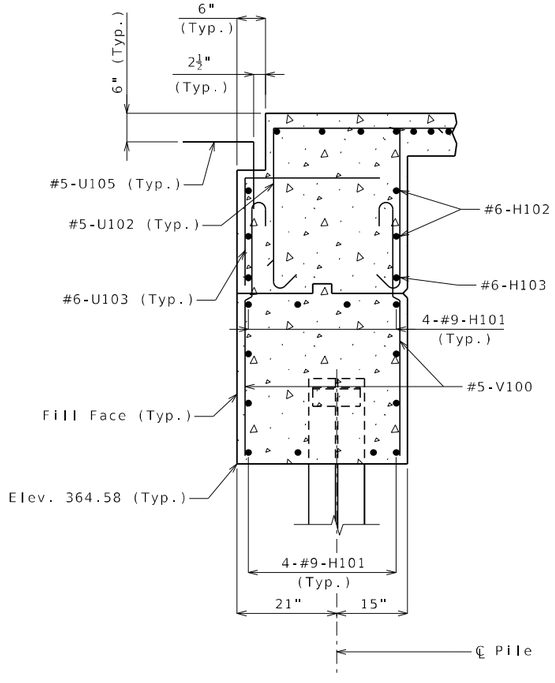


TYPICAL SECTION THRU WING

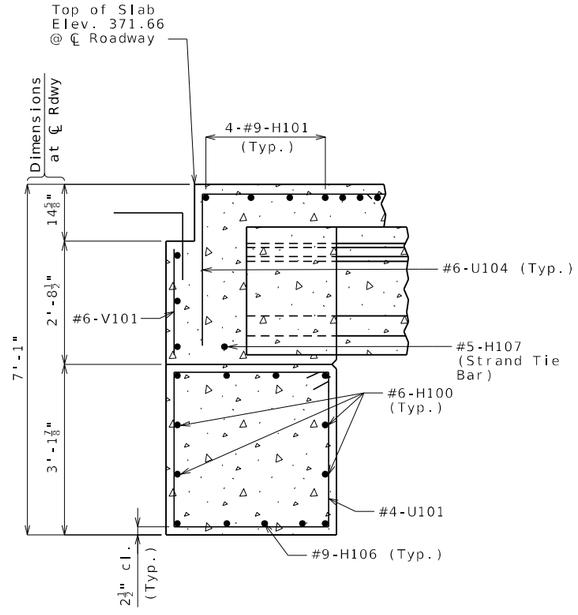
* #8-H Bars at 3" cts. (Each face)(Place with grade)



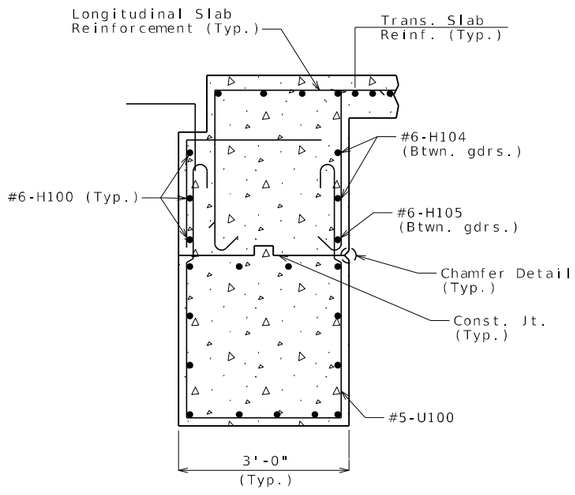
ELEVATION E-E



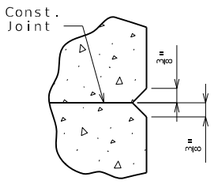
SECTION A-A



SECTION B-B



SECTION C-C



CHAMFER DETAIL

DETAILS OF END BENT NO. 1

Notes:

Work this sheet with Sheets No. 3 & 4.

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

For reinforcement of barrier, see Sheet No. 25.

Detailed Feb. 2025
Checked Apr. 2025

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

Sheet No. 5 of 34

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER

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

DATE PREPARED	
5/1/25	
ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	5

COUNTY: PERRY

JOB NO.: JSE0056

CONTRACT ID.:

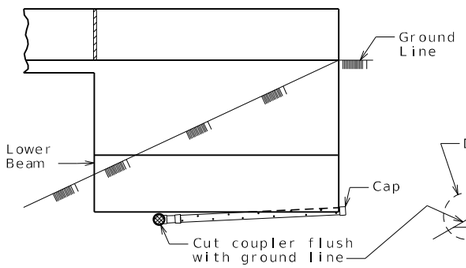
PROJECT NO.:

BRIDGE NO.: A9410

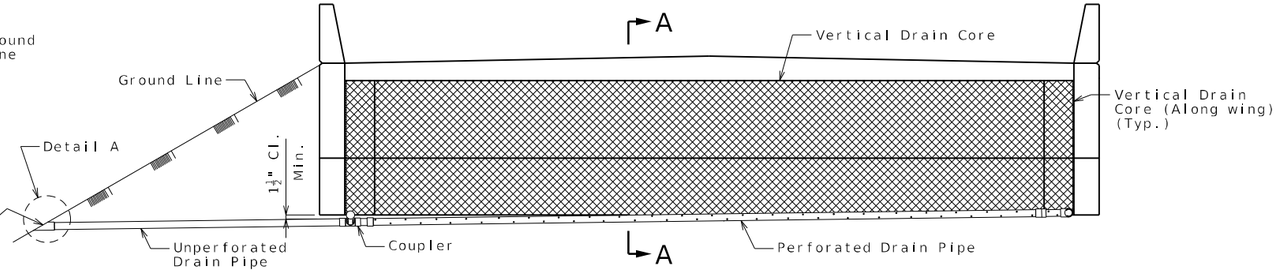
DESCRIPTION	DATE

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

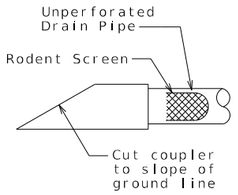
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ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



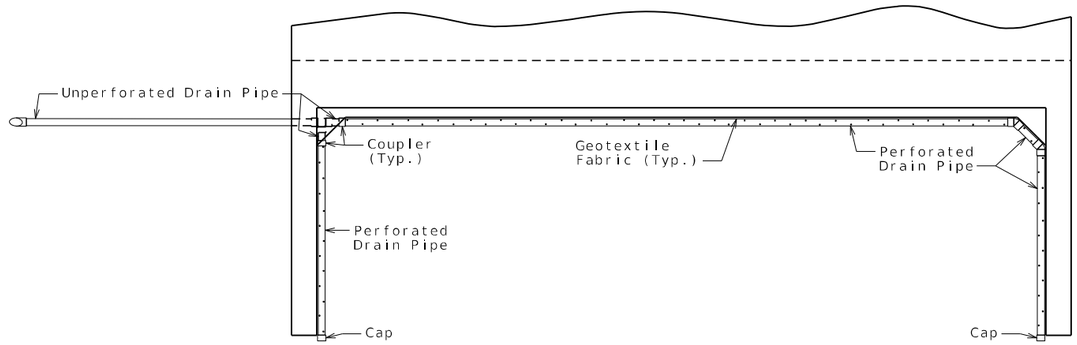
ELEVATION OF WING



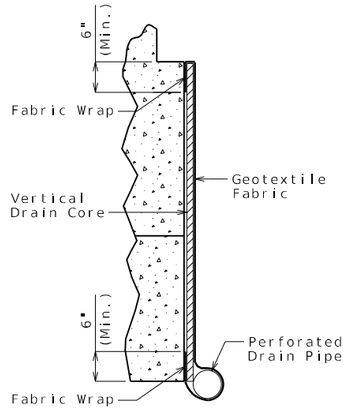
ELEVATION OF END BENT



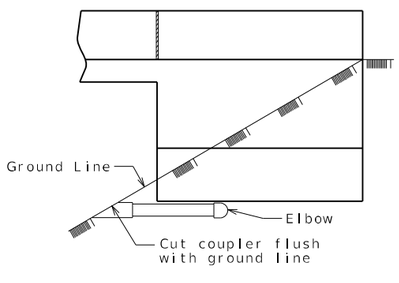
DETAIL A



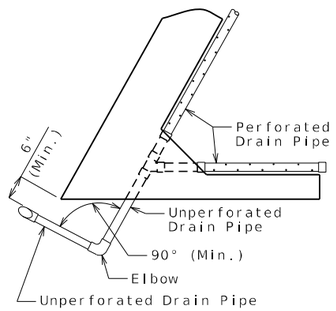
PLAN OF END BENT



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 Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO

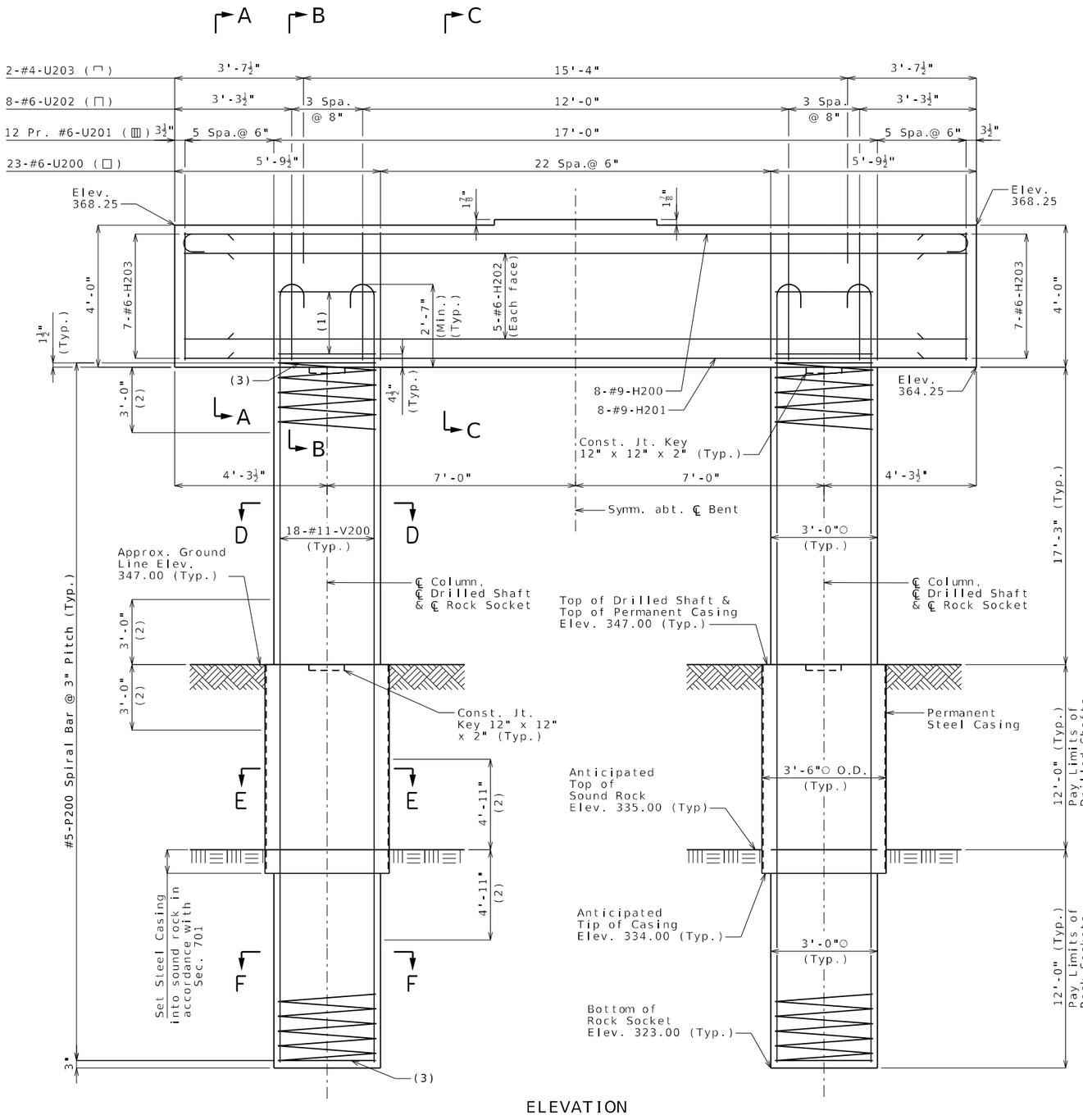
DISTRICT	SHEET NO.
BR	6

COUNTY: PERRY
JOB NO.: JSE0056
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9410

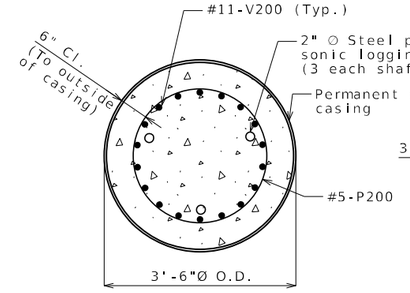
DESCRIPTION	DATE

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

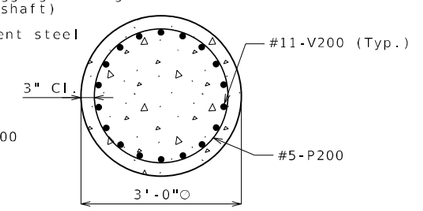
MODJESKI and MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



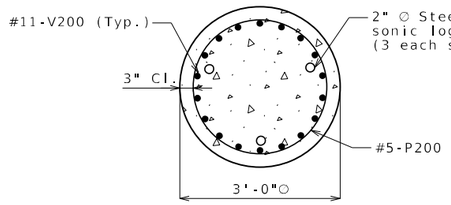
ELEVATION



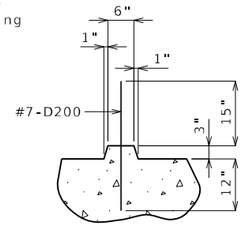
SECTION E-E
(DRILLED SHAFT)



SECTION D-D
(COLUMN)



SECTION F-F
(ROCK SOCKET)



SECTION THRU KEY

(1) 9-#5 P201 seismic stirrup bars @ 3" cts. (Typ.)

(2) Lapping of spiral and vertical reinforcement in this region is not permitted (Typ.)

(3) Anchorage of spiral reinforcement shall be provided by 1 1/2 extra turns of spiral reinforcement at end of the spiral unit (Typ.)

Substructure Quantity Table for Bent No. 2

Item		Quantity
Drilled Shafts (3 ft. 6 in. Dia.)	linear foot	24.0
Rock Sockets (3 ft. 0 in. Dia.)	linear foot	24.0
Video Camera Inspection	each	2
Foundation Inspection Holes	linear foot	44.0
Sonic Logging Testing	each	2
Class B Concrete (Substructure)	cu. yard	20.9
Reinforcing Steel (Bridges)	pound	15490

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

All reinforcement in drilled shafts and rock sockets is included in the Substructure Quantities.

Notes:

Work this sheet with Sheet No. 8.

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

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

An additional 4 feet has been added to V-bar lengths and an additional 4 feet of P202 Spirals has been added for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off if not required. The additional spiral length shall be cut off if not required.

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

The cost of any required excavation to the top of the drilled shafts will be considered completely covered by the contract unit price for other items.

The tip of casing shall not extend into the rock socket elevation range reported in the Foundation Data table without approval by the engineer.

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	7

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

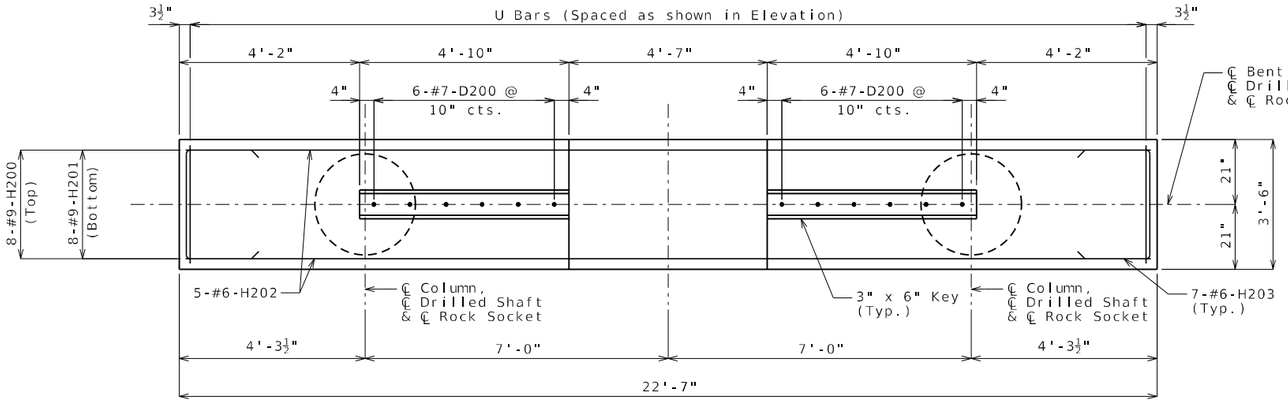
PROJECT NO.

BRIDGE NO. A9410

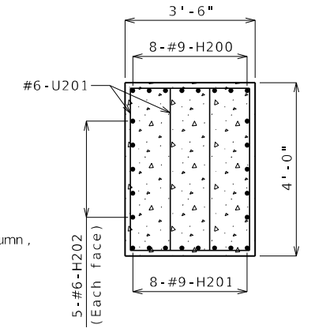
DESCRIPTION | DATE

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

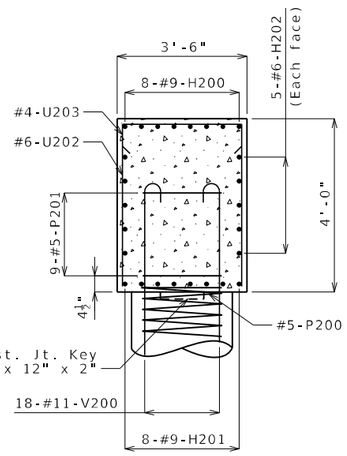
MODJESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



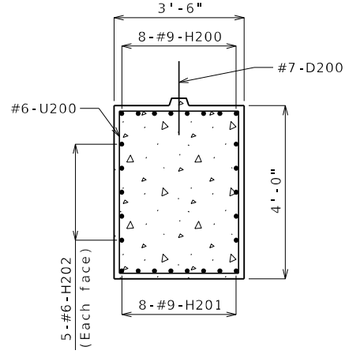
PLAN OF BEAM SHOWING REINFORCEMENT



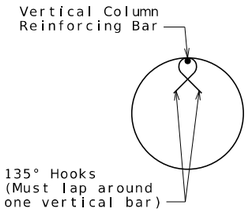
SECTION A-A



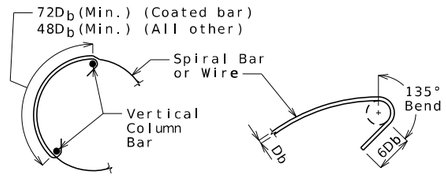
SECTION B-B



SECTION C-C

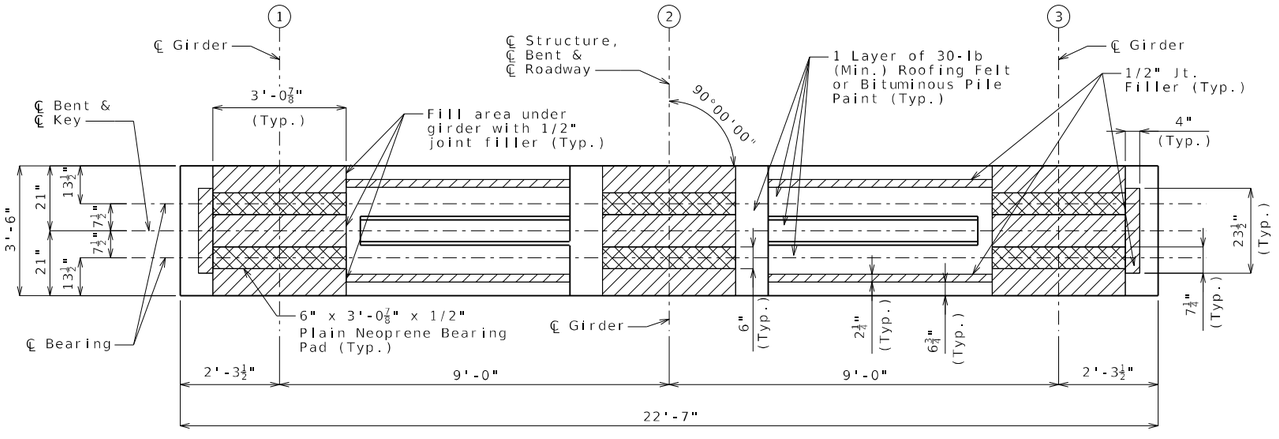


SEISMIC STIRRUP BAR



INTERMEDIATE SPLICE OF SPIRALS

Standard 135-degree tie hooks that engage vertical column reinforcing bars shall be provided at each end of splice.



PLAN OF BEAM

DETAILS OF INTERMEDIATE BENT NO. 2

Notes:

Work this sheet with Sheet No. 7.

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER

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

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	8

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

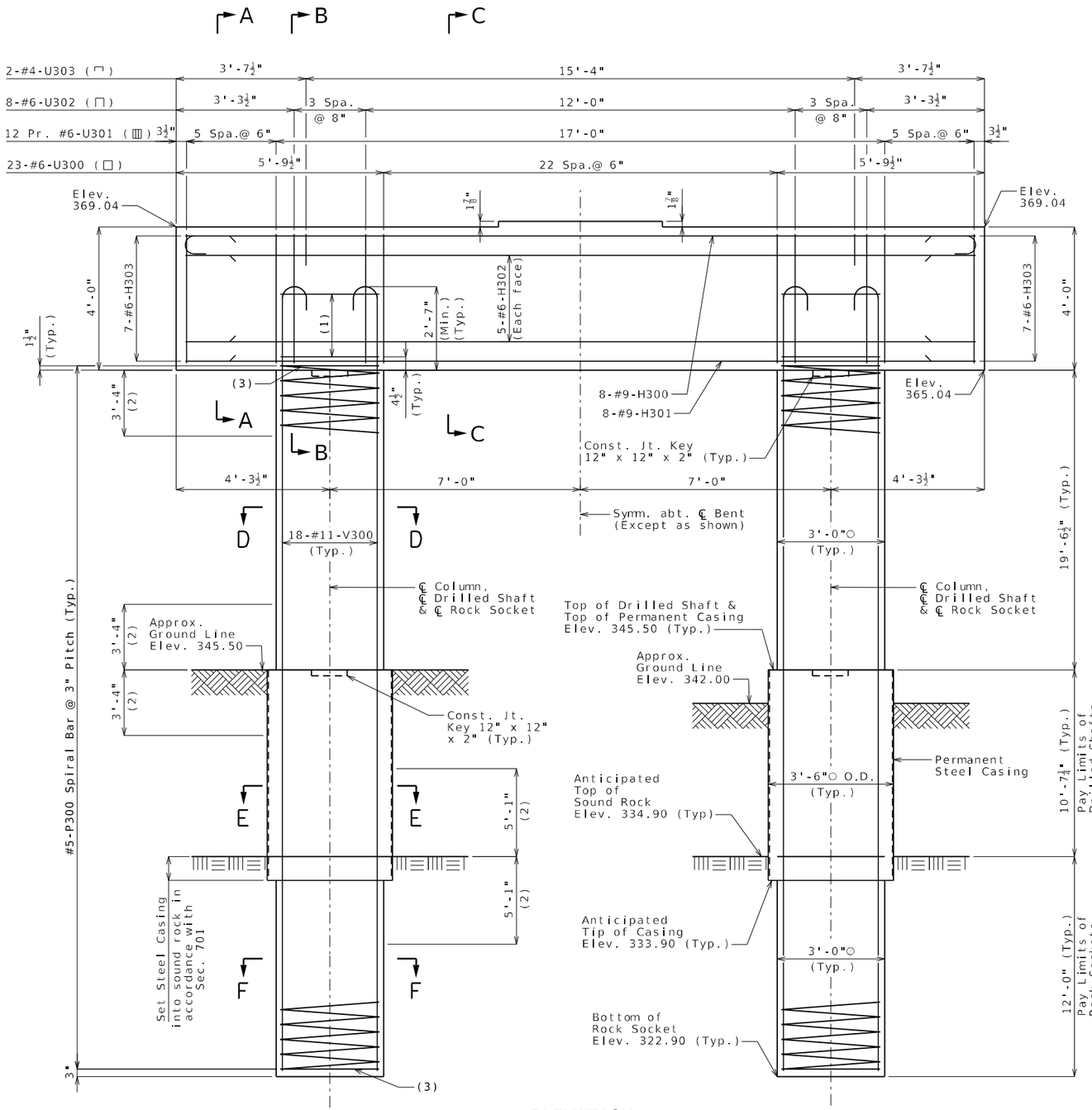
PROJECT NO.

BRIDGE NO. A9410

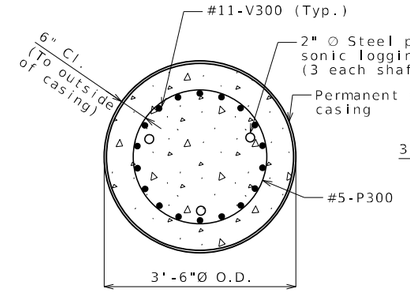
DESCRIPTION	DATE

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

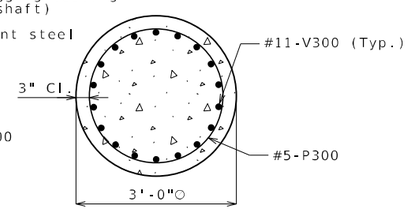
MODJESKI and MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



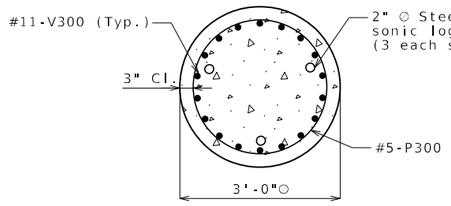
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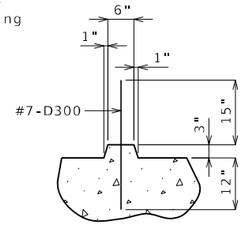
SECTION E-E
(DRILLED SHAFT)



SECTION D-D
(COLUMN)



SECTION F-F
(ROCK SOCKET)



SECTION THRU KEY

(1) 9-#5 P301 seismic stirrup bars @ 3" cts. (Typ.)

(2) Lapping of spiral and vertical reinforcement in this region is not permitted (Typ.)

(3) Anchorage of spiral reinforcement shall be provided by 1 1/2 extra turns of spiral reinforcement at end of the spiral unit (Typ.)

Substructure Quantity Table for Bent No. 3		
Item		Quantity
Drilled Shafts (3 ft. 6 in. Dia.)	linear foot	21.2
Rock Sockets (3 ft. 0 in. Dia.)	linear foot	24.0
Video Camera Inspection	each	2
Foundation Inspection Holes	linear foot	44.0
Sonic Logging Testing	each	2
Class B Concrete (Substructure)	cu. yard	22.1
Reinforcing Steel (Bridges)	pound	15730

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

All reinforcement in drilled shafts and rock sockets is included in the Substructure Quantities.

Notes:

Work this sheet with Sheet No. 10.

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

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

An additional 4 feet has been added to V-bar lengths and an additional 4 feet of P302 Spirals has been added for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off if not required. The additional spiral length shall be cut off if not required.

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

The cost of any required excavation to the top of the drilled shafts will be considered completely covered by the contract unit price for other items.

The tip of casing shall not extend into the rock socket elevation range reported in the Foundation Data table without approval by the engineer.

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

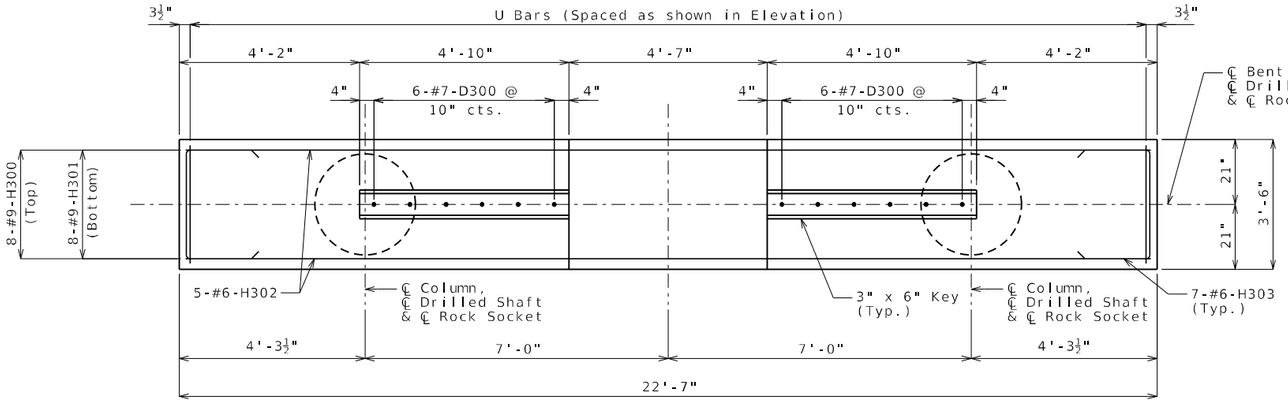
ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	9

COUNTY: PERRY
JOB NO.: JSE0056
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9410

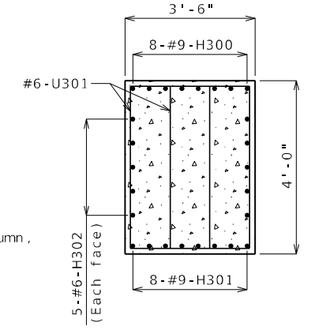
DESCRIPTION | DATE

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

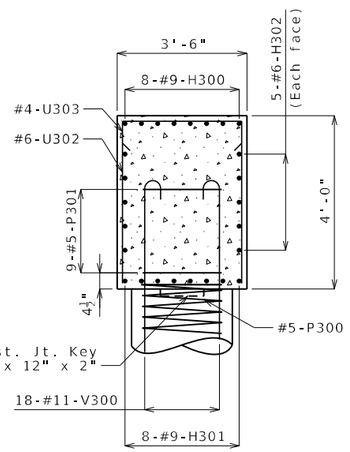
MODESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



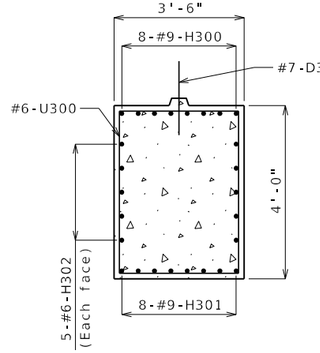
PLAN OF BEAM SHOWING REINFORCEMENT



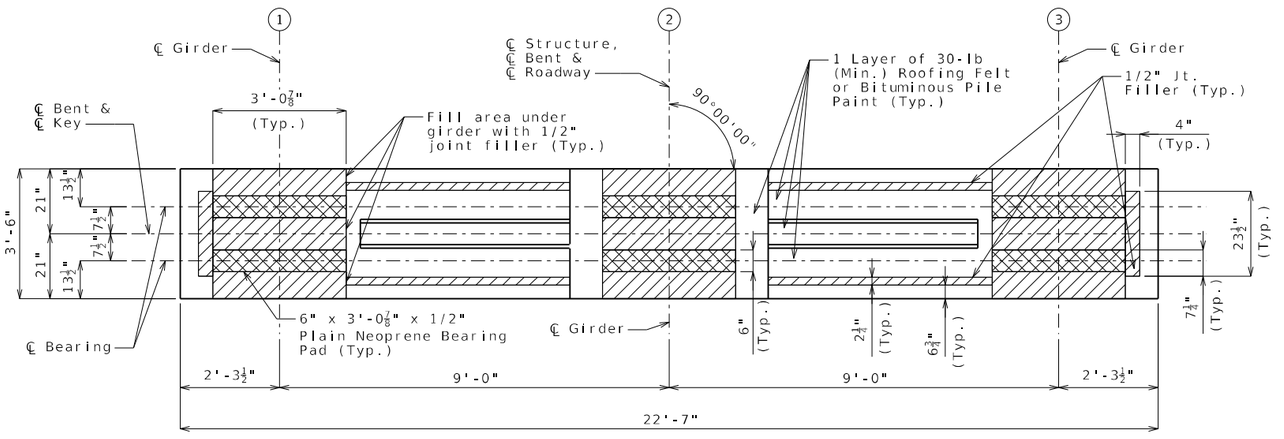
SECTION A-A



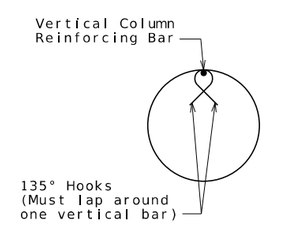
SECTION B-B



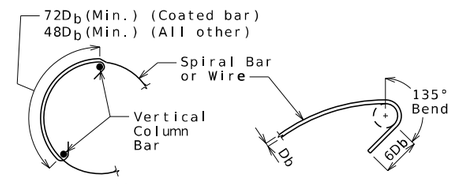
SECTION C-C



PLAN OF BEAM



SEISMIC STIRRUP BAR



INTERMEDIATE SPLICE OF SPIRALS

Standard 135-degree tie hooks that engage vertical column reinforcing bars shall be provided at each end of splice.

Notes:

Work this sheet with Sheet No. 9.

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER

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

DATE PREPARED
5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	10

COUNTY
PERRY

JOB NO.
JSE0056

CONTRACT ID.

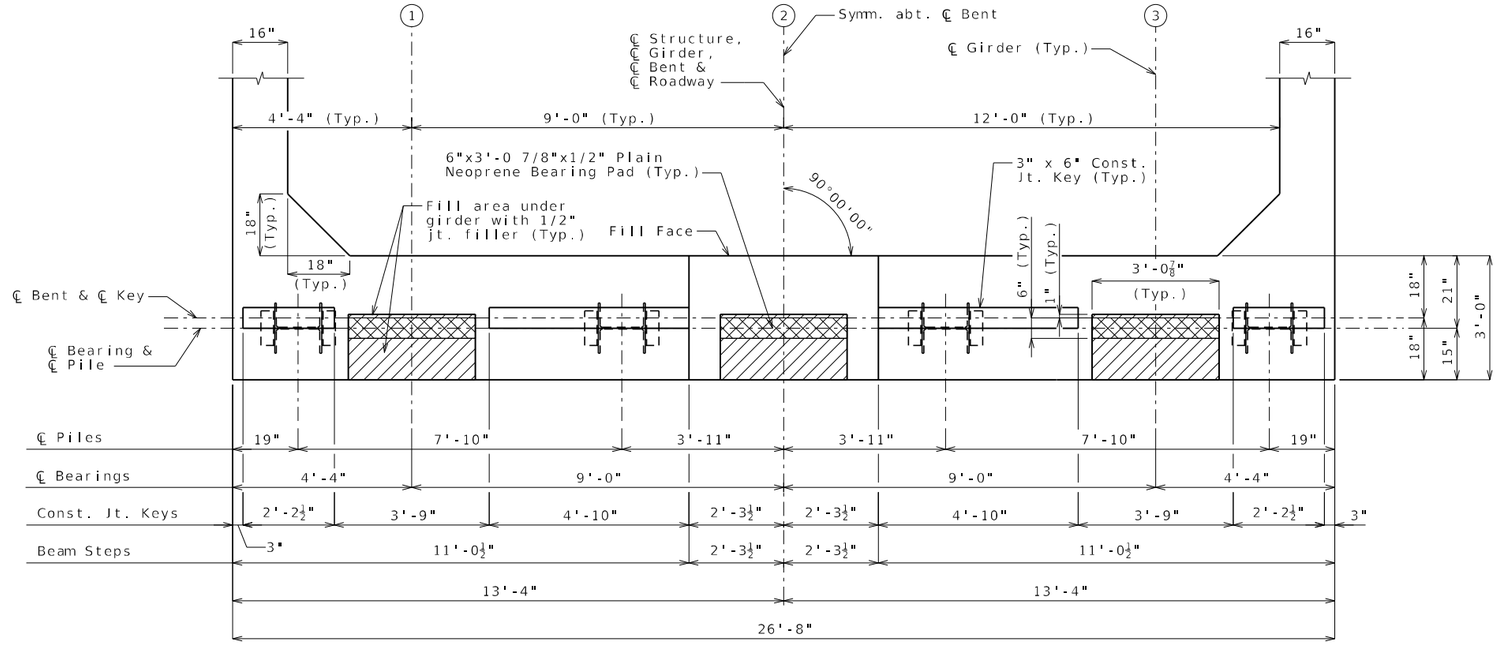
PROJECT NO.

BRIDGE NO.
A9410

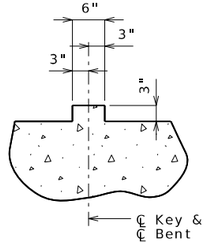
DESCRIPTION	DATE

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

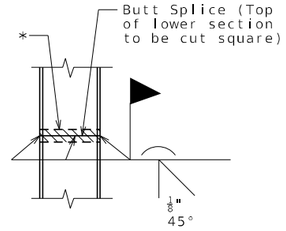
MODJESKI and MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



PLAN OF BEAM



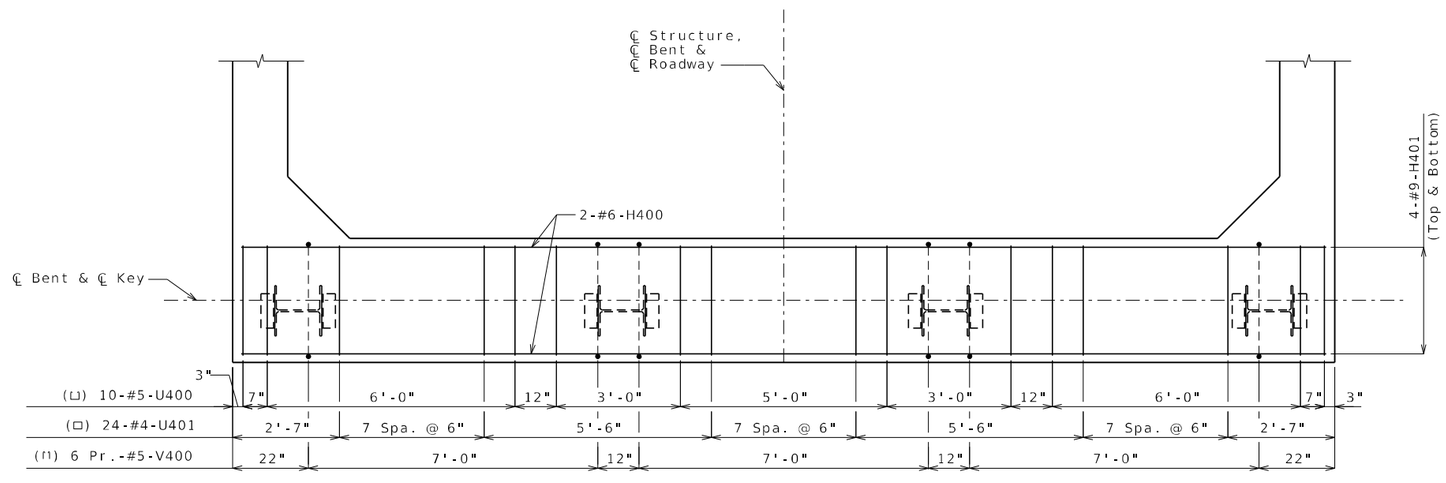
SECTION THRU KEY



STEEL PILE SPLICE

(If required)

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



PLAN OF BEAM SHOWING REINFORCEMENT

Keys not shown for clarity.

NOTES:

Work this sheet with Sheets No. 12 & 13.

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

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

Substructure Quantity Table for Bent No. 4		
Item		Quantity
Galvanized Structural Steel Pile (14 in.)	linear foot	80
Pre-Bore for Piling	linear foot	76
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	10.8

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

DETAILS OF END BENT NO. 4

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	11

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

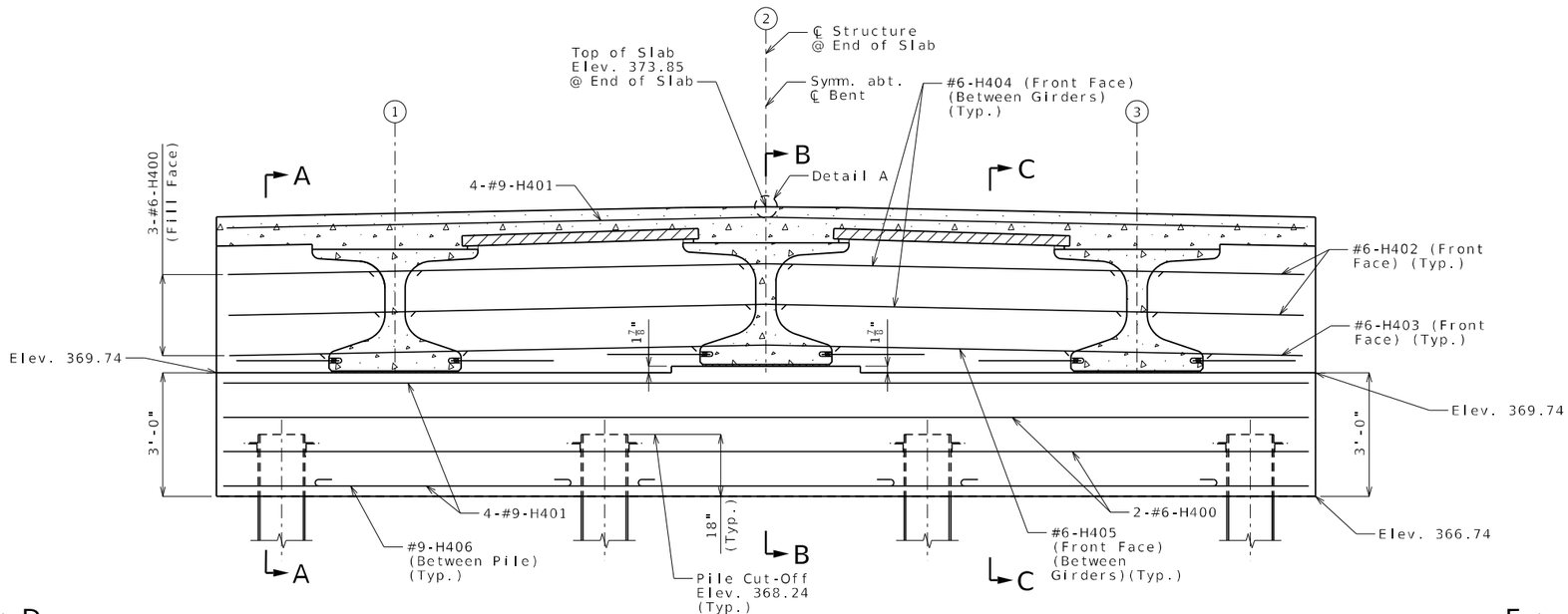
PROJECT NO.

BRIDGE NO. A9410

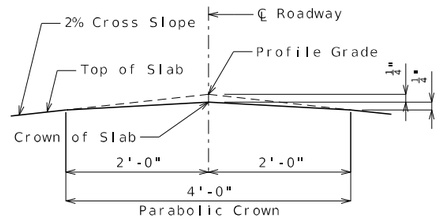
DESCRIPTION	DATE

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

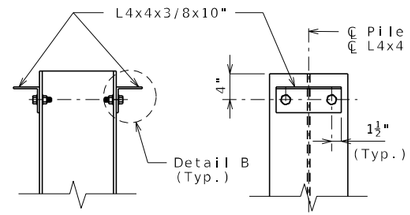
MODJESKI and MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



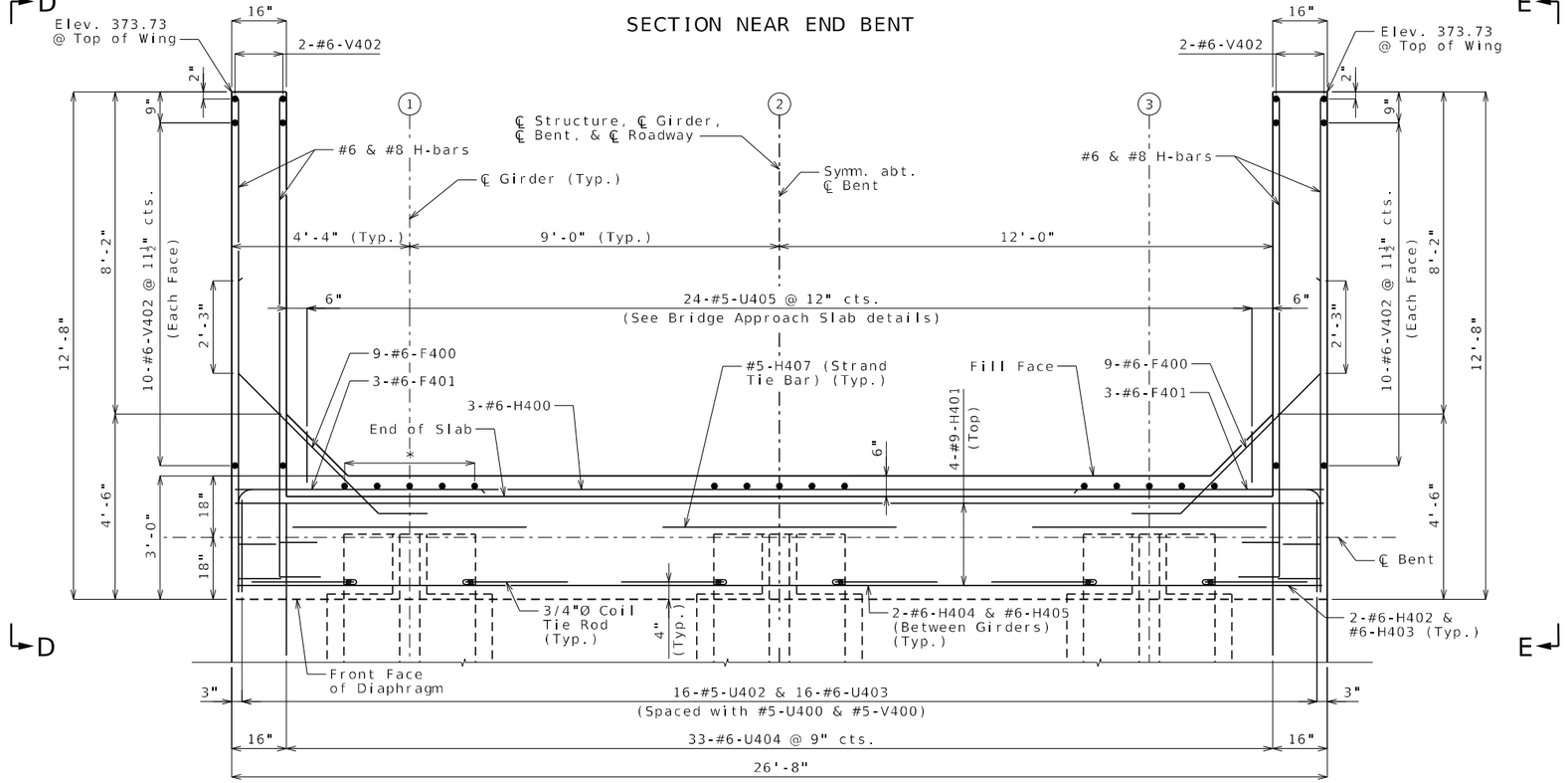
SECTION NEAR END BENT



DETAIL A



DETAILS OF HP PILE ANCHORS



PART PLAN

∗ 5-#6-V401 @ 9" cts. (Each Girder) (Typ.)

DETAILS OF END BENT NO. 4

DETAIL B

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

NOTES:

Work this sheet with Sheets No. 11 & 13.

For Sections A-A, B-B, & C-C and Elevations D-D & E-E, see Sheet No. 13.

The #6-F400 bars shall be bent in the field to clear girders.

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

Strands at end of girders 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-H407 (strand tie bar), see Sheet No. 14 & 15.

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

For details of bridge approach slab, see Sheet No. 26.

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	12

COUNTY: PERRY

JOB NO.: JSE0056

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9410

DESCRIPTION	DATE

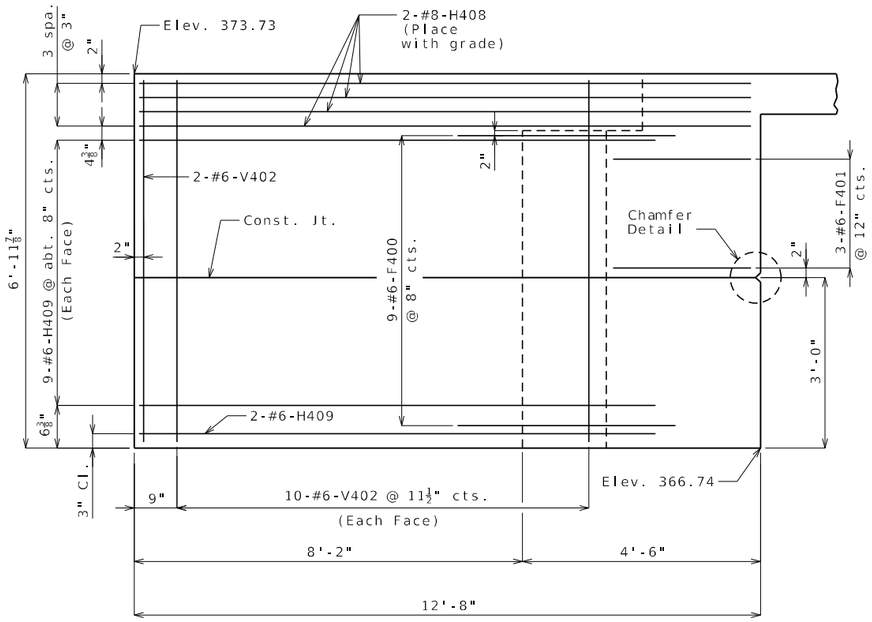
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MODJESKI and MASTERS
333 SOUTH 18TH STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

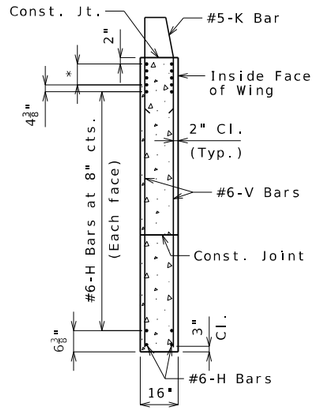
Detailed Feb. 2025
Checked Apr. 2025

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

B_A9410_12_JSE0056_ENDBENT4_2.dgn 4:08:30 PM 4/25/2025

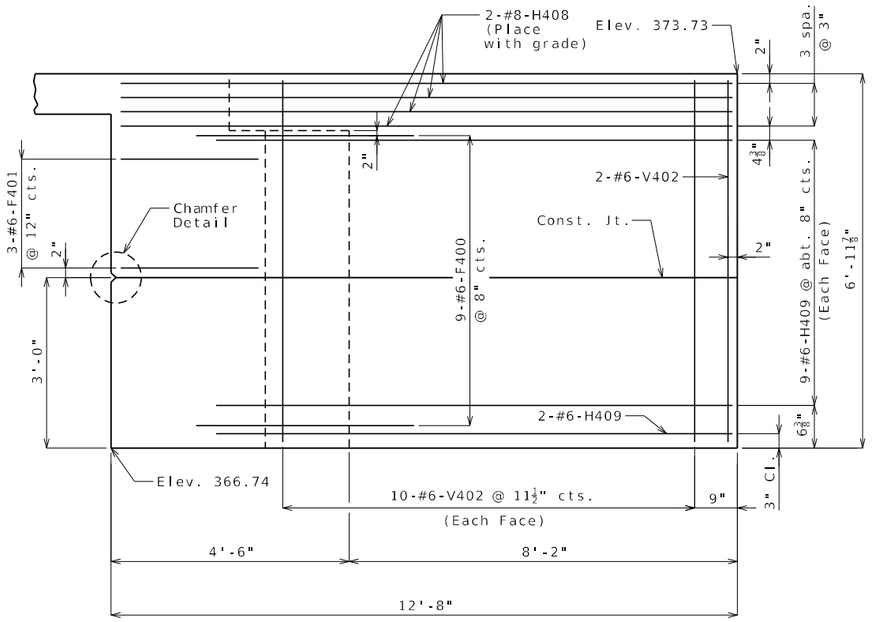


ELEVATION D-D

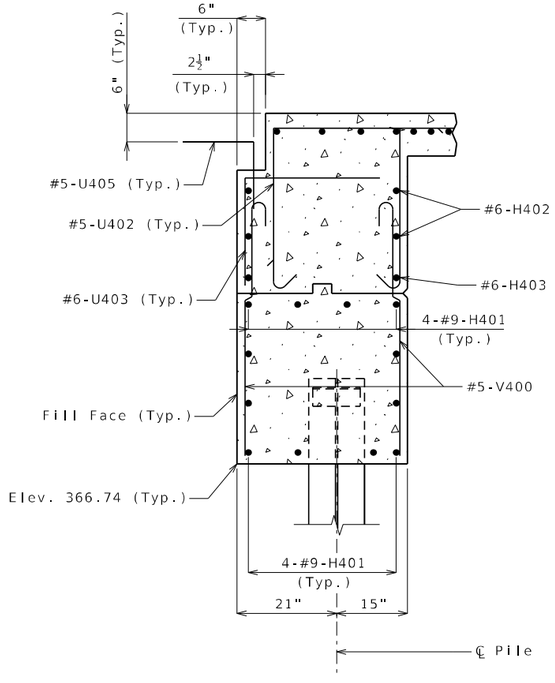


TYPICAL SECTION THRU WING

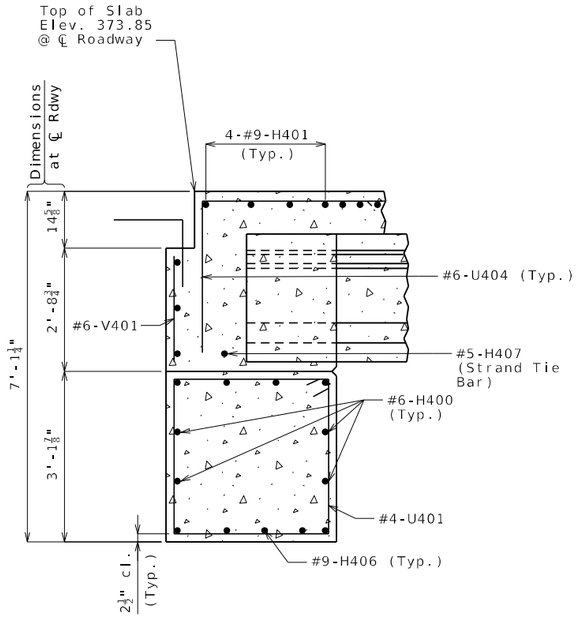
* #8-H Bars at 3" cts. (Each face)(Place with grade)



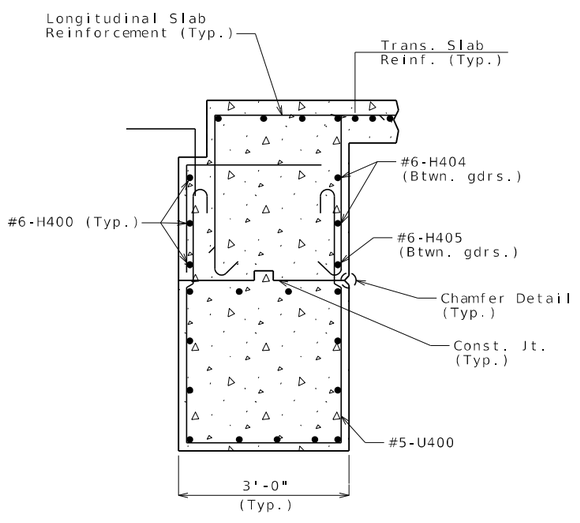
ELEVATION E-E



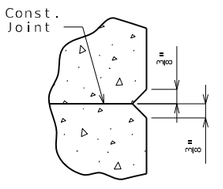
SECTION A-A



SECTION B-B



SECTION C-C



CHAMFER DETAIL

Notes:

Work this sheet with Sheets No. 11 & 12.

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

For reinforcement of barrier, see Sheet No. 25.

DETAILS OF END BENT NO. 4

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	13

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

PROJECT NO.

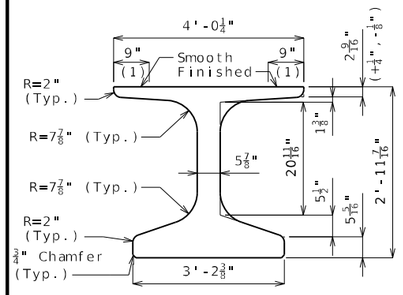
BRIDGE NO. A9410

DESCRIPTION	DATE

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

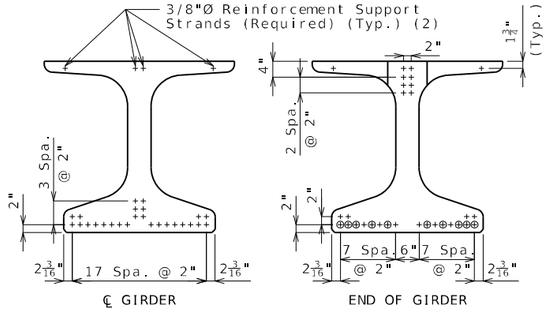
MODIESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

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



DIMENSIONS

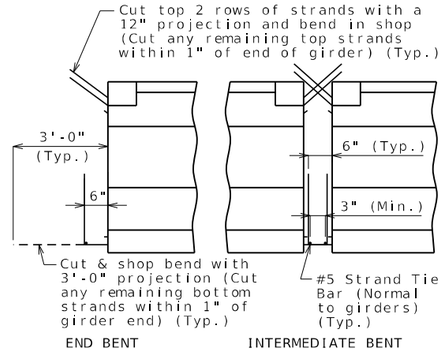
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



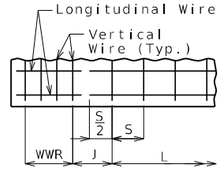
STRAND ARRANGEMENT

\+ Indicates prestressing strand.

o Indicates cut & shop bend with 3'-0" projection.



STRANDS AT GIRDER ENDS



WELDED WIRE PLACEMENT

S = Vertical wire spacing

L = Length of WWR mats

J = Distance between WWR mats

Bill of Reinforcing Steel

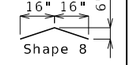
Bars Each Girder

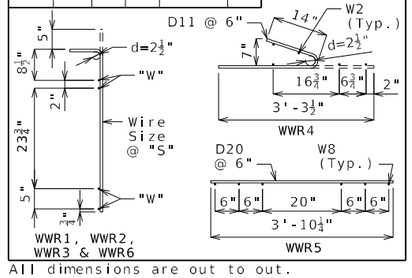
No.	Size/Mark	Length	Shape
90	3 G1	2'-10"	8
2	4 G3	3'-10"	20
2	4 G4	2'-3"	20
2	4 G5	2'-8"	20

Welded Wire Each Girder

Mark	Size	S	W	L	J
WWR1	D22	4"	W9	10'-4"	6½"
WWR2	D22	8"	W9	12'-8"	8"
WWR3	D22	16"	W9	16'-0"	--
WWR6	D31	2"	W12	16"	4"

Bending Diagrams





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.

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

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

All bar reinforcement shall be Grade 60.

WWR shall not be epoxy coated.

G4 and G5 not required for interior girders. G3 not required for exterior girders of intermediate spans. Half no. of G3, G4, and G5 not required for ext. girders of end spans.

General Notes:

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

Use 26 strands, 0.6"Ø Grade 270, with an initial prestress force of 1142 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior girders are the same except: coil ties, top flange blockout, coil inserts for slab drains.

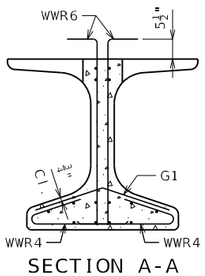
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 21.

For location of coil inserts at slab drains, see Sheet No. 20.

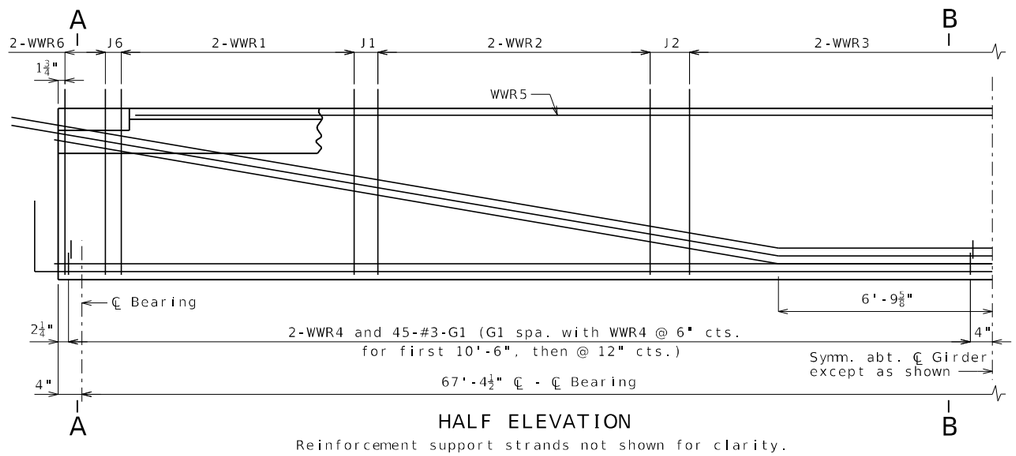
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4, 12 and 18.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.



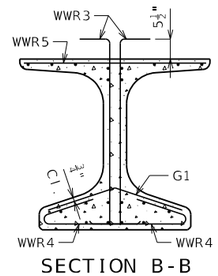
SECTION A-A

Strands not shown for clarity.



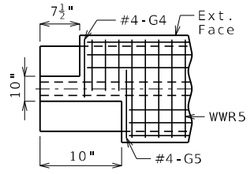
HALF ELEVATION

Reinforcement support strands not shown for clarity.



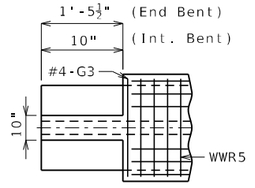
SECTION B-B

Strands not shown for clarity.



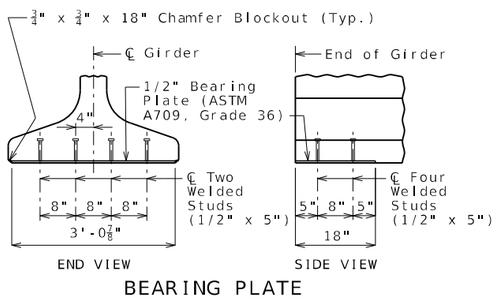
LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.

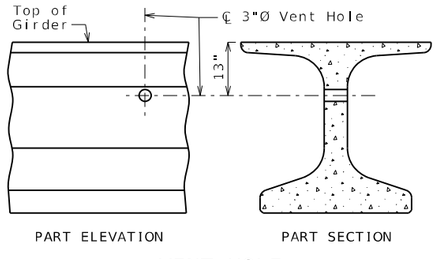


INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

TOP FLANGE BLOCKOUT

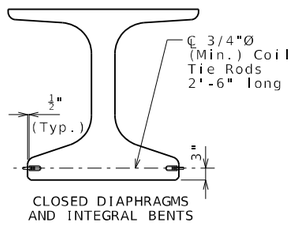


BEARING PLATE



VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



COIL TIES

Exclude coil tie at exterior face of exterior girders except at integral end bents.

NU-GIRDERS - SPANS (1-2) AND (3-4)

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE C | STATE MO

DISTRICT BR | SHEET NO. 14

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

PROJECT NO.

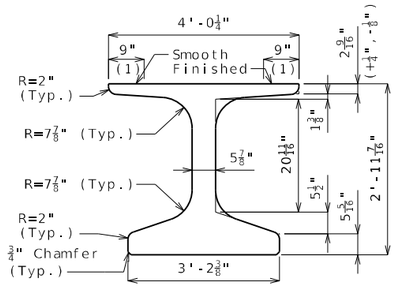
BRIDGE NO. A9410

DESCRIPTION | DATE

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

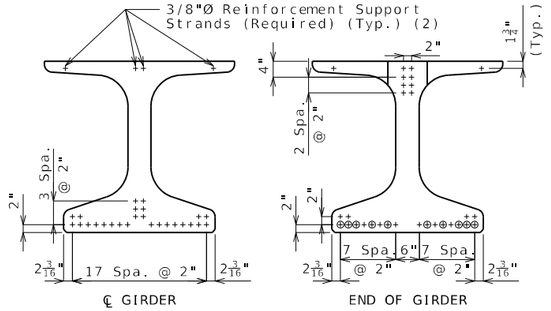
MODESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

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



DIMENSIONS

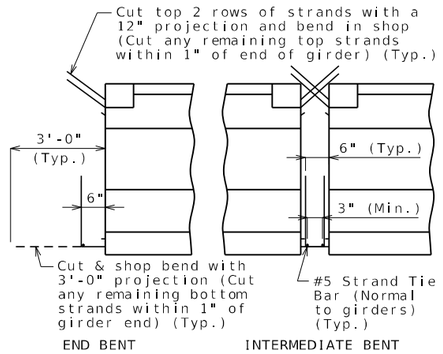
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



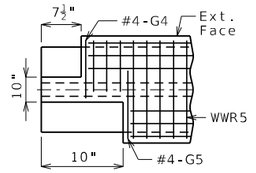
STRAND ARRANGEMENT

\+ Indicates prestressing strand.

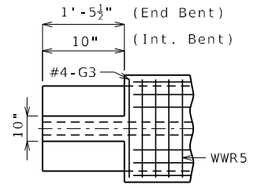
o Indicates cut & shop bend with 3'-0" projection.



STRANDS AT GIRDER ENDS



LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT
Rotate 180° for right ext.

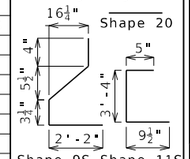


INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

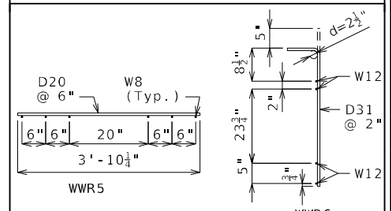
TOP FLANGE BLOCKOUT

Bill of Reinforcing Steel - Each Girder			
No.	Size/ Mark	Length	Shape
196	4 B1	4'-4"	11S
216	4 D1	4'-0"	9S
2	4 G3	3'-10"	20
2	4 G4	2'-3"	20
2	4 G5	2'-8"	20

Bending Diagrams



Welded Wire Reinforcement - Each Girder



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.

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

Minimum clearance to reinforcing shall be one inch.

All bar reinforcement shall be Grade 60.

The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.

G4 and G5 not required for interior girders. G3 not required for exterior girders of intermediate spans. Half no. of G3, G4 and G5 not required for ext. girders of end spans.

General Notes:

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

Use 26 strands, 0.6"Ø Grade 270, with an initial prestress force of 1142 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior girders are the same except: coil ties, top flange blockout, coil inserts for slab drains.

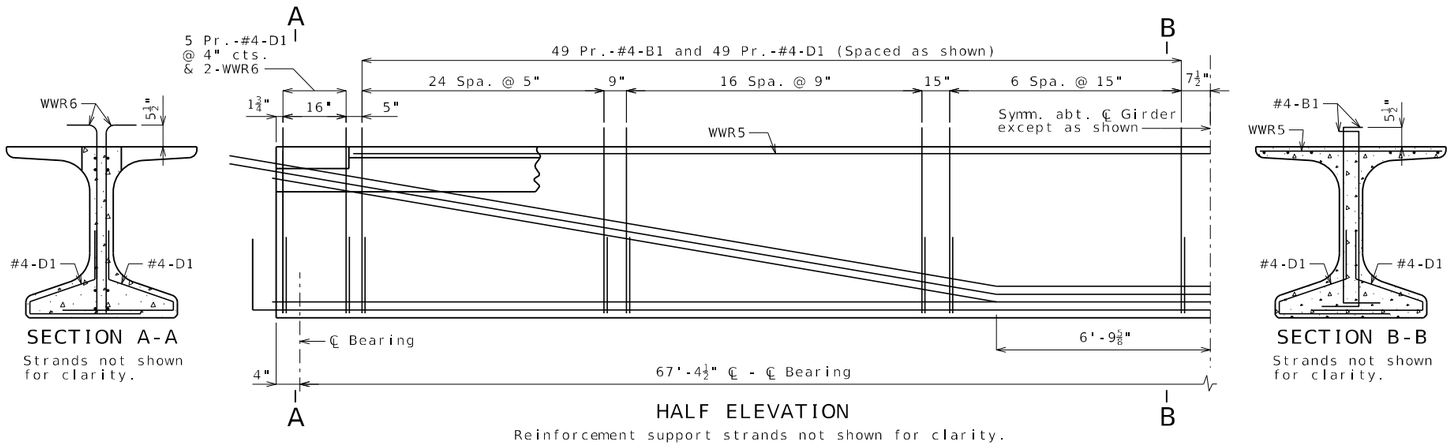
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 21.

For location of coil inserts at slab drains, see Sheet No. 20.

For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4, 12 and 18.

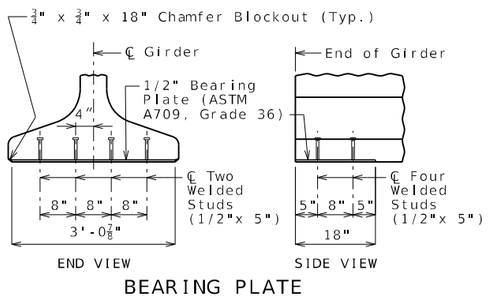
Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.



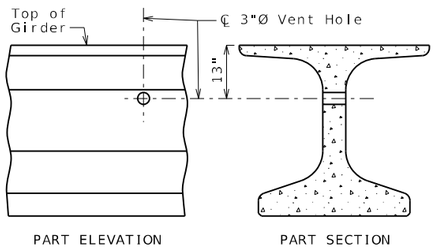
SECTION A-A
Strands not shown for clarity.

HALF ELEVATION
Reinforcement support strands not shown for clarity.

SECTION B-B
Strands not shown for clarity.

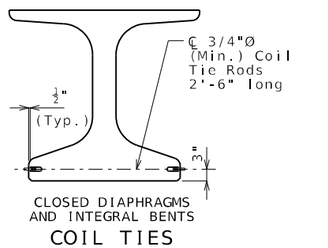


BEARING PLATE



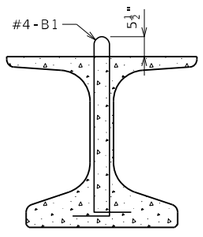
VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



COIL TIES

Exclude coil tie at exterior face of exterior girders except at integral end bents.



B1 BAR PERMISSIBLE ALTERNATE SHAPE

NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPANS (1-2) AND (3-4)

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

Detailed Feb. 2025
Checked Apr. 2025

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

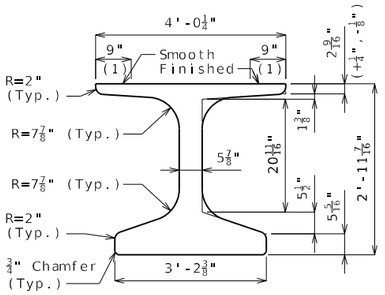
DATE PREPARED 5/1/25

ROUTE C | STATE MO
DISTRICT BR | SHEET NO. 15
COUNTY PERRY
JOB NO. JSE0056
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9410

DESCRIPTION
DATE

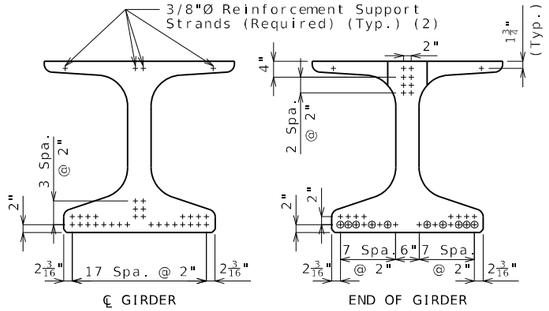
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT
MODJESKI=MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

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



DIMENSIONS

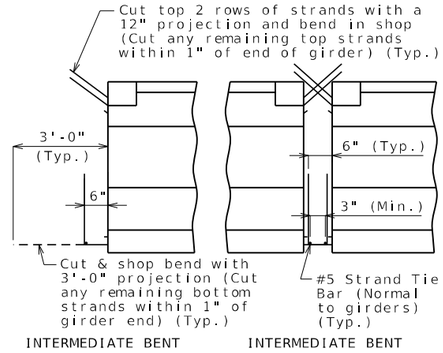
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



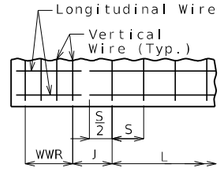
STRAND ARRANGEMENT

+ Indicates prestressing strand.

o Indicates cut & shop bend with 3'-0" projection.



STRANDS AT GIRDER ENDS



WELDED WIRE PLACEMENT

S = Vertical wire spacing

L = Length of WWR mats

J = Distance between WWR mats

Bill of Reinforcing Steel

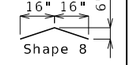
Bars Each Girder

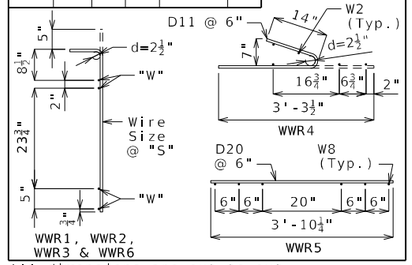
No.	Size/Mark	Length	Shape
100	3 G1	2'-10"	8
2	4 G3	3'-10"	20
2	4 G4	2'-3"	20
2	4 G5	2'-8"	20

Welded Wire Each Girder

Mark	Size	S	W	L	J
WWR1	D22	4"	W9	10'-4"	6½"
WWR2	D22	8"	W9	12'-8"	12"
WWR3	D22	16"	W9	26'-8"	--
WWR6	D31	2"	W12	16"	4"

Bending Diagrams





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.

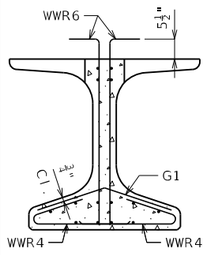
Actual bar lengths are measured along centerline of bar to the nearest inch.

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

All bar reinforcement shall be Grade 60.

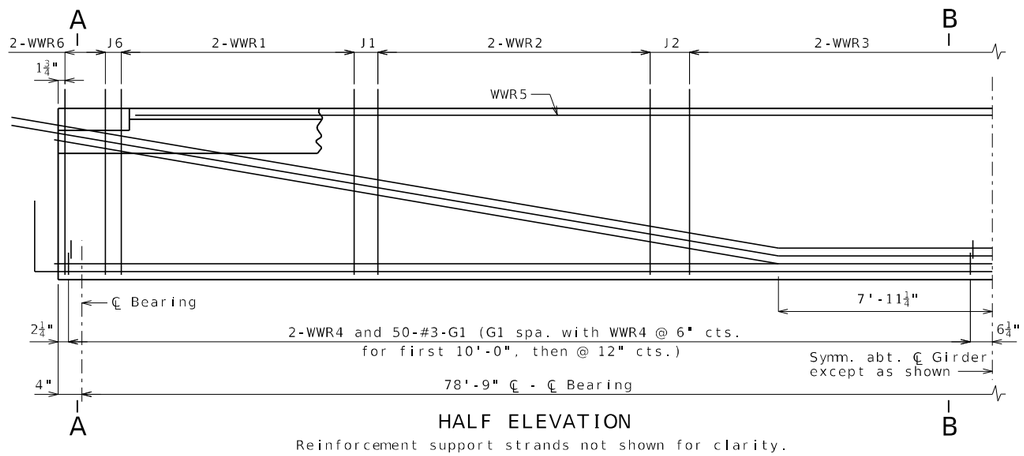
WWR shall not be epoxy coated.

G4 and G5 not required for interior girders. G3 not required for exterior girders of intermediate spans.



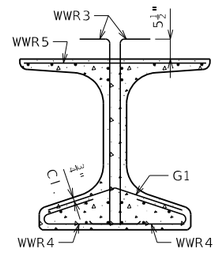
SECTION A-A

Strands not shown for clarity.



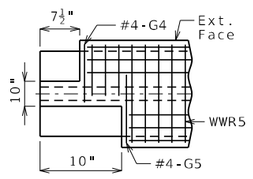
HALF ELEVATION

Reinforcement support strands not shown for clarity.



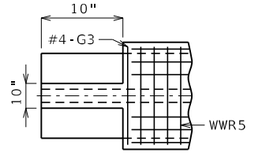
SECTION B-B

Strands not shown for clarity.



LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.



INTERIOR GIRDER

TOP FLANGE BLOCKOUT

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 girders are the same except: coil ties, top flange blockout, coil inserts for slab drains.

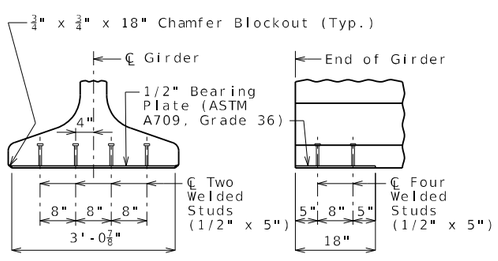
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 21.

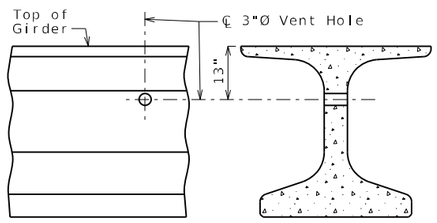
For location of coil inserts at slab drains, see Sheet No. 20.

For location of coil ties at concrete diaphragms, see Sheet No. 18.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.

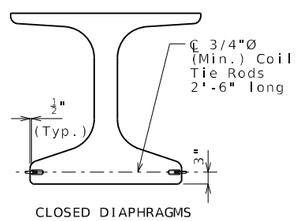


BEARING PLATE



VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



COIL TIES

Exclude coil tie at exterior face of exterior girders.

NU-GIRDERS - SPAN (2-3)

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE C | STATE MO

DISTRICT BR | SHEET NO. 16

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

PROJECT NO.

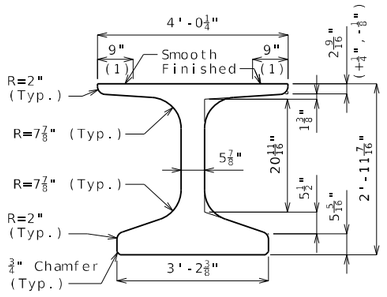
BRIDGE NO. A9410

DESCRIPTION | DATE

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

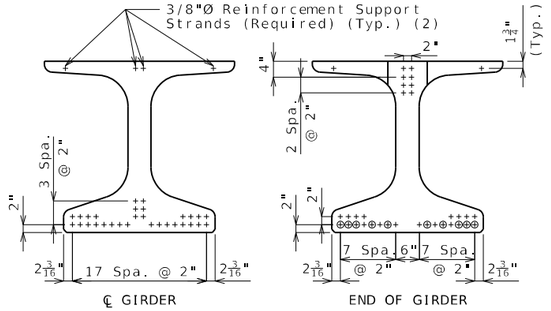
MODJESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

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



DIMENSIONS

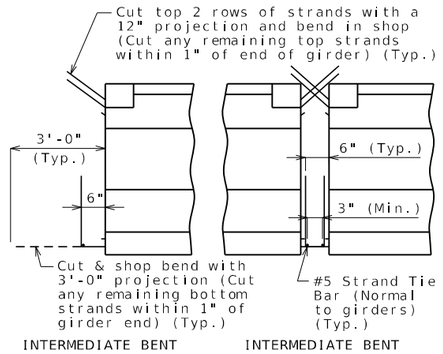
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



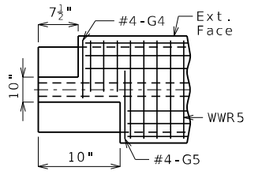
STRAND ARRANGEMENT

\+ Indicates prestressing strand.

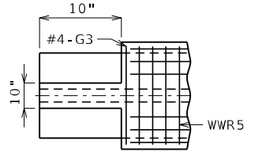
o Indicates cut & shop bend with 3'-0" projection.



STRANDS AT GIRDER ENDS



LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT
Rotate 180° for right ext.

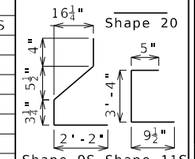


INTERIOR GIRDER

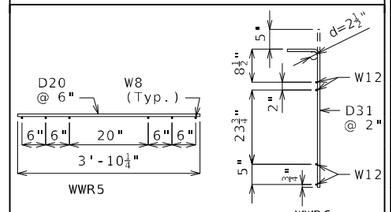
TOP FLANGE BLOCKOUT

Bill of Reinforcing Steel - Each Girder			
No.	Size/ Mark	Length	Shape
216	4 B1	4'-4"	11S
236	4 D1	4'-0"	9S
2	4 G3	3'-10"	20
2	4 G4	2'-3"	20
2	4 G5	2'-8"	20

Bending Diagrams



Welded Wire Reinforcement - Each Girder



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.

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

Minimum clearance to reinforcing shall be one inch.

All bar reinforcement shall be Grade 60.

The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.

G4 and G5 not required for interior girders. G3 not required for exterior girders of intermediate spans.

General Notes:

Concrete for prestressed girders 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 girders are the same except: coil ties, top flange blockout, coil inserts for slab drains.

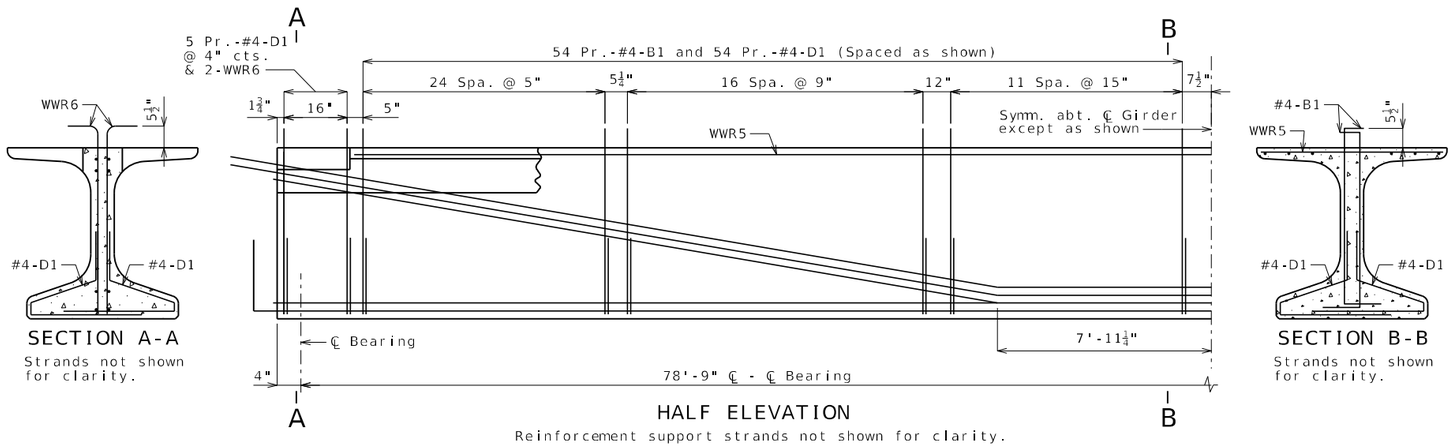
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For Girder Camber Diagram, see Sheet No. 21.

For location of coil inserts at slab drains, see Sheet No. 20.

For location of coil ties at concrete diaphragms, see Sheet No. 18.

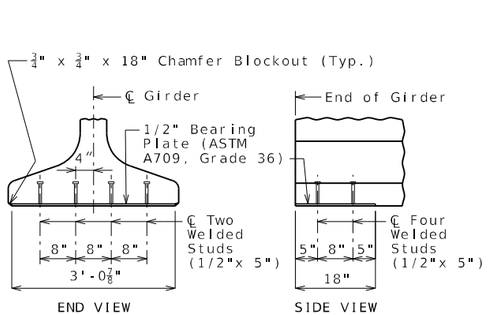
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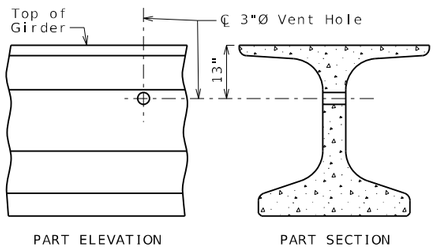
SECTION A-A
Strands not shown for clarity.

SECTION B-B
Strands not shown for clarity.

HALF ELEVATION
Reinforcement support strands not shown for clarity.

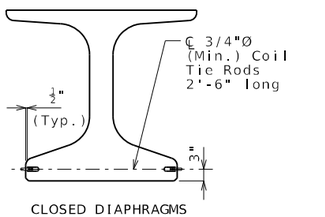


BEARING PLATE



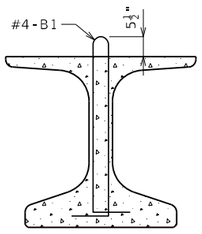
VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



COIL TIES

Exclude coil tie at exterior face of exterior girders.



B1 BAR PERMISSIBLE ALTERNATE SHAPE

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE C | STATE MO

DISTRICT BR | SHEET NO. 17

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9410

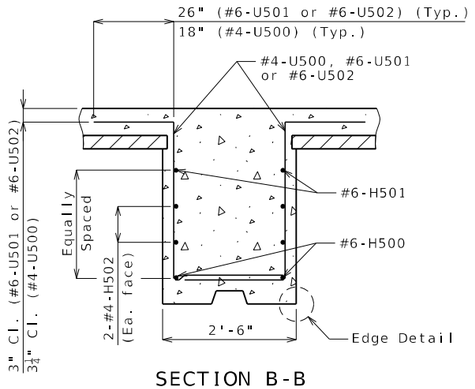
DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MODOT
MODJESKI=MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

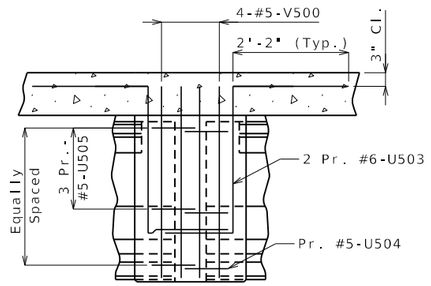
Detailed Feb. 2025
Checked Apr. 2025

NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPAN (2-3)

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

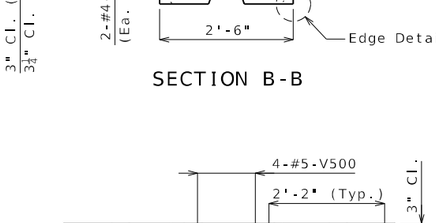


SECTION B-B

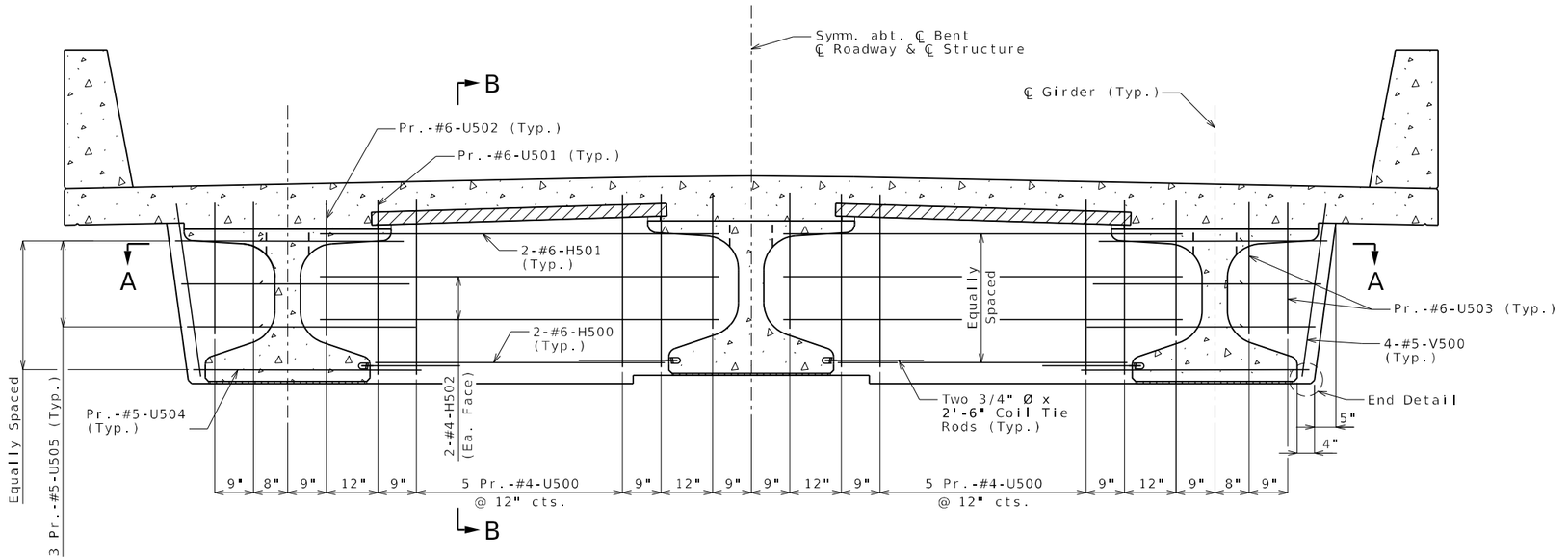


ELEVATION C-C

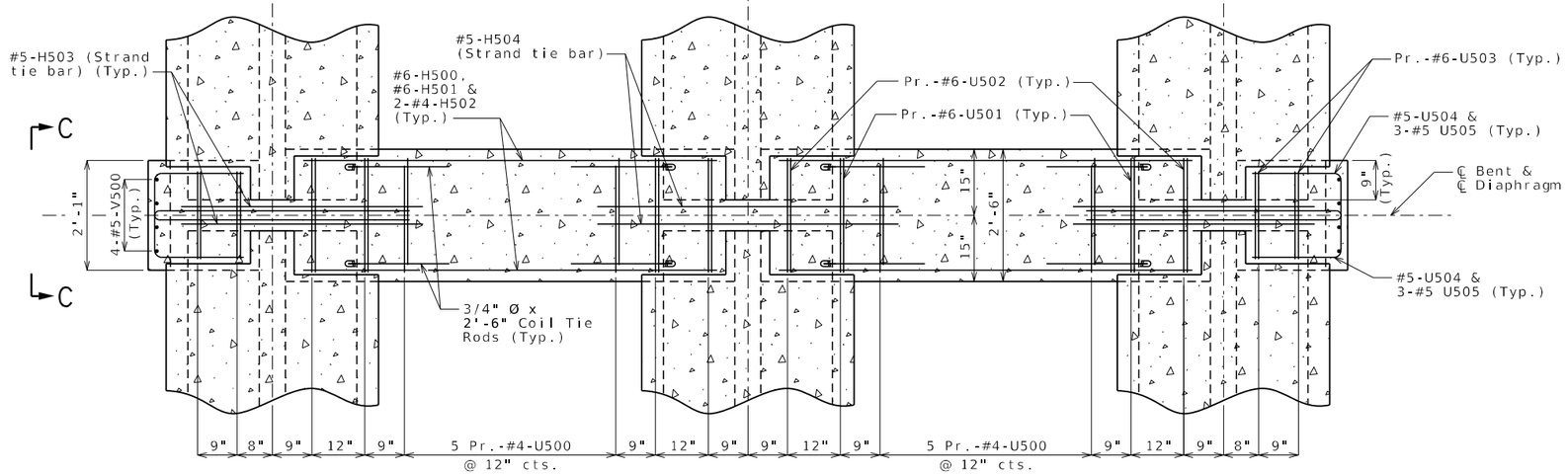
EDGE DETAIL



END DETAIL



SECTION NEAR INTERMEDIATE BENTS



SECTION A-A

Notes:

For location of Strand Tie Bars, see Sheets No. 14 thru 17.

For location and details of Coil Tie Rods, see Sheets No. 14 thru 17.

Diaphragms at intermediate bents shall be built vertical.

DETAILS OF CONCRETE DIAPHRAGM AT INTERMEDIATE BENTS NO. 2 & 3

Detailed Feb. 2025
Checked Apr. 2025

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STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
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DATE PREPARED 5/1/25

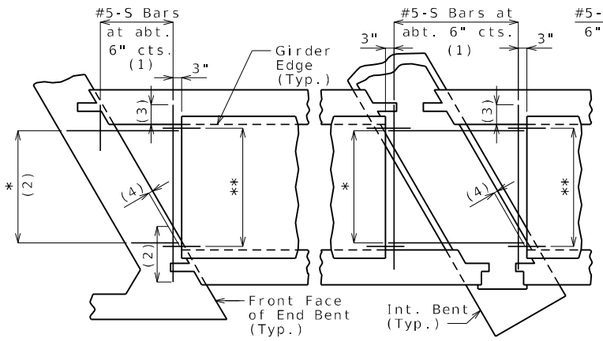
ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	18

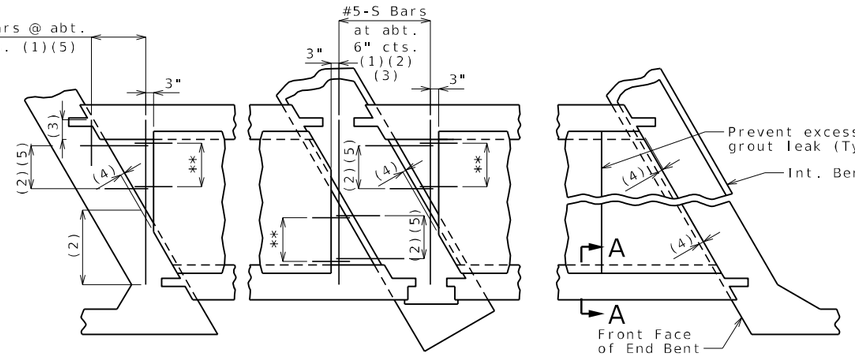
COUNTY: PERRY
JOB NO.: JSE0056
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9410

DESCRIPTION | DATE

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

MODESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

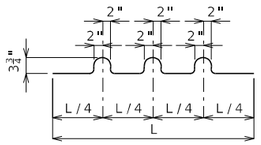




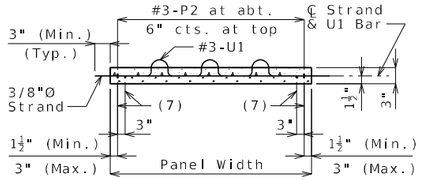
SQUARED END PANELS OR TRUNCATED END PANELS

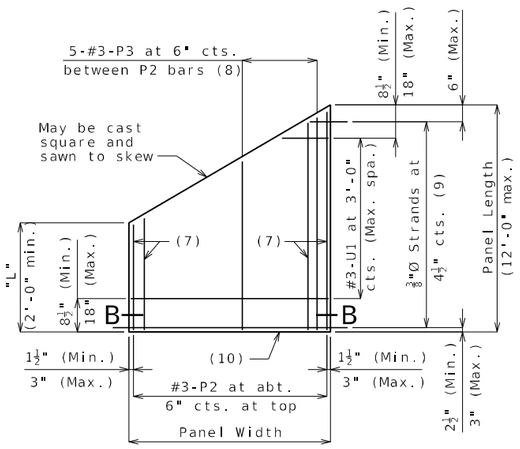
PLAN SHOWING PANEL PLACEMENT

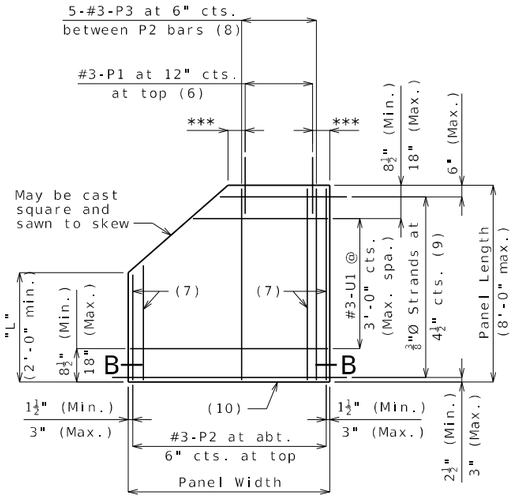
* #5-S Bars at abt. 9" cts. (1)
** #3-P1 at 12" cts. (End panels only)

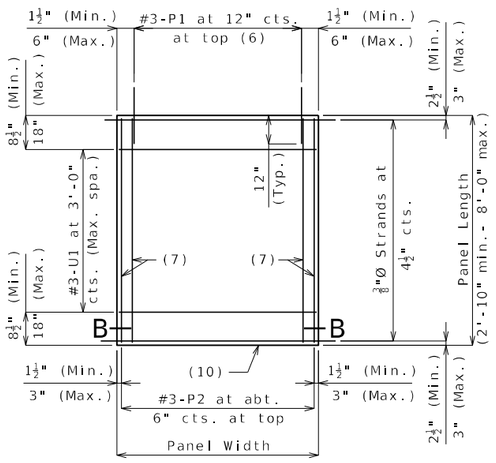


U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars.



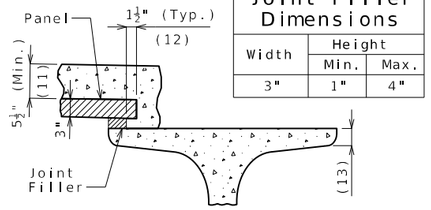






SKEWED END PANELS

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



Reference Notes:

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

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

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

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

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

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

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

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

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

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

Section A-A:
(11) Slab thickness over prestressed panels varies due to girder 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. 21 for determining thickness of joint filler within the limits noted in the table of Joint Filler Dimensions.

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

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

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

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
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DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	19

COUNTY: PERRY
JOB NO.: JSE0056
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9410

DESCRIPTION | DATE

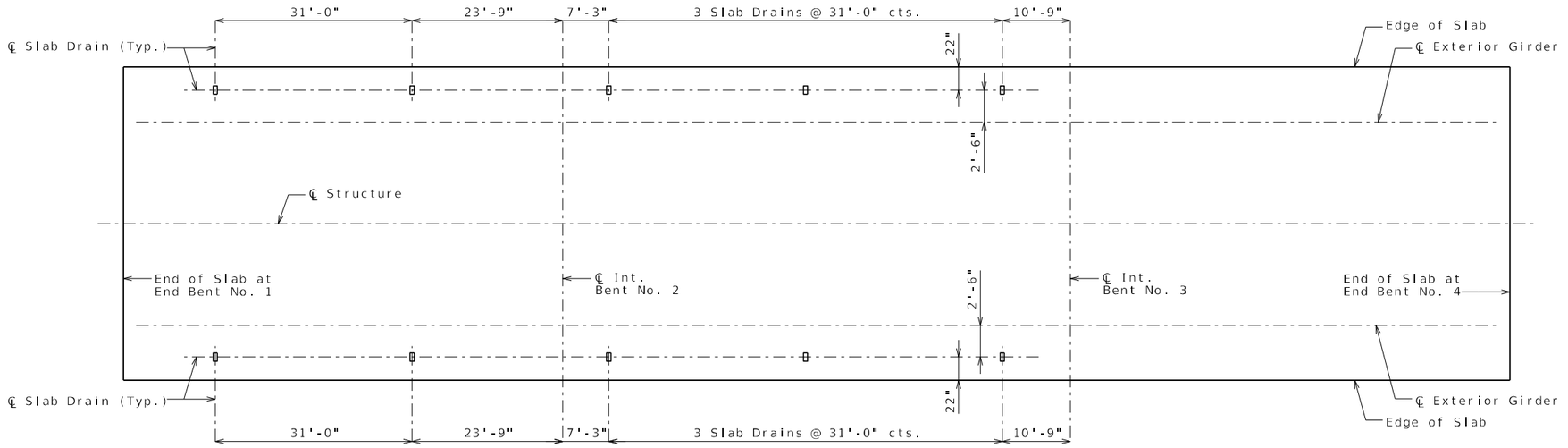
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JEFFERSON CITY, MO 65102
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MODESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

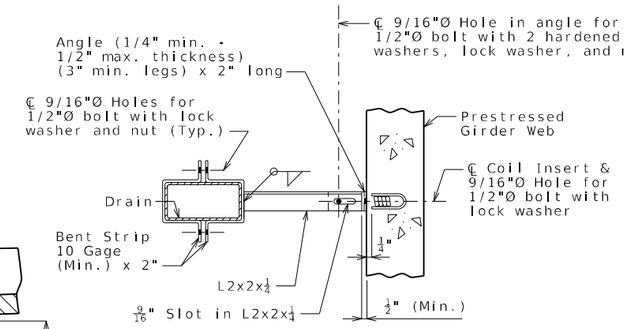
PRESTRESSED PANELS

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Checked Apr. 2025

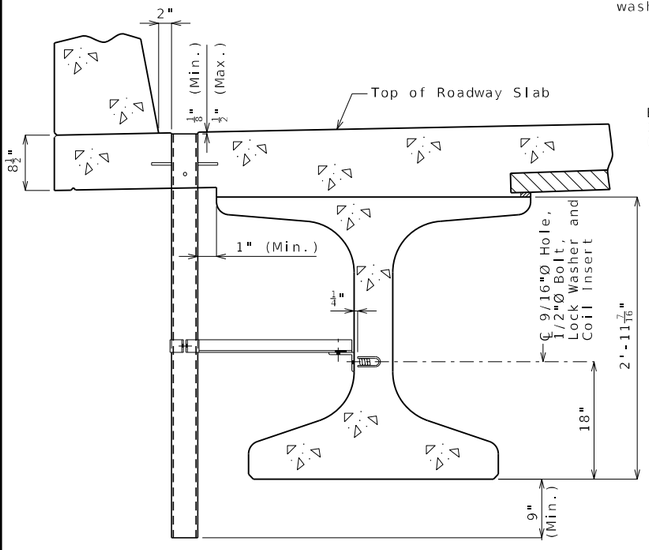
Note: This drawing is not to scale. Follow dimensions.



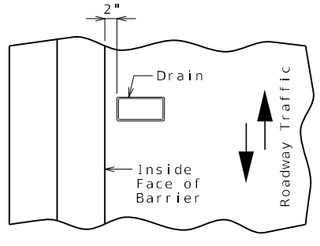
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



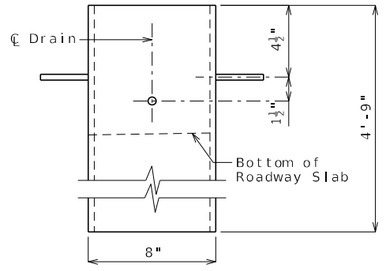
PART SECTION SHOWING BRACKET ASSEMBLY



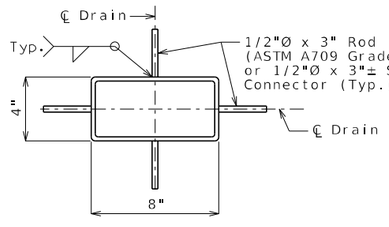
PART SECTION NEAR DRAIN



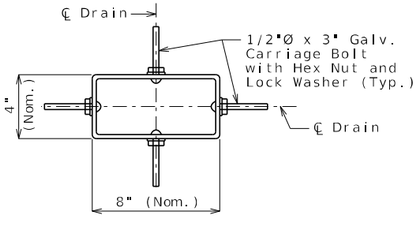
PART PLAN OF SLAB AT DRAIN



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 insert required for the bracket assembly attachment shall be located on the prestressed girder 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 bolt required to attach the slab drain bracket assembly to the prestressed girder web shall be supplied by the prestressed girder 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.

STATE OF MISSOURI
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PROFESSIONAL ENGINEER
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ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	20

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9410

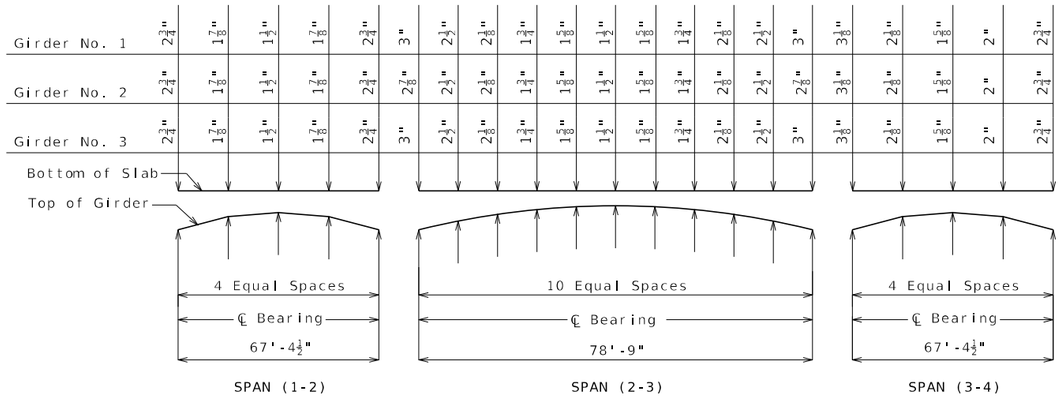
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SLAB DRAINS

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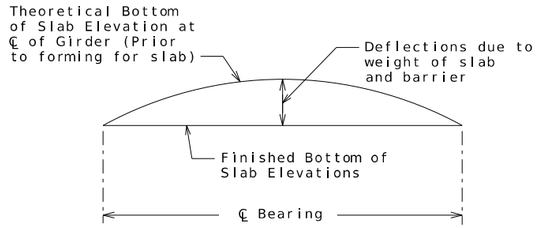
Note: This drawing is not to scale. Follow dimensions.



THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If girder 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 NU-Girder.



TYPICAL SLAB ELEVATIONS DIAGRAM

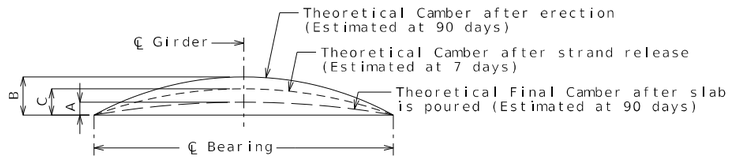
Theoretical Bottom of Slab Elevations at Centerline of Girder (Prior to forming for slab) (Estimated at 90 days)

Girder Number	Span (1-2) (67'-4½" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.
1	370.80	371.02	371.21	371.36	371.48
2	370.96	371.18	371.37	371.52	371.64
3	370.80	371.02	371.21	371.36	371.48

Girder Number	Span (2-3) (78'-9" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	371.49	371.61	371.72	371.83	371.93	372.01	372.08	372.14	372.20	372.24	372.28
2	371.65	371.77	371.88	371.99	372.09	372.17	372.25	372.31	372.36	372.40	372.44
3	371.49	371.61	371.72	371.83	371.93	372.01	372.08	372.14	372.20	372.24	372.28

Girder Number	Span (3-4) (67'-4½" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.
1	372.29	372.51	372.70	372.85	372.96
2	372.45	372.67	372.86	373.01	373.12
3	372.29	372.51	372.70	372.85	372.96

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.



Girder	Span (1-2)			Span (2-3)			Span (3-4)		
	A	B	C	A	B	C	A	B	C
Exterior	1¼"	2⅛"	1½"	1½"	3"	2¼"	1¼"	2⅛"	1½"
Interior	1¼"			1⅜"			1¼"		

GIRDER CAMBER DIAGRAM

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

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

0.25 pt. = 0.7125 x 0.5 pt.

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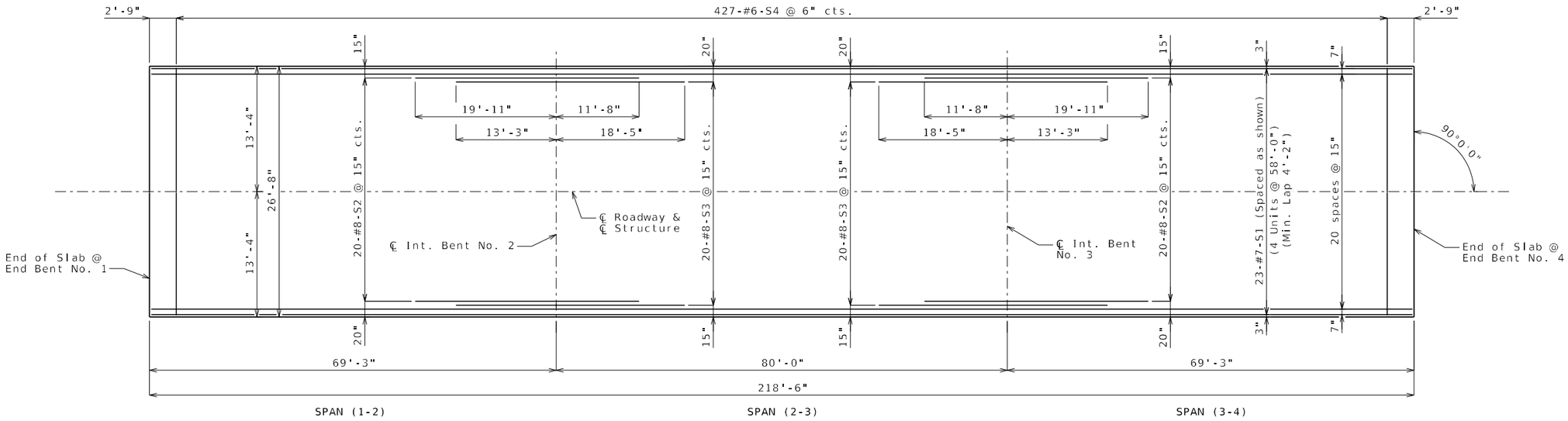
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ROUTE	STATE
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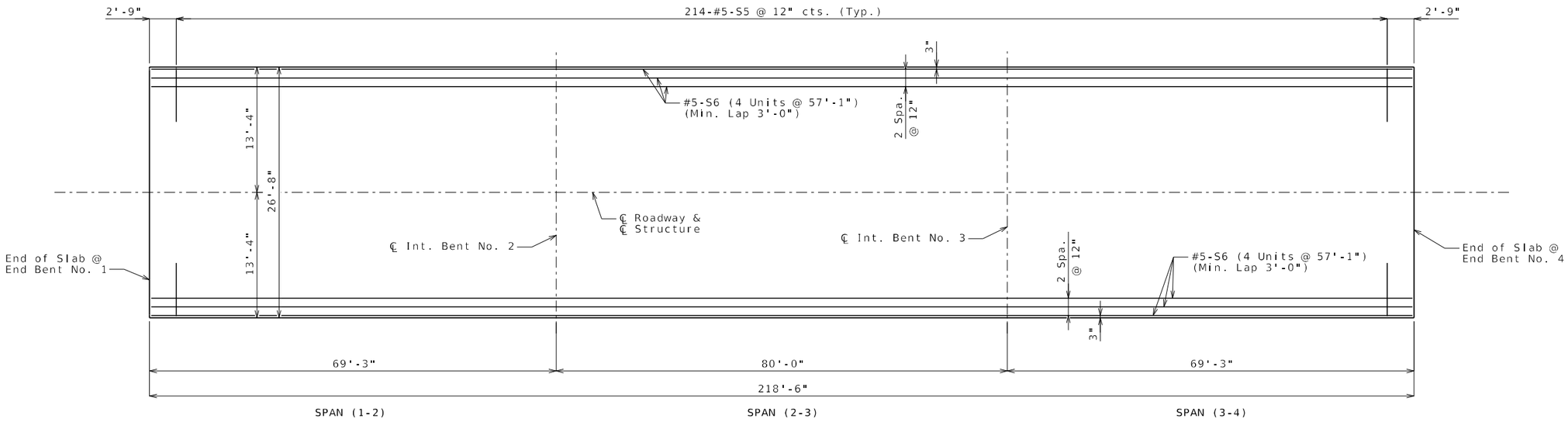
COUNTY: PERRY
JOB NO.: JSE0056
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9410

DESCRIPTION	DATE

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TOP REINFORCEMENT



BOTTOM REINFORCEMENT

Notes:

Longitudinal slab dimensions are measured horizontally.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 23.

For Details and Reinforcement of Type H barrier not shown, see Sheets No. 24 & 25.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 21.

For Details of Precast Prestressed Panels, see Sheet No. 19.

For details and locations of Slab Drains, see Sheet No. 20.

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Feb. 2025
Checked Apr. 2025

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

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DISTRICT	SHEET NO.
BR	22

COUNTY
PERRY

JOB NO.
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CONTRACT ID.

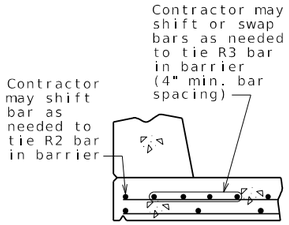
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BRIDGE NO.
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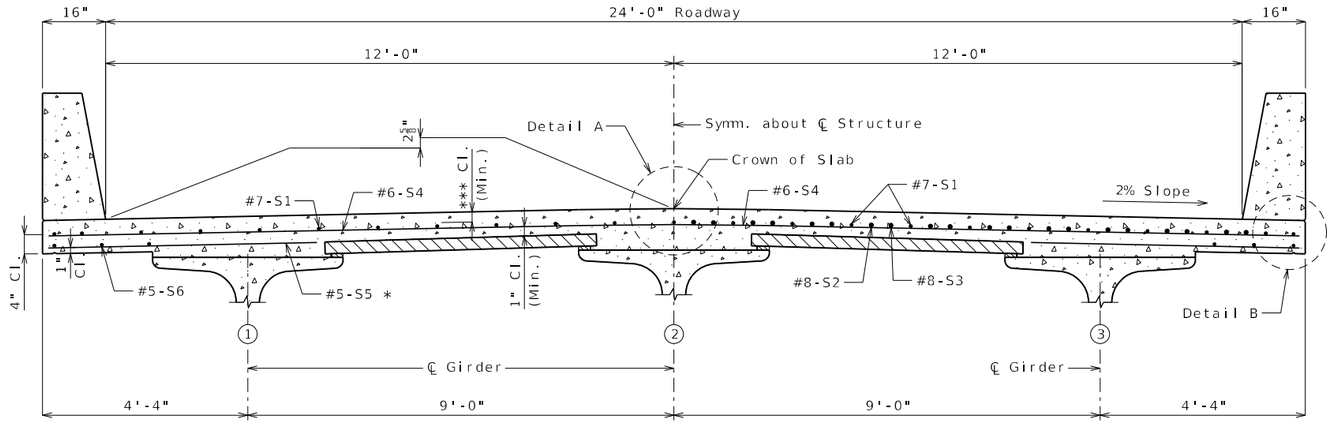
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OPTIONAL SHIFTING TOP BARS AT BARRIER

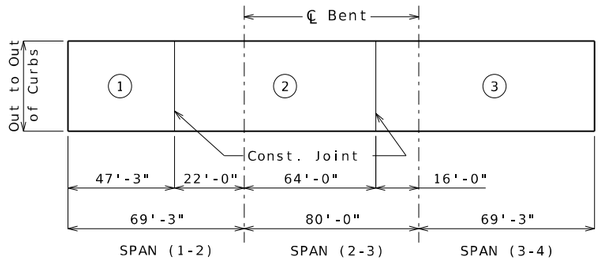


HALF SECTION NEAR MIDSPAN — HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB

* Alternate bar shape available, see barrier sheet.

*** $2\frac{7}{8}$" (#7)
$2\frac{3}{4}$" (#8)

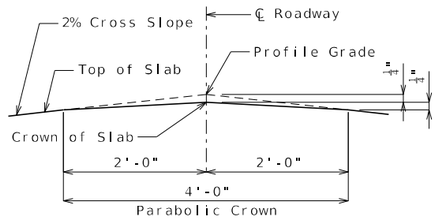


	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1	2	3	25
	End to 2	1 to 3	2 to End	
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1 + 2		3	25
	End to 3		2 to End	
Alternate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

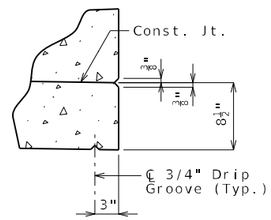
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

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

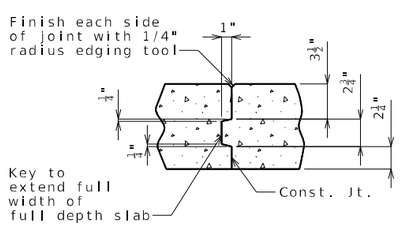
SLAB POURING SEQUENCE



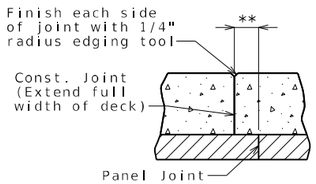
DETAIL A



DETAIL B



FULL DEPTH SLAB



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

SLAB ON PANELS

SLAB CONSTRUCTION JOINT

Notes:

For details of precast prestressed panels, see Sheet No. 19.

For reinforcement of barrier not shown, see Sheets No. 24 & 25.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 21.

For Plan of Slab Showing Reinforcement, see Sheet No. 22.

SLAB DETAILS

Detailed Feb. 2025
Checked Apr. 2025

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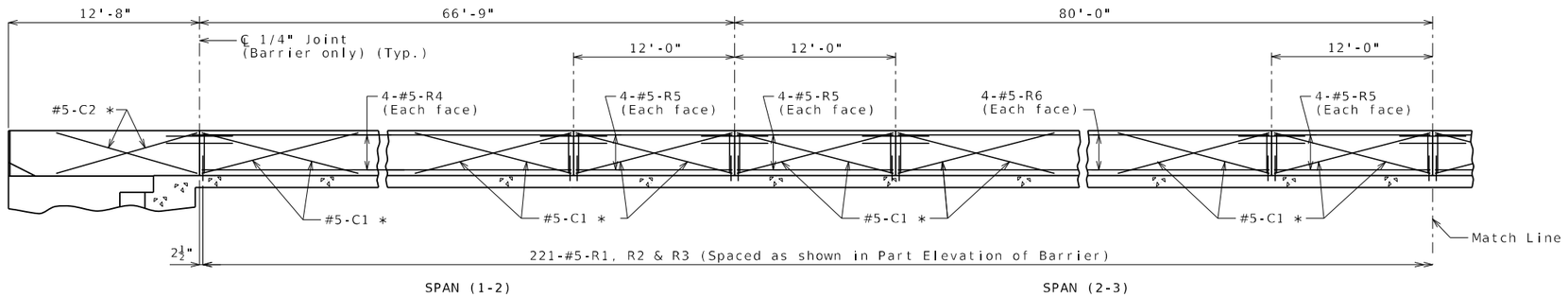
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PROFESSIONAL ENGINEER
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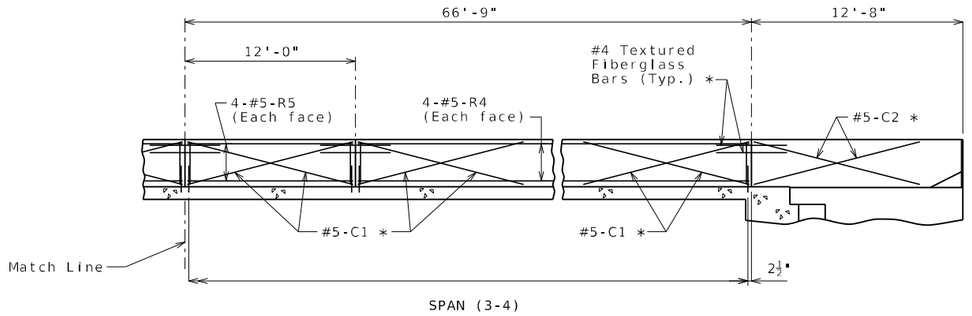
DATE PREPARED 5/1/25

ROUTE C | STATE MO
DISTRICT BR | SHEET NO. 23
COUNTY PERRY
JOB NO. JSE0056
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9410

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MODOT
MODJESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL:(314) 588-8115

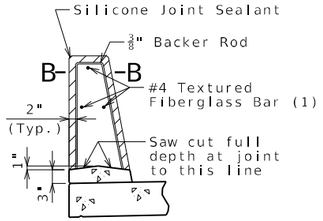




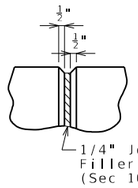
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

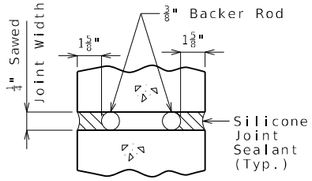
Longitudinal dimensions are horizontal.



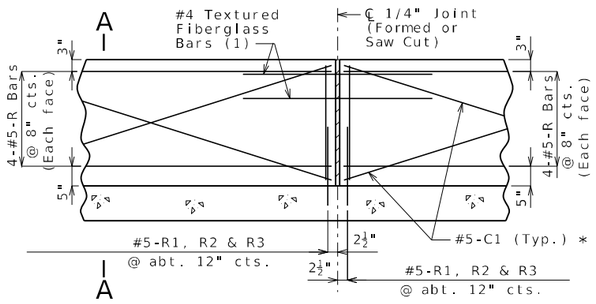
SECTION THRU SAW CUT JOINT



PART ELEVATION AT FORMED JOINT

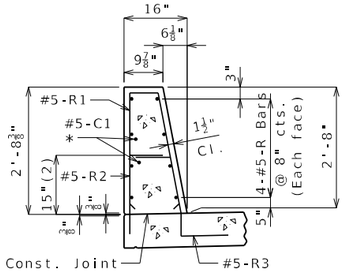


SECTION B-B



PART ELEVATION OF BARRIER

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

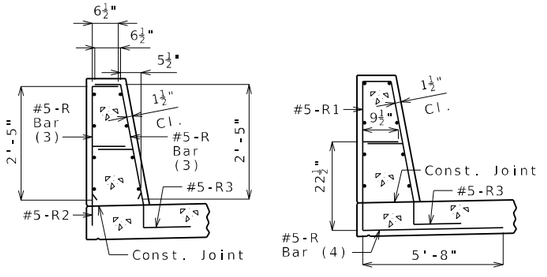


SECTION A-A

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.)

(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. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
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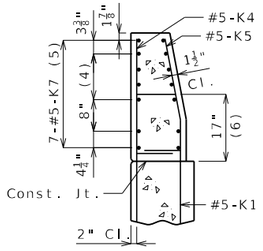
DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	24

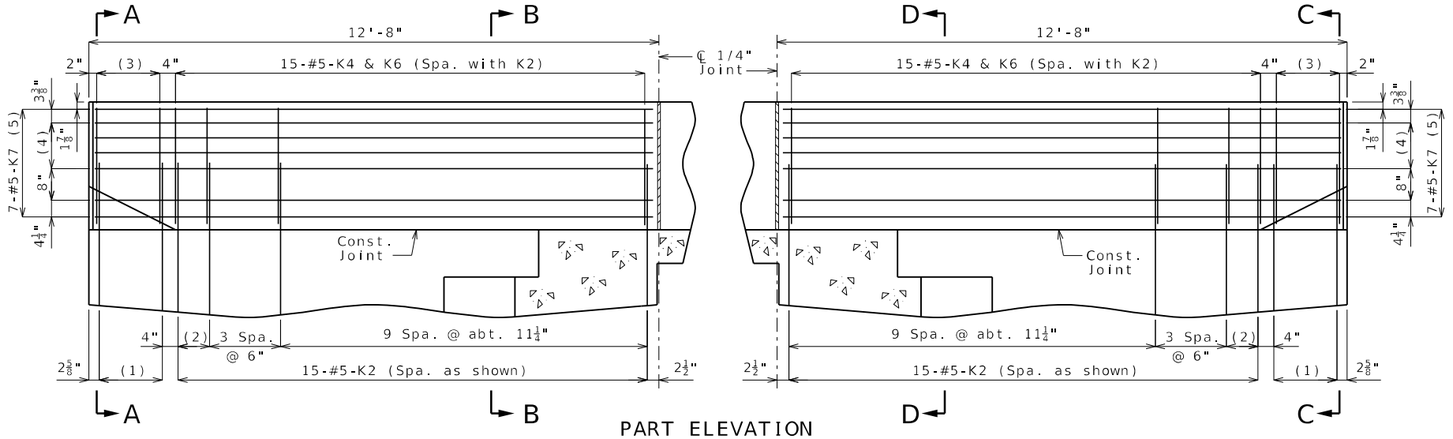
COUNTY: PERRY
JOB NO.: JSE0056
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9410

DATE	DESCRIPTION

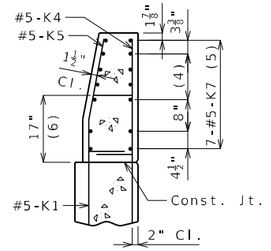
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MODOT
MODJESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



SECTION A-A



PART ELEVATION



SECTION C-C

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

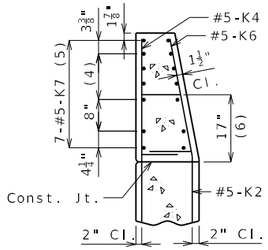
(2) 2 Spaces @ 4"

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

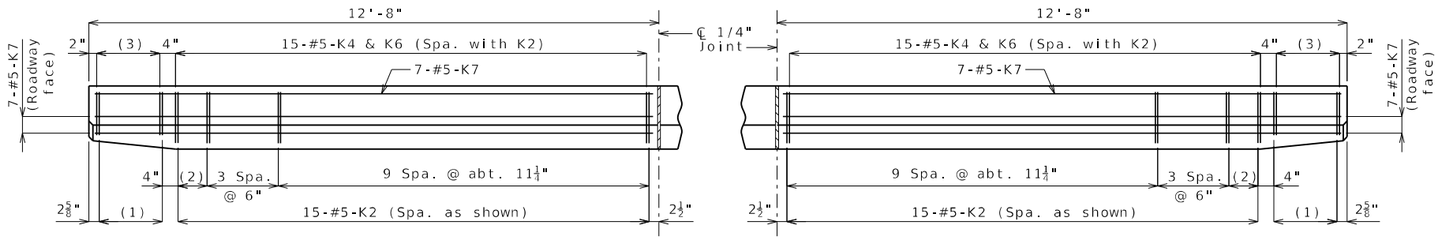
(4) 3 Spaces @ $3\frac{13}{16}$"

(5) Spaced as shown, each face

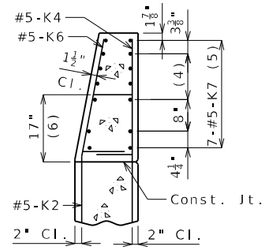
(6) To top of bar



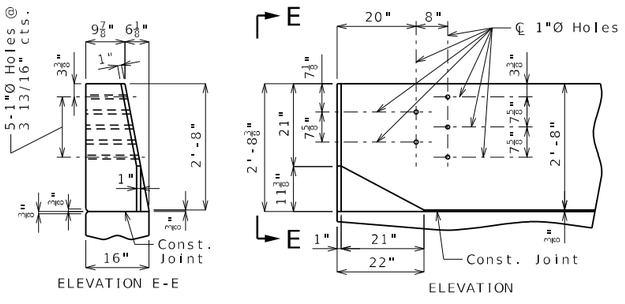
SECTION B-B



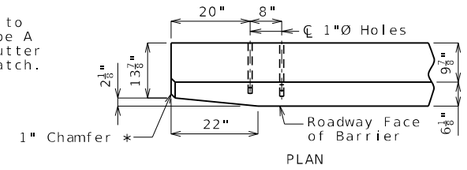
PART PLAN



SECTION D-D



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



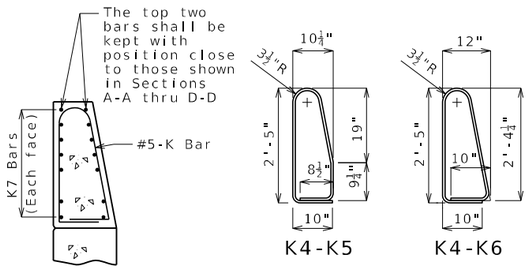
DETAILS OF GUARD RAIL ATTACHMENT

General Notes:

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

Reinforcing Steel:

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



PERMISSIBLE ALTERNATE SHAPES

(Other K bars not shown for clarity)

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

All dimensions are out to out.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER

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

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	25

COUNTY: PERRY

JOB NO.: JSE0056

CONTRACT ID.:

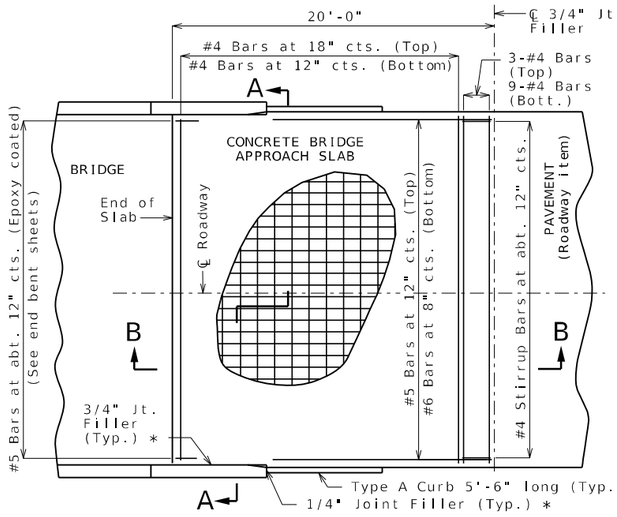
PROJECT NO.:

BRIDGE NO.: A9410

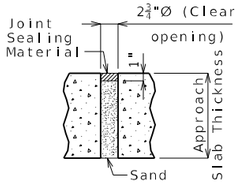
DESCRIPTION	DATE

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

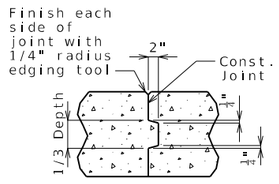
MODESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



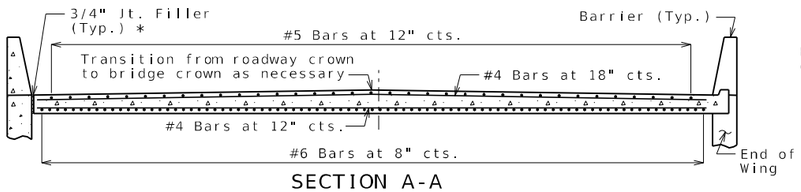
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



UNDERSEAL ACCESS HOLE DETAIL
(If required)

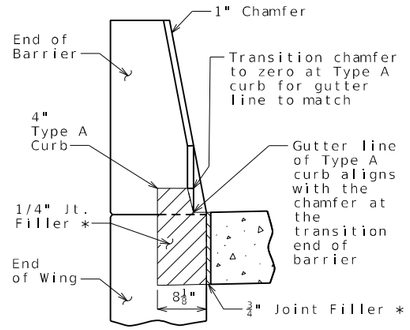


CONSTRUCTION JOINT DETAIL



SECTION A-A

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



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

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

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

General Notes:

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

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

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

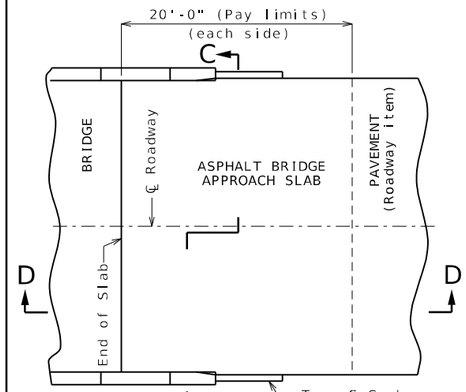
☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

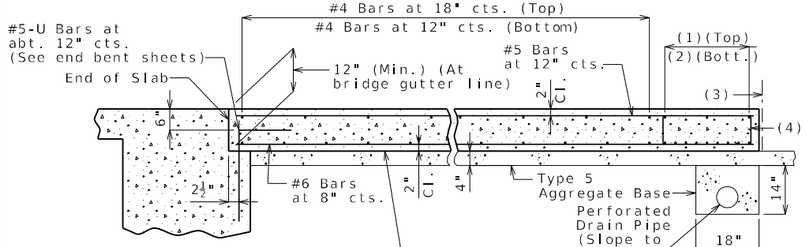
Notes For Asphalt Slab Only:

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

Application of tack is required between lifts per Sec 403.



PART PLAN
(Squared structure shown, skewed structure similar)



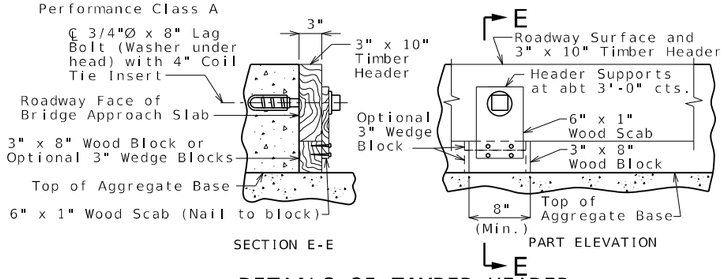
(1) 3-#4 Bars

(2) 9-#4 Bars

(3) ℄ 3/4" Jt. Filler

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

SECTION B-B
(Integral end bent)

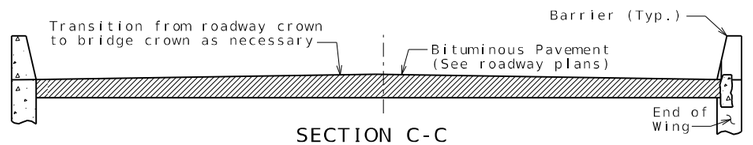


SECTION E-E

PART ELEVATION

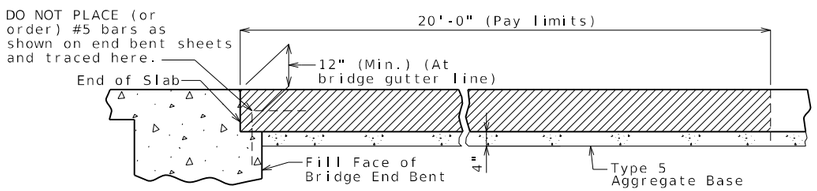
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

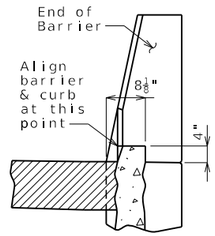


SECTION C-C

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)

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE C | STATE MO

DISTRICT BR | SHEET NO. 26

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

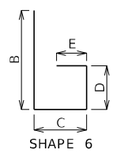
PROJECT NO.

BRIDGE NO. A9410

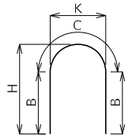
DESCRIPTION | DATE

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

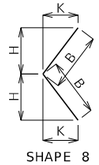
MODJESKI and MASTERS
333 SOUTH 18th STREET SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



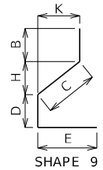
SHAPE 6
or 6S



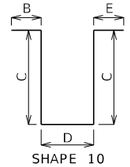
SHAPE 7



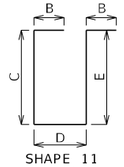
SHAPE 8
or 8S



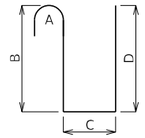
SHAPE 9
or 9S



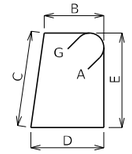
SHAPE 10
or 10S



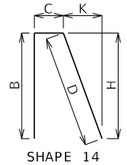
SHAPE 11
or 11S



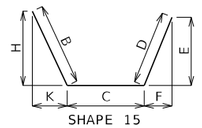
SHAPE 12



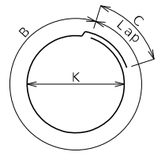
SHAPE 13S



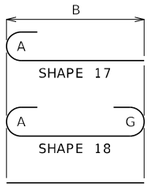
SHAPE 14
or 14S



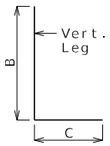
SHAPE 15
or 15S



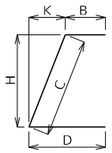
SHAPE 16



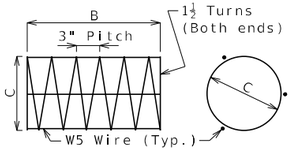
SHAPE 17
SHAPE 18
SHAPE 20



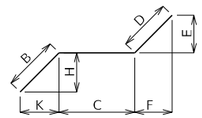
SHAPE 19
or 19S



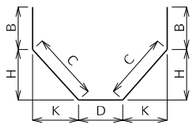
SHAPE 21
or 21S



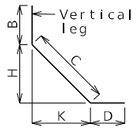
SHAPE 22



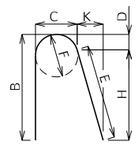
SHAPE 23
or 23S



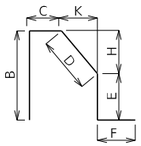
SHAPE 24
or 24S



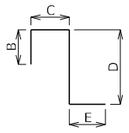
SHAPE 25
or 25S



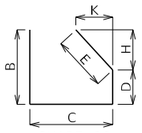
SHAPE 26



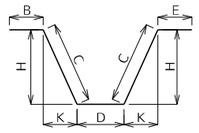
SHAPE 27S



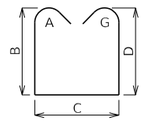
SHAPE 28
or 28S



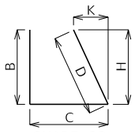
SHAPE 29
or 29S



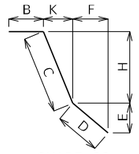
SHAPE 30
or 30S



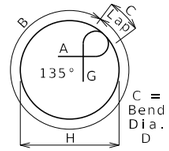
SHAPE 31S



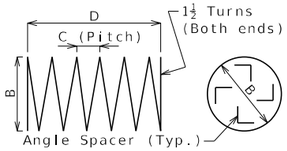
SHAPE 32
or 32S



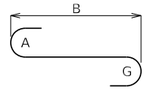
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

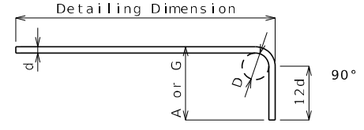


SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¾"	28½"

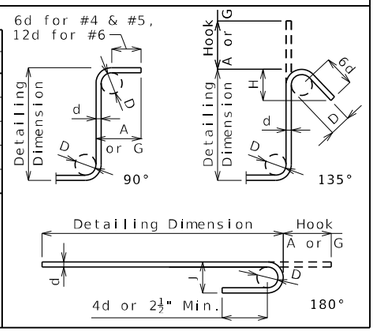


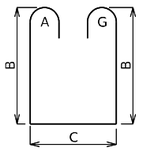
Stirrup Pin Bend Shapes (S)

Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4½"	4½"	5"	2⅝"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5¾"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅜"	6"

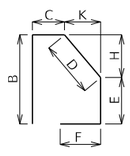
Applicable for all grades of steel.

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





SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)

	Size	Substructure		Superstructure				Entire Bridge	
				Slab			Slip		
		Plain	Epoxy	Plain	Epoxy	Barrier	Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	10	0	0	629	0	0	10	629
	5	6,397	0	0	5,202	10,553	582	6,397	16,337
	6	3,076	0	0	22,284	0	0	3,076	22,284
	7	122	0	0	10,907	0	0	122	10,907
	8	0	0	0	7,895	0	0	0	7,895
	9	2,564	0	0	2,332	0	0	2,564	2,332
	10	0	0	0	0	0	0	0	0
	11	19,047	0	0	0	0	0	19,047	0
	14	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0
By Type		31,216	0	0	49,249	10,553	582	31,216	60,384

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Feb. 2025
Checked Apr. 2025

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

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	27

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9410

DESCRIPTION | DATE

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

MODJESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL:(314) 588-8115

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		SUBSTRUCTURE													
		INT. BENT 2													
12	7 D200	KEY		20		2 6.00							2 6	2 6	61
8	9 H200	BEAM		18		22 4.00							24 10	24 10	675
8	9 H201	BEAM		20		22 4.00							22 4	22 4	607
10	6 H202	BEAM		20		22 4.00							22 4	22 4	335
14	6 H203	BEAM		10S			12.00	3 3.00					5 3	4 11	103
2	5 P200	SHAFT/COLUMN		35		2 6.00	3.00	45 1.50					1422 0	1442 0	3008
18	5 P201	BEAM		34S		7 10.25	2.00				2 6.00		8 7	8 7	161
23	6 U200	BEAM		13S		3 3.00	3 9.00	3 3.00	3 9.00				15 4	14 11	515
24	6 U201	BEAM		13S		2 2.00	3 9.00	2 2.00	3 9.00				13 2	12 9	460
8	6 U202	BEAM		10S			3 9.00	3 3.00					10 9	10 5	125
2	4 U203	BEAM		10S			6.00	3 3.00					4 3	4 1	5
36	11 V200	SHAFT/COLUMN		17		47 9.00							49 4	49 4	9436
		INT. BENT 3													
12	7 D300	KEY		20		2 6.00							2 6	2 6	61
8	9 H300	BEAM		18		22 4.00							24 10	24 10	675
8	9 H301	BEAM		20		22 4.00							22 4	22 4	607
10	6 H302	BEAM		20		22 4.00							22 4	22 4	335
14	6 H303	BEAM		10S			12.00	3 3.00					5 3	4 11	103
2	5 P300	SHAFT/COLUMN		35		2 6.00	3.00	46 0.25					1470 1	1470 1	3067
18	5 P301	BEAM		34S		7 10.25	2.00				2 6.00		8 7	8 7	161
23	6 U300	BEAM		13S		3 3.00	3 9.00	3 3.00	3 9.00				15 4	14 11	515
24	6 U301	BEAM		13S		2 2.00	3 9.00	2 2.00	3 9.00				13 2	12 9	460
8	6 U302	BEAM		10S			3 9.00	3 3.00					10 9	10 5	125
2	4 U303	BEAM		10S			6.00	3 3.00					4 3	4 1	5
36	11 V300	SHAFT/COLUMN		17		48 8.00							50 3	50 3	9611
		SUPERSTRUCTURE													
		END BENT 1													
18	6 F100	WING BRACE	E	15S		14.00	4 9.75	2 3.00	19.00	19.00	10.00	10.00	8 3	8 2	221
6	6 F101	DIAPHRAGM	E	19S		5 11.00	2 6.00						8 5	8 3	74
7	6 H100	BEAM & DIAPH	E	20		26 5.00							26 5	26 5	278
12	9 H101	BEAM & DIAPH	E	20		26 5.00							26 5	26 5	1078
4	6 H102	DIAPHRAGM	E	20		3 8.00							3 8	3 8	22
2	6 H103	DIAPHRAGM	E	20		2 5.00							2 5	2 5	7
4	6 H104	DIAPHRAGM	E	20		7 11.00							7 11	7 11	48
2	6 H105	DIAPHRAGM	E	20		5 5.00							5 5	5 5	16
3	9 H106	BEAM	E	18		6 2.00							8 8	8 8	88
3	5 H107	STRAND TIE	E	20		5 9.00							5 9	5 9	18
16	8 H108	WING	E	19		16.00	12 2.00						13 6	13 4	570
36	6 H109	WING	E	19		12.00	11 4.00						12 4	12 2	658
10	5 U100	BEAM	E	37S		4 7.00	2 9.00						12 11	12 8	132
24	4 U101	BEAM	E	13S		2 9.00	2 8.00	2 9.00	2 8.00				11 7	11 4	182
16	5 U102	DIAPHRAGM	E	37S		3 2.00	2 3.00						9 11	9 8	161
16	6 U103	DIAPHRAGM	E	19S		2 5.00	2 9.00						5 2	5 0	120
33	6 U104	DIAPHRAGM	E	19S		3 2.00	4 6.50						7 9	7 7	376
24	5 U105	DIAPHRAGM	E	19S		2 0.00	15.00						3 3	3 2	79
12	5 V100	BEAM	E	17		4 7.00							5 2	5 2	65
15	6 V101	DIAPHRAGM	E	20		2 5.00							2 5	2 5	54
44	6 V102	WING	E	20		6 6.00							6 6	6 6	430

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		END BENT 4													
18	6 F400	WING BRACE	E	15S		14.00	4 9.75	2 3.00	19.00	19.00	10.00	10.00	8 3	8 2	221
6	6 F401	DIAPHRAGM	E	19S		5 11.00	2 6.00						8 5	8 3	74
7	6 H400	BEAM & DIAPH	E	20		26 5.00							26 5	26 5	278
12	9 H401	BEAM & DIAPH	E	20		26 5.00							26 5	26 5	1078
4	6 H402	DIAPHRAGM	E	20		3 8.00							3 8	3 8	22
2	6 H403	DIAPHRAGM	E	20		2 5.00							2 5	2 5	7
4	6 H404	DIAPHRAGM	E	20		7 11.00							7 11	7 11	48
2	6 H405	DIAPHRAGM	E	20		5 5.00							5 5	5 5	16
3	9 H406	BEAM	E	18		6 2.00							8 8	8 8	88
3	5 H407	STRAND TIE	E	20		5 9.00							5 9	5 9	18
16	8 H408	WING	E	19		16.00	12 2.00						13 6	13 4	570
40	6 H409	WING	E	19		12.00	11 4.00						12 4	12 2	731
10	5 U400	BEAM	E	37S		4 7.00	2 9.00						12 11	12 8	132
24	4 U401	BEAM	E	13S		2 9.00	2 8.00	2 9.00	2 8.00				11 7	11 4	182
16	5 U402	DIAPHRAGM	E	37S		3 2.00	2 3.00						9 11	9 8	161
16	6 U403	DIAPHRAGM	E	19S		2 5.00	2 9.00						5 2	5 0	120
33	6 U404	DIAPHRAGM	E	19S		3 2.00	4 6.50						7 9	7 7	376
24	5 U405	DIAPHRAGM	E	19S		2 0.00	15.00						3 3	3 2	79
12	5 V400	BEAM	E	17		4 7.00							5 2	5 2	65
15	6 V401	DIAPHRAGM	E	20		2 5.00							2 5	2 5	54
44	6 V402	WING	E	20		6 7.00							6 7	6 7	435
		DIAPH AT INT BENT 2 & 3													
8	6 H500	DIAPHRAGM	E	20		5 6.00							5 6	5 6	66
8	6 H501	DIAPHRAGM	E	20		7 10.00							7 10	7 10	94
16	4 H502	DIAPHRAGM	E	20		8 2.00							8 2	8 2	87
8	5 H503	STRAND TIE	E	20		4 8.00							4 8	4 8	39
4	5 H504	STRAND TIE	E	20		5 9.00							5 9	5 9	24
40	4 U500	DIAPHRAGM	E	28S			18.00	3 3.25	2 1.00				6 11	6 8	178
16	6 U501	DIAPHRAGM	E	28S			2 2.00	3 3.50	2 3.00				7 9	7 5	178
16	6 U502	DIAPHRAGM	E	28S			2 2.00	2 8.75	2 3.00				7 2	6 10	164
16	6 U503	DIAPHRAGM	E	28S			2 2.00	2 8.75	22.00				6 9	6 5	154
8	5 U504	DIAPHRAGM	E	19S		4 5.00	12.00						5 5	5 4	45
24	5 U505	DIAPHRAGM	E	11S			17.00	12.00	4 5.00				6 10	6 8	167
16	5 V500	DIAPHRAGM	E	20		3 6.00							3 6	3 6	58
		SLAB													
92	7 S1	SLAB	E	20		58 0.00							58 0	58 0	10907
40	8 S2	SLAB	E	20		31 7.00							31 7	31 7	3373
40	8 S3	SLAB	E	20		31 8.00							31 8	31 8	3382
427	6 S4	SLAB	E	20		26 5.00							26 5	26 5	16942
428	5 S5	SLAB	E	20		5 8.00							5 8	5 8	2530
24	5 S6	SLAB	E	20		57 1.00							57 1	57 1	1429
		TYPE H BARRIER													
442	5 R1	BARRIER	E	14S		2 5.00	6.50	2 5.50			2 5.00	5.50	5 5	5 3	2420
442	5 R2	BARRIER	E	19S		20.50	9.50						2 6	2 5	1114
442	5 R3	BARRIER	E	27S			9.50	15.25	5.00	12.00	15.00	3.00	3 6	3 5	1575
32	5 R4	BARRIER	E	20		54 6.00							54 6	54 6	1819
64	5 R5	BARRIER	E	20		11 9.00							11 9	11 9	784
16	5 R6	BARRIER	E	20		55 9.00							55 9	55 9	930
20	5 K1	BARRIER	E	27S		3 8.00	9.25	5.25	3 2.75		5.25	1.00	8 2	7 11	165
60	5 K2	BARRIER	E	27S		3 8.00	9.25	14.50	2 5.75		14.25	2.75	8 2	8 0	501
80	5 K4	BARRIER	E	19S		2 5.00	10.00						3 3	3 2	264
20	5 K5	BARRIER	E	38S				19.25	9.50	8.25	18.75	4.25	3 1	3 0	63
60	5 K6	BARRIER	E	21S			2 5.00	10.00			2 4.25	6.00	3 3	3 1	193
56	5 K7	BARRIER	E	20		12 5.00							12 5	12 5	725
40	5 C1	BARRIER	E	20		12 0.00							12 0	12 0	501
8	5 C2	BARRIER	E	20		9 9.00							9 9	9 9	81

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

For bending diagrams and steel reinforcing totals, see Sheet No. 27.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

Detailed Feb. 2025
Checked Apr. 2025

BILL OF REINFORCING STEEL

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

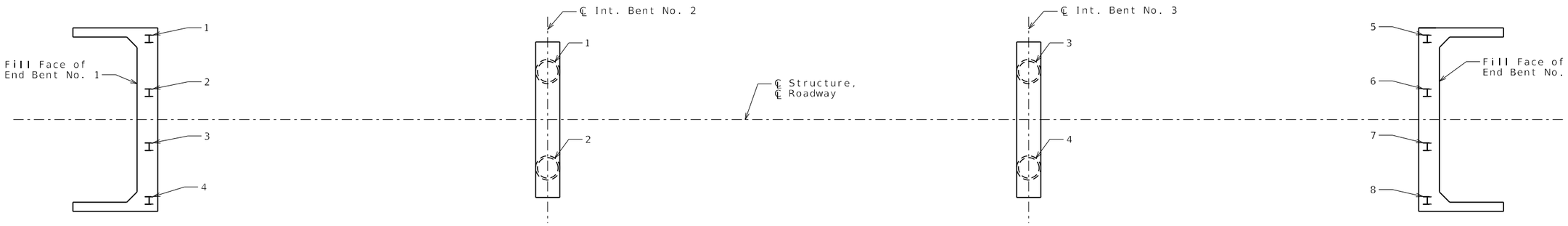
STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25
ROUTE C
STATE MO
DISTRICT BR
SHEET NO. 28
COUNTY PERRY
JOB NO. JSE0056
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9410

DESCRIPTION	DATE

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

MODJESKI and MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115



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

As-Built Pile Data

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

As-Built Drilled Shaft Data

Shaft No.	Top of Sound Rock (Elev.)	Tip of Casing (Elev.)	Bottom of Rock Socket (Elev.)	Remarks
				Int. Bent No. 2
1				
2				
				Int. Bent No. 3
3				
4				

AS-BUILT PILE AND DRILLED SHAFT DATA

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

This sheet to be completed by MoDOT construction personnel.

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	29

COUNTY: PERRY
JOB NO.: JSE0056
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9410

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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SCI ENGINEERING, INC.
130 Point West Boulevard
St. Charles, Missouri 63301
636-949-8200
www.sciengineering.com

BORING LOG LEGEND AND NOMENCLATURE

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

Sample Type

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

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

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

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

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

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

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

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

Laboratory Test Results

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

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

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

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

ROCK CORE DESCRIPTIONS

Descriptions of rock core are defined as follows:

Hardness

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

Crystallinity

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

Mass Bedding

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

Weathering

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

Voids

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

Geologic Definitions

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

Fissility A property of splitting along closely spaced parallel planes.

Calcareous A term applied to rocks containing calcium carbonate.

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25

ROUTE	STATE
C	MO
DISTRICT	SHEET NO.
BR	30

COUNTY PERRY

JOB NO. JSE0056

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9410

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

MODESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

BORING DATA

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

Detailed Feb. 2025
Checked Apr. 2025

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-101
Page 1 of 2

Job No.: JSE0056 (SCI No. 2024-0652.10) **County:** Perry **Route:** Route C Over Apple Creek
Design: A9410 **Skew:** **Location:** Perry County, Missouri
Bent: End Bent #1 **Logged By:** Patrick Szopinski **Operator:** Midwest Drilling, Inc.
Station: **Northing:** 641436.59 **Date of Work:** 08/20/24
Offset: **Easting:** 1080175.69 **Depth to Water:** 31.0
Elevation: 370.2 **Requested Northing:** **Depth Hole Open:** 51.5
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** CME 750 ,Auger Cuttings, Split-Spoon Sampler, NX
Requested Elevation: **Location Note:**
Drill No.: 255648 **Hammer Efficiency:** 93.7% **Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.2' 2" ASPHALTIC CONCRETE 0.2-0.7' 6" CONCRETE 0.7-16.5' AIR	370						
5			365						
10			360						
15		16.5-23.5' AUGER DOWN TO 23.5 ft.	355						
20			350						MC = 29.5%
25		23.5-27.0' (CL) Gray and brown, LEAN CLAY	345	X	83	0-0-1 (2)		PP <0.25 tsf	LL = 31 PL = 21 MC = 28.2% Sieve Analysis Sieve # % Passing 3/8-inch 100.0 #4 100.0 #10 99.9 #20 99.6 #40 99.0 #60 96.2 #100 92.3 #140 91.6 #200 90.9
30		27.0-32.0' (SP) Gray, POORLY GRADED SAND, fine- to medium-grained, trace organics	340	X	72	0-1-2 (5)		PP <0.25 tsf	MC = 31.5%
35		32.0-37.0' WEAK ROCK, cherty limestone and shale		X	28	15-3-4 (11)			MC = 34.0%

N_{80} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000002794
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-101
Page 2 of 2

Job No.: JSE0056 (SCI No. 2024-0652.10) **County:** Perry **Route:** Route C Over Apple Creek
Design: A9410 **Skew:** **Location:** Perry County, Missouri
Bent: End Bent #1 **Logged By:** Patrick Szopinski **Operator:** Midwest Drilling, Inc.
Station: **Northing:** 641436.59 **Date of Work:** 08/20/24
Offset: **Easting:** 1080175.69 **Depth to Water:** 31.0
Elevation: 370.2 **Requested Northing:** **Depth Hole Open:** 51.5
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** CME 750 ,Auger Cuttings, Split-Spoon Sampler, NX
Requested Elevation: **Location Note:**
Drill No.: 255648 **Hammer Efficiency:** 93.7% **Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35		32.0-37.0' WEAK ROCK, cherty limestone and shale *(continued)*	335						
40		37.0-41.5' (CL) Gray and brown, SANDY LEAN CLAY, with fine to coarse gravel, sand is fine- to coarse-grained	330	X	33	4-6-7 (20)		PP = 1.00 tsf	MC = 15.6%
45		41.5-51.5' SHALEY LIMESTONE: Gray, soft, micritic, thin to banded bedding, highly weathered, pitted 43.2' Interbedded with gray shale 44.9'	325		77 (0)		Qu Test Results UCS = 786 ksf MC = 0% γ_{moist} = 167.8 pcf		
50			320		90 (15)		Qu Test Results UCS = 2030 ksf MC = 0% γ_{moist} = 166 pcf		
		Refusal at 41.5 feet. Bottom of borehole at 51.5 feet.			100 (72)				

N_{80} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000002794
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25
ROUTE C | STATE MO
DISTRICT BR | SHEET NO. 31
COUNTY PERRY
JOB NO. JSE0056
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9410

DESCRIPTION | DATE

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

MODJESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

BORING DATA

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

Detailed Feb. 2025
Checked Apr. 2025

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-201
Page 1 of 2

Job No.: JSE0056 (SCI No. 2024-0652.10) **County:** Perry **Route:** Route C Over Apple Creek
Design: A9410 **Skew:** **Location:** Perry County, Missouri
Bent: Interior Bent #2 **Logged By:** Patrick Szopinski **Operator:** Midwest Drilling, Inc.
Station: **Northing:** 641387.57 **Date of Work:** 08/20/24
Offset: **Easting:** 1080133.96 **Depth to Water:** 33.5
Elevation: 370.0 **Requested Northing:** **Depth Hole Open:** 50.0
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** CME 750 ,Split-Spoon Sampler, NX
Requested Elevation: **Location Note:**
Drill No.: 255648 **Hammer Efficiency:** 93.7% **Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.3' 2.5" ASPHALTIC CONCRETE 0.3-0.7' 6" CONCRETE 0.7-33.0' AIR	370						
5			365						
10			360						
15			355						
20			350						
25			345						
30			340						
35		▽ 33.0' AUGER DOWN TO 33.5 ft. 33.5-35.0' (CL) Gray, SANDY LEAN CLAY, sand	335		70	4-50/0.3'		PP = 0.50 tsf	MC = 30.6%

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000002794
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-201
Page 2 of 2

Job No.: JSE0056 (SCI No. 2024-0652.10) **County:** Perry **Route:** Route C Over Apple Creek
Design: A9410 **Skew:** **Location:** Perry County, Missouri
Bent: Interior Bent #2 **Logged By:** Patrick Szopinski **Operator:** Midwest Drilling, Inc.
Station: **Northing:** 641387.57 **Date of Work:** 08/20/24
Offset: **Easting:** 1080133.96 **Depth to Water:** 33.5
Elevation: 370.0 **Requested Northing:** **Depth Hole Open:** 50.0
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** CME 750 ,Split-Spoon Sampler, NX
Requested Elevation: **Location Note:**
Drill No.: 255648 **Hammer Efficiency:** 93.7% **Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35		is fine- to medium-grained 34.3' *PERCENT PASSING THE NUMBER 200 SIEVE: 62.5%*	335		77 (52)				
40		35.0-49.5' SHALEY LIMESTONE: Gray, moderately hard, micritic, thin bedding, moderately weathered, dense 38.0' Medium bedding, slightly weathered	330		100 (90)				
45			325		100 (61)		Qu Test Results UCS = 534 ksf MC = 0% γ_{moist} = 162.3 pcf		
50		49.5-50.0' SHALE: Gray, soft, slightly weathered Refusal at 35.0 feet. Bottom of borehole at 50.0 feet.	320						

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

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STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25
ROUTE C | STATE MO
DISTRICT BR | SHEET NO. 32
COUNTY PERRY
JOB NO. JSE0056
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9410

DESCRIPTION | DATE

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

MODJESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

BORING DATA

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

Detailed Feb. 2025
Checked Apr. 2025

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-301
Page 1 of 2

Job No.: JSE0056 (SCI No. 2024-0652.10)
Design: A9410
Bent: Interior Bent #3
Station:
Offset:
Elevation: 369.9
Requested Station:
Requested Offset:
Requested Elevation:
Drill No.: 255648

County: Perry
Skew:
Logged By: Patrick Szopinski
Northing: 641313.93
Easting: 1080083.44
Requested Northing:
Requested Easting:
Equipment: CME 750 ,NX
Location Note:
Hammer Efficiency: 93.7%

Route: Route C Over Apple Creek
Location: Perry County, Missouri
Operator: Midwest Drilling, Inc.
Date of Work: 08/21/24
Depth to Water: None
Depth Hole Open: 50.0
Time Change:
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.3' 2.5" ASPHALTIC CONCRETE 0.3-0.7' 6" CONCRETE 0.7-35.0' AIR							
5			365						
10			360						
15			355						
20			350						
25			345						
30			340						
35			335						

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000002794
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-301
Page 2 of 2

Job No.: JSE0056 (SCI No. 2024-0652.10)
Design: A9410
Bent: Interior Bent #3
Station:
Offset:
Elevation: 369.9
Requested Station:
Requested Offset:
Requested Elevation:
Drill No.: 255648

County: Perry
Skew:
Logged By: Patrick Szopinski
Northing: 641313.93
Easting: 1080083.44
Requested Northing:
Requested Easting:
Equipment: CME 750 ,NX
Location Note:
Hammer Efficiency: 93.7%

Route: Route C Over Apple Creek
Location: Perry County, Missouri
Operator: Midwest Drilling, Inc.
Date of Work: 08/21/24
Depth to Water: None
Depth Hole Open: 50.0
Time Change:
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35									
40		35.0-39.3' DOLOMITE: Light gray and brown, moderately hard, micritic, medium bedding, moderately weathered, pitted 37.0' Becomes gray, slightly weathered, dense 37.4' 3" SHALEY CLAY			100 (80)		Qu Test Results UCS = 1480 ksf MC = 0% γ_{moist} = 178.2 pcf		
45		39.3-50.0' SHALEY LIMESTONE: Gray, moderately hard, micritic, medium to thick bedding, slightly weathered, dense	330		90 (65)		Qu Test Results UCS = 1190 ksf MC = 0% γ_{moist} = 167.5 pcf		
50		Refusal at 35.0 feet. Bottom of borehole at 50.0 feet.	325		98 (82)		Qu Test Results UCS = 932 ksf MC = 0% γ_{moist} = 163.6 pcf		
			320						

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000002794
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

LETTER BOREHOLE - MODOT 20150728.GDT - 12/19/24 15:29 - N:\LABORATORY\ACTIVE GINT PROJECTS\2024-0652.10 MODOT SE DISTRICT BRIDGE REPLACEMENT.GPJ

STATE OF MISSOURI
JERILYN M. HASSARD
NUMBER PE-2002003174
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

DATE PREPARED 5/1/25
ROUTE C | STATE MO
DISTRICT BR | SHEET NO. 33
COUNTY PERRY
JOB NO. JSE0056
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9410

DESCRIPTION | DATE

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

MODJESKI-MASTERS
333 SOUTH 18th STREET, SUITE 100
ST. LOUIS, MISSOURI 63103-2256
TEL: (314) 588-8115

BORING DATA

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

Detailed Feb. 2025
Checked Apr. 2025

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-401
Page 1 of 1

Job No.: JSE0056 (SCI No. 2024-0652.10) **County:** Perry **Route:** Route C Over Apple Creek
Design: A9410 **Skew:** **Location:** Perry County, Missouri
Bent: End Bent #4 **Logged By:** Patrick Szopinski **Operator:** Midwest Drilling, Inc.
Station: **Northing:** 641257.05 **Date of Work:** 08/14/24
Offset: **Easting:** 1080086.08 **Depth to Water:** 13.5
Elevation: 368.2 **Requested Northing:** **Depth Hole Open:** 29.0
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** CME 750 ,Split-Spoon Sampler, Shelby Tube, NX
Requested Elevation: **Location Note:** Drilled in grass east of the roadway
Drill No.: 255648 **Hammer Efficiency:** 93.7% **Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.3' 4" TOPSOIL							
		0.3-5.5' (CH) Gray, FAT CLAY, trace fine- to medium-grained sand	365	X	50	2-2-3 (8)		PP = 0.50 tsf	MC = 24.2%
5				X	67	2-2-3 (8)		PP = 0.75 tsf	LL = 56 PL = 19 MC = 18.7%
		5.5-8.0' (CL) Gray, LEAN CLAY, trace fine- to medium-grained sand	360	X	89	2-3-4 (11)		PP = 0.75 tsf	MC = 25.7%
10		8.0-12.0' (CL) Brown and gray, SANDY LEAN CLAY, with fine to coarse gravel, sand is fine- to coarse-grained		■	100		Qu Test Results UCS = 2.60 ksf MC = 28.8% γ_{moist} = 115.0184 pcf		LL = 49 PL = 22
		12.0-19.0' WEAK ROCK, sandstone	355						
15		14.3' *ATTERBERG LIMIT TESTING PERFORMED: Non-plastic*		X	78	5-16-30 (72)			MC = 21.6%
			350		100	50/0.1"			
20		19.0-29.0' DOLOMITE: Tan, moderately hard, micritic to coarsely crystalline, thin to medium bedding, moderately weathered, pitted	345	■	100 (42)		Qu Test Results UCS = 282 ksf MC = 0% γ_{moist} = 156.2 pcf		
25			340	■	100 (58)		Qu Test Results UCS = 424 ksf MC = 0% γ_{moist} = 157.6 pcf		
		Refusal at 19.0 feet. Bottom of borehole at 29.0 feet.							

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

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BORING DATA

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

Detailed Feb. 2025
Checked Apr. 2025

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STATE OF MISSOURI
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ROUTE C | STATE MO
DISTRICT BR | SHEET NO. 34
COUNTY PERRY
JOB NO. JSE0056
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9410

DESCRIPTION | DATE

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JEFFERSON CITY, MO 65102
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