

**DESIGN DESIGNATION**

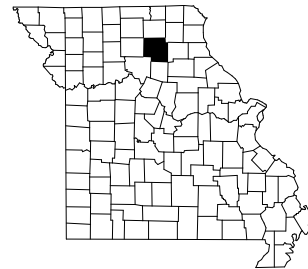
A.A.D.T. - 2025 = 128  
 A.A.D.T. - 2045 = 142  
 D.H.V. = 22.05%  
 T = 8.66%  
 V = 55 M.P.H.  
 DIRECTIONAL DISTRIBUTION = 45.7%E / 54.3%W  
 FUNCTIONAL CLASSIFICATION- MAJOR COLLECTOR

**NORMAL R/W**  
 NO NEW R/W

# MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

## PLANS FOR PROPOSED STATE HIGHWAY

### MACON COUNTY

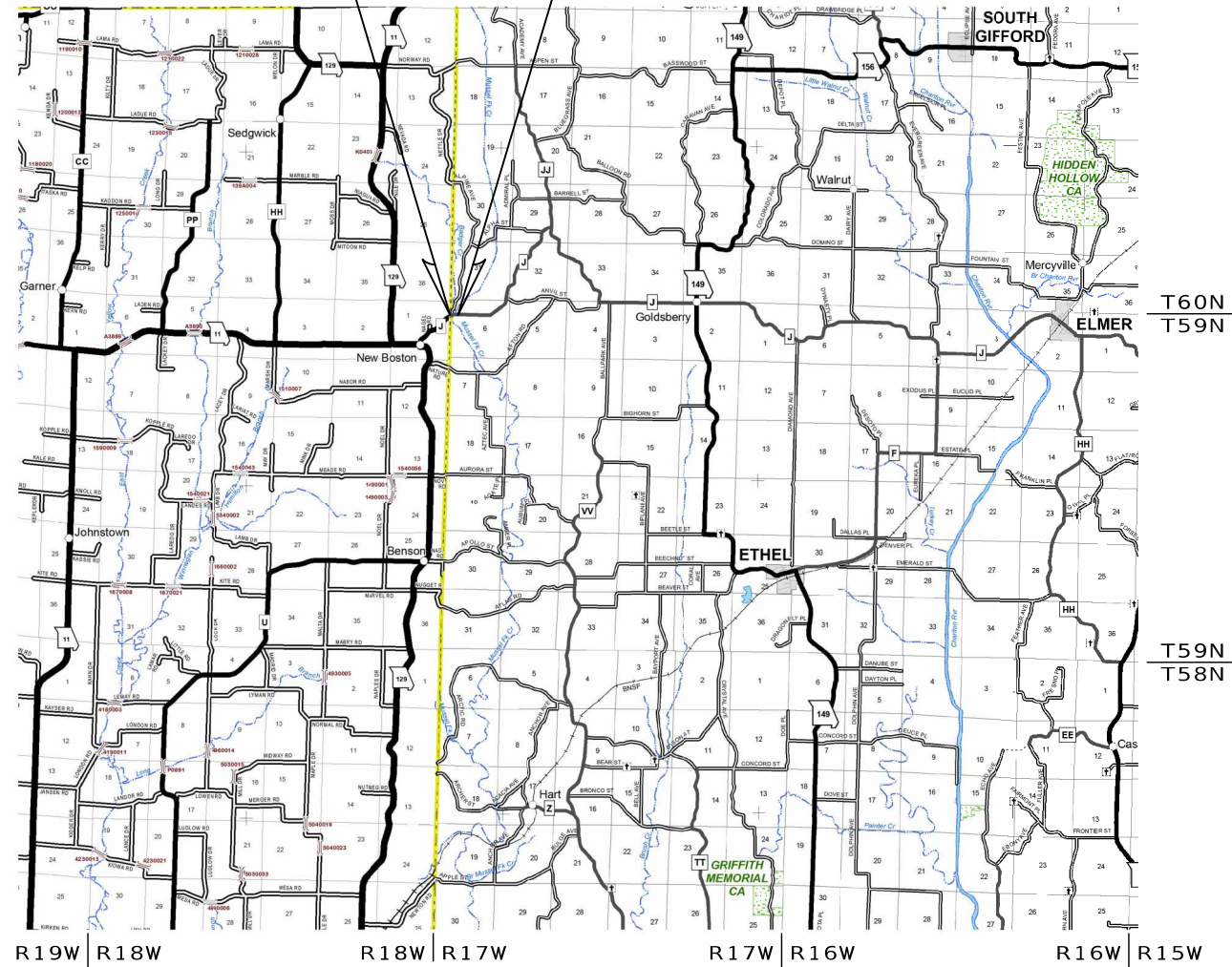


PROJECT LOCATION

T59N - R17W  
 T59N - R18W

BRIDGE REPLACEMENT  
 PROJECT LIMITS

END PROJECT STA. 104+25.00  
 BEGIN PROJECT STA. 104+25.00

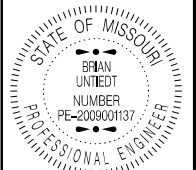


LINN CO. | MACON CO.



**INDEX OF SHEETS**

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DATE PREPARED  
 12/2/2024  
 ROUTE J STATE MO  
 DISTRICT NE SHEET NO. 1  
 COUNTY MACON  
 JOB NO. J252160  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO.

DESCRIPTION	DATE

**CONVENTIONAL SYMBOLS**  
 (USED IN PLANS)

	EXISTING	NEW
BUILDINGS AND STRUCTURES	[Symbol]	[Symbol]
GUARD RAIL	[Symbol]	[Symbol]
GUARD CABLE	[Symbol]	[Symbol]
CONCRETE RIGHT-OF-WAY MARKER	[Symbol]	[Symbol]
STEEL RIGHT-OF-WAY MARKER	[Symbol]	[Symbol]
LOCATION SURVEY MARKER	[Symbol]	[Symbol]
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	[Symbol]	[Symbol]
FIRE HYDRANT	[Symbol]	[Symbol]
WATER VALVE	[Symbol]	[Symbol]
WATER METER	[Symbol]	[Symbol]
DROP INLET	[Symbol]	[Symbol]
DITCH BLOCK	[Symbol]	[Symbol]
GROUND MOUNTED SIGN	[Symbol]	[Symbol]
LIGHT POLE	[Symbol]	[Symbol]
H-FRAME POWER POLE	[Symbol]	[Symbol]
TELEPHONE PEDESTAL	[Symbol]	[Symbol]
FENCE	[Symbol]	[Symbol]
CHAIN LINK	[Symbol]	[Symbol]
WOVEN WIRE	[Symbol]	[Symbol]
GATE POST	[Symbol]	[Symbol]
BENCHMARK	[Symbol]	[Symbol]

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

**LENGTH OF PROJECT**

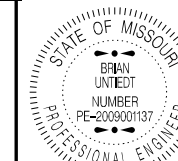
BEGINNING OF PROJECT	STA. 104+25.00
END OF PROJECT	STA. 113+25.00
APPARENT LENGTH	900.00 FEET
EQUATIONS AND EXCEPTIONS:	
NONE	0.00 FEET

TOTAL CORRECTIONS	0.00 FEET
NET LENGTH OF PROJECT	900.00 FEET
STATE LENGTH	0.170 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	1.27 ACRES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

TITLE SHEET



Brian Untiedt  
 12/29/2024 12:31:02 PM  
 BRIAN UNTIEDT - CIVIL  
 MO-PE-2009001137

DATE PREPARED  
 11/25/2024

ROUTE STATE  
 J MO

DISTRICT SHEET NO.  
 NE 2

COUNTY  
 MACON

JOB NO.  
 J2S2160

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

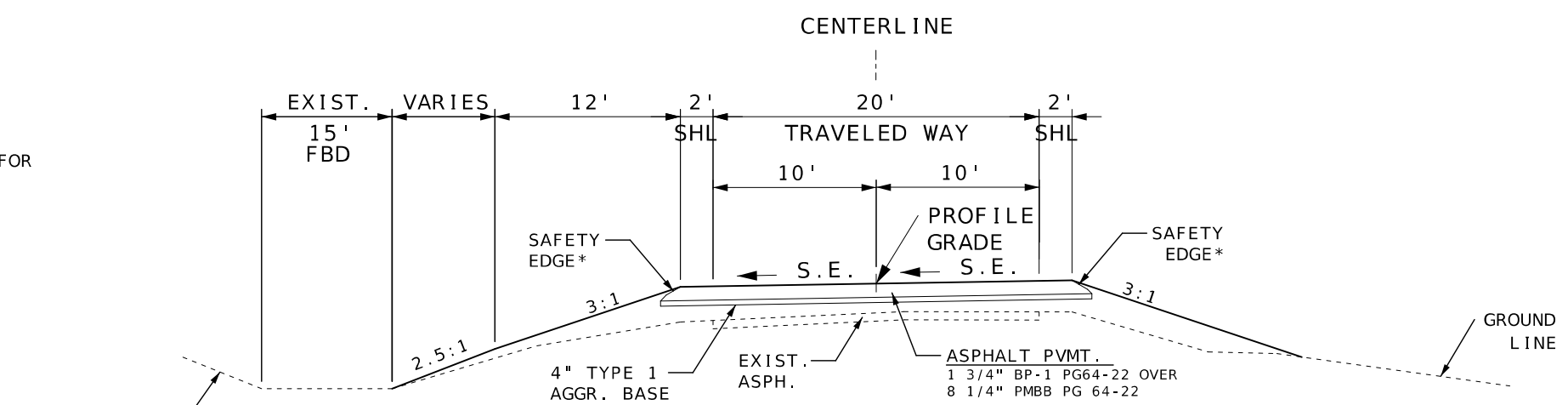
DESCRIPTION	DATE

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

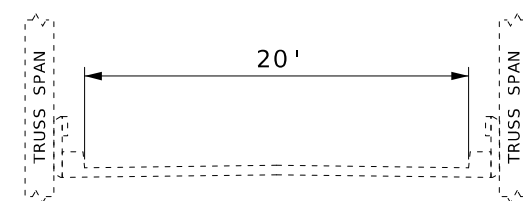


TYPICAL SECTION

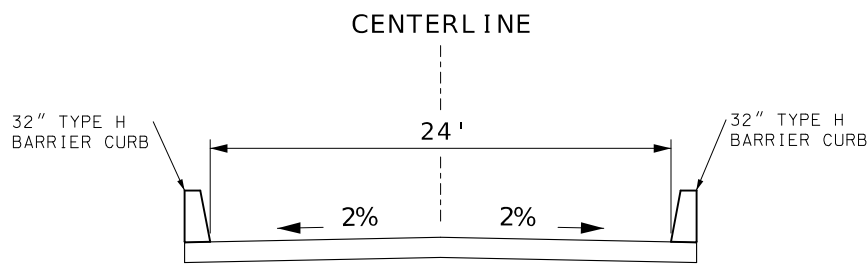
\*SEE STD. PLANS FOR SAFETY EDGE



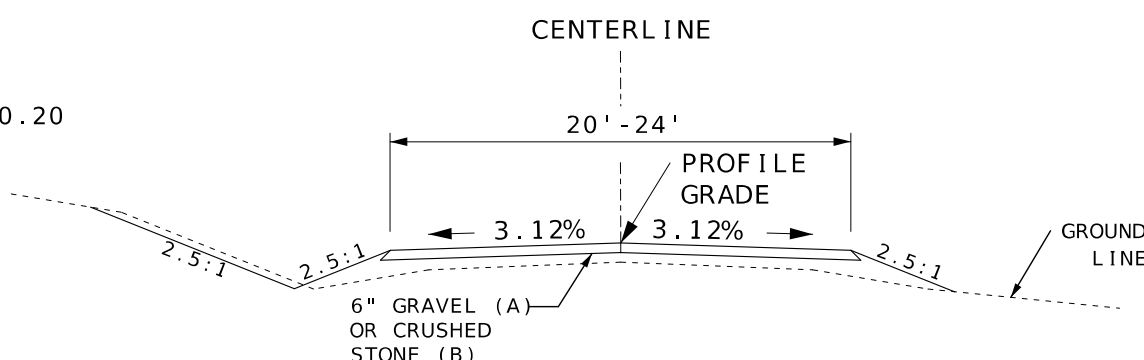
TYPICAL SECTION  
 RTE. J  
 STA. 104+25.00 TO STA. 108+70.20



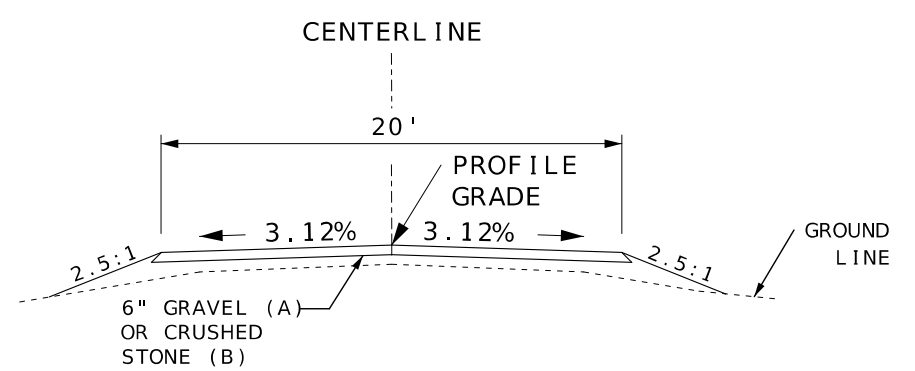
EXISTING BRIDGE N0251  
 STA. 109+35 TO STA. 111+09



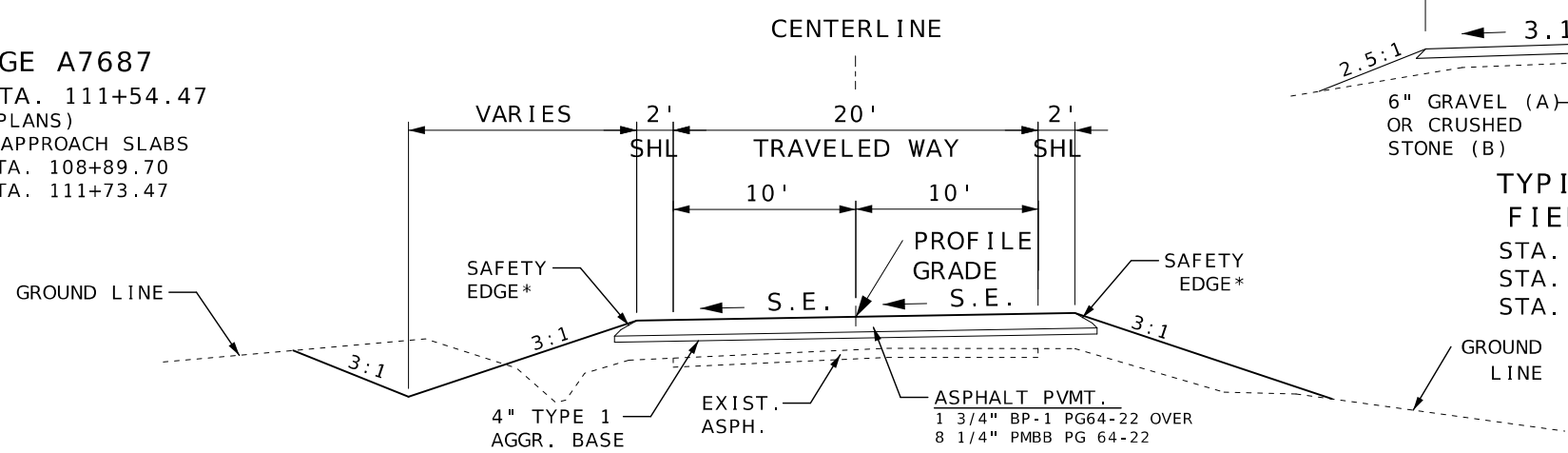
PROPOSED BRIDGE A7687  
 STA. 108+89.20 TO STA. 111+54.47  
 (SEE BRIDGE PLANS)  
 ASPHALT MINOR BRIDGE APPROACH SLABS  
 STA. 108+70.20 TO STA. 108+89.70  
 STA. 111+53.97 TO STA. 111+73.47



TYPICAL SECTION  
 CO. RD. ALPINE AVE.  
 STA. 10+00.00 TO STA. 11+50.00



TYPICAL SECTION  
 FIELD ENTRANCE  
 STA. 108+00.00 LT.  
 STA. 108+00.00 RT.  
 STA. 112+70.00 LT.



TYPICAL SECTION  
 RTE. J  
 STA. 111+73.47 TO STA. 113+25.00

NOTE: NOT TO SCALE.

ASPHALT PAVEMENT										
STATION	STATION	LOCATION	WIDTH FT.	LENGTH FT.	AREA SF	10" BITUMINOUS PAVEMENT SY	4" TYPE 1 AGGR. FOR BASE SY	TACK 1 LIFT .08 GAL/SY GAL	TACK 2 LIFTS .05 GAL/SY GAL	REMARKS
104+25.00	108+70.20	RTE. J	24	445.20	10836	1228.1	1228	98	123	INCL. TWO 20:1 TAPERS & SAFETY EDGE
111+73.47	113+25.00	RTE. J	24	151.53	3767	426.9	427	34	43	INCL. TWO 20:1 TAPERS & SAFETY EDGE
TOTAL						1655.0	1655	298		

MOBILIZATION  
LUMP SUM 1

CONTRACTOR FURNISHED  
SURVEYING AND STAKING  
LUMP SUM 1

EARTHWORK							
STATION	STATION	LOCATION	CLASS A EXCAVATION CY	COMPACTING EMBANKMENT CY	EMBANKMENT IN PLACE CY	SUBGRADE COMPACTION STA.	REMARKS
104+25.00	108+89.70	RTE. J EAST OF BRIDGE	593	530	278	4.6	INCLUDES SPILL FILL
111+53.97	113+25.00	RTE. J WEST OF BRIDGE	601	437	-	1.7	INCLUDES SPILL FILL
10+12.00	11+50.00	ALPINE AVE.	114	202	20	-	OBTAIN 112 CY FROM WEST OF BRIDGE
TOTAL			1,308	1,169	298	6.3	

MISC. SEEDING & MULCHING

NW QUAD - 0.162 AC.
SW QUAD - 0.062 AC.
NE QUAD - 0.106 AC.
SE QUAD - 0.112 AC.
<b>TOTAL 0.442 ACRE</b>
USE 1 LUMP SUM

ESTIMATE FACTORS

BP-1 1.948 TONS/CY
PMBB 1.943 TONS/CY
GRAVEL (A)/CRUSHED STONE(B) 0.039 TONS/SY/INCH

TYPE 1 ROCK DITCH LINER AND PERMANENT EROSION CONTROL GEOTEXTILE								
BEGIN STATION	END STATION	LOCATION	LENGTH FT.	WIDTH FT.	FURNISHING TYPE 1 ROCK DITCH LINER (CY)	PLACING TYPE 1 ROCK DITCH LINER (CY)	PERMANENT EROSION CONTROL GEOTEXTILE (SY)	REMARKS
111+00.00	112+09.00	RTE. J RT.	109	6	16	16	89	RUN ADJACENT TO REVETMENT
112+40.00	113+25.00	RTE. J LT.	90	6	13	13	73	
TOTAL					29	29	162	

HEAVY STONE REVETMENT								
STATION	LOCATION	WIDTH FT.	LENGTH FT.	DEPTH FT.	AREA SF	HEAVY STONE REVETMENT SY	PERMANENT EROSION CONTROL GEOTEXTILE SY	REMARKS
108+89.70	RTE. J	75	48	2	5782	642	771	EAST SPILL FILL AND SIDE SLOPES
-	RTE. J	2	475	2	950	106	475	ADDTL. 2' D FOR 4' D KEY ALONG EACH TOE'S PERIMETER
111+53.97	RTE. J	101	48	2	6888	765	898	WEST SPILL FILL AND SIDE SLOPES
TOTAL						1513	2144	

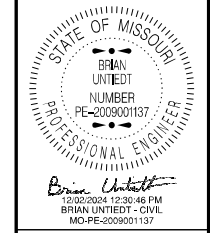
TEMPORARY EROSION CONTROL				
SHEET	ROCK DITCH CHECK (LF)	SEDIMENT REMOVAL (CY)	SILT FENCE (LF)	TYPE C BERM (LF)
12	100	23	1272	340
<b>TOTAL</b>	<b>100</b>	<b>23</b>	<b>1272</b>	<b>340</b>

DITCH CHECKS ESTIMATED AT 10' EACH  
1 CY OF SEDIMENT REMOVAL PER DITCH CHECK AND PER 100 LF OF SILT FENCE

PAVEMENT MARKING							
STATION	STATION	LOCATION	LENGTH FT.	WATERBORNE MARKING PAINT WITH TYPE P BEADS	WATERBORNE MARKING PAINT WITH TYPE P BEADS	REMARKS	
				4" YELLOW LF	4" WHITE LF		
103+70.00	116+75.00	RTE. J	1305	2610	-	DOUBLE YELLOW CENTERLINE	
103+70.00	116+75.00	RTE. J	1305	-	2610	EDGELINE 10' LEFT AND RIGHT	
TOTAL				2610	2610	SEE SPECIAL SHEET	

DRIVEWAYS								
STATION	LOCATION	TYPE	LENGTH FT.	SURFACING DEPTH FT.	LINEAR GRADING, CL. 2 STA	GRAVEL (A)/ CRUSHED STONE (B) SY	18" GRP C PIPE LF	REMARKS
108+00.00	RTE. J RT.	I	70	0.5	0.7	138	UIP	FE
108+00.00	RTE. J LT.	I	50	0.5	0.5	100	-	FE
112+54.20	RTE. J RT.	II	88	0.5	-	411	70	SEE CROSS SECTIONS
112+70.00	RTE. J LT.	I	50	0.5	0.5	88	36	FE
TOTAL					1.7	737	106	

REMOVAL OF IMPROVEMENTS		
STATION	LOCATION	REMARKS
92+59.00	RTE. J	ONE LANE BRIDGE SIGNS, POST & BASE EAST OF BRIDGE
101+79.00	RTE. J	LOAD POSTING SIGNS, POST & BASE EAST OF BRIDGE
104+25.00	RTE. J	20' FULL DEPTH SAWCUT - BEGINNING OF PROJECT
104+25-109+35	RTE. J	EXIST. ASPHALT PVMT. FROM BEGIN PROJECT TO EXIST. BRIDGE
105+35.00	RTE. J	(*) CURVE LEFT & 35 MPH SIGNS, POST & BASE EAST OF BRIDGE - RT.
107+23.00	RTE. J	YIELD TO ONCOMING TRAFFIC SIGNS, POST & BASE EAST OF BRIDGE - RT.
109+35.00	RTE. J	3 OBJECT MARKERS RT.
109+35.00	RTE. J	3 OBJECT MARKERS LT.
111+09.00	RTE. J	3 OBJECT MARKERS RT.
111+09.00	RTE. J	3 OBJECT MARKERS LT.
111+09-113+25	RTE. J	EXIST. ASPHALT PVMT. FROM EXIST. BRIDGE TO END PROJECT
112+12.00	RTE. J	(*) MACON CO LINE SIGN, POST & BASE WEST OF BRIDGE - LT.
112+54.20	RTE. J	REMOVE 18" CMP LT.
112+54.20	RTE. J	REMOVE 18" CMP RT.
113+17.00	RTE. J	YIELD TO ONCOMING TRAFFIC SIGNS EAST OF BRIDGE - LT.
113+25.00	RTE. J	20' FULL DEPTH SAWCUT - END OF PROJECT
116+11.00	RTE. J	LOAD POSTING SIGNS, POST & BASE WEST OF BRIDGE
123+76.00	RTE. J	ONE LANE BRIDGE SIGNS, POST & BASE WEST OF BRIDGE
10+28.00	ALPINE	ALPINE AVE SIGN, POST & BASE - LT
10+35.00	ALPINE	(*) NEETLE RD, STOP SIGNS, POST & BASE - LT
LUMP SUM 1		



DATE PREPARED  
**11/25/2024**

ROUTE	STATE
J	MO
DISTRICT	SHEET NO.
NE	3

COUNTY  
**MACON**

JOB NO.  
**J2S2160**

CONTRACT ID.

PROJECT NO.

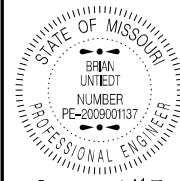
BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

QUANTITIES SHEET 1 OF 3



DATE PREPARED  
11/25/2024

ROUTE STATE  
J MO  
DISTRICT SHEET NO.  
NE 3

COUNTY  
MACON  
JOB NO.  
J2S2160  
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)

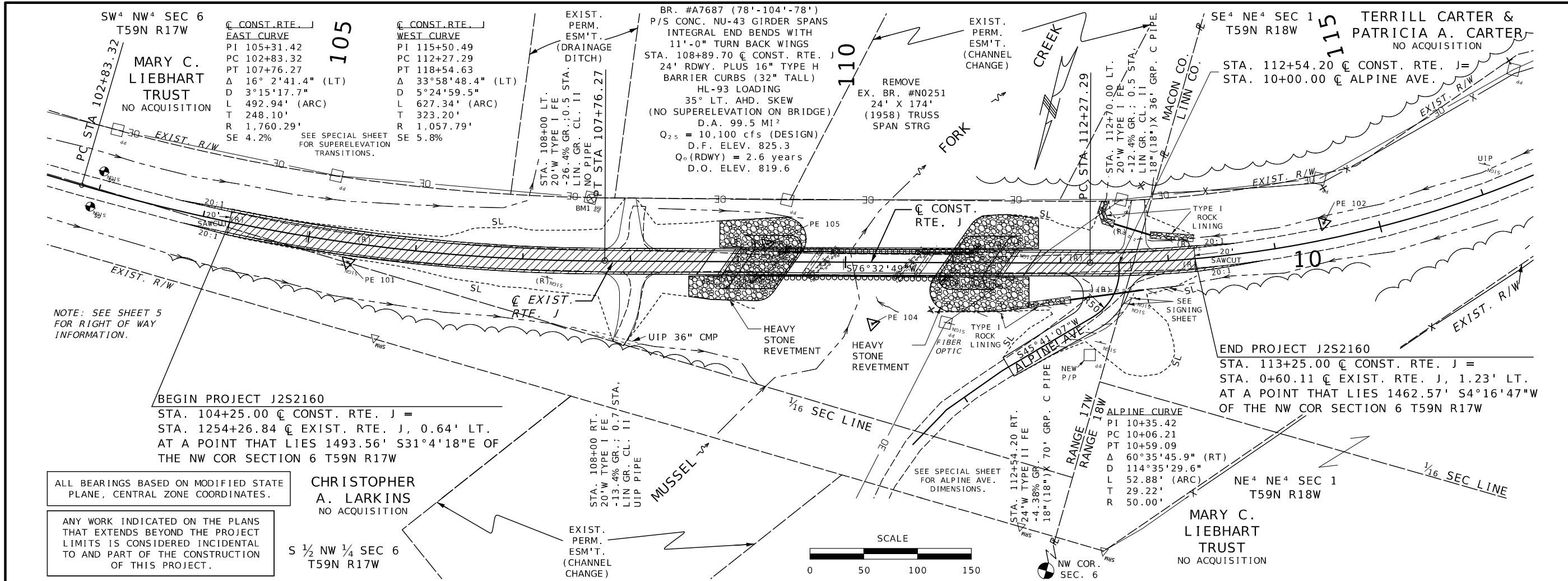
SIGNS						PERFORATED SQUARE STEEL TUBE							REMARKS AND OTHER REQUIRED ITEMS
SIGN NO.	SIGN SIZE	STATION	HORZ CLEAR IF NOT STD	LOCATION	SIGN DTL. SHT. NO.	2 IN. POST		ANCHORS			BREAKAWAY ASSEMBLY		
						POST NO. 1	POST NO. 2	TOTAL	DRIVEN 12-GA.	DRIVEN 7-GA.		CONCRETE 7-GA.	
						ITEM NO. 9031270A	ITEM NO. 9031271A	ITEM NO. 9031273A	ITEM NO. 9031274	ITEM NO. 9031241			
LF	LF	LF	EA	EA	EA	EA							
1	12"x36"	111+57		NW CORNER		16.00		16.00	1.00				
	12"x36"	111+57		NW CORNER		16.00		16.00	1.00				
	12"x36"	111+57		NW CORNER		16.00		16.00	1.00				
2	12"x36"	108+70		NE CORNER		16.00		16.00	1.00				
	12"x36"	108+70		NE CORNER		16.00		16.00	1.00				
	12"x36"	108+70		NE CORNER		16.00		16.00	1.00				
3	12"x36"	111+74		SW CORNER		16.00		16.00	1.00				
	12"x36"	111+74		SW CORNER		16.00		16.00	1.00				
	12"x36"	111+74		SW CORNER		16.00		16.00	1.00				
4	12"x36"	108+87		SE CORNER		16.00		16.00	1.00				
	12"x36"	108+87		SE CORNER		16.00		16.00	1.00				
	12"x36"	108+87		SE CORNER		16.00		16.00	1.00				
5	EXISTING	105+35		RTE J		16.00		16.00	1.00				CURVE LEFT/35 MPH
6	EXISTING	112+40		RTE J		16.00		16.00	1.00				MACON CO LINE
7	EXISTING	10+30		ALPINE RD		16.00		16.00	1.00				APLINE RD/STOP SIGN
SUBTOTAL								240.00	15.00	0.00	0.00	0.00	
TOTAL								240.00	15.00	0.0	0.0	0.0	

STANDARD SIGN ASSEMBLIES										SIGN SUMMARY									
SIGN NUMBER	STATION	LOCATION	TYPE							STANDARD SIGN OR SPECIAL SIGN NUMBER	SIGN DETAIL SHEET NO.	NO. EACH	SIZE, TYPE & SQUARE FEET						
			OM3-R	OM3-L									SIZE	FLAT SHEET SH	FLAT SHEET FLUORESCENT SHF *	STRUCTURAL ST	STRUCTURAL FLUORESCENT STF *		
			SIGN DESCRIPTION, SIZES & NUMBER OF EACH										ITEM NO. 9035004A	ITEM NO. 9035069A	ITEM NO. 9035011A	ITEM NO. 9035071A			
1	111+57	NW CORNER	3									TYPE III OBJECT MARKER (RIGHT)	STD.	3	12"x36"		9.0		
2	108+70	NE CORNER		3								TYPE III OBJECT MARKER (LEFT)	STD.	3	12"x36"		9.0		
3	111+74	SW CORNER	3									TYPE III OBJECT MARKER (LEFT)	STD.	3	12"x36"		9.0		
4	108+87	SE CORNER										TYPE III OBJECT MARKER (RIGHT)	STD.	3	12"x36"		9.0		
TOTAL			6	6											TOTAL		36		

\* ORANGE, YELLOW & YELLOW/GREEN







NOTE: SEE SHEET 5 FOR RIGHT OF WAY INFORMATION.

ALL BEARINGS BASED ON MODIFIED STATE PLANE, CENTRAL ZONE COORDINATES.

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



DATE PREPARED  
**11/25/2024**

ROUTE	STATE
J	MO
DISTRICT	SHEET NO.
NE	4

COUNTY  
MACON

JOB NO.  
J2S2160

CONTRACT ID.

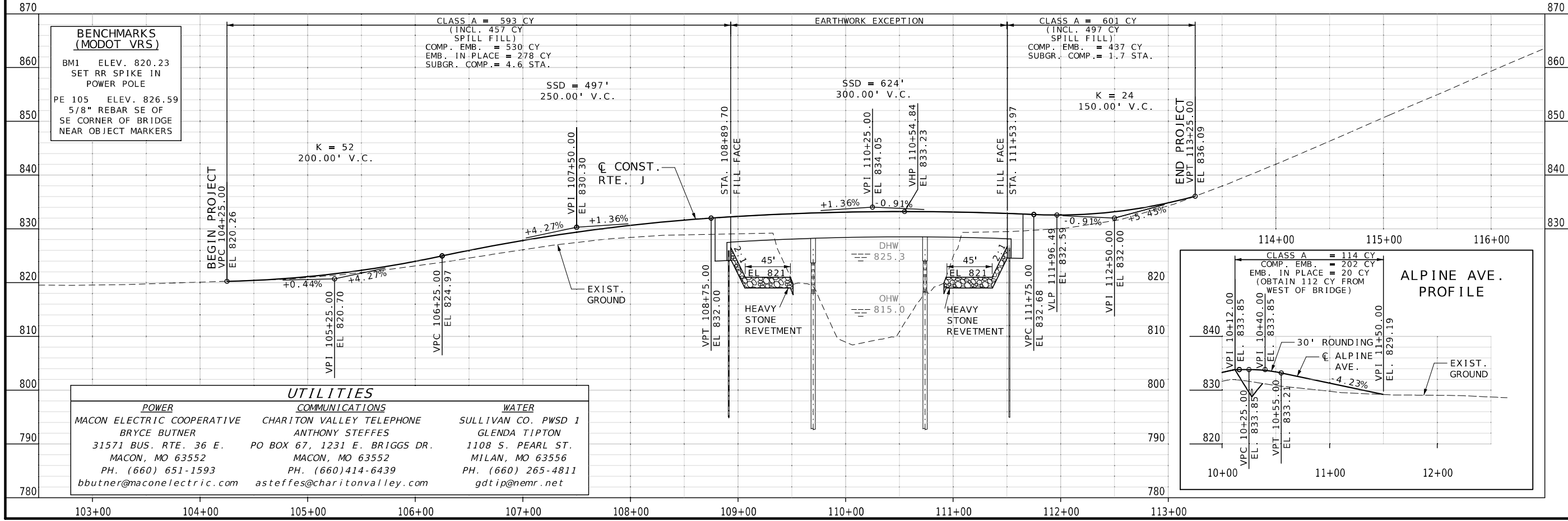
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



PLAN PROFILE SHEET



DATE PREPARED  
11/25/2024

ROUTE STATE  
J MO  
DISTRICT SHEET NO.  
NE 5

COUNTY  
MACON  
JOB NO.  
J2S2160  
CONTRACT ID.

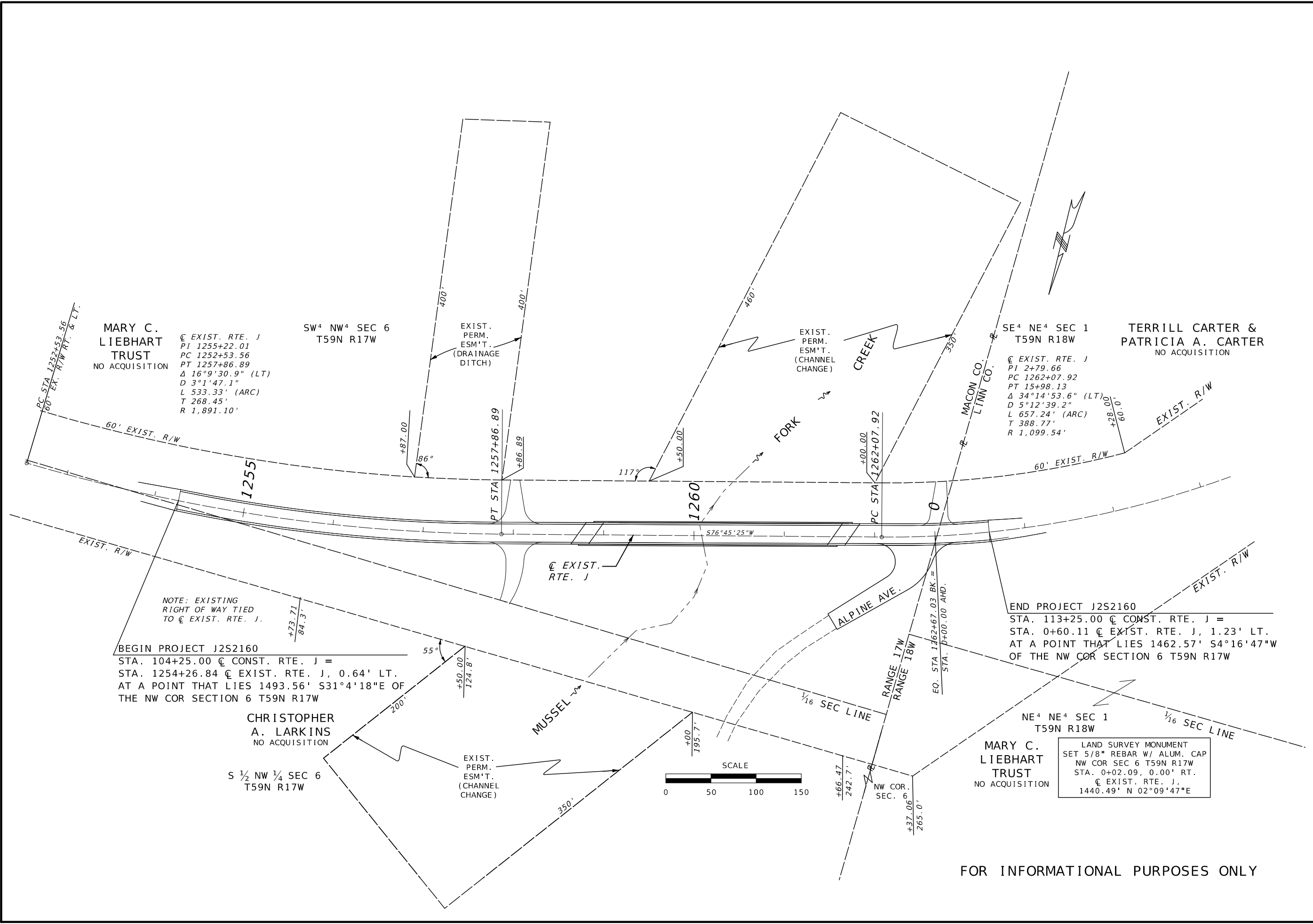
PROJECT NO.  
BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

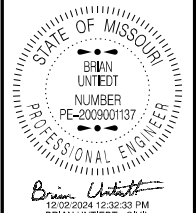
EXISTING RIGHT OF WAY SHEET



FOR INFORMATIONAL PURPOSES ONLY

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, MULTIPLY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.

PROJECT COORDINATE INFORMATION	
COORDINATE SYSTEM	MODIFIED STATE PLANE (GROUND)
HORIZONTAL DATUM	NAD 83(2011) EPOCH 2010.0
VERTICAL DATUM	NAVD 88: GNSS DERIVED
GEOID MODEL	GEOID18
ELEVATIONS DETERMINED BY	DIFFERENTIAL LEVELING / MODOT VRS
PROJECT PROJECTION FACTOR	1.0000509950
REFERENCE CONTROL INFORMATION	
COORDINATE SYSTEM	MO COORDINATE SYSTEM OF 1983
CONTROL STATION	MISSOURI CORS
DESIGNATION	MODOT MILAN CORS ARP
CORS_ID	MOML
PID	DN6087
LATITUDE	40 12 37.76062 N
LONGITUDE	93 06 57.87622 W
NORTHING (M)	486,000.913
EASTING (M)	447,566.505
ZONE	CENTRAL
PROJECT AVERAGE GRID FACTOR	0.9999490047
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 #PE105 N 1,502,654.103 X 0.9999490047 = N 1,502,577.475 E 1,542,754.367 X 0.9999490047 = E 1,542,675.694	
LINEAR UNIT CONVERSION	
1 METER = 3.280833333 US SURVEY FEET (USFT)	



DATE PREPARED  
11/25/2024

ROUTE	STATE
J	MO
DISTRICT	SHEET NO.
NE	6

COUNTY  
MACON

JOB NO.  
J252160


CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

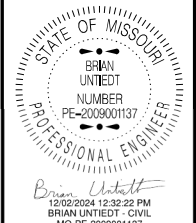
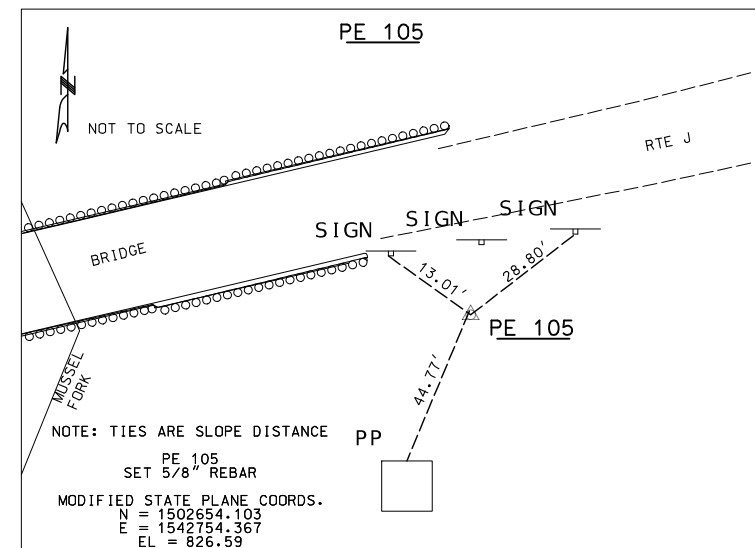
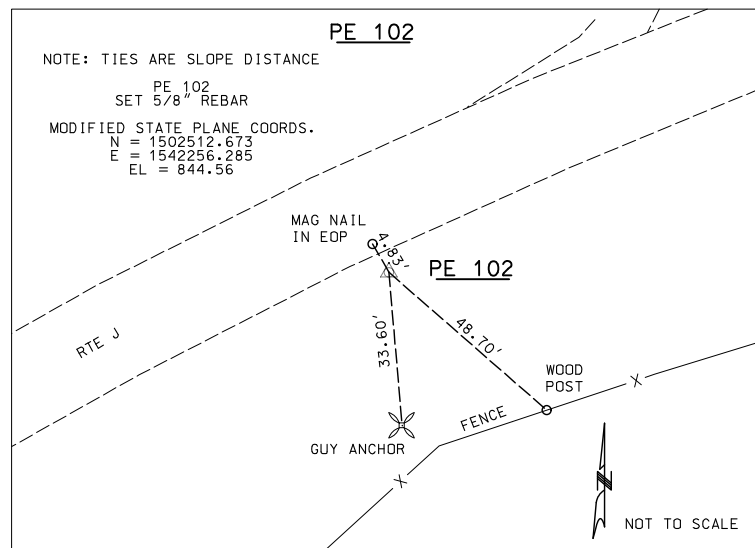
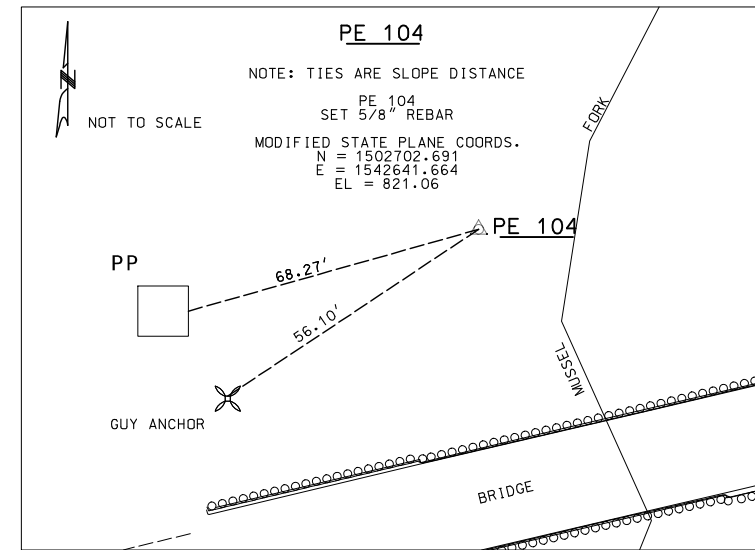
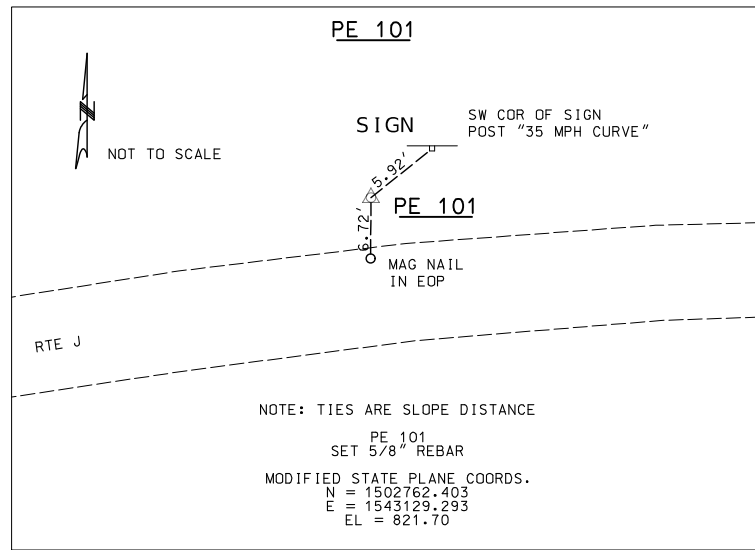
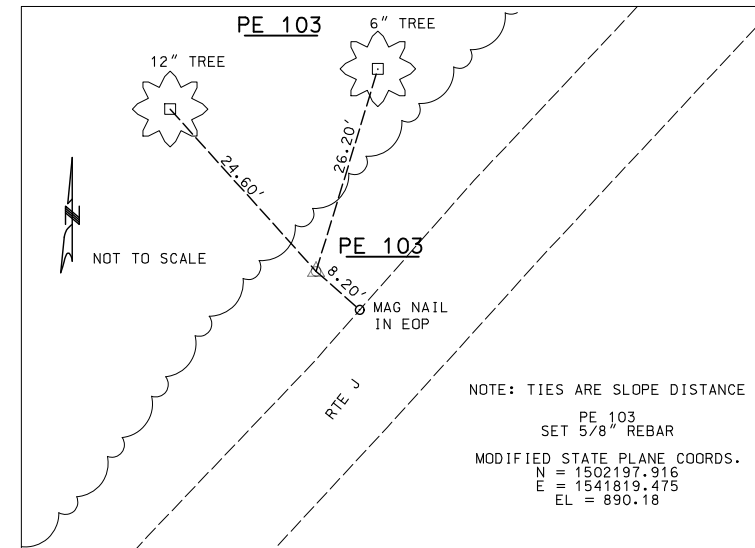
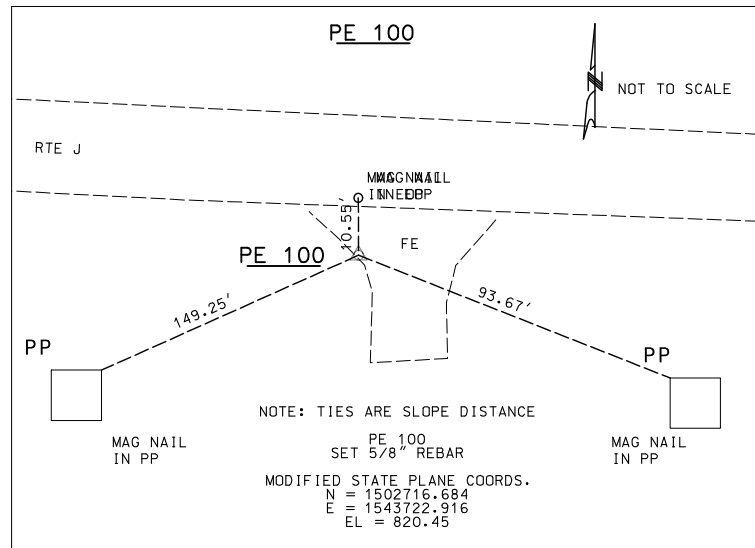
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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

COORDINATE POINT LISTING								
SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND)			DESCRIPTION	GPK POINT ID
				NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)		
<b>PROJECT CONTROL POINTS</b>								
-	-	RTE. J	-	1,502,716.684	1,543,722.916	820.45	SEE REFERENCE POINT SHEET	PE100
4	-	RTE. J	-	1,502,762.403	1,543,129.293	821.70	SEE REFERENCE POINT SHEET	PE101
4	-	RTE. J	-	1,502,512.673	1,542,256.285	844.56	SEE REFERENCE POINT SHEET	PE102
-	-	RTE. J	-	1,502,197.916	1,541,819.475	890.18	SEE REFERENCE POINT SHEET	PE103
4	-	RTE. J	-	1,502,702.691	1,542,641.664	821.06	SEE REFERENCE POINT SHEET	PE104
4	-	RTE. J	-	1,502,654.103	1,542,754.367	826.59	SEE REFERENCE POINT SHEET	PE105
<b>ALIGNMENT</b>								
4	102+83.32	RTE. J	0	1,502,751.54	1,543,386.33	-	PC EAST CURVE	-
4	104+25.00	RTE. J	0	1,502,752.24	1,543,244.69	820.26	BEGINNING OF PROJECT	-
4	107+76.27	RTE. J	0	1,502,705.04	1,542,897.20	830.09	PT EAST CURVE	-
4	108+89.70	RTE. J	0	1,502,678.64	1,542,786.88	832.20	BEGIN BRIDGE	-
4	111+53.97	RTE. J	0	1,502,617.16	1,542,529.86	832.86	END BRIDGE	-
4	112+27.29	RTE. J	0	1,502,600.10	1,542,458.55	832.79	PC WEST CURVE	-
4	112+54.20	RTE. J	0	1,502,593.51	1,542,432.46	833.29	STATION TIE ALPINE AVE.	-
4	113+25.00	RTE. J	0	1,502,573.02	1,542,364.71	836.09	END OF PROJECT	-
4	118+54.63	RTE. J	0	1,502,286.88	1,541,925.59	-	PT WEST CURVE	-

COORDINATE POINTS  
SHEET 1 OF 1

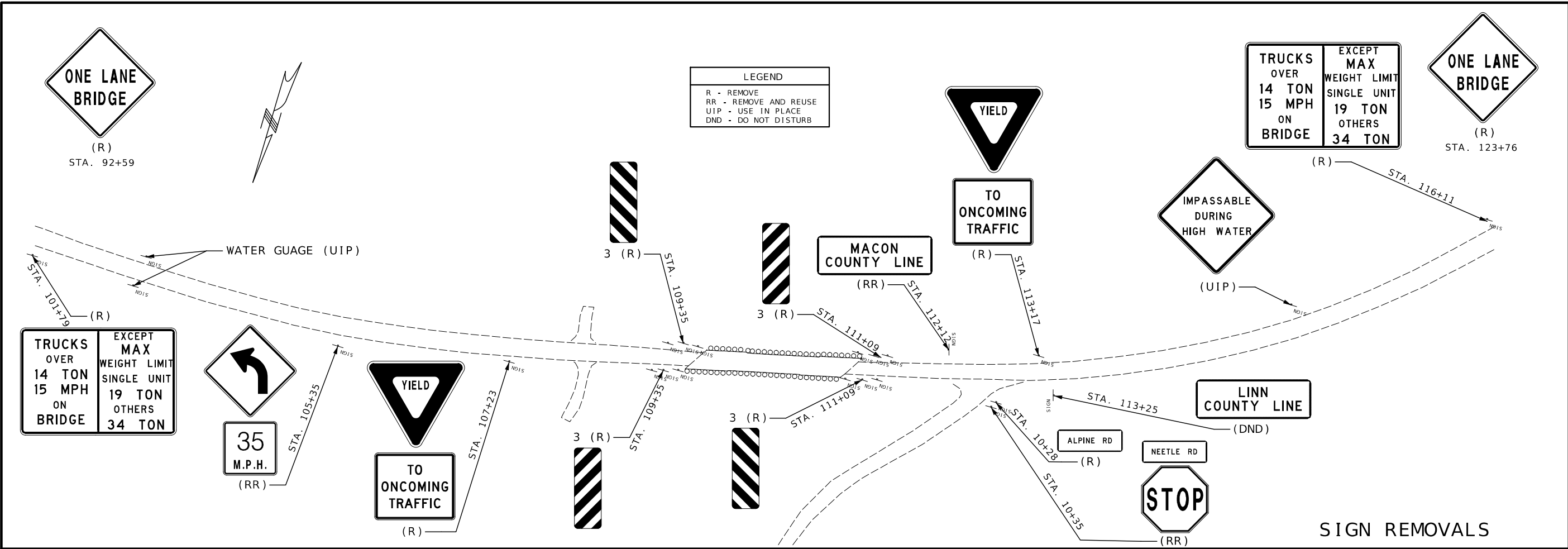


DATE PREPARED  
**11/25/2024**  
 ROUTE STATE  
**J MO**  
 DISTRICT SHEET NO.  
**NE 7**  
 COUNTY  
**MACON**  
 JOB NO.  
**J2S2160**  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO.

DATE	DESCRIPTION

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

REFERENCE POINTS  
 SHEET 1 OF 1



STATE OF MISSOURI  
 BRIAN UNITED  
 NUMBER  
 PE-2009001137  
 PROFESSIONAL ENGINEER  
 Brian United  
 12/02/2024 12:32:11 PM  
 BRIAN UNITED - CIVIL  
 MO-PE-2009001137

DATE PREPARED  
 11/25/2024

ROUTE STATE  
 J MO

DISTRICT SHEET NO.  
 NE 8

COUNTY  
 MACON

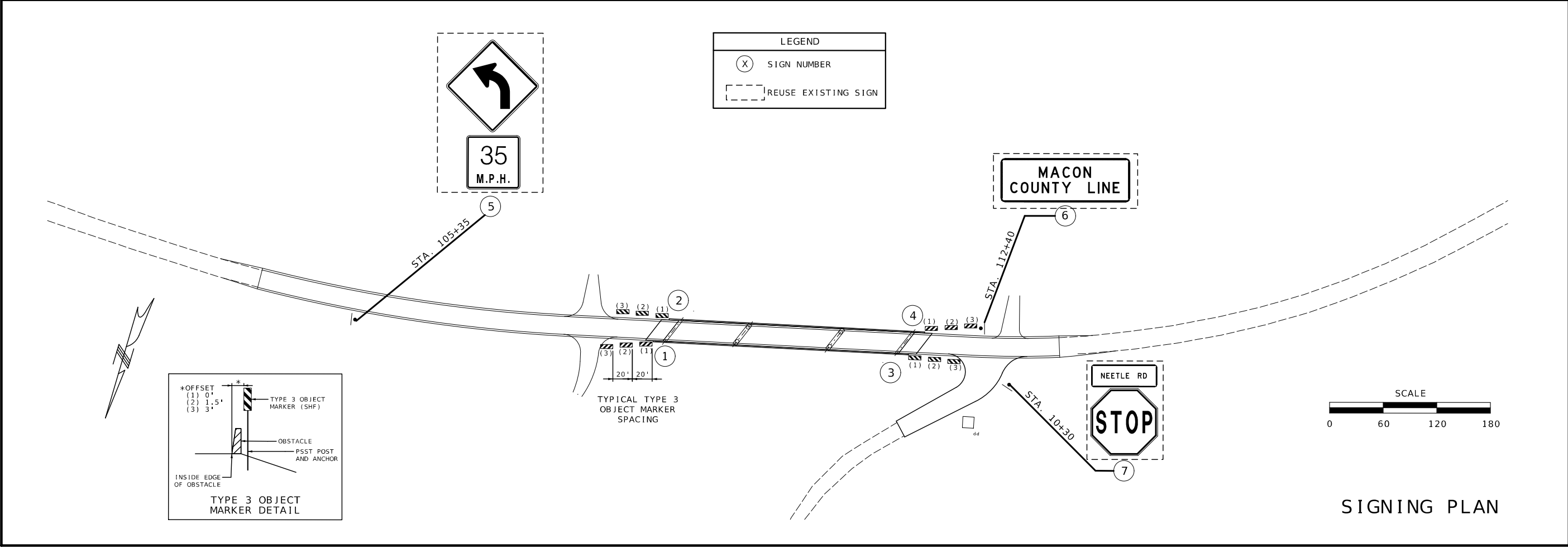
JOB NO.  
 J252160

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION



MISSOURI HIGHWAYS AND TRANSPORTATION  
 COMMISSION

MoDOT

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

SPECIAL SHEET  
 SHEET 1 OF 2  
 SIGN REMOVALS &  
 SIGNING PLAN

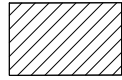
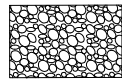


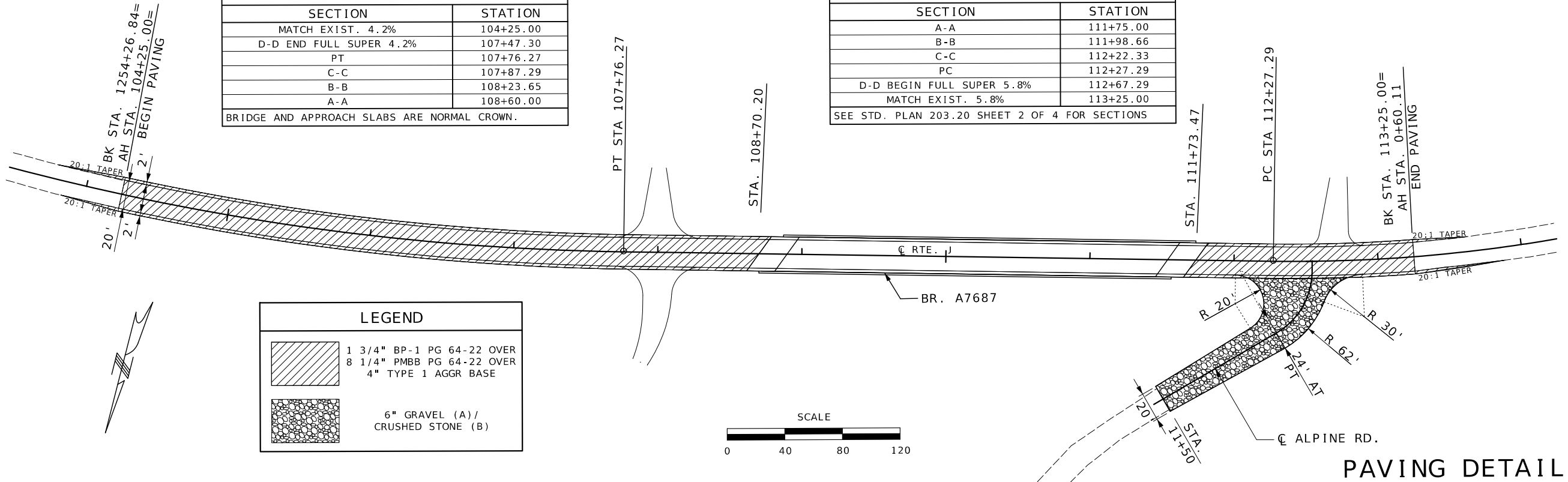
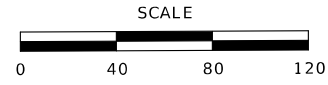
EAST CURVE SUPERELEVATION	
SECTION	STATION
MATCH EXIST. 4.2%	104+25.00
D-D END FULL SUPER 4.2%	107+47.30
PT	107+76.27
C-C	107+87.29
B-B	108+23.65
A-A	108+60.00

BRIDGE AND APPROACH SLABS ARE NORMAL CROWN.



WEST CURVE SUPERELEVATION	
SECTION	STATION
A-A	111+75.00
B-B	111+98.66
C-C	112+22.33
PC	112+27.29
D-D BEGIN FULL SUPER 5.8%	112+67.29
MATCH EXIST. 5.8%	113+25.00

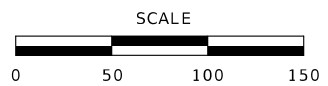
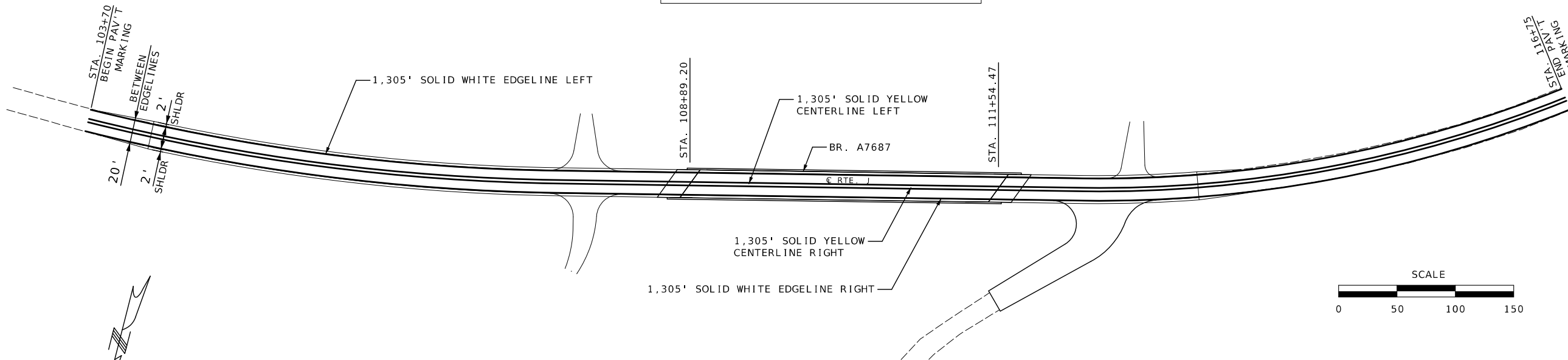
SEE STD. PLAN 203.20 SHEET 2 OF 4 FOR SECTIONS

LEGEND	
	1 3/4" BP-1 PG 64-22 OVER 8 1/4" PMBB PG 64-22 OVER 4" TYPE 1 AGGR BASE
	6" GRAVEL (A) / CRUSHED STONE (B)

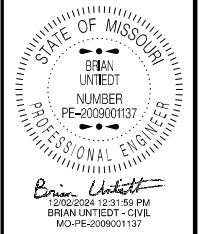


PAVING DETAIL

STRIPING LEGEND	
	4" SOLID WHITE
	4" SOLID DOUBLE YELLOW




PAVEMENT MARKING DETAIL



DATE PREPARED 11/25/2024	
ROUTE J	STATE MO
DISTRICT NE	SHEET NO. 9
COUNTY MACON	
JOB NO. J252160	
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)

SPECIAL SHEET  
SHEET 2 OF 2  
PAVING DETAIL &  
PAV'T MARKING DETAIL



Brian Untiedt  
 12/02/2024 12:42:18 PM  
 BRIAN UNTIEDT - CIVIL  
 MO-PE-200901137

DATE PREPARED  
 11/25/2024

ROUTE J STATE MO

DISTRICT NE SHEET NO. 10

COUNTY MACON

JOB NO. J252160

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

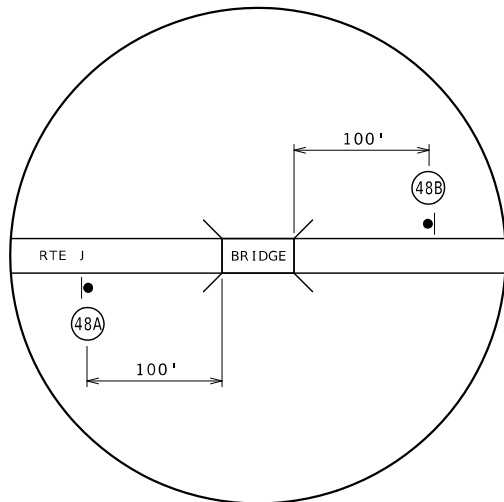
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

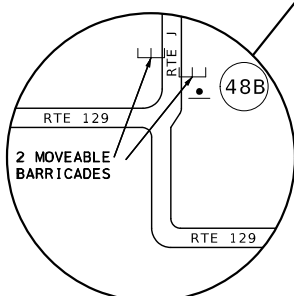
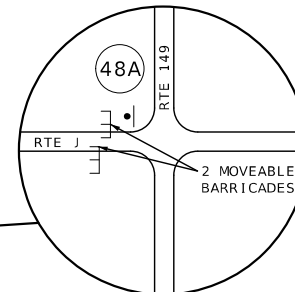
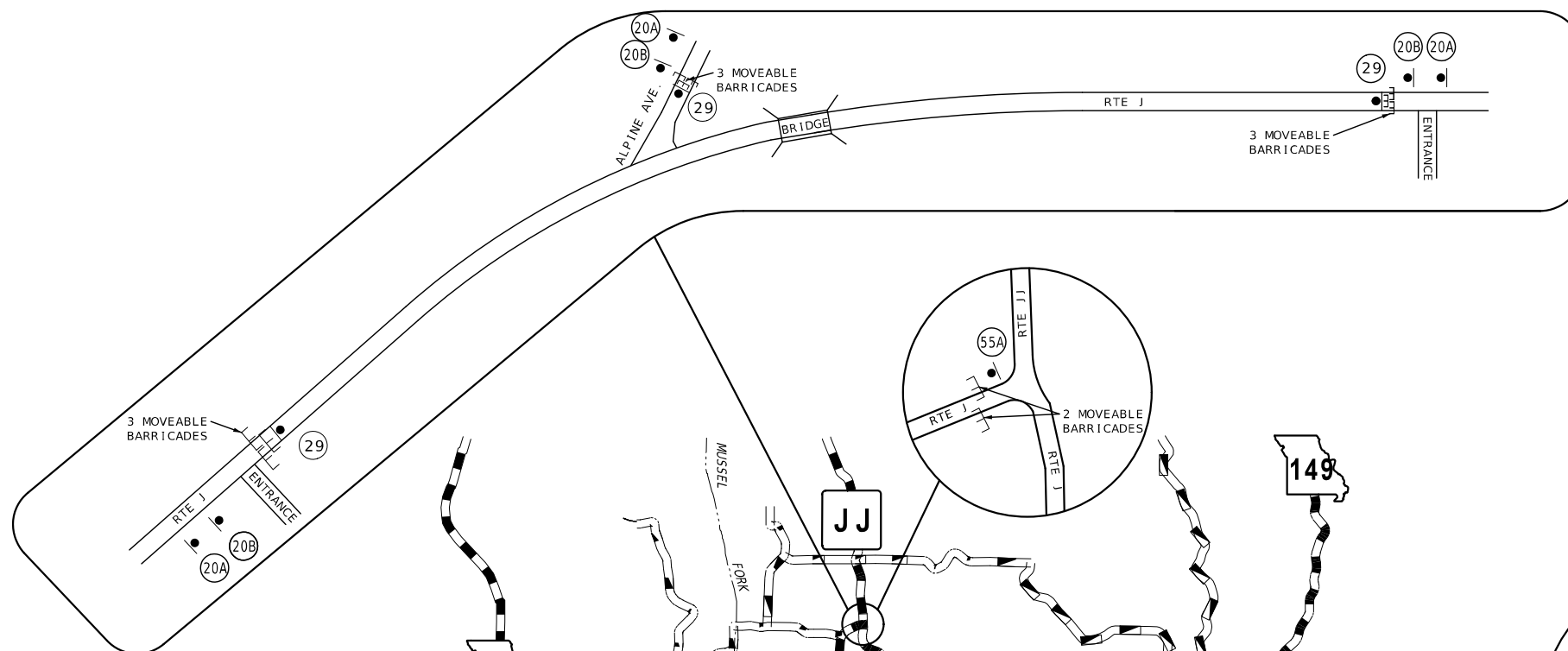
105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

TRAFFIC CONTROL SHEET 1 OF 2

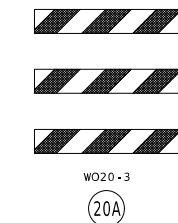
PRE-CLOSURE SIGNAGE AT BRIDGE (TO BE RELOCATED)



POST-CLOSURE SIGNAGE AT BRIDGE



NOT TO SCALE



TRAFFIC CONTROL LEGEND

●	SIGN (SINGLE SIDED)
⎓	TYPE III MOVEABLE BARRICADE

NOTES:

INSTALL PRE-CLOSURE SIGNS WITH PLAQUES 48A & 48B A MINIMUM OF 2 WEEKS PRIOR TO CLOSURE.

WHEN BRIDGE CLOSURE OCCURS - REMOVE SPECIAL SIGN PLAQUES AND RELOCATE NOTED SIGNS.

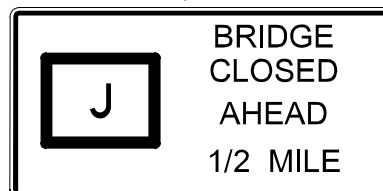
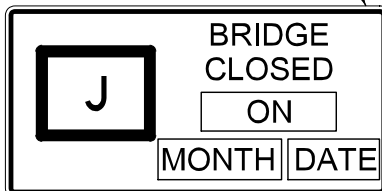
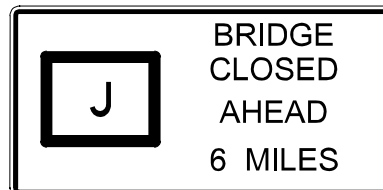
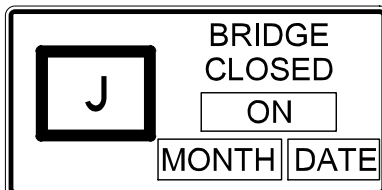
SEE TRAFFIC CONTROL SHEET 2 OF 2 FOR SPECIAL SIGN AND PLAQUE DETAILS.

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

\* LOCATE SIGNS 100' FROM INTERSECTION.

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

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

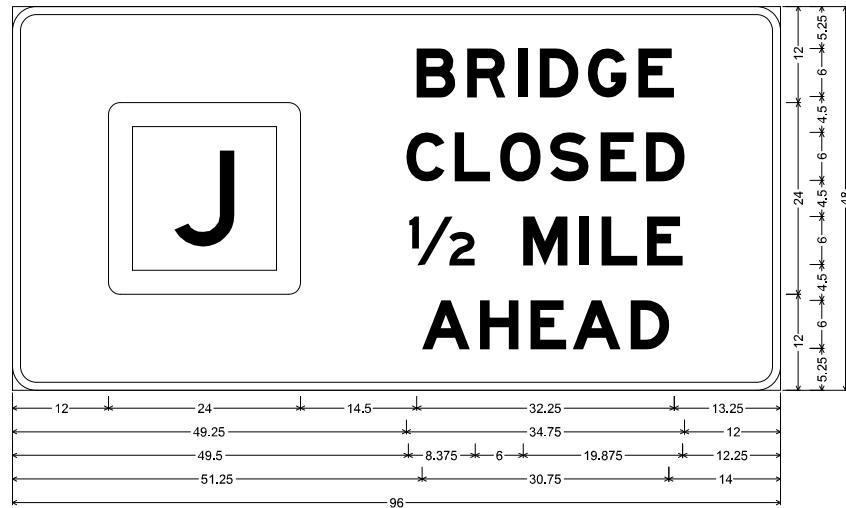
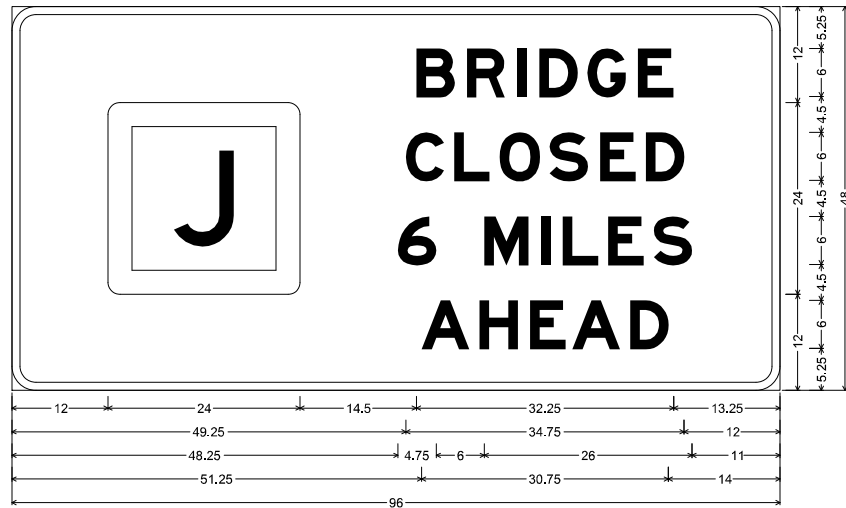


SPECIAL WITH CLOSURE PLATES  
 PRE-CLOSURE SIGNS WITH PLAQUES

SPECIAL WITH CLOSURE PLATES

SPECIAL  
 POST-CLOSURE SIGNS PLAQUES REMOVED

SPECIAL

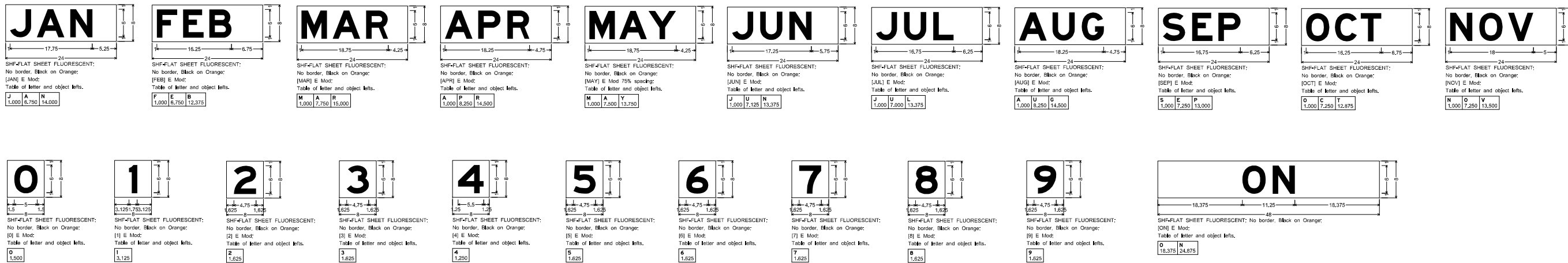


MO4-13 SHF-FLAT SHEET FLUORESCENT;  
 3,000" Radius, 1,000" Border, Black on, Orange;  
 "BRIDGE", E Mod; "CLOSED", E Mod; "6 MILES", E Mod; "AHEAD", E Mod;  
 Table of letter and object lefts

J	B	R	I	D	G	E
12,000	50,500	56,875	63,125	65,875	71,875	78,250
C	L	O	S	E	D	
49,250	55,250	61,000	67,250	73,500	79,250	
6	M	I	L	E	S	
48,250	59,000	66,125	68,875	74,500	80,250	
A	H	E	A	D		
51,250	58,375	64,750	70,000	77,250		

MO4-13 SHF-FLAT SHEET FLUORESCENT;  
 3,000" Radius, 1,000" Border, Black on, Orange;  
 "BRIDGE", E Mod; "CLOSED", E Mod; "1/2 MILE", E Mod; "AHEAD", E Mod;  
 Table of letter and object lefts

J	B	R	I	D	G	E
12,000	50,500	56,875	63,125	65,875	71,875	78,250
C	L	O	S	E	D	
49,250	55,250	61,000	67,250	73,500	79,250	
1/2	M	I	L	E		
49,500	63,875	70,875	73,625	79,375		
A	H	E	A	D		
51,250	58,375	64,750	70,000	77,250		



DATE PREPARED  
 11/25/2024  
 ROUTE J STATE MO  
 DISTRICT NE SHEET NO. 11  
 COUNTY MACON  
 JOB NO. J2S2160  
 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)

TRAFFIC CONTROL SHEET  
 SIGN DETAILS  
 SHEET 2 OF 2



Brian Untiedt  
 12/22/2024 12:41:49 PM  
 BRIAN UNTIEDT - CIVIL  
 MO-PE-200900137

DATE PREPARED  
 11/25/2024

ROUTE STATE  
 J MO

DISTRICT SHEET NO.  
 NE 12

COUNTY  
 MACON

JOB NO.  
 J2S2160

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

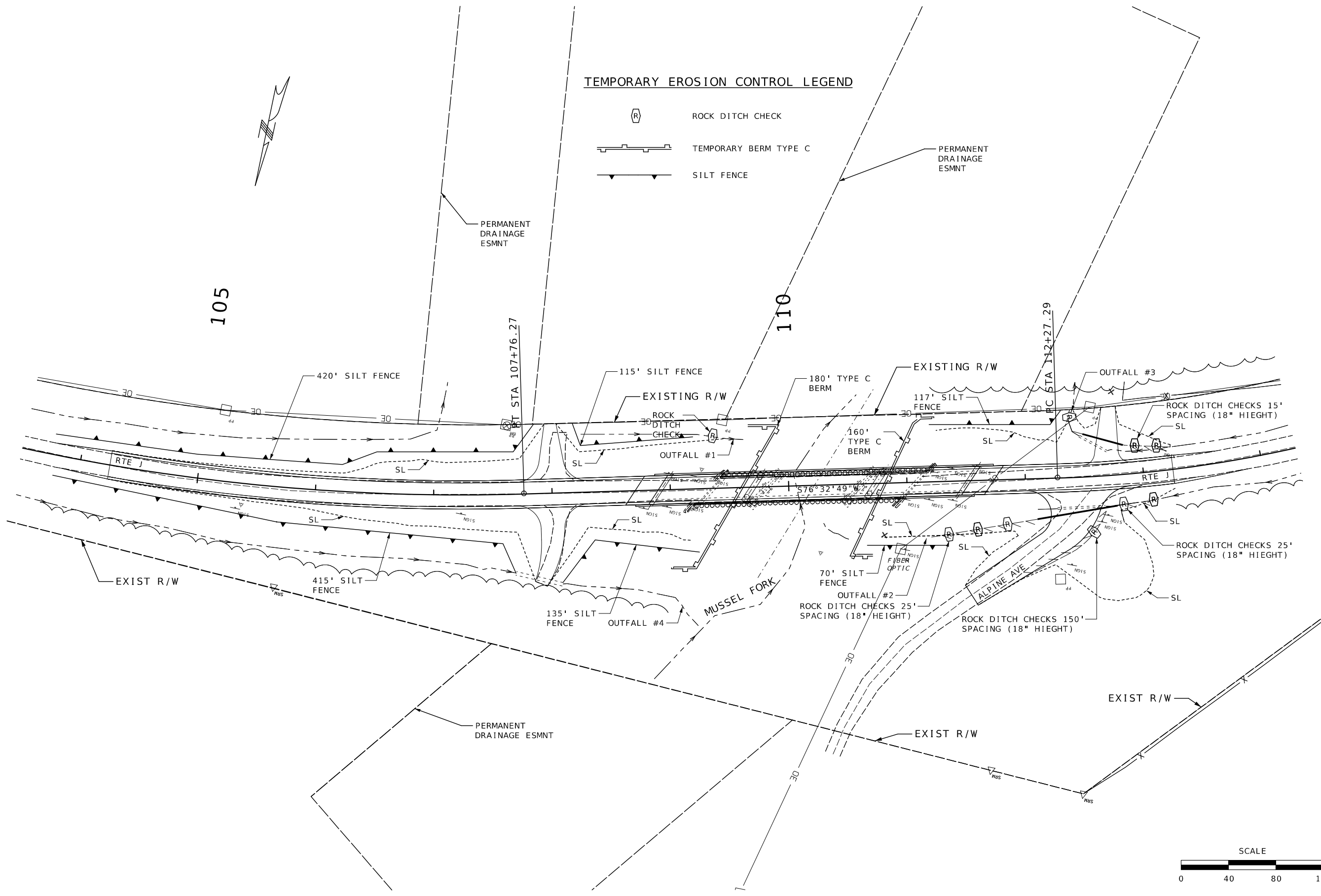
105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)



EROSION CONTROL  
 SHEET 1 OF 1

TEMPORARY EROSION CONTROL LEGEND

- ROCK DITCH CHECK
- TEMPORARY BERM TYPE C
- SILT FENCE



105

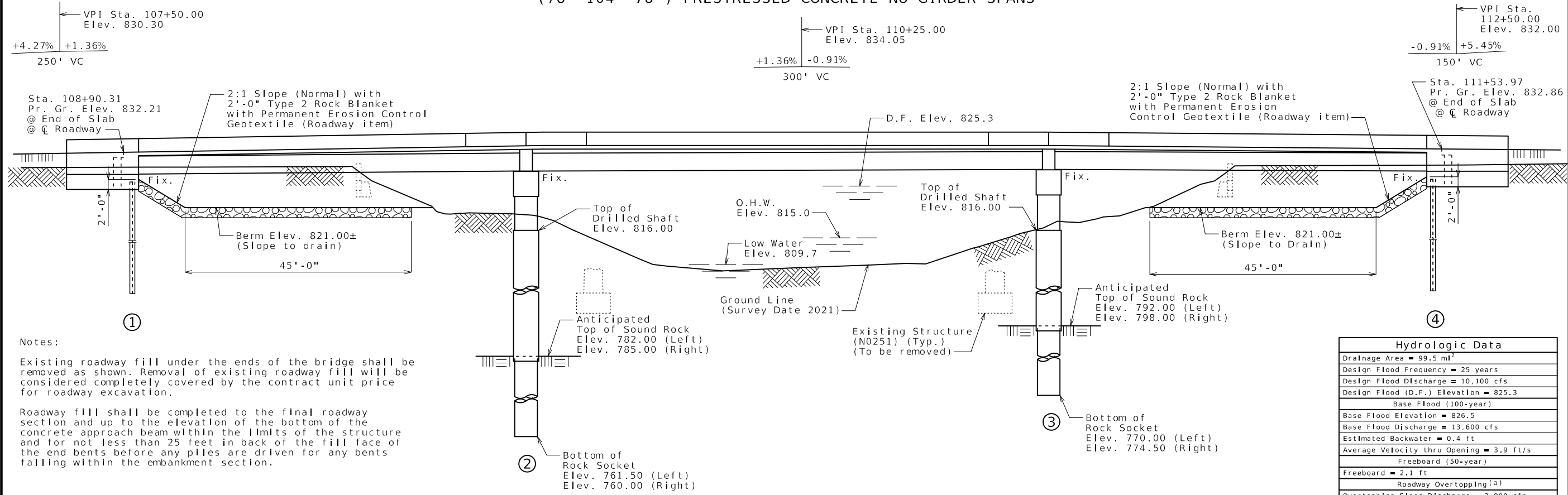
110

SCALE

0 40 80 120

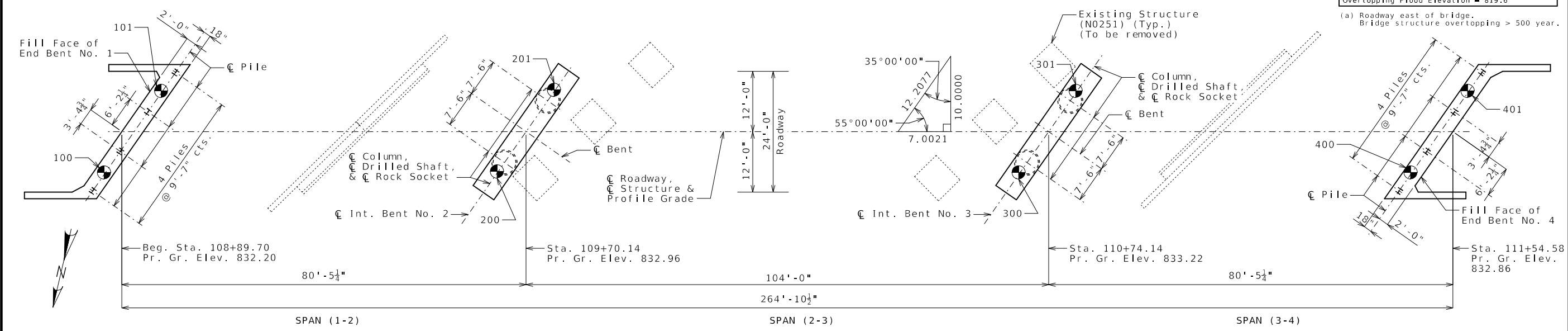
(78'-104'-78') PRESTRESSED CONCRETE NU GIRDER SPANS

SEC/SUR 6 TWP 59N RGE 17W



Hydrologic Data	
Drainage Area	= 99.5 mi <sup>2</sup>
Design Flood Frequency	= 25 years
Design Flood Discharge	= 10,100 cfs
Design Flood (D.F.) Elevation	= 825.3
Base Flood (100-year)	
Base Flood Elevation	= 826.5
Base Flood Discharge	= 13,600 cfs
Estimated Backwater	= 0.4 ft
Average Velocity thru Opening	= 3.9 ft/s
Freeboard (50-year)	
Freeboard	= 2.1 ft
Roadway Overtopping (a)	
Overtopping Flood Discharge	= 3,990 cfs
Overtopping Flood Frequency	= 2.6 years
Overtopping Flood Elevation	= 819.6

(a) Roadway east of bridge. Bridge structure overtopping > 50 year.



⊕ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheet No. 31 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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

Designed July 2024  
Detailed Aug. 2024  
Checked Aug. 2024

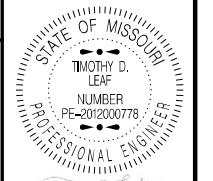
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 31

C.P. PE103: SET 5/8" REBAR: STA. 7+26.78;  
16.10 RT (SURVEY @ RTE. J);  
N: 1502197.916; E: 1541819.475; EL: 890.18

C.P. PE104: SET 5/8" REBAR: STA. 1260+25.62;  
55.14 LT (SURVEY @ RTE. J);  
N: 1502702.691; E: 1542641.664; EL: 821.06

**BRIDGE: ROUTE J OVER MUSSEL FORK CREEK**  
ROUTE J FROM ROUTE 129 TO ROUTE 149  
ABOUT 0.8 MILE NORTHEAST OF ROUTE 129  
BEGINNING STATION 108+89.70



DATE PREPARED	
11/18/2024	
ROUTE	STATE
J	MO
DISTRICT	SHEET NO.
BR	1
COUNTY	
MACON	
JOB NO.	
J252160	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A7687	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



**General Notes:**

Design Specifications:  
 2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)  
 Seismic Design Category = A

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 (Drilled Shafts & Rock Sockets)  $f'c = 4,000$  psi  
 Class B-2 Concrete (Superstructure, except Prestressed Girder and Barrier)  $f'c = 4,000$  psi  
 Class B-1 Concrete (Barrier)  $f'c = 4,000$  psi  
 Reinforcing Steel (ASTM A615 Grade 60)  $fy = 60,000$  psi  
 Structural Steel HP Pile (ASTM A709 Grade 50)  $fy = 50,000$  psi  
 For prestressed 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.

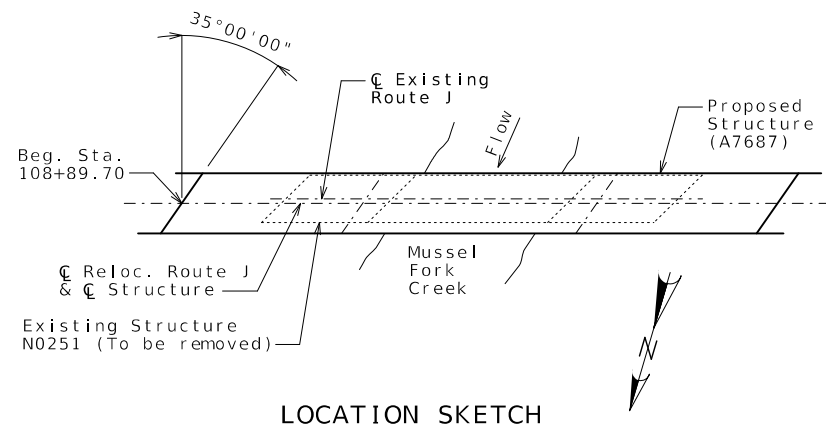
Joint Filler:  
 All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition filler, except as noted.

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

Traffic Handling:  
 Structure to be closed during construction. Traffic to be maintained on other routes. 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 Notes:**

DF = FHWA-modified Gates Dynamic Pile Formula

Load Bearing Pile:

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

Rock Socket (Drilled Shafts):

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

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

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

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

**Estimated Quantities**

Item	Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	80	80
Removal of Bridges (N0251)	lump sum		1
Bridge Approach Slab (Minor)	sq. yard		109
Drilled Shafts (5 ft. 0 in. Dia.)	linear foot	107.0	107.0
Rock Sockets (4 ft. 6 in. Dia.)	linear foot	91.0	91.0
Video Camera Inspection	each	4	4
Foundation Inspection Holes	linear foot	131.0	131.0
Sonic Logging Testing	each	4	4
Galvanized Structural Steel Piles (12 in.)	linear foot	300	300
Pile Point Reinforcement	each	8	8
Class B Concrete (Substructure)	cu. yard	106.3	106.3
Type H Barrier	linear foot		574
Slab on Concrete NU-Girder	sq. yard		785
NU 43, Prestressed Concrete NU-Girder	linear foot		779
Reinforcing Steel (Bridges)	pound	35,620	35,620
Slab Drain	each		42
Vertical Drain at End Bents	each		2
Plain Neoprene Bearing Pad	each		6
Laminated Neoprene Bearing Pad	each		12

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 diaphragm 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.

**Estimated Quantities for Slab on Concrete NU-Girder**

Item	Total
Class B-2 Concrete	cu. yard 260
Reinforcing Steel (Epoxy Coated)	pound 54,320

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.

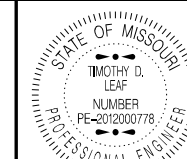
The Estimated Quantities for Slab on Concrete NU-Girder are based on skewed precast prestressed end panels.

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

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

**Foundation Data**

Type	Design Data	Bent Number						
		1	2L	2R	3L	3R	4	
Load Bearing Pile	Pile Type and Size	HP 12x53	--	--	--	--	HP 12x53	
	Number	ea 4	--	--	--	--	4	
	Approximate Length Per Each	ft 45	--	--	--	--	30	
	Pile Point Reinforcement	ea All	--	--	--	--	All	
	Min. Galvanized Penetration (Elev.)	ft Full length	--	--	--	--	Full length	
	Pile Driving Verification Method	DF	--	--	--	--	DF	
	Resistance Factor	0.40	--	--	--	--	0.40	
	Minimum Nominal Axial Compressive Resistance	kip 561	--	--	--	--	561	
Rock Socket	Number	ea --	1	1	1	1	--	
	Layer 1	Foundation Material	--	Weak Rock	Weak Rock	Weak Rock	Strong Rock	--
		Elevation Range	ft --	782-779	785-778	792-782	798-794	--
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf --	2.73	2.73	2.73	10.66	--	
	Layer 2	Foundation Material	--	Strong Rock	Strong Rock	Strong Rock	Weak Rock	--
		Elevation Range	ft --	779-776	778-776	782-780	794-777	--
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf --	29.75	29.75	29.75	2.73	--	
	Layer 3	Foundation Material	--	Weak Rock	-	Weak Rock	Strong Rock	--
		Elevation Range	ft --	776-773	-	780-778	777-775	--
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf --	3.61	-	3.61	29.75	--	
	Layer 4	Foundation Material	--	Weak Rock	-	Weak Rock	Weak Rock	--
		Elevation Range	ft --	773-758	-	778-776	775-773	--
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf --	2.73	-	2.73	3.61	--	
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf --	31.67	31.75	44.96	50.14	--	



DATE PREPARED  
 11/18/2024 2:54:18 PM  
 TIMOTHY D. LEAF - CIVIL  
 MO-PE-2012000778

ROUTE J STATE MO  
 DISTRICT BR SHEET NO. 2

COUNTY MACON  
 JOB NO. J252160  
 CONTRACT ID.

PROJECT NO.  
 BRIDGE NO. A7687

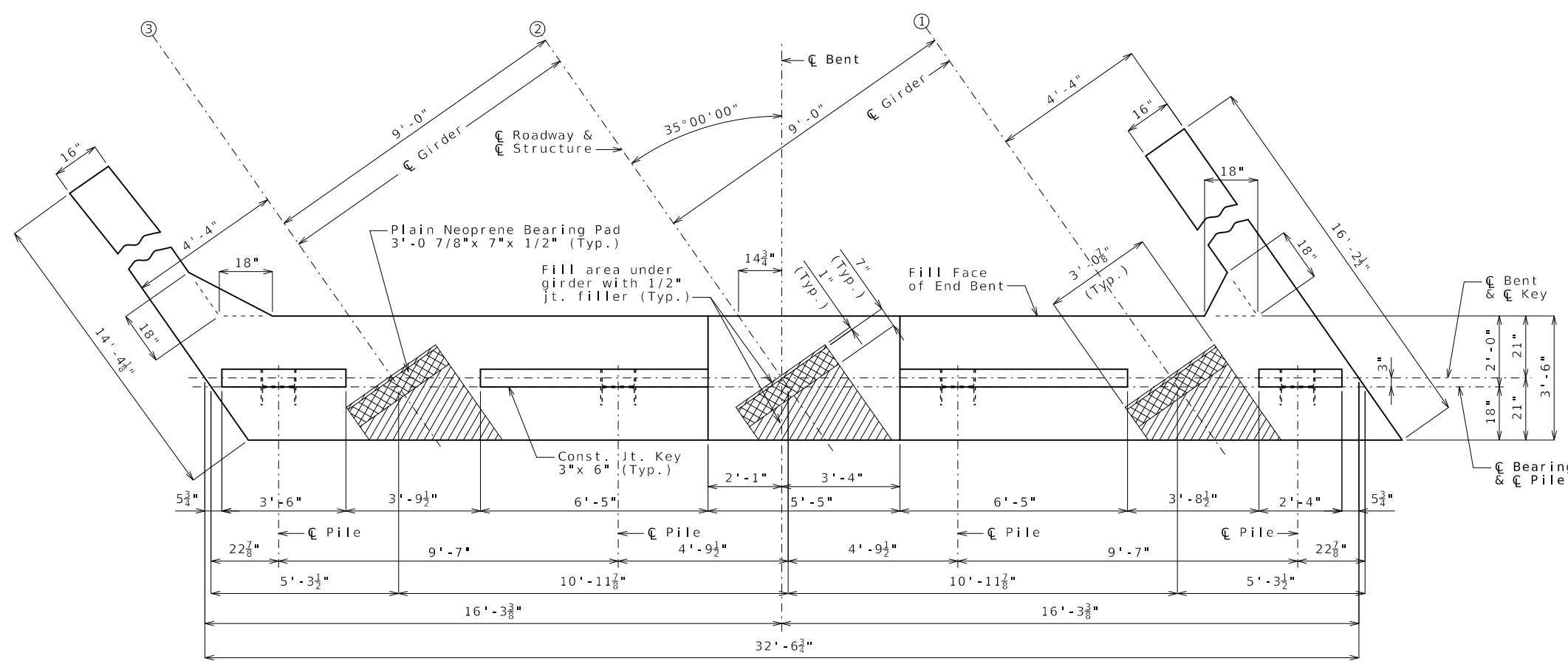
DATE	DESCRIPTION

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

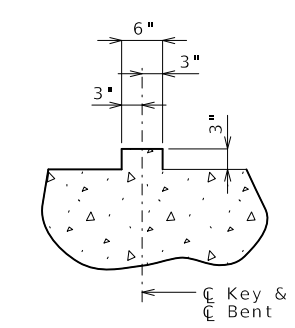




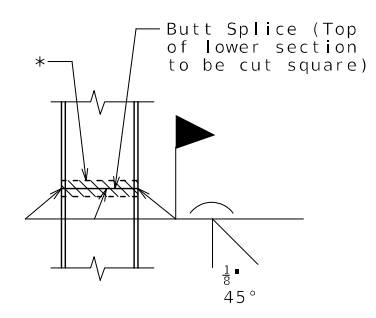
STATE OF MISSOURI  
 TIMOTHY D. LEAF  
 NUMBER  
 PE-201200778  
 PROFESSIONAL ENGINEER  
 DATE PREPARED  
 11/18/2024  
 ROUTE J STATE MO  
 DISTRICT BR SHEET NO. 3  
 COUNTY MACON  
 JOB NO. J252160  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO. A7687



PLAN OF BEAM SHOWING DIMENSIONS

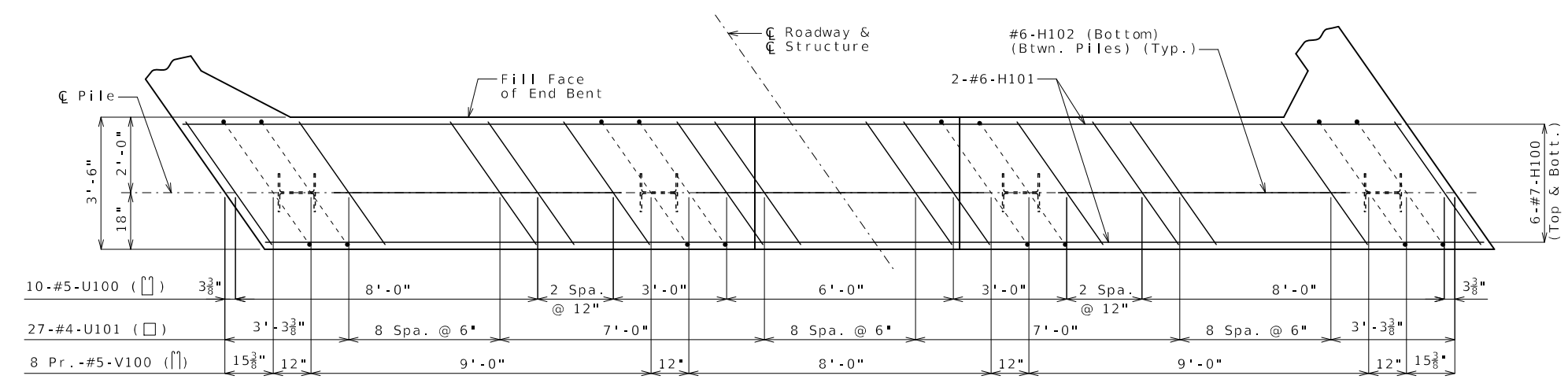


SECTION THRU KEY



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  
 Beam keys and steps not shown for clarity.

Notes:  
 Work this sheet with Sheets No. 4 & 5.  
 The U bars and pairs V bars shall be placed parallel to the centerline of roadway.  
 Reinforcing steel shall be shifted to clear piles. U bars shall clear the piles by at least 1 1/2 inches.

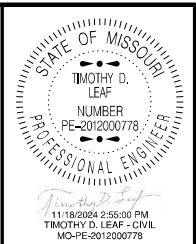
Substructure Quantity Table for Bent No. 1		
Item	Unit	Quantity
Class 1 Excavation	cu. yard	40
Galvanized Structural Steel Piles (12 in.)	linear foot	180
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	16.7

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

END BENT NO. 1

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



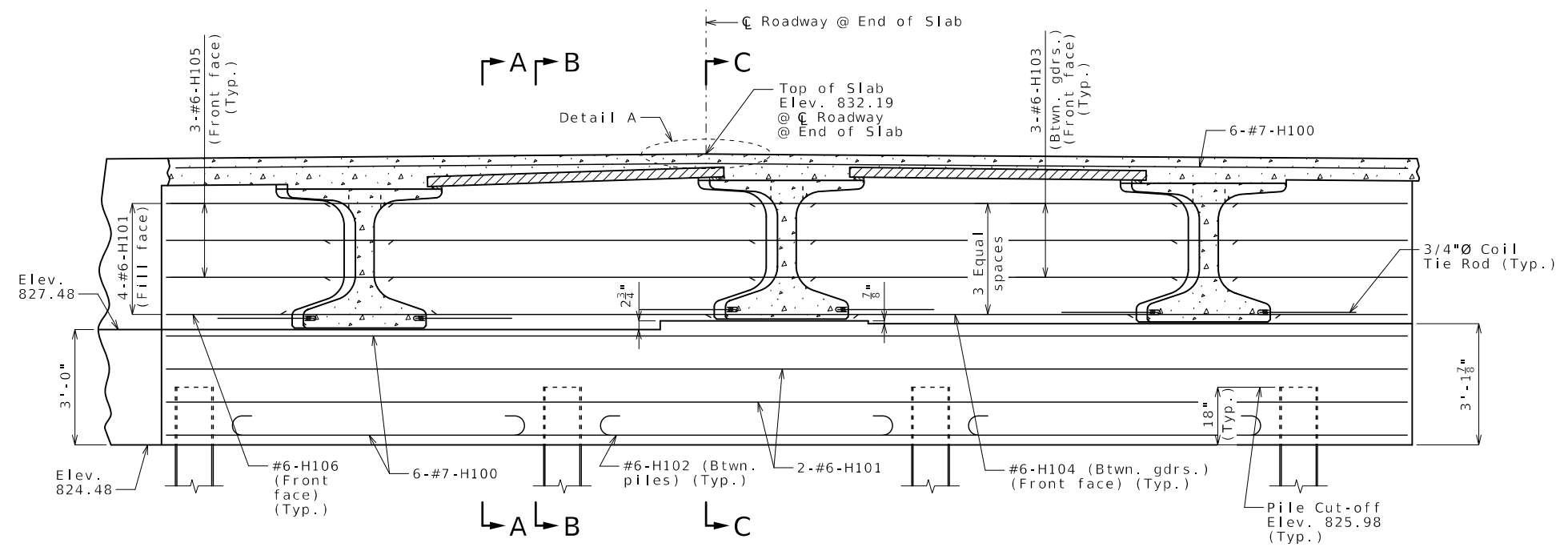


DATE PREPARED 11/18/2024	
ROUTE J	STATE MO
DISTRICT BR	SHEET NO. 4
COUNTY MACON	
JOB NO. J252160	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A7687	

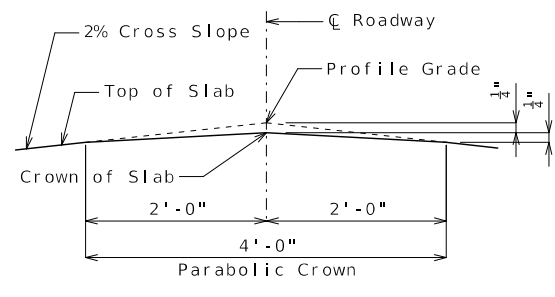
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



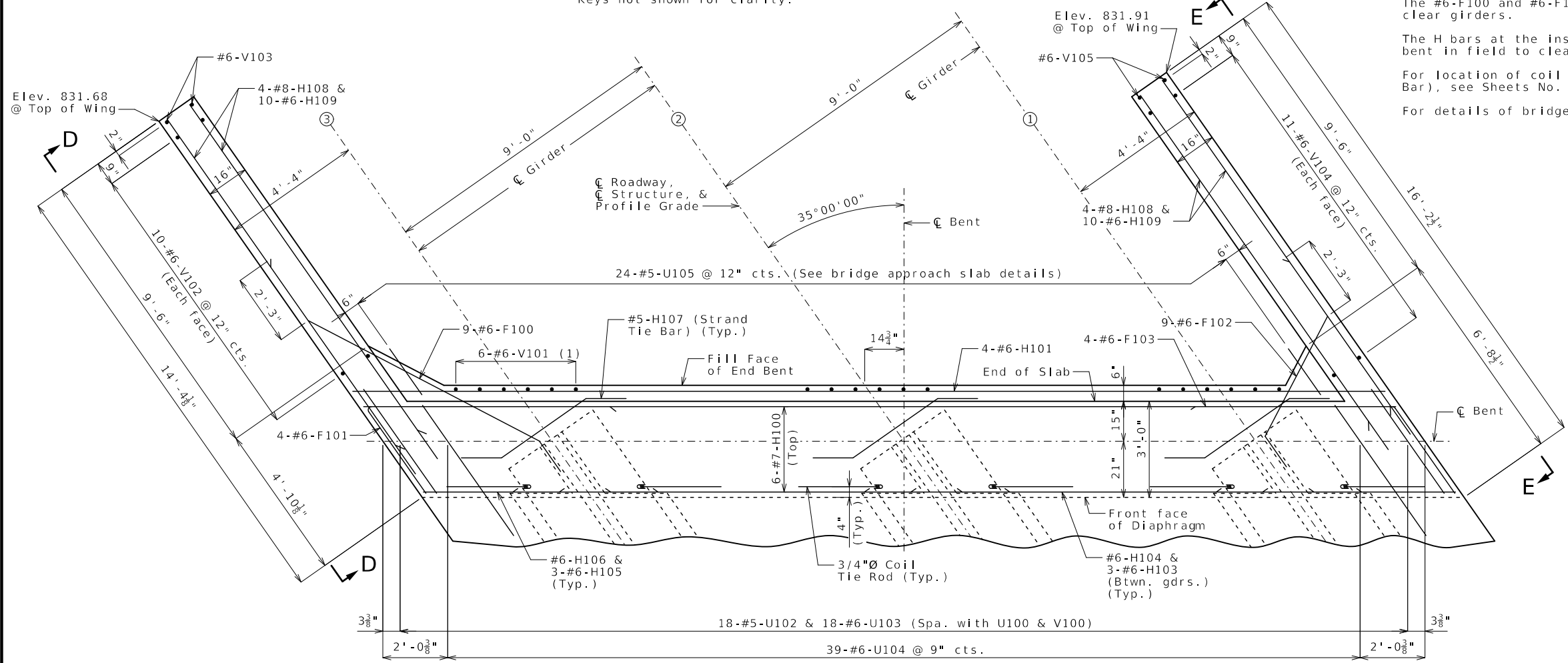
**SECTION NEAR END BENT**  
Keys not shown for clarity.



**DETAIL A**

**Notes:**

- Work this sheet with Sheets No. 3 & 5.
- All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
- Strands at end of girder shall be field bent or, if necessary, cut in field to maintain 1 1/2-inch minimum clearance to fill face of end bent.
- The #6-F100 and #6-F102 bars shall be bent in field to clear girders.
- The H bars at the inside face of the wing shall be bent in field to clear piles.
- For location of coil tie rods and #5-H107 (Strand Tie Bar), see Sheets No. 14 & 15.
- For details of bridge approach slab, see Sheet No. 26.



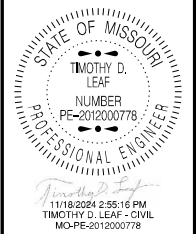
**PART PLAN**

**END BENT NO. 1**

(1) @ 9" cts. Centered behind girder. (Typ.)

Detailed July 2024  
Checked Aug. 2024

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



DATE PREPARED  
11/18/2024

ROUTE J STATE MO  
DISTRICT BR SHEET NO. 5

COUNTY  
MACON

J2S2160  
CONTRACT ID.

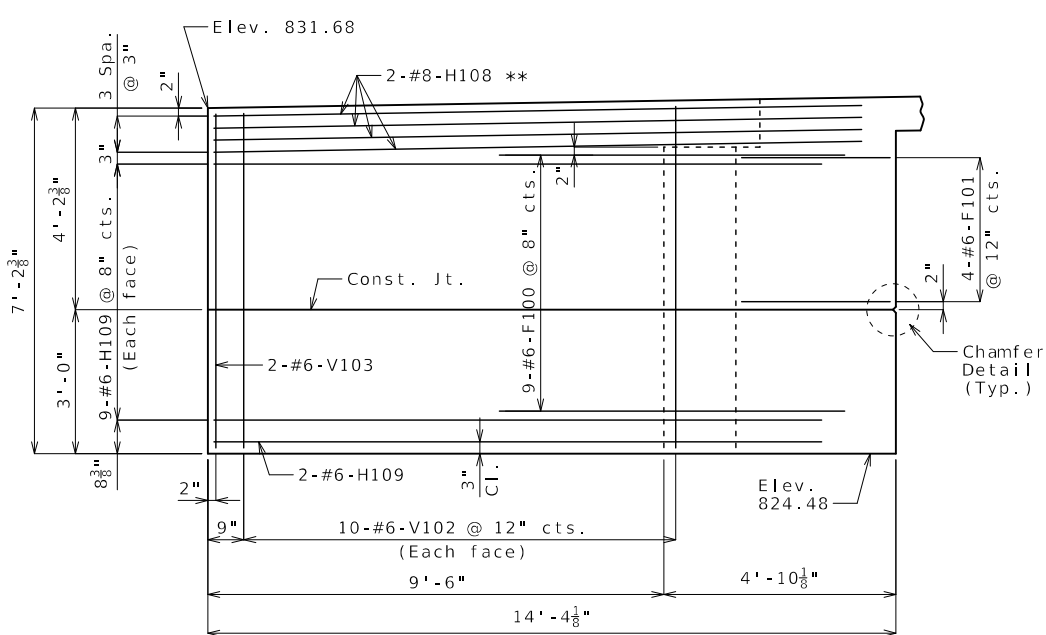
PROJECT NO.

BRIDGE NO.  
A7687

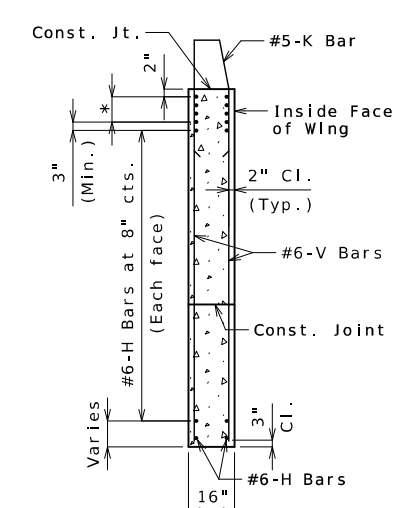
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

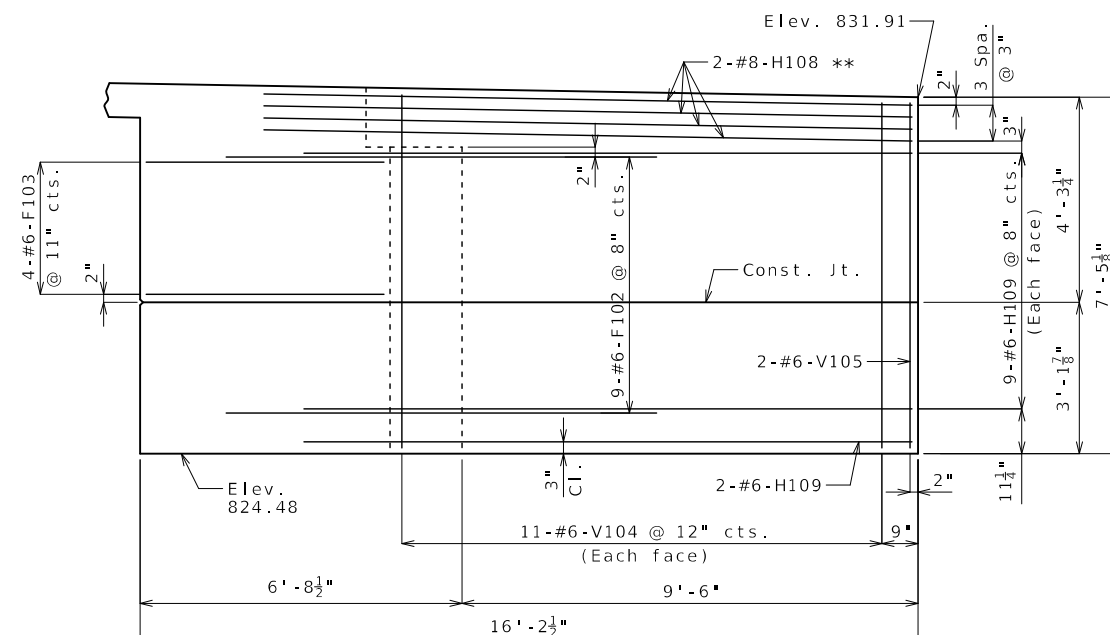
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)



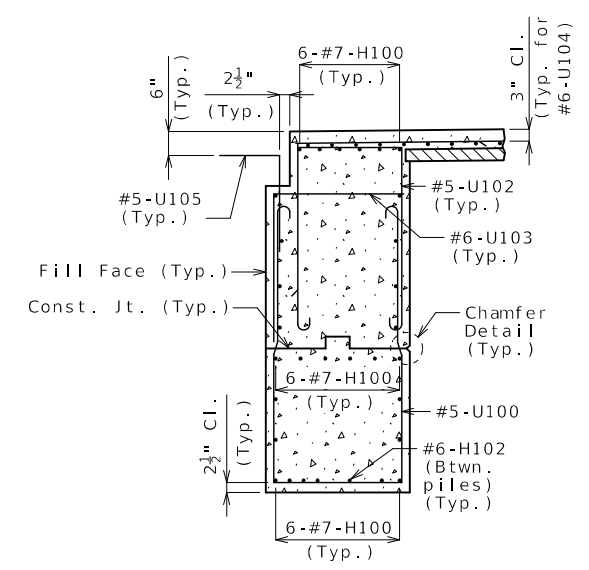
ELEVATION D-D



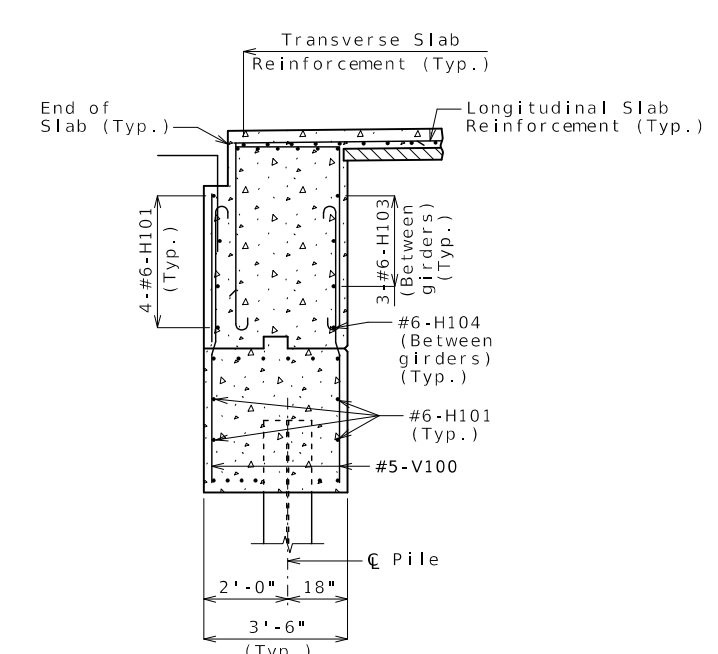
TYPICAL SECTION THRU WING  
\* #8-H Bars at 3" cts. (Each face) (Place with grade)  
\*\* Place with grade.



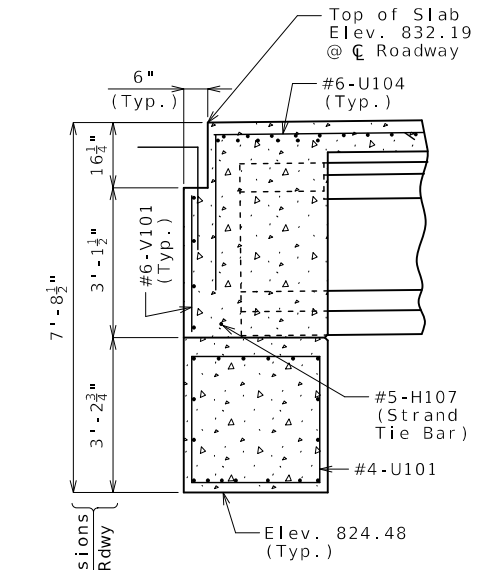
ELEVATION E-E



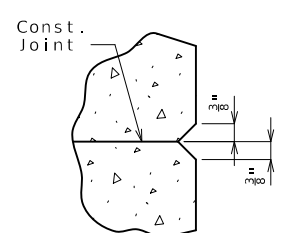
SECTION A-A



SECTION B-B

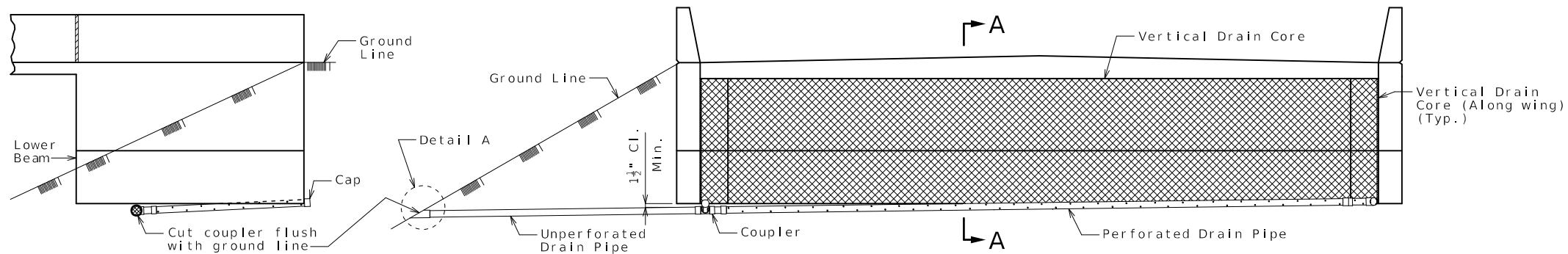


SECTION C-C

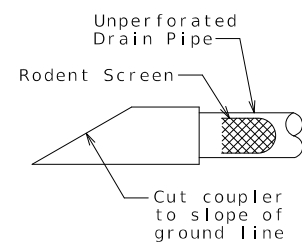


CHAMFER DETAIL

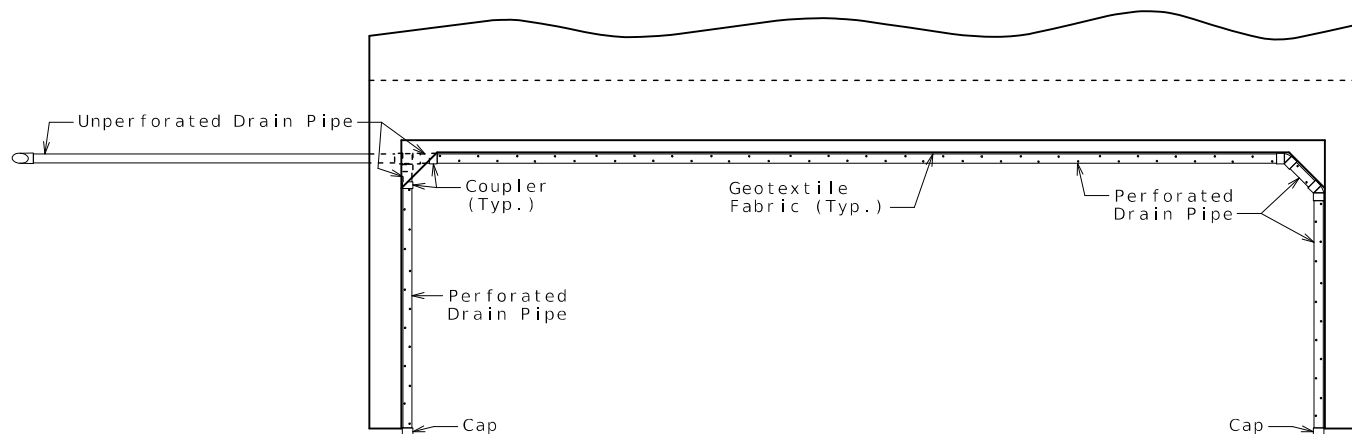
Notes:  
Work this sheet with Sheets No. 3 & 4.  
For reinforcement of the barrier, see Sheet No. 25.  
For details of bridge approach slab, see Sheet No. 26.



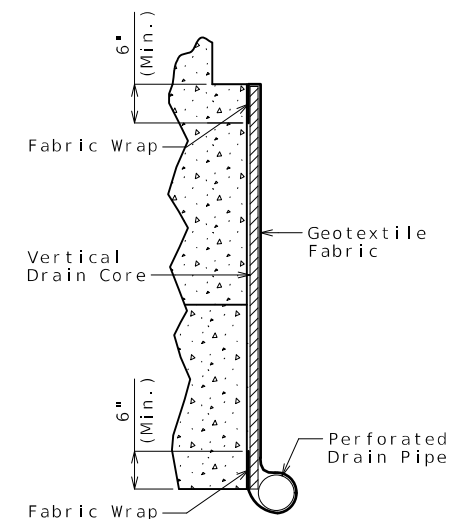
ELEVATION OF END BENT



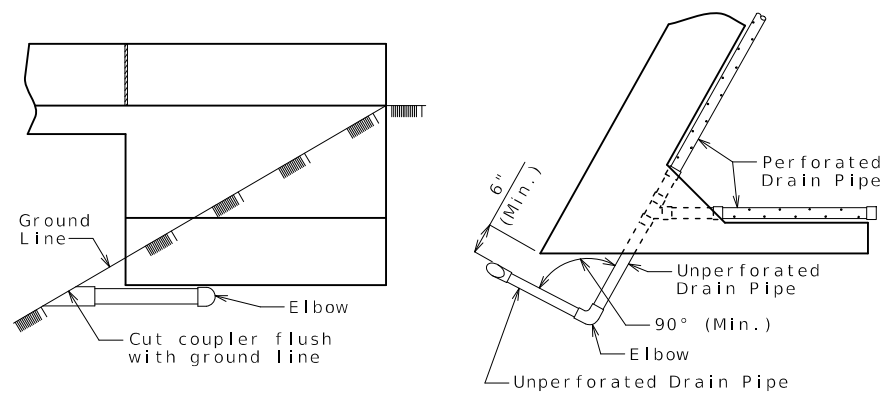
DETAIL A



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:**

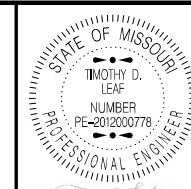
All drain pipe shall be sloped 1 to 2 percent.

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)



DATE PREPARED  
11/18/2024

ROUTE J	STATE MO
DISTRICT BR	SHEET NO. 6

COUNTY  
MACON  
JOB NO.  
J252160  
CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A7687

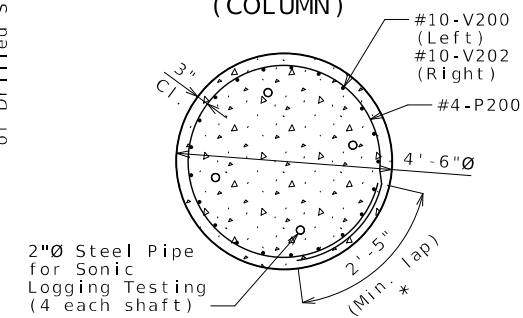
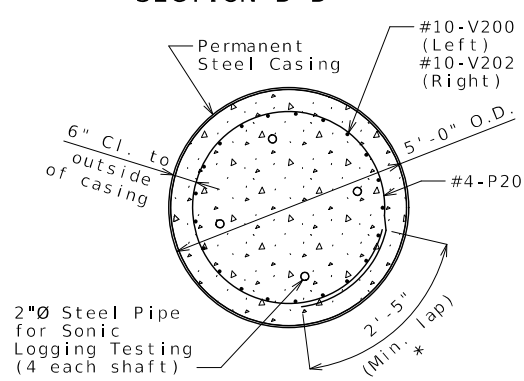
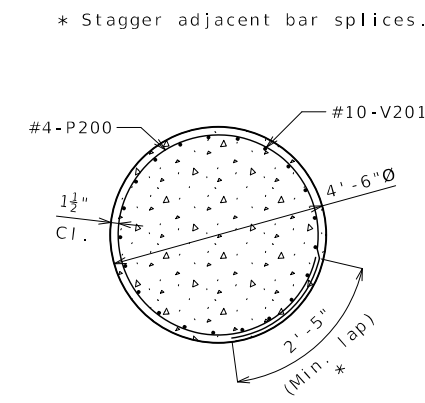
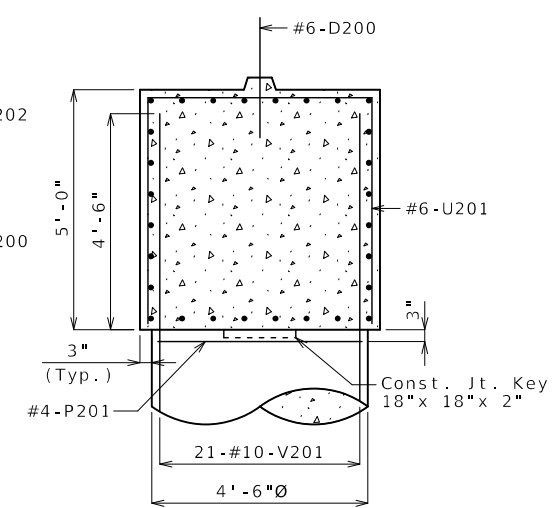
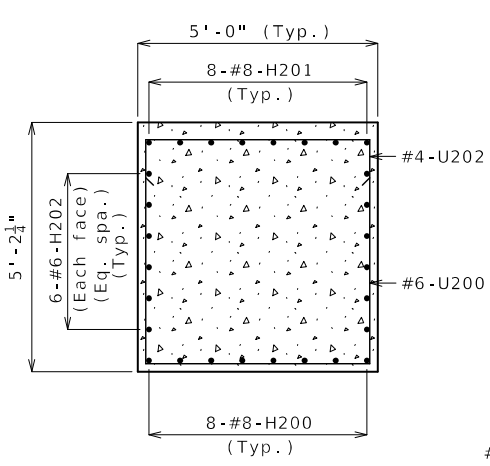
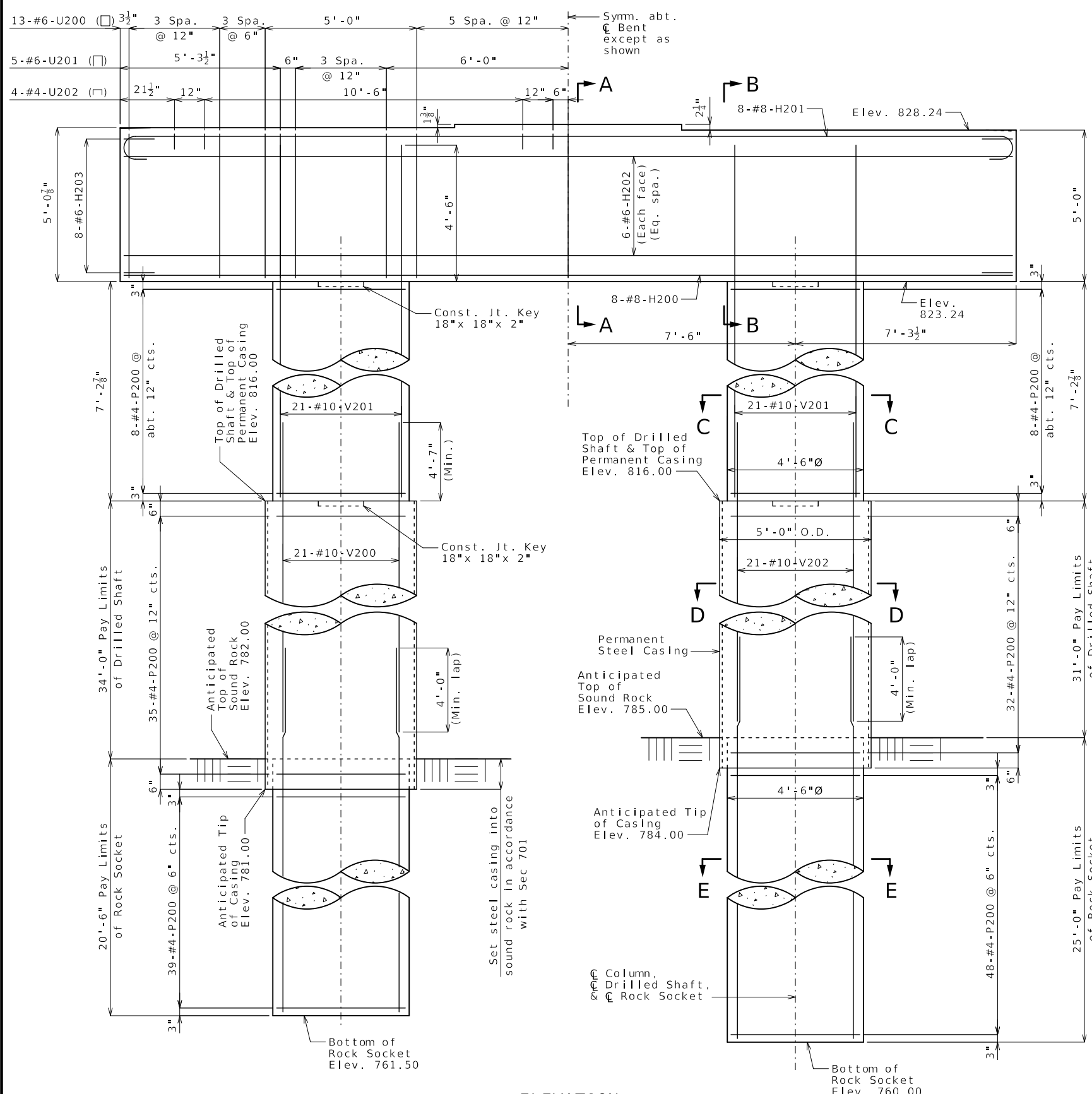
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



DATE PREPARED  
**11/18/2024**  
 ROUTE STATE  
**J MO**  
 DISTRICT SHEET NO.  
**BR 7**  
 COUNTY  
**MACON**  
 JOB NO.  
**J2S2160**  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO.  
**A7687**



**Substructure Quantity Table for Bent No. 2**

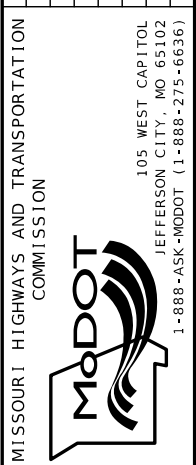
Item	Quantity
Drilled Shafts (5 ft. 0 in. Dia.)	linear foot 65.0
Rock Sockets (4 ft. 6 in. Dia.)	linear foot 45.5
Video Camera Inspection	each 2
Foundation Inspection Holes	linear foot 65.5
Sonic Logging Testing	each 2
Class B Concrete (Substructure)	cu. yard 36.4
Reinforcing Steel (Bridges)	pound 19,290

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.

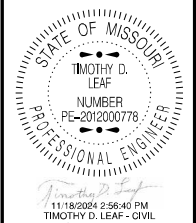
Notes:  
 Work this sheet with Sheet No. 8.  
 Thickness of permanent steel casing shall be in accordance with Sec 701.  
 An additional 4 feet has been added to V200 & V202 bar lengths and an additional 16-#4-P200 bars have been added in the quantities, if required, for possible change in drilled shaft or rock socket length. The additional V bar length shall be cut off or included in the reinforcement lap if not required. The additional P bars shall be spaced similarly to that shown in elevation, if required, or to a lesser spacing if not required, but not less than 6-inch centers.  
 Sonic logging testing shall be performed on all drilled shafts and rock sockets.

DESCRIPTION	DATE

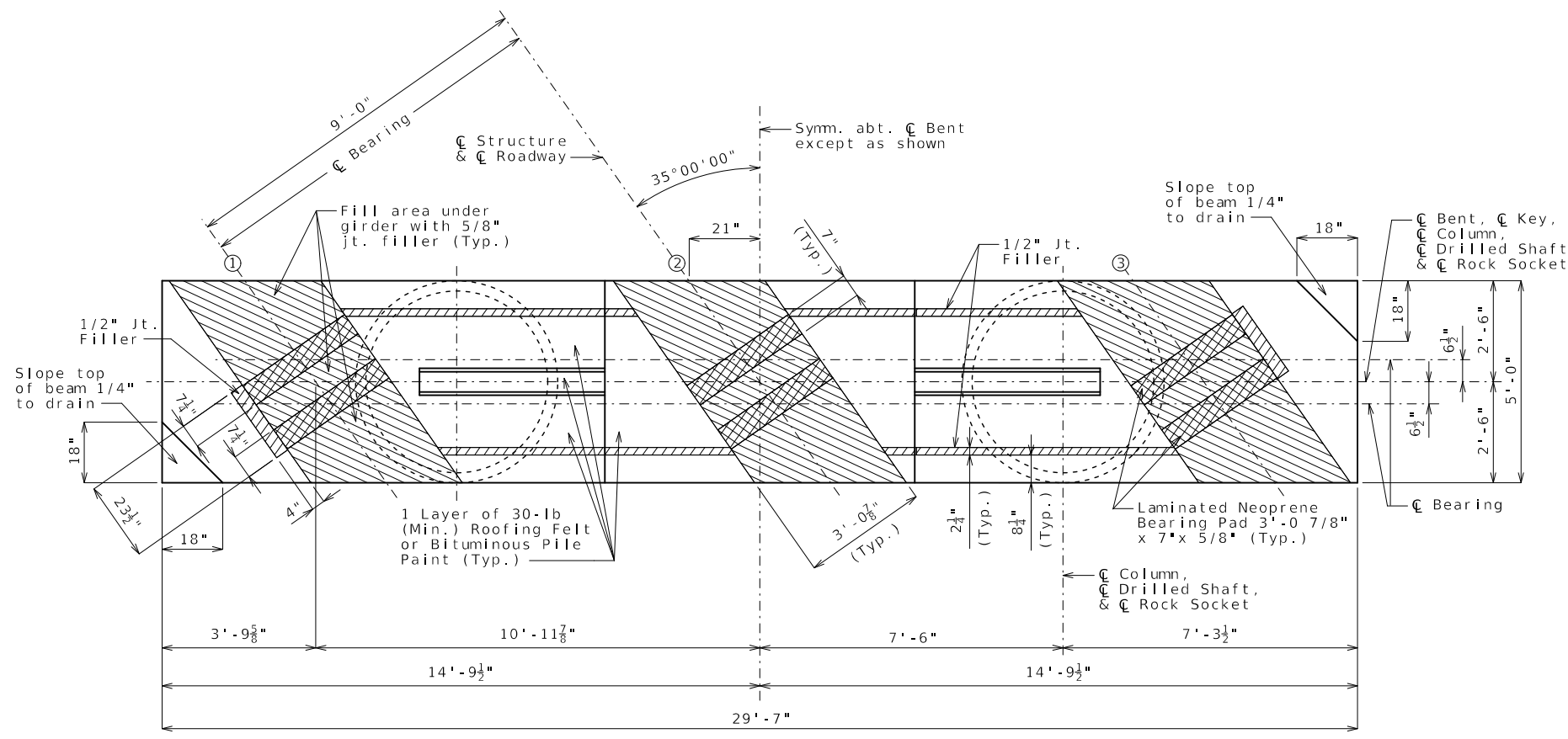


MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

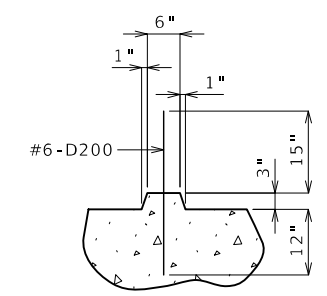
105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)



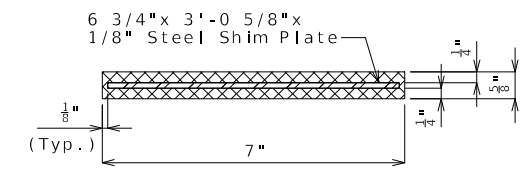
DATE PREPARED  
**11/18/2024**  
 ROUTE **J** STATE **MO**  
 DISTRICT **BR** SHEET NO. **8**  
 COUNTY **MACON**  
 JOB NO. **J2S2160**  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO. **A7687**



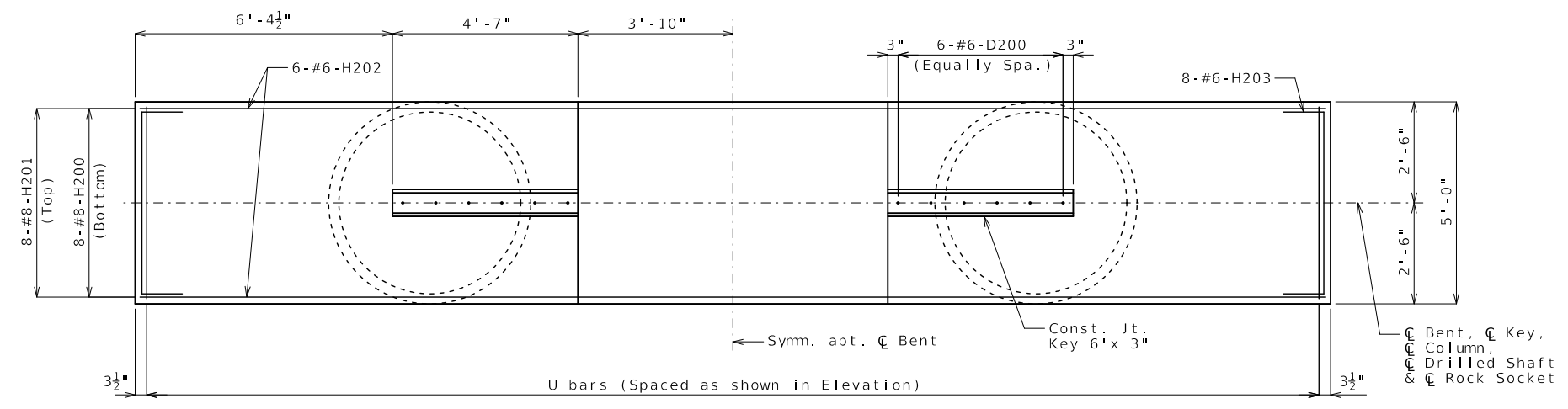
PLAN OF BEAM



SECTION THRU KEY



TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD



PLAN OF BEAM SHOWING REINFORCEMENT

Notes:  
 Work this sheet with Sheet No. 7.  
 For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.

INTERMEDIATE BENT NO. 2

Detailed Aug. 2024  
 Checked Aug. 2024

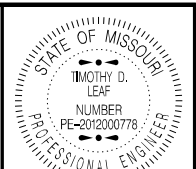
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 31

DESCRIPTION	DATE

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

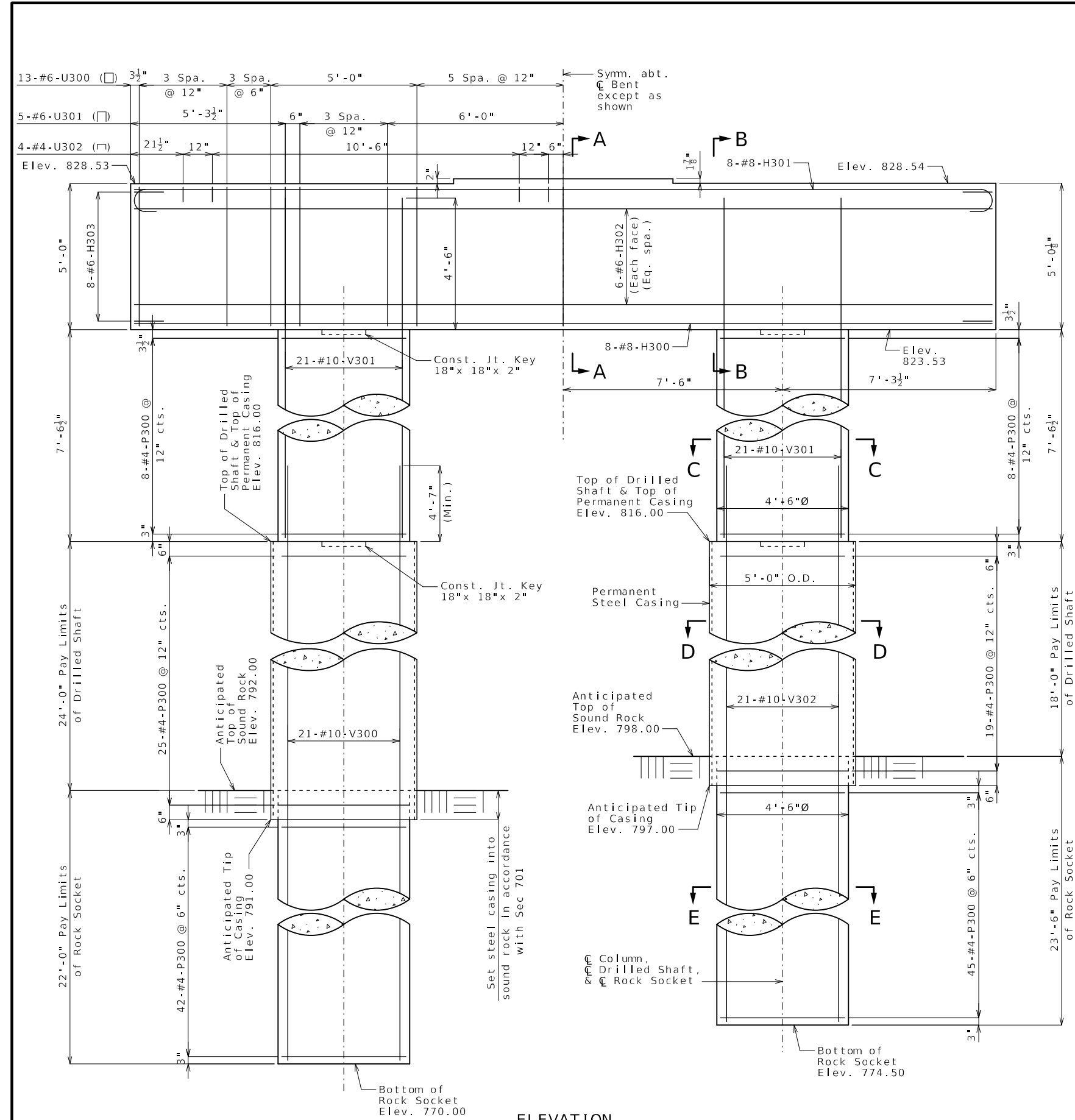




DATE PREPARED  
 11/18/2024  
 ROUTE STATE  
 J MO  
 DISTRICT SHEET NO.  
 BR 9  
 COUNTY  
 MACON  
 JOB NO.  
 J252160  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO.  
 A7687

DESCRIPTION	DATE

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



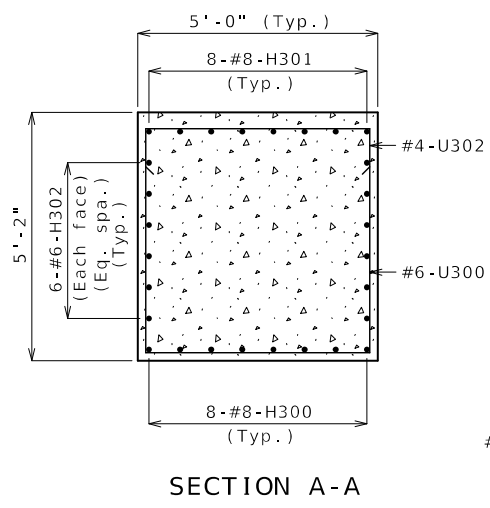
**ELEVATION**

(Beam keys now shown for clarity.)

**INTERMEDIATE BENT NO. 3**

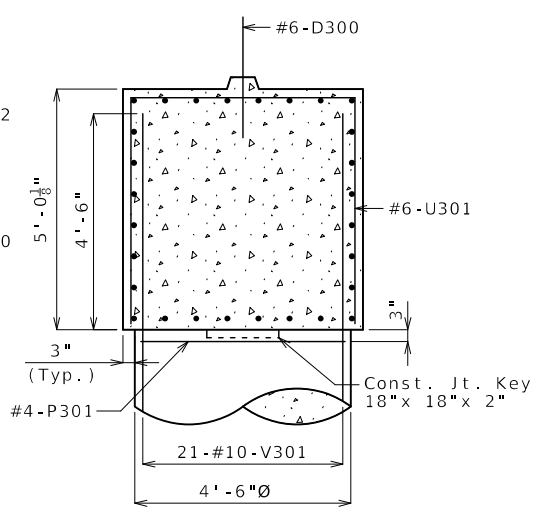
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 31

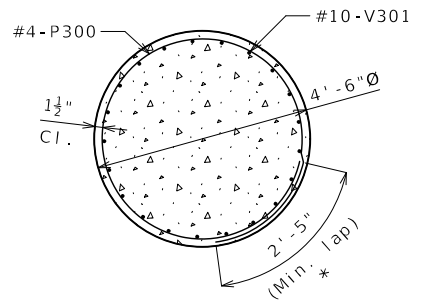


**SECTION A-A**

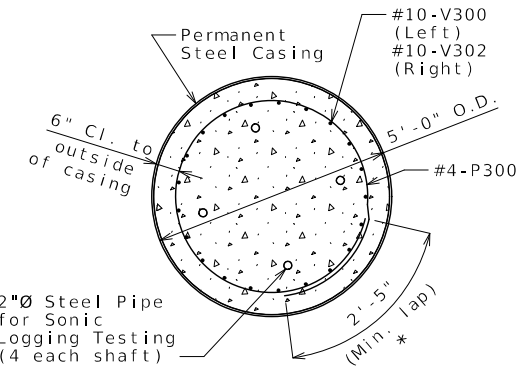
\* Stagger adjacent bar splices.



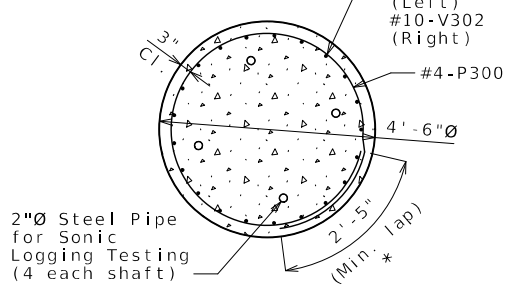
**SECTION B-B**



**SECTION C-C (COLUMN)**



**SECTION D-D (DRILLED SHAFT)**



**SECTION E-E (ROCK SOCKET)**

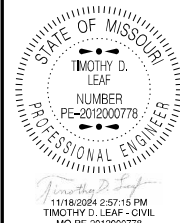
Notes:  
 Work this sheet with Sheet No. 10.  
 Thickness of permanent steel casing shall be in accordance with Sec 701.  
 An additional 4 feet has been added to V300 & V302 bar lengths and additional 16-#4-P300 bars have been added in the quantities, if required, for possible change in drilled shaft or rock socket length. The additional V bar length shall be cut off or included in the reinforcement lap if not required. The additional P bars shall be spaced similarly to that shown in elevation, if required, or to a lesser spacing if not required, but not less than 6-inch centers.  
 Sonic logging testing shall be performed on all drilled shafts and rock sockets.

**Substructure Quantity Table for Bent No. 3**

Item	Quantity
Drilled Shafts (5 ft. 0 in. Dia.)	linear foot 42.0
Rock Sockets (4 ft. 6 in. Dia.)	linear foot 45.5
Video Camera Inspection	each 2
Foundation Inspection Holes	linear foot 65.5
Sonic Logging Testing	each 2
Class B Concrete (Substructure)	cu. yard 36.6
Reinforcing Steel (Bridges)	pound 16,340

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.



DATE PREPARED  
11/18/2024

ROUTE J STATE MO  
DISTRICT BR SHEET NO. 10

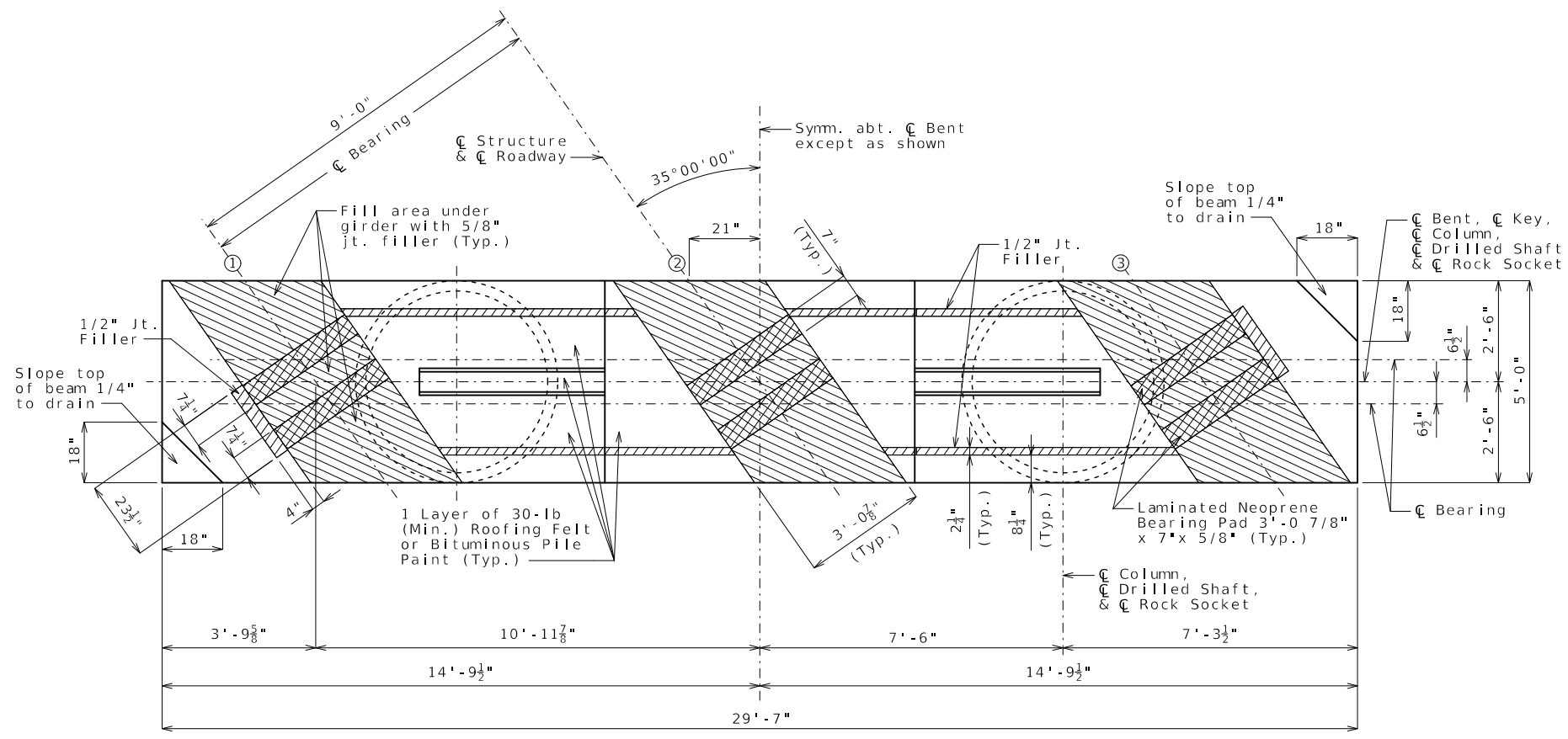
COUNTY  
MACON  
JOB NO.  
J252160  
CONTRACT ID.

PROJECT NO.

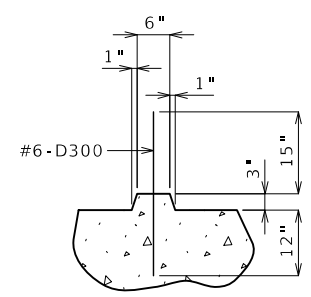
BRIDGE NO.  
A7687

DESCRIPTION	DATE

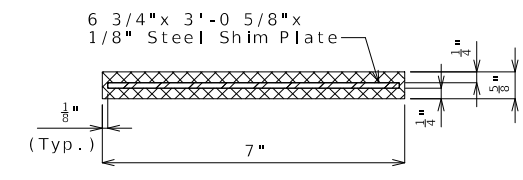
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)



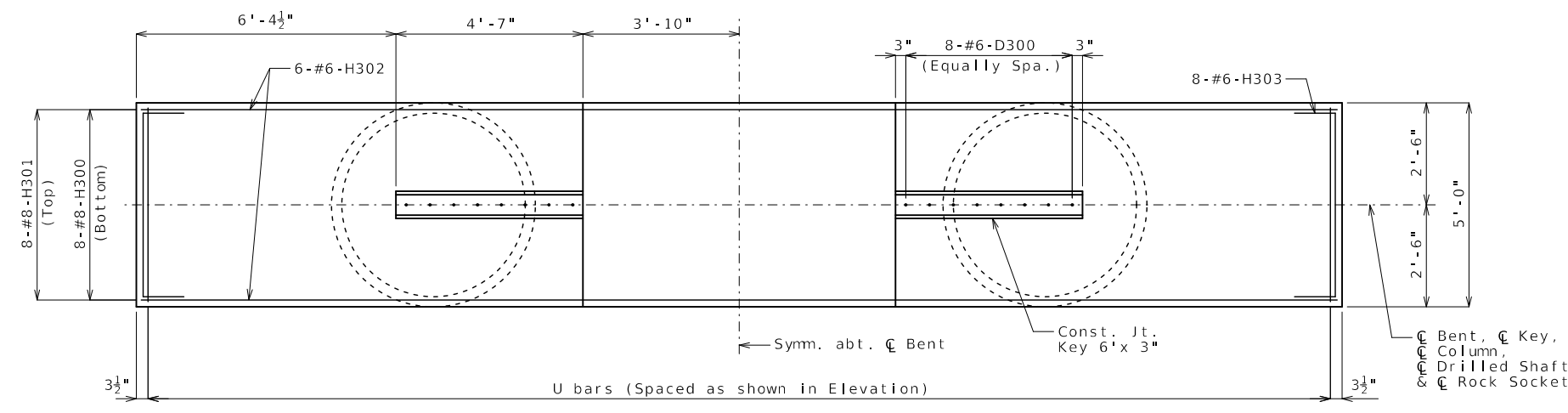
PLAN OF BEAM



SECTION THRU KEY



TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD



PLAN OF BEAM SHOWING REINFORCEMENT

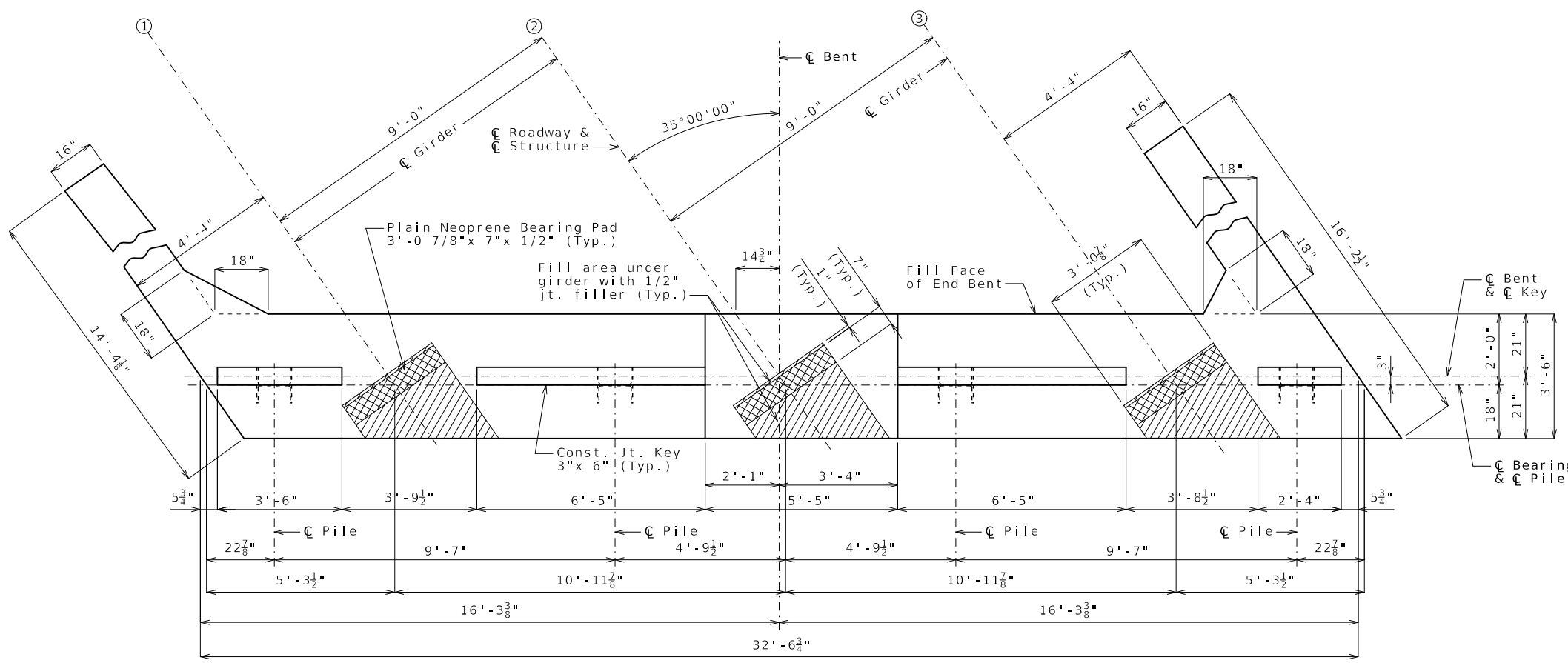
Notes:  
Work this sheet with Sheet No. 9.  
For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.

INTERMEDIATE BENT NO. 3

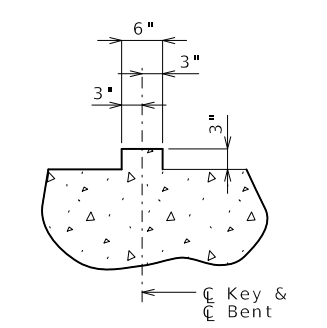
Detailed Aug. 2024  
Checked Aug. 2024

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

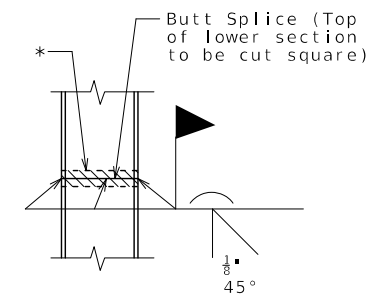
Sheet No. 10 of 31



PLAN OF BEAM SHOWING DIMENSIONS

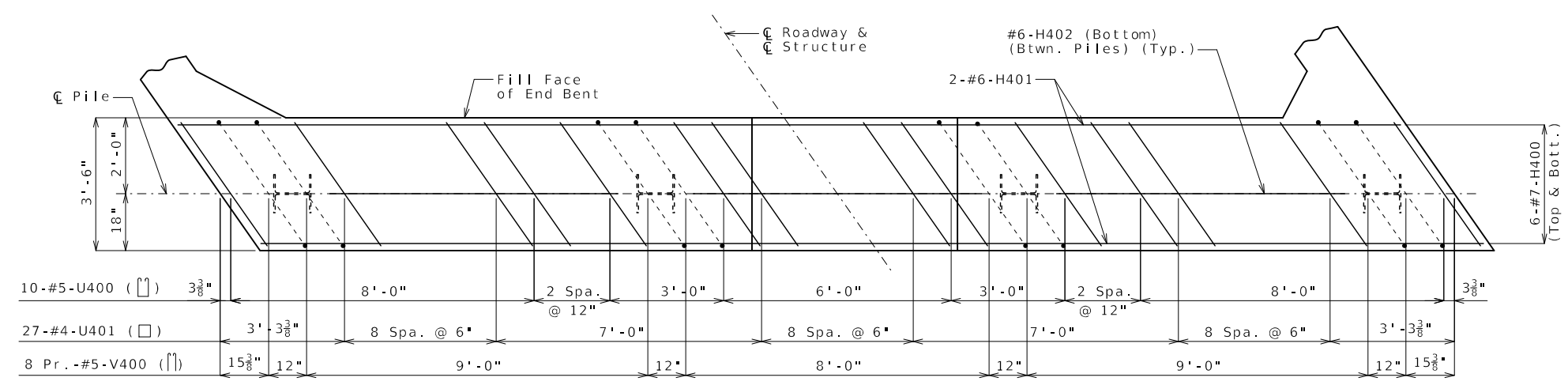


SECTION THRU KEY



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  
Beam keys and steps not shown for clarity.

Notes:

Work this sheet with Sheets No. 12 & 13.  
The U bars and pairs V bars shall be placed parallel to the centerline of roadway.  
Reinforcing steel shall be shifted to clear piles. U bars shall clear the piles by at least 1 1/2 inches.

Item	Quantity
Class 1 Excavation	cu. yard 40
Galvanized Structural Steel Piles (12 in.)	linear foot 120
Pile Point Reinforcement	each 4
Class B Concrete (Substructure)	cu. yard 16.6

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

END BENT NO. 4

STATE OF MISSOURI  
TIMOTHY D. LEAF  
NUMBER  
PE-2012000778  
PROFESSIONAL ENGINEER

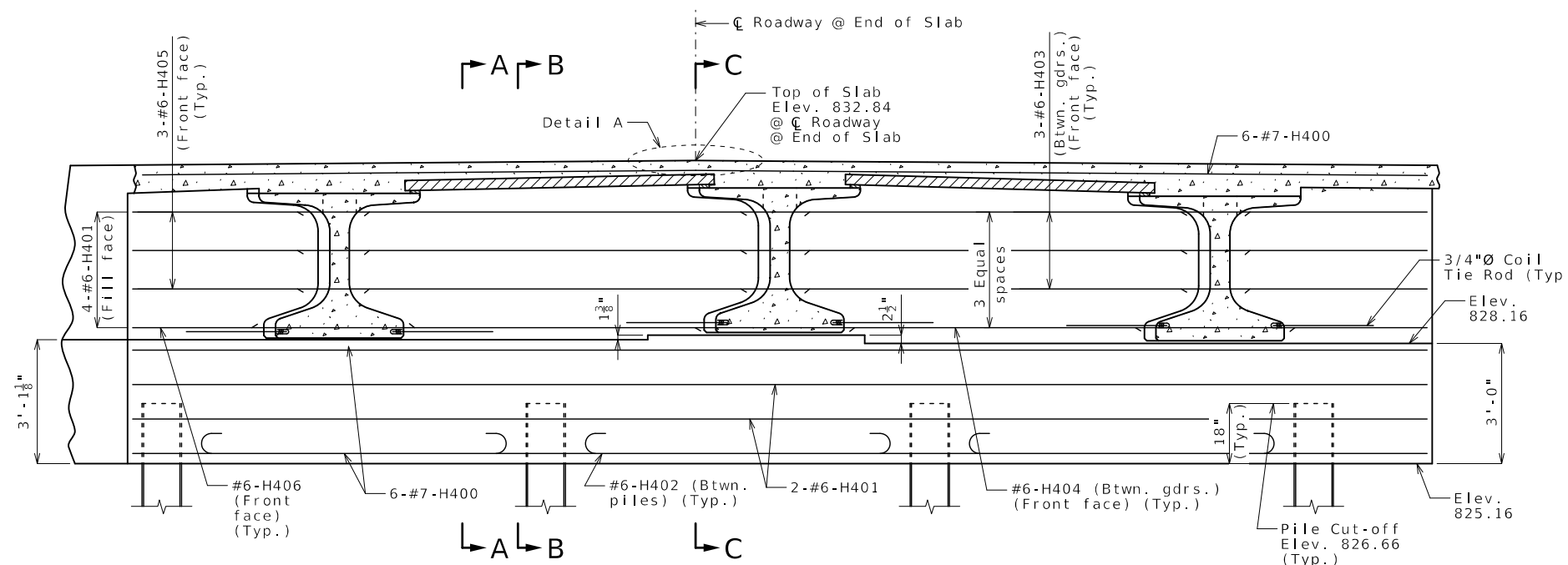
DATE PREPARED  
11/18/2024 2:57:52 PM  
TIMOTHY D. LEAF - CIVIL  
MO-PE-2012000778

DATE PREPARED 11/18/2024	
ROUTE J	STATE MO
DISTRICT BR	SHEET NO. 11
COUNTY MACON	
JOB NO. J252160	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A7687	

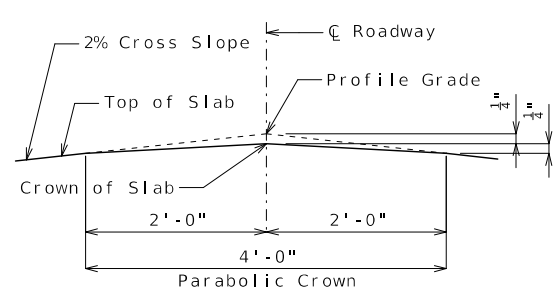
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



**SECTION NEAR END BENT**  
Keys not shown for clarity.



**DETAIL A**

**Notes:**

Work this sheet with Sheets No. 11 & 13.

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

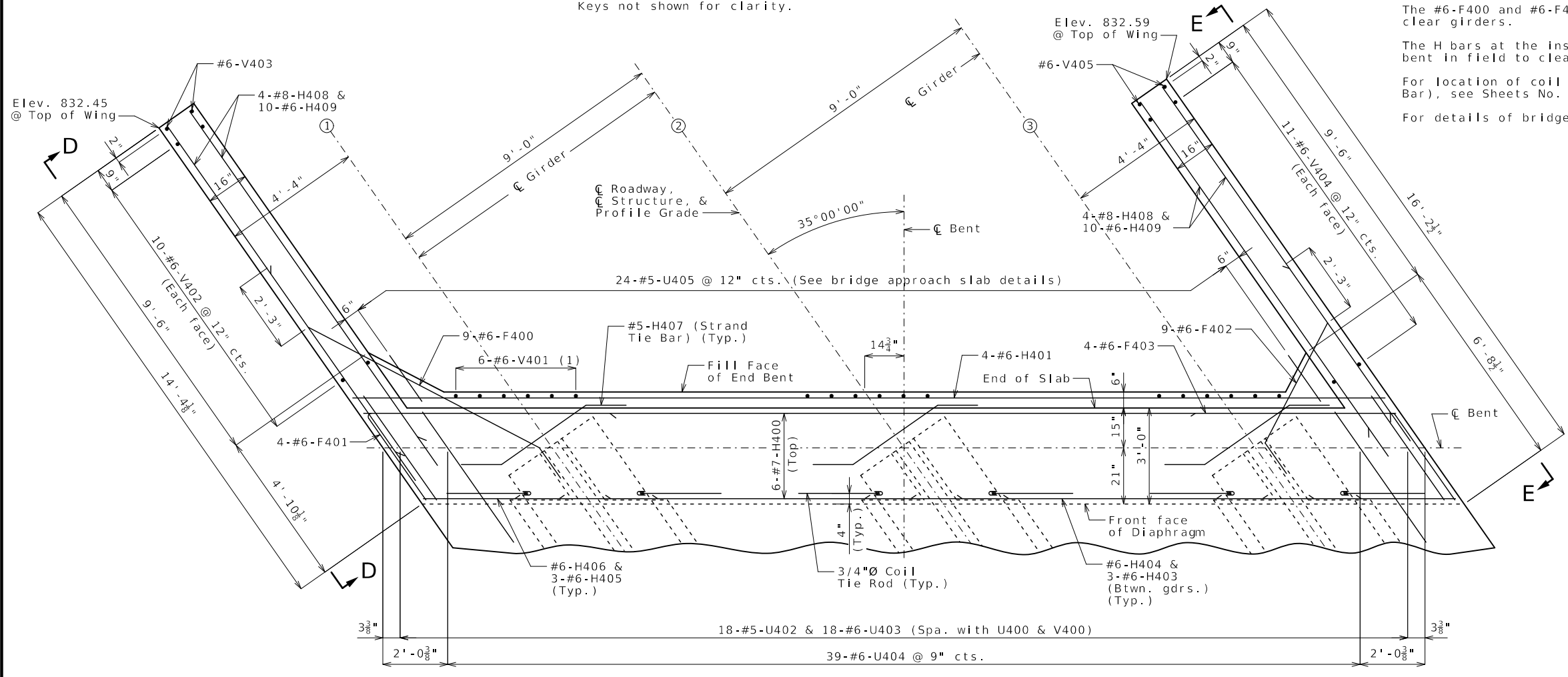
Strands at end of girder shall be field bent or, if necessary, cut in field to maintain 1 1/2-inch minimum clearance to fill face of end bent.

The #6-F400 and #6-F402 bars shall be bent in field to clear girders.

The H bars at the inside face of the wing shall be bent in field to clear piles.

For location of coil tie rods and #5-H407 (Strand Tie Bar), see Sheets No. 14 & 15.

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



**PART PLAN**

**END BENT NO. 4**

(1) @ 9" cts. Centered behind girder. (Typ.)

Detailed Aug. 2024  
Checked Aug. 2024

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

Sheet No. 12 of 31

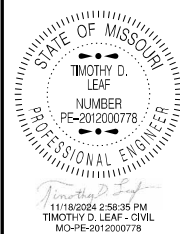


DATE PREPARED	
11/18/2024	
ROUTE	STATE
J	MO
DISTRICT	SHEET NO.
BR	12
COUNTY	
MACON	
JOB NO.	
J2S2160	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A7687	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

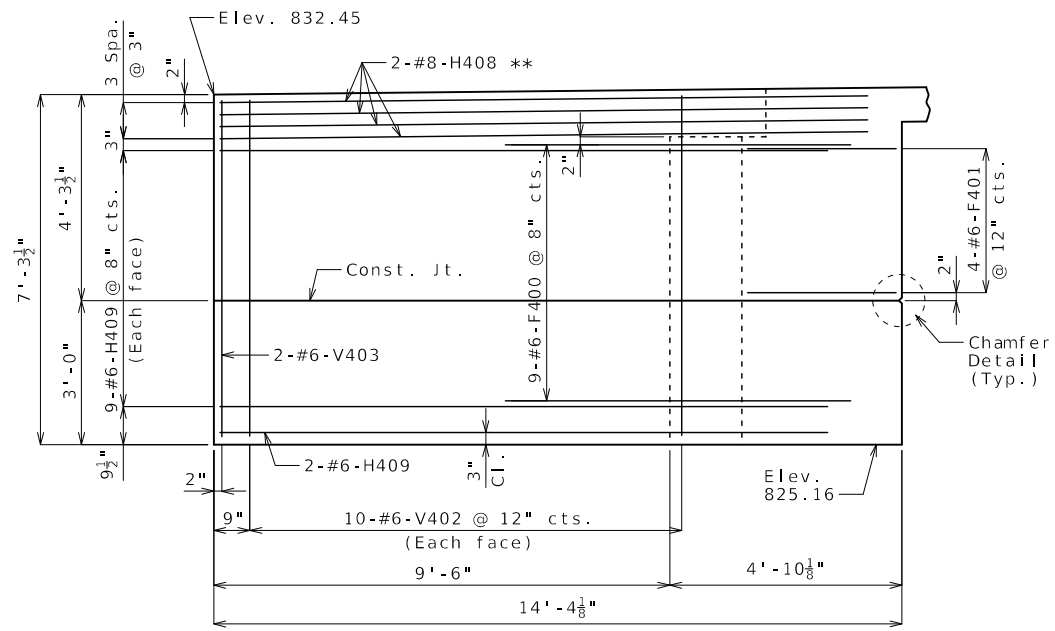
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)



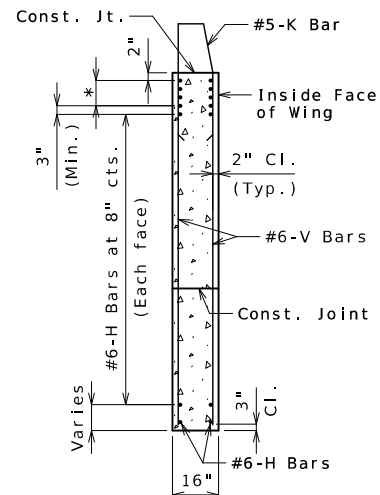
DATE PREPARED  
**11/18/2024**  
 ROUTE STATE  
**J MO**  
 DISTRICT SHEET NO.  
**BR 13**  
 COUNTY  
**MACON**  
 JOB NO.  
**J2S2160**  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO.  
**A7687**

DESCRIPTION	DATE

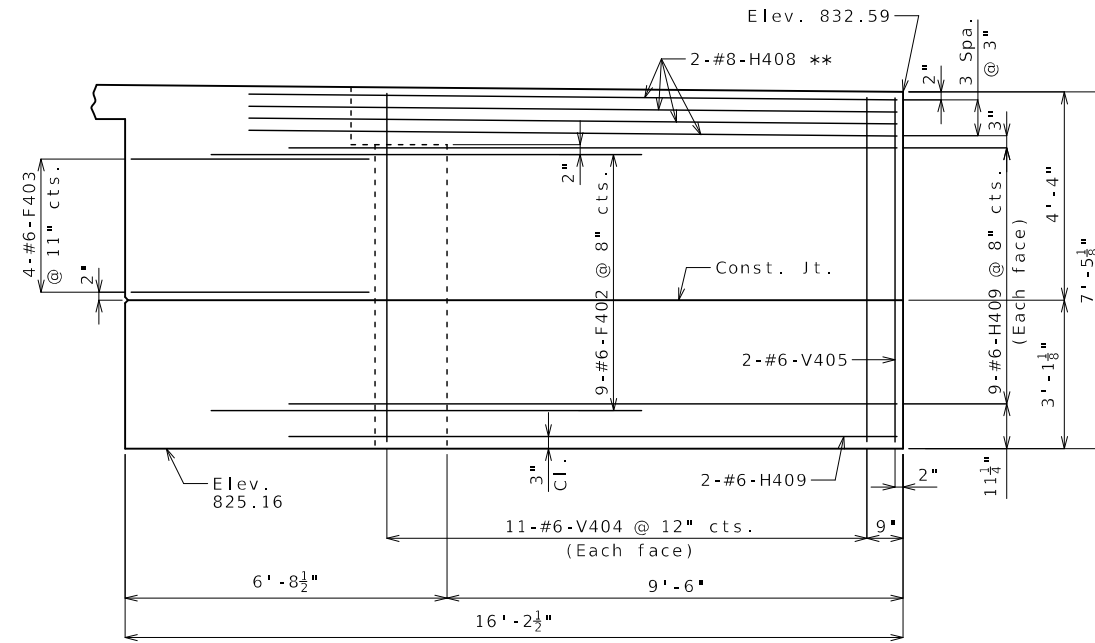
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
  
 105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)



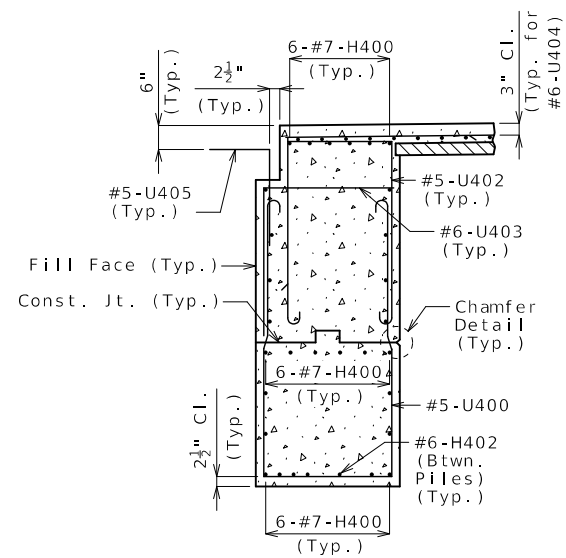
ELEVATION D-D



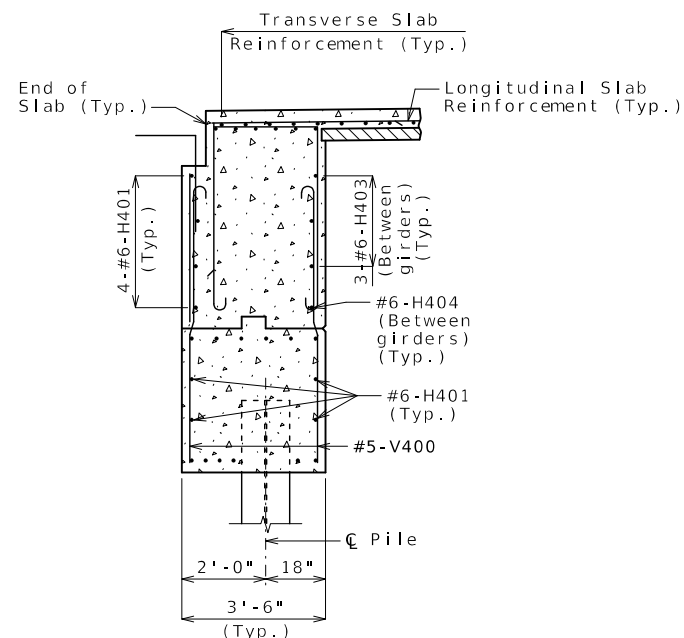
TYPICAL SECTION THRU WING  
 \* #8-H Bars at 3" cts. (Each face) (Place with grade)  
 \*\* Place with grade.



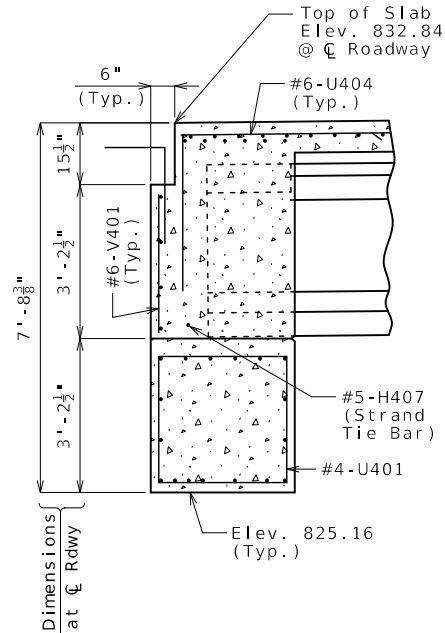
ELEVATION E-E



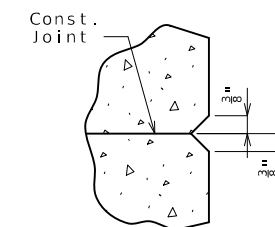
SECTION A-A



SECTION B-B



SECTION C-C



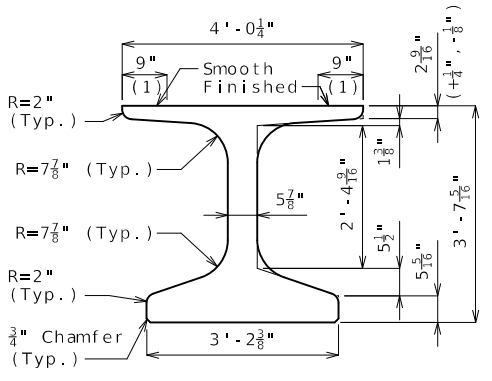
CHAMFER DETAIL

Notes:  
 Work this sheet with Sheets No. 11 & 12.  
 For reinforcement of the barrier, see Sheet No. 25.  
 For details of bridge approach slab, see Sheet No. 26.

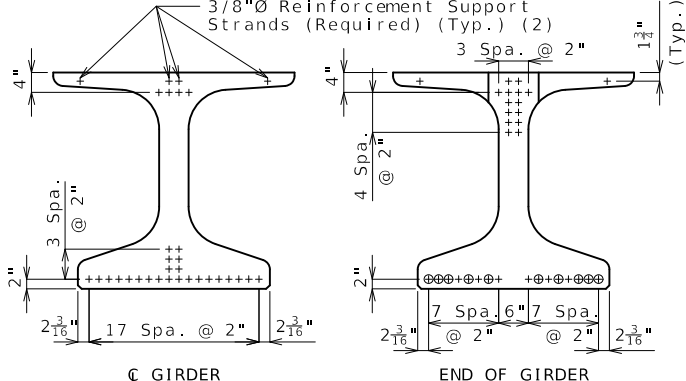
END BENT NO. 4

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

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about  $\bar{C}$  Girder. May be moved laterally in pairs.

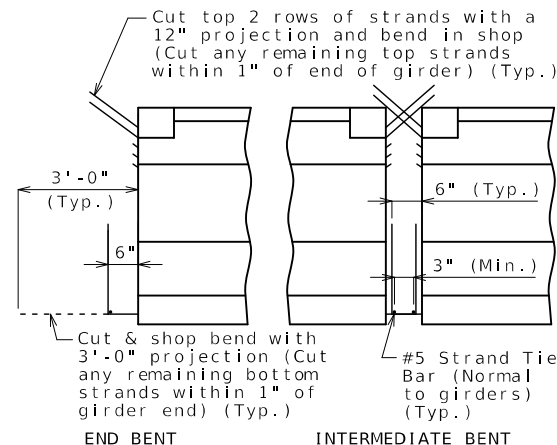


DIMENSIONS

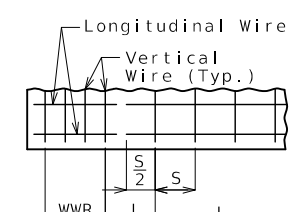


STRAND ARRANGEMENT

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



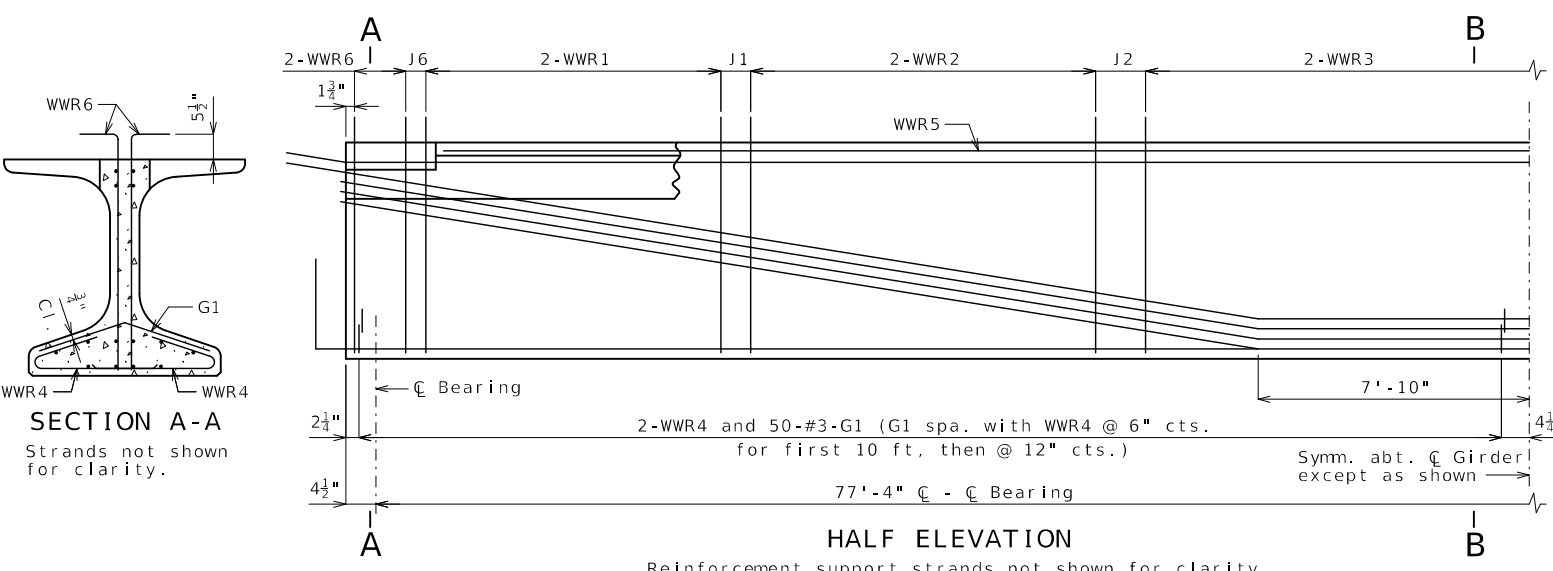
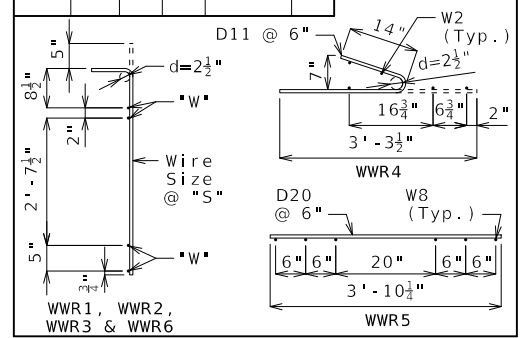
STRANDS AT GIRDER ENDS



WELDED WIRE PLACEMENT

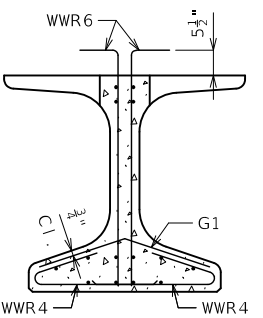
S = Vertical wire spacing  
L = Length of WWR mats  
J = Distance between WWR mats

Bill of Reinforcing Steel					
Bars Each Girder					
No.	Size/Mark	Length	Shape	Bending Diagrams	
100	3 G1	2'-10"	8		
2	4 G3	4'-8"	20		
2	4 G4	2'-3"	20		
2	4 G5	3'-4"	20		
10	4 G6	Varies	20		
					Shape 8
Welded Wire Each Girder					
Mark	Size	S	W	L	J
WWR1	D31	4"	W12	4'-0"	8"
WWR2	D31	8"	W12	9'-4"	20"
WWR3	D31	20"	W12	43'-4"	--
WWR6	D31	2"	W12	16"	2 1/4"

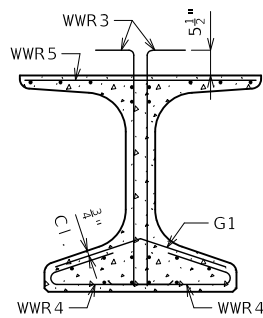


HALF ELEVATION

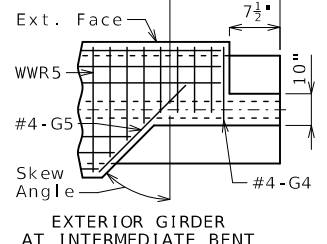
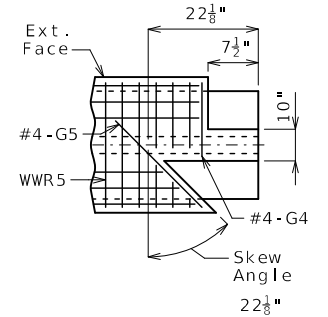
Reinforcement support strands not shown for clarity.



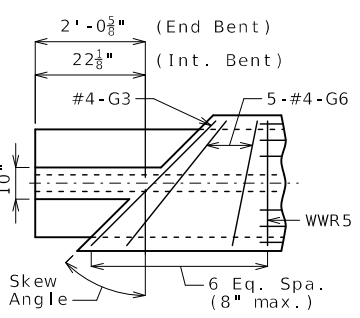
SECTION A-A  
Strands not shown for clarity.



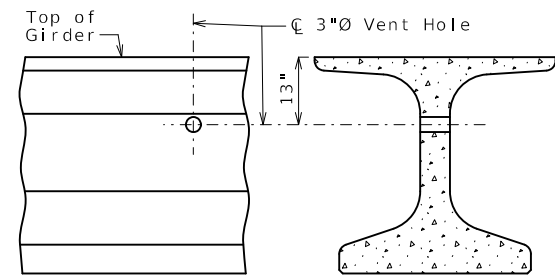
SECTION B-B  
Strands not shown for clarity.



EXTERIOR GIRDER AT INTERMEDIATE BENT



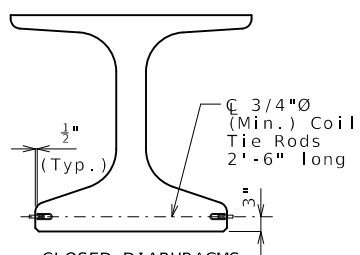
TOP FLANGE BLOCKOUT



PART ELEVATION PART SECTION

VENT HOLE

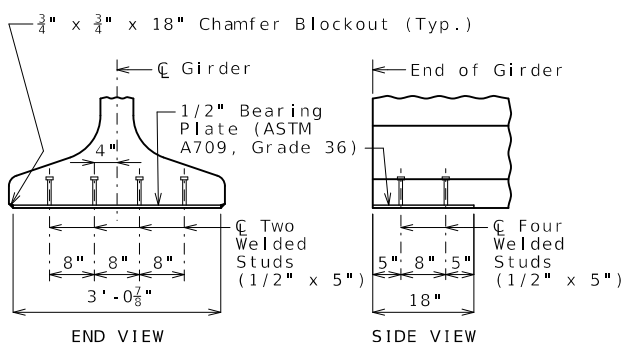
Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



CLOSED DIAPHRAGMS AND INTEGRAL BENTS

COIL TIES

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



BEARING PLATE

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 and G6 not required for exterior girders of intermediate spans. Half no. of G3, G4, G5 and G6 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 28 strands, 0.6"Ø Grade 270, with an initial prestress force of 1230 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, application of bond breaker, coil inserts for slab drains.

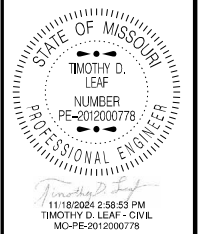
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

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.



DATE PREPARED 11/18/2024	
ROUTE J	STATE MO
DISTRICT BR	SHEET NO. 14
COUNTY MACON	
JOB NO. J2S2160	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A7687	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

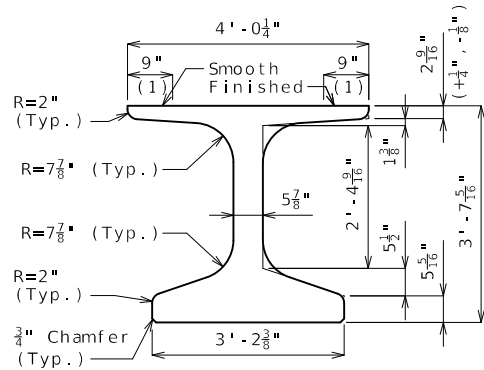
105 WEST CAPITOL JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

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

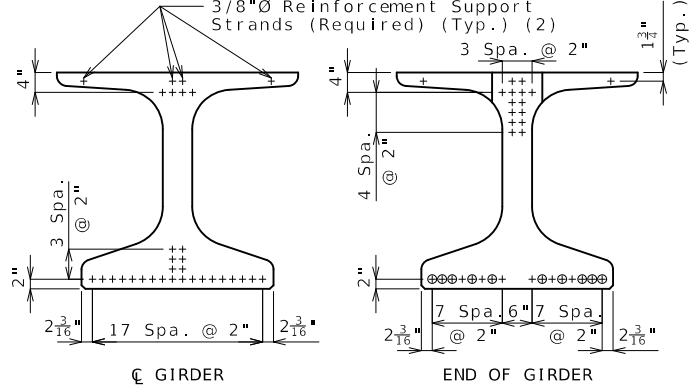


(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.

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

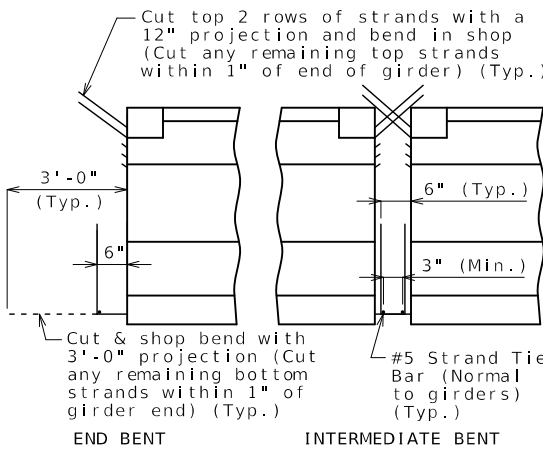


DIMENSIONS



STRAND ARRANGEMENT

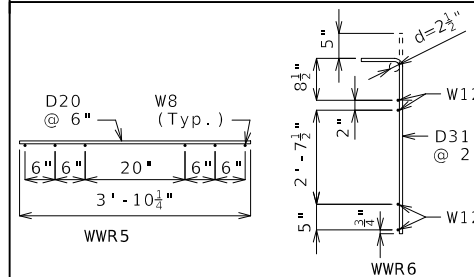
+ Indicates prestressing strand. o Indicates cut & shop bend with 3'-0" projection.



STRANDS AT GIRDER ENDS

Bill of Reinforcing Steel - Each Girder				
No.	Size/Mark	Length	Shape	Bending Diagrams
146	5 B1	5'-0"	11S	Shape 20
166	4 D1	4'-0"	9S	
2	4 G3	4'-7"	20	Shape 9S Shape 12S
2	4 G4	2'-3"	20	
2	4 G5	3'-4"	20	
10	4 G6	Varies	20	

Welded Wire Reinforcement - Each Girder



All dimensions are out to out.

Hooks and bends shall be in accordance with the CRS1 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 and G6 not required for exterior girders of intermediate spans. Half no. of G3, G4, G5 and G6 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 28 strands, 0.6"Ø Grade 270, with an initial prestress force of 1230 kips.

Prestensioned 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 blackout, application of bond breaker, coil inserts for slab drains.

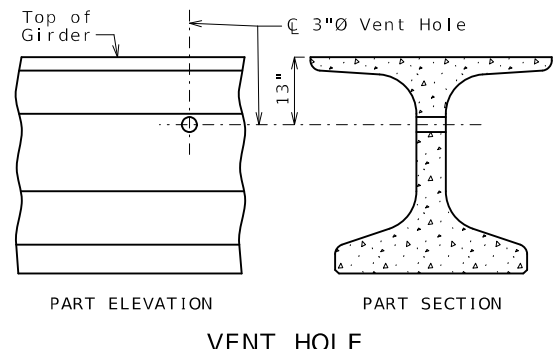
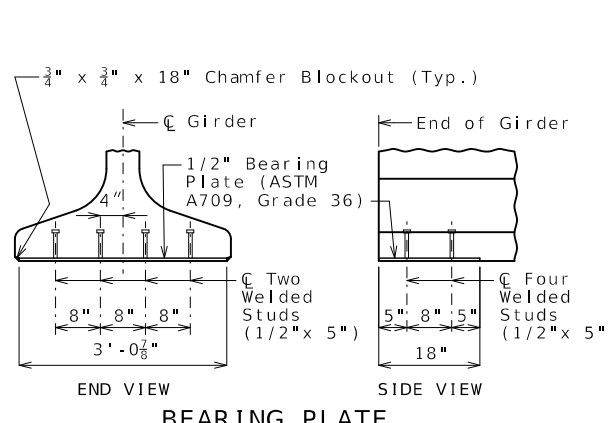
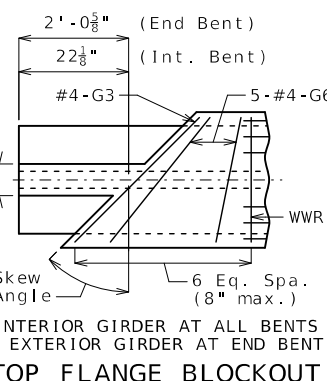
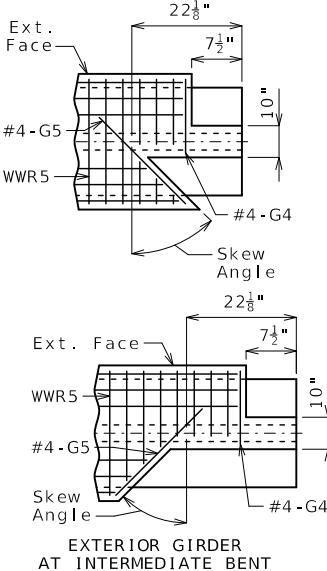
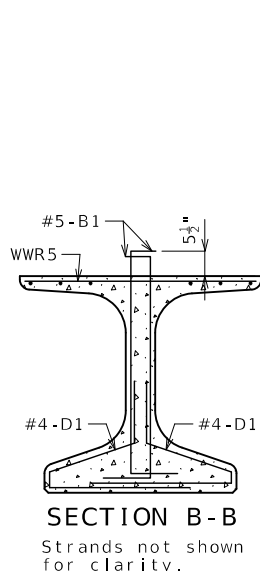
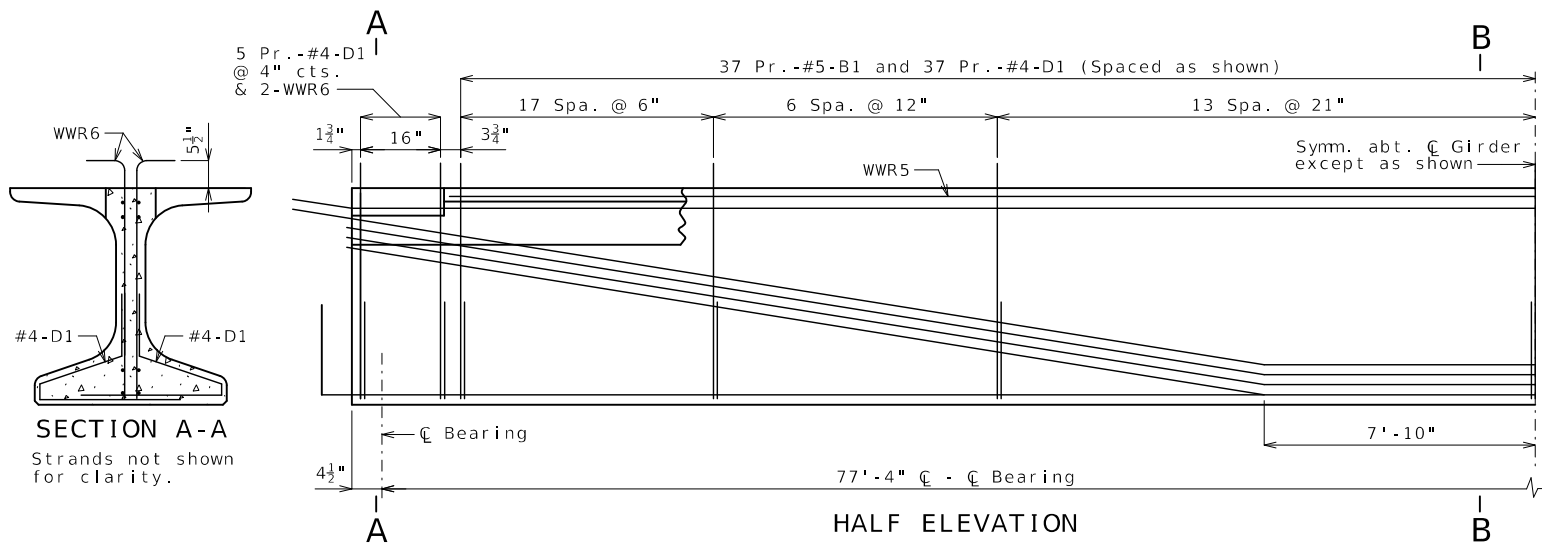
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 21.

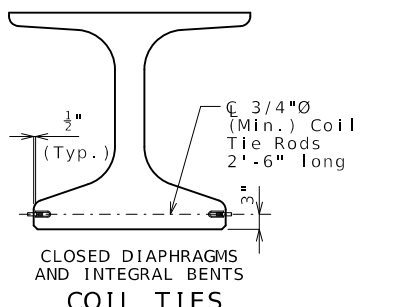
For location of coil inserts at slab drains, see Sheet No. 20.

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.



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



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

DATE PREPARED: 11/18/2024

ROUTE	STATE
J	MO
DISTRICT	SHEET NO.
BR	15
COUNTY	
MACON	
JOB NO.	J2S2160
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A7687

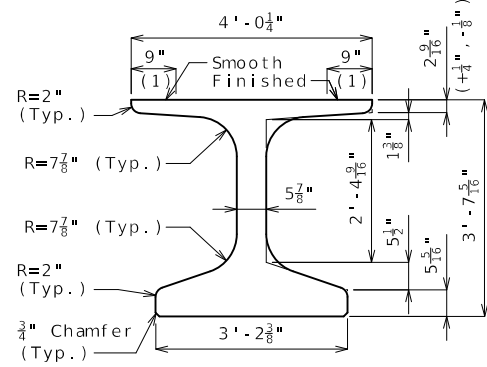
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

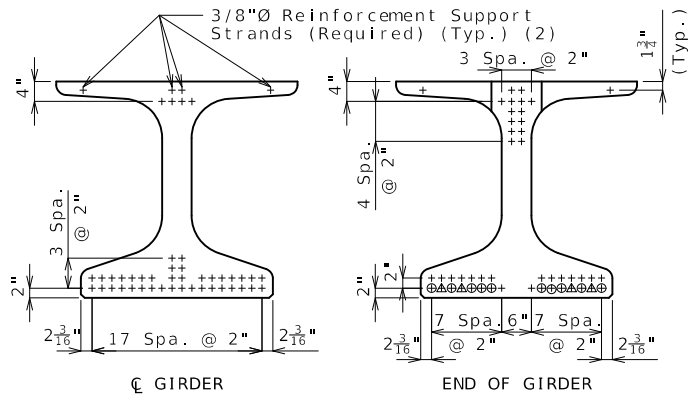
105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

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

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about  $\bar{C}$  Girder. May be moved laterally in pairs.

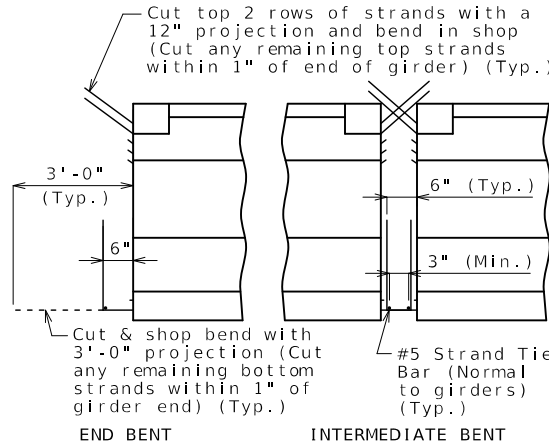


DIMENSIONS

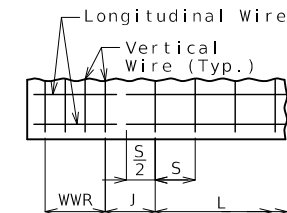


STRAND ARRANGEMENT

+ Indicates prestressing strand.   
 ○ Indicates cut & shop bend with 3'-0" projection.   
 △ Indicates debonded for 3'-0" from end of girder.



STRANDS AT GIRDER ENDS



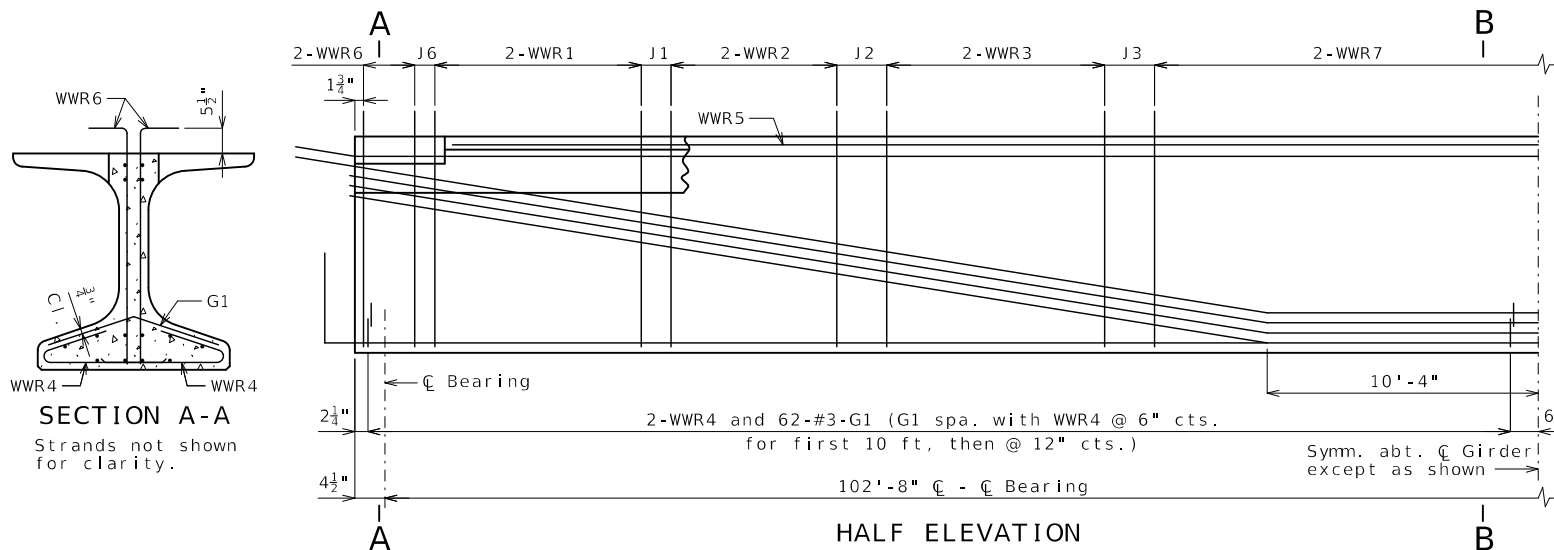
WELDED WIRE PLACEMENT

S = Vertical wire spacing   
 L = Length of WWR mats   
 J = Distance between WWR mats

**Bill of Reinforcing Steel**

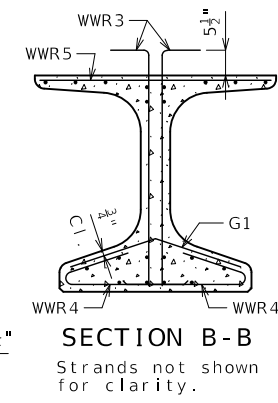
Bars Each Girder				Bending Diagrams	
No.	Size/Mark	Length	Shape		
124	3 G1	2'-10"	8	 Shape 8	
2	4 G3	4'-7"	20		
2	4 G4	2'-3"	20		
2	4 G5	3'-4"	20		
10	4 G6	Varies	20		
Welded Wire Each Girder					 Shape 20
Mark	Size	S	W		
WWR1	D31	4"	W12	4'-4"	8"
WWR2	D31	8"	W12	14'-8"	12"
WWR3	D31	12"	W12	6'-0"	20"
WWR6	D31	2"	W12	16"	24"
WWR7	D31	20"	W12	43'-4"	--

Additional details from the table:   
 D11 @ 6"   
 W2 (Typ.)   
 d=2 1/2"   
 WWR4: 16 3/4" x 6 3/4" x 2"   
 W8 (Typ.)   
 D20 @ 6"   
 WWR5: 6" x 6" x 20" x 6" x 6"   
 3'-10 1/4"   
 WWR1, WWR2, WWR3 & WWR6   
 WWR5



HALF ELEVATION

Reinforcement support strands not shown for clarity.

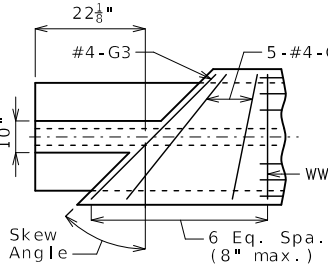


SECTION B-B

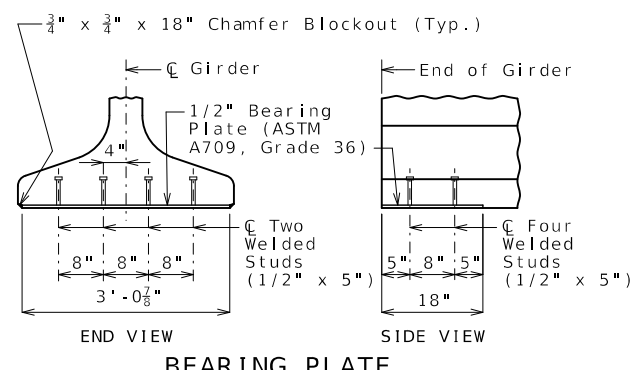
Strands not shown for clarity.



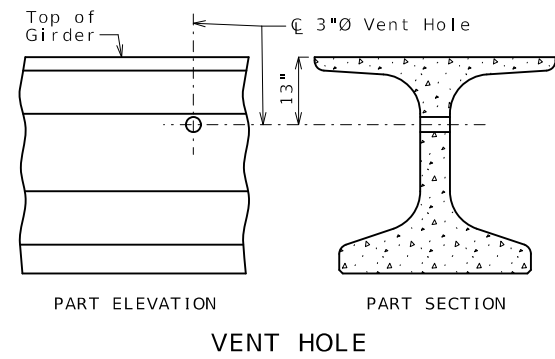
EXTERIOR GIRDER AT INTERMEDIATE BENTS



INTERIOR GIRDER AT INTERMEDIATE BENTS

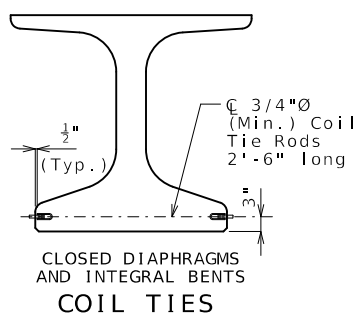


BEARING PLATE



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.

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 and G6 not required for exterior girders of intermediate spans. Half no. of G3, G4, G5 and G6 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 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: coil ties, top flange blackout, application of bond breaker, 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 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.

**STATE OF MISSOURI**  
 TIMOTHY D. LEAF  
 NUMBER  
 PE-201200778  
 PROFESSIONAL ENGINEER

DATE PREPARED  
 11/18/2024

ROUTE STATE  
 J MO

DISTRICT SHEET NO.  
 BR 16

COUNTY  
 MACON

JOB NO.  
 J252160

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
 A7687

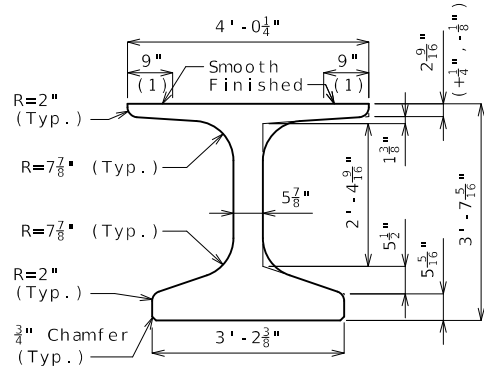
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

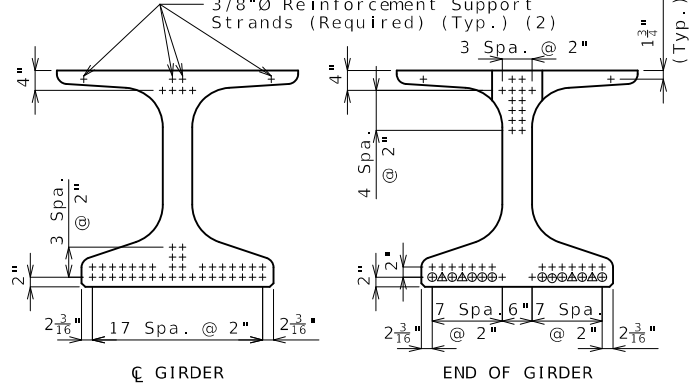
105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

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

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

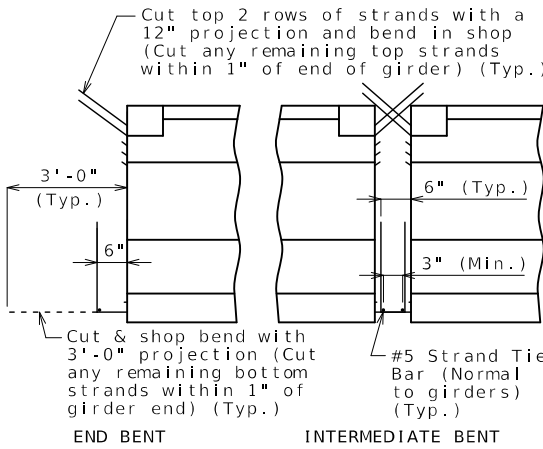


DIMENSIONS



STRAND ARRANGEMENT

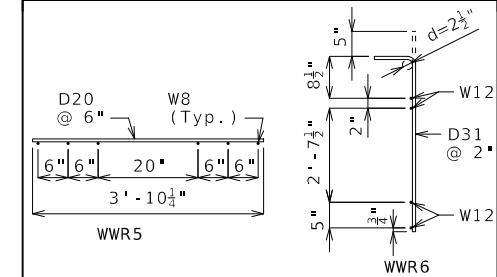
+ Indicates prestressing strand.  
o Indicates cut & shop bend with 3'-0" projection.  
Δ Indicates debonded for 3'-0" from end of girder.



STRANDS AT GIRDER ENDS

Bill of Reinforcing Steel - Each Girder				
No.	Size/Mark	Length	Shape	Bending Diagrams
206	5 B1	5'-0"	11S	Shape 20
226	4 D1	4'-0"	9S	
2	4 G3	4'-7"	20	Shape 9S Shape 12S
2	4 G4	2'-3"	20	
2	4 G5	3'-4"	20	
10	4 G6	Varies	20	

Welded Wire Reinforcement - Each Girder



All dimensions are out to out.

Hooks and bends shall be in accordance with the CRS1 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 and G6 not required for exterior girders of intermediate spans. Half no. of G3, G4, G5 and G6 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 42 strands, 0.6"Ø Grade 270, with an initial prestress force of 1845 kips.

Prestensioned 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, application of bond breaker, coil inserts for slab drains.

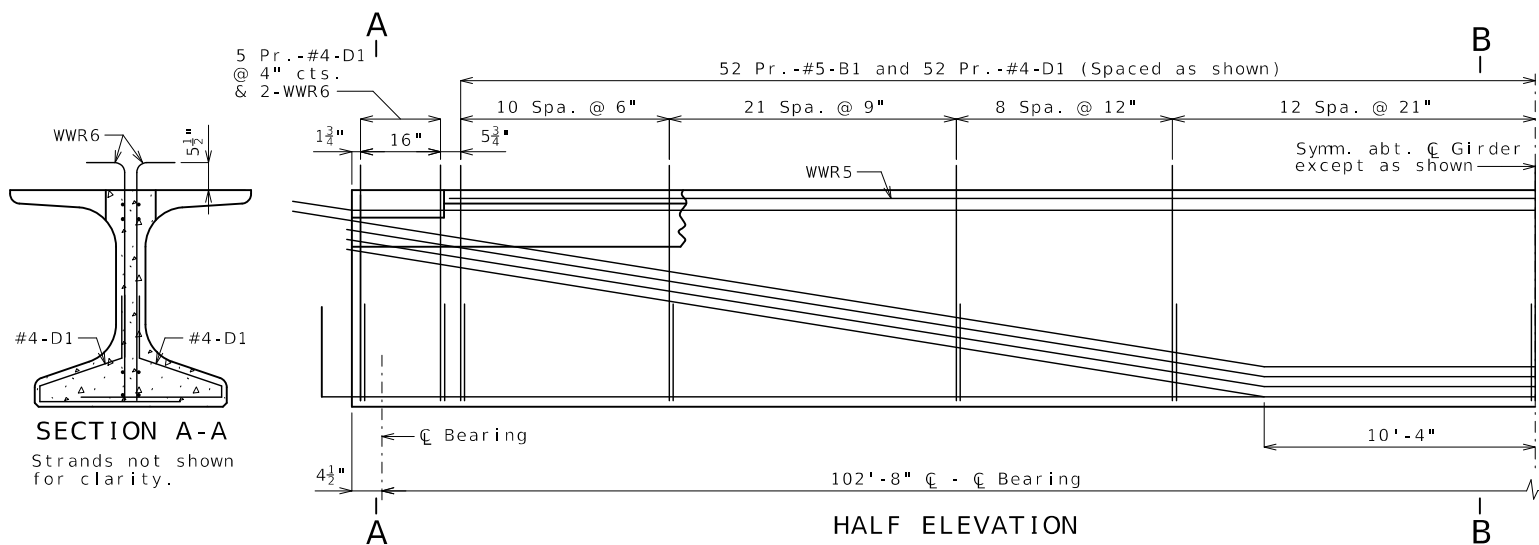
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

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 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.

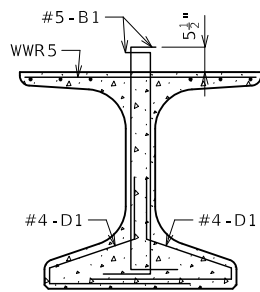


HALF ELEVATION

Reinforcement support strands not shown for clarity.

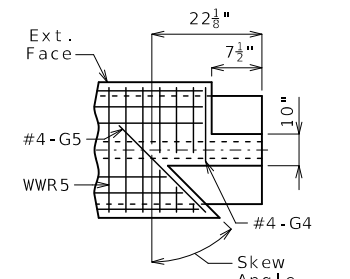
**SECTION A-A**

Strands not shown for clarity.

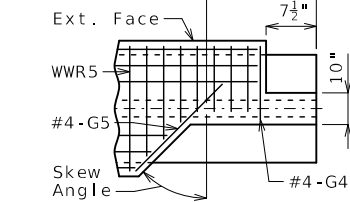


SECTION B-B

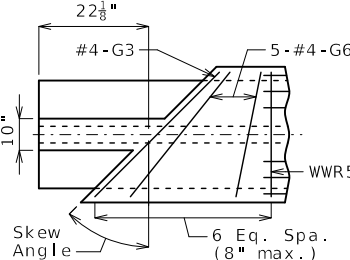
Strands not shown for clarity.



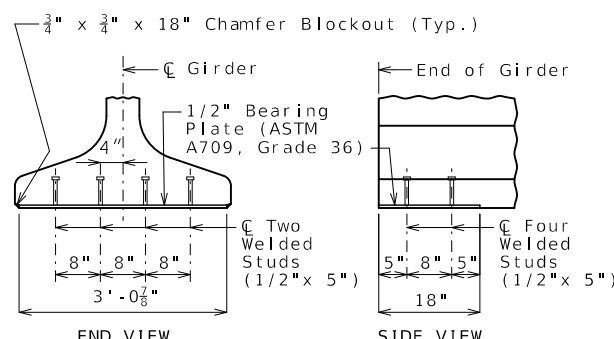
EXTERIOR GIRDER AT INTERMEDIATE BENTS



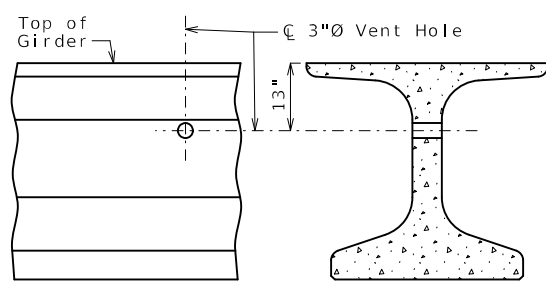
INTERIOR GIRDER AT INTERMEDIATE BENTS



TOP FLANGE BLOCKOUT



BEARING PLATE

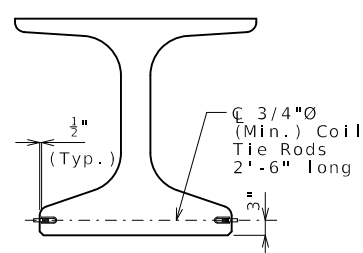


PART ELEVATION

PART SECTION

**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.



CLOSED DIAPHRAGMS AND INTEGRAL BENTS  
COIL TIES

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

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



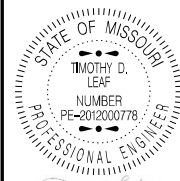
DATE PREPARED  
**11/18/2024**

ROUTE	STATE
J	MO
DISTRICT	SHEET NO.
BR	17
COUNTY	
MACON	
J2S2160	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A7687	

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105 WEST CAPITOL  
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11/18/2024 9:00:19 PM  
TIMOTHY D. LEAF - CIVIL  
MO-PE-201200778

11/18/2024

ROUTE J STATE MO  
DISTRICT BR SHEET NO. 18

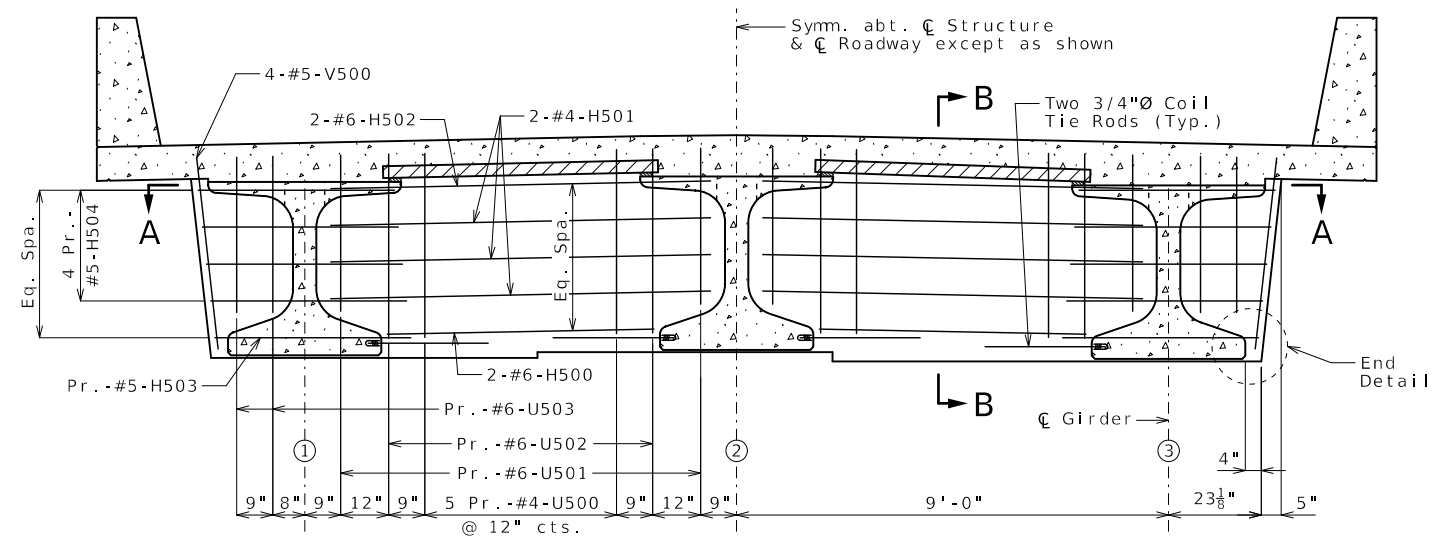
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JOB NO. J252160  
CONTRACT ID.

PROJECT NO.

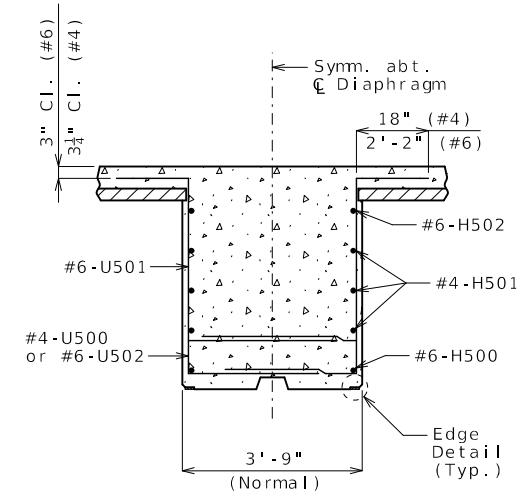
BRIDGE NO. A7687

DATE	DESCRIPTION

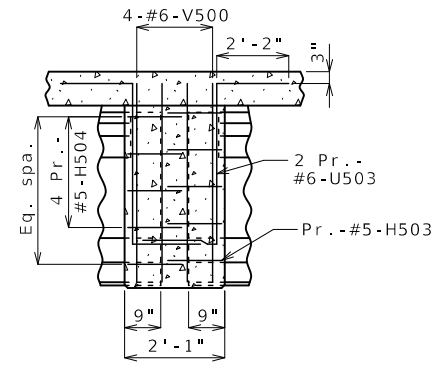
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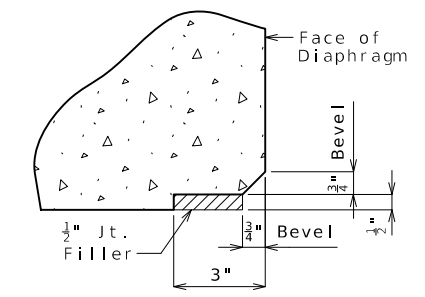
SECTION NEAR INTERMEDIATE BENT  
(Normal to Centerline of Structure)



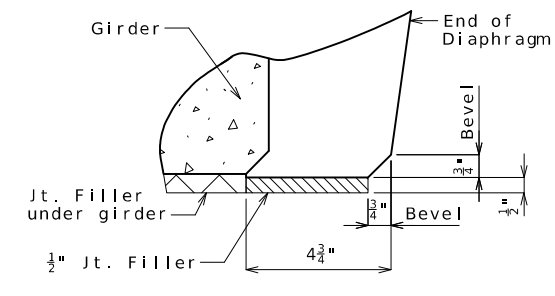
SECTION B-B



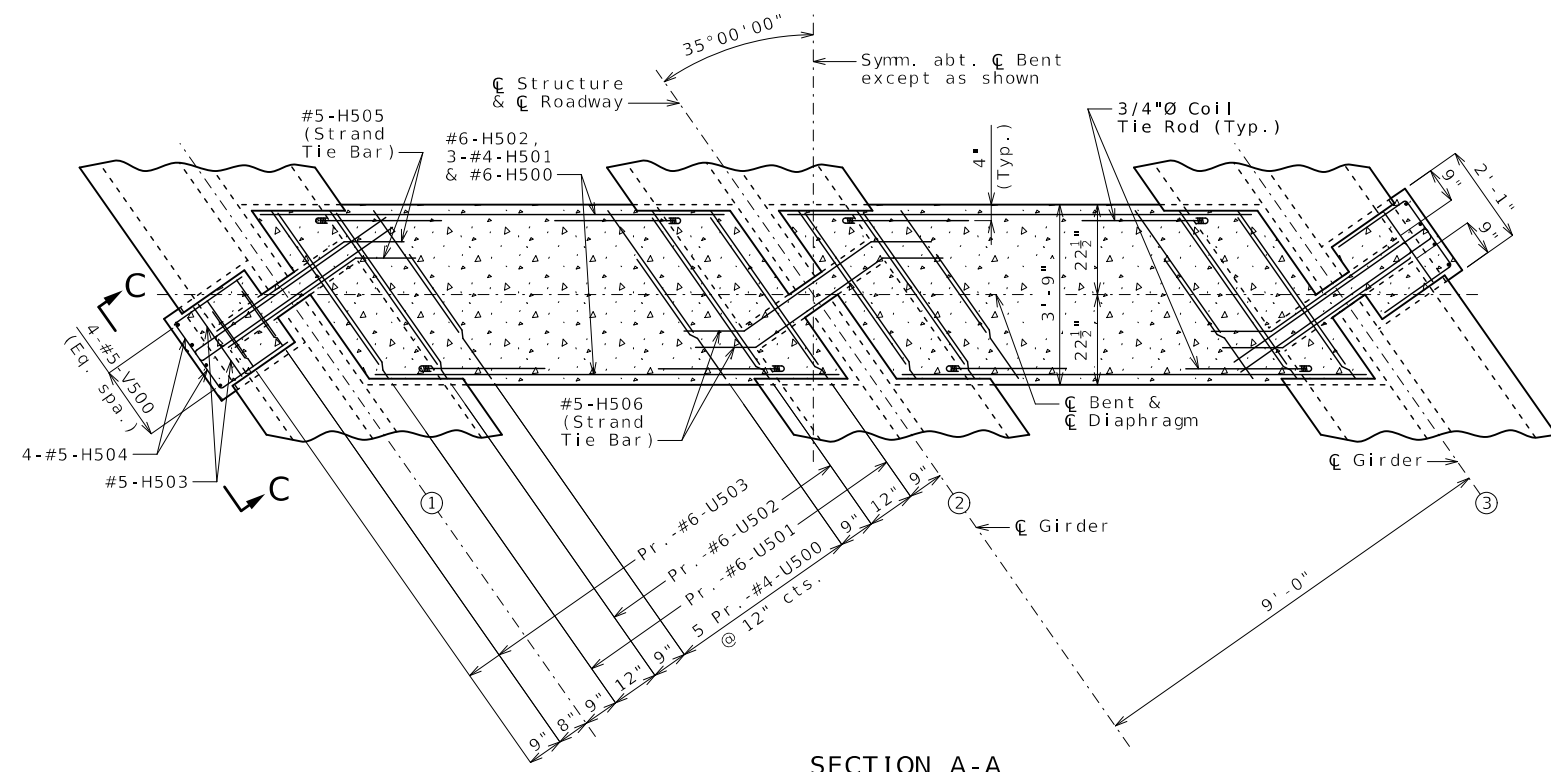
ELEVATION C-C



EDGE DETAIL



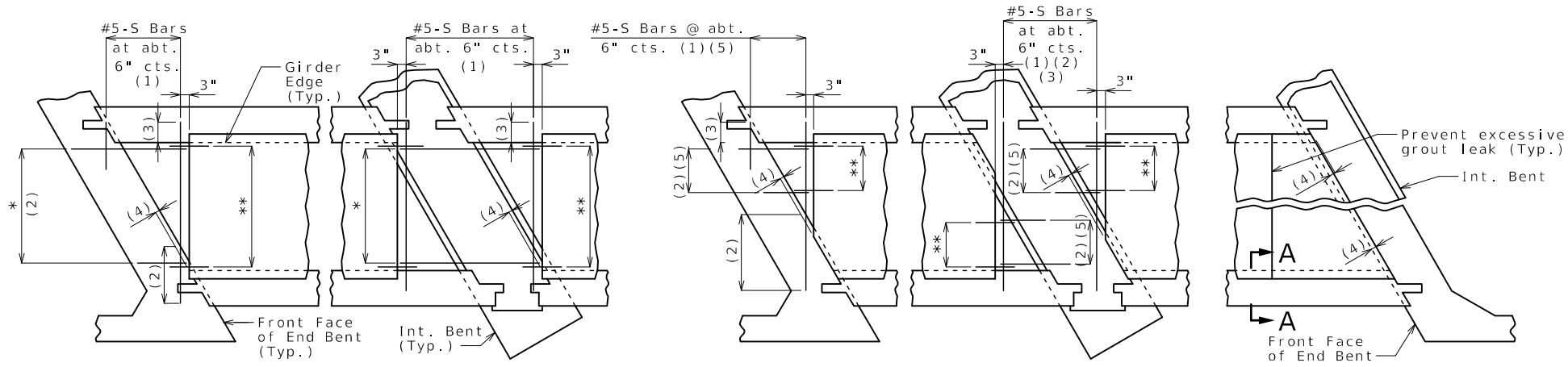
END DETAIL



SECTION A-A

Notes:  
Diaphragms at intermediate bents shall be built vertical.  
For location of #5-H505 & #5-H506 (Strand Tie Bars), and coil tie rods, see Sheets No. 14 thru 17.  
All U bars in diaphragm shall be placed parallel to centerline of roadway.

CONCRETE DIAPHRAGM AT INTERMEDIATE BENTS NO. 2 & 3



SQUARED END PANELS OR TRUNCATED END PANELS  
PLAN SHOWING PANEL PLACEMENT

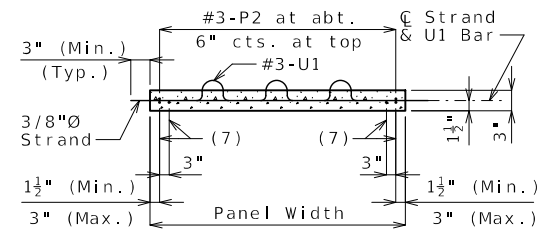
\* #5-S Bars at abt. 9" cts. (1)  
\*\* #3-P1 at 12" cts. (End panels only)

SKewed END PANELS  
Joint Filler Dimensions

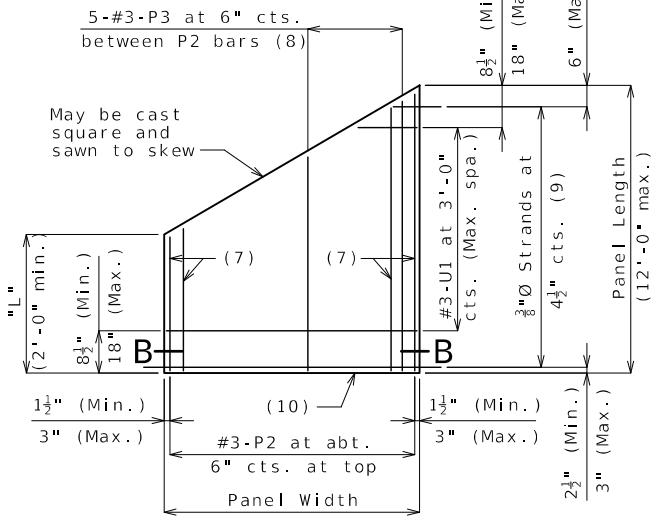
Width	Height	
	Min.	Max.
3"	1"	4"

BENDING DIAGRAM FOR U1 BAR

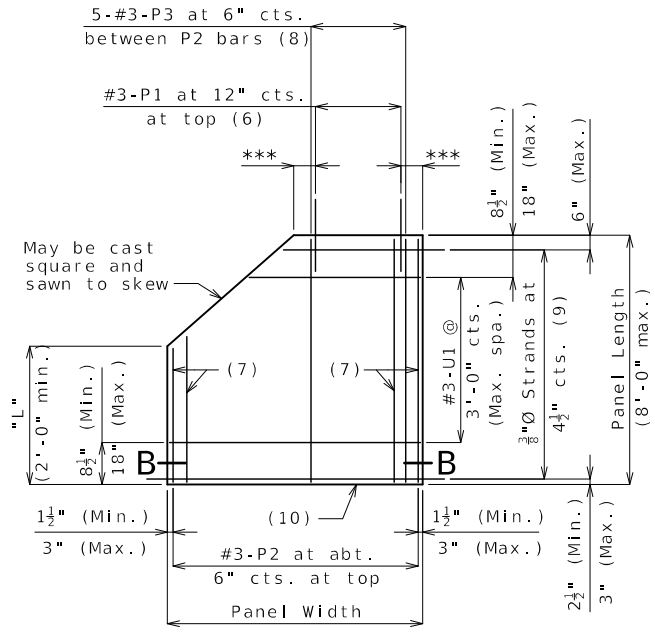
U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars.



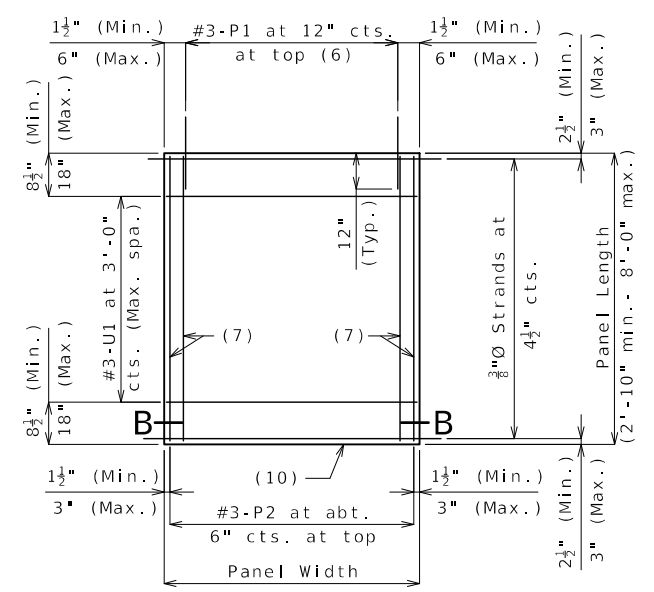
SECTION B-B



PLAN OF OPTIONAL SKewed END PANEL



PLAN OF OPTIONAL TRUNCATED END PANEL



PLAN OF SQUARED PANEL

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 bents 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.

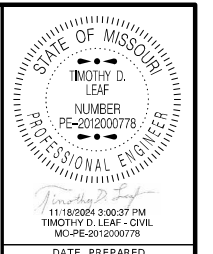
Use Slab Haunching Diagram on Sheet No. 21 for determining thickness of joint filler within the limits noted in the table of Joint Filler Dimensions.

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.



DATE PREPARED  
11/18/2024

ROUTE	STATE
J	MO
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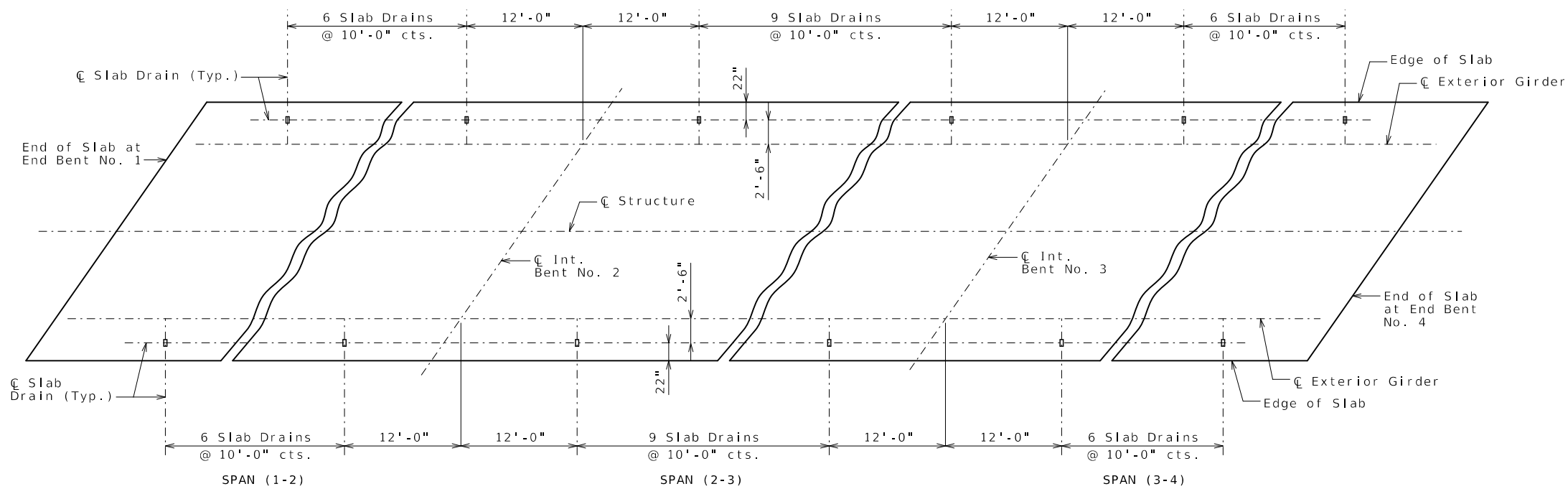
BRIDGE NO.  
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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JEFFERSON CITY, MO 65102  
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PRESTRESSED PANELS



PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS

**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".

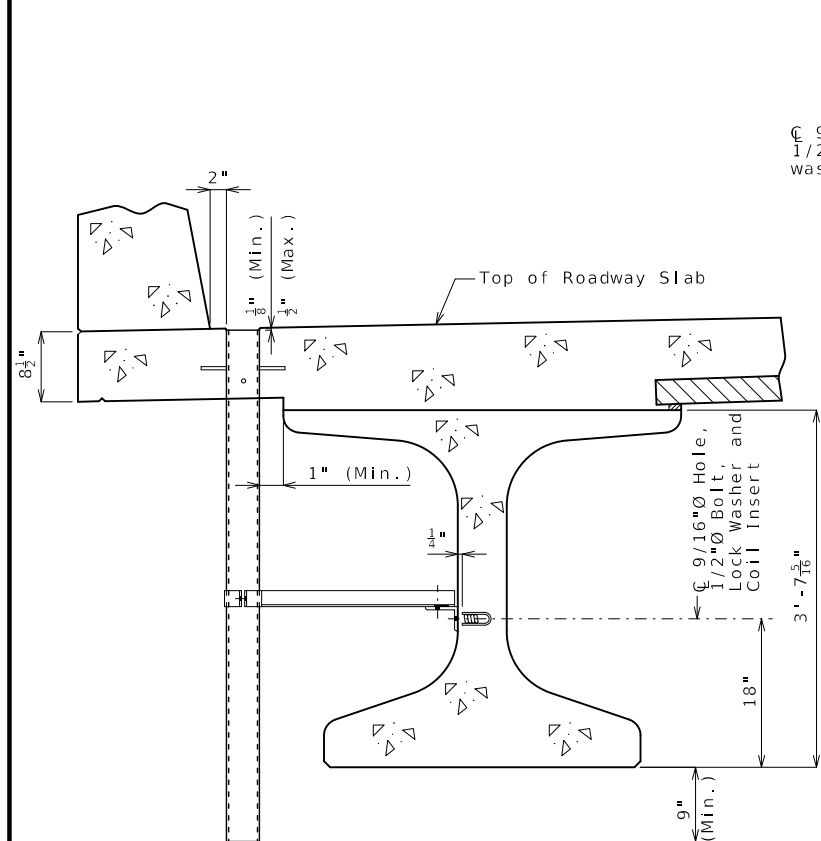
Minimum reinforced wall thickness shall be 1/4 inch.

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.

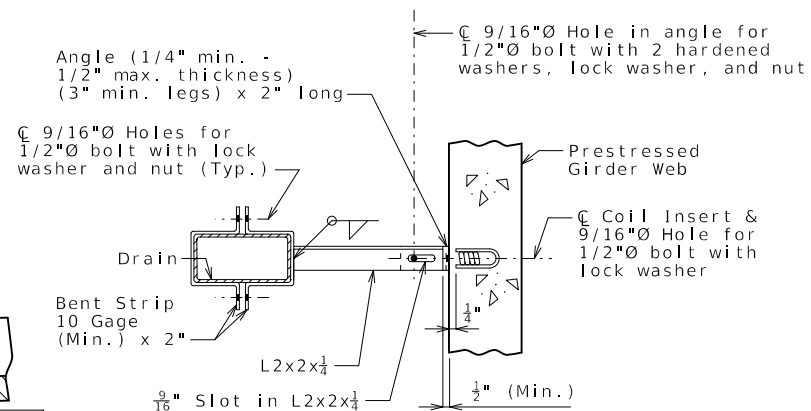
The color of the slab drain shall be gray (Federal Standard 26373). The color shall be uniform throughout the resin and any coating used.

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.

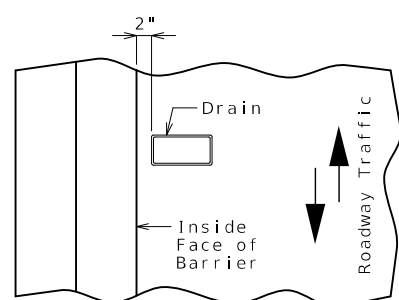
At the contractor's option, drains may be field cut. The method of cutting FRP slab drain shall be as recommended by the manufacturer to ensure a smooth, chip free cut.



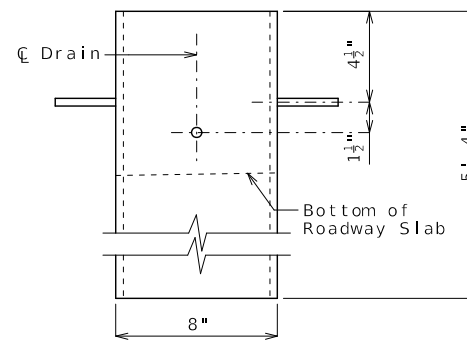
PART SECTION NEAR DRAIN



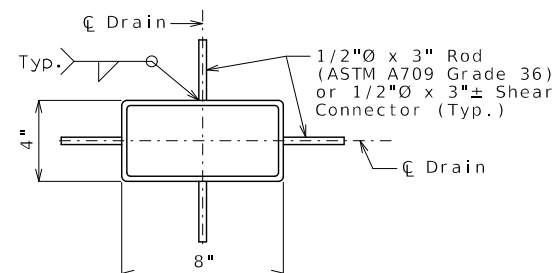
PART SECTION SHOWING BRACKET ASSEMBLY



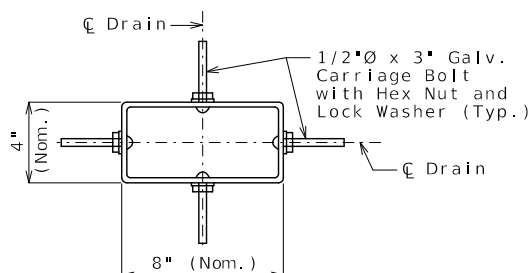
PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

**SLAB DRAINS**



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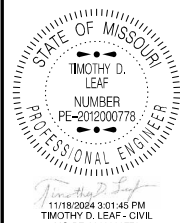
COUNTY  
MACON  
JOB NO.  
J2S2160  
CONTRACT ID.

PROJECT NO.  
BRIDGE NO.  
A7687

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COUNTY MACON

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PROJECT NO.

BRIDGE NO. A7687

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TIMOTHY D. LEAF - CIVIL

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PROFESSIONAL ENGINEER

STATE OF MISSOURI

LEAF

NUMBER

PE-20200778

PROFESSIONAL ENGINEER

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PROFESSIONAL ENGINEER

STATE OF MISSOURI

LEAF

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PE-20200778

PROFESSIONAL ENGINEER

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STATE OF MISSOURI

LEAF

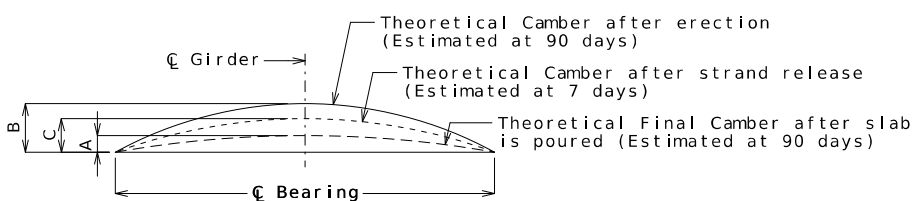
NUMBER

PE-20200778

PROFESSIONAL ENGINEER

Theoretical Bottom of Slab Elevations at Centerline of Girder (Prior to forming for slab) (Estimated at 90 days)											
Girder Number	Span (1-2) (77'-4" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	831.42	831.53	831.63	831.73	831.81	831.89	831.95	832.00	832.05	832.08	832.11
2	831.50	831.61	831.72	831.82	831.91	831.99	832.05	832.11	832.16	832.20	832.23
3	831.26	831.38	831.49	831.59	831.68	831.77	831.84	831.90	831.95	831.99	832.02
Girder Number	Span (2-3) (102'-8" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	832.11	832.24	832.35	832.43	832.49	832.53	832.53	832.52	832.47	832.40	832.32
2	832.23	832.36	832.48	832.57	832.63	832.68	832.68	832.67	832.63	832.57	832.49
3	832.03	832.17	832.29	832.38	832.45	832.50	832.51	832.51	832.47	832.41	832.34
Girder Number	Span (3-4) (77'-4" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	832.32	832.32	832.32	832.31	832.29	832.26	832.21	832.16	832.09	832.02	831.94
2	832.49	832.50	832.50	832.49	832.47	832.45	832.40	832.35	832.29	832.22	832.15
3	832.34	832.35	832.35	832.35	832.33	832.31	832.27	832.23	832.17	832.10	832.03

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.

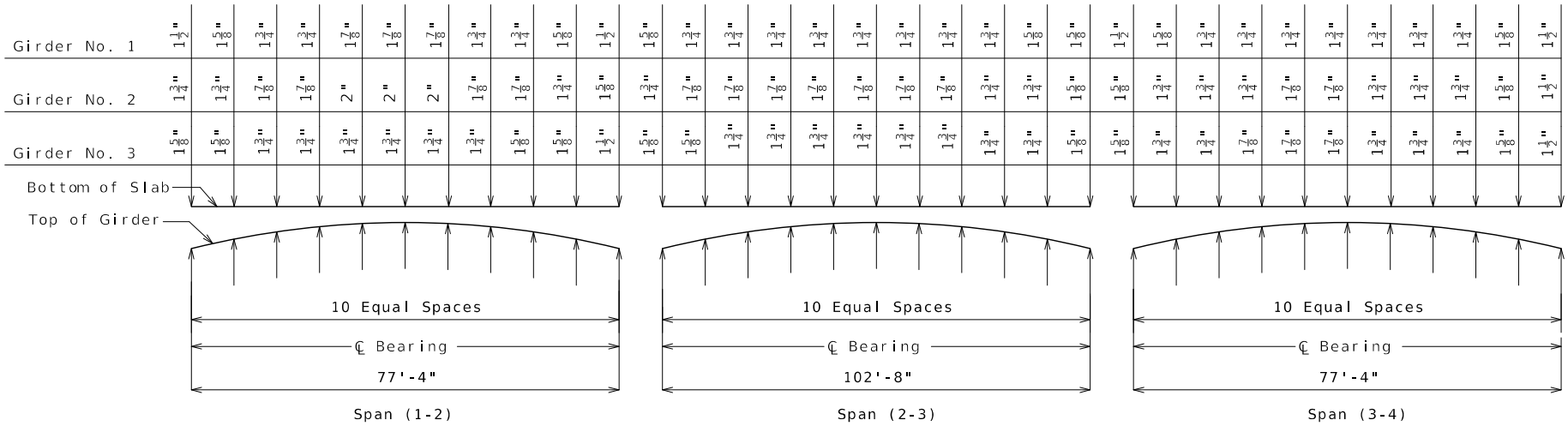


Girder	Span (1-2)			Span (2-3)			Span (3-4)		
	A	B	C	A	B	C	A	B	C
Exterior	0.00"	1 1/4"	7/8"	1"	3 5/8"	2 5/8"	0.00"	1 1/4"	7/8"
Interior	0.00"	1 1/4"	7/8"	1"	3 5/8"	2 5/8"	0.00"	1 1/4"	7/8"

GIRDER CAMBER DIAGRAM

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

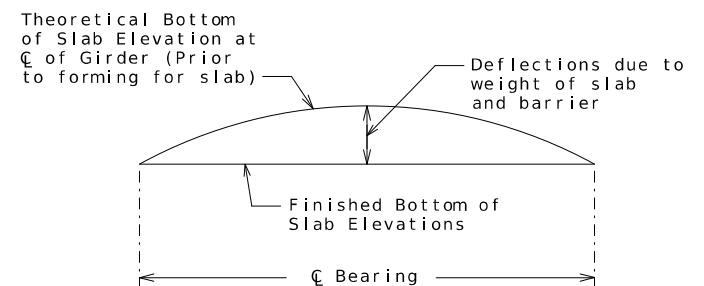
- 0.1 pt. = 0.314 x 0.5 pt.
- 0.2 pt. = 0.593 x 0.5 pt.
- 0.3 pt. = 0.813 x 0.5 pt.
- 0.4 pt. = 0.952 x 0.5 pt.



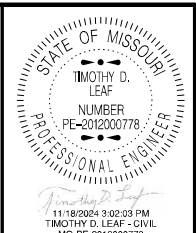
THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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.



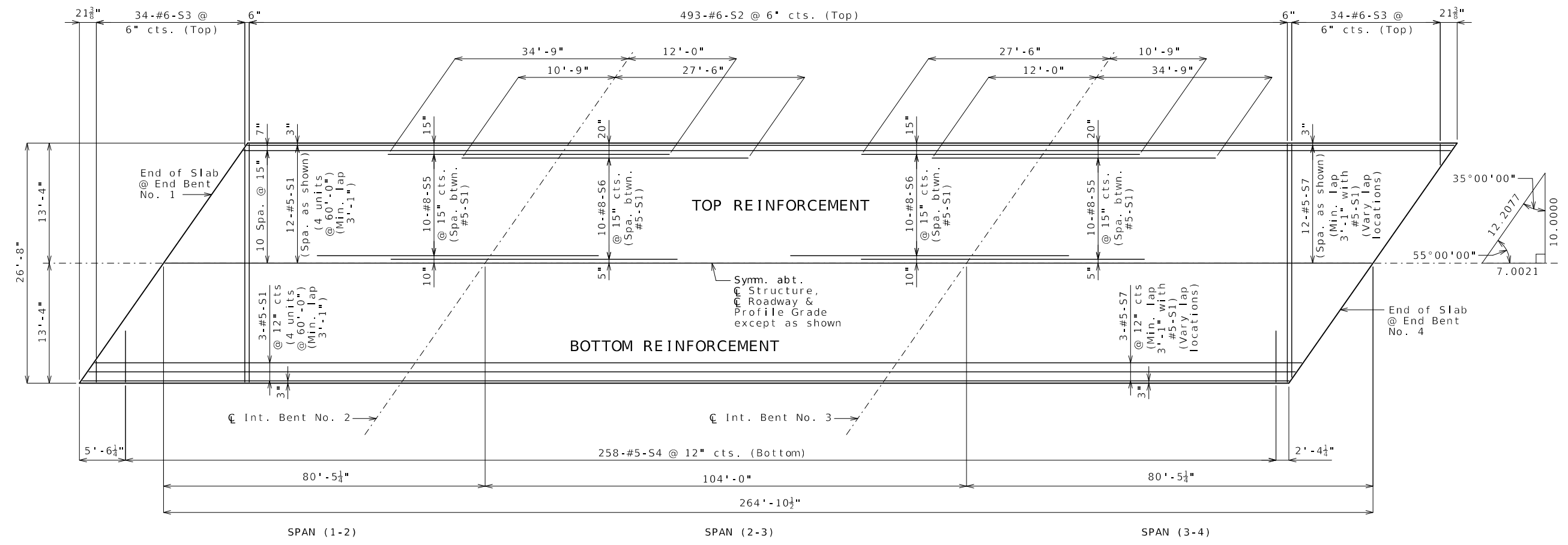
TYPICAL SLAB ELEVATIONS DIAGRAM



DATE PREPARED  
 11/18/2024  
 ROUTE STATE  
 J MO  
 DISTRICT SHEET NO.  
 BR 22  
 COUNTY  
 MACON  
 JOB NO.  
 J252160  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO.  
 A7687

DESCRIPTION	DATE

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



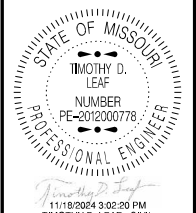
PLAN OF SLAB SHOWING REINFORCEMENT

- Notes:**
- Longitudinal dimensions are horizontal.
  - For Section thru Slab and Slab Pouring Sequence, see Sheet No. 23.
  - For details of Precast Prestressed Panels, see Sheet No. 19.
  - For details and reinforcement of barrier, see Sheets No. 24 & 25.
  - For details and locations of slab drains, see Sheet No. 20.
  - For Theoretical Slab Haunching Diagram, Girder Camber Diagram, and Theoretical Bottom of Slab Elevations, see Sheet No. 21.

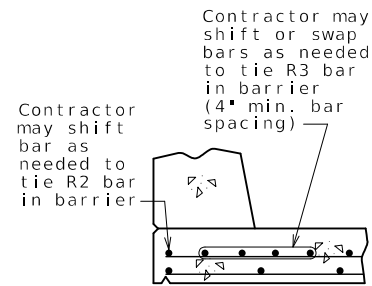
SLAB DETAILS

Detailed July 2024  
 Checked Aug. 2024

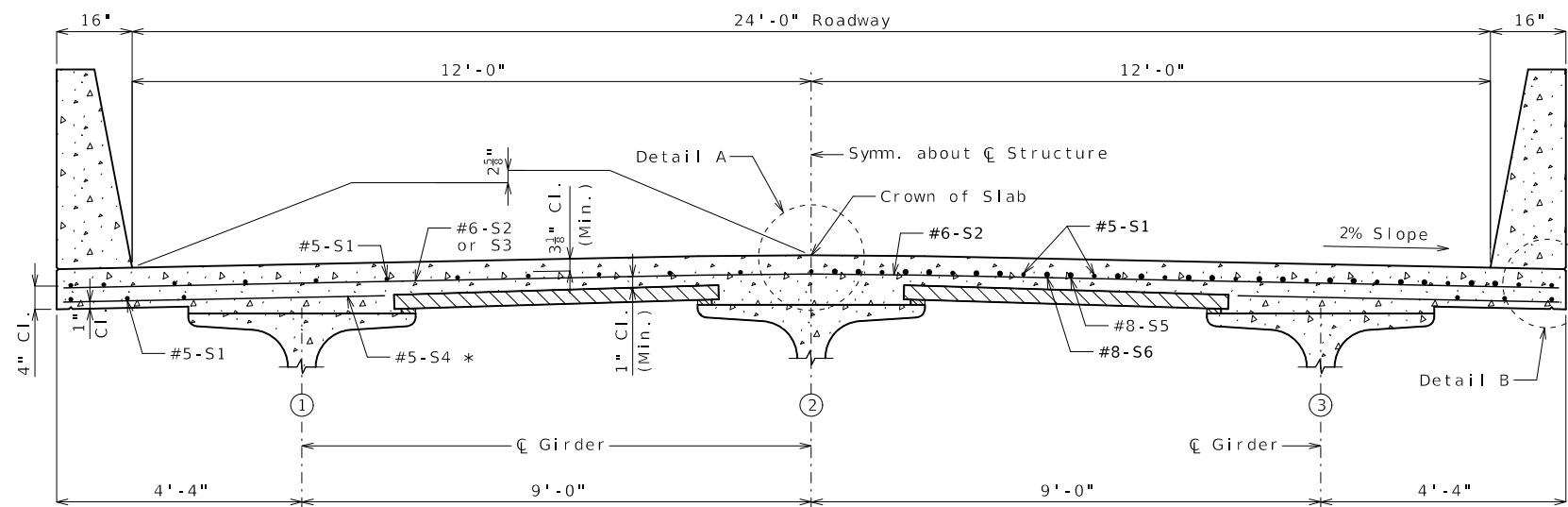




DATE PREPARED <b>11/18/2024</b>	
ROUTE <b>J</b>	STATE <b>MO</b>
DISTRICT <b>BR</b>	SHEET NO. <b>23</b>
COUNTY <b>MACON</b>	
JOB NO. <b>J2S2160</b>	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. <b>A7687</b>	



**OPTIONAL SHIFTING TOP BARS AT BARRIER**

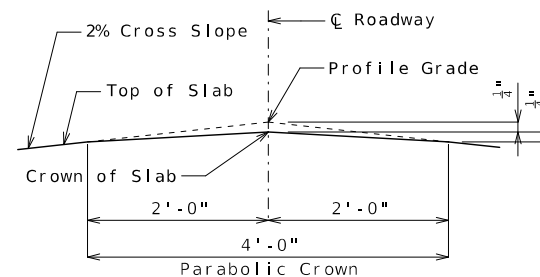
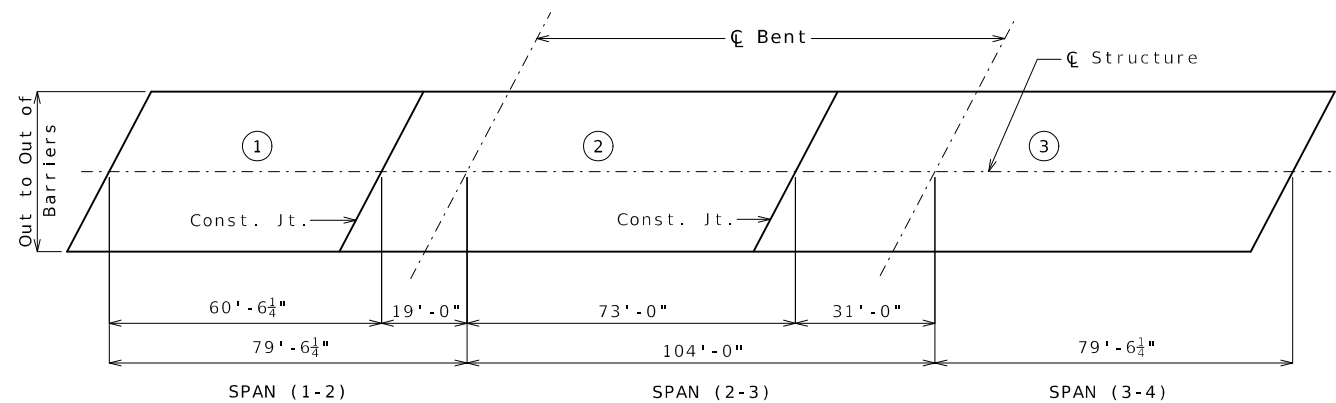


HALF SECTION NEAR MIDSPAN AND END BENTS

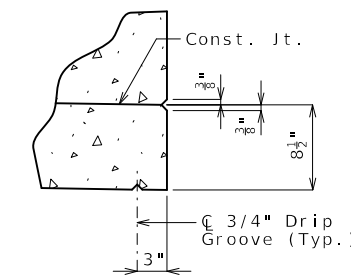
HALF SECTION NEAR INTERMEDIATE BENT

**SECTION THRU SLAB**

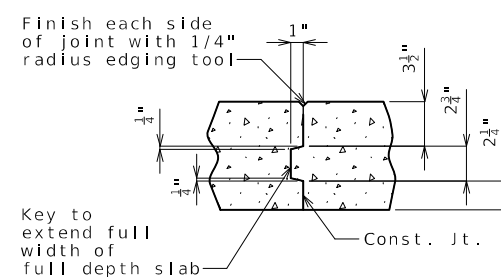
\* Alternate bar shape available, see barrier sheet.



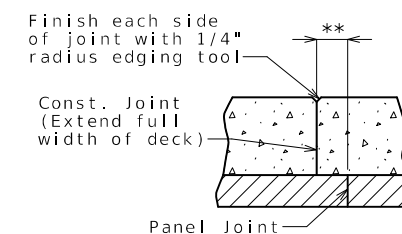
**DETAIL A**



**DETAIL B**



**FULL DEPTH SLAB**



**SLAB ON PANELS**

**SLAB CONSTRUCTION JOINT**

	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			
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**

**Notes:**

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

For reinforcement of barrier not shown, see Sheet No. 24.

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

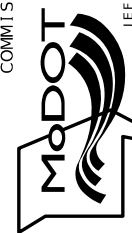
For Plan of Slab Showing Reinforcement, see Sheet No. 22.

**SLAB DETAILS**

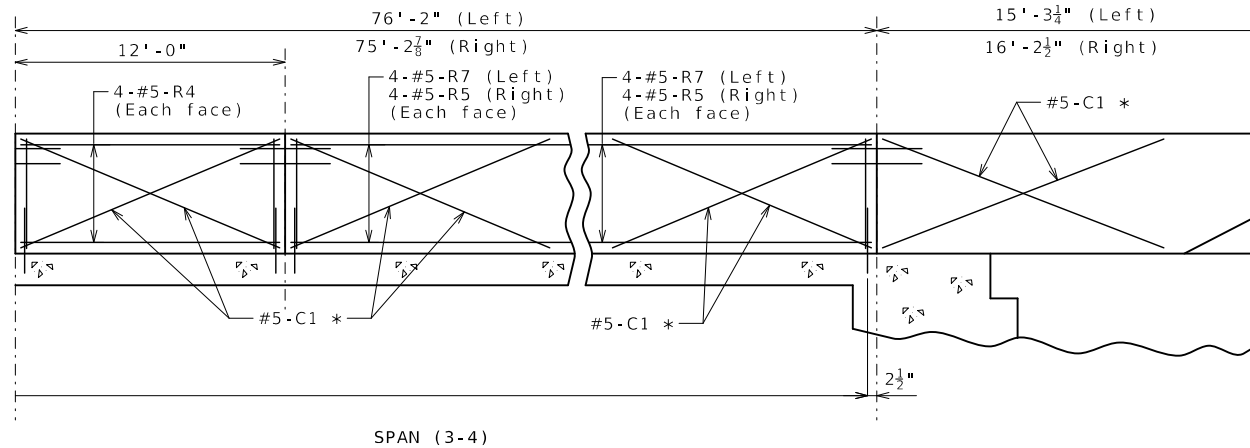
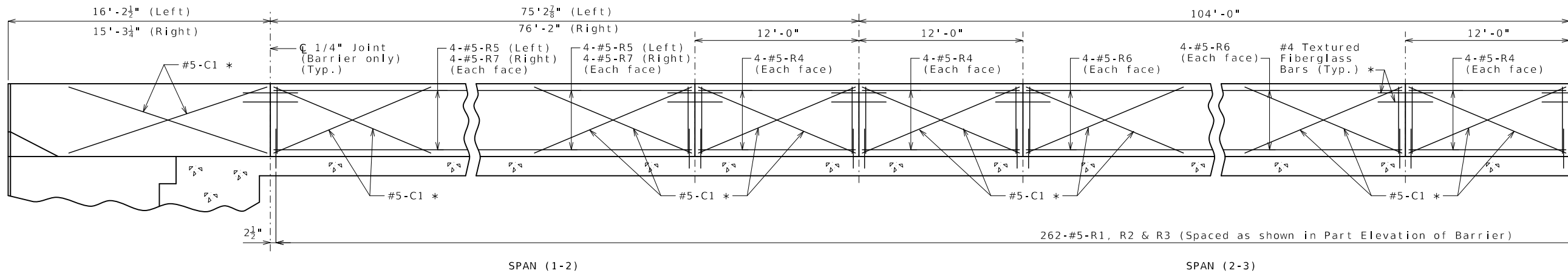
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

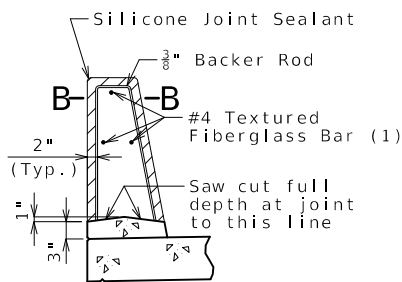


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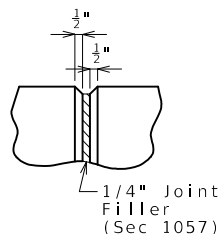


**ELEVATION OF BARRIER**

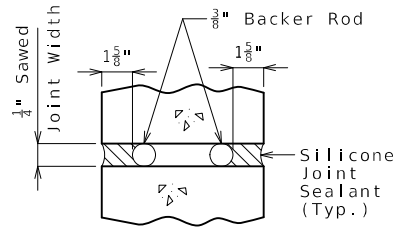
Longitudinal dimensions are horizontal.



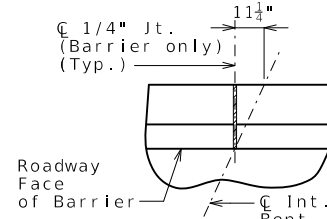
**SECTION THRU SAW CUT JOINT**



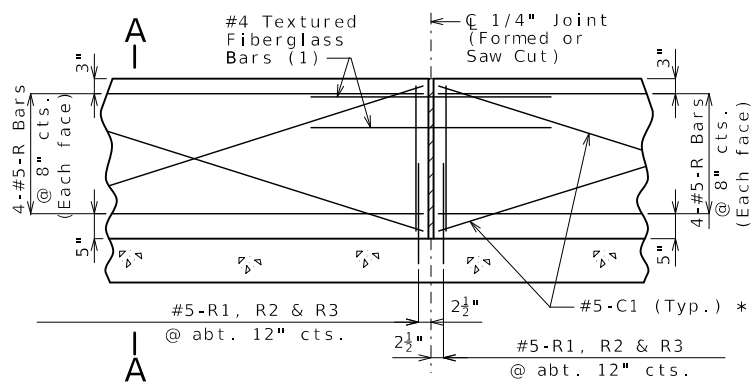
**PART ELEVATION AT FORMED JOINT**



**SECTION B-B**

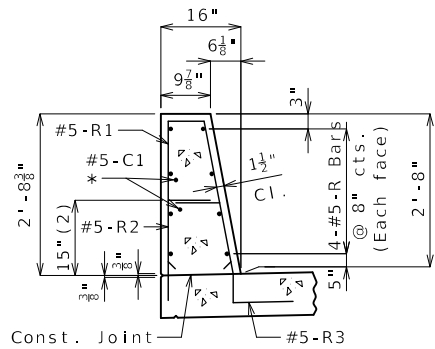


**PART PLAN SHOWING JOINT LOCATION**



**PART ELEVATION OF BARRIER**

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

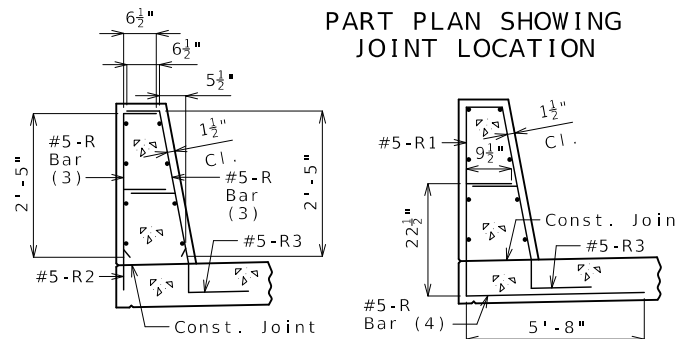


**SECTION A-A**

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

The cross-sectional area above the slab is 2.89 square feet.

(2) To top of bar



**R-BAR PERMISSIBLE ALTERNATE SHAPE**

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

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

**General Notes:**

\* Slip-formed option only.

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

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

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

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

Concrete in barrier shall be Class B-1.

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

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

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

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

**TYPE H BARRIER**

Sheet No. 24 of 31

DATE PREPARED  
**11/18/2024**

ROUTE	STATE
J	MO
DISTRICT	SHEET NO.
BR	24

COUNTY  
**MACON**

JOB NO.  
**J2S2160**

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
**A7687**

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



DATE PREPARED  
11/18/2024

ROUTE STATE  
J MO

DISTRICT SHEET NO.  
BR 25

COUNTY  
MACON

JOB NO.  
J252160

CONTRACT ID.

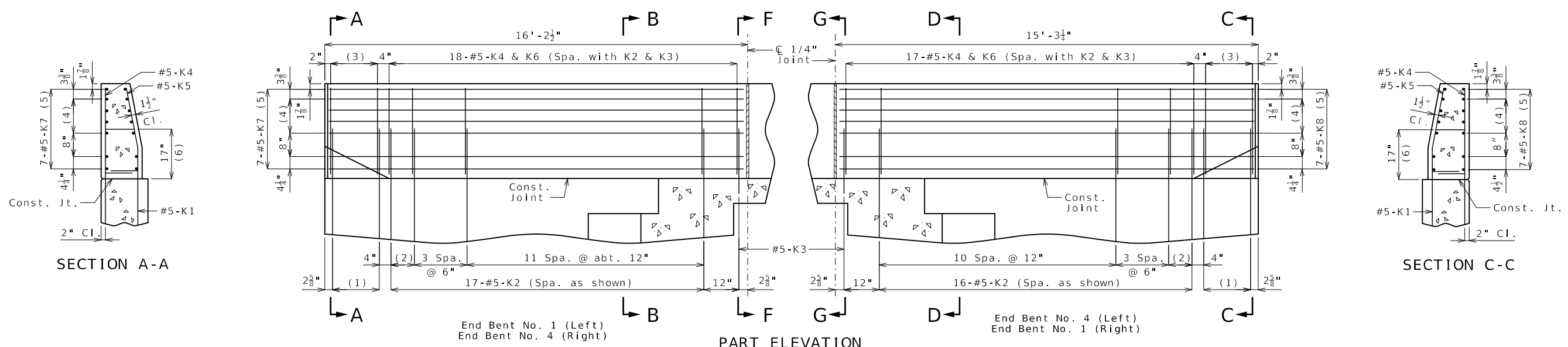
PROJECT NO.

BRIDGE NO.  
A7687

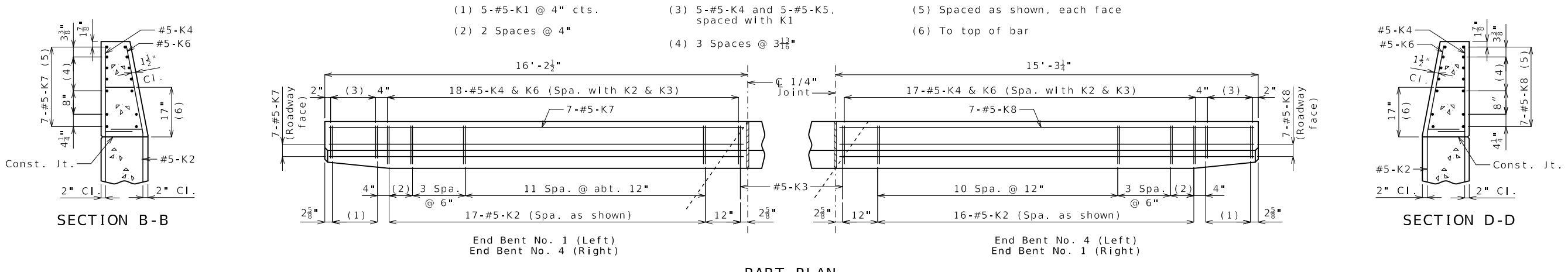
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

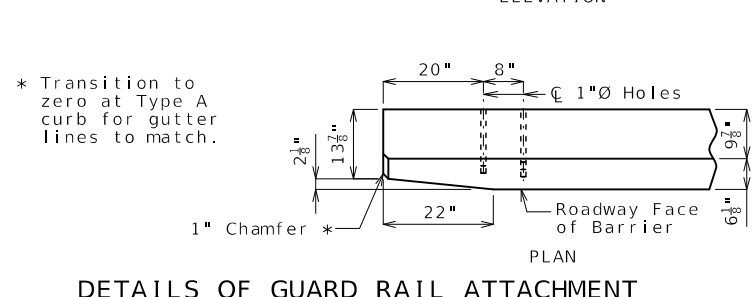
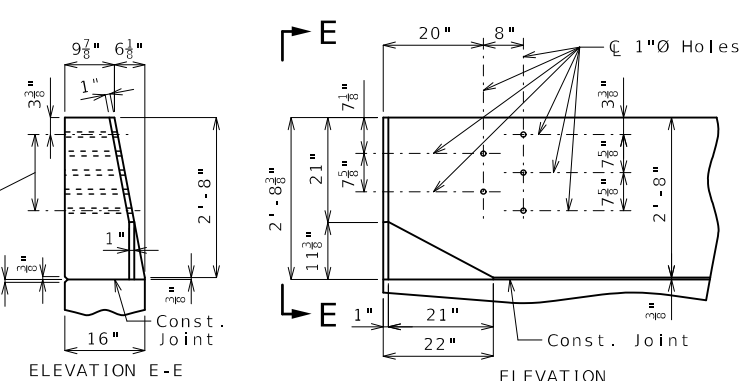
105 WEST CAPITOL  
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1-888-ASK-MODOT (1-888-275-6636)



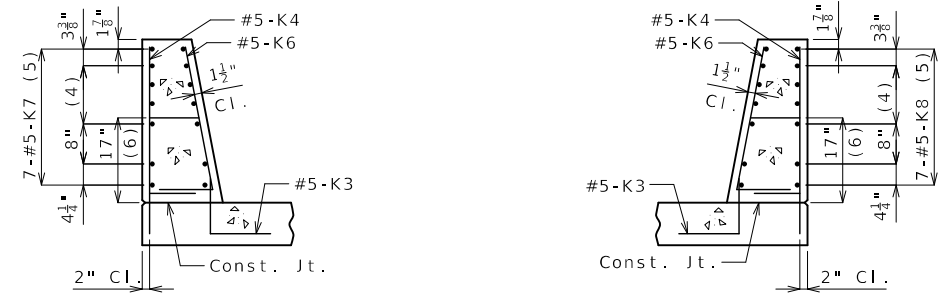
- (1) 5-#5-K1 @ 4" cts.
- (2) 2 Spaces @ 4"
- (3) 5-#5-K4 and 5-#5-K5, spaced with K1
- (4) 3 Spaces @ 3 13/16"
- (5) Spaced as shown, each face
- (6) To top of bar



PART PLAN



DETAILS OF GUARD RAIL ATTACHMENT

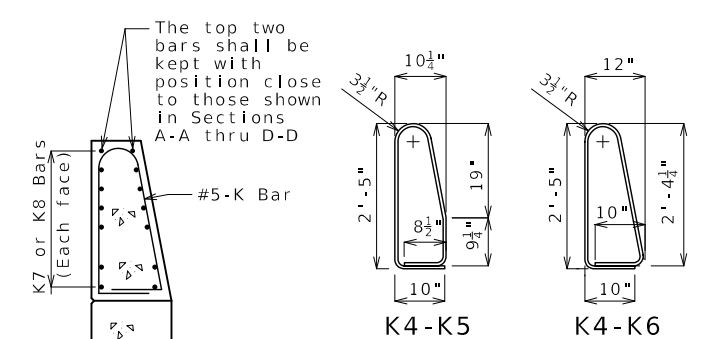


SECTION F-F SECTION G-G

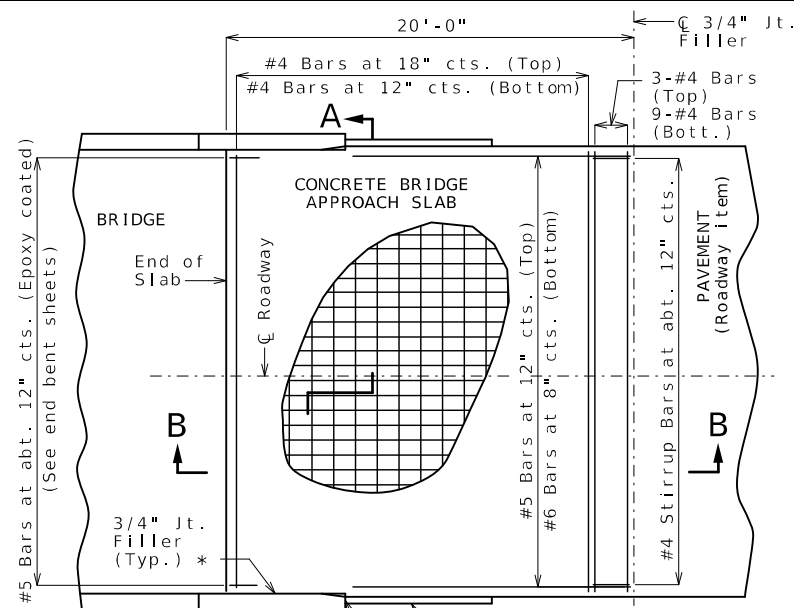
**General Notes:**  
Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators 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.

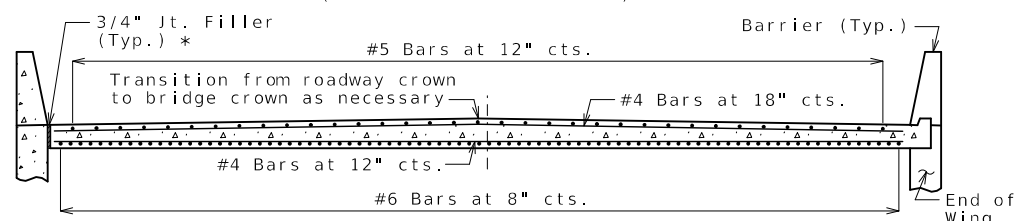
**TYPE H BARRIER AT END BENTS**  
(Left barrier shown, right barrier similar)



**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.

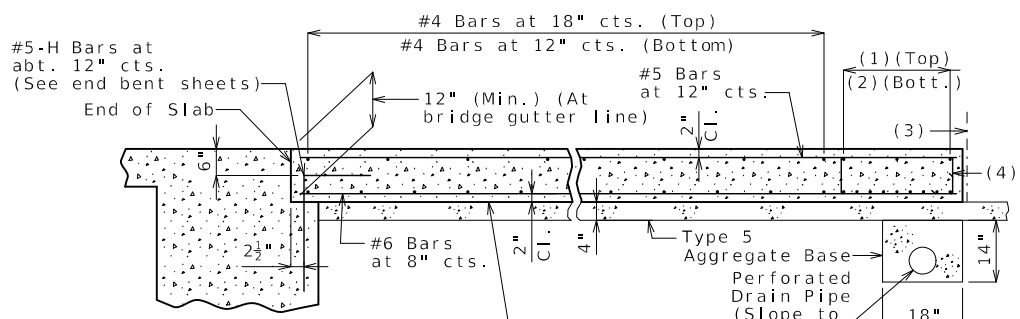


**PART PLAN OF SQUARED STRUCTURE**  
(Skewed structure similar)



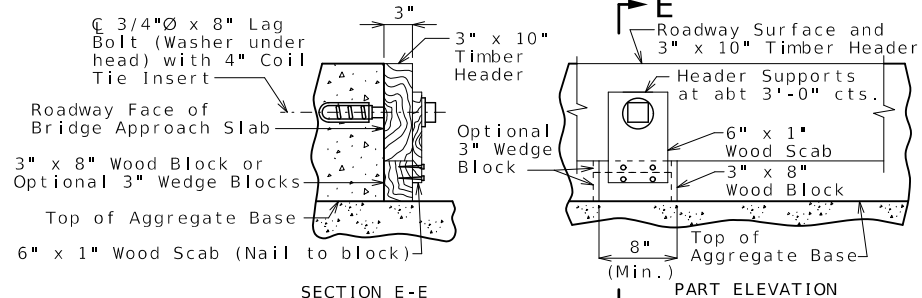
**SECTION A-A**

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

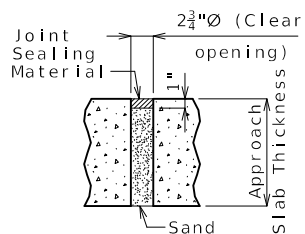


**SECTION B-B**

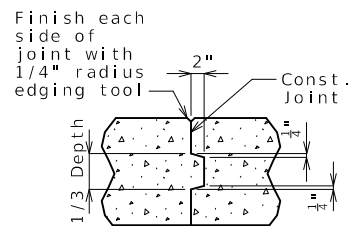
2 Layers of 4 Mil Polyethylene Sheeting between bridge approach slab and granular base in accordance with ASTM E 1745 Performance Class A



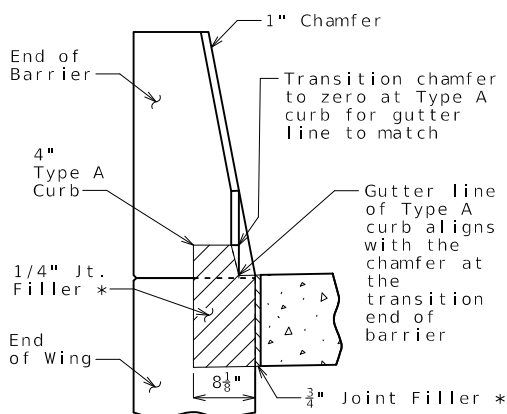
**DETAILS OF TIMBER HEADER**  
Remove timber header when concrete pavement is placed.  
**OPTIONAL CONCRETE SLAB**



**UNDERSEAL ACCESS HOLE DETAIL**  
(If required)



**CONSTRUCTION JOINT DETAIL**



**SECTION BETWEEN CURB AND BARRIER**

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

**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  $f_y = 60,000$  psi.

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

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

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

**General Notes:**

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

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

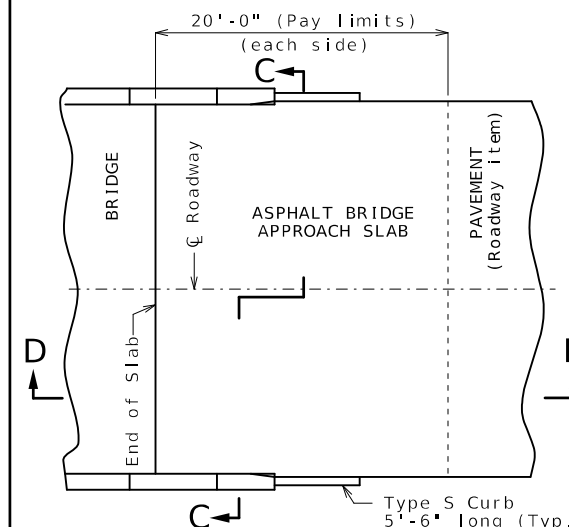
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

- Concrete Bridge Approach Slab
- Asphalt Bridge Approach Slab

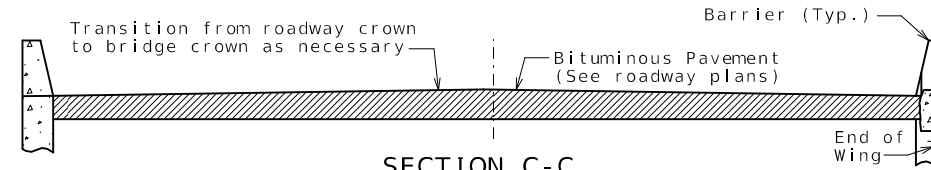
**Notes For Asphalt Slab Only:**

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

Application of tack is required between lifts per Sec 403.

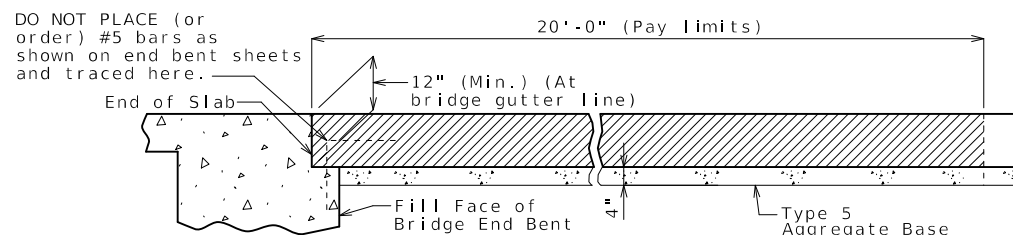


**PART PLAN**  
(Squared structure shown, skewed structure similar)



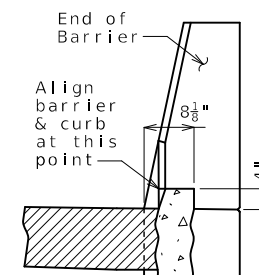
**SECTION C-C**

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

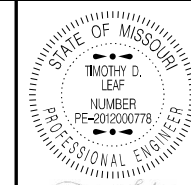


**SECTION D-D**

**OPTIONAL ASPHALT SLAB** (NOT ALLOWED WITH CONCRETE PAVEMENT)



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



DATE PREPARED  
11/18/2024 3:03:25 PM  
TIMOTHY D. LEAF - CIVIL  
MO-PE-201200778

ROUTE J STATE MO

DISTRICT BR SHEET NO. 26

COUNTY MACON

JOB NO. J252160

CONTRACT ID.

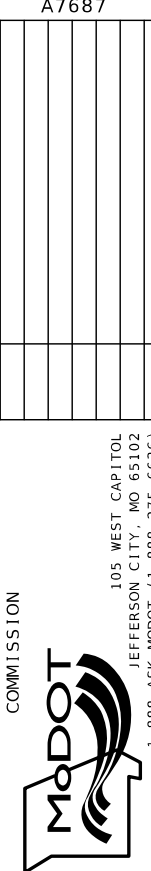
PROJECT NO.

BRIDGE NO. A7687

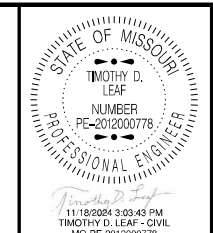
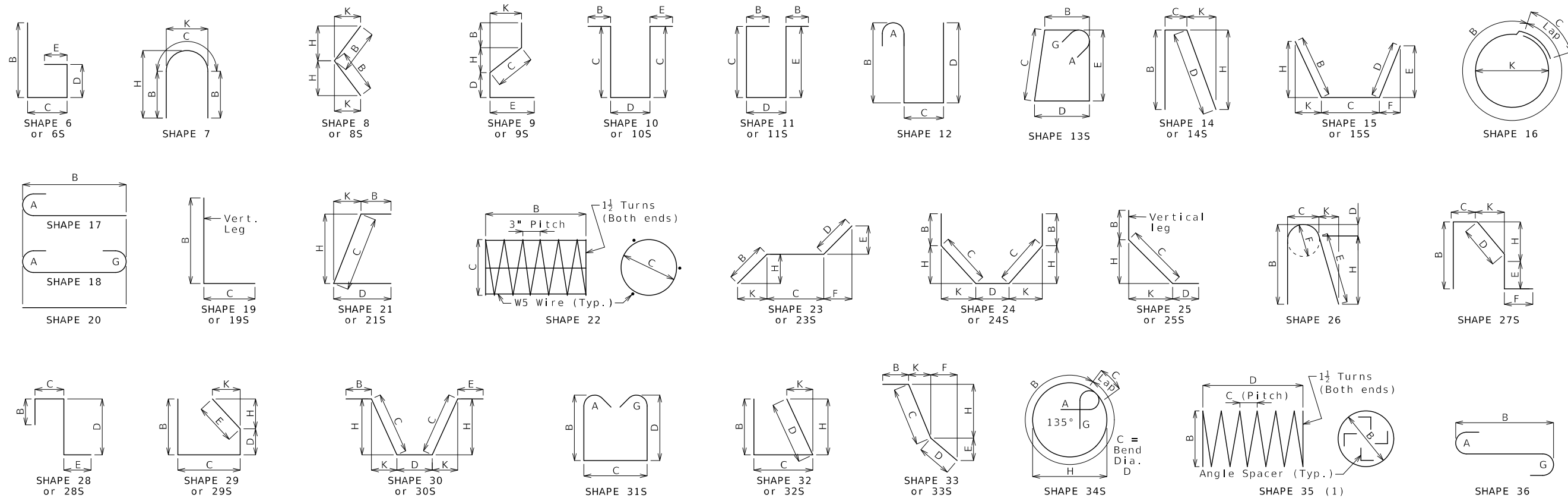
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



**BRIDGE APPROACH SLAB (MINOR)**



DATE PREPARED  
11/18/2024

ROUTE  
J

STATE  
MO

DISTRICT  
BR

SHEET NO.  
27

COUNTY  
MACON

JOB NO.  
J2S2160

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A7687

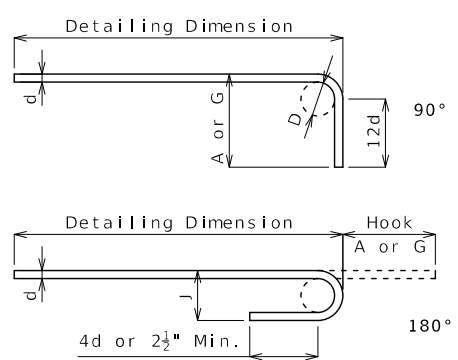
DESCRIPTION

DATE

**Finished Bend Diameters D and Hook Dimensions**

**Standard Pin Bend Shapes**

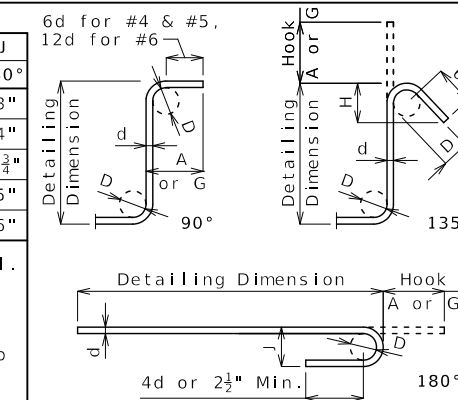
Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3 3/4"	10"	7"	5"
#6	1	4 1/2"	12"	8 1/4"	6"
#7	2	5 1/4"	14"	9 3/4"	7"
	3	7"	15"	11 1/2"	8 3/4"
#8	2	6"	16"	11"	8"
	3	8"	17"	13 1/4"	10"
#9	1	9 1/2"	19 1/2"	15 1/2"	11 3/4"
#10	1	10 3/4"	22"	17 1/2"	13 1/4"
#11	1	12"	24 1/2"	19 1/2"	14 7/8"
#14	1	18 1/4"	31 1/4"	27 1/2"	21 5/8"
#18	1	24"	41 1/2"	36 1/4"	28 1/2"



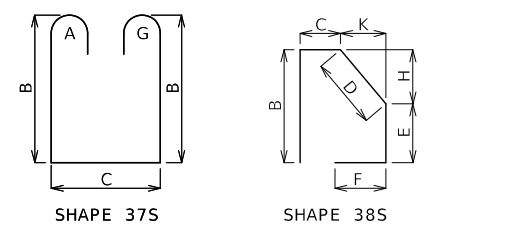
**Stirrup Pin Bend Shapes (S)**

6d for #4 & #5, 12d for #6

Size	Case	D	A or G		H	J	
			90°	135°	180°	135°	180°
#4	2	2"	4 1/2"	4 1/2"	5"	2 5/8"	3"
	3	3"	5"	5 1/4"	6"	3"	4"
#5	2	2 1/2"	5 3/4"	5 3/4"	5 3/4"	3 3/8"	3 3/4"
	3	3 3/4"	6 1/4"	6 1/2"	7"	3 5/8"	5"
#6	1	4 1/2"	12"	7 3/4"	8 1/4"	4 5/8"	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.



BENDING DIAGRAMS

All dimensions are out to out. (1) Shall be a deformed or plain spiral bar or wire.

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.

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

**Reinforcing Steel Totals (Pounds)**

Size	Substructure		Superstructure			Entire Bridge	
	Plain	Epoxy	Slab	Barrier	Slip Form	Plain	Epoxy
W5	0	0	0	0	0	0	0
4	3,713	0	917	0	0	3,713	917
5	0	0	13,043	12,672	601	0	26,316
6	3,375	0	27,753	0	0	3,375	27,753
7	0	0	2,374	0	0	0	2,374
8	2,586	0	10,232	0	0	2,586	10,232
9	0	0	0	0	0	0	0
10	25,949	0	0	0	0	25,949	0
11	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0
By Type	35,623	0	54,319	12,672	601	35,623	67,592

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

**BENDING DIAGRAMS AND REINFORCING STEEL TOTALS**



### Bill of Reinforcing Steel

No. Req.	Size/Mark	Location	Codes			Dimensions								Nom. Length ft in.	Actual Length ft in.	Weight lb				
			C	SH	V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.								
524	5 R1	BARRIER	E	14S	V	2	5.00	6.50	2	5.50			2	5.00	5.50	5	5	5	3	2,869
524	5 R2	BARRIER	E	19S			20.50	9.50								2	6	2	5	1,321
524	5 R3	BARRIER	E	27S			9.50	15.25	5.00	12.00	15.00	3.00				3	6	3	4	1,822
64	5 R4	BARRIER	E	20		11	9.00									11	9	11	9	784
32	5 R5	BARRIER	E	20		33	1.00									33	1	33	1	1,104
32	5 R6	BARRIER	E	20		41	5.00									41	5	41	5	1,382
32	5 R7	BARRIER	E	20		33	6.00									33	6	33	6	1,118
48	5 C1	Slip-Form SLIP FORM	E	20		12	0.00									12	12	12		601

### Bill of Reinforcing Steel

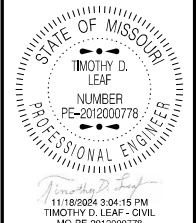
No. Req.	Size/Mark	Location	Codes			Dimensions								Nom. Length ft in.	Actual Length ft in.	Weight lb					
			C	SH	V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.									

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.  
 Detailed July 2024  
 Checked Oct. 2024

All bars shall be Grade 60.

## BILL OF REINFORCING STEEL

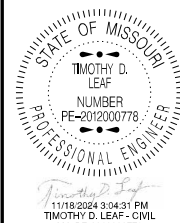
Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.  
 SH = Required shape, see bending diagrams.  
 V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.



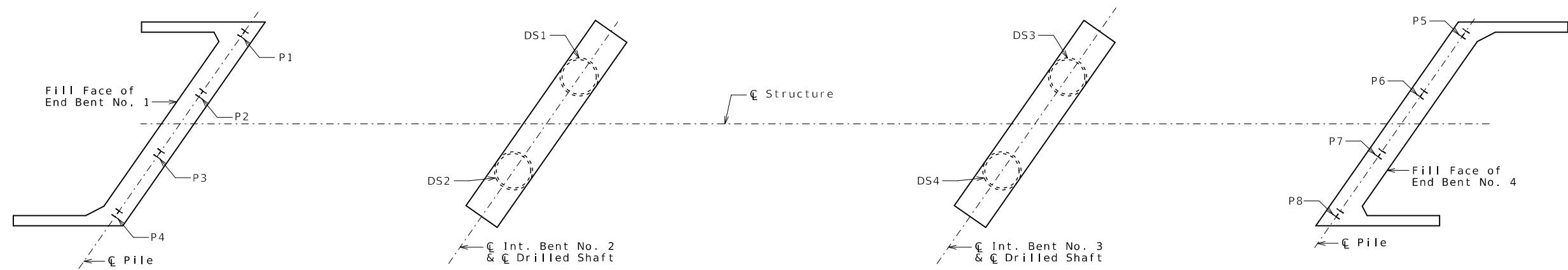
DATE PREPARED  
**11/18/2024**  
 ROUTE **J** STATE **MO**  
 DISTRICT **BR** SHEET NO. **29**  
 COUNTY **MACON**  
 JOB NO. **J252160**  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO. **A7687**

DATE	DESCRIPTION





DATE PREPARED  
11/18/2024  
ROUTE J STATE MO  
DISTRICT BR SHEET NO. 30  
COUNTY MACON  
JOB NO. J2S2160  
CONTRACT ID.  
PROJECT NO.  
BRIDGE NO. A7687



PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE & 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.

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 1
P1			
P2			
P3			
P4			

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
DS1				
DS2				
				Int. Bent No. 3
DS3				
DS4				

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 4
P5			
P6			
P7			
P8			

AS-BUILT PILE AND DRILLED SHAFT DATA

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

MoDOT

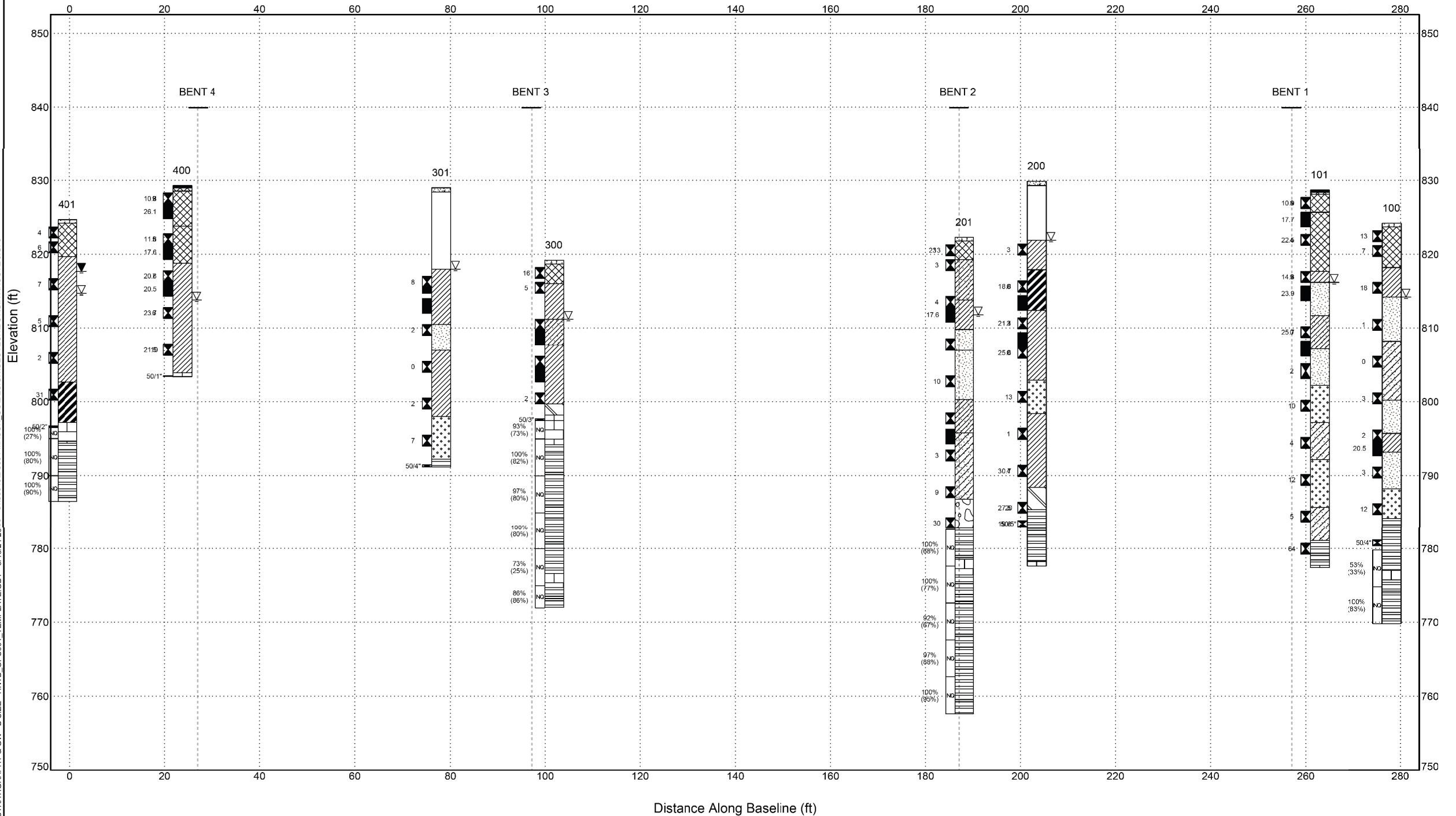
DATE	DESCRIPTION



# GENERALIZED SUBSURFACE STRATIGRAPHY

PROJECT Route J over Mussel Fork Creek  
 BRIDGE NO. \_\_\_\_\_

COUNTY \_\_\_\_\_ DISTRICT Macon County, Missouri  
 MODOT BRIDGE NO. \_\_\_\_\_



STRATIGRAPHY & GW - B SIZE - HNTB\_OF001\_TEMPLATE.GDT - 5/16/24 2033 - C:\80646\DS04-MACON\_COIDES\GNGEOTECH\INTROUTE\_LGPJ



DATE PREPARED  
**11/18/2024**

ROUTE <b>J</b>	STATE <b>MO</b>
DISTRICT <b>BR</b>	SHEET NO. <b>31</b>
COUNTY <b>MACON</b>	
JOB NO. <b>J2S2160</b>	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. <b>A7687</b>	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

## BORING DATA

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

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

Sheet No. 31 of 31

Detailed July 2024  
 Checked Aug. 2024