

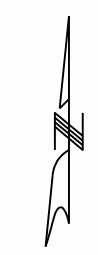
DESIGN DESIGNATION

A.A.D.T. - 2024 = 416
 A.A.D.T. - 2044 = 433
 D.H.V. = 10%
 T = 8%
 V = 55 M.P.H. \ 45 M.P.H.
 D = 50%

FUNCTIONAL CLASSIFICATION- MAJOR COLLECTOR

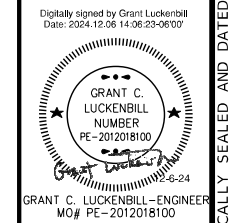
TEMPORARY CONSTRUCTION
 EASEMENTS TO BE ACQUIRED

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLANS FOR PROPOSED
STATE HIGHWAY
SECTION 29 T51N R28W
RAY COUNTY



INDEX OF SHEETS

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TITLE SHEET	1
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QUANTITIES (QU) (3 SHEETS)-----	3
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BRIDGE DRAWINGS (B)	
A9475-----	1-29
CROSS SECTIONS (XS)-----	1-5



DATE PREPARED
 12/5/2024

ROUTE T	STATE MO
DISTRICT KC	SHEET NO. 1

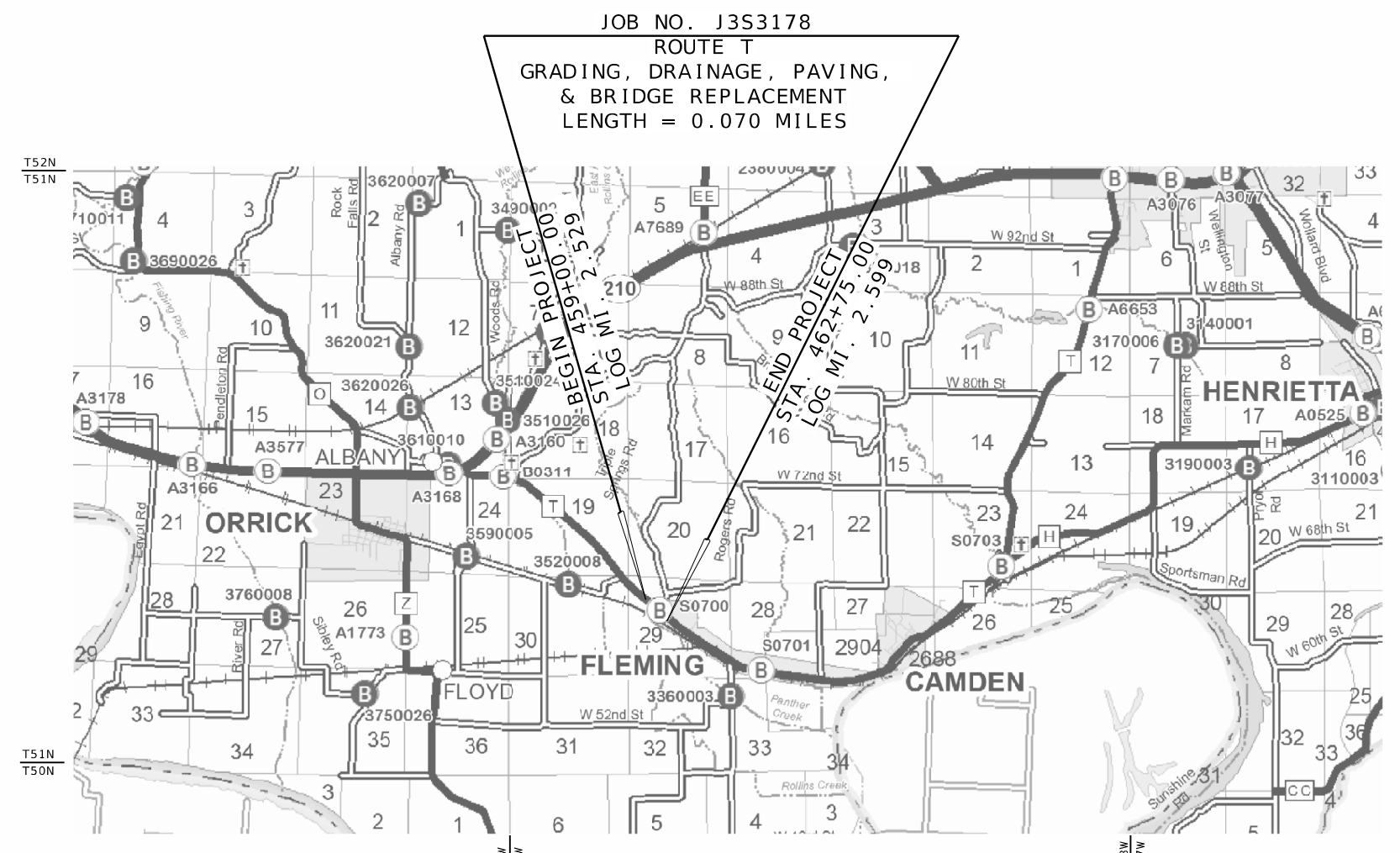
COUNTY
 RAY

JOB NO.
 J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
 A9475



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		
CHAIN LINK	[Symbol]	[Symbol]
WOVEN WIRE	[Symbol]	[Symbol]
GATE POST	[Symbol]	[Symbol]
BENCHMARK	[Symbol]	[Symbol]

NOT TO SCALE

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

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 459 + 00.00
END OF PROJECT	STA. 462 + 75.00
APPARENT LENGTH	375.00 FEET
EQUATIONS AND EXCEPTIONS:	
EQUATION:	
STA. 462+18.03 TO STA. 462+11.32	6.71 FEET
TOTAL CORRECTIONS	6.71 FEET
NET LENGTH OF PROJECT	368.29 FEET
STATE LENGTH	0.070 MILES
FOR INFORMATION ONLY	
ESTIMATED DISTURBED ACRES	1 ACRES

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Olsson

1301 BURLINGTON STREET, STE. 100
 NORTH KANSAS CITY, MO 64116
 PHONE: 816.361.1177
 CERTIFICATE OF AUTHORITY NO. 001592

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

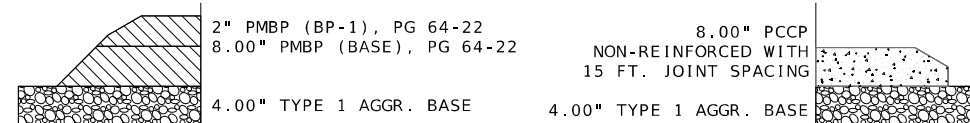
NOTE:
 CROSS SECTIONS AND EARTHWORK IN THIS PROJECT ARE BASED ON THE CONCRETE OPTION.
 CONTRACTOR IS RESPONSIBLE FOR MAKING ANY ADJUSTMENTS WITH NO EXTRA PAY IF ASPHALT
 OPTION IS USED.

SUBGRADE PROFILE AND CROSS SECTIONS ARE DESIGNED FOR THE THINNER PAVEMENT DESIGN.
 THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE PROFILE GRADE FOR EITHER
 PAVEMENT DESIGN WITH NO DIRECT PAY. CROSSROAD STRUCTURES ARE DESIGNED TO ACCOMMODATE
 A MINIMUM COVER BASED ON THE THICKER PAVEMENT DESIGN.

SEE TYPICAL SECTION SHEET 2 OF 2 FOR OPTIONAL PAVEMENT DESIGNS.

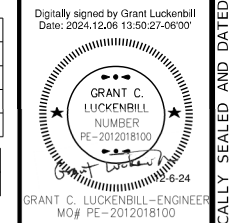
SEE STANDARD PLAN 401.00 FOR SAFETY EDGE DETAILS

OPTIONAL PAVEMENT DESIGN

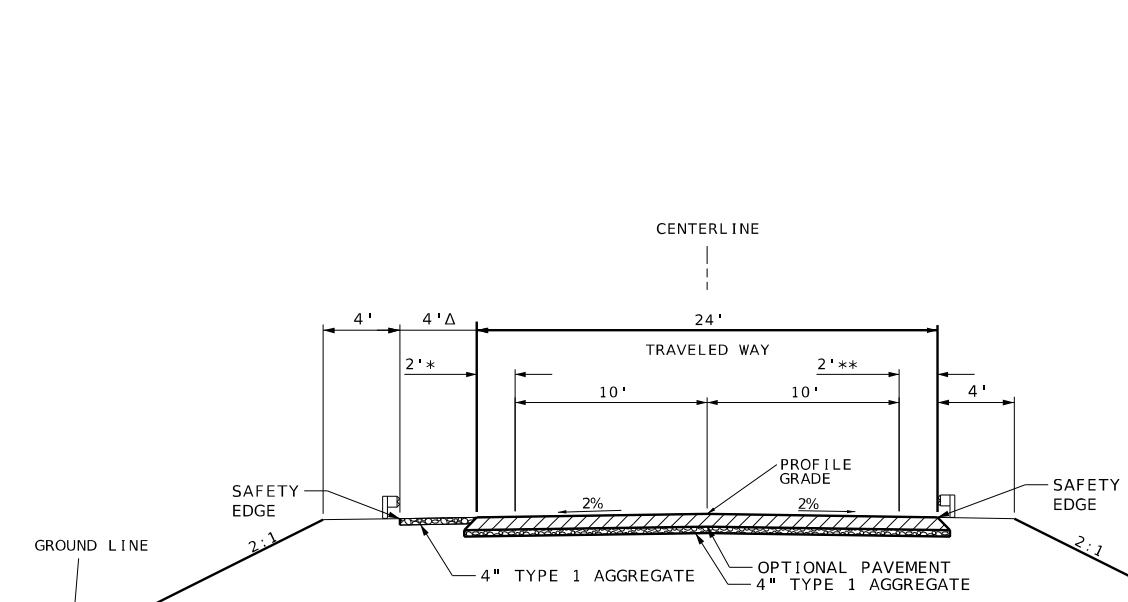


ASPHALT FACTORS	
MATERIAL	TONS/CY
PMBP (BP-1), PG64-22	1.948
PMBP (BASE), PG 64-22	1.943

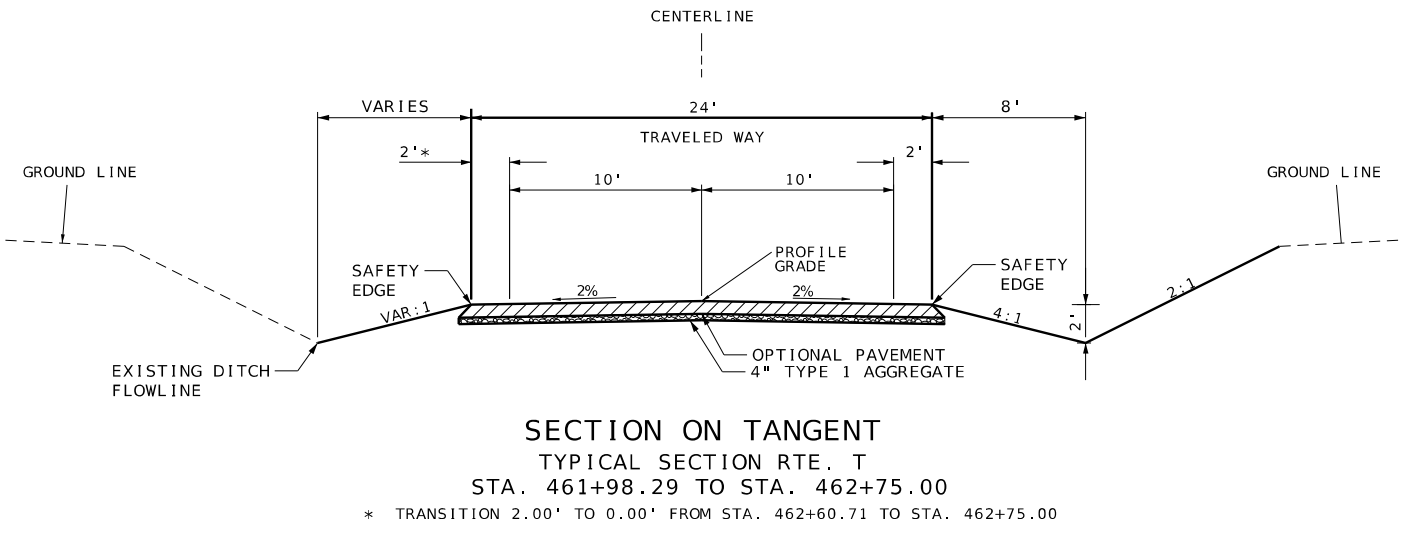
TACK COAT APPLICATION RATE
0.10 GAL/YD' (UNDILUTED)



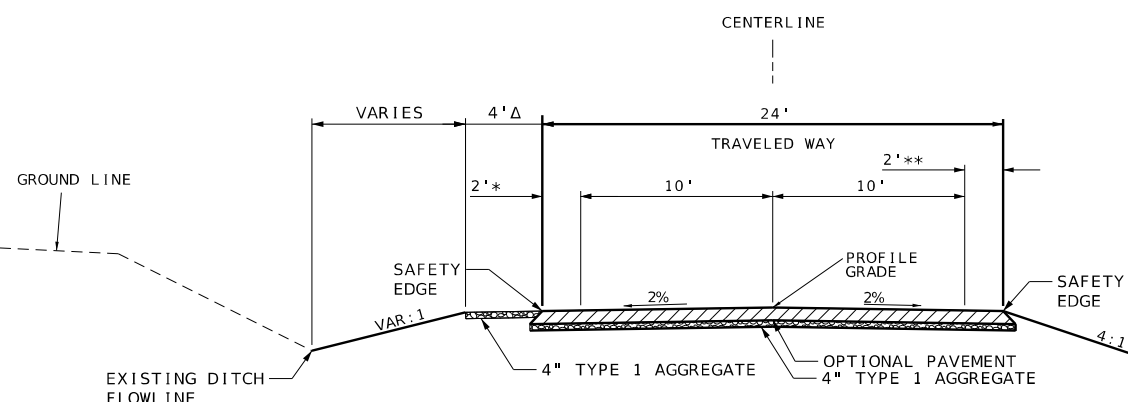
DATE PREPARED	12/5/2024
ROUTE	T MO
STATE	MO
DISTRICT	KC
SHEET NO.	2
COUNTY	RAY
JOB NO.	J3S3178
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9475



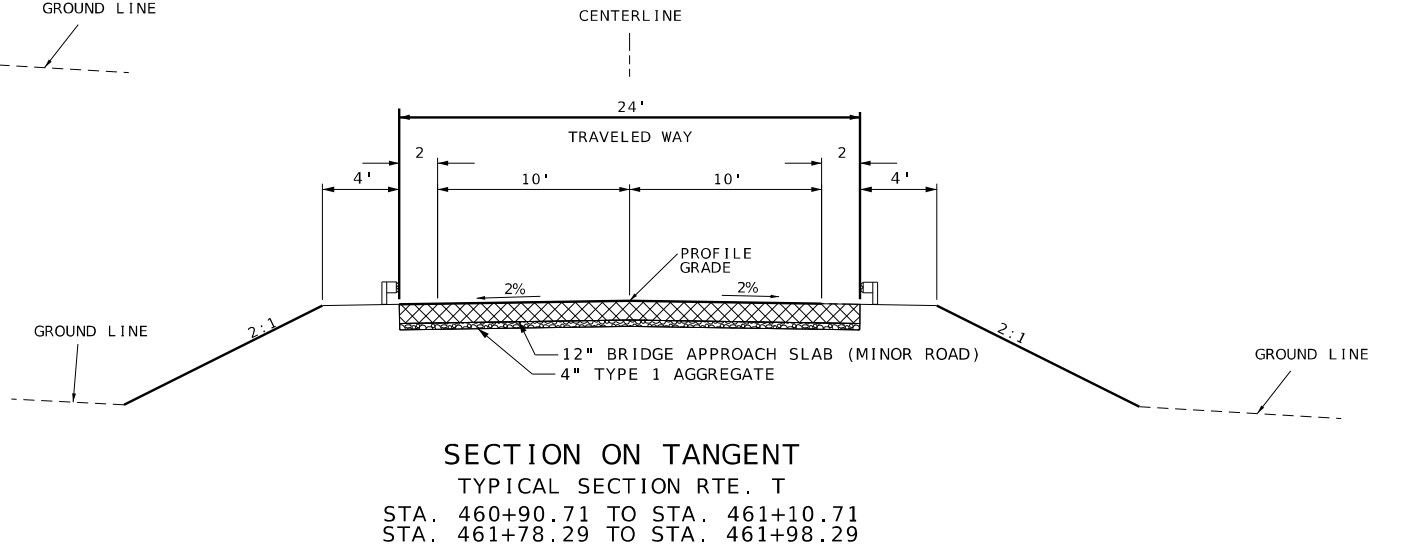
SECTION ON TANGENT
 TYPICAL SECTION RTE. T
 STA. 459+96.82 TO STA. 460+90.71
 * TRANSITION 0.00' TO 2.00' FROM STA. 459+00.00 TO STA. 460+87.44
 ** TRANSITION 0.00' TO 2.00' FROM STA. 459+00.00 TO STA. 460+93.97
 Δ TRANSITION 4.00' TO 0.00' FROM STA. 460+06.84 TO STA. 460+60.81



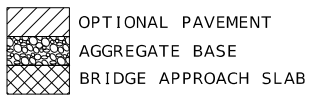
SECTION ON TANGENT
 TYPICAL SECTION RTE. T
 STA. 461+98.29 TO STA. 462+75.00
 * TRANSITION 2.00' TO 0.00' FROM STA. 462+60.71 TO STA. 462+75.00



SECTION ON TANGENT
 TYPICAL SECTION RTE. T
 STA. 459+00.00 TO STA. 459+96.82
 * TRANSITION 0.00' TO 2.00' FROM STA. 459+00.00 TO STA. 460+87.44
 ** TRANSITION 0.00' TO 2.00' FROM STA. 459+00.00 TO STA. 460+93.97
 Δ TRANSITION 0.00' TO 4.00' FROM STA. 459+00.00 TO STA. 459+50.00



SECTION ON TANGENT
 TYPICAL SECTION RTE. T
 STA. 460+90.71 TO STA. 461+10.71
 STA. 461+78.29 TO STA. 461+98.29



NOT TO SCALE

TYPICAL SHEET
 1 OF 2

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Olsson

1301 BURLINGTON STREET, STE. 100
 NORTH KANSAS CITY, MO 64116
 PHONE: 816.361.1177
 CERTIFICATE OF AUTHORITY NO. 001592

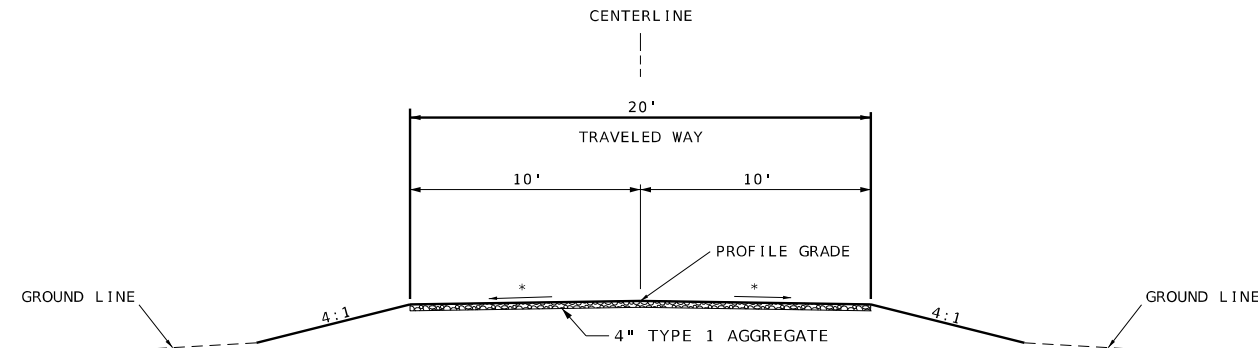
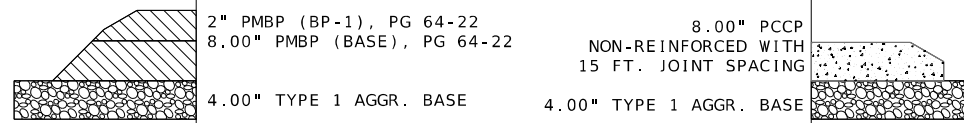
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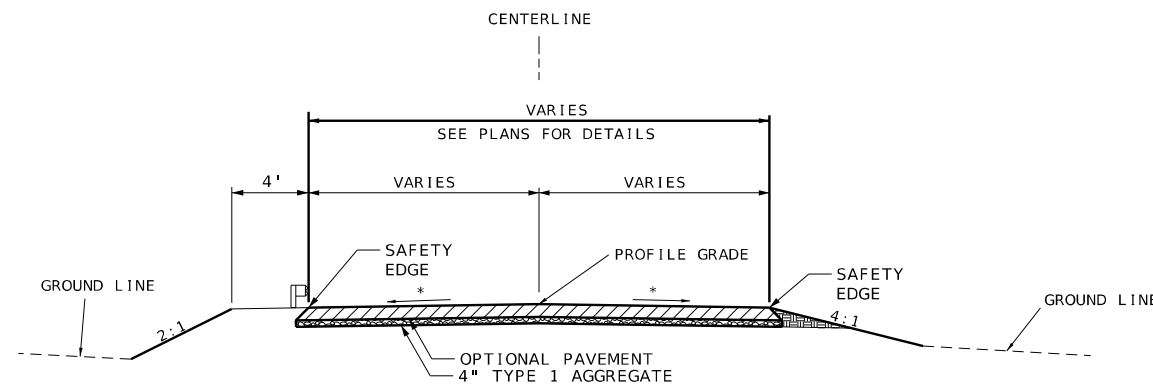
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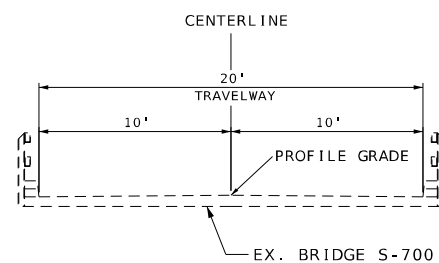
OPTIONAL PAVEMENT DESIGN



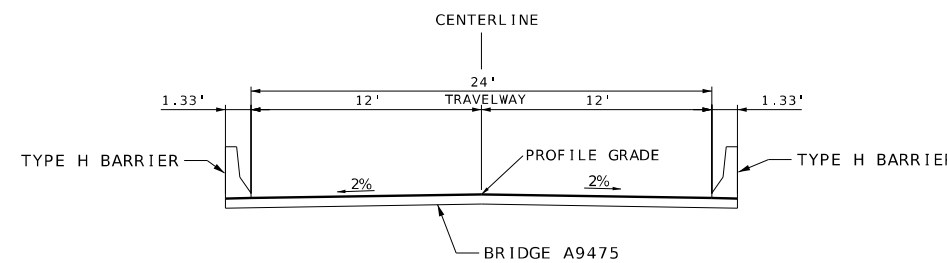
SECTION ON TANGENT
TYPICAL SECTION TRIPLE SPRING ROAD
STA. 0+35.59 TO STA. 0+51.60
* VARIES SEE CROSS SECTIONS



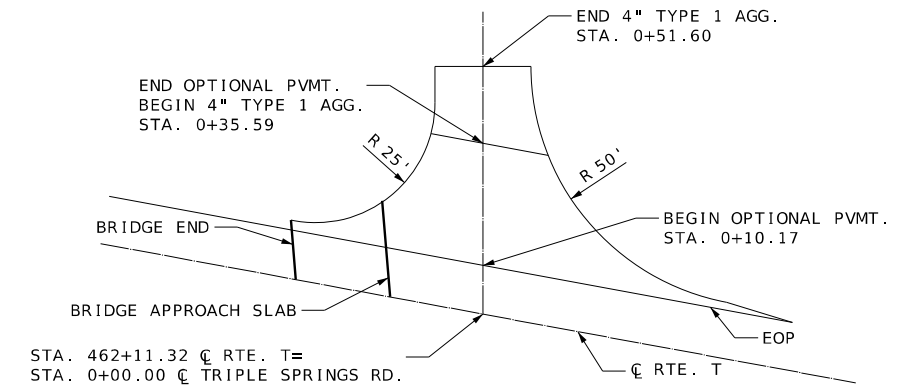
SECTION ON TANGENT
TYPICAL SECTION TRIPLE SPRING ROAD
STA. 0+11.07 TO STA. 0+35.59
* VARIES SEE CROSS SECTIONS



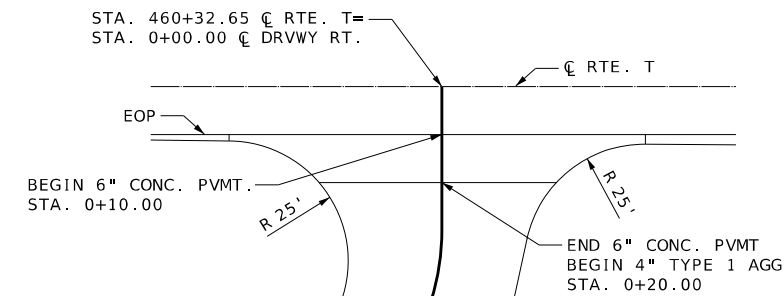
SECTION ON TANGENT
EXISTING BRIDGE TYPICAL SECTION ROUTE T
STA. 461+17.00 TO STA. 461+62.00



SECTION ON TANGENT
TYPICAL BRIDGE SECTION ROUTE T
STA. 461+10.71 TO STA. 461+78.29



TRIPLE SPRINGS ROAD
STA. 462+11.32



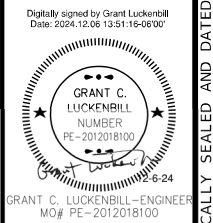
END 4" TYPE 1 AGG.
STA. 1+04.17

DRIVEWAY RIGHT OF
STA. 460+32.65

OPTIONAL PAVEMENT
AGGREGATE BASE
BRIDGE APPROACH SLAB

NOT TO SCALE

TYPICAL SHEET
2 OF 2



DATE PREPARED
12/5/2024

ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
KC	2
COUNTY	
RAY	
JOB NO.	J3S3178
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9475

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

Olsson

1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

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REMOVAL OF IMPROVEMENTS				
SHEET	STA.	STA.	LOCATION	DESCRIPTION
4	458+33.44		ROUTE T RT	1 SIGN, 1 POST
4	459+00.00		ROUTE T	21' SAWCUT
4	459+00.00	461+21.90	ROUTE T	472 SY PAVEMENT
4	460+67.61		ROUTE T RT	1 SIGN, 1 POST
4	460+84.28		ROUTE T RT	1 SIGN, 1 POST
4	460+99.89		ROUTE T RT	1 SIGN, 1 POST
4	461+23.29		ROUTE T RT	1 SIGN, 1 POST
4	460+80.13		ROUTE T LT	1 SIGN, 1 POST
4	460+98.01		ROUTE T LT	1 SIGN, 1 POST
4	461+18.15		ROUTE T LT	1 SIGN, 1 POST
4	461+66.71		ROUTE T LT	1 SIGN, 1 POST
4	461+72.23		ROUTE T RT	1 SIGN, 1 POST
4	462+11.22		ROUTE T RT	1 SIGN, 1 POST
4	462+17.39		ROUTE T RT	15' X 19' PIPE
4	461+68.44	462+75.00	ROUTE T	232 SY PAVEMENT
4	462+75.00		ROUTE T	20' SAWCUT
4	463+79.79		ROUTE T LT	1 SIGN, 1 POST
1 LUMP SUM				

CLEARING & GRUBBING
1 ACRE

CONTRACTOR FURNISHED
SURVEYING & STAKING
1 LUMP SUM

ADDITIONAL MOBILIZATION FOR SEEDING
2 EACH

NON CONTRACT ITEM
TREE CLEARING
1 LUMP SUM

MOBILIZATION
1 LUMP SUM

PIPE CULVERTS					
PLAN SHEET NO.	STA.	LOCATION	GROUP C		
			15 IN. (FT.)	15 IN. (EACH)	24 IN. (EACH)
4	462+14.22	ROUTE T RT	28	2	
4	462+36.19	ROUTE T LT			2
TOTAL			28	2	2

EARTHWORK					
STA.	STA.	LOC.	CLASS A EXCAVATION (CY)	COMPACTING EMBANKMENT (CY)	REMARKS
459+00.00	462+75.00	ROUTE T	726	145	USE 100 CY OF EXCESS FOR DRIVEWAY RT EMBANKMENT
0+00.00	0+51.60	TRIPLE SPRINGS ROAD	46	14	
0+12.00	1+04.17	DRIVEWAY RT	2	100	
TOTALS			774	259	

OPTIONAL PAVEMENT						
SHEET	STA.	STA.	LOCATION	OPTIONAL PAVEMENT (SY)		REMARKS
				4" TYPE 1 AGGREGATE BASE (SY)		
4	459+00.00	460+57.97	ROUTE T LT		36	SHLDR WIDENING
4	459+00.00	460+90.71	ROUTE T	460.9	461	
4	461+98.29	462+75.00	ROUTE T	217.8	218	
TOTALS				678.7	715	

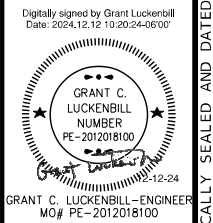
COMPACTING IN CUT				
SHEET NO.	STA.	STA.	LOCATION	COMPACTING IN CUT (STA)
4	459+00.	461+10.19	ROUTE T	2.1
4	461+78.81	462+75.	ROUTE T	1
TOTAL				3.1

ENTRANCES										
SHEET NO.	STA.	LOCATION	TYPE	WIDTH	RADIUS	OPTIONAL PAVEMENT (SY)		4" TYPE 1 AGGREGATE (SY)		REMARKS
						6" CONCRETE PAVEMENT (SY)		4" TYPE 1 AGGREGATE (SY)		
4	460+32.65	ROUTE T RT	I	VAR.	25'		72.5		359	
4	462+11.32	ROUTE T LT	II	VAR.	VAR.	108.8			147	TRIPLE SPRINGS DRIVE
4	462+16.68	ROUTE T RT	I	15'	10'				31	
TOTALS						108.8	72.5		537	

SEE TYPICAL SECTION SHEET 2 OF 2 FOR ENTRANCE PAVING DETAILS

GUARDRAIL									
SHEET	STA.	STA.	LOCATION	TYPE A GUARDRAIL (LF)		BRIDGE ANCHOR SECTION (THRIE BEAM) (EACH)	ASYMMETRICAL TRANSITION SECTION (EACH)	END ANCHOR (EACH)	COMMENTS
				TYPE A CRASHWORTHY END TERMINAL (MASH) (EACH)					
4	460+03.82	460+96.97	ROUTE T LT	25	1	1	1		
4	460+46.28	461+03.40	ROUTE T RT	37.5		1	1	1	25' RADIUS
4	461+82.60	462+00.41	ROUTE T LT	12.5		1	1	1	25' RADIUS
TOTALS				75	1	3	3	2	

SUMMARY OF QUANTITIES
SHEET 1 OF 3



DATE PREPARED
12/12/2024

ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
KC	3

COUNTY
RAY

JOB NO.
J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9475

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

olsson

1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
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TEMPORARY EROSION CONTROL										
SHEET NO.	STA.	STA.	LOCATION	ROCK DITCH CHECK (FT)	TYPE C BERM (FT)	SEDIMENT TRAP		SILT FENCE (FT)	EROSION CONTROL BLANKET TYPE 3B (SY)	SED. REM. (CY)
						EXCAVATION (CY)	ROCK (CY)			
8	459+00.00	460+87.45	ROUTE T LT						581.2	
8	459+00.00	460+13.16	ROUTE T RT						97.6	
8	459+00.00	460+03.72	ROUTE T RT					166		2
8	459+91.90	460+95.89	ROUTE T RT					141		2
8	459+91.90	460+95.89	ROUTE T RT						112.5	
8	460+85.84	461+42.89	ROUTE T		142					
8	460+88.83		ROUTE T LT			5.0	5.0			
8	461+41.72		ROUTE T LT			5.0	5.0			
8	461+43.41	462+04.72	ROUTE T		128					
8	461+64.87		ROUTE T LT	12						1
8	461+74.99		ROUTE T RT			5.0	5.0			
8	461+90.79	461+98.85	ROUTE T LT					24		1
8	461+90.79	461+98.85	ROUTE T LT						10.9	
8	461+91.59		ROUTE T RT	12						1
8	462+01.56	462+16.14	ROUTE T RT						19.1	
8	462+11.81	462+75.00	ROUTE T LT					40		1
8	461+11.81	462+75.00	ROUTE T LT						29.1	
8	462+24.43	462+75.00	ROUTE T RT						7.4	
8	462+37.79		ROUTE T RT	12						1
8	462+49.09		ROUTE T LT	12						1
TOTAL				48	270	15.0	15.0	371	857.8	10

SEEDING AND MULCH						
SHEET NO.	STA.	STA.	LOCATION	COOL SEASON GRASS SEEDING (AC)	TEMP. SEED AND MULCH (AC)	MULCHING (AC)
8	459+00.00	460+87.45	ROUTE T LT	0.1	0.1	0.2
8	459+00.00	460+13.16	ROUTE T RT	0.1	0.1	0.2
8	459+91.90	460+95.89	ROUTE T RT	0.1	0.1	0.2
8	461+90.79	461+98.85	ROUTE T LT	0.1	0.1	0.2
8	462+01.56	462+16.14	ROUTE T RT	0.1	0.1	0.2
8	461+11.81	462+75.00	ROUTE T LT	0.1	0.1	0.2
8	462+24.43	462+75.00	ROUTE T RT	0.1	0.1	0.2
TOTALS				0.7	0.7	1.4

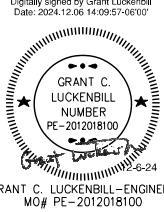
ROCK BLANKET										
SHEET	STA.	STA.	LOCATION	LENGTH (FT)	WIDTH (FT)	DEPTH (FT)	TYPE 2 ROCK BLANKET		SEPARATION GEOTEXTILE (SY)	REMARKS
							FURNISHING (CY)	PLACING (CY)		
4	460+85.84	461+40.53	ROUTE T	*	*	2	111.6	111.6	167.4	
4	461+48.59	462+04.72	ROUTE T	*	*	2	156.4	156.4	234.6	
TOTALS							268.0	268.0	402.0	

* VARIES, SEE PLAN SHEETS.

PAVEMENT MARKING						
SHEET	STA.	STA.	LOCATION	STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS		REMARKS
				4" WHITE (LF)	4" YELLOW (LF)	
4	459+00.00	462+75.00	ROUTE T	763		EDGELINES
4	459+00.00	462+75.00	ROUTE T		763	DOUBLE YELLOW CL
TOTALS				763	763	

SUMMARY OF QUANTITIES
SHEET 2 OF 3

Digitally signed by Grant Luckenbill
Date: 2024.12.06 14:09:57-06'00'



GRANT C. LUCKENBILL-ENGINEER
MO# PE-2012018100

DATE PREPARED
12/5/2024

ROUTE T STATE MO
DISTRICT KC SHEET NO. 3

COUNTY
RAY

JOB NO.
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CONTRACT ID.


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DESCRIPTION

DATE

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SIGN	SIZE	AREA	QTY	TOTAL	QTY	TOTAL	SIGN	DESCRIPTION
	IN.	SQ. FT.	EACH	AREA	RELOC	RELOC	NUM.	
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00	5	80.00				DETOUR AHEAD
WO20-3	48X48	16.00	3	48.00				ROAD CLOSED AHEAD
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE	AREA	QTY	TOTAL	QTY	TOTAL	SIGN	DESCRIPTION
	IN.	SQ. FT.	EACH	AREA	RELOC	RELOC	NUM.	
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00						END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)
REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45° ARROW)
R11-2	48X30	10.00	3	30.00				ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD
R11-4	60X30	12.50	3	37.50				LOCAL TRAFFIC ONLY
CONST-3A	60X48	20.00						ROAD CLOSED TO THRU TRAFFIC
CONST-3X	56X12	4.67						FINE SIGN
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
W0W0-3A	48X48	16.00	3	48.00				ROAD CLOSED 1000 FEET
CONST-9	36X60	15.00	15	225.00				DETOUR ROUTE ASSEMBLY
CONST-10	36X72	18.00	5	90.00				DETOUR SIGN
616-10.05						TOTAL		558.5
616-10.10						TOTAL		0

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161008		ADVANCED WARNING RAIL SYSTEM
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161025		CHANNELIZER (TRIM LINE)
6161030	15	TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A		CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6161099	4	CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

Digital signed by Grant Luckenbill
Date: 2024.12.06 13:53:27-0600

GRANT C. LUCKENBILL
NUMBER PE-2012018100
GRANT C. LUCKENBILL-ENGINEER
MO# PE-2012018100

DATE PREPARED
12/5/2024

ROUTE T	STATE MO
DISTRICT KC	SHEET NO. 3

COUNTY
RAY

JOB NO.
J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9475

DESCRIPTION

DATE				

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

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

1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

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

GENERAL NOTE:
 THE APPROXIMATE LOCATION OF PROPERTY LINES AS SHOWN ON THE PLANS ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE.

TEMPORARY EASEMENT LIMITS FOR THIS PROJECT EXTEND FROM STA. 459+65.00 TO STA. 460+75.00, A DISTANCE OF 0.02 MILES.

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

ALL BEARINGS ARE BASED ON STATE PLANE BEARINGS, WEST ZONE.

ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE MARKED.

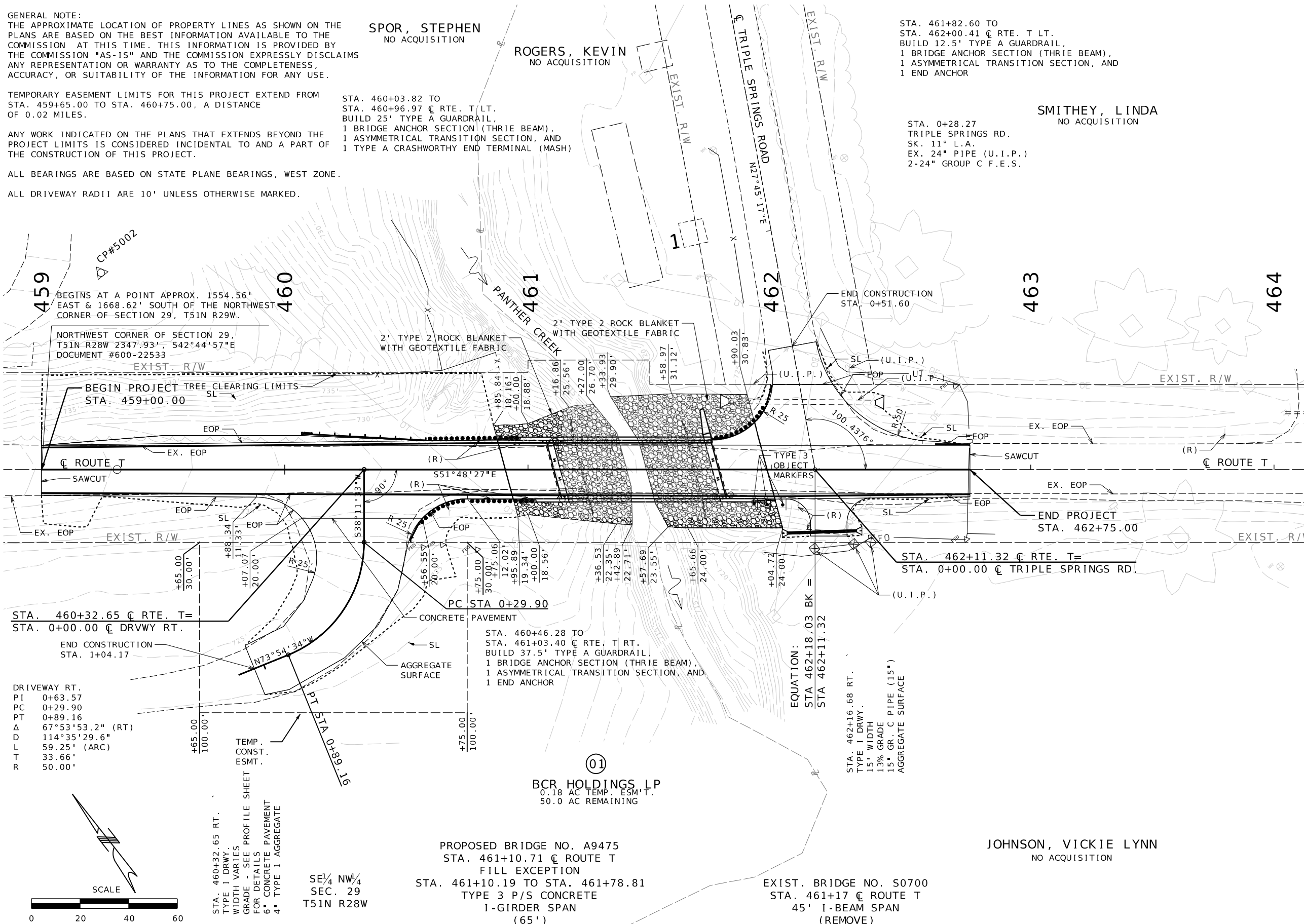
SPOR, STEPHEN
 NO ACQUISITION

ROGERS, KEVIN
 NO ACQUISITION

SMITHEY, LINDA
 NO ACQUISITION

STA. 461+82.60 TO
 STA. 462+00.41 @ RTE. T LT.
 BUILD 12.5' TYPE A GUARDRAIL,
 1 BRIDGE ANCHOR SECTION (THRIE BEAM),
 1 ASYMMETRICAL TRANSITION SECTION, AND
 1 END ANCHOR

STA. 0+28.27
 TRIPLE SPRINGS RD.
 SK. 11° L.A.
 EX. 24" PIPE (U.I.P.)
 2-24" GROUP C F.E.S.



DRIVEWAY RT.
 PI 0+63.57
 PC 0+29.90
 PT 0+89.16
 Δ 67°53'53.2" (RT)
 D 114°35'29.6"
 L 59.25' (ARC)
 T 33.66'
 R 50.00'

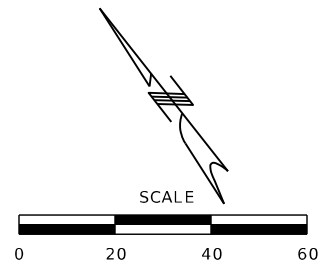
STA. 460+32.65 RT.
 TYPE 1 DRWY.
 WIDTH VARIES
 GRADE - SEE PROFILE SHEET
 FOR DETAILS
 6" CONCRETE PAVEMENT
 4" TYPE 1 AGGREGATE

SE 1/4 NW 1/4
 SEC. 29
 T51N R28W

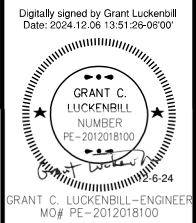
PROPOSED BRIDGE NO. A9475
 STA. 461+10.71 @ ROUTE T
 FILL EXCEPTION
 STA. 461+10.19 TO STA. 461+78.81
 TYPE 3 P/S CONCRETE
 1-GIRDER SPAN
 (65')

EXIST. BRIDGE NO. S0700
 STA. 461+17 @ ROUTE T
 45' I-BEAM SPAN
 (REMOVE)

JOHNSON, VICKIE LYNN
 NO ACQUISITION



PLAN & PROFILE
 SHEET 1 OF 2



DATE PREPARED	
12/5/2024	
ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
KC	4
COUNTY	
RAY	
JOB NO.	
J3S3178	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9475	

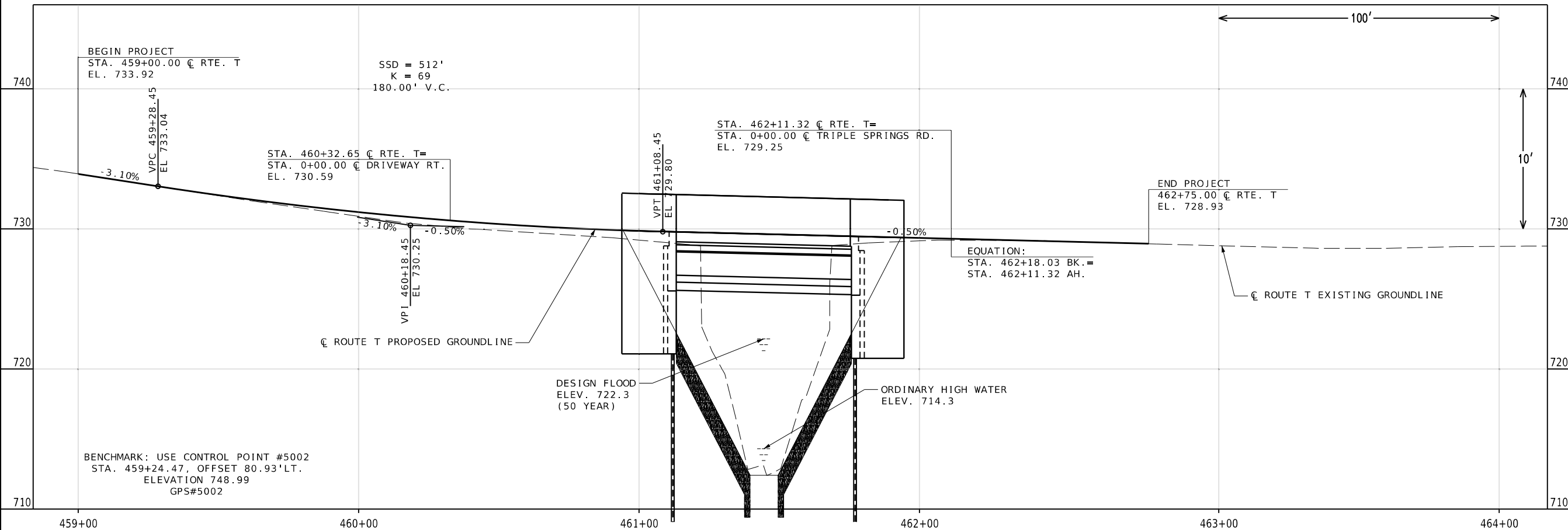
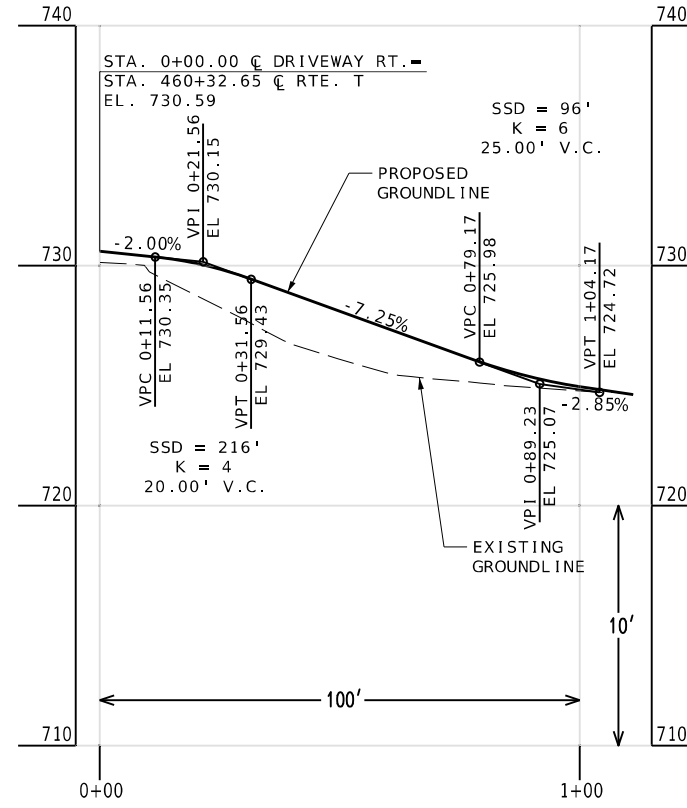
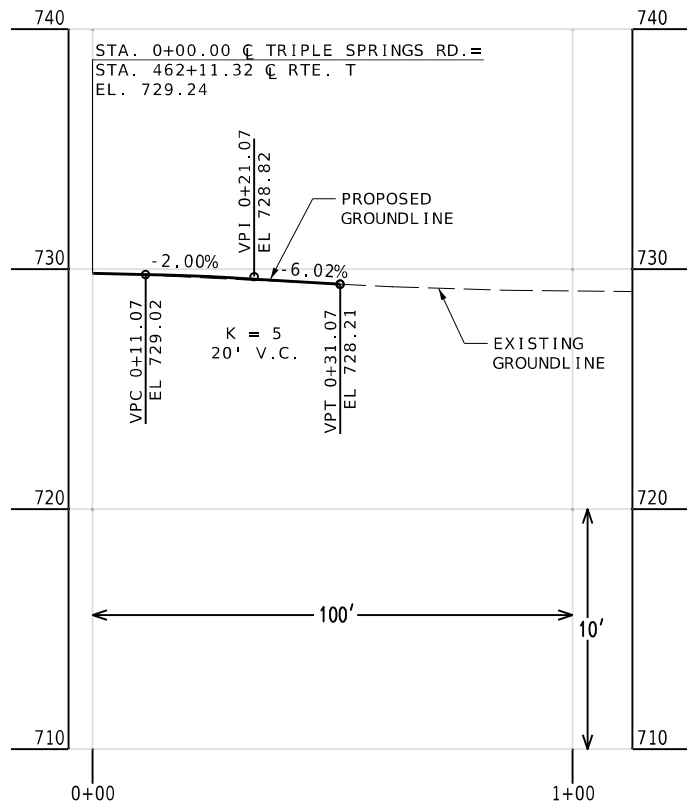
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION
 COMMISSION

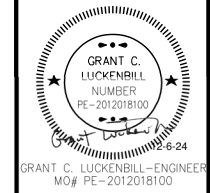
105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)

Olsson

1301 BURLINGTON STREET, STE. 100
 NORTH KANSAS CITY, MO 64116
 PHONE: 816.361.1177
 CERTIFICATE OF AUTHORITY NO. 001592



Digitally signed by Grant Luckenbill
Date: 2024.12.08 13:53:36-0600'



DATE PREPARED 12/5/2024	
ROUTE T	STATE MO
DISTRICT KC	SHEET NO. 5
COUNTY RAY	
JOB NO. J3S3178	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9475	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Olsson

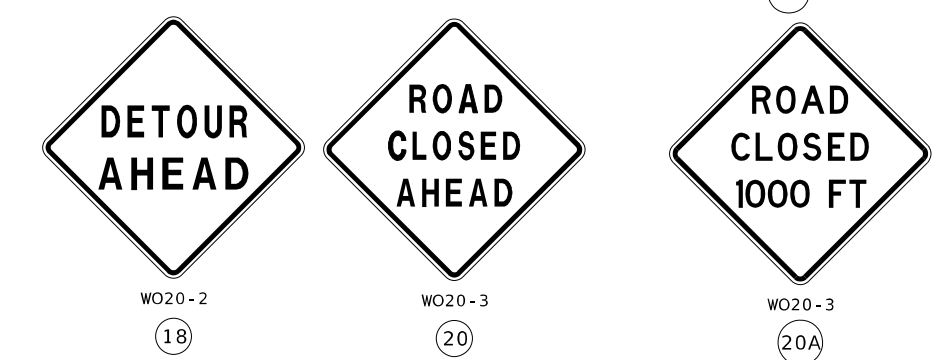
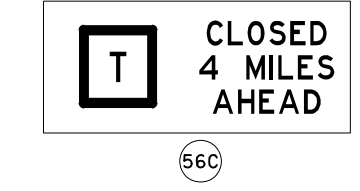
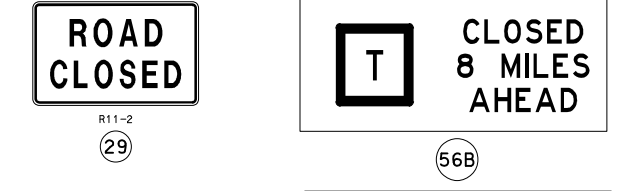
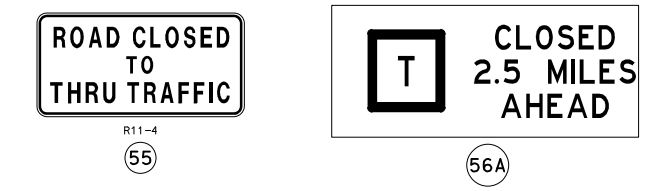
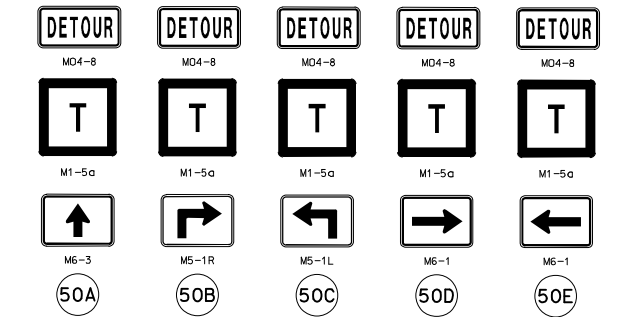
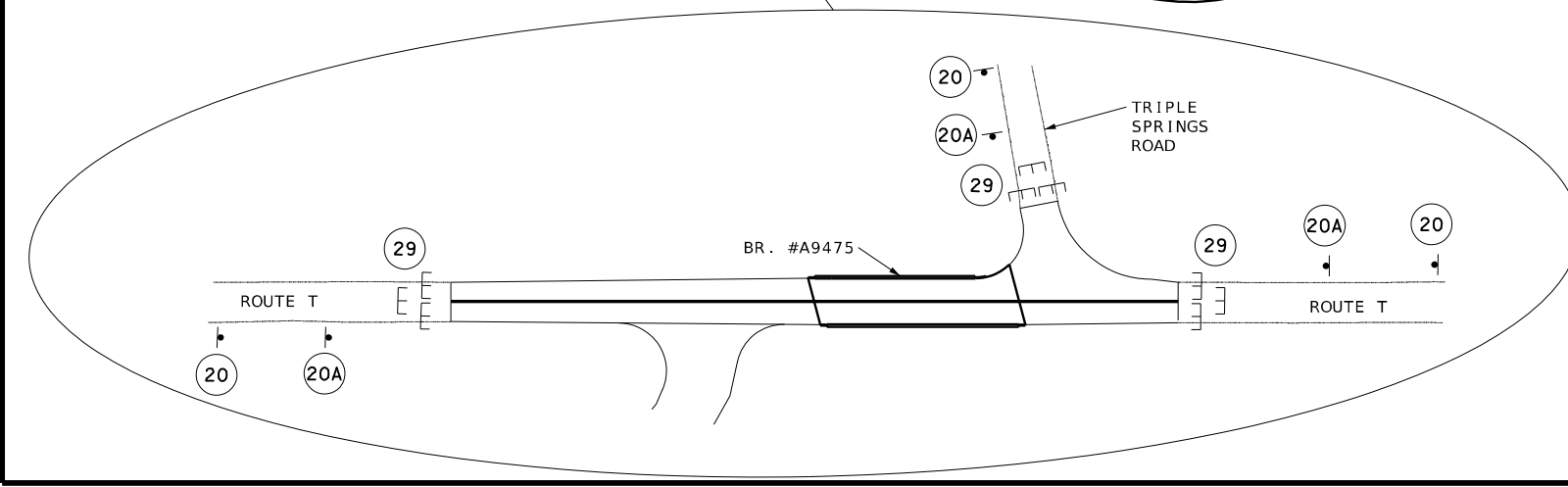
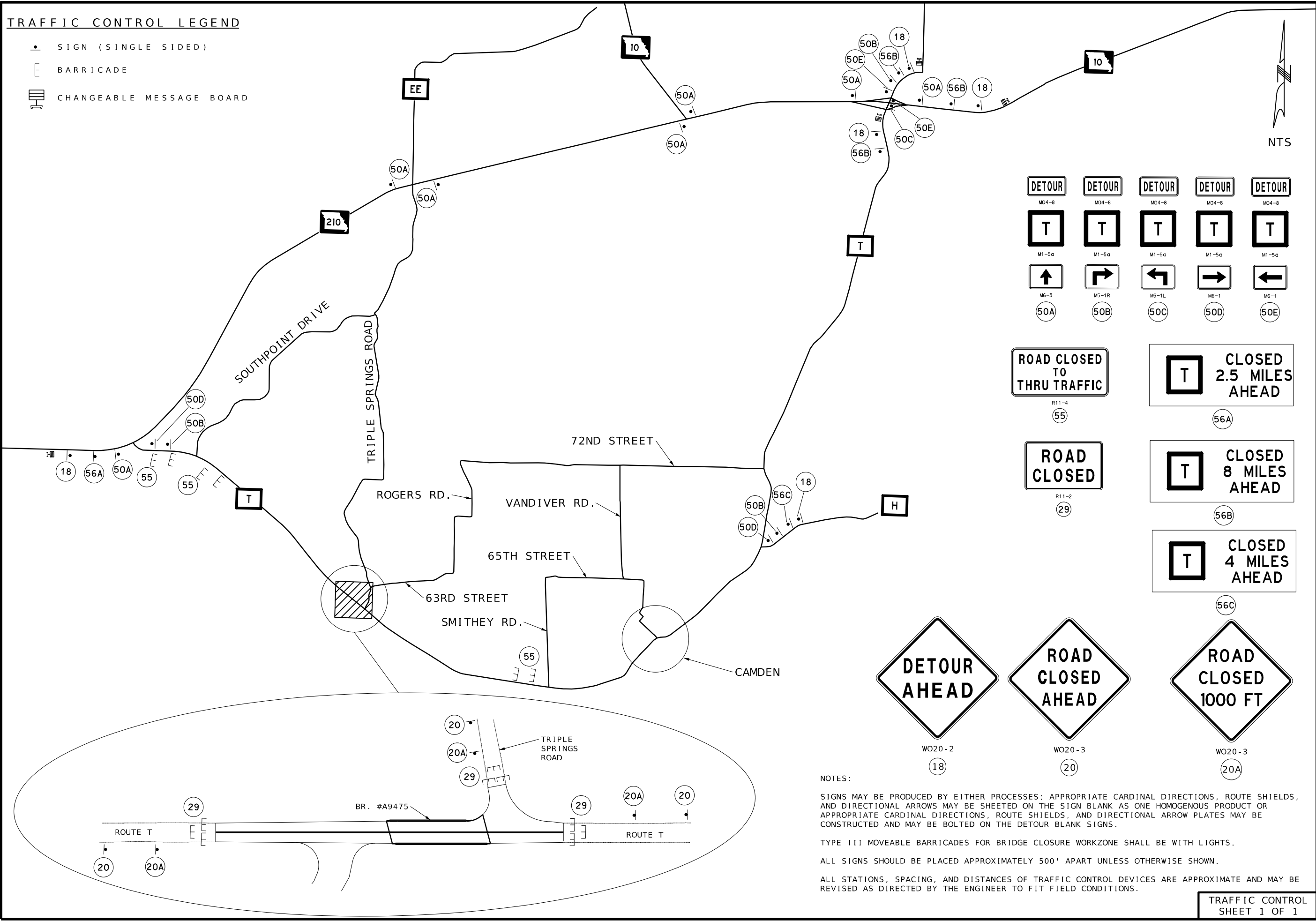
1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

PLAN & PROFILE
SHEET 2 OF 2

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

TRAFFIC CONTROL LEGEND

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



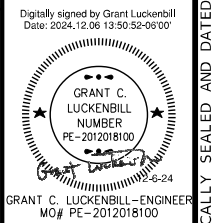
NOTES:

SIGNS MAY BE PRODUCED BY EITHER PROCESSES: APPROPRIATE CARDINAL DIRECTIONS, ROUTE SHIELDS, AND DIRECTIONAL ARROWS MAY BE SHEETED ON THE SIGN BLANK AS ONE HOMOGENOUS PRODUCT OR APPROPRIATE CARDINAL DIRECTIONS, ROUTE SHIELDS, AND DIRECTIONAL ARROW PLATES MAY BE CONSTRUCTED AND MAY BE BOLTED ON THE DETOUR BLANK SIGNS.

TYPE III MOVEABLE BARRICADES FOR BRIDGE CLOSURE WORKZONE SHALL BE WITH LIGHTS.

ALL SIGNS SHOULD BE PLACED APPROXIMATELY 500' APART UNLESS OTHERWISE SHOWN.

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



Digitally signed by Grant Luckenbill
Date: 2024.12.06 13:50:52-06'00'

DATE PREPARED 12/5/2024	
ROUTE T	STATE MO
DISTRICT KC	SHEET NO. 7
COUNTY RAY	
JOB NO. J3S3178	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9475	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



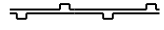

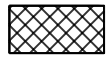
Olsson

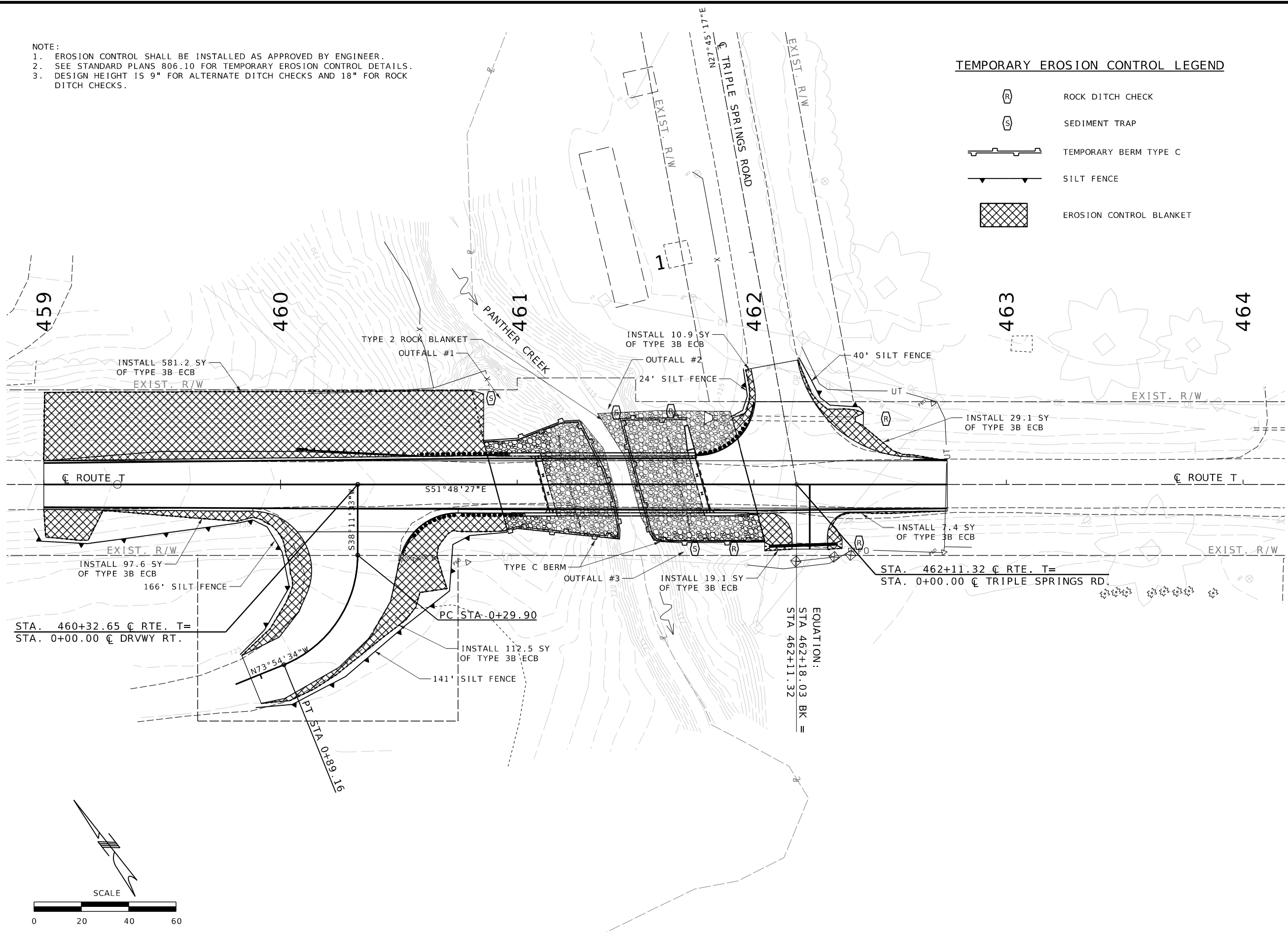
1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

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

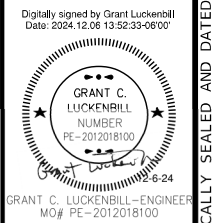
- NOTE:
1. EROSION CONTROL SHALL BE INSTALLED AS APPROVED BY ENGINEER.
 2. SEE STANDARD PLANS 806.10 FOR TEMPORARY EROSION CONTROL DETAILS.
 3. DESIGN HEIGHT IS 9" FOR ALTERNATE DITCH CHECKS AND 18" FOR ROCK DITCH CHECKS.

TEMPORARY EROSION CONTROL LEGEND

-  ROCK DITCH CHECK
-  SEDIMENT TRAP
-  TEMPORARY BERM TYPE C
-  SILT FENCE
-  EROSION CONTROL BLANKET




EQUATION:
 STA 462+18.03 BK =
 STA 462+11.32



DATE PREPARED 12/5/2024	
ROUTE T	STATE MO
DISTRICT KC	SHEET NO. 8
COUNTY RAY	
JOB NO. J3S3178	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9475	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



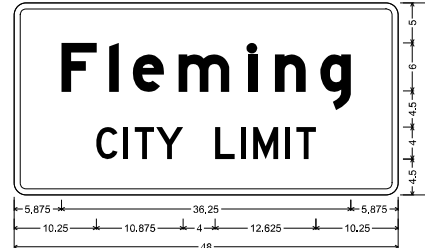
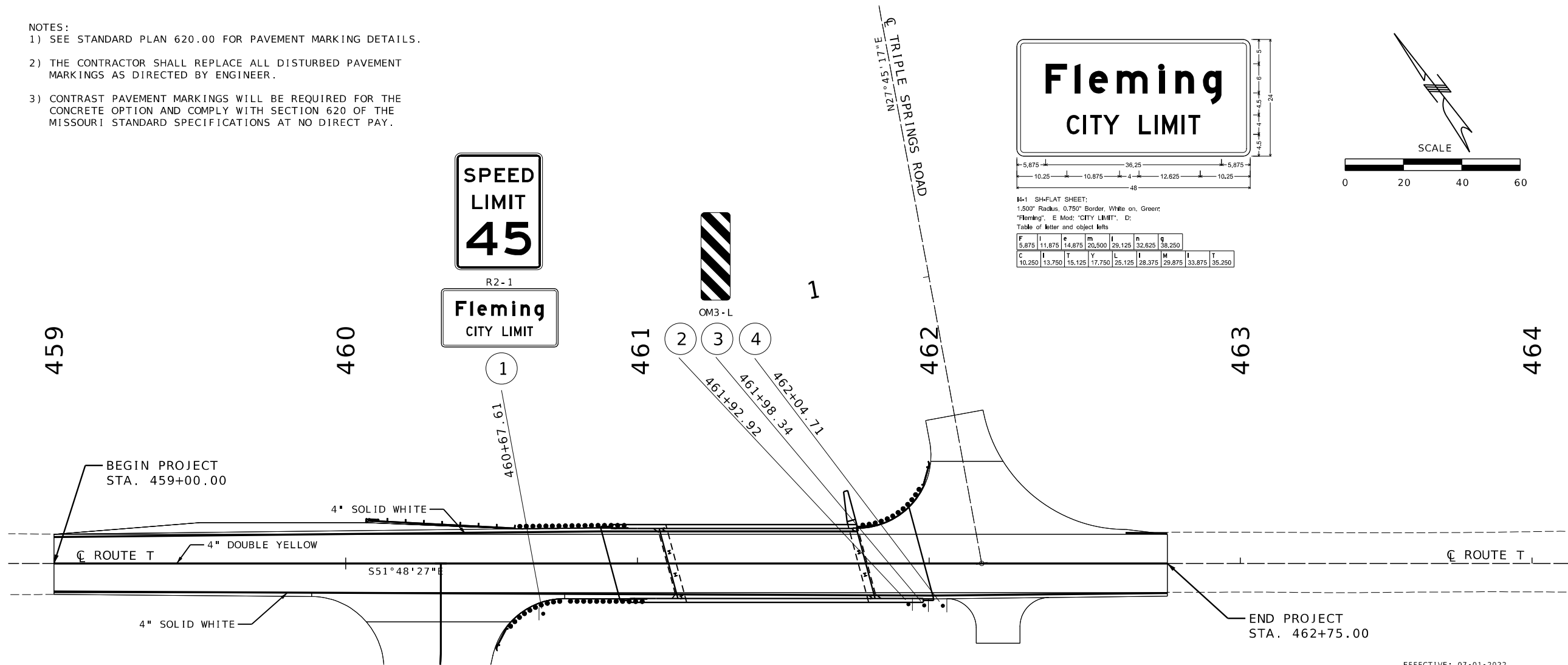
105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)

Olsson

1301 BURLINGTON STREET, STE. 100
 NORTH KANSAS CITY, MO 64116
 PHONE: 816.361.1177
 CERTIFICATE OF AUTHORITY NO. 001592

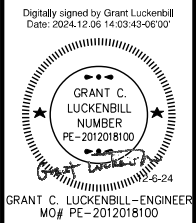
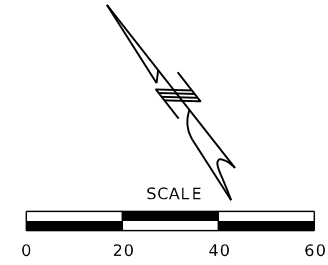
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

- NOTES:
- 1) SEE STANDARD PLAN 620.00 FOR PAVEMENT MARKING DETAILS.
 - 2) THE CONTRACTOR SHALL REPLACE ALL DISTURBED PAVEMENT MARKINGS AS DIRECTED BY ENGINEER.
 - 3) CONTRAST PAVEMENT MARKINGS WILL BE REQUIRED FOR THE CONCRETE OPTION AND COMPLY WITH SECTION 620 OF THE MISSOURI STANDARD SPECIFICATIONS AT NO DIRECT PAY.



M-1 SH-FLAT SHEET:
 1.500" Radius, 0.750" Border, White on, Green
 "Fleming", E Mod: "CITY LIMIT", D:
 Table of letter and object lifts

F	I	E	M	L	A	S
5.875	11.875	14.875	20.500	29.125	32.625	38.250
C	I	T	Y	L	M	T
10.250	13.750	15.125	17.750	25.125	28.375	33.875



DATE PREPARED
12/5/2024

ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
KC	9

COUNTY
RAY

JOB NO.
J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9475

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

olsson

1301 BURLINGTON STREET, STE. 100
 NORTH KANSAS CITY, MO 64116
 PHONE: 816.361.1177
 CERTIFICATE OF AUTHORITY NO. 001592

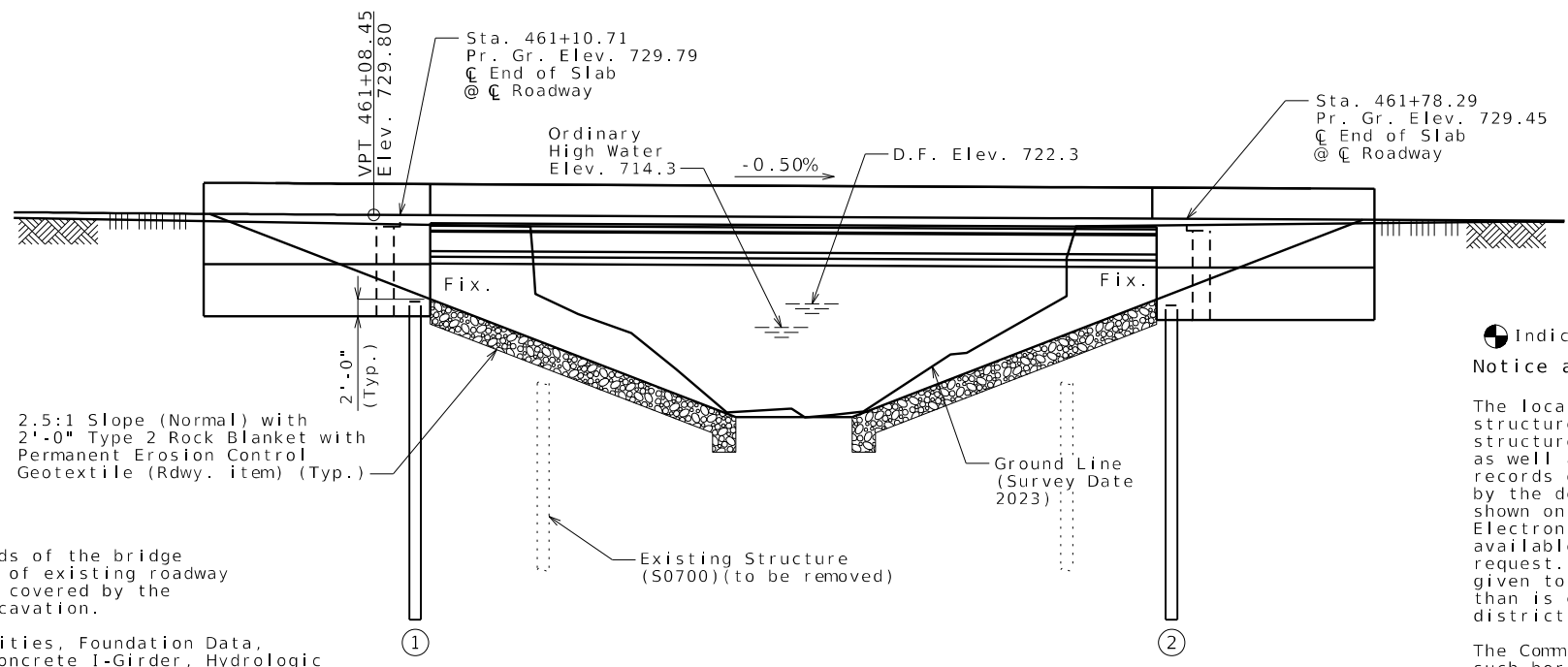
SIGNS				CONCRETE FOOTINGS EMBEDDED		STRUCTURAL STEEL POSTS *				PIPE POSTS *				BACKING BARS **			U-CHANNEL POST	PERFORATED SQUARE STEEL TUBE										REMARKS AND OTHER REQUIRED ITEMS			
902 SIGNAL SIGNS TABULATED ON D-37A SHEET				ITEM NO. 9031010		POST DES NO. 1, 2, 3				PIPE SIZE				2" X 3/8" BARS @ 2.55 LBS PER FT			ITEM NO. 9031250A	2 IN. POST					2.5 IN. POST						BREAK-AWAY ASSEMBLY		
SIGN NO.	SIGN SIZE	STATION	HORZ CLEAR IF NOT STD	LOCATION	SIGN DTL. SHT. NO.	POST NO.	POST NO. 1	POST NO. 2	POST NO. 3	LBS PER FT	TOTAL ITEM NO. 9031210	PIPE IN.	POST NO. 1	POST NO. 2	LBS PER FT	TOTAL ITEM NO. 9031220	NO. EACH	LGTH	TOTAL	ITEM NO. 9031270A	DRIVEN 12-GA. ITEM NO. 9031271A	DRIVEN 7-GA. ITEM NO. 9031273A	CONCRETE 7-GA. ITEM NO. 9031274	POST NO. 1	POST NO. 2	TOTAL ITEM NO. 9031280	2.25" INSERT (6 FT) ITEM NO. 9031272A		DRIVEN 7-GA. ITEM NO. 9031281A	CONCRETE 7-GA. ITEM NO. 9031285	ITEM NO. 9031241
1	ASSEM	460+67.61		ROUTE T																					16		16	1		1	1
2	12"x36"	461+92.92		ROUTE T																					16		16			1	
3	12"x36"	461+98.34		ROUTE T																					16		16			1	
4	12"x36"	462+04.71		ROUTE T																					16		16			1	
SUBTOTAL																											64	1		4	1
TOTAL																											64	1		4	1

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							
			SHR2L-1	SHR2L-1	SHR2L-1	SHR2L-1				SIZE	FLAT SHEET SH ITEM NO. 9035004A	FLAT SHEET FLUORESCENT SHF * ITEM NO. 9035069A	STRUCTURAL ST ITEM NO. 9035011A	STRUCTURAL FLUORESCENT STF * ITEM NO. 9035071A			
			SIGN DESCRIPTION, SIZES & NUMBER OF EACH														
1	460+67.61	ROUTE T RT.	1						OM3-L	STD	3	12"x36"	9.0				
2	461+92.92	ROUTE T RT.		1					R2-1	STD	1	36"x48"	12.0				
3	461+98.34	ROUTE T RT.		1					I4-1	STD	1	24"x48"	8.0				
4	462+04.71	ROUTE T RT.		1													
TOTAL												29.0					

* ORANGE, YELLOW & YELLOW/GREEN

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(65') PRESTRESSED CONCRETE I-GIRDER SPAN



GENERAL ELEVATION

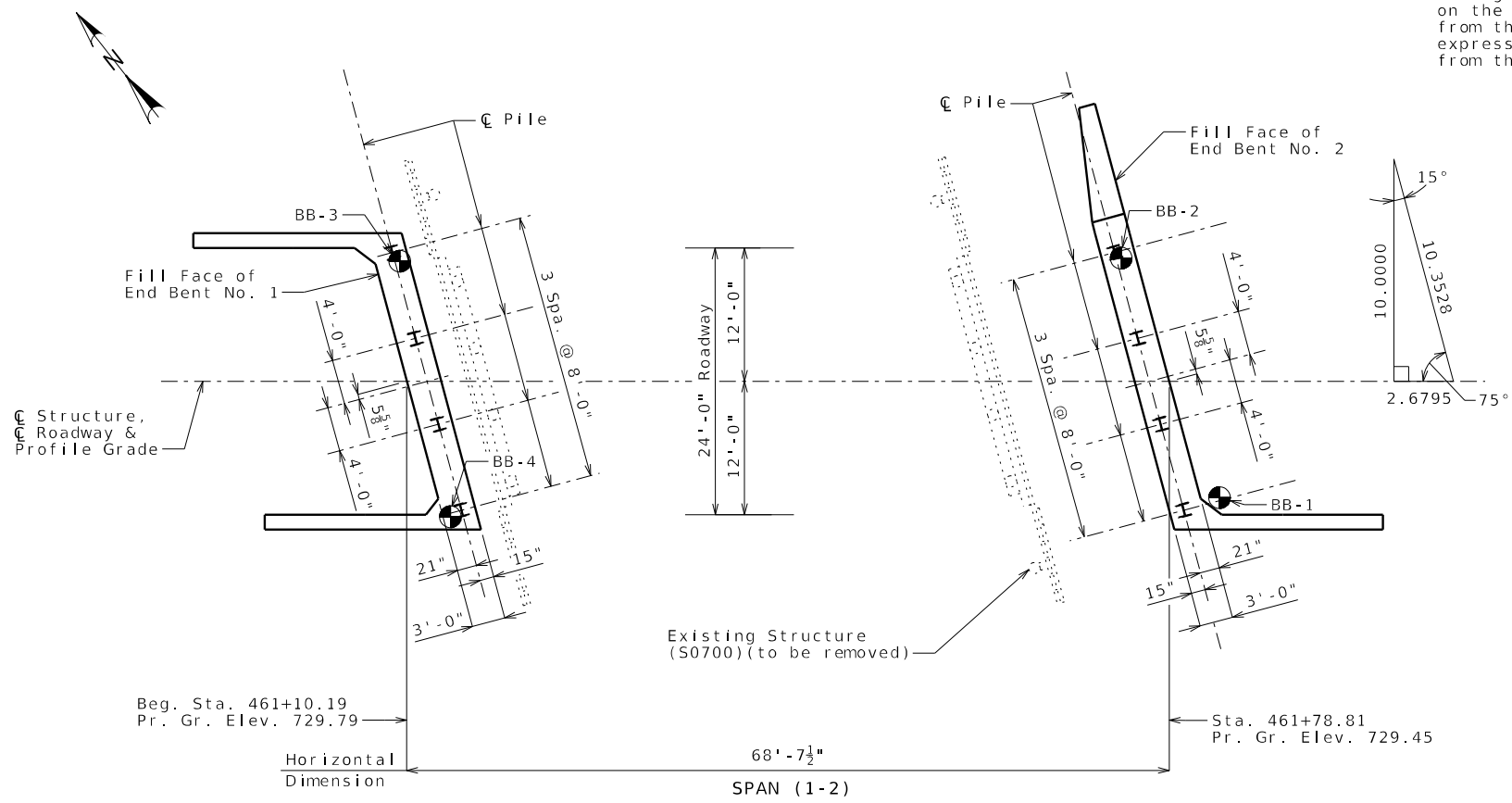
Existing roadway fill under the ends of the bridge shall be removed as shown. Removal of existing roadway fill will be considered completely covered by the contract unit price for roadway excavation.

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

Indicates location of borings.
Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheet(s) No. 24-29 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.

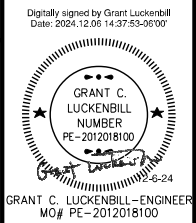
The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those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



PLAN

CP#5002-SET 1/2" REBAR W/ CONTROL POINT
CAP IN CONCRETE
STA. 459+24.47, 80.93' LT, ELEV. 748.99

BRIDGE: ROUTE T OVER PANTHER CREEK
ROUTE T FROM ROUTE 210 TO ROUTE H
ABOUT 2.6 MILES SOUTHEAST OF ROUTE 210
BEGINNING STATION 461+10.19



DATE PREPARED 12/6/2024	
ROUTE T	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY RAY	
JOB NO. J3S3178	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9475	

DESCRIPTION	DATE



Olsson
1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

Designed Aug. 2024
Detailed Sept. 2024
Checked Oct. 2024

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

Estimated Quantities				
Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	90		90
Removal of Bridges (S0700)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		113	113
Galvanized Structural Steel Piles (14 in.)	linear foot	224		224
Pile Point Reinforcement	each	8		8
Class B Concrete (Substructure)	cu. yard	43.8		43.8
Slab on Concrete I-Girder	sq. yard		201	201
Type H Barrier	linear foot		185	185
Type 3 (39 in.), Prestressed Concrete I-Girder	linear foot		199	199
Steel Intermediate Diaphragms for P/S Concrete Girder	each		2	2
Vertical Drain at End Bents	each		2	2
Plain Neoprene Bearing Pad	each		3	3
Laminated Neoprene Bearing Pad (Tapered)	each		3	3

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

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

Foundation Data			
Type	Design Data	Bent Number	
		1	2
Load Bearing Pile	Pile Type and Size	HP 14x73	HP 14x73
	Number	4	4
	Approximate Length Per Each	ft 28	ft 28
	Pile Point Reinforcement	ea All	ea All
	Min. Galvanized Penetration (Elev.)	ft Full Length	ft Full Length
	Pile Driving Verification Method	DF	DF
	Resistance Factor	0.4	0.4
	Minimum Nominal Axial Compressive Resistance	kip 580	kip 574

DF = FHWA-modified Gates Dynamic Pile Formula

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

All pile 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.

HP piles are anticipated to be driven to refusal on rock. Review all borings for depth of rock and restrict driving as appropriate to comply with hard rock driving criteria in accordance with Sec 702. When pile refusal on rock occurs, as approved by the engineer, the minimum nominal axial compressive resistance is verified and no additional pile driving verification method is required.

Estimated Quantities for Slab on Concrete I-Girder		
Item		Total
Class B-2 Concrete	cu. yard	73.1
Reinforcing Steel (Epoxy Coated)	pound	19,030

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

Hydrologic Data
Drainage Area = 2.2 mi ²
Design Flood Frequency = 50 years
Design Flood Discharge = 1960 cfs
Design Flood (D.F.) Elevation = 722.3
Base Flood (100-year)
Base Flood Elevation = 722.8
Base Flood Discharge = 2300 cfs
Estimated Backwater = 0.1 ft
Average Velocity thru Opening = 6.4 ft/s
Freeboard (50-year)
Freeboard = 2.7 ft
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency > 500 years
500-Year Flood Elevation = 723.9

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
Superstructure: Non-composite for dead load.
Composite for live load.

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

For precast prestressed panel stresses, see Sheet No. 12.

For prestressed girder stresses, see Sheet No. 10.

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

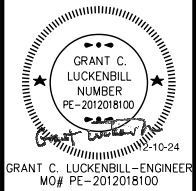
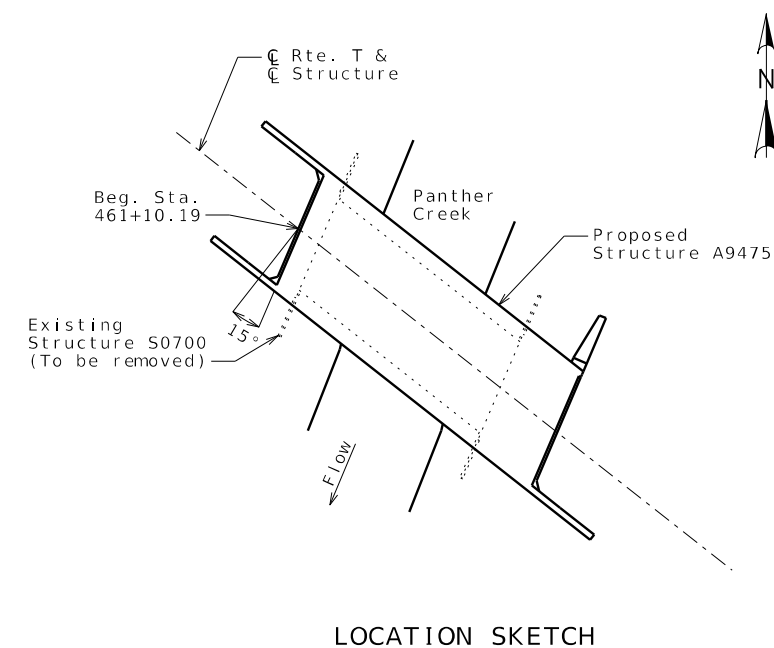
Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

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

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

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

- Constant Joint Filler
- Variable Joint Filler



DATE PREPARED 12/9/2024	
ROUTE T	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY RAY	
JOB NO. J3S3178	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9475	

DATE	DESCRIPTION

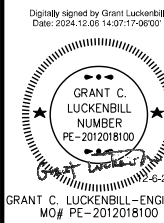
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Olsson

1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

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DATE PREPARED
12/5/2024

ROUTE STATE
T MO

DISTRICT SHEET NO.
BR 3

COUNTY
RAY

JOB NO.
J3S3178

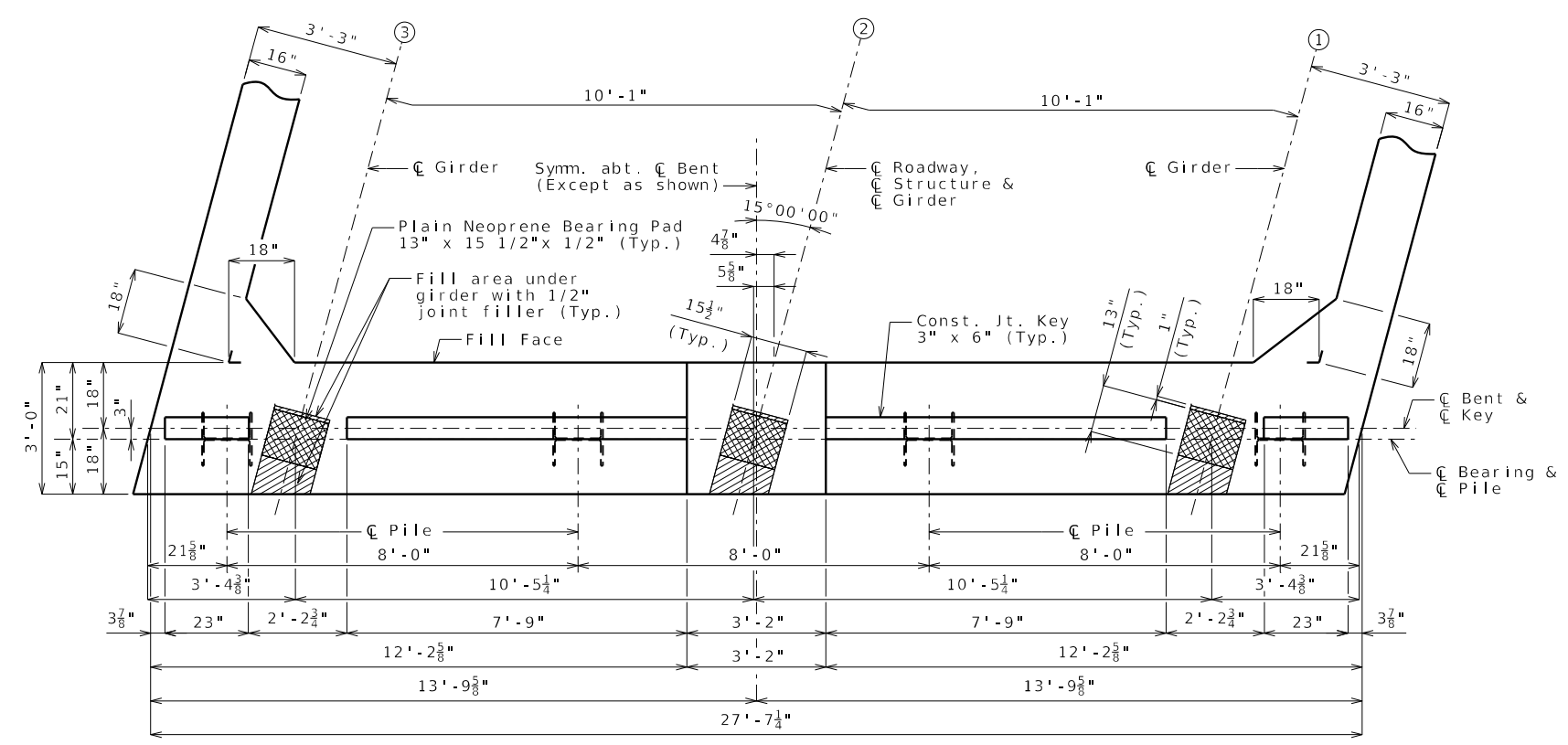
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PROJECT NO.

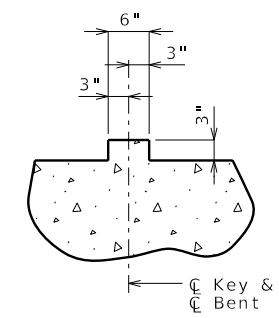
BRIDGE NO.
A9475

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

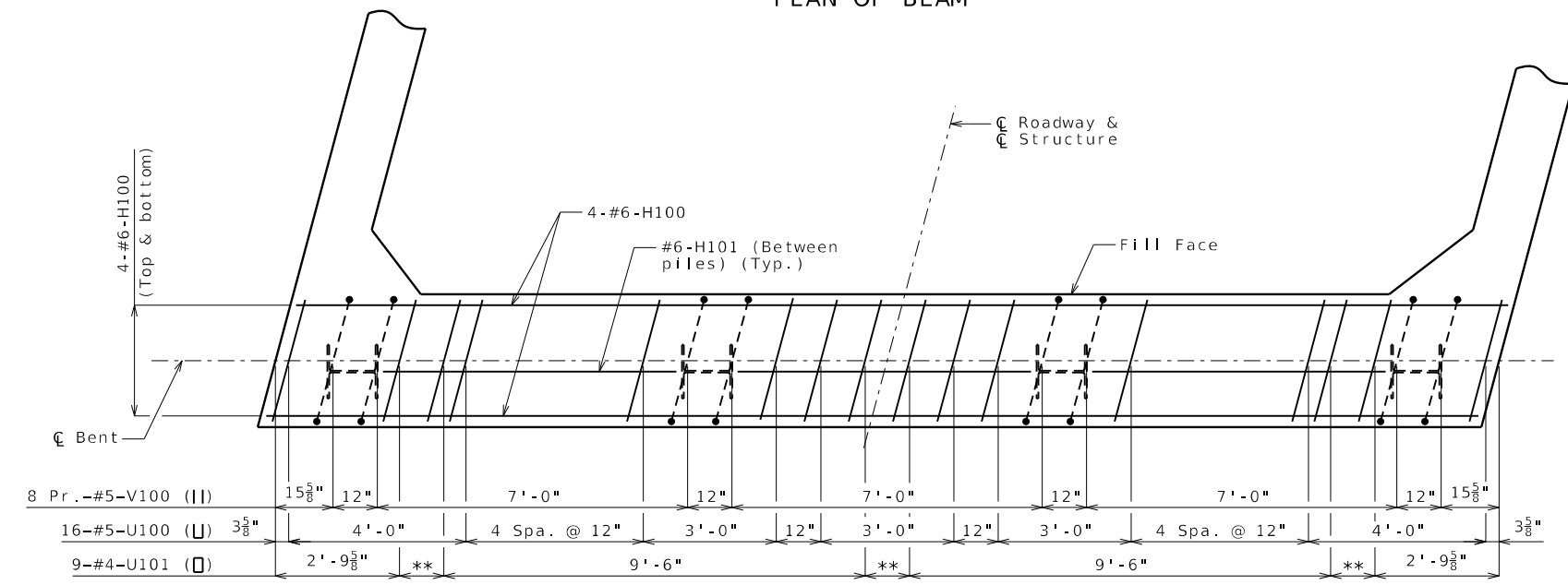
1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592



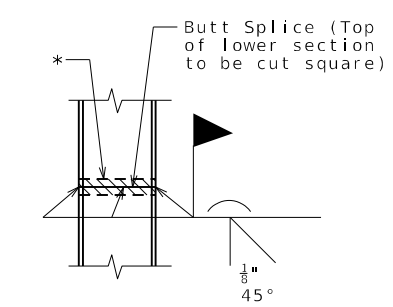
PLAN OF BEAM



SECTION THRU KEY



PLAN OF BEAM SHOWING REINFORCEMENT
(Keys and steps not shown for clarity)
** 2 Spa. @ 6"



STEEL PILE SPLICE
(If required)

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

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	50
Galvanized Structural Steel Piles (14 in.)	linear foot	112
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	21.5

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

Detailed Sept. 2024
Checked Oct. 2024

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

Sheet No. 3 of 29

DETAILS OF END BENT NO. 1

Notes:

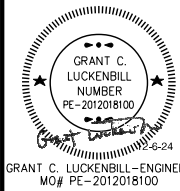
Work this sheet with Sheets No. 4 & 5.

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

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

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Digitally signed by Grant Luckenbill
Date: 2024.12.06 14:07:08-0600'



GRANT C. LUCKENBILL-ENGINEER
MO# PE-2012018100

DATE PREPARED
12/5/2024

ROUTE T STATE MO

DISTRICT BR SHEET NO. 4

COUNTY RAY

JOB NO. J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9475

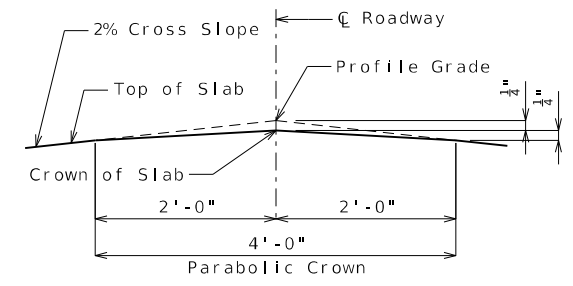
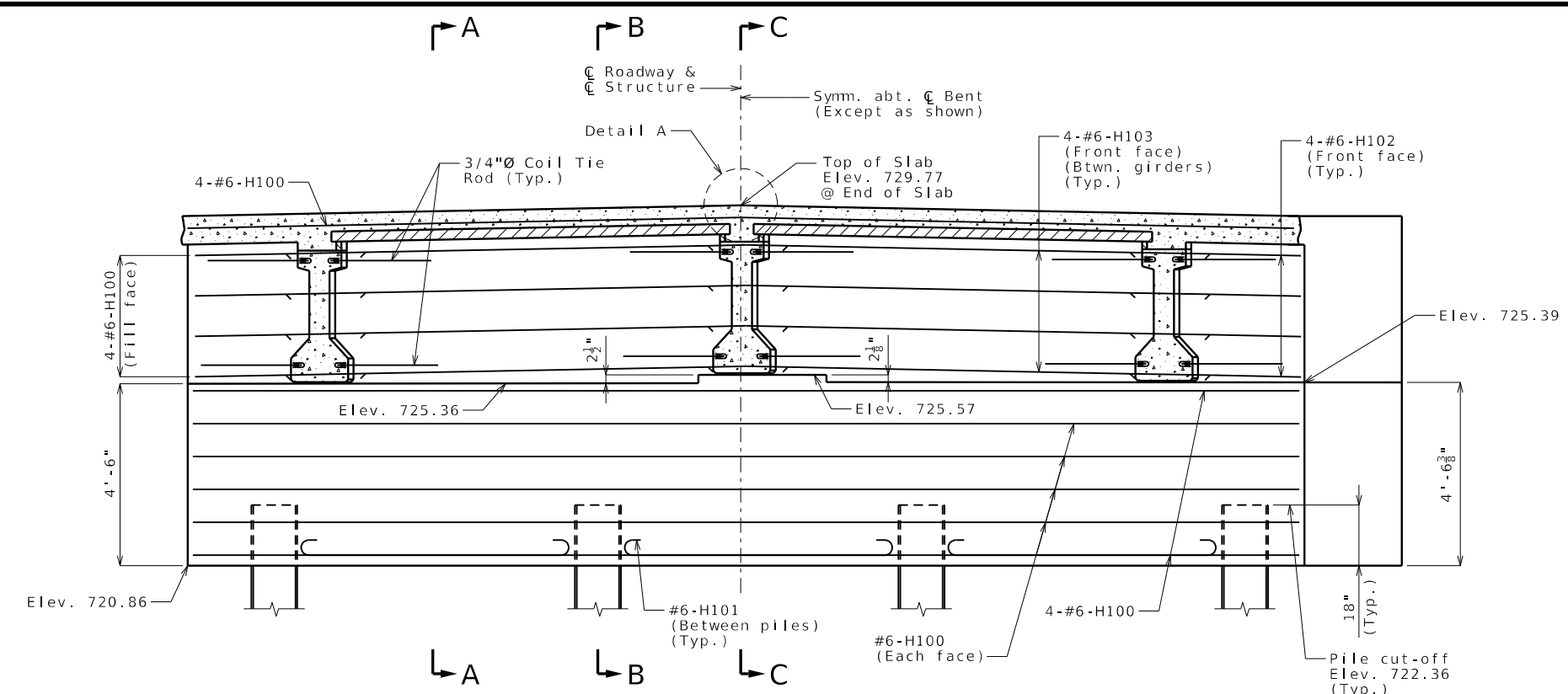
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

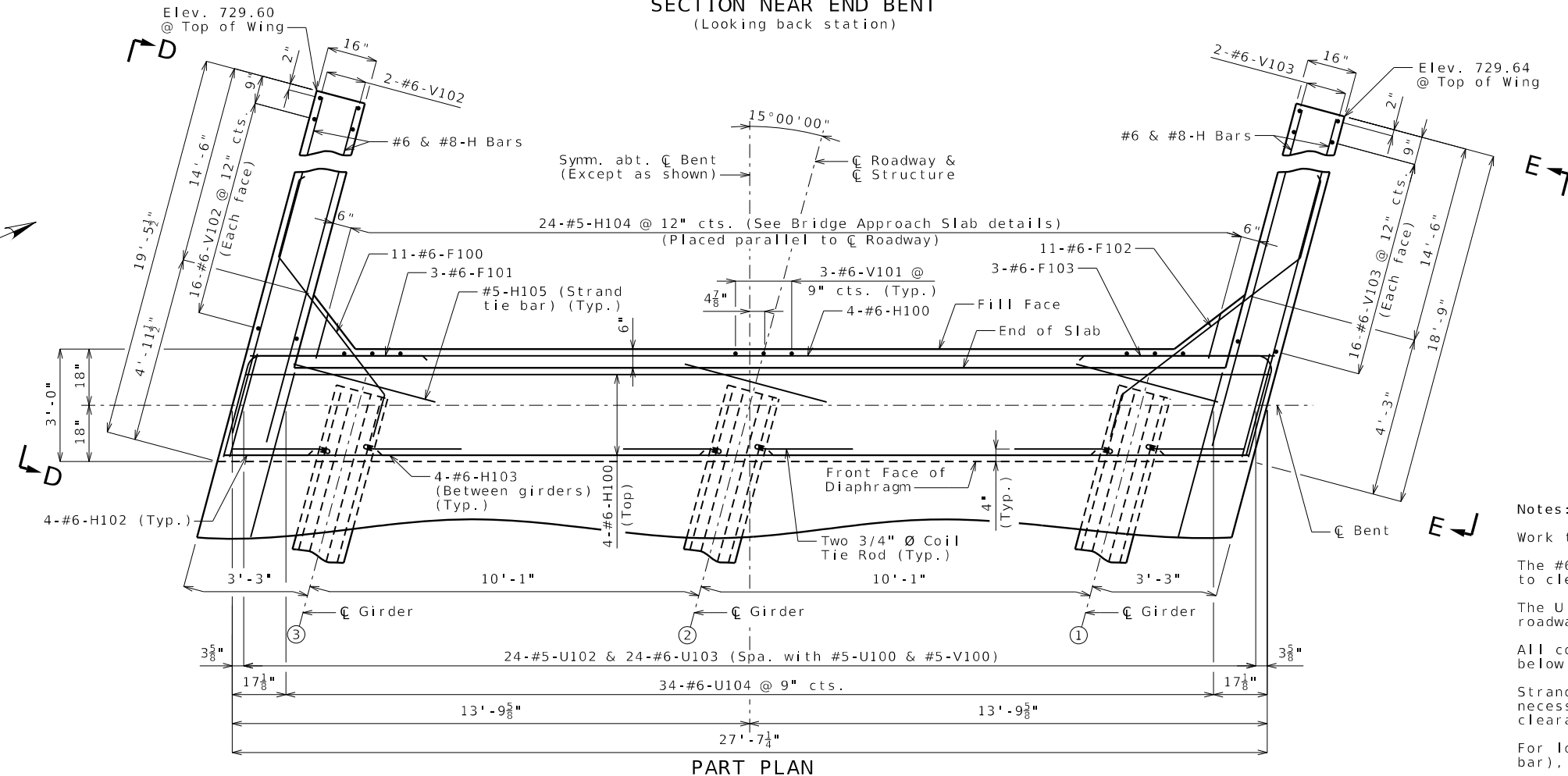
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

olsson
1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

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SECTION NEAR END BENT
(Looking back station)

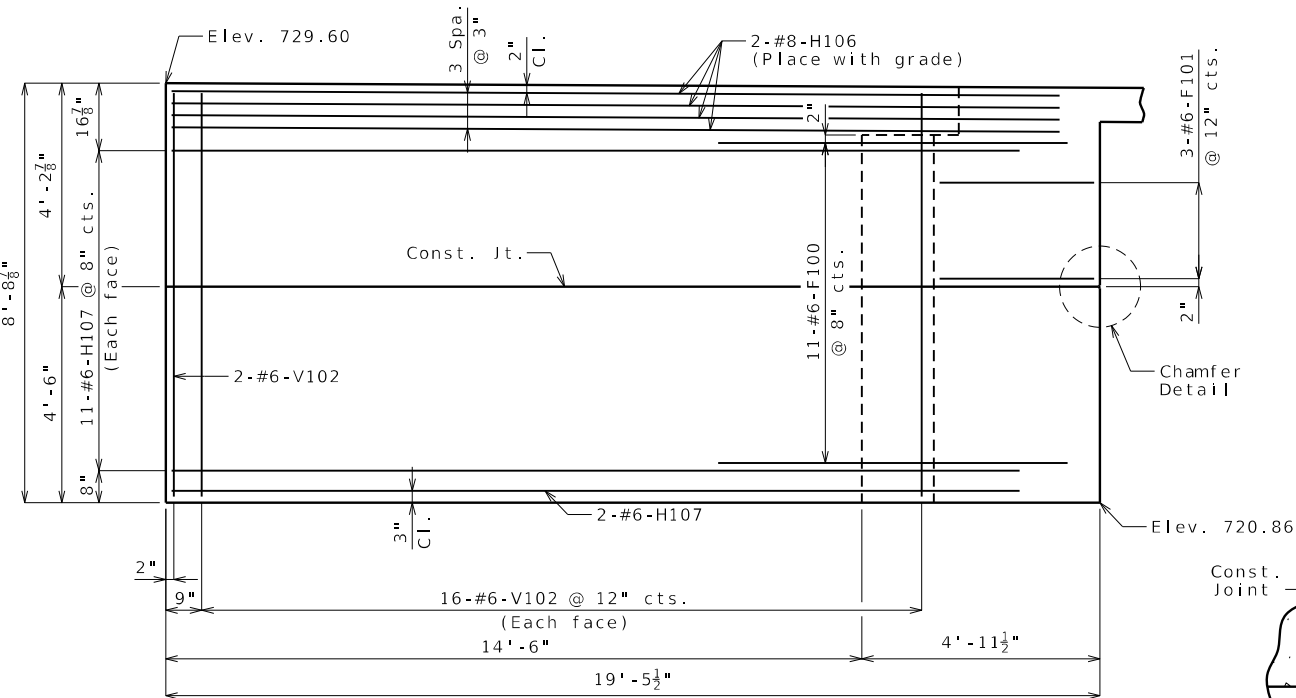


PART PLAN
DETAILS OF END BENT NO. 1

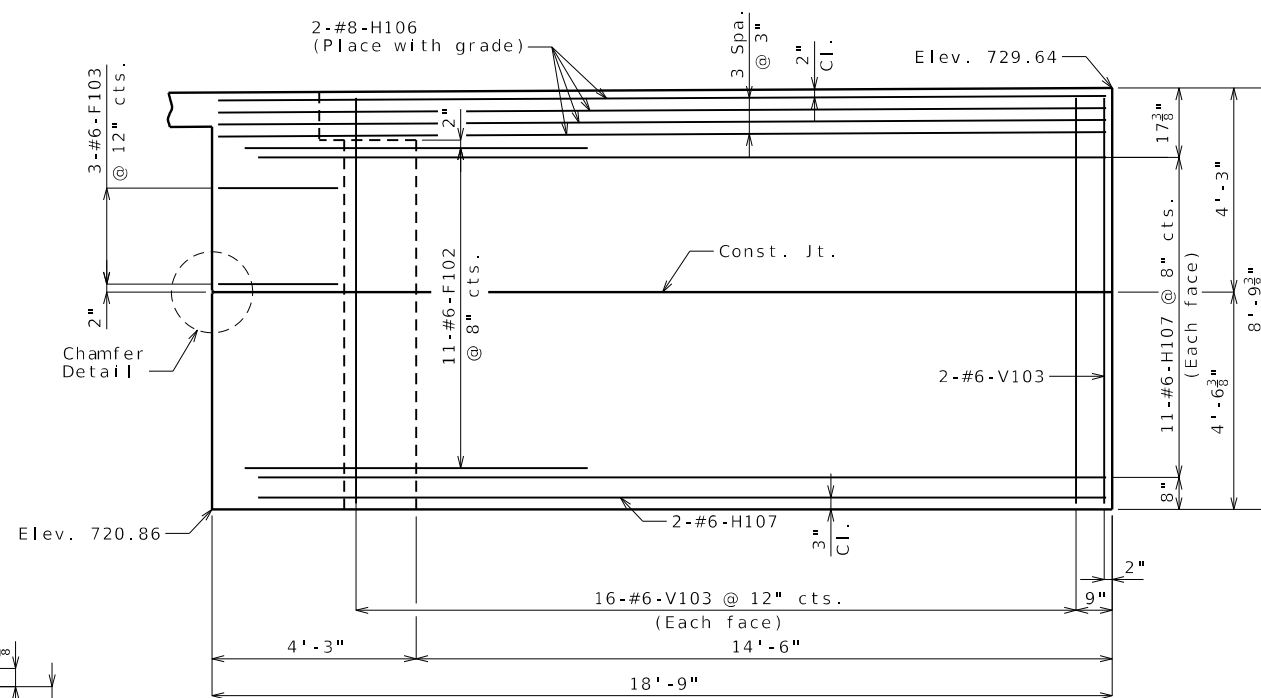
- Notes:
- Work this sheet with Sheets No. 3 & 5.
 - The #6-F100 and #6-F102 bars shall be bent in the field to clear girders.
 - The U bars shall be placed parallel to centerline of roadway.
 - All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
 - Strands at end of girders shall be field bent or, if necessary, cut in field to maintain 1/2 inch minimum clearance to fill face of end bent.
 - For locations of coil tie rods and #5-H105 (strand tie bar), see Sheet No. 10.
 - For details of vertical drain at end bents, see Sheet No. 6.
 - For details of bridge approach slab, see Sheet No. 19.

Detailed Sept. 2024
Checked Oct. 2024

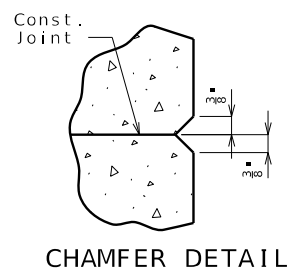
Note: This drawing is not to scale. Follow dimensions. Sheet No. 4 of 29



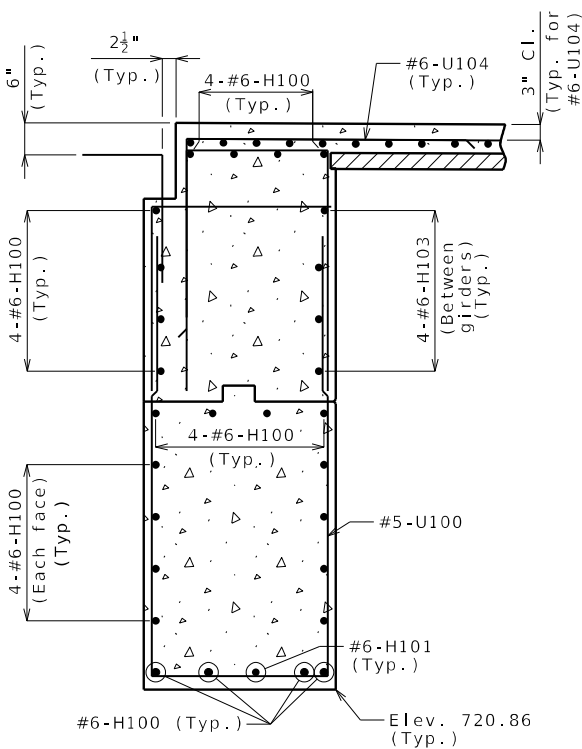
ELEVATION D-D



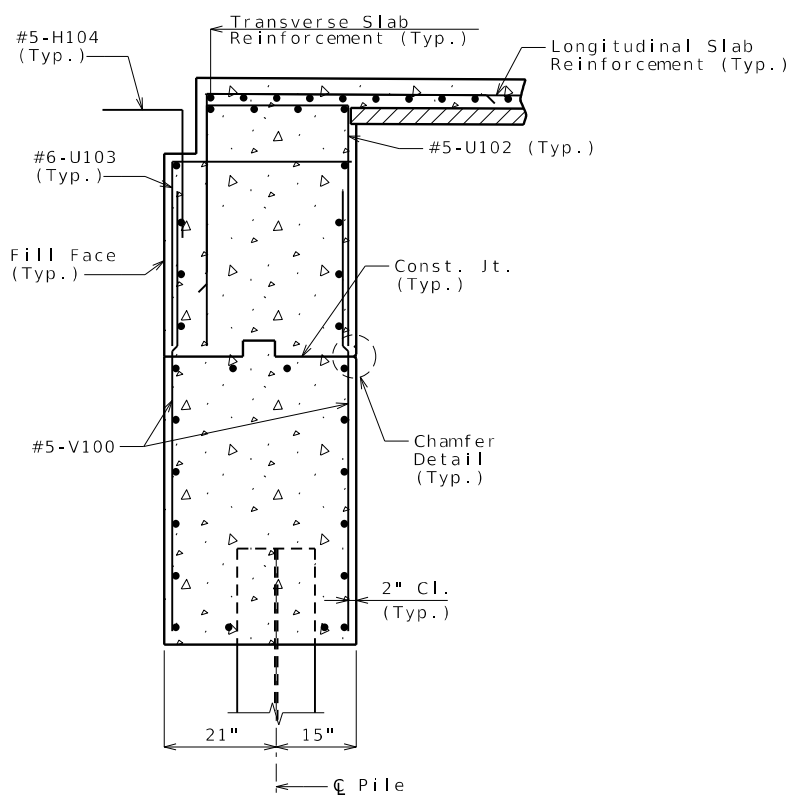
ELEVATION E-E



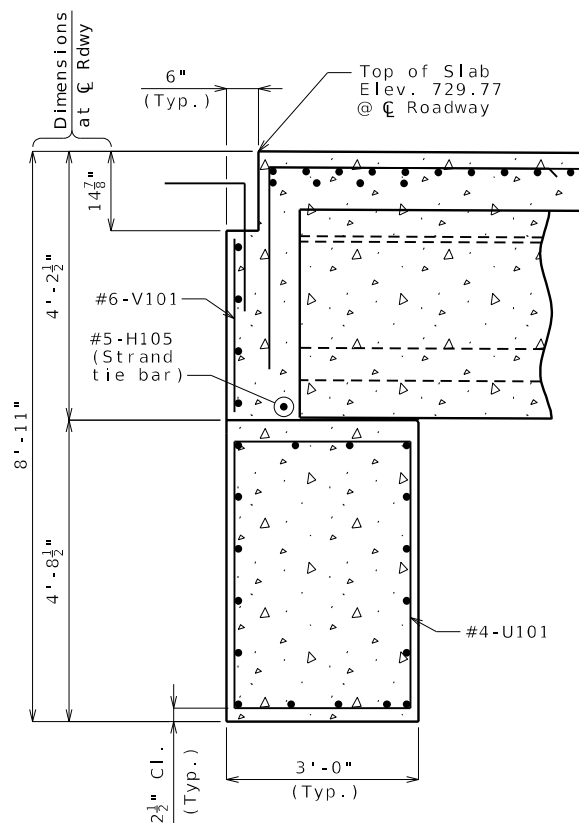
CHAMFER DETAIL



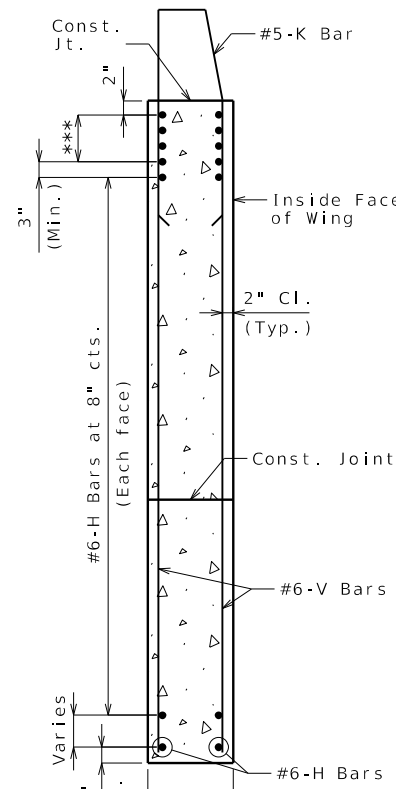
SECTION A-A



SECTION B-B



SECTION C-C

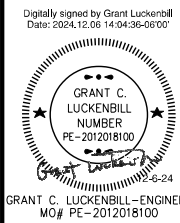


TYPICAL SECTION THRU WING

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

Notes:

Work this sheet with Sheets No. 3 & 4.
For reinforcement of the barrier, see Sheets No. 17 & 18.



DATE PREPARED
12/5/2024

ROUTE T STATE MO
DISTRICT BR SHEET NO. 5

COUNTY RAY
JOB NO. J3S3178
CONTRACT ID.

PROJECT NO.
BRIDGE NO. A9475

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Olsson
 1301 BURLINGTON STREET, STE. 100
 NORTH KANSAS CITY, MO 64116
 PHONE: 816.361.1177
 CERTIFICATE OF AUTHORITY NO. 001592

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Digitally signed by Grant Luckenbill
Date: 2024.12.06 14:03:32-0600

GRANT C. LUCKENBILL
NUMBER
PE-2012018100

GRANT C. LUCKENBILL-ENGINEER
MO# PE-2012018100

DATE PREPARED
12/5/2024

ROUTE T STATE MO

DISTRICT BR SHEET NO. 6

COUNTY
RAY

JOB NO.
J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9475

DATE	DESCRIPTION

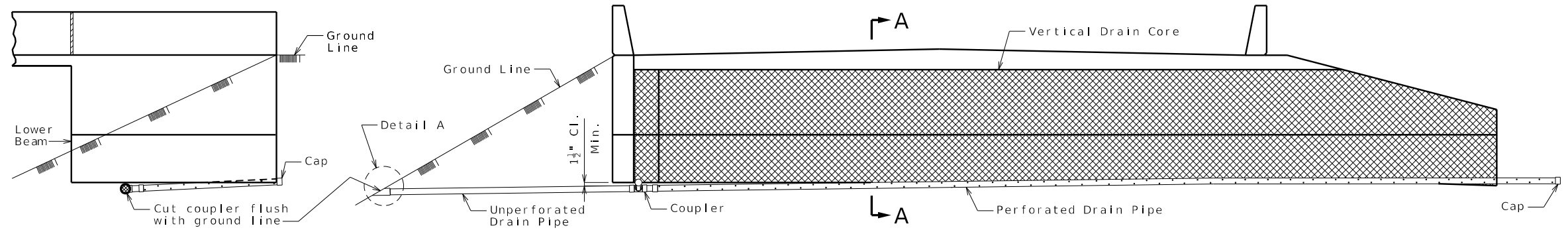
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COMMISSION

MoDOT

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

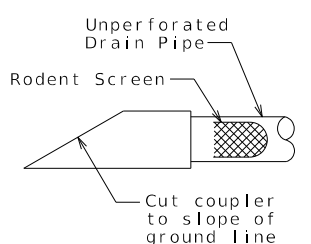
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1301 BURLINGTON STREET, STE. 100
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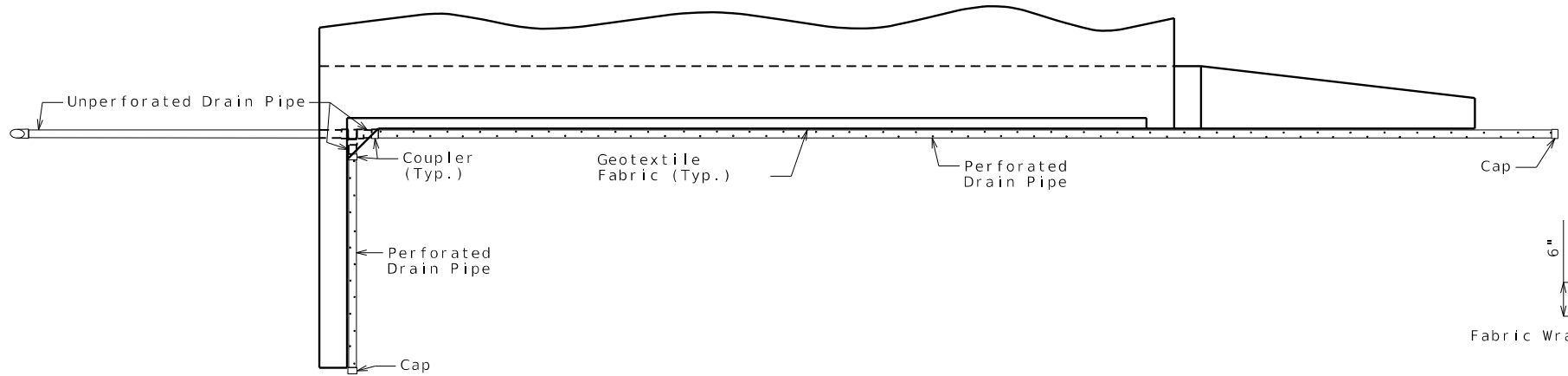


ELEVATION OF WING

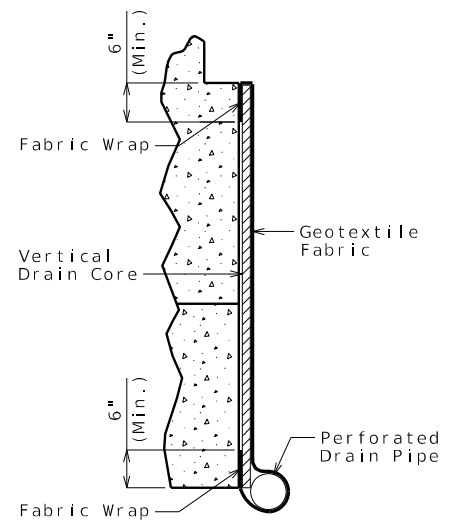
ELEVATION OF END BENT
(End Bent No. 2 shown, End Bent No. 1 similar)



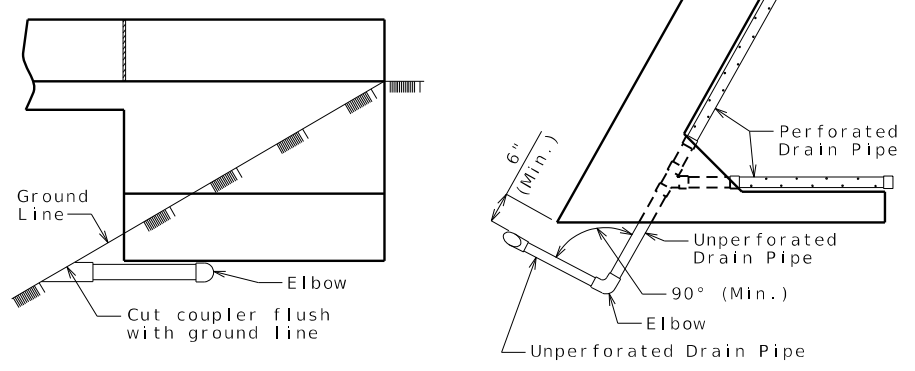
DETAIL A



PLAN OF END BENT
(End Bent No. 2 shown, End Bent No. 1 similar)



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING
PART PLAN
OPTIONAL TURNED DRAIN
(Use only when straight drain is not practical.)

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

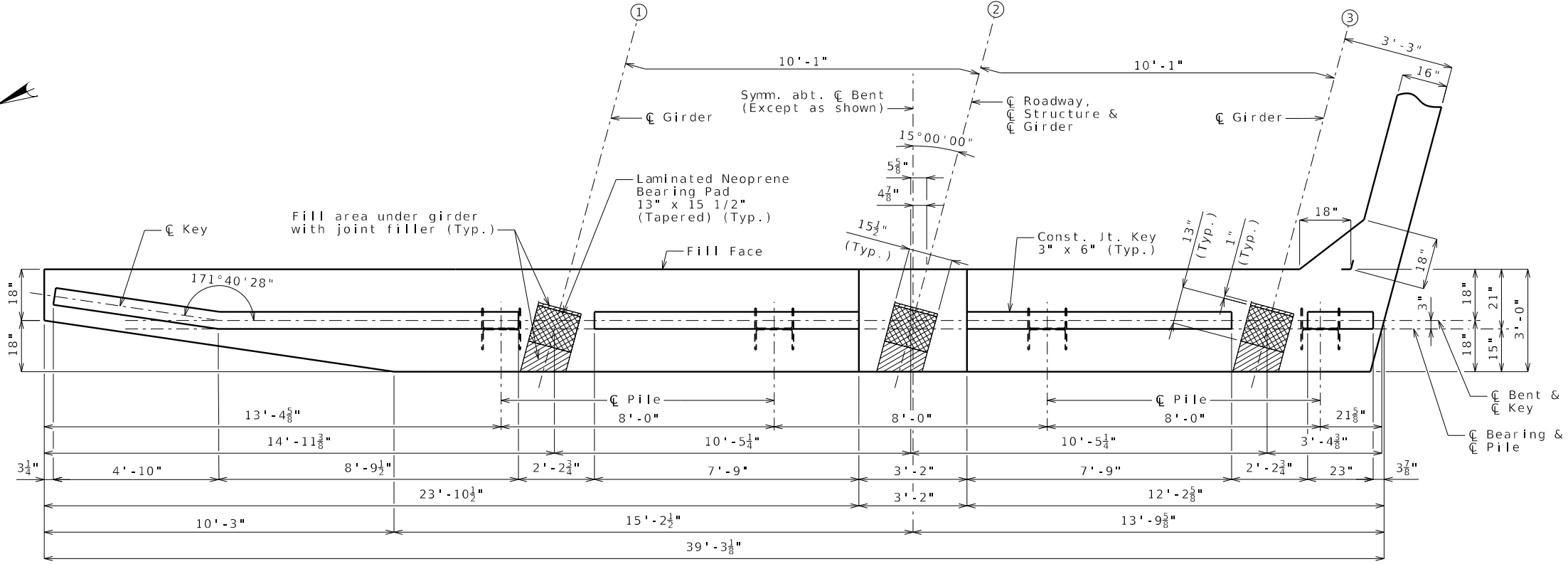
Perforated pipe shall be placed at fill face side and inside face of wings at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.

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

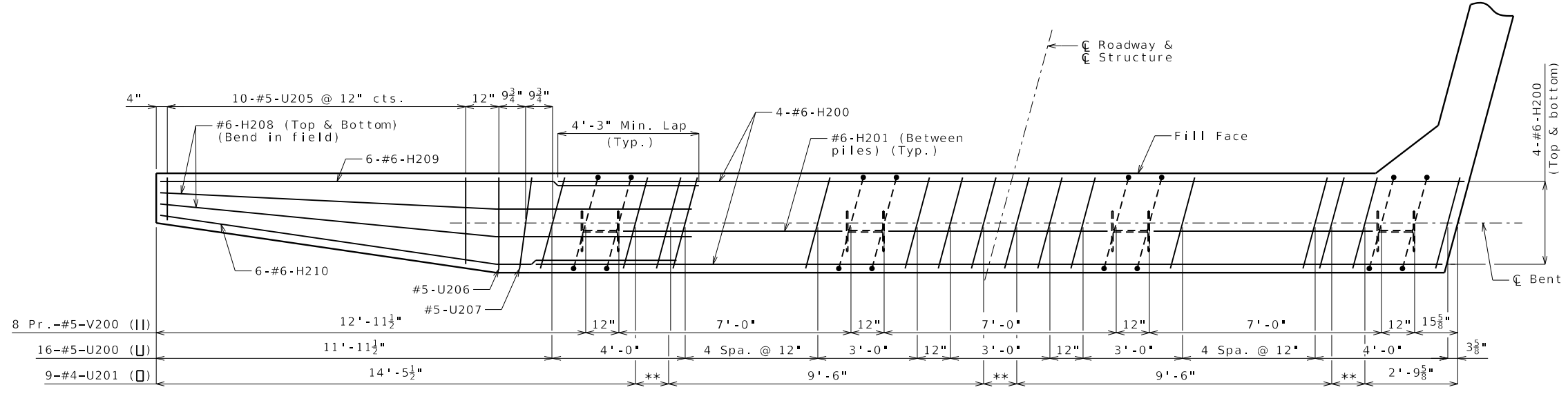
Detailed Sept. 2024
Checked Oct. 2024

Note: This drawing is not to scale. Follow dimensions. Sheet No. 6 of 29

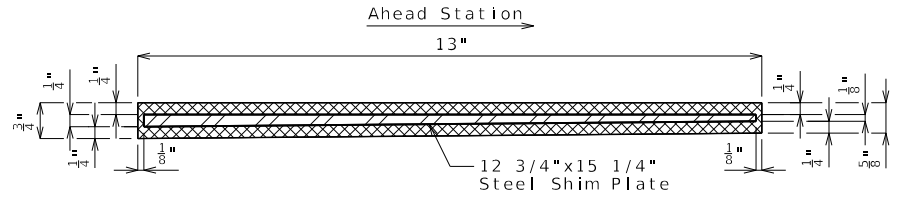
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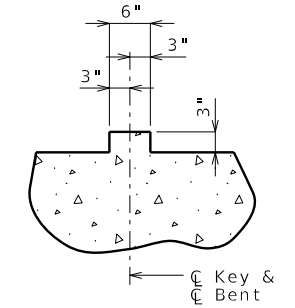
PLAN OF BEAM



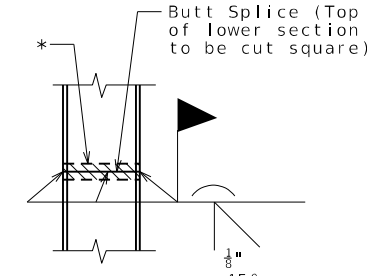
PLAN OF BEAM SHOWING REINFORCEMENT
(Keys and steps not shown for clarity)
** 2 Spa. @ 6"



SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)



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.

Notes:

Work this sheet with Sheets No. 8 & 9.

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

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

The #6-H208 bars shall be bent in the field to clear piles by at least 1 1/2 inches

Item	Quantity
Class 1 Excavation	cu. yard 40
Galvanized Structural Steel Piles (14 in.)	linear foot 112
Pile Point Reinforcement	each 4
Class B Concrete (Substructure)	cu. yard 22.3

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

Detailed Sept. 2024
Checked Oct. 2024

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

Sheet No. 7 of 29

DETAILS OF END BENT NO. 2

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Date: 2024.12.06 13:54:24-0600

GRANT C. LUCKENBILL-ENGINEER
MO# PE-2012018100

DATE PREPARED
12/5/2024

ROUTE T	STATE MO
DISTRICT BR	SHEET NO. 7
COUNTY RAY	
JOB NO. J3S3178	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9475	

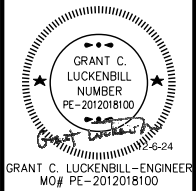
DATE	DESCRIPTION

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

olsson
1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

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ROUTE T STATE MO

DISTRICT BR SHEET NO. 8

COUNTY RAY

JOB NO. J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9475

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

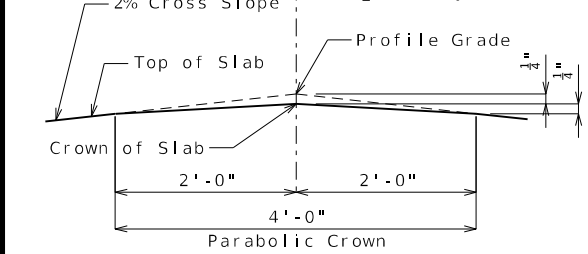
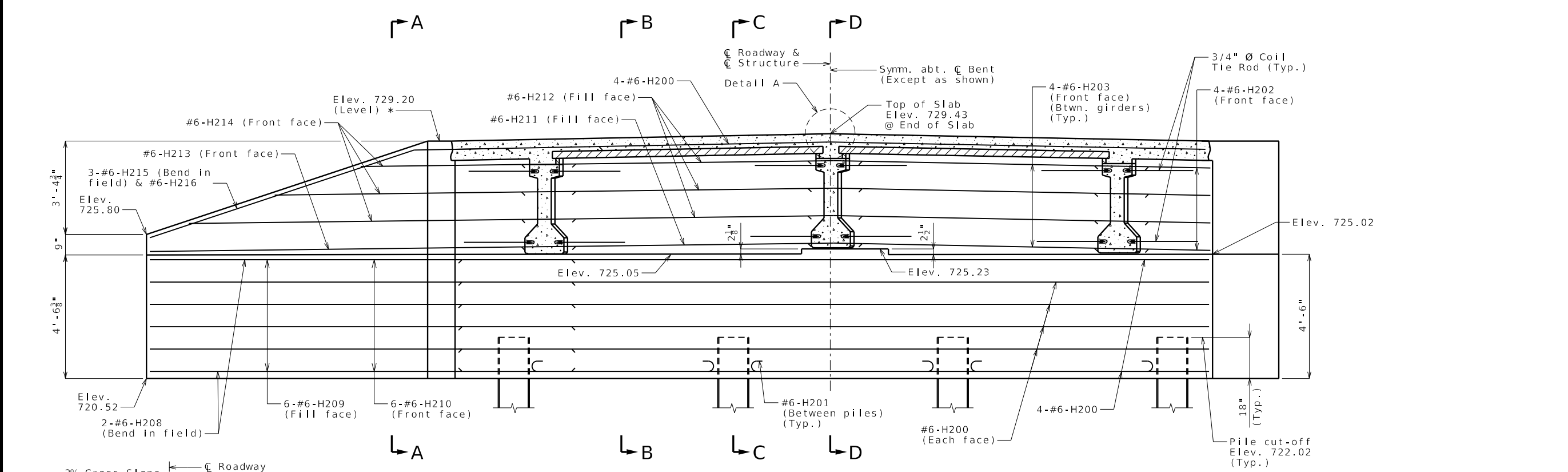
105 WEST CAPITOL JEFFERSON CITY, MO 65102
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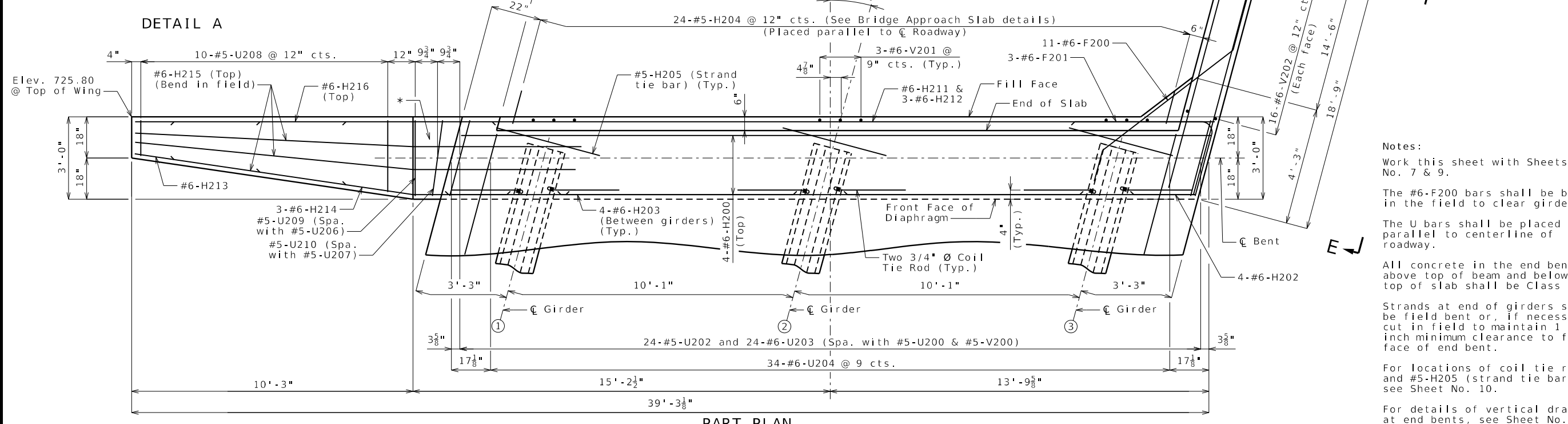
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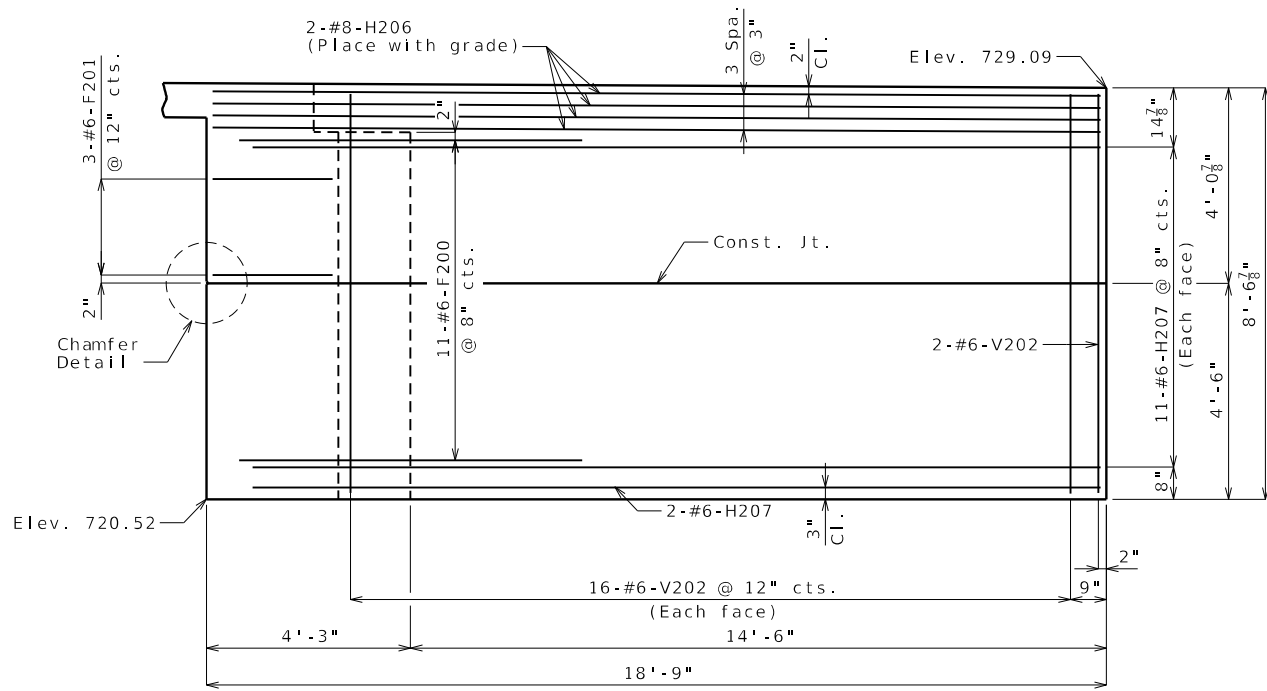
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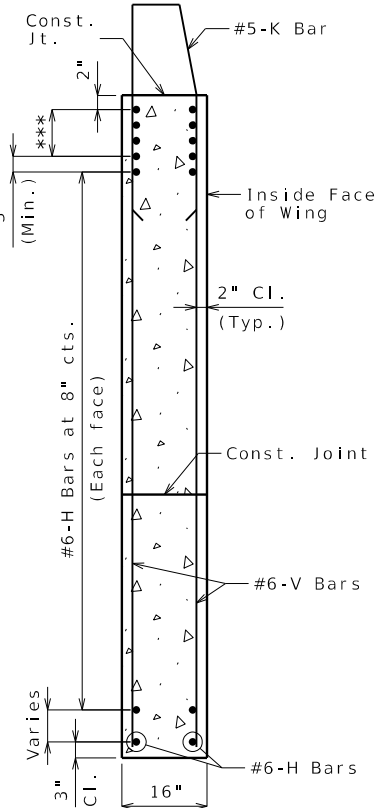
* Seal with Penetrating Concrete Sealer per Sec 703.3.8. Penetrating Concrete Sealer will be considered completely covered by the contract unit price for Class B Concrete (Substructure). No special measurement or payment will be made.



- Notes:
- Work this sheet with Sheets No. 7 & 9.
 - The #6-F200 bars shall be bent in the field to clear girders.
 - The U bars shall be placed parallel to centerline of roadway.
 - All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
 - Strands at end of girders shall be field bent or, if necessary, cut in field to maintain 1 1/2 inch minimum clearance to fill face of end bent.
 - For locations of coil tie rods and #5-H205 (strand tie bar), see Sheet No. 10.
 - For details of vertical drain at end bents, see Sheet No. 6.
 - For details of bridge approach slab, see Sheet No. 20.

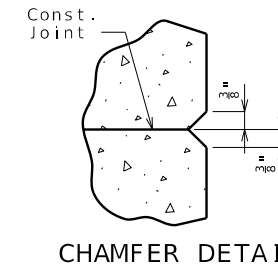


ELEVATION E-E

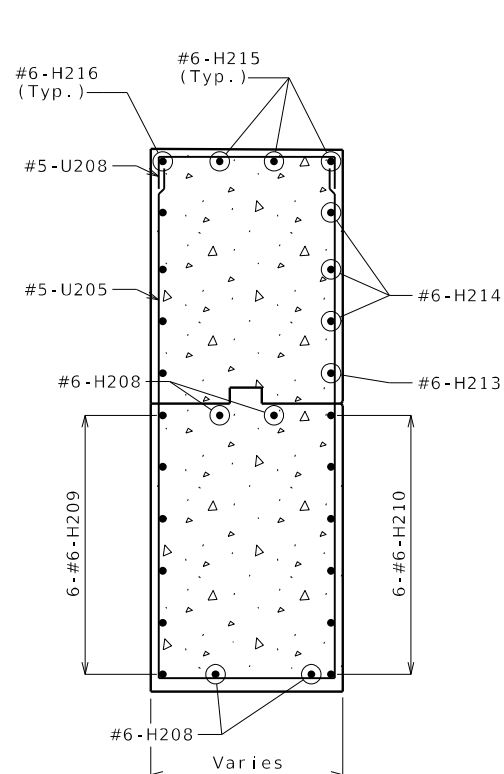


TYPICAL SECTION THRU WING

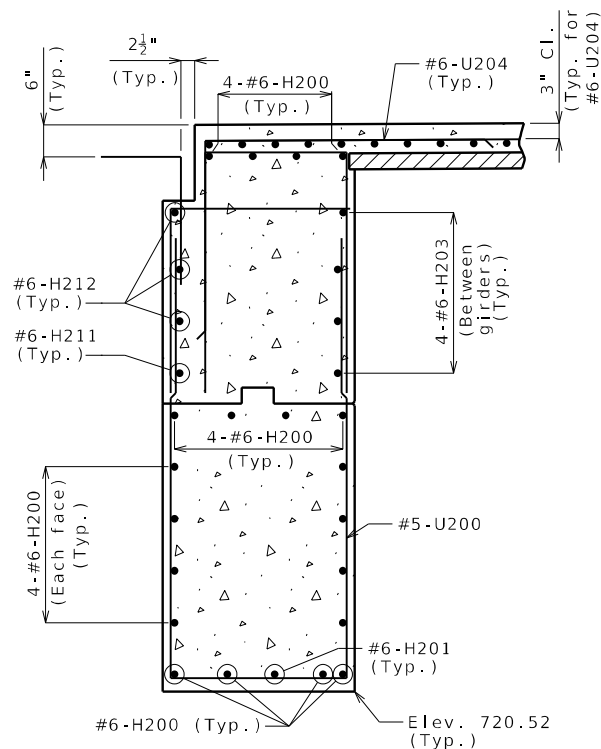
*** #8-H Bars at 3" cts. (Each face) (Place with grade)



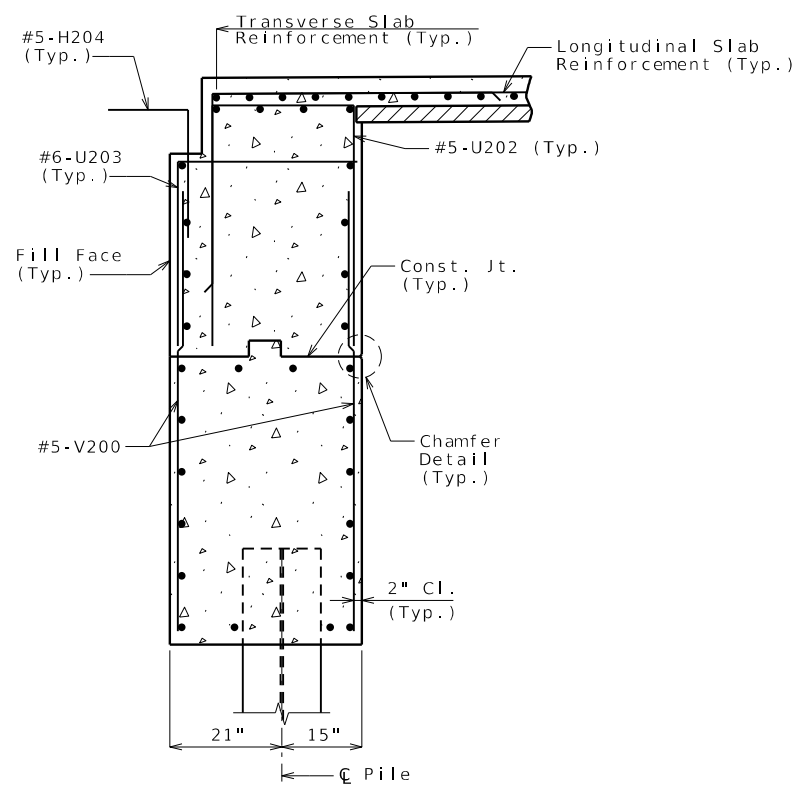
CHAMFER DETAIL



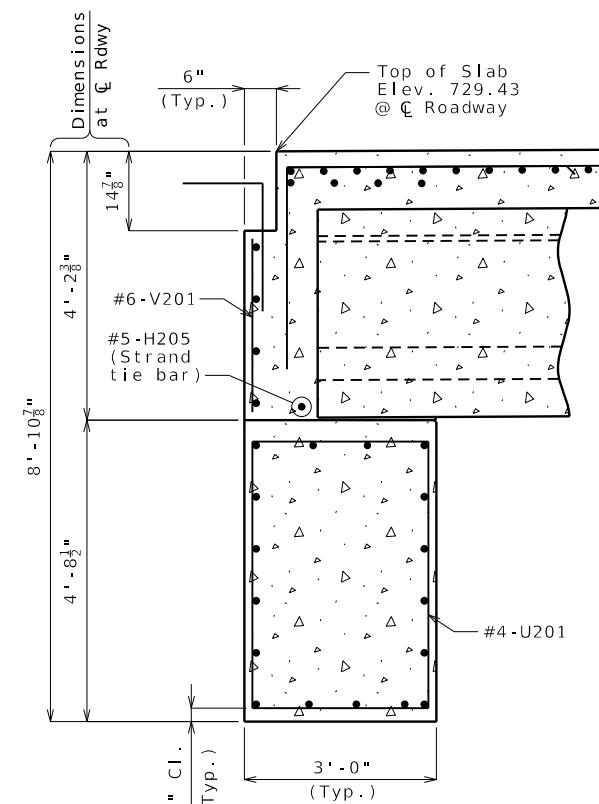
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

Notes:
Work this sheet with Sheets No. 7 & 8.
For reinforcement of the barrier, see Sheets No. 17 & 18.

DETAILS OF END BENT NO. 2

Detailed Sept. 2024
Checked Oct. 2024

Note: This drawing is not to scale. Follow dimensions. Sheet No. 9 of 29

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GRANT C. LUCKENBILL-ENGINEER
MO# PE-2012018100

DATE PREPARED 12/5/2024	
ROUTE T	STATE MO
DISTRICT BR	SHEET NO. 9
COUNTY RAY	
JOB NO. J353178	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9475	
DESCRIPTION	DATE
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	

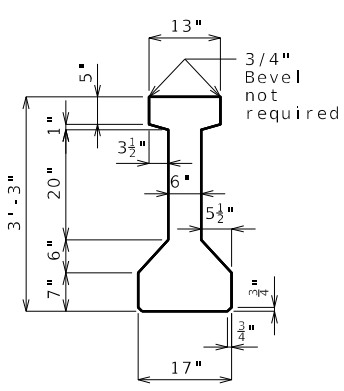
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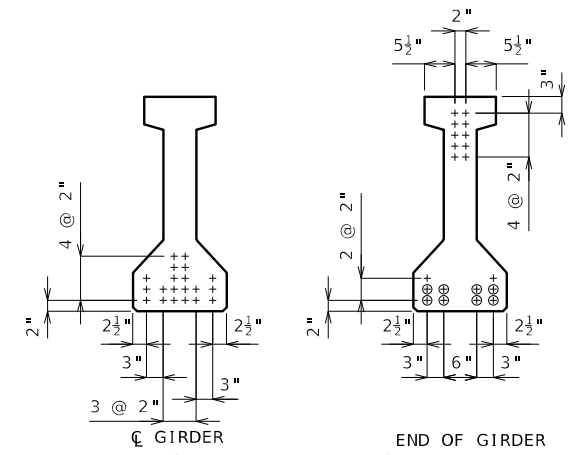
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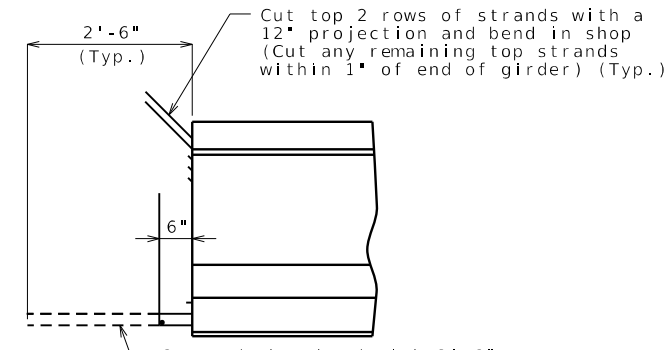


DIMENSIONS



STRAND ARRANGEMENT

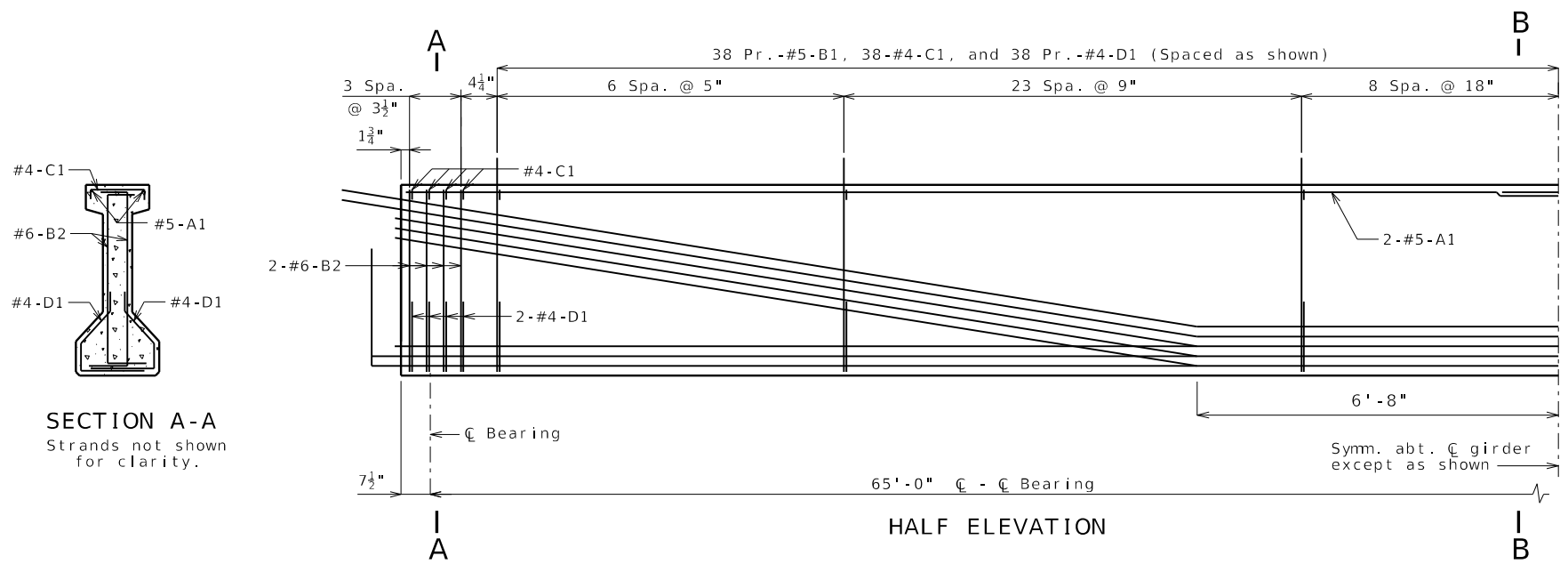
+ Indicates prestressing strand. ○ Indicates cut & shop bend with 2'-6" projection.



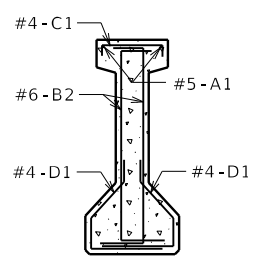
STRANDS AT GIRDER ENDS

BILL OF REINFORCING STEEL - EACH GIRDER				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
4	5 A1	34'-4"	20	
150	5 B1	4'-8"	11S	
16	6 B2	4'-0"	11S	
83	4 C1	13"	10S	
166	4 D1	2'-5"	9S	

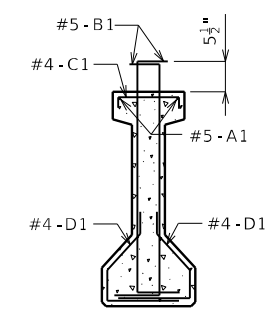
All dimensions are out to out.
 Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.
 Actual lengths are measured along centerline of bar to the nearest inch.
 Minimum clearance to reinforcing shall be one inch.
 All 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.



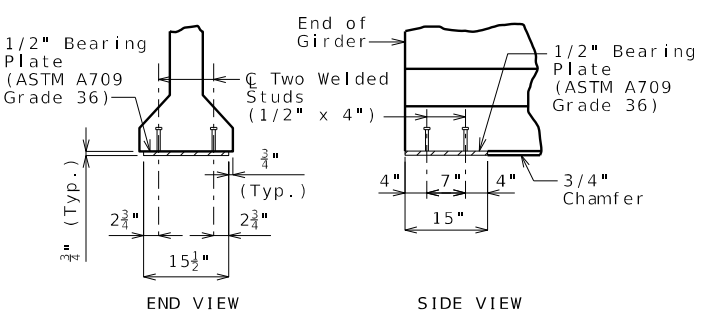
HALF ELEVATION



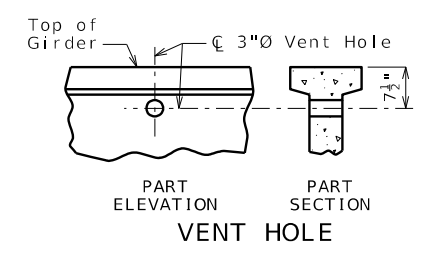
SECTION A-A
Strands not shown for clarity.



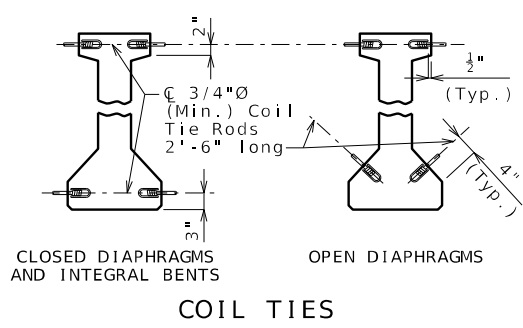
SECTION B-B
Strands not shown for clarity.



BEARING PLATE



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

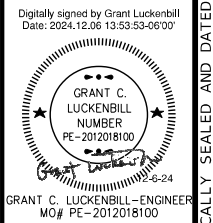


COIL TIES

General Notes:
 Concrete for prestressed girders shall be Class A-1 with $f'c = 8,000$ psi and $f'ci = 6,500$ psi.
 Use 20 strands, 0.6"Ø Grade 270, with an initial prestress force of 879 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: holes for steel intermediate diaphragms.
 For Girder Camber Diagram, see Sheet No. 13.
 The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheet No. 11.
 For location of coil ties at concrete bent diaphragms, see Sheets No. 4 & 8.

I-GIRDERS - SPAN (1-2)

Note: This drawing is not to scale. Follow dimensions. Sheet No. 10 of 29



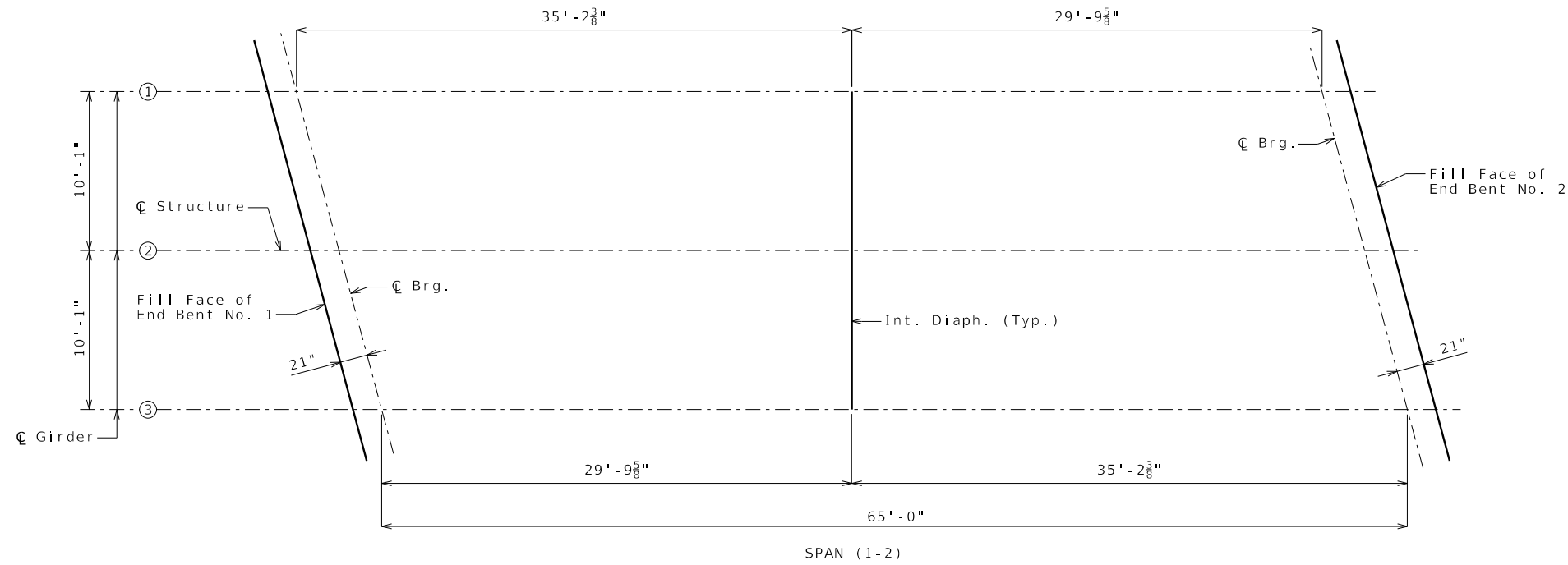
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 DATE PREPARED: 12/5/2024
 ROUTE: T STATE: MO
 DISTRICT: BR SHEET NO.: 10
 COUNTY: RAY
 JOB NO.: J3S3178
 CONTRACT ID.:
 PROJECT NO.:
 BRIDGE NO.: A9475

DATE	DESCRIPTION

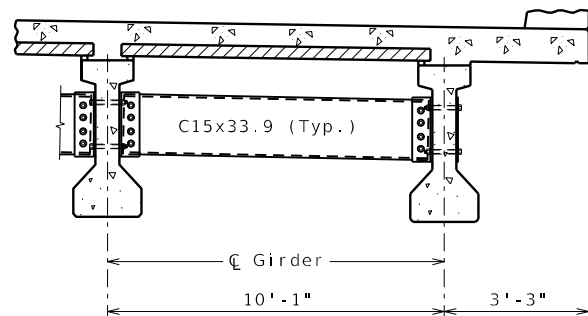
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 NORTH KANSAS CITY, MO 64116
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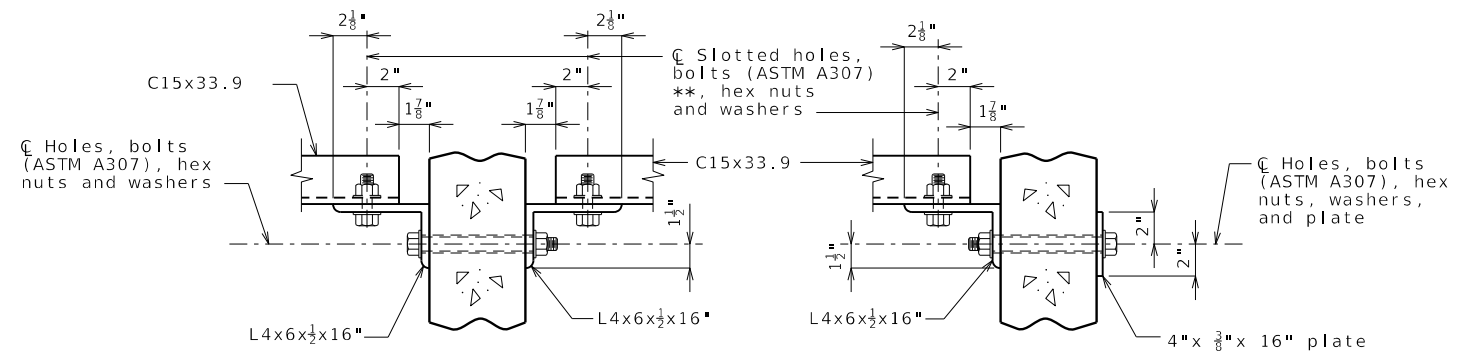
Detailed Sept. 2024
 Checked Oct. 2024



PLAN SHOWING LOCATION OF STEEL INTERMEDIATE DIAPHRAGMS
Longitudinal dimensions are horizontal.



PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS

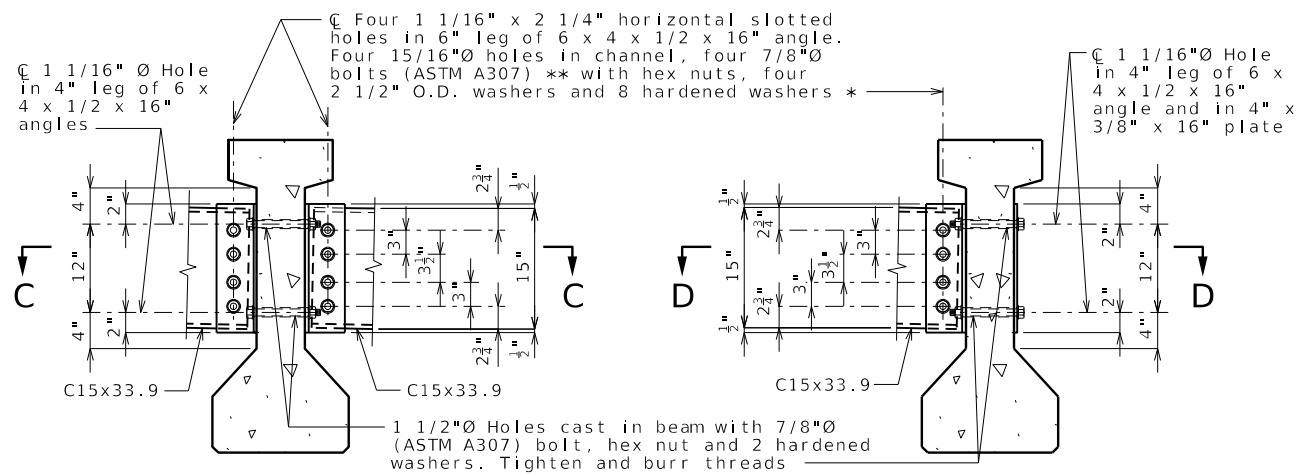


SECTION C-C

SECTION D-D

STEEL DIAPHRAGM NOTES:

- * In lieu of 2 1/2" outside diameter washers, contractor may substitute a 3/16" (Min. thickness) plate with four 15/16" Ø holes and one hardened washer per bolt.
 - ** Bolts shall be tightened to provide a tension of one-half that specified in Sec 712 for high strength bolt installation. ASTM F3125 Grade A325 Type 1 bolts may be substituted for and installed in accordance with the requirements for the specified ASTM A307 bolts.
- All diaphragm materials including bolts, nuts, and washers shall be galvanized.
- Fabricated structural steel shall be ASTM A709 Grade 36 except as noted.
- Payment for furnishing and installing steel intermediate diaphragms will be considered completely covered by the contract unit price for Steel Intermediate Diaphragm for P/S Concrete Girders.
- Shop drawings will not be required for steel intermediate diaphragms and angle connections.



SECTION THRU INT. GIRDER AT DIAPHRAGM

SECTION THRU EXT. GIRDER AT DIAPHRAGM

STEEL INTERMEDIATE DIAPHRAGMS

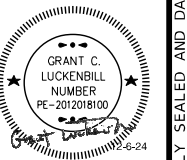
Detailed Sept. 2024
Checked Oct. 2024

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

Sheet No. 11 of 29

\\oa.ad.oaconsulting.com\fnfs-ns1\projects\2022\03001-03500\022-03482\40-Design\Microstation\J353178\plan_sheets\16 Bridge Sheets\B_A9475_J353178_011_STEEL INTERMEDIATE DIAPHRAGMS.dgn 11:21:12 AM 12/5/2024

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Date: 2024.12.06 13:55:58-0600



GRANT C. LUCKENBILL-ENGINEER
MO# PE-2012018100

DATE PREPARED
12/5/2024

ROUTE STATE
T MO

DISTRICT SHEET NO.
BR 11

COUNTY
RAY

JOB NO.
J353178

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9475

DESCRIPTION

DATE

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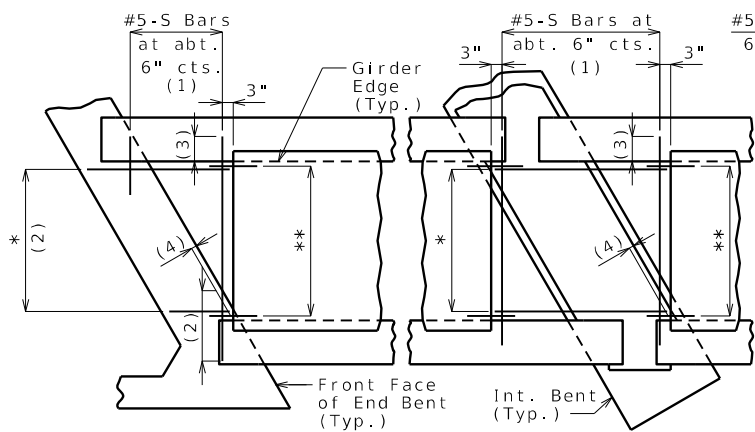
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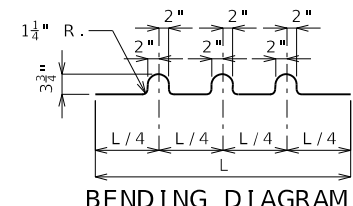
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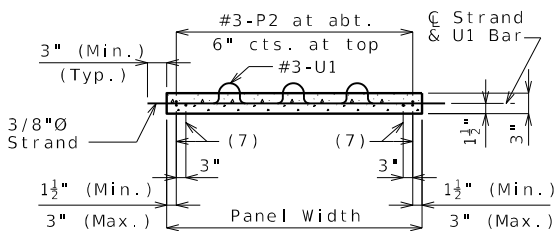


SQUARED END PANELS OR TRUNCATED END PANELS
 PLAN SHOWING PANEL PLACEMENT

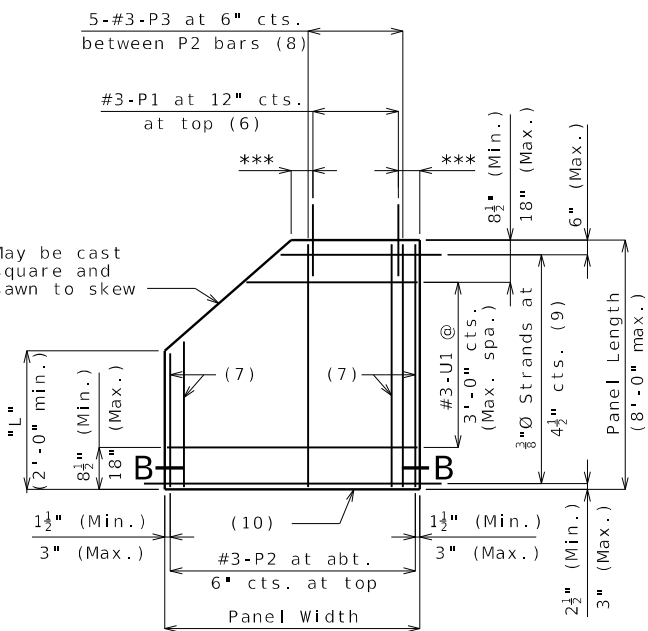
* #5-S Bars at abt. 9" cts. (1)
 ** #3-P1 at 12" cts. (End panels only)



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

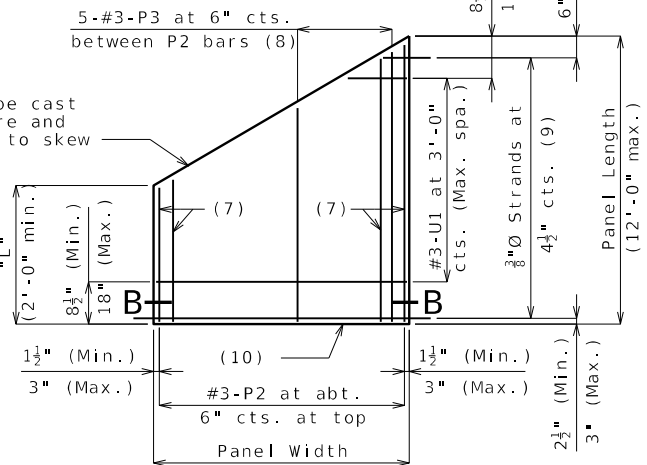


SECTION B-B

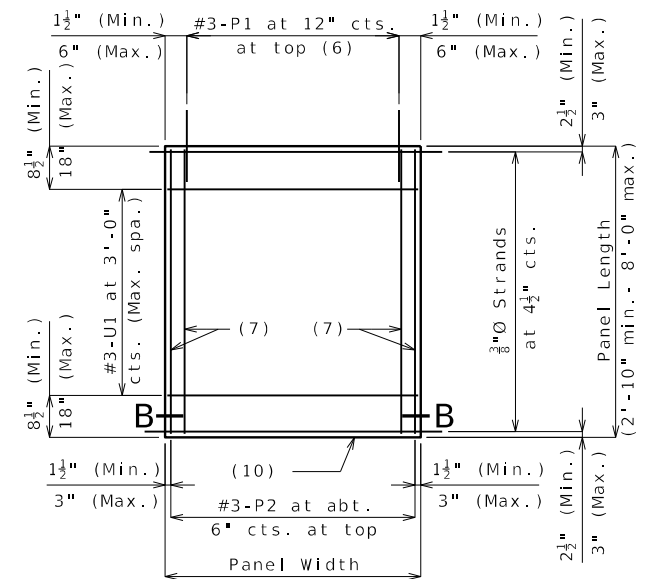


PLAN OF OPTIONAL TRUNCATED END PANEL

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



PLAN OF OPTIONAL SKEWED END PANEL



PLAN OF SQUARED PANEL

PRESTRESSED PANELS

Detailed Sept. 2024
 Checked Oct. 2024

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

Sheet No. 12 of 29

General Notes:

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

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

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

Initial prestressing force = 17.2 kips/strand.

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

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

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

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

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

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

Reinforcing Steel:
 All dimensions are out to out.

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

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

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

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

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

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

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

All reinforcement other than prestressing strands shall be epoxy coated.

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

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

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

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

Use Slab Haunching Diagram on Sheet No. 13 for determining thickness of joint filler within the limits noted in the table of Joint Filler Dimensions.

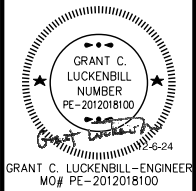
Thicker material may be used on one or both sides of the girder to reduce cast-in-place concrete thickness to within tolerances.

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

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

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

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 Date: 2024.12.06 13:55:03-0600'



DATE PREPARED 12/5/2024	
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DISTRICT BR	SHEET NO. 12
COUNTY RAY	
JOB NO. J353178	
CONTRACT ID.	

PROJECT NO.	
BRIDGE NO. A9475	

DESCRIPTION	DATE

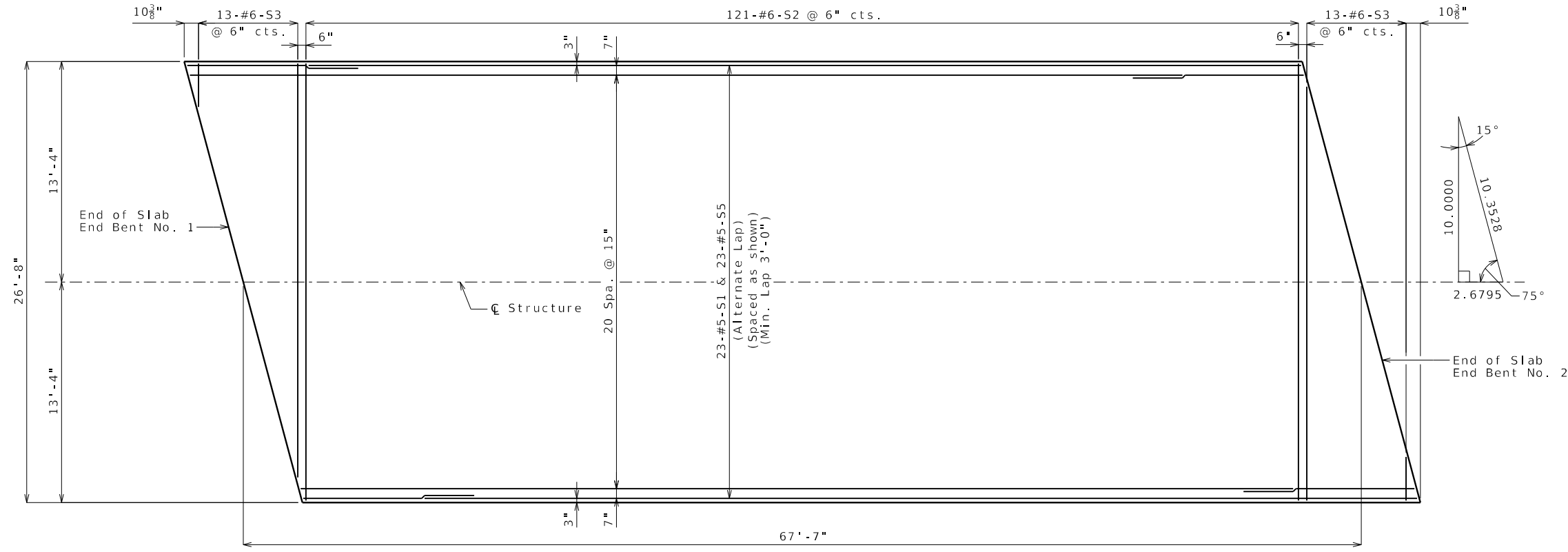
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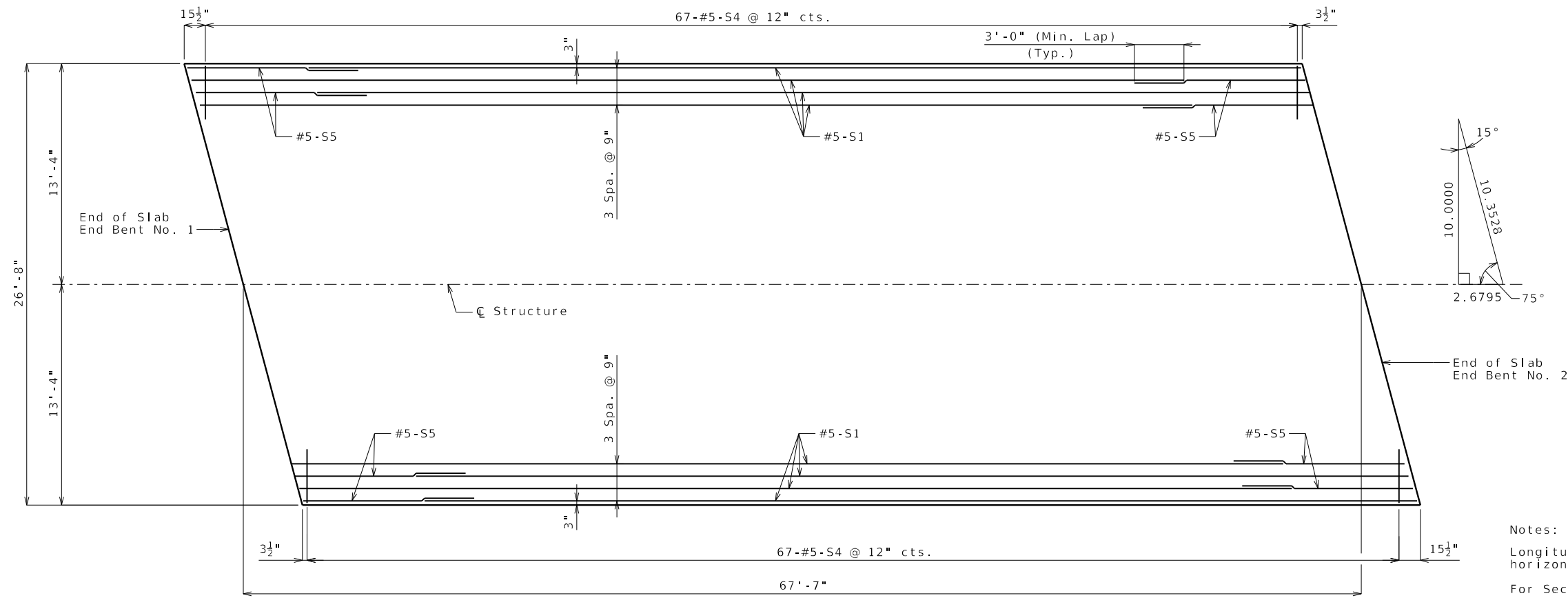
Olsson

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



SPAN (1-2)
TOP REINFORCEMENT



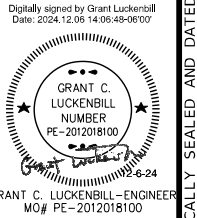
SPAN (1-2)
BOTTOM REINFORCEMENT

PLAN OF SLAB SHOWING REINFORCEMENT

Notes:
 Longitudinal dimensions shown are measured horizontally.
 For Section Thru Slab, see Sheet No. 15.
 For Type H Barrier details not shown, see Sheets No. 16 thru 18.
 For Theoretical Slab Haunching Diagram, Beam Camber Diagram and Theoretical Bottom of Slab Elevations, see Sheet No. 13.
 For Details of Prestressed Panels, see Sheet No. 12.

Detailed Sept. 2024
 Checked Oct. 2024

Note: This drawing is not to scale. Follow dimensions. Sheet No. 14 of 29



DATE PREPARED 12/5/2024	
ROUTE T	STATE MO
DISTRICT BR	SHEET NO. 14
COUNTY RAY	
JOB NO. J3S3178	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9475	

DESCRIPTION	DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

1301 BURLINGTON STREET, STE. 100
 NORTH KANSAS CITY, MO 64116
 PHONE: 816.361.1177
 CERTIFICATE OF AUTHORITY NO. 001592

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

Digitally signed by Grant Luckenbill
Date: 2024.12.06 13:56:17-0600'

GRANT C. LUCKENBILL
NUMBER
PE-2012018100

GRANT C. LUCKENBILL-ENGINEER
MO# PE-2012018100

DATE PREPARED
12/5/2024

ROUTE STATE
T MO

DISTRICT SHEET NO.
BR 15

COUNTY
RAY

JOB NO.
J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9475

DATE	DESCRIPTION

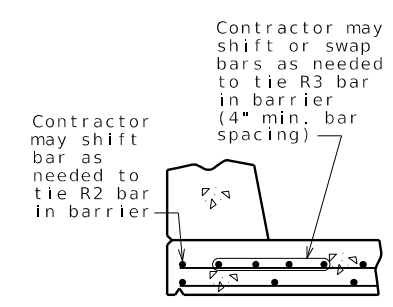
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

MoDOT

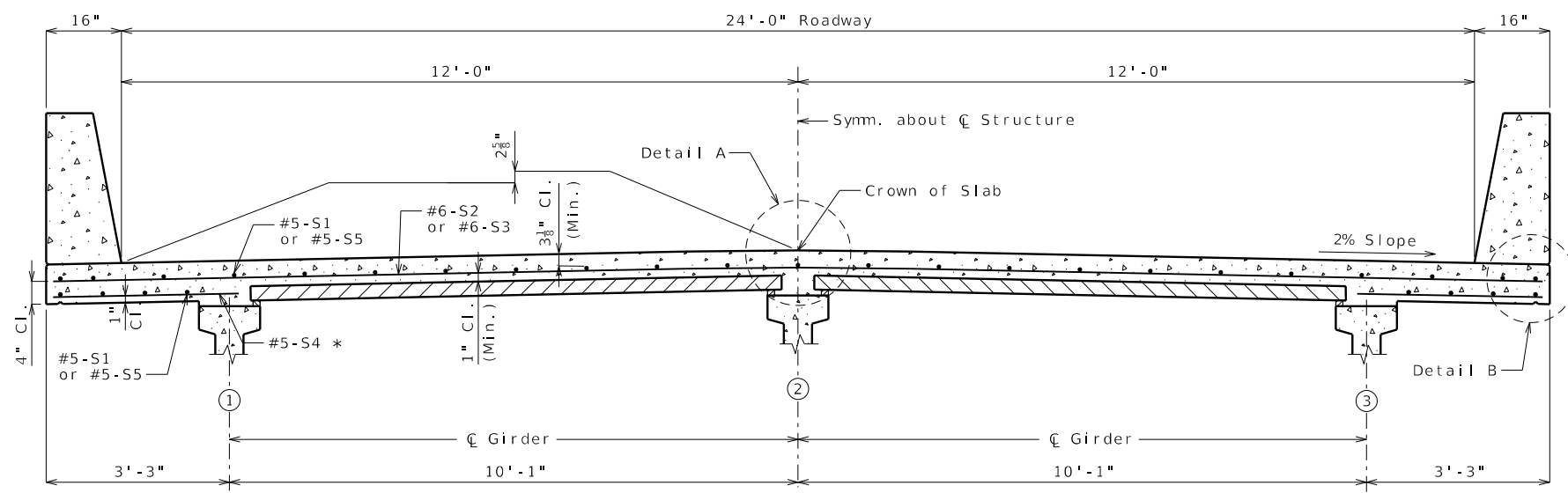
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

olsson

1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

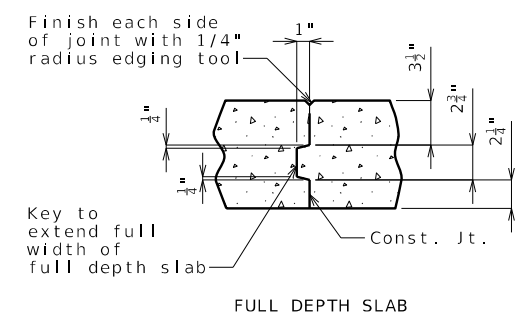


OPTIONAL SHIFTING TOP BARS AT BARRIER

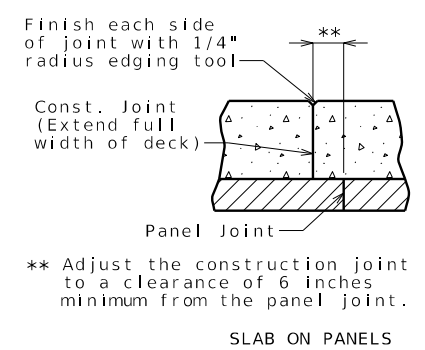


SECTION THRU SLAB

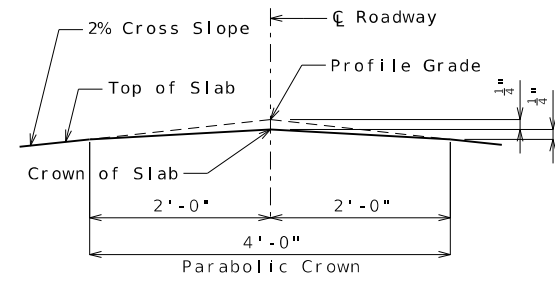
* Alternate bar shape available, see barrier sheet.



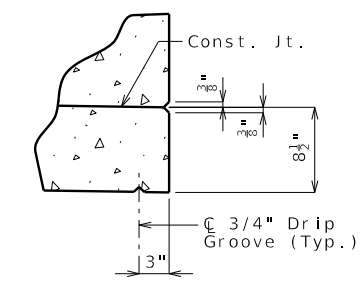
FULL DEPTH SLAB
SLAB CONSTRUCTION JOINT



SLAB ON PANELS



DETAIL A



DETAIL B

SLAB DETAILS

Notes:

For details of precast prestressed panels, see Sheet No. 12.

For reinforcement of barrier not shown, see Sheet No. 16.

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

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

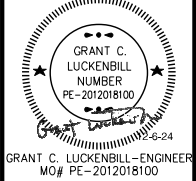
The Contractor shall pour up grade and satisfactorily finish the roadway slab at a rate not less than 25 cubic yards per hour.

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

Detailed Sept. 2024
Checked Oct. 2024

Note: This drawing is not to scale. Follow dimensions. Sheet No. 15 of 29

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



DATE PREPARED
12/5/2024

ROUTE T STATE MO

DISTRICT BR SHEET NO. 17

COUNTY RAY

JOB NO. J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9475

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

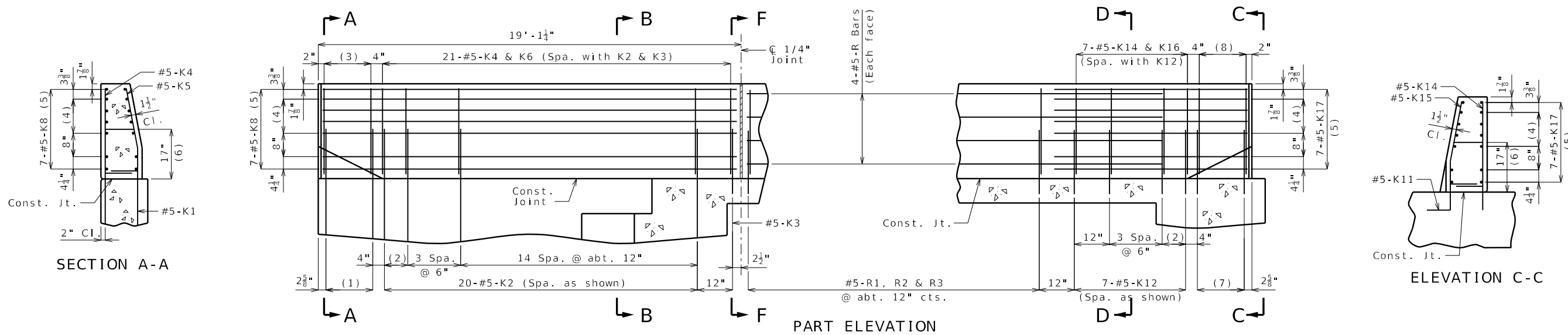
1-888-ASK-MODOT (1-888-275-6636)

1301 BURLINGTON STREET, STE. 100 NORTH KANSAS CITY, MO 64116

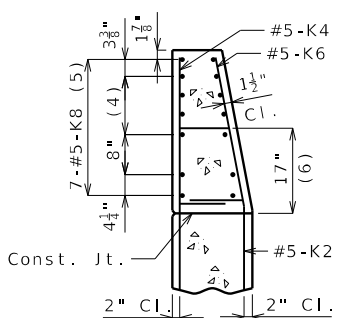
PHONE: 816.361.1177

CERTIFICATE OF AUTHORITY NO. 001592

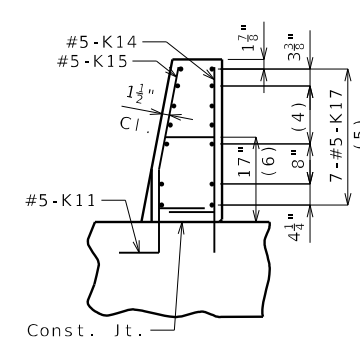
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



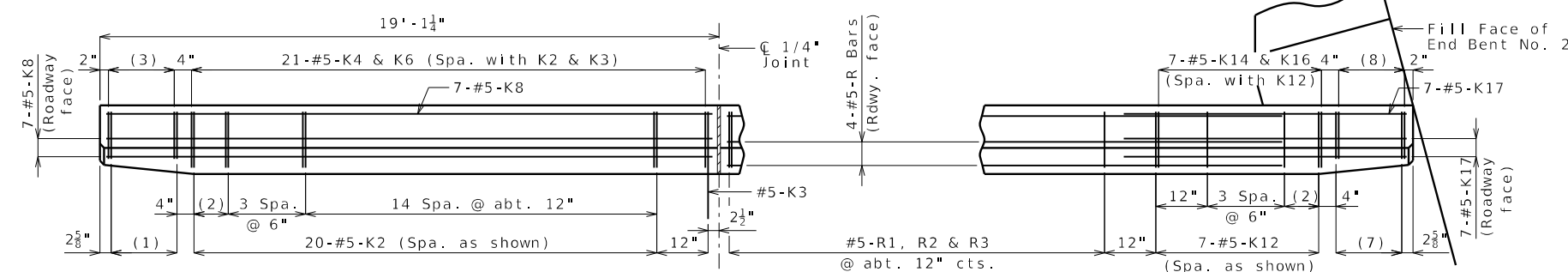
- (1) 5-#5-K1 @ 4" cts.
- (2) 2 Spaces @ 4"
- (3) 5-#5-K4 and 5-#5-K5, spaced with K1
- (4) 3 Spaces @ 3 1/8"
- (5) Spaced as shown, each face
- (6) To top of bar
- (7) 5-#5-K11 @ 4" cts.
- (8) 5-#5-K14 and 5-#5-K15, spaced with K11



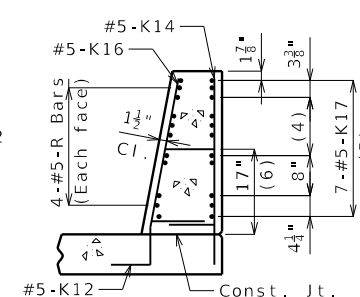
SECTION A-A



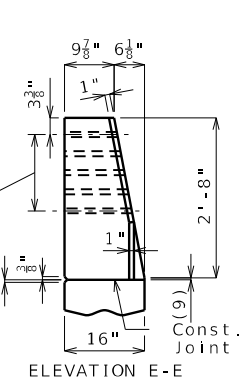
ELEVATION C-C



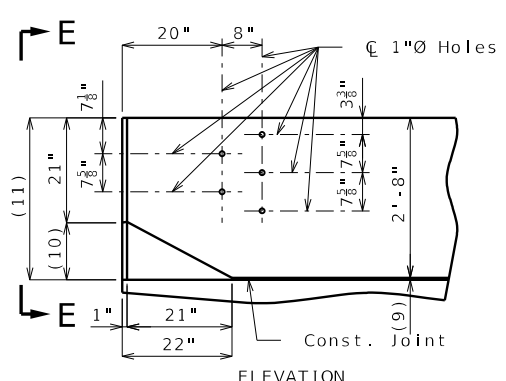
PART PLAN



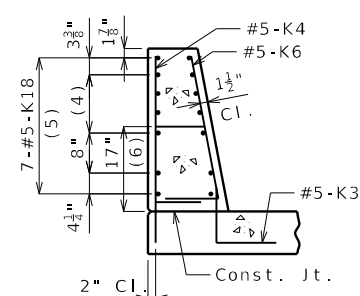
SECTION D-D



ELEVATION E-E

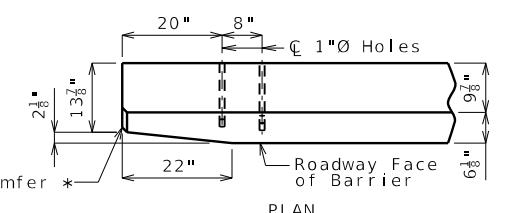


ELEVATION



SECTION F-F

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



PLAN

DETAILS OF GUARD RAIL ATTACHMENT

- (9) 3/8" at End Bent No. 1, 0" at End Bent No. 2
- (10) 1 1/8" at End Bent No. 1, 11" at End Bent No. 2
- (11) 2'-8 3/8" at End Bent No. 1, 2'-8" at End Bent No. 2

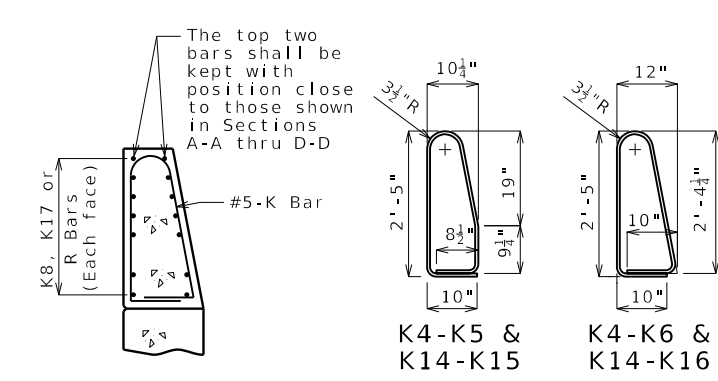
General Notes:

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.

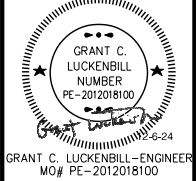
LEFT TYPE H BARRIER AT END BENTS



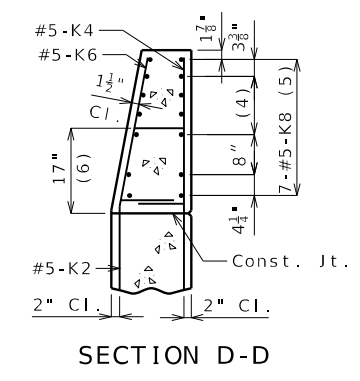
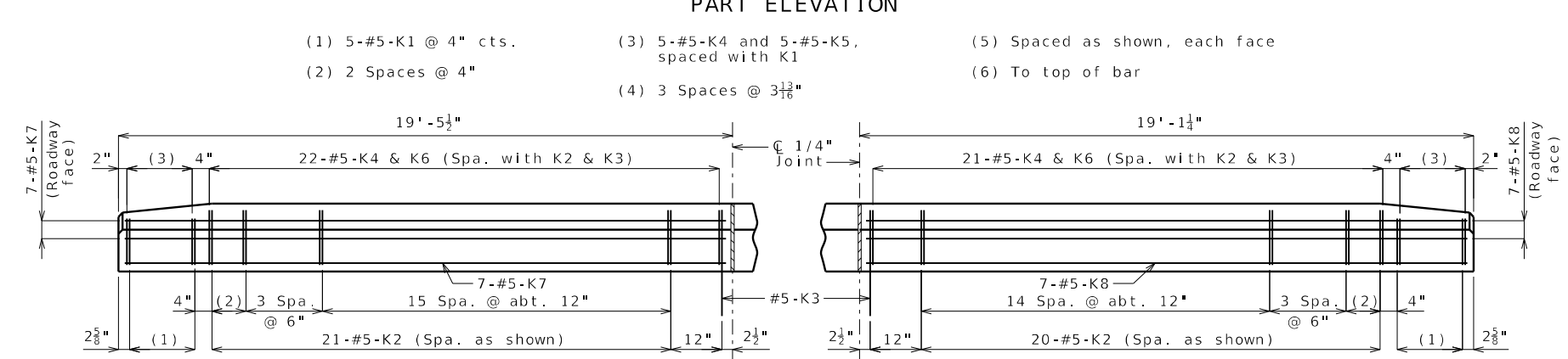
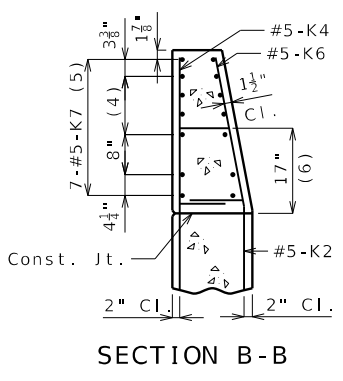
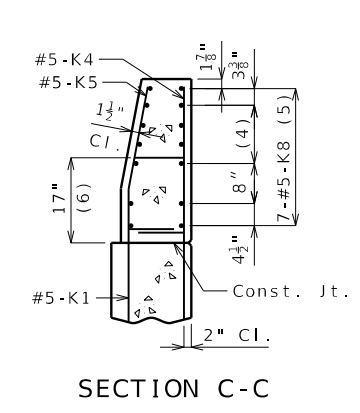
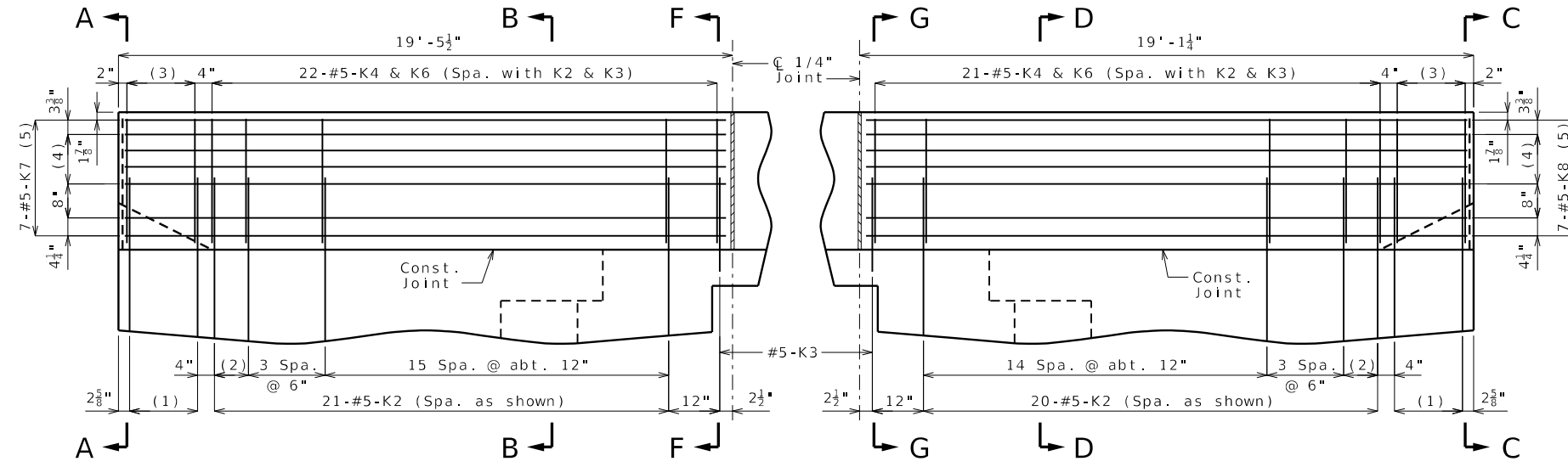
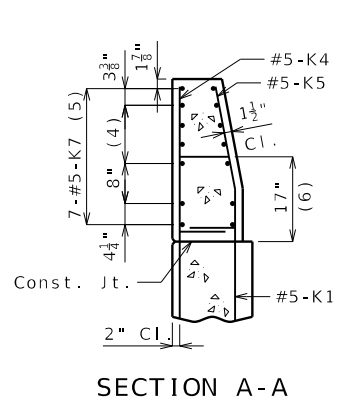
PERMISSIBLE ALTERNATE SHAPES
(Other K bars not shown for clarity)

The K4-K5, K4-K6, K14-K15, and K14-K16 bar combination may be furnished as one bar as shown, at the contractor's option.

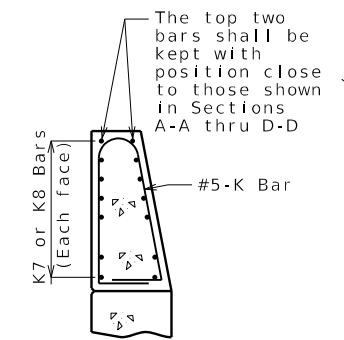
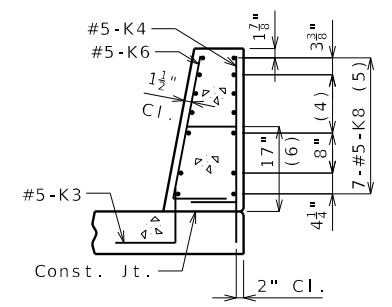
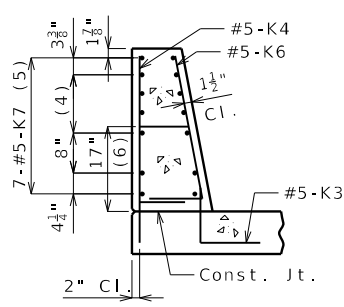
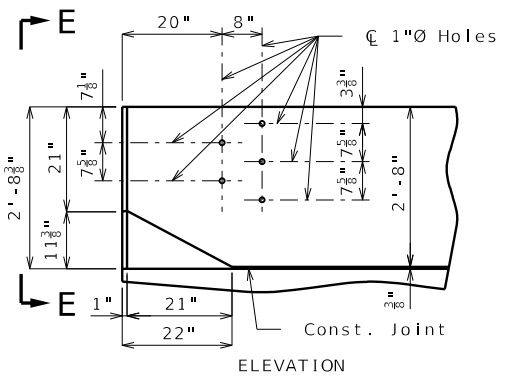
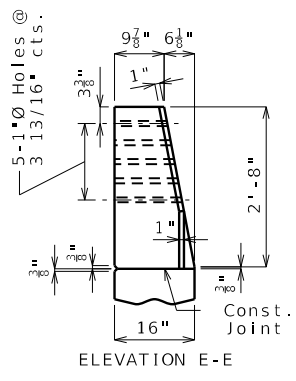
All dimensions are out to out.



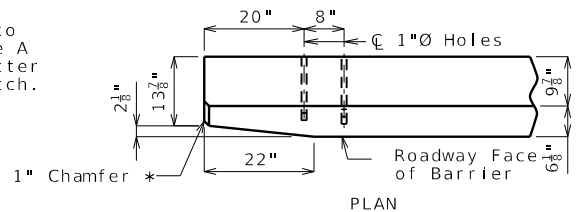
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



- (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 3/8"
- (5) Spaced as shown, each face
- (6) To top of bar



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



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.

RIGHT TYPE H BARRIER AT END BENTS

DETAILS OF GUARD RAIL ATTACHMENT

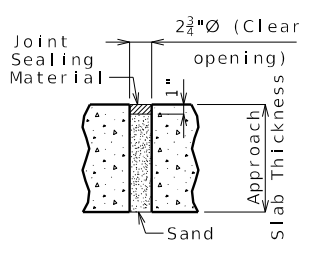
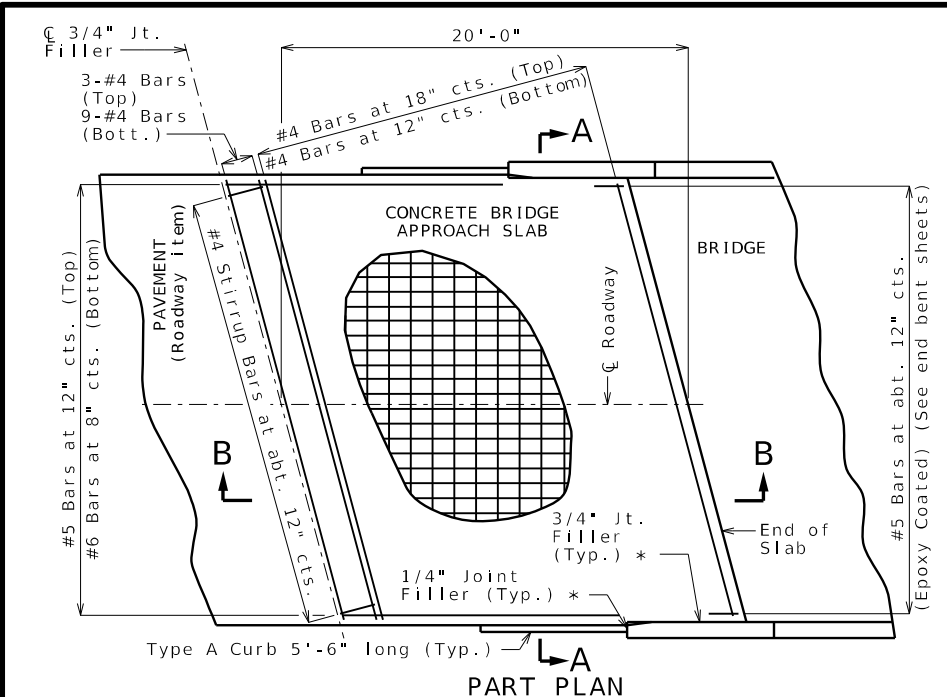
PERMISSIBLE ALTERNATE SHAPES
(Other K bars not shown for clarity)

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

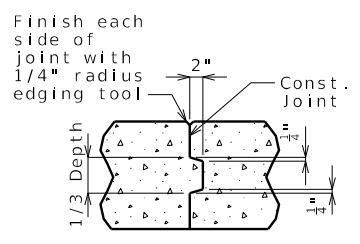
All dimensions are out to out.



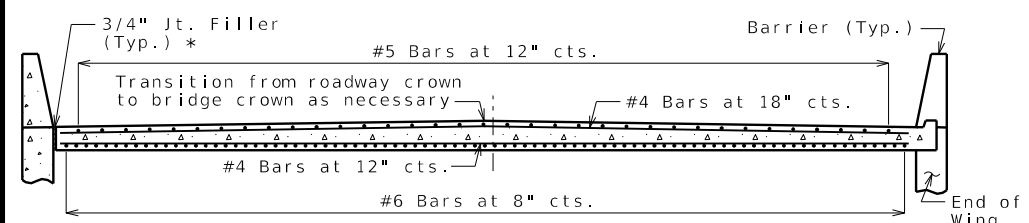
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NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592



UNDERSEAL ACCESS HOLE DETAIL
(If required)

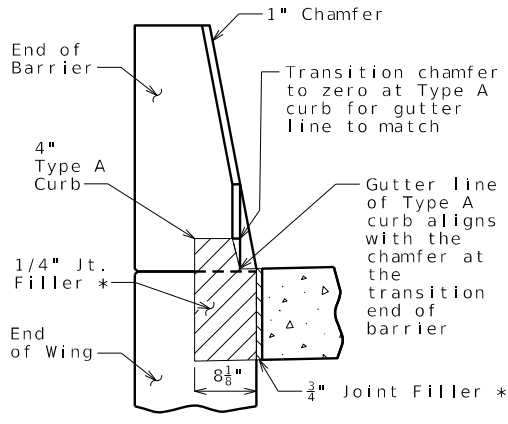


CONSTRUCTION JOINT DETAIL

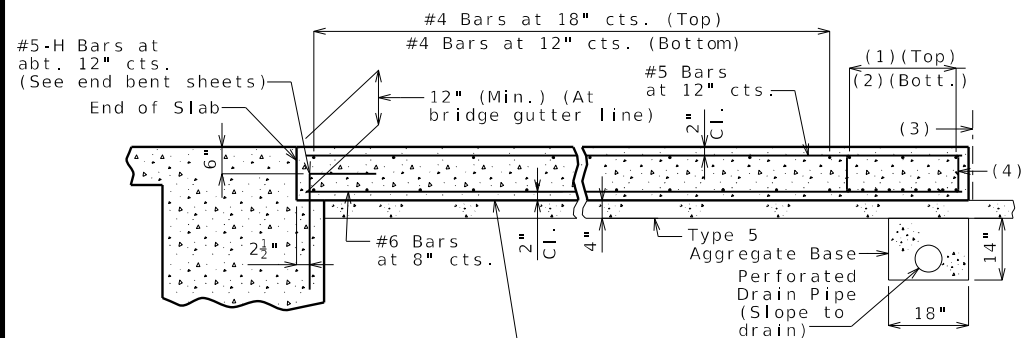


SECTION A-A

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

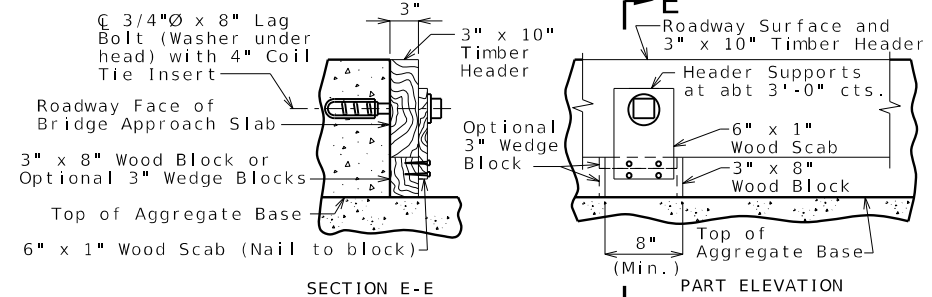


SECTION BETWEEN CURB AND BARRIER



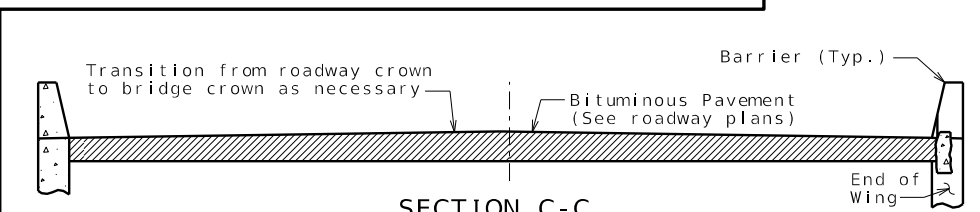
SECTION B-B

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



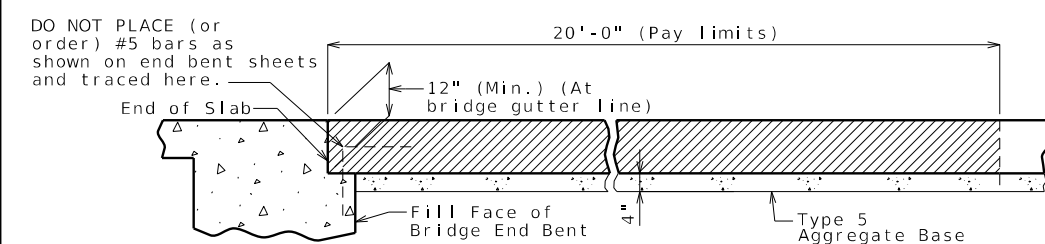
SECTION E-E

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



SECTION C-C

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

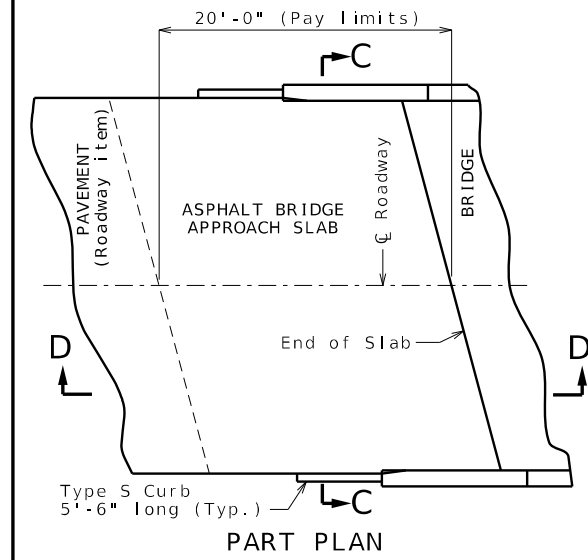


SECTION D-D

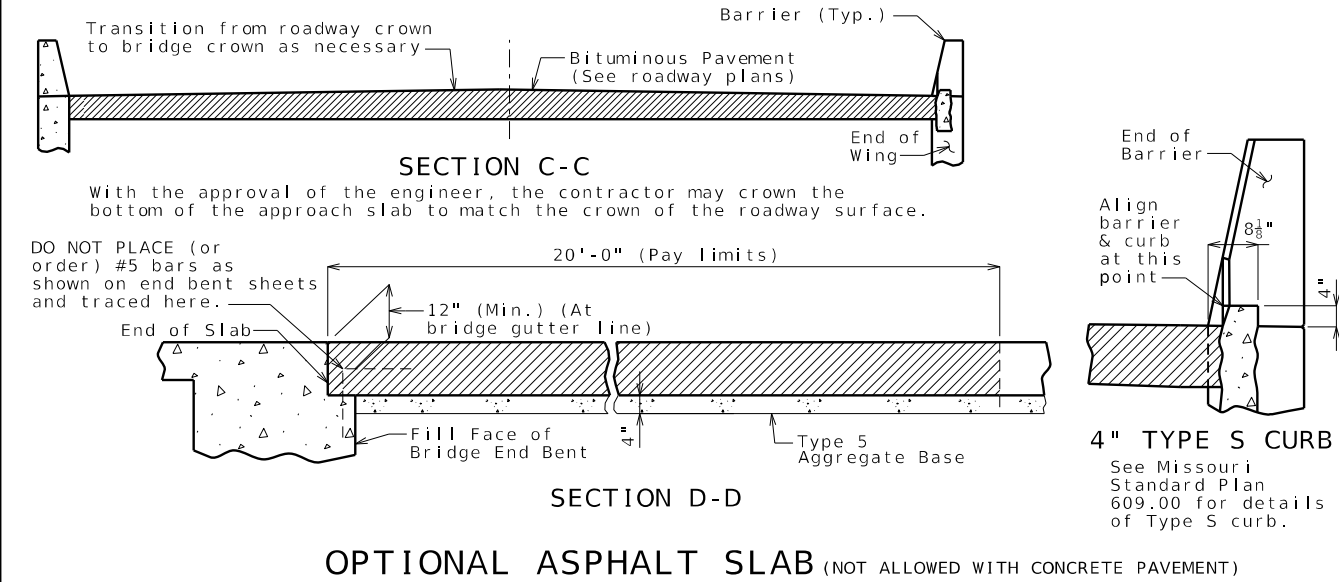
OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

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.

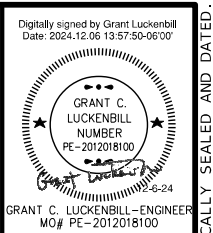


PART PLAN



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

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.



DATE PREPARED 12/5/2024	
ROUTE T	STATE MO
DISTRICT BR	SHEET NO. 19
COUNTY RAY	
JOB NO. J3S3178	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9475	

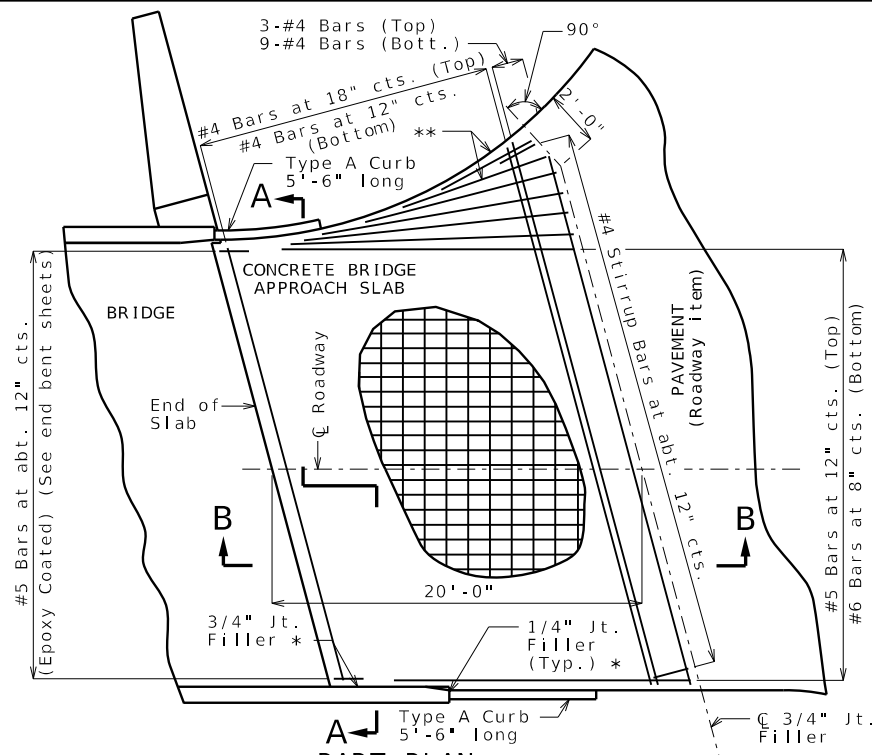
DATE	DESCRIPTION

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

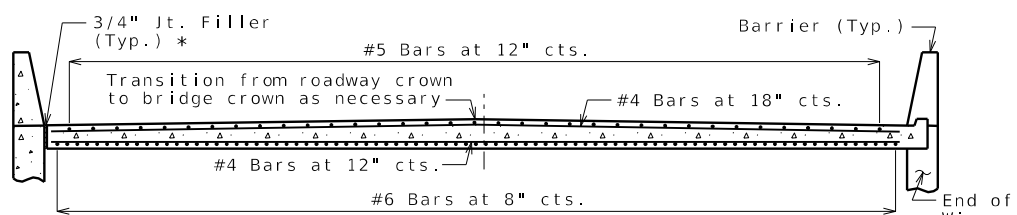
Olsson
1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

Detailed Sept. 2024
Checked Oct. 2024

Note: This drawing is not to scale. Follow dimensions. Sheet No. 19 of 29

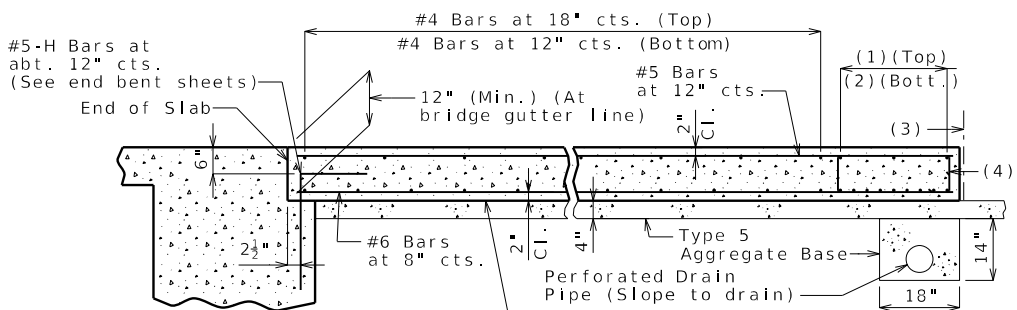


PART PLAN



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.



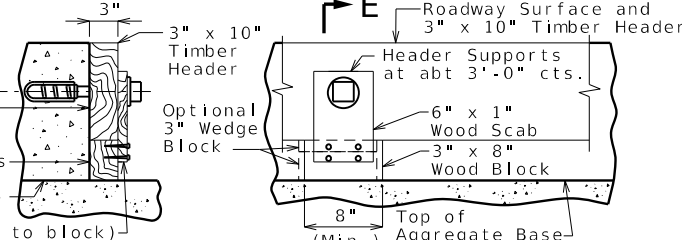
SECTION B-B

- (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.

3/4" \varnothing x 8" Lag Bolt (Washer under head) with 4" Coil Tie Insert

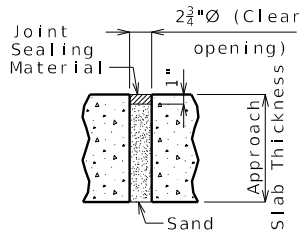
Roadway Face of Bridge Approach Slab
3" x 8" Wood Block or Optional 3" Wedge Blocks
Top of Aggregate Base
6" x 1" Wood Scab (Nail to block)



SECTION E-E

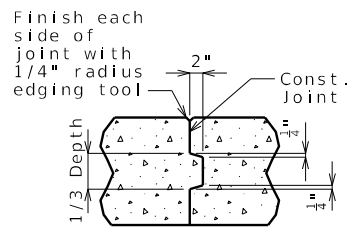
DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.
OPTIONAL CONCRETE SLAB

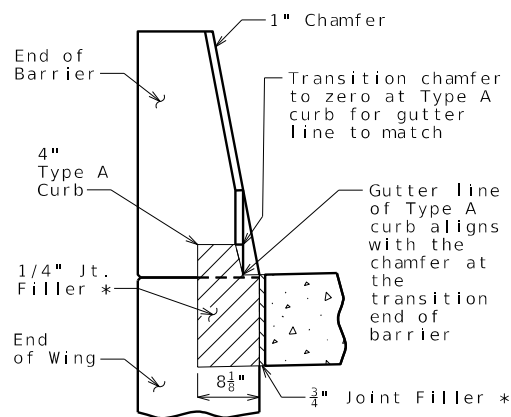


UNDERSEAL ACCESS HOLE DETAIL

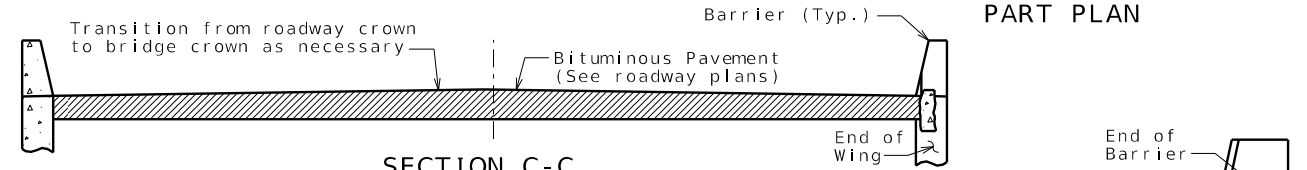
(If required)



CONSTRUCTION JOINT DETAIL

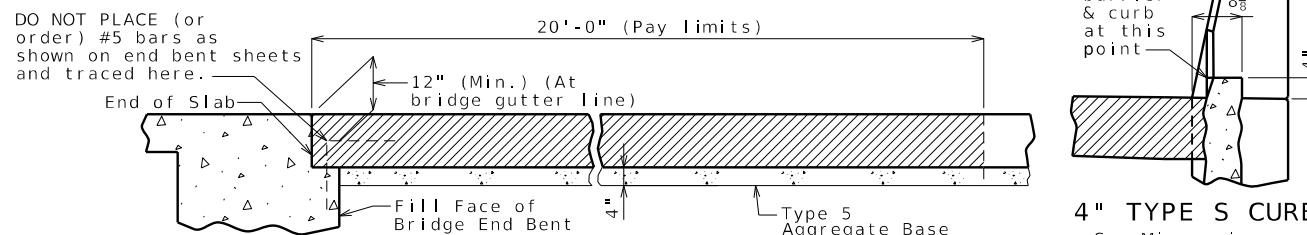


SECTION BETWEEN CURB AND BARRIER



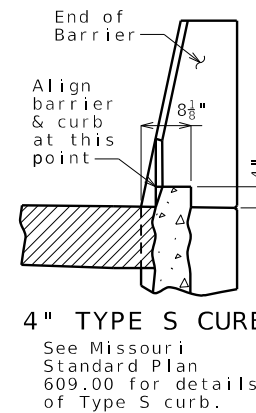
SECTION C-C

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.

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.

** Flare edge of Approach Slab to match edge of pavement (25 foot radius). Provide additional flared #5 bars at 12" max. cts. (Top) and #5 bars at 8" max. cts. (Bottom).

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.

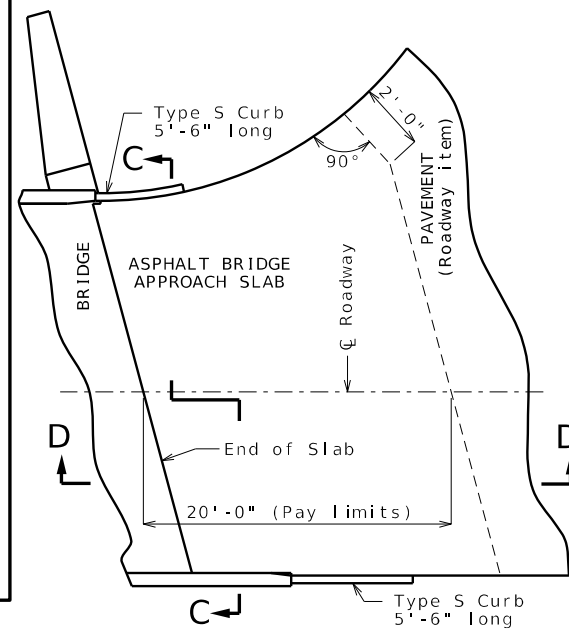
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

- Concrete Bridge Approach Slab
- Asphalt Bridge Approach Slab

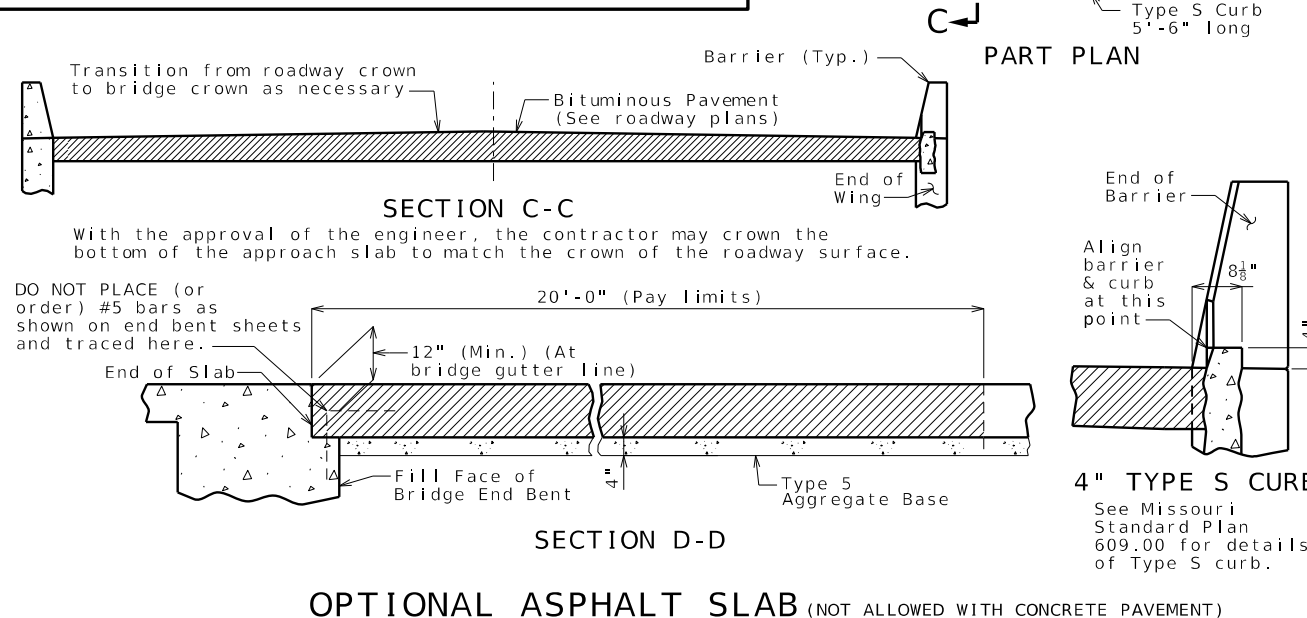
Notes For Asphalt Slab Only:

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.

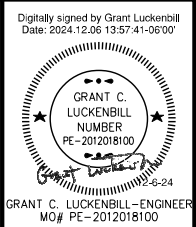


PART PLAN



SECTION D-D

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)



Digitally signed by Grant Luckenbill
Date: 2024.12.06 13:57:41 -06'00'

DATE PREPARED 12/5/2024	
ROUTE T	STATE MO
DISTRICT BR	SHEET NO. 20

COUNTY
RAY

JOB NO.
J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9475

DESCRIPTION	DATE

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

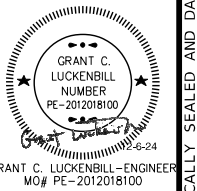
olsson
1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

Detailed Sept. 2024
Checked Oct. 2024

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

Sheet No. 20 of 29

Digitally signed by Grant Luckenbill
Date: 2024.12.06 13:57:32-0600'



GRANT C. LUCKENBILL-ENGINEER
MO# PE-2012018100

DATE PREPARED
12/5/2024

ROUTE STATE
T MO

DISTRICT SHEET NO.
BR 21

COUNTY
RAY

JOB NO.
J3S3178

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9475

DESCRIPTION

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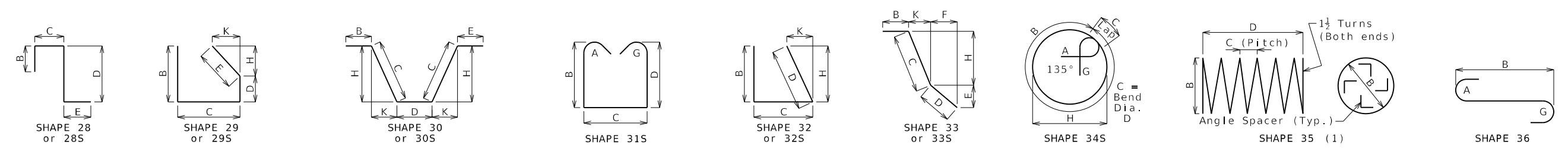
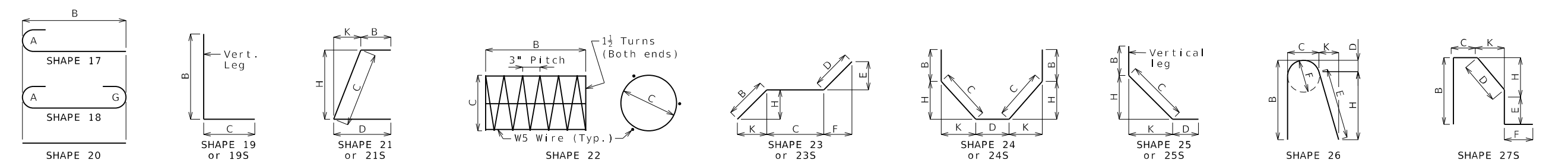
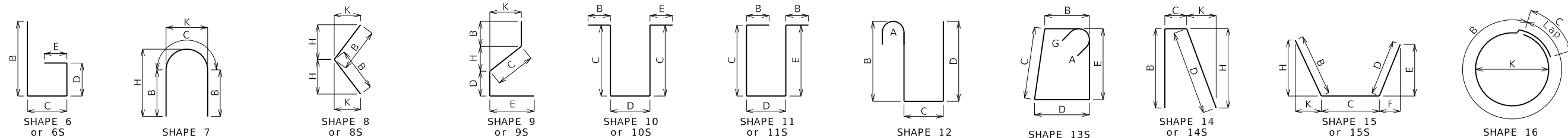
DATE

DATE

DATE

DATE

DATE



Finished Bend Diameters D and Hook Dimensions

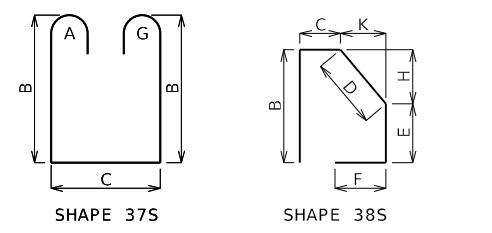
Standard Pin Bend Shapes

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 1/2"	6"	
#7	2	5 1/2"	14"	9 3/4"	7"	
	3	7"	15"	11 1/2"	8 3/4"	
#8	2	6"	16"	11"	8"	
	3	8"	17"	13 3/4"	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)

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

By Size	Substructure		Superstructure			Entire Bridge	
	Plain	Epoxy	Slab		Slip Form	Plain	Epoxy
			Plain	Epoxy			
W5	0	0	0	0	0	0	0
4	0	0	0	172	0	0	172
5	0	0	0	4,297	4,722	200	9,219
6	0	0	0	13,373	0	0	13,373
7	0	0	0	0	0	0	0
8	0	0	0	1,185	0	0	1,185
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0
By Type	0	0	0	19,027	4,722	200	23,949

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Sept. 2024
Checked Oct. 2024

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

Sheet No. 21 of 29

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



olsson
 1301 BURLINGTON STREET, STE. 100
 NORTH KANSAS CITY, MO 64116
 PHONE: 816.361.1177
 CERTIFICATE OF AUTHORITY NO. 001592

Bill of Reinforcing Steel														
No. Req.	Size/Mark	Location	Dimensions								Nom. Length ft in.	Actual Length ft in.	Weight lb	
			C	SH	V	B	C	D	E	F				H
			ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.					
Superstructure														
End Bent 1														
11	6 F100	WING BRACE	E 23S	14.00	4 6.50	2 3.00		21.50	16.50	11.00	8.50	8 0 7 11	131	
3	6 F101	DIAPHRAGM	E 21S	2 9.50	4 8.75							7 6 7 5	33	
11	6 F102	WING BRACE	E 23S	14.00	5 10.25	2 3.00		16.50	21.50	8.50	11.00	9 3 9 3	153	
3	6 F103	DIAPHRAGM	E 21S		5 2.75	2 9.50						8 0 7 10	35	
24	6 H100	BEAM & DIAPH	E 20	27 4.00								27 4 27 4	985	
3	6 H101	BEAM	E 18	6 7.25								8 0 8 0	36	
8	6 H102	DIAPHRAGM	E 20	2 4.00								2 4 2 4	28	
8	6 H103	DIAPHRAGM	E 20	8 8.00								8 8 8 8	104	
24	5 H104	DIAPHRAGM	E 19S	2 0.00	15.00							3 3 3 2	79	
3	5 H105	STRAND TIE	E 20	3 11.00								3 11 3 11	12	
16	8 H106	WING	E 20	18 6.00								18 6 18 6	790	
48	6 H107	WING	E 20	17 8.00								17 8 17 8	1274	
16	5 U100	BEAM	E 10S		7 4.00	2 9.00						17 5 17 2	286	
9	4 U101	BEAM	E 13S	2 9.00	4 2.00	2 9.00	4 2.00					14 7 14 4	86	
24	5 U102	DIAPHRAGM	E 10S		3 7.50	2 2.75						9 6 9 3	232	
24	6 U103	DIAPHRAGM	E 19S	2 8.50	8 9.00							5 6 5 4	192	
34	6 U104	DIAPHRAGM	E 19S	3 2.00	4 7.50							7 10 7 8	392	
16	5 V100	BEAM	E 20	7 4.00								7 4 7 4	122	
9	6 V101	DIAPHRAGM	E 20	2 8.00								2 8 2 8	36	
34	6 V102	WING	E 20	8 4.00								8 4 8 4	426	
34	6 V103	WING	E 20	8 5.00								8 5 8 5	430	
End Bent 2														
11	6 F200	WING BRACE	E 23S	14.00	5 10.25	2 3.00		16.50	21.50	8.50	11.00	9 3 9 3	153	
3	6 F201	DIAPHRAGM	E 21S		5 2.75	2 9.50						8 0 7 10	35	
20	6 H200	BEAM & DIAPH	E 20	27 4.00								27 4 27 4	821	
3	6 H201	BEAM	E 18	6 7.25								8 0 8 0	36	
4	6 H202	DIAPHRAGM	E 20	2 4.00								2 4 2 4	14	
8	6 H203	DIAPHRAGM	E 20	8 8.00								8 8 8 8	104	
24	5 H204	DIAPHRAGM	E 19S	2 0.00	15.00							3 3 3 2	79	
3	5 H205	STRAND TIE	E 20	3 11.00								3 11 3 11	12	
8	8 H206	WING	E 20	18 6.00								18 6 18 6	395	
24	6 H207	WING	E 20	17 8.00								17 8 17 8	637	
4	6 H208	WING	E 20	16 1.00								16 1 16 1	97	
6	6 H209	WING	E 20	16 4.00								16 4 16 4	147	
6	6 H210	WING	E 23S	5 10.25	10 3.00			10.25	5 9.50			16 1 16 1	145	
1	6 H211	DIAPH & WING	E 20	39 4.00								39 4 39 4	59	
3	6 H212	DIAPH & WING	E 20	1 31 7.00								31 7 31 7	7	
		INCR. = 37.50"		37 10.00								37 10 37 10	156	
1	6 H213	WING	E 23S	14.00	10 3.00			2.00	13.75	11 5 11 5		11 5 11 5	17	
3	6 H214	WING	E 23S	1 14.00	2 5.25			2.00	13.75	3 7 3 7		3 7 3 7	7	
		INCR. = 38.00"		14.00	8 9.25			2.00	13.75	9 11 9 11		9 11 9 11	30	
3	6 H215	WING	E 20	20 0.00						20 0 20 0		20 0 20 0	90	
1	6 H216	WING	E 23S	3 7.50	10 0.00				13.75	3 5.25	13 8 13 7		13 8 13 7	20
16	5 U200	BEAM	E 10S		7 4.00	2 9.00						17 5 17 2	286	
9	4 U201	BEAM	E 13S	2 9.00	4 2.00	2 9.00	4 2.00					14 7 14 4	86	
24	5 U202	DIAPHRAGM	E 10S		3 7.50	2 2.75						9 6 9 3	232	
24	6 U203	DIAPHRAGM	E 19S	2 8.50	2 9.00							5 6 5 4	192	
34	6 U204	DIAPHRAGM	E 19S	3 2.00	4 7.50							7 10 7 8	392	
10	5 U205	WING	E 10S	1	5 0.25	14.50						11 3 11 0		
		INCR. = 9.75"			8 0.25	2 6.25						18 7 18 4	153	
1	5 U206	WING	E 10S		8 4.00	2 8.00						19 4 19 1	20	
1	5 U207	WING	E 10S		8 4.00	2 8.25						19 4 19 2	20	
10	5 U208	WING	E 10S	1		6.00	14.50					2 3 2 0		
		INCR. = 1.75"				6.00	2 6.25					3 6 3 4	28	
1	5 U209	WING	E 10S			6.00	2 8.00					3 8 3 5	4	
1	5 U210	WING	E 10S			6.00	2 8.25					3 8 3 6	4	
16	6 V200	BEAM	E 20	7 4.00								7 4 7 4	176	
9	6 V201	DIAPHRAGM	E 20	2 8.00								2 8 2 8	36	
34	6 V202	WING	E 20	8 3.00								8 3 8 3	421	

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. 21.

Detailed Sept. 2024
Checked Oct. 2024

BILL OF REINFORCING STEEL

Note: This drawing is not to scale. Follow dimensions. Sheet No. 22 of 29

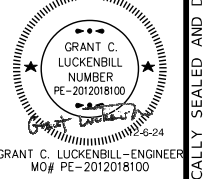
Bill of Reinforcing Steel													
No. Req.	Size/Mark	Location	Dimensions								Nom. Length ft in.	Actual Length ft in.	Weight lb
			C	SH	V	B	C	D	E	F			
			ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.				
Slab													
31	5 S1	SLAB	E 20	60 0.00								60 0 60 0	1940
121	6 S2	SLAB	E 20	26 5.00								26 5 26 5	4801
26	6 S3	SLAB	E 20	2 7.00								2 7 2 7	7
		INCR. = 22.42"		25 0.00								25 0 25 0	539
134	5 S4	SLAB	E 20	3 3.00								3 3 3 3	454
31	5 S5	SLAB	E 20	10 4.00								10 4 10 4	334
Barrier													
15	5 K1	BARRIER	E 27S	3 8.00	9.25	5.25	3 2.75			5.25	1.00	8 1 7 11	124
61	5 K2	BARRIER	E 27S	3 8.00	9.25	14.50	2 5.75			14.25	2.75	8 2 7 11	504
3	5 K3	BARRIER	E 27S	22.50	9.25	14.50	7.75	12.00		14.25	2.75	5 6 5 2	16
79	5 K4	BARRIER	E 19S	2 5.00	10.00							3 3 3 2	261
15	5 K5	BARRIER	E 38S			19.25	9.50	8.25		4.25	18.75	3 1 3 0	47
64	5 K6	BARRIER	E 21S		2 5.00	10.00				2 4.25	6.00	3 3 3 1	206
14	5 K7	BARRIER	E 20	19 2.00								19 2 19 2	280
28	5 K8	BARRIER	E 20	18 10.00								18 10 18 10	550
5	5 K11	BARRIER	E 27S	22.50	9.25	5.25	16.75	12.00	5.25	1.00	5 6 5 2	27	
7	5 K12	BARRIER	E 27S	22.50	9.25	17.25	5.00	12.00	17.00	3.25	5 6 5 2	38	
12	5 K14	BARRIER	E 19S	2 5.00	10.00							3 3 3 2	40
5	5 K15	BARRIER	E 38S			19.25	9.50	8		4.25	18.75	3 1 3 0	16
7	5 K16	BARRIER	E 21S		2 5.00	10.00				2 5.25	6.00	3 3 3 1	23
14	5 K17	BARRIER	E 20	5 6.00								5 6 5 6	80
123	5 R1	BARRIER	E 14S	2 5.00	6.50	2 5.50				2 5.00	5.50	5 5 5 3	674
123	5 R2	BARRIER	E 19S	20.50	9.50							2 6 2 5	310
123	5 R3	BARRIER	E 27S		9.50	15.25	5.00	12.00	15.00	3.00		3 6 3 3	417
16	5 R4	BARRIER	E 20	34 0.00								34 0 34 0	567
16	5 R5	BARRIER	E 20	32 6.00								32 6 32 6	542
Slip Form													
8	5 C1	SLIP FORM	E 20	12 0.00								12 0 12 0	100
12	5 C2	SLIP FORM	E 20	8 0.00								8 0 8 0	100

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.

Digitally signed by Grant Luckenbill
Date: 2024.12.05 13:57:23-0600'



DATE PREPARED
12/5/2024

ROUTE **T** STATE **MO**

DISTRICT **BR** SHEET NO. **22**

COUNTY **RAY**

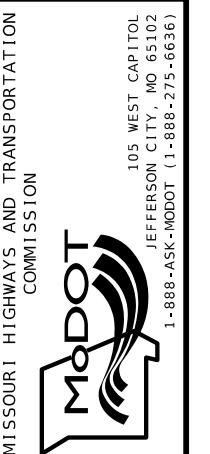
JOB NO. **J353178**

CONTRACT ID. _____

PROJECT NO. _____

BRIDGE NO. **A9475**

DATE	DESCRIPTION



Olsson

1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

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

olsson		BOREHOLE REPORT NO. BB-1	Sheet 3 of 3								
PROJECT NAME Missouri Route T over Panther Creek		CLIENT Missouri Department of Transportation									
PROJECT NUMBER 022-03482		LOCATION Fleming, Missouri									
ELEVATION (ft)	<input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Rock Core	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	MATERIAL DESCRIPTION										
685	43.0'	45	40	RC 2							Recovery 100.0%
BASE OF BORING AT 45.0 FEET											
WATER LEVEL OBSERVATIONS		STARTED: 3/26/24 FINISHED: 3/26/24									
WD	☒ Not Performed	DRILL CO.:SUB-DRILLER	DRILL RIG: CME 550X								
IAD	☒ Not Performed	DRILLER: RON C.	LOGGED BY: BLAKE F.								
AD	☒ Not Performed	METHOD: ROTARY WASH/ROCK CORE									
OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061											

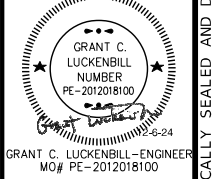
olsson		BOREHOLE REPORT NO. BB-2	Sheet 1 of 3								
PROJECT NAME Missouri Route T over Panther Creek		CLIENT Missouri Department of Transportation									
PROJECT NUMBER 022-03482		LOCATION Fleming, Missouri									
ELEVATION (ft)	<input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Rock Core	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	MATERIAL DESCRIPTION										
APPROX. SURFACE ELEV. (ft): 729.0											
	0.2'	0		SS 1		3-4-3 N=7		11.6			
725	4.0'	5		SS 2	CL	2-2-3 N=5		18.1		32/11	
720		10		UC 3				0.9	22.5	101.5	
715	13.5'	15		SS 4	CL	2-2-2 N=4		26.4		39/21	
710	18.5'	20		SS 5		2-2-3 N=5		25.8			P-200 = 33.6%
CONTINUED NEXT PAGE											
WATER LEVEL OBSERVATIONS		STARTED: 3/27/24 FINISHED: 3/27/24									
WD	☒ Not Performed	DRILL CO.:SUB-DRILLER	DRILL RIG: CME 550X								
IAD	☒ Not Performed	DRILLER: RON C.	LOGGED BY: BLAKE F.								
AD	☒ Not Performed	METHOD: ROTARY WASH/ROCK CORE									
OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061											

Detailed Sept. 2024
Checked Oct. 2024

Note: This drawing is not to scale. Follow dimensions. Sheet No. 25 of 29

\\oa.ad.oaconsulting.com\fnst-ns1\projects\2022\03001-03500\022-03482\40-Design\Microstation\J353178\plan_sheets\16 Bridge Sheets\B_A9475_J353178_025_BORING DATA (2 OF 6).dgn 11:21:50 AM 12/5/2024

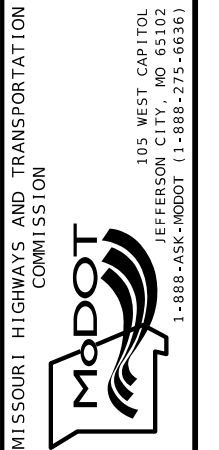
Digitally signed by Grant Luckenbill
Date: 2024.12.06 13:56:56-0600'



DATE PREPARED
12/5/2024
ROUTE T STATE MO
DISTRICT BR SHEET NO. 25
COUNTY RAY
JOB NO. J353178
CONTRACT ID.

PROJECT NO.
BRIDGE NO. A9475

DATE	DESCRIPTION



olsson
 1301 BURLINGTON STREET, STE. 100
 NORTH KANSAS CITY, MO 64116
 PHONE: 816.361.1177
 CERTIFICATE OF AUTHORITY NO. 001592

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

olsson		BOREHOLE REPORT NO. BB-2	Sheet 2 of 3								
PROJECT NAME Missouri Route T over Panther Creek		CLIENT Missouri Department of Transportation									
PROJECT NUMBER 022-03482		LOCATION Fleming, Missouri									
ELEVATION (ft)	<input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Rock Core	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	MATERIAL DESCRIPTION										
705		23.5'	20								
	CLAYEY SAND <i>Loose, brown with gray, clayey, silty, moist (continued)</i>										
700		31.0'	25	SS 6		1-2-2 N=4		55.2			
	LEAN CLAY <i>Soft to firm, brown with gray, silty, sandy, very moist</i>										
695		34.8'	30	SS 7		3-3-4 N=7		46.1			
	WEATHERED SHALE <i>Gray with brown</i>										
690		39.8'	35	SS 8		17-26- 50/3"					
	LIMESTONE <i>Light gray, Pawnee Formation</i>										<u>Recovery</u> 100.0% <u>RQD</u> 68.3%
	<i>Unconfined Compressive Strength - 2,051 ksf</i> <i>Unconfined Compressive Strength - 2,145 ksf</i>			RC 1							
CONTINUED NEXT PAGE											
WATER LEVEL OBSERVATIONS		OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061		STARTED: 3/27/24 FINISHED: 3/27/24		DRILL CO.: SUB-DRILLER DRILL RIG: CME 550X		DRILLER: RON C. LOGGED BY: BLAKE F.		METHOD: ROTARY WASH/ROCK CORE	
WD	⚠ Not Performed										
IAD	⚠ Not Performed										
AD	⚠ Not Performed										

olsson		BOREHOLE REPORT NO. BB-2	Sheet 3 of 3								
PROJECT NAME Missouri Route T over Panther Creek		CLIENT Missouri Department of Transportation									
PROJECT NUMBER 022-03482		LOCATION Fleming, Missouri									
ELEVATION (ft)	<input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Rock Core	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	MATERIAL DESCRIPTION										
685			40								
	SHALE <i>Gray with olive, Pawnee Formation</i>		40.0'								
	LIMESTONE <i>Gray with light gray, Pawnee Formation</i>		41.5'								
	SHALE <i>Gray with olive, Pawnee Formation</i>		45.0'	RC 2							<u>Recovery</u> 100.0% <u>RQD</u> 25.0%
BASE OF BORING AT 45.0 FEET											
WATER LEVEL OBSERVATIONS		OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061		STARTED: 3/27/24 FINISHED: 3/27/24		DRILL CO.: SUB-DRILLER DRILL RIG: CME 550X		DRILLER: RON C. LOGGED BY: BLAKE F.		METHOD: ROTARY WASH/ROCK CORE	
WD	⚠ Not Performed										
IAD	⚠ Not Performed										
AD	⚠ Not Performed										

BORING DATA

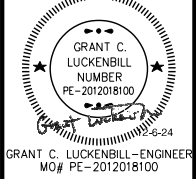
Note: For locations of borings, see Sheet No. 1.

Note: This drawing is not to scale. Follow dimensions. Sheet No. 26 of 29

\\oa.ad.oaconsulting.com\fnst-ns1\projects\2022\03001-03500\022-03482\40-Design\Microstation\J353178\plan_sheets\16 Bridge Sheets\B_A9475_J353178_026_BORING DATA (3 OF 6).dgn 11:21:55 AM 12/5/2024

Detailed Sept. 2024
Checked Oct. 2024

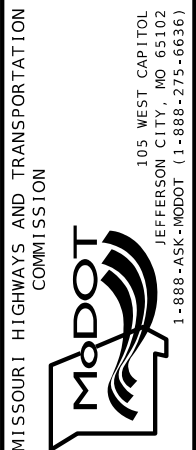
Digitally signed by Grant Luckenbill
Date: 2024.12.06 13:58:17-0600'



DATE PREPARED
12/5/2024
ROUTE T STATE MO
DISTRICT BR SHEET NO. 26
COUNTY RAY
JOB NO. J353178
CONTRACT ID.

PROJECT NO.
BRIDGE NO. A9475

DATE	DESCRIPTION



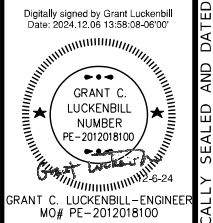
olsson

1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

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

olsson		BOREHOLE REPORT NO. BB-3	Sheet 1 of 3
PROJECT NAME Missouri Route T over Panther Creek		CLIENT Missouri Department of Transportation	
PROJECT NUMBER 022-03482		LOCATION Fleming, Missouri	
ELEVATION (ft)	<input checked="" type="checkbox"/> Split Spoon <input type="checkbox"/> Rock Core	<input type="checkbox"/> Shelby Tube	
MATERIAL DESCRIPTION			
APPROX. SURFACE ELEV. (ft): 729.1			
725	2.0'	0	FILL Gravel, asphalt, dark brown with brown clay, silt, sand
725		5	LEAN CLAY Soft, brown, silty, moist Begin Mud Rotary - 5 feet
720	8.5'	10	LEAN CLAY Firm, brown with gray, silty, moist
715		15	LEAN CLAY Firm, brown with gray, silty, moist
710	18.5'	20	SANDY CLAY Soft, brown with gray, sandy, silty, moist to very moist
CONTINUED NEXT PAGE			
WATER LEVEL OBSERVATIONS		STARTED: 3/28/24 FINISHED: 3/28/24	
WD	<input type="checkbox"/> Not Performed	DRILL CO.:SUB-DRILLER	DRILL RIG: CME 550X
IAD	<input type="checkbox"/> Not Performed	DRILLER: RON C.	LOGGED BY: BLAKE F.
AD	<input type="checkbox"/> Not Performed	METHOD: ROTARY WASH/ROCK CORE	
OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061			

olsson		BOREHOLE REPORT NO. BB-3	Sheet 2 of 3
PROJECT NAME Missouri Route T over Panther Creek		CLIENT Missouri Department of Transportation	
PROJECT NUMBER 022-03482		LOCATION Fleming, Missouri	
ELEVATION (ft)	<input checked="" type="checkbox"/> Split Spoon <input type="checkbox"/> Rock Core	<input type="checkbox"/> Shelby Tube	
MATERIAL DESCRIPTION			
APPROX. SURFACE ELEV. (ft): 729.1			
705		20	SANDY CLAY Soft, brown with gray, sandy, silty, moist to very moist (continued)
705		23.7'	LEAN CLAY Firm, brown with gray, silty, sandy, moist
700		27.0'	WEATHERED SHALE Gray to dark gray
700		28.5'	SHALE Gray to dark gray, silty
695		30	SHALE Gray to dark gray, silty
695		35.0'	LIMESTONE Light gray to gray, Pawnee Formation Unconfined Compressive Strength - 1,097 ksf
690		40	RC 1 Recovery 100.0% RQD 86.7%
CONTINUED NEXT PAGE			
WATER LEVEL OBSERVATIONS		STARTED: 3/28/24 FINISHED: 3/28/24	
WD	<input type="checkbox"/> Not Performed	DRILL CO.:SUB-DRILLER	DRILL RIG: CME 550X
IAD	<input type="checkbox"/> Not Performed	DRILLER: RON C.	LOGGED BY: BLAKE F.
AD	<input type="checkbox"/> Not Performed	METHOD: ROTARY WASH/ROCK CORE	
OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061			



DATE PREPARED
12/5/2024

ROUTE T STATE MO
DISTRICT BR SHEET NO. 27

COUNTY RAY
JOB NO. J353178
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9475

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

olsson

1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

BORING DATA

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

Note: This drawing is not to scale. Follow dimensions. Sheet No. 27 of 29

Detailed Sept. 2024
Checked Oct. 2024

olsson		BOREHOLE REPORT NO. BB-3	Sheet 3 of 3								
PROJECT NAME Missouri Route T over Panther Creek		CLIENT Missouri Department of Transportation									
PROJECT NUMBER 022-03482		LOCATION Fleming, Missouri									
ELEVATION (ft)	<input checked="" type="checkbox"/> Split Spoon <input type="checkbox"/> Shelby Tube <input type="checkbox"/> Rock Core	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	MATERIAL DESCRIPTION										
685			40	RC 2							Recovery 100.0%
	LIMESTONE <i>Light gray to gray, Pawnee Formation (continued)</i> <i>Unconfined Compressive Strength - 1,164 ksf</i>	42.0'									RQD 40.0%
	SHALE <i>Gray to olive, weathered</i>	45.0'	45								
BASE OF BORING AT 45.0 FEET											
WATER LEVEL OBSERVATIONS		OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061		STARTED: 3/28/24 FINISHED: 3/28/24		DRILL CO.: SUB-DRILLER DRILL RIG: CME 550X		DRILLER: RON C. LOGGED BY: BLAKE F.		METHOD: ROTARY WASH/ROCK CORE	
WD	☒ Not Performed										
IAD	☒ Not Performed										
AD	☒ Not Performed										

olsson		BOREHOLE REPORT NO. BB-4	Sheet 1 of 3								
PROJECT NAME Missouri Route T over Panther Creek		CLIENT Missouri Department of Transportation									
PROJECT NUMBER 022-03482		LOCATION Fleming, Missouri									
ELEVATION (ft)	<input checked="" type="checkbox"/> Split Spoon <input type="checkbox"/> Rock Core	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS
	MATERIAL DESCRIPTION										
	APPROX. SURFACE ELEV. (ft): 729.0 ROOT ZONE		0								
	FILL <i>Brown clay, silt, gravel</i>	1.5'		SS 1		4-3-2 N=5		19.1			
	LEAN CLAY <i>Firm, brown, silty</i>	4.0'		SS 2		1-10-10 N=20		18.0			
	<i>Very stiff, brown, silty, sandy</i> <i>Begin Mud Rotary - 5 feet</i>	8.5'		SS 3	CL	2-1-2 N=3		12.8	30/9		
	<i>Soft, brown with gray, silty, sandy, moist</i>	19.3'		SS 4		0-1-1 N=2		24.5			
	CLAYEY SAND	20.0'		SS 5		1-2-2 N=4		25.8			P-200 = 42.6%
CONTINUED NEXT PAGE											
WATER LEVEL OBSERVATIONS		OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061		STARTED: 3/29/24 FINISHED: 3/29/24		DRILL CO.: SUB-DRILLER DRILL RIG: CME 550X		DRILLER: RON C. LOGGED BY: J. PUTNAM		METHOD: ROTARY WASH/ROCK CORE	
WD	☒ Not Performed										
IAD	☒ Not Performed										
AD	☒ Not Performed										

BORING DATA

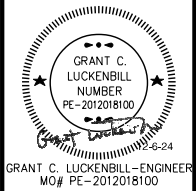
Note: For locations of borings, see Sheet No. 1.

Note: This drawing is not to scale. Follow dimensions. Sheet No. 28 of 29

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Detailed Sept. 2024
Checked Oct. 2024

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Date: 2024.12.06 13:59:25-0600'



DATE PREPARED: 12/5/2024
ROUTE: T STATE: MO
DISTRICT: BR SHEET NO.: 28
COUNTY: RAY
JOB NO.: J353178
CONTRACT ID.

PROJECT NO.
BRIDGE NO.: A9475

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

olsson

1301 BURLINGTON STREET, STE. 100
 NORTH KANSAS CITY, MO 64116
 PHONE: 816.361.1177
 CERTIFICATE OF AUTHORITY NO. 001592

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

olsson		BOREHOLE REPORT NO. BB-4	Sheet 2 of 3																		
PROJECT NAME Missouri Route T over Panther Creek		CLIENT Missouri Department of Transportation																			
PROJECT NUMBER 022-03482		LOCATION Fleming, Missouri																			
ELEVATION (ft)	<input checked="" type="checkbox"/> Split Spoon <input type="checkbox"/> Rock Core	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS										
	MATERIAL DESCRIPTION																				
	705 Loose, brown with gray, medium to coarse, moist WELL-GRADED GRAVEL Loose, brown with gray, with coarse to medium sand																				
	705 WEATHERED SHALE Gray, clayey, moist																				
	700 SHALE Gray																				
	695 LIMESTONE Gray to light gray, Pawnee Formation Unconfined Compressive Strength - 1,667 ksf																				
CONTINUED NEXT PAGE																					
WATER LEVEL OBSERVATIONS		OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061		STARTED: 3/29/24 FINISHED: 3/29/24		DRILL CO.: SUB-DRILLER DRILL RIG: CME 550X		DRILLER: RON C. LOGGED BY: J. PUTNAM		METHOD: ROTARY WASH/ROCK CORE											
WD	<input type="checkbox"/> Not Performed																				
IAD	<input type="checkbox"/> Not Performed																				
AD	<input type="checkbox"/> Not Performed																				

olsson		BOREHOLE REPORT NO. BB-4	Sheet 3 of 3																		
PROJECT NAME Missouri Route T over Panther Creek		CLIENT Missouri Department of Transportation																			
PROJECT NUMBER 022-03482		LOCATION Fleming, Missouri																			
ELEVATION (ft)	<input checked="" type="checkbox"/> Split Spoon <input type="checkbox"/> Rock Core	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/ REMARKS										
	MATERIAL DESCRIPTION																				
	685 SHALE Gray with olive, Pawnee Formation																				
	685 LIMESTONE Gray with light light gray, Pawnee Formation Unconfined Compressive Strength - 1,103 ksf																				
	685 SHALE Gray with olive, Pawnee Formation																				
	BASE OF BORING AT 45.3 FEET																				
WATER LEVEL OBSERVATIONS		OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061		STARTED: 3/29/24 FINISHED: 3/29/24		DRILL CO.: SUB-DRILLER DRILL RIG: CME 550X		DRILLER: RON C. LOGGED BY: J. PUTNAM		METHOD: ROTARY WASH/ROCK CORE											
WD	<input type="checkbox"/> Not Performed																				
IAD	<input type="checkbox"/> Not Performed																				
AD	<input type="checkbox"/> Not Performed																				

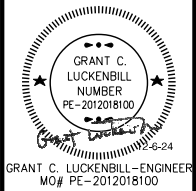
BORING DATA

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

Note: This drawing is not to scale. Follow dimensions. Sheet No. 29 of 29

Detailed Sept. 2024
Checked Oct. 2024

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Date: 2024.12.06 13:59:14-0600'



DATE PREPARED
12/5/2024
ROUTE T STATE MO
DISTRICT BR SHEET NO. 29
COUNTY RAY
JOB NO. J353178
CONTRACT ID.

PROJECT NO.
BRIDGE NO. A9475

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

olsson

1301 BURLINGTON STREET, STE. 100
NORTH KANSAS CITY, MO 64116
PHONE: 816.361.1177
CERTIFICATE OF AUTHORITY NO. 001592

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