

LINN - ROUTE B
 A.A.D.T. - 2025 = 109
 A.A.D.T. - 2045 = 115
 D.H.V. = 9%
 T = 13%
 V = 55 M.P.H.
 D = 51%/49%
 FUNCTIONAL CLASSIFICATION = MAJOR COLLECTOR

A.A.D.T. - 2025 = 262
A.A.D.T. - 2045 = 276
D.H.V. = 11%
T = 14%
V = 55 M.P.H.
D = 52%/ 48%
FUNCTIONAL CLASSIFICATION = MINOR COLLECTOR

A.A.D.T. - 2025 = 406
A.A.D.T. - 2045 = 427
D.H.V. = 9%
T = 26%
V = 55 M.P.H.
D = 49%/ 51%
FUNCTIONAL CLASSIFICATION = MAJOR COLLECTOR

CONVENTIONAL SYMBOLS (USED IN PLANS)

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

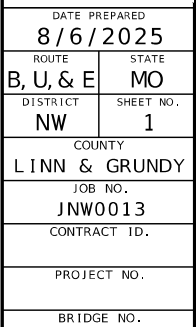
A map of Missouri showing its county boundaries. Grundy County and Linn County are highlighted in black. Arrows point from the labels 'GRUNDY' and 'LINN' to their respective counties.


LINN & GRUNDY COUNTIES

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GRUNDY COUNTY

DESCRIPTION	NUMBER
TITLE SHEET -----	1
TYPICAL SECTIONS (TS) (3 SHEETS)---	2
QUANTITIES (QU) (5 SHEETS)-----	3
PLAN-PROFILE (PP)-----	4-6
SPECIAL SHEET (SS)-----	7-9
TRAFFIC CONTROL SHEETS (TC)-----	10-12
BRIDGE DRAWINGS (B)	
A18021-----	1-10
P08911-----	1-11
X01531-----	1-10

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 MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
 105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-2-75-6636)

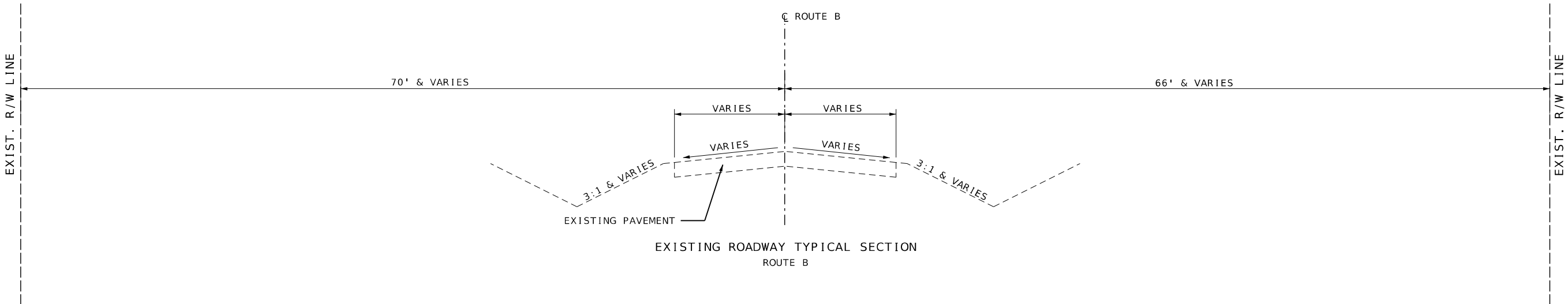
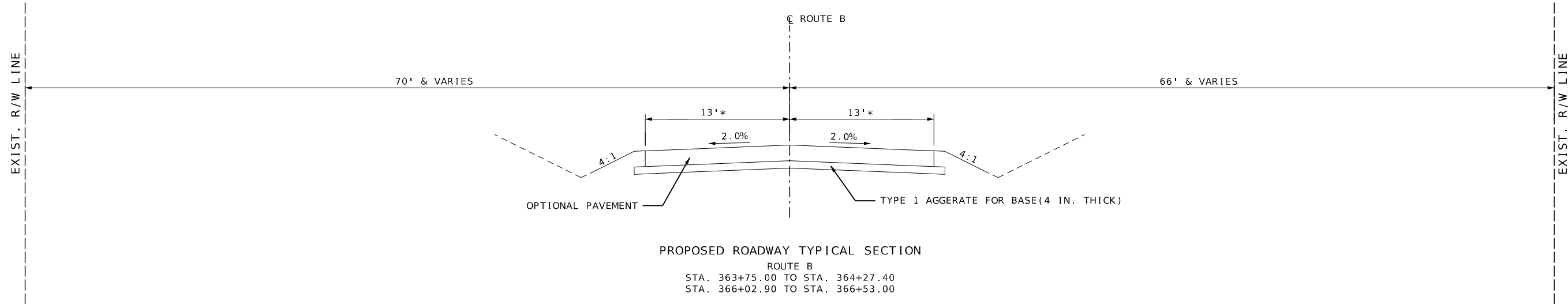
LINN - ROUTE B	
BEGINNING	STA. 363+75.00
END	STA. 366+53.00
APPARENT LENGTH	278.00 FEET
LINN - ROUTE U	
BEGINNING	STA. 324+78.00
END	STA. 328+50.00
APPARENT LENGTH	372.00 FEET
GRUNDY - ROUTE E	
BEGINNING	STA. 293+93.00
END	STA. 297+75.00
APPARENT LENGTH	382.00 FEET

TOTAL CORRECTIONS	0.00	FEET
NET LENGTH OF PROJECT	1032.00	FEET
STATE LENGTH	0.195	MILES

FOR INFORMATION ONLY	
ESTIMATED DISTURBED ACRES	0.4 ACRES



NOTES:
* TRANSITION FROM MATCH EXISTING TO 13' WIDE
STA. 363+75.00 TO STA. 364+15.00
TRANSITION FROM 13' WIDE TO MATCH EXISTING
STA. 366+14.70 TO STA 366+53.00



OPTIONAL PAVEMENT		
LOCATION	HMA DESIGN	PCCP DESIGN
MO ROUTE B	10.0" HMA 2" BITUMINOUS PAVEMENT MIXTURE PG58-28H (BP-1) OVER 8" BITUMINOUS PAVEMENT MIXTURE PG64-22 (BASE)	8.5" PCCP 15 FT. JOINT SPACING, 1¼" DOWELS, EXTENDED SLAB

TYPICAL SECTIONS
LINN-ROUTE B
SHEET 1 OF 3



THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

DATE PREPARED
8/6/2025

ROUTE STATE
B, U, & E MO

DISTRICT SHEET NO.
NW 2

COUNTY
LINN & GRUNDY

JOB NO.
JNW0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

MoDOT

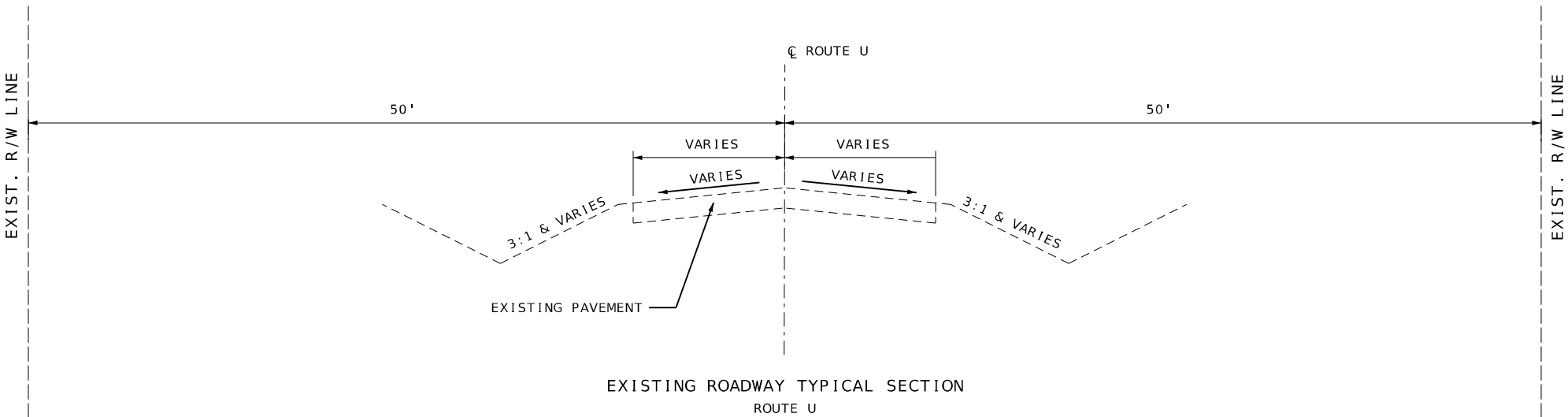
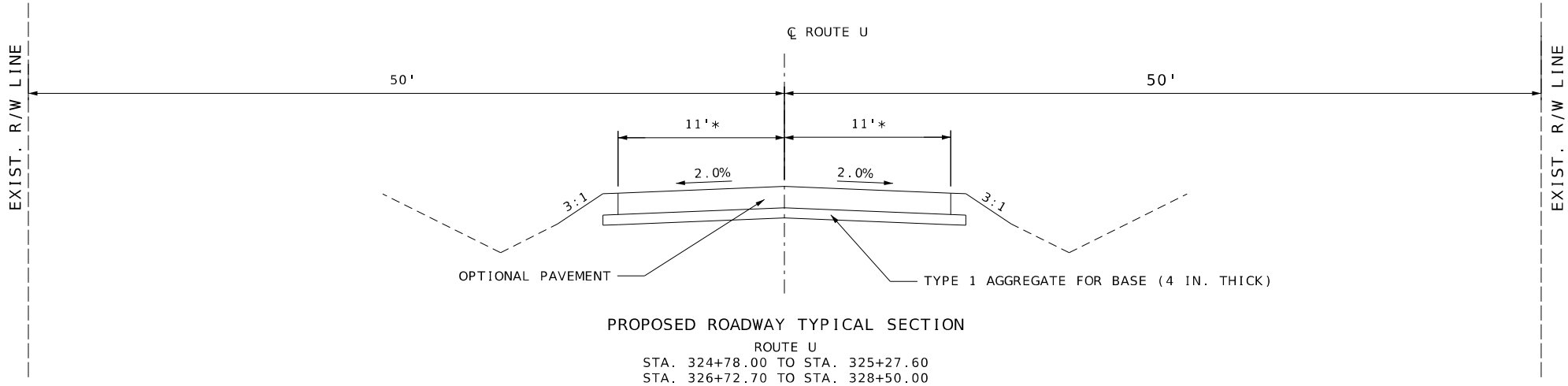
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-273-6636)

800 E 101st Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-3100
Fax (816) 942-3013
Missouri Cert. of
Authority #2003007599

**WILSON
& COMPANY**
ENGINEERS & ARCHITECTS



NOTES:
* TRANSITION FROM MATCH EXISTING TO 11' WIDE
STA. 324+78.00 TO STA. 325+24.00
TRANSITION FROM 11' WIDE TO MATCH EXISTING
STA. 327+97.00 TO STA 328+50.00



OPTIONAL PAVEMENT		
LOCATION	HMA DESIGN	PCCP DESIGN
MO ROUTE U	10.0" HMA	8.5" PCCP
	2" BITUMINOUS PAVEMENT MIXTURE PG58-28H (BP-1) OVER 8" BITUMINOUS PAVEMENT MIXTURE PG64-22 (BASE)	15 FT. JOINT SPACING, 1¼" DOWELS, EXTENDED SLAB

TYPICAL SECTIONS
LINN-ROUTE U
SHEET 2 OF 3

STATE OF MISSOURI
WESLEY
A. O'NEAL
NUMBER
PE-2018021231
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN
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ELECTRONICALLY.

DATE PREPARED
8/6/2025

ROUTE
B, U, & E

STATE
MO

DISTRICT
NW

SHEET NO.
2

COUNTY
LINN & GRUNDY

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MISSOURI HIGHWAYS AND TRANSPORTATION
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105 WEST CAPITOL
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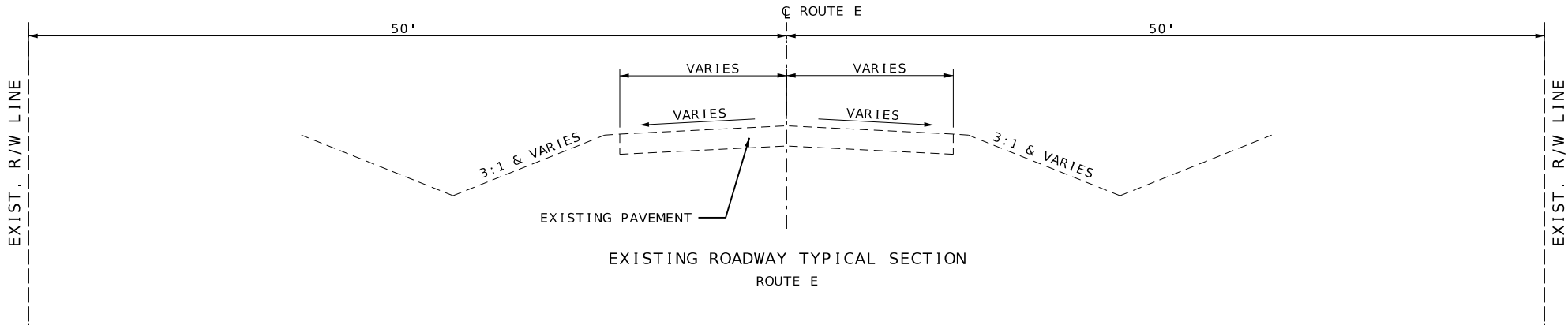
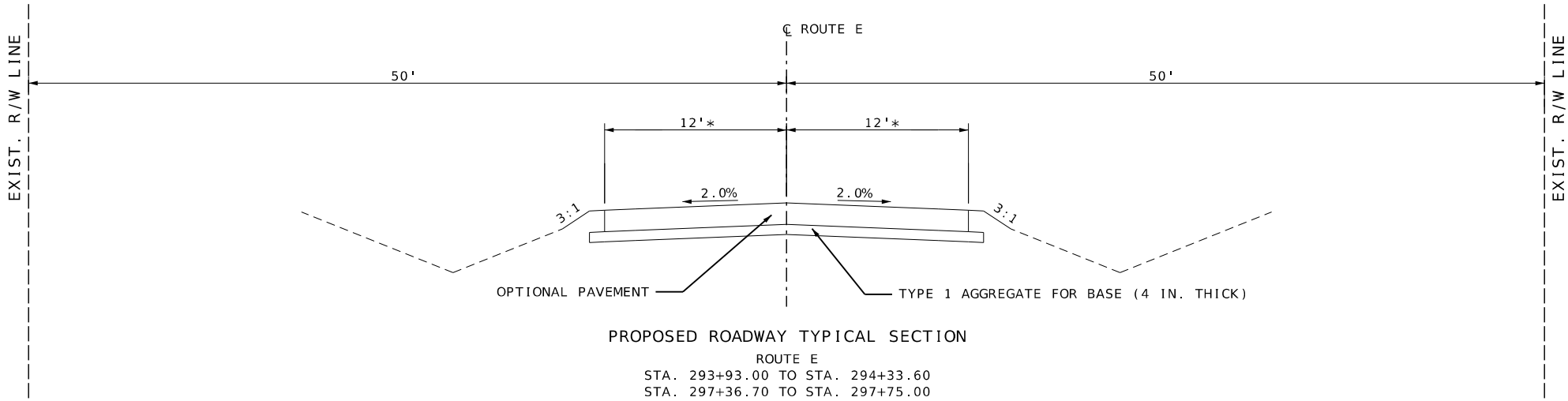
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& COMPANY**
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NOTES:
* TRANSITION FROM MATCH EXISTING TO 12' WIDE
STA. 293+93.00 TO STA. 294+33.60
TRANSITION FROM 12' WIDE TO MATCH EXISTING
STA. 297+36.70 TO STA. 297+75.00



OPTIONAL PAVEMENT		
LOCATION	HMA DESIGN	PCCP DESIGN
MO ROUTE E	10.0" HMA	8.5" PCCP
	2" BITUMINOUS PAVEMENT MIXTURE PG58-28H (BP-1) OVER 8" BITUMINOUS PAVEMENT MIXTURE PG64-22 (BASE)	15 FT. JOINT SPACING, 1¼" DOWELS, EXTENDED SLAB

TYPICAL SECTIONS
GRUNDY-ROUTE E
SHEET 3 OF 3

STATE OF MISSOURI
WESLEY A. O'NEAL
NUMBER
PE-2018021231
PROFESSIONAL ENGINEER

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DATE PREPARED
8/6/2025

ROUTE
B, U, & E

STATE
MO

DISTRICT
NW

SHEET NO.
2

COUNTY
LINN & GRUNDY

JOB NO.
JNW0013

CONTRACT ID.

PROJECT NO.

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DESCRIPTION

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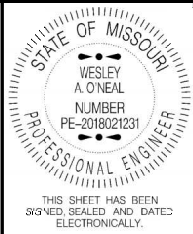
TEMPORARY EROSION CONTROL						
BEGIN STATION	END STATION	OFFSET	SILT FENCE (LF)	TYPE 2C EROSION CONTROL BLANKET (SY)	TYPE C BERM (LF)	SEDIMENT REMOVAL
A1802 - ROUTE B						
363+75	364+15	RT	48			0.5
363+75	364+23	LT	52			0.5
365+98	366+50	RT	52			0.5
366+25	366+51	LT	27			0.3
363+75	364+19	RT		60		
363+75	364+26	LT		82		
365+95	366+51	RT		133		
366+21	366+51	LT		73		
364+15	364+85	RT/LT			160	10
365+41	366+26	RT/LT			167	10
TOTAL			179	348	327	21.8
P0891 - ROUTE U						
324+78	325+20	RT	48			0.5
324+78	325+25	LT	51			0.5
326+86	328+50	RT	171			1.7
326+70	328+50	LT	186			1.9
324+78	325+20	RT		41		
324+78	325+25	LT		64		
326+86	328+50	RT		336		
326+70	328+50	LT		342		
325+21	325+88	RT/LT			174	10
326+10	326+86	RT/LT			193	10
TOTAL			456	783	367	24.6
X1053 - ROUTE E						
293+93	294+54	RT	61			0.6
293+93	294+54	LT	61			0.6
297+17	297+49	RT	37			0.4
297+17	297+38	LT	28			0.3
297+66	297+72	LT	34			0.3
293+93	294+54	RT		139		
293+93	294+53	LT		142		
297+17	297+49	RT		33		
297+17	297+41	LT		65		
297+61	297+72	LT		20		
296+05	297+17	RT/LT			272	10
TOTAL			221	399	272	12.2
PAY TOTAL			856	1530	966	59

PAVEMENT					
BEGIN STATION	END STATION	OFFSET	TYPE 1 AGGREGATE BASE (4") (SY)	OPTIONAL PAVEMENT (SY)	GRAVEL OR CRUSHED STONE (B) (SY)
A1802 - ROUTE B					
363+75	364+27	CL	156	143.7	
366+03	366+53	CL	145	134.5	
TOTAL			301	278.2	
P0891 - ROUTE U					
324+78	325+27	CL	121	112.1	
326+73	328+50	CL	480	422.5	
TOTAL			601	534.6	
X1053 - ROUTE E					
293+93	294+34	CL	109	99.1	
297+37	297+75	CL	104	94.9	
297+37	297+71	LT			28
TOTAL			213	194	28
PAY TOTAL			1115	1006.8	28

PERMANENT EROSION CONTROL							
BEGIN STATION	END STATION	OFFSET	FURNISHING TYPE 1 ROCK DITCH LINER (CY)	PLACING TYPE 1 ROCK DITCH LINER (CY)	FURNISHING TYPE 2 ROCK BLANKET (CY)	PLACING TYPE 2 ROCK BLANKET (CY)	PERMANENT EROSION CONTROL GEOTEXTILE (SY)
A1802 - ROUTE B							
364+190	364+75	LT/RT			191	191	286
365+50	366+21	LT/RT			179	179	269
TOTAL					370	370	555
P0891 - ROUTE U							
325+21	325+85	LT/RT			233	233	350
326+13	326+86	LT/RT			328	328	492
TOTAL					561	561	842
X1053 - ROUTE E							
294+31	294+34	RT	1.3	1.3			10
294+31	294+34	LT	1.1	1.1			9
296+07	296+60	LT/RT			183	183	275
297+34	297+37	RT	1.1	1.1			9
297+34	297+37	LT	1.1	1.1			9
TOTAL			4.6	4.6	183	183	312
PAY TOTAL			4.6	4.6	1114	1114	1709

REMOVAL OF IMPROVEMENTS					
BEGIN STATION	END STATION	OFFSET	DESCRIPTION	QUANTITY	UNITS
A1802 - ROUTE B					
363+75		RT/LT	SAW CUT	23	LF
366+53		RT/LT	SAW CUT	22	LF
363+75	364+47	RT/LT	PAVEMENT	180	SY
365+83	366+53	RT/LT	PAVEMENT	194	SY
364+45		RT/LT	SIGN	3	EA
365+80		RT/LT	SIGN	3	EA
TOTAL				1	LS
P0891 - ROUTE U					
324+78		RT/LT	SAW CUT	18	LF
328+50		RT/LT	SAW CUT	18	LF
324+78	325+47	RT/LT	PAVEMENT	161	SY
326+54	328+50	RT/LT	PAVEMENT	470	SY
313+27		RT	SIGN	1	EA
317+92		RT	SIGN	1	EA
323+43		RT	SIGN	1	EA
325+08		RT/LT	SIGN	2	EA
325+27		RT/LT	SIGN	2	EA
325+47		RT/LT	SIGN	2	EA
326+54		RT/LT	SIGN	2	EA
326+75		RT/LT	SIGN	2	EA
326+97		RT/LT	SIGN	2	EA
328+39		LT	SIGN	1	EA
332+40		LT	SIGN	1	EA
338+07		LT	SIGN	1	EA
TOTAL				1	LS
X1053 - ROUTE E					
293+93		RT/LT	SAW CUT	20	LF
297+75		RT/LT	SAW CUT	21	LF
293+93	294+54	RT/LT	PAVEMENT	153	SY
297+17	297+75	RT/LT	PAVEMENT	149	SY
294+54		RT/LT	SIGN	2	EA
297+17		RT/LT	SIGN	2	EA
294+11		RT	WELL	1	EA
TOTAL				1	LS
PAY TOTAL				1	LS

SUMMARY OF QUANTITIES
SHEET 1 OF 5



DATE PREPARED
8/6/2025

ROUTE	STATE
B, U, & E	MO
DISTRICT	SHEET NO.
NW	3

COUNTY
LINN & GRUNDY

JOB NO.
JNW0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE



WILSON & COMPANY
ENGINEERS & ARCHITECTS

800 E 101st Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-3100
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EARTHWORK			
BEGIN STATION	END STATION	OFFSET	LINEAR GRADING CLASS 2 (STA)
A1802 - ROUTE B			
363+75	364+58	LT/RT	1.6
365+72	366+53	LT/RT	1.6
TOTAL			3.2
P0891 - ROUTE U			
324+78	325+50	LT/RT	1.4
326+50	328+50	LT/RT	4.0
TOTAL			5.4
X1053 - ROUTE E			
293+93	294+54	LT/RT	1.2
297+17	297+75	LT/RT	1.2
TOTAL			2.4
PAY TOTAL			11.0

MOBILIZATION	
1 LUMP SUM	
CONTRACTOR FURNISHED SURVEYING & STAKING	
1 LUMP SUM	

FLOWABLE BACKFILL			
BEGIN STATION	END STATION	QTY (CY)	REMARKS
P0891 - ROUTE U			
325+47	325+49	2	END BENT NO. 1
TOTAL		2	

PAVEMENT MARKING			
BEGIN STATION	END STATION	OFFSET	PERM. 4" YELLOW CLASS 1 PAVEMENT MARKING PAINT TYPE P BEADS (LF)
A1802 - ROUTE B			
363+55	366+73	CL	80
TOTAL			80
P0891 - ROUTE U			
323+42	328+70	CL	1056
TOTAL			1056
X1053 - ROUTE E			
293+73	297+95	CL	106
TOTAL			106
PAY TOTAL			1242

CLEARING & GRUBBING			
BEGIN STATION	END STATION	QTY (ACRE)	REMARKS
P0891 - ROUTE U			
324+78	328+50	0.5	BRUSH AND SMALL TREE REMOVAL
TOTAL		0.5	
X1053 - ROUTE E			
293+93	297+75	0.5	BRUSH AND SMALL TREE REMOVAL
TOTAL		0.5	
PAY TOTAL		1.00	

SEEDING AND MULCHING				
BEGIN STATION	END STATION	OFFSET	COOL SEASON MIXTURES (AC)	MULCHING (AC)
A1802 - ROUTE B				
363+75	366+53	RT/LT	0.1	0.1
TOTAL			0.1	0.1
P0891 - ROUTE U				
324+78	328+50	RT/LT	0.2	0.2
TOTAL			0.2	0.2
X1053 - ROUTE E				
293+93	297+75	RT/LT	0.1	0.1
TOTAL			0.1	0.1
PAY TOTAL			0.4	0.4



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DATE PREPARED 8/6/2025	
ROUTE B, U, & E	STATE MO
DISTRICT NW	SHEET NO. 3
COUNTY LINN & GRUNDY	
JOB NO. JNW0013	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-273-6636)

WILSON & COMPANY
ENGINEERS & ARCHITECTS

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Phone (816) 701-3100
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Authority #2003007599

*BREAKAWAY ASSEMBLY IS INCIDENTAL FOR STRUCTURAL STEEL AND PIPE POSTS.
*BACKING BARS ARE TOTALED WITH STRUCTURAL STEEL OR PIPE POSTS.

WILSON
& COMPANY
ENGINEERS & ARCHITECTS

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COMMISSION

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

DATE	DESCRIPTION

BRIDGE NO.

PROJECT NO

CONTRACT ID

INW0013

COUNTY
LINN & GRUNDY

DISTRICT	SHEET NO.
NW	3

ROUTE	STATE
B, U, & E	MO

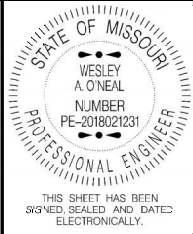
DATE PREPARED
3/6/202

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SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BIDGE/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						

UTILITY CONTACTS DURING CONSTRUCTION
GRM NETWORKS
1001 KENTUCKY STREET
PRINCETON, MO 64673
660-748-3231
LINN-LIVINGSTON COUNTY PWSO 3
703 S STATE STREET
WHEELING, MO 64688



DATE PREPARED 8/6/2025	
ROUTE B, U, & E	STATE MO
DISTRICT NW	SHEET NO. 4
COUNTY LINN & GRUNDY	
JOB NO. JNW0013	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

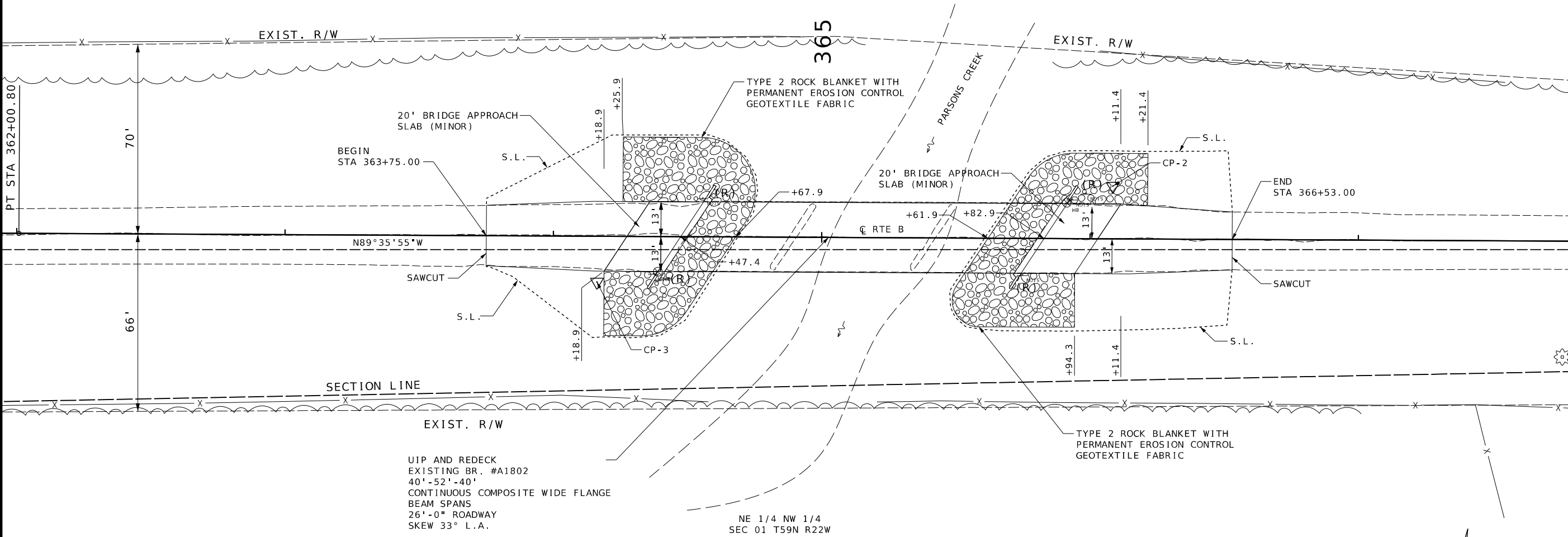
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

800 E 10th Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-3100
Fax (816) 942-3013
Missouri Cert. of
Authority #2003007599

WILSON & COMPANY
ENGINEERS & ARCHITECTS

SE 1/4 SW 1/4
SEC 36 T58N R22W

NE 1/4 NW 1/4
SEC 01 T59N R22W



ALL BEARINGS BASED ON LDP MO LINNEUS-
2023 FT COORDINATE SYSTEM

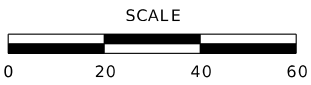
ANY WORK INDICATED ON THE PLANS THAT
EXTENDS BEYOND THE PROJECT LIMITS IS
CONSIDERED INCIDENTAL TO AND A PART OF
THE CONSTRUCTION OF THIS PROJECT

ACCESS IS ALLOWED UNDER THE BRIDGE


CONTROL POINTS

C.P. 2 - SET 5/8" BAR W/ 2" ALUM. CAP
STA. 366+08.50, 19.70' LT
ELEV. 734.32

C.P. 3 - SET 5/8" BAR W/ 2" ALUM. CAP
STA. 364+16.22, 17.04' RT
ELEV. 734.91



PLAN
LINN-ROUTE B
SHEET 1 OF 3



STATE OF MISSOURI

WESLEY
A. O'NEAL

NUMBER
PE-2018021231

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

PROJECT NO.
BRIDGE NO.



MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

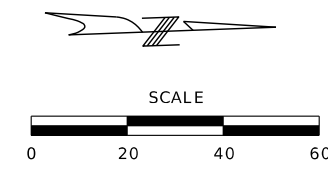
MoDOT

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

WILSON
& COMPANY
ENGINEERS & ARCHITECTS

800 E. 101st Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-1300
Fax (816) 942-3013

Missouri Cert. of
Authority #2003007599



CONTROL POINTS

C.P. 101 - SET 5/8" BAR W/ 2" ALUM. CAP
STA. 326+23.92, 52.33' LT
ELEV. 767.31

C.P. 102 - SET 5/8" BAR W/ 2" ALUM. CAP
STA. 324+76.11, 16.46' LT/RT
ELEV. 773.21

PLAN
LINN-ROUTE U
SHEET 2 OF 3

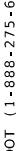
STATE OF MISSOURI
WESLEY
A. O'NEAL
NUMBER
PE-2018021231
PROFESSIONAL ENGINEER

DATE PREPARED	
8/6/2025	
ROUTE	STATE
B, U, & E	MO
DISTRICT	SHEET NO.
NW	6

COUNTY
LINN & GRUNDY
JOB NO.
JNW0013
CONTRACT ID.

PROJECT NO.

BRIDGE NO.

[illegible]

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

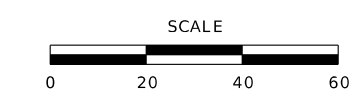
MoDOT

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

300 E 101st Terr., Ste. 200
Kansas City, MO 64131
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WILSON
& COMPANY
ENGINEERS & ARCHITECTS

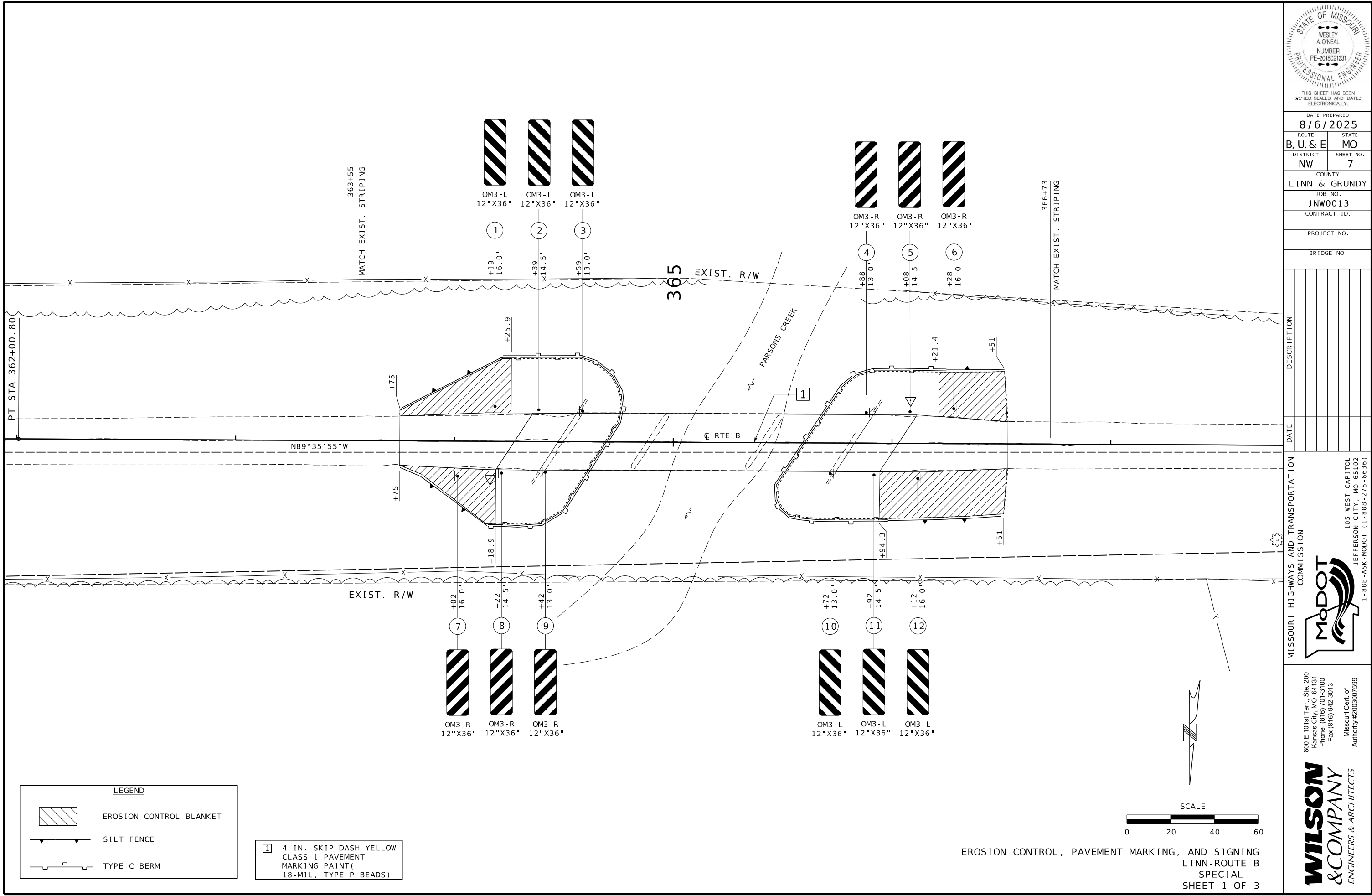


PLAN
GRUNDY-ROUTE E
SHEET 3 OF 3

CONTROL POINTS

C.P. 101 - SET 5/8" BAR W/ 2" ALUM. CAP
STA. 293+77.14, 13.78' RT
ELEV. 758.44

C.P. 102 - SET 5/8" BAR W/ 2" ALUM. CAP
STA. 297+56.66, 25.20' RT
ELEV. 764.66



STATE OF MISSOURI
WESLEY A. O'NEAL
NUMBER
PE-2018021231
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

DATE PREPARED 8/6/2025	
ROUTE B, U, & E	STATE MO
DISTRICT NW	SHEET NO. 7
COUNTY LINN & GRUNDY	
JOB NO. JNW0013	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

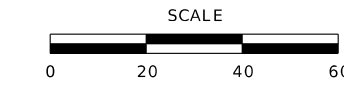
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

800 E 101st Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-3100
Fax (816) 942-3013
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Authority #2003007599

WILSON & COMPANY
ENGINEERS & ARCHITECTS

EROSION CONTROL, PAVEMENT MARKING, AND SIGNING
LINN-ROUTE B
SPECIAL
SHEET 1 OF 3



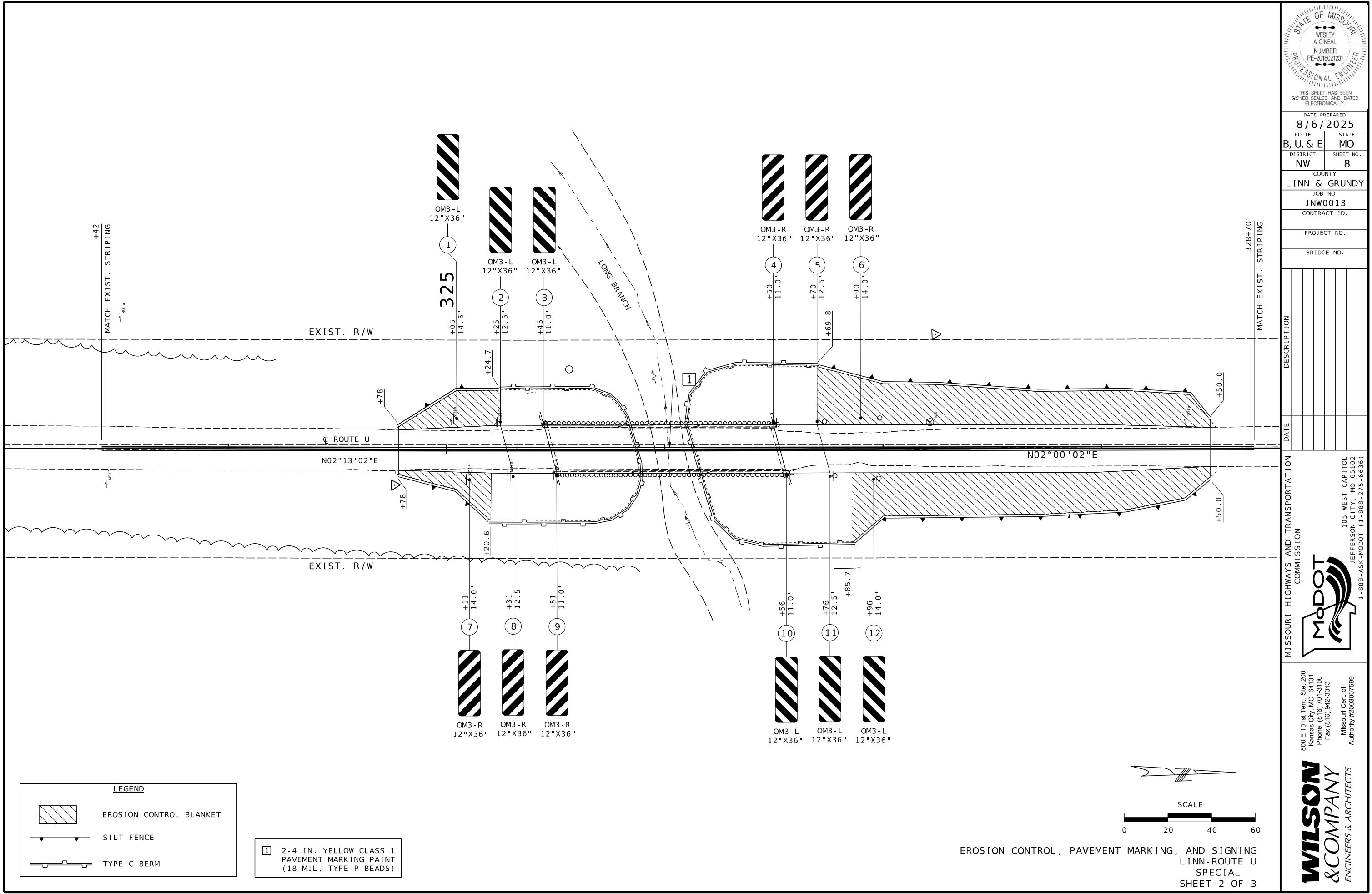
LEGEND

EROSION CONTROL BLANKET

SILT FENCE

TYPE C BERM

1 4 IN. SKIP DASH YELLOW
CLASS 1 PAVEMENT
MARKING PAINT(
18-MIL, TYPE P BEADS)



STATE OF MISSOURI
WESLEY A. O'NEAL
NUMBER
PE-2018021231
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

DATE PREPARED 8/6/2025	
ROUTE B, U, & E	STATE MO
DISTRICT NW	SHEET NO. 8
COUNTY LINN & GRUNDY	
JOB NO. JNW0013	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

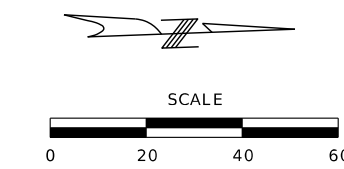
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

800 E 101st Terr., Ste. 200
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WILSON & COMPANY
ENGINEERS & ARCHITECTS

EROSION CONTROL, PAVEMENT MARKING, AND SIGNING
LINN-ROUTE U
SPECIAL
SHEET 2 OF 3



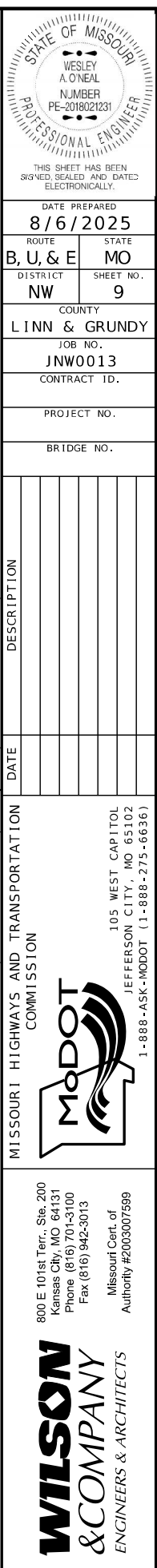
LEGEND

EROSION CONTROL BLANKET

SILT FENCE

TYPE C BERM

1 2-4 IN. YELLOW CLASS 1
PAVEMENT MARKING PAINT
(18-MIL, TYPE P BEADS)



TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- E

BARRICADE
- ▨

WORK AREA



WO20-3
20



WO20-3
20a



R11-3a
56



R11-3a
55



R11-4
30

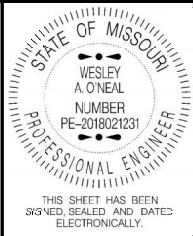
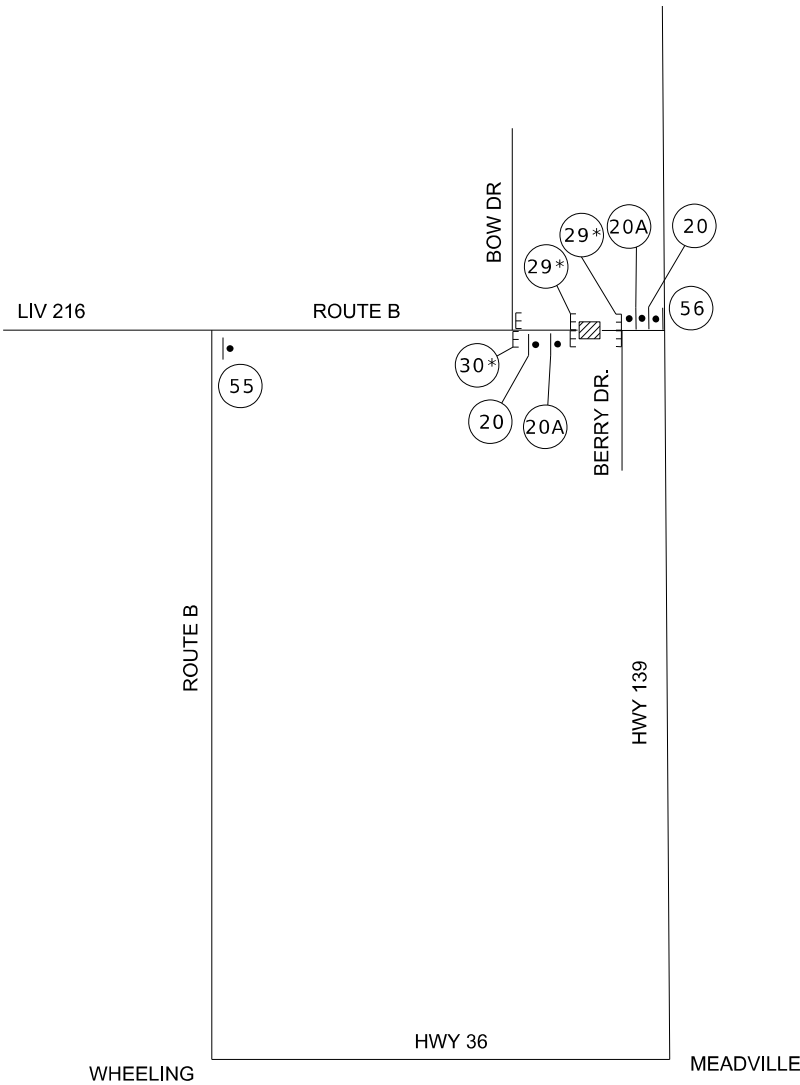


R11-2
29

NOTES:

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

* SIGN MOUNTED TO BARRICADE



DATE PREPARED 8/6/2025	
ROUTE B, U, & E	STATE MO
DISTRICT NW	SHEET NO. 10
COUNTY LINN & GRUNDY	
JOB NO. JNW0013	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-273-6636)

800 E 101st Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-3100
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WILSON & COMPANY
ENGINEERS & ARCHITECTS

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Authority #2003007599

TRAFFIC CONTROL
LINN-ROUTE B
SHEET 1 OF 3

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- BARRICADE
- WORK AREA



WO20-3
20



WO20-3
20a



R11-3a
56



R11-3a
55



R11-4
30

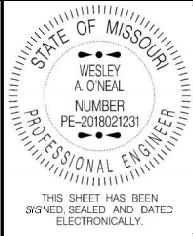
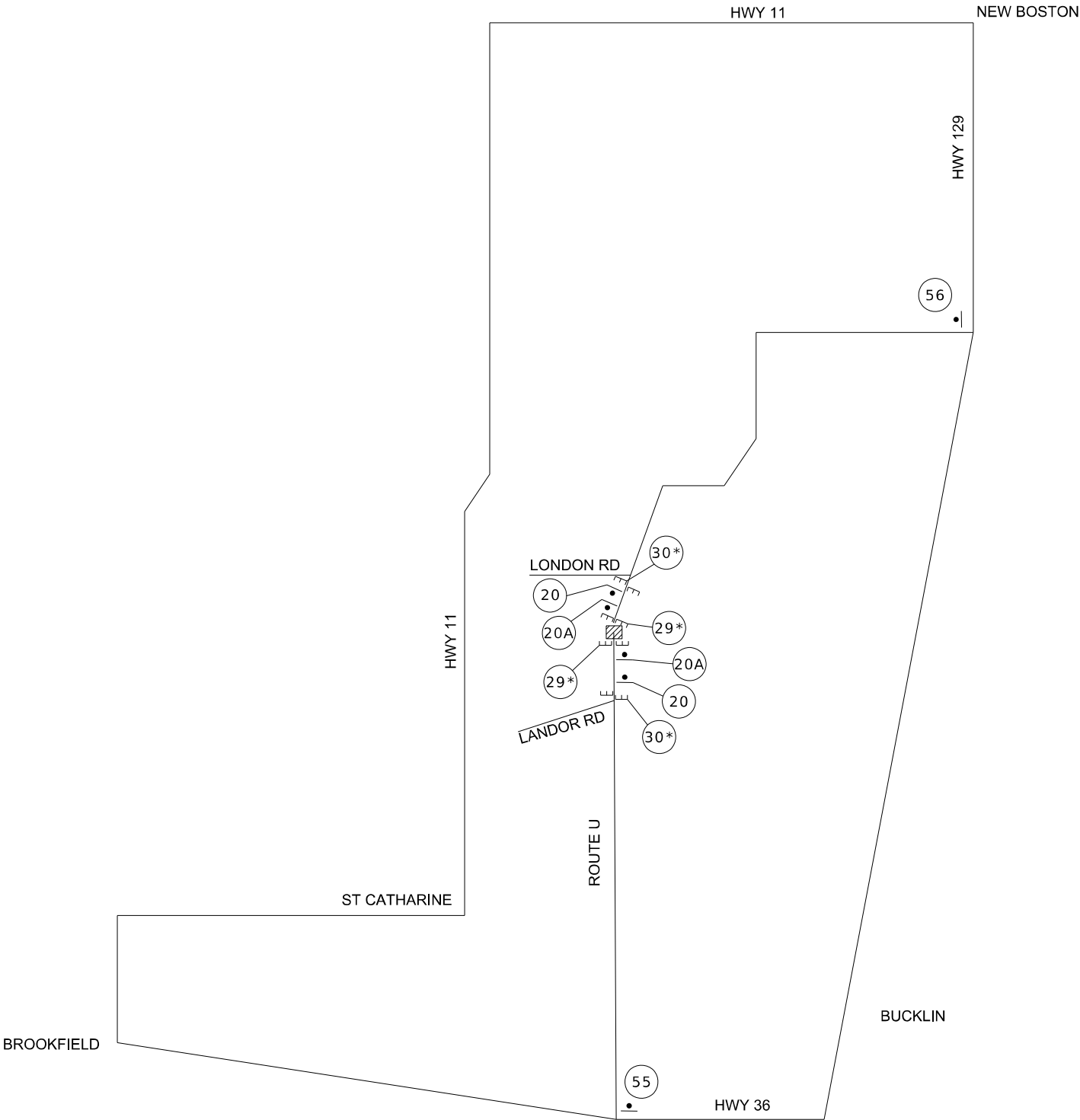


R11-2
29

NOTES:

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

* SIGN MOUNTED TO BARRICADE



DATE PREPARED	
8/6/2025	
ROUTE	STATE
B, U, & E	MO
DISTRICT	SHEET NO.
NW	11
COUNTY	
LINN & GRUNDY	
JOB NO.	
JNW0013	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-273-6636)

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Missouri Cert. of
Authority #2003007599

TRAFFIC CONTROL
LINN-ROUTE U
SHEET 2 OF 3

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- BARRICADE
- WORK AREA



WO20-3
20



R11-3a
56



R11-4
30



WO20-3
20a



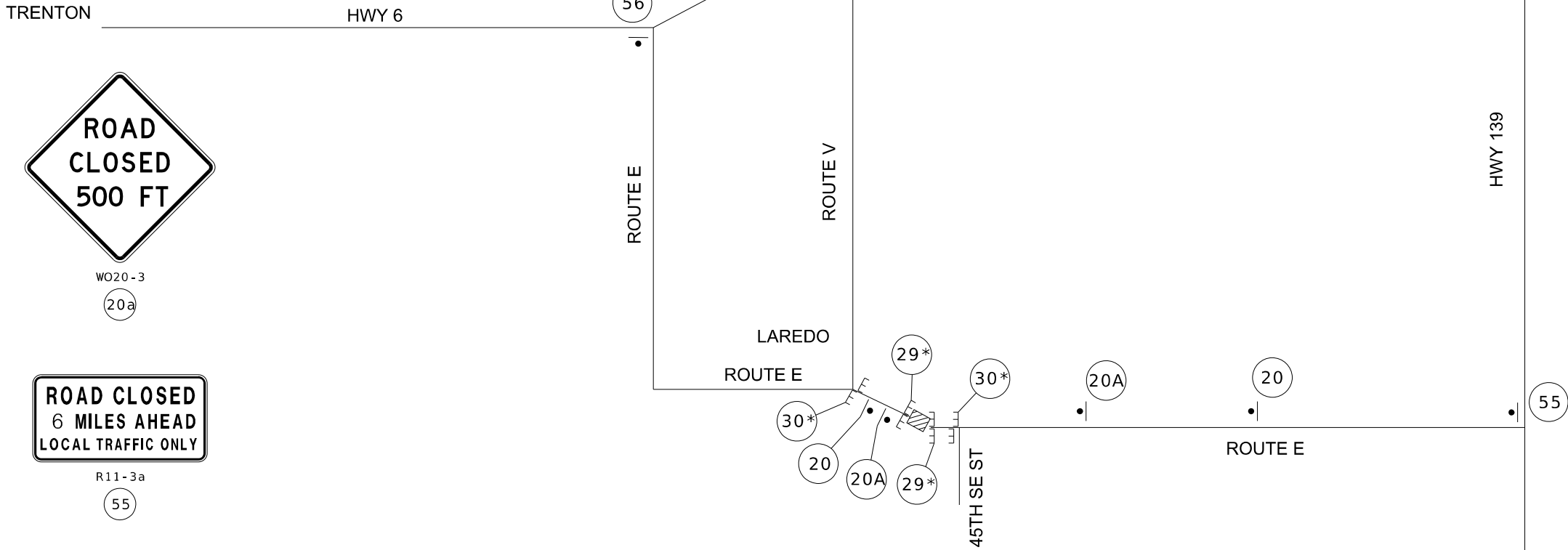
R11-3a
55



R11-2
29

NOTES:
ANY EXISTING SIGNS THAT CONFLICT WITH THIS TRAFFIC CONTROL PLAN SHALL BE COVERED.

* SIGN MOUNTED TO BARRICADE



TRAFFIC CONTROL
GRUNDY-ROUTE E
SHEET 3 OF 3



THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

DATE PREPARED
8/6/2025

ROUTE	STATE
B, U, & E	MO
DISTRICT	SHEET NO.
NW	12

COUNTY

LINN & GRUNDY

JOB NO.

JNW0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-273-6636)

800 E 101st Terr., Ste. 200
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WILSON
& COMPANY
ENGINEERS & ARCHITECTS

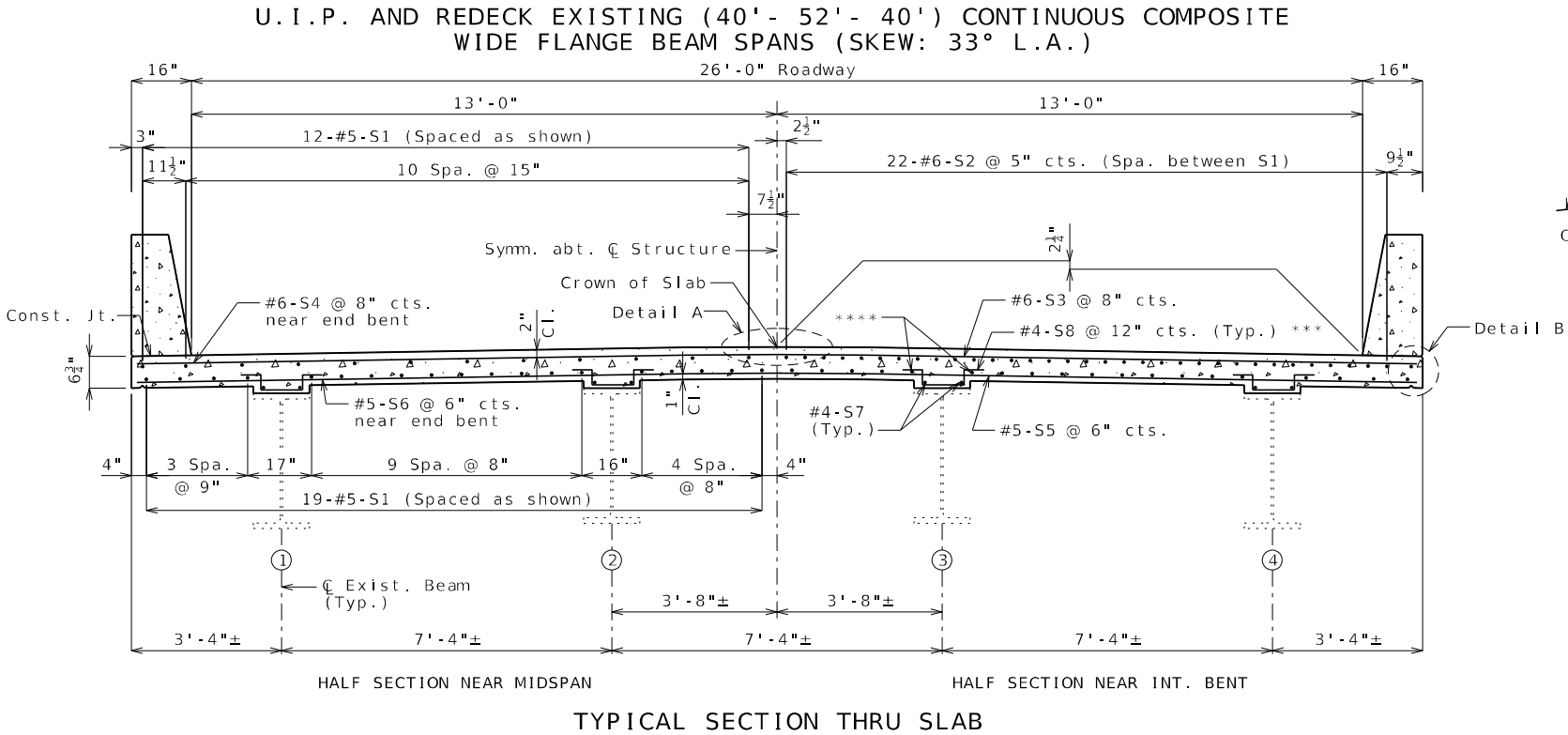
Table Showing S2 Bar Lengths			
Int. Bent No. 2		Int. Bent No. 3	
Span (1-2)	Span (2-3)	Span (2-3)	Span (3-4)
11'-6"	13'-6"	13'-6"	11'-6"

Required Lap Length For Bar Splices **	
Bar Size	Splice Length
4	2'-7"
5	3'-3"
6	3'-10"
7	4'-11"

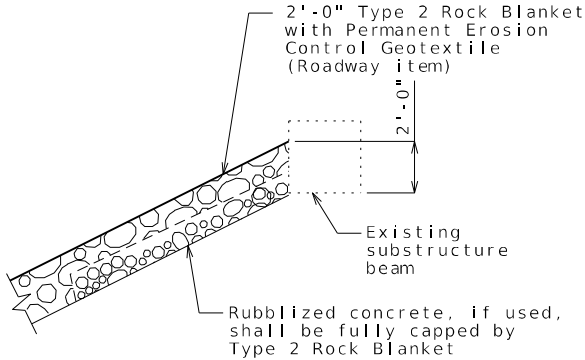
** Unless otherwise shown.

General Notes:

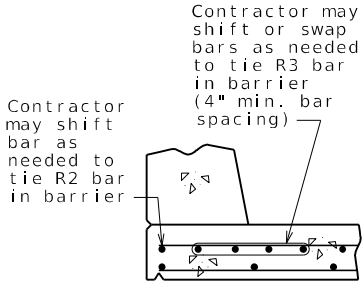
- Design Specifications:
2002 AASHTO LFD (17th Ed.) Standard Specifications
Seismic Performance Category A
- Design Loading:
H15-44 (1965) (Existing)
HS20-44 (New Construction)
15 lb/sf Future Wearing Surface
Earth - 120 lb/cf, Equivalent Fluid Pressure 45 lb/cf
Fatigue Stress - Case III
- Design Unit Stresses:
Class B-1 Concrete (Barrier) $f'c = 4,000$ psi
Class B-2 Concrete (End Bents & Superstructure, except Barrier) $f'c = 4,000$ psi
Reinforcing Steel (ASTM A615 Grade 60) $f_y = 60,000$ psi
Structural Carbon Steel (ASTM A709 Grade 36) $f_y = 36,000$ psi
- 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.
- Miscellaneous:
Bars bonded in existing concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, existing bars shall extend into new concrete at least 40 diameters for plain bars and 30 diameters for deformed bars, unless otherwise noted.
- Roadway surfacing adjacent to bridge ends shall match new bridge slab surface. (Roadway item)
- Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.
- Contractor shall verify all dimensions in field before finalizing the shop drawings.
- The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.
- Rubblized concrete from the existing bridge deck that qualifies as clean fill may be placed on spill slopes at end bents above ordinary high water line (Roadway item).
- For adjusted girder deflection due to the weight of the new deck and barriers, see Bridge Electronic Deliverables.
- Traffic Handling:
Structure to be closed during construction. Traffic to be maintained on other routes during construction. See roadway plans for traffic control.



*** #4-S8 hairpin bars may be placed at an angle to meet clearance
**** Contractor may shift bars to tie #4-S8 to the bottom longitudinal bars as needed.

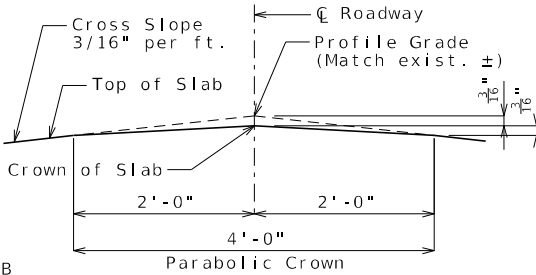


ROCK BLANKET ON SPILL SLOPES

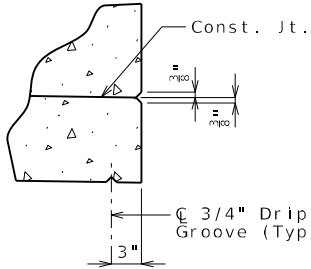


OPTIONAL SHIFTING TOP BARS AT BARRIER

SEC/SUR 1 TWP 58N RGE 22W



DETAIL A



DETAIL B

Estimated Quantities		
Item		Total
Removal of Miscellaneous ACM (Non-Friable)	sq. foot	12
Removal of Existing Bridge Deck	sq. foot	3,908
Bridge Approach Slab (Minor)	sq. yard	118
Slab on Steel	sq. yard	434
Type H Barrier	linear foot	272
Strengthening Existing Beams	lump sum	1
Slab Drain	each	24
Surface Preparation for Applying Epoxy-Mastic Primer	lump sum	1
Aluminum Epoxy-Mastic Primer	lump sum	1
Non-Destructive Testing	linear foot	120

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

Estimated Quantities for Slab on Steel		
Item		Total
Class B-2 Concrete	cu. yard	94
Reinforcing Steel (Epoxy Coated)	pound	37,879

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

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

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

For Optional Stay-In-Place Form Details, see Sheet No. 2.

REPAIRS TO BRIDGE:
ROUTE B OVER PARSONS CREEK

ROUTE B FROM ROUTE BB TO ROUTE 139
ABOUT 0.6 MILE WEST OF ROUTE 139
BEGINNING STATION 364+47.50 ± (MATCH EXISTING)

STATE OF MISSOURI
JASON M. KEMNITZ
NUMBER
PE-2011005051
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY

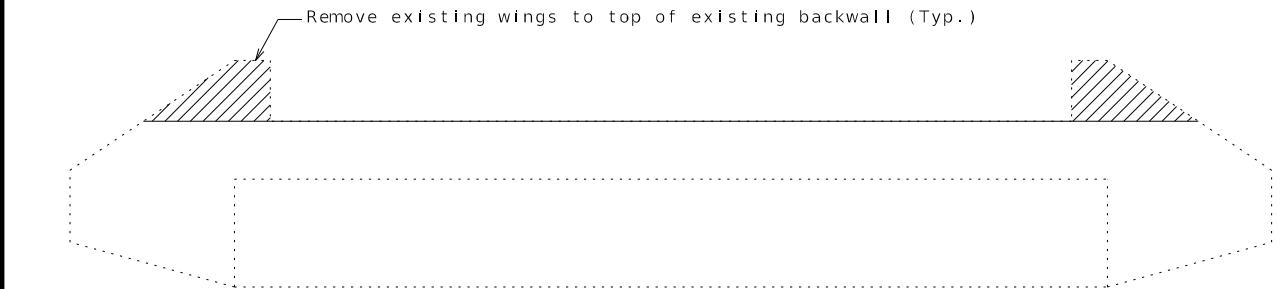
DATE PREPARED
7/25/2025
ROUTE B
DISTRICT BR
COUNTY LINN
JOB NO. JN0013
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A18021

DESCRIPTION
DATE

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

800 E 101st Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-3100
Fax (816) 942-3013
Missouri Cert. of
Authority #2003007599

WILSON & COMPANY
ENGINEERS & ARCHITECTS

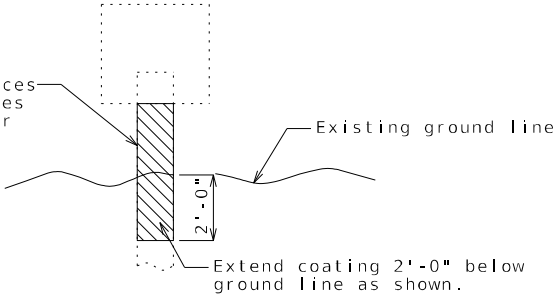


DETAILS OF CONCRETE REMOVAL AT END BENTS

The cost of concrete removal as shown will be considered completely covered by the contract unit price for Removal of Existing Bridge Deck. Vertical backwall and wingwall reinforcement to be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

A smooth, level surface shall be provided at Bents No. 1 & 4 removal lines.

Clean and coat all exposed surfaces of existing structural steel piles with aluminum epoxy-mastic primer in accordance with Sec 1081.



TYPICAL SECTION THRU
INT. BENTS NO. 2 & 3 SHOWING
PROTECTIVE COATING OF PILES

Structural Steel Protective Coating:

All exposed surfaces of the existing structural steel piles and sway bracing shall be recoated with one 6-mil thickness of aluminum epoxy-mastic primer applied over an SSPC-SP3 surface preparation in accordance with Sec 1081. The bituminous coating shall be applied two foot above and below the existing ground line and in accordance with Sec 702. These protective coatings will not be required below the normal low water line. The cost of surface preparation will be considered completely covered by the contract lump sum price for Surface Preparation for Applying Epoxy-Mastic Primer. The cost of the aluminum epoxy-mastic primer and bituminous coating will be considered completely covered by the contract lump sum price for Aluminum Epoxy-Mastic Primer.

General Notes:

Stay-In-Place Forms:

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

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

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

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

Pouring and Finishing Slab:

The contractor shall provide bracing necessary for lateral and torsional stability of the beams during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not weld on or drill holes in the beams. The cost for furnishing, installing, and removing bracing will be considered completely covered by the contract unit price for Slab on Steel.

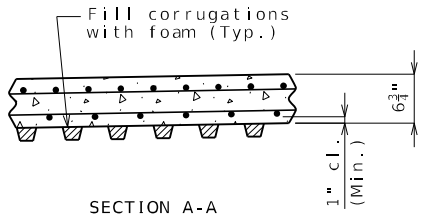
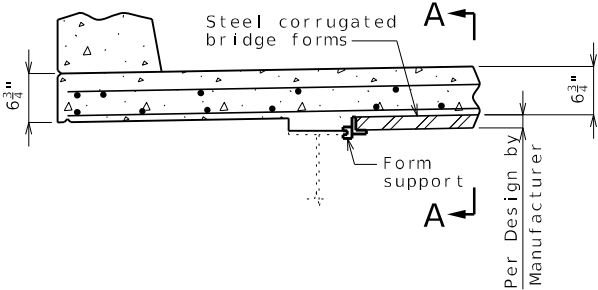
Slab shall be poured upgrade from end to end at a minimum rate of 25 cubic yards per hour.

Alternate pour sequences may be submitted to the engineer for approval. Keyed construction joints shall be provided between pours.

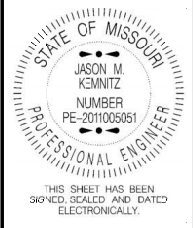
Bridge deck surface may be finished with a vibratory screed.

Haunching:

Slab is to be considered a uniform thickness as shown on the plans. Haunching will vary. See front sheet for slab thickness. Haunches will be increased approximately 1" when comparing with original plan dimensions to match existing grade on Rte. B.



OPTIONAL STAY-IN-PLACE
FORM DETAILS



DATE PREPARED 7/30/2025	
ROUTE B	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY LINN	
JOB NO. JNW0013	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A18021	

DESCRIPTION	DATE

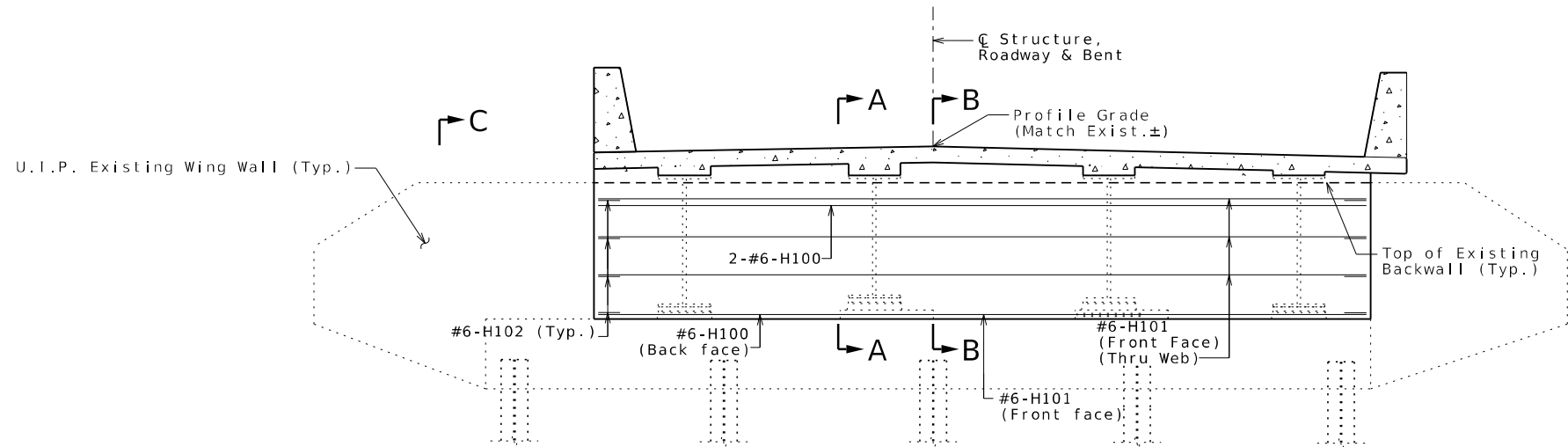
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

MoDOT

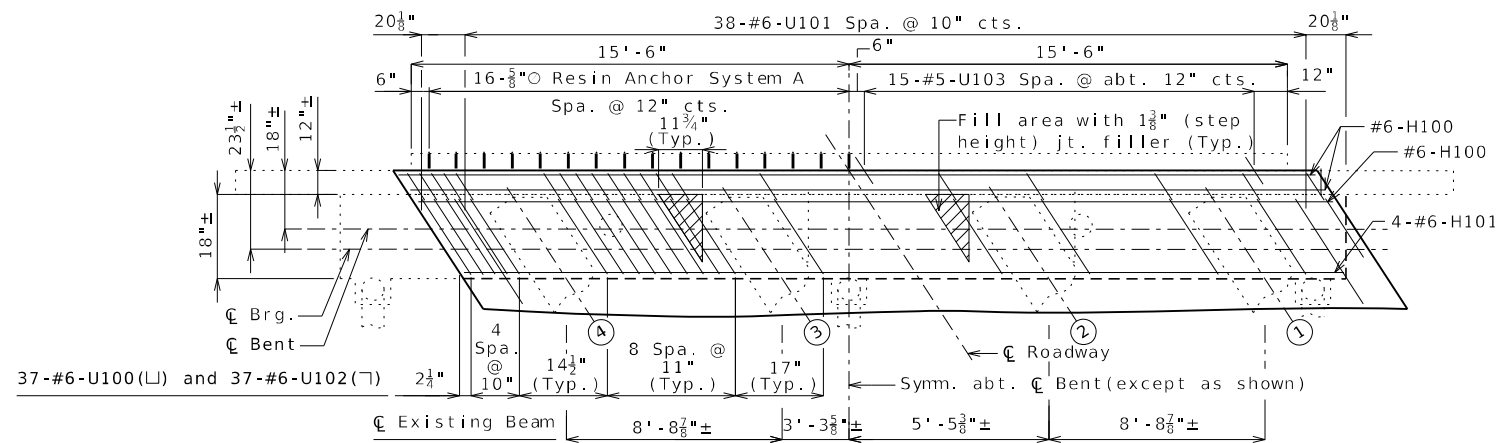
800 E 101st Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-3100
Fax (816) 942-3013
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SECTION NEAR END BENT

Note: Existing steel end diaphragms not shown for clarity (leave-in-place)



PART PLAN

Notes:

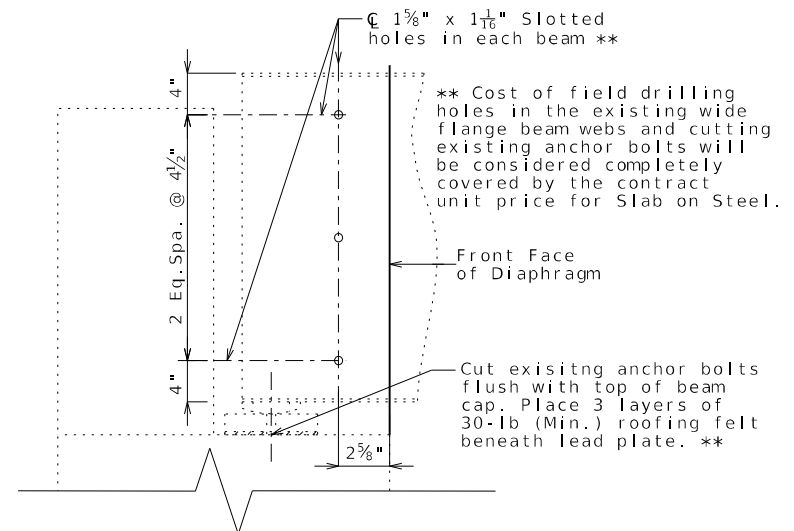
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor system, complete in place, will be considered completely covered by the contract unit price for Slab on Steel.

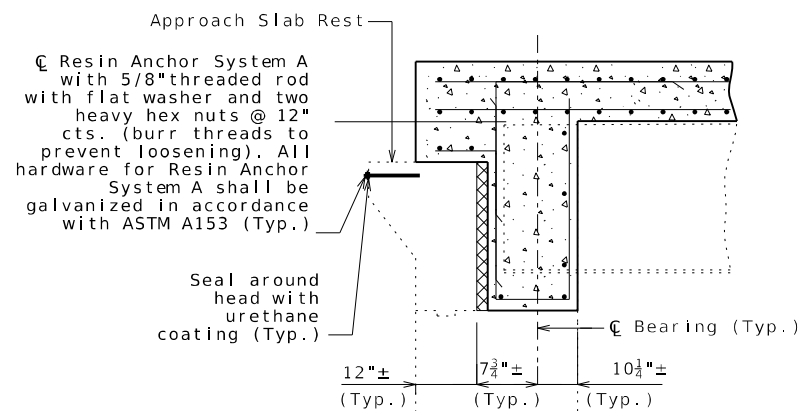
All reinforcement and concrete in the concrete diaphragm at the end bents is included in the Estimated Quantities for Slab on Steel and will be considered completely covered by the contract unit price for Slab on Steel.

The exposed and accessible surface of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSP-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry film thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for beams shall extend a minimum of one foot outside the face of the beam encasement. Payment for cleaning and coating steel to be encased in concrete, will be considered completely covered by the contract unit price for Slab on Steel.

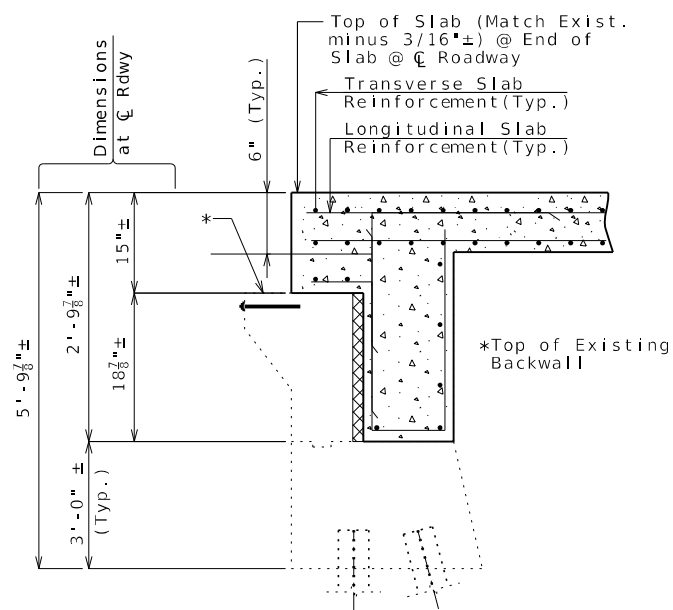
Cost of cutting anchor bolts, temporary supports, and placing roofing felt and joint filler will be considered completely covered by the contract unit price for Slab on Steel.



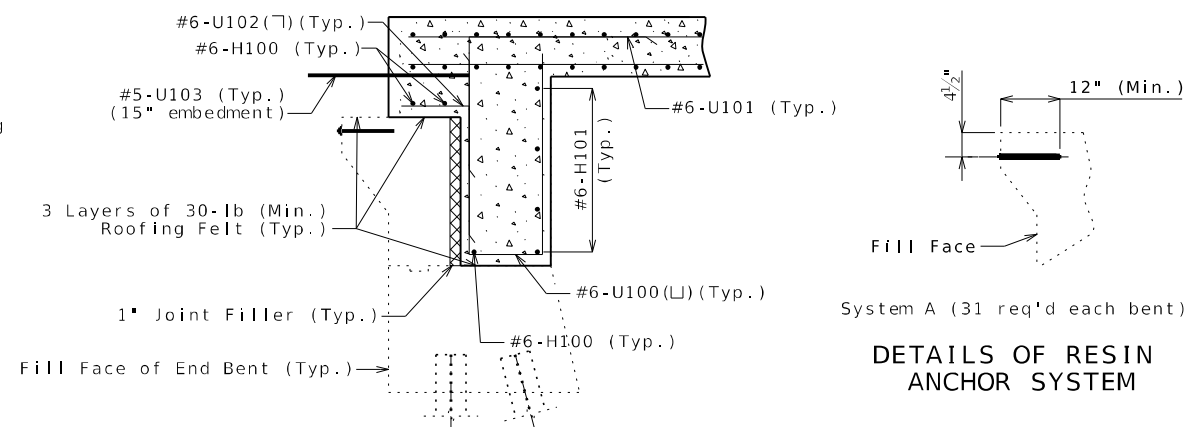
DETAIL OF WEB HOLES AT END BENT



SECTION A-A



SECTION B-B



SECTION C-C

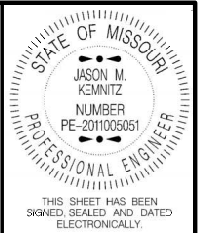
System A (31 req'd each bent)

DETAILS OF RESIN ANCHOR SYSTEM

Detailed March 2025
Checked May 2025

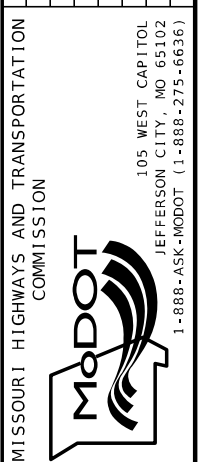
Note: This drawing is not to scale. Follow dimensions.

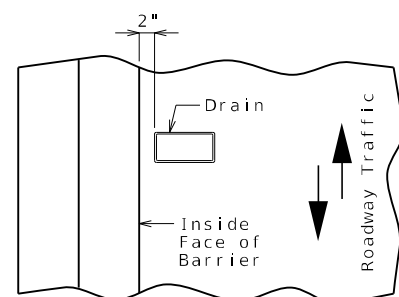
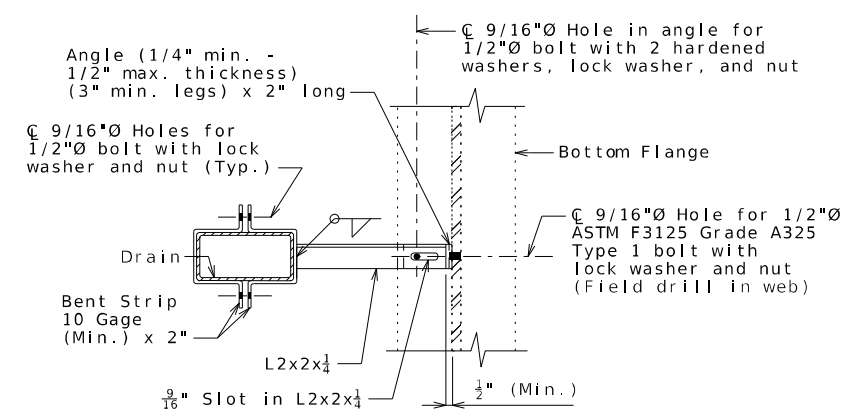
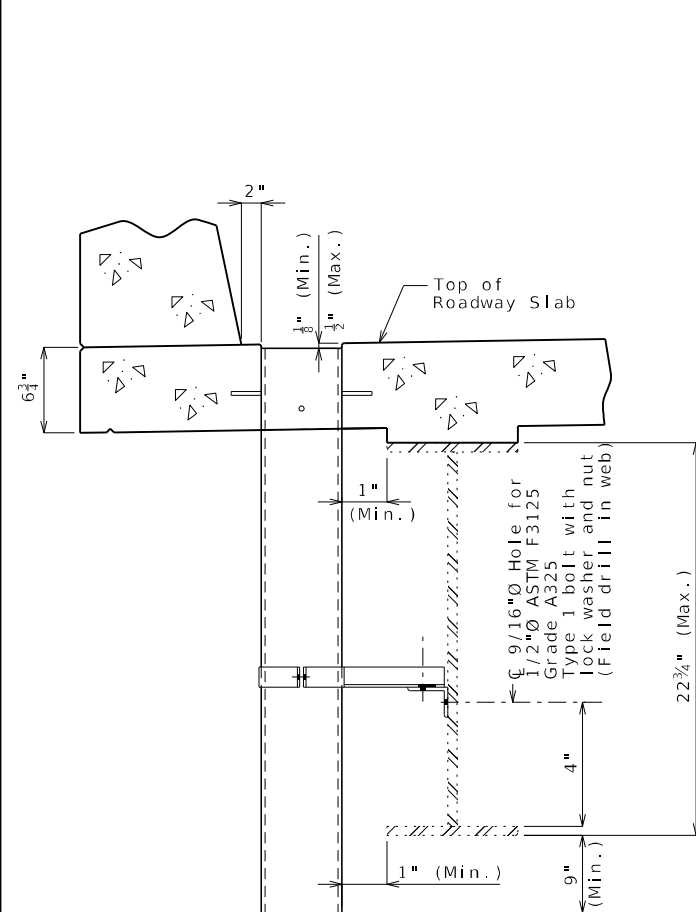
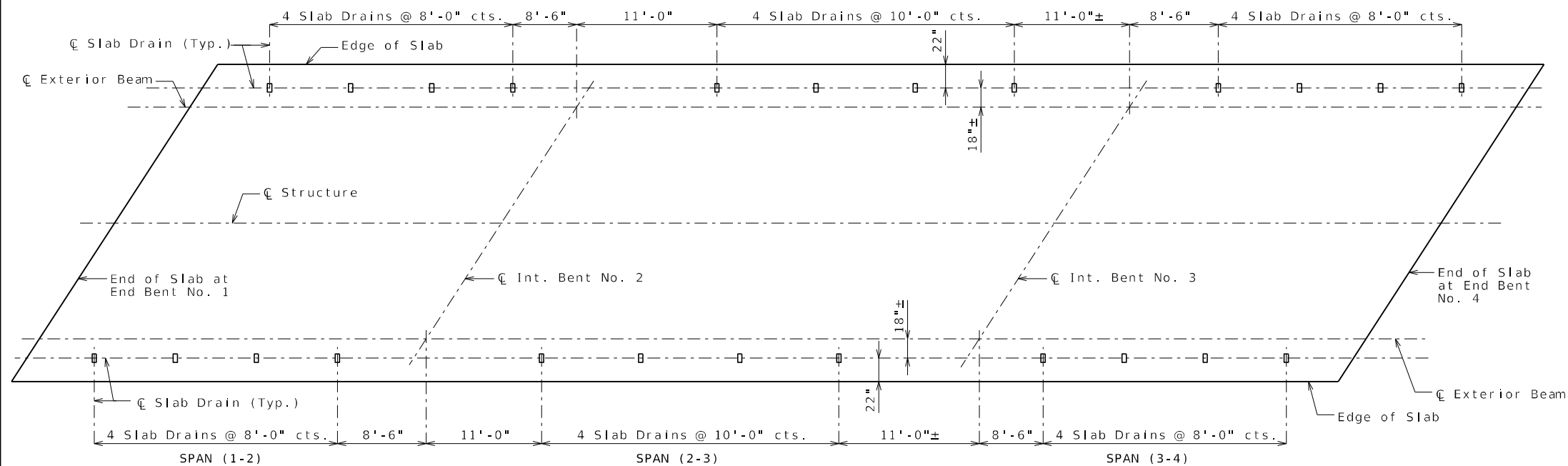
Sheet No. 3 of 10



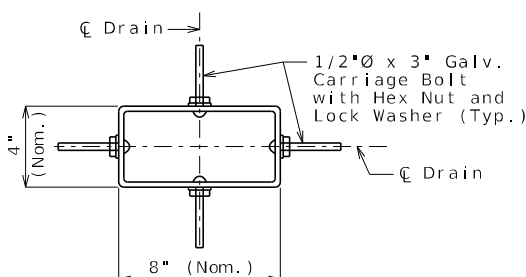
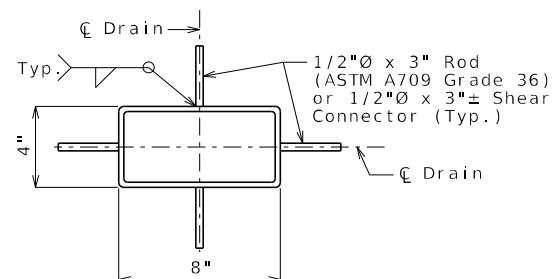
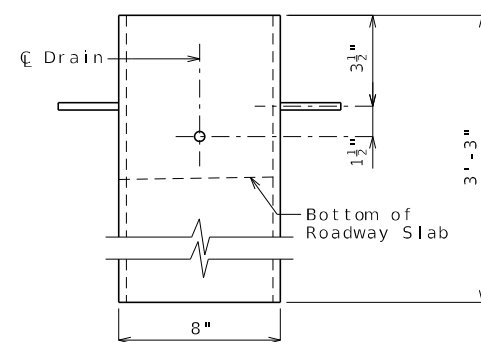
DATE PREPARED 7/25/2025	
ROUTE B	STATE MO
DISTRICT BR	SHEET NO. 3
COUNTY LINN	
JOB NO. JNW0013	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A18021	

DESCRIPTION	DATE





SLAB DRAINS



General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2-inch diameter bolts shall be ASTM A307, except as shown.

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

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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



THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

DATE PREPARED
7/25/2025

ROUTE B	STATE MO
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DISTRICT BR	SHEET NO. 4
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COUNTY
L I N N

JOB NO.
JNW0013

CONTRACT ID.

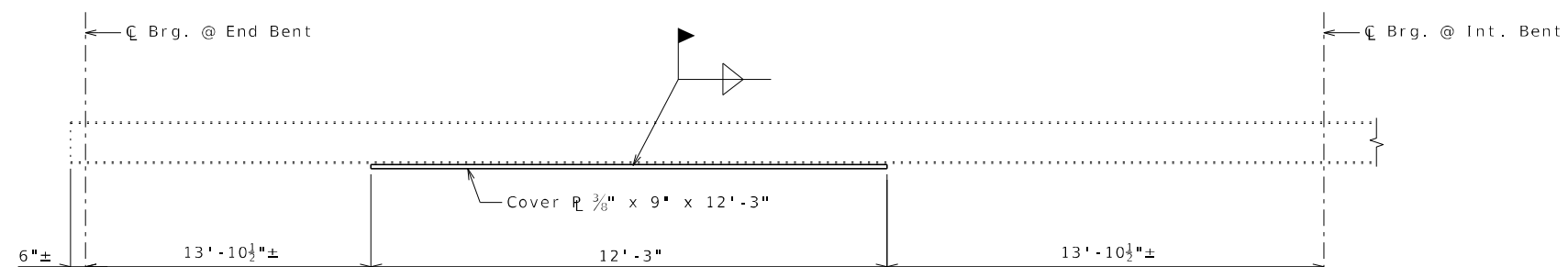
PROJECT NO.

BRIDGE NO.
A18021

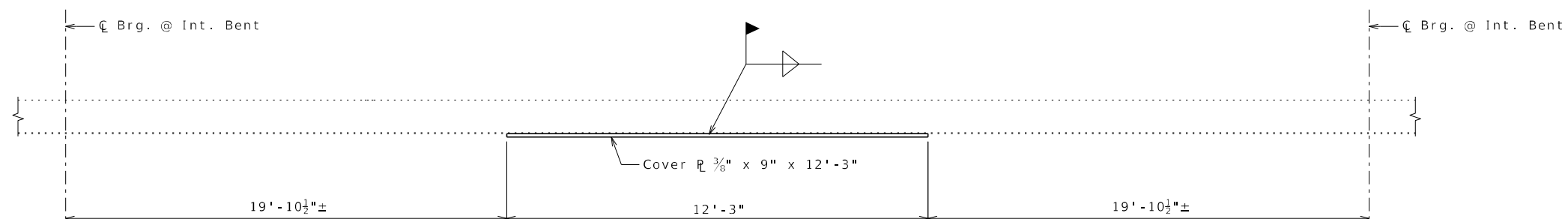
[illegible]MISSOURI HIGHWAYS AND TRANSPORTATION
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200 E 101st Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-3100
Fax (816) 942-3013
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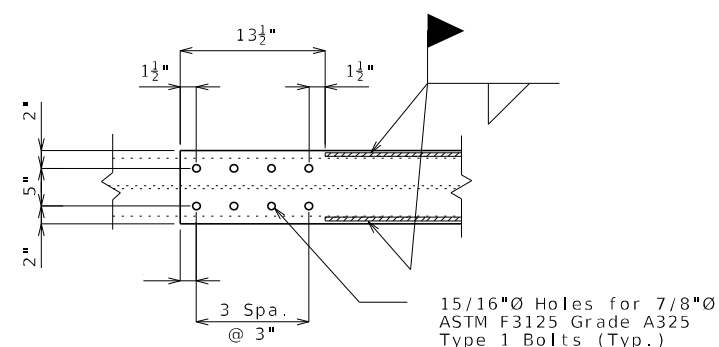
WILSON
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ENGINEERS & ARCHITECTS



PART ELEVATION OF EXTERIOR BEAMS SHOWING COVER PLATE INSTALLATION
SPAN (1-2) AND SPAN (3-4)



PART ELEVATION OF EXTERIOR BEAMS SHOWING COVER PLATE INSTALLATION
SPAN (2-3)



TYPICAL DETAIL OF THE
ENDS OF COVER PLATES
(BOTTOM VIEW)

Notes:

Beam with end-bolted cover plates shall be installed in the following sequence after existing bridge deck is removed:

1. Drill holes in cover plate and flange.
2. Clean faying surfaces. (See Special Provisions)
3. Install and tighten bolts.
4. Weld cover plate to flange.

Fabricated Structural Steel shall be ASTM A709 Grade 36, except as noted.

Payment for 936 pounds of new cover plates, complete in place, will be considered completely covered by the contract lump sum price for Strengthening Existing Beams.

Notch toughness is required for all cover plates.

Contractor shall verify all dimensions in field before finalizing the shop drawings.

STRENGTHENING EXISTING BEAMS



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DATE PREPARED _____

7/25/202

ROUTE	ST
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B	M
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DISTRICT	SHEET
BB	

BR	
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COUNTY
L. J. J. J.

LYNN

JOB NO.
LNW0013

JNW0013

CONTRACT ID

CONTRACT ID:

PROJECT NO. _____

BRIDGE NO.

A18021

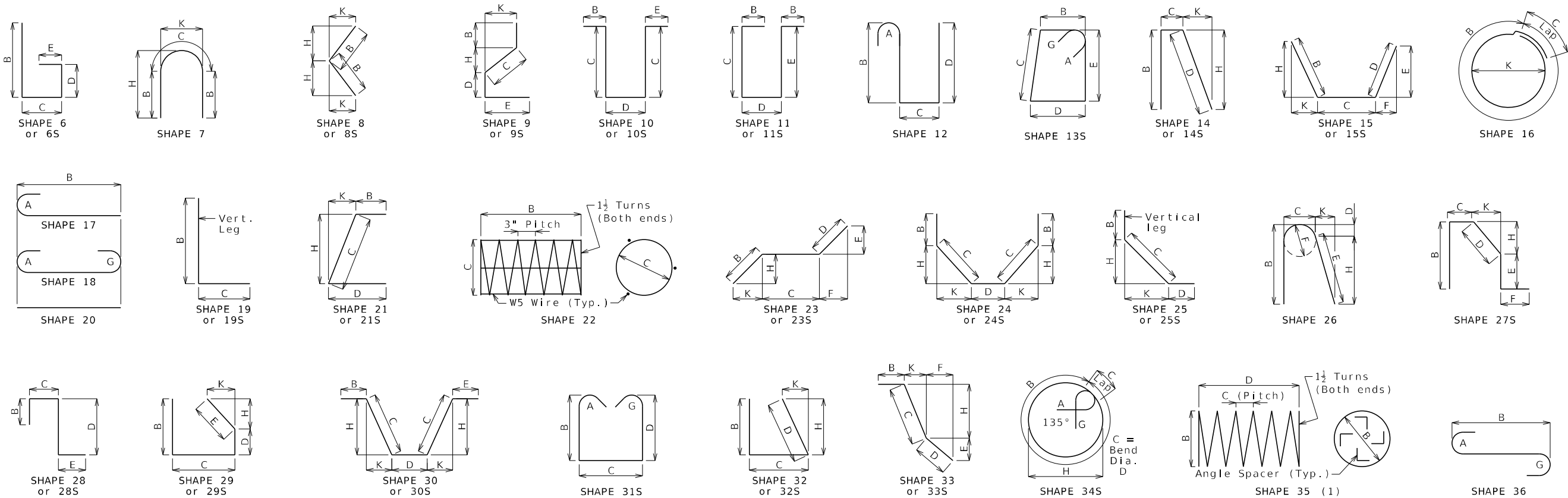
[illegible]MISSOURI HIGHWAYS AND TRANSPORTATION
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105 WEST CAPITOL
JEFFERSON CITY, MO 65102

00 E 101st Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-3100
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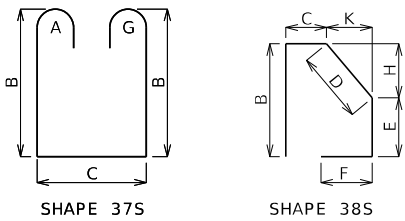


Finished Bend Dimensions D and Hook Dimensions						
Standard Pin Bend Shapes						
Size	Case	D	A or G		J	
			90°	180°	180°	
#4	1	3"	8"	6"	4"	
#5	1	3 3/4"	10"	7"	5"	
#6	1	4 1/2"	12"	8 1/4"	6"	
#7	2	5 1/4"	14"	9 3/4"	7"	
	3	7"	15"	11 1/2"	8 3/4"	
#8	2	6"	16"	11"	8"	
	3	8"	17"	13 1/4"	10"	
#9	1	9 1/2"	19 1/2"	15 1/2"	11 3/4"	
#10	1	10 3/4"	22"	17 1/2"	13 1/4"	
#11	1	12"	24 1/2"	19 1/2"	14 7/8"	
#14	1	18 1/4"	31 1/4"	27 1/2"	21 5/8"	
#18	1	24"	41 1/2"	36 1/4"	28 1/2"	
Stirrup Pin Bend Shapes (S)						
Size	Case	D	A or G		H	J
			90°	135°	180°	135°
#4	2	2"	4 1/2"	4 1/2"	5"	2 7/8"
	3	3"	5"	5 1/4"	6"	3"
#5	2	2 1/2"	5 3/4"	5 3/4"	5 3/4"	3 3/4"
	3	3 3/4"	6 1/4"	6 1/4"	7"	3 3/4"
#6	1	4 1/2"	12"	7 3/4"	8 1/4"	4 3/8"

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.

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



BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)							
By Size	Substructure		Superstructure			Entire Bridge	
	Plain	Epoxy	Slab	Barrier	Slip Form	Plain	Epoxy
	W5	0	0	0	0	0	0
4	0	0	1,228	0	501	0	1,729
5	0	146	17,237	5,678	0	0	23,061
6	0	2,271	10,815	0	0	0	13,086
7	0	0	0	0	0	0	0
By Type	0	0	0	0	0	0	37,876

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

STATE OF MISSOURI

JASON M. KEMNITZ

NUMBER PE-2011005051

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 7/25/2025

ROUTE B STATE MO

DISTRICT NW SHEET NO. 9

COUNTY L INN

JOB NO. JNW0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A18021

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

800 E 101st Terr., Ste. 200 Kansas City, MO 64131 Phone (816) 701-3100 Fax (816) 942-3013 Missouri Cert. of Authority #2003007599

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ENGINEERS & ARCHITECTS

U.I.P., REDECK AND MAKE COMPOSITE EXISTING (35', 35', 35') SIMPLE WIDE FLANGE BEAM SPANS (SKEW: 15° R.A.)

Table Showing S2 Bar Lengths			
Int. Bent No. 2	Int. Bent No. 3		
Span (1-2)	Span (2-3)	Span (2-3)	Span (3-4)
5'-0"	5'-0"	5'-0"	5'-0"

Required Lap Length For Bar Splices **	
Bar Size	Splice Length
4	2'-7"
5	3'-3"
6	3'-10"
7	4'-11"

** Unless otherwise shown.

General Notes:

Design Specifications:
2002 AASHTO LFD (17th Ed.) Standard Specifications
Seismic Performance Category A

Design Loading:
H10-44 (1953) (Existing)
HS20-44 (New Construction)
No Future Wearing Surface
Earth - 120 lb/cf, Equivalent Fluid Pressure 45 lb/cf
Fatigue Stress - Case III

Design Unit Stresses:
Class B-1 Concrete (Barrier) f'c = 4,000 psi
Class B-2 Concrete (End Bents & Superstructure, except Barrier) f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60) fy = 60,000 psi
Structural Carbon Steel (ASTM A709 Grade 36) fy = 36,000 psi

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.

Miscellaneous:
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Bars bonded in existing concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, existing bars shall extend into new concrete at least 40 diameters for plain bars and 30 diameters for deformed bars, unless otherwise noted.

Roadway surfacing adjacent to bridge ends shall match new bridge slab surface. (Roadway item)

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

Contractor shall verify all dimensions in the field before finalizing the shop drawings.

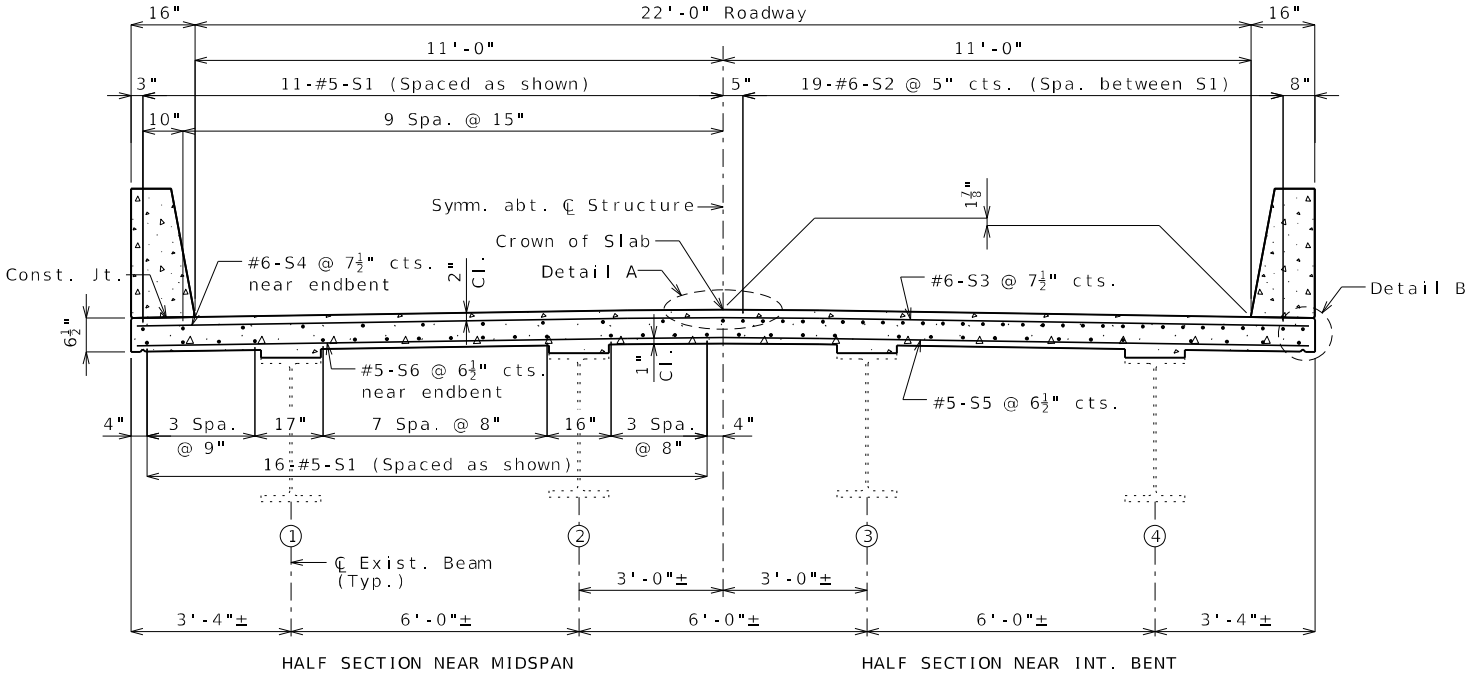
The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Rubblized concrete from the existing bridge deck that qualifies as clean fill may be placed on spill slopes at end bents above ordinary high water line (Roadway item).

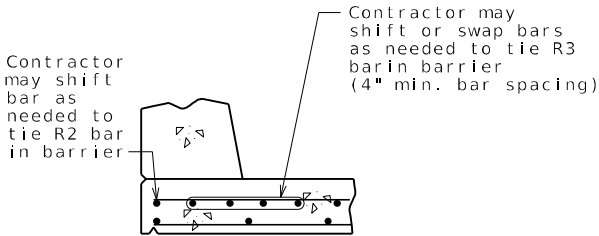
For adjusted girder deflection due to the weight of the new deck and barriers, see Bridge Electronic Deliverables.

Traffic Handling:

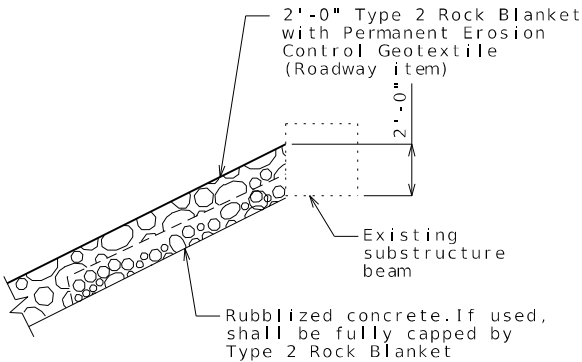
Structure to be closed during construction. Traffic to be maintained on other routes during construction. See roadway plans for traffic control.



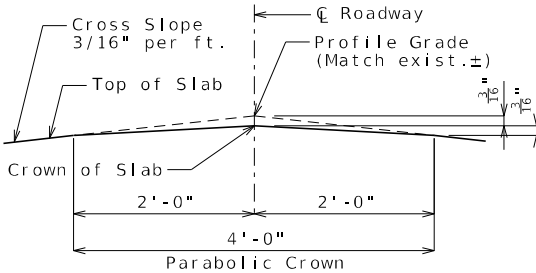
TYPICAL SECTION THRU SLAB



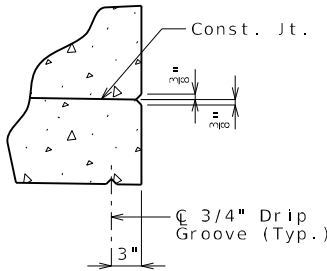
OPTIONAL SHIFTING TOP BARS AT BARRIER



ROCK BLANKET ON SPILL SLOPES



DETAIL A



DETAIL B

Estimated Quantities		
Item		Total
Removal of Existing Bridge Deck	sq. foot	2,486
Bridge Approach Slab (Minor)	sq. yard	105
Slab on Steel	sq. yard	294
Type H Barrier	linear foot	214
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
Shear Connectors	each	1,656
Strengthening Existing Beams	lump sum	1
Slab Drain	each	18
Surface Preparation for Applying Epoxy-Mastic Primer	lump sum	1
Aluminum Epoxy-Mastic Primer	lump sum	1

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

Estimated Quantities for Slab on Steel		
Item		Total
Class B-2 Concrete	cu. yard	71
Reinforcing Steel (Epoxy Coated)	pound	32,115

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

Method of forming the slab shall be 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 1, II or III.

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

For Optional Stay-In-Place Form Details, see Sheet No. 2.

REPAIRS TO BRIDGE:
ROUTE U OVER LONG BRANCH

ROUTE U FROM ROUTE 129 TO ROUTE 36
ABOUT 6.1 MILES NORTH OF ROUTE 36
BEGINNING STATION 325+47.00 ± (MATCH EXISTING)

STATE OF MISSOURI

JASON M. KEMNITZ

NUMBER PE-2011005051

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 7/25/2025

ROUTE U STATE MO

DISTRICT BR SHEET NO. 1

COUNTY LINN

JOB NO. JNW0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO. P08911

DESCRIPTION

DATE

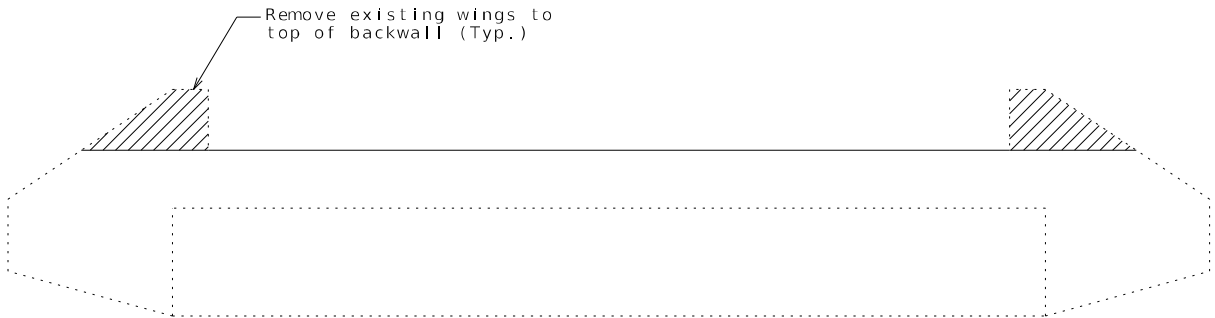
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105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)

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DETAILS OF CONCRETE REMOVAL AT END BENTS

The cost of concrete removal as shown will be considered completely covered by the contract unit price for Removal of Existing Bridge Deck. Vertical backwall and wingwall reinforcement to be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

A smooth, level surface shall be provided at Bents No. 1 & 4 removal lines.

General Notes:

Stay-In-Place Forms:

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

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

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

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

Pouring and Finishing Slab:

The contractor shall provide bracing necessary for lateral and torsional stability of the beams during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not weld on or drill holes in the beams. The cost for furnishing, installing, and removing bracing will be considered completely covered by the contract unit price for Slab on Steel.

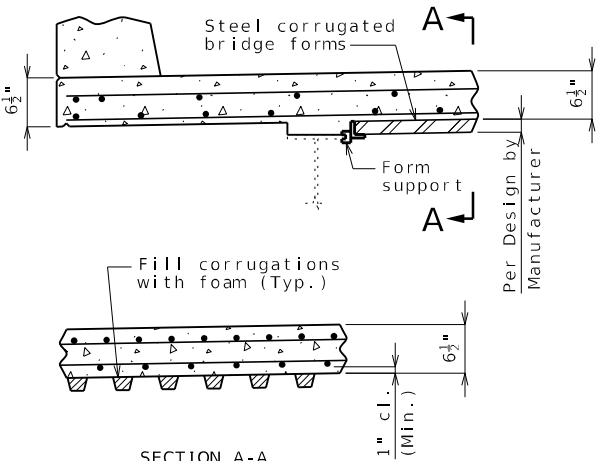
Slab shall be poured upgrade from end to end at a minimum rate of 25 cubic yards per hour.

Alternate pour sequences may be submitted to the engineer for approval. Keyed construction joints shall be provided between pours.

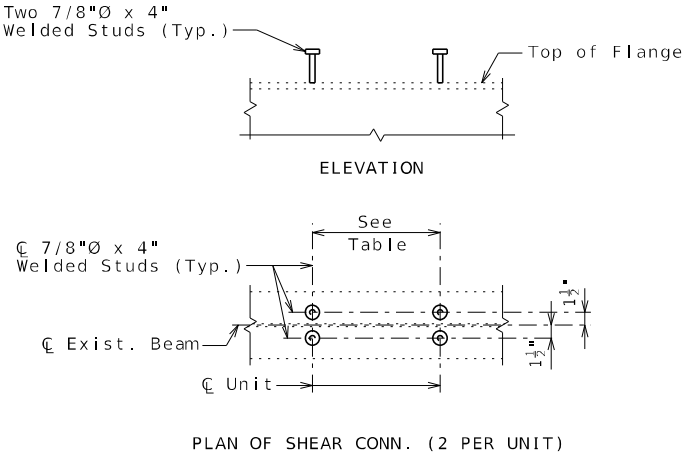
Bridge deck surface may be finished with a vibratory screed.

Haunching:

Slab is to be considered a uniform thickness as shown on the plans. Haunching will vary. Haunches will be increased approximately 1/4" when comparing with original plan dimensions to match existing grade on Rte. U.



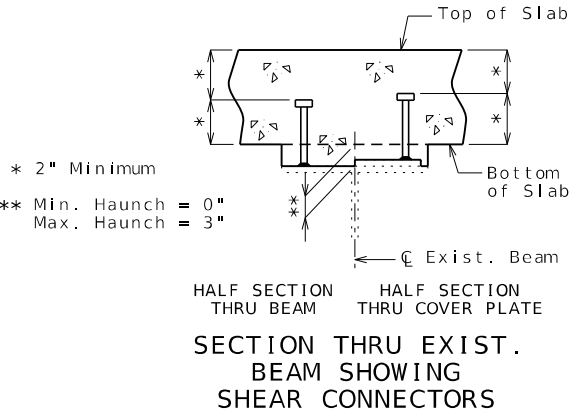
OPTIONAL STAY-IN-PLACE FORM DETAILS



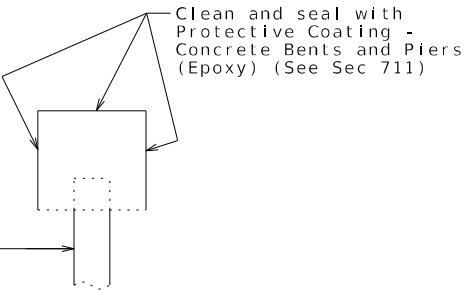
DETAILS OF SHEAR CONNECTORS

The cost of supplying and installing shear connectors will be considered completely covered by the contract unit price for Shear Connectors.

Shear connectors shall be in accordance with Sec 712, 1037 & 1080.



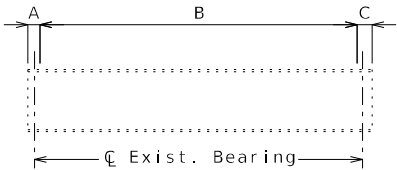
SECTION THRU EXIST. BEAM SHOWING SHEAR CONNECTORS



TYPICAL SECTION THRU INT. BENTS NO. 2 & 3 SHOWING PROTECTIVE COATING

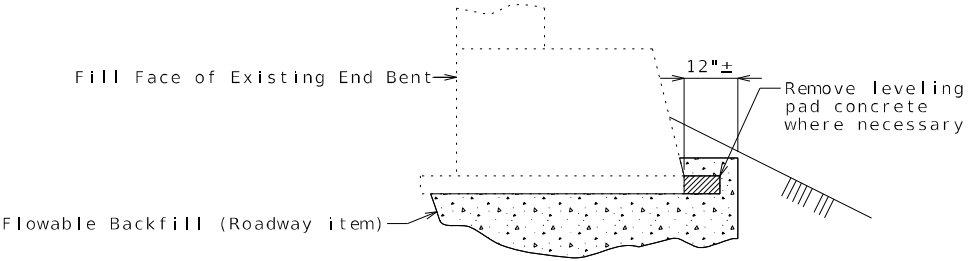
Structural Steel Protective Coating:

All exposed surfaces of the existing structural steel piles and sway bracing shall be recoated with one 6-mil thickness of aluminum epoxy-mastic primer applied over an SSPC-SP3 surface preparation in accordance with Sec 1081. The bituminous coating shall be applied one foot above and below the existing ground line and in accordance with Sec 702. These protective coatings will not be required below the normal low water line. The cost of surface preparation will be considered completely covered by the contract lump sum price for Surface Preparation for Applying Epoxy-Mastic Primer. The cost of the aluminum epoxy-mastic primer and bituminous coating will be considered completely covered by the contract lump sum price for Aluminum Epoxy-Mastic Primer.

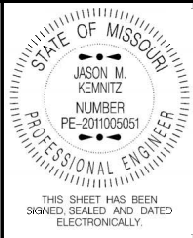


ELEVATION SHOWING SHEAR CONNECTOR SPACING

TABLE SHOWING SHEAR CONNECTOR UNIT SPACING				
Span	S.C. per unit	A	B	C
1	2	6"±	69 Units @ 6" cts.	6"±
2	2	6"±	69 Units @ 6" cts.	6"±
3	2	6"±	69 Units @ 6" cts.	6"±
Total shear connectors required				1,656



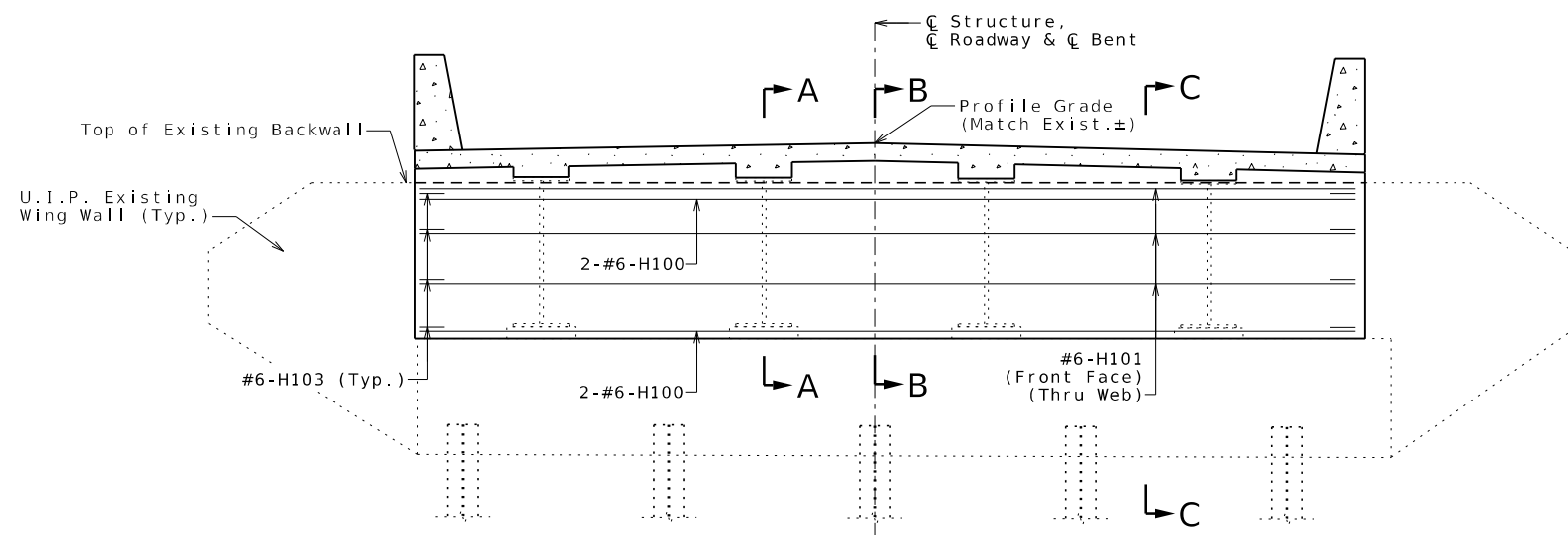
PART SECTION SHOWING FLOWABLE BACKFILL AT EXPOSED PILES AT END BENT NO. 1



DATE PREPARED 7/25/2025	
ROUTE U	STATE MO
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COUNTY LINN	
JOB NO. JNW0013	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. P08911	

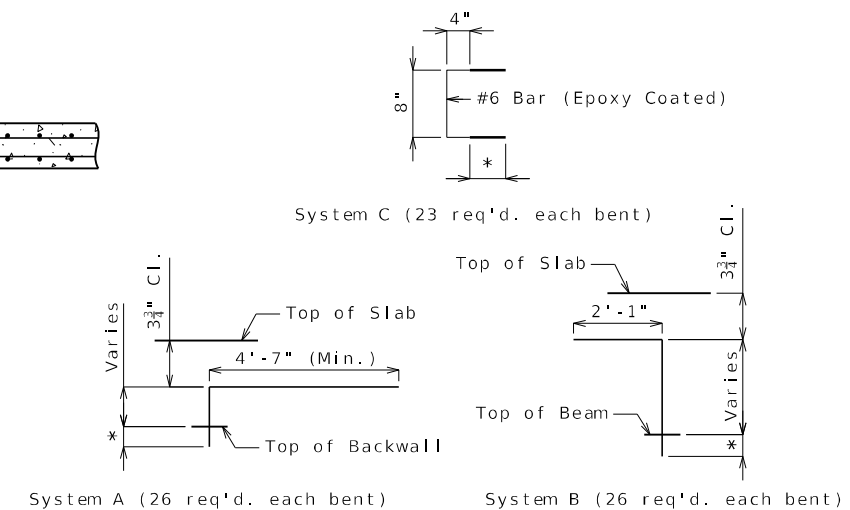
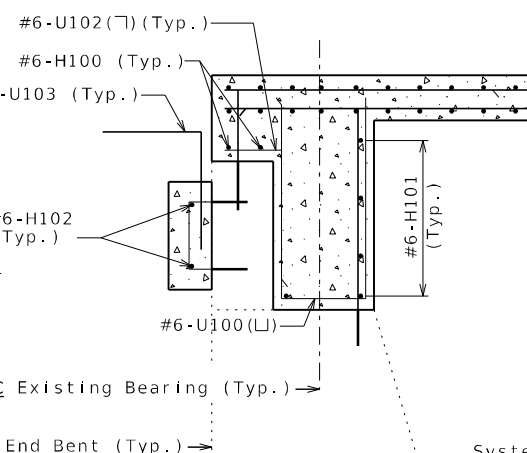
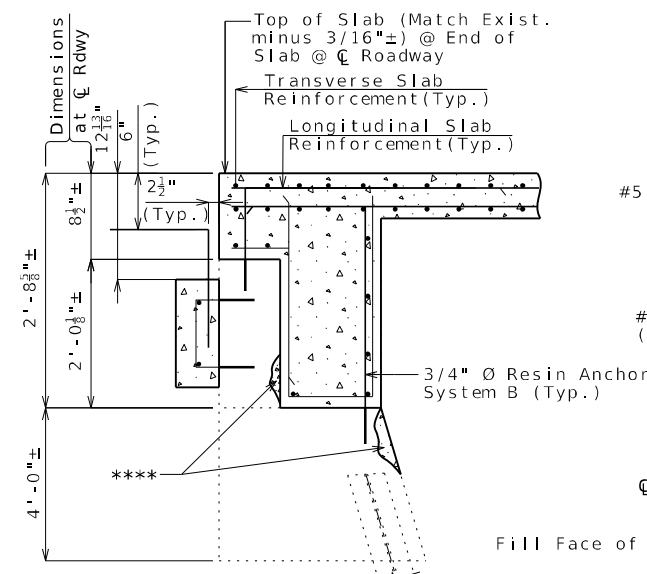
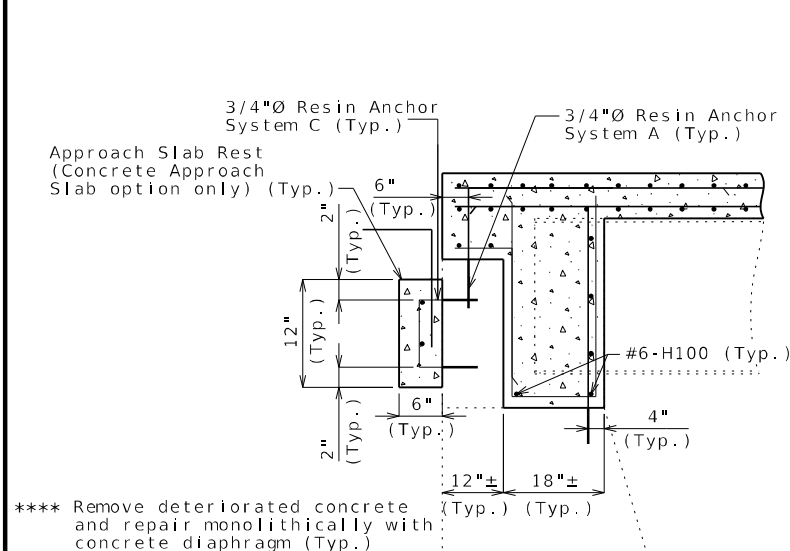
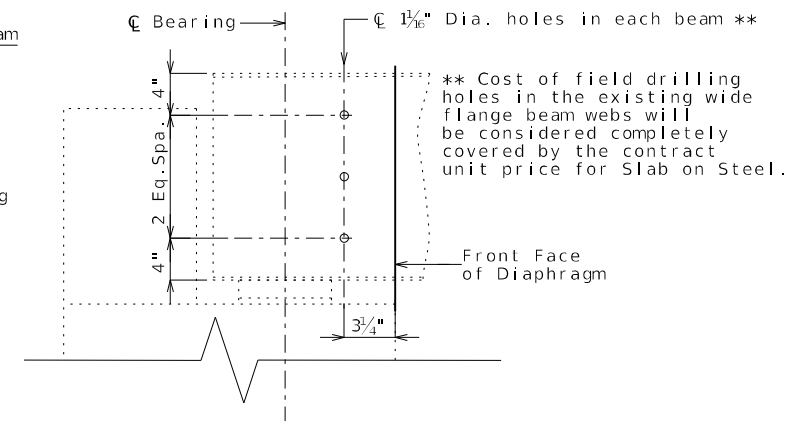
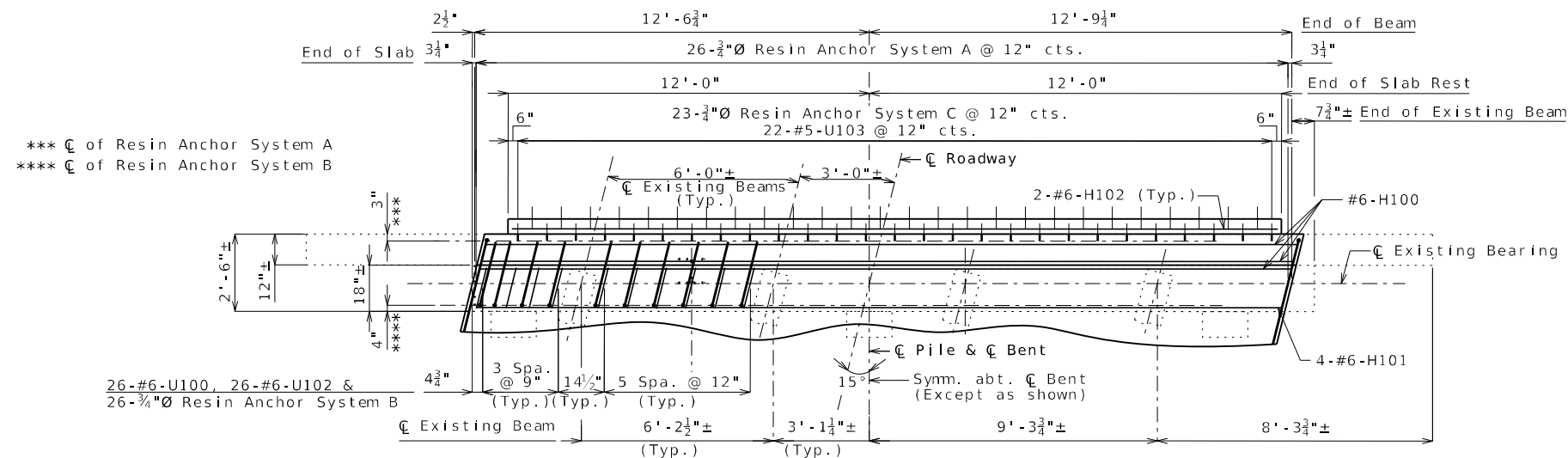
DESCRIPTION	DATE





SECTION NEAR END BENT

Note: Existing steel end diaphragms not shown for clarity (leave-in-place).



Notes :

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor system, complete in place, will be considered completely covered by the contract unit price for Slab on Steel (System A & B) or Bridge Approach Slab (Minor) (System C) for concrete option only.

The minimum embedment depth in concrete with $f'_c = 4,000$ psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #6 Grade 60 reinforcing bar shall be substituted for the 3/4"Ø threaded rod.

All reinforcement and concrete in the concrete diaphragm at the end bents is included in the Estimated Quantities for Slab on Steel and will be considered completely covered by the contract unit price for Slab on Steel. All reinforcement and concrete in the approach slab rest will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) for concrete option only.

The exposed and accessible surface of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSP-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry film thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for beams shall extend a minimum of one foot outside the face of the beam encasement. Payment for cleaning and coating steel to be encased in concrete, will be considered completely covered by the contract unit price for Slab on Steel.

Detailed March 2025
Checked May 2025

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

Sheet No. 3 of 11



DATE PREPARED
7/25/2025

ROUTE U	STATE MO
DISTRICT BR	SHEET NO. 3

COUNTY

L I N N

JOB NO.

JNW0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

P08911

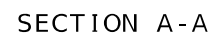
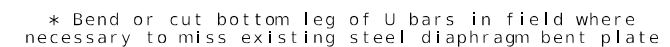
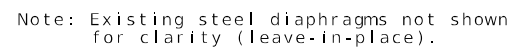
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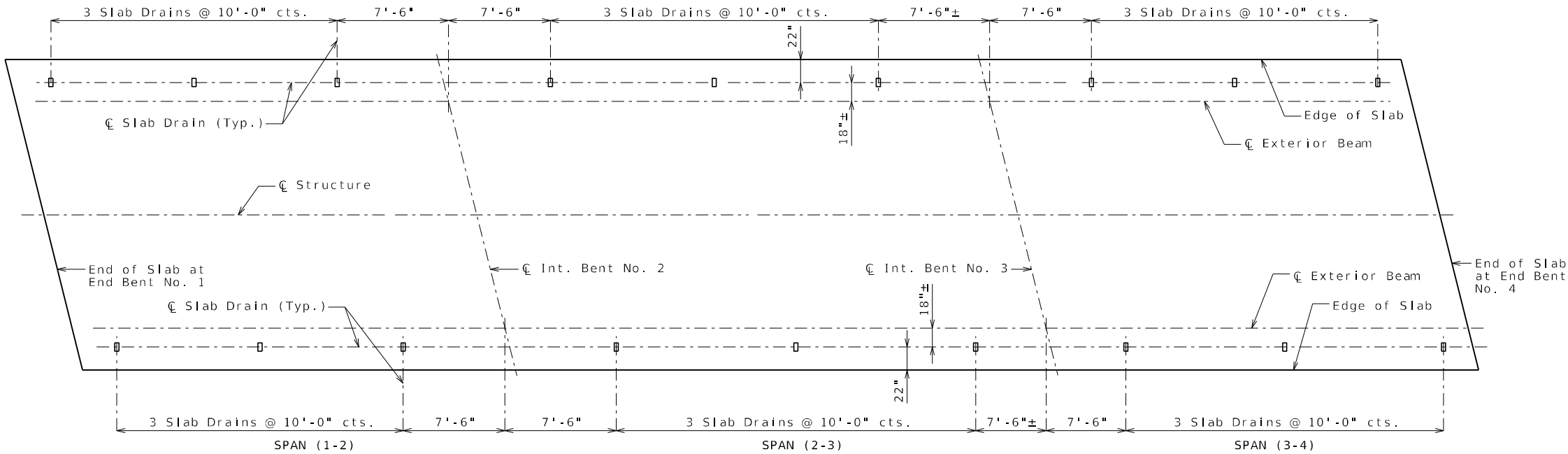
The exposed and accessible surfaces of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry film thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for girders shall extend a minimum of one foot outside the face of the girder encasement. Payment for cleaning and coating steel to be encased in concrete will be considered completely covered by the contract unit price for Slab on Steel.

Cost of field drilling holes in existing exterior wide flange beam webs and placing roofing felt will be considered completely covered by the contract unit price for Slab on steel.

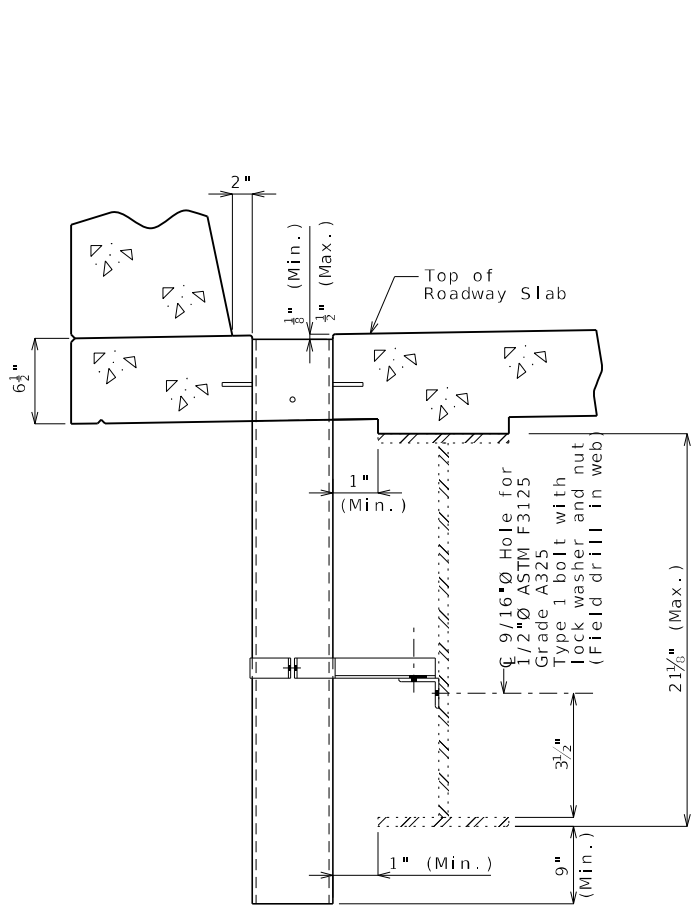
All reinforcement and concrete in the concrete diaphragm at the intermediate bents is included in the Estimated Quantities for Slab on Steel and will be considered completely covered by the contract unit price for Slab on Steel.

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

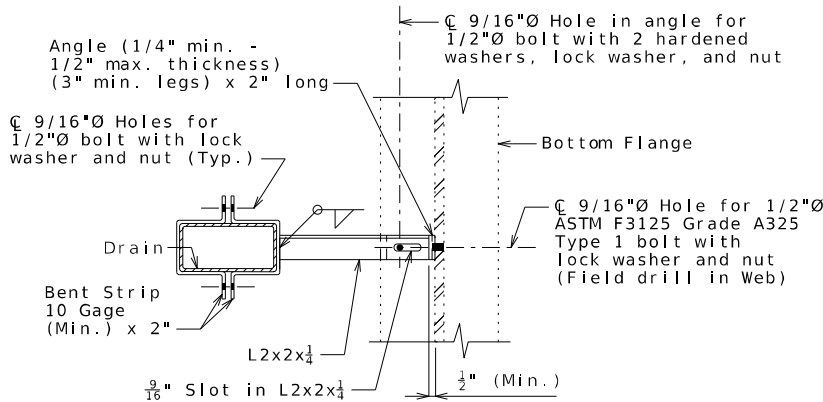




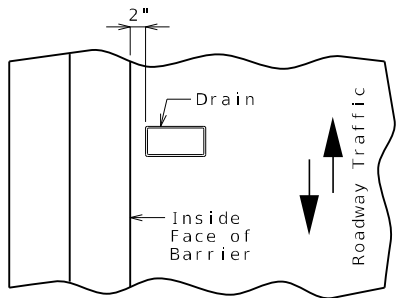
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



PART SECTION NEAR DRAIN

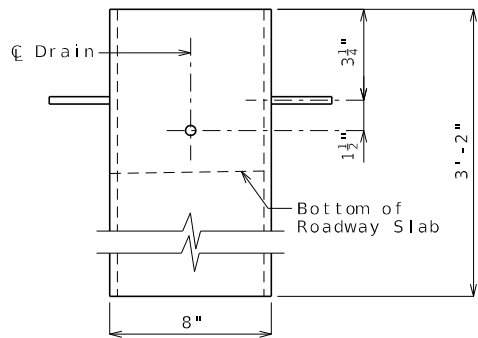


PART SECTION SHOWING BRACKET ASSEMBLY

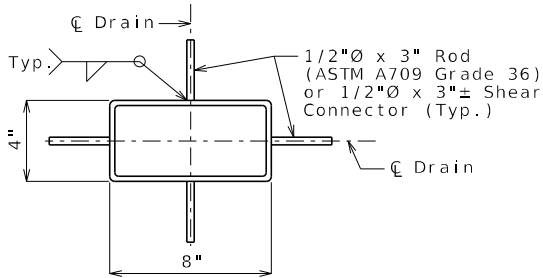


PART PLAN OF SLAB AT DRAIN

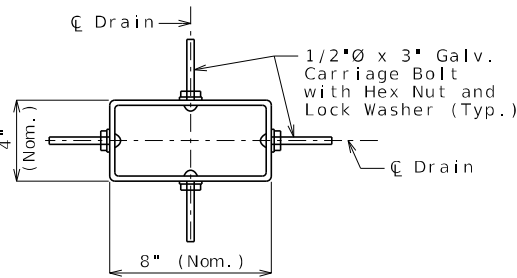
SLAB DRAINS



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2-inch diameter bolts shall be ASTM A307, except as shown.

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

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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



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7/25/2025

ROUTE U STATE MO

DISTRICT BR SHEET NO. 5

COUNTY L INN

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JNW0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
P08911

DESCRIPTION

DATE

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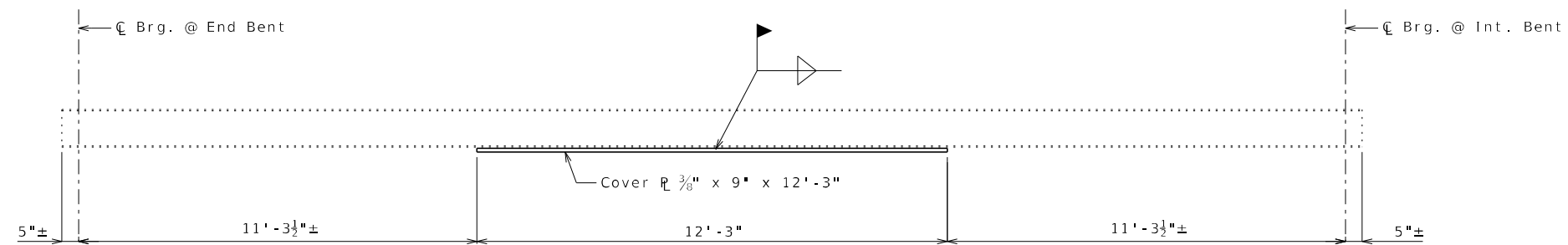
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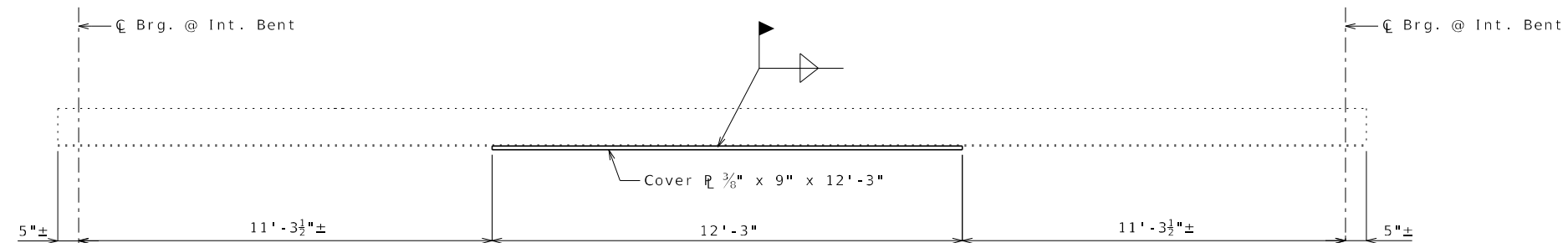
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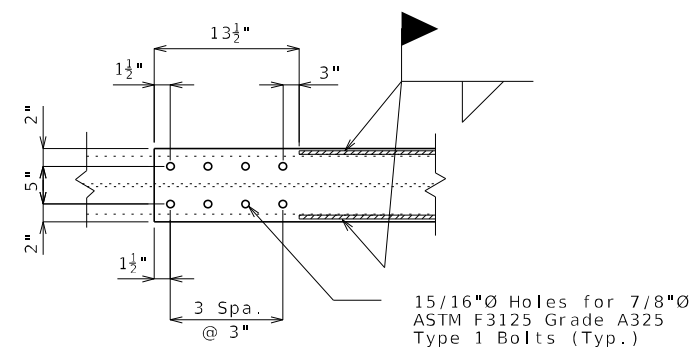
ENGINEERS & ARCHITECTS



PART ELEVATION OF EXTERIOR BEAM NO. 1 & 4 SHOWING COVER PLATE INSTALLATION
SPAN (1-2) AND SPAN (3-4)



PART ELEVATION OF EXTERIOR BEAM NO. 1 & 4 SHOWING COVER PLATE INSTALLATION
SPAN (2-3)



TYPICAL DETAIL OF THE
ENDS OF COVER PLATES
(BOTTOM VIEW)

Notes:

Beam with end-bolted cover plates shall be installed in the following sequence after existing bridge deck is removed:

1. Drill holes in cover plate and flange.
2. Clean faying surfaces. (See Special Provisions)
3. Install and tighten bolts.
4. Weld cover plate to flange.

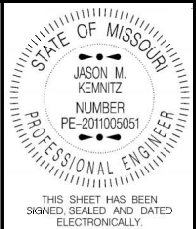
Fabricated Structural Steel shall be ASTM A709 Grade 36, except as noted.

Payment for 936 pounds of new cover plates, complete in place, will be considered completely covered by the contract lump sum price for Strengthening Existing Beams.

Notch toughness is required for all cover plates.

Contractor shall verify all dimensions in field before finalizing the shop drawings.

STRENGTHENING EXISTING BEAMS

DATE PREPARED
11-15-2007

7/25/2025	
ROUTE	STATE

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DISTRICT	SHEET NO.
BR	6

COUNTY
LINN

JOB NO.

JNW0013

CONTRACT ID.

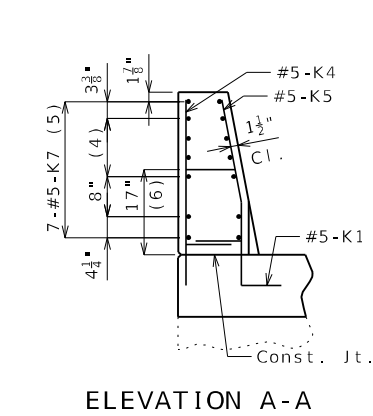
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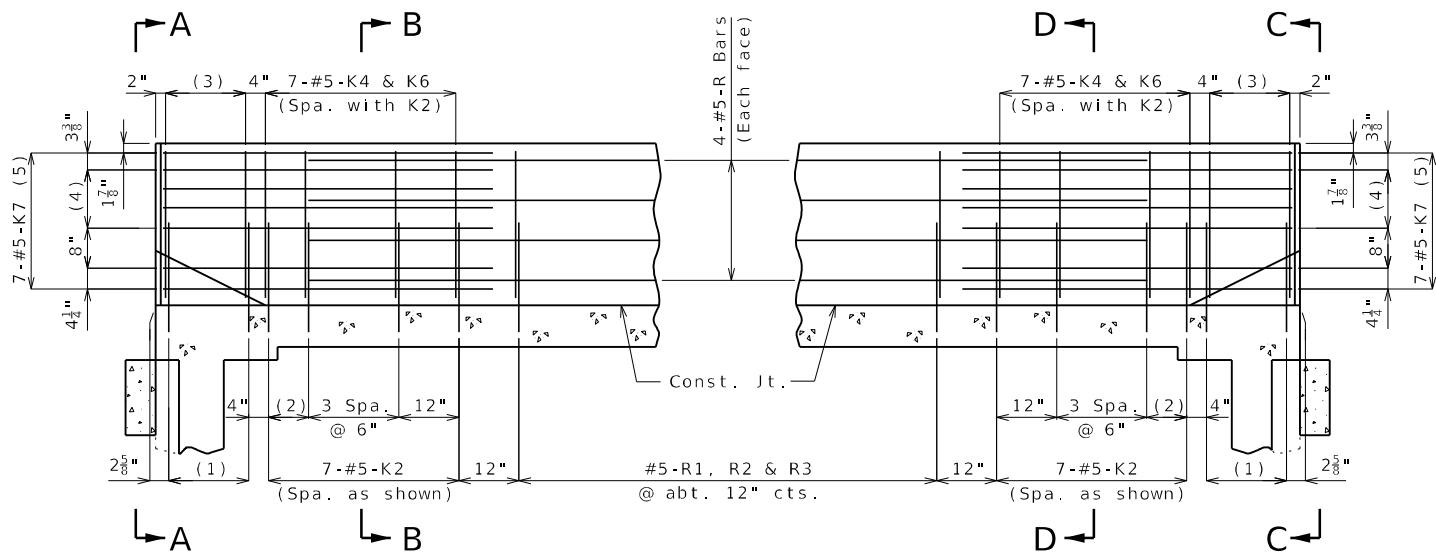
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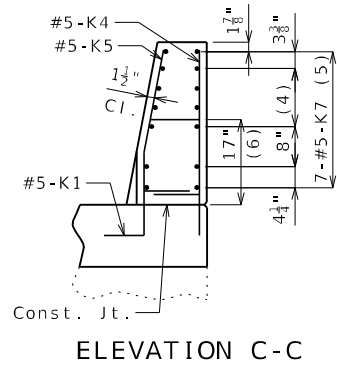
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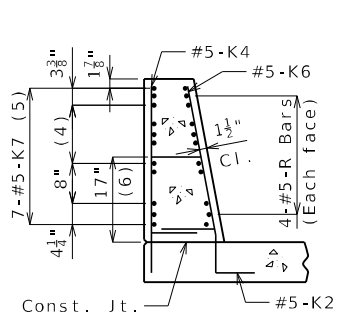
ELEVATION A-A



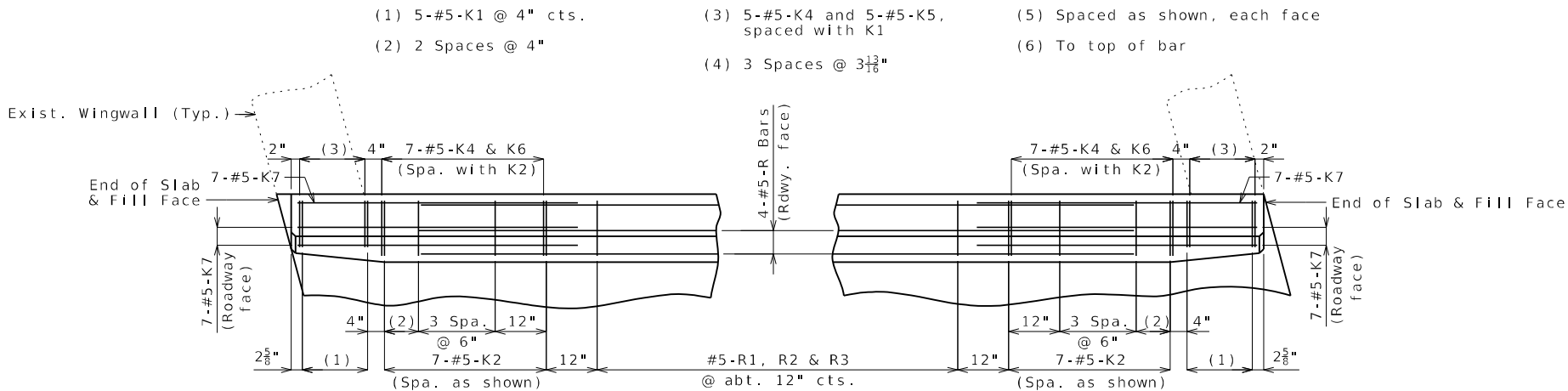
PART ELEVATION



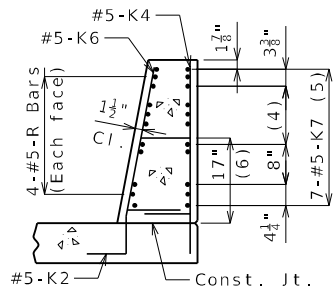
ELEVATION C-C



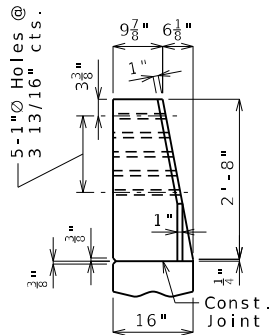
SECTION B-B



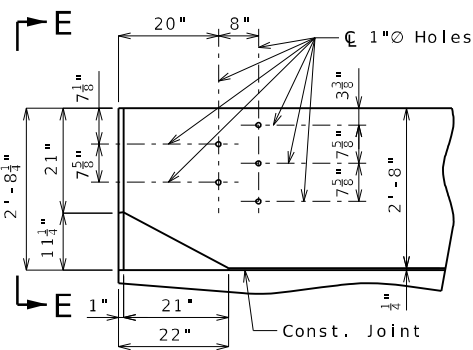
PART PLAN



SECTION D-D

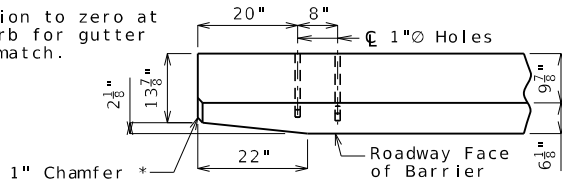


ELEVATION E-E

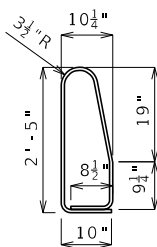
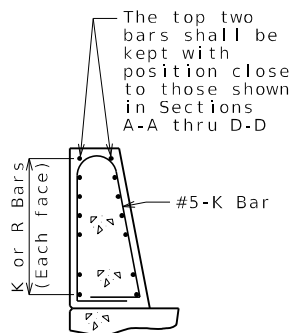


ELEVATION

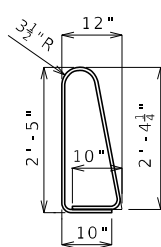
* Transition to zero at Type A curb for gutter lines to match.



PLAN



K4-K5



K4-K6

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.

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".

Use a minimum lap of 2'-6" between K7 bars and R bars.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

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

Sheet No. 8 of 11

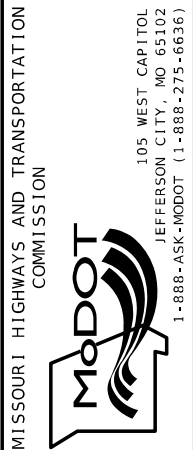


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COUNTY LINN	
JOB NO. JNW0013	
CONTRACT ID.	

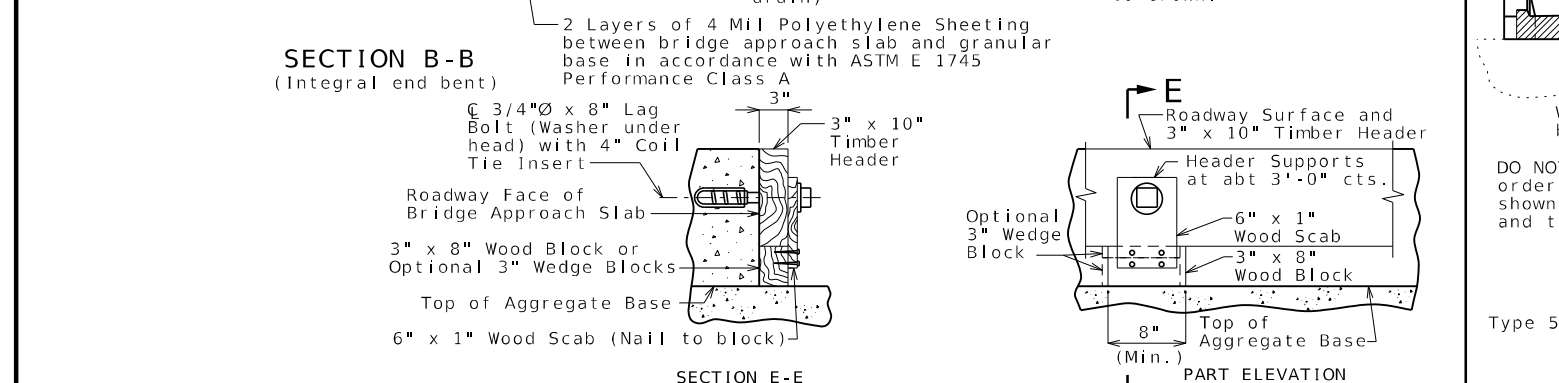
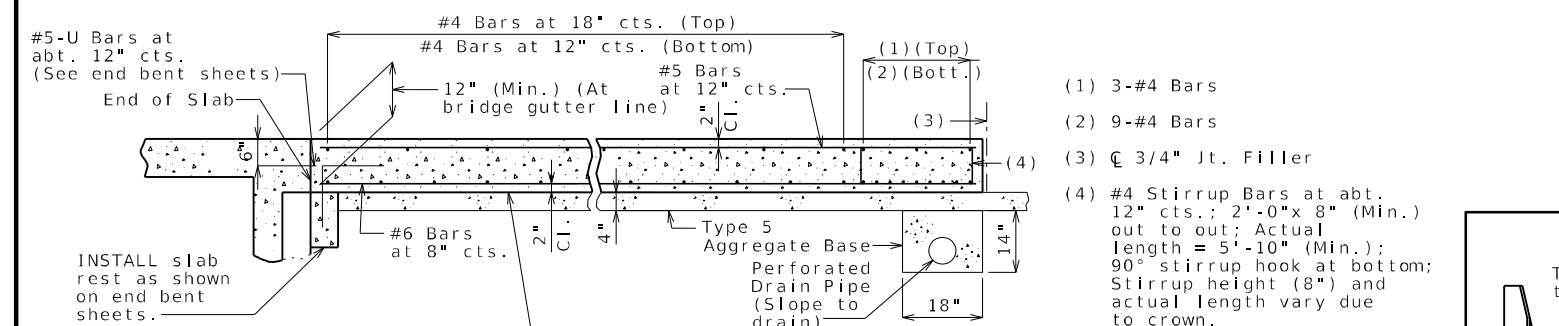
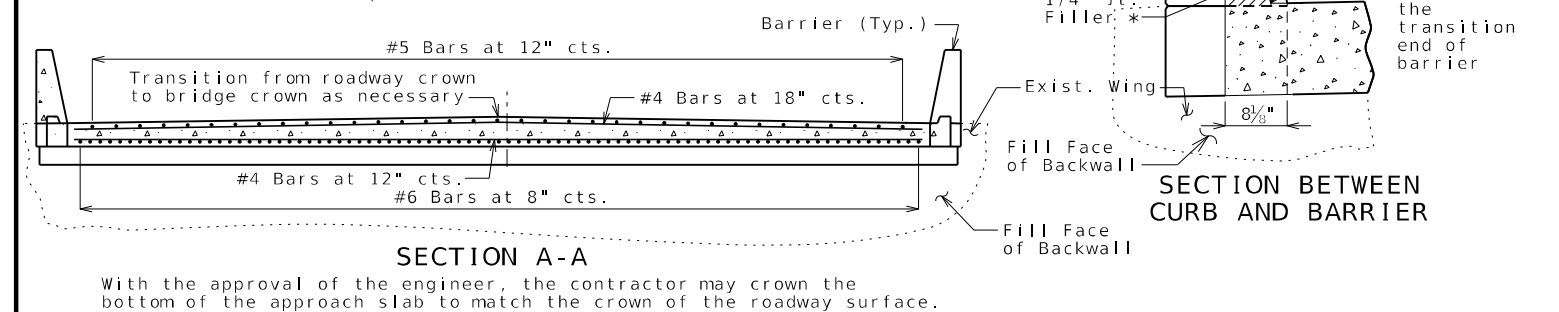
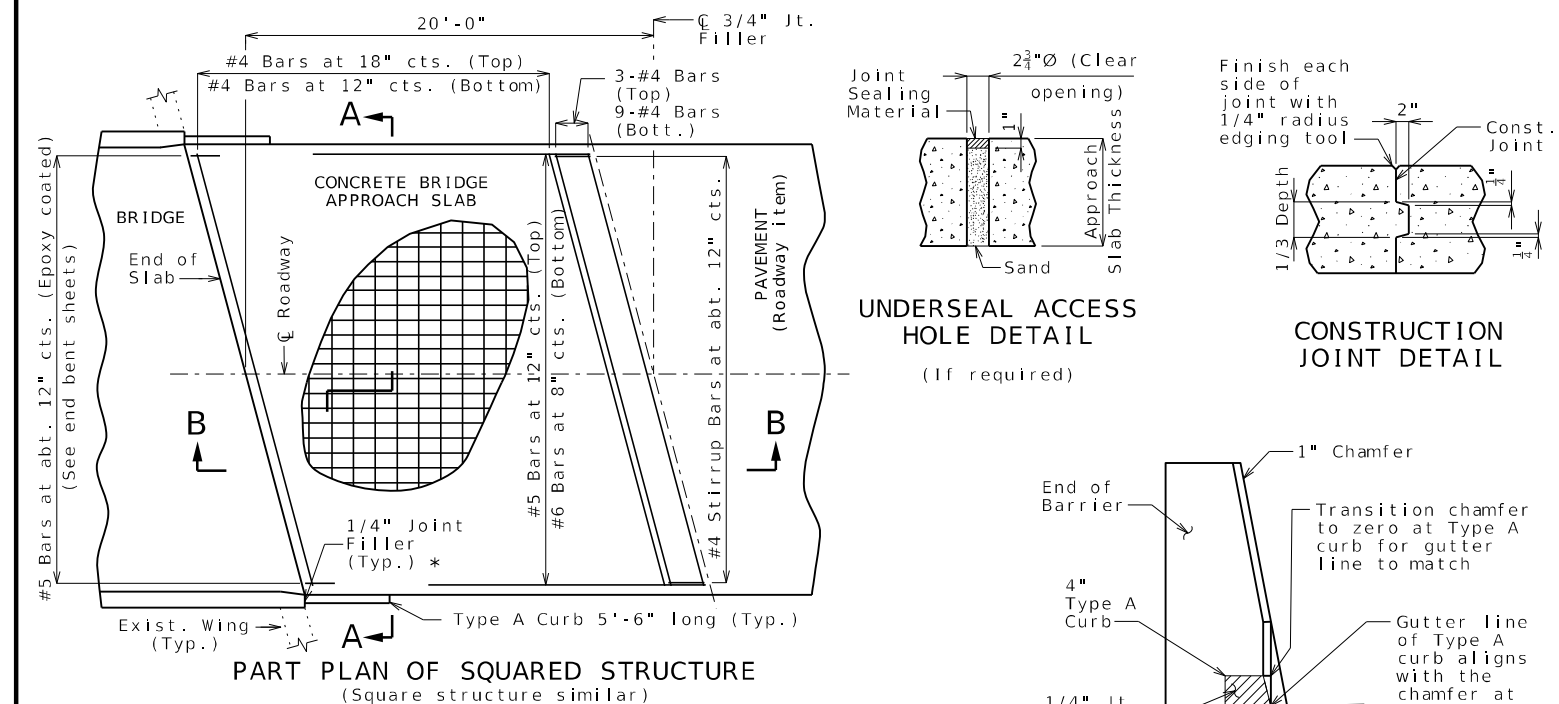
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BRIDGE NO. P08911	

DATE	DESCRIPTION



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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.

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

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

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

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

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

General Notes:

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

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

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

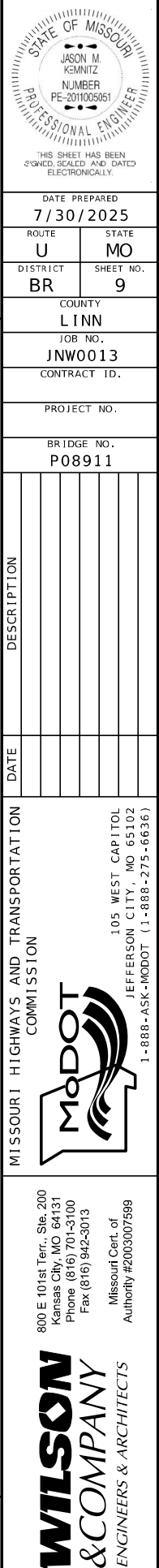
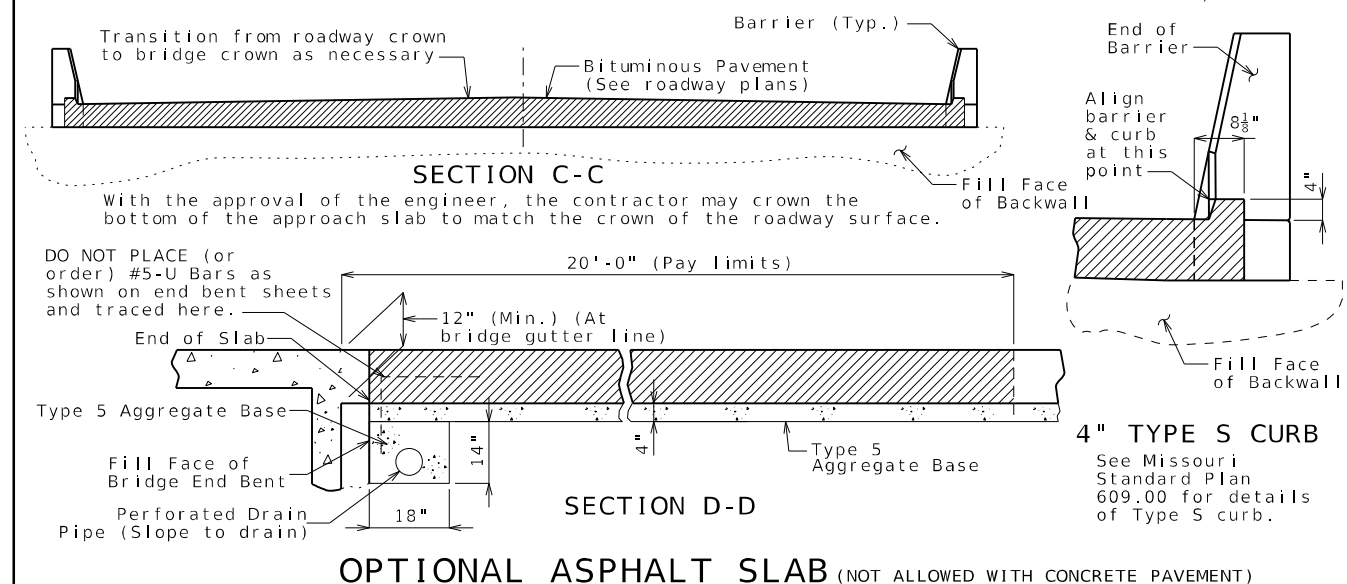
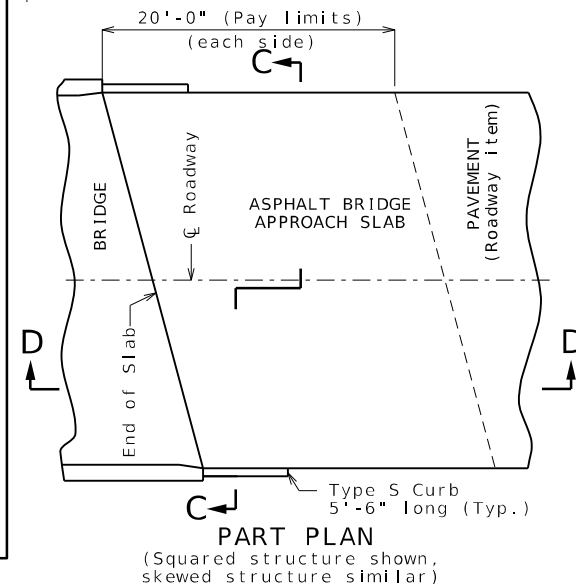
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

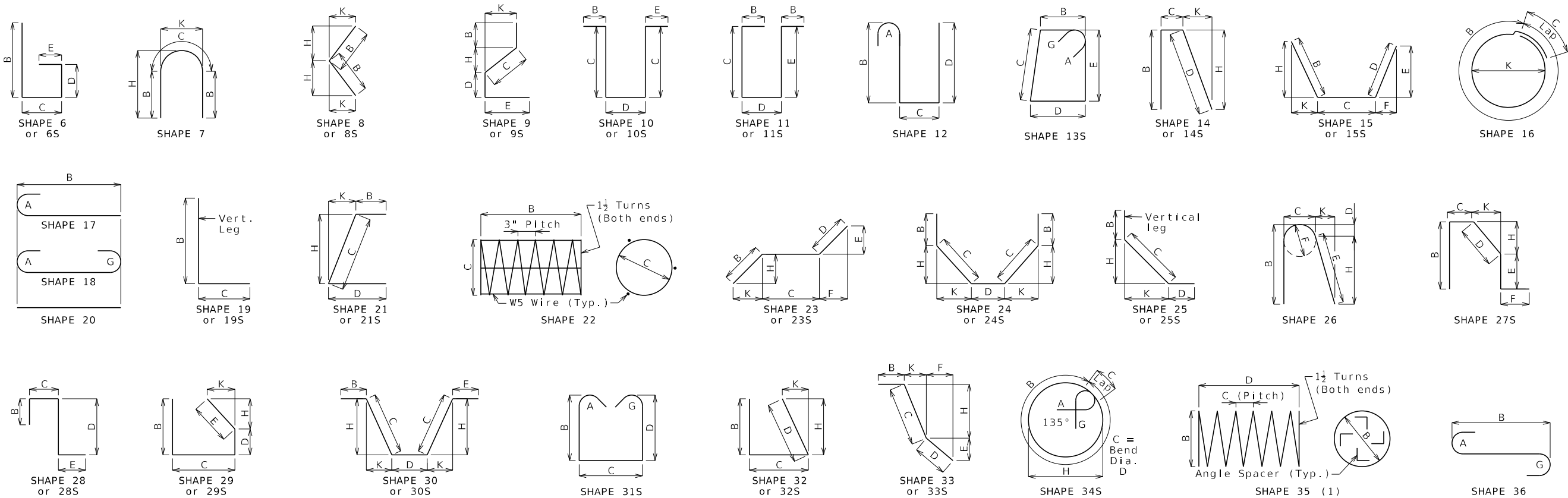
- ☐ Concrete Bridge Approach Slab
☐ Asphalt Bridge Approach Slab

Notes For
Asphalt Slab Only:

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



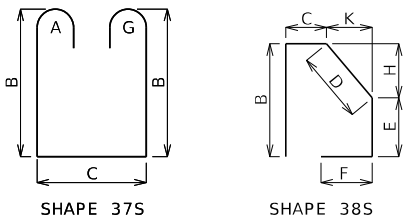


Finished Bend Dimensions D and Hook Dimensions						
Standard Pin Bend Shapes						
Size	Case	D	A or G		J	
			90°	180°	180°	
#4	1	3"	8"	6"	4"	
#5	1	3 3/4"	10"	7"	5"	
#6	1	4 1/2"	12"	8 1/4"	6"	
#7	2	5 1/4"	14"	9 3/4"	7"	
	3	7"	15"	11 1/2"	8 3/4"	
#8	2	6"	16"	11"	8"	
	3	8"	17"	13 1/4"	10"	
#9	1	9 1/2"	19 1/2"	15 1/2"	11 3/4"	
#10	1	10 3/4"	22"	17 1/2"	13 1/4"	
#11	1	12"	24 1/2"	19 1/2"	14 7/8"	
#14	1	18 1/4"	31 1/4"	27 1/2"	21 5/8"	
#18	1	24"	41 1/2"	36 1/4"	28 1/2"	
Stirrup Pin Bend Shapes (S)						
Size	Case	D	A or G		H	J
			90°	135°	180°	135°
#4	2	2"	4 1/2"	4 1/2"	5"	2 7/8"
	3	3"	5"	5 1/4"	6"	3"
#5	2	2 1/2"	5 3/4"	5 3/4"	5 3/4"	3 3/4"
	3	3 3/4"	6 1/4"	6 1/4"	7"	3 3/8"
#6	1	4 1/2"	12"	7 3/4"	8 1/4"	4 3/8"

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.

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



BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)							
By Size	Size	Substructure		Superstructure		Entire Bridge	
		Plain	Epoxy	Slab	Barrier	Slip Form	
	W5	0	0	0	0	0	0
	4	0	214	0	0	0	214
	5	0	486	11,353	4,581	300	16,720
	6	0	1,479	13,702	0	0	15,181
	7	0	0	0	0	0	0
By Type		0	2,179	25,055	4,581	300	32,115

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

STATE OF MISSOURI

JASON M. KEMNITZ

NUMBER PE-2011005051

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 7/25/2025

ROUTE U STATE MO

DISTRICT BR SHEET NO. 10

COUNTY LINN

JOB NO. JNW0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO. P08911

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

800 E 101st Terr., Ste. 200 Kansas City, MO 64131 Phone (816) 701-3100 Fax (816) 942-3013 Missouri Cert. of Authority #2003007599

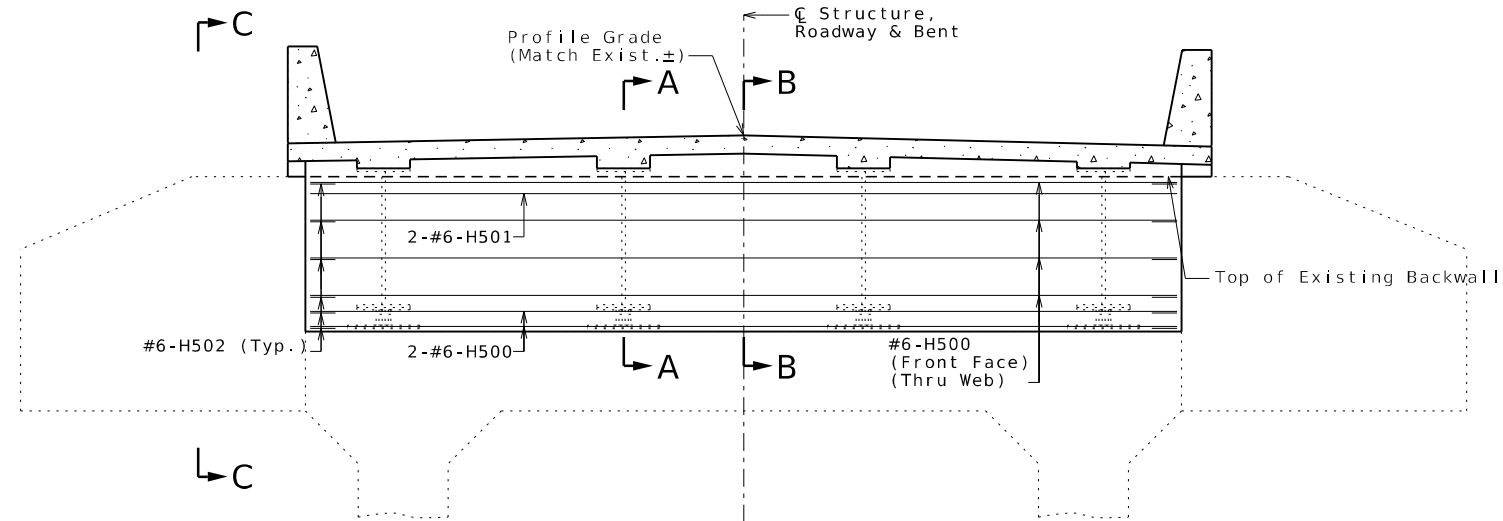
WILSON & COMPANY

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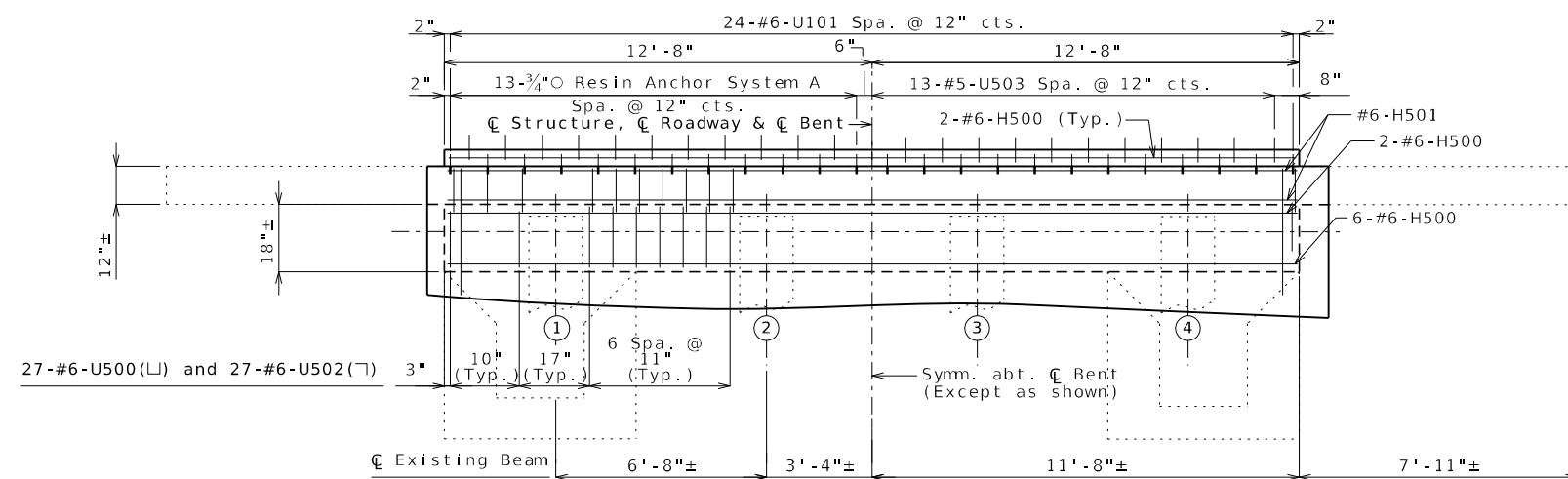
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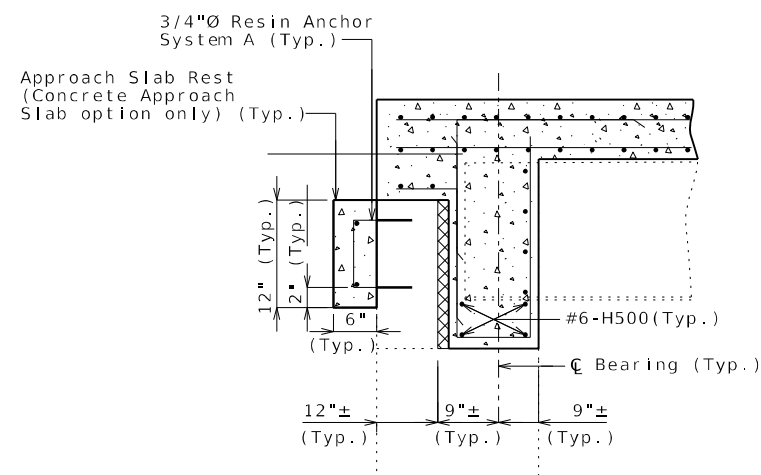


SECTION NEAR END BENT NO. 5

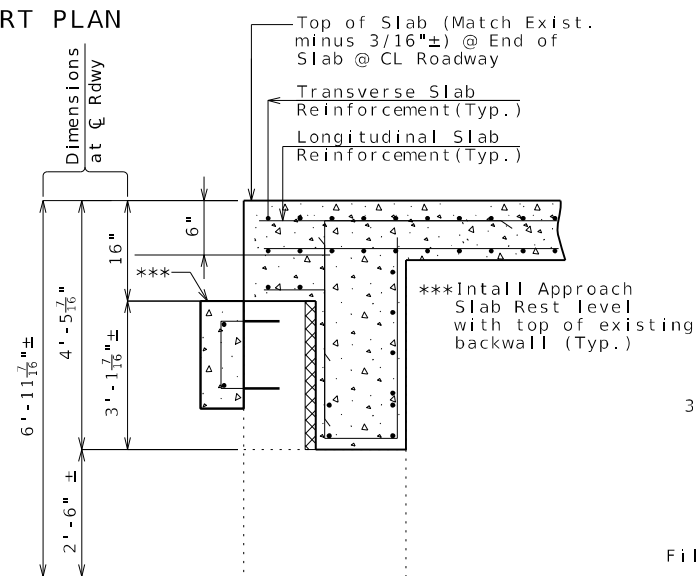
Note: Existing steel end diaphragms not shown for clarity (leave-in-place).



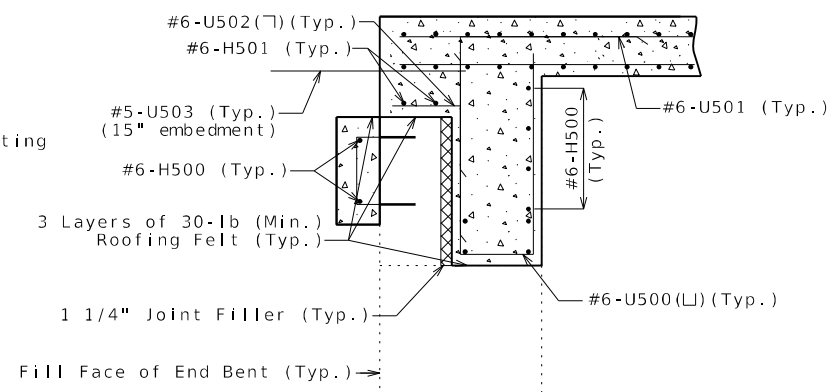
PART PLAN



SECTION A-A



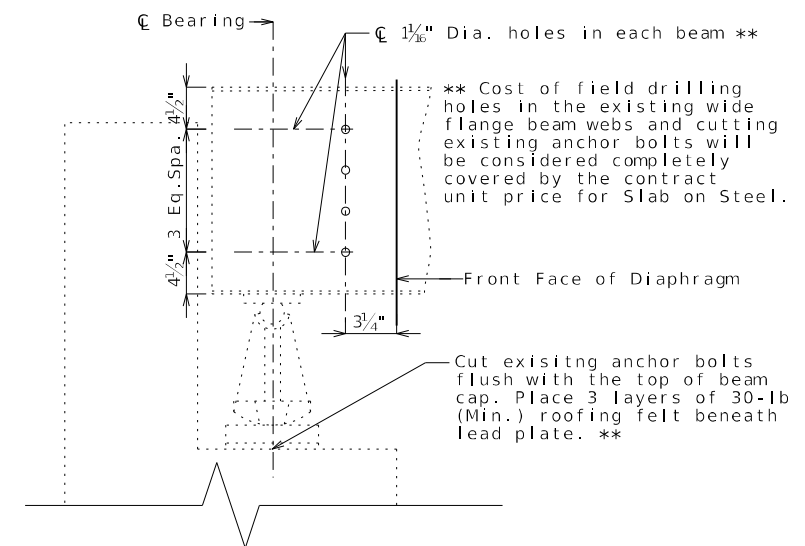
SECTION B-B



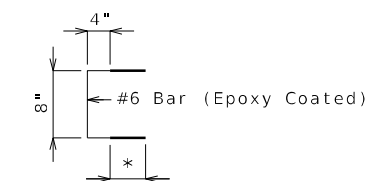
SECTION C-C

Notes:

Incorporate the notes from Sheet No. 3 with Sheet No. 4.



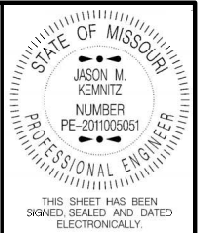
DETAIL OF WEB HOLES AT END BENT



System A (26 req'd)

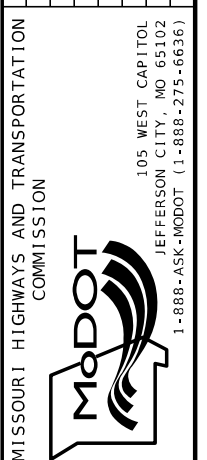
DETAILS OF RESIN ANCHOR SYSTEM

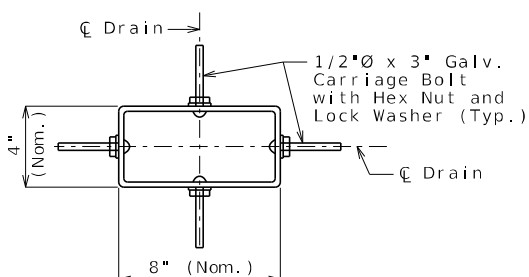
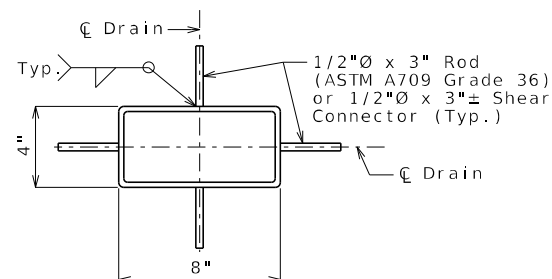
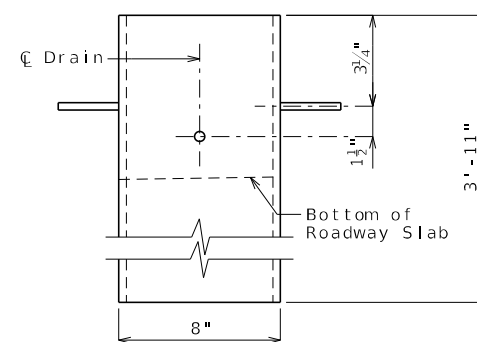
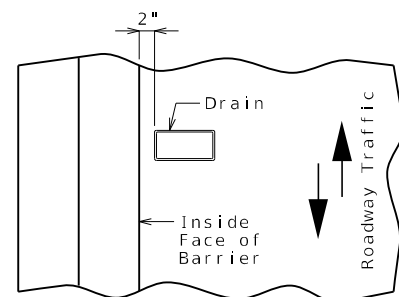
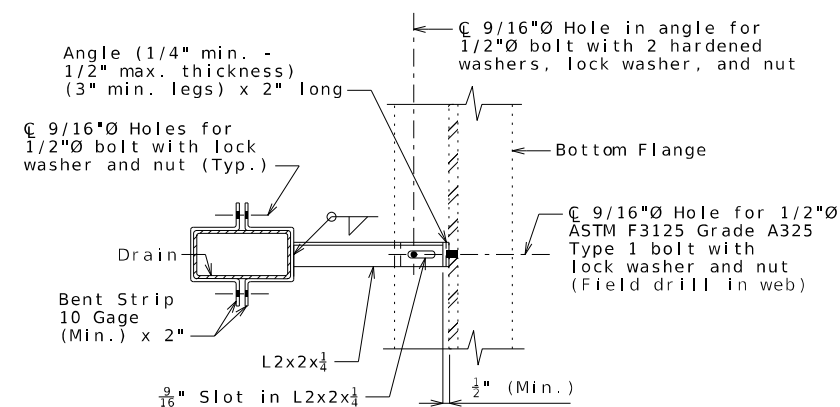
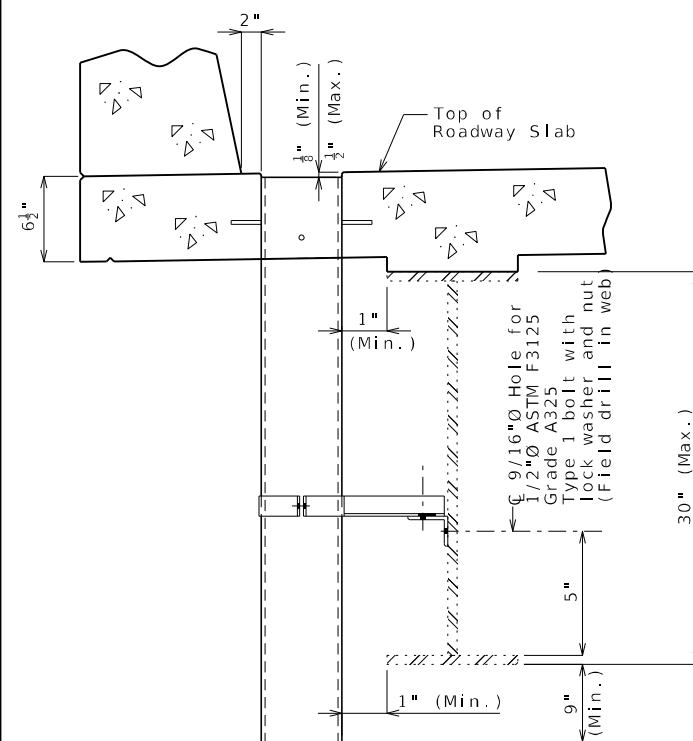
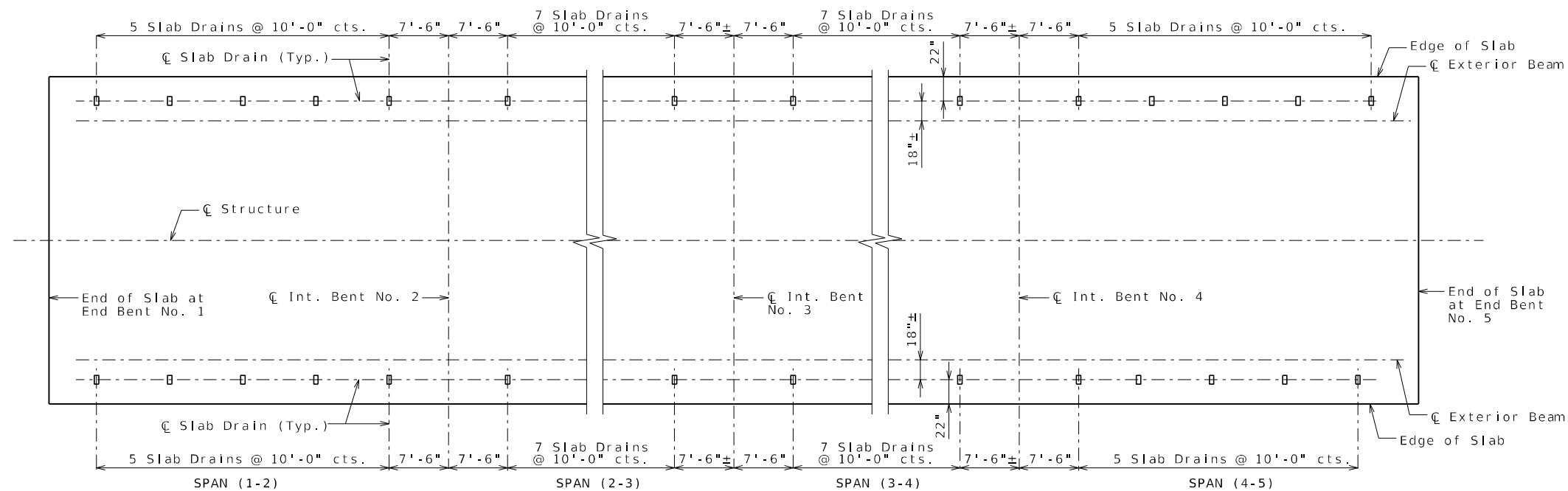
* Manufacturer's recommended embedment length (5" min.)



DATE PREPARED 7/25/2025	
ROUTE E	STATE MO
DISTRICT BR	SHEET NO. 4
COUNTY GRUNDY	
JOB NO. JNW0013	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. X01531	

DESCRIPTION	DATE





General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2-inch diameter bolts shall be ASTM A307, except as shown.

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

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

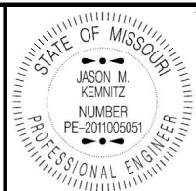
Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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



DATE PREPARED
7/25/2025

ROUTE	STATE
E	MO

DISTRICT	SHEET NO
BR	5

COUNTY
GRUNDY

JOB NO.
JNW0013

CONTRACT ID.

PROJECT NO.

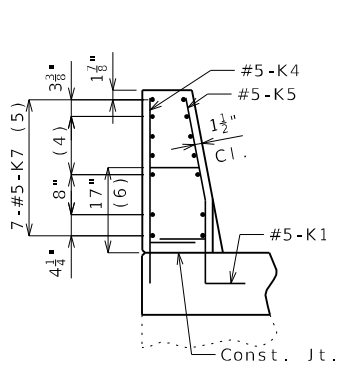
BRIDGE NO.
X01531

[illegible]MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

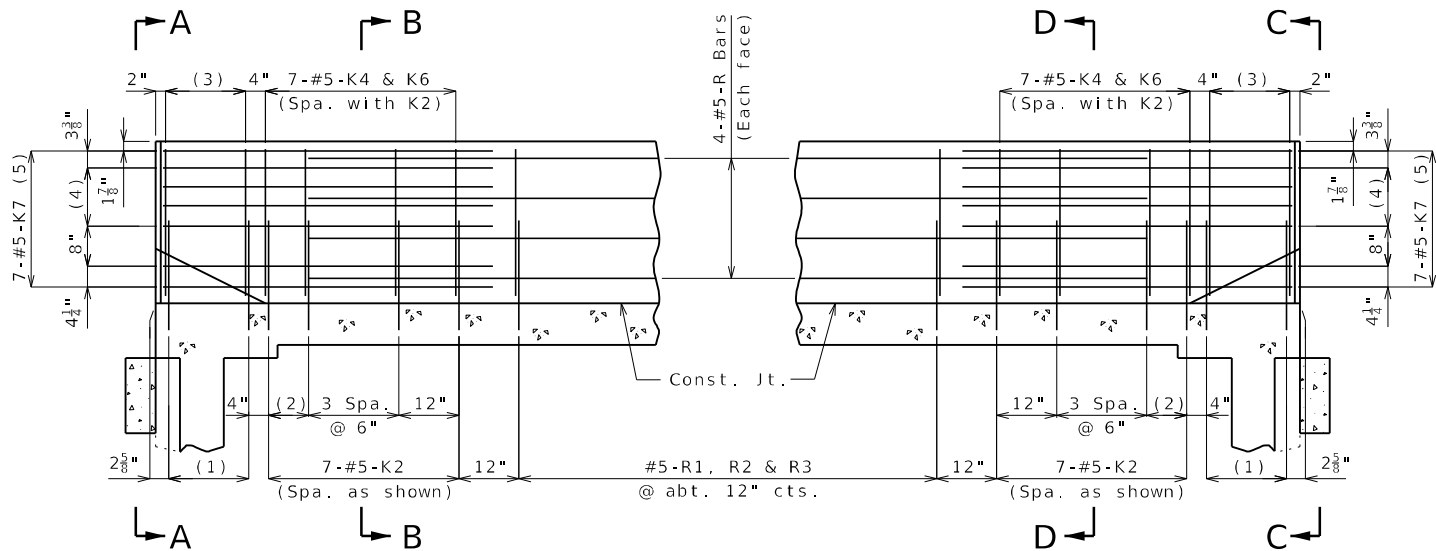
000 E 101st Terr., Ste. 200
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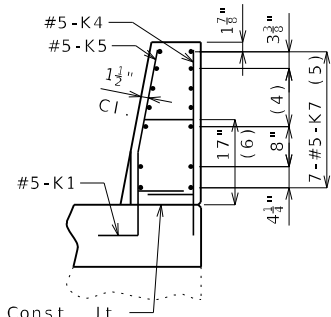
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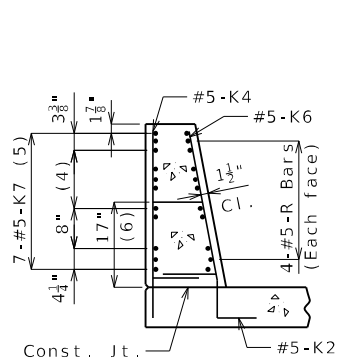
ELEVATION A-A



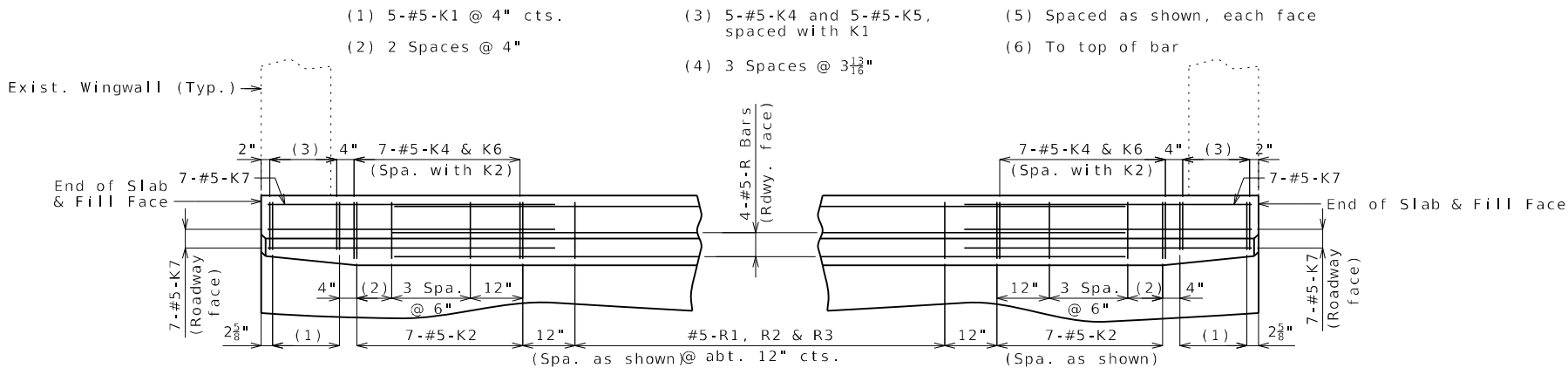
PART ELEVATION



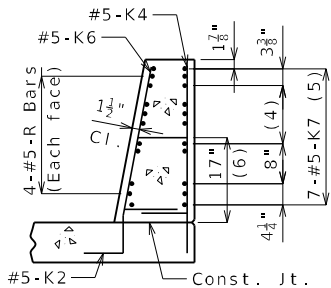
ELEVATION C-C



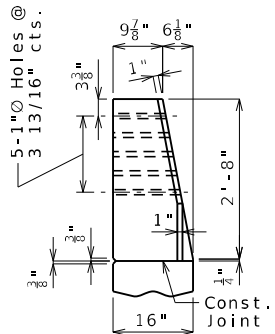
SECTION B-B



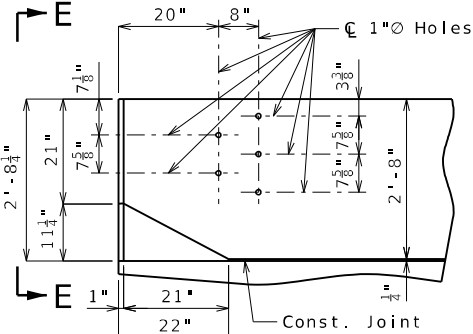
PART PLAN



SECTION D-D

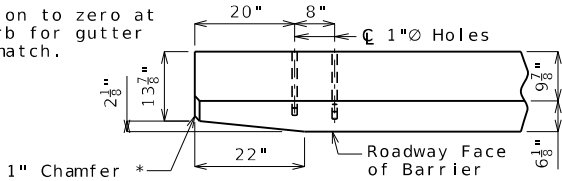


ELEVATION E-E

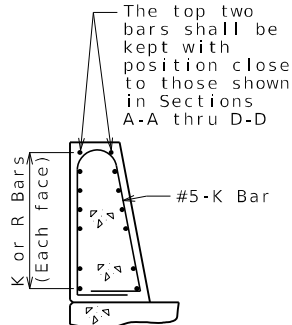


ELEVATION

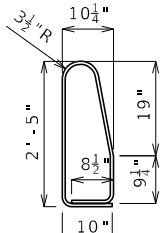
* Transition to zero at Type A curb for gutter lines to match.



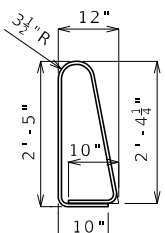
PLAN



The top two bars shall be kept with position close to those shown in Sections A-A thru D-D



K4-K5



K4-K6

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.

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".

Use a minimum lap of 2'-6" between K7 bars and R bars.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)



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DATE PREPARED
7/25/2025

ROUTE E STATE MO

DISTRICT BR SHEET NO. 7

COUNTY GRUNDY

JOB NO. JNW0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO. X01531

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

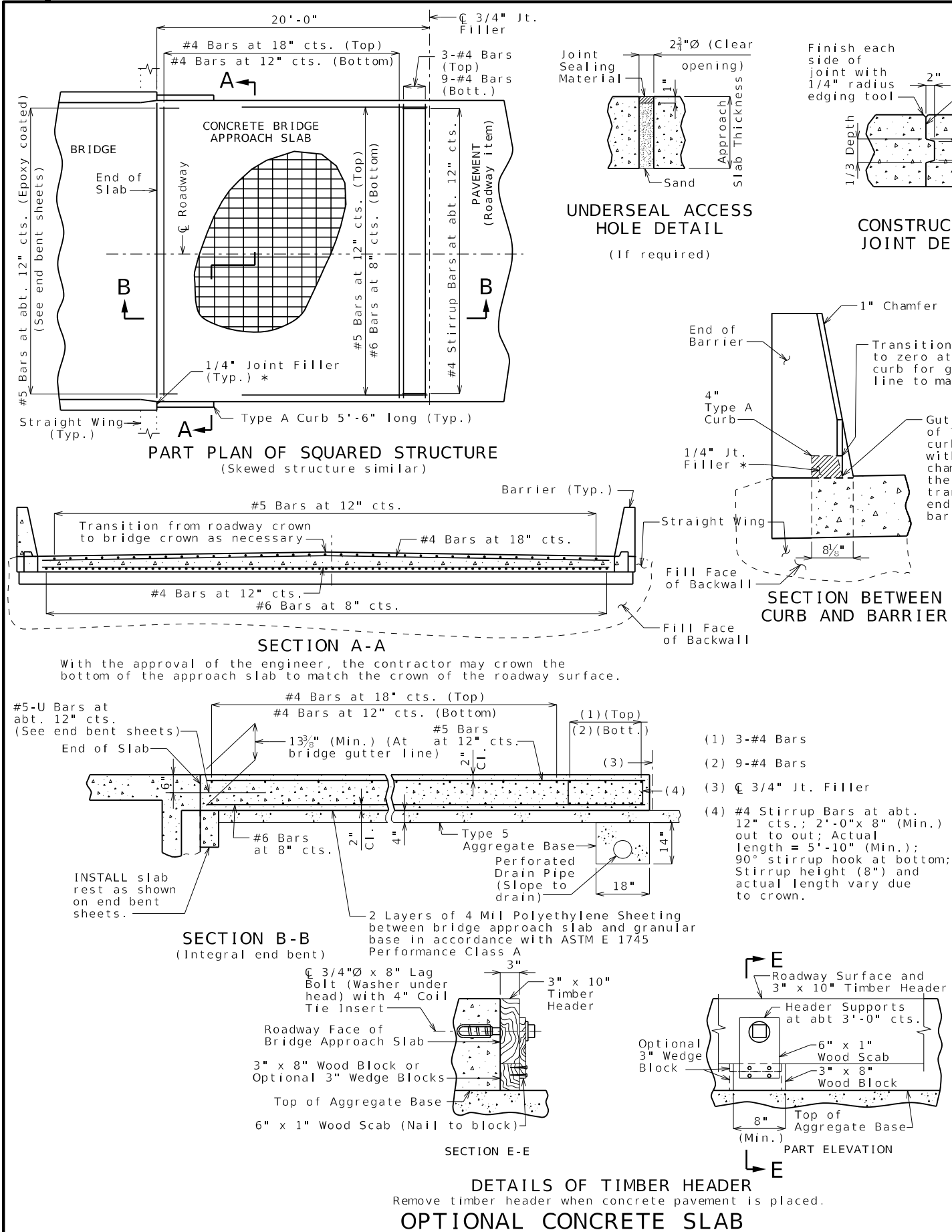
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

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Kansas City, MO 64131
Phone (816) 701-3100
Fax (816) 942-3013
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Authority #2003007599

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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.

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

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

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

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

General Notes:

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

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

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

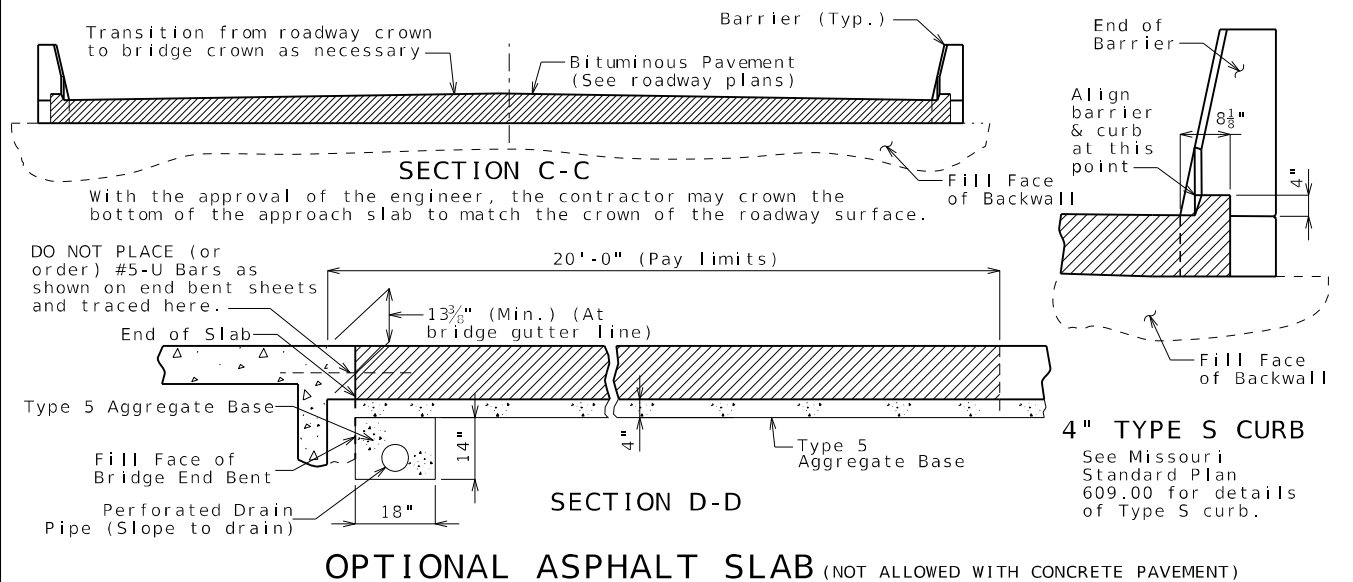
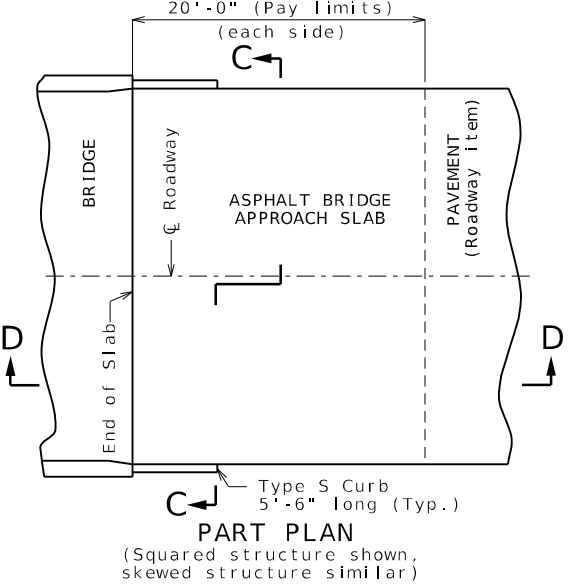
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

☐ Concrete Bridge Approach Slab
☐ Asphalt Bridge Approach Slab

Notes For Asphalt Slab Only:

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



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

STATE OF MISSOURI

JASON M. KEMNITZ

NUMBER PE-2011005051

PROFESSIONAL ENGINEER

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DATE PREPARED 7/25/2025

ROUTE E STATE MO

DISTRICT BR SHEET NO. 8

COUNTY GRUNDY

JOB NO. JN0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO. X01531

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

800 E 101st Terr., Ste. 200

Kansas City, MO 64131

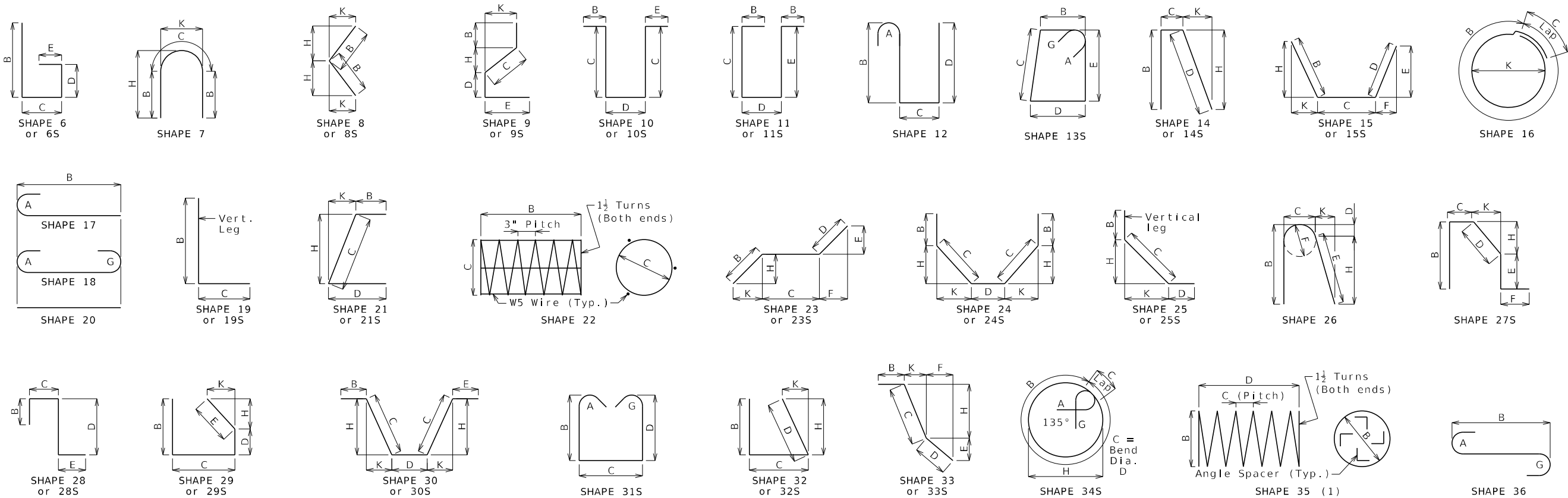
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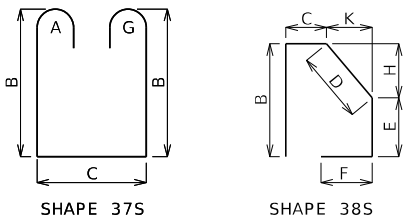


Finished Bend Dimensions D and Hook Dimensions						
Standard Pin Bend Shapes						
Size	Case	D	A or G		J	
			90°	180°	180°	
#4	1	3"	8"	6"	4"	
#5	1	3 3/4"	10"	7"	5"	
#6	1	4 1/2"	12"	8 1/4"	6"	
#7	2	5 1/4"	14"	9 3/4"	7"	
	3	7"	15"	11 1/2"	8 3/4"	
#8	2	6"	16"	11"	8"	
	3	8"	17"	13 1/4"	10"	
#9	1	9 1/2"	19 1/2"	15 1/2"	11 3/4"	
#10	1	10 3/4"	22"	17 1/2"	13 1/4"	
#11	1	12"	24 1/2"	19 1/2"	14 7/8"	
#14	1	18 1/4"	31 1/4"	27 1/2"	21 5/8"	
#18	1	24"	41 1/2"	36 1/4"	28 1/2"	
Stirrup Pin Bend Shapes (S)						
Size	Case	D	A or G		H	J
			90°	135°	180°	135°
#4	2	2"	4 1/2"	4 1/2"	5"	2 7/8"
	3	3"	5"	5 1/4"	6"	3"
#5	2	2 1/2"	5 3/4"	5 3/4"	5 3/4"	3 3/4"
	3	3 3/4"	6 1/4"	6 1/4"	7"	3 3/8"
#6	1	4 1/2"	12"	7 3/4"	8 1/4"	4 3/8"

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.

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



BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)							
By Size	Size	Substructure		Superstructure		Entire Bridge	
		Plain	Epoxy	Slab	Barrier	Plain	Epoxy
					Slip Form		
	W5	0	0	0	0	0	0
	4	0	0	1,764	0	0	1,764
	5	0	146	31,257	10,851	0	42,955
	6	0	2,264	19,628	0	0	21,892
	7	0	0	0	0	0	0
By Type		0	2,410	52,649	10,851	701	66,611

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed March 2025
Checked May 2025

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

Sheet No. 9 of 10

STATE OF MISSOURI

JASON M. KEMNITZ

NUMBER PE-2011005051

PROFESSIONAL ENGINEER

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DATE PREPARED 7/25/2025

ROUTE E STATE MO

DISTRICT BR SHEET NO. 9

COUNTY GRUNDY

JOB NO. JNW0013

CONTRACT ID.

PROJECT NO.

BRIDGE NO. X01531

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

800 E 101st Terr., Ste. 200
Kansas City, MO 64131
Phone (816) 701-3100
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MoDOT

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

WILSON & COMPANY

ENGINEERS & ARCHITECTS

Bill of Reinforcing Steel																									
No. Req.	Size/ Mark	Location	Codes				Dimensions						Nom. Length ft in.	Actual Length ft in.	Weight lb										
			E	SH	S	X V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.				K ft in.									
		END BENT NO. 1																							
8	6	H100	DIAPHRAGM	E	20			24	5.000					24	5	293									
2	6	H101	DIAPHRAGM	E	20			26	5.000					25	5	76									
12	6	H102	DIAPHRAGM	E	10	S			2	1.000	0	14.250		5	4	92									
27	6	U100	DIAPHRAGM	E	10	S			4	0.000	0	14.250		9	2	362									
25	6	U101	DIAPHRAGM	E	19	S		3	1.000	3	1.000			6	2	225									
27	6	U102	DIAPHRAGM	E	19	S		0	23.500	0	14.250			3	2	122									
30	5	U103	SLAB REST	E	20	S		2	6.000					2	6	78									
		END BENT NO. 5																							
8	6	H500	DIAPHRAGM	E	20			23	1.000					23	1	277									
2	6	H501	DIAPHRAGM	E	20			26	5.000					25	5	76									
12	6	H502	DIAPHRAGM	E	10	S			0	19.000	0	14.250		4	4	74									
25	6	U500	DIAPHRAGM	E	10	S			3	11.000	0	14.250		9	0	329									
25	6	U501	DIAPHRAGM	E	19	S		3	1.000	3	1.000			6	2	225									
25	6	U502	DIAPHRAGM	E	19	S		0	23.500	0	14.250			3	2	113									
24	5	U503	SLAB REST	E	19	S		2	6.000					2	6	63									
		SLAB																							
290	5	S1	SLAB	E	20			55	4.000					55	4	16737									
80	6	S2	SLAB	E	20			24	0.000					24	0	2884									
422	6	S3	SLAB	E	20			26	5.000					26	5	16744									
527	5	S4	SLAB	E	20			26	5.000					26	5	14520									
20	4	S5	SLAB	E	20			54	1.000					54	1	723									
1040	4	S6	SLAB	E	10	S		0	6.000	0	4.000	0	7.500	1	10	1042									
		TYPE H BARRIER																							
20	5	K1	BARRIER	E	27	S		0	20.500	0	9.250	0	5.375	0	14.750	5	2	101							
28	5	K2	BARRIER	E	27	S		0	20.500	0	9.250	0	17.250	0	3.000	5	2	144							
48	5	K4	BARRIER	E	19	S		2	5.000	0	10.000			3	3	2	159								
20	5	K5	BARRIER	E	38	S					0	19.250	0	9.500	0	8.250	3	1	63						
28	5	K6	BARRIER	E	21	S			2	4.875	0	10.000			2	4.250	0	6.000	3	3	90				
56	5	K7	BARRIER	E	20			5	6.000					5	6	5	321								
524	5	R1	BARRIER	E	14	S		2	5.000	0	6.500	2	5.500		2	5.000	0	5.500	5	5	3	2836			
524	5	R2	BARRIER	E	19	S		0	18.500			0	9.500			1	7	1	5	765					
524	5	R3	BARRIER	E	27	S			0	9.500	0	15.250	0	3.000	0	12.000	0	15.000	0	3.000	3	4	3	2	1711
32	5	R4	BARRIER	E	20			54	0.000						54	0	54	0	1802						
96	5	R5	BARRIER	E	20			11	8.000						11	8	11	8	1168						
32	5	R6	BARRIER	E	20			50	8.000						50	8	50	8	1691						
		SLIP FORM BARRIER																							
56	5	C1	SLIP FORM	E	20			12	0.000						12	0	12	0	701						

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. 9.

Detailed March 2025
Checked May 2025

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

BILL OF REINFORCING STEEL

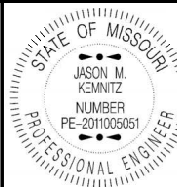
Sheet No. 10 of 10

[illegible]

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.



THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

DATE PREPARED _____

7/25/202

ROUTE	ST
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U	M
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DISTRICT	SHEET
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COUNTY

GRUNDY

JOB NO.

JNW0013

CONTRACT ID

PROJECT NO.

BRIDGE NO.

X01531

[illegible]

MISSOURI HIGHWAYS AND TRANSPORTATION
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