DESIGN DESIGNATION

A.A.D.T. - 2025 = 1,160
A.A.D.T. - 2045 = 1,420
T = 42%
V = 55 M.P.H.

FUNCTIONAL CLASSIFICATION - MINOR ARTERIAL

NORMAL RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION EASEMENTS WILL BE ACQUIRED WITH THIS PROJECT.

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CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

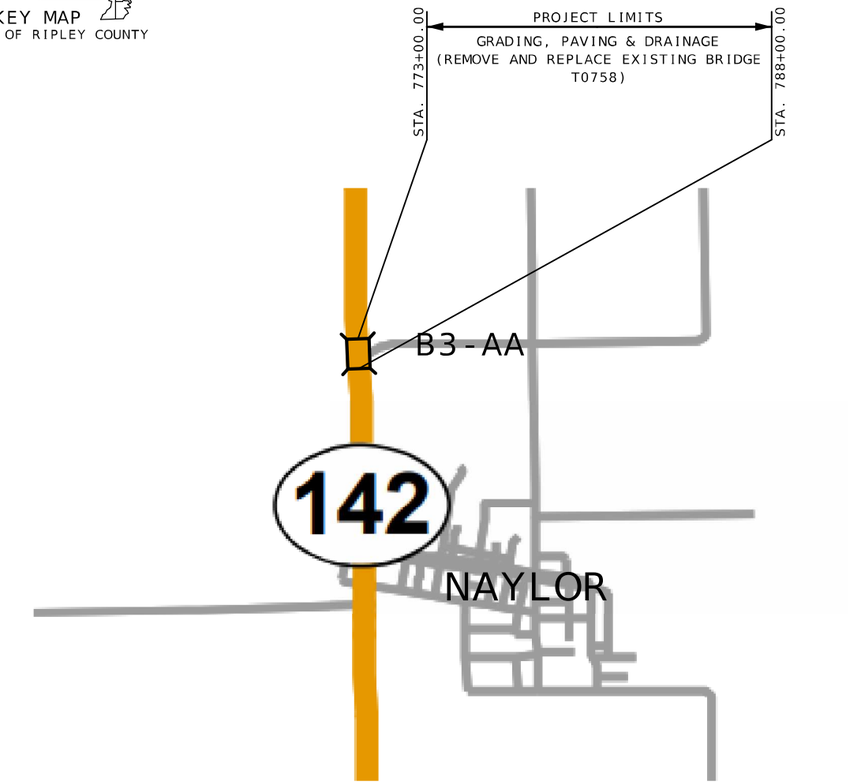
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

RIPLEY COUNTY
T22N, R4E

KEY MAP
LOCATION OF RIPLEY COUNTY

NOT TO SCALE



THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.

INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
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QUANTITIES (QU) (3 SHEET)	3
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REFERENCE POINTS (RP)	6
COORDINATE POINTS (CP)	6
SPECIAL SHEETS (SS)	7
TRAFFIC CONTROL SHEETS (TC)	8-9
EROSION CONTROL SHEETS (EC)	10
BRIDGE DRAWINGS (B)	
A9389	1-14
CROSS SECTIONS (XS)	1-4

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 773+00.00	
END OF PROJECT	STA. 788+00.00	
APPARENT LENGTH	1500.00	FEET
TOTAL CORRECTIONS	-402.10	FEET
NET LENGTH OF PROJECT	1097.90	FEET
STATE LENGTH	.208	MILES

EQUATIONS AND EXCEPTIONS:
EQN: STA 775+97.90 BK = 780+00.00 AH

JOSHUA W. STEIN NUMBER PE-2011030189
STATE OF MISSOURI
PROFESSIONAL ENGINEER
Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED 7/22/2025
ROUTE 142 | STATE MO
DISTRICT SE | SHEET NO. 1
COUNTY RIPLEY
JOB NO. J9S3685
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9389

DESCRIPTION	DATE

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

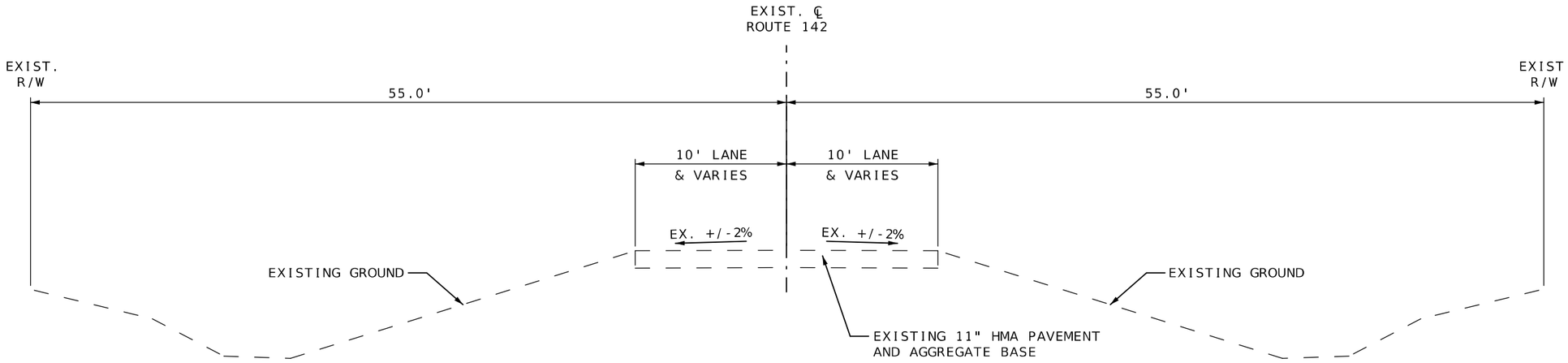
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

TWM ENGINEERING GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001328

TITLE SHEET
ROUTE 142
SHEET 1 OF 1

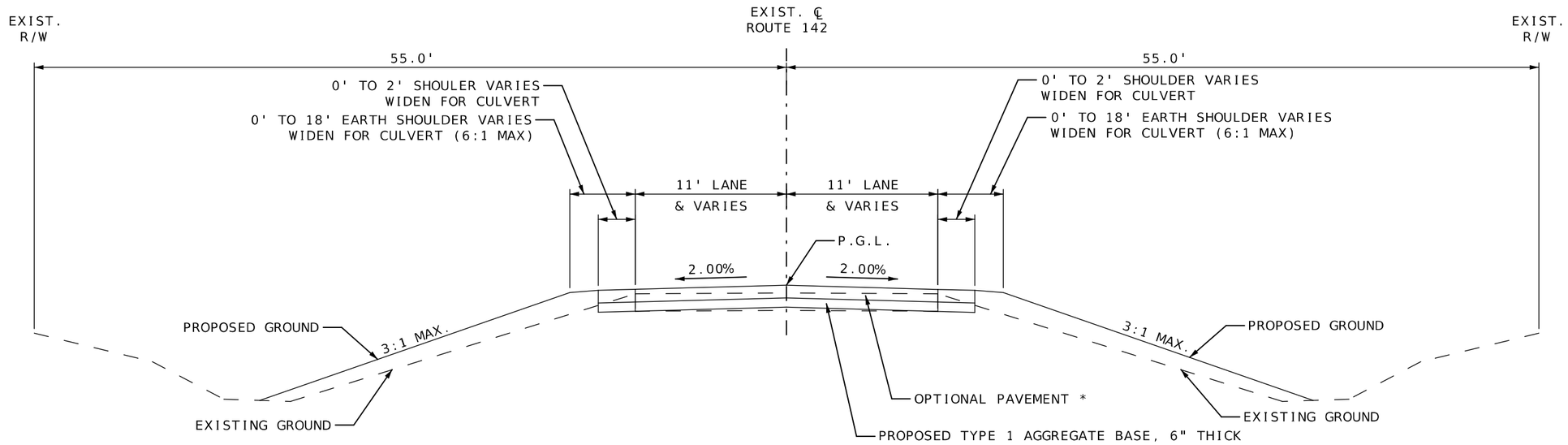
REV.

P:\2022\221411B\4 CADD - DWG\4.7 Tran\Sheets\001_TL_01_J9S3685_i1.dgn 12:46:42 PM 7/22/2025



EXISTING TYPICAL SECTION ON TANGENT ROUTE 142

STA. 773+00.00 TO STA. 775+97.90 (BK)
STA. 780+00.00 (AH) TO STA. 788+00.00
EQN: STA. 775+97.90 (BK) = 780+00.00 (AH)



PROPOSED TYPICAL SECTION ON TANGENT ROUTE 142

STA. 773+00.00 TO STA. 775+97.90 (BK)
STA. 780+00.00 (AH) TO STA. 788+00.00
EQN: STA. 775+97.90 (BK) = 780+00.00 (AH)
(PAVEMENT LIMITS STA. 780+00.00 TO STA. 785+00.00)

* PAVEMENT DRAWN AS CONCRETE OPTION

OPTIONAL PAVEMENT

(1) 8" PCCP WITH 15' JOINTS W/ 1 1/4" DOWELS
(2) 2" BP-1 (PG64-22) OVER 8" PMBB (PG64-22)

DRAWING NOT TO SCALE

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STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:9/12/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
9/12/2025

ROUTE	STATE
142	MO

DISTRICT	SHEET NO.
SE	2

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DESCRIPTION	DATE

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

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

TWM ENGINEERING GEOSPATIAL SERVICES
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ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001328

TYPICAL SECTIONS
ROUTE 142
SHEET 1 OF 1

REV.

CONTRACTOR FURNISHED SURVEYING AND STAKING= 1 LUMP SUM

MOBILIZATION = 1 LUMP SUM

TYPE 2 ROCK BLANKET

SHEET	STATION	ROUTE	LOCATION	FURNISHING (CUYD)	PLACING (CUYD)	GEOTEXTILE (SY)	REMARKS
4	783+40.30	142	LT	9.9	9.9	14.9	
			SUBTOTAL	9.9	9.9	14.9	
			PAY TOTAL	10	10	15	

GRADING AND EARTHWORK

SHEET	STATION	STATION	ROUTE	LOCATION	COMPACTING IN CUT (STA.)	COMPACTING EMBANKMENT (CUYD)	CLASS A EXCAVATION (CUYD)	EMBANKMENT IN PLACE (CUYD)	REMARKS
4	780+00.00	785+00.00	142	CL	5.0	619.0	773.7	546.7	
				SUBTOTAL	5.0	619.0	773.7	546.7	
				PAY TOTAL	5.0	619	774	547	

6" TYPE 1 BASE

SHEET	STATION	STATION	ROUTE	LOC	LENGTH (LF)	WIDTH (LF)	AREA (SY)	REMARKS
4	780+00.00	785+00.00	142	CL	500.00	VARIES	1446.7	
						SUBTOTAL	1446.7	
						PAY TOTAL	1447	

OPTIONAL PAVEMENT

SHEET	STATION	STATION	ROUTE	LOC	LENGTH (LF)	WIDTH (LF)	AREA (SY)	REMARKS
4	780+00.00	785+00.00	142	CL	500.00	VARIES	1446.7	10" HMA / 8" PCCP
						SUBTOTAL	1446.7	
						PAY TOTAL	1447	

PAVEMENT MARKINGS

SHEET	STATION	STATION	ROUTE	LOCATION	CLASS 1 PAVEMENT MARKING PAINT (18 MIL, TYPE P BEADS)		REMARKS
					4 IN. YELLOW (LF)	4 IN. WHITE (LF)	
11	773+00.00	788+00.00	142	RT		1098	RIGHT EOP
11	773+00.00	788+00.00	142	LT		1098	LEFT EOP
11	773+00.00	788+00.00	142	CL	2196		DOUBLE SOLID YELLOW CENTERLINE
				SUBTOTAL	2196	2196	
				PAY TOTAL	2196	2196	

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
SE	3

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

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

REV.	DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

TWM
ENGINEERING
GEOSPATIAL SERVICES
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ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001538

SUMMARY OF QUANTITIES
ROUTE 142
SHEET 1 OF 3

TEMPORARY EROSION CONTROL

SHEET	STATION	STATION	ROUTE	LOC	SILT FENCE (LF)	ROCK DITCH CHECK (LF)	TYPE C BERM (LF)	SEDIMENT TRAP (CUYD)	SEDIMENT REMOVAL (CUYD)	REMARKS
8	780+00.79	780+70.87	142	LT	71.3				0.7	
8	780+43.78	782+06.55	142	LT		175.0				8 DITCH CHECKS AT 25' SPACING
8	780+83.19	782+60.01	142	RT		175.0				8 DITCH CHECKS AT 25' SPACING
8	782+24.25	782+24.25	142	LT				10.0	0.0	AT NORTHEAST DITCH OUTFLOW
8	782+80.49	782+80.49	142	RT				10.0	0.0	AT NORTHWEST DITCH OUTFLOW
8	783+14.10	783+14.10	142	RT				10.0	0.0	AT SOUTHWEST DITCH OUTFLOW
8	783+33.64	784+00.00	142	RT		75.0				4 DITCH CHECKS AT 25' SPACING
8	783+57.25	784.98.58	142	LT	141.4				1.4	
8	784+05.92	785+00.30	142	RT	95.8				1.0	
				SUBTOTAL	308.5	425.0	0.0	30.0	3.1	
				PAY TOTAL	309	425	0	30	3	

CLEARING AND GRUBBING

SHEET	STATION	STATION	ROUTE	LOCATION	CLEARING AND GRUBBING (ACRE)	REMARKS
4	780+00.00	785+00.00	142	LT	0.6	
4	780+00.00	785+00.00	142	RT	0.4	
				SUBTOTAL	1.0	
				PAY TOTAL	1	

GRAVEL ENTRANCE

SHEET	STATION	ROUTE	LOCATION	GRAVEL (A) OR CRUSHED STONE (B) (SY)	REMARKS
4	783+40.30	142	LT	136.2	
			SUBTOTAL	136.2	
			PAY TOTAL	136	

SEEDING & MULCHING

SHEET	STATION	STATION	LOCATION	SEEDING - COOL SEASON MIXTURE (ACRE)	MULCHING (ACRE)	REMARKS
4	780+00.00	785+00.00	LT	0.27	0.27	
4	780+00.00	785+00.00	RT	0.33	0.33	
			SUBTOTAL	0.60	0.60	
			PAY TOTAL	0.6	0.6	

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	ROUTE	LOCATION	AMOUNT	DESCRIPTION
*NOT SHOWN ON PLANS	769+00.00		142	RT	1 EACH	"ONE LANE BRIDGE" SIGN
4	771+90.00		142	RT	1 EACH	WEIGHT LIMIT SIGN
4	780+00.00		142	LT/RT	22.0LF	SAW CUT
4	780+08.00		142	RT	1 EACH	"YIELD TO ONCOMING TRAFFIC" SIGN
4	780+00.00	785+00.00	142	LT/RT	1222.24SY	PAVEMENT
4	782+05.41	782+57.83	142	LT/RT	6 EACH	TYPE 3 OBJECT MARKERS (12" x 36")
4	782+81.27	782+93.52	142	LT/RT	4 EACH	TYPE 3 OBJECT MARKERS (12" x 36")
4	785+00.00		142	LT/RT	22.0LF	SAW CUT
4	785+05.00		142	LT	1 EACH	"YIELD TO ONCOMING TRAFFIC" SIGN
4	788+90.00		142	LT	1 EACH	WEIGHT LIMIT SIGN
*NOT SHOWN ON PLANS	791+00.00		142	LT	1 EACH	"ONE LANE BRIDGE" SIGN
	PAYTOTAL 1 LUMP SUM					

JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER
STATE OF MISSOURI

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED: 7/22/2025

ROUTE	STATE
142	MO

DISTRICT	SHEET NO.
SE	3

COUNTY: RIPLEY

JOB NO.: J9S3685

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9389

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

DESCRIPTION | DATE | REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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MISSOURI CERT. OF AUTHORITY: 001528

SUMMARY OF QUANTITIES
ROUTE 142
SHEET 2 OF 3

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
*WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00	3	48			20D	DETOUR AHEAD
WO20-3	48X48	16.00	7	112			20,20A,20B	ROAD CLOSED AHEAD
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
*GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	2	6			52	END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)
*REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20			29	ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	2	25			60	ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
*MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
WO20-3a	48X48	16.00	2	32			20C	ROAD CLOSED 500 FEET
SPECIAL	36X60	15.00	14	210			50A	RTE 142 DETOUR STRAIGHT ARROW
SPECIAL	36X60	15.00	4	60			50B	RTE 142 DETOUR ADV. RT ARROW
SPECIAL	36X60	15.00	4	60			50C	RTE 142 DETOUR RT ARROW
SPECIAL	36X60	15.00	2	30			50D	RTE 142 DETOUR ADV. LT ARROW
SPECIAL	36X60	15.00	2	30			50E	RTE 142 DETOUR LT ARROW

ITEM NUMBER	TOTAL QTY	EFFECTIVE: 07-01-2025 DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6122040		WORK ZONE CRASH CUSHION (NARROW)
6122041		WORK ZONE CRASH CUSHION (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONE)
6161025		CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	6*	TYPE 3 MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE 3 OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER, CONTRACTOR FURNISHED/RETAINED
6173700B		TEMP. TRAFFIC BARRIER ANCHORED, CONTRACTOR FURNISHED/RETAINED
6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION CONTRACTOR FURNISHED/RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION, CONTRACTOR FURNISHED/RETAINED
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

TRAFFIC CONTROL = 1 LUMP SUM

*NO DIRECT PAYMENT WILL BE MADE FOR TEMPORARY TRAFFIC CONTROL SIGNS OR DEVICES.

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO

DISTRICT	SHEET NO.
SE	3

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DESCRIPTION | DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

TWM
ENGINEERING
GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001528

SUMMARY OF QUANTITIES
ROUTE 142
SHEET 3 OF 3

REV.

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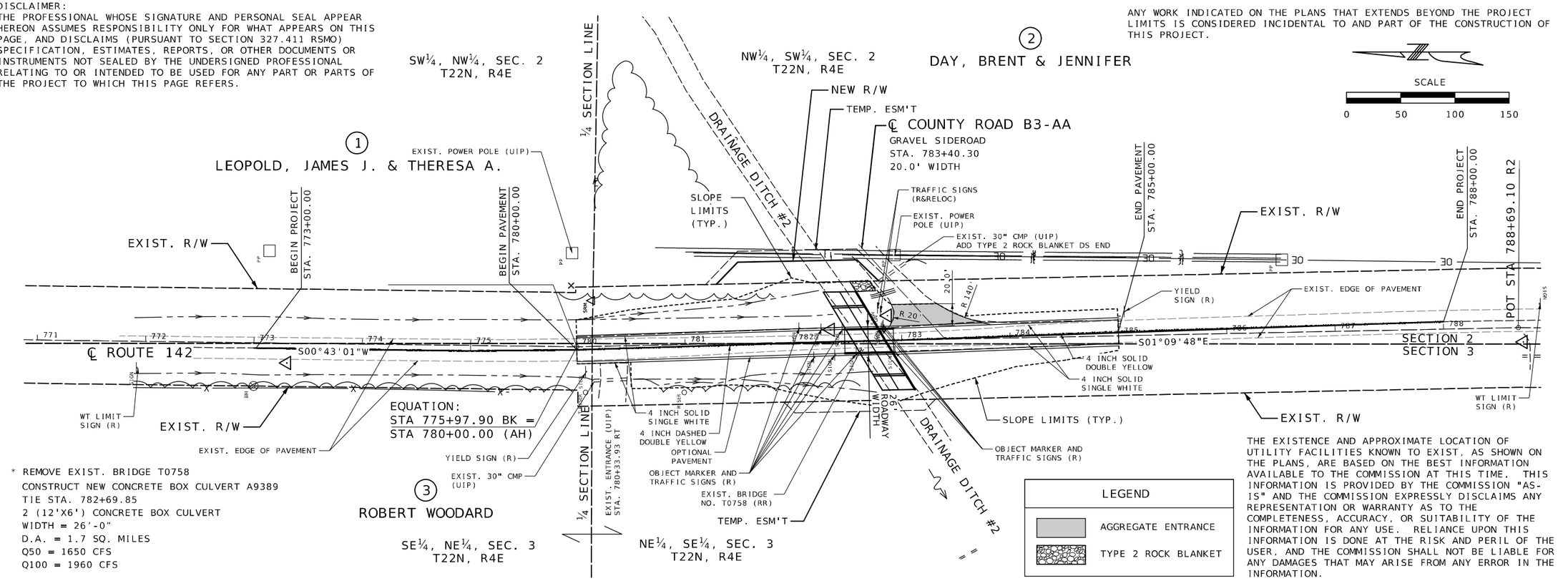
ANY WORK INDICATED ON THE PLANS THAT EXTENDS BEYOND THE PROJECT LIMITS IS CONSIDERED INCIDENTAL TO AND PART OF THE CONSTRUCTION OF THIS PROJECT.

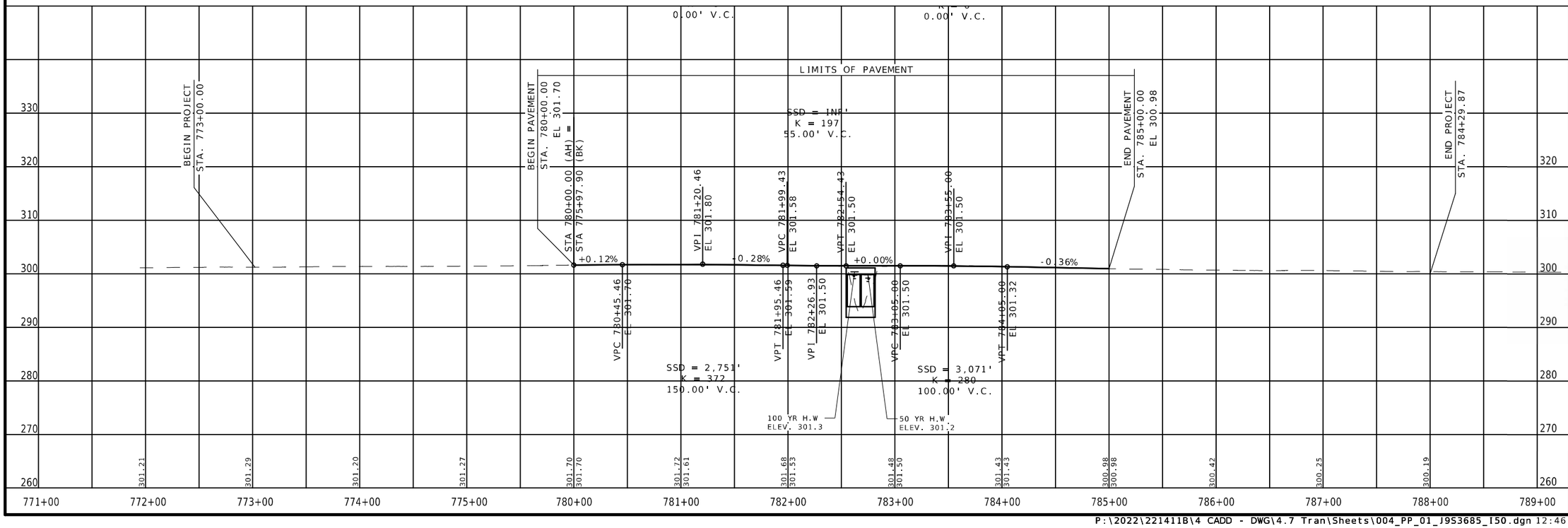


* REMOVE EXIST. BRIDGE T0758
CONSTRUCT NEW CONCRETE BOX CULVERT A9389
TIE STA. 782+69.85
2 (12'X6') CONCRETE BOX CULVERT
WIDTH = 26'-0"
D.A. = 1.7 SQ. MILES
Q50 = 1650 CFS
Q100 = 1960 CFS

LEGEND
- AGGREGATE ENTRANCE
- TYPE 2 ROCK BLANKET

SCALE
0 50 100 150

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.



STATE OF MISSOURI
JOSHUA W. STEIN NUMBER PE-2011030189
PROFESSIONAL ENGINEER
Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
SE	4

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DATE	DESCRIPTION

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JEFFERSON CITY, MO 65102
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MISSOURI CERT. OF AUTHORITY: 001538

PLAN/PROFILE SHEET
ROUTE 142
SHEET 1 OF 1

REV.

FOR INFORMATION ONLY

NOTES:

EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS EXHIBIT, THIS SURVEY DOES NOT REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THIS SUBJECT REAL ESTATE: EASEMENTS, BUILDING SETBACK LINES, RESTRICTIVE COVENANTS, SUBDIVISION RESTRICTIONS, ZONING OR OTHER LAND-USE REGULATIONS, AND ANY OTHER FACTS WHICH AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

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

RIGHT OF WAY LIMITS FOR THIS PROJECT EXTEND FROM STATION 781+30.00 TO STATION 782+90.00, A DISTANCE OF 160 FEET.

RIGHT OF WAY/BOUNDARY SURVEY WAS PERFORMED AND PROVIDED BY MODOT.

ALL BEARINGS BASED ON MISSOURI STATE PLANE COORDINATE SYSTEM.

ANGLES SHOWN ON PROPERTY LINES ARE FROM AHEAD STATIONING.

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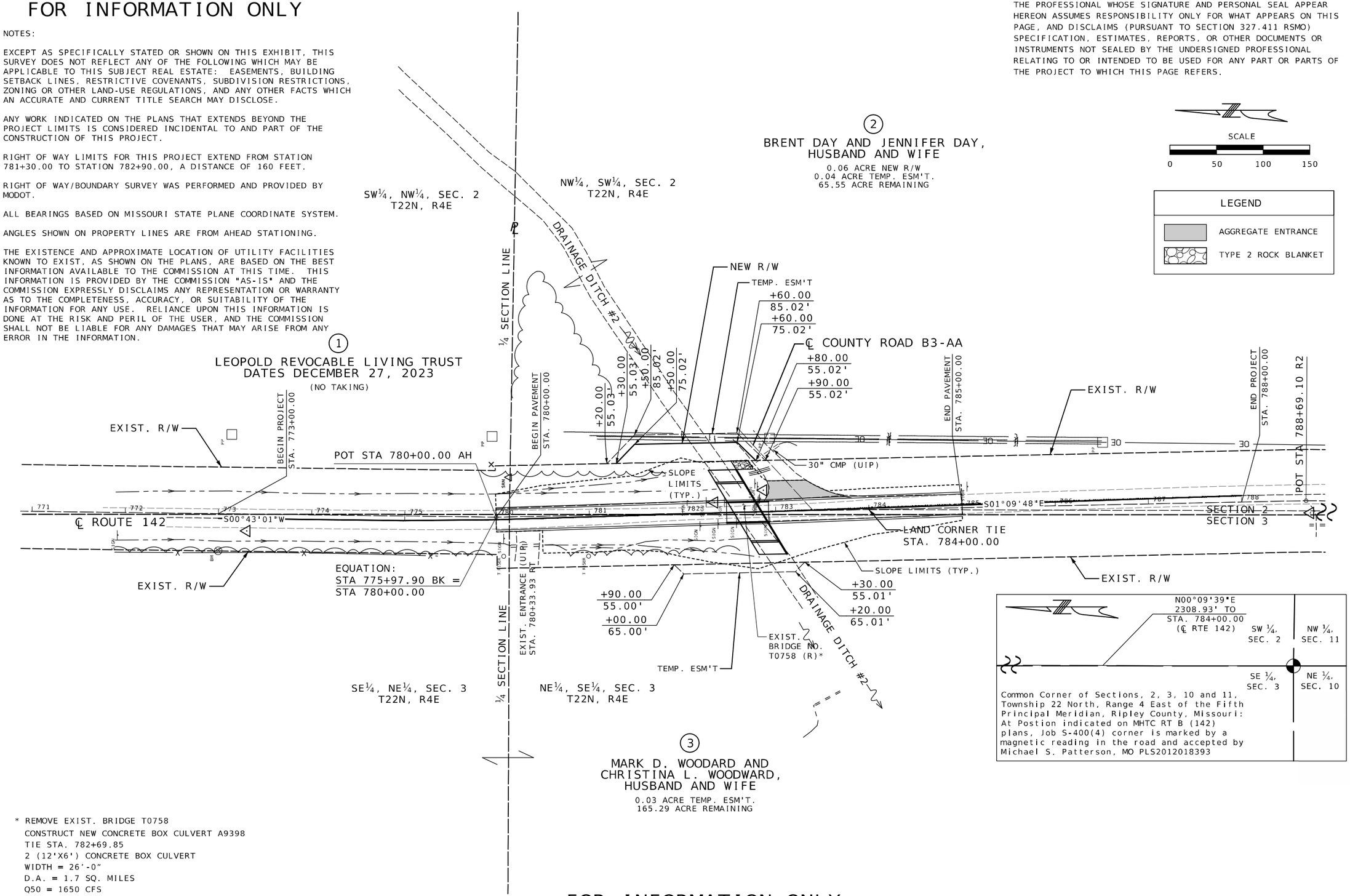
(1)
LEOPOLD REVOCABLE LIVING TRUST
DATES DECEMBER 27, 2023
(NO TAKING)

(2)
BRENT DAY AND JENNIFER DAY,
HUSBAND AND WIFE
0.06 ACRE NEW R/W
0.04 ACRE TEMP. ESM'T.
65.55 ACRE REMAINING

(3)
MARK D. WOODARD AND
CHRISTINA L. WOODWARD,
HUSBAND AND WIFE
0.03 ACRE TEMP. ESM'T.
165.29 ACRE REMAINING



SCALE
0 50 100 150

LEGEND
- AGGREGATE ENTRANCE
- TYPE 2 ROCK BLANKET

Common Corner of Sections, 2, 3, 10 and 11, Township 22 North, Range 4 East of the Fifth Principal Meridian, Ripley County, Missouri: At Postion indicated on MHTC RT B (142) plans, Job S-400(4) corner is marked by a magnetic reading in the road and accepted by Michael S. Patterson, MO PLS2012018393

* REMOVE EXIST. BRIDGE T0758
CONSTRUCT NEW CONCRETE BOX CULVERT A9398
TIE STA. 782+69.85
2 (12'X6') CONCRETE BOX CULVERT
WIDTH = 26'-0"
D.A. = 1.7 SQ. MILES
Q50 = 1650 CFS
Q100 = 1960 CFS

FOR INFORMATION ONLY

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO

DISTRICT	SHEET NO.
SE	5

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DATE	DESCRIPTION

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

TWM ENGINEERING GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
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(314) 241-6300
www.twm-itc.com
MISSOURI CERT. OF AUTHORITY: 001539

RIGHT OF WAY SHEET
ROUTE 142
SHEET 1 OF 1

REV.

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

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ALL SURVEYING HAS BEEN DONE BY MODOT. THE INFORMATION SHOWN ON THIS REFERENCE SHEET IS COPIED FROM THEIR FIELD NOTES.

ALL PROJECT COORDINATES HAVE BEEN PROJECTED FROM THE MISSOURI STATE PLANE COORDINATE (SPC) SYSTEM OF 1983 USING AN AVERAGE PROJECT PROJECTION (GRID TO GROUND) FACTOR. TO GET BACK TO STATE PLANE COORDINATES, MULTIPY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.

PROJECT COORDINATE INFORMATION

COORDINATE SYSTEM	MODIFIED STATE PLANE (GROUND)
HORIZONTAL DATUM	NAD 83 (2011)
VERTICAL DATUM	NAVD 88
GEOID MODEL	GEOID 2018
ELEVATIONS DETERMINED BY	STATIC OBSERVATION
PROJECT PROJECTION FACTOR	1.000075270736

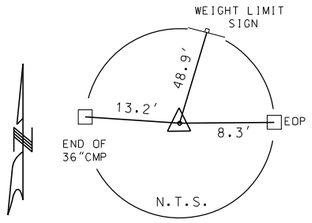
EXAMPLE OF PROJECT COORDINATE TO S.P.C.

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

EXAMPLE: CONTROL POINT #100
N 272781.501 X 0.9999247349 = N 272760.970
E 787562.599 X 0.9999247349 = E 787503.323

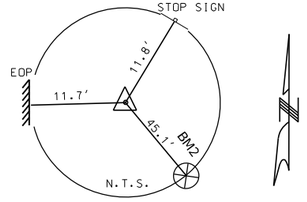
LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)



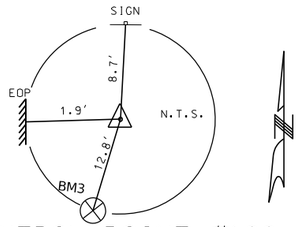
CONTROL POINT #100

5/8" REBAR W/ PLASTIC CAP
N = 272781.501
E = 787562.599
ELEV. 299.27
STA. 788+74.03
OFFSET 13.21' RT



CONTROL POINT #101

5/8" REBAR W/ PLASTIC CAP
N = 273368.385
E = 787586.871
ELEV. 300.84
STA. 782+87.40
OFFSET 22.85' LT



CONTROL POINT #102

5/8" REBAR W/ PLASTIC CAP
N = 273420.958
E = 787573.812
ELEV. 300.74
STA. 782+34.58
OFFSET 10.86' LT

BENCH MARKS

BM1 ELEV 299.58
COTTON PICKER SPINDLE IN THE BASE OF A 24" ELM TREE

BM2 ELEV 300.60
COTTON PICKER SPINDLE IN THE BASE OF A 30" MAPLE TREE

BM3 ELEV 301.28
CHISLED SQUARE IN THE NORTH END OF THE EAST GUARDRAIL

ALIGNMENT POINT LISTING

SHEET NO	STATION	MODIFIED STATE PLANE (GROUND) NORTHING (USFT)	EASTING (USFT)	DESCRIPTION
5	773+00.00	273953.143	787561.919	START OF PROJECT
5	788+00.00	272855.431	787574.432	END OF PROJECT

CONTROL POINT LISTING

SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (USFT)	EASTING (USFT)	ELEVATION (USFT)	DESCRIPTION	POINT ID
5	788+74.03	RT	13.21	272781.501	787562.599	299.27	5/8" REBAR W/ PLASTIC CAP	CP100
5	782+87.40	LT	22.85	273368.385	787586.871	300.84	5/8" REBAR W/ PLASTIC CAP	CP101
5	782+34.58	LT	10.86	273420.958	787573.812	300.74	5/8" REBAR W/ PLASTIC CAP	CP102

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STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:8/8 /2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/10/2025

ROUTE	STATE
142	MO

DISTRICT	SHEET NO.
SE	6

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DESCRIPTION | DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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ENGINEERING
GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-5800
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001538

COORDINATE POINTS

ROUTE 142

SHEET 1 OF 1

REV.

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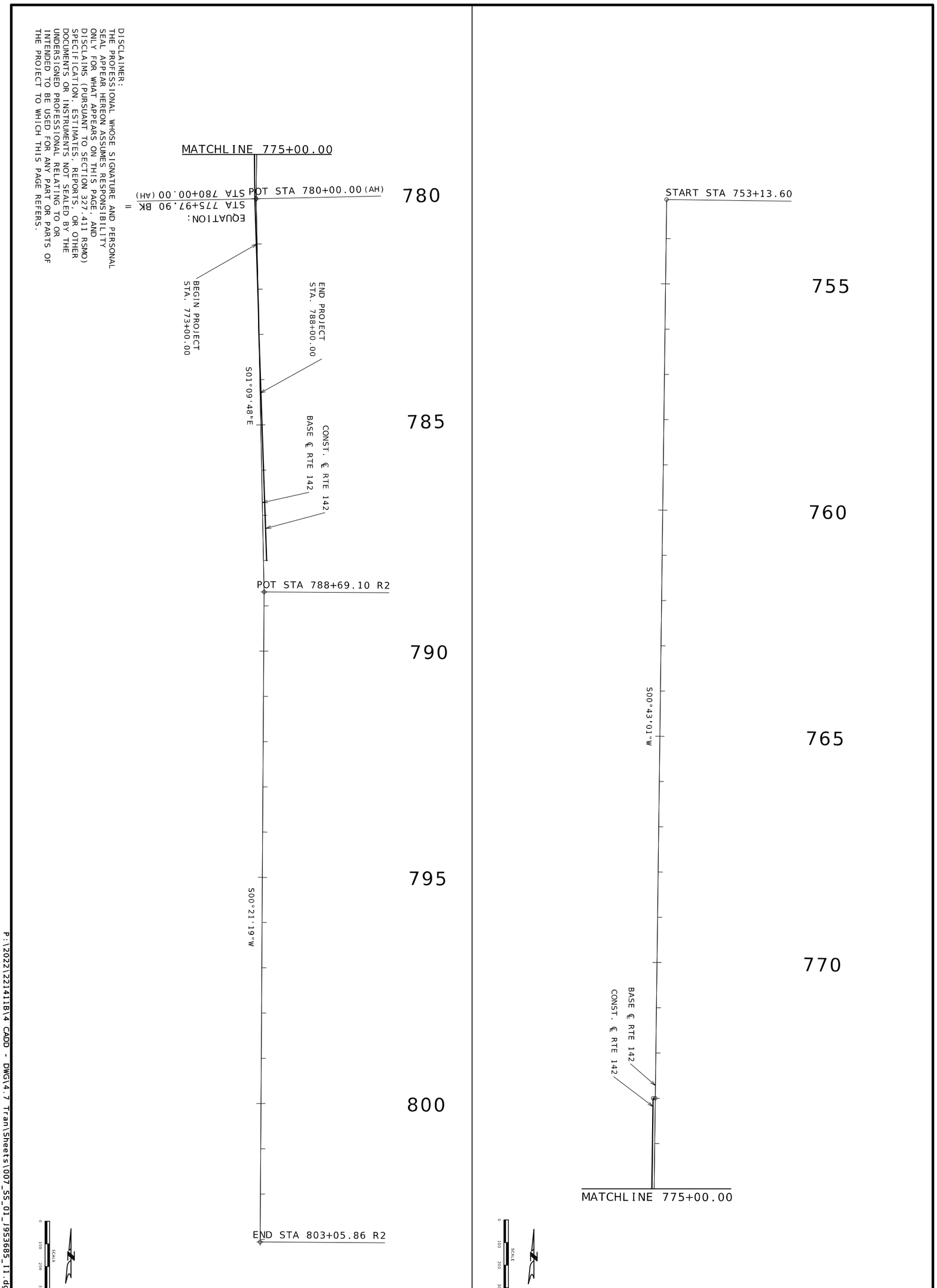

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ALIGNMENT SHEET
ROUTE 142
SHEET 1 OF 1

TWM
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GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
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(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001528

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

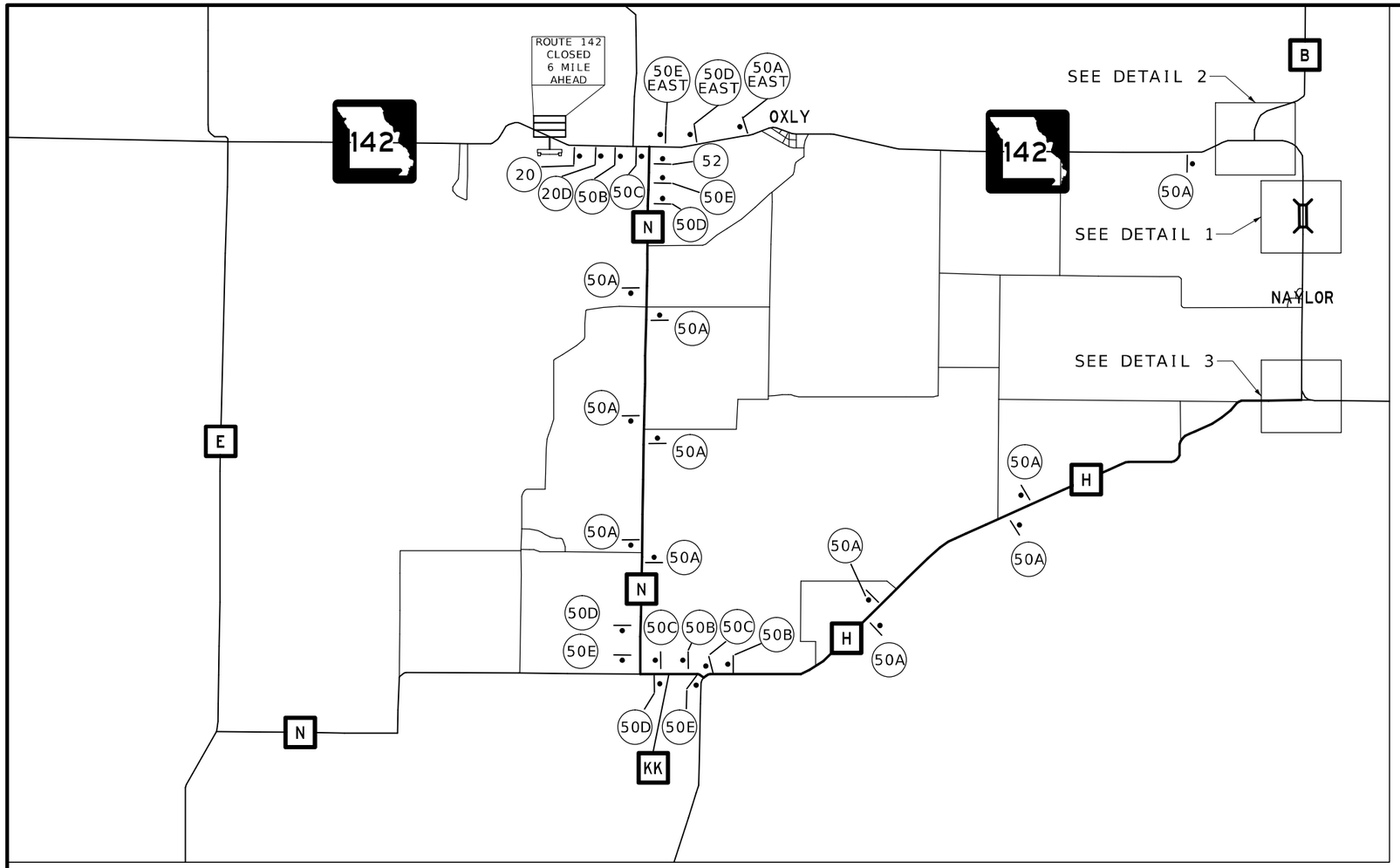
DATE	DESCRIPTION

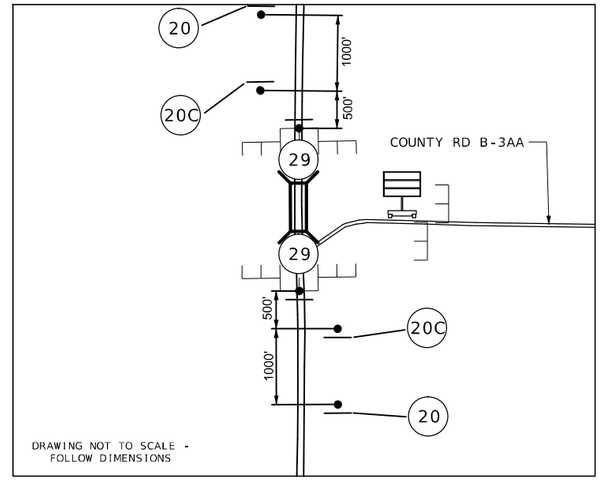
BRIDGE NO.: A9389
PROJECT NO.:
CONTRACT ID.:
JOB NO.: J953685
COUNTY: RIPLEY
DISTRICT: SE
SHEET NO.: 7
ROUTE: 142
STATE: MO
DATE PREPARED: 7/22/2025

JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Signed 7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

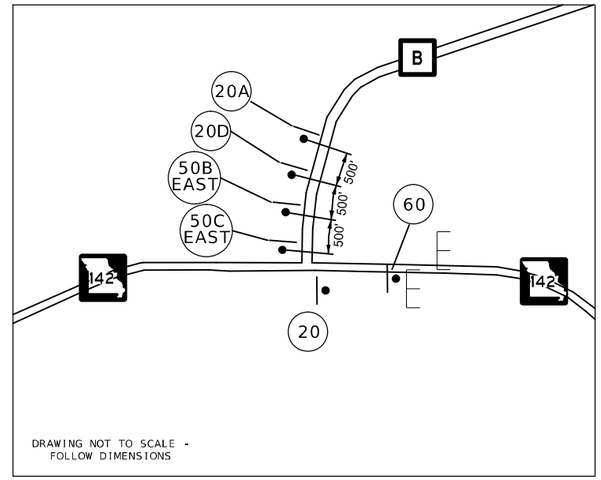
REV.

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

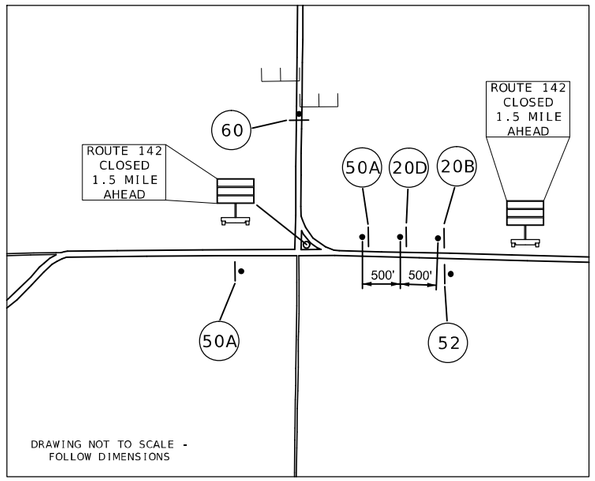




DETAIL 1



DETAIL 2



DETAIL 3

NOT TO SCALE

NOTES:

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

LOCATIONS OF CMS BOARDS SHALL BE DETERMINED BY THE ENGINEER

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- TYPE 3 MOVEABLE BARRICADE
- CHANGEABLE MESSAGE BOARD

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STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
SE	8

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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MISSOURI CERT. OF AUTHORITY: 001528

TRAFFIC CONTROL
ROUTE 142
SHEET 1 OF 1

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

REV.

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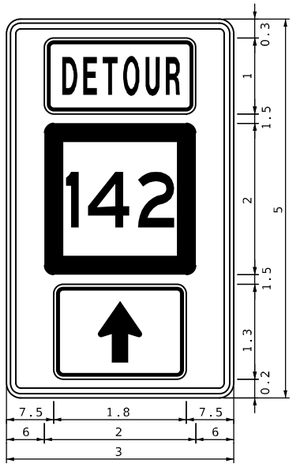

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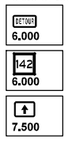
Table of letter and object lefts.



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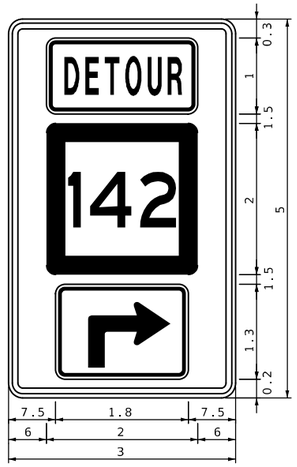
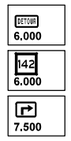


MO4-12-36 SHF-FLAT SHEET FLUORESCENT
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
Table of letter and object lefts.



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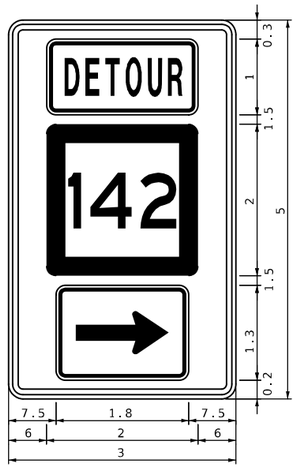

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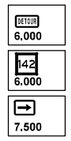
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
Table of letter and object lefts.



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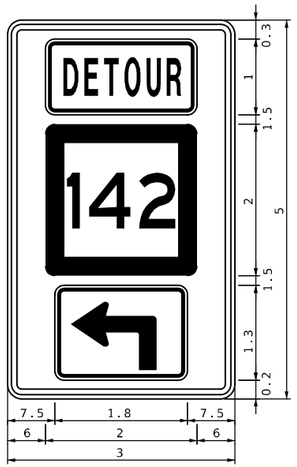
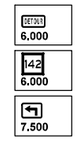


MO4-12-36 SHF-FLAT SHEET FLUORESCENT
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
Table of letter and object lefts.



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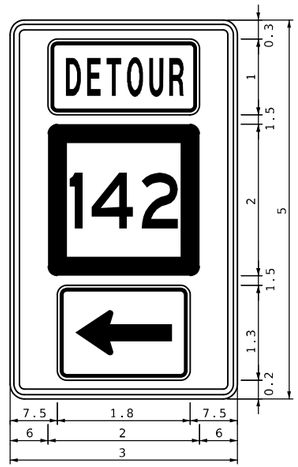

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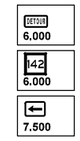
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
Table of letter and object lefts.



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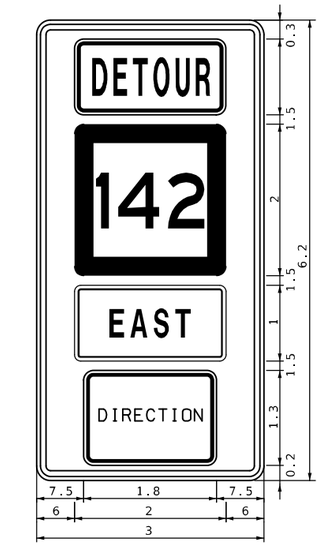

SPECIAL
WITH "EAST" DESIGNATION
(AS NOTED)

(DESIGNATED WITH "EAST")

BRIDGE
OR
RAMP

WO20-3
20

M5-1L

BRIDGE
OR
RAMP

WO20-3
20A

M5-1R

BRIDGE
OR
RAMP

WO20-3
20B

WO20-3a
20C

WO20-2
20D

R11-2
29

MO4-8a
52

R11-4
60

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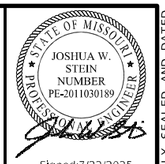

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
SE	9

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DETOUR PLAN SIGN DETAILS
ROUTE 142
SHEET 1 OF 1

REV.

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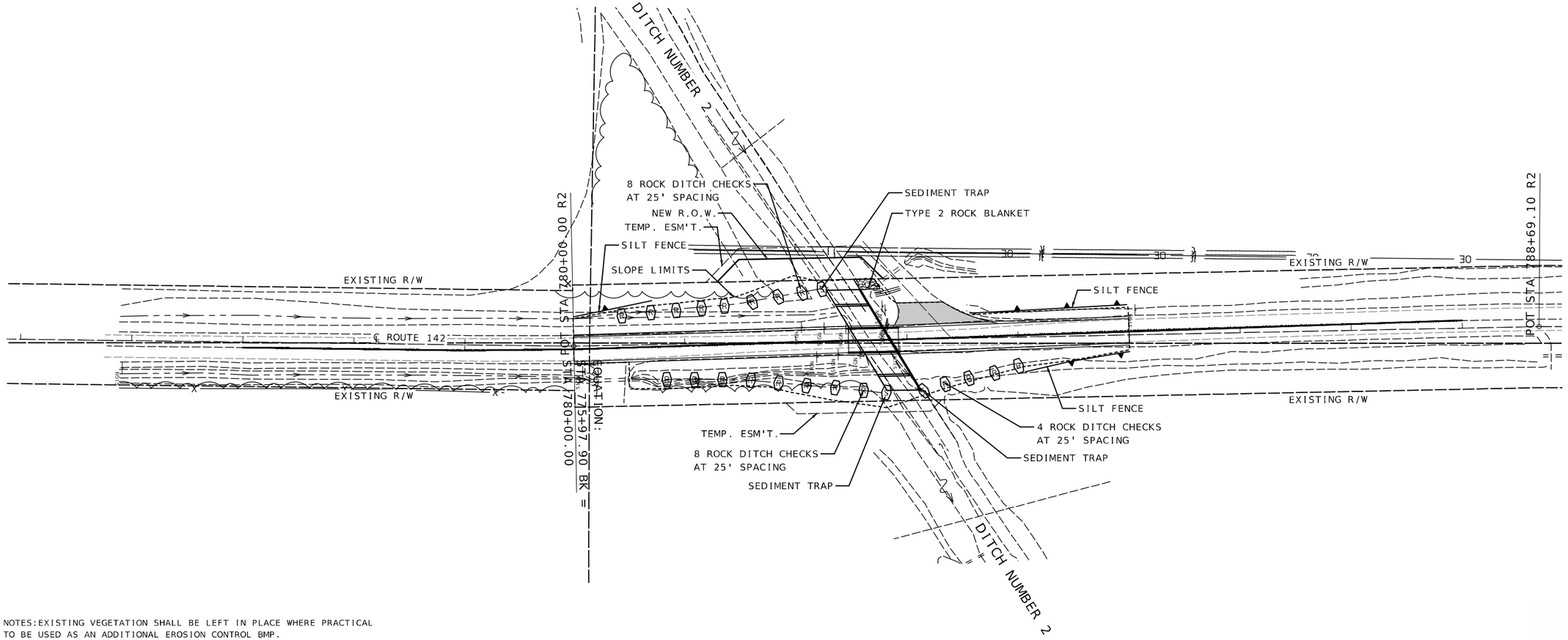
THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.

PRIMARY RECEIVING WATERS:
DITCH NUMBER 2



NOTES:EXISTING VEGETATION SHALL BE LEFT IN PLACE WHERE PRACTICAL TO BE USED AS AN ADDITIONAL EROSION CONTROL BMP.

SEE RIGHT-OF-WAY SHEET FOR ALL PROPERTY BOUNDARIES AND TAKING INFORMATION.

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

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.

TEMPORARY EROSION CONTROL LEGEND

- ROCK DITCH CHECK
- SEDIMENT TRAP
- SILT FENCE
- TYPE 2 ROCK BLANKET

SCALE

0 50 100 150

DISCLAIMER:
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STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
SE	10

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DESCRIPTION	DATE

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

TWM
ENGINEERING
GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001528

EROSION CONTROL
ROUTE 142
SHEET 1 OF 1

REV.

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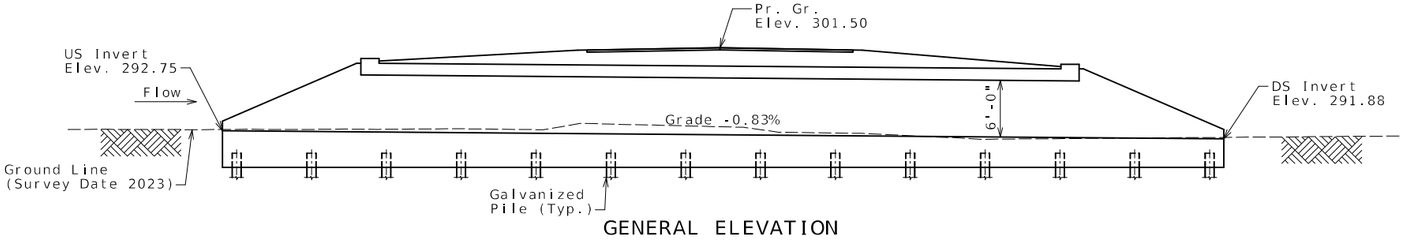
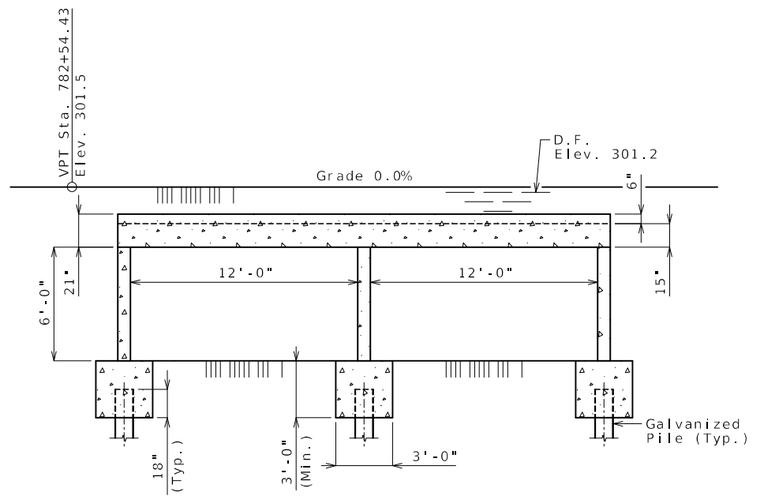
SEC/SUR 3 TWP 22N RGE 4E

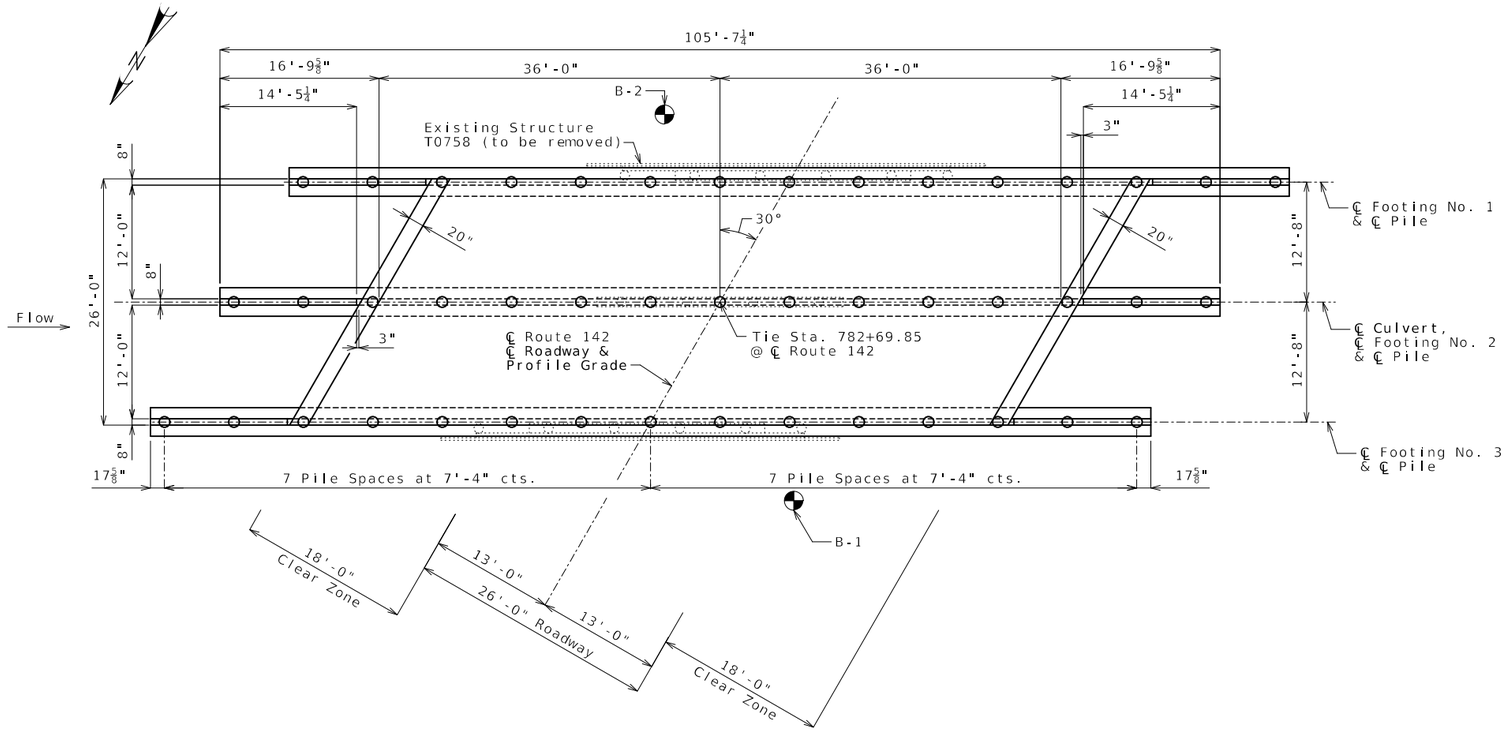
2(12'x6') CONCRETE BOX CULVERT ON PILE SUPPORTED FOOTING



GENERAL ELEVATION



SECTION THRU BARREL



PLAN

Designed Feb 2024
Detailed Feb 2024
Checked Feb 2024

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

Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheet(s) No. 11 thru 14 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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

B.M. "□" CHISLED IN THE NORTH END OF THE EAST GUARDRAIL
N: 273405.555, E: 787575.598, ELEV. 301.28

BRIDGE: ROUTE 142 OVER DRAINAGE DITCH NO. 2

ROUTE 142 FROM ROUTE H TO ROUTE B
ABOUT 1.5 MILES NORTH OF ROUTE H
TIE STATION 782+69.85

STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER

08/09/2025 10:59:21 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED
8/9/2025

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	1

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DESCRIPTION

DATE

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Missouri Certificate of Authority: 001578

Estimated Quantities		Final
Class 4 Excavation	cu. yard	220
Dewatering	lump sum	1
Removal of Bridges	lump sum	1
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	1635
Dynamic Pile Testing	each	3
Pile Point Reinforcement	each	45
Class B Concrete (Substructure)	cu. yard	121
Class B-1 Concrete (Culverts-Bridge)	cu. yard	136.2
Reinforcing Steel (Culverts-Bridge)	pound	30,330

General Notes:

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

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

Design Unit Stresses:

Class B-1 Concrete (Box Culvert)	f'c = 4,000 psi
Class B Concrete (Substructure)(Footings)	f'c = 3,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Welded or Seamless steel shell (pipe) for CIP pile (ASTM A252 Grade 3)	fy = 45,000 psi

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

Miscellaneous:
Precast box sections shall not be used, use cast-in-place only.

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

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

Hydrologic Data
Drainage Area = 1.7 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 1650 cfs
Design Flood (D.F.) Elevation = 301.2
Base Flood (100-year)
Base Flood Elevation = 301.3
Base Flood Discharge = 1960 cfs
Estimated Backwater = 0.8 ft
Outlet Velocity = 4.9 ft/s
Roadway Overtopping
Overtopping Flood Discharge = 960 cfs
Overtopping Flood Frequency = 10 years
Overtopping Flood Elevation = 300.5

Elevations
Upstream (Elev. 1) = 292.75
Downstream (Elev. 2) = 291.88
Pr. Gr. at Tie Sta. = 301.50

Fill Heights
℄ Rdwy at ℄ Culvert = 2'-0" ft
Design (All units) = 2'-0" ft

Dimensions are based on end units.
Fill heights are measured from the top of top slab to the top of earth fill or roadway.

Foundation Data				
Type	Design Data	Wall Number 1	2	3
Load Bearing Data	Pile Type and Size	CECIP 14"	CECIP 14"	CECIP 14"
	Number ea	15	15	15
	Approximate Length Per Each ft	41	34	37
	Pile Point Reinforcement ea	All	All	All
	Min. Galvanized Penetration (Elev.) ft	Full Length	Full Length	Full Length
	Est. Max. Scour Depth 100 (Elev.) ft	281	288	284
	Minimum Tip Penetration (Elev.) ft	251	264	255
	Criteria for Min. Tip Penetration	Min. Embed.	Min. Embed.	Min. Embed.
	Pile Driving Verification Method	DT	DT	DT
	Resistance Factor	0.65	0.65	0.65
	Minimum Nominal Axial Compressive Resistance kip	108	129	108

DT = Dynamic Testing

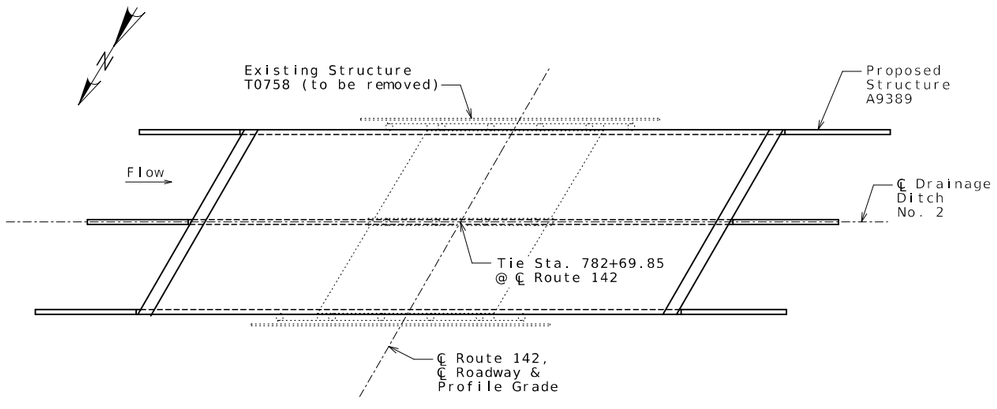
Minimum Nominal Compressive Resistance = $\frac{\text{Minimum Factored Loads}}{\text{Resistance Fact}}$

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

CECIP = Closed Ended Cast-In-Place concrete pile

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

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



LOCATION SKETCH

GENERAL NOTES AND QUANTITIES

CHRIS LINNEMAN
STATE OF MISSOURI
NUMBER PE-2002016690
PROFESSIONAL ENGINEER
02/11/2025 9:46:02 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED 2/11/2025
ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY RIPLEY
JOB NO. J9S3685
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9389

DESCRIPTION | DATE

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
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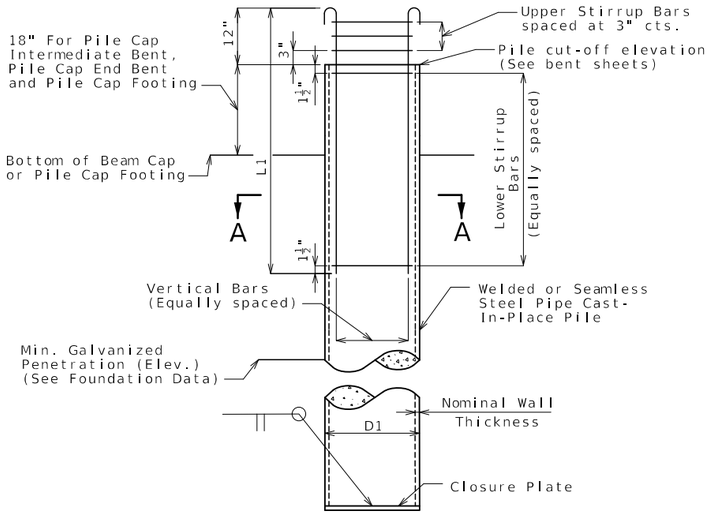
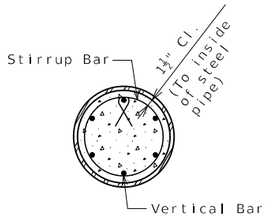
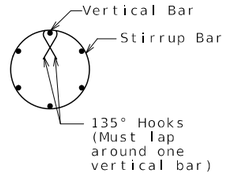


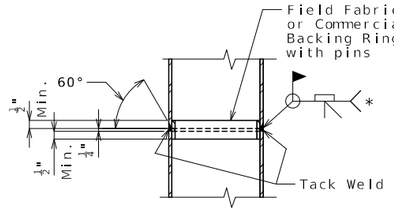
GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE
WITHOUT PILE POINT REINFORCEMENT



SECTION A-A



DETAIL OF SEISMIC STIRRUP BAR



STEEL PIPE PILE SPLICE

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

Cruciform Pile Point Reinforcement Data				
D1, CECIP Pile (O.D.)	14"	16"	20"	24"
B1	14"	16"	20"	24"
B2	6"	7"	8 7/8"	10 5/8"
B3	5 7/8"	6 7/8"	8 3/4"	10 1/2"
B4	6 5/8"	7 5/8"	9 1/2"	11 1/4"
B5	2"	2"	2 1/4"	2 3/4"
B6	3/4"	3/4"	1"	1 1/2"
H1	9 1/8"	10 1/2"	13"	15 3/8"
H2	8 1/8"	9 1/2"	12"	14 3/8"
H3	8 3/8"	9 3/4"	12 1/4"	14 5/8"
T1 and T2 Plate Thickness	3/4"	3/4"	1"	1 1/2"

Galvanized Closed Ended Cast-In-Place (CECIP) Concrete Pile Data			
Bent Number	1	2	3
D1, CECIP Pile (O.D.)	14"	14"	14"
Min. Nominal Wall Thickness	1/2"	1/2"	1/2"
Closure Plate Thickness	3/4"	3/4"	3/4"
Pile Point Reinforcement	Cruciform	Cruciform	Cruciform
Vertical Bars	6-#5-V1	6-#5-V1	6-#5-V1
L1, Length of Vertical Bars	5'-3"	5'-3"	5'-3"
Upper Stirrup Bars	3-#4-P1	3-#4-P1	3-#4-P1
Lower Stirrup Bars	5-#4-P1	5-#4-P1	5-#4-P1

Notes:

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

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

Steel for closure plate shall be ASTM A709 Grade 50.

Steel for cruciform pile point reinforcement shall be ASTM A709 Grade 50.

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

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

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

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

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

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

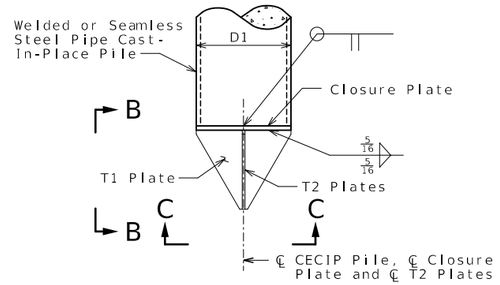
The hook of vertical bars embedded in the pile cap footing should be oriented outward for all seismic categories.

Closure plate need not be galvanized.

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

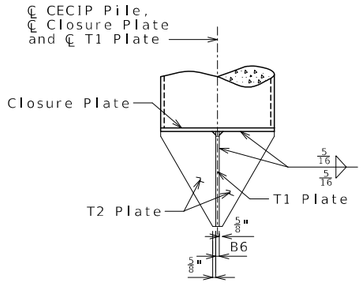
All reinforcement for cast-in-place pile is included in the estimated quantities for bents.

For Foundation Data table, see Sheet No. 2.

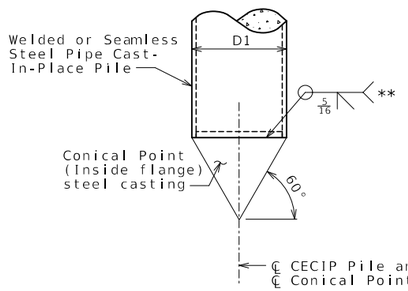


CRUCIFORM PILE POINT

Note: Cost of closure plate is included with cast-in-place concrete pile.



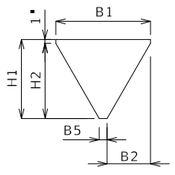
ELEVATION B-B



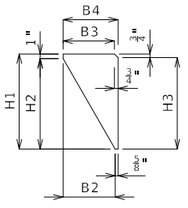
MANUFACTURED CONICAL PILE POINT

(Omit closure plate)

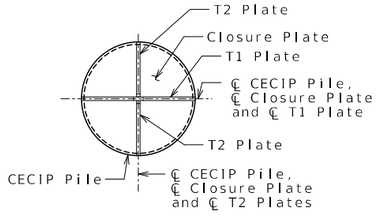
** If the conical pile point is not pre-beveled, place a 3/8" bevel at 40 degrees on the pipe.



T1 PLATE DETAILS



T2 PLATE DETAILS (2 REQUIRED)



SECTION C-C

CRUCIFORM PILE POINT REINFORCEMENT

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

Detailed Feb 2024
Checked Feb 2024

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

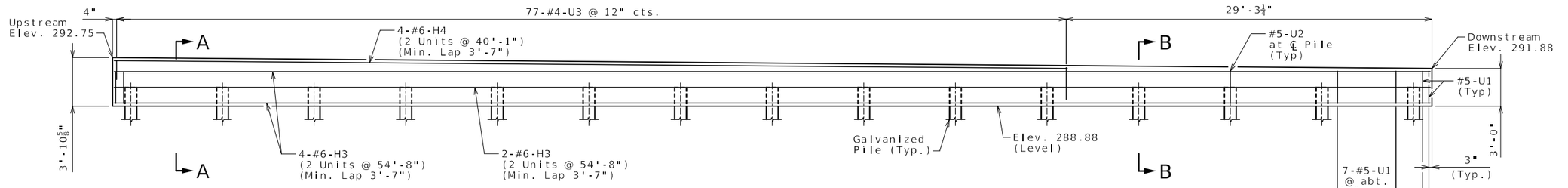
STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER
12/05/2024 10:59:50 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED 12/5/2024
ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 3
COUNTY RIPLEY
JOB NO. J9S3685
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9389

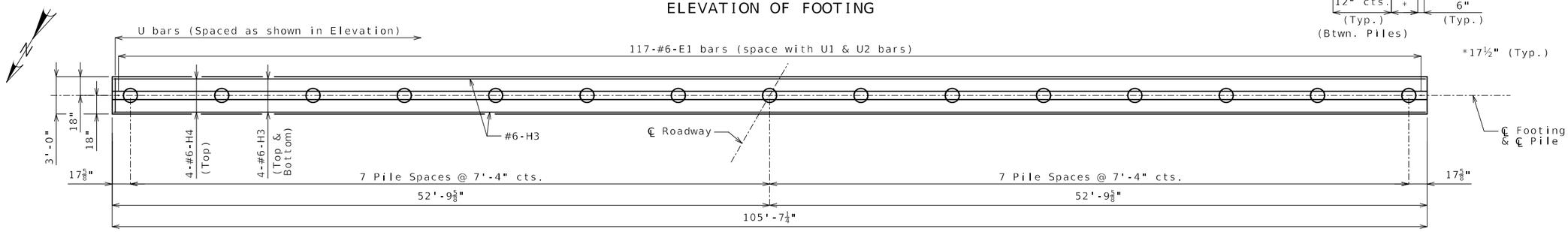
DESCRIPTION | DATE

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

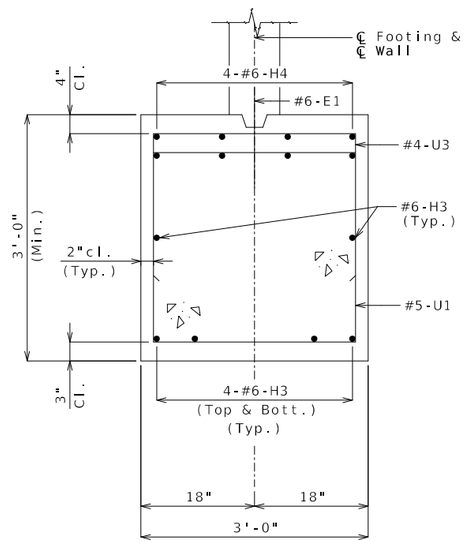
EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St Louis, MO 63021
Phone 314-394-3100
Missouri Certificate of Authority: 001578



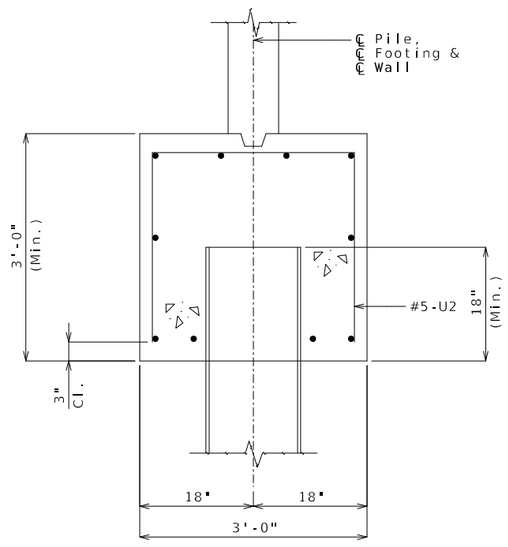
ELEVATION OF FOOTING



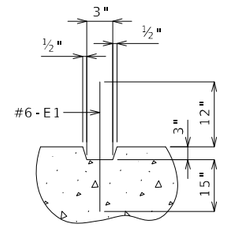
PLAN OF FOOTING



SECTION A-A



SECTION B-B



SECTION THRU KEY

Notes:

Single footing shown, all footings similar.

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

DETAILS OF FOOTINGS

Detailed Feb 2024
Checked Feb 2024

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

O:\2021R2\MoDOT_ORD_v10.10.01.03\23036 TWM MoDOT J9S3685 Route 142\DGN\Bridge\Final\Plotsheets\B_A9389_004_J9S3685_FootingDetails.dgn 10:54:06 AM 12/5/2024

STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER

12/05/2024 10:59:45 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED
12/5/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

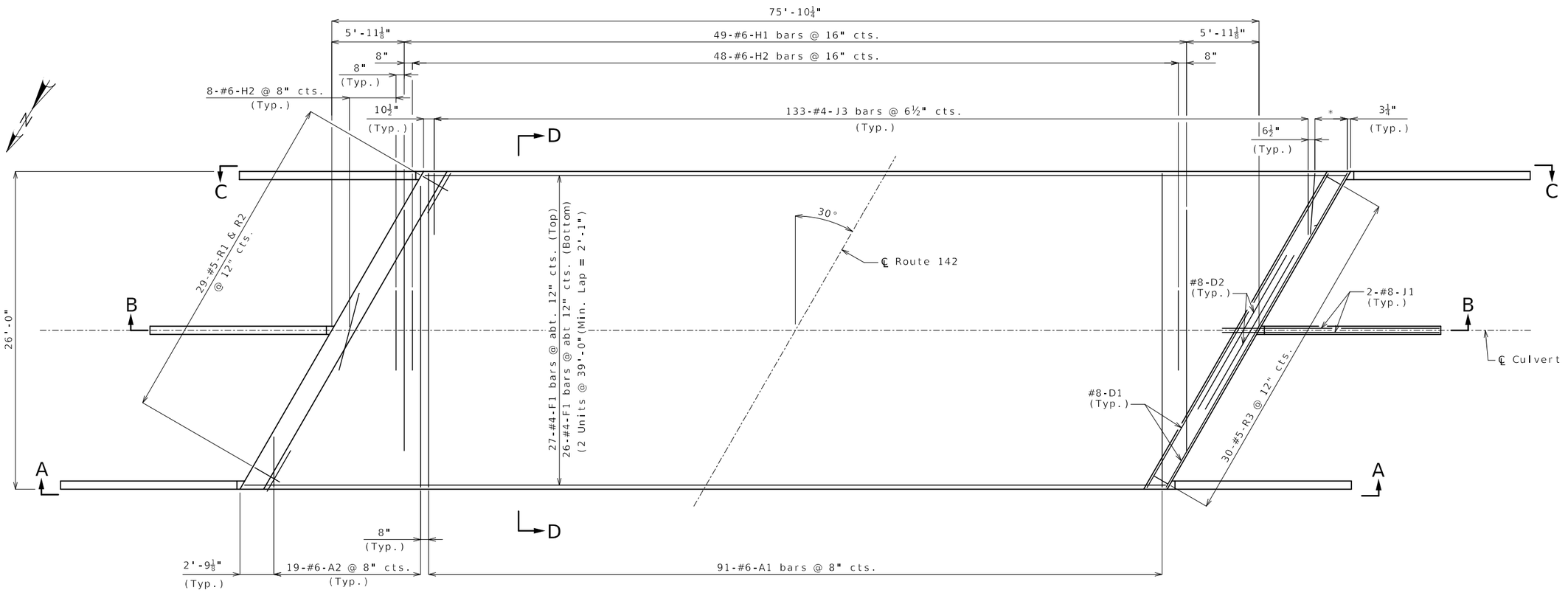
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

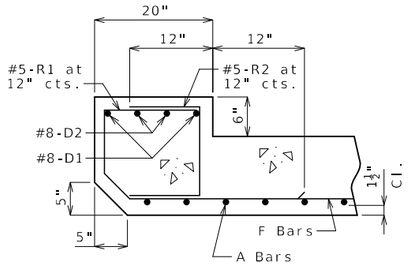
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Missouri Certificate of Authority: 001578

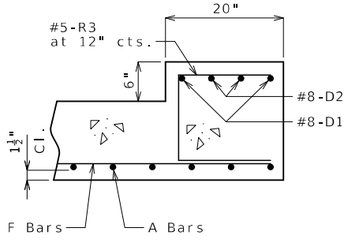


PLAN OF TOP SLAB

* Flare 6-#4-J3 bars @ 6½" cts. (Typ.)



SECTION THRU
UPSTREAM HEADWALL



SECTION THRU
DOWNSTREAM HEADWALL

Notes:

For Elevations A-A, B-B and C-C, see Sheet No. 6.

For Section D-D, see Sheet No. 7.

DETAILS OF TOP SLAB

CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER
STATE OF MISSOURI

12/05/2024 10:59:37 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED
12/5/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	5

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DESCRIPTION	DATE

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
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St. Louis, MO 63021
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Missouri Certificate of Authority: 001578

Detailed Feb 2024
Checked Feb 2024

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

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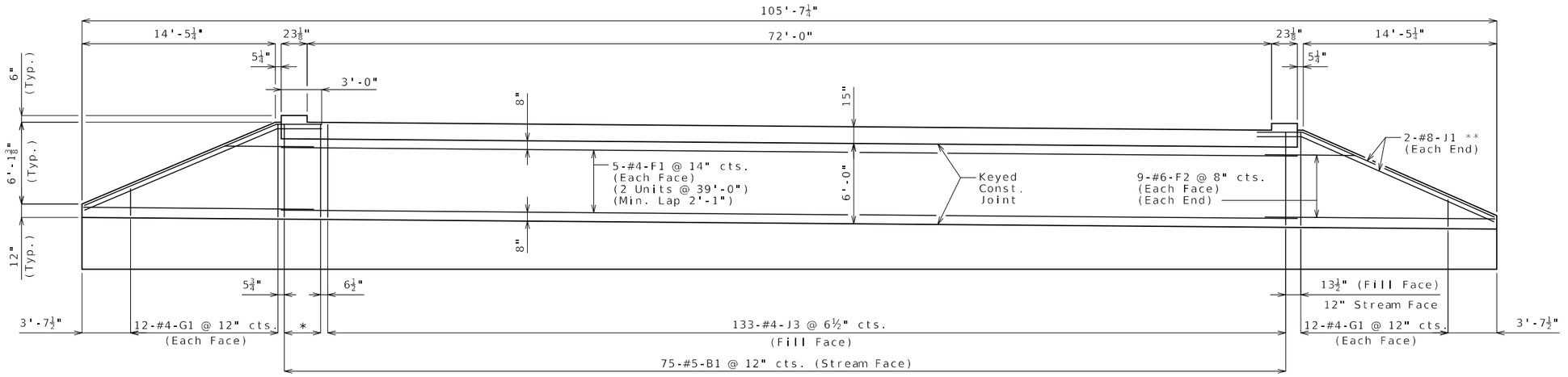
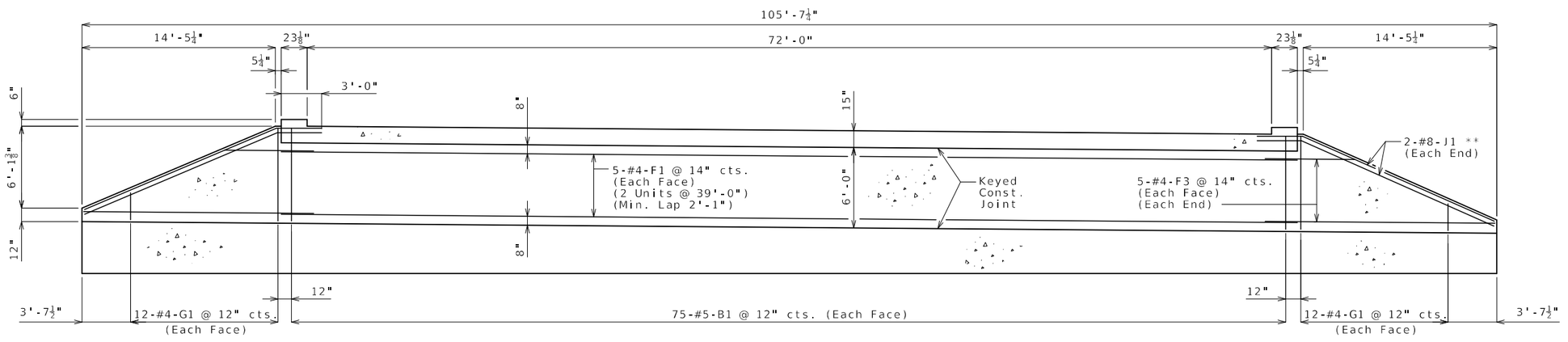


ELEVATION (A-A) & (C-C)

* Flare 6-#4-J3 bars @ 6½" cts. (Fill Face)

** J1 Bars may be bent in the field or shop.



SECTION B-B

Notes:

For locations of Elevations A-A, B-B, and C-C, see Sheet No. 5.

DETAILS OF WALLS

Detailed Feb 2024
Checked Feb 2024

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

STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER
12/05/2024 10:59:32 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED
12/5/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	6

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

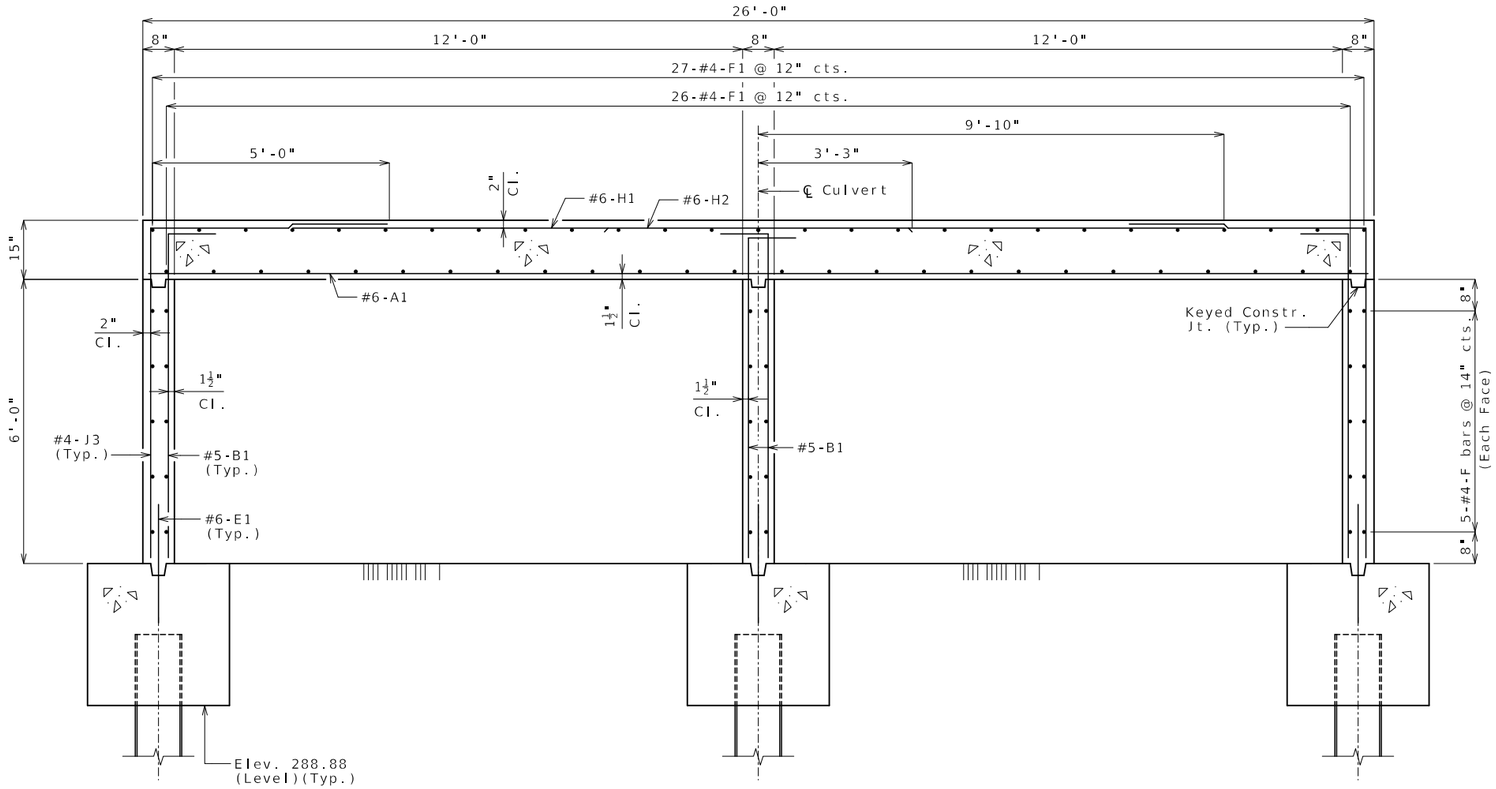
PROJECT NO.

BRIDGE NO.
A9389

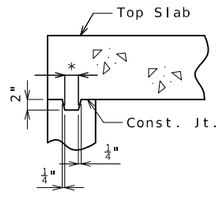
DESCRIPTION	DATE

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Missouri Certificate of Authority: 001578



SECTION D-D



KEYED CONSTRUCTION JOINTS

Exterior wall shown, interior wall similar

* Approximately one third of wall thickness

Notes:

Symmetrical about ℄ Culvert.

For location of Section D-D, see Sheet No. 5.

For details of footings, see Sheet No. 4

SECTION THRU CULVERT

Detailed Feb 2024
Checked Feb 2024

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

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STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER

12/05/2024 10:59:26 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED
12/5/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	7

COUNTY
RIPLEY

JOB NO.
J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9389

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
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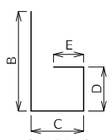

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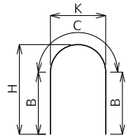
or 6S



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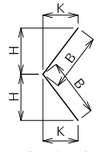

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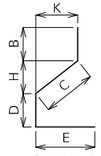

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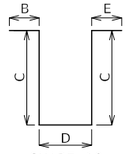

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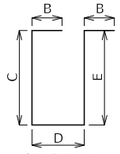

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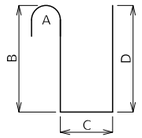

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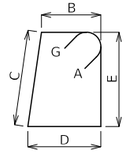

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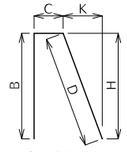

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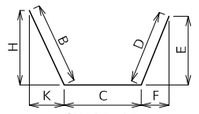

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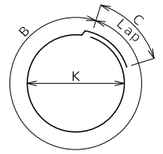

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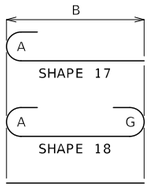
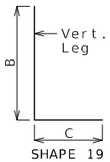


SHAPE 17
SHAPE 18
SHAPE 20



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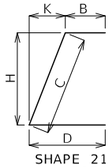

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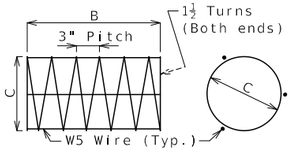

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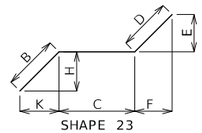

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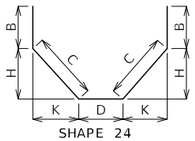

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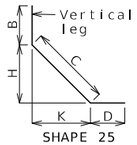

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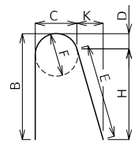

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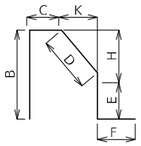

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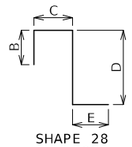

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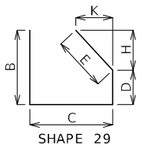

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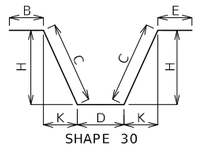
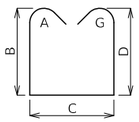
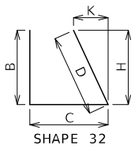


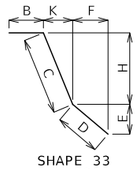
SHAPE 30
or 30S



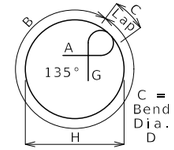
SHAPE 31S



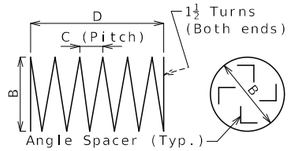
SHAPE 32
or 32S



SHAPE 33
or 33S



SHAPE 34S



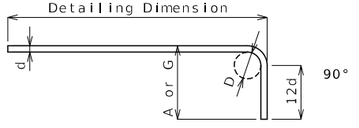
SHAPE 35 (1)

SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

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

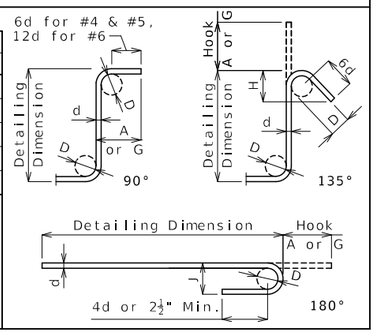


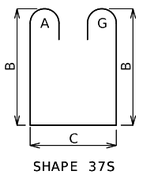
Stirrup Pin Bend Shapes (S)

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

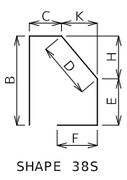
Applicable for all grades of steel.

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





SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)

	Size	Substructure		Superstructure				Entire Bridge	
				Slab			Slip		
		Plain	Epoxy	Plain	Epoxy	Barrier	Form	Plain	Epoxy
By Size	W5								
	4	8886	0	0	0	0	0	8886	0
	5	6590	0	0	0	0	0	6590	0
	6	13938	0	0	0	0	0	13938	0
	7	920	0	0	0	0	0	920	0
	8								
	9								
	10								
	11								
	14								
	18								
By Type		30,334	0	0	0	0	0	30,334	0

CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER
STATE OF MISSOURI
12/05/2024 11:00:09 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED 12/5/2024
ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY RIPLEY
JOB NO. J9S3685
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9389

DESCRIPTION	DATE

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Missouri Certificate of Authority: 001578

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Feb 2024
Checked Feb 2024

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

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	Codes SH	Codes V	Dimensions B ft	B in.	C ft	C in.	D ft	D in.	E ft	E in.	F ft	F in.	H ft	H in.	K ft	K in.	Nom. Length ft	Nom. Length in.	Actual Length ft	Actual Length in.	Weight lb
		FOOTING																						
351	6 E1	FOOTING		20		2	6.000													2	6	2	6	1318
60	6 H3	FOOTING		20		54	8.000													54	8	54	8	4927
24	4 H4	FOOTING		20		40	1.000													40	1	40	1	643
306	5 U1	FOOTING		13 S		2	8.000	2	5.000	2	8.000	2	5.000							11	2	10	10	3458
45	5 U2	FOOTING		10 S				2	5.000	2	8.000									7	6	7	3	340
231	4 U3	FOOTING		10 S				2	5.000	2	8.000									7	6	7	4	1132
		BOX CULVERT																						
91	6 A1	TOP SLAB		20		25	8.000													25	8	25	8	3508
38	6 A2	TOP SLAB		20	2	3	11.000													3	11	3	11	820
		INCR=14IN				24	10.000													24	10	24	10	
300	5 B1	WALL		19		6	11.000		12.000											7	11	7	9	2425
4	8 D1	HEADWALL		20		29	8.000													29	8	29	8	317
4	8 D2	HEADWALL		20		8	0.000													8	0	8	0	85
166	4 F1	WINGWALL		20		39	0.000													39	0	39	0	4325
72	6 F2	WINGWALL		20	8	6	8.000													6	8	6	8	1293
		INCR=15 7/8 IN				17	3.000													17	3	17	3	
20	4 F3	WINGWALL		20	4	6	8.000													6	8	6	8	160
		INCR=31 3/4 IN				17	3.000													17	3	17	3	
144	4 G1	WINGWALL		20	12	2	0.000													2	0	2	0	429
		INCR=5 3/8 IN				6	11.000													6	11	6	11	
49	6 H1	TOP SLAB		20		19	8.000													19	8	19	8	1447
64	6 H2	TOP SLAB		20		6	6.000													6	6	6	6	625
12	8 J1	WINGWALL		21		3	3.000	15	6.000							6	0.000	14	5.000	18	9	16	2	518
278	4 J3	WALL		19		6	11.000	5	0.000											11	11	11	10	2197
29	5 R1	HEADWALL		27 S			17.000		13.875		4.750	2	3.125				3.375		3.375	5	3	5	1	154
29	5 R2	HEADWALL		10 S					10.500		17.000									3	2	2	11	88
30	5 R3	HEADWALL		10 S					17.000		17.000									4	3	4	0	125

Bill of Reinforcing Steel

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

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

For bending diagrams and steel reinforcing totals, see Sheet No. 8.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

Detailed Feb 2024
Checked Feb 2024

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER

12/05/2024 11:02:06 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED
12/5/2024

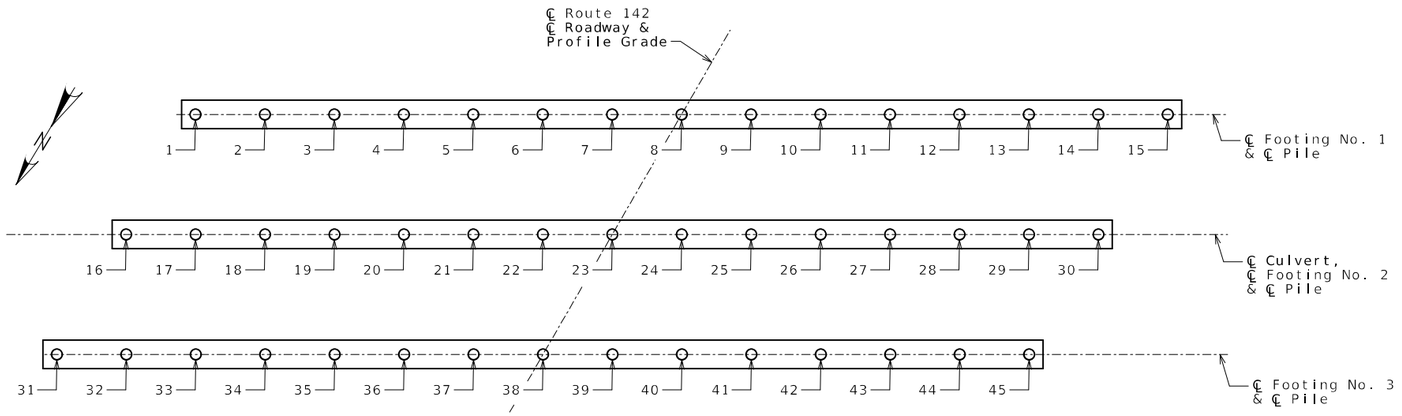
ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 9
COUNTY RIPLEY
JOB NO. J9S3685
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9389

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Missouri Certificate of Authority: 001578



PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA

As-Built Pile Data

Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
Footing No.1					
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

As-Built Pile Data

Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
Footing No.2					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

As-Built Pile Data

Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
Footing No.3					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					

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

This sheet to be completed by MoDOT construction personnel.

STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER
12/05/2024 11:02:17 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED 12/5/2024
ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 10
COUNTY RIPLEY
JOB NO. J9S3685
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9389

DESCRIPTION | DATE

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

EFK•Moen
Civil Engineering Design
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Missouri Certificate of Authority: 001578

Missouri Department of Transportation
Construction and Materials

BORING NO. B-1 (V-23-67)
Page 1 of 3

Job No.: J9S3685 **County:** Ripley **Route:** 142
Design: A9389 **Skew:** **Location:**
Bent: 1 **Logged By:** Collin Walsh **Operator:** Gary Degraffenreid
Station: **Northing:** 273406.3 **Date of Work:** 09/05/23-09/06/23
Offset: **Easting:** 787552.9 **Depth to Water:** 12.5
Elevation: 301.3 **Requested Northing:** 273402.4 **Depth Hole Open:** 30
Requested Station: 782+53.0 **Requested Easting:** 787550.6 **Time Change:** After Drilling
Requested Offset: 13.0 R **Equipment:** Acker Renegade ,Split-Spoon Sampler
Requested Elevation: 300.8 **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-2.5' Brown, SANDY LEAN CLAY trace fine gravel, trace organics, soft, dry to moist	300						
5		2.5-15.2' Light brownish gray, LEAN CLAY with silt, medium stiff to stiff, moist	295		87	1-2-3 (8)		PP = 1.25 tsf	MC = 23.4% γ_{sat} = 127 pcf[1] LL = 29 PL = 17
10			290		100	1-2-2 (6)		PP = 0.75 tsf	MC = 22.4% γ_{sat} = 128 pcf[1]
15		15.2-23.5' Light gray, LEAN CLAY with silt, soft to medium stiff, moist to wet	285		100	1-1-1 (3)		PP = 0.50 tsf	MC = 27.3% γ_{sat} = 123 pcf[1] LL = 29 PL = 19
20			280		100	2-1-2 (5)		PP = 1.25 tsf	MC = 43.8% γ_{sat} = 110 pcf[1]
25		23.5-28.3' Light gray, FAT CLAY trace sand, trace organics, very soft, wet	275		100	0-0-0 (0)		PP = 0.25 tsf	MC = 29.6% γ_{sat} = 121 pcf[1]
30		28.3-32.0' Gray, SAND trace fine gravel, loose, wet, fine to medium grained	270		93	0 2 2 (6)			MC = 22.3% γ_{sat} = 128 pcf[1]
35		32.0-45.1' Gray, SAND trace fine gravel, very dense, wet, fine to medium grained							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

Missouri Department of Transportation
Construction and Materials

BORING NO. B-1 (V-23-67)
Page 2 of 3

Job No.: J9S3685 **County:** Ripley **Route:** 142
Design: A9389 **Skew:** **Location:**
Bent: 1 **Logged By:** Collin Walsh **Operator:** Gary Degraffenreid
Station: **Northing:** 273406.3 **Date of Work:** 09/05/23-09/06/23
Offset: **Easting:** 787552.9 **Depth to Water:** 12.5
Elevation: 301.3 **Requested Northing:** 273402.4 **Depth Hole Open:** 30
Requested Station: 782+53.0 **Requested Easting:** 787550.6 **Time Change:** After Drilling
Requested Offset: 13.0 R **Equipment:** Acker Renegade ,Split-Spoon Sampler
Requested Elevation: 300.8 **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35		32.0-45.1' Gray, SAND trace fine gravel, very dense, wet, fine to medium grained *(continued)*	265		67	11-18-19 (57)			
40			260		67	14-20-17 (57)			Sieve Analysis Sieve # % Passing 1" 100.0 3/4" 99.3 3/8" 98.6 #4 97.2 #10 95.1 #16 94.2 #40 87.9 #50 80.6 #100 13.2 #200 5.2
45		45.1-65.0' Gray, SAND trace gravel, medium dense to dense, wet, medium to coarse grained	255		60	7-7-6 (20)			
50			250		40	6-6-8 (22)			
55			245		47	8-13-16 (45)			
60			240		60	9-8-9 (26)			
65		65.0-66.0' Tan, FAT CLAY scattered gravel, stiff, moist	235						
70		66.0-68.5' Gray, SAND trace gravel, medium dense, wet, medium to coarse grained							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

LETTER BOREHOLE - MODOT_20151118.GDT - 10/30/23 10:55 - Z:\SG\GINT\PROJECT FILES\J9S3685-A9389_RT142_DRAINAGEDITCH2_RIPLEYCOUNTY.GPJ

BORING DATA

CHRIS LINNEMAN
STATE OF MISSOURI
NUMBER PE-2002016690
PROFESSIONAL ENGINEER
12/05/2024 11:06:11 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED 12/5/2024
ROUTE 142 STATE MO
DISTRICT BR SHEET NO. 11
COUNTY RIPLEY
JOB NO. J9S3685
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9389

DESCRIPTION | DATE | REVISION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Missouri Certificate of Authority: 001578

Detailed Feb 2024
Checked Feb 2024

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

Missouri Department of Transportation
Construction and Materials

BORING NO. B-1 (V-23-67)
Page 3 of 3

Job No.: J9S3685 **County:** Ripley **Route:** 142
Design: A9389 **Skew:** **Location:**
Bent: 1 **Logged By:** Collin Walsh **Operator:** Gary Degraffenreid
Station: **Northing:** 273406.3 **Date of Work:** 09/05/23-09/06/23
Offset: **Easting:** 787552.9 **Depth to Water:** 12.5
Elevation: 301.3 **Requested Northing:** 273402.4 **Depth Hole Open:** 30
Requested Station: 782+53.0 **Requested Easting:** 787550.6 **Time Change:** After Drilling
Requested Offset: 13.0 R **Equipment:** Acker Renegade ,Split-Spoon Sampler
Requested Elevation: 300.8 **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Tyre	REC % (RQD %)	Blow Courts (N_{60})	Shear Data	Field Tests	Index Tests
70		68.5-73.3' Tan and white, FAT CLAY scattered gravel, scattered sand, very stiff, moist *(continued)*	230		73	6-10-14 (37)		PP = 1.25 tsf	MC = 25.4% γ_{sat} = 125 pcf(1)
75		73.3-81.8' White, SAND, very dense, moist, fine grained	225						
80		Bottom of borehole at 81.8 feet.	220		56	16-33/0.4'			

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

Missouri Department of Transportation
Construction and Materials

BORING NO. B-2 (V-23-66)
Page 1 of 3

Job No.: J9S3685 **County:** Ripley **Route:** 142
Design: A9389 **Skew:** **Location:**
Bent: 2 **Logged By:** Duncan Noack **Operator:** Gary Degraffenreid
Station: **Northing:** 273367.9 **Date of Work:** 08/29/23-08/30/23
Offset: **Easting:** 787587.6 **Depth to Water:** 20.5
Elevation: 301.2 **Requested Northing:** 273368.7 **Depth Hole Open:**
Requested Station: 782+90.0 **Requested Easting:** 787576.6 **Time Change:** At Time of Drilling
Requested Offset: 13.0 L **Equipment:** Acker Renegade ,Split-Spoon Sampler
Requested Elevation: 301.2 **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Tyre	REC % (RQD %)	Blow Courts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-2.5' Brown, GRAVELLY LEAN CLAY, moist	300						
5		2.5-15.9' Light gray mottled brown, LEAN CLAY, medium stiff to stiff, moist	295		73	2-2-4 (9)		PP = 1.50 tsf	MC = 22.6% γ_{sat} = 127 pcf(1) LL = 30 PL = 19
10			290		100	2-2-3 (8)		PP = 1.25 tsf	MC = 23.6% γ_{sat} = 126 pcf(1)
15			285		100	1-2-3 (8)		PP = 1.50 tsf	MC = 31.2% γ_{sat} = 119 pcf(1) LL = 39 PL = 18
20		20.5-24.2' Dark gray, CLAYEY SAND, very loose, wet, fine grained	280		100	1-0-1 (2)			MC = 32.2% γ_{sat} = 118 pcf(1) Sieve Analysis Sieve # % Passing #16 100.0 #40 99.8 #50 94.9 #100 44.3 #200 37.4
25		24.2-29.0' Gray, SAND with clay, loose, wet, fine grained	275		73	3-3-3 (9)			
30		29.0-44.3' Gray, SAND with clay, very dense, wet, fine grained	270		60	13 16 17 (51)			Sieve Analysis Sieve # % Passing #4 100.0 #10 99.2 #16 99.1 #40 95.4 #50 80.3 #100 13.1

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

BORING DATA

STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER
12/05/2024 11:06:05 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED 12/5/2024
ROUTE 142 STATE MO
DISTRICT BR SHEET NO. 12
COUNTY RIPLEY
JOB NO. J9S3685
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9389

DESCRIPTION
DATE
REVISION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021 Phone 314-394-3100
Missouri Certificate of Authority: 001578

Detailed Feb 2024
Checked Feb 2024

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

O:\2021R2\MoDOT_ORD_v10.10.01.03\23036 TWM MoDOT J9S3685 Route 142\DGN\Bridge\Final\Plotsheets\B_A9389_012_J9S3685_Boring_Log.dgn 10:54:46 AM 12/5/2024

LETTER BOREHOLE - MODOT_20151118.GDT - 10/30/23 10:55 - Z:\SGG\INT\PROJECT FILES\J9S3685-A9389_RT142_DRAINAGEDITCH2_RIPLEYCOUNTY.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. B-2 (V-23-66)
Page 2 of 3

Job No.: J9S3685 **County:** Ripley **Route:** 142
Design: A9389 **Skew:** **Location:**
Bent: 2 **Logged By:** Duncan Noack **Operator:** Gary Degraffenreid
Station: **Northing:** 273367.9 **Date of Work:** 08/29/23-08/30/23
Offset: **Easting:** 787587.6 **Depth to Water:** 20.5
Elevation: 301.2 **Requested Northing:** 273368.7 **Depth Hole Open:**
Requested Station: 782+90.0 **Requested Easting:** 787576.6 **Time Change:** At Time of Drilling
Requested Offset: 13.0 L **Equipment:** Acker Renegade ,Split-Spoon Sampler
Requested Elevation: 301.2 **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Tyre	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35									#200 5.6
		29.0-44.3' Gray, SAND with clay, very dense, wet, fine grained *(continued)*	265		73	16-21-24 (70)			
40			260		80	15-18-18 (56)			
45		44.3-69.0' Gray, SAND scattered fine gravel, medium dense to dense, wet, medium grained	255		67	6-5-5 (16)			
50			250		80	8-8-12 (31)			Sieve Analysis Sieve # % Passing 3/4" 100.0 3/8" 95.6 #4 89.7 #10 76.8 #16 69.8 #40 23.7 #50 16.1 #100 6.3 #200 3.9
55			245		87	10-6-12 (28)			
60			240		67	14-11-12 (36)			
65			235						
70									

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

Missouri Department of Transportation
Construction and Materials

BORING NO. B-2 (V-23-66)
Page 3 of 3

Job No.: J9S3685 **County:** Ripley **Route:** 142
Design: A9389 **Skew:** **Location:**
Bent: 2 **Logged By:** Duncan Noack **Operator:** Gary Degraffenreid
Station: **Northing:** 273367.9 **Date of Work:** 08/29/23-08/30/23
Offset: **Easting:** 787587.6 **Depth to Water:** 20.5
Elevation: 301.2 **Requested Northing:** 273368.7 **Depth Hole Open:**
Requested Station: 782+90.0 **Requested Easting:** 787576.6 **Time Change:** At Time of Drilling
Requested Offset: 13.0 L **Equipment:** Acker Renegade ,Split-Spoon Sampler
Requested Elevation: 301.2 **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Tyre	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
70									
		69.8-73.4' Tan and white, SANDY FAT CLAY, stiff to very stiff, wet *(continued)*	230		80	8-10-8 (28)		PP = 1.50 tsf	MC = 25.2% γ_{sat} = 125 pcf(1)
75		73.4-74.1' Sandy Dolomite, tan, highly weathered 74.1-87.8' Tan and light gray, CLAYEY SAND with gravel, medium dense, wet, medium grained	225						
80			220		60	6-5-9 (22)			
85			215						
90		87.8-88.2' Sandy Dolomite, tan, highly weathered 88.2-91.4' Tan and light gray, CLAYEY SAND with gravel, medium dense, wet, medium grained	210		71	10-2-33/0.4'			
95		91.4-92.3' Sandy Dolomite, tan, highly weathered 92.3-96.2' Tan and light gray, CLAYEY SAND with gravel, medium dense, wet, medium grained	205						
100		96.2-96.9' Sandy Dolomite, tan, highly weathered 96.9-101.5' Tan and light gray, CLAYEY SAND with gravel, medium dense, wet, medium grained	200		67	7-4-9 (20)			
		Bottom of borehole at 101.5 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

LETTER BOREHOLE - MODOT_20151118.GDT - 10/30/23 10:55 - Z:\SGG\GINT\PROJECT FILES\J9S3685-A9389_RT142_DRAINAGEDITCH2_RIPLEYCOUNTY.GPJ

BORING DATA

STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER
12/05/2024 11:05:58 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED 12/5/2024
ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 13
COUNTY RIPLEY
JOB NO. J9S3685
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9389

DESCRIPTION | DATE

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021 Phone 314-394-3100
Missouri Certificate of Authority: 001578

KEY TO SYMBOLS

Missouri Dept of Transportation

CLIENT _____ **PROJECT NAME** Bridge Replacement

PROJECT NUMBER J9S3685 **PROJECT LOCATION** _____

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)

- USCS High Plasticity Clay
- USCS High Plasticity Sandy Clay
- USCS Low Plasticity Clay
- USCS Low Plasticity Gravelly Clay
- USCS Low Plasticity Sandy Clay
- Highly Weathered Dolomite
- USCS Poorly-graded Sand
- USCS Poorly-graded Sand with Clay
- USCS Well-graded Sand

SAMPLER SYMBOLS

- Split-Spoon Sampler

WELL CONSTRUCTION SYMBOLS

ABBREVIATIONS

LL	- LIQUID LIMIT (%)	TV	- TORVANE
PI	- PLASTIC INDEX (%)	PID	- PHOTOIONIZATION DETECTOR
W	- MOISTURE CONTENT (%)	UC	- UNCONFINED COMPRESSION
DD	- DRY DENSITY (PCF)	ppm	- PARTS PER MILLION
NP	- NON PLASTIC		
-200	- PERCENT PASSING NO. 200 SIEVE		
PP	- POCKET PENETROMETER (TSF)		
Qu	- UNCONFINED COMPRESSIVE STRENGTH (PSF)		

▽ Water Level at Time of Drilling

▼ Water Level at End of Drilling

▼ Water Level after Drilling

KEY TO SYMBOLS - MODOT 20150728.GDT - 10/12/23 13:58 - Z:\SIGIN\PROJECT FILES\J9S3685-A9389_RT142_DRAINAGEDITCH_RIPLEYCOUNTY.GPJ

STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER PE-2002016690
PROFESSIONAL ENGINEER

12/05/2024 11:05:51 AM
Chris Linneman - Civil
MO PE-2002016690

DATE PREPARED 12/5/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	14

COUNTY RIPLEY

JOB NO. J9S3685

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9389

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021 Phone 314-394-3100
Missouri Certificate of Authority: 001578

BORING DATA

Detailed Feb 2024
Checked Feb 2024

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

O:\2021R2\MoDOT_ORD_v10.10.01.03\23036 TWM MoDOT J9S3685 Route 142\DGN\Bridge\Final\Plotsheets\B_A9389_014_J9S3685_Boring_Log.dgn 10:55:56 AM 12/5/2024

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

RIPLEY COUNTY
T22N, R4E

DESIGN DESIGNATION

A.A.D.T. - 2025 = 280
A.A.D.T. - 2045 = 350
T = 48%
V = 55 M.P.H.

FUNCTIONAL CLASSIFICATION - MAJOR COLLECTOR

NORMAL RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION EASEMENTS WILL BE ACQUIRED WITH THIS PROJECT.

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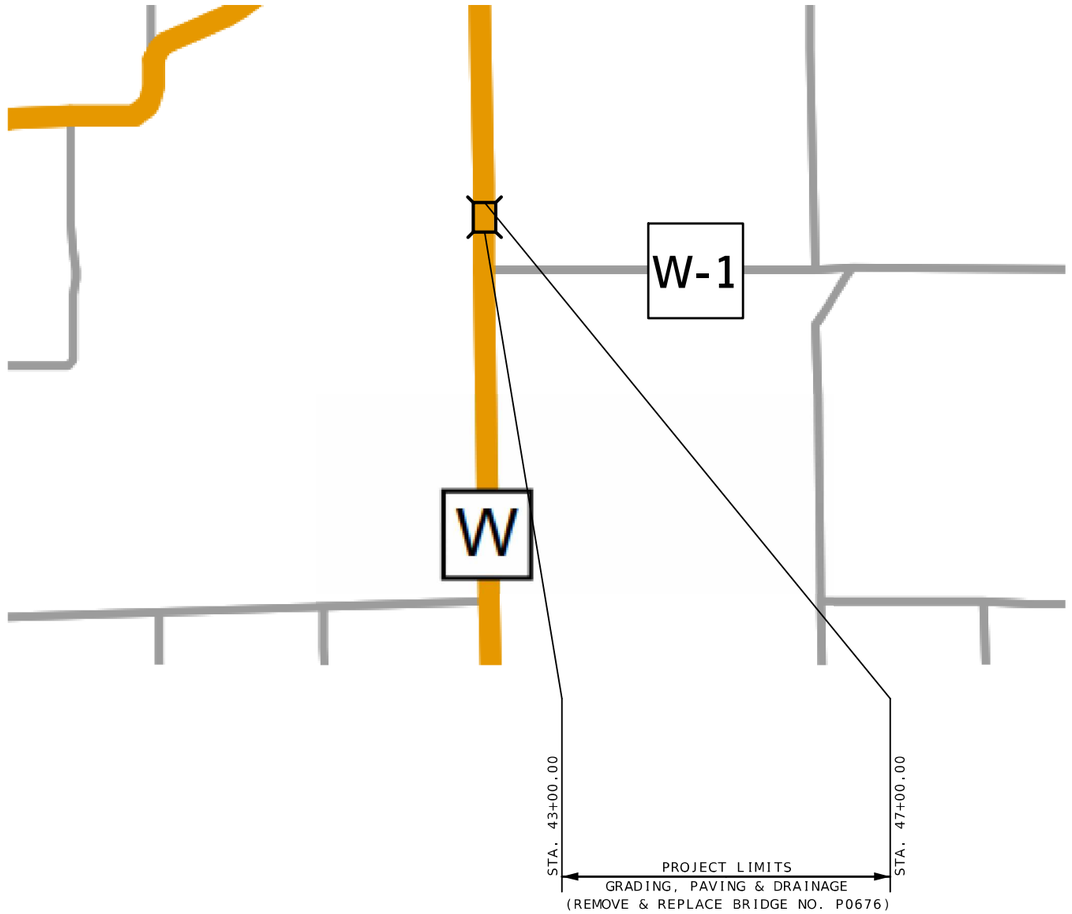
CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

KEY MAP
LOCATION OF RIPLEY COUNTY

NOT TO SCALE



THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.

INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (01 SHEET)	2
QUANTITIES (QU) (03 SHEETS)	3
PLAN-PROFILE (PP)	4
RIGHT OF WAY (RW)	5
REFERENCE POINTS (RP)	6
COORDINATE POINTS (CP)	6
SPECIAL SHEETS (SS)	7
TRAFFIC CONTROL SHEETS (TC)	8
EROSION CONTROL SHEETS (EC)	9
BRIDGE DRAWINGS (B)	
A9390	1-25
CROSS SECTIONS (XS)	1-5

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 43+00.00
END OF PROJECT	STA. 47+00.00
APPARENT LENGTH	400.00 FEET
EQUATIONS AND EXCEPTIONS:	NONE
TOTAL CORRECTIONS	0.00 FEET
NET LENGTH OF PROJECT	400.00 FEET
STATE LENGTH	0.076 MILES

STATE OF MISSOURI
PROFESSIONAL ENGINEER
JOSHUA W. STEIN
NUMBER PE-2011030189

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED: 7/22/2025
ROUTE: W
STATE: MO
DISTRICT: SE
SHEET NO.: 1
COUNTY: RIPLEY
JOB NO.: J9S3817
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9390

DESCRIPTION | DATE

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

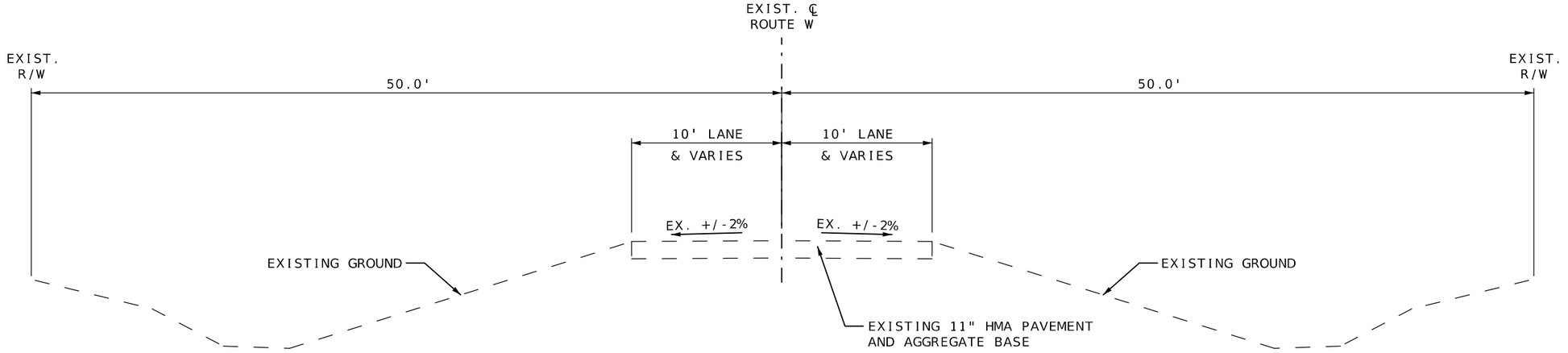
ENGINEERING GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 003528

TITLE SHEET
ROUTE W
SHEET 1 OF 1

REV.

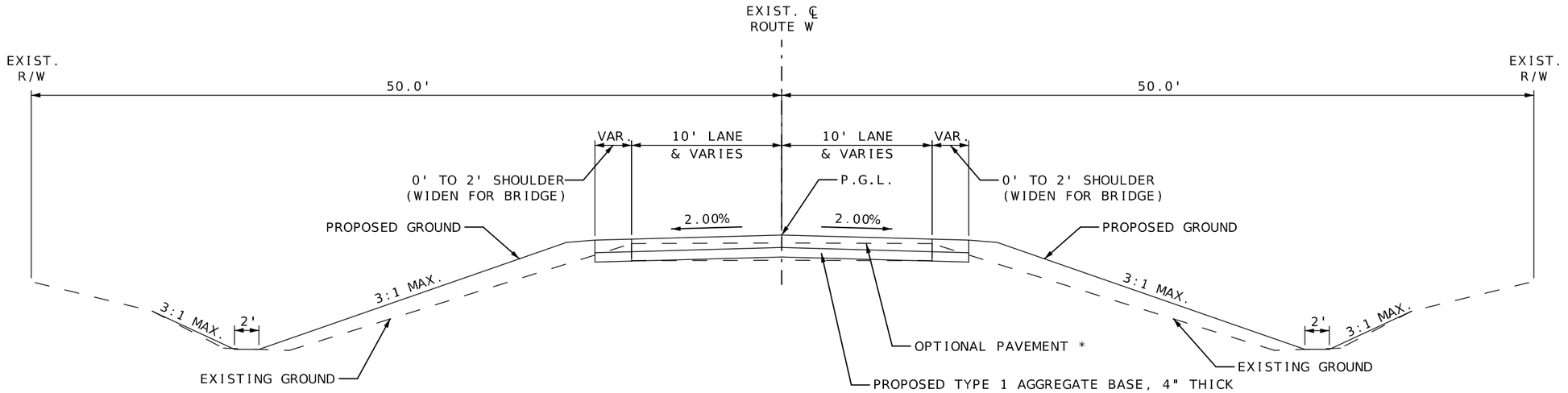
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

P:\2022\221411C\4 CADD - DWG\4.7 Tran\Sheets\001_TL_01_J9S3817_I1.dgn 12:51:47 PM 7/22/2025



EXISTING TYPICAL SECTION ON TANGENT ROUTE W

STA. 43+00.00 TO STA. 47+00.00



PROPOSED TYPICAL SECTION ON TANGENT ROUTE W

STA. 43+00.00 TO STA. 47+00.00
(PAVEMENT LIMITS STA. 43+59.88 TO STA. 46+40.12)
(BRIDGE LIMITS STA. 44+41.59 TO STA. 45+58.55)

* PAVEMENT DRAWN AS CONCRETE OPTION

OPTIONAL PAVEMENT
(1) 8" PCCP WITH 15' JOINTS W/ 1 1/4" DOWELS
(2) 2" BP-1 (PG64-22) OVER 8" PMBB (PG64-22)

DISCLAIMER:
THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS PAGE, AND DISCLAIMS (PURSUANT TO SECTION 327.411 RSMO) SPECIFICATION, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS PAGE REFERS.

DRAWING NOT TO SCALE

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:9/12/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED: 9/12/2025
ROUTE: W
STATE: MO
DISTRICT: SE
SHEET NO.: 2
COUNTY: RIPLEY
JOB NO.: J9S3817
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9390

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

DESCRIPTION	DATE

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

TWM ENGINEERING GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001538

TYPICAL SECTIONS
ROUTE W
SHEET 1 OF 1

REV.

P:\2022\221411C\4 CADD - DWG\4.7 Tran\Sheets\002_TS_01_J9S3817_I5.dgn 11:05:20 AM 9/12/2025

CONTRACTOR FURNISHED SURVEYING AND STAKING= 1 LUMP SUM

MOBILIZATION = 1 LUMP SUM

GRADING AND EARTHWORK

SHEET	STATION	STATION	ROUTE	LOCATION	COMPACTING IN CUT (STA.)	COMPACTING EMBANKMENT (CUYD)	CLASS A EXCAVATION (CUYD)	EMBANKMENT IN PLACE (CUYD)	REMARKS
4	43+25.00	44+96.00	W	CL	1.2	329.0	411.2	217.7	
4	45+13.00	46+75.00	W	CL	1.2	112.5	140.7	132.5	
				SUBTOTAL	2.4	441.5	551.9	350.2	
				PAY TOTAL	2.4	442	552	350	

TYPE 2 ROCK BLANKET

SHEET	STATION	STATION	ROUTE	FURNISHING (CUYD)	PLACING (CUYD)	GEOTEXTILE (SY)	REMARKS
4	44+09.24	44+96.54	W	307.7	307.7	461.5	
4	43+13.53	45+90.23	W	243.9	243.9	365.8	
			SUBTOTAL	551.6	551.6	827.3	
			PAY TOTAL	552	552	827	

OPTIONAL PAVEMENT

SHEET	STATION	STATION	ROUTE	LOC	LENGTH (LF)	WIDTH (LF)	AREA (SY)	REMARKS
4	43+59.88	44+21.59	W	CL	61.7	VARIES	147.8	10" HMA / 8" PCCP
4	45+78.55	46+40.12	W	CL	61.6	VARIES	153.7	10" HMA / 8" PCCP
						SUBTOTAL	302.0	
						PAY TOTAL	302	

4" TYPE 1 BASE

SHEET	STATION	STATION	ROUTE	LOC	LENGTH (LF)	WIDTH (LF)	AREA (SY)	REMARKS
4	43+59.88	44+21.59	W	CL	61.7	VARIES	147.8	
4	45+78.55	46+40.12	W	CL	61.6	VARIES	153.8	
						SUBTOTAL	301.6	
						PAY TOTAL	302	

TEMPORARY EROSION CONTROL

SHEET	STATION	STATION	ROUTE	LOC	SILT FENCE (LF)	ROCK DITCH CHECK (LF)	TYPE C BERM (LF)	SEDIMENT TRAP (CUYD)	SEDIMENT REMOVAL (CUYD)	REMARKS
10	43+39.08	44+24.58	W	RT		100.0				5 DITCH CHECKS AT 25' SPACING
10	43+42.22	43+42.22	W	LT		0.0				1 DITCH CHECKS AT 25' SPACING
10	43+64.16	43+64.16	W	LT				10.0	0.0	AT NORTHEAST DITCH OUTFLOW
10	43+72.36	44+19.75	W	LT	47.8				0.5	
10	44+06.62	44+86.71	W	CL			127.2		2.5	ALONG NORTH STREAM BANK
10	44+44.22	44+44.22	W	RT				10.0	0.0	AT NORTHWEST DITCH OUTFLOW
10	44+57.16	45+17.77	W	RT	61.1				0.6	
10	44+77.90	45+52.13	W	LT	74.2				0.7	
10	45+21.60	45+89.88	W	CL			108.2		2.2	ALONG SOUTH STREAM BANK
10	45+41.70	45+41.70	W	LT				10.0	0.0	AT SOUTHEAST DITCH OUTFLOW
10	45+53.83	46+04.87	W	RT	51.1				0.5	
10	45+61.04	45+81.56	W	LT		25.0				2 DITCH CHECKS AT 25' SPACING
10	46+08.04	46+08.04	W	RT				10.0	0.0	AT SOUTHWEST DITCH OUTFLOW
10	46+25.45	46+64.80	W	RT		50.0				3 DITCH CHECKS AT 25' SPACING
10	46+40.74	46+40.74	W	LT				10.0	0.0	AT SOUTH CORNER OF LEFT ENTRANCE
				SUBTOTAL	234.2	175.0	235.4	50.0	7.1	
				PAY TOTAL	234	175	235	50	7	

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	ROUTE	LOCATION	AMOUNT	DESCRIPTION
4	NORTH PROJ LIMITS		W	LT		WEIGHT LIMIT SIGN
4	43+59.88		W	LT/RT	18.2LF	SAW CUT
4	43+59.88	46+40.12	W	LT/RT	715 SY	PAVEMENT
4	43+97.30	44+60.44	W	LT/RT	6 EACH	TYPE 3 OBJECT MARKERS (12" X 36")
4	45+39.95	46+02.72	W	LT	6 EACH	TYPE 3 OBJECT MARKERS (12" X 36")
4	45+92.50	46+31.60	W	LT	39 LF	EXIST. 36" CMP
4	46+40.12		W	LT/RT	18 LF	SAW CUT
4	SOUTH PROJ LIMITS		W	RT	1 EACH	WEIGHT LIMIT SIGN
	PAYTOTAL 1 LUMP SUM					

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE W | STATE MO

DISTRICT SE | SHEET NO. 3

COUNTY
RIPLEY

JOB NO.
J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9390

DESCRIPTION | DATE

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

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

TWM
ENGINEERING
GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001538

SUMMARY OF QUANTITIES
ROUTE W
SHEET 1 OF 3

REV.

P:\2022\221411C\4 CADD - DWG\4.7 Tran\Sheets\003_QU_01_J9S3817_I1.dgn 12:51:49 PM 7/22/2025

SIGNS

SHEET	STATION	ROUTE	SIGN SIZE (INCHES)	LOC	POST PERF. STEEL SQUARE 2" x "2 12 GA. LF	POST PERF. STEEL SQUARE POST ANCHOR FOR 2 " PSST 12 GA. LF	FLAT SHEET FLOURESCENT SIGN SF	DESCRIPTION
4	43+97.27	W	12"x36"	LT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	44+17.58	W	12"x36"	LT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	44+20.02	W	12"x36"	RT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	44+37.51	W	12"x36"	LT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	44+40.12	W	12"x36"	RT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	44+60.44	W	12"x36"	RT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	45+39.95	W	12"x36"	RT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	45+60.02	W	12"x36"	RT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	45+63.19	W	12"x36"	LT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	45+80.46	W	12"x36"	RT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	45+83.18	W	12"x36"	LT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
4	46+02.72	W	12"x36"	LT	8	1	3	LOW-PROFILE TYPE 3 OBJECT MARKERS (12" X 36")
				SUBTOTAL	96	12	36	
				PAY TOTAL	96	12	36	

PAVEMENT MARKINGS

SHEET	STATION	STATION	ROUTE	LOCATION	CLASS 1 PAVEMENT MARKING PAINT (18 MIL, TYPE P BEADS) 4 IN. YELLOW (LF)	CLASS 1 PAVEMENT MARKING PAINT (18 MIL, TYPE P BEADS) 4 IN. WHITE (LF)	REMARKS
11	39+41.59	50+58.55	W	LT		1117	RIGHT EOP
11	39+41.59	50+58.55	W	RT		1117	LEFT EOP
11	39+41.59	50+58.55	W	CL	2234		DOUBLE SOLID YELLOW CENTERLINE
				SUBTOTAL	2234	2234	
				PAY TOTAL	2234	2234	

GRAVEL ENTRANCE

SHEET	STATION	ROUTE	LOCATION	GRAVEL (A) OR CRUSHED STONE (B) (SY)	REMARKS
4	46+12.00	W	LT	65.2	
			SUBTOTAL	65.2	
			PAY TOTAL	65	

SEEDING & MULCHING

SHEET	STATION	STATION	ROUTE	LOCATION	SEEDING - COOL SEASON MIXTURE (ACRE)	MULCHING (ACRE)	REMARKS
4	43+25.00	44+21.59	W	RT	0.13	0.13	
4	43+25.00	44+21.59	W	LT	0.10	0.10	
4	45+78.55	46+75.00	W	RT	0.07	0.07	
4	45+78.55	46+75.00	W	LT	0.08	0.08	
				SUBTOTAL	0.38	0.38	
				PAY TOTAL	0.4	0.4	

CLEARING AND GRUBBING

SHEET	STATION	STATION	ROUTE	LOCATION	CLEARING AND GRUBBING (ACRE)	REMARKS
4	43+25.00	44+40.00	W	LT	0.2	
4	43+25.00	44+96.00	W	RT	0.1	
4	45+13.00	46+75.00	W	LT	0.3	
4	45+60.00	46+75.00	W	RT	0.3	
				SUBTOTAL	0.9	
				PAY TOTAL	1	

DRAINAGE

SHEET	STATION	STATION	ROUTE	LOC	36 IN. GROUP B PIPE (LF)	36 IN. SMOOTH WALLED STEEL PIPE (LF)	36 IN. FLAP GATE (EACH)	CLASS 3 EXCAVATION (CY)	REMARKS
4	43+72.89	44+22.37	W	LT		50.0	1	33.3	P1
4	44+52.69	45+07.73	W	LT		55.0	1	31.8	P2
4	44+94.02	45+34.06	W	LT		40.0	1	17.2	P3
4	45+65.98	46+00.91	W	LT		35.0	1	8.6	P4
4	45+92.02	46+32.00	W	LT	40.0			30.5	P5
				SUBTOTAL	40.0	180.0	4	124.1	
				PAY TOTAL	40	180	4	124	

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:9/12/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
9/12/2025

ROUTE W | STATE MO

DISTRICT SE | SHEET NO. 3

COUNTY
RIPLEY

JOB NO.
J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9390

DESCRIPTION | DATE

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SUMMARY OF QUANTITIES
ROUTE W
SHEET 2 OF 3

REV.

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
*WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00	6	96			20,20A,20B	ROAD CLOSED AHEAD
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
*GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00						END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)
*REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20			29	ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	2	25			60	ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
*MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
WO20-3a	48X48	16.00	2	32			20C	ROAD CLOSED 500 FEET

ITEM NUMBER	TOTAL QTY	EFFECTIVE: 07-01-2025 DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6122040		WORK ZONE CRASH CUSHION (NARROW)
6122041		WORK ZONE CRASH CUSHION (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONE)
6161025		CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	*6	TYPE 3 MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE 3 OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER, CONTRACTOR FURNISHED/RETAINED
6173700B		TEMP. TRAFFIC BARRIER ANCHORED, CONTRACTOR FURNISHED/RETAINED
6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION CONTRACTOR FURNISHED/RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION, CONTRACTOR FURNISHED/RETAINED
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

TRAFFIC CONTROL = 1 LUMP SUM

*NO DIRECT PAYMENT WILL BE MADE FOR TEMPORARY TRAFFIC CONTROL SIGNS OR DEVICES.

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
W	MO

DISTRICT	SHEET NO.
SE	3

COUNTY
RIPLEY

JOB NO.
J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9390

DESCRIPTION

DATE

REVISION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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MISSOURI CERT. OF AUTHORITY: 001528

SUMMARY OF QUANTITIES
ROUTE W
SHEET 3 OF 3

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

REV.

P:\2022\221411C\4 CADD - DWG\4.7 Tran\Sheets\003_QU_01_J9S3817_I1.dgn 12:51:50 PM 7/22/2025

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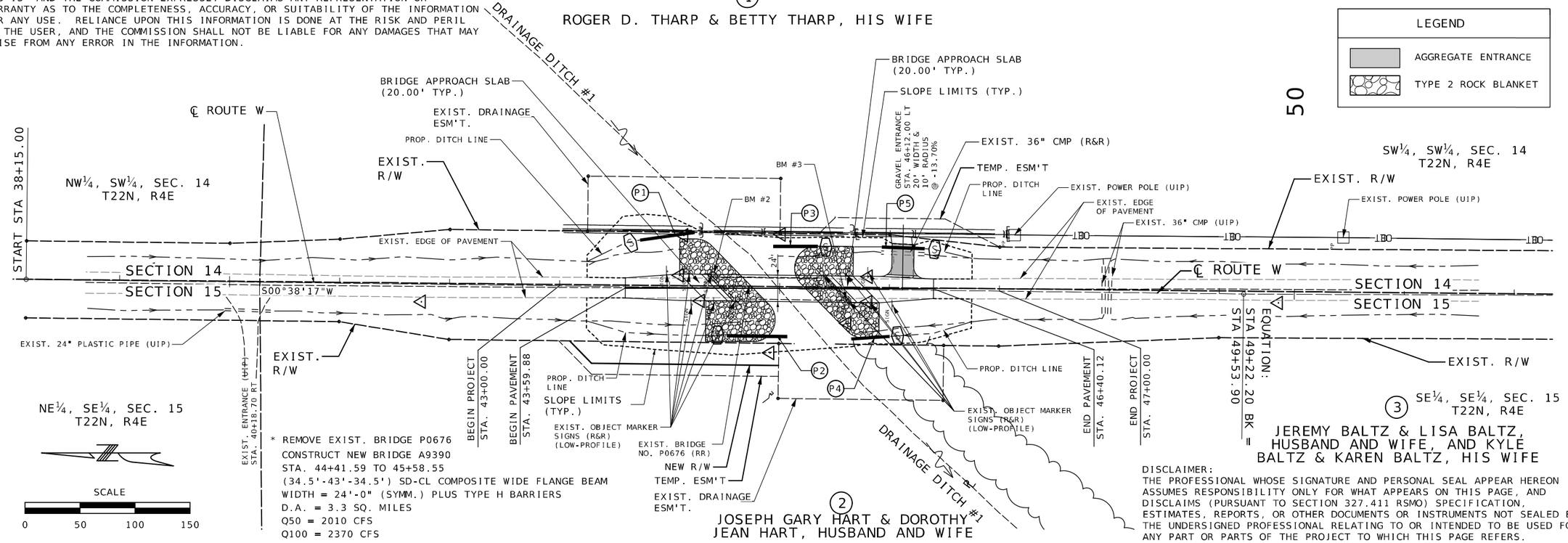


* REMOVE EXIST. BRIDGE P0676
CONSTRUCT NEW BRIDGE A9390
STA. 44+41.59 TO 45+58.55
(34.5'-43'-34.5') SD-CL COMPOSITE WIDE FLANGE BEAM
WIDTH = 24'-0" (SYMM.) PLUS TYPE H BARRIERS
D.A. = 3.3 SQ. MILES
Q50 = 2010 CFS
Q100 = 2370 CFS

DISCLAIMER:
THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS PAGE, AND DISCLAIMS (PURSUANT TO SECTION 327.411 RSMO) SPECIFICATION, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS PAGE REFERS.

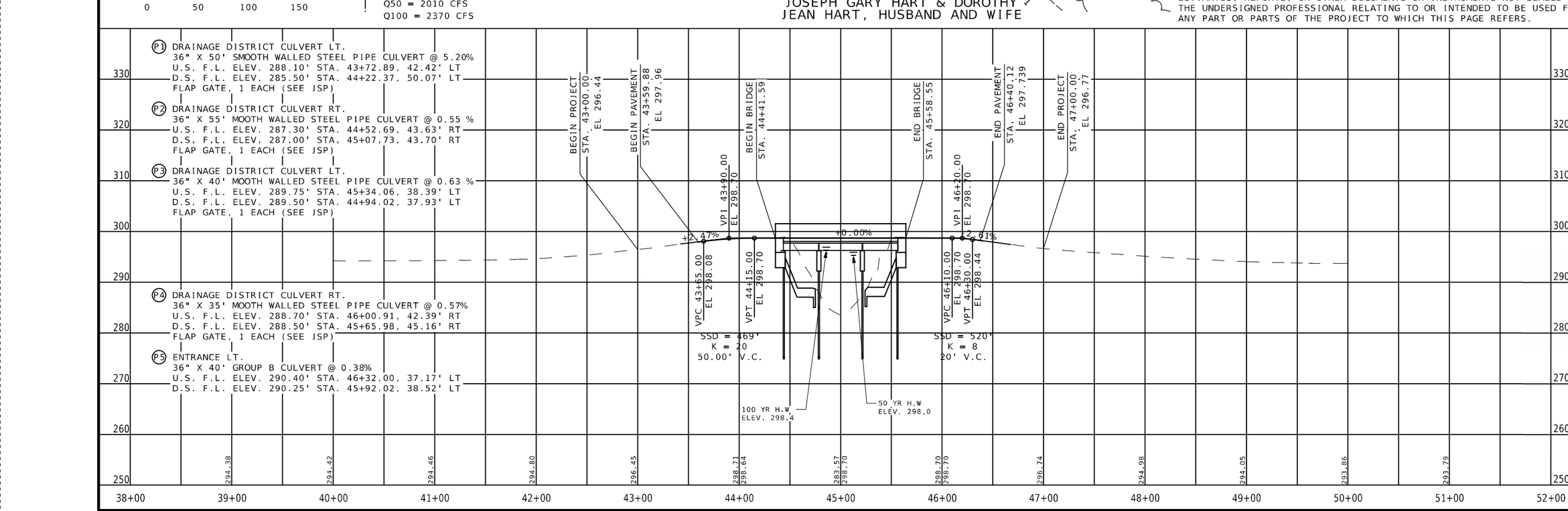
P1 DRAINAGE DISTRICT CULVERT LT.
36" X 50' SMOOTH WALLED STEEL PIPE CULVERT @ 5.20%
U.S. F.L. ELEV. 288.10' STA. 43+72.89, 42.42' LT
D.S. F.L. ELEV. 285.50' STA. 44+22.37, 50.07' LT
FLAP GATE, 1 EACH (SEE JSP)

P2 DRAINAGE DISTRICT CULVERT RT.
36" X 55' MOOTH WALLED STEEL PIPE CULVERT @ 0.55 %
U.S. F.L. ELEV. 287.30' STA. 44+52.69, 43.63' RT
D.S. F.L. ELEV. 287.00' STA. 45+07.73, 43.70' RT
FLAP GATE, 1 EACH (SEE JSP)

P3 DRAINAGE DISTRICT CULVERT LT.
36" X 40' MOOTH WALLED STEEL PIPE CULVERT @ 0.63 %
U.S. F.L. ELEV. 289.75' STA. 45+34.06, 38.39' LT
D.S. F.L. ELEV. 289.50' STA. 44+94.02, 37.93' LT
FLAP GATE, 1 EACH (SEE JSP)

P4 DRAINAGE DISTRICT CULVERT RT.
36" X 35' MOOTH WALLED STEEL PIPE CULVERT @ 0.57%
U.S. F.L. ELEV. 288.70' STA. 46+00.91, 42.39' RT
D.S. F.L. ELEV. 288.50' STA. 45+65.98, 45.16' RT
FLAP GATE, 1 EACH (SEE JSP)

P5 ENTRANCE LT.
36" X 40' GROUP B CULVERT @ 0.38%
U.S. F.L. ELEV. 290.40' STA. 46+32.00, 37.17' LT
D.S. F.L. ELEV. 290.25' STA. 45+92.02, 38.52' LT



STATE OF MISSOURI
JOSHUA W. STEIN NUMBER PE-2011030189
PROFESSIONAL ENGINEER
Signed:7/22/2025
Joshua W. Stein - Civil
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DATE PREPARED	
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105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-6300
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PLAN/PROFILE SHEET
ROUTE W
SHEET 1 OF 1

REV.

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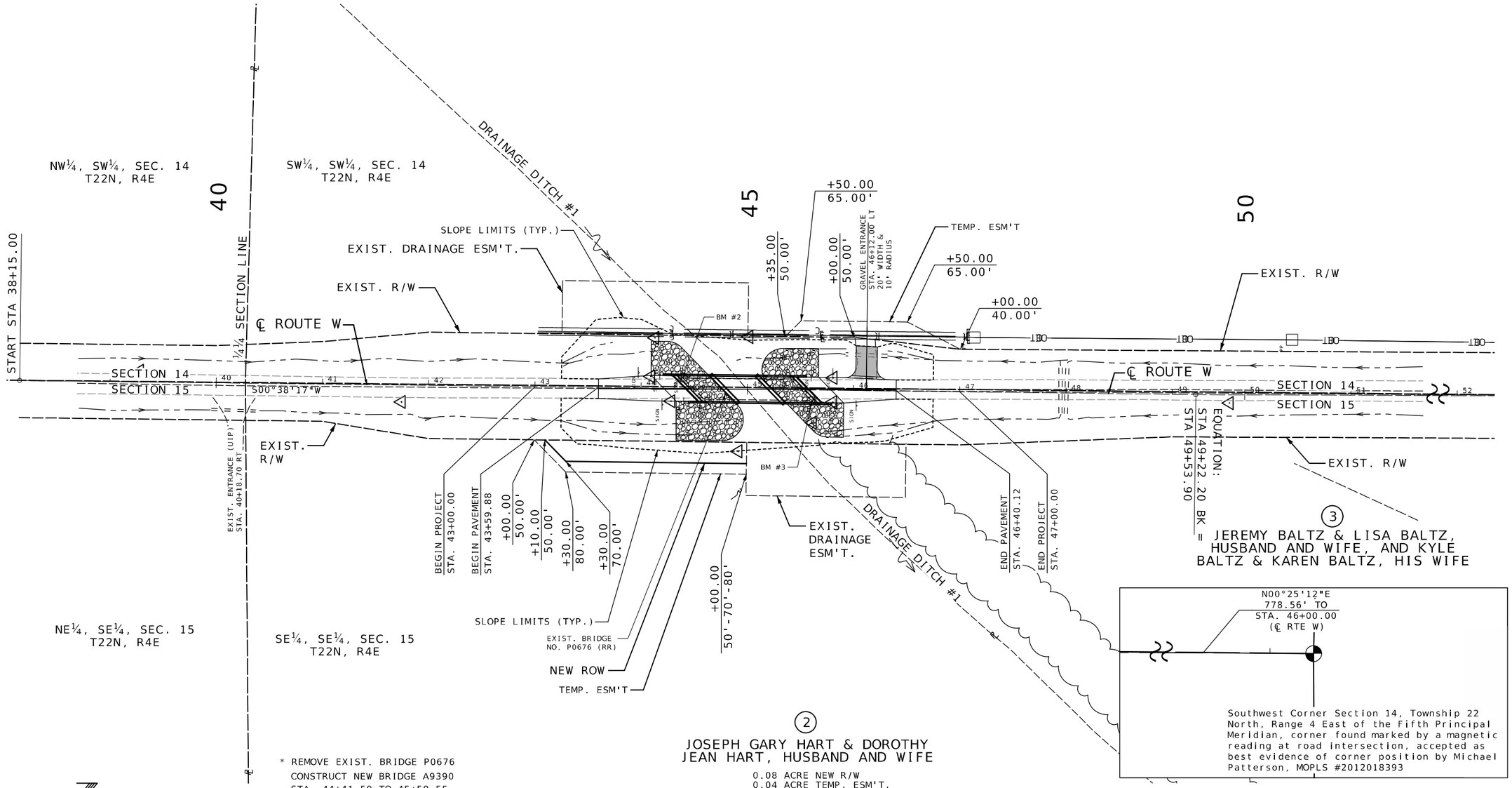
LEGEND	
	AGGREGATE ENTRANCE
	TYPE 2 ROCK BLANKET



(1)

ROGER D. THARP & BETTY THARP, HIS WIFE

0.05 ACRE TEMP. ESM'T.
81.36 ACRE REMAINING

(2)

JOSEPH GARY HART & DOROTHY JEAN HART, HUSBAND AND WIFE

0.08 ACRE NEW R/W
0.04 ACRE TEMP. ESM'T.
78.74 ACRE REMAINING

(3)

JEREMY BALTZ & LISA BALTZ, HUSBAND AND WIFE, AND KYLE BALTZ & KAREN BALTZ, HIS WIFE

* REMOVE EXIST. BRIDGE P0676
CONSTRUCT NEW BRIDGE A9390
STA. 44+41.59 TO 45+58.55
(34.5'-43'-34.5') SD-CL COMPOSITE WIDE FLANGE BEAM
WIDTH = 24'-0" (SYMM.) PLUS TYPE H BARRIERS
D.A. = 3.3 SQ. MILES
Q50 = 2010 CFS
Q100 = 2370 CFS

SCALE
0 50 100 150

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FOR INFORMATION ONLY

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
RIPLEY

JOB NO.
J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9390

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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RIGHT OF WAY SHEET
ROUTE W
SHEET 1 OF 1

REV.

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ALL SURVEYING HAS BEEN DONE BY MODOT. THE INFORMATION SHOWN ON THIS REFERENCE SHEET IS COPIED FROM THEIR FIELD NOTES.

ALL PROJECT COORDINATES HAVE BEEN PROJECTED FROM THE MISSOURI STATE PLANE COORDINATE (SPC) SYSTEM OF 1983 USING AN AVERAGE PROJECT PROJECTION (GRID TO GROUND) FACTOR. TO GET BACK TO STATE PLANE COORDINATES, MULTIPY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.

PROJECT COORDINATE INFORMATION

COORDINATE SYSTEM	MODIFIED STATE PLANE (GROUND)
HORIZONTAL DATUM	NAD 83 (2011)
VERTICAL DATUM	NAVD 88
GEOID MODEL	GEOID 2018
ELEVATIONS DETERMINED BY	STATIC OBSERVATION
PROJECT PROJECTION FACTOR	1.000075136006

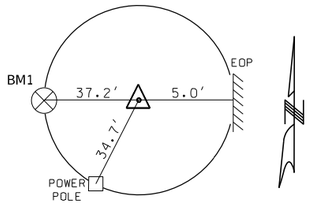
EXAMPLE OF PROJECT COORDINATE TO S.P.C.

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

EXAMPLE: CONTROL POINT #101
N 261157.736 X 0.9999248696 = N 261138.115
E 787462.250 X 0.9999248696 = E 787403.088

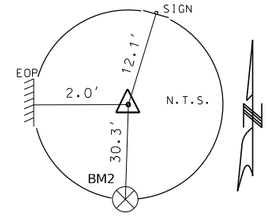
LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)



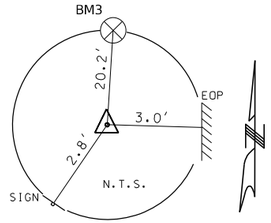
CONTROL POINT #100

5/8" REBAR W/ PLASTIC CAP
N = 262351.121
E = 787448.460
ELEV. 294.60



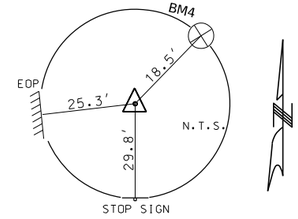
CONTROL POINT #101

5/8" REBAR W/ PLASTIC CAP
N = 261157.736
E = 787462.250
ELEV. 298.01
STA. 44+09.19
OFFSET 10.75' LT



CONTROL POINT #102

5/8" REBAR W/ PLASTIC CAP
N = 260986.359
E = 787438.053
ELEV. 298.19
STA. 45+80.84
OFFSET 11.38' RT



CONTROL POINT #103

5/8" REBAR W/ PLASTIC CAP
N = 260234.908
E = 787482.404
ELEV. 293.26

BENCH MARKS

BM1 ELEV 297.33'
A COTTON PICKER SPINDLE IN THE BASE OF A POWER POLE.

BM2 ELEV 299.58
CHISELED SQUARE ON THE NORTH END OF THE EAST GUARDRAIL

BM3 ELEV 299.52
CHISELED SQUARE ON THE SOUTH END OF THE WEST GUARDRAIL

BM4 ELEV 293.91'
A COTTON PICKER SPINDLE SET IN THE BASE OF A POWER POLE

ALIGNMENT POINT LISTING

SHEET NO	STATION	MODIFIED STATE PLANE (GROUND) NORTHING (USFT)	EASTING (USFT)	DESCRIPTION
5	38+15.00	261752.010	787458.672	START
5	54+10.26	260188.534	787443.488	END

CONTROL POINT LISTING

SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (USFT)	EASTING (USFT)	ELEVATION (USFT)	DESCRIPTION	POINT ID
5	44+09.19	LT	10.75	261157.736	787462.250	298.01	5/8" REBAR W/ PLASTIC CAP	CP101
5	45+80.84	RT	11.38	260986.359	787438.053	298.19	5/8" REBAR W/ PLASTIC CAP	CP102
				262351.121	787448.460	294.60	5/8" REBAR W/ PLASTIC CAP	CP100
				260234.908	787482.404	293.26	5/8" REBAR W/ PLASTIC CAP	CP103

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STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:8/8/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/9/2025

ROUTE	STATE
W	MO

DISTRICT	SHEET NO.
SE	6

COUNTY
RIPLEY

JOB NO.
J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9390

DESCRIPTION	DATE

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

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

TWM ENGINEERING GEOSPATIAL SERVICES
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COORDINATE POINTS

ROUTE W

SHEET 1 OF 1

REV.

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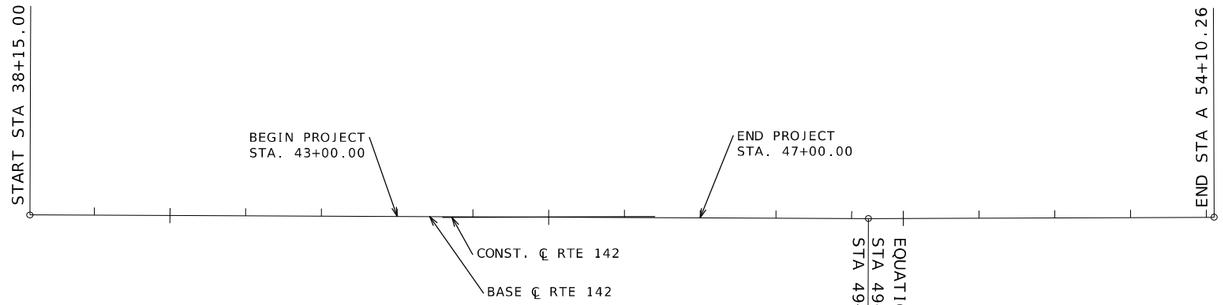

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SCALE
0 100 200 300

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
RIPLEY

JOB NO.
J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9390

REV.	DESCRIPTION	DATE

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ALIGNMENT SHEET
ROUTE W
SHEET 1 OF 1

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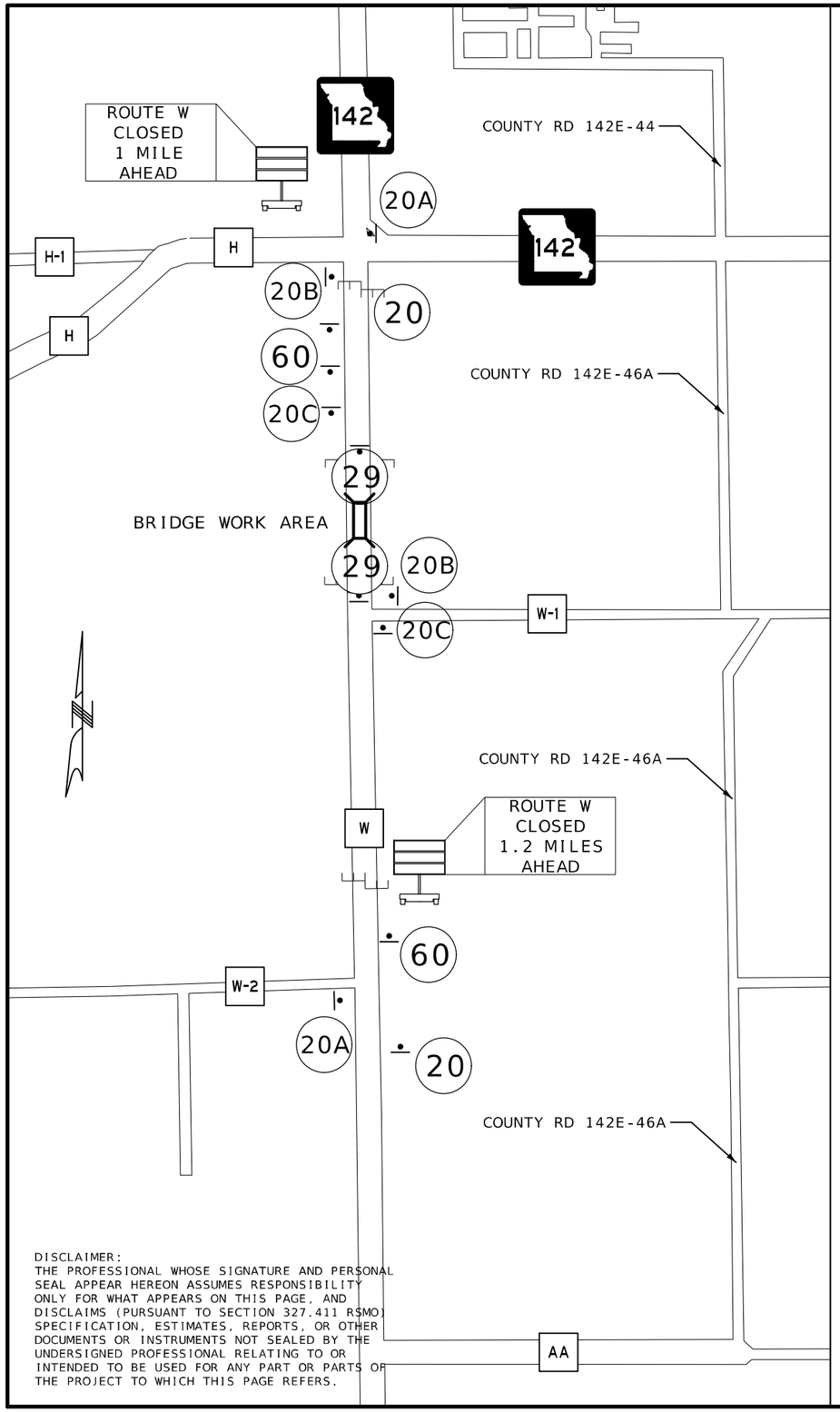

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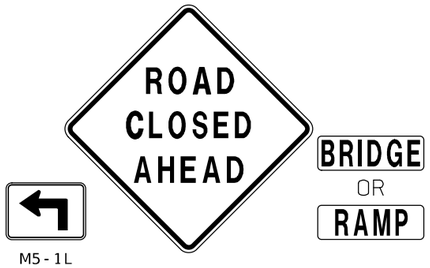
WO20-1

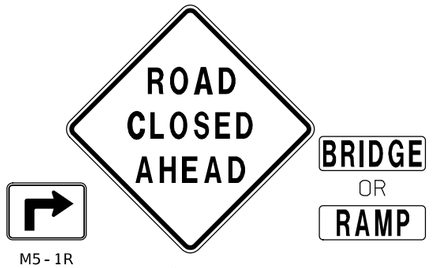
20



M5-1L

WO20-1

20A



M5-1R

WO20-1

20B

WO20-3

20C

R11-4

60

R11-2

29

NOT TO SCALE

NOTES:

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

LOCATIONS OF CMS BOARDS SHALL BE DETERMINED BY THE ENGINEER.

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- TYPE 3 MOVEABLE BARRICADE
- CHANGEABLE MESSAGE BOARD

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
SE	8

COUNTY
RIPLEY

JOB NO.
J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9390

DESCRIPTION	DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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MISSOURI CERT. OF AUTHORITY: 001538

TRAFFIC CONTROL
ROUTE W
SHEET 1 OF 1

REV.

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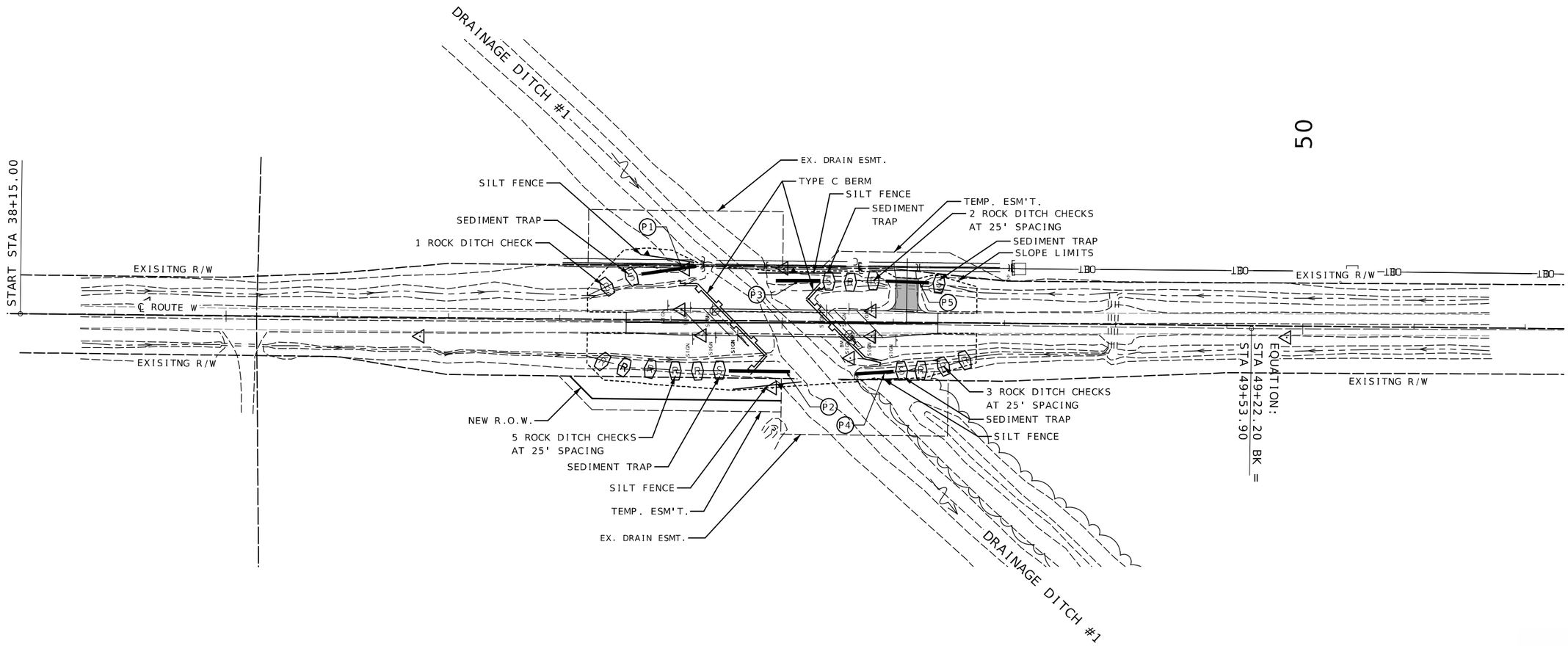
PRIMARY RECEIVING WATERS: DRAINAGE DITCH #1



50

NOTES:EXISTING VEGETATION SHALL BE LEFT IN PLACE WHERE PRACTICAL TO BE USED AS AN ADDITIONAL EROSION CONTROL BMP.

SEE RIGHT-OF-WAY SHEET FOR ALL PROPERTY BOUNDARIES AND TAKING INFORMATION.

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TEMPORARY EROSION CONTROL LEGEND

- (R) ROCK DITCH CHECK
- (S) SEDIMENT TRAP
- TEMPORARY BERM TYPE C
- SILT FENCE

SCALE

0 50 100 150

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STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED: 7/22/2025

ROUTE	STATE
W	MO

DISTRICT	SHEET NO.
SE	9

COUNTY: RIPLEY

JOB NO.: J9S3817

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9390

DESCRIPTION	DATE

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MISSOURI CERT. OF AUTHORITY: 001528

EROSION CONTROL
ROUTE W
SHEET 1 OF 1

REV.

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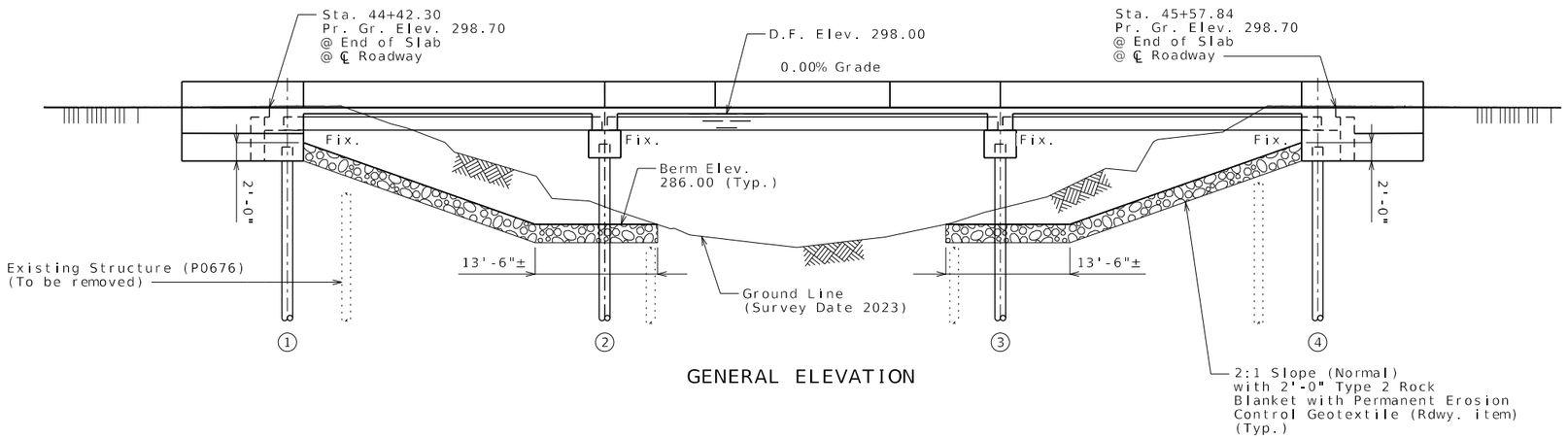
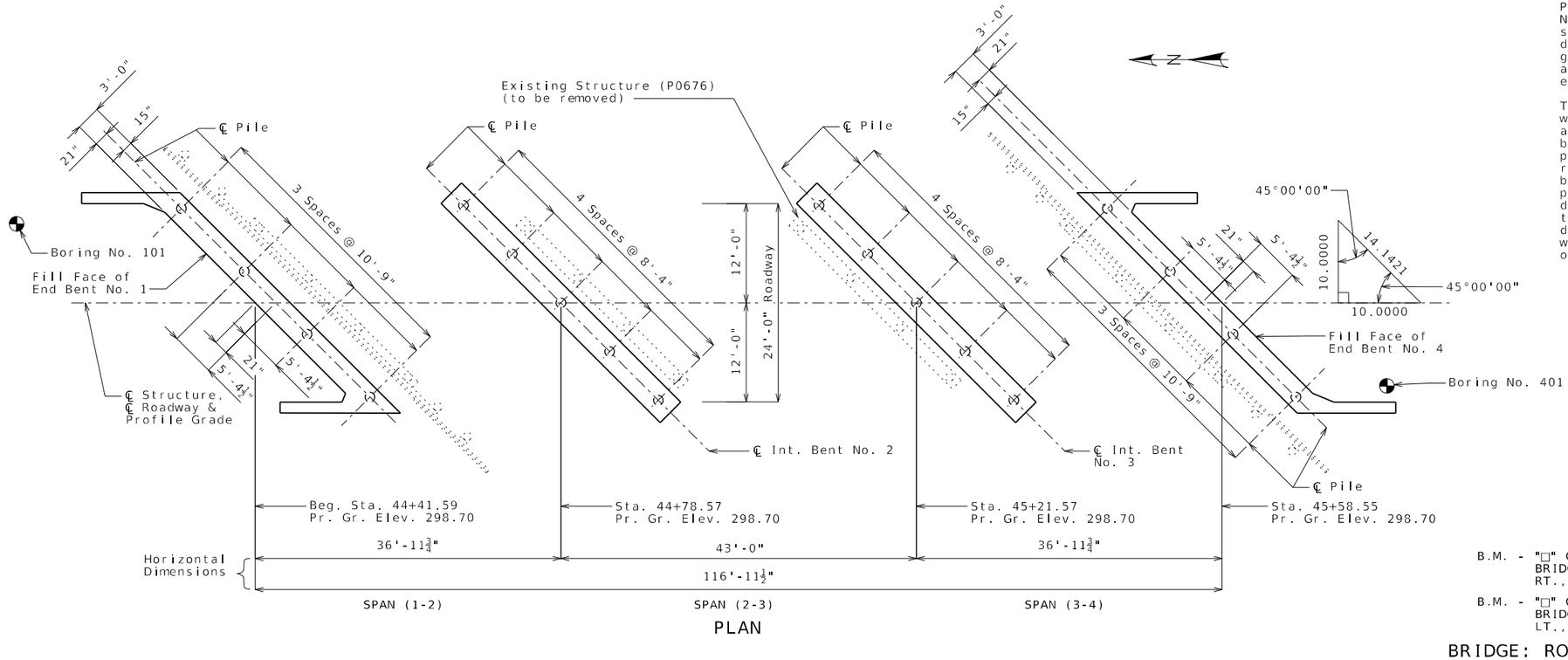
(34.5'-43'-34.5') SD-CL COMPOSITE WIDE FLANGE BEAM SPANS



GENERAL ELEVATION



PLAN

Designed Sept. 2024
Detailed Sept. 2024
Checked Sept. 2024

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

Sheet No. 1 of 25

SEC/SUR 14 & 15 TWP 22N RGE 4E

Notes:

For General Notes, Estimated Quantities, Foundation Data, Location Sketch, and Hydrologic Data, see Sheet No. 2.

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

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

⊕ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheet(s) No. 22 thru 25 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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

B.M. - "□" CHISLED ON BARRIER CURB, S.W. CORNER OF BRIDGE P0676, STA. 45+60.97, OFF. 10.35' RT., ELEV. 299.52

B.M. - "□" CHISLED ON BARRIER CURB, N.E. CORNER OF BRIDGE P0676, STA. 44+39.33, OFF. 10.17' LT., ELEV. 299.58

BRIDGE: ROUTE W OVER DRAINAGE DITCH #1

ROUTE W FROM ROUTE 142 TO ROUTE AA
ABOUT 0.9 MILES SOUTH OF ROUTE 142
BEGINNING STATION 44+41.59

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

Signed: 8/4/2025
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED: 8/4/2025
ROUTE: W | STATE: MO
DISTRICT: BR | SHEET NO.: 1
COUNTY: RIPLEY
JOB NO.: J9S3817
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9390

DATE	DESCRIPTION

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

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

3316 LEMONE INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
www.twm-inc.com
MISSOURI CERTIFICATE OF AUTHORITY: 001528
TWM ENGINEERING & GEOSPATIAL SERVICES

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	80		80
Removal of Bridges (P0676)	lump sum			1
Bridge Approach Slab (Minor Road)	sq. yard		109	109
Galvanized Cast-in-Place Concrete Piles (14 in.)	linear foot	608		608
Dynamic Pile Testing	each	4		4
Pile Point Reinforcement	each	18		18
Class B Concrete (Substructure)	cu. yard	61.4		61.4
Slab on Steel	sq. yard		342	342
Type H Barrier	linear foot		270	270
Reinforcing Steel (Bridges)	pound	4,100		4,100
Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50	pound		44,400	44,400
Slab Drain	each		20	20
Galvanizing Structural Steel	lump sum		1	1
Vertical Drain at End Bents	each			2
Plain Neoprene Bearing Pad	each		8	8
Laminated Neoprene Bearing Pad	each		16	16

All concrete between the upper and lower construction joints in the end bents is included in the Estimated Quantities for Slab on Steel.

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

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

All reinforcement in cast-in-place pile at Intermediate Bents is included in the substructure quantities.

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

Sheet metal in intermediate concrete diaphragms is subsidiary to Slab on Steel.

Structural Steel shall be galvanized in accordance with ASTM A123 and Sec. 1081.

Estimated Quantities for Slab on Steel

Item		Total
Class B-2 Concrete	cu. yard	110.3
Reinforcing Steel (Epoxy Coated)	pound	33,890

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

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

Bridge deck surface may be finished with a vibratory screed.

Stay-In-Place Corrugated Steel 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.

Foundation Data

Type	Design Data		Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		CECIP 14"	CECIP 14"	CECIP 14"	CECIP 14"
	Number	ea	4	5	5	4
	Approximate Length Per Each	ft	32	33	35	35
	Pile Point Reinforcement	ea	All	All	All	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	Full Length	Full Length	Full Length
	Est. Max. Scour Depth 100 (Elev.)	ft	-	284.6	284.3	-
	Minimum Tip Penetration (Elev.)	ft	263	262	260	260
	Criteria for Min. Tip Penetration		*	*	*	*
	Pile Driving Verification Method		DT	DT	DT	DT
	Resistance Factor		0.65	0.65	0.65	0.65
	Minimum Nominal Axial Compressive Resistance	kip	226	251	251	226

* Liquefaction

DT = Dynamic Testing

CECIP = Closed Ended Cast-In-Place Concrete Pile

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

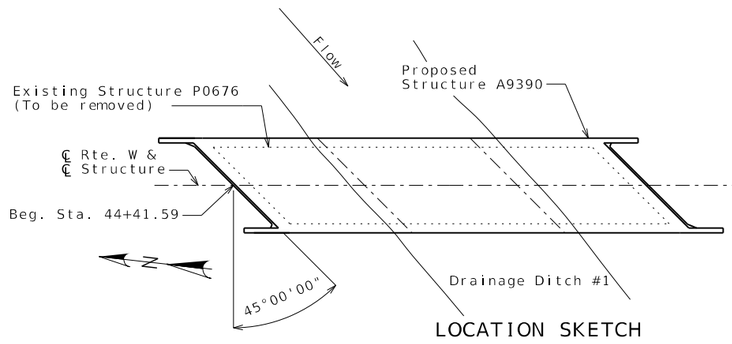
Manufactured pile point reinforcement shall be used on all piles on this structure.

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

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

Hydrologic Data

Drainage Area = 3.3 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 2,010 cfs
Design Flood (D.F.) Elevation = 298.0
Base Flood (100-year)
Base Flood Elevation = 298.4
Base Flood Discharge = 2,370 cfs
Estimated Backwater = 0.0 ft
Average Velocity thru Opening = 0.7 ft/s
Freeboard (50-year)
Freeboard = -1.7 ft
Roadway Overtopping
Overtopping Flood Discharge = 2,730 cfs
Overtopping Flood Frequency = 200 years
Overtopping Flood Elevation = 298.8



LOCATION SKETCH

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)

2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)

Seismic Design Category C

Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.327g
Acceleration Coefficient effective Peak Ground acceleration coefficient, As= 0.355g

Design Loading:

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

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-1 Concrete (Cast-In-Place Concrete piles and barrier)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Barrier)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Structural Steel (ASTM A709 Grade 50)	fy = 50,000 psi
Welded or Seamless steel shell (pipe) for CIP pile (ASTM A252 Grade 3)	fy = 45,000 psi

Neoprene Pads:

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

Fabricated Steel Connections:

Field connections shall be made with 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts and 13/16-inch diameter holes, except as noted.

Joint Filler:

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

Reinforcing Steel:

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

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

Traffic Control:

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

Miscellaneous:

High strength bolts, nuts and washers will be sampled for quality assurance as specified in Sec 106.

GENERAL NOTES & QUANTITIES

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY RIPLEY
JOB NO. J9S3817
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9390

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

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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3316 LEMONE INDUSTRIAL BLVD
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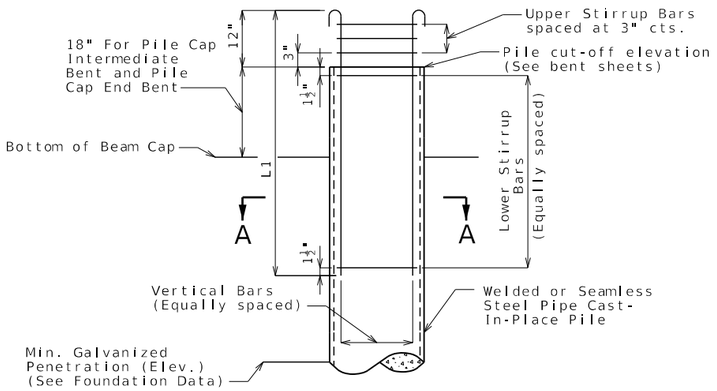
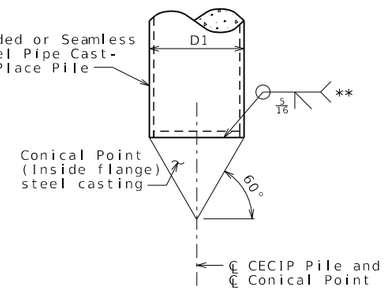
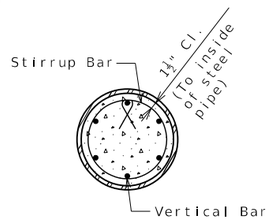
Galvanized Closed Ended Cast-In-Place (CECIP) Concrete Pile Data				
Bent Number	1	2	3	4
D1, CECIP Pile (O.D.)	14"	14"	14"	14"
Min. Nominal Wall Thickness	1/2"	1/2"	1/2"	1/2"
Pile Point Reinforcement	Conical	Conical	Conical	Conical
Vertical Bars	6-#5-V400	6-#5-V400	6-#5-V400	6-#5-V400
L1, Length of Vertical Bars	5'-3"	5'-3"	5'-3"	5'-3"
Upper Stirrup Bars	3-#4-P400	3-#4-P400	3-#4-P400	3-#4-P400
Lower Stirrup Bars	5-#4-P400	5-#4-P400	5-#4-P400	5-#4-P400



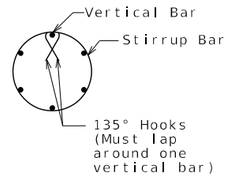


GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE WITH CONICAL PILE POINT REINFORCEMENT

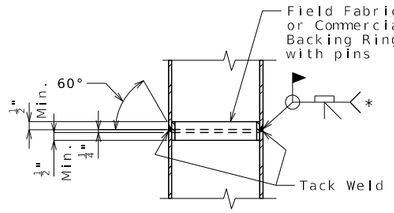
** If the conical pile point is not pre-beveled, place a 3/8" bevel at 40 degrees on the pipe.



SECTION A-A



DETAIL OF SEISMIC STIRRUP BAR



STEEL PIPE PILE SPLICE

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

Notes:

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

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

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

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

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

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

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

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

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

For Foundation Data table, see Sheet No. 2.

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Adam N. Rutz - Civil
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DATE PREPARED 12/5/2024
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 3
COUNTY RIPLEY
JOB NO. J9S3817
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9390

DESCRIPTION | DATE

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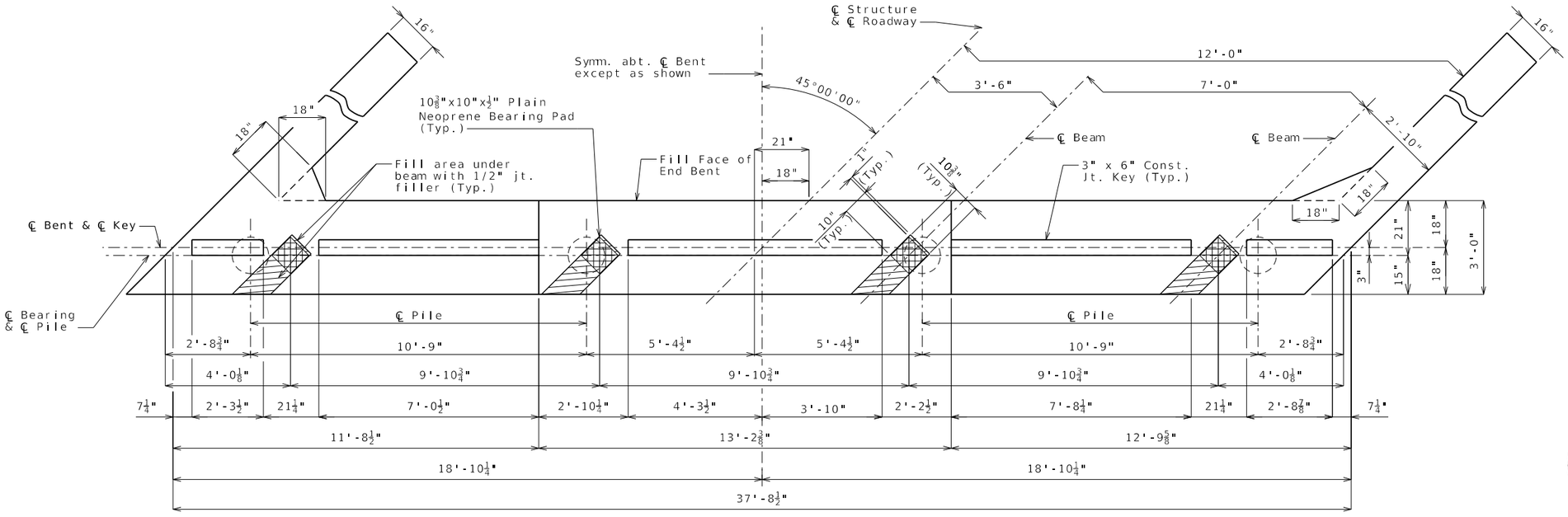
TWM ENGINEERING & GEOSPATIAL SERVICES

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

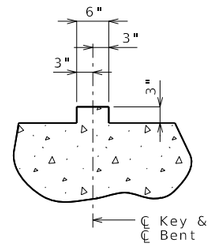
Detailed Sept. 2024
Checked Sept. 2024

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

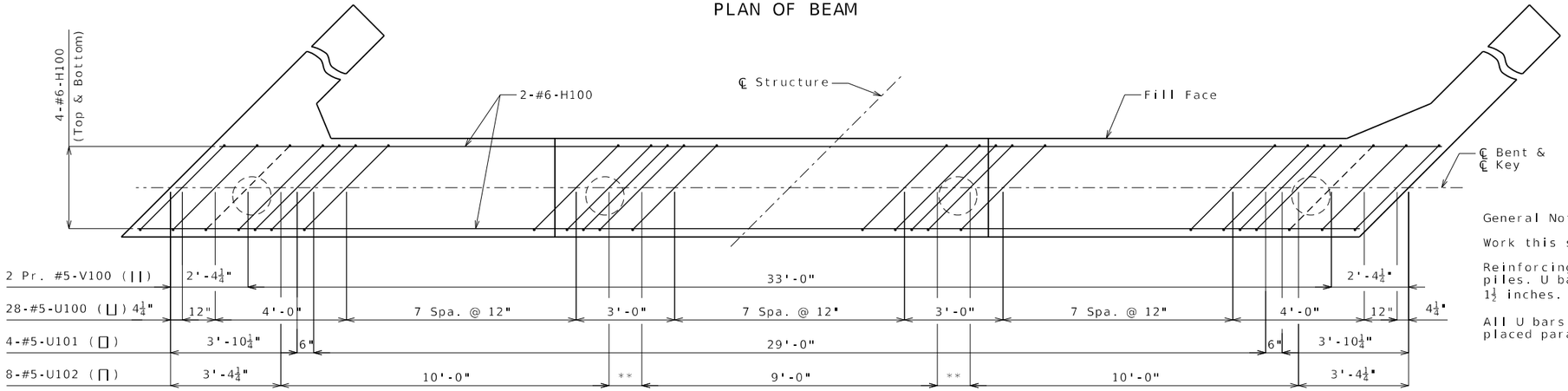
P:\2022\221411C\4 CADD - DWG\4.4 Struc\B_A9390_003_J9S3817_CECIP_Concrete_Pile.dgn 10:09:36 AM 12/5/2024



PLAN OF BEAM



SECTION THRU KEY



** 2 spaces @ 6"

PLAN OF BEAM SHOWING REINFORCEMENT

Keys not shown for clarity.

General Notes:

Work this sheet with Sheets No. 5 & 6.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1½ inches.

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

Substructure Quantity Table for End Bent No. 1

Item		Quantity
Class 1 Excavation	cu. yard	40
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	128
Dynamic Pile Testing	each	1
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	15.7

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

Substructure Quantity Table for End Bent No. 4

Item		Quantity
Class 1 Excavation	cu. yard	40
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	140
Dynamic Pile Testing	each	1
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	15.7

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

DETAILS OF END BENT NO. 1 & 4

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
BRANDON W. POITER
NUMBER PE-2017028430
PROFESSIONAL ENGINEER
Brandon W. Poiter
Signed: 12/5/2024
Brandon W. Poiter - Civil
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DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	4

COUNTY RIPLEY

JOB NO. J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9390

DESCRIPTION	DATE

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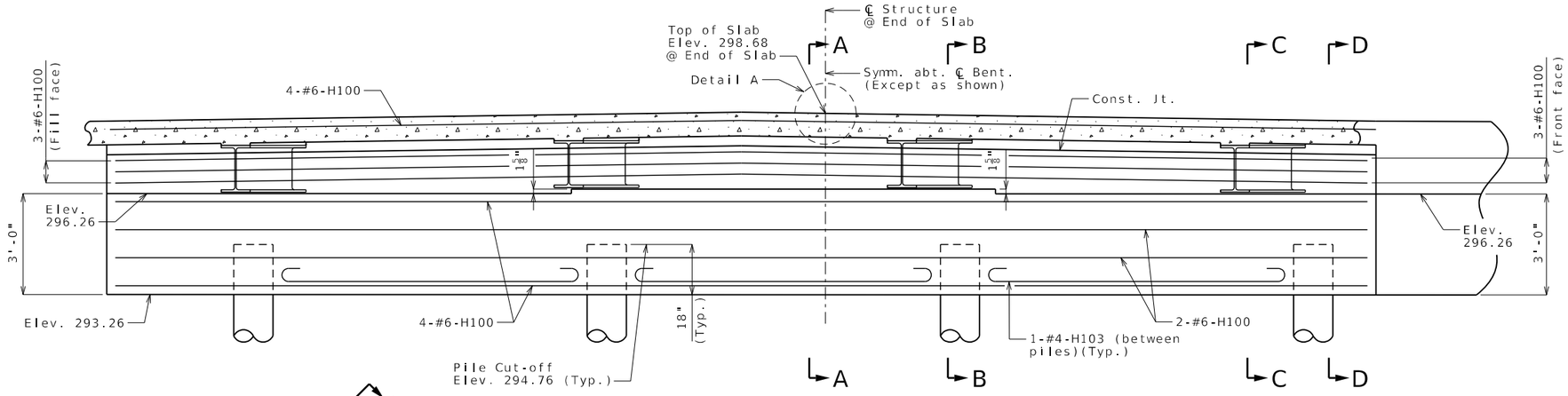
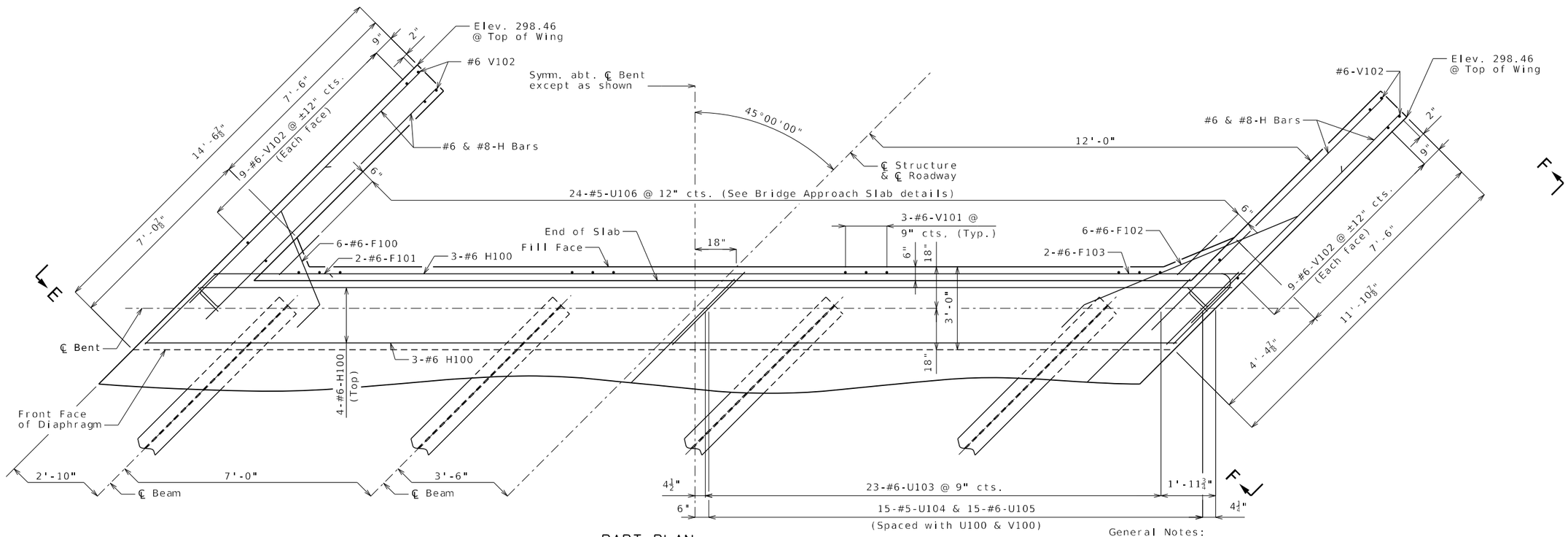
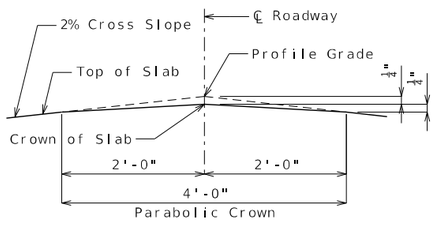


SECTION NEAR END BENT



PART PLAN



DETAIL A

DETAILS OF END BENT NO. 1 & 4

General Notes:

Work this sheet with Sheets No. 4 & 6.

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

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

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

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

Concrete diaphragms at the integral end bents shall be poured a minimum of 12 hours before the slab is poured.

For details of vertical drain at end bents, see Sheet No. 7.

For details of bridge approach slab, see Sheet No. 18.

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
BRANDON W. POITER
NUMBER PE-2017028430
PROFESSIONAL ENGINEER
Brandon W. Poiter
Signed: 12/5/2024
Brandon W. Poiter - Civil
MO PE-2017028430

DATE PREPARED
12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	5

COUNTY
RIPLEY

JOB NO.
J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9390

DESCRIPTION	DATE
REVISED TOTAL QUANTITIES (#6-V102 & #6-F102 WERE #6-V136)	12/5/2024

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OF AUTHORITY: 001528

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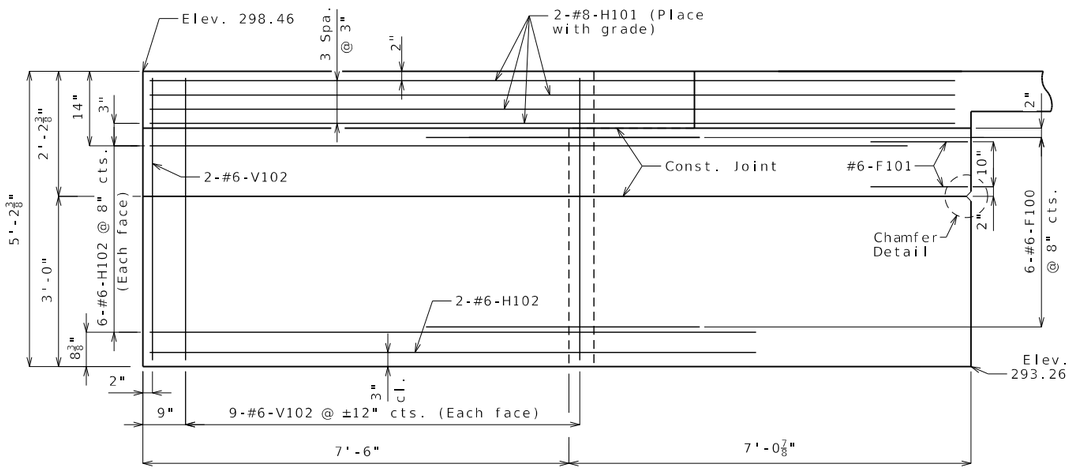
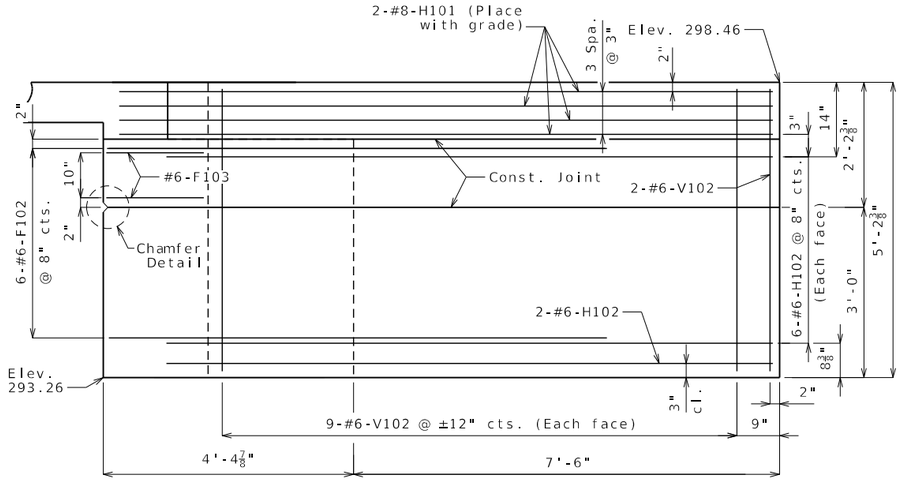
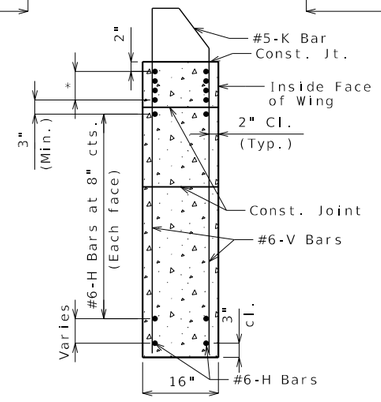


SECTION E-E

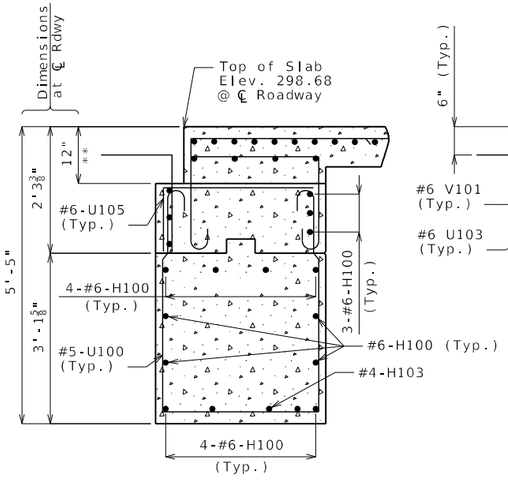


SECTION F-F



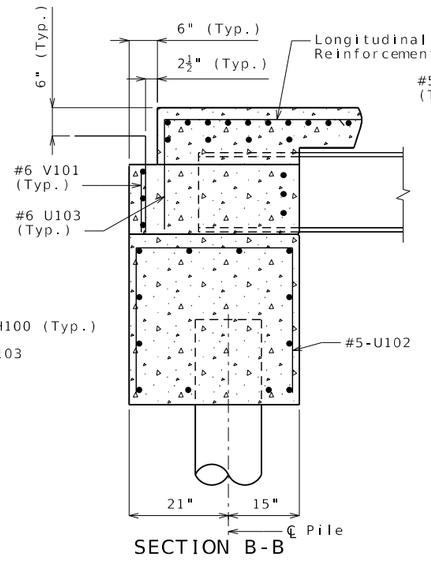
TYPICAL SECTION THRU WINGS

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

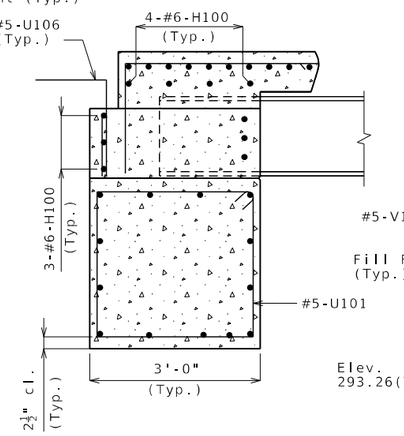


SECTION A-A

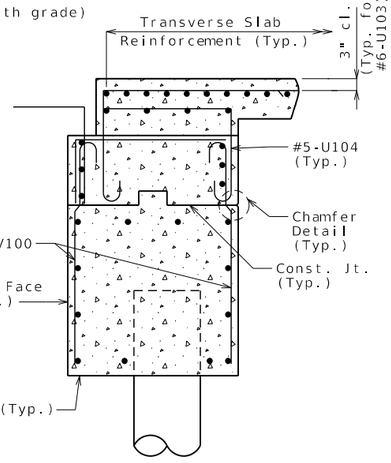
** Constant



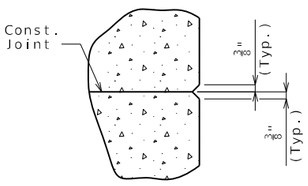
SECTION B-B



SECTION C-C



SECTION D-D



CHAMFER DETAIL

General Notes:

Work this sheet with Sheets No. 4 & 5.

For reinforcement of the barrier, see Sheet No. 17.

DETAILS OF END BENT NO. 1 & 4

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
BRANDON W. POITER NUMBER PE-2017028430
PROFESSIONAL ENGINEER
Brandon W. Poiter
Signed: 12/5/2024
Brandon W. Poiter - Civil
MO PE-2017028430

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	6

COUNTY RIPLEY

JOB NO. J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9390

DATE	DESCRIPTION

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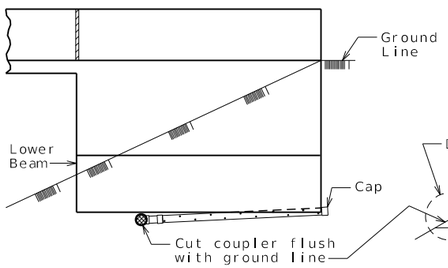
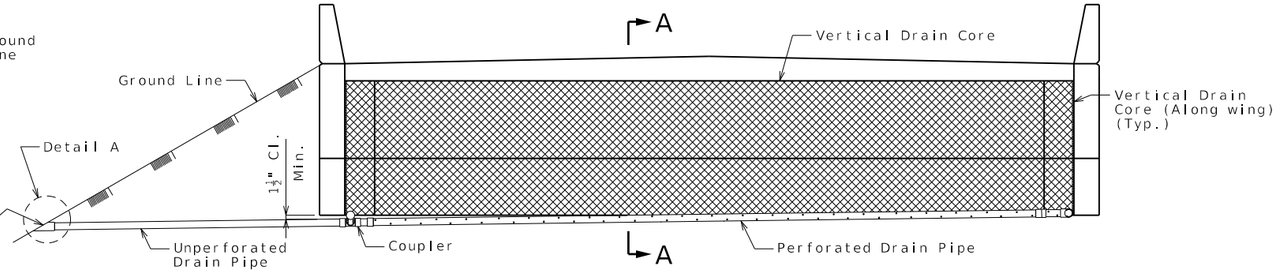
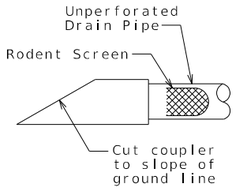


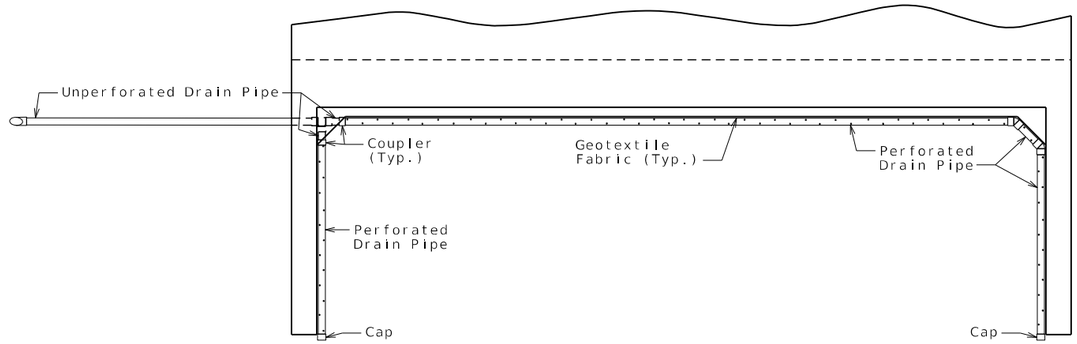
ELEVATION OF WING



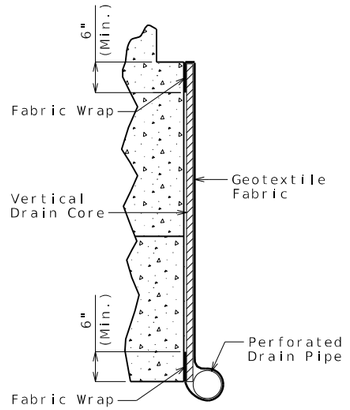
ELEVATION OF END BENT



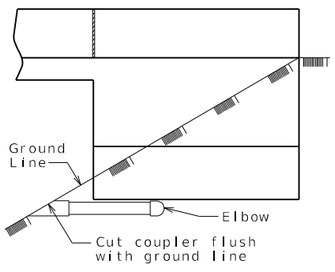
DETAIL A



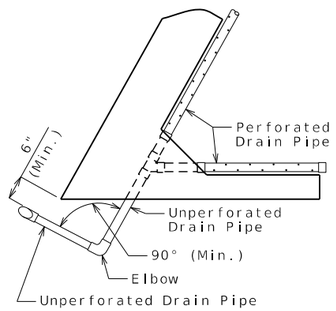
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

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

Detailed Sept. 2024
Checked Sept. 2024

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

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ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	7

COUNTY: RIPLEY
JOB NO.: J9S3817
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9390

DESCRIPTION	DATE

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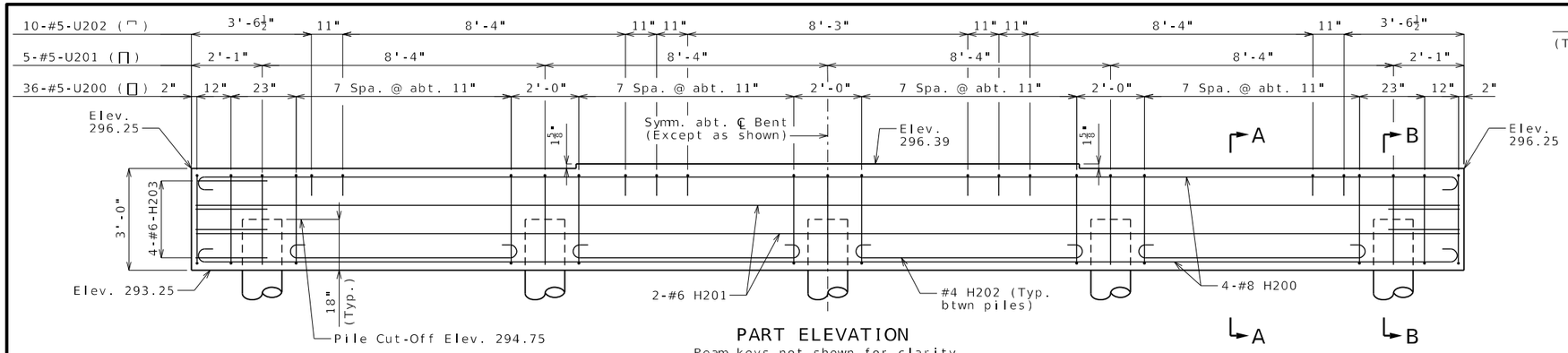
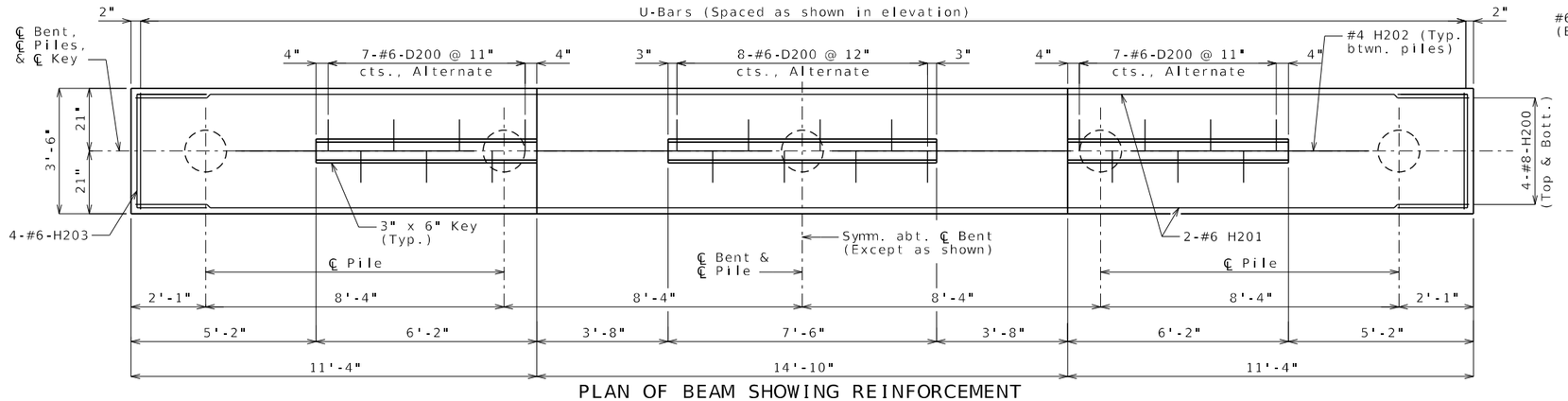
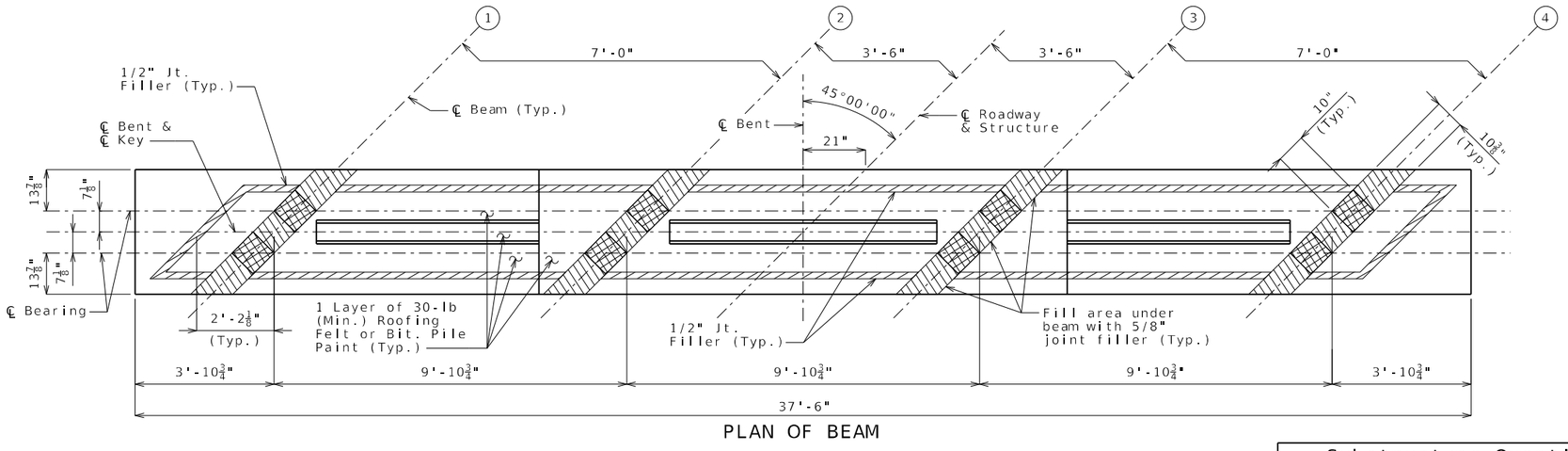


PART ELEVATION

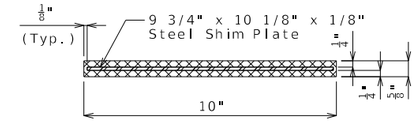
Beam keys not shown for clarity.



PLAN OF BEAM SHOWING REINFORCEMENT

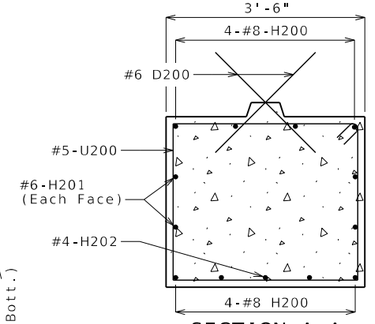


PLAN OF BEAM

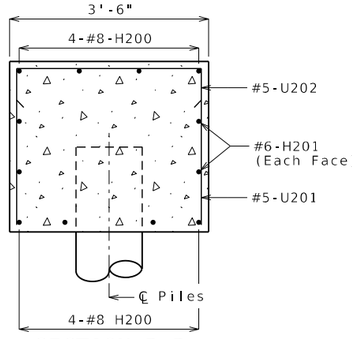


SECTION THRU LAMINATED NEOPRENE BEARING PADS

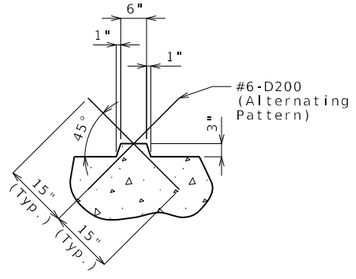
8 required Bent No. 2
8 required Bent No. 3



SECTION A-A



SECTION B-B



SECTION THRU KEY

Genereal Notes:

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

Substructure Quantity Table for Bents No. 2 & 3

Item		Quantity	
		Bent #2	Bent #3
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	165	175
Dynamic Pile Testing	each	1	1
Pile Point Reinforcement	each	5	5
Class B Concrete (Substructure)	cu. yard	15.0	15.0
Reinforcing Steel (Bridges)	pound	2,050	2,050

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

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed Sept. 2024
Checked Sept. 2024

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

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PROFESSIONAL ENGINEER
Brandon W. Poiter
Signed: 12/5/2024
Brandon W. Poiter - Civil
MO PE-2017028430

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	8

COUNTY RIPLEY
JOB NO. J9S3817
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9390

DESCRIPTION | DATE

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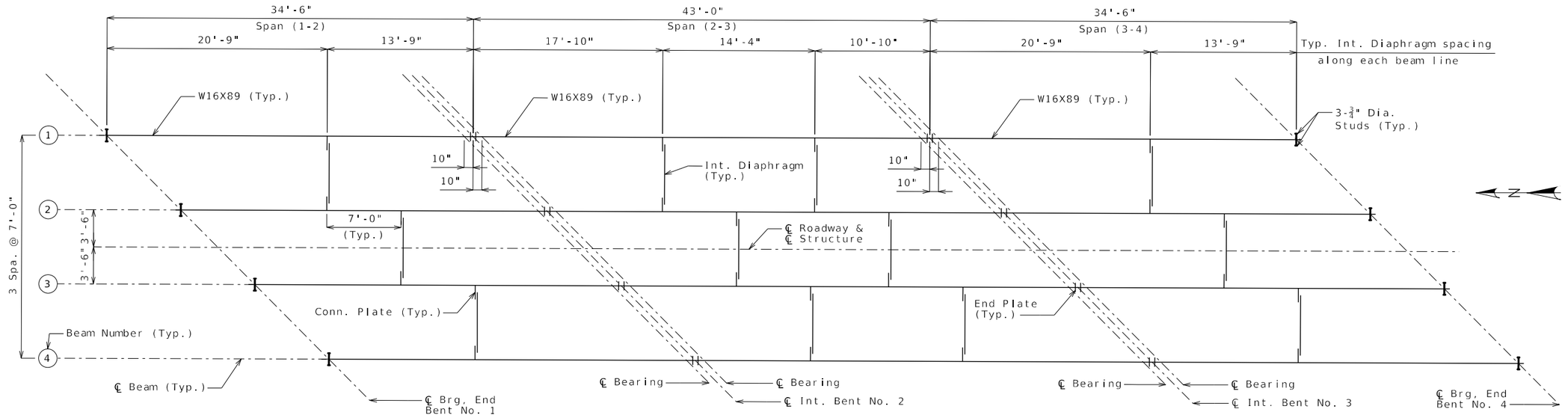


PLAN OF STRUCTURAL STEEL

Notes:

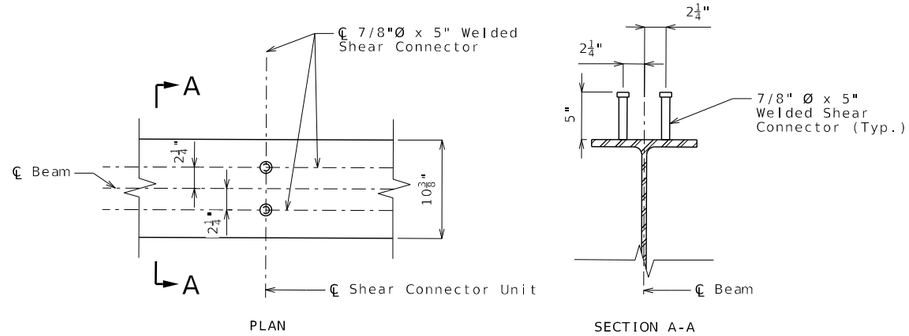
Longitudinal dimensions are horizontal from ℄ bearing to ℄ bearing.

Field connections shall be made with 3/4" diameter ASTM F3125 Grade A325 Type I Bolts and 13/16" diameter holes,unless otherwise shown.

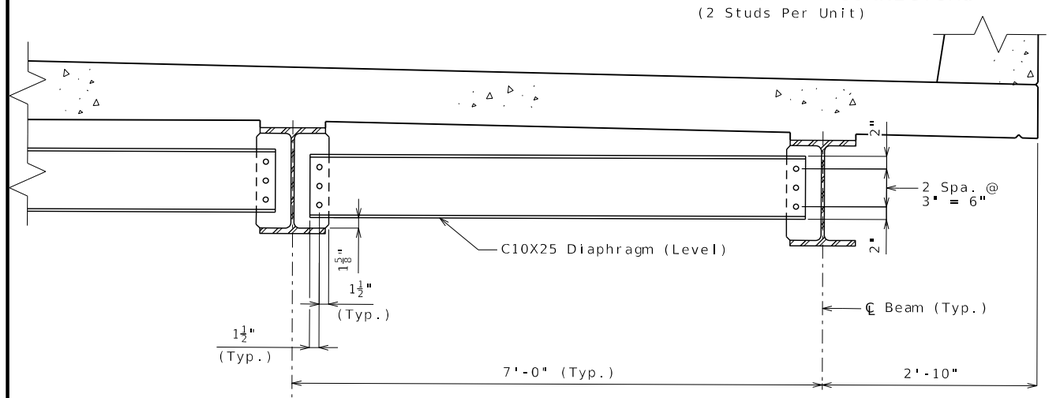
Fabricated structural Steel shall be ASTM A709 Grade 50 and shall be galvanized in accordance with A123 and Sec. 1080

At the Contractors option, holes in the diaphragm plate of non slab bearing diaphragms may be made 3/16" larger than the nominal diameter of the bolt. A hardened washer shall be used under the bolt head and nut when this option is used. Holes in the girder diaphragm connection plate or transverse web stiffener shall be standard size.

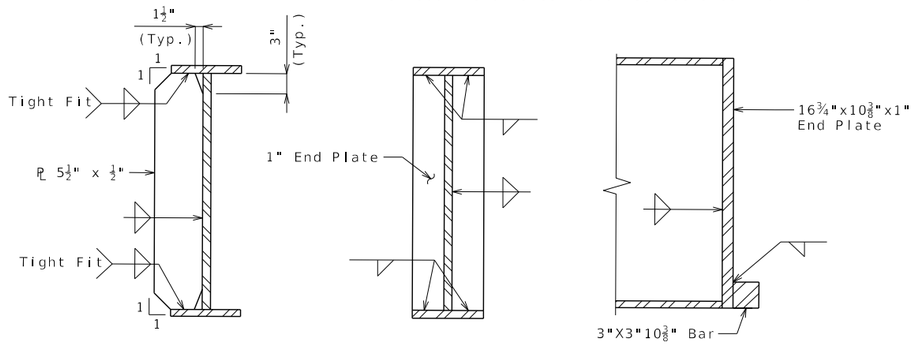
For additional steel details, see Sheet No. 10.



DETAILS OF SHEAR CONNECTORS
(2 Studs Per Unit)



TYPICAL PART SECTION SHOWING
INTERMEDIATE DIAPHRAGMS



INTERMEDIATE DIAPHRAGM CONNECTION PLATE

END PLATE AT INTERMEDIATE BENTS

END PLATE & COMPRESSION BLOCK AT INTERMEDIATE BENTS

WELDING DETAILS

STEEL BEAM DETAILS

Detailed Sept. 2024
Checked Sept. 2024

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

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PROFESSIONAL ENGINEER
Signed: 12/5/2024
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MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	9

COUNTY: RIPLEY
JOB NO.: J9S3817
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9390

DESCRIPTION	DATE

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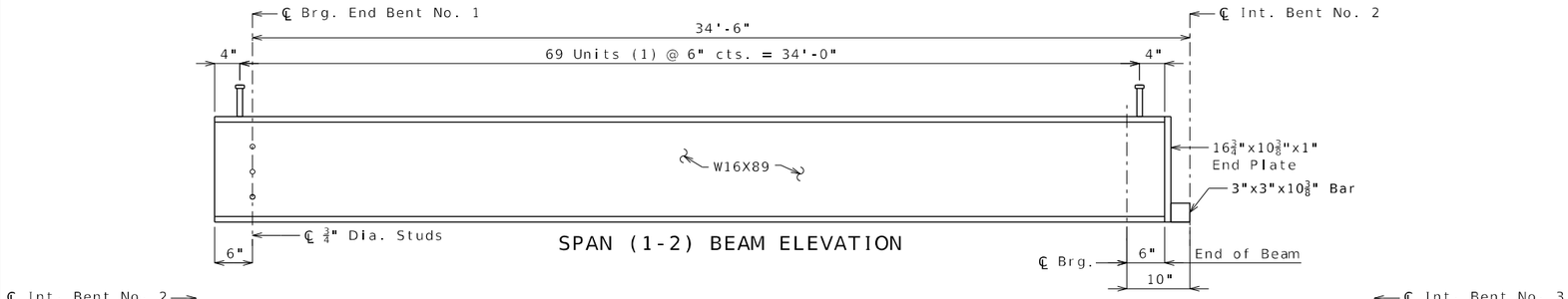
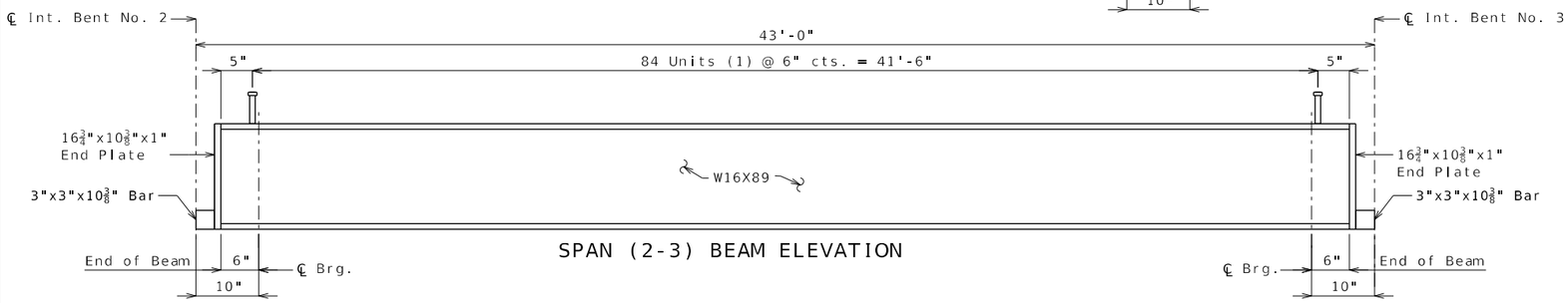
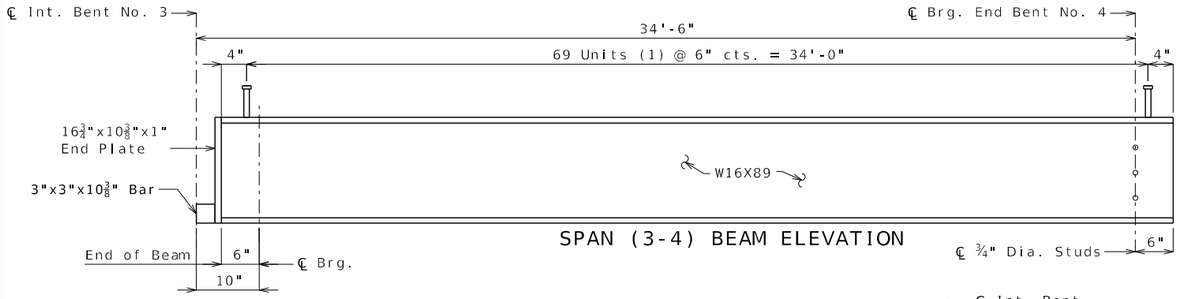


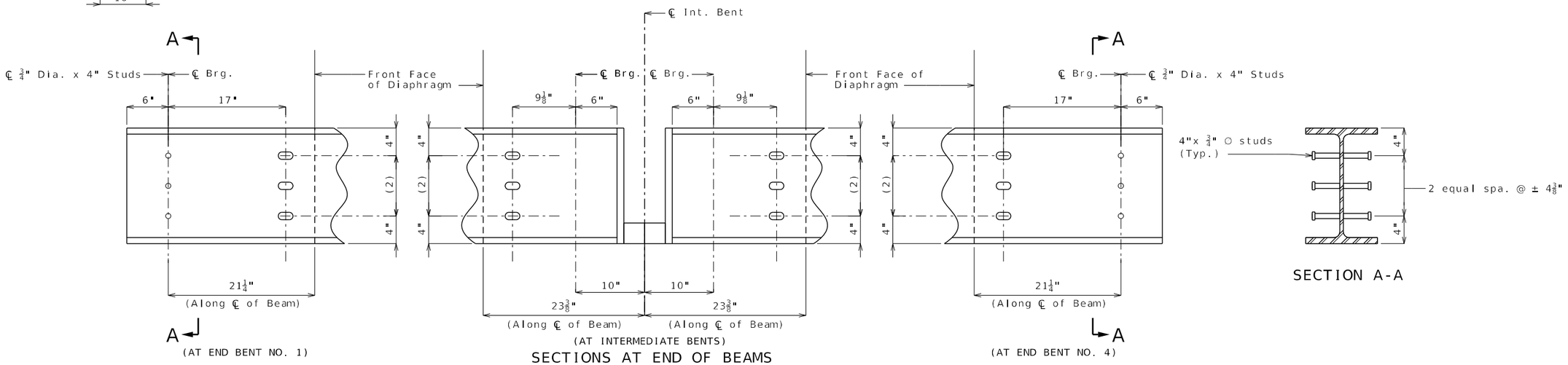
SPAN (1-2) BEAM ELEVATION



SPAN (2-3) BEAM ELEVATION



SPAN (3-4) BEAM ELEVATION



SECTIONS AT END OF BEAMS

SECTION A-A

STEEL BEAM DETAILS

Notes:

All Wide Flange beams shall be subject to Notch Toughness Requirements.

Longitudinal dimensions shown in the Beam Elevations are horizontal dimensions.

Weight of 1,140 pounds of shear connectors included in the weight of Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50.

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

For details of intermediate diaphragms, shear connectors, connection plates and end plates see Sheet No. 9.

For location of slab drain attachment holes, see Sheet No. 12.

(1) 2 studs per Unit

(2) 3-2⅛"x1 1/16" Slotted holes evenly spaced @ ± 4⅜"

Detailed Sept. 2024
Checked Sept. 2024

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

Sheet No. 10 of 25

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED
12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	10

COUNTY
RIPLEY

JOB NO.
J9S3817

CONTRACT ID.

PROJECT NO.

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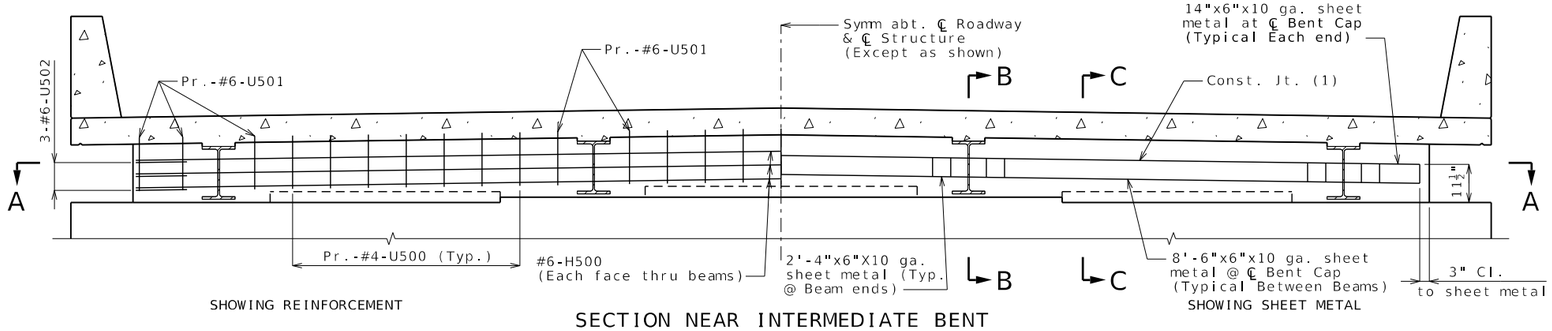
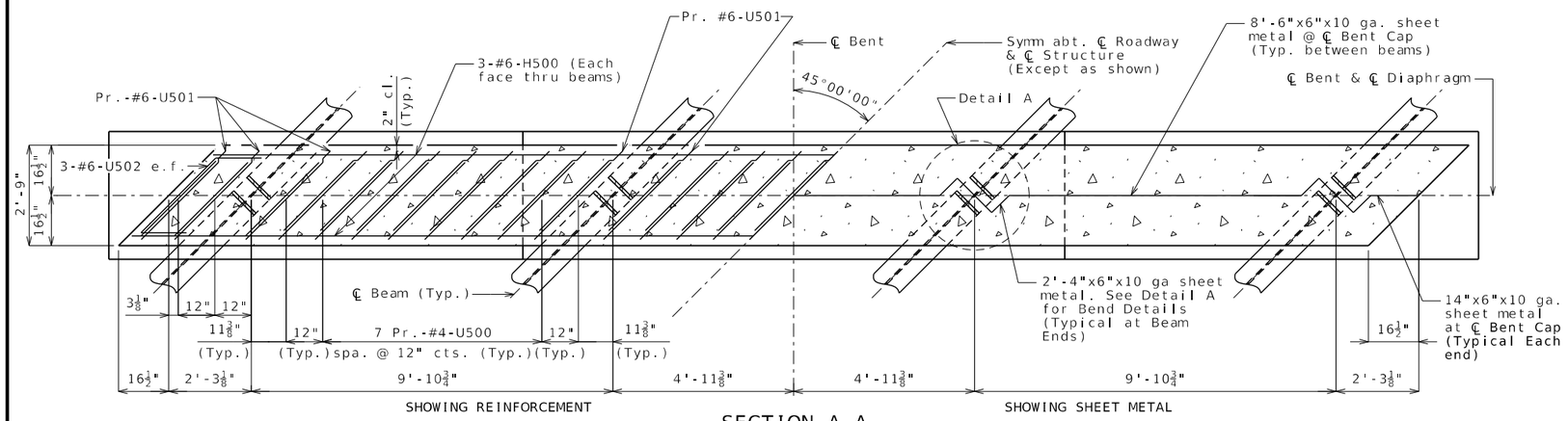


SHOWING REINFORCEMENT

SHOWING SHEET METAL

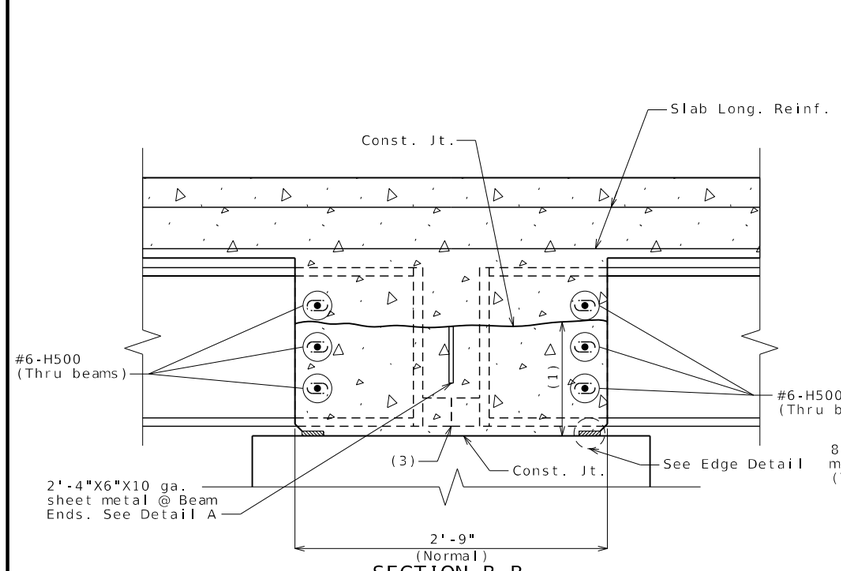
SECTION NEAR INTERMEDIATE BENT



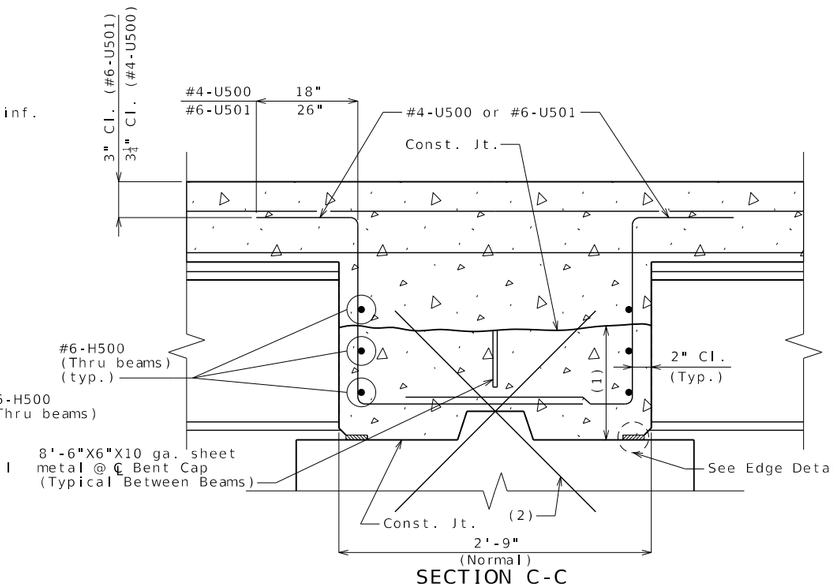
SHOWING REINFORCEMENT

SHOWING SHEET METAL

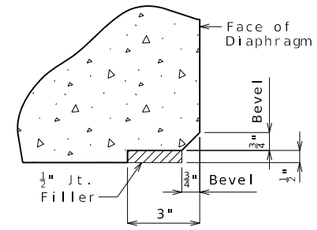
SECTION A-A



SECTION B-B



SECTION C-C



EDGE DETAIL

(1) Varies, match roadway cross slope.

(2) #6-D200. See Sheet No. 8 for details.

(3) Vertical face of compression blocks may be in partial contact. Full contact throughout block height is not necessary. Vertical faces of adjacent blocks shall overlap a minimum of 2 1/2".

Notes:

e.f. denotes each face.

Diaphragms at Intermediate Bents shall be built vertical.

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

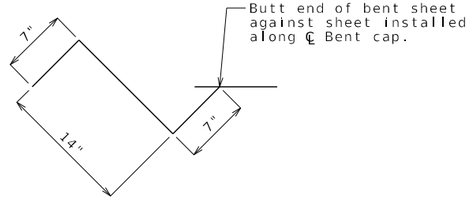
All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Steel.

Concrete diaphragm below construction joint will be poured a minimum of 12 hours before the slab is poured.

Sheet metal shall be in accordance with Structural Grade 40 and coating designation of G165 of ASTM A653.

All U-bars in diaphragms are to be placed parallel to ℄ Roadway.

See Sheet No. 10 for hole locations at end of beams



DETAIL A

CONCRETE DIAPHRAGMS DETAILS AT INTERMEDIATE BENTS NO. 2 & 3

Detailed Sept. 2024
Checked Sept. 2024

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ADAM N. RUTZ NUMBER PE-2015000599 PROFESSIONAL ENGINEER
STATE OF MISSOURI
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	11

COUNTY RIPLEY

JOB NO. J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9390

DESCRIPTION	DATE

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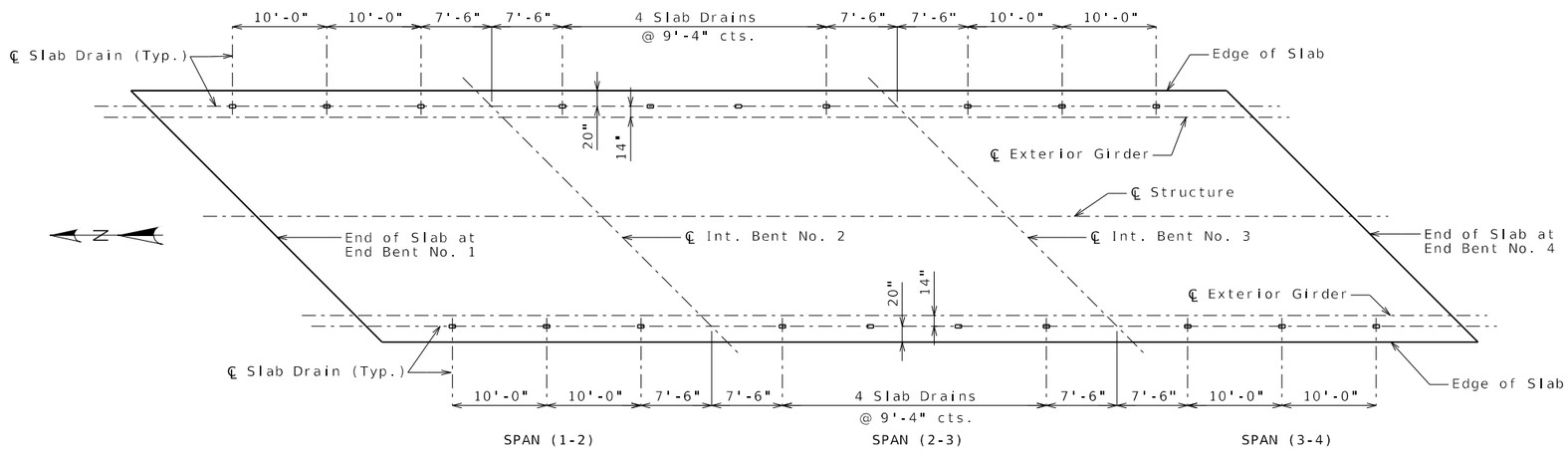
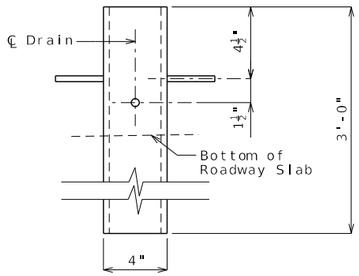
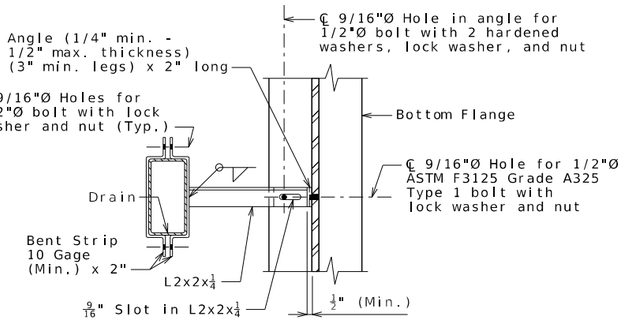


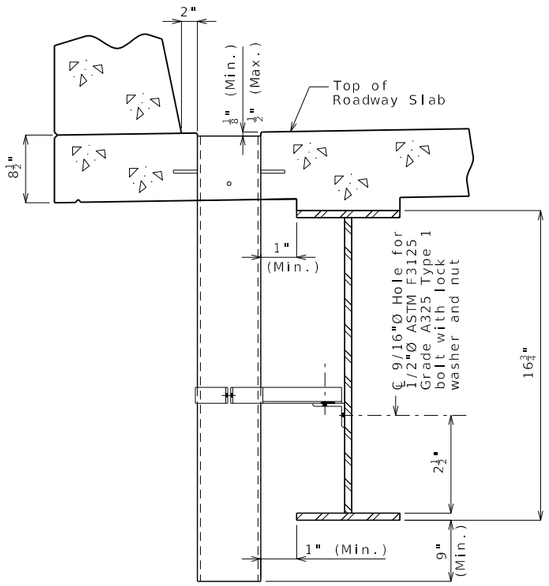
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



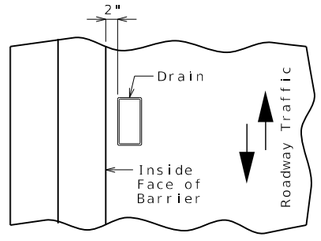
ELEVATION OF DRAIN



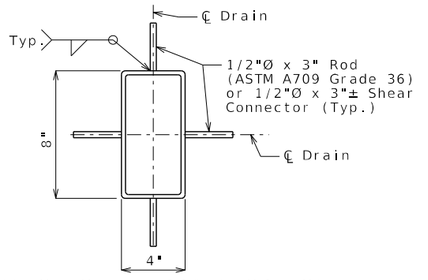
PART SECTION SHOWING BRACKET ASSEMBLY



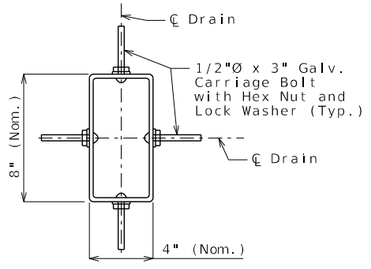
PART SECTION NEAR DRAIN



PART PLAN OF SLAB AT DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

The 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.

The bolt hole for the bracket assembly attachment shall be located on the wide flange beam shop drawings.

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.

SLAB DRAINS

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	12

COUNTY: RIPLEY
JOB NO.: J9S3817
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9390

DESCRIPTION	DATE

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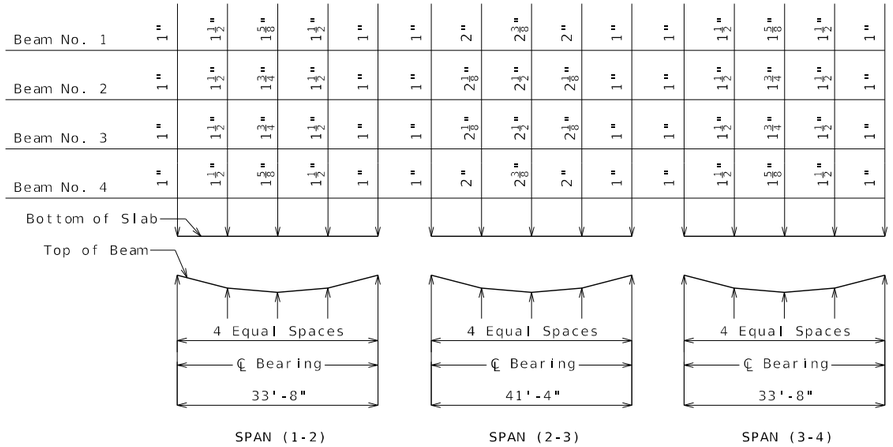
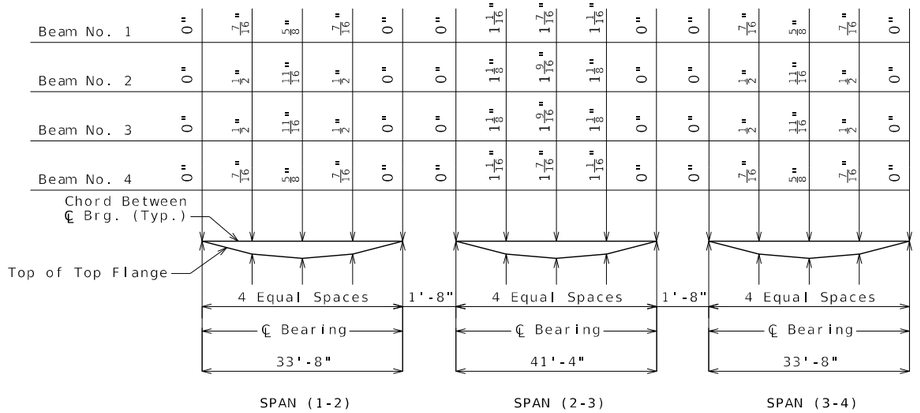
OF AUTHORITY: 001528
TWM ENGINEERING & GEOSPATIAL SERVICES



THEORETICAL SLAB HAUNCHING DIAGRAM (AFTER BARRIER PLACEMENT)

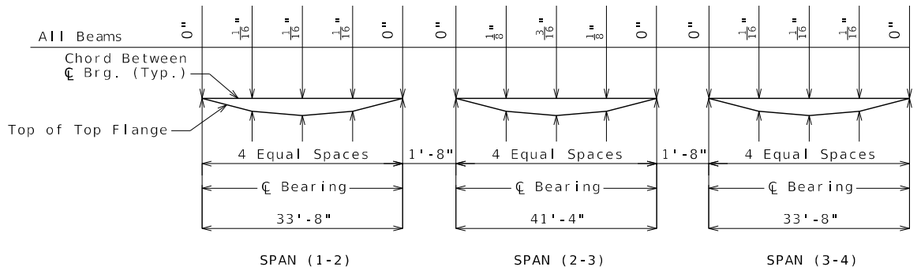
Haunching is estimated based on grade and bent elevations and Dead Load Deflection shown. If elevations or deflections in the field vary, an adjustment of the slab haunches shall be necessary in order to maintain a constant 8 1/2" slab thickness.

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



TOTAL DEAD LOAD DEFLECTION

Dead load deflection includes weight of structural steel, concrete slab, and barrer.



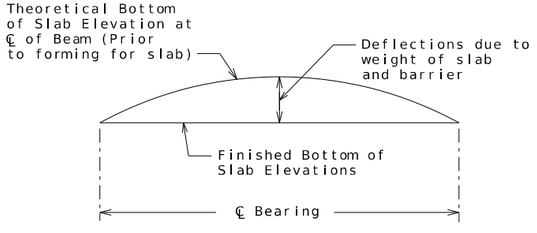
STEEL DEAD LOAD DEFLECTION

Dead Load Deflection includes weight of Structural Steel only.

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

Beam Number	Span (1-2) (33'-8" ℄ Brg. - ℄ Brg.)					Span (2-3) (41'-4" ℄ Brg. - ℄ Brg.)					Span (3-4) (33'-8" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	297.78	297.82	297.83	297.82	297.78	297.78	297.86	297.89	297.86	297.78	297.78	297.82	297.83	297.82	297.78
2	297.92	297.96	297.97	297.96	297.92	297.92	298.01	298.04	298.01	297.92	297.92	297.96	297.97	297.96	297.92
3	297.92	297.96	297.97	297.96	297.92	297.92	298.01	298.04	298.01	297.92	297.92	297.96	297.97	297.96	297.92
4	297.78	297.82	297.83	297.82	297.78	297.78	297.86	297.89	297.86	297.78	297.78	297.82	297.83	297.82	297.78

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



TYPICAL SLAB ELEVATIONS DIAGRAM

SLAB ELEVATIONS, DEAD LOAD DEFLECTIONS AND HAUNCHING

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 13
COUNTY RIPLEY
JOB NO. J9S3817
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9390

DESCRIPTION | DATE

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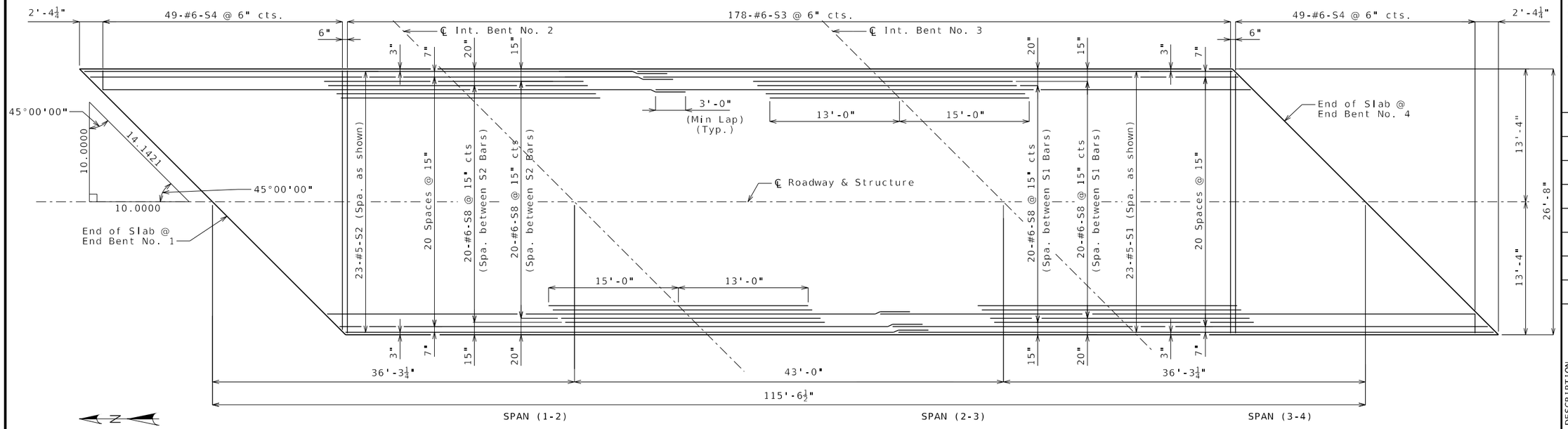
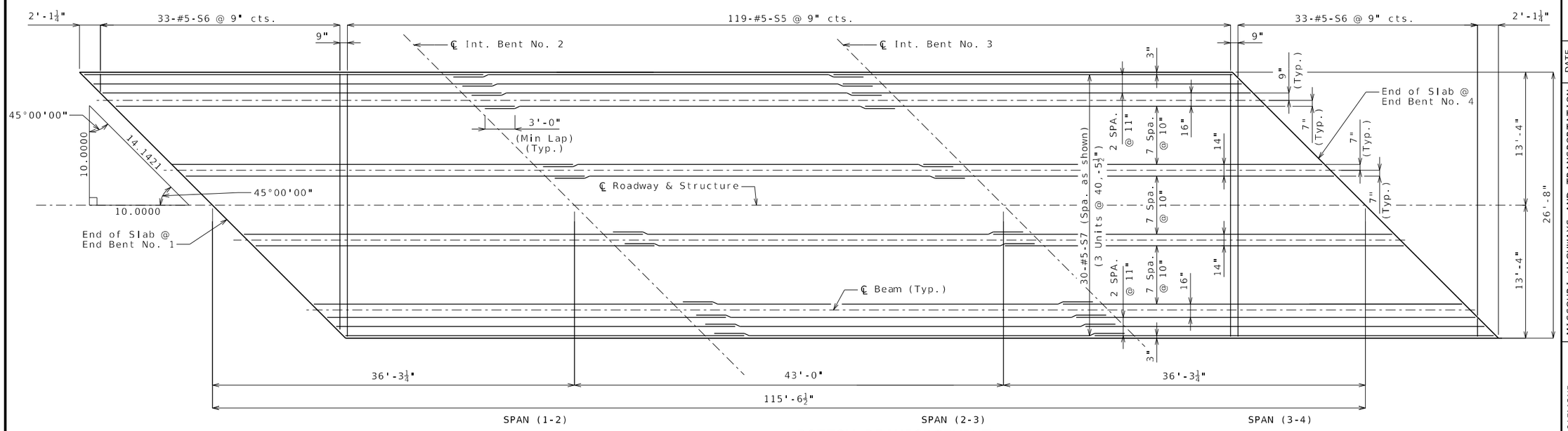


TOP REINFORCEMENT



BOTTOM REINFORCEMENT

Notes:

Longitudinal slab dimensions are measured horizontally.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 15.

For Details and Reinforcement of Safety Barrier Curb not shown, see Sheets No, 16 & 17.

For Theoretical Slab Haunching Diagram, see Sheet No. 13.

For Theoretical Bottom of Slab Elevations, see Sheet No. 13.

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

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Sept. 2024
Checked Sept. 2024

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

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ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	14

COUNTY RIPLEY

JOB NO. J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9390

DESCRIPTION

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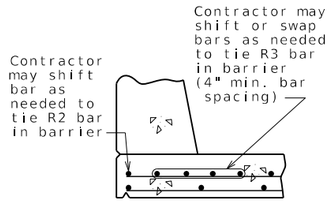
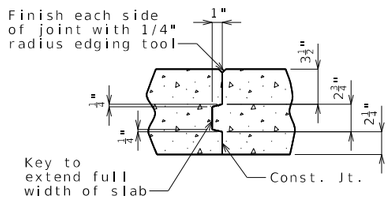
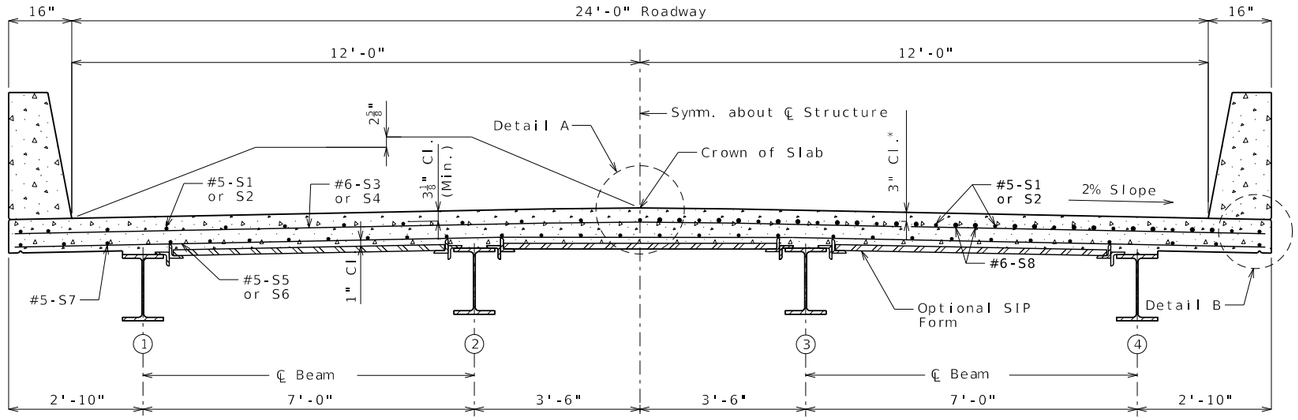


OPTIONAL SHIFTING TOP BARS AT BARRIER



SLAB CONSTRUCTION JOINT

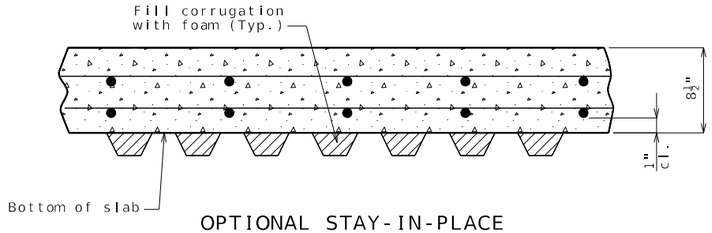


HALF SECTION NEAR MIDSPAN

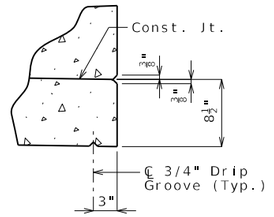
HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB

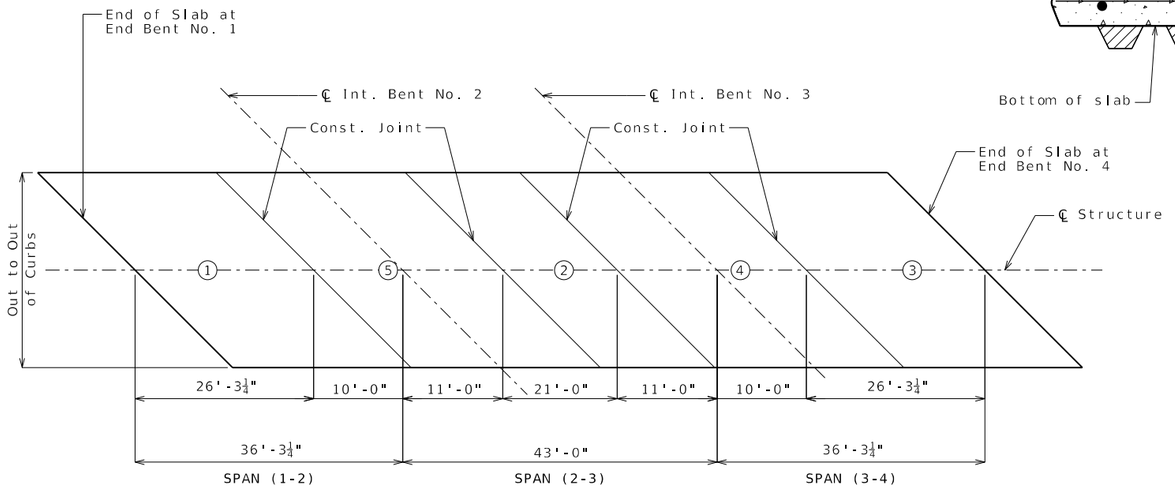
* to #6 S8 bars



OPTIONAL STAY-IN-PLACE FORM DETAILS



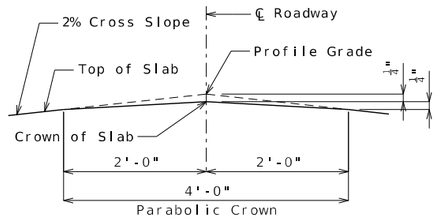
DETAIL B



	Sequence of Pours					Min. Rate of Pour Cu. Yds. / Hr	
	Direction					With Retarder	No Retarder
Basic Sequence	1	2	3	4	5	25	25
	Either Direction						
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.							
Alternate "A" Pours	1		5 + 2		4 + 3	25	25
	End to 5		1 to 4		2 to End		
Alternate "B" Pours	1 + 5 + 2			4 + 3		25	25
	End to 4			2 to End			
Alternate "C" Pours	1 + 5 + 2 + 4 + 3					25	25
	End to End						

The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

SLAB POURING SEQUENCE



DETAIL A

Notes:

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

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

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

Detailed Sept. 2024
Checked Sept. 2024

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

SLAB DETAILS

Sheet No. 15 of 25

STATE OF MISSOURI
ADAM N. RUTZ NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	15

COUNTY RIPLEY

JOB NO. J9S3817

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9390

DESCRIPTION | DATE

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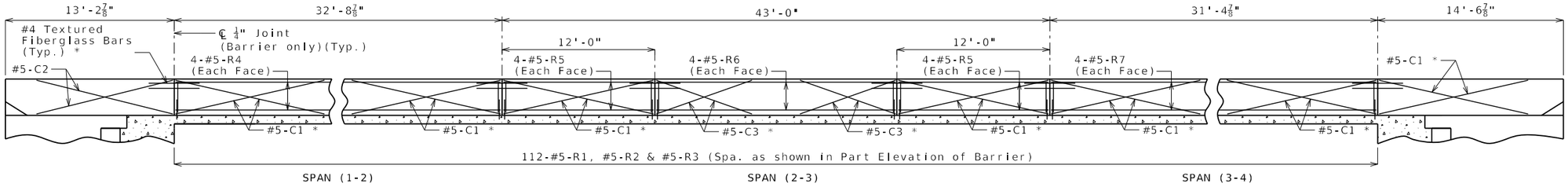
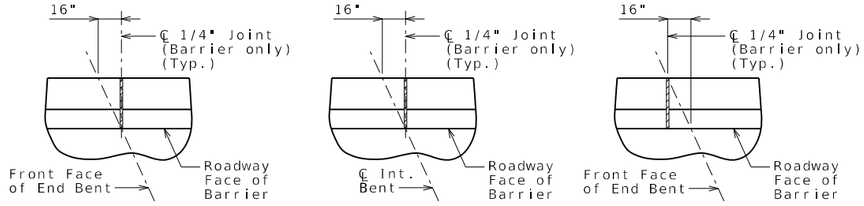


ELEVATION OF BARRIER

(Left barrier shown,right barrier similar)

Longitudinal dimensions are horizontal.



(AT END BENT 1)

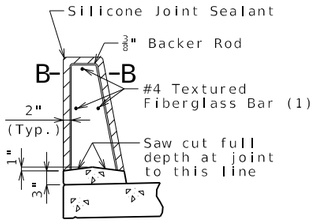
Left barrier shown, right barrier at End Bent 4 similar.

(AT INTERMEDIATE BENT)

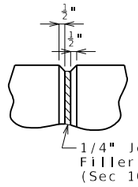
PART PLAN SHOWING JOINT LOCATION

(AT END BENT 4)

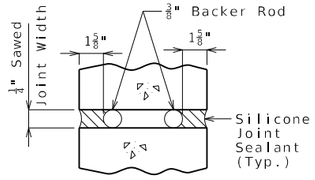
Left barrier shown, right barrier at End Bent 1 similar.



SECTION THRU SAW CUT JOINT



PART ELEVATION AT FORMED JOINT



SECTION B-B

General Notes:

* Slip-formed option only.

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

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

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

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

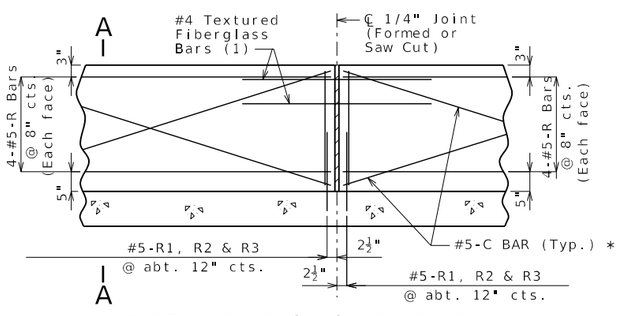
Concrete in barrier shall be Class B-1.

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

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

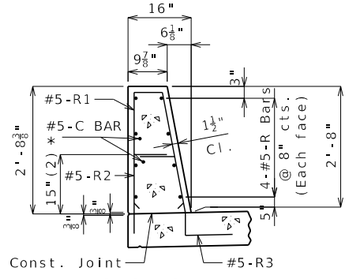
Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

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



PART ELEVATION OF BARRIER

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

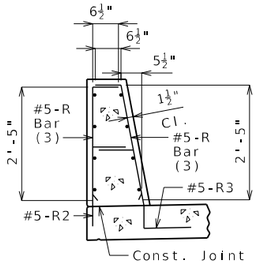


SECTION A-A

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

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

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

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

TYPE H BARRIER

STATE OF MISSOURI
ADAM N. RUTZ NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	16

COUNTY: RIPLEY

JOB NO.: J9S3817

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9390

DESCRIPTION	DATE

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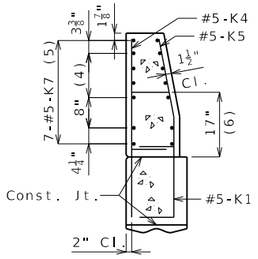
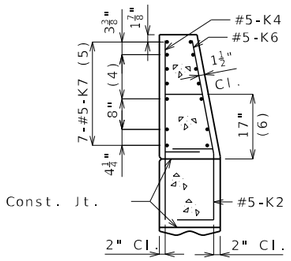
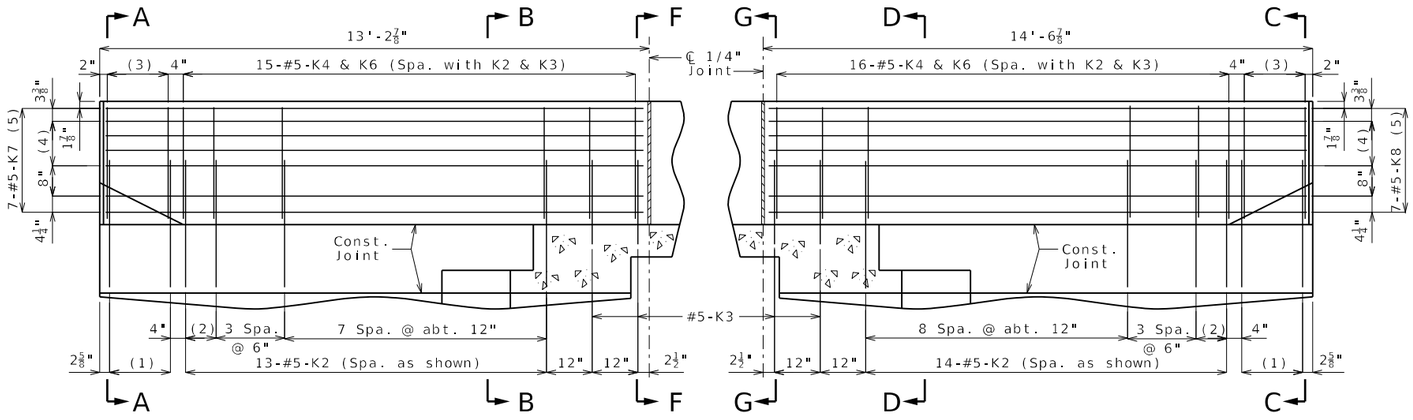


SECTION A-A



SECTION B-B



PART ELEVATION

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

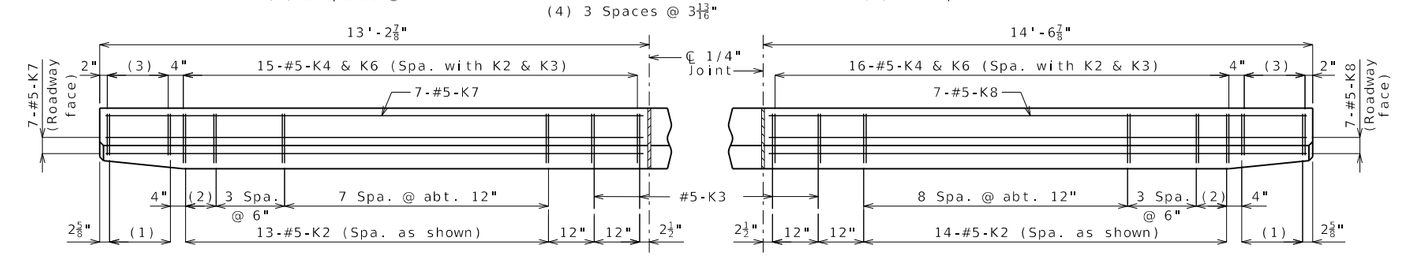
(2) 2 Spaces @ 4"

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

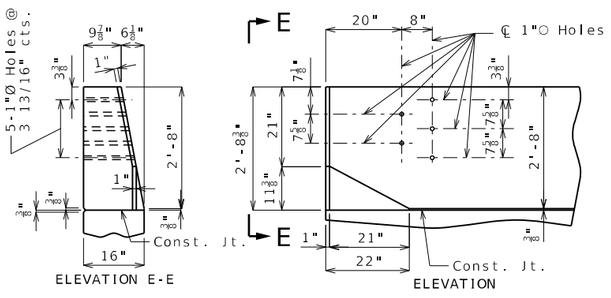
(4) 3 Spaces @ $3\frac{13}{16}$"

(5) Spaced as shown, each face

(6) To top of bar

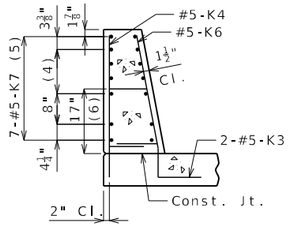


PART PLAN

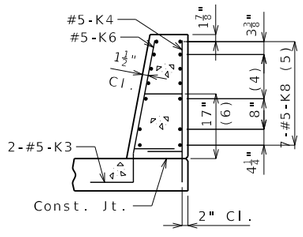


ELEVATION E-E

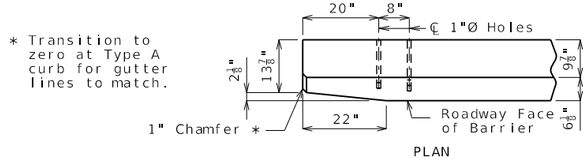
ELEVATION



SECTION F-F

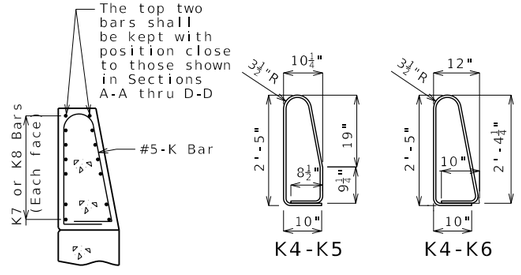


SECTION G-G



PLAN

DETAILS OF GUARD RAIL ATTACHMENT



PERMISSIBLE ALTERNATE SHAPES

(Other K bars not shown for clarity)

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

All dimensions are out to out.

General Notes:

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

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 17
COUNTY RIPLEY
JOB NO. J9S3817
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9390

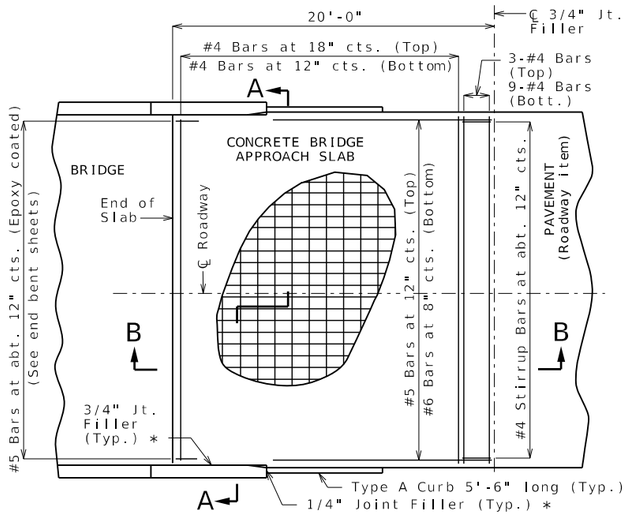
DESCRIPTION | DATE

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

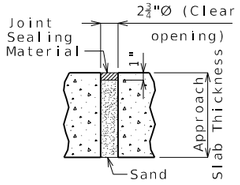
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

3316 LEMONE INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
www.twm-inc.com
MISSOURI CERTIFICATE OF AUTHORITY: 001528

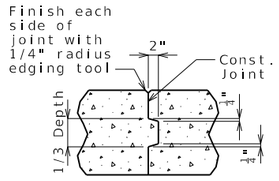
TWM ENGINEERING & GEOSPATIAL SERVICES



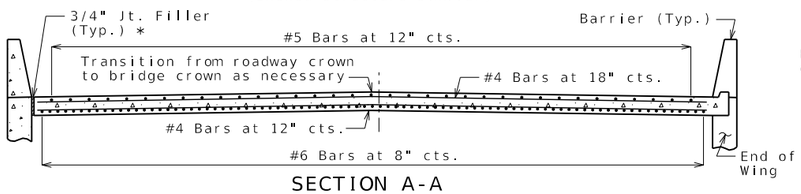
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



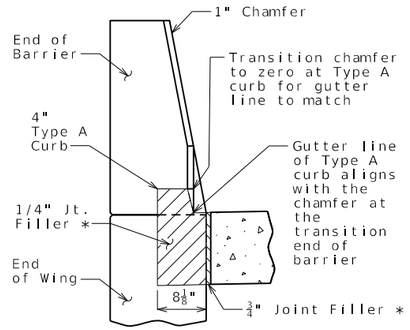
UNDERSEAL ACCESS HOLE DETAIL
(If required)



CONSTRUCTION JOINT DETAIL



SECTION A-A



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

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

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

General Notes:

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

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

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

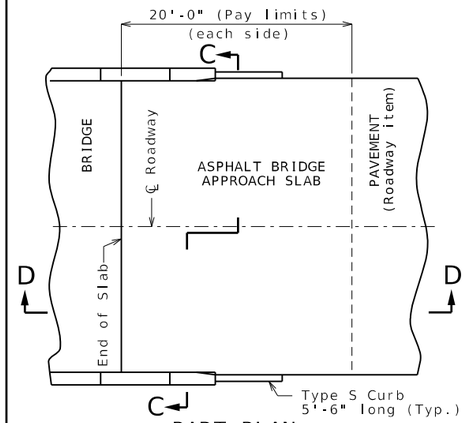
☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

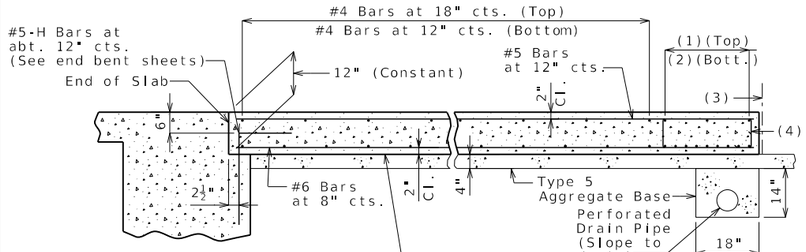
Notes For Asphalt Slab Only:

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

Application of tack is required between lifts per Sec 403.



PART PLAN
(Squared structure shown, skewed structure similar)



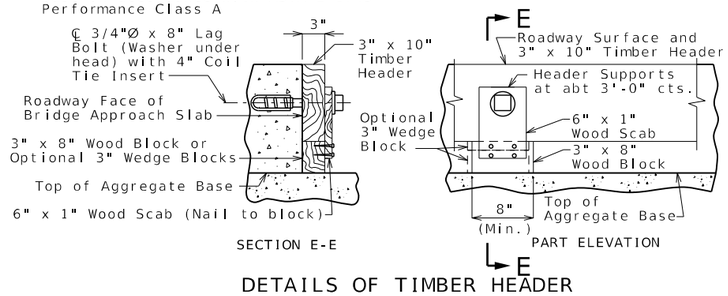
SECTION B-B

(1) 3-#4 Bars

(2) 9-#4 Bars

(3) ℄ 3/4" Jt. Filler

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

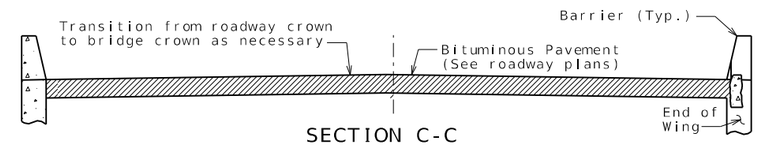


SECTION E-E

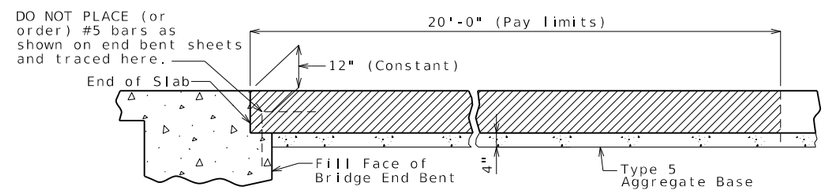
PART ELEVATION

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

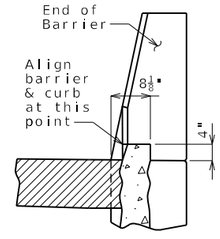
OPTIONAL CONCRETE SLAB



SECTION C-C



SECTION D-D



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

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

BRIDGE APPROACH SLAB (MINOR)

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	18

COUNTY RIPLEY

JOB NO. J9S3817

CONTRACT ID.

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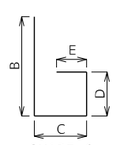
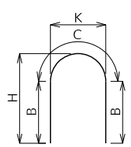


SHAPE 6
or 6S



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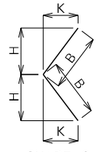

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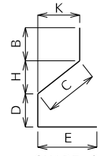

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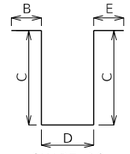

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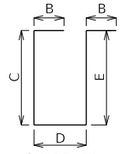

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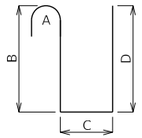

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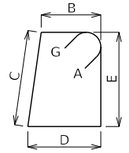

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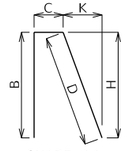

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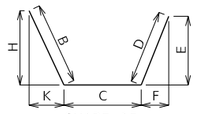

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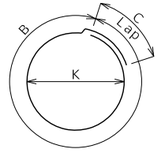

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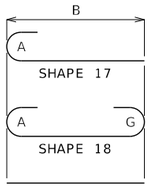
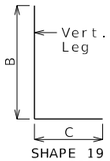


SHAPE 17
SHAPE 18
SHAPE 20



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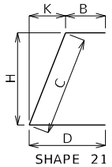

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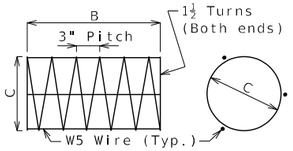

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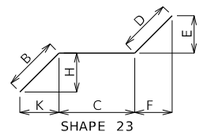

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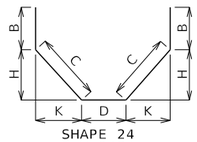

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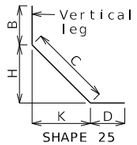

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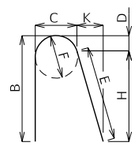

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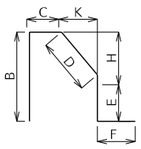

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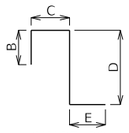

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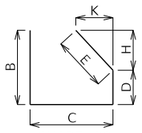

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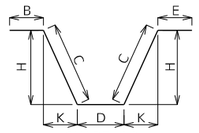

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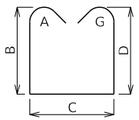

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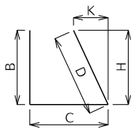

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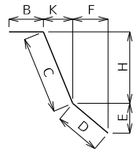

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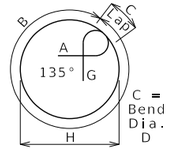

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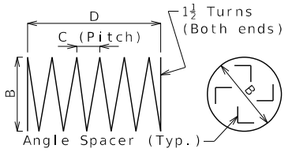

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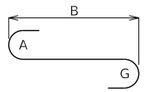
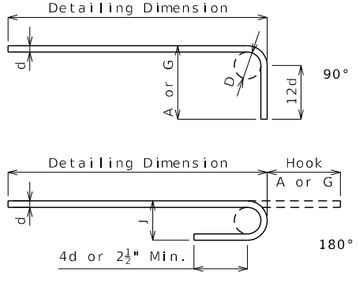


SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¾"	28½"

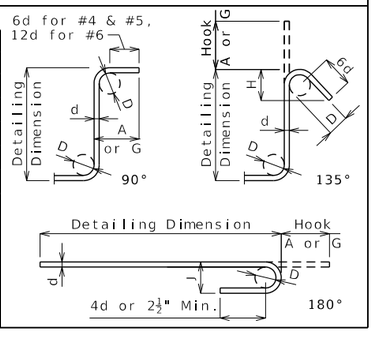


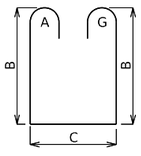
Stirrup Pin Bend Shapes (S)

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

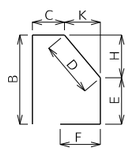
Applicable for all grades of steel.

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





SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)

		Substructure		Superstructure				Entire Bridge	
				Slab			Slip		
	Size	Plain	Epoxy	Plain	Epoxy	Barrier	Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	214	0	0	501	0	0	214	501
	5	1,488	0	0	12,767	6,336	461	1,488	19,564
	6	731	0	0	19,634	0	0	731	19,634
	7	0	0	0	0	0	0	0	0
	8	1,670	0	0	983	0	0	1,670	983
	9	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0
By Type		4,103	0	0	33,885	6,336	461	4,103	40,682

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 19
COUNTY RIPLEY
JOB NO. J9S3817
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9390

DESCRIPTION | DATE

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

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

3316 LEMONE INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
www.twm-inc.com
MISSOURI CERTIFICATE OF AUTHORITY: 001528
TWM ENGINEERING & GEOSPATIAL SERVICES

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		Substructure													
		Int Bents 2 & 3													
44	6 D200	BEAM		20		2 6.00							2 6	2 6	165
16	8 H200	BEAM		18		37 3.00							39 1	39 1	1,670
8	6 H201	BEAM		20		37 3.00							37 3	37 3	448
6	4 H202	BEAM		18		6 8.00							7 8	7 8	31
16	6 H203	BEAM		10S			12.00	3 3.00					5 3	4 11	118
80	4 P400	CIP PILE		34S		2 7.50	2.00				10.00		3 6	3 5	183
72	5 U200	BEAM		13S		3 3.00	2 9.00	3 3.00	2 9.00				12 11	12 8	951
10	5 U201	BEAM		10S			2 9.00	3 3.00					8 9	8 6	89
20	5 U202	BEAM		10S			6.00	3 3.00					4 3	4 0	83
60	5 V400	CIP PILE		17		5 3.00							5 10	5 10	365
		Superstructure													
		End Bents 1 & 4													
12	6 F100	WING BRACE	E	23S		2 3.00	3 6.00	14.00	13.00	5.25	2 1.00	10.25	6 11	6 9	122
4	6 F101	DIAPHRAGM	E	14S			3 9.00	4 0.00			2 10.00	2 10.00	7 9	7 9	47
12	6 F102	WING BRACE	E	23S		14.00	8 0.00	2 3.00	10.25	2 1.00	5.25	13.00	11 5	11 5	206
4	6 F103	DIAPHRAGM	E	21S			6 5.00	3 9.00			4 6.50	4 6.50	10 2	9 6	57
44	6 H100	BM & DIAPH	E	20		37 5.00							37 5	37 5	2,473
32	8 H101	WING	E	20		11 6.00							11 6	11 6	983
56	6 H102	WING	E	19S		10 8.00	12.00						11 8	11 6	967
6	6 H103	BEAM	E	18		9 4.00							10 9	10 9	97
64	4 P400	CIP PILE	E	34S		2 7.50	2.00				10.00		3 6	3 5	146
56	5 U100	BEAM	E	37S		3 9.50	3 10.75						12 5	12 3	715
8	5 U101	BEAM	E	13S		3 10.75	2 8.00	3 10.75	2 8.00				14 1	13 9	115
16	5 U102	BEAM	E	10S			2 8.00	3 10.75					9 3	9 0	150
92	6 U103	DIAPHRAGM	E	19S		22.00	5 7.00						7 5	7 3	1,002
60	5 U104	DIAPHRAGM	E	37S		20.00	3 2.25						7 6	7 3	454
60	6 U105	DIAPHRAGM	E	19S		11.50	3 10.75						4 10	4 8	421
48	5 U106	DIAPHRAGM	E	19S		18.00	15.00						2 9	2 8	134
8	5 V100	BM & DIAPH	E	17		3 9.00							4 4	4 4	36
24	6 V101	DIAPHRAGM	E	20		11.00							0 11	0 11	33
80	6 V102	WING	E	20		4 10.00							4 10	4 10	581
48	5 V400	CIP PILE	E	17		5 3.00							5 10	5 10	292
		Int Diaphragms													
12	6 H500	DIAPHRAGM	E	20		33 11.00							33 11	33 11	611
84	4 U500	DIAPHRAGM	E	28S			18.00	19.50	3 5.00				6 6	6 4	355
40	6 U501	DIAPHRAGM	E	28S			2 2.00	19.50	3 5.00				7 2	6 11	416
12	6 U502	DIAPHRAGM	E	21S		18.00	3 3.50	18.00			2 4.00	2 4.00	6 4	5 7	101
		Slab													
23	5 S1	SLAB	E	20		58 4.00							58 4	58 4	1,399
23	5 S2	SLAB	E	20		60 0.00							60 0	60 0	1,439
178	6 S3	SLAB	E	20		26 5.00							26 5	26 5	7,063
98	6 S4	SLAB	E	20	V	26 1.00							26 1	26 1	2,073
		INCREMENT = 6 INCH				2 1.00							2 1	2 1	
119	5 S5	SLAB	E	20		26 5.00							26 5	26 5	3,279
66	5 S6	SLAB	E	20	V	25 10.00							25 10	25 10	952
		INCREMENT = 9 INCH				22.00							1 10	1 10	
90	5 S7	SLAB	E	20		40 6.00							40 6	40 6	3,802
80	6 S8	SLAB	E	20		28 0.00							28 0	28 0	3,364

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		Type H Barrier													
20	5 K1	BARRIER	E	38S		3 5.50	9.25	5.25	3 0.25	9.50	5.25	1.00	8 6	8 2	170
54	5 K2	BARRIER	E	38S		3 5.50	9.25	14.50	2 3.25	10.00	14.25	2.75	8 7	8 3	465
8	5 K3	BARRIER	E	27S		22.50	9.25	14.50	7.75	12.00	14.25	2.75	5 6	5 2	43
82	5 K4	BARRIER	E	19S		2 5.00	10.00						3 3	3 2	271
20	5 K5	BARRIER	E	38S				19.25	9.50	8.25	18.75	4.25	3 1	3 0	63
62	5 K6	BARRIER	E	21S			2 5.00	10.00			2 4.25	6.00	3 3	3 1	199
28	5 K7	BARRIER	E	20		12 11.00							12 11	12 11	377
28	5 K8	BARRIER	E	20		14 3.00							14 3	14 3	416
224	5 R1	BARRIER	E	14S		2 5.00	6.50	2 5.50			2 5.00	5.50	5 5	5 3	1,227
224	5 R2	BARRIER	E	19S		20.50	9.50						2 6	2 5	565
224	5 R3	BARRIER	E	27S			9.50	15.25	5.00	12.00	15.00	3.00	3 6	3 4	779
16	5 R4	BARRIER	E	20		32 5.00							32 5	32 5	541
32	5 R5	BARRIER	E	20		11 8.00							11 8	11 8	389
16	5 R6	BARRIER	E	20		18 8.00							18 8	18 8	312
16	5 R7	BARRIER	E	20		31 1.00							31 1	31 1	519
		Slip Form Option													
28	5 C1	BARRIER	E	20		12 0.00							12 0	12 0	350
4	5 C2	BARRIER	E	20		10 6.00							10 6	10 6	44
8	5 C3	BARRIER	E	20		8 0.00							8 0	8 0	67

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. 19.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

BILL OF REINFORCING STEEL

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 20
COUNTY RIPLEY
JOB NO. J9S3817
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9390

DESCRIPTION | DATE

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

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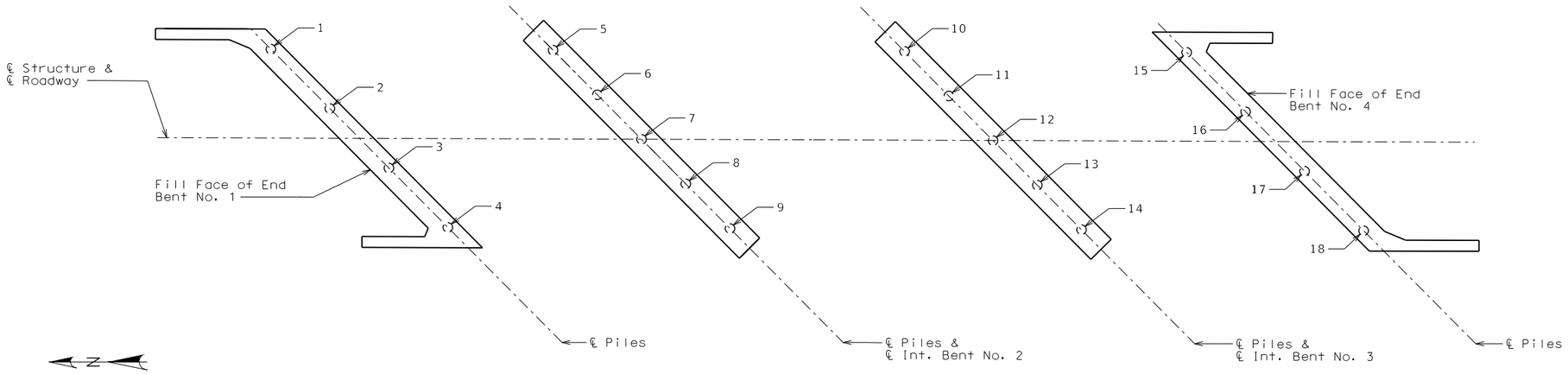

PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No. 1
1					
2					
3					
4					
					Int. Bent No.2
5					
6					
7					
8					
9					

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

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

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE DATA

Detailed Sept. 2024
Checked Sept. 2024

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

ADAM N. RUTZ NUMBER PE-2015000599 STATE OF MISSOURI PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 21
COUNTY RIPLEY
JOB NO. J9S3817
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9390

DESCRIPTION | DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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(573) 442-6474
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MISSOURI CERTIFICATE OF AUTHORITY: 001528
TWM ENGINEERING & GEOSPATIAL SERVICES

Missouri Department of Transportation
Construction and Materials

BORING NO. 101
Page 1 of 4

Job No.: J9S3817 | County: Ripley | Route: 142
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: 44 + 44 | Northing: 261142.7097 | Date of Work: 08/23/23-08/23/23
Offset: C/L | Easting: 787510.0059 | Depth to Water:
Elevation: 298.9 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,Auger Cuttings
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
0		0.0-12.2' Gray, CLAYEY SAND (SC), soft, dry, fine grained	295					LL = 21 PL = 13 D95 = 0.401 D50 = 8.84
5			290					
10		12.2-31.6' Brownish gray, SAND (SC), stiff, moist	285					LL = NP D95 = 0.391 D50 = 0.163
15			280					
20			275					
25								

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

Coordinate System: U.S. State Plane 1983 | Coordinate Zone: Missouri Central | Coordinate Proj. Factor: 1
Coordinate Datum: NAD 83 (CONUS) | Coordinate Units: U.S. Survey Feet

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

Geologic formations encountered:
Are pinnacles, crevices or cavities anticipated? No
Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

(Continued Next Page)

Missouri Department of Transportation
Construction and Materials

BORING NO. 101
Page 2 of 4

Job No.: J9S3817 | County: Ripley | Route: 142
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: 44 + 44 | Northing: 261142.7097 | Date of Work: 08/23/23-08/23/23
Offset: C/L | Easting: 787510.0059 | Depth to Water:
Elevation: 298.9 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,Auger Cuttings
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
25		12.2-31.6' Brownish gray, SAND (SC), stiff, moist *(continued)*	270					
30		31.6-84.9' Brownish gray, SAND, wet, clean	265					
35			260					
40			255					
45			250					
50								

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

Coordinate System: U.S. State Plane 1983 | Coordinate Zone: Missouri Central | Coordinate Proj. Factor: 1
Coordinate Datum: NAD 83 (CONUS) | Coordinate Units: U.S. Survey Feet

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Geologic formations encountered:
Are pinnacles, crevices or cavities anticipated? No
Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

(Continued Next Page)

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 1/30/24 15:52 - Z:\SG-DISTRICT\GINT\SOUTHEAST DISTRICT\PROJECT FILES\CORBIN CARLTON P\GPJ\SJ9S3817 RIPLEY ROUTE W OVER DRAINAGE DITCH #1.GPJ

ADAM N. RUTZ NUMBER PE-2015000599 — STATE OF MISSOURI — PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED: 12/5/2024
ROUTE: W | STATE: MO
DISTRICT: BR | SHEET NO.: 22
COUNTY: RIPLEY
JOB NO.: J9S3817
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9390

DESCRIPTION | DATE

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

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

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COLUMBIA, MO 65201
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www.twm-inc.com
MISSOURI CERTIFICATE OF AUTHORITY: 001528
TWM ENGINEERING & GEOSPATIAL SERVICES

BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

P:\2022\221411C\4 CADD - DWG\4.4 Struc\B_A9390_022_J9S3817_Boring_Data.dgn 10:18:08 AM 12/5/2024

Missouri Department of Transportation
Construction and Materials

BORING NO. 101
Page 3 of 4

Job No.: J9S3817 | County: Ripley | Route: 142
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: 44 + 44 | Northing: 261142.7097 | Date of Work: 08/23/23-08/23/23
Offset: C/L | Easting: 787510.0059 | Depth to Water:
Elevation: 298.9 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,Auger Cuttings
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
50		31.6-84.9' Brownish gray, SAND, wet, clean *(continued)*						
55			245					
60			240					
65			235					
70			230					
75			225					

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

Coordinate System: U.S. State Plane 1983 | Coordinate Zone: Missouri Central | Coordinate Proj. Factor: 1
Coordinate Datum: NAD 83 (CONUS) | Coordinate Units: U.S. Survey Feet

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

Geologic formations encountered:
Are pinnacles, crevices or cavities anticipated? No
Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

(Continued Next Page)

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 1/30/24 15:52 - Z:\SG-DISTRICTG\INTS\SOUTHEAST DISTRICT\PROJECT FILES\CORBIN CARLTON PGR'S\J9S3817 RIPLEY ROUTE W OVER DRAINAGE DITCH #1.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. 101
Page 4 of 4

Job No.: J9S3817 | County: Ripley | Route: 142
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: 44 + 44 | Northing: 261142.7097 | Date of Work: 08/23/23-08/23/23
Offset: C/L | Easting: 787510.0059 | Depth to Water:
Elevation: 298.9 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,Auger Cuttings
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
75		31.6-84.9' Brownish gray, SAND, wet, clean *(continued)*						
80			220					
85			215					
		84.9-88.6' GRAVELLY SAND						
		Bottom of borehole at 88.6 feet.						

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

Coordinate System: U.S. State Plane 1983 | Coordinate Zone: Missouri Central | Coordinate Proj. Factor: 1
Coordinate Datum: NAD 83 (CONUS) | Coordinate Units: U.S. Survey Feet

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

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Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 1/30/24 15:52 - Z:\SG-DISTRICTG\INTS\SOUTHEAST DISTRICT\PROJECT FILES\CORBIN CARLTON PGR'S\J9S3817 RIPLEY ROUTE W OVER DRAINAGE DITCH #1.GPJ

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED: 12/5/2024
ROUTE: W | STATE: MO
DISTRICT: BR | SHEET NO.: 23
COUNTY: RIPLEY
JOB NO.: J9S3817
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9390

DESCRIPTION | DATE

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

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

3316 LEMONE INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
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MISSOURI CERTIFICATE OF AUTHORITY: 001528
TWM ENGINEERING & GEOSPATIAL SERVICES

BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

Missouri Department of Transportation
Construction and Materials

BORING NO. 401
Page 1 of 2

Job No.: J9S3817 | County: Ripley | Route: 142
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: | Northing: 261011.1 | Date of Work: 08/23/23-08/23/23
Offset: | Easting: 787450.18 | Depth to Water:
Elevation: 298.8 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
0		0.0-5.5' Brown, LEAN CLAY, dry, with shoulder rock armoring	295					
5		5.5-11.8' Gray, CLAYEY SAND, dry, fine grained	290					
10		11.8-20.1' Brownish gray, SAND, moist, clean	285					
15			280					
20		20.1-28.1' Brownish gray, SAND, wet, clean	275					
25								

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

Coordinate System: U.S. State Plane 1983 | Coordinate Zone: Missouri Central | Coordinate Proj. Factor: 1
Coordinate Datum: NAD 83 (CONUS) | Coordinate Units: U.S. Survey Feet

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

Geologic formations encountered:
Are pinnacles, crevices or cavities anticipated? No
Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

(Continued Next Page)

Missouri Department of Transportation
Construction and Materials

BORING NO. 401
Page 2 of 2

Job No.: J9S3817 | County: Ripley | Route: 142
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: | Northing: 261011.1 | Date of Work: 08/23/23-08/23/23
Offset: | Easting: 787450.18 | Depth to Water:
Elevation: 298.8 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
25		20.1-28.1' Brownish gray, SAND, wet, clean *(continued)*						
		Bottom of borehole at 28.1 feet.						

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

Coordinate System: U.S. State Plane 1983 | Coordinate Zone: Missouri Central | Coordinate Proj. Factor: 1
Coordinate Datum: NAD 83 (CONUS) | Coordinate Units: U.S. Survey Feet

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

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Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 12/3/24 15:52 - Z:\SG-DISTRICTS\GINT\SOUTHEAST DISTRICT\PROJECT FILES\CORBIN CARLTON PGR'S\J9S3817 RIPLEY ROUTE W OVER DRAINAGE DITCH #1.GPJ

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED: 12/5/2024
ROUTE: W | STATE: MO
DISTRICT: BR | SHEET NO.: 24
COUNTY: RIPLEY
JOB NO.: J9S3817
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9390

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
3316 LEMONE INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
www.twm-inc.com
MISSOURI CERTIFICATE OF AUTHORITY: 001528
TWM ENGINEERING & GEOSPATIAL SERVICES

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

BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

P:\2022\221411C\4 CADD - DWG\4.4 Struc\B_A9390_024_J9S3817_Boring_Data.dgn 10:24:05 AM 12/5/2024

KEY TO SYMBOLS

Missouri Department of Transportation
198 Route Y
Fruitland Missouri

CLIENT Southeast District
PROJECT NAME Bridge Replacement Over Drainage Ditch 1
PROJECT NUMBER J9S3817
PROJECT LOCATION Ripley County

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)

- USCS Low Plasticity Clay
- USCS Poorly-graded Sandy Gravel
- USCS Clayey Sand
- USCS Well-graded Sand

SAMPLER SYMBOLS

- Auger Cuttings

WELL CONSTRUCTION SYMBOLS

ABBREVIATIONS

LL	- LIQUID LIMIT (%)	TV	- TORVANE
PI	- PLASTIC INDEX (%)	PID	- PHOTOIONIZATION DETECTOR
W	- MOISTURE CONTENT (%)	UC	- UNCONFINED COMPRESSION
DD	- DRY DENSITY (PCF)	ppm	- PARTS PER MILLION
NP	- NON PLASTIC		
-200	- PERCENT PASSING NO. 200 SIEVE	▽	Water Level at Time of Drilling
PP	- POCKET PENETROMETER (TSF)	▼	Water Level at End of Drilling
Qu	- UNCONFINED COMPRESSIVE STRENGTH (PSF)	▽	Water Level after Drilling

KEY TO SYMBOLS - MODOT 20150728.GDT - 1/30/24 15:53 - Z:\SG-DISTRICT\GINT\SOUTHEAST DISTRICT\PROJECT FILES\CORBIN CARLTON PGP\SJ9S3817 RIPLEY ROUTE W OVER DRAINAGE DITCH #1.GPJ

ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
STATE OF MISSOURI

Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 25
COUNTY RIPLEY
JOB NO. J9S3817
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9390

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

P:\2022\221411C\4 CADD - DWG\4.4 Struc\B_A9390_025_J9S3817_Boring_Data.dgn 10:26:13 AM 12/5/2024

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

RIPLEY COUNTY
T22N, R4E

DESIGN DESIGNATION

A.A.D.T. - 2025 = 280
A.A.D.T. - 2045 = 350
T = 48%
V = 55 M.P.H.

FUNCTIONAL CLASSIFICATION - MAJOR COLLECTOR

NORMAL RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION EASEMENTS WILL BE ACQUIRED WITH THIS PROJECT.

DISCLAIMER:
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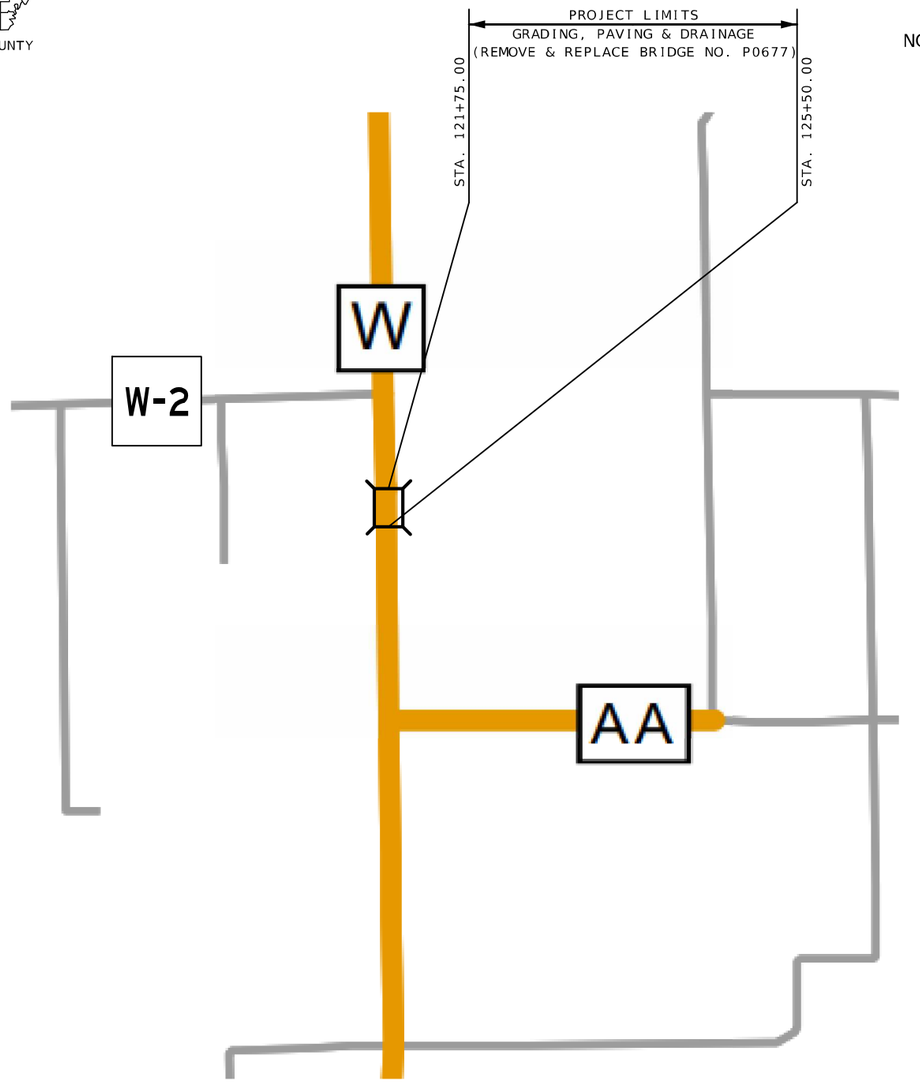
CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

KEY MAP
LOCATION OF RIPLEY COUNTY

NOT TO SCALE



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INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (1 SHEET)	2
QUANTITIES (QU) (3 SHEETS)	3
PLAN-PROFILE (PP)	4
RIGHT OF WAY (RW)	5
REFERENCE POINTS (RP)	6
COORDINATE POINTS (CP)	6
TRAFFIC CONTROL SHEETS (TC)	7
EROSION CONTROL SHEETS (EC)	8
BRIDGE DRAWINGS (B)	
A9391	1-25
CROSS SECTIONS (XS)	1-5

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 121+75.00
END OF PROJECT	STA. 125+50.00
APPARENT LENGTH	375.00 FEET
EQUATIONS AND EXCEPTIONS:	NONE
TOTAL CORRECTIONS	0.00 FEET
NET LENGTH OF PROJECT	375.00 FEET
STATE LENGTH	0.071 MILES

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER
Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED: 7/22/2025
ROUTE: W
STATE: MO
DISTRICT: SE
SHEET NO.: 1
COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

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

REV.	DESCRIPTION	DATE

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

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ST. LOUIS, MO 63127
(314) 241-6300
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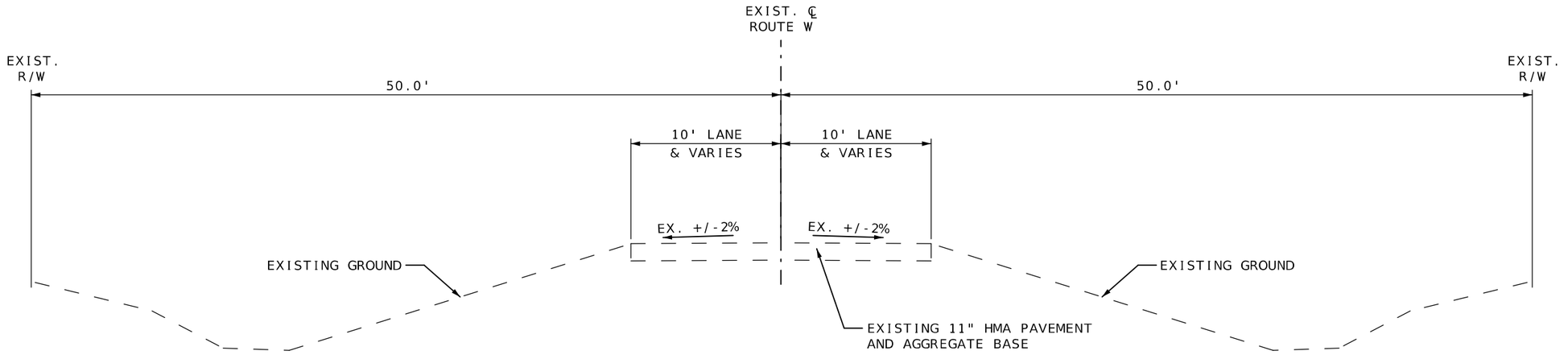
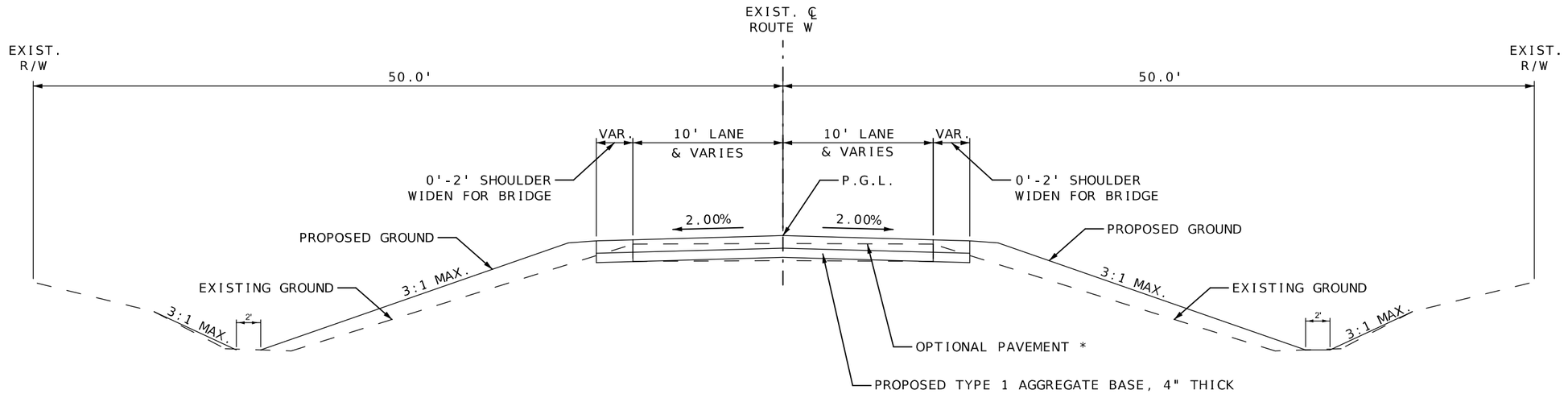
MISSOURI CERT. OF AUTHORITY: 001528

TITLE SHEET
ROUTE W
SHEET 1 OF 1



EXISTING TYPICAL SECTION ON TANGENT ROUTE W

STA. 121+75.00 TO STA. 125+50.00



PROPOSED TYPICAL SECTION ON TANGENT ROUTE W

STA. 121+75.00 TO STA. 125+50.00
(PAVEMENT LIMITS STA. 122+00.00 TO STA. 125+25.00)
(BRIDGE LIMITS STA. 123+04.60 TO STA. 124+29.55)
* PAVEMENT DRAWN AS CONCRETE OPTION

OPTIONAL PAVEMENT

(1) 8" PCCP WITH 15' JOINTS W/ 1 1/4" DOWELS
(2) 2" BP-1 (PG64-22) OVER 8" PMBB (PG64-22)

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DRAWING NOT TO SCALE

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:9/12/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED: 9/12/2025
ROUTE: W | STATE: MO
DISTRICT: SE | SHEET NO.: 2
COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

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REV.	DESCRIPTION	DATE

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105 WEST CAPITOL
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www.twm-inc.com
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TYPICAL SECTIONS
ROUTE W
SHEET 1 OF 1

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CONTRACTOR FURNISHED SURVEYING AND STAKING = 1 LUMP SUM

MOBILIZATION = 1 LUMP SUM

TYPE 2 ROCK BLANKET

SHEET	STATION	STATION	ROUTE	FURNISHING (CUYD)	PLACING (CUYD)	GEOTEXTILE (SY)	REMARKS
4	122+71.56	123+43.14	142	208.2			
4	122+71.56	123+43.14	142		208.2		
4	122+71.56	123+43.14	142			312.3	
4	122+96.72	123+07.14	142	7.4			
4	122+96.72	123+07.14	142		7.4		
4	122+96.72	123+07.14	142			11.1	
4	123+45.76	123+45.76	142	7.4			
4	123+45.76	123+45.76	142		7.4		
4	123+45.76	123+45.76	142			11.1	
4	123+71.67	123+83.78	142	7.4			
4	123+71.67	123+83.78	142		7.4		
4	123+71.67	123+83.78	142			11.1	
4	123+88.96	124+61.42	142	138.9			
4	123+88.96	124+61.42	142		138.9		
4	123+88.96	124+61.42	142			208.4	
4	124+41.12	124+54.13	142	7.4			
4	124+41.12	124+54.13	142		7.4		
4	124+41.12	124+54.13	142			11.1	
4	124+28.48	124+42.60	142	7.4			
4	124+28.48	124+42.60	142		7.4		
4	124+28.48	124+42.60	142			11.1	
			SUBTOTAL	369.3	369.3	554.0	
			PAY TOTAL	369	369	554	

GRAVEL ENTRANCE

SHEET	STATION	ROUTE	LOCATION	GRAVEL (A) OR CRUSHED STONE (B) (SY)	REMARKS
4	122+37.40	142	LT	50.0	
			SUBTOTAL	50.0	
			PAY TOTAL	50	

GRADING AND EARTHWORK

SHEET	STATION	STATION	ROUTE	LOCATION	COMPACTING IN CUT (STA.)	COMPACTING EMBANKMENT (CUYD)	CLASS A EXCAVATION (CUYD)	EMBANKMENT IN PLACE (CUYD)	REMARKS
4	121+75.00	123+25.00	W	CL	1.5	51.1	63.9	344.1	
4	124+05.00	125+50.00	W	CL	1.5	197.3	246.6	217.4	
				SUBTOTAL	3.0	248.4	310.5	561.5	
				PAY TOTAL	3.0	248	311	562	

OPTIONAL PAVEMENT

SHEET	STATION	STATION	ROUTE	LOC	LENGTH (LF)	WIDTH (LF)	AREA (SY)	REMARKS
4	122+00.00	122+84.60	W	CL	85	VARIES	211.3	10" HMA / 8" PCCP
4	124+49.55	125+25.00	W	CL	75	VARIES	188.7	10" HMA / 8" PCCP
						SUBTOTAL	400.0	
						PAY TOTAL	400.0	

TEMPORARY EROSION CONTROL

SHEET	STATION	STATION	ROUTE	LOC	SILT FENCE (LF)	ROCK DITCH CHECK (LF)	TYPE C BERM (LF)	SEDIMENT TRAP (CUYD)	SEDIMENT REMOVAL (CUYD)	REMARKS
8	122+21.73	122+71.56	W	LT	72.0				0.7	
8	122+31.16	122+65.40	W	RT		25.0				2 DITCH CHECKS AT 25' SPACING
8	122+79.18	123+43.47	W	CL			101.3		2.0	ALONG NORTH STREAM BANK
8	122+96.76	122+96.76	W	RT				10.0	0.0	AT NORTHWEST DITCH OUTFLOW
8	123+05.02	123+68.31	W	RT	63.3				0.6	
8	123+71.36	124+35.28	W	LT	64.6				0.6	
8	123+92.89	124+50.29	W	CL			90.5		1.8	ALONG SOUTH STREAM BANK
8	124+49.88	124+49.88	W	LT				10.0	0.0	AT SOUTHEAST DITCH OUTFLOW
8	124+51.00	125+02.24	W	RT	57.4				0.6	
8	124+83.30	125+19.92	W	LT		25.0				2 DITCH CHECKS AT 25' SPACING
8	125+14.59	125+14.59	W	RT				10.0	0.0	AT SOUTHWEST DITCH OUTFLOW
				SUBTOTAL	257.3	25.0	191.8	30.0	6.4	
				PAY TOTAL	257	25	192	30	6	

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	ROUTE	LOCATION	AMOUNT	DESCRIPTION
4	122+00.00		W	LT/RT	20 LF	SAW CUT
4	122+00.00	125+25.00	W	LT/RT	828 SY	PAVEMENT
4	122+31.99	122+96.94	W	LT	40.8LF	EXIST. 48" CMP
4	122+62.60	123+02.16	W	LT	6 EACH	TYPE 3 OBJECT MARKERS (12" x 36")
4	123+05.99	123+45.52	W	RT	40 LF	EXIST. 36" CMP
4	123+82.84	124+32.67	W	LT	50 LF	EXIST. 36" CMP
4	124+04.51	124+44.99	W	LT	6 EACH	TYPE 3 OBJECT MARKERS (12" x 36")
4	124+38.33	124+40.69	W	LT	3 LF	EXIST. 18" CMP
4	124+58.00	124+96.83	W	RT	41 LF	EXIST. 30" CMP
4	125+25.00		W	LT/RT	20 LF	SAW CUT
	PAYTOTAL 1 LUMP SUM					

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE W | STATE MO

DISTRICT SE | SHEET NO. 3

COUNTY
RIPLEY

JOB NO.
J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9391

DESCRIPTION

DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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(314) 241-6300
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SUMMARY OF QUANTITIES
ROUTE W
SHEET 1 OF 3

REV.

SIGNS

SHEET	STATION	ROUTE	SIGN SIZE (INCHES)	LOC	POST PERF. STEEL SQUARE 2" x "2 12 GA. LF	POST ANCHOR FOR 2 " PSST 12 GA. EA	FLAT SHEET FLOURESCENT SIGN SF	DESCRIPTION
4	122+62.60	142	12"x36"	LT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	122+81.30	142	12"x36"	RT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	122+81.47	142	12"x36"	LT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	123+00.17	142	12"x36"	RT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	123+02.16	142	12"x36"	LT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	123+21.00	142	12"x36"	RT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	124+03.80	142	12"x36"	LT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	124+26.68	142	12"x36"	RT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	124+32.26	142	12"x36"	RT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	124+44.99	142	12"x36"	RT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	124+51.31	142	12"x36"	RT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
4	124+71.65	142	12"x36"	RT	8	1	3	TYPE 3 OBJECT MARKERS (12" X 36")
				SUBTOTAL	96	10	30	
				PAY TOTAL	96	12	36	

4" TYPE 1 BASE

SHEET	STATION	STATION	ROUTE	LOC	LENGTH (LF)	WIDTH (LF)	AREA (SY)	REMARKS
4	122+00.00	122+84.60	W	CL	85	VARIES	211.3	
4	124+49.55	125+25.00	W	CL	75	VARIES	188.7	
						SUBTOTAL	400.0	
						PAY TOTAL	400	

PAVEMENT MARKINGS

SHEET	STATION	STATION	ROUTE	LOCATION	CLASS 1 PAVEMENT MARKING PAINT (18 MIL, TYPE P BEADS) 4 IN. YELLOW (LF)	4 IN. WHITE (LF)	REMARKS
11	118+04.60	129+29.55	W	LT		1125	RIGHT EOP
11	118+04.60	129+29.55	W	RT		1125	LEFT EOP
11	118+04.60	129+29.55	W	CL	2250		DOUBLE SOLID YELLOW CENTERLINE
				SUBTOTAL	2250	2250	
				PAY TOTAL	2250	2250	

SEEDING & MULCHING

SHEET	STATION	STATION	LOCATION	SEEDING - COOL SEASON MIXTURE (ACRE)	MULCHING (ACRE)	REMARKS
4	121+75.00	123+59.20	RT	0.13	0.13	
4	122+00.00	122+72.60	LT	0.02	0.02	
4	123+89.09	125+50.00	LT	0.12	0.12	
4	124+61.55	125+25.00	RT	0.05	0.05	
			SUBTOTAL	0.32	0.32	
			PAY TOTAL	0.3	0.3	

CLEARING AND GRUBBING

SHEET	STATION	STATION	ROUTE	LOCATION	CLEARING AND GRUBBING (ACRE)	REMARKS
4	121+75.00	123+04.60	W	RT	0.25	
4	122+00.00	123+04.60	W	LT	0.25	
4	124+29.55	125+50.00	W	LT	0.25	
4	124+29.55	125+25.00	W	RT	0.25	
				SUBTOTAL	1.00	
				PAY TOTAL	1	

DRAINAGE

SHEET	STATION	STATION	ROUTE	LOC	42 IN. SMOOTH WALL STEEL PIPE (LF)	48 IN. SMOOTH WALL STEEL PIPE (LF)	CLASS 3 EXCAVATION (CY)	42 IN. FLAP GATE (EA)	48 IN. FLAP GATE (EA)	REMARKS
4	122+31.90	122+96.94	W	LT		65	48.1		1.0	P1
4	123+05.81	123+45.81	W	RT	40		26.1	1.0		P2
4	123+85.58	124+31.12	W	LT	50		28.5	1.0		P3
4	124+52.26	124+98.63	W	RT	50.0		32.6	1.0		P5
				SUBTOTAL	140.0	65.0	135	3.0	1.0	
				PAY TOTAL	140	65	135			

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:9/12/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
9/12/2025

ROUTE	STATE
W	MO

DISTRICT	SHEET NO.
SE	3

COUNTY
RIPLEY

JOB NO.
J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9391

DESCRIPTION

DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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MISSOURI CERT. OF AUTHORITY: 001528

SUMMARY
OF QUANTITIES
ROUTE W
SHEET 2 OF 3

REV.

P:\2022\221411D\4 CADD - DWG\4.7 Tran\Sheets\003_QU_01_J9S3848_T1.dgn 11:08:11 AM 9/12/2025

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
*WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00	6	96			20,20A,20B	ROAD CLOSED AHEAD
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
*GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00						END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)
*REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20			29	ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	2	25			60	ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
*MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
WO20-3a	48X48	16.00	2	32			20C	ROAD CLOSED 500 FEET

ITEM NUMBER	TOTAL QTY	EFFECTIVE: 07-01-2025 DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6122040		WORK ZONE CRASH CUSHION (NARROW)
6122041		WORK ZONE CRASH CUSHION (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONE)
6161025		CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	*6	TYPE 3 MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE 3 OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER, CONTRACTOR FURNISHED/RETAINED
6173700B		TEMP. TRAFFIC BARRIER ANCHORED, CONTRACTOR FURNISHED/RETAINED
6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION CONTRACTOR FURNISHED/RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION, CONTRACTOR FURNISHED/RETAINED
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

TRAFFIC CONTROL = 1 LUMP SUM

*NO DIRECT PAYMENT WILL BE MADE FOR TEMPORARY TRAFFIC CONTROL SIGNS OR DEVICES.

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
W	MO

DISTRICT	SHEET NO.
SE	3

COUNTY
RIPLEY

JOB NO.
J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9391

DESCRIPTION | DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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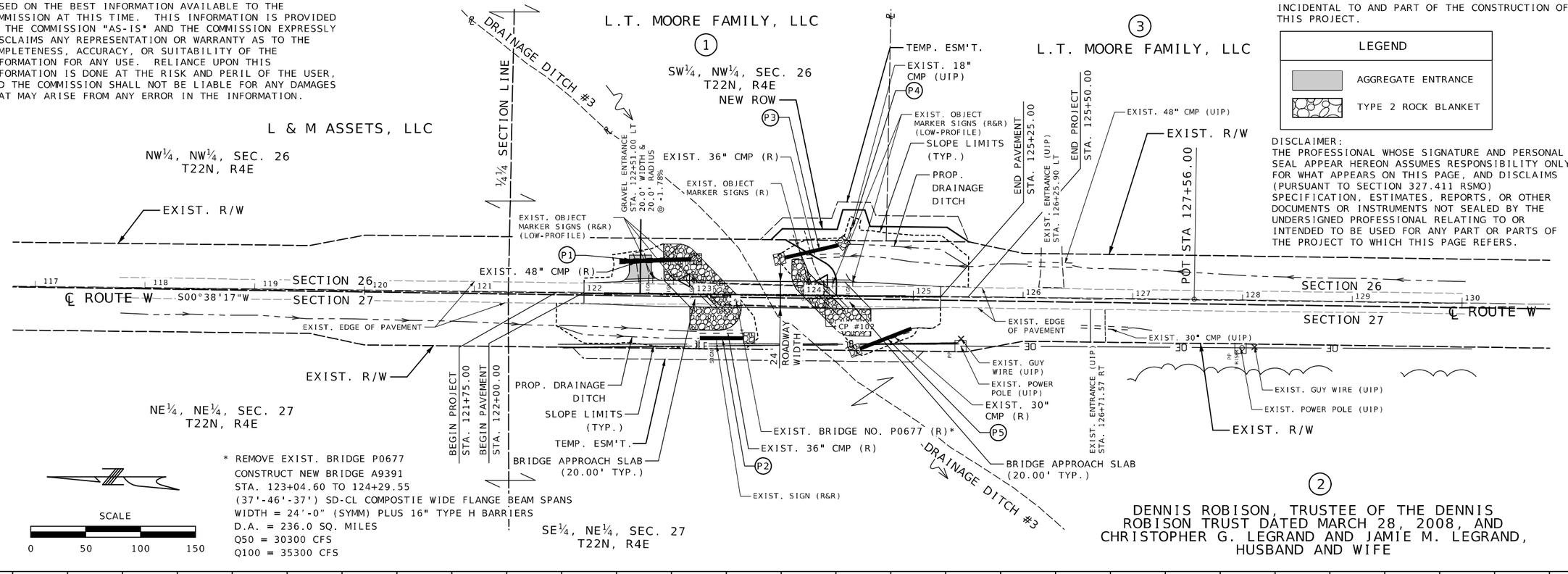
SUMMARY OF QUANTITIES
ROUTE W
SHEET 3 OF 3

REV.

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.



* REMOVE EXIST. BRIDGE P0677
CONSTRUCT NEW BRIDGE A9391
STA. 123+04.60 TO 124+29.55
(37'-46'-37') SD-CL COMPOSTIE WIDE FLANGE BEAM SPANS
WIDTH = 24'-0" (SYMM) PLUS 16" TYPE H BARRIERS
D.A. = 236.0 SQ. MILES
Q50 = 30300 CFS
Q100 = 35300 CFS

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

LEGEND

- AGGREGATE ENTRANCE
- TYPE 2 ROCK BLANKET

DISCLAIMER:
THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS PAGE, AND DISCLAIMS (PURSUANT TO SECTION 327.411 RSMO) SPECIFICATION, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS PAGE REFERS.

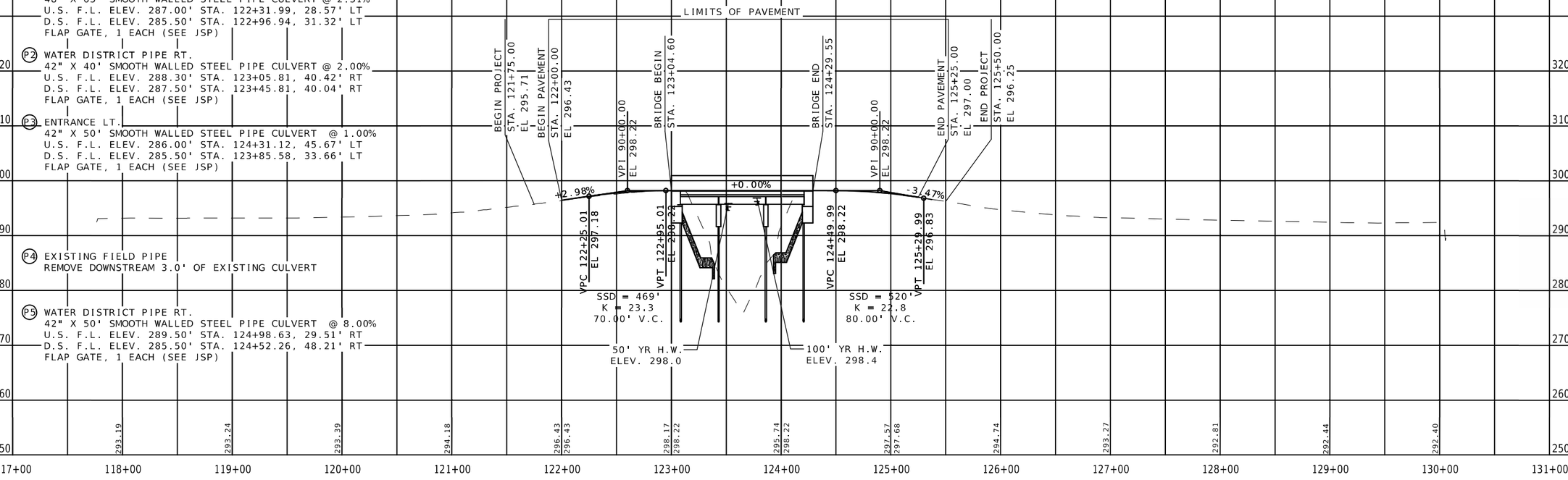
(P1) ENTRANCE LT.
48" X 65' SMOOTH WALLED STEEL PIPE CULVERT @ 2.31%
U.S. F.L. ELEV. 287.00' STA. 122+31.99, 28.57' LT
D.S. F.L. ELEV. 285.50' STA. 122+96.94, 31.32' LT
FLAP GATE, 1 EACH (SEE JSP)

(P2) WATER DISTRICT PIPE RT.
42" X 40' SMOOTH WALLED STEEL PIPE CULVERT @ 2.00%
U.S. F.L. ELEV. 288.30' STA. 123+05.81, 40.42' RT
D.S. F.L. ELEV. 287.50' STA. 123+45.81, 40.04' RT
FLAP GATE, 1 EACH (SEE JSP)

(P3) ENTRANCE LT.
42" X 50' SMOOTH WALLED STEEL PIPE CULVERT @ 1.00%
U.S. F.L. ELEV. 286.00' STA. 124+31.12, 45.67' LT
D.S. F.L. ELEV. 285.50' STA. 123+85.58, 33.66' LT
FLAP GATE, 1 EACH (SEE JSP)

(P4) EXISTING FIELD PIPE
REMOVE DOWNSTREAM 3.0' OF EXISTING CULVERT

(P5) WATER DISTRICT PIPE RT.
42" X 50' SMOOTH WALLED STEEL PIPE CULVERT @ 8.00%
U.S. F.L. ELEV. 289.50' STA. 124+98.63, 29.51' RT
D.S. F.L. ELEV. 285.50' STA. 124+52.26, 48.21' RT
FLAP GATE, 1 EACH (SEE JSP)



STATE OF MISSOURI
JOSHUA W. STEIN NUMBER PE-2011030189
PROFESSIONAL ENGINEER
Signed:8/18/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED	
8/18/2025	
ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
SE	4

COUNTY
RIPLEY

JOB NO.
J9S3848

CONTRACT ID.
.

PROJECT NO.
.

BRIDGE NO.
A9391

DESCRIPTION	DATE
.	.

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PLAN/PROFILE SHEET
ROUTE W
SHEET 1 OF 1

REV.

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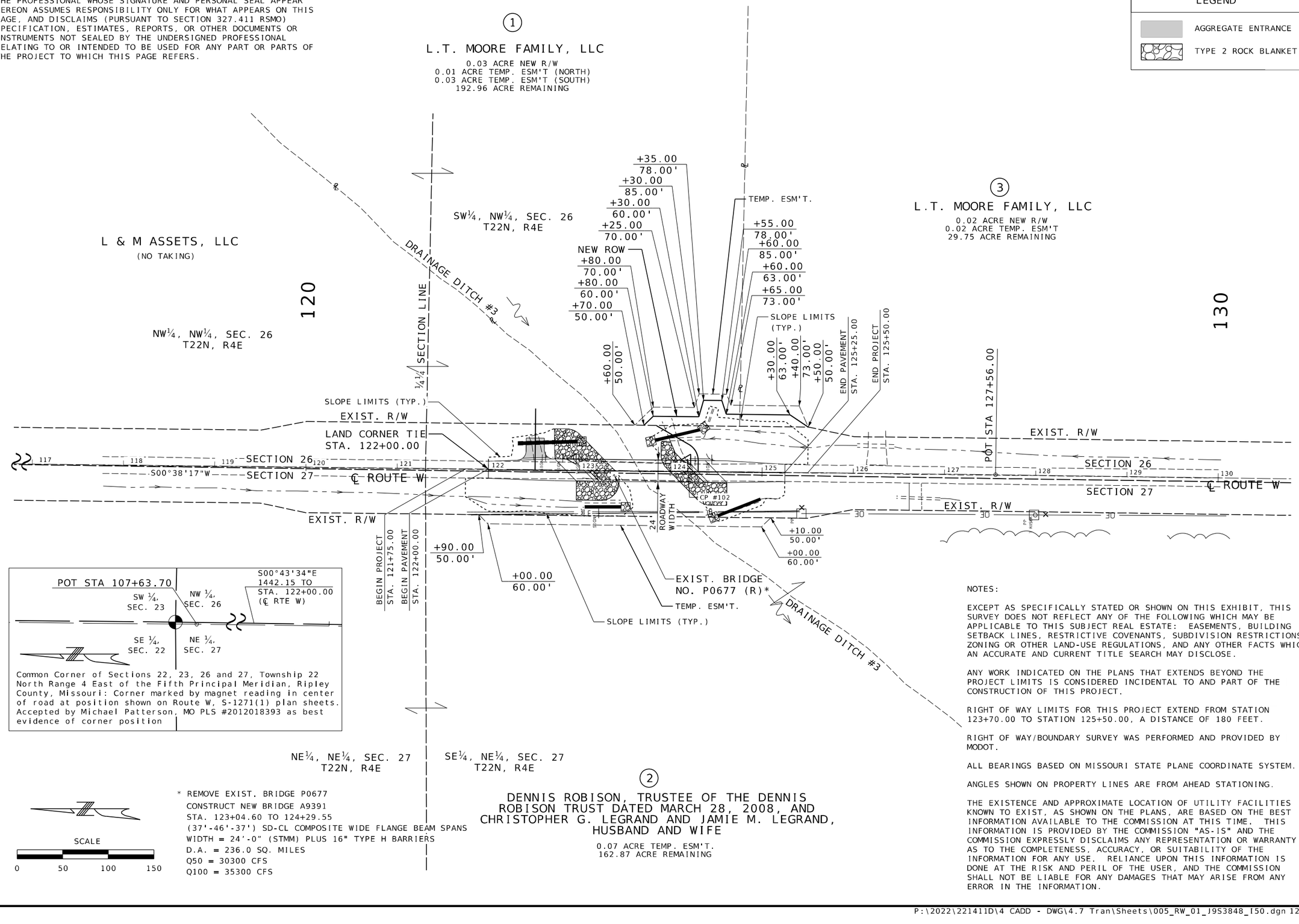

* REMOVE EXIST. BRIDGE P0677
CONSTRUCT NEW BRIDGE A9391
STA. 123+04.60 TO 124+29.55
(37'-46'-37') SD-CL COMPOSITE WIDE FLANGE BEAM SPANS
WIDTH = 24'-0" (STMM) PLUS 16" TYPE H BARRIERS
D.A. = 236.0 SQ. MILES
Q50 = 30300 CFS
Q100 = 35300 CFS

NOTES:

EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS EXHIBIT, THIS SURVEY DOES NOT REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THIS SUBJECT REAL ESTATE: EASEMENTS, BUILDING SETBACK LINES, RESTRICTIVE COVENANTS, SUBDIVISION RESTRICTIONS, ZONING OR OTHER LAND-USE REGULATIONS, AND ANY OTHER FACTS WHICH AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

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

RIGHT OF WAY LIMITS FOR THIS PROJECT EXTEND FROM STATION 123+70.00 TO STATION 125+50.00, A DISTANCE OF 180 FEET.

RIGHT OF WAY/BOUNDARY SURVEY WAS PERFORMED AND PROVIDED BY MODOT.

ALL BEARINGS BASED ON MISSOURI STATE PLANE COORDINATE SYSTEM.

ANGLES SHOWN ON PROPERTY LINES ARE FROM AHEAD STATIONING.

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:8/18/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
8/18/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
RIPLEY

JOB NO.
J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9391

DESCRIPTION	DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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MISSOURI CERT. OF AUTHORITY: 001528

RIGHT OF WAY SHEET
ROUTE W
SHEET 1 OF 1

REV.

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ALL SURVEYING HAS BEEN DONE BY MODOT. ALL THE INFORMATION ON REFERENCE SHEET IS COPIED FROM THEIR FIELD NOTES.

ALL PROJECT COORDINATES HAVE BEEN PROJECTED FROM THE MISSOURI STATE PLANE COORDINATE (SPC) SYSTEM OF 1983 USING AN AVERAGE PROJECT PROJECTION (GRID TO GROUND) FACTOR. TO GET BACK TO STATE PLANE COORDINATES, MULTIPY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.

PROJECT COORDINATE INFORMATION

COORDINATE SYSTEM	MODIFIED STATE PLANE (GROUND)
HORIZONTAL DATUM	NAD 83 (2011)
VERTICAL DATUM	NAVD 88
GEOID MODEL	GEOID 2018
ELEVATIONS DETERMINED BY	STATIC OBSERVATION
PROJECT PROJECTION FACTOR	1.000075090045

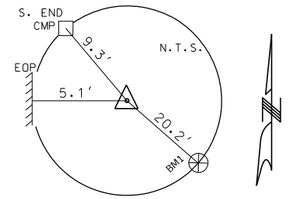
EXAMPLE OF PROJECT COORDINATE TO S.P.C.

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

EXAMPLE: CONTROL POINT #101
N 253307.580 X 0.9999249156 = N 253288.561
E 787385.088 X 0.9999249156 = E 787325.968

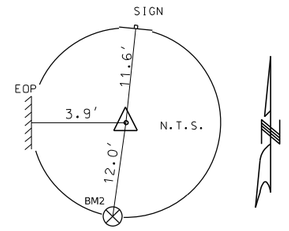
LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)



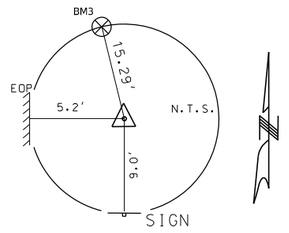
CONTROL POINT #100

5/8" REBAR W/ PLASTIC CAP
N = 254826.398
E = 787407.653
ELEV. 292.43



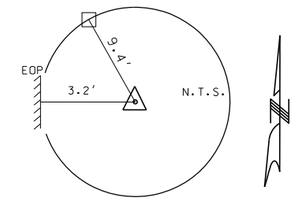
CONTROL POINT #101

5/8" REBAR W/ PLASTIC CAP
N = 253307.580
E = 787835.088
ELEV. 297.04
STA. = 122+92.64
OFFSET = 11.99' LT



CONTROL POINT #102

5/8" REBAR W/ PLASTIC CAP
N = 253181.997
E = 787384.271
ELEV. 297.89
STA. = 124+18.22
OFFSET = 12.57' LT



CONTROL POINT #103

5/8" REBAR W/ PLASTIC CAP
N = 252065.115
E = 787368.549
ELEV. 291.46

BENCH MARKS

BM1 ELEV 293.31
A COTTON PICKER SPINDLE IN THE BASE OF A POWER POLE.

BM2 ELEV 298.89
A CHISLED SQUARE ON THE NORTH END OF THE EAST GUARDRAIL OF THE BIRDGE

BM3 ELEV 298.99
A CHISLED SQUARE ON THE SOUTH END OF THE EAST GUARDRAIL OF THE BIRDGE

BM4 ELEV 291.96
A COTTON PICKER SPINDLE IN THE BASE OF A POWER POLE.

ALIGNMENT POINT LISTING

SHEET NO	STATION	MODIFIED STATE PLANE (GROUND) NORTHING (USFT)	MODIFIED STATE PLANE (GROUND) EASTING (USFT)	DESCRIPTION
5	121+75.00	253425.343	787374.407	START OF PROJECT
5	127+56.00	252844.379	787367.937	POINT OF TANGENT

CONTROL POINT LISTING

SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (USFT)	EASTING (USFT)	ELEVATION (USFT)	DESCRIPTION	POINT ID
5				254826.398	787407.653	292.43	5/8" REBAR W/ PLASTIC CAP	CP100
5	122+92.64	LT	11.99	253307.580	787385.088	297.04	5/8" REBAR W/ PLASTIC CAP	CP101
	124+18.22	LT	12.57	253181.997	787384.271	297.89	5/8" REBAR W/ PLASTIC CAP	CP102
				252065.115	787368.549	291.46	5/8" REBAR W/ PLASTIC CAP	CP103

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STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed: 8/8/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/9/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
SE	6

COUNTY
RIPLEY

JOB NO.
J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9391

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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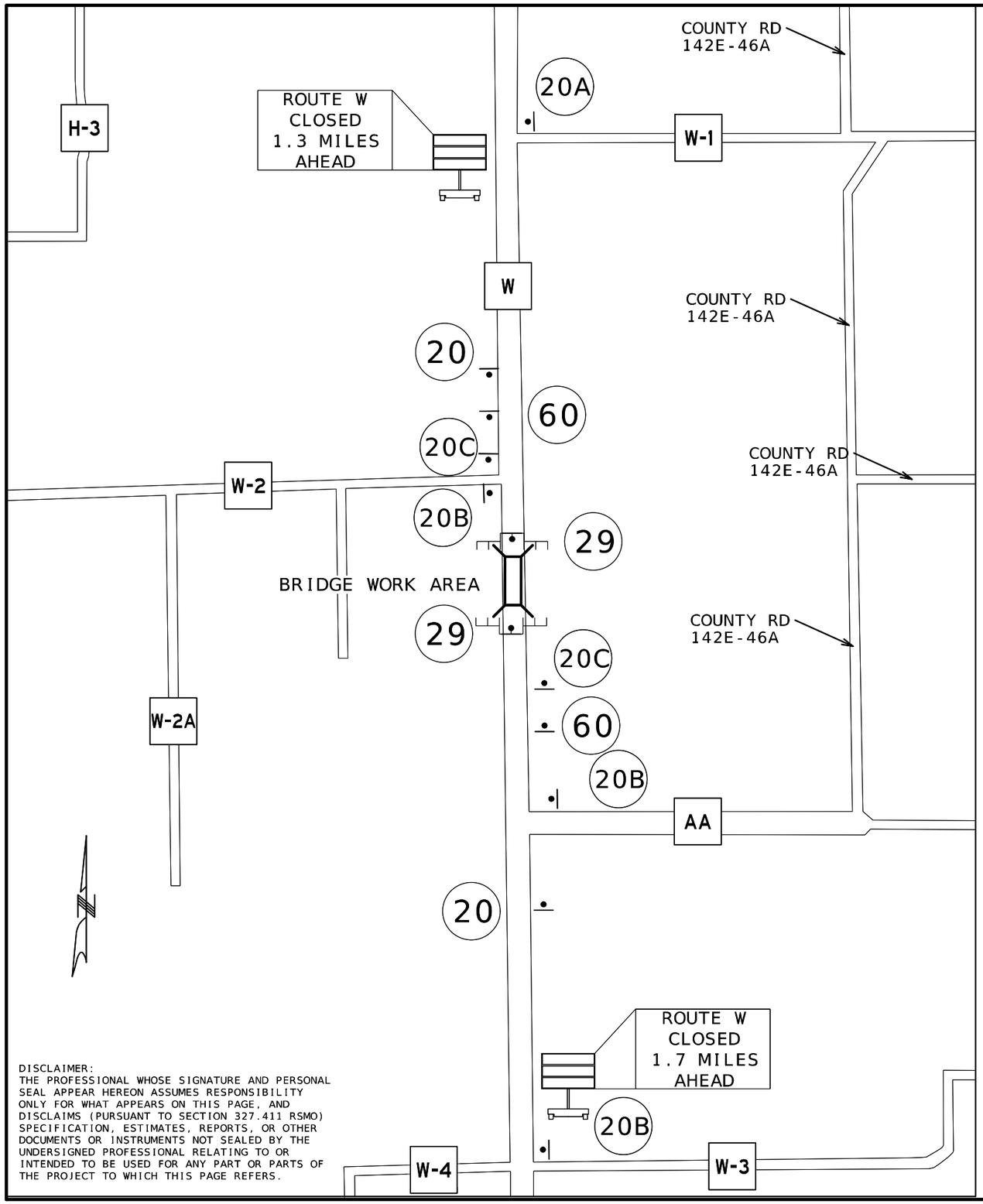
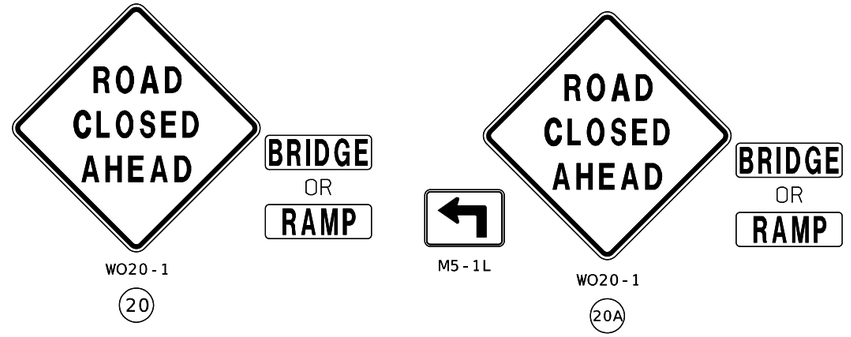
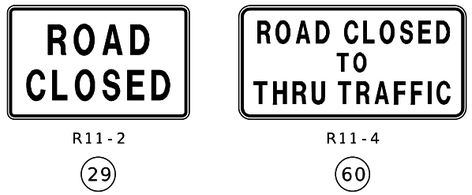
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001528

COORDINATE POINTS
ROUTE W
SHEET 1 OF 1

REV.







NOT TO SCALE

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NOTES:

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

LOCATIONS OF CMS BOARDS SHALL BE DETERMINED BY THE ENGINEER.

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- TYPE 3 MOVEABLE BARRICADE
- CHANGEABLE MESSAGE BOARD

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
RIPLEY

JOB NO.
J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9391

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DESCRIPTION | DATE | REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001528

TRAFFIC CONTROL
ROUTE W
SHEET 1 OF 1

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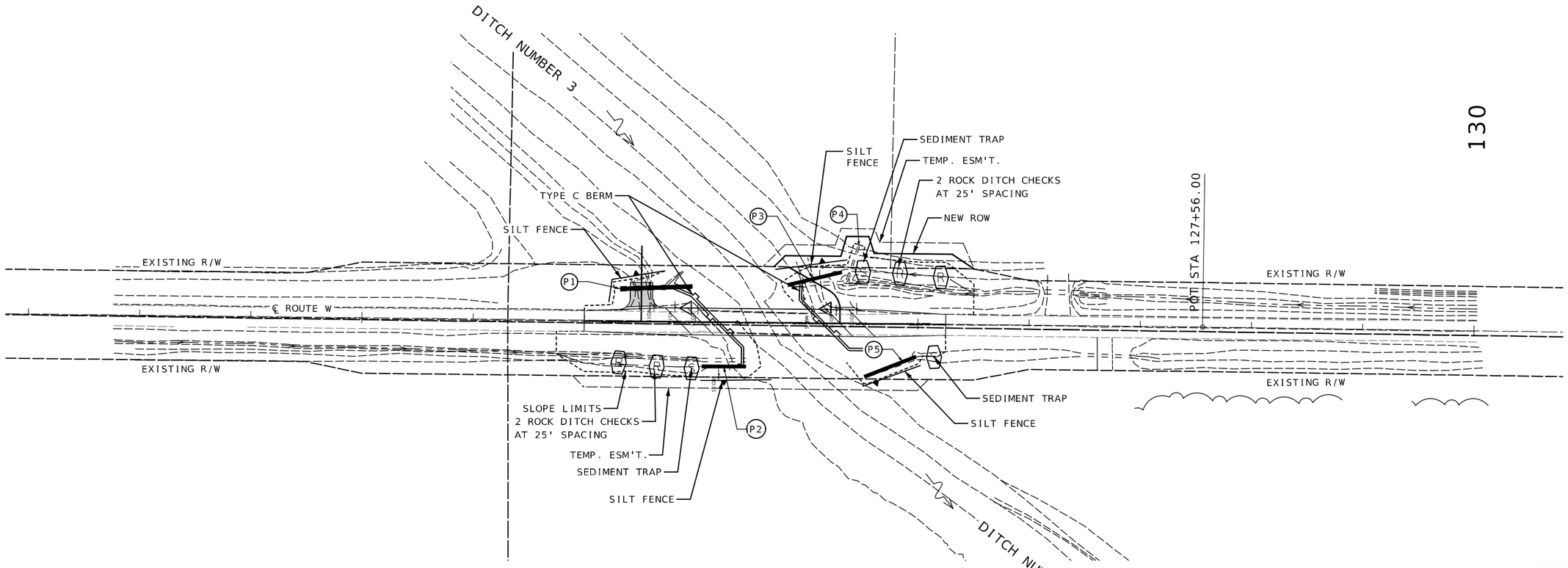
THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.

PRIMARY RECEIVING WATERS: DITCH NUMBER 3



NOTES:EXISTING VEGETATION SHALL BE LEFT IN PLACE WHERE PRACTICAL TO BE USED AS AN ADDITIONAL EROSION CONTROL BMP.

SEE RIGHT-OF-WAY SHEET FOR ALL PROPERTY BOUNDARIES AND TAKING INFORMATION.

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

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TEMPORARY EROSION CONTROL LEGEND

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

SCALE

0 50 100 150

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130

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
W	MO

DISTRICT	SHEET NO.
SE	8

COUNTY
RIPLEY

JOB NO.
J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9391

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

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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ENGINEERING GEOSPATIAL SERVICES
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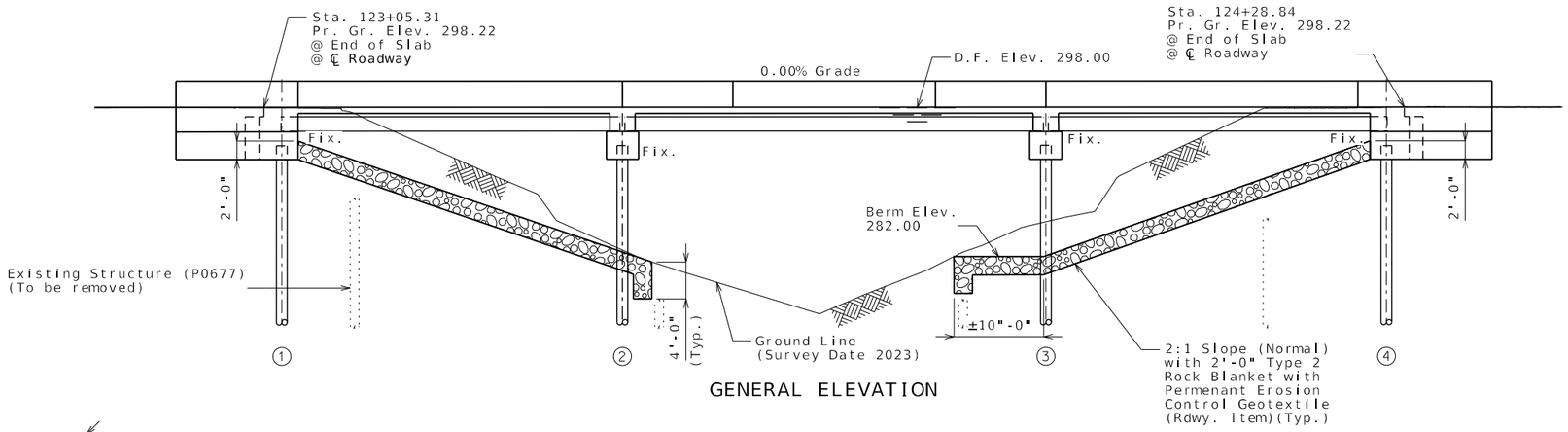
EROSION CONTROL
ROUTE W
SHEET 1 OF 1

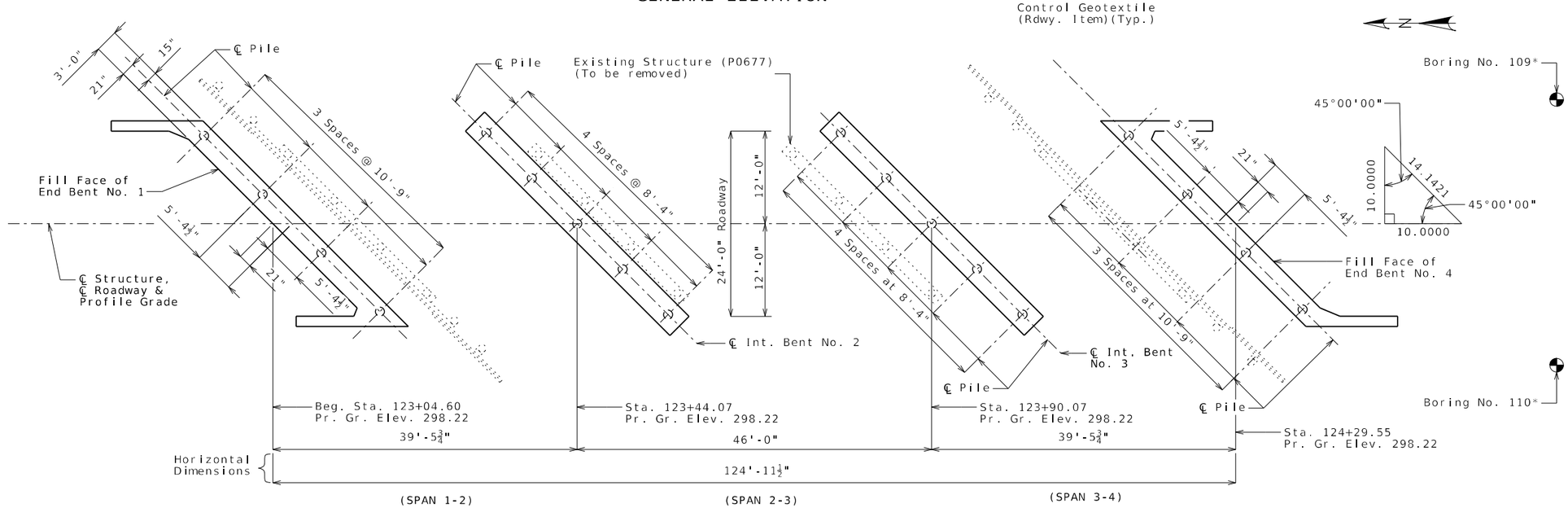
REV.

(37'-46'-37') SD-CL COMPOSITE WIDE FLANGE BEAM SPANS

SEC/SUR 26 & 27 TWP 22N RGE 4E



GENERAL ELEVATION



PLAN

*Borings located outside limits of sheet. See Geotechnical Report for Boring Locations.

Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheet(s) No. 22 thru 25 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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

Notes:

For General Notes, Estimated Quantities, Foundation Data, Location Sketch, and Hydrologic Data, see Sheet No. 2.

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

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

B.M. - "□" CHISLED ON BARRIER CURB, N.E. CORNER OF BRIDGE P0677. N:253295.84, E:787383.41, ELEV. ±298.89

B.M. - "□" CHISLED ON BARRIER CURB, S.E. CORNER OF BRIDGE PO677. N:253196.80, E:787380.61, ELEV. ±298.99

BRIDGE: ROUTE W OVER DRAINAGE DITCH NO. 3

ROUTE W FROM ROUTE 142 TO ROUTE AA
ABOUT 2.4 MILES SOUTH OF ROUTE 142
BEGINNING STATION 123+04.60

Designed Sept. 2024
Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

Signed: 8/4/2025
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 8/4/2025

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	1

COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DESCRIPTION | DATE

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

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105 WEST CAPITOL
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REV.

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	80		80
Removal of Bridges (P0677)	lump sum			1
Bridge Approach Slab (Minor Road)	sq. yard		109	109
Galvanized Cast-in-Place Concrete Piles (14 in.)	linear foot	954		954
Dynamic Pile Testing	each	4		4
Pile Point Reinforcement	each	18		18
Class B Concrete (Substructure)	cu. yard	61.4		61.4
Slab on Steel	sq. yard		366	366
Type H Barrier	linear foot		286	286
Reinforcing Steel (Bridges)	pound	4,100		4,100
Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50	pound		51,050	51,050
Slab Drain	each		20	20
Galvanizing Structural Steel	lump sum		1	1
Vertical Drain at End Bents	each			2
Plain Neoprene Bearing Pad	each		8	8
Laminated Neoprene Bearing Pad	each		16	16

All concrete between the upper and lower construction joints in the end bents is included in the Estimated Quantities for Slab on Steel.

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

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

All reinforcement in cast-in-place pile at Intermediate Bents is included in the substructure quantities.

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

Sheet metal in intermediate concrete diaphragms is subsidiary to Slab on Steel.

Structural Steel shall be galvanized in accordance with ASTM A123 and Sec. 1081.

Estimated Quantities for Slab on Steel

Item		Total
Class B-2 Concrete	cu. yard	118.6
Reinforcing Steel (Epoxy Coated)	pound	36,010

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

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

Bridge deck surface may be finished with a vibratory screed.

Stay-In-Place Corrugated Steel 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.

Foundation Data

Type	Design Data		Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		CECIP 14"	CECIP 14"	CECIP 14"	CECIP 14"
	Number	ea	4	5	5	4
	Approximate Length Per Each	ft	53	53	53	53
	Pile Point Reinforcement	ea	All	All	All	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	Full Length	Full Length	Full Length
	Est. Max. Scour Depth 100 (Elev.)	ft	-	276.8	276.4	-
	Minimum Tip Penetration (Elev.)	ft	242	242	242	242
	Criteria for Min. Tip Penetration		*	*	*	*
	Pile Driving Verification Method		DT	DT	DT	DT
	Resistance Factor		0.65	0.65	0.65	0.65
	Minimum Nominal Axial Compressive Resistance	kip	233	261	261	233

* Liquefaction

DT = Dynamic Testing

CECIP = Closed Ended Cast-In-Place Concrete Pile

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

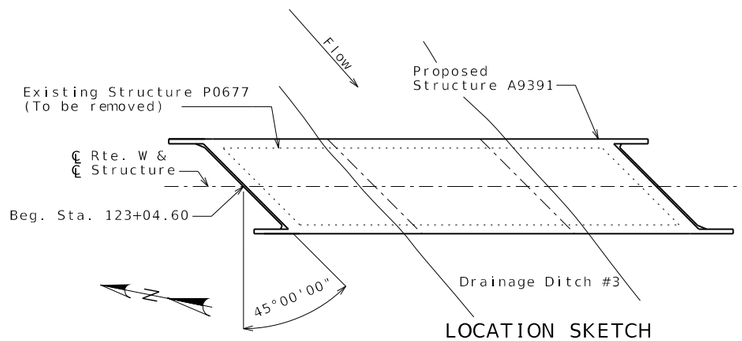
Manufactured pile point reinforcement shall be used on all piles on this structure.

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

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

Hydrologic Data

Drainage Area = 236.0 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 30,300 cfs
Design Flood (D.F.) Elevation = 298.0
Base Flood (100-year)
Base Flood Elevation = 298.4
Base Flood Discharge = 35,300 cfs
Estimated Backwater = 0.0 ft
Average Velocity thru Opening = 1.9 ft/s
Freeboard (50-year)
Freeboard = -2.4 ft
Roadway Overtopping
Overtopping Flood Discharge = 35,300 cfs
Overtopping Flood Frequency = 100 years
Overtopping Flood Elevation = 298.4



LOCATION SKETCH

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)

2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)

Seismic Design Category C

Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.329g
Acceleration Coefficient effective Peak Ground acceleration coefficient, As= 0.357g

Design Loading:

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

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-1 Concrete (Cast-In-Place Concrete piles and barrier)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Barrier)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Structural Steel (ASTM A709 Grade 50)	fy = 50,000 psi
Welded or Seamless steel shell (pipe) for CIP pile (ASTM A252 Grade 3)	fy = 45,000 psi

Neoprene Pads:

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

Fabricated Steel Connections:

Field connections shall be made with 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts and 13/16-inch diameter holes, except as noted.

Joint Filler:

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

Reinforcing Steel:

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

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

Traffic Control:

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

Miscellaneous:

High strength bolts, nuts and washers will be sampled for quality assurance as specified in Sec 106.

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

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Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	2

COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DESCRIPTION | DATE

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

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105 WEST CAPITOL
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REV.

GENERAL NOTES & QUANTITIES

Detailed Sept. 2024
Checked Sept. 2024

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

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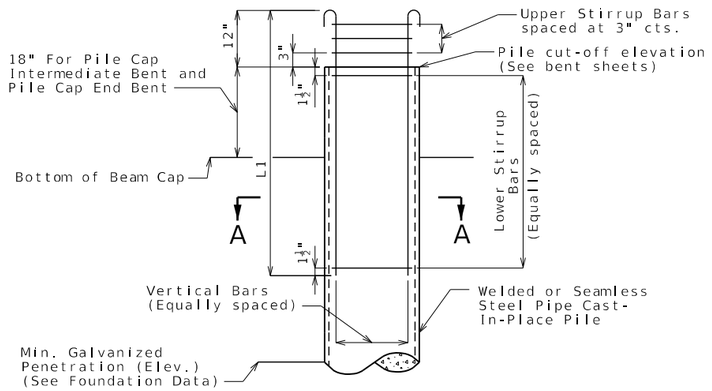
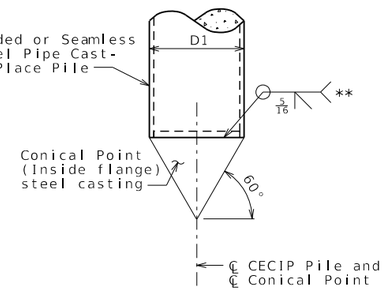
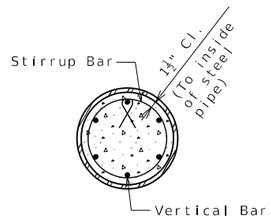
Galvanized Closed Ended Cast-In-Place (CECIP) Concrete Pile Data				
Bent Number	1	2	3	4
D1, CECIP Pile (O.D.)	14"	14"	14"	14"
Min. Nominal Wall Thickness	1/2"	1/2"	1/2"	1/2"
Pile Point Reinforcement	Conical	Conical	Conical	Conical
Vertical Bars	6-#5-V400	6-#5-V400	6-#5-V400	6-#5-V400
L1, Length of Vertical Bars	5'-3"	5'-3"	5'-3"	5'-3"
Upper Stirrup Bars	3-#4-P400	3-#4-P400	3-#4-P400	3-#4-P400
Lower Stirrup Bars	5-#4-P400	5-#4-P400	5-#4-P400	5-#4-P400



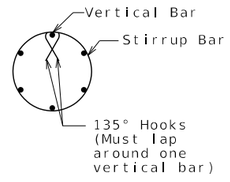


GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE WITH CONICAL PILE POINT REINFORCEMENT

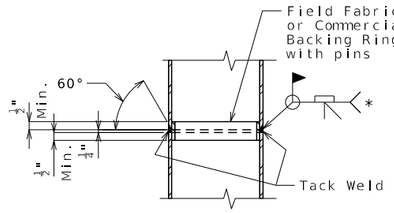
** If the conical pile point is not pre-beveled, place a 3/8" bevel at 40 degrees on the pipe.



SECTION A-A



DETAIL OF SEISMIC STIRRUP BAR



STEEL PIPE PILE SPLICE

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

Notes:

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

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

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

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

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

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

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

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

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

For Foundation Data table, see Sheet No. 2.

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

Detailed Sept. 2024
Checked Sept. 2024

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

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Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 3
COUNTY RIPLEY
JOB NO. J9S3848
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9391

DESCRIPTION | DATE | REV.

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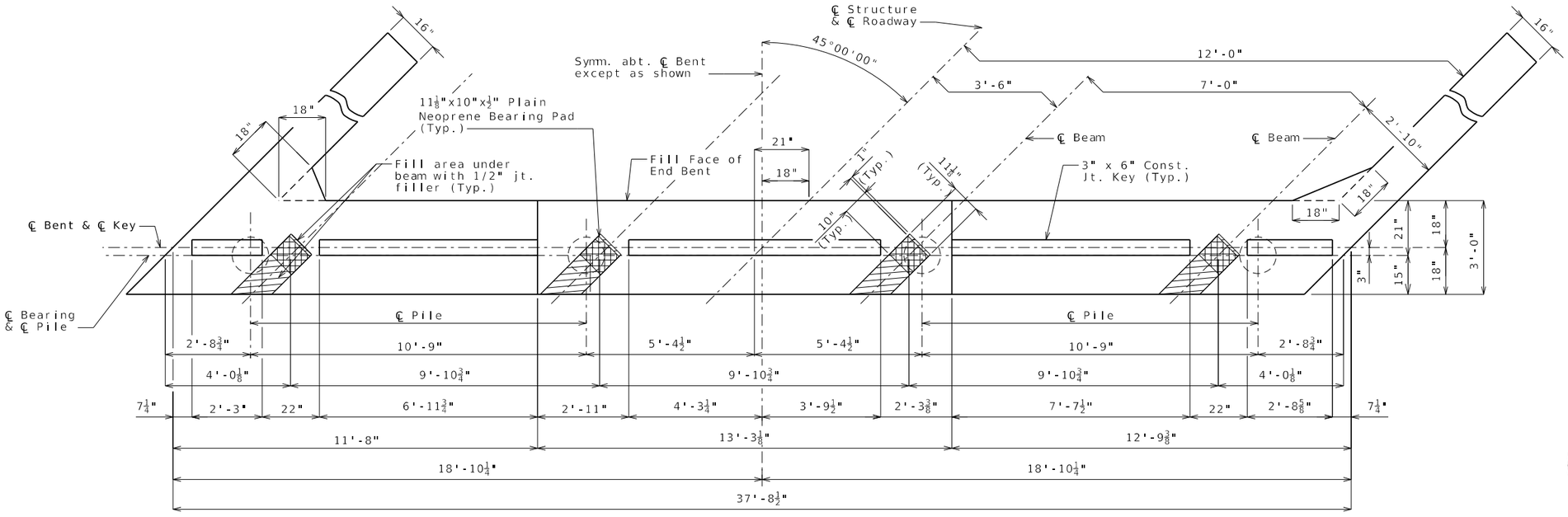
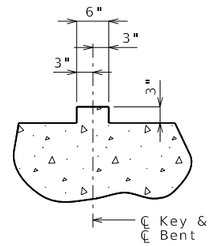
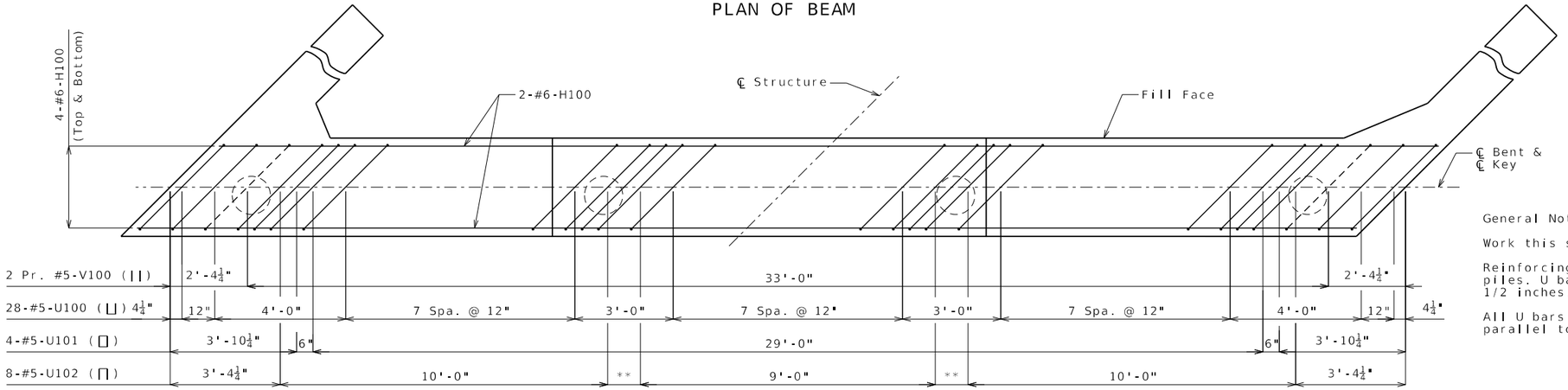


PLAN OF BEAM



SECTION THRU KEY



** 2 spaces @ 6"

PLAN OF BEAM SHOWING REINFORCEMENT

Keys not shown for clarity.

General Notes:

Work this sheet with Sheets No. 5 & 6.

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

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

Substructure Quantity Table for End Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	40
Galvanized Cast-In-Place Piles (14 in.)	linear foot	212
Dynamic Pile Testing	each	1
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	15.7

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

Substructure Quantity Table for End Bent No. 4		
Item		Quantity
Class 1 Excavation	cu. yard	40
Galvanized Cast-In-Place Piles (14 in.)	linear foot	212
Dynamic Pile Testing	each	1
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	15.7

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

DETAILS OF END BENT NO. 1 & 4

Detailed Sept. 2024
Checked Sept. 2024

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

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PROFESSIONAL ENGINEER
Brandon W. Poiter
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Brandon W. Poiter - Civil
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DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	4

COUNTY RIPLEY

JOB NO. J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9391

DESCRIPTION | DATE | REV.

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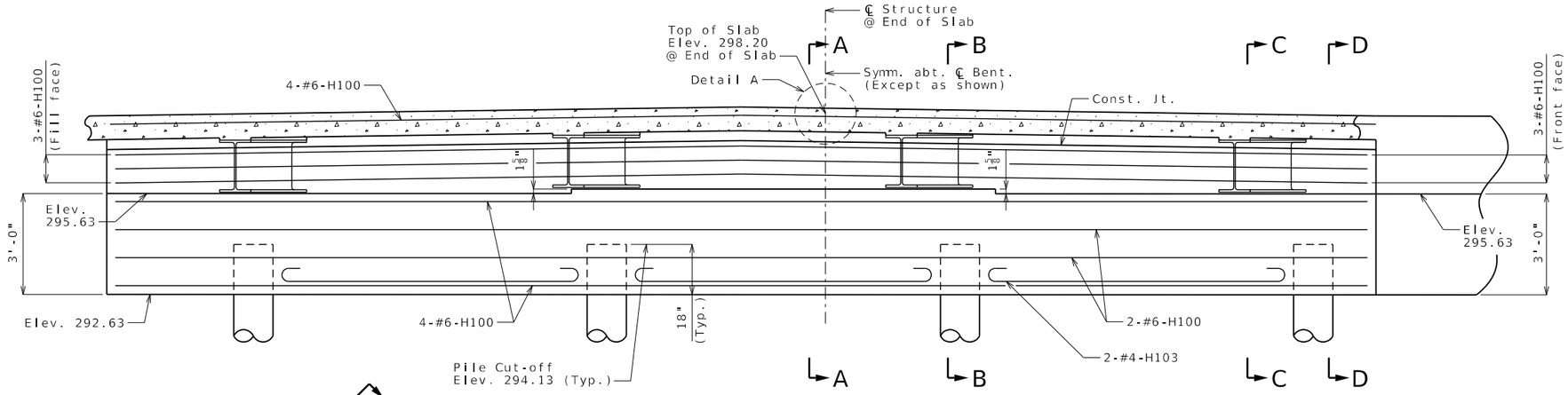
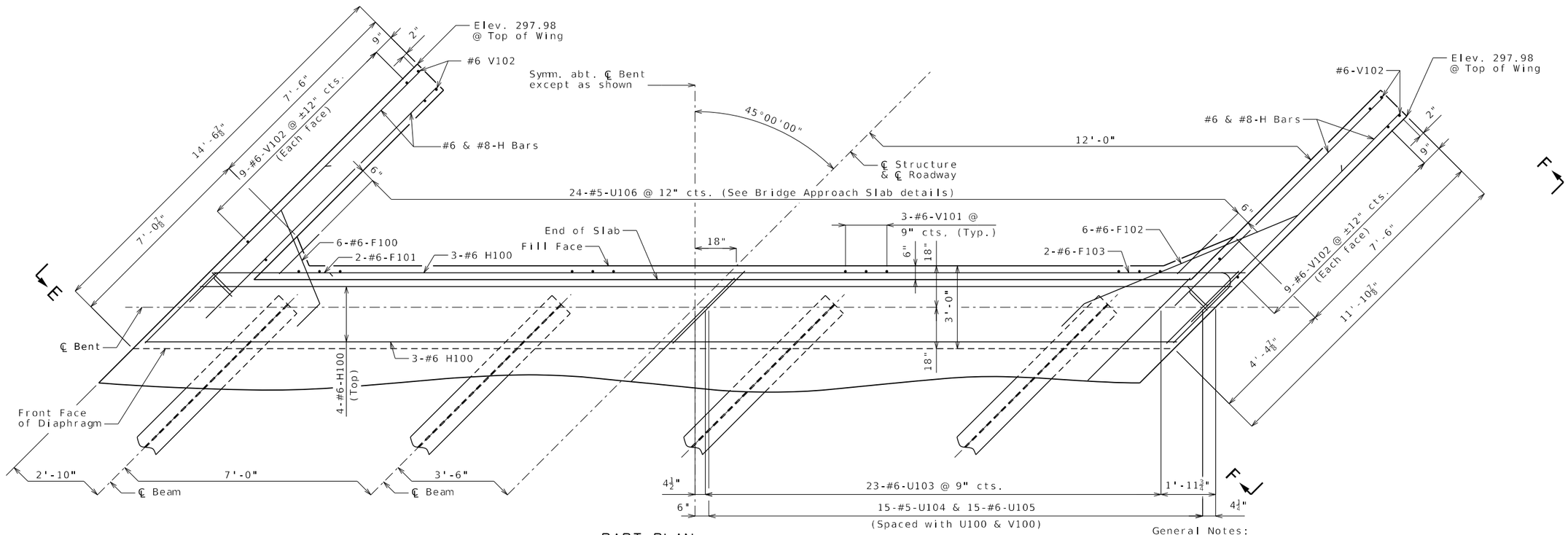
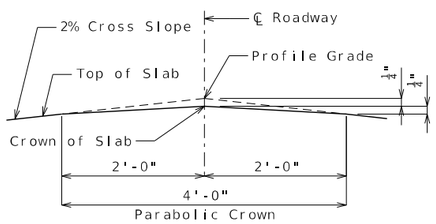


SECTION NEAR END BENT



PART PLAN



DETAIL A

DETAILS OF END BENT NO. 1 & 4

General Notes:

Work this sheet with Sheets No. 4 & 6.

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

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

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

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

Concrete diaphragms at the integral end bents shall be poured a minimum of 12 hours before the slab is poured.

For details of vertical drain at end bents, see Sheet No. 7.

For details of bridge approach slab, see Sheet No. 18.

Detailed Sept. 2024
Checked Sept. 2024

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STATE OF MISSOURI
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Brandon W. Poiter
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Brandon W. Poiter - Civil
MO PE-2017028430

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	5

COUNTY RIPLEY

JOB NO. J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9391

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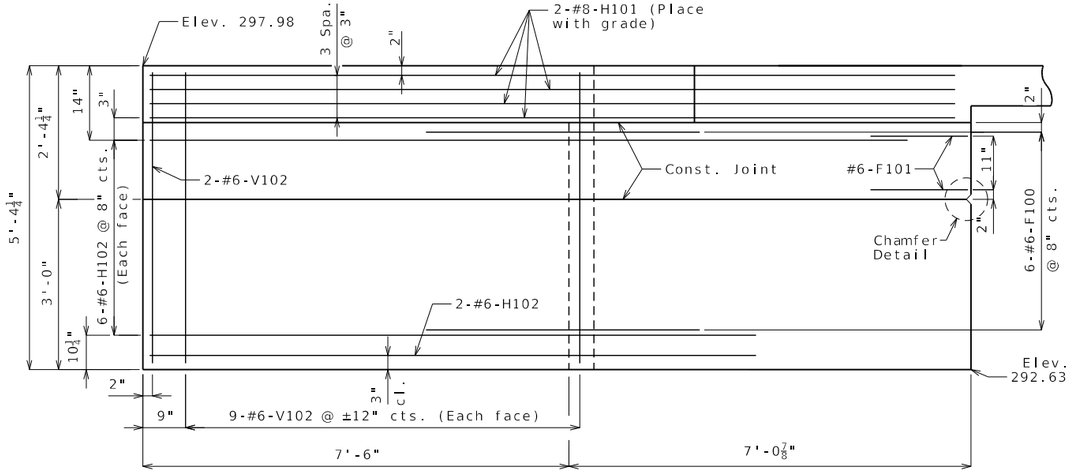
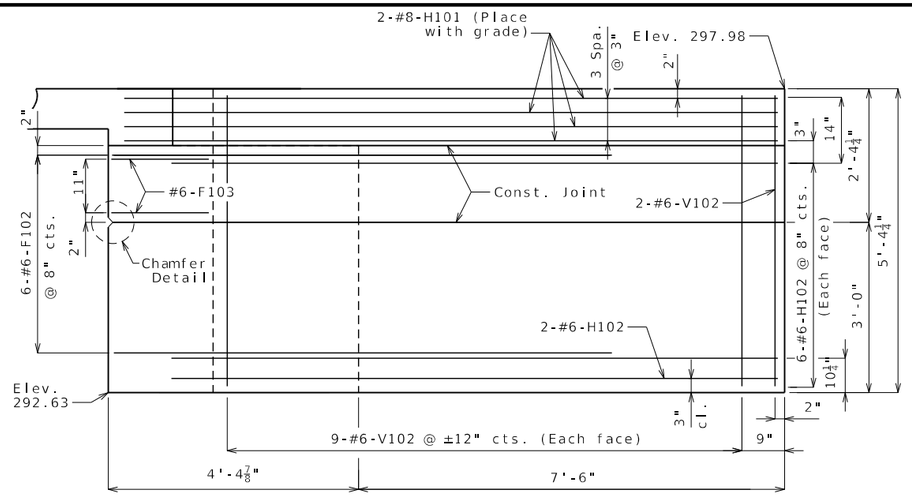
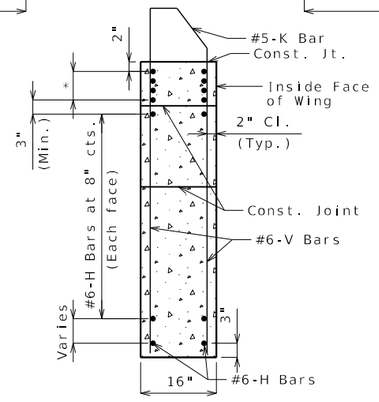


SECTION E-E

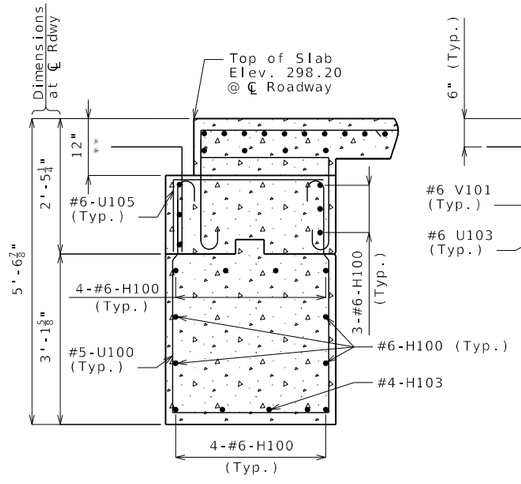


SECTION F-F



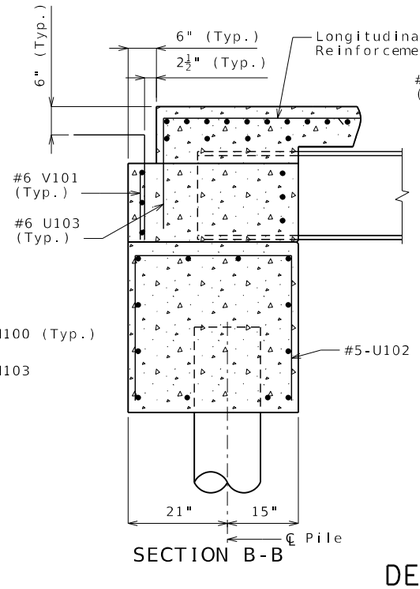
TYPICAL SECTION THRU WINGS

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

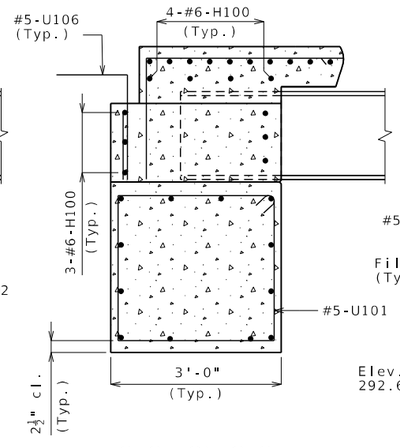


SECTION A-A

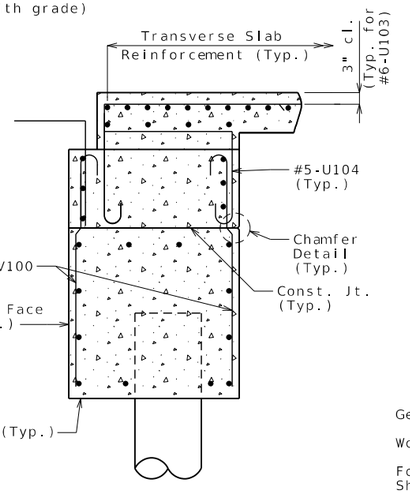
** Constant



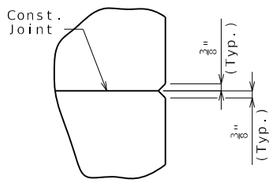
SECTION B-B



SECTION C-C



SECTION D-D



CHAMFER DETAIL

General Notes:

Work this sheet with Sheets No. 4 & 5

For reinforcement of the barrier, see Sheet No. 17.

DETAILS OF END BENT NO. 1 & 4

Detailed Sept. 2024
Checked Sept. 2024

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STATE OF MISSOURI
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PROFESSIONAL ENGINEER
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DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	6

COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DESCRIPTION	DATE

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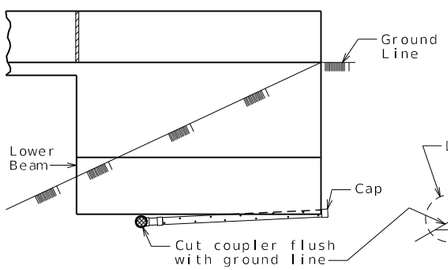
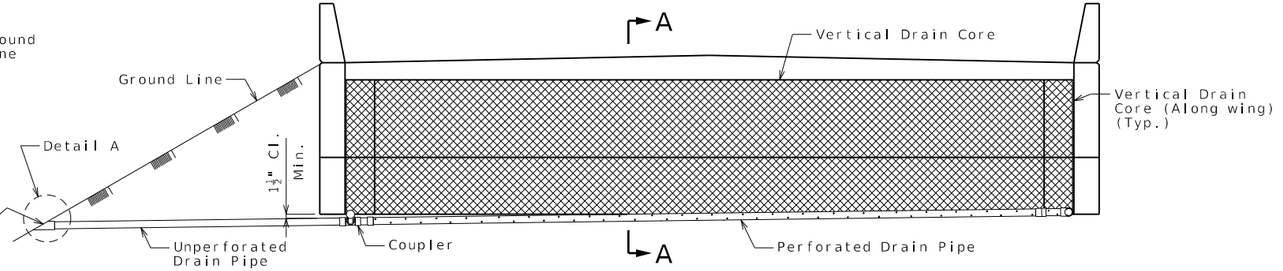


ELEVATION OF WING



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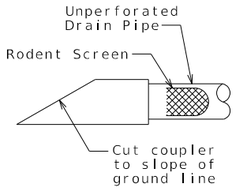
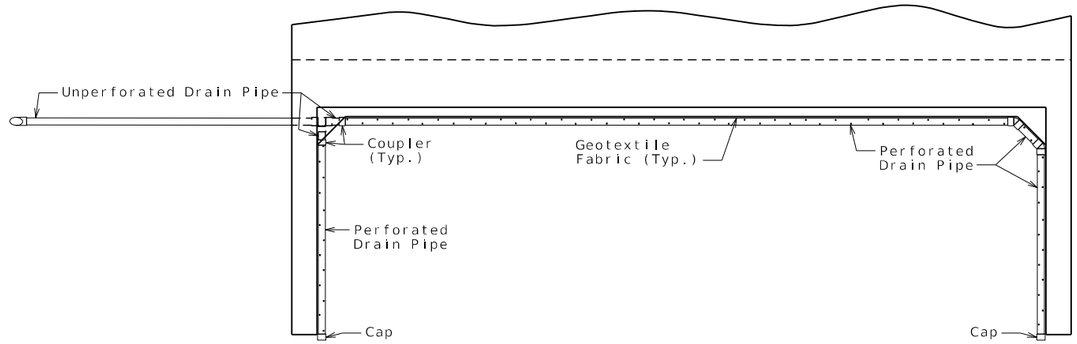
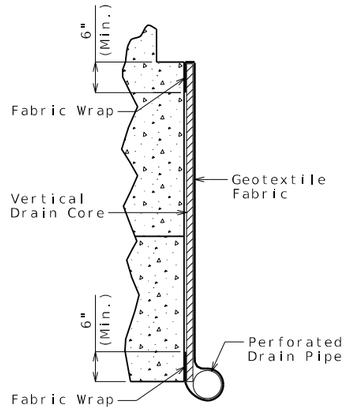


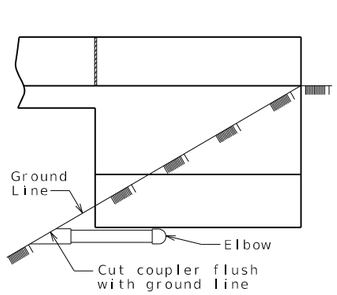
DETAIL A



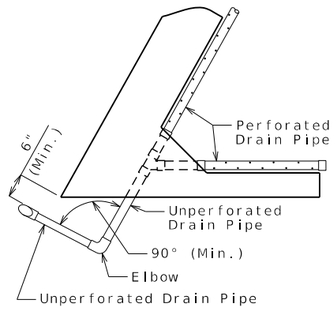
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

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DATE PREPARED 12/5/2024
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 7
COUNTY RIPLEY
JOB NO. J9S3848
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9391

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Detailed Sept. 2024
Checked Sept. 2024

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

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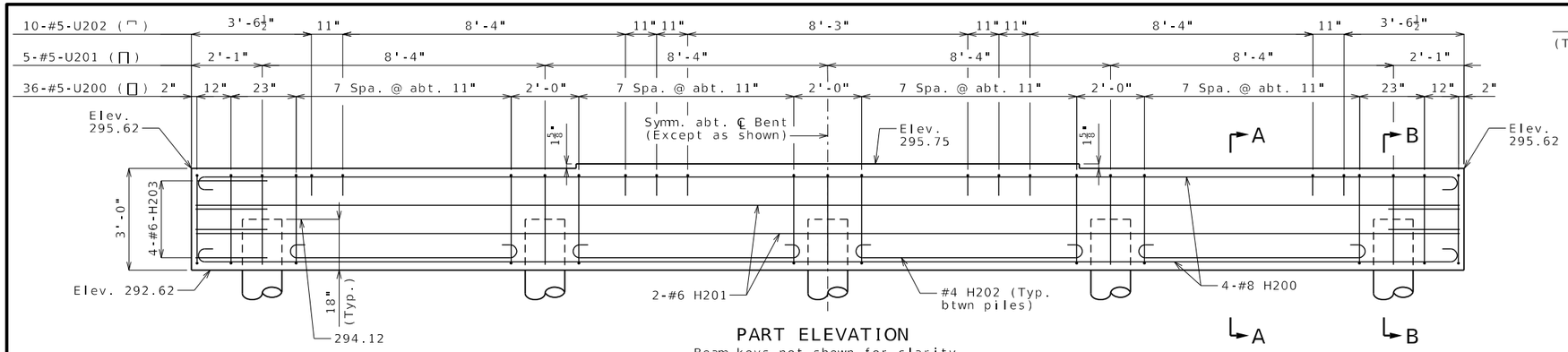
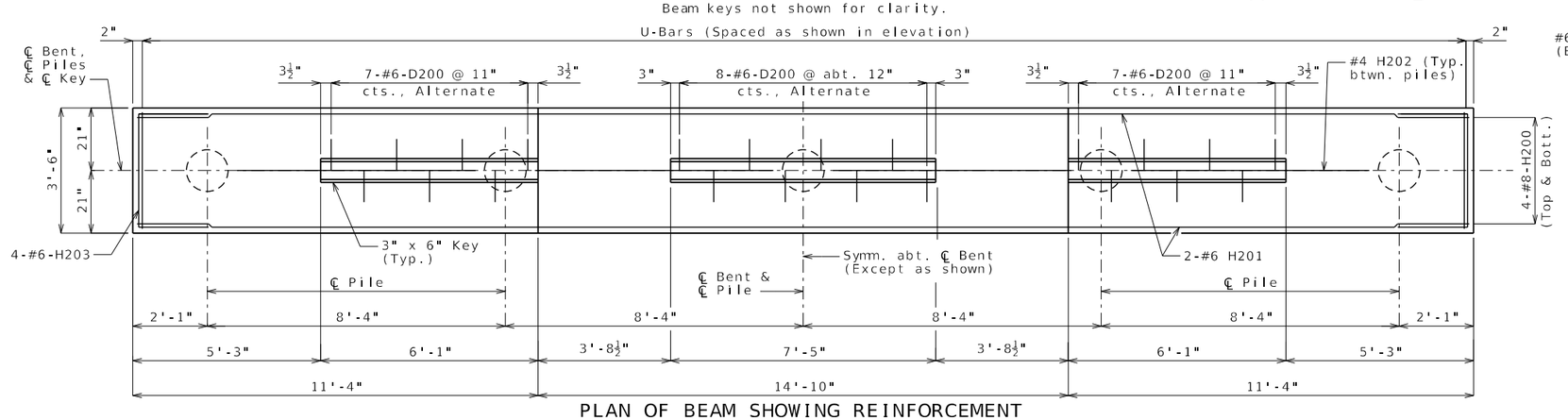
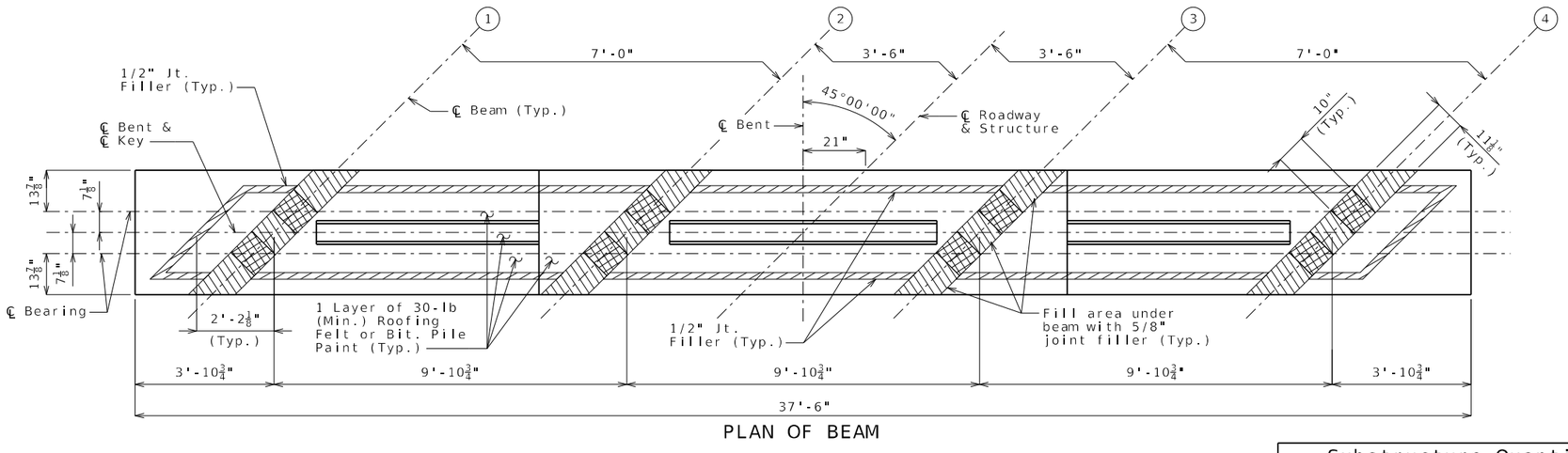


PART ELEVATION

Beam keys not shown for clarity.



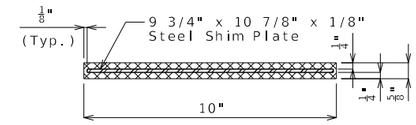
PLAN OF BEAM SHOWING REINFORCEMENT



PLAN OF BEAM

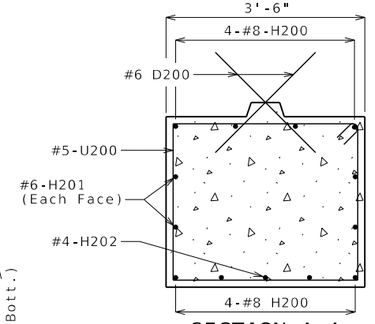
Genereal Notes:

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

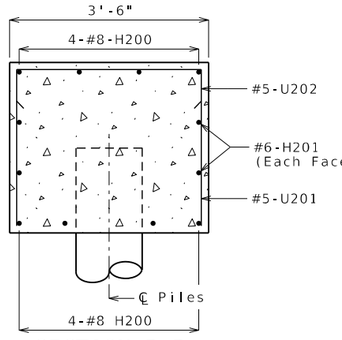


SECTION THRU LAMINATED NEOPRENE BEARING PADS

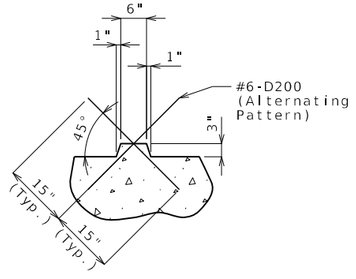
8 required Bent No. 2
8 required Bent No. 3



SECTION A-A



SECTION B-B



SECTION THRU KEY

Substructure Quantity Table for Bents No. 2 & 3

Item		Quantity	
		Bent #2	Bent #3
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	265	265
Dynamic Pile Testing	each	1	1
Pile Point Reinforcement	each	5	5
Class B Concrete (Substructure)	cu. yard	15	15
Reinforcing Steel (Bridges)	pound	2,050	2,050

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

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed Sept. 2024
Checked Sept. 2024

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

Sheet No. 8 of 25

STATE OF MISSOURI
BRANDON W. POITER NUMBER PE-2017028430
PROFESSIONAL ENGINEER
Brandon W. Poiter
Signed: 12/5/2024
Brandon W. Poiter - Civil
MO PE-2017028430

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	8

COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DESCRIPTION | DATE | REV.

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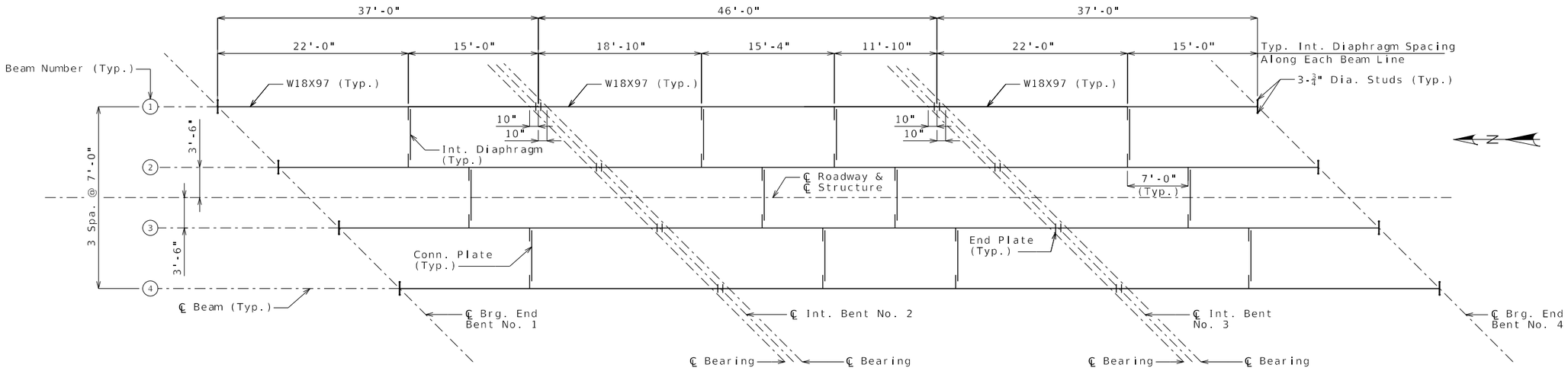
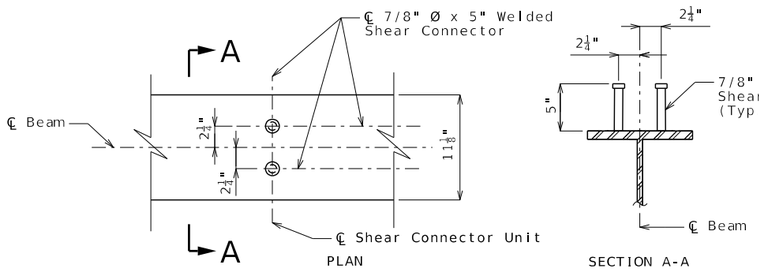
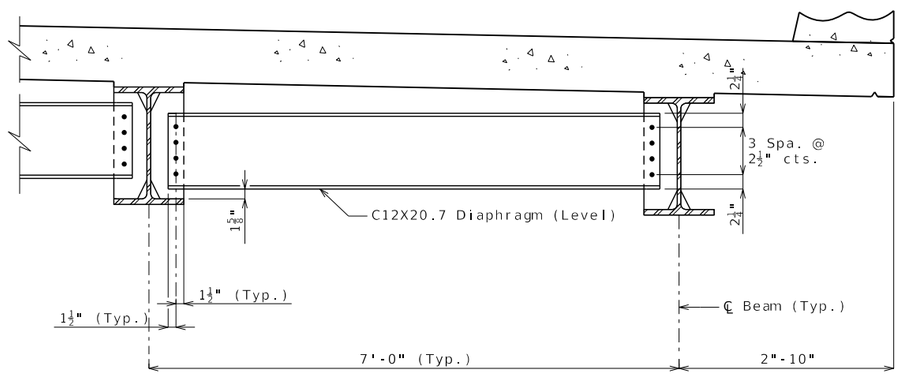


PLAN OF STRUCTURAL STEEL



DETAILS OF SHEAR CONNECTORS
(2 Studs Per Unit)



TYPICAL PART SECTION SHOWING
INTERMEDIATE DIAPHRAGMS

Notes:

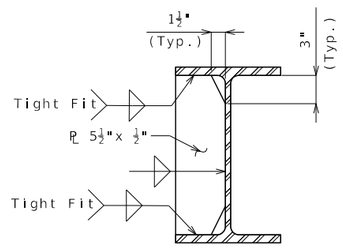
Longitudinal dimensions are horizontal from ℄ bearing to ℄ bearing.

Field connections shall be made with 3/4" diameter ASTM F3125 Grade A325 Type I Bolts and 13/16" diameter holes,unless otherwise shown.

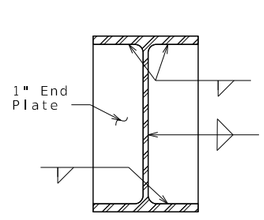
Fabricated structural Steel shall be ASTM A709 Grade 50 and shall be galvanized in accordance with A123 and Sec. 1080

At the Contractors option, holes in the diaphragm plate of non slab bearing diaphragms may be made 3/16" larger than the nominal diameter of the bolt. A hardened washer shall be used under the bolt head and nut when this option is used. Holes in the girder diaphragm connection plate or transverse web stiffener shall be standard size.

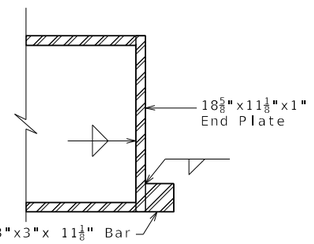
For additional steel details, see Sheet No. 10.



INTERMEDIATE DIAPHRAGM
CONNECTION PLATE



END PLATE AT
INTERMEDIATE BENTS



END PLATE & COMPRESSION BLOCK
AT INTERMEDIATE BENTS

WELDING DETAILS

STEEL BEAM DETAILS

Detailed Sept. 2024
Checked Sept. 2024

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

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STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED
12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	9

COUNTY
RIPLEY

JOB NO.
J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9391

DESCRIPTION	DATE

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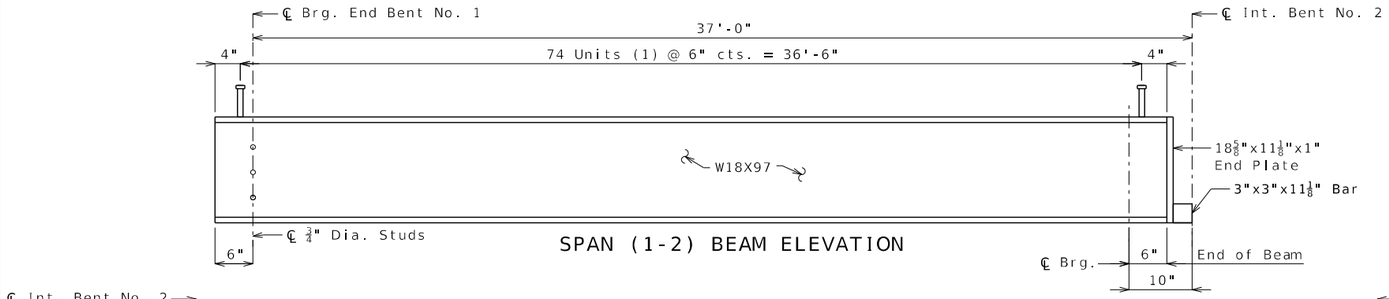
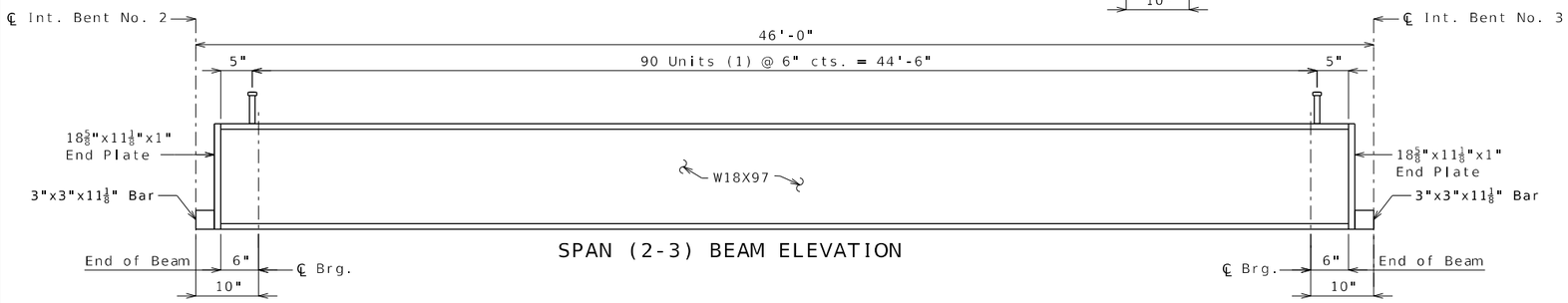
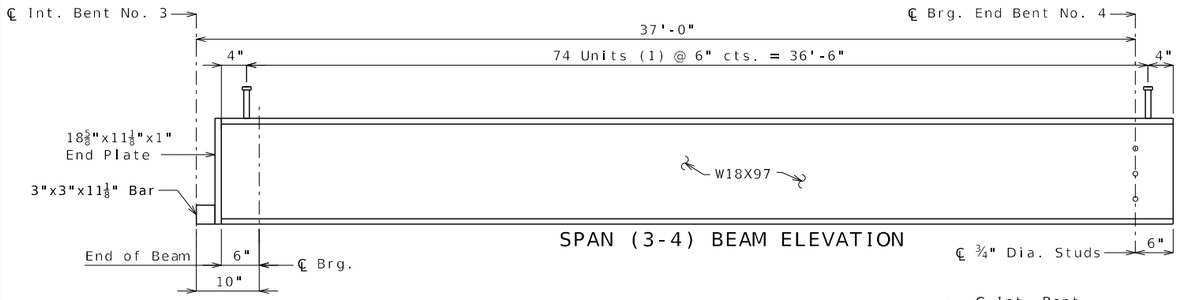


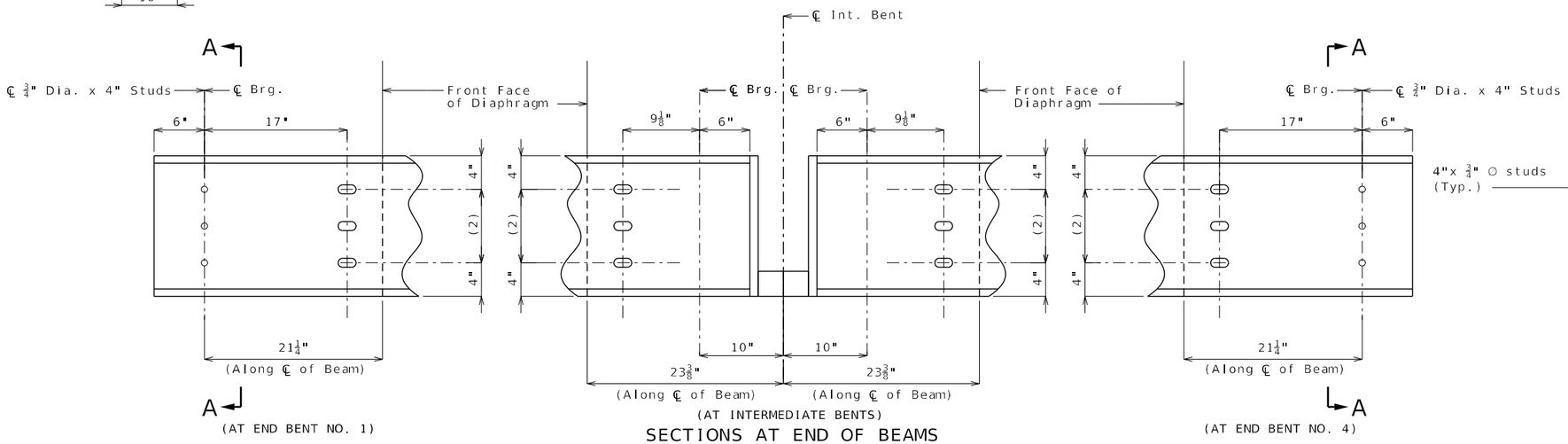
SPAN (1-2) BEAM ELEVATION



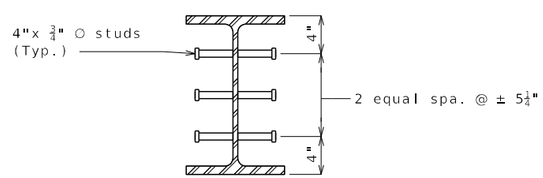
SPAN (2-3) BEAM ELEVATION



SPAN (3-4) BEAM ELEVATION



SECTIONS AT END OF BEAMS



SECTION A-A

STEEL BEAM DETAILS

Notes:

All Wide Flange beams shall be subject to Notch Toughness Requirements.

Longitudinal dimensions shown in the Beam Elevations are horizontal dimensions.

Weight of 1,220 pounds of shear connectors included in the weight of Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50.

For details of intermediate diaphragms, shear connectors, connection plates and end plates see sheet No. 9.

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

For location of slab drain attachment holes, see Sheet No. 12.

(1) 2 studs per Unit

(2) 3-2⅛"x1 1/16" Slotted holes evenly spaced @ ± 5¼"

Detailed Sept. 2024
Checked Sept. 2024

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

ADAM N. RUTZ NUMBER PE-2015000599 — STATE OF MISSOURI — PROFESSIONAL ENGINEER

Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED: 12/5/2024
ROUTE: W
STATE: MO
DISTRICT: BR
SHEET NO.: 10
COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

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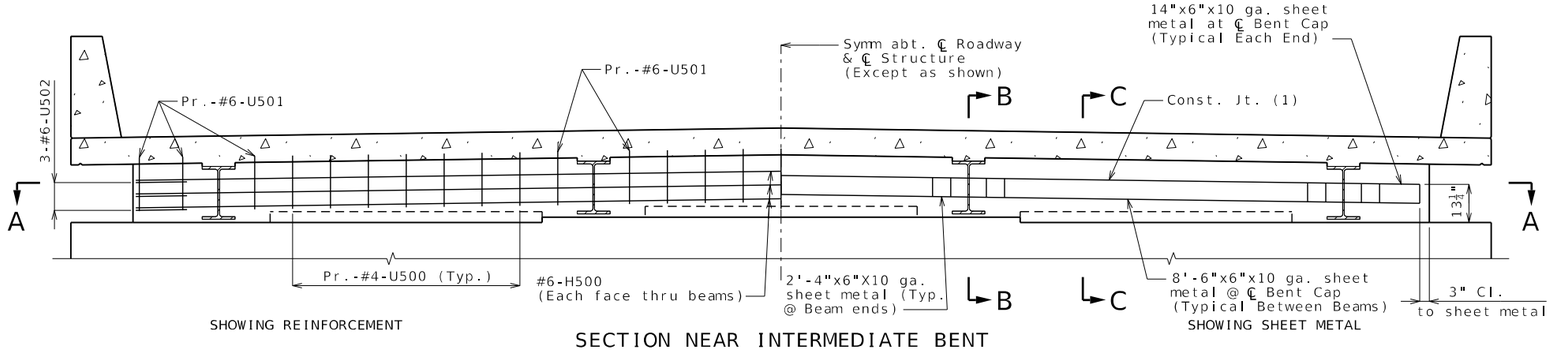
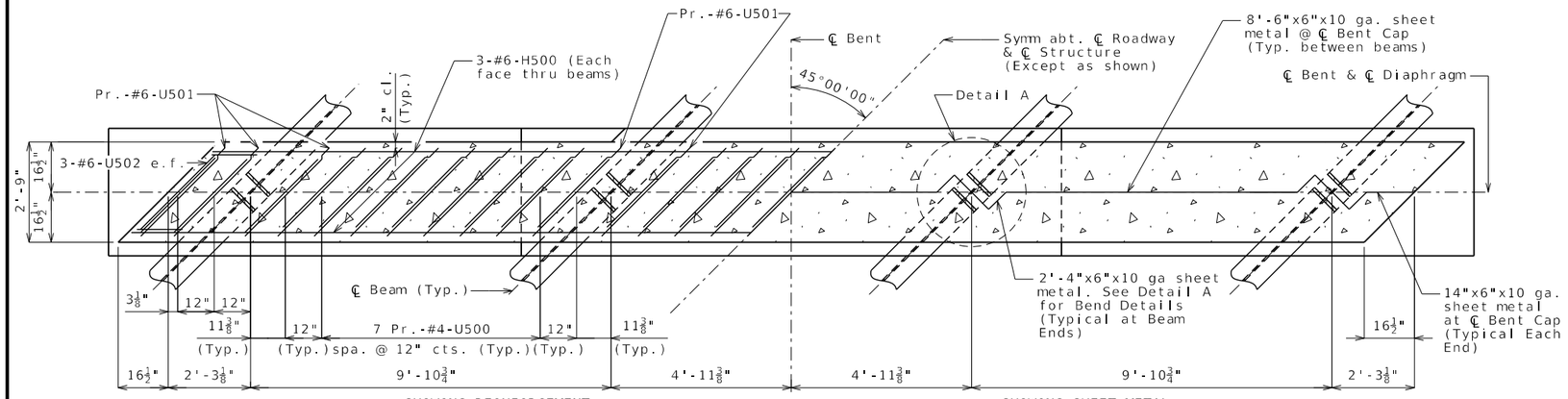


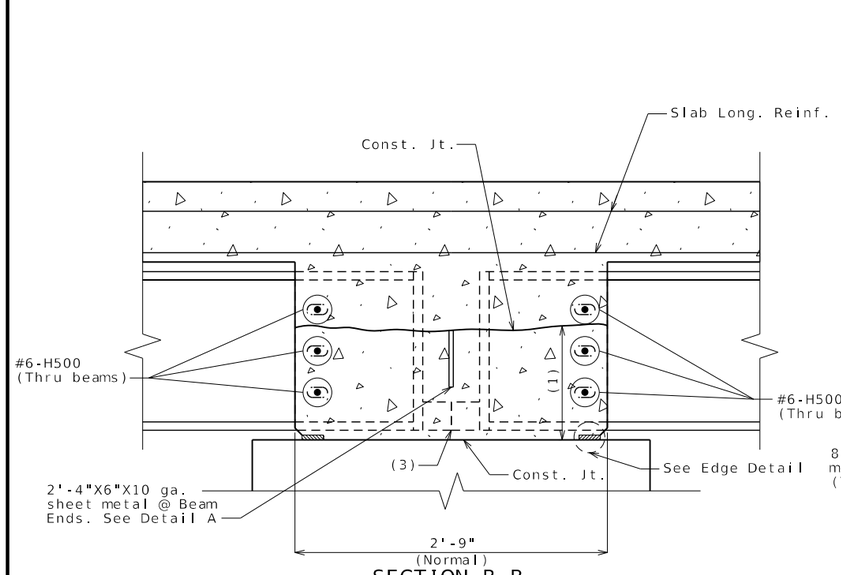
SHOWING REINFORCEMENT SHOWING SHEET METAL

SECTION NEAR INTERMEDIATE BENT

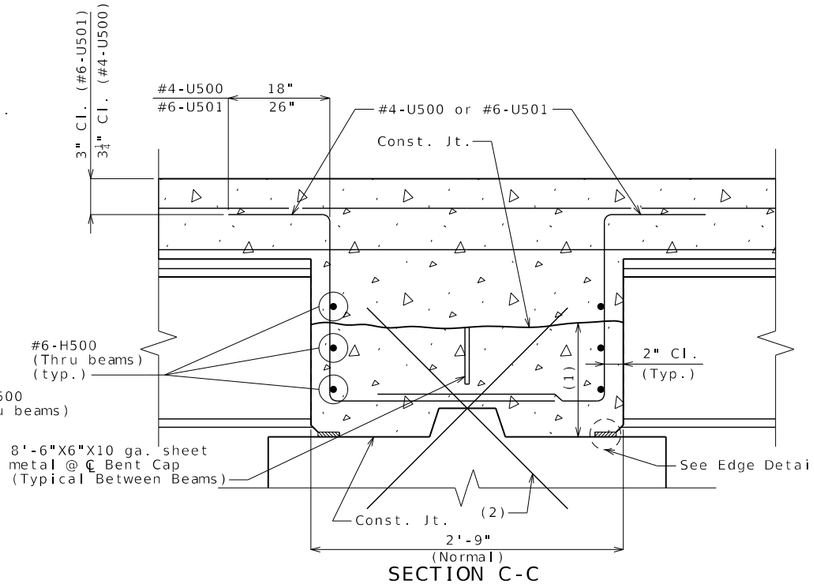


SHOWING REINFORCEMENT SHOWING SHEET METAL

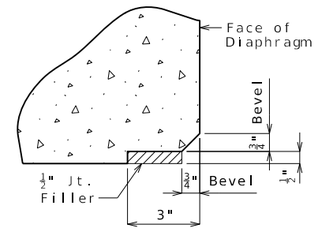
SECTION A-A



SECTION B-B



SECTION C-C



EDGE DETAIL

(1) Varies, match roadway cross slope.

(2) #6-D200. See Sheet No. 8 for details.

(3) Vertical face of compression blocks may be in partial contact. Full contact throughout block height is not necessary. Vertical faces of adjacent blocks shall overlap a minimum of 2 1/2".

Notes:

e.f. denotes each face.

Diaphragms at Intermediate Bents shall be built vertical.

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

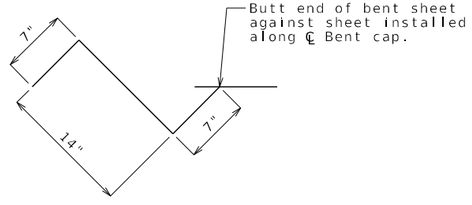
All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Steel.

Concrete diaphragm below construction joint will be poured a minimum of 12 hours before the slab is poured.

Sheet metal shall be in accordance with Structural Grade 40 and coating designation of G165 of ASTM A653.

All U-bars in diaphragms are to be placed parallel to ℄ Roadway.

See Sheet No. 10 for hole locations at end of beams



DETAIL A

CONCRETE DIAPHRAGMS DETAILS AT INTERMEDIATE BENTS NO. 2 & 3

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	11

COUNTY RIPLEY

JOB NO. J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9391

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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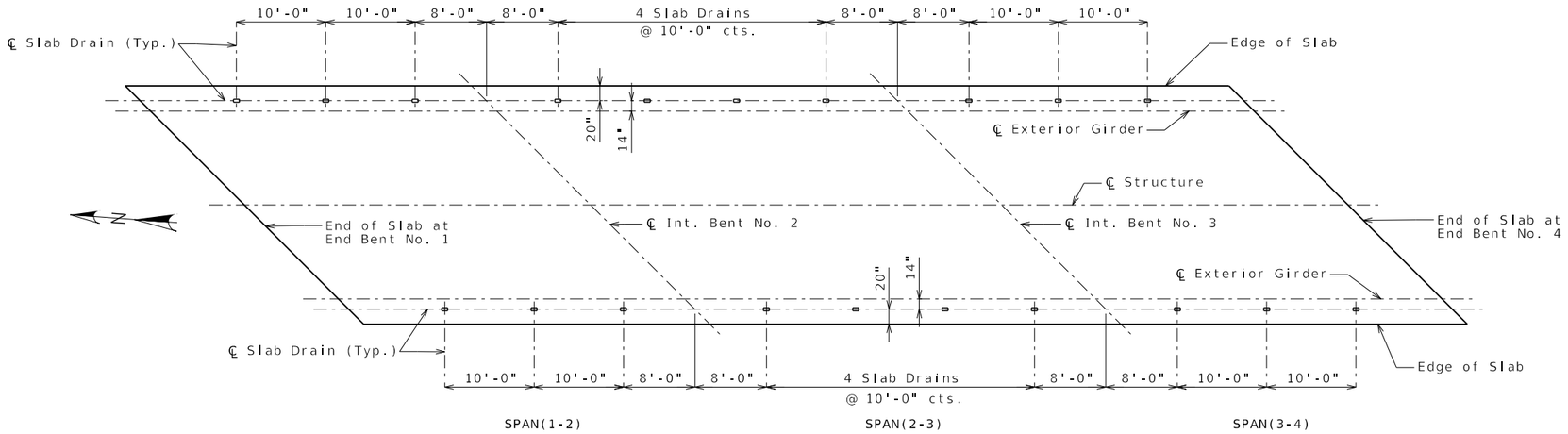
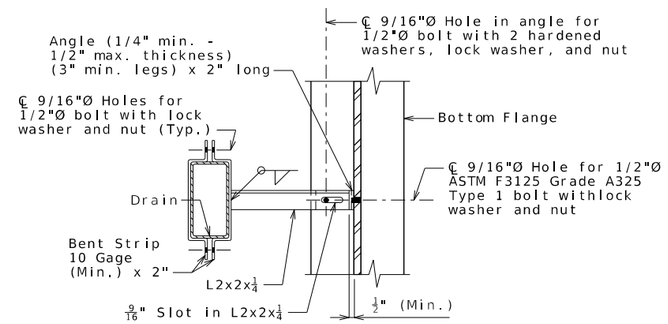
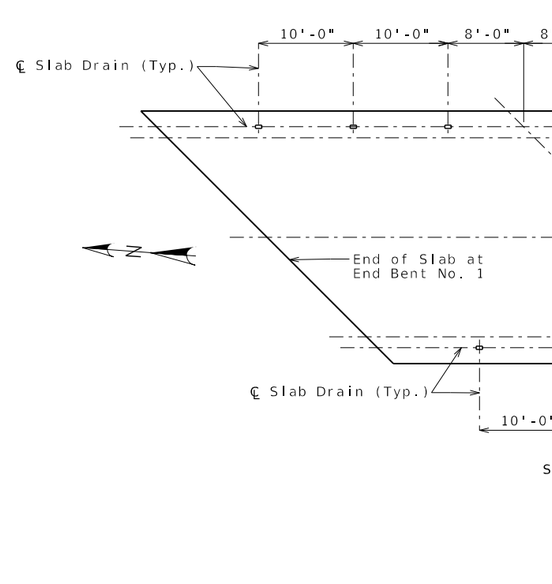


PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS

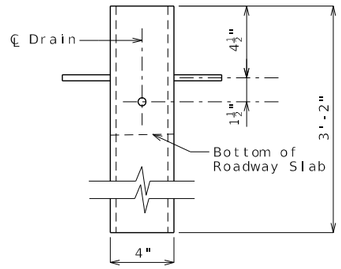


PART SECTION SHOWING BRACKET ASSEMBLY

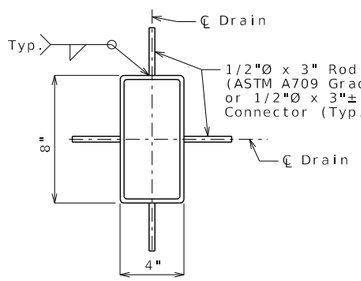


PART SECTION NEAR DRAIN

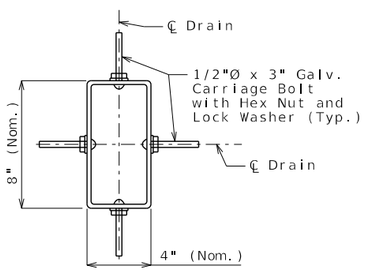
PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

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.

The bolt hole for the bracket assembly attachment shall be located on the wide flange beam shop drawings.

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.

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 12
COUNTY RIPLEY
JOB NO. J9S3848
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9391

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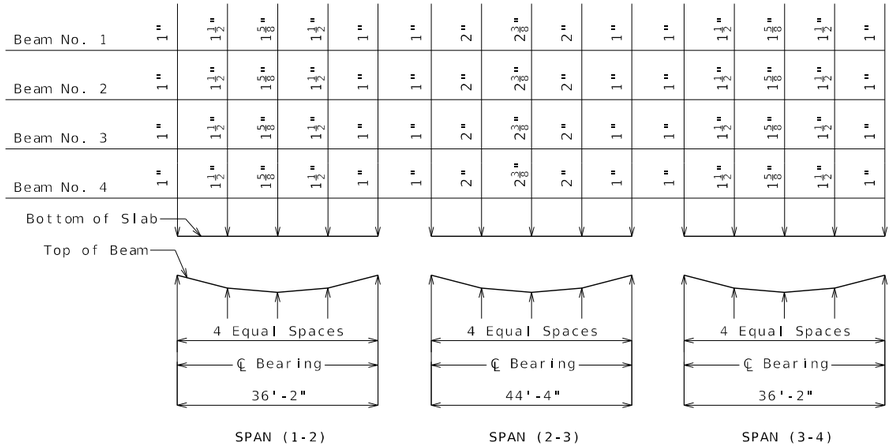
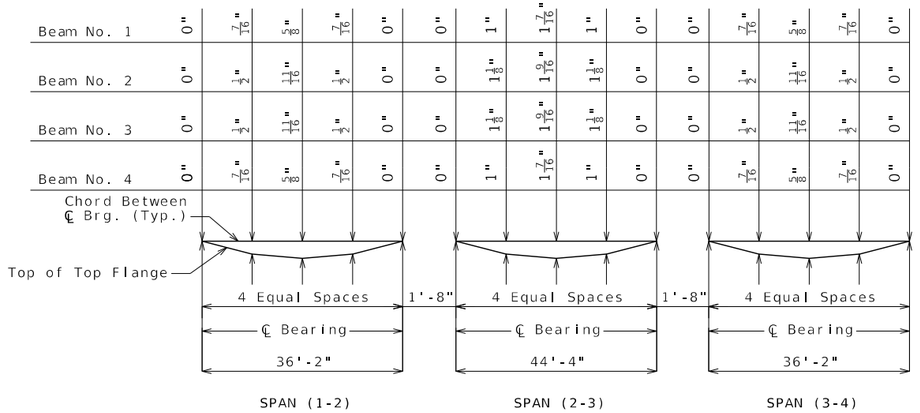


THEORETICAL SLAB HAUNCHING DIAGRAM (AFTER BARRIER PLACEMENT)

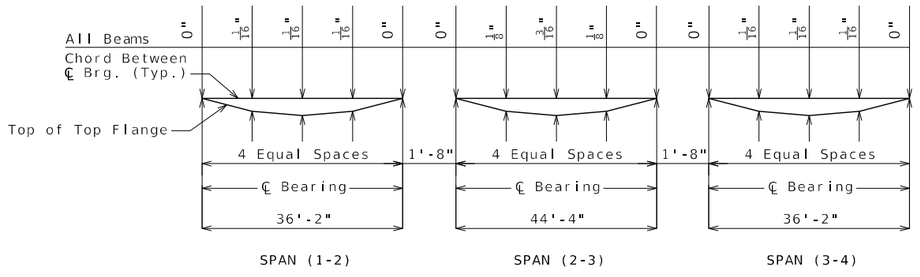
Haunching is estimated based on grade and bent elevations and Dead Load Deflection shown. If elevations or deflections in the field vary, an adjustment of the slab haunches shall be necessary in order to maintain a constant 8 1/2" slab thickness.

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



TOTAL DEAD LOAD DEFLECTION

Dead load deflection includes weight of structural steel, concrete slab, and barrer.



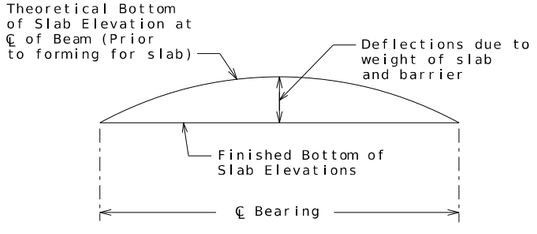
STEEL DEAD LOAD DEFLECTION

Dead load deflection includes weight of structural steel only

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

Beam Number	Span (1-2) (36'-2" ℄ Brg. - ℄ Brg.)					Span (2-3) (44'-4" ℄ Brg. - ℄ Brg.)					Span (3-4) (36'-2" ℄ Brg. - ℄ Brg.)					
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	297.30	297.34	297.35	297.34	297.30	297.30	297.38	297.41	297.38	297.30	297.30	297.34	297.35	297.34	297.30
2	297.44	297.48	297.49	297.48	297.44	297.44	297.52	297.55	297.52	297.44	297.44	297.48	297.49	297.48	297.44
3	297.44	297.48	297.49	297.48	297.44	297.44	297.52	297.55	297.52	297.44	297.44	297.48	297.49	297.48	297.44
4	297.30	297.34	297.35	297.34	297.30	297.30	297.38	297.41	297.38	297.30	297.30	297.34	297.35	297.34	297.30

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



TYPICAL SLAB ELEVATIONS DIAGRAM

SLAB ELEVATIONS, DEAD LOAD DEFLECTIONS AND HAUNCHING

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

Sheet No. 13 of 25

Detailed Sept. 2024
Checked Sept. 2024

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED: 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	13

COUNTY: RIPLEY

JOB NO.: J9S3848

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9391

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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3316 LEMONE
INDUSTRIAL BLVD
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MISSOURI CERTIFICATE OF AUTHORITY: 001528

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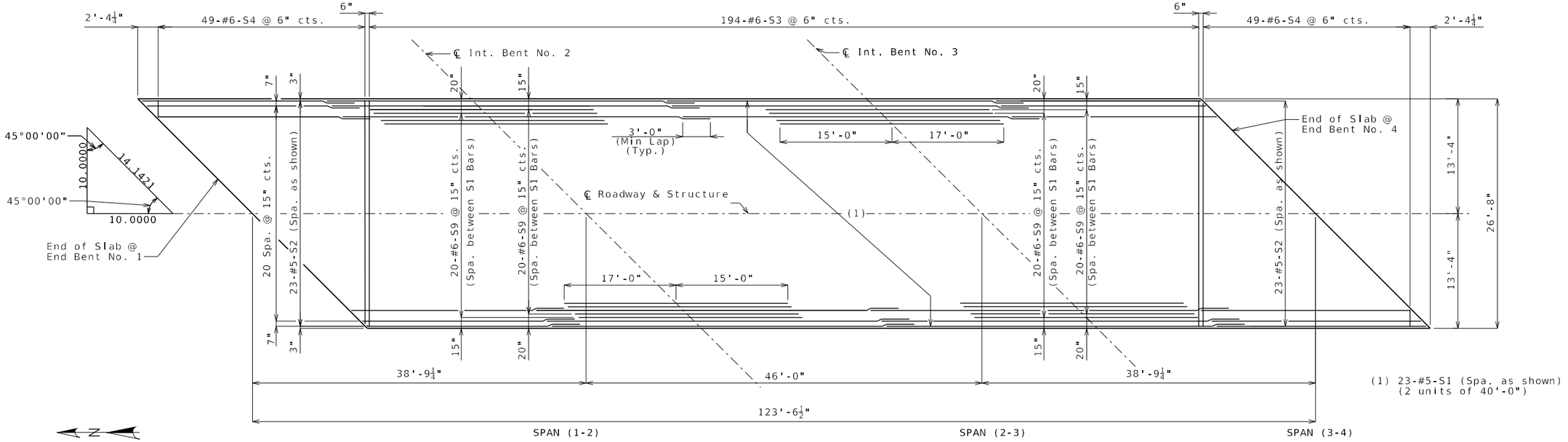
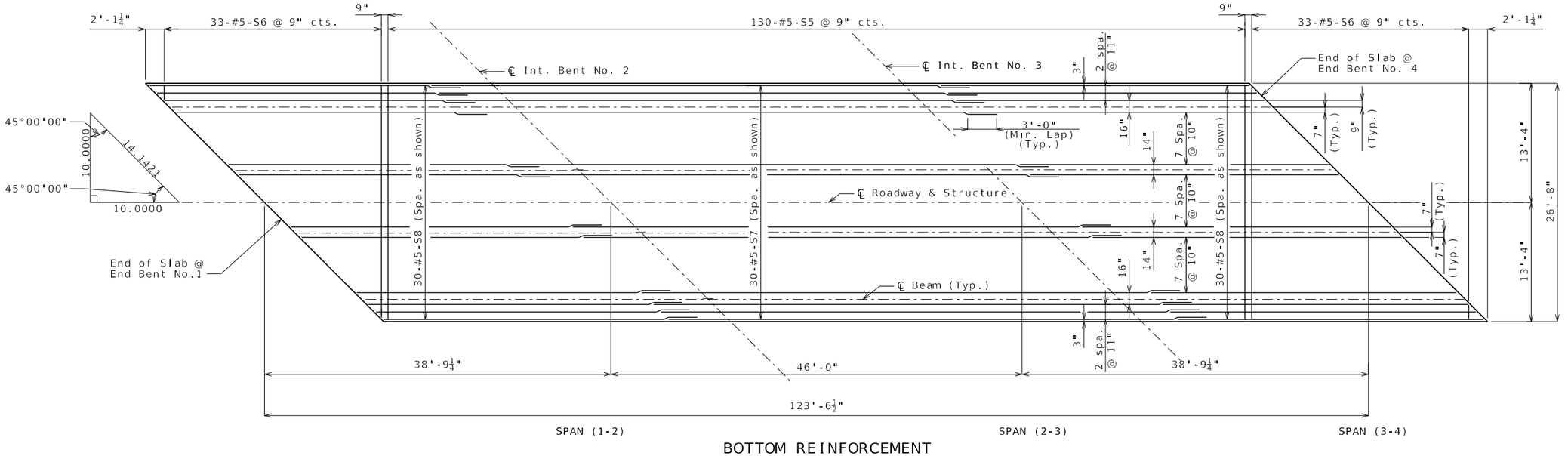
REV.



TOP REINFORCEMENT



BOTTOM REINFORCEMENT

Notes:

Longitudinal slab dimensions are measured horizontally.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 15.

For Details and Reinforcement of Safety Barrier Curb not shown, see Sheets No, 16 & 17.

For Theoretical Slab Haunching Diagram, see Sheet No. 13.

For Theoretical Bottom of Slab Elevations, see Sheet No. 13.

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

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Sept. 2024
Checked Sept. 2024

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

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PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	14

COUNTY RIPLEY

JOB NO. J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9391

DESCRIPTION | DATE

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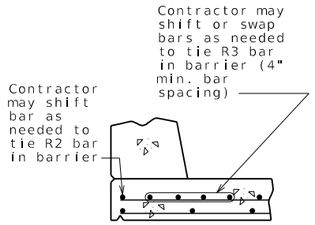
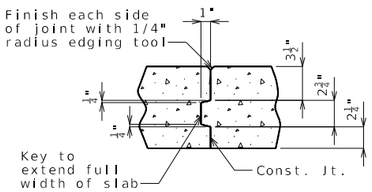
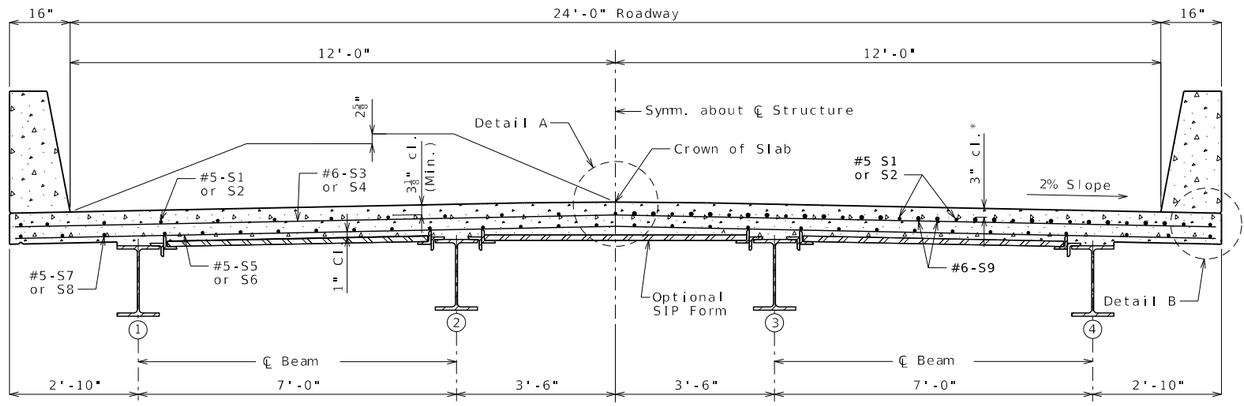


OPTIONAL SHIFTING TOP BARS AT BARRIER



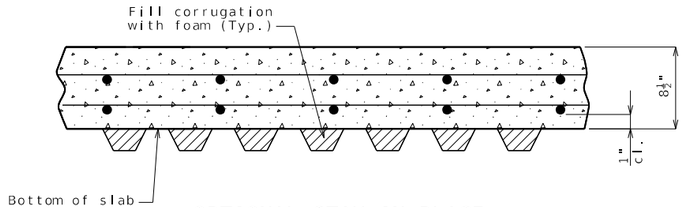
SLAB CONSTRUCTION JOINT



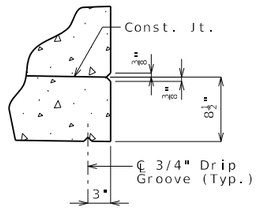
HALF SECTION NEAR MIDSPAN HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB

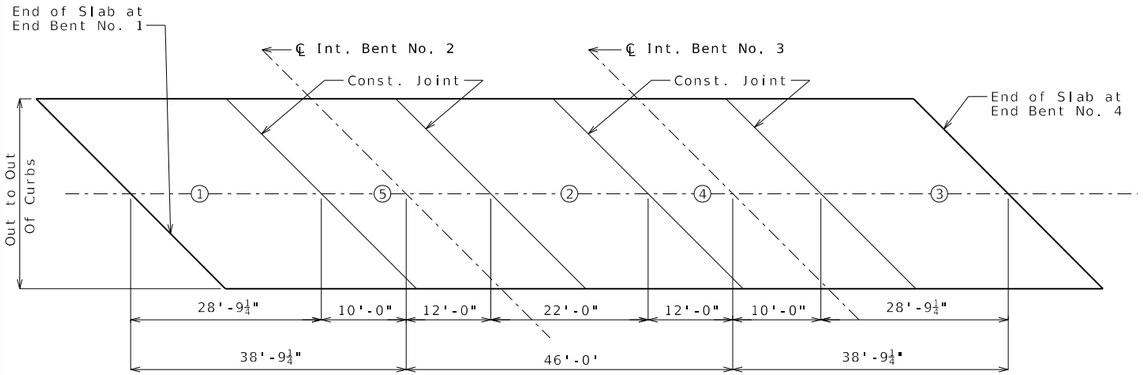
* to #6 S9 bars



OPTIONAL STAY-IN-PLACE FORM DETAILS



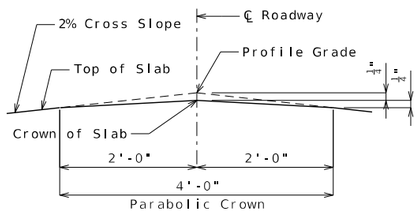
DETAIL B



	Sequence of Pours					Min. Rate of Pour Cu. Yds. / Hr	
	Direction					With Retarder	No Retarder
Basic Sequence	1	2	3	4	5	25	25
	Either Direction						
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.							
Alternate "A" Pours	1		5 + 2		4 + 3	25	25
	End to 5		1 to 4		2 to End		
Alternate "B" Pours	1 + 5 + 2			4 + 3		25	25
	End to 4			2 to End			
Alternate "C" Pours	1 + 5 + 2 + 4 + 3					25	25
	End to End						

The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

SLAB POURING SEQUENCE



DETAIL A

Notes:

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

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

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

Detailed Sept. 2024
Checked Sept. 2024

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

SLAB DETAILS

STATE OF MISSOURI
ADAM N. RUTZ NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	15

COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DESCRIPTION | DATE | REV.

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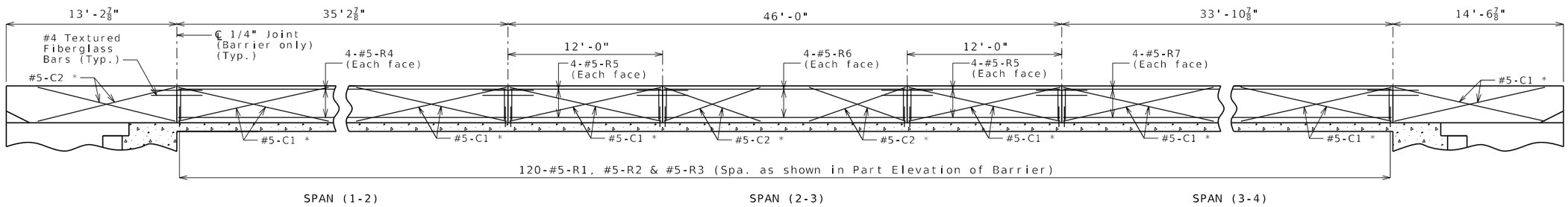
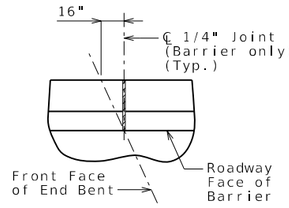
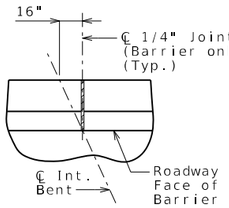


ELEVATION OF BARRIER

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

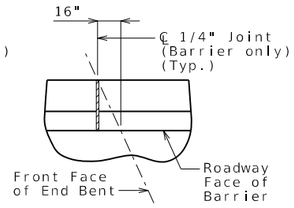


(AT END BENT 1)
Left barrier shown, right barrier at End Bent 4 similar.

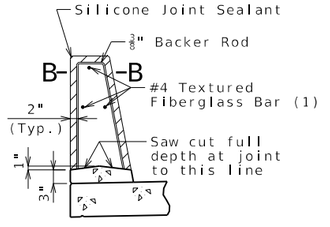


(AT INTERMEDIATE BENT)

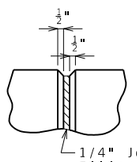
PART PLAN SHOWING JOINT LOCATION



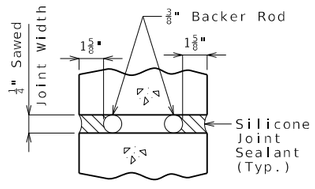
(AT END BENT 4)
Left barrier shown, right barrier at End Bent 1 similar.



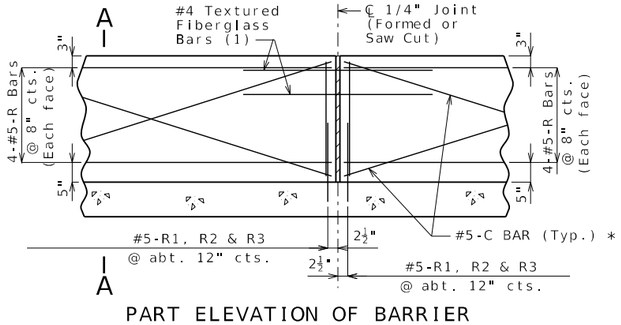
SECTION THRU SAW CUT JOINT



PART ELEVATION AT FORMED JOINT

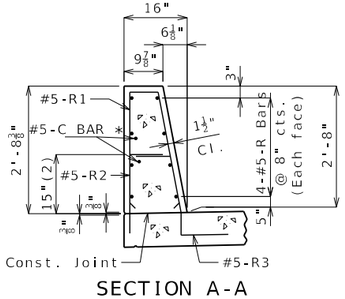


SECTION B-B



PART ELEVATION OF BARRIER

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

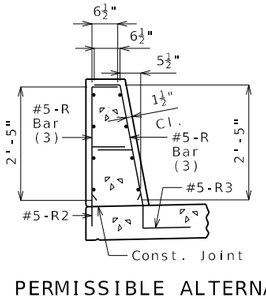


SECTION A-A

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

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

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

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

General Notes:

* Slip-formed option only.

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

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

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

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

Concrete in barrier shall be Class B-1.

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

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

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

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

TYPE H BARRIER

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED: 12/5/2024
ROUTE: W
STATE: MO
DISTRICT: BR
SHEET NO.: 16
COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DATE	DESCRIPTION	REV.

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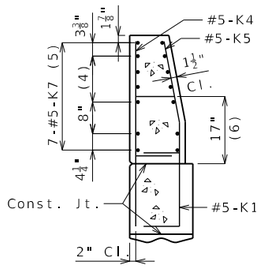
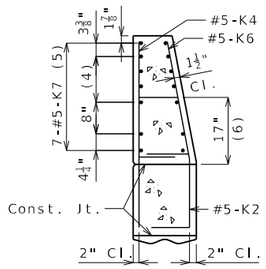
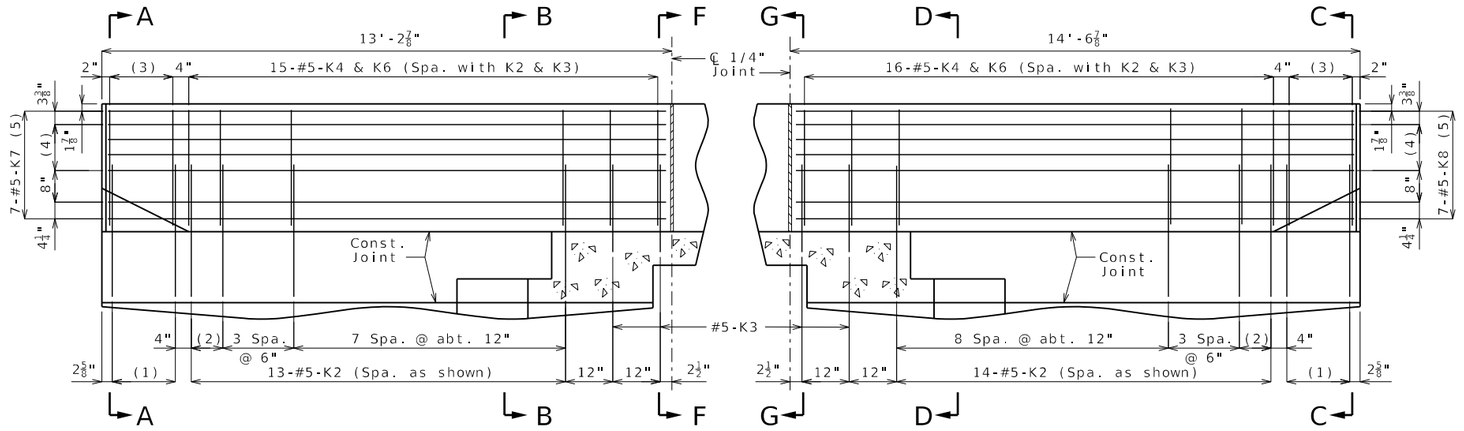


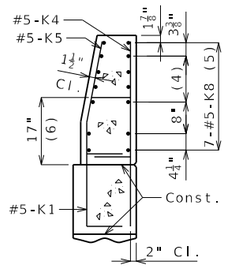
SECTION A-A



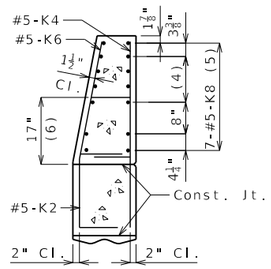
SECTION B-B



PART ELEVATION



SECTION C-C



SECTION D-D

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

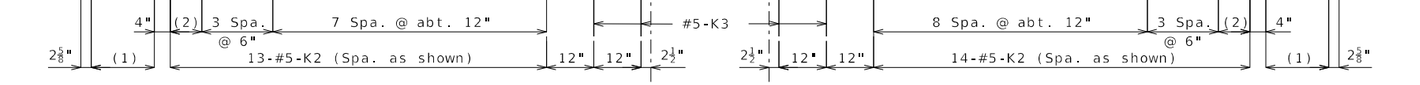
(2) 2 Spaces @ 4"

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

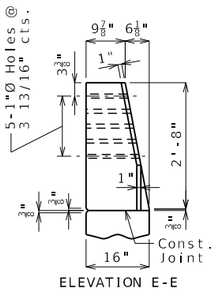
(4) 3 Spaces @ $3\frac{13}{16}$"

(5) Spaced as shown, each face

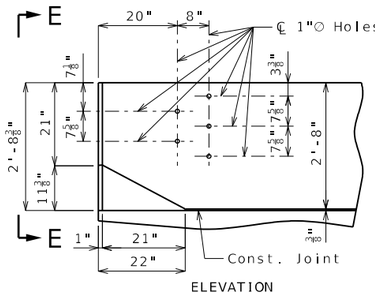
(6) To top of bar



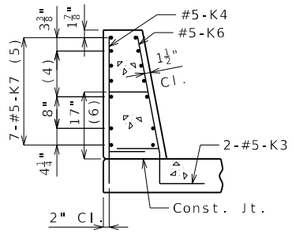
PART PLAN



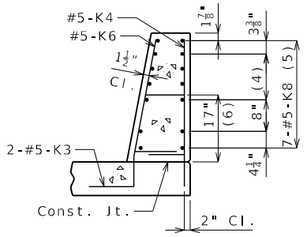
ELEVATION E-E



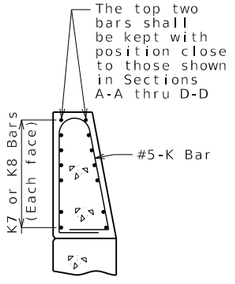
ELEVATION

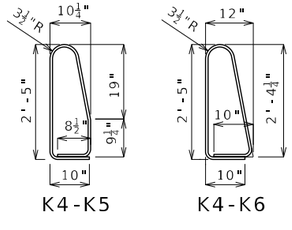


SECTION F-F



SECTION G-G





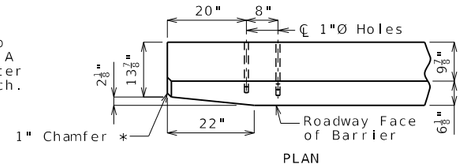
PERMISSIBLE ALTERNATE SHAPES

(Other K bars not shown for clarity)

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

All dimensions are out to out.

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



PLAN

DETAILS OF GUARD RAIL ATTACHMENT

General Notes:

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

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	17

COUNTY RIPLEY

JOB NO. J9S3848

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9391

DESCRIPTION	DATE

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

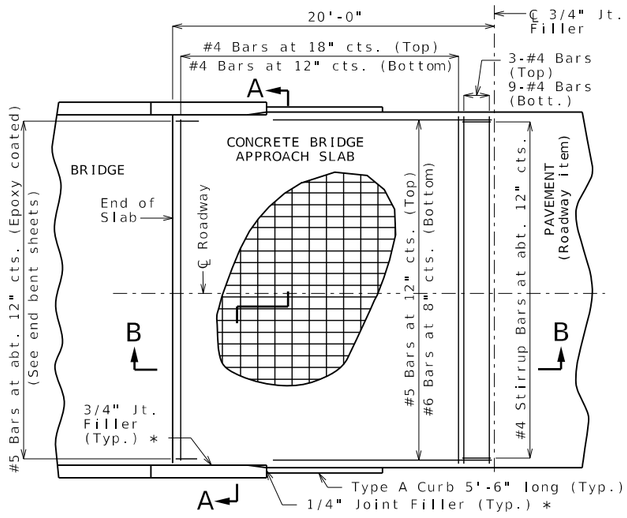
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

3316 LEMONE
INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
www.twm-inc.com

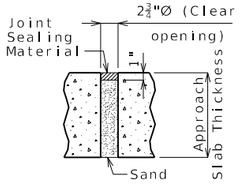
MISSOURI CERTIFICATE OF AUTHORITY: 001528

TWM ENGINEERING & GEOSPATIAL SERVICES

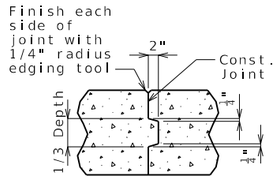
REV.



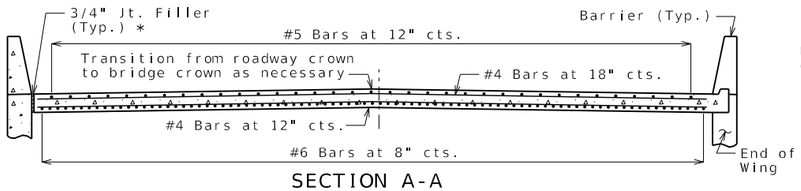
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



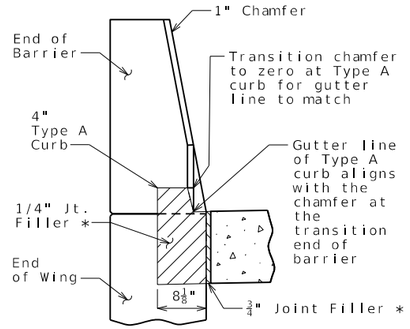
UNDERSEAL ACCESS HOLE DETAIL
(If required)



CONSTRUCTION JOINT DETAIL



SECTION A-A



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

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

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

General Notes:

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

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

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

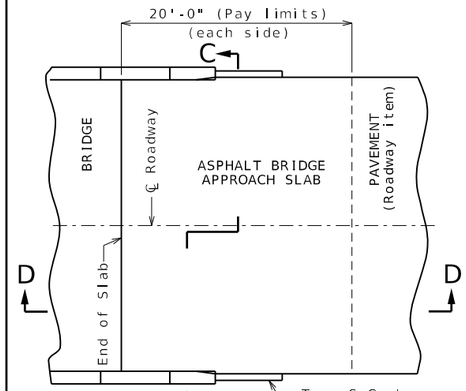
☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

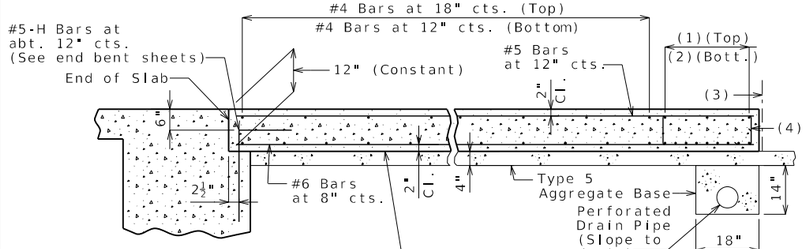
Notes For Asphalt Slab Only:

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

Application of tack is required between lifts per Sec 403.



PART PLAN
(Squared structure shown, skewed structure similar)



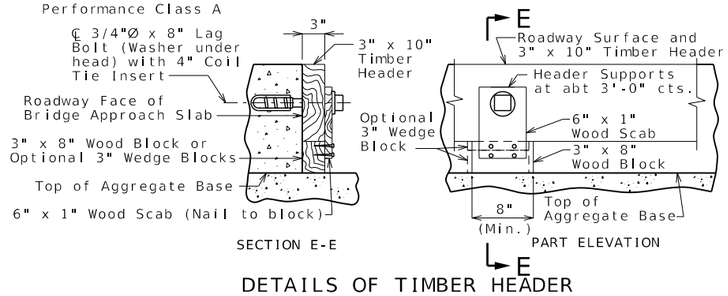
SECTION B-B

(1) 3-#4 Bars

(2) 9-#4 Bars

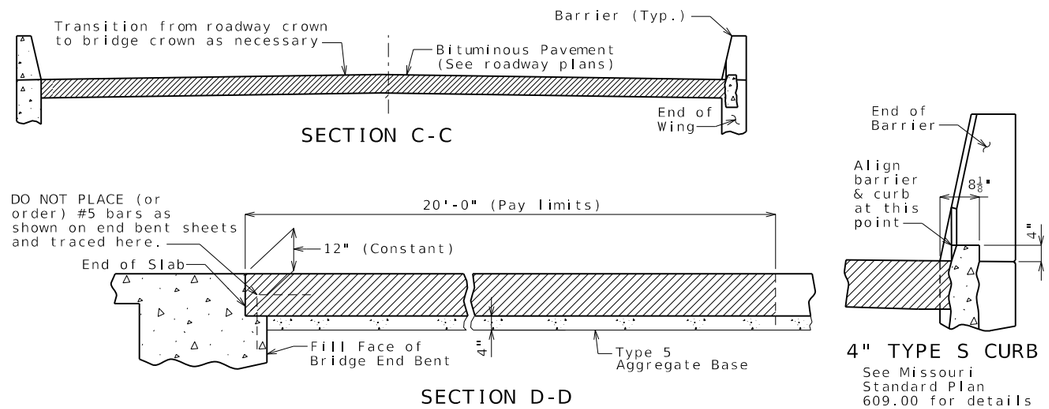
(3) ℄ 3/4" Jt. Filler

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



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

OPTIONAL CONCRETE SLAB



OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

BRIDGE APPROACH SLAB (MINOR)

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	18

COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DESCRIPTION	DATE

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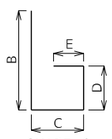
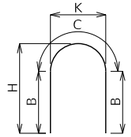


SHAPE 6
or 6S



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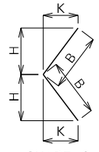

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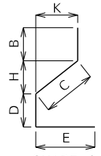

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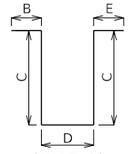

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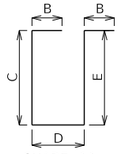

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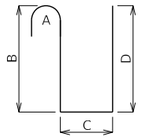

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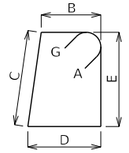

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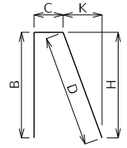

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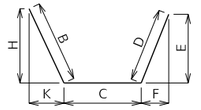

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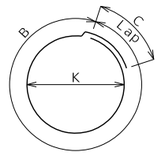

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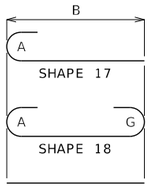
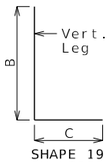


SHAPE 17
SHAPE 18
SHAPE 20



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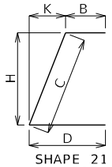

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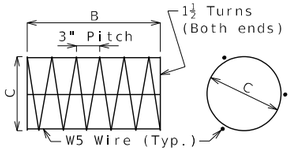

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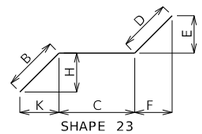

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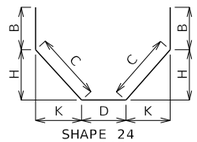

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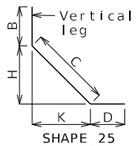

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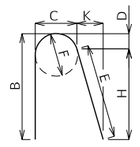

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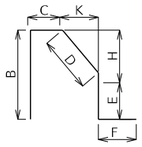

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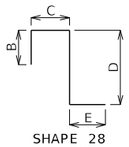

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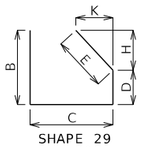

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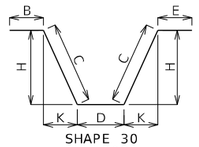

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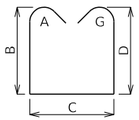

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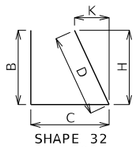

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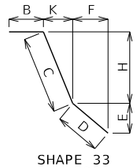

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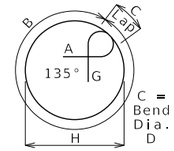

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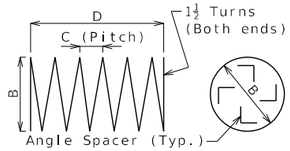

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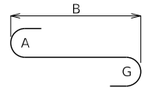
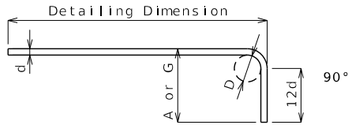


SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¾"	28½"

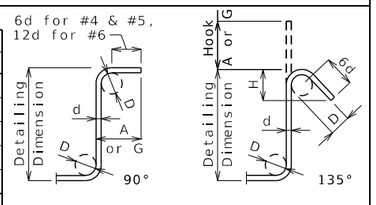


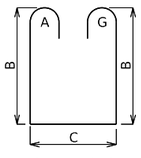
Stirrup Pin Bend Shapes (S)

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

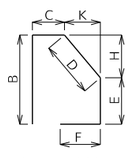
Applicable for all grades of steel.

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





SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)

		Substructure		Superstructure				Entire Bridge	
				Slab			Slip		
	Size	Plain	Epoxy	Plain	Epoxy	Barrier	Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	214	0	0	511	0	0	214	511
	5	1,488	0	0	13,694	6,676	481	1,488	20,851
	6	731	0	0	20,818	0	0	731	20,818
	7	0	0	0	0	0	0	0	0
	8	1,670	0	0	983	0	0	1,670	983
	9	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0
By Type		4,103	0	0	36,006	6,676	481	4,103	43,163

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	19

COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DATE	DESCRIPTION

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
3316 LEMONE INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
www.twm-inc.com
MISSOURI CERTIFICATE OF AUTHORITY: 001528
TWM ENGINEERING & GEOSPATIAL SERVICES

REV.

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		Substructure													
		Int Bents 2 & 3													
44	6 D200	BEAM		20		2 6.00							2 6	2 6	165
16	8 H200	BEAM		18		37 3.00							39 1	39 1	1,670
8	6 H201	BEAM		20		37 3.00							37 3	37 3	448
6	4 H202	BEAM		18		6 8.00							7 8	7 8	31
16	6 H203	BEAM		10S			12.00	3 3.00					5 3	4 11	118
80	4 P400	CIP PILE		34S		2 7.50	2.00				10.00		3 6	3 5	183
72	5 U200	BEAM		13S		3 3.00	2 9.00	3 3.00	2 9.00				12 11	12 8	951
10	5 U201	BEAM		10S			2 9.00	3 3.00					8 9	8 6	89
20	5 U202	BEAM		10S			6.00	3 3.00					4 3	4 0	83
60	5 V400	CIP PILE		17		5 3.00							5 10	5 10	365
		Superstructure													
		End Bents 1 & 4													
12	6 F100	WING BRACE	E	23S		2 3.00	3 6.00	14.00	13.00	5.25	2 1.00	10.25	6 11	6 9	122
4	6 F101	DIAPHRAGM	E	14S			3 9.00	4 0.00			2 10.00	2 10.00	7 9	7 9	47
12	6 F102	WING BRACE	E	23S		14.00	8 0.00	2 3.00	10.25	2 1.00	5.25	13.00	11 5	11 5	206
4	6 F103	DIAPHRAGM	E	21S			6 5.00	3 9.00			4 6.50	4 6.50	10 2	9 6	57
44	6 H100	BM & DIAPH	E	20		37 5.00							37 5	37 5	2,473
32	8 H101	WING	E	20		11 6.00							11 6	11 6	983
56	6 H102	WING	E	19S		10 8.00	12.00						11 8	11 6	967
6	6 H103	BEAM	E	18		9 4.00							10 9	10 9	97
64	4 P400	CIP PILE	E	34S		2 7.50	2.00				10.00		3 6	3 5	146
56	5 U100	BEAM	E	37S		3 11.50	3 10.75						12 9	12 6	730
8	5 U101	BEAM	E	13S		3 10.75	2 8.00	3 10.75	2 8.00				14 1	13 9	115
16	5 U102	BEAM	E	10S			2 8.00	3 10.75					9 3	9 0	150
92	6 U103	DIAPHRAGM	E	19S		24.00	5 7.00						7 7	7 5	1,025
60	5 U104	DIAPHRAGM	E	37S		22.00	3 2.25						7 10	7 7	475
60	6 U105	DIAPHRAGM	E	19S		13.50	3 10.75						5 0	4 10	436
48	5 U106	DIAPHRAGM	E	19S		18.00	15.00						2 9	2 8	134
8	5 V100	BM & DIAPH	E	17		3 11.00							4 6	4 6	38
24	6 V101	DIAPHRAGM	E	20		13.00							1 1	1 1	39
80	6 V102	WING	E	20		5 0.00							5 0	5 0	601
48	5 V400	CIP PILE	E	17		5 3.00							5 10	5 10	292
		Int Diaphragms													
12	6 H500	DIAPHRAGM	E	20		33 11.00							33 11	33 11	611
84	4 U500	DIAPHRAGM	E	28S			18.00	21.25	3 5.00				6 8	6 6	365
40	6 U501	DIAPHRAGM	E	28S			2 2.00	21.25	3 5.00				7 4	7 0	421
12	6 U502	DIAPHRAGM	E	21S		18.00	3 3.50	18.00			2 4.00	2 4.00	6 4	5 7	101
		Slab													
46	5 S1	SLAB	E	20		40 0.00							40 0	40 0	1,919
46	5 S2	SLAB	E	20		26 2.00							26 2	26 2	1,255
194	6 S3	SLAB	E	20		26 5.00							26 5	26 5	7,697
98	6 S4	SLAB	E	20	V	26 1.00							26 1	26 1	2,073
		INCREMENT = 6 INCH				2 1.00							2 1	2 1	
130	5 S5	SLAB	E	20		26 5.00							26 5	26 5	3,582
66	5 S6	SLAB	E	20	V	25 10.00							25 10	25 10	952
		INCREMENT = 9 INCH				22.00							1 10	1 10	
30	5 S7	SLAB	E	20		60 0.00							60 0	60 0	1,877
60	5 S8	SLAB	E	20		34 9.00							34 9	34 9	2,175
80	6 S9	SLAB	E	20		32 0.00							32 0	32 0	3,845

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		Type H Barrier													
20	5 K1	BARRIER	E	38S		3 7.50	9.25	5.25	3 2.25	9.50	5.25	1.00	8 10	8 6	177
54	5 K2	BARRIER	E	38S		3 7.50	9.25	14.50	2 5.25	10.00	14.25	2.75	8 11	8 7	483
8	5 K3	BARRIER	E	27S		22.50	9.25	14.50	7.75	12.00	14.25	2.75	5 6	5 2	43
82	5 K4	BARRIER	E	19S		2 5.00	10.00						3 3	3 2	271
20	5 K5	BARRIER	E	38S				19.25	9.50	8.25	18.75	4.25	3 1	3 0	63
62	5 K6	BARRIER	E	21S			2 5.00	10.00			2 4.25	6.00	3 3	3 1	199
28	5 K7	BARRIER	E	20		12 11.00							12 11	12 11	377
28	5 K8	BARRIER	E	20		14 3.00							14 3	14 3	416
240	5 R1	BARRIER	E	14S		2 5.00	6.50	2 5.50			2 5.00	5.50	5 5	5 3	1,314
240	5 R2	BARRIER	E	19S		20.50	9.50						2 6	2 5	605
240	5 R3	BARRIER	E	27S			9.50	15.25	5.00	12.00	15.00	3.00	3 6	3 4	834
16	5 R4	BARRIER	E	20		34 11.00							34 11	34 11	583
32	5 R5	BARRIER	E	20		11 8.00							11 8	11 8	389
16	5 R6	BARRIER	E	20		21 8.00							21 8	21 8	362
16	5 R7	BARRIER	E	20		33 7.00							33 7	33 7	560
		Slip Form Option													
28	5 C1	BARRIER	E	20		12 0.00							12 0	12 0	350
12	5 C2	BARRIER	E	20		10 6.00							10 6	10 6	131

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. 19.

Detailed Sept. 2024
Checked Sept. 2024

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024

ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 20
COUNTY RIPLEY
JOB NO. J9S3848
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9391

DESCRIPTION | DATE | REV.

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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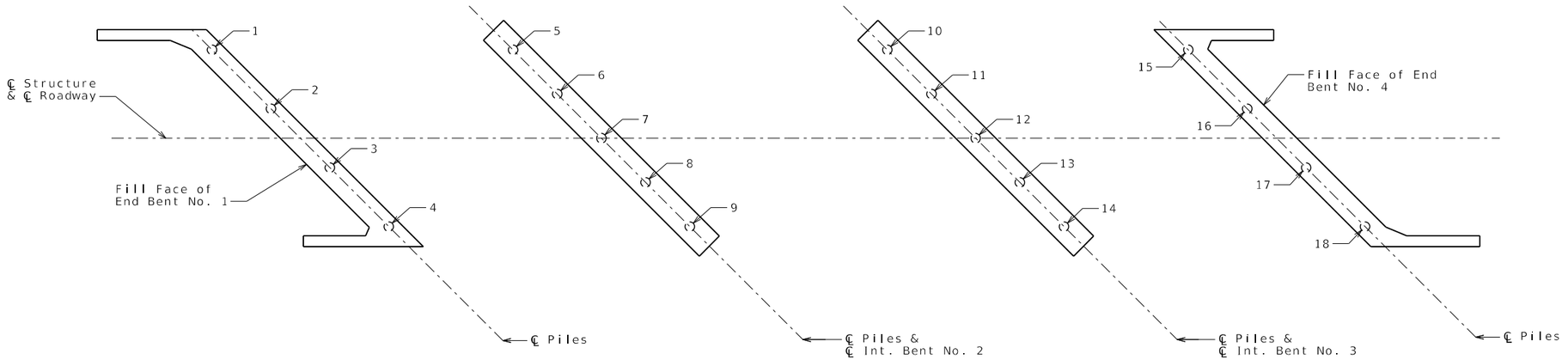

PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No. 1
1					
2					
3					
4					
					Int. Bent No.2
5					
6					
7					
8					
9					

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

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

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE DATA

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024
ROUTE W | STATE MO
DISTRICT BR | SHEET NO. 21
COUNTY RIPLEY
JOB NO. J9S3848
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9391

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DESCRIPTION | DATE | REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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Missouri Department of Transportation
Construction and Materials

BORING NO. 109
Page 1 of 4

Job No.: J9S3848 | County: Ripley | Route: W
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: 126 + 17.8' | Northing: 253001.0864 | Date of Work: 08/21/23-08/21/23
Offset: 38.5' LT | Easting: 787467.1065 | Depth to Water:
Elevation: 291.7 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,Auger Cuttings
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N_{60})	Field Tests	Index Tests
0		0.0-12.7' Brown, LEAN CLAY, medium stiff, dry	290					
5			285					
10			280					
		12.7-91.6' Brown, SAND (SC), stiff, wet						LL = NP D65 = 0.386 D50 = 0.16
15			275					
20			270					
25								

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

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 1
Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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

Geologic formations encountered:
Are pinnacles, crevices or cavities anticipated? No
Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

Missouri Department of Transportation
Construction and Materials

BORING NO. 109
Page 2 of 4

Job No.: J9S3848 | County: Ripley | Route: W
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: 126 + 17.8' | Northing: 253001.0864 | Date of Work: 08/21/23-08/21/23
Offset: 38.5' LT | Easting: 787467.1065 | Depth to Water:
Elevation: 291.7 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,Auger Cuttings
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N_{60})	Field Tests	Index Tests
25		12.7-91.6' Brown, SAND (SC), stiff, wet *(continued)*	265					
30			260					
35			255					
40			250					
45			245					
50								

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

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Are pinnacles, crevices or cavities anticipated? No
Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 1/31/24 10:24 - Z:\SG-DISTRICT\GINT\SOUTHEAST DISTRICT\PROJECT FILES\CORBIN CARLTON PGR\SJ9S3848 RIPLEY W OVER DITCH 3.GPJ

ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED: 12/5/2024
ROUTE: W | STATE: MO
DISTRICT: BR | SHEET NO.: 22
COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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3316 LEMONE INDUSTRIAL BLVD
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REV.

BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

P:\2022\221411D\4 CADD - DWG\4.4 Struc\B_A9391_022_J9S3848_Boring_Data.dgn 10:36:27 AM 12/5/2024

Missouri Department of Transportation
Construction and Materials

BORING NO. 109
Page 3 of 4

Job No.: J9S3848 | County: Ripley | Route: W
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: 126 + 17.8' | Northing: 253001.0864 | Date of Work: 08/21/23-08/21/23
Offset: 38.5' LT | Easting: 787467.1065 | Depth to Water:
Elevation: 291.7 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,Auger Cuttings
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
50		12.7-91.6' Brown, SAND (SC), stiff, wet *(continued)*						
			240					
55								
			235					
60								
			230					
65								
			225					
70								
			220					
75								

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

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 1
Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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

Geologic formations encountered:
Are pinnacles, crevices or cavities anticipated? No
Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

Missouri Department of Transportation
Construction and Materials

BORING NO. 109
Page 4 of 4

Job No.: J9S3848 | County: Ripley | Route: W
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: 126 + 17.8' | Northing: 253001.0864 | Date of Work: 08/21/23-08/21/23
Offset: 38.5' LT | Easting: 787467.1065 | Depth to Water:
Elevation: 291.7 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,Auger Cuttings
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
75		12.7-91.6' Brown, SAND (SC), stiff, wet *(continued)*						
			215					
80								
			210					
85								
			205					
90								
			200					
		91.7-93.4' Bluish brown, GRAVELLY SAND, stiff, wet						
		Bottom of borehole at 93.4 feet.						

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

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 1
Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 1/31/24 10:24 - Z:\SG-DISTRICT\GINT\SOUTHEAST DISTRICT\PROJECT FILES\CORBIN CARLTON PGR\SJ9S3848 RIPLEY WOVER DITCH 3.GPJ

ADAM N. RUTZ NUMBER PE-2015000599 — STATE OF MISSOURI — PROFESSIONAL ENGINEER
Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED: 12/5/2024
ROUTE: W | STATE: MO
DISTRICT: BR | SHEET NO.: 23
COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DESCRIPTION | DATE

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

3316 LEMONE INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
www.twm-inc.com

MISSOURI CERTIFICATE OF AUTHORITY: 001528

TWM ENGINEERING & GEOSPATIAL SERVICES

REV.

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

BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. 110
Page 1 of 2

Job No.: J9S3848 | County: Ripley | Route: W
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: 126 + 10' | Northing: 252989.7256 | Date of Work: 08/23/23-08/23/23
Offset: 51.4' LT | Easting: 787421.003 | Depth to Water:
Elevation: 295.2 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,Auger Cuttings
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
0		0.0-12.1' Brown, LEAN CLAY (CL), dry, with silt	295					
5			290					LL = 31 PL = 13 D85 = 0.369
10			285					
		12.1-13.6' Brown, SAND, dry						
		13.6-14.7' Bluish brown, SAND, moist						
15		14.7-28.2' Bluish brown, SAND, wet	280					
20			275					
25								

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

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 1
Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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

Geologic formations encountered:
Are pinnacles, crevices or cavities anticipated? No
Is scour anticipated? No
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 1/31/24 10:24 - Z:\SG-DISTRICT\GINT\SOUTHEAST DISTRICT\PROJECT FILES\CORBIN CARLTON PGR'S\J9S3848 RIPLEY W OVER DITCH 3.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. 110
Page 2 of 2

Job No.: J9S3848 | County: Ripley | Route: W
Design: A9391 | Skew: | Location: Ripley County
Bent: | Logged By: Corbin Carlton | Operator: Justin Reynolds
Station: 126 + 10' | Northing: 252989.7256 | Date of Work: 08/23/23-08/23/23
Offset: 51.4' LT | Easting: 787421.003 | Depth to Water:
Elevation: 295.2 | Requested Northing: | Depth Hole Open:
Requested Station: | Requested Easting: | Time Change:
Requested Offset: | Equipment: Mobile B-31 ,Auger Cuttings
Requested Elevation: | Location Note:
Drill No.: G-9402 | Hammer Efficiency: | Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
25		14.7-28.2' Bluish brown, SAND, wet *(continued)*	270					
		Bottom of borehole at 28.2 feet.						

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

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri East Coordinate Proj. Factor: 1
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Other comments:

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 1/31/24 10:24 - Z:\SG-DISTRICT\GINT\SOUTHEAST DISTRICT\PROJECT FILES\CORBIN CARLTON PGR'S\J9S3848 RIPLEY W OVER DITCH 3.GPJ

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED: 12/5/2024
ROUTE: W | STATE: MO
DISTRICT: BR | SHEET NO.: 24
COUNTY: RIPLEY
JOB NO.: J9S3848
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9391

DESCRIPTION | DATE

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

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

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www.twm-inc.com
MISSOURI CERTIFICATE OF AUTHORITY: 001528
TWM ENGINEERING & GEOSPATIAL SERVICES

REV.

BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

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KEY TO SYMBOLS

Missouri Department of Transportation
198 Route Y
Fruitland Missouri

CLIENT MoDOT Southeast District
PROJECT NUMBER J9S3848
PROJECT NAME Ripley Route W over Ditch 3 replacing bridge P0677
PROJECT LOCATION Ripley County

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)

- USCS Low Plasticity Clay
- USCS Clayey Sand
- USCS Poorly-graded Gravelly Sand

SAMPLER SYMBOLS

- Auger Cuttings

WELL CONSTRUCTION SYMBOLS

ABBREVIATIONS

LL	- LIQUID LIMIT (%)	TV	- TORVANE
PI	- PLASTIC INDEX (%)	PID	- PHOTOIONIZATION DETECTOR
W	- MOISTURE CONTENT (%)	UC	- UNCONFINED COMPRESSION
DD	- DRY DENSITY (PCF)	ppm	- PARTS PER MILLION
NP	- NON PLASTIC		
-200	- PERCENT PASSING NO. 200 SIEVE		
PP	- POCKET PENETROMETER (TSF)		
Qu	- UNCONFINED COMPRESSIVE STRENGTH (PSF)		

▽ Water Level at Time of Drilling

▼ Water Level at End of Drilling

▼ Water Level after Drilling

KEY TO SYMBOLS - MODOT 20150728.GDT - 1/31/24 10:25 - Z:\SG-DISTRICT\GINT\SOUTHEAST DISTRICT\PROJECT FILES\CORBIN CARLTON PGR\SJ9S3848 RIPLEY W OVER DITCH 3.GPJ

BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

STATE OF MISSOURI
ADAM N. RUTZ
NUMBER PE-2015000599
PROFESSIONAL ENGINEER

Signed: 12/5/2024
Adam N. Rutz - Civil
MO PE-2015000599

DATE PREPARED 12/5/2024
ROUTE W
STATE MO
DISTRICT BR
SHEET NO. 25
COUNTY RIPLEY
JOB NO. J9S3848
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9391

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

REV. | DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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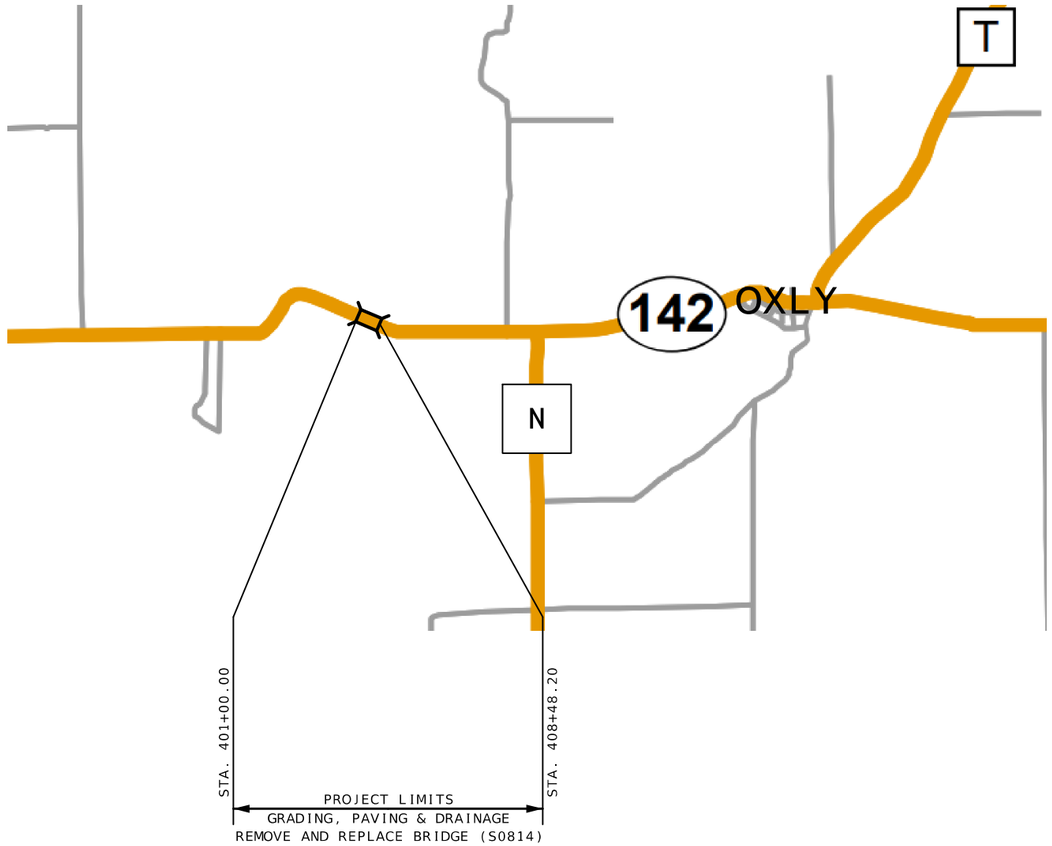
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

RIPLEY COUNTY
T23N, R3E

KEY MAP
LOCATION OF RIPLEY COUNTY

NOT TO SCALE



DESIGN DESIGNATION

A.A.D.T. - 2025 = 1,150
A.A.D.T. - 2045 = 1,410
T = 43%
V = 55 M.P.H.

FUNCTIONAL CLASSIFICATION - MINOR ARTERIAL

NORMAL RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION EASEMENTS WILL BE ACQUIRED WITH THIS PROJECT.

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CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.

INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (1 SHEET)	2
QUANTITIES (QU) (3 SHEETS)	3
PLAN-PROFILE (PP)	4
RIGHT OF WAY (RW)	5
REFERENCE POINTS (RP)	6
COORDINATE POINTS (CP)	6
TRAFFIC CONTROL SHEETS (TC)	7-8
EROSION CONTROL SHEETS (EC)	9
BRIDGE DRAWINGS (B)	
A9392	1-32
CROSS SECTIONS (XS)	1-6

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 401+00.00	
END OF PROJECT	STA. 408+48.20	
APPARENT LENGTH	748.20	FEET
EQUATIONS AND EXCEPTIONS:	NONE	
TOTAL CORRECTIONS	0.00	FEET
NET LENGTH OF PROJECT	748.20	FEET
STATE LENGTH	0.142	MILES

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER
PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED: 7/22/2025
ROUTE: 142
STATE: MO
DISTRICT: SE
SHEET NO.: 1
COUNTY: RIPLEY
JOB NO.: JSE0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9392

DESCRIPTION | DATE

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

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(314) 241-6300
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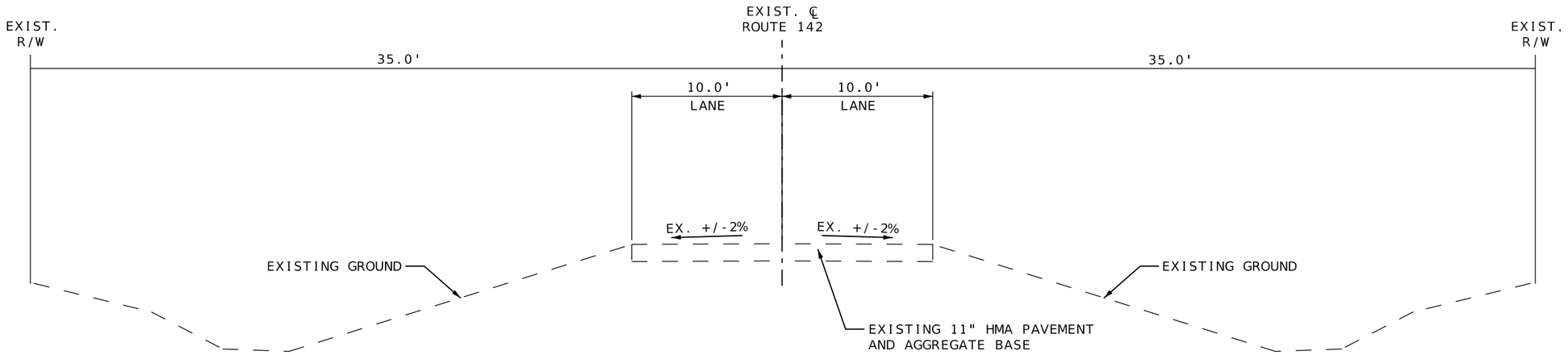
MISSOURI CERT. OF AUTHORITY: 001528

TITLE SHEET
ROUTE 142
SHEET 1 OF 1

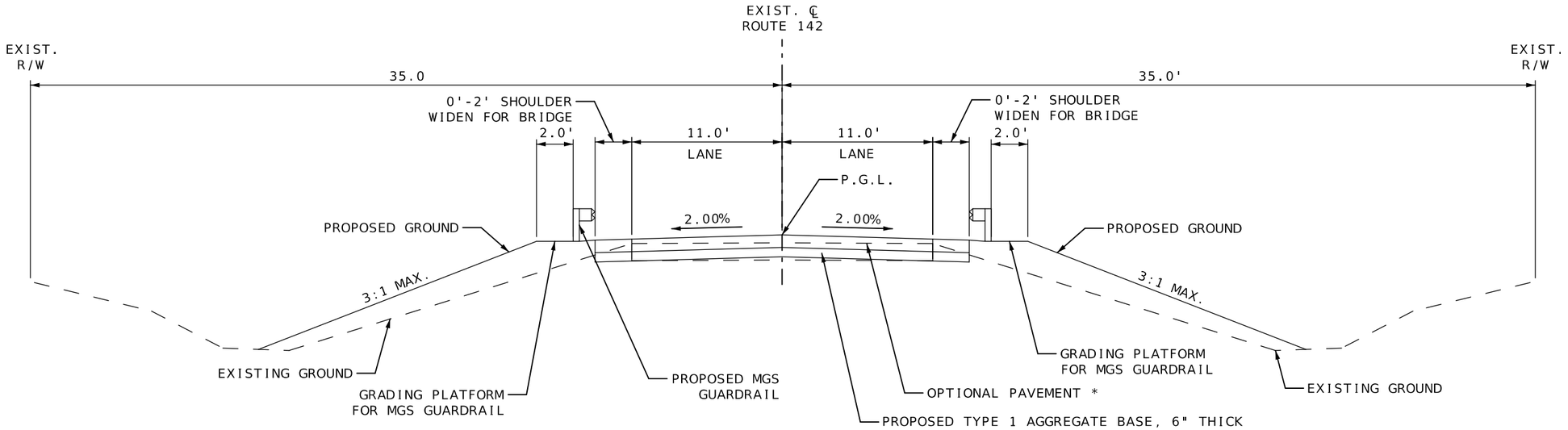
REV.

P:\2022\221411A\4 CADD - DWG\4.7 Tran\Sheets\001_TL_01_SE0031_i1.dgn 12:36:36 PM 7/22/2025



EXISTING TYPICAL SECTION ON TANGENT ROUTE 142

STA. 401+00.00 TO STA. 408+48.20



PROPOSED TYPICAL SECTION ON TANGENT ROUTE 142

STA. 401+00.00 TO STA. 408+48.20
(PAVEMENT LIMITS STA. 402+82.20 TO STA. 408+48.20)
(BRIDGE LIMITS STA. 403+72.60 TO STA. 404+75.23)
* PAVEMENT DRAWN AS CONCRETE OPTION

OPTIONAL PAVEMENT

(1) 8" PCCP WITH 15' JOINTS W/ 1 1/4" DOWELS
(2) 2" BP-1 (PG64-22) OVER 8" PMBB (PG64-22)

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DRAWING NOT TO SCALE

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed: 9/12/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED: 9/12/2025
ROUTE: 142 | STATE: MO
DISTRICT: SE | SHEET NO.: 2
COUNTY: RIPLEY
JOB NO.: JSE0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9392

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

DESCRIPTION | DATE | REV.

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

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ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001538

TYPICAL SECTIONS
ROUTE 142
SHEET 1 OF 1

CONTRACTOR FURNISHED SURVEYING AND STAKING = 1 LUMP SUM

MOBILIZATION = 1 LUMP SUM

GRADING AND EARTHWORK

SHEET	STATION	STATION	ROUTE	LOCATION	COMPACTING IN CUT (STA.)	COMPACTING EMBANKMENT (CUYD)	CLASS A EXCAVATION (CUYD)	EMBANKMENT IN PLACE (CUYD)	REMARKS
4	401+87.61	404+06.11	142	CL	1.8	67.0	83.7	698.6	
4	404+53.44	408+48.20	142	CL	3.5	354.9	443.6	352.6	
				SUBTOTAL	5.4	421.9	527.3	1051.2	
				PAY TOTAL	5.4	422	527	1051	

6" TYPE 1 BASE

SHEET	STATION	STATION	ROUTE	LOC	LENGTH (LF)	WIDTH (LF)	AREA (SY)	REMARKS
4	402+82.20	403+52.60	142	CL	70.4	VARIES	180.0	
4	404+95.23	408+48.20	142	CL	352.97	VARIES	782.0	
						SUBTOTAL	962.0	
						PAY TOTAL	962.0	

OPTIONAL PAVEMENT

SHEET	STATION	STATION	ROUTE	LOC	LENGTH (LF)	WIDTH (LF)	AREA (SY)	REMARKS
4	402+82.20	403+52.60	142	CL	70.4	VARIES	180.0	10" HMA / 8" PCCP
4	404+95.23	408+48.20	142	CL	352.97	VARIES	782.0	10" HMA / 8" PCCP
						SUBTOTAL	962.0	
						PAY TOTAL	962	

TYPE 2 ROCK BLANKET

SHEET	STATION	STATION	ROUTE	FURNISHING (CUYD)	PLACING (CUYD)	GEOTEXTILE (SY)	REMARKS
4	403+49.79	404+06.33	142	281.7	281.7	422.6	
4	404+53.34	404+98.74	142	182.9	182.9	274.3	
			SUBTOTAL	464.6	464.6	696.9	
			PAY TOTAL	465	465	697	

GRAVEL ENTRANCE

SHEET	STATION	ROUTE	LOCATION	GRAVEL (A) OR CRUSHED STONE (B) (SY)	REMARKS
4	407+32.00	142	RT	42.1	
4	407+76.00	142	LT	42.2	
			SUBTOTAL	84.3	
			PAY TOTAL	84	

CLEARING AND GRUBBING

SHEET	STATION	STATION	ROUTE	LOCATION	CLEARING AND GRUBBING (ACRE)	REMARKS
4	401+87.61	404+06.20	142	RT	0.2	
4	402+42.98	403+94.69	142	LT	0.1	
4	404+62.47	408+48.20	142	RT	0.3	
4	404+53.45	408+48.20	142	LT	0.3	
				SUBTOTAL	0.9	
				PAY TOTAL	1	

SEEDING & MULCHING

SHEET	STATION	STATION	LOCATION	SEEDING - COOL SEASON MIXTURE (ACRE)	MULCHING (ACRE)	REMARKS
4	401+87.61	403+56.08	RT	0.11	0.11	
4	402+42.98	403+82.31	LT	0.11	0.11	
4	404+91.74	408+48.20	RT	0.10	0.10	
4	404+91.74	408+48.20	LT	0.17	0.17	
			SUBTOTAL	0.5	0.5	
			PAY TOTAL	0.5	0.5	

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	ROUTE	LOCATION	AMOUNT	DESCRIPTION
4	397+88.20		142	RT	1 EACH	WEIGHT LIMIT SIGN
4	402+82.20		142	LT/RT	20 LF	SAW CUT
4	402+82.20	408+48.20	142	LT/RT	1360 SY	PAVEMENT
4	403+39.67	403+79.49	142	LT/RT	6 EACH	TYPE 3 OBJECT MARKERS (12" x 36")
4	403+79.49		142	RT	1 EACH	"HARRIS CREEK" SIGN
4	404+66.94	405+11.66	142	LT/RT	6 EACH	TYPE 3 OBJECT MARKERS (12" x 36")
4	404+66.94		142	LT	1 EACH	"HARRIS CREEK" SIGN
4	408+48.20		142	LT/RT	20 LF	SAW CUT
4	411+00.00		142	LT	1 EACH	WEIGHT LIMIT SIGN
	PAYTOTAL 1 LUMP SUM					

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO

DISTRICT	SHEET NO.
SE	3

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION

DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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SUMMARY
OF QUANTITIES
ROUTE 142
SHEET 1 OF 3

REV.

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TEMPORARY EROSION CONTROL

SHEET	STATION	STATION	ROUTE	LOC	SILT FENCE (LF)	ROCK DITCH CHECK (LF)	TYPE C BERM (LF)	SEDIMENT TRAP (CUYD)	SEDIMENT REMOVAL (CUYD)	REMARKS
9	402+09.31	403+32.94	142	RT		125.0				6 DITCH CHECKS AT 25' SPACING
9	402+50.07	403+23.06	142	LT		75.0				4 DITCH CHECKS AT 25' SPACING
9	403+37.64	403+82.32	142	LT	44.7				0.4	
9	403+39.25	403+78.98	142	CL			129.7		2.6	ALONG NORTHWEST STREAM BANK
9	403+40.79	404+01.08	142	RT	60.3				0.6	
9	403+49.74	403+49.74	142	LT				10.0	0.0	AT NORTHWEST DITCH OUTLFOW
9	403+56.63	403+56.63	142	RT				10.0	0.0	AT SOUTHWEST DITCH OUTFLOW
9	404+52.31	405+16.32	142	LT	64.0				0.6	
9	404+61.97	405+10.81	142	CL			123.0		2.5	ALONG SOUTHEAST STREAM BANK
9	404+83.36	405+71.16	142	RT	87.8				0.9	
9	404+90.42	404+90.42	142	LT				10.0	0.0	AT NORTHEAST DITCH OUTFLOW
9	404+99.02	404+99.02	142	RT				10.0	0.0	AT SOUTHEAST DITCH OUTFLOW
9	405+14.71	407+35.81	142	LT		225.0				10 DITCH CHECKS AT 25' SPACING
9	405+23.97	406+90.88	142	RT		175.0				8 DITCH CHECKS AT 25' SPACING
9	407+46.45	408+51.53	142	RT	105.1				1.1	
9	407+54.61	407+54.61	142	RT				10.0	0.0	AT SOUTHEAST CORNER OF RIGHT ENTRANCE
9	407+88.08	408+46.66	142	LT	59.1				0.6	
9	407+99.70	407+99.70	142	LT				10.0	0.0	AT NORTHEAST CORNER OF LEFT ENTRANCE
				SUBTOTAL	421.0	600.0	252.7	60.0	9.3	
				PAY TOTAL	421	600	253	60	9	

PAVEMENT MARKINGS

SHEET	STATION	STATION	ROUTE	LOCATION	CLASS 1 PAVEMENT MARKING PAINT (18 MIL, TYPE P BEADS) 4 IN. YELLOW (LF)	CLASS 1 PAVEMENT MARKING PAINT (18 MIL, TYPE P BEADS) 4 IN. WHITE (LF)	REMARKS
11	398+72.60	409+75.23	142	LT		1103	RIGHT EOP
11	398+72.60	409+75.23	142	RT		1103	LEFT EOP
11	398+72.60	409+75.23	142	CL	2205		DOUBLE SOLID YELLOW CENTERLINE
				SUBTOTAL	2205	2205	
				PAY TOTAL	2205	2205	

GUARDRAIL

SHEET	STATION	STATION	LOCATION	MGS BRIDGE APPROACH TRNASITION SECTION (EACH)	MGS GUARDRAIL (LF)	MGS TYPE A CRASHWORTHY END TERMINAL (MASH) (EACH)	MODIFIED SHAPING SLOPES, CLASS III (FT)	REMARKS
4	401+87.45	403+76.08	RT	1	100.0	1	200	SOUTHWEST CORNER OF BRIDGE A9392
4	401+42.98	403+69.12	LT	1	37.5	1	200	NORTHWEST CORNER OF BRIDGE A9392
4	404+71.74	406+60.37	LT	1	100.0	1	200	NORTHEAST CORNER OF BRIDGE A9392
4	404+78.71	406+04.84	RT	1	37.5	1	200	SOUTHEAST CORNER OF BRIDGE A9392
			SUBTOTAL	4	275	4	800	
			PAY TOTAL	4	275	4	800	

DRAINAGE

SHEET	STATION	STATION	ROUTE	LOC	15 IN. GROUP B PIPE (LF)	CLASS 3 EXCAVATION (CY)	REMARKS
4	407+16.00	407+48.00	142	RT	32.0	26.1	P2
4	407+60.00	407+92.00	142	LT	32.0	26.1	P1
				SUBTOTAL	64.0	52.2	
				PAY TOTAL	64	52	

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO

DISTRICT	SHEET NO.
SE	3

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION | DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

TWM ENGINEERING GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001528

SUMMARY OF QUANTITIES
ROUTE 142
SHEET 2 OF 3

REV.

P:\2022\221411A\4 CADD - DWG\4.7 Tran\Sheets\003_QU_01_SE0031_I1.dgn 12:36:39 PM 7/22/2025

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
*WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00	4	64			20D	ROAD CLOSED AHEAD
WO20-4	48X48	16.00	7	112			20,20A,20B	ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
*GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	2	6			52	END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)
*REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20			29	ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	2	25			60	ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
*MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
WO20-3a	48X48	16.00	2	32			20C	ROAD CLOSED 500 FEET
SPECIAL	36X60	15.00	13	195			50A	RTE 142 DETOUR STRAIGHT ARROW
SPECIAL	36X60	15.00	7	105			50B	RTE 142 DETOUR ADV. RT ARROW
SPECIAL	36X60	15.00	5	75			50C	RTE 142 DETOUR RT ARROW
SPECIAL	36X60	15.00	7	105			50D	RTE 142 DETOUR ADV. LT ARROW
SPECIAL	36X60	15.00	5	75			50E	RTE 142 DETOUR LT ARROW

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

TRAFFIC CONTROL = 1 LUMP SUM

* NO DIRECT PAYMENT WILL BE MADE FOR TEMPORARY TRAFFIC CONTROL SIGNS OR DEVICES.

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO

DISTRICT	SHEET NO.
SE	3

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION

DATE

REV.

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

TWM
ENGINEERING
GEOSPATIAL SERVICES
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ST. LOUIS, MO 63127
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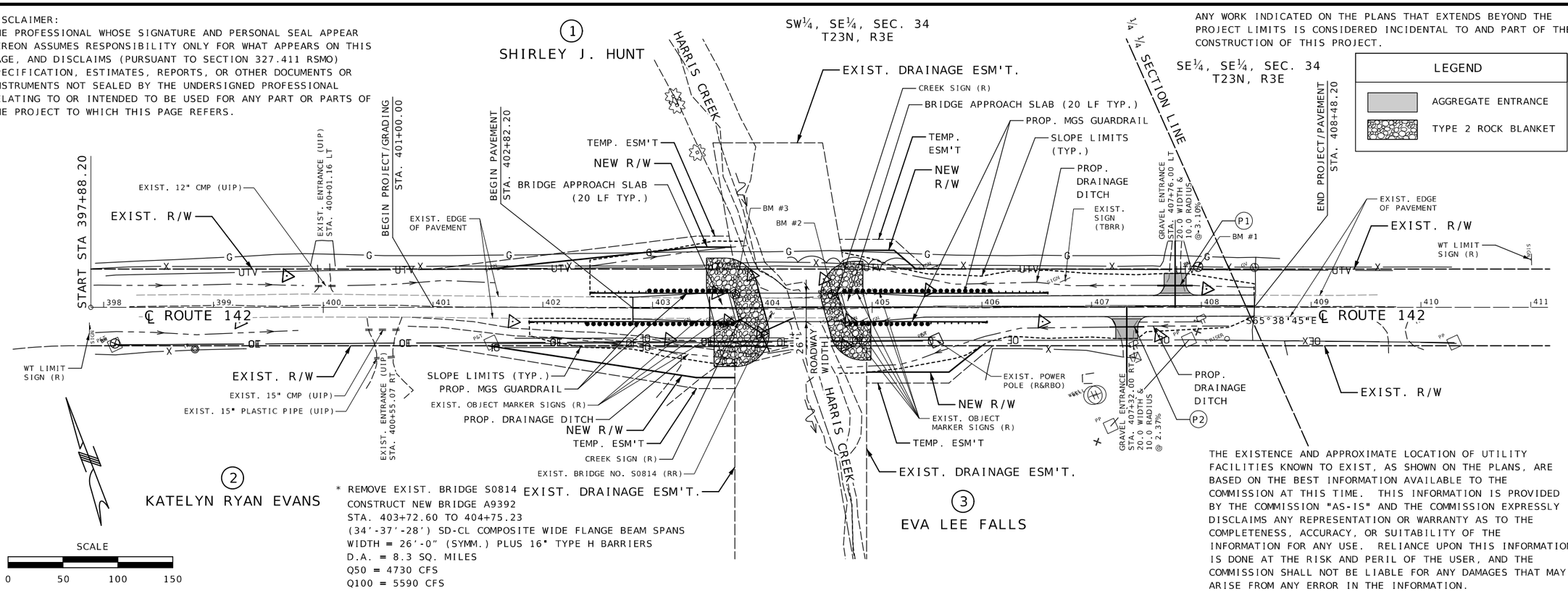
MISSOURI CERT. OF AUTHORITY: 001528

SUMMARY OF QUANTITIES
ROUTE 142
SHEET 3 OF 3

DISCLAIMER:
THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS PAGE, AND DISCLAIMS (PURSUANT TO SECTION 327.411 RSMO) SPECIFICATION, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS PAGE REFERS.

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

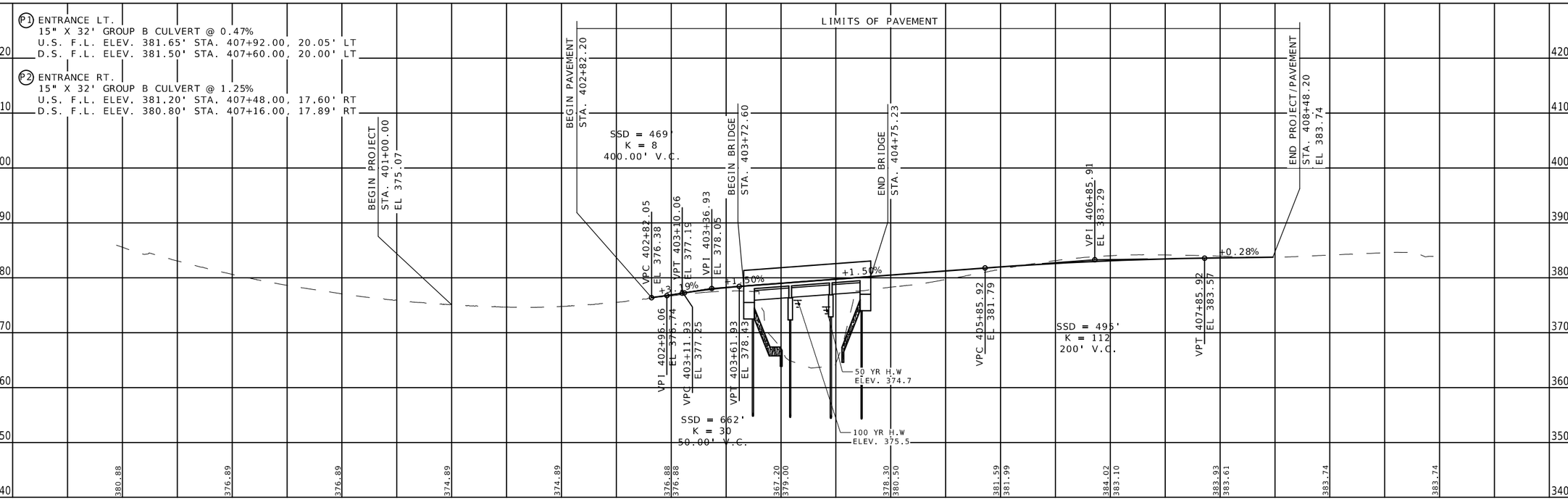


* REMOVE EXIST. BRIDGE S0814
CONSTRUCT NEW BRIDGE A9392
STA. 403+72.60 TO 404+75.23
(34'-37'-28') SD-CL COMPOSITE WIDE FLANGE BEAM SPANS
WIDTH = 26'-0" (SYMM.) PLUS 16" TYPE H BARRIERS
D.A. = 8.3 SQ. MILES
Q50 = 4730 CFS
Q100 = 5590 CFS

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.

P1 ENTRANCE LT.
15" X 32' GROUP B CULVERT @ 0.47%
U.S. F.L. ELEV. 381.65' STA. 407+92.00, 20.05' LT
D.S. F.L. ELEV. 381.50' STA. 407+60.00, 20.00' LT

P2 ENTRANCE RT.
15" X 32' GROUP B CULVERT @ 1.25%
U.S. F.L. ELEV. 381.20' STA. 407+48.00, 17.60' RT
D.S. F.L. ELEV. 380.80' STA. 407+16.00, 17.89' RT



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LEGEND
AGGREGATE ENTRANCE
TYPE 2 ROCK BLANKET

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER
Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED 7/22/2025
ROUTE 142 | STATE MO
DISTRICT SE | SHEET NO. 4
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

DESCRIPTION | DATE | REV.

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

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

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MISSOURI CERT. OF AUTHORITY: 001528

PLAN/PROFILE SHEET
ROUTE 142
SHEET 1 OF 1

FOR INFORMATION ONLY

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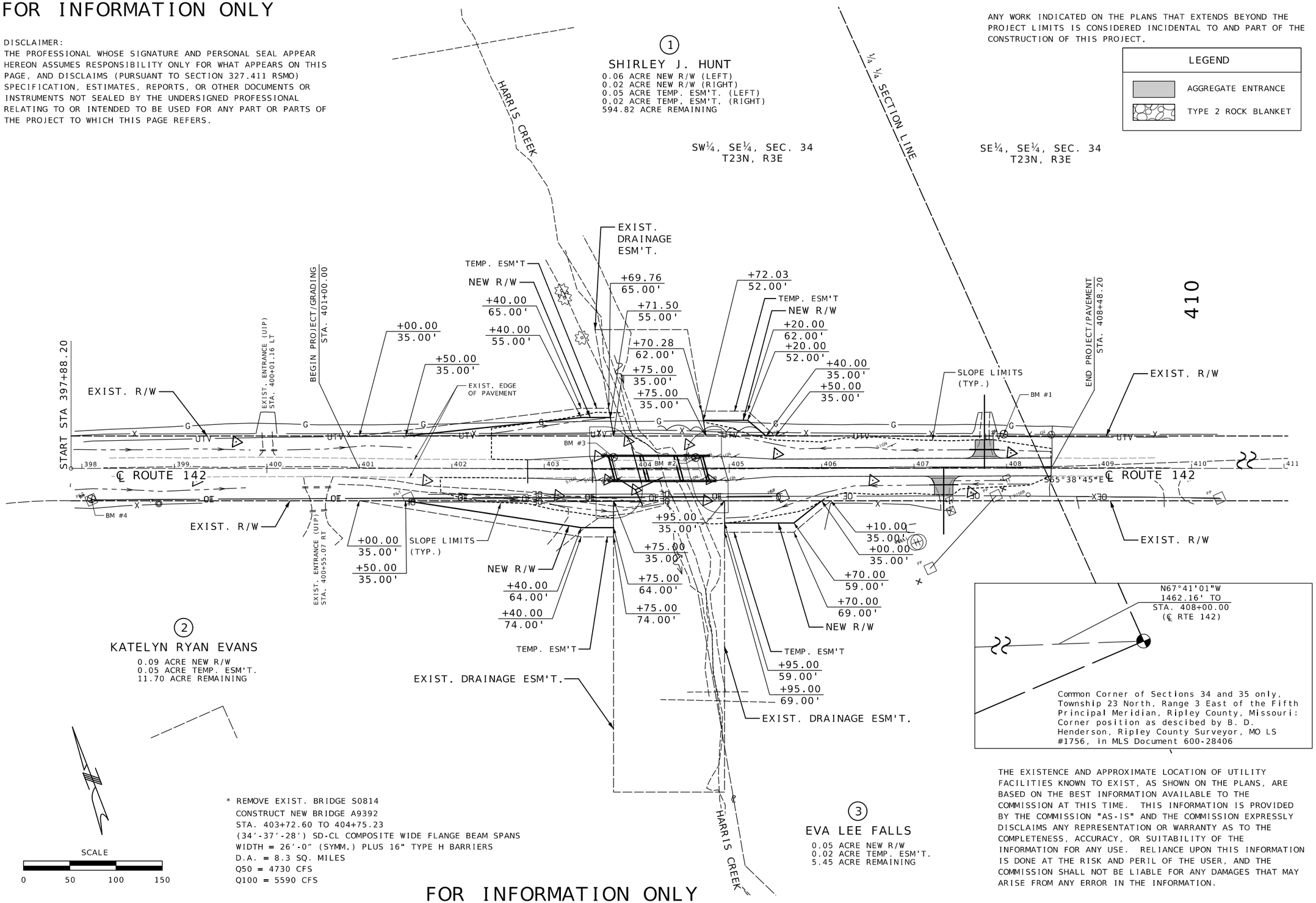
LEGEND
- AGGREGATE ENTRANCE
- TYPE 2 ROCK BLANKET



① SHIRLEY J. HUNT
0.06 ACRE NEW R/W (LEFT)
0.02 ACRE NEW R/W (RIGHT)
0.05 ACRE TEMP. ESM'T. (LEFT)
0.02 ACRE TEMP. ESM'T. (RIGHT)
594.82 ACRE REMAINING

② KATELYN RYAN EVANS
0.09 ACRE NEW R/W
0.05 ACRE TEMP. ESM'T.
11.70 ACRE REMAINING

③ EVA LEE FALLS
0.05 ACRE NEW R/W
0.02 ACRE TEMP. ESM'T.
5.45 ACRE REMAINING

Common Corner of Sections 34 and 35 only, Township 23 North, Range 3 East of the Fifth Principal Meridian, Ripley County, Missouri: Corner position as descibed by B. D. Henderson, Ripley County Surveyor, MO LS #1756, in MLS Document 600-28406

* REMOVE EXIST. BRIDGE S0814
CONSTRUCT NEW BRIDGE A9392
STA. 403+72.60 TO 404+75.23
(34'-37'-28') SD-CL COMPOSITE WIDE FLANGE BEAM SPANS
WIDTH = 26'-0" (SYMM.) PLUS 16" TYPE H BARRIERS
D.A. = 8.3 SQ. MILES
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FOR INFORMATION ONLY

STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER
Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED: 7/22/2025
ROUTE: 142 | STATE: MO
DISTRICT: SE | SHEET NO.: 5
COUNTY: RIPLEY
JOB NO.: JSE0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9392

DESCRIPTION | DATE

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RIGHT OF WAY SHEET
ROUTE 142
SHEET 1 OF 1

REV.

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

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ALL SURVEYING HAS BEEN DONE BY MODOT. THE INFORMATION SHOWN ON THIS REFERENCE SHEET IS COPIED FROM THEIR FIELD NOTES.

ALL PROJECT COORDINATES HAVE BEEN PROJECTED FROM THE MISSOURI STATE PLANE COORDINATE (SPC) SYSTEM OF 1983 USING AN AVERAGE PROJECT PROJECTION (GRID TO GROUND) FACTOR. TO GET BACK TO STATE PLANE COORDINATES, MULTIPY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.

PROJECT COORDINATE INFORMATION

COORDINATE SYSTEM	MODIFIED STATE PLANE (GROUND)
HORIZONTAL DATUM	NAD 83 (2011)
VERTICAL DATUM	NAVD 88
GEOID MODEL	GEOID 2018
ELEVATIONS DETERMINED BY	STATIC OBSERVATION
PROJECT PROJECTION FACTOR	1.000075195065

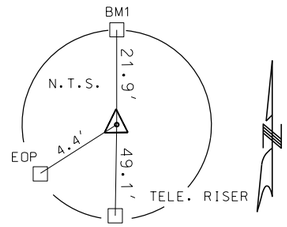
EXAMPLE OF PROJECT COORDINATE TO S.P.C.

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

EXAMPLE: CONTROL POINT #100
N 277307.540 X 0.9999248106 = N 277286.689
E 754154.931 X 0.9999248106 = E 754098.227

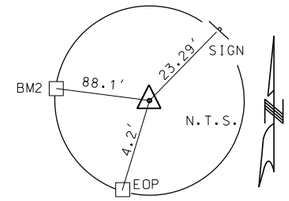
LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)



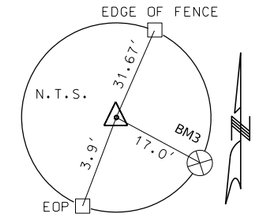
CONTROL POINT #100

5/8" REBAR W/ PLASTIC CAP
N = 277307.540
E = 754154.931
ELEV. 383.120
STA. 408 + 04.65
OFFSET 16.81' LT



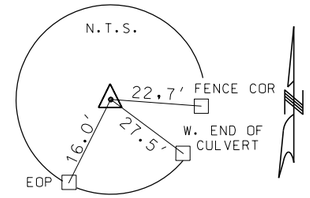
CONTROL POINT #101

5/8" REBAR W/ PLASTIC CAP
N = 277410.696
E = 753924.219
ELEV. 379.14
STA. 405 + 51.93
OFFSET 15.64' LT



CONTROL POINT #102

5/8" REBAR W/ PLASTIC CAP
N = 277488.378
E = 753746.604
ELEV. 376.63
STA. 403 + 58.08
OFFSET 13.17' LT



CONTROL POINT #103

5/8" REBAR W/ PLASTIC CAP
N = 277663.919
E = 753396.566
ELEV. 376.75
STA. 399 + 66.80
OFFSET 28.75' LT

BENCH MARKS

BM1 ELEV 384.16
COTTON PICKER SPINDLE IN WOODEN FENCE POST ON NORTH SIDE OF RT 142
STA. 407+97.06 OFF 37.00 LT

BM2 ELEV 378.03
CHISELED SQUARE ON TOP OF SOUTHERN WINGWALL OF BRIDGE SO814
STA. 404+63.98 OFF 11.75' LT

BM3 ELEV 378.12
CHISELED SQUARE ON TOP OF NORTHWEST WINGWALL OF BRIDGE SO814
STA. 403+74.99 OFF 11.99' LT

BM4 ELEV 385.78
COTTON PICKER SPINDLE IN POWER POLE ON SOUTH SIDE OF RT 142
STA. 398+10.19 OFF 32.86' RT

ALIGNMENT POINT LISTING

SHEET NO	STATION	MODIFIED STATE PLANE (GROUND) NORTHING (USFT)	EASTING (USFT)	DESCRIPTION
5	397+88.20	277711.382	753222.000	START OF PROJECT
5	408+48.20	277274.267	754187.669	END OF PROJECT

CONTROL POINT LISTING

SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (USFT)	EASTING (USFT)	ELEVATION (USFT)	DESCRIPTION	POINT ID
5	408+04.65	LT	16.81	277307.540	754154.931	383.12	5/8" REBAR W/ PLASTIC CAP	CP100
5	405+51.93	LT	15.64	277410.696	753924.219	379.14	5/8" REBAR W/ PLASTIC CAP	CP101
5	403+58.08	LT	13.17	277488.378	753746.604	376.63	5/8" REBAR W/ PLASTIC CAP	CP102
5	399+66.80	LT	28.75	277663.919	753396.566	376.75	5/8" REBAR W/ PLASTIC CAP	CP103

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STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed: 8/8/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/9/2025

ROUTE	STATE
142	MO

DISTRICT	SHEET NO.
SE	6

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION | DATE

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

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

TWM ENGINEERING GEOSPATIAL SERVICES

COORDINATE POINTS
ROUTE 142
SHEET 1 OF 1

REV.

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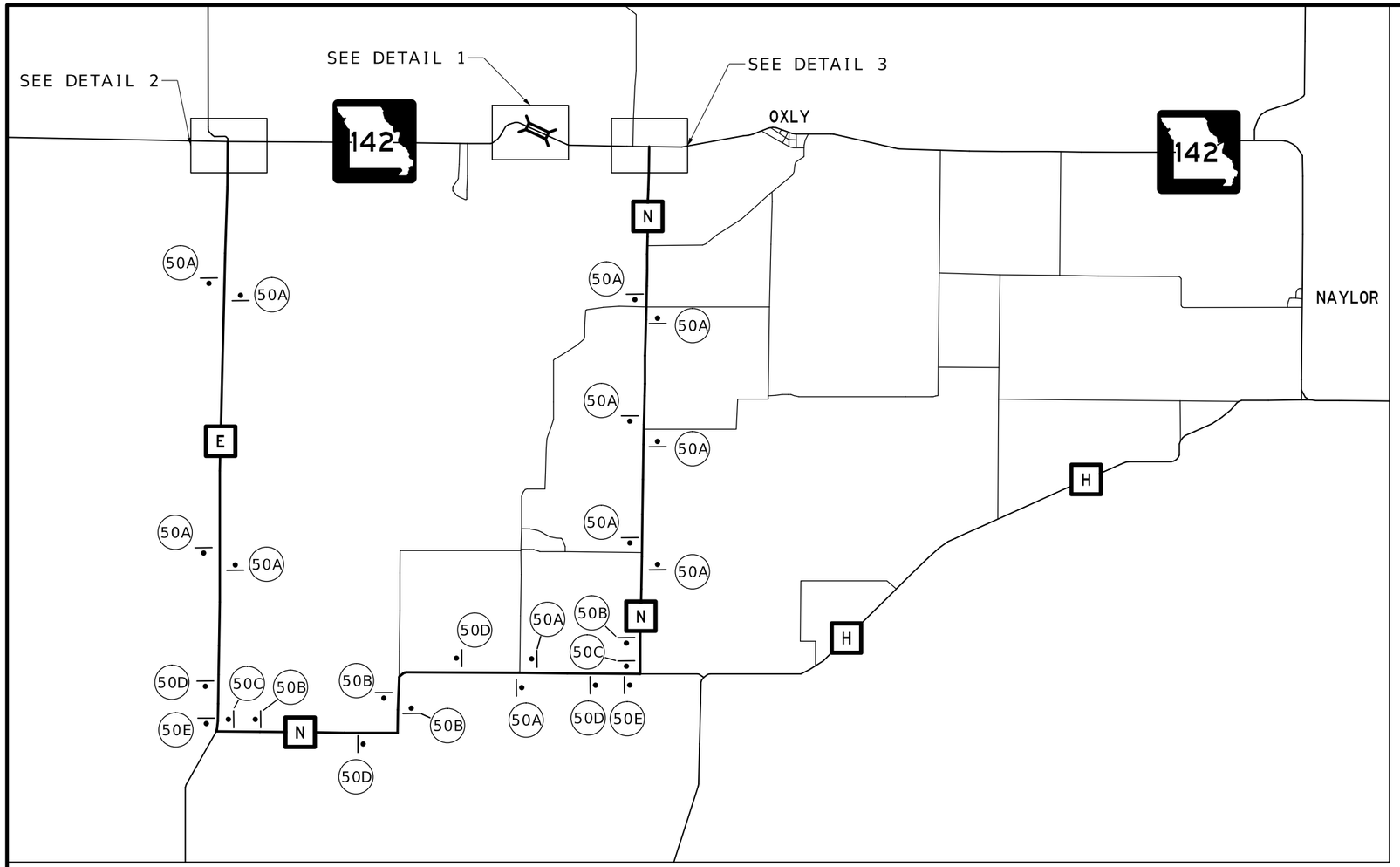
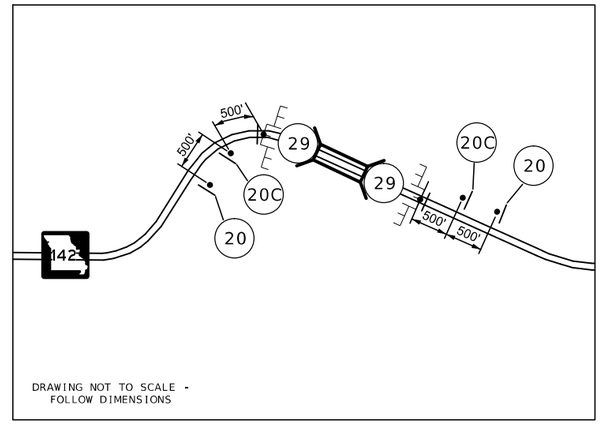
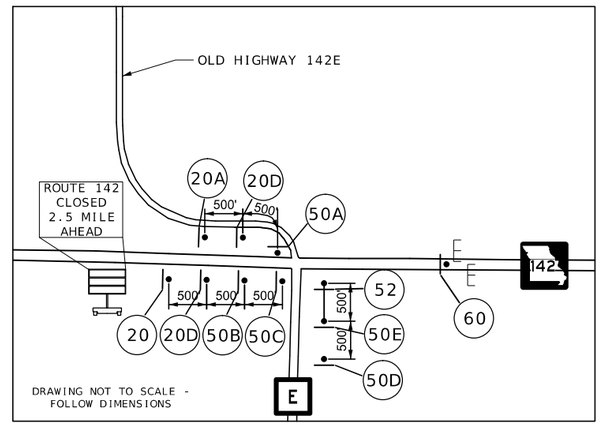
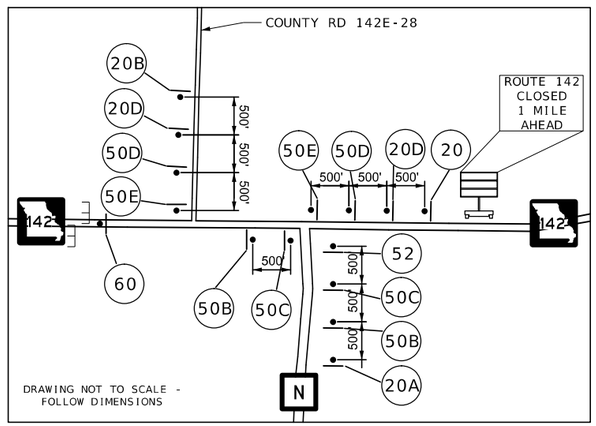




DETAIL 1



DETAIL 2



DETAIL 3

NOT TO SCALE

NOTES:

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

LOCATIONS OF CMS BOARDS SHALL BE DETERMINED BY THE ENGINEER

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- TYPE 3 MOVEABLE BARRICADE
- CHANGEABLE MESSAGE BOARD

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STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER
PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

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REV.	DESCRIPTION	DATE

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

TWM
ENGINEERING
GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-6300
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001538

TRAFFIC CONTROL
ROUTE 142
SHEET 1 OF 1

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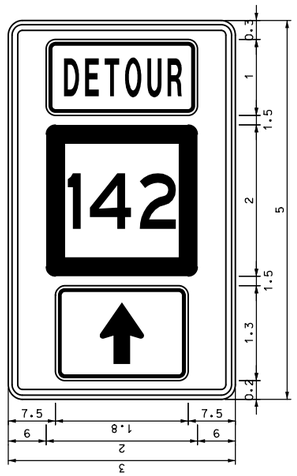
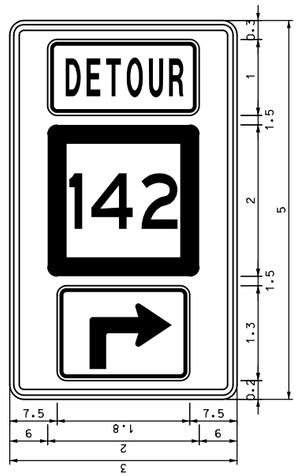


MO4-12-36 SHF-FLAT SHEET FLUORESCENT
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
Table of letter and object lefts.

DETOUR 6.000
142 6.000
7.500

SPECIAL
50A



MO4-12-36 SHF-FLAT SHEET FLUORESCENT
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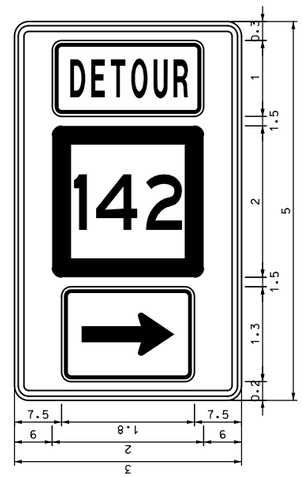
Table of letter and object lefts.

DETOUR 6.000
142 6.000
7.500

SPECIAL
50B



MO4-12-36 SHF-FLAT SHEET FLUORESCENT
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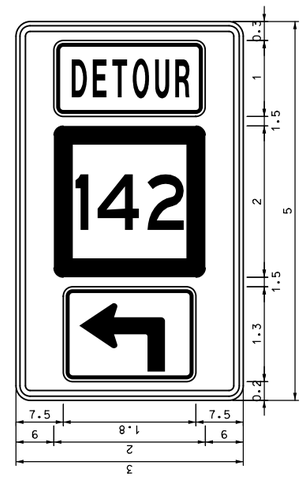
Table of letter and object lefts.

DETOUR 6.000
142 6.000
7.500

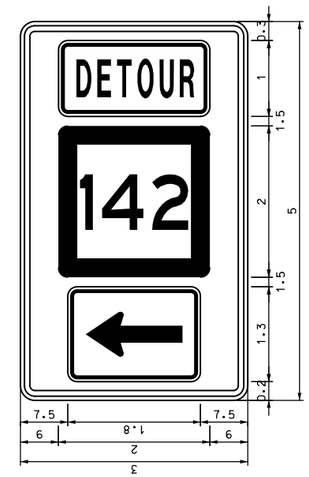
SPECIAL
50C



MO4-12-36 SHF-FLAT SHEET FLUORESCENT
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
Table of letter and object lefts.

DETOUR 6.000
142 6.000
7.500

SPECIAL
50D

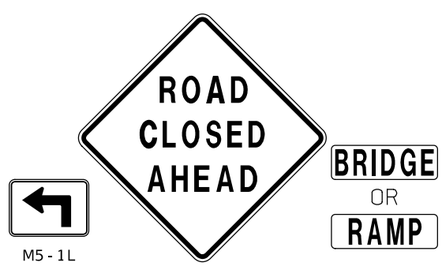


MO4-12-36 SHF-FLAT SHEET FLUORESCENT
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;
Table of letter and object lefts.

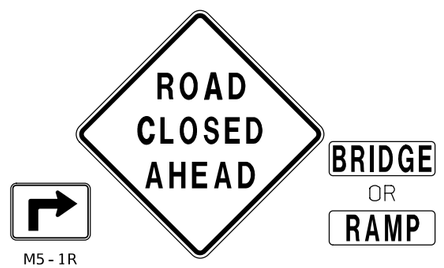
DETOUR 6.000
142 6.000
7.500

SPECIAL
50E

WO20-3
20



WO20-3
20A



WO20-3
20B

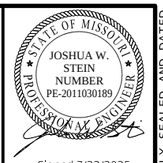
WO20-3a
20C

WO20-2
20D

R11-2
29

MO4-8a
52

R11-4
60



Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
SE	8

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

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

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

TWM
ENGINEERING
GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
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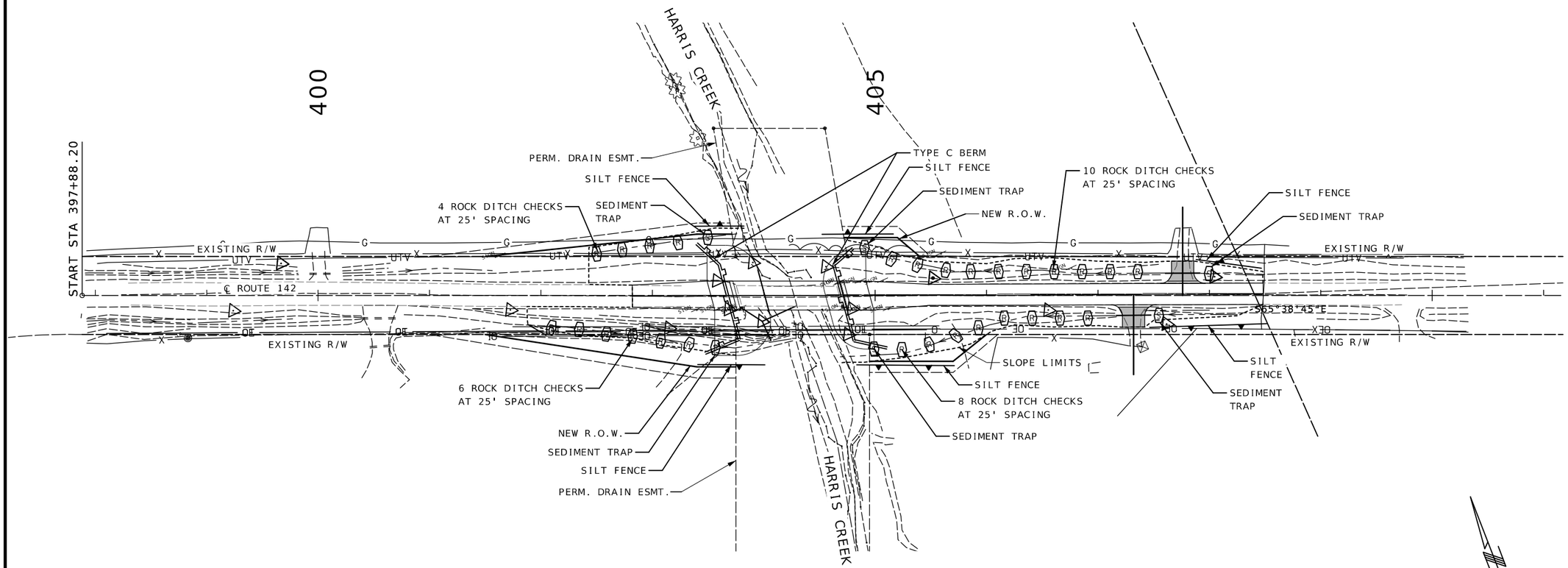
www.twm-inc.com
MISSOURI CERT. OF AUTHORITY: 001538

DETOUR PLAN SIGN DETAILS
ROUTE 142
SHEET 1 OF 1

REV.

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.

PRIMARY RECEIVING WATERS: HARRIS CREEK



NOTES:EXISTING VEGETATION SHALL BE LEFT IN PLACE WHERE PRACTICAL TO BE USED AS AN ADDITIONAL EROSION CONTROL BMP.

SEE RIGHT-OF-WAY SHEET FOR ALL PROPERTY BOUNDARIES AND TAKING INFORMATION.

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

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TEMPORARY EROSION CONTROL LEGEND

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

SCALE

0 50 100 150

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STATE OF MISSOURI
JOSHUA W. STEIN
NUMBER PE-2011030189
PROFESSIONAL ENGINEER

Signed:7/22/2025
Joshua W. Stein - Civil
MO PE-2011030189

DATE PREPARED
7/22/2025

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
SE	9

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION	DATE

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

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

TWM ENGINEERING GEOSPATIAL SERVICES
3701 S. LINDBERGH BLVD, SUITE 100
ST. LOUIS, MO 63127
(314) 241-6300
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MISSOURI CERT. OF AUTHORITY: 001538

EROSION CONTROL
ROUTE 142
SHEET 1 OF 1

REV.

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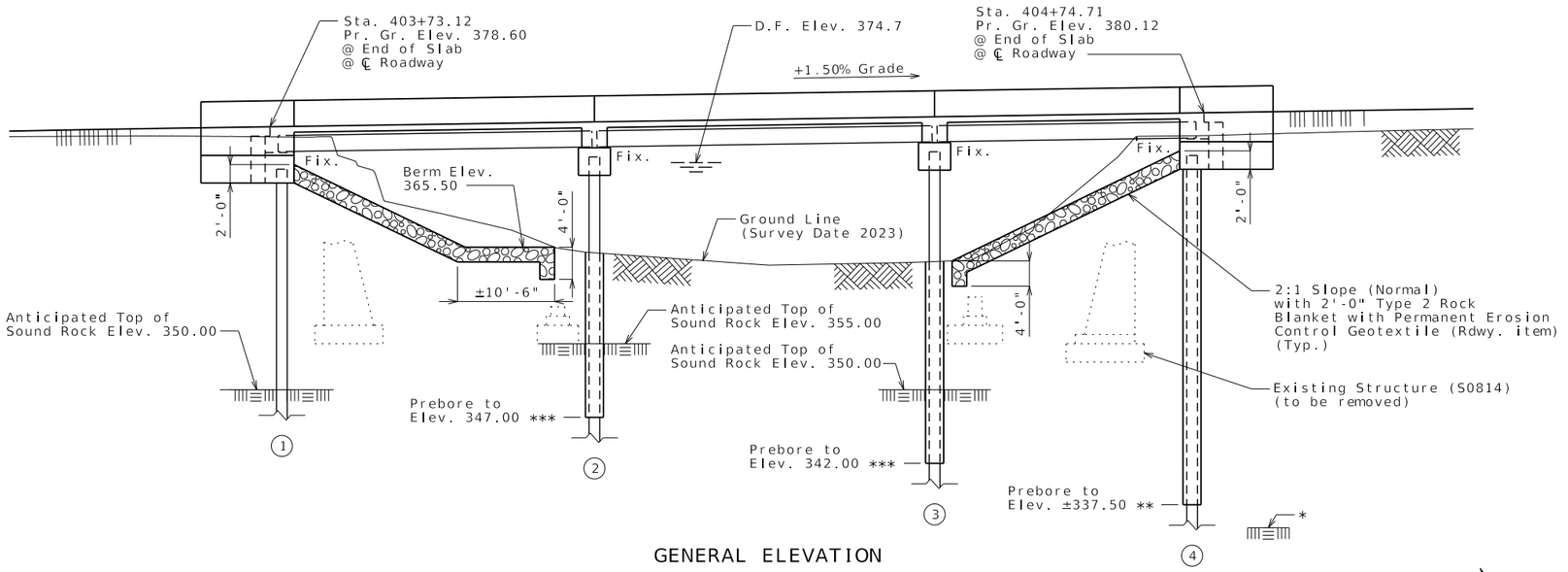
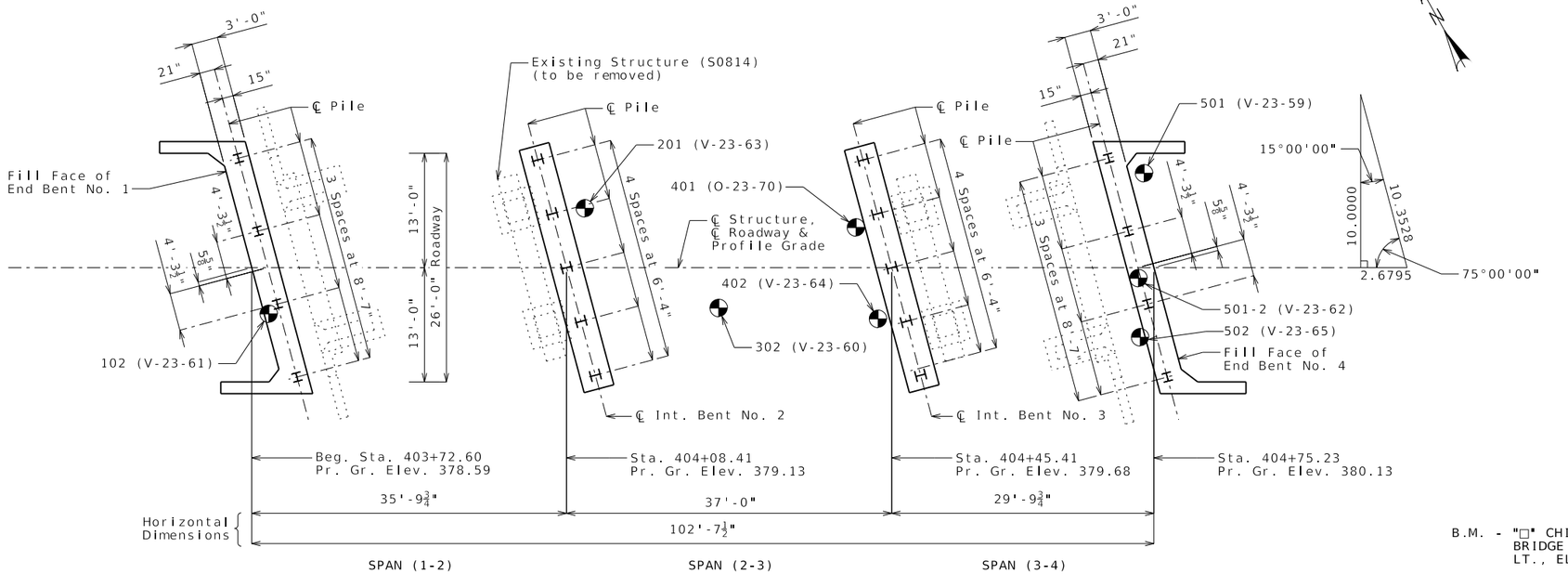
SEC/SUR 34 TWP 23N RGE 3E

(34'-37'-28') SD-CL COMPOSITE WIDE FLANGE BEAM SPANS



GENERAL ELEVATION



PLAN

* Anticipated top of sound rock elevation varies North to South from 322 to 335 along bent.

** Prebore is required to penetrate thin rock caps to allow final pile bearing on sound bedrock. Final Prebore elevation may vary and shall be determined in the field.

*** 8'-0" Minimum into sound rock.

Notes:

For General Notes, Estimated Quantities, Foundation Data, Location Sketch, and Hydrologic Data, see Sheet No. 2.

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

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

◓ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheets for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheets No. 24 thru 32 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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

B.M. - "□" CHISELED ON WINGWALL, N.W. CORNER OF BRIDGE S0814, STA. 403+74.99, OFF. 11.99' LT., ELEV. 378.12

B.M. - "□" CHISELED ON WINGWALL, N.E. CORNER OF BRIDGE S0814, STA. 404+63.98, OFF. 11.75' LT., ELEV. 378.03

BRIDGE: ROUTE 142 OVER HARRIS CREEK

ROUTE 142 FROM ROUTE E TO ROUTE N
ABOUT 1.0 MILE WEST OF ROUTE N
BEGINNING STATION 403+72.60

Designed Sept. 2024
Detailed Sept. 2024
Checked Sept. 2024

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

Signed: 8/4/2025
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 8/4/2025
ROUTE 142 STATE MO
DISTRICT BR SHEET NO. 1
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

DESCRIPTION | DATE

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

3316 LEMONE
INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
www.twm-inc.com

MISSOURI CERTIFICATE OF AUTHORITY: 001528

TWM ENGINEERING & GEOSPATIAL SERVICES

REV.

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	70		70
Removal of Bridges (S0814)	lump sum			1
Bridge Approach Slab (Minor Road)	sq. yard			118
Galvanized Structural Steel Pile (12 in.)	linear foot	308		308
Galvanized Structural Steel Pile (14 in.)	linear foot	310		310
Pre-Bore for Piling	linear foot	348		348
Pile Point Reinforcement	each	18		18
Class B Concrete (Substructure)	cu. yard	48.6		48.6
Slab on Steel	sq. yard		324	324
Type H Barrier	linear foot		233	233
Reinforcing Steel (Bridges)	pound	2,680		2,680
Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50	pound		34,110	34,110
Galvanizing Structural Steel	lump sum		1	1
Vertical Drain at End Bents	each			2
Plain Neoprene Bearing Pad	each		8	8
Laminated Neoprene Bearing Pad	each		16	16

All concrete between the upper and lower construction joints in the end bents is included in the Estimated Quantities for Slab on Steel.

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

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

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

Cost of L4x4 ASTM A709 Grade 36 HP pile anchors and 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts, complete in place, will be considered completely covered by the contract unit price for Galvanized Structural Steel Piles (12 in.) & (14 in.).

Sheet metal in intermediate concrete diaphragms is subsidiary to Slab on Steel.

Structural steel shall be galvanized in accordance with ASTM A123 and Sec. 1081.

Estimated Quantities for Slab on Steel

Item		Total
Class B-2 Concrete	cu. yard	102.8
Reinforcing Steel (Epoxy Coated)	pound	29,800

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

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

Bridge deck surface may be finished with a vibratory screed.

Stay-In-Place Corrugated Steel 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.

Foundation Data

Type	Design Data		Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		HP 12x53	HP 14x73	HP 14x73	HP 12x53
	Number	ea	4	5	5	4
	Approximate Length Per Each	ft	27	28	34	*50
	Pile Point Reinforcement	ea	All	All	All	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	Full Length	Full Length	Full Length
	Est. Max. Scour Depth 100 (Elev.)	ft	-	358	357	-
	Minimum Tip Penetration (Elev.)	ft	347	347	342	**325
	Criteria for Min. Tip Penetration		L. Stability	Scour	Scour	L. Stability
	Pile Driving Verification Method		***	***	***	***
	Resistance Factor		-	-	-	-
	Minimum Nominal Axial Compressive Resistance	kip	230	267	250	214

* Approximate average length. Approximate actual lengths vary from 44 to 57 ft along bent.

** Average minimum tip penetration. Actual minimum tip penetrations vary from 319 to 332 ft along bent.

Minimum Nominal Axial Compressive Resistance = $\frac{\text{Maximum Factored Loads}}{\text{Structural Resistance Factor (0.60)}}$

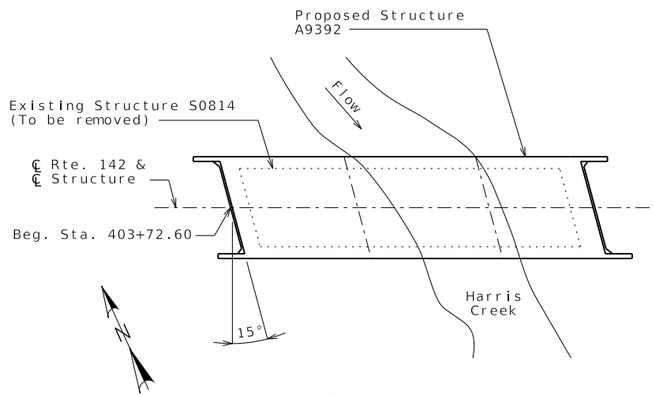
Prebore for piles at Bents No. 2, 3, and 4 to elevations 347.00, 342.00, and ±337.50, respectively. See Sheet No. 1 for additional information.

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

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

Hydrologic Data

Drainage Area = 8.3 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 4,730 cfs
Design Flood (D.F.) Elevation = 374.7
Base Flood (100-year)
Base Flood Elevation = 375.5
Base Flood Discharge = 5,590 cfs
Estimated Backwater = 1.9 ft
Average Velocity thru Opening = 9.61 ft/s
Freeboard (50-year)
Freeboard = 1.6 ft
Roadway Overtopping
Overtopping Flood Discharge = 6,470 cfs
Overtopping Flood Frequency = 200 years
Overtopping Flood Elevation = 376.4



LOCATION SKETCH

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisons (Seismic Details)
Seismic Design Category = C
Design earthquake response spetral acceleration coefficient at 1.0 second period, SDI = 0.469g
Accelerations Coefficient (effective peak ground accelerations coefficient), As = 0.364g

Design Loading:

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

Design Unit Stresses:

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

Neoprene Pads:

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

Fabricated Steel Connections:

Field connections shall be made with 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts and 13/16-inch diameter holes, except as noted.

Joint Filler:

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

Reinforcing Steel:

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

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

Traffic Control:

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

Miscellaneous:

High strength bolts, nuts and washers will be sampled for quality assurance as specified in Sec 106.

GENERAL NOTES & QUANTITIES

Detailed Sept. 2024
Checked Sept. 2024

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

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Signed: 2/26/2025
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 2/26/2025
ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

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DESCRIPTION | DATE | REV.

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

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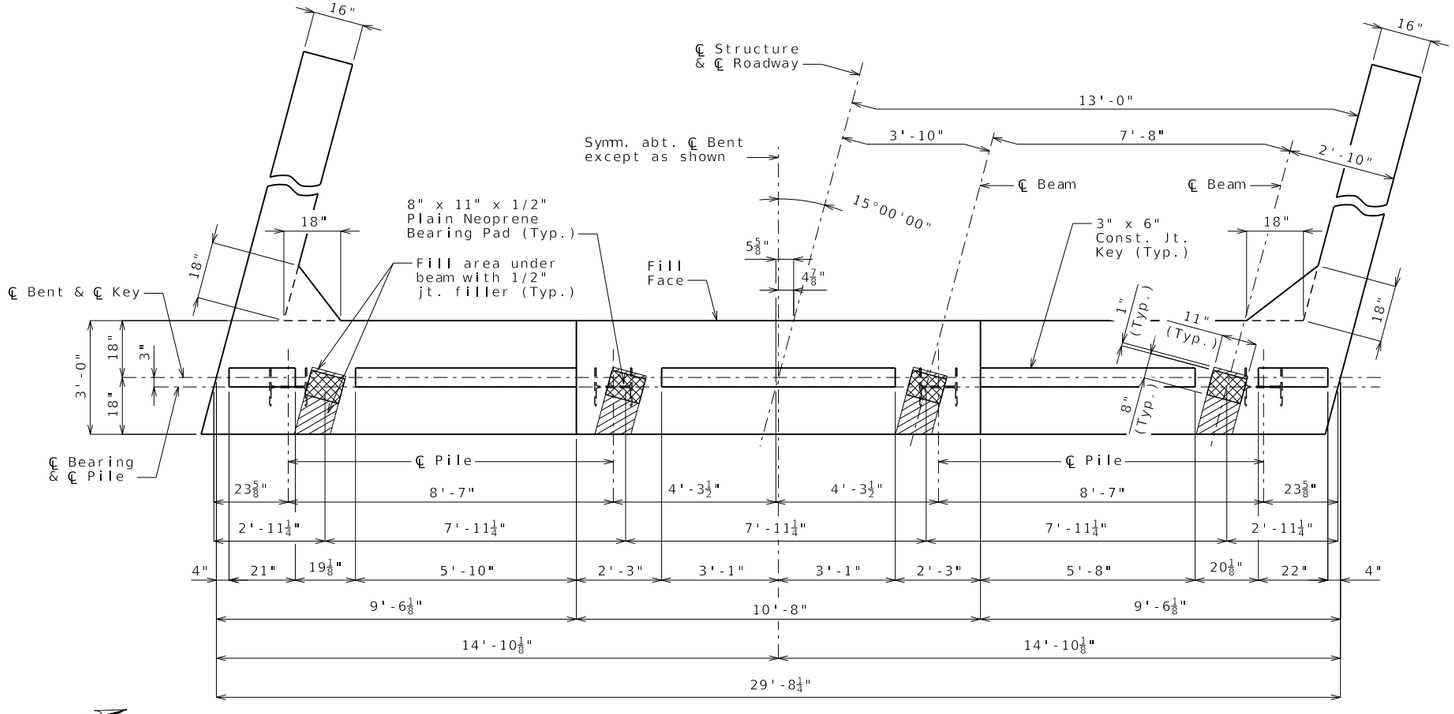
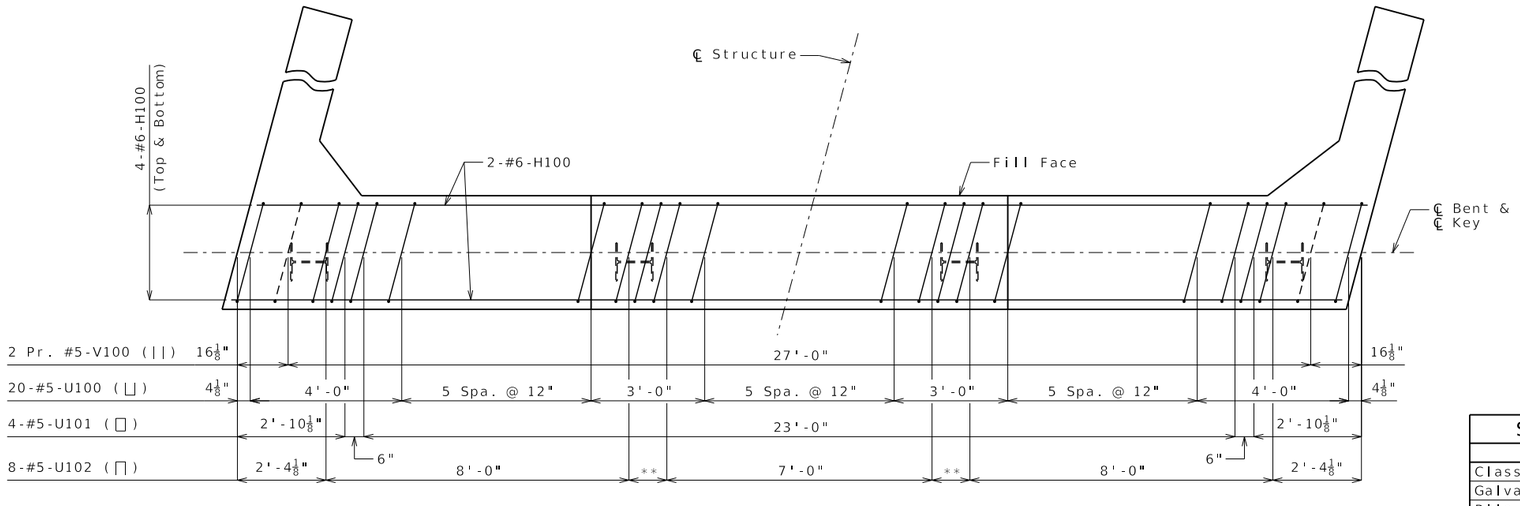
TWM ENGINEERING & GEOSPATIAL SERVICES



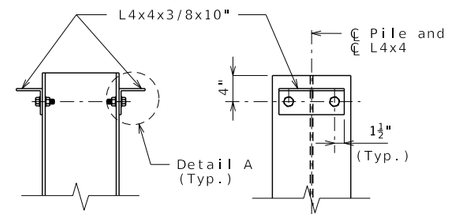
PLAN OF BEAM



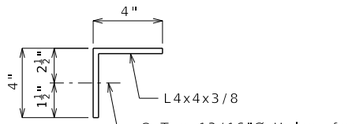
** 2 Spaces @ 6"

PLAN OF BEAM SHOWING REINFORCEMENT

Keys not shown for clarity.

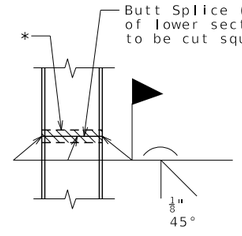


DETAILS OF HP PILE ANCHORS



DETAIL A

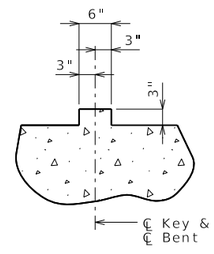
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastiprimer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.



STEEL PILE SPLICE

(If required)

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



SECTION THRU KEY

General Notes:

Work this sheet with Sheets No. 4 & 5.

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

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

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	35
Galvanized Structural Steel Pile (12 in.)	linear foot	108
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	12.7

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

DETAILS OF END BENT NO. 1

Detailed Sept. 2024
Checked Sept. 2024

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

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED
11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	3

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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MoDOT
3316 LEMONE INDUSTRIAL BLVD
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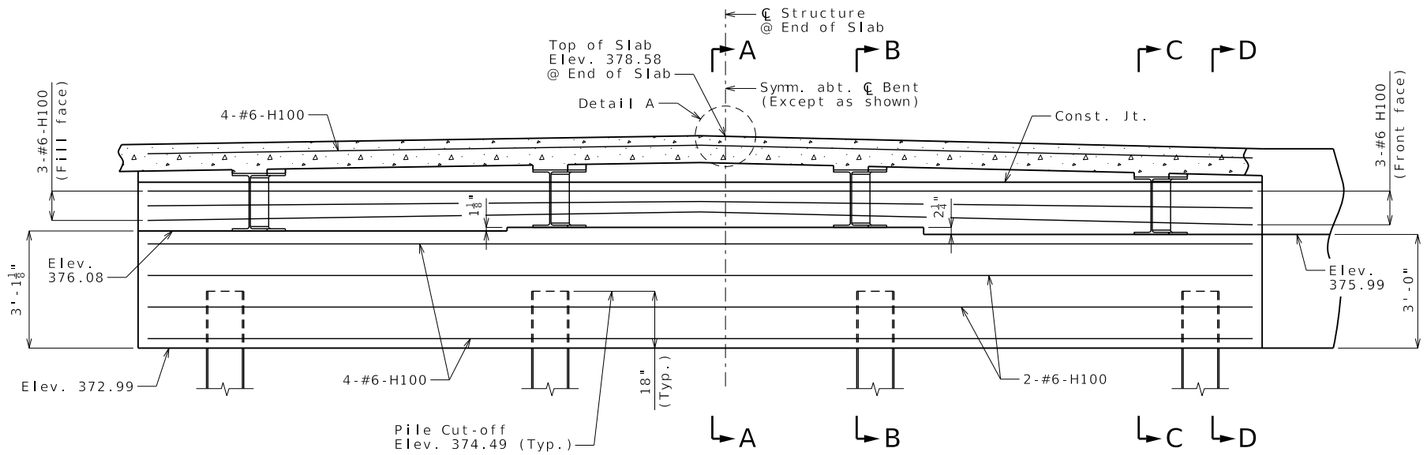
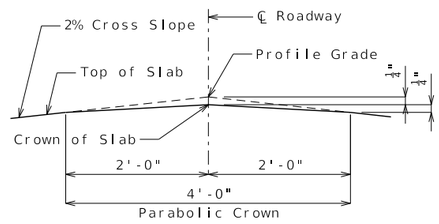
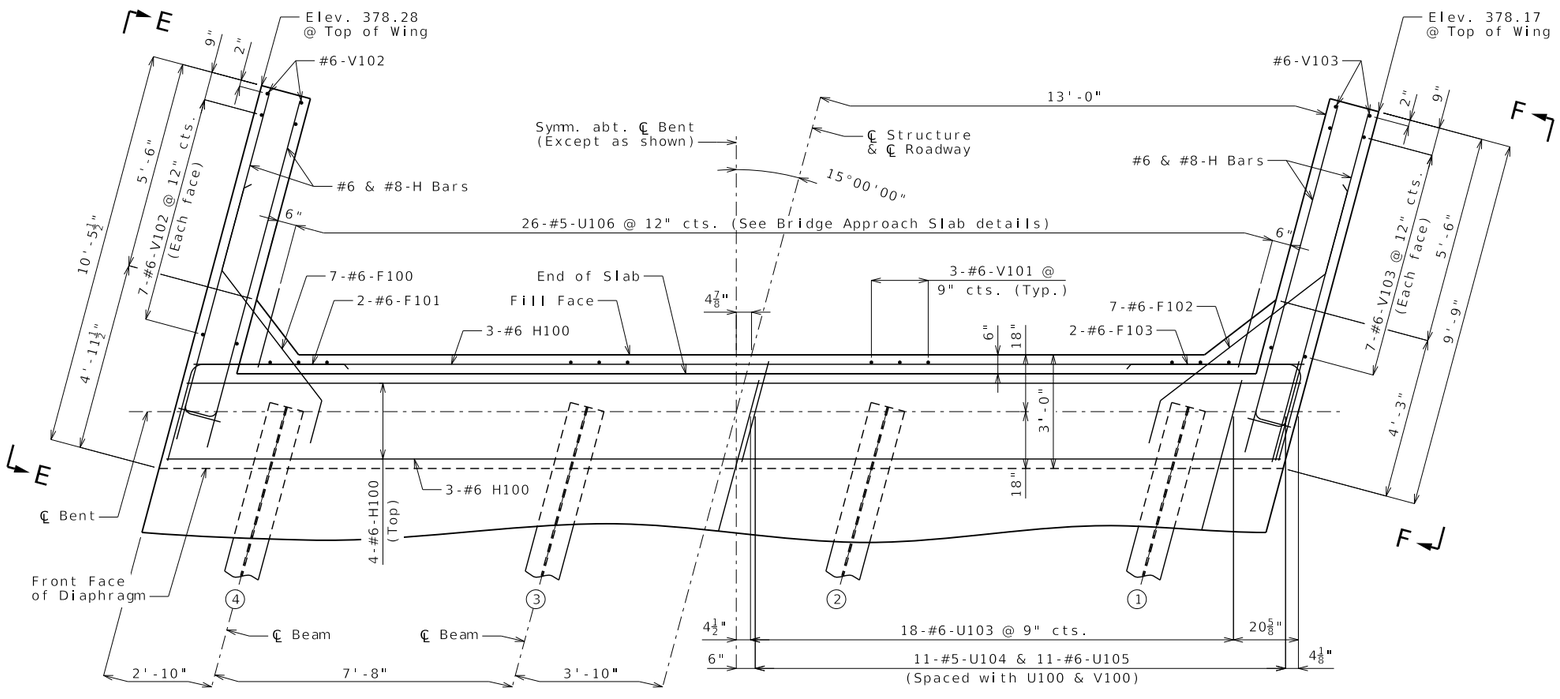


SECTION NEAR END BENT



DETAIL A



PART PLAN

General Notes:

Work this sheet with Sheets No. 3 & 5.

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

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

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

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

Concrete diaphragms at the integral end bents shall be poured a minimum of 12 hours before the slab is poured.

For details of vertical drain at end bents, see Sheet No. 6.

For details of bridge approach slab, see Sheet No. 20.

DETAILS OF END BENT NO. 1

Detailed Sept. 2024
Checked Sept. 2024

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

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MO PE-2017028430

DATE PREPARED
11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION	DATE

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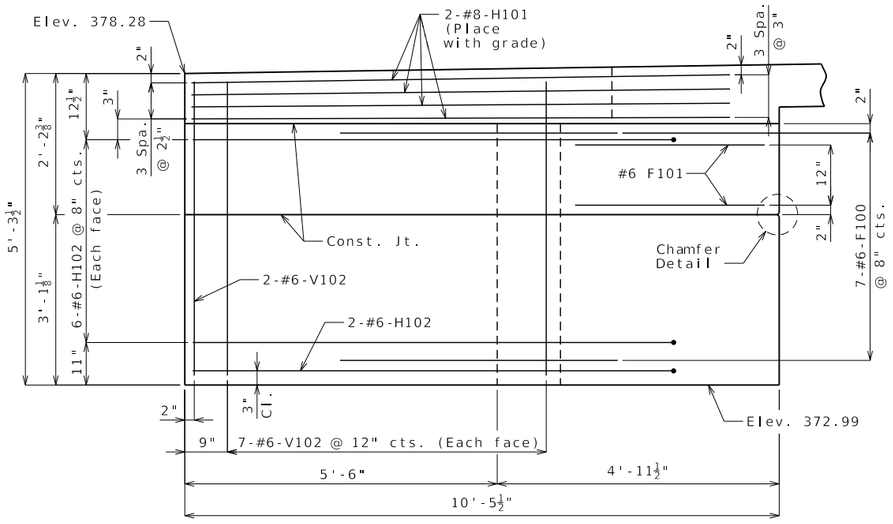
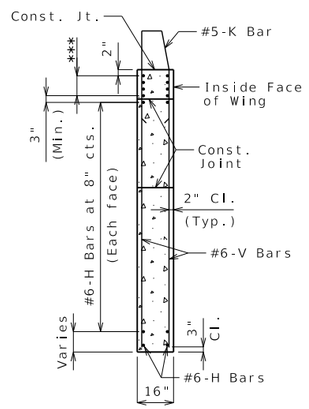
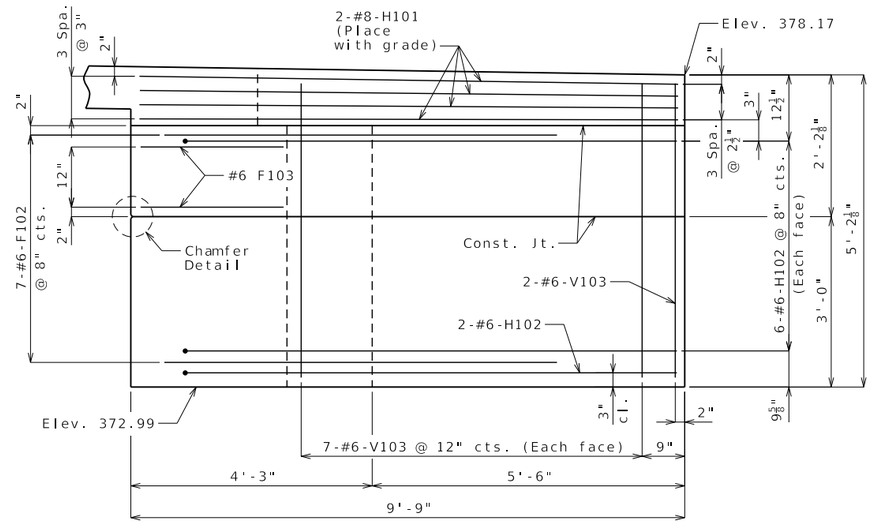


ELEVATION E-E

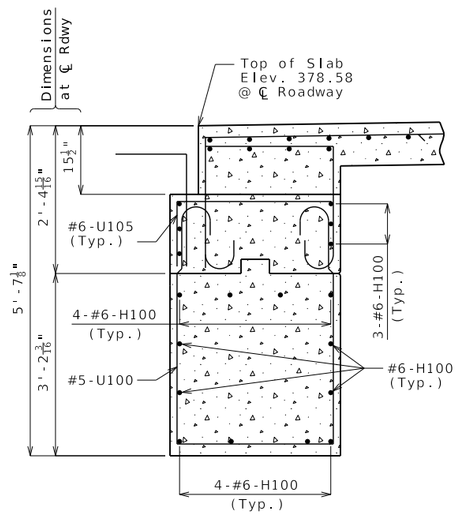


TYPICAL SECTION THRU WING

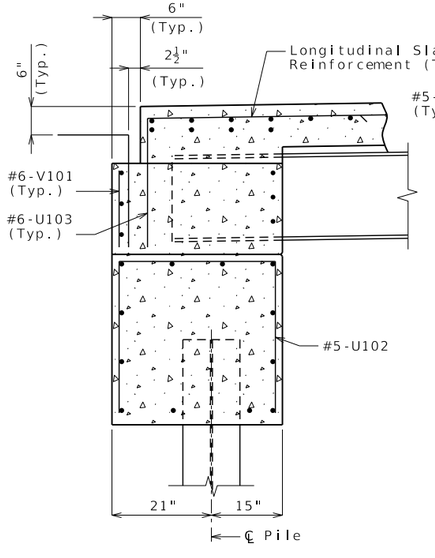
*** #8-H Bars varying at 2½"-3" cts. (Each face)(Place with grade)



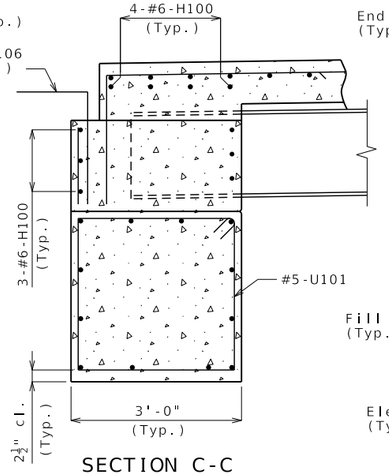
ELEVATION F-F



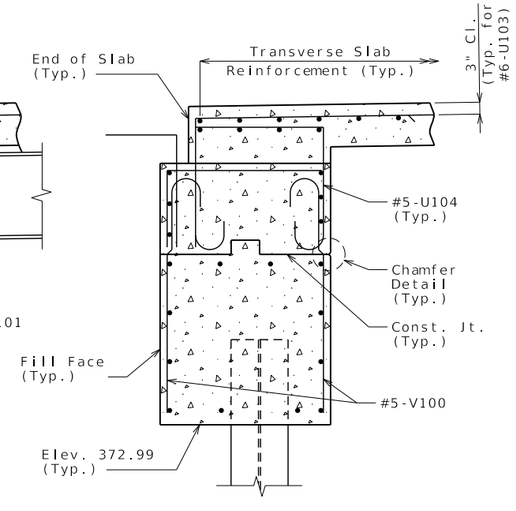
SECTION A-A



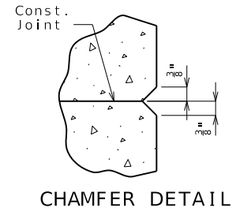
SECTION B-B



SECTION C-C



SECTION D-D



CHAMFER DETAIL

General Notes:

Work this sheet with Sheets No. 3 & 4.

For reinforcement of the barrier, see Sheet No. 19.

DETAILS OF END BENT NO. 1

Detailed Sept. 2024
Checked Sept. 2024

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

P:\2022\221411A\4 CADD - DWG\4.4 Struc\B_A9392_005_JSE0031_Dtls_of_End_Bent_No.1.dgn 10:52:12 AM 11/12/2024

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED
11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	5

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION	DATE

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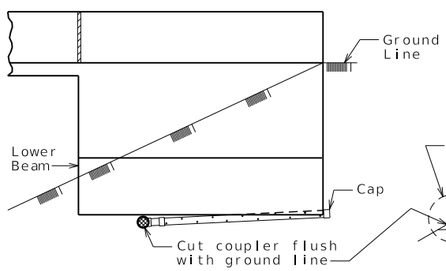
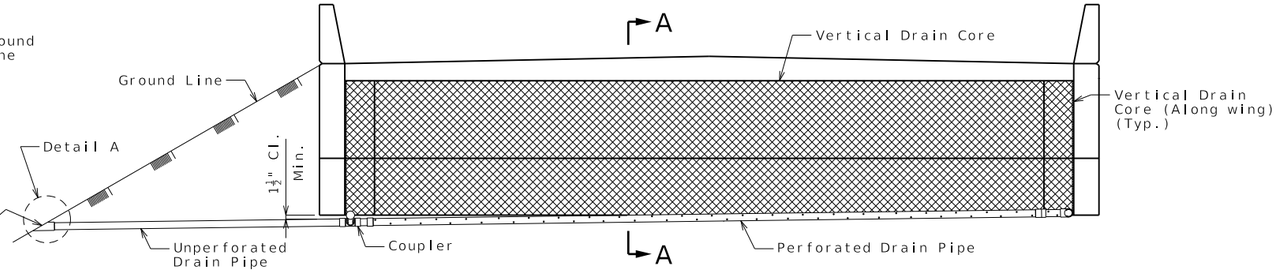
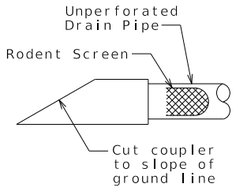


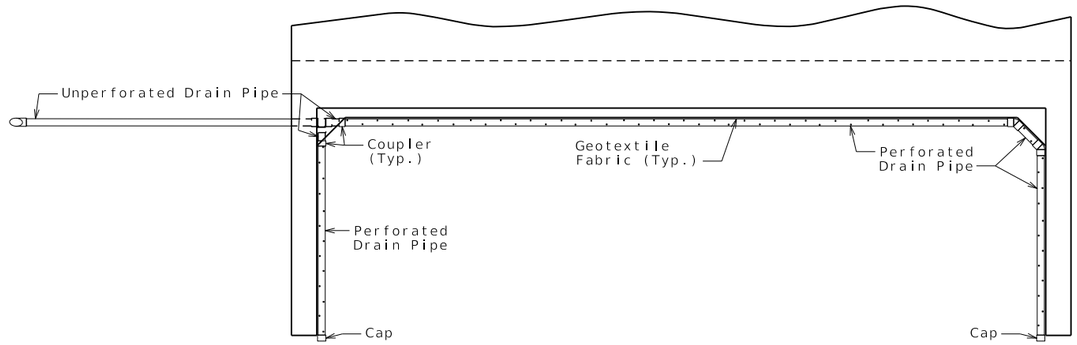
ELEVATION OF WING



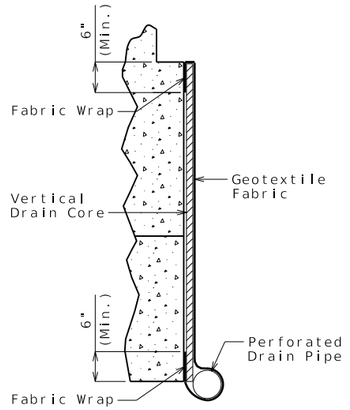
ELEVATION OF END BENT



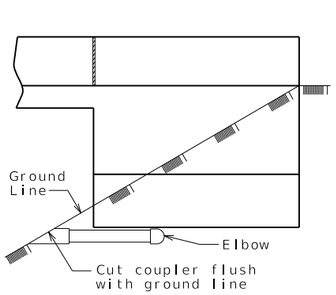
DETAIL A



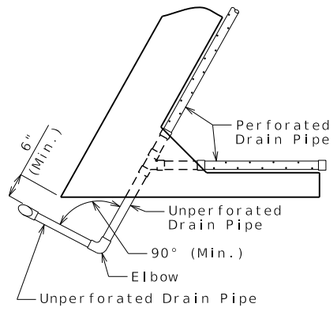
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED: 11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	6

COUNTY: RIPLEY
JOB NO.: JSE0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9392

DESCRIPTION	DATE

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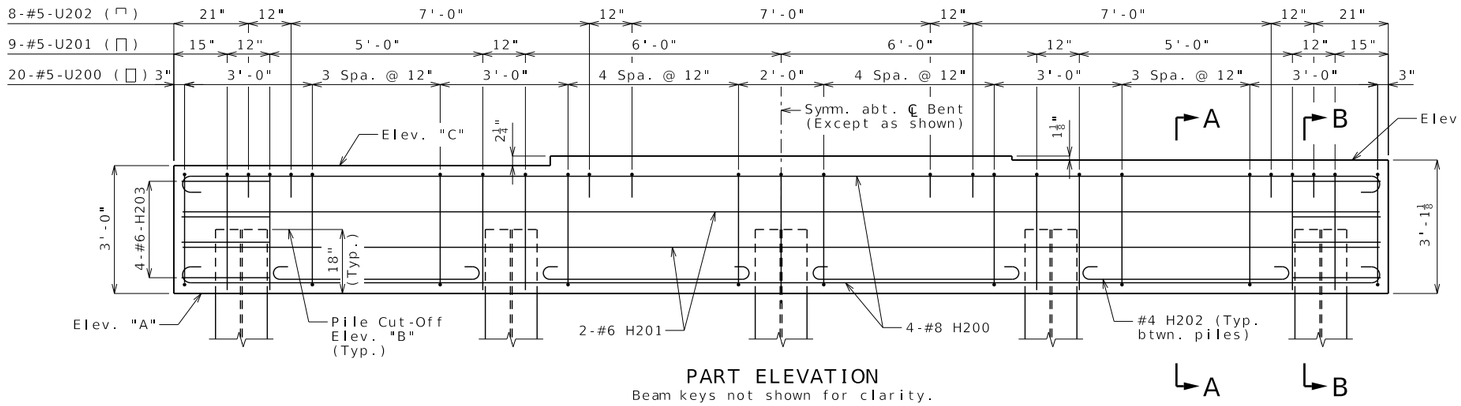
Detailed Sept. 2024
Checked Sept. 2024

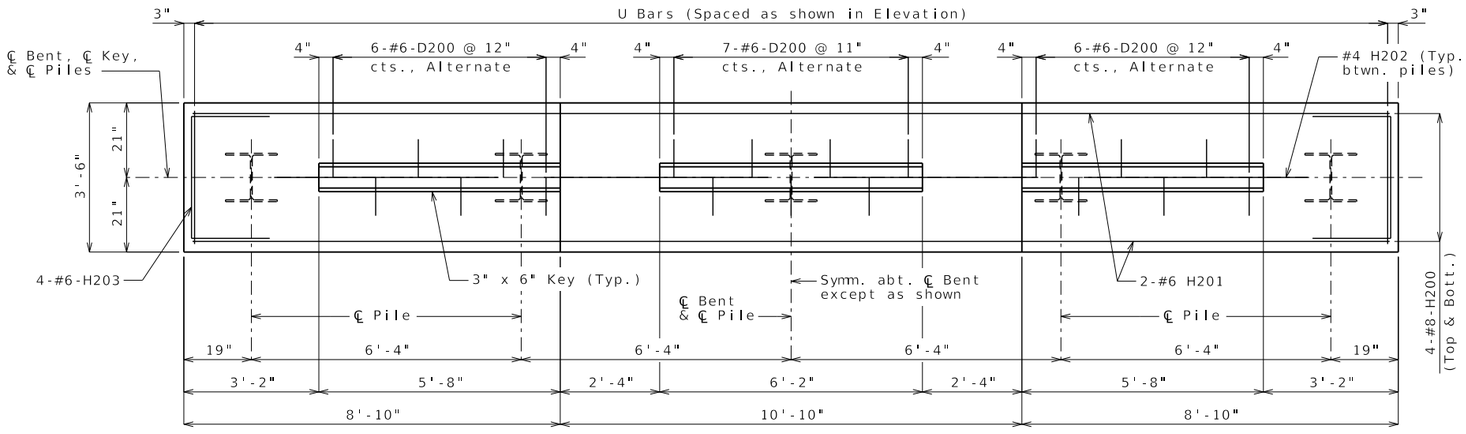
Note: This drawing is not to scale. Follow dimensions.

P:\2022\221411A\4 CADD - DWG\4.4 Struc\B_A9392_006_JSE0031_Vertical_Drains_at_End_Bents.dgn 10:52:13 AM 11/12/2024

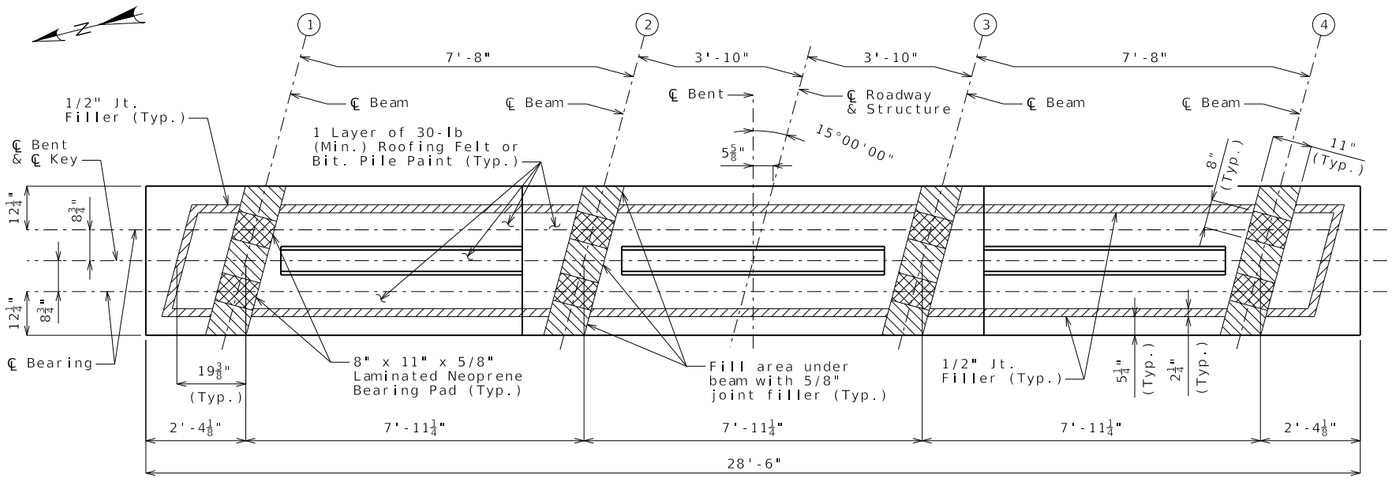


PART ELEVATION

Beam keys not shown for clarity.

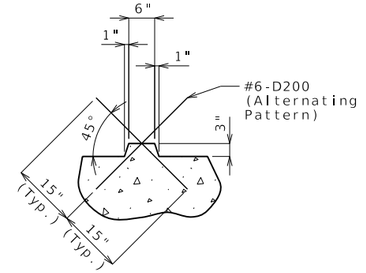


PLAN OF BEAM SHOWING REINFORCEMENT

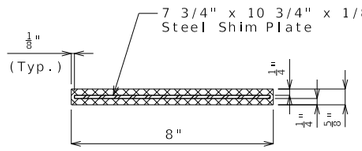


PLAN OF BEAM

Table of Elevations		
Location	Bent No. 2	Bent No. 3
Elev. "A"	373.48	374.03
Elev. "B"	374.98	375.53
Elev. "C"	376.48	377.03
Elev. "D"	376.57	377.13



SECTION THRU KEY



SECTION THRU LAMINATED NEOPRENE BEARING PADS

8 required Bent No. 2
8 required Bent No. 3

General Notes:

Work this sheet with Sheet No. 8.

For Sections A-A and B-B, see Sheet No. 8.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1½ inches.

Substructure Quantity Table for Bents No. 2 & 3			
Item		Quantity	
		Bent #2	Bent #3
Galvanized Structural Steel Pile (14 in.)	linear foot	140	170
Pre-Bore for Piling	linear foot	90	110
Pile Point Reinforcement	each	5	5
Class B Concrete (Substructure)	cu. yard	11.6	11.6
Reinforcing Steel (Bridges)	pound	1,340	1,340

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

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed Sept. 2024
Checked Sept. 2024

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"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024

ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 7
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

DESCRIPTION | DATE

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

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

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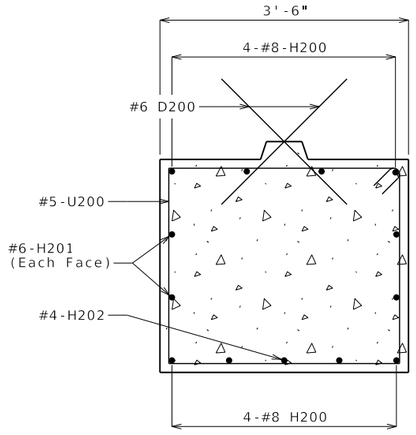
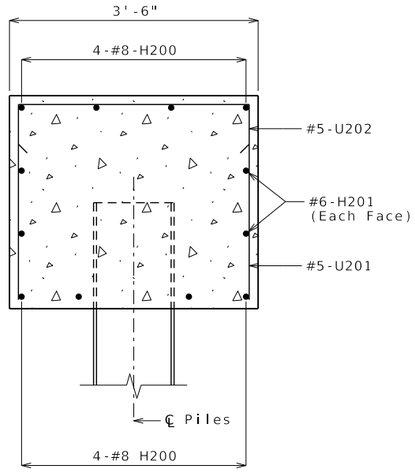
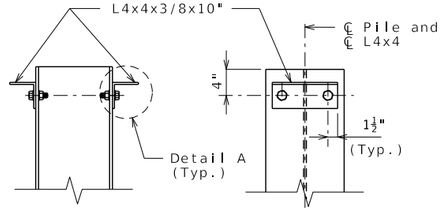


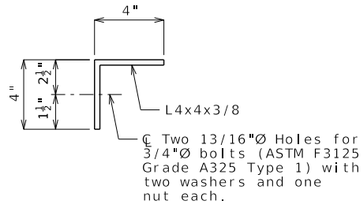
SECTION A-A



SECTION B-B

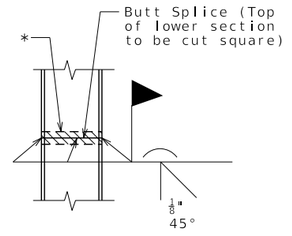


DETAILS OF HP PILE ANCHORS



DETAIL A

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



STEEL PILE SPLICE

(If required)

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

Note:

Work this sheet with Sheet No. 7.

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed Sept. 2024
Checked Sept. 2024

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	8

COUNTY: RIPLEY

JOB NO.: JSE0031

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9392

DESCRIPTION	DATE

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

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OF AUTHORITY: 001528

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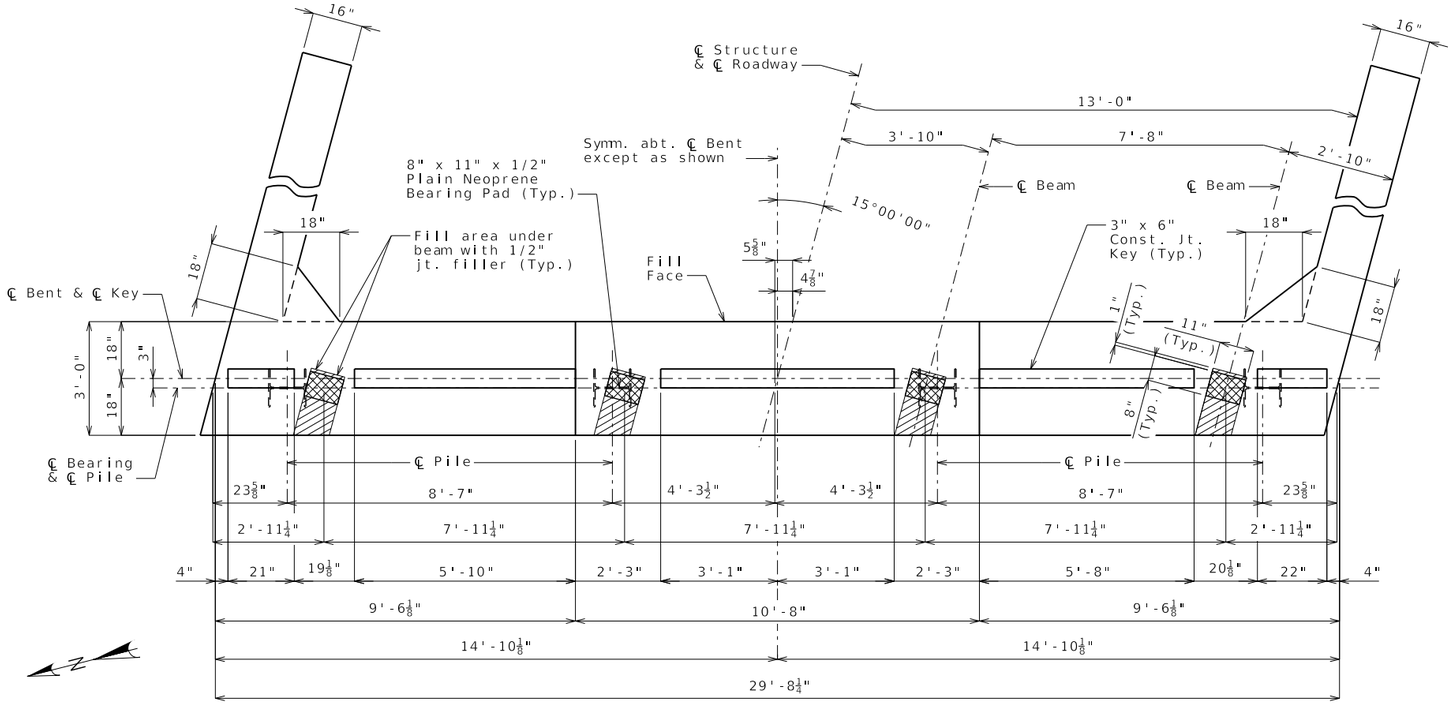
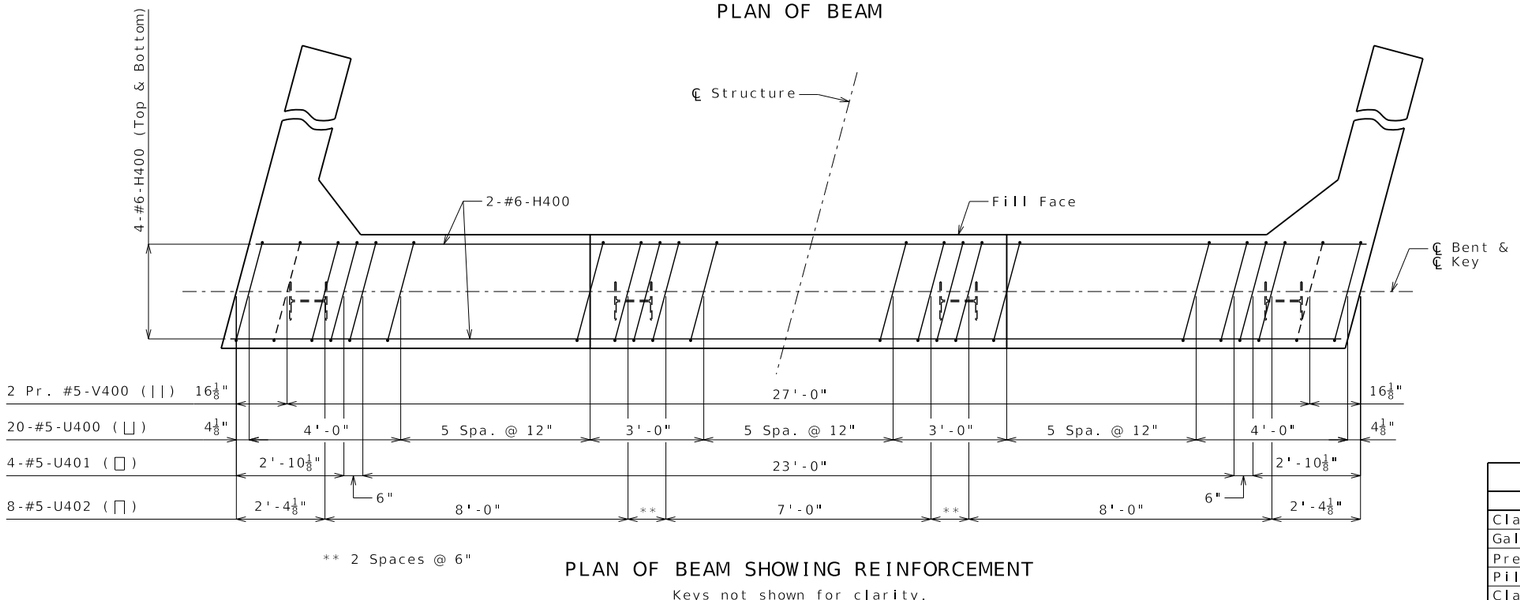


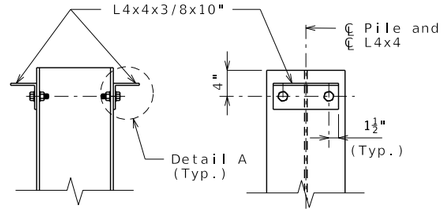
PLAN OF BEAM



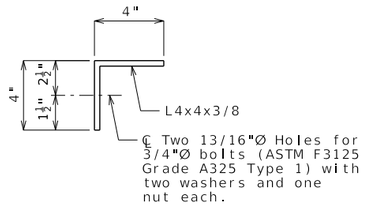
** 2 Spaces @ 6"

PLAN OF BEAM SHOWING REINFORCEMENT

Keys not shown for clarity.

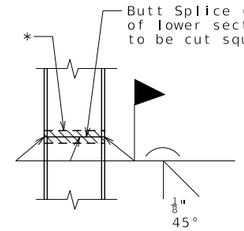


DETAILS OF HP PILE ANCHORS



DETAIL A

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



STEEL PILE SPLICE

(If required)

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

SECTION THRU KEY

General Notes:

Work this sheet with Sheets No. 10 & 11.

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

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

Substructure Quantity Table for Bent No. 4

Item		Quantity
Class 1 Excavation	cu. yard	35
Galvanized Structural Steel Pile (12 in.)	linear foot	200
Pre Bore for Piling	linear foot	148
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	12.7

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

DETAILS OF END BENT NO. 4

Detailed Sept. 2024
Checked Sept. 2024

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	9

COUNTY: RIPLEY
JOB NO.: JSE0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9392

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

REV.	DESCRIPTION	DATE

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JEFFERSON CITY, MO 65102
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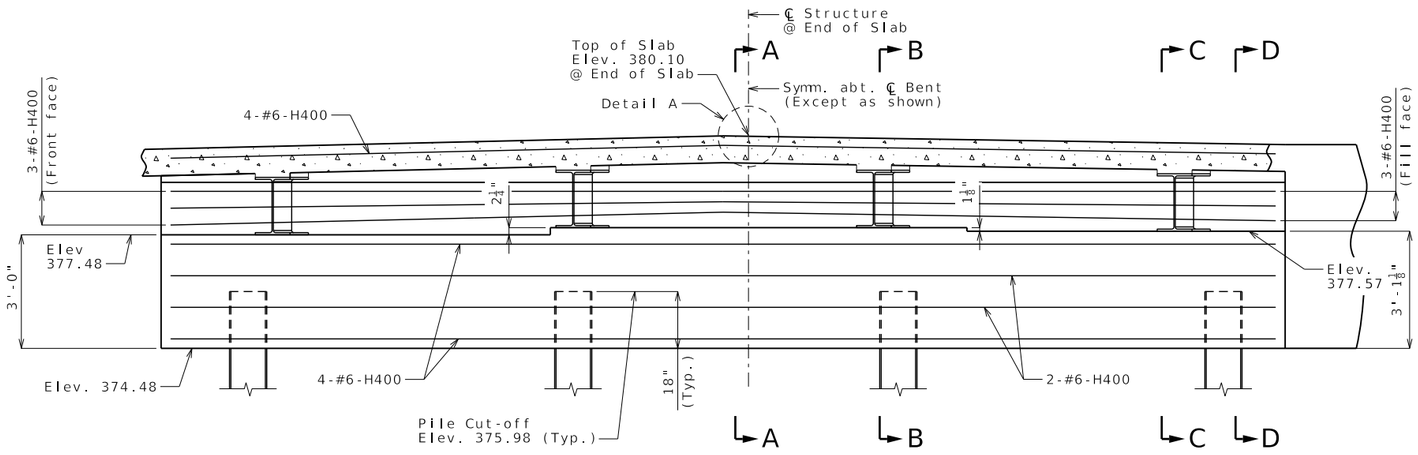
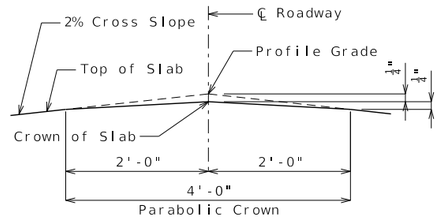
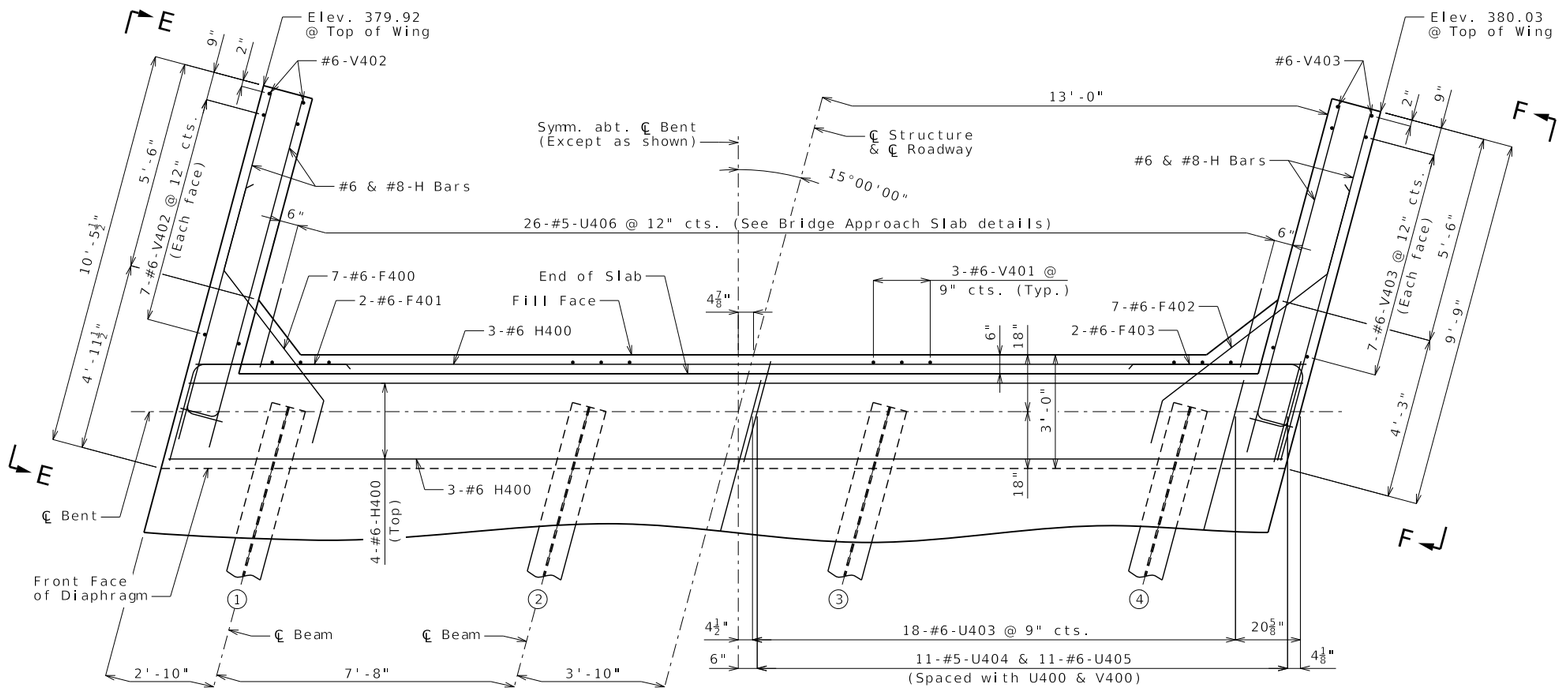


SECTION NEAR END BENT



DETAIL A



PART PLAN

General Notes:

Work this sheet with Sheets No. 9 & 11.

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

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

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

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

Concrete diaphragms at the integral end bents shall be poured a minimum of 12 hours before the slab is poured.

For details of vertical drain at end bents, see Sheet No. 6.

For details of bridge approach slab, see Sheet No. 20.

DETAILS OF END BENT NO. 4

Detailed Sept. 2024
Checked Sept. 2024

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED
11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	10

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION	DATE	REV.

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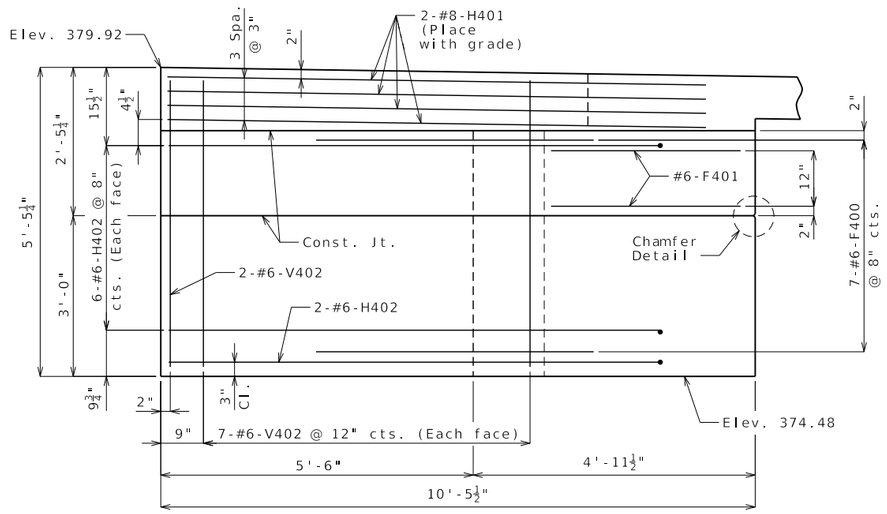
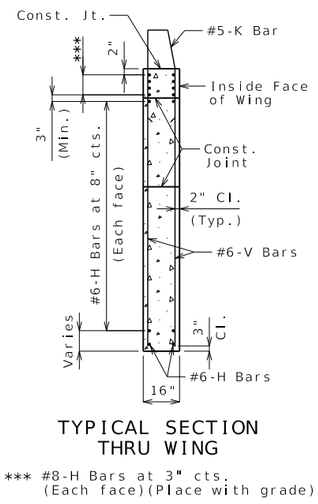
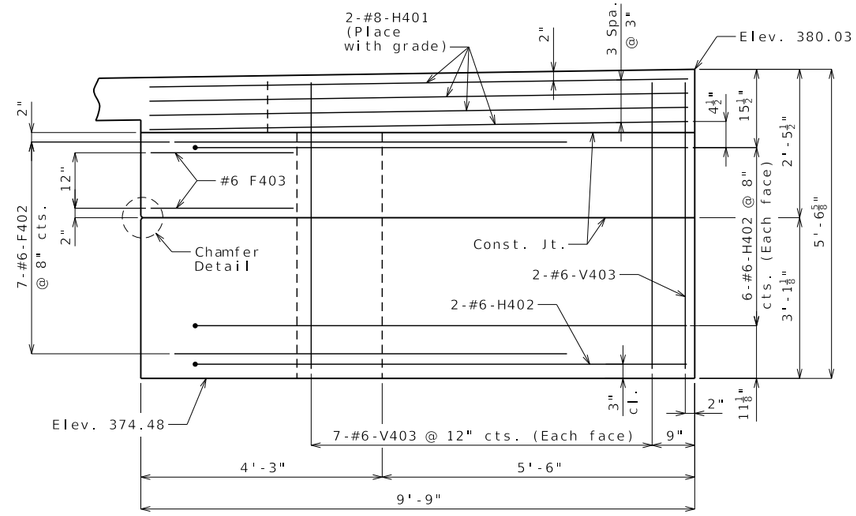


ELEVATION E-E

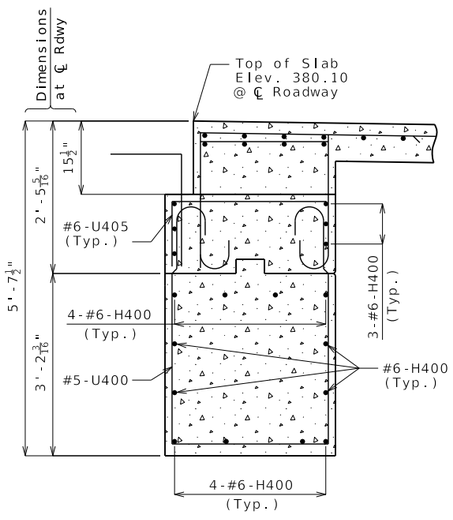


TYPICAL SECTION THRU WING

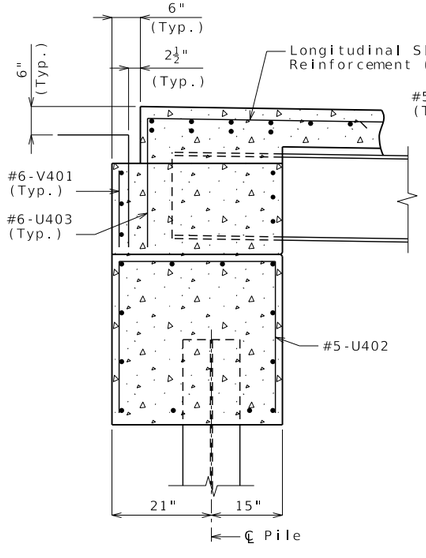
*** #8-H Bars at 3" cts. (Each face)(Place with grade)



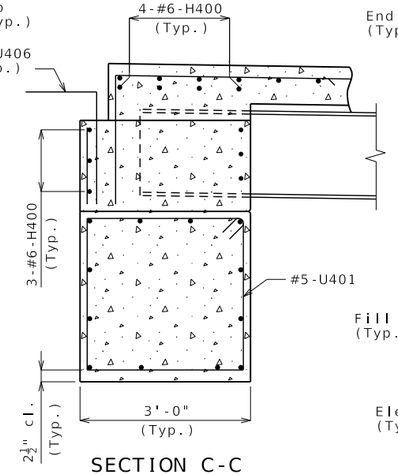
ELEVATION F-F



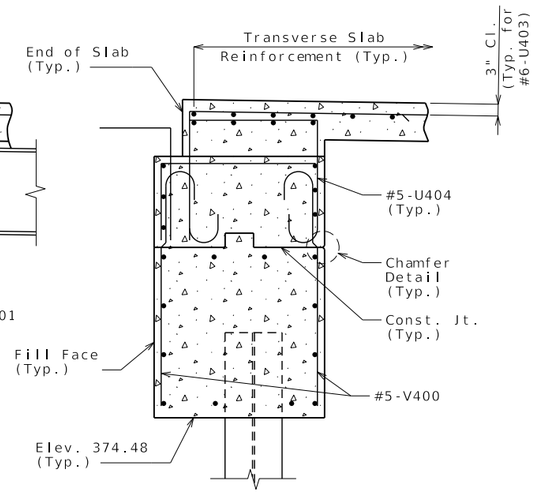
SECTION A-A



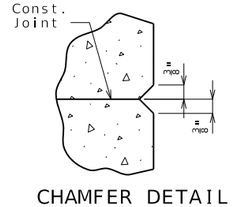
SECTION B-B



SECTION C-C



SECTION D-D



CHAMFER DETAIL

General Notes:

Work this sheet with Sheets No. 9 & 10.

For reinforcement of the barrier, see Sheet No. 19.

DETAILS OF END BENT NO. 4

Detailed Sept. 2024
Checked Sept. 2024

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

P:\2022\221411A\4 CADD - DWG\4.4 Struc\B_A9392_011_JSE0031_Dtls_of_End_Bent_No.4.dgn 10:52:18 AM 11/12/2024

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED: 11/12/2024
ROUTE: 142
STATE: MO
DISTRICT: BR
SHEET NO.: 11
COUNTY: RIPLEY
JOB NO.: JSE0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9392

DESCRIPTION	DATE

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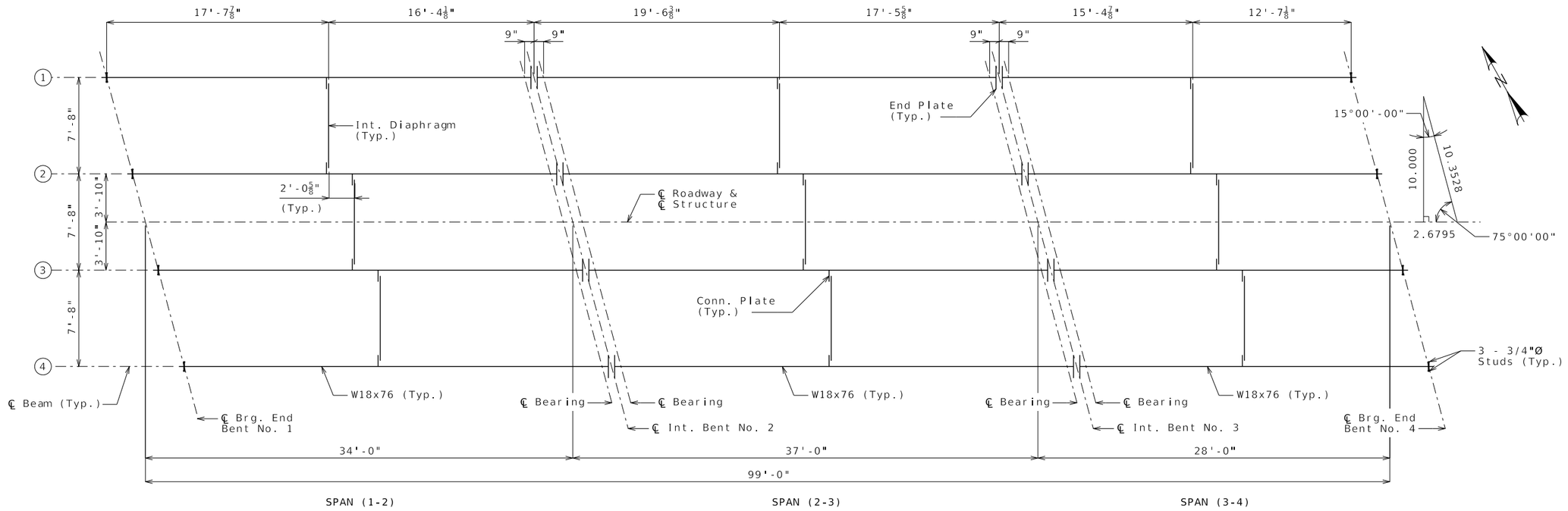


PLAN OF STRUCTURAL STEEL

Longitudinal dimensions are horizontal.

Notes:

Notch toughness is required for all wide flange beams.

Weight of 1,390 pounds of shear connectors is included in the weight of Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50.

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

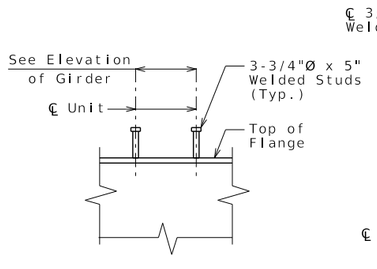
Fabricated Structural Steel shall be ASTM A709, Grade 50 and shall be galvanized in accordance with A123 and Sec 1080.

Field connections shall be made with 3/4" diameter ASTM F3125 Grade A325 Type 1 Bolts and 13/16" diameter holes, unless otherwise shown.

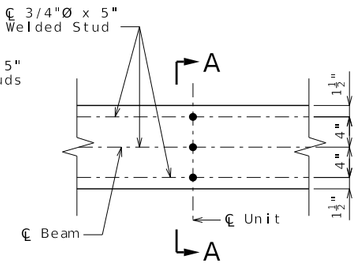
At the contractor's option, holes in the diaphragm plate of non slab bearing diaphragms may be made 3/16" larger than the nominal diameter of the bolt. A hardened washer shall be used under the bolt head and nut when this option is used. Holes in the girder diaphragm connection plate or transverse web stiffener shall be standard size.

For additional steel details, see Sheet No. 13.

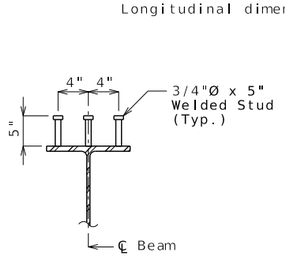
Longitudinal dimensions are horizontal from ℄ bearing to ℄ bearing.



ELEVATION



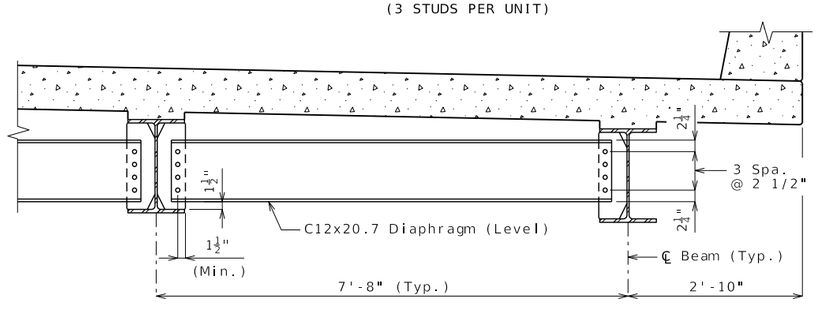
PLAN OF SHEAR CONNECTORS



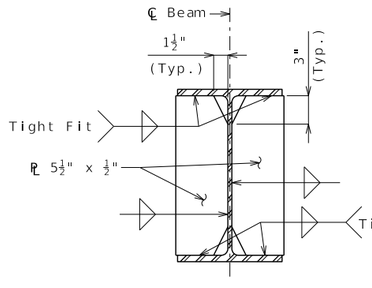
SECTION A-A

DETAILS OF SHEAR CONNECTOR UNITS

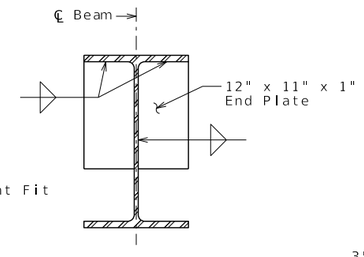
(3 STUDS PER UNIT)



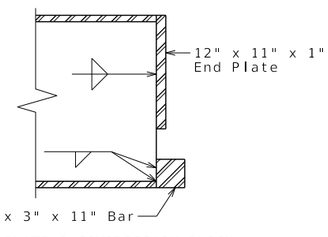
TYPICAL PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS



INTERMEDIATE DIAPHRAGM CONNECTION PLATE



END PLATE AT INTERMEDIATE BENTS



END PLATE & COMPRESSION BLOCK AT INTERMEDIATE BENTS

WELDING DETAILS

STEEL BEAM DETAILS

Detailed Sept. 2024
Checked Sept. 2024

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

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Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	12

COUNTY: RIPLEY
JOB NO.: JSE0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9392

DESCRIPTION	DATE

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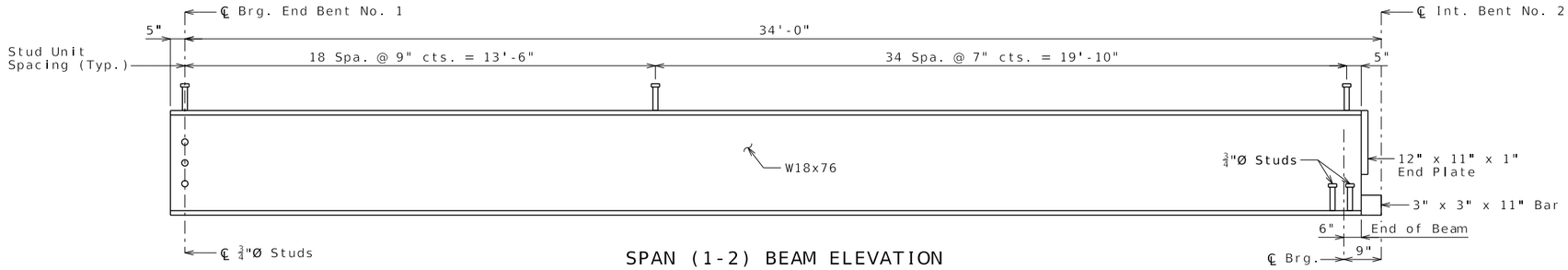
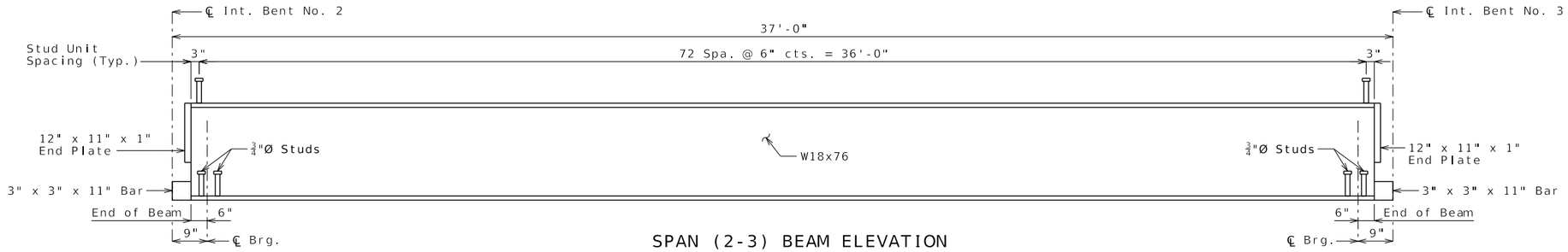
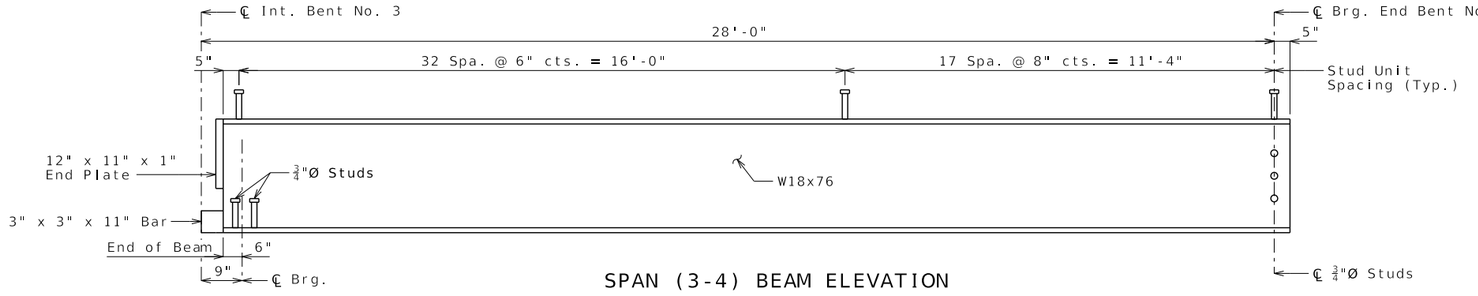


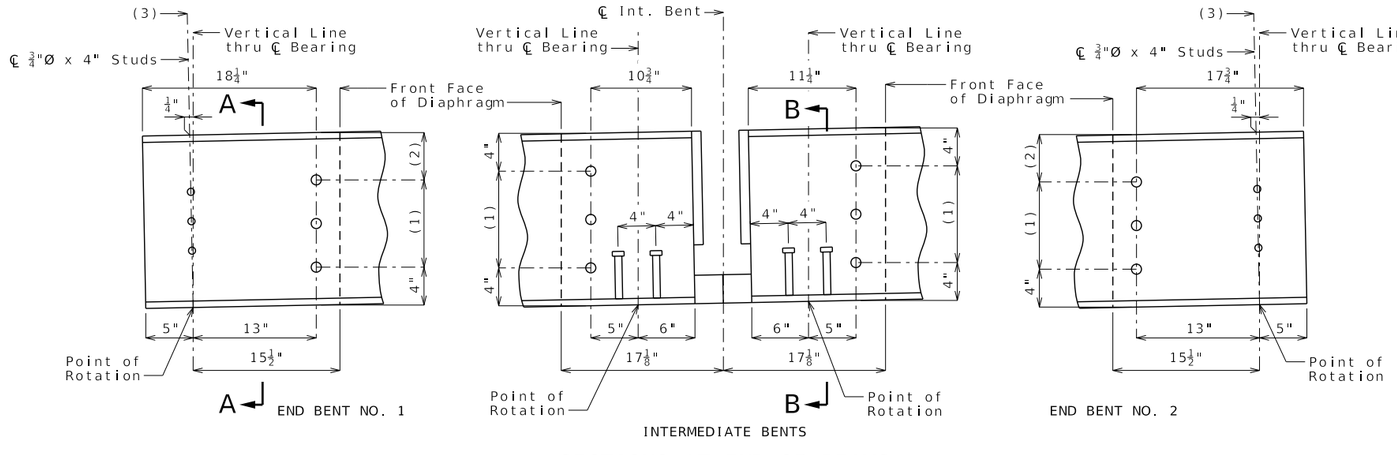
SPAN (1-2) BEAM ELEVATION



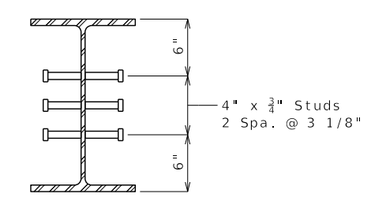
SPAN (2-3) BEAM ELEVATION



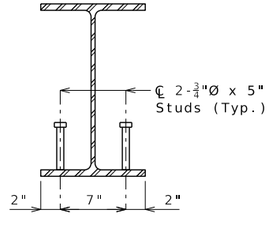
SPAN (3-4) BEAM ELEVATION



SECTIONS AT END OF BEAMS



SECTION A-A



SECTION B-B

Notes:

Longitudinal dimensions shown in the Beam Elevations are horizontal dimensions.

For Details of Shear Connectors, see Sheet No. 12.

(1) 3-1 1/16"Ø Holes (Equally Spaced)

(2) 5" @ Beams 1 & 4, 7¼" @ Beams 2 & 3

(3) Line perpendicular to the bottom of the bottom flange at the intersection of ℄ Brg. and Point of Rotation.

STEEL BEAM DETAILS

Detailed Sept. 2024
Checked Sept. 2024

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DATE PREPARED
11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	13

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

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

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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3316 LEMONE
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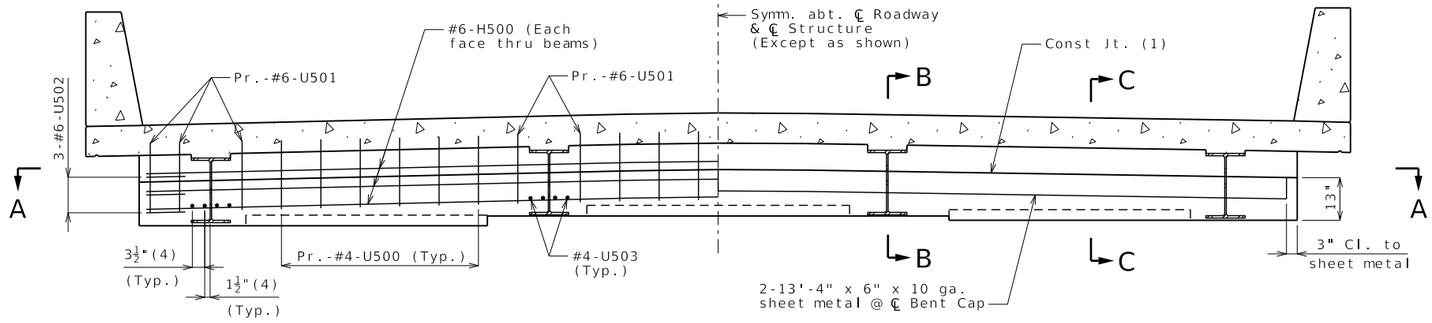
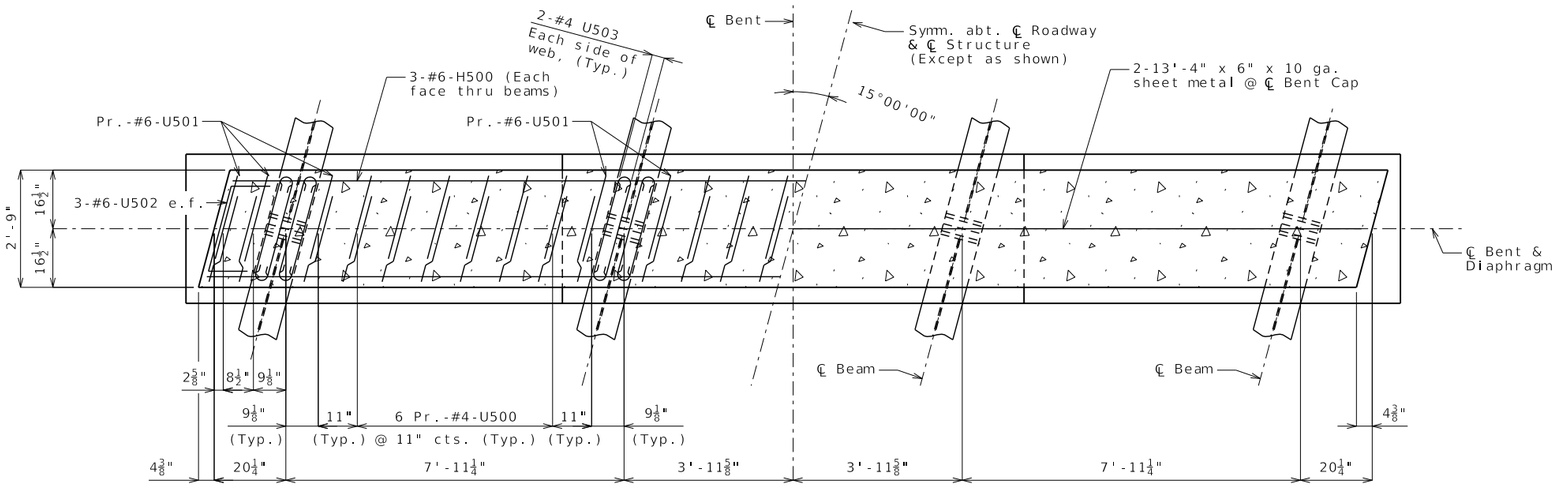


SHOWING REINFORCEMENT

SHOWING SHEET METAL

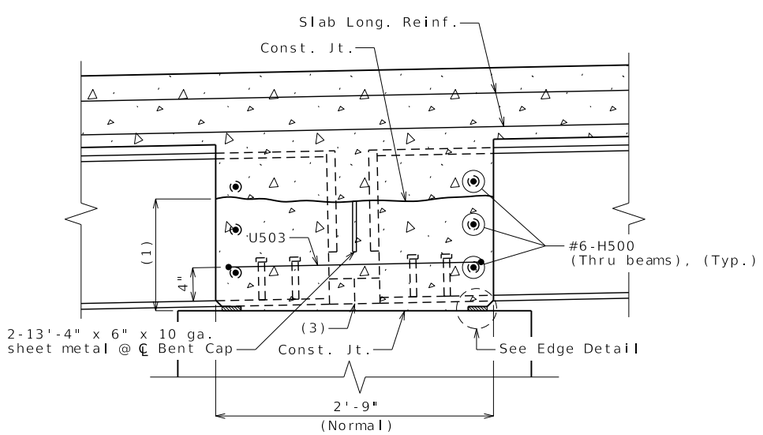
SECTION NEAR INTERMEDIATE BENT



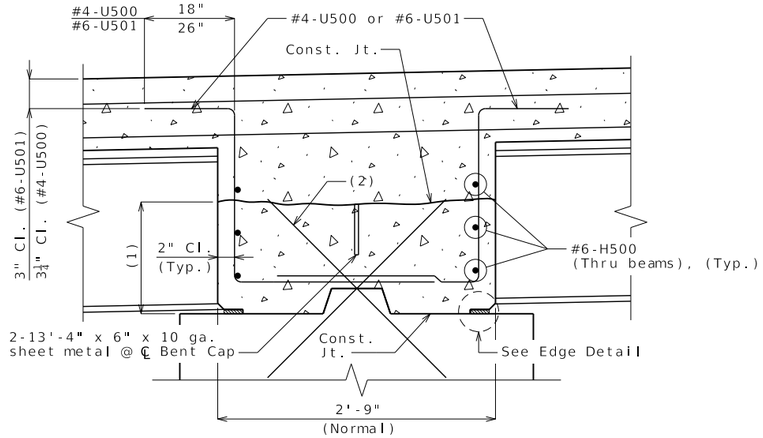
SHOWING REINFORCEMENT

SHOWING SHEET METAL

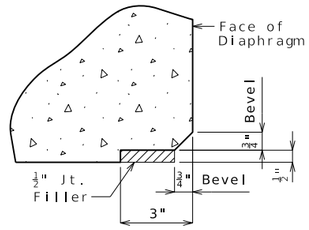
SECTION A-A



SECTION B-B



SECTION C-C



EDGE DETAIL

(1) Varies, match roadway cross slope.

(2) #6-D200. See Sheet No. 7 for details.

(3) Vertical face of compression blocks may be in partial contact. Full contact throughout block height is not necessary. Vertical faces of adjacent blocks shall overlap a minimum of 2 1/2".

(4) Normal to ℄ Beam

Notes:

e.f. denotes each face.

Diaphragms at Intermediate Bents shall be built vertical.

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

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

Concrete diaphragm below construction joint will be poured a minimum of 12 hours before the slab is poured.

Sheet metal shall be in accordance with Structural Grade 40 and coating designation of G165 of ASTM A653.

All U-bars in diaphragms are to be placed parallel to ℄ Roadway.

See sheet No. 13 for hole & stud locations at end of beams

CONCRETE DIAPHRAGMS AT INTERMEDIATE BENTS NO. 2 & 3

Detailed Sept. 2024
Checked Sept. 2024

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MO PE-2017028430

DATE PREPARED
11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	14

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION	DATE

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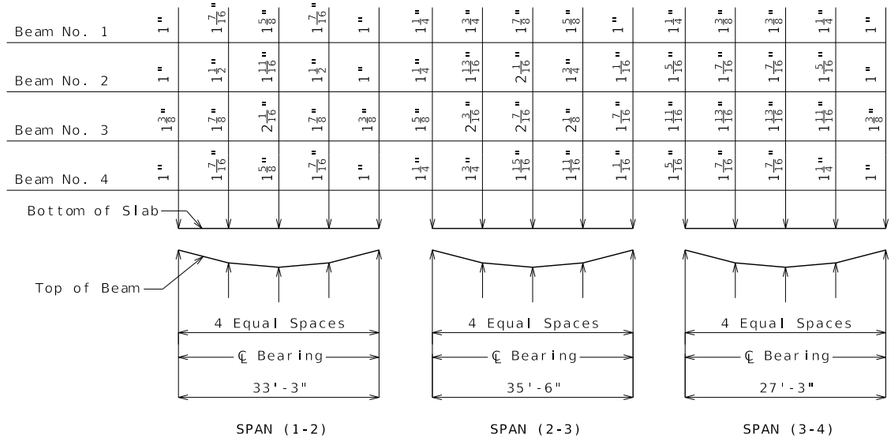
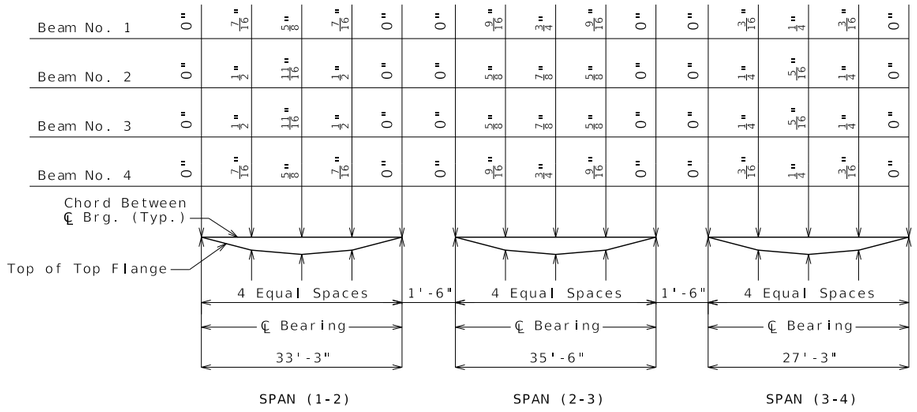


THEORETICAL SLAB HAUNCHING DIAGRAM (AFTER BARRIER PLACEMENT)

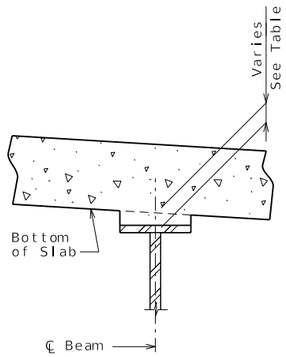
Haunching is estimated based on grade and bent elevations and Dead Load Deflection shown. If elevations or deflections in the field vary, an adjustment of the slab haunches shall be necessary in order to maintain a constant 8 1/2" slab thickness.

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

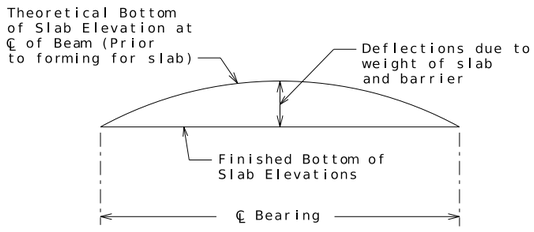


TOTAL DEAD LOAD DEFLECTION

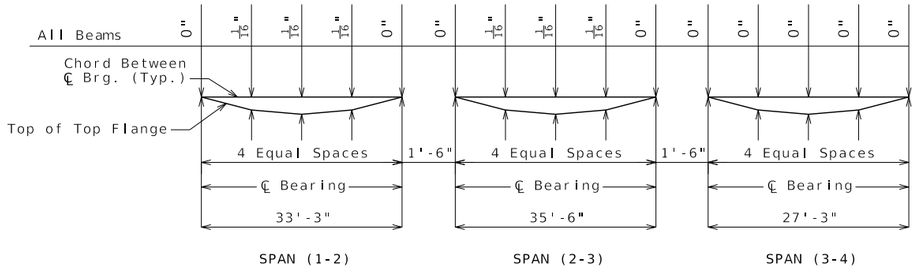
Dead load deflection includes weight of structural steel, concrete slab (including corrugated steel form), and barrier.



THEORETICAL SLAB HAUNCH



TYPICAL SLAB ELEVATIONS DIAGRAM



STEEL DEAD LOAD DEFLECTION

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

Beam Number	Span (1-2) (33'-3" ℄ Brg. - ℄ Brg.)					Span (2-3) (35'-6" ℄ Brg. - ℄ Brg.)					Span (3-4) (27'-3" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	377.63	377.79	377.93	378.04	378.13	378.15	378.33	378.48	378.59	378.69	378.71	378.82	378.93	379.03	379.12
2	377.82	377.98	378.12	378.23	378.32	378.34	378.52	378.67	378.78	378.87	378.89	379.01	379.12	379.22	379.30
3	377.85	378.01	378.15	378.26	378.35	378.37	378.55	378.70	378.82	378.90	378.92	379.04	379.15	379.25	379.33
4	377.72	377.88	378.02	378.13	378.22	378.25	378.42	378.57	378.69	378.78	378.80	378.92	379.03	379.12	379.21

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

SLAB ELEVATIONS, DEAD LOAD DEFLECTIONS, AND HAUNCHING

Detailed Sept. 2024
Checked Sept. 2024

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

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Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED
11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	15

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

REV.	DESCRIPTION	DATE

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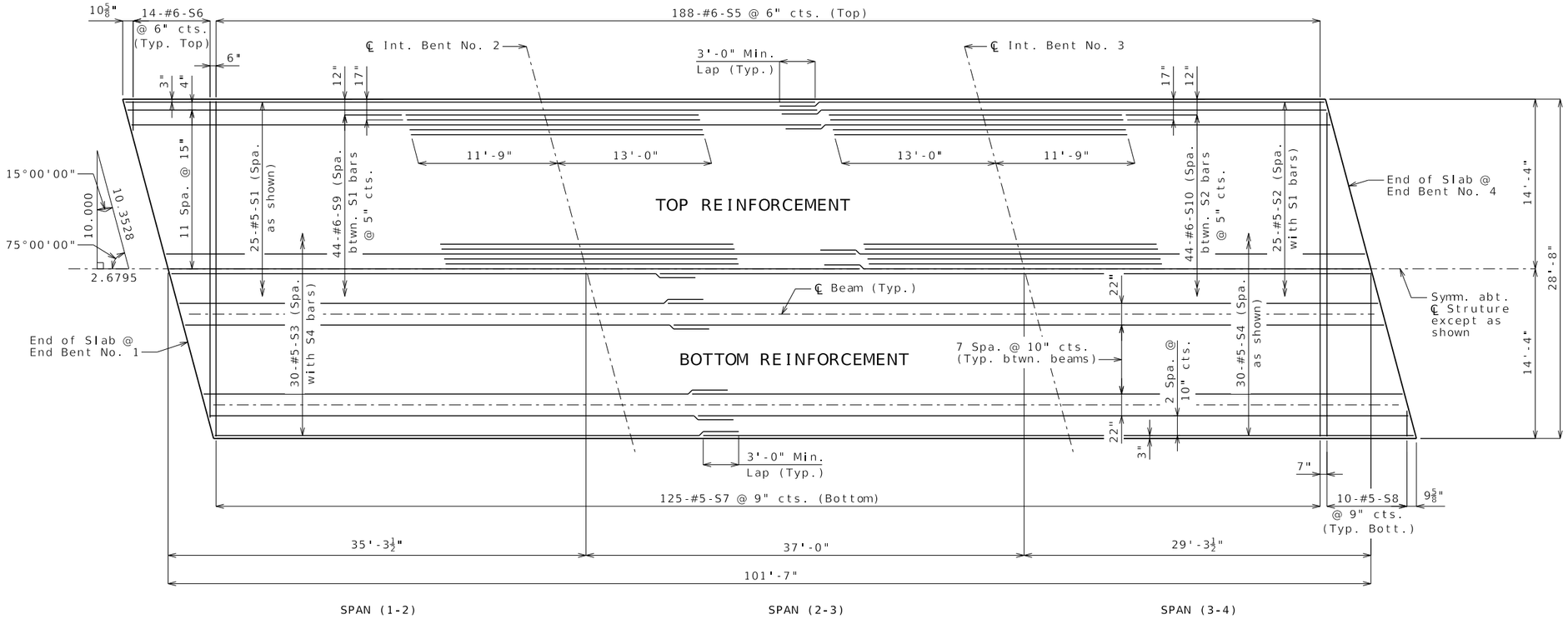

Notes:

Longitudinal slab dimensions are measured horizontally.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 17.

For Details and Reinforcement of Safety Barrier Curb not shown, see Sheets No. 18 & 19.

For Theoretical Slab Haunching Diagram, see Sheet No. 15.

For Theoretical Bottom of Slab Elevations, see Sheet No. 15.

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Sept. 2024
Checked Sept. 2024

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

P:\2022\221411A\4 CADD - DWG\4.4 Struc\B_A9392_016_JSE0031_Plan_of_Slab_Showing_Reinforcing.dgn 10:52:22 AM 11/12/2024

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DATE PREPARED
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ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	16

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

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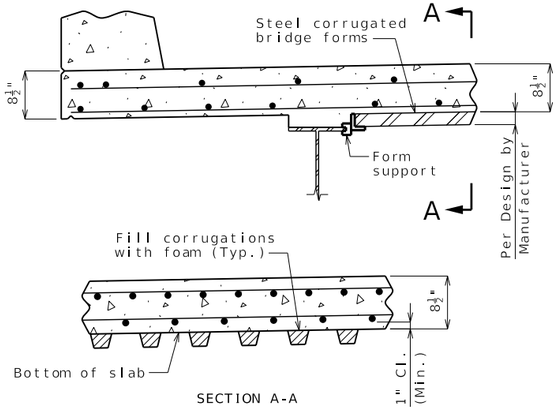
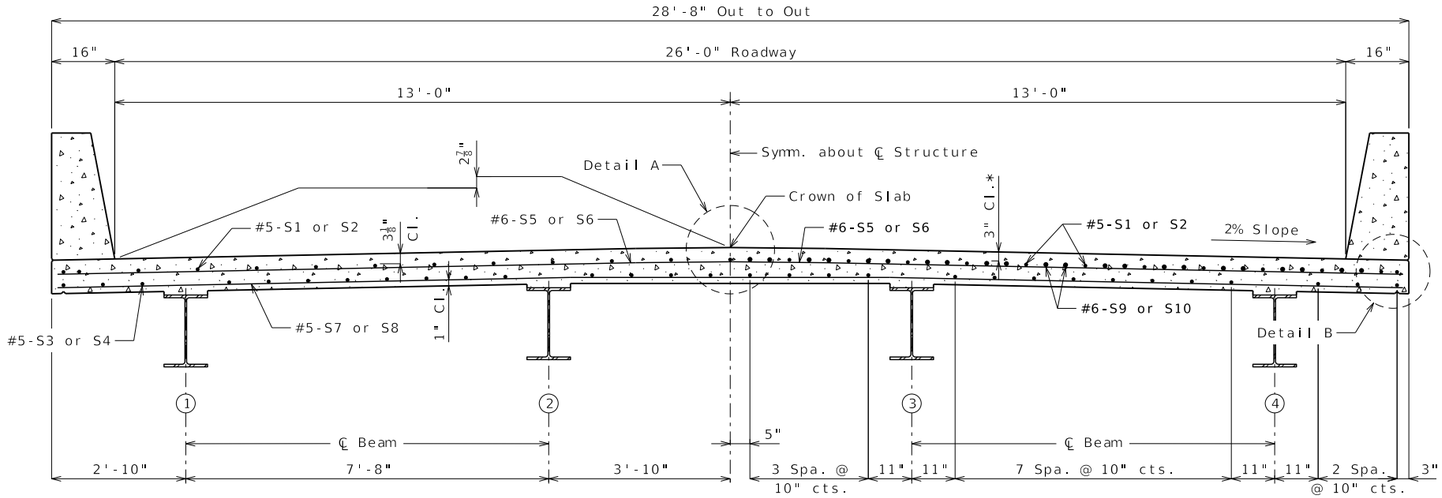


OPTIONAL STAY-IN-PLACE FORM DETAILS

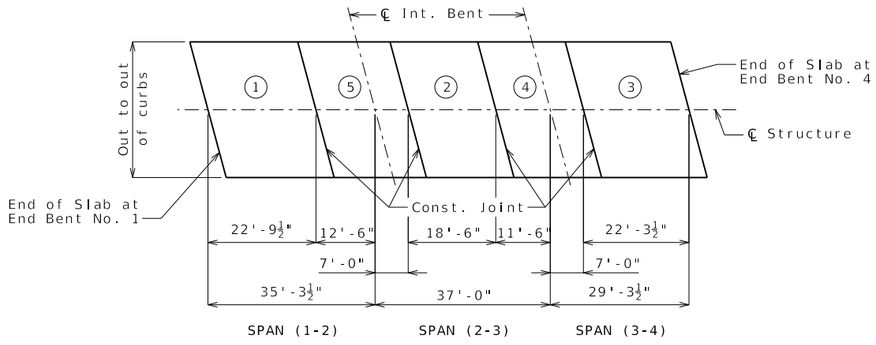


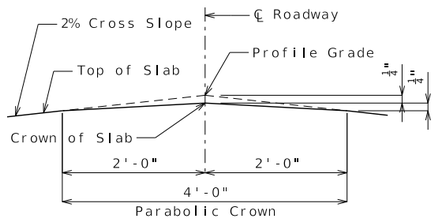
HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INTERMEDIATE BENT

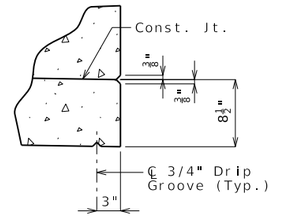
SECTION THRU SLAB

∗ to #6 S9 or S10 bars





DETAIL A



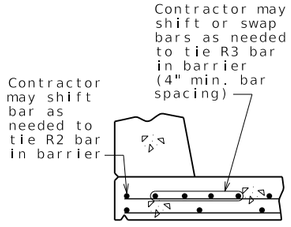
DETAIL B

	Sequence of Pours					Min. Rate of Pour Cu. Yds./Hr.	
	Direction					With Retarder	No Retarder
Basic Sequence	1	2	3	4	5	25	25
	Either Direction						
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.							
Alternate A Pours	1	5 + 2		4 + 3		25	25
	End to 5	1 to 4		2 to End			
Alternate B Pours	1 + 5 + 2		4 + 3			25	25
	End to 4		2 to End				
Alternate C Pours	1 + 5 + 2 + 4 + 3					25	25
	End to End *						

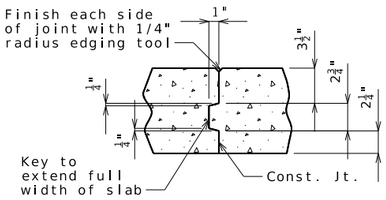
* Bridge deck shall be poured up grade.

The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

SLAB POURING SEQUENCE



OPTIONAL SHIFTING TOP BARS AT BARRIER



SLAB CONSTRUCTION JOINT

Notes:

For reinforcement of barrier not shown, see Sheet No. 18.

For Theoretical Bottom of Slab Elevations and Theoretical Slab Haunching Diagram, see Sheet No. 15.

For Plan of Slab Showing Reinforcement, see Sheet No. 16.

SLAB DETAILS

Detailed Sept. 2024
Checked Sept. 2024

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DATE PREPARED 11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	17

COUNTY: RIPLEY
JOB NO.: JSE0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9392

DESCRIPTION | DATE | REV.

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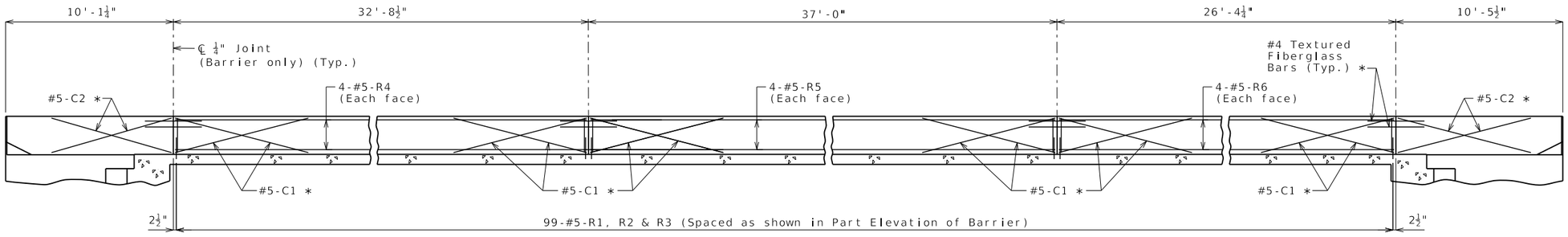
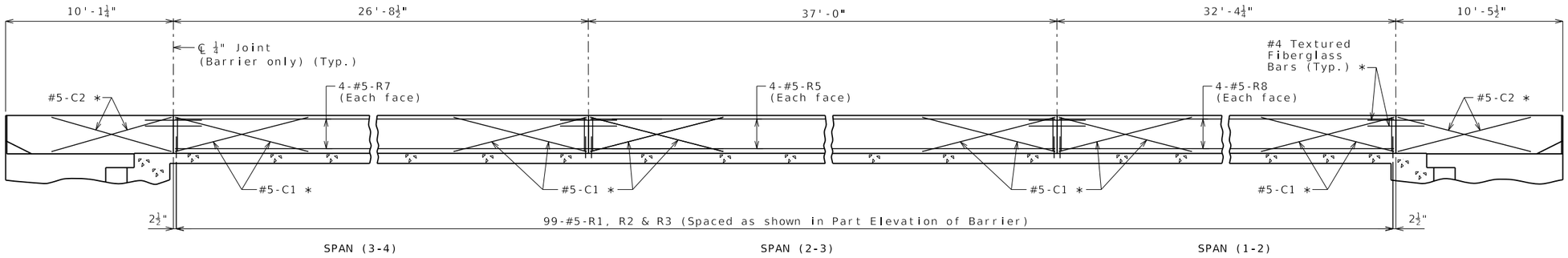


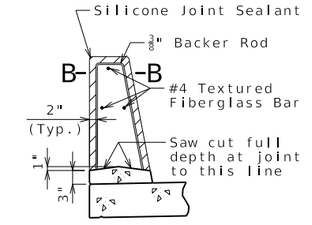
ELEVATION OF LEFT BARRIER

Longitudinal dimensions are horizontal.

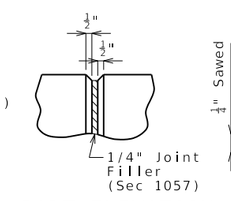


ELEVATION OF RIGHT BARRIER

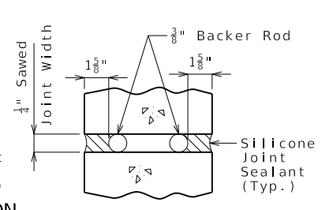
Longitudinal dimensions are horizontal.



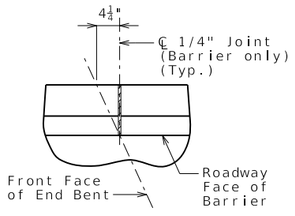
SECTION THRU SAW CUT JOINT



PART ELEVATION AT FORMED JOINT

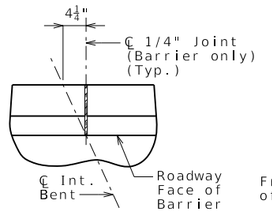


SECTION B-B



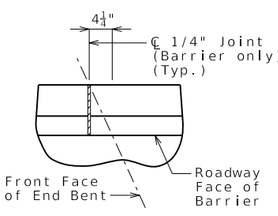
(AT END BENT 1)

Left barrier shown, right barrier at End Bent 4 similar.



(AT INTERMEDIATE BENT)

PART PLAN SHOWING JOINT LOCATION



(AT END BENT 4)

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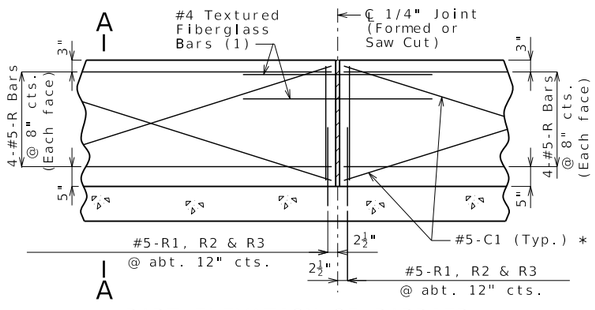
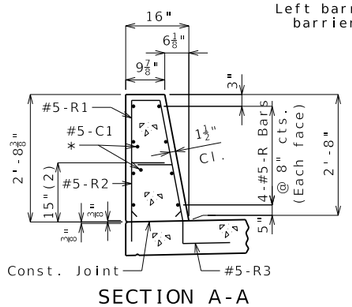


PART ELEVATION OF BARRIER

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

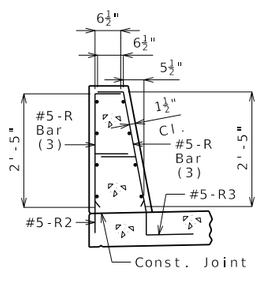


SECTION A-A

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

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

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

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

General Notes:

∗ Slip-formed option only.

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

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

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

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

Concrete in barrier shall be Class B-1.

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

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

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

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

TYPE H BARRIER

Detailed Sept. 2024
Checked Sept. 2024

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	18

COUNTY: RIPLEY
JOB NO.: JSE0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9392

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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3316 LEMONE
INDUSTRIAL BLVD
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MISSOURI CERTIFICATE
OF AUTHORITY: 001528

TWM ENGINEERING & GEOSPATIAL SERVICES

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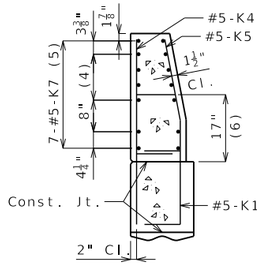
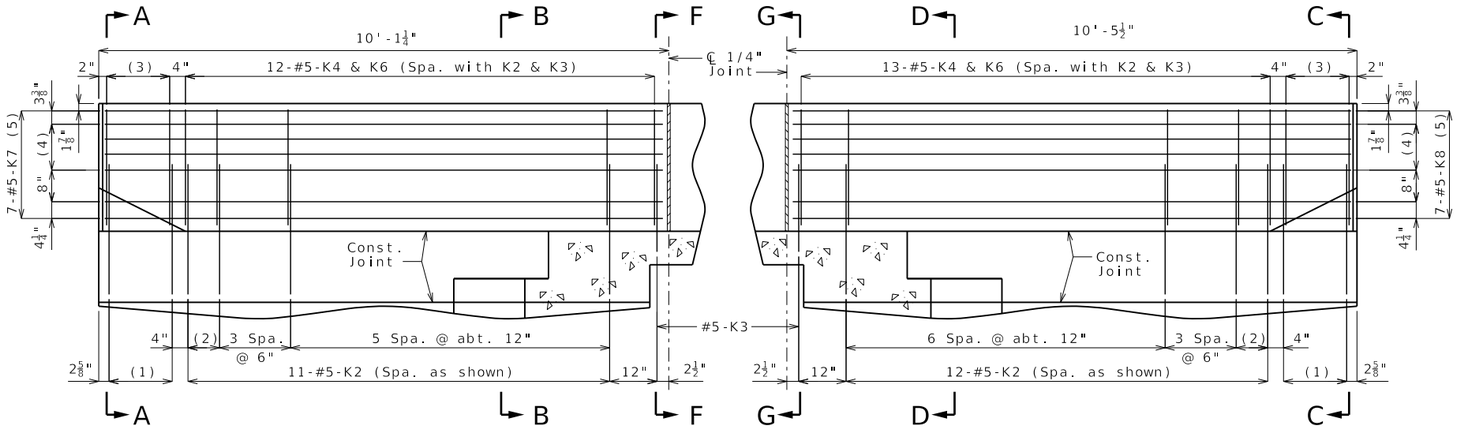
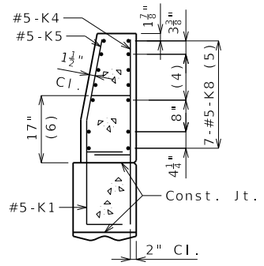


SECTION A-A



PART ELEVATION



SECTION C-C

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

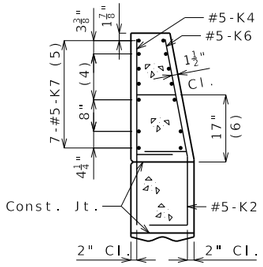
(2) 2 Spaces @ 4"

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

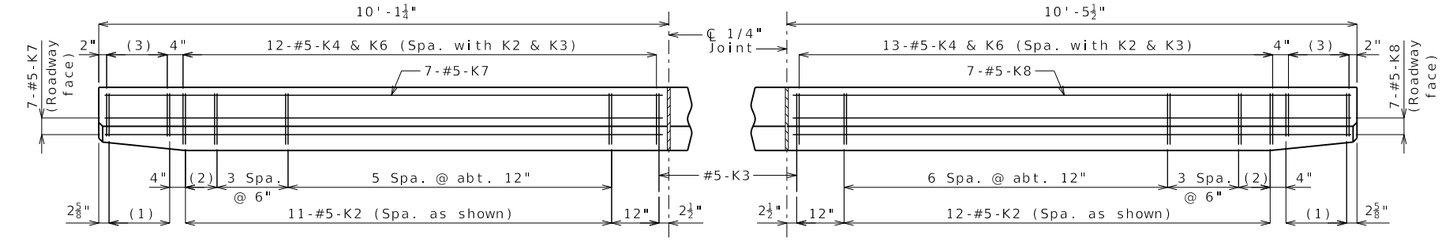
(4) 3 Spaces @ $3\frac{13}{16}$"

(5) Spaced as shown, each face

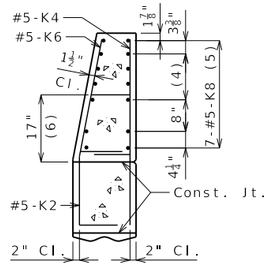
(6) To top of bar



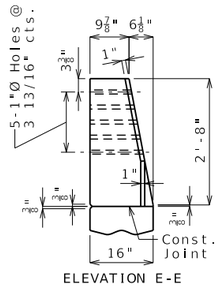
SECTION B-B



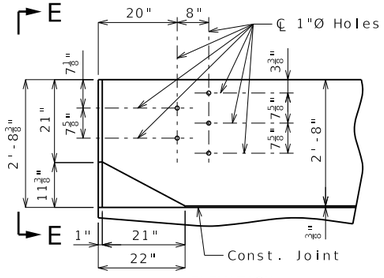
PART PLAN



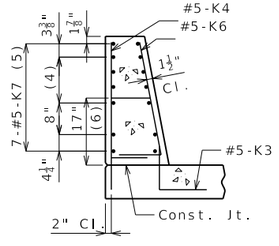
SECTION D-D



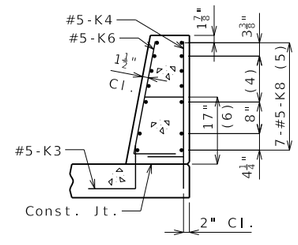
ELEVATION E-E



ELEVATION

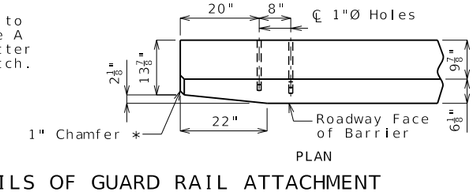


SECTION F-F



SECTION G-G

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



PLAN

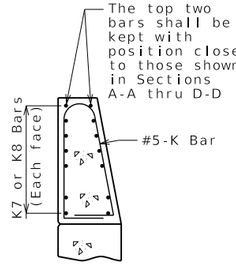
DETAILS OF GUARD RAIL ATTACHMENT

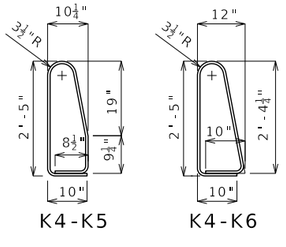
General Notes:

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

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent.





PERMISSIBLE ALTERNATE SHAPES

(Other K bars not shown for clarity)

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

All dimensions are out to out.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Detailed Sept. 2024
Checked Sept. 2024

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED
11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	19

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION	DATE

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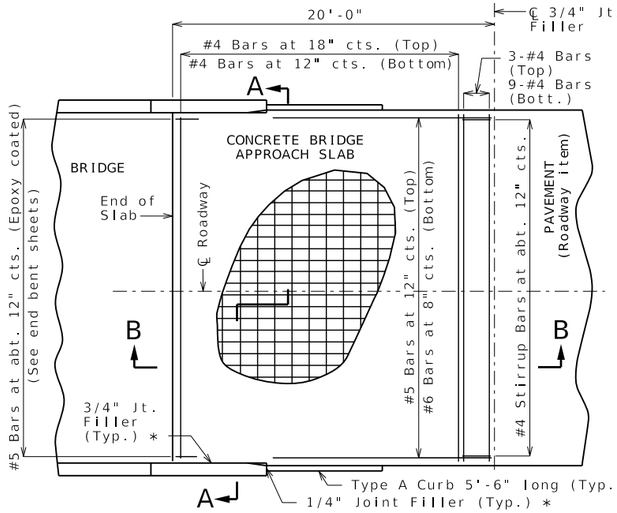
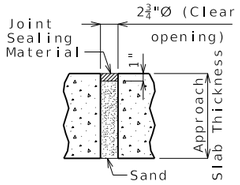


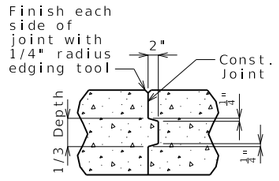
PART PLAN OF SQUARED STRUCTURE

(Skewed structure similar)

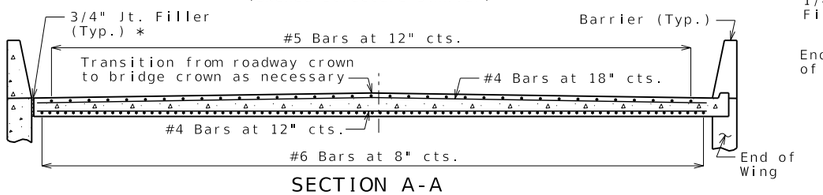


UNDERSEAL ACCESS HOLE DETAIL

(If required)

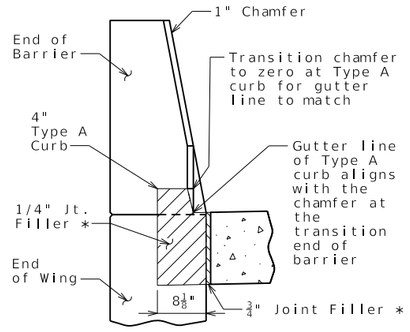


CONSTRUCTION JOINT DETAIL

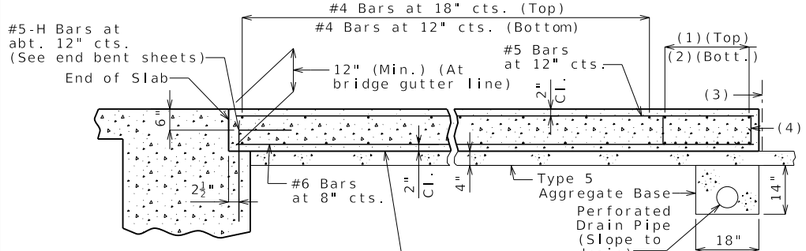


SECTION A-A

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



SECTION BETWEEN CURB AND BARRIER



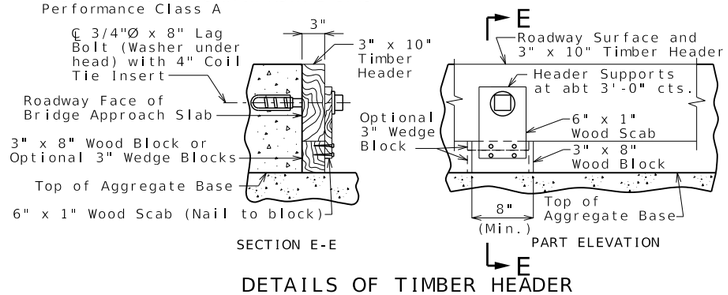
(1) 3-#4 Bars

(2) 9-#4 Bars

(3) ℄ 3/4" Jt. Filler

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

SECTION B-B



SECTION E-E

PART ELEVATION

DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

Notes For Concrete Slab Only:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

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

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

General Notes:

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

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

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

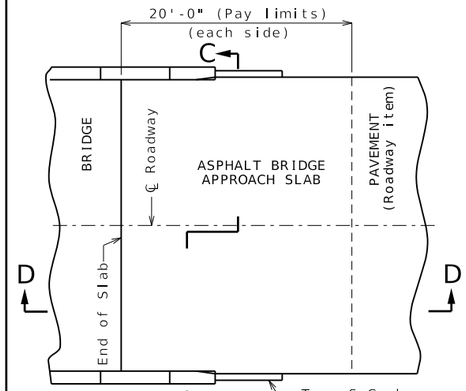
☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

Notes For Asphalt Slab Only:

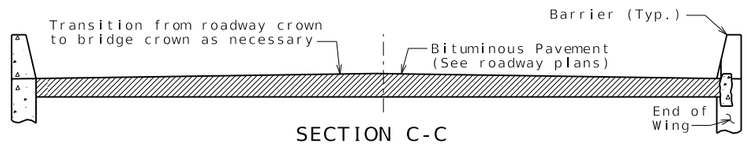
Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab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

Application of tack is required between lifts per Sec 403.



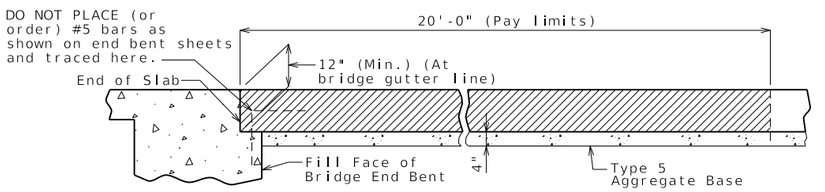
PART PLAN

(Squared structure shown, skewed structure similar)

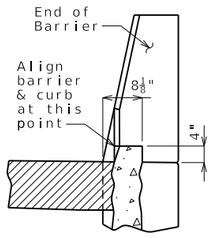


SECTION C-C

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



SECTION D-D



4" TYPE S CURB

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

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

BRIDGE APPROACH SLAB (MINOR)

Detailed Sept. 2024
Checked Sept. 2024

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

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED: 11/12/2024

ROUTE: 142 | STATE: MO

DISTRICT: BR | SHEET NO.: 20

COUNTY: RIPLEY

JOB NO.: JSE0031

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9392

REV.	DESCRIPTION	DATE

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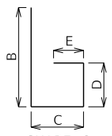
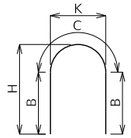
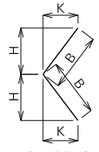


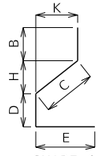
SHAPE 6
or 6S



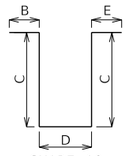
SHAPE 7



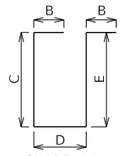
SHAPE 8
or 8S



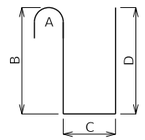
SHAPE 9
or 9S



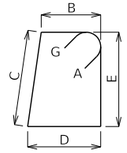
SHAPE 10
or 10S



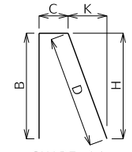
SHAPE 11
or 11S



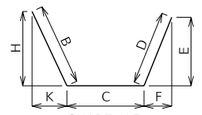
SHAPE 12



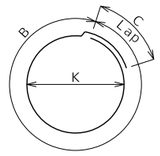
SHAPE 13S



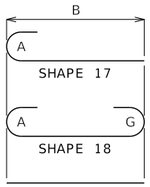
SHAPE 14
or 14S



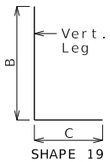
SHAPE 15
or 15S



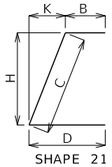
SHAPE 16



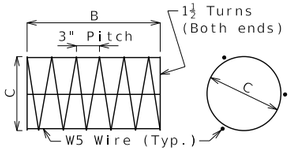
SHAPE 17
SHAPE 18
SHAPE 20



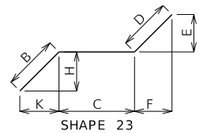
SHAPE 19
or 19S



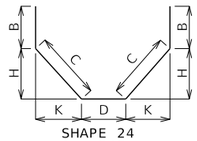
SHAPE 21
or 21S



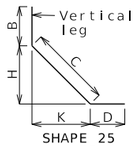
SHAPE 22



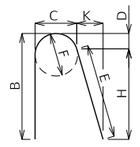
SHAPE 23
or 23S



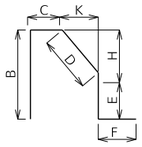
SHAPE 24
or 24S



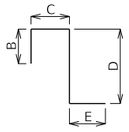
SHAPE 25
or 25S



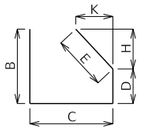
SHAPE 26



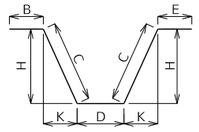
SHAPE 27S



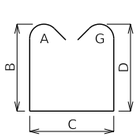
SHAPE 28
or 28S



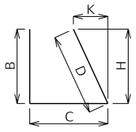
SHAPE 29
or 29S



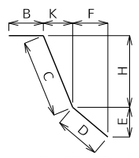
SHAPE 30
or 30S



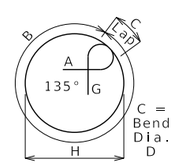
SHAPE 31S



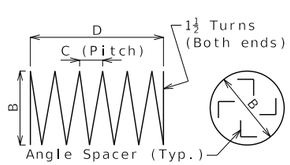
SHAPE 32
or 32S



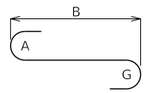
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

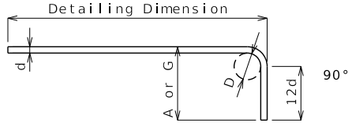


SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¾"	28½"

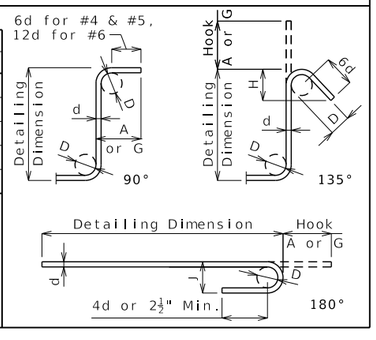


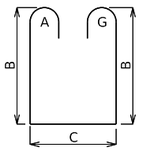
Stirrup Pin Bend Shapes (S)

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

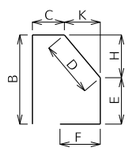
Applicable for all grades of steel.

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





SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)

	Size	Substructure		Superstructure				Entire Bridge	
				Slab			Slip		
		Plain	Epoxy	Plain	Epoxy	Barrier	Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	32	0	0	346	0	0	32	346
	5	754	0	0	11,201	5,488	365	754	17,054
	6	602	0	0	17,441	0	0	602	17,441
	7	0	0	0	0	0	0	0	0
	8	1,286	0	0	812	0	0	1,286	812
	9	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0
By Type		2,674	0	0	29,800	5,488	365	2,674	35,653

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Sept. 2024
Checked Sept. 2024

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED: 11/12/2024
ROUTE: 142
STATE: MO
DISTRICT: BR
SHEET NO.: 21
COUNTY: RIPLEY
JOB NO.: JSE0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9392

DATE	DESCRIPTION	REV.

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

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

3316 LEMONE INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
www.twm-inc.com
MISSOURI CERTIFICATE OF AUTHORITY: 001528

TWM ENGINEERING & GEOSPATIAL SERVICES

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		Substructure													
		Int Bent 2													
19	6 D200	BEAM		20		2 6.00							2 6	2 6	71
8	8 H200	BEAM		18		28 3.00							30 1	30 1	643
4	6 H201	BEAM		20		28 3.00							28 3	28 3	170
4	4 H202	BEAM		18		5 2.00							6 2	6 2	16
8	6 H203	BEAM		10S			13.00	3 1.75					5 4	5 0	60
20	5 U200	BEAM		13S		3 3.00	2 9.00	3 3.00	2 9.00				12 11	12 8	264
9	5 U201	BEAM		10S			2 9.00	3 3.00					8 9	8 6	80
8	5 U202	BEAM		10S			6.00	3 3.00					4 3	4 0	33
		Int Bent 3													
19	6 D200	BEAM		20		2 6.00							2 6	2 6	71
8	8 H200	BEAM		18		28 3.00							30 1	30 1	643
4	6 H201	BEAM		20		28 3.00							28 3	28 3	170
4	4 H202	BEAM		18		5 2.00							6 2	6 2	16
8	6 H203	BEAM		10S			13.00	3 1.75					5 4	5 0	60
20	5 U200	BEAM		13S		3 3.00	2 9.00	3 3.00	2 9.00				12 11	12 8	264
9	5 U201	BEAM		10S			2 9.00	3 3.00					8 9	8 6	80
8	5 U202	BEAM		10S			6.00	3 3.00					4 3	4 0	33
		Superstructure													
		End Bent 1													
7	6 F100	WING BRACE	E	23S		2 3.00	4 6.00	14.00	11.00	8.50	21.50	16.50	7 11	7 10	82
2	6 F101	DIAPHRAGM	E	14S			2 8.00	4 0.00			3 10.25	12.50	6 8	6 7	20
7	6 F102	WING BRACE	E	23S		14.00	5 10.00	2 3.00	16.50	21.50	8.50	11.00	9 3	9 2	96
2	6 F103	DIAPHRAGM	E	21S			4 7.00	2 8.00			14.25	4 5.25	7 3	4 1	12
22	6 H100	BM & DIAPH	E	20		29 5.00							29 5	29 5	972
16	8 H101	WING	E	20		9 6.00							9 6	9 6	406
28	6 H102	WING	E	19S		8 8.00	12.00						9 8	9 6	400
20	5 U100	BEAM	E	37S		3 11.50	2 10.25						11 9	11 6	240
4	5 U101	BEAM	E	13S		2 10.25	2 8.00	2 10.25	2 8.00				12 0	11 8	49
8	5 U102	BEAM	E	10S			2 8.00	2 10.25					8 2	8 0	67
36	6 U103	DIAPHRAGM	E	19S		22.50	4 8.50						6 7	6 5	347
22	5 U104	DIAPHRAGM	E	37S		20.50	2 4.00						6 9	6 6	149
22	6 U105	DIAPHRAGM	E	19S		10.50	2 10.25						3 9	3 7	118
26	5 U106	DIAPHRAGM	E	19S		19.00	15.00						2 10	2 9	75
4	5 V100	BEAM	E	17		3 11.00							4 6	4 6	19
12	6 V101	DIAPHRAGM	E	20		10.00							0 10	0 10	15
16	6 V102	WING	E	20		5 0.00							5 0	5 0	120
16	6 V103	WING	E	20		4 11.00							4 11	4 11	118
		End Bent 4													
7	6 F400	WING BRACE	E	23S		2 3.00	4 6.00	14.00	11.00	8.50	21.50	16.50	7 11	7 10	82
2	6 F401	DIAPHRAGM	E	14S			2 8.00	4 0.00			3 10.25	12.50	6 8	6 7	20
7	6 F402	WING BRACE	E	23S		14.00	5 10.00	2 3.00	16.50	21.50	8.50	11.00	9 3	9 2	96
2	6 F403	DIAPHRAGM	E	21S			4 7.00	2 8.00			14.25	4 5.25	7 3	4 1	12
22	6 H400	BM & DIAPH	E	20		29 5.00							29 5	29 5	972
16	8 H401	WING	E	20		9 6.00							9 6	9 6	406
28	6 H402	WING	E	19S		8 8.00	12.00						9 8	9 6	400
20	5 U400	BEAM	E	37S		4 0.00	2 10.25						11 10	11 7	242
4	5 U401	BEAM	E	13S		2 10.25	2 8.00	2 10.25	2 8.00				12 0	11 8	49
8	5 U402	BEAM	E	10S			2 8.00	2 10.25					8 2	8 0	67
36	6 U403	DIAPHRAGM	E	19S		22.75	4 8.50						6 7	6 5	347
22	5 U404	DIAPHRAGM	E	37S		20.75	2 4.00						6 9	6 7	151
22	6 U405	DIAPHRAGM	E	19S		10.75	2 10.25						3 9	3 7	118
26	5 U406	DIAPHRAGM	E	19S		19.25	15.00						2 10	2 9	75
4	5 V400	BEAM	E	17		4 0.00							4 7	4 7	19
12	6 V401	DIAPHRAGM	E	20		10.00							0 10	0 10	15
16	6 V402	WING	E	20		5 1.00							5 1	5 1	122
16	6 V403	WING	E	20		5 2.00							5 2	5 2	124

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		Int Diaphragms													
12	6 H500	DIAPHRAGM	E	20		26 11.00							26 11	26 11	485
72	4 U500	DIAPHRAGM	E	28S			18.00	20.75	2 6.00				5 9	5 7	269
40	6 U501	DIAPHRAGM	E	28S			2 2.00	20.50	2 6.00				6 5	6 1	365
12	6 U502	DIAPHRAGM	E	21S		12.00	2 4.50	12.00			2 3.50	7.25	4 4	4 0	72
32	4 U503	DIAPHRAGM	E	18		2 7.00							3 7	3 7	77
		Slab													
25	5 S1	SLAB	E	20		60 0.00							60 0	60 0	1,565
25	5 S2	SLAB	E	20		44 4.00							44 4	44 4	1,156
30	5 S3	SLAB	E	20		44 4.00							44 4	44 4	1,387
30	5 S4	SLAB	E	20		60 0.00							60 0	60 0	1,877
188	6 S5	SLAB	E	20		28 5.00							28 5	28 5	8,024
28	6 S6	SLAB	E	20	V	26 9.00							26 9	26 9	615
		INCREMENT = 22.375 INCH				2 6.00							2 6	2 6	
125	5 S7	SLAB	E	20		28 5.00							28 5	28 5	3,705
20	5 S8	SLAB	E	20	V	27 5.00							27 5	27 5	309
		INCREMENT = 33.625 INCH				2 2.00							2 2	2 2	
44	6 S9	SLAB	E	20		24 9.00							24 9	24 9	1,636
44	6 S10	SLAB	E	20		24 9.00							24 9	24 9	1,636
		Type H Barrier													
20	5 K1	BARRIER	E	38S		3 5.75	9.25	5.25	3 0.50	9.50	5.25	1.00	8 6	8 3	172
46	5 K2	BARRIER	E	38S		3 5.75	9.25	14.50	2 3.50	10.00	14.25	2.75	8 7	8 3	396
4	5 K3	BARRIER	E	27S		22.50	9.25	14.50	7.75	12.00	14.25	2.75	5 6	5 2	22
70	5 K4	BARRIER	E	19S		2 5.00	10.00						3 3	3 2	231
20	5 K5	BARRIER	E	38S				19.25	9.50	8.25	18.75	4.25	3 1	3 0	63
50	5 K6	BARRIER	E	21S			2 5.00	10.00			2 4.25	6.00	3 3	3 1	161
28	5 K7	BARRIER	E	20		9 10.00							9 10	9 10	287
28	5 K8	BARRIER	E	20		10 2.00							10 2	10 2	297
198	5 R1	BARRIER	E	14S		2 5.00	6.50	2 5.50			2 5.00	5.50	5 5	5 3	1,084
198	5 R2	BARRIER	E	19S		20.50	9.50						2 6	2 5	499
198	5 R3	BARRIER	E	27S			9.50	15.25	5.00	12.00	15.00	3.00	3 6	3 4	688
8	5 R4	BARRIER	E	20		32 5.00							32 5	32 5	270
16	5 R5	BARRIER	E	20		36 8.00							36 8	36 8	612
8	5 R6	BARRIER	E	20		26 1.00							26 1	26 1	218
8	5 R7	BARRIER	E	20		26 5.00							26 5	26 5	220
8	5 R8	BARRIER	E	20		32 1.00							32 1	32 1	268
		Slip Form Option													
24	5 C1	SLIP FORM	E	20		12 0.00							12 0	12 0	300
8	5 C2	SLIP FORM	E	20		7 9.00							7 9	7 9	65

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

For bending diagrams and steel reinforcing totals, see Sheet No. 21.

Detailed Sept. 2024
Checked Sept. 2024

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

BILL OF REINFORCING STEEL

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024

ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 22
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

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

DESCRIPTION | DATE | REV.

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

3316 LEMONE
INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
www.twm-inc.com
MISSOURI CERTIFICATE OF AUTHORITY: 001528

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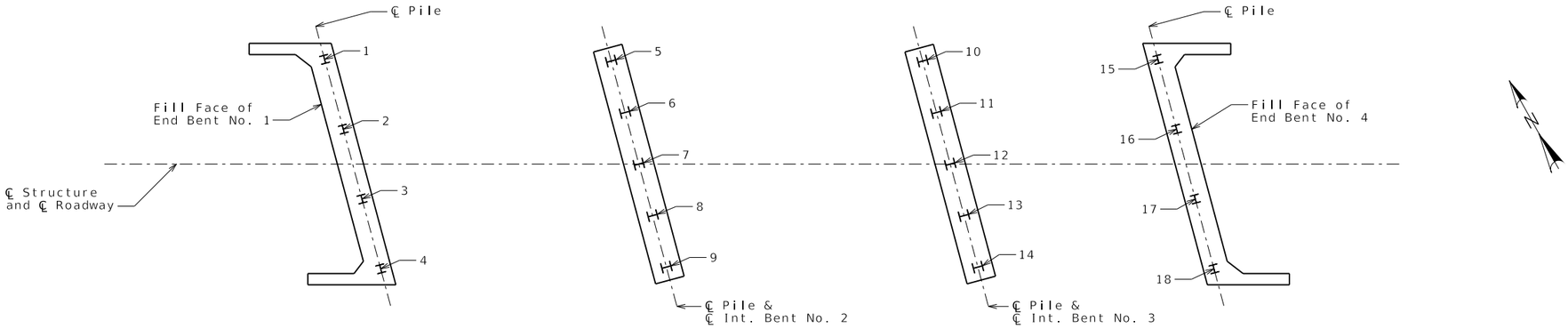

PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA

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

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			Int. Bent No. 3
10			
11			
12			
13			
14			
			End Bent No. 4
15			
16			
17			
18			

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

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE DATA

Detailed Sept. 2024
Checked Sept. 2024

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

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024
ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 23
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

DESCRIPTION | DATE | REV.

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

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. 102 (V-23-61)
Page 1 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 1 **Logged By:** Matthew Kistler **Operator:** Gary Degraffenreid
Station: **Northing:** 277464.8 **Date of Work:** 08/16/23-08/16/23
Offset: **Easting:** 753754 **Depth to Water:** 11.0
Elevation: 377.4 **Requested Northing:** 277457.5 **Depth Hole Open:** 11.5
Requested Station: 403+77.1 **Requested Easting:** 753753.7 **Time Change:** At Time of Drilling
Requested Offset: 10.0 R **Equipment:** Acker Renegade ,Grab Sample, Split-Spoon Sampler
Requested Elevation: **Location Note:** Offset due to slope
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Hollow Stem Auger

Depth (ft)	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0	0.0-0.4' ASPHALT 0.4-4.5' Brown, GRAVELLY LEAN CLAY, medium stiff, moist	375						
5	4.5-11.0' Brown, LEAN CLAY scattered chert gravel, scattered fine sand, soft to medium stiff, moist	370		33	2-1-3 (6)		PP = 0.25 tsf	MC = 12.9% γ_{sat} = 140 pcf[1]
10				33	1-3-4 (11)		PP = 0.00 tsf	MC = 18.7% γ_{sat} = 132 pcf[1]
15	11.0-15.1' Dark brown, LEAN CLAY with silt, scattered fine gravel, stiff, wet	365		100				LL = 23 PL = 15
20	15.1-20.3' Reddish brown, FAT CLAY scattered fine sand, trace chert gravel, medium stiff, moist	360		47	2-3-2 (8)		PP = 0.75 tsf	MC = 40.4% γ_{sat} = 113 pcf[1] LL = 63 PL = 25
25	20.3-22.2' Tan and gray, FAT CLAY scattered sandstone fragments, soft to medium stiff, wet	355		40	5-3-1 (6)		PP = 0.00 tsf	MC = 36.3% γ_{sat} = 115 pcf[1]
	22.2-27.4' Dolomite, highly weathered to moderately weathered, Cut with auger			50	20-34/0.3'			
30	27.4-37.4' Cherty Dolomite, grayish white and tan, slightly weathered, Cut with rock bit 27.4' auger refusal	350						
35		345						

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

Missouri Department of Transportation
Construction and Materials

BORING NO. 102 (V-23-61)
Page 2 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 1 **Logged By:** Matthew Kistler **Operator:** Gary Degraffenreid
Station: **Northing:** 277464.8 **Date of Work:** 08/16/23-08/16/23
Offset: **Easting:** 753754 **Depth to Water:** 11.0
Elevation: 377.4 **Requested Northing:** 277457.5 **Depth Hole Open:** 11.5
Requested Station: 403+77.1 **Requested Easting:** 753753.7 **Time Change:** At Time of Drilling
Requested Offset: 10.0 R **Equipment:** Acker Renegade ,Grab Sample, Split-Spoon Sampler
Requested Elevation: **Location Note:** Offset due to slope
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Hollow Stem Auger

Depth (ft)	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35	27.4-37.4' Cherty Dolomite, grayish white and tan, slightly weathered, Cut with rock bit 27.4' auger refusal *(continued)*	340						
	Bottom of borehole at 37.4 feet.			0	10/0.0', 10/0'			

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024
ROUTE 142 STATE MO
DISTRICT BR SHEET NO. 24
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

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

DESCRIPTION | DATE | REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
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MISSOURI CERTIFICATE OF AUTHORITY: 001528

BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

LETTER BOREHOLE - MODOT_20151118.GDT - 9/26/23 14:10 - Z:\SG\GINT\PROJECT FILES\JSE0031_A9392_RIPLEY_RT142_OVERHARRISCK.GPJ

P:\2022\221411A\4 CADD - DWG\4.4 Struc\B_A9392_024_JSE0031_Boring_Data.dgn 10:52:32 AM 11/12/2024

Missouri Department of Transportation
Construction and Materials

BORING NO. 201 (V-23-63)
Page 1 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 2 **Logged By:** Duncan Noack **Operator:** Manu T'eo
Station: **Northing:** 277460.9 **Date of Work:** 08/23/23-08/23/23
Offset: **Easting:** 753791.7 **Depth to Water:** 13.7
Elevation: 377.4 **Requested Northing:** 277464.2 **Depth Hole Open:**
Requested Station: 404+05.7 **Requested Easting:** 753788.0 **Time Change:** At Time of Drilling
Requested Offset: 10.0 L **Equipment:** Acker Soil XLS ,Split-Spoon Sampler, NQ
Requested Elevation: **Location Note:**
Drill No.: G-9462 **Hammer Efficiency:** 81% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.1' ASPHALT 0.1-0.7' CONCRETE 0.7-13.5' Air	375						
5			370						
10			365						
15		13.5-14.8' Tan, SANDY GRAVEL scattered cobbles, wet, fine to coarse grained 14.8-20.4' Reddish brown, SANDY LEAN CLAY, medium stiff, wet, with bits of weathered sandstone	360		67	1-2-4 (8)		PP = 0.75 tsf	MC = 26.0% γ_{sat} = 124 pcf (1) LL = 33 PL = 15
20		20.4-21.5' Dolomite, gray, highly weathered	355		0	11/0.1", 10/0"	Qu Test Results UCS = 735 ksf MC = 0% γ_{moist} = 166.9 pcf		
25		21.5-33.4' Cherty Dolomite, gray and tan, thin bedded to medium bedded, strong rock to extremely strong rock, moderately weathered to slightly weathered, some vugs, vertical jointing, some thin tan clay seams	350		98 (55)				
30			345		98 (58)		Qu Test Results UCS = 2290 ksf MC = 0% γ_{moist} = 172.5 pcf		
35					96 (62)		Qu Test Results UCS = 3300 ksf MC = 0% γ_{moist} = 168.8 pcf		

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

Missouri Department of Transportation
Construction and Materials

BORING NO. 201 (V-23-63)
Page 2 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 2 **Logged By:** Duncan Noack **Operator:** Manu T'eo
Station: **Northing:** 277460.9 **Date of Work:** 08/23/23-08/23/23
Offset: **Easting:** 753791.7 **Depth to Water:** 13.7
Elevation: 377.4 **Requested Northing:** 277464.2 **Depth Hole Open:**
Requested Station: 404+05.7 **Requested Easting:** 753788.0 **Time Change:** At Time of Drilling
Requested Offset: 10.0 L **Equipment:** Acker Soil XLS ,Split-Spoon Sampler, NQ
Requested Elevation: **Location Note:**
Drill No.: G-9462 **Hammer Efficiency:** 81% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35		33.4-35.4' Sandstone, light gray and tan, thin bedded, extremely strong rock, moderately weathered to slightly weathered, medium grained *(continued)*	340		100 (30)		Qu Test Results UCS = 1070 ksf MC = 0% γ_{moist} = 164.2 pcf		
40		35.4-47.9' Cherty Dolcmite, gray and tan, thin bedded to medium bedded, very strong rock, moderately weathered to slightly weathered, vertical jointing, some thin tan clay seams	335		100 (66)		Qu Test Results UCS = 1730 ksf MC = 0% γ_{moist} = 170.1 pcf		
45			330		100 (50)		Qu Test Results UCS = 1410 ksf MC = 0% γ_{moist} = 172.7 pcf		
		Bottom of borehole at 47.9 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024
ROUTE 142 STATE MO
DISTRICT BR SHEET NO. 25
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

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

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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3316 LEMONE
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MISSOURI CERTIFICATE OF AUTHORITY: 001528
TWM ENGINEERING & GEOSPATIAL SERVICES

REV.

BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

LETTER BOREHOLE -MODOT_20151118.GDT - 9/26/23 14:10 - Z:\SGG\INTPROJECT FILES\JSE0031_A9392_RIPLEY_RT142_OVERHARRISCK.GPJ

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Missouri Department of Transportation
Construction and Materials

BORING NO. 302 (V-23-60)
Page 1 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 3 **Logged By:** Matthew Kistler **Operator:** Gary Degraffenreid
Station: **Northing:** 277444.3 **Date of Work:** 08/15/23-08/15/23
Offset: **Easting:** 753800.9 **Depth to Water:** 13.7
Elevation: 377.5 **Requested Northing:** 277438.5 **Depth Hole Open:**
Requested Station: 404+24.1 **Requested Easting:** 753796.7 **Time Change:** At Time of Drilling
Requested Offset: 10.0 R **Equipment:** Acker Renegade ,Split-Spoon Sampler, NX
Requested Elevation: **Location Note:** Offset to drill through bridge deck
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.1' ASPHALT 0.1-0.6' CONCRETE, (Existing Bridge Deck) 0.6-13.7' Air	375						
5			370						
10			365						
15		13.7-14.0' WATER, (Harris Creek) 14.0-19.5' Brownish tan to gray, SANDY GRAVEL, loose to medium dense, wet	360						
20		19.5-20.0' Reddish brown, FAT CLAY, soft, wet			81	4-1/0.1', 10/0'		PP = 0.00 tsf	MC = 80.5% γ_{sat} = 96 pcf[1)]
		20.0-21.1' SAND scattered gravel, very dense, wet, medium to coarse grained, Cherty	355						
25		21.1-25.9' Dolomite, light gray and brown, very thin bedded, strong rock, slightly weathered, Scattered vertical fractures			100 (0)				
		25.9-31.7' Dolomite, light gray and white, thin bedded, very strong rock, slightly weathered, Crystalline, Scattered dark blue chert	350		100 (58)		Qu Test Results UCS = 1620 ksf MC = 0% γ_{moist} = 172.2 pcf		
30									
		31.7-36.0' Dolomite, light gray and orangish brown, thin bedded, very strong rock, slightly weathered, Iron oxide staining	345		100 (72)		Qu Test Results UCS = 1790 ksf MC = 0% γ_{moist} = 165.5		
35									

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. 302 (V-23-60)
Page 2 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 3 **Logged By:** Matthew Kistler **Operator:** Gary Degraffenreid
Station: **Northing:** 277444.3 **Date of Work:** 08/15/23-08/15/23
Offset: **Easting:** 753800.9 **Depth to Water:** 13.7
Elevation: 377.5 **Requested Northing:** 277438.5 **Depth Hole Open:**
Requested Station: 404+24.1 **Requested Easting:** 753796.7 **Time Change:** At Time of Drilling
Requested Offset: 10.0 R **Equipment:** Acker Renegade ,Split-Spoon Sampler, NX
Requested Elevation: **Location Note:** Offset to drill through bridge deck
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35							pcf		
		36.0-36.8' Cherty Dolomite, dark blue and brownish tan, very thin bedded, very strong rock, slightly weathered, Brecciated	340		100 (26)		Qu Test Results UCS = 2430 ksf MC = 0% γ_{moist} = 173.8 pcf		
40		36.8-44.3' Dolomite, light gray, thin bedded, very strong rock to extremely strong rock, slightly weathered, Scattered pitting, scattered chert 38.7-40.2' vertically fractured	335		100 (56)		Qu Test Results UCS = 1480 ksf MC = 0% γ_{moist} = 165.3 pcf		
45		42.9-43.8' vertically fractured 44.3-47.0' Dolomite, light gray and grayish tan, thin bedded, very strong rock, slightly weathered, Scattered chert	330		100 (16)		Qu Test Results UCS = 1830 ksf MC = 0% γ_{moist} = 172.5 pcf		
50		47.0-47.7' Chert, dark bluish gray, very strong rock, slightly weathered 47.7-51.1' Dolomite, light gray and grayish tan, very thin bedded, very strong rock, slightly weathered, Scattered chert Bottom of borehole at 51.1 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024
ROUTE 142 STATE MO
DISTRICT BR SHEET NO. 26
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

DESCRIPTION | DATE | REV.

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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MISSOURI CERTIFICATE OF AUTHORITY: 001528

TWM ENGINEERING & GEOSPATIAL SERVICES

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BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

P:\2022\221411A\4 CADD - DWG\4.4 Struc\B_A9392_026_JSE0031_Boring_Data.dgn 10:52:57 AM 11/12/2024

Missouri Department of Transportation
Construction and Materials

BORING NO. 401 (O-23-70)
Page 1 of 2

Job No.: JSE0031
Design: A9392
Bent: 4
Station:
Offset:
Elevation: 377.4
Requested Station: 404+42.7
Requested Offset: 10.0 L
Requested Elevation:
Drill No.: G-9462

County: Ripley
Skew: 15 RA
Logged By: Duncan Noack
Northing: 277446.2
Easting: 753818.9
Requested Northing: 277449.3
Requested Easting: 753821.8
Equipment: Acker Soil XLS ,Split-Spoon Sampler, NQ
Hammer Efficiency: 81%

Route: 142
Location: Over Harris Creek
Operator: Manu T'eo
Date of Work: 08/22/23-08/22/23
Depth to Water: 13.5
Depth Hole Open:
Time Change: At Time of Drilling
Location Note:
Drilling Method: Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.1' ASPHALT 0.1-0.7' CONCRETE 0.7-13.5' Air	375						
5			370						
10			365						
15		13.5-14.2' WATER 14.2-14.6' Tan, GRAVELLY SAND, very loose, wet, coarse grained 14.6-25.3' Reddish brown, FAT CLAY, medium stiff to very soft, moist	360		47	0-1-1 (3)		PP = 1.00 tsf	MC = 45.4% γ_{sat} = 110 pcf[1)]
20			355		0	2-1-0 (1)			
25		25.3-27.3' Dolomite, tan, highly weathered	350		100	37/0.2", 10/0'			
30		27.3-45.1' Dolomite, gray and tan, thin bedded, medium strong rock, moderately weathered, with reddish brown clay seams, trace amounts of chert, vertical jointing	345		38 (0)				
35					76 (36)		Qu Test Results UCS = 227 ksf MC = 0% γ_{moist} = 152.6 pcf		

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065

Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. 401 (O-23-70)
Page 2 of 2

Job No.: JSE0031
Design: A9392
Bent: 4
Station:
Offset:
Elevation: 377.4
Requested Station: 404+42.7
Requested Offset: 10.0 L
Requested Elevation:
Drill No.: G-9462

County: Ripley
Skew: 15 RA
Logged By: Duncan Noack
Northing: 277446.2
Easting: 753818.9
Requested Northing: 277449.3
Requested Easting: 753821.8
Equipment: Acker Soil XLS ,Split-Spoon Sampler, NQ
Hammer Efficiency: 81%

Route: 142
Location: Over Harris Creek
Operator: Manu T'eo
Date of Work: 08/22/23-08/22/23
Depth to Water: 13.5
Depth Hole Open:
Time Change: At Time of Drilling
Location Note:
Drilling Method: Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35		27.3-45.1' Dolomite, gray and tan, thin bedded, medium strong rock, moderately weathered, with reddish brown clay seams, trace amounts of chert, vertical jointing *(continued)*	340		58 (10)		pcf Qu Test Results UCS = 3.63 ksf MC = 0% γ_{moist} = 164.8 pcf		
40			335		100 (20)				
45		45.1-56.3' Cherty Dolcmite, gray, thin bedded to medium bedded, strong rock to very strong rock, moderately weathered to slightly weathered, with thin reddish brown clay seams, vertical jointing	330		86 (44)		Qu Test Results UCS = 1820 ksf MC = 0% γ_{moist} = 169.6 pcf Qu Test Results UCS = 665 ksf MC = 0% γ_{moist} = 164.2 pcf		
50			325		98 (74)		Qu Test Results UCS = 1140 ksf MC = 0% γ_{moist} = 171.5 pcf Qu Test Results UCS = 1530 ksf MC = 0% γ_{moist} = 170.6 pcf		
55		Bottom of borehole at 56.3 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065

Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024
ROUTE 142 | STATE MO
DISTRICT BR | SHEET NO. 27
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

DESCRIPTION | DATE

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

3316 LEMONE INDUSTRIAL BLVD
COLUMBIA, MO 65201
(573) 442-6474
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MISSOURI CERTIFICATE OF AUTHORITY: 001528

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BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

Missouri Department of Transportation
Construction and Materials

BORING NO. 402 (V-23-64)
Page 1 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 4 **Logged By:** Duncan Noack **Operator:** Manu T'eo
Station: **Northing:** 277435.7 **Date of Work:** 08/24/23-08/24/23
Offset: **Easting:** 753816.9 **Depth to Water:** 13.5
Elevation: 377.4 **Requested Northing:** 277428.8 **Depth Hole Open:**
Requested Station: 404+48.1 **Requested Easting:** 753818.6 **Time Change:** At Time of Drilling
Requested Offset: 10.0 R **Equipment:** Acker Renegade ,Split-Spoon Sampler, NQ
Requested Elevation: **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.1' ASPHALT 0.1-0.7' CONCRETE 0.7-13.5' Air	375						
5			370						
10			365						
15		13.5-14.6' WATER 14.6-15.0' GRAVEL, wet 15.0-24.3' Reddish brown, FAT CLAY, soft, moist	360						
20			355						
25		24.3-25.0' Dolomite, tan, highly weathered 25.0-31.2' Dolomite, tan and gray, thin bedded, medium strong rock, highly weathered to moderately weathered, clay seams present, vertical jointing 28.5-29.5' clay seam	350			46 (0)	10/0.0'		
30									
35		31.2-36.1' Dolomite, tan and gray, thin bedded to medium bedded, medium strong rock, moderately weathered to slightly weathered, vertical jointing, some vugs	345			94 (38)	Qu Test Results UCS = 407 ksf MC = 0% γ_{moist} = 153.6 pcf		

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. 402 (V-23-64)
Page 2 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 4 **Logged By:** Duncan Noack **Operator:** Manu T'eo
Station: **Northing:** 277435.7 **Date of Work:** 08/24/23-08/24/23
Offset: **Easting:** 753816.9 **Depth to Water:** 13.5
Elevation: 377.4 **Requested Northing:** 277428.8 **Depth Hole Open:**
Requested Station: 404+48.1 **Requested Easting:** 753818.6 **Time Change:** At Time of Drilling
Requested Offset: 10.0 R **Equipment:** Acker Renegade ,Split-Spoon Sampler, NQ
Requested Elevation: **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35		Bottom of borehole at 36.1 feet.					Qu Test Results UCS = 411 ksf MC = 0% γ_{moist} = 169.1 pcf		

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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BORING DATA

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

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

Sheet No. 28 of 32

Detailed Sept. 2024
Checked Sept. 2024

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024
ROUTE 142 STATE MO
DISTRICT BR SHEET NO. 28
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

DESCRIPTION | DATE | REVISION

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. 501 (V-23-59)
Page 1 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 5 **Logged By:** Matthew Kistler **Operator:** Gary Degraffenreid
Station: **Northing:** 277438.3 **Date of Work:** 08/08/23-08/09/23
Offset: **Easting:** 753851.3 **Depth to Water:** 15.5
Elevation: 377.3 **Requested Northing:** 277427.7 **Depth Hole Open:** 16.5
Requested Station: 404+73.4 **Requested Easting:** 753845.8 **Time Change:** At Time of Drilling
Requested Offset: CL **Equipment:** Acker Renegade ,Split-Spoon Sampler, NX
Requested Elevation: **Location Note:** Offset from roadway
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Hollow Stem Auger

Depth (ft)	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0	0.0-0.5' Tan and gray, GRAVEL, loose to medium dense, dry to moist, Shoulder							
	0.5-4.5' Reddish brown, LEAN CLAY with fine gravel, to, medium stiff to soft, moist	375						
5	4.5-11.5' Brown, SILT with fine sand, scattered chert gravel, soft, moist			0	2-1-1 (3)			
		370						
				80	3-1-1 (3)		PP = 0.25 tsf	MC = 21.6% γ_{sat} = 129 pcf[1] LL = 19 PL = 16
10								
				67	0-1-7 (12)			MC = 13.9% γ_{sat} = 139 pcf[1]
	11.5-30.0' Brownish red, FAT CLAY trace fine sand, stiff to soft, moist to wet, Cherty	365						
15								
				40	21-7-3 (16)		PP = 0.25 tsf	MC = 33.8% γ_{sat} = 117 pcf[1]
		360						
20								
				47	1-2-6 (12)		PP = 0.00 tsf	MC = 37.3% γ_{sat} = 115 pcf[1]
		355						
25								
				53	6-4-2 (9)		PP = 0.25 tsf	MC = 46.5% γ_{sat} = 109 pcf[1] LL = 59 PL = 21
		350						
30	30.0-33.1' Brownish red, FAT CLAY with fine sand, soft, wet							
				93	2-1-1 (3)		PP = 0.50 tsf	MC = 38.5% γ_{sat} = 114 pcf[1]
		345						
35								

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. 501 (V-23-59)
Page 2 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 5 **Logged By:** Matthew Kistler **Operator:** Gary Degraffenreid
Station: **Northing:** 277438.3 **Date of Work:** 08/08/23-08/09/23
Offset: **Easting:** 753851.3 **Depth to Water:** 15.5
Elevation: 377.3 **Requested Northing:** 277427.7 **Depth Hole Open:** 16.5
Requested Station: 404+73.4 **Requested Easting:** 753845.8 **Time Change:** At Time of Drilling
Requested Offset: CL **Equipment:** Acker Renegade ,Split-Spoon Sampler, NX
Requested Elevation: **Location Note:** Offset from roadway
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Hollow Stem Auger

Depth (ft)	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35	33.1-44.0' Tannish gray, GRAVELLY SAND with clay, very dense, wet, fine to medium grained *(continued)*			40	25-30-25 (85)			
		340						
40				53	13-19-22 (64)			Sieve Analysis Sieve # % Passing 1½" 100.0 1" 80.6 3/4" 71.2 3/8" 68.3 #4 59.3 #10 51.1 #16 48.0 #40 34.7 #50 26.9 #100 15.3 #200 9.9
		335						
45	44.0-48.5' Brownish red, FAT CLAY scattered chert gravel, scattered fine sand, soft, wet			87	12-9-9 (28)		PP = 0.00 tsf	MC = 42.9% γ_{sat} = 111 pcf[1] LL = 63 PL = 21
		330						
50	48.5-53.0' Gray, CLAYEY SAND with gravel, very dense, wet, fine grained, Calcareous			67	16-10-11 (33)			Sieve Analysis Sieve # % Passing 3/4" 100.0 3/8" 89.2 #4 77.4 #10 70.9 #16 69.7 #40 67.2 #50 63.0 #100 37.1 #200 18.6
		325						
55	53.0-53.9' Dolomite, light gray, very thin bedded, highly weathered to moderately weathered 53.3' auger refusal			100	5/0.2', 10/0'		Qu Test Results UCS = 2710 ksf MC = 0% γ_{moist} = 172.1 pcf	
	53.9-54.4' Light brown, FAT CLAY, soft, Seam, washed away while coring			80 (30)				
	54.4-60.4' Dolomite, light gray, very thin bedded to thin bedded, extremely strong rock, slightly weathered, with dark brown chert 57.6-60.4' scattered dolomite crystal veins	320						
60	60.4-61.0' Light brown, FAT CLAY, soft, Seam, washed away while coring			88 (54)			Qu Test Results UCS = 2740 ksf MC = 0% γ_{moist} = 169.8 pcf	
	61.0-63.4' Dolomite, light gray, very thin bedded to thin bedded, extremely strong rock, slightly weathered, with dark brown chert 61.0-63.4' scattered dolomite crystal veins	315						
	Bottom of borehole at 63.4 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024
ROUTE 142 STATE MO
DISTRICT BR SHEET NO. 29
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

DESCRIPTION | DATE | REV.

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Missouri Department of Transportation
Construction and Materials

BORING NO. 501-2 (V-23-62)
Page 1 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 5 **Logged By:** Ricardo Todd **Operator:** Gary Degraffenreid
Station: **Northing:** 277427.7 **Date of Work:** 08/16/23-08/16/23
Offset: **Easting:** 753845.8 **Depth to Water:** 13.1
Elevation: 377.6 **Requested Northing:** 277427.7 **Depth Hole Open:**
Requested Station: 404+73.4 **Requested Easting:** 753845.8 **Time Change:** At Time of Drilling
Requested Offset: CL **Equipment:** Acker Renegade ,Split-Spoon Sampler
Requested Elevation: **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.5' ASPHALT							
		0.5-12.9' Reddish brown, GRAVELLY LEAN CLAY, medium stiff to stiff, moist	375						
5				X		1-2-3 (8)			
			370						
10				X		2-4-5 (14)			
		12.9-16.2' Blackish gray, GRAVEL, dense, wet, fine grained	365						
15				X		16-11-7 (28)			
		16.2-26.1' Red mottled tan, FAT CLAY trace gravel, very soft to soft, moist	360						
20				X		0-0-0 (0)		PP = 0.25 tsf	
			355						
25				X		0-1-0 (2)			
		26.1-30.2' Reddish tan, CLAYEY SAND, very loose, moist, fine grained	350						
30				X		0-0-1 (2)		PP = 0.25 tsf	
		30.2-35.1' Red, FAT CLAY scattered sand, soft to medium stiff, moist	345						
35									

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. 501-2 (V-23-62)
Page 2 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 5 **Logged By:** Ricardo Todd **Operator:** Gary Degraffenreid
Station: **Northing:** 277427.7 **Date of Work:** 08/16/23-08/16/23
Offset: **Easting:** 753845.8 **Depth to Water:** 13.1
Elevation: 377.6 **Requested Northing:** 277427.7 **Depth Hole Open:**
Requested Station: 404+73.4 **Requested Easting:** 753845.8 **Time Change:** At Time of Drilling
Requested Offset: CL **Equipment:** Acker Renegade ,Split-Spoon Sampler
Requested Elevation: **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35		35.1-37.5' Red, FAT CLAY scattered gravel, very soft to medium stiff, moist to wet		X		3-3-1 (6)		PP = 0.25 tsf	
		37.5-38.4' Dolomite, highly weathered	340						
		38.4-40.1' Dolomite, moderately weathered							
40		40.1-48.1' SAND with gravel, with cobbles, very dense							
			335						
45									
			330						
50		48.1-55.8' Dolomite, moderately weathered				33/0.1'			
			325						
55		Bottom of borehole at 55.8 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED 11/12/2024
ROUTE 142 STATE MO
DISTRICT BR SHEET NO. 30
COUNTY RIPLEY
JOB NO. JSE0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9392

DESCRIPTION | DATE | REV.

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(573) 442-6474
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BORING DATA

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

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. 502 (V-23-65)
Page 1 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 5 **Logged By:** Duncan Noack **Operator:** Gary Degraffenreid
Station: **Northing:** 277421.5 **Date of Work:** 08/29/23-08/29/23
Offset: **Easting:** 753843.2 **Depth to Water:**
Elevation: 377.3 **Requested Northing:** 277427.7 **Depth Hole Open:**
Requested Station: 404+73.4 **Requested Easting:** 753845.8 **Time Change:** At Time of Drilling
Requested Offset: CL **Equipment:** Acker Renegade ,Split-Spoon Sampler, NQ
Requested Elevation: **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.4' ASPHALT 0.4-2.0' CRUSHED AGGREGATE BASE	377						
		2.0-13.5' Reddish brown, GRAVELLY LEAN CLAY, moist	375						
5			370						
10			365						
15		13.5-15.5' BOULDERS and cobbles 15.5-18.2' Brown, GRAVELLY LEAN CLAY, moist	360						
20		18.2-33.8' Reddish brown, LEAN CLAY with sand, very soft, wet	355						
25			350						
30			345						
35		33.8-34.8' Dolomite, highly weathered							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. 502 (V-23-65)
Page 2 of 2

Job No.: JSE0031 **County:** Ripley **Route:** 142
Design: A9392 **Skew:** 15 RA **Location:** Over Harris Creek
Bent: 5 **Logged By:** Duncan Noack **Operator:** Gary Degraffenreid
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Requested Elevation: **Location Note:**
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
35		34.8-36.4' Light brown, SAND, dense, wet, medium to coarse grained *(continued)*			67	9-33/0.4'			
		36.4-39.2' Sandstone, tan, highly weathered	340						
40		39.2-41.3' CLAYEY SAND, fine grained							
		41.3-41.6' Dolomite, highly weathered	335						
		41.6-44.9' Cherty Dolomite, moderately weathered, with thin clay seammles that 0.2 ft.							
		Bottom of borehole at 44.9 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.000075195065
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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED
11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	31

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION

DATE

REVISION

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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3316 LEMONE
INDUSTRIAL BLVD
COLUMBIA, MO 65201
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MISSOURI CERTIFICATE OF AUTHORITY: 001528

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BORING DATA

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

Detailed Sept. 2024
Checked Sept. 2024

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KEY TO SYMBOLS

Missouri Dept of Transportation

CLIENT _____ **PROJECT NAME** Bridge Replacement-DN

PROJECT NUMBER JSE0031 **PROJECT LOCATION** Over Harris Creek

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)

- Asphalt
- Boulders and cobbles
- Breccia
- USCS High Plasticity Clay
- USCS High Plasticity Sandy Clay
- USCS Low Plasticity Clay
- USCS Low Plasticity Gravelly Clay
- USCS Low Plasticity Sandy Clay
- Concrete
- Dolomite
- USCS Poorly-graded Gravel
- USCS Poorly-graded Sandy Gravel
- USCS Well-graded Gravel
- USCS Well-graded Sandy Gravel
- Highly Weathered Dolomite
- USCS Silt

SAMPLER SYMBOLS

- Rock Core Barrel
- Grab Sample
- Split-Spoon Sampler

WELL CONSTRUCTION SYMBOLS

ABBREVIATIONS

LL - LIQUID LIMIT (%)
PI - PLASTIC INDEX (%)
W - MOISTURE CONTENT (%)
DD - DRY DENSITY (PCF)
NP - NON PLASTIC
-200 - PERCENT PASSING NO. 200 SIEVE
PP - POCKET PENETROMETER (TSF)
Qu - UNCONFINED COMPRESSIVE STRENGTH (PSF)

TV - TORVANE
PID - PHOTOIONIZATION DETECTOR
UC - UNCONFINED COMPRESSION
ppm - PARTS PER MILLION

Water Level at Time of Drilling

Water Level at End of Drilling

Water Level after Drilling

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Signed: 11/12/2024
Brandon W. Polter - Civil
MO PE-2017028430

DATE PREPARED
11/12/2024

ROUTE	STATE
142	MO
DISTRICT	SHEET NO.
BR	32

COUNTY
RIPLEY

JOB NO.
JSE0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9392

DESCRIPTION	DATE

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BORING DATA

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