MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

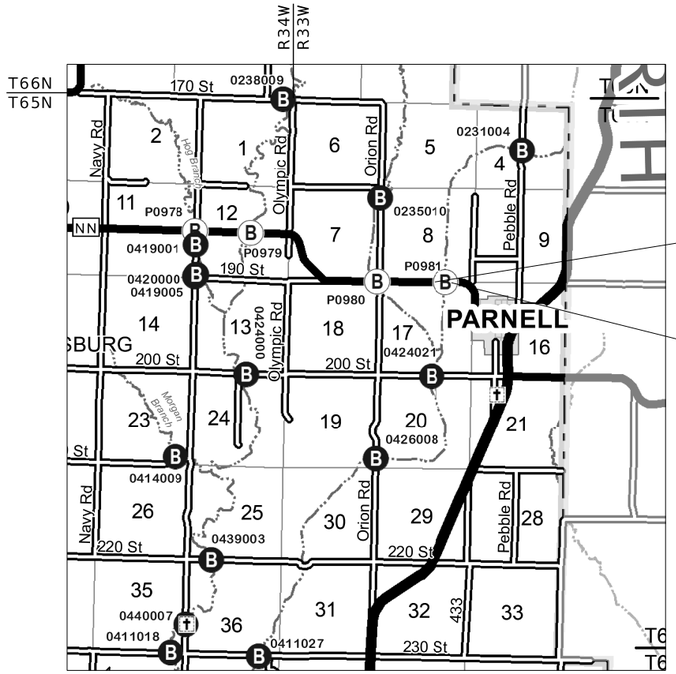
NODAWAY COUNTY

DESIGN DESIGNATION

A.A.D.T. - 2025 = 79
A.A.D.T. - 2055 = 127
D.H.V. = 7.79%
T = 11.69%
V = 45 M.P.H.
FUNCTIONAL CLASSIFICATION - MAJOR COLLECTOR

NO R / W ACQUISITION

KEY MAP
LOCATION OF NODAWAY COUNTY



NOT TO SCALE

STA. 610+60.00
LOG MILE 12.960

PROJECT LOCATION
LENGTH = 0.125 MILES
GRADING, PAVING,
DRAINAGE, SIGNING, AND BRIDGE

STA. 617+20.00
LOG MILE 13.085

CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

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

INDEX OF SHEETS

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 610+60.00	
END OF PROJECT	STA. 617+20.00	
APPARENT LENGTH	660.00	FEET
EQUATIONS AND EXCEPTIONS:	NONE	
TOTAL CORRECTIONS	0	FEET
NET LENGTH OF PROJECT	660.00	FEET
STATE LENGTH	0.125	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0.846	ACRES

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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

DATE PREPARED: 1/8/2025
ROUTE: NN | STATE: MO
DISTRICT: NW | SHEET NO.: 1
COUNTY: NODAWAY
JOB NO.: JNW0071
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

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

REV.	DESCRIPTION	DATE

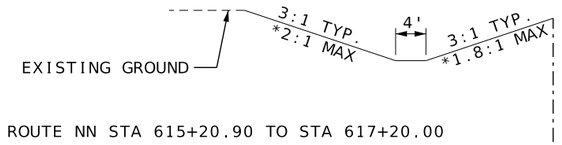
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

GBA
9801 Renner Blvd, Ste. 300
Lenexa, KS 66219
913.492.0400
GBAteam.com

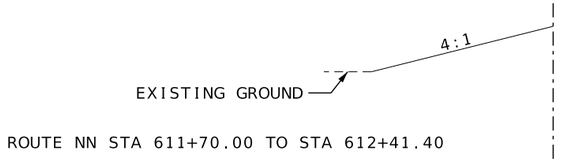
GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

SHELBY P. REYNOLDS
PROFESSIONAL ENGINEER
PE-2023018931

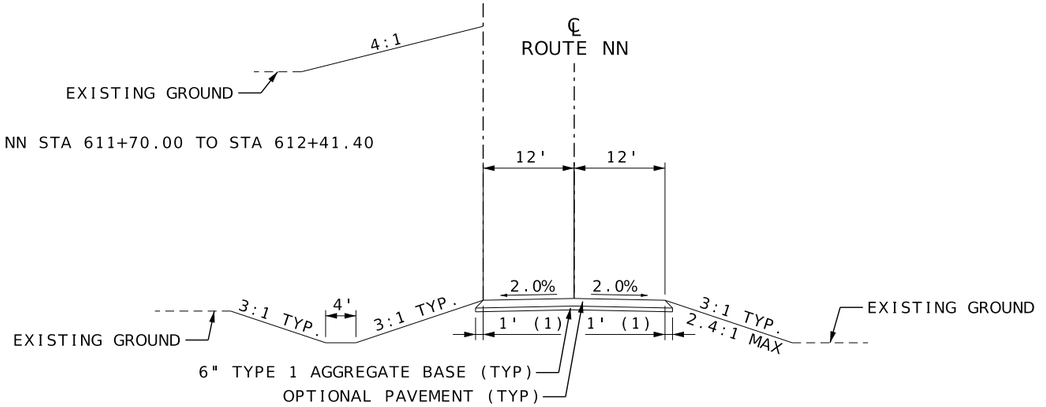
SEE BRIDGE SHEETS FOR BRIDGE TYPICAL SECTION
ROUTE NN
ROUTE NN STA 612+21.40 TO STA 615+40.90

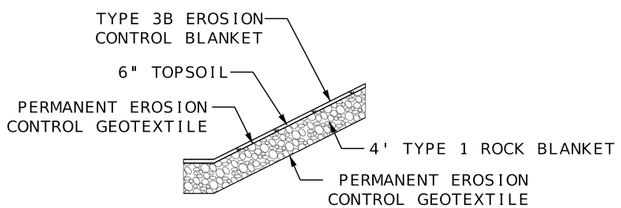


ROUTE NN STA 615+20.90 TO STA 617+20.00



ROUTE NN STA 611+70.00 TO STA 612+41.40





*TYPICAL TREATMENT
SLOPES STEEPER THAN 3:1

PROPOSED FULL DEPTH PAVEMENT
TYPICAL SECTION
NOT TO SCALE
ROUTE NN STA 610+60.00 TO STA 612+21.40
ROUTE NN STA 615+40.90 TO STA 617+20.00

NOTES:

1. SEE CROSS SECTIONS FOR VARIATIONS.
2. ALL SLOPES SHALL BE COVERED WITH TYPE 3B EROSION CONTROL BLANKET.

(1) INCIDENTAL BASE (NO DIRECT PAY)

OPTIONAL PAVEMENT

HMA DESIGN:
10.0" BIT. PAVEMENT
1.75" BP-1 P64-22
8.25" BIT. BASE PG64-22

PCCP DESIGN:
8" CONC. PAVEMENT (NON-REINFORCED, 15 FT. JOINTS)

TYPICAL SECTIONS
SHEET 1 OF 1

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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

DATE PREPARED
1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
NW	2

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

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JEFFERSON CITY, MO 65102
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PROFESSIONAL ENGINEER
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REV.

MOBILIZATION
1 LUMP SUM

ADDITIONAL MOBLIZATION FOR SEEDING
1 EACH

CONTRACTOR FURNISHED SURVEYING AND STAKING
1 LUMP SUM

CLEARING AND GRUBBING
1 ACRE

EARTHWORK						
SHEET NO.	ROADWAY	STATION BEGIN	STATION END	CLASS A EXCAVATION (CY)	COMPACTING EMBANKMENT (CY)	COMPACTING IN CUT (STA)
4	ROUTE NN	610+60.00	617+20.00	1858	317	3.7
			TOTAL	1858	317	3.7

REMOVAL OF IMPROVEMENTS							
SHEET NO.	ROADWAY	STATION BEGIN	STATION END	SIDE	ITEM	QUANTITY	UNIT
4	ROUTE NN	610+60	-	LT/RT	SAWCUT	18	LF
4	ROUTE NN	610+60	612+44	LT/RT	FULL DEPTH PAVEMENT	363	SY
11	ROUTE NN	612+04	612+44	LT/RT	SIGNS	6	EACH
4	ROUTE NN	612+44	-	LT/RT	TEMPORARY TRAFFIC BARRIER	38	LF
4	ROUTE NN	615+14	-	LT/RT	TEMPORARY TRAFFIC BARRIER	38	LF
11	ROUTE NN	615+14	615+54	LT/RT	SIGNS	6	EACH
4	ROUTE NN	615+14	617+20	LT/RT	FULL DEPTH PAVEMENT	443	SY
4	ROUTE NN	617+20	-	LT/RT	SAWCUT	20	LF
4	FIELD ENTRANCE	1+09	1+60	LT/RT	GRAVEL ENTRANCE	717	SY
					TOTAL	1 LUMP SUM	

PAVEMENT					
SHEET NO.	ROADWAY	STATION BEGIN	STATION END	SIDE	OPTIONAL PAVEMENT (SY)
4	ROUTE NN	610+60.00	612+21.40	CL	380.1
4	ROUTE NN	615+40.90	617+20.00	CL	453.8
			TOTAL		833.9

AGGREGATE						
SHEET NO.	ROADWAY	STATION BEGIN	STATION END	SIDE	TYPE 1 AGGREGATE FOR BASE (6") (SY)	GRAVEL (A) (SY)
4	ROUTE NN	610+60.00	612+21.40	CL	381	-
4	ROUTE NN	615+40.90	617+20.00	CL	454	-
4	FIELD ENTRANCE	1+11.24	1+60.24	CL	-	120
			TOTAL		835	120

PERMANENT PAVEMENT MARKING						
SHEET NO.	ROADWAY	STATION BEGIN	STATION END	SIDE	4 IN. WHITE STANDARD WATERBORNE (LF)	4 IN. YELLOW STANDARD WATERBORNE (LF)
12	ROUTE NN	610+60.00	617+20.00	LT	661	-
12	ROUTE NN	610+60.00	617+20.00	CL	-	660
12	ROUTE NN	610+60.00	617+20.00	CL	-	660
12	ROUTE NN	610+60.00	617+20.00	RT	661	-
				TOTAL	1,322	1,320

TEMPORARY EROSION CONTROL										
SHEET NO.	ROADWAY	STATION BEGIN	STATION END	SIDE	ROCK DITCH CHECK (LF)	SILT FENCE (LF)	SEDIMENT REMOVAL (CY)	TYPE 3B EROSION CONTROL BLANKET (SY)	NO. OF DITCH CHECKS	REMARKS
10	ROUTE NN	610+50.00	612+40.00	RT	-	197	2.0	-	-	
10	ROUTE NN	610+60.00	611+00.00	LT	-	-	-	98	-	STEEP SLOPE PROTECTION
10	ROUTE NN	610+60.00	-	LT	14	-	1	-	1	AT 300' SPACING
10	ROUTE NN	610+60.00	612+32.90	RT	-	-	-	385	-	STEEP SLOPE PROTECTION
10	ROUTE NN	611+70.00	612+40.00	LT	-	71	0.7	-	-	
10	ROUTE NN	615+18.00	616+68.00	LT	36	-	2	-	3	AT 75' SPACING
10	ROUTE NN	615+20.00	617+30.00	RT	-	223	2.2	-	-	
10	ROUTE NN	615+29.40	616+50.00	LT	-	-	-	493	-	STEEP SLOPE PROTECTION
10	ROUTE NN	615+29.40	616+50.00	RT	-	-	-	316	-	STEEP SLOPE PROTECTION
			TOTAL		50	491	8	1292		

NOTE: NUMBER OF DITCH CHECKS IS FOR INFORMATION ONLY.

PERMANENT SEEDING AND MULCHING							
SHEET NO.	ROADWAY	STATION BEGIN	STATION END	SIDE	TYPE 3B EROSION CONTROL BLANKET (SY)	PERMANENT SEEDING - COOL SEASON MIXTURES (ACRE)	MULCHING (ACRE)
11	ROUTE NN	610+60.00	611+00.00	LT	-	0.1	0.1
11	ROUTE NN	610+60.00	611+45.58	LT	223	0.1	0.1
11	ROUTE NN	610+60.00	612+32.90	RT	-	0.1	0.1
11	ROUTE NN	611+60.00	612+32.90	LT	329	0.1	0.1
11	ROUTE NN	615+29.40	616+50.00	LT	-	0.2	0.2
11	ROUTE NN	615+29.40	616+50.00	RT	-	0.1	0.1
11	ROUTE NN	615+75.00	617+20.00	LT	433	0.1	0.1
11	ROUTE NN	616+50.00	617+20.00	RT	6	0.1	0.1
			TOTAL		991	0.9	0.9

PERMANENT EROSION CONTROL									
SHEET NO.	ROADWAY	STATION BEGIN	STATION END	SIDE	FURNISHING TYPE 1 ROCK BLANKET (CY)	PLACING TYPE 1 ROCK BLANKET (CY)	FURNISHING TYPE 2 ROCK BLANKET (CY)	PLACING TYPE 2 ROCK BLANKET (CY)	PERMANENT EROSION CONTROL GEOTEXTILE (SY)	REMARKS
11	ROUTE NN	610+60.00	611+00.00	LT	130	130	-	-	196	STEEP SLOPE PROTECTION
11	ROUTE NN	610+60.00	612+32.90	RT	514	514	-	-	770	STEEP SLOPE PROTECTION
11	ROUTE NN	612+32.90	612+73.90	CL	-	-	258	258	387	BRIDGE SLOPE PROTECTION
11	ROUTE NN	614+78.40	615+29.40	CL	-	-	259	259	389	BRIDGE SLOPE PROTECTION
11	ROUTE NN	615+29.40	616+50.00	LT	657	657	-	-	986	STEEP SLOPE PROTECTION
11	ROUTE NN	615+29.40	616+50.00	RT	422	422	-	-	632	STEEP SLOPE PROTECTION
			TOTAL		1723	1723	517	517	3360	

NOTE: GEOTEXTILE FABRIC SHALL BE PLACED BELOW AND ON TOP OF TYPE 1 ROCK BLANKET FOR STEEP SLOPE PROTECTION.

TOPSOIL						
SHEET NO.	ROADWAY	STATION BEGIN	STATION END	SIDE	TOPSOIL (6") (CY)	REMARKS
11	ROUTE NN	610+60.00	611+00.00	LT	17	STEEP SLOPE PROTECTION
11	ROUTE NN	610+60.00	612+32.90	RT	65	STEEP SLOPE PROTECTION
11	ROUTE NN	615+29.40	616+50.00	LT	83	STEEP SLOPE PROTECTION
11	ROUTE NN	615+29.40	616+50.00	RT	53	STEEP SLOPE PROTECTION
			TOTAL		218	

SUMMARY OF QUANTITIES
SHEET 1 OF 3

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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

DATE PREPARED
1/8/2025

ROUTE NN | STATE MO

DISTRICT NW | SHEET NO. 3

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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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)

GBA
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PROFESSIONAL ENGINEER
PE-2023018931

SIGNS

SIGN NO.	SIGN SIZE	STATION OR LOG MILE	HORIZ CLEAR IF NOT STD	LOCATION	SIGN DTL SHT NO.	U-CHANNEL POST ITEM NO. 9031250A LF	PERFORATED SQUARE STEEL TUBE 2-INCH POST POST NO. 1 LF	POST NO. 2 LF	TOTAL ITEM NO. 9031270A LF	ANCHORS DRIVEN 12 GA. ITEM NO. 9031271A EACH	DRIVEN 7 GA. ITEM NO. 9031273A EACH	CONCRETE 7 GA. ITEM NO. 9031274 EACH	2.5-INCH POST POST NO. 1 LF	POST NO. 2 LF	TOTAL ITEM NO. 9031280 LF	2.25" INSERT (6 FT) ITEM NO. 9031272A EACH	ANCHORS DRIVEN 7 GA. ITEM NO. 9031281A EACH	CONCRETE 7 GA. ITEM NO. 9031285 EACH	BREAK-AWAY ASSEMBLY ITEM NO. 9031241 EACH	REMARKS AND OTHER REQUIRED ITEMS
1	12" X 36"	611+83		ROUTE NN		9.0														
2	12" X 36"	612+03		ROUTE NN		8.0														
3	12" X 36"	612+23		ROUTE NN		7.0														
4	12" X 36"	611+83		ROUTE NN		9.0														
5	12" X 36"	612+03		ROUTE NN		8.0														
6	12" X 36"	612+23		ROUTE NN		7.0														
7	12" X 36"	615+40		ROUTE NN		7.0														
8	12" X 36"	615+60		ROUTE NN		8.0														
9	12" X 36"	615+80		ROUTE NN		9.0														
10	12" X 36"	615+40		ROUTE NN		7.0														
11	12" X 36"	615+60		ROUTE NN		8.0														
12	12" X 36"	615+80		ROUTE NN		9.0														
				TOTAL		96														

EFFECTIVE: 07-01-2024

STANDARD SIGN ASSEMBLIES

SIGN	STATION OR LOG MILE	LOCATION	SIGN, TYPE, DESIGNATION, SIZE & NUMBER OF EACH: OM3-R OBJECT MARKER 12" X 36"	OM3-L OBJECT MARKER 12" X 36"
1	611+83	ROUTE NN	1	
2	612+03	ROUTE NN	1	
3	612+23	ROUTE NN	1	
4	611+83	ROUTE NN		1
5	612+03	ROUTE NN		1
6	612+23	ROUTE NN		1
7	615+40	ROUTE NN		1
8	615+60	ROUTE NN		1
9	615+80	ROUTE NN		1
10	615+40	ROUTE NN	1	
11	615+60	ROUTE NN	1	
12	615+80	ROUTE NN	1	
		TOTAL	6	6

SIGN SUMMARY

EFFECTIVE: 10-01-2016

STANDARD OR SPECIAL SIGN DESIGNATION	SIGN DTL. SHT. NO.	NO. EACH	SIGN SIZE	TYPE & SQUARE FEET: FLAT SHEET SH ITEM NO. 9035004A	FLAT SHEET FLUORESCENT SHF* ITEM NO. 9035069A	STRUCTURAL ST ITEM NO. 9035011A	STRUCTURAL FLUORESCENT STF* ITEM NO. 9035071A
OM3-R	STD	6	12" X 36"		18.00		
OM3-L	STD	6	12" X 36"		18.00		
			TOTAL		36		

*ORANGE, YELLOW AND YELLOW-GREEN

SUMMARY OF QUANTITIES
SHEET 2 OF 3

SHELBY P. REYNOLDS
PROFESSIONAL ENGINEER
PE-2023018931

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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DATE PREPARED 1/8/2025
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DISTRICT NW | SHEET NO. 3
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION | DATE | REV.

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SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/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	2	32.00			20	ROAD CLOSED AHEAD
WO20-3a	48X48	16.00	2	32.00			20A	ROAD CLOSED 350 FT
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 NUM.	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	20.00			29	ROAD CLOSED
R11-3a	60X30	12.50	1	12.50			60	ROAD CLOSED 5 MILES AHEAD LOCAL TRAFFIC ONLY
R11-3a	60X30	12.50	2	25.00			60A	ROAD CLOSED 1 MILES AHEAD LOCAL TRAFFIC ONLY
R11-3a	60X30	12.50	1	12.50			60B	ROAD CLOSED LOCAL TRAFFIC ONLY
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

616-10.05 CONSTRUCTION SIGNS	TOTAL
	134

616-10.10 RELOCATED SIGNS	TOTAL
	0

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161008		ADVANCED WARNING RAIL SYSTEM
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161025		CHANNELIZER (TRIM LINE)
6161030	8	TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A		CHANGEABLE MESSAGE SIGN 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
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

EFFECTIVE: 07-01-2024

SUMMARY OF QUANTITIES
SHEET 3 OF 3

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

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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

DATE PREPARED 1/8/2025

ROUTE NN | STATE MO

DISTRICT NW | SHEET NO. 3

COUNTY NODAWAY

JOB NO. JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION | DATE | REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

GBA
9801 Renner Blvd, Ste. 300
Lenexa, KS 66219
913.492.0400
GBAteam.com

GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

SHELBY P. REYNOLDS
PROFESSIONAL ENGINEER
PE-2023018931

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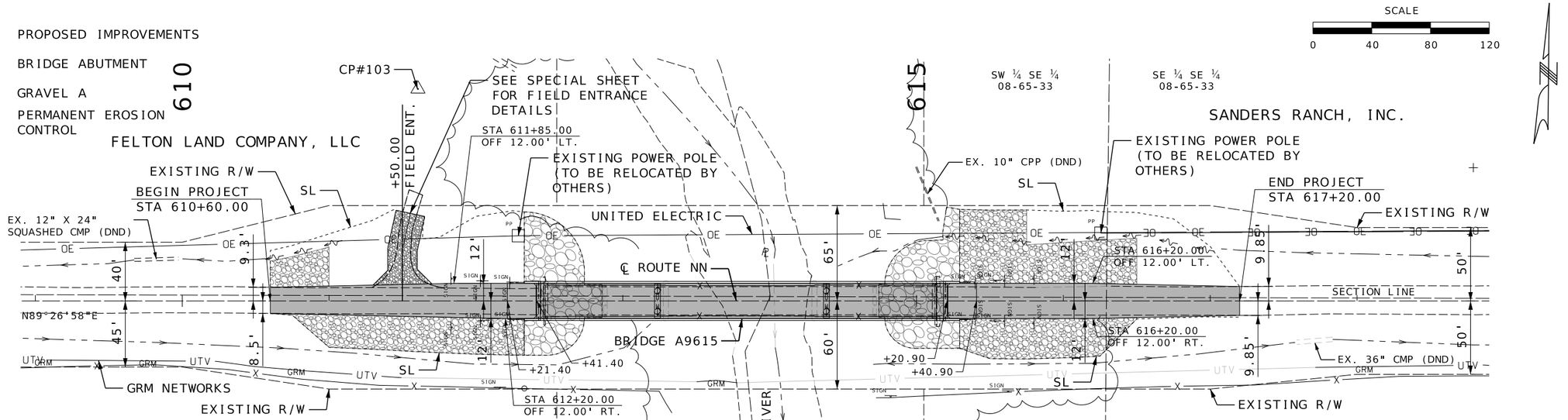
LEGEND

PROPOSED IMPROVEMENTS

BRIDGE ABUTMENT

GRAVEL A

PERMANENT EROSION CONTROL

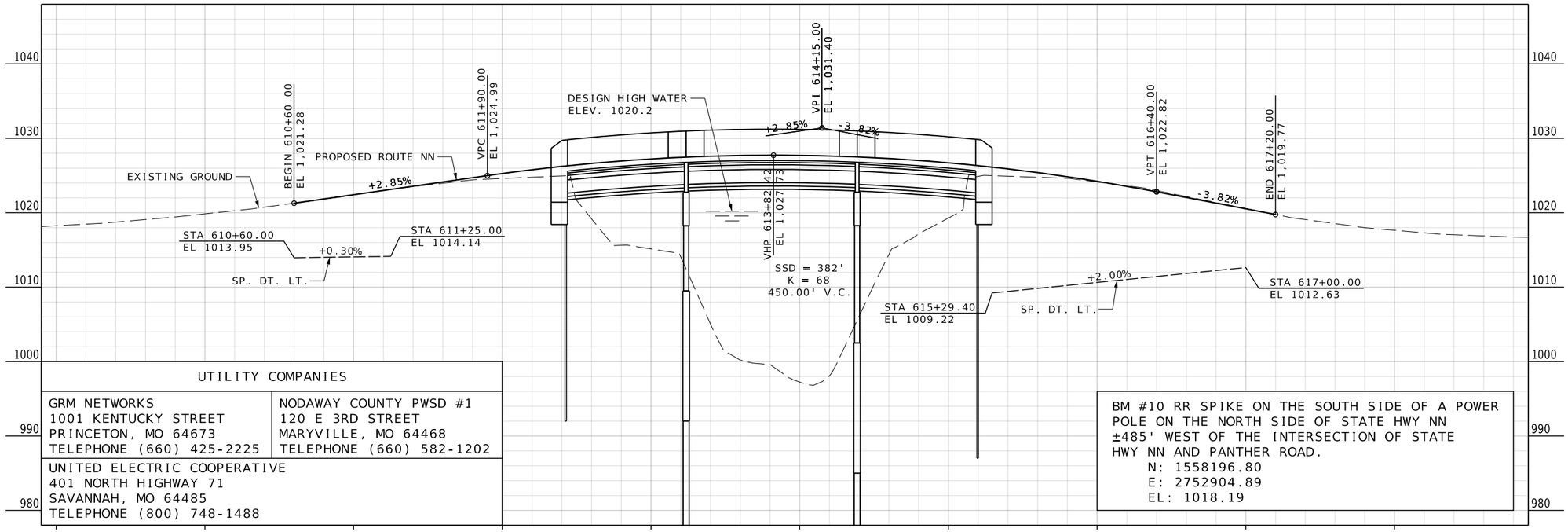


NOTES:
ANY WORK INDICATED ON THE PLANS THAT EXTENDS PAST THE PROJECT LIMITS IS CONSIDERED INCIDENTAL TO AND A PART OF THE CONSTRUCTION OF THIS PROJECT.

BEARINGS SHOWN ARE MODIFIED STATE PLANE BEARINGS, WESTERN ZONE.

STA. 612+48 TO STA 615+12
BR. NO. P0981
REMOVE (41')(41')(100')(41')(41')
I-BEAM & TRUSS SPANS
19' ROADWAY, PLATTE RIVER

STA. 612+40.90 TO STA 615+21.40
BR. NO. A9615
CONSTRUCT 81'-115'-81' MODIFIED
PRESTRESSED CONCRETE NU-GIRDER SPANS
24' ROADWAY, PLATTE RIVER



UTILITY COMPANIES	
GRM NETWORKS 1001 KENTUCKY STREET PRINCETON, MO 64673 TELEPHONE (660) 425-2225	NODAWAY COUNTY PWSD #1 120 E 3RD STREET MARYVILLE, MO 64468 TELEPHONE (660) 582-1202
UNITED ELECTRIC COOPERATIVE 401 NORTH HIGHWAY 71 SAVANNAH, MO 64485 TELEPHONE (800) 748-1488	

BM #10 RR SPIKE ON THE SOUTH SIDE OF A POWER POLE ON THE NORTH SIDE OF STATE HWY NN ±485' WEST OF THE INTERSECTION OF STATE HWY NN AND PANTHER ROAD.
N: 1558196.80
E: 2752904.89
EL: 1018.19

PLAN-PROFILE
SHEET 1 OF 1

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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DATE PREPARED 1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
NW	4

COUNTY NODAWAY

JOB NO. JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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

DESCRIPTION | DATE | REV.

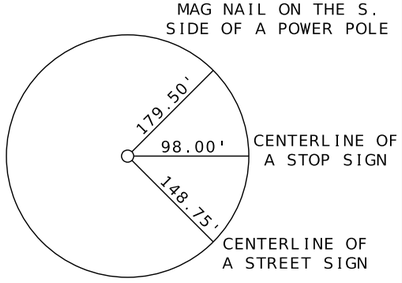
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

GBA
9801 Renner Blvd, Ste. 300
Lenexa, KS 66219
913.492.0400
GBAteam.com

GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

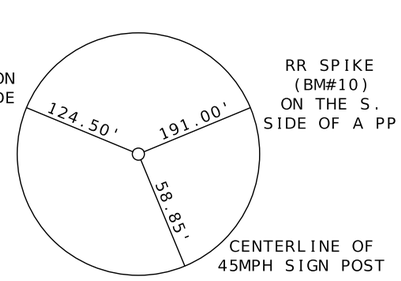
SHELBY P. REYNOLDS
PROFESSIONAL ENGINEER
PE-2023018931

ROUTE NN
STA 626+75.99
CP#101 OFFSET -41.96



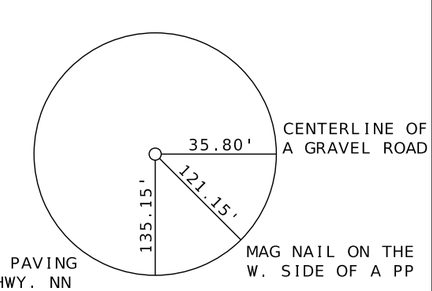
1/2" REBAR
N: 1,558,085.50
E: 2,753,265.45
ELEV: 1,016.75'

ROUTE NN
STA 621+28.81
CP#102 OFFSET -38.68



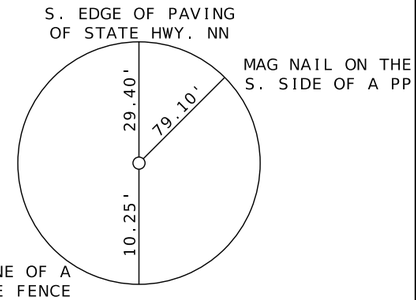
1/2" REBAR
N: 1,558,184.31
E: 2,752,714.34
ELEV: 1,014.95

ROUTE NN
STA 611+60.55
CP#103 OFFSET -144.41



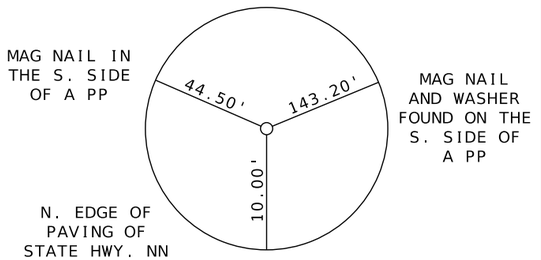
1/2" REBAR
N: 1,558,280.73
E: 2,751,745.10
ELEV: 1,014.81

ROUTE NN
STA 607+93.49
CP#104 OFFSET 38.21



1/2" REBAR
N: 1,558,094.59
E: 2,751,379.82
ELEV: 1,016.24

ROUTE NN
STA 602+07.01
CP#105 OFFSET -19.15



1/2" REBAR
N: 1,558,146.31
E: 2,751,792.81
ELEV: 1,022.23

REFERENCE POINTS
SHEET 1 OF 1

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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

DATE PREPARED
1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
NW	5

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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)

GBA
9801 Renner Blvd, Ste. 300
Lenexa, KS 66219
913.492.0400
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GEORGE BUTLER ASSOCIATES, INC.
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ARCHITECT 000212
PRO. LAND SURVEYOR 000059

SHELBY P. REYNOLDS
PROFESSIONAL ENGINEER
PE-2023018931

REV.

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	NAD83
VERTICAL DATUM	NAVD88: U.S. FEET
GEOID MODEL	GEOID18 (CONUS)
ELEVATIONS DETERMINED BY	CONTROL POINT 105
PROJECT PROJECTION FACTOR	1.00010101

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	MISSOURI COORDINATE SYSTEM 1983
CONTROL STATION	MOMR - MARYVILLE MISSOURI
DESIGNATION	NAD83 (NA2011) (MYCS2)
CORS_ID	MOMR - MARYVILLE MISSOURI
PID	EPOCH 2010.00
LATITUDE	40°17'56.42654" N
LONGITUDE	94°52'37.26893" W
NORTHING (M)	458,735.194
EASTING (M)	817,947.594
ZONE	MISSOURI WEST 2403
PROJECT AVERAGE GRID FACTOR	0.999899

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 #105
N 1558303.699 X 0.999899 = N 1558146.31 SP
E 2752070.769 X 0.999899 = E 2751792.81 SP

LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION	GPK POINT ID
PROJECT CONTROL POINTS								
-	626+75.99	ROUTE NN	-41.96	1558085.50	2753265.45	1016.75	CONTROL POINT	101
-	621+28.81	ROUTE NN	-38.68	1558184.31	2752714.34	1014.95	CONTROL POINT	102
4	611+60.55	ROUTE NN	-144.41	1558280.73	2751745.10	1014.81	CONTROL POINT	103
-	607+93.49	ROUTE NN	38.21	1558094.59	2751379.82	1016.24	CONTROL POINT	104
-	602+07.01	ROUTE NN	-19.15	1558146.31	2751792.81	1022.23	CONTROL POINT	105
-	623+16.16	ROUTE NN	-51.21	1558196.80	2752904.89	1018.19	BENCHMARK	10
ALIGNMENTS								
-	552+34.80	ROUTE NN		1558102.89	2745820.86		POB/PC	
-	594+90.10	ROUTE NN		1558120.27	2750076.12		PI	
-	622+62.60	ROUTE NN		1558146.91	2752848.49		PC	
-	630+96.00	ROUTE NN		1558154.92	2753681.86		PI	
-	635+63.34	ROUTE NN		1557321.54	2753675.32		PT	
-	643+86.84	ROUTE NN		1556498.07	2753668.86		PC	
-	647+15.24	ROUTE NN		1556169.68	2753666.28		PI	
-	648+97.56	ROUTE NN		1556176.00	2753994.62		PT/POE	
4	1+00.00	FIELD ENT.		1558136.22	2751735.95		POB	
4	1+35.00	FIELD ENT.		1558171.22	2751735.61		PI	
4	1+65.70	FIELD ENT.		1558201.28	2751741.83		POE	

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT NW | SHEET NO. 6
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

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)

GBA
9801 Renner Blvd, Ste. 300
Lenexa, KS 66219
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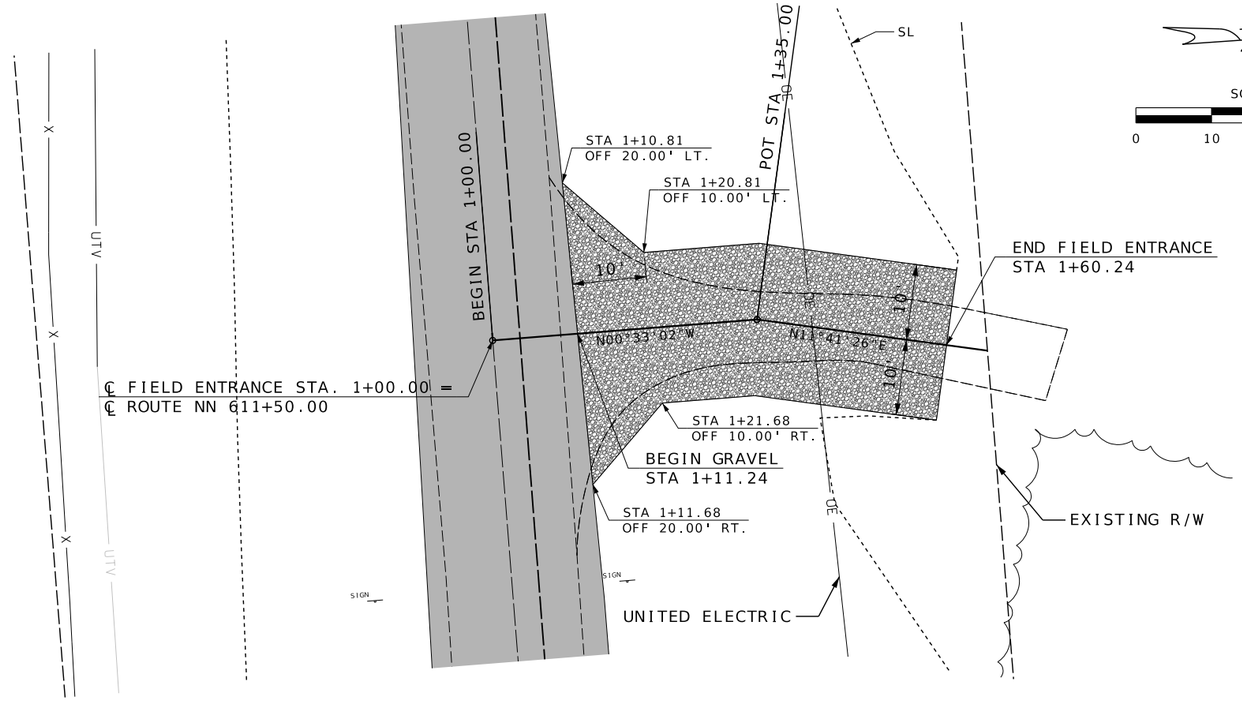
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

SHELBY P. REYNOLDS
PROFESSIONAL ENGINEER
PE-2023018931

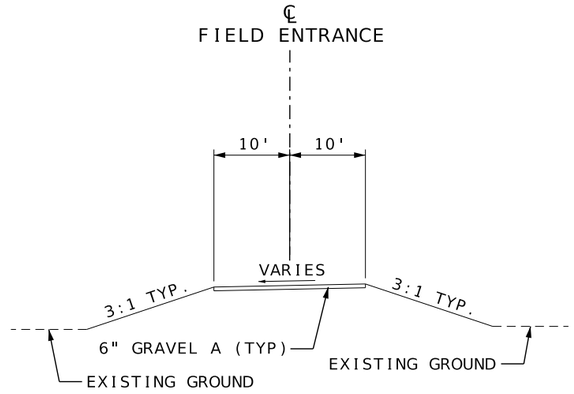
COORDINATE POINTS
SHEET 1 OF 1



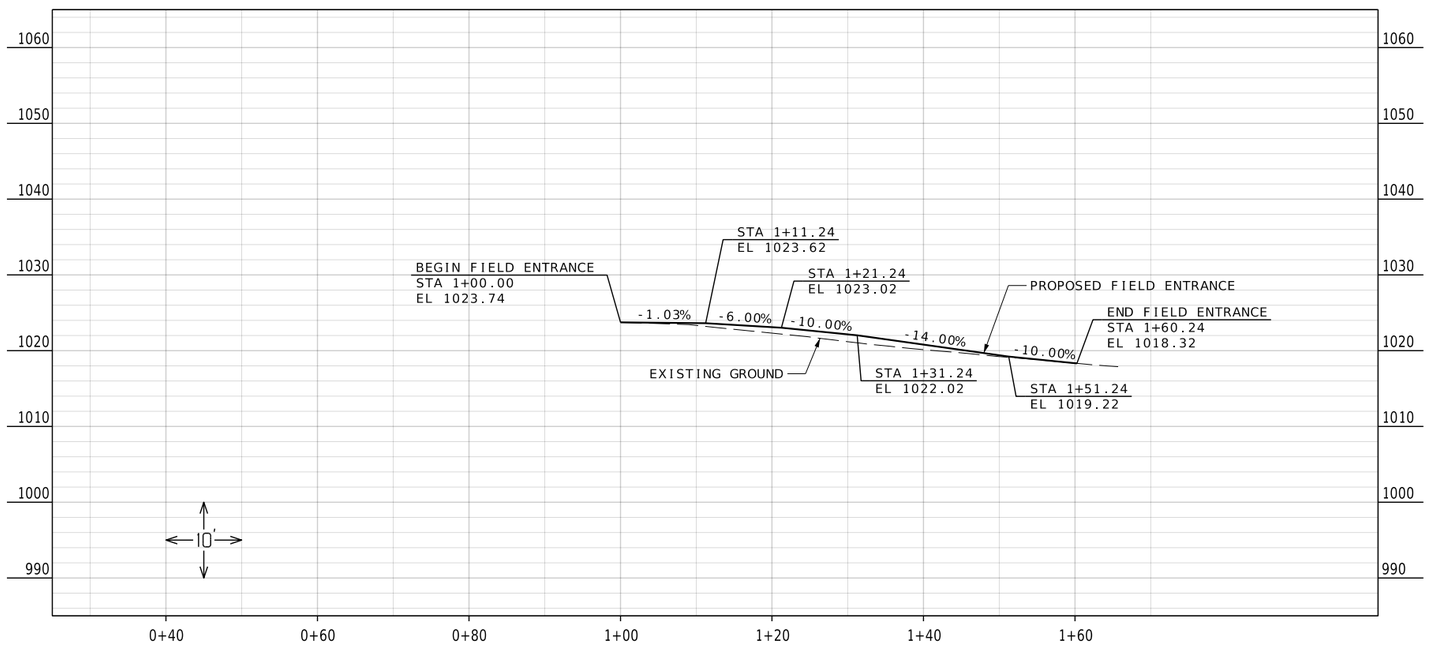
LEGEND

OPTIONAL PAVEMENT

GRAVEL A



PROPOSED FIELD ENTRANCE
TYPICAL SECTION
NOT TO SCALE
FIELD ENTRANCE STA 1+11.24 TO STA 1+60.24



FIELD ENTRANCE
SPECIAL SHEET 1 OF 2

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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DATE PREPARED
1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
NW	7

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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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ARCHITECT 000212
PRO. LAND SURVEYOR 000059

SHELBY P. REYNOLDS
PROFESSIONAL ENGINEER
PE-2023018931

REV.

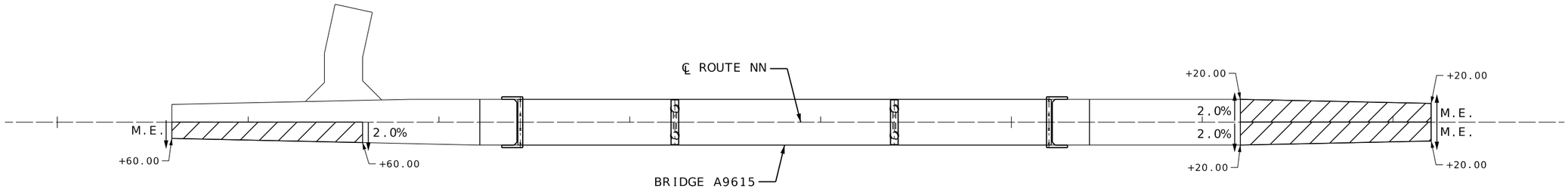
c:\bms\gba-pw-01\shelby reynolds\dms23168\007_SS_01_JNW0071_110_RouteNN_Field Entrance.dgn 11:52:40 AM 1/8/2025

LEGEND

= SUPERELEVATION TRANSITION (%)

610

615



SCALE

0 30 60 90

SUPERELEVATION DETAILS
SPECIAL SHEET 2 OF 2

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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

DATE PREPARED
1/8/2025

ROUTE	STATE
NN	MO

DISTRICT	SHEET NO.
NW	8

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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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ARCHITECT 000212
PRO. LAND SURVEYOR 000059

SHELBY P. REYNOLDS
PROFESSIONAL ENGINEER
PE-2023018931

REV.

WO20-3

20

48" x 48"

WO20-3a

20A

48" x 48"

R11-2

29

48" x 30"

R11-3a

60

60" x 30"

R11-3a

60A

60" x 30"

R11-3a

60B

60" x 30"

GENERAL TRAFFIC CONTROL NOTES:

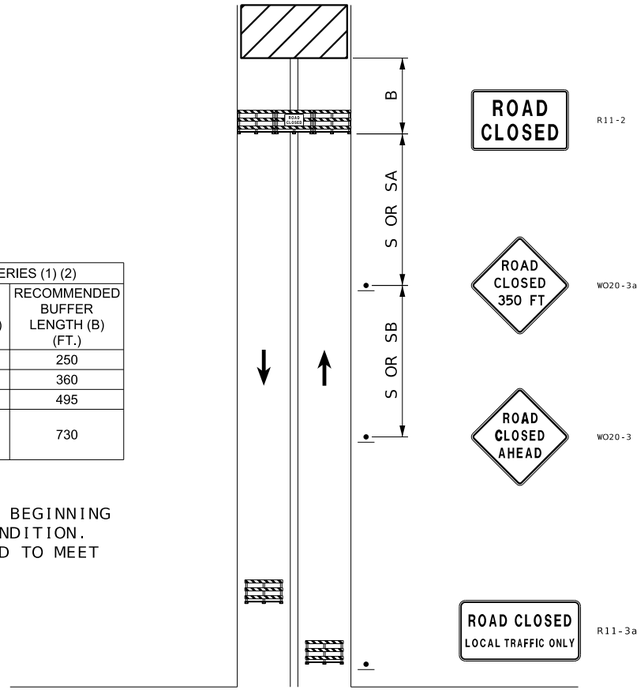
1. ALL EXISTING SIGNS THAT CONFLICT WITH THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE COVERED, NO DIRECT PAY.

2. ALL R11-2 SIGNS SHALL BE MOUNTED ON TYPE III BARRICADE.

SIGN SPACING FOR ADVANCE SIGN SERIES (1) (2)			
POSTED SPEED PRIOR TO CONSTRUCTION, MPH (P)	UNDIVIDED HIGHWAY LENGTH (S) (FT.)	DIVIDED HIGHWAY LENGTH (S) (FT.)	RECOMMENDED BUFFER LENGTH (B) (FT.)
0 TO 35	200	200	250
40 TO 45	350	500	360
50 TO 55	500	1000	495
60 TO 70	1000	SA - 1000 SB - 1500 SC - 2640	730

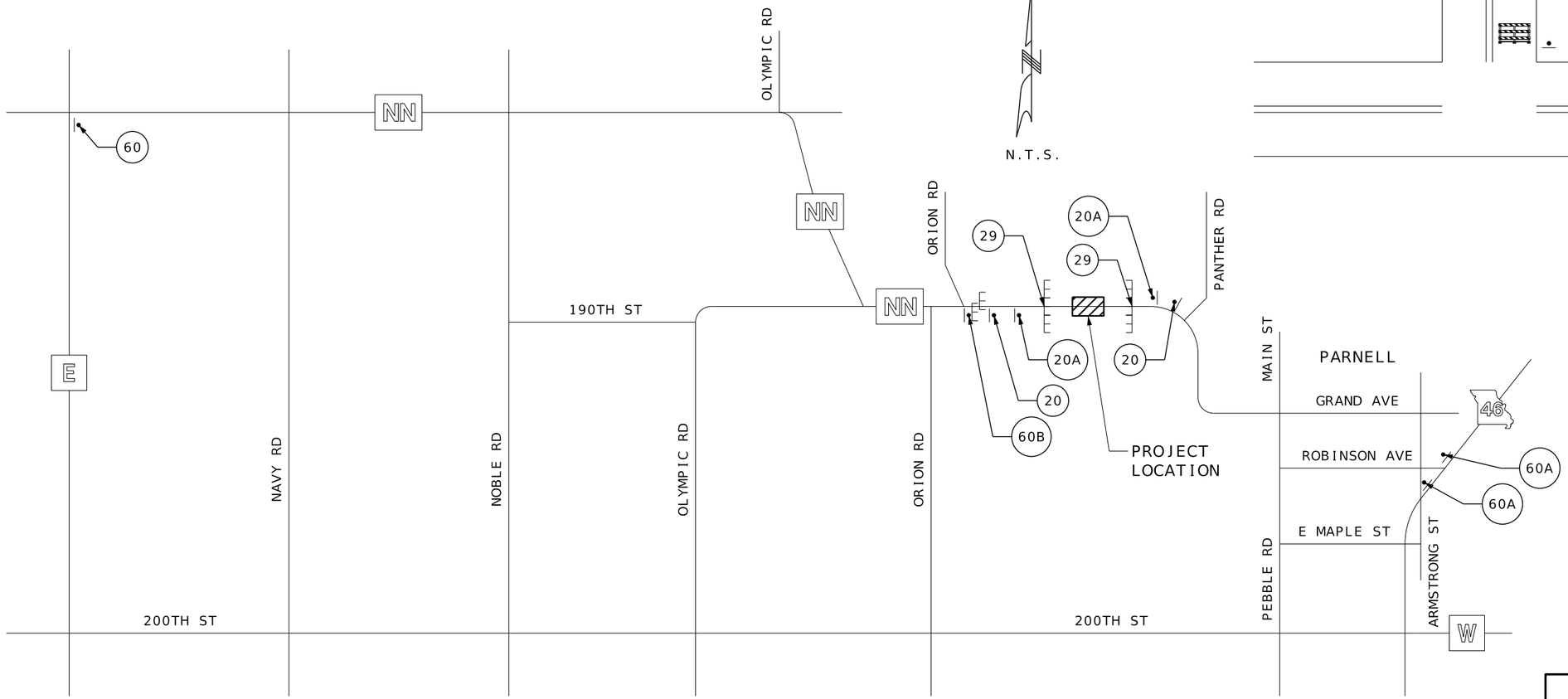
NOTES:
DIMENSIONS IN FEET
(1) SPACING BETWEEN SIGNS, BEGINNING OF TAPER, OR SIGNED CONDITION.
(2) SPACING MAY BE ADJUSTED TO MEET FIELD CONDITIONS

N.T.S.



TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE



TRAFFIC CONTROL PLAN
SHEET 1 OF 1

STATE OF MISSOURI
SHELBY P. REYNOLDS
NUMBER PE-2023018931
PROFESSIONAL ENGINEER

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ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
NW	9

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

REV.	DESCRIPTION	DATE

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PROFESSIONAL ENGINEER
PE-2023018931

TEMPORARY EROSION CONTROL LEGEND

(R) ROCK DITCH CHECK

SILT FENCE

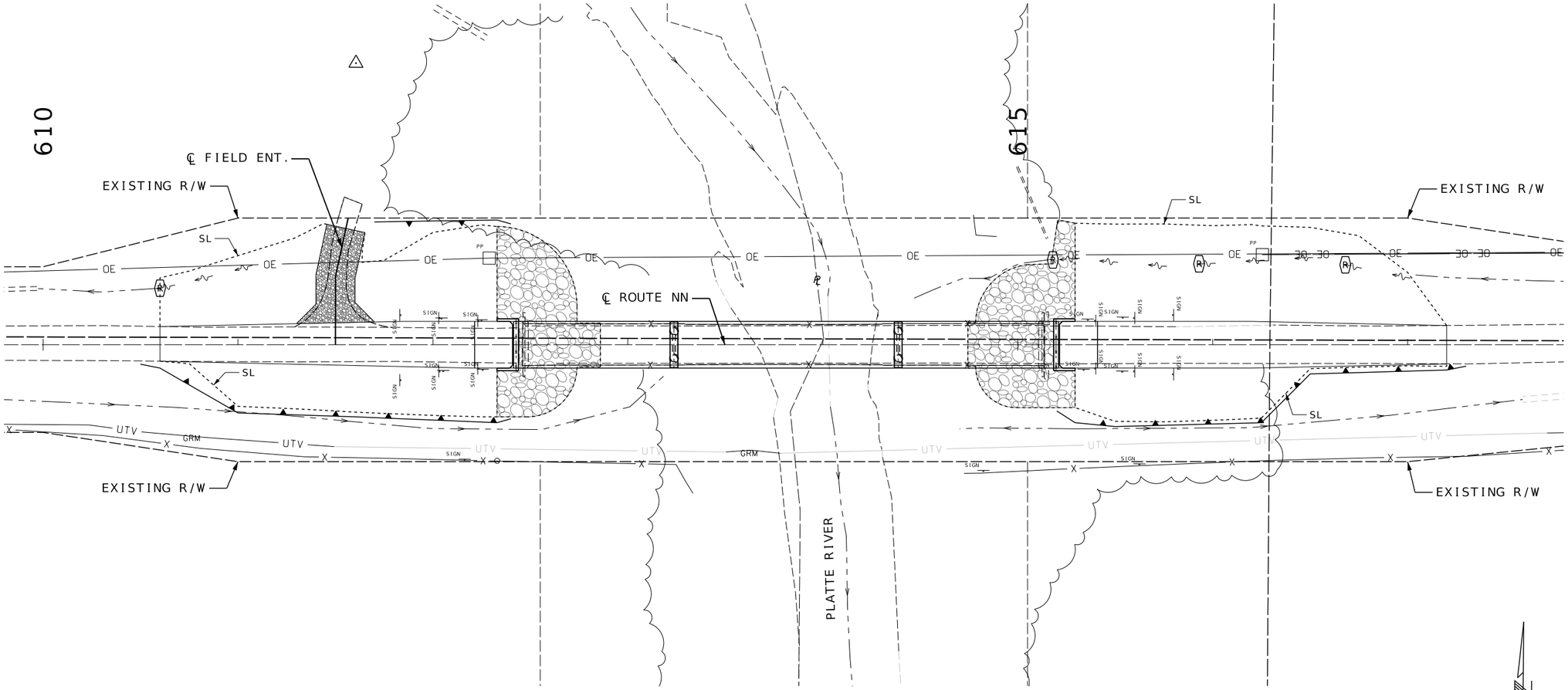
ROUTE NN
STA 610+50, 10' RT TO 610+60, 12' RT
STA 610+60, 12' RT TO 611+00, 35' RT
STA 611+00, 35' RT TO 611+60, 37' RT
STA 611+60, 37' RT TO 612+32.90, 40' RT
STA 612+32.90, 40' RT TO 612+40, 38' RT
INSTALL 197 LF SILT FENCE

ROUTE NN
STA 610+60, LT
INSTALL 1 ROCK DITCH CHECK

ROUTE NN
STA 611+70, 63' LT TO 612+32.90, 64' LT
STA 612+32.90, 64' LT TO 612+40, 62' LT
INSTALL 71 LF SILT FENCE

ROUTE NN
STA 615+20, 34' RT TO 615+29.40, 40' RT
STA 615+29.40, 40' RT TO 615+50, 42' RT
STA 615+50, 42' RT TO 616+25, 40' RT
STA 616+25, 40' RT TO 616+50, 15' RT
STA 616+50, 15' RT TO 617+20, 13' RT
STA 617+20, 13' RT TO 617+30, 11' RT
INSTALL 223 LF SILT FENCE

ROUTE NN
STA 615+18 TO 616+68, LT
INSTALL 3 ROCK DITCH CHECKS AT 75' SPACING



SCALE

0 30 60 90

TEMPORARY
EROSION CONTROL
SHEET 1 OF 1

STATE OF MISSOURI
SHELBY P. REYNOLDS
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1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
NW	10

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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PE-2023018931

REV.

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PERMANENT EROSION CONTROL LEGEND

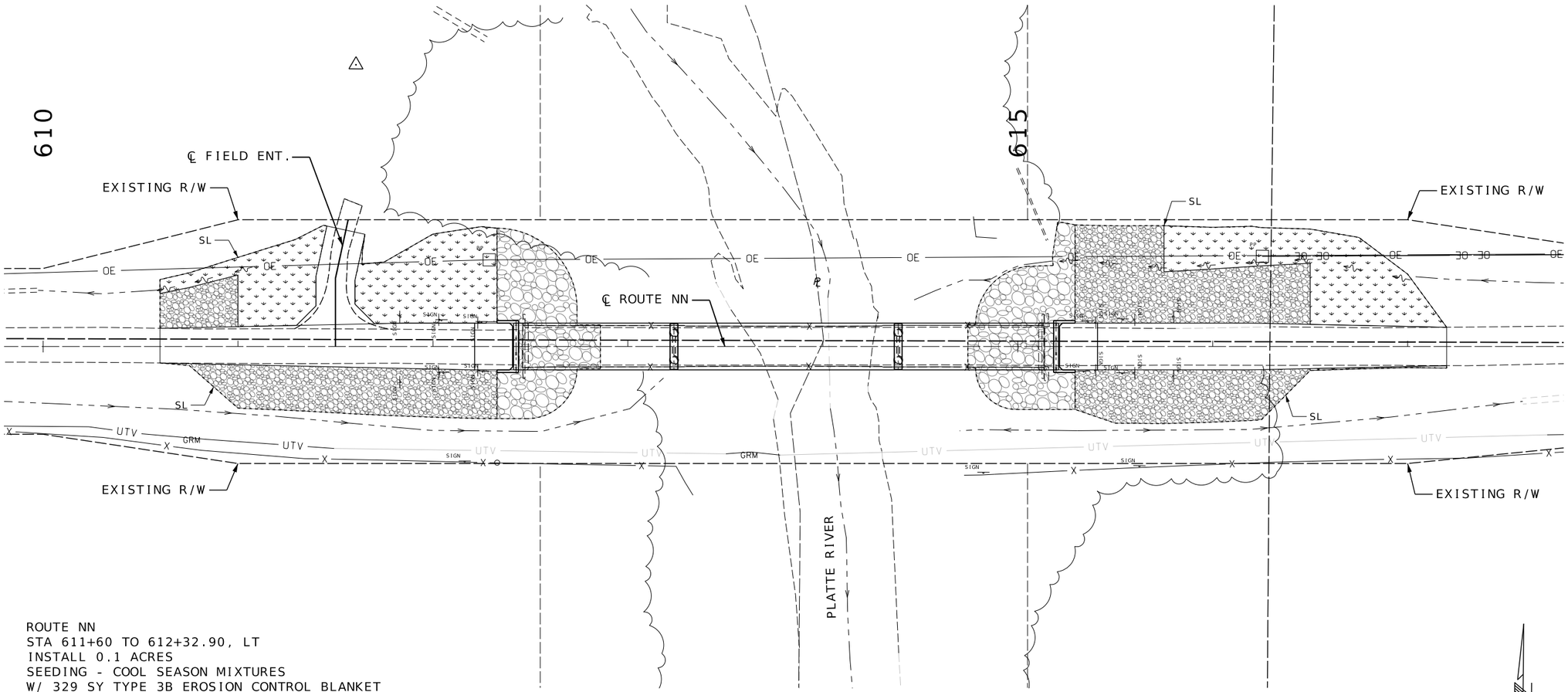
- TYPE 1 ROCK BLANKET W/ TOPSOIL CAP
- TYPE 2 ROCK BLANKET
- SEEDING W/ TYPE 3B ECB

ROUTE NN
STA 610+60 TO 611+00, LT
INSTALL 98 SY PERMANENT EROSION CONTROL GEOTEXTILE BELOW
130 CY TYPE 1 ROCK BLANKET
W/ 98 SY PERMANENT EROSION CONTROL GEOTEXTILE ON TOP
INSTALL 17 CY TOPSOIL
W/ 0.1 ACRES SEEDING - COOL SEASON MIXTURES
AND 98 SY TYPE 3B EROSION CONTROL BLANKET

ROUTE NN
STA 610+60 TO 611+45.58, LT
INSTALL 0.1 ACRES
SEEDING - COOL SEASON MIXTURES
W/ 223 SY TYPE 3B EROSION CONTROL BLANKET

ROUTE NN
STA 615+29.40 TO 616+50, LT
INSTALL 493 SY PERMANENT EROSION CONTROL GEOTEXTILE BELOW
657 CY TYPE 1 ROCK BLANKET
W/ 493 SY PERMANENT EROSION CONTROL GEOTEXTILE ON TOP
INSTALL 83 CY TOPSOIL
W/ 0.2 ACRES SEEDING - COOL SEASON MIXTURES
AND 493 SY TYPE 3B EROSION CONTROL BLANKET

ROUTE NN
STA 615+75 TO 617+20, LT
INSTALL 0.1 ACRES
SEEDING - COOL SEASON MIXTURES
W/ 433 SY TYPE 3B EROSION CONTROL BLANKET



ROUTE NN
STA 611+60 TO 612+32.90, LT
INSTALL 0.1 ACRES
SEEDING - COOL SEASON MIXTURES
W/ 329 SY TYPE 3B EROSION CONTROL BLANKET

ROUTE NN
STA 610+60 TO 612+32.90, RT
INSTALL 385 SY PERMANENT EROSION CONTROL GEOTEXTILE BELOW
514 CY TYPE 1 ROCK BLANKET
W/ 385 SY PERMANENT EROSION CONTROL GEOTEXTILE ON TOP
INSTALL 65 CY TOPSOIL
W/ 0.1 ACRES SEEDING - COOL SEASON MIXTURES
AND 385 SY TYPE 3B EROSION CONTROL BLANKET

ROUTE NN
STA 612+32.90 TO 617+73.90, LT/RT
INSTALL 258 CY TYPE 2 ROCK BLANKET
W/ 387 SY PERMANENT EROSION CONTROL GEOTEXTILE

ROUTE NN
STA 615+29.40 TO 616+50, RT
INSTALL 316 SY PERMANENT EROSION CONTROL GEOTEXTILE BELOW
422 CY TYPE 1 ROCK BLANKET
W/ 316 SY PERMANENT EROSION CONTROL GEOTEXTILE ON TOP
INSTALL 53 CY TOPSOIL
W/ 0.1 ACRES SEEDING - COOL SEASON MIXTURES
AND 316 SY TYPE 3B EROSION CONTROL BLANKET

ROUTE NN
STA 614+78.40 TO 615+29.40, LT/RT
INSTALL 259 CY TYPE 2 ROCK BLANKET
W/ 389 SY PERMANENT EROSION CONTROL GEOTEXTILE

ROUTE NN
STA 616+50 TO 617+20, RT
INSTALL 0.1 ACRES
SEEDING - COOL SEASON MIXTURES
W/ 6 SY TYPE 3B EROSION CONTROL BLANKET

SCALE
0 30 60 90

PERMANENT
EROSION CONTROL
SHEET 1 OF 1

STATE OF MISSOURI
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DATE PREPARED 1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
NW	11

COUNTY: NODAWAY
JOB NO.: JNW0071
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

REV.	DESCRIPTION	DATE

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PROFESSIONAL ENGINEER
PE-2023018931

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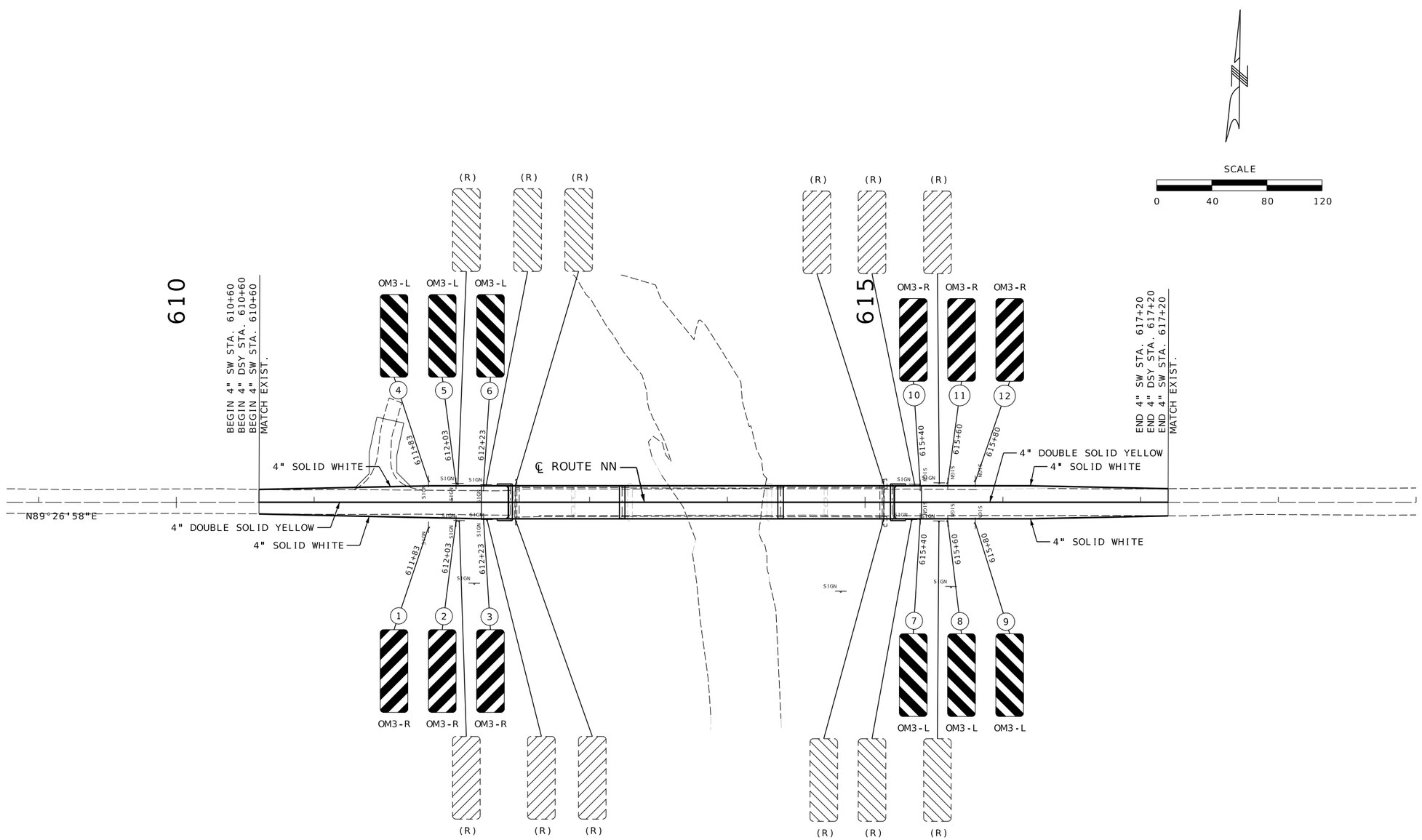

NOTE:

1. PAVEMENT MARKING SHALL BE APPLIED AND SIGNING SHALL BE INSTALLED DURING THE DURATION OF THE ROAD CLOSURE.

PAVEMENT MARKING
& SIGNING
SHEET 1 OF 1

STATE OF MISSOURI
SHELBY P. REYNOLDS
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PROFESSIONAL ENGINEER

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DATE PREPARED
1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
NW	12

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

REV.	DESCRIPTION	DATE

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PE-2023018931

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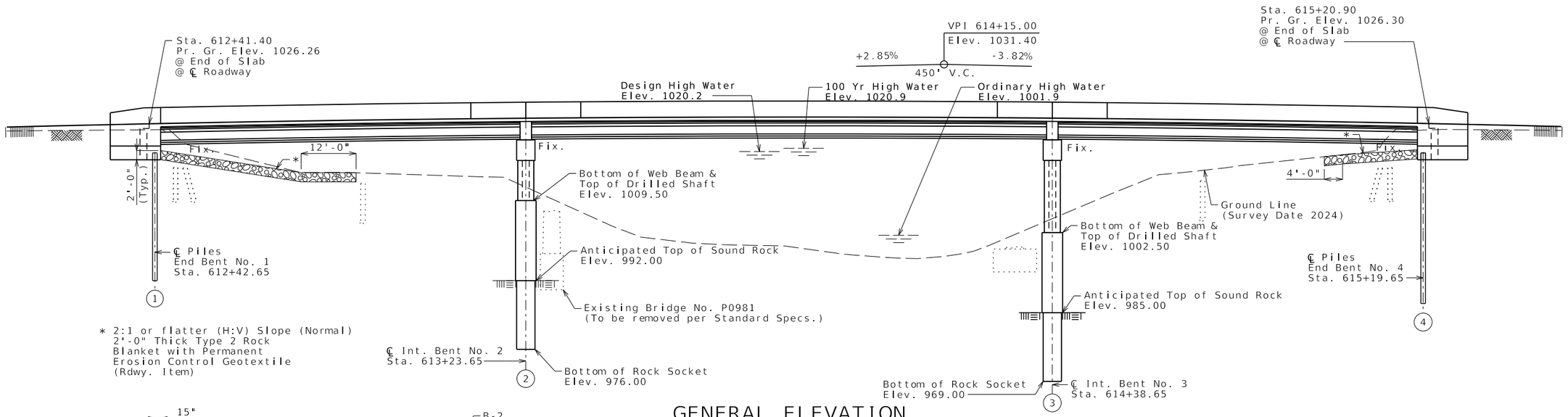
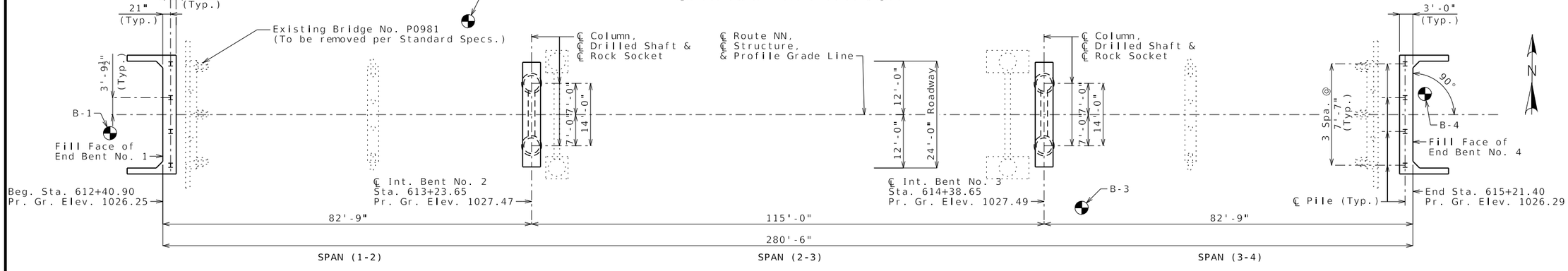
SEC/SUR 8/17 TWP 65N RGE 33W

(81' - 115' - 81') MODIFIED PRESTRESSED CONCRETE NU-GIRDER SPANS



GENERAL ELEVATION



PLAN

"⊕" Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

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

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

Hydrologic Data
Drainage Area = 361 mi²
Design Flood Frequency = 50-yr
Design Flood Discharge = 14,200 cfs
Design Flood (D.F.) Elevation = 1020.2
Base Flood (100-year)
Base Flood Elevation = 1020.9
Base Flood Discharge = 15,900 cfs
Estimated Backwater = 0.0 ft
Average Velocity thru Opening = 7.1 ft/s
Freeboard (50-year)
Freeboard = 2.0 ft
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency > 500-yr
500-yr Flood Elevation = 1022.4

Notes:

Roadway fill shall be completed to the final roadway section and up to the elevation 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.

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

B.M. #10 RR SPIKE ON THE SOUTH SIDE OF A POWER POLE ON THE NORTH SIDE OF STATE HWY NN ±485' WEST OF THE INTERSECTION OF STATE HWY NN AND PANTHER ROAD.
N: 1558196.80
E: 2752904.89
EL: 1018.19

BRIDGE: ROUTE NN OVER PLATTE RIVER

ROUTE NN FROM ROUTE 46 TO ROUTE E

ABOUT 1.1 MILE WEST OF ROUTE 46

BEGINNING STATION 612+40.90

Designed Oct 2024
Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

DESCRIPTION | DATE

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PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

General Notes:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
Seismic Design Category = A (Nonseismic)
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 < 0.15
Acceleration Coefficient (effective peak ground accerelation coefficient), As = 0.058

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, except Drilled Shafts & Rock Sockets)	f'c = 3,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Class B-2 Concrete (Drilled Shafts & Rock Sockets)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure except Prestressed Girders and Barrier)	f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60)	fy = 60,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50)	fy = 50,000 psi

For Prestressed Girder Stresses, See Sheets No. 14-17.

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

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

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

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

Foundation Data

Type	Design Data		Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		HP12x53	-	-	HP12x53
	Number	ea	4	-	-	4
	Approximate Length per Each	ft	29	-	-	34
	Pile Point Reinforcement	ea	All	-	-	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	-	-	Full Length
	Pile Driving Verification Method		DF	-	-	DF
	Resistance Factor		0.4	-	-	0.4
	Minimum Nominal Axial Compressive Resistance	kip	581.5	-	-	581.5
Rock Socket	Number	ea	-	2	2	-
	Layer 1 Foundation Material		-	Strong Rock	Strong Rock	-
	Layer 1 Elevation Range	ft	-	988-980	981-966.5	-
	Layer 1 Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	-	15.2	15.2	-
	Layer 2 Foundation Material		-	Strong Rock	-	-
	Layer 2 Elevation Range	ft	-	980-976	-	-
	Layer 2 Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	-	11.0	-	-
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf	-	23.8	7.8	-

DF = FHWA-modified gates Dynamic Pile Formula

Rock Socket (Drilled Shafts):
Minimum Nominal Axial Compressive Resistance (Side Resistance + Tip Resistance) = Maximum Factored Loads/Resistance Factor

Load Bearing Pile:
Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor

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

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

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

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

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

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

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

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 nomial axial compressive resistance is verified and no additional pile driving verification method is required.

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	80		80
Removal of Bridges (P0981)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		108	108
Drilled Shafts (4 ft. 6 in. Dia.)	linear foot	70.0		70.0
Rock Sockets (4 ft. 0 in. Dia.)	linear foot	64.0		64.0
Video Camera Inspection	each	4		4
Foundation Inspection Holes	linear foot	104.0		104.0
Sonic Logging Testing	each	4		4
Galvanized Structural Steel Piles (12 in.)	linear foot	252		252
Pile Point Reinforcement	each	8		8
Class B Concrete (Substructure)	cu. yard	87.1		87.1
Type D Barrier	linear foot		593	593
Slab On Concrete NU-Girder	sq. yard		828	828
NU 44, Prestressed Concrete NU-Girder	linear foot		830	830
Reinforcing Steel (Bridges)	pound	29,640		29,640
Slab Drain	each		34	34
Vertical Drain At End Bents	each			2
Plain Neoprene Bearing Pad	each		6	6
Laminated Neoprene Bearing Pad	each		12	12

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

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

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

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

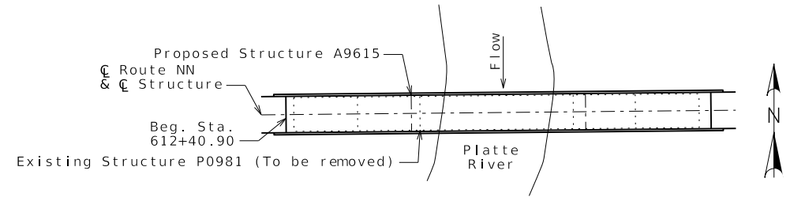
Estimated Quantities for Slab on Concrete NU-Girder

Item		Total
Class B-2 Concrete	cu. yard	256.1
Reinforcing Steel (Epoxy Coated)	pound	76,560

The Table of Estimated Quantities for Slab On Concrete NU-Girder represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for 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 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.



LOCATION SKETCH

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

Detailed Nov 2024
Checked Nov 2024

GENERAL NOTES AND QUANTITIES

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

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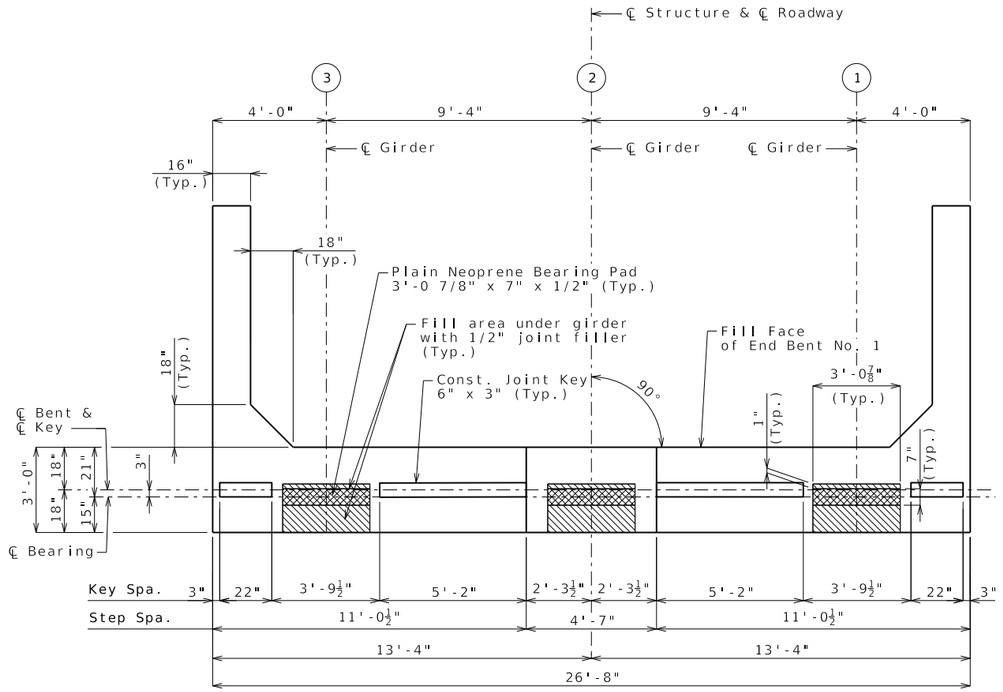
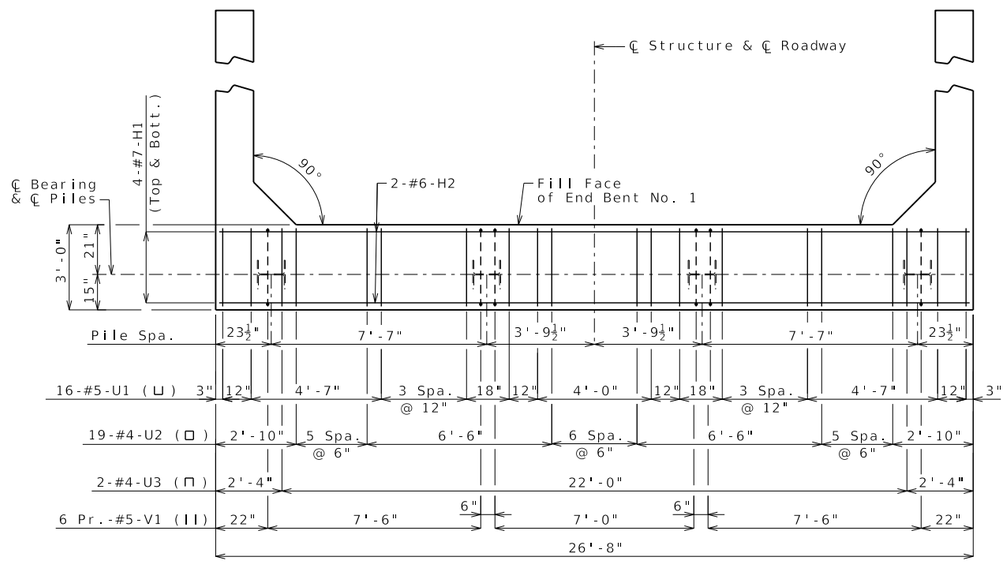


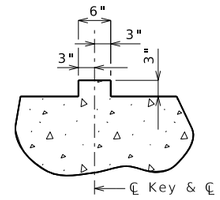
PLAN OF BEAM

Note: Piles not shown for clarity.

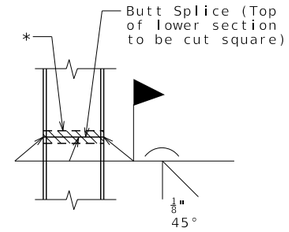


PLAN OF BEAM SHOWING REINFORCEMENT

Note: Steps and keys not shown for clarity



SECTION THRU KEY



STEEL PILE SPLICE

(If required)

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

Notes:

For details of End Bent No. 1 not shown, see Sheets No. 4 & 5.

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

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

DETAILS OF END BENT NO. 1

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 3
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

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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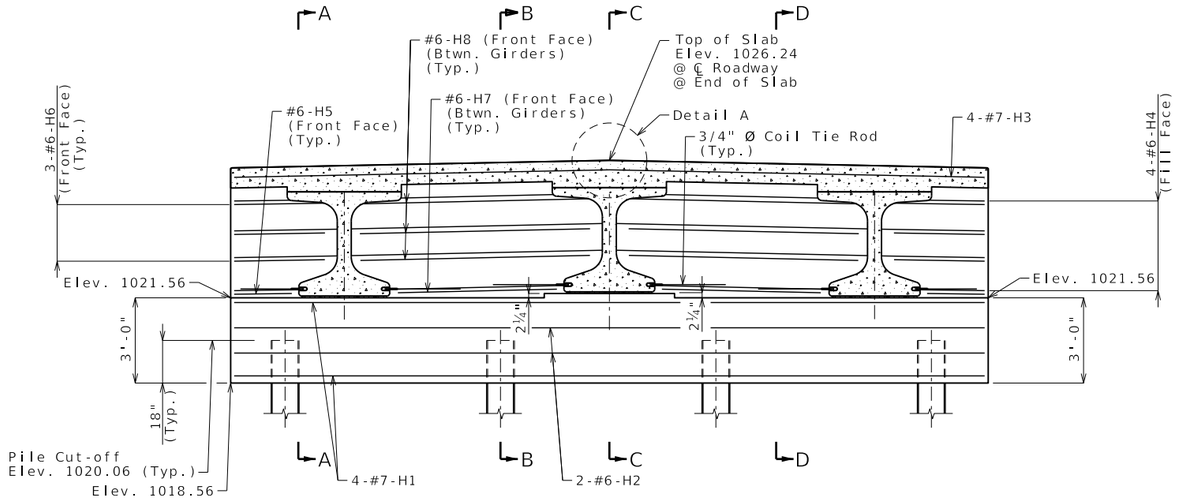
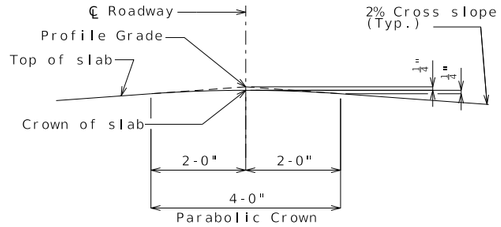
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

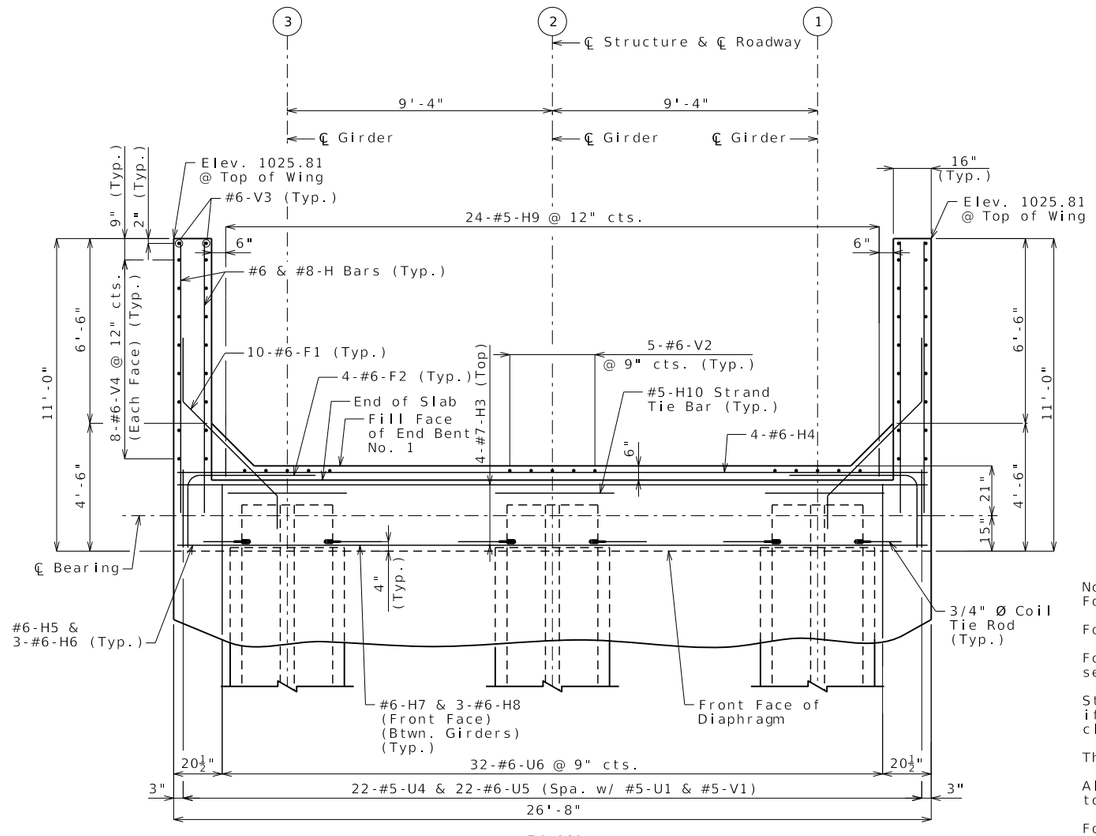
DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977



SECTION NEAR END BENT



DETAIL A



PLAN

DETAILS OF END BENT NO. 1

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

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

For location of coil tie rods and #5-H10 (strand tie bar), see Sheets No. 14 & 15.

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

The #6-F1 bars shall be bent in the field to clear girders.

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

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

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED
1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9615

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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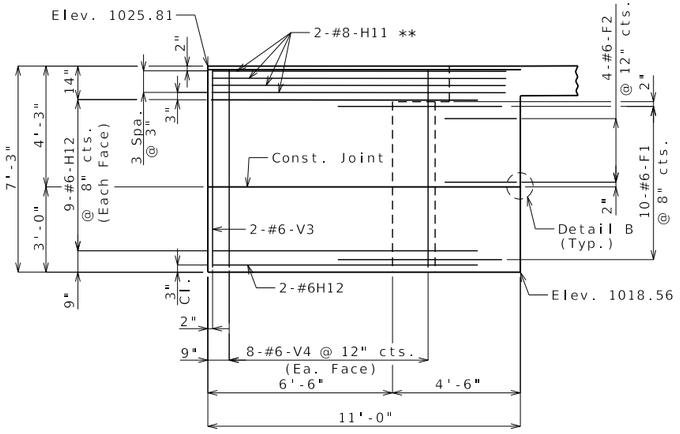
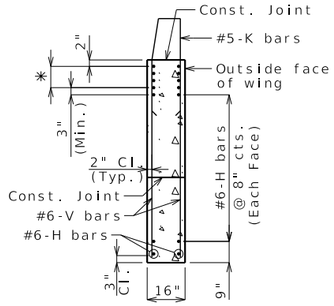
PE-2016012977



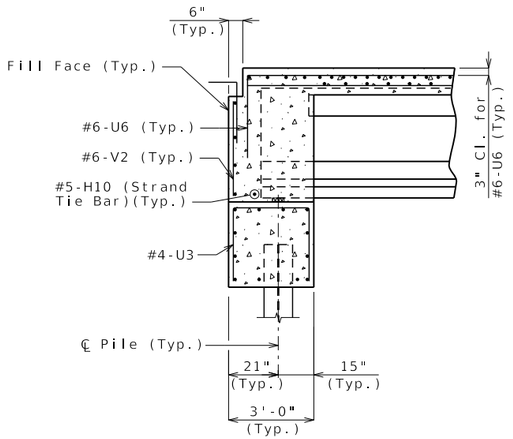
TYPICAL ELEVATION OF WING



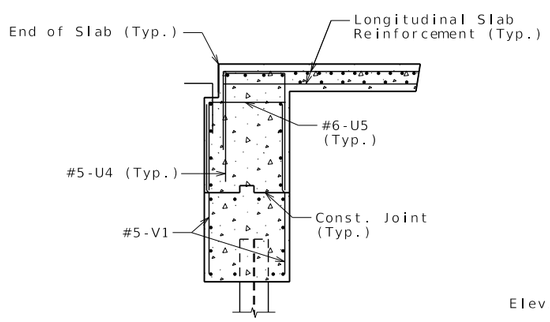
TYPICAL SECTION THRU WING

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

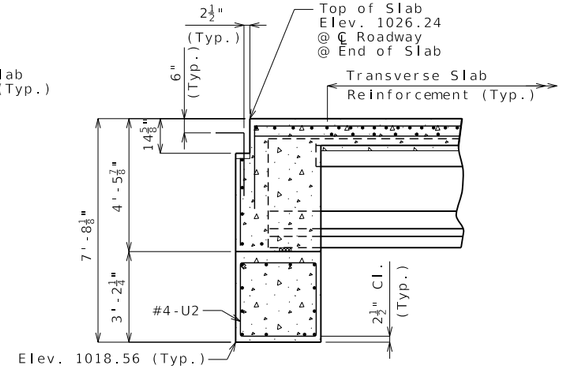
** Place with grade



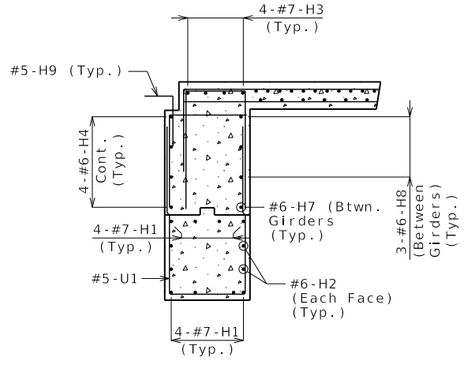
SECTION A-A



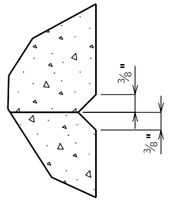
SECTION B-B



SECTION C-C



SECTION D-D



DETAIL B

Notes:

For details of End Bent No. 1 not shown, see Sheets No. 3 & 4.

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

For reinforcement of the barrier, see Sheet No. 25.

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	35
Galvanized Structural Steel Piles (12 in.)	linear foot	116
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	11.7

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

DETAILS OF END BENT NO. 1

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

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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PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
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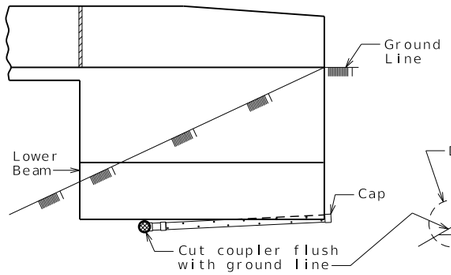
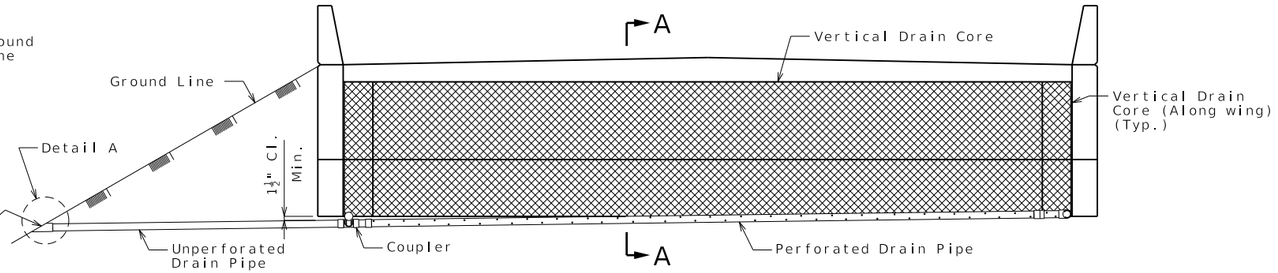
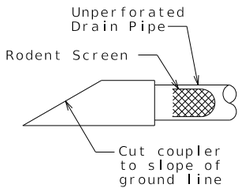
PE-2016012977



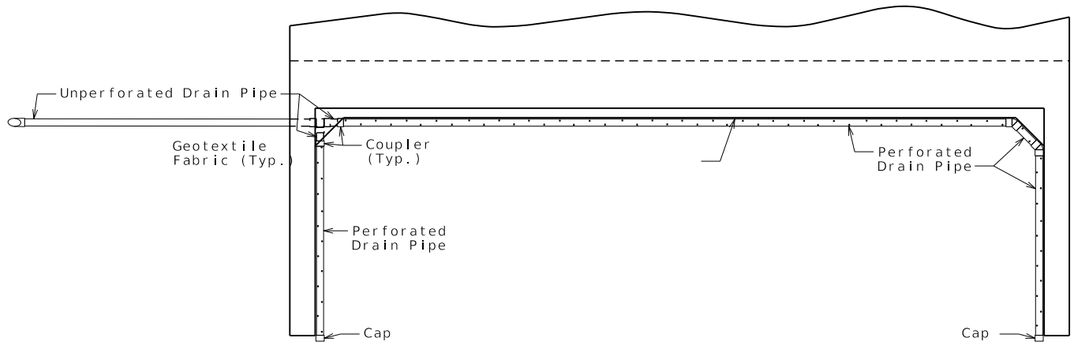
ELEVATION OF WING



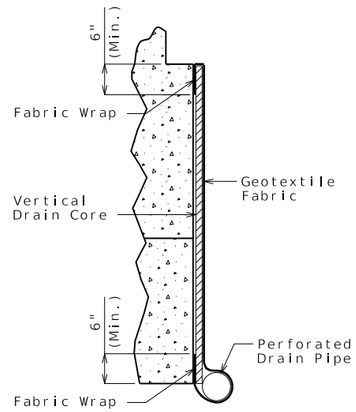
ELEVATION OF END BENT



DETAIL A



PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 6
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

DESCRIPTION | DATE

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

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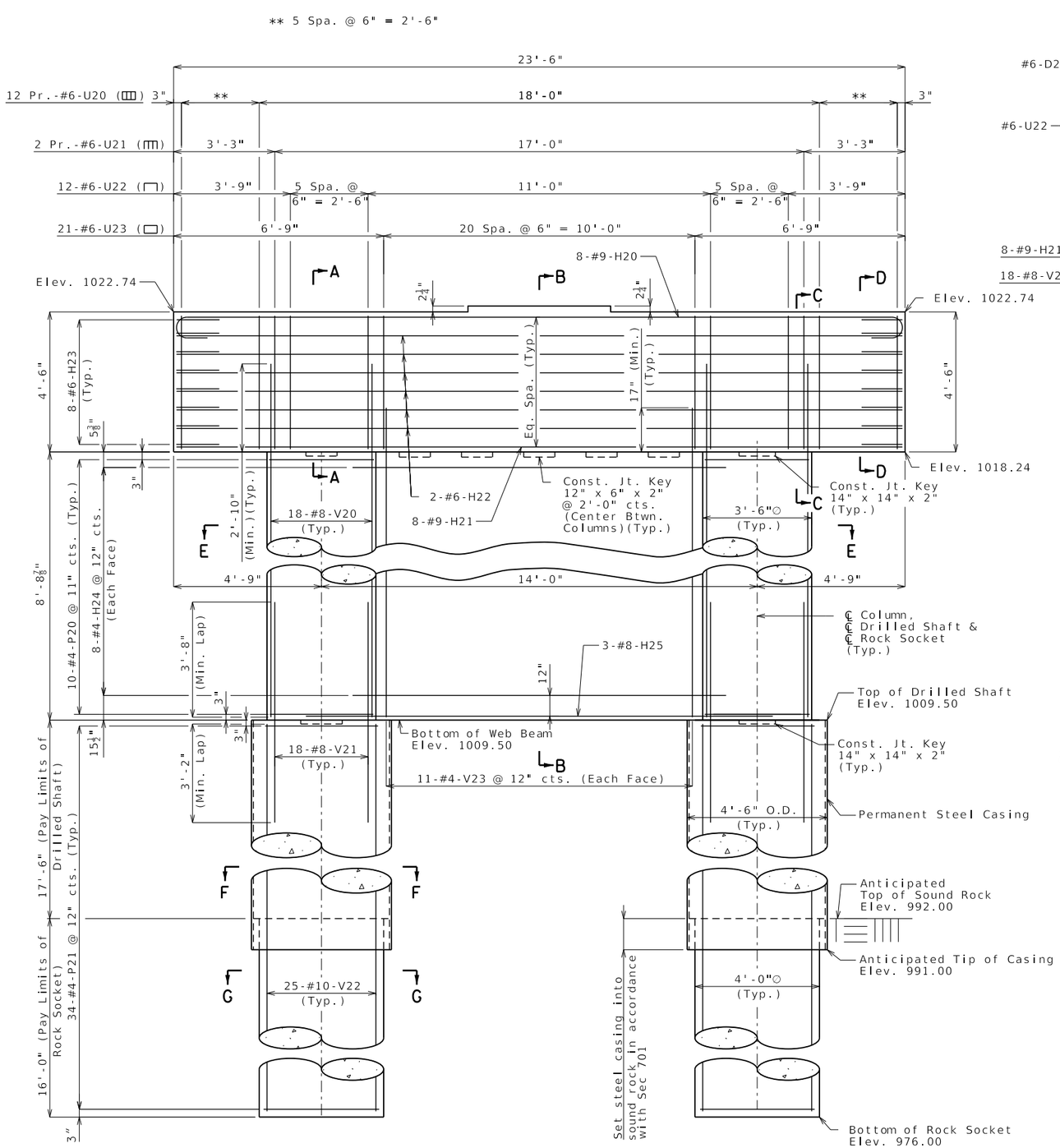
DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

Detailed Nov 2024
Checked Nov 2024

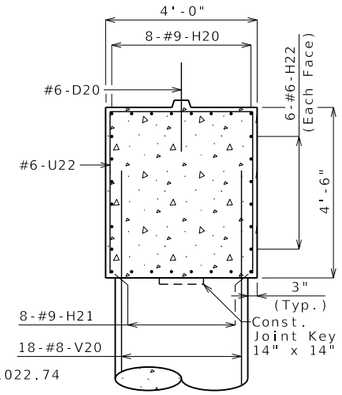
Note: This drawing is not to scale. Follow dimensions.

c:\bms\gba-pw-01\dustin tregnago\dms23166\B_A9615_006_JNW0071_VertDrain.dgn 12:28:06 PM 1/8/2025

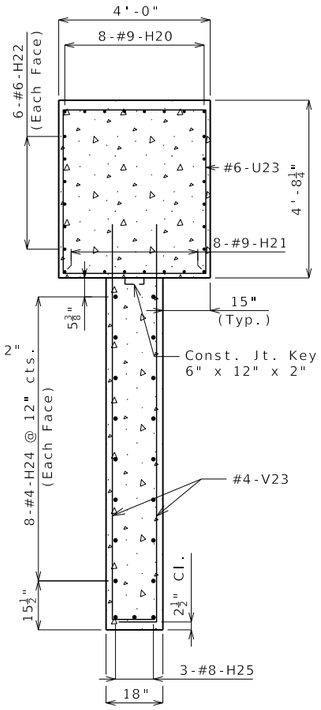


ELEVATION

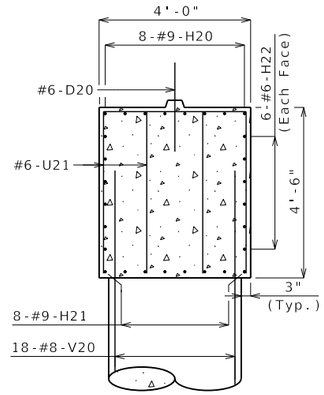
Note: Dowels and keys on beam not shown for clarity



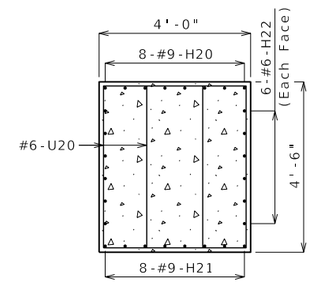
SECTION A-A



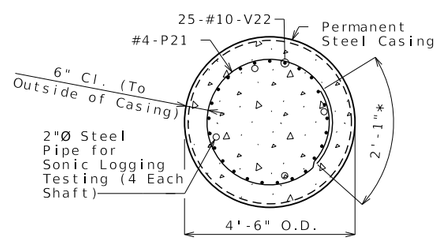
SECTION B-B



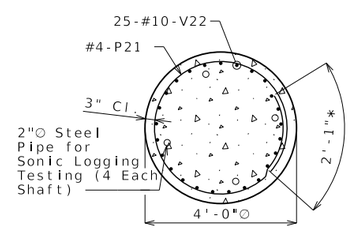
SECTION C-C



SECTION D-D



SECTION F-F



SECTION G-G

* Minimum Lap (Stagger adjacent bar splices)

Notes:

An additional 4 feet has been added to V22 bar lengths and an additional 8-#4-P21 bars (4 per shaft) have been added in the quantities, if required, for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off if not required. The additional P-bars shall be spaced similarly to that shown in Elevation, if required, or to a lesser spacing than required, but not less than 6" cts.

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

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

Work this sheet with Sheet No. 8.

Column or dowel reinforcement shall be placed prior to pouring drilled shaft concrete in the area of the lap. Dowel bar or column reinforcement shall not be inserted after drilled shaft pour is complete.

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	7

COUNTY: NODAWAY
JOB NO.: JNW0071
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9615

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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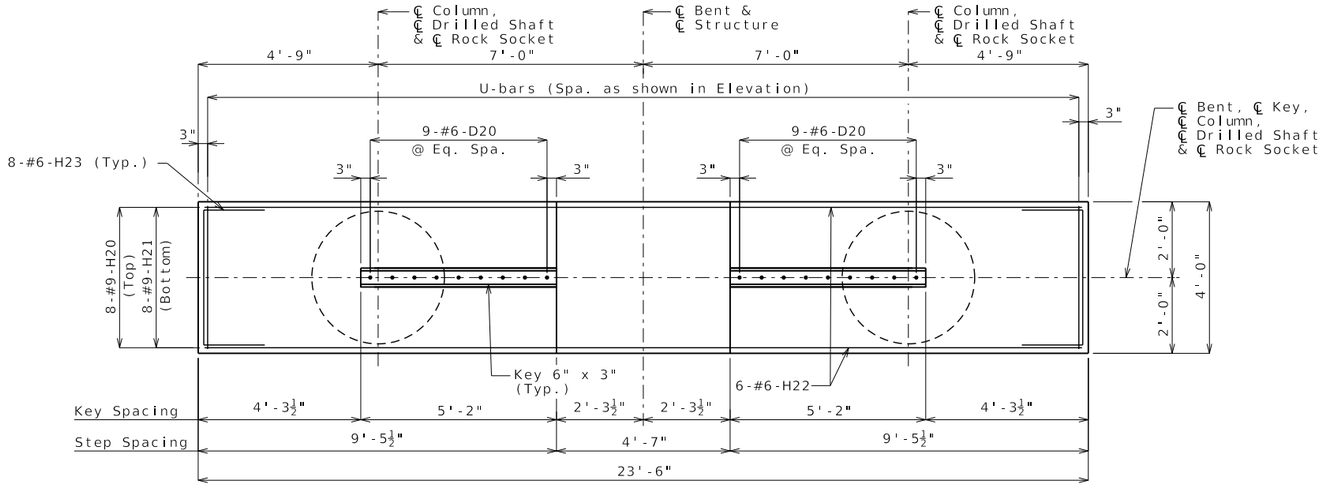
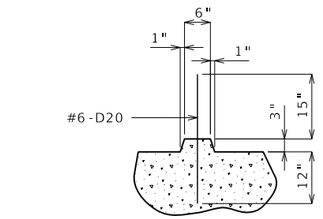
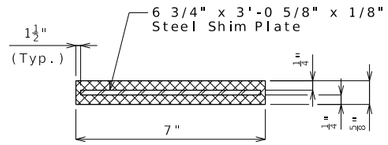
PE-2016012977



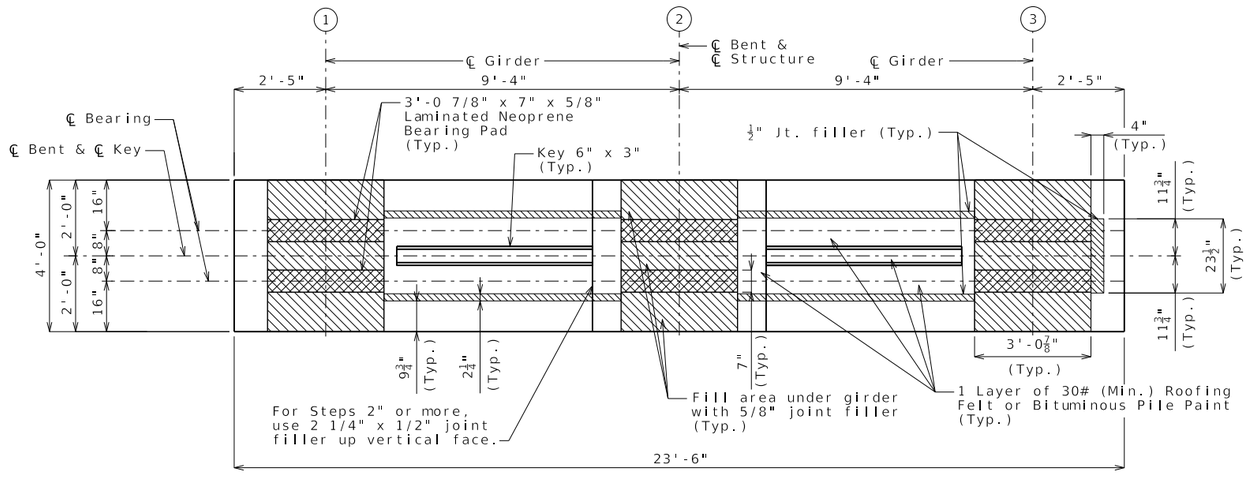
PLAN OF BEAM SHOWING REINFORCEMENT



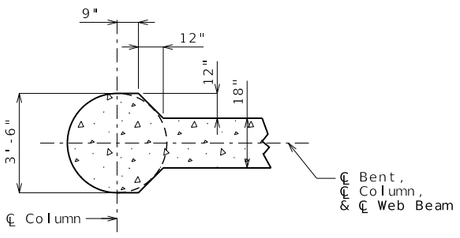
SECTION THRU KEY



TYPICAL SECTION THRU 3'-0 7/8" x 7" x 5/8" LAMINATED NEOPRENE BEARING PAD



PLAN OF BEAM
Dowel bars not shown for clarity.



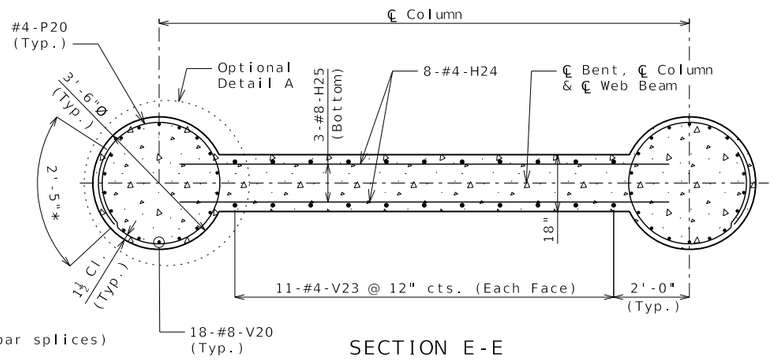
OPTIONAL DETAIL A

Note:

At the contractor's option, the details shown in Optional Detail A may be used for column-web beam at Intermediate Bent No. 2. No additional payment will be made for this substitution.

Note:

Work this sheet with Sheet No. 7.



* Minimum Lap (Stagger adjacent bar splices)

SECTION E-E

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Class 1 Excavation	cu. yard	5
Drilled Shafts (4ft. 6in. Dia.)	linear foot	35.0
Rock Sockets (4ft. 0in. Dia.)	linear foot	32.0
Video Camera Inspection	each	2
Foundation Inspection Holes	linear foot	52.0
Sonic Logging Testing	each	2
Class B Concrete (Substructure)	cu. yard	27.3
Reinforcing Steel (Bridges)	pound	14,306

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

All reinforcement in drilled shafts and rock sockets is included in the substructure quantities.

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

DESCRIPTION | DATE

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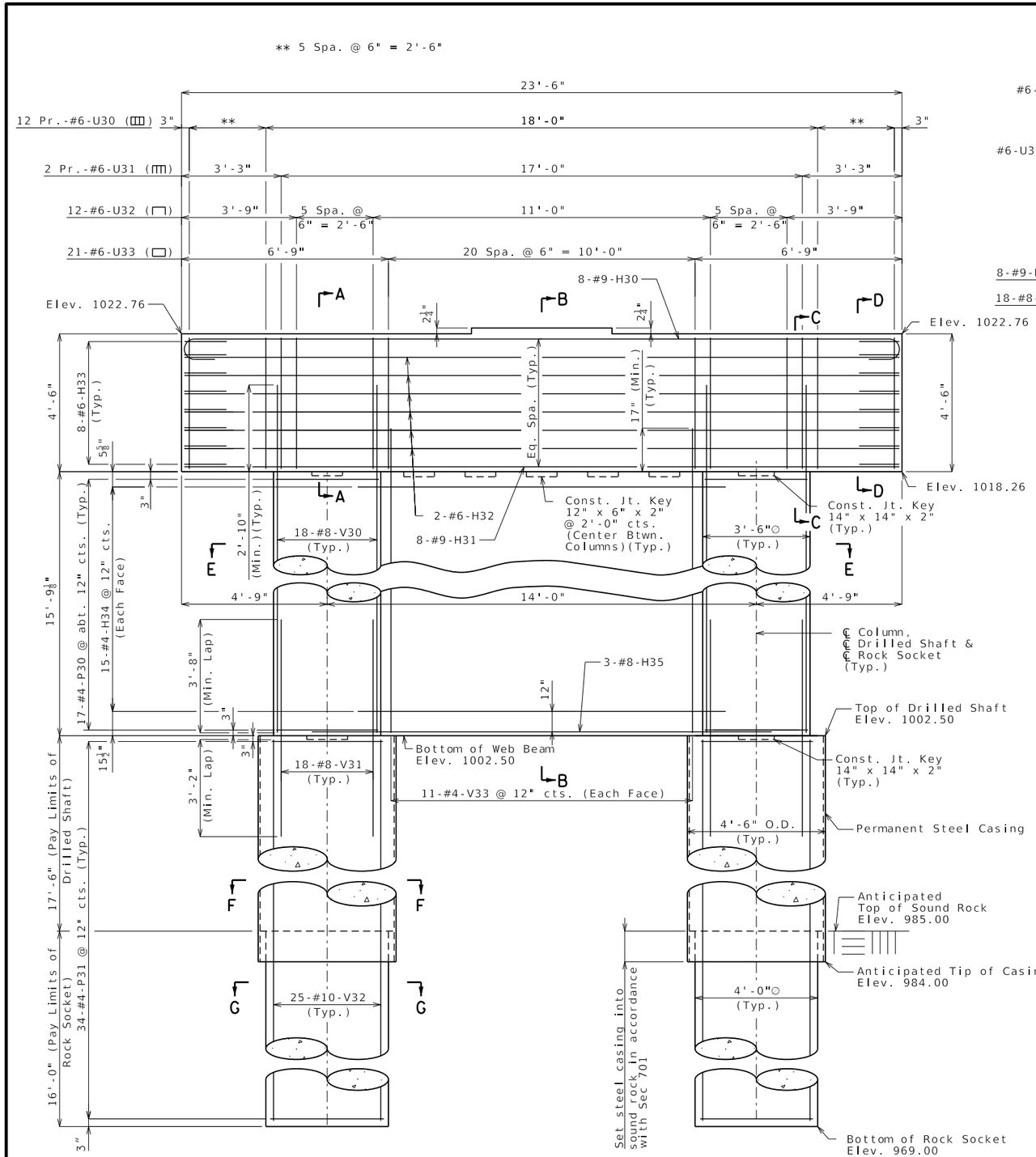
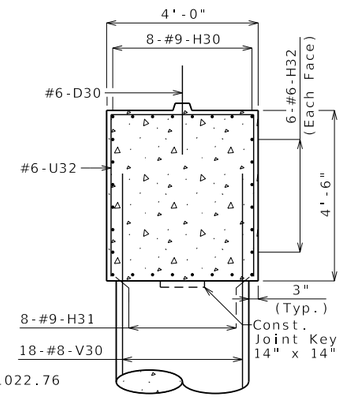
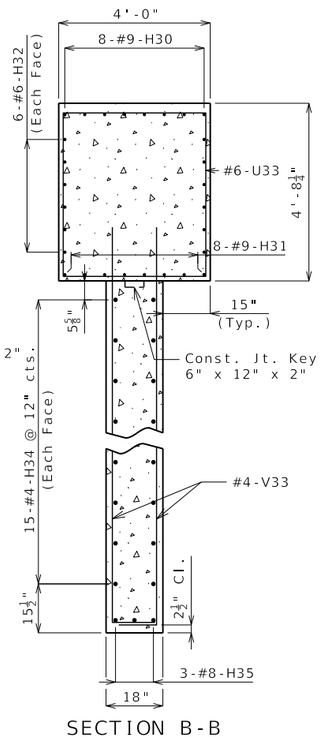


ELEVATION

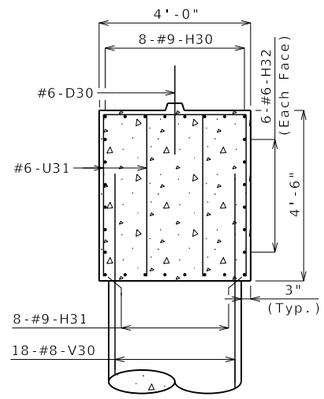
Note: Dowels and keys on beam not shown for clarity



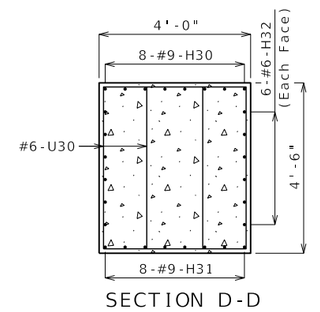
SECTION A-A



SECTION B-B

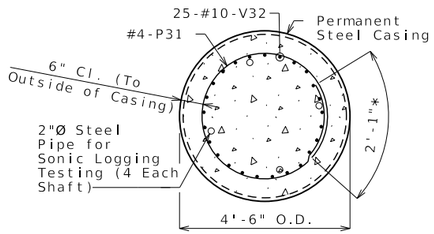


SECTION C-C

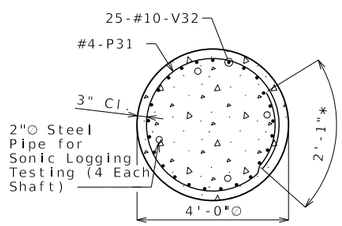


SECTION D-D

∗ Minimum Lap (Stagger adjacent bar splices)



SECTION F-F



SECTION G-G

Notes:

An additional 4 feet has been added to V32 bar lengths and an additional 8-#4-P31 bars (4 per shaft) have been added in the quantities, if required, for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off if not required. The additional P-bars shall be spaced similarly to that shown in Elevation, if required, or to a lesser spacing than required, but not less than 6" cts.

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

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

Work this sheet with Sheet No. 10.

Column or dowel reinforcement shall be placed prior to pouring drilled shaft concrete in the area of the lap. Dowel bar or column reinforcement shall not be inserted after drilled shaft pour is complete.

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 9
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

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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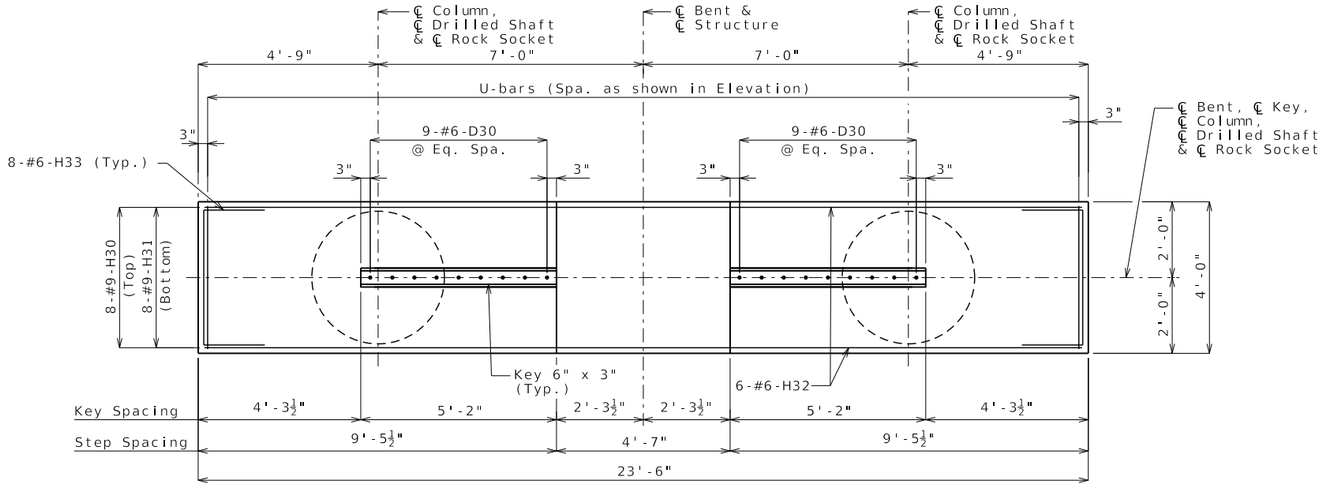
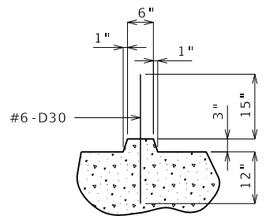
GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

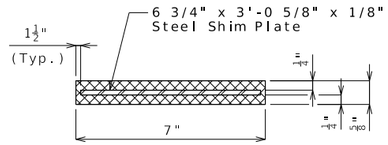
DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977



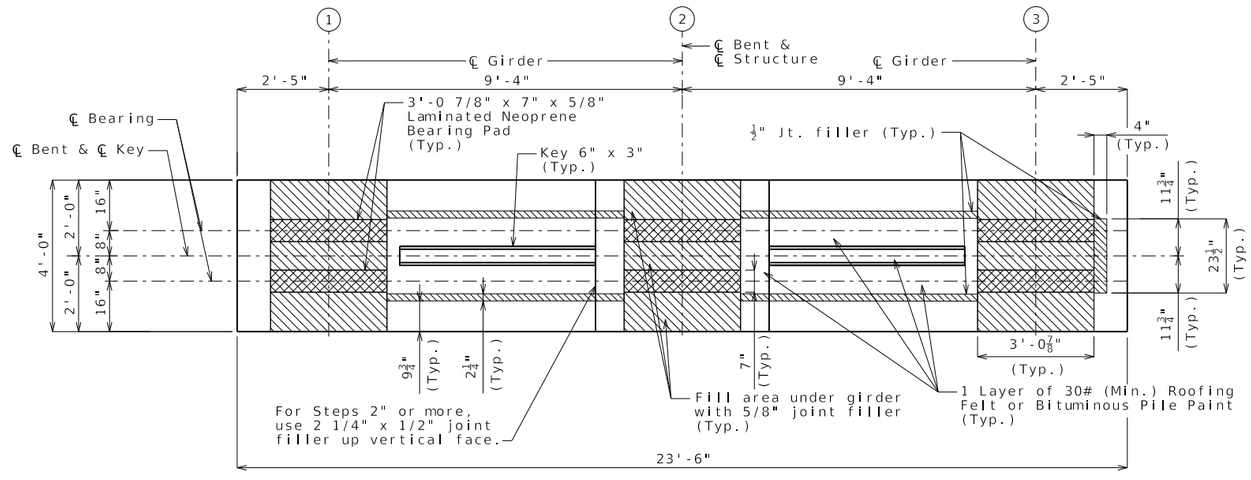
PLAN OF BEAM SHOWING REINFORCEMENT



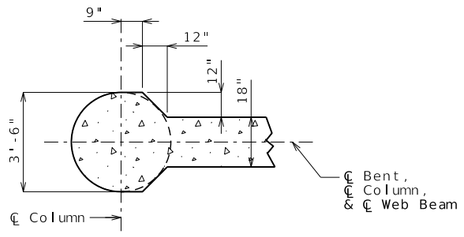
SECTION THRU KEY



TYPICAL SECTION THRU 3'-0 7/8" x 7" x 5/8" LAMINATED NEOPRENE BEARING PAD



PLAN OF BEAM
Dowel bars not shown for clarity.



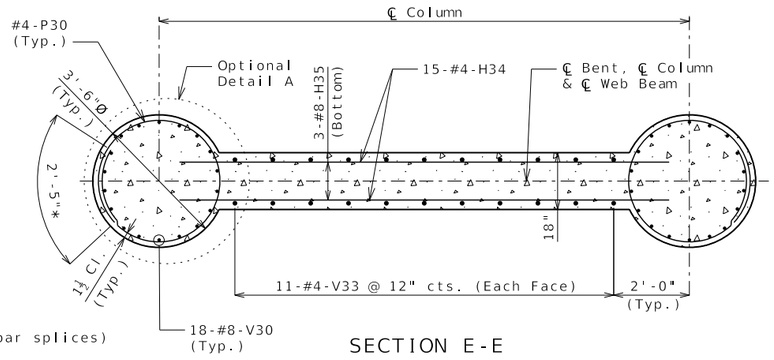
OPTIONAL DETAIL A

Note:

At the contractor's option, the details shown in Optional Detail A may be used for column-web beam at Intermediate Bent No. 3. No additional payment will be made for this substitution.

Note:

Work this sheet with Sheet No. 9.



* Minimum Lap (Stagger adjacent bar splices)

SECTION E-E

Substructure Quantity Table for Bent No. 3		
Item		Quantity
Class 1 Excavation	cu. yard	5
Drilled Shafts (4ft. 6in. Dia.)	linear foot	35.0
Rock Sockets (4ft. 0in. Dia.)	linear foot	32.0
Video Camera Inspection	each	2
Foundation Inspection Holes	linear foot	52.0
Sonic Logging Testing	each	2
Class B Concrete (Substructure)	cu. yard	36.4
Reinforcing Steel (Bridges)	pound	15,335

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

All reinforcement in drilled shafts and rock sockets is included in the substructure quantities.

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 10
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

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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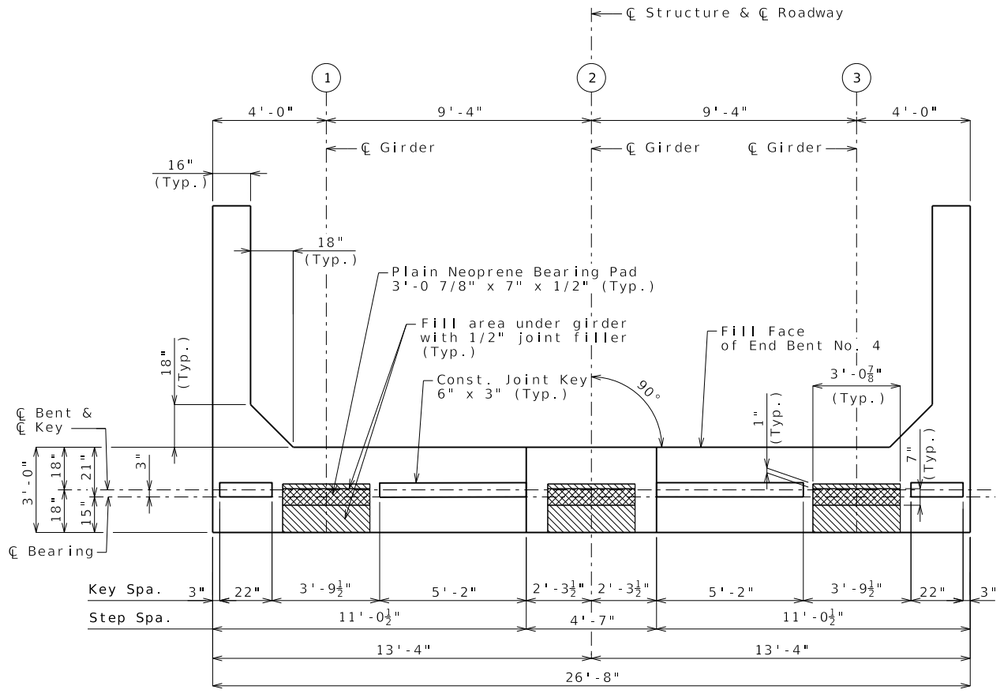
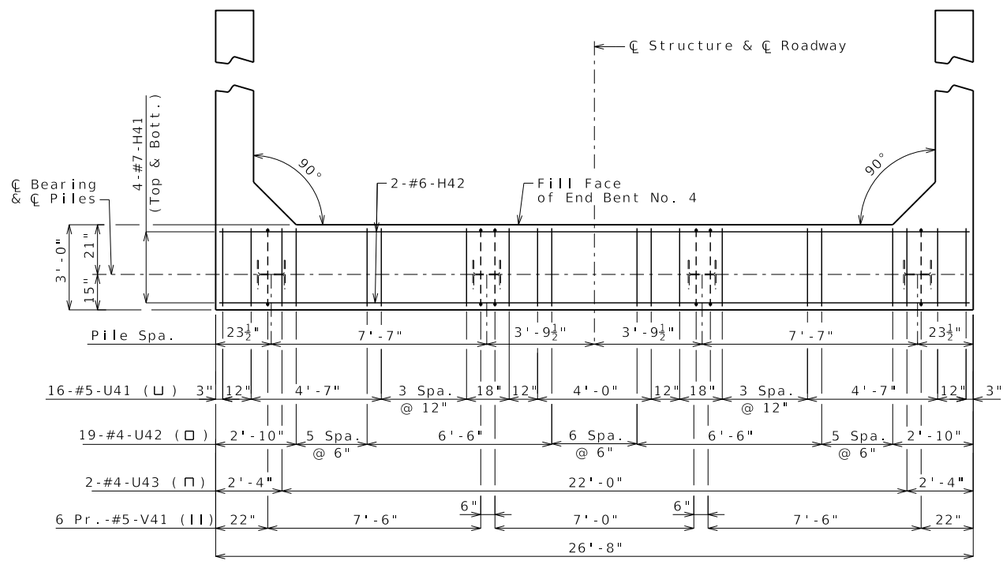
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977



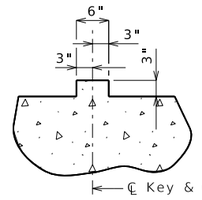
PLAN OF BEAM

Note: Piles not shown for clarity.

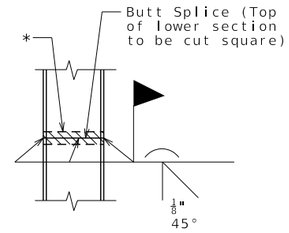


PLAN OF BEAM SHOWING REINFORCEMENT

Note: Steps and keys not shown for clarity



SECTION THRU KEY



STEEL PILE SPLICE

(If required)

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

Notes:

For details of End Bent No. 4 not shown, see Sheets No. 12 & 13.

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

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

DETAILS OF END BENT NO. 4

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

Sheet No. 11 of 31

Detailed Nov 2024
Checked Nov 2024

DATE PREPARED 1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	11

COUNTY: NODAWAY

JOB NO.: JNW0071

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9615

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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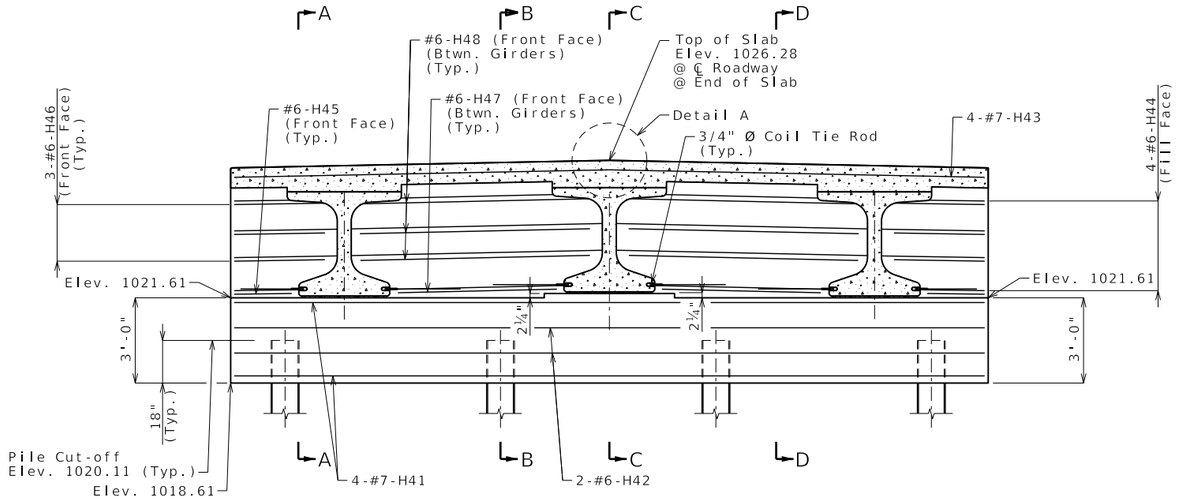
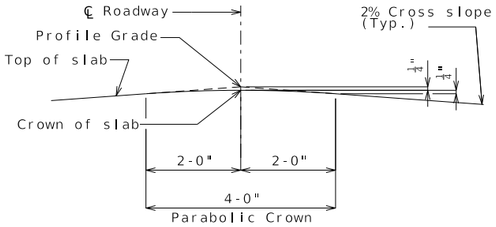
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

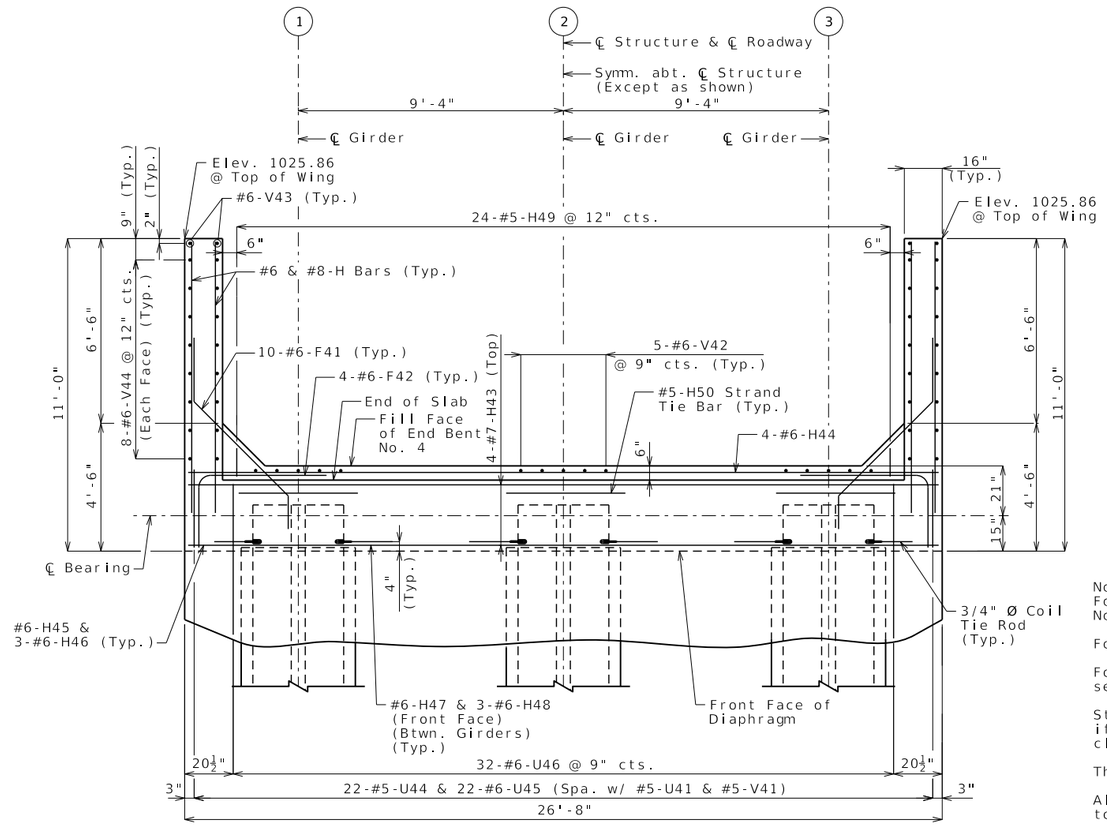
c:\bms\gba-pw-01\dustin tregnago\dms23166\B_A9615_011_JNW0071_EndBentNo4.dgn 12:30:08 PM 1/8/2025



SECTION NEAR END BENT



DETAIL A



PLAN

DETAILS OF END BENT NO. 4

Notes:
For details of End Bent No. 4 not shown, see Sheets No. 11 & 13.

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

For location of coil tie rods and #5-H50 (strand tie bar), see Sheets No. 14 & 15.

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

The #6-F41 bars shall be bent in the field to clear girders.

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

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

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED
1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	12

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9615

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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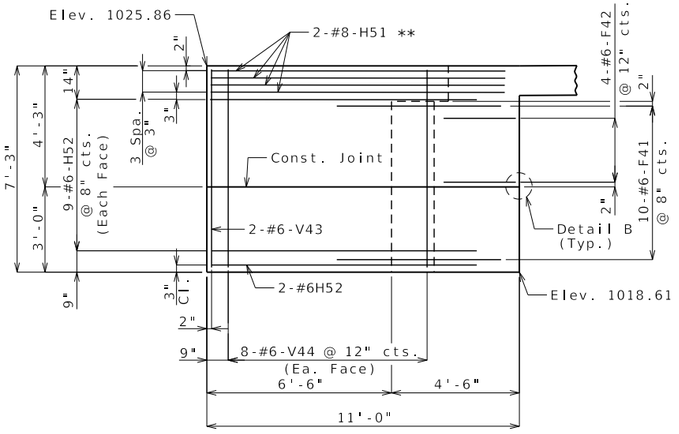
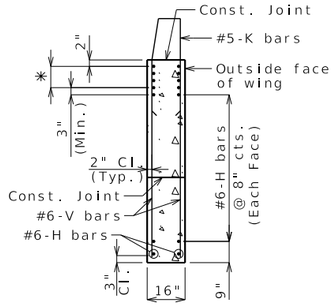
PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977



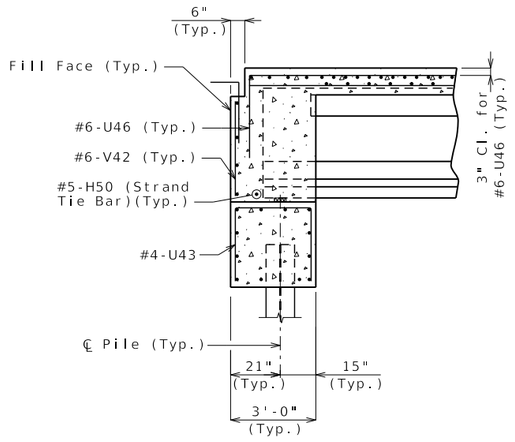
TYPICAL ELEVATION OF WING



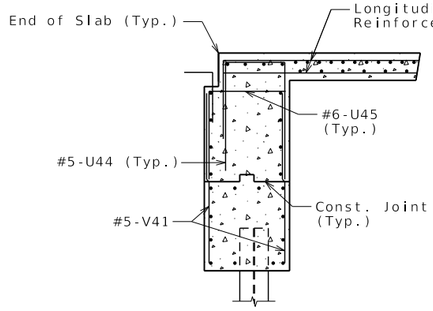
TYPICAL SECTION THRU WING

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

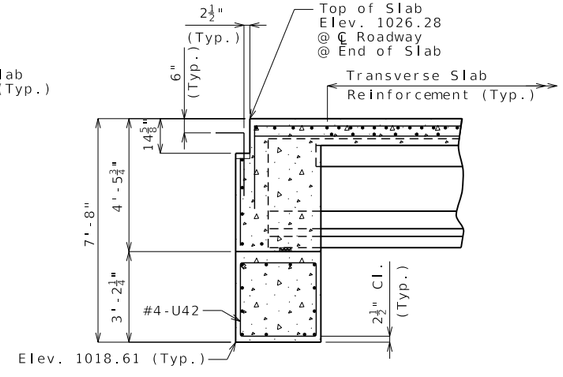
** Place with grade



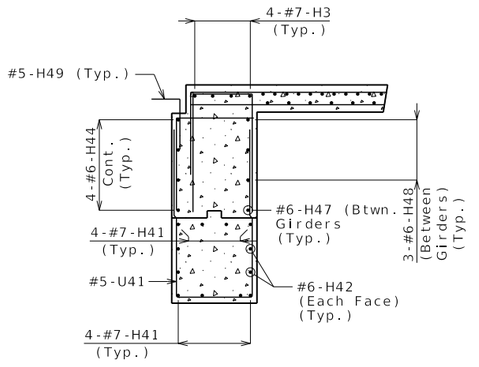
SECTION A-A



SECTION B-B



SECTION C-C



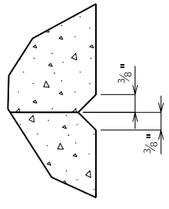
SECTION D-D

Notes:

For details of End Bent No. 4 not shown, see Sheets No. 11 & 12.

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

For reinforcement of the barrier, see Sheet No. 25.



DETAIL B

Substructure Quantity Table for Bent No. 4		
Item		Quantity
Class 1 Excavation	cu. yard	35
Galvanized Structural Steel Piles (12 in.)	linear foot	136
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	11.7

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

DETAILS OF END BENT NO. 4

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 13
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

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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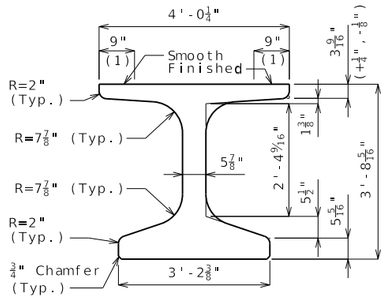
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

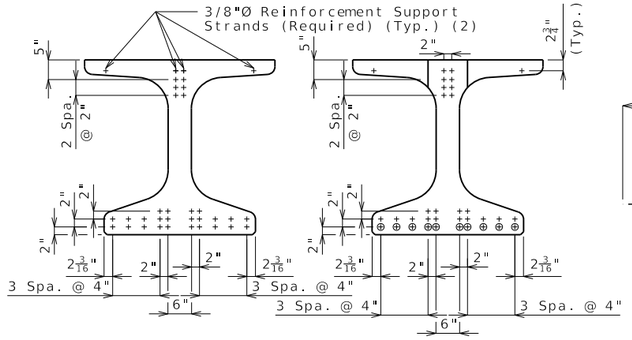
DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

(1) Fabricator shall apply a bond breaker to this region.



DIMENSIONS

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

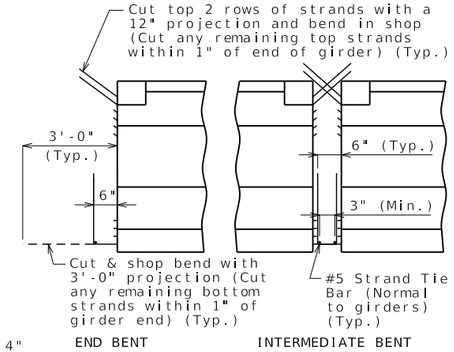


℄ GIRDER END OF GIRDER

STRAND ARRANGEMENT

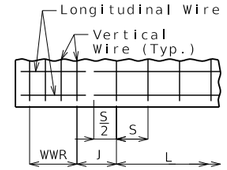
\+ Indicates prestressing strand.

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



END BENT INTERMEDIATE BENT

STRANDS AT GIRDER ENDS

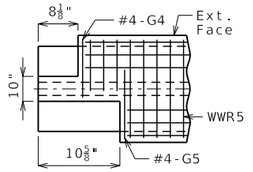


WELDED WIRE PLACEMENT

S = Vertical wire spacing

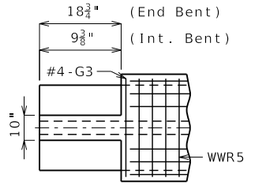
L = Length of WWR mats

J = Distance between WWR mats



LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.



INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

TOP FLANGE BLOCKOUT

Bill of Reinforcing Steel

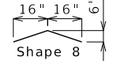
Bars Each Girder

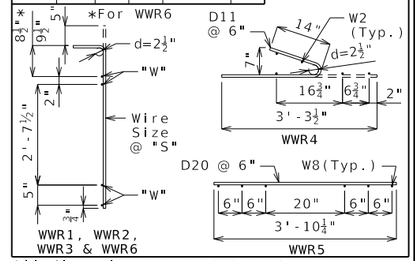
No.	Size/Mark	Length	Shape
102	3 G1	2'-10"	8
2	4 G3	3'-10"	20
2	4 G4	2'-3"	20
2	4 G5	2'-9"	20

Welded Wire Each Girder

Mark	Size	S	W	L	J
WWR1	D31	4"	W12	5'-0"	4¼"
WWR2	D31	8"	W12	13'-4"	16"
WWR3	D31	16"	W12	37'-4"	--
WWR6	D31	2"	W12	16"	4"

Bending Diagrams





All dimensions are out to out.

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

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

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

All bar reinforcement shall be Grade 60.

WWR shall not be epoxy coated.

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

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8500 psi and f'ci = 6500 psi.

Use 30 strands, 0.6"Ø Grade 270, with an initial prestress force of 1318 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

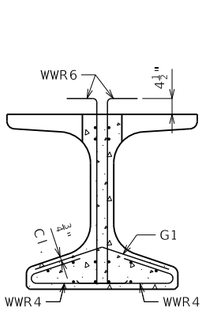
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 20.

For location of coil inserts at slab drains, see Sheet No. 19.

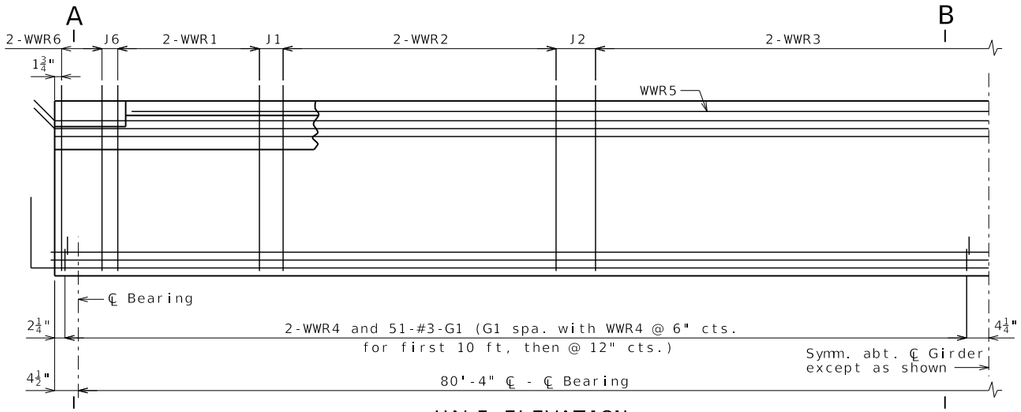
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4, 12 and 18.

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



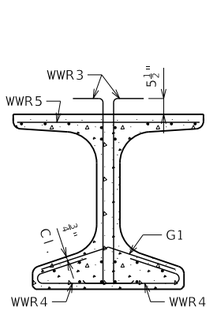
SECTION A-A

Strands not shown for clarity.



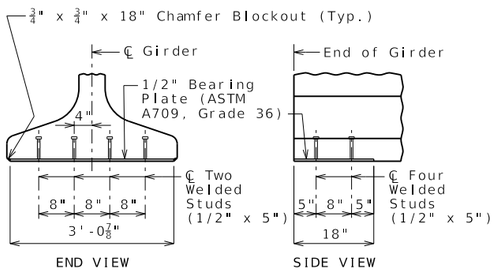
HALF ELEVATION

Reinforcement support strands not shown for clarity.

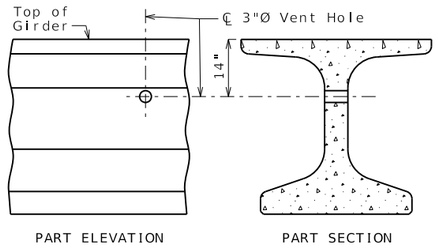


SECTION B-B

Strands not shown for clarity.

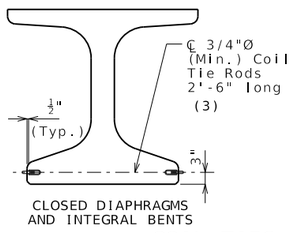


BEARING PLATE



VENT HOLE

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



CLOSED DIAPHRAGMS AND INTEGRAL BENTS

COIL TIES

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

(3) 22" at exterior face of exterior girders at end bents

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

Detailed Nov 2024
Checked Nov 2024

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

DESCRIPTION	DATE

DATE PREPARED 1/8/2025

ROUTE NN | STATE MO

DISTRICT BR | SHEET NO. 14

COUNTY NODAWAY

JOB NO. JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9615

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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9801 Renner Blvd, Ste. 300
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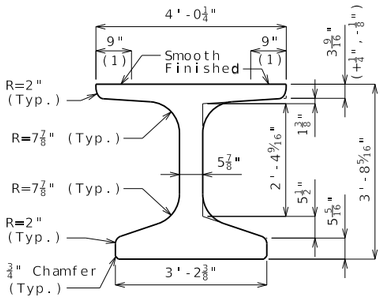
GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

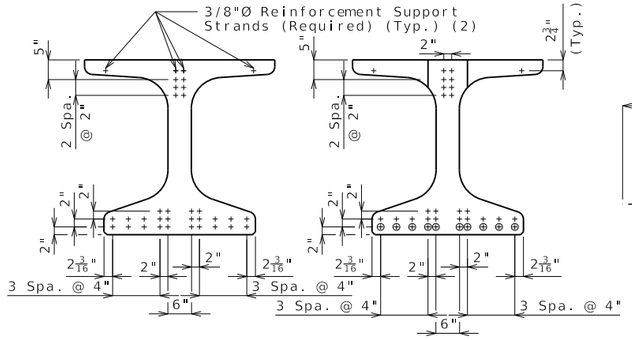
DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

(1) Fabricator shall apply a bond breaker to this region.



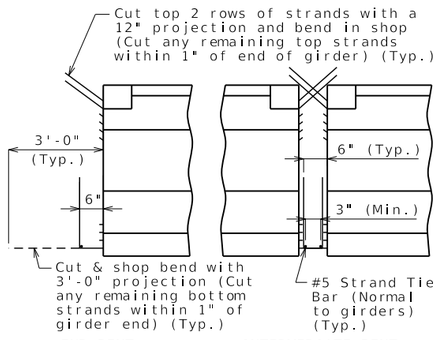
DIMENSIONS

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



℄ GIRDER END OF GIRDER

STRAND ARRANGEMENT

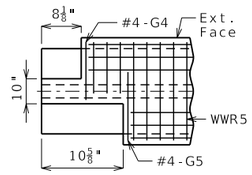


END BENT INTERMEDIATE BENT

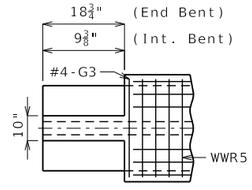
STRANDS AT GIRDER ENDS

\+ Indicates prestressing strand.

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

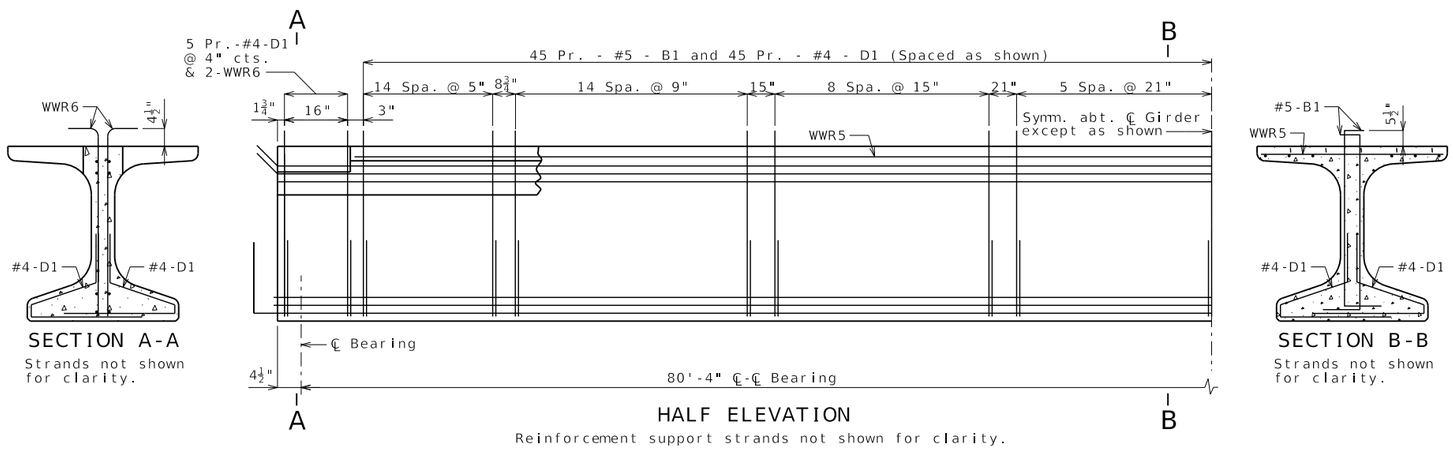


LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT
Rotate 180° for right ext.



INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

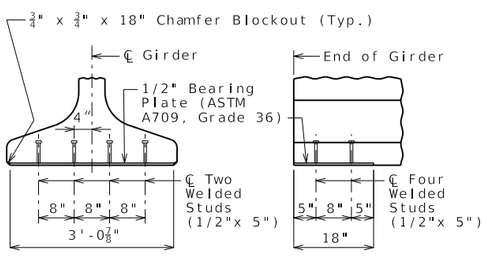
TOP FLANGE BLOCKOUT



SECTION A-A
Strands not shown for clarity.

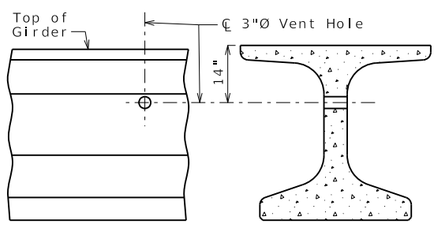
HALF ELEVATION
Reinforcement support strands not shown for clarity.

SECTION B-B
Strands not shown for clarity.



END VIEW SIDE VIEW

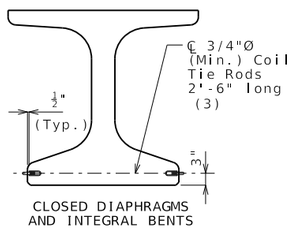
BEARING PLATE



PART ELEVATION PART SECTION

VENT HOLE

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



CLOSED DIAPHRAGMS AND INTEGRAL BENTS

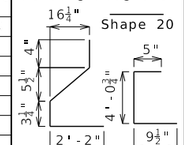
COIL TIES

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

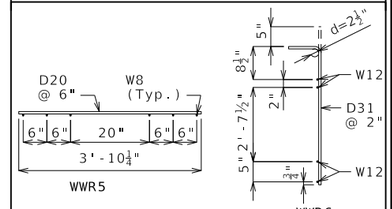
(3) 22" at exterior face of exterior girders at end bents

Bill of Reinforcing Steel - Each Girder			
No.	Size/ Mark	Length	Shape
178	5 B1	5'-1"	11S
198	4 D1	4'-0"	9S
2	4 G3	3'-10"	20
2	4 G4	2'-3"	20
2	4 G5	2'-9"	20

Bending Diagrams



Welded Wire Reinforcement - Each Girder



All dimensions are out to out.

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

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

Minimum clearance to reinforcing shall be one inch.

All bar reinforcement shall be Grade 60.

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

All B1 bars shall be epoxy coated.

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

General Notes:

Concrete for prestressed girders shall be Class A-1 with f'c = 8500 psi and f'ci = 6500 psi.

Use 30 strands, 0.6"Ø Grade 270, with an initial prestress force of 1318 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

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

For Girder Camber Diagram, see Sheet No. 20.

For location of coil inserts at slab drains, see Sheet No. 19.

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

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

DATE PREPARED 1/8/2025

ROUTE NN | STATE MO

DISTRICT BR | SHEET NO. 15

COUNTY NODAWAY

JOB NO. JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9615

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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ARCHITECT 000212
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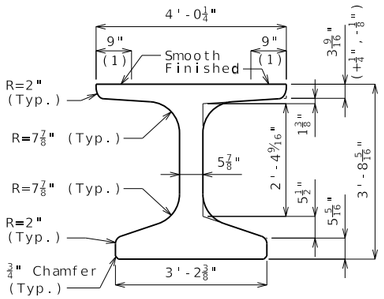
PROFESSIONAL ENGINEER
PE-2016012977

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

Detailed Nov 2024
Checked Nov 2024

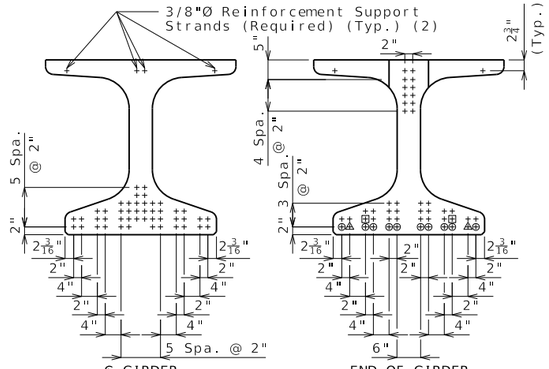
Note: This drawing is not to scale. Follow dimensions.

(1) Fabricator shall apply a bond breaker to this region.



DIMENSIONS

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



STRAND ARRANGEMENT

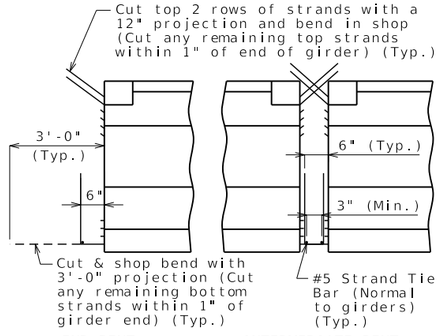
\+ Indicates prestressing strand.

All strands are fully bonded unless otherwise noted.

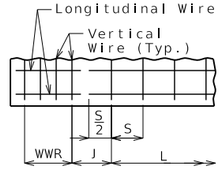
○ Indicates cut & shop bend with 3'-0" projection.

□ Indicates debonded for 8'-0" from end of girder

△ Indicates debonded for 12'-0" from end of girder



STRANDS AT GIRDER ENDS



WELDED WIRE PLACEMENT

S = Vertical wire spacing

L = Length of WWR mats

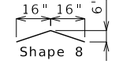
J = Distance between WWR mats

Bill of Reinforcing Steel

Bars Each Girder

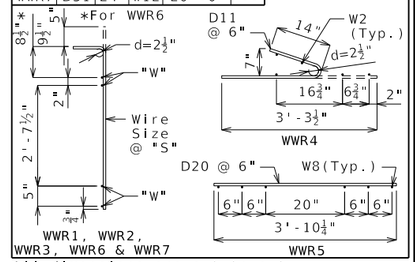
No.	Size/Mark	Length	Shape
135	3 G1	2'-10"	8
2	4 G3	3'-10"	20
2	4 G4	2'-3"	20
2	4 G5	2'-9"	20

Bending Diagrams



Welded Wire Each Girder

Mark	Size	S	W	L	J
WWR1	D31	4"	W12	7'-0"	4¾"
WWR2	D31	8"	W12	20'-0"	16"
WWR3	D31	16"	W12	14'-8"	24"
WWR6	D31	2"	W12	16"	4"
WWR7	D31	24"	W12	20'-0"	--



All dimensions are out to out.

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

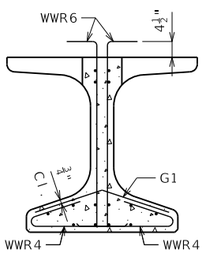
Actual bar lengths are measured along centerline of bar to the nearest inch.

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

All bar reinforcement shall be Grade 60.

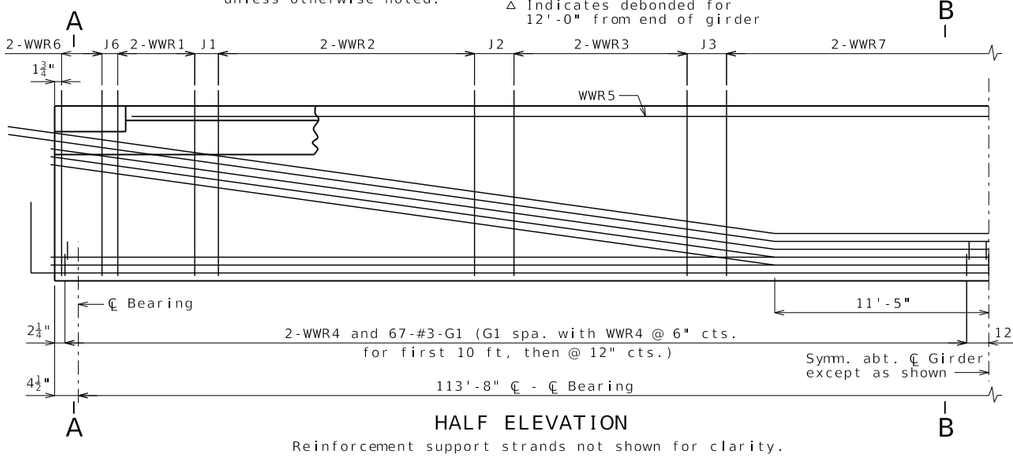
WWR shall not be epoxy coated.

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



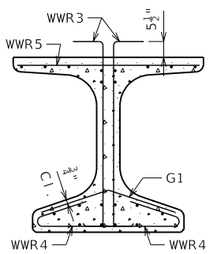
SECTION A-A

Strands not shown for clarity.



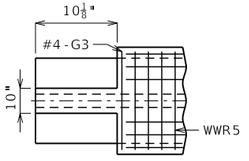
HALF ELEVATION

Reinforcement support strands not shown for clarity.



SECTION B-B

Strands not shown for clarity.



LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.

INTERIOR GIRDER AT INTERMEDIATE BENT

TOP FLANGE BLOCKOUT

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8500 psi and f'ci = 6500 psi.

Use 46 strands, 0.6"Ø Grade 270, with an initial prestress force of 2021 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

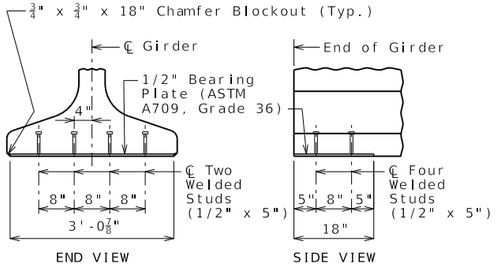
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 20.

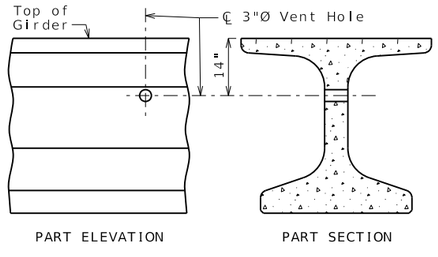
For location of coil inserts at slab drains, see Sheet No. 19.

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

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

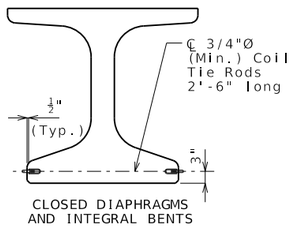


BEARING PLATE



VENT HOLE

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



COIL TIES

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

NU-GIRDERS - SPAN (2-3)

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 16
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

DESCRIPTION | DATE

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105 WEST CAPITOL
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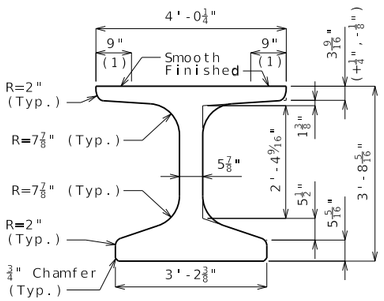
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

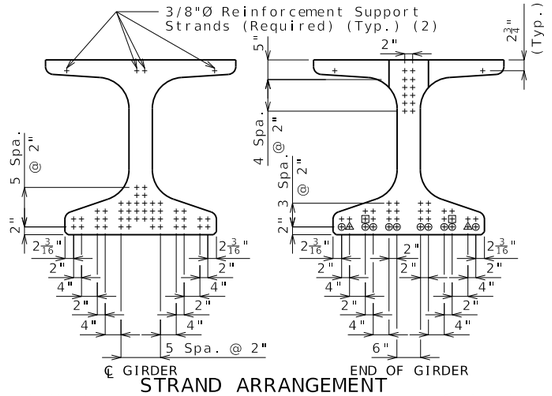
DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

(1) Fabricator shall apply a bond breaker to this region.



DIMENSIONS

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



STRAND ARRANGEMENT

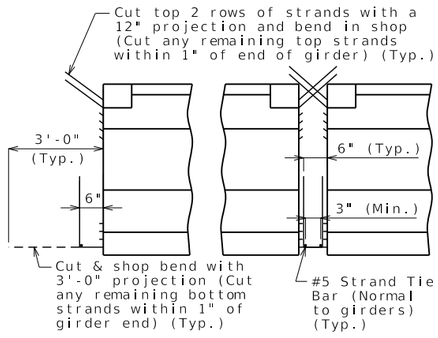
\+ Indicates prestressing strand.

All strands are fully bonded unless otherwise noted.

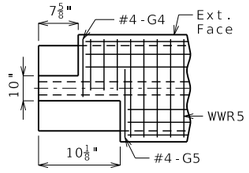
○ Indicates cut & shop bend with 3'-0" projection.

□ Indicates debonded for 8'-0" from end of girder

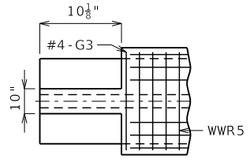
△ Indicates debonded for 12'-0" from end of girder



STRANDS AT GIRDER ENDS



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

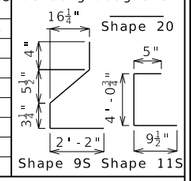


INTERIOR GIRDER AT INTERMEDIATE BENTS

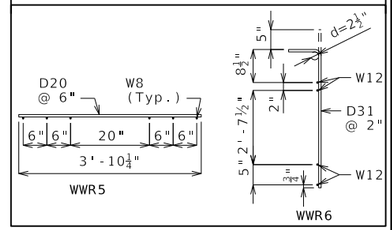
TOP FLANGE BLOCKOUT

Bill of Reinforcing Steel - Each Girder			
No.	Size/ Mark	Length	Shape
254	5 B1	5'-1"	11S
274	4 D1	4'-0"	9S
2	4 G3	3'-10"	20
2	4 G4	2'-3"	20
2	4 G5	2'-9"	20

Bending Diagrams



Welded Wire Reinforcement - Each Girder



All dimensions are out to out.

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

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

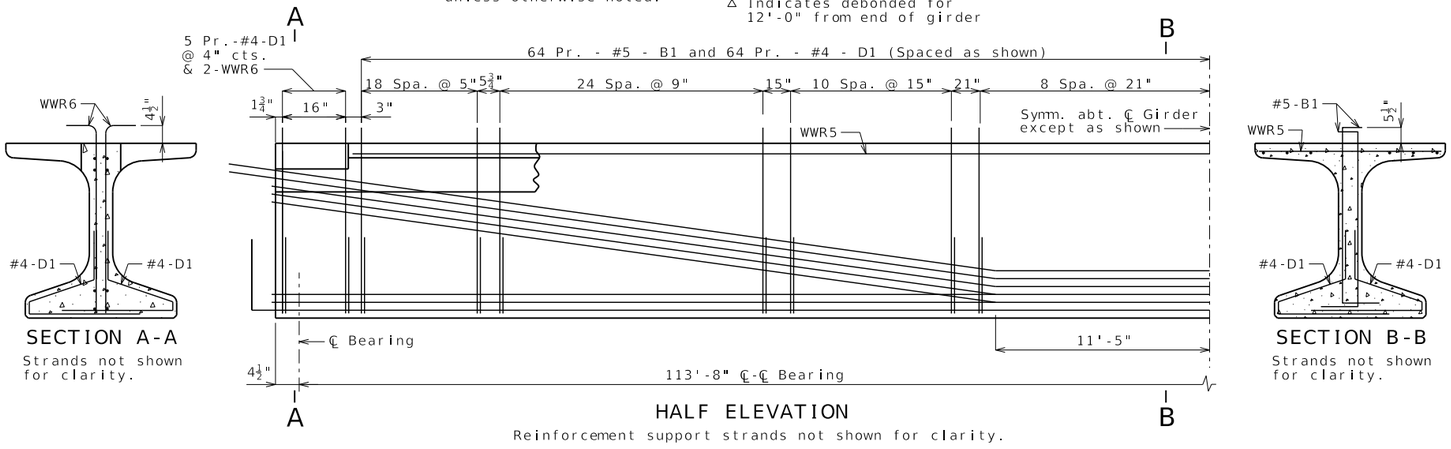
Minimum clearance to reinforcing shall be one inch.

All bar reinforcement shall be Grade 60.

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

All B1 bars shall be epoxy coated.

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



SECTION A-A
Strands not shown for clarity.

HALF ELEVATION
Reinforcement support strands not shown for clarity.

SECTION B-B
Strands not shown for clarity.

General Notes:

Concrete for prestressed girders shall be Class A-1 with f'c = 8500 psi and f'ci = 6500 psi.

Use 46 strands, 0.6"Ø Grade 270, with an initial prestress force of 2021 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

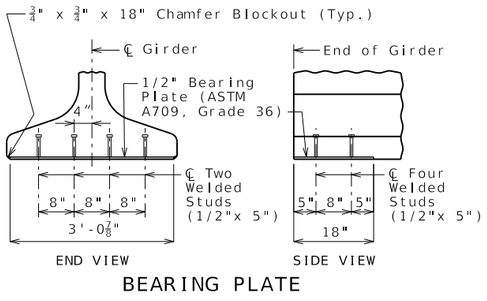
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 20.

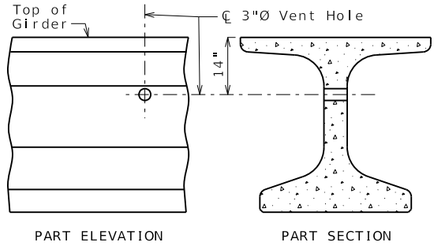
For location of coil inserts at slab drains, see Sheet No. 19.

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

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

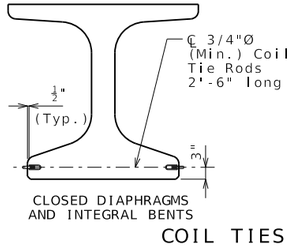


BEARING PLATE



VENT HOLE

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



COIL TIES

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

DATE PREPARED 1/8/2025

ROUTE NN | STATE MO | DISTRICT BR | SHEET NO. 17 | COUNTY NODAWAY | JOB NO. JNW0071 | CONTRACT ID. | PROJECT NO. | BRIDGE NO. A9615

DESCRIPTION | DATE

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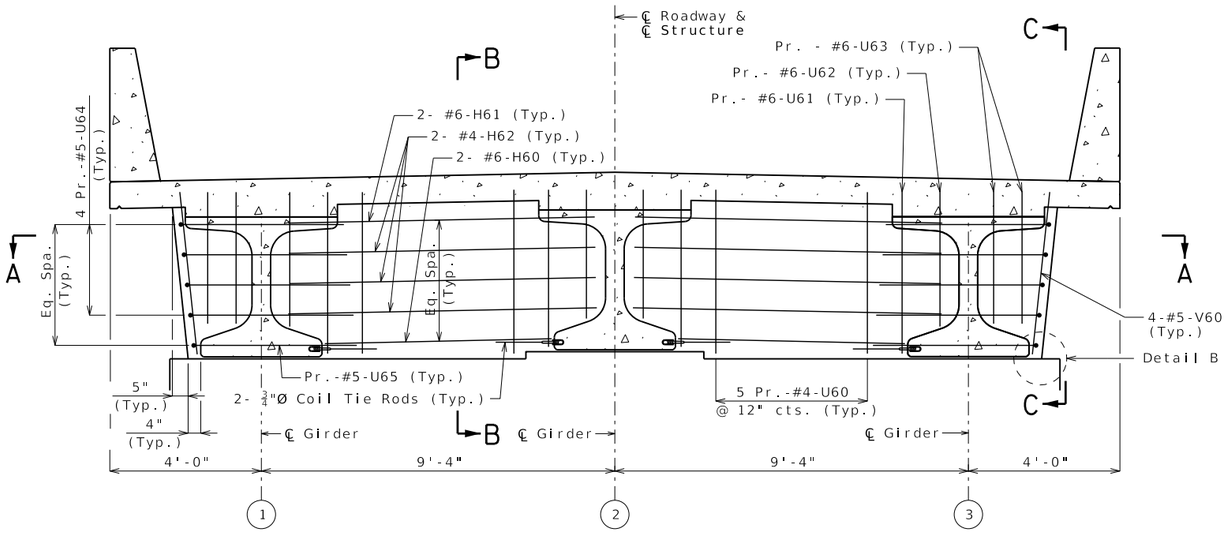
DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

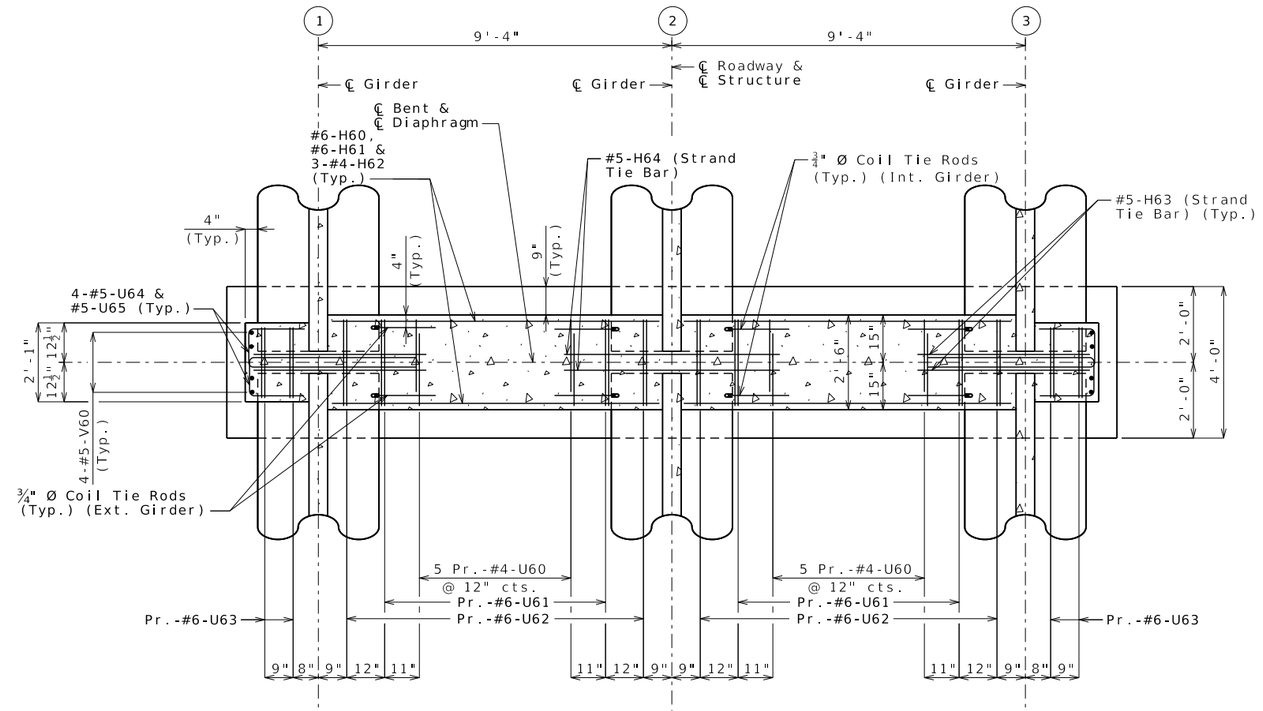
NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPAN (2-3)

Detailed Nov 2024
Checked Nov 2024

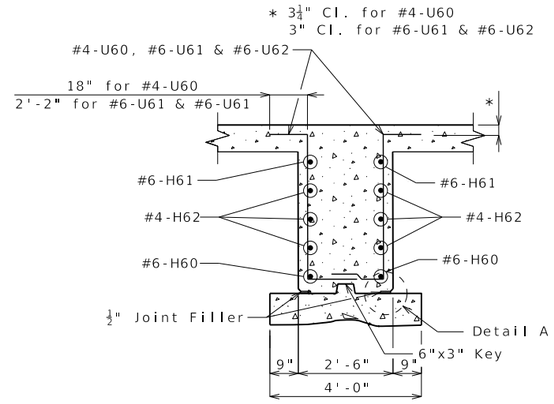
Note: This drawing is not to scale. Follow dimensions.



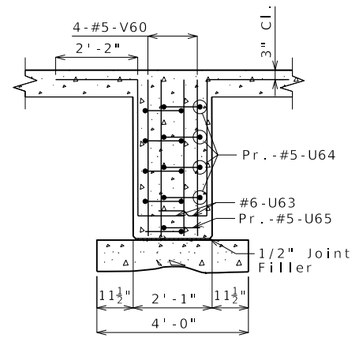
SECTION NEAR INTERMEDIATE BENT



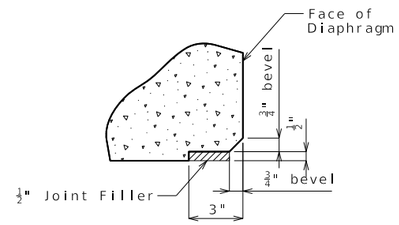
SECTION A-A



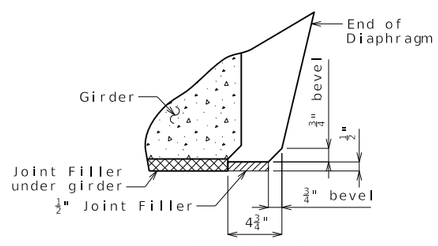
SECTION B-B



SECTION C-C



DETAIL A



DETAIL B

Notes:

Diaphragms at Intermediate Bents shall be built vertical.

For location of coil tie rods and #5-H63 and #5-H64 (strand tie bars), see Sheets No. 14-17.

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

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DISTRICT BR | SHEET NO. 18
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

DESCRIPTION | DATE

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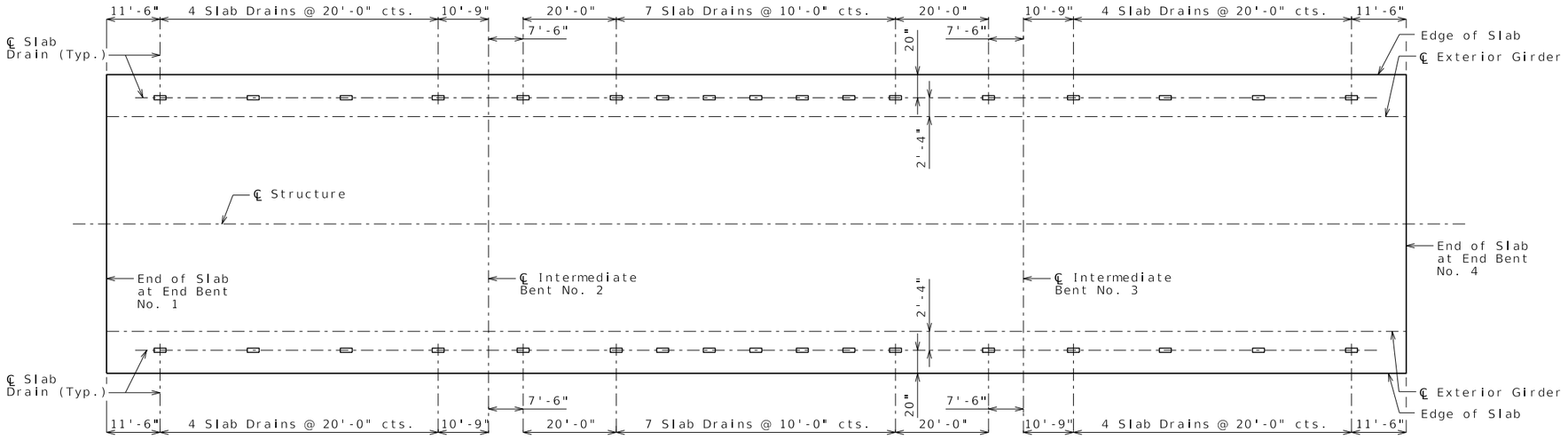
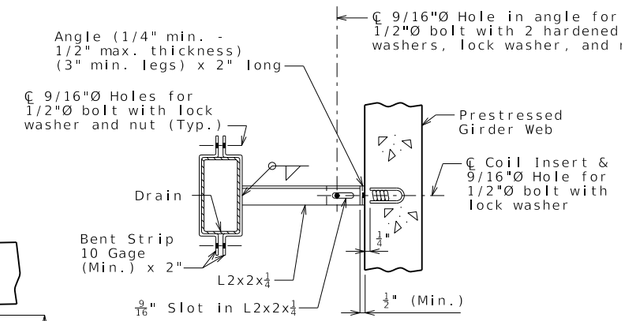
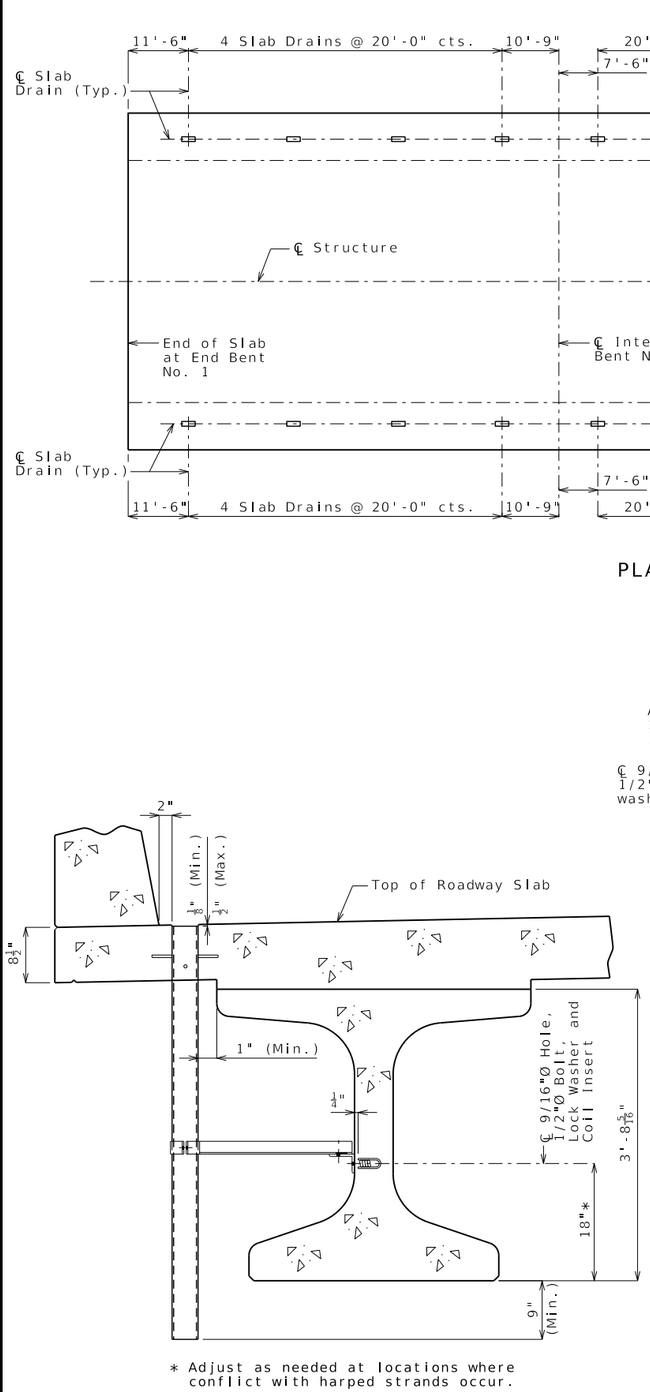


PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS

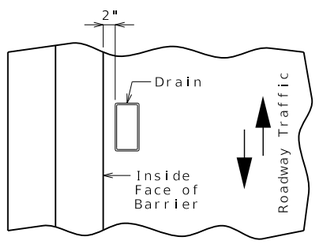


PART SECTION SHOWING BRACKET ASSEMBLY

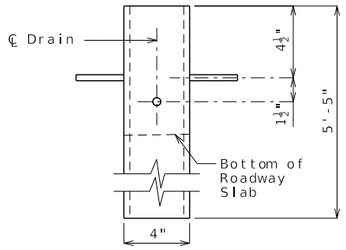


* Adjust as needed at locations where conflict with harped strands occur.

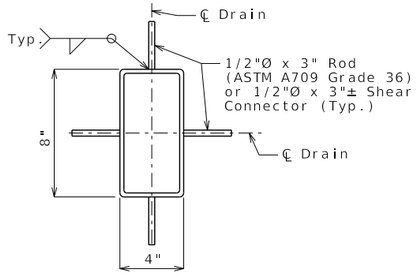
PART SECTION NEAR DRAIN



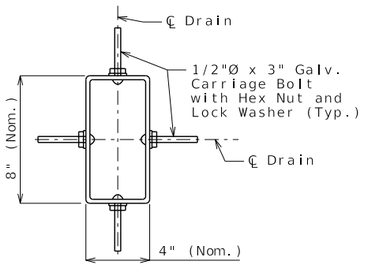
PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2"Ø bolts shall be ASTM A307.

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

The coil insert required for the bracket assembly attachment shall be located on the prestressed girder shop drawings.

Coil inserts shall have a concrete pull-out strength (ultimate load) of at least 2,500 pounds in 5,000 psi concrete.

The bolt required to attach the slab drain bracket assembly to the prestressed girder web shall be supplied by the prestressed girder fabricator.

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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

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ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 19
COUNTY NODAWAY
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CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

DESCRIPTION | DATE

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SLAB DRAINS

Detailed Nov 2024
Checked Nov 2024

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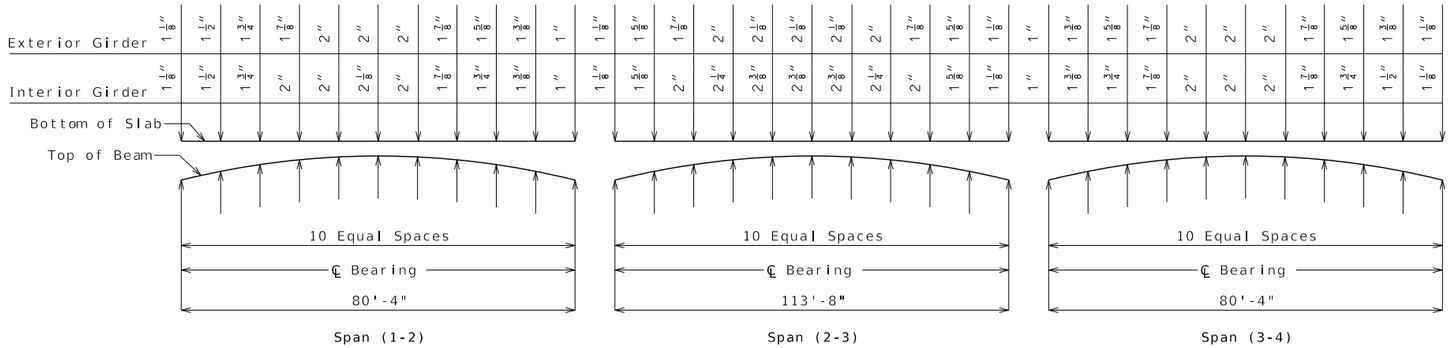
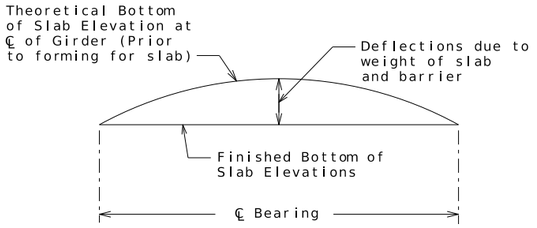


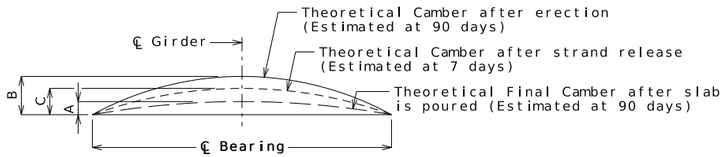
THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. The haunch shall be limited to ensure the projecting girder reinforcement is embedded into slab at least 2 inches. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete NU-Girder.



TYPICAL SLAB ELEVATIONS DIAGRAM



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

GIRDER CAMBER DIAGRAM

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

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

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

Girder Number	Span (1-2) (80'-4" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	1025.39	1025.57	1025.75	1025.91	1026.05	1026.18	1026.29	1026.38	1026.46	1026.52	1026.57
2	1025.57	1025.76	1025.94	1026.10	1026.24	1026.37	1026.48	1026.57	1026.65	1026.71	1026.76
3	1025.39	1025.57	1025.75	1025.91	1026.05	1026.18	1026.29	1026.38	1026.46	1026.52	1026.57
Girder Number	Span (2-3) (113'-8" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	1026.58	1026.77	1026.93	1027.04	1027.12	1027.14	1027.12	1027.05	1026.94	1026.78	1026.60
2	1026.77	1026.96	1027.13	1027.25	1027.33	1027.35	1027.33	1027.26	1027.14	1026.98	1026.79
3	1026.58	1026.77	1026.93	1027.04	1027.12	1027.14	1027.12	1027.05	1026.94	1026.78	1026.60
Girder Number	Span (3-4) (80'-4" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	1026.59	1026.54	1026.48	1026.41	1026.32	1026.21	1026.09	1025.94	1025.79	1025.62	1025.43
2	1026.78	1026.73	1026.67	1026.60	1026.51	1026.40	1026.28	1026.14	1025.98	1025.81	1025.62
3	1026.59	1026.54	1026.48	1026.41	1026.32	1026.21	1026.09	1025.94	1025.79	1025.62	1025.43

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 stay-in-place forms) and barrier.

SLAB DETAILS

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED: 1/8/2025
ROUTE: NN | STATE: MO
DISTRICT: BR | SHEET NO.: 20
COUNTY: NODAWAY
JOB NO.: JNW0071
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9615

DESCRIPTION	DATE

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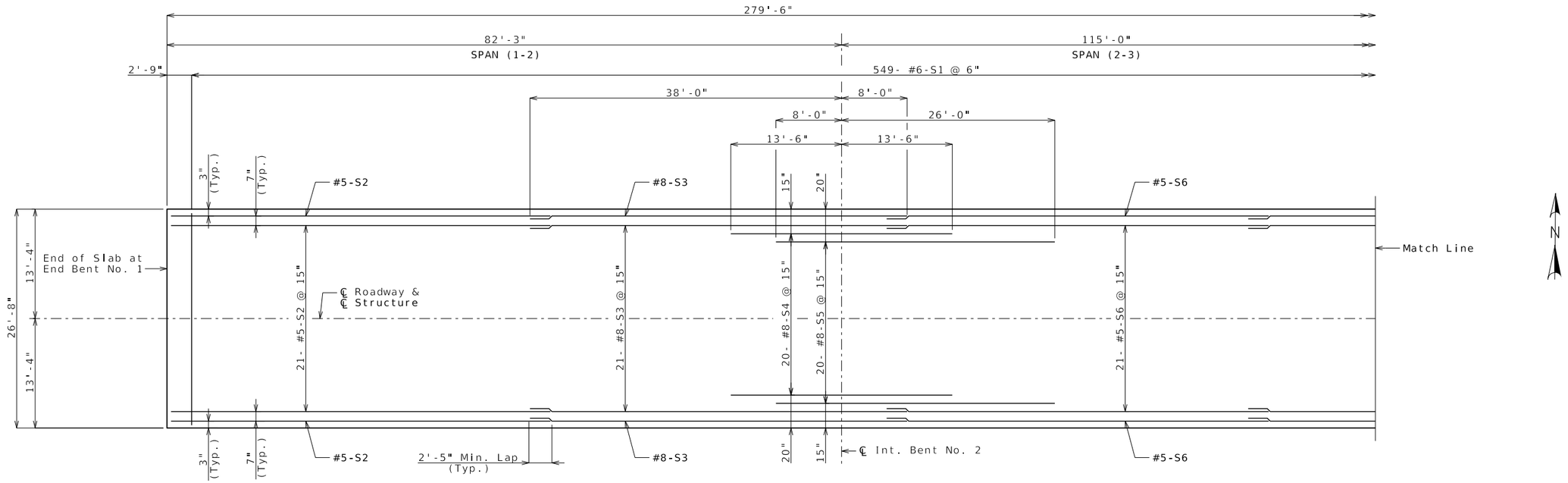

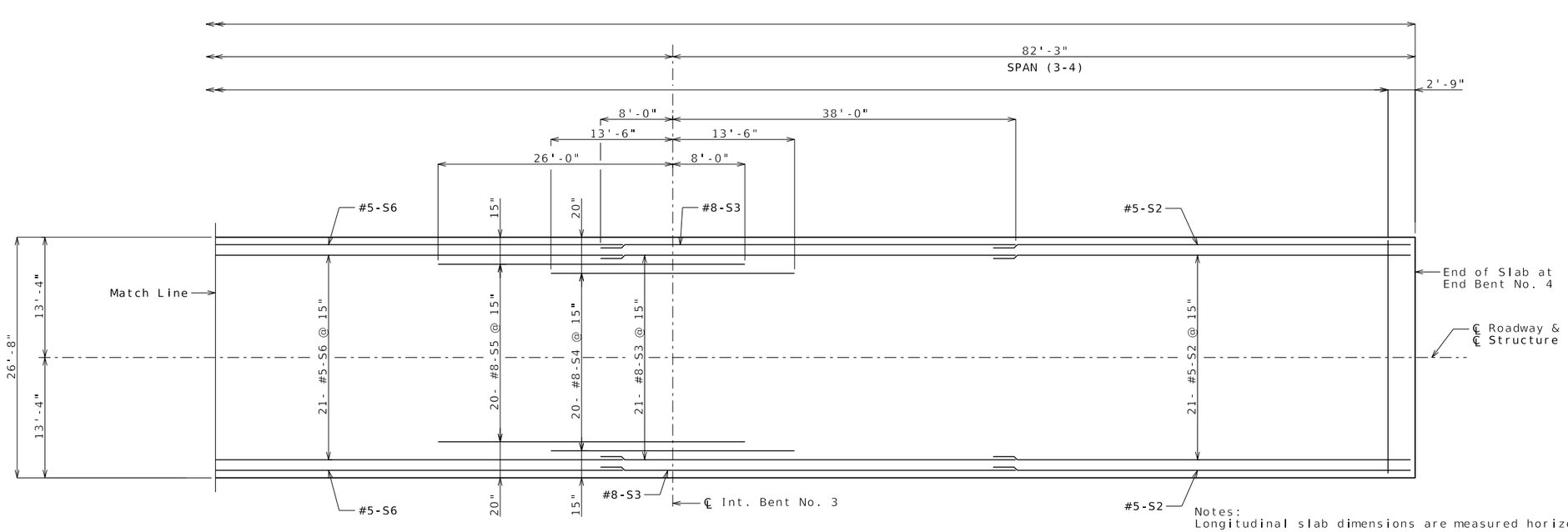

Notes:
Longitudinal slab dimensions are measured horizontally.

For details and reinforcement of the barrier not shown, see Sheets No. 24 & 25.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 20.

For Section Thru Slab, Optional Stay-In-Place Form Details, Slab Construction Joint Detail and Slab Pouring Sequence, see Sheet No. 23.

For details and locations of Slab Drains, see Sheet No. 19.

PLAN OF SLAB SHOWING TOP REINFORCEMENT

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

Detailed Nov 2024
Checked Nov 2024

DATE PREPARED
1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	21

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9615

DESCRIPTION	DATE

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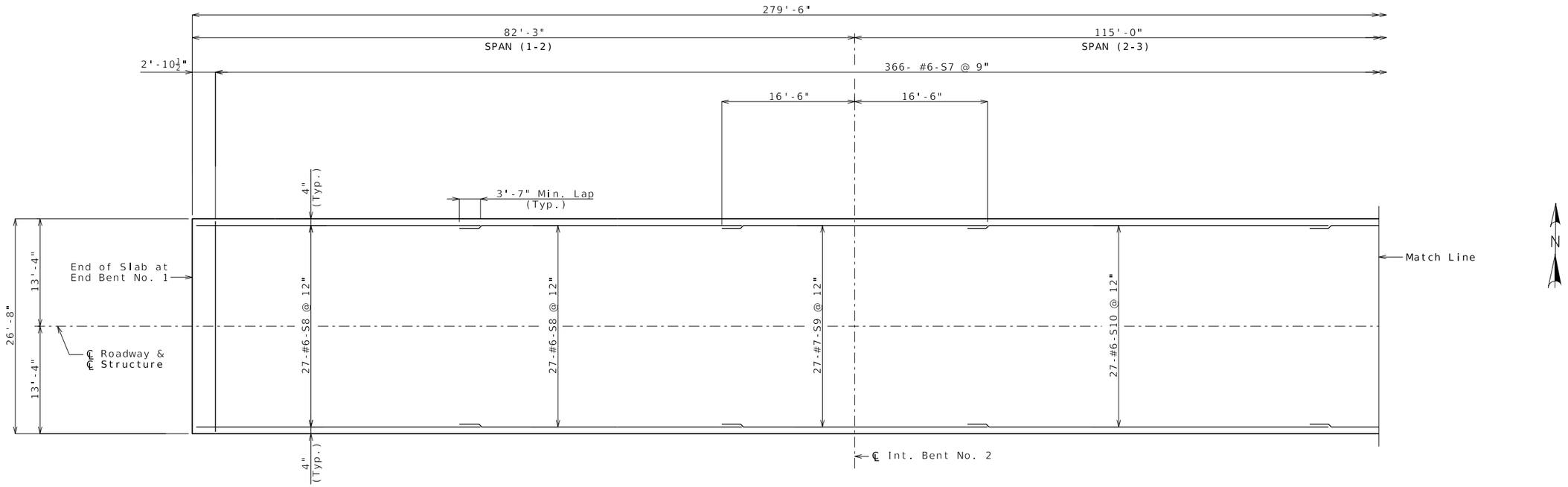

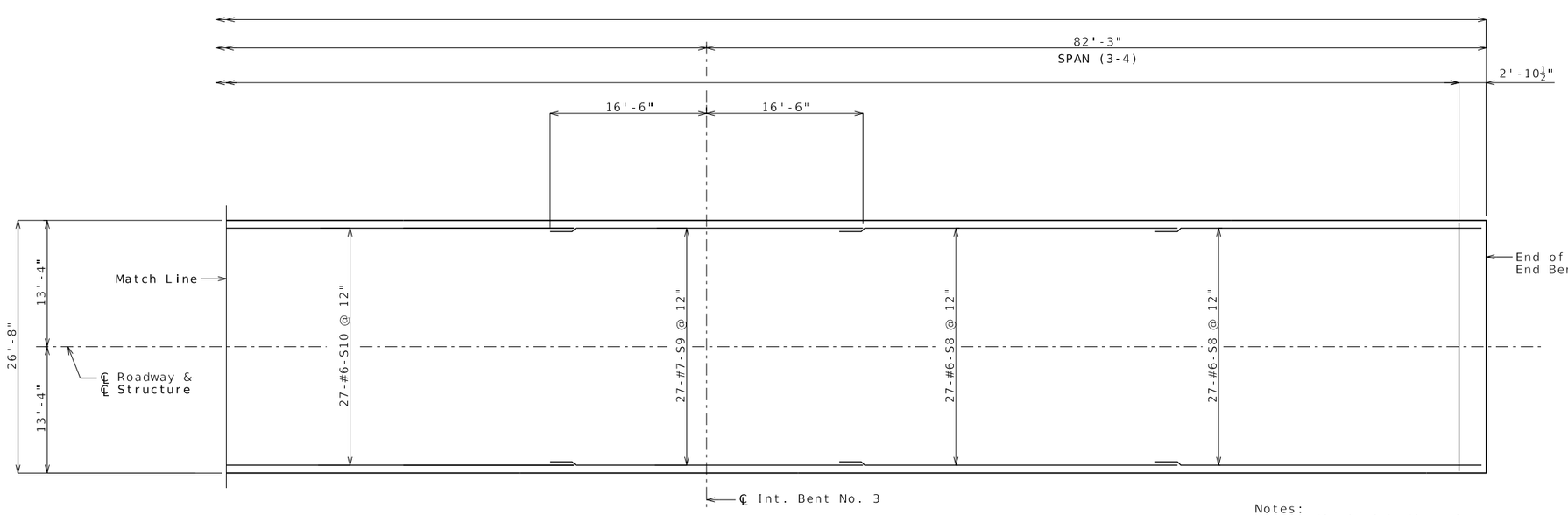

Notes:
Longitudinal slab dimensions are measured horizontally.

For details and reinforcement of the barrier not shown, see Sheets No. 24 & 25.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 20.

For Section Thru Slab, Optional Stay-In-Place Form Details, Slab Construction Joint Detail and Slab Pouring Sequence, see Sheet No. 23.

For details and locations of Slab Drains, see Sheet No. 19.

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

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DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 22
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

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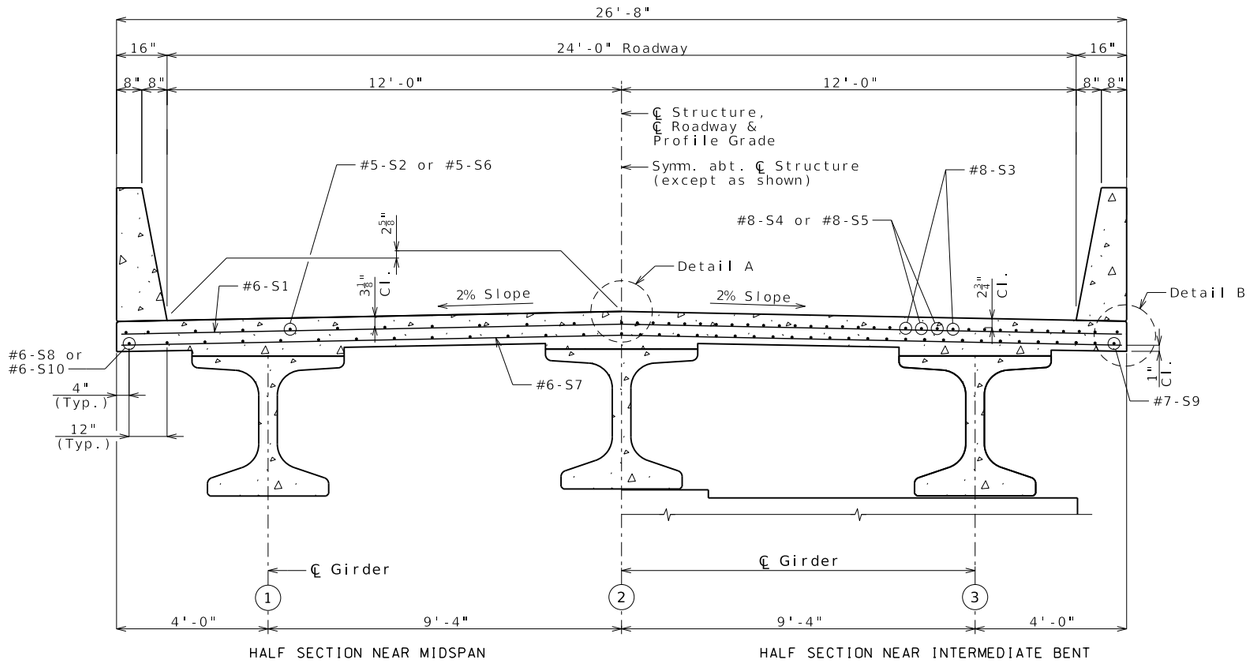
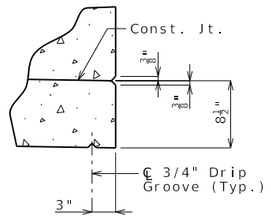
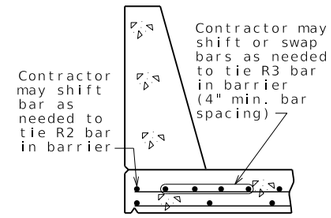


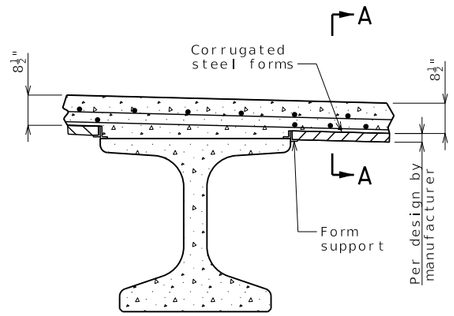
SECTION THRU SLAB



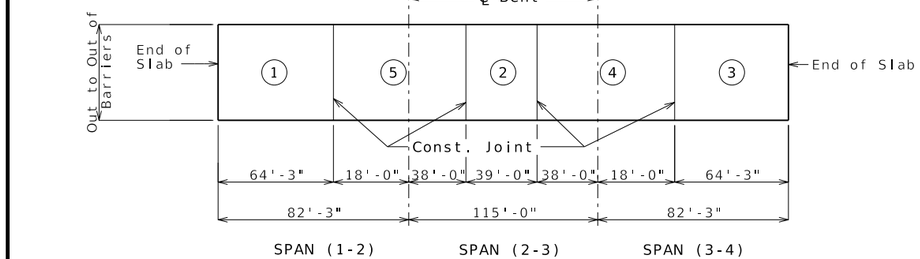
DETAIL B



OPTIONAL SHIFTING TOP BARS AT BARRIER



SECTION A-A

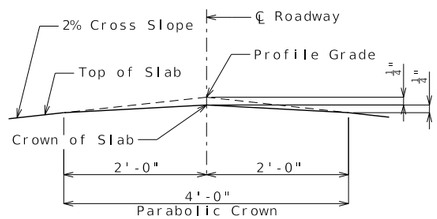


	Sequence of Pours					Min. Rate of Pour Cu. Yds./Hr.
	Direction					With Retarder
Basic Sequence	1	2	3	4	5	25
	Either Direction					
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.						
Alternate A Pours	1	5 + 2		4 + 3		25
	End to 5	1 to 4		2 to End		
Alternate B Pours	1 + 5 + 2		4 + 3			25
	End to 4		2 to End			
Alternate C Pours	1 + 5 + 2 + 4 + 3					25
	End to End					

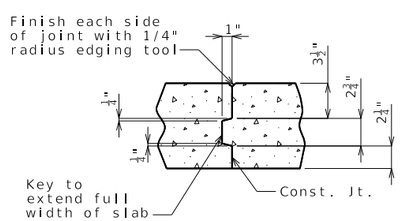
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

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

SLAB POURING SEQUENCE



DETAIL A



SLAB CONSTRUCTION JOINT

OPTIONAL STAY-IN-PLACE FORM DETAILS

Notes:

Corrugated steel forms, support 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 girder 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 girder flanges will not be permitted. All steel fabrication and construction shall be in accordance with Sec's 1080 and 712. Certified field welders will not be required for welding of form supports.

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

Notes:

For reinforcement of the barrier not shown, see Sheets No. 24 & 25.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 20.

For Plan of Slab Showing Reinforcement, see Sheets No. 21 & 22.

SLAB SECTION & DETAILS

Detailed Nov 2024
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DATE PREPARED 1/8/2025
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DISTRICT BR | SHEET NO. 23
COUNTY NODAWAY
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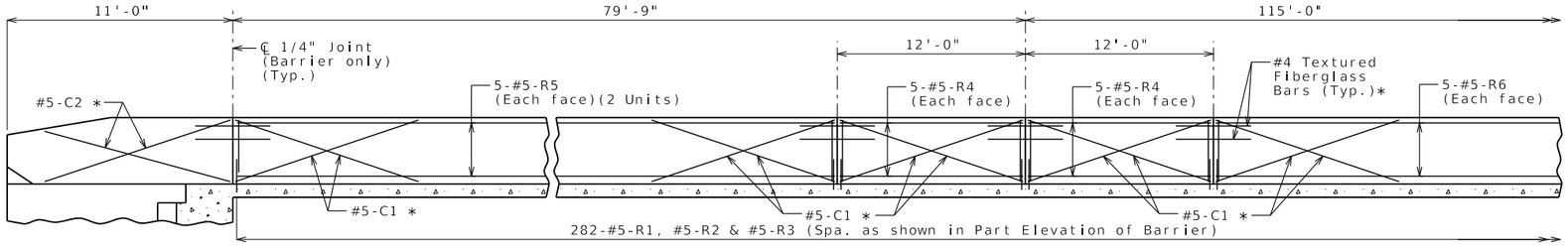
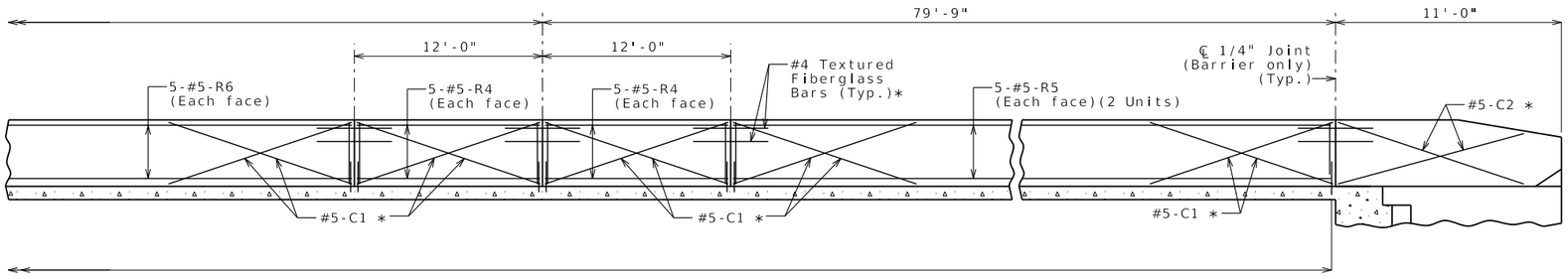
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

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

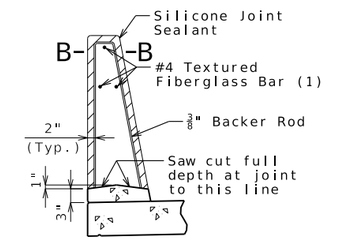




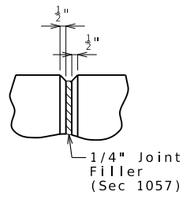
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

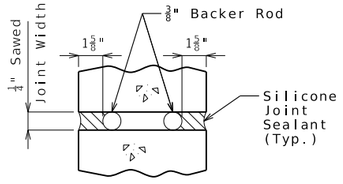
Longitudinal dimensions are horizontal.



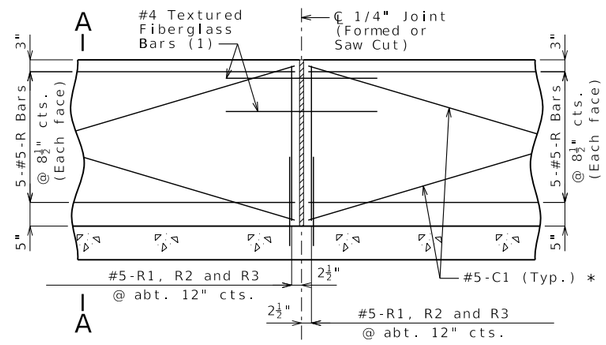
SECTION THRU SAW CUT JOINT



PART ELEVATION AT FORMED JOINT

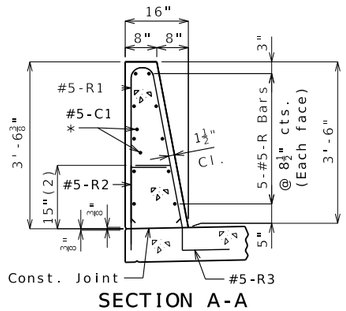


SECTION B-B



PART ELEVATION OF BARRIER

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

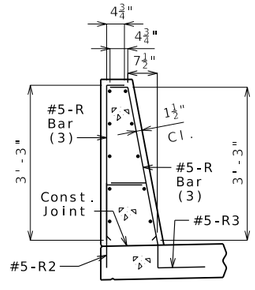


SECTION A-A

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

The cross-sectional area above the slab is 3.52 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 D 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 D 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 D BARRIER

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 24
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

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)

GBA
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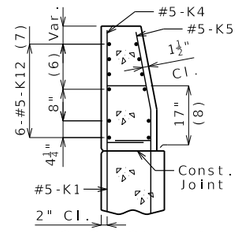
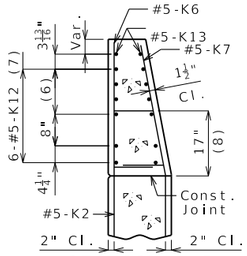
Lenexa, KS 66219
913.492.0400
GBAteam.com

GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

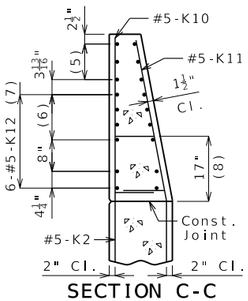
DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977



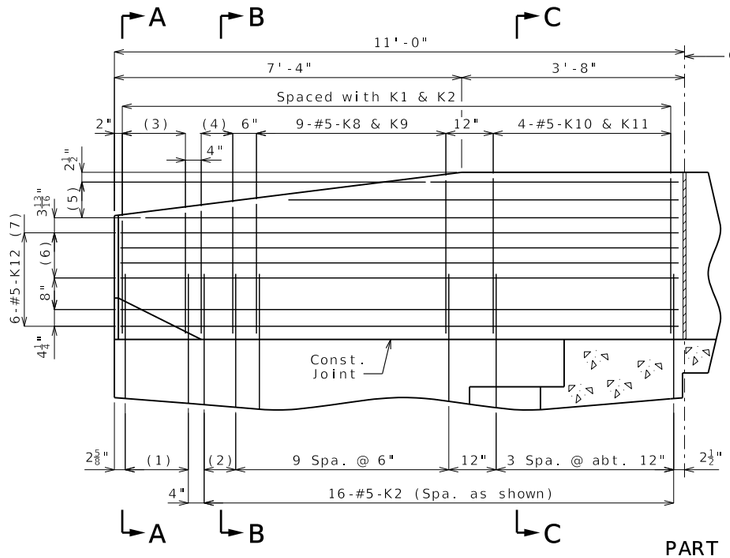
SECTION A-A



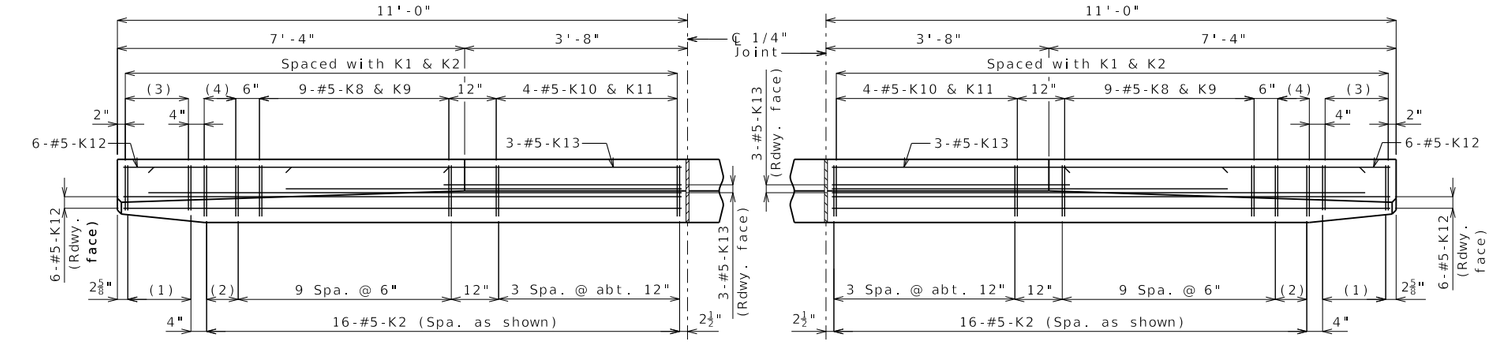
SECTION B-B



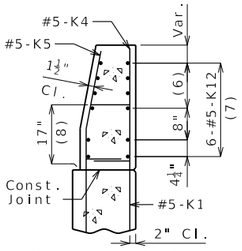
SECTION C-C



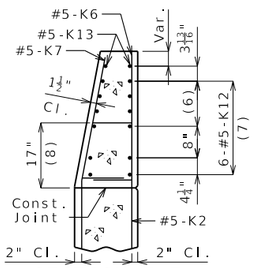
PART ELEVATION



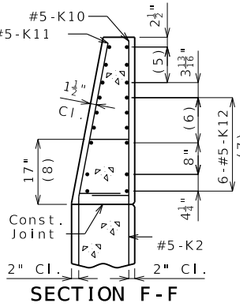
PART PLAN



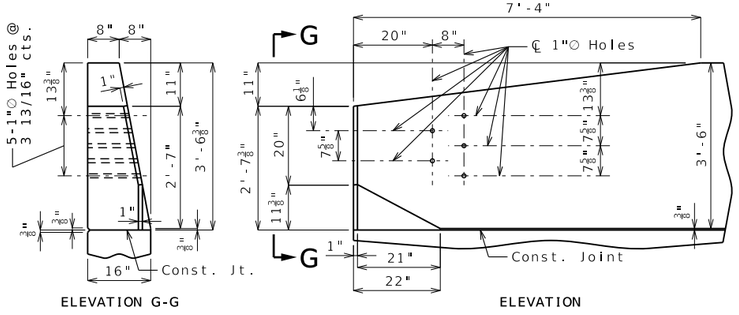
SECTION D-D



SECTION E-E

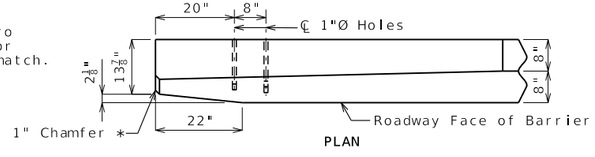


SECTION F-F



ELEVATION G-G

ELEVATION



PLAN

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

DETAILS OF GUARD RAIL ATTACHMENT

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

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

(4) 3-#5-K6 & K7

(5) 3-#5-K13 @ 4½" cts., each face

(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) To top of bar

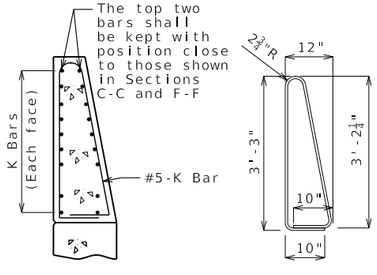
General Notes:

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 D Barrier.

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

TYPE D BARRIER AT END BENTS

(Left barrier shown, right barrier similar)



K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(Other K bars not shown for clarity)

The K10-K11 bar combination may be furnished as one bar as shown, at the contractor's option.

All dimensions are out to out.

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 25
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

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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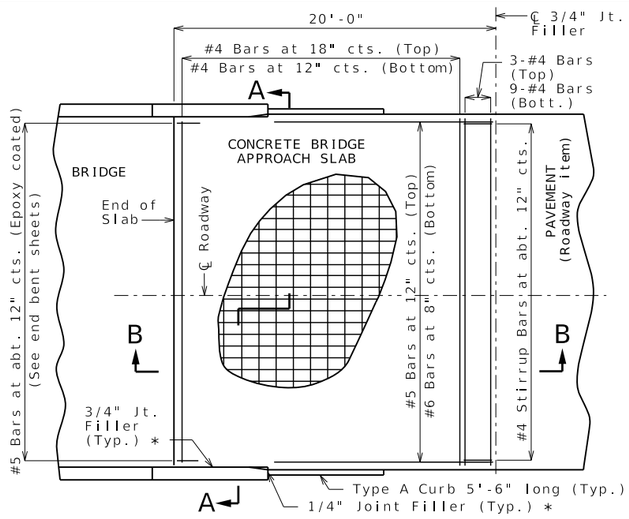
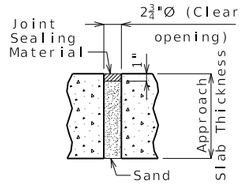
GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977



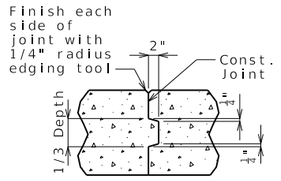
PART PLAN OF SQUARED STRUCTURE

(Skewed structure similar)

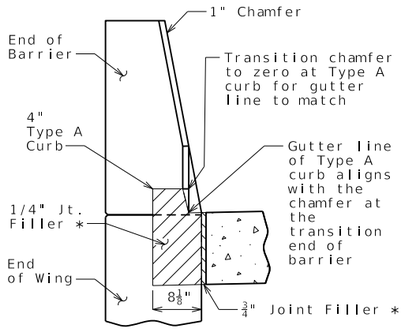


UNDERSEAL ACCESS HOLE DETAIL

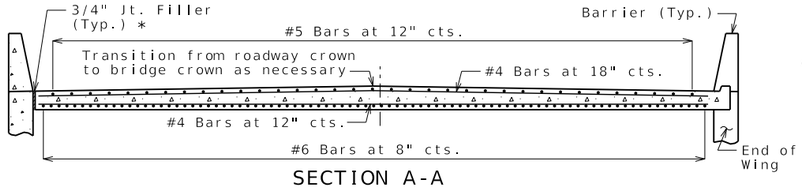
(If required)



CONSTRUCTION JOINT DETAIL

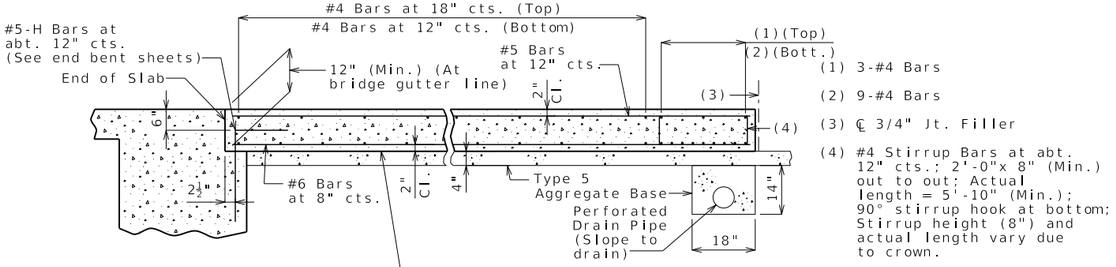


SECTION BETWEEN CURB AND BARRIER



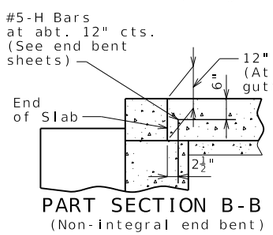
SECTION A-A

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



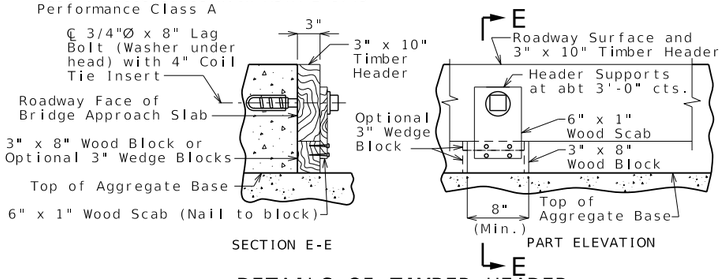
SECTION B-B

(Integral end bent)



PART SECTION B-B

(Non-integral end bent)



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:

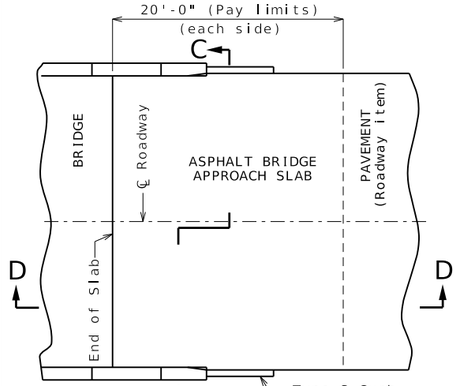
☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

Notes For Asphalt Slab Only:

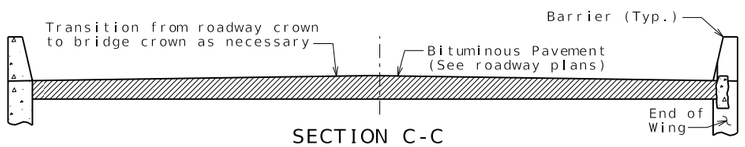
Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab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

Application of tack is required between lifts per Sec 403.



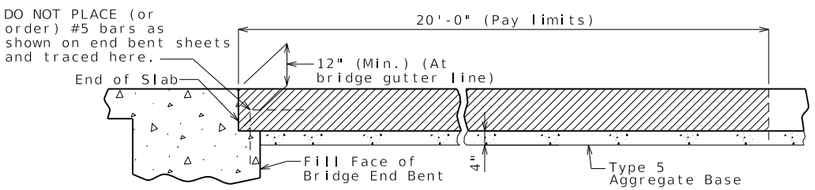
PART PLAN

(Squared structure shown, skewed structure similar)

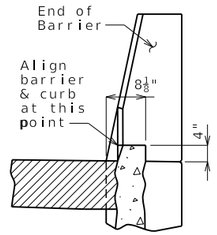


SECTION C-C

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)

Integral end bents shown, non-integral end bent similar.

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025

ROUTE NN | STATE MO

DISTRICT BR | SHEET NO. 26

COUNTY NODAWAY

JOB NO. JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9615

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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GEORGE BUTLER ASSOCIATES, INC.
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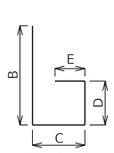
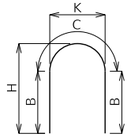
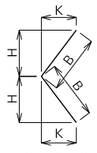
DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977



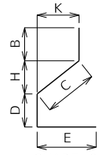
SHAPE 6
or 6S



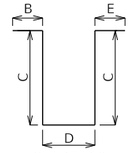
SHAPE 7



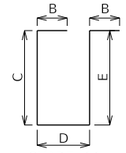
SHAPE 8
or 8S



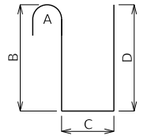
SHAPE 9
or 9S



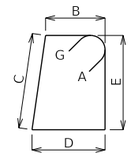
SHAPE 10
or 10S



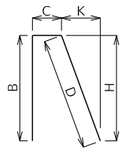
SHAPE 11
or 11S



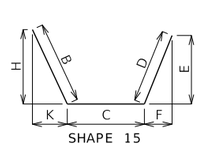
SHAPE 12



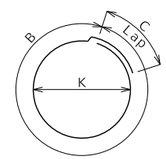
SHAPE 13S



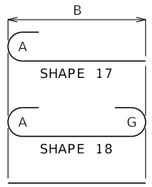
SHAPE 14
or 14S



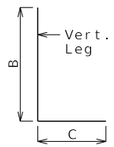
SHAPE 15
or 15S



SHAPE 16



SHAPE 17
SHAPE 18
SHAPE 20



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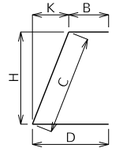
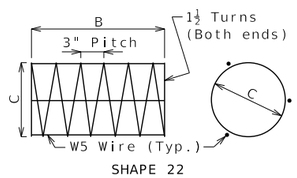
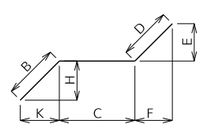
or 19S



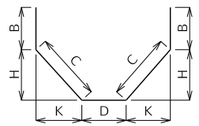
SHAPE 21
or 21S



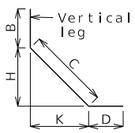
SHAPE 22



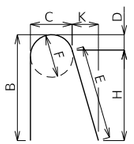
SHAPE 23
or 23S



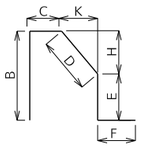
SHAPE 24
or 24S



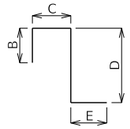
SHAPE 25
or 25S



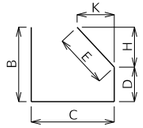
SHAPE 26



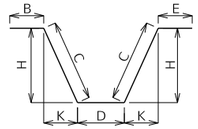
SHAPE 27S



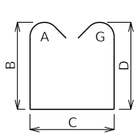
SHAPE 28
or 28S



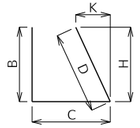
SHAPE 29
or 29S



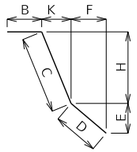
SHAPE 30
or 30S



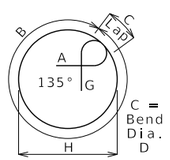
SHAPE 31S



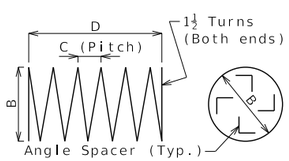
SHAPE 32
or 32S



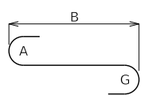
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

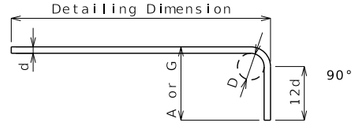


SHAPE 36

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"	13¾"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¾"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¾"	28½"

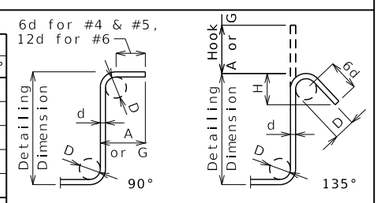


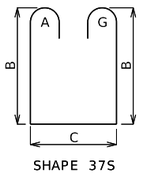
Stirrup Pin Bend Shapes (S)

Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4½"	4½"	5"	2⅜"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5¾"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅜"	6"

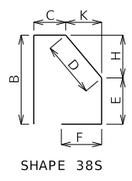
Applicable for all grades of steel.

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





SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

DESCRIPTION

DATE

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

DATE PREPARED
1/8/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	27

COUNTY
NODAWAY

JOB NO.
JNW0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9615

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

GBA
9801 Renner Blvd, Ste. 300
Lenexa, KS 66219
913.492.0400
GBAteam.com

GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL
ENGINEER
PE-2016012977

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Nov 2024
Checked Nov 2024

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

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 NO. 2													
18	6 D20	BEAM KEY		20		2 6.000							2 6	2 6	68
8	9 H20	BEAM		18		23 3.000							25 10	25 10	703
8	9 H21	BEAM		20		23 3.000							23 3	23 3	632
12	6 H22	BEAM		20		23 3.000							23 3	23 3	419
16	6 H23	BEAM		10S			12.000	3 7.500					5 8	5 4	128
16	4 H24	WEB BEAM		20		14 5.000							14 5	14 5	154
3	8 H25	WEB BEAM		20		16 5.000							16 5	16 5	131
20	4 P20	COLUMN		16		10 2.500	2 5.000					3 3.000	12 8	12 6	167
76	4 P21	SHAFT/SOCKET		16		11 0.000	2 1.000					3 6.000	13 1	12 11	656
24	6 U20	BEAM		13S		2 6.000	4 6.000	2 6.000	4 3.000				14 10	14 4	517
4	6 U21	BEAM		10S			4 3.000	2 6.000					11 0	10 8	64
12	6 U22	BEAM		10S			4 3.000	3 9.000					12 3	11 11	215
21	6 U23	BEAM		13S		3 9.000	4 3.000	3 9.000	4 3.000				17 4	16 10	531
36	8 V20	COLUMN		20		11 6.000							11 6	11 6	1105
36	8 V21	COLUMN/SHAFT		20		6 10.00							6 10	6 10	657
50	10 V22	SHAFT/SOCKET		20		37 2.000							37 2	37 2	7996
22	4 V23	WEB BEAM		19S		9 11.50	15.000						11 3	11 1	163
		INT. BENT NO. 3													
18	6 D30	BEAM KEY		20		2 6.000							2 6	2 6	68
8	9 H30	BEAM		18		23 3.000							25 10	25 10	703
8	9 H31	BEAM		20		23 3.000							23 3	23 3	632
12	6 H32	BEAM		20		23 3.000							23 3	23 3	419
16	6 H33	BEAM		10S			12.000	3 7.500					5 8	5 4	128
30	4 H34	WEB BEAM		20		14 5.000							14 5	14 5	289
3	8 H35	WEB BEAM		20		16 5.000							16 5	16 5	131
34	4 P30	COLUMN		16		10 2.500	2 5.000					3 3.000	12 8	12 6	284
76	4 P31	SHAFT/SOCKET		16		11 0.000	2 1.000					3 6.000	13 1	12 11	656
24	6 U30	BEAM		13S		2 6.000	4 6.000	2 6.000	4 3.000				14 10	14 4	517
4	6 U31	BEAM		10S			4 3.000	2 6.000					11 0	10 8	64
12	6 U32	BEAM		10S			4 3.000	3 9.000					12 3	11 11	215
21	6 U33	BEAM		13S		3 9.000	4 3.000	3 9.000	4 3.000				17 4	16 10	531
36	8 V30	COLUMN		20		18 6.000							18 6	18 6	1778
36	8 V31	COLUMN/SHAFT		20		6 10.00							6 10	6 10	657
50	10 V32	SHAFT/SOCKET		20		37 2.000							37 2	37 2	7996
22	4 V33	WEB BEAM		19S		17 0.000	15.000						18 3	18 2	267
		SUPERSTRUCTURE													
		END BENT NO. 1													
20	6 F1	WING BRACE	E	23S		2 3.000	4 9.500	14.000	9.875	9.875	19.125	19.125	8 3	8 2	245
8	6 F2	DIAPHRAGM	E	6S		2 8.250	5 8.000						8 4	8 2	98
8	7 H1	BEAM	E	20		26 5.000							26 5	26 5	432
4	6 H2	BEAM	E	20		26 5.000							26 5	26 5	159
4	7 H3	DIAPHRAGM	E	20		26 5.000							26 5	26 5	216
4	6 H4	DIAPHRAGM	E	20		26 5.000							26 5	26 5	159
2	6 H5	DIAPHRAGM	E	20		2 1.000							2 1	2 1	6
6	6 H6	DIAPHRAGM	E	20		3 4.000							3 4	3 4	30
2	6 H7	DIAPHRAGM	E	20		5 10.00							5 10	5 10	18
6	6 H8	DIAPHRAGM	E	20		8 3.000							8 3	8 3	74
24	5 H9	APPR. NOTCH	E	19S		2 0.000	15.000						3 3	3 2	79
3	5 H10	STRAND TIE	E	20		5 9.000							5 9	5 9	18
16	8 H11	WING	E	20		10 6.000							10 6	10 6	449
40	6 H12	WING	E	20		9 8.000							9 8	9 8	581

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
16	5 U1	BEAM/DIAPHRAGM	E	10S			6 1.250	2 9.000					15 0	14 9	246
19	4 U2	BEAM	E	13S		2 9.000	2 8.000	2 9.000	2 8.000				11 7	11 4	144
2	4 U3	BEAM	E	10S			2 8.000	2 9.000					8 1	7 11	11
22	5 U4	DIAPHRAGM	E	10S			4 0.000	2 3.000					10 3	10 0	229
22	6 U5	DIAPHRAGM	E	19S		3 0.000	2 9.000						5 9	5 7	184
32	6 U6	DIAPHRAGM	E	19S		3 5.000	4 7.000						8 0	7 10	377
12	5 V1	BEAM/DIAPHRAGM	E	20		6 1.000							6 1	6 1	76
15	6 V2	DIAPHRAGM	E	20		3 0.000							3 0	3 0	68
4	6 V3	WING	E	20		6 11.00							6 11	6 11	42
32	6 V4	WING	E	20	4	6 11.00							6 11	6 11	336
		INCR.=0.250 IN.				7 0.750							7 1	7 1	
		END BENT NO. 4													
20	6 F41	WING BRACE	E	23S		2 3.000	4 9.500	14.000	9.875	9.875	19.125	19.125	8 3	8 2	245
8	6 F42	DIAPHRAGM	E	6S		2 8.250	5 8.000						8 4	8 2	98
8	7 H41	BEAM	E	20		26 5.000							26 5	26 5	432
4	6 H42	BEAM	E	20		26 5.000							26 5	26 5	159
4	7 H43	DIAPHRAGM	E	20		26 5.000							26 5	26 5	216
4	6 H44	DIAPHRAGM	E	20		26 5.000							26 5	26 5	159
2	6 H45	DIAPHRAGM	E	20		2 1.000							2 1	2 1	6
6	6 H46	DIAPHRAGM	E	20		3 4.000							3 4	3 4	30
2	6 H47	DIAPHRAGM	E	20		5 10.00							5 10	5 10	18
6	6 H48	DIAPHRAGM	E	20		8 3.000							8 3	8 3	74
24	5 H49	APPR. NOTCH	E	19S		2 0.000	15.000						3 3	3 2	79
3	5 H50	STRAND TIE	E	20		5 9.000							5 9	5 9	18
16	8 H51	WING	E	20		10 6.000							10 6	10 6	449
40	6 H52	WING	E	20		9 8.000							9 8	9 8	581
16	5 U41	BEAM/DIAPHRAGM	E	10S			6 1.250	2 9.000					15 0	14 9	246
19	4 U42	BEAM	E	13S		2 9.000	2 8.000	2 9.000	2 8.000				11 7	11 4	144
2	4 U43	BEAM	E	10S			2 8.000	2 9.000					8 1	7 11	11
22	5 U44	DIAPHRAGM	E	10S			4 0.000	2 3.000					10 3	10 0	229
22	6 U45	DIAPHRAGM	E	19S		3 0.000	2 9.000						5 9	5 7	184
32	6 U46	DIAPHRAGM	E	19S		3 5.000	4 7.000						8 0	7 10	377
12	5 V41	BEAM/DIAPHRAGM	E	20		6 1.000							6 1	6 1	76
15	6 V42	DIAPHRAGM	E	20		3 0.000							3 0	3 0	68
4	6 V43	WING	E	20		6 11.00							6 11	6 11	42
32	6 V44	WING	E	20	4	6 11.00							6 11	6 11	336
		INCR.=0.250 IN.				7 0.750							7 1	7 1	
		INT. BENT DIA.													
8	6 H60	DIAPHRAGM	E	20		5 10.00							5 10	5 10	70
8	6 H61	DIAPHRAGM	E	20		8 3.000							8 3	8 3	99
24	4 H62	DIAPHRAGM	E	20		8 3.000							8 3	8 3	132
8	5 H63	STRAND TIE	E	20		4 9.000							4 9	4 9	40
4	5 H64	STRAND TIE	E	20		5 9.000							5 9	5 9	24
40	4 U60	DIAPHRAGM	E	28S			18.000	3 11.50	2 1.000				7 7	7 4	196
16	6 U61	DIAPHRAGM	E	28S			2 2.000	3 11.50	2 1.000				8 3	7 11	190
16	6 U62	DIAPHRAGM	E	28S			2 2.000	3 4.000	2 1.000				7 7	7 3	174
16	6 U63	DIAPHRAGM	E	28S			2 2.000	3 4.000	20.000				7 2	6 10	164
32	5 U64	DIAPHRAGM	E	6S		4 10.00	13.000	16.500					7 4	7 1	236
8	5 U65	DIAPHRAGM	E	6S		4 6.000	13.000						5 7	5 6	46
16	5 V60	DIAPHRAGM	E	20		4 1.000							4 1	4 1	68
		SLAB													
549	6 S1	SLAB	E	20		26 5.000							26 5	26 5	21783
46	5 S2	SLAB	E	20		46 7.000							46 7	46 7	2235
46	8 S3	SLAB	E	20		46 0.000							46 0	46 0	5650
40	8 S4	SLAB	E	20		27 0.000							27 0	27 0	2884
40	8 S5	SLAB	E	20		34 0.000							34 0	34 0	3631
46	5 S6	SLAB	E	20		53 2.000							53 2	53 2	2551
366	6 S7	SLAB	E	20		26 5.000							26 5	26 5	14522
108	6 S8	SLAB	E	20		36 5.000							36 5	36 5	5907
54	7 S9	SLAB	E	20		33 0.000							33 0	33 0	3642
54	6 S10	SLAB	E	20		46 5.000							46 5	46 5	3765

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

For bending diagrams and steel reinforcing totals, see Sheet No. 27.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

BILL OF REINFORCING STEEL

Detailed Nov 2024
Checked Nov 2024

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 28
COUNTY
JOB NO.
CONTRACT ID.
BRIDGE NO.

DESCRIPTION | DATE

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

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

GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

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 D BARRIER													
20	5 K1	BARRIER	E	27S		3 8.000	9.250	5.250	3 2.750		5.250	1.000	8 1	7 11	165
64	5 K2	BARRIER	E	27S		3 8.000	9.250	14.500	2 5.750		14.250	2.750	8 2	7 11	528
20	5 K4	BARRIER	E	19S	4	2 4.250	10.000						3 2	3 1	66
		INCR.=0.50 IN.				2 6.250	10.000						3 4	3 3	
20	5 K5	BARRIER	E	38S	4			18.500	9.500	8.250	18.000	4.000	3 0	2 11	63
		INCR.=0.50 IN.						20.500	9.500	8.250	20.000	4.500	3 2	3 1	
12	5 K6	BARRIER	E	19S		2 6.750	10.000						3 5	3 3	41
12	5 K7	BARRIER	E	21S			2 6.750	10.000			2 6.000	6.250	3 5	3 3	41
36	5 K8	BARRIER	E	19S	4	2 8.500	10.000						3 7	3 5	138
		INCR.=0.75 IN.				3 2.500	10.000						4 1	3 11	
36	5 K9	BARRIER	E	21S	4		2 8.500	10.000			2 7.750	6.750	3 7	3 5	138
		INCR.=0.75 IN.					3 2.500	10.000			3 1.750	7.750	4 1	3 11	
16	5 K10	BARRIER	E	19S		3 3.000	10.000						4 1	4 0	67
16	5 K11	BARRIER	E	21S			3 3.000	10.000			3 2.250	7.750	4 1	3 11	65
48	5 K12	BARRIER	E	20		10 9.000							10 9	10 9	538
24	5 K13	BARRIER	E	20	8	4 0.000							4 0	4 0	175
		INCR.=3 FT. 0 IN.				10 0.000							10 0	10 0	
564	5 R1	BARRIER	E	26		3 3.000	5.500	2.250	3 1.250	5.500	3 0.750	6.750	6 10	6 9	3971
564	5 R2	BARRIER	E	19S		20.500	9.500						2 6	2 5	1422
564	5 R3	BARRIER	E	27S			9.500	15.250	5.000	12.000	15.000	3.000	3 6	3 3	1912
80	5 R4	BARRIER	E	20		11 9.000							11 9	11 9	980
80	5 R5	BARRIER	E	20		35 4.000							35 4	35 4	2948
40	5 R6	BARRIER	E	20		46 11.00							46 11	46 11	1957
		SLIP FORM													
		BARRIER													
40	5 C1	SLIP FORM	E	20		12 0.000							12 0	12 0	501
8	5 C2	SLIP FORM	E	20		8 9.000							8 9	8 9	73

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
		TOTALS													
	4														2636
	4		E												638
	5		E												22285
	6														3884
	6		E												51428
	7		E												4938
	8														4459
	8		E												13063
	9														2670
	10														15992
		TOTAL													29641
		TOTAL	E												92352
		SLAB ON GIRDER													
	4		E												638
	5		E												6496
	6		E												51428
	7		E												4938
	8		E												13063
		TOTAL	E												76563
		REINFORCING													
		STEEL (BRIDGES)													
	4														2636
	6														3884
	8														4459
	9														2670
	10														15992
		TOTAL													29641
		TYPE D BARRIER													
	5		E												15215
		TOTAL	E												15215
		SLIP FORM													
		BARRIER													
	5		E												574
		TOTAL	E												574

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

For bending diagrams and steel reinforcing totals, see Sheet No. 27.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

BILL OF REINFORCING STEEL

Detailed Nov 2024
Checked Nov 2024

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

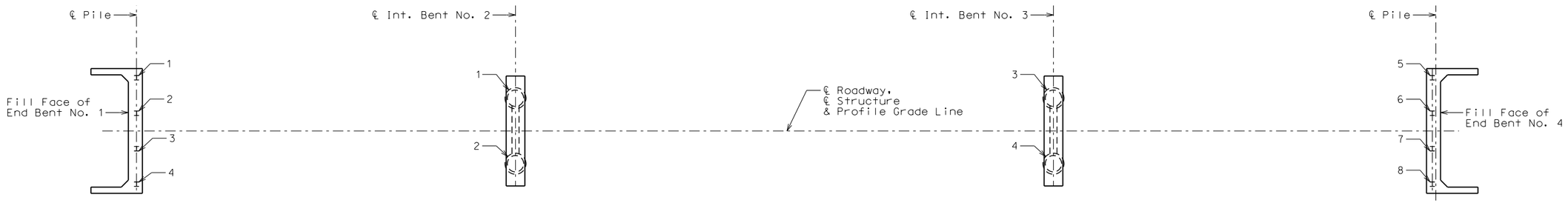
DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 29
COUNTY
JOB NO.
CONTRACT ID.
BRIDGE NO.

DESCRIPTION | DATE

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

GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977



PLAN SHOWING PILE & DRILLED SHAFT NUMBERING FOR RECORDING AS-BUILT PILE DATA & AS-BUILT DRILLED SHAFT DATA

As-Built Pile Data

Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 1
1			
2			
3			
4			
			End Bent No. 4
5			
6			
7			
8			

As-Built Drilled Shaft Data

Shaft No.	Top of Sound Rock (Elev.)	Tip of Casing (Elev.)	Bottom of Rock Socket (Elev.)	Remarks
				Int. Bent No. 2
1				
2				
				Int. Bent No. 3
3				
4				

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.

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

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 30
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

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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9801 Renner Blvd, Ste. 300
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ARCHITECT 000212
PRO. LAND SURVEYOR 000059

DUSTIN TREGNAGO
PROFESSIONAL ENGINEER
PE-2016012977

Detailed Nov 2024
Checked Nov 2024

AS-BUILT PILE & AS-BUILT DRILLED SHAFT DATA

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

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Terracon

SUBSURFACE DIAGRAM

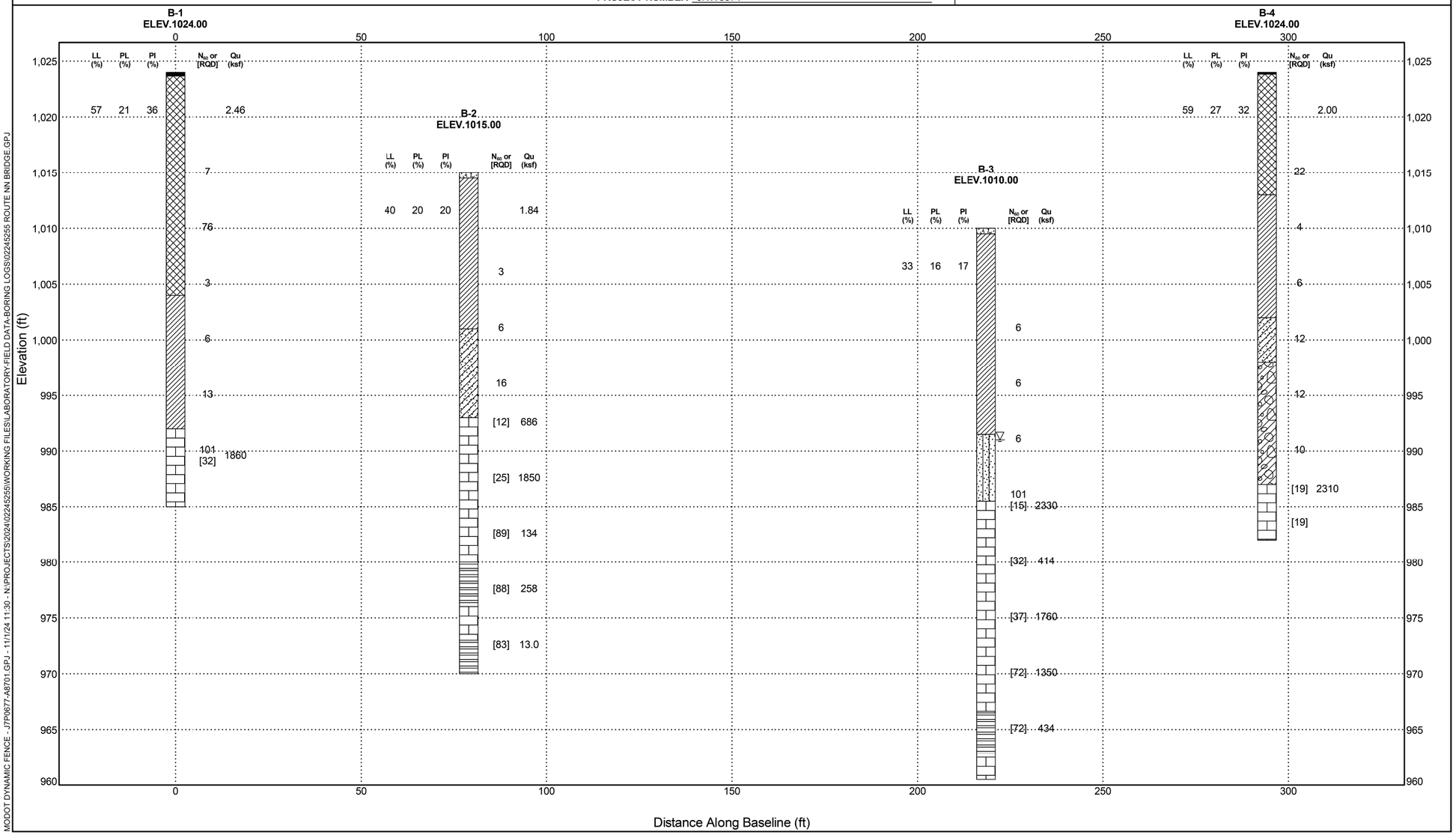
PROJECT NAME Route NN Bridge over Platte River

PROJECT LOCATION Route NN over Platte River

CLIENT Missouri Department of Transportation (MODOT)

PROJECT NUMBER JNW0071

Asphalt
Limestone
Shale
Fill (made ground)
Topsoil
USCS Silty Sand
USCS Low Plasticity Clay
USCS Clayey Sand
USCS Clayey Gravel



MODOT DYNAMIC FENCE - JTP0677-A8701.GPJ - 11/1/24 11:30 - N:\PROJECTS\2024\0224525\05WORKING FILES\LABORATORY-FIELD DATA-BORING LOGS\0224525 ROUTE NN BRIDGE.GPJ

BORING DATA

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

Detailed Nov 2024
Checked Nov 2024

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

Sheet No. 31 of 31

DATE PREPARED 1/8/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 31
COUNTY NODAWAY
JOB NO. JNW0071
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9615

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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