

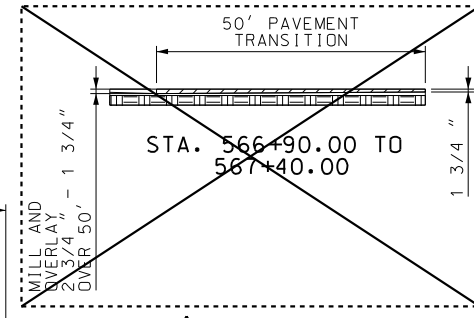
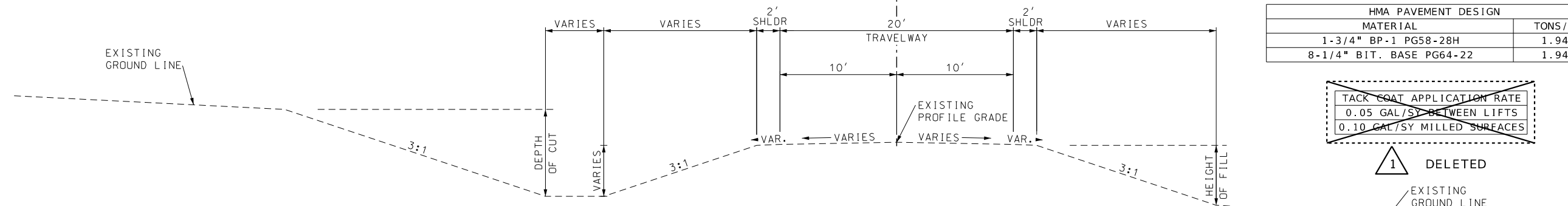
HMA PAVEMENT DESIGN	
MATERIAL	TONS/CY
1-3/4" BP-1 PG58-28H	1.948
8-1/4" BIT. BASE PG64-22	1.943

TACK COAT APPLICATION RATE
0.05 GAL/SY BETWEEN LIFTS
0.10 GAL/SY MILLED SURFACES

**1** DELETED

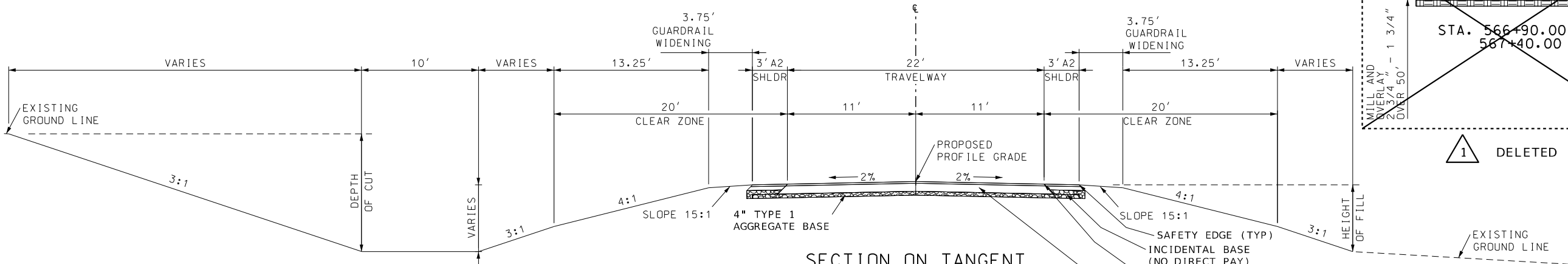
EXISTING GROUND LINE

SECTION ON TANGENT  
EXISTING TYPICAL SECTION ROUTE 46  
STA. 559+30.00 TO 566+90.00



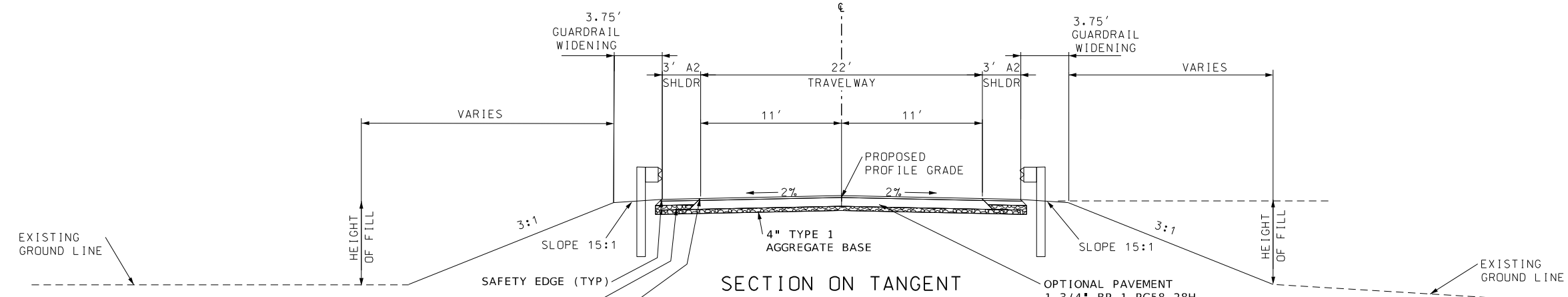
**1** DELETED

SECTION ON TANGENT  
PROPOSED TYPICAL SECTION ROUTE 46  
STA. 559+30.00 TO 562+43.05



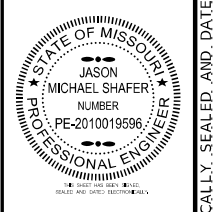
- OPTIONAL PAVEMENT  
1-3/4" BP-1 PG58-28H  
8-1/4" BIT. BASE PG64-22  
OR  
8-1/2" NON-REINFORCED PCC PAVEMENT WITH 1.5' EXTENDED SLAB SHOULDERS WILL BE REDUCED TO 1.5'  
OR  
9" NON-REINFORCED PCC PAVEMENT WITHOUT EXTENDED SLABS WITH 3' SHOULDERS

SECTION ON TANGENT  
PROPOSED TYPICAL SECTION ROUTE 46  
STA. 562+43.05 TO 564+35.55  
STA. 565+78.05 TO 566+90.00



- OPTIONAL PAVEMENT  
1-3/4" BP-1 PG58-28H  
8-1/4" BIT. BASE PG64-22  
OR  
8-1/2" NON-REINFORCED PCC PAVEMENT WITH 1.5' EXTENDED SLAB SHOULDERS WILL BE REDUCED TO 0.5' AGGREGATE SHOULDERS  
OR  
9" NON-REINFORCED PCC PAVEMENT WITHOUT EXTENDED SLABS WITH 3' SHOULDERS

**1** 567+40.00



DATE PREPARED	2/10/2025
ROUTE	46/W
STATE	MO
DISTRICT	NW
SHEET NO.	2
COUNTY	WORTH
JOB NO.	JNW0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

REVISION	DATE	DESCRIPTION
001-PAVEMENT REVISIONS	02/10/25	

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

1411 East 104th St.  
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Fax: (816) 874-4676  
www.trekkdesigngroup.com

Microsoft Cert. of Authority 202010300

NOT TO SCALE

**1** ROUTE 46  
REVISED 02-10-2025 TYPICAL SECTION  
SHEET 1 OF 2

MOBILIZATION	
PROJECT TOTAL	1 LUMP SUM

ADDITIONAL MOBILIZATION FOR SEEDING	
PROJECT TOTAL	3 EA

CONTRACTOR FURNISHED SURVEYING & STAKING	
PROJECT TOTAL	1 LUMP SUM

ENTRANCES					
LOCATION	STATION	SIDE	GRAVEL A CRUSHED STONE B 4" (SY)	15" PIPE GROUP C (LF)	15" FES GROUP C (EA)
ROUTE 46	561+22.21	LT	82.6	24	2
ROUTE 46	561+23.60	RT	44.8	32	2
TOTALS			127	56	4

MILL AND OVERLAY						
LOCATION	STATION	STATION	1.75" BP-1 PG 58-28H (TON)	TACK COAT 0.10 GAL/SY (GAL)	MODIFIED COLDMILLING (DEPTH TRANSITIONS) (SY)	REMARKS
ROUTE 46	566+90.00	567+40.00	14.4	15.2	152	DEPTH TRANSITION
TOTALS			14.4	15.2	152	

1 DELETED

BASE AND PAVEMENT							
LOCATION	STATION	STATION	SIDE	OPTIONAL PAVEMENT (SY)	TYPE A2 SHOULDER (SY)	TYPE 1 AGG. FOR BASE (4 IN. THICK) (SY)	REMARKS
ROUTE 46	559+30.00	564+15.55	LT/RT	1186.9	321.0	1508	WEST OF BRIDGE
ROUTE 46	565+98.05	566+90.00	LT/RT	224.8	58.9	284	EAST OF BRIDGE
TOTALS				1411.7	379.9	1792	

EARTHWORK					
LOCATION	STATION	STATION	UNCLASSIFIED EXCAVATION (CY)	COMPACTING EMBANKMENT (CY)	EMBANKMENT IN PLACE (CY)
ROUTE 46	559+30.00	564+38.02	114	91	2700
ROUTE 46	565+75.55	566+90.00	108	86	434
TOTALS			222	177	3134

1	347.0	88.4	435
1	1533.9	409.4	1943

1 567+40.00

REMOVAL OF IMPROVEMENTS							
SHEET	LOCATION	STATION	STATION	SIDE	DESCRIPTION	QUANTITY	UNITS
4	ROUTE 46	561+11.71	561+35.76	RT	15" CMP	24	LF
4	ROUTE 46	561+11.88	561+35.55	LT	15" RCP	24	LF
4	ROUTE 46	563+99.94		LT	OM-3	1	EA
4	ROUTE 46	564+01.72		RT	OM-3	1	EA
4	ROUTE 46	564+15.55		RT	OM-3	1	EA
4	ROUTE 46	564+20.48		LT	OM-3	1	EA
4	ROUTE 46	564+21.30		RT	OM-3	1	EA
4	ROUTE 46	564+28.05	564+41.00	RT	GUARD RAIL	13	LF
4	ROUTE 46	564+40.11		LT	OM-3	1	EA
4	ROUTE 46	565+71.72	565+86.75	LT	GUARD RAIL	15	LF
4	ROUTE 46	565+72.19	565+86.76	RT	GUARD RAIL	15	LF
4	ROUTE 46	565+73.87		RT	OM-3	1	EA
4	ROUTE 46	565+73.88		LT	OM-3	1	EA
4	ROUTE 46	565+94.26		LT	OM-3	1	EA
4	ROUTE 46	565+95.37		RT	OM-3	1	EA
4	ROUTE 46	566+14.08		LT	OM-3	1	EA
4	ROUTE 46	566+14.63		RT	OM-3	1	EA
INCLUDE ROUTE W REMOVALS (SEE NEXT SHEET)						TOTAL	1 LS

CLEARING AND GRUBBING					
LOCATION	STATION	STATION	SIDE	CLEARING AND GRUBBING ACRE	REMARKS
ROUTE 46	559+30.00	564+15.55	LT/RT	0.5	WEST OF BRIDGE
ROUTE 46	565+98.05	567+73.80	LT/RT	0.2	EAST OF BRIDGE
TOTAL				1	

SEED AND MULCH					
LOCATION	STATION	STATION	SEEDING - COOL SEASON GRASSES (ACRE)	MULCHING (ACRE)	REMARKS
ROUTE 46	559+30.00	564+15.55	0.5	0.5	WEST OF BRIDGE
ROUTE 46	565+98.05	567+73.80	0.2	0.2	EAST OF BRIDGE
TOTALS			0.7	0.7	

PERMANENT EROSION CONTROL					
LOCATION	STATION	SIDE	FURNISHING TYPE 2 ROCK BLANKET (CY)	PLACING TYPE 2 ROCK BLANKET (CY)	PERMANENT EROSION CONTROL GEOTEXTILE (SY)
ROUTE 46	564+38.02	LT/RT	426.7	426.7	640
ROUTE 46	565+75.55	LT/RT	148.7	148.7	223
TOTALS			575	575	863

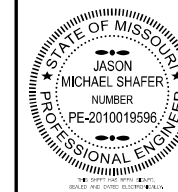
TEMPORARY EROSION CONTROL							
LOCATION	STATION	STATION	SIDE	SILT FENCE (LF)	ROCK DITCH CHECK (LF)	TYPE C TEMPORARY BERM (LF)	SEDIMENT REMOVAL (CY)
ROUTE 46	559+44	561+77	LT		150		10
ROUTE 46	559+44	562+00	RT		165		11
ROUTE 46	561+80	564+60	LT	281			2.8
ROUTE 46	562+04	564+57	RT	254			2.5
ROUTE 46	564+82		LT/RT			150	1.5
ROUTE 46	565+54		LT/RT			126	1.3
ROUTE 46	565+60	567+21	RT	180			1.8
ROUTE 46	565+66	568+05	LT	244			2.4
TOTALS				959	315	276	33

PAVEMENT MARKING						
LOCATION	STATION	STATION	SIDE	4" WHITE STANDARD WATERBORNE PVMT MARKING PAINT WITH TYPE P BEADS (LF)	4" YELLOW STANDARD WATERBORNE PVMT MARKING PAINT WITH TYPE P BEADS (LF)	RUMBLE STRIP (STA)
ROUTE 46	559+30	567+40		1620	558	
ROUTE 46	559+30	564+35.55	LT			5
ROUTE 46	559+30	564+35.55	RT			5
ROUTE 46	565+78.05	567+40	LT			1.6
ROUTE 46	565+78.05	567+40	RT			1.6
TOTALS				1620	558	13.2

GUARDRAIL								
LOCATION	STATION	STATION	SIDE	BRIDGE ANCHOR SECTION (EA)	MGS GUARDRAIL (LF)	"TYPE A" MASH CRASHWORTHY END TERMINAL (EA)	SHAPING SLOPES CLASS III (100F)	REMARKS
ROUTE 46	562+39.80	564+28.05	RT	1	100	1	0.75	ADJACENT LANE
ROUTE 46	563+02.30	564+28.05	LT	1	37.5	1	0.75	OPPOSING LANE
ROUTE 46	565+85.55	567+11.30	RT	1	37.5	1	0.75	OPPOSING LANE
ROUTE 46	565+85.55	567+73.80	LT	1	100	1	0.75	ADJACENT LANE
TOTALS				4	275	4	3	

ROUTE 46  
SUMMARY OF QUANTITIES  
SHEET 1 OF 3

1 REVISED 02-10-2025



DATE PREPARED  
2/10/2025

ROUTE 46/W STATE MO

DISTRICT NW SHEET NO. 3

COUNTY WORTH

JOB NO. JN0020

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

02/10/25

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

1411 East 104th St.  
Kansas City, MO 64131  
Tel: (816) 874-4475  
Fax: (816) 874-4675  
www.mo.gov

Missouri Dept. of  
Transportation

Authority 202010300

DESIGN GROUP, LLC

ENTRANCES			
LOCATION	STATION	SIDE	GRAVEL A CRUSHED STONE B 4" (SY)
ROUTE W	190+94.15	LT	52.1
TOTALS			52

BASE AND PAVEMENT							
LOCATION	STATION	STATION	SIDE	OPTIONAL PAVEMENT (SY)	TYPE A3 SHOULDER (SY)	TYPE 1 AGG. FOR BASE (4 IN. THICK) (SY)	REMARKS
ROUTE W	185+19.70	185+78.73	LT/RT	132.4	12.9	145	WEST OF BRIDGE
ROUTE W	189+01.27	195+00.00	LT/RT	1329.5	255.0	1585	EAST OF BRIDGE
TOTALS				1461.9	267.9	1730	

EARTHWORK							
LOCATION	STATION	STATION	UNCLASSIFIED EXCAVATION (CY)	COMPACTING EMBANKMENT (CY)	EMBANKMENT IN PLACE (CY)	COMPACTING IN CUT (STA)	REMARKS
ROUTE W	185+19.70	185+98.73	140	2		1	WEST OF BRIDGE
ROUTE W	193+95.00	195+00.00	263	210	681	1.1	EAST OF BRIDGE
TOTALS			403	212	681	2.1	

REMOVAL OF IMPROVEMENTS							
SHEET	LOCATION	STATION	STATION	SIDE	DESCRIPTION	QUANTITY	UNITS
5	ROUTE W	185+67.91		LT	OM-3	1	EA
5	ROUTE W	185+68.32		RT	OM-3	1	EA
5	ROUTE W	185+88.05		LT	OM-3	1	EA
5	ROUTE W	185+88.28		RT	OM-3	1	EA
5	ROUTE W	186+07.60		RT	OM-3	1	EA
5	ROUTE W	186+07.68		LT	OM-3	1	EA
5	ROUTE W	186+08.15	188+70.94	RT	GUARDRAIL	263	LF
5	ROUTE W	186+08.51	188+70.50	LT	GUARDRAIL	262	LF
5	ROUTE W	188+70.55		RT	OM-3	1	EA
5	ROUTE W	188+70.96		LT	OM-3	1	EA
5	ROUTE W	188+90.62		LT	OM-3	1	EA
5	ROUTE W	189+11.29		LT	OM-3	1	EA
5	ROUTE W	189+11.34		RT	OM-3	1	EA

CLEARING AND GRUBBING					
LOCATION	STATION	STATION	SIDE	CLEARING AND GRUBBING ACRE	REMARKS
ROUTE W	185+19.70	185+80.49	LT/RT	0.1	WEST OF BRIDGE
ROUTE W	188+99.15	195+00.00	LT/RT	0.4	EAST OF BRIDGE
TOTAL				1	

SEED AND MULCH					
LOCATION	STATION	STATION	SEEDING - COOL SEASON GRASSES (ACRE)	MULCHING (ACRE)	REMARKS
ROUTE W	185+19.70	185+80.49	0.1	0.1	WEST OF BRIDGE
ROUTE W	188+99.15	195+00.00	0.4	0.4	EAST OF BRIDGE
TOTALS			0.5	0.5	

PERMANENT EROSION CONTROL					
LOCATION	STATION	SIDE	FURNISHING TYPE 2 ROCK BLANKET (CY)	PLACING TYPE 2 ROCK BLANKET (CY)	PERMANENT EROSION CONTROL GEOTEXTILE (SY)
ROUTE W	186+01.27	LT/RT	176	176	264
ROUTE W	188+78.73	LT/RT	172	172	257
ROUTE W	196+40.11	RT	22	22	33
TOTALS			370	370	554

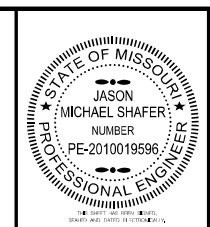
TEMPORARY EROSION CONTROL						
LOCATION	STATION	STATION	SIDE	SILT FENCE (LF)	TYPE C TEMPORARY BERM (LF)	SEDIMENT REMOVAL (CY)
ROUTE W	185+19	186+00	LT	87		0.9
ROUTE W	185+19	186+04	RT	88		0.9
ROUTE W	186+36		LT/RT		103	1.0
ROUTE W	188+60		LT/RT		106	1.1
ROUTE W	188+76	195+10	LT	683		6.8
ROUTE W	188+82	195+10	RT	634		6.3
TOTALS				1492	209	17

PAVEMENT MARKING						
LOCATION	STATION	STATION	SIDE	4" WHITE STANDARD WATERBORNE PVMT MARKING PAINT WITH TYPE P BEADS (LF)	4" YELLOW STANDARD WATERBORNE PVMT MARKING PAINT WITH TYPE P BEADS (LF)	RUMBLE STRIP (STA)
ROUTE W	185+19.70	195+00.00		1961	1961	
ROUTE W	185+19.70	185+96.81	LT			7.7
ROUTE W	185+19.70	186+00.85	RT			8.1
ROUTE W	188+79.15	195+00	LT			62.1
ROUTE W	188+83.39	195+00	RT			61.7
TOTALS				1961	1961	139.6

0.8
0.8
6.2
6.2
14.0

ROUTE W  
SUMMARY OF QUANTITIES  
SHEET 2 OF 3

1 REVISED 02-10-2025



DATE PREPARED  
2/10/2025  
ROUTE 46/W STATE MO  
DISTRICT NW SHEET NO. 3  
COUNTY WORTH  
JOB NO. JNW0020  
CONTRACT ID.  
PROJECT NO.  
BRIDGE NO.

DESCRIPTION	DATE
001-PAVEMENT REVISIONS	02/10/25

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



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www.trekdesigngroup.com  
Missouri Dept. of  
Transportation



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

SW 1/4, SE 1/4  
SECTION 30, T66N, R31W

PBR FARMS LLC

560

ROUTE 46  
REMOVE EXISTING BRIDGE  
BR. NO. J0024  
(42.5', 42.5', 42.5') CONCRETE DECK GIRDER SPANS  
STA. 564+43.3 TO STA 565+70.3  
L=127.0' W=20' ROADWAY AT RT. ANGLES  
D.A.=20.8 SQ. MI  
PROPOSED BRIDGE  
BR. NO. 9467  
(40'-60' 40') SDCL WEATHERING STEEL BEAM SPANS  
EXISTING ROUTE 46  
STA 564+35.55 TO 565+78.05  
L=143.5 W=28' ROADWAY AT RT. ANGLES D.A.=21 SQ. MI.  
GUARDRAIL STA. 563+02.30-  
564+28.05 REMOVE 15 LF OF  
EXISTING GUARDRAIL  
INSTALL BRIDGE ANCHOR SECTION  
37.5 LF MGS GUARDRAIL

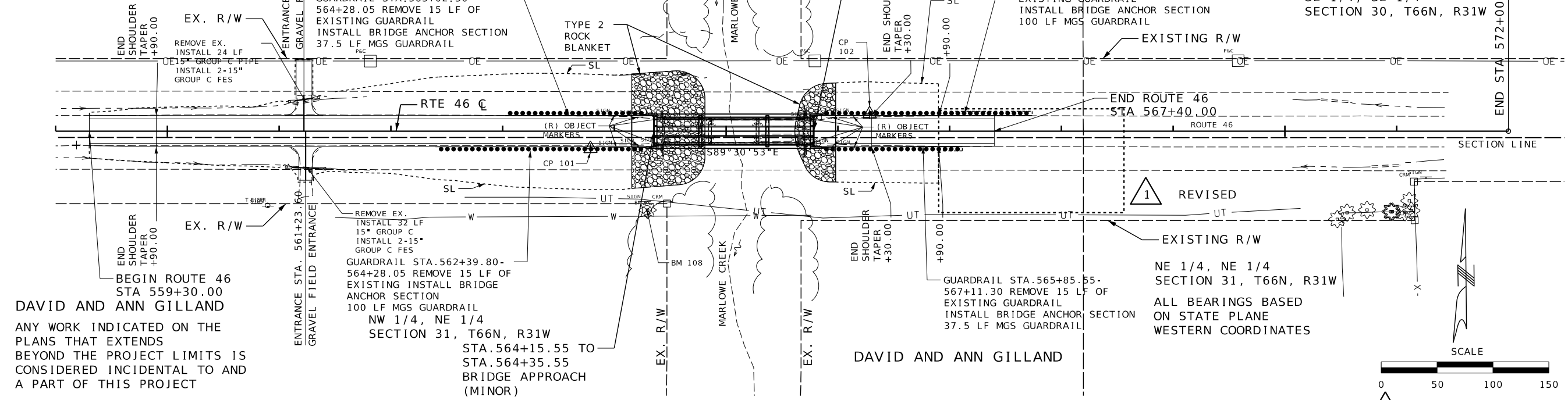
565

STA. 565+78.05 TO  
STA. 565+98.05  
BRIDGE APPROACH  
(MINOR)

570

PBR FARMS LLC  
SE 1/4, SE 1/4  
SECTION 30, T66N, R31W

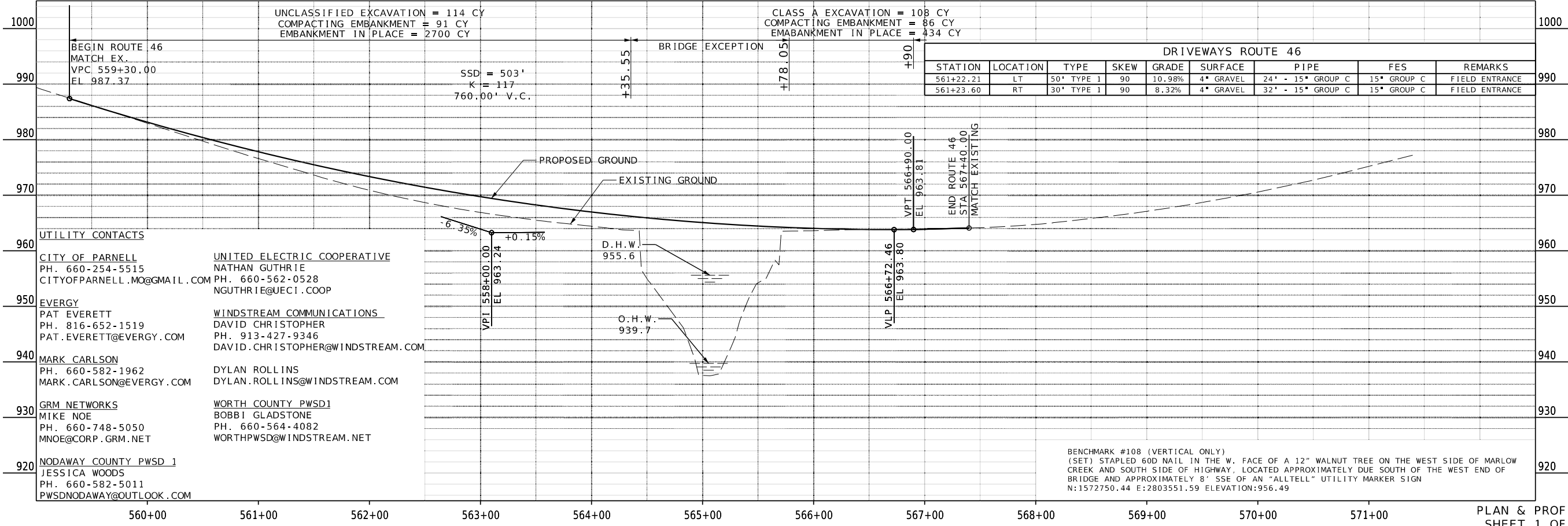
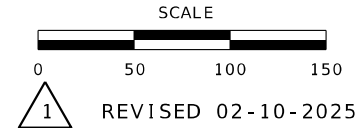
END STA 572+00.00



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

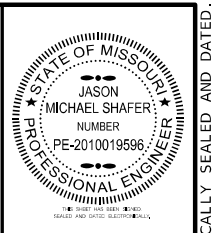
REMOVE EX.  
INSTALL 32 LF  
15" GROUP C  
INSTALL 2-15"  
GROUP C FES  
GUARDRAIL STA. 562+39.80-  
564+28.05 REMOVE 15 LF OF  
EXISTING INSTALL BRIDGE  
ANCHOR SECTION  
100 LF MGS GUARDRAIL  
NW 1/4, NE 1/4  
SECTION 31, T66N, R31W  
STA. 564+15.55 TO  
STA. 564+35.55  
BRIDGE APPROACH  
(MINOR)

REVIS  
EXISTING R/W  
NE 1/4, NE 1/4  
SECTION 31, T66N, R31W  
ALL BEARINGS BASED  
ON STATE PLANE  
WESTERN COORDINATES



BENCHMARK #108 (VERTICAL ONLY)  
(SET) STAPLED 60D NAIL IN THE W. FACE OF A 12" WALNUT TREE ON THE WEST SIDE OF MARLOWE CREEK AND SOUTH SIDE OF HIGHWAY, LOCATED APPROXIMATELY DUE SOUTH OF THE WEST END OF BRIDGE AND APPROXIMATELY 8' SSE OF AN "ALLTELL" UTILITY MARKER SIGN  
N:1572750.44 E:2803551.59 ELEVATION:956.49

PLAN & PROFILE  
SHEET 1 OF 3



DATE PREPARED 2/10/2025	
ROUTE 46/W	STATE MO
DISTRICT NW	SHEET NO. 4
COUNTY WORTH	
JOB NO. JNW0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION
02/10/25	R001-PAVEMENT REVISIONS

MISSOURI HIGHWAYS AND TRANSPORTATION  
COMMISSION

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Microsoft Corp. of  
Authority 202010300

Estimated Quantities				
Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	95	--	95
Removal of Bridges (J0024)	lump sum	--	--	1
Bridge Approach Slab (Minor)	sq. yard	--	126	126
Galvanized Structural Steel Piles (14 in.)	linear foot	1,376	--	1,376
Pile Wave Analysis	each	2	--	2
Pile Point Reinforcement	each	16	--	16
Class B Concrete (Substructure)	cu. yard	97.7	--	97.7
Slab on Steel	sq. yard	--	486	486
Type D Barrier	linear foot	--	315	315
Reinforcing Steel (Bridges)	pound	4,620	--	4,620
Temporary coating- Concrete Bents and Pier (Weathering Steel)	lump sum	--	--	1
Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50 W	pound	--	69,990	69,990
Slab Drain	each	--	22	22
Vertical Drain at End Bent	each	2	--	2
Laminated Neoprene Bearing Pad (Tapered)	each	--	24	24

Estimated Quantities for Slab on Steel			
Item			Total
Class B-2 Concrete	cu. yard		153
Reinforcing Steel (Epoxy Coated)	pound		51,420

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

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

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

Bridge deck surface may be finished with a vibratory screed.

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

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

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Steel.

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

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

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

Cost of L4x4 ASTM A709 Grade 36 HP pile anchors and 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts, complete in place, will be considered completely covered by the contract unit price for Galvanized Structural Steel Piles (14 in.)

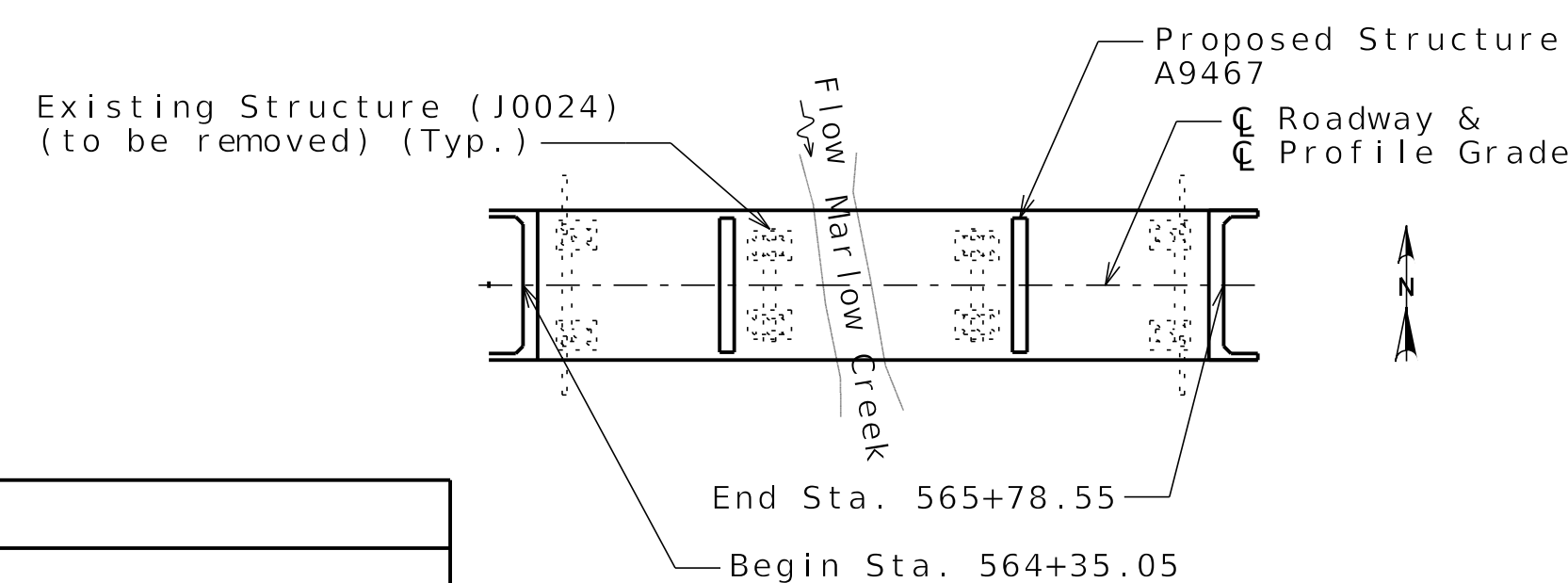
Foundation Data					
Type	Design Data	Bent Number			
		1	2	3	4
Load Bearing Pile	Pile Type and Size	HP 14x73	HP 14x73	HP 14x73	HP 14x73
	Number	ea 4	ea 4	ea 4	ea 4
	Approximate Length Per Each	ft 88	ft 86	ft 85	ft 85
	Pile Point Reinforcement	ea All	ea All	ea All	ea All
	Min. Galvanized Penetration (Elev.)	ft 939.00	ft 924.00	ft 923.00	ft 937.00
	Est. Max. Scour Depth 500 (Elev.)	ft -	ft 934.00	ft 935.00	ft -
	Criteria for Min. Tip Penetration	Bear on Rock	Bear on Rock	Bear on Rock	Bear on Rock
	Pile Driving Verification Method	DF	WEAP	WEAP	DF
	Resistance Factor	0.4	0.5	0.5	0.4
	Minimum Nominal Axial Compressive Resistance	kip 448	kip 640	kip 640	kip 448

Load Bearing Pile:  
 DF = FHWA-modified Gates Dynamic Pile Formula  
 WEAP = Wave Equation Analysis  
 Minimum Nominal Axial Compressive Resistance =  $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factors}}$   
 (Side Resistance + Tip Resistance)

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

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.

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



LOCATION SKETCH

Hydrologic Data
Drainage Area = 21 sq. mi.
Design Flood Frequency = 50 yr.
Design Flood Discharge = 6,500 cfs
Design Flood (D.F.) Elevation = 955.6 ft.
Base Flood (100-Year)
Base Flood Elevation = 956.5
Base Flood Discharge = 7,500 cfs.
Estimated Backwater = 0.1 ft.
Average Velocity thru Opening = 8.5 ft./p
Freeboard (50-year)
Freeboard = 5.3 ft.
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency = >500-yr
500-yr Flood Elevation = 958.5

General Notes:

Design Specifications:  
 2020 AASHTO LRFD Bridge Design Specification (9th Ed)  
 Seismic Design Category A (Seismic Details)  
 Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.104g  
 Acceleration Coefficient (Effective peak ground acceleration coefficient), As = 0.064g

Design Loading:

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

Design Unit Stresses:

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

Neoprene Pads:

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

Fabricated Steel Connections:

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

Joint Filler:

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

Structural Steel Protective Coating:

Protective Coating: System G in accordance with Sec 1080.

Prime Coat: The cost of the inorganic zinc prime coat will be considered completely covered by the contract unit price for the fabricated structural steel.

Field Coats: The color of the field coats shall be Brown (Federal Standard #30045). The cost of the intermediate and finish field coats will be considered completely covered by the contract unit price for the fabricated structural steel.

At the option of the contractor, the intermediate and finish field coats may be applied in the shop. The contractor shall exercise extreme care during all phases of loading, hauling, handling, erection and pouring of the slab to minimize damage and shall be fully responsible for all repairs and cleaning of the coating systems as required by the engineer.

Concrete Protective Coatings:

Temporary coating for concrete bents and piers (weathering steel) shall be applied on all concrete surfaces above the ground line or low water elevation on all abutments and intermediate bents in accordance with Sec 711.

Reinforcing Steel:

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

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

Traffic Handling:

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

Miscellaneous:

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



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ROUTE 46	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY WORTH	
JOB NO. JNW0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9467	
DESCRIPTION R001-REINFORCING REVISIONS	DATE 01/21/25
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	
105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	
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COUNTY WORTH
JOB NO. JNW0020
CONTRACT ID.

PROJECT NO.
BRIDGE NO. A9467

DATE	DESCRIPTION
01/21/25	R001-REINFORCING REVISIONS

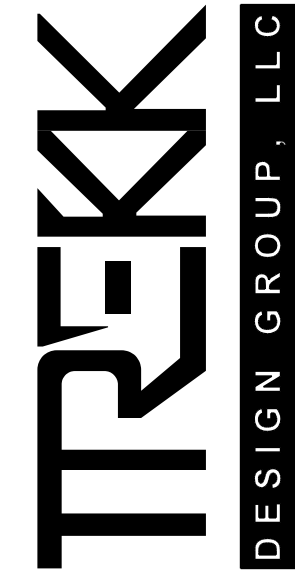
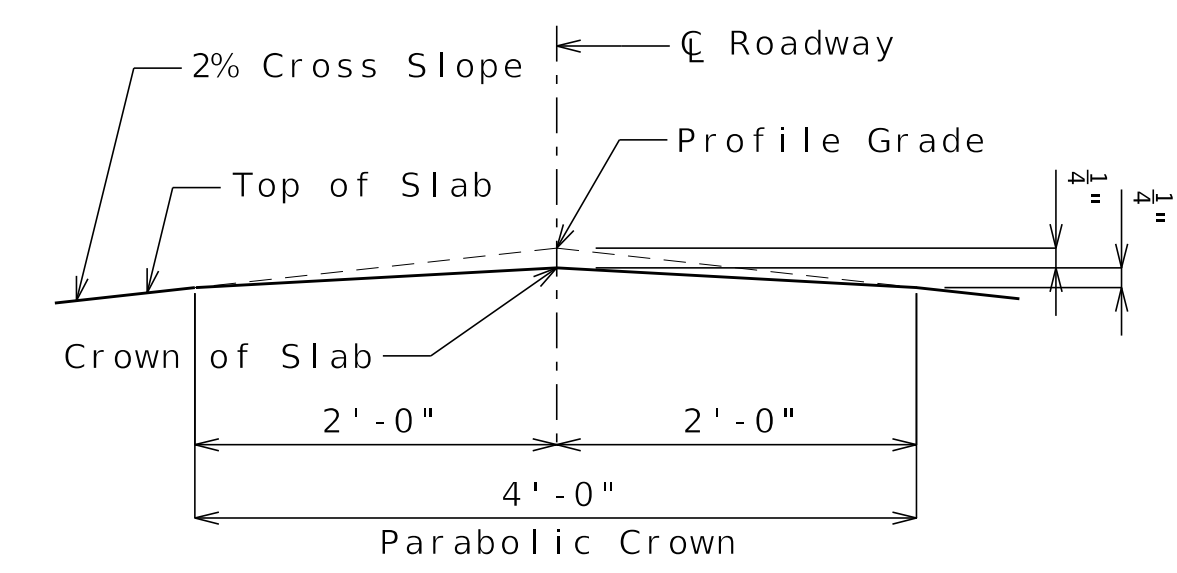
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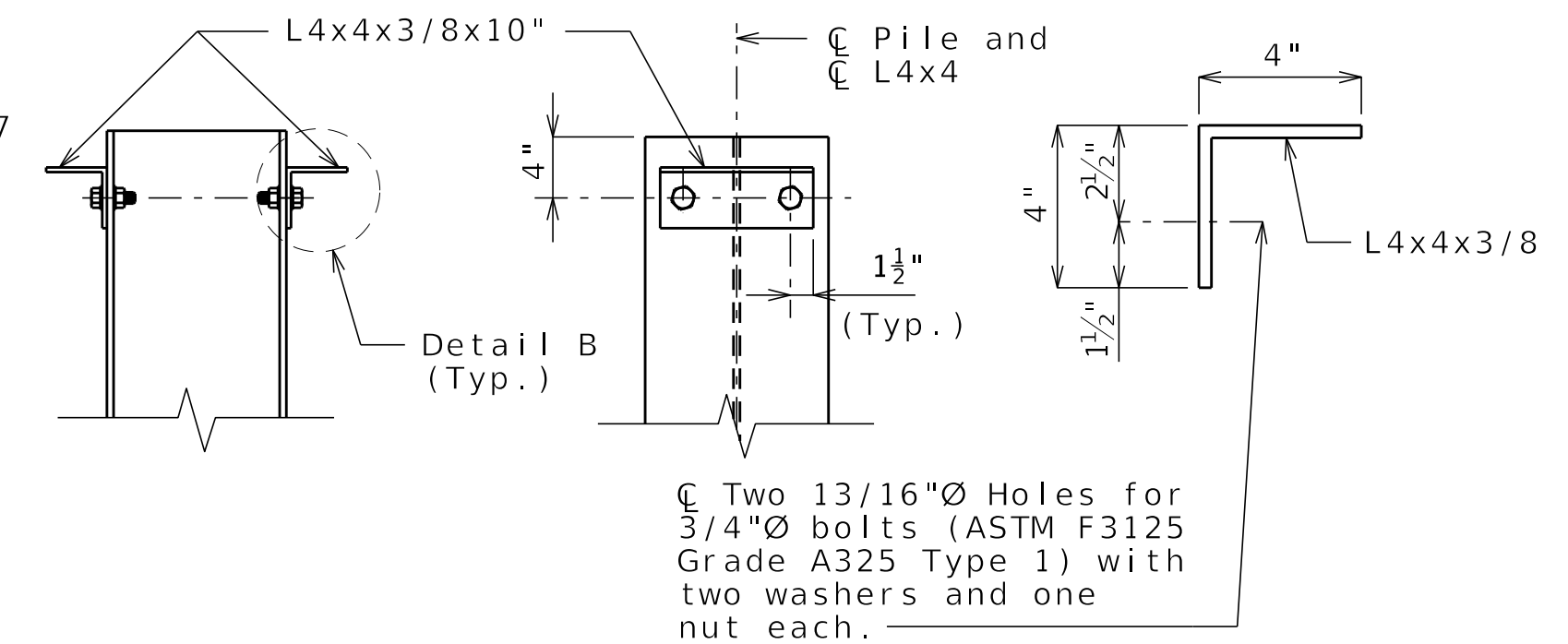
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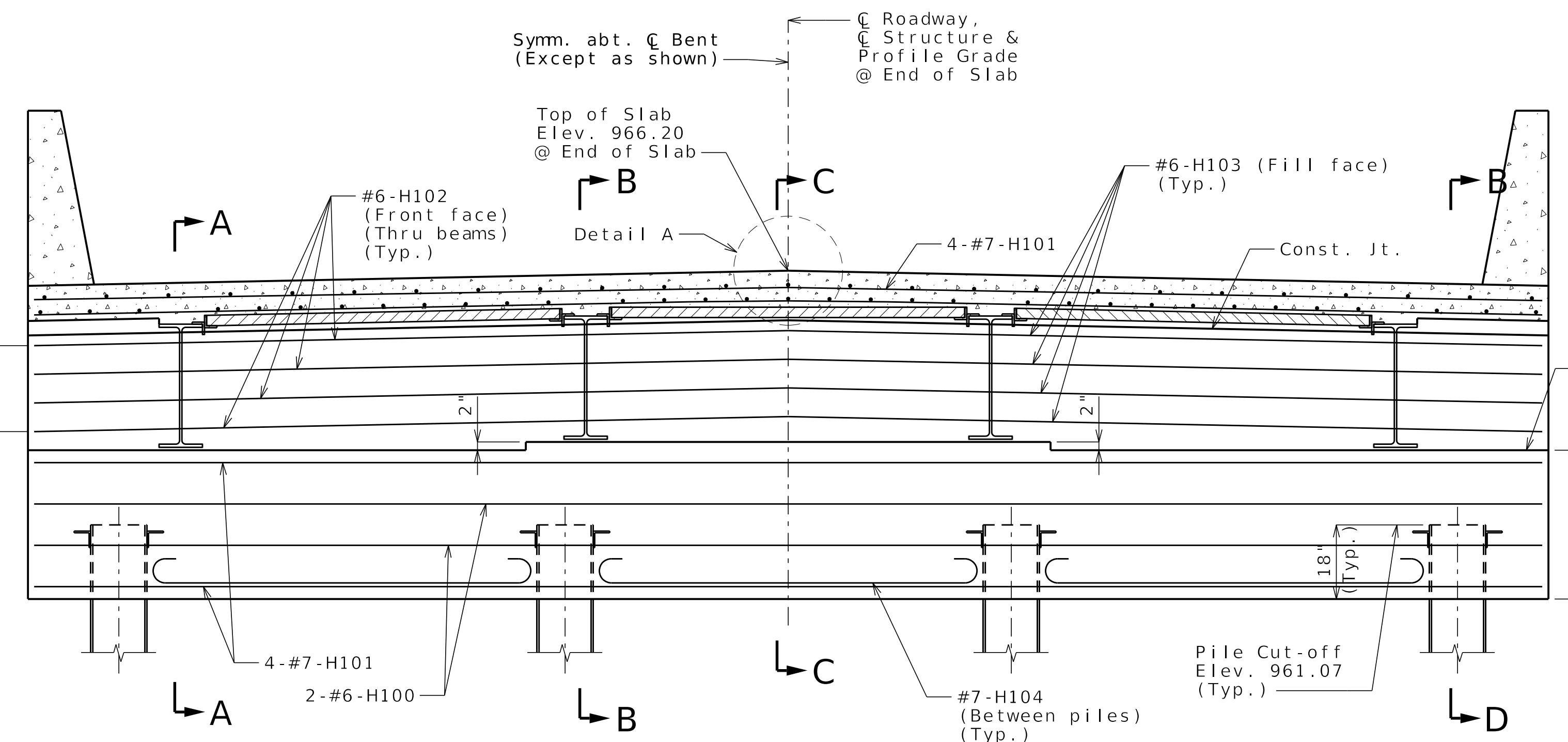



DETAIL A

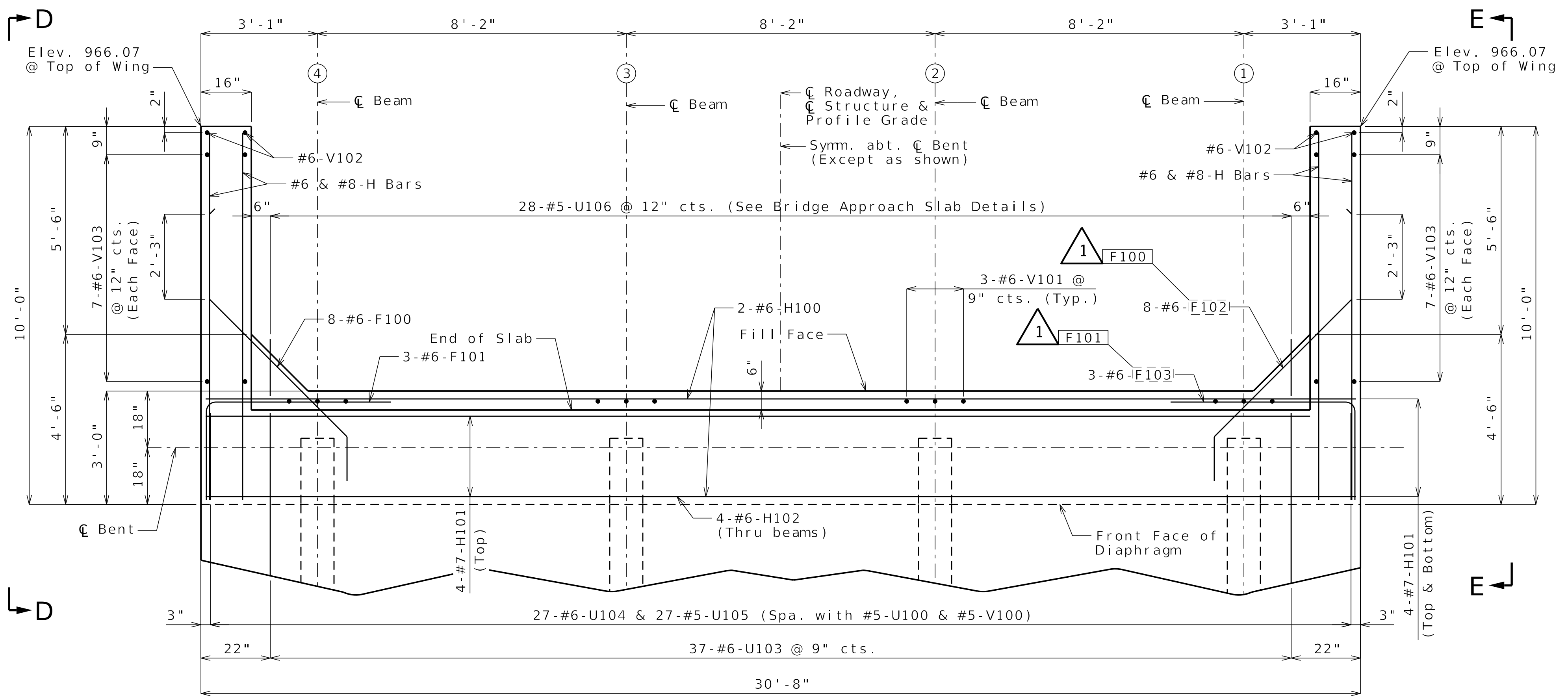


DETAILS OF HP PILE ANCHORS

Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

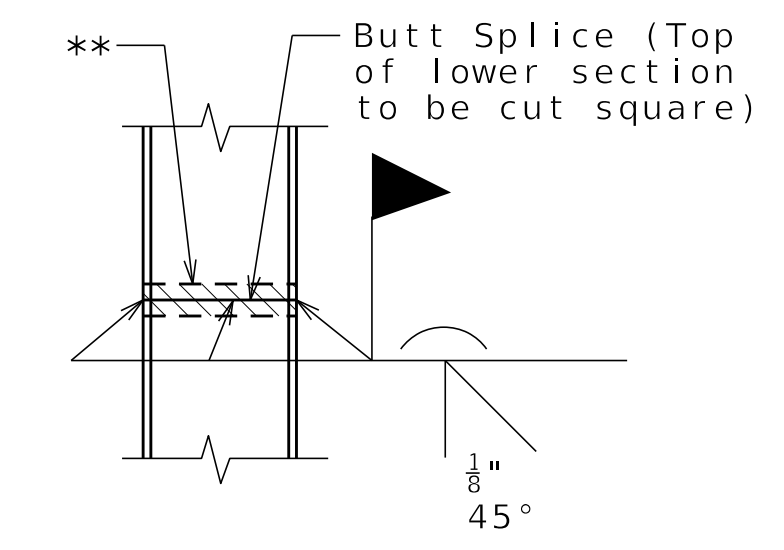


SECTION NEAR END BENT



PART PLAN

DETAILS OF END BENT NO. 1



STEEL PILE SPLICE (If required)

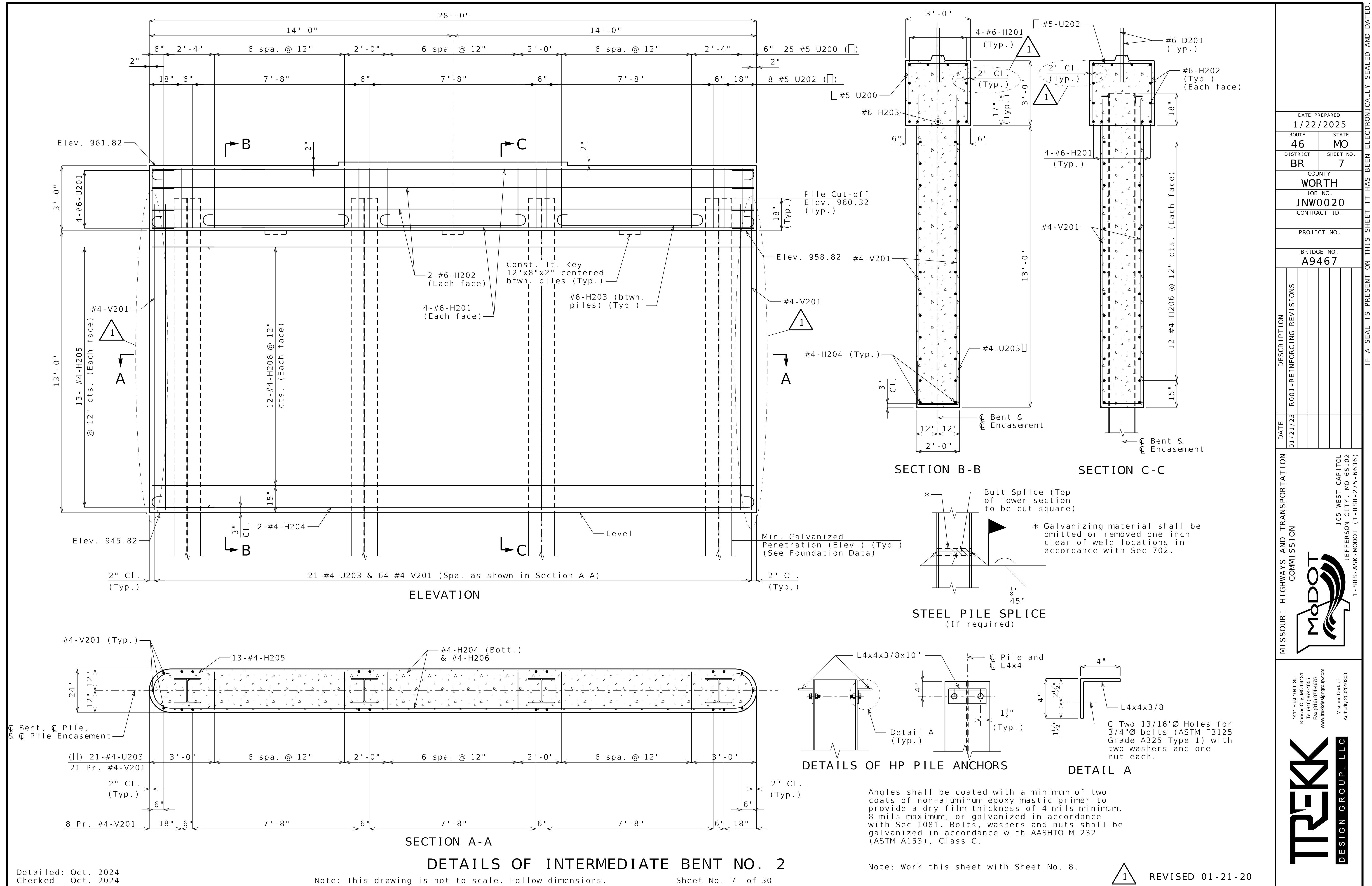
\*\* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

General Notes:

- Work this sheet with Sheets No. 3 & 5.
- For Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 5.
- The #6-F100 and #6-F102 bars shall be bent in the field to clear Beams.
- The U bars shall be placed parallel to centerline of roadway.
- All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
- For details of vertical drain at end bents, see Sheet No. 6.
- For details of bridge approach slab, see Sheet No. 24.

Detailed: Oct. 2024  
Checked: Oct. 2024

1 REVISED 01-21-2025

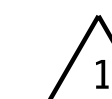


Detailed: Oct. 2024  
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Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 30

Note: Work this sheet with Sheet No. 8.



REVISED 01-21-20

DATE PREPARED 1/22/2025	
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DISTRICT BR	SHEET NO. 7
COUNTY WORTH	
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CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9467	

DATE	DESCRIPTION
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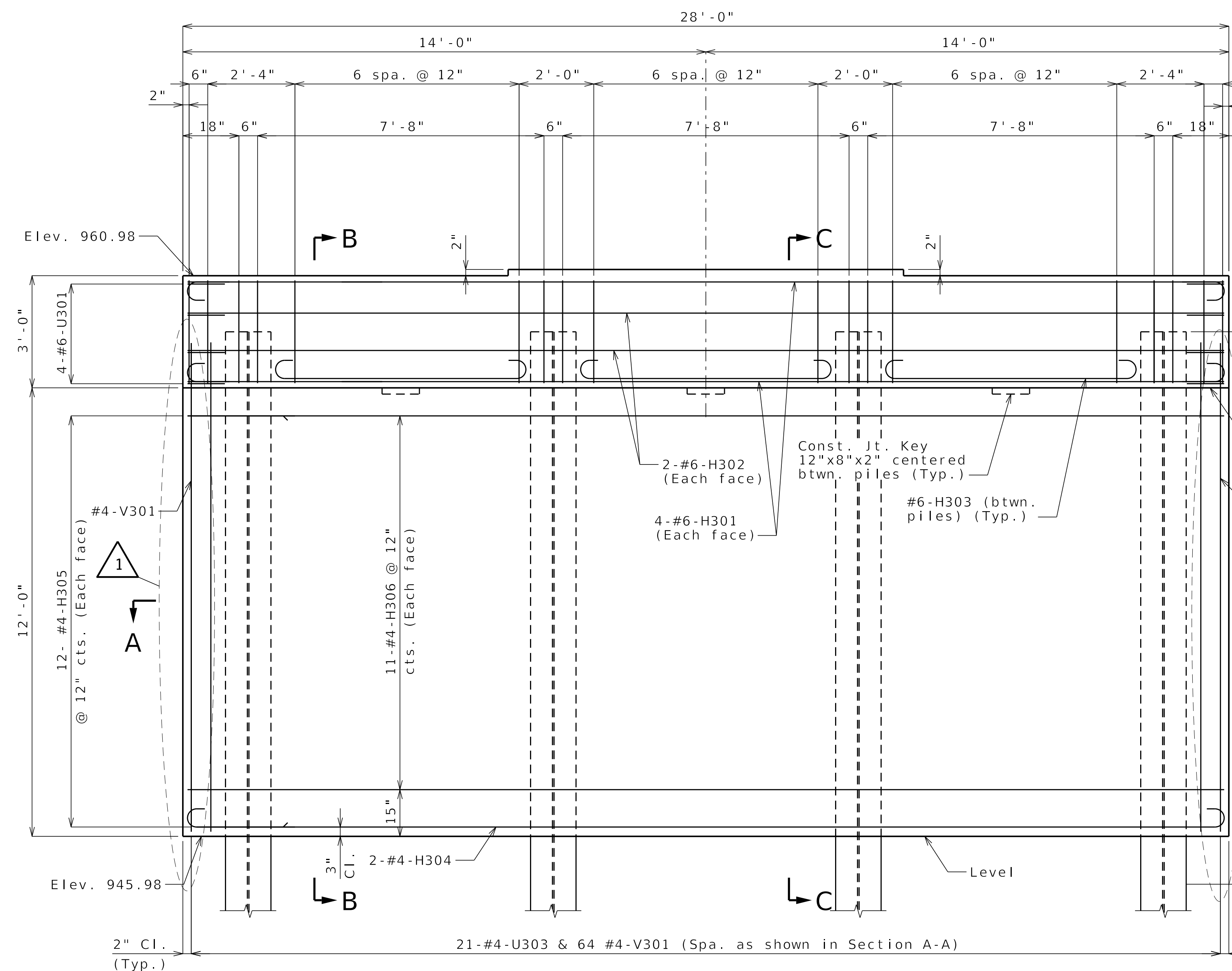
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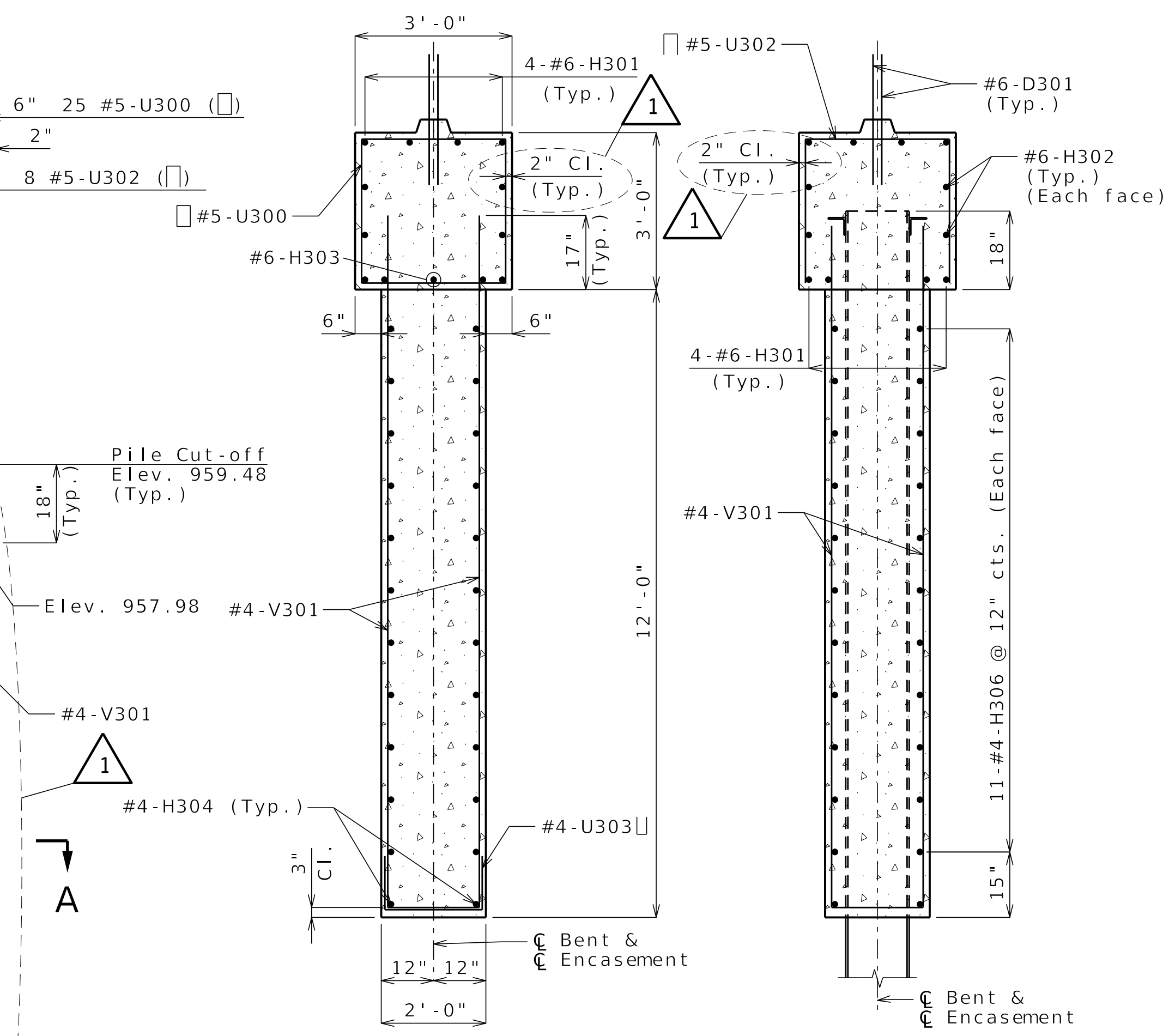
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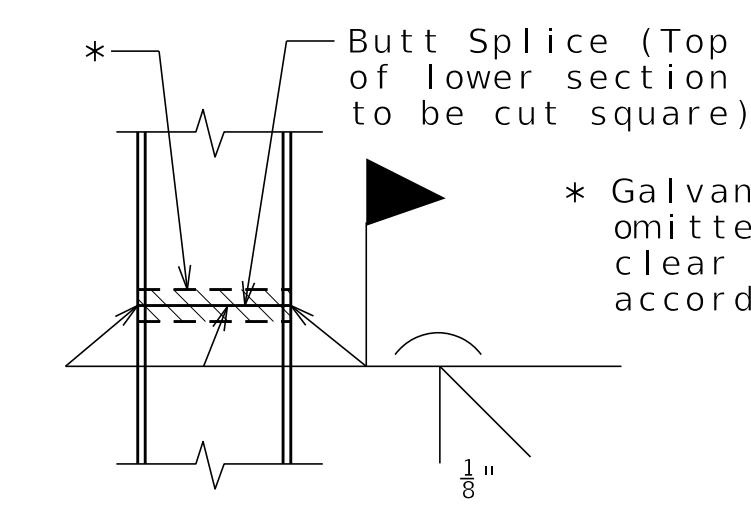


ELEVATION

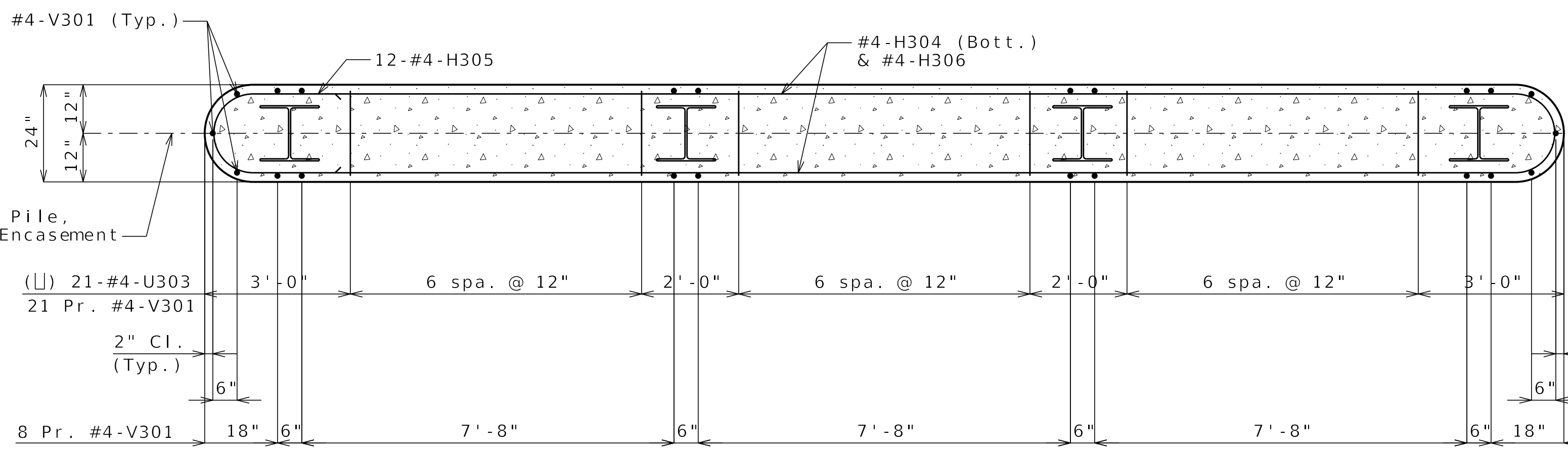


SECTION B-B

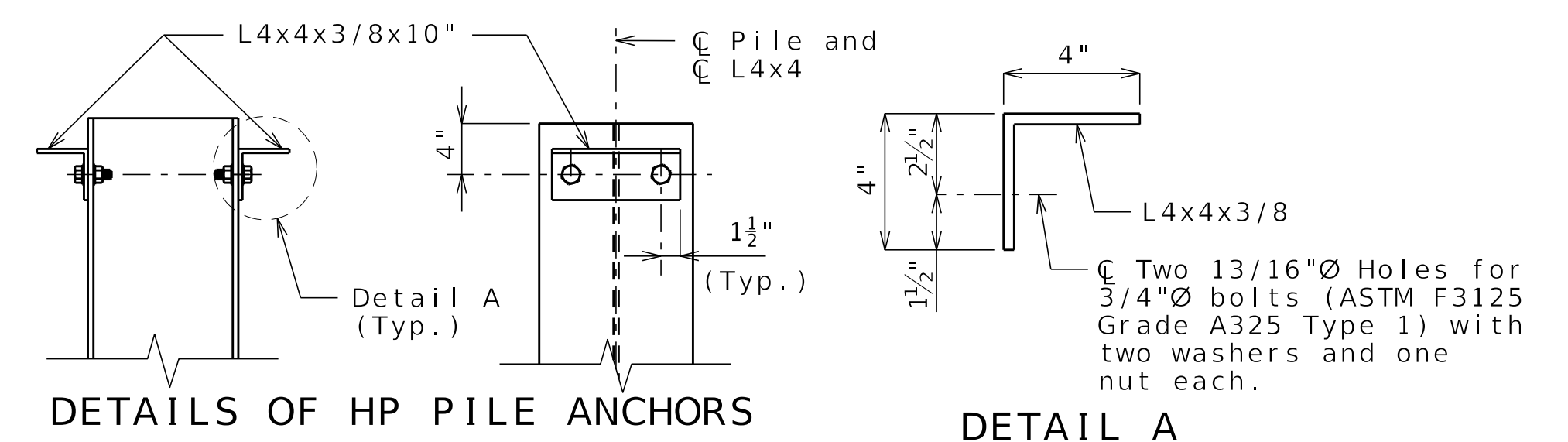
SECTION C-C



STEEL PILE SPLICE  
(If required)



SECTION A-A



DETAILS OF HP PILE ANCHORS

DETAIL A

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed: Oct. 2024  
Checked: Oct. 2024

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

Sheet No. 9 of 30

Note: Work this sheet with Sheet No. 10. **1** REVISED 01-21-2025

DATE PREPARED 1/27/2025	
ROUTE 46	STATE MO
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COUNTY WORTH	
JOB NO. JNW0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9467	

DATE	DESCRIPTION
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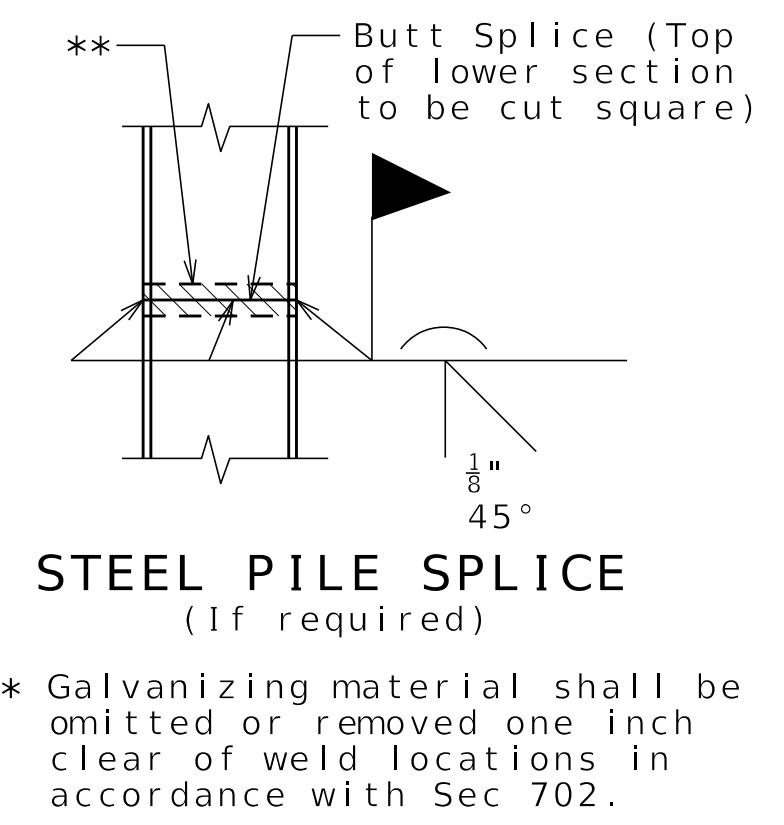
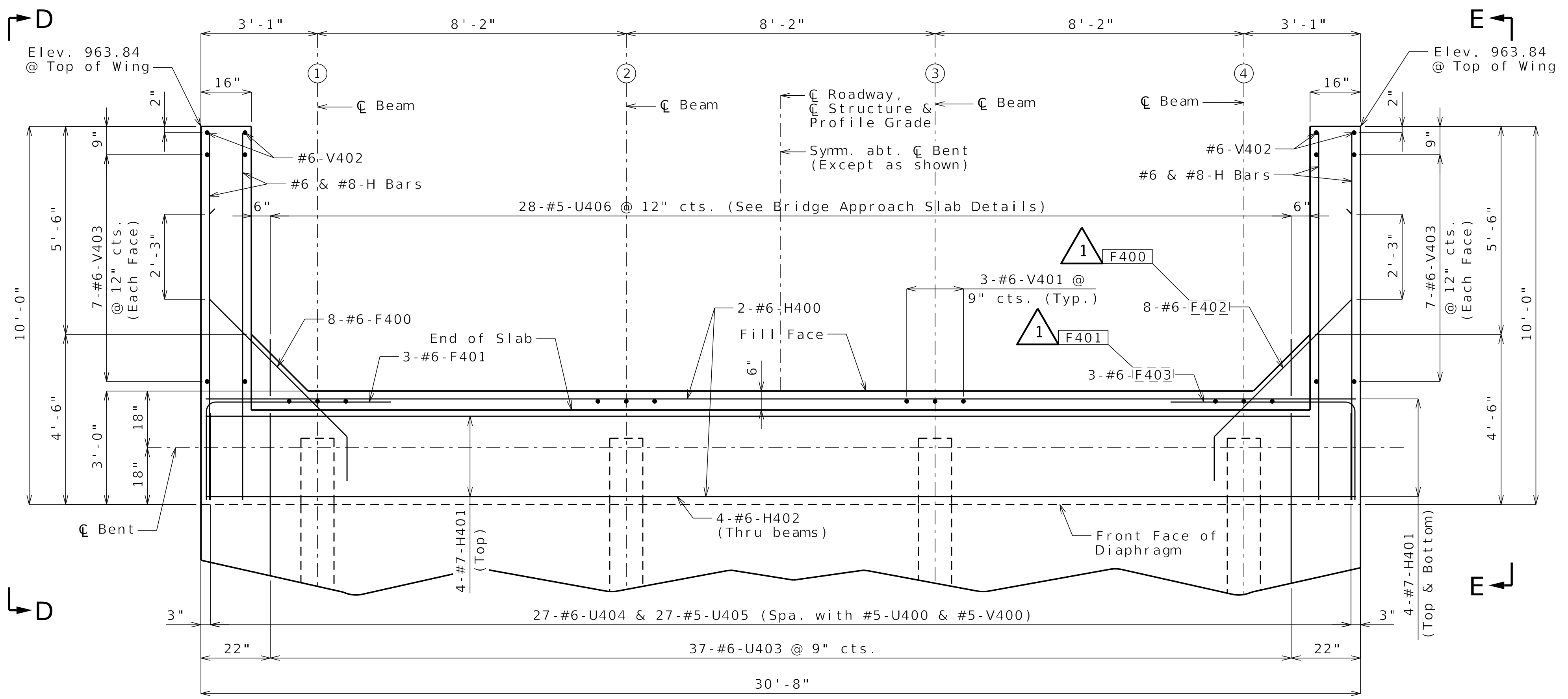
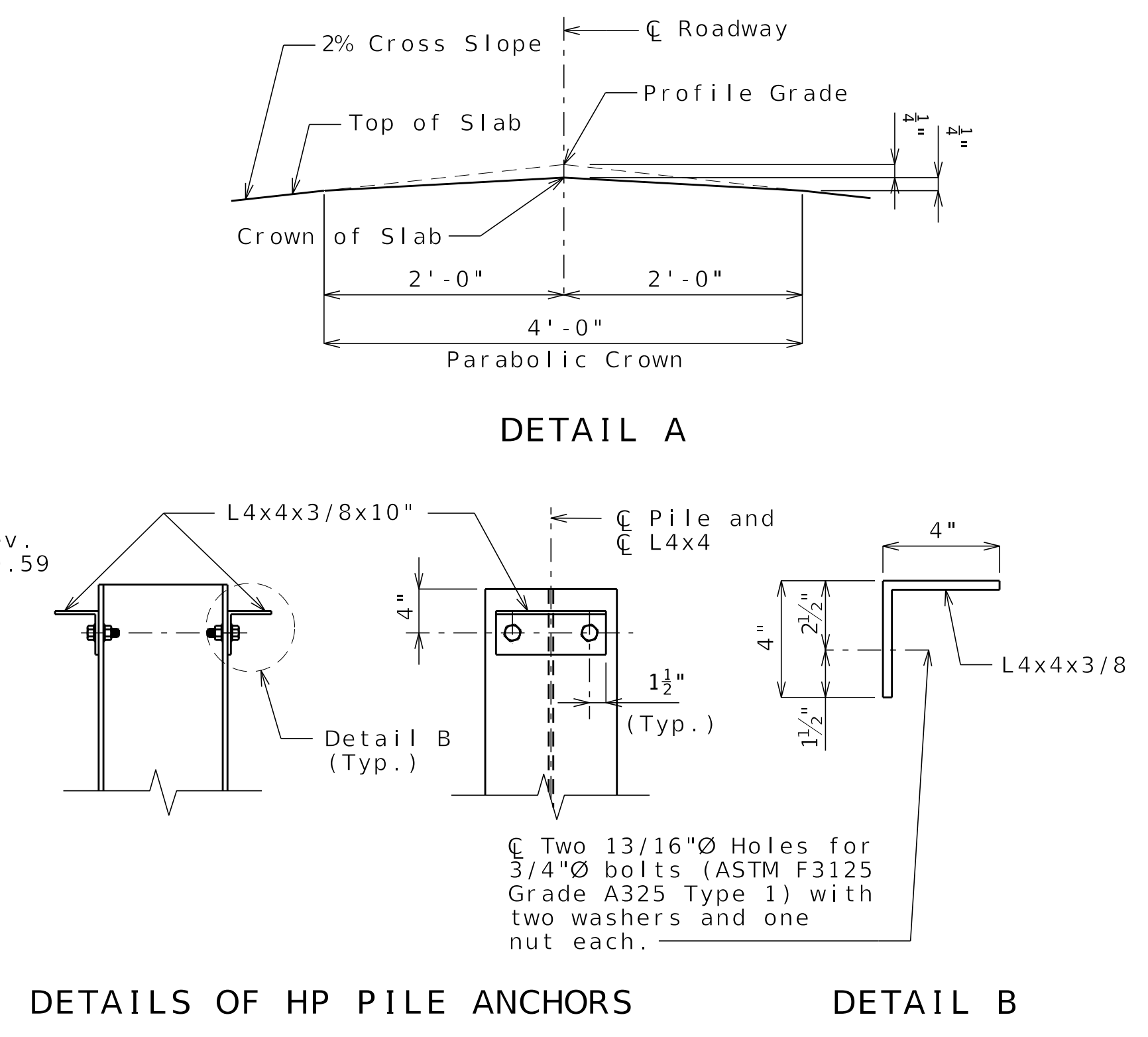
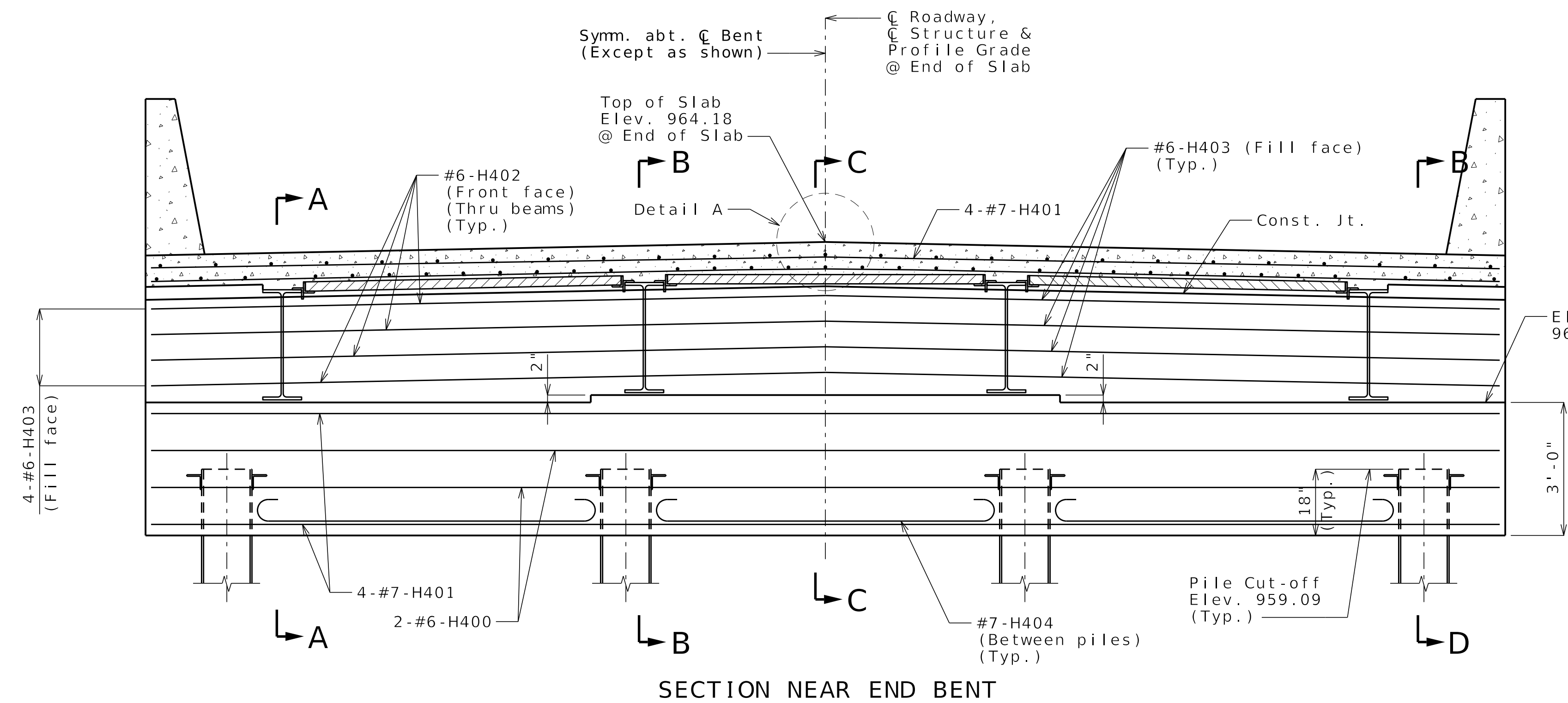
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**General Notes:**

Work this sheet with Sheets No. 11 & 13.

For Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 13

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

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

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

For details of vertical drain at end bents, see Sheet No. 6.

For details of bridge approach slab, see Sheet No. 24.

**DETAILS OF END BENT NO. 4**

Note: This drawing is not to scale. Follow dimensions. Sheet No. 12 of 30

Detailed: Oct. 2024  
Checked: Oct. 2024

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DATE PREPARED 1/22/2025	
ROUTE 46	STATE MO
DISTRICT BR	SHEET NO. 12

COUNTY  
**WORTH**  
JOB NO.  
**JN0020**  
CONTRACT ID.

PROJECT NO.  
  
BRIDGE NO.  
**A9467**

DATE	DESCRIPTION
01/21/25	R001-REINFORCING REVISIONS

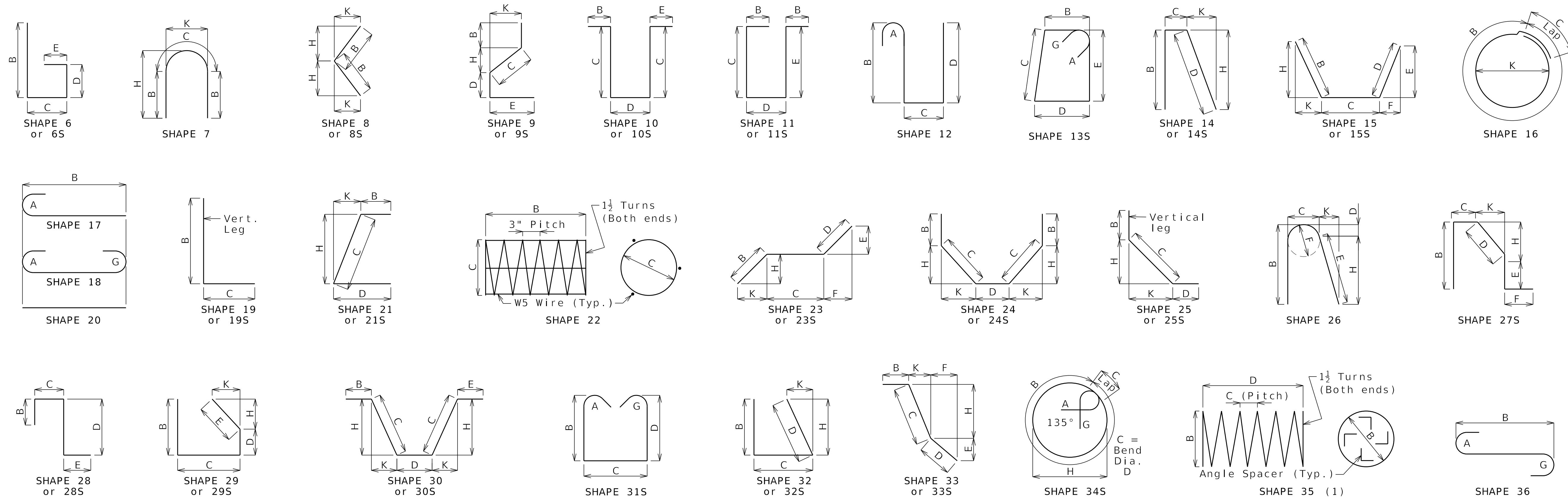
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### Finished Bend Diameters D and Hook Dimensions

#### Standard Pin Bend Shapes

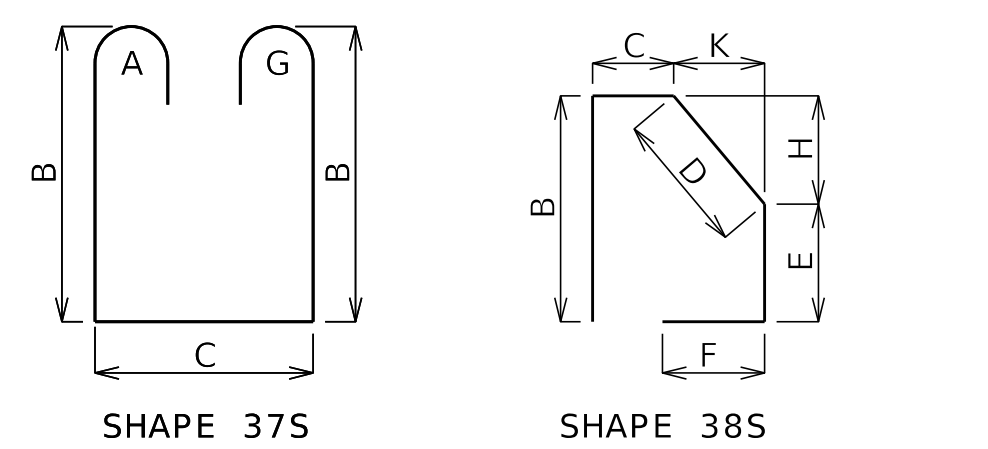
Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3 3/4"	10"	7"	5"
#6	1	4 1/2"	12"	8 1/4"	6"
#7	2	5 1/4"	14"	9 3/4"	7"
	3	7"	15"	11 1/2"	8 3/4"
#8	2	6"	16"	11"	8"
	3	8"	17"	13 1/4"	10"
#9	1	9 1/2"	19 1/2"	15 1/2"	11 3/4"
#10	1	10 3/4"	22"	17 1/2"	13 1/4"
#11	1	12"	24 1/2"	19 1/2"	14 7/8"
#14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

#### Stirrup Pin Bend Shapes (S)

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

Applicable for all grades of steel.  
Case 1 applies to all reinforcement. Case 2 applies to all reinforcement except for galvanized bars. Case 3 applies to galvanized bars only.



BENDING DIAGRAMS

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

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

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

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

### Reinforcing Steel Totals (Pounds)

Size	Substructure		Superstructure			Entire Bridge		
	Plain	Epoxy	Slab		Barrier	Slip Form	Plain	Epoxy
			Plain	Epoxy				
W5	0	0	0	0	0	0	0	0
4	2,513	0	0	385	0	0	2,513	385
5	716	0	0	16,210	8,250	566	716	25,026
6	1,390	0	0	23,571	0	0	1,390	23,571
7	0	0	0	1,594	0	0	0	1,594
8	0	0	0	834	0	0	0	834
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0
By Type	4,619	0	0	42,594	8,250	566	4,619	51,410

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

DATE PREPARED	1/22/2025	
ROUTE	46	STATE MO
DISTRICT	BR	SHEET NO. 25
COUNTY	WORTH	
JOB NO.	JNW0020	
CONTRACT ID.		
PROJECT NO.		
BRIDGE NO.	A9467	

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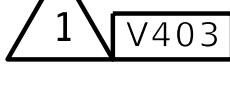
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BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

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No. Req.	Size/ Mark	Location	Codes			Dimensions											Nom. Length	Actual Length	Weight				
			C	SH	V	B	C	D	E	F	H	K	in.	ft.	in.	ft.				in.	ft.	in.	ft.
<b>Bill of Reinforcing Steel</b>																							
<b>SUBSTRUCTURE</b>																							
<b>INT. BENT NO. 2</b>																							
25	6 D201	BEAM KEY		20	2	6.000													2	6	2	6	94
8	6 H201	BEAM		18		8.000													29	0	29	0	348
4	6 H202	BEAM		20		8.000													27	8	27	8	166
3	6 H203	BEAM		18		8.000													8	0	8	0	36
2	4 H204	BEAM		18		0.000													27	0	27	0	36
26	4 H205	BEAM		7	3	0.000	2	5.750					3	9.500		19.000			8	6	8	6	148
24	4 H206	BEAM		20		0.000													26	0	26	0	417
25	5 U200	BEAM		13	2	8.000	2	8.000	2	8.000	2	8.000							11	11	11	3	293
8	6 U201	BEAM		10			12.000	2	6.750										4	6	4	3	51
8	5 U202	BEAM		10			2	8.000	2	8.000									8	0	7	9	65
21	4 U203	BEAM		10			2	0.000		20.000									5	8	5	6	77
64	4 V201	COLUMN		20		14	2.000												14	2	14	2	606
<b>INT. BENT NO. 3</b>																							
25	6 D301	BEAM KEY		20	2	6.000													2	6	2	6	94
8	6 H301	BEAM		18		8.000													29	0	29	0	348
4	6 H302	BEAM		20		8.000													27	8	27	8	166
3	6 H303	BEAM		18		8.000													8	0	8	0	36
2	4 H304	BEAM		18		0.000													27	0	27	0	36
24	4 H305	BEAM		7	3	0.000	2	5.750					3	9.500		19.000			8	6	8	6	136
24	4 H306	BEAM		20		0.000													26	0	26	0	417
25	5 U300	BEAM		13	2	8.000	2	8.000	2	8.000	2	8.000							11	7	11	3	293
8	6 U301	BEAM		10			12.000	2	6.750										4	6	4	3	51
8	5 U302	BEAM		10			2	8.000	2	8.000									8	0	7	9	65
21	4 U303	BEAM		10			2	0.000		20.000									5	8	5	6	77
64	4 V301	COLUMN		20		13	2.000												13	2	13	2	563
<b>SUPERSTRUCTURE</b>																							
<b>INT. BENT DIAPHRAGM</b>																							
16	6 H50	DIAPHRAGM	E	20		27	2.000												27	2	27	2	653
40	6 U50	DIAPHRAGM	E	28			2	2.000	2	6.000	2	2.000							6	10	6	6	391
96	4 U51	DIAPHRAGM	E	28				18.000	2	6.000	2	2.000							6	2	6	0	385
16	6 U52	DIAPHRAGM	E	10				12.000	2	2.000									3	2	2	10	68



1 V403

All bars shall be Grade 60.

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. 25.

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.

No. Req.	Size/ Mark	LOCATION	Codes			Dimensions											Nom. Length	Actual Length	Weight					
			C	SH	V	B	C	D	E	F	H	K	in.	ft.	in.	ft.				in.	ft.	in.	ft.	in.
<b>Bill of Reinforcing Steel</b>																								
<b>END BENT 1</b>																								
16	6 F100	WING BRACE	E	23	2	3.000	5	1.750	1	2.000		10.000		10.000	1	7.000	1	7.000	8	7	8	6	204	
6	6 F101	DIAPHRAGM	E	6	4	10.000	2	8.500												7	7	7	5	67
4	6 H100	BEAM	E	20		30	5.000																	
12	7 H101	BEAM & DIAPHRAGM	E	20		30	5.000																	
4	6 H102	DIAPHRAGM	E	20		30	5.000																	
4	6 H103	DIAPHRAGM	E	20		30	5.000																	
3	7 H104	DIAPHRAGM	E	18		6	8.000																	
16	8 H105	WING	E	20		9	9.000																	
32	6 H106	WING	E	20		9	9.000																	
23	5 U100	BEAM	E	31	4	5.000	2	9.000	4	5.000														
4	5 U101	BEAM	E	13	2	9.000	2	8.000	2	9.000	2	8.000												
4	5 U102	BEAM	E	10			2	10.000	2	9.000														
37	6 U103	BEAM	E	19	2	11.000	4	6.500																
27	6 U104	BEAM	E	19	2	4.500	2	9.000																
27	6 U105	DIAPHRAGM	E	31	2	10.750	2	3.000	2	10.750														
28	5 U106	DIAPHRAGM	E	19	2	0.000	1	3.000																
8	5 V100	BEAM	E	17	4	5.000																		
12	6 V101	BEAM	E	20	2	4.500																		
4	6 V102	WING	E	20	6	3.000																		
28	6 V103	WING	E	20	V	6	1.250																	
		INC = 0.125 INCH			6	2.750																		
<b>END BENT 4</b>																								
16	6 F400	WING BRACE	E	23	2	3.000	5	1.750	1	2.000		10.000		10.000	1	7.000	1	7.000	8	7	8	6	204	
6	6 F401	DIAPHRAGM	E	6	4	10.000	2	8.500																
4	6 H400	BEAM	E	20		30	5.000																	
12	7 H401	BEAM & DIAPHRAGM	E	20		30	5.000																	
4	6 H402	DIAPHRAGM	E	20		30	5.000																	
4	6 H403	DIAPHRAGM	E	20		30	5.000																	
3	7 H404	DIAPHRAGM	E	18		6	8.000																	
16	8 H405	WING	E	20		9	9.000																	
32	6 H406	WING	E	20		9	9.000																	
23	5 U400	BEAM	E	31	4	5.000	2	9.000	4	5.000														
4	5 U401	BEAM	E	13	2	9.000	2	8.000	2	9.000	2	8.000												
4	5 U402	BEAM	E	10			2	10.000	2	9.000														
37	6 U403	BEAM	E	19	2	11.000	4	6.500																
27	6 U404	BEAM	E	19	2	2.000	2	9.000																
27	6 U405	DIAPHRAGM	E	31	2	8.250	2	3.000	2	8.250														
28	5 U406	DIAPHRAGM	E	19	2	0.000	1	3.000																
8	5 V400	BEAM	E	17	4	5.000																		
12	6 V401	BEAM	E	20	2	2.000																		
4	6 V402	WING	E	20	6	0.000																		
28	6 V103	WING	E	20	6	0.500																		

DATE	DESCRIPTION
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TREKK DESIGN GROUP, LLC

Detailed: Oct. 2024  
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Sheet No. 26 of 30

REVISED 01-21-2025

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Bill of Reinforcing Steel																					
No. Req.	Size/ Mark	Location	Codes			Dimensions											Nom. Length		Actual Length		Weight lb
			C	SH	V	B ft	C in.	D ft	E in.	F ft	H in.	K ft	in.	ft	in.	ft	in.	ft	in.		
SLAB																					
278	6 S1	SLAB	E	20		30	5.000										30	5 30	5	12701	
196	5 S2	SLAB	E	20		30	5.000										30	5 30	5	6218	
174	5 S3	SLAB	E	20		49	5.000										49	5 49	5	8968	
96	6 S4	SLAB	E	20		32	0.000										32	0 32	0	4614	
TYPE D BARRIER																					
278	5 R1	BARRIER	E	26	3	3.000	5.500	3	3.625					3	3.000	6.750	6	10 6	9	1957	
278	5 R2	BARRIER	E	19		20.500	9.500										2	6 2	5	701	
278	5 R3	BARRIER	E	27			9.500		15.250	5.000	12.000	15.000			3.000		3	6 3	4	967	
80	5 R4	BARRIER	E	20	11	9.000								1	6		11	9 11	9	980	
40	5 R5	BARRIER	E	20	26	5.000											26	5 26	5	1102	
20	5 R6	BARRIER	E	20	35	9.000	6.000	1						1	6		35	9 35	9	746	
20	5 K1	BARRIER	E	27	3	8.000	9.250		5.375	3	2.750			5.250	1.000		8	0 7	11	165	
60	5 K2	BARRIER	E	27	3	8.000	9.250		14.500	2	5.750			14.250	2.750		8	2 7	11	495	
20	5 K4	BARRIER	E	19	V	2	4.250	10.000									3	2 3	1	66	
		INC. = 0.500 INCH					6.250	10.000									3	4 3	3		
20	5 K5	BARRIER	E	14	V		8.250	9.500	18.500				4.000	18.000			3	0 2	11	63	
		INC. = 0.500 INCH					8.250	9.500	20.500				4.500	20.000			3	2 3	1		
12	5 K6	BARRIER	E	19	V	2	6.750	10.000									3	5 3	4	42	
		INC. = 0.500 INCH					7.750	10.000									3	6 3	5		
12	5 K7	BARRIER	E	21	V	2	6.625	10.000				2	6.000	6.250			3	5 3	3	41	
		INC. = 0.500 INCH					7.625	10.000				2	7.000	6.500			3	6 3	4		
36	5 K8	BARRIER	E	19	V	2	8.500	10.000									3	7 3	5	138	
		INC. = 0.750 INCH					2.500	10.000									4	1 3	11		
12	5 K9	BARRIER	E	21	V	2	8.500	10.000				2	7.750	6.750			3	7 3	5	46	
		INC. = 0.750 INCH					2.500	10.000				3	1.750	7.750			4	1 3	11		
12	5 K10	BARRIER	E	19	3	3.000	10.000										4	1 4	0	50	
12	5 K11	BARRIER	E	21	3	3.000	10.000				3	2.250	7.750				4	1 3	11	49	
48	5 K12	BARRIER	E	20	9	9.000											9	9 9	9	488	
24	5 K13	BARRIER	E	20	V	3	2.000										3	2 3	12	154	
		INC. = 36.000 INCH				9	2.000										9	2 9	2		
SLIP FORM OPTION																					
							0.000	1													
							0.000	1													
40	5 C1	BARRIER	E	20		12	0.000										12	0 12	0	501	
8	5 C2	BARRIER	E	20		7	9.000										7	9 7	9	65	

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

For bending diagrams and steel reinforcing totals, see Sheet No. 25.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

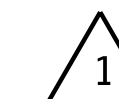
V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

### BILL OF REINFORCING STEEL

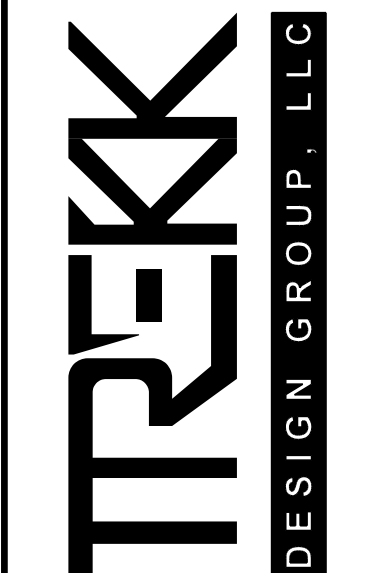
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Sheet No. 27 of 30



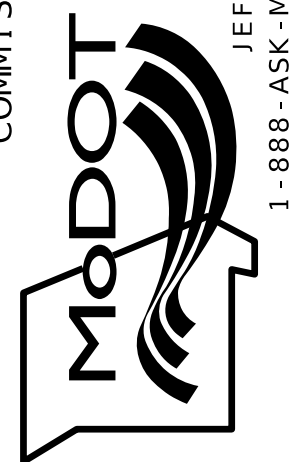
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Transportation  
Authority 202310300

MISSOURI HIGHWAYS AND TRANSPORTATION  
COMMISSION



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

DESCRIPTION  
R001-REINFORCING REVISIONS

DATE  
01/21/25

BRIDGE NO.  
A9467

PROJECT NO.

COUNTY  
WORTH

JOB NO.  
JNW0020

CONTRACT ID.

DISTRICT  
BR

ROUTE  
46

STATE  
MO

DATE PREPARED  
1/22/2025

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Estimated Quantities				
Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	80	-	80
Removal of Bridges (X0142)	lump sum	-	-	1
Bridge Approach Slab (Minor)	sq. yard	-	109	109
Drilled Shaft (4ft. 0in. Dia.)	linear foot	80.0	-	80.0
Rock Sockets (3ft. 6in. Dia.)	linear foot	98.0	-	98.0
Video Camera Inspection	each	4	-	4
Foundation Inspection Holes	linear foot	138.0	-	138.0
Sonic Logging Test	each	4	-	4
Galvanized Structural Steel Piles (12 in.)	linear foot	372	-	372
Dynamic Pile Testing	each	2	-	2
Pre-Bore for Piling	linear foot	190	-	190
Pile Point Reinforcement	each	8	-	8
Class B Concrete (Substructure)	cu. yard	102.6	-	102.6
Type D Barrier	linear foot	-	607	607
Slab on Concrete NU-Girder	sq. yard	-	837	837
NU-43 Prestressed Concrete NU-Girder	linear foot	-	840	840
Reinforcing Steel (Bridges)	pound	33,250	-	33,250
Vertical Drain at End Bent	each	-	-	2
Laminated Neoprene Bearing Pad	each	-	12	12
Laminated Neoprene Bearing Pad (Tapered)	each	-	6	6

Hydrologic Data
Drainage Area = 249 sq. mi.
Design Flood Frequency = 50 yr.
Design Flood Discharge = 18,500 cfs
Design Flood (D.F.) Elevation = 924.3 ft.
Base Flood (100-Year)
Base Flood Elevation = 924.9
Base Flood Discharge = 21,300 cfs.
Estimated Backwater = 0.2 ft.
Average Velocity thru Opening = 4.1 ft./p
Freeboard (50-year)
Freeboard = 5.7 ft.
Roadway Overtopping
Overtopping Flood Discharge = 12,800 cfs.
Overtopping Flood Frequency = 12-yr
Overtopping Flood Elevation = 922.7 ft.

**General Notes:**

**Design Specifications:**  
 2020 AASHTO LRFD Bridge Design Specification (9th Ed)  
 Seismic Design Category = A (Nonseismic)  
 Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.104g  
 Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.066g

**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 Shaft & Rock Sockets) f'c = 3,000 psi  
 Class B-2 Concrete (Drilled Shafts & Rock Sockets) f'c = 4,000 psi  
 Class B-2 Concrete (Superstructure, except Prestressed Girders and Barrier) f'c = 4,000 psi  
 Class B-1 Concrete (Barrier) f'c = 4,000 psi  
 Reinforcing Steel (ASTM A615 Grade 60) fy = 60,000 psi  
 Structural Steel HP Pile (ASTM A709 Grade 50) fy = 50,000 psi  
 For NU-Girders, see Sheets No. 14 thru 19.

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

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

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

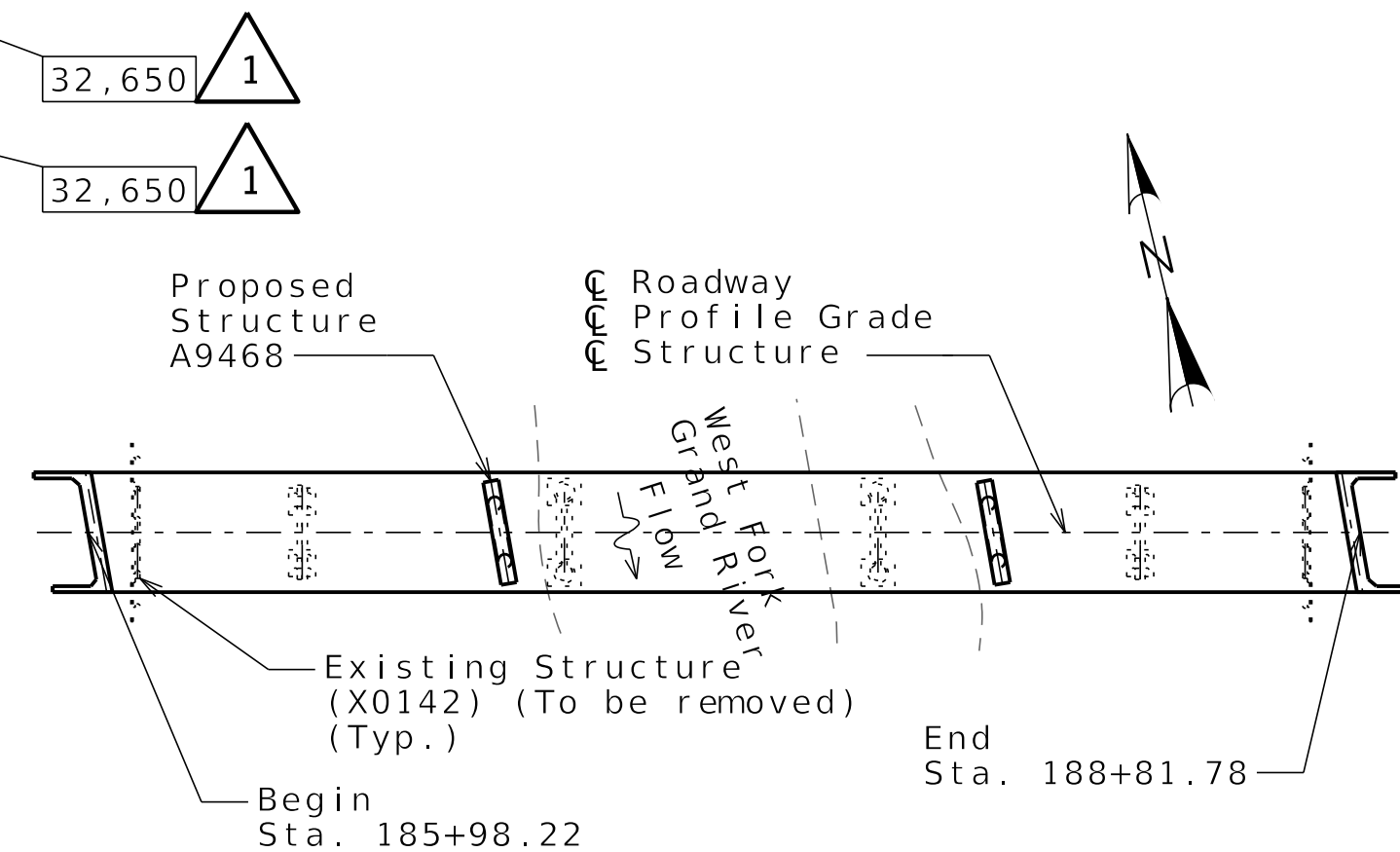
**Traffic Handling:**  
 Structure to be closed to traffic during construction. Traffic to be maintained on other routes during construction. See Roadway plans for traffic control.

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.



LOCATION SKETCH

Foundation Data					
Type	Design Data	Bent Number			
		1	2	3	4
Load Bearing Pile	Pile Type and Size	HP 12x53	-	-	HP 12x53
	Number	ea 4	-	-	ea 4
	Approximate Length Per Each	ft 49	-	-	ft 44
	Pile Point Reinforcement	ea All	-	-	ea All
	Min. Galvanized Penetration (Elev.)	ft Full Length	-	-	ft Full Length
	Pile Driving Verification Method	DT	-	-	DT
Resistance Factor	0.65	-	-	0.65	
Minimum Nominal Axial Compressive Resistance	kip	358	-	-	341
Rock Socket	Number	ea -	ea 2	ea 2	ea -
	Foundation Material	-	Weak Rock	Weak Rock	-
	Elevation Range	ft -	888-878	886-874	-
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf -	4.0	4.0	-
	Foundation Material	-	Strong Rock	Strong Rock	-
	Elevation Range	ft -	878-855	874-861	-
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf -	12.9	12.9	-
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf -	34.0	39.2	-

Estimated Quantities for Slab on Concrete NU-Girder		
Item		Total
Class B-2 Concrete	cu. yard	262
Reinforcing Steel (Epoxy Coated)	pound	97,070

The table of Estimated Quantities for 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 an adjustment in the contract unit price.

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

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

Load Bearing Pile:  
 DT = Dynamic Testing  
 Minimum Nominal Axial Compressive Resistance =  $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factors}}$

Rock Socket:  
 Minimum Nominal Axial Compressive Resistance (Side Resistance + Top Resistance) =  $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factors}}$

Prebore for piles at Bent No. 1 to elevation 889.00.

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

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.

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

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

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.

**GENERAL NOTES AND QUANTITIES**

1 REVISED 01-22-2025

Detailed Oct. 2024  
 Checked Nov. 2024

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

Sheet No. 2 of 36

DATE PREPARED	
1/22/2025	
ROUTE	STATE
W	MO
DISTRICT	SHEET NO.
BR	2

COUNTY	
WORTH	
JOB NO.	
JN0020	
CONTRACT ID.	

PROJECT NO.
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BRIDGE NO.
A9468

DATE	DESCRIPTION
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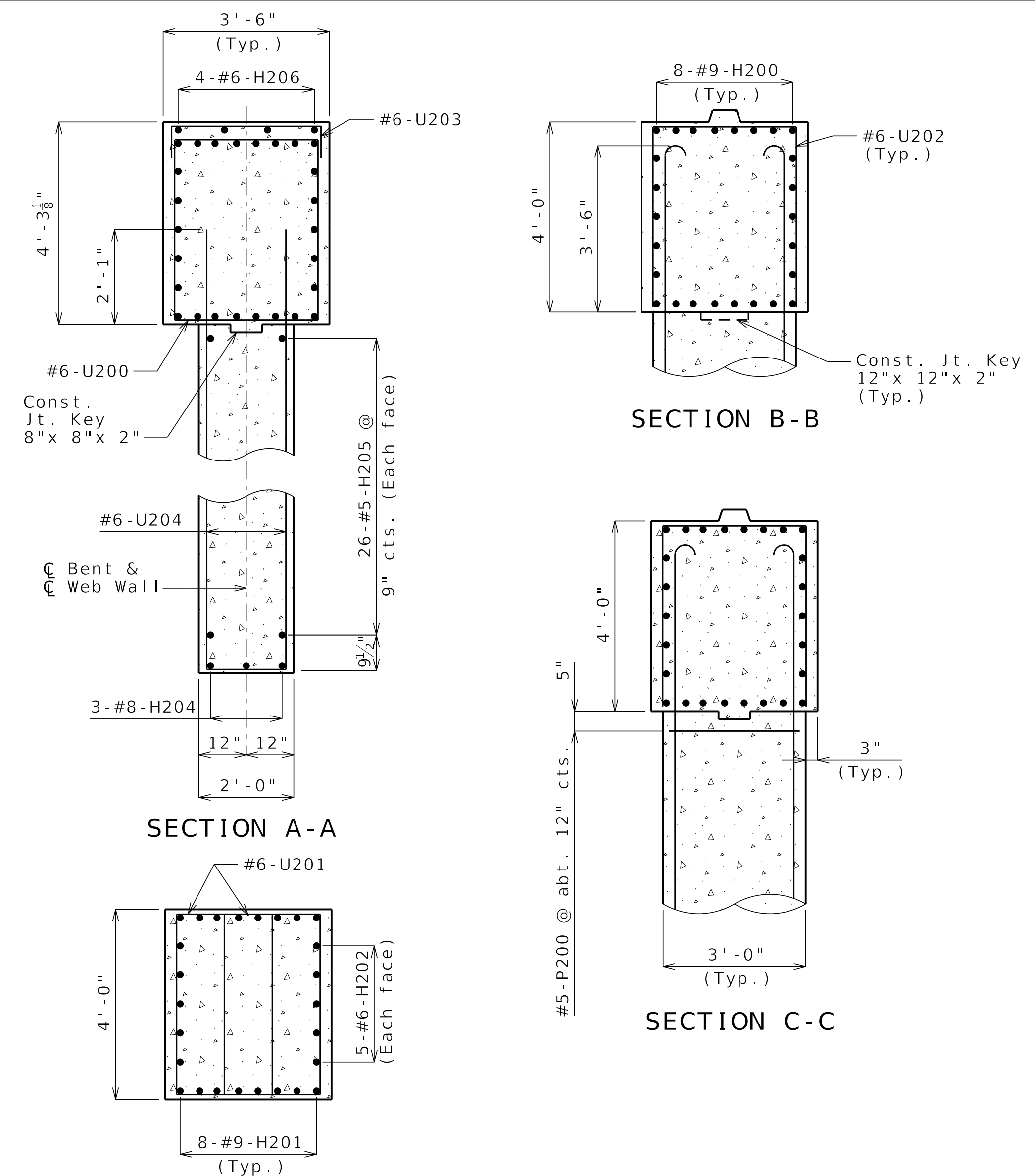
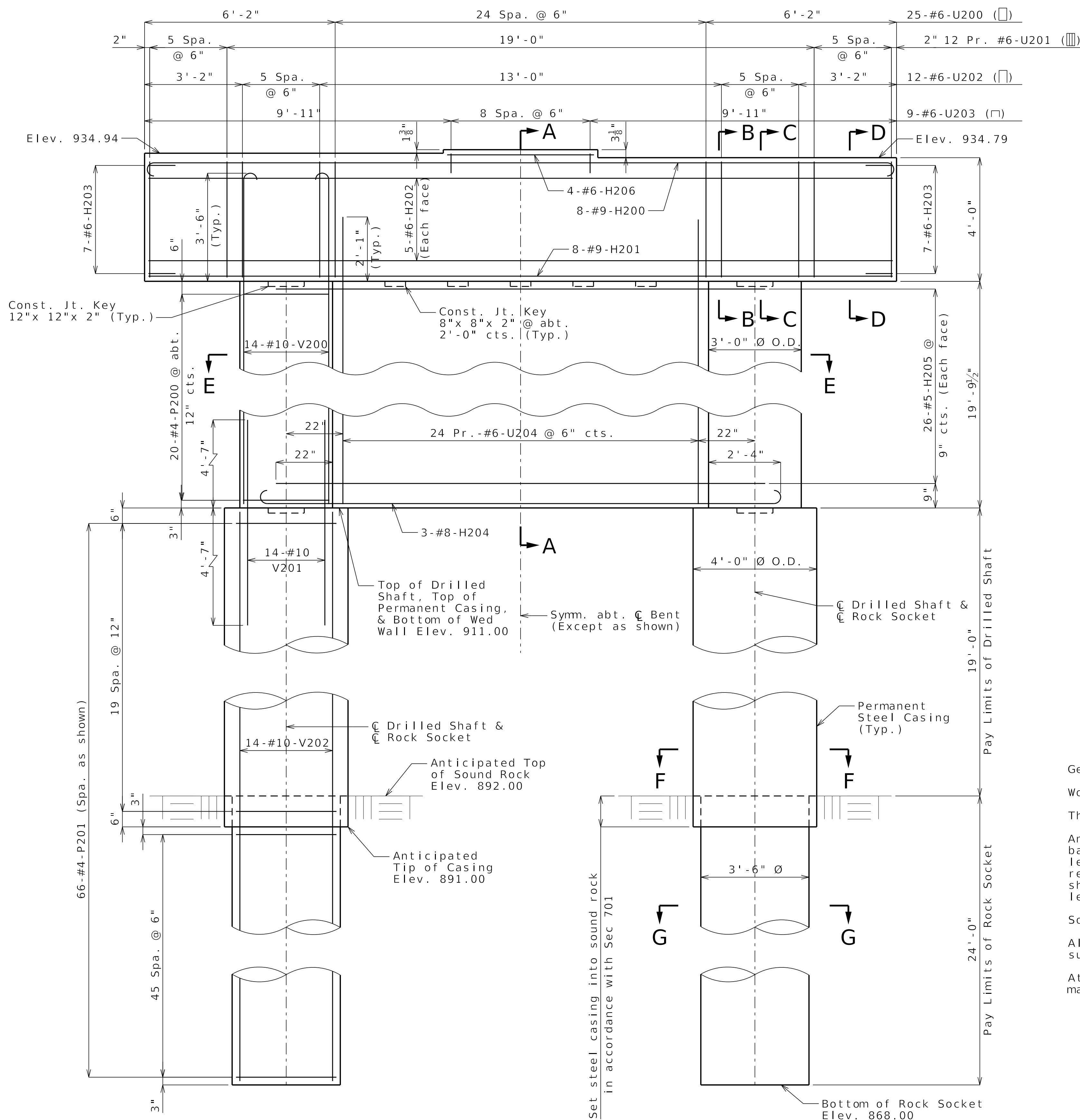
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Missouri Dept. of Transportation Authority 202310300

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**General Notes:**

Work this sheet with Sheet No. 8.

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

An additional 4 feet has been added to V-bar lengths and additional 18-#4-P201 bars have been added for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap if not required. The P bars shall be spaced similarly to that shown in Elevation, if required, or a lesser spacing if not required but not less than 6-inch centers.

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

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

At the contractor's option, the hooks of vertical bars embedded in the beam cap may be oriented inward or outward.

Substructure Quantity Table for Bent No. 2		
Item	Quantity	
Drilled Shaft (4ft. 0in. Dia.)	linear foot	38
Rock Sockets (3ft. 6in. Dia.)	linear foot	48
Video Camera Inspection	each	2
Foundation Inspection Holes	linear foot	68
Sonic Logging Test	each	2
Class B Concrete (Substructure)	cu. yard	41.8
Reinforcing Steel (Bridges)	pound	16,940

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

16,820

Detailed Oct. 2024  
Checked Nov. 2024

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

Sheet No. 7 of 36

REVIS 01-22-2025

DATE PREPARED 1/22/2025	
ROUTE W	STATE MO
DISTRICT BR	SHEET NO. 7
COUNTY WORTH	
JOB NO. JNW0020	
CONTRACT ID.	

PROJECT NO.	
BRIDGE NO. A9468	

DATE	DESCRIPTION
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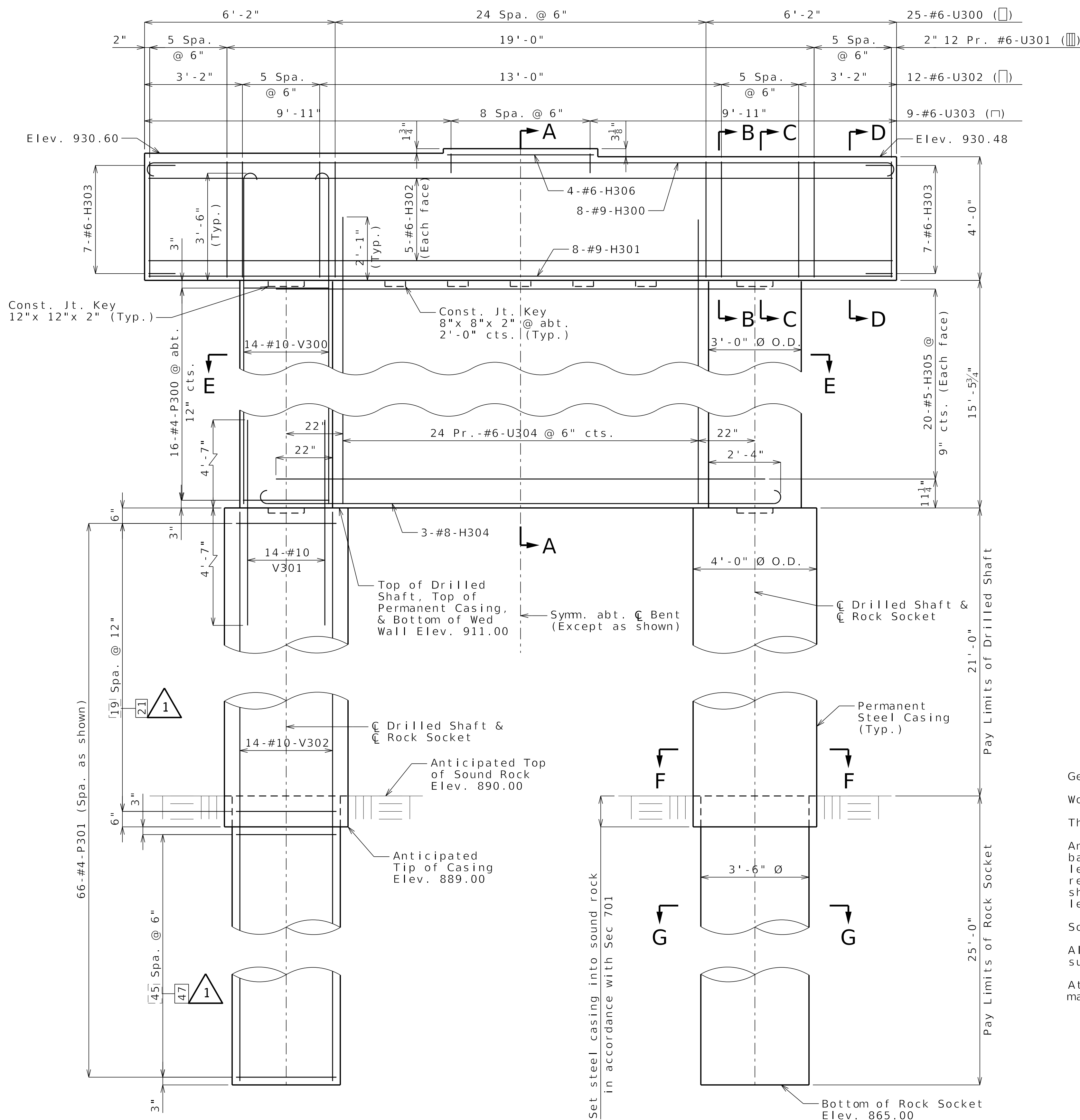
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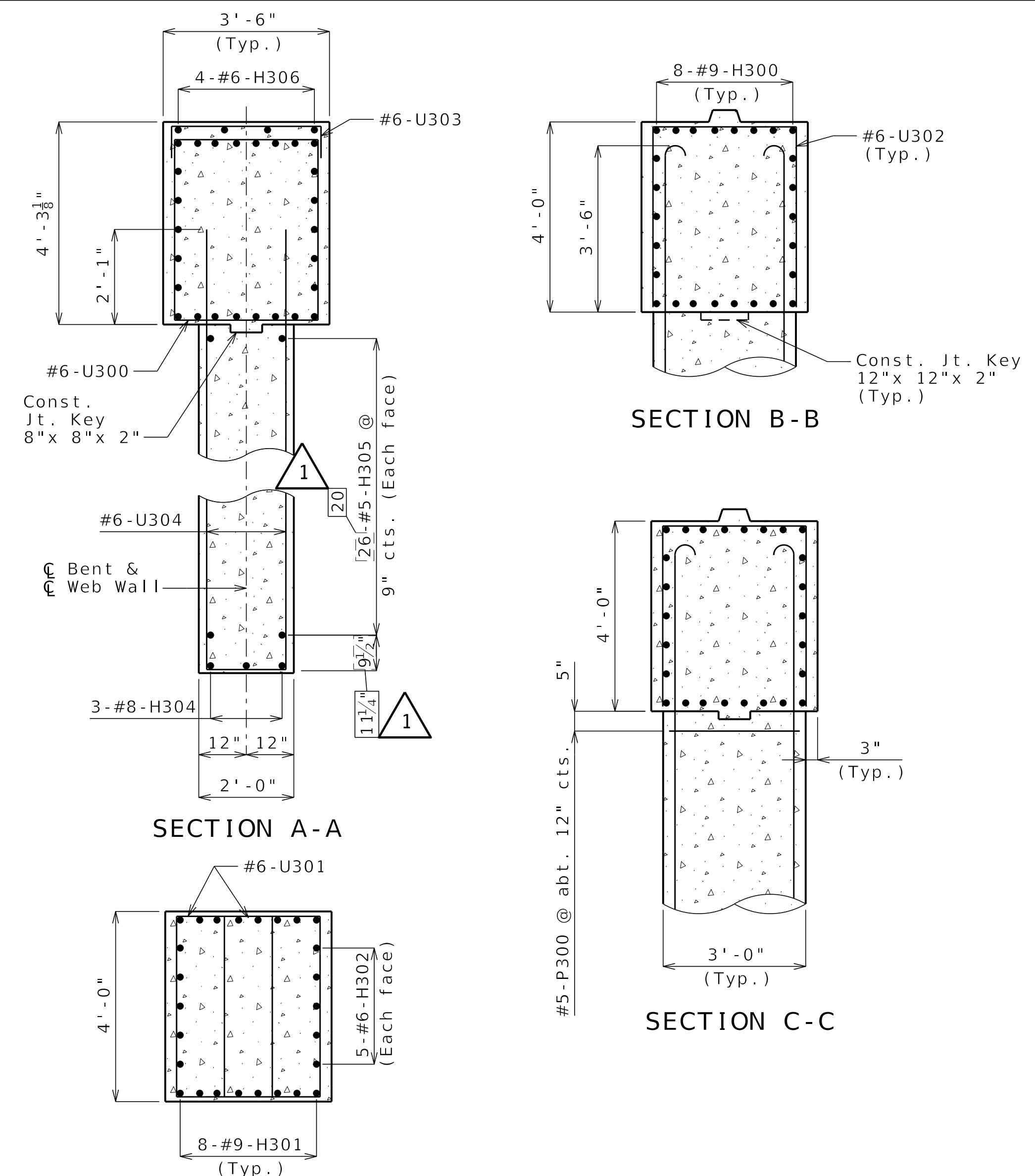


**ELEVATION**  
Beam keys not shown for clarity.

**DETAILS OF INTERMEDIATE BENT NO. 3**

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

Sheet No. 9 of 36



**General Notes:**

Work this sheet with Sheet No. 10.

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

An additional 4 feet has been added to V-bar lengths and additional 18-#4-P301 bars have been added for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap if not required. The P bars shall be spaced similarly to that shown in Elevation, if required, or a lesser spacing if not required but not less than 6-inch centers.

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

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

At the contractor's option, the hooks of vertical bars embedded in the beam cap may be oriented inward or outward.

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

Item	Quantity
Drilled Shaft (4ft. 0in. Dia.)	linear foot 42
Rock Sockets (3ft. 6in. Dia.)	linear foot 50
Video Camera Inspection	each 2
Foundation Inspection Holes	linear foot 70
Sonic Logging Test	each 2
Class B Concrete (Substructure)	cu. yard 35.5
Reinforcing Steel (Bridges)	pound 116,310

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

15,830  
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Detailed Oct. 2024  
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DATE PREPARED 1/22/2025	
ROUTE W	STATE MO
DISTRICT BR	SHEET NO. 9
COUNTY WORTH	
JOB NO. JNW0020	
CONTRACT ID.	

PROJECT NO.
BRIDGE NO. A9468

DATE	DESCRIPTION
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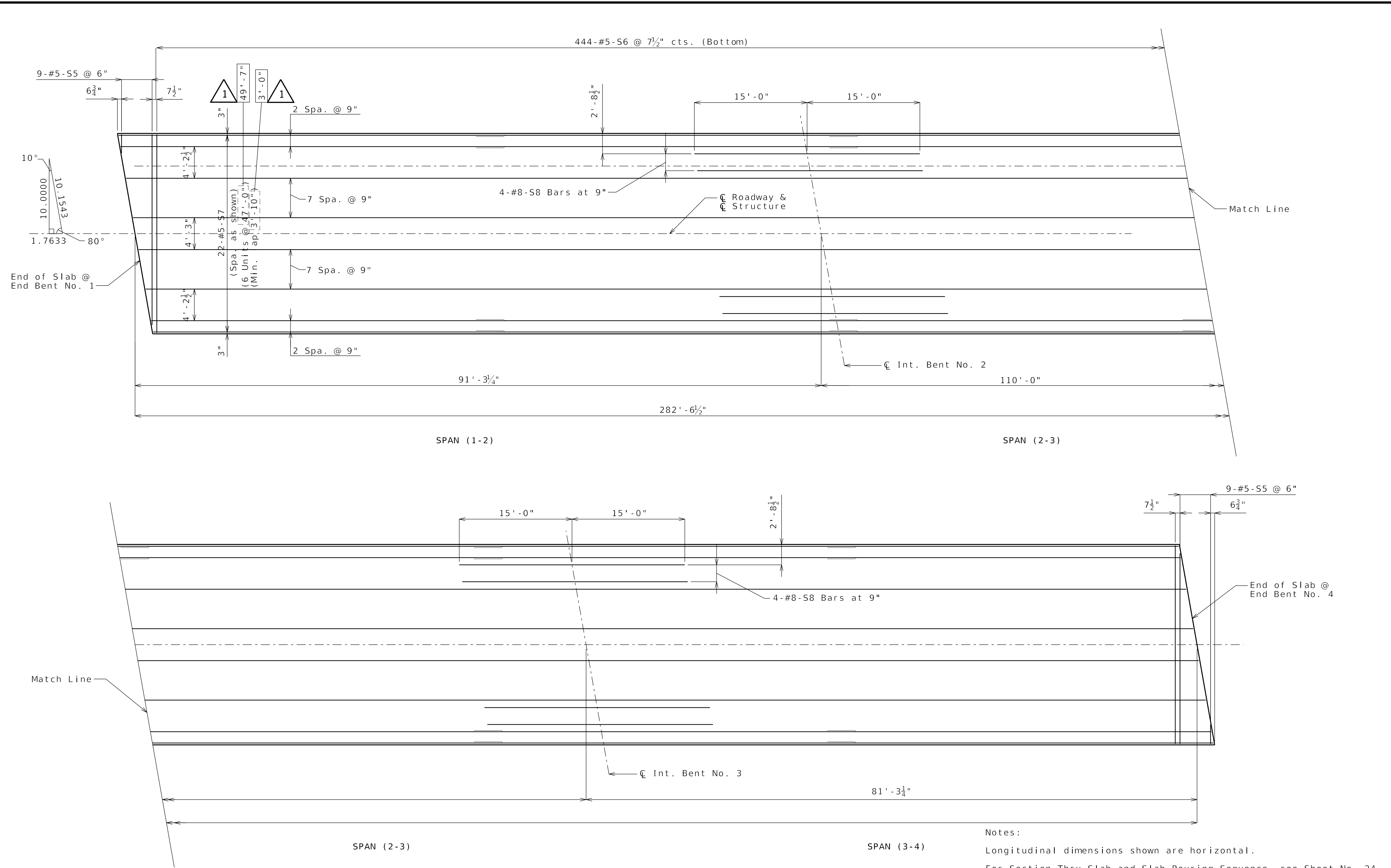
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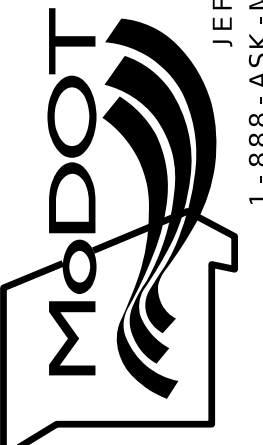
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DISTRICT BR	SHEET NO. 23
COUNTY WORTH	
JOB NO. JNW0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9468	
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Notes:

Longitudinal dimensions shown are horizontal.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 24.

For Details and Reinforcement of Type D Barrier not shown, see Sheets No. 25 and 26.

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

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

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

Detailed Oct. 2024  
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Sheet No. 23 of 36

1 REVISED 01-22-2025

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



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

DATE PREPARED		1/22/2025	
ROUTE	STATE	ROUTE	STATE
W	MO	W	MO
DISTRICT	SHEET NO.	DISTRICT	SHEET NO.
BR	26	BR	26

COUNTY	WORTH
JOB NO.	JN0020
CONTRACT ID.	

PROJECT NO.	
BRIDGE NO.	A9468

DESCRIPTION	DATE
ROOT-REINFORCING REVISIONS	01/22/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

**MoDOT**

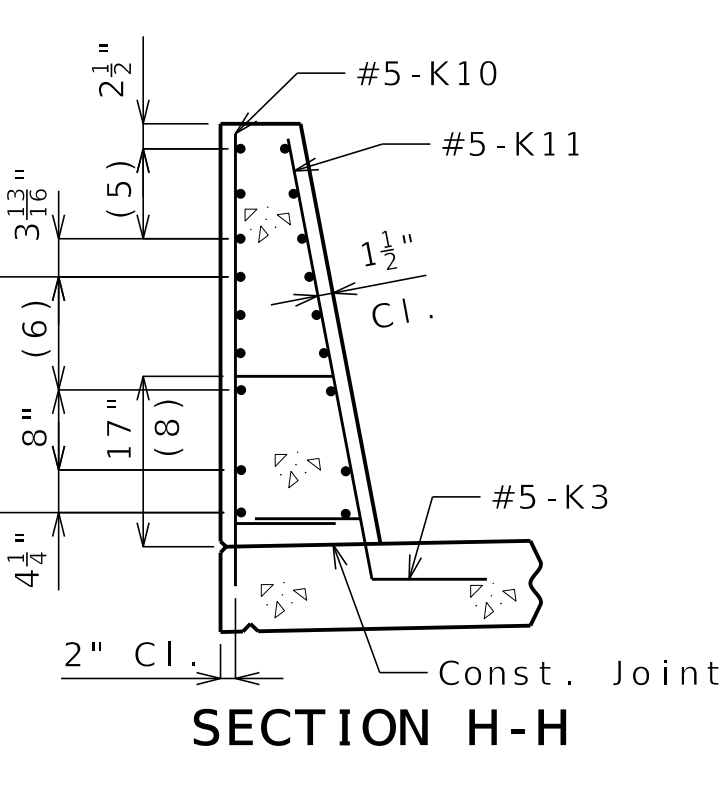
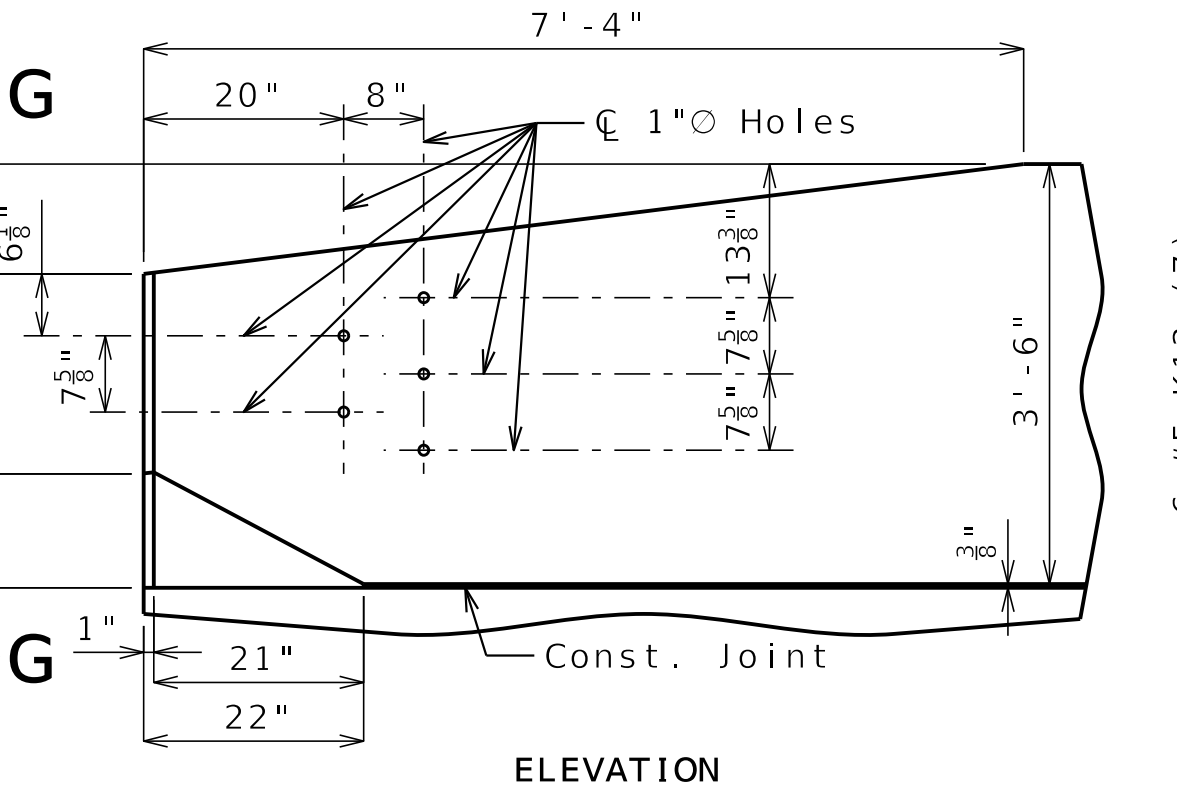
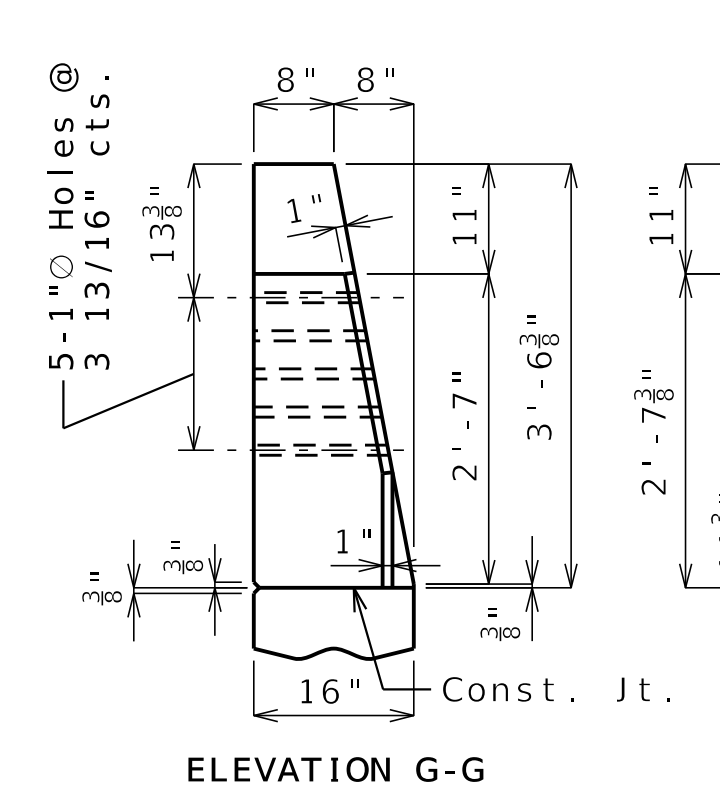
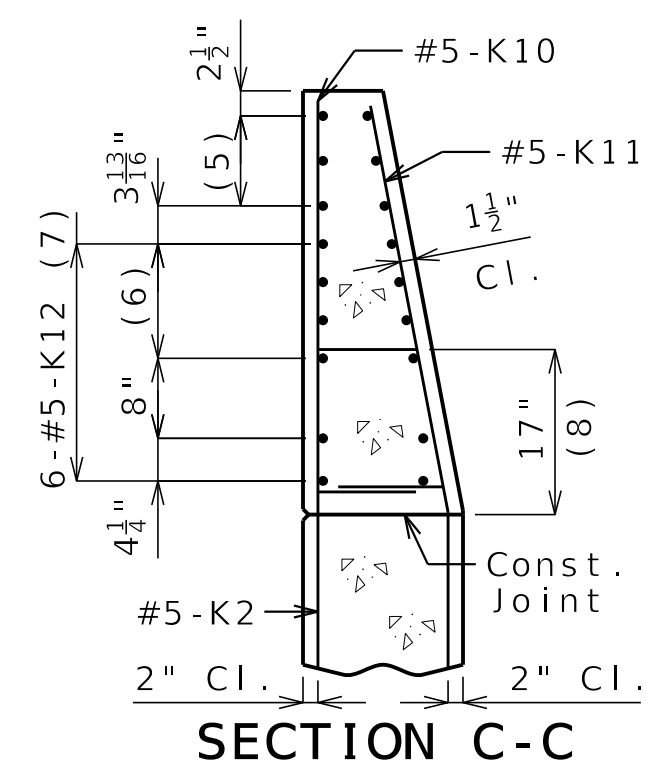
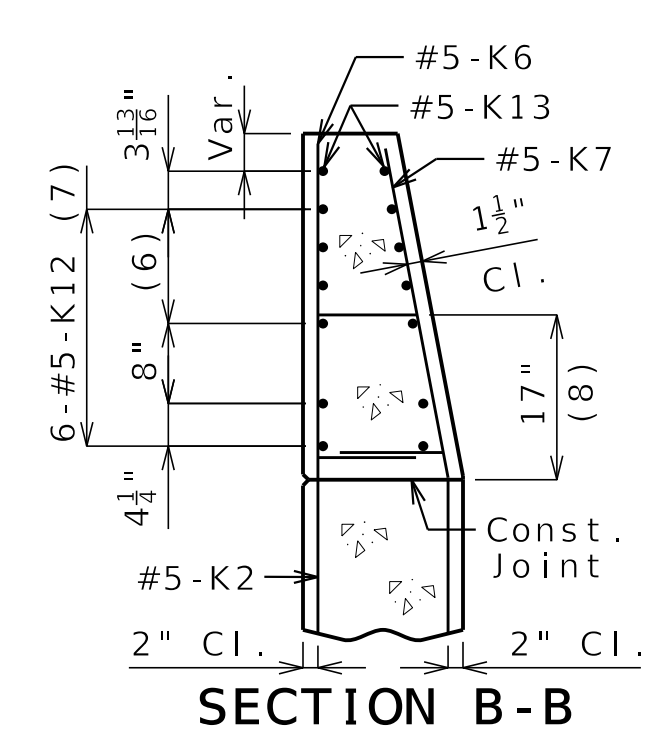
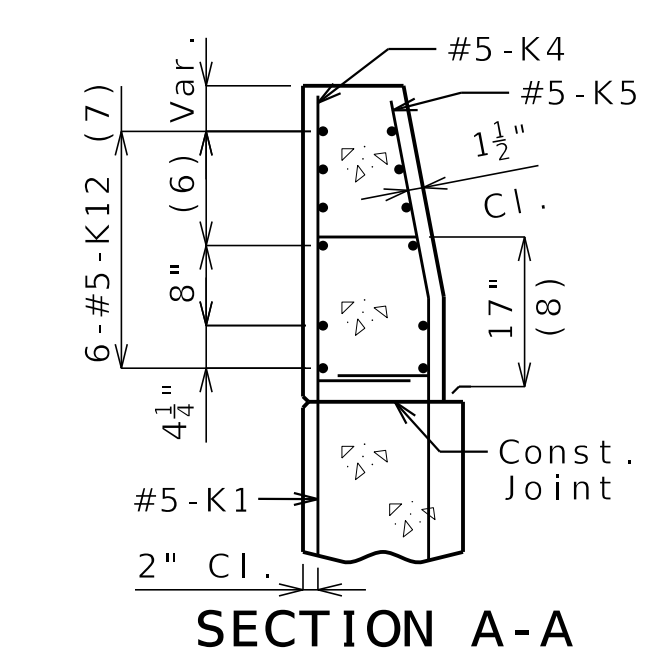
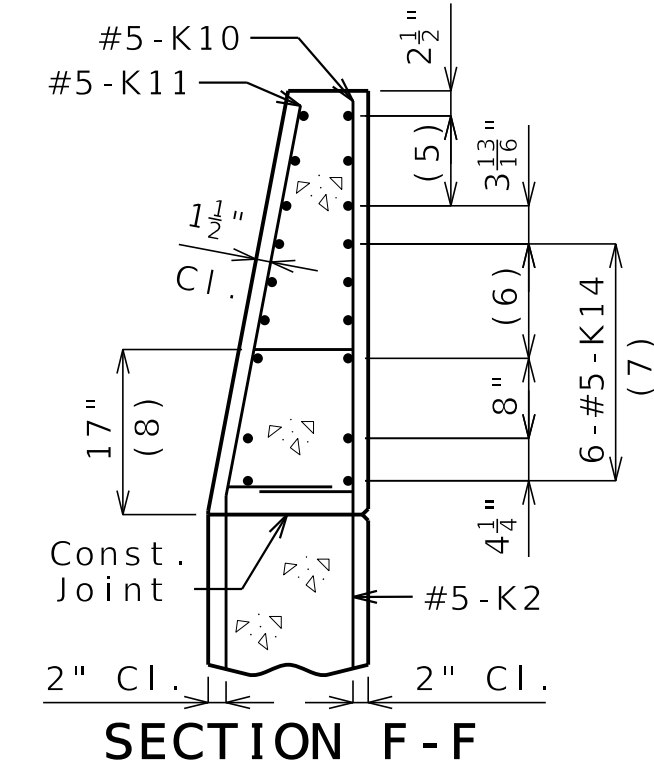
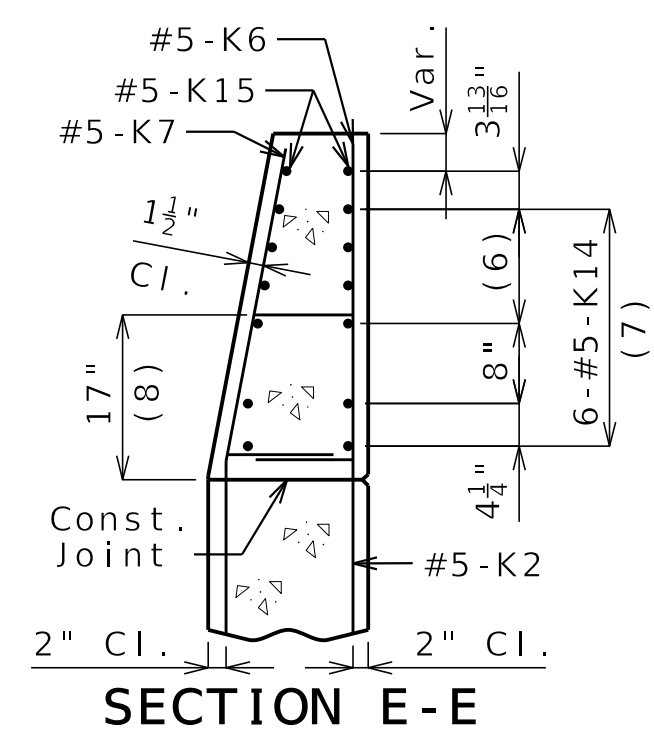
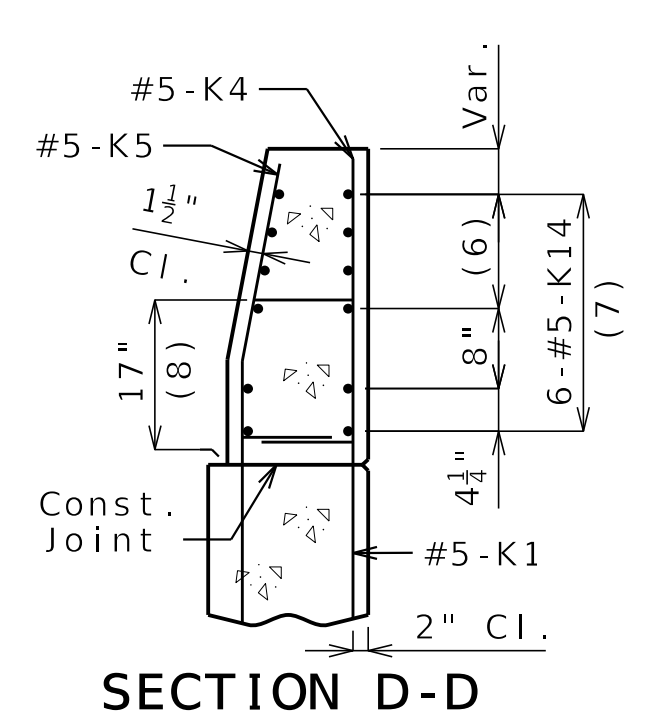
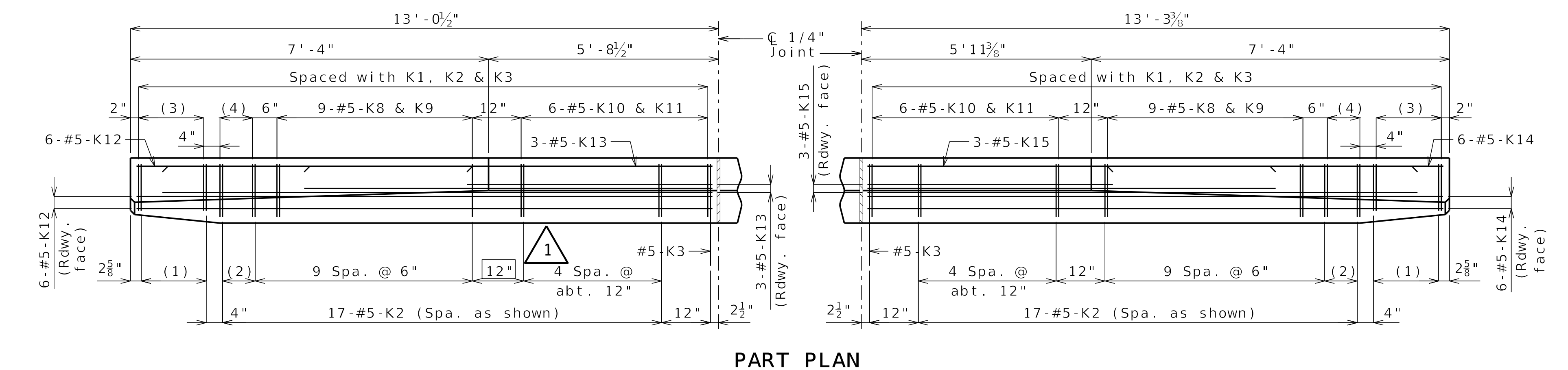
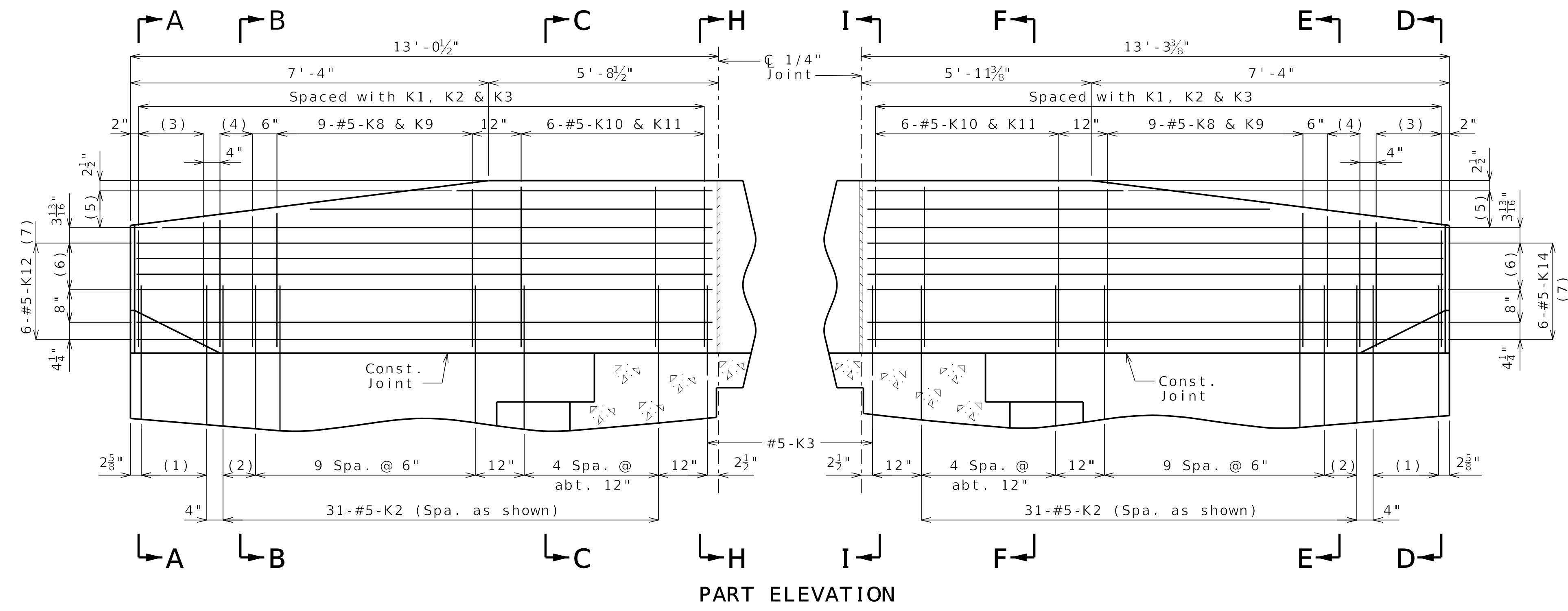
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

1411 East 104th St.  
Kansas City, MO 64131  
Tel: (816) 874-4875  
www.trekkgroup.com

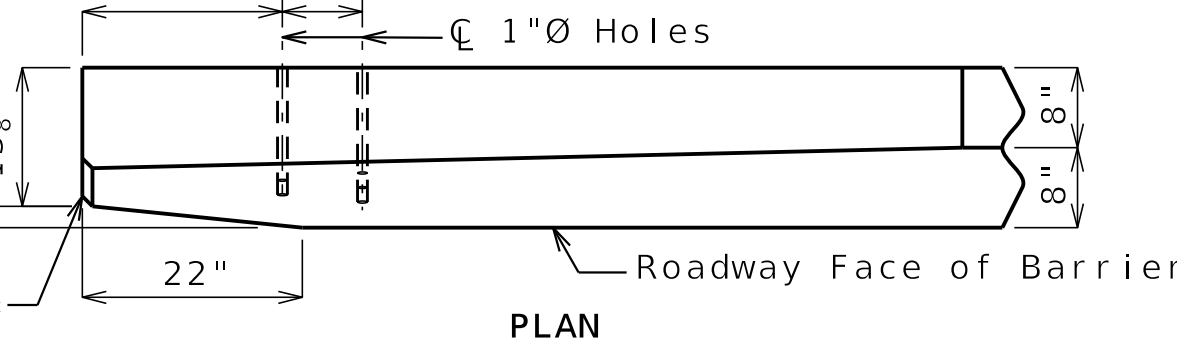
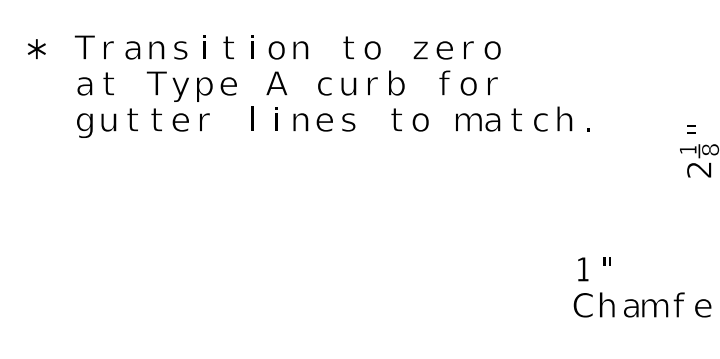
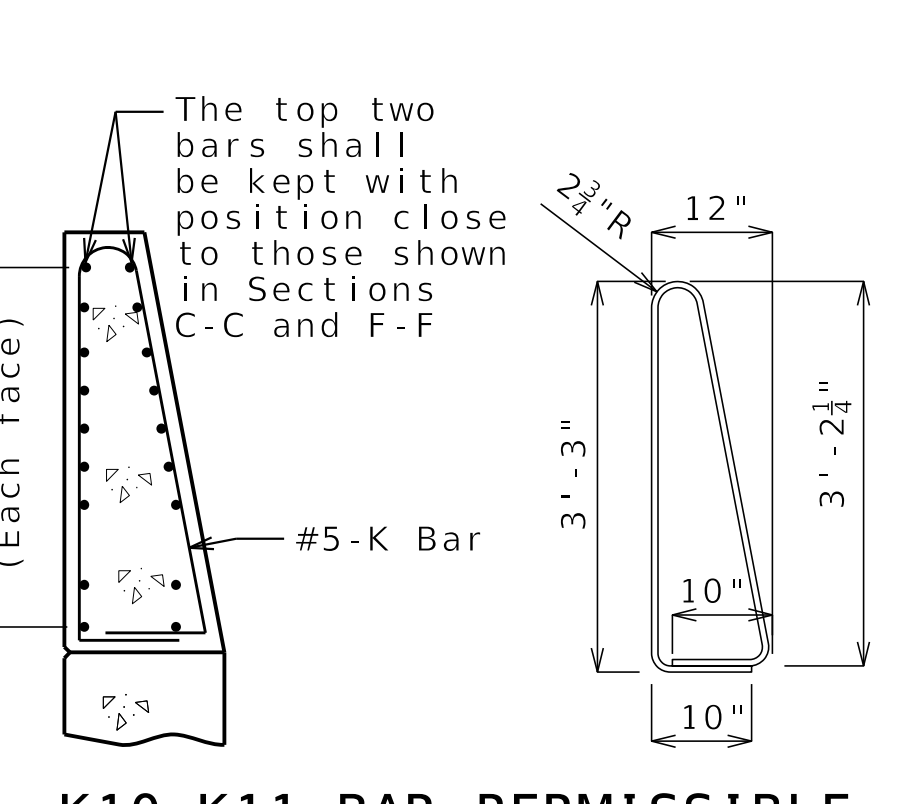
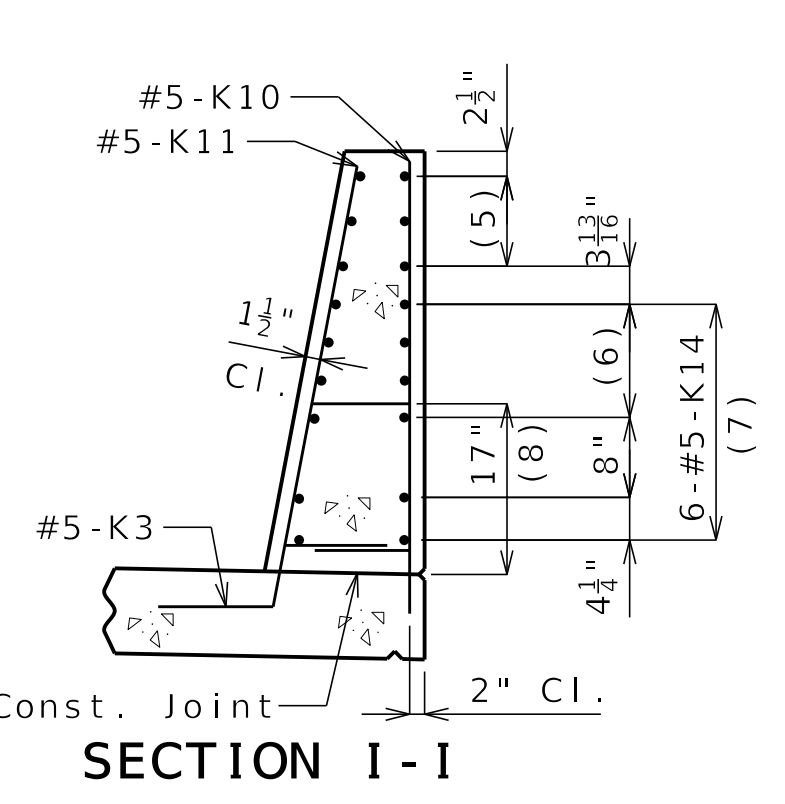
Microsoft Cert. of  
Authority 202010300

**TREKK**

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- 1) 5-#5-K1 @ 4" cts.
- 2) 2 spaces @ 4"
- 3) 5-#5-K4 & K5
- 4) 3-#5-K6 & K7
- 5) 3-#5-K13 or K15 @ 4 1/2" 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)

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

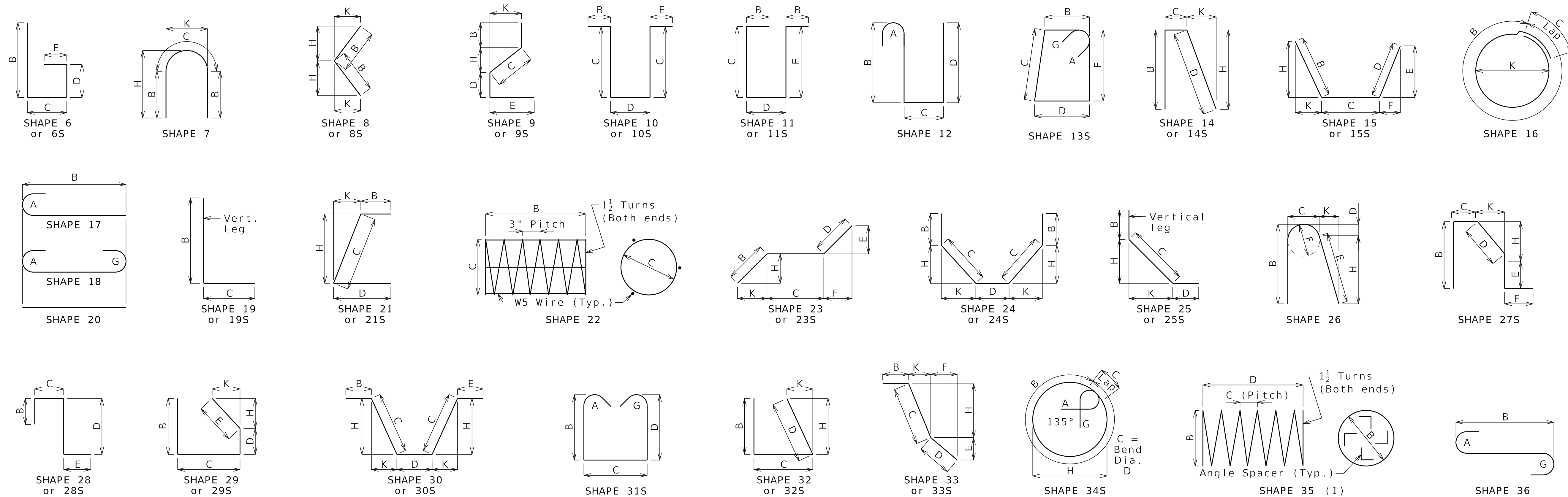
All dimensions are out to out.

Detailed Oct. 2024  
Checked Nov. 2024

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

Sheet No. 26 of 36

REVISED 01-22-2025



### Finished Bend Diameters D and Hook Dimensions

#### Standard Pin Bend Shapes

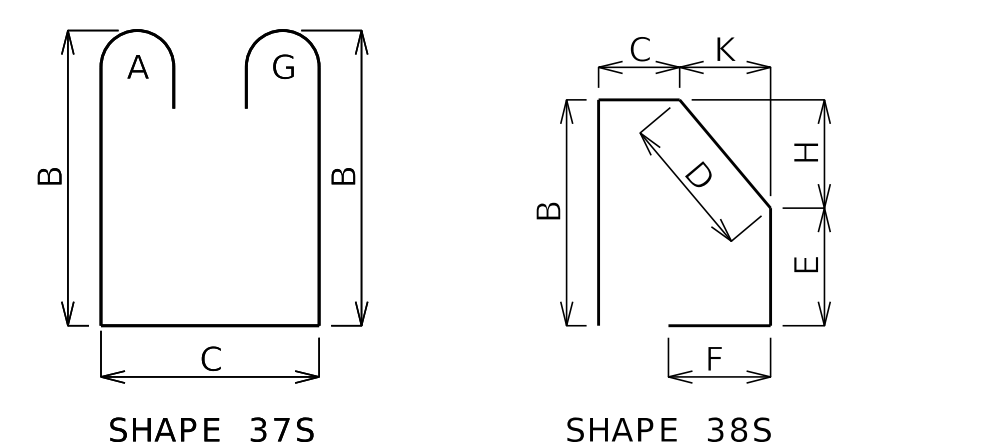
Size	Case	D	A or G			J
			90°	180°	180°	
#4	1	3"	8"	6"	4"	
#5	1	3 3/4"	10"	7"	5"	
#6	1	4 1/2"	12"	8 1/4"	6"	
#7	2	5 1/4"	14"	9 3/4"	7"	
	3	7"	15"	11 1/2"	8 3/4"	
#8	2	6"	16"	11"	8"	
	3	8"	17"	13 1/4"	10"	
#9	1	9 1/2"	19 1/2"	15 1/2"	11 3/4"	
#10	1	10 3/4"	22"	17 1/2"	13 1/4"	
#11	1	12"	24 1/2"	19 1/2"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

#### Stirrup Pin Bend Shapes (S)

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

Applicable for all grades of steel.  
Case 1 applies to all reinforcement. Case 2 applies to all reinforcement except for galvanized bars. Case 3 applies to galvanized bars only.



BENDING DIAGRAMS

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

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

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

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

### Reinforcing Steel Totals (Pounds)

Size	Substructure		Superstructure			Entire Bridge	
	Plain	Epoxy	Slab		Slip Form	Plain	Epoxy
			Plain	Epoxy			
4	2,872	0	0	318	0	2,872	318
5	1,560	0	0	21,246	15,451	1,560	37,286
6	6,493	0	0	27,870	0	6,493	27,870
7	0	0	0	1,316	0	0	1,316
8	312	0	0	30,282	0	312	30,282
9	2,760	0	0	0	0	2,760	0
10	19,257	0	0	0	0	19,257	0
<b>By Type</b>	<b>33,254</b>	<b>0</b>	<b>0</b>	<b>81,032</b>	<b>15,451</b>	<b>33,254</b>	<b>97,072</b>

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

1 18,654 1 32,651 1 15,447 1 18,654 1 97,068 1 15,447 1 18,654 1

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

DATE PREPARED: 1/22/2025  
 ROUTE: W STATE: MO  
 DISTRICT: BR SHEET NO.: 28  
 COUNTY: WORTH  
 JOB NO.: JN0020  
 CONTRACT ID.:  
 PROJECT NO.:  
 BRIDGE NO.: A9468

DESCRIPTION: RO01-REINFORCING REVISIONS

DATE: 01/22/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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 Kansas City, MO 64131  
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Bill of Reinforcing Steel																						
No. Req.	Size/ Mark	Location	Codes			Dimensions												Nom. Length		Actual Length		Weight lb
			C	SH	V	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.			
10	5 U400	BEAM	E	31		4	5.625	2	9.500	4	5.625						12	8	12	6	130	
21	5 U401	BEAM	E	13		2	9.500	2	8.000	2	9.500	2	8.000				11	10	11	6	252	
33	6 U403	DIAPHRAGM	E	19		3	3.500	4	7.000								7	10	7	9	384	
18	6 U404	DIAPHRAGM	E	19		2	11.000	2	9.500								5	8	5	6	149	
18	5 U405	DIAPHRAGM	E	31		3	10.000	2	3.375	3	10.000						10	11	10	8	200	
16	5 V400	BEAM & DIAPHRAGM	E	17		4	5.625										5	1	5	1	85	
15	6 V401	DIAPHRAGM	E	20		2	11.000										2	11	2	11	66	
2	6 V402	WING	E	20		6	11.875										6	11	6	11	21	
20	6 V403	WING	E	20	V	7	0.125										7	0	7	0	214	
		INC = 0.375 INCH				7	3.375										7	3	7	3		
2	6 V404	WING	E	20		7	1.375										7	1	7	1	21	
20	6 V405	WING	E	20	V	6	10.625										6	10	6	10	209	
		INC = 0.375 INCH				7	1.875										7	1	7	1		
SLAB																						
18	6 S1	SLAB	E	20	V	2	8.000										2	8	2	8	379	
		INC = 34.000 INCH				25	4.250										25	4	25	4		
555	6 S2	SLAB	E	20		26	5.000										26	5	26	5	22021	
138	8 S3	SLAB	E	20		51	0.000										51	0	51	0	18791	
80	8 S4	SLAB	E	20		42	0.000										42	0	42	0	8971	
18	5 S5	SLAB	E	20	V	2	4.000										2	4	2	4	257	
		INC = 34.000 INCH				25	0.000										25	0	25	0		
444	5 S6	SLAB	E	20		26	5.000										26	5	26	5	12233	
132	5 S7	SLAB	E	20		49	6.500										49	7	49	7	6826	
16	8 S8	SLAB	E	20		30	0.000										30	0	30	0	1282	
TYPE D BARRIER																						
558	5 R1	BARRIER	E	26		3	3.000	5.500	3	3.625			3	3.000	6.750	6	10	6	9	3928		
558	5 R2	BARRIER	E	19			20.500	9.500								2	6	2	5	1406		
558	5 R3	BARRIER	E	27				9.500	15.500	5.000	12.000	15.000	3.000			3	6	3	4	1940		
80	5 R4	BARRIER	E	20		11	9.000									11	9	11	9	980		
40	5 R5	BARRIER	E	20		39	11.000									39	11	39	11	1665		
40	5 R6	BARRIER	E	20		44	7.000									44	7	44	7	1860		
40	5 R7	BARRIER	E	20		34	10.000									34	10	34	10	1453		
20	5 K1	BARRIER	E	27		3	8.000	9.250	5.375	3	2.750		5.250	1.000		8	0	7	11	165		
68	5 K2	BARRIER	E	27		3	8.000	9.250	14.500	2	5.750		14.250	2.750		8	2	7	11	561		
4	5 K3	BARRIER	E	27		3	8.000	9.250	14.375	8.000	12.000	14.125		2.750		5	6	5	2	22		
20	5 K4	BARRIER	E	19	V	2	4.250	10.000								3	2	3	1	66		
		INC. = 0.500 INCH				2	6.250	10.000								3	4	3	3			
20	5 K5	BARRIER	E	14	V		8.250	9.500	18.500				4.000	18.000		3	0	2	11	63		
		INC. = 0.500 INCH					8.250	9.500	20.500				4.500	20.000		3	2	3	1			
12	5 K6	BARRIER	E	19	V	2	6.750	10.000								3	5	3	4	42		
		INC. = 0.500 INCH				2	7.750	10.000								3	6	3	5			
12	5 K7	BARRIER	E	21	V	2	6.625	10.000				2	6.000	6.250		3	5	3	3	41		
		INC. = 0.500 INCH				2	7.625	10.000				2	7.000	6.500		3	6	3	4			
36	5 K8	BARRIER	E	19	V	2	8.500	10.000								3	7	3	5	138		
		INC. = 0.750 INCH				3	2.500	10.000								4	1	3	11			
12	5 K9	BARRIER	E	21	V	2	8.500	10.000				2	7.750	6.750		3	7	3	5	46		
		INC. = 0.750 INCH				3	2.500	10.000				3	1.750	7.750		4	1	3	11			
24	5 K10	BARRIER	E	19		3	3.000	10.000								4	1	4	0	100		
24	5 K11	BARRIER	E	21		3	3.000	10.000				3	2.250	7.750		4	1	3	11	98		
24	5 K12	BARRIER	E	20		12	9.500									12	9	12	9	319		
12	5 K13	BARRIER	E	20	V	6	2.000									6	2	6	2	115		
		INC. = 36.000 INCH				12	2.000									12	2	12	2			
24	5 K14	BARRIER	E	20		13	0.375	0.000								13	0	13	0	325		
12	5 K15	BARRIER	E	20	V	6	5.750	0.000								6	5	6	5	118		
		INC. = 36.000 INCH				12	5.750									12	5	12	5			



Bill of Reinforcing Steel																						
No. Req.	Size/ Mark	LOCATION	Codes			Dimensions												Nom. Length		Actual Length		Weight lb
			C	SH	V	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.					
SLIP FORM OPTION																						
40	5 C1	BARRIER	E	20		12	0.000										12	0	12	0	501	
8	5 C2	BARRIER	E	20		10	6.000										10	6	10	6	88	

DATE PREPARED  
1/28/2025  
ROUTE STATE  
W MO  
DISTRICT SHEET NO.  
BR 30  
COUNTY  
WORTH  
JOB NO.  
JNW0020  
CONTRACT ID.

PROJECT NO.  
BRIDGE NO.  
A9468

DATE	DESCRIPTION
01/22/25	R001-REINFORCING REVISIONS

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

1411 East 104th St.  
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 www.trekkgroup.com  
 Missouri Co. of  
 Authority 202010300

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. 28.

Detailed Oct. 2024  
 Checked Nov. 2024

### BILL OF REINFORCING STEEL

Note: This drawing is not to scale. Follow dimensions. Sheet No. 30 of 36

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.

REVISED 01-22-2025

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