

Estimated Quantities for Slab on Concrete Beam		
Item		Total
Class B-2 Concrete	cu. yard	161
Reinforcing Steel (Epoxy Coated)	pound	56,180

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

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

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 Beam.

All the concrete above the intermediate bent cap is included in the Estimated Quantities for Slab on Concrete Beam.

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

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.

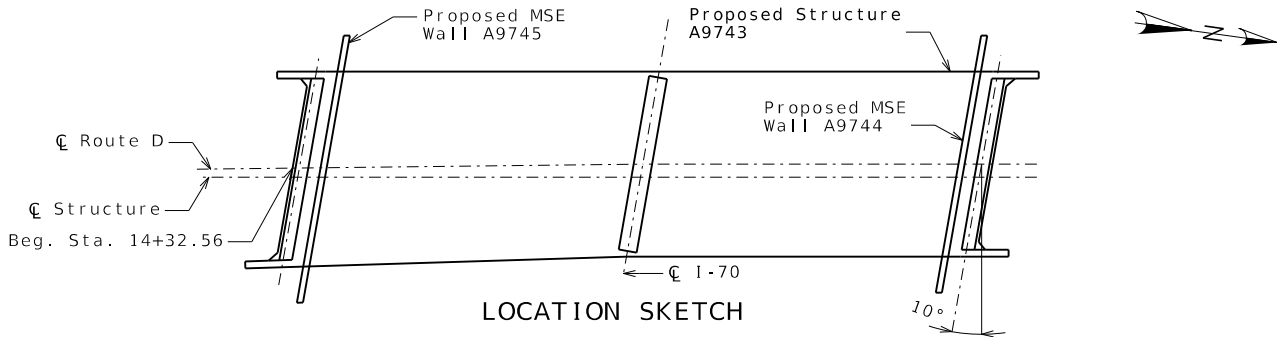
Stay-In-Place Corrugated Steel Forms:

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

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

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

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



General Notes:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
Seismic Design Category = A (Non-seismic)
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD₁ <0.15 = 0.065
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.040

Design Loading:
Vehicular = HL-93
Future Wearing Surface = 35 lb/sf
Earth = 120 lb/cf
Equivalent Fluid Pressure = 45 lb/cf (Min.)
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 (Drilled Shafts & Rock Sockets) f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Beams 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 prestressed box beam stresses, see Sheet No. 13 & 14.

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:
Vertical clearance for I-70 traffic during construction shall be 15'-0" minimum over a 24'-0" wide horizontal opening of the roadway in each direction.

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

Concrete Protective Coating:
Concrete and masonry protective coating shall be applied at Intermediate Bent No. 2 on all exposed concrete and stone areas in accordance with Sec 711.

Foundation Data							
Type	Design Data		Bent Number				
			1	2	3		
Load Bearing Pile	Pile Type and Size		HP 12x53	-	HP 12x53		
	Number	ea	5	-	5		
	Approximate Length Per Each		ft	45	-	49	
	Pile Point Reinforcement		ea	All	-	All	
	Min. Galvanized Penetration (Elev.)		ft	Full Length	-	Full Length	
	Pile Driving Verification Method			DT	-	DT	
	Resistance Factor			0.65	-	0.65	
	Minimum Nominal Axial Compressive Resistance		kip	393	-	379	
Rock Socket	Number		ea	-	2	-	
	Layer 1	Foundation Material		-	Weak Rock	-	
		Elevation Range		ft	-	842-831	-
		Minimum Nominal Axial Compressive Resistance (Side Resistance)		ksf	-	12.1	-
	Layer 2	Foundation Material		-	Strong Rock	-	
		Elevation Range		ft	-	831-813	-
		Minimum Nominal Axial Compressive Resistance (Side Resistance)		ksf	-	19.5	-

DT = Dynamic Testing

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

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

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

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

The contractor shall make every effort to achieve the minimum galvanized penetration (elevation) shown on the plans for all piles. Deviations in the penetrations 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.

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

DATE PREPARED
3/4/2026

ROUTE
I-70

DISTRICT
BR

STATE
MO

SHEET NO.
3-BR02

COUNTY
LAFAYETTE

JOB NO.
JST0019

CONTRACT ID.
250507-C01

PROJECT NO.

BRIDGE NO.
A9743

REVISIONS

NO.

APPD. BY

DATE

SEG. 3 - A9743, A9744 & A9745 FINAL

SEG. 3 - A9743, A9744 & A9745 RFC

1/29/26

3/4/26

JMK

JMK

1

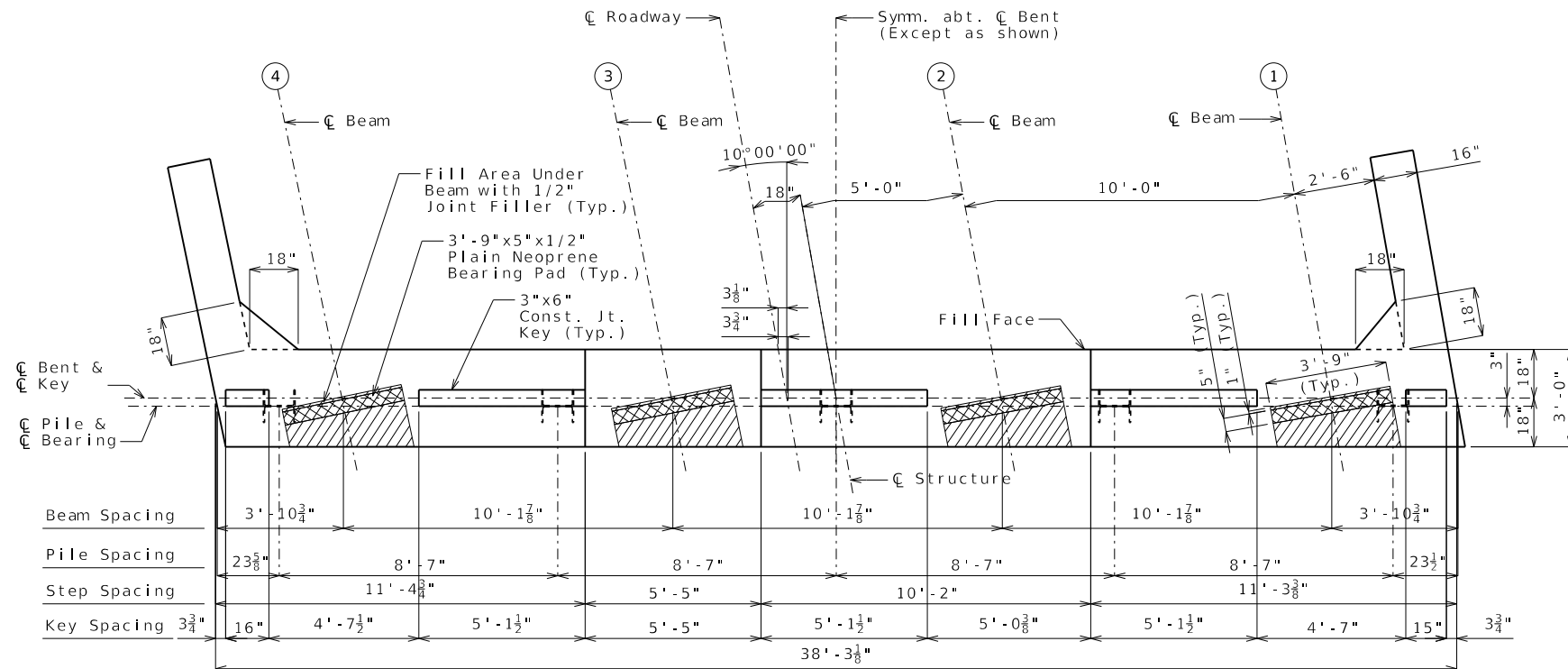
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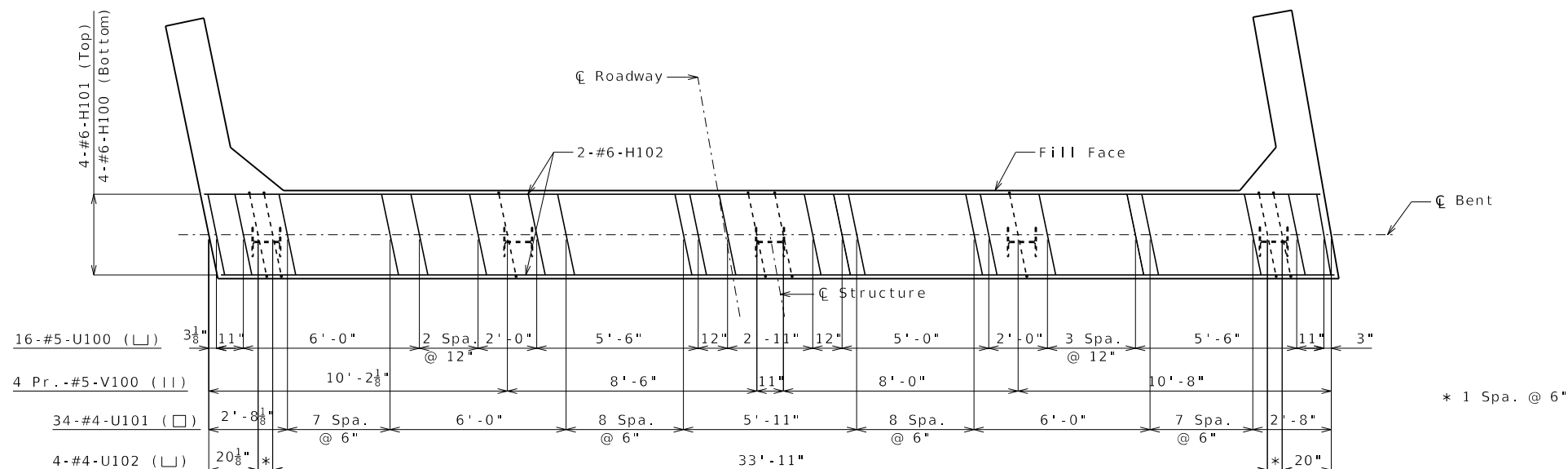
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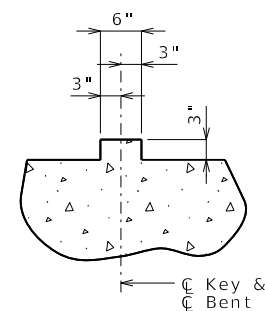
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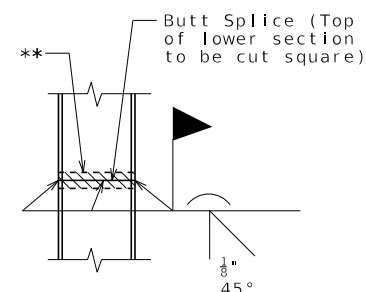
PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT
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.

General Notes:

Work this sheet with Sheets No. 4 & 5.

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

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

END BENT NO. 1

Detailed Dec. 2025
Checked Jan. 2026

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

Sheet No. 3 of 30

DATE PREPARED 3/4/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. 3-BR03
COUNTY LAFAYETTE	
JOB NO. JST0019	
CONTRACT ID. 250507-C01	
PROJECT NO.	

BRIDGE NO. A9743

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PROJECT NO.	

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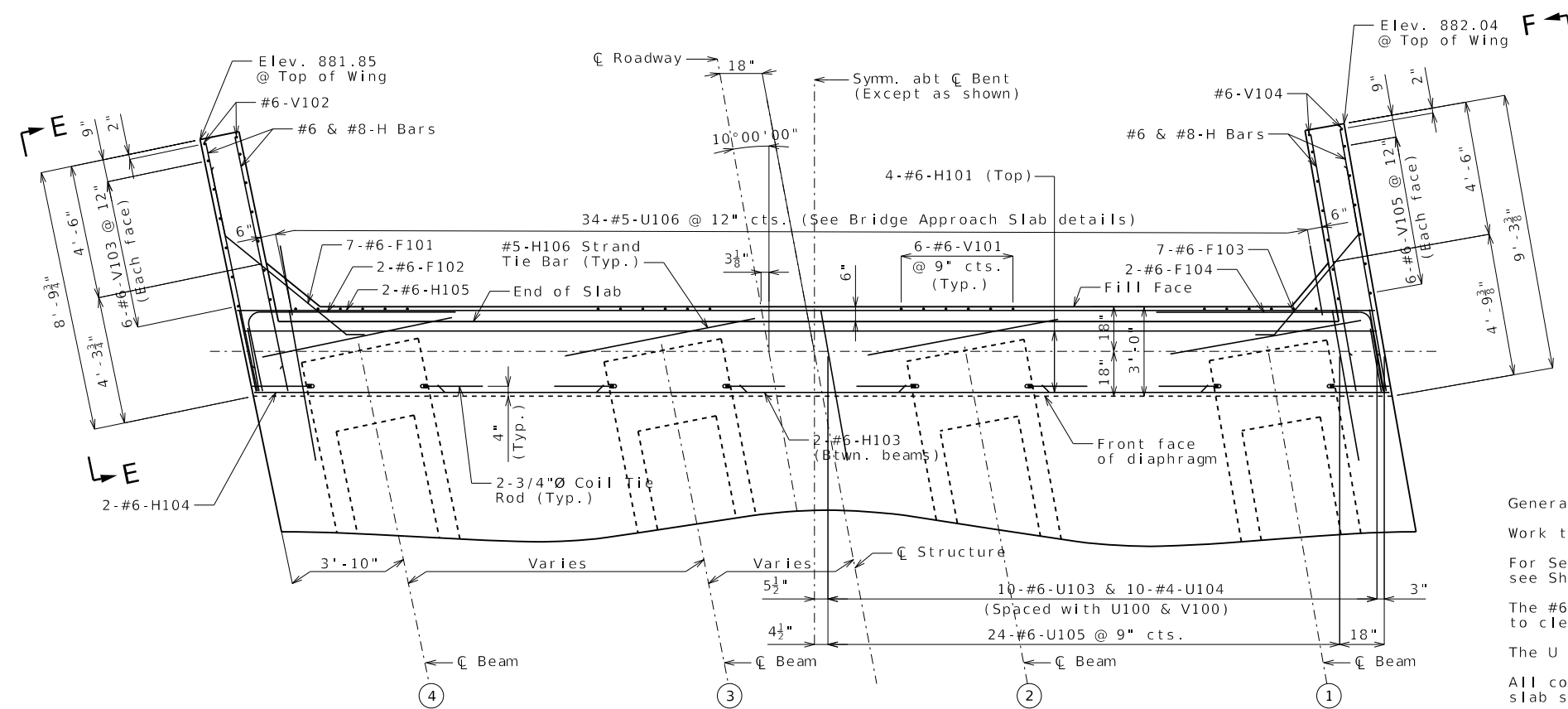
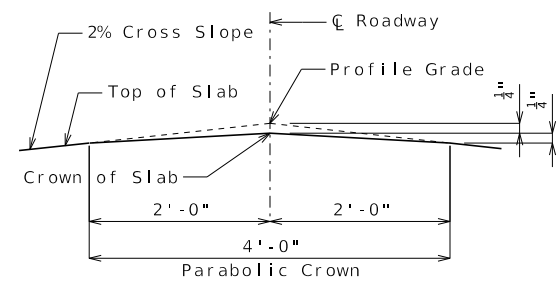
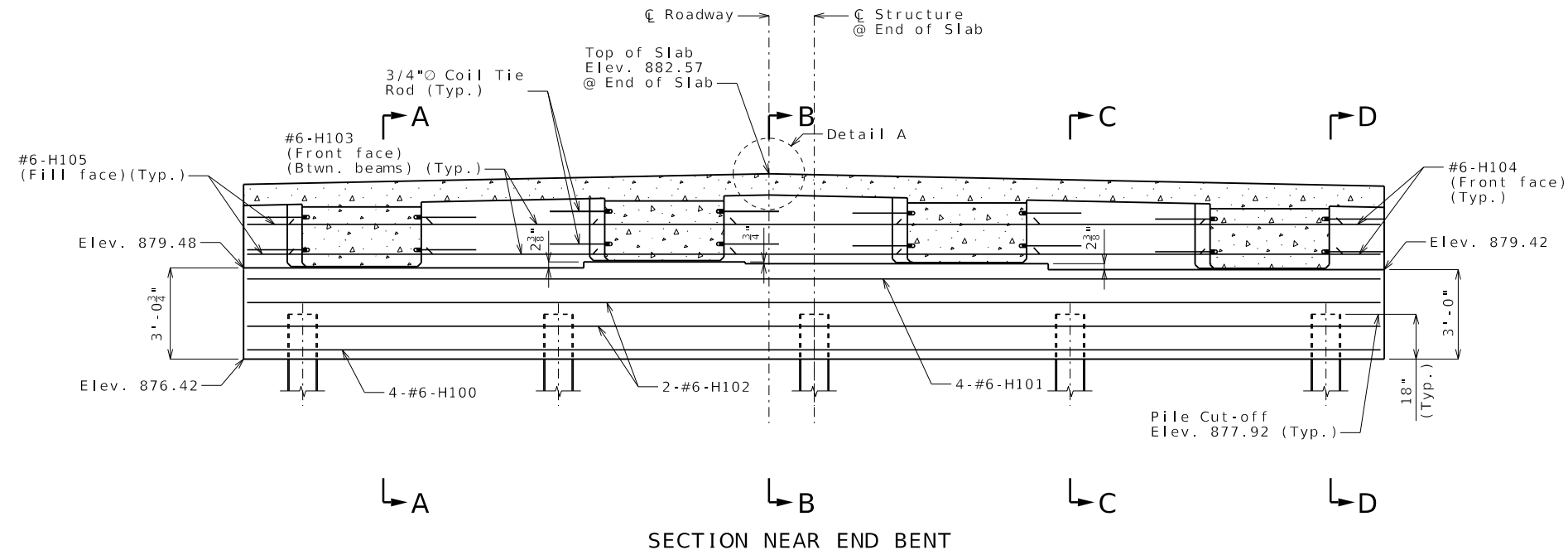
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General Notes:

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-F101 and #6-F103 bars shall be bent in the field to clear girders.

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

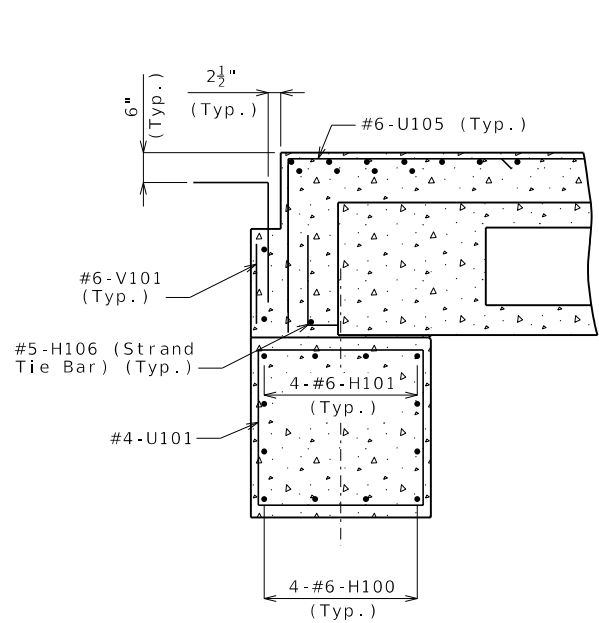
All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

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

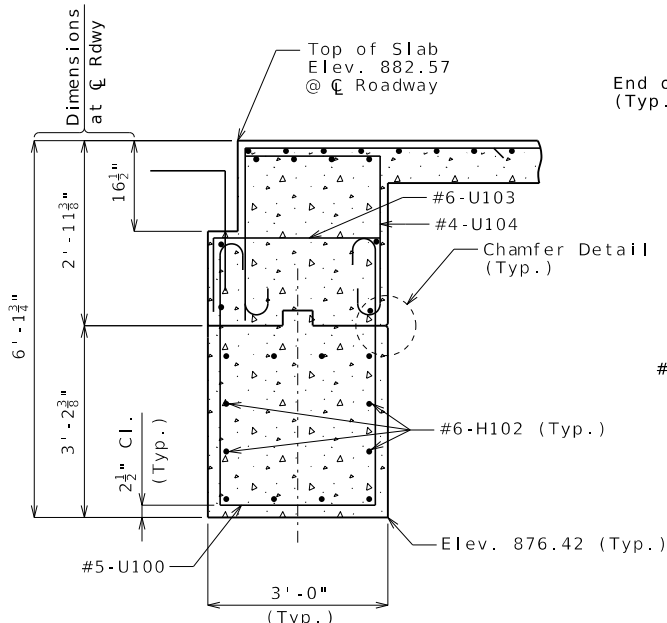
For location of coil tie rods and #5-H106 (strand tie bar), see Sheet No. 13.

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

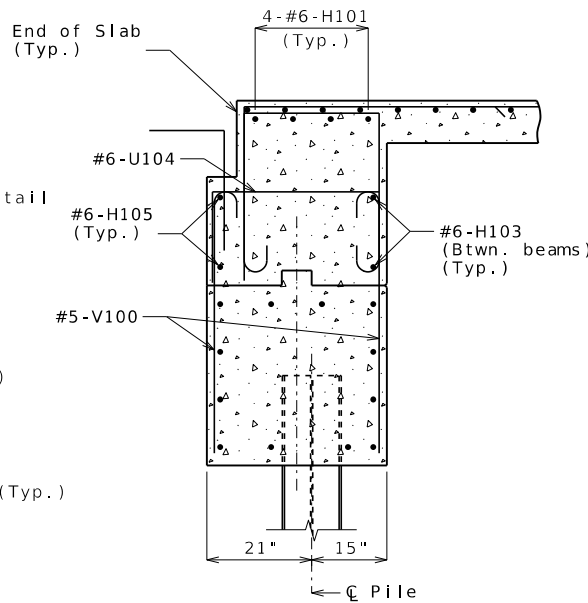
For details of bridge approach slab, see Sheet No. 23.



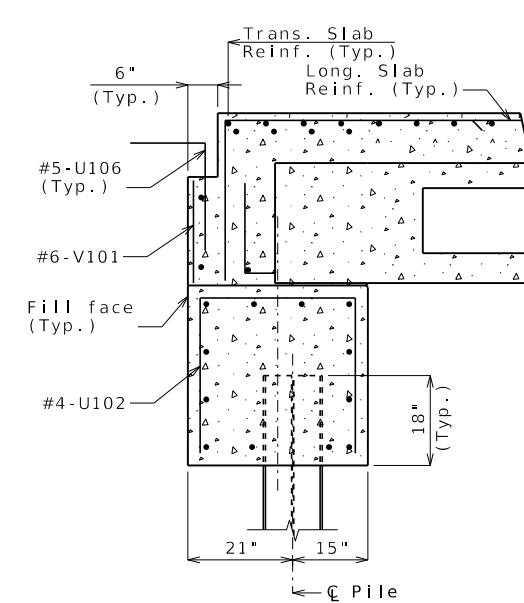
SECTION A-A



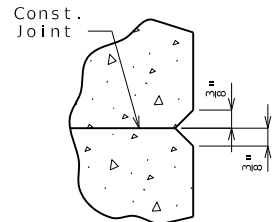
SECTION B-B



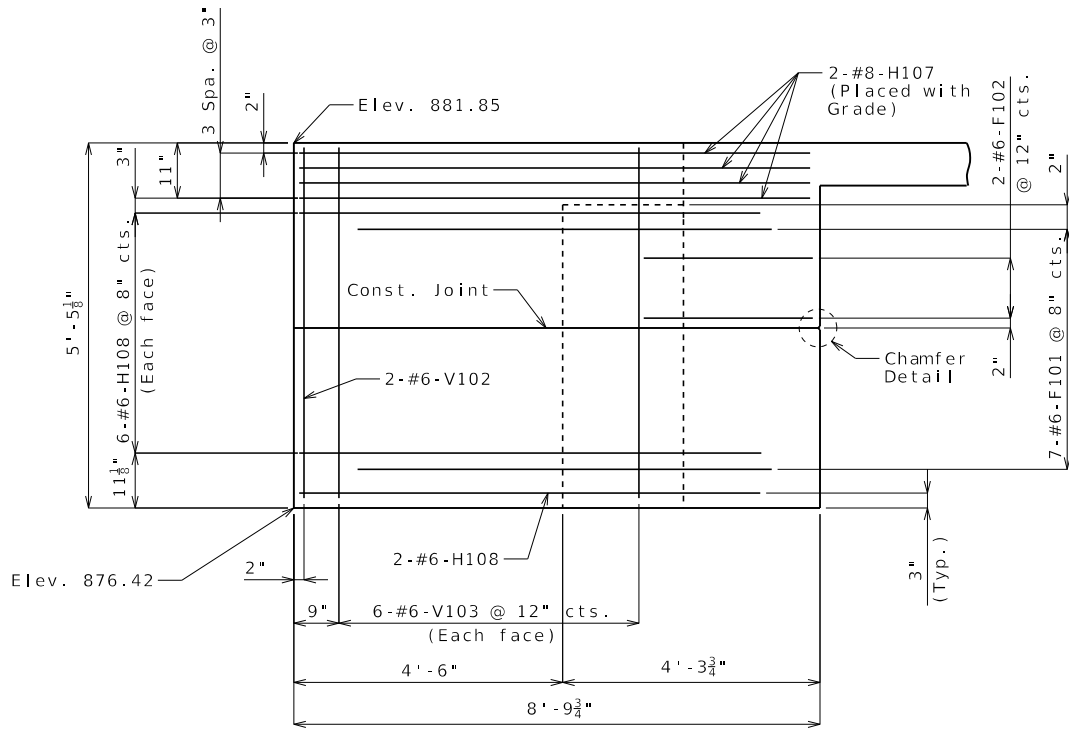
SECTION C-C



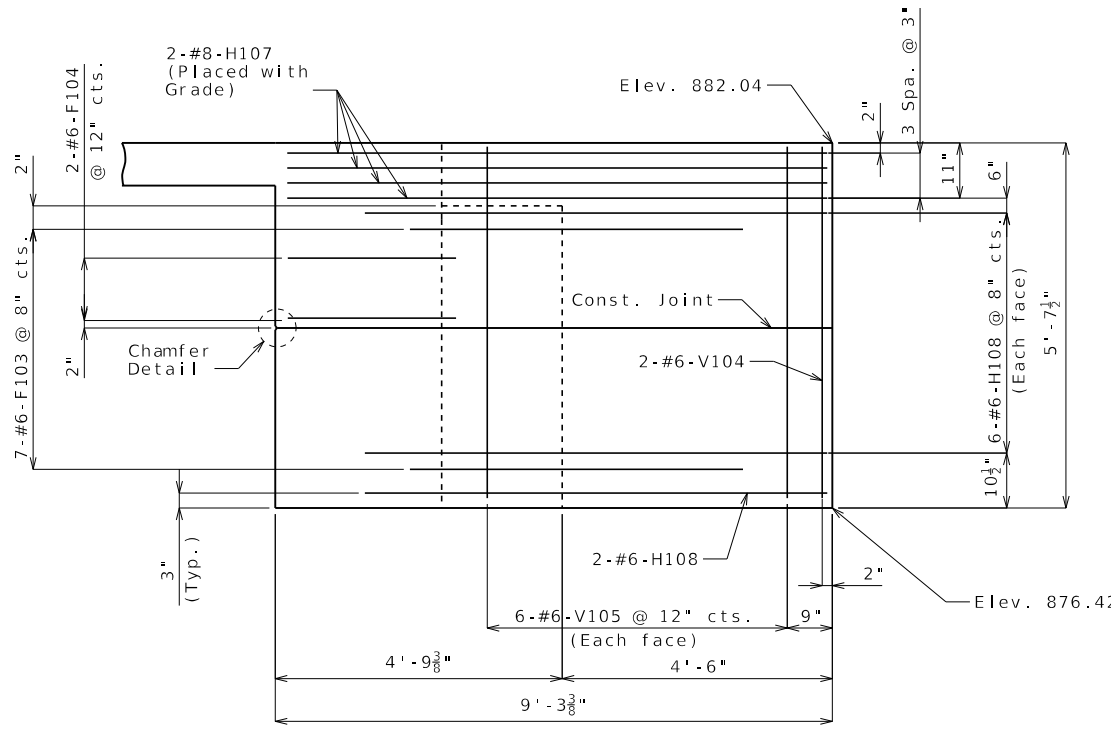
SECTION D-D



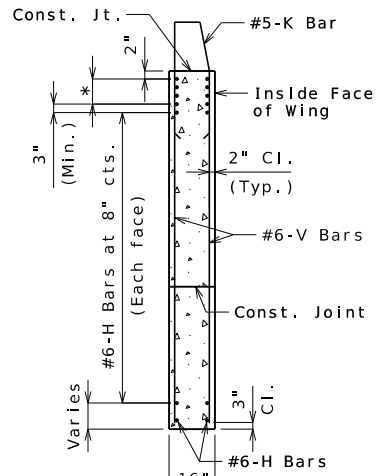
CHAMFER DETAIL



ELEVATION E-E



ELEVATION F-F



TYPICAL SECTION THRU WING

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

END BENT NO. 1

Detailed Dec. 2025
Checked Jan. 2026

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

Sheet No. 5 of 30

General Notes:
Work this sheet with Sheets No. 3 & 4.
For locations of Sections A-A, B-B, C-C, D-D and Elevations E-E & F-F, see Sheet No. 4.
For reinforcement of barrier, see Sheets No. 20 & 22.

DATE PREPARED 3/4/2026	
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DISTRICT BR	SHEET NO. 3-BR05
COUNTY LAFAYETTE	
JOB NO. JST0019	
CONTRACT ID. 250507-C01	
PROJECT NO.	

BRIDGE NO. A9743

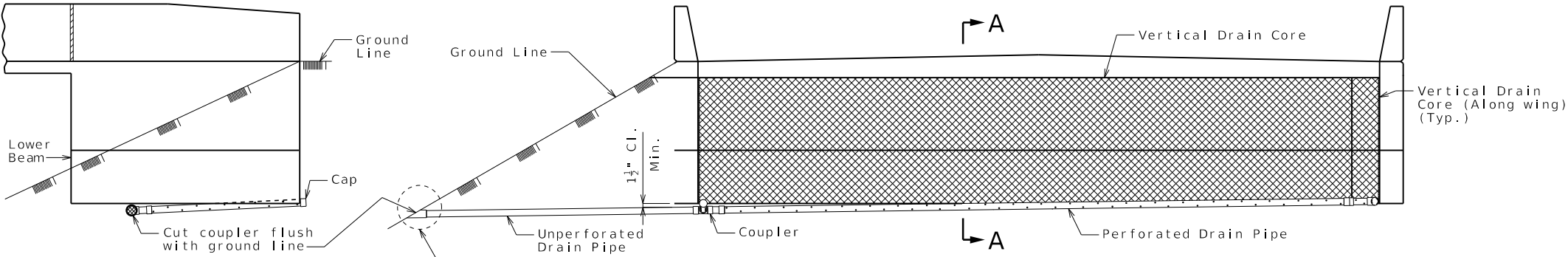
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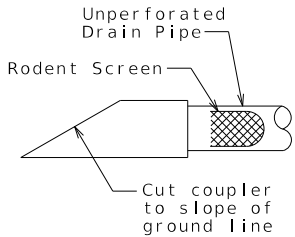
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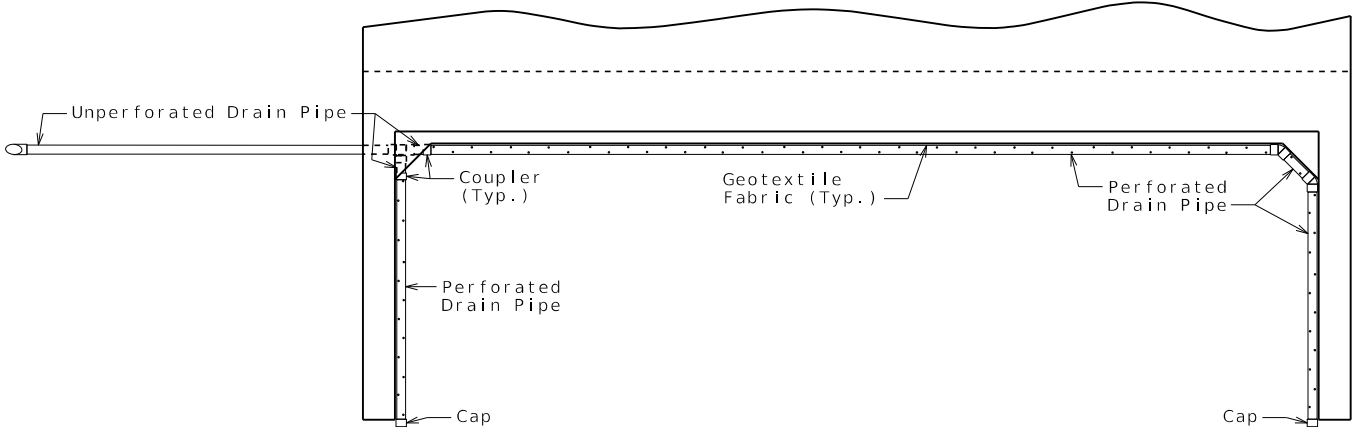


ELEVATION OF WING

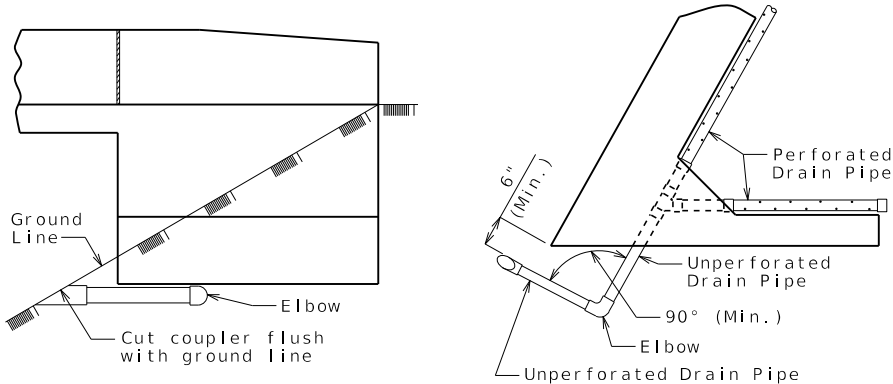
ELEVATION OF END BENT



DETAIL A



PLAN OF END BENT

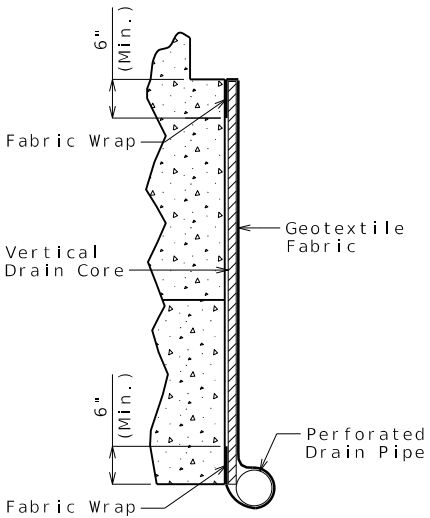


ELEVATION OF WING

PART PLAN

OPTIONAL TURNED DRAIN

(Use only when straight drain is not practical.)



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.

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PROJECT NO.	

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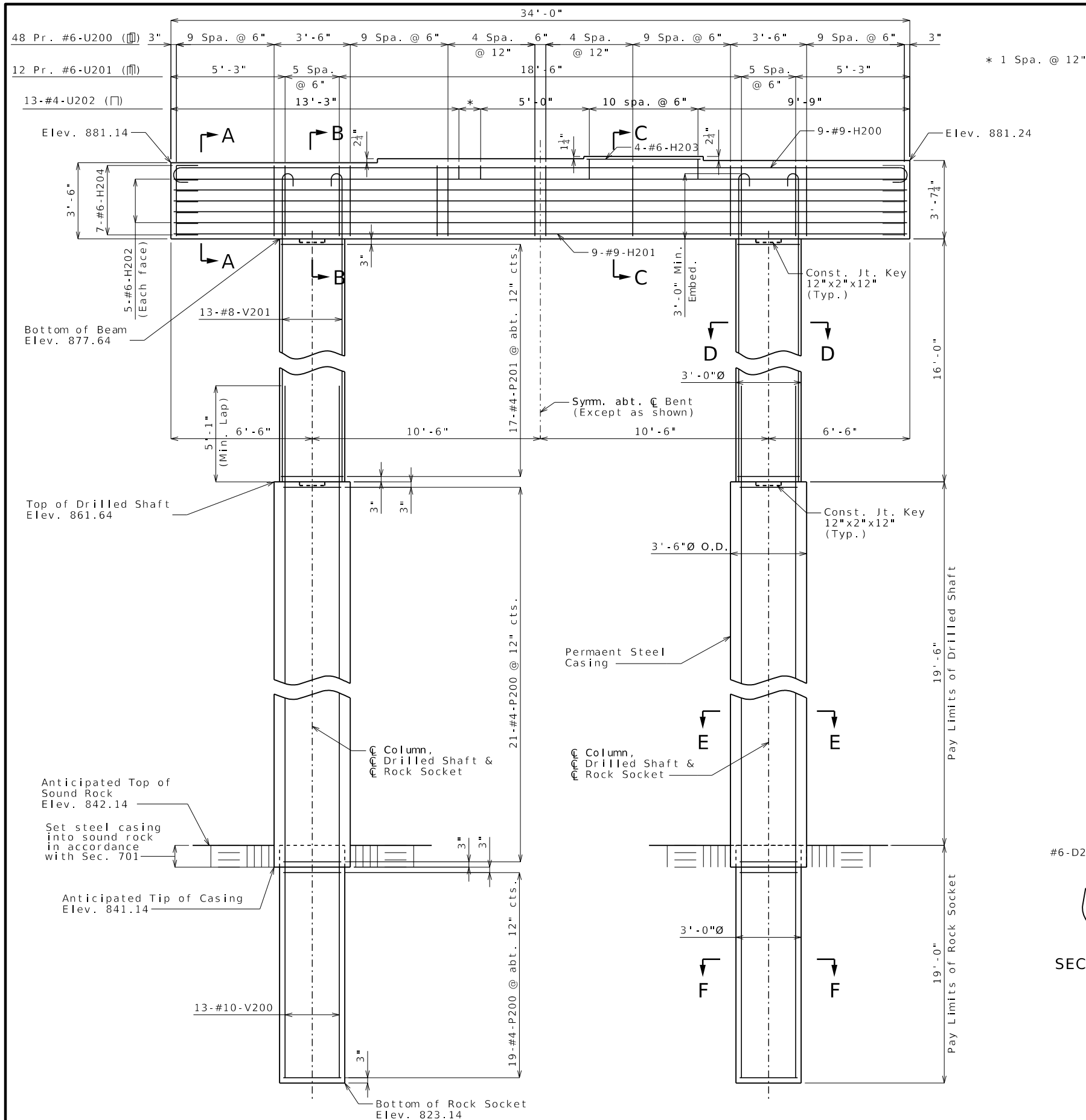
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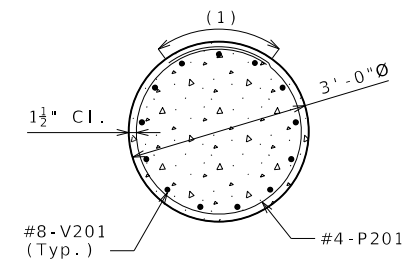
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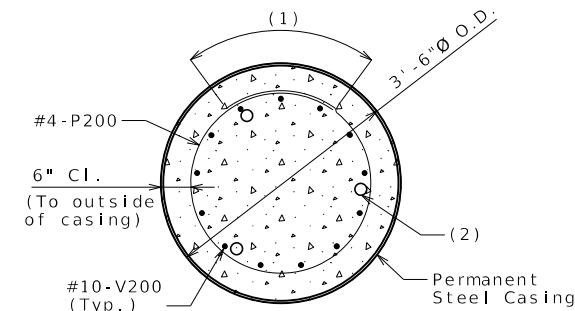
VERTICAL DRAIN AT END BENTS
(Squared end bent shown, skewed end bent similar)



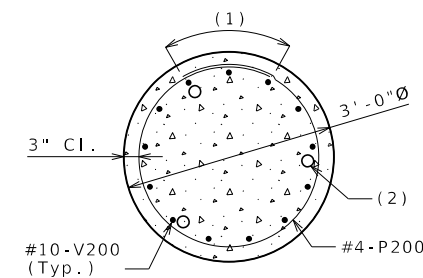
SECTION D-D



SECTION E-E

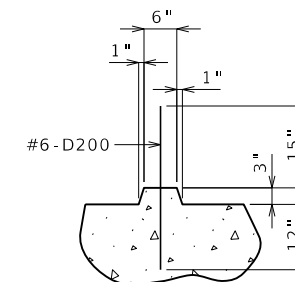


SECTION F - F

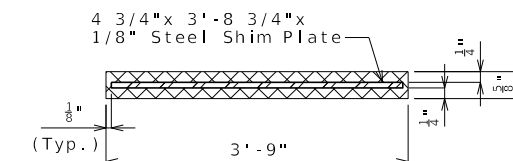


(1) 2'-4" Min. Lap (#4-P201) 2'-0" Min Lap (#4-P200)
(Stagger adjacent bar splices)

(2) 2"Ø Steel Pipe for sonic logging testing (3 each shaft)



SECTION THRU KEY



TYPICAL SECTION
THRU LAMINATED
NEOPRENE BEARING PAD

General Notes:

Work this sheet with Sheet No. 8.

For Sections A-A, B-B & C-C, see 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 8-#4-P200 bars 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 or included in the reinforcement lap if not required. The additional P bars shall be spaced similarly to that shown in elevation, if required, or to 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.

DATE PREPARED	
3/4/2026	
ROUTE	STATE
I-70	MO
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BR	3-BR07
COUNTY	
LAFAYETTE	
JOB NO.	
JST0019	
CONTRACT ID.	
250507-C01	
PROJECT NO.	

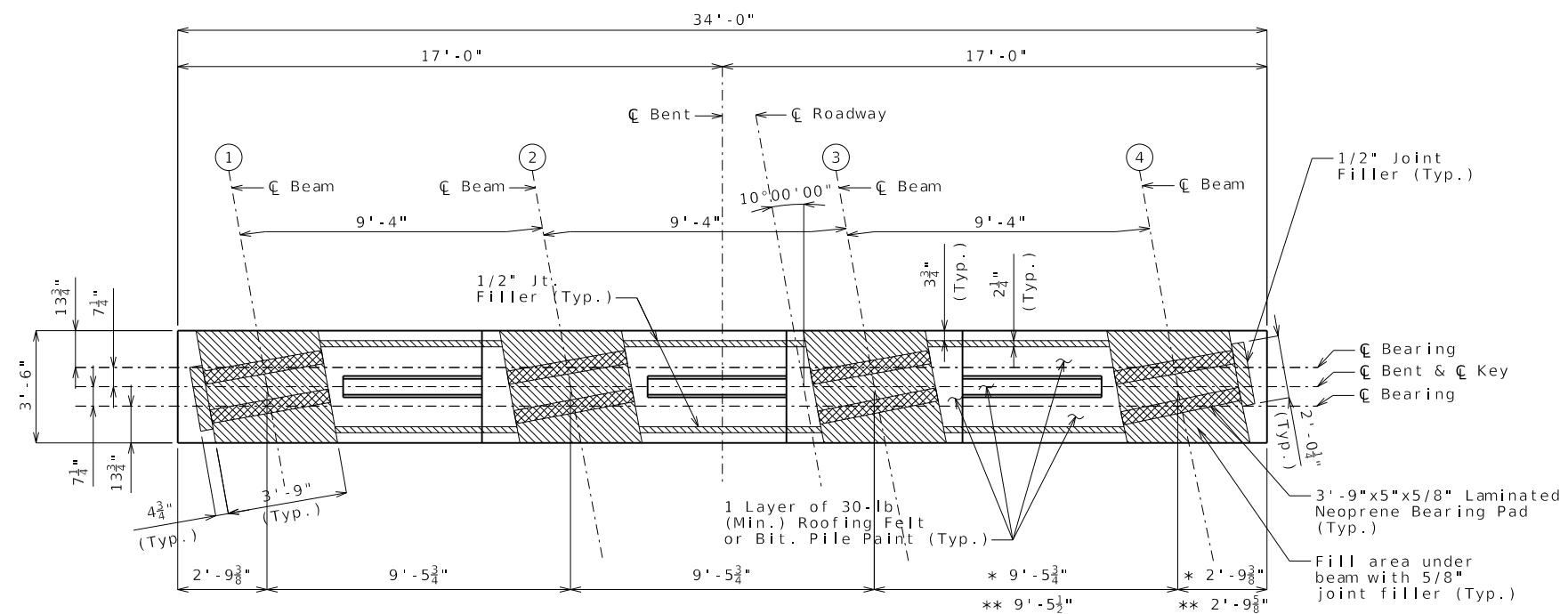
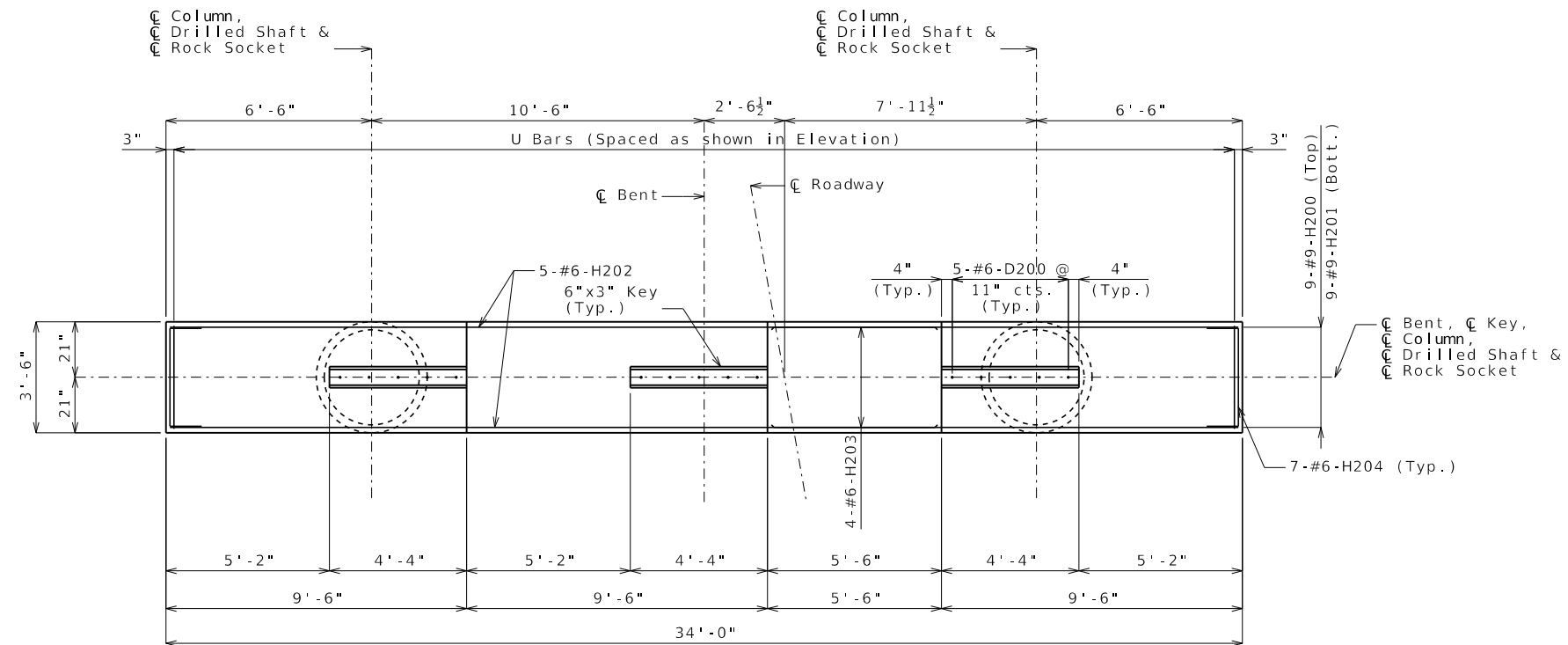
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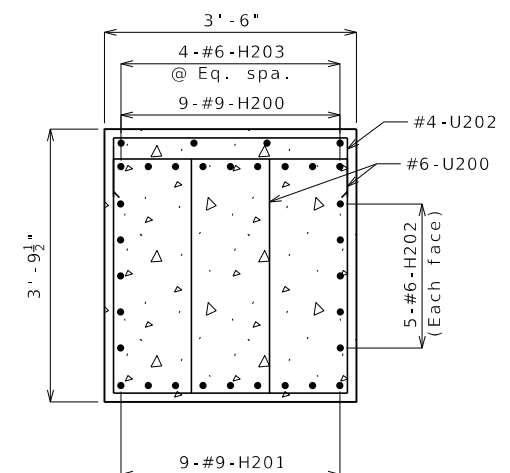
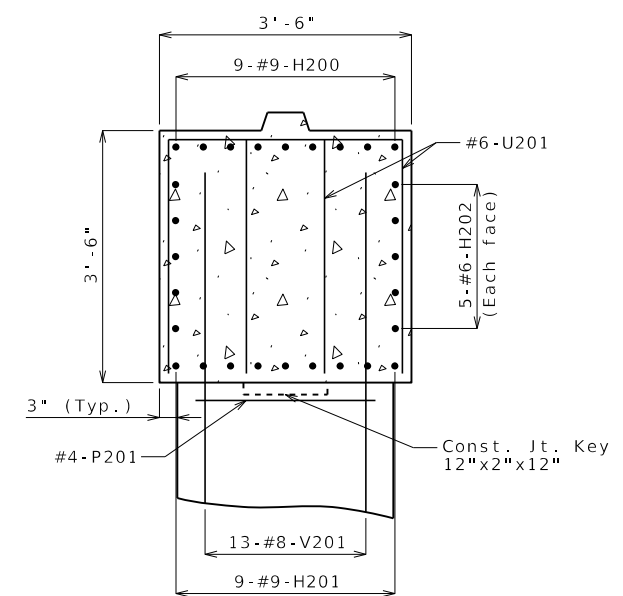
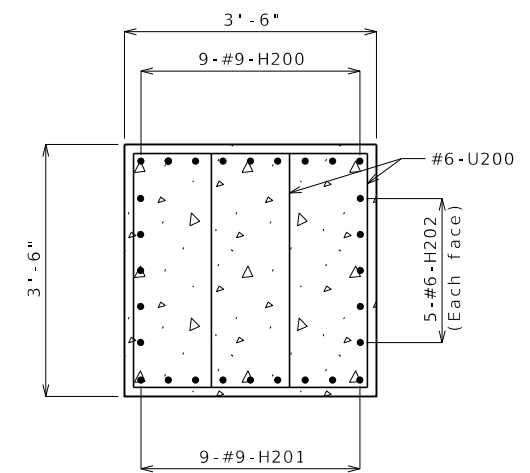
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DETAILS OF INTERMEDIATE BENT NO. 2



General Notes:

Work this sheet with Sheet No. 7.

For steps 2 inches or more, use 2 1/4 x 1/2-inch joint filler up vertical face.

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3/4/2026	
ROUTE	STATE
I-70	MO
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BR	3-BR08
COUNTY	
LAFAYETTE	
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CONTRACT ID.	
250507-C01	
PROJECT NO.	

BRIDGE NO.	A9743
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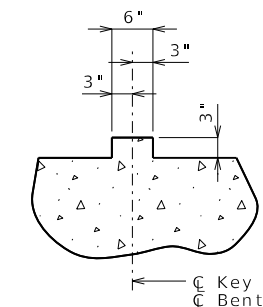
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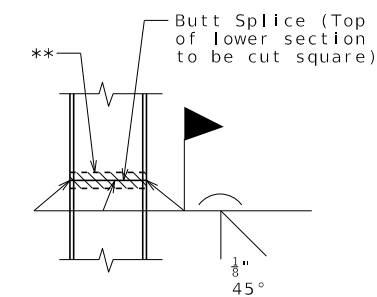
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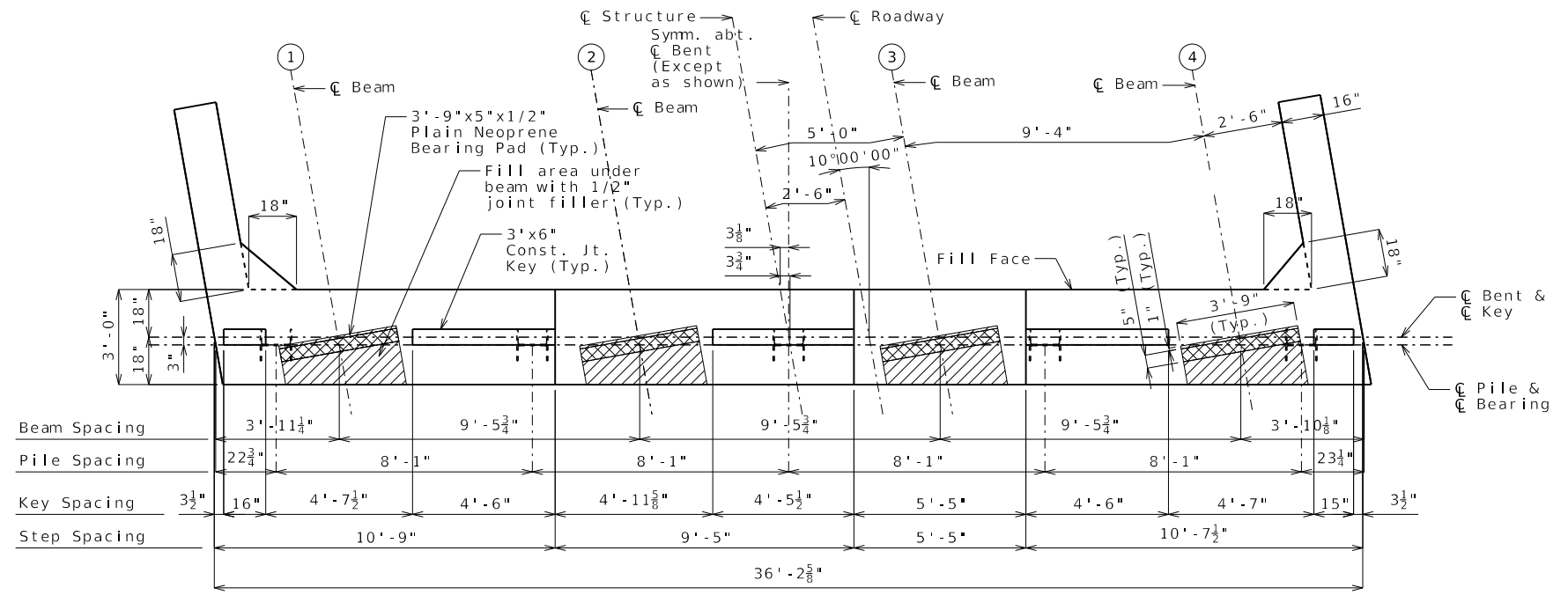


SECTION THRU KEY

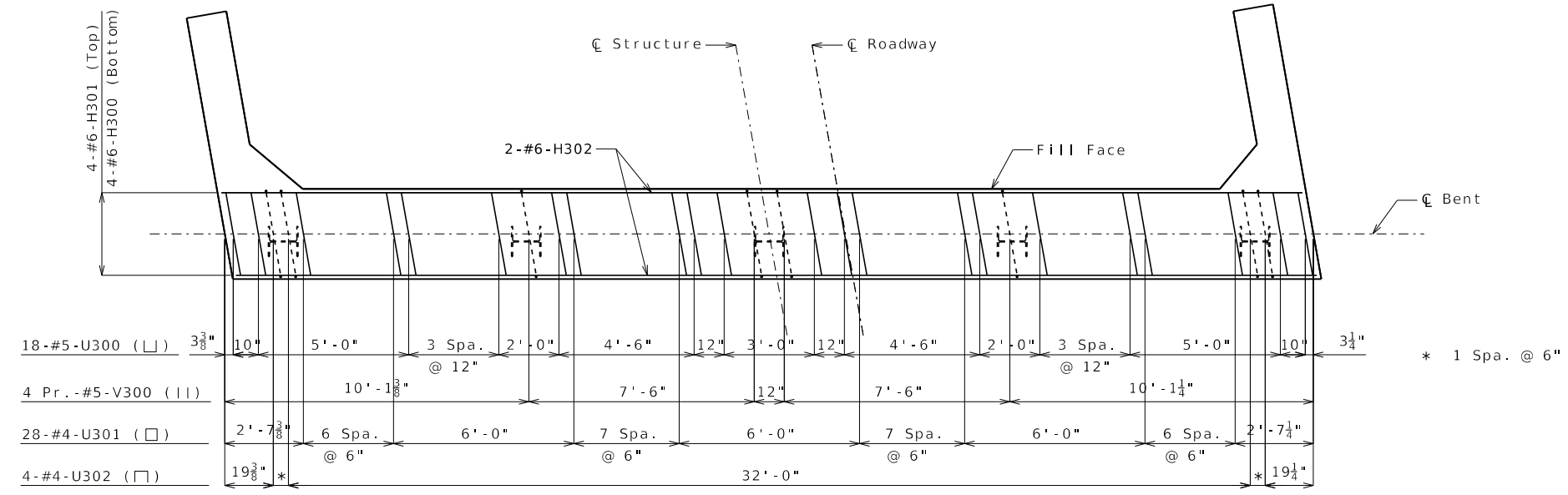


STEEL PILE SPLICE
(If required)

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



PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT
Keys not shown for clarity.

END BENT NO. 3

General Notes:

Work this sheet with Sheets No. 10 & 11.

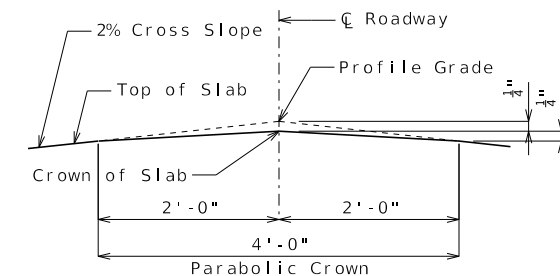
The U bars and pairs of V bars shall be placed parallel to centerline of roadway.

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

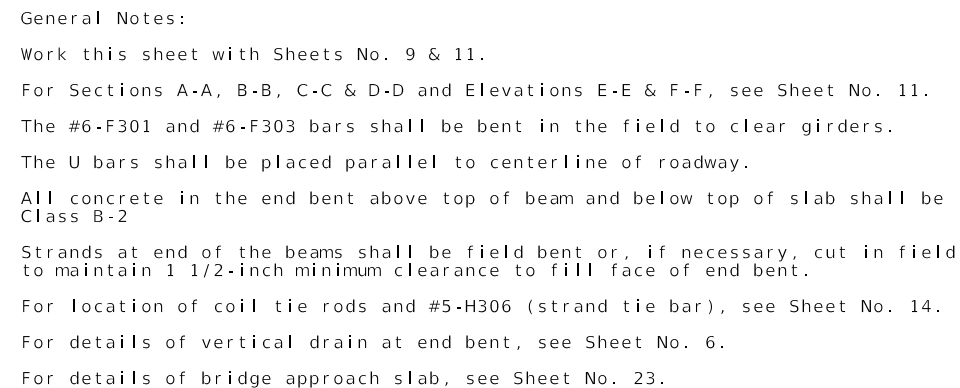
Detailed Dec. 2025
Checked Jan. 2026

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

Sheet No. 9 of 30



SECTION NEAR END BENT



END BENT NO. 3

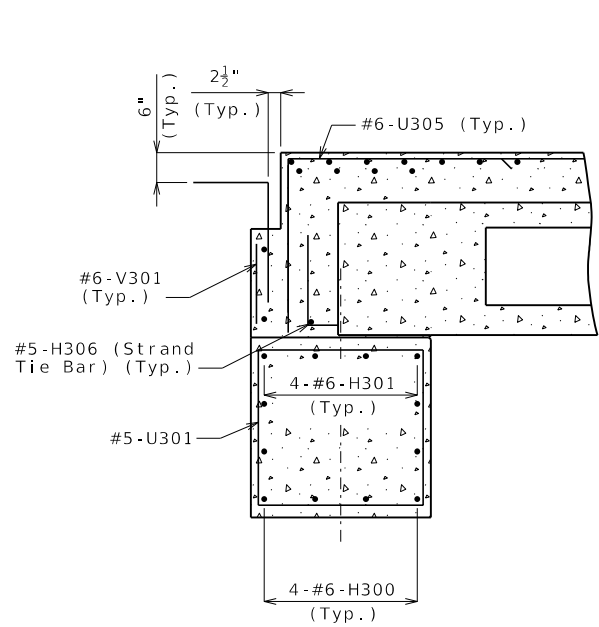
SEG3_B_A9743_010_JST0019_END_BENT_NO_3_DETAILS.dgn 7:29:22 PM 3/4/2026

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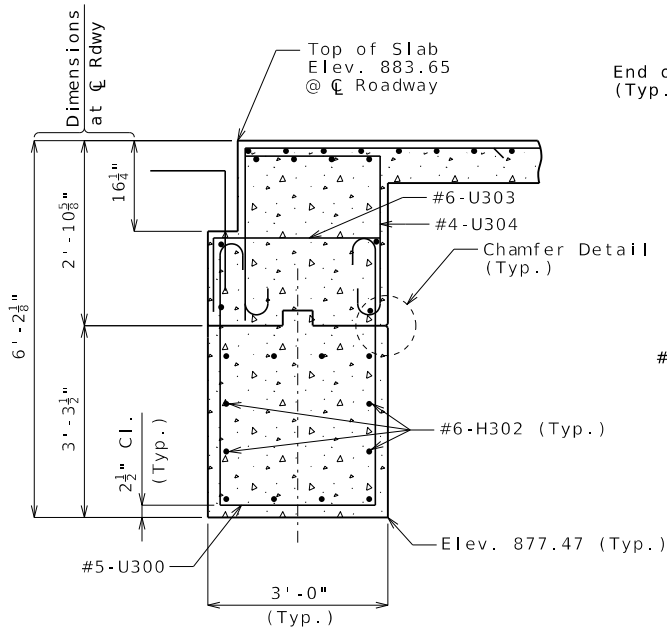
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Kansas City, MO 64131
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Fax (816) 942-3013

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Authority #2003007599

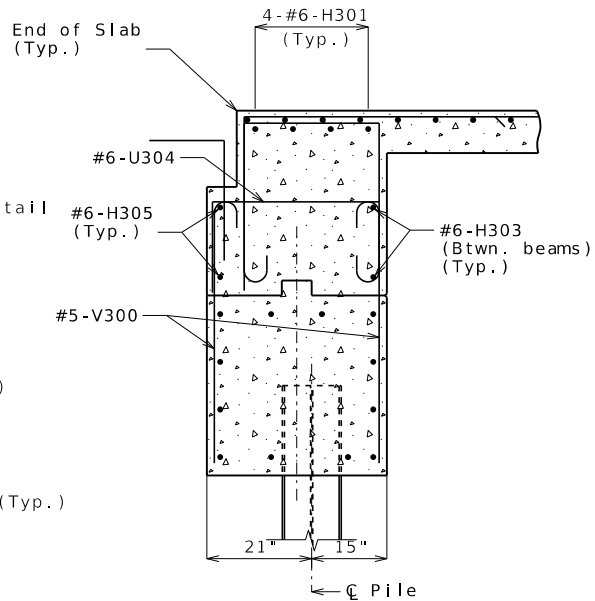




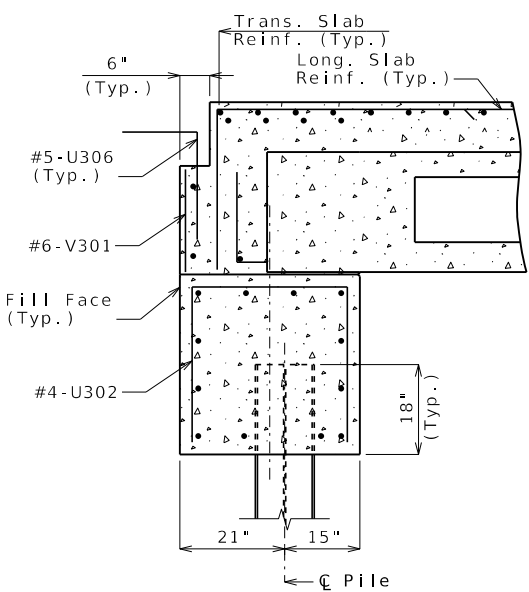
SECTION A-A



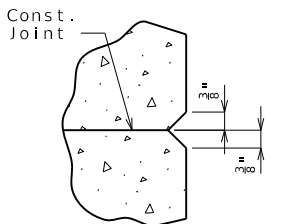
SECTION B-B



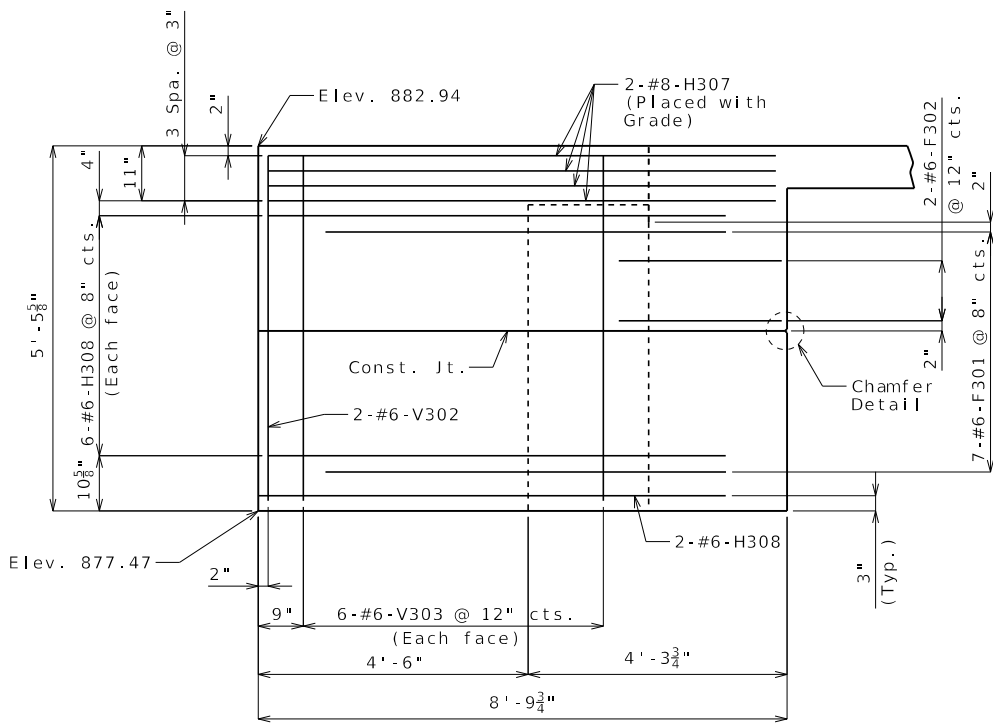
SECTION C-C



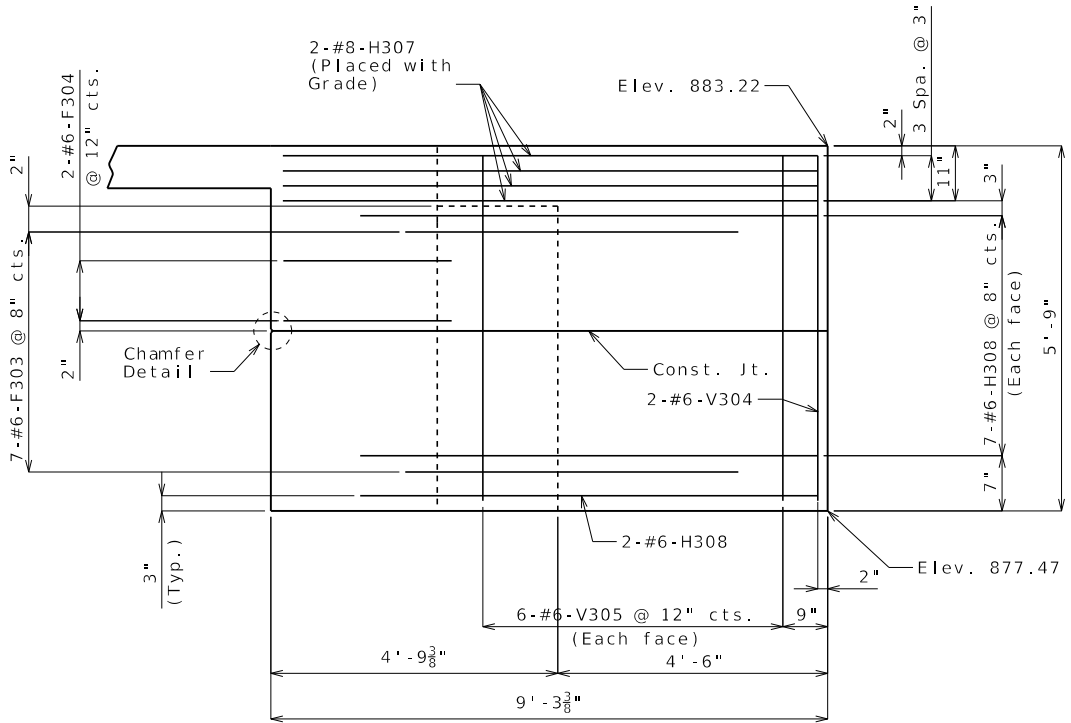
SECTION D-D



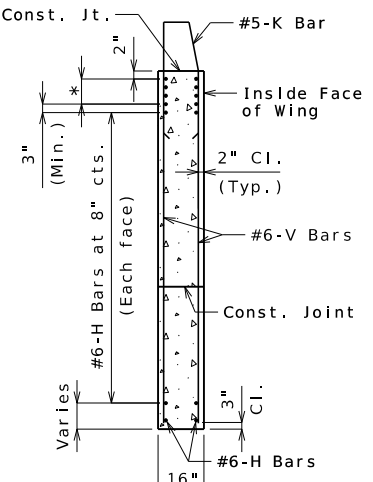
CHAMFER DETAIL



ELEVATION E-E



ELEVATION F-F



TYPICAL SECTION THRU WING

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

General Notes:
Work this sheet with Sheets No. 9 & 10.
For locations of Sections A-A, B-B, C-C, D-D and Elevations E-E & F-F, see Sheet No. 10.
For reinforcement of barrier, see Sheets No. 20 & 22.

END BENT NO. 3

DATE PREPARED 3/4/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. 3-BR11
COUNTY LAFAYETTE	
JOB NO. JST0019	
CONTRACT ID. 250507-C01	
PROJECT NO.	
BRIDGE NO. A9743	
NO.	APPD. BY
1	JMK
2	JMK
3	JMK
4	JMK
5	JMK
6	JMK
7	JMK
8	JMK
9	JMK
10	JMK
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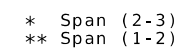
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

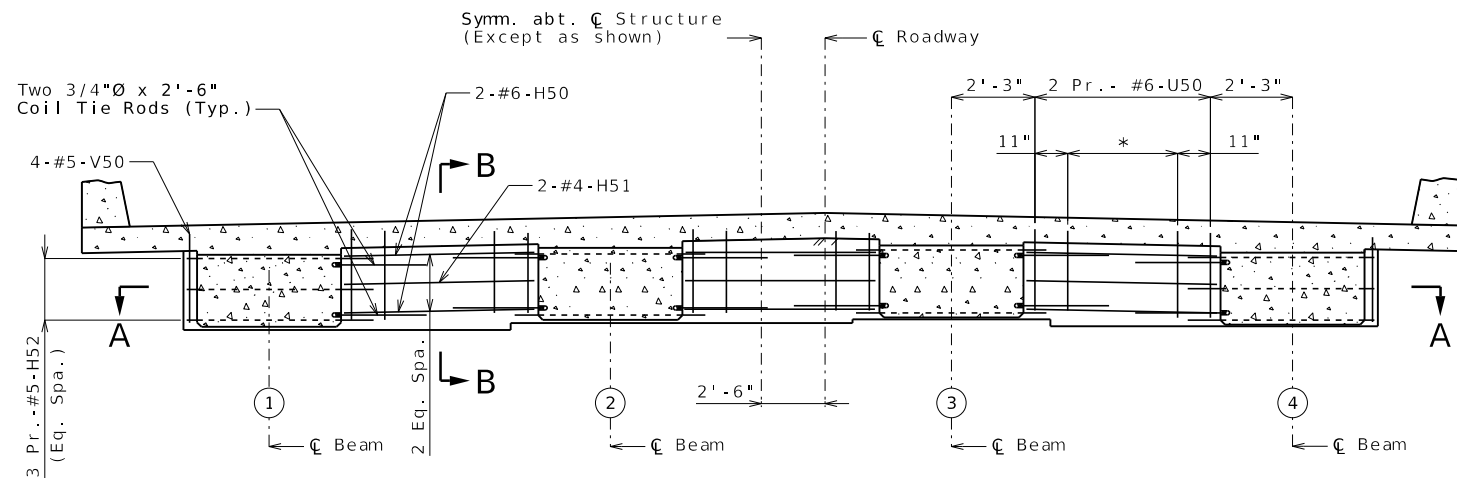
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JEFFERSON CITY, MO 65102
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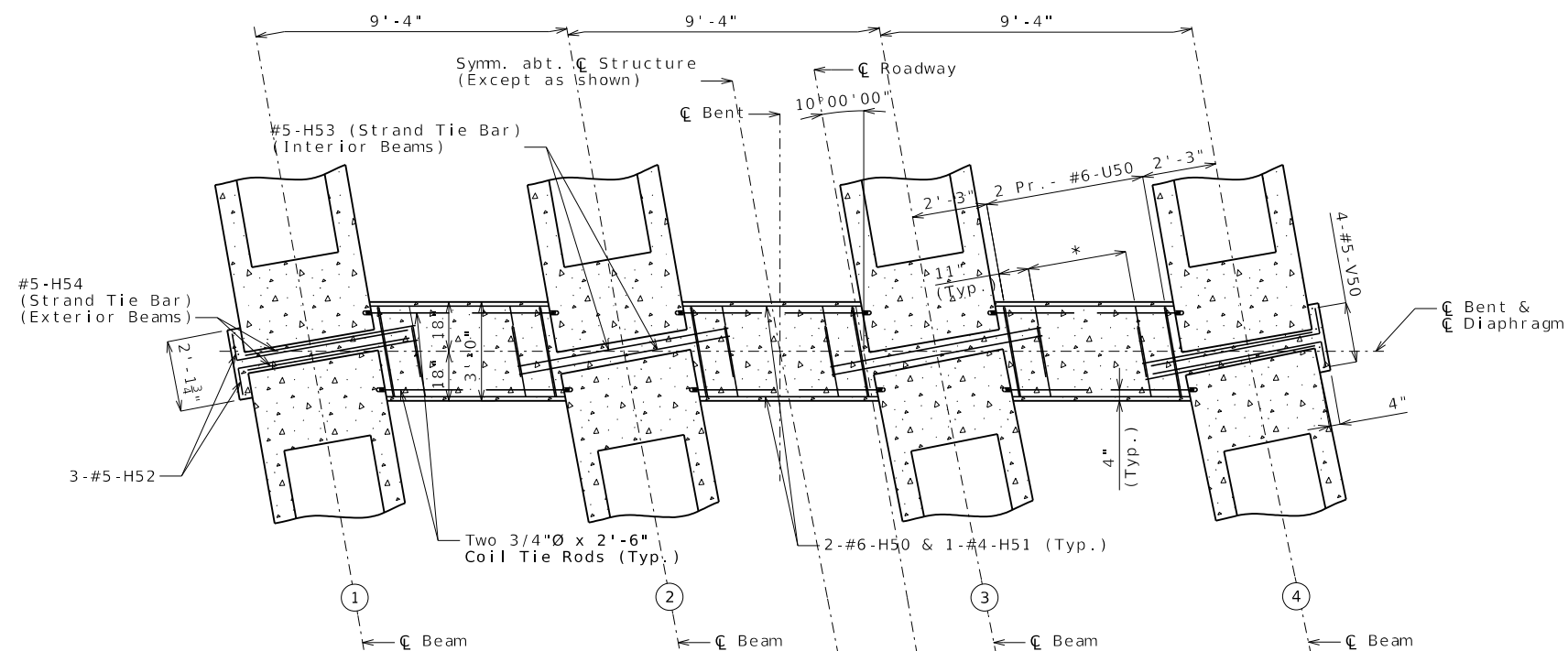
WILSON & COMPANY

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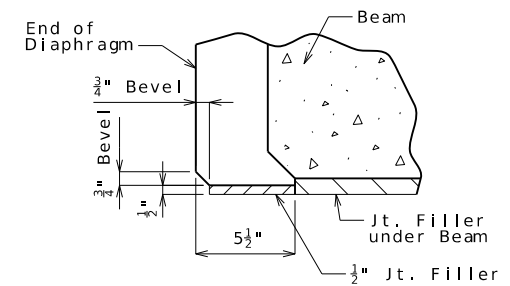


SECTION NEAR INTERMEDIATE BENT
Normal to C Structure

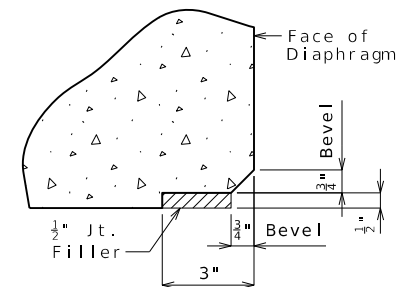
* 4-Pr.-#4-U51 @ 12" cts.



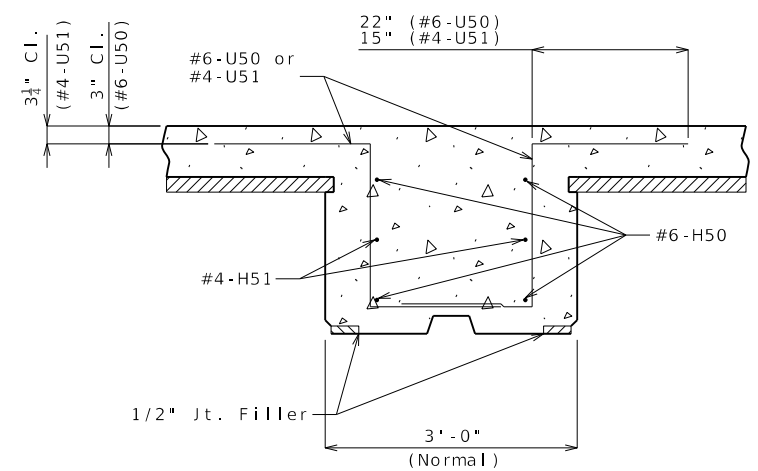
SECTION A-A



END DETAIL



EDGE DETAIL



SECTION B-B

Notes:

For location of Strand Tie Bars, see Sheets No. 13. and 14

For location and details of Coil Tie Rods, see Sheets No. 13 and 14.

Diaphragms at intermediate bents shall be built vertical.

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

CONCRETE DIAPHRAGM AT INTERMEDIATE BENT NO. 2

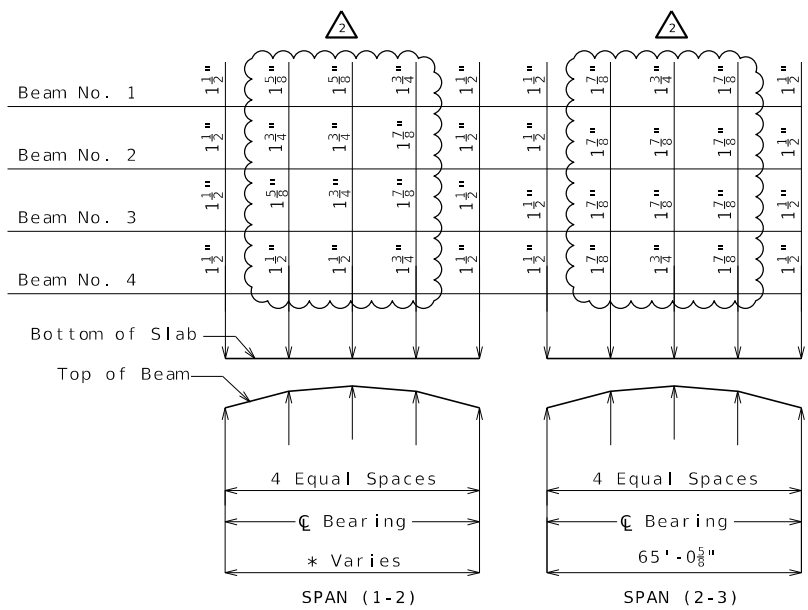
DATE PREPARED 3/4/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. 3-BR15
COUNTY LAFAYETTE	
JOB NO. JST0019	
CONTRACT ID. 250507-C01	
PROJECT NO.	

BRIDGE NO. A9743	
NO.	DATE
1	1/29/26
2	3/4/26
3	
4	
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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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WILSON & COMPANY



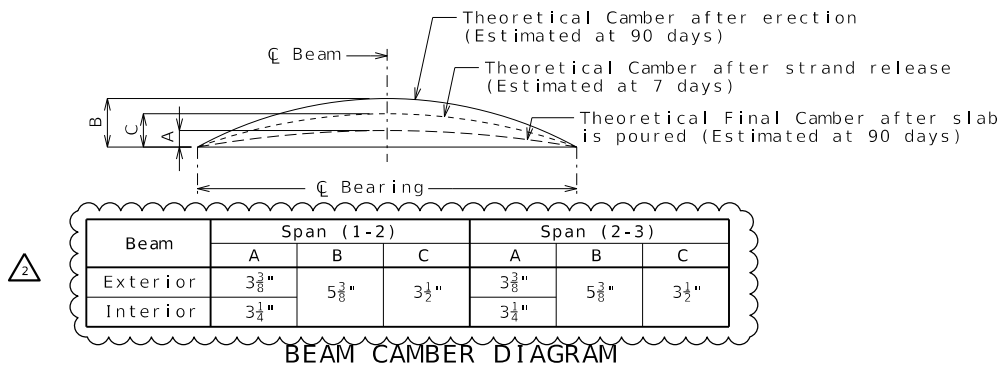
THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If beam camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary.

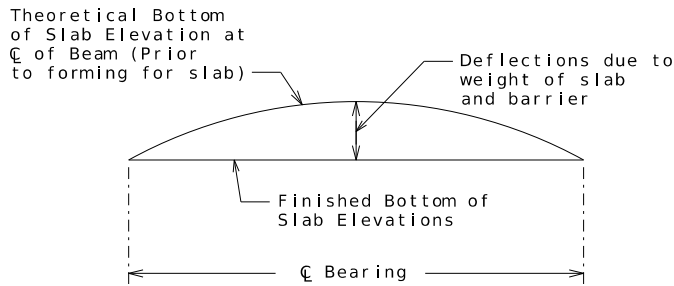
* Beam 1 = 65'-0 5/8"
Beam 2 = 65'-2 1/8"
Beam 3 = 65'-3 3/8"
Beam 4 = 65'-5 1/4"

Theoretical Bottom of Slab Elevations at Centerline of Beam (Prior to forming for slab) (Estimated at 90 days)					
Beam Number	Span (1-2) (* Varies C Brg. - C Brg.)				
	C Brg.	.25	.50	.75	C Brg.
1	881.69	882.44	882.98	883.28	883.35
2	881.82	882.59	883.15	883.45	883.52
3	881.81	882.60	883.18	883.51	883.61
4	881.54	882.33	882.93	883.28	883.41
Beam Number	Span (2-3) (65'-0 5/8" C Brg. - C Brg.)				
	C Brg.	.25	.50	.75	C Brg.
1	883.35	883.50	883.42	883.10	882.55
2	883.53	883.70	883.64	883.33	882.79
3	883.61	883.80	883.76	883.46	882.94
4	883.41	883.60	883.57	883.30	882.80

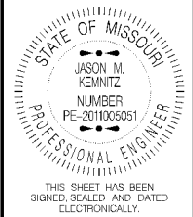
Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including corrugated steel form) and barrier.



Conversion Factors for Beam Camber (Estimated at 90 days):
0.25 pt. = 0.7125 x 0.5 pt.



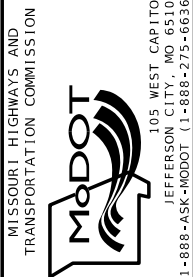
TYPICAL SLAB ELEVATIONS DIAGRAM



DATE PREPARED
3/18/2026
ROUTE
I-70
STATE
MO
DISTRICT
BR
SHEET NO.
3-BR16
COUNTY
LAFAYETTE
JOB NO.
JST0019
CONTRACT ID.
250507-C01
PROJECT NO.

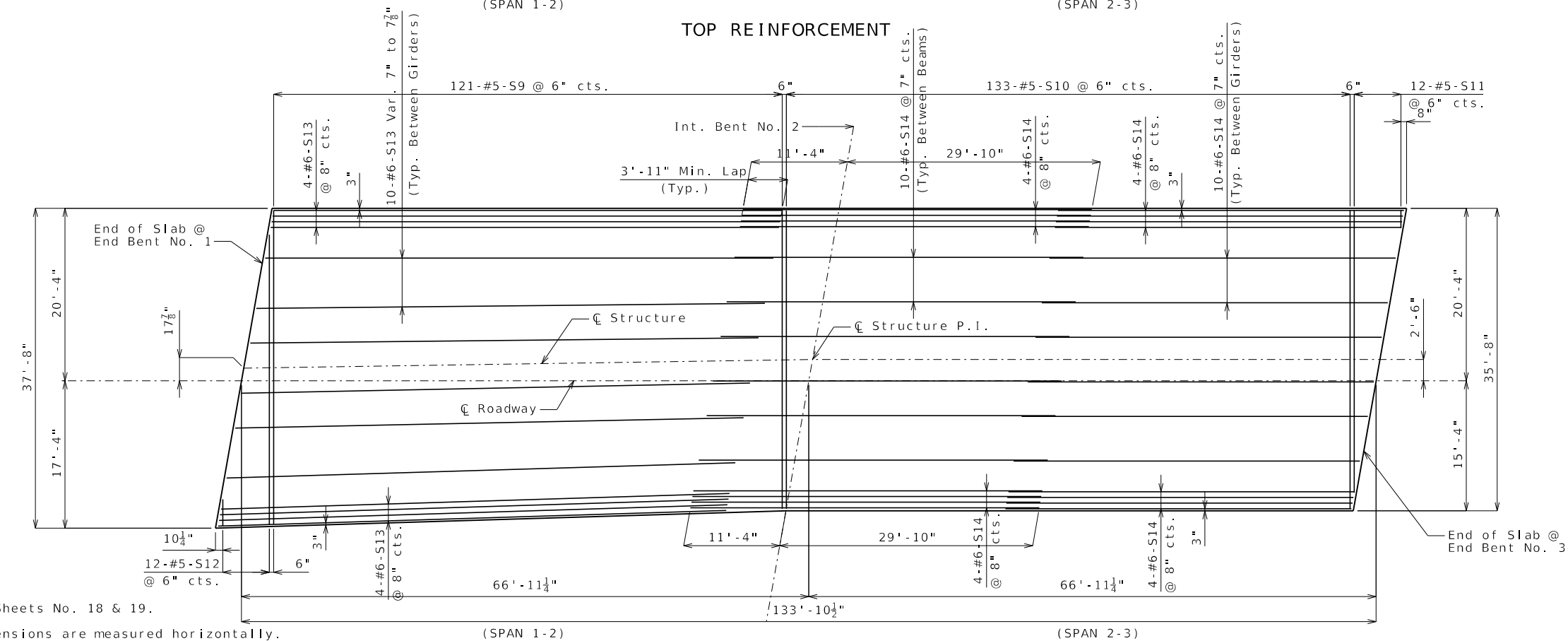
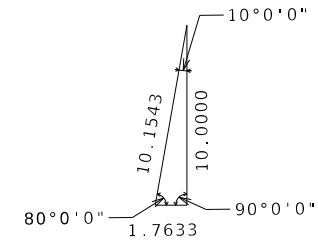
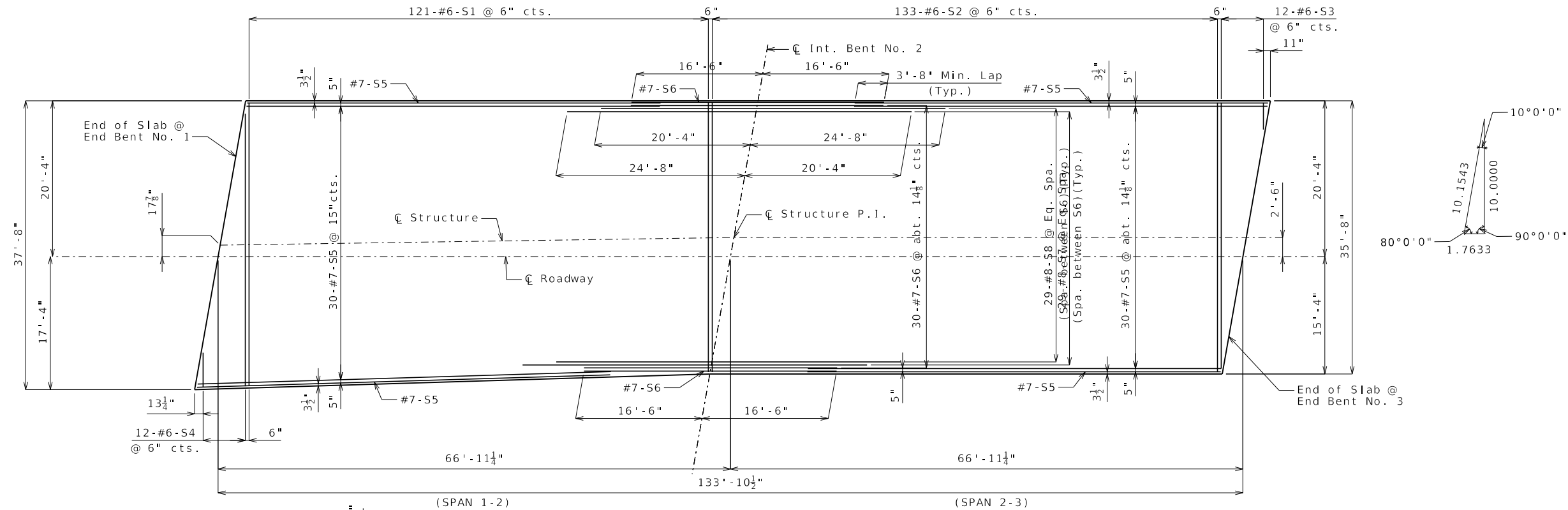
BRIDGE NO.
A9743

NO.	APPD. BY	DATE	REVISIONS			
			SEG. 3 - A9743, A9744 & A9745 FINAL	SEG. 3 - A9743, A9744 & A9745 RFC	SEG. 3 - A9743, A9744 & A9745 BRIDGE REV.	
A	JMK	1/29/26				
1	JMK	3/4/26				
2	JMK	3/20/26				



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General Notes:

- Work this sheet with Sheets No. 18 & 19.
- Longitudinal slab dimensions are measured horizontally.
- For Theoretical Slab Haunching Diagram and Theoretical Bottom of Slab Elevations, see Sheet No. 16.
- For Section Thru Slab, see Sheet No. 18.
- For Slab Pouring Sequence, see Sheet No. 19.

For details and reinforcement of Type D Barriers not shown, see Sheets No. 20 & 22.

Detailed Dec. 2025
Checked Jan. 2026

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

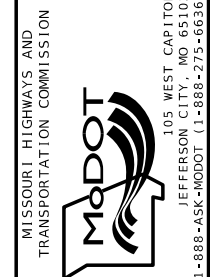
Sheet No. 17 of 30

PLAN OF SLAB SHOWING REINFORCEMENT

DATE PREPARED 3/4/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. 3-BR17
COUNTY LAFAYETTE	
JOB NO. JST0019	
CONTRACT ID. 250507-C01	
PROJECT NO.	

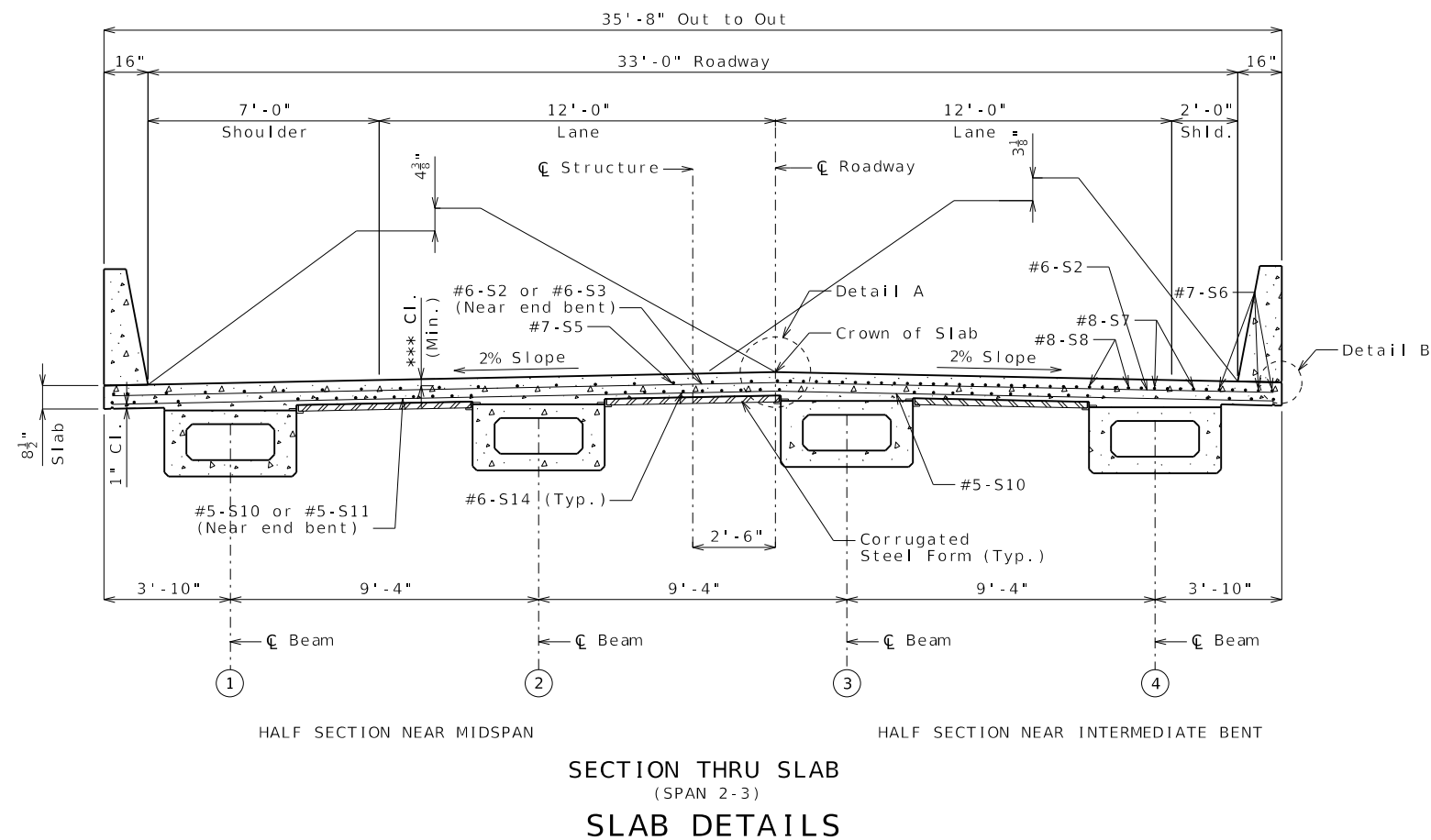
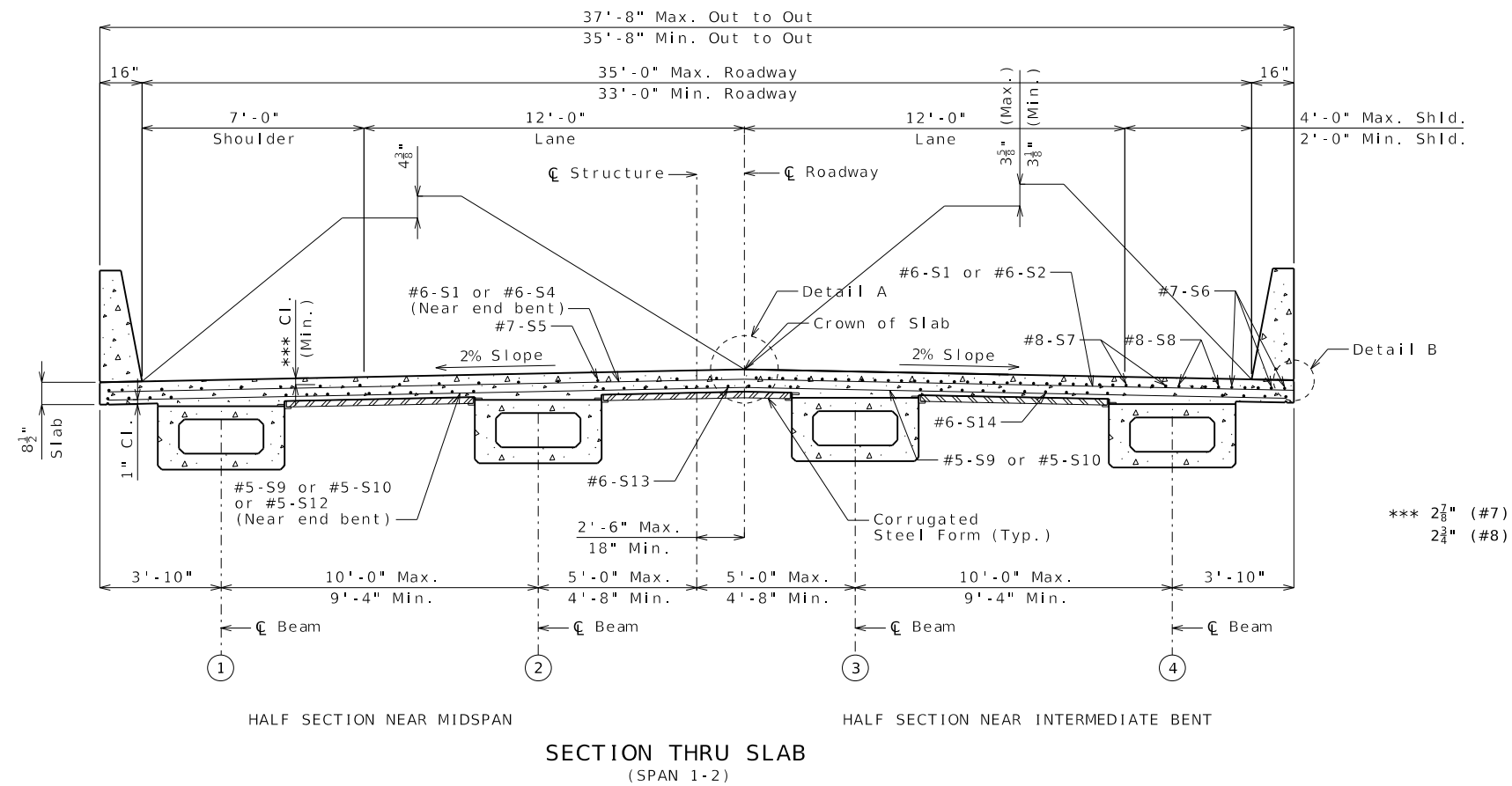
BRIDGE NO. A9743

REVISIONS	
NO.	DATE
A	1/29/26
1	3/4/26



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General Notes:

For Details A and B, see Sheet No. 19.

Work this sheet with Sheets No. 17 & 19.

DATE PREPARED	
3/4/2026	
ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	3-BR18
COUNTY	
LAFAYETTE	
JOB NO.	
JST0019	
CONTRACT ID.	
250507-C01	
PROJECT NO.	

BRIDGE NO.
A9743

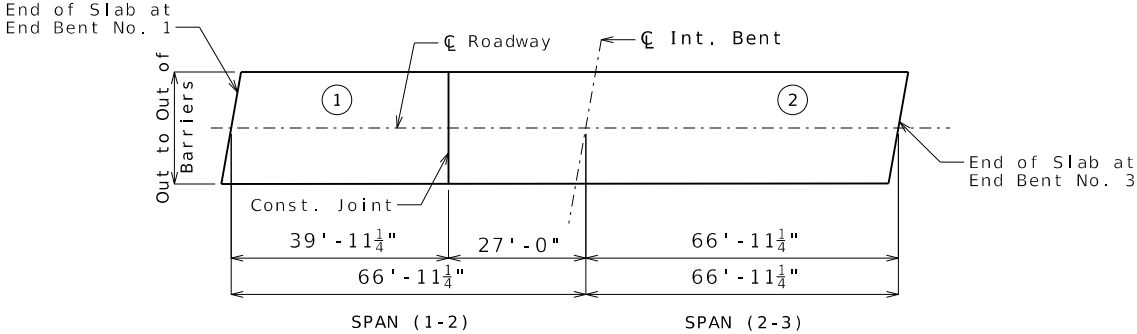
NO.	APPD. BY	DATE	REVISIONS
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B	JMK	1/29/26	SEG. 3 - A9743, A9744 & A9745 FINAL
1	JMK	3/4/26	SEG. 3 - A9743, A9744 & A9745 RFC



MISSOURI HIGHWAYS AND
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WILSON
& COMPANY

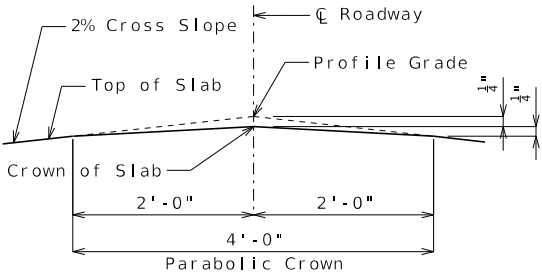
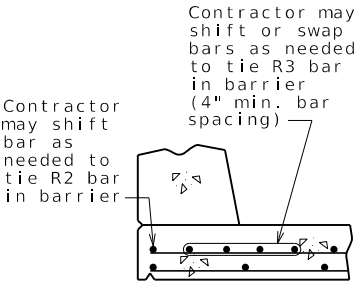
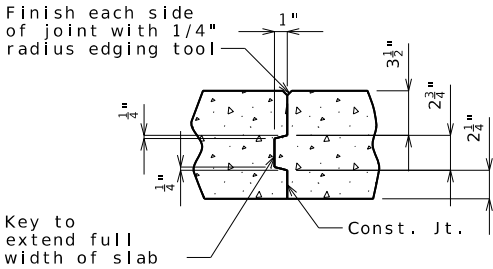
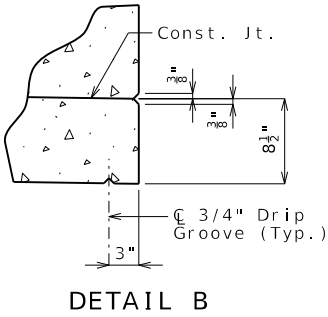
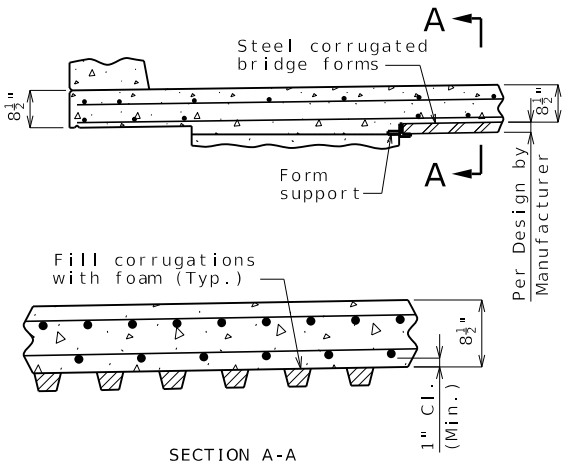


	Sequence of Pours		Min. Rate of Pour Cu. Yds./Hr.
	Direction		With Retarder
Basic Sequence	1	2	25
	End to 2	1 to End	
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.			
Alternate A Pours	1 + 2		39
	End to End		

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



SLAB DETAILS

Notes:

For locations of Details A and B, see Sheet No. 18.

Work this sheet with Sheets No. 17 & 18.

DATE PREPARED
3/4/2026

ROUTE
I-70

DISTRICT
BR

COUNTY
LAFAYETTE

JOB NO.
JST0019

CONTRACT ID.
250507-C01

PROJECT NO.

STATE
MO

SHEET NO.
3-BR19

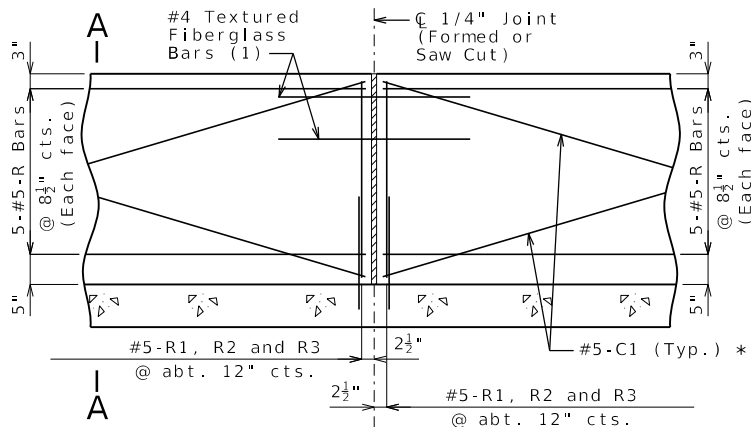
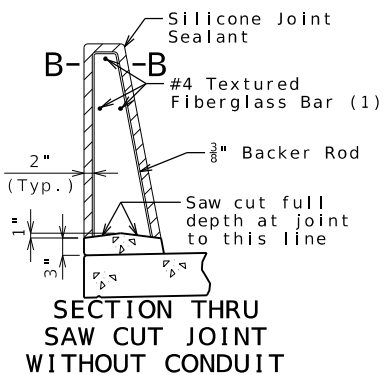
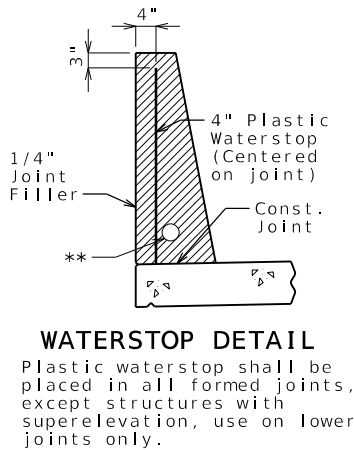
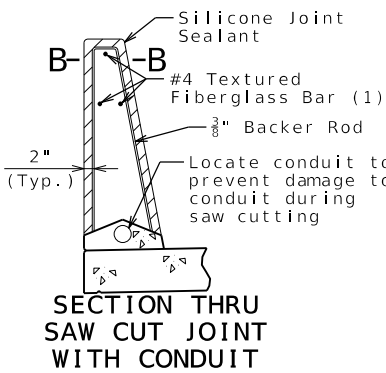
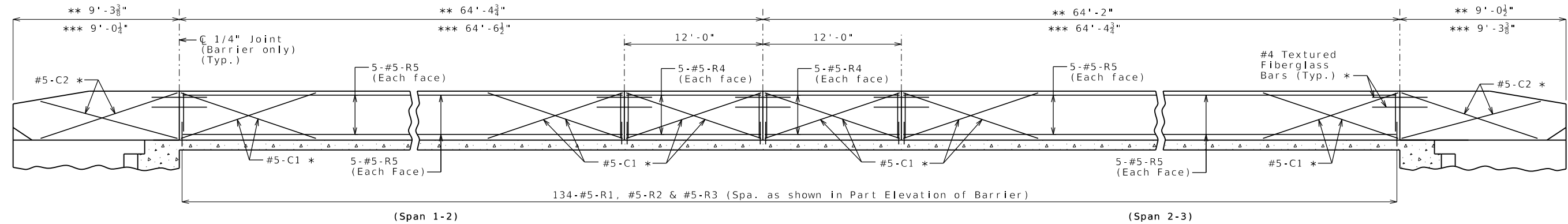
BRIDGE NO.
A9743

NO.	APPD. BY	DATE	REVISIONS
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1	JMK	3/4/26	SEG. 3 - A9743, A9744 & A9745 RFC

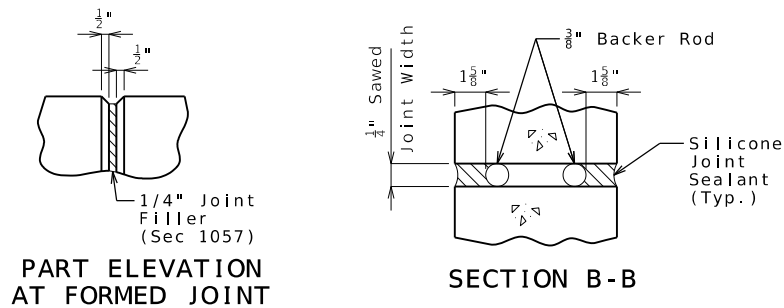
MISSOURI HIGHWAYS AND
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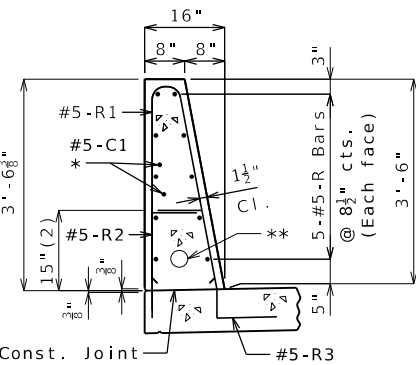
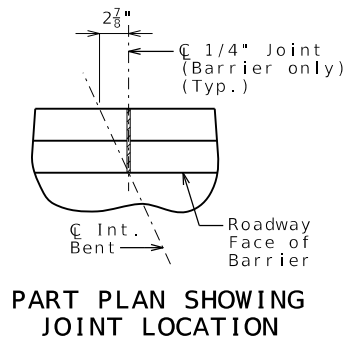
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ELEVATION OF BARRIER
(Left barrier shown, right barrier similar)
Longitudinal dimensions are horizontal.
** Left Barrier
*** Right Barrier



SECTION B-B

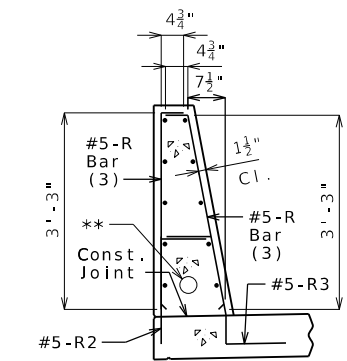


SECTION A-A

Use a minimum lap of 2'-6" 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.

** 2" PVC Conduit in Right Barrier only, see Sheet No. 21 for details.

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.

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 slab to end of slab.

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.

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.

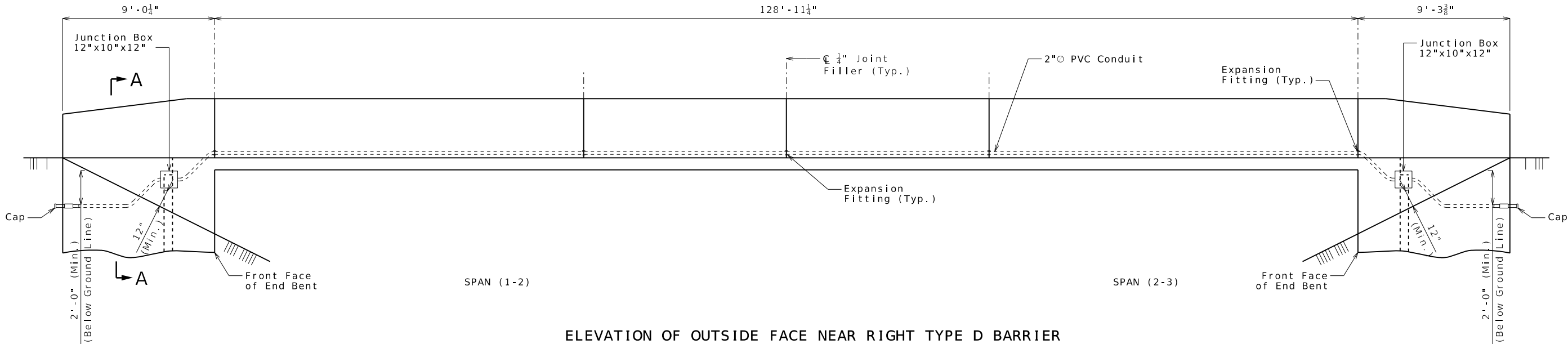
Plastic waterstop shall not be used with saw cut joints.

TYPE D BARRIER

Sheet No. 20 of 30

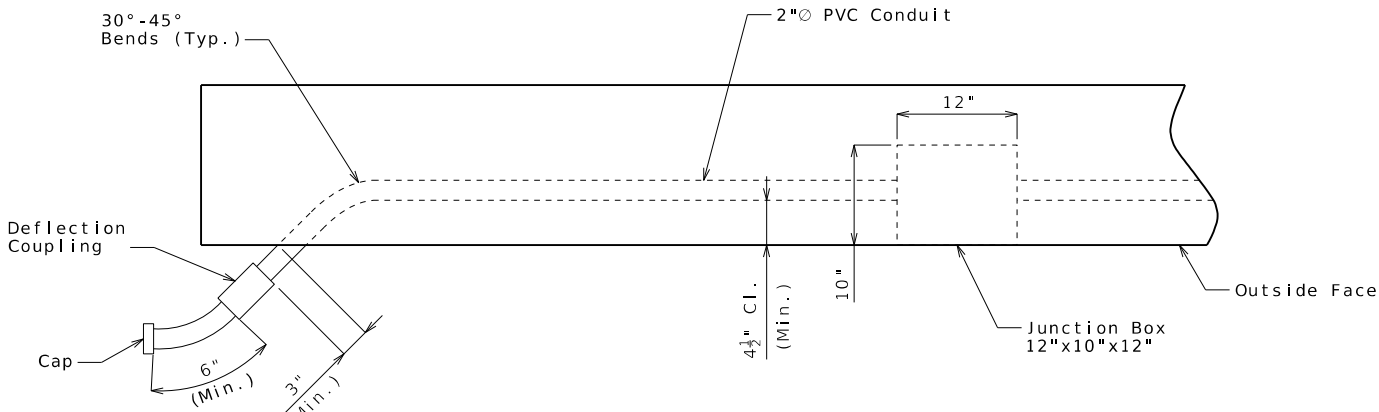
Detailed Dec. 2025
Checked Jan. 2026

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

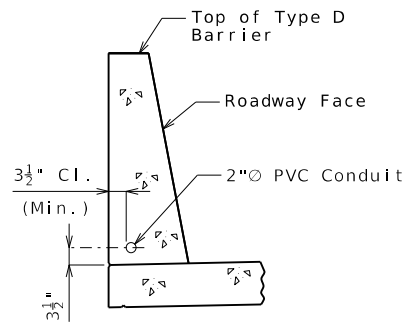


ELEVATION OF OUTSIDE FACE NEAR RIGHT TYPE D BARRIER

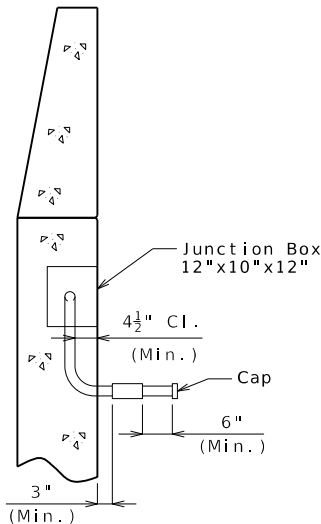
(Right barrier only)
Longitudinal dimensions are horizontal.



PART PLAN AT END BENT



PART SECTION SHOWING
2" PVC CONDUIT



SECTION A-A

General Notes:

Work this sheet with Sheets No. 20 & 22.

For reinforcement in wings, see Sheets No. 4,5,10 & 11.

For reinforcement in slab, see Sheets No. 17 & 18.

For reinforcement in barrier, see Sheets No. 20 & 22.

All conduit shall be rigid non-metallic schedule 40 heavy wall PVC (polyvinyl chloride plastic) with 3 1/2-inch minimum cover in barrier and 4 1/2-inch minimum cover in abutment wing. Each section of conduit shall bear the Underwriters' Laboratories, (UL) label.

Shift reinforcing steel in field where necessary to clear conduit.

Expansion fittings shall be placed as shown in accordance with the manufacturer's requirements and based on air temperature at the time of setting given an estimated total expansion movement of 5/8-inch at filled joints using a maximum temperature range of 120°F and a maximum temperature of 110°F.

Drainage shall be provided at low points or other critical locations of all conduits and all junction boxes in accordance with Sec 707. All conduits shall be sloped to drain where possible.

All end bent junction boxes shall be PVC molded in accordance with Sec 1062 and designed for flush mounting. The conduit terminations shall be permanent or seperable. The terminations and covers shall be of watertight construction and shall meet requirements for NEMA 4 or NEMA 4x enclosure.

All conduit clamps shall be commercially-available, non-metallic conduit clamps and approved by the engineer.

All conduits shall be secured to concrete with nonmetallic clamps at about 5'-0" cts. Concrete anchors for clamps shall be in accordance with Commercial Item Description (CID) A-A-1923A, AASHTO M232 (ASTM A153), Class C, ASTM B695, Class 55 or stainless steel. Minimum embedment in concrete shall be 1 3/4". The supplier shall furnish a manufacturer's certification that the concrete anchors meet the required material and galvanizing specifications.

MoDOT Construction Personnel: Indicate in field and on bridge plans for future work the exact location of buried conduit at ends of bridge that are capped and not immediately used.

Junction box size shown on plan may require special order. Smaller junction box may be substituted if junction box meets conduit installation, clearance and project requirements.

DETAILS OF CONDUIT SYSTEM AT RIGHT TYPE D BARRIER

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

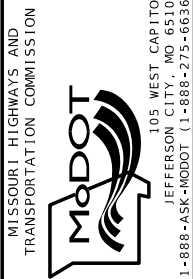
Sheet No. 21 of 30

Detailed Mar. 2026
Checked Mar. 2026

DATE PREPARED	
3/4/2026	
ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	3-BR21
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CONTRACT ID.	
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PROJECT NO.	

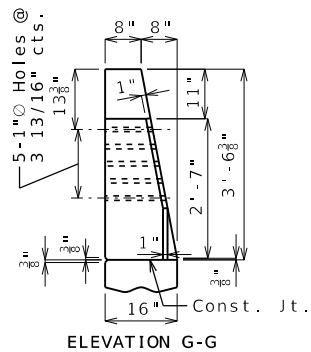
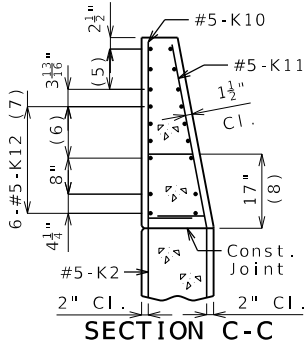
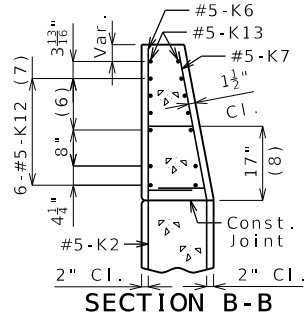
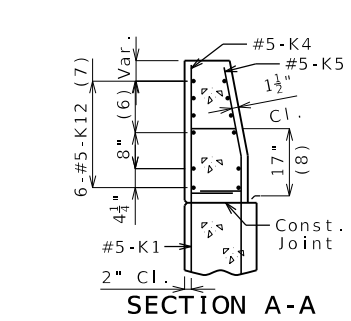
BRIDGE NO.	
A9743	

REVISIONS		DATE	APPD. BY	NO.
SEG. 3 - A9743, A9744 & A9745 RFC		3/4/26	JMK	1

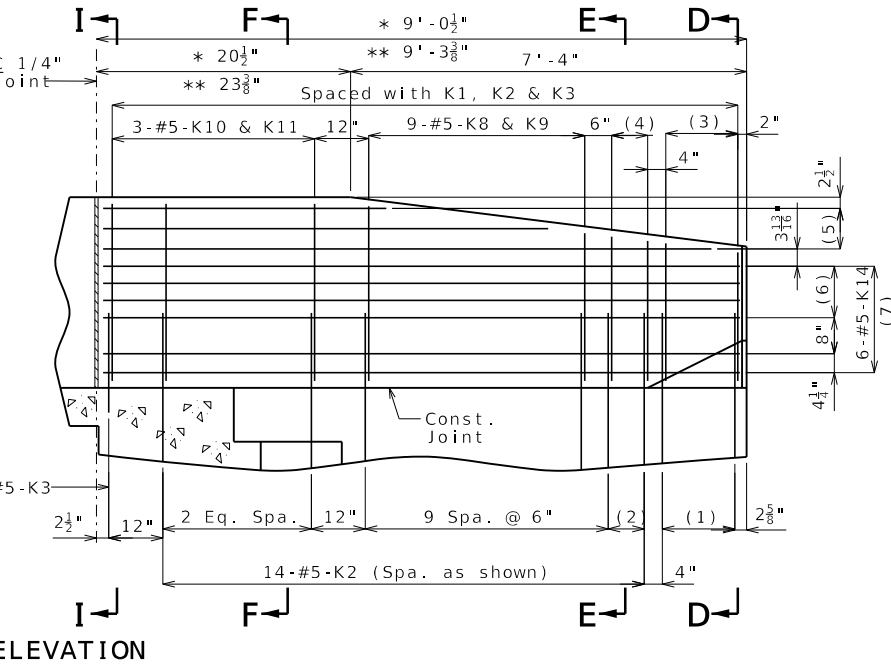
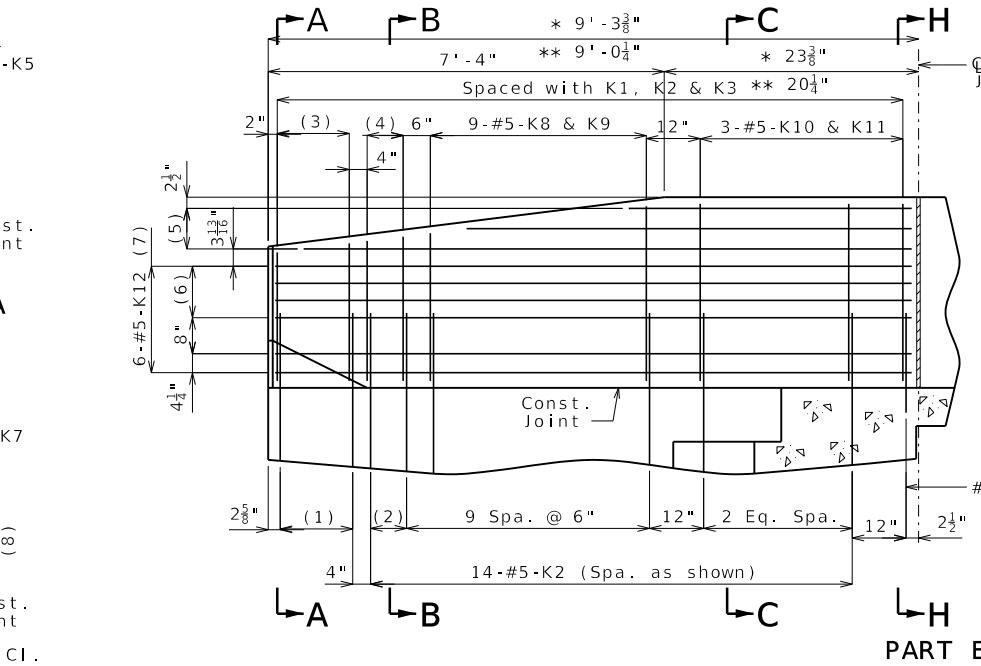


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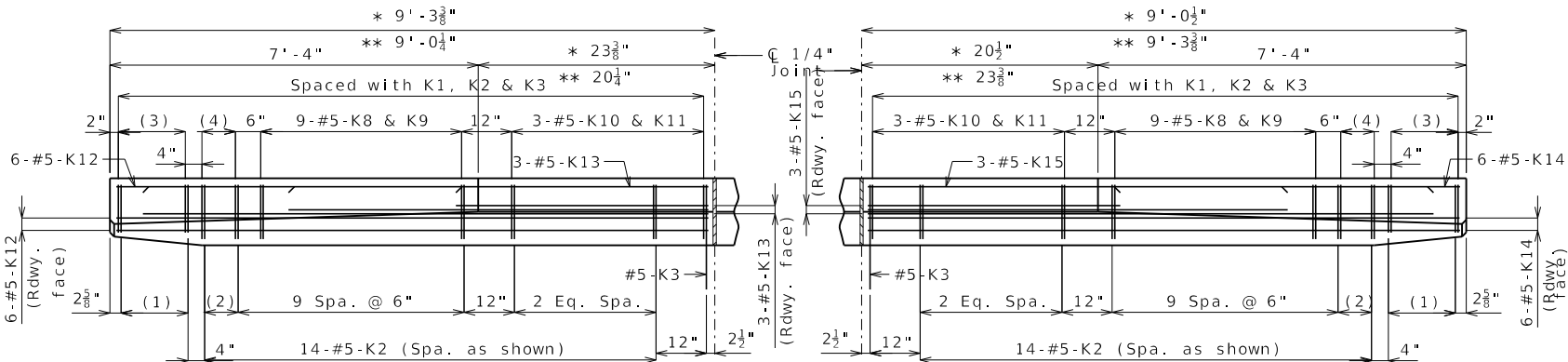




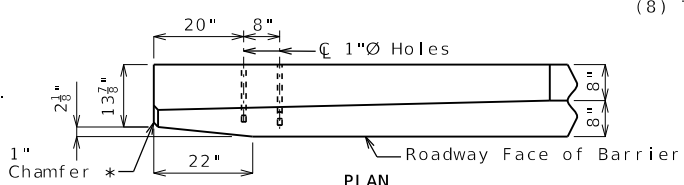
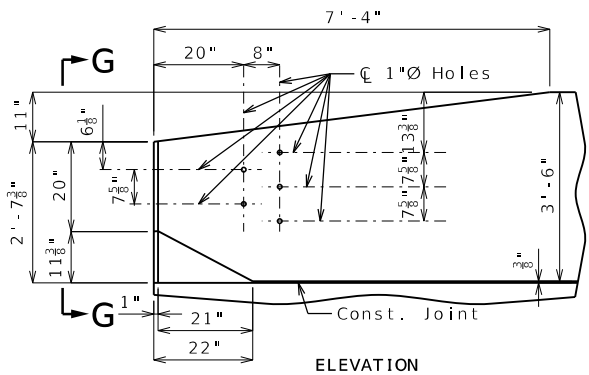
* Transition to zero at Type A curb for gutter lines to match.



PART ELEVATION



PART PLAN



DETAILS OF GUARD RAIL ATTACHMENT

- * Left Barrier
** Right Barrier
- (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 1/8"
 - (7) Spaced as shown, each face
 - (8) To top of bar

General Notes:

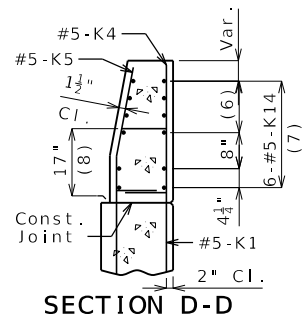
Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered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

Reinforcing Steel:

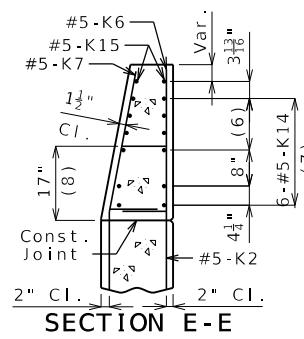
Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent.

TYPE D BARRIER AT END BENTS

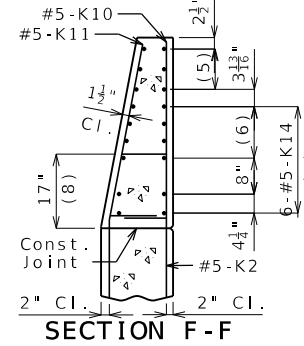
(Left barrier shown, right barrier similar)



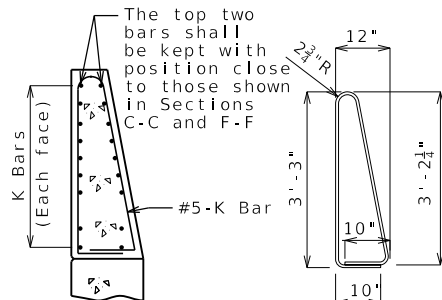
SECTION D-D



SECTION E-E



SECTION F-F



K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

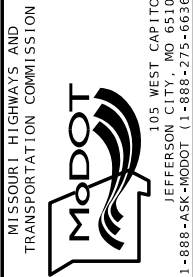
(Other K bars not shown for clarity)
The K10-K11 bar combination may be furnished as one bar as shown, at the contractor's option.

All dimensions are out to out.

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PROJECT NO.	

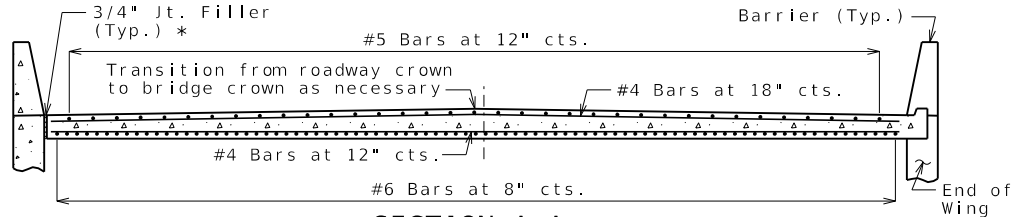
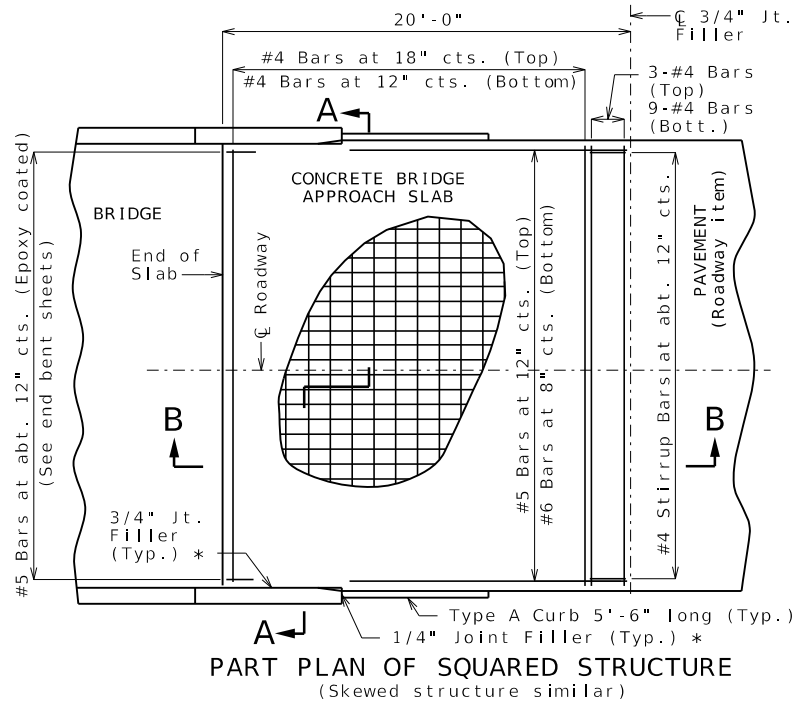
BRIDGE NO.
A9743

NO.	APPD. BY	DATE	REVISIONS
A	JMK	1/29/26	SEG. 3 - A9743, A9744 & A9745 FINAL
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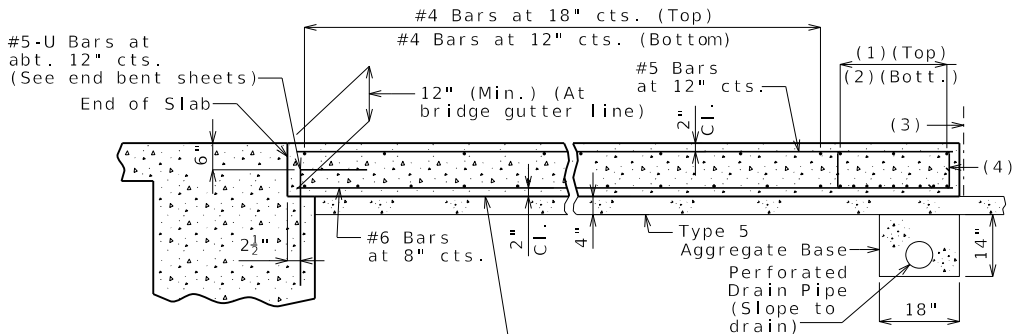


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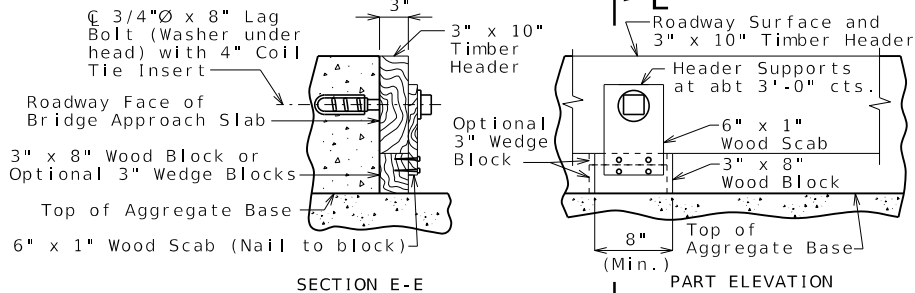
WILSON
& COMPANY



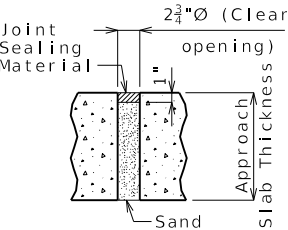
With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



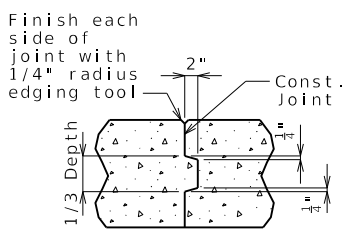
SECTION B-B
(Integral end bent)



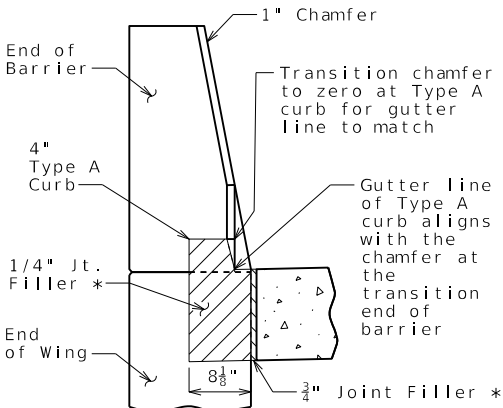
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.
OPTIONAL CONCRETE SLAB



UNDERSEAL ACCESS
HOLE DETAIL
(If required)

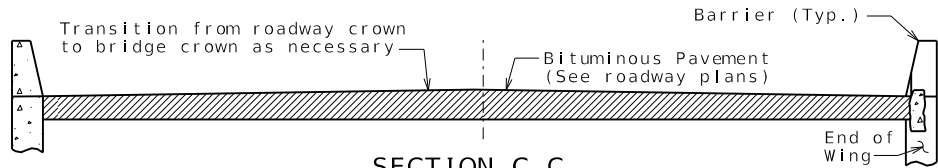


CONSTRUCTION
JOINT DETAIL

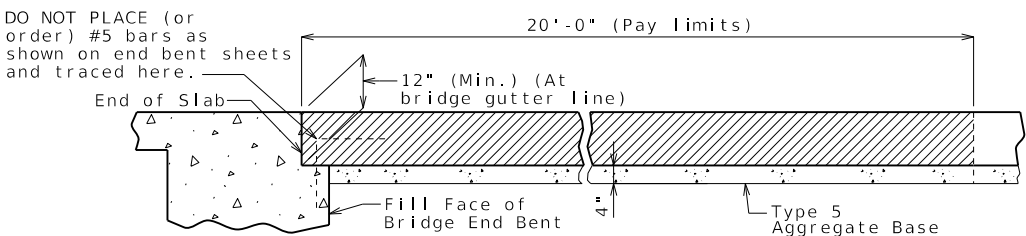


SECTION BETWEEN
CURB AND BARRIER

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



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



SECTION D-D

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

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 26 inches for #4 bars, or by mechanical bar splice.

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

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.

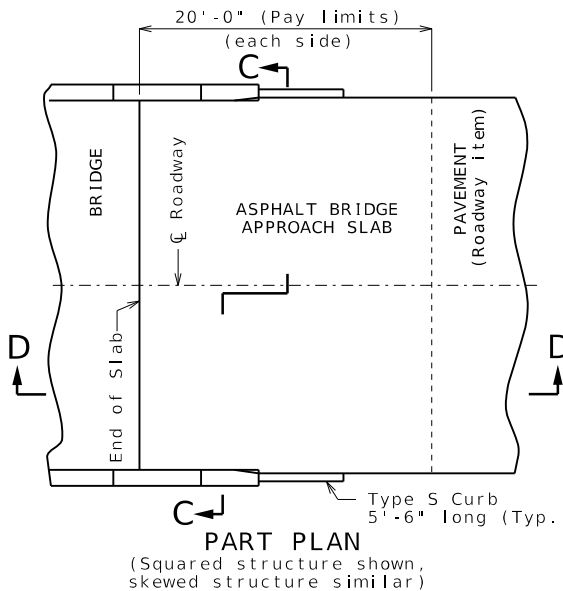
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

- ☐ Concrete Bridge Approach Slab
☐ Asphalt Bridge Approach Slab

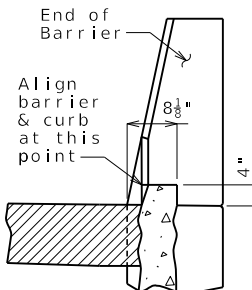
Notes For Asphalt Slab Only:

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)



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

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PROJECT NO.	

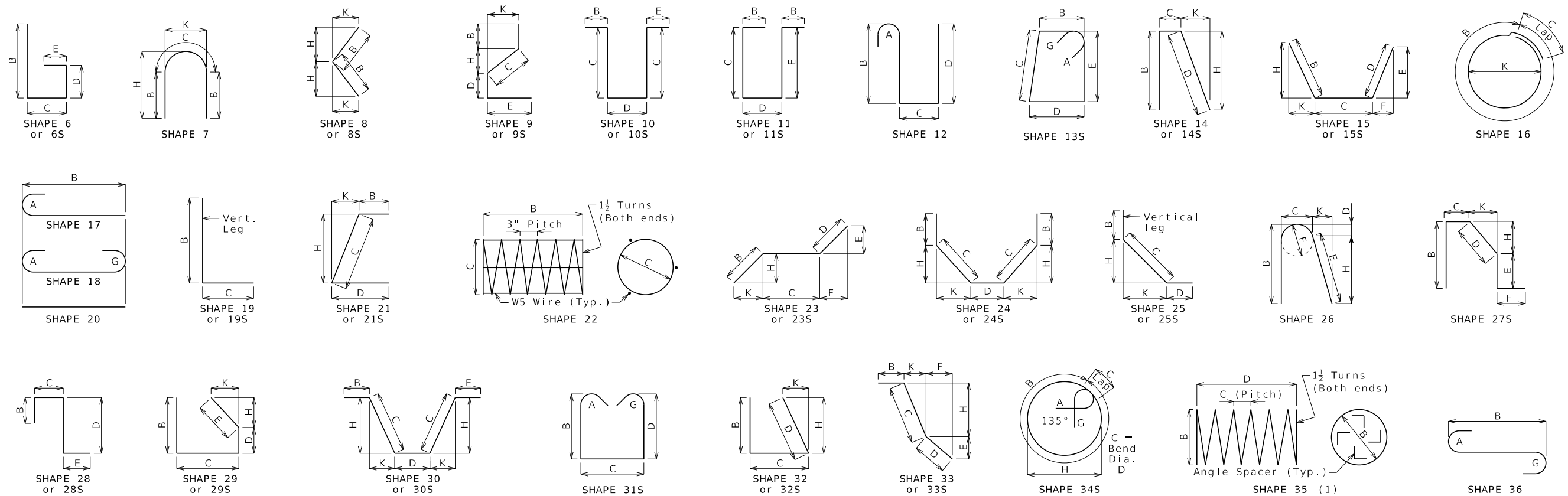
BRIDGE NO.
A9743

NO.	APPD. BY	DATE	REVISIONS
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Finished Bend Dimensions D and Hook Dimensions

Standard Pin Bend Shapes

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

90°

180°

Stirrup Pin Bend Shapes (S)

Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "	5"	2 $\frac{7}{8}$ "	3"
	3	3"	5"	5 $\frac{1}{4}$ "	6"	3"	4"
#5	2	2 $\frac{1}{2}$ "	5 $\frac{3}{4}$ "	5 $\frac{3}{4}$ "	5 $\frac{3}{4}$ "	3 $\frac{3}{8}$ "	3 $\frac{3}{4}$ "
	3	3 $\frac{3}{4}$ "	6 $\frac{1}{4}$ "	6 $\frac{1}{4}$ "	7"	3 $\frac{7}{8}$ "	5"
#6	1	4 $\frac{1}{2}$ "	12"	7 $\frac{3}{4}$ "	8 $\frac{1}{4}$ "	4 $\frac{5}{8}$ "	6"

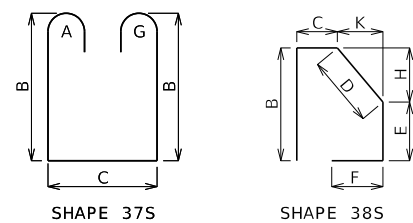
Applicable for all grades of steel.

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

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

90°

180°



BENDING DIAGRAMS

	Reinforcing Steel Totals (Pounds)								
	Size	Substructure		Superstructure				Entire Bridge	
		Plain	Epoxy	Slab		Barrier	Slip Form	Plain	Epoxy
				Plain	Epoxy				
By Size	W5	0	0	0	0	0	0	0	0
	4	573	281	0	576	0	0	573	857
	5	0	0	0	10,724	8,010	356	0	19,090
	6	0	2,681	0	27,965	0	0	0	30,646
	7	0	0	0	9,223	0	0	0	9,223
	8	0	1,377	0	7,695	0	0	0	9,072
	9	0	2,145	0	0	0	0	0	2,145
	10	5,296	0	0	0	0	0	5,296	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	5,869	6,484	0	56,183	8,010	356	5,869	71,033	

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

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.

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Bill of Reinforcing Steel																			
No. Req.	Size/ Mark	Location	Codes			Dimensions						Nom. Length	Actual Length	Weight					
						B	C	D	E	F	H				K				
			E	SH	V	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	lb			
		Substructure																	
		Int Bent 2																	
15	6 D200	BEAM	E	20		2	6.00							2	6	56			
9	9 H200	BEAM	E	18		33	9.00							36	4	1112			
9	9 H201	BEAM	E	20		33	9.00							33	9	1033			
10	6 H202	BEAM	E	20		33	9.00							33	9	507			
4	6 H203	BEAM	E	20		5	3.00							5	3	32			
14	6 H204	BEAM	E	10				0	12.00	3	3.00			5	3	103			
88	4 P200	ROCK SOCKET		16		7	10.25	2	0.00					2	6.00	573			
34	4 P201	COLUMN	E	16		8	7.625	2	0.00					2	9.00	238			
96	6 U200	BEAM	E	13S		2	2.00	3	3.00	2	2.00	3	3.00						
24	6 U201	BEAM	E	10S				3	3.00	2	2.00			12	2	1682			
13	4 U202	BEAM	E	10S										8	8	300			
														5	1	43			
26	10 V200	ROCK SOCKET		20		47	4.00							47	4	5296			
26	8 V201	COLUMN	E	17		18	10.50							19	10	1377			
		Superstructure																	
		End Bent 1																	
7	6 F101	WING	E	15S		20.00		5	3.50				12.875	15.375	7	0	6	11	73
2	6 F102	WING BRACE	E	6S		2	6.625	5	3.75						7	10	7	7	23
7	6 F103	WING	E	15S		20.00		4	9.125				15.375	12.875	6	5	6	5	67
2	6 F104	WING BRACE	E	6S		2	6.50	5	3.125						7	10	7	6	23
4	6 H100	BEAM	E	20		38	0.00								38	0	38	0	228
8	6 H101	BEAM	E	20		38	0.00								38	0	38	0	457
4	6 H102	BEAM	E	20		38	0.00								38	0	38	0	228
6	6 H103	DIAPHRAGM	E	20		5	10.00								5	10	5	10	53
4	6 H104	DIAPHRAGM	E	20			19.75								1	8	1	8	10
2	6 H105	DIAPHRAGM	E	20		38	0.00								38	0	38	0	114
4	5 H106	DIAPHRAGM	E	20		6	6.00								6	6	6	6	27
16	8 H107	WING	E	20		8	6.00								8	6	8	6	363
32	6 H108	WING	E	20		7	1.00								7	1	7	1	340
16	5 U100	BEAM	E	37S		4	6.50	2	9.50						12	10	12	7	210
34	4 U101	BEAM	E	13S		2	9.50	2	8.00	2	9.50	2	8.00		11	8	11	5	259
4	4 U102	BEAM	E	10S			2	8.00		2	9.50				8	2	7	11	21
20	5 U103	DIAPHRAGM	E	37S		2	5.00	2	3.00						8	1	7	10	163
20	6 U104	DIAPHRAGM	E	19S			21.00	2	8.50						4	6	4	4	130
46	6 U105	DIAPHRAGM	E	19S		2	6.50	4	4.00						6	11	6	9	466
34	5 U106	DIAPHRAGM	E	19S		2	0.00	0	15.00						3	3	3	2	112
8	5 V100	BEAM	E	17		4	6.50								5	2	5	2	43
24	6 V101	DIAPHRAGM	E	20			18.50								1	7	1	7	57
2	6 V102	WING	E	20		5	2.00								5	2	5	2	16
12	6 V103	WING	E	20		5	4.00								5	4	5	4	96
2	6 V104	WING	E	20		5	4.50								5	5	5	5	16
12	6 V105	WING	E	20		5	5.00								5	5	5	5	98
		End Bent 3																	
7	6 F301	WING	E	15S		20.00		5	3.50				12.875	15.375	7	0	6	11	73
2	6 F302	WING BRACE	E	6S		2	6.625	5	3.75						7	10	7	7	23
7	6 F303	WING	E	15S		20.00		4	9.125				15.375	12.875	6	5	6	5	67
2	6 F304	WING BRACE	E	6S		2	6.50	5	3.125						7	10	7	6	23
4	6 H300	BEAM	E	20		35	11.00								35	11	35	11	216
8	6 H301	BEAM	E	20		35	11.00								35	11	35	11	432
4	6 H302	BEAM	E	20		35	11.00								35	11	35	11	216
6	6 H303	DIAPHRAGM	E	20		5	2.00								5	2	5	2	47
4	6 H304	DIAPHRAGM	E	20			19.75								1	8	1	8	10
2	6 H305	DIAPHRAGM	E	20		35	11.00								35	11	35	11	108
4	5 H306	DIAPHRAGM	E	20		6	6.00								6	6	6	6	27
16	8 H307	WING	E	20		8	6.00								8	6	8	6	363
30	6 H308	WING	E	20		7	1.00								7	1	7	1	319
18	5 U300	BEAM	E	37S		4	6.50	2	9.50						12	10	12	7	236
28	4 U301	BEAM	E	13S		2	9.50	2	8.00	2	9.50	2	8.00		11	8	11	5	214
4	4 U302	BEAM	E	10S			2	8.00		2	9.50				8	2	7	11	21
22	5 U303	DIAPHRAGM	E	37S		2	5.50	2	3.50						8	2	7	11	182

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.

All bars shall be Grade 60.

For bending diagrams and steel reinforcing totals, see Sheet No. 24.

Detailed Dec. 2025
Checked Jan. 2026

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

BILL OF REINFORCING STEEL

Sheet No. 25 of 30

Bill of Reinforcing Steel																		
No. Req.	Size/ Mark	Location	Codes			Dimensions						Nom. Length	Actual Length	Weight				
						B	C	D	E	F	H				K			
			E	SH	V	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	lb
22	6 U304	DIAPHRAGM	E	19S		0	21.00	2	8.50					4	6	4	4	143
48	6 U305	DIAPHRAGM	E	19S		2	6.50	4	4.00					6	11	6	9	487
33	5 U306	DIAPHRAGM	E	19S		2	0.00	0	15.00					3	3	3	2	109
8	5 V300	BEAM	E	17		4	6.50							5	2	5	2	43
24	6 V301	DIAPHRAGM	E	20		0	18.50							1	7	1	7	57
2	6 V302	WING	E	20		5	2.50							5	3	5	3	16
12	6 V303	WING	E	20		5	3.00							5	3	5	3	95
2	6 V304	WING	E	20		5	6.00							5	6	5	6	17
12	6 V305	WING	E	20		5	7.00							5	7	5	7	101
		Int Diaphragm																
12	6 H50	DIAPHRAGM	E	20		5	1.00							5	1	5	1	92
6	4 H51	DIAPHRAGM	E	20		5	1.00							5	1	5	1	20
12	5 H52	DIAPHRAGM	E	19		5	3.00	0	10.00					6	1	5	11	74
4	5 H53	STRAND TIE	E	20		6	6.00							6	6	6	6	27
4	5 H54	STRAND TIE	E	20		5	0.00							5	0	5	0	21
6	6 U50	DIAPHRAGM	E	28S			0	22.00	2	4.00	2	9.00		6	11	6	7	59
12	4 U51	DIAPHRAGM	E	28S			0	15.00	2	3.75	19.00			5	2	5	0	40
8	5 V50	DIAPHRAGM	E	20		2	4.00							2	4	2	4	19
		Slab																
121	6 S1	SLAB	E	20	1	35	5.00							35	5	35	5	
		Incr. =				37	2.875							37	3	37	3	6603
		0.125 in																
133	6 S2	SLAB	E	20		35	5.00							35	5	35	5	7075
12	6 S3	SLAB	E	20	1	4	3.00							4	3	4	3	
		Incr. =				35	5.00							35	5	35	5	357
		34.000 in																
12	6 S4	SLAB	E	20	1	5	1.875							5	2	5	2	
		Incr. =				36	3.875							36	4	36	4	374
		34.000 in																
64	7 S5	SLAB	E	20		54	0.00							54	0	54	0	7064
32	7 S6	SLAB	E	20		33	0.00							33	0	33	0	2158
29	8 S7	SLAB	E	20		45	0.00							45	0	45	0	3484
29	8 S8	SLAB	E	20		45	0.00							45	0	45	0	3484
121	5 S9	SLAB	E	20	1	35	5.00							35	5	35	5	
		Incr. =				37	2.875							37	3	37	3	4585
		0.125 in																
133	5 S10	SLAB	E	20		35	5.00							35	5	35	5	4913
12	6 S11	SLAB	E	20	1	4	3.00							4	3	4	3	
		Incr. =				35	5.00							35	5	35	5	357
		34.000 in																
12	6 S12	SLAB	E	20	1	5	1.875							5	2	5	2	
		Incr. =				36	3.875							36	4	36	4	374
		34.000 in																
38	6 S13	SLAB	E	20		60	0.00							60	0	60	0	3425
76	6 S14	SLAB	E	20		40	10.00							40	10	40	10	4661