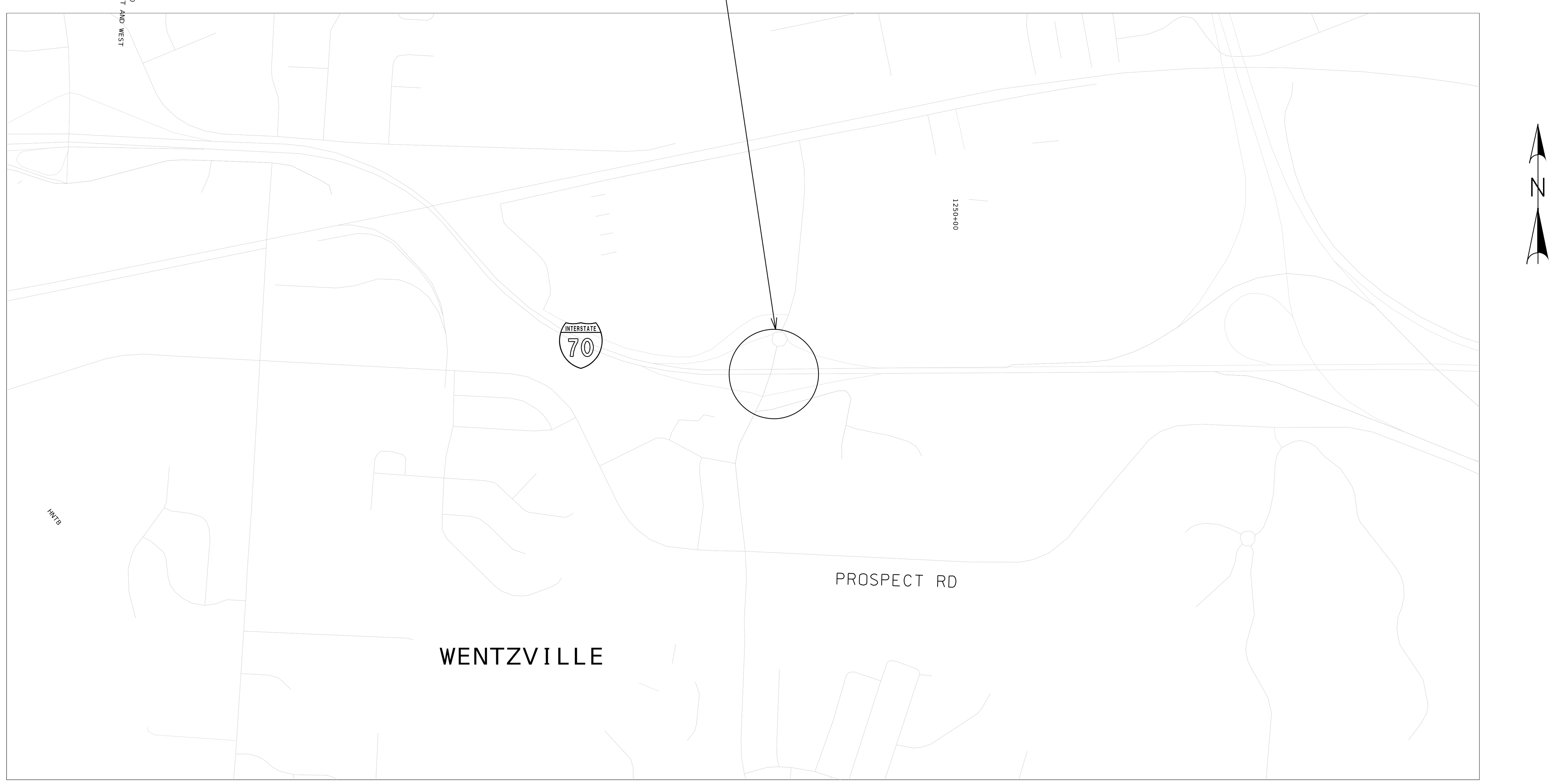
DRAFT FOR CONSTRUCTABILITY REVIEW – NOT FOR CONSTRUCTION

U.I.P. REHABILITATE & WIDEN EXISTING (43' - 60' - 36') PRESTRESSED CONCRETE I-GIRDER SPANS

Location of
Proposed Bridge
Widening A43232



LOCATION MAP

INDEX OF DRAWINGS

BRIDGE: ROUTE I-70 WB OVER ROUTE Z
ROUTE * FROM * TO *
ABOUT * MILES * OF *
___ STATION _________

Designed
Detailed
Checked

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

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-01
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

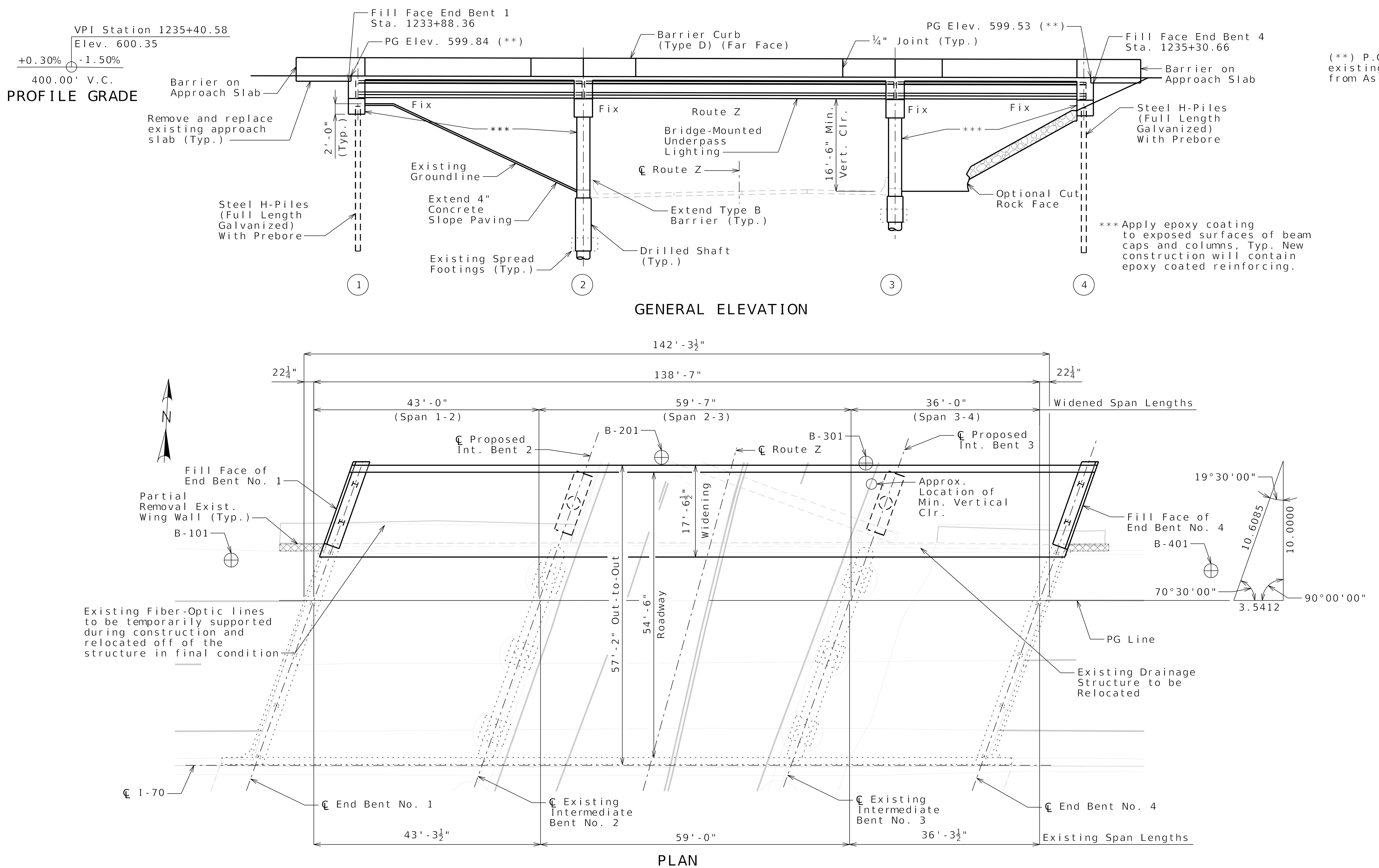
DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT
IMPROVE 70 ALLIANCE
HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270
Bartlett & West

B_A43232_001_JST0020_TITLE.dgn 10:45:04 AM 4/25/2025

DRAFT FOR CONSTRUCTABILITY REVIEW – NOT FOR CONSTRUCTION

U.I.P. REHABILITATE & WIDEN EXISTING (43' - 60' - 36') CONTINUOUS PRESTRESSED CONCRETE I-GIRDER SPANS



(**) P.G. Elevations shall match existing. Elevations are taken from As-Built Plans.

*** Apply epoxy coating to exposed surfaces of beam caps and columns, Typ. New construction will contain epoxy coated reinforcing.

Bridge A4320 not shown for clarity

⊕ Indicates location of post-award borings (None required or performed for this widening).

⊕ Indicates location of pre-award borings.

Notice Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown above. Selected borings are depicted in profile on Sheets No. 34 thru 36. The logs, laboratory test results, rock core photographs and other information obtained at these borings are available in the geotechnical memorandum prepared by HNTB for this structure.

By nature of the exploration process, the information gathered at subsurface borings represents only a small fraction of the total volume of material at this site. Interpolation between data samples may not be indicative of the nature and extent of the variations that actually existing between sampling locations.

Detailed APR 2025
Checked APR 2025

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

Sheet 2 of XX

GENERAL PLAN AND ELEVATION

DATE PREPARED	
4/25/2025	
ROUTE: I-70	STATE: MO
DISTRICT: BR	SHEET NO.: B01-02
COUNTY: ST. CHARLES	
JOB NO.: JST0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.: A43232	

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
IMPROVE 70 ALLIANCE
HNTB 715 KIRK DRIVE KANSAS CITY, MO 64105-1310 CERTIFICATE OF AUTHORITY NO. 001270
Bartlett & West

Foundation Data

Type	Design Data		Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		HP12x53	--	--	HP12x53
	Number	ea	2	--	--	2
	Approximate Length Per Each	ft		--	--	
	Pile Point Reinforcement	ea	2	--	--	2
	Min. Galvanized Penetration (Elev.)	ft	Full Length	--	--	Full Length
	Pile Driving Verification Method			--	--	
	Resistance Factor			--	--	
	Minimum Nominal Axial Compressive Resistance	kip		--	--	
Rock Socket	Number	ea	--	1	1	--
	Layer 1: Foundation Material		--			--
	Layer 1: Elevation Range	ft	--			--
	Layer 1: Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	--			--
	Layer 2: Foundation Material		--			--
	Layer 2: Elevation Range	ft	--			--
	Layer 2: Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	--			--
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf	--			--

WEAP = Wave Equation Analysis of Piles

DT = Dynamic Testing

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

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

Driven Piles:

All piles shall be galvanized full length.

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

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

Prebore for piles at Bents 1 and 4 to elevations XXX.XX.

Prebore holes shall be backfilled with sand (or other approved material), in accordance with Sec 702, before piles are driven to bearing.

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.

N

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
Seismic Performance Category A

Design Loading:

Vehicular = HS20 Modified & Military 24,000 lb Tandem Axle (1983) (New and Existing Girders)
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 (Drilled Shafts & Rock Sockets)	f'c = 4,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Girders Beams and Barrier)	f'c = 4,000 psi
Reinforcing Steel (ASTM A706 Grade 60)	fy = 60,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50)	fy = 50,000 psi

For prestressed girder stresses, see Sheets No. X thru X.

Neoprene Pads:

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

Pile Protective Coatings:

Piles shall be galvanized in accordance with Sec 702 and Sec. 1081.

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.

MBS Refers to mechanical bar splices. Mechanical bar splices shall be in accordance with Sec 706 or 710

All exposed substructure elements will contain epoxy coated reinforcing.

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

Traffic Handling:

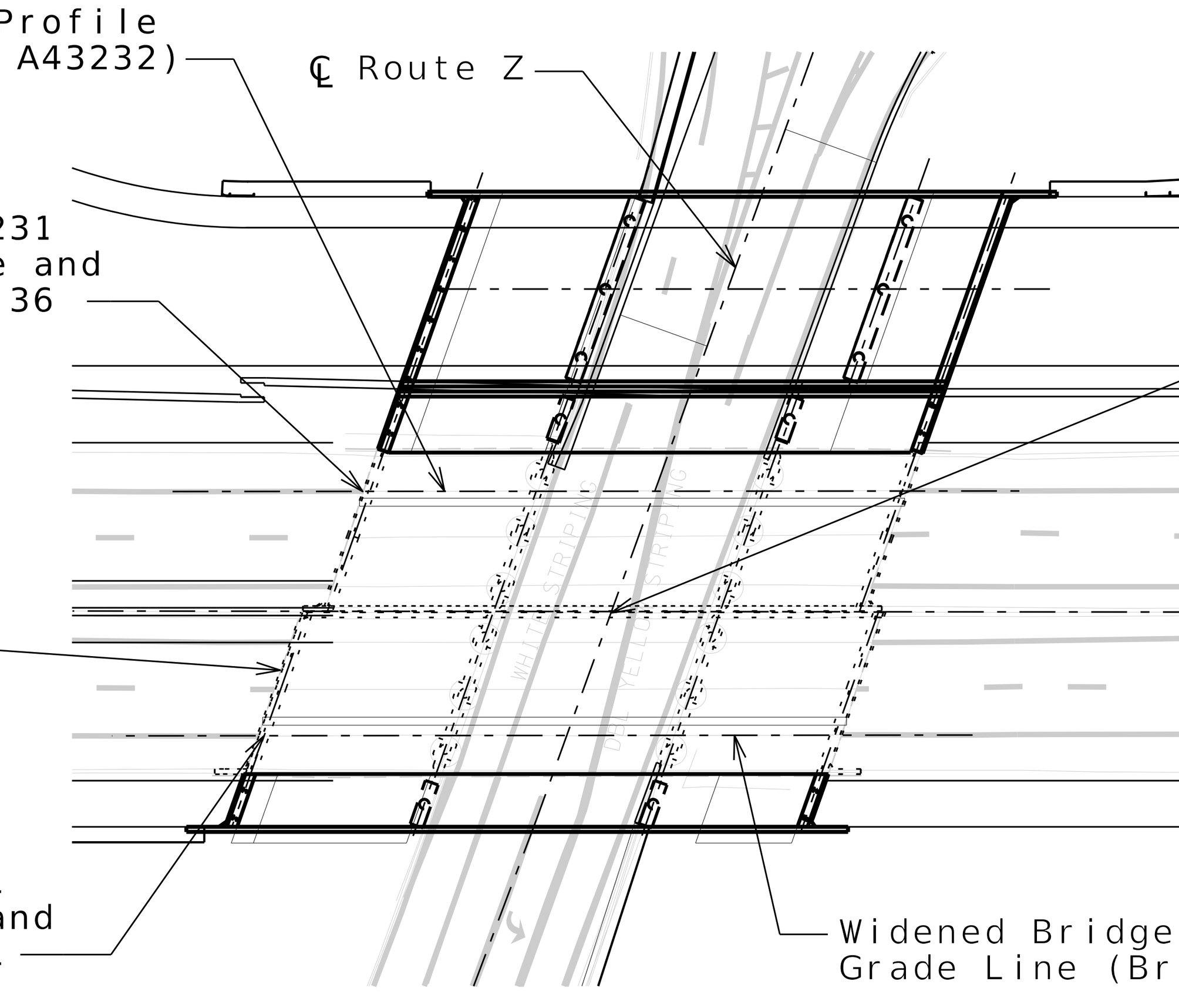
Vertical clearance for Route Z traffic during construction shall be 15 ft. minimum over a 2 - 12 foot lane horizontal opening centered on Route Z.

For traffic phasing during construction, see Maintenance of Traffic Plans.

Concrete Protective Coatings:

Protective coating for concrete bents and piers (Epoxy) shall be applied to all exposed substructure surfaces and in accordance with Sec 711.

Aesthetic Stain shall be applied to the vertical faces of the exterior barrier, deck and Prestressed Concrete Girders as shown on the plans in accordance with Sec 711.



LOCATION SKETCH

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	3
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43202

DESCRIPTION

DATE

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

IMPROVE 70 ALLIANCE

HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

Bartlett & West
601 MONROE ST. SUITE 201 - JEFFERSON CITY, MO 65101
PHONE 573-634-3181
CERTIFICATE OF AUTHORITY NO. 000167 - ENGINEERING
WWW.BARTLETTWEST.COM

Detailed APR 2025
Checked APR 2025

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

GENERAL NOTES (1 OF 2)

General Notes (cont.):

Bridge Deck:

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 SC4 and a finish type I, II, or III.

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

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

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

Form sheets shall not rest directly on the top of girder flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Drilling holes in the girder 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 falsework and forms. Maximum actual weight of corrugated steel forms allowed shall be 4 psf assumed for girder loading.

Miscellaneous:

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

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

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

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

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

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-03
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

DATE

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

IMPROVE 70 ALLIANCE

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KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

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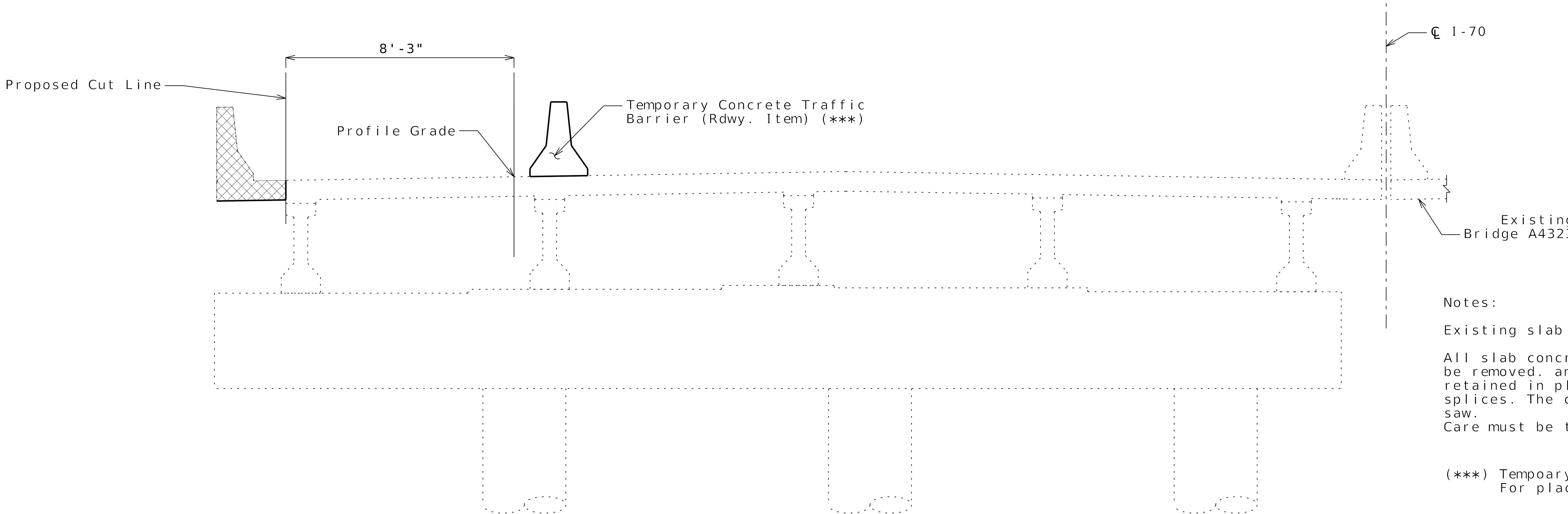
GENERAL NOTES AND ESTIMATED QUANTITIES

Detailed
Checked

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

DRAFT FOR CONSTRUCTABILITY REVIEW – NOT FOR CONSTRUCTION



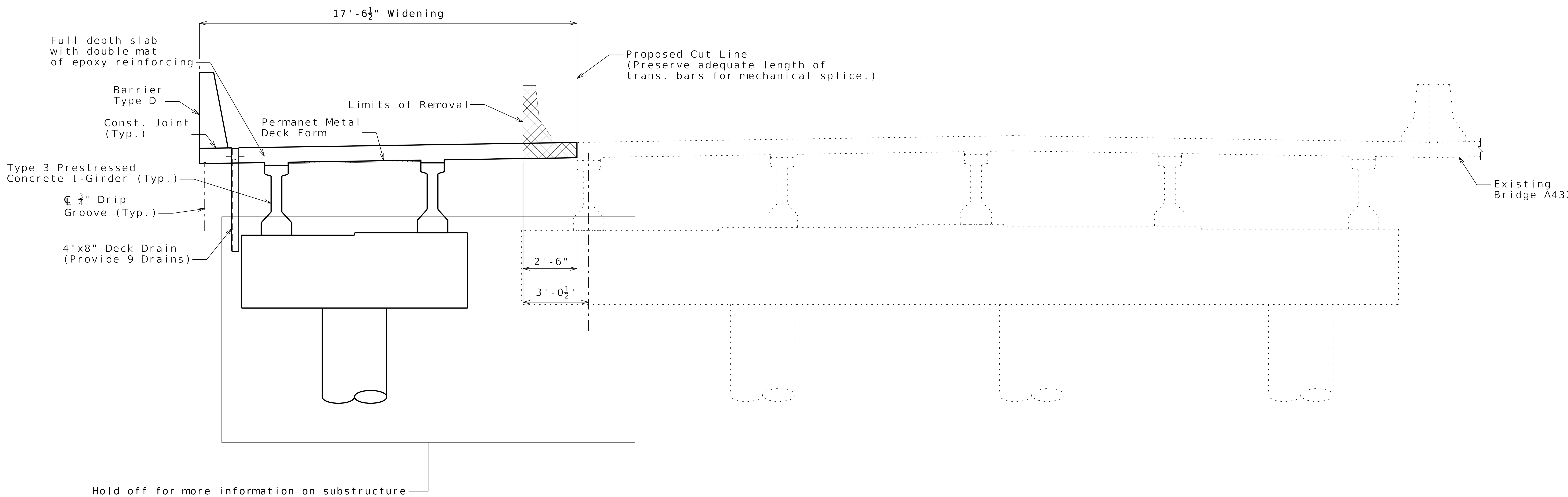
Notes:

Existing slab and barrier to be removed as shown.

All slab concrete and longitudinal steel in removal area shall be removed. an adequate length of transverse steel shall be retained in place to facilitate the attachment of mechanical splices. The cut line shall be marked and sawcut with a concrete saw.
Care must be taken not to cut the transverse reinforcing steel.

(***) Tempoary Barrier shall not be attached to the bridge. For placement during phasing, see MOT Plans.

EXISTING TYPICAL SECTION



TYPICAL SECTION SHOWING WIDENING

DATE PREPARED	4/25/2025
ROUTE: I-70	STATE: MO
DISTRICT: BR	SHEET NO.: B01-03A
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43202

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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CERTIFICATE OF AUTHORITY
NO. 001270

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

Sheet 3A of XX

PHASING AND REMOVAL PLAN

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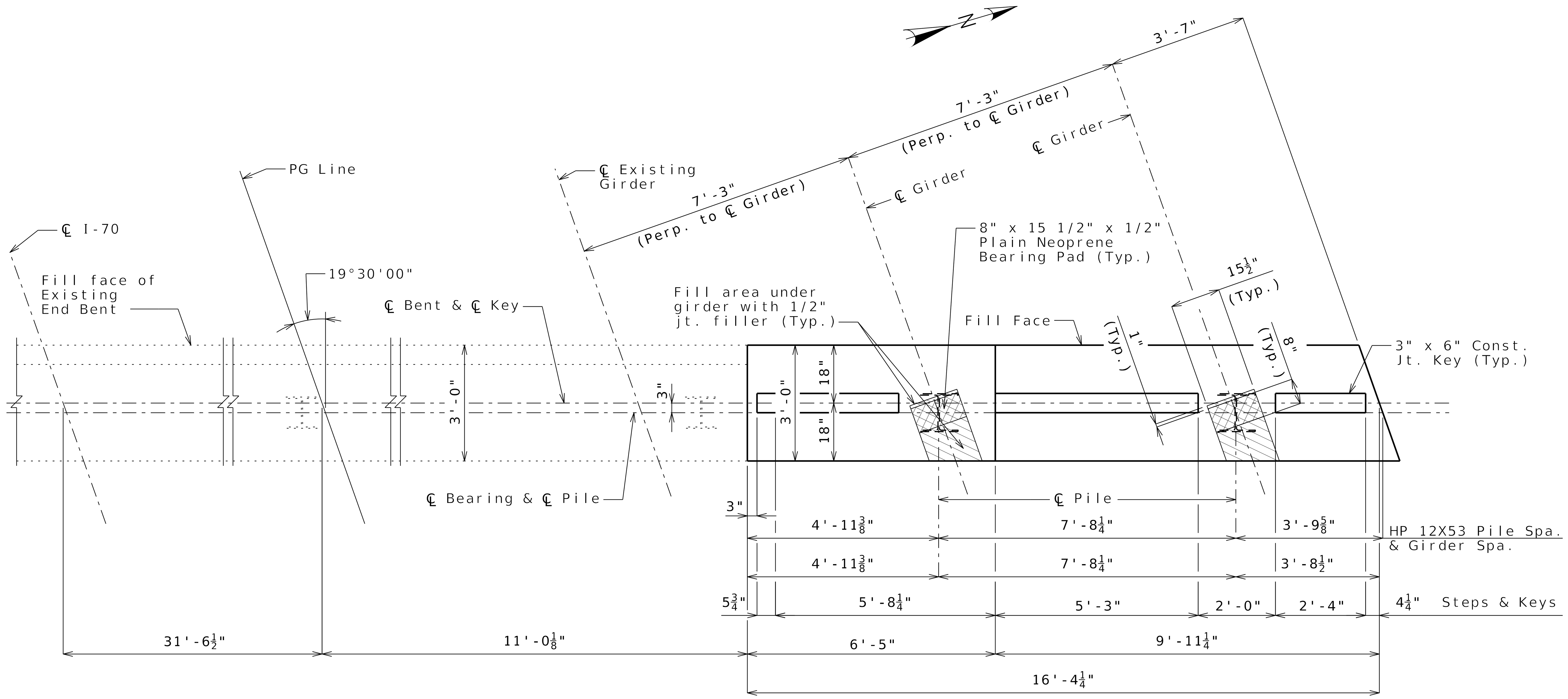
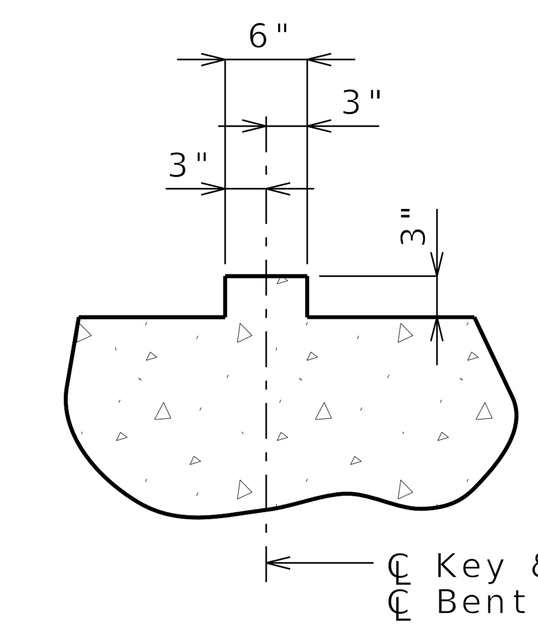
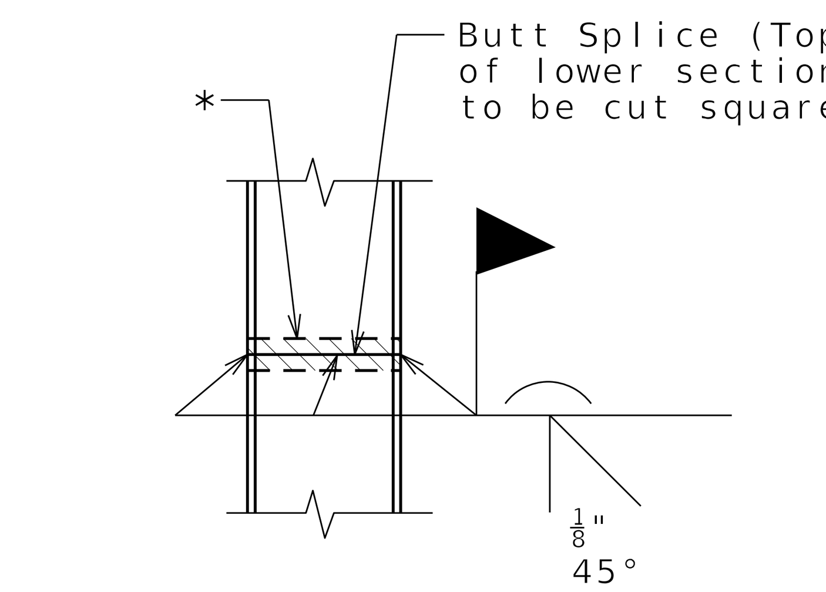


PLAN OF BEAM



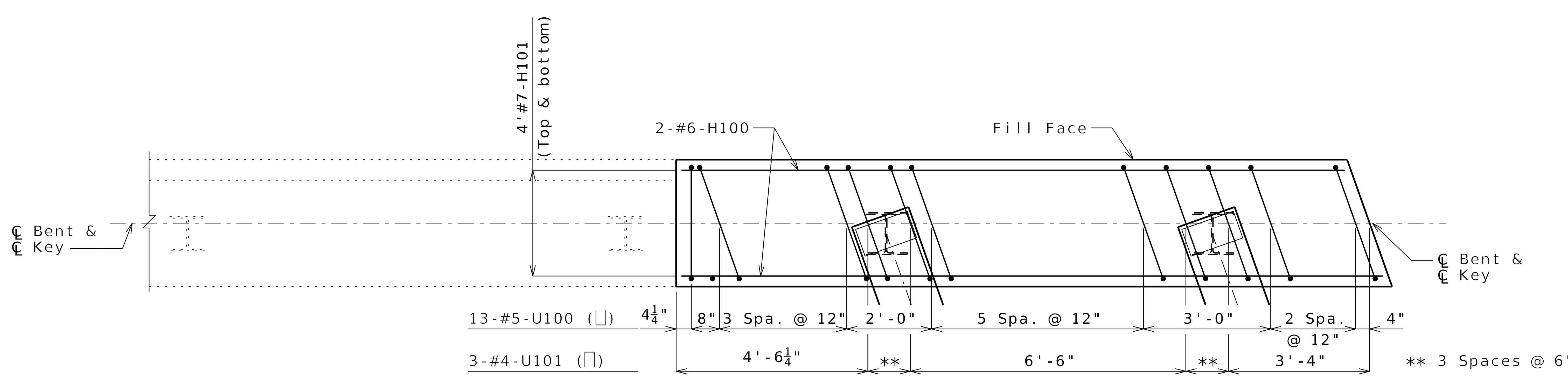
SECTION THRU KEY



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 SHOWING REINFORCEMENT

Keys not shown for clarity.

General Notes:

Work this sheet with Sheets No. XX and XX.

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

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

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-04
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

DATE

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

IMPROVE 70 ALLIANCE

HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

Bartlett & West
601 MONROE ST, SUITE 201 • JEFFERSON CITY, MO 65101
PHONE 573-634-3181
CERTIFICATE OF AUTHORITY NO. 000167 • ENGINEERING
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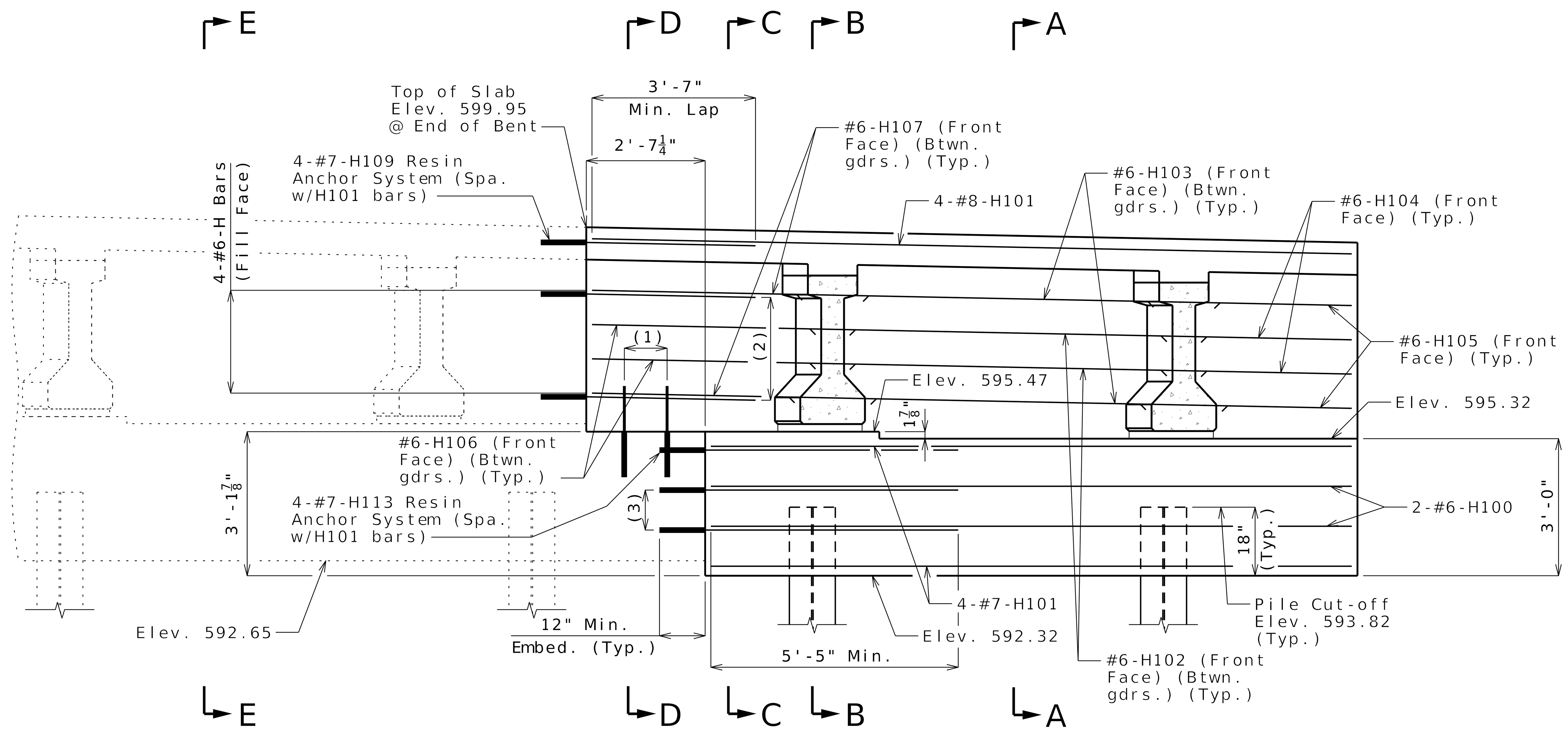
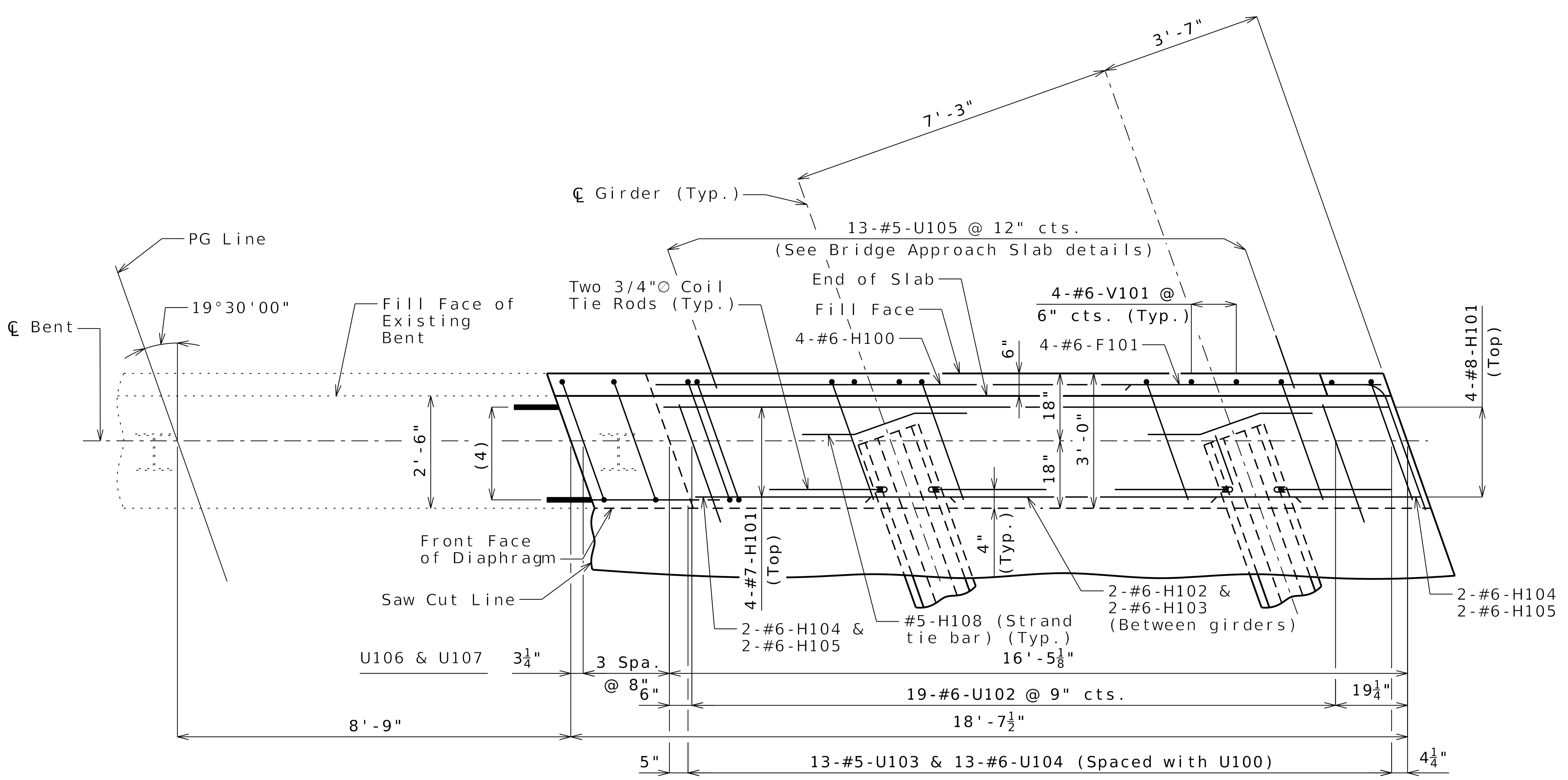
DETAILS OF END BENT NO. 1

Detailed
Checked

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



SECTION NEAR END BENT



PART PLAN

(1) 2-#7-H110 Resin Anchor System (E.F.) (Spa. w/U106 bars)

(2) 4-#7-H111 Resin Anchor System (Fill Face) (Spa. w/H100 bars)

(3) 2-#7-H112 Resin Anchor System (E.F.) (spa. w/H100 bars)

(4) 4-#7-H109 Resin Anchor System (Top) (spa. w/H101 bars)

General Notes:

Work this sheet with Sheets No. 4 & 6.

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

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

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.

Strands at end of girders 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-H108 (strand tie bar), see Sheet No. XX.

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

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

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-05
COUNTY	ST. CHARLES
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CONTRACT ID.	
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BRIDGE NO.	A43232

DESCRIPTION

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

IMPROVE 70 ALLIANCE

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NO. 001270

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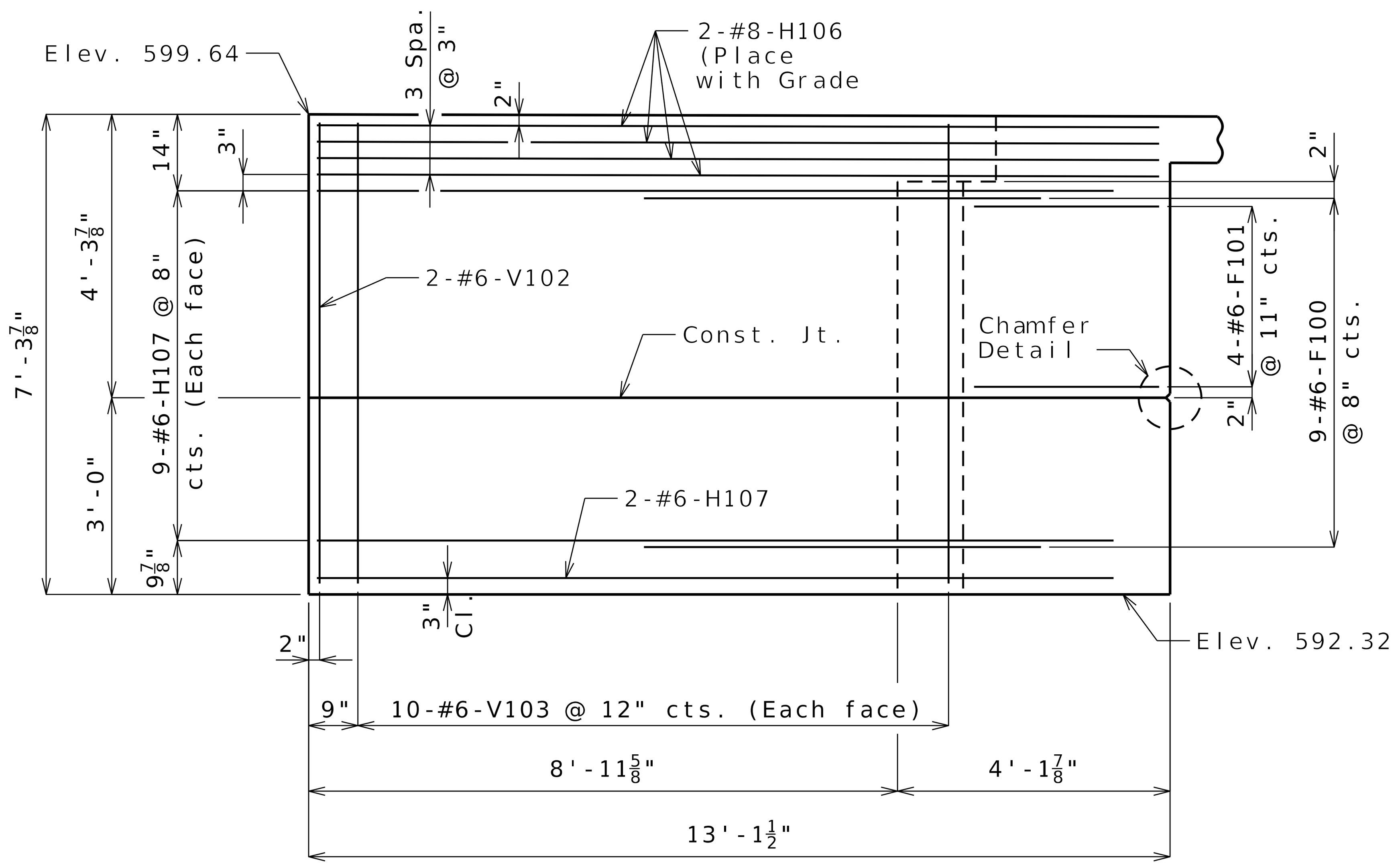
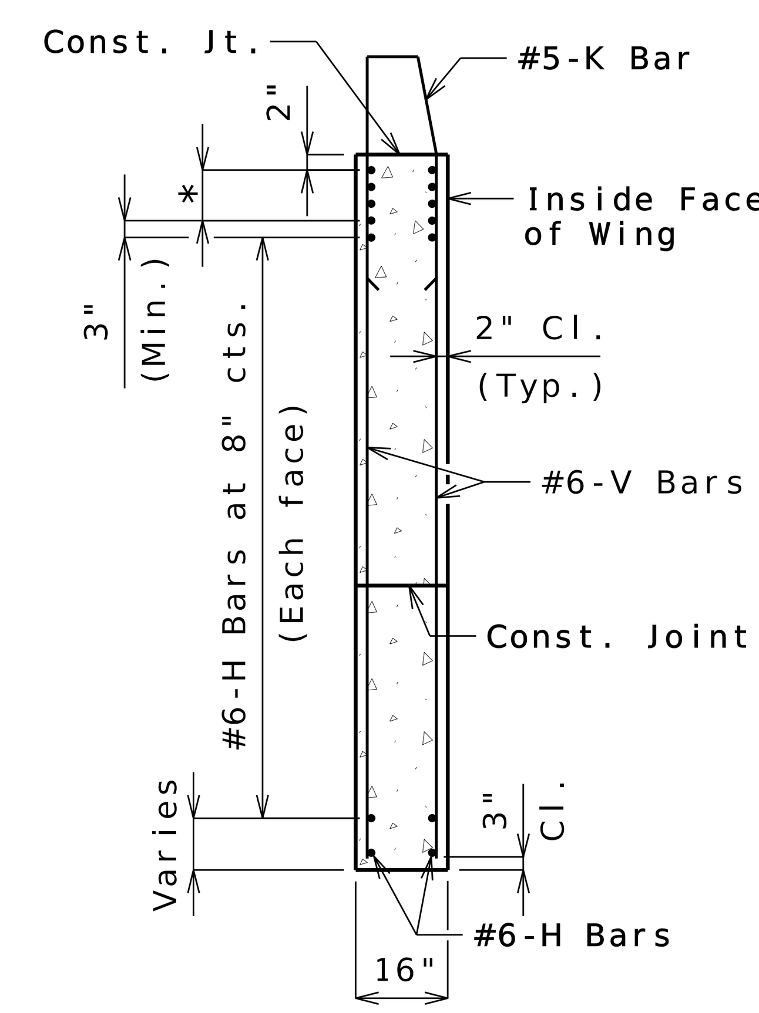
DETAILS OF END BENT NO. 1

Detailed JULY 2025
Checked JULY 2025

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

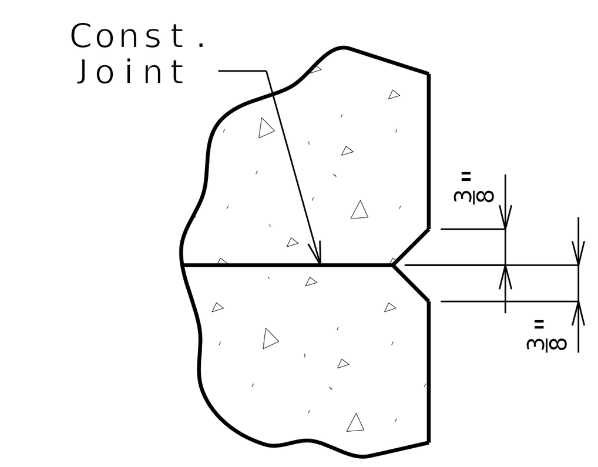


ELEVATION D-D



TYPICAL SECTION THRU WING

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

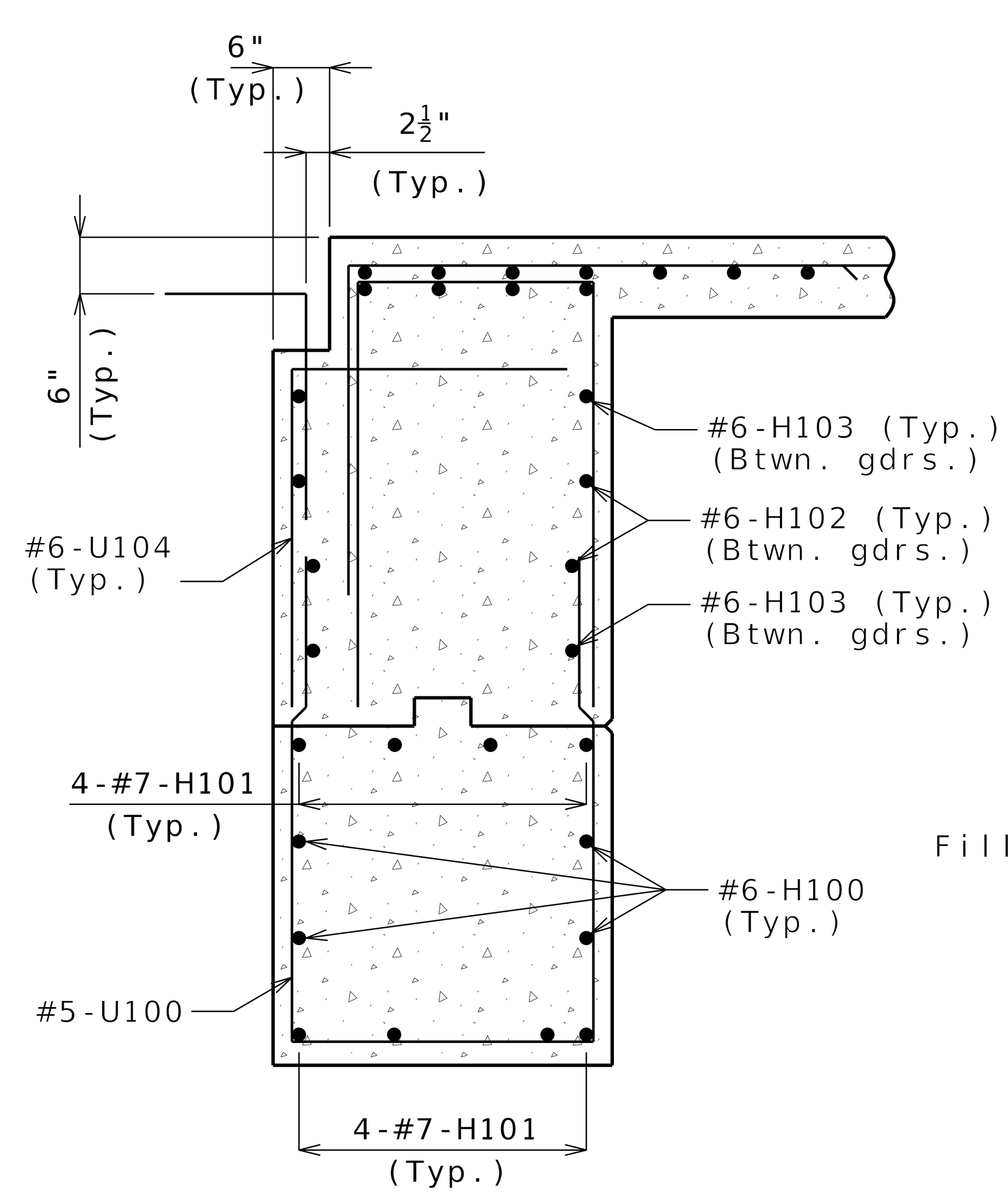


CHAMFER DETAIL

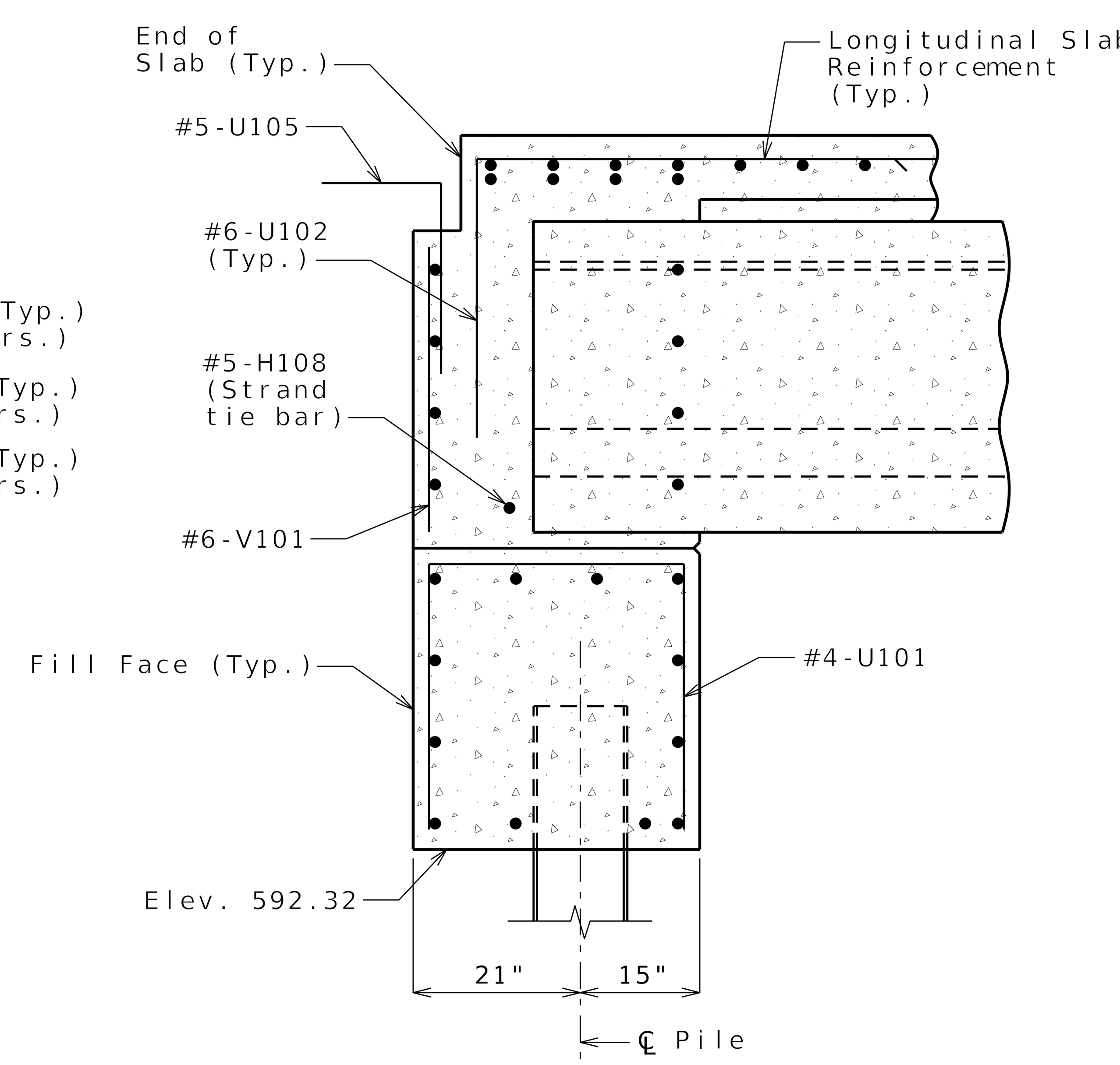
General Notes:

Work this sheet with Sheets No. X & X.

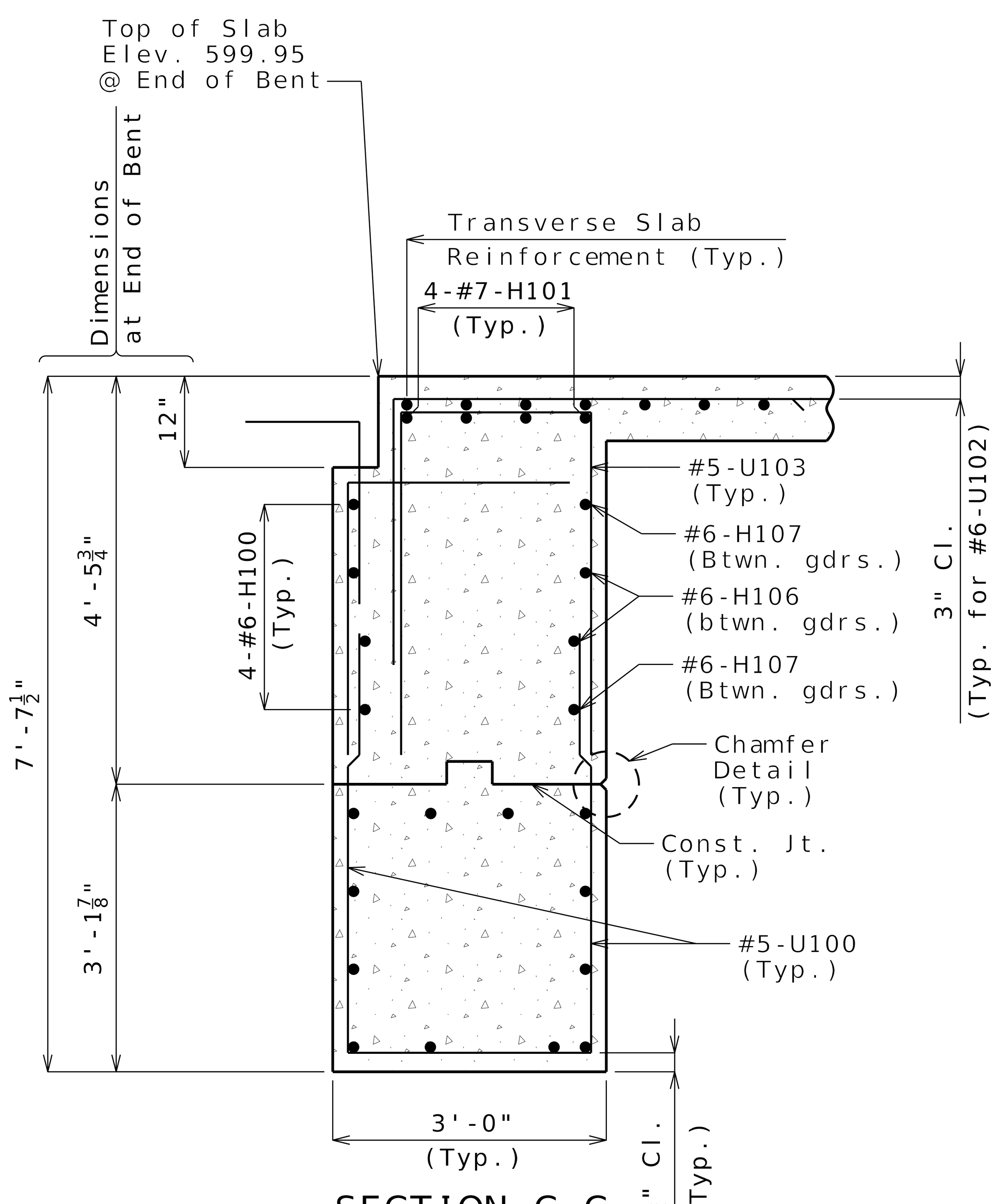
For reinforcement of the barrier, see Sheet No. XX.



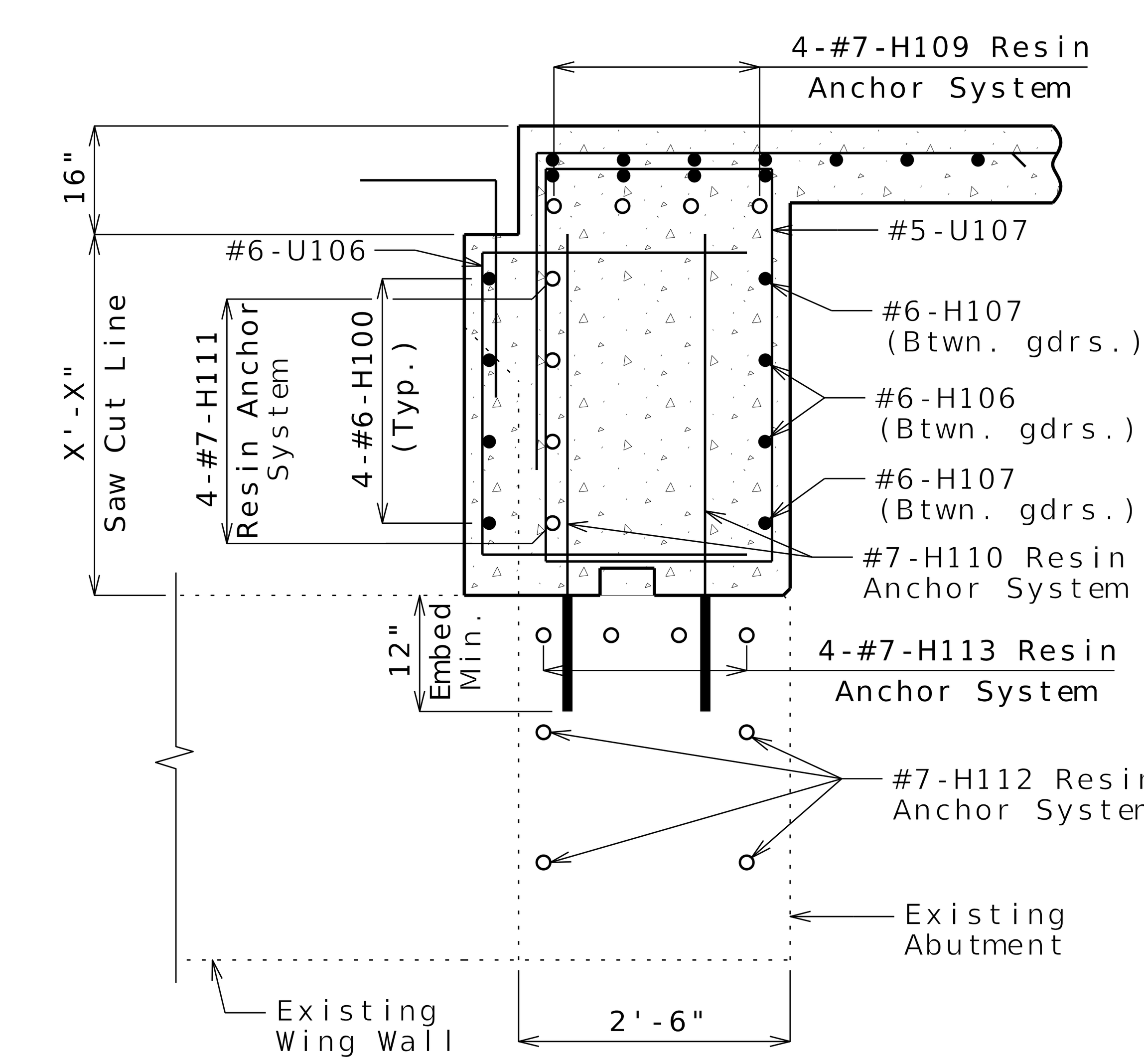
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

DATE PREPARED 4/25/2025

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	B01-06

COUNTY: ST. CHARLES
JOB NO.: JST0020
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A43232

DESCRIPTION
DATE

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

HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

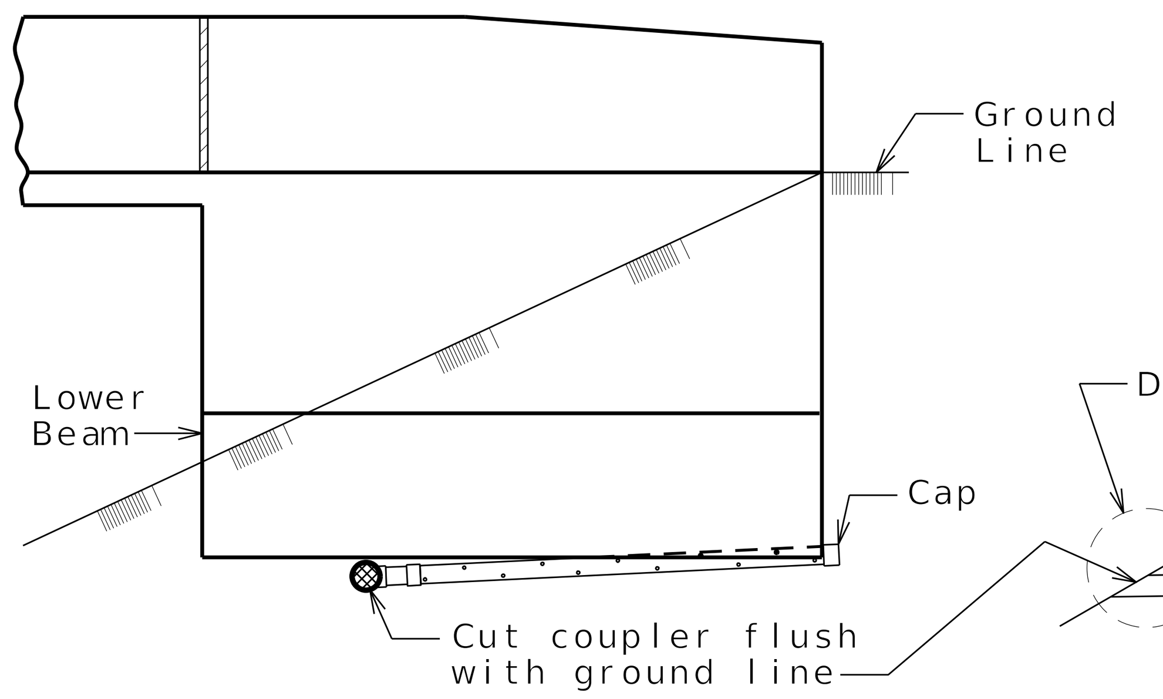
Bartlett & West

Detailed JULY 2025
Checked JULY 2025

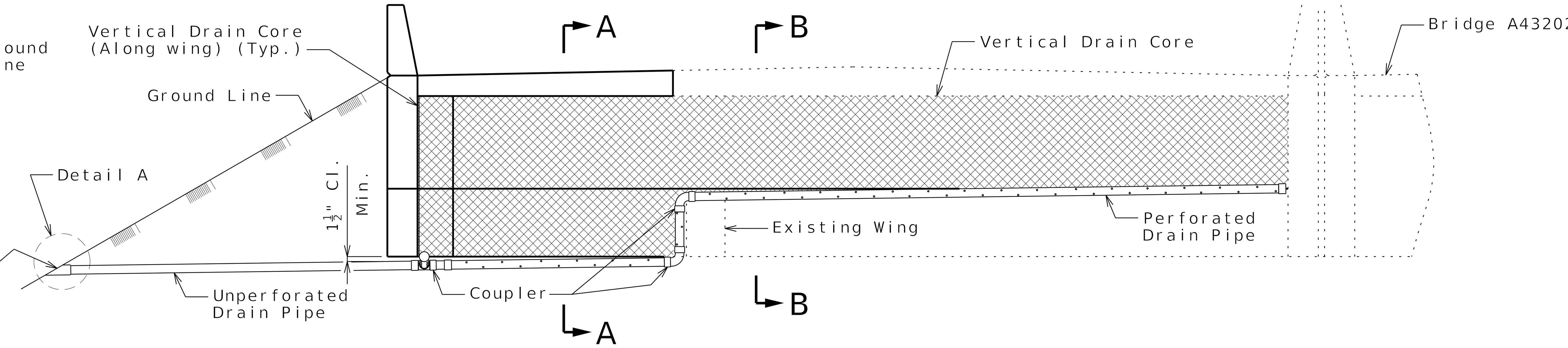
Note: This drawing is not to scale. Follow dimensions.

Sheet 6 of XX

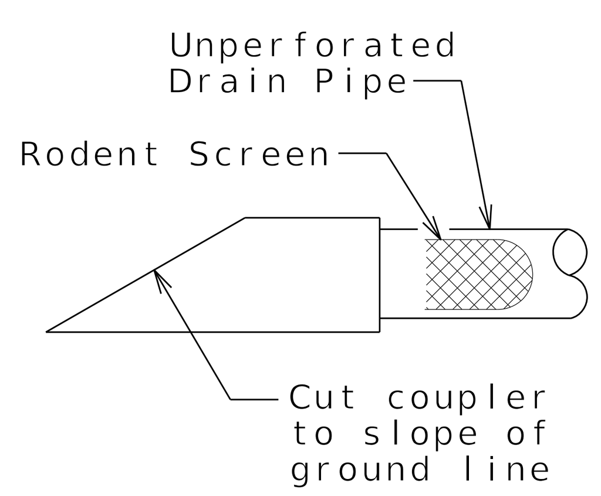
DETAILS OF END BENT NO. 1



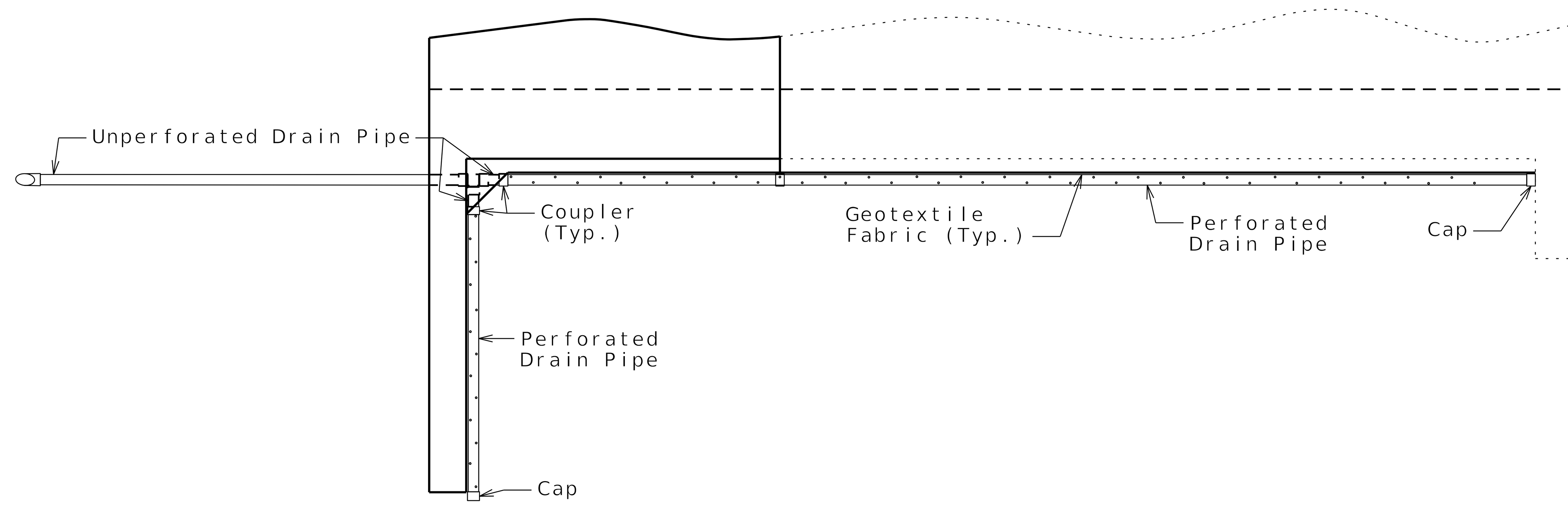
ELEVATION OF WING



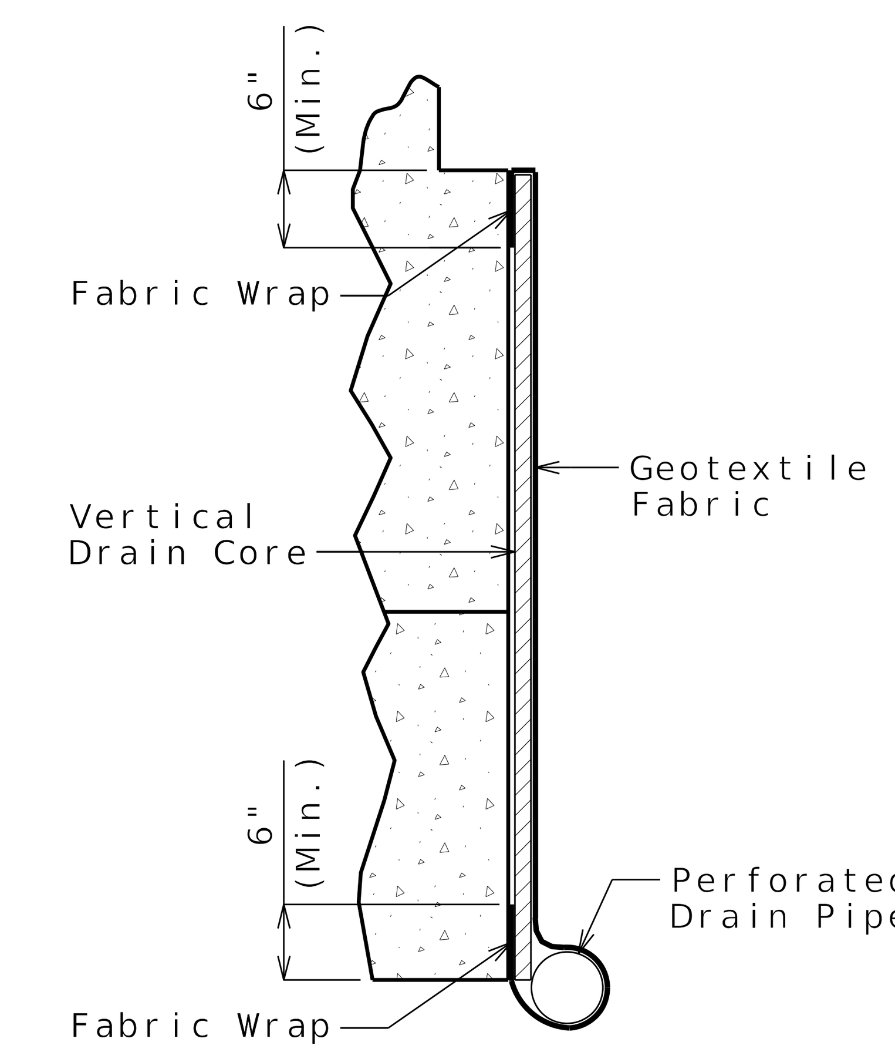
ELEVATION OF END BENT
(Looking Back Station)
(End Bent No. 4 shown, End Bent No. 1 similar)



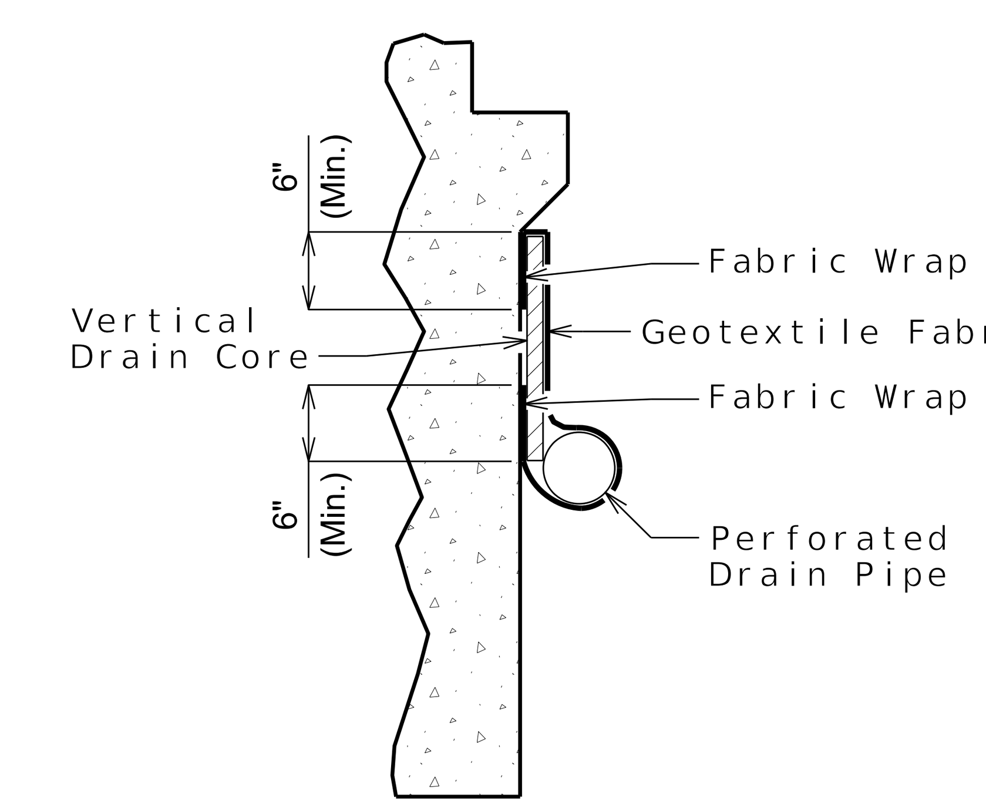
DETAIL A



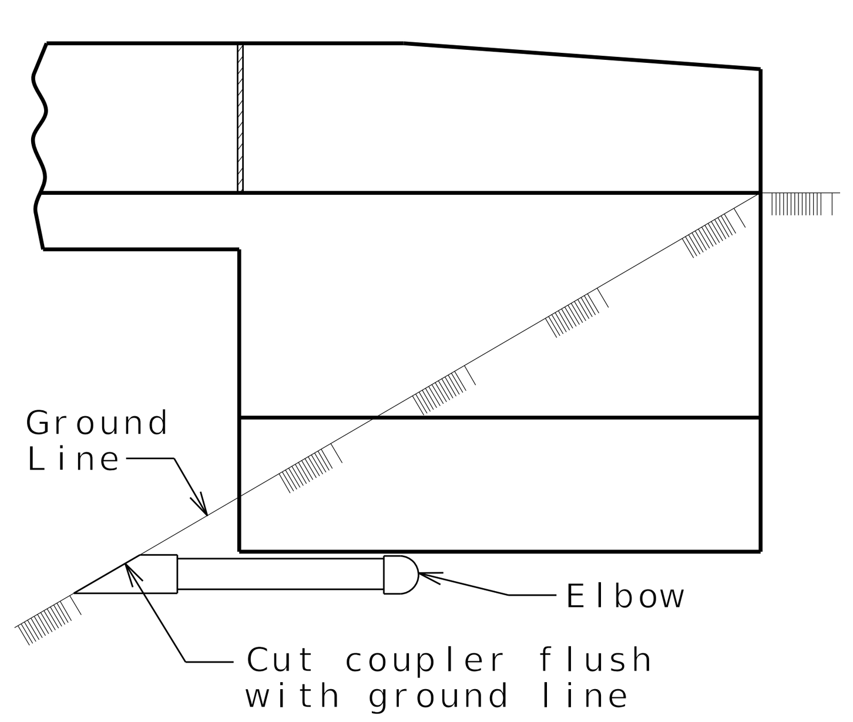
PLAN OF END BENT



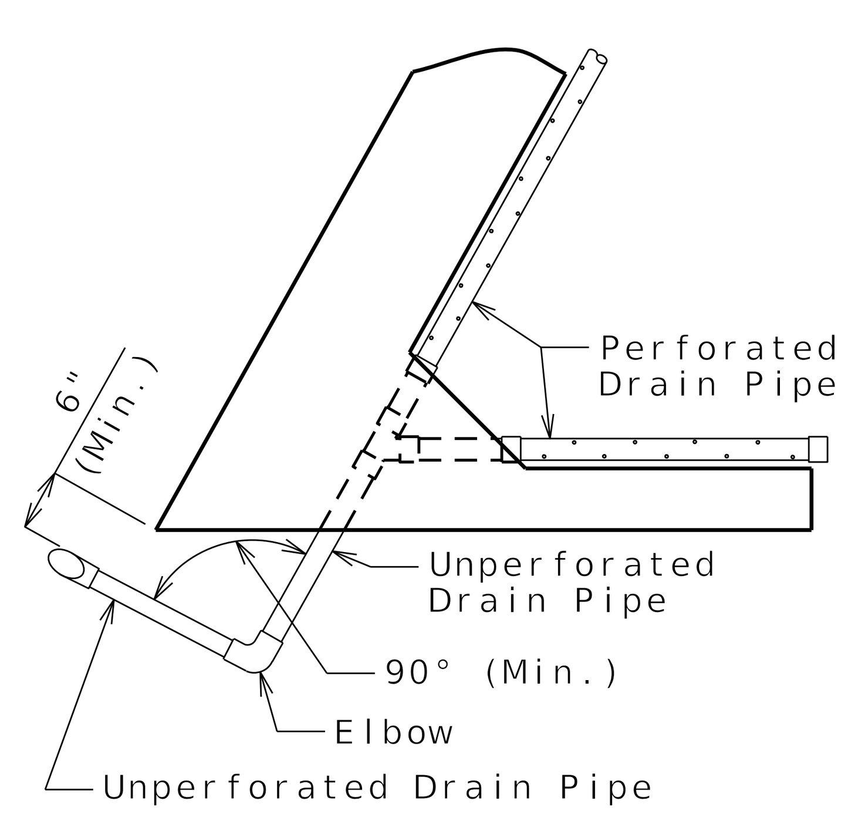
PART SECTION A-A
(Section thru wing similar)



PART SECTION B-B



ELEVATION OF WING



PART PLAN

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

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

Detailed JUL 2025
Checked JUL 2025

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

Sheet 7 of XX

VERTICAL DRAIN AT END BENTS

DATE PREPARED	4/25/2025
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B01-07
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

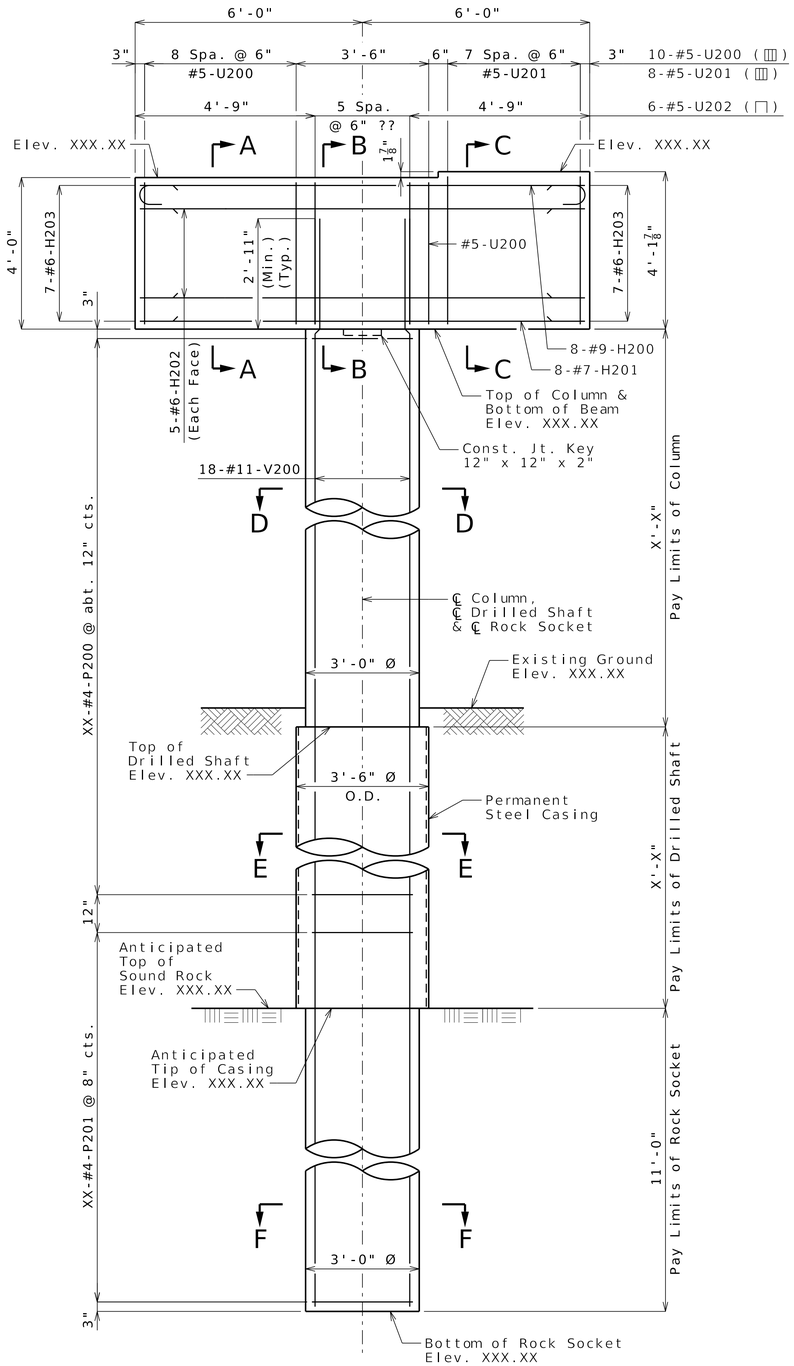
DATE

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

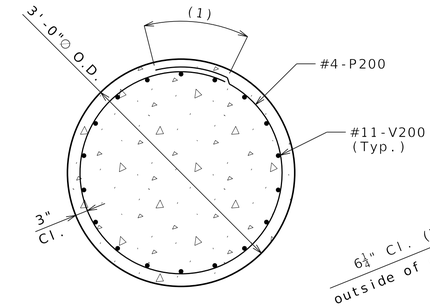
IMPROVE 70 ALLIANCE

HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

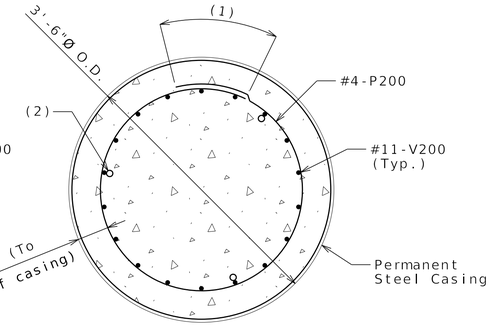
Bartlett & West



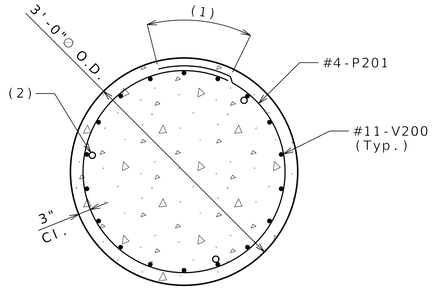
ELEVATION
Beam keys not shown for clarity.



SECTION D-D



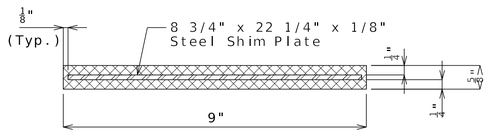
SECTION E-E



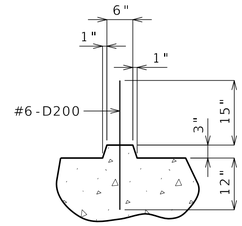
SECTION F-F

(1) 2'-1" Min. Lap (#4-P200)
3'-1" Min. Lap (#6-P201)
(Stagger adjacent bar splices)

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



SECTION THRU LAMINATED NEOPRENE BEARING PAD



SECTION THRU KEY

General Notes:

Work this sheet with Sheet No. X.

Drilled shafts shall be constructed in accordance with the project Drilled Shaft Construction AAS. and inspected

Thickness of permanent steel casing shall be in accordance with Drilled Shaft Construction AAS.

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

An additional 4 feet has been added to V-bar lengths and additional 12-#6-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

DETAILS OF INTERMEDIATE BENT NO. 2

DATE PREPARED: 4/25/2025
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: B01-08
COUNTY: ST. CHARLES
JOB NO.: JST0020
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A43232

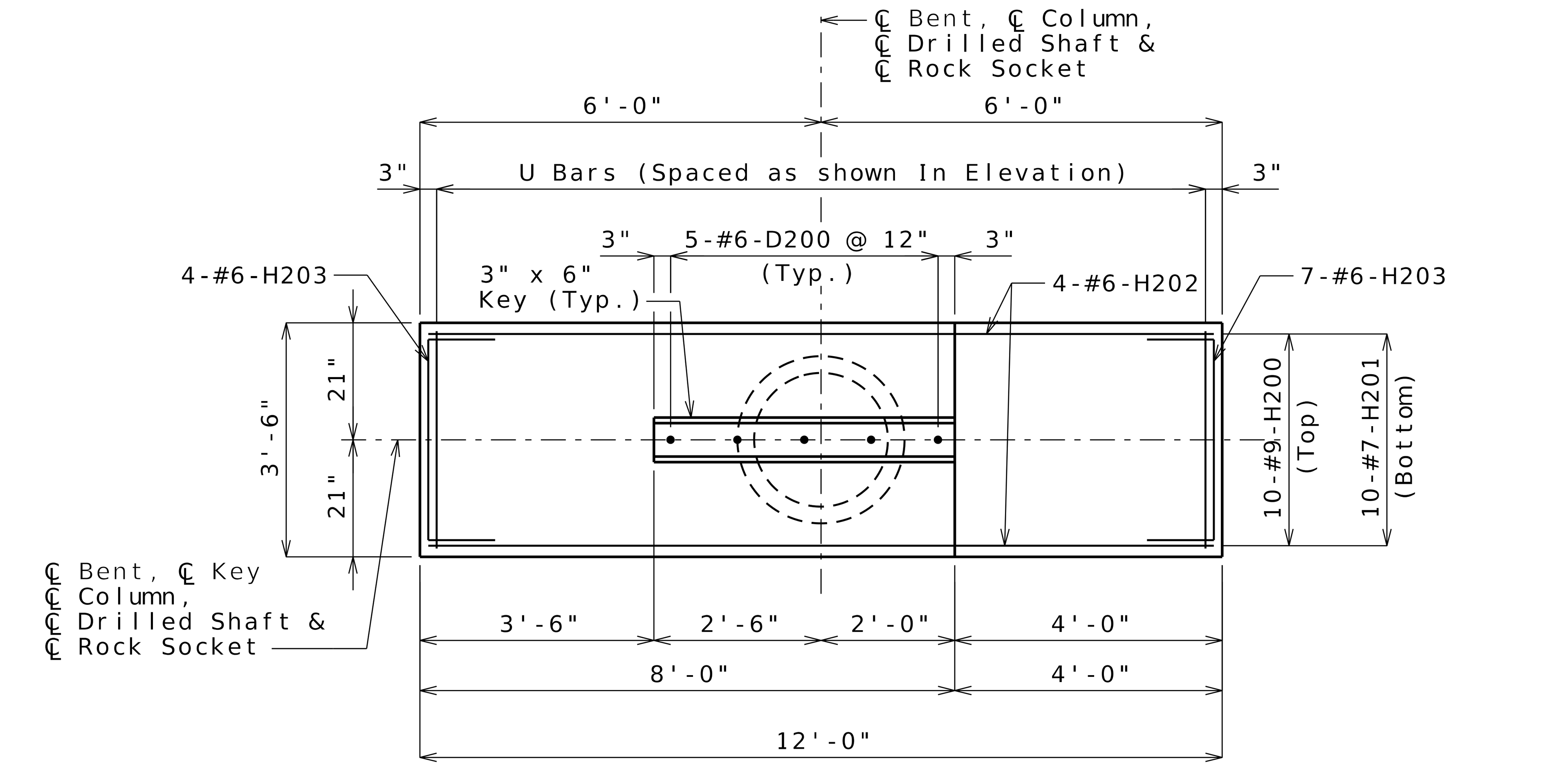
DESCRIPTION | DATE

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

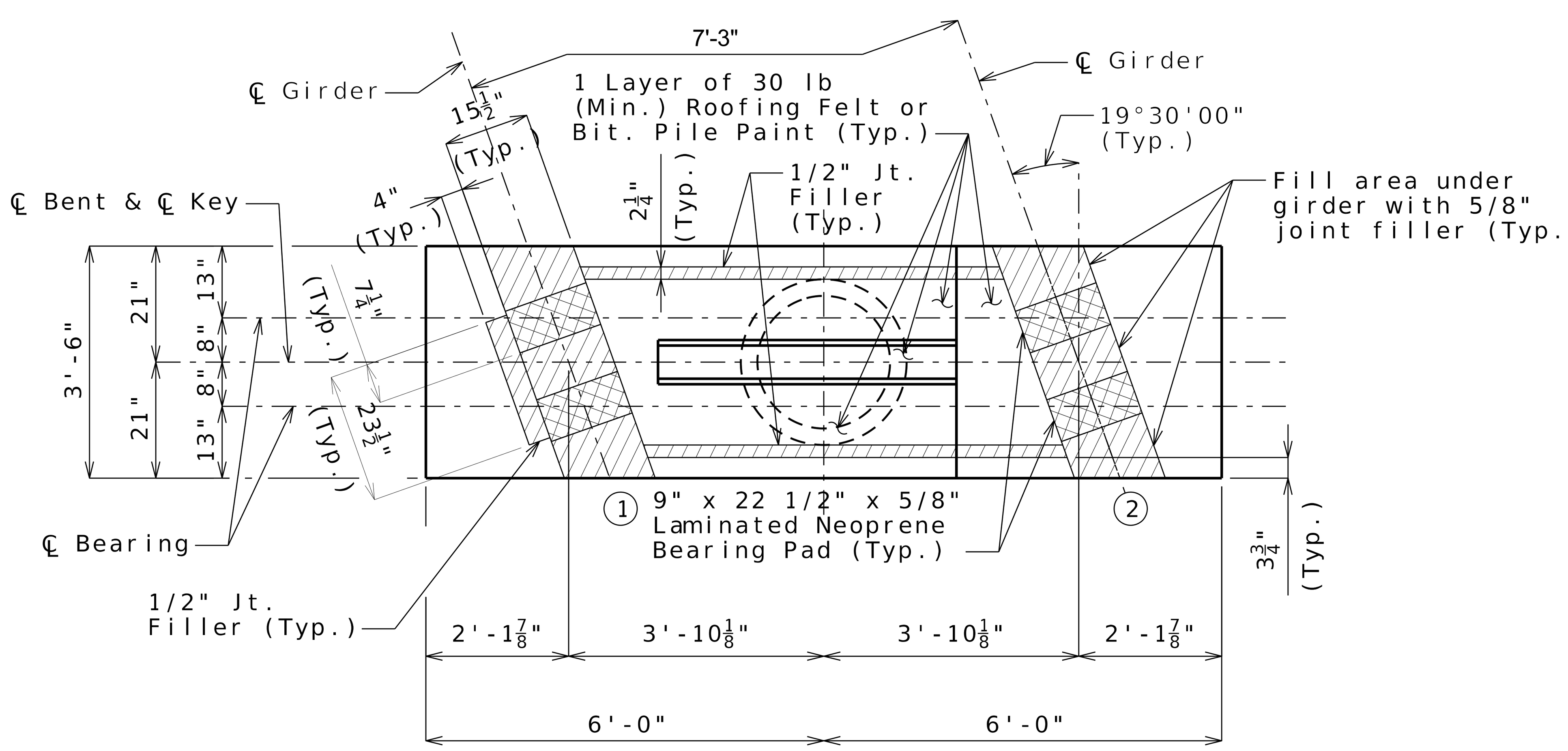
IMPROVE 70 ALLIANCE

HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

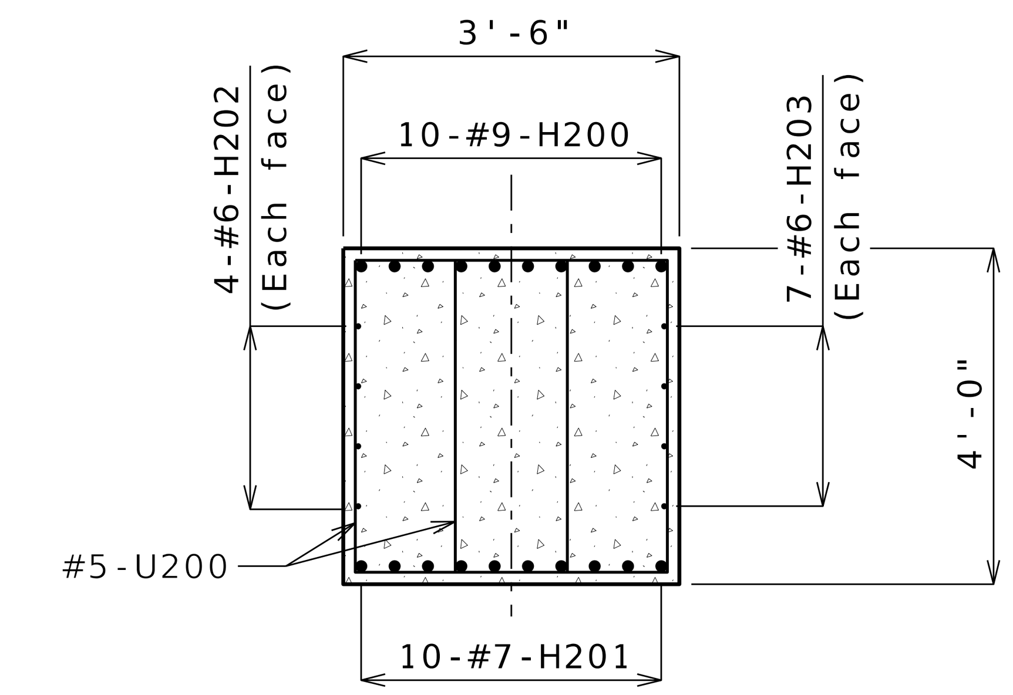
Bartlett & West
601 MONROE ST. SUITE 201 - JEFFERSON CITY, MO 65101
PHONE: (573) 634-2488
CERTIFICATE OF AUTHORITY NO. 000167 - ENGINEERING
WWW.BARTLETTWEST.COM



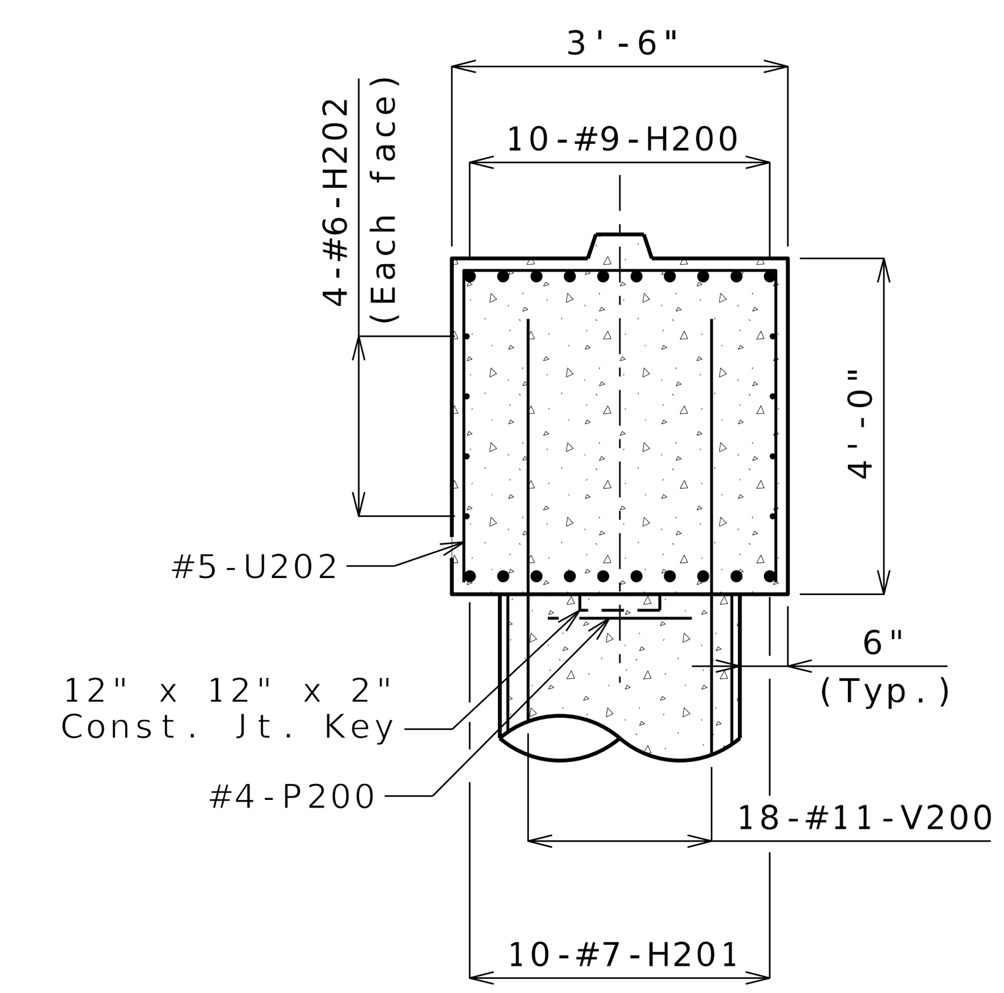
PLAN SHOWING REINFORCEMENT



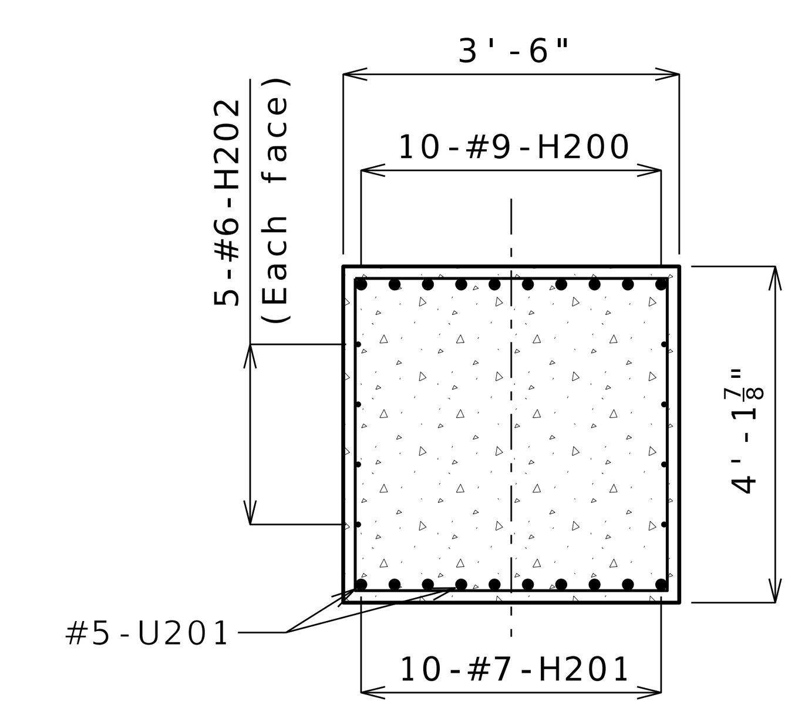
PLAN OF BEAM



SECTION A-A



SECTION B-B



SECTION C-C

General Notes:

Work this sheet with Sheet No. X.

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

DETAILS OF INTERMEDIATE BENT NO. 2

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-09
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

DATE

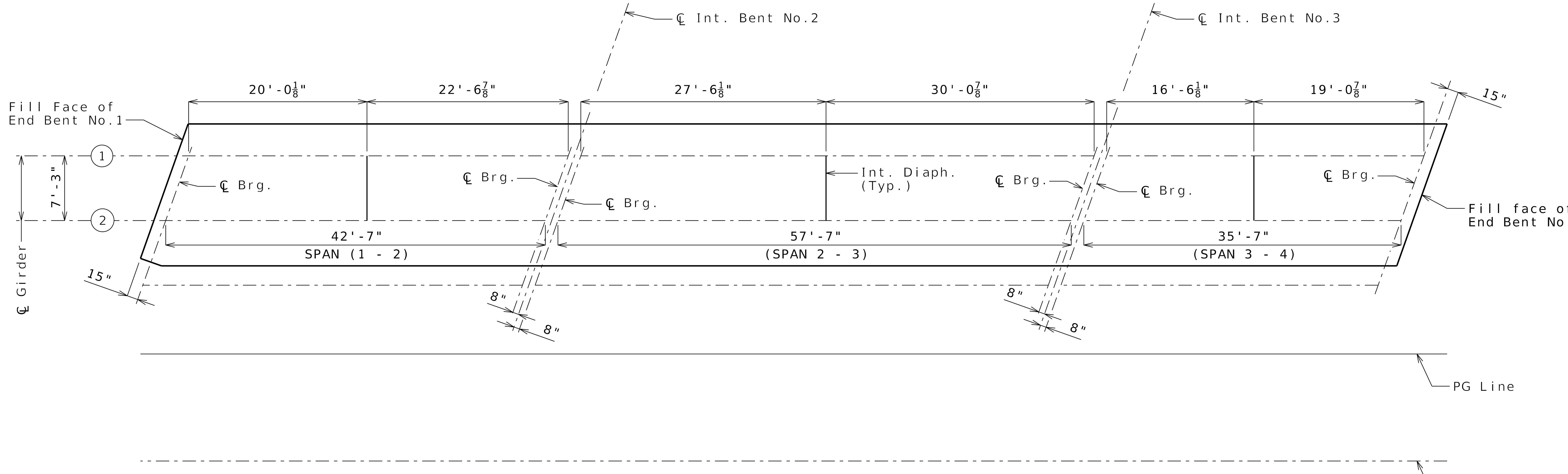
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

IMPROVE 70 ALLIANCE

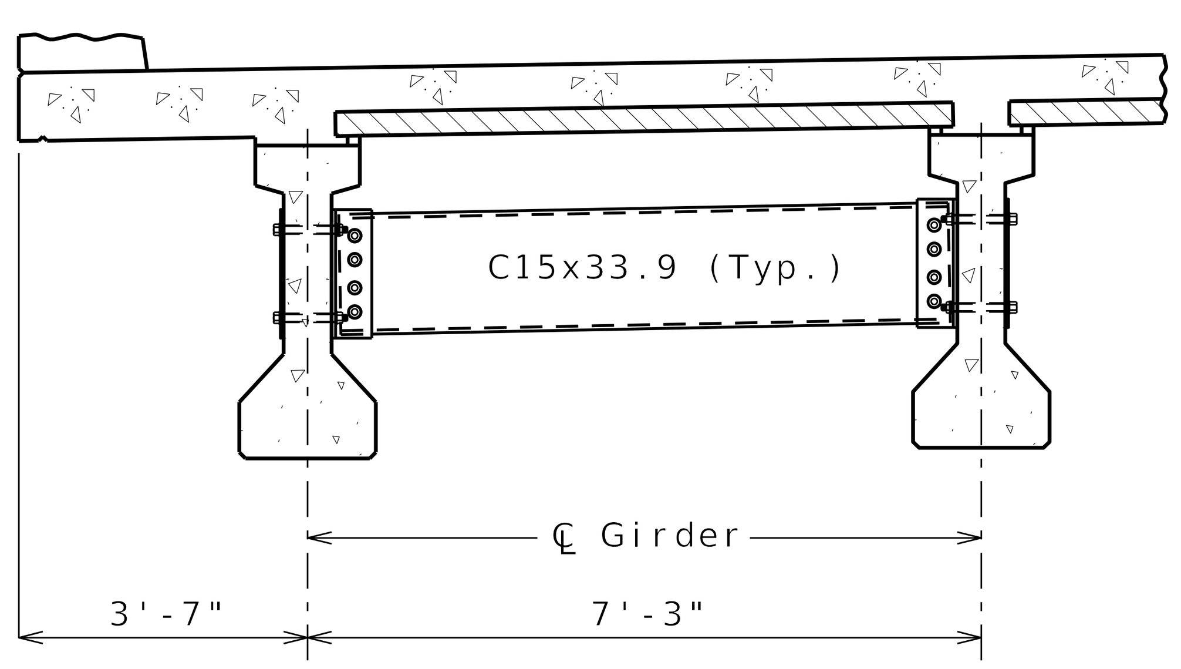
HNTB 715 KIRK DRIVE KANSAS CITY, MO 64105-1310 CERTIFICATE OF AUTHORITY NO. 001270

Bartlett & West

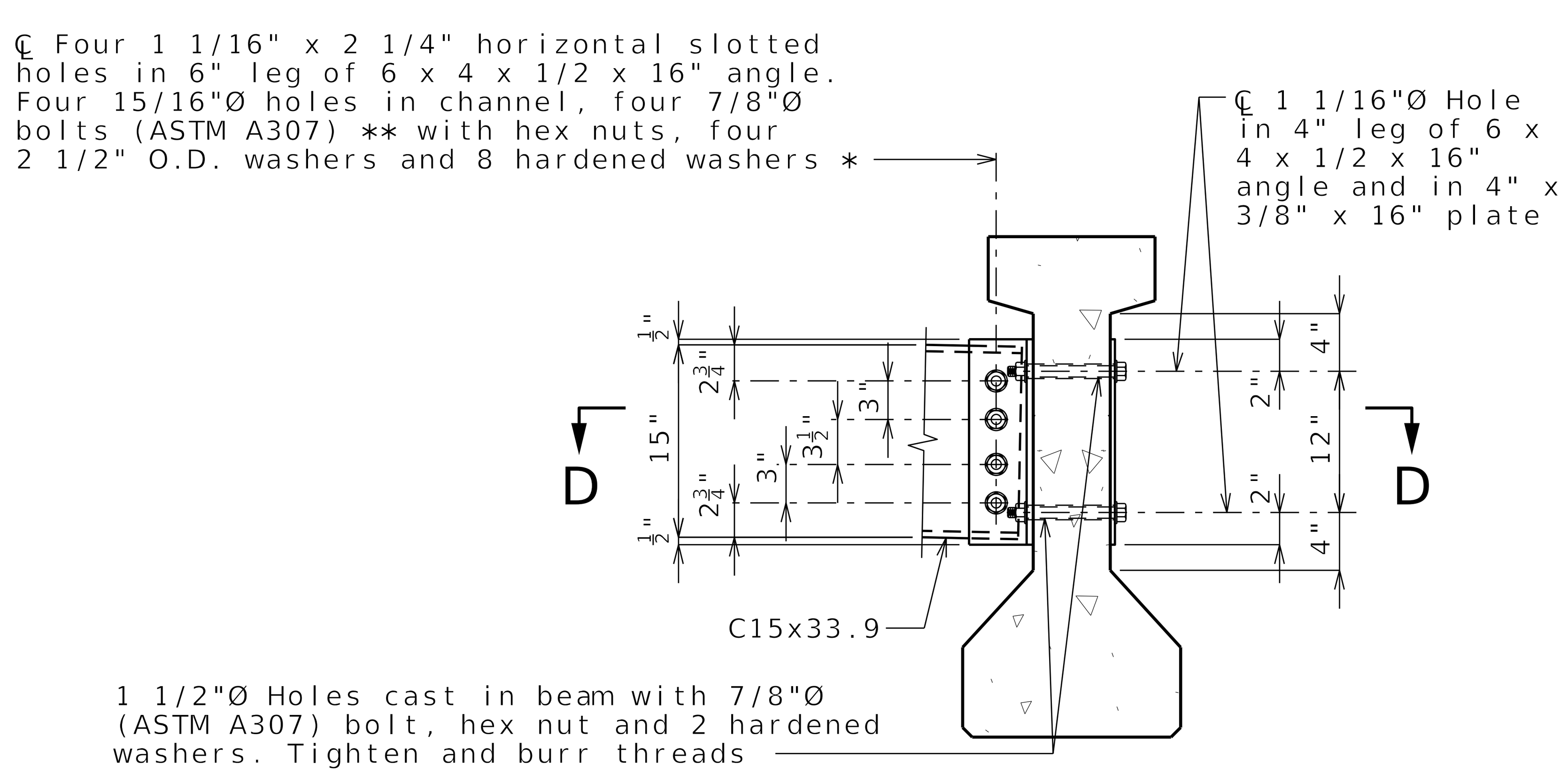


PLAN SHOWING LOCATION OF STEEL INTERMEDIATE DIAPHRAGMS

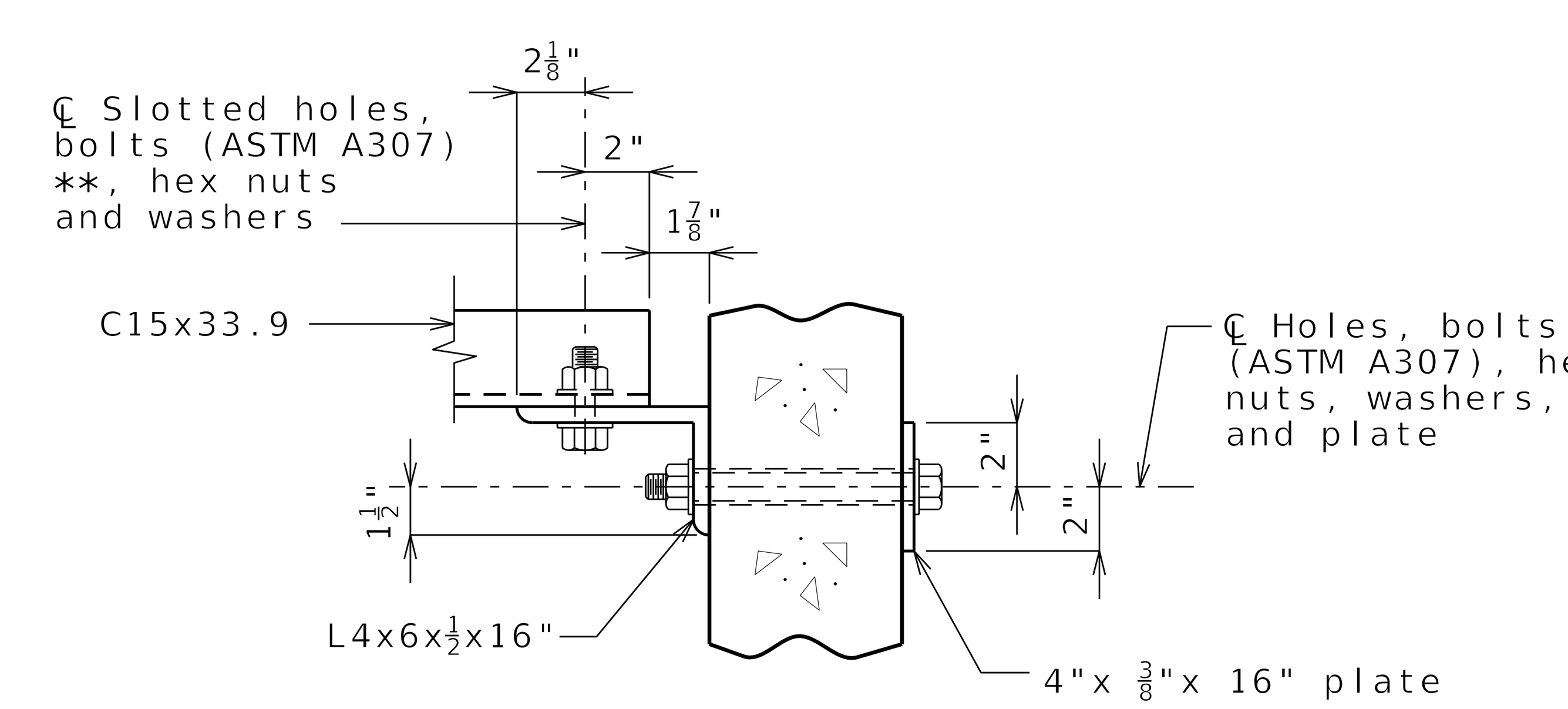
Longitudinal dimensions are horizontal.



PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS



SECTION THRU GIRDER AT DIAPHRAGM



SECTION D-D

STEEL DIAPHRAGM NOTES:

* In lieu of 2 1/2" outside diameter washers, contractor may substitute a 3/16" (Min. thickness) plate with four 15/16" Ø holes and one hardened washer per bolt.

** Bolts shall be tightened to provide a tension of one-half that specified in Sec 712 for high strength bolt installation. ASTM F3125 Grade A325 Type 1 bolts may be substituted for and installed in accordance with the requirements for the specified ASTM A307 bolts.

All diaphragm materials including bolts, nuts, and washers shall be galvanized.

Fabricated structural steel shall be ASTM A709 Grade 36 except as noted.

Payment for furnishing and installing steel intermediate diaphragms will be considered completely covered by the contract unit price for Steel Intermediate Diaphragm for P/S Concrete Girders.

Shop drawings will not be required for steel intermediate diaphragms and angle connections.

DATE PREPARED	
4/25/2025	
ROUTE: I-70	STATE: MO
DISTRICT: BR	SHEET NO.: B01-17
COUNTY: ST. CHARLES	
JOB NO.: JST0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.: A43232	

DESCRIPTION | DATE

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

IMPROVE 70 ALLIANCE

HNTB 715 KIRK DRIVE KANSAS CITY, MO 64105-1310 CERTIFICATE OF AUTHORITY NO. 001270

Bartlett & West

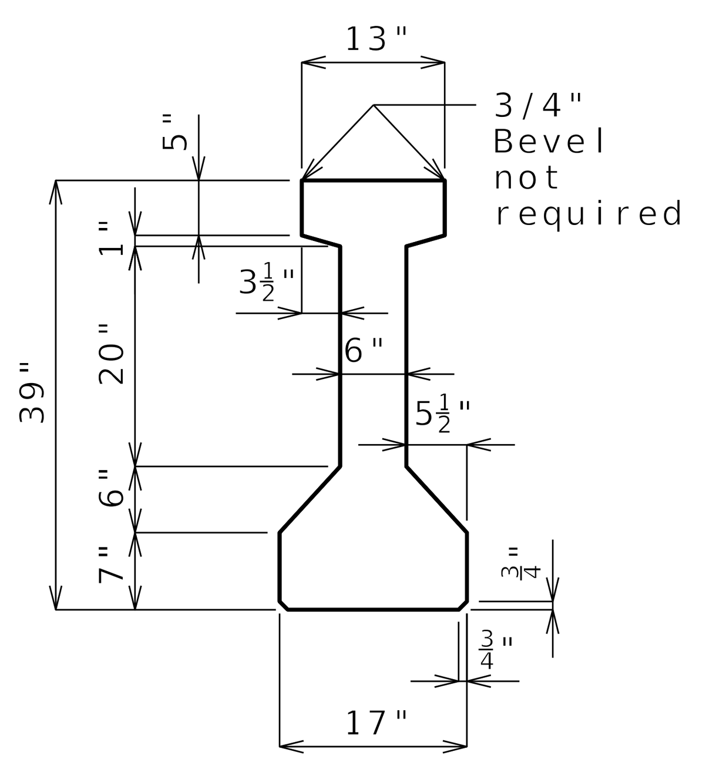
Detailed JUL 2025
Checked JUL 2025

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

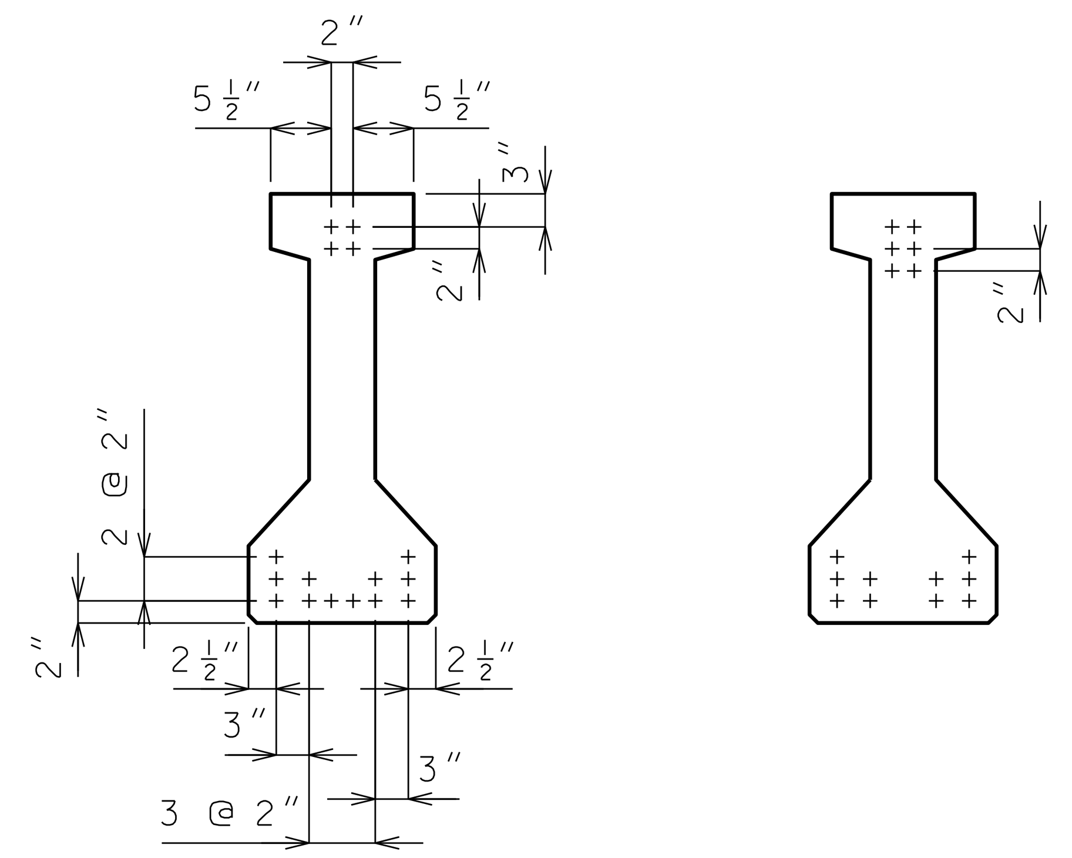
GIRDER LAYOUT

B_A43232_017_JST0020_GIRLAY.dgn 9:18:17 AM 4/25/2025

DRAFT FOR CONSTRUCTABILITY REVIEW – NOT FOR CONSTRUCTION



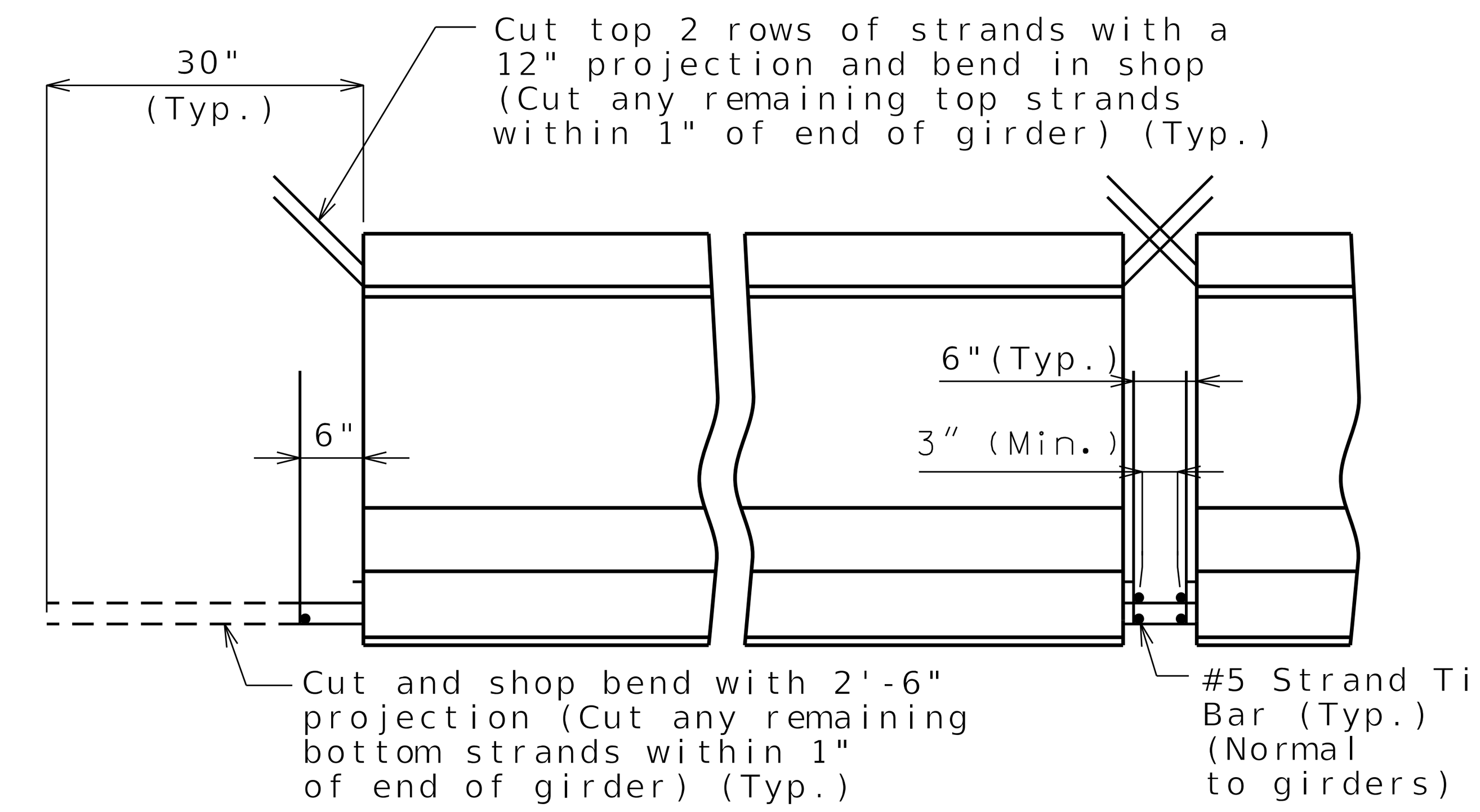
DIMENSIONS



STRAND ARRANGEMENT

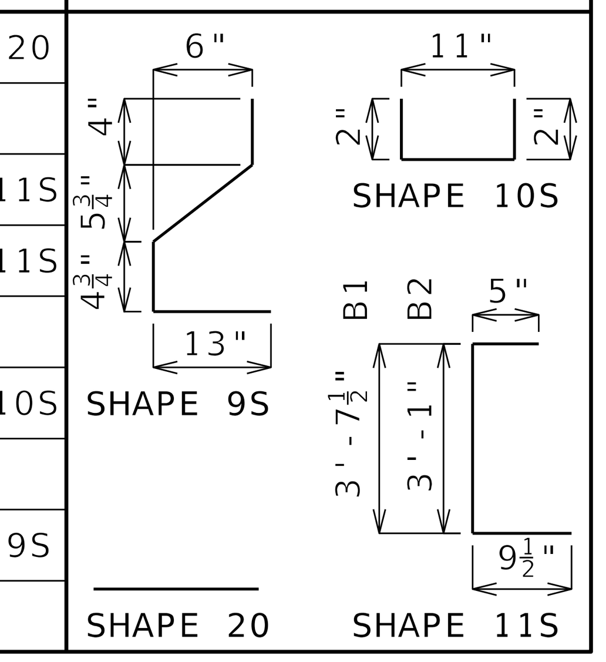
+ Indicates prestressing strand.

○ Indicates cut & shop bend with 2'-6" projection.



STRANDS AT GIRDER ENDS

BILL OF REINFORCING STEEL - EACH GIRDER				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
2	6 A1	42'-10"	20	
86	5 B1	4'-7"	11S	
16	6 B2	4'-0"	11S	
51	4 C1	13"	10S	
102	4 D1	2'-5"	9S	



All dimensions are out to out.

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

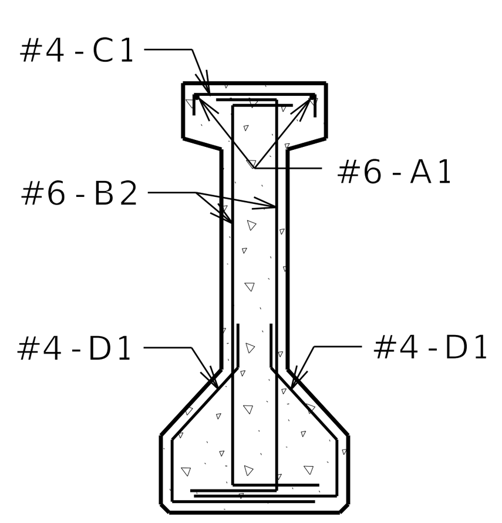
Actual lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch.

All reinforcement shall be Grade 60.

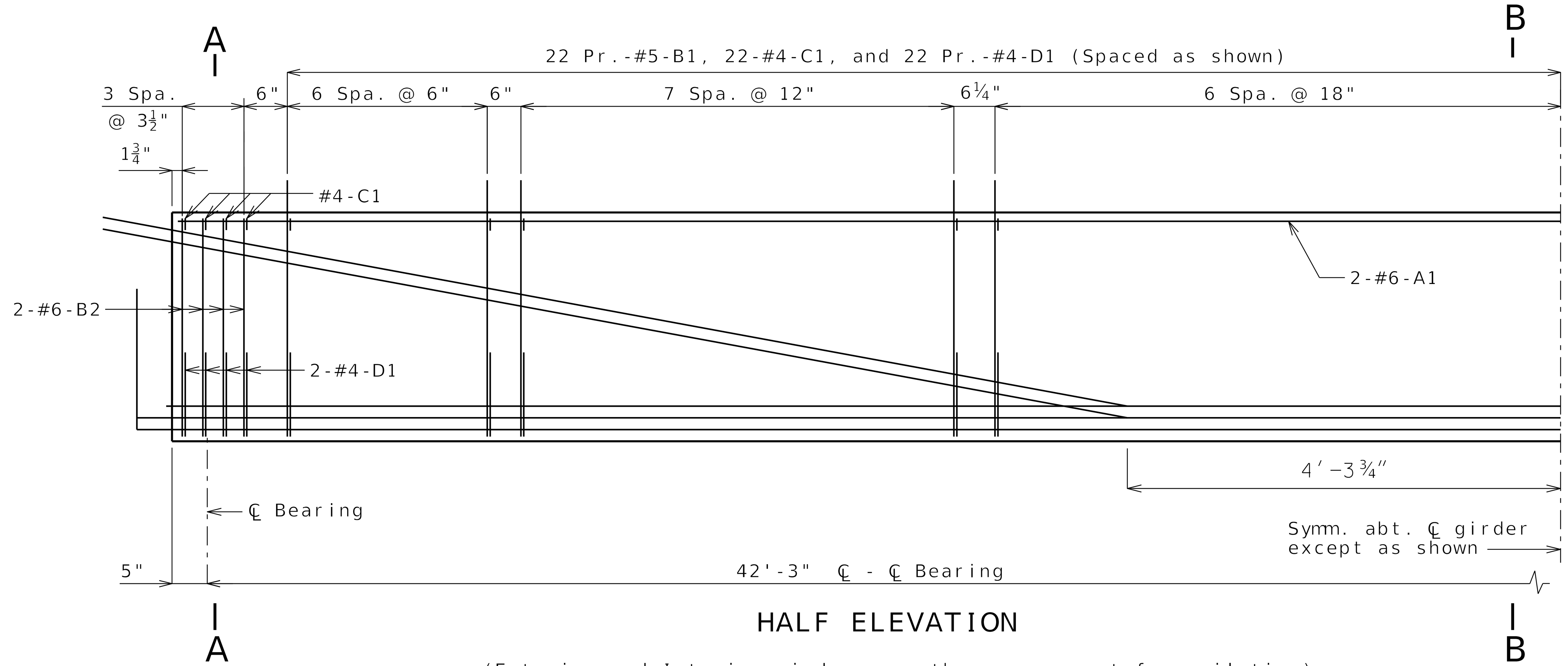
The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.



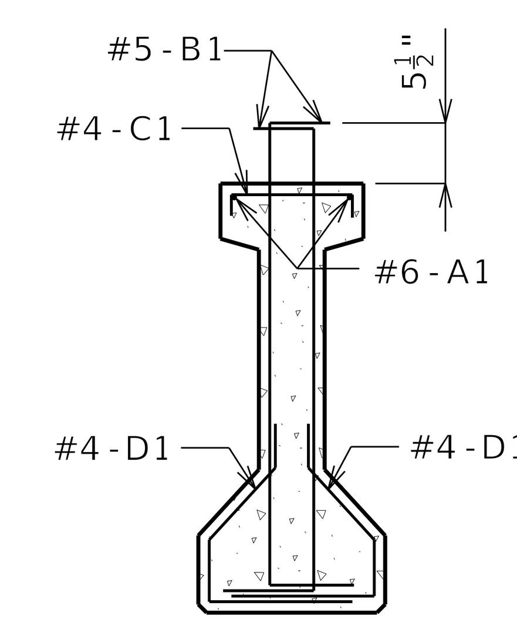
SECTION A-A

Strands not shown for clarity.



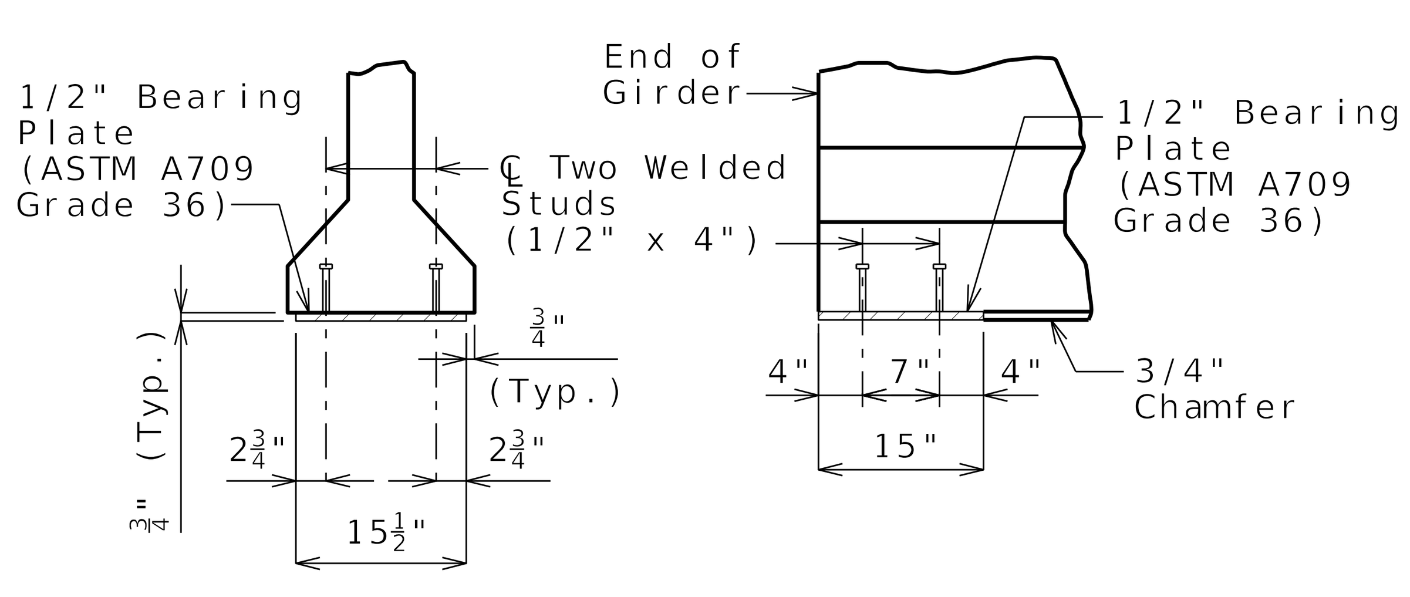
HALF ELEVATION

(Exterior and Interior girders are the same except for coil ties)

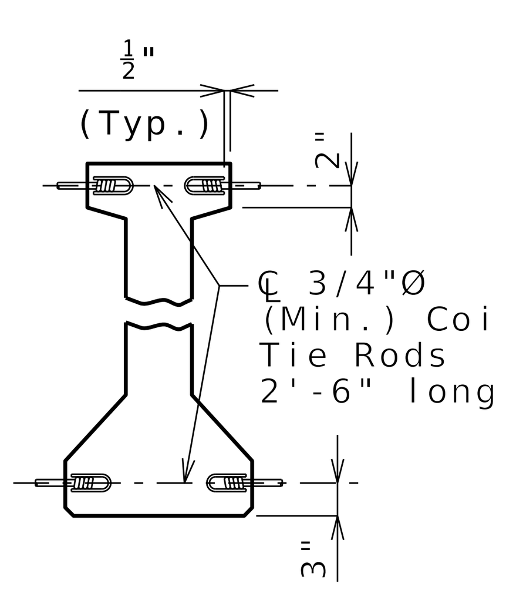


SECTION B-B

Strands not shown for clarity.



BEARING PLATE



COIL TIES

Exclude coil tie at intermediate bent diaphragms as shown on Sheet No. X.

General Notes:

Concrete for prestressed girders shall be Class A-1 with f'c = 6,000 psi and f'ci = 4,500 psi.

Use 16 strands, 0.6"Ø Grade 270, with an initial prestress force of 703 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

For Girder Camber Diagram, see Sheet No. 23.

For location of coil inserts at slab drains, see Sheet No. 22.

For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 8 and 21.

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-18
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

IMPROVE 70 ALLIANCE

HNTB 715 KIRK DRIVE KANSAS CITY, MO 64105-1310 CERTIFICATE OF AUTHORITY NO. 001270

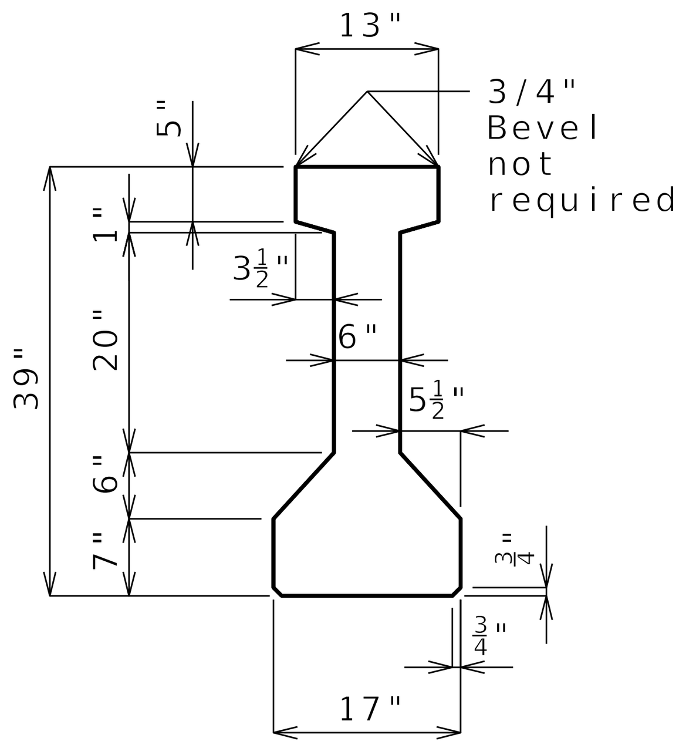
Bartlett & West 601 MONROE ST. SUITE 301 • JEFFERSON CITY, MO 65101 PHONE 573-634-3181 CERTIFICATE OF AUTHORITY NO. 000167 - ENGINEERING WWW.BARTLETTWEST.COM

I-GIRDERS - SPAN (1-2)

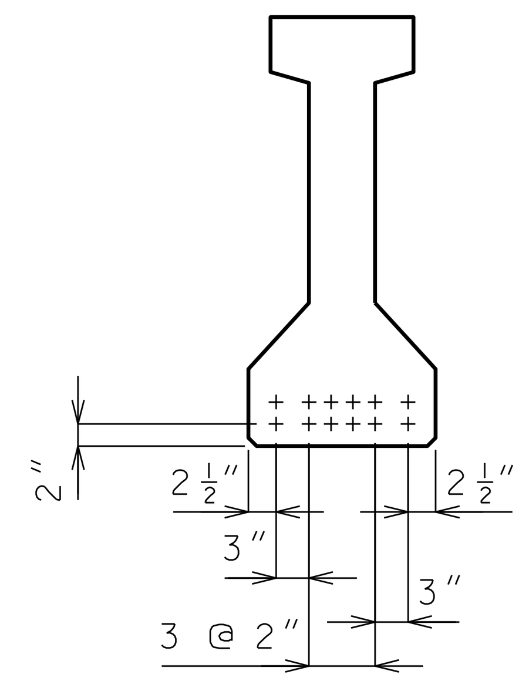
Detailed JUL 2025
Checked JUL 2025

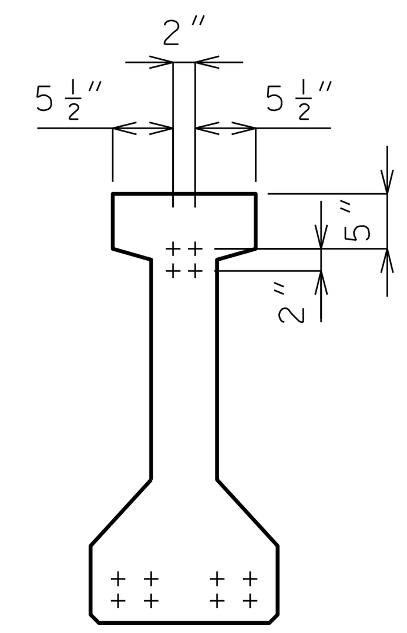
Note: This drawing is not to scale. Follow dimensions.

I- GIRDERS - SPAN (1-2)



DIMENSIONS

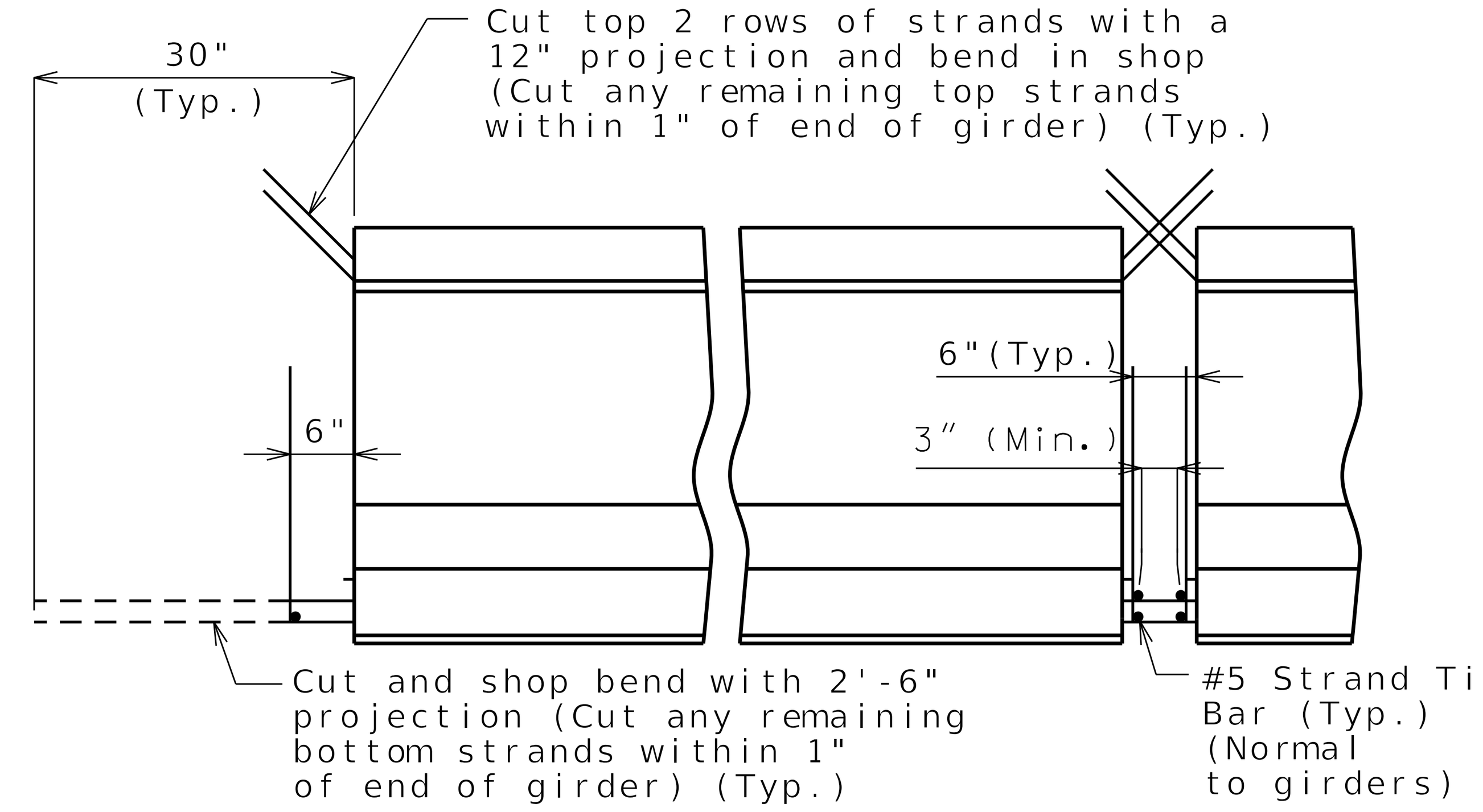




STRAND ARRANGEMENT

+ Indicates prestressing strand.

○ Indicates cut & shop bend with 2'-6" projection.

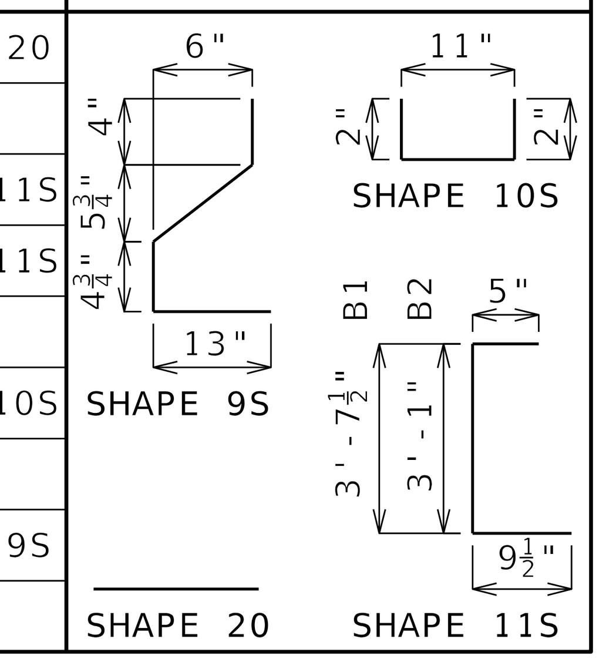


STRANDS AT GIRDER ENDS

NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE
2	6 A1	58'-8"	20
138	5 B1	4'-7"	11S
16	6 B2	4'-0"	11S
77	4 C1	13"	10S
154	4 D1	2'-5"	9S

BILL OF REINFORCING STEEL - EACH GIRDER

BENDING DIAGRAM



All dimensions are out to out.

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

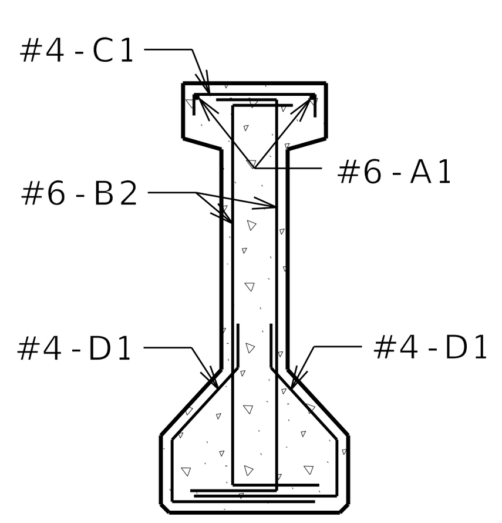
Actual lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch.

All reinforcement shall be Grade 60.

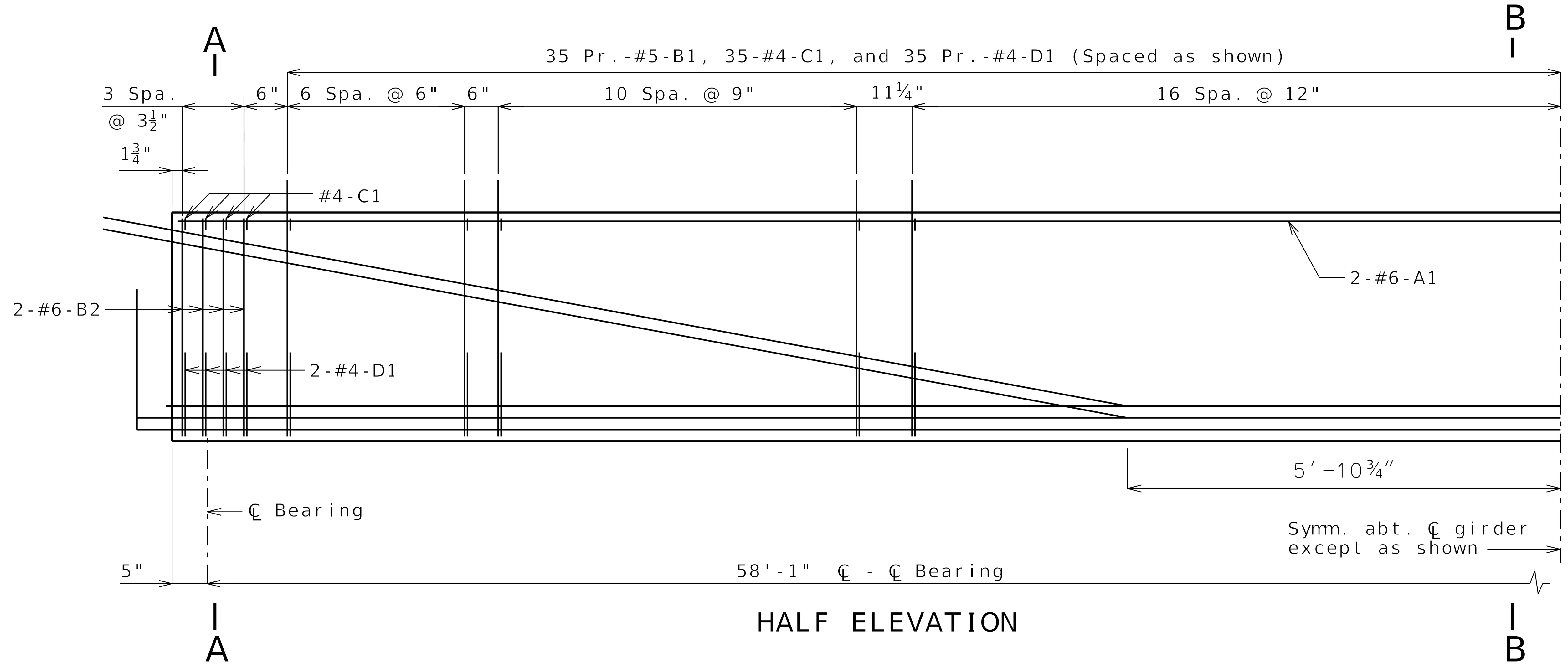
The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.

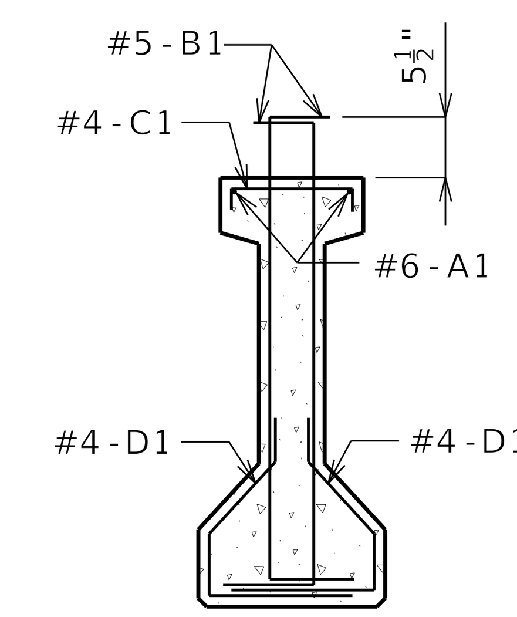


SECTION A-A

Strands not shown for clarity.

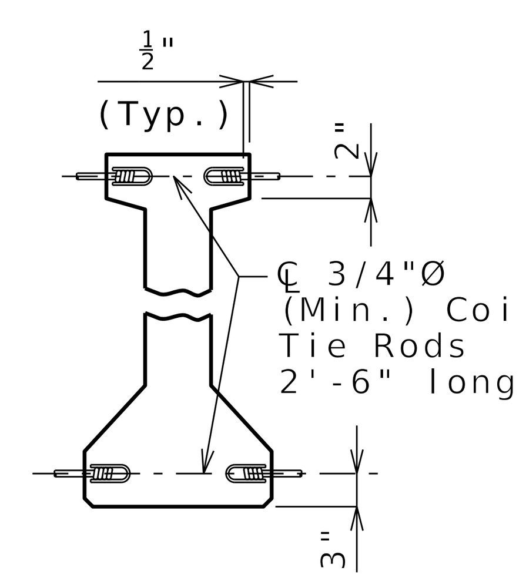


HALF ELEVATION



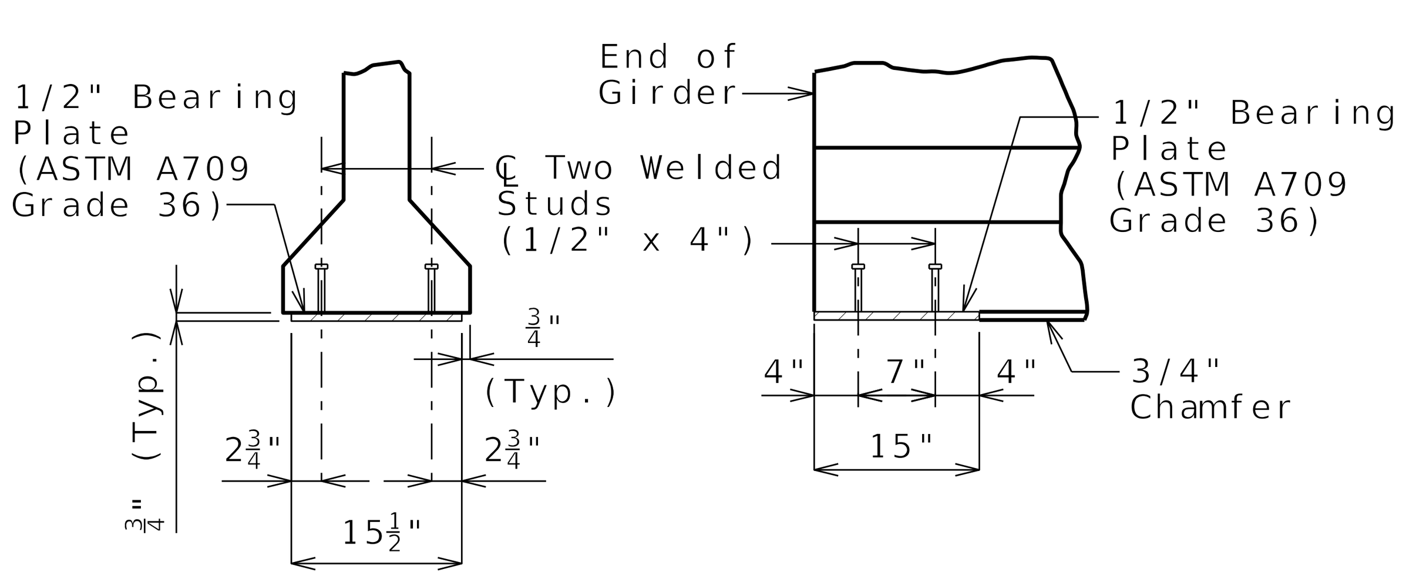
SECTION B-B

Strands not shown for clarity.



COIL TIES

Exclude coil tie at intermediate bent diaphragms as shown on Sheet No. X.



BEARING PLATE

General Notes:

Concrete for prestressed girders shall be Class A-1 with f'c = 6,000 psi and f'ci = 4,500 psi.

Use 12 strands, 0.6"Ø Grade 270, with an initial prestress force of 527 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

For Girder Camber Diagram, see Sheet No. 23.

The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheet No. 17.

For location of coil inserts at slab drains, see Sheet No. 22.

For location of coil ties at concrete diaphragms, see Sheet No. 21.

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-19
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

MoDOT

IMPROVE 70 ALLIANCE

HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

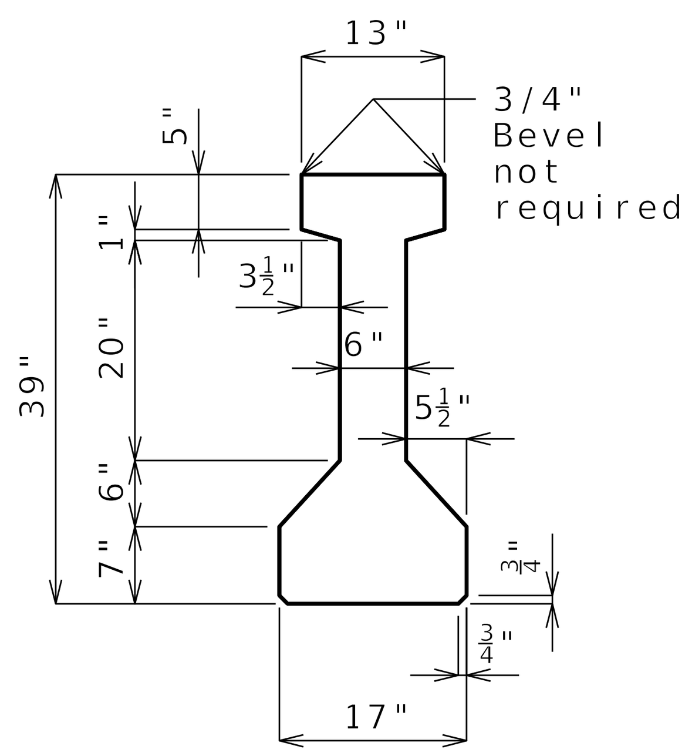
Bartlett & West

Detailed JUL 2025
Checked JUL 2025

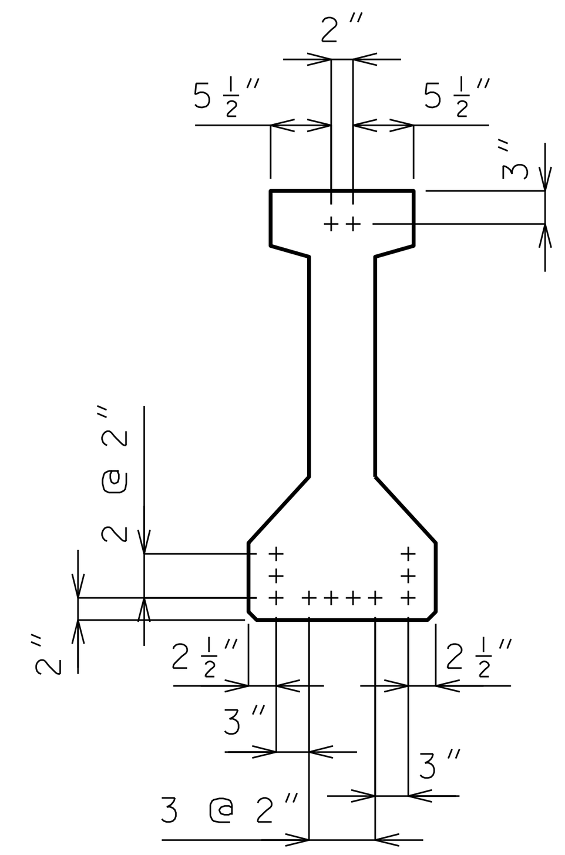
I-GIRDERS - SPAN (2-3)

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

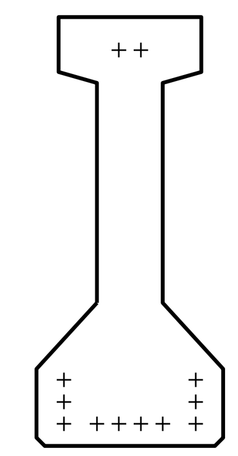
I- GIRDERS - SPAN (2-3)



DIMENSIONS



℄ GIRDER

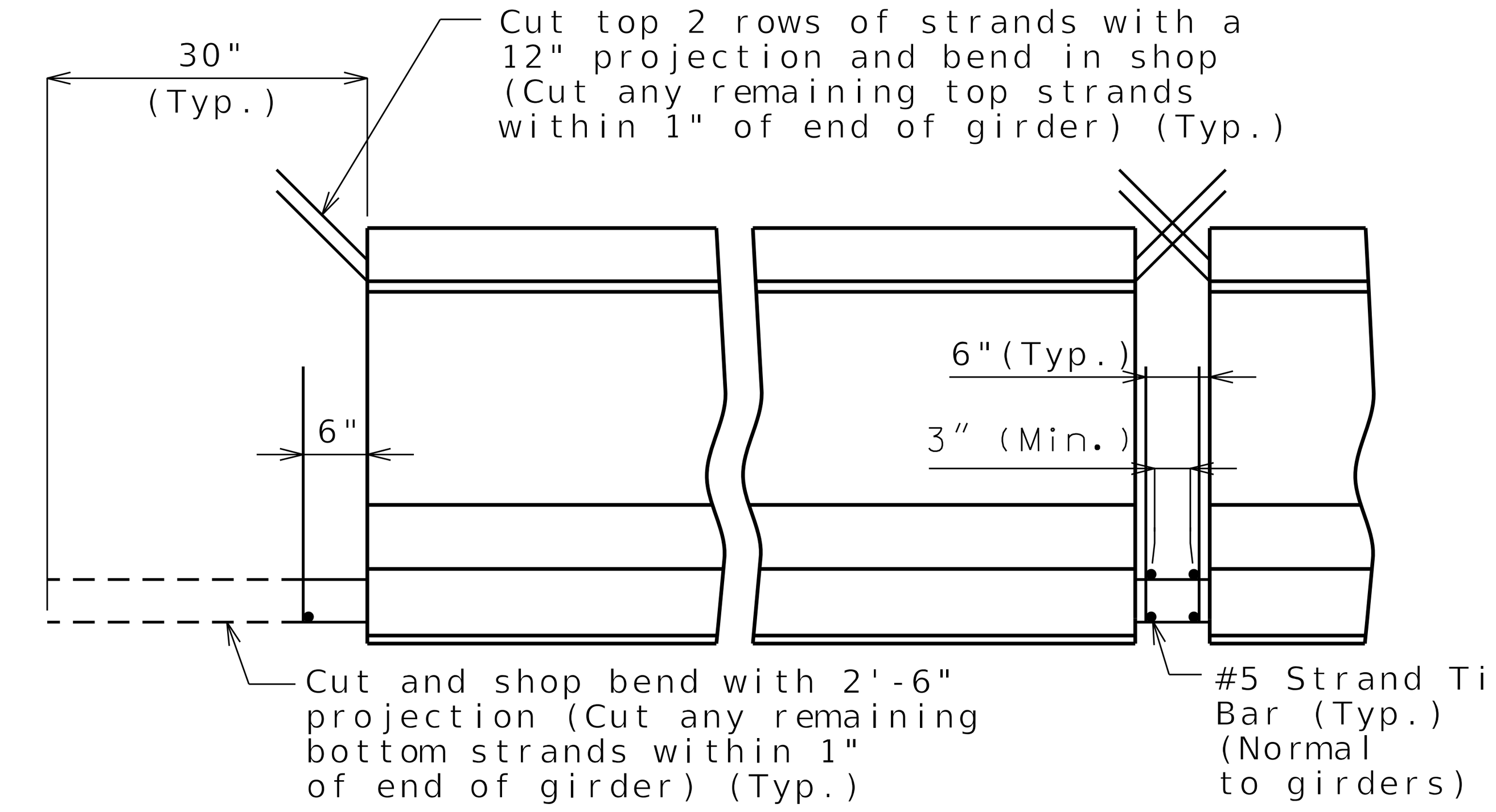


END OF GIRDER

STRAND ARRANGEMENT

+ Indicates prestressing strand.

○ Indicates cut & shop bend with 2'-6" projection.



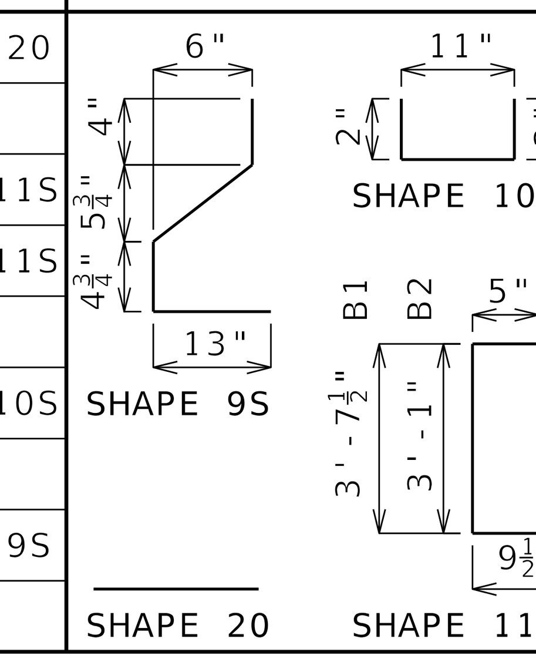
END BENT

INTERMEDIATE BENT

STRANDS AT GIRDER ENDS

NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
2	6 A1	35'-10"	20	SHAPE 9S, SHAPE 10S, SHAPE 20, SHAPE 11S
78	5 B1	4'-7"	11S	
16	6 B2	4'-0"	11S	
47	4 C1	13"	10S	
94	4 D1	2'-5"	9S	

BILL OF REINFORCING STEEL - EACH GIRDER



All dimensions are out to out.

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

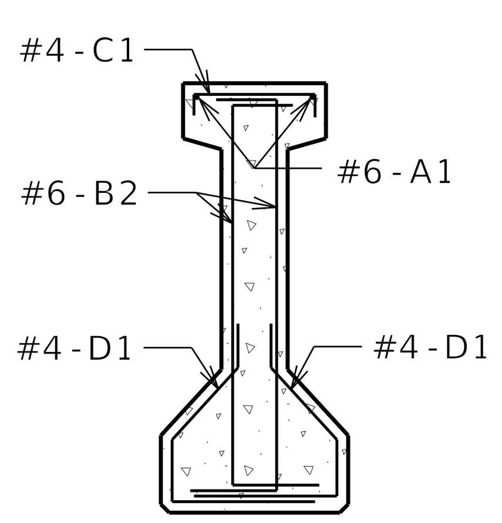
Actual lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch.

All reinforcement shall be Grade 60.

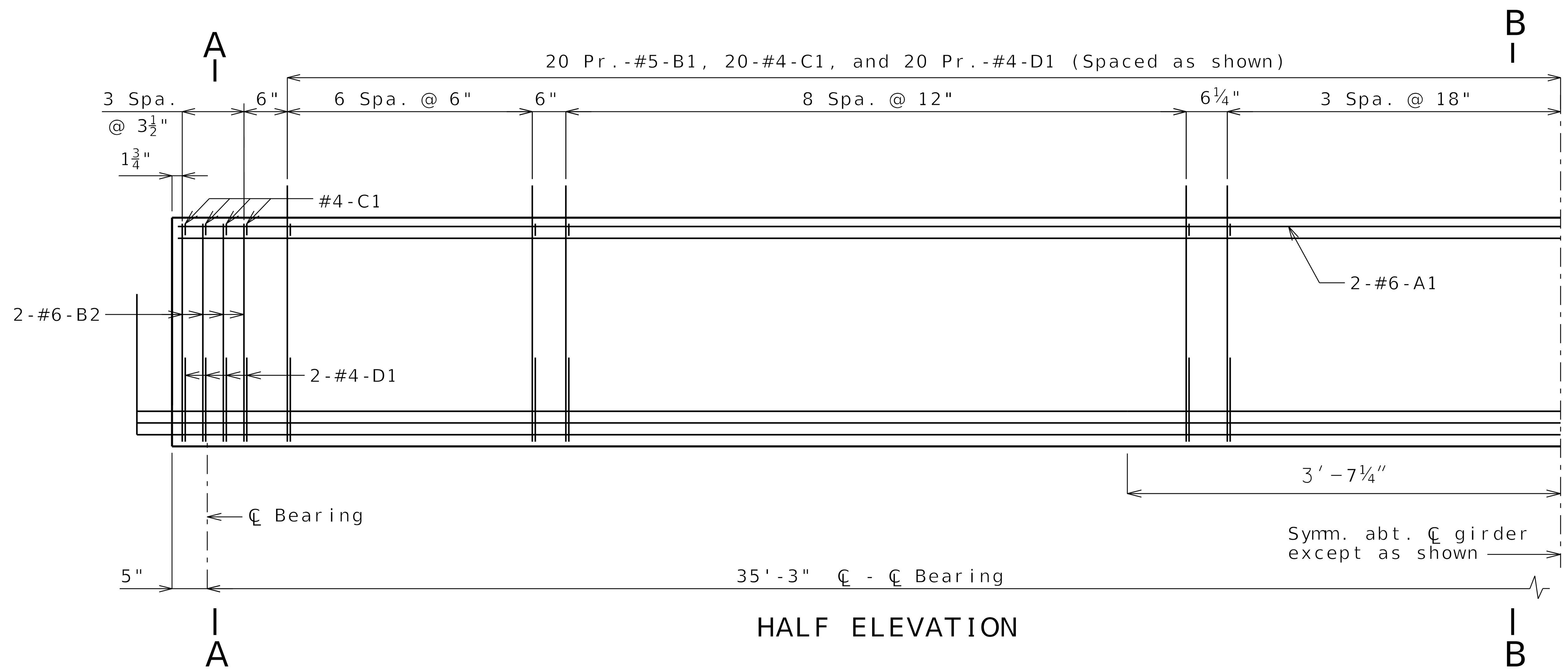
The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.



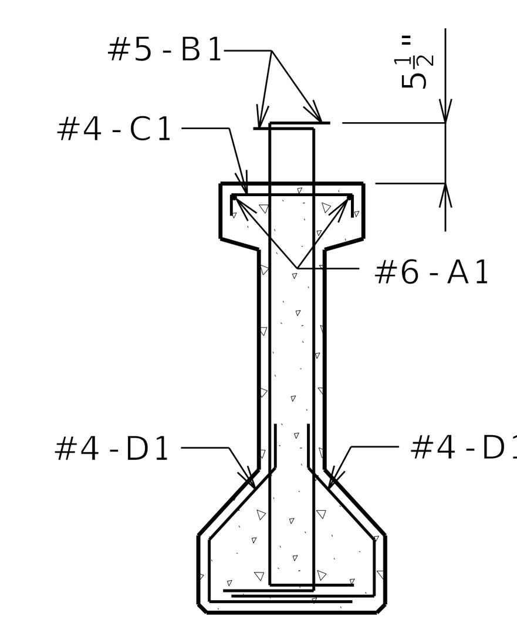
SECTION A-A

Strands not shown for clarity.



HALF ELEVATION

(Exterior and Interior girders are the same except for coil ties)



SECTION B-B

Strands not shown for clarity.

General Notes:

Concrete for prestressed girders shall be Class A-1 with f'c = 6,000 psi and f'ci = 4,500 psi.

Use 14 strands, 0.6"Ø Grade 270, with an initial prestress force of 615 kips.

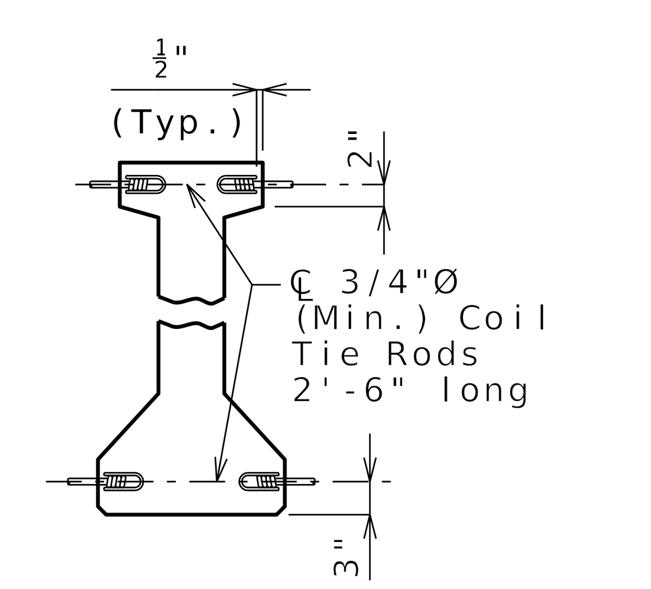
Pretensioned members shall be in accordance with Sec 1029.

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

For Girder Camber Diagram, see Sheet No. 23.

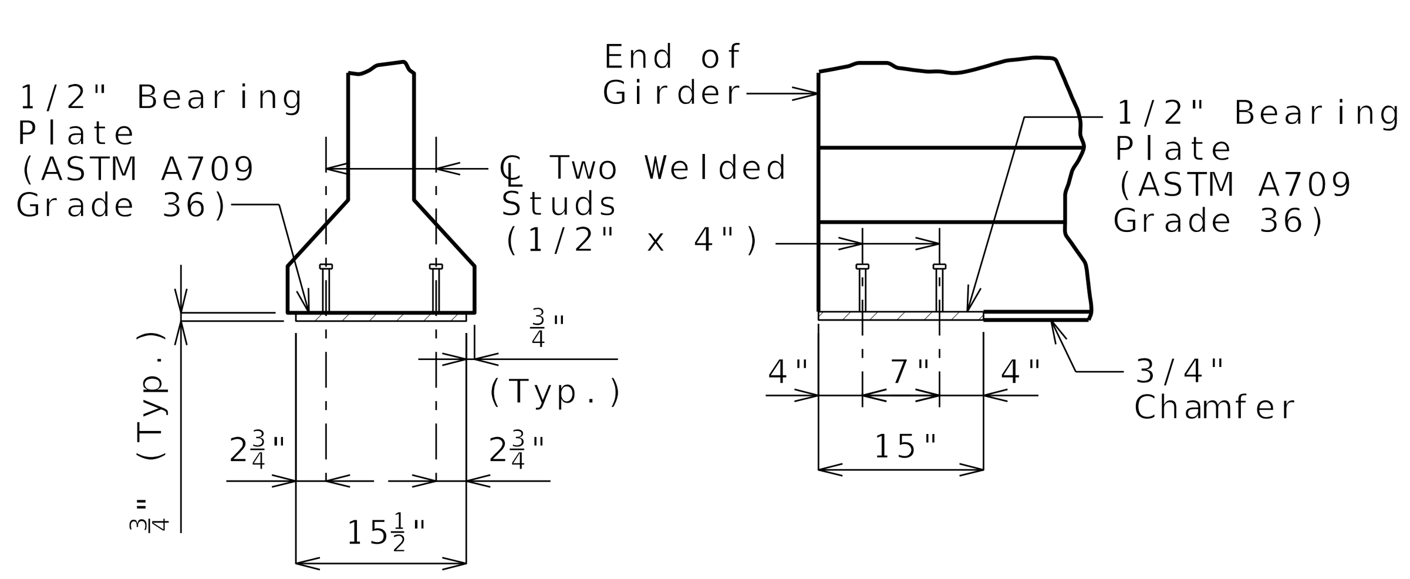
For location of coil inserts at slab drains, see Sheet No. 22.

For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 15 and 21



COIL TIES

Exclude coil tie at intermediate bent diaphragms as shown on Sheet No. X.



BEARING PLATE

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-20
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

IMPROVE 70 ALLIANCE

HNTB 715 KIRK DRIVE KANSAS CITY, MO 64105-1310 CERTIFICATE OF AUTHORITY NO. 001270

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I-GIRDERS - SPAN (3-4)

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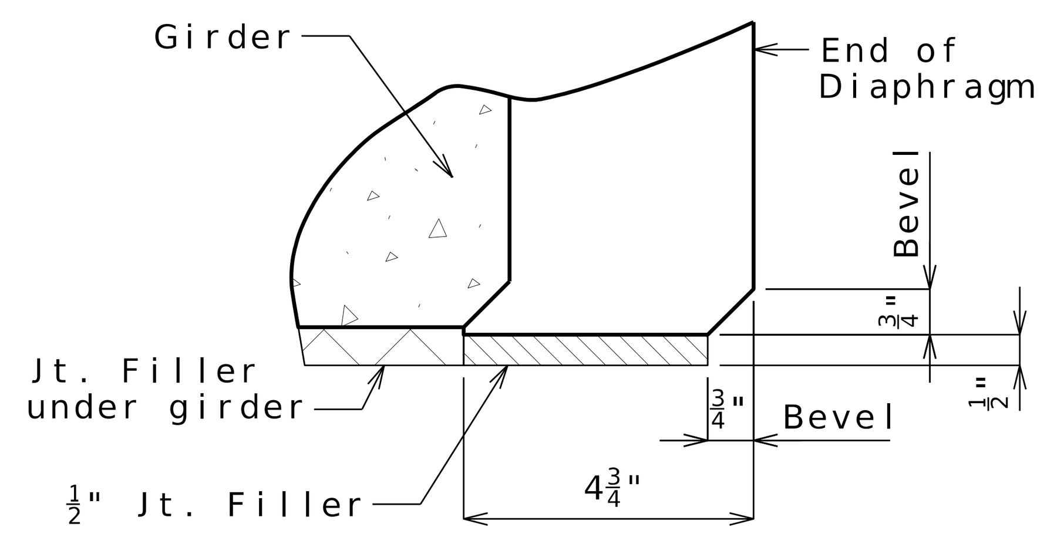
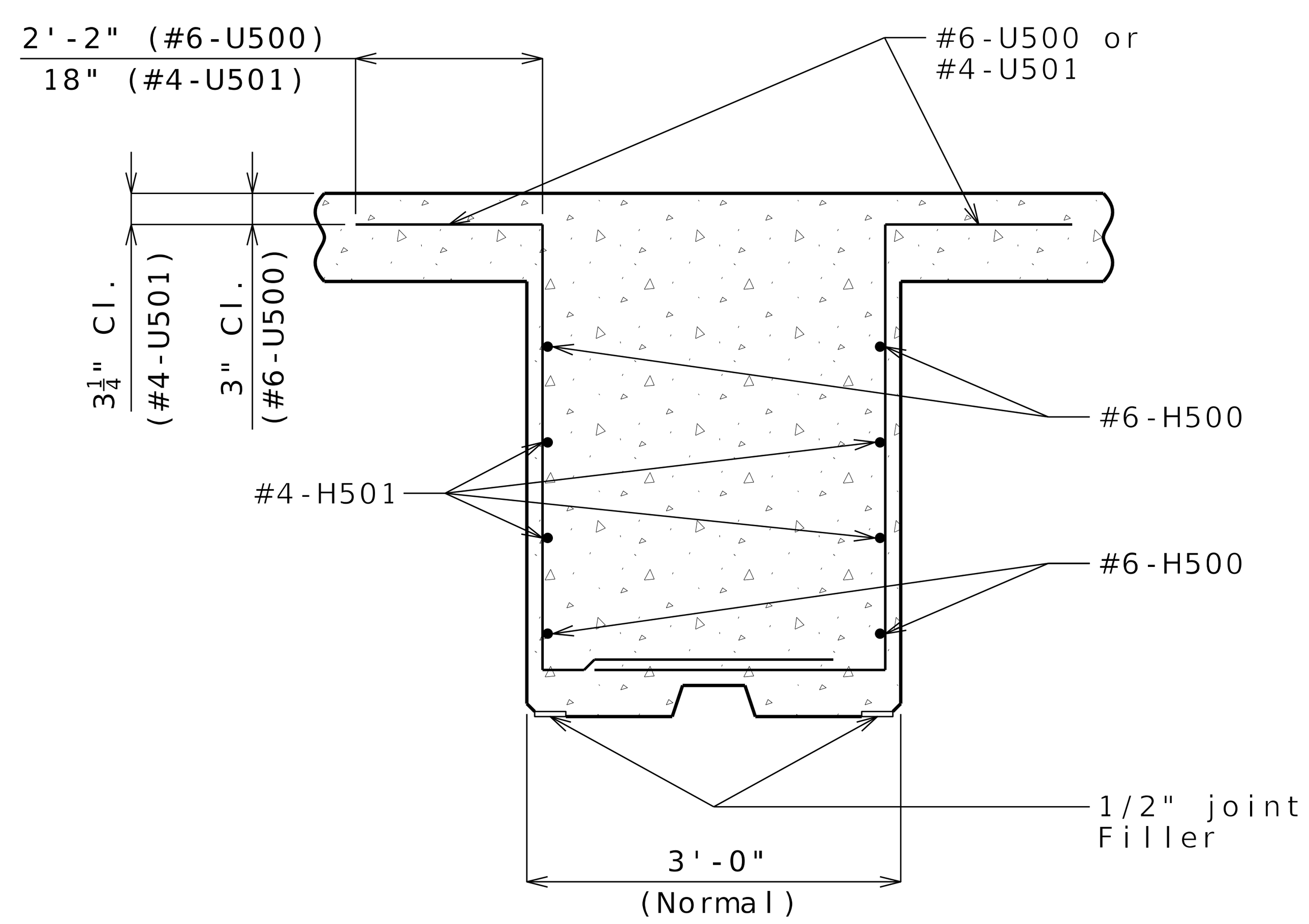
Note: This drawing is not to scale. Follow dimensions.

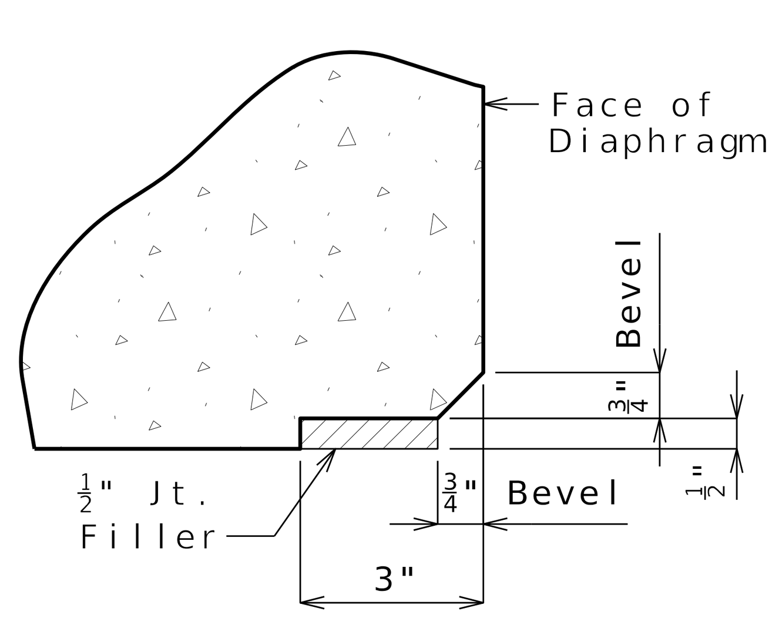
I- GIRDERS - SPAN (3-4)



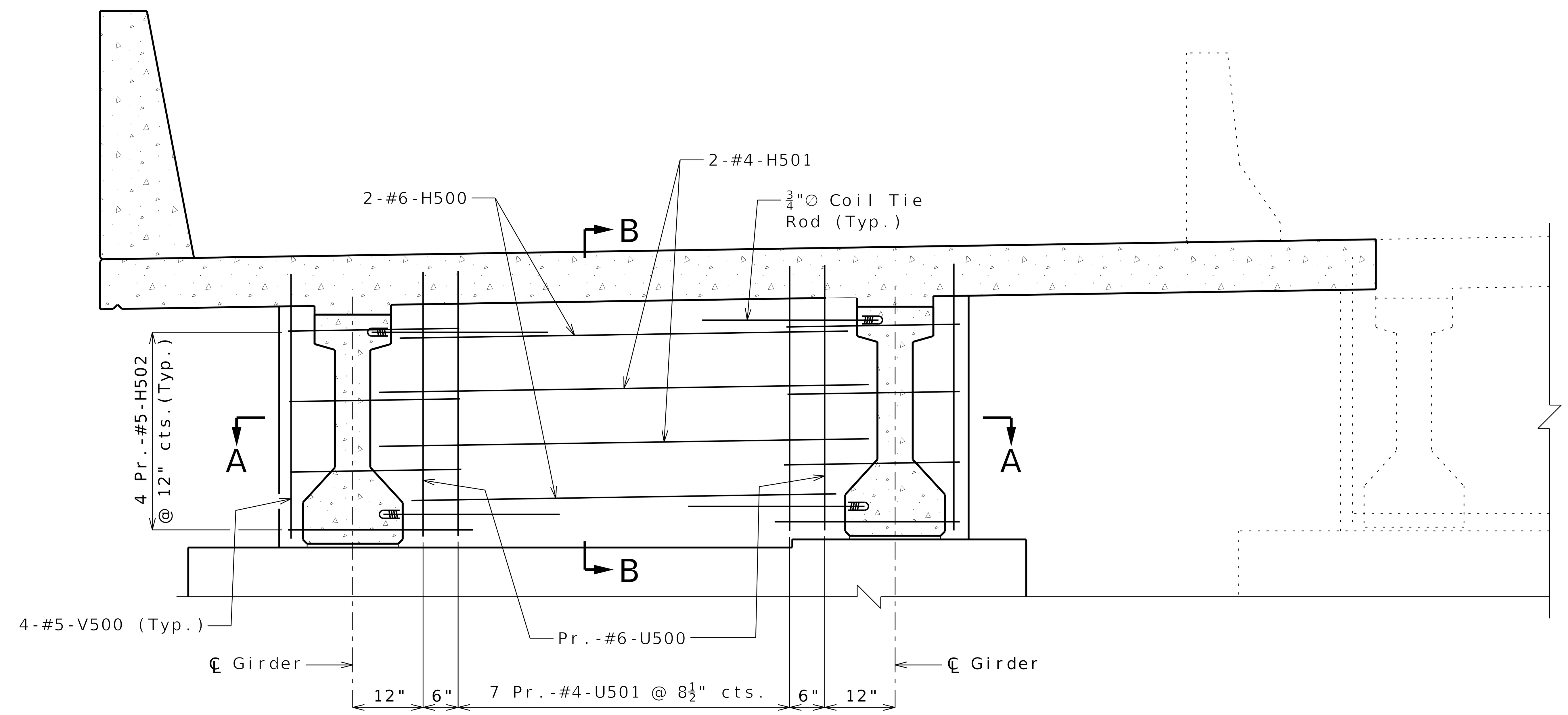
END DETAIL



SECTION B-B

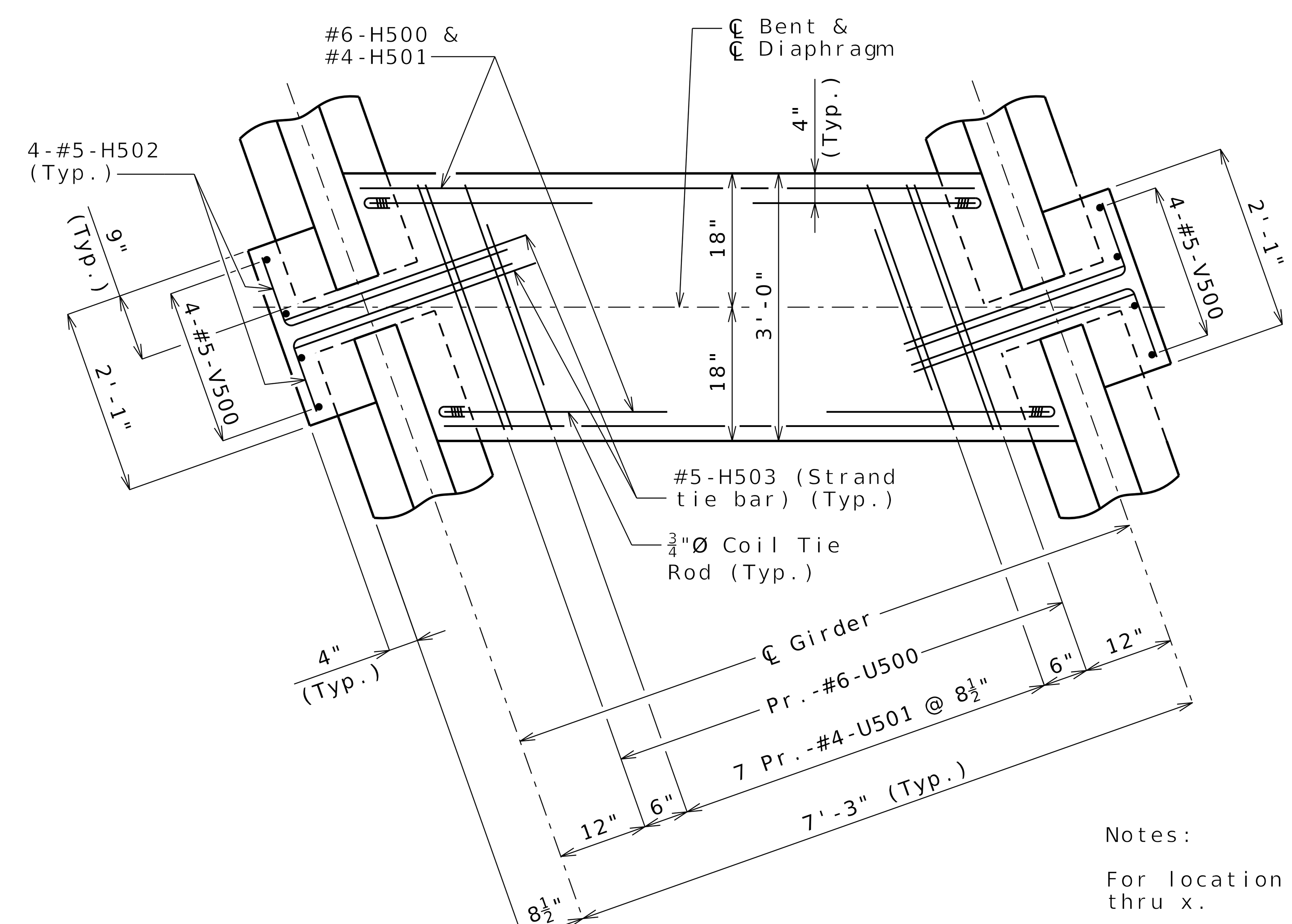


EDGE DETAIL



SECTION NEAR INTERMEDIATE BENT

Normal to ℄ Structure



SECTION A-A

Notes:

For location and number of Strand Tie Bars, see Sheets No. x thru x.

For location and details of Coil Tie Rods, see Sheets No. x thru x.

Diaphragms at intermediate bents shall be built vertical.

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

See Details of Intermediate Bents for shear key, dowel placement, and joint filler details not shown here.

CONCRETE DIAPHRAGM AT INTERMEDIATE BENTS

Detailed JUL 2025
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DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-22
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

DATE

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

IMPROVE 70 ALLIANCE

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715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

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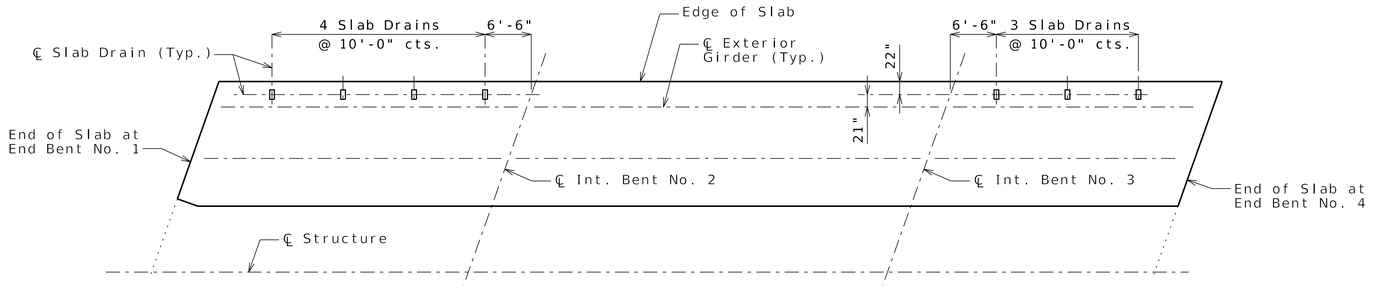
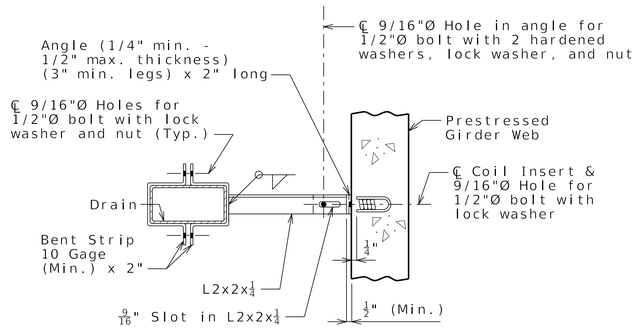
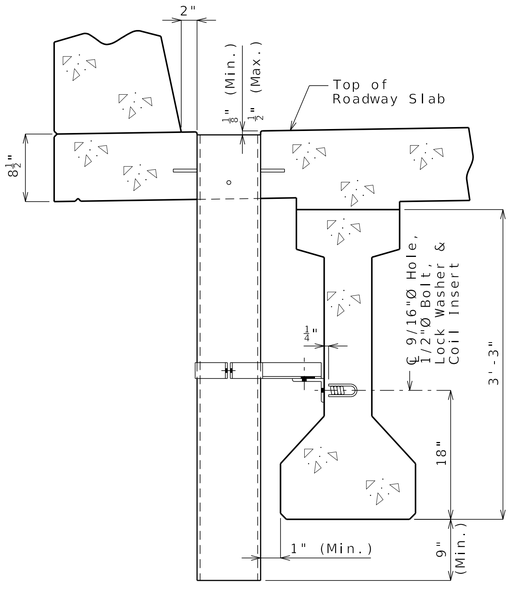


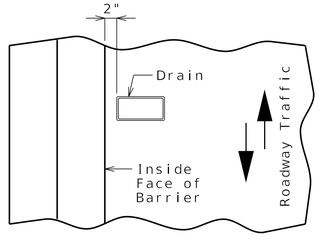
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



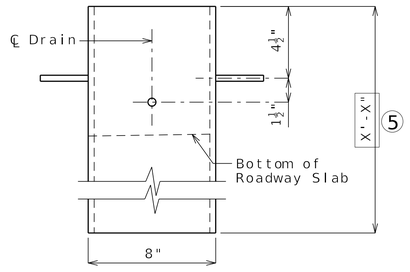
PART SECTION SHOWING BRACKET ASSEMBLY



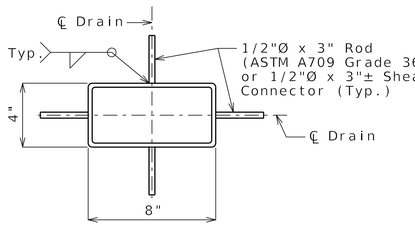
PART SECTION NEAR DRAIN



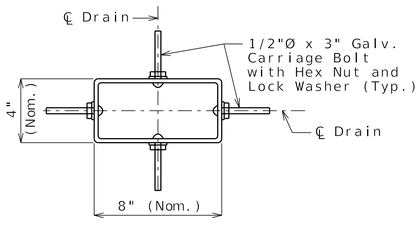
PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2"Ø bolts shall be ASTM A307.

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

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

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

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

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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

SLAB DRAINS

DATE PREPARED: 4/25/2025
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: B01-23
COUNTY: ST. CHARLES
JOB NO.: JST0020
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A43232

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
Bartlett & West
601 MONROE ST., SUITE 201 - JEFFERSON CITY, MO 65101
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CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING
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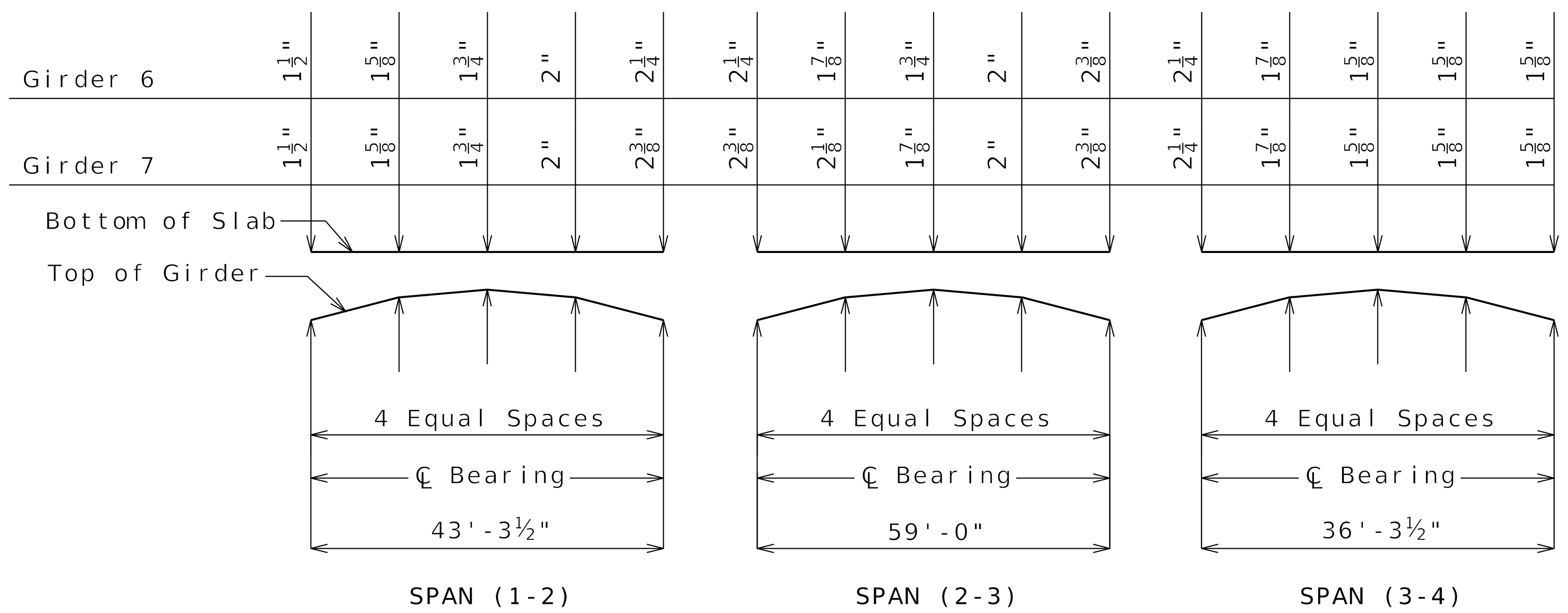
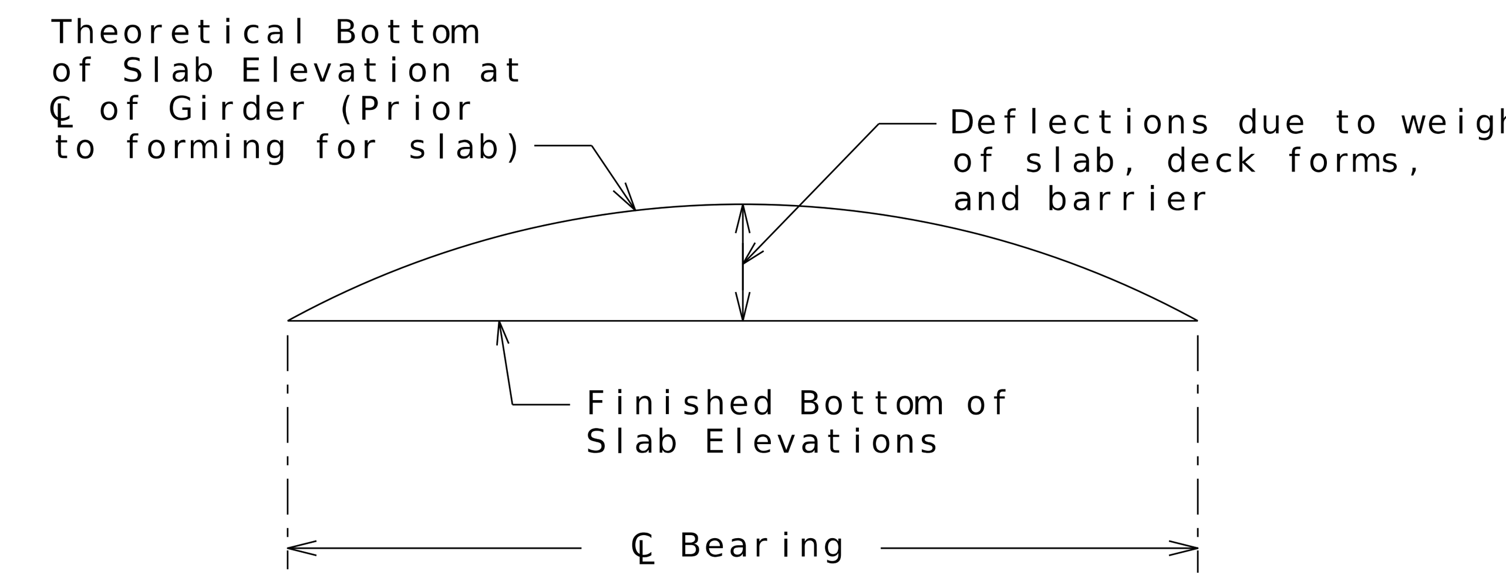
Note: This drawing is not to scale. Follow dimensions.

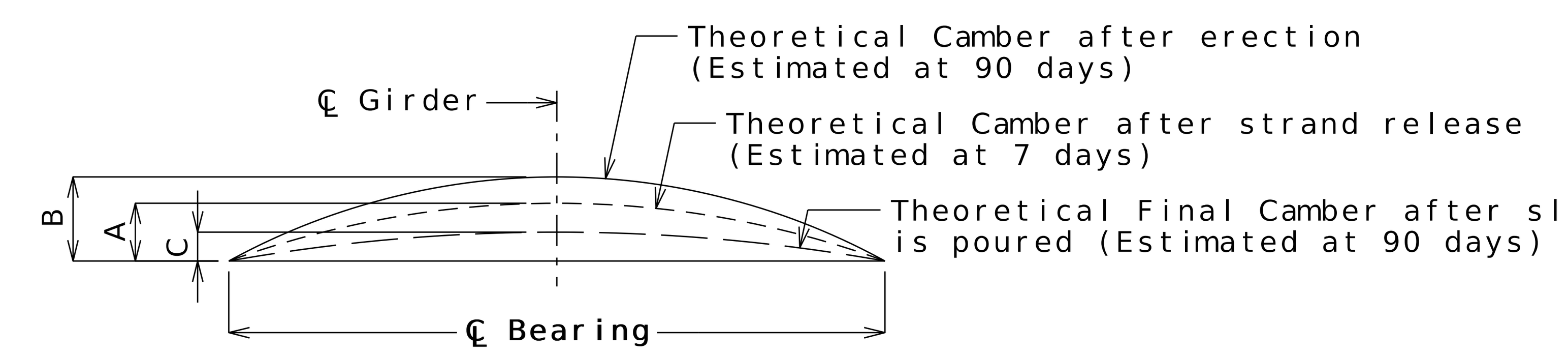


THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

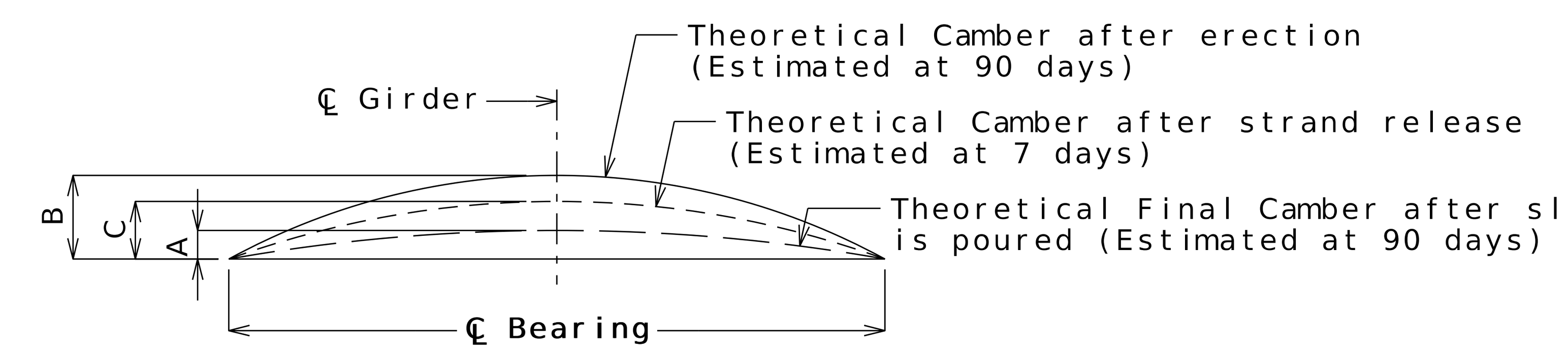
If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches shall be necessary. The haunch shall be limited to ensure the projecting girder reinforcement is embedded into the slab at least 2 inches.



TYPICAL SLAB ELEVATIONS DIAGRAM



Girder	Span (2-3)		
	A	B	C
6	1"	1 1/2"	7/8"
7	1"		



Girder	Span (1-2)			Span (2-3)			Span (3-4)		
	A	B	C	A	B	C	A	B	C
6	3/8"	1/2"	1/2"	1"	1 5/8"	7/8"	3/8"	1/2"	3/8"
7	3/8"			1"			3/8"		

GIRDER CAMBER DIAGRAM

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

0.25 pt. = 0.7125 x 0.5 pt.

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

Girder Number	Span (1-2) (43'-3½" ℄ Brg. - ℄ Brg.)					Span (2-3) (59'-0" ℄ Brg. - ℄ Brg.)					Span (3-4) (36'-3½" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	598.59	598.60	598.61	598.59	598.56	598.56	598.59	598.57	598.51	598.40	598.39	598.36	598.32	598.27	598.21
2	598.70	598.72	598.72	598.71	598.68	598.68	598.71	598.69	598.63	598.52	598.51	598.48	598.44	598.40	598.34

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 precast panel) and barrier.

DATE PREPARED 4/25/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B01-24
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43232
DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
IMPROVE 70 ALLIANCE
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KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
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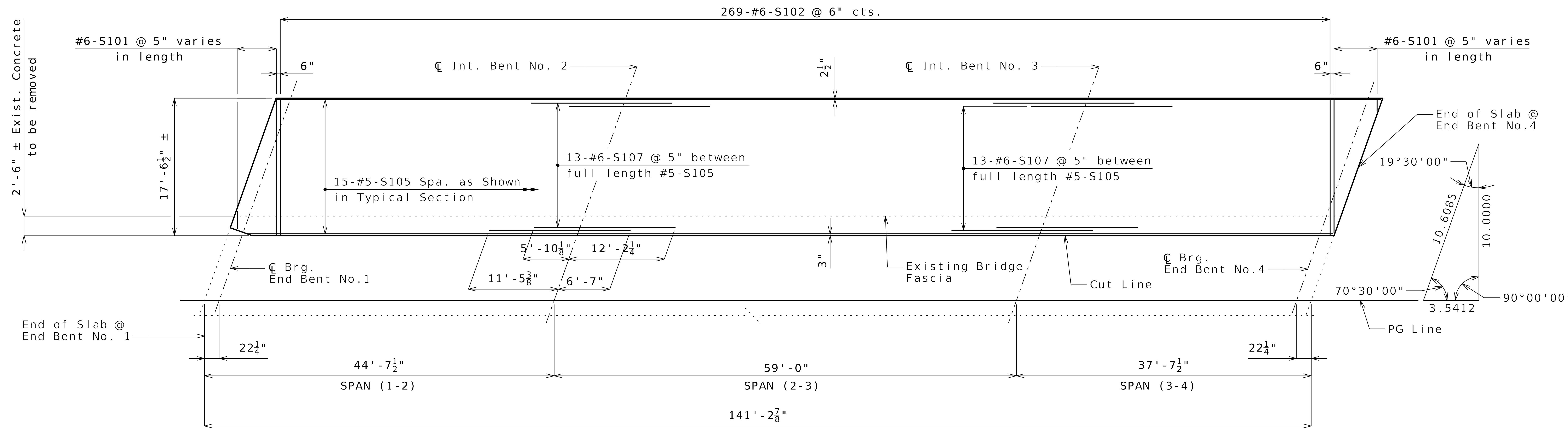
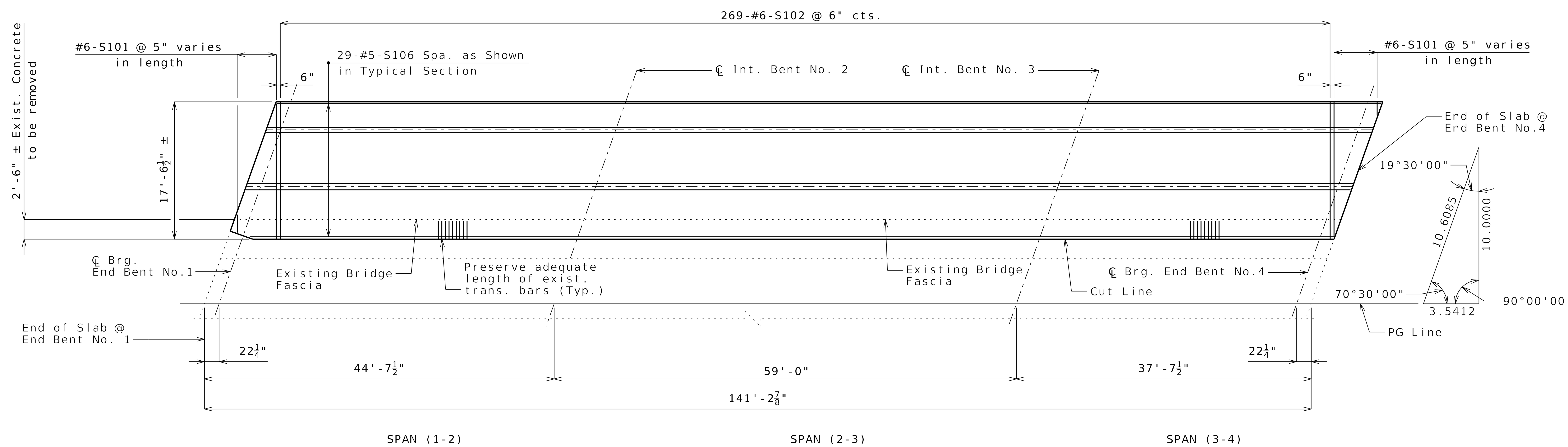
THEORETICAL SLAB HAUNCHING DIAGRAM, BOTTOM OF SLAB ELEVATIONS, AND GIRDER CAMBER DIAGRAM

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



TOP REINFORCING PLAN

Longitudinal dimensions are horizontal.



PLAN SHOWING LOCATION OF SLAB SHOWING BOTTOM REINFORCEMENT

Longitudinal dimensions are horizontal.

Notes:

Longitudinal slab dimensions are measured horizontally.

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

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

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

For Details of Precast Prestressed Panels, see Sheet No. XX.

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

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

Detailed
Checked

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

PLAN OF SLAB SHOWING REINFORCEMENT

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-25
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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NO. 001270

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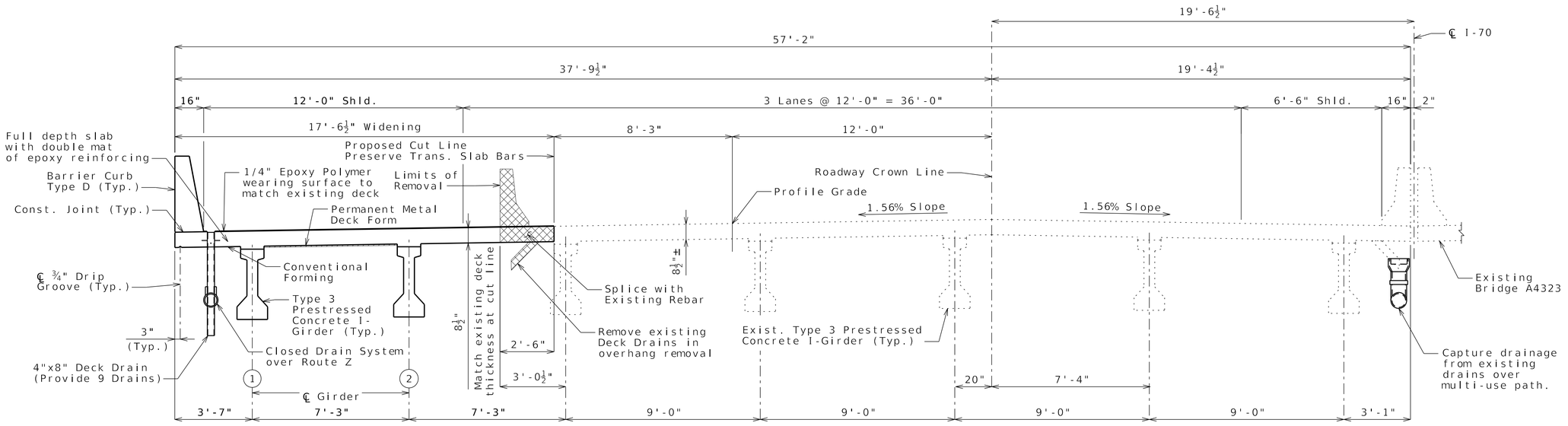
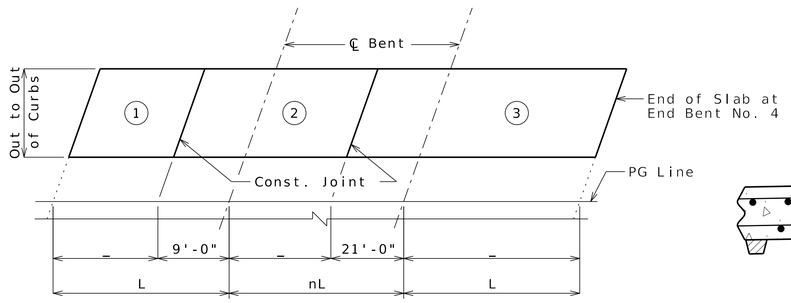


TYPICAL SECTION THRU SLAB
SECTION NEAR INTERMEDIATE BENT



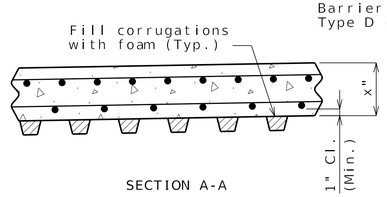
	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1 End to 2	2 1 to 3	3 2 to End	25
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1 + 2 End to 5	3 2 to End		
Alternate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

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.

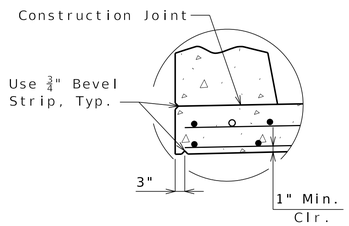
The concrete diaphragm at the Intermediate bents and Integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

Install new diaphragm between proposed girders within Span (2-3). No permanent diaphragm will be installed between proposed and existing girders. Contractor to ensure stability of proposed girders during deck pour.

SLAB POURING SEQUENCE

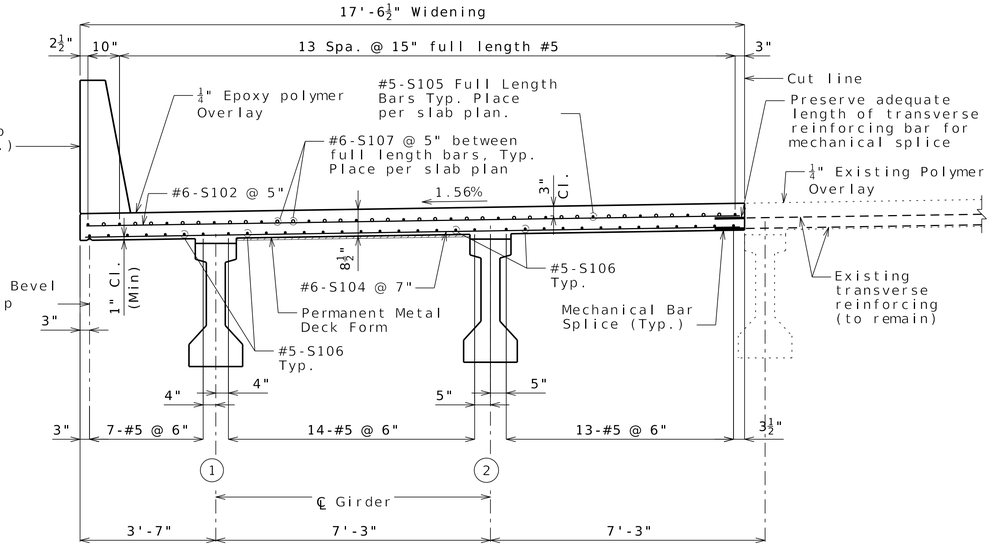


SECTION A-A



DETAIL "A"

Notes: Contractor may shift bars as necessary to tie in barrier bars.



TYPICAL SECTION THRU SLAB
SECTION NEAR INTERMEDIATE BENT

Notes:

Safety Barrier Curb reinforcement not shown for clarity.

All slab reinforcement shall be epoxy coated.

Adequate length of existing transverse reinforcement shall be retained for mechanical bar splices. All concrete and pack rust to be removed prior to splicing to new reinforcement.

For Steel Bridge Form notes, see General Notes.

SLAB DETAILS

DATE PREPARED 4/25/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B01-26
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43232

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
HNTB 715 KIRK DRIVE KANSAS CITY, MO 64105-1310 CERTIFICATE OF AUTHORITY NO. 001270
Bartlett & West 601 MONROE ST., SUITE 201 - JEFFERSON CITY, MO 65101 CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING

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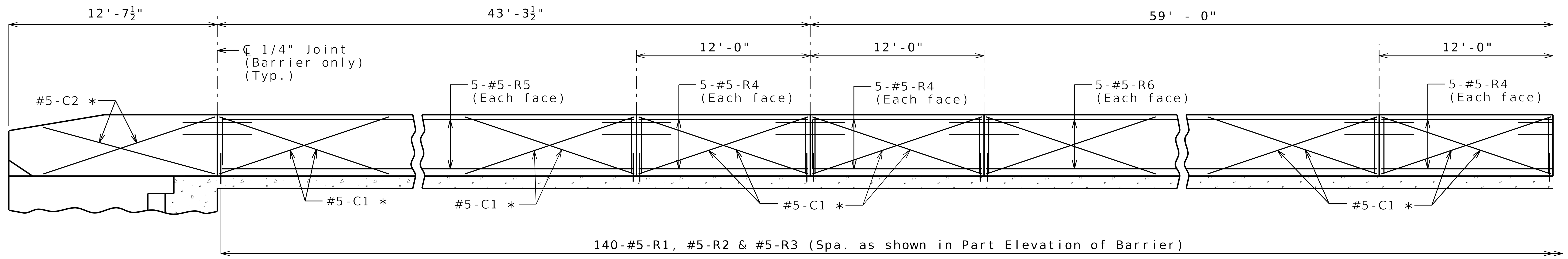
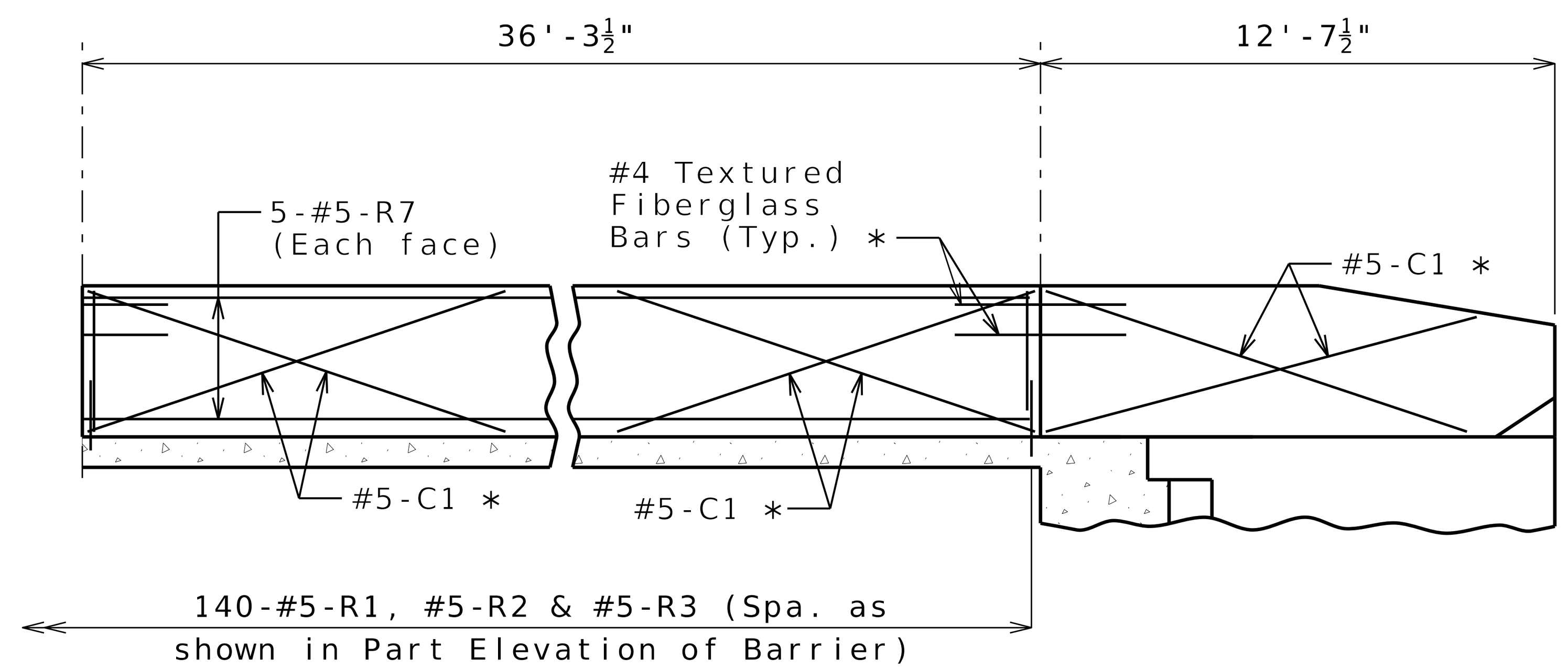
Note: This drawing is not to scale. Follow dimensions.

B_A43232_026_JST0020_SLABDET.dgn 9:18:37 AM 4/25/2025



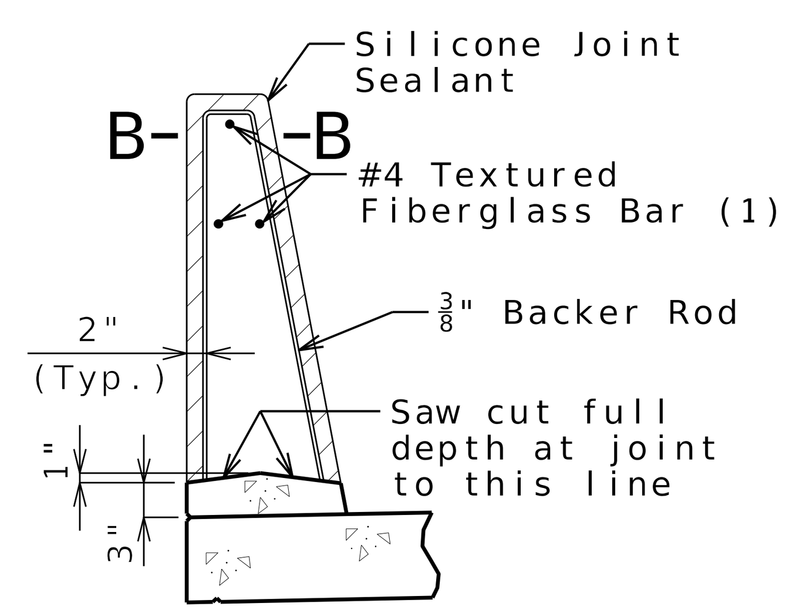
(Span 1-2) (Span 2-3)

ELEVATION OF BARRIER
Longitudinal dimensions are horizontal.

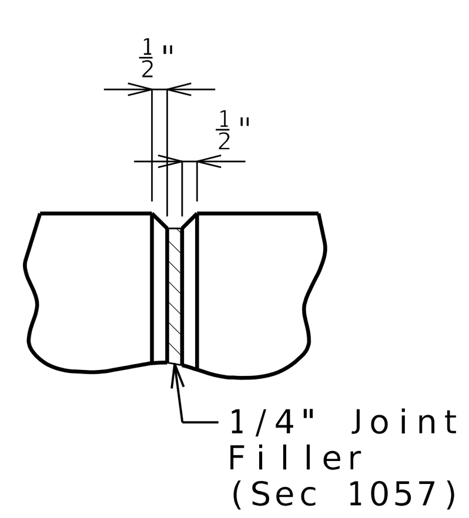


(Span 3-4)

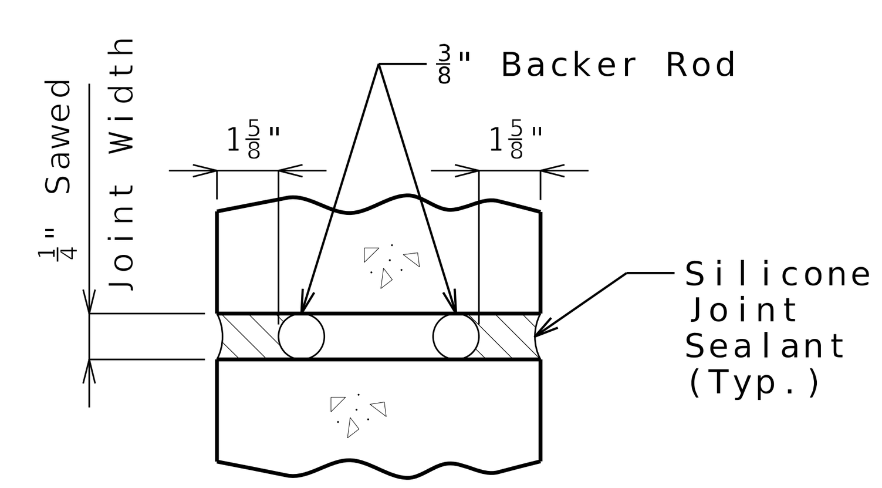
ELEVATION OF BARRIER
Longitudinal dimensions are horizontal.



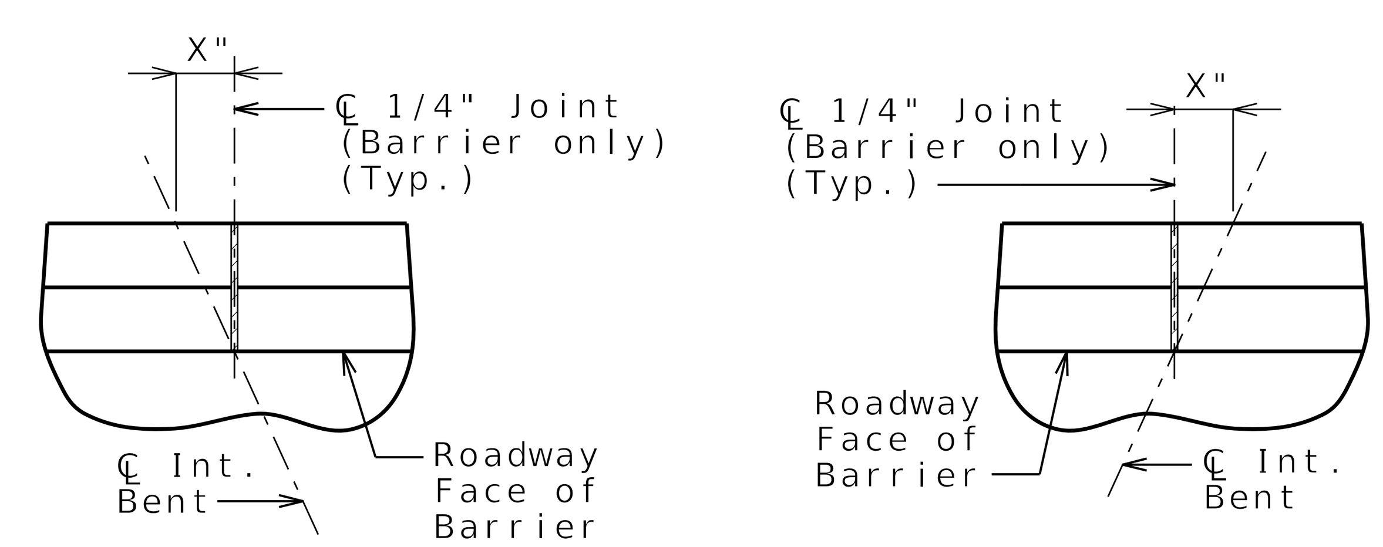
SECTION THRU SAW CUT JOINT



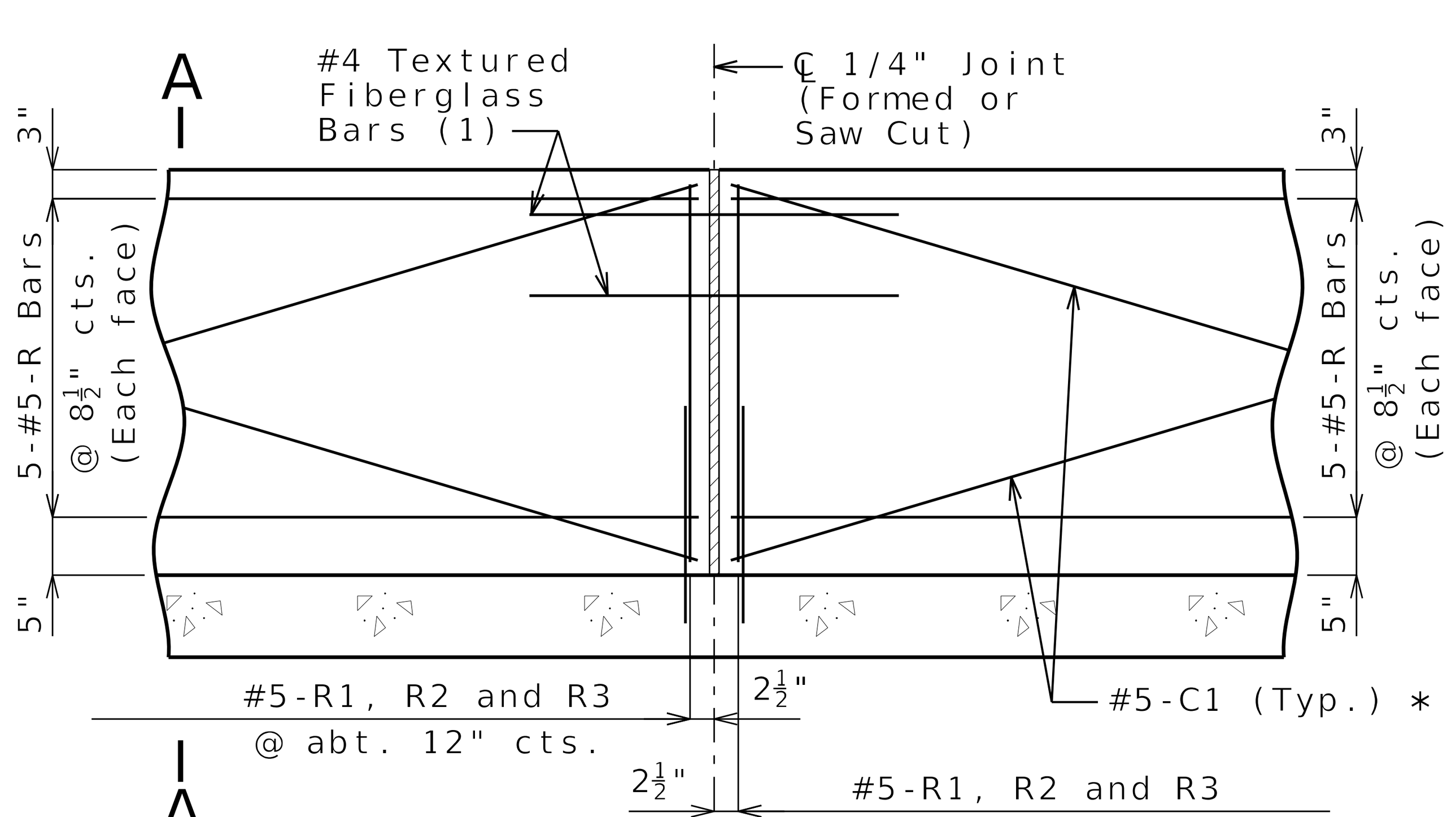
PART ELEVATION AT FORMED JOINT



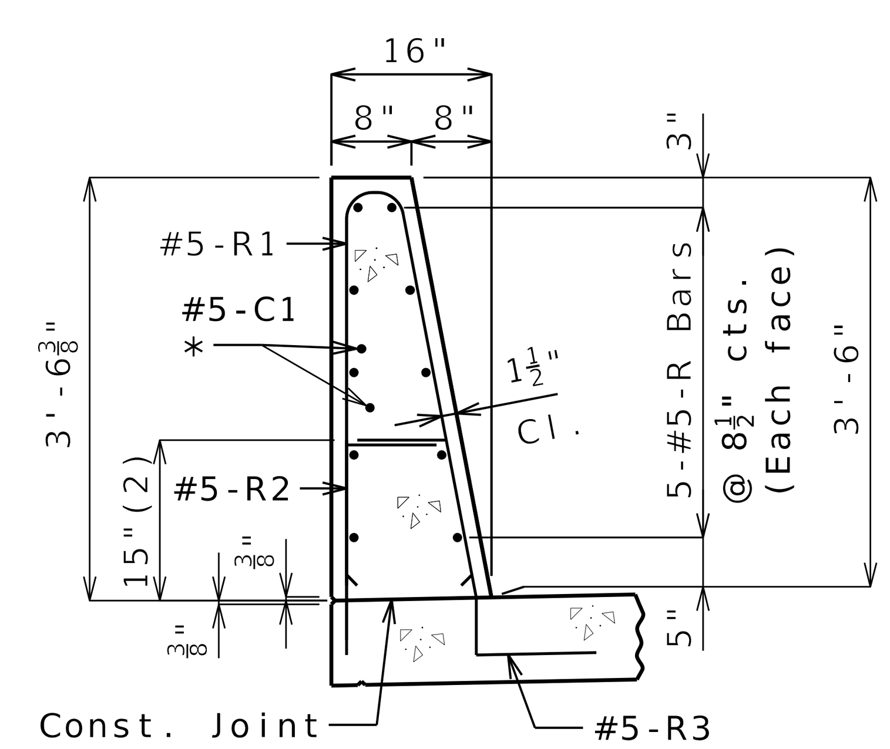
SECTION B-B



PART PLAN SHOWING JOINT LOCATION
(For skewed structures only)



PART ELEVATION OF BARRIER
(1) Four feet long, centered on joint, slip-formed option only

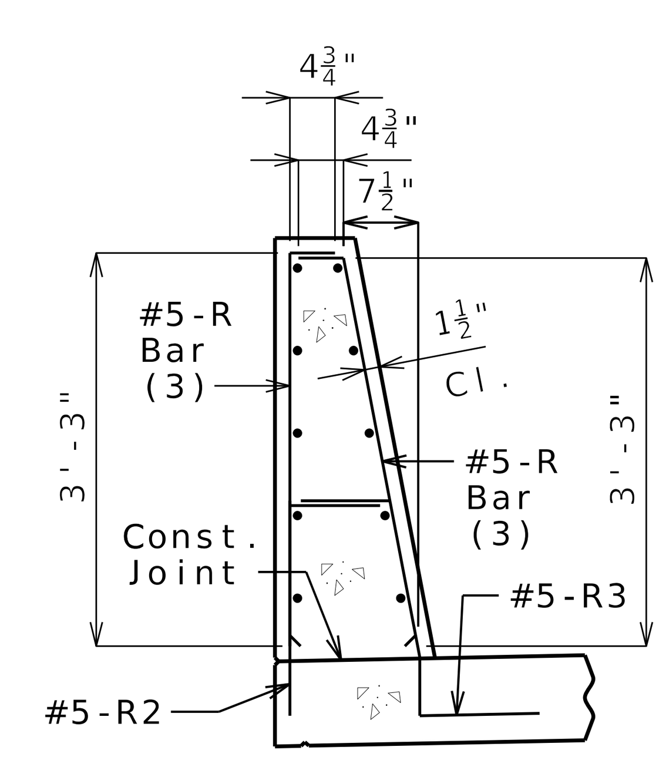


SECTION A-A

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

The cross-sectional area above the slab is 3.52 square feet.

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

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

General Notes:

∗ Slip-formed option only.

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

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

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

Concrete in barrier shall be Class B-1.

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

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

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

Plastic waterstop shall not be used with saw cut joints.

Detailed
Checked

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

TYPE D BARRIER

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-28
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

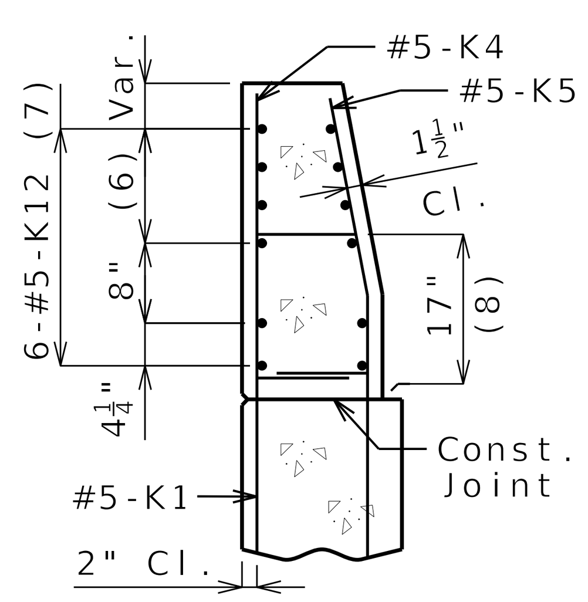
DESCRIPTION
DATE

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

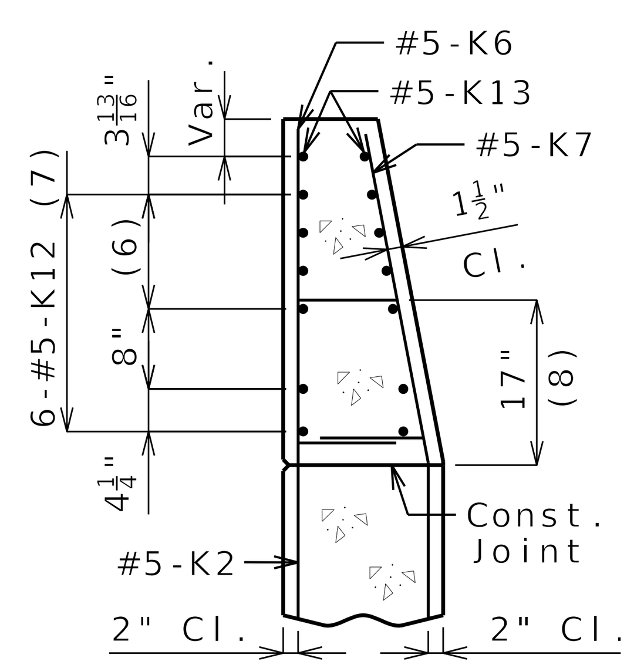
IMPROVE 70 ALLIANCE

HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

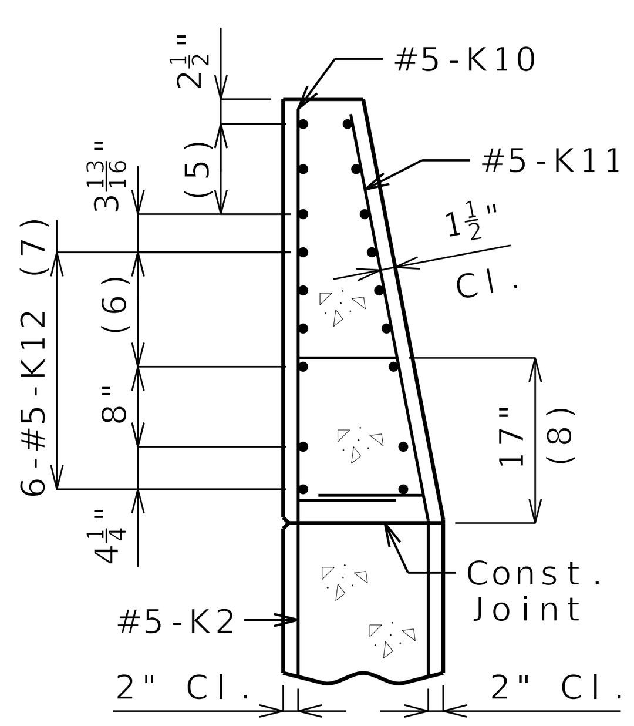
Bartlett & West



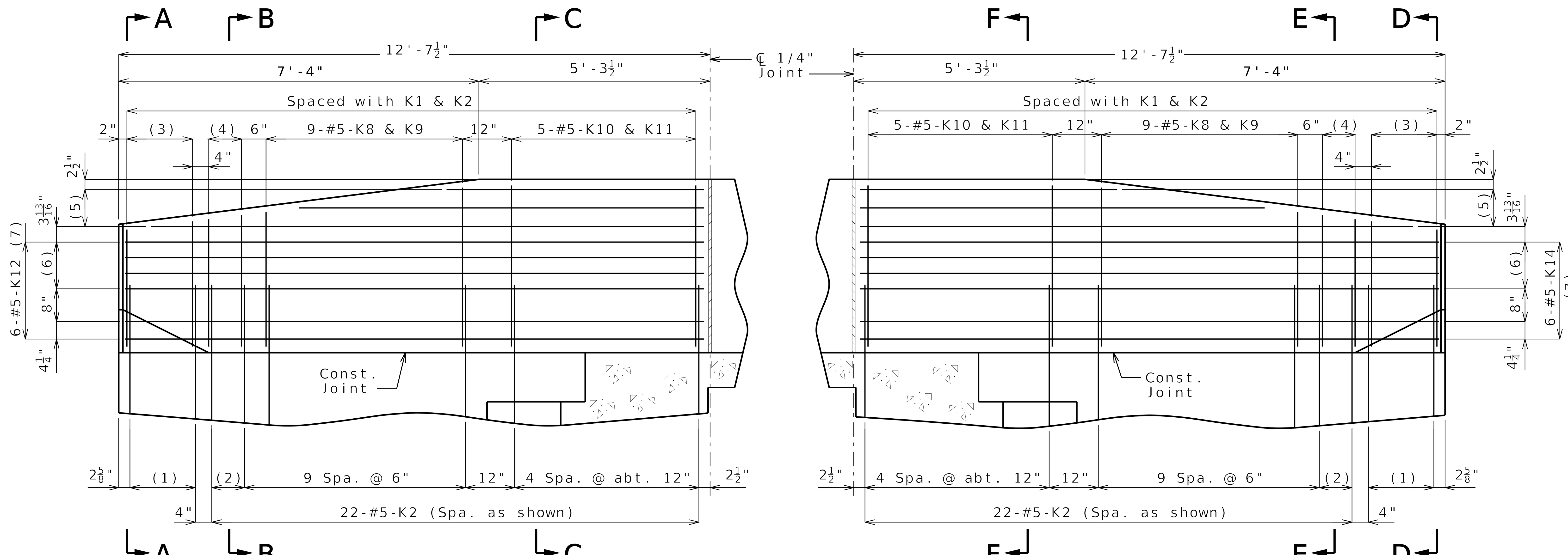
SECTION A-A



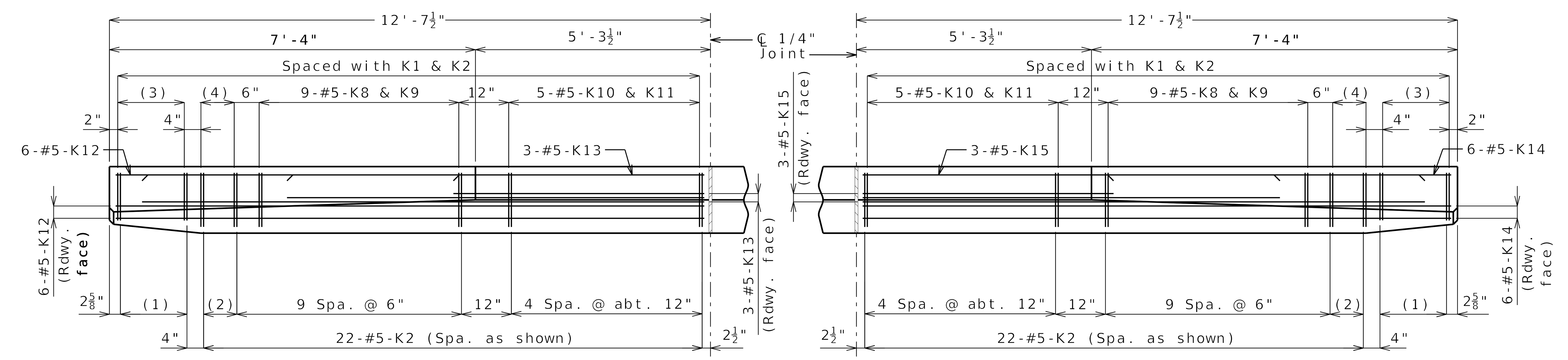
SECTION B-B



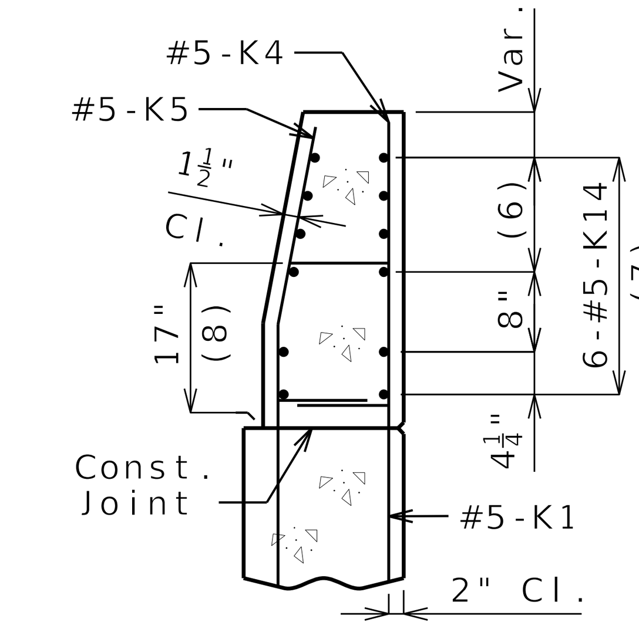
SECTION C-C



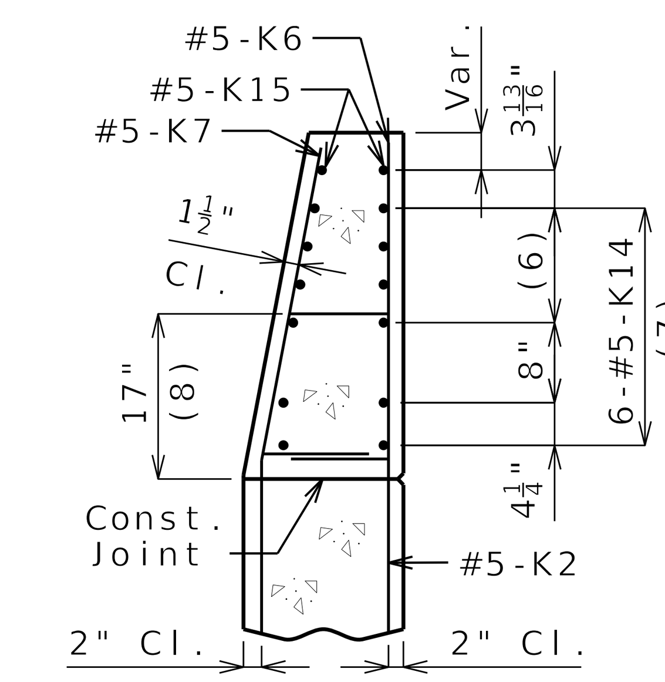
PART ELEVATION



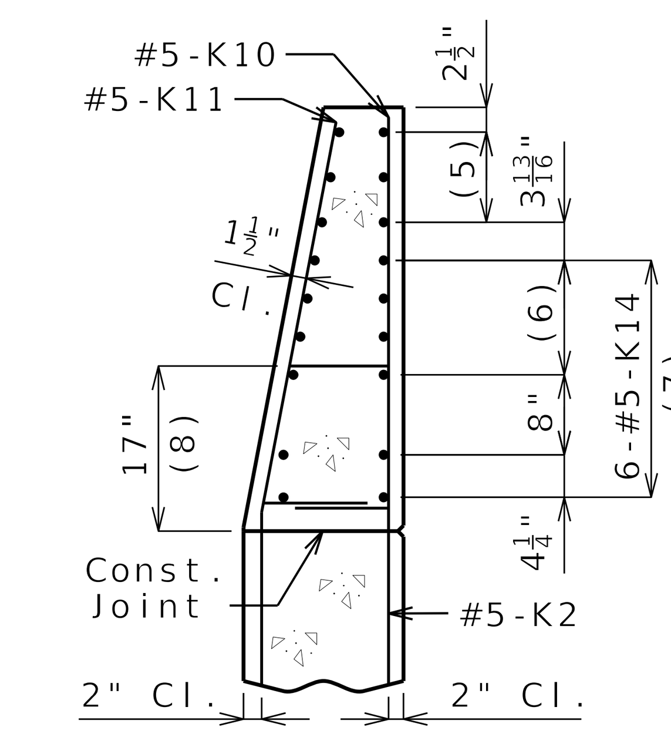
PART PLAN



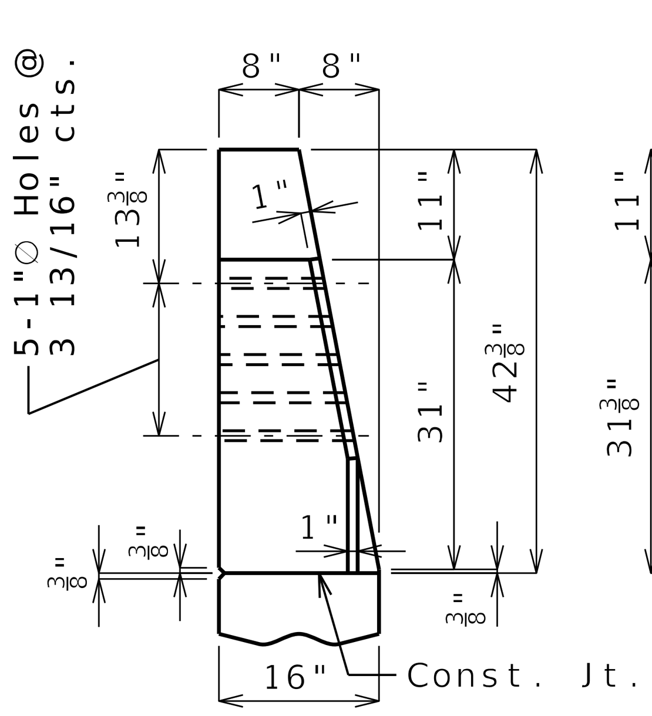
SECTION D-D



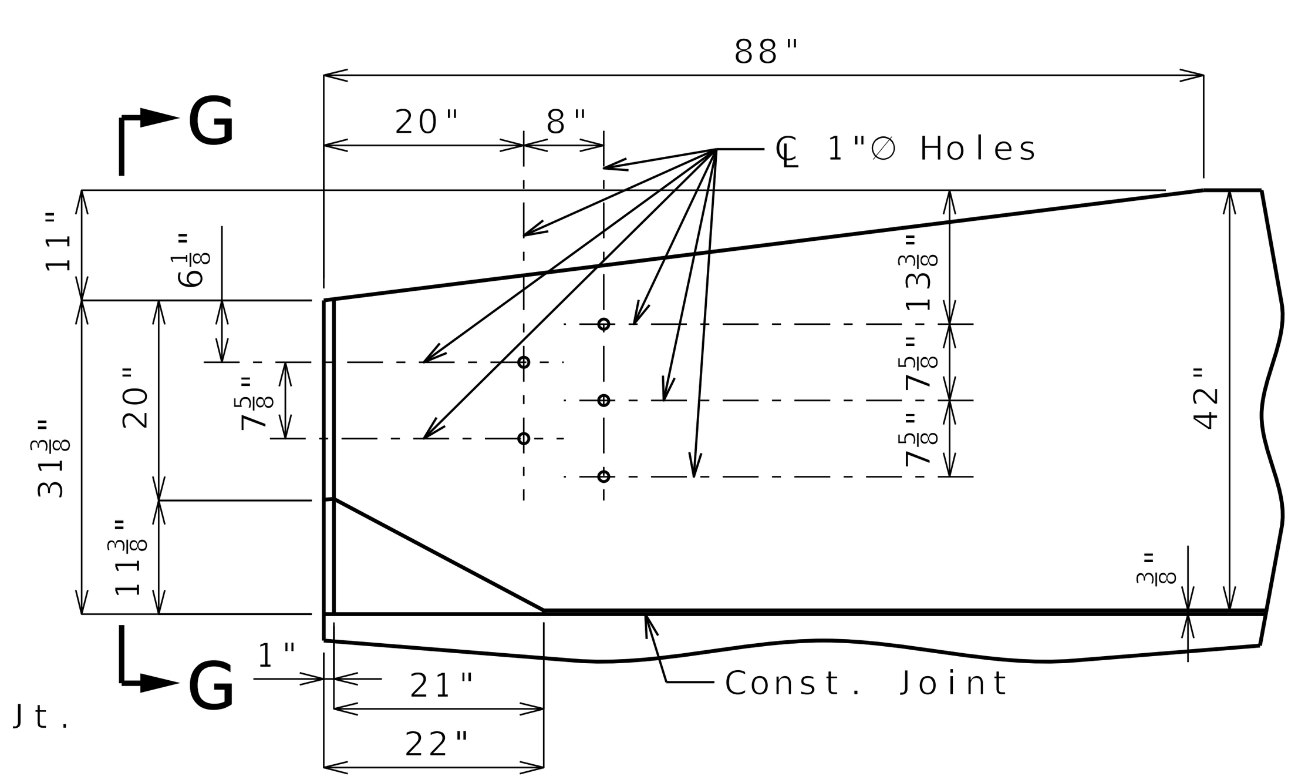
SECTION E-E



SECTION F-F

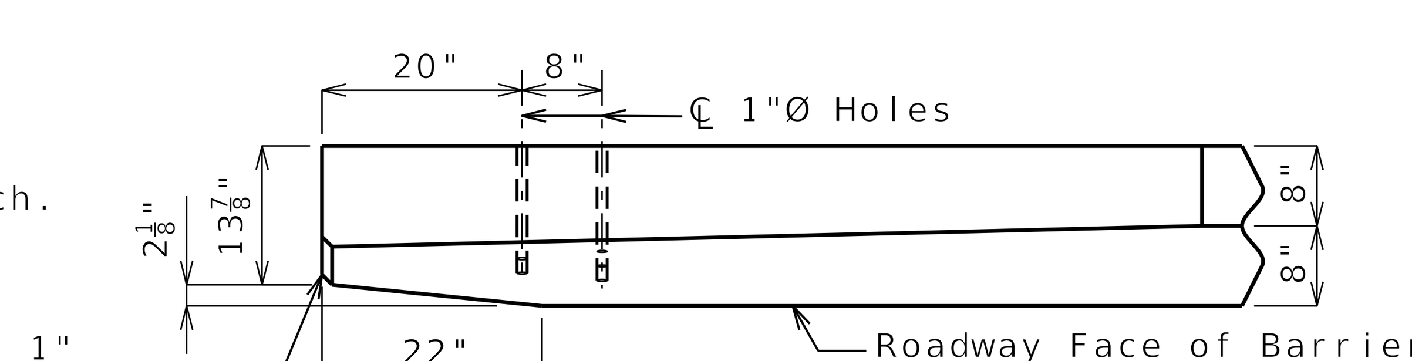


ELEVATION G-G



ELEVATION

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



PLAN

DETAILS OF GUARD RAIL ATTACHMENT

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

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

(4) 3-#5-K6 & K7

(5) 3-#5-K13 or K15 @ 4½" cts., each face

(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

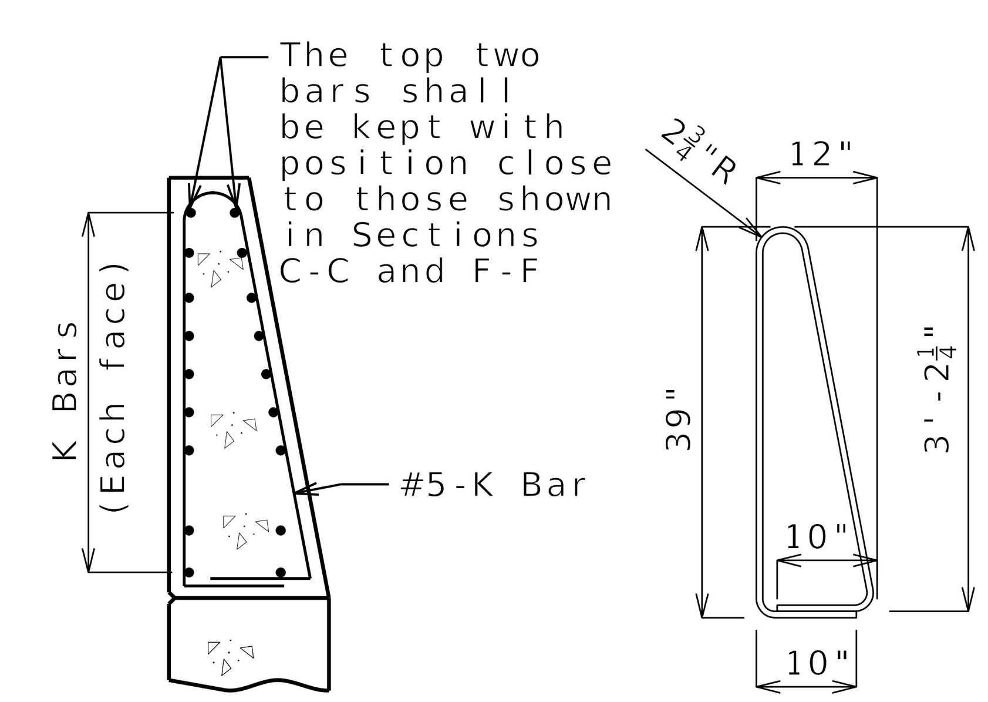
(8) To top of bar

General Notes:

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

Reinforcing Steel:

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



K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(Other K bars not shown for clarity)

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

All dimensions are out to out.

(Left barrier shown, right barrier similar)

BARRIER DETAILS AT END BENTS

Detailed
Checked

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

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CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

DATE

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

IMPROVE 70 ALLIANCE

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715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
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NO. 001270

Bartlett & West
601 MONROE ST. SUITE 201 JEFFERSON CITY, MO 65101
PHONE 573-634-3181
CERTIFICATE OF AUTHORITY NO. 000173 - ENGINEERING
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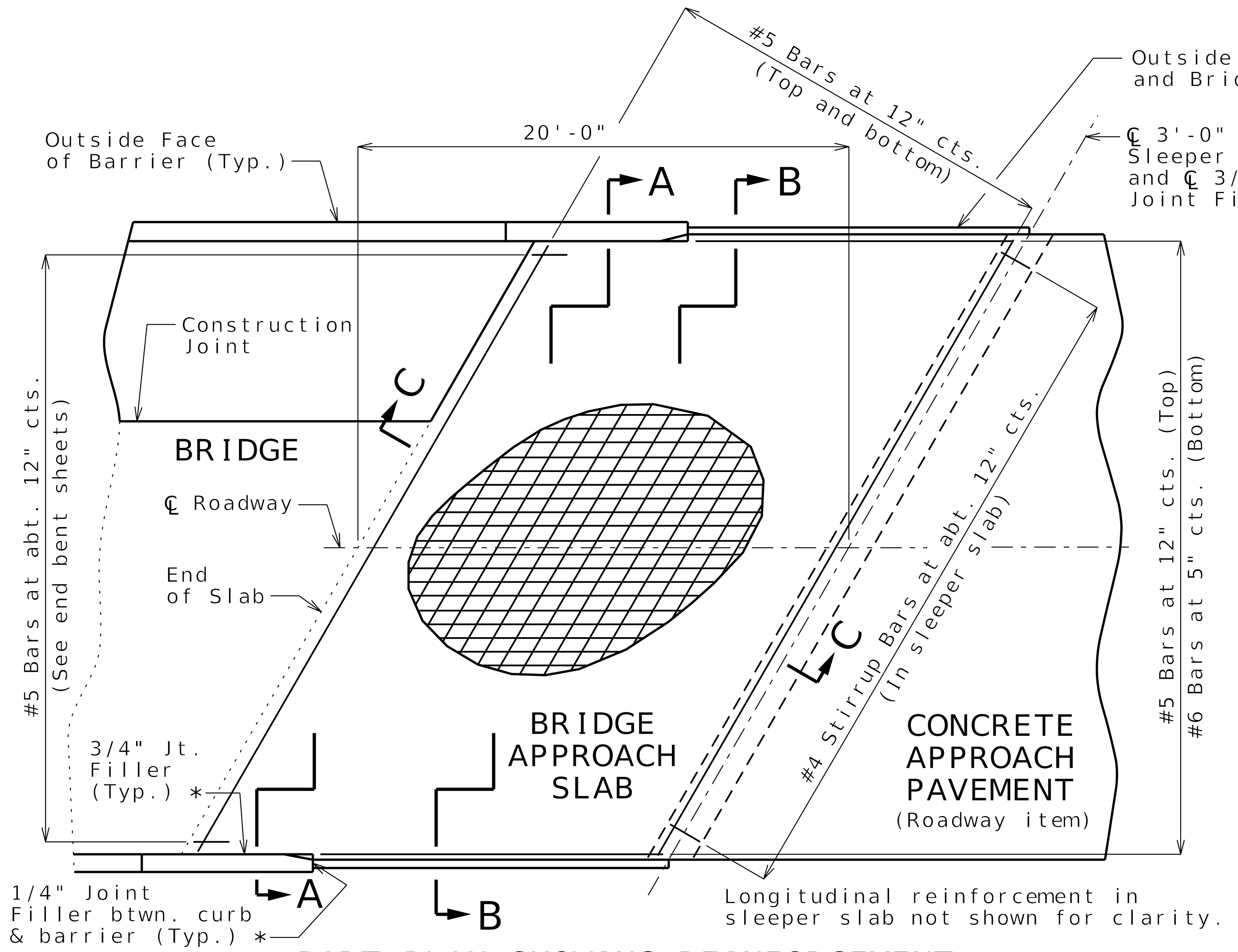
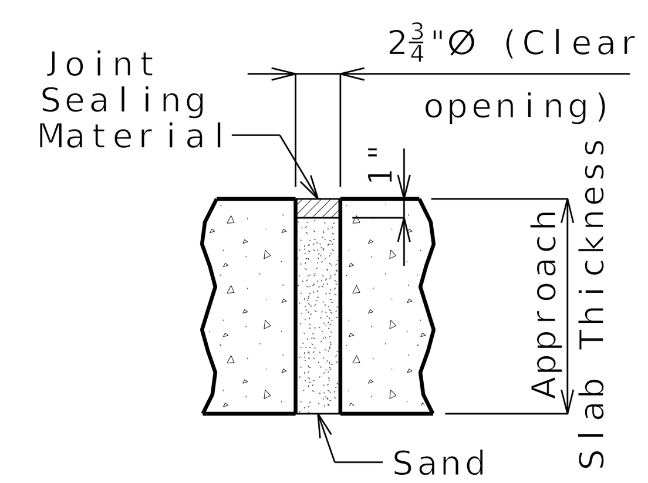
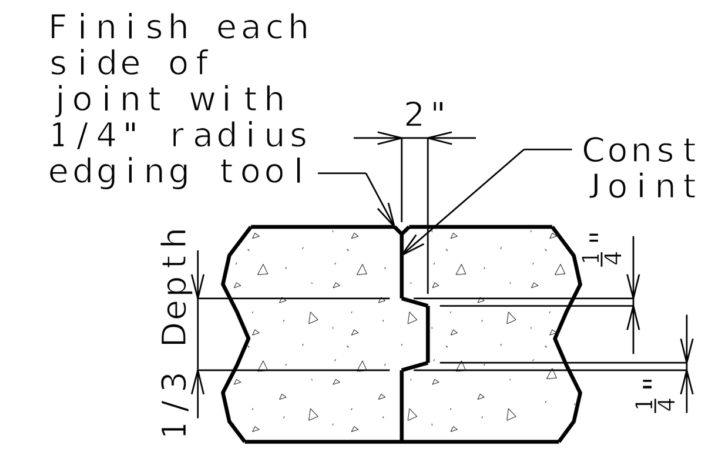


PART PLAN SHOWING REINFORCEMENT

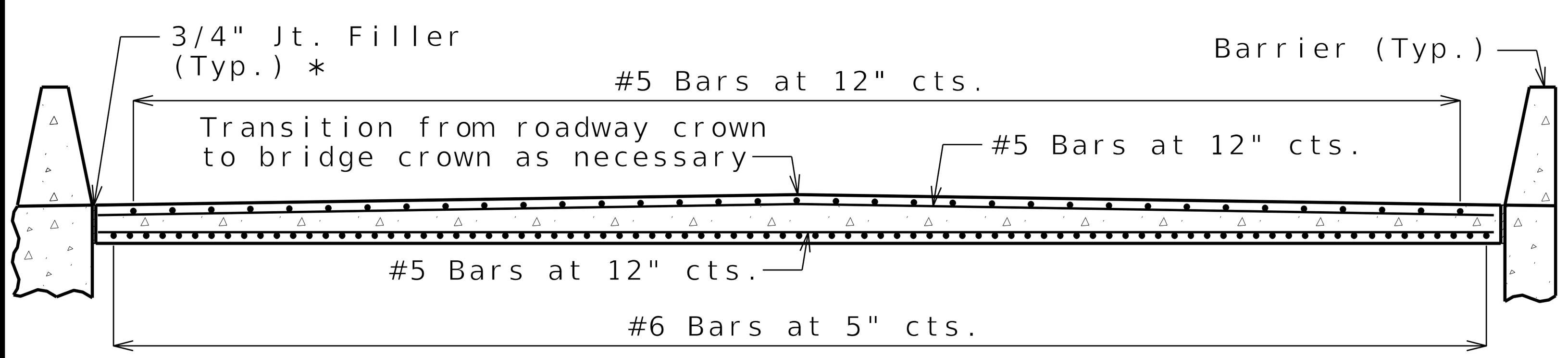


UNDERSEAL ACCESS HOLE DETAIL

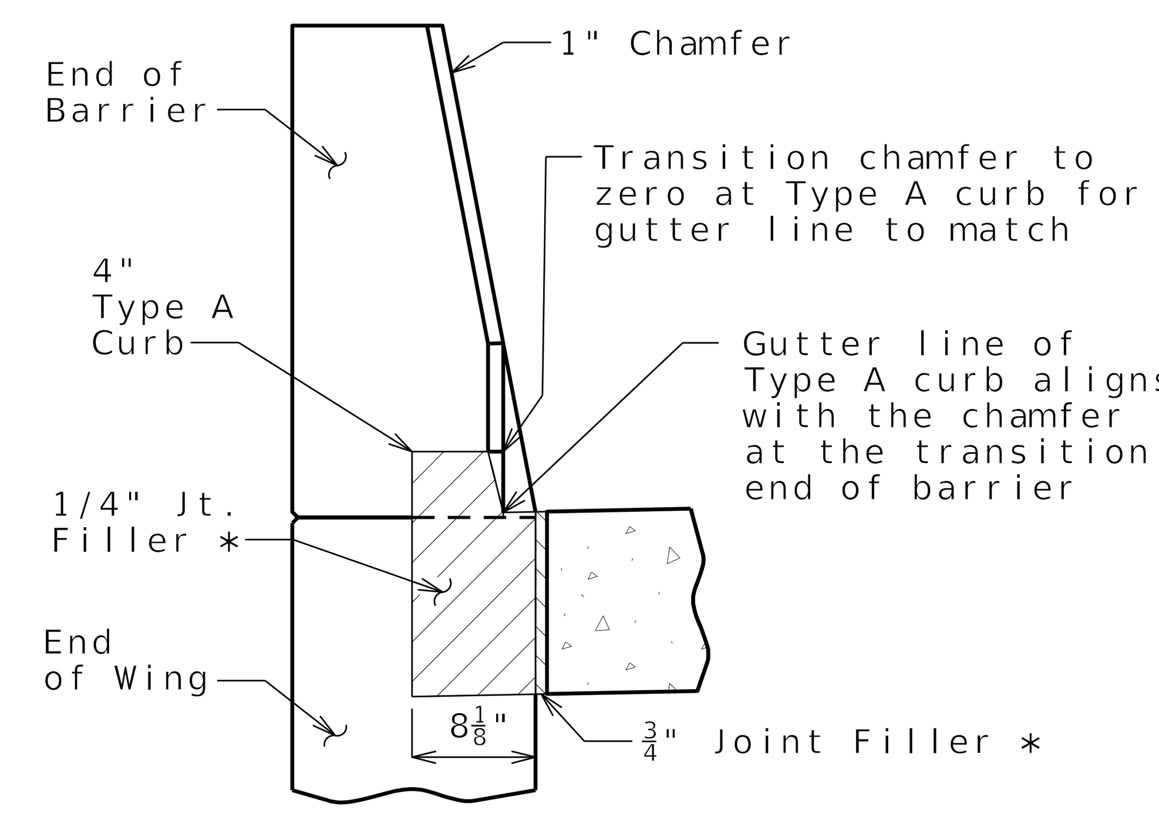
(If required)



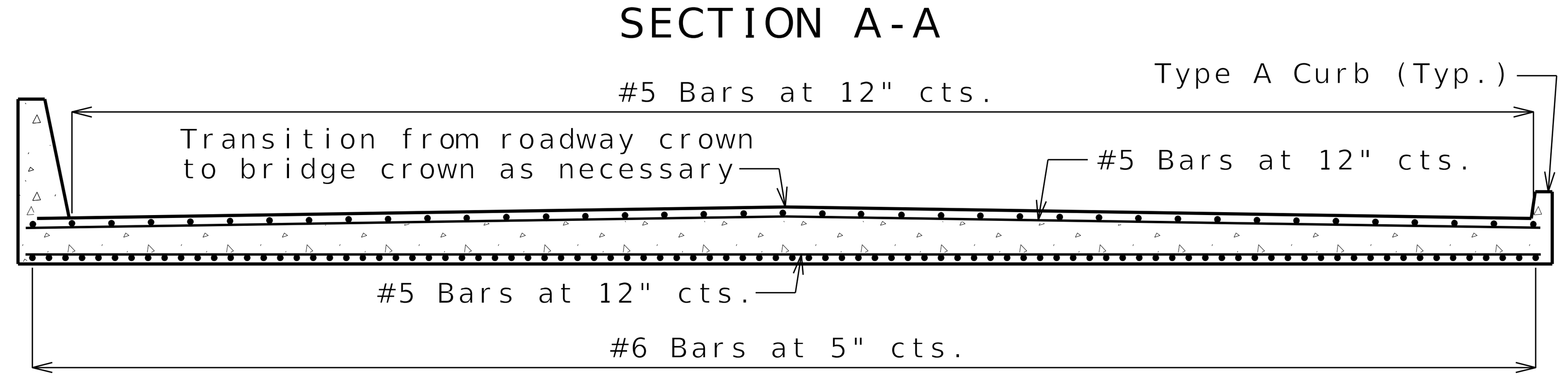
CONSTRUCTION JOINT DETAIL



SECTION A-A

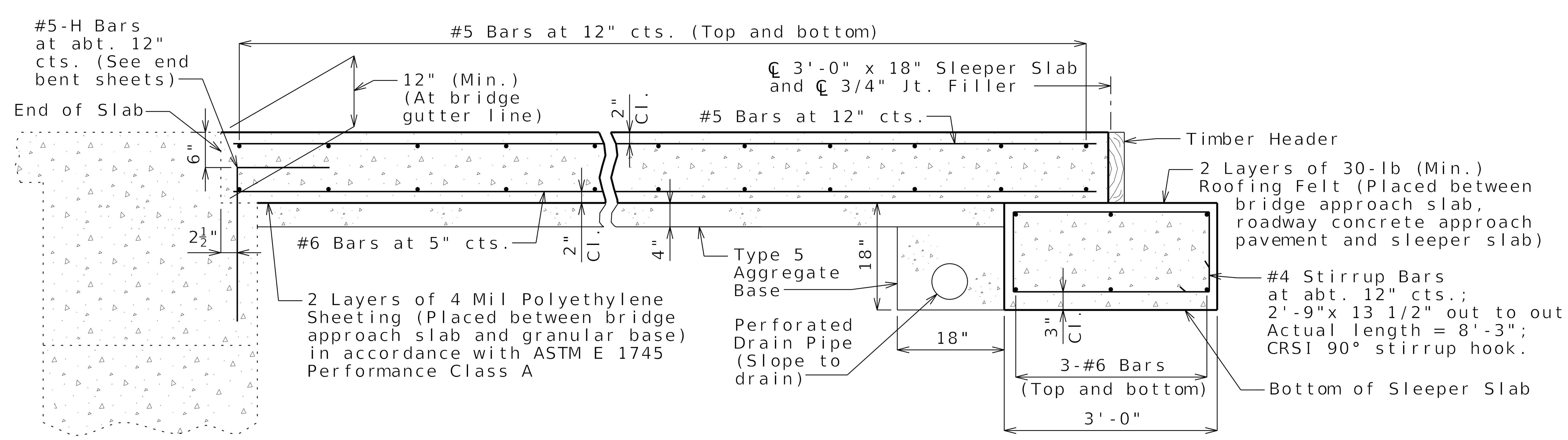


SECTION BETWEEN CURB AND BARRIER

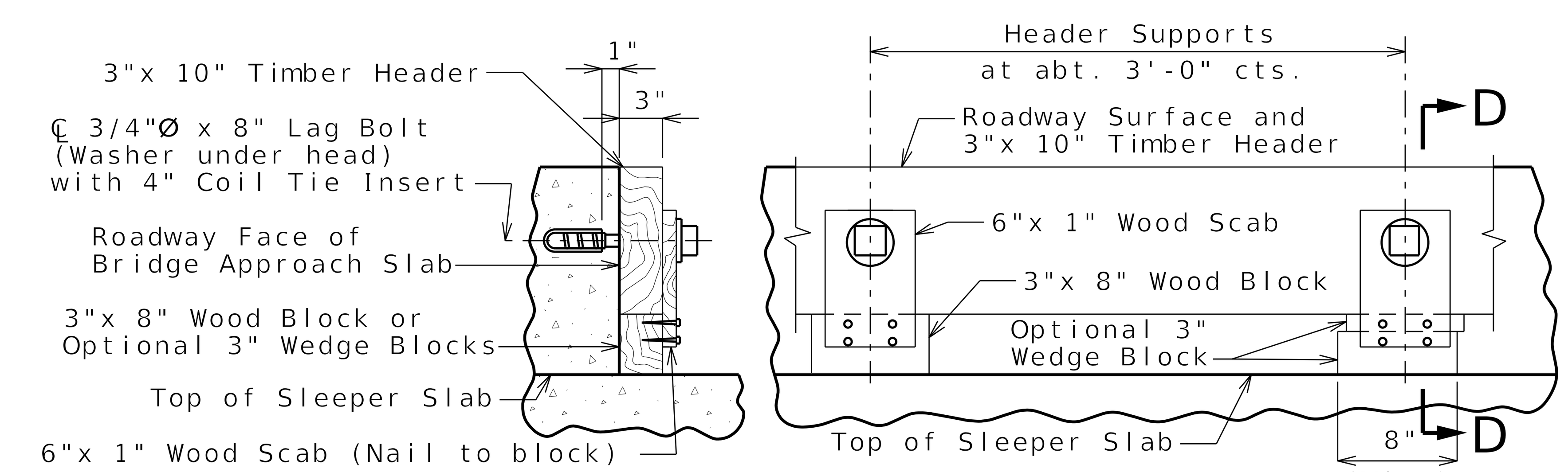


SECTION B-B

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 C-C



DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

General Notes:

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

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

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.

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

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 29 inches for #5 bars and 44 inches for #6 bars, or by mechanical bar splice.

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

For concrete approach pavement details, see roadway plans.

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

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

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-30
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43232

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

IMPROVE 70 ALLIANCE

HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

Bartlett & West
601 MONROE ST, SUITE 301 • JEFFERSON CITY, MO 65101
PHONE 573-634-3181
CERTIFICATE OF AUTHORITY NO. 000167 – ENGINEERING
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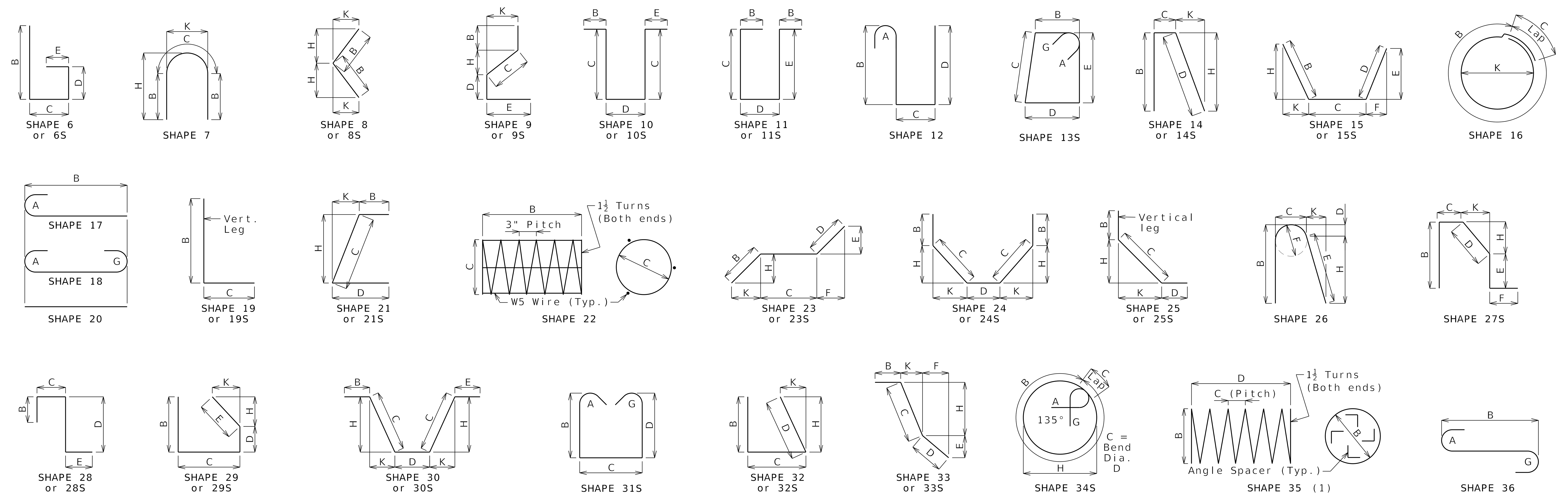
BRIDGE APPROACH SLAB (MAJOR)

Detailed
Checked

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



Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

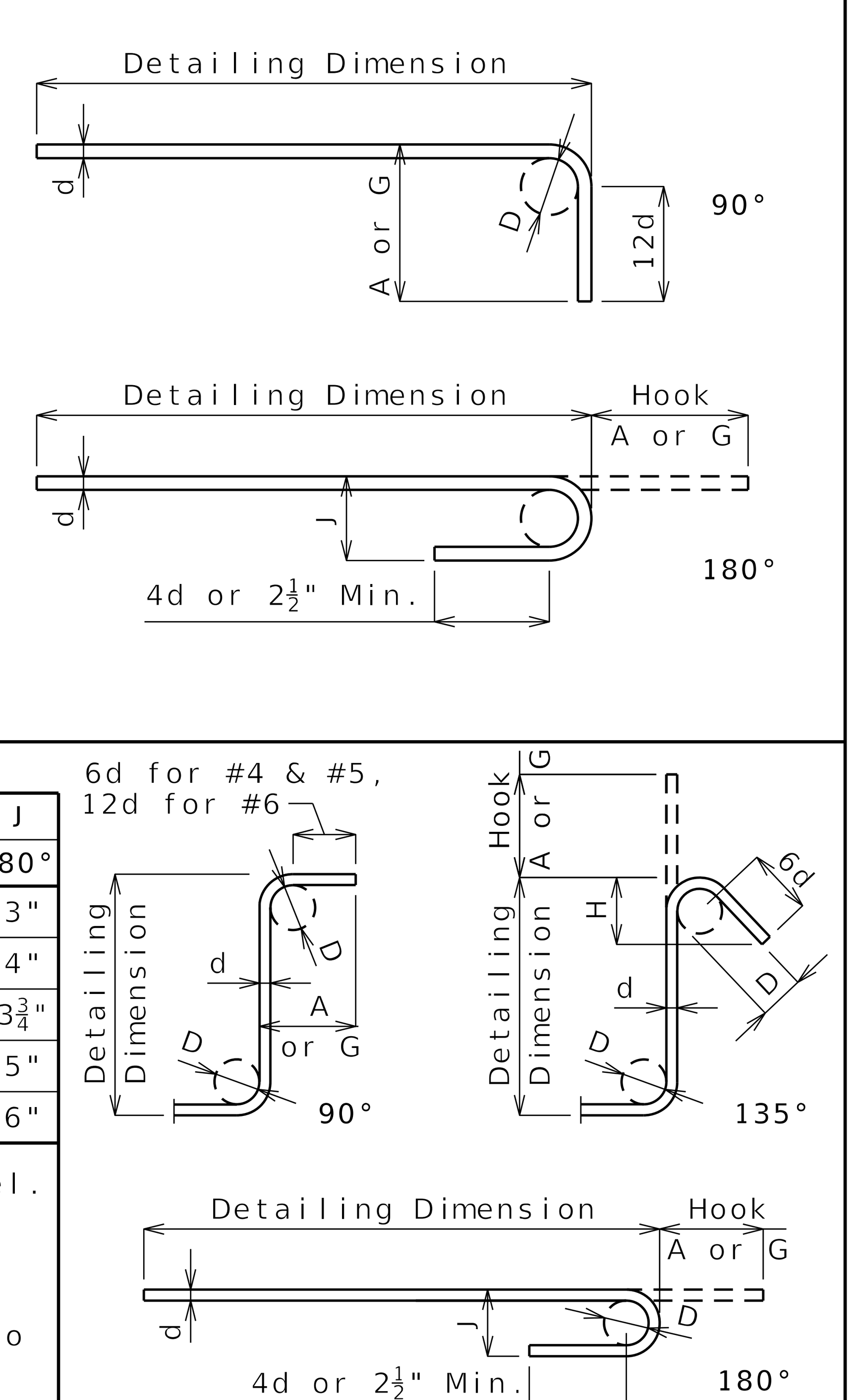
Size	Case	D	A or G 90°	A or G 180°	J 180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¼"	28½"

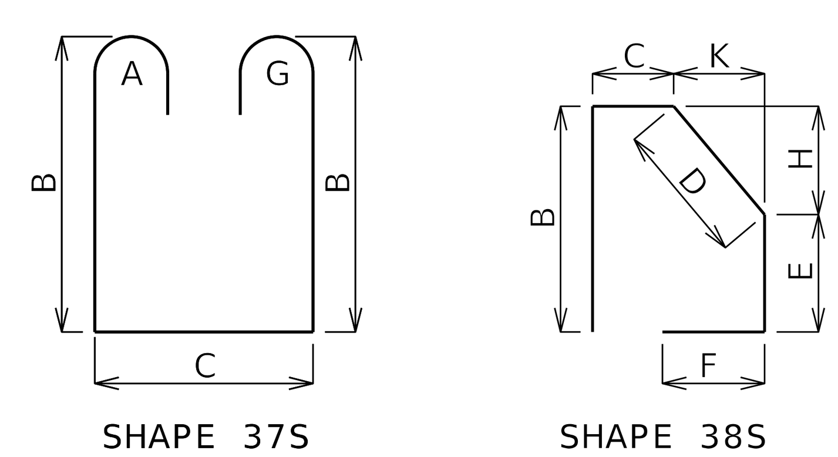
Stirrup Pin Bend Shapes (S)

Size	Case	D	A or G 90°	A or G 135°	A or G 180°	H 135°	J 180°
#4	2	2"	4½"	4½"	5"	2⅞"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5¾"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

Applicable for all grades of steel.

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





BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)

	Size	Substructure Plain	Substructure Epoxy	Superstructure Slab Plain	Superstructure Slab Epoxy	Superstructure Barrier	Superstructure Slip Form	Entire Bridge Plain	Entire Bridge Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0
	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		0	0	0	0	0	0	0	0

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

DATE PREPARED 4/25/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B01-31
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43232

DESCRIPTION
DATE

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

IMPROVE 70 ALLIANCE

HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

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Detailed
Checked

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

BAR BENDING DIAGRAMS

Bill of Reinforcing Steel

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

Bill of Reinforcing Steel

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

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. _.

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.

All bars shall be Grade 60.

Detailed
Checked

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

BILL OF REINFORCING STEEL (1 OF X)

DATE PREPARED	4/25/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B01-32
COUNTY	ST. CHARLES
JOB NO.	JST0020
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715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
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Bill of Reinforcing Steel

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

Bill of Reinforcing Steel

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

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.

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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.

All bars shall be Grade 60.

Detailed
Checked

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

BILL OF REINFORCING STEEL (2 OF X)

DATE PREPARED 4/25/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B01-33
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43232
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Bill of Reinforcing Steel

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

Bill of Reinforcing Steel

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

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. _.

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.

All bars shall be Grade 60.

Detailed
Checked

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

BILL OF REINFORCING STEEL (3 OF X)

DATE PREPARED 4/25/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B01-34
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
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CERTIFICATE OF AUTHORITY
NO. 001270

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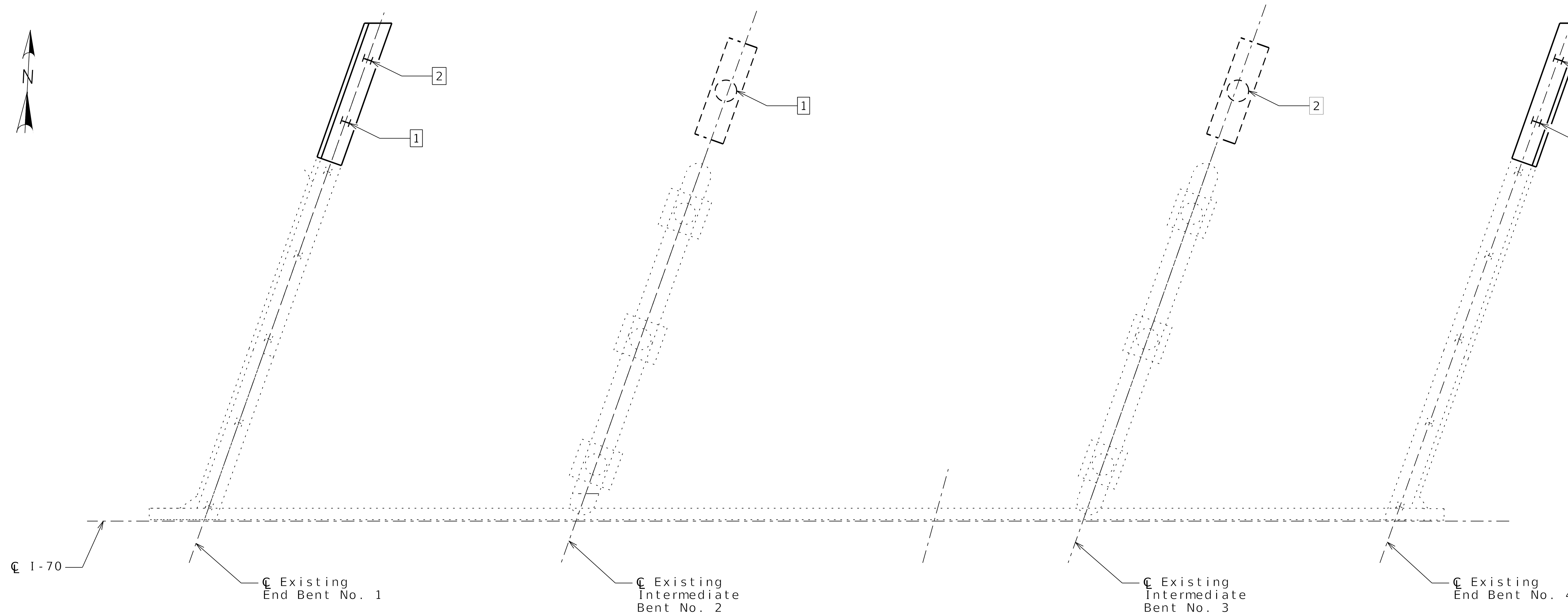

PART PLAN SHOWING PILE AND DRILLED SHAFT NUMBERING FOR RECORDING AS-BUILT PILE DATA AND AS-BUILT SHAFT DATA

As-Built Pile Data

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

As-Built Drilled Shaft Data

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

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal

This sheet to be completed by the design-builder.

AS-BUILT PILE AND DRILLED SHAFT DATA

Detailed
Checked

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

DATE PREPARED	4/25/2025
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CERTIFICATE OF AUTHORITY
NO. 001270

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Standard Drawing Guidance:
(Do not show on plans)

See Instructions & Tips, MicroStation & Projectwise, AttachBoringPDFsToBridgePlans on Development Section Sharepoint page for instructions for attaching PDFs as rasters.

For one 11x17 Geotechnical Data sheet, snap to top left corner of left guidance box and snap anywhere for other corner, filling as much of the available space as possible.
Delete boxes or turn off Bridge-Guidance level.

DATE PREPARED
4/25/2025

ROUTE	STATE
I-70	MO

DISTRICT	SHEET NO.
BR	B01-36

COUNTY
ST. CHARLES

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JST0020

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Note: For locations of borings, see Sheet No. 2.

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

Sheet 36 of XX

BORING DATA (1 OF XX)