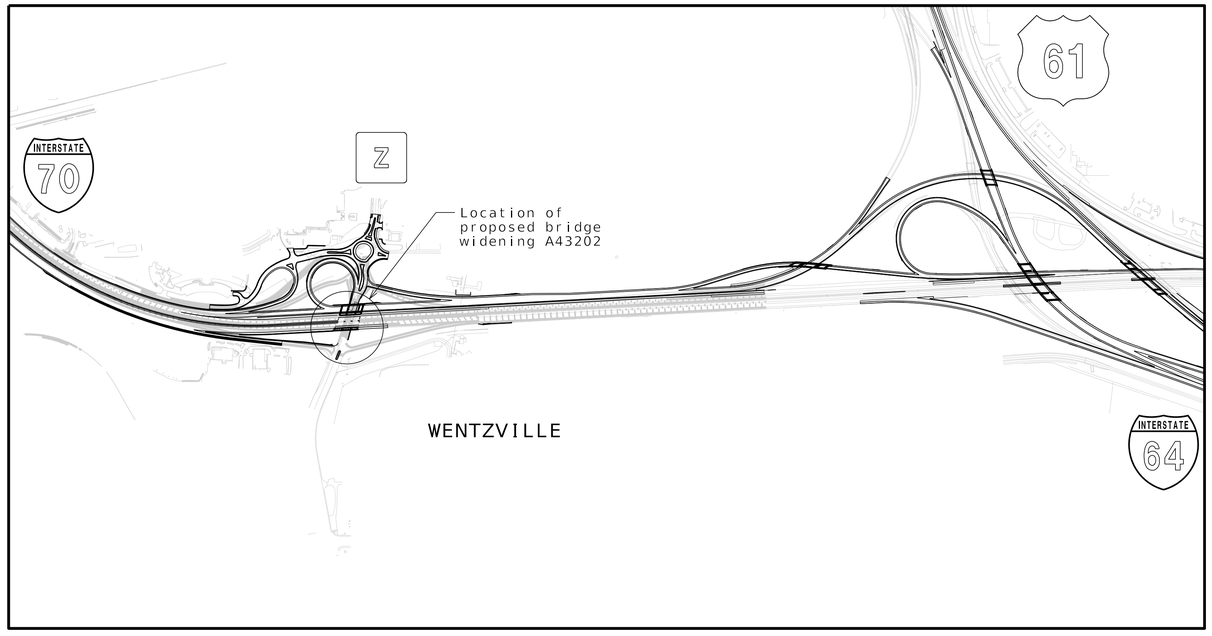
U.I.P. REHABILITATE & WIDEN EXISTING (48' - 59.6' - 41') PRESTRESSED CONCRETE I-GIRDER SPANS



LOCATION MAP

INDEX OF DRAWINGS

BRIDGE: I-70 EB OVER ROUTE Z

ROUTE I-70 FROM WENTZVILLE PKWY TO ROUTE 61
ABOUT 1.1 MILES EAST OF WENTZVILLE PKWY

BEGINNING STATION 1233+61.00 +/- MATCH EXISTING

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 1
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

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Designed JUL 2025
Detailed JUL 2025
Checked JUL 2025

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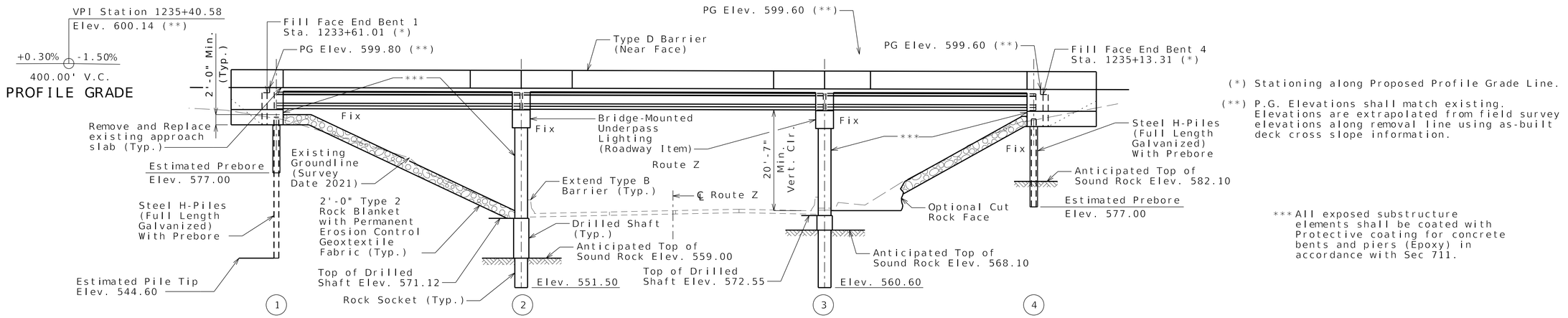
U.I.P. REHABILITATE & WIDEN EXISTING (48' - 59.6' - 41') PRESTRESSED CONCRETE I-GIRDER SPANS

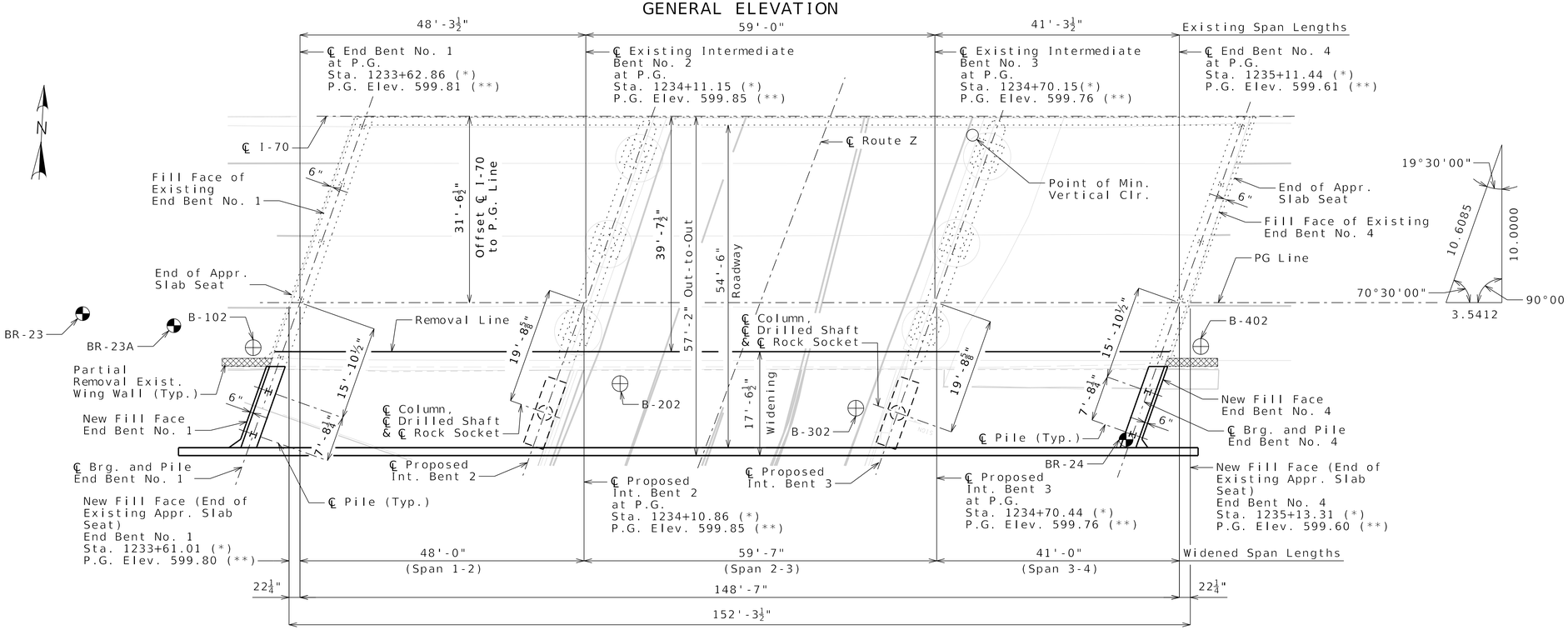


(*) Stationing along Proposed Profile Grade Line.

(**) P.G. Elevations shall match existing. Elevations are extrapolated from field survey elevations along removal line using as-built deck cross slope information.

***All exposed substructure elements shall be coated with Protective coating for concrete bents and piers (Epoxy) in accordance with Sec 711.

GENERAL ELEVATION



PLAN

Bridge A4323 not shown for clarity

Indicates location of post-award borings.

Indicates location of pre-award borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown above. Selected borings are depicted in profile on Sheet No. 34. 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.

Notes:

New Fill Face of End Bent 1 is offset 6" normal away from the fill face of existing backwall to eliminate the need to form the approach notch corbel.

All bents are parallel.

For General Notes and Foundation Data, see Sheets 3 and 4.

GENERAL PLAN AND ELEVATION

Detailed APR 2025
Checked APR 2025

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

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43202

DESCRIPTION | DATE

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HNTB
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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	49	--	--	17
	Pile Point Reinforcement	ea	ALL	--	--	ALL
	Min. Galvanized Penetration (Elev.)	ft	Full Length	--	--	Full Length
	Pile Driving Verification Method		DT	--	--	WEAP
	Resistance Factor		0.65	--	--	0.5
	Minimum Nominal Axial Compressive Resistance	kip	378	--	--	492
Rock Socket	Number	ea	--	1	1	--
	Layer 1 – Foundation Material		--	Limestone	Limestone	--
	Layer 1 – Elevation Range	ft	--	558.5-535	567.5-543	--
	Layer 1 – Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	--	22.4	22.4	--
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf	--	400	400	--

DT = Dynamic Testing

WEAP = Wave Equation Analysis of Piles

Load Bearing Pile:

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

Rock Socket (Drilled Shafts):

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

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 577.00.

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

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

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 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. 18 thru 20.

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.

Traffic Handling:

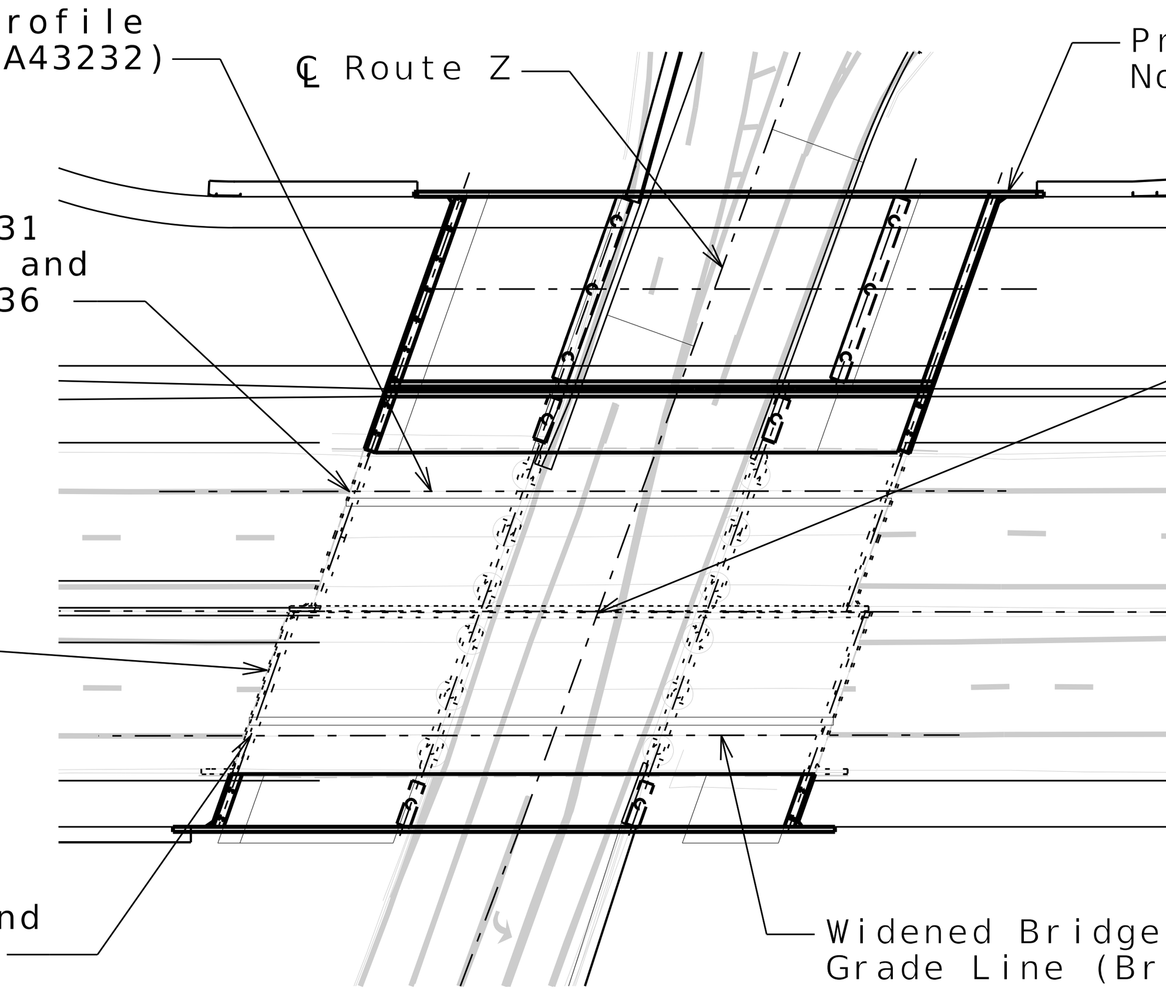
Vertical clearance for Route Z traffic during construction shall be 15 ft. minimum over all lanes of live traffic as shown in each phase of the Maintenance of Traffic plans.

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	5/8/2025
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)

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

Bartlett & West

GENERAL NOTES (1 OF 2)

Detailed APR 2025
Checked APR 2025

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

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. Precast prestressed panels will not be permitted in lieu of stay-in-place corrugated steel forms.

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 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43202

DESCRIPTION	DATE

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IMPROVE 70 ALLIANCE

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GENERAL NOTES (2 OF 2)

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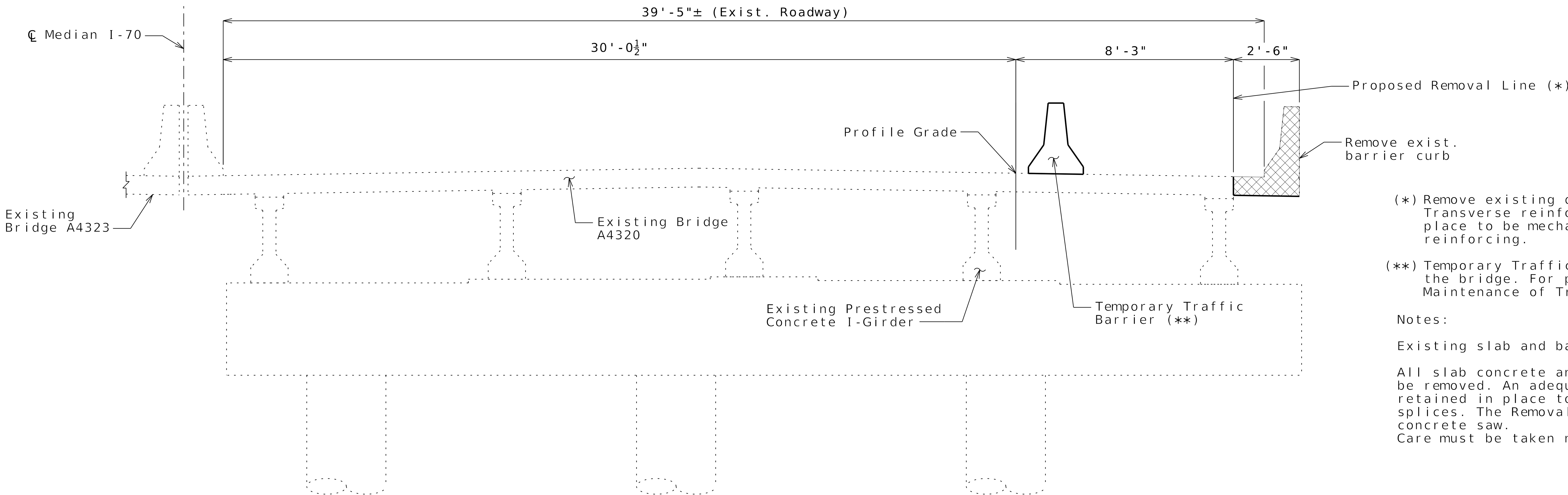


EXISTING TYPICAL SECTION SHOWING REMOVAL

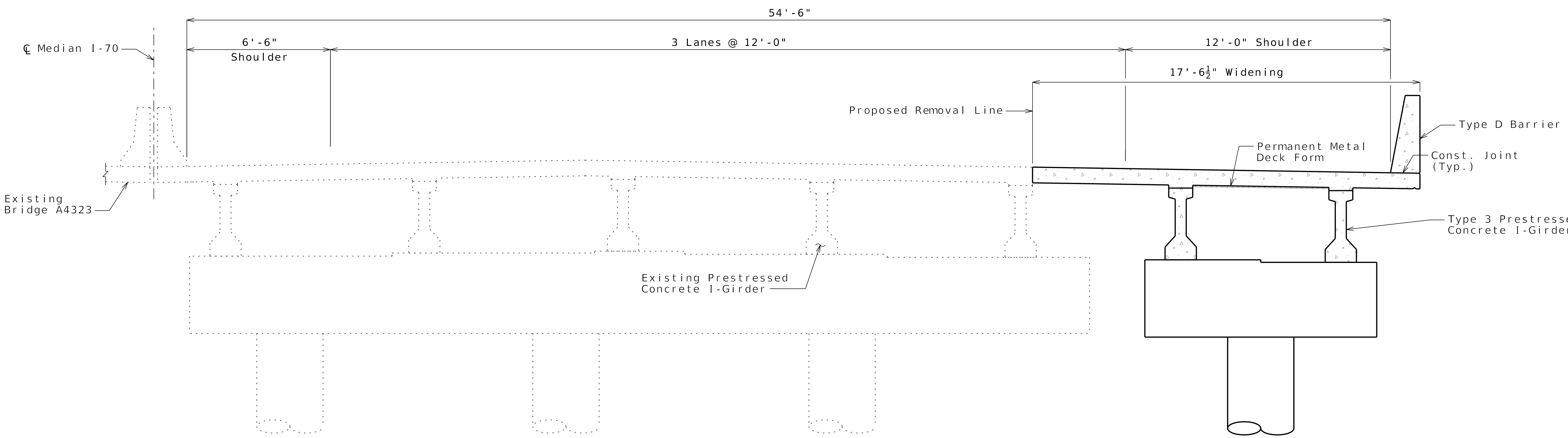
(*) Remove existing deck to Removal Line. Existing Transverse reinforcing to be cleaned and remain in place to be mechanically spliced with new reinforcing.

(**) Temporary Traffic Barrier shall not be attached to the bridge. For placement during phasing, see Maintenance of Traffic Plans.

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 Removal line shall be marked and sawcut with a concrete saw.
Care must be taken not to cut the transverse reinforcing steel.



TYPICAL SECTION SHOWING WIDENING

DATE PREPARED	5/6/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	5
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43202

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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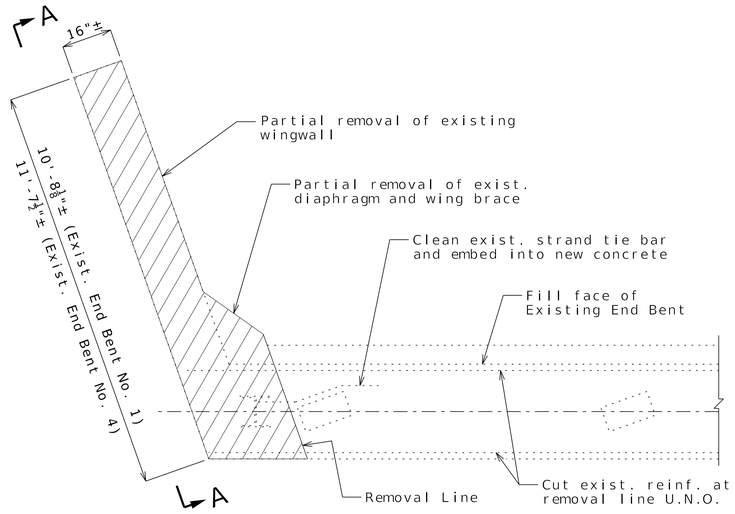
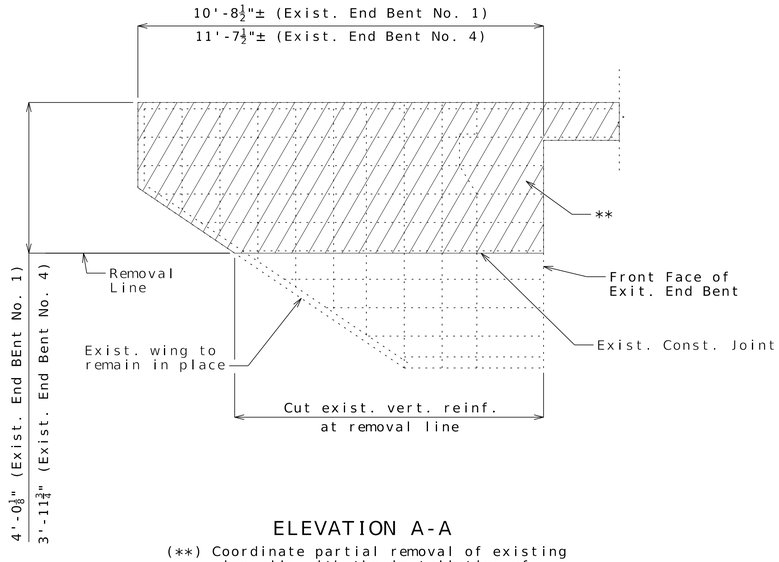
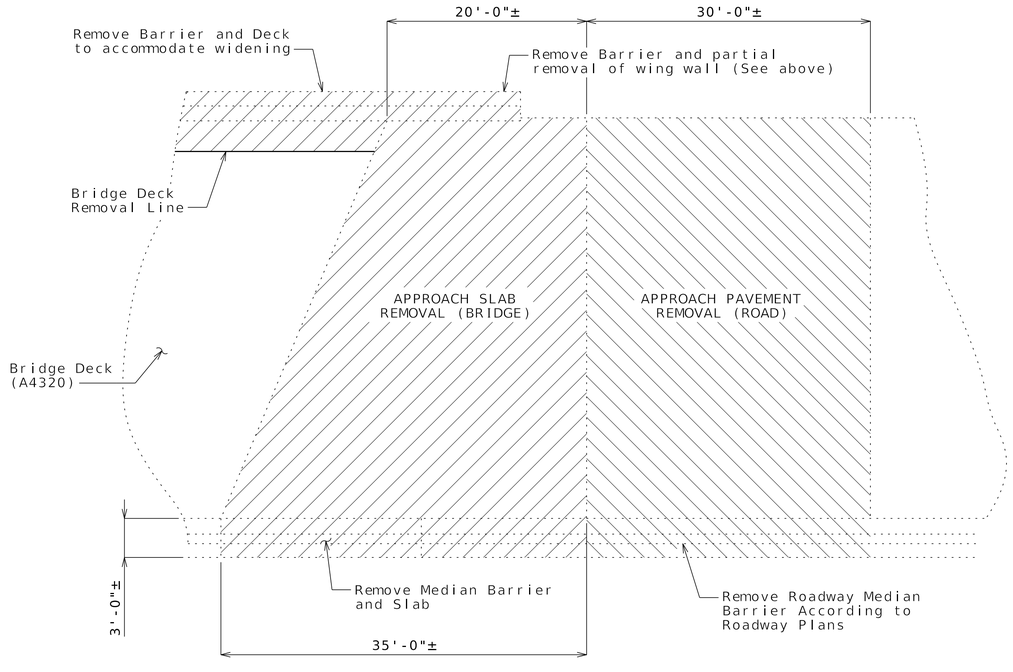
PHASING AND REMOVAL PLAN



PART PLAN OF EXISTING END BENT
(End Bent No. 1 shown, End Bent No. 4 similar, U.N.O.)



ELEVATION A-A
(**) Coordinate partial removal of existing wingwalls with the installation of vertical drain at end bents.



APPROACH SLAB REMOVAL DETAILS
(End Bent No. 1 shown, End Bent No. 4 similar)

Notes:

Denotes Removal

Outline of work is indicated by light dashed lines.

Contractor shall verify all dimensions in the field before ordering new material.

Bars bonded in existing concrete not removed shall be cleanly stripped and embedded into new concrete as shown.

U.N.O. - Denotes Unless Noted Otherwise.

END BENT AND APPROACH SLAB REMOVAL DETAILS

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 6
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43202

DESCRIPTION | DATE

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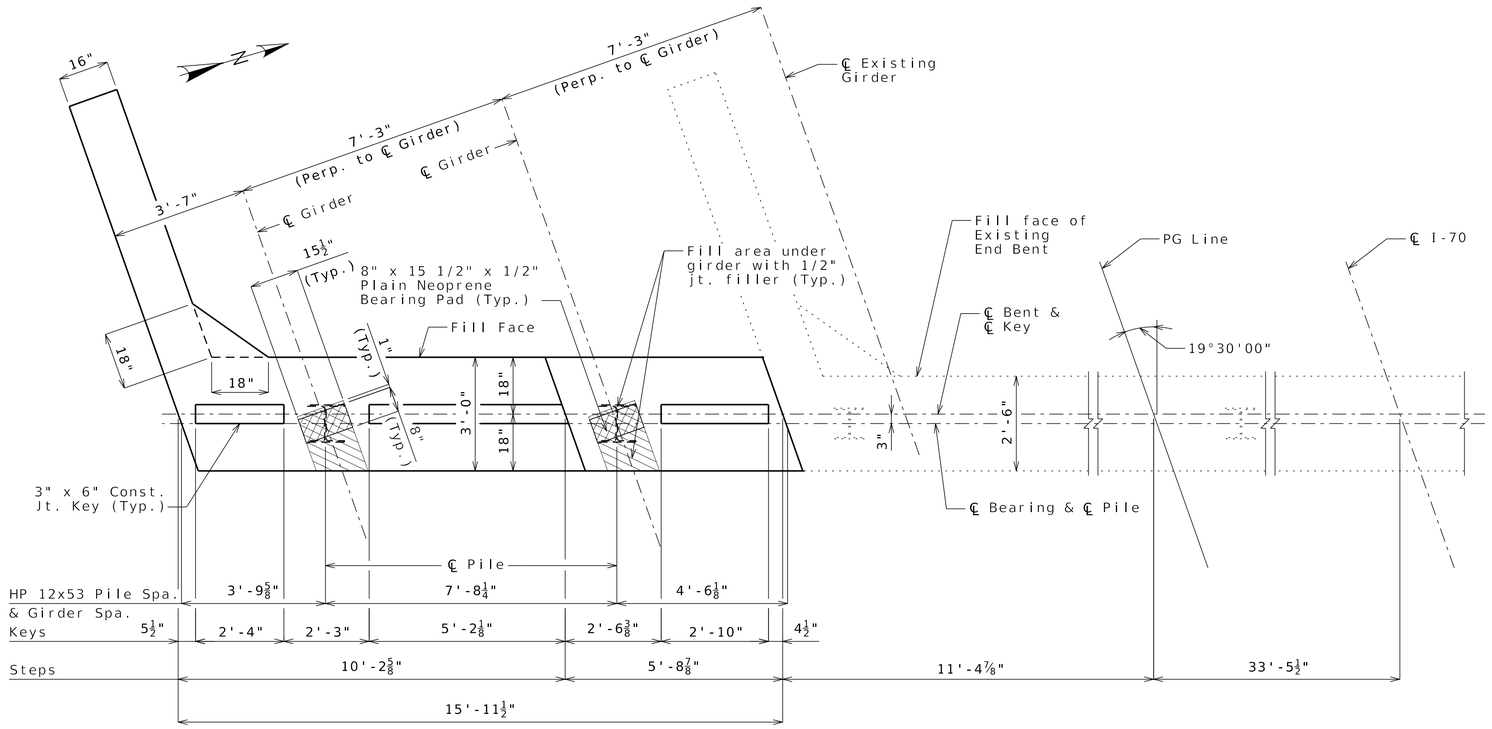
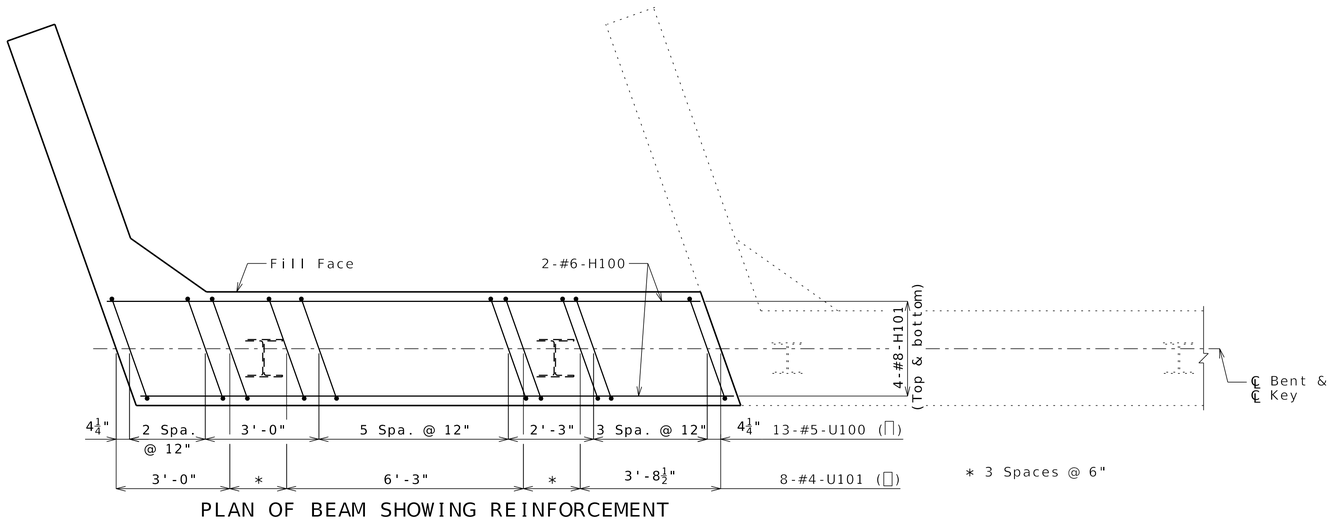
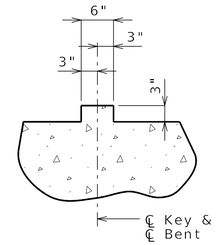


PLAN OF BEAM

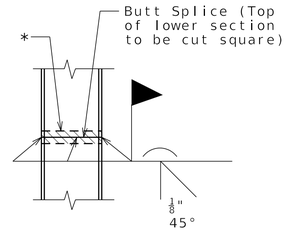


PLAN OF BEAM SHOWING REINFORCEMENT
Keys not shown for clarity.

* 3 Spaces @ 6"



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. 8 and 9.

All U bars shall be placed parallel to skewed steps.

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

DETAILS OF END BENT NO. 1

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 7
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43202

DESCRIPTION | DATE

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Checked APR 2025

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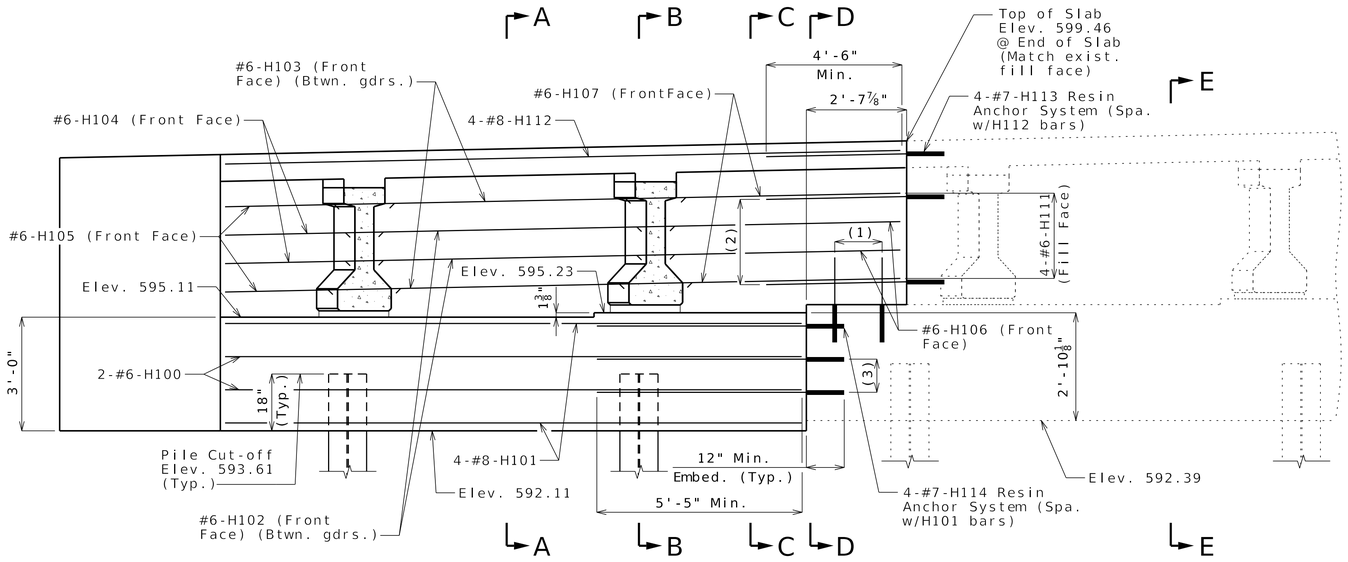
B_A43202_004_JST0020_BENT1-1.dgn 4:13:11 PM 5/6/2025



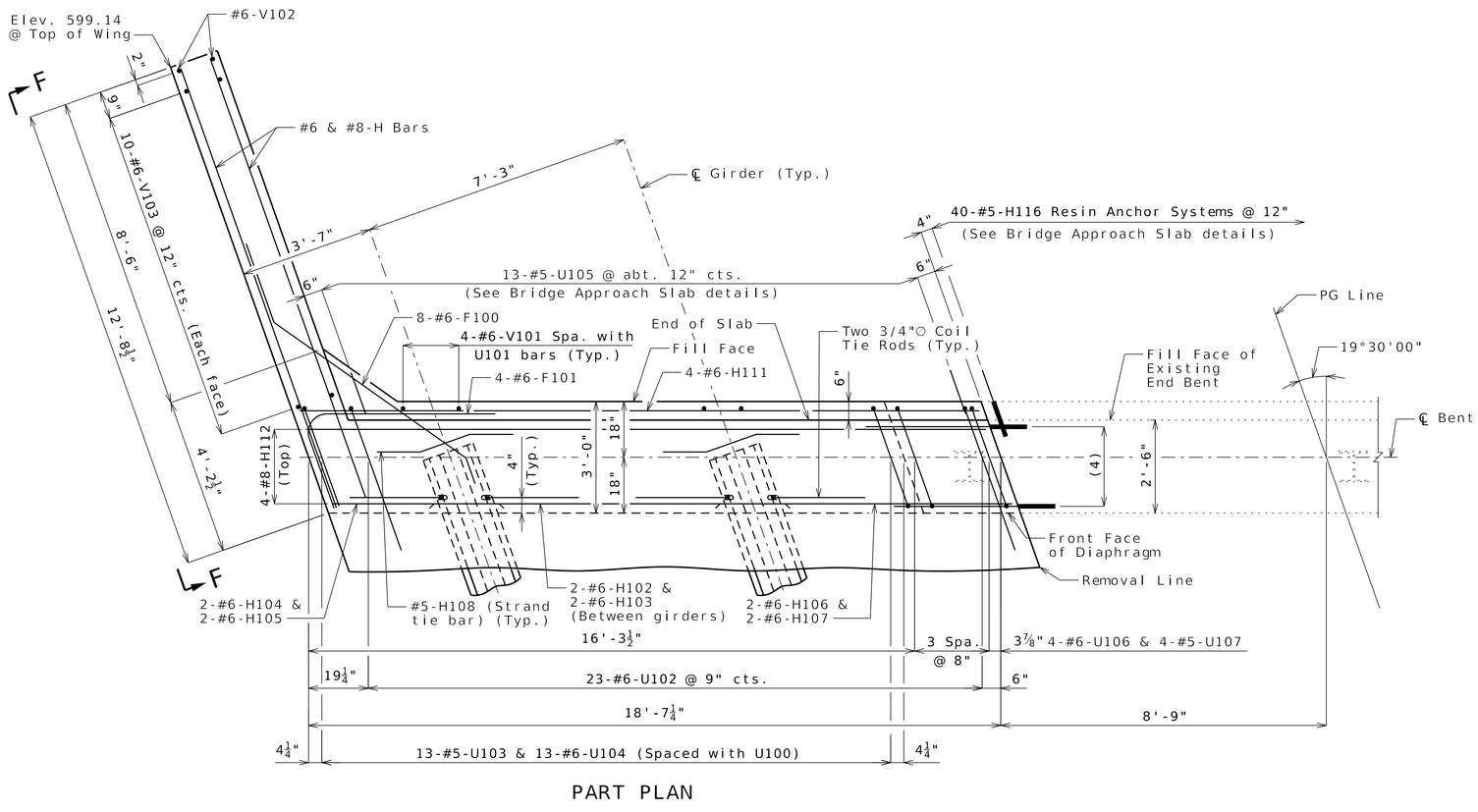
SECTION NEAR END BENT

(1) 2-#7-H115 Resin Anchor System (E.F.)(Spa. w/U106 bars)

(2) 4-#7-H113 Resin Anchor System (Fill Face)(Spa. w/H111 bars)

(3) 2-#7-H114 Resin Anchor System (E.F.)(Spa. w/H100 bars)

(4) 4-#7-H113 Resin Anchor System (Top)(Spa. w/H112 bars)



PART PLAN

General Notes:

Work this sheet with Sheets No. 7 and 9.

For Sections A-A, B-B & C-C and Elevations D-D & E-E, see Sheet No. 9.

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

The U bars shall be placed parallel to skewed steps.

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. 18.

For details of vertical drain at end bents, see Sheet No. 11.

For details of bridge approach slab, see Sheet No. 29.

For Partial Wingwall Removal details, see Sheet No. 6.

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

All Elevations shown are based on profile grade elevations taken from the as-built plans and shall be field verified by th Contractor.

DETAILS OF END BENT NO. 1

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43202

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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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 251 - JEFFERSON CITY, MO 65101 PHONE: 573-634-2488 CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING WWW.BARTLETTWEST.COM

Detailed APR 2025
Checked APR 2025

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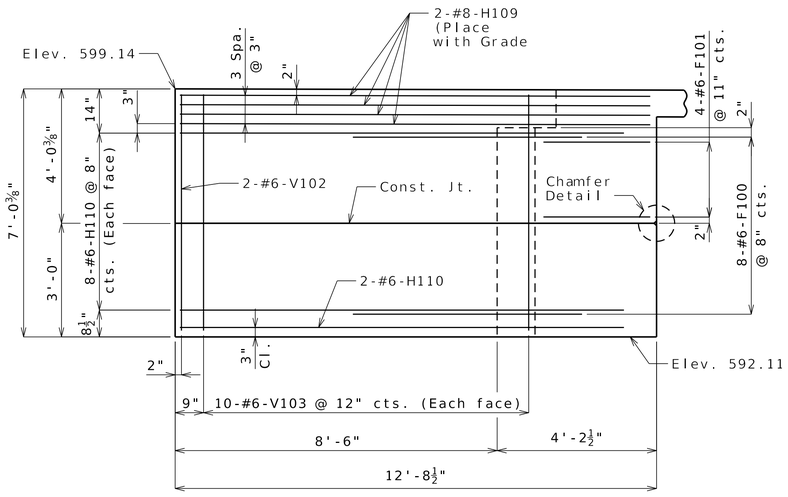
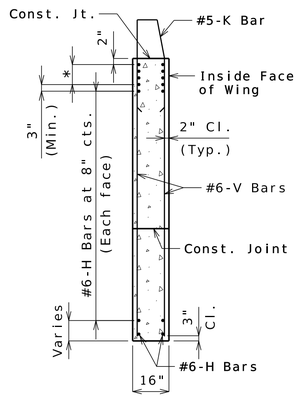
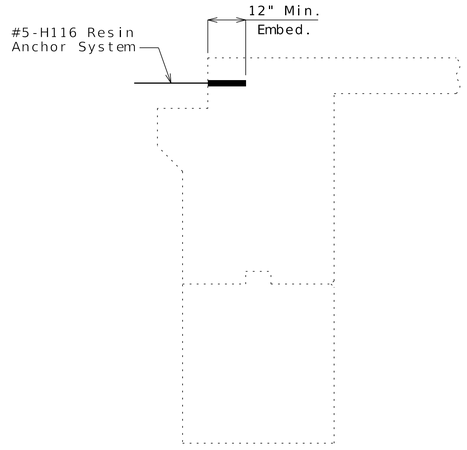


ELEVATION F-F

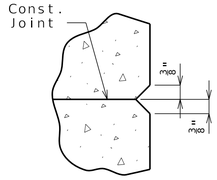


TYPICAL SECTION THRU WING

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



SECTION E-E

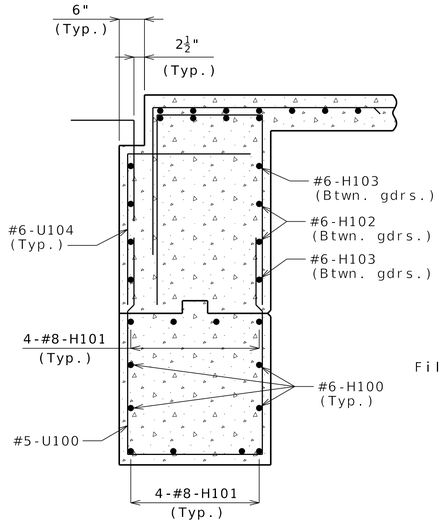


CHAMFER DETAIL

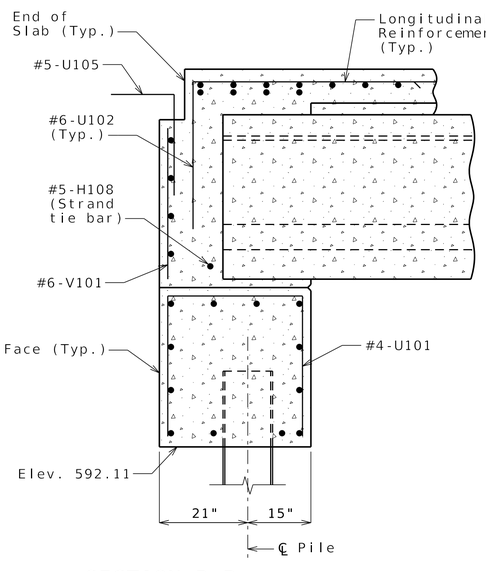
General Notes:

Work this sheet with Sheets No. 7 and 8.

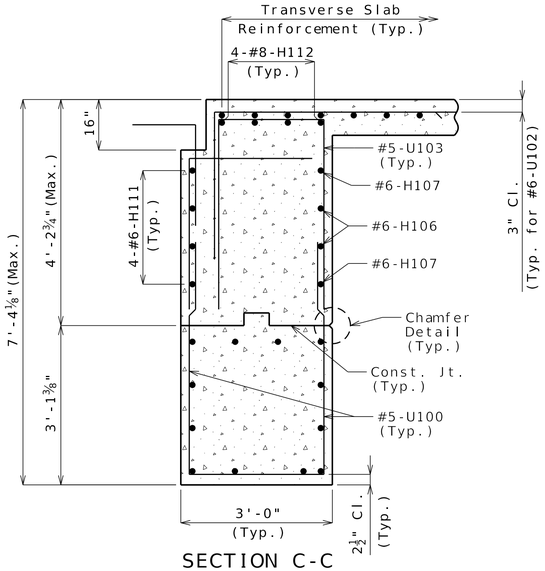
For reinforcement of the barrier, see Sheet No. 27.



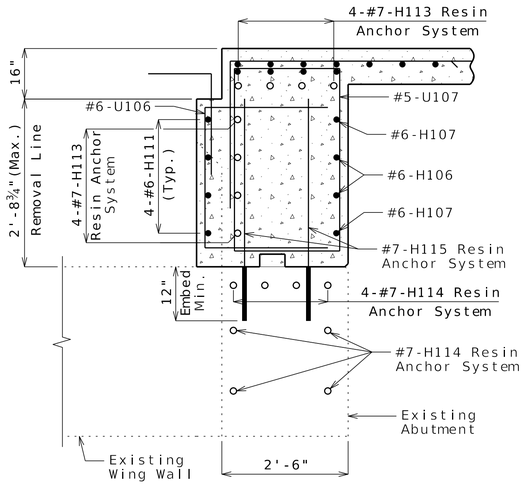
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

DETAILS OF END BENT NO. 1

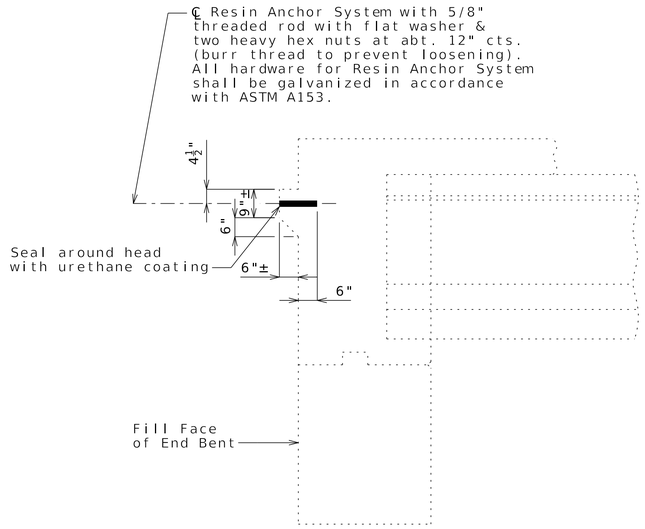
Detailed APR 2025
Checked APR 2025

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

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 9
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43202

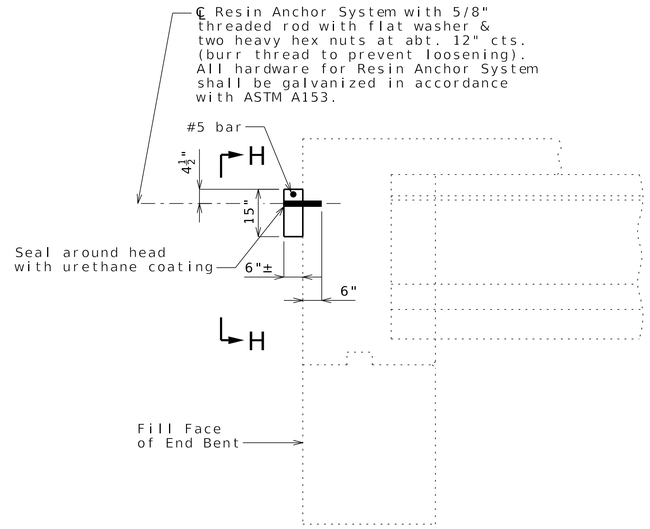
DESCRIPTION | DATE

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. 000270
Bartlett & West 601 MONROE ST., SUITE 201 - JEFFERSON CITY, MO 65101 PHONE: 573-635-2446 CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING WWW.BARTLETTWEST.COM



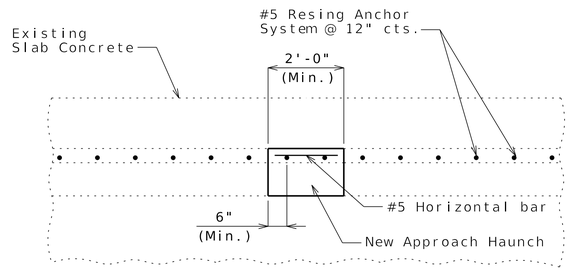
SECTION THRU END BENT WITH APPROACH HAUNCH REPAIR

(End Bent No.1 shown, End Bent No.4 similar)



SECTION THRU END BENT WITH APPROACH HAUNCH REPLACEMENT

(End Bent No.1 shown, End Bent No.4 similar)



ELEVATION H-H

(End Bent No.1 shown, End Bent No.4 similar)

Notes:

Remove and replace deteriorated sections of approach notch as designated by the engineer and in accordance with details shown.

Minimum length of replacement shall be 2'-0" as shown.

Removal of concrete shall be in accordance with Sec 216.

Concrete for approach notch replacement shall be Class B-1.

DETAILS OF END BENT NO. 1

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 10
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

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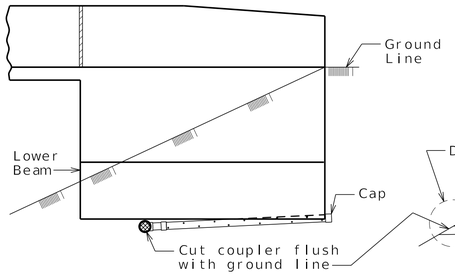
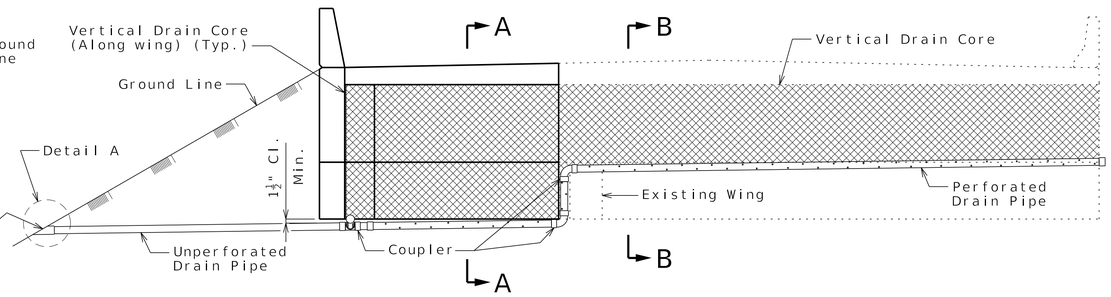
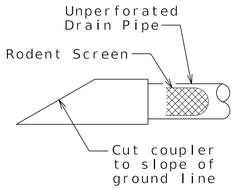
B_A43202_006A_JST0020_BENT1-4.dgn 4:13:18 PM 5/6/2025



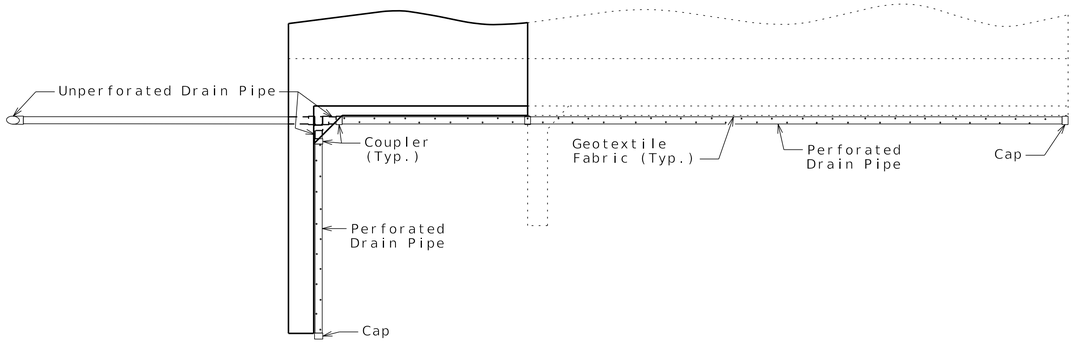
ELEVATION OF WING



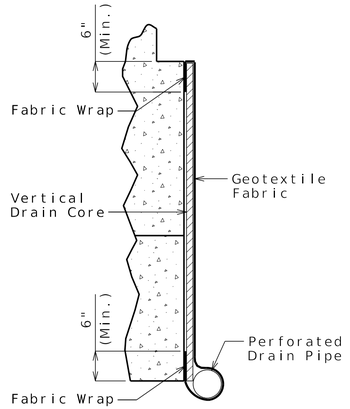
ELEVATION OF END BENT
(Looking Back Station)
(End Bent No. 4 shown, End Bent No. 1 similar)



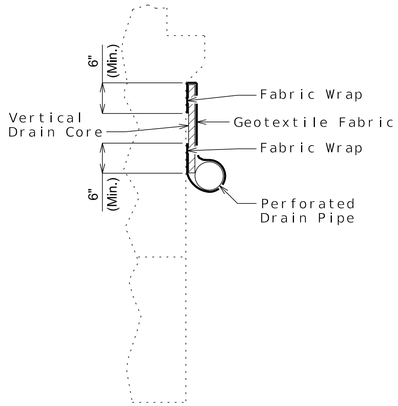
DETAIL A



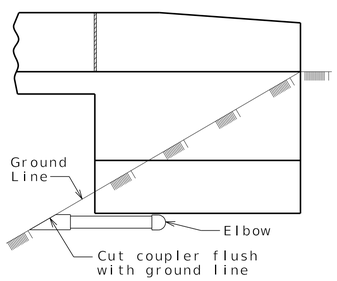
PLAN OF END BENT



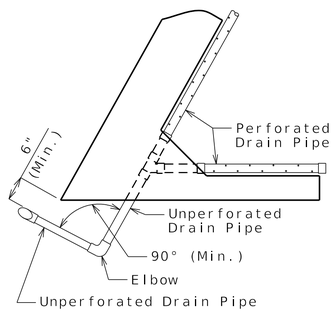
PART SECTION A-A
(Section thru wing similar)



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)

VERTICAL DRAIN AT END BENTS

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 11
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)
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 (573) 634-2448 CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING WWW.BARTLETTWEST.COM

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Checked APR 2025

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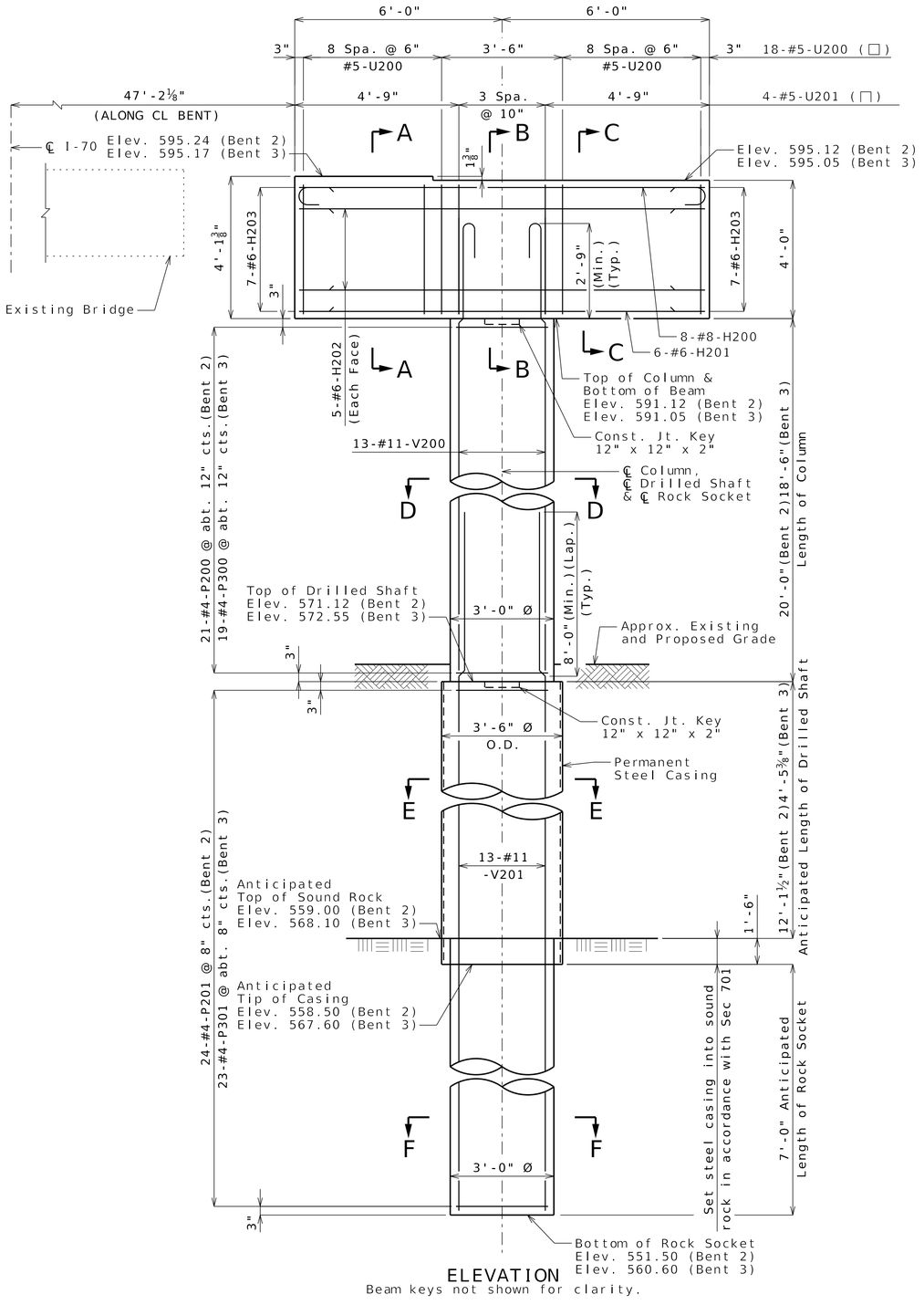
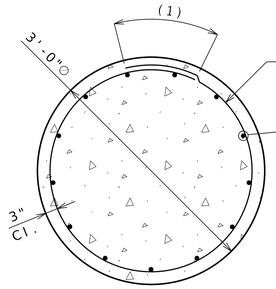
B_A43202_007_JST0020_DRAINVERT.dgn 4:13:20 PM 5/6/2025

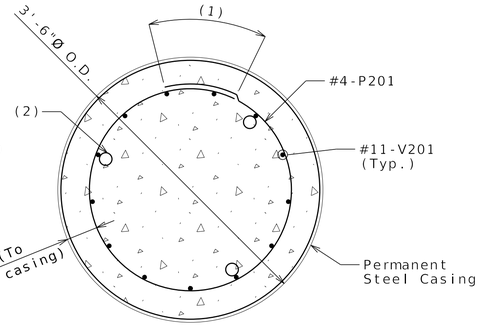


ELEVATION

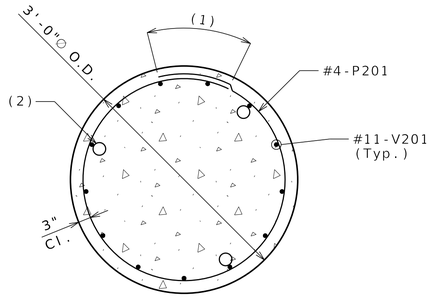
Beam keys not shown for clarity.



SECTION D-D



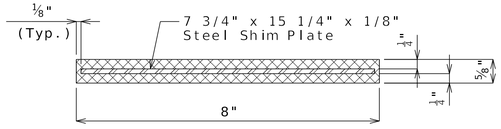
SECTION E-E



SECTION F-F

(1) 2'-10" Min. Lap (#4-P200 & #4-P201) (Stagger adjacent bar splices)

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



SECTION THRU LAMINATED NEOPRENE BEARING PAD

General Notes:

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

Work this sheet with Sheet No. 13.

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

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

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

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

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

Bar marks are shown for Bent 2, using "200" series bar marks. Bent 3 is similar, except use "300" series bar marks.

DETAILS OF INTERMEDIATE BENT NO. 2 & 3

DATE PREPARED	5/6/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	12
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 251 - JEFFERSON CITY, MO 65101
PHONE: 573-634-2431
CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING
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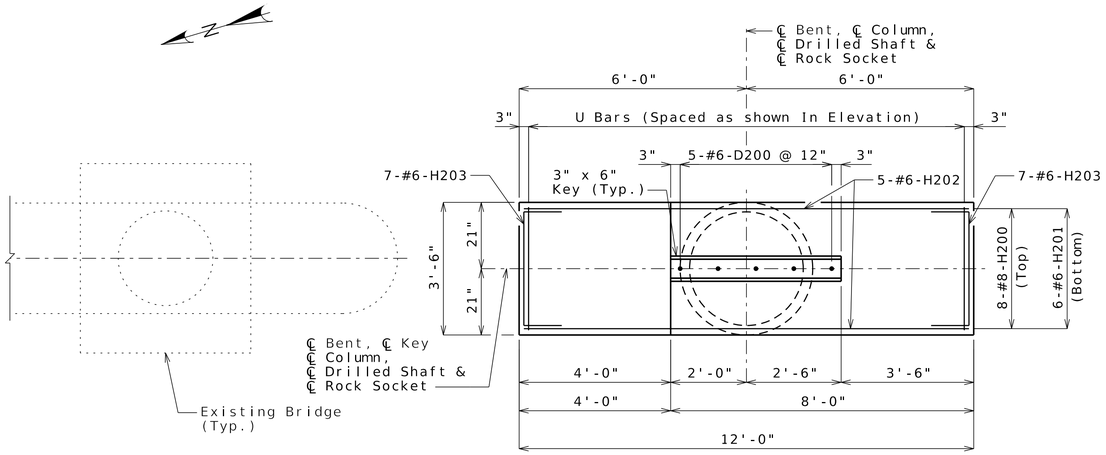
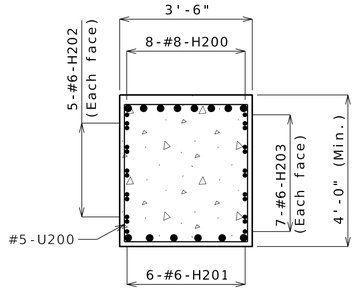
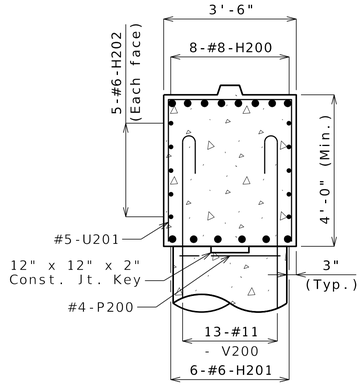


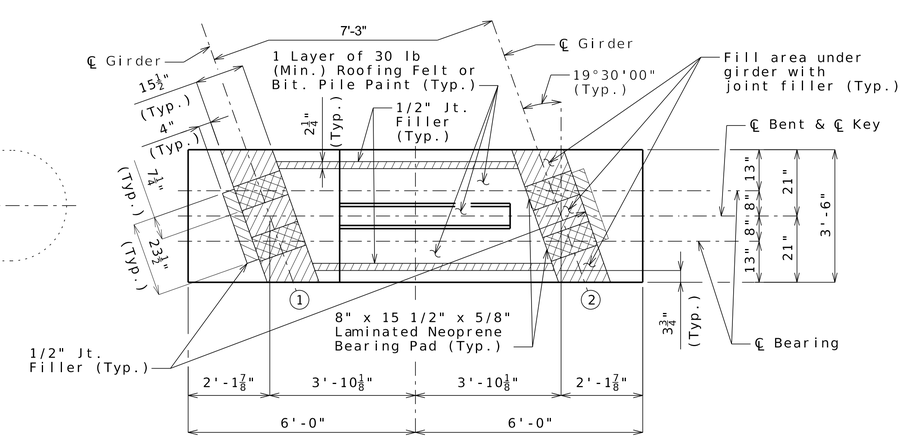
PLAN SHOWING REINFORCEMENT



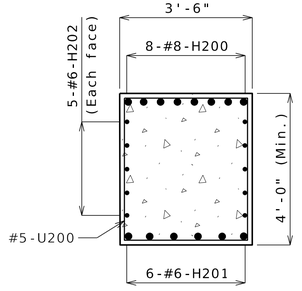
SECTION A-A



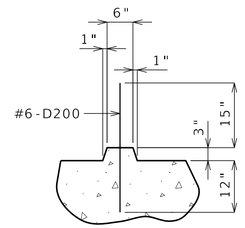
SECTION B-B



PLAN OF BEAM



SECTION C-C



SECTION THRU KEY

General Notes:

Work this sheet with Sheet No. 12.

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

Bar marks are shown for Bent 2, using "200" series bar marks. Bent 3 is similar, except use "300" series bar marks.

DETAILS OF INTERMEDIATE BENT NO. 2 & 3

Detailed APR 2025
Checked APR 2025

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

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 13
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

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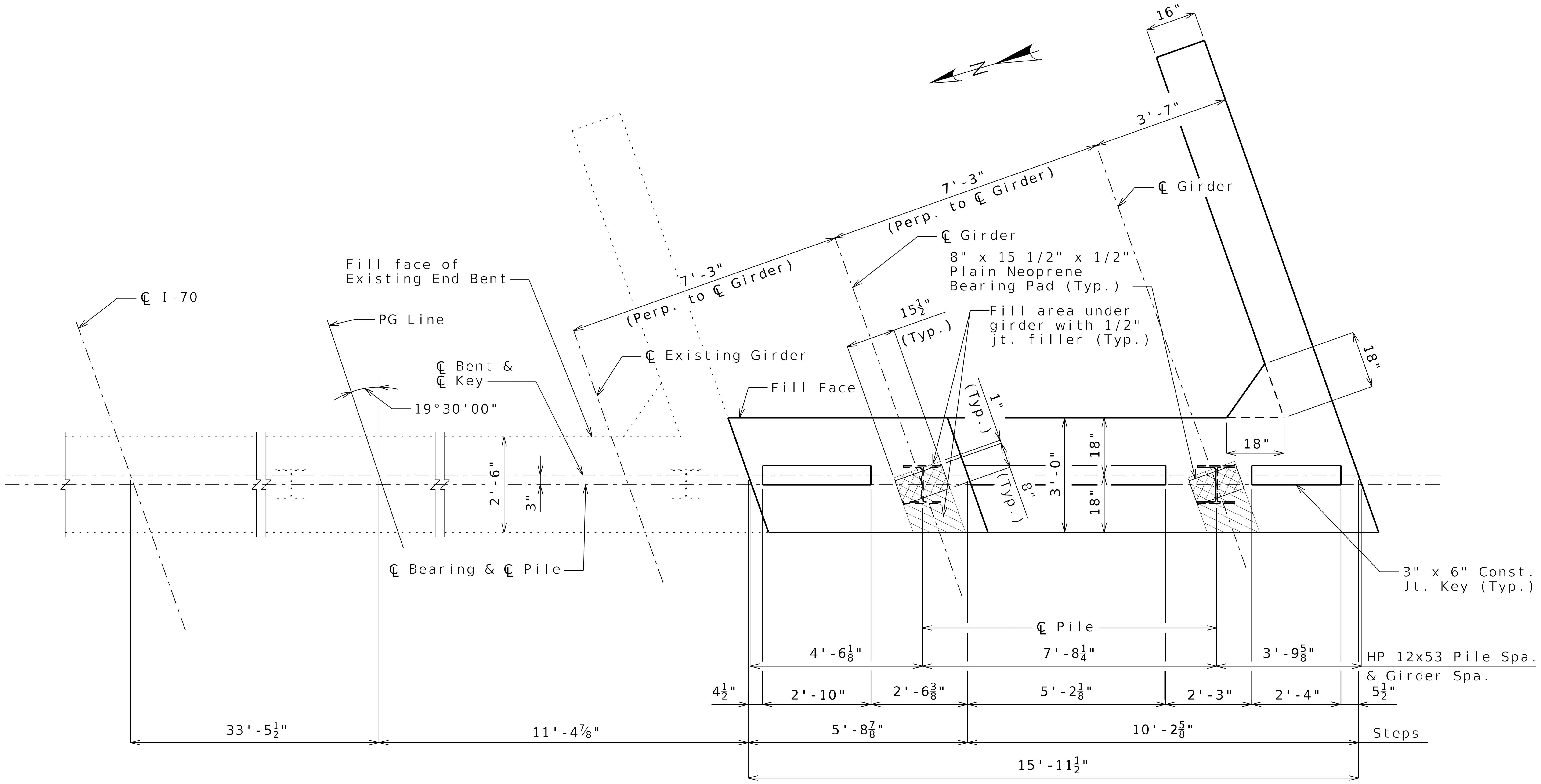
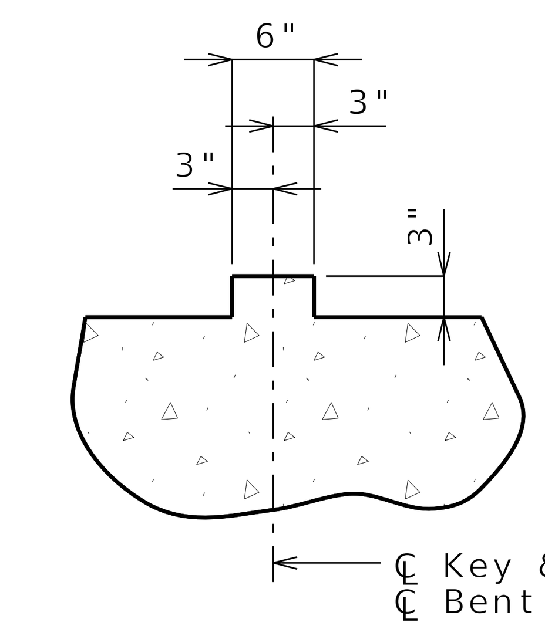
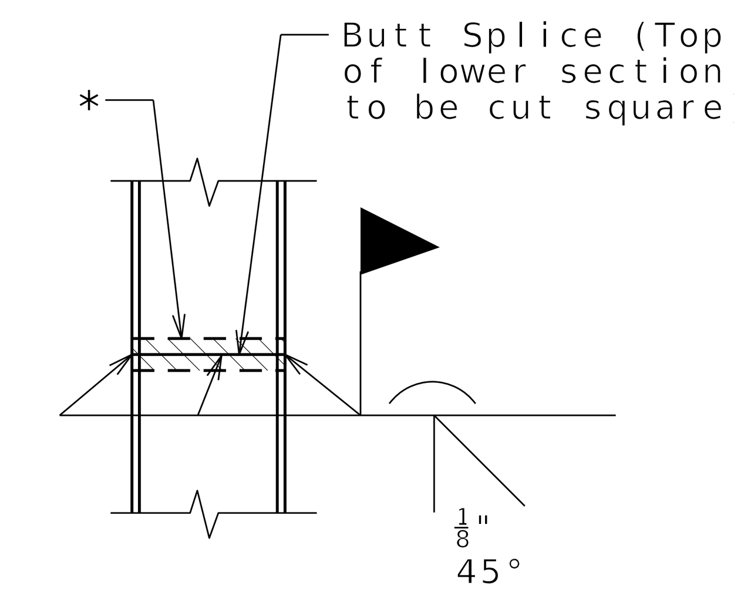


PLAN OF BEAM



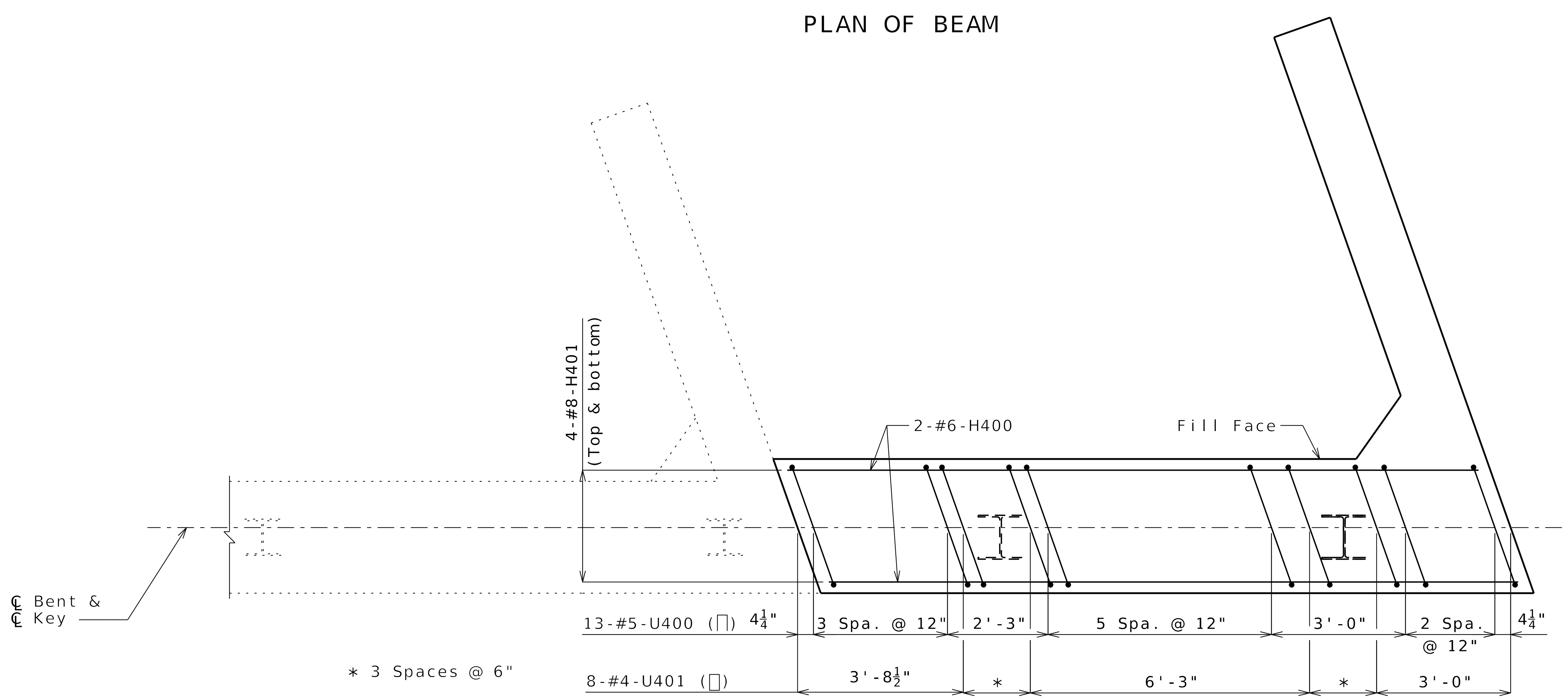
SECTION THRU KEY



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. 15 and 16.

All U bars and pairs of V bars shall be placed parallel to skewed steps.

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

Detailed APR 2025
Checked APR 2025

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

DETAILS OF END BENT NO. 4

DATE PREPARED	5/6/2025
ROUTE: I-70	STATE: MO
DISTRICT: BR	SHEET NO.: 14
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

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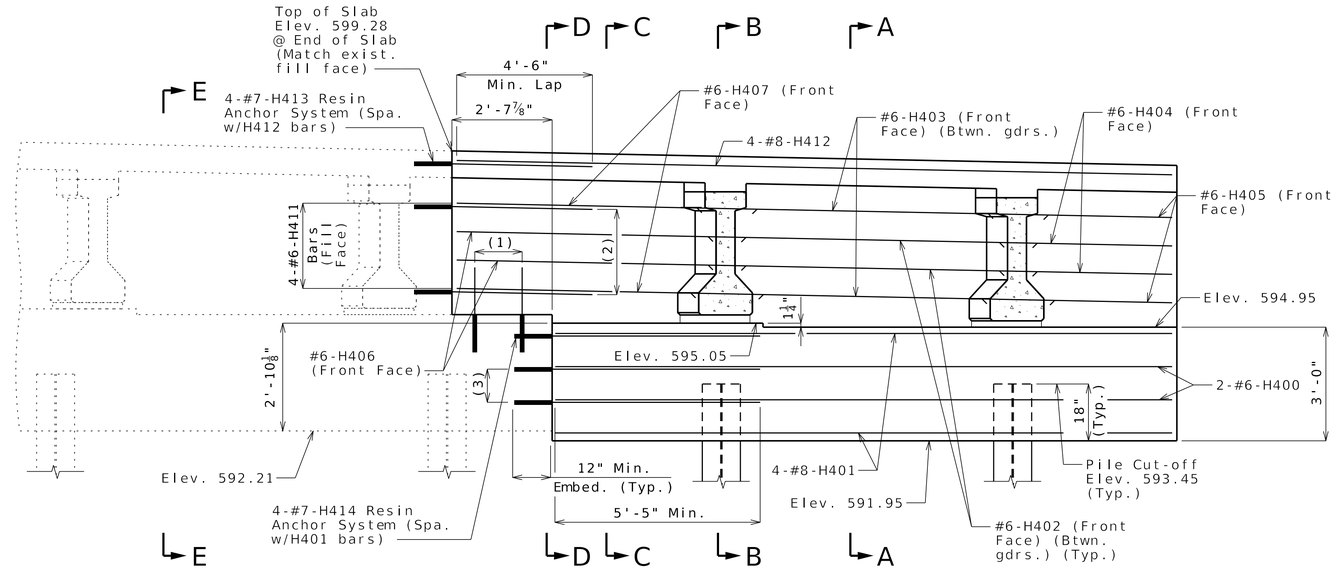
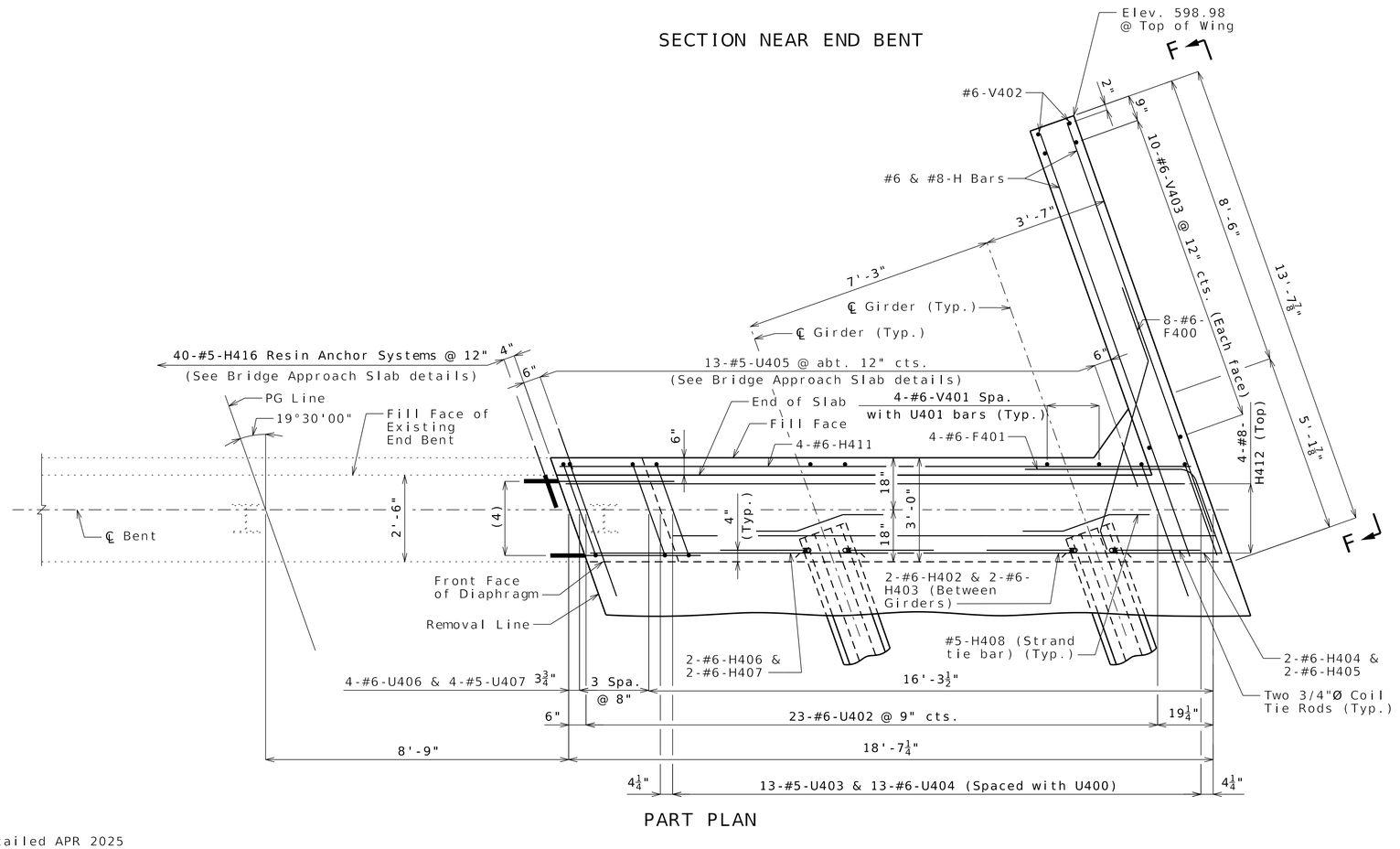


SECTION NEAR END BENT



PART PLAN

(1) 2-#7-H415 Resin Anchor System (E.F.)(Spa. w/U406 bars)

(2) 4-#7-H413 Resin Anchor System (Fill Face)(Spa. w/H411 bars)

(3) 2-#7-H414 Resin Anchor System (E.F.)(Spa. w/H400 bars)

(4) 4-#7-H413 Resin Anchor System (Top)(Spa. w/H412 bars)

General Notes:

Work this sheet with Sheets No. 14 and 16.

For Sections A-A, B-B & C-C and Elevations D-D & E-E, see Sheet No. 16.

The #6-F400 bars shall be bent in the field to clear girders.

The U bars shall be placed parallel to skewed steps.

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-H408 (strand tie bar), see Sheet No. 20.

For details of vertical drain at end bents, see Sheet No. 11.

For details of bridge approach slab, see Sheet No. 29.

For Partial Wingwall Removal details, see Sheet No. 6.

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

All Elevations shown are based on profile grade elevations taken from the as-built plans and shall be field verified by the Contractor.

DETAILS OF END BENT NO. 4

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 15
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)
HNTB 715 KIRK DRIVE KANSAS CITY, MO 64105-1310 CERTIFICATE OF AUTHORITY NO. 000270
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Checked APR 2025

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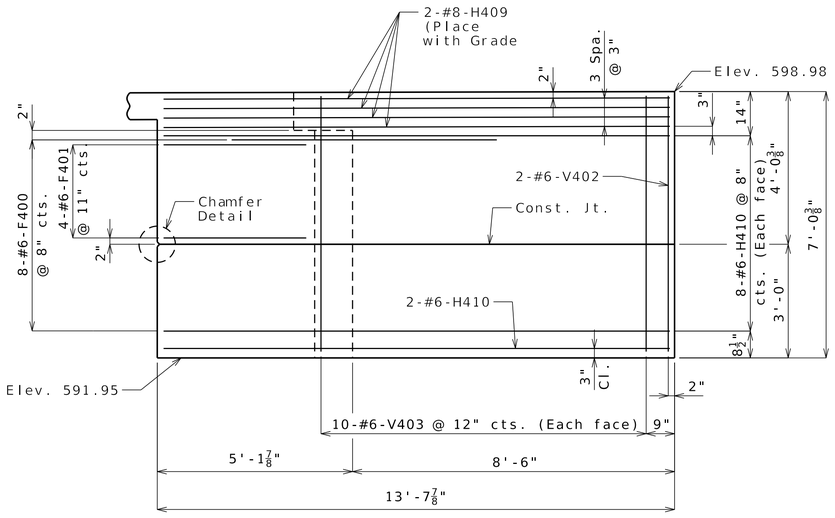
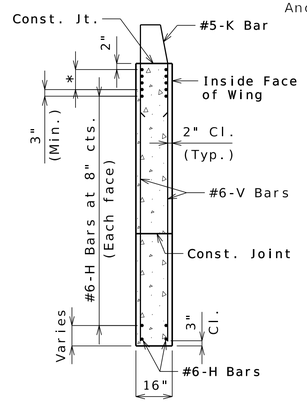
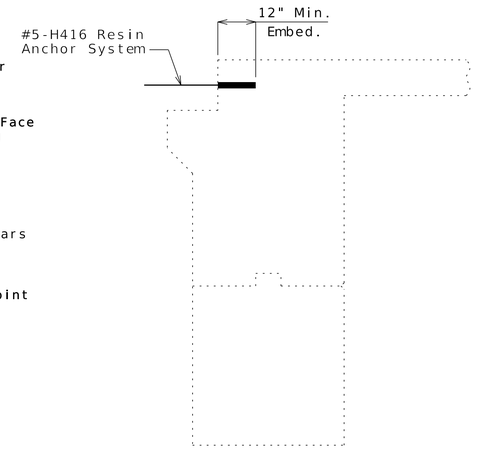


ELEVATION F-F

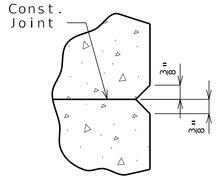


TYPICAL SECTION THRU WING

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



SECTION E-E

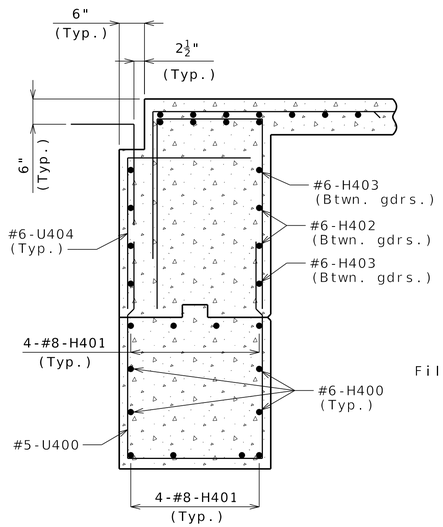


CHAMFER DETAIL

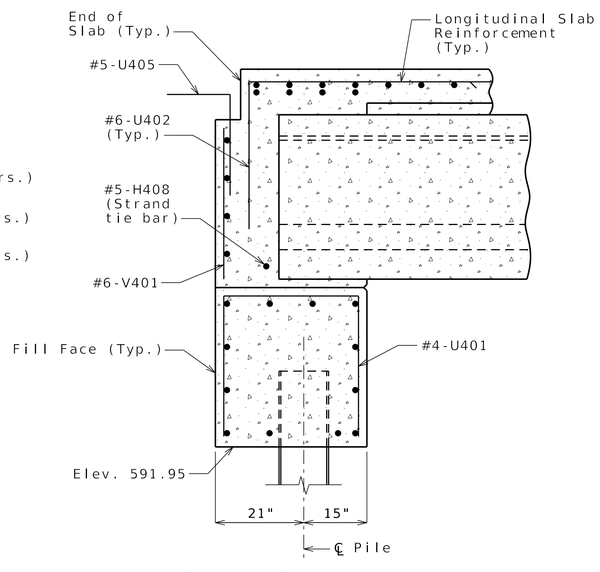
General Notes:

Work this sheet with Sheets No. 14 and 15.

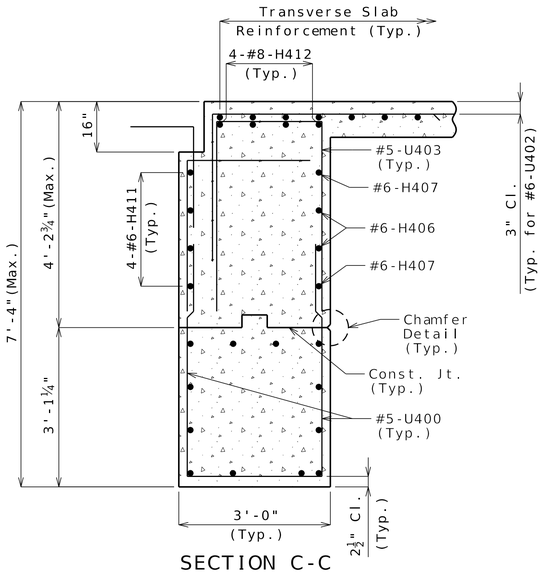
For reinforcement of the barrier, see Sheet No. 27.



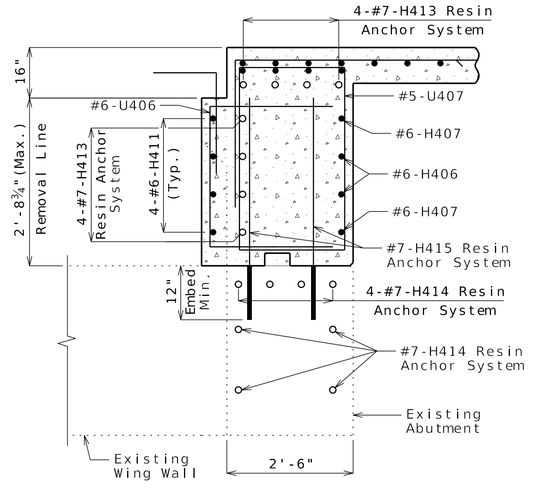
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

DETAILS OF END BENT NO. 4

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 16
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

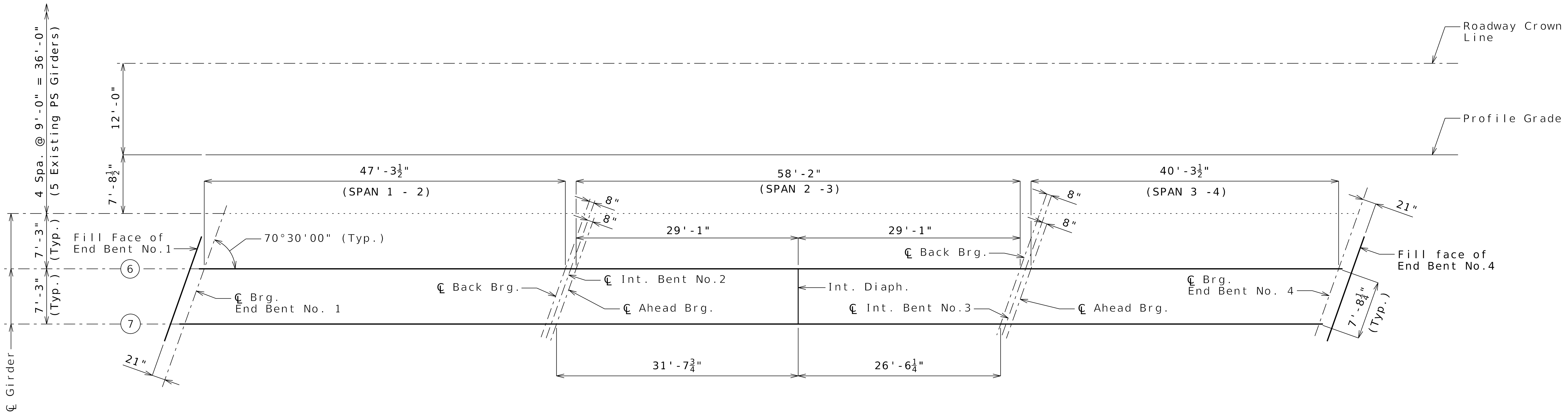
HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 000270

Bartlett & West
601 MONROE ST., SUITE 201 - JEFFERSON CITY, MO 65101
PHONE: (573) 635-2446
CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING
WWW.BARTLETTWEST.COM

Detailed APR 2025
Checked APR 2025

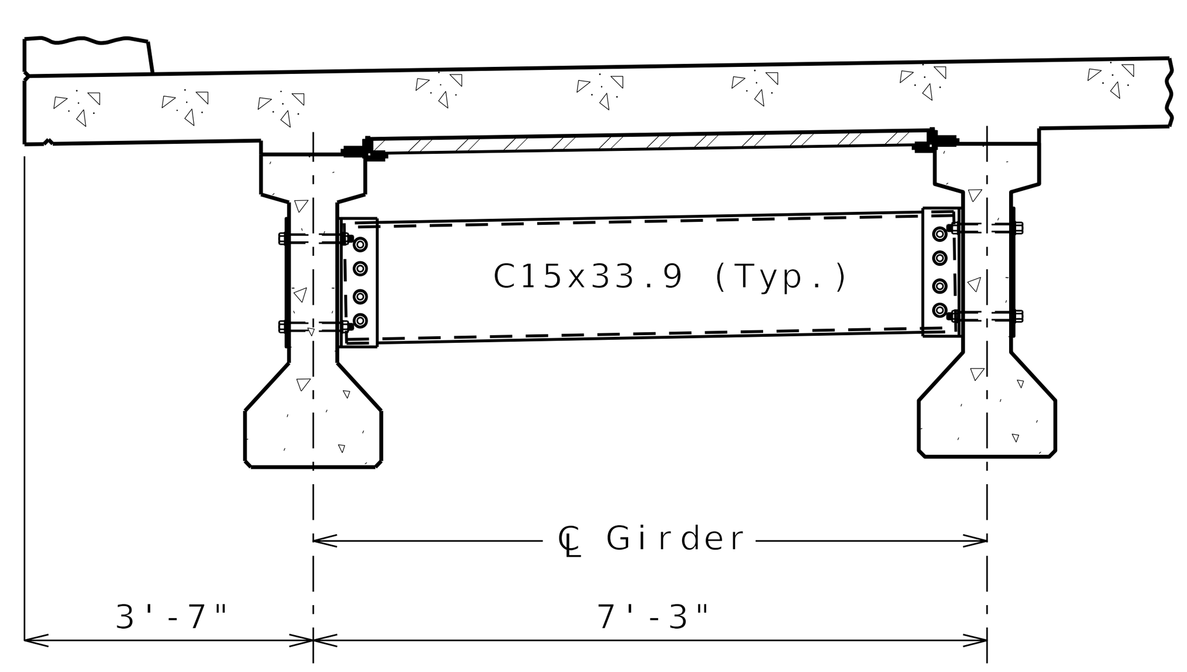
Note: This drawing is not to scale. Follow dimensions.

B_A43202_016_JST0020_BENT4-3.dgn 4:13:32 PM 5/6/2025

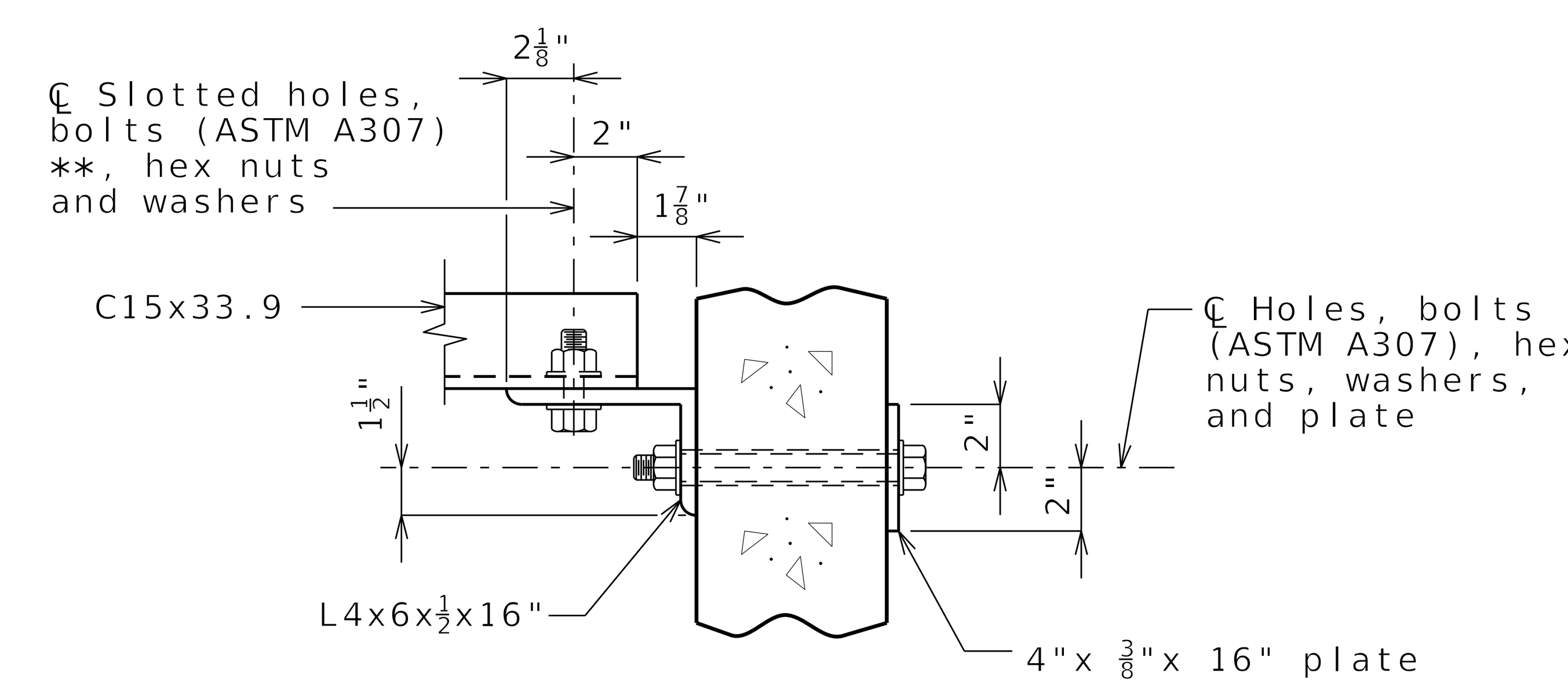


PLAN SHOWING LOCATION OF STEEL INTERMEDIATE DIAPHRAGMS

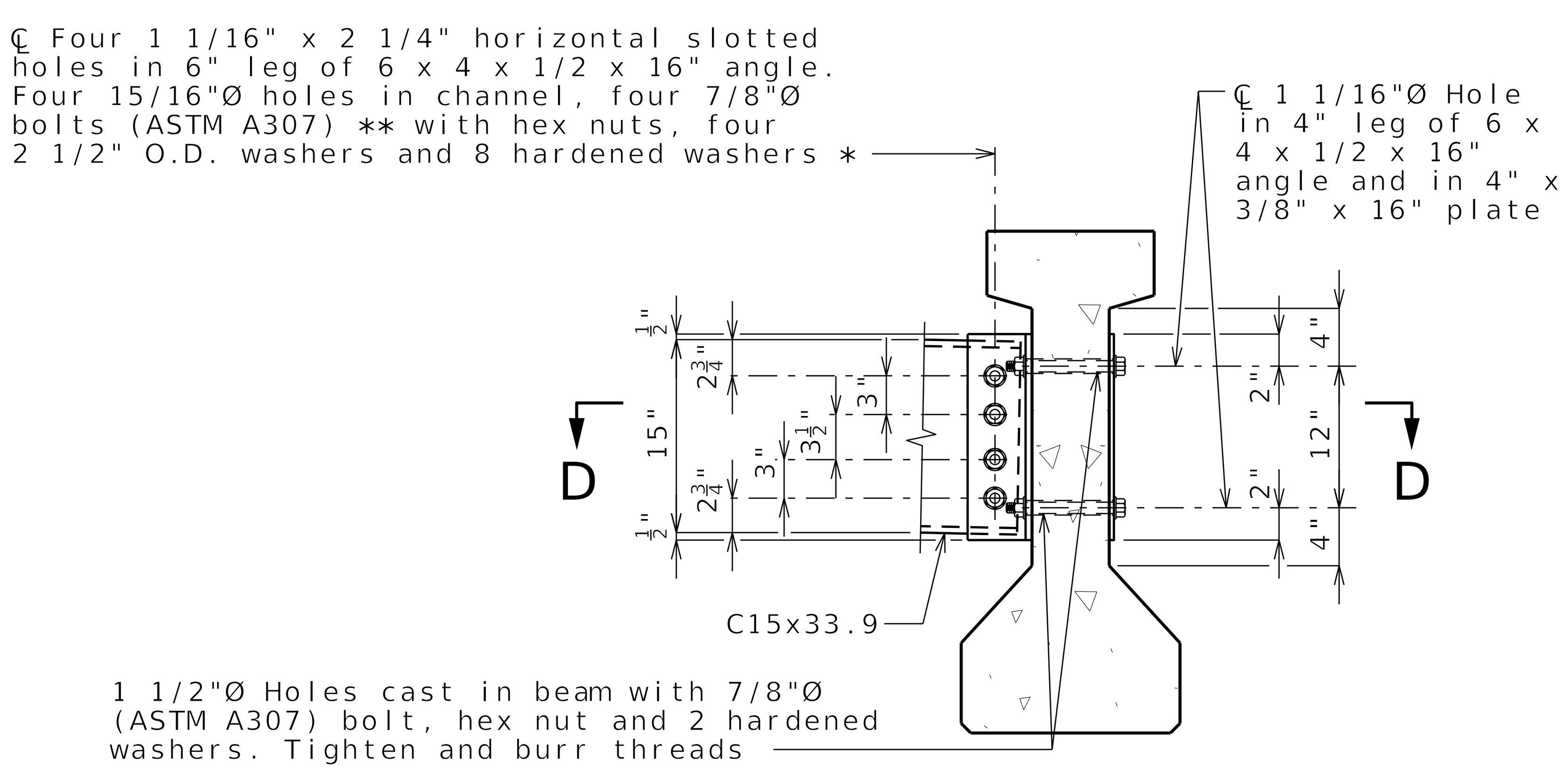
Longitudinal dimensions are horizontal.



PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS



SECTION D-D



SECTION THRU GIRDER AT DIAPHRAGM

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.

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

DATE PREPARED	5/6/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	17
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

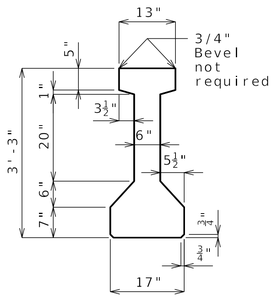
HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

Bartlett & West

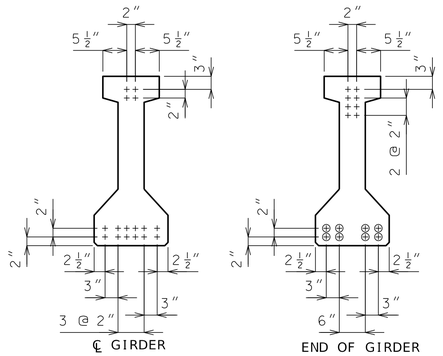
GIRDER LAYOUT

Detailed APR 2025
Checked APR 2025

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



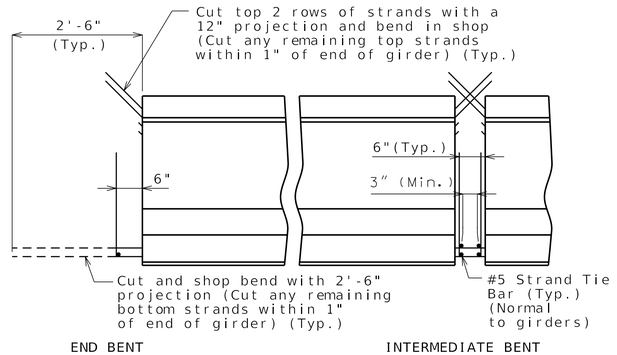
DIMENSIONS



STRAND ARRANGEMENT

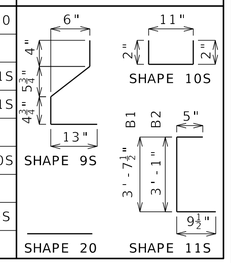
+ Indicates prestressing strand.

○ 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	5 A1	47'-10"	20	
98	5 B1	4'-7"	11S	
16	6 B2	4'-0"	11S	
57	4 C1	13"	10S	
114	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.

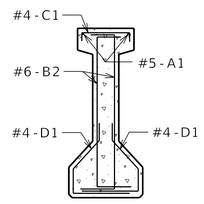
Actual lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch.

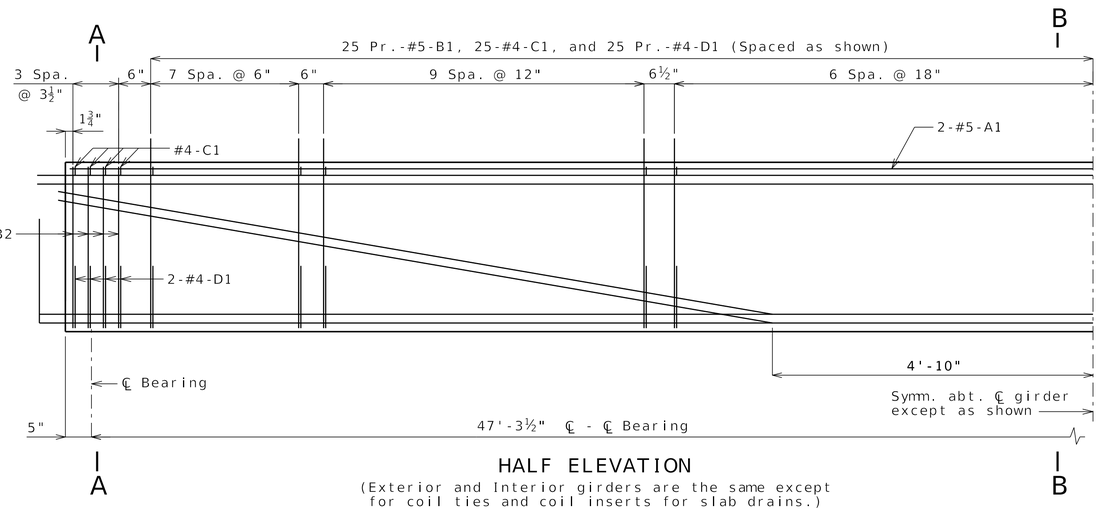
All reinforcement shall be Grade 60.

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

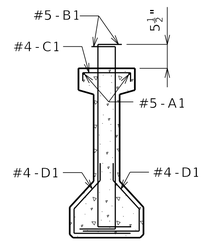
All B1 bars shall be epoxy coated.



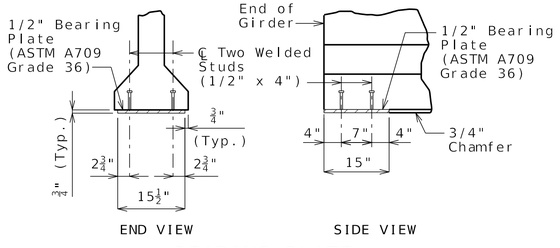
SECTION A-A
Strands not shown for clarity.



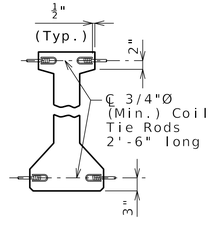
HALF ELEVATION
(Exterior and Interior girders are the same except for coil ties and coil inserts for slab drains.)



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 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 18
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43202

DESCRIPTION | DATE

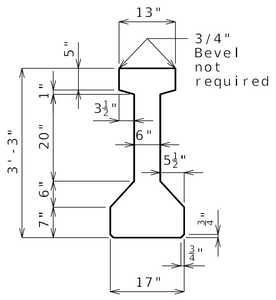
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
HNTB 715 KIRK DRIVE KANSAS CITY, MO 64105-1310 CERTIFICATE OF AUTHORITY NO. 001270
Bartlett & West 601 MONROE ST. SUITE 201 - JEFFERSON CITY, MO 65101 PHONE: (573) 634-2488 CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING WWW.BARTLETTWEST.COM

I- GIRDERS - SPAN (1-2)

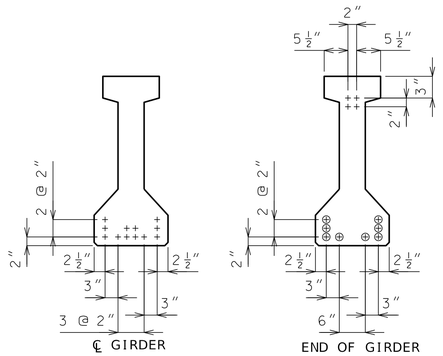
Detailed APR 2025
Checked APR 2025

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

B_A43202_018_JST0020_GIRELEV1-2.dgn 4:13:44 PM 5/6/2025



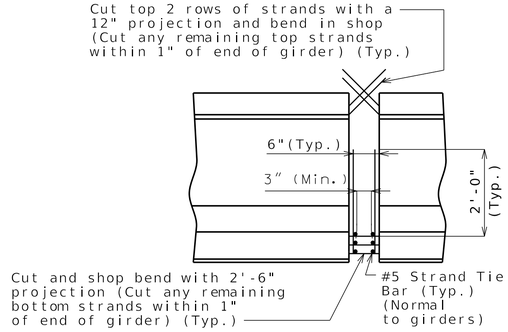
DIMENSIONS



STRAND ARRANGEMENT

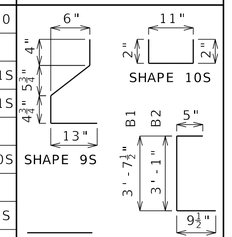
+ Indicates prestressing strand.

○ 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	5 A1	58'-8"	20	
114	5 B1	4'-7"	11S	
16	6 B2	4'-0"	11S	
65	4 C1	13"	10S	
130	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.

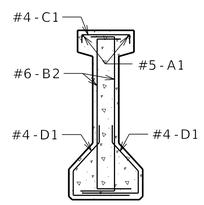
Actual lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch.

All reinforcement shall be Grade 60.

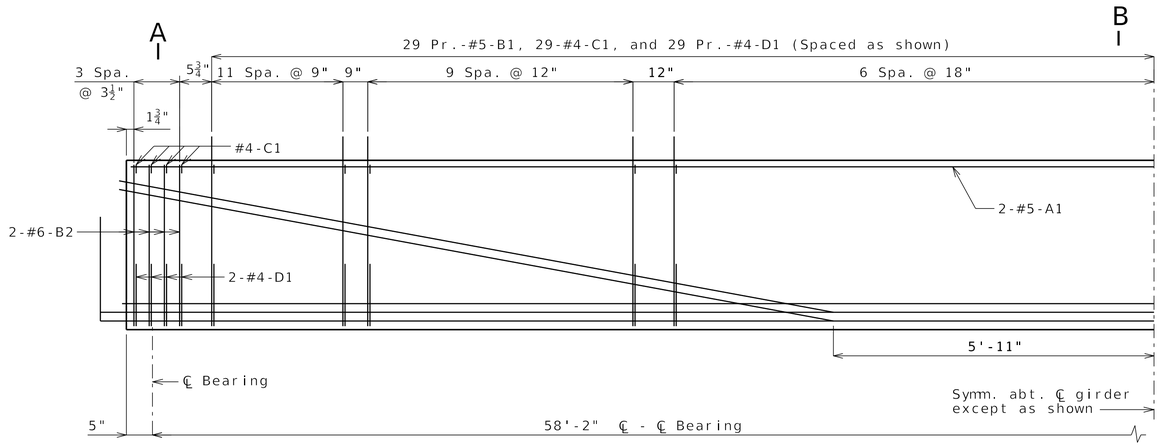
The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.



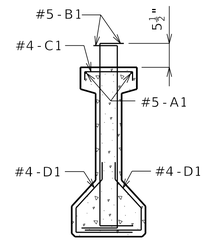
SECTION A-A

Strands not shown for clarity.



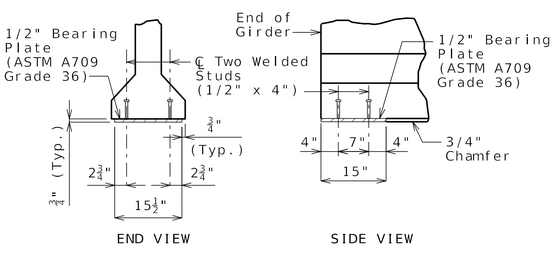
HALF ELEVATION

(Exterior and Interior girders are the same except for coil ties, coil inserts for slab drains, and holes for steel intermediate diaphragms.)

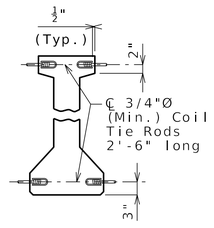


SECTION B-B

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 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.

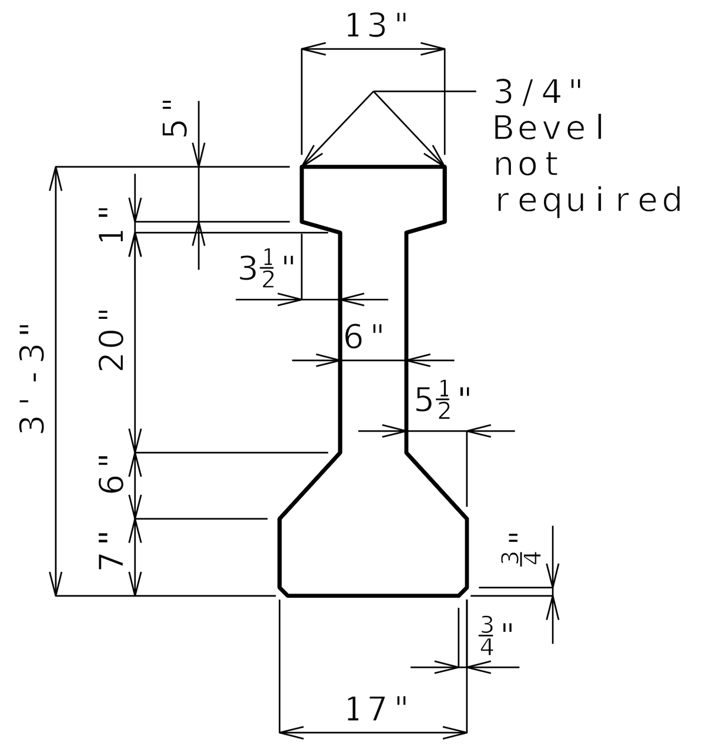
For location of coil ties at concrete diaphragms, see Sheet No. 21.

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 19
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43202

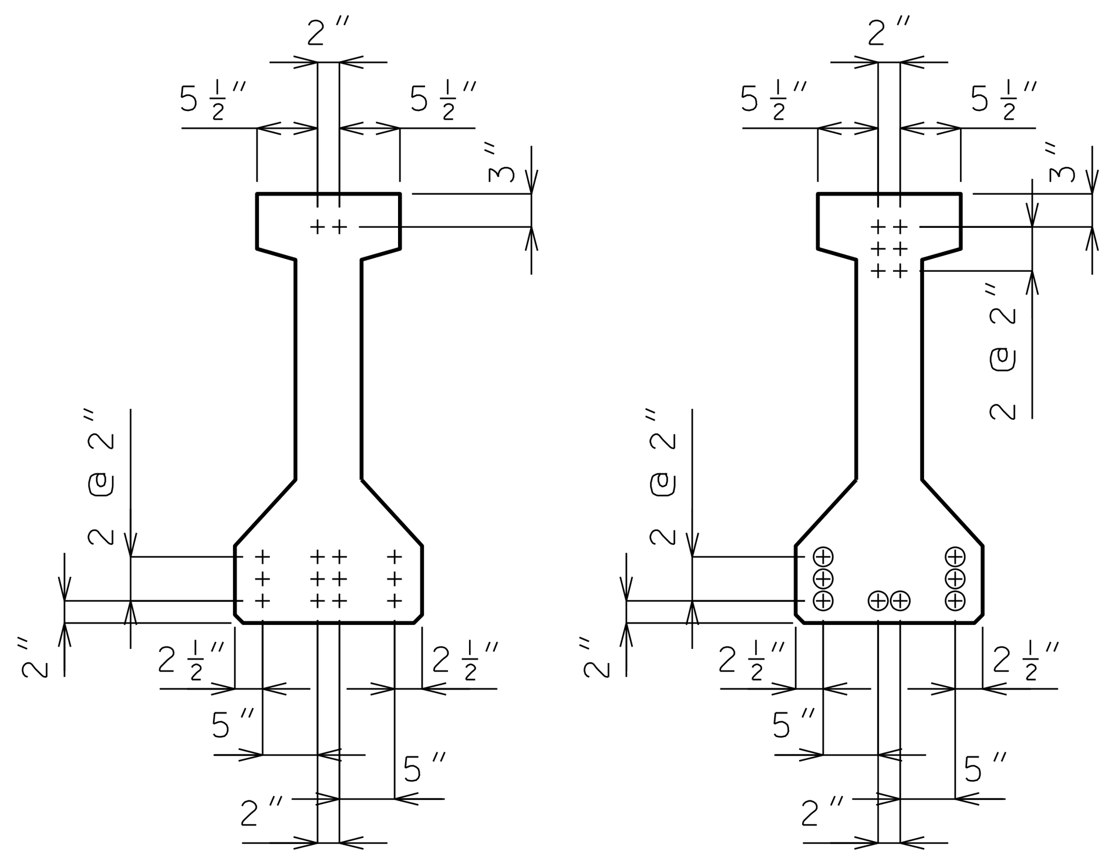
DESCRIPTION | DATE

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: 573-635-2627 CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING WWW.BARTLETTWEST.COM

I- GIRDERS - SPAN (2-3)



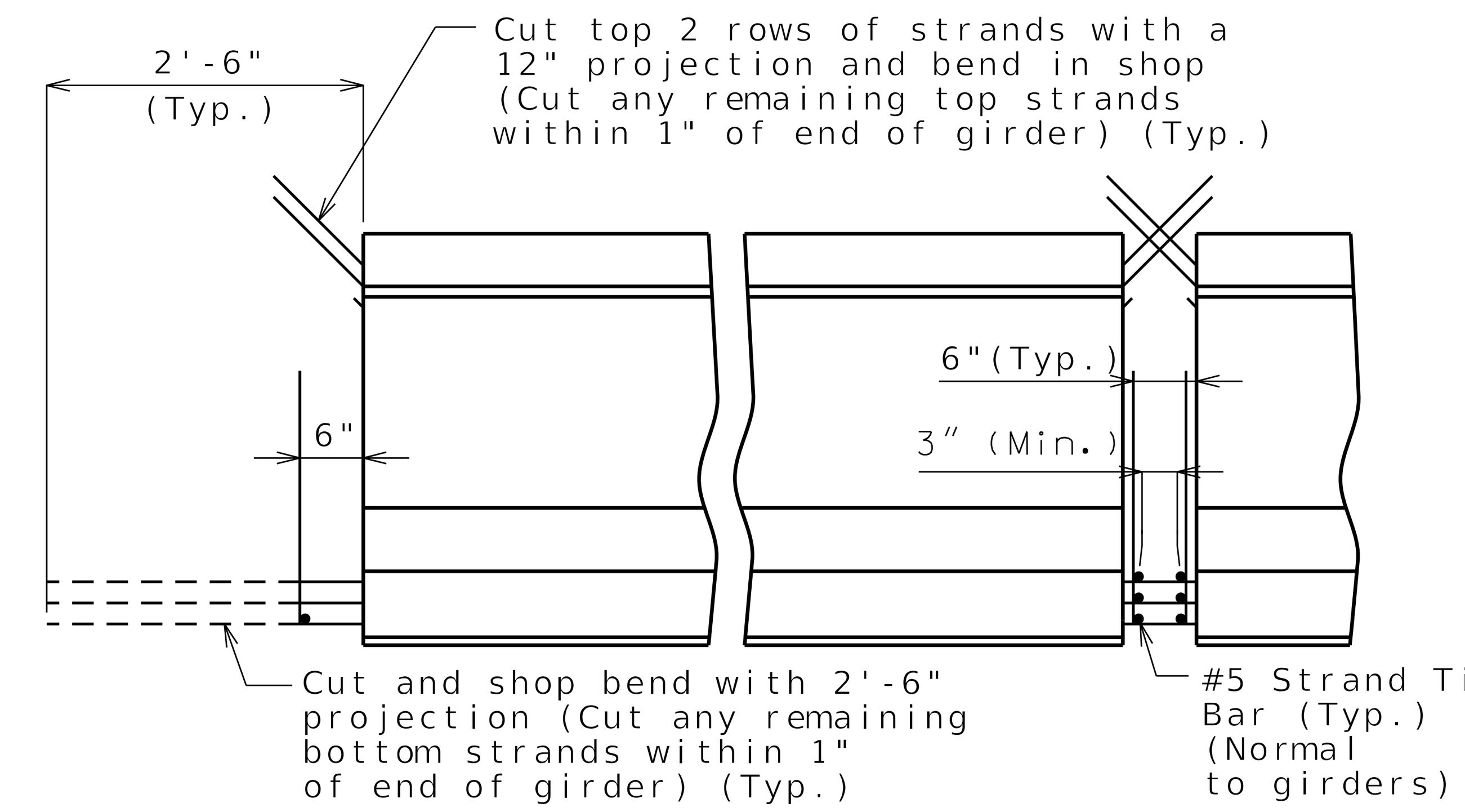
DIMENSIONS



STRAND ARRANGEMENT

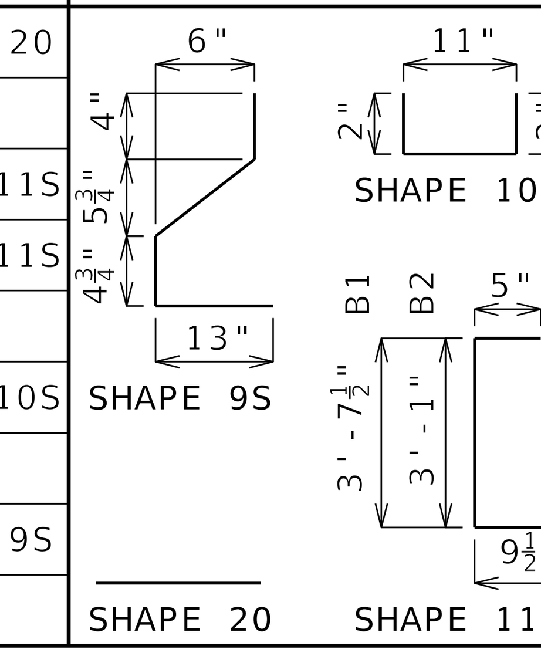
+ Indicates prestressing strand.

○ 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	5 A1	40'-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.

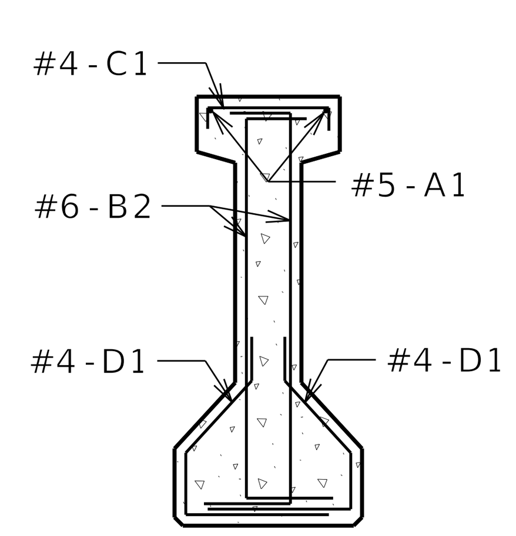
Actual lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch.

All reinforcement shall be Grade 60.

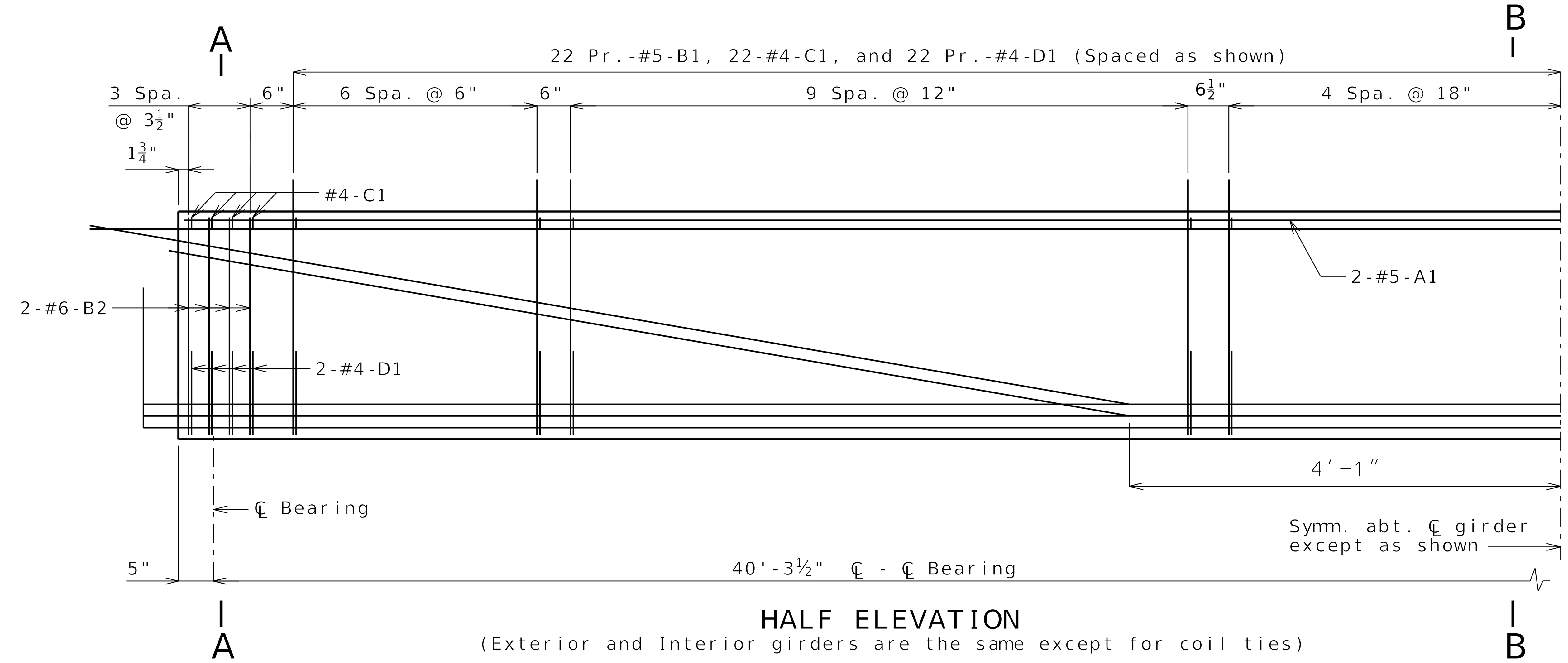
The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.



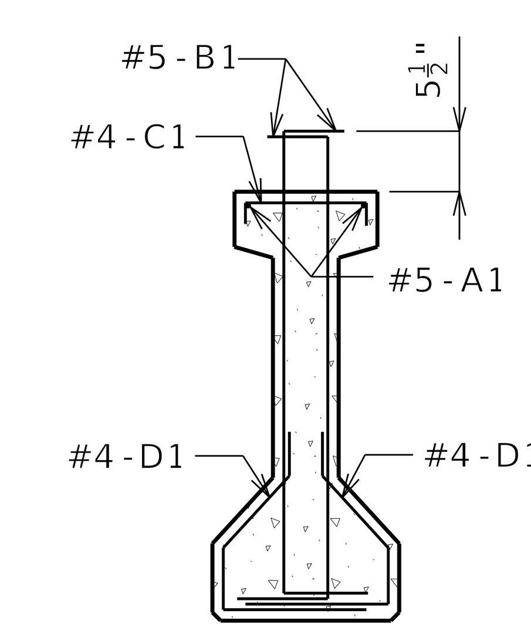
SECTION A-A

Strands not shown for clarity.



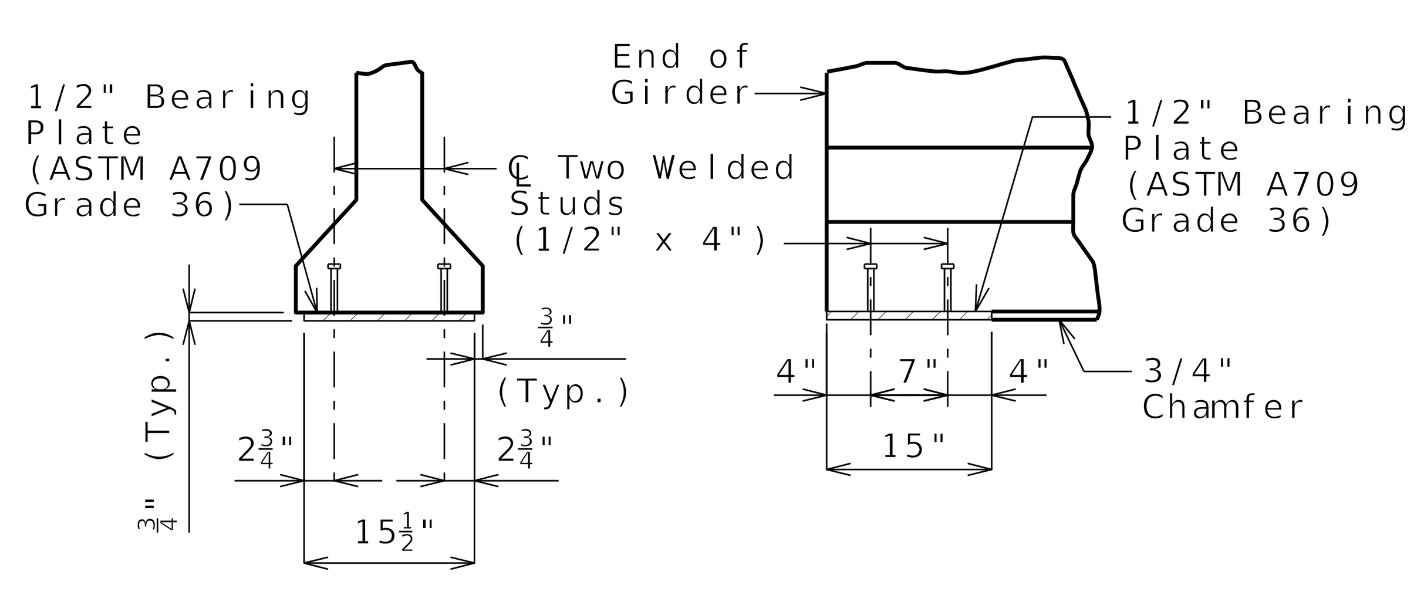
HALF ELEVATION

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

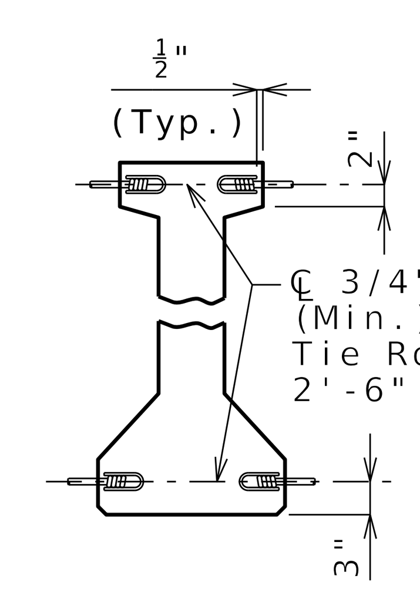


SECTION B-B

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 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.

DATE PREPARED	
5/6/2025	
ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	20
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)

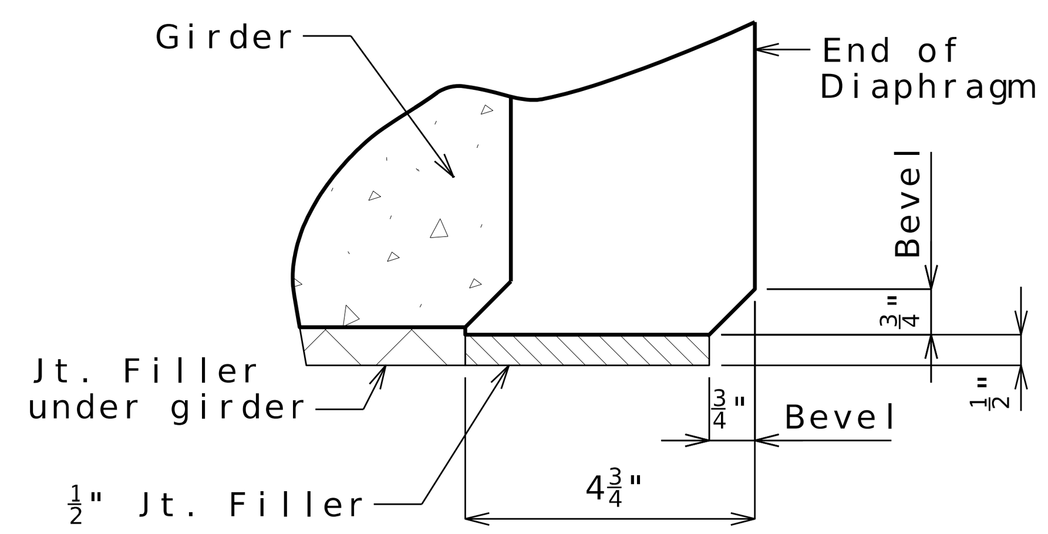
HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

Bartlett & West

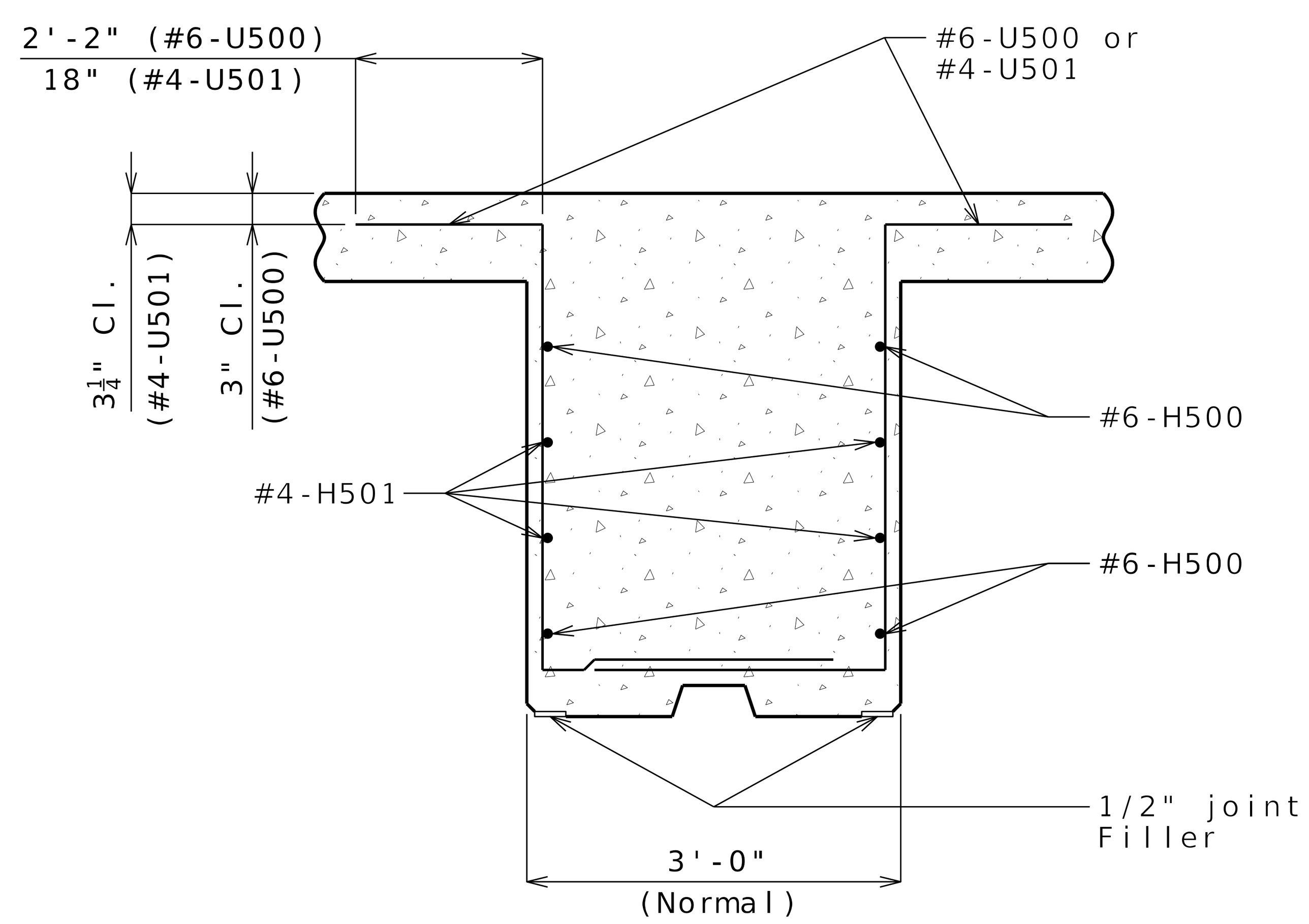
I- GIRDERS - SPAN (3-4)

Detailed APR 2025
Checked APR 2025

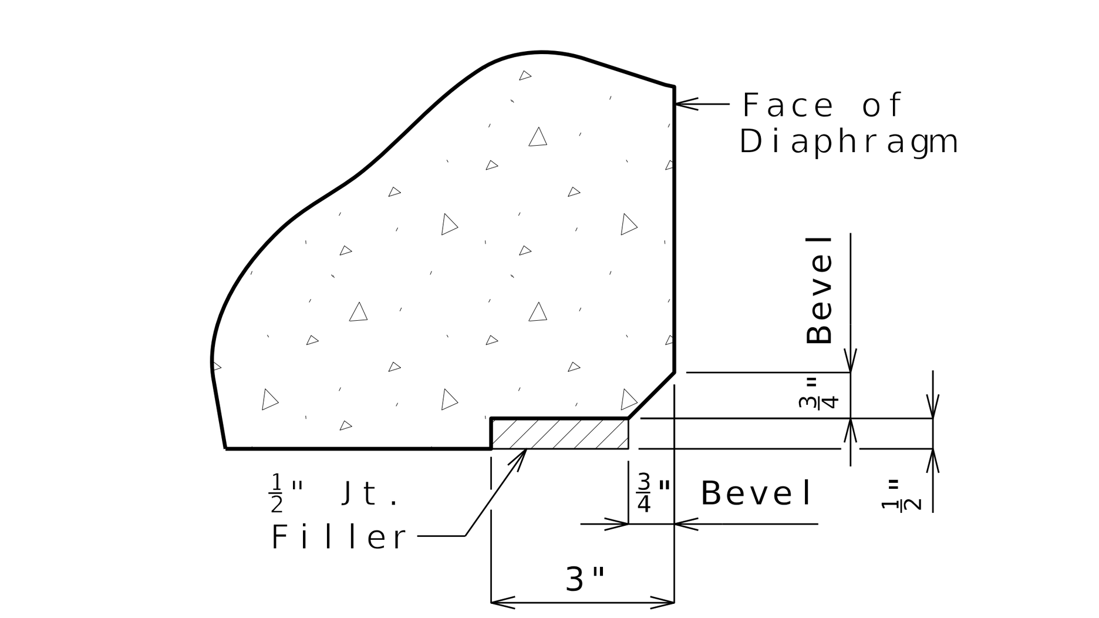
Note: This drawing is not to scale. Follow dimensions.



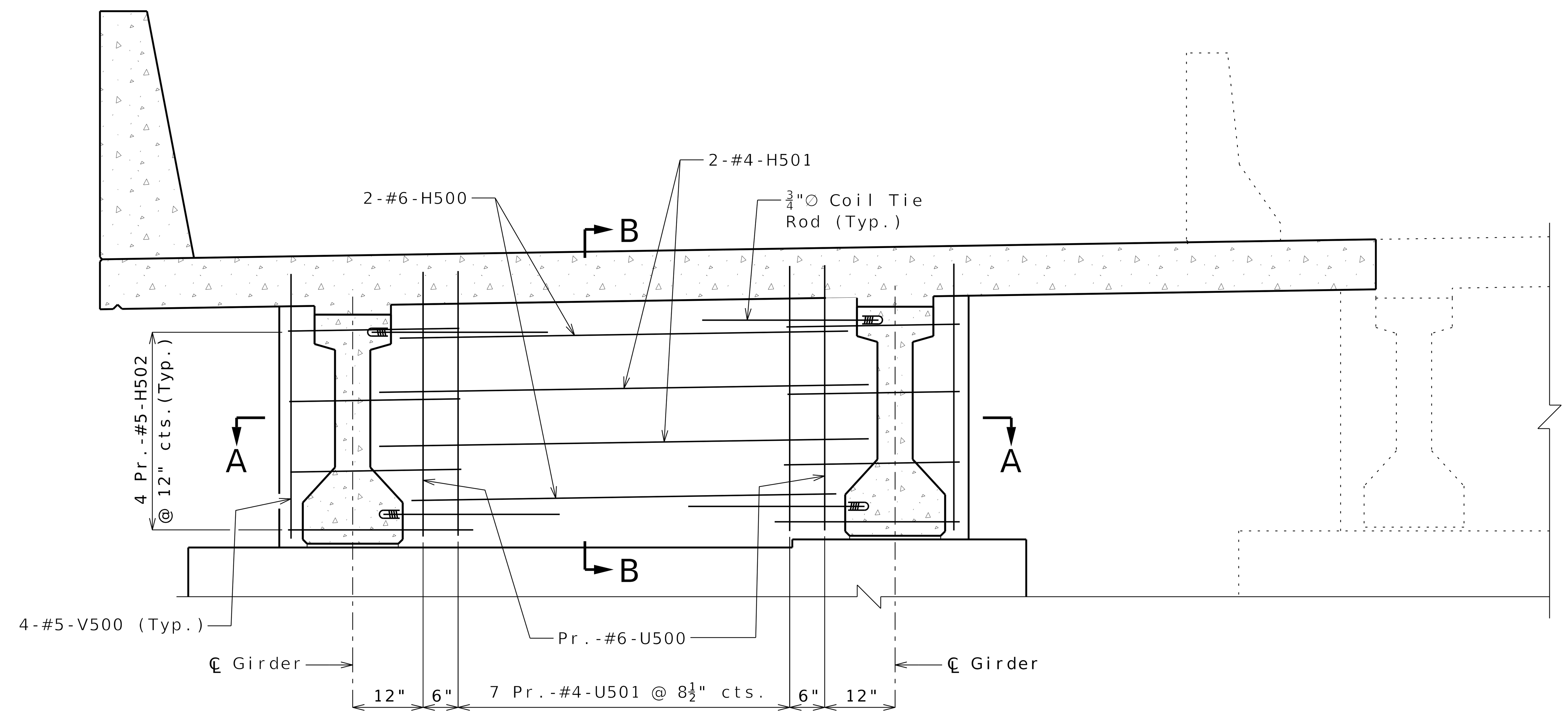
END DETAIL



SECTION B-B

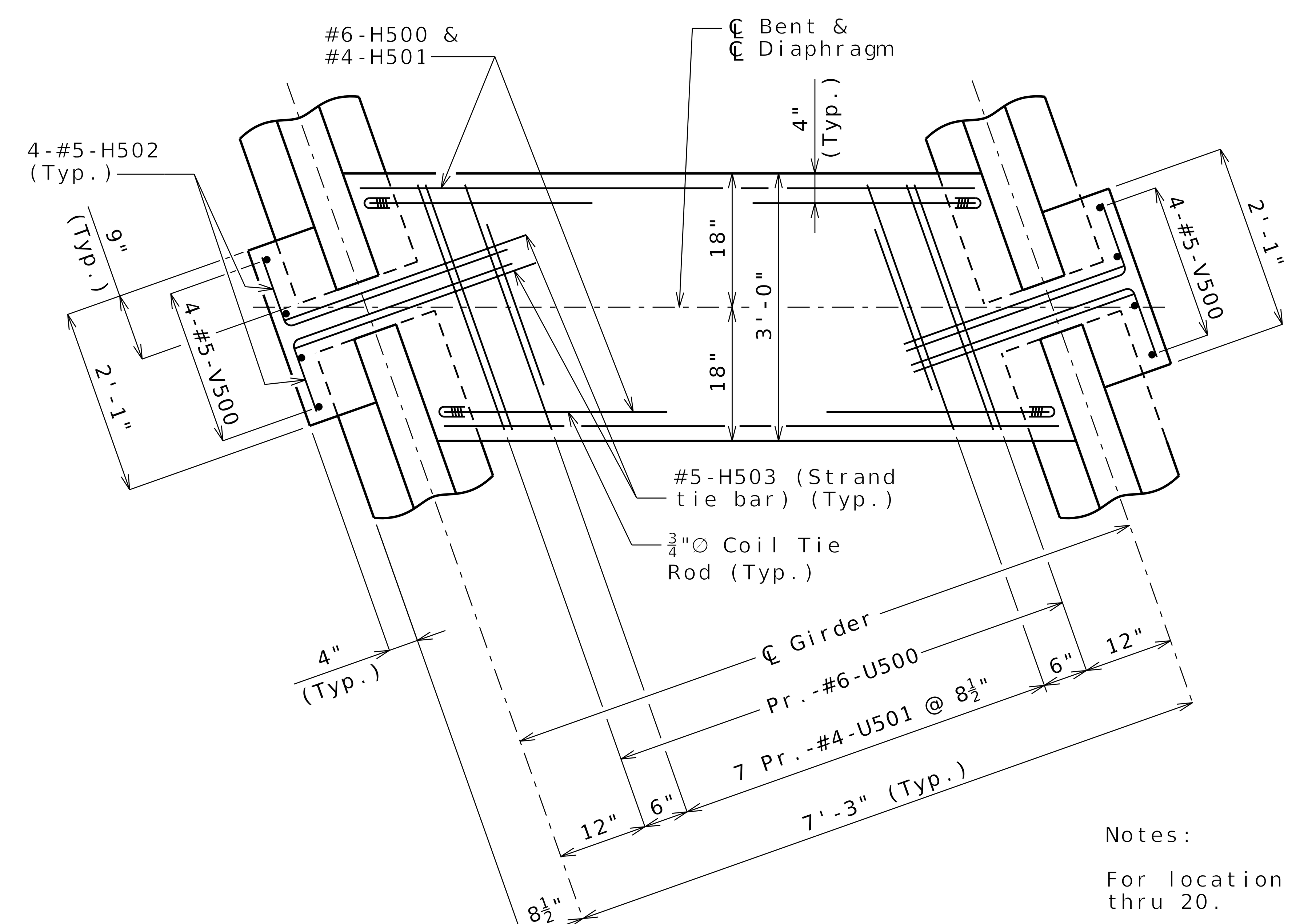


EDGE DETAIL



SECTION NEAR INTERMEDIATE BENT

Normal to ℄ Structure



SECTION A-A

Notes:

For location and number of Strand Tie Bars, see Sheets No. 18 thru 20.

For location and details of Coil Tie Rods, see Sheets No. 18 thru 20.

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

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

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ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	21
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

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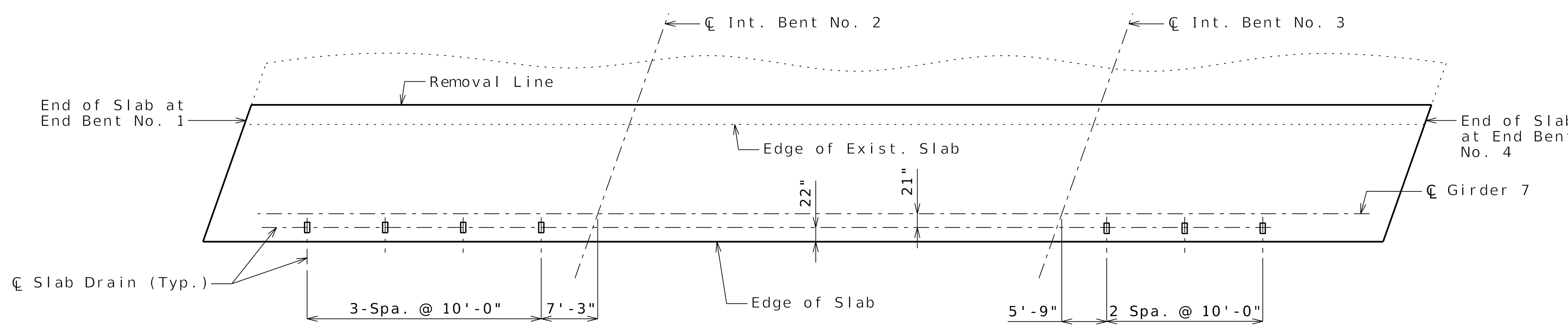
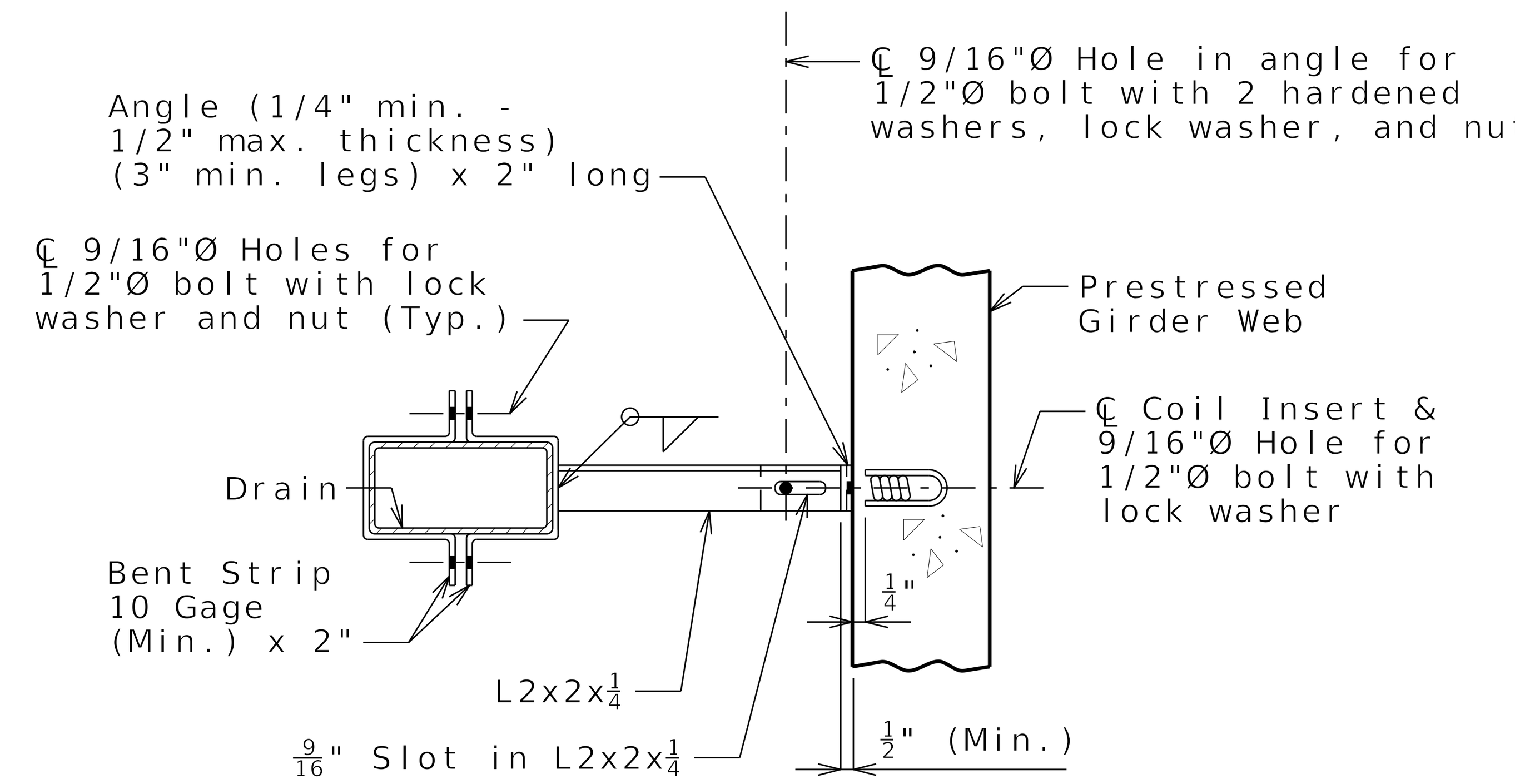
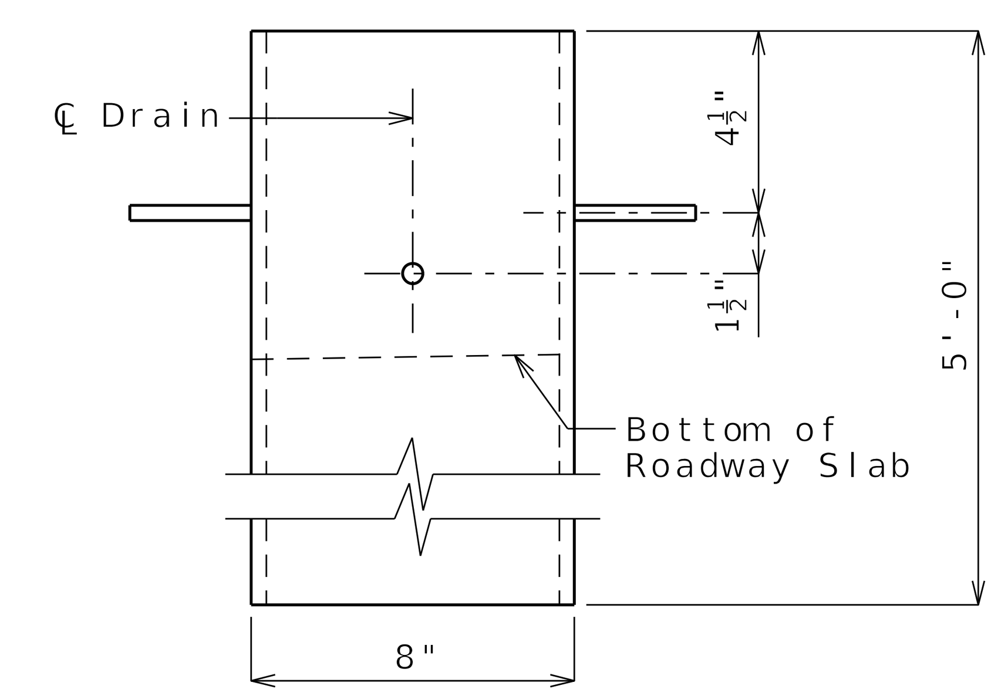


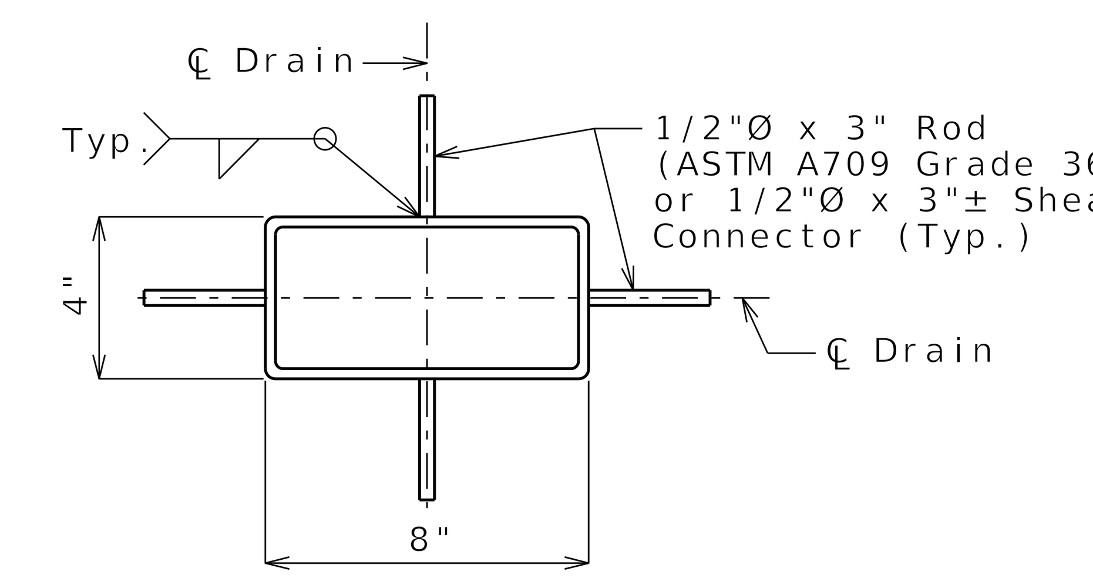
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



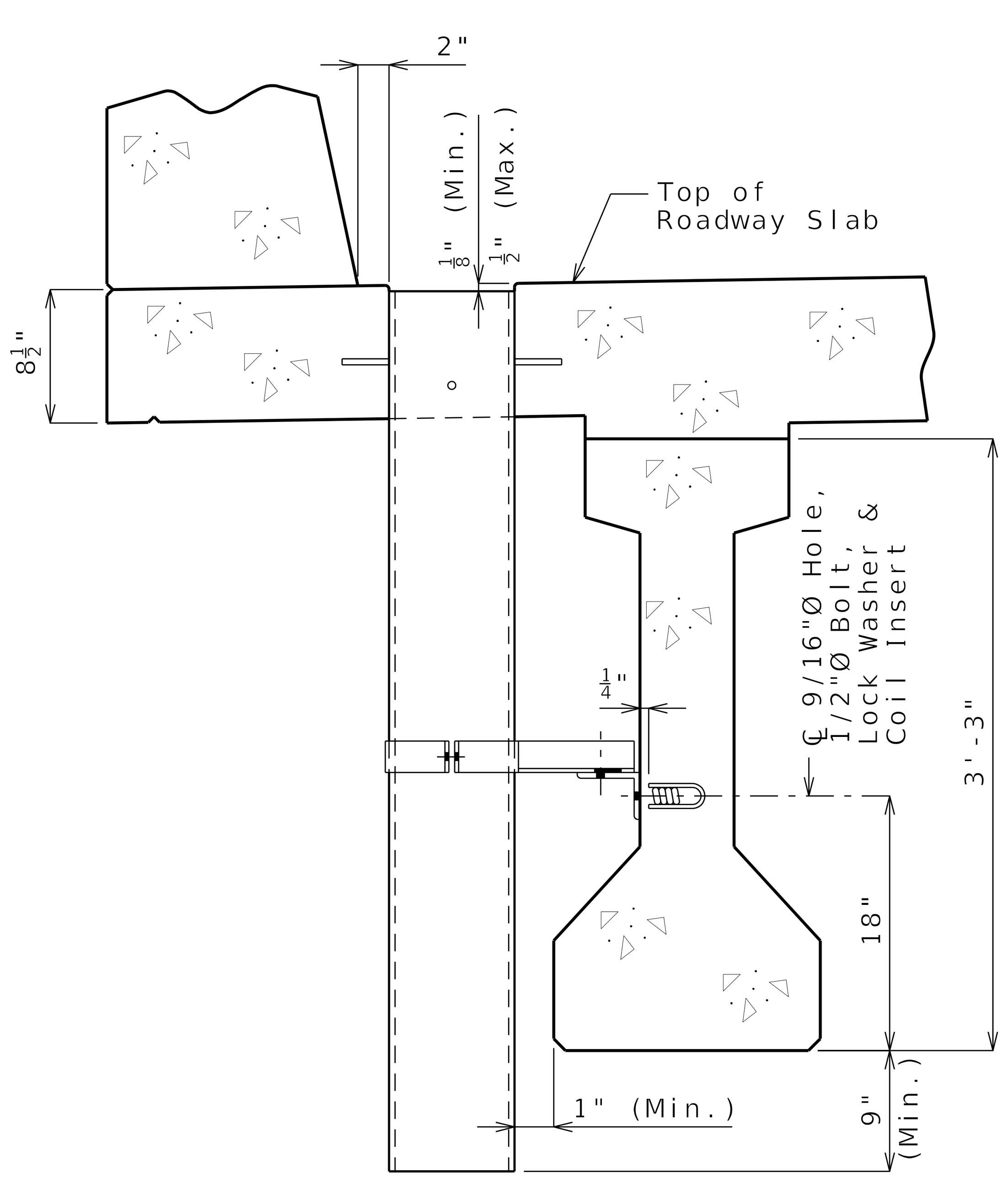
PART SECTION SHOWING BRACKET ASSEMBLY



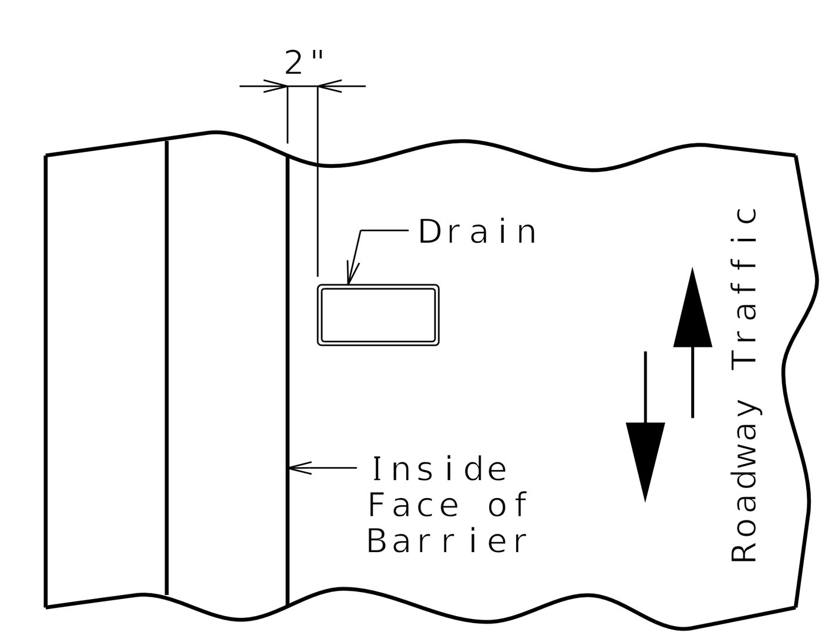
ELEVATION OF DRAIN



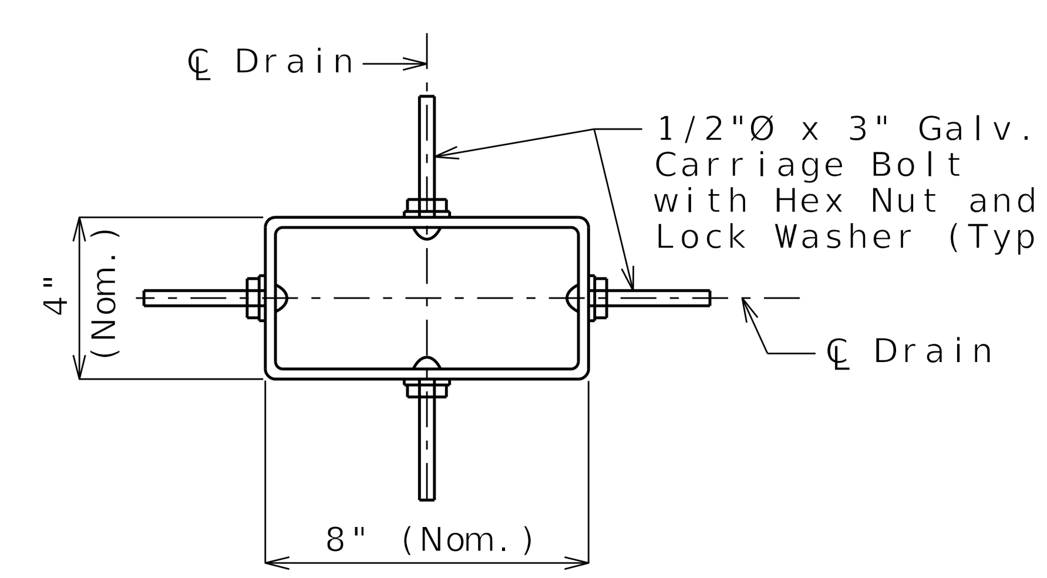
PLAN OF STEEL DRAIN OPTION



PART SECTION NEAR DRAIN



PART PLAN OF SLAB AT DRAIN



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.

Coil insert locations in prestressed girders shall be modified by fabricator to provide 1 1/2" clear between the prestressing strand and the edge of the coil insert.

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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

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ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	22
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)

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

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SLAB DRAINS

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

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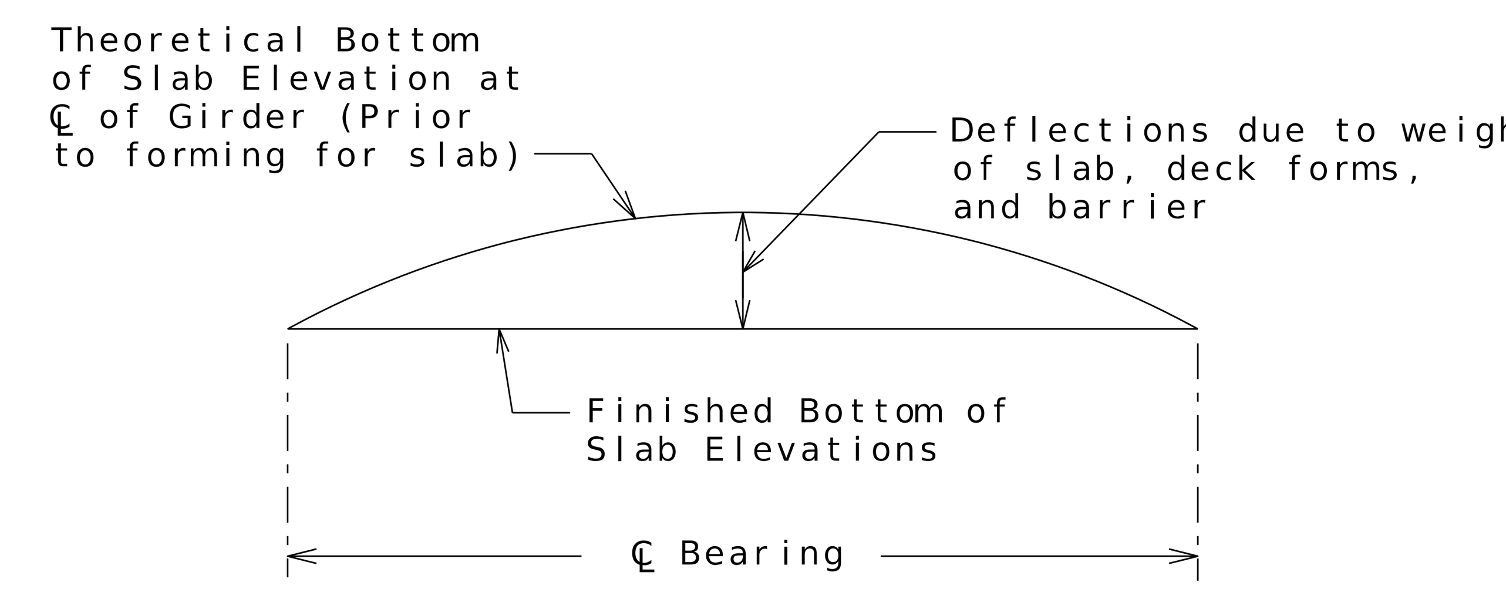
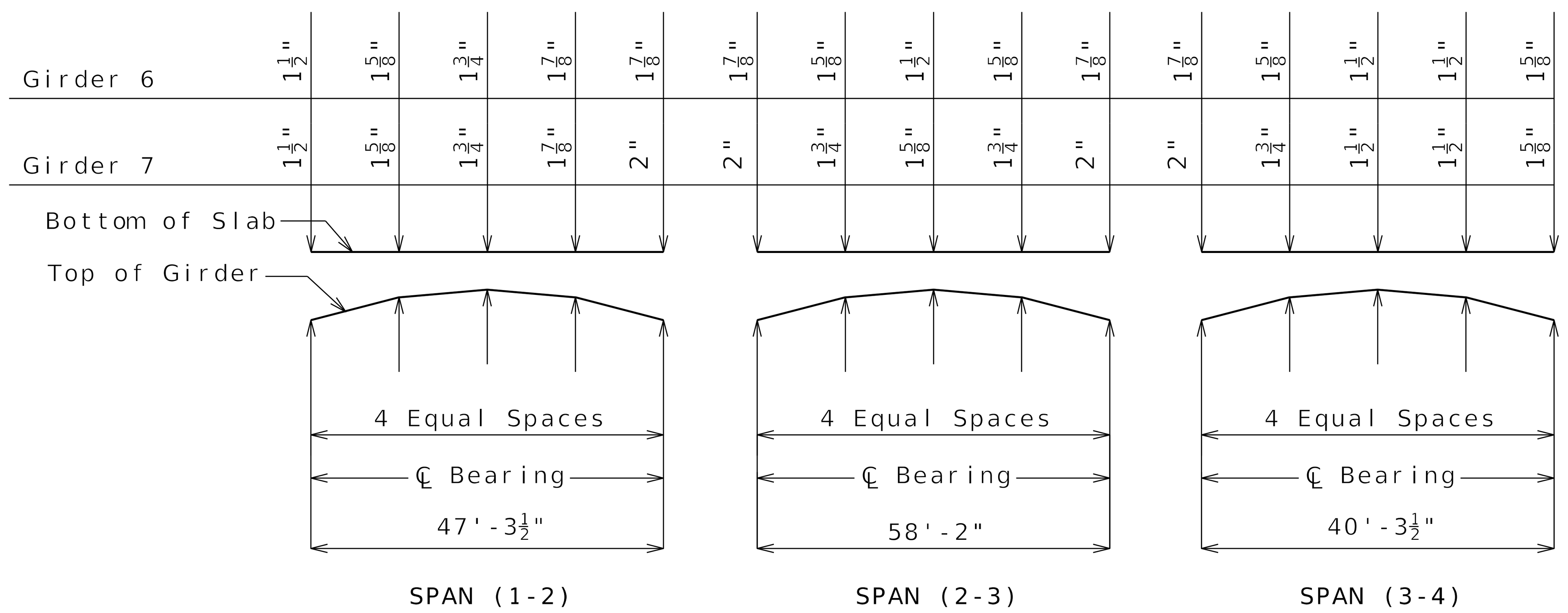
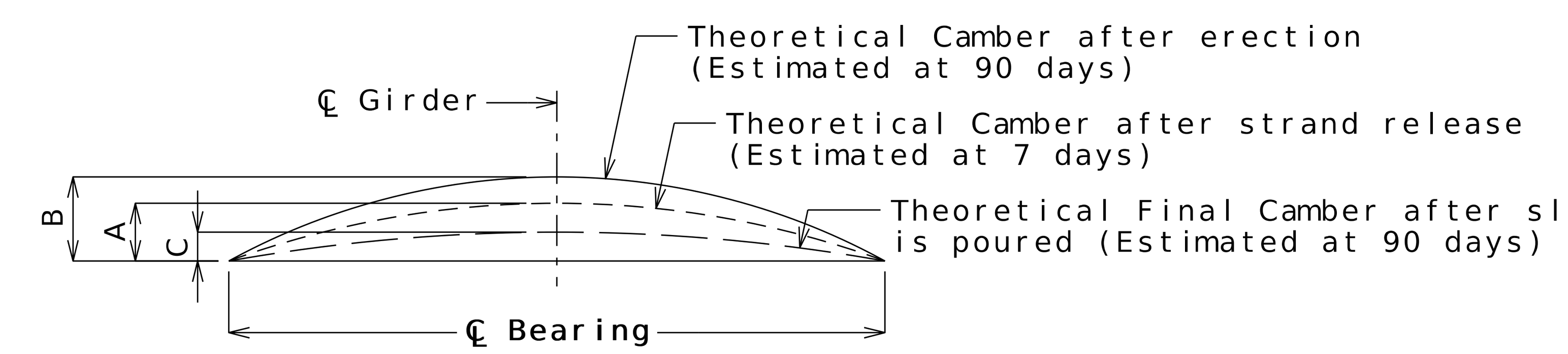


TYPICAL SLAB ELEVATIONS DIAGRAM

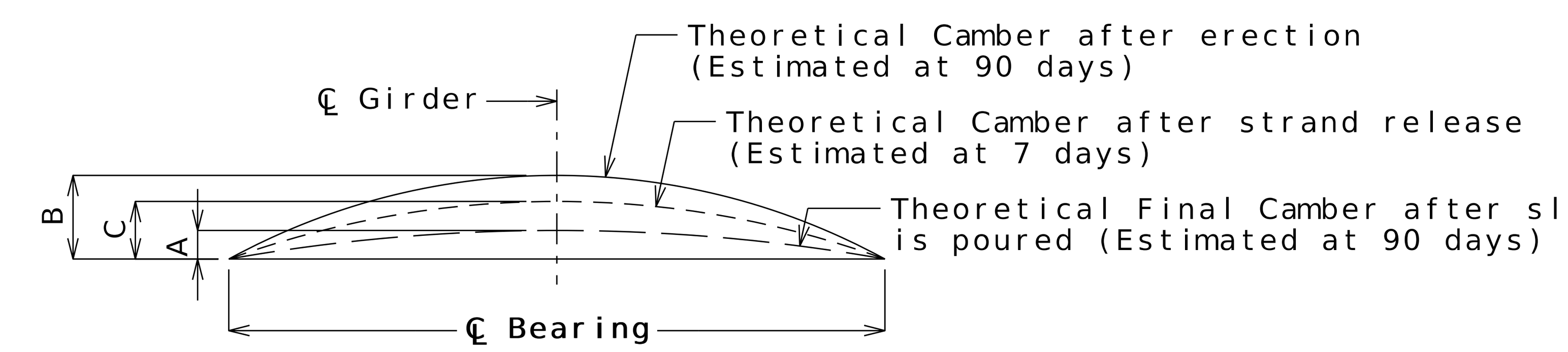


THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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.



Girder	Span (2-3)		
	A	B	C
6	1"	1½"	⅞"
7	1"		



Girder	Span (1-2)			Span (3-4)		
	A	B	C	A	B	C
6	¼"	½"	½"	½"	⅝"	½"
7	¼"			½"		

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) (47'-3½" ℄ Brg. - ℄ Brg.)					Span (2-3) (58'-2" ℄ Brg. - ℄ Brg.)					Span (3-4) (40'-3½" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
6	598.64	598.69	598.72	598.72	598.70	598.70	598.75	598.76	598.71	598.63	598.62	598.61	598.58	598.54	598.48
7	598.53	598.57	598.60	598.60	598.59	598.59	598.64	598.65	598.61	598.52	598.52	598.50	598.47	598.43	598.38

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 deck forms) and barrier.

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 23
COUNTY ST. CHARLES
JOB NO. JST0020
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PROJECT NO.
BRIDGE NO. A43202
DESCRIPTION
DATE

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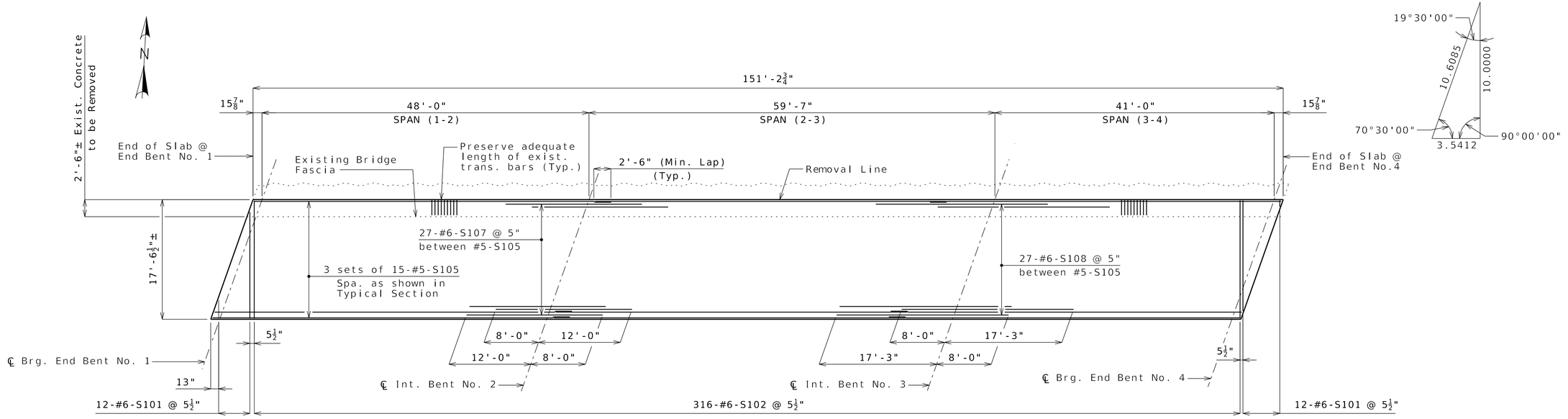
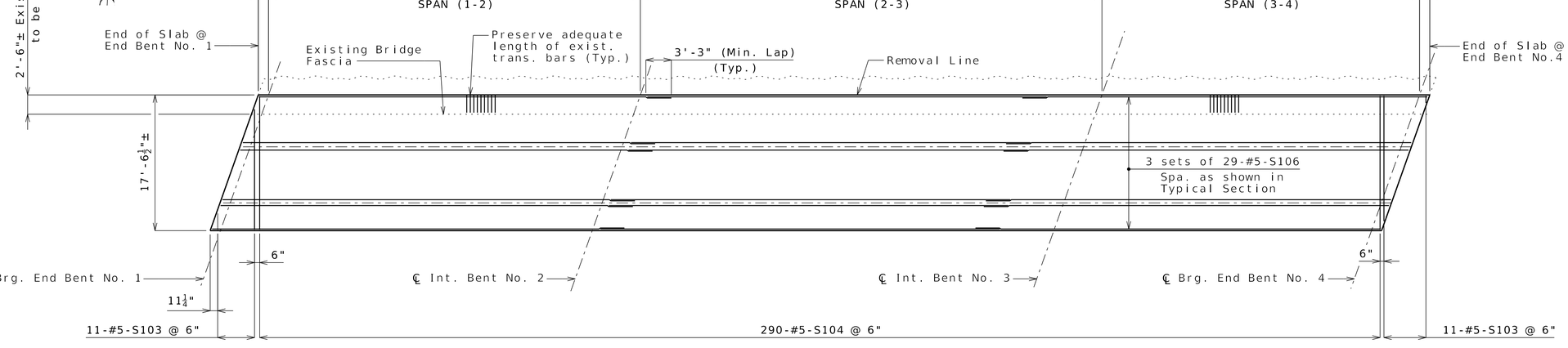
THEORETICAL SLAB HAUNCHING DIAGRAM, BOTTOM OF SLAB ELEVATIONS, AND GIRDER CAMBER DIAGRAM

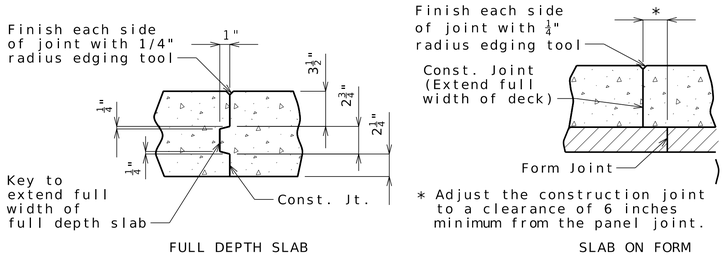
Note: This drawing is not to scale. Follow dimensions.



TOP REINFORCING PLAN



BOTTOM REINFORCING PLAN



SLAB CONSTRUCTION JOINT

Notes:

Longitudinal slab dimensions are measured horizontally.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 25.

For Details and Reinforcement of Type D Barrier not shown, see Sheets No. 26 and 27.

For Theoretical Slab Haunching Diagram, see Sheet No. 23.

For Theoretical Bottom of Slab Elevations, see Sheet No. 23.

For details and locations of Slab Drains, see Sheet No. 22.

PLAN OF SLAB SHOWING REINFORCEMENT

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 24
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43202

DESCRIPTION | DATE

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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 (573) 635-2748 CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING BARTLETTANDWEST.COM

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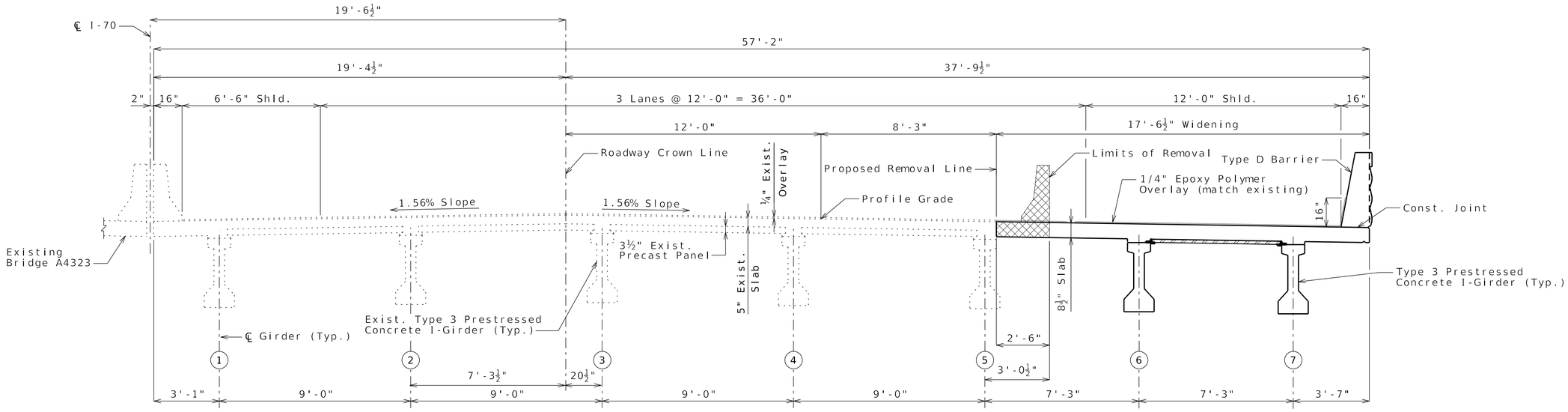
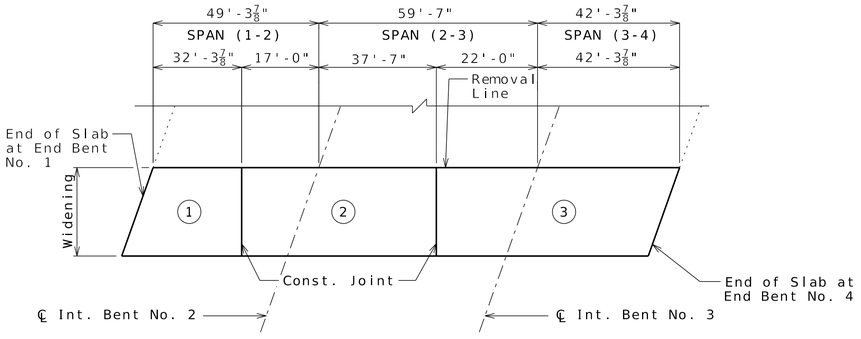


TYPICAL SECTION THRU SLAB



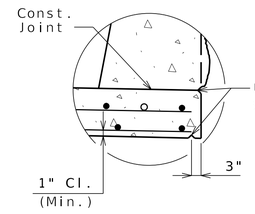
	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1 End to 2	2 1 to 3	3 2 to End	25
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1 + 2 End to 2	3 2 to End		25
Alternate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

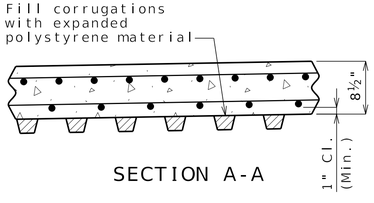
Install new diaphragm between proposed girders within Span (2-3). No permanent diaphragm will be installed between proposed and existing girders. Contractor to ensure stability of proposed girders during deck pour.

SLAB POURING SEQUENCE

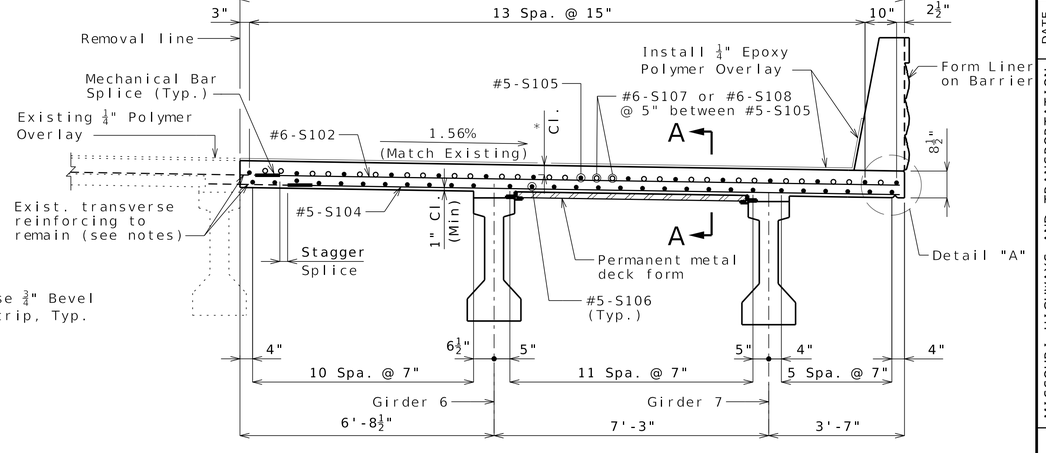


DETAIL "A"

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



SECTION A-A



* 3" (#5 Bar)
2⅞" (#6 Bar)

WIDENING SECTION THRU SLAB

SECTION NEAR INTERMEDIATE BENT

Notes:

Type D Barrier reinforcement not shown for clarity.

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 metal deck form notes, see General Notes.

For slab plan showing reinforcement, Slab Construction Joint, and additional notes, see Sheet No. 24.

Mechanical bar splices shall be in accordance with Sec 710. Estimated 478 splices required.

SLAB DETAILS

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 25
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)
MoDOT
IMPROVE 70 ALLIANCE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
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Bartlett & West
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PHONE: (573) 635-2627
CERTIFICATE OF AUTHORITY NO. 000117 - ENGINEERING
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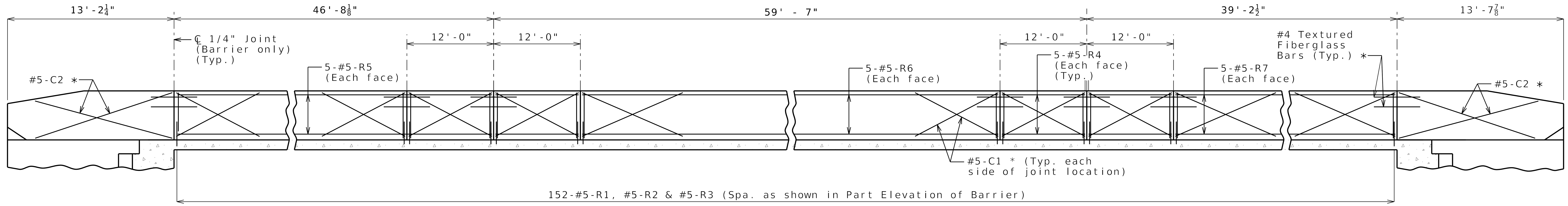
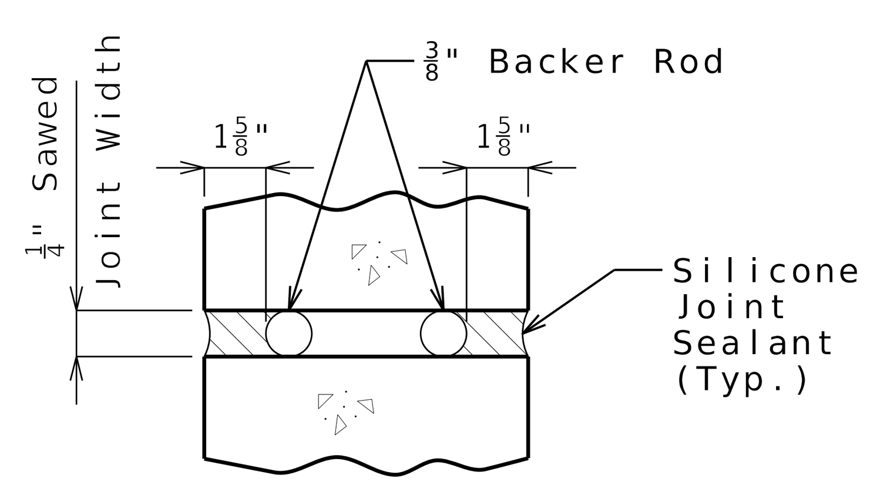
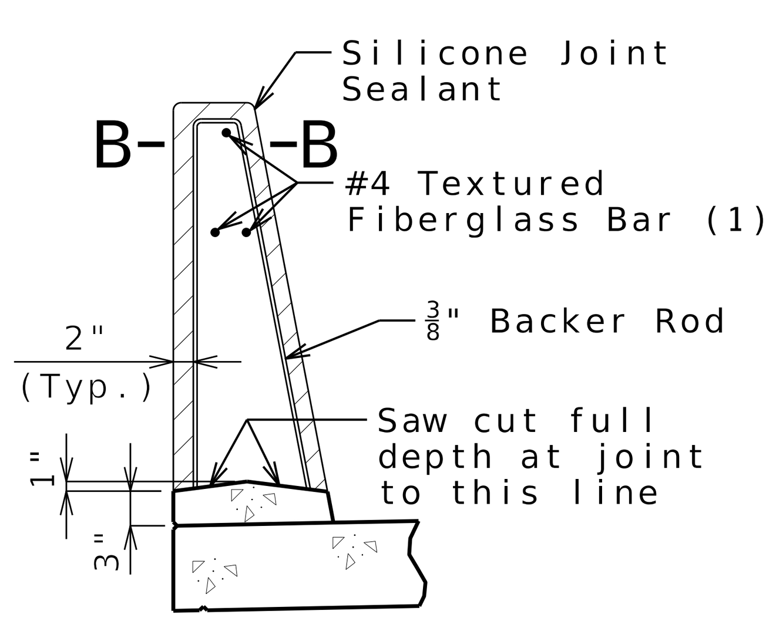


ELEVATION OF RIGHT BARRIER

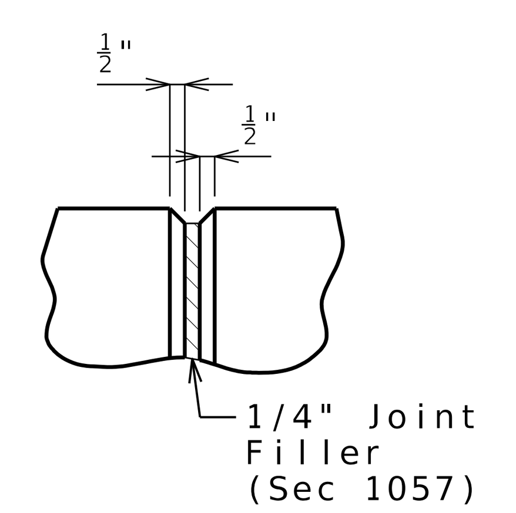
Longitudinal dimensions are horizontal and measured along the edge of slab.



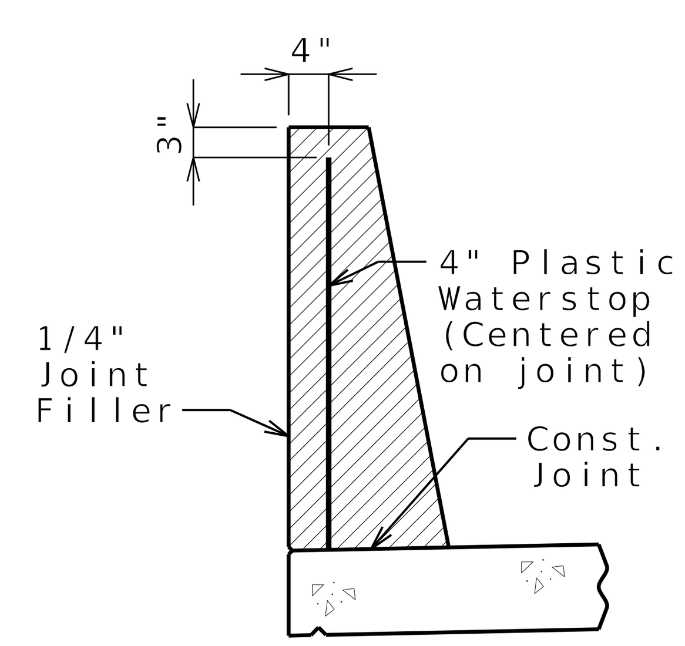
SECTION B-B



SECTION THRU SAW CUT JOINT

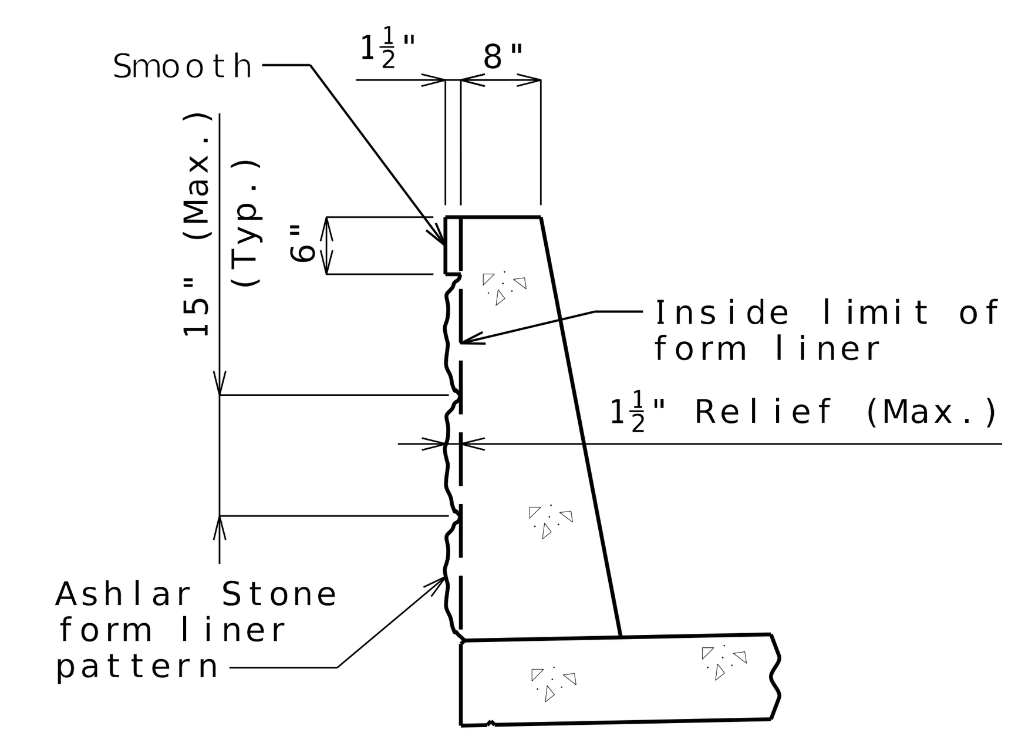


PART ELEVATION AT FORMED JOINT

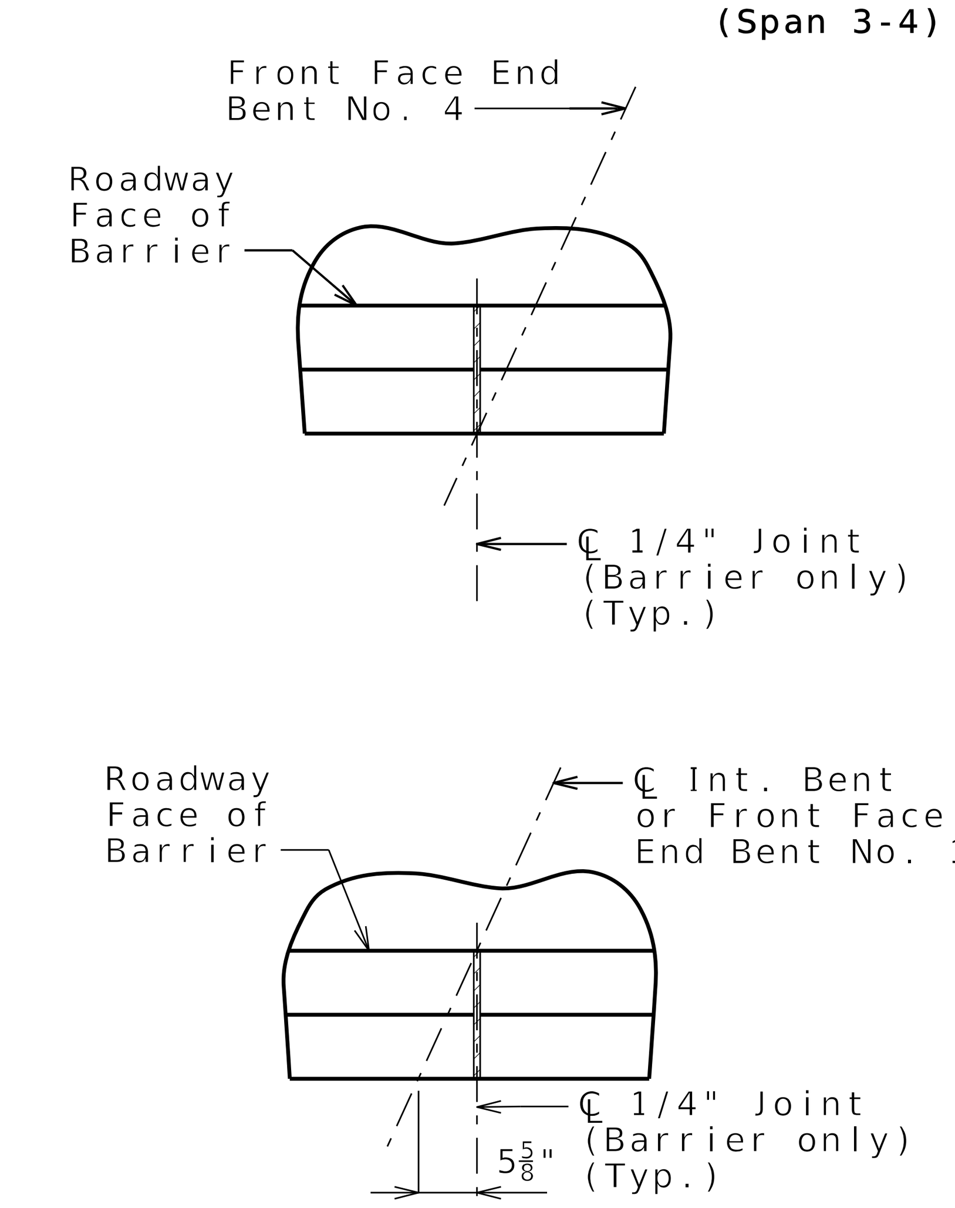


WATERSTOP DETAIL

Plastic waterstop shall be placed in all formed joints.



SECTION SHOWING FORM LINER



PART PLAN SHOWING JOINT LOCATION

Concrete Form Liner Notes:

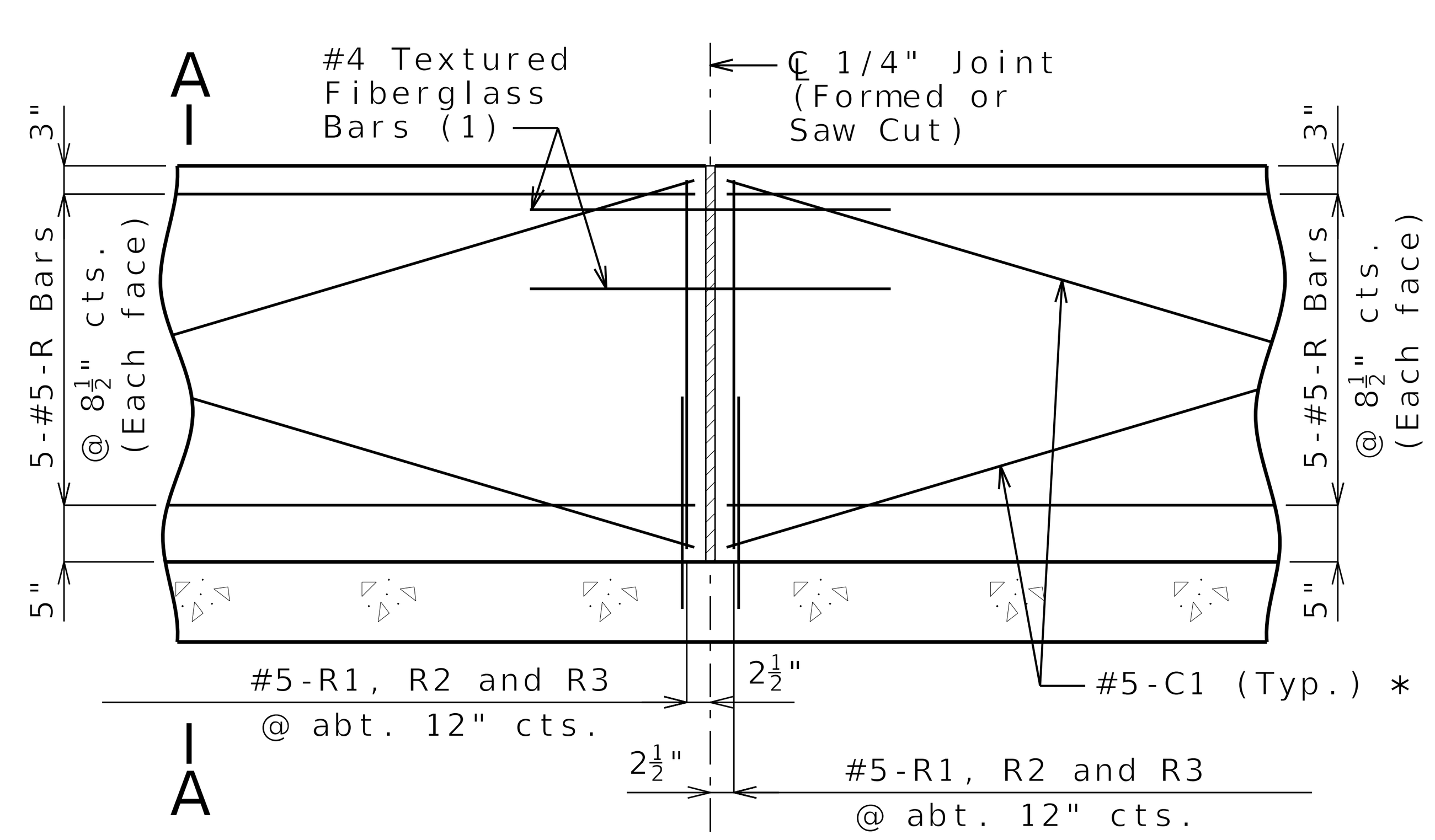
Form liner shall be constructed in accordance with Special Provisions.

The Contractor shall submit a proposed form liner for this project. Pattern of form liner shall appear natural and non-repeating.

Place form liner such that the predominate orientation of the simulated mortar joints are horizontal and vertical.

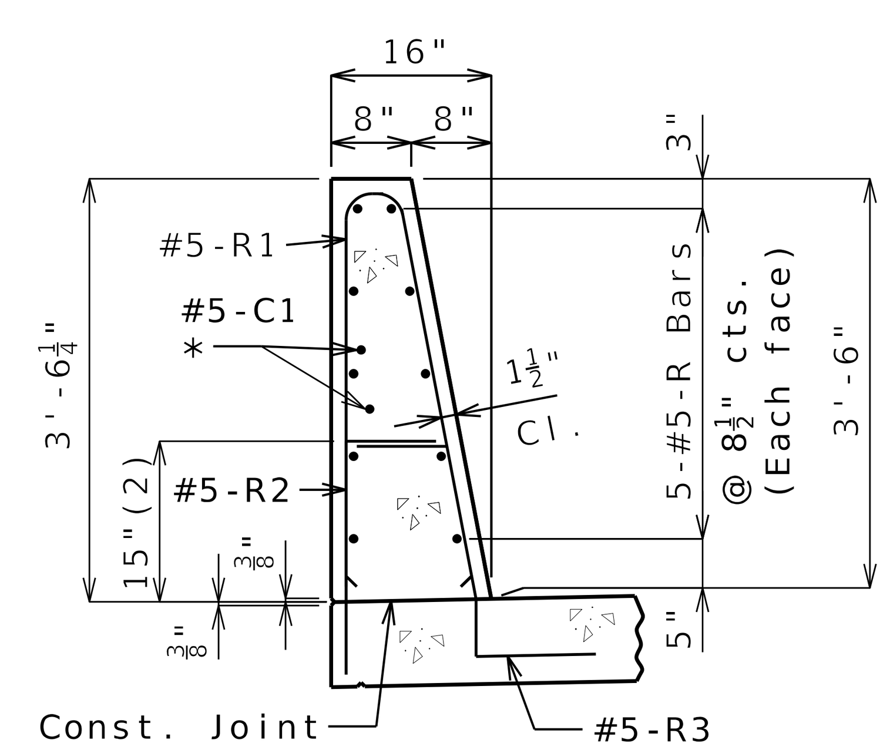
The following is a list of form liner manufacturers and types which may be used. Depth of relief for all form liner pattern's shall vary up to 1 1/2". The height of any single "stone" shall be 15" maximum.

- -Scott System, Inc.: Form liner pattern #167 "Ashlar Stone"
- -Fitzgerald Formliners: Form liner pattern #16986 "Ashlar Stone"
- -Greenstreak: Form liner pattern #330 "Ashlar Stone"
- -Spec Formliners: Form liner pattern #1515 "Ashlar Stone"
- -Customrock: Form liner pattern # 12020 "Tollway Ashlar"
- -An approved equal



PART ELEVATION OF BARRIER

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

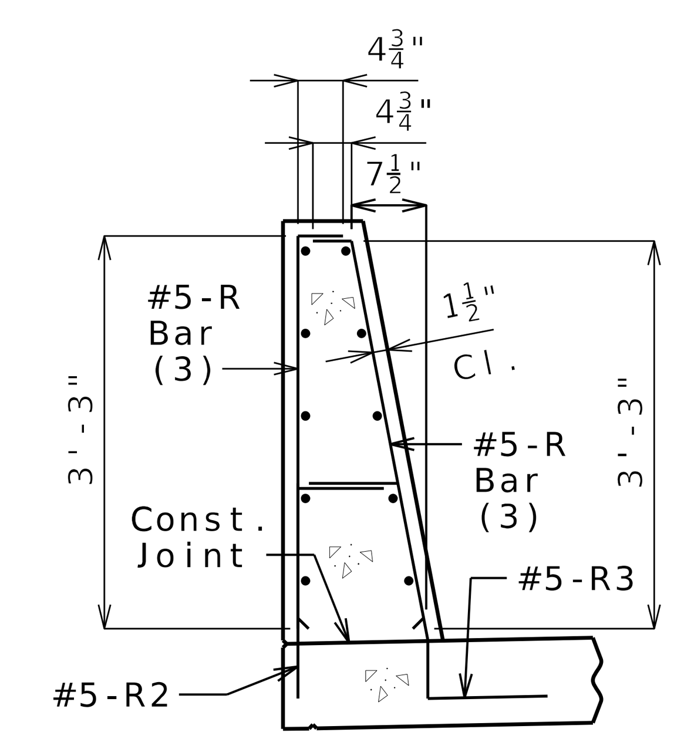


SECTION A-A

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.

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

Detailed APR 2025
Checked APR 2025

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

DATE PREPARED	
5/6/2025	
ROUTE: I-70	STATE: MO
DISTRICT: BR	SHEET NO.: 26
COUNTY: ST. CHARLES	
JOB NO.: JST0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.: A43202	

DESCRIPTION

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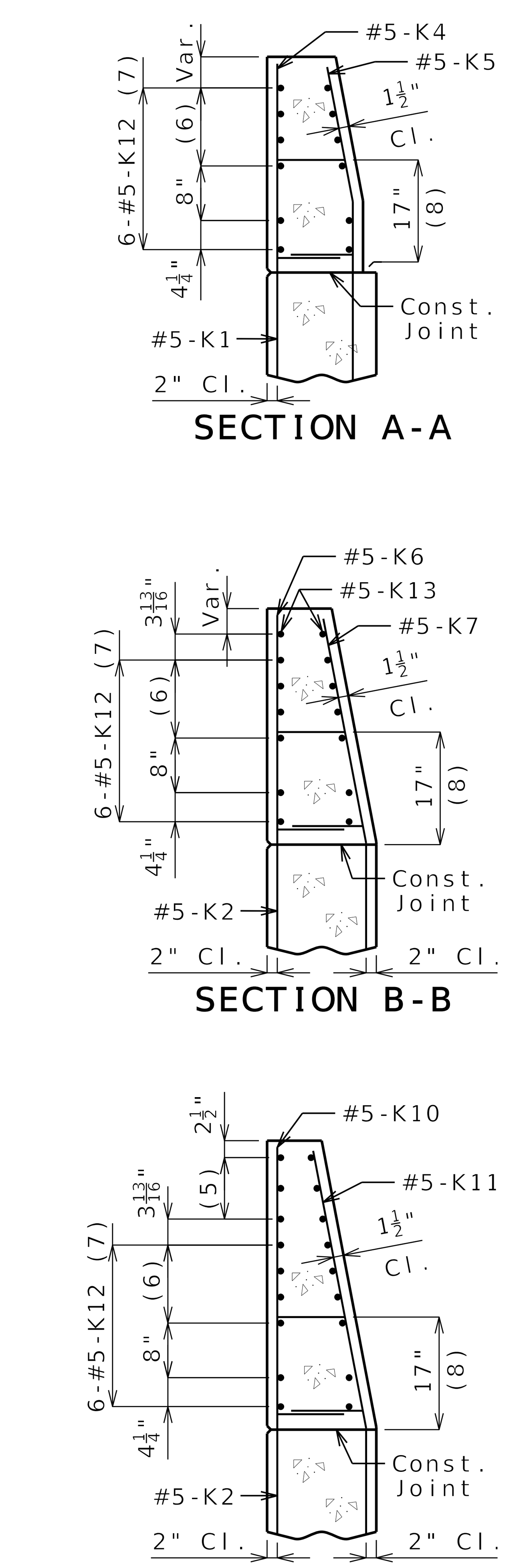
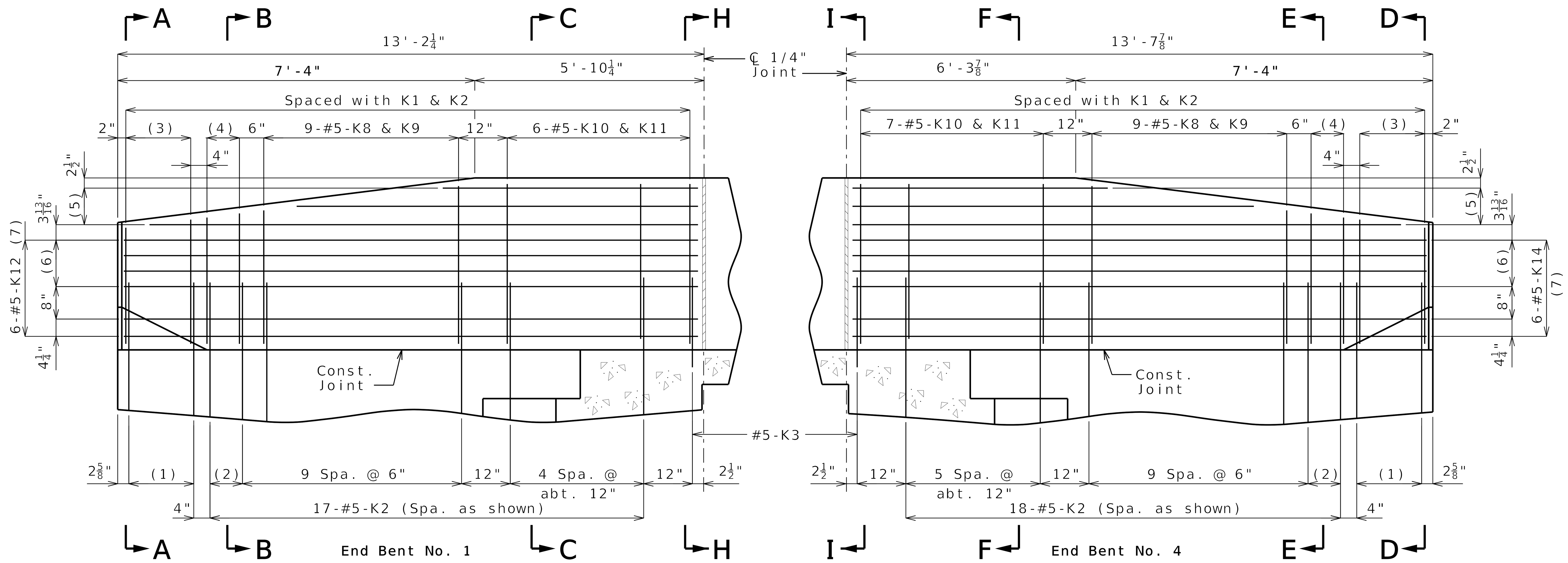


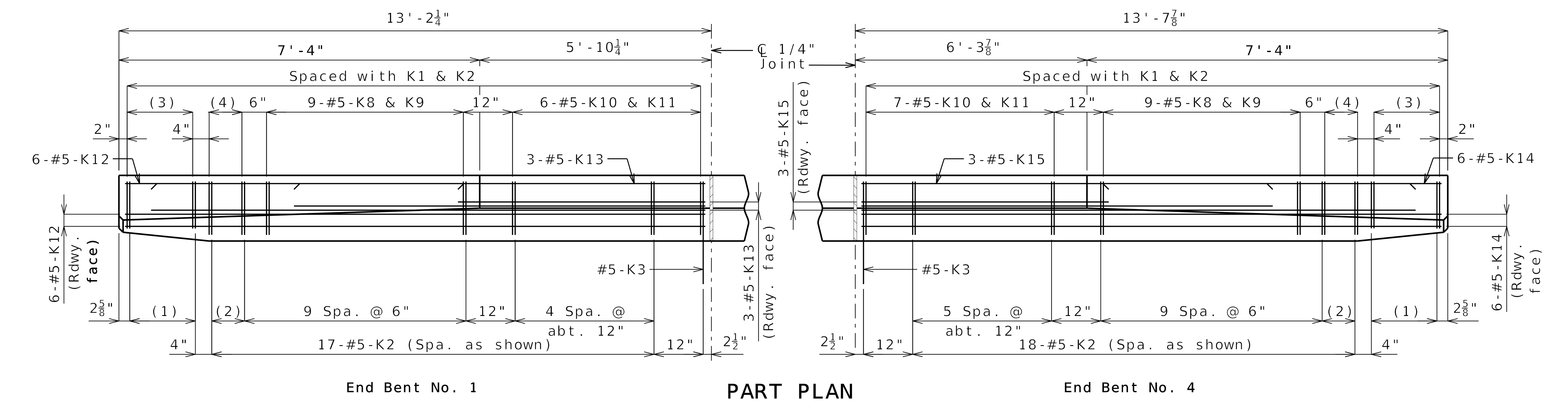
SECTION A-A

SECTION B-B

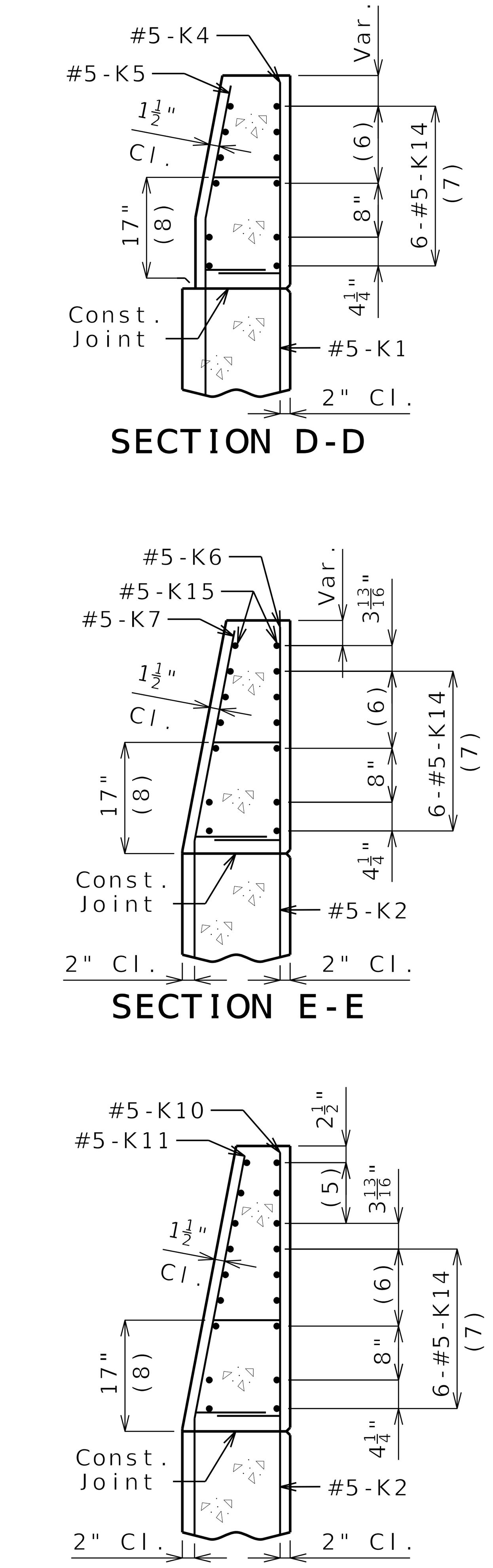
SECTION C-C



PART ELEVATION



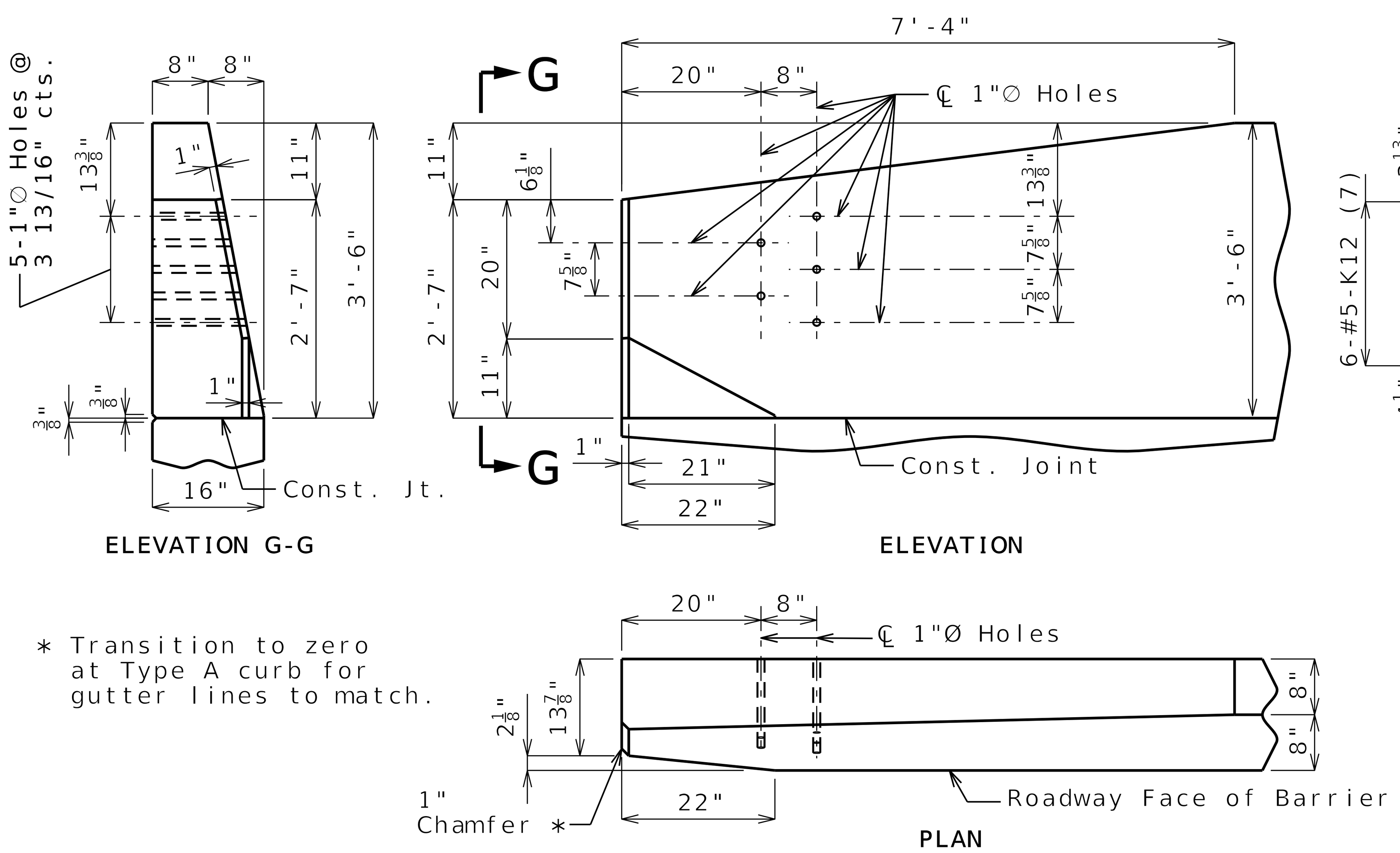
PART PLAN



SECTION D-D

SECTION E-E

SECTION F-F



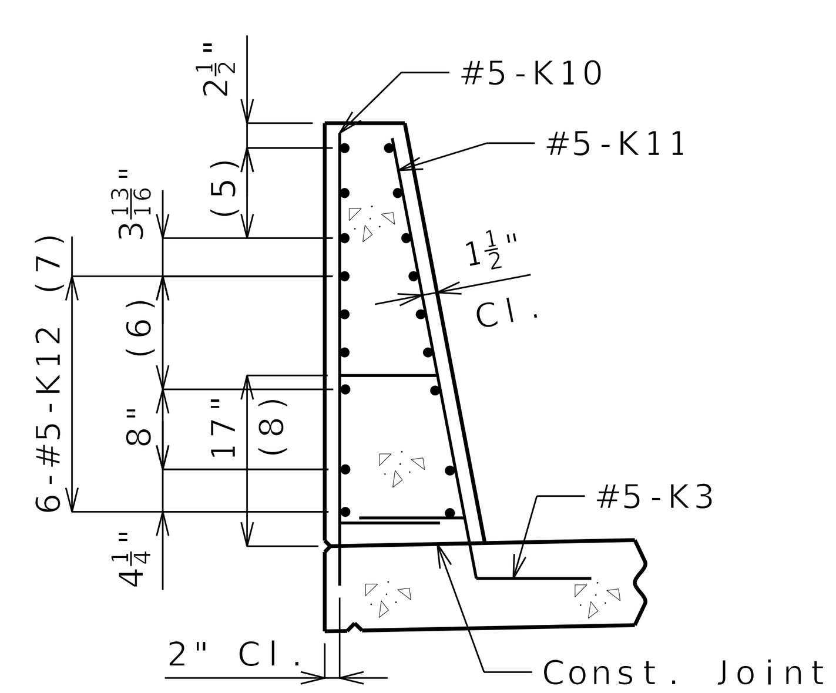
ELEVATION G-G

ELEVATION

PLAN

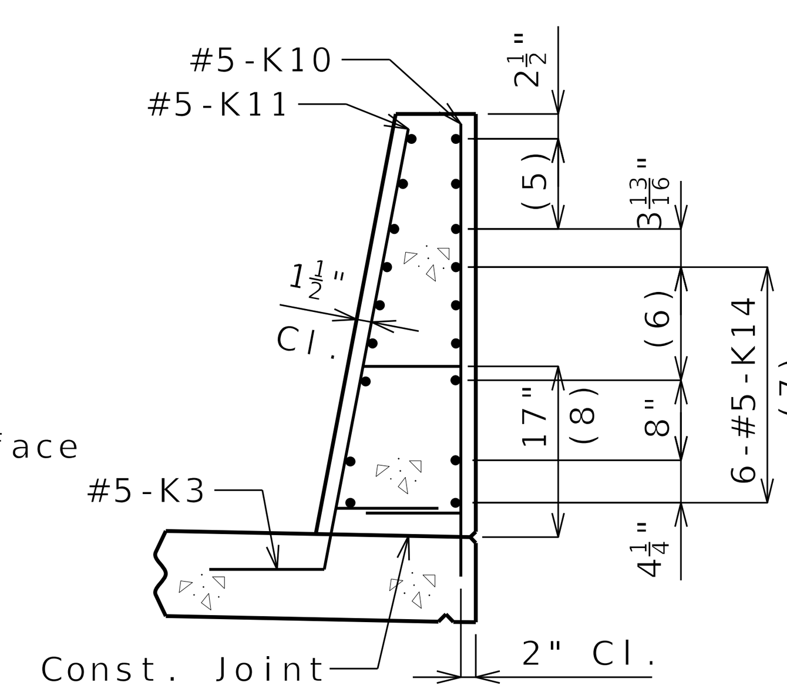
* Transition to zero at Type A curb for gutter lines to match.

DETAILS OF GUARD RAIL ATTACHMENT

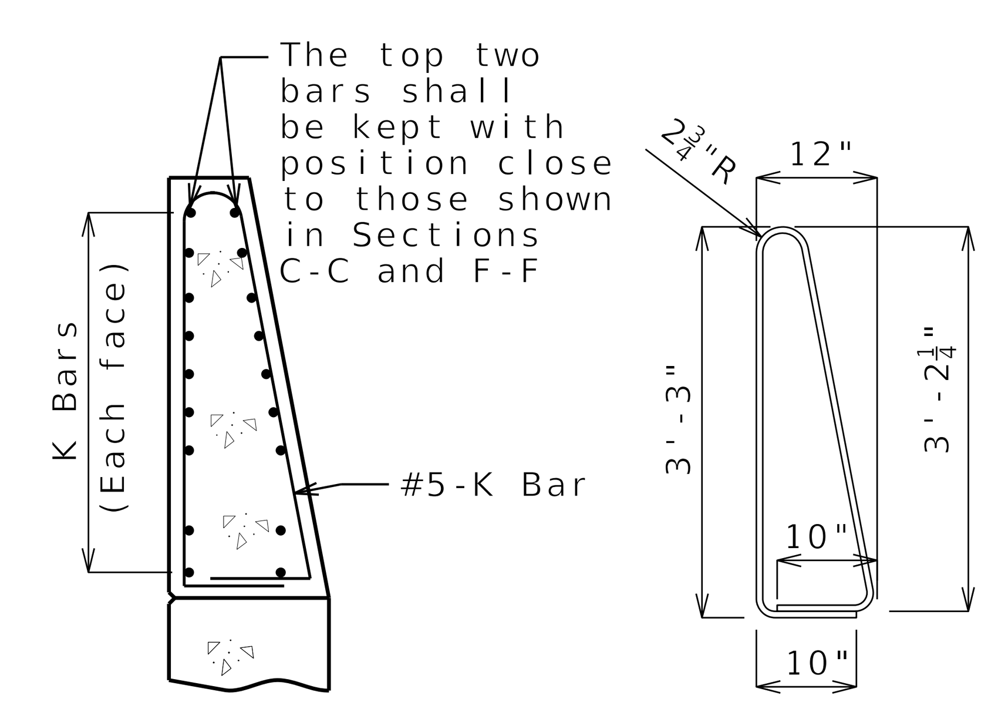


SECTION H-H

(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 @ $4\frac{1}{2}$" cts., each face
(6) 3 spaces @ $3\frac{13}{16}$"
(7) Spaced as shown, each face
(8) To top of bar



SECTION I-I



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.

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.

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

Detailed APR 2025
Checked APR 2025

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

BARRIER DETAILS AT END BENTS

DATE PREPARED	5/6/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	27
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)

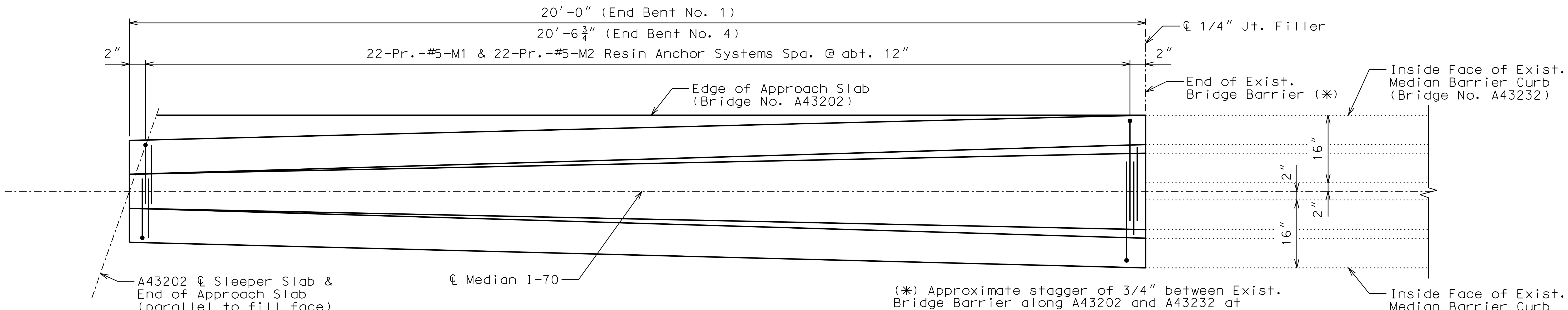
MoDOT

IMPROVE 70 ALLIANCE

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

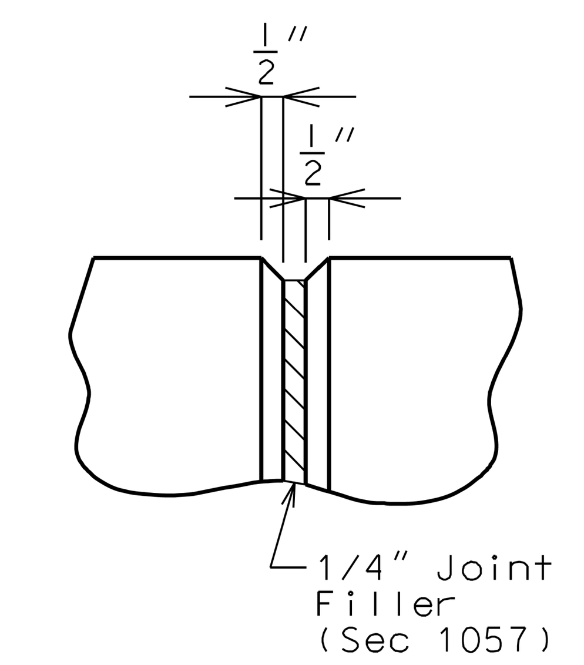
Bartlett & West

B_A43202_029_JST0020_BARDET.dgn 4:14:06 PM 5/6/2025

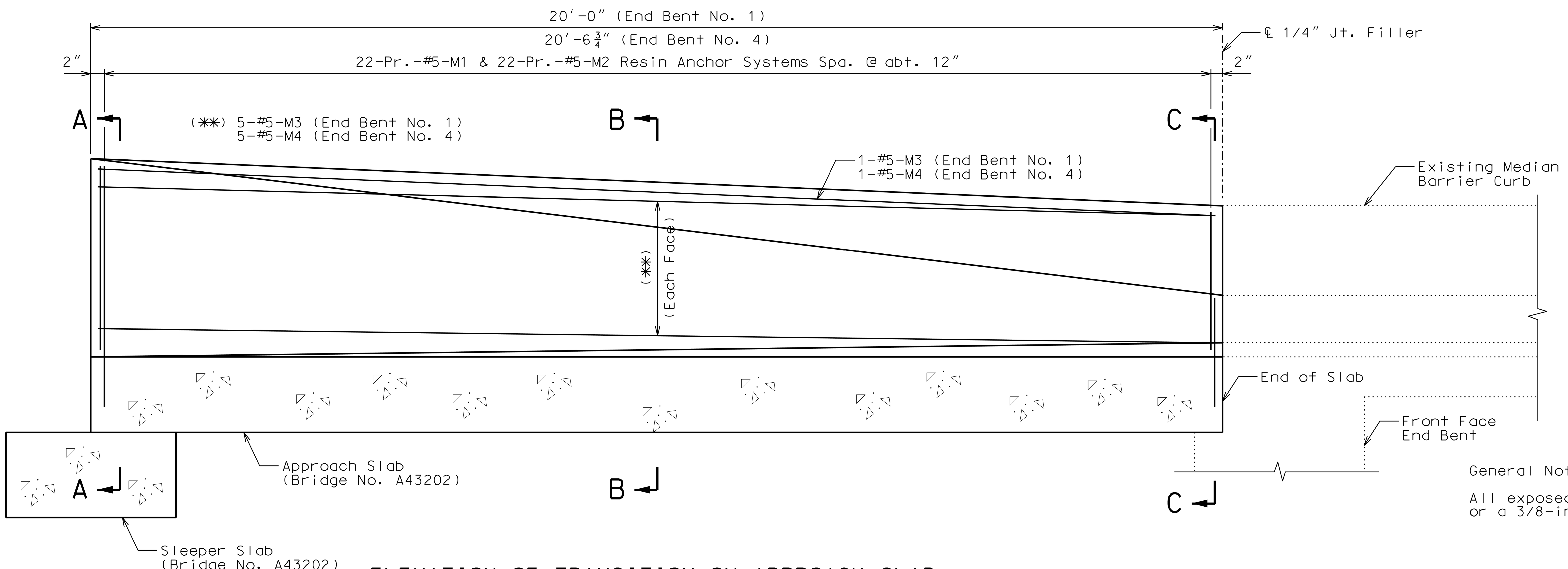


PLAN OF TRANSITION ON APPROACH SLAB

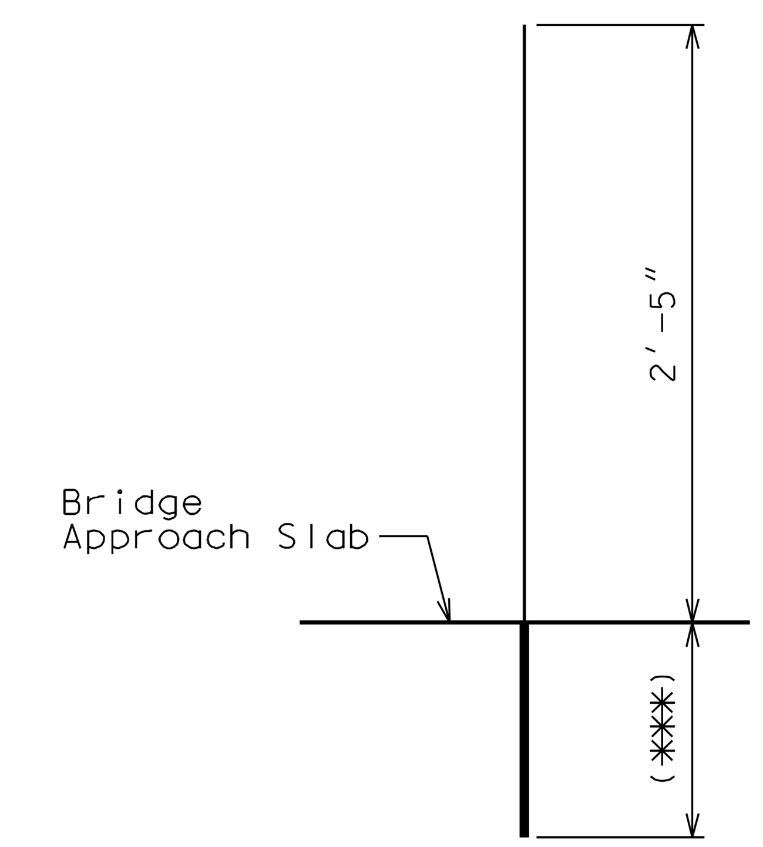
(*) Approximate stagger of 3/4" between Exist. Bridge Barrier along A43202 and A43232 at End Bent. No. 4. Remove staggered portion and cut rebar at removal line so barrier ends are flush for installation of proposed median barrier.



FILLED JOINT DETAIL



ELEVATION OF TRANSITION ON APPROACH SLAB



RESIN ANCHOR SYSTEM

(88 required)

(***) Manufacturer's embedment length (5" minimum)

General Notes:

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

Concrete in the 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.

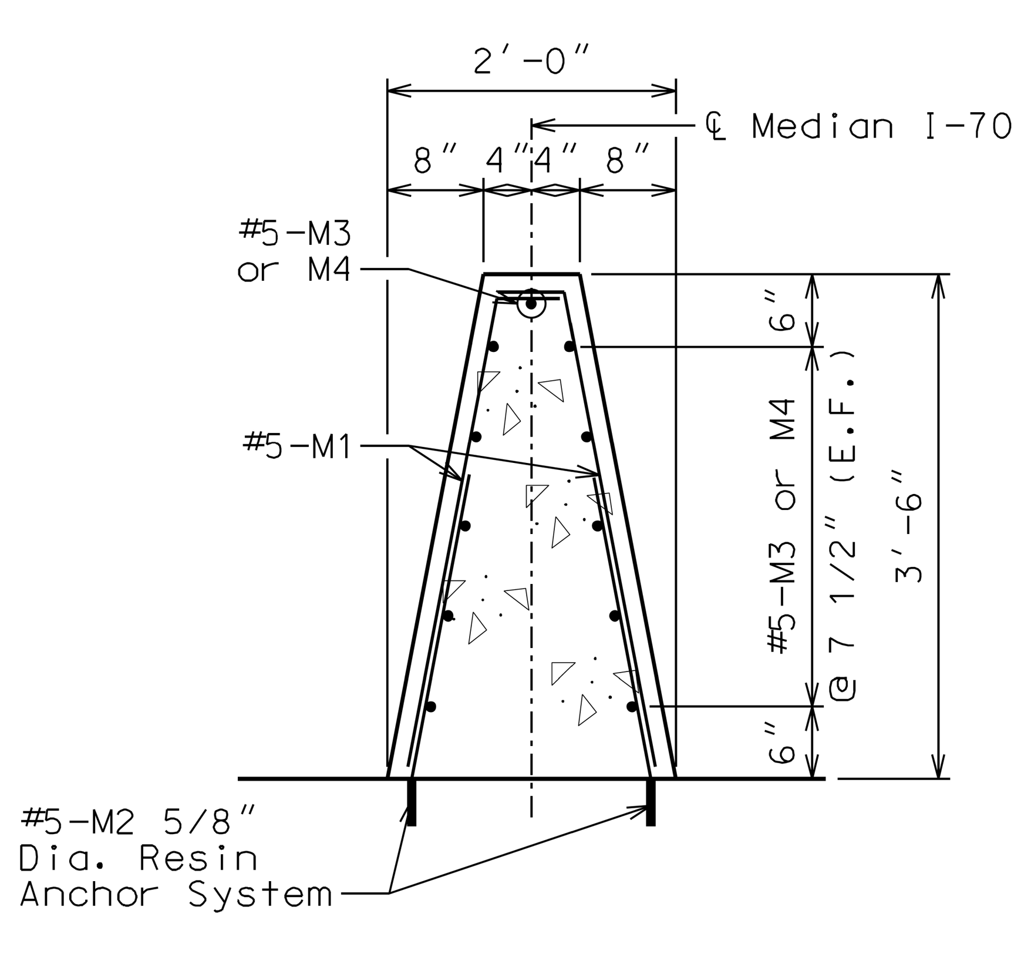
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4000psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

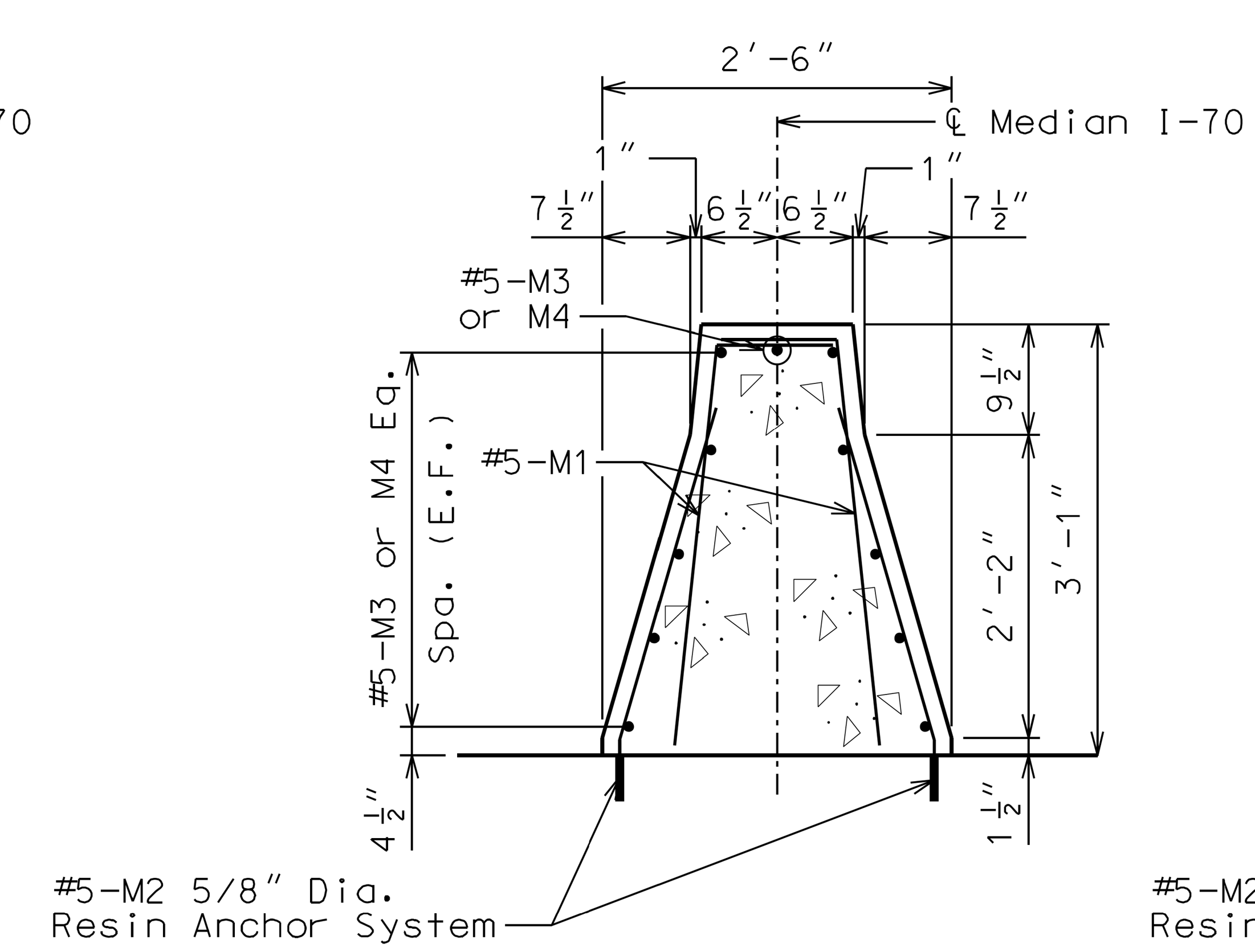
Type C Barrier Transition shall be coordinated with the construction of Bridge No. A43232.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for 5/8"Ø threaded rod.

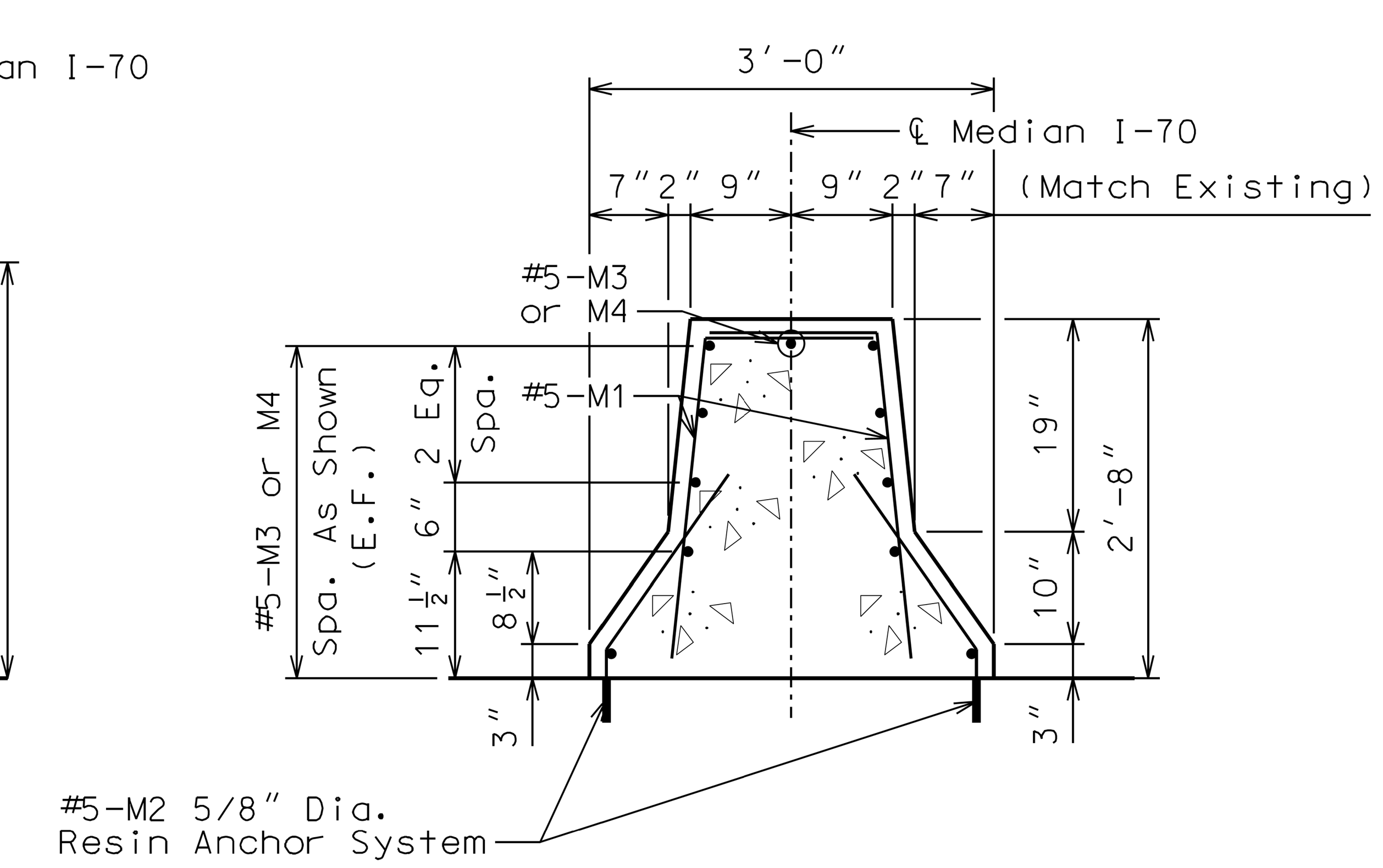
Field bend #5-M2 Bars as needed to fit barrier transitions.



SECTION A-A



SECTION B-B



SECTION C-C

DETAILS OF TYPE C MEDIAN BARRIER TRANSITION ON APPROACH SLABS

Detailed APR 2025
Checked APR 2025

DATE PREPARED	5/6/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	28
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43202

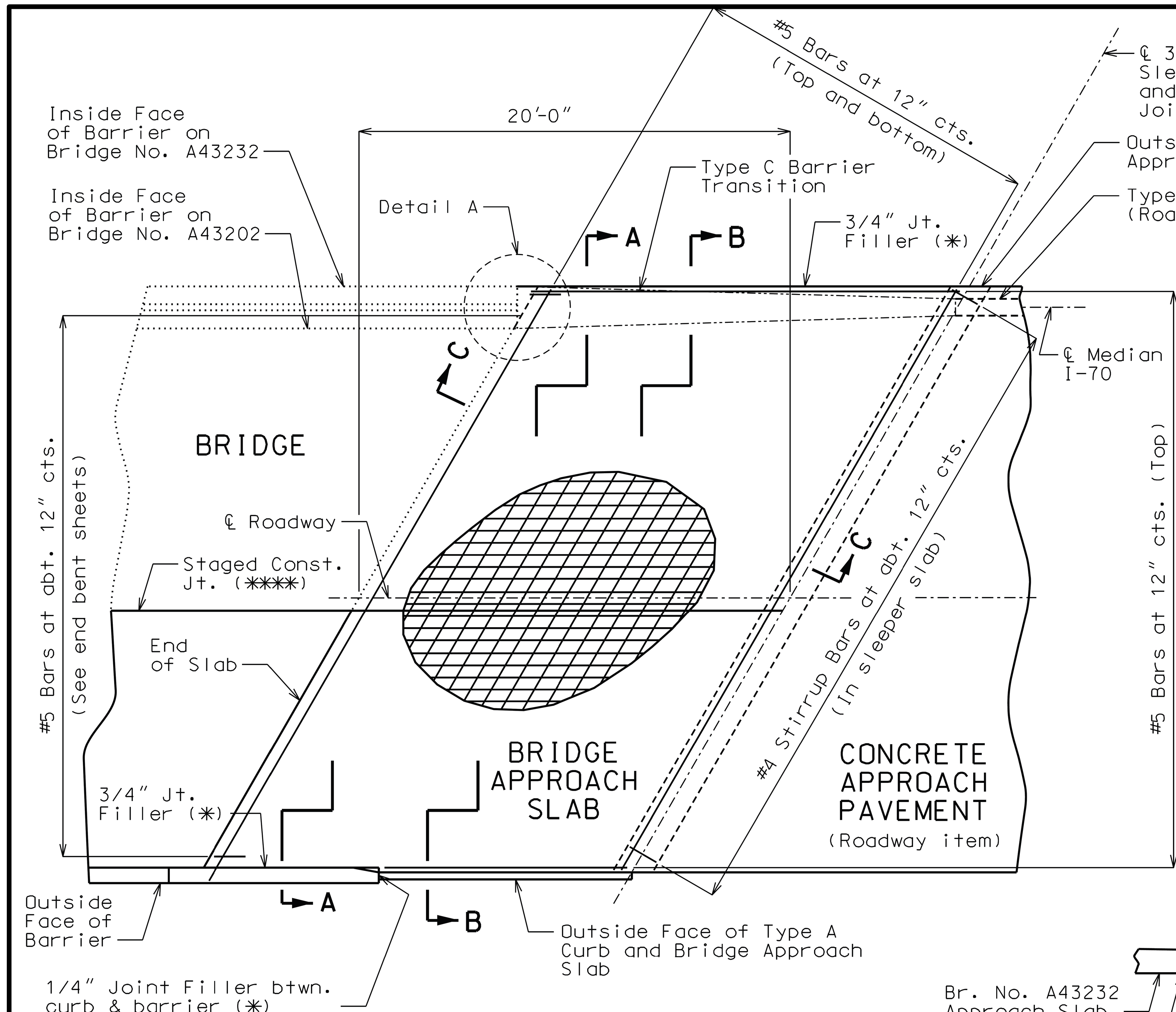
DESCRIPTION
DATE

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

IMPROVE 70 ALLIANCE

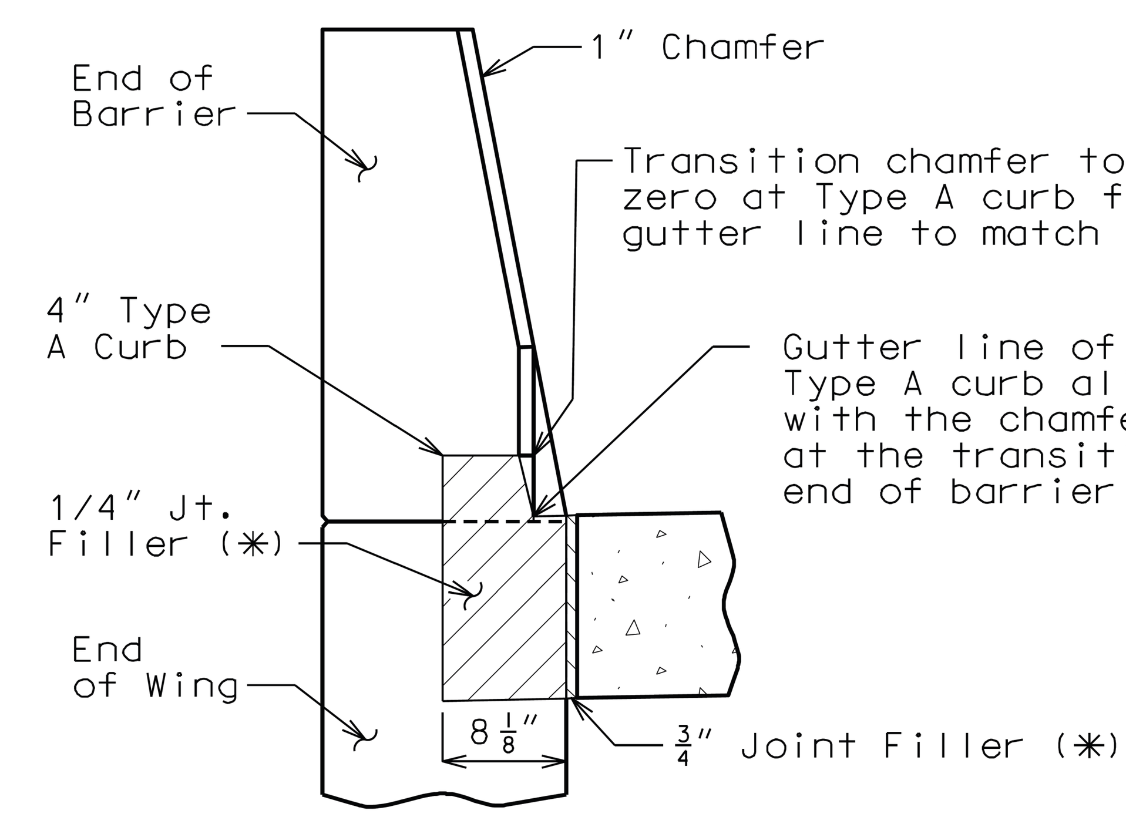
HNTB 715 KIRK DRIVE KANSAS CITY, MO 64105-1310 CERTIFICATE OF AUTHORITY NO. 001270

Bartlett & West

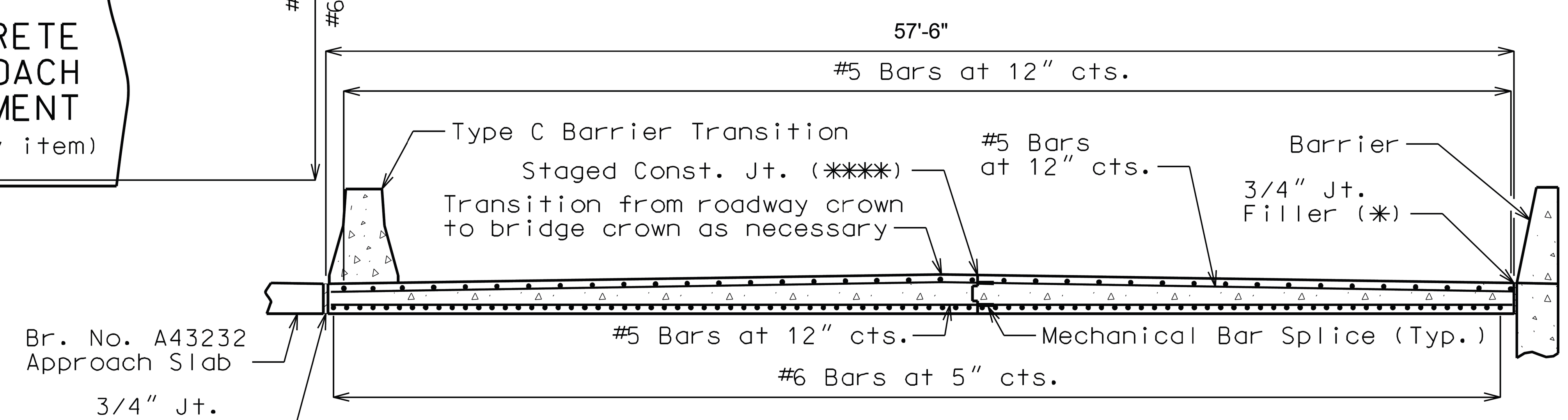


PART PLAN SHOWING REINFORCEMENT

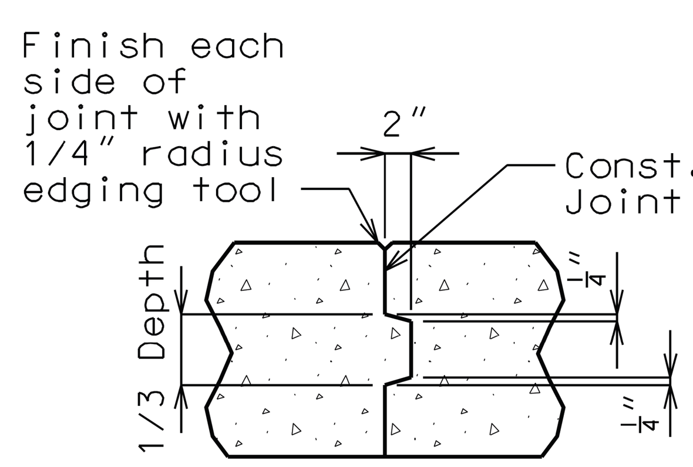
Longitudinal reinforcement in sleeper slab not shown for clarity.
(End Bent No. 4 shown, End Bent No. 1 similar, U.N.O.)



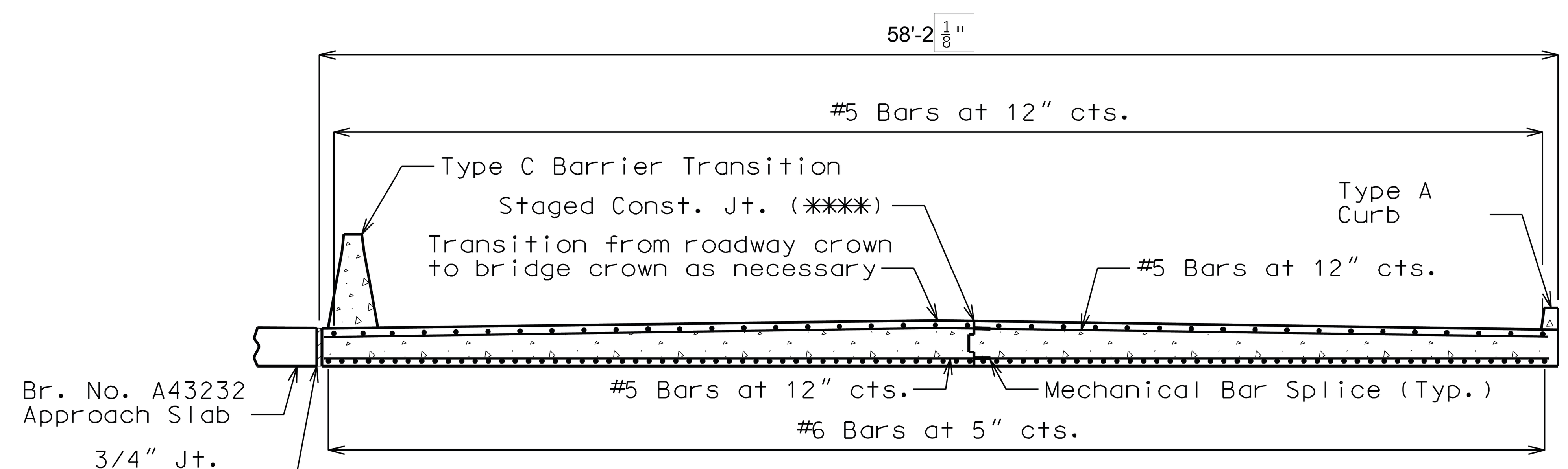
SECTION BETWEEN CURB AND BARRIER



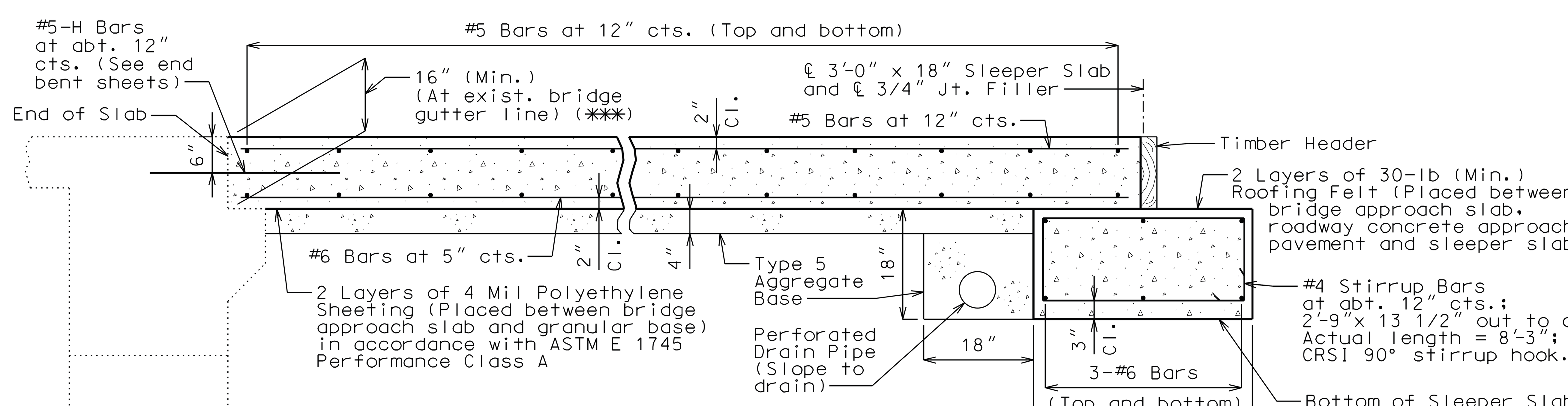
SECTION A-A



CONSTRUCTION JOINT DETAIL



SECTION B-B



SECTION C-C

General Notes:

Existing bridge approach slab to be completely removed

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 lap splicing the #5 bars 29" or by mechanical bar splice.

Mechanical bar splices shall be in accordance with Sec 710. Estimated 38 splices per slab.

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.

For Type C Barrier Transition Details, see Sheet No. 28.

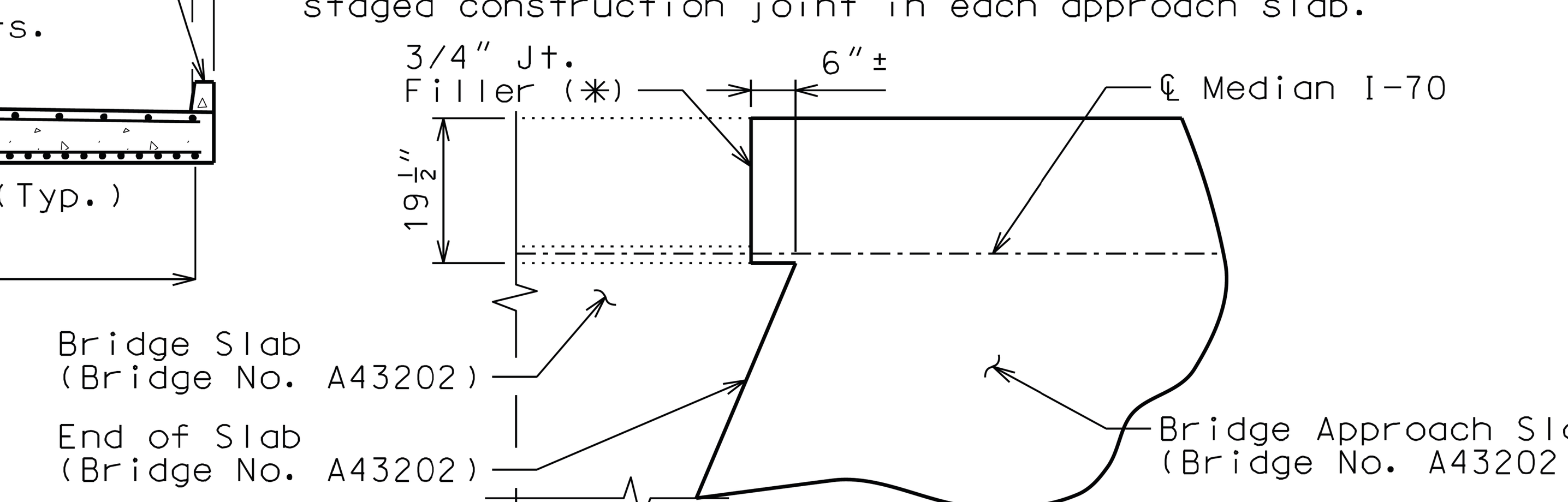
See Missouri Standard Plan 609.00 for details of Type A curb.

Coordinate construction of approach slab of Bridge No. A43202 with Bridge No. A43232.

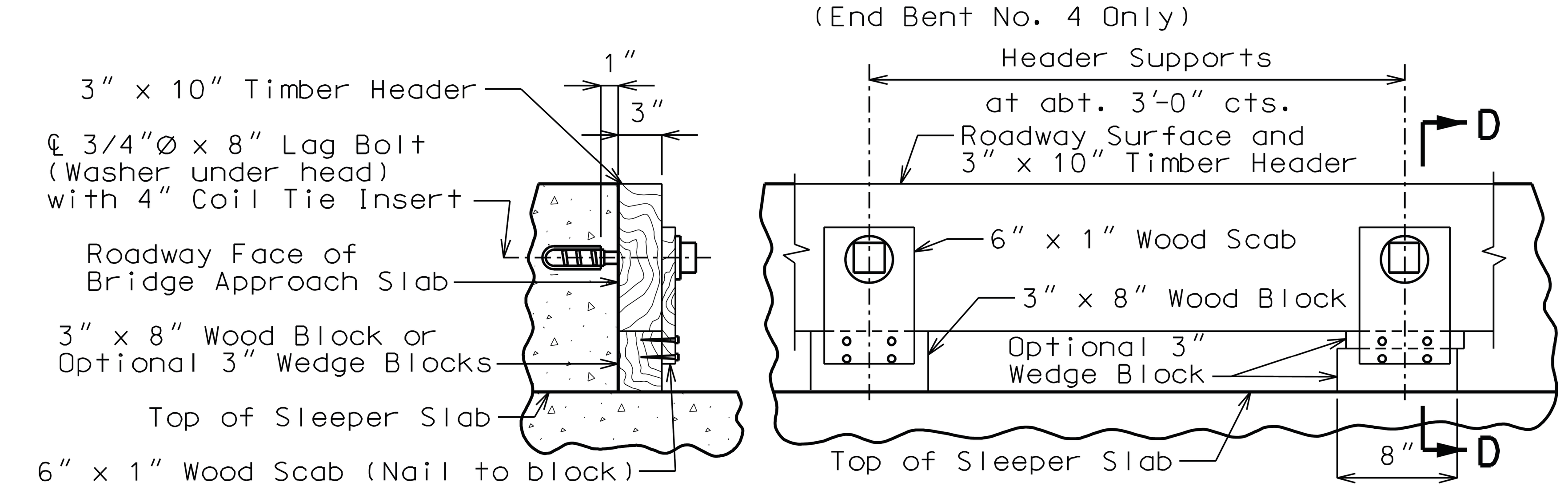
(✻) Seal joint between vertical faces of Bridge No. A43202 approach slab and wing or Bridge No. A43232 approach slab with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

(✻✻✻) Contractor to field verify depth of existing approach slab notch.

(✻✻✻✻) See roadway plans for traffic handling to place staged construction joint in each approach slab.



DETAIL A
(End Bent No. 4 Only)



DETAILS OF TIMBER HEADER

BRIDGE APPROACH SLAB (MAJOR)

Detailed APR 2025
Checked APR 2025

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

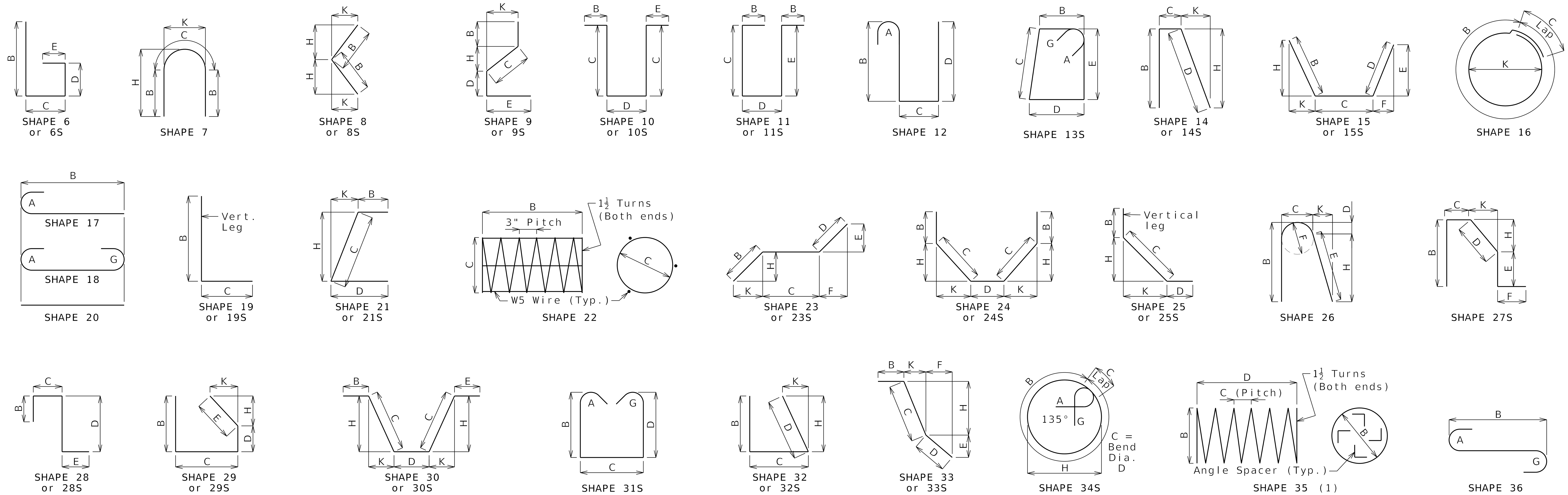
DATE PREPARED	5/6/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	29
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43202

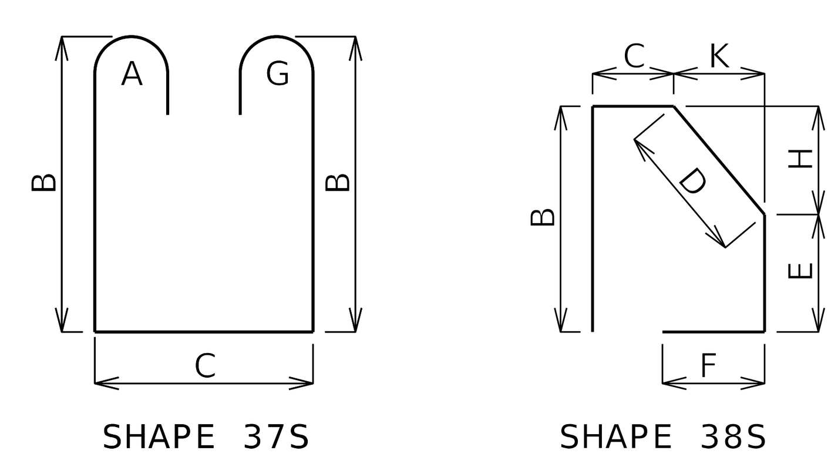
DESCRIPTION
DATE

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

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

Bartlett & West





BENDING DIAGRAMS

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

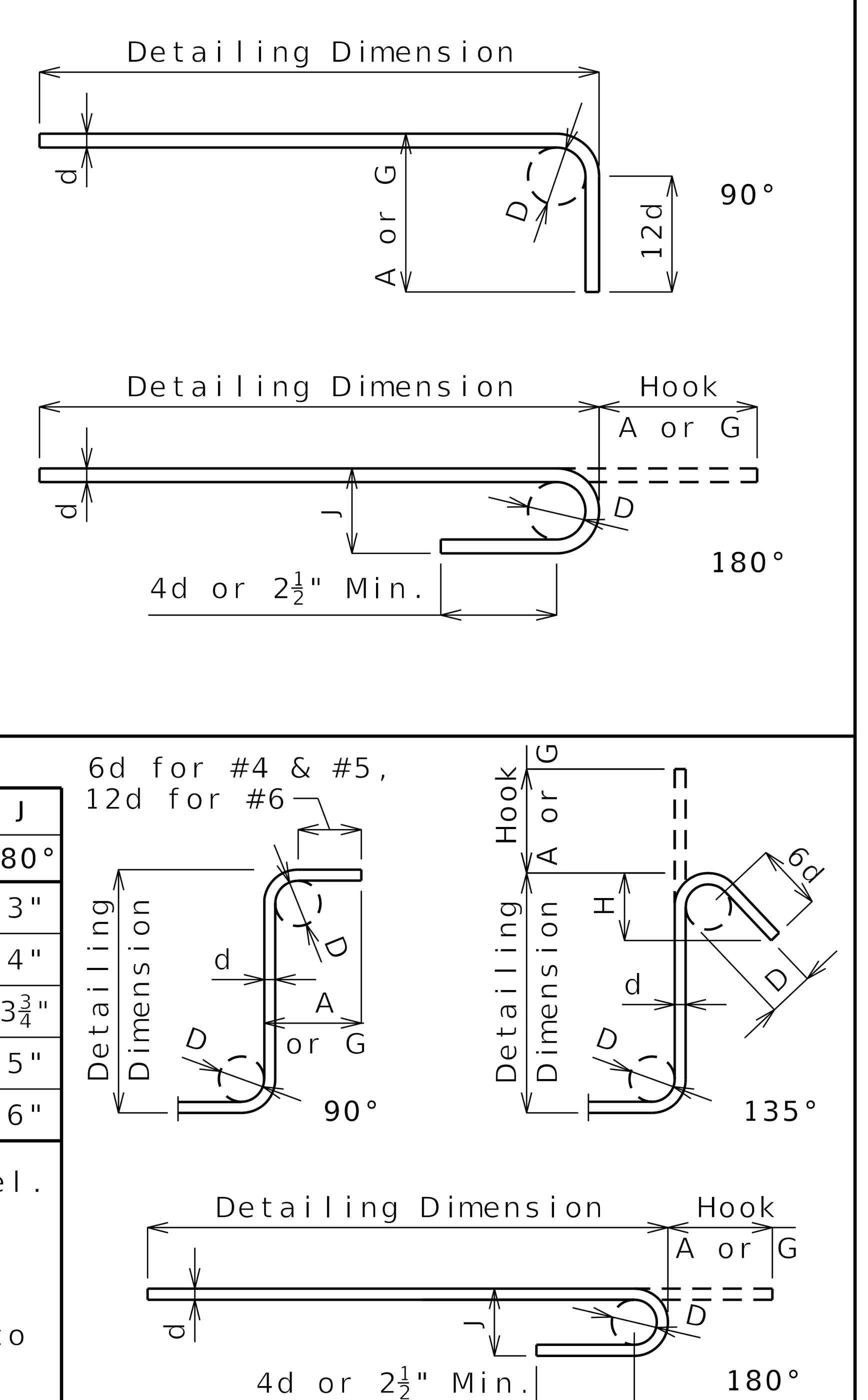
Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	$3\frac{3}{4}$"	10"	7"	5"
#6	1	$4\frac{1}{2}$"	12"	$8\frac{1}{4}$"	6"
#7	2	$5\frac{1}{4}$"	14"	$9\frac{3}{4}$"	7"
	3	7"	15"	$11\frac{1}{2}$"	$8\frac{3}{4}$"
#8	2	6"	16"	11"	8"
	3	8"	17"	$13\frac{1}{4}$"	10"
#9	1	$9\frac{1}{2}$"	$19\frac{1}{2}$"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

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	$2\frac{1}{2}$"	$5\frac{3}{4}$"	$5\frac{3}{4}$"	$5\frac{3}{4}$"	$3\frac{5}{8}$"	$3\frac{3}{4}$"
	3	$3\frac{3}{4}$"	$6\frac{1}{4}$"	$6\frac{1}{2}$"	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.



(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.

Notes:

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.

Hooks and bends shall be in accordance with the procedures as shown on this sheet.

BAR BENDING DIAGRAMS

Detailed APR 2025
Checked APR 2025

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

DATE PREPARED	5/6/2025
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. 30
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

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B	C	D	E	F	H	K	Nom. Length	Actual Length	Weight
		End Bent No. 1													
8	6 F100	Wing Brace	E	23S		19.875	6 1.000	19.875	11.500	16.250	11.500	16.250	9 5	9 4	112
4	6 F101	Diaphragm	E	21S			5 6.500	2 10.000			5 5.500	11.250	8 4	8 2	49
4	6 H100	Beam	E	20		15 7.500							15 8	15 8	94
8	8 H101	Beam	E	20		15 7.500							15 8	15 8	335
2	6 H102	Diaphragm	E	20		6 9.750							6 10	6 10	21
2	6 H103	Diaphragm	E	20		5 10.250							5 10	5 10	18
2	6 H104	Diaphragm	E	20		3 2.250							3 2	3 2	10
2	6 H105	Diaphragm	E	20		2 8.500							2 9	2 9	8
2	6 H106	Diaphragm	E	20		6 6.250							6 6	6 6	20
2	6 H107	Diaphragm	E	20		6 0.000							6 0	6 0	18
2	5 H108	Strand Tie	E	23		15.125	17.000	15.125	5.000	14.250	5.000	14.250	3 11	3 11	8
8	8 H109	Wingwall	E	20		12 4.500							12 5	12 5	265
18	6 H110	Wingwall	E	20		12 4.500							12 5	12 5	336
4	6 H111	Diaphragm	E	20		18 3.000							18 3	18 3	110
4	8 H112	Diaphragm	E	20		18 3.000							18 3	18 3	195
4	7 H113	Diaphragm *	E	20		4 7.000							4 7	4 7	37
8	7 H114	Beam *	E	20		6 5.000							6 5	6 5	105
4	7 H115	Diaphragm *	E	20		3 0.000							3 0	3 0	25
40	5 H116	Diaphragm *	E	20		3 0.000							3 0	3 0	125
4	5 U100	Beam	E	31S		4 6.000	2 9.250	4 6.000					12 8	12 6	52
8	4 U101	Beam	E	10S			2 9.250	2 7.000					8 2	7 11	42
23	6 U102	Diaphragm	E	19S		3 4.500	4 9.000						8 2	8 0	276
13	5 U103	Diaphragm	E	10S			3 7.000	2 3.000					9 5	9 2	124
13	6 U104	Diaphragm	E	19S		2 4.500	2 9.000						5 2	5 0	98
13	5 U105	Diaphragm	E	19S		15.000	2 0.000						3 3	3 2	43
4	6 U106	Diaphragm	E	10S			2 9.000	2 2.250					7 8	7 5	45
4	5 U107	Diaphragm	E	13S		2 4.000	3 4.000	2 4.000	3 4.000				12 3	11 11	50
8	6 V101	Diaphragm	E	17		2 4.250							3 0	3 0	36
2	6 V102	Wingwall	E	20		6 8.000							6 8	6 8	20
20	6 V103	Wingwall	E	20		6 8.000							6 8	6 8	200
		End Bent No. 4													
8	6 F400	Wing Brace	E	23S		2 2.875	4 5.500	19.875	16.250	11.500	22.000	15.500	8 4	8 3	99
4	6 F401	Diaphragm	E	21S			2 7.000				2 5.250	10.250	2 7	2 4	14
4	6 H400	Beam	E	20		15 7.500							15 8	15 8	94
8	8 H401	Beam	E	20		15 7.500							15 8	15 8	335
2	6 H402	Diaphragm	E	20		6 9.750							6 10	6 10	21
2	6 H403	Diaphragm	E	20		5 10.250							5 10	5 10	18
2	6 H404	Diaphragm	E	20		3 2.250							3 2	3 2	10
2	6 H405	Diaphragm	E	20		2 8.500							2 9	2 9	8
2	6 H406	Diaphragm	E	20		6 6.250							6 6	6 6	20
2	6 H407	Diaphragm	E	20		6 0.000							6 0	6 0	18
2	5 H408	Strand Tie	E	23		15.125	17.000	15.125	5.000	14.250	5.000	14.250	3 11	3 11	8
8	8 H409	Wingwall	E	20		12 10.75							12 11	12 11	276
18	6 H410	Wingwall	E	20		12 10.75							12 11	12 11	349
4	6 H411	Diaphragm	E	20		18 3.000							18 3	18 3	110
4	8 H412	Diaphragm	E	20		18 3.000							18 3	18 3	195
4	7 H413	Diaphragm *	E	20		4 7.000							4 7	4 7	37
8	7 H414	Beam *	E	20		6 5.000							6 5	6 5	105
4	7 H415	Diaphragm *	E	20		3 0.000							3 0	3 0	25
40	5 H416	Diaphragm *	E	20		3 0.000							3 0	3 0	125
13	5 U400	Beam	E	31S		4 6.000	2 9.250	4 6.000					12 8	12 6	169
8	4 U401	Beam	E	10S			2 9.250	2 8.000					8 3	8 0	43
23	6 U402	Diaphragm	E	19S		3 4.500	4 9.000						8 2	8 0	276
13	5 U403	Diaphragm	E	10S			3 7.000	2 3.000					9 5	9 2	124
13	6 U404	Diaphragm	E	19S		2 4.500	2 9.000						5 2	5 0	98
13	5 U405	Diaphragm	E	19S		15.000	2 0.000						3 3	3 2	43
4	6 U406	Diaphragm	E	10S			2 9.000	2 2.250					7 8	7 5	45
4	5 U407	Diaphragm	E	13S		2 4.000	3 4.000	2 4.000	2 4.000				12 3	11 11	50
8	6 V401	Diaphragm	E	17		2 4.250							3 0	3 0	36
2	6 V402	Wingwall	E	20		6 8.000							6 8	6 8	20
20	6 V403	Wingwall	E	20		6 8.000							6 8	6 8	200

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B	C	D	E	F	H	K	Nom. Length	Actual Length	Weight
		Int. Bent No. 2													
5	6 D200	Key	E	20		2 6.000							2 6	2 6	19
8	8 H200	Beam	E	18		11 8.000							13 6	13 6	288
6	6 H201	Beam	E	20		11 8.000							11 8	11 8	105
10	6 H202	Beam	E	20		11 8.000							11 8	11 8	175
14	6 H203	Beam	E	10			12.000	3 1.750					5 2	4 10	102
21	4 P200	Column	E	16		7 10.250	2 10.000					2 6.000	10 8	10 7	148
30	4 P201	Drilled Shaft		16		7 10.250	2 10.000					2 6.000	10 8	10 7	212
18	5 U200	Beam	E	13S		3 3.000	3 9.000	3 3.000	3 9.000				14 11	14 7	274
4	5 U201	Beam	E	10S			3 9.000	3 3.000					10 9	10 6	44
13	11 V200	Column	E	17		22 9.000							24 4	24 4	1681
13	11 V201	Drilled Shaft		20		27 5.875							27 6	27 6	1899
		Int. Bent No. 3													
5	6 D300	Key	E	20		2 6.000							2 6	2 6	19
8	8 H300	Beam	E	18		11 8.000							13 6	13 6	288
6	6 H301	Beam	E	20		11 8.000							11 8	11 8	105
10	6 H302	Beam	E	20		11 8.000							11 8	11 8	175
14	6 H303	Beam	E	10			12.000	3 1.750					5 2	4 10	102
19	4 P300	Column	E	16		7 10.250	2 10.000					2 6.000	10 8	10 7	134
29	4 P301	Drilled Shaft		16		7 10.250	2 10.000					2 6.000	10 8	10 7	205
18	5 U300	Beam	E	13S		3 3.000	3 9.000	3 3.000	3 9.000				14 11	14 7	274
4	5 U301	Beam	E	10S			3 9.000	3 3.000					10 9	10 6	44
13	11 V300	Column	E	17		21 3.000							22 10	22 10	1577
13	11 V301	Drilled Shaft		20		26 11.00							26 11	26 11	1859
		Int. Diaphragms													
8	6 H500	Diaphragm	E	20		5 11.000							5 11	5 11	71
8	4 H501	Diaphragm	E	20		6 9.000							6 9	6 9	36
32	5 H502	Diaphragm	E	19S		2 7.000	12.000						3 7	3 6	117
22	5 H503	Strand Tie	E	20		2 10.000							2 10	2 10	65
8	6 U500	Diaphragm	E	28S			2 2.000	3 7.000	2 7.000				8 4	8 0	96
28	4 U501	Diaphragm	E	28S			18.000	3 7.000	2 4.000				7 5	7 3	136
16	5 V500	Diaphragm	E	20		3 10.000							3 10	3 10	64

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, see Sheet No. 30.

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.

* Resin Anchor System

Detailed APR 2025
Checked APR 2025

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

Sheet 31 of 35

BILL OF REINFORCING STEEL (1 OF 2)

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 31
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)
MoDOT
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 CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	Codes SH	Codes V	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
		Slab													
24	6 S101	Slab	E	20	2	2 3.000							2 3	2 3	
		Increment = $15\frac{1}{2}$"				16 6.000							16 6	16 6	338
316	6 S102	Slab	E	20		17 4.000							17 4	17 4	8227
22	5 S103	Slab	E	20	2	2 2.000							2 2	2 2	
		Increment = 17"				16 3.000							16 3	16 3	211
290	5 S104	Slab	E	20		17 4.000							17 4	17 4	5243
45	5 S105	Slab	E	20		52 0.000							52 0	52 0	2441
87	6 S106	Slab	E	20		52 6.000							52 6	52 6	6860
27	6 S107	Slab	E	20		20 0.000							20 0	20 0	811
27	6 S108	Slab	E	20		25 3.000							25 3	25 3	1024
		Barrier													
10	5 K1	Barrier	E	27S		3 8.000	9.250	5.375	3 2.750		5.250	1.000	8 1	7 11	83
35	5 K2	Barrier	E	27S		3 8.000	9.250	14.500	2 5.750		14.250	2.750	8 2	7 11	289
2	5 K3	Barrier	E	27S		22.500	9.250	14.500	7.750	12.000	14.250	2.750	5 6	5 2	11
10	5 K4	Barrier	E	19S	2	2 4.250	10.000						3 2	3 1	
		Increment = $\frac{1}{2}$"				2 6.250	10.000						3 4	3 3	33
10	5 K5	Barrier	E	38S	2			18.500	9.500	8.250	18.000	4.000	3 0	2 11	
		Increment = $\frac{1}{2}$"						20.500	9.500	8.250	20.000	4.500	3 2	3 1	31
6	5 K6	Barrier	E	19S		2 6.750	10.000						3 5	3 4	21
6	5 K7	Barrier	E	21S			2 6.625	10.000			2 6.000	6.250	3 5	3 3	20
18	5 K8	Barrier	E	19S	2	2 8.500	10.000						3 7	3 5	
		Increment = $\frac{3}{4}$"				3 2.500	10.000						4 1	3 11	70
18	5 K9	Barrier	E	21S	2		2 8.500	10.000			2 7.750	6.750	3 6	3 5	
		Increment = $\frac{3}{4}$"					3 2.500	10.000			3 1.750	7.750	4 1	3 11	68
13	5 K10	Barrier	E	19S		3 3.000	10.000						4 1	4 0	54
13	5 K11	Barrier	E	21S			3 3.000	10.000			3 2.250	7.750	4 1	3 11	53
12	5 K12	Barrier	E	20		12 11.00							12 11	12 11	162
6	5 K13	Barrier	E	20	2	6 2.000							6 2	6 2	
		Increment = 36"				12 2.000							12 2	12 2	57
12	5 K14	Barrier	E	20		13 4.000							13 4	13 4	167
6	5 K15	Barrier	E	20	2	6 7.000							6 7	6 7	
		Increment = 36"				12 7.000							12 7	12 7	60
20	5 C1	Slip Form	E	20		12 0.000							12 0	12 0	250
4	5 C2	Slip Form	E	20		10 6.000							10 6	10 6	44
152	5 R1	Barrier	E	26		3 3.000	5.500	2.250	3 1.375	5.500	3 0.750	6.750	6 10	6 9	1070
152	5 R2	Barrier	E	19S		20.500	9.500						2 6	2 5	383
152	5 R3	Barrier	E	27S			9.500	15.250	5.000	12.000	15.000	3.000	3 6	3 4	528
40	5 R4	Barrier	E	20		11 9.000							11 9	11 9	490
10	5 R5	Barrier	E	20		34 5.000							34 5	34 5	359
10	5 R6	Barrier	E	20		35 4.000							35 4	35 4	369
10	5 R7	Barrier	E	20		27 0.000							27 0	27 0	282

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	Codes SH	Codes V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		Totals													
	4														417
	4		E												540
	5		E												14652
	6		E												21132
	7		E												334
	8		E												2177
	11														3759
	11		E												3258
		TOTAL													4176
		TOTAL	E												42092
														TOTAL	46267
		MBS Totals													
150		#4 To #5													
328		#5 To #6													

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, see Sheet No. 30.

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 APR 2025
Checked APR 2025

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

BILL OF REINFORCING STEEL (2 OF 2)

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 32
COUNTY ST. CHARLES
JOB NO. JST0020
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A43202

DESCRIPTION

DATE

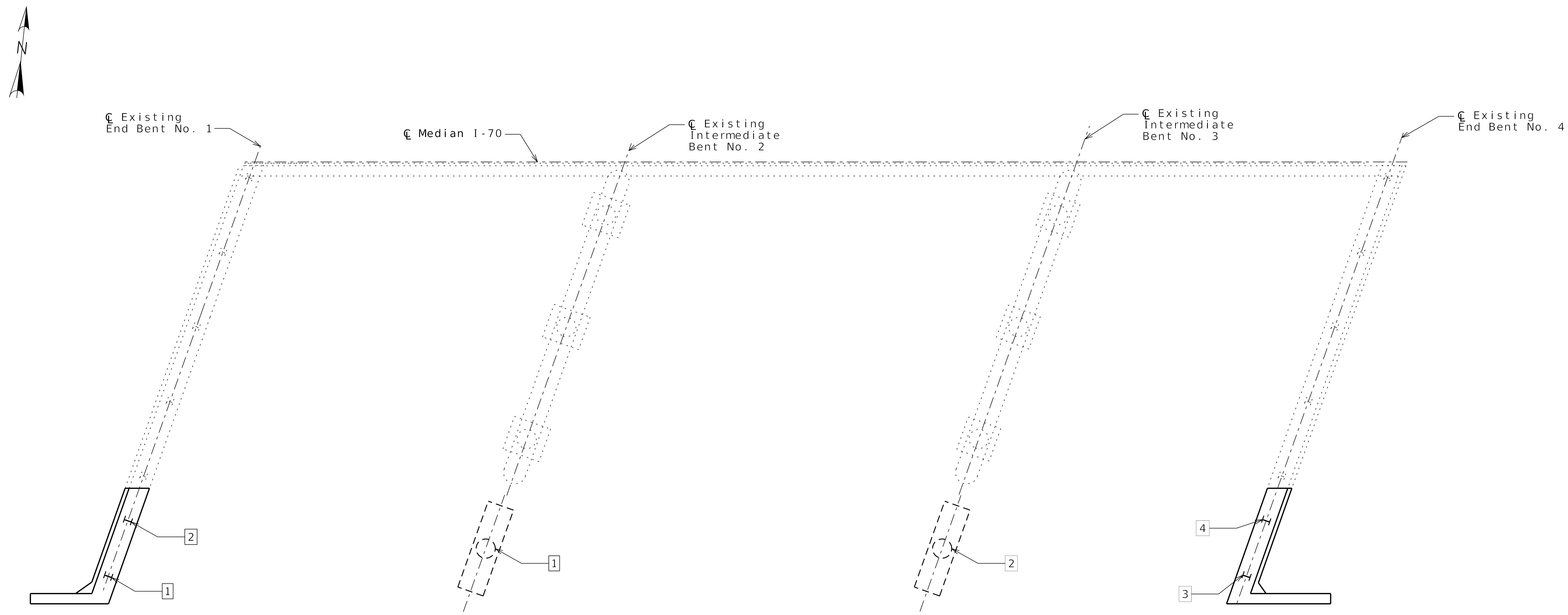
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IMPROVE 70 ALLIANCE

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

Bartlett & West

DRAFT FOR CONSTRUCTABILITY REVIEW ONLY - NOT FOR CONSTRUCTION



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)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No.1
1					
2					

As-Built Pile Data

Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			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:
For End Bent No. 1, indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal
D. PDA test pile
E. Minimum tip elevation controlled
(Use when actual blow count is less then PDA blow count due to minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating actual value is higher than PDA value.

For End Bent No. 4 and Intermediate Bents, 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

DATE PREPARED	5/6/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	33
COUNTY	ST. CHARLES
JOB NO.	JST0020
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A43202

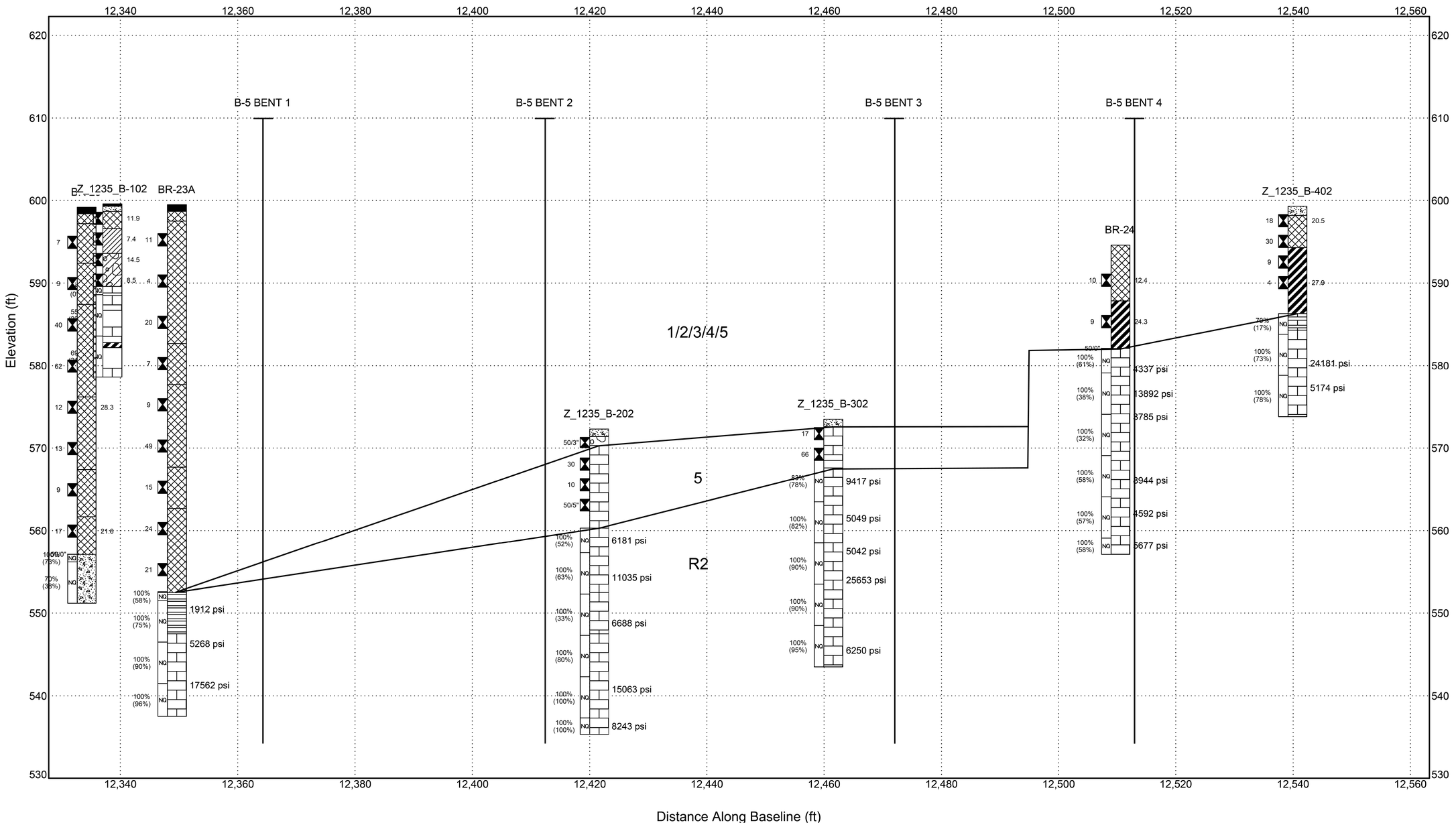
DESCRIPTION

DATE

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

Detailed APR 2025
Checked APR 2025

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



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

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

Detailed APR 2025
Checked APR 2025

Sheet 34 of 35

BORING DATA (1 OF 2)

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 34
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: 573.635.2627
CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING
WWW.BARTLETTWEST.COM

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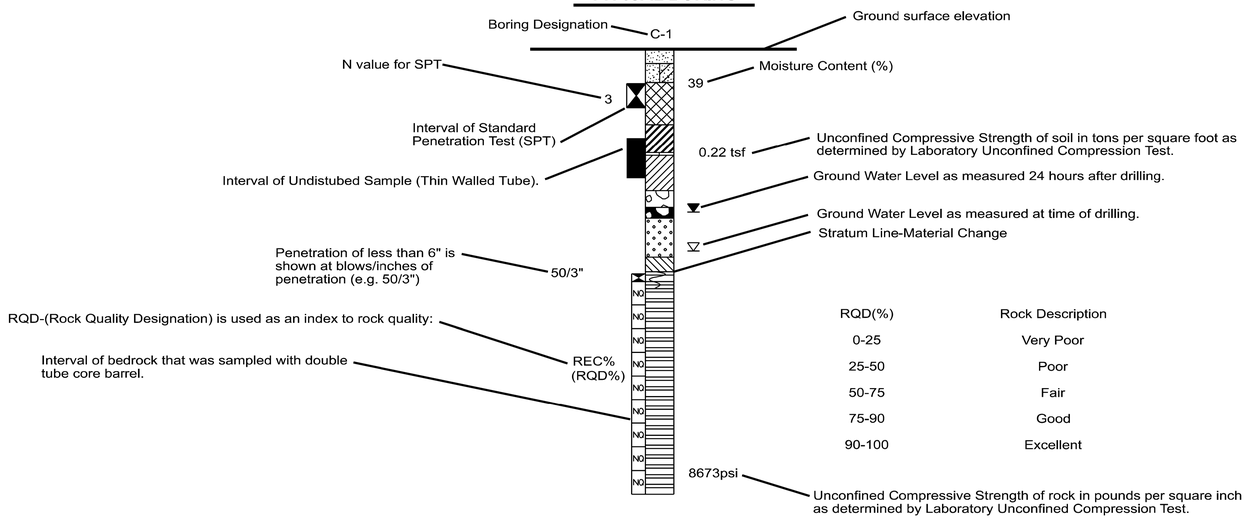
TYPICAL BORING



RQD(%)	Rock Description
0-25	Very Poor
25-50	Poor
50-75	Fair
75-90	Good
90-100	Excellent

KEY TO BORING LOG SYMBOLS

LITHOLOGIC SYMBOLS (Unified Soil Classification System)

- Lean Clay (CL)
- Fat Clay (CH)
- Lean to Fat Clay
- Low Plastic Silt (ML)
- Poorly Graded Sand (SP)
- Well Graded Sand (SW)
- Clayey Sand (SC)
- Poorly Graded Gravel (GP)
- Boulders
- Clayey Gravel (GC)
- Gravel with Fat Clay (GP-GC)
- Asphalt
- Fill
- Topsoil
- Concrete
- Peat
- Poorly Graded Sand with Clayey Sand (SP-SC)

LITHOLOGIC SYMBOLS (Rock)

- Coal
- Dolomite
- Limestone
- Sandstone
- Shale
- Gypsum
- Weathered Limestone
- Weathered Shale
- Gypsiferous Shale

SAMPLER SYMBOLS

- Auger Cuttings
- Grab
- Modified California Sampler
- NQ Rock Core
- NX Core Barrel
- Standard Penetration Test
- Shelby Tube

DRILLING METHODS

- Core Barrel
- Hollow Stem Auger
- Rotary
- Solid Stem Auger

ABBREVIATIONS

HSA	-	Hollow Stem Auger
SSA	-	Solid Stem Auger
ST	-	Shelby Tube
SPT	-	Standard Penetration Test
NATD	-	None At Time of Drilling
N/A	-	Not Available

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

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

Sheet 35 of 35

BORING DATA (2 OF 2)

Detailed APR 2025
Checked APR 2025

DATE PREPARED 5/6/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. 35
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: 573-634-2488
CERTIFICATE OF AUTHORITY NO. 000107 - ENGINEERING
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