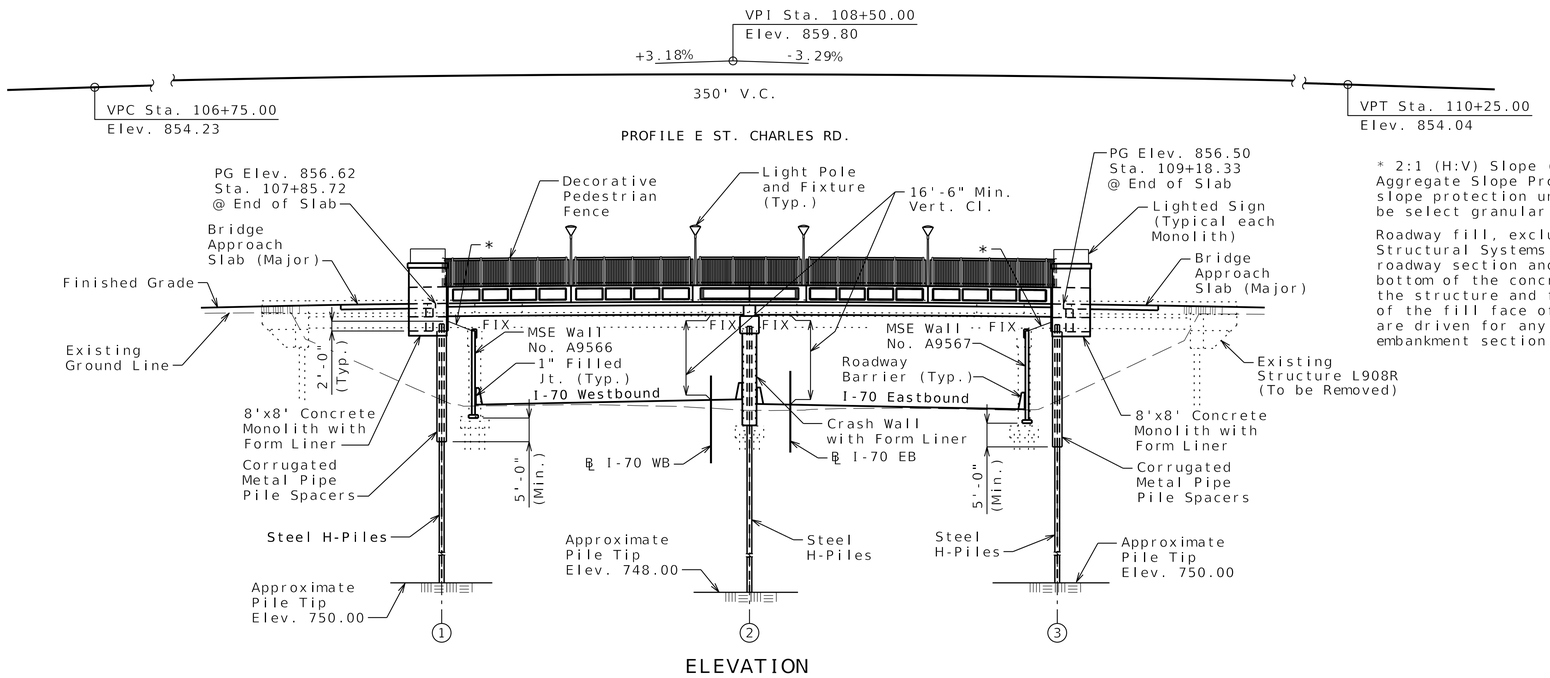
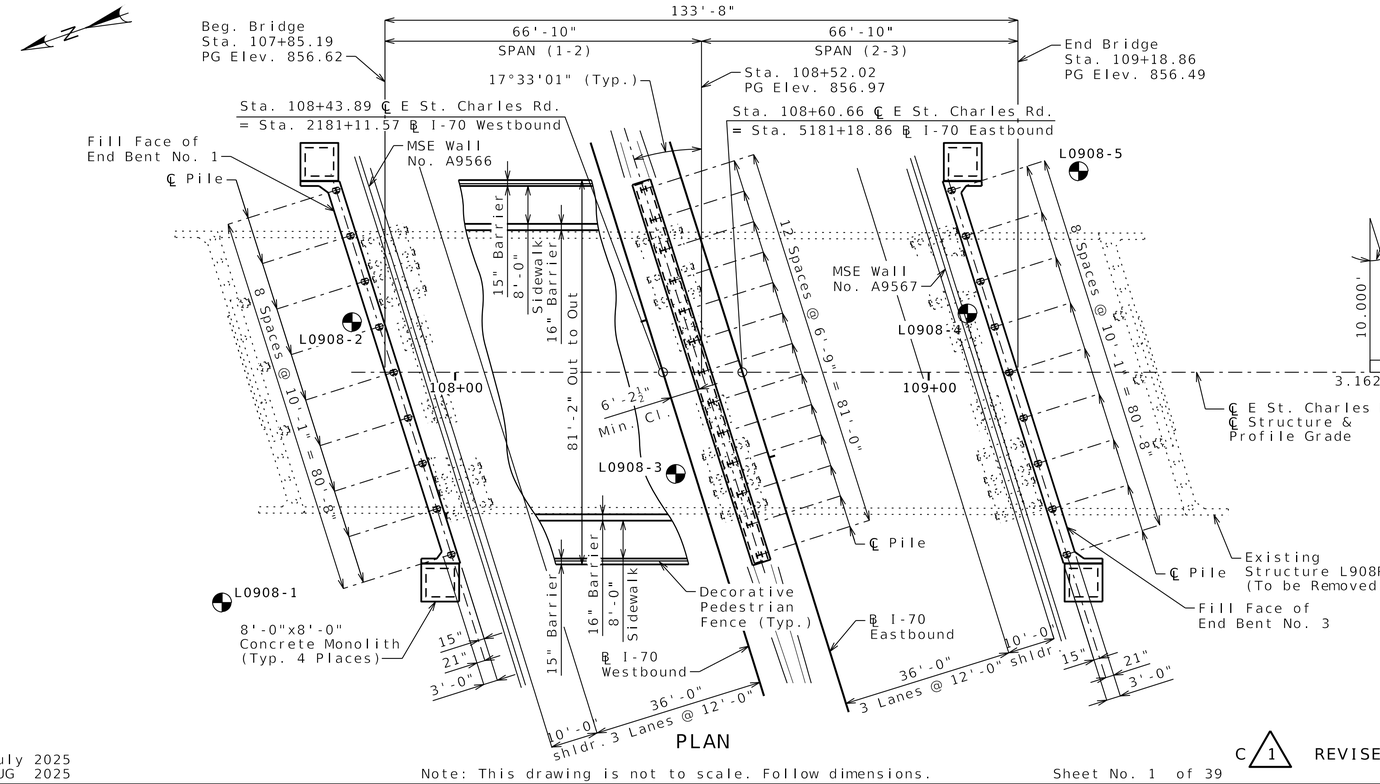
(65.0'-65.0') PRESTRESSED CONCRETE SPREAD BOX BEAM SPANS

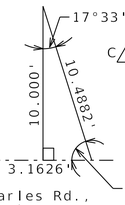
SEC/SUR 10 TWP 48N RGE 12W



* 2:1 (H:V) Slope (Normal) with Aggregate Slope Protection. Aggregate slope protection under the bridge to be select granular backfill.

Roadway fill, exclusive of Select Granular Backfill for Structural Systems, 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.





C 1 The locations of all subsurface borings for this structure are shown on the plan sheet for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data, are shown on Sheets No. 39A thru 39G, and may be included in the Electronic Bridge Deliverables. No greater significance or weight should be given to the boring data than is given to the subsurface data available from the district or elsewhere.

℄ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data may be included in the Electronic Bridge Deliverables. No greater significance or weight should be given to the boring data than is given to the subsurface data available from the district or elsewhere.

B.M. 96 - ELEVATION 841.49
STATE PLANE (1983 CENTRAL ZONE)
NORTHING 1139537.8170
EASTING 1711015.3845
POINT DESCRIPTION 74/MAG

BRIDGE: E ST. CHARLES RD. OVER 1-70

ROUTE 1-70 FROM ROUTE Z TO ROUTE 63
ABOUT 2.7 MILES WEST OF ROUTE Z
TIE STATION 2181+11.57 (I-70 WB)

C 1 REVISED 01-28-26

Detailed July 2025
Checked AUG 2025

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

STATE OF MISSOURI
PROFESSIONAL ENGINEER
MATTHEW J. MUENKS
NUMBER PE-2017000338

01/29/2026 11:21:02 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	1

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

REV.	DATE	DESCRIPTION
A	05/28/25	PRELIMINARY REVIEW
B	09/17/25	FINAL REVIEW
0	09/29/25	RELEASED FOR CONSTRUCTION
1	01/28/26	NDC-055 - REVISED NOTE

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
Seismic Design Category = A
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.089
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.061

Design Loading:

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

Design Unit Stress:

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

For precast prestressed panel stresses, see Sheet No. 23.
For prestressed box beam stresses, see Sheet No. 20.

Standard Plans:

609.00, 617.10, and 706.35H.

Neoprene Pads:

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

Joint Filler:

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

Reinforcing Steel:

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

Traffic Handling:

Structure to be closed during construction.

Vertical clearance for Interstate 70 traffic during construction shall be 15'-0" minimum over a 24 feet wide horizontal opening of the roadway in each direction. See roadway plans for traffic control details.

Miscellaneous:

Construction personnel will indicate the type of joint filler option used under the precast panels for this structure:
☐ Constant Joint Filler
☐ Variable Joint Filler

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

Stay-In-Place Corrugated Steel Forms:

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

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

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

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

Foundation Data

Type	Design Data		Bent Number 1	Bent Number 2	Bent Number 3	Concrete Monolith
Load Bearing Pile	Pile Type and Size		HP 12x53	HP 14x73	HP 12x53	
	Number	ea	9	13	9	
	Approximate Length Per Each	ft	102	104	102	
	Pile Point Reinforcement	ea	All	All	All	
	Min. Galvanized Penetration (Elev.)	ft	830.0	814.5	829.5	
	Minimum Tip Penetration (Elev.)	ft	819.0	810.0	819.0	
	Criteria for Min. Tip Penetration		Min. Embed.	Lateral	Min. Embed.	
	Pile Driving Verification Method		DF	DT	DF	
	Resistance Factor		0.4	0.65	0.4	
	Minimum Nominal Axial Compressive Resistance	kip	588	557	588	
Spread Footing	Foundation Material		---	---	---	Retaining Wall Reinforced Fill Zone
	Design Minimum Nominal Bearing Resistance	ksf	---	---	---	6.62

DF = FHWA-Modified Gates Dynamic Pile Formula

DT = Dynamic Testing

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

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

~~All piles shall be galvanized full length.~~ C 1 DELETED

All piles shall be driven to practical refusal.

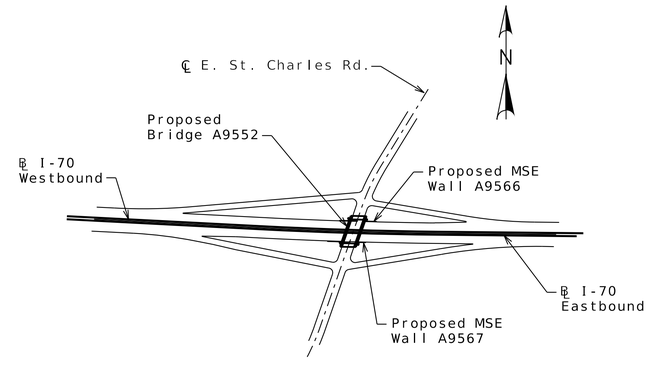
HP piles are anticipated to be driven to refusal on rock. Review all borings for depth of rock and restrict driving as appropriate to comply with hard rock driving criteria in accordance with Sec 702. When pile refusal on rock occurs, as approved by the engineer, the minimum nominal axial compressive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

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

Pipe pile spacers shall meet the requirements in Sec 720.4.7.

The pipe pile spacers shall have an inside diameter of 24".

Existing Bridge L908R shall be removed to 2' below proposed grade per Standard Specifications Section 216 at a minimum. Any portion of the existing structure in excess of 2' below the ground line that interferes with the construction of the new structure shall also be removed.



LOCATION SKETCH

C 1 REVISED 01-28-26

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

01/29/2026 11:22:13 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	2

COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION
01/28/26	REV. 1 - NDC-055 - DELETED NOTE

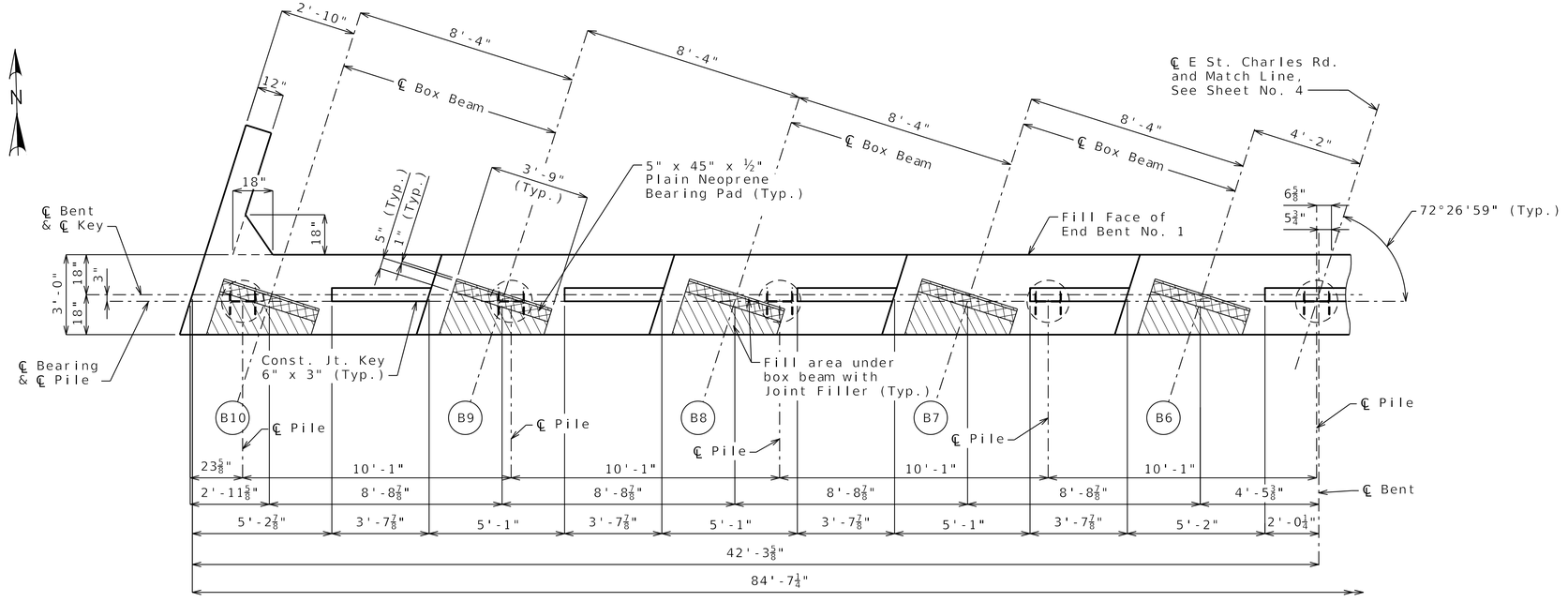
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT IMPROVE I-70 DB PROJECT 1

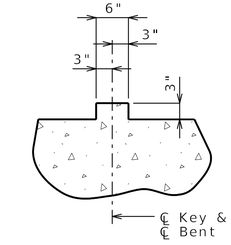
Jacobs | MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

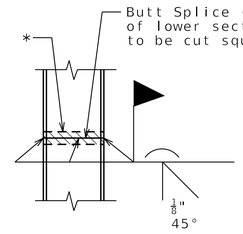
REV.



PART PLAN OF BEAM



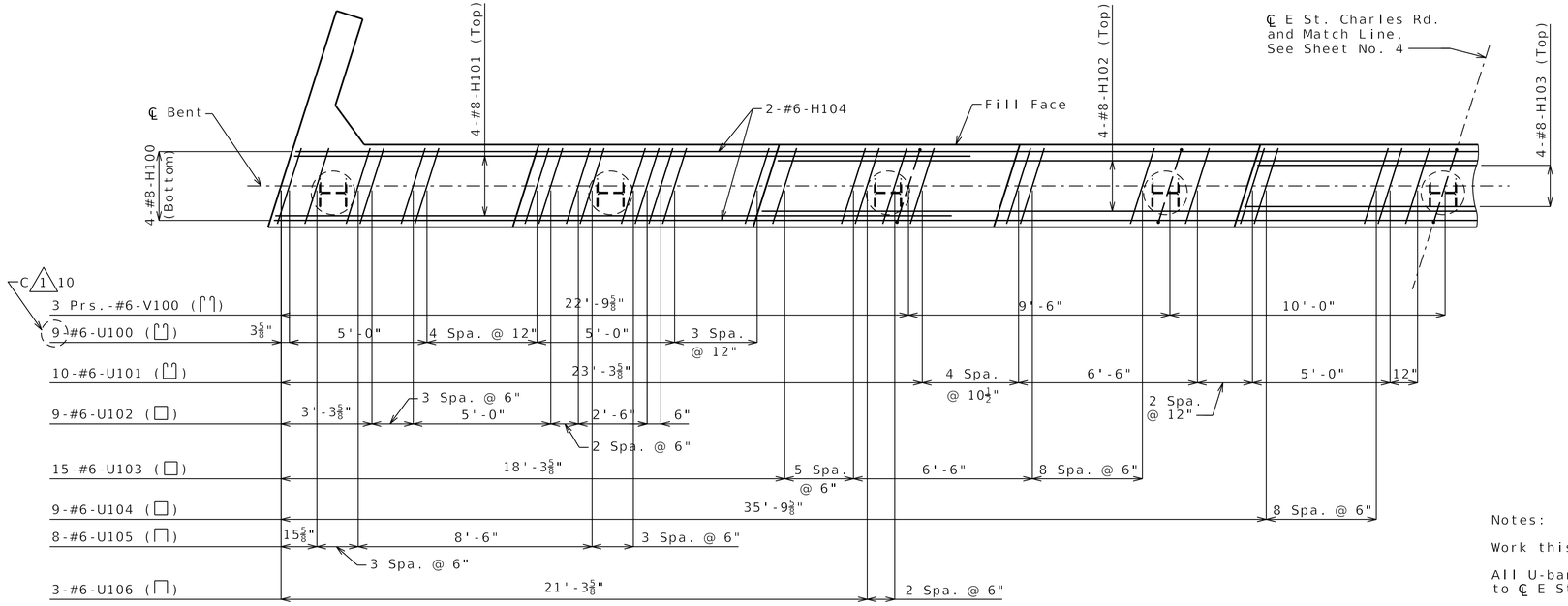
SECTION THRU KEY



STEEL PILE SPLICE

(If required)

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



PART PLAN OF BEAM SHOWING REINFORCEMENT

Keys not shown for clarity.

Notes:

Work this sheet with Sheet Nos. 4 thru 7.

All U-bars and pair of V-bars shall be placed parallel to ℄ E St. Charles Rd.

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

END BENT NO. 1

C 1 REVISED 01-28-26

Detailed JUNE 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_003_JST0021_End Bent 1-1_C001.dgn 10:58 29-JAN-2026

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

01/29/2026 11:22:13 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	3

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

REV.	DESCRIPTION	DATE
A	FINAL REVIEW	09/17/25
0	RELEASED FOR CONSTRUCTION	09/29/25
1	NDC-055 - REVISED BAR QUANTITY	01/28/26

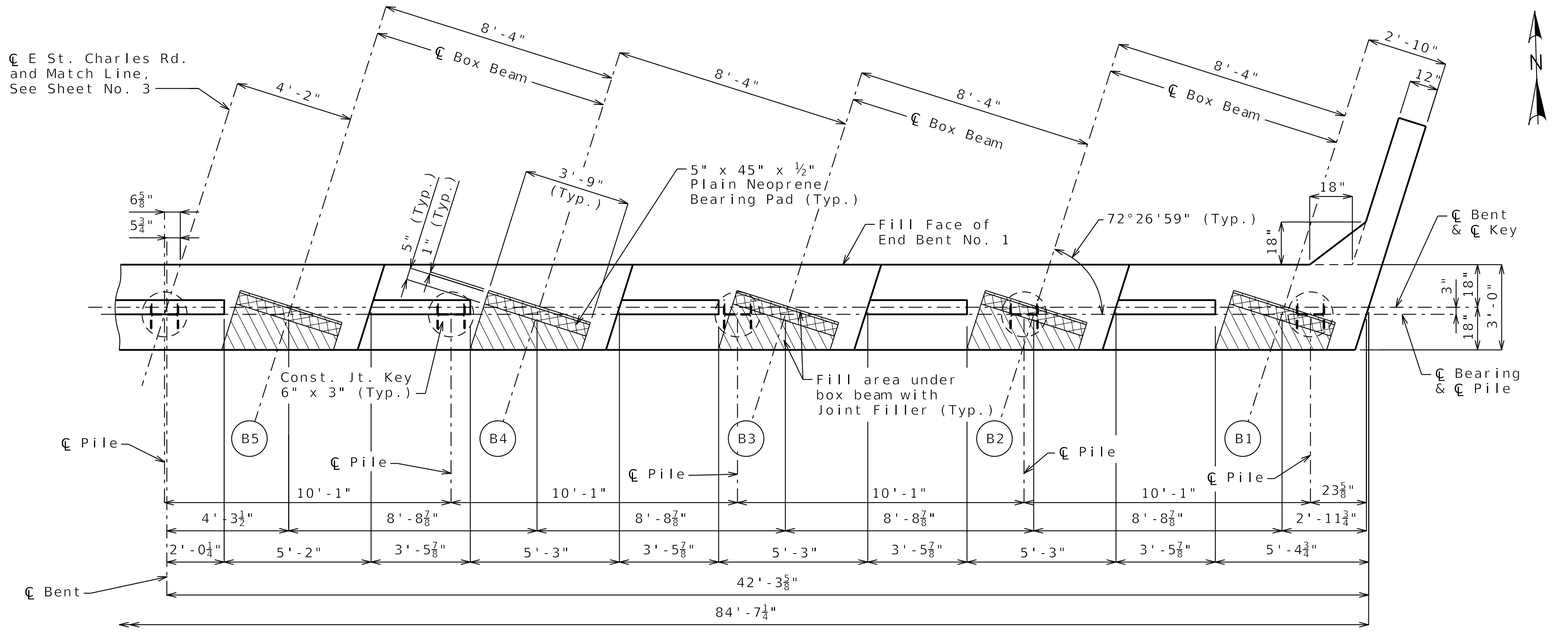
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER

Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING



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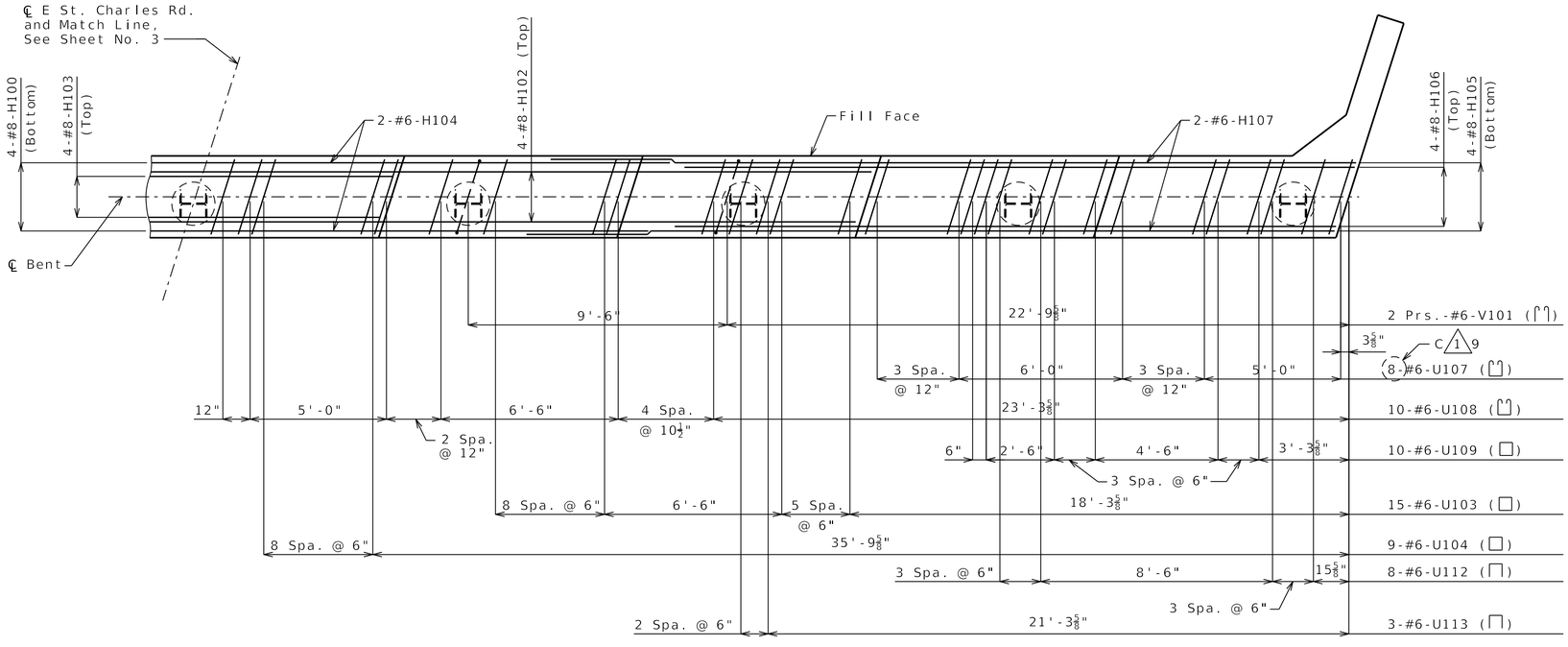


PART PLAN OF BEAM SHOWING REINFORCEMENT
Keys not shown for clarity.

END BENT NO. 1

Notes:

Work this sheet with Sheet Nos. 3 and 5 thru 7.

All U-bars and pairs of V-bars shall be placed parallel to ℄ E St. Charles Rd.

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

C 1 REVISED 01-28-26

Detailed JUNE 2025
Checked JULY 2025

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

STATE OF MISSOURI
PROFESSIONAL ENGINEER
MATTHEW J. MUENKS
NUMBER PE-2017000338

01/29/2026 11:22:13 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

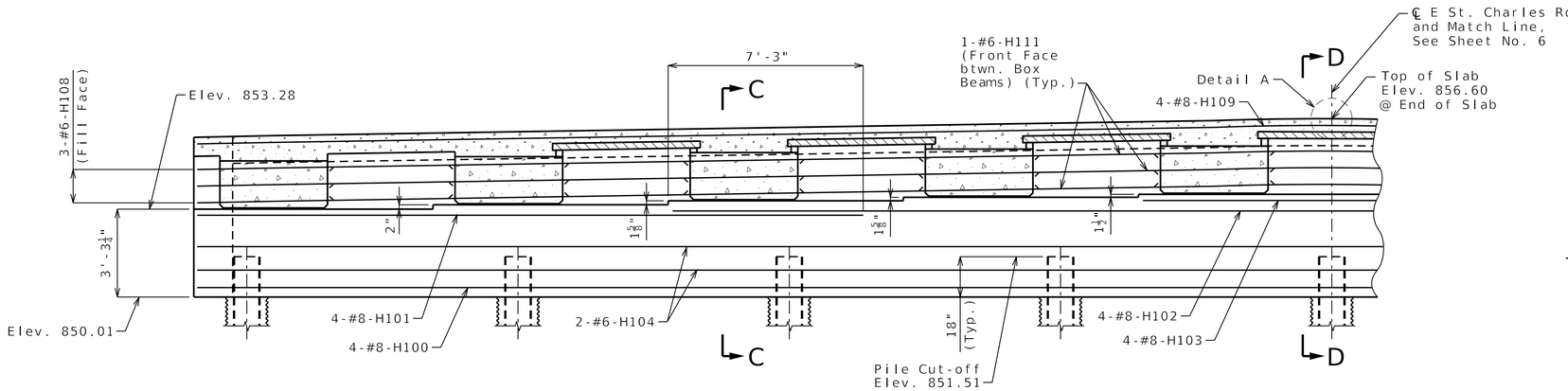
DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION
01/28/26	REV. 1 - NDC-055 - REVISED BAR QUANTITY

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING REV.



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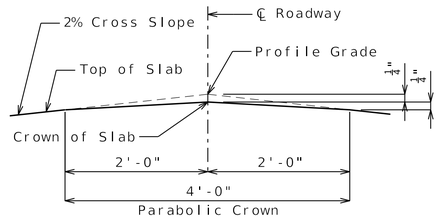
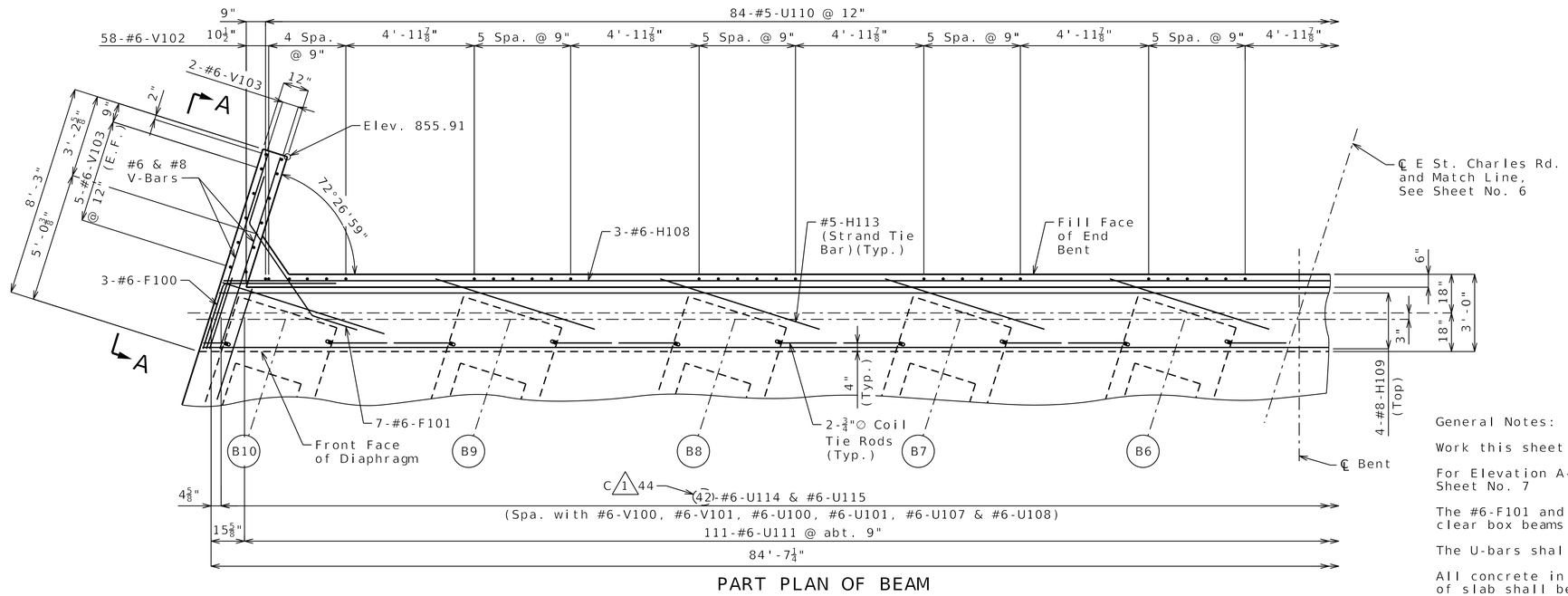


DETAIL A



PART PLAN OF BEAM

END BENT NO. 1

General Notes:

Work this sheet with Sheet Nos. 3, 4, 6 and 7.

For Elevation A-A and Sections C-C and D-D, see Sheet No. 7

The #6-F101 and #6-F103 shall be bent in the field to clear box beams.

The U-bars shall be placed parallel to ℄ E St. Charles Rd.

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

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

For location of coil tie rods and #5-H113 (strand tie bar), see Sheet No. 20.

For details of vertical drain at end bents, see Sheet No. 8.

For details of bridge approach slab, see Sheet No. 33.

C 1 REVISED 01-28-26

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

01/29/2026 11:22:13 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	5

COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION
01/28/26	REV. 1 - NDC-055 - REVISED BAR QUANTITY

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

MoDOT IMPROVE I-70 DB PROJECT 1

Jacobs | MILLSTONE WEBER

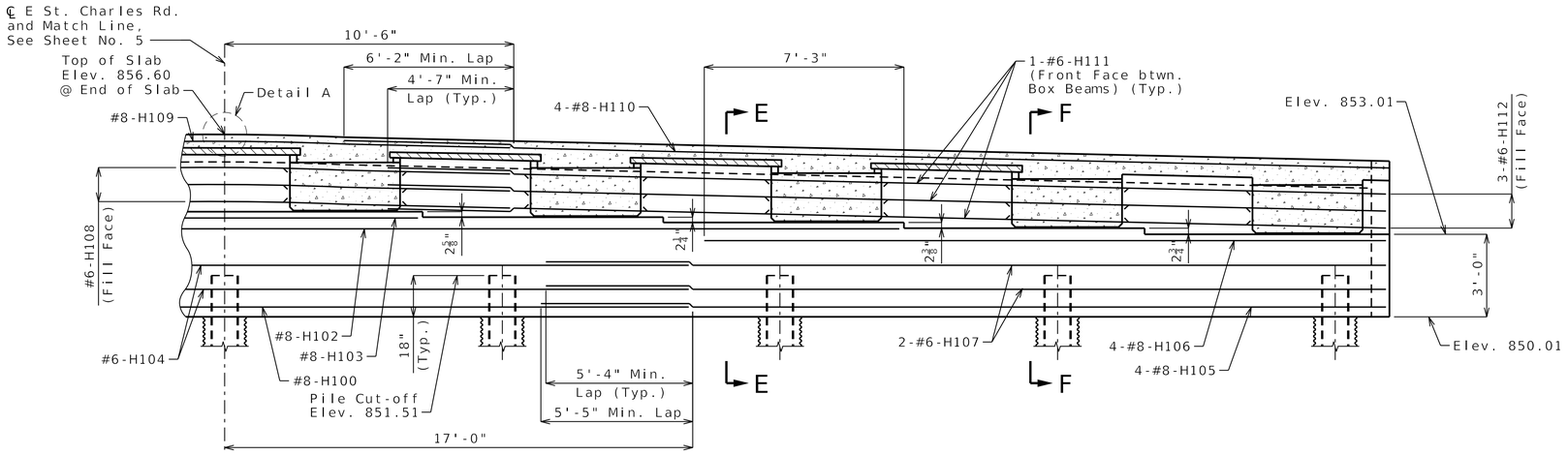
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

Detailed JUNE 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_005_JST0021_End Bent 1-3_C001.dgn 10:58 29-JAN-2026



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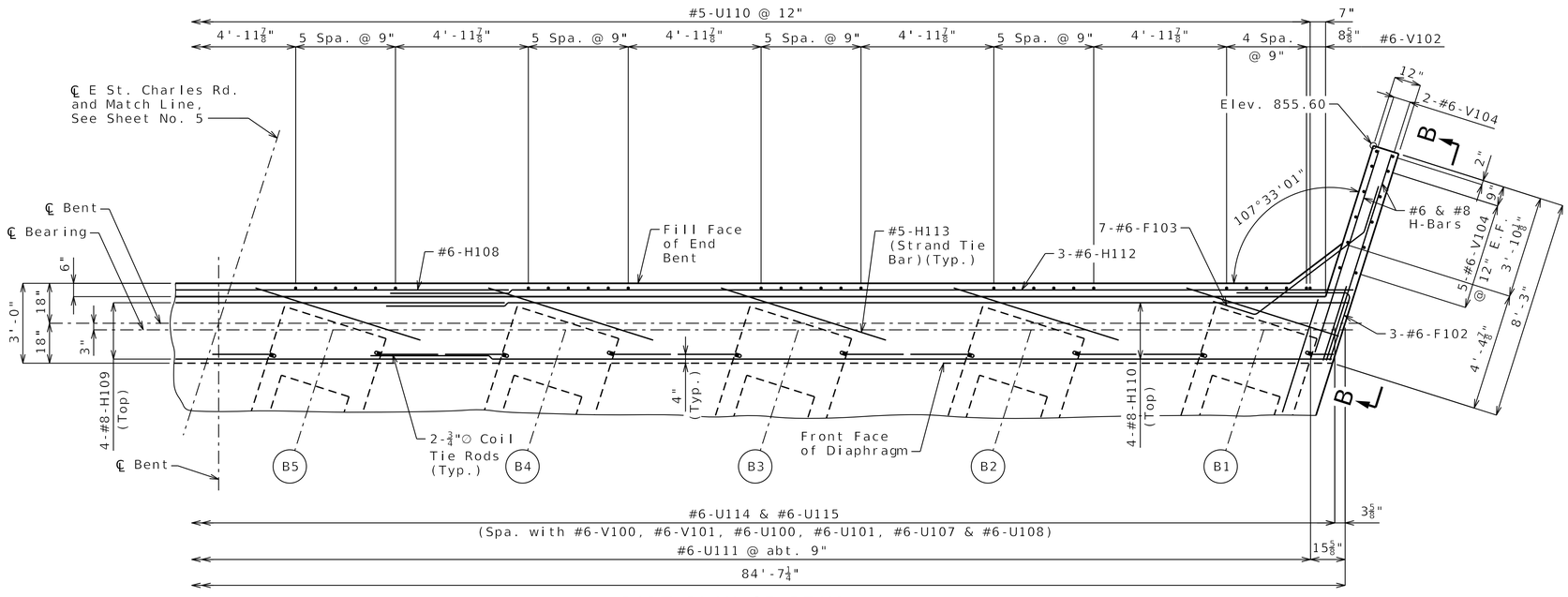


PART PLAN OF BEAM

Notes:

Work this sheet with Sheet Nos. 3 thru 5 and 7.

For Detail A, see Sheet No. 5.

For Elevation B-B and Sections E-E and F-F, see Sheet No. 7.

END BENT NO. 1

Detailed JUNE 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_006_JST0021_End Bent 1-4.dgn
13:18 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:23 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	6

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

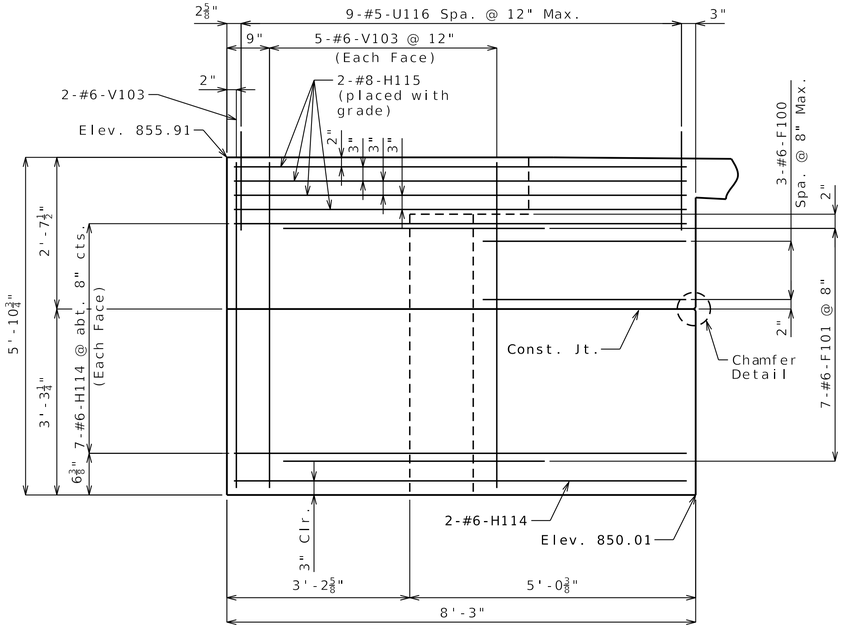
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT IMPROVE I-70 DB PROJECT 1

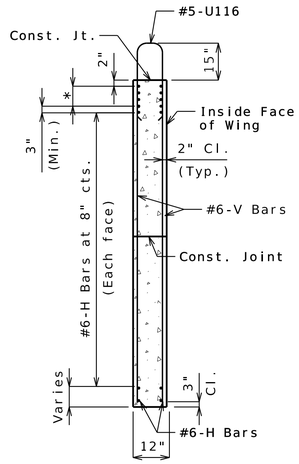
MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

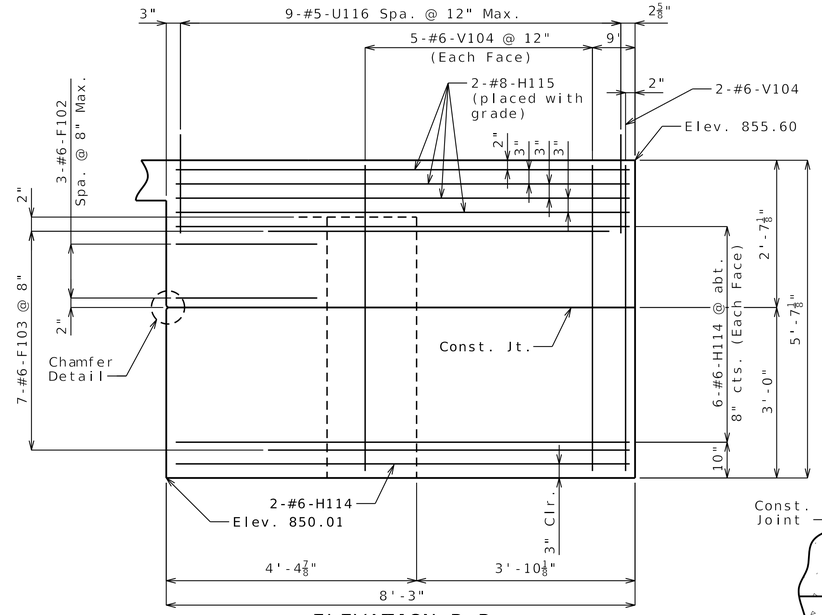


ELEVATION A-A
WEST WING

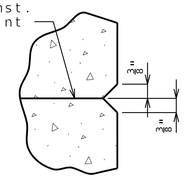


TYPICAL SECTION
THRU WING

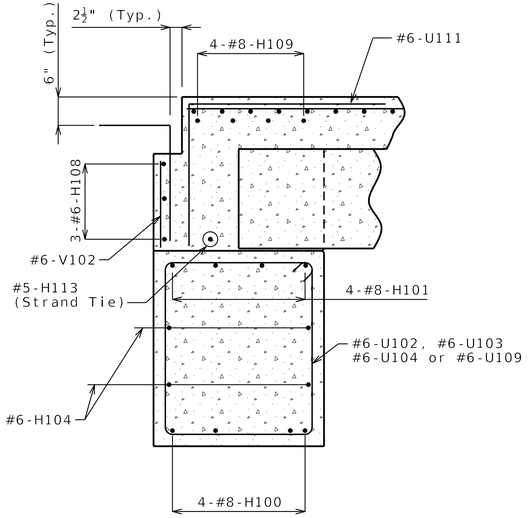
* #8-H Bars at 3" cts.
(Each face)(Place with grade)



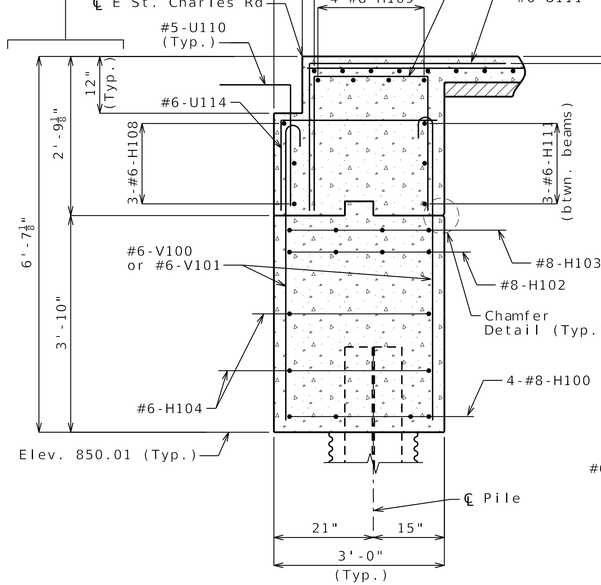
ELEVATION B-B
EAST WING



CHAMFER DETAIL



SECTION C-C



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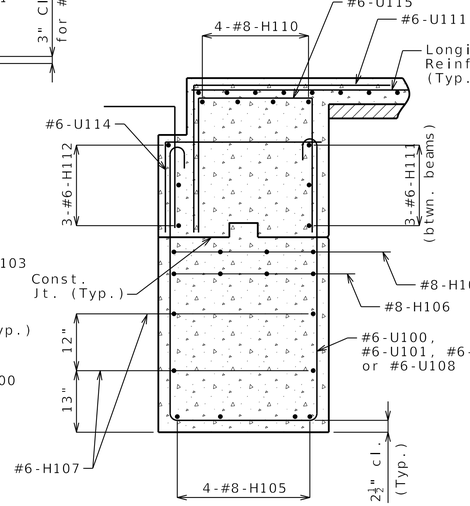

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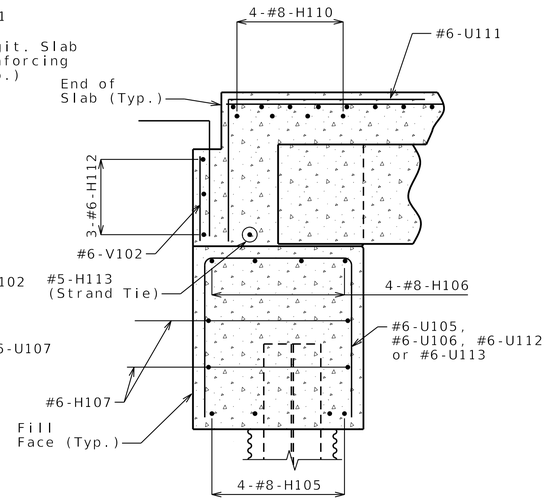


SECTION F-F

Notes:

Work this sheet with Sheet Nos. 3 thru 6.

For Pedestrian Barrier reinforcement, see Sheet No. 30.

END BENT NO. 1

Detailed JUNE 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_007_JST0021_End Bent 1-5.dgn 13:19 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:23 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	7

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

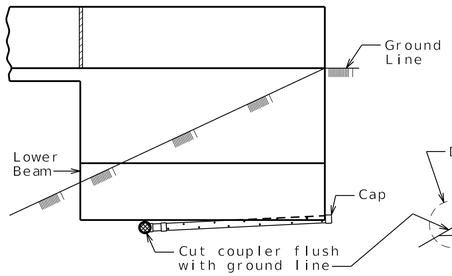
REV.	DESCRIPTION	DATE
A	FINAL REVIEW	09/17/25
0	RELEASED FOR CONSTRUCTION	09/29/25

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

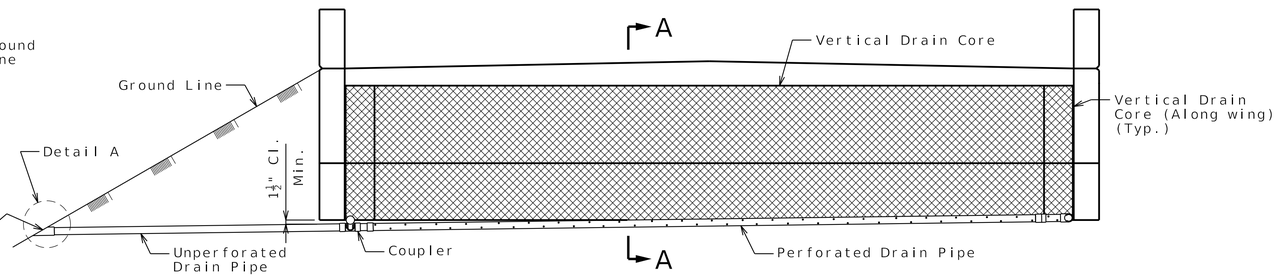
MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

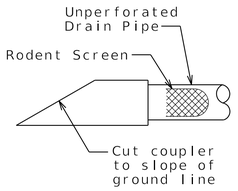
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING



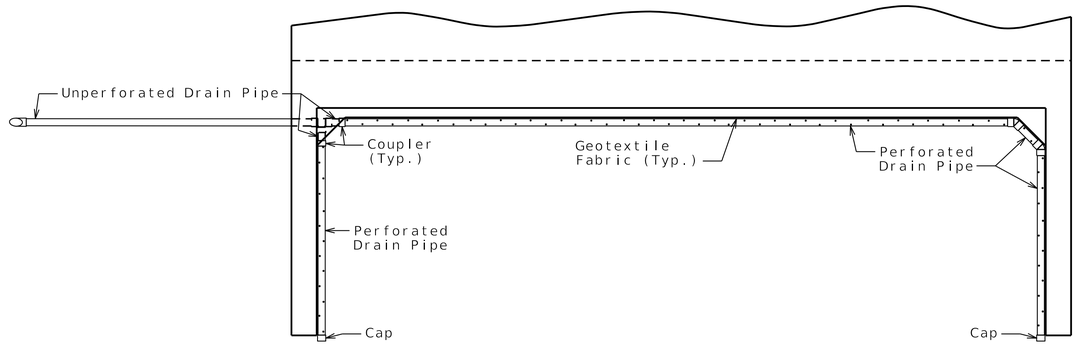
ELEVATION OF WING



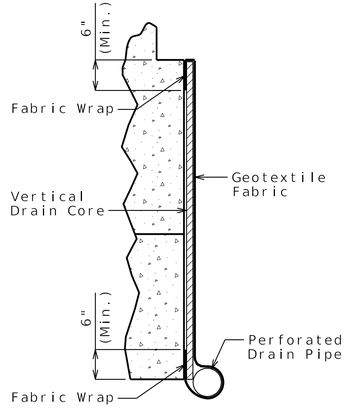
ELEVATION OF END BENT



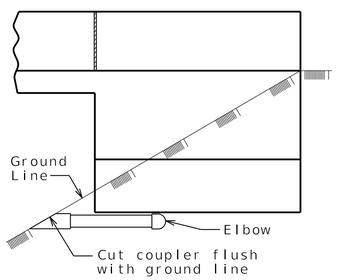
DETAIL A



PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



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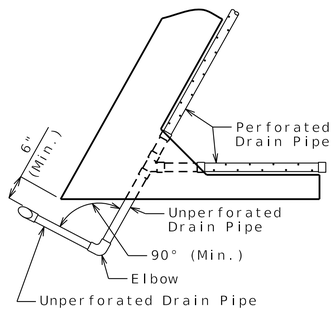

PART PLAN

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)

STATE OF MISSOURI
MATTHEW J. MUENKS
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Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	8

COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

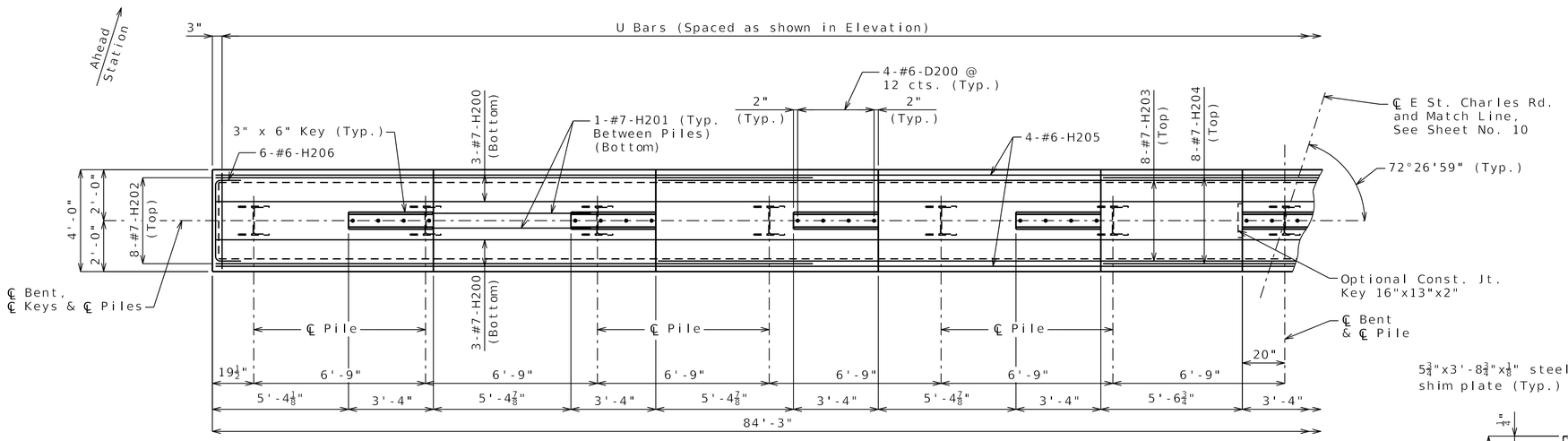
DESCRIPTION	DATE
REV. A - FINAL REVIEW	09/17/25
REV. 0 - RELEASED FOR CONSTRUCTION	09/29/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT IMPROVE I-70 DB PROJECT 1
MILLSTONE WEBER
Jacobs
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

Detailed MAY 2025
Checked JULY 2025

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



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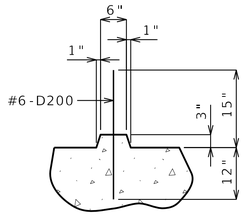
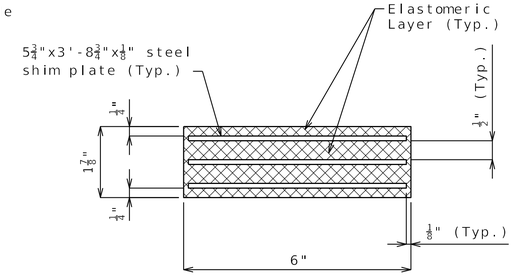
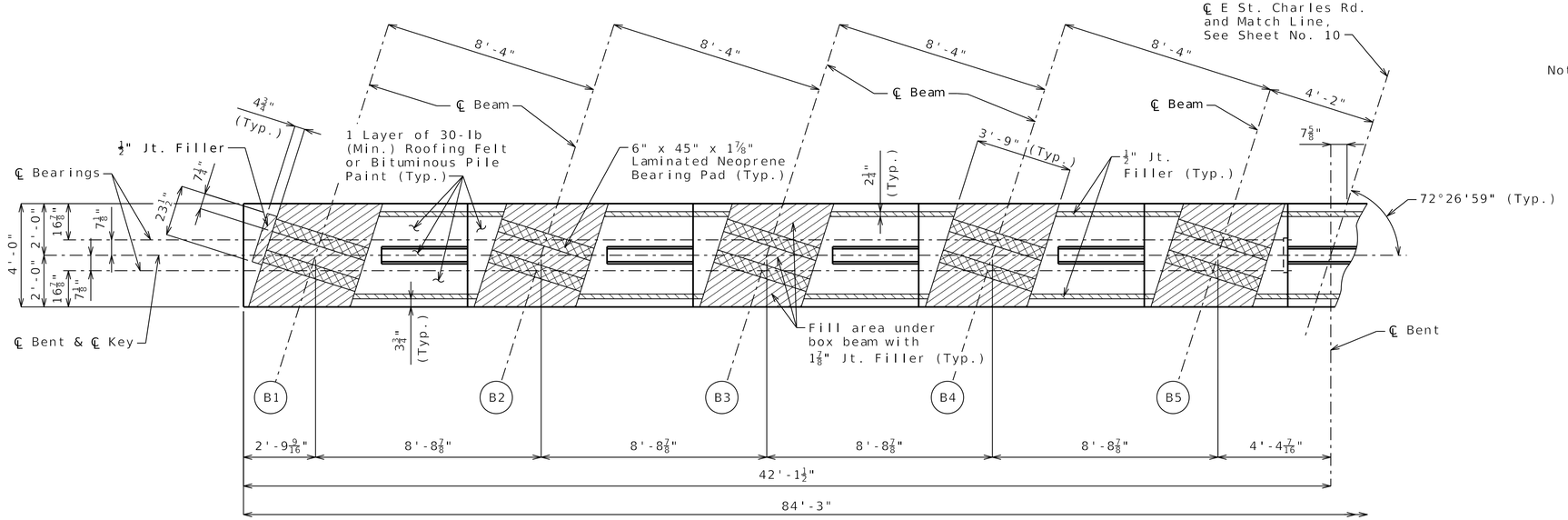


SECTION THRU KEY



SECTION THRU LAMINATED
NEOPRENE BEARING PAD

Note: Neporene Elastomeric Pads shall be 60 Durometer.



PART PLAN OF BEAM

Notes:

Work this sheet with Sheet Nos. 10 thru 13.

For steps 2 inches or more, use 2¼ x 1/2-inch joint filler up vertical face.

INTERMEDIATE BENT NO. 2

Detailed JULY 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_009_JST0021_Int Bent 2-1.dgn 13:20 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:24 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	9

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

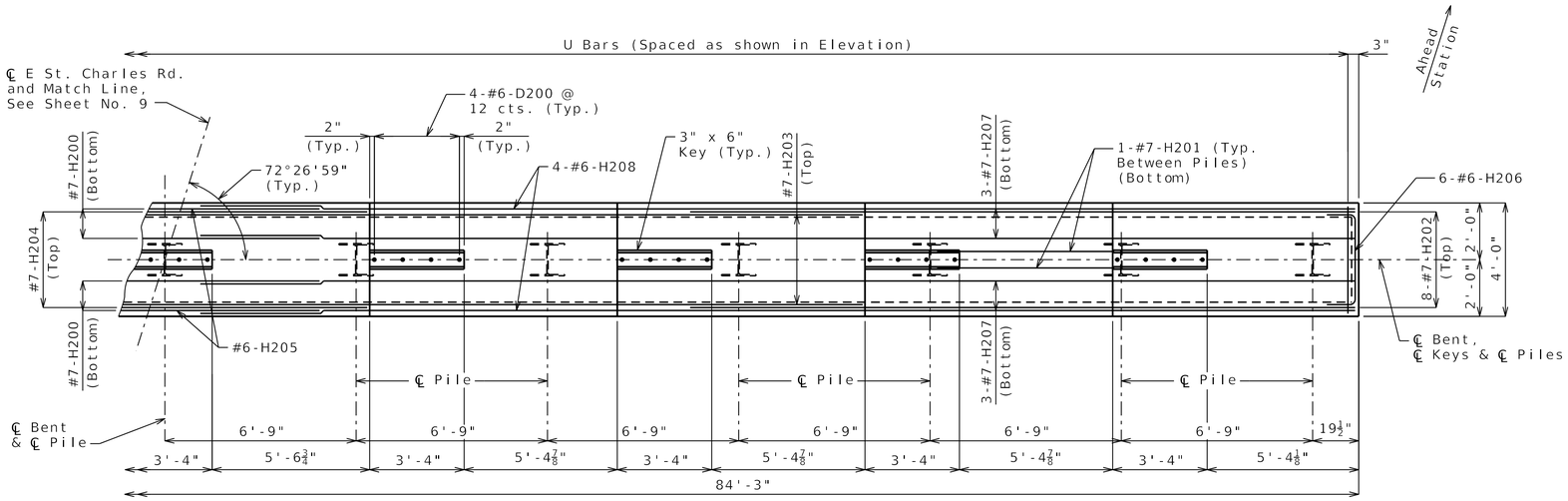
REV.	DATE	DESCRIPTION
A	09/17/25	FINAL REVIEW
0	09/29/25	RELEASED FOR CONSTRUCTION

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

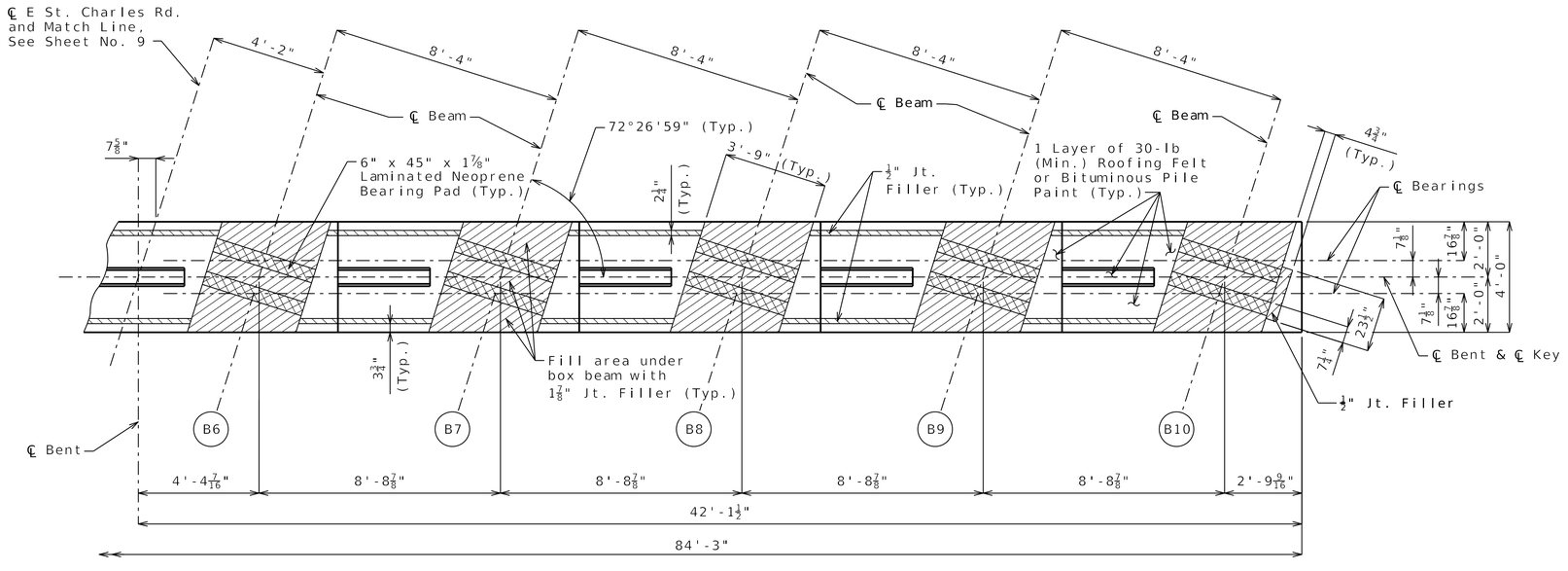
MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING



PART PLAN SHOWING REINFORCEMENT



PART PLAN OF BEAM

Notes:

Work this sheet with Sheet Nos. 9 and 11 thru 13.

For steps 2 inches or more, use 2¼ x 1/2-inch joint filler up vertical face.

INTERMEDIATE BENT NO. 2

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:24 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE: SNT CH
STATE: MO
DISTRICT: BR
SHEET NO.: 10
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

Detailed JULY 2025
Checked JULY 2025

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

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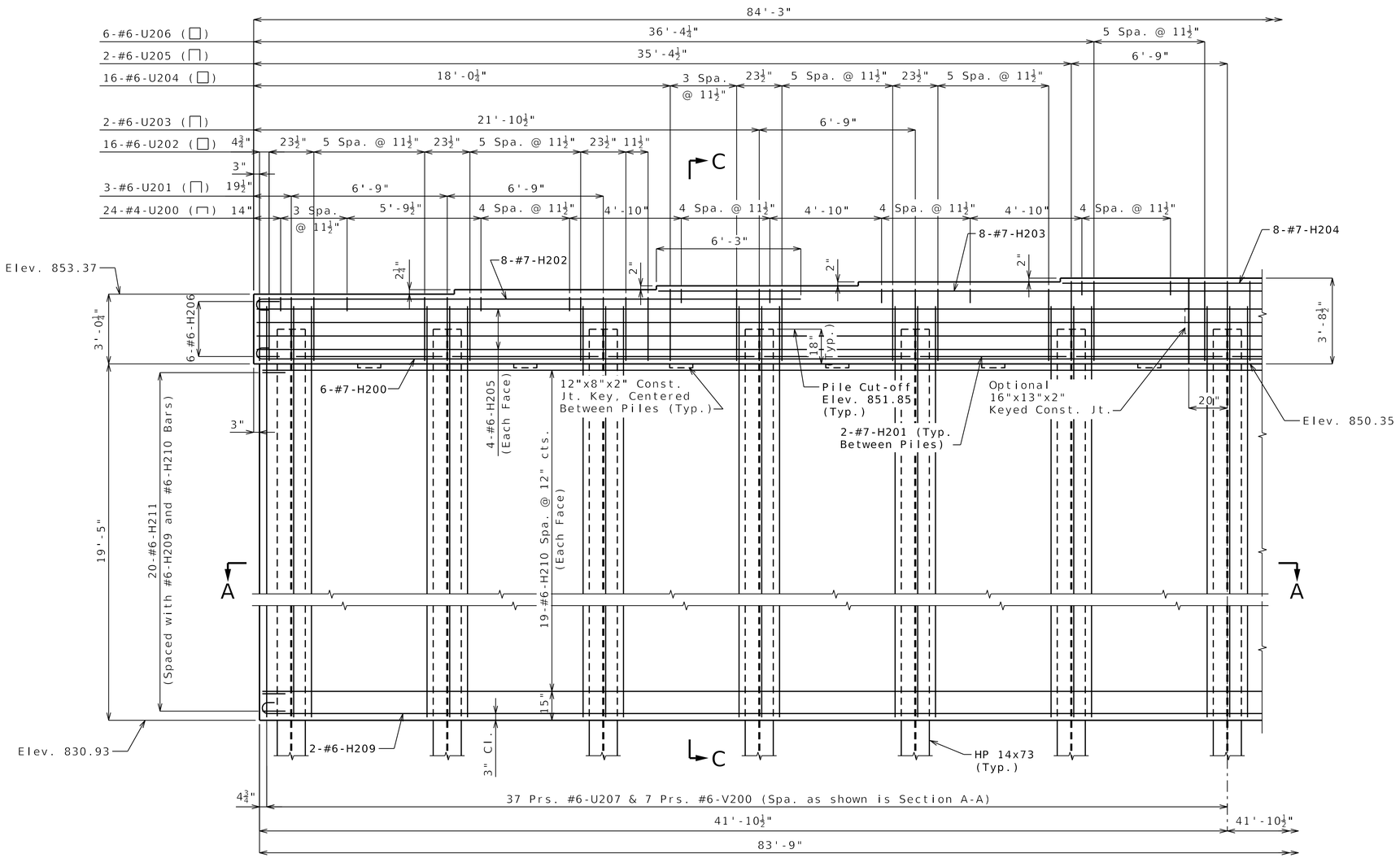
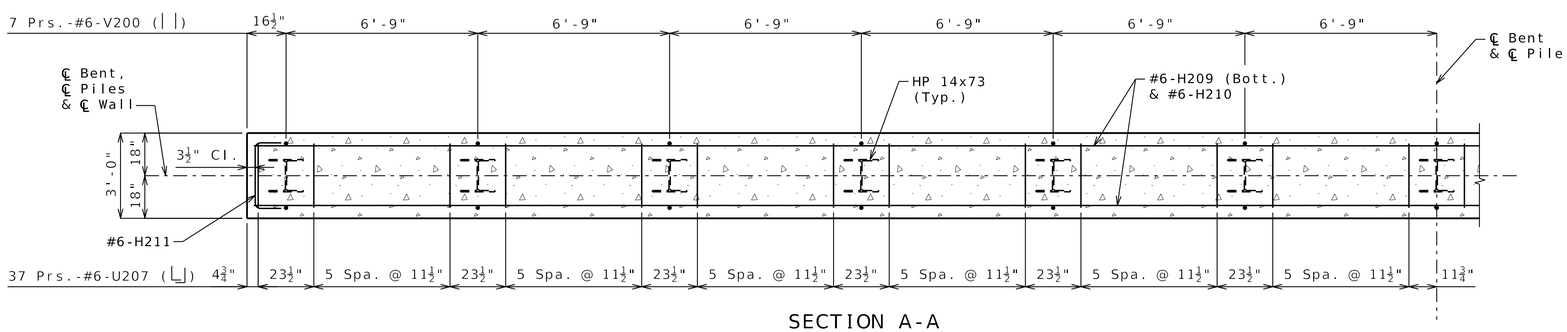
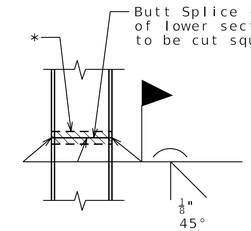


PART ELEVATION



SECTION A-A



STEEL PILE SPLICE

(If required)

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

Note:

Work this sheet with Sheet Nos. 9, 10, 12 and 13.

INTERMEDIATE BENT NO. 2

Detailed JULY 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_011_JST0021_Int Bent 2-3.dgn 13:22 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:24 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	11

COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

REV.	DATE	DESCRIPTION
A	09/17/25	FINAL REVIEW
0	09/29/25	RELEASED FOR CONSTRUCTION

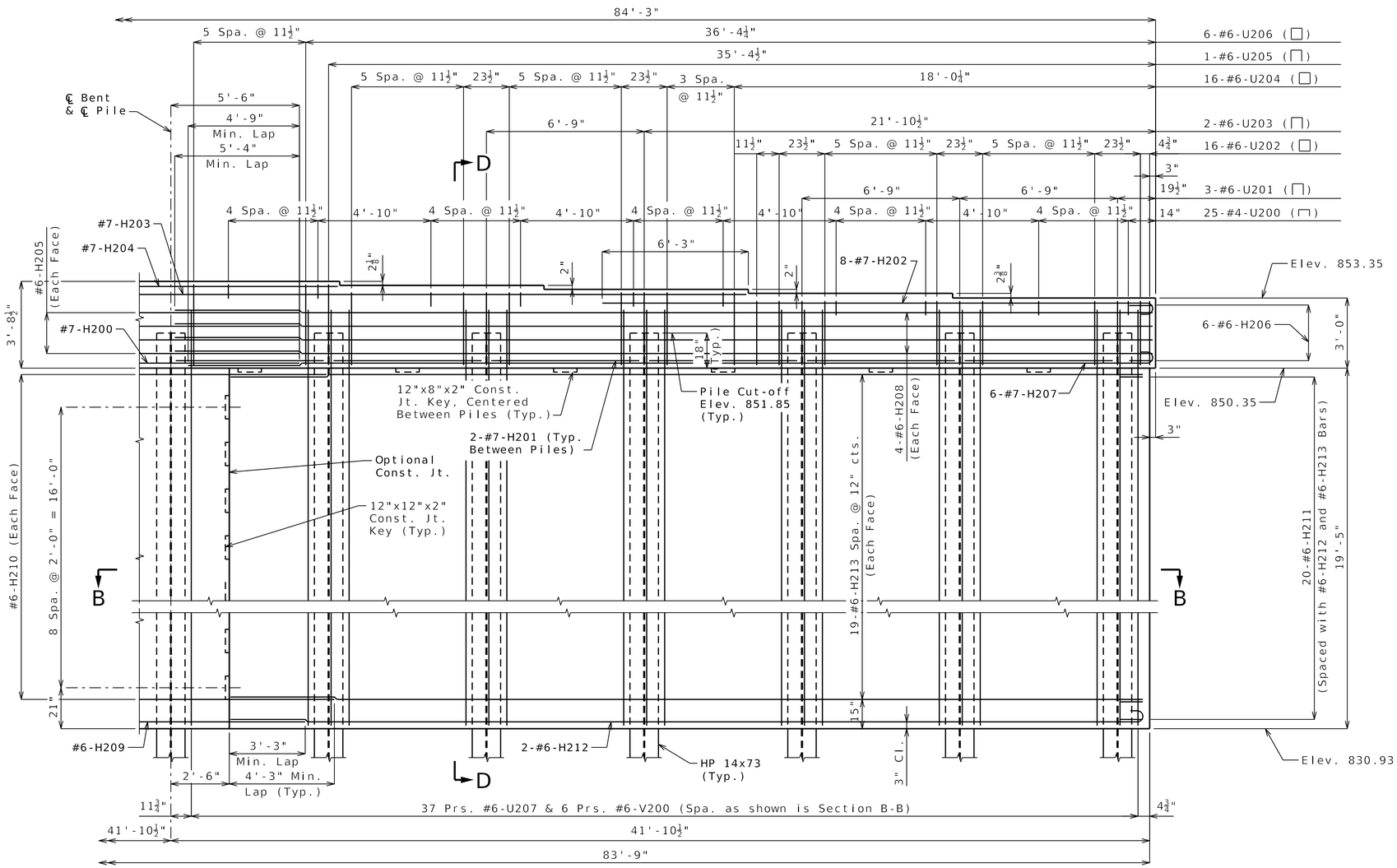
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.



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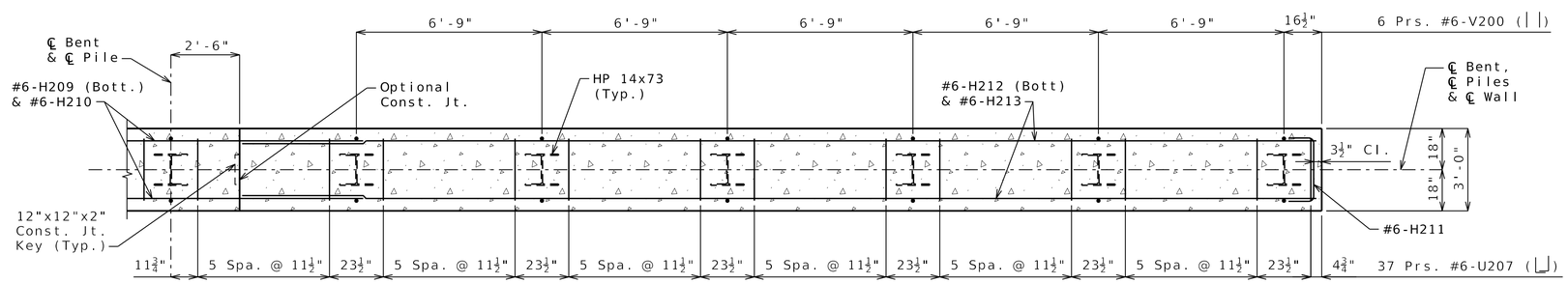


SECTION B-B

INTERMEDIATE BENT NO. 2

Note:

Work this sheet with Sheet Nos. 9 thru 11 and 13.

Detailed JULY 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_012_JST0021_Int Bent 2-4.dgn 13:23 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:24 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	12

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

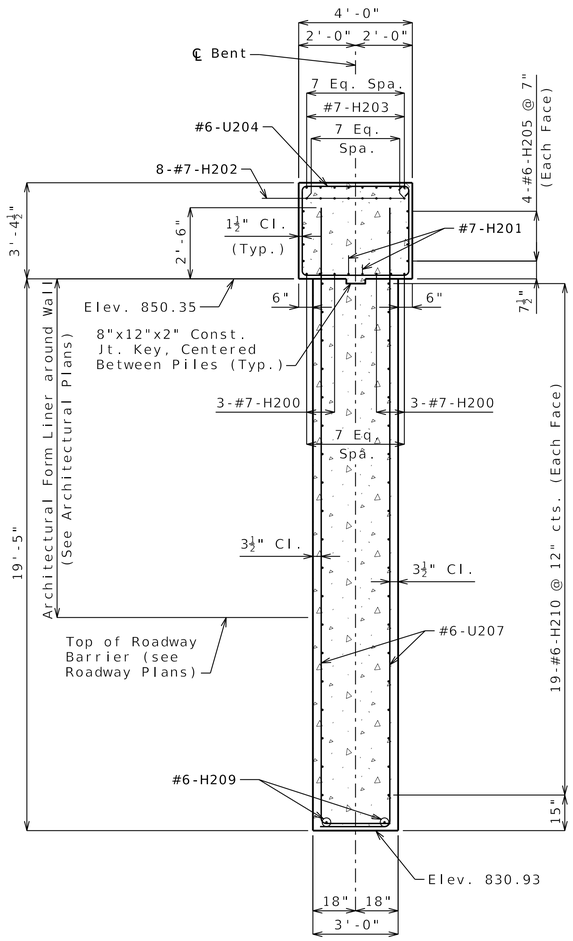
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.



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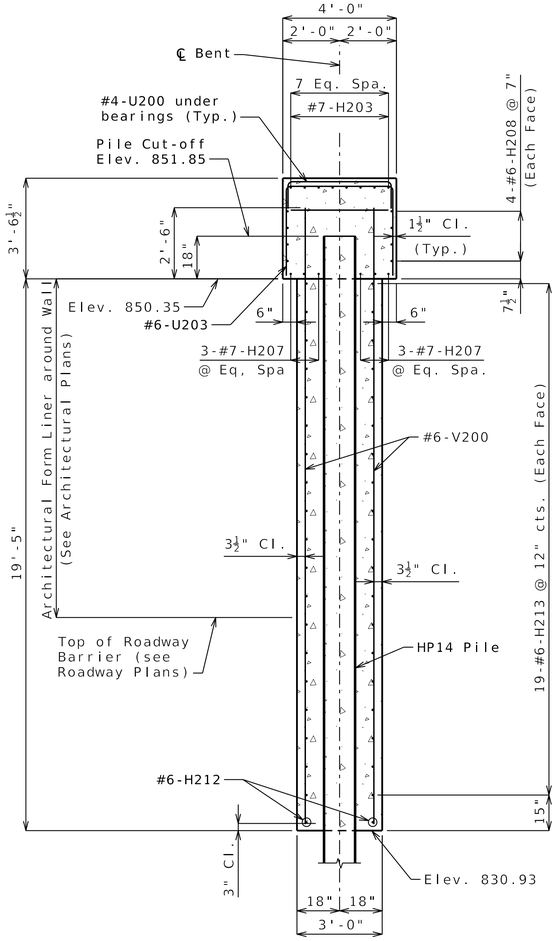

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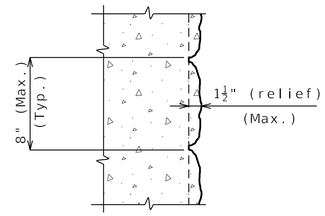


FORM LINER DETAIL

Notes:

Work this sheet with Sheet Nos. 9 thru 12.

Reinforcing steel may be shifted to clear piles.

Form liner shall be constructed in accordance with the Special Provisions.

The following form liner manufacturer and type shall be used. Depth of relief for all form liner patterns shall vary up to 1 1/2". The height of any single "stone" shall be 8" maximum.

Scott System, Inc.: Form Liner pattern #167C "Ashlar Stone" or approved equal.

All exposed concrete surfaces shall be stained and sealed with H&C Solid Stain and Sealer. Color: Cemented Deal.

Contractor shall utilize smooth,well-oiled forms to minimize honey-combing.

INTERMEDIATE BENT NO. 2

Detailed JULY 2025
Checked JULY 2025

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

Sheet No. 13 of 39

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_013_JST0021_Int Bent 2-5.dgn 13:24 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:24 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	13

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

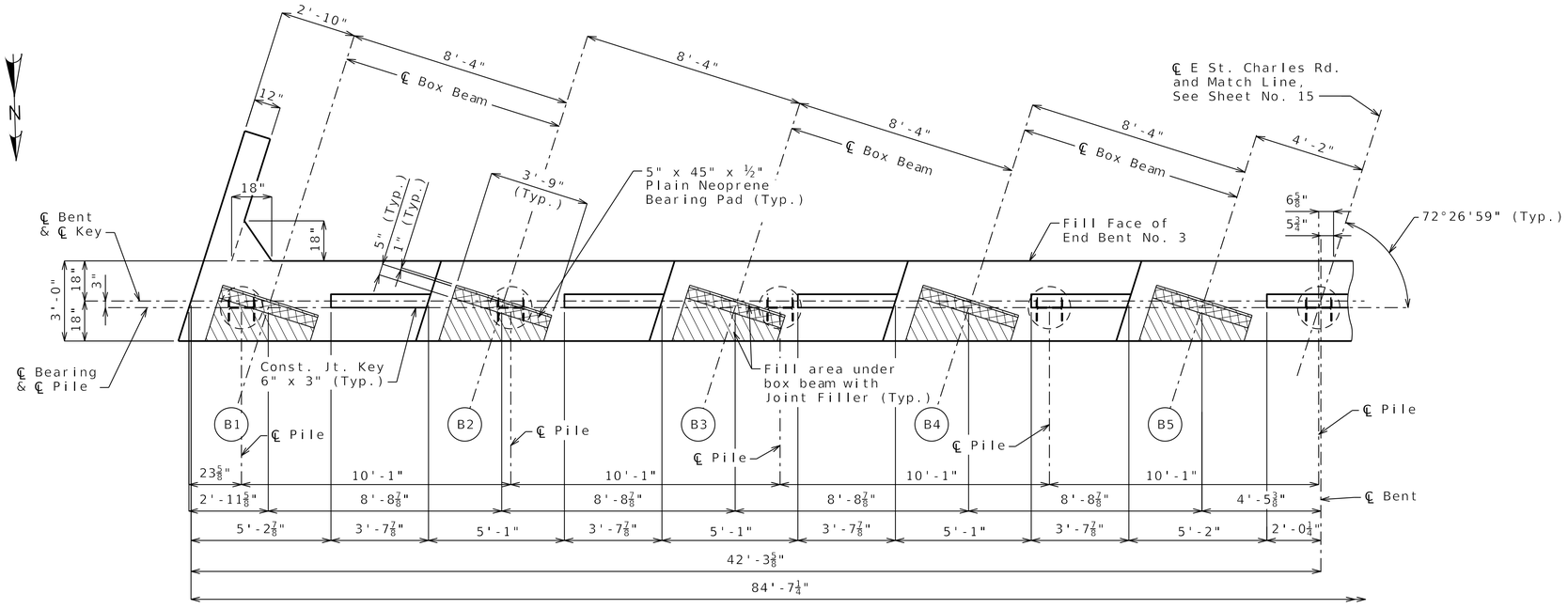
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT IMPROVE I-70 DB PROJECT 1

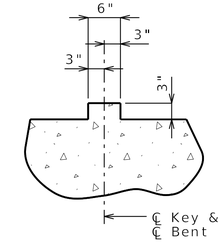
Jacobs
MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.



PART PLAN OF BEAM



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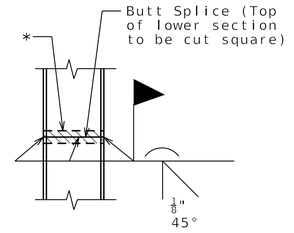
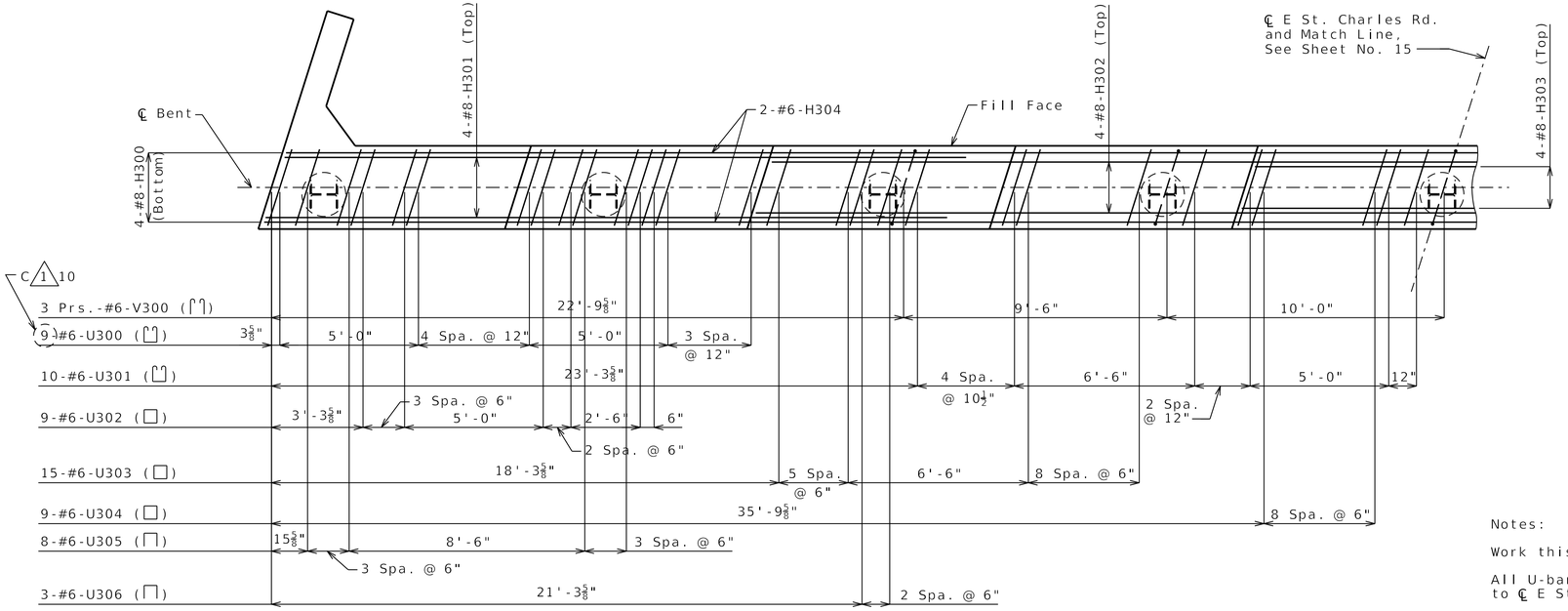


STEEL PILE SPLICE

(If required)

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



PART PLAN OF BEAM SHOWING REINFORCEMENT

Keys not shown for clarity.

Notes:

Work this sheet with Sheet Nos. 15 thru 18.

All U-bars and pair of V-bars shall be placed parallel to ℄ E St. Charles Rd.

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

END BENT NO. 3

C 1 REVISED 01-28-26

Detailed JUNE 2025
Checked AUG 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_014_JST0021_End Bent 3-1_C001.dgn 10:59 29-JAN-2026

STATE OF MISSOURI
PROFESSIONAL ENGINEER
MATTHEW J. MUENKS
NUMBER PE-2017000338

01/29/2026 11:22:13 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	14

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DESCRIPTION	DATE
REV. A - FINAL REVIEW	09/17/25
REV. 0 - RELEASED FOR CONSTRUCTION	09/29/25
REV. 1 - NDC-055 - REVISED BAR QUANTITY	01/28/26

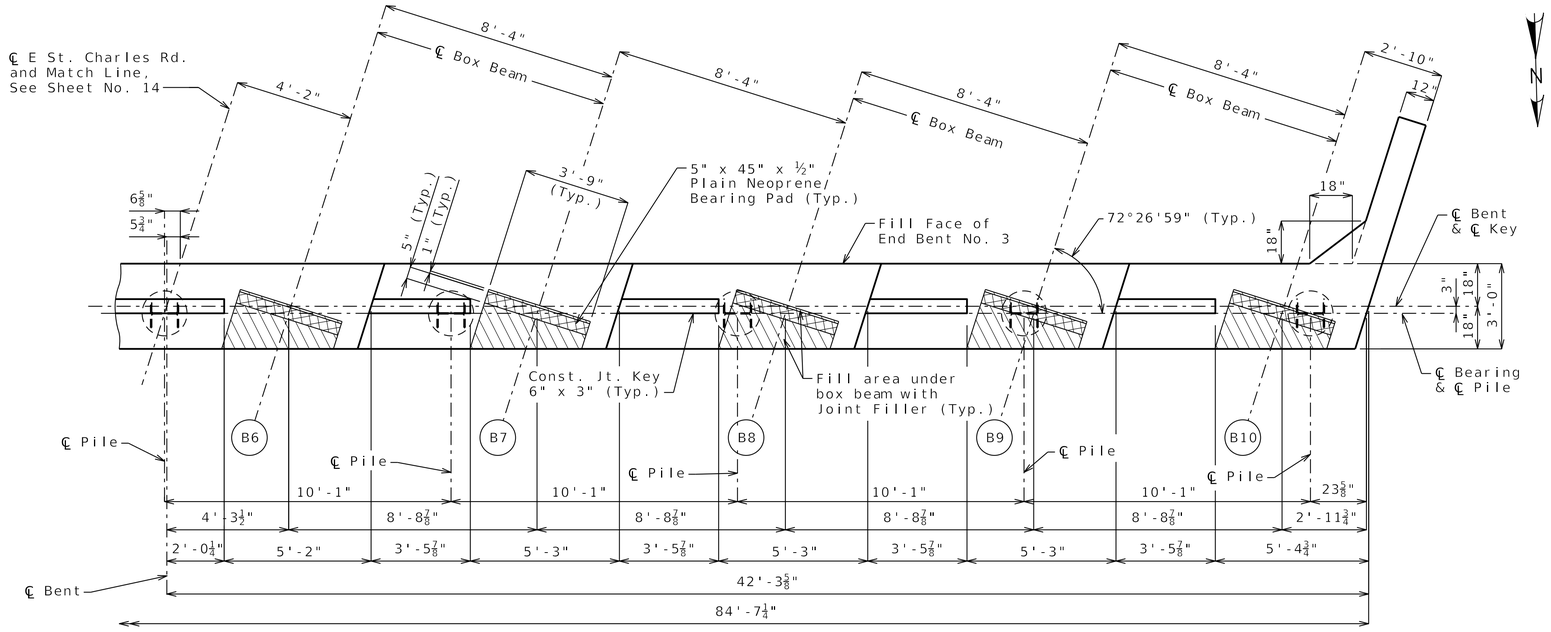
REV.

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

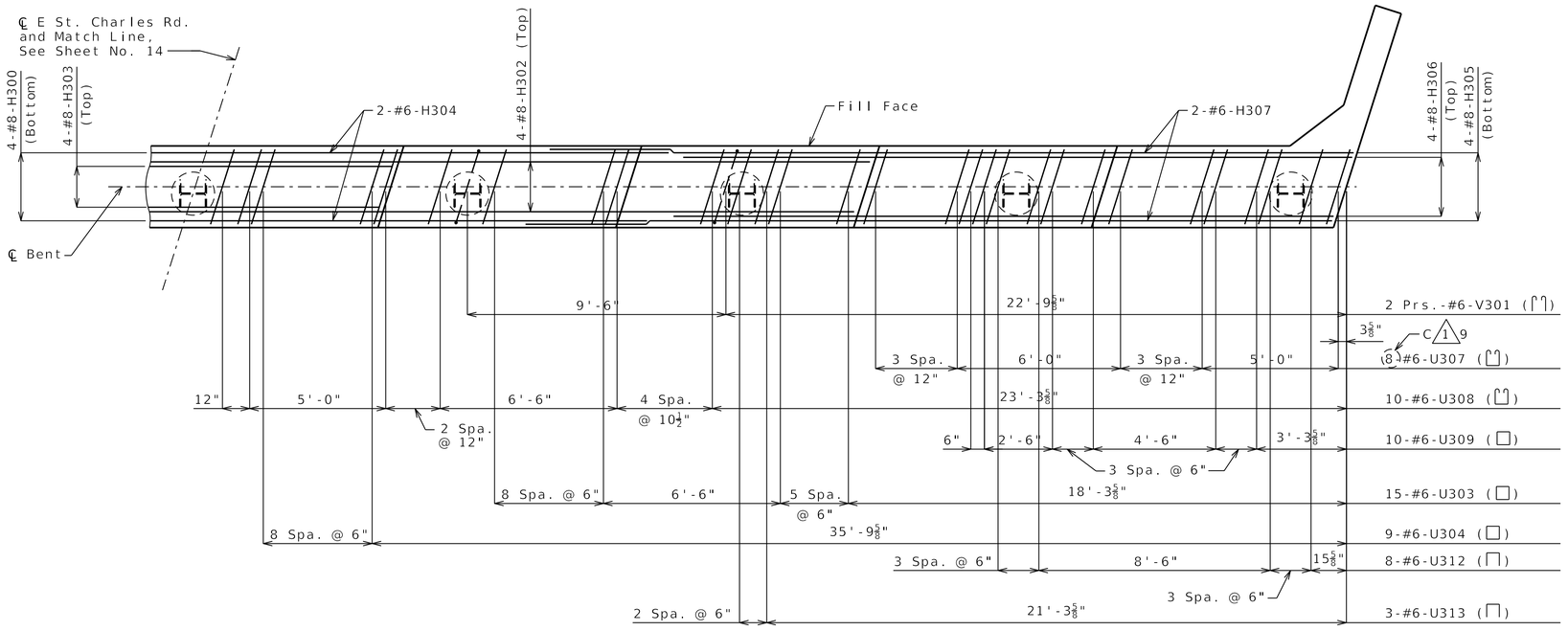
MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING



PART PLAN OF BEAM



PART PLAN OF BEAM SHOWING REINFORCEMENT

Keys not shown for clarity.

Notes:

Work this sheet with Sheet Nos. 14 and 16 thru 18.

All U-bars and pairs of V-bars shall be placed parallel to ℄ E St. Charles Rd.

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

END BENT NO. 3

C 1 REVISED 01-28-26

Detailed JUNE 2025
Checked AUG 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_015_JST0021_End Bent 3-2_C001.dgn 10:59 29-JAN-2026

STATE OF MISSOURI
PROFESSIONAL ENGINEER
MATTHEW J. MUENKS
NUMBER PE-2017000338

01/29/2026 11:22:13 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	15

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION
01/28/26	REV. 1 - NDC:055 - REVISED BAR QUANTITY

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

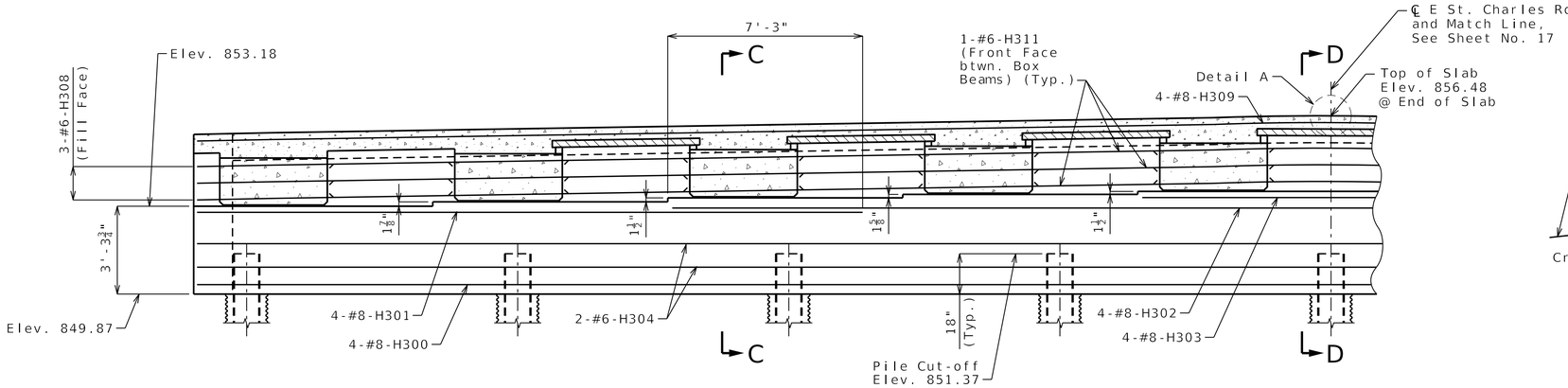
MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER

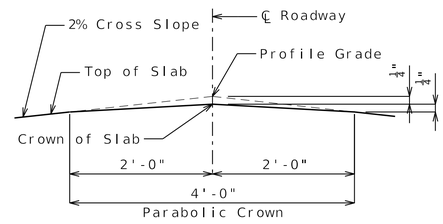
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

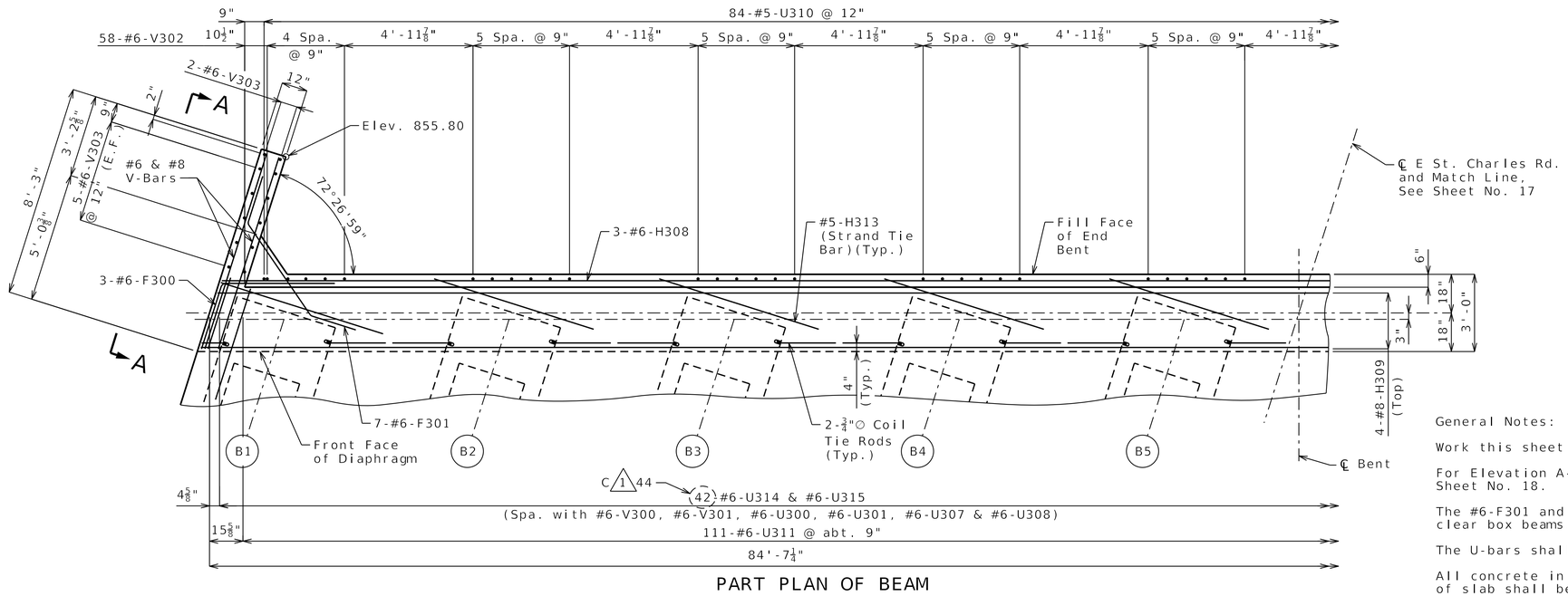
REV.



PART SECTION NEAR END BENT



DETAIL A



PART PLAN OF BEAM

END BENT NO. 3

General Notes:

Work this sheet with Sheet Nos. 14, 15, 17 and 18.

For Elevation A-A and Sections C-C and D-D, see Sheet No. 18.

The #6-F301 and #6-F303 shall be bent in the field to clear box beams.

The U-bars shall be placed parallel to ℄ E St. Charles Rd.

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

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

For location of coil tie rods and #5-H313 (strand tie bar), see Sheet No. 20.

For details of vertical drain at end bents, see Sheet No. 8.

For details of bridge approach slab, see Sheet No. 33.

C 1 REVISED 01-28-26

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

01/29/2026 11:22:14 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	16

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

REV.	DATE	DESCRIPTION
A	09/17/25	FINAL REVIEW
0	09/29/25	RELEASED FOR CONSTRUCTION
1	01/28/26	NDC-055 - REVISED BAR QUANTITY

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

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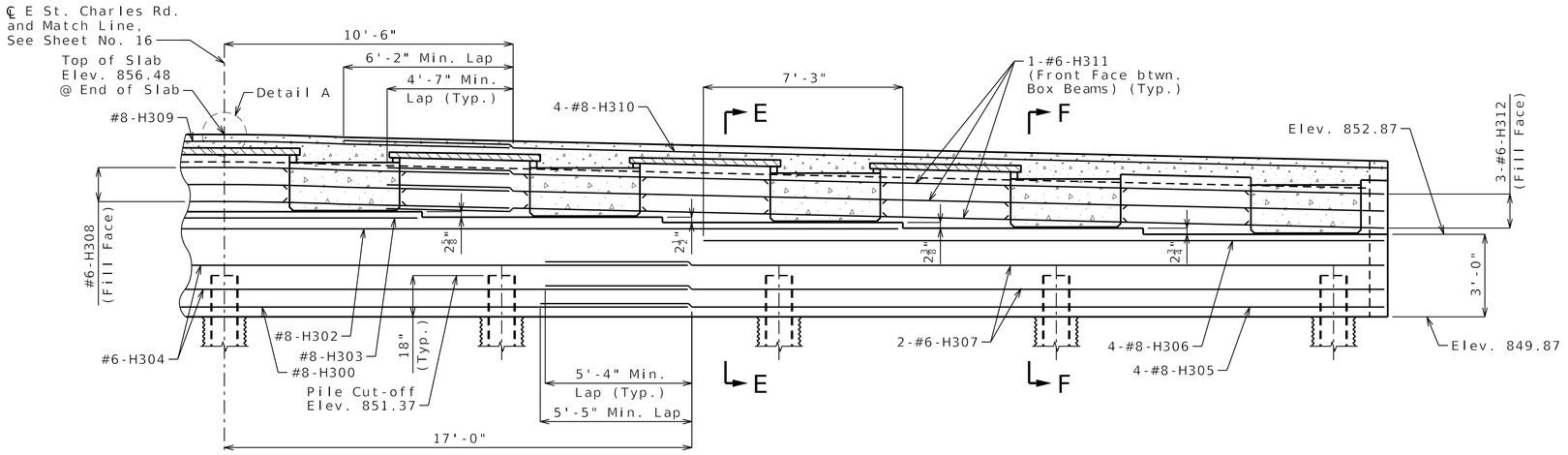
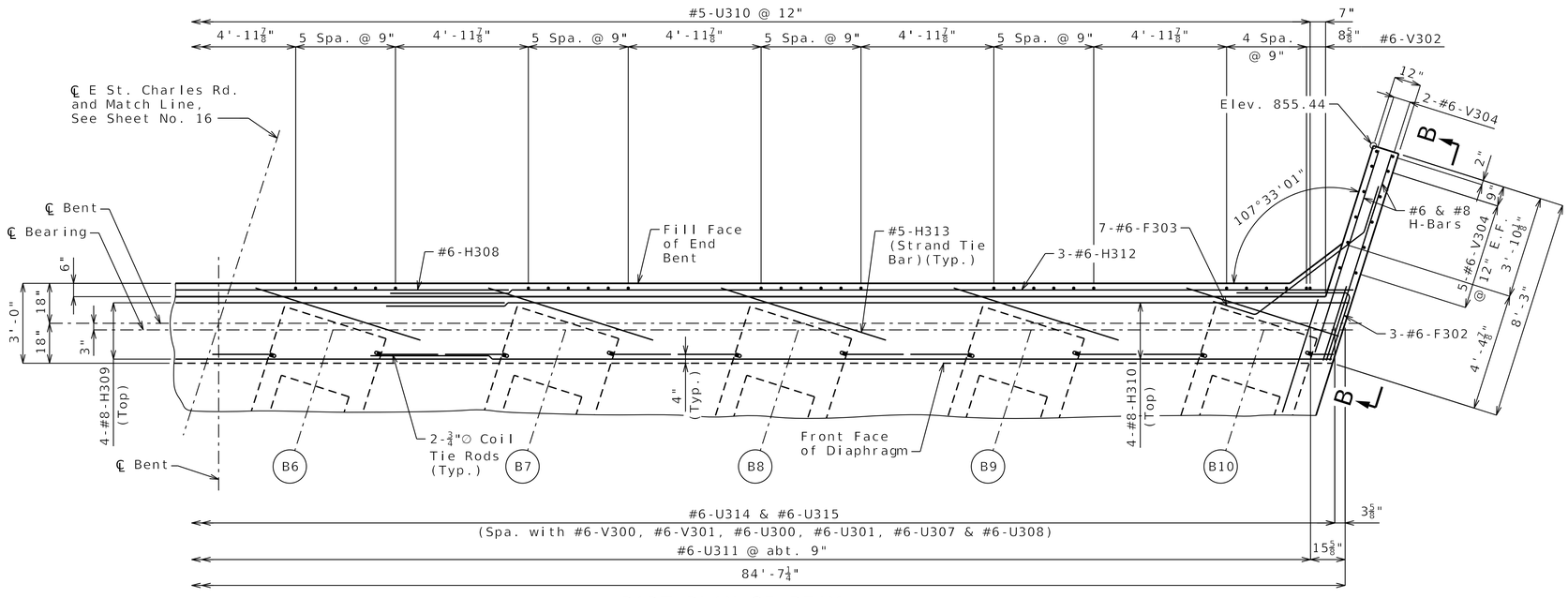


PART SECTION NEAR END BENT



PART PLAN OF BEAM

Notes:

Work this sheet with Sheet Nos. 14 thru 16 and 18.

For Detail A, see Sheet No. 16.

For Elevation B-B and Sections E-E and F-F, see Sheet No. 18.

END BENT NO. 3

Detailed JUNE 2025
Checked AUG 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_017_JST0021_End Bent 3-4.dgn
13:27 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
09/29/2025 3:11:25 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	17

COUNTY
BOONE

JOB NO.
JST0021

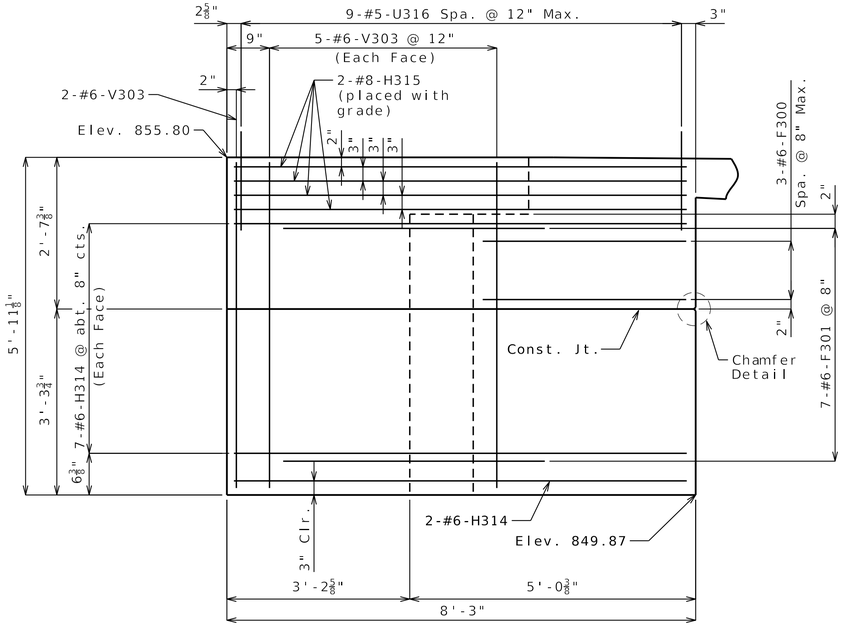
CONTRACT ID.

PROJECT NO.

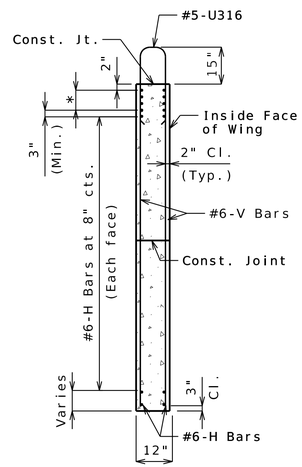
BRIDGE NO.
A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT
MoDOT IMPROVE I-70 DB PROJECT 1
MILLSTONE WEBER
Jacobs
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING
REV.

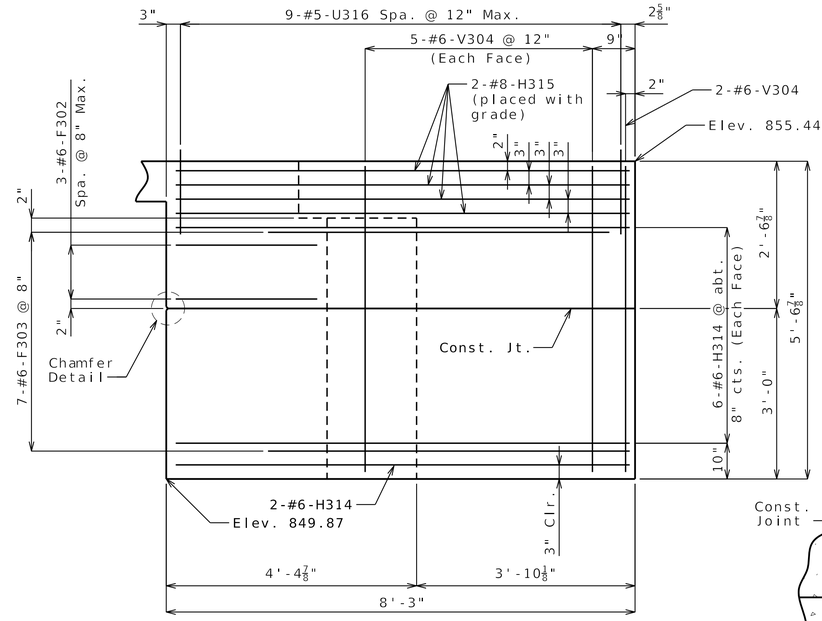


ELEVATION A-A
WEST WING

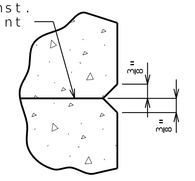


TYPICAL SECTION
THRU WING

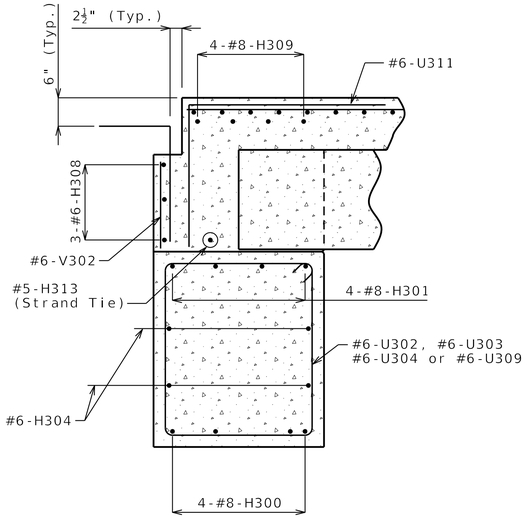
* #8-H Bars at 3" cts.
(Each face)(Place with grade)



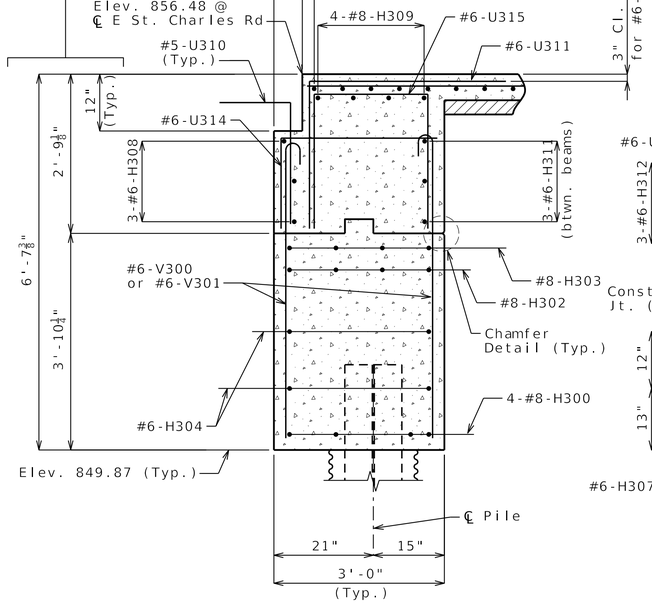
ELEVATION B-B
EAST WING



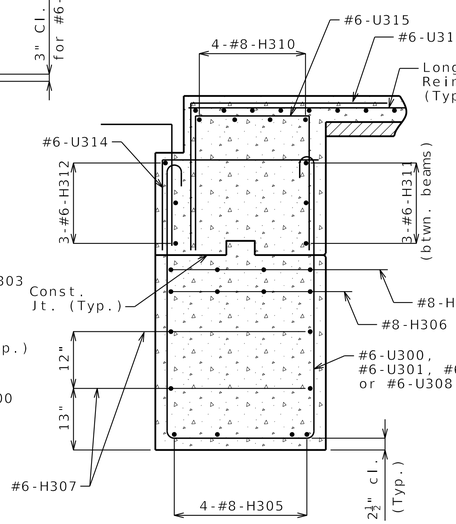
CHAMFER DETAIL



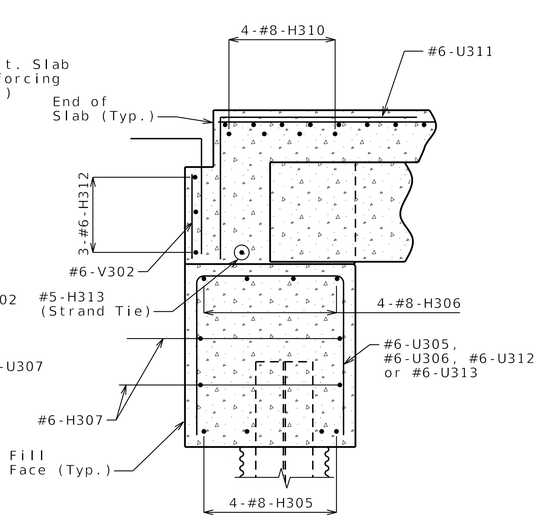
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

Notes:

Work this sheet with Sheet Nos. 14 thru 17.

For Pedestrian Barrier reinforcement, see Sheet No. 30.

END BENT NO. 3

STATE OF MISSOURI
PROFESSIONAL ENGINEER
MATTHEW J. MUENKS
NUMBER PE-2017000338

09/29/2025 3:11:25 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	18

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

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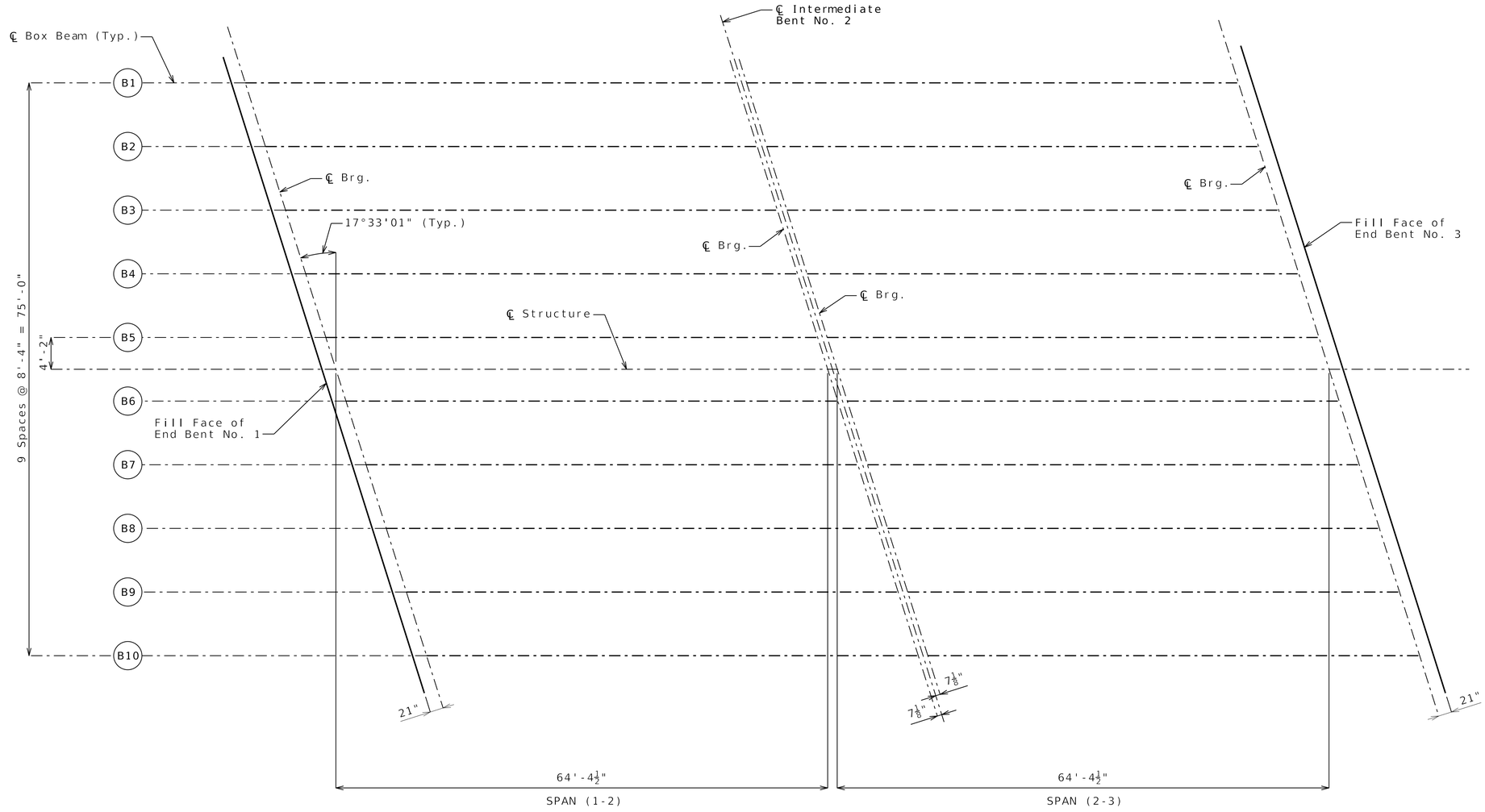
REV.

Detailed JUNE 2025
Checked AUG 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_018_JST0021_End Bent 3-5.dgn 13:27 29-SEP-2025



PLAN SHOWING LOCATION OF BOX BEAMS

Longitudinal dimensions are horizontal.

BEAM LAYOUT

Detailed MAY 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_019_JST0021_Beam Layout.dgn 13:28 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:25 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	19

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

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105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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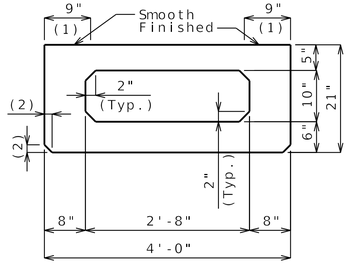
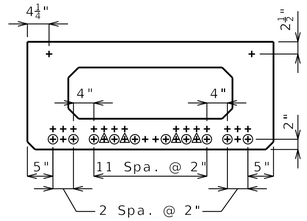
REV.



DIMENSIONS

(1) Fabricator shall apply a bond breaker to this region, excluding where joint filler is applied.



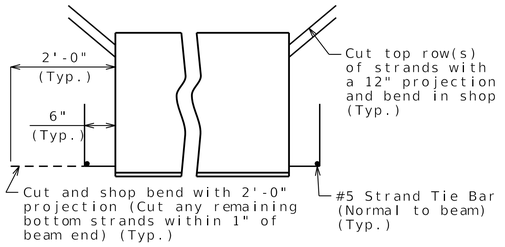
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

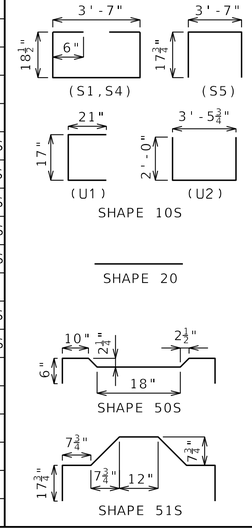
○ Indicates cut and shop bend with 2'-0" projection.

△ Indicates debonded for 5'-0" from end of beam.

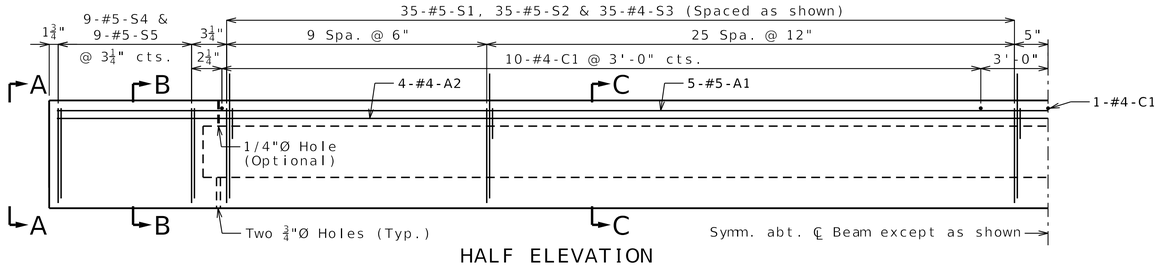


STRANDS AT BEAM ENDS

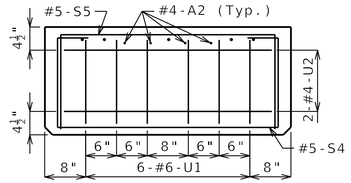
BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
10	5 A1	33'-6"	20	
8	4 A2	33'-3	20	
21	4 C1	3'-7"	20	
70	5 S1	7'-3"	10S	
70	5 S2	6'-9"	51S	
70	4 S3	4'-6"	50S	
18	5 S4	7'-3"	10S	
18	5 S5	6'-4"	10S	
12	6 U1	4'-7"	10S	
4	4 U2	7'-4"	10S	



(2) 1½" (Typ.) (¾" Optional)

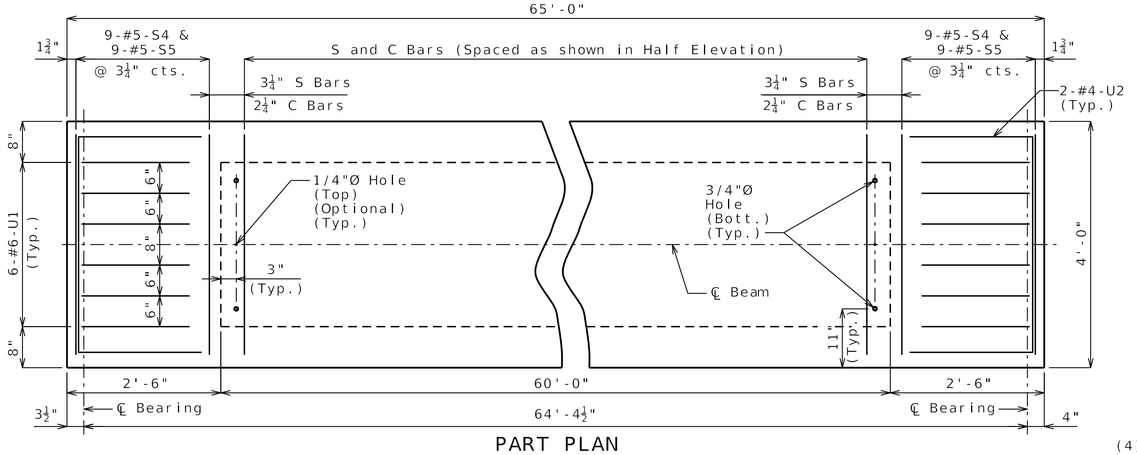


HALF ELEVATION



ELEVATION A-A

Strands not shown for clarity.



PART PLAN

All dimensions are out to out. Use symmetry for dimensions not shown.

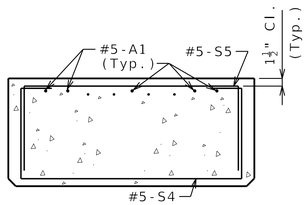
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

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

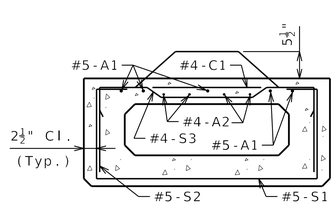
Minimum clearance to reinforcing shall be one inch, unless otherwise shown.

All reinforcement shall be Grade 60.

All S2 bars shall be epoxy coated.



SECTION B-B



SECTION C-C

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8000 psi and f'ci = 6500 psi.

Use 34 strands, 0.6"Ø Grade 270, with an initial prestress force of 1494 kips.

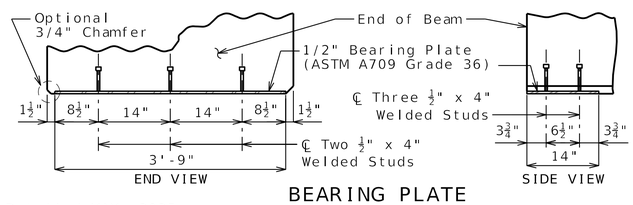
Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior beams are the same except: coil ties, application of bond breaker.

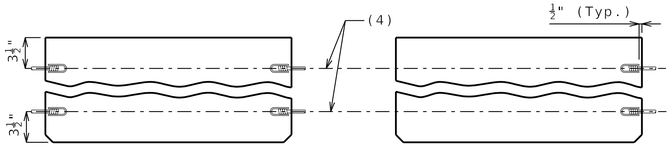
For Beam Camber Diagram, see Sheet No. 24.

For location of coil ties at concrete bent diaphragms, see Sheets Nos. 5, 6, 16, 17, 21 and 22.



BEARING PLATE

(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (8" at exterior face of exterior beams at end bents)



EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES

SPREAD BOX BEAMS - SPANS (1-2) AND (2-3)

Detailed MAY 2025
Checked JULY 2025

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

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
09/29/2025 3:11:25 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-SEP-2025

ROUTE: SNT CH | STATE: MO
DISTRICT: BR | SHEET NO.: 20
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DESCRIPTION	DATE
REV. A - FINAL REVIEW	09/17/25
REV. 0 - RELEASED FOR CONSTRUCTION	09/29/25

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

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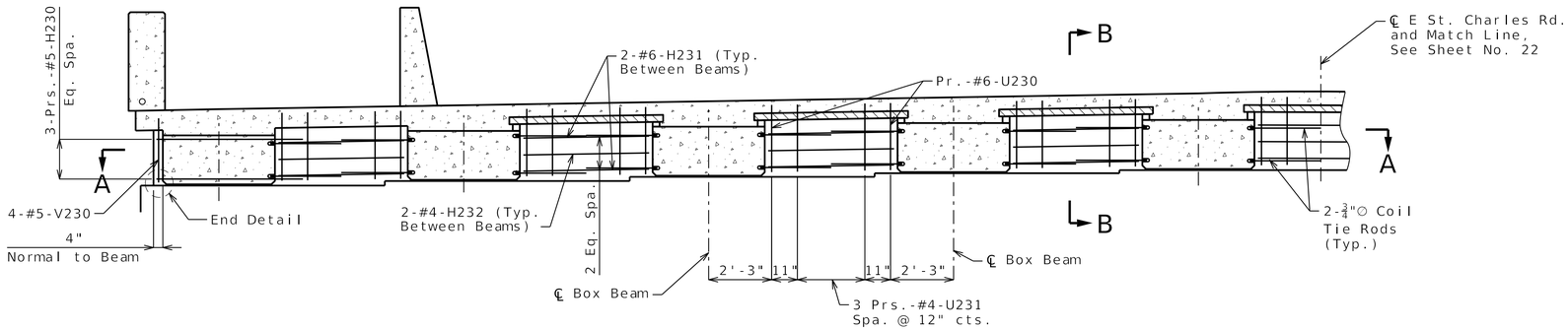
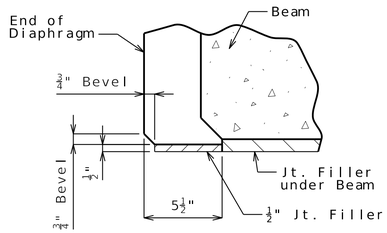
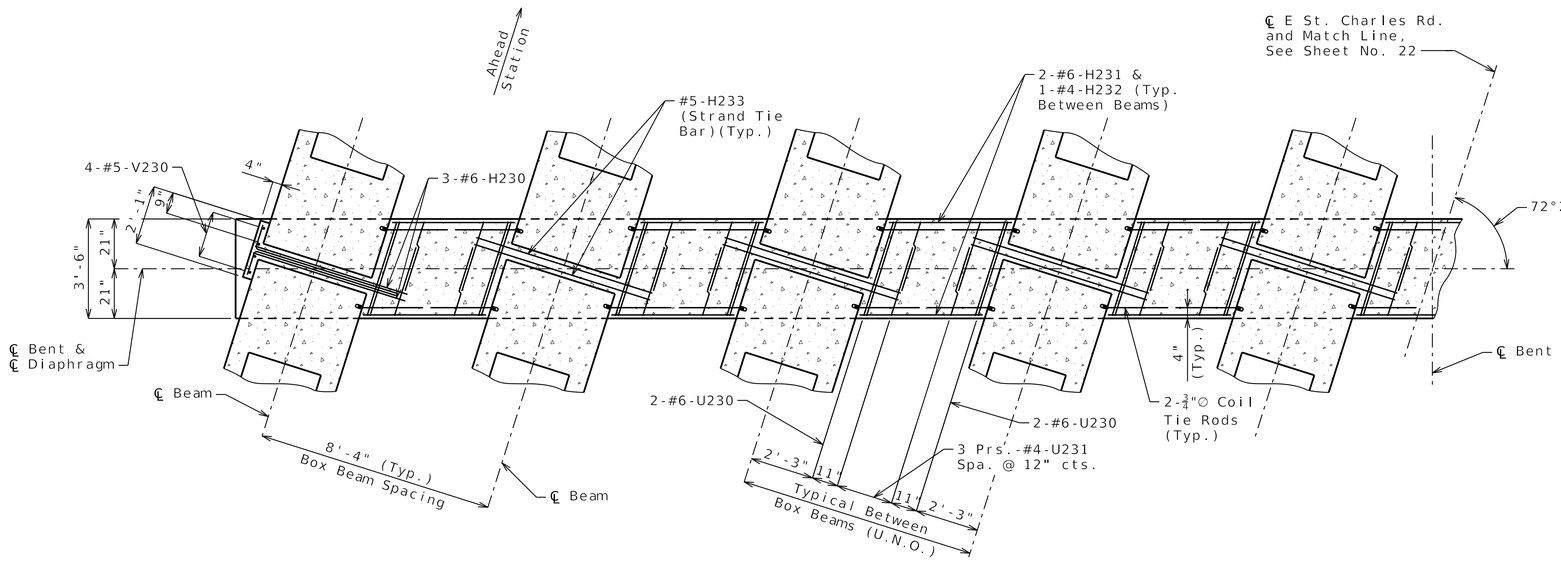


PART SECTION NEAR INTERMEDIATE BENT

(Normal to ℄ Beams)



END DETAIL



SECTION A-A

Notes:

Work this sheet with Sheet No. 22.

For location of Strand Tie Bars, see Sheet No. 20.

For location and detail of Coil Tie Rods, see Sheet No. 20.

Diaphragm at Intermediate bent shall be built vertical.

All U-bars in diaphragms shall be placed parallel to ℄ E St. Charles Rd.

CONCRETE DIAPHRAGM AT INTERMEDIATE BENT NO. 2

Detailed JULY 2025
Checked AUG 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_021_JST0021_Diaph Bent 2-1.dgn 13:30 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:25 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	21

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

REV.	DATE	DESCRIPTION
A	09/17/25	FINAL REVIEW
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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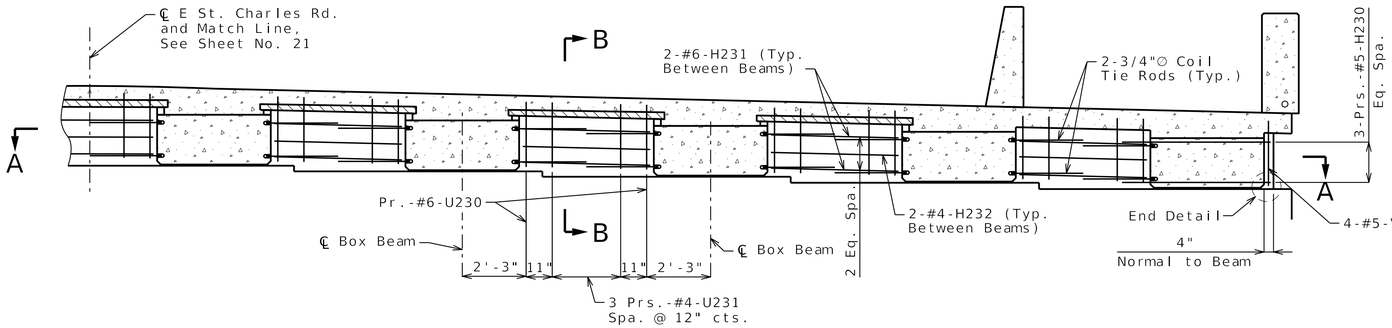
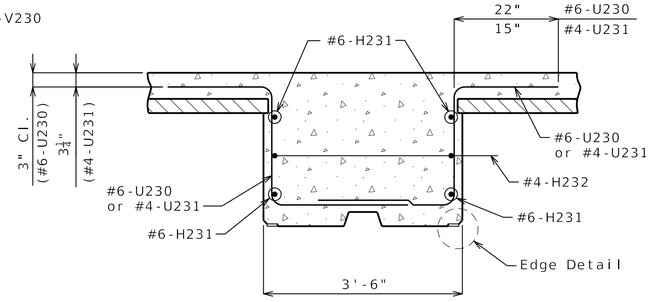
MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

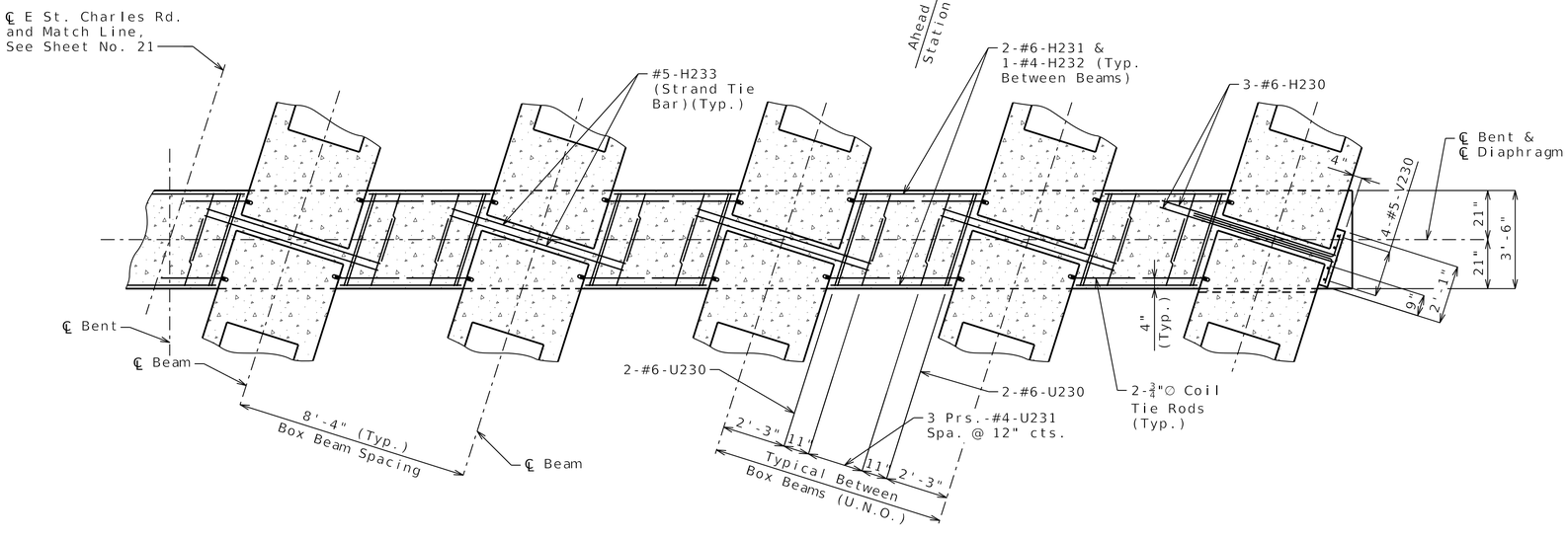
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING



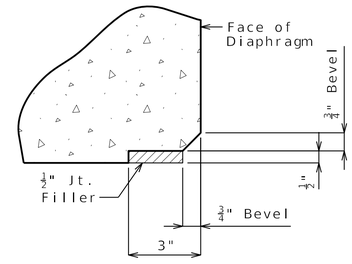
PART SECTION NEAR INTERMEDIATE BENT
(Normal to ℄ Beams)



SECTION B-B



SECTION A-A



EDGE DETAIL

Notes:

Work this sheet with Sheet No. 21.

For End Detail, see Sheet No. 21.

CONCRETE DIAPHRAGM AT INTERMEDIATE BENT NO. 2

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
09/29/2025 3:11:25 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	22

COUNTY: BOONE

JOB NO.: JST0021

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER

Jacobs

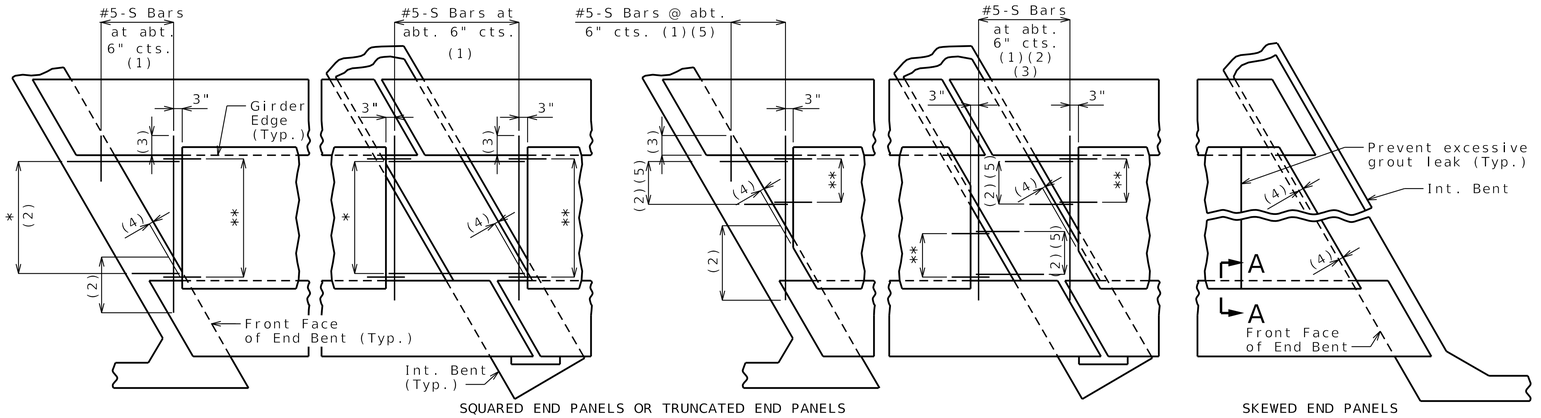
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

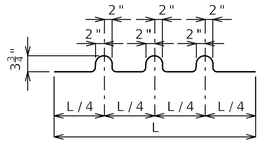
REV.

Detailed JUNE 2025
Checked AUG 2025

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

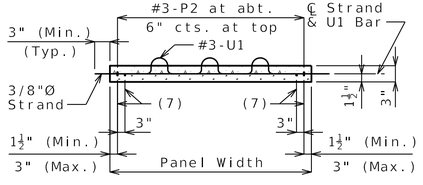
pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_022_JST0021_Diaph Bent 2-2.dgn 13:3129-SEP-2025



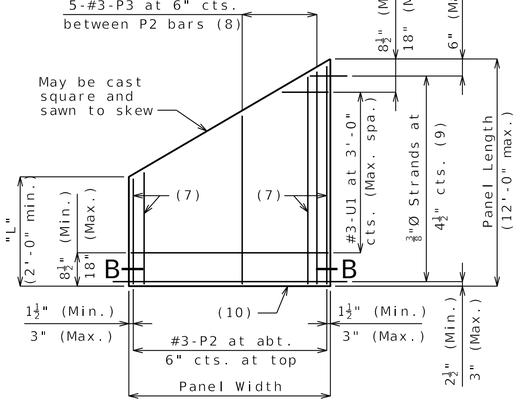


BENDING DIAGRAM FOR U1 BAR

U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars.



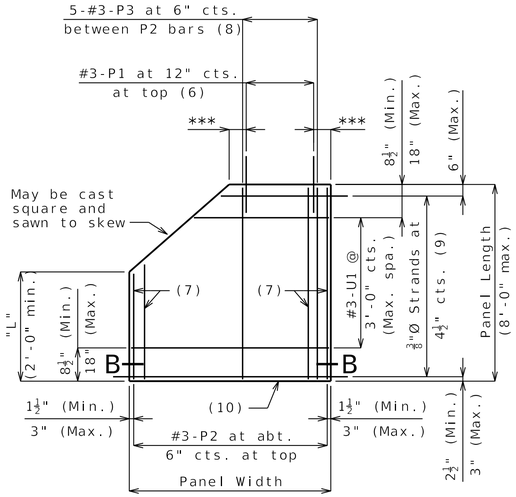
SECTION B-B



PLAN SHOWING PANEL PLACEMENT

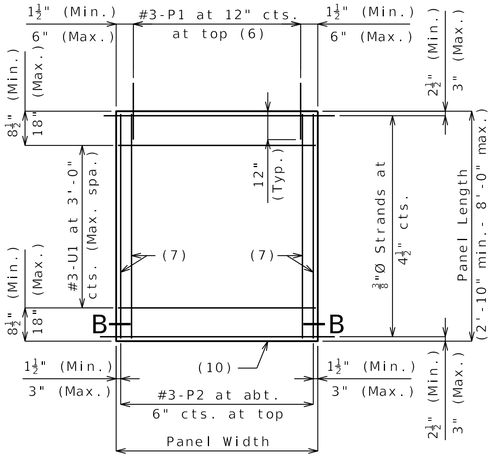
* #5-S Bars at abt. 9" cts. (1)
** #3-P1 at 12" cts. (End panels only)

PLAN OF OPTIONAL SKEWED END PANEL

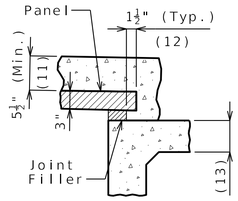


PLAN OF OPTIONAL TRUNCATED END PANEL

*** 3" (Min.), 6" (Max.)



PLAN OF SQUARED PANEL



SECTION A-A

Joint Filler Dimensions		
Width	Height	
	Min.	Max.
3"	1"	4"

Reference Notes:

Plan of Panel Placement:
(1) S-bars shown are bottom steel in slab between panels and used with squared and truncated end panels only.

(2) Extend S-bars 18 inches beyond the front face of end bents and int. bents for squared and truncated end panels only.

(3) Extend S-bars 9 inches beyond edge of girder (Typ.).

(4) End panels shall be dimensioned 1/2" min. to 1 1/2" max. from the inside face of diaphragm.

(5) For truncated end panels, use a min. of #5-S bars at 6" crossings in openings, or min. 4x4-W7xW7.

Plans of Panels:
(6) For end panels only, P1 bars shall be 2'-0" in length and embedded 12". P1 bars will not be required for panels at squared integral end bents.

(7) #3-P2 bars near edge of panel at bottom (under strands).

(8) Use #3-P3 bars if panel is skewed 45° or greater.

(9) Any strand 2'-0" or shorter shall have a #4 reinforcing bar on each side of it, centered between strands. Strands 2'-0" or shorter may then be debonded at the fabricator's option.

(10) Optional 1/2" x 45° Chamfer one or both sides at bottom.

Section A-A:
(11) Slab thickness over prestressed panels varies due to beam camber. In order to maintain minimum slab thickness, it may be necessary to raise the grade uniformly throughout the structure.

(12) Contractor shall ensure proper consolidation under and between panels.

(13) At the contractor's option, the variation in slab thickness over prestressed panels may be eliminated or reduced by increasing and varying the girder top flange thickness. Dimensions shall be shown on the shop drawings.

General Notes:

Prestressed Panels:
Concrete for prestressed panels shall be Class A-1 with f'c = 6,000 psi, f'ci = 4,000 psi.

The top surface of all panels shall receive a scored finish with a depth of scoring of 1/8" perpendicular to the prestressing strands in the panels.

Prestressing tendons shall be high-tensile strength, uncoated, seven-wire, low-relaxation strands for prestressed concrete in accordance with AASHTO M 203 Grade 270, with nominal diameter of strand = 3/8" and nominal area = 0.085 sq.in. and minimum ultimate strength = 22.95 kips (270 ksi). Larger strands may be used with the same spacing and initial tension.

Initial prestressing force = 17.2 kips/strand.

The method and sequence of releasing the strands shall be shown on the shop drawings.

Suitable anchorage devices for lifting panels may be cast in panels, provided the devices are shown on the shop drawings and approved by the engineer. Panel lengths shall be determined by the contractor and shown on the shop drawings.

When squared end panels are used at skewed bents, the skewed portion shall be cast full depth.

Support from diaphragm forms is required under the optional skewed end until cast-in-place concrete has reached 3,000 psi compressive strength.

Prestressed panels shall be brought to saturated surface-dry (SSD) condition just prior to the deck pour. There shall be no free standing water on the panels or in the area to be cast.

Reinforcing Steel:
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.

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

If U1 bars interfere with placement of slab steel, U1 loops may be bent over, as necessary, to clear slab steel.

Deformed welded wire reinforcement (WWR) providing a minimum area of reinforcing perpendicular to strands of 0.22 sq in./ft, with spacing parallel to strands sufficient to ensure proper handling, may be used in lieu of the #3-P2 bars shown. Wire diameter shall not be larger than 0.375 inch. The above alternative reinforcement criteria may be used in lieu of the #3-P3 bars, when required, and placed over a width not less than 2 feet.

The following reinforcing steel shall be tied securely to the strands with the following maximum spacing in each direction:
#3-P2 bars at 16 inches.
WWR at 24 inches.

The #3-U1 bars shall be tied securely to #3-P2 bars, to WWR or to strands (when placed between P1 bars) at about 3-foot centers.

Minimum reinforcement steel length shall be 2'-0".

All reinforcement other than prestressing strands shall be epoxy coated.

Precast panels may be in contact with stirrup reinforcing in diaphragms.

S-bars are not listed in the bill of reinforcing.

Joint Filler:
Joint filler shall be preformed fiber expansion joint material in accordance with Sec 1057 or expanded or extruded polystyrene bedding material in accordance with Sec 1073.

Use Slab Haunching Diagram on Sheet No. 24 for determining thickness of joint filler within the limits noted in the table of Joint Filler Dimensions.

Thicker material may be used on one or both sides of the girder to reduce cast-in-place concrete thickness to within tolerances.

The same thickness of preformed fiber expansion joint material shall be used under any one edge of any panel except at locations where top flange thickness may be stepped. The maximum change in thickness between adjacent panels shall be 1/2 inch. The polystyrene bedding material may be cut with a transition to match haunch height above top of flange.

Joint filler shall be glued to the girder. When thickness exceeds 1 1/2 inches, the joint filler shall be glued top and bottom. The glue used shall be the type recommended by the joint filler manufacturer.

Edges of panels shall be uniformly seated on the joint filler before slab reinforcement is placed.

PRESTRESSED PANELS

Detailed MAY 2025
Checked JULY 2025

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STATE OF MISSOURI
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DATE PREPARED: 29-SEP-2025
ROUTE: SNT CH
STATE: MO
DISTRICT: BR
SHEET NO.: 23
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DATE	DESCRIPTION
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09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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MoDOT IMPROVE I-70 DB PROJECT 1

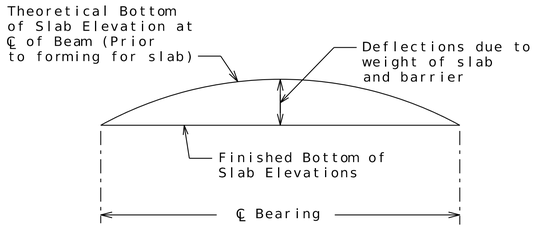
MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING REV.

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

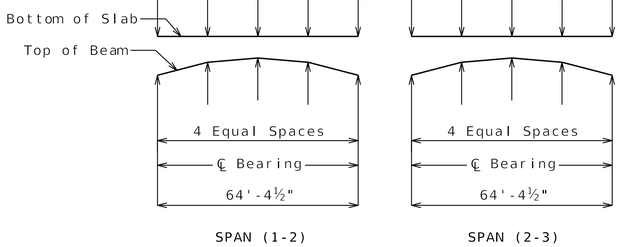
Beam Number	Span (1-2) (64'-4½" ℄ Brg. - ℄ Brg.)					Span (2-3) (64'-4½" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	855.03	855.34	855.53	855.58	855.51	855.51	855.62	855.61	855.47	855.20
2	855.24	855.55	855.74	855.77	855.68	855.68	855.80	855.79	855.63	855.34
3	855.44	855.74	855.92	855.95	855.84	855.85	855.96	855.94	855.77	855.47
4	855.63	855.93	856.11	856.12	856.01	856.01	856.12	856.09	855.91	855.61
5	855.83	856.12	856.29	856.30	856.18	856.18	856.27	856.24	856.06	855.74
6	855.86	856.14	856.30	856.30	856.18	856.17	856.26	856.22	856.03	855.71
7	855.72	856.00	856.15	856.14	856.01	856.00	856.08	856.04	855.84	855.51
8	855.58	855.85	855.99	855.98	855.83	855.83	855.90	855.85	855.64	855.30
9	855.44	855.70	855.84	855.81	855.66	855.66	855.72	855.66	855.44	855.10
10	855.30	855.53	855.65	855.63	855.49	855.48	855.52	855.45	855.23	854.89

Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panels and SIP forms as required) and barrier.



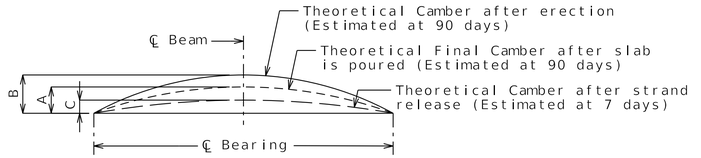
TYPICAL SLAB ELEVATIONS DIAGRAM

Beam No. 1	2¾"	2⅛"	1¾"	2⅛"	2¾"	2¾"	2⅛"	1¾"	2⅛"	2¾"
Beam No. 2	2½"	2⅛"	1⅞"	2⅛"	2½"	2½"	2⅛"	1⅞"	2⅛"	2½"
Beam No. 3	2½"	2⅛"	1⅞"	2⅛"	2½"	2½"	2⅛"	1⅞"	2⅛"	2½"
Beam No. 4	2½"	2⅛"	1⅞"	2⅛"	2½"	2½"	2⅛"	1⅞"	2⅛"	2½"
Beam No. 5	2⅜"	1⅞"	1¾"	2"	2½"	2½"	1⅞"	1⅞"	2¼"	2¾"
Beam No. 6	2⅝"	2¼"	1⅞"	2⅛"	2½"	2½"	2"	1¾"	1⅞"	2¼"
Beam No. 7	2½"	2⅛"	1⅞"	2⅛"	2½"	2½"	2⅛"	1⅞"	2⅛"	2½"
Beam No. 8	2½"	2⅛"	1⅞"	2⅛"	2½"	2½"	2⅛"	1⅞"	2⅛"	2½"
Beam No. 9	2½"	2⅛"	1⅞"	2⅛"	2½"	2½"	2⅛"	1⅞"	2⅛"	2½"
Beam No. 10	2¾"	2⅛"	1¾"	2⅛"	2¾"	2¾"	2⅛"	1¾"	2⅛"	2¾"



SPAN (1-2) SPAN (2-3)

THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)



Beam	Span (1-2)			Span (2-3)		
	A	B	C	A	B	C
Exterior	2⅛"	4⅛"	2¼"	2⅛"	4⅛"	2¼"
Interior	1⅞"			1⅞"		

BEAM CAMBER DIAGRAM

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

0.25 pt. = 0.7125 x 0.5 pt.

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

STATE OF MISSOURI
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NUMBER PE-2017000338
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DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	24

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DESCRIPTION	DATE
REV. A - FINAL REVIEW	09/17/25
REV. 0 - RELEASED FOR CONSTRUCTION	09/29/25

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

MoDOT IMPROVE I-70 DB PROJECT 1

Jacobs MILLSTONE WEBER

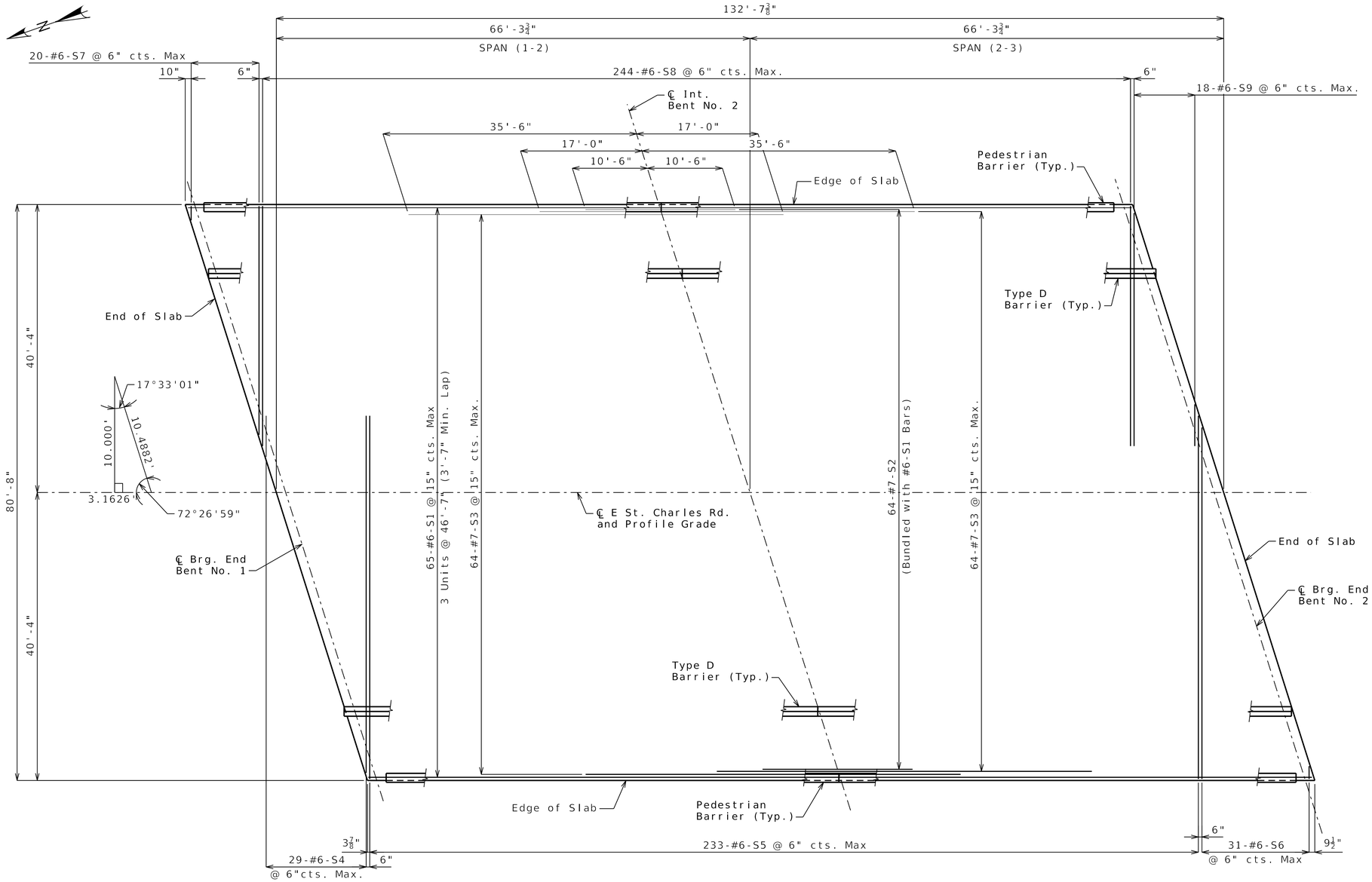
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

Detailed MAY 2025
Checked AUG 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_024_JST0021_Elev&Haunch.dgn 13:33 29-SEP-2025



General Notes:

Longitudinal dimensions shown are measured horizontally.

For Plan of Slab Showing Bottom Reinforcement, see Sheet No. 26.

For Section Thru Slab, see Sheet No. 27.

For Slab Pouring Sequence, see Sheet No. 28.

For Details and Reinforcement of MoDOT Type D Barrier, see Sheet No. 29.

For Details and Reinforcement of Pedestrian Barrier, see Sheet Nos. 30 and 31.

For Details of Precast Prestressed Panels, see Sheet No. 23.

For Theoretical Slab Haunching Diagram, see Sheet No. 24.

For Theoretical Bottom of Slab Elevations, see Sheet No. 24.

PLAN OF SLAB SHOWING TOP REINFORCEMENT

Detailed MAY 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_025_JST0021_Top Slab Plan.dgn 13:33 29-SEP-2025

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ROUTE	STATE
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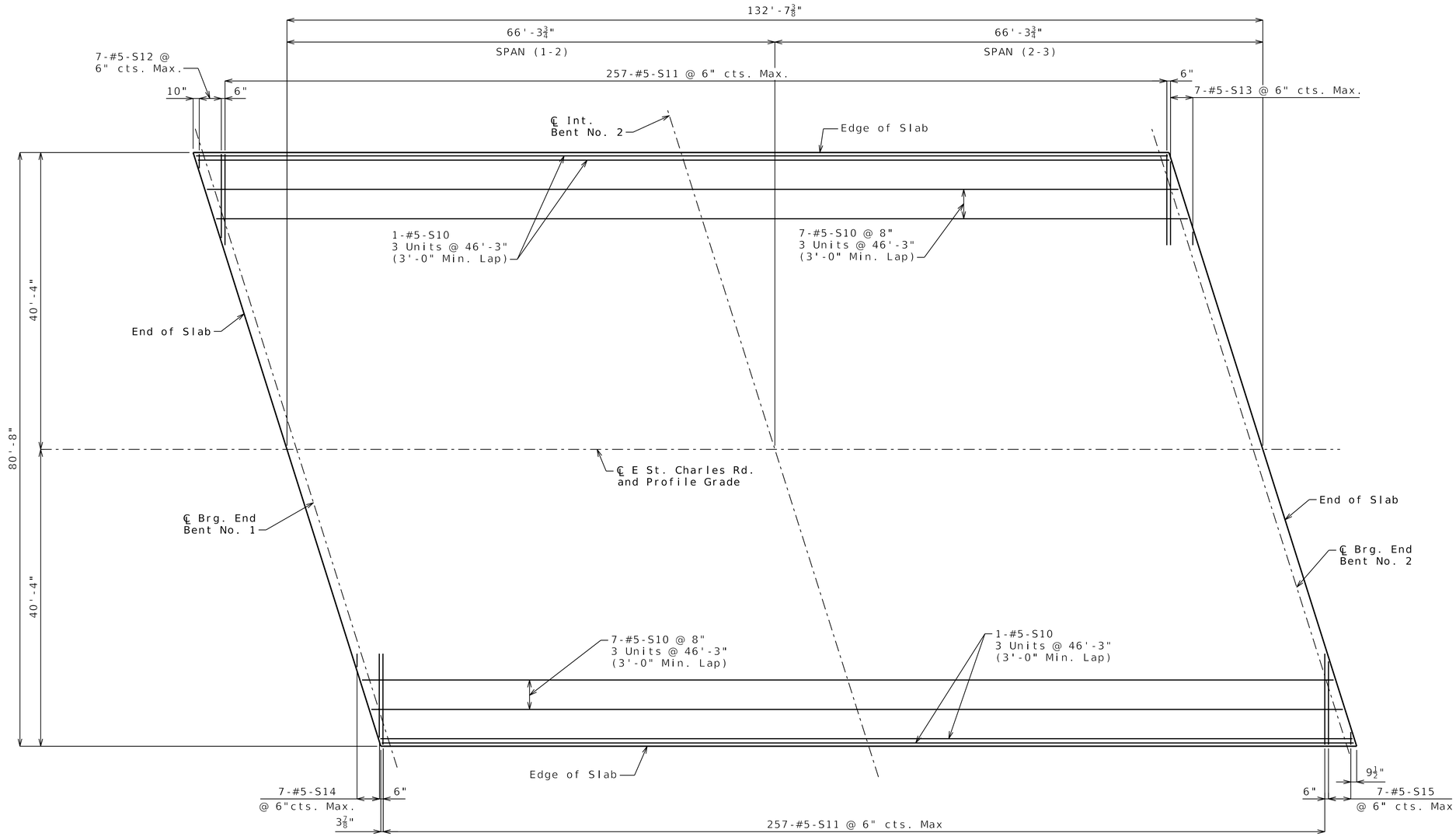

General Notes:

For General Notes and Details not shown, see Sheet No. 25.

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

Detailed MAY 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_026_JST0021_Bott Slab Plan.dgn 13:34 29-SEP-2025

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ROUTE	STATE
SNT CH	MO
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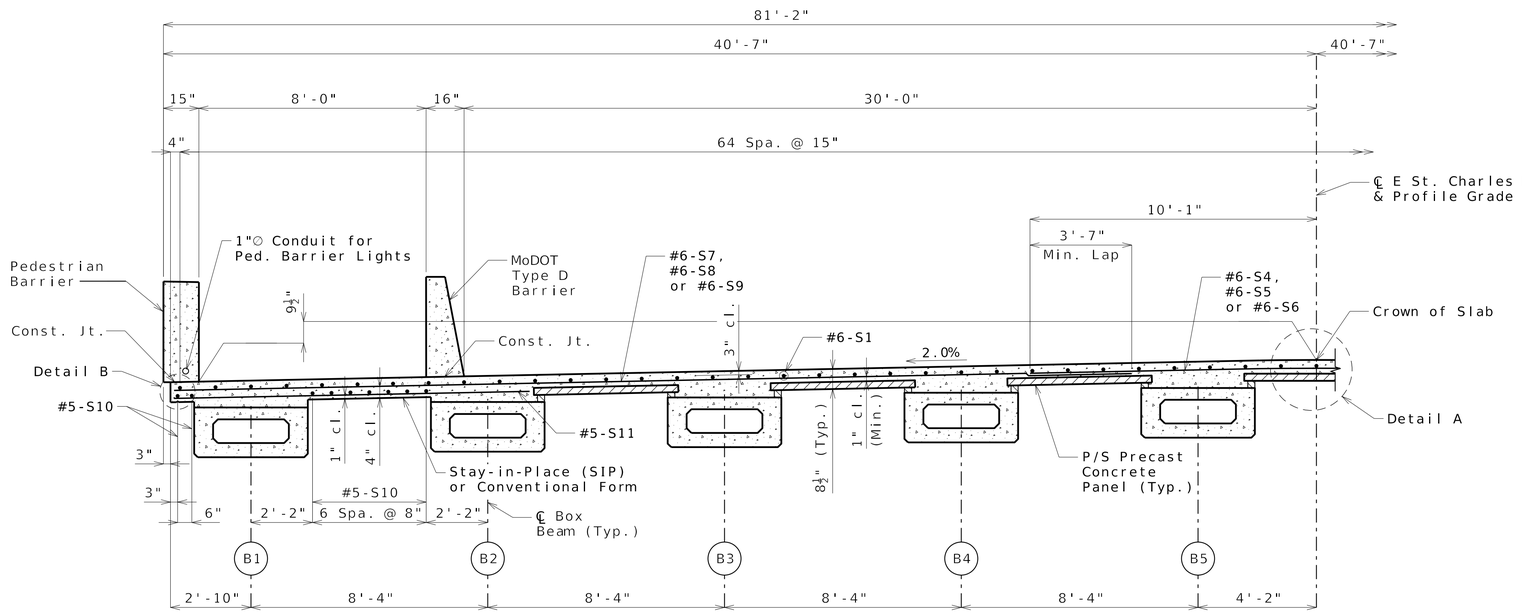
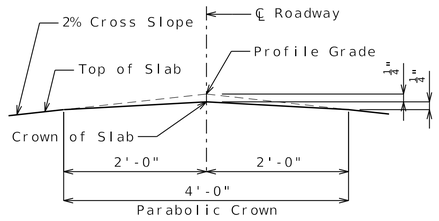
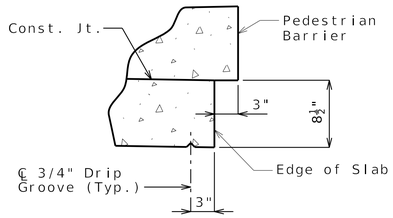


HALF SECTION NEAR MIDSPAN



DETAIL A



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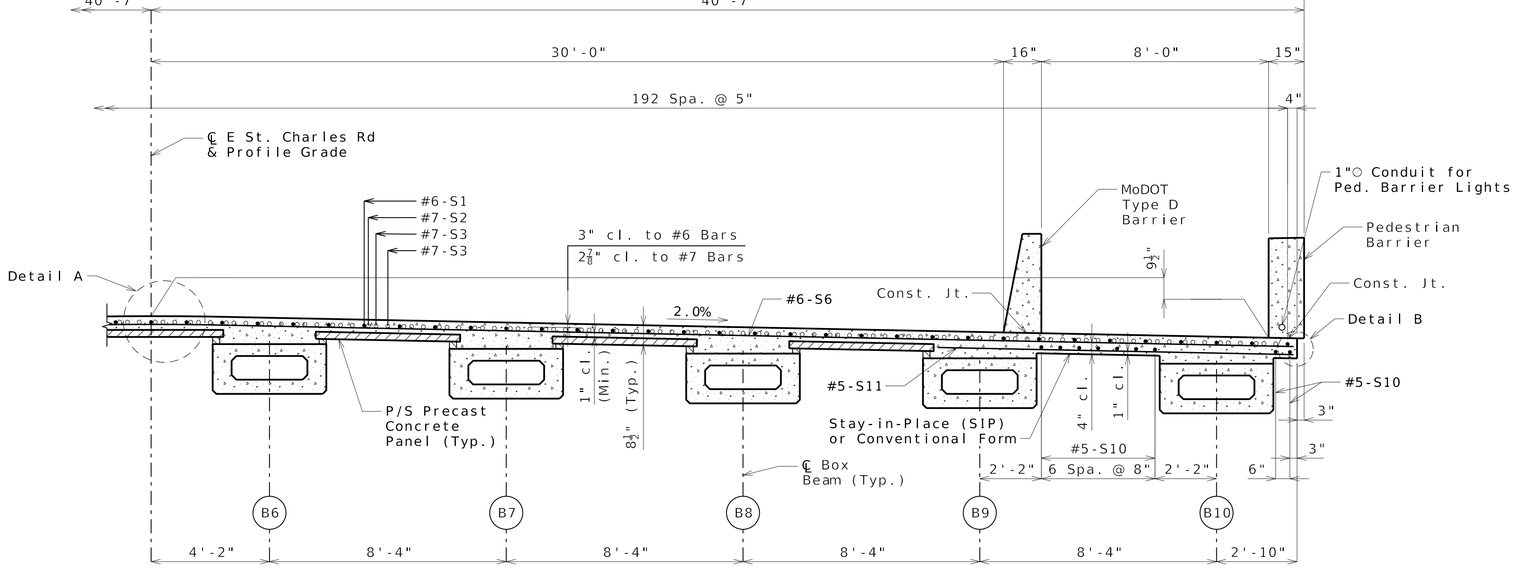

HALF SECTION NEAR INTERMEDIATE BENT

Notes:

For General Notes, see Sheet No. 2.

For Slab Plans Showing Reinforcement, Details and Notes not shown here, see Sheet Nos. 25 and 26.

SLAB REINFORCEMENT DETAILS

Detailed MAY 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_027_JST0021_Slab Section.dgn 13:35 29-SEP-2025

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SNT CH	MO
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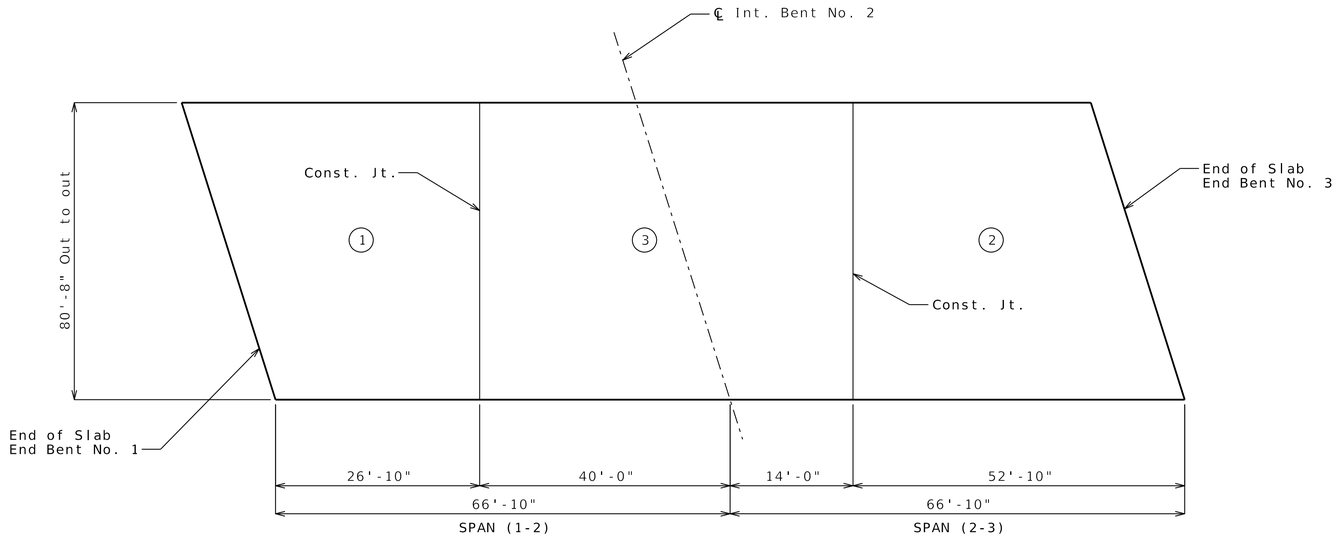

	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1	2	3	35
	Either Direction			
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1	3 + 2		48
	End to 3	1 to End		
Alternate B Pours	1 + 3 + 2			48
	End to End			

SLAB POURING SEQUENCE

General Notes:

1. 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.

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

STATE OF MISSOURI
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NUMBER PE-2017000338
PROFESSIONAL ENGINEER

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DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	28

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DESCRIPTION	DATE
REV. A - FINAL REVIEW	09/17/25
REV. 0 - RELEASED FOR CONSTRUCTION	09/29/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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REV.

Detailed JUNE 2025
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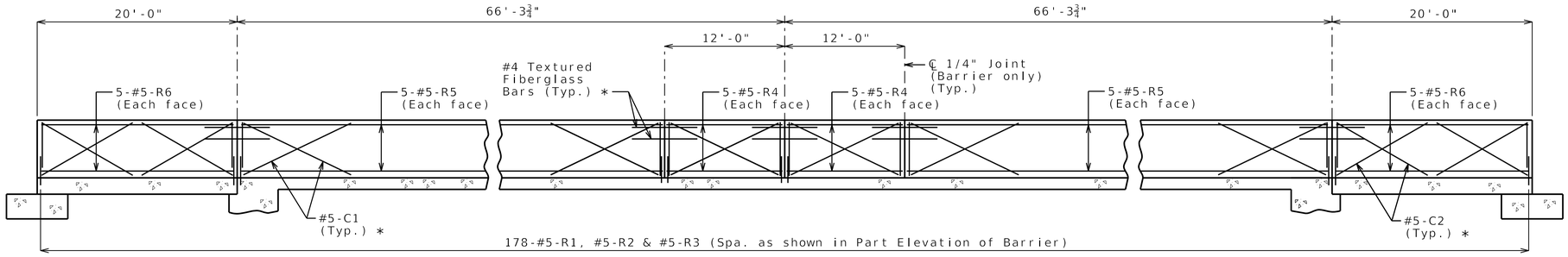
Note: This drawing is not to scale. Follow dimensions.

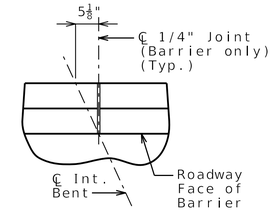
pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_028_JST0021_Slab Pouring.dgn 13:36 29-SEP-2025



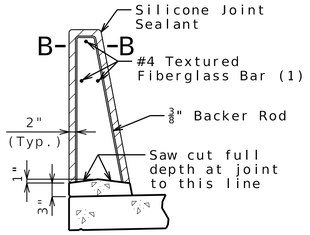
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

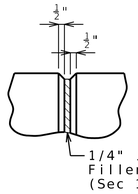
Longitudinal dimensions are horizontal.



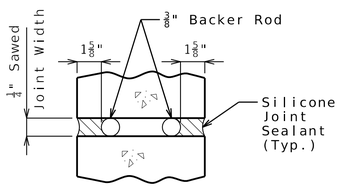
PART PLAN SHOWING JOINT LOCATION



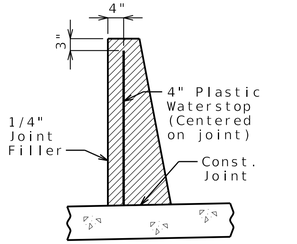
SECTION THRU SAW CUT JOINT



PART ELEVATION AT FORMED JOINT

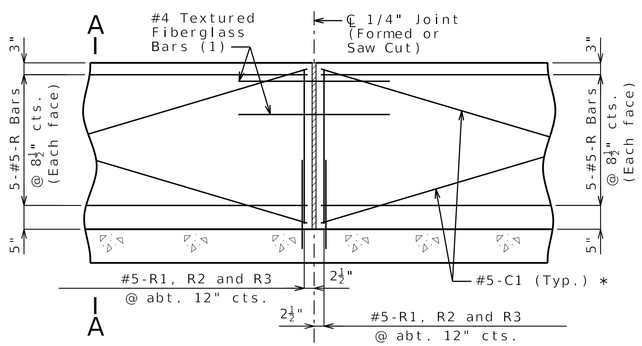


SECTION B-B



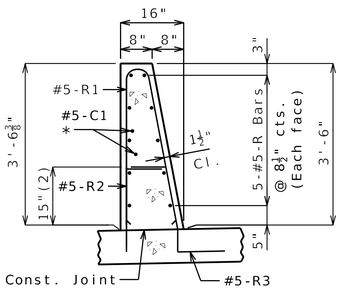
WATERSTOP DETAIL

Plastic waterstop shall be placed in all formed joints, except structures with superelevation, use on lower joints only.



PART ELEVATION OF BARRIER

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

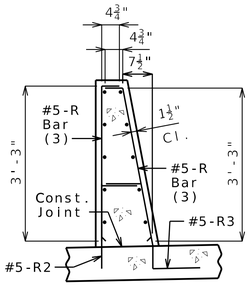


SECTION A-A

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

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

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

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

General Notes:

* Slip-formed option only.

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

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

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

Concrete in barrier shall be Class B-1.

Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides.

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

STATE OF MISSOURI
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DATE PREPARED: 29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	29

COUNTY: BOONE

JOB NO.: JST0021

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9552

REV.	DATE	DESCRIPTION
REV. 0	09/17/25	RELEASED FOR CONSTRUCTION
REV. A	09/29/25	FINAL REVIEW

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Detailed JUNE 2025
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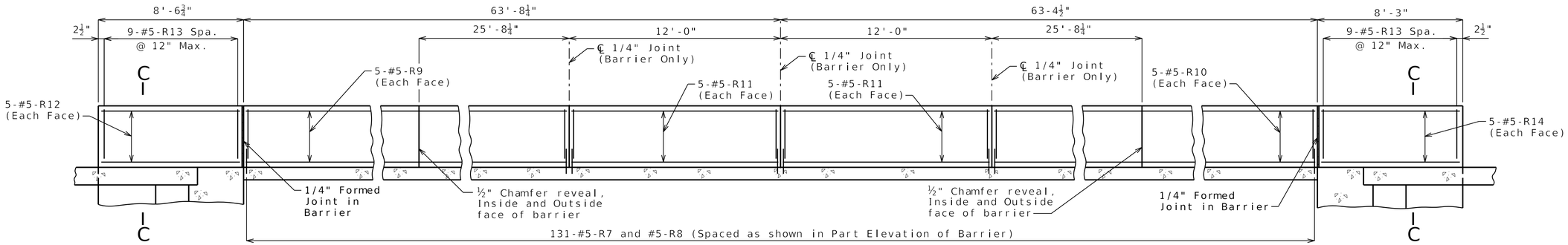
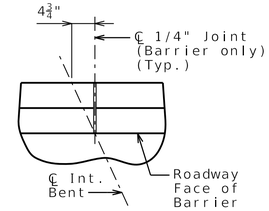


(SPAN 1-2) (SPAN 2-3)

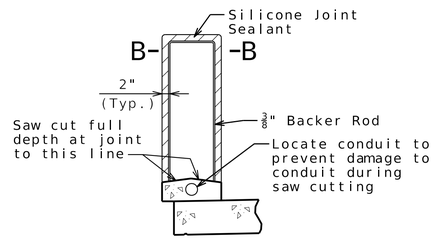
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

Longitudinal dimensions are horizontal.

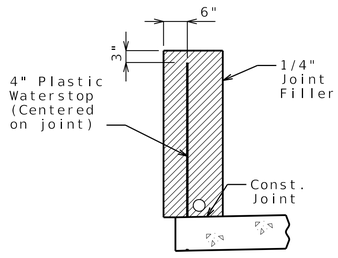


PART PLAN SHOWING JOINT LOCATION



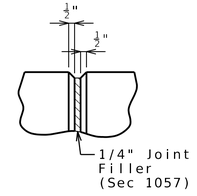
SECTION THRU SAW CUT JOINT

(Left and Right Pedestrian Barriers)

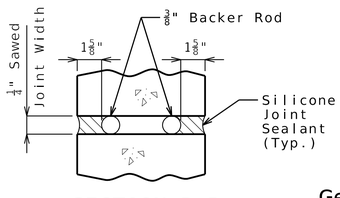


WATERSTOP DETAIL

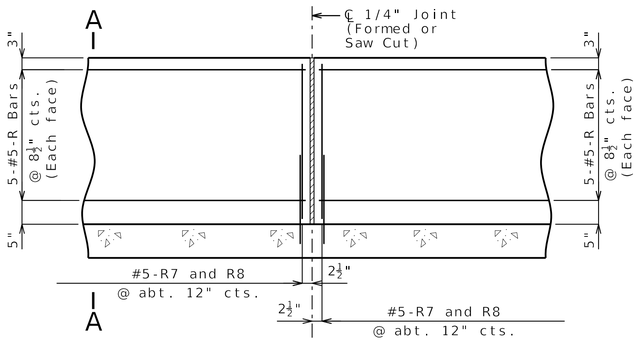
Plastic waterstop shall be placed in all formed joints.



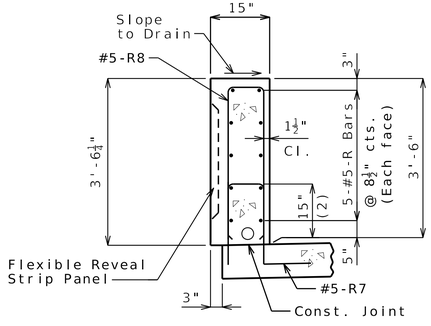
PART ELEVATION AT FORMED JOINT



SECTION B-B



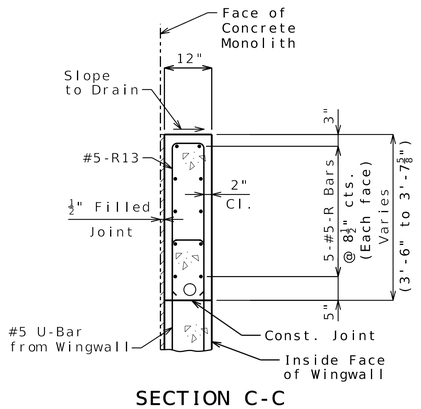
PART ELEVATION OF BARRIER



SECTION A-A

The cross-sectional area above the slab is 4.4 square feet.

(2) To top of bar



SECTION C-C

General Notes:

Saw cut joints may be used with conventional forming.

Top of barrier shall be built parallel to grade and barrier joints normal to grade.

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

For 1/2" Chamfer Reveal, see Sheet No. 38.

For Flexible Reveal Strip Panels, see Sheet No. 31

Concrete in Pedestrian barrier shall be Class B-1.

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

Plastic waterstop shall not be used with saw cut joints.

Shift reinforcing steel to clear conduits and fence pole and light pole anchorages.

Seal all ¼" joints with Silicone Joint Sealant whether joints are formed or saw cut. The sealant shall be light gray in color and shall be approved by the Engineer prior to installation.

Work this sheet with Sheet No. 31.

PEDESTRIAN BARRIER DETAILS

Detailed JUL 2025
Checked AUG 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_030_JST0021_Ped Barrier.dgn
13:37 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
09/29/2025 3:11:26 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-SEP-2025
ROUTE: SNT CH | STATE: MO
DISTRICT: BR | SHEET NO.: 30
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DESCRIPTION	DATE
REV. A - FINAL REVIEW	09/17/25
REV. 0 - RELEASED FOR CONSTRUCTION	09/29/25

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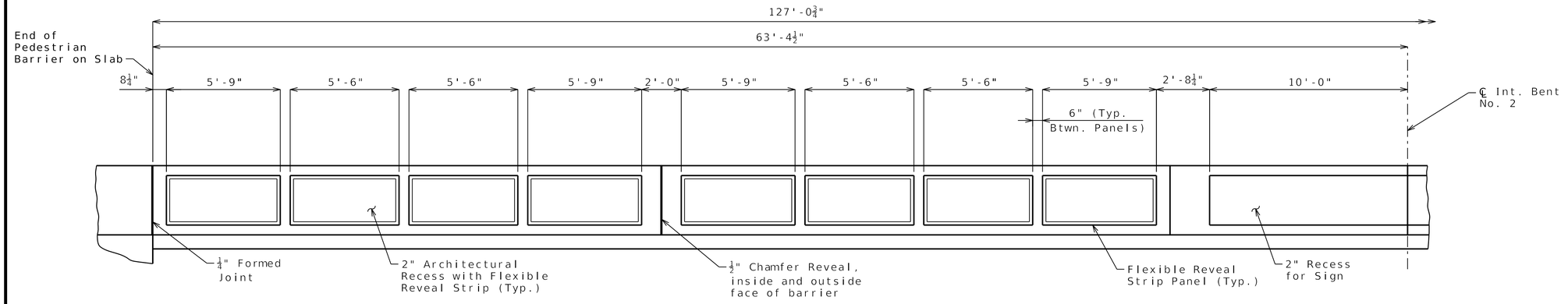
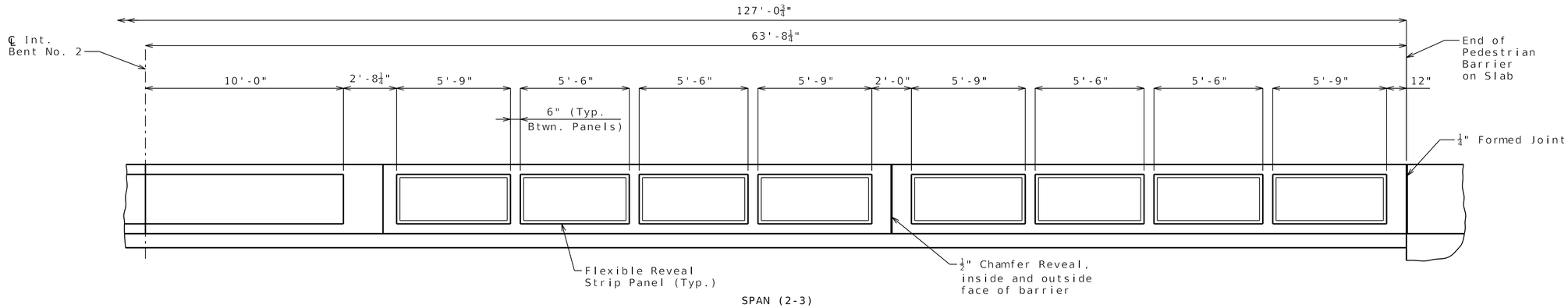
REV.



SPAN (1-2)

PART ELEVATION - OUTSIDE FACE OF PEDESTRIAN BARRIER ON SLAB

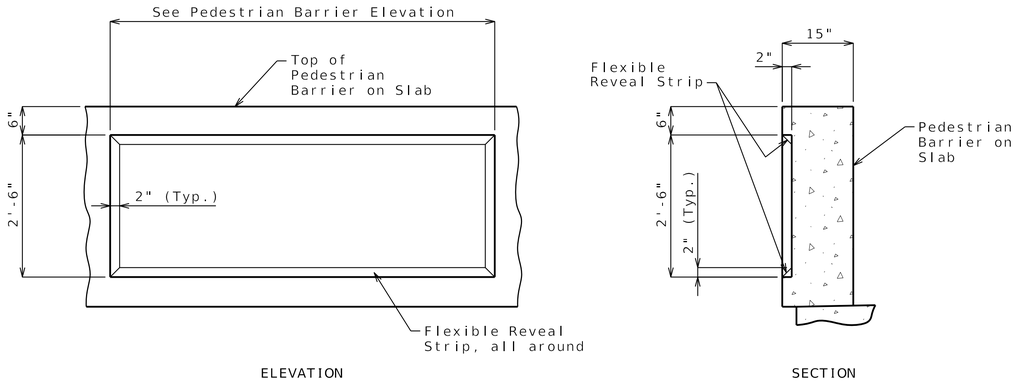
Right Pedestrian Barrier shown, Left Pedestrian Barrier similar.



SPAN (2-3)

PART ELEVATION - OUTSIDE FACE OF PEDESTRIAN BARRIER ON SLAB

Right Pedestrian Barrier shown, Left Pedestrian Barrier similar.



ELEVATION SECTION

FLEXIBLE REVEAL STRIP PANEL DETAIL

Notes:

Work this sheet with Sheet No. 30.

All exposed concrete surfaces shall be a smooth finish. Contractor shall uitilize smooth, well-oiled forms to minimize honey-combing.

Coat all exposed concrete surfaces and Flexible Reveal Strip with tinted stain and sealer. Stain and Sealer shall be H&C Solid Color Stain and Sealer, color to be Cemented Deal.

Flexible Reveal Strip shall be supplied by:

Fast Formliners Co.
1005 Miller Drive
St. Clair, MO 63077
(714) 429-9500
www.fastformliners.com

Pattern: 20012

Flexble Reveal Strip shall be installed according to manufacturer's specifications.

Prior to Construction, contractor shall provide product data sheets and samples of the Flexible Reveal Strip used for approval by the Architect or Engineer.

For sign details, see Architectural Plans.

PEDESTRIAN BARRIER ON SLAB DETAILS

Detailed JUL 2025
Checked AUG 2025

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

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DATE PREPARED: 29-SEP-2025
ROUTE: SNT CH | STATE: MO
DISTRICT: BR | SHEET NO.: 31
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DESCRIPTION	DATE
REV. A - FINAL REVIEW	09/17/25
REV. 0 - RELEASED FOR CONSTRUCTION	09/29/25

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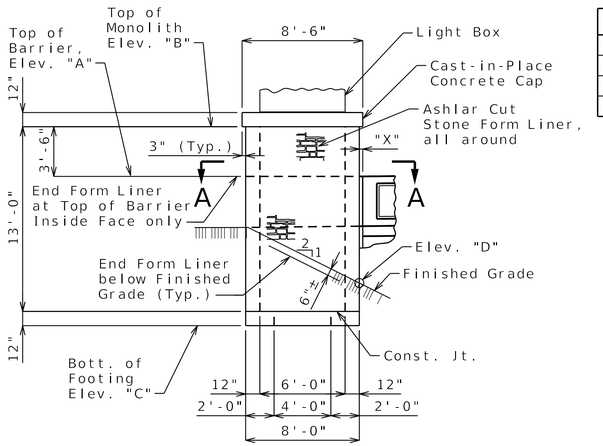
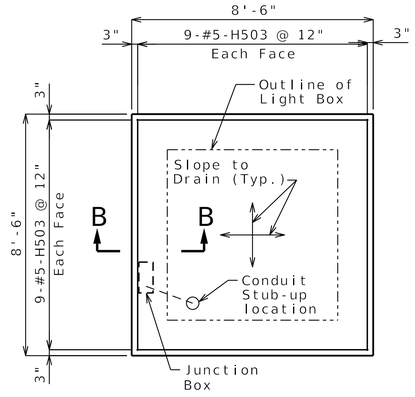
REV.

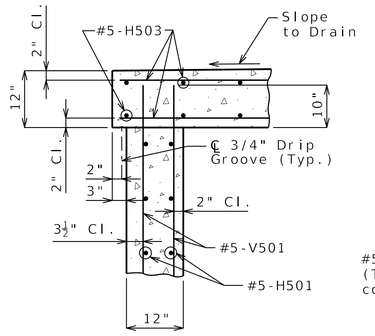


ELEVATION

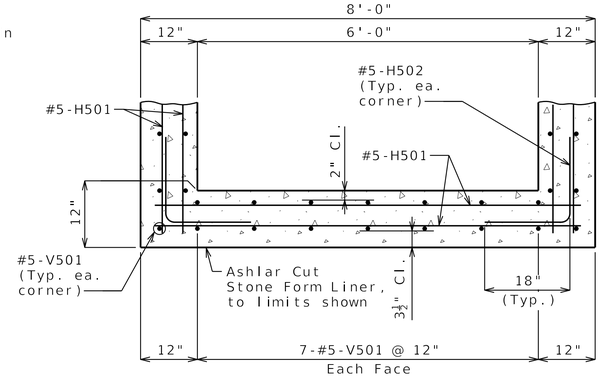
MONOLITH	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Dim. "X"
NORTHEAST	859.22	862.72	848.72	852.01	3¾"
NORTHWEST	859.49	862.99	848.99	852.01	3"
SOUTHEAST	859.37	862.87	848.87	851.87	3"
SOUTHWEST	859.08	862.58	848.58	851.87	3¾"



PLAN - CAST-IN-PLACE CAP

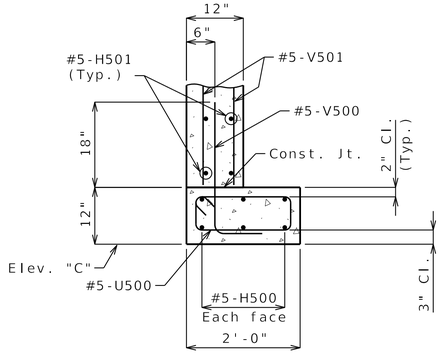


SECTION B-B

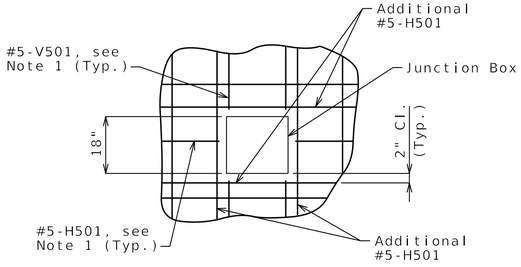


SECTION D-D

Note: Section shown for one wall, other walls similar.

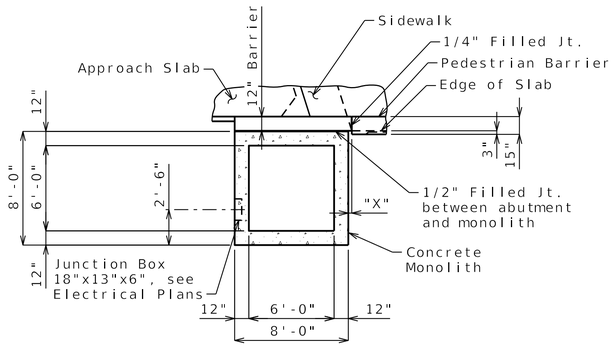


SECTION C-C

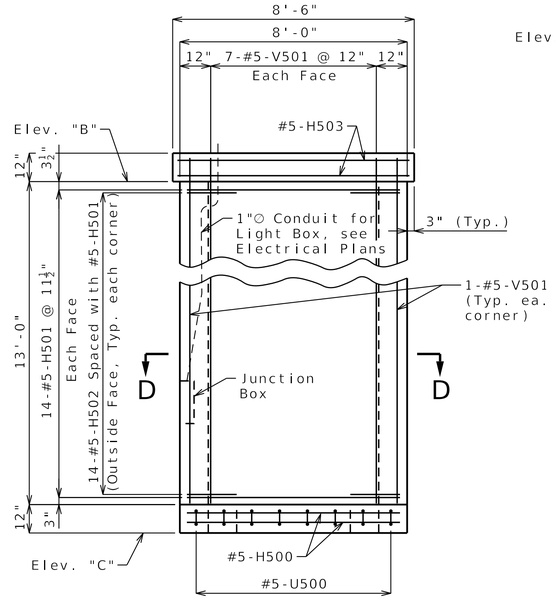


DETAIL OF ADDITIONAL REINFORCEMENT AT JUNCTION BOX

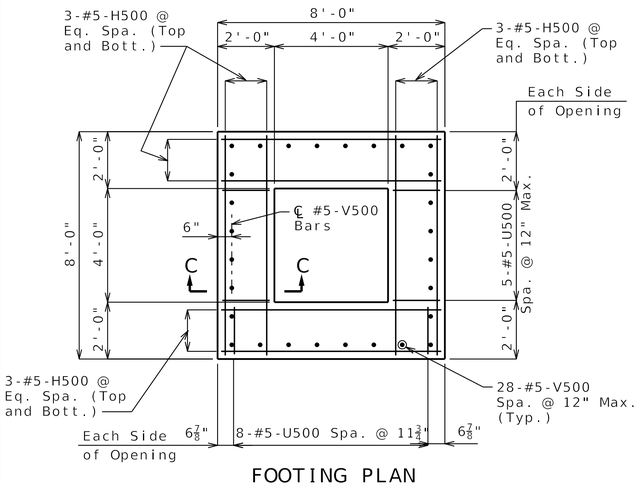
Note 1: Cut #5-H501 and #5-V501 bars, as required, to clear junction box by 2".



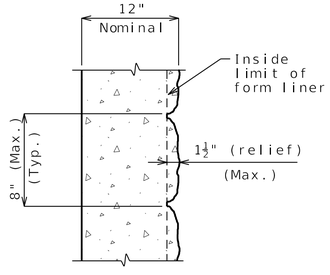
SECTION A-A



TYPICAL WALL ELEVATION



FOOTING PLAN



FORM LINER DETAIL

Notes:

Concrete for Monolith and Cap shall be Class B Concrete.

For Pedestrian Barrier Details, see Sheet Nos. 30 and 31.

Form liner shall be constructed in accordance with the Special Provisions.

The following form liner manufacturer and type shall be used:

Scott System, Inc.: Form Liner pattern #167C "Ashlar Stone" or approved equal.

All exposed concrete surfaces shall be stained and sealed with H&C Solid Stain and Sealer. Color: Cemented Deal.

All exposed concrete surfaces not receiving a form liner finish shall be a smooth finish.

Contractor shall utilize smooth, well-oiled forms to minimize honeycombing.

Conduit between junction box in monolith wall and light on cast-in-place cap may be cast in concrete or placed inside of the monolith at the contractor's discretion.

All conduit shall be rigid non-metallic schedule 40 heavy wall polyvinyl chloride (PVC), in accordance with Sec 1060, with minimum cover of 1 1/2-inch. Each section of conduit shall bear the Underwriters Laboratories (UL) label.

All conduit fittings for PVC conduits shall be in accordance with Sec 1060. All conduit clamps, if required, shall be commercially available, non-metallic conduit clamps and approved by the Engineer

Where not encased in concrete, all conduits shall be secured to concrete with non-metallic clamps at about 5'-0" cts. Concrete anchors for clamps shall be in accordance with Commercial Item Description (CID) A-A-1923A and shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C, ASTM B695, Class 55 or stainless steel. Minimum embedment in concrete shall be 1 3/4 inch. The supplier shall furnish a manufacturer's certification that the concrete anchors meet the required material and galvanizing specifications.

Conduit stub-up location is to be determined by the electrical contractor based on the light box manufacturer's certified drawings. Conduit shall be installed so as not to interfere with the light box equipment.

CONCRETE MONOLITH DETAILS

Detailed AUG 2025
Checked SEP 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_032_JST0021_Conc Monolith.dgn 13:39 29-SEP-2025

STATE OF MISSOURI
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DATE PREPARED: 29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	32

COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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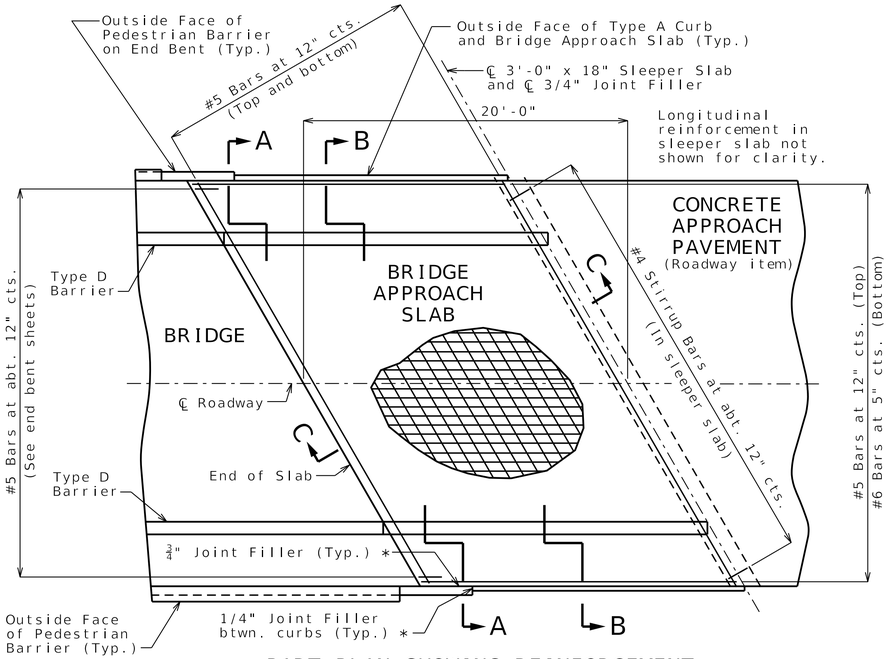
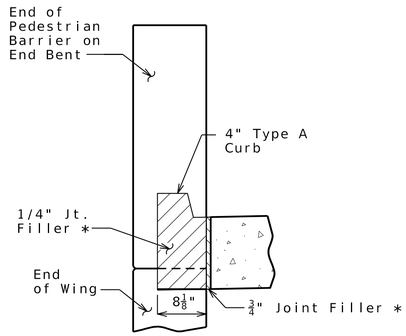
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.



PART PLAN SHOWING REINFORCEMENT



SECTION BETWEEN PEDESTRIAN BARRIER AND TYPE A CURB

General Notes:

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

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

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

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

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

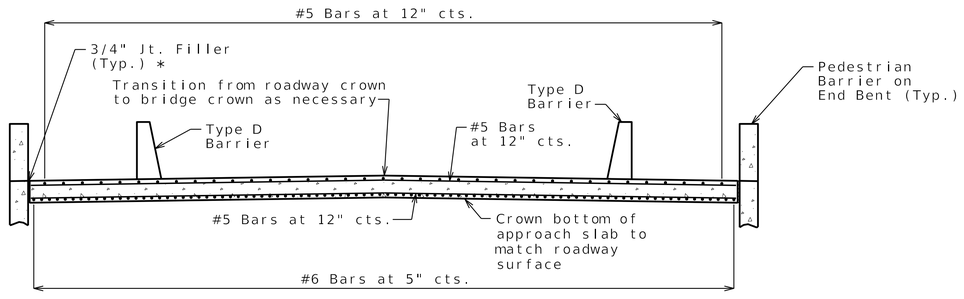
All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.

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

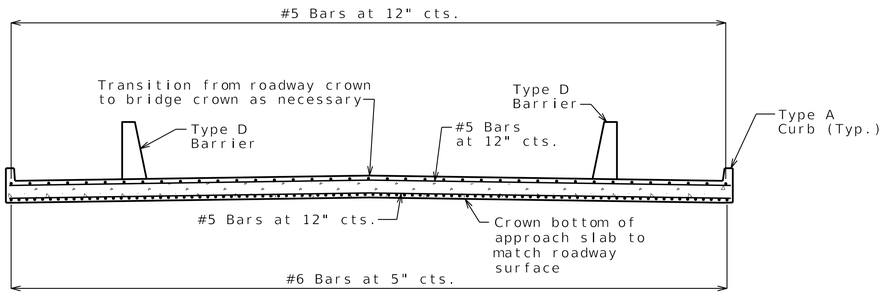
For concrete approach pavement details, see roadway plans.

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

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



SECTION A-A



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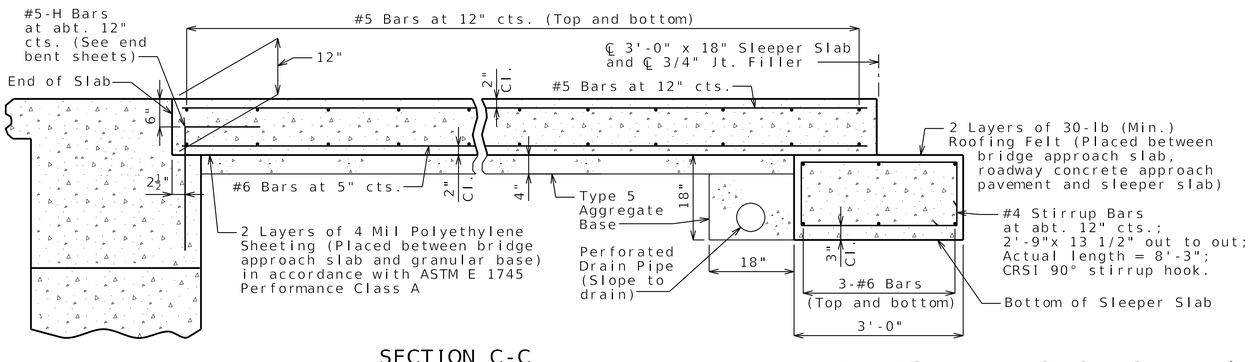


SECTION C-C

BRIDGE APPROACH SLAB (MAJOR)

Detailed JUN 2025
Checked JULY 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_033_JST0021_Appr Slab.dgn 13:40 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:27 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	33

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DESCRIPTION	DATE
REV. A - FINAL REVIEW	09/17/25
REV. 0 - RELEASED FOR CONSTRUCTION	09/29/25

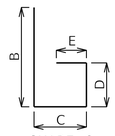
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.



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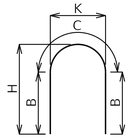
or 6S



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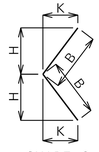

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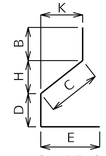

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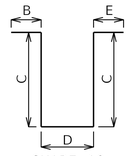

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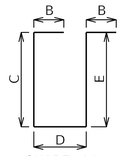

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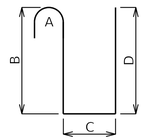

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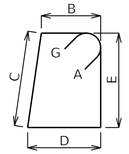

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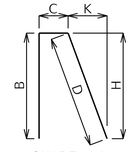

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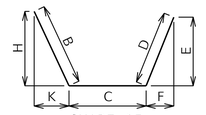

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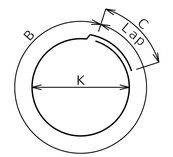

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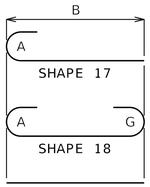
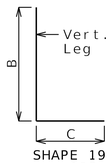


SHAPE 17
SHAPE 18
SHAPE 20



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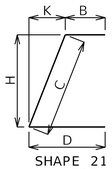

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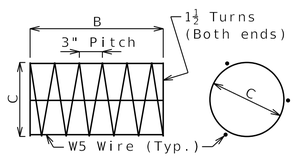

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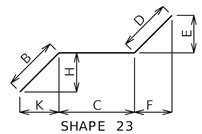

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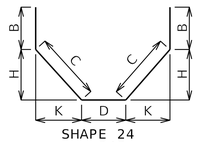

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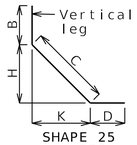

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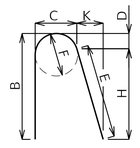

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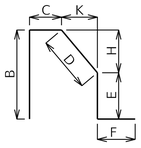

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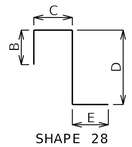

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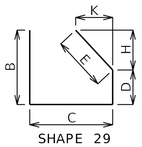

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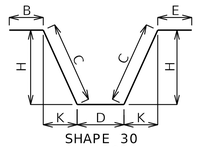

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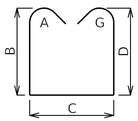

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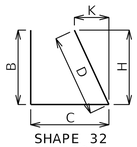

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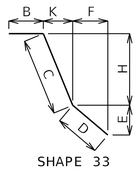

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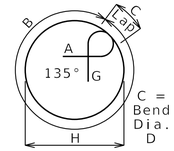

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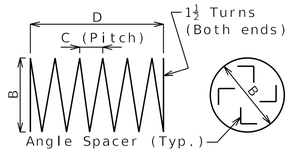

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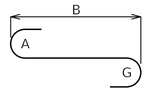
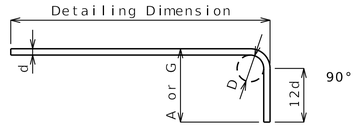


SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4¼"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¾"	28½"

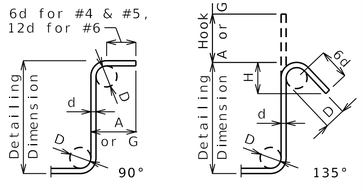


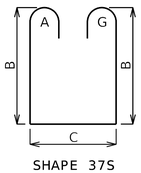
Stirrup Pin Bend Shapes (S)

Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4½"	4½"	5"	2⅝"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5¾"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

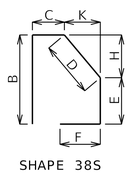
Applicable for all grades of steel.

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





SHAPE 37S



SHAPE 38S

All dimensions are out to out.

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

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

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

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

BENDING DIAGRAMS

Reinforcing Steel Totals (Pounds)

	Size	Substructure Plain	Substructure Epoxy	Superstructure Slab Plain	Superstructure Slab Epoxy	Superstructure Barrier	Superstructure Slip Form	Superstructure Pedestrian Barrier	Concrete Monolith	Entire Bridge Plain	Entire Bridge Epoxy
By Size	W5	0	0	0	0	0	0	0	0	0	0
	4	0	183	0	292	0	0	0	0	0	475
	5	0	950	0	9,735	8,211	434	6,579	2,699	0	28,608
	6	0	27,204	0	47,696	0	0	0	0	0	74,900
	7	0	3,191	0	16,483	0	0	0	0	0	19,674
	8	0	6,692	0	0	0	0	0	0	0	6,692
	9	0	0	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0	0	0
By Type		0	38,490	0	74,206	8,211	434	6,579	2,699	0	130,619

All steel shall be epoxy coated unless otherwise specified.

C 1 27,354 — C 1 38,640

C 1 10,796 — C 1 10,796

C 1 138,866

C 1 36,705

75,050

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION
01/28/26	REV. 1 - NDC-055 - REVISED QUANTITIES

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
01/29/2026 11:22:14 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-JAN-2026
ROUTE: SNT CH
STATE: MO
DISTRICT: BR
SHEET NO.: 34
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

C 1 REVISED 01-28-26

Detailed SEP 2025
Checked SEP 2025

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

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		SUBSTRUCTURE													
		End Bent 1													
3	6 F100	DIAPHRAGM	E	14			6 0.000	2 9.000			2 7.500	0 10.000	8 9	8 8	39
7	6 F101	WING BRACE	E	25		1 8.000	4 7.000	1 8.000			2 8.500	3 8.375	7 11	7 10	82
3	6 F102	DIAPHRAGM	E	21			2 9.000	6 8.000			2 7.500	0 10.000	9 5	9 2	41
7	6 F103	WING BRACE	E	25		1 8.000	5 3.875	1 8.000			4 3.500	3 1.750	8 8	8 7	90
4	8 H100	BEAM	E	20		59 4.000							59 4	59 4	634
4	8 H101	BEAM	E	20		24 10.000							24 10	24 10	265
4	8 H102	BEAM	E	20		49 1.000							49 1	49 1	524
4	8 H103	BEAM	E	20		14 1.000							14 1	14 1	150
4	6 H104	BEAM	E	20		59 4.000							59 4	59 4	356
4	8 H105	BEAM	E	20		30 9.000							30 9	30 9	328
4	8 H106	BEAM	E	20		24 11.000							24 11	24 11	266
4	6 H107	BEAM	E	20		30 8.000							30 8	30 8	184
3	6 H108	DIAPHRAGM	E	20		53 0.000							53 0	53 0	239
4	8 H109	SLAB	E	20		53 0.000							53 0	53 0	566
4	8 H110	SLAB	E	20		38 0.000							38 0	38 0	406
27	6 H111	DIAPHRAGM	E	20		4 3.000							4 3	4 3	172
3	6 H112	DIAPHRAGM	E	20		36 5.000							36 5	36 5	164
10	5 H113	STRAND TIE	E	20		6 6.000							6 6	6 6	68
30	6 H114	WING	E	20		8 0.000							8 0	8 0	360
16	8 H115	WING	E	20		8 0.000							8 0	8 0	342
		C 1 10												C 1 200	
9	6 U100	BEAM	E	37S		4 7.250	2 10.625						13 6	13 4	(180)
10	6 U101	BEAM	E	37S		5 0.000	2 10.625						14 3	14 1	212
9	6 U102	BEAM	E	13S		2 10.625	2 11.250	2 10.625	2 11.250				12 11	12 6	169
30	6 U103	BEAM	E	13S		2 10.625	3 1.125	2 10.625	3 1.125				13 3	12 9	575
18	6 U104	BEAM	E	13S		2 10.625	3 6.000	2 10.625	3 6.000				14 1	13 7	367
8	6 U105	BEAM	E	10S			2 11.250	2 10.625					8 9	8 5	101
3	6 U106	BEAM	E	10S			3 1.125	2 10.625					9 1	8 9	39
8	6 U107	BEAM	E	37S		4 4.500	2 10.625						13 0	12 10	(154)
10	6 U108	BEAM	E	37S		4 10.375	2 10.625						14 0	13 10	208
10	6 U109	BEAM	E	13S		2 10.625	2 8.000	2 10.625	2 8.000				12 5	11 11	179
84	5 U110	APPR NOTCH	E	19S		2 0.000	1 3.000						3 3	3 2	277
111	6 U111	DIAPHRAGM	E	19S		5 0.000	2 4.500						7 5	7 3	1,209
8	6 U112	BEAM	E	10S			2 8.000	2 10.625					8 3	7 11	95
3	6 U113	BEAM	E	10S			3 1.125	2 10.625					9 1	8 9	39
42	6 U114	DIAPHRAGM	E	19S		1 5.875	2 10.625						4 5	4 3	268
42	6 U115	DIAPHRAGM	E	10S			2 4.500	2 4.250					7 1	6 10	431
18	5 U116	WING	E	10S			3 3.000	0 8.000					7 2	6 11	130
		C 1 9												C 1 173	
6	6 V100	BEAM	E	17		4 11.250							5 8	5 8	51
4	6 V101	BEAM	E	17		4 9.625							5 6	5 6	33
58	6 V102	DIAPHRAGM	E	20		1 5.875							1 6	1 6	131
12	6 V103	WING	E	20		5 5.750							5 6	5 6	99
12	6 V104	WING	E	20		5 2.250							5 2	5 2	93
		C 1 44												C 1 281	
		44												452	
		Int. Bent 2													
36	6 D200	KEY	E	20		2 3.000							2 3	2 3	122
6	7 H200	CAP	E	17		47 7.500							48 5	48 5	594
24	7 H201	CAP	E	20		5 0.000							5 0	5 0	245
16	7 H202	CAP	E	17		23 8.000							24 6	24 6	801
8	7 H203	CAP	E	20		49 2.000							49 2	49 2	804
8	7 H204	CAP	E	20		14 2.500							14 3	14 3	233
8	6 H205	CAP	E	20		47 7.500							47 8	47 8	573
12	6 H206	CAP	E	10S			2 0.000	3 7.500					7 8	7 4	132
6	7 H207	CAP	E	17		41 1.500							41 11	41 11	514
8	6 H208	CAP	E	20		41 8.500							41 9	41 9	502
2	6 H209	CRASH WALL	E	17		47 7.500							48 4	48 4	145
38	6 H210	CRASH WALL	E	20		48 7.500							48 8	48 8	2,778
40	6 H211	CRASH WALL	E	10S			2 0.000	2 3.500					6 4	6 0	360
2	6 H212	CRASH WALL	E	17		39 1.000							39 9	39 9	119
38	6 H213	CRASH WALL	E	20		39 1.000							39 1	39 1	2,231
26	6 V200	CRASH WALL	E	20		21 11.000							21 11	21 11	856
49	4 U200	CAP	E	10S			1 0.000	3 9.000					5 9	5 7	183
6	6 U201	CAP	E	10S			2 9.000	3 9.000					9 3	8 11	80
32	6 U202	CAP	E	13S		3 9.000	2 9.000	3 9.000	2 9.000				14 4	13 10	665
4	6 U203	CAP	E	10S			3 1.375	3 9.000					10 0	9 8	58

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		Int. Bent 2													
32	6 U204	CAP	E	13S		3 9.000	3 1.375	3 9.000	3 1.375				15 0	14 7	701
3	6 U205	CAP	E	10S			3 5.500	3 9.000					10 8	10 4	47
12	6 U206	CAP	E	13S		3 9.000	3 5.500	3 9.000	3 5.500				15 9	15 3	275
148	6 U207	CRASH WALL	E	19S			21 11.000	2 5.000					21 11	21 9	4,835
		End Bent 3													
3	6 F300	DIAPHRAGM	E	14			6 0.000	2 9.000			2 7.500	0 10.000	8 9	8 8	39
7	6 F301	WING BRACE	E	25		1 8.000	4 7.000	1 8.000			2 8.500	3 8.375	7 11	7 10	82
3	6 F302	DIAPHRAGM	E	21			2 9.000	6 8.000			2 7.500	0 10.000	9 5	9 2	41
7	6 F303	WING BRACE	E	25		1 8.000	5 3.875	1 8.000			4 3.500	3 1.750	8 8	8 7	90
4	8 H300	BEAM	E	20		59 4.000							59 4	59 4	634
4	8 H301	BEAM	E	20		24 10.000							24 10	24 10	265
4	8 H302	BEAM	E	20		49 1.000							49 1	49 1	524
4	8 H303	BEAM	E	20		14 1.000							14 1	14 1	150
4	6 H304	BEAM	E	20		59 4.000							59 4	59 4	356
4	8 H305	BEAM	E	20		30 9.000							30 9	30 9	328
4	8 H306	BEAM	E	20		24 11.000							24 11	24 11	266
4	6 H307	BEAM	E	20		30 8.000							30 8	30 8	184
3	6 H308	DIAPHRAGM	E	20		53 0.000							53 0	53 0	239
4	8 H309	SLAB	E	20		53 0.000							53 0	53 0	566
4	8 H310	SLAB	E	20		38 0.000							38 0	38 0	406
27	6 H311	DIAPHRAGM	E	20		4 3.000							4 3	4 3	172
3	6 H312	DIAPHRAGM	E	20		36 5.000							36 5	36 5	164
10	5 H313	STRAND TIE	E	20		6 6.000							6 6	6 6	68
30	6 H314	WING	E	20		8 0.000							8 0	8 0	360
16	8 H315	WING	E	20		8 0.000							8 0	8 0	342
		C 1 10												C 1 200	
9	6 U300	BEAM	E	37S		4 7.750	2 10.625						13 7	13 5	(181)
10	6 U301	BEAM	E	37S		5 0.250	2 10.625						14 4	14 2	213
9	6 U302	BEAM	E	13S		2 10.625	2 11.750	2 10.625	2 11.750				13 0	12 7	170
30	6 U303	BEAM	E	13S		2 10.625	3 1.125	2 10.625	3 1.125				13 3	12 9	575
18	6 U304	BEAM	E	13S		2 10.625	3 6.250	2 10.625	3 6.250				14 1	13 8	369
8	6 U305	BEAM	E	10S			2 11.750	2 10.625					8 10	8 6	102
3	6 U306	BEAM	E	10S			3 1.125	2 10.625					9 1	8 9	39
8	6 U307	BEAM	E	37S		4 4.500	2 10.625						13 0	12 10	(154)
10	6 U308	BEAM	E	37S		4 10.375	2 10.625						14 0	13 10	208
10	6 U309	BEAM	E	13S		2 10.625	2 8.000	2 10.625	2 8.000				12 5	11 11	179
84	5 U310	APPR NOTCH	E	19S		2 0.000	1 3.000						3 3	3 2	277
111	6 U311	DIAPHRAGM	E	19S		5 0.000	2 4.375						7 4	7 3	1209
8	6 U312	BEAM	E	10S			2 8.000	2 10.625					8 3	7 11	95
3	6 U313	BEAM	E	10S			3 1.125	2 10.625					9 1	8 9	39
42	6 U314	DIAPHRAGM	E	19S		1 5.875	2 10.625						4 5	4 3	268
42	6 U315	DIAPHRAGM	E	10S			2 4.375	2 4.250					7 1	6 9	426
18	5 U316	WING	E	10S			3 3.000	0 8.000					7 2	6 11	130
		C 1 9												C 1 173	
6	6 V300	BEAM	E	17		5 0.250							5 9	5 9	52
4	6 V301	BEAM	E	17		4 10.250							5 7	5 7	34
58	6 V302	DIAPHRAGM	E	20		1 5.875							1 6	1 6	131
12	6 V303	WING	E	20		5 7.000							5 7	5 7	101
12	6 V304	WING	E	20		5 2.375							5 2	5 2	93
		C 1 44												C 1 281	
		44												452	

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

For bending diagrams and steel reinforcing totals, see Sheet No. 34.

Detailed SEP 2025
Checked SEP 2025

All bars shall be Grade 60.

C 1 REVISED 01-28-26

BILL OF REINFORCING STEEL

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

Sheet No. 35 of 39

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.

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
01/29/2026 11:22:14 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	35

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION
01/28/26	REV. 1 - NDC-055 - REVISED QUANTITIES

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		SUPERSTRUCTURE													
		Int Diaphragm													
12	5 H230	DIAPHRAGM	E	19S		5 2.000	0 10.000						6 0	5 11	74
36	6 H231	DIAPHRAGM	E	20		4 4.000							4 4	4 4	234
18	4 H232	DIAPHRAGM	E	20		4 4.000							4 4	4 4	52
20	5 H233	STRAND TIE	E	20		6 6.000							6 6	6 6	136
36	6 U230	DIAPHRAGM	E	28S			3 4.000	2 3.375	1 10.000				7 5	7 2	388
54	4 U231	DIAPHRAGM	E	28S			3 4.000	2 3.125	1 3.000				6 10	6 8	240
8	5 V230	DIAPHRAGM	E	20		2 5.000							2 5	2 5	20
		Slab													
195	6 S1	SLAB	E	20		46 7.000							46 7	46 7	13,644
64	7 S2	SLAB	E	20		21 0.000							21 0	21 0	2,747
128	7 S3	SLAB	E	20		52 6.000							52 6	52 6	13,736
29	6 S4	SLAB	E	20	1	5 7.000							5 7	5 7	1,207
		INCR.=				49 10.000							49 10	49 10	
		19. in													
233	6 S5	SLAB	E	20		50 5.000							50 5	50 5	17,644
31	6 S6	SLAB	E	20	1	2 0.000							2 0	2 0	1,197
		INCR.=				49 5.000							49 5	49 5	
		19. in													
20	6 S7	SLAB	E	20	1	2 1.000							2 1	2 1	513
		INCR.=				32 1.000							32 1	32 1	
		19. in													
244	6 S8	SLAB	E	20		33 9.000							33 9	33 9	12,369
18	6 S9	SLAB	E	20	1	4 3.000							4 3	4 3	500
		INCR.=				32 9.000							32 9	32 9	
		20.125 in													
54	5 S10	SLAB	E	20		46 3.000							46 3	46 3	2,605
514	5 S11	SLAB	E	20		12 6.000							12 6	12 6	6,701
7	5 S12	SLAB	E	20	1	2 1.000							2 1	2 1	50
		INCR.=				11 7.000							11 7	11 7	
		19. in													
7	5 S13	SLAB	E	20	1	2 0.000							2 0	2 0	49
		INCR.=				11 6.000							11 6	11 6	
		19. in													
7	5 S14	SLAB	E	20	1	2 0.000							2 0	2 0	50
		INCR.=				11 8.000							11 8	11 8	
		19.375 in													
7	5 S15	SLAB	E	20	1	2 0.000							2 0	2 0	50
		INCR.=				11 7.000							11 7	11 7	
		19.125 in													
		Barrier													
		Type D													
356	5 R1	BARRIER	E	26		3 3.000	0 5.500	0 2.250	3 1.375	0 5.500	3 0.750	0 6.750	6 10	6 9	2,506
356	5 R2	BARRIER	E	19S		1 8.500	0 9.500						2 6	2 5	897
356	5 R3	BARRIER	E	27S			0 9.500	1 3.250	0 5.000	1 0.000	1 3.000	0 3.000	3 6	3 4	1,238
40	5 R4	BARRIER	E	20		11 9.000							11 9	11 9	490
40	5 R5	BARRIER	E	20		54 0.750							54 1	54 1	2,256
40	5 R6	BARRIER	E	20		19 9.000							19 9	19 9	824
		Slip-Form													
24	5 C1	BARRIER	E	20		12 0.000							12 0	12 0	300
16	5 C2	BARRIER	E	20		8 0.000							8 0	8 0	134
		Pedestrian													
262	5 R7	BARRIER	E	10S		1 0.000	1 8.000	0 10.500					5 3	4 11	1,344
262	5 R8	BARRIER	E	10S			3 4.000	0 10.500					7 7	7 4	2,004
20	5 R9	BARRIER	E	20		51 4.000							51 4	51 4	1,071
20	5 R10	BARRIER	E	20		51 0.000							51 0	51 0	1,064
40	5 R11	BARRIER	E	20		11 8.000							11 8	11 8	487
20	5 R12	BARRIER	E	20		7 11.000							7 11	7 11	165
36	5 R13	BARRIER	E	10S			3 4.000	0 10.000					7 6	7 3	272
20	5 R14	BARRIER	E	20		8 2.500							8 3	8 3	172

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		Conc. Monolith													
24	5 H500	MONOLITH	E	20		7 6.000							7 6	7 6	188
120	5 H501	MONOLITH	E	20		7 5.000							7 5	7 5	928
56	5 H502	MONOLITH	E	19S		1 6.000	1 6.000						3 0	2 11	170
36	5 H503	MONOLITH	E	20		8 2.000							8 2	8 2	307
28	5 V500	MONOLITH	E	19S		2 6.000	1 0.000						3 6	3 5	100
60	5 V501	MONOLITH	E	20		13 10.000							13 10	13 10	866
26	5 U500	MONOLITH	E	13S		1 8.000	0 7.000	1 8.000	0 7.000				5 6	5 2	140
		C 1 96											C 1	752	
		480												3,712	
		224												680	
		144												1,228	
		112												400	
		240												3,464	
		104												560	

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

For bending diagrams and steel reinforcing totals, see Sheet No. 34.

Detailed SEP 2025
Checked SEP 2025

All bars shall be Grade 60.

C 1 REVISED 01-28-26

BILL OF REINFORCING STEEL

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

Sheet No. 36 of 39

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.

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
01/29/2026 11:22:14 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-JAN-2026
ROUTE: SNT CH
STATE: MO
DISTRICT: BR
SHEET NO.: 36
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

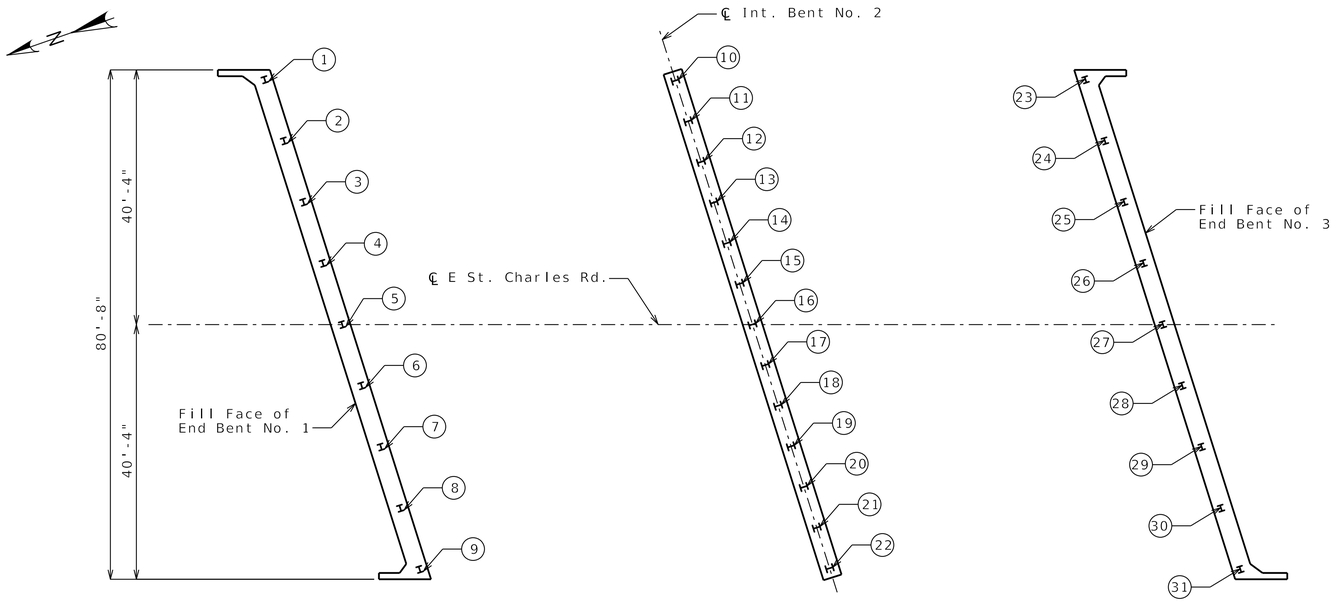
DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION
01/28/26	REV. 1 - NDC-055 - REVISED QUANTITIES

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING REV.



PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA

As-Built Pile Data

Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
End Bent No. 1			
1			
2			
3			
4			
5			
6			
7			
8			
9			
End Bent No. 3			
23			
24			
25			
26			
27			
28			
29			
30			
31			

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
Int. Bent No. 2					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

Note:
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 than 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.)

This sheet to be completed by MoDOT construction personnel.

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
09/29/2025 3:11:27 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-SEP-2025
ROUTE: SNT CH | STATE: MO
DISTRICT: BR | SHEET NO.: 37
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

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

MoDOT IMPROVE I-70 DB PROJECT 1

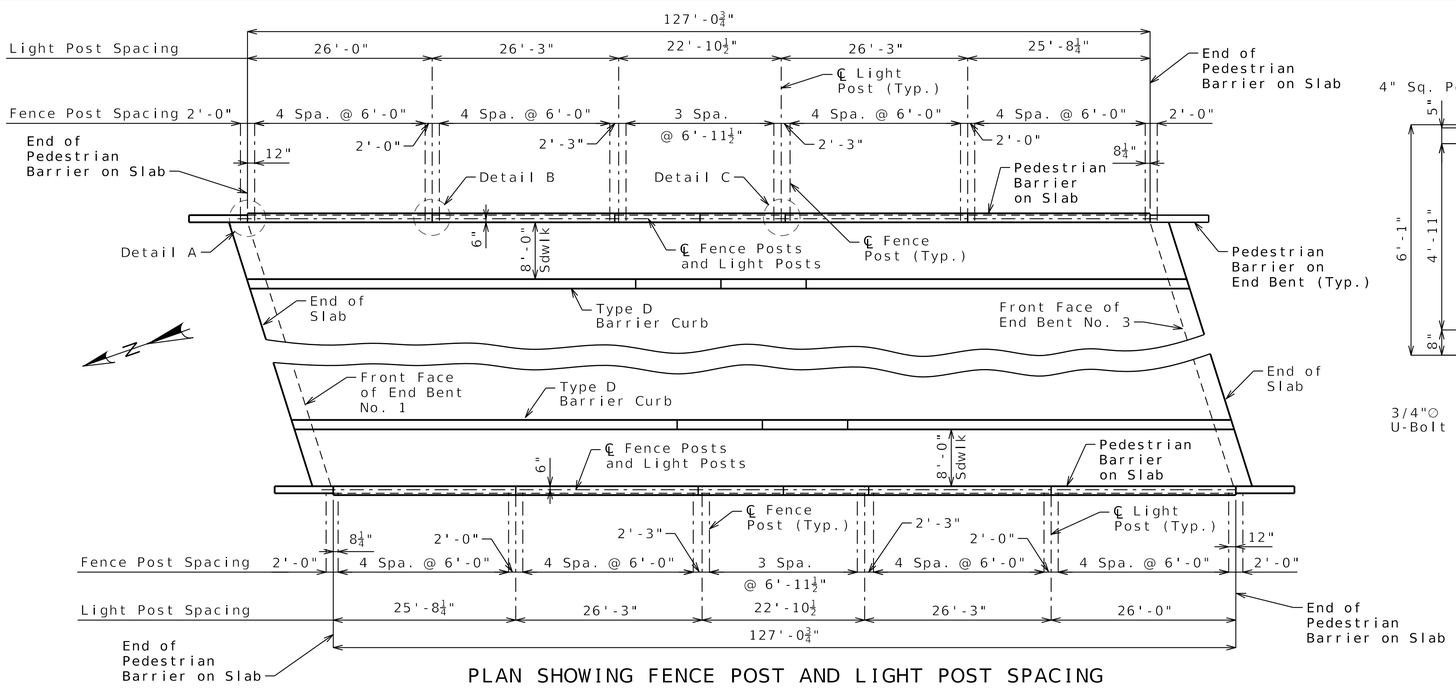
Jacobs | MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

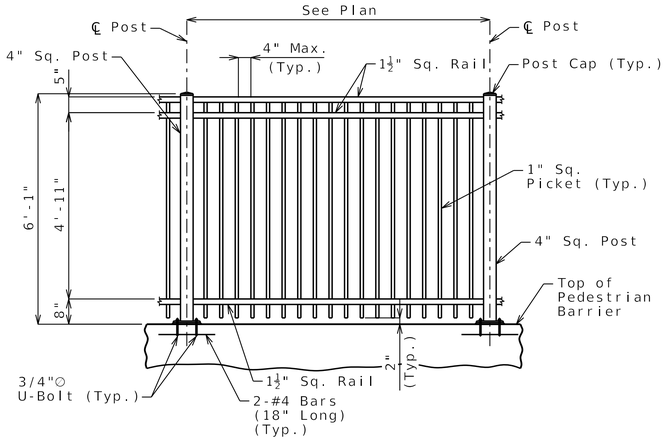
REV.

Detailed MAY 2025
Checked AUG 2025

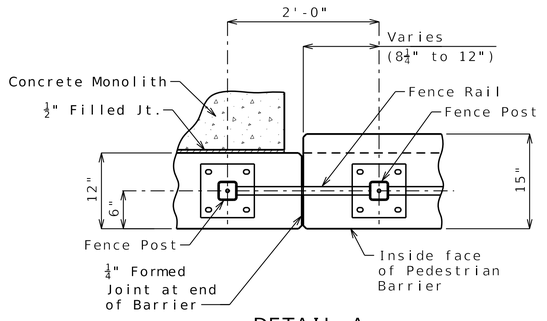
Note: This drawing is not to scale. Follow dimensions.



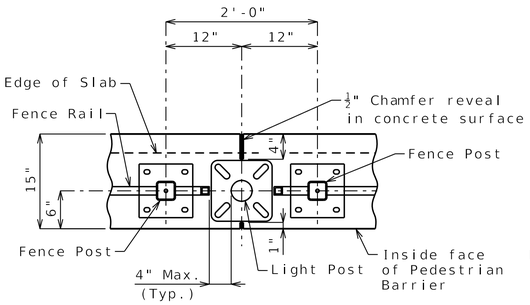
PLAN SHOWING FENCE POST AND LIGHT POST SPACING



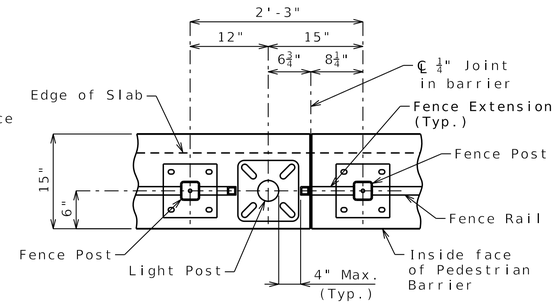
TYPICAL FENCE PANEL ELEVATION



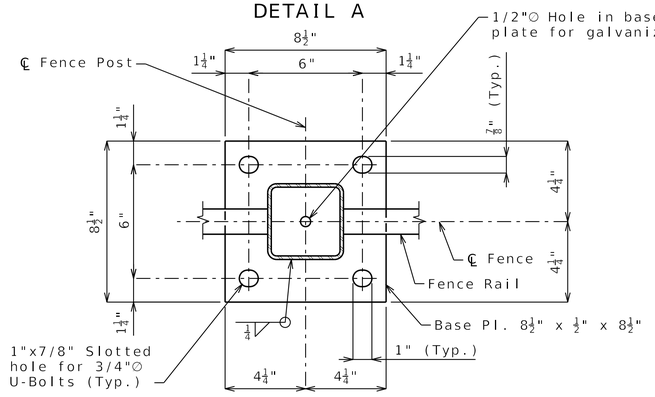
DETAIL A



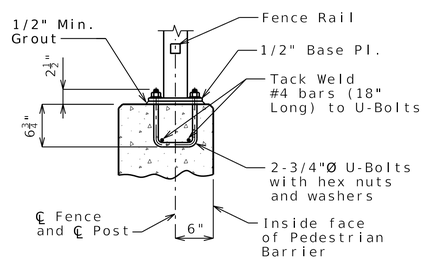
DETAIL B



DETAIL C



FENCE POST BASE PLATE DETAIL



SECTION THRU FENCE POST BASE PLATE

Note: 1/2-inch diameter hole in base plate not shown for clarity.

Notes:

For detail of light standards, see Architectural and Electrical Plans.

Pedestrian Fence shall be supplied by:
Ameristar Perimeter Security
1555 N. Mingo
Tulsa, OK 74116
(800)321-8724
www.ameristarperimeter.com

Style: Echelon II Majestic

Fence shall have a gloss black finish (Federal Standard #17038). See special provisions.

Fence base plate shall be ASTM A709, Grade 50.

All fence base plates, U-bolts, hex nuts and washers shall be galvanized in accordance with ASTM A123 and Sec 1081.

All fence posts and light posts and anchorage assemblies shall be vertical.

Grout shall be placed under the post base plates in accordance with Sec 1066.

Decorative pedestrian fencing shall be in accordance with 2020-AASHTO LRFD Bridge Design Specifications, 9th Ed.

Contractor shall submit complete detailed shop drawings and structural calculations in accordance with Sec 1080.

All materials used in fabrication and construction of the decorative pedestrian fencing shall be in accordance with the manufacturer's specifications, except as modified in the contract documents.

The assembly of the pickets to the rails and the rails to the posts shall be the same as the style mentioned for the manufacturer.

Substitution for the U-bolt cages will not be permitted.

U-bolts shall be ASTM F1554 Grade 36.

For details of Pedestrian Barrier, see Sheet Nos. 30 and 31.

DECORATIVE PEDESTRIAN FENCE DETAILS

Detailed AUG 2025
Checked AUG 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_038_JST0021_Fence&Lights.dgn 13:43 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
09/29/2025 3:11:28 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE SNT CH
STATE MO
DISTRICT BR
SHEET NO. 38
COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

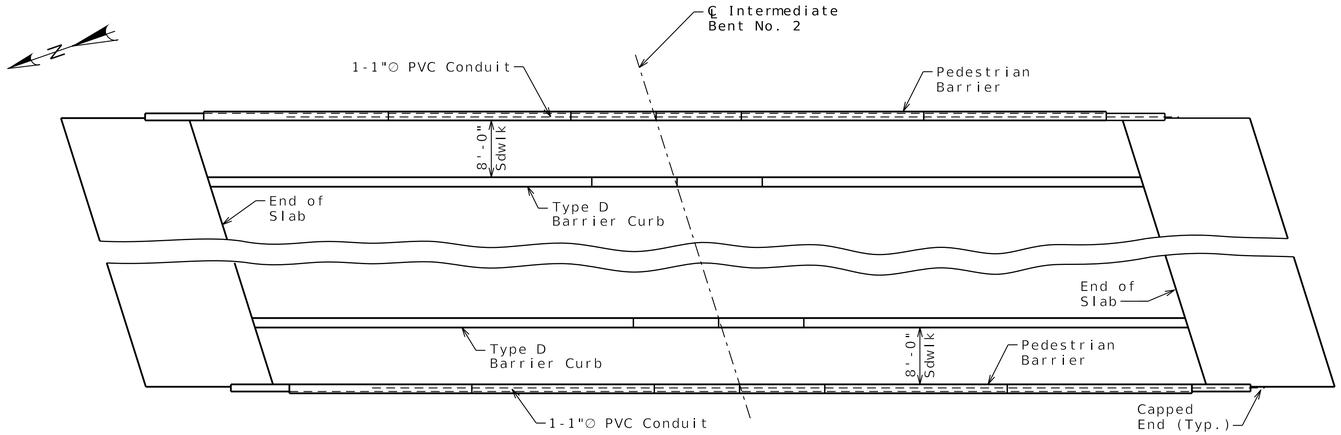
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

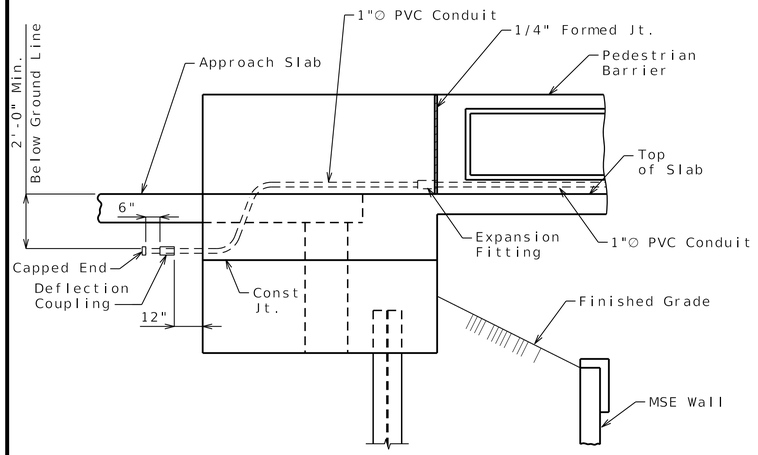
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

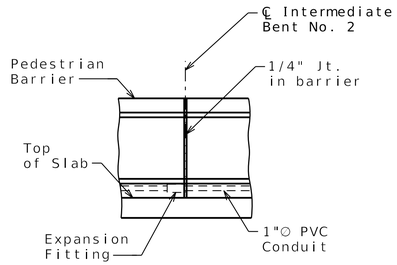


PLAN

(Fence and Light Posts not shown for clarity.)

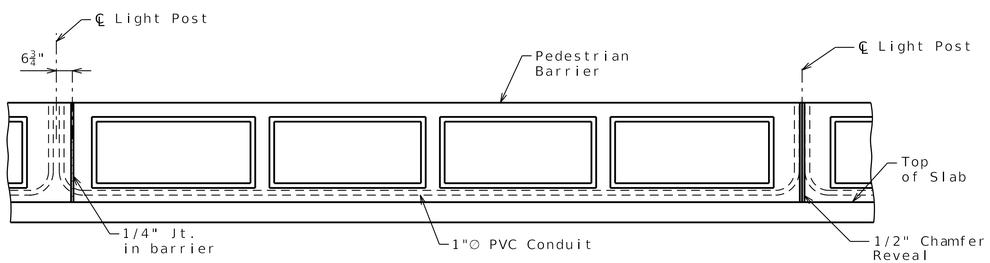


TYPICAL PART ELEVATION AT END BENT No. 3



TYPICAL DETAIL AT
INT. BENT NO. 2

(Fence not shown for clarity.)



TYPICAL PART ELEVATION SHOWING LIGHTING CONDUIT

(Fence and Light Posts not shown for clarity.)

Conduit System Notes:

Location of pull boxes for external conduit to be determined in the field by contractor.

All conduit shall be rigid non-metallic schedule 40 heavy wall polyvinyl chloride (PVC), in accordance with Sec 1060, with minimum cover of 3 1/2-inch in barrier and 4 1/2-inch in wingwall. Each section of conduit shall bear the Underwriters Laboratories (UL) label.

All conduit fittings for PVC conduits shall be in accordance with Sec 1060. All conduit clamps, if required, shall be commercially available, non-metallic conduit clamps and approved by the Engineer.

Shift reinforcing steel in field where necessary to clear conduit and junction boxes.

Expansion fittings shall be placed as shown and set in accordance with the manufacturer's requirements and based on the air temperature at the time of setting given an estimated total expansion movement of 1-inch at filled joints using a maximum temperature range of 120 degrees F and a maximum temperature of 110 degrees F.

Minimum clearance preferred between conduits placed in the pedestrian barrier shall be 1".

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

Deflection couplings at the end of the wings shall be required for probable thermal movements of the structure and ground movements.

For Pedestrian Barrier Details, see Sheet Nos. 30 and 31.

For location of Light Posts, see Sheet No. 38.

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

CONDUIT SYSTEM ON STRUCTURE

Detailed AUG 2025
Checked AUG 2025

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_039_JST0021_Conduit.dgn 13:44 29-SEP-2025

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

09/29/2025 3:11:28 PM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-SEP-2025

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	39

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DATE	DESCRIPTION
09/17/25	REV. A - FINAL REVIEW
09/29/25	REV. 0 - RELEASED FOR CONSTRUCTION

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-1
Page 1 of 3

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680884.1299 **Date of Work:** 01/01/91
Offset: **Easting:** 769012.0369 **Depth to Water:**
Elevation: 846.5 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,Split-Spoon Sampler
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-8.0' Gray and brown, silty CLAY	845						
5			840			3-4-5 (11)			
		8.0-15.0' Brown, silty CLAY							
10			835			4-6-9 (18)			
15		15.0-20.0' TILL: Light brown, silty CLAY, with gravel	830			9-10-12 (26)			
20		20.0-25.0' TILL: Light brown, silty CLAY, with sand layers	825			4-6-9 (18)			
25									

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
Coordinate Datum: **Coordinate Units:** U.S. Survey Feet

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(Continued Next Page)

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Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-1
Page 2 of 3

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680884.1299 **Date of Work:** 01/01/91
Offset: **Easting:** 769012.0369 **Depth to Water:**
Elevation: 846.5 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,Split-Spoon Sampler
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
25		25.0-35.0' Tan, shaley CLAY, with sand layers, possible till	820			5-7-9 (19)			
30			815			7-11-12 (27)			
35		35.0-38.0' (ML) TILL: Light brown, sandy SILT	810			9-12-15 (32)			
40		38.0-44.0' Brown, SAND	805			31-60-40/0.0', 10/0			
45		44.0-46.5' (ML) TILL: Light brown, clayey SILT, with gravel	800			19-34-35 (81)			
50		46.5-51.5' (ML) TILL: light brown, clayey SILT, with sand and gravel layers							

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
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(Continued Next Page)

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BORING LOGS

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
01/29/2026 11:22:14 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-JAN-2026
ROUTE: SNT CH | STATE: MO
DISTRICT: BR | SHEET NO.: 39A
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DATE	DESCRIPTION
01/28/26	REV. 1 - NDC-055 - SHEET ADDED

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

Detailed JAN 2026
Checked JAN 2026

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

C 1 SHEET ADDED 01-28-26

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_039A_JST0021_Boring_001_C001.dgn 11:01 29-JAN-2026

TSi geotechnical, inc

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-1
Page 3 of 3

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680884.1299 **Date of Work:** 01/01/91
Offset: **Easting:** 769012.0369 **Depth to Water:**
Elevation: 846.5 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,Split-Spoon Sampler
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
50		46.5-51.5' (ML) TILL: light brown, clayey SILT with sand and gravel layers *(continued)*	795			34-47-53 (117)			
		Bottom of borehole at 51.5 feet.							

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
Coordinate Datum: **Coordinate Units:** U.S. Survey Feet

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BORING LOGS

Detailed JAN 2026
Checked JAN 2026

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

Sheet No. 39B of 39

C 1 SHEET ADDED 01-28-26

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_039B_JST0021_Boring_002_C001.dgn 11:02 29-JAN-2026

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER

01/29/2026 11:22:14 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	39B

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DESCRIPTION	DATE
REV. 1 - NDC-055 - SHEET ADDED	01/28/26

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

MoDOT IMPROVE I-70 DB PROJECT 1

Jacobs
MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-2
Page 1 of 2

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680838.7792 **Date of Work:** 01/01/91
Offset: **Easting:** 769058.9344 **Depth to Water:**
Elevation: 835.2 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-4.6' Dark brown, silty CLAY	835						
5		4.6-9.2' TILL: Brown, silty CLAY	830						
10		9.2-9.7' Silty CLAY and gravel 9.7-30.0' Light brown, silty CLAY, possible till	825						
15			820						
20			815						
25									

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
Coordinate Datum: **Coordinate Units:** U.S. Survey Feet

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(Continued Next Page)

LETTER BOREHOLE - MODOT 20150728.GDT - 8/21/24 16:15 - G:\TPW\GEOTECH\F3X03000 - I-70 3RD LANE COLUMBIA TO KINGDOM CITY\SITE INVESTIGATION\MODOT I-70 3RD LANE COMBINED EXIST AND NEW BORINGS_NOTCOMPLETE 08142024.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-2
Page 2 of 2

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680838.7792 **Date of Work:** 01/01/91
Offset: **Easting:** 769058.9344 **Depth to Water:**
Elevation: 835.2 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
25		9.7-30.0' Light brown, silty CLAY, possible till *(continued)* 28.0' -gravel from 28.0 to 28.5 ft.	810						
30		30.0-32.8' Brown, SAND	805						
		32.8-33.7' COBBLES and gravel							
35		33.7-42.0' TILL, with sand layers	800						
40		42.0-43.9' TILL: Gravel or bobble	795						
45		43.9-47.8' BOULDERS or dolomite Bottom of borehole at 47.8 feet.	790						

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
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LETTER BOREHOLE - MODOT 20150728.GDT - 8/21/24 16:15 - G:\TPW\GEOTECH\F3X03000 - I-70 3RD LANE COLUMBIA TO KINGDOM CITY\SITE INVESTIGATION\MODOT I-70 3RD LANE COMBINED EXIST AND NEW BORINGS_NOTCOMPLETE 08142024.GPJ

BORING LOGS

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
01/29/2026 11:22:14 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	39C

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DESCRIPTION	DATE
REV. 1 - NDC-055 - SHEET ADDED	01/28/26

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

Detailed JAN 2026
Checked JAN 2026

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

C 1 SHEET ADDED 01-28-26

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_039C_JST0021_Boring_003_C001.dgn 11:02 29-JAN-2026

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-3
Page 1 of 2

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680784.7049 **Date of Work:** 01/01/91
Offset: **Easting:** 769006.235 **Depth to Water:**
Elevation: 833.4 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-1.0' Shoulder SAND and GRAVEL							
		1.0-10.5' Brown, silty CLAY	830						
5			825						
10		10.5-10.9' GRAVEL							
		10.9-23.7' TILL: Light brown, silty CLAY	820						
15			815						
20			810						
25		23.7-24.5' SAND							

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
Coordinate Datum: **Coordinate Units:** U.S. Survey Feet

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(Continued Next Page)

LETTER BOREHOLE - MODOT 20150728.GDT - 8/21/24 16:15 - G:\TPW\GEOTECH\F3X03000 - I-70 3RD LANE COLUMBIA TO KINGDOM CITY\SITE INVESTIGATION\MODOT I-70 3RD LANE COMBINED EXIST AND NEW BORINGS_NOTCOMPLETE 08142024.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-3
Page 2 of 2

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680784.7049 **Date of Work:** 01/01/91
Offset: **Easting:** 769006.235 **Depth to Water:**
Elevation: 833.4 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
25		24.5-38.6' TILL: Brown, stiff, with scattered sand layers *(continued)*	805						
30			800						
35			795						
		38.6-44.0' Fine SAND, with scattered gravel, few cobbles, very wet							
40			790						
45		44.0-45.4' Heavy BOULDERS or very stiff TILL and cobbles							
		Bottom of borehole at 45.4 feet.							

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
Coordinate Datum: **Coordinate Units:** U.S. Survey Feet

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LETTER BOREHOLE - MODOT 20150728.GDT - 8/21/24 16:15 - G:\TPW\GEOTECH\F3X03000 - I-70 3RD LANE COLUMBIA TO KINGDOM CITY\SITE INVESTIGATION\MODOT I-70 3RD LANE COMBINED EXIST AND NEW BORINGS_NOTCOMPLETE 08142024.GPJ

BORING LOGS

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
01/29/2026 11:22:14 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
29-JAN-2026

ROUTE	STATE
SNT CH	MO
DISTRICT	SHEET NO.
BR	39D

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9552

DESCRIPTION	DATE
REV. 1 - NDC-055 - SHEET ADDED	01/28/26

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

Detailed JAN 2026
Checked JAN 2026

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

C 1 SHEET ADDED 01-28-26

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_039D_JST0021_Boring_004_C001.dgn 11:03 29-JAN-2026

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-4
Page 1 of 2

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680715.3945 **Date of Work:** 01/01/91
Offset: **Easting:** 769018.0194 **Depth to Water:**
Elevation: 835.5 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,Split-Spoon Sampler
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-31.0' TILL: Tan and gray, silty CLAY, stiff to very stiff	835						
5			830			6-7-8 (18)			
10			825			6-9-11 (23)			
15			820			4-6-8 (16)			
20			815			9-10-12 (26)			
25									

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
Coordinate Datum: **Coordinate Units:** U.S. Survey Feet

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(Continued Next Page)

LETTER BOREHOLE - MODOT 20150728.GDT - 2/25/25 08:24 - G:\TPW\GEOTECH\F3X03000 - I-70 3RD LANE COLUMBIA TO KINGDOM CITY\SITE INVESTIGATION\MODOT I-70 3RD LANE COMBINED EXIST AND NEW BORINGS_02242025.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-4
Page 2 of 2

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680715.3945 **Date of Work:** 01/01/91
Offset: **Easting:** 769018.0194 **Depth to Water:**
Elevation: 835.5 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,Split-Spoon Sampler
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
25		0.0-31.0' TILL: Tan and gray, silty CLAY, stiff to very stiff *(continued)*	810			8-10-12 (26)			
30		31.0-32.3' TILL: Tan and gray, silty CLAY, with sand seams	805			23-20-47 (78)			
35		32.3-40.0' TILL: silty CLAY, with layers of sand and gravel, very stiff	800			36-41-59/0.0'			
40		Bottom of borehole at 40.0 feet.				70-100/0.0'			

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
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LETTER BOREHOLE - MODOT 20150728.GDT - 2/25/25 08:24 - G:\TPW\GEOTECH\F3X03000 - I-70 3RD LANE COLUMBIA TO KINGDOM CITY\SITE INVESTIGATION\MODOT I-70 3RD LANE COMBINED EXIST AND NEW BORINGS_02242025.GPJ

BORING LOGS

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
01/29/2026 11:22:15 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-JAN-2026
ROUTE: SNT CH | STATE: MO
DISTRICT: BR | SHEET NO.: 39E
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DESCRIPTION: REV. 1 - NDC-055 - SHEET ADDED
DATE: 01/28/26

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

MoDOT IMPROVE I-70 DB PROJECT 1
MILLSTONE WEBER
Jacobs
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING
REV.

Detailed JAN 2026
Checked JAN 2026

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

C 1 SHEET ADDED 01-28-26

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_039E_JST0021_Boring_005_C001.dgn 11:03 29-JAN-2026

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-5
Page 1 of 4

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680675.903 **Date of Work:** 01/01/91
Offset: **Easting:** 768946.181 **Depth to Water:**
Elevation: 836.5 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-3.5' Dark brown, silty CLAY	835						
5		3.5-12.5' TILL: light brown, silty CLAY, stiff to very stiff, moist, can not P.A.W.T.	830						
10			825						
		12.5-13.5' COBBLE and GRAVEL							
		13.5-26.0' TILL: silty CLAY, stiff							
15			820						
20			815						
25									

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
Coordinate Datum: **Coordinate Units:** U.S. Survey Feet

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(Continued Next Page)

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-5
Page 2 of 4

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680675.903 **Date of Work:** 01/01/91
Offset: **Easting:** 768946.181 **Depth to Water:**
Elevation: 836.5 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
25		13.5-26.0' TILL: silty CLAY, stiff *(continued)*							
		26.0-31.0' SAND or small gravel	810						
30									
		31.0-44.5' TILL, very stiff, moist	805						
35			800						
40			795						
45		44.5-55.0' TILL: Dark brown, silty CLAY, very moist	790						
50									

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
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Coordinate System: **Coordinate Zone:** **Coordinate Proj. Factor:**
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(Continued Next Page)

BORING LOGS

STATE OF MISSOURI
MATTHEW J. MUENKS
NUMBER PE-2017000338
PROFESSIONAL ENGINEER
01/29/2026 11:22:15 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-JAN-2026
ROUTE: SNT CH | STATE: MO
DISTRICT: BR | SHEET NO.: 39F
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DATE	DESCRIPTION
01/28/26	REV. 1 - NDC-055 - SHEET ADDED

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

MoDOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

Detailed JAN 2026
Checked JAN 2026

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

C 1 SHEET ADDED 01-28-26

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-5
Page 3 of 4

Job No.: 20241040.00 **County:** Boone **Route:** I-70
Design: **Skew:** **Location:** Columbia, Missouri
Bent: **Logged By:** **Operator:**
Station: **Northing:** 1680675.903 **Date of Work:** 01/01/91
Offset: **Easting:** 768946.181 **Depth to Water:**
Elevation: 836.5 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
50		44.5-55.0' TILL: Dark brown, silty CLAY, very moist *(continued)*	785						
55		55.0-80.4' TILL: Gray, silty CLAY amd weathered shale, with small gravel	780						
60			775						
65			770						
70			765						
75									

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
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(Continued Next Page)

Missouri Department of Transportation
Construction and Materials

BORING NO. L0908-5
Page 4 of 4

Job No.: 20241040.00 **County:** Boone **Route:** I-70
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Offset: **Easting:** 768946.181 **Depth to Water:**
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Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Drill Rig ,
Requested Elevation: **Location Note:**
Drill No.: 1990 **Hammer Efficiency:** 70% **Drilling Method:**

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
75		55.0-80.4' TILL: Gray, silty CLAY amd weathered shale, with small gravel *(continued)*	760						
80		80.4-89.0' Gray, SHALE, hard to soft layers	755						
85		Bottom of borehole at 89.0 feet.	750						

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
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NUMBER PE-2017000338
PROFESSIONAL ENGINEER
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Matthew Muenks
MO PE-2017000338

DATE PREPARED: 29-JAN-2026
ROUTE: SNT CH | STATE: MO
DISTRICT: BR | SHEET NO.: 39G
COUNTY: BOONE
JOB NO.: JST0021
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9552

DESCRIPTION: REV. 1 - NDC-055 - SHEET ADDED
DATE: 01/28/26

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

MoDOT IMPROVE I-70 DB PROJECT 1
MILLSTONE WEBER
Jacobs
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.
C 1 SHEET ADDED 01-28-26

Detailed JAN 2026
Checked JAN 2026

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B19200 (Bridge 19-E. St Charles Rd over I-70)/B_A9552_039G_JST0021_Boring_007_C001.dgn 11:05 29-JAN-2026

LETTER BOREHOLE - MODOT 20150728.GDT - 2/25/25 08:25 - G:\TPW\GEOTECH\F3X03000 - I-70 3RD LANE COLUMBIA TO KINGDOM CITY\SITE INVESTIGATION\MODOT I-70 3RD LANE COMBINED EXIST AND NEW BORINGS_022425.GPJ