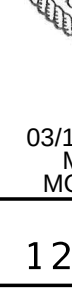
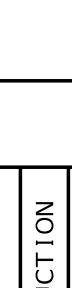


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<i>Matthew Muenks</i> 03/12/2025 9:45:28 AM Matthew Muenks MO PE-2017000338									
DATE PREPARED									
12 - MAR - 2025									
ROUTE 63NB	STATE MO								
DISTRICT BR	SHEET NO.								
COUNTY BOONE									
JOB NO. JST0021									
CONTRACT ID.									
PROJECT NO.									
BRIDGE NO. A9546									
DATE	DESCRIPTION	REV.	0 - RELEASED FOR CONSTRUCTION						
03/12/25									
									
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)									

(122.0' - 194.2' - 142.7') (137.7' - 194.2' - 110.9') CONTINUOUS COMPOSITE PLATE GIRDER SPANS

SEC/SUR 08 TWP 48N RGE 12W



03/12/2025 9:45:28 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

12-MAR-2025

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 1

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

REV. 1 - NDC-010 - REVISED ELEVATIONS

DATE

11/15/24

01/16/25

03/12/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

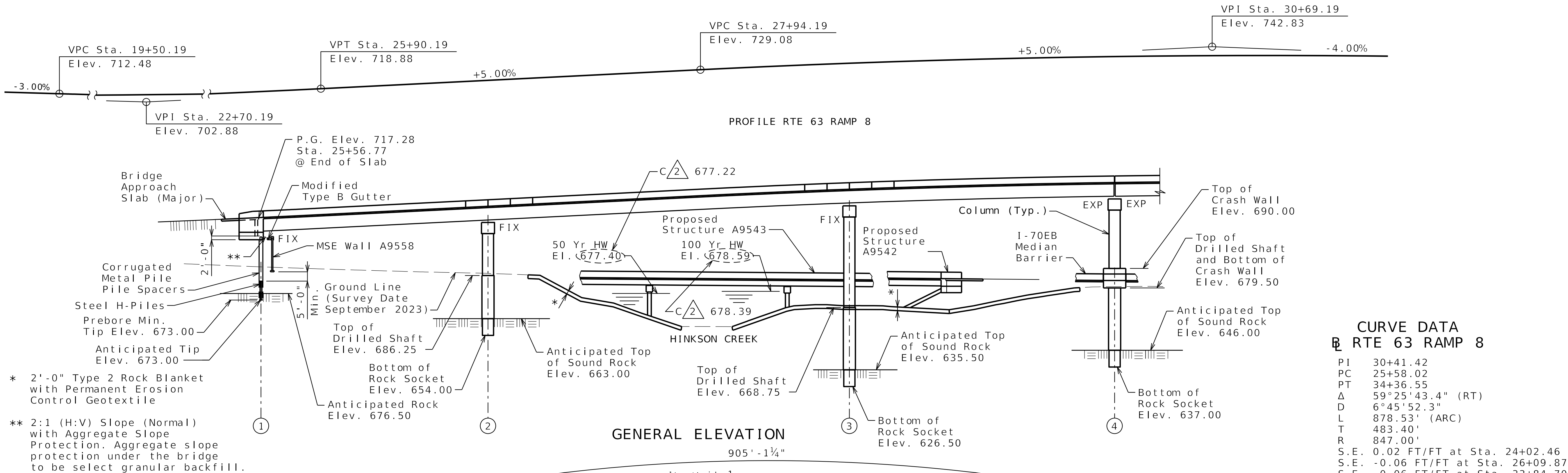
MODOT

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Jacobs

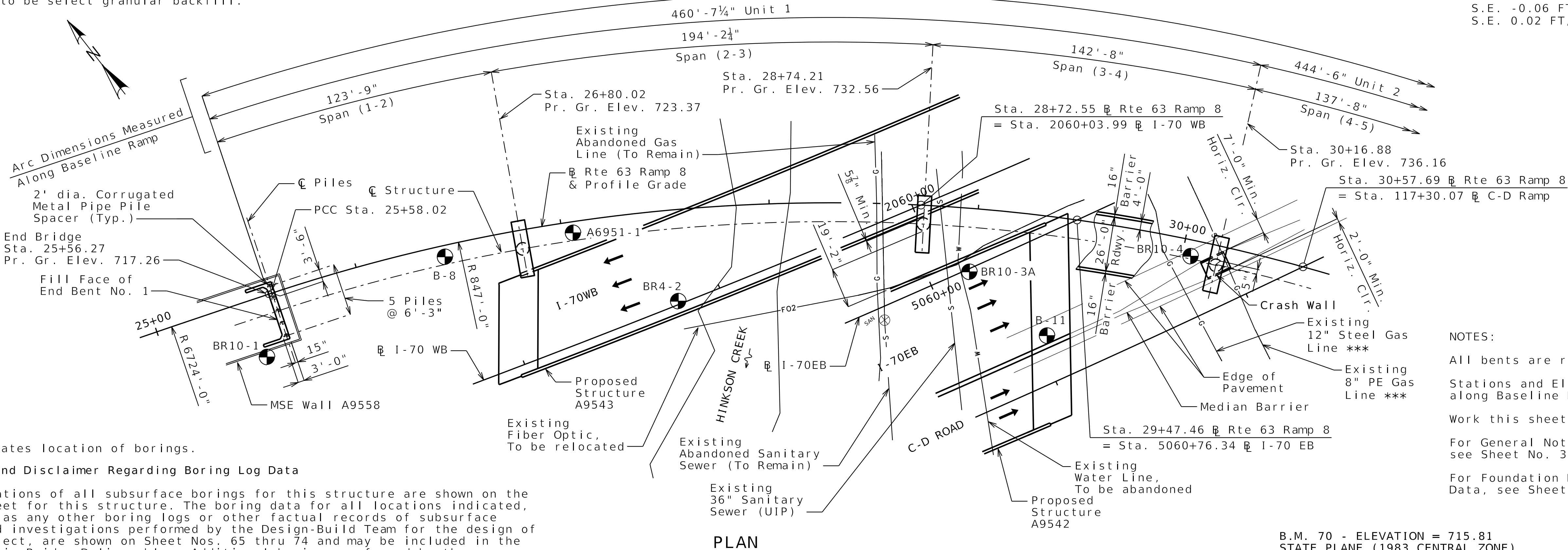
MODOT IMPROVE I-70 DB PROJECT 1

REV.



CURVE DATA
RTE 63 RAMP 8

PI	30+41.42
PC	25+58.02
PT	34+36.55
Δ	59°25'43.4" (RT)
D	6°45'52.3"
L	878.53' (ARC)
T	483.40'
R	847.00'
S.E.	0.02 FT/FT at Sta. 24+02.46
S.E.	-0.06 FT/FT at Sta. 26+09.87
S.E.	-0.06 FT/FT at Sta. 33+84.70
S.E.	0.02 FT/FT at Sta. 35+92.11



PLAN

*** Existing Gas Lines located in close proximity of Bent No. 4 Drilled Shaft. Disposition of 12" Steel Main is presumed to be not in conflict and shall be used in place. The 8" PE Line is presumed to be in conflict and disposition to be determined. Location and design on Bent No. 4 shall not be impacted.

NOTES:

All bents are radial.

Stations and Elevations are measured along Baseline Rte 63 Ramp 8.

Work this sheet with Sheet No. 2.

For General Notes and Location Sketch, see Sheet No. 3.

For Foundation Data and Hydrologic Data, see Sheet No. 4.

B.M. 70 - ELEVATION = 715.81
STATE PLANE (1983 CENTRAL ZONE)
NORTHING 1138803.0504
EASTING 1700592.2071
LATITUDE 38.96086552 DEGREES
LONGITUDE -92.28837098 DEGREES
POINT DESCRIPTION 74/1R

BRIDGE: ROUTE 63 NB OVER 63 SB AND I-70

ROUTE 63NB FROM CONLEY RD. TO I-70 WB
ABOUT 0.2 MILES SOUTH OF I-70
BEG. STATION 25+56.27

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 and investigations performed by the Design-Build Team for the design of the project, are shown on Sheet Nos. 65 thru 74 and may be included in the Electronic Bridge Deliverables. Additional borings performed by the department will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

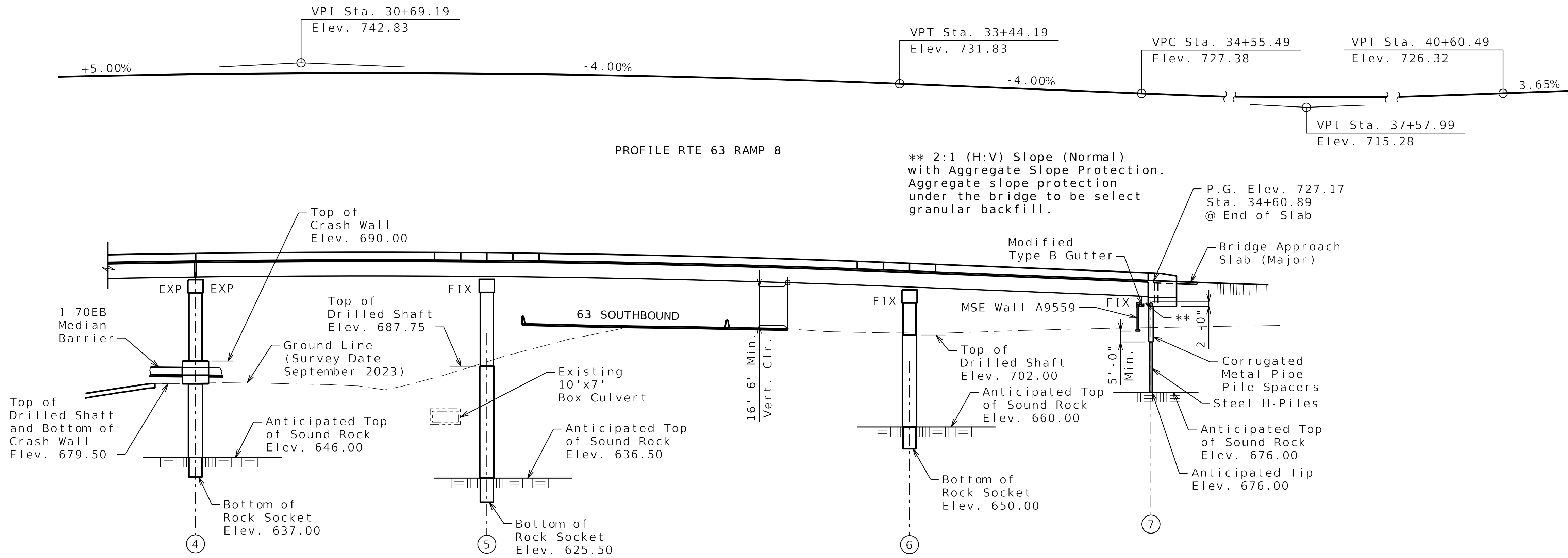
Detailed JULY 2024
Checked SEP 2024

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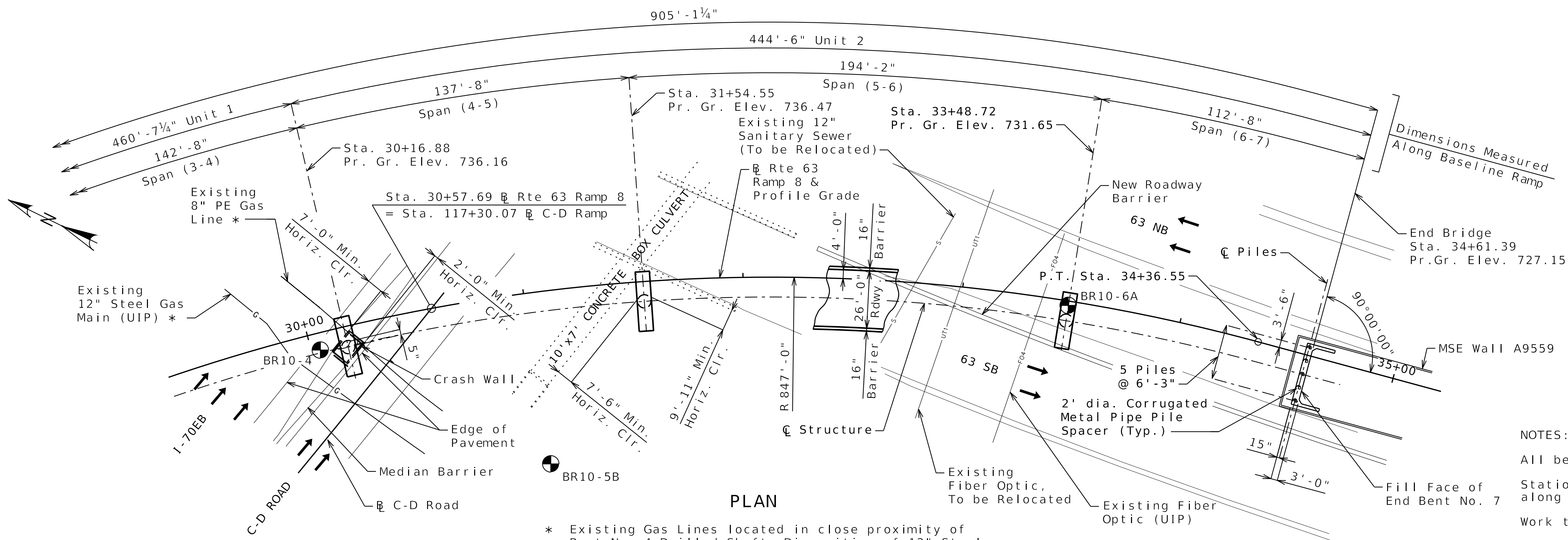
Sheet No. 1 of 74



REVISED 03-12-25



GENERAL ELEVATION - UNIT 2



* Existing Gas Lines located in close proximity of Bent No. 4 Drilled Shaft. Disposition of 12" Steel Main is presumed to be not in conflict and shall be used in place. 8" PE Line is presumed to be in conflict and disposition to be determined. Location and design on Bent No. 4 shall not be impacted.

NOTES:

All bents are radial, except as noted.

Stations and Elevations are measured along Baseline Rte 63 Ramp 8.

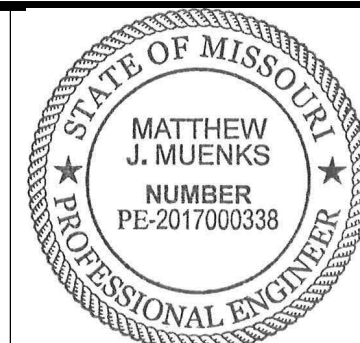
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Detailed JULY 2024
Checked SEP 2024

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Sheet No. 2 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_002_JST0021_Front Sheet-2.dgn



01/16/2025 9:46:56 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 2

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

11/15/24

01/16/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MoDOT

PROJECT 1

MILLSTONE WEBER

Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

07:56 16 - JAN - 2025

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 = 0.088
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.060

Design Loading:

Vehicular = HL-93
Future Wearing Surface = 35 lb/sf
Earth = 120 lb/cf
Equivalent Fluid Pressure = 45 lb/cf

Design Unit Stress:

Class B Concrete (Substructure, including Crash Wall, except Drilled Shafts and Rock Sockets) f'c = 3,000 psi
Class B-1 Concrete (Barrier Curb) f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Barrier Curb) f'c = 4,000 psi
Class B-2 Concrete (Drilled Shafts and Rock Sockets) f'c = 4,000 psi

Reinforcing Steel (ASTM A615 Grade 60) fy = 60,000 psi
Reinforcing Steel (ASTM A615 Grade 80) fy = 80,000 psi

Structural Steel (ASTM A709 Grade 50) fy = 50,000 psi
Structural Steel (ASTM A709 Grade 50W) fy = 50,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50) fy = 50,000 psi

Neoprene Pads:

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

Joint Filler:

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

Reinforcing Steel:

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

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

Traffic Handling:

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

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

Vertical clearance for C-D Road traffic during construction shall be 15'-0" minimum over a 24'-0" wide horizontal opening of the roadway.

Vertical clearance for Rte. 63 SB traffic during construction shall be 15'-0" minimum over a 24'-0" wide horizontal opening of the roadway.

Structure to be closed during construction. Traffic to be maintained on US63 Northbound. See roadway plans for traffic control details.

Concrete Protective Coating

Temporary coating for concrete bents and piers (weathering steel) shall be applied on all concrete surfaces above the ground line or low water elevation at End Bent 1 and Intermediate Bents 2 thru 4 in accordance with Sec 711.

Protective coating for concrete bents and piers (Epoxy) shall be applied to a height of 10 feet above finished grade at Intermediate Bents 2-4 and 6. Protective coating also shall be applied to Intermediate Bent No. 4 cap beam top and sides. Protective coating shall be applied in accordance with Sec 711.

Miscellaneous:

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

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

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

Stay-in-Place Corrugated Steel Forms:

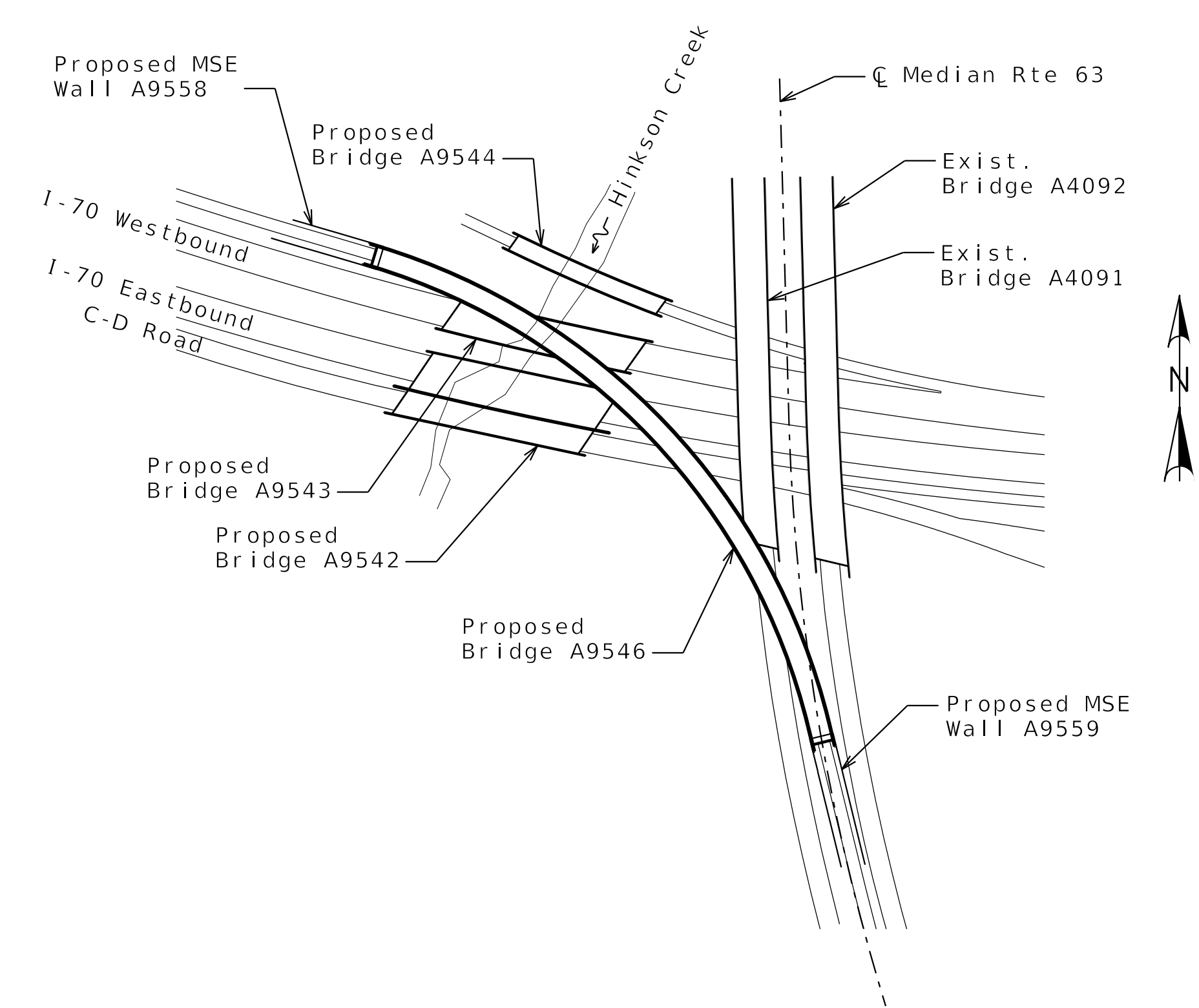
Corrugated steel forms, supports, closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with anof 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 or drilling holes in the girder flanges will not be permtted. 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 corrugagted steel forms allowed shall be 4 psf assumed for girder loading.

The contractor shall provide a method of preventing the direct contact of the stay-in-place forms and connection components with uncoated weathering steel members that is approved by the engineer.



REVISED 05-02-25

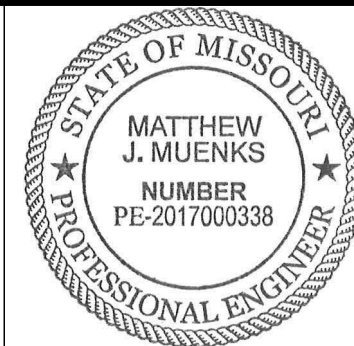
LOCATION SKETCH

Detailed AUG 2024
Checked SEP 2024

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

Sheet No. 3 of

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_003_JST0021_General Notes_C003.dgn



05/12/2025 11:21:00 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

1-MAY-2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 3

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION	REV. A - FINAL REVIEW				
		REV. 0 - RELEASED FOR CONSTRUCTION	REV. 1 - NDC-021 - ADDED MATERIAL SPEC			
		11/15/24	01/16/25	05/02/25		

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

15:23 1-MAY-2025

Foundation Data								
Type	Design Data	Bent Number						
		1	2	3	4	5	6	7
Load Bearing Pile	Pile Type and Size	HP 12x53	----	----	----	----	----	HP 14x73
	Number	ea 5	----	----	----	----	----	5
	Approximate Length Per Each	ft 35	----	----	----	----	----	42
	Pile Point Reinforcement	ea All	----	----	----	----	----	All
	Min. Galvanized Penetration (Elev.)	ft Full Length	----	----	----	----	----	Full Length
	Minimum Tip Penetration (Elev.)	ft 673.00	----	----	----	----	----	690.00
	Approximate Prebore Depth per Each	ft 21	----	----	----	----	----	----
	Approximate Pebore Length in Rock per Each	ft 3.5	----	----	----	----	----	----
	Criteria for Min. Tip Penetration	Min. Embed.	----	----	----	----	----	Min. Embed.
	Pile Driving Verification Method	DF	----	----	----	----	----	DF
	Resistance Factor	0.4	----	----	----	----	----	0.4
	Minimum Nominal Axial Compressive Resistance	kip 599	----	----	----	----	----	558
Rock Socket	Number	ea ----	1	1	1	1	1	----
	Foundation Material	----	Limestone	Limestone	Limestone	Limestone	Limestone	----
	Elevation Range	ft ----	Below Elev. 663.00	Below Elev. 635.50	Below Elev. 646.00	Below Elev. 636.50	Below Elev. 660.00	----
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf ----	12.7	14.0	22.0	29.2	26.5	----
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf ----	144.6	159.9	44.0	44.0	44.0	----

DF = FHWA-modified Gates Dynamic Pile Formula

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

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

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

All piles shall be galvanized full length.

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

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.

Contractor shall excavate existing roadway fill to the limits of the select granular backfill as shown in the plans for MSE Walls A9558 and A9559. After excavation, the contractor shall prebore the holes for the piles. After the prebored holes are filled with sand, the piles will be driven to practical refusal. The pipe pile spacers will be installed over the piles and filled with sand prior to constructing the MSE Walls.

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.

The pipe pile spacers shall have an inside diameter equal to 24 inches.

Pipe pile spacers shall meet the requirements in Sec 720.4.7.

Hydrologic Data
Drainage Area = 43 mi ²
Design Flood Frequency = 50 years
Design Flood Discharge = 12,900 cfs
Design Flood (D.F.) Elevation = 677.4
Base Flood (100-year)
Base Flood Elevation = 678.6
Base Flood Discharge = 15,100 cfs
Estimated Backwater = NA
Average Velocity thru Opening = 7.2 ft/s
Freeboard (50-year)
Freeboard = >10 ft
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency = >500 years
500-year Flood Elevation = 681.6

Hydrologic Data
Drainage Area = 43 mi ²
Design Flood Frequency = 100 years
Design Flood Discharge = 15,100 cfs
Design Flood (D.F.) Elevation = 678.4
Estimated Backwater = NA
Average Velocity thru Opening = 7.1 ft/s
Freeboard (50-year)
Freeboard = 32.0 ft
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency = >500 years
500-year Flood Elevation = 680.9



03/12/2025 9:45:28 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED

12-MAR-2025

ROUTE STATE
63SB MO
DISTRICT SHEET NO.
BR 4

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9546

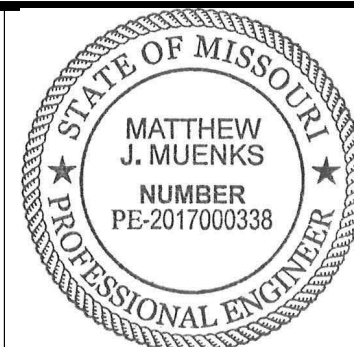
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		11/15/24	01/16/25	03/12/25							
	REV. A - FINAL REVIEW										
	REV. 0 - RELEASED FOR CONSTRUCTION										
	REV. 2 - NDC-010 - REVISED TABLE										

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

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING REV.



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Matthew Muenks
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DATE PREPARED

16 - JAN - 2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 5

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

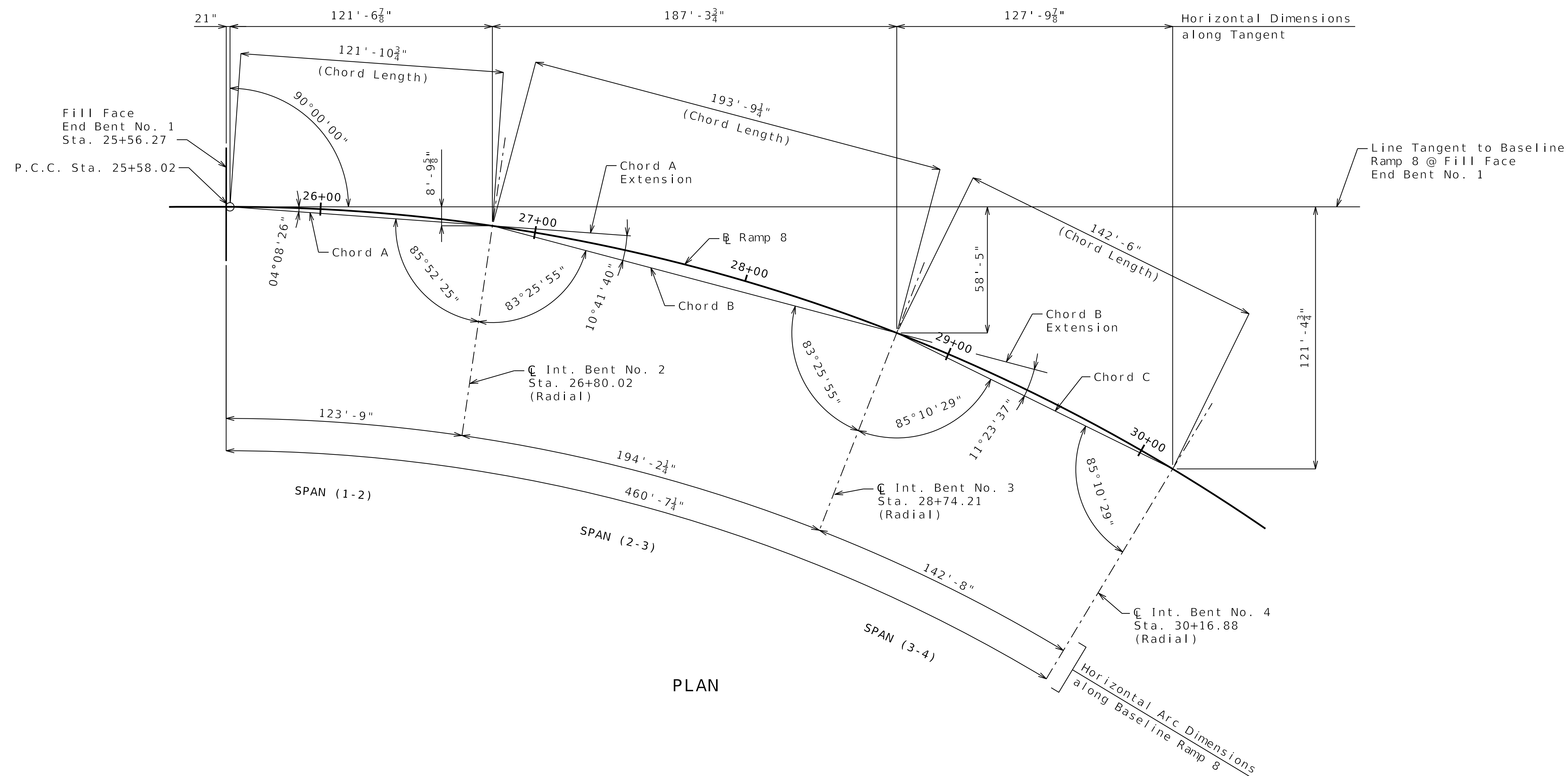
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JEFFERSON CITY, MO 65102
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MODOT IMPROVE I-70 DB PROJECT 1

Jacobs

MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING



NOTES:

All Bents are Radial.

All Dimensions are Horizontal.

SUBSTRUCTURE LAYOUT - UNIT 1

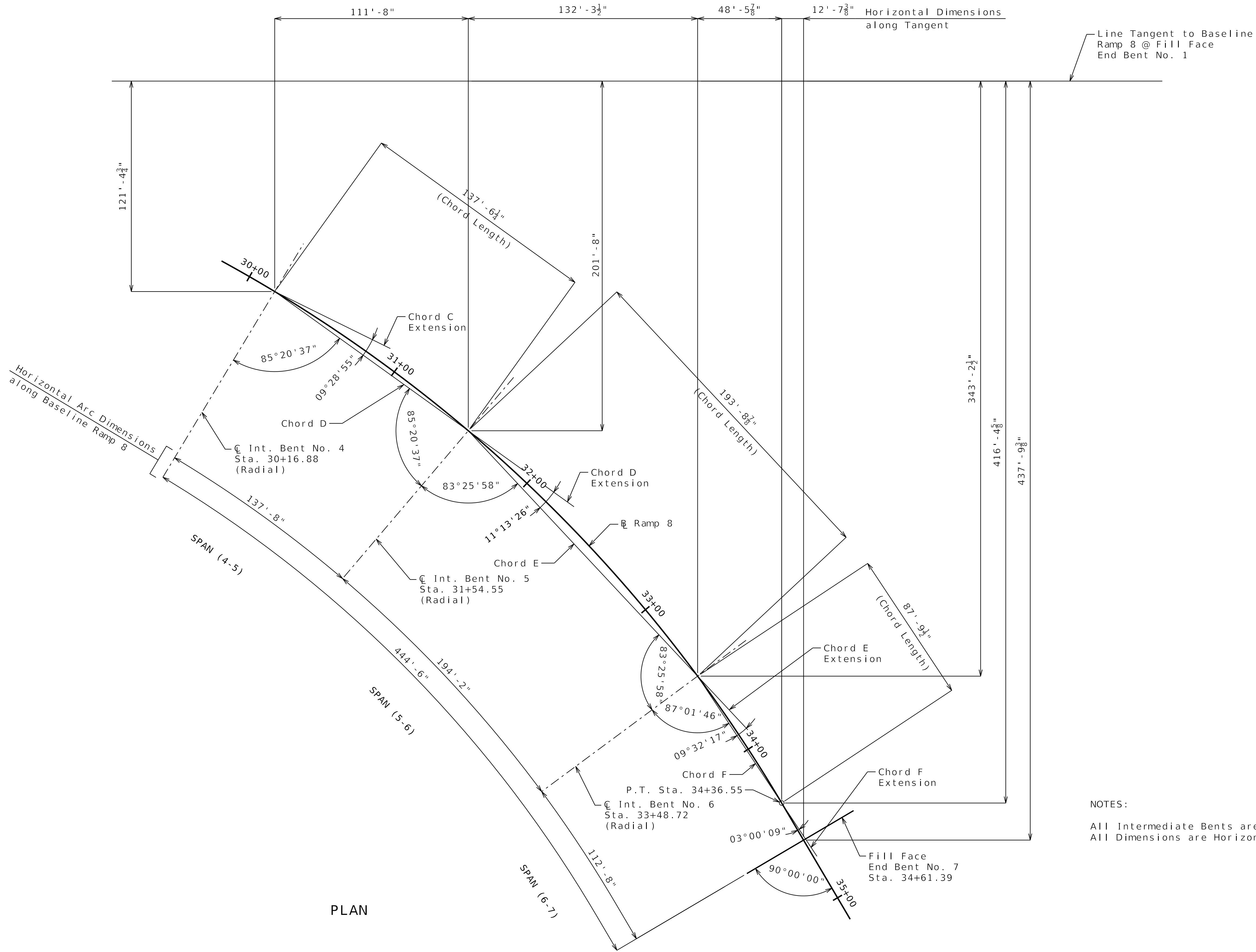
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Checked SEP 2024

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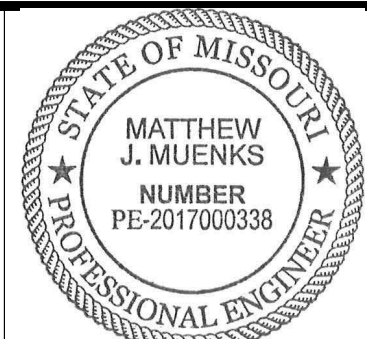
Sheet No. 5 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_005_JST0021_SUBSTR LAYOUT UNIT 1.dgn

07:57 16 - JAN - 2025



NOTES:
All Intermediate Bents are Radial.
All Dimensions are Horizontal.



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Matthew Muenks
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ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 6

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

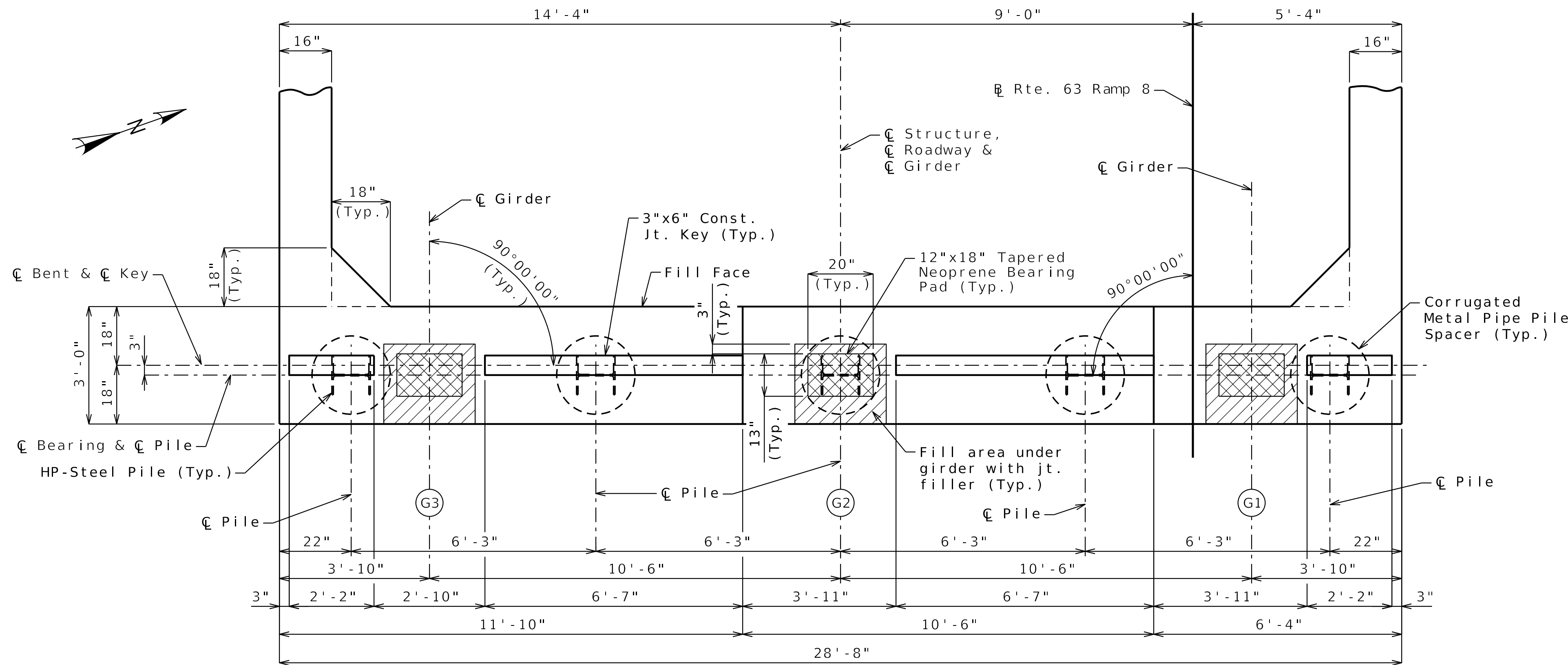
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11/15/24	REV. A - FINAL REVIEW
01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION

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105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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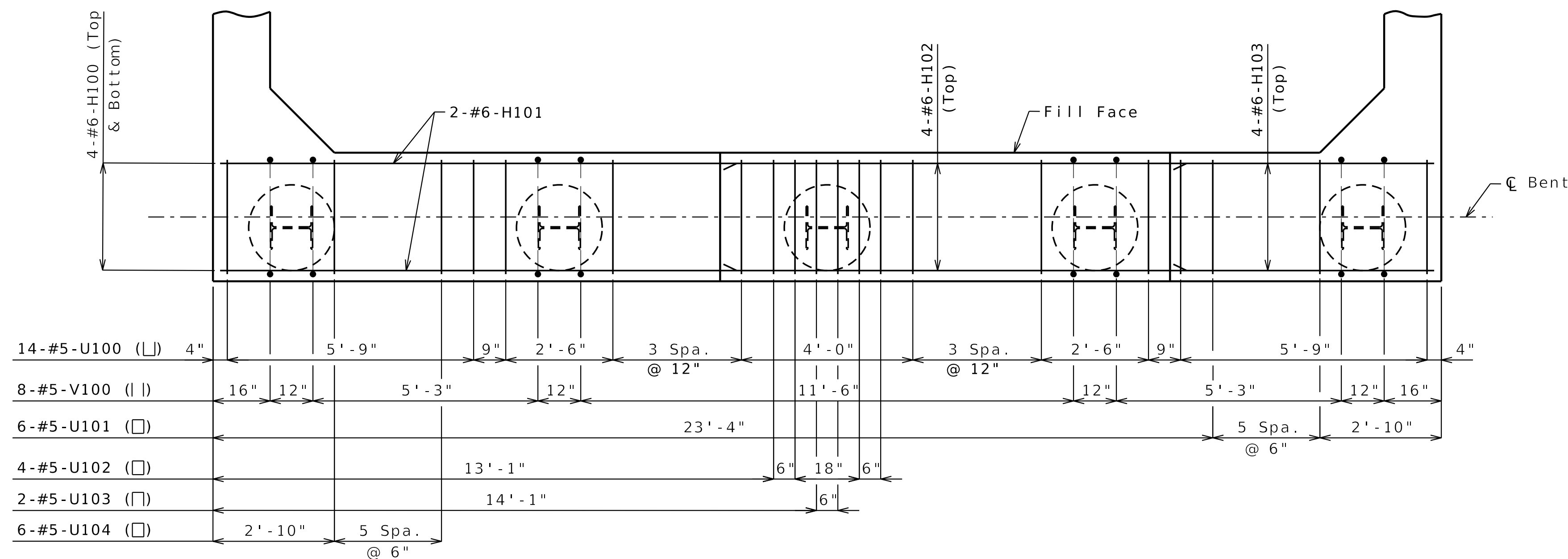
MODOT IMPROVE I-70 DB PROJECT 1
JACOBS
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

Detailed JULY 2024
Checked SEP 2024

Note: This drawing is not to scale. Follow dimensions. Sheet No. 6 of 74

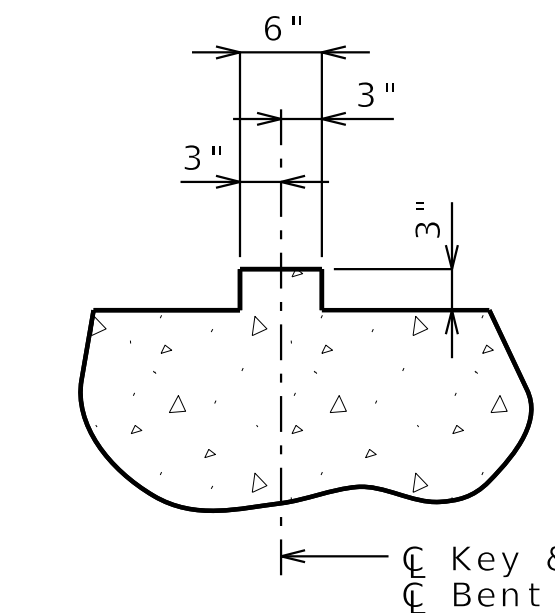
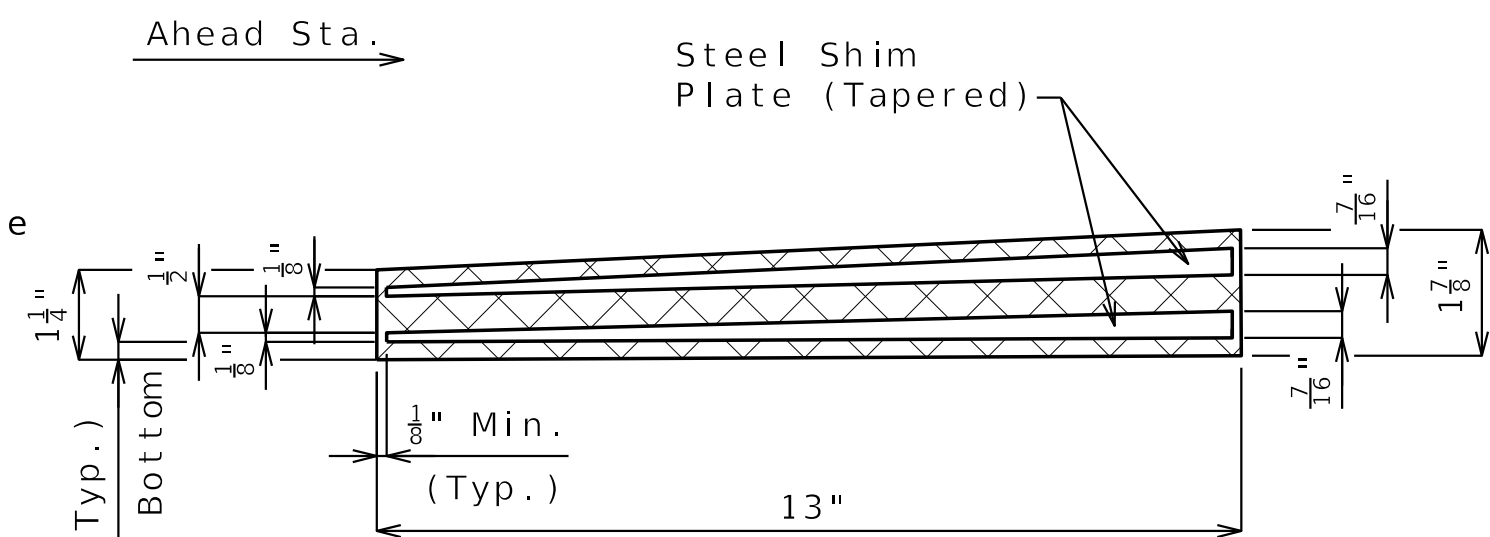


PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT
Keys not shown for clarity.

DETAILS OF END BENT NO. 1



SECTION THRU KEY

Notes:

Work this sheet with Sheet Nos. 8 and 9.

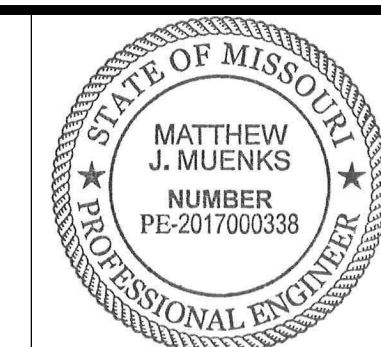
Reinforcing steel shall be shifted to clear piles.
U Bars shall clear piles by at least 1 1/2" inches.

Detailed OCT 2024
Checked NOV 2024

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

Sheet No. 7 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_007_JST0021_END BENT 1-1.dgn



03/12/2025 9:48:36 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED

12-MAR-2025

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 7

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

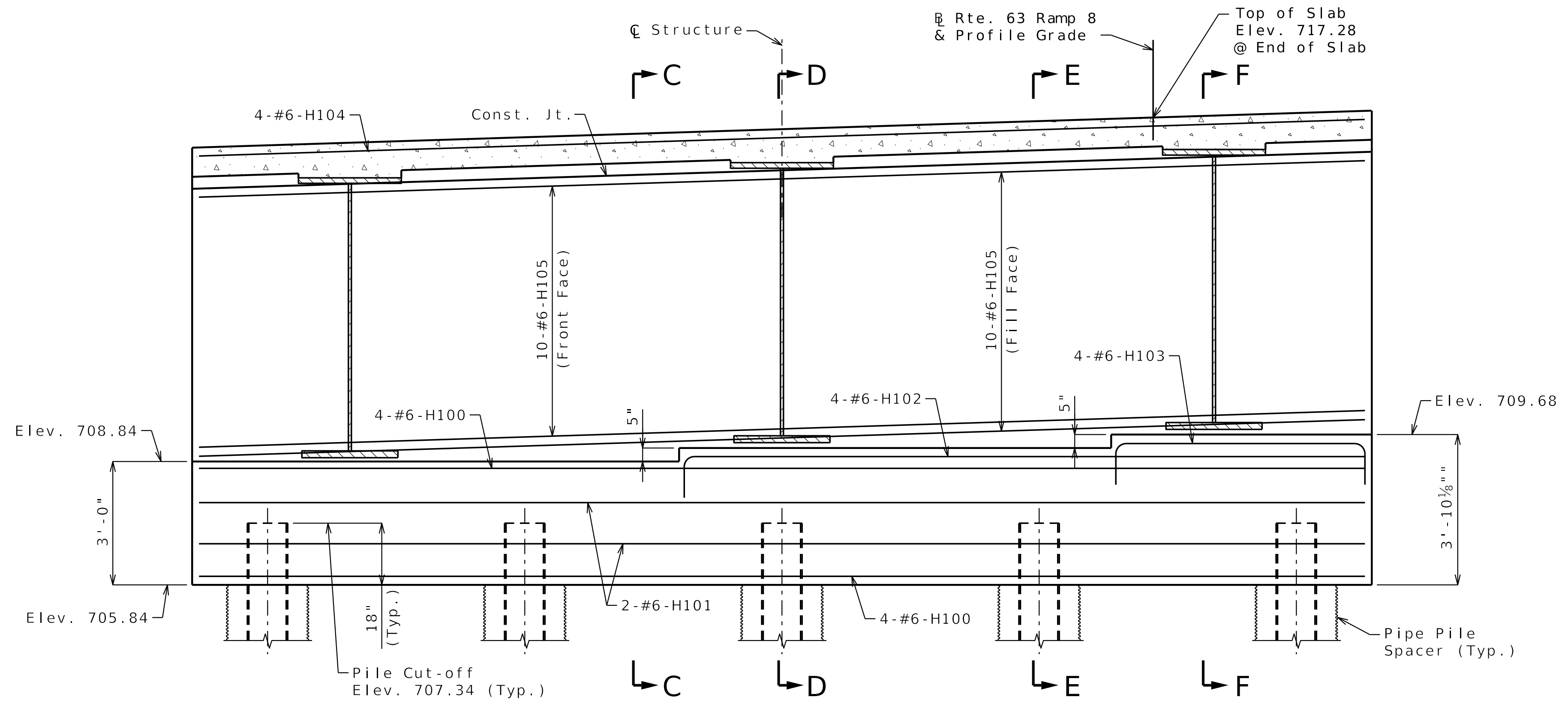
DATE	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW
03/12/25	REV. 0 - RELEASED FOR CONSTRUCTION

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

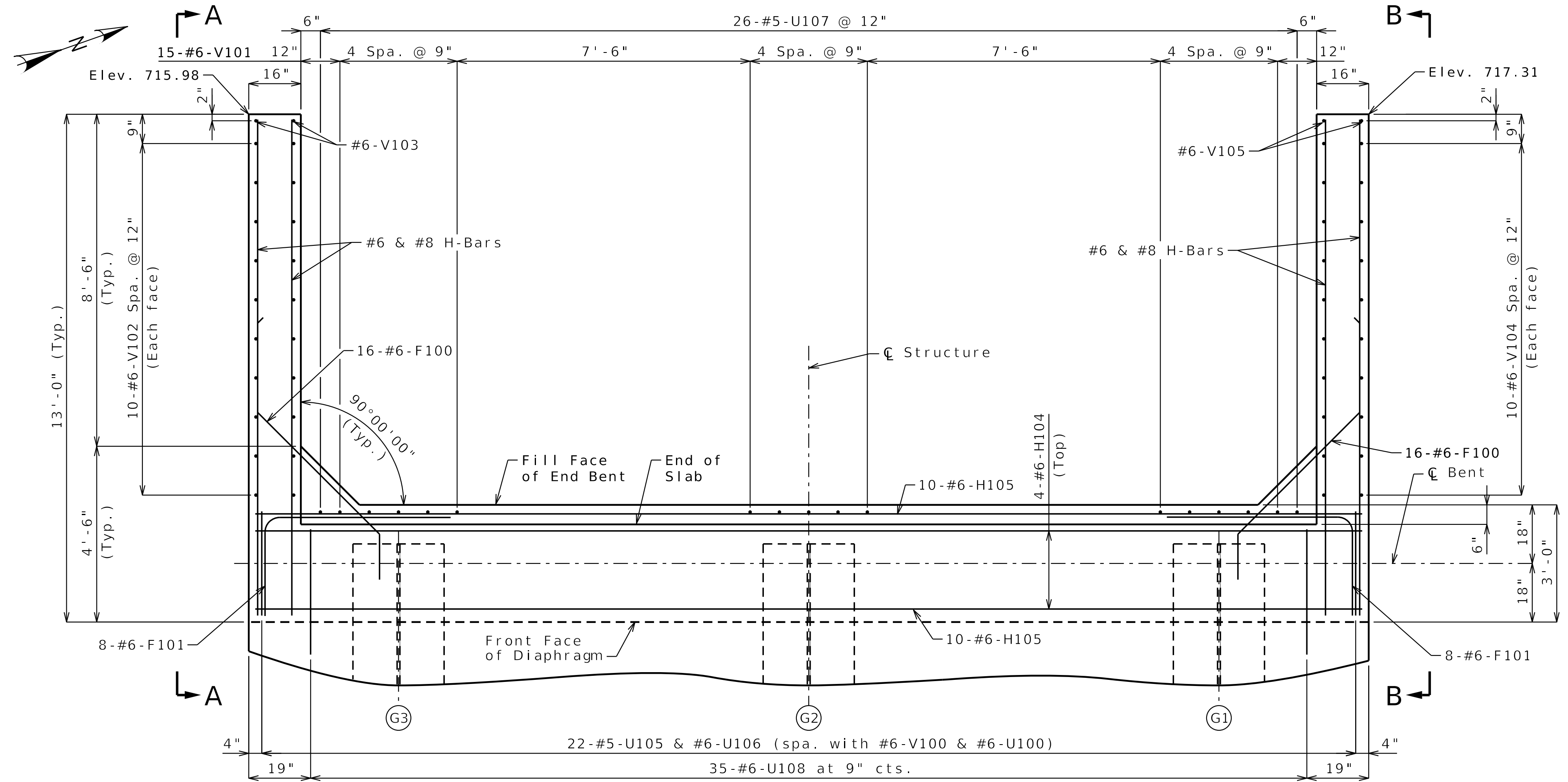
JACOBS
MILLSTONE
WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

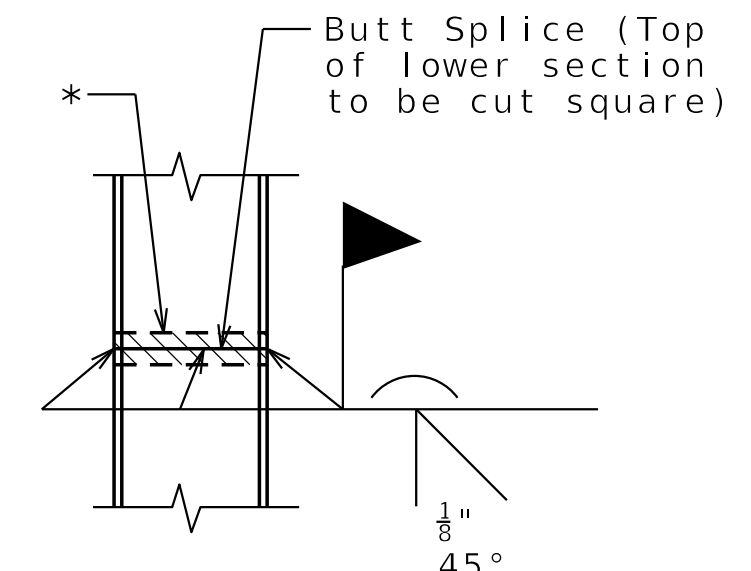
07:57 12-MAR-2025



SECTION NEAR END BENT



PLAN
DETAILS OF END BENT NO. 1



STEEL PILE SPLICE
(If required)

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

Notes:
Work this sheet with Sheets No. 7 and 9.

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

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

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

Concrete diaphragms at the integral end bents shall be poured a minimum of 12 hours before the slab is poured.

For details of vertical drain at end bent, see Sheet No. 10.

For details of bridge approach slab, see Sheet No. 56.



03/12/2025 9:48:36 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

12-MAR-2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 8

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW
03/12/25	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

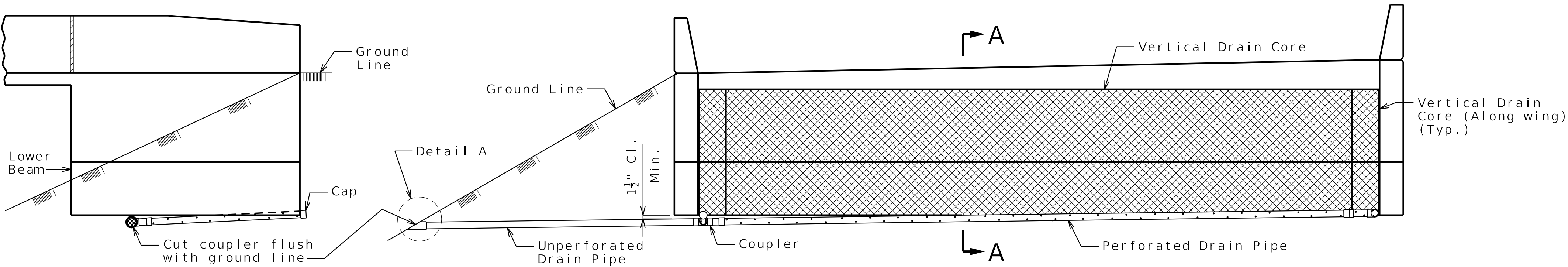
Jacobs MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

Detailed OCT 2024
Checked NOV 2024

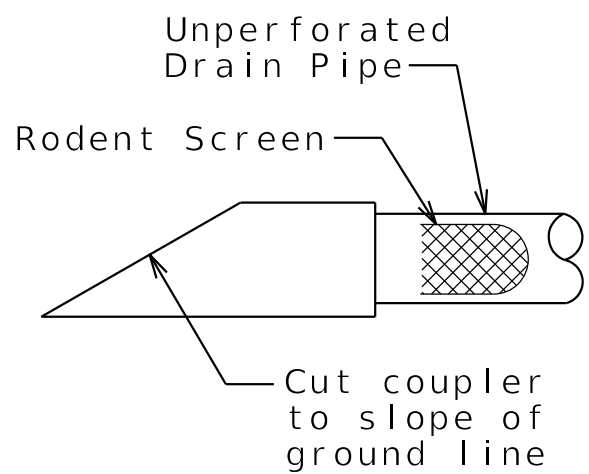
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 74

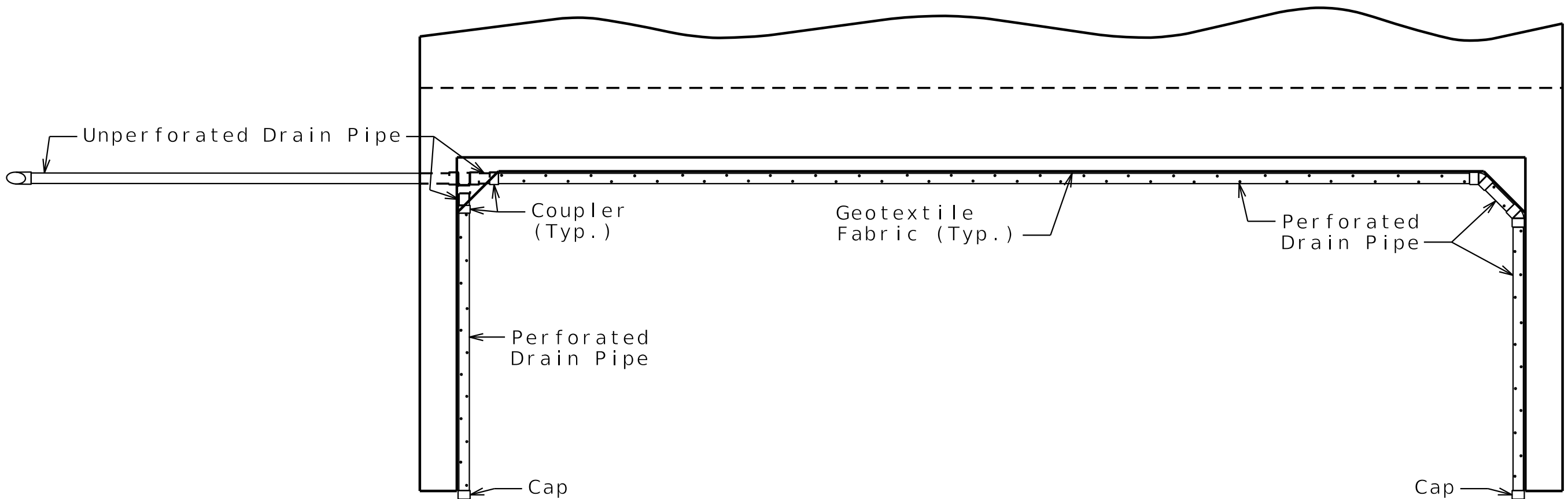


ELEVATION OF WING

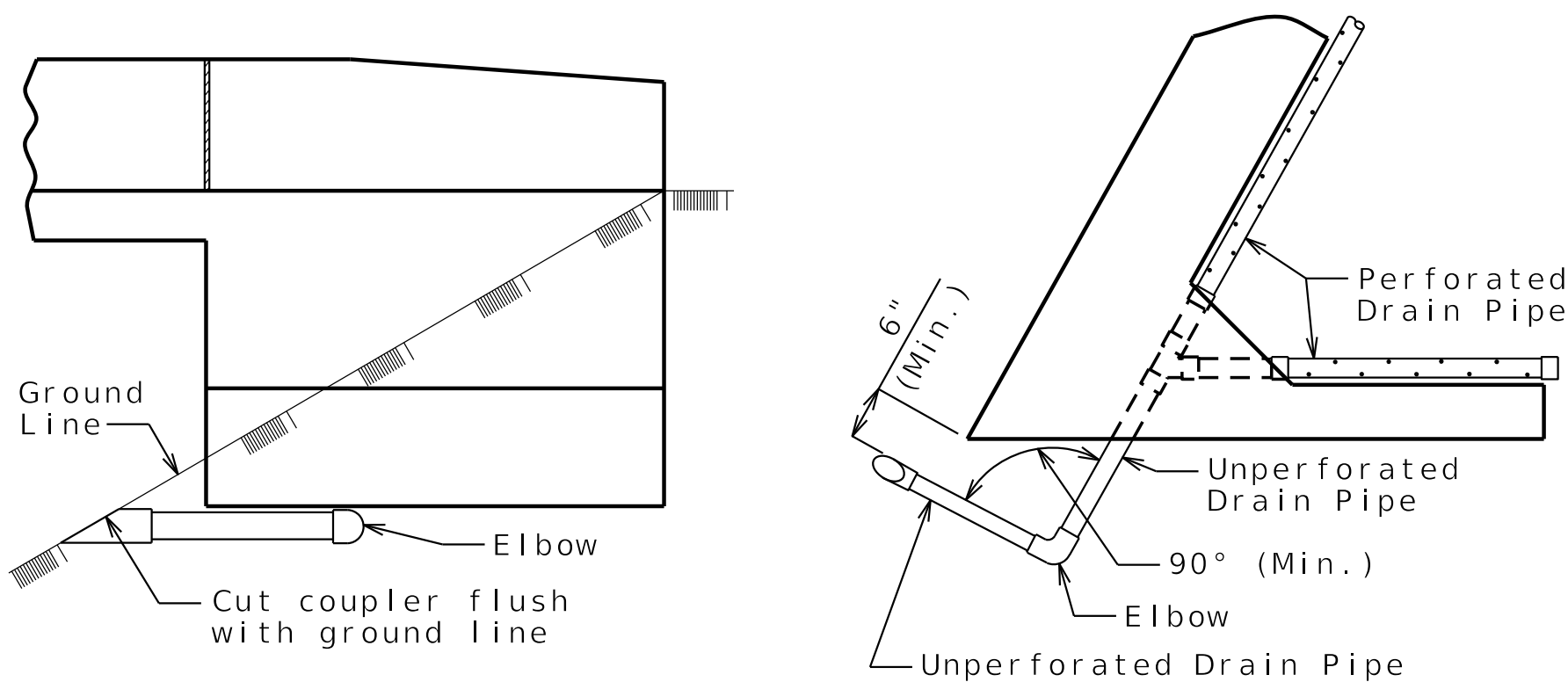
ELEVATION OF END BENT



DETAIL A



PLAN OF END BENT

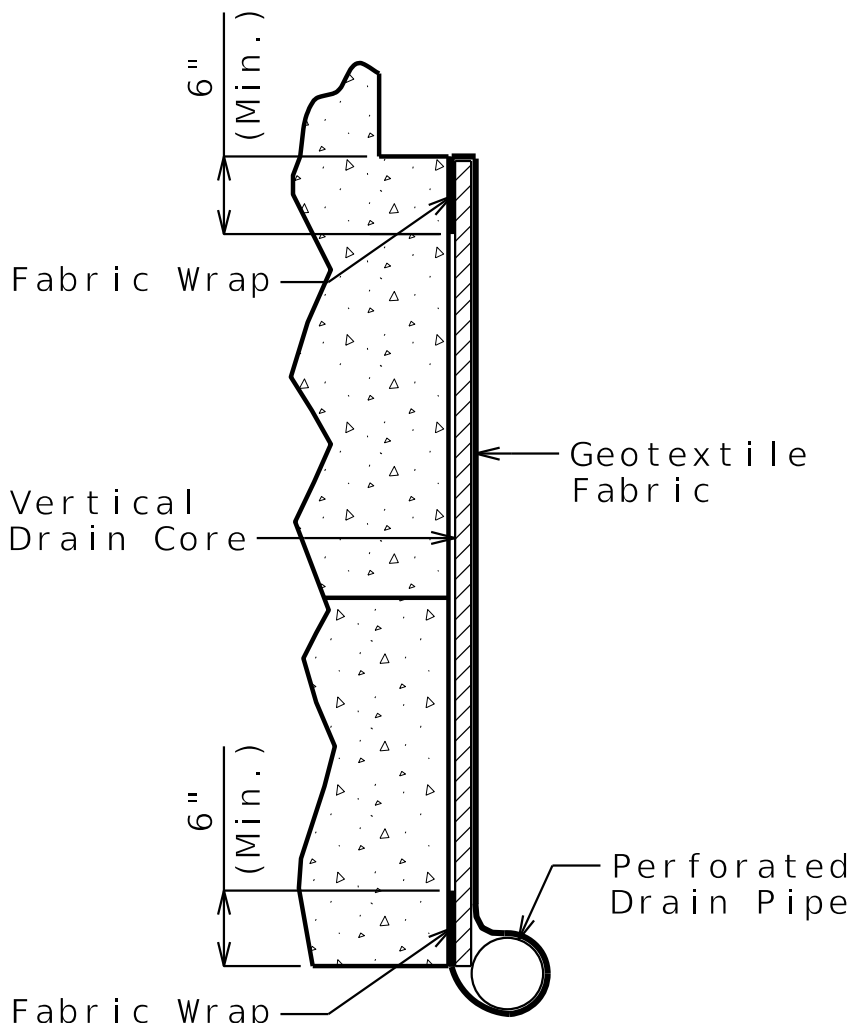


ELEVATION OF WING

PART PLAN

OPTIONAL TURNED DRAIN

(Use only when straight drain is not practical.)



PART SECTION A-A
(Section thru wing similar)

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

Detailed JULY 2024
Checked SEP 2024

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

Sheet No. 10 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_010_JST0021_VertDrain.dgn



01/16/2025 9:46:57 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 10

COUNTY BOONE
JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

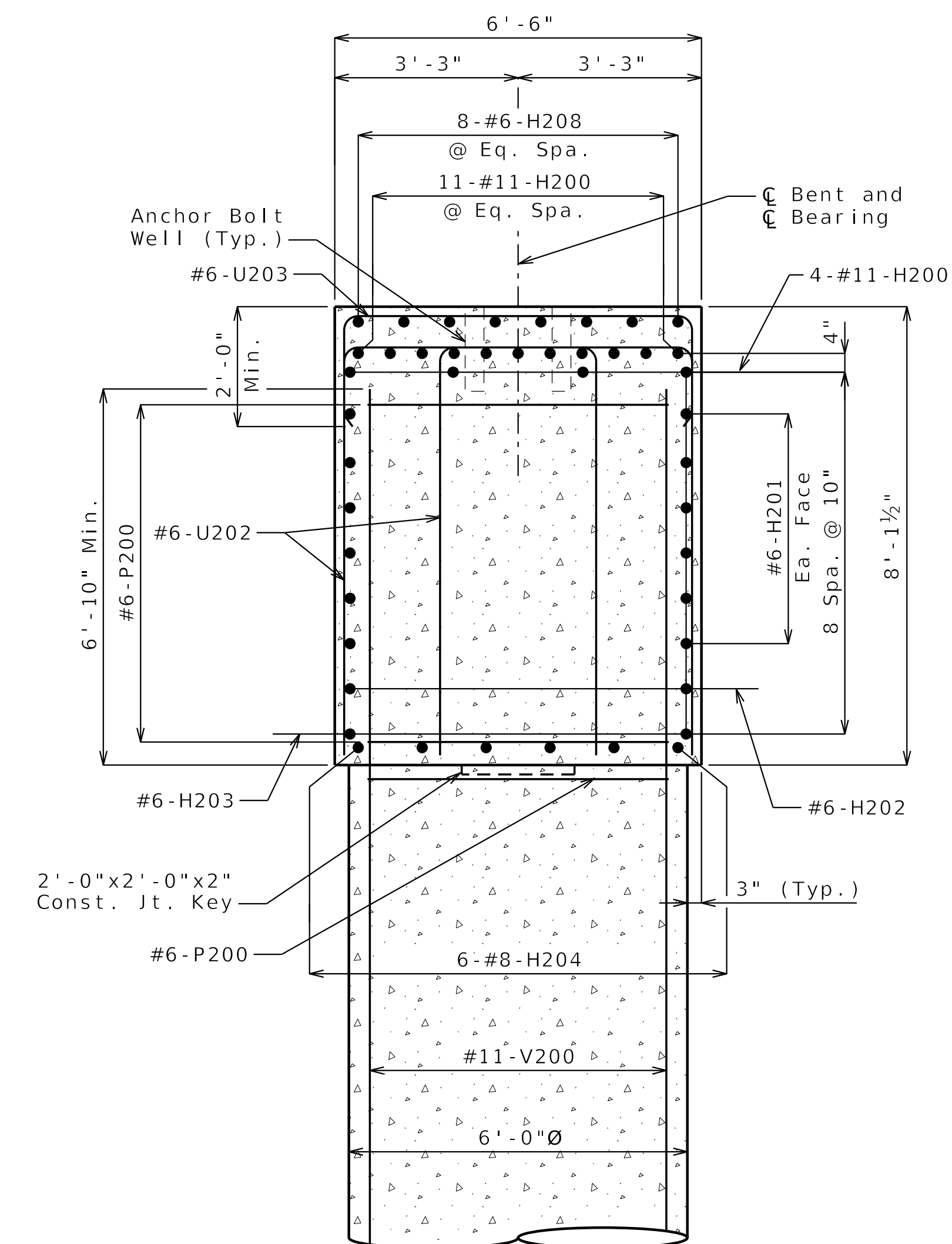
BRIDGE NO. A9546

DATE	DESCRIPTION	REV.	A - FINAL REVIEW	REV.	0 - RELEASED FOR CONSTRUCTION
11/15/24					
01/16/25					

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
MoDOT
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 #00000404 ENGINEERING

07:58 16 - JAN - 2025



Notes:

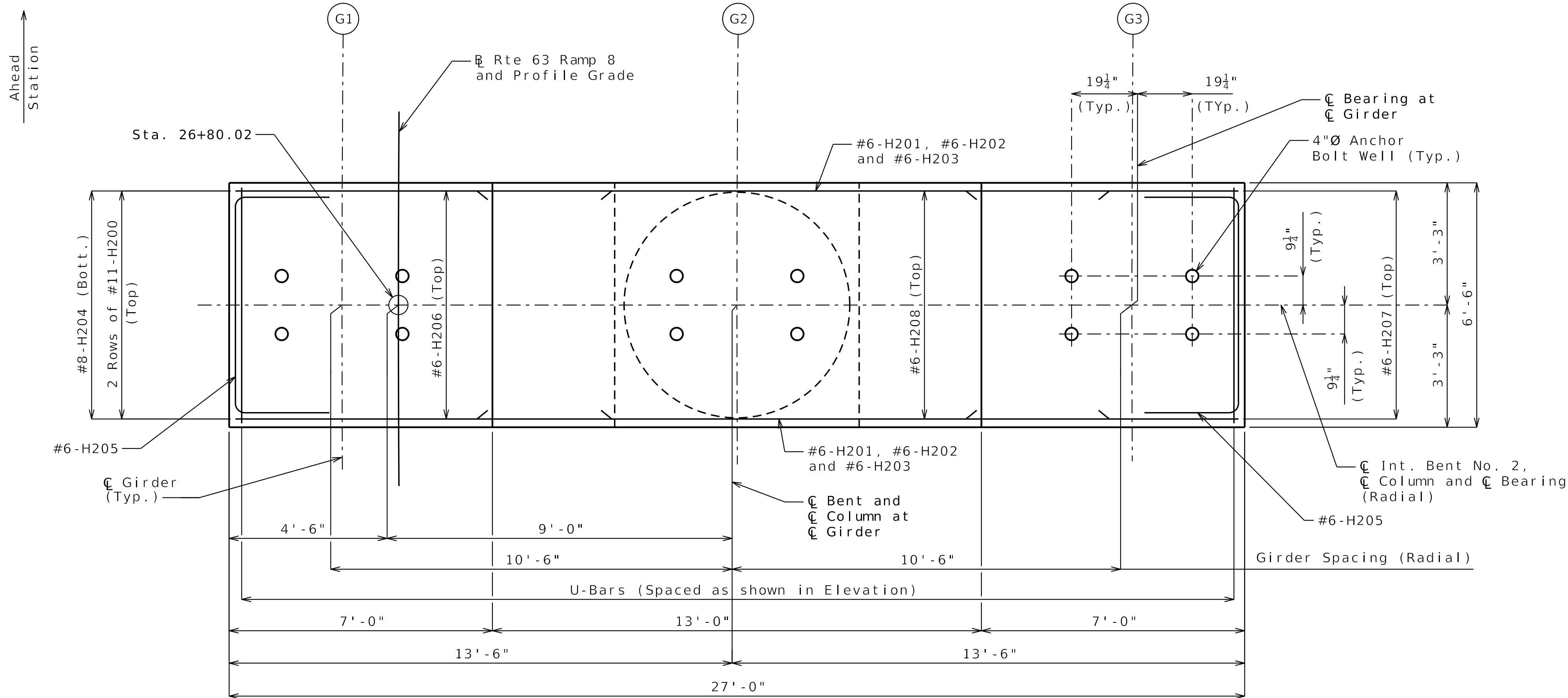
Work this sheet with Sheet No. 12.

For Details of Drilled Shaft, see Sheet No. 21.

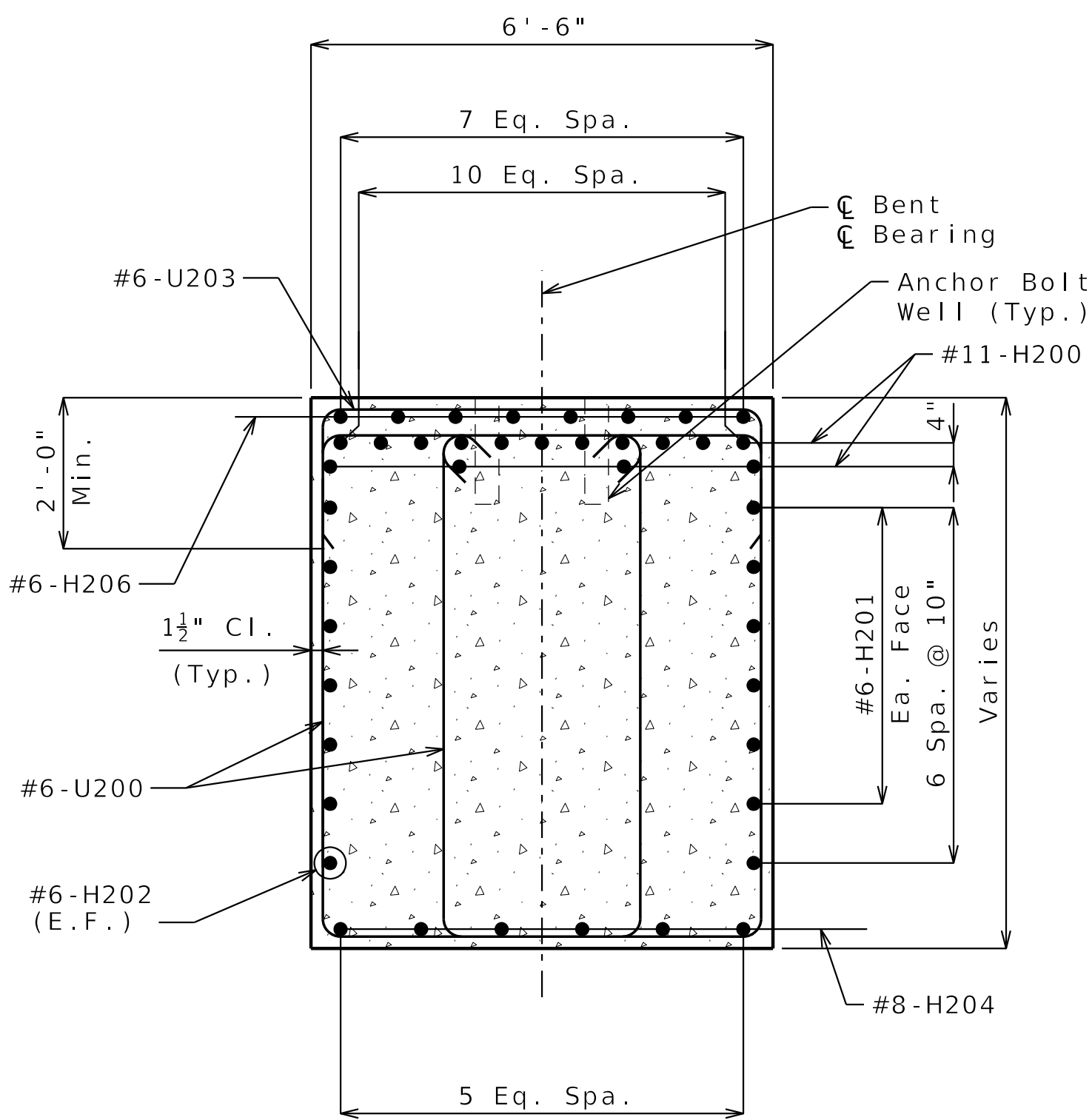
For Anchor Bolts and Bearing Details, see Sheet No. 25.

Reinforcing steel shall be shifted to clear anchor bolt wells by at least 1/2-inch.

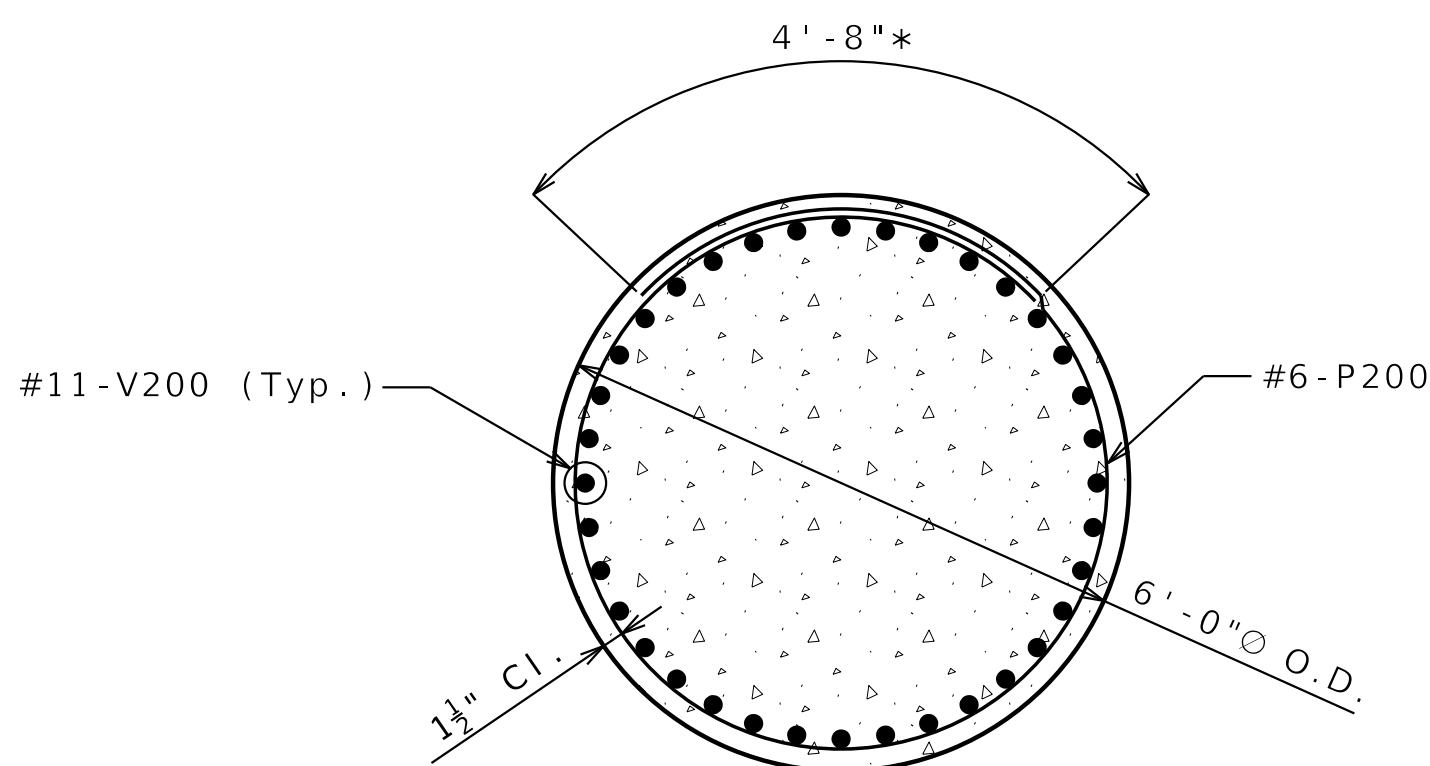
12-MAR-2025



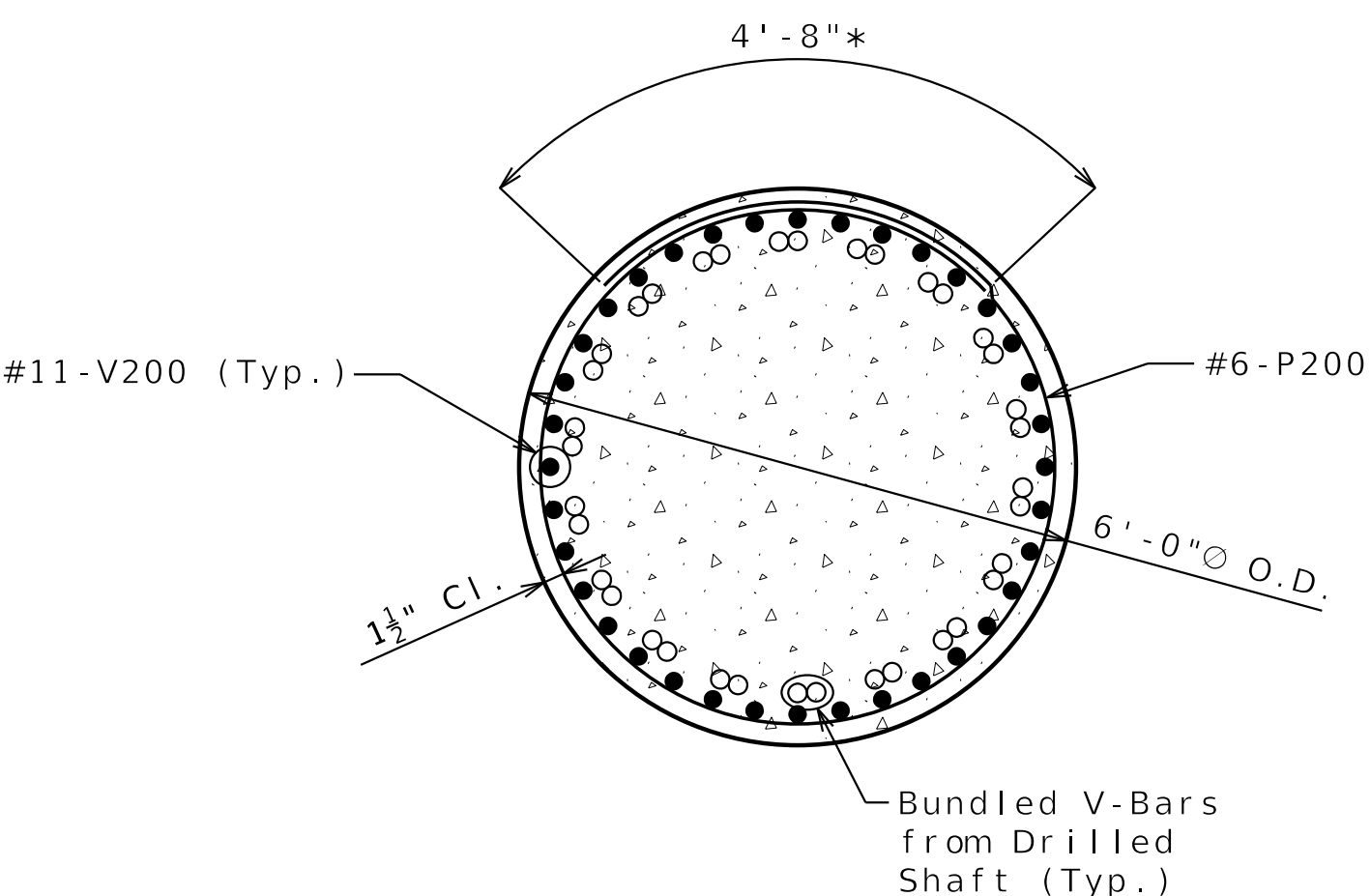
PLAN OF BENT CAP



SECTION B-B



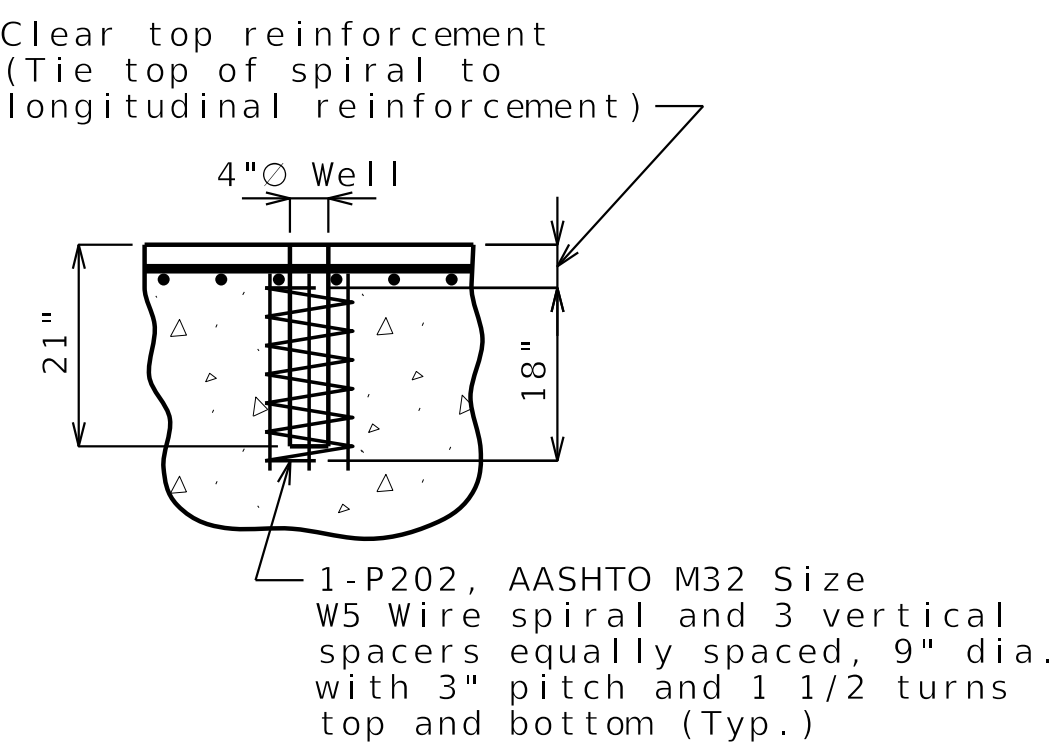
SECTION C-C



SECTION D-D

* Splices in adjacent bars shall be staggered.

Notes:
Work this sheet with Sheet No. 11.
Reinforcing steel shall be shifted to clear anchor bolt wells by at least 1/2-inch.



ANCHOR BOLT WELLS

Detailed OCT 2024
Checked NOV 2024

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

Sheet No. 12 of 74

pw://jacobs-us-vapw.bentley.com:jacobs-us-vapw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_012_JST0021_INTBENT 2-2.dgn



03/12/2025 9:48:37 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED

12-MAR-2025

ROUTE STATE

63NB MO

DISTRICT SHEET NO.

BR 12

COUNTY

BOONE

JOB NO.

JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

02/26/25

03/12/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MODOT

PROJECT 1

IMPROVE I-70 DB

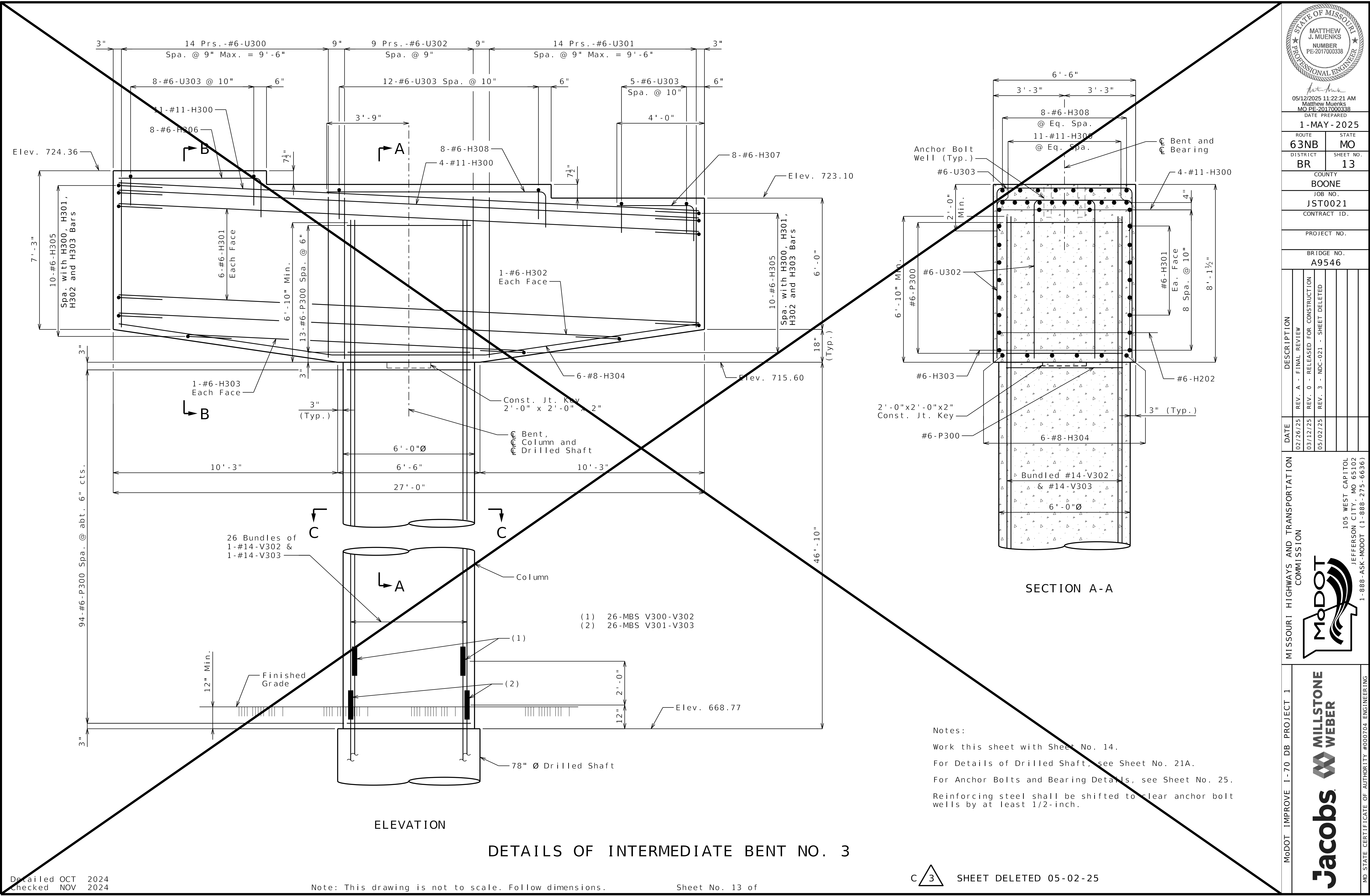
MILLSTONE WEBER

Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

07:59 12-MAR-2025



Detailed OCT 2024
Checked NOV 2024

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

Sheet No. 13 of

C 3

SHEET DELETED 05-02-25

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STATE OF MISSOURI

MATTHEW J. MUENKS

NUMBER PE-2017000338

PROFESSIONAL ENGINEER

05/12/2025 11:22:21 AM

Matthew Muenks

MO PE-2017000338

DATE PREPARED

1-MAY-2025

ROUTE 63NB

DISTRICT BR

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

STATE MO

SHEET NO. 13

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW
03/12/25	REV. 0 - RELEASED FOR CONSTRUCTION
05/02/25	REV. 3 - NDC-021 - SHEET DELETED

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

ModOT

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

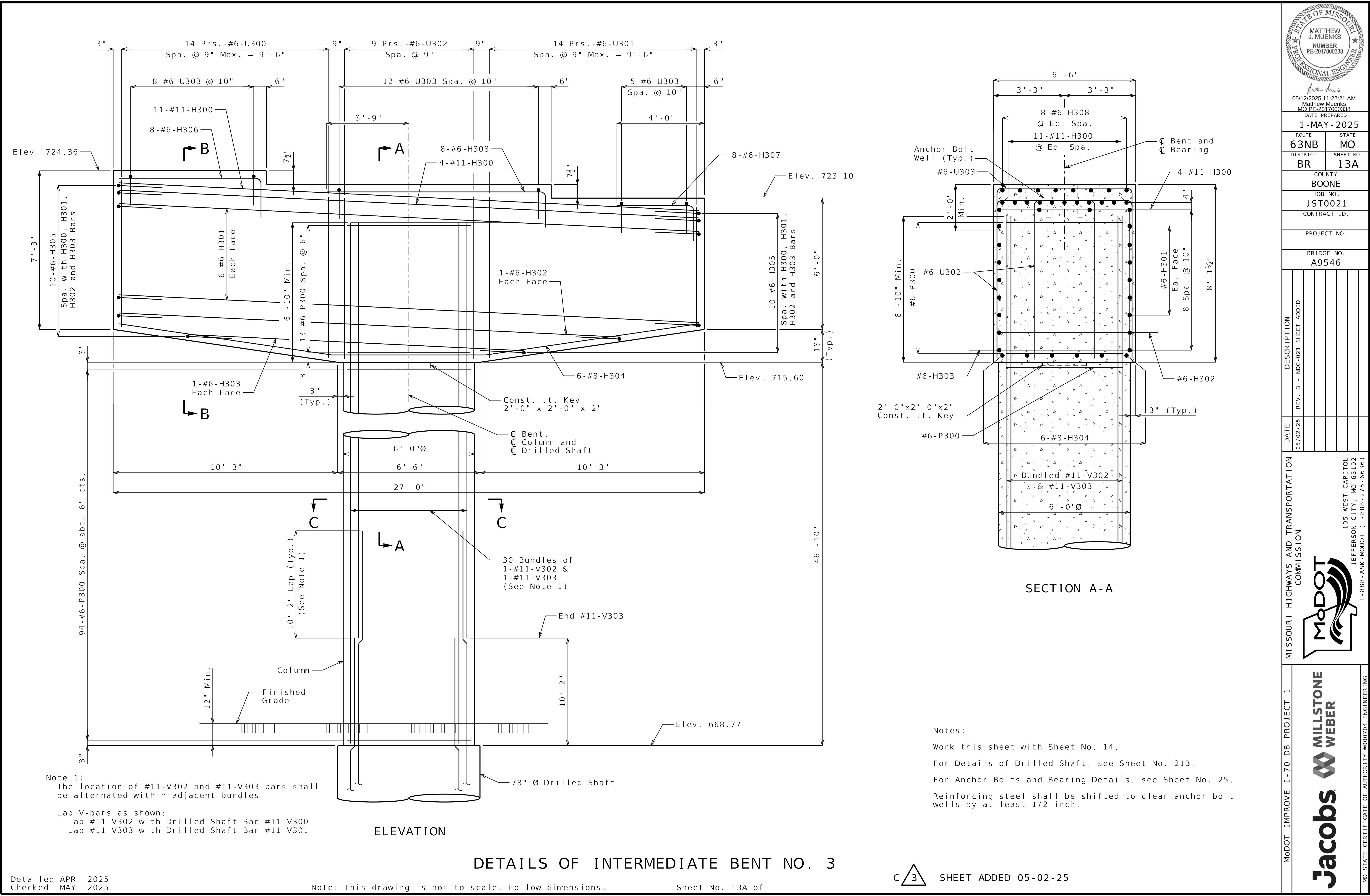
MODOT IMPROVE I-70 DB PROJECT 1

JACOBS

MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

1-MAY-2025



STATE OF MISSOURI

MATTHEW J. MUENKS

NUMBER PE-2017000338

PROFESSIONAL ENGINEER

05/12/2025 11:22:21 AM

MATTHEW MUENKS

MO PE-2017000338

DATE PREPARED

1-MAY-2025

ROUTE 63NB

STATE MO

DISTRICT BR

SHEET NO. 13A

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
05/02/25	REV. 3 - NDC-021 SHEET ADDED

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL

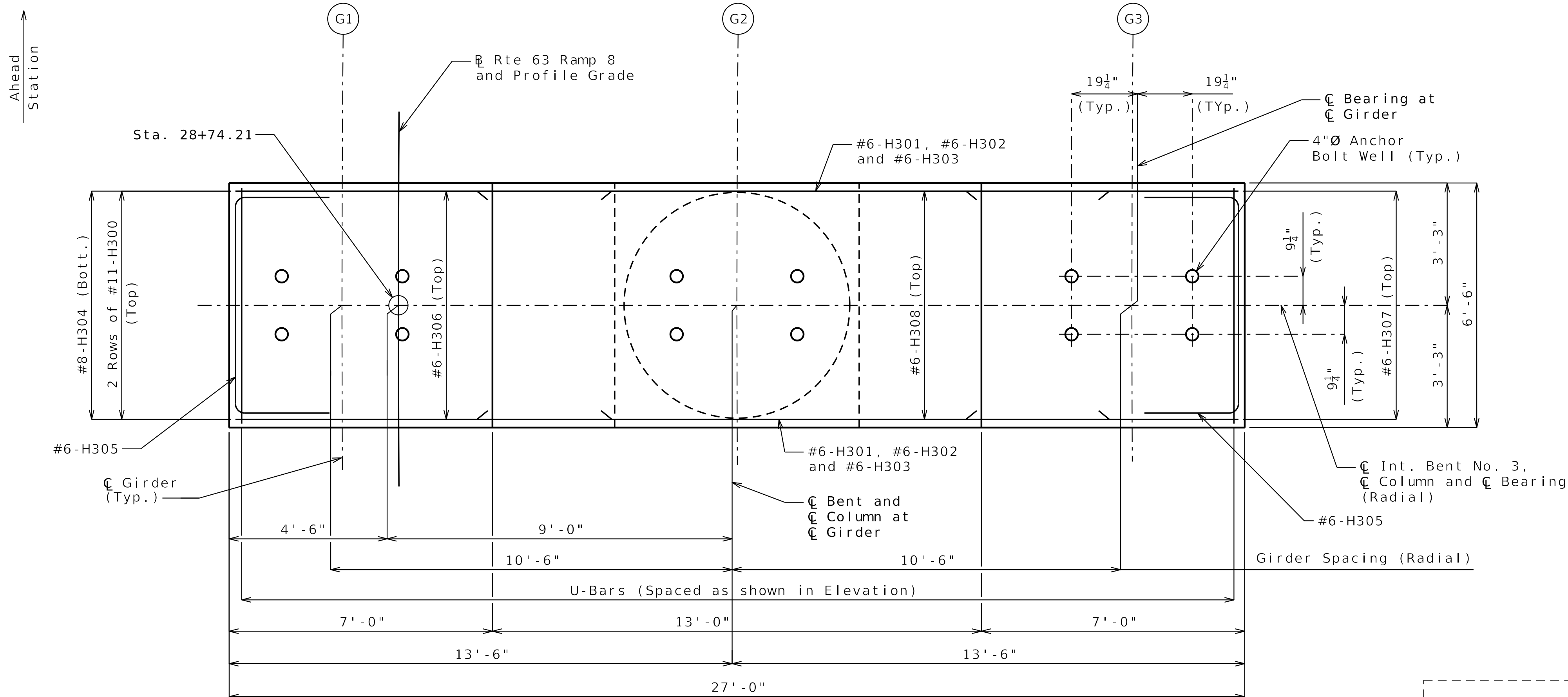
JEFFERSON CITY, MO 65102

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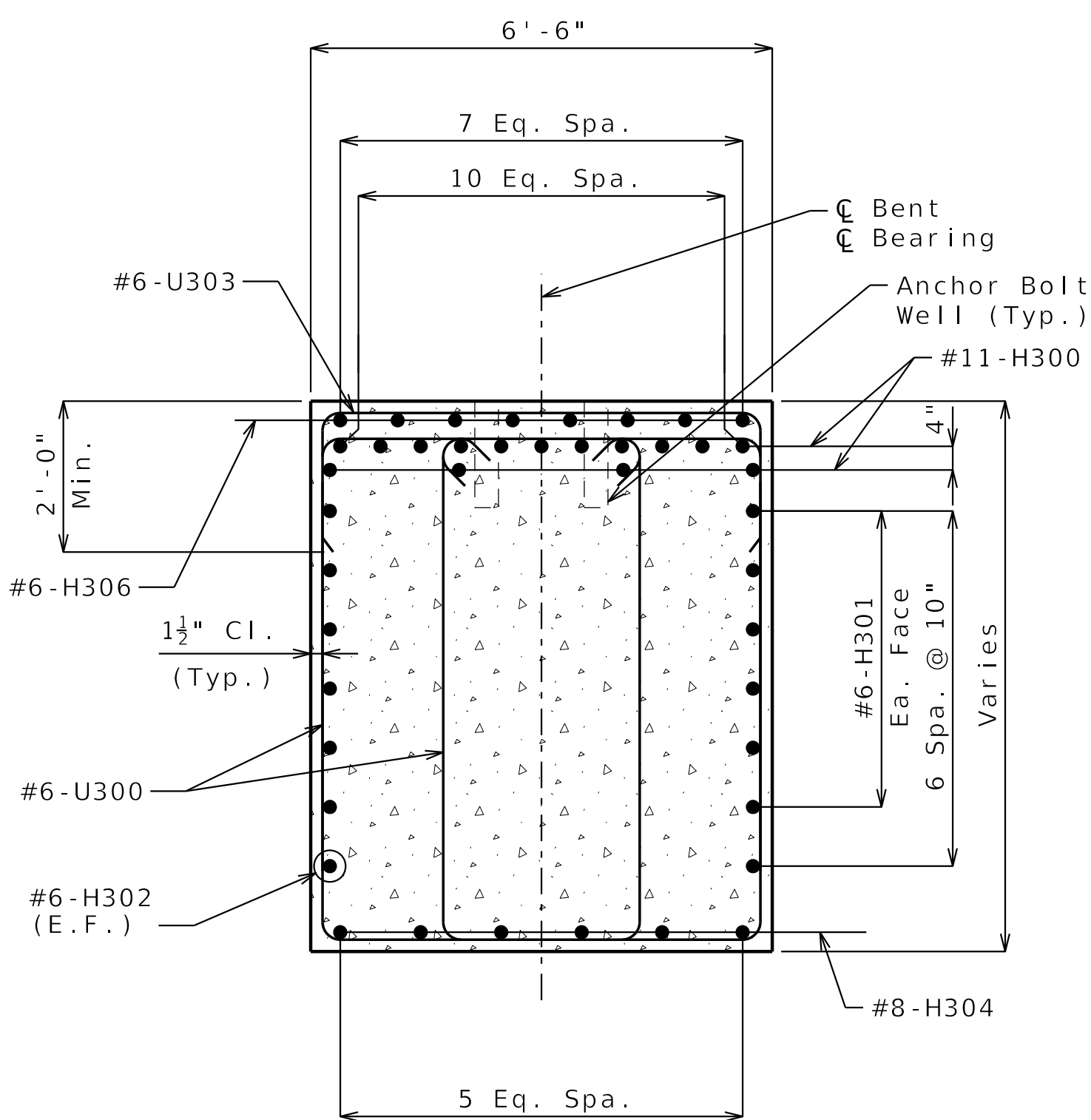
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JACOBS

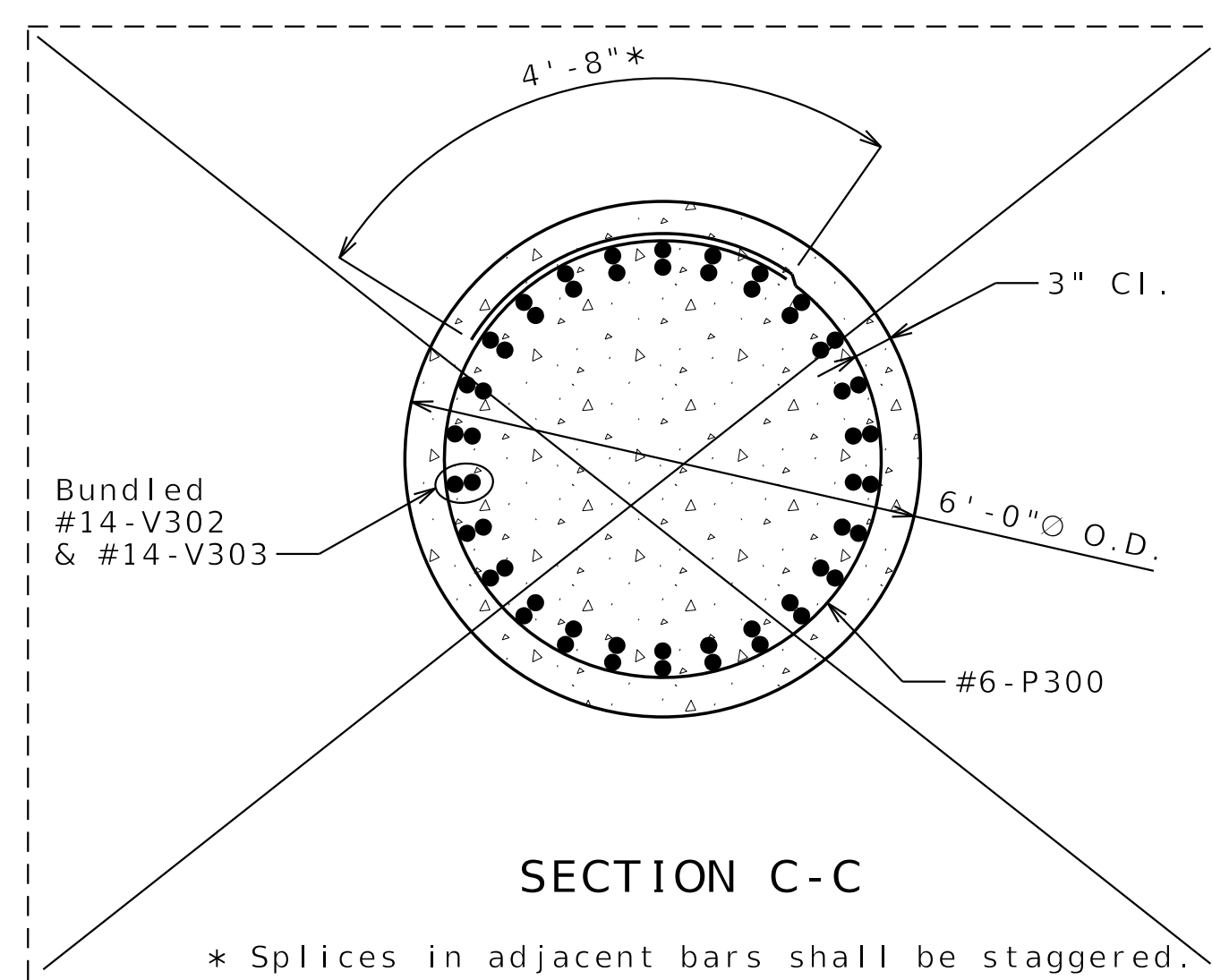
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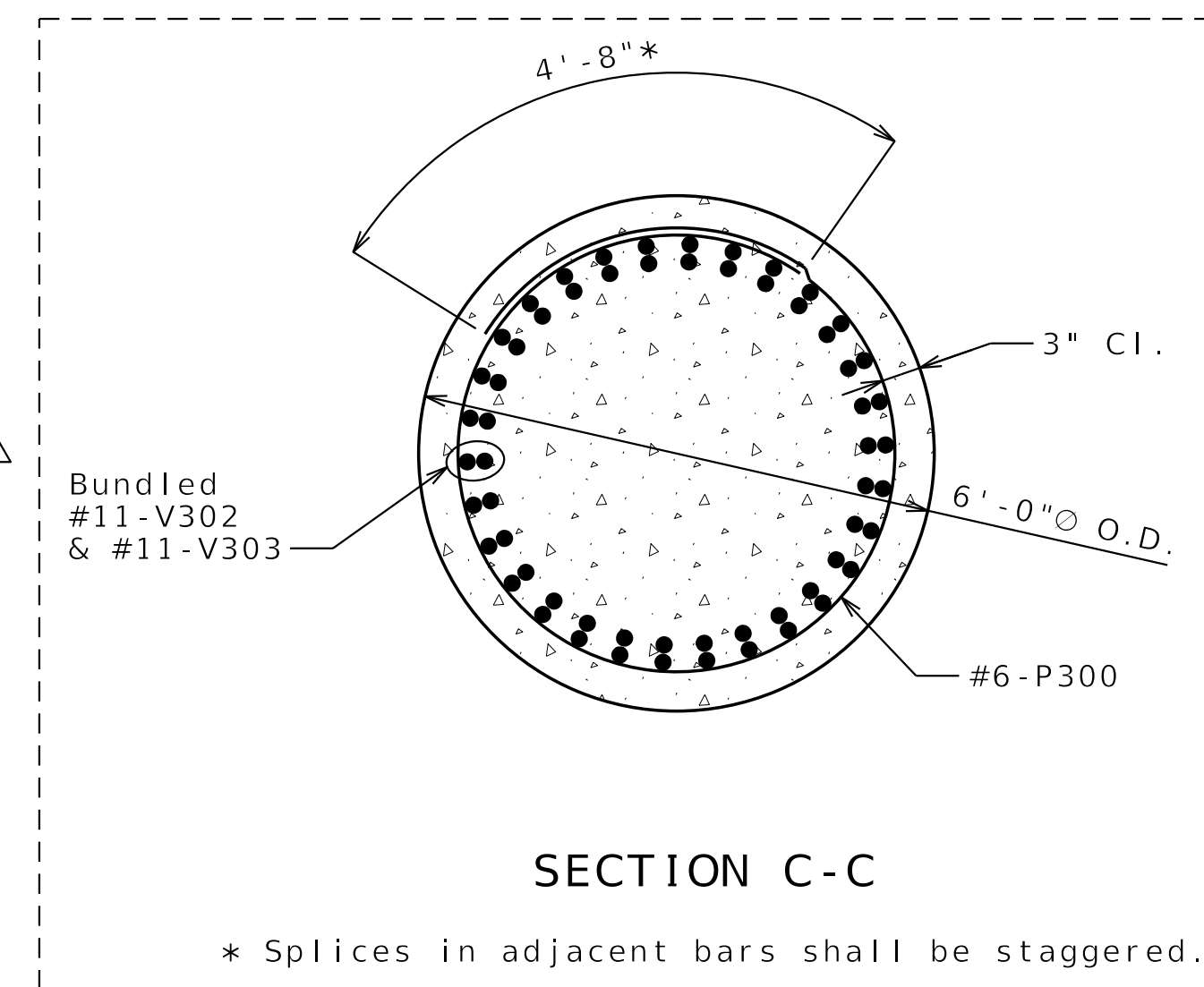
PLAN OF BENT CAP



SECTION B-B



SECTION C-C



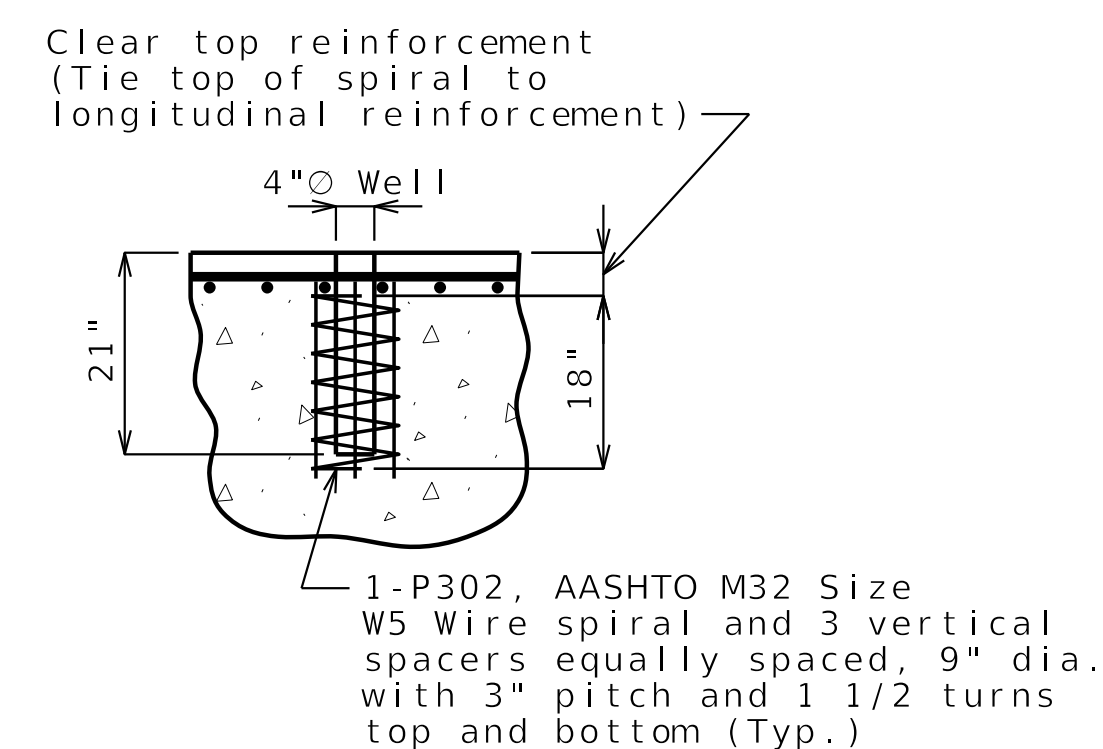
SECTION C-C

* Splices in adjacent bars shall be staggered.

Notes:

Work this sheet with Sheet No. 13

Reinforcing steel shall be shifted to clear anchor bolt wells by at least 1/2-inch.



ANCHOR BOLT WELLS

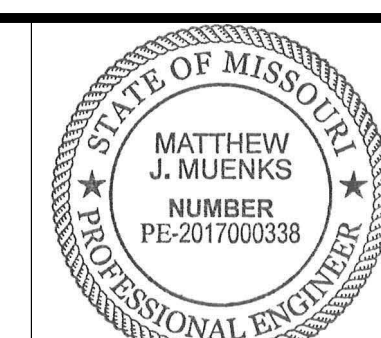
Detailed OCT 2024
Checked NOV 2024

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

Sheet No. 14 of

C/3 REVISED 05-02-25

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05/12/2025 11:22:22 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

1-MAY-2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 14

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

REV. 3 - NDC-021 - UPDATED SECTION C-C

DATE

02/26/25

03/12/25

05/02/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

ModOT

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

ModOT

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

ModOT

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

ModOT

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

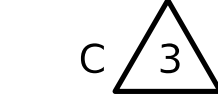
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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



PROJECT NO.
BRIDGE NO. A9546

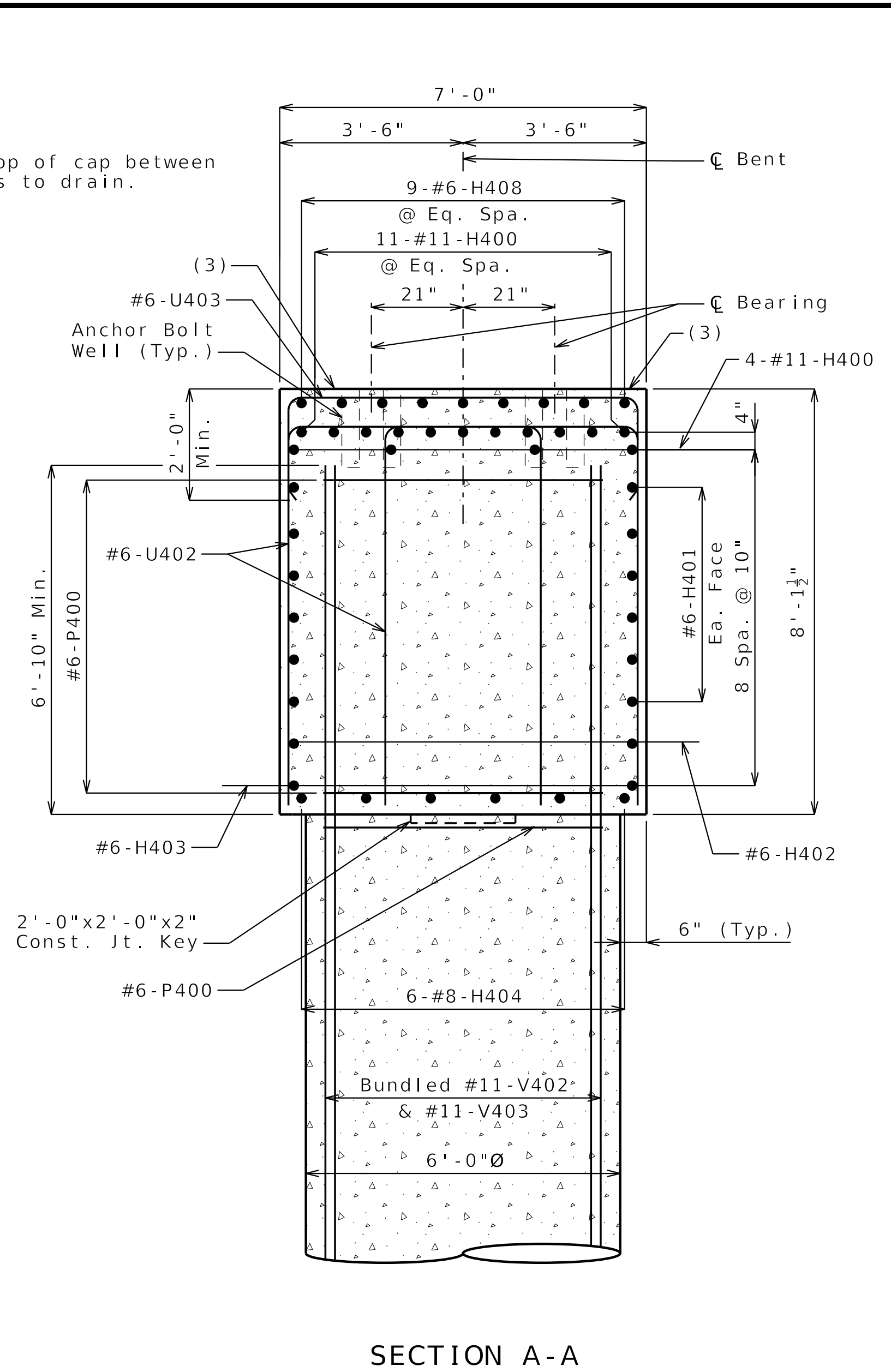
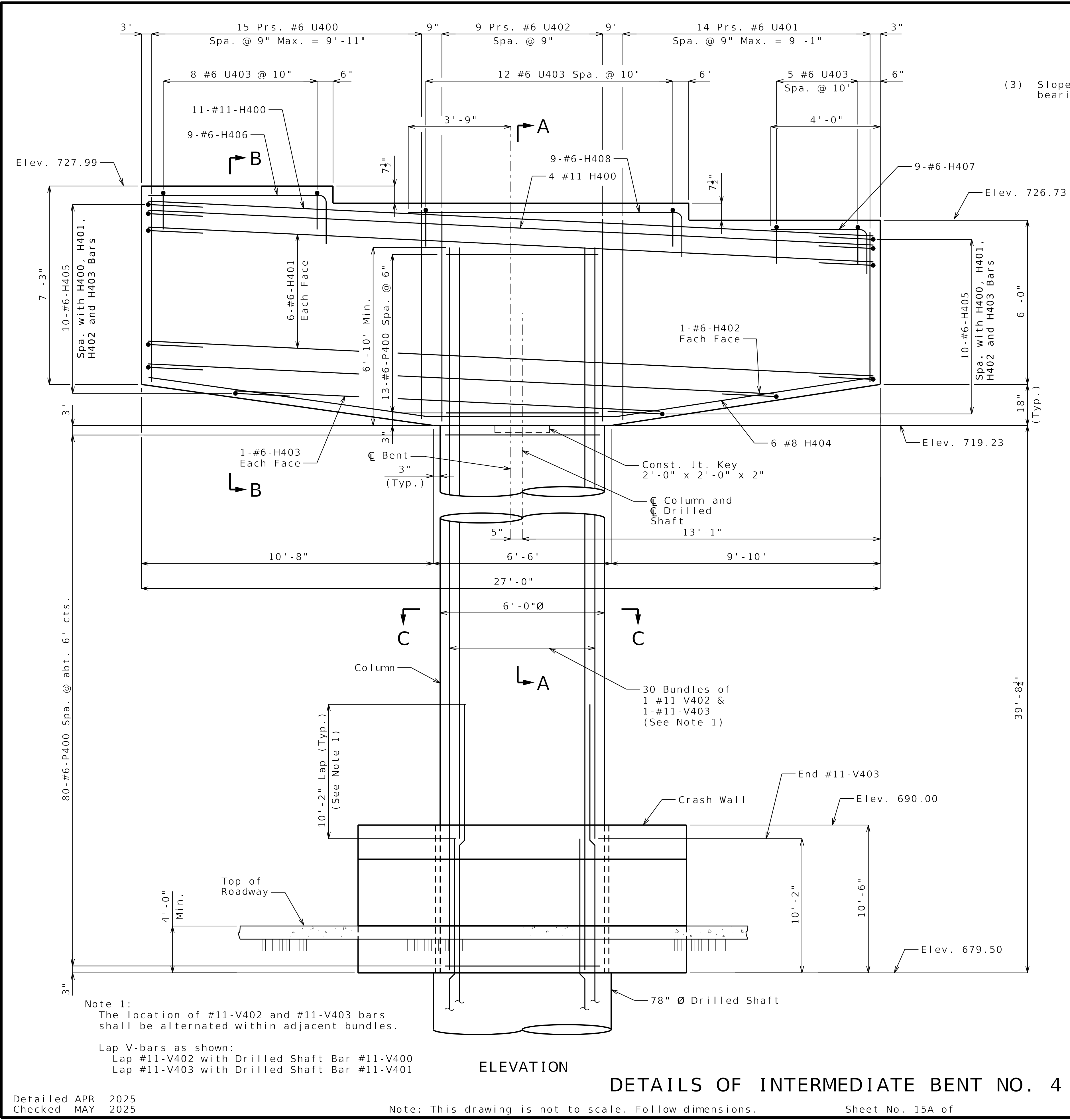
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01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION
05/02/25	REV. 3 - NDC-021 - SHEET DELETED



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
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING	



Notes:

Work this sheet with Sheet No. 16.

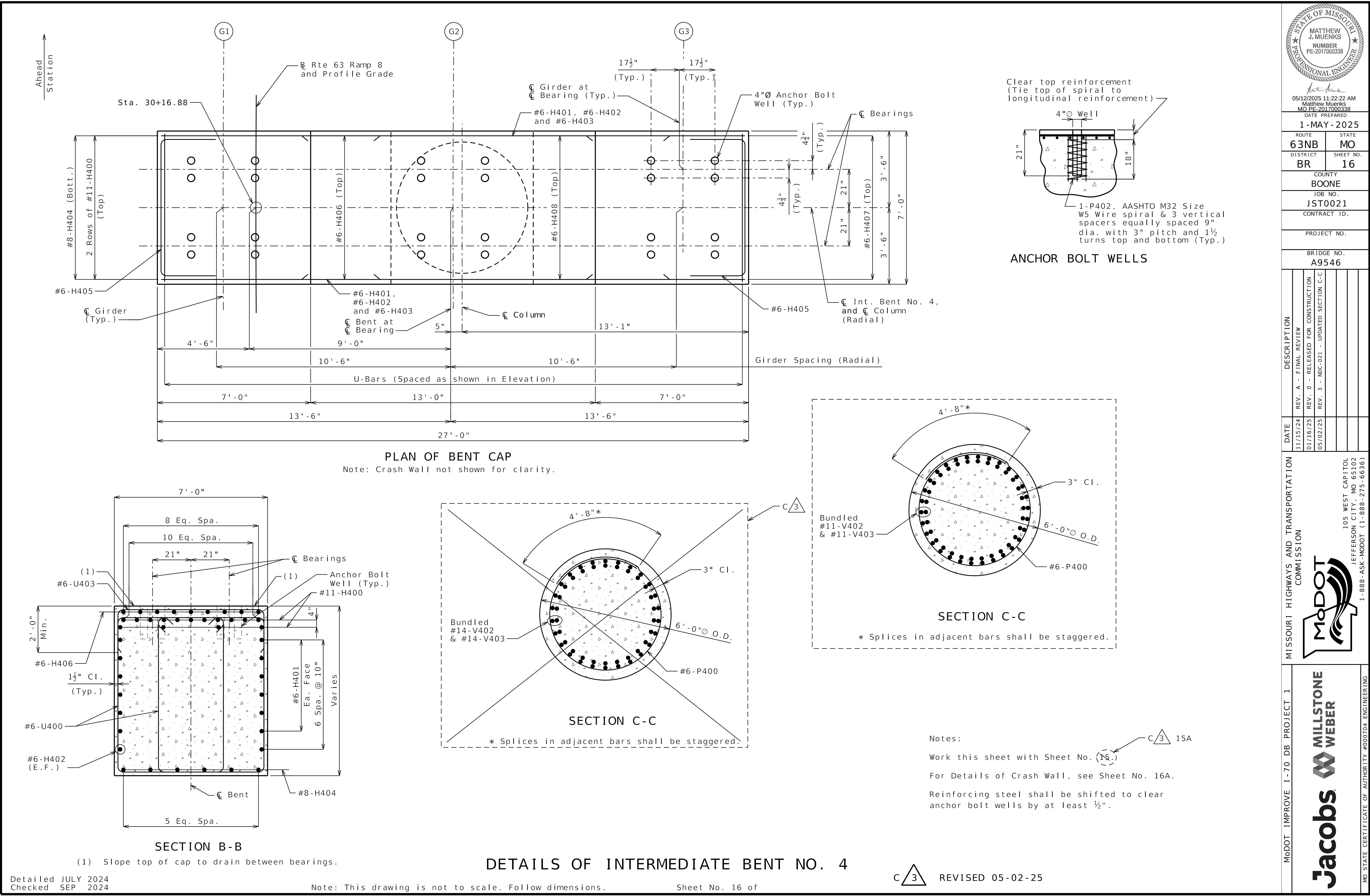
For Details of Crash Wall, see Sheet No. 16A.

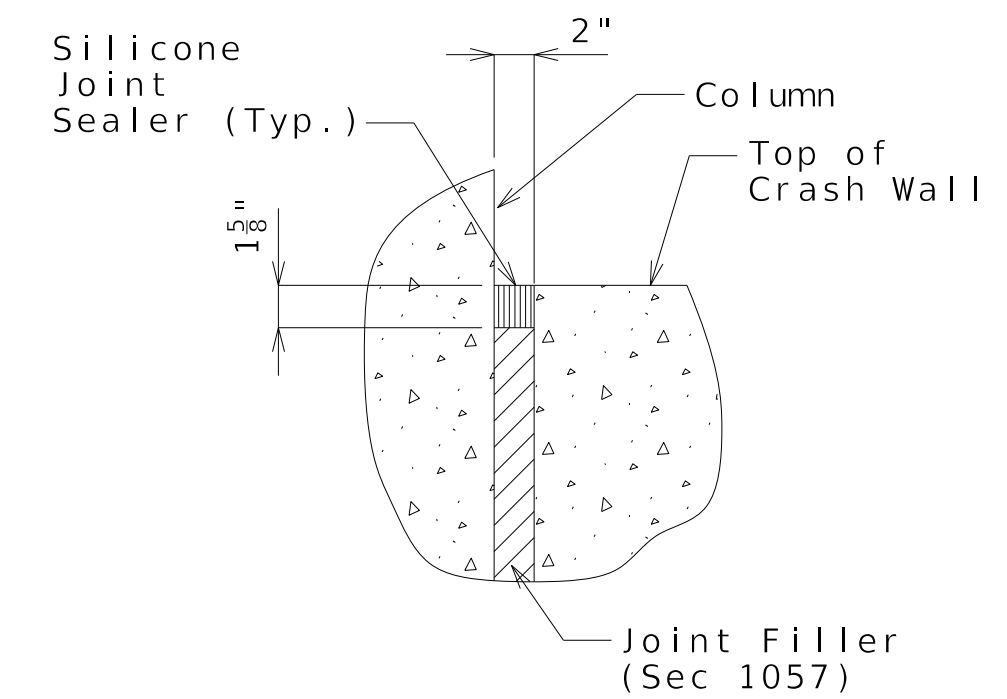
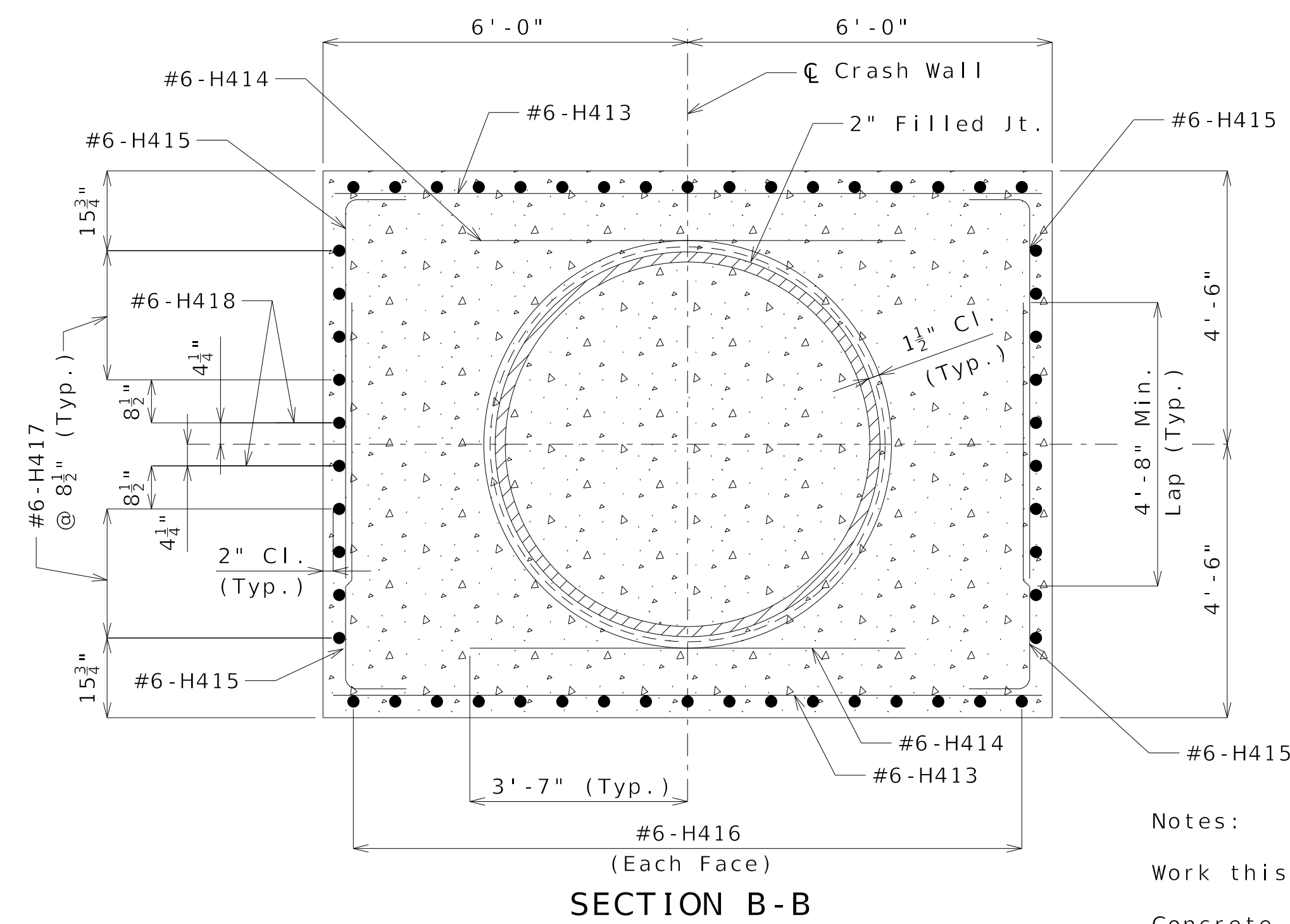
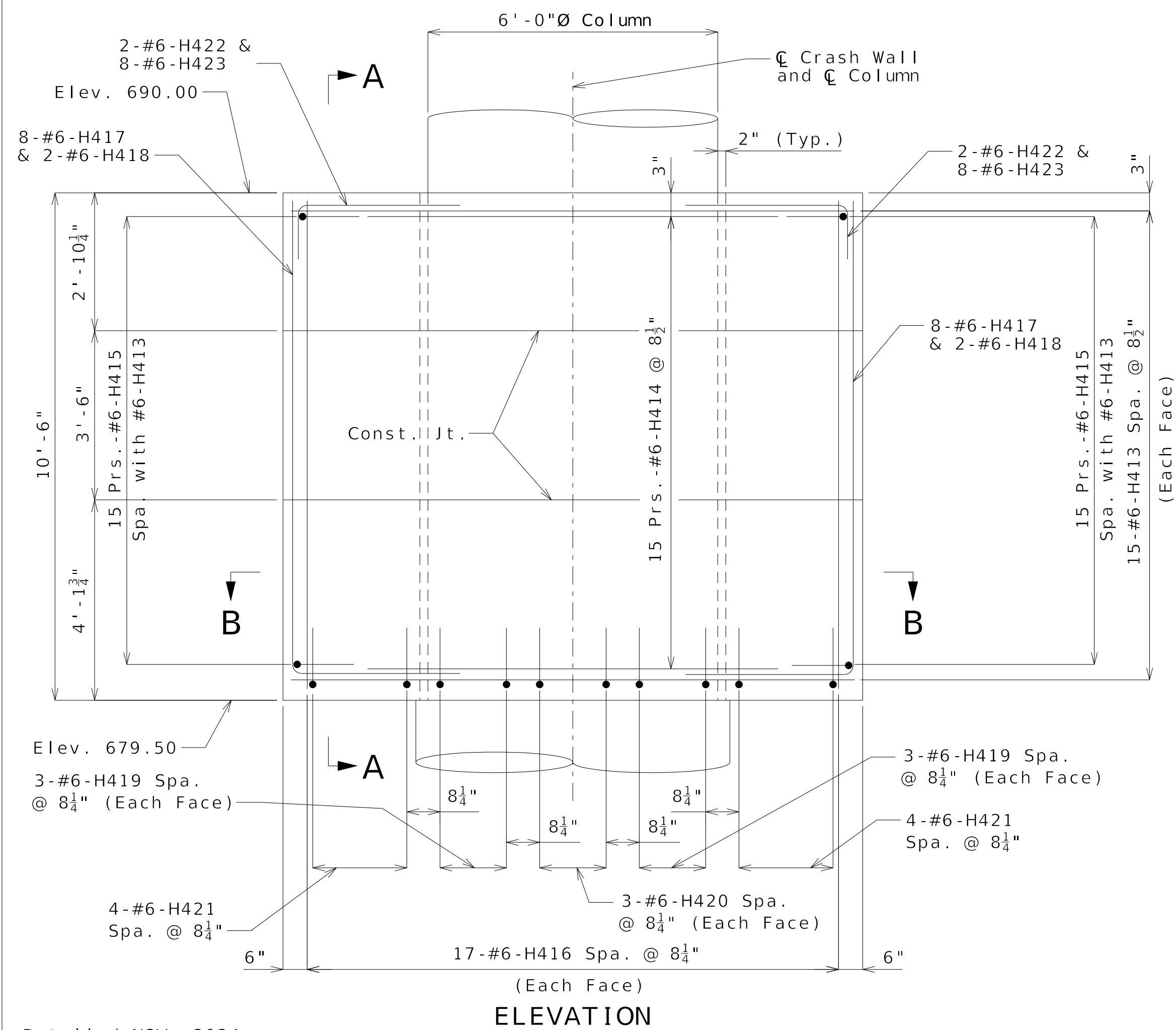
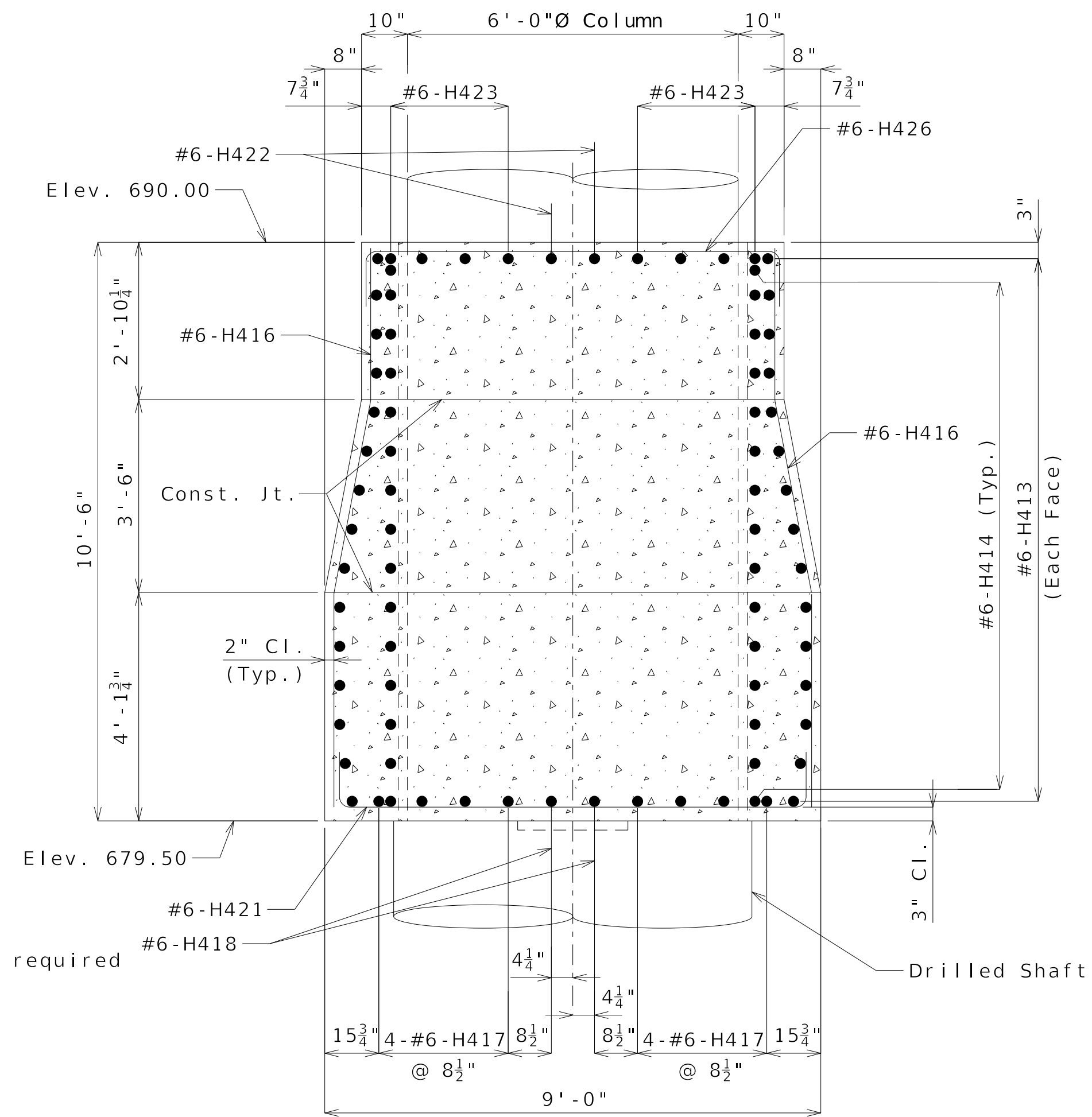
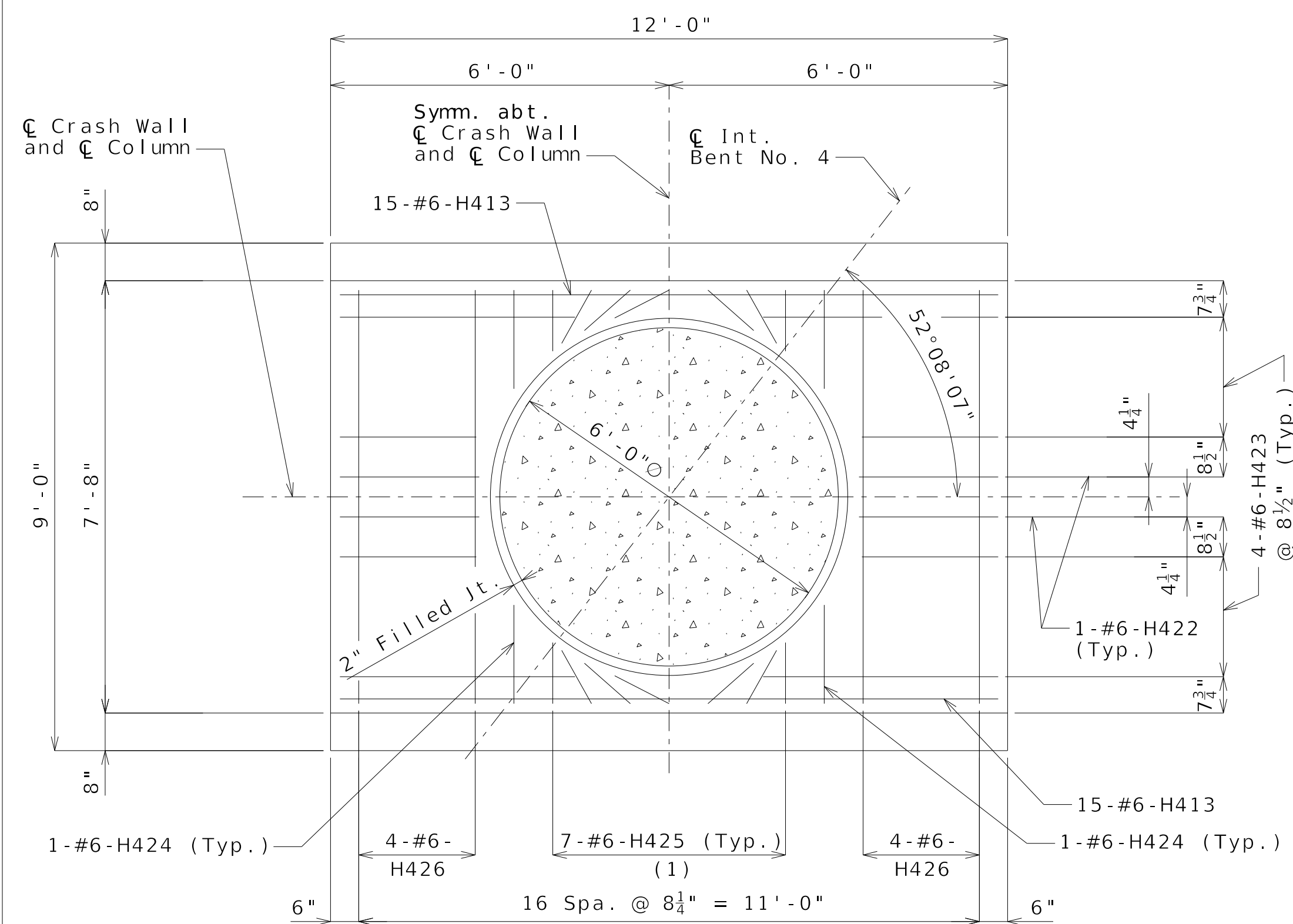
For Details of Drilled Shaft, see Sheet No. 21B.

For Anchor Bolt and Bearing Details, see Sheet No. 25.

Reinforcing steel shall be shifted to clear anchor bolt wells by at least 1/2".

Contractor may cut V402 and V403 bars, and shift P400 bars to clear anchor bolt wells as required.





Notes:

Work this sheet with Sheet Nos. 15 and 16.

Concrete in crash wall shall be Class B.

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



01/16/2025 9:46:58 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE 63NB	STATE MO
DISTRICT BR	SHEET NO. 16A

COUNTY
BOONE

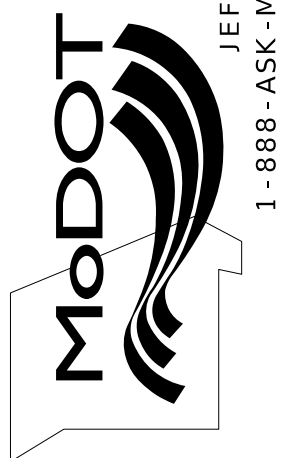
JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.	A9546
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DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	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



INDUSTRIAL ENGINEERING

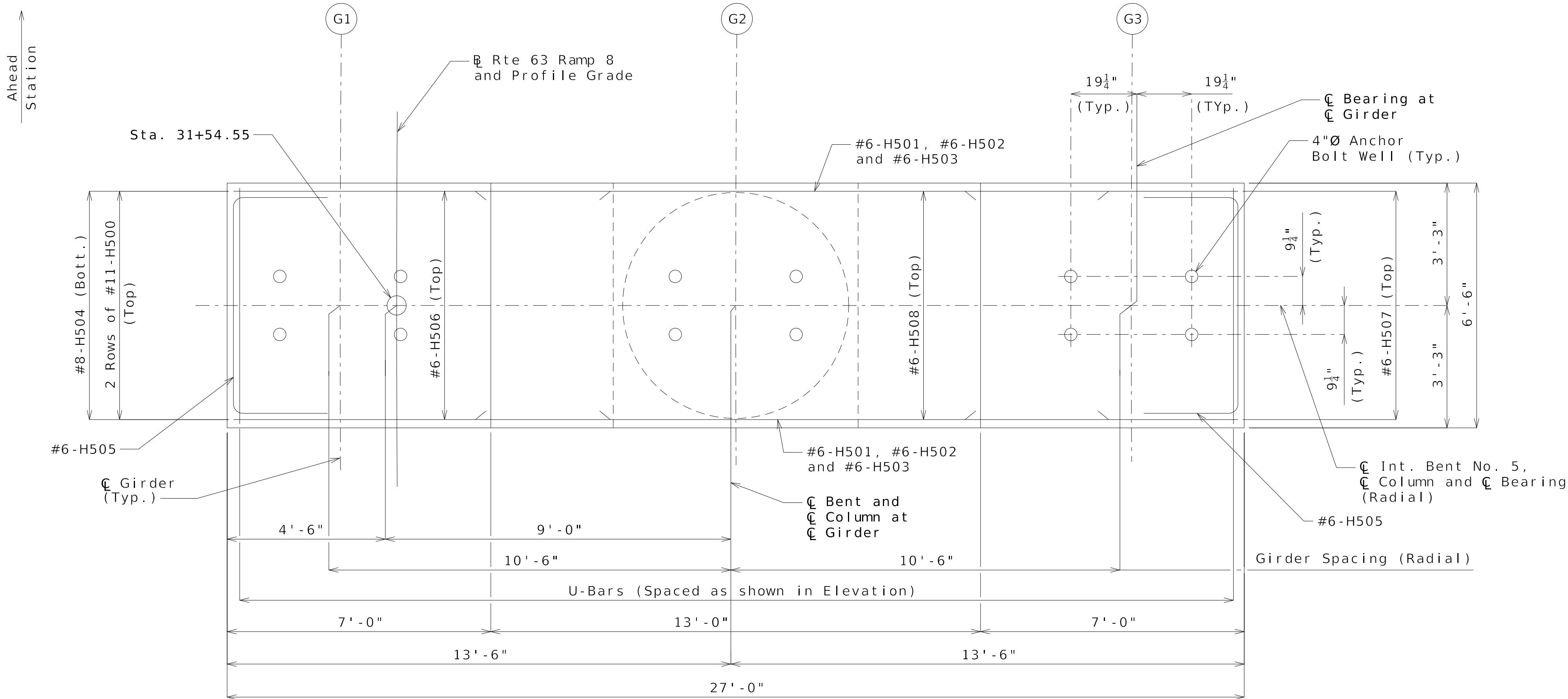
Detailed	NOV	2024
Checked	NOV	2024

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

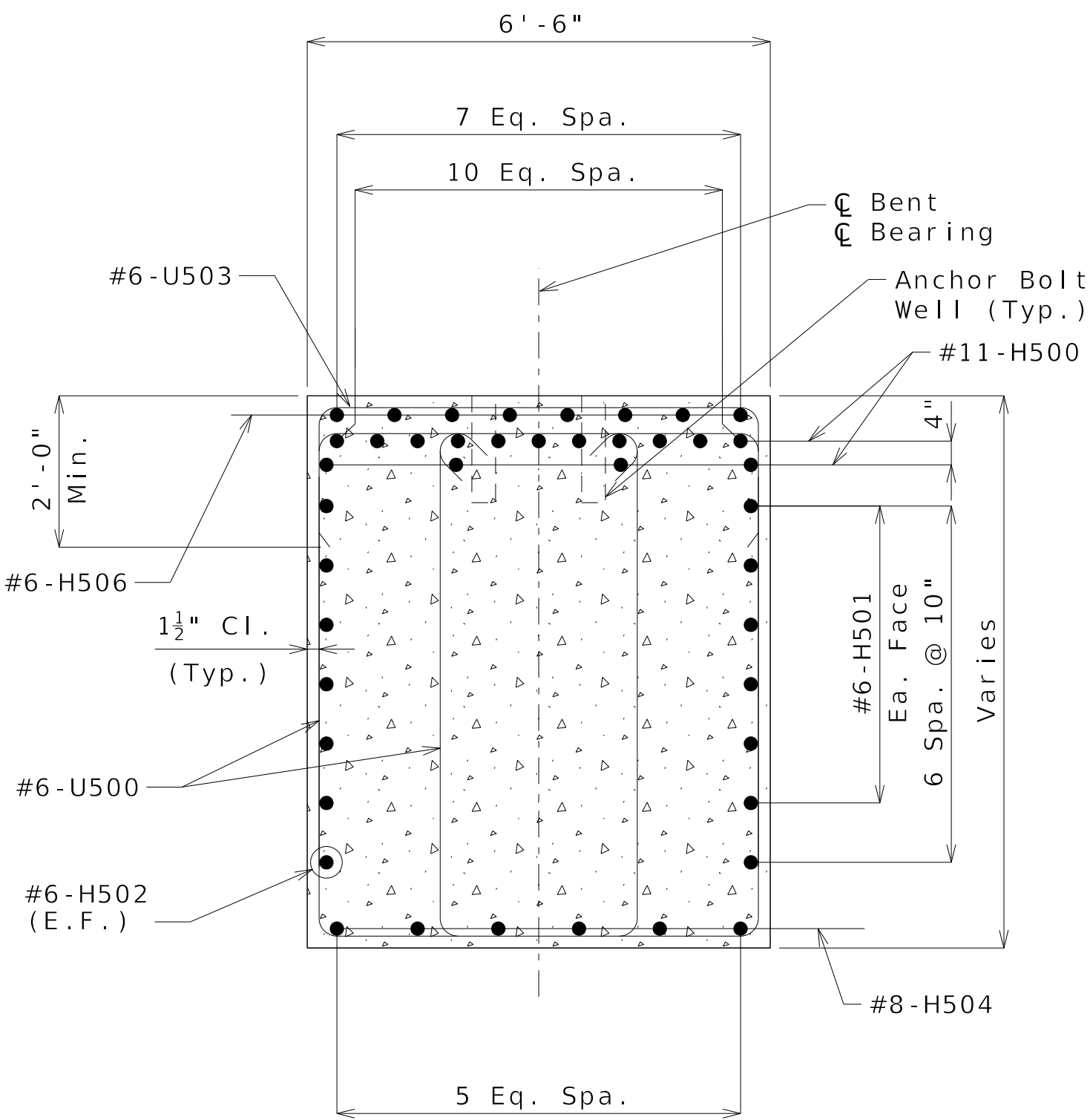
Sheet No. 16A of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_016A_JST0021_Crash Wall_Details.dgn

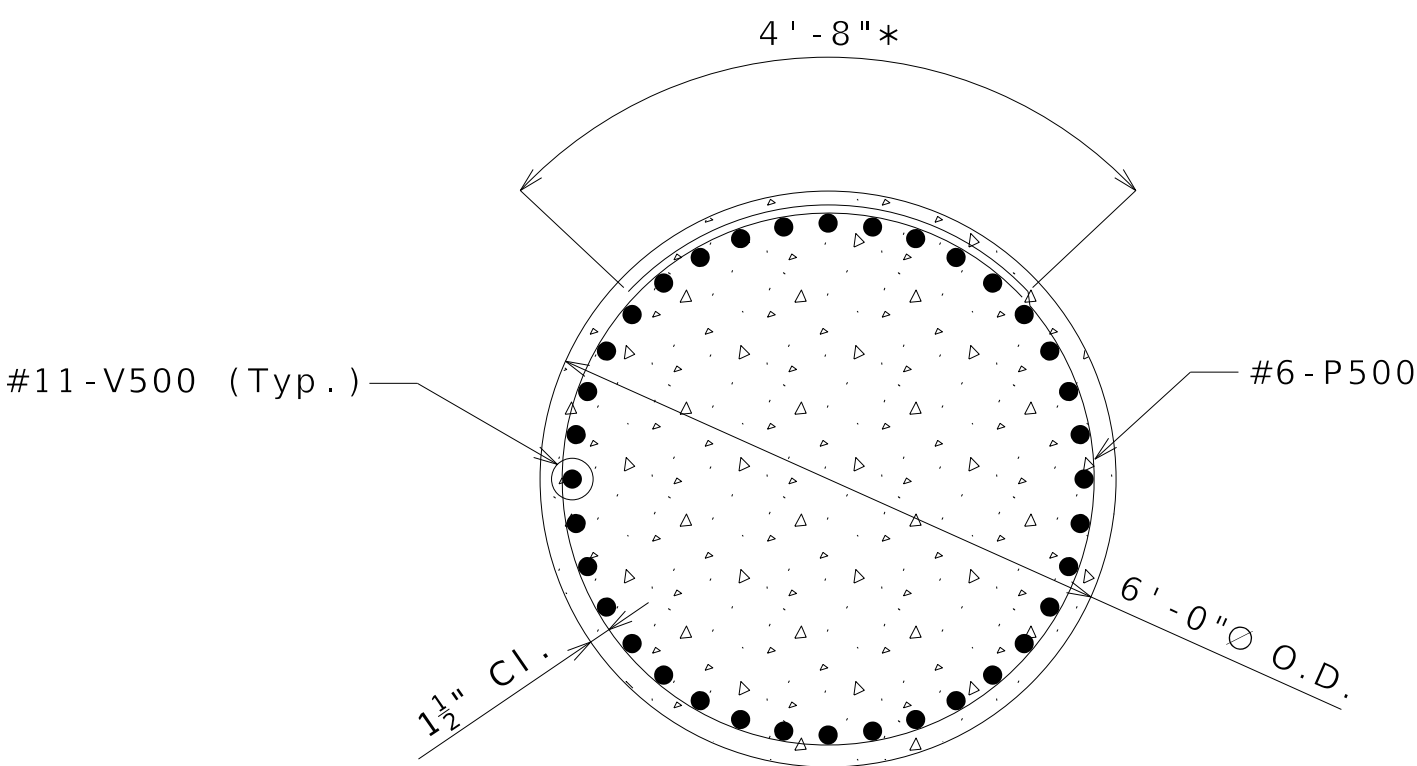
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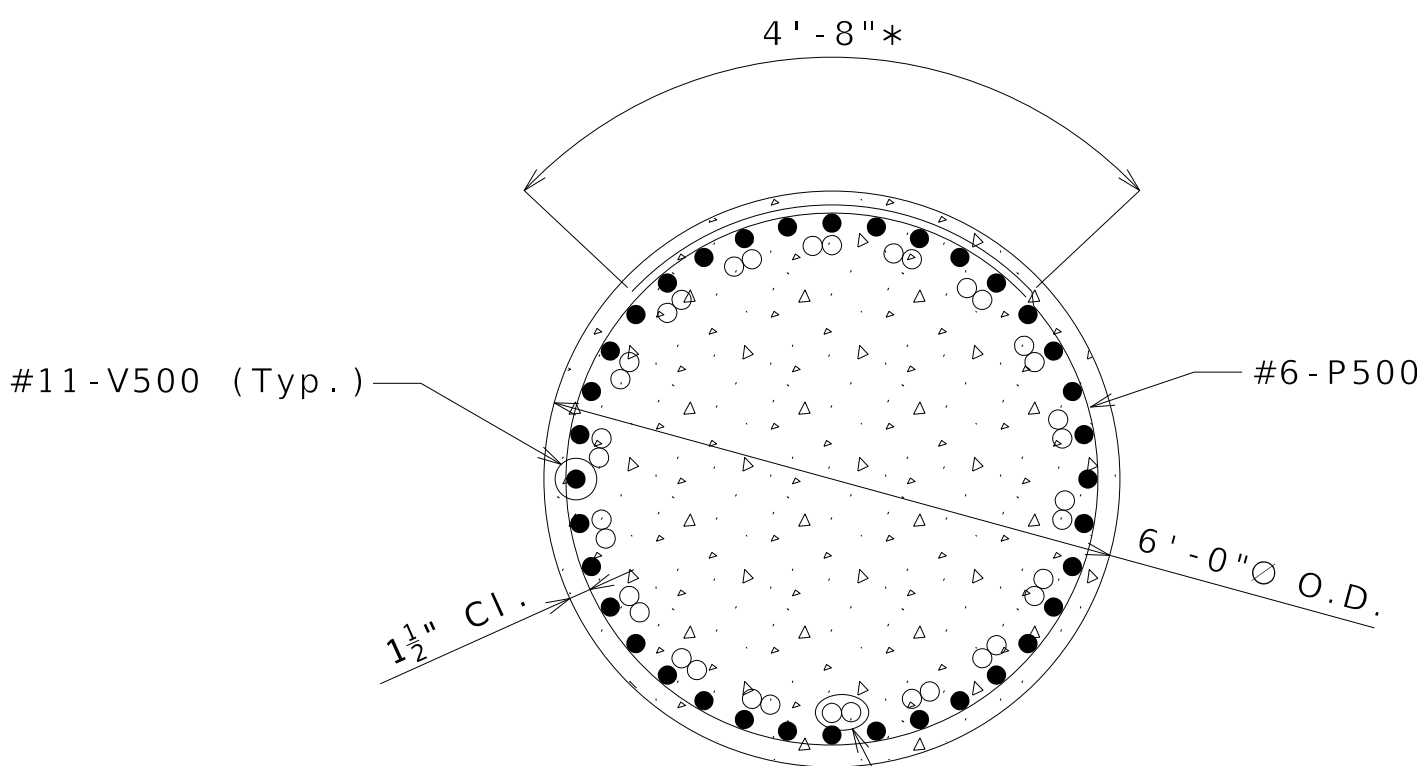
PLAN OF BENT CAP



SECTION B-B

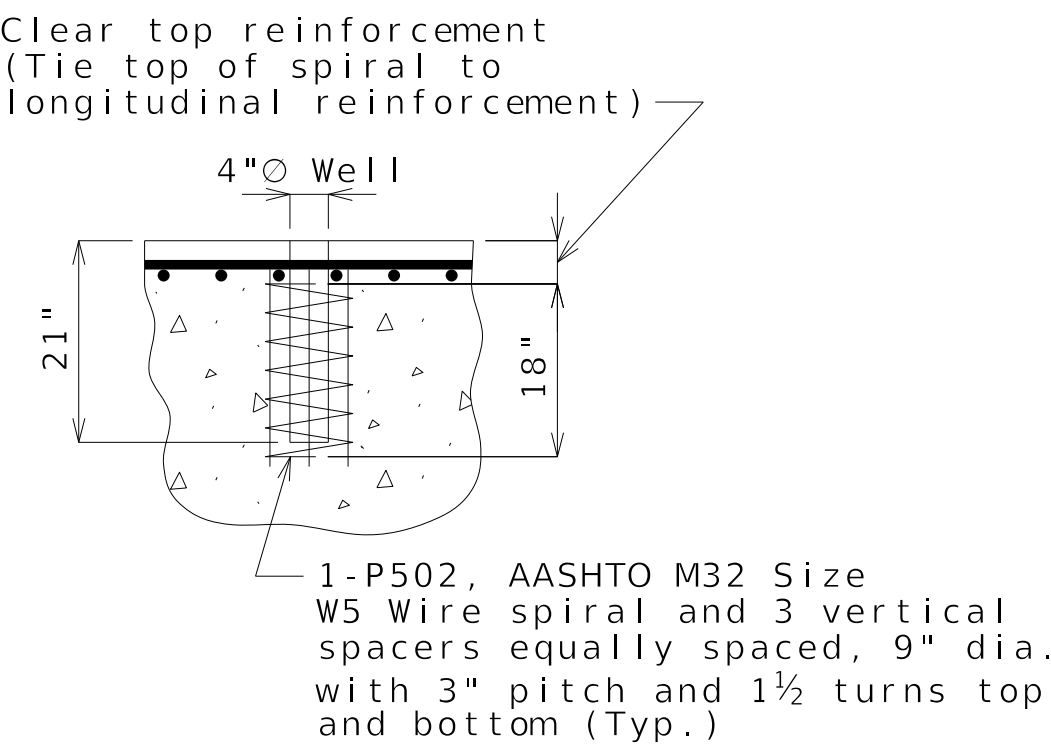


SECTION C-C



SECTION D-D

* Splices in adjacent bars shall be staggered.



ANCHOR BOLT WELLS

Detailed JULY 2024
Checked SEP 2024

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

Sheet No. 18 of 74

STATE OF MISSOURI

MATTHEW J. MUENKS

NUMBER PE-2017000338

PROFESSIONAL ENGINEER

01/16/2025 9:46:59 AM

Matthew Muenks

MO-PE-2017000338

DATE PREPARED

16 - JAN - 2025

ROUTE 63NB

DISTRICT BR

STATE MO

SHEET NO. 18

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

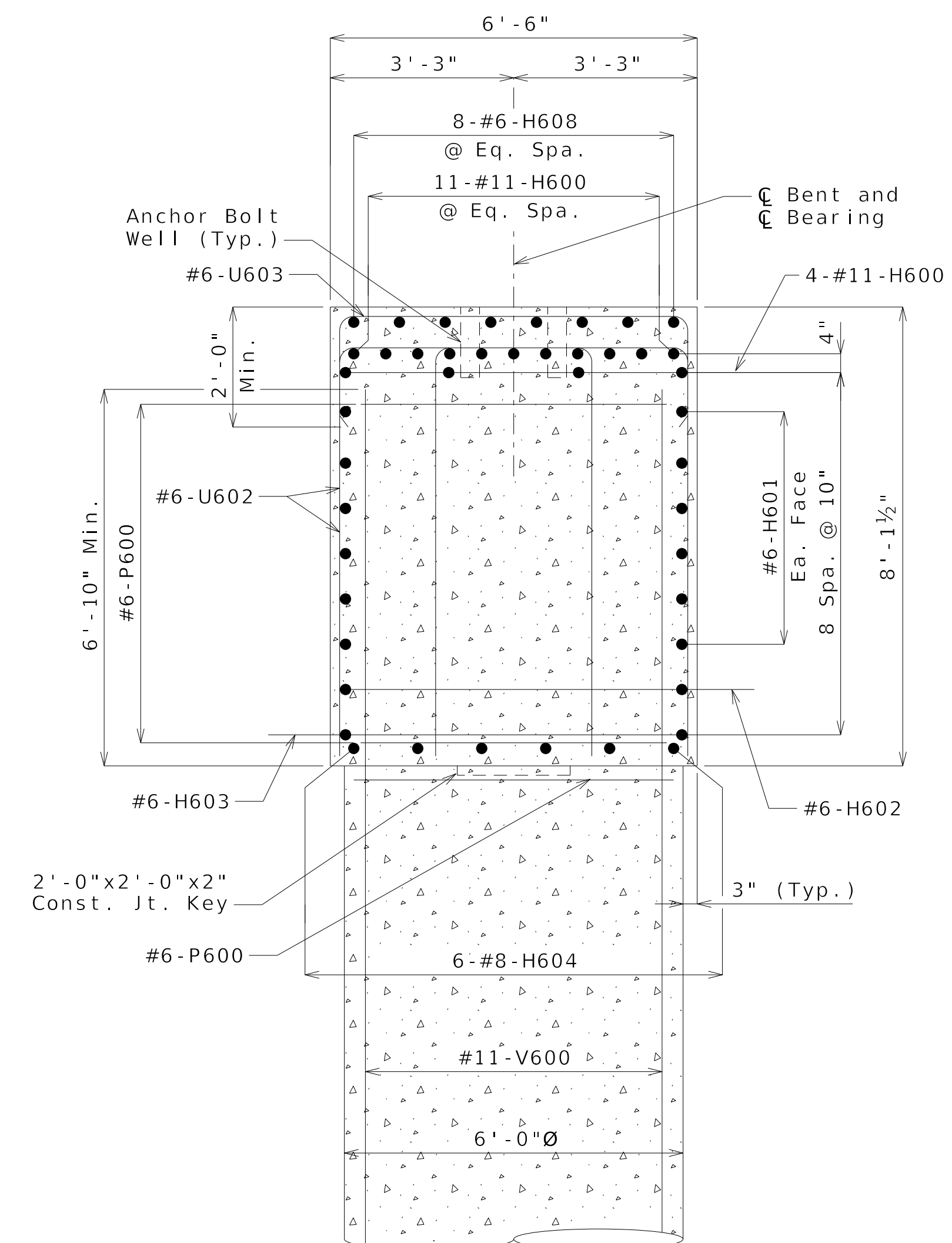
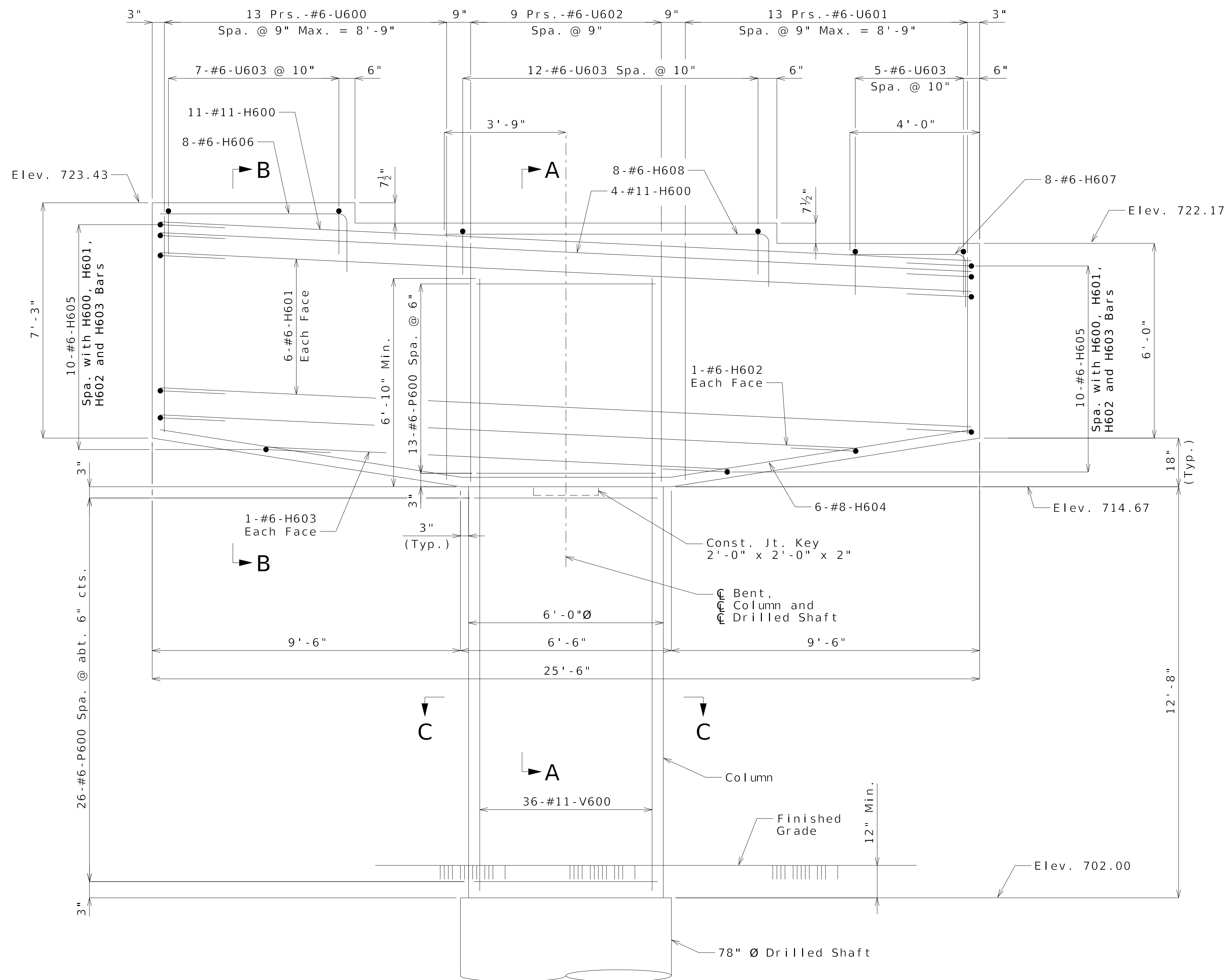
MoDOT IMPROVE I-70 DB PROJECT 1

JACOBS

MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

08:0116 - JAN - 2025



Notes:

Work this sheet with Sheet No. 20.

For Details of Drilled Shaft, see Sheet No. 21.

For Anchor Bolts and Bearing Details, see Sheet No. 25.

Reinforcing steel shall be shifted to clear anchor bolt wells by at least $\frac{1}{2}$ ".



01/16/2025 9:46:59 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE 63NB	STATE MO
DISTRICT BR	SHEET NO. 19

COUNTY BOONE

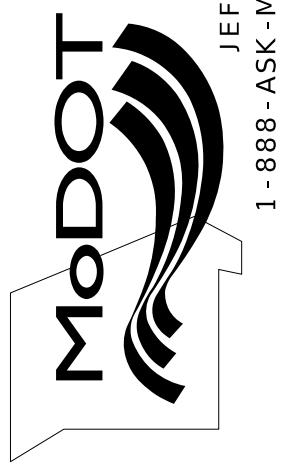
JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9546

DATE	DESCRIPTION
11/11/15/24	REV. A - FINAL REVIEW
01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

MoDOT IMPROVE I-70 DB PROJECT 1



MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

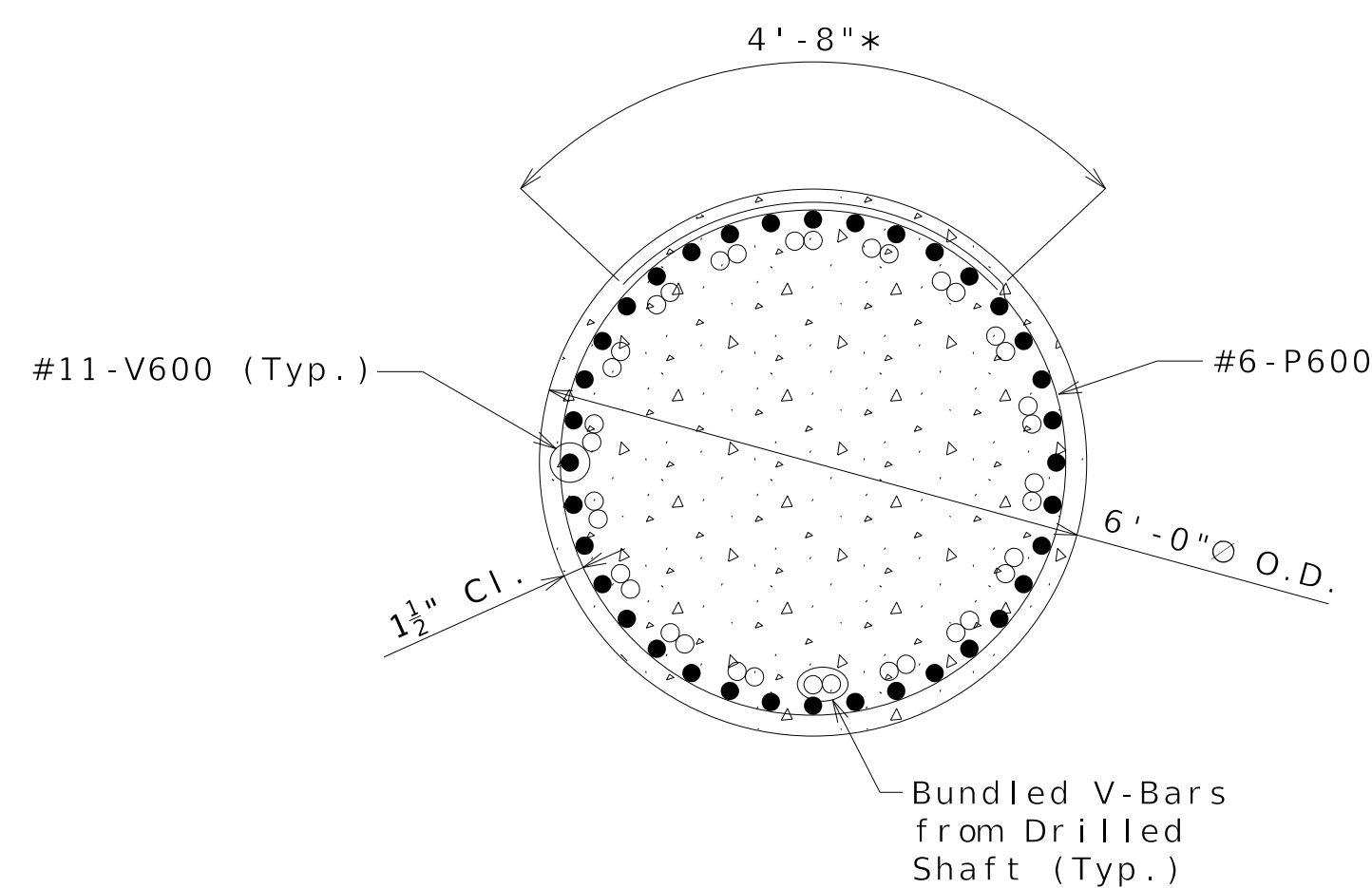
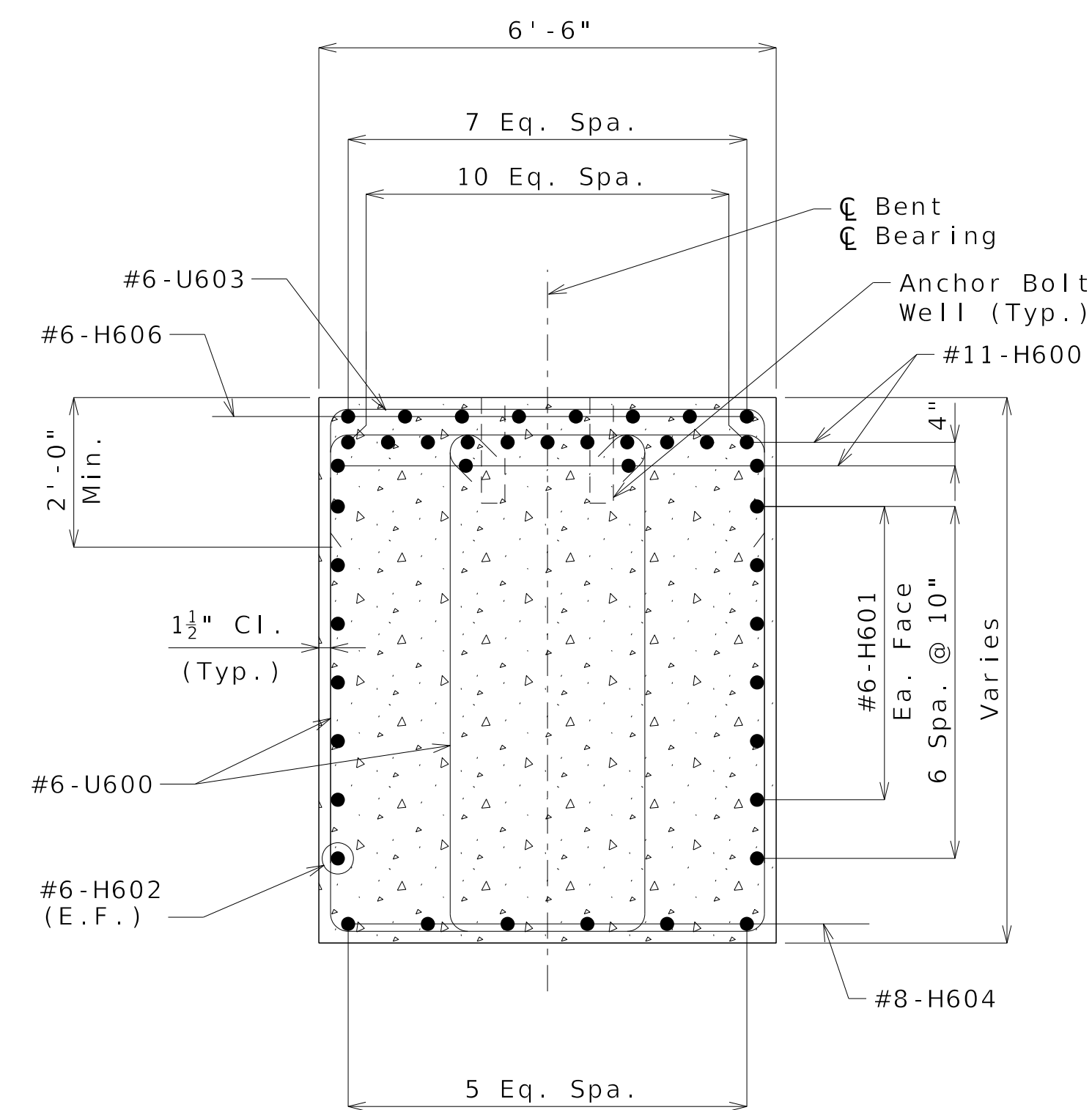
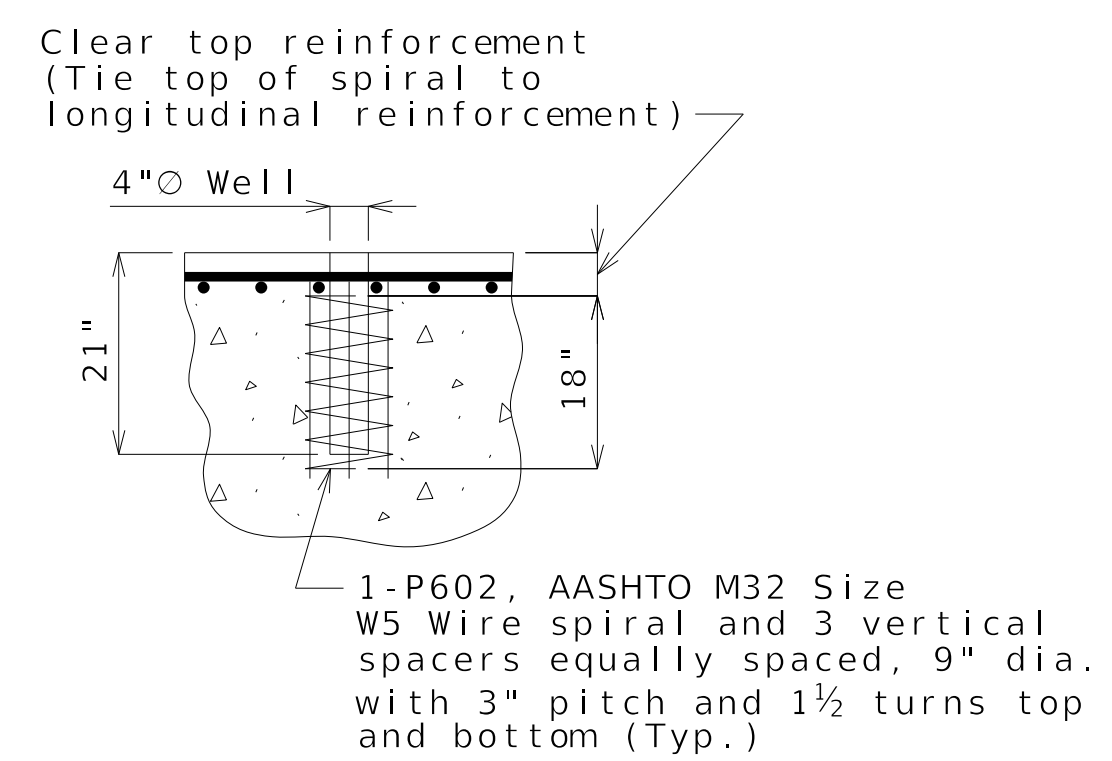
Detailed JULY 2024
Checked SEP 2024

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

Sheet No. 19 of 74

pw://jacobs-us-v-pw.bentley.com:jacobs-us-v-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA Packages/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_019_JST0021_INTBENT 6-1.dgn

08:01 16- JAN-2025



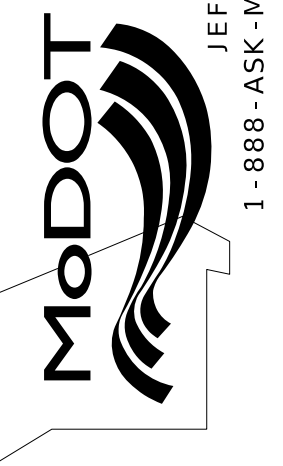
* Splices in adjacent bars shall be staggered.

Notes:

Work this sheet with Sheet No. 19.

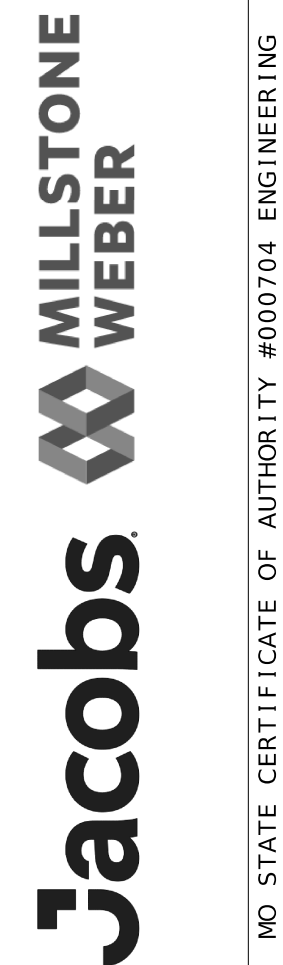
Reinforcing steel shall be shifted to clear anchor bolt wells by at least $\frac{1}{2}$ ".

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

MoDOT IMPROVE I-70 DB PROJECT 1



Detailed JULY 2024
Checked SEP 2024

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

Sheet No. 20 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B A9546 020 JST0021 INTBENT 6-2.dgn

08:02 16 - JAN - 2025

ELEVATION OF DRILLED SHAFTS AND ROCK SOCKETS

DRILLED SHAFT NOTES:

An additional 4 feet has been added to V-bar lengths and additional 16-#6-PX01 bars have been added in the quantities, if required, for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap if not required. The additional P bars shall be spaced similarly to that shown in elevation, if required, or to a lesser spacing if not required. Clear spacing between bars shall not be less than 5-inches.

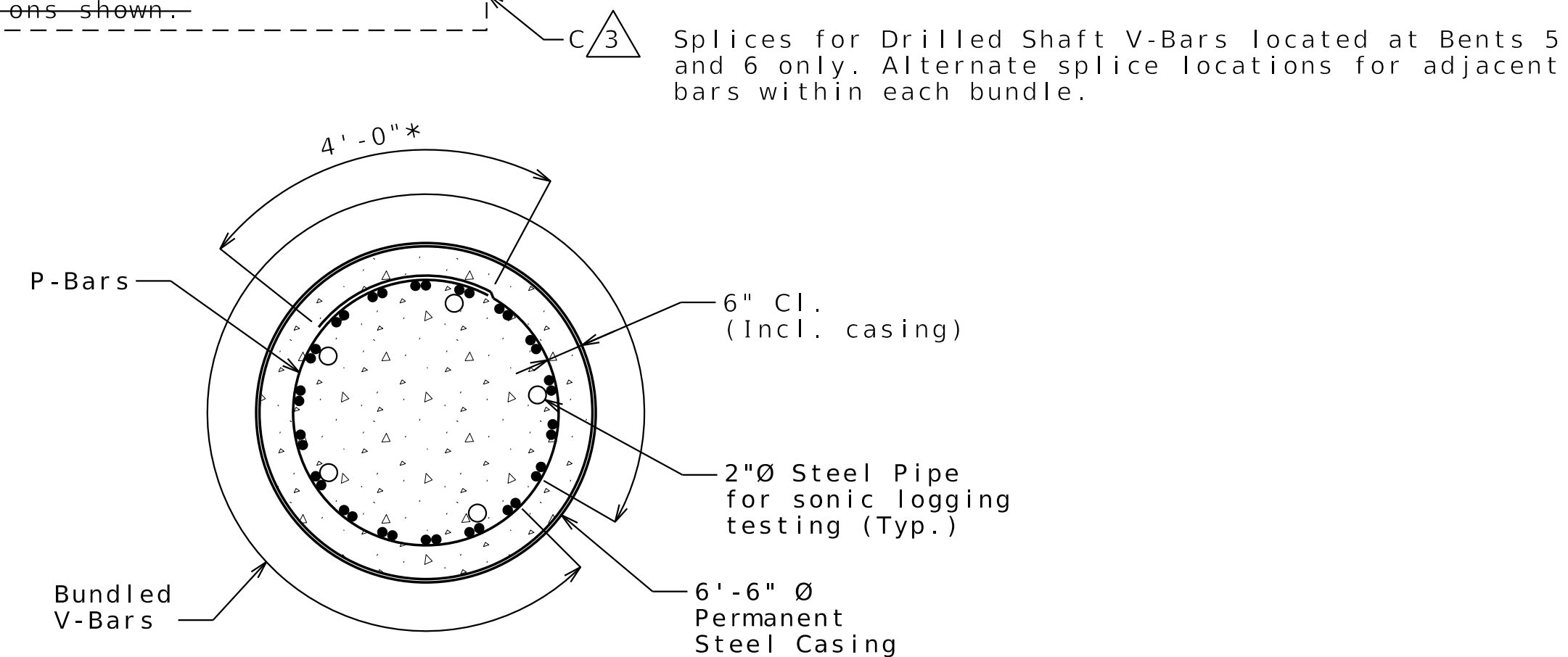
Sonic logging testing shall be performed on all drilled shafts and rock sockets.

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

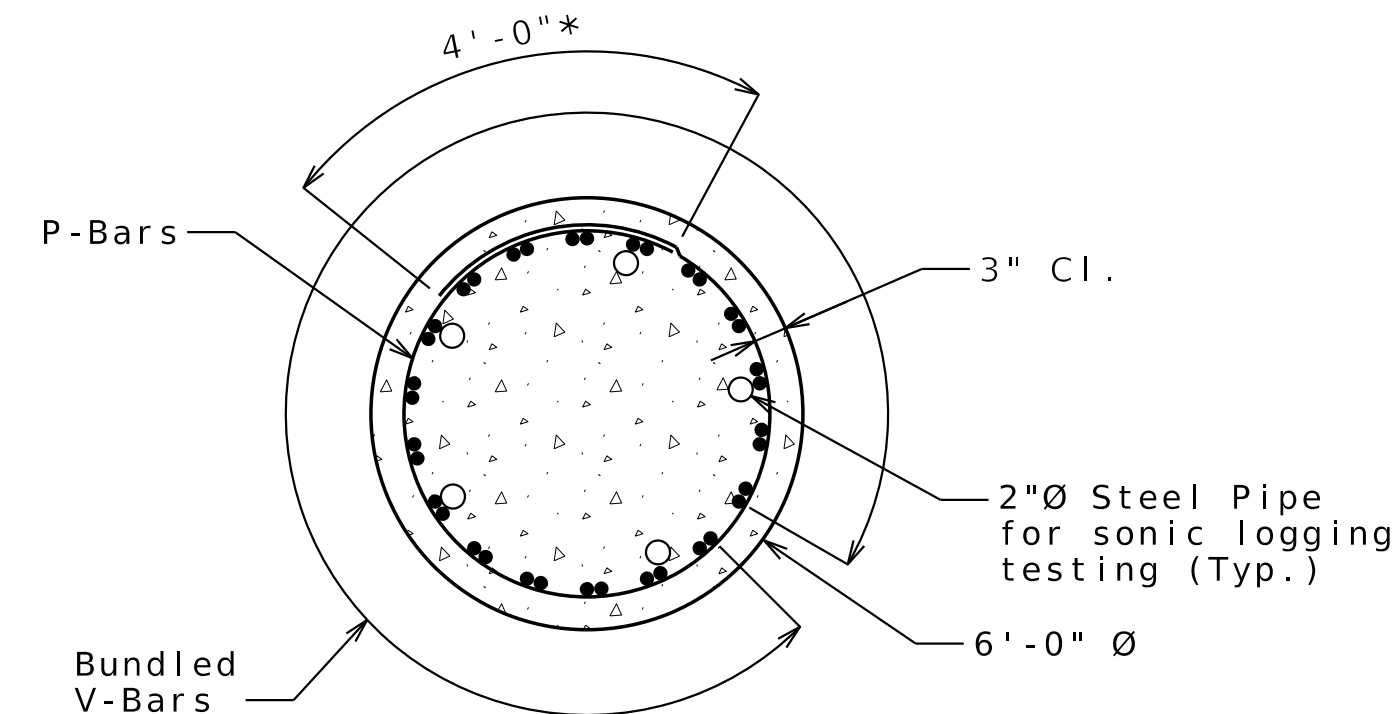
Installation and inspection of all drilled shafts and rock sockets shall be performed in accordance with Sec. 701.

(1) ~~Splice locations for the bundled V-Bars in the Drilled Shaft shall be staggered by the dimensions shown.~~

TABLE OF VARIABLES								
BENT	DIM. A	DIM. B	ELEV. C	ELEV. D	ELEV. E	V BARS	P BARS	
							ROCK SOCKET	DRILLED SHAFT
2	23' - 3"	9' - 0"	686.25	663.00	654.00	18 Bundles of 1-#11-V201 & 1-#11-V202	17 Bundles of 2-#6-P201	47-#6-P201
5	51' - 3"	10' - 0"	687.75	636.50	626.50	18 Bundles of 1-#11-V501 & 1-#11-V502	19 Bundles of 2-#6-P501	103-#6-P501
6	42' - 0"	10' - 0"	702.00	660.00	650.00	18 Bundles of 1-#11-V601 & 1-#11-V602	19 Bundles of 2-#6-P601	84-#6-P601



SECTION A-A



SECTION B-B

* Splices in adjacent bars shall be staggered.

Notes :

Permanent steel casing shall be in accordance with Sec. 701 with a minimum thickness of 1/2 inch.

For details of Intermediate Bent No. 2, see Sheet
Nos. X and X. ← C/2 11 and 12.

For details of Intermediate Bent No. 5, see Sheet Nos. 17 and 18.

For details of Intermediate Bent No. 6, see Sheet Nos. 19 and 20.

C 3 REVISED 05-02-25

C 2 REVISED 03-12-25



05/12/2025 11:22:22 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
1 -MAY -2025

ROUTE	STATE
63NB	MO

DISTRICT	SHEET NO.
BR	21

COUNTY
BOONE

JOB NO.
IST0021

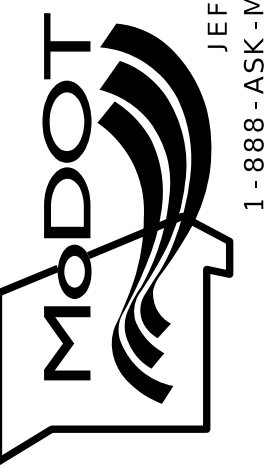
9510021
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
10510

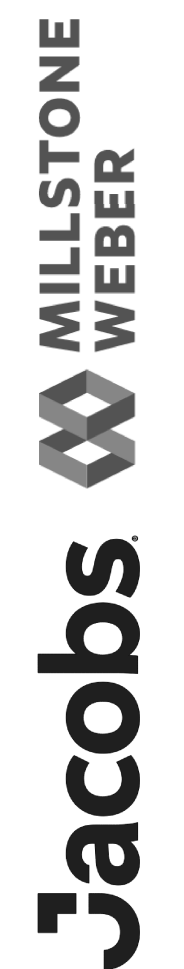
A9546							
		V	RS	F.			

DATE	DESCRIPTION
11/11/15/24	REV. A - FINAL REVIEW
03/01/10/25	REV. 0 - RELEASED FOR CONSTRUCTION
03/01/10/25	REV. 2 - NDC-010 - ADDED SHEET NUMBERS
05/02/25	REV. 3 - NDC-021 - BENT 2 SHAFT REINF.

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

MoDOT IMPROVE I-70 DB PROJECT 1



NO STATE CERTIFICATE OF ADOPTION - #0000/04 ENGINEERING

DRILLED SHAFT NOTES:

An additional 4 feet has been added to V-bar lengths and additional 16-#6-PX01 bars have been added in the quantities, if required, for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off if not required. The additional P bars shall be spaced similarly to that shown in elevation, if required. Clear spacing between bars shall not be less than 5-inches.

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

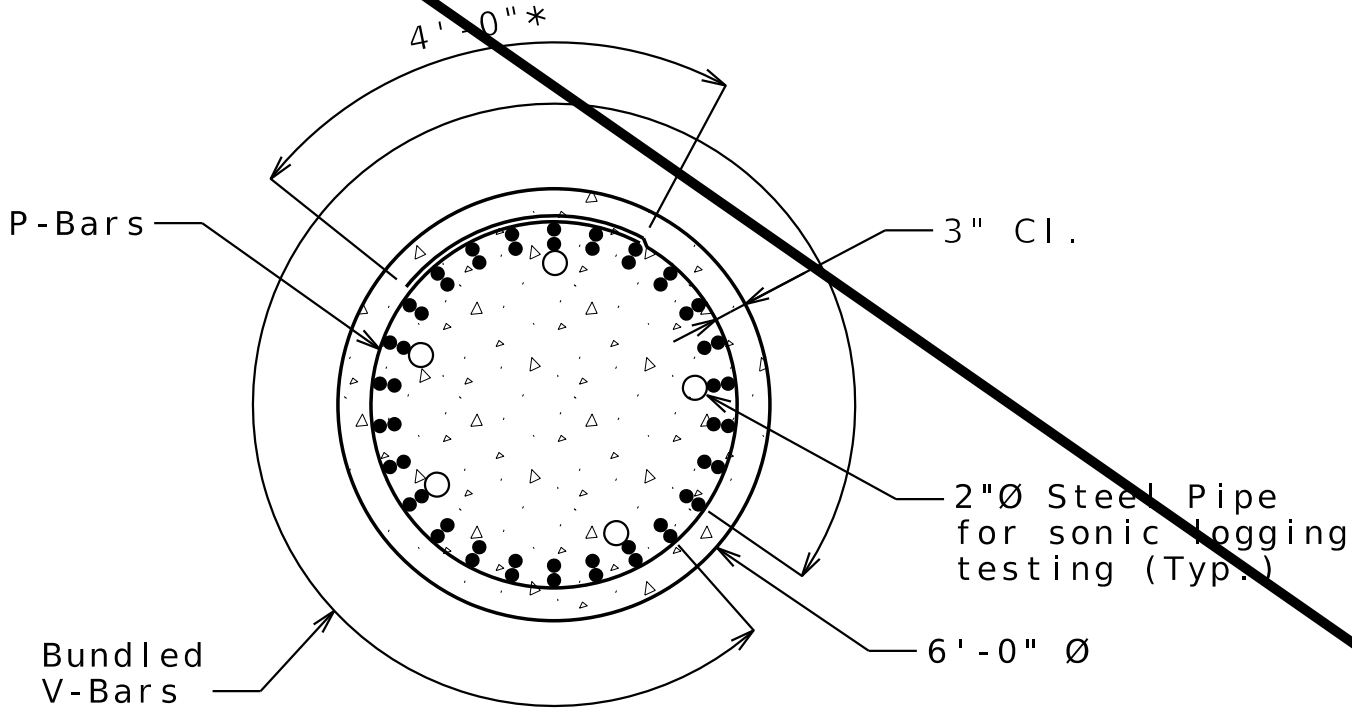
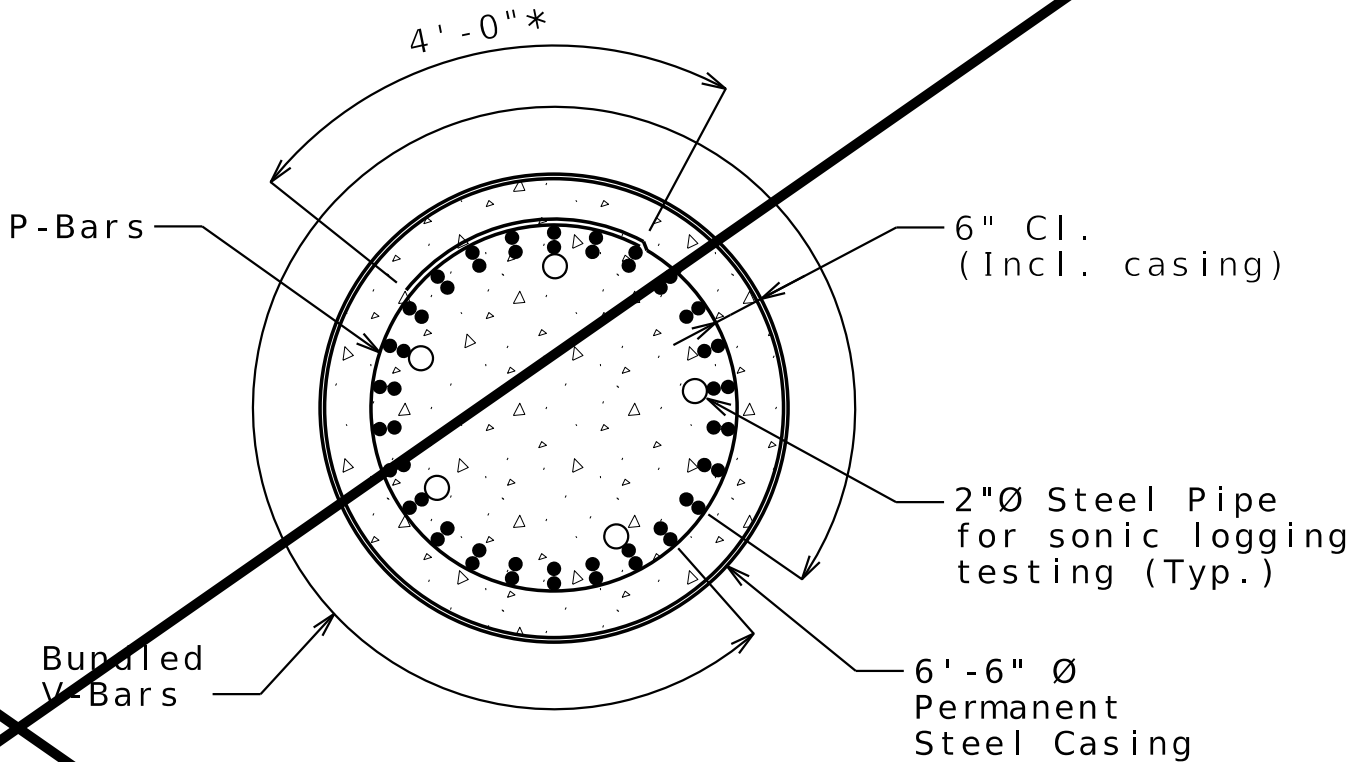
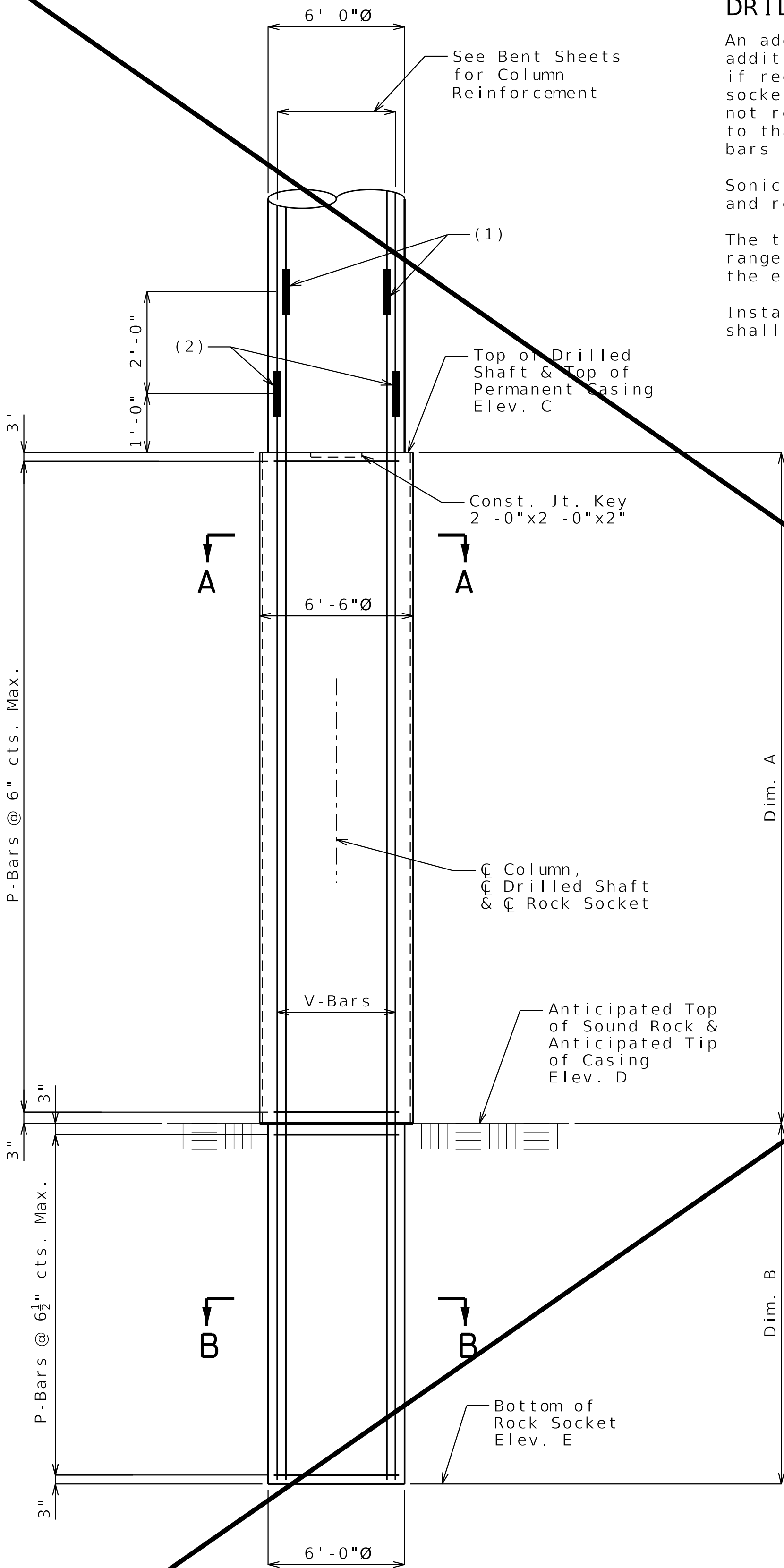
The tip of casing shall not extend into the rock socket elevation range reported in the Foundation Data table without approval by the engineer.

Installation and inspection of all drilled shafts and rock sockets shall be performed in accordance with Sec. 701.

- (1) 26-MBS VX00-VX02
(2) 26-MBS VX01-VX03

TABLE OF VARIABLES

BENT	DIM. A	DIM. B	ELEV. C	ELEV. D	ELEV. E	V BARS	P BARS	
							ROCK SOCKET	DRILLED SHAFT
3	33'-3"	9'-0"	668.75	635.50	626.50	26 Bundles of 1-#14-V300 & 1-#14-V301	17 Bundles of 2-#6-P301	67-#6-P301
4	33'-6"	9'-0"	679.50	646.00	637.00	26 Bundles of 1-#14-V400 & 1-#14-V401	17 Bundles of 2-#6-P401	67-#6-P401



* Splices in adjacent bars shall be staggered.

Notes:

Permanent steel casing shall be in accordance with Sec. 701 with a minimum thickness of 1/2 inch.

For details of Intermediate Bent No. 3, see Sheet Nos. 13 and 14.

For details of Intermediate Bent No. 4, see Sheet Nos. 15 and 16.

For Details of Crash Wall at Int. Bent No. 4, see Sheet No. 16A.

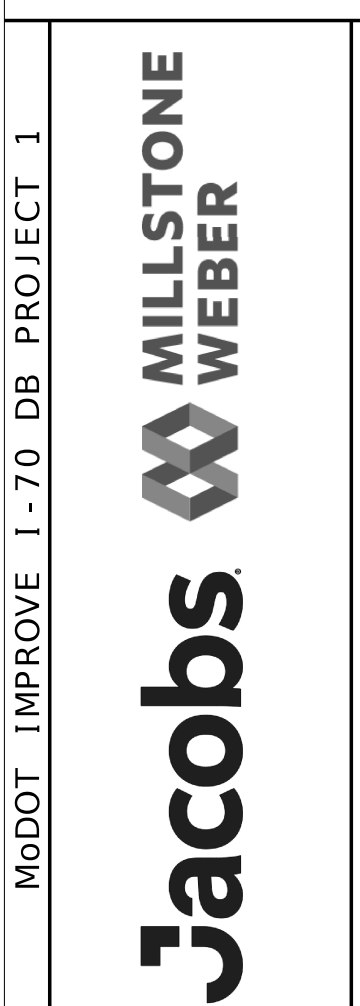
For details of possible utility conflicts at Int. Bent No. 4, see Sheet Nos. 1 and 2.

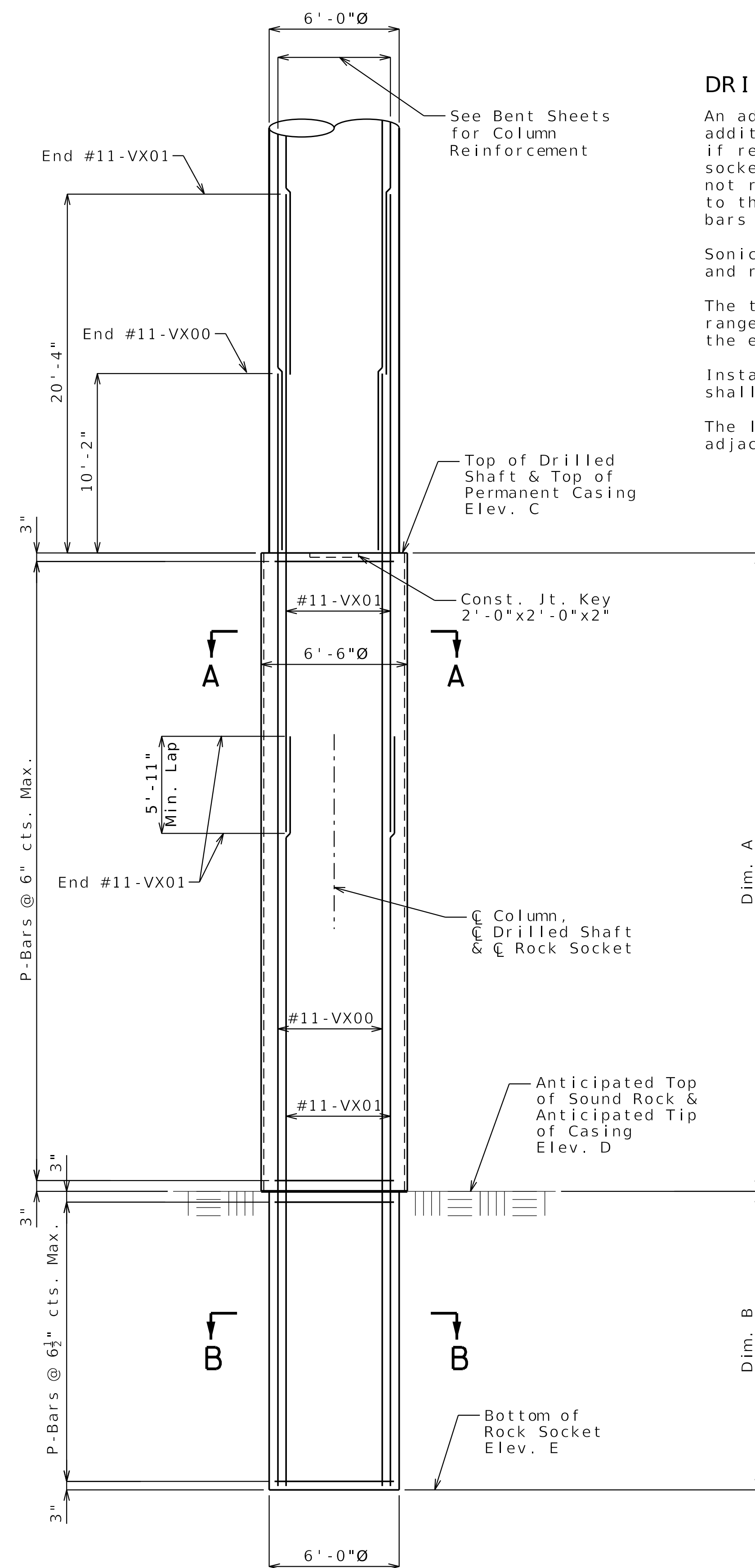
C 3 SHEET DELETED 05-02-25
C 2 REVISED 03-12-25

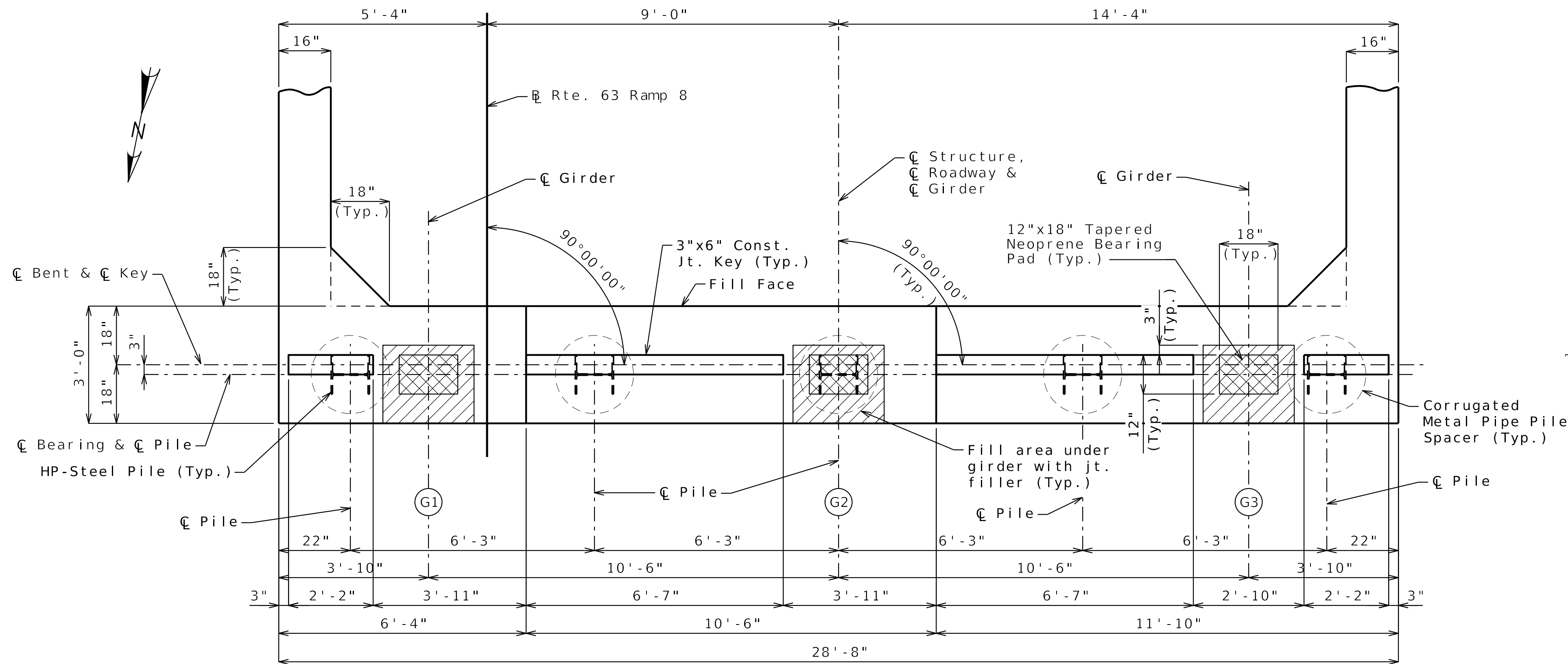


05/12/2025 11:22:23 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED
1-MAY-2025
ROUTE 63NB
DISTRICT BR
STATE MO
SHEET NO. 21A
COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9546

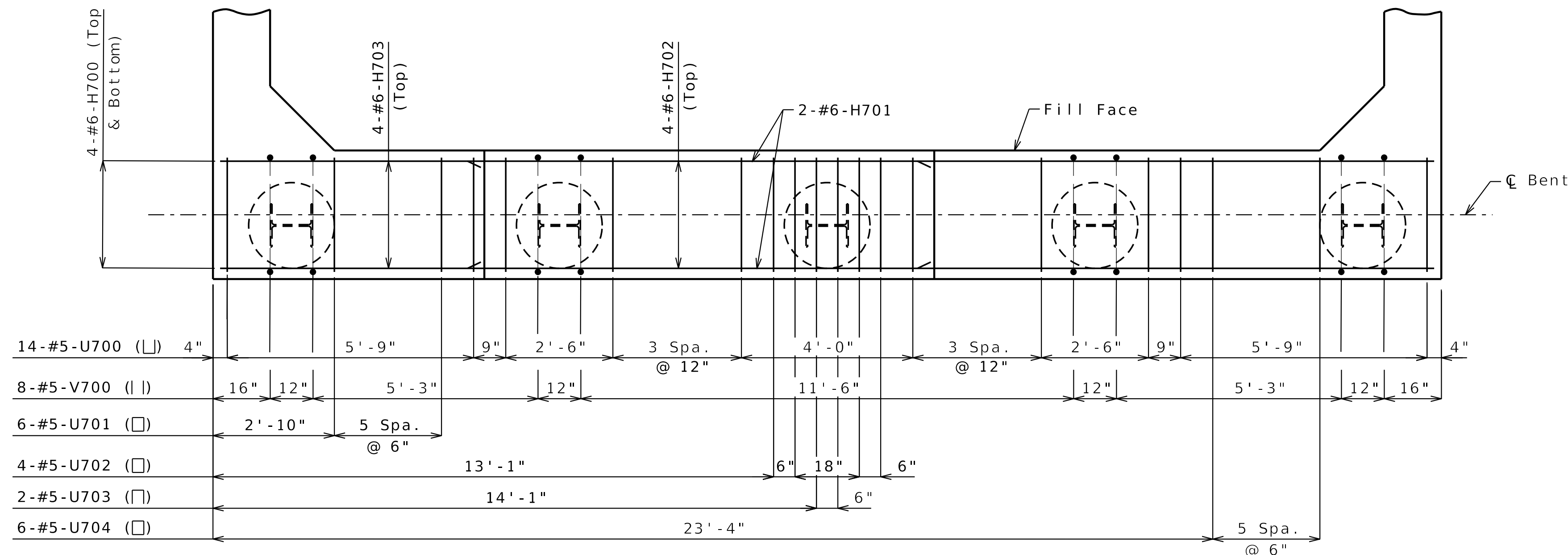
DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION
03/12/25	REV. 2 - NDC-010 - REVISED SHEET NOTES
05/02/25	REV. 3 - NDC-021 - SHEET DELETED



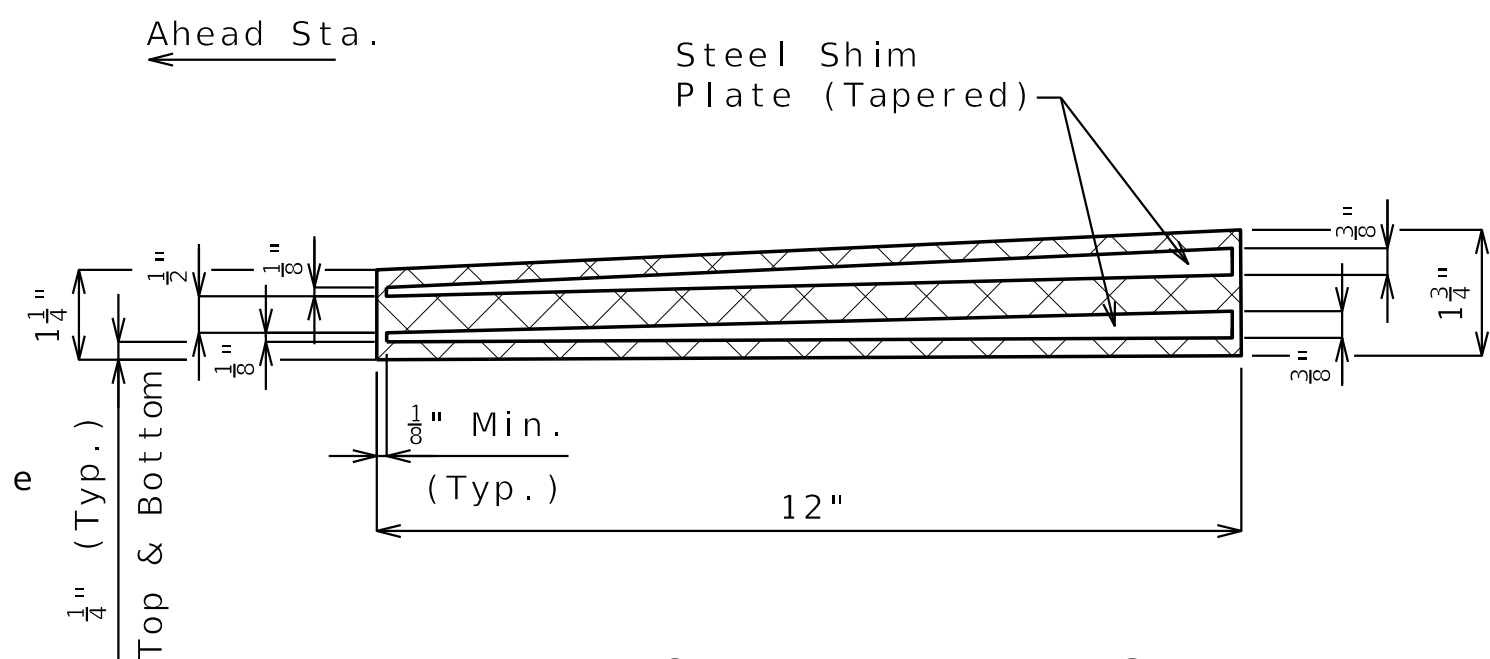




PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT
Keys not shown for clarity.



SECTION THRU KEY

Notes:

Work this sheet with Sheet Nos. 23 and 24.

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

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. 22 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_022_JST0021_END BENT 7-1.dgn



01/16/2025 9:47:00 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 22

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

11/15/24

01/16/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

ModOT

JACOBS

MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

MODOT IMPROVE I-70 DB PROJECT 1



01/16/2025 9:47:00 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 23

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

11/15/24

01/16/25

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11/15/24

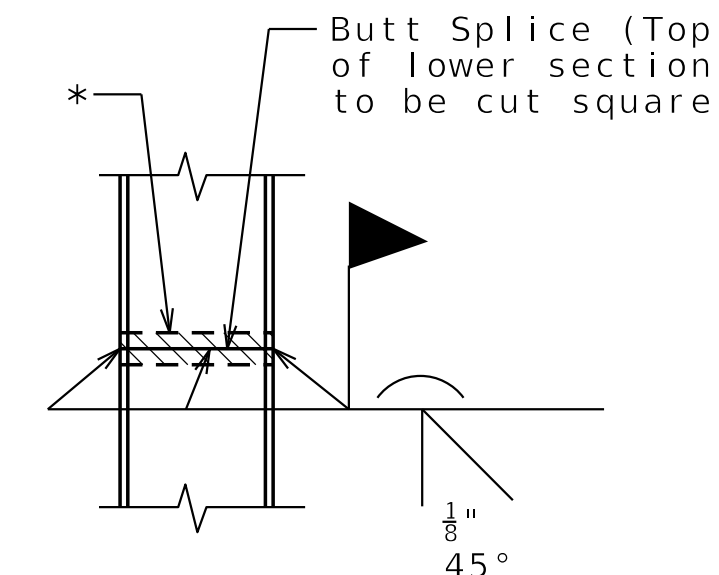
01/16/25

11/15/24

01/16/25

11/15/24

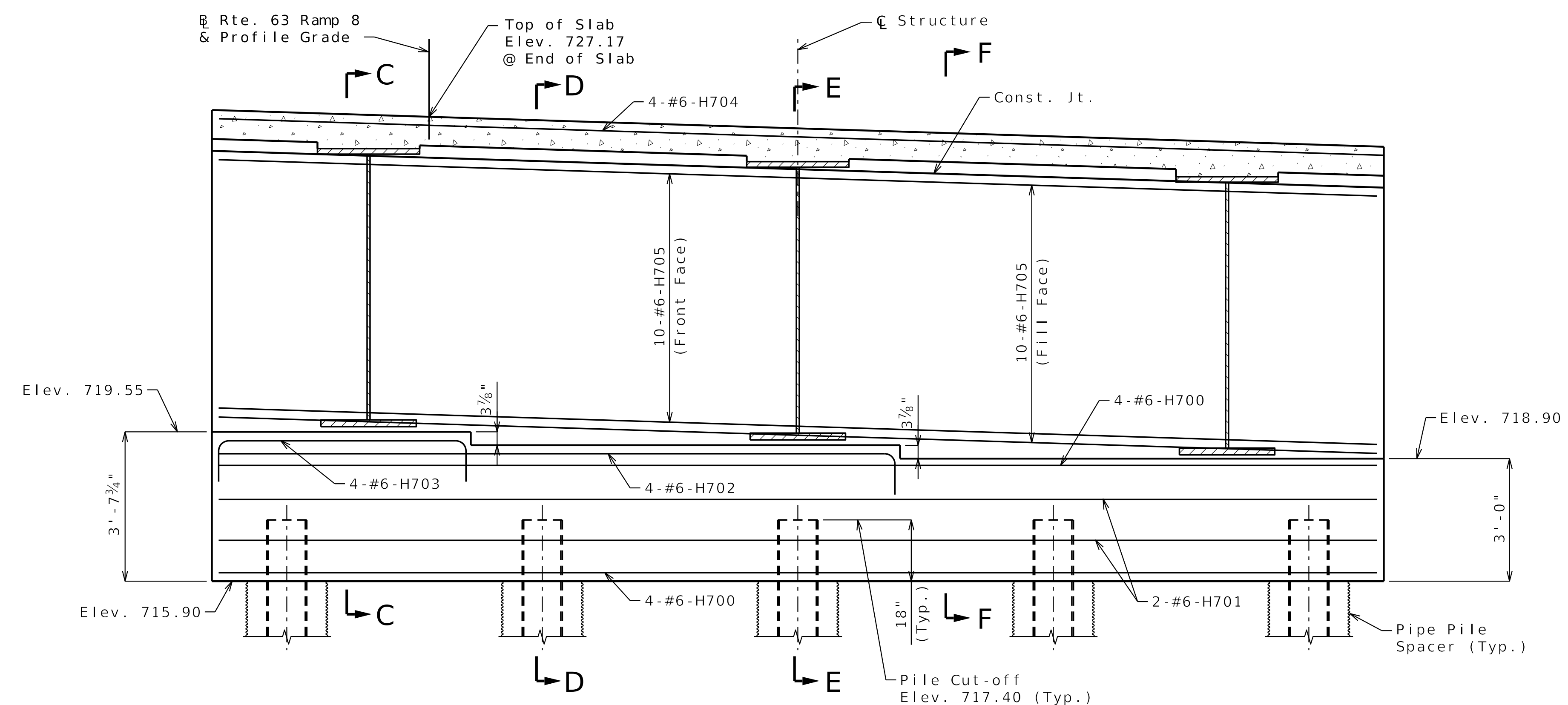
01/16/25



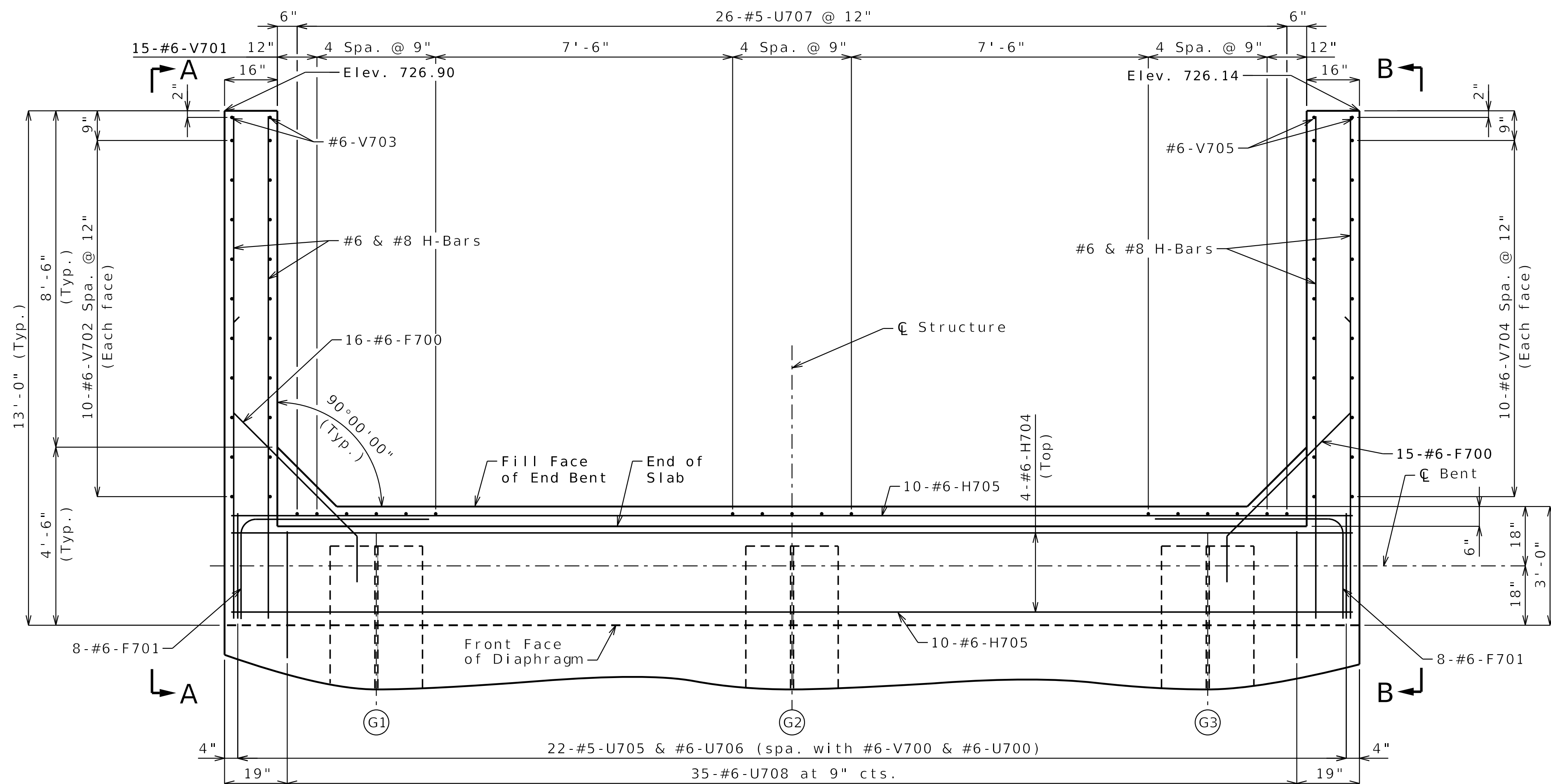
STEEL PILE SPLICE

(If required)

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



SECTION NEAR END BENT



PLAN

DETAILS OF END BENT NO. 7

Notes:
Work this sheet with Sheets No. 22 and 24.

For Elevations A-A & B-B and Sections C-C, D-D E-E & F-F, see Sheet No. 24.

The #6-F700 bars shall be bent in the field to clear girders, if required.

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

Concrete diaphragms at the integral end bents shall be poured a minimum of 12 hours before the slab is poured.

For details of vertical drain at end bent, see Sheet No. 10.

For details of bridge approach slab, see Sheet No. 56.

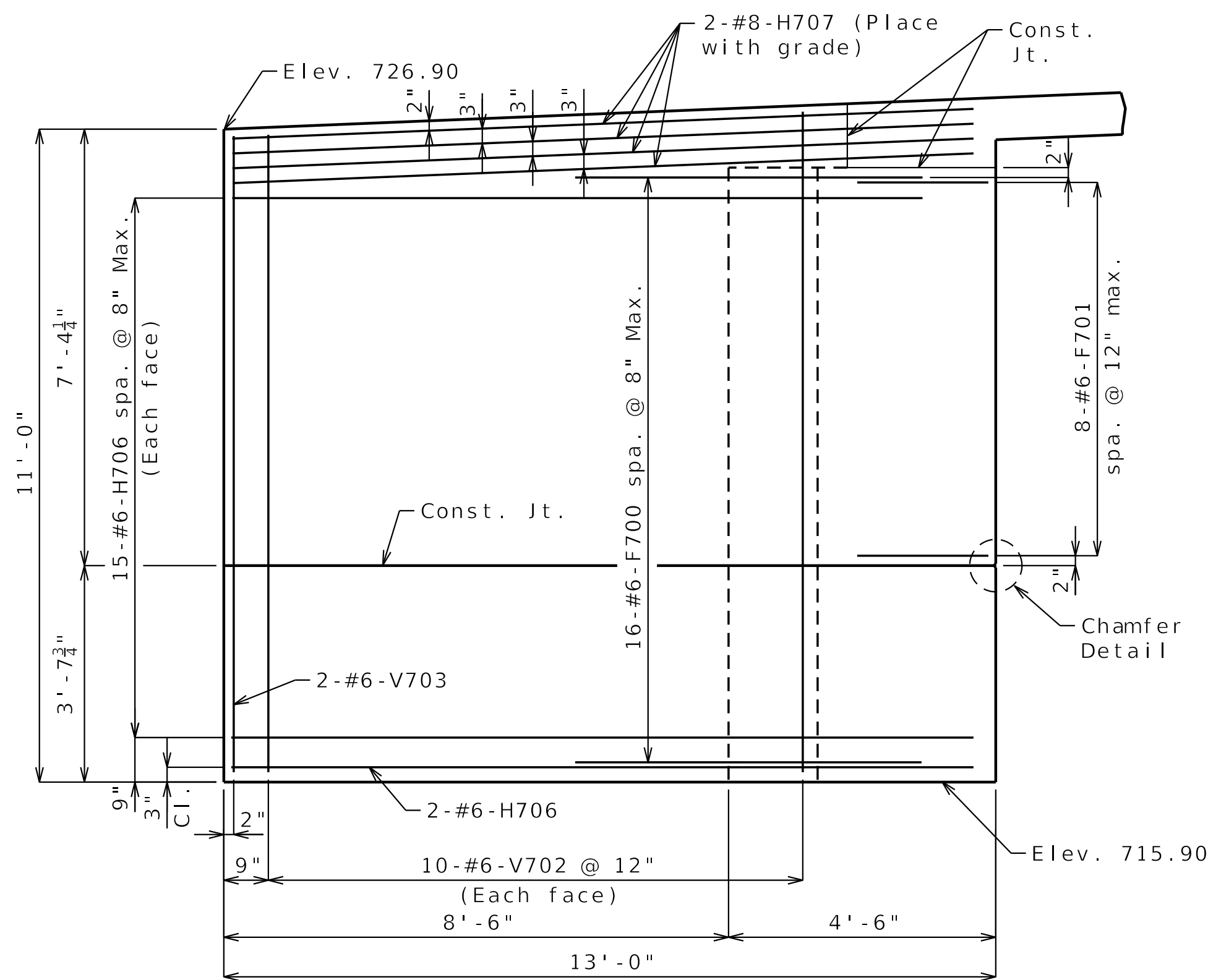
Detailed SEP 2024
Checked SEP 2024

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

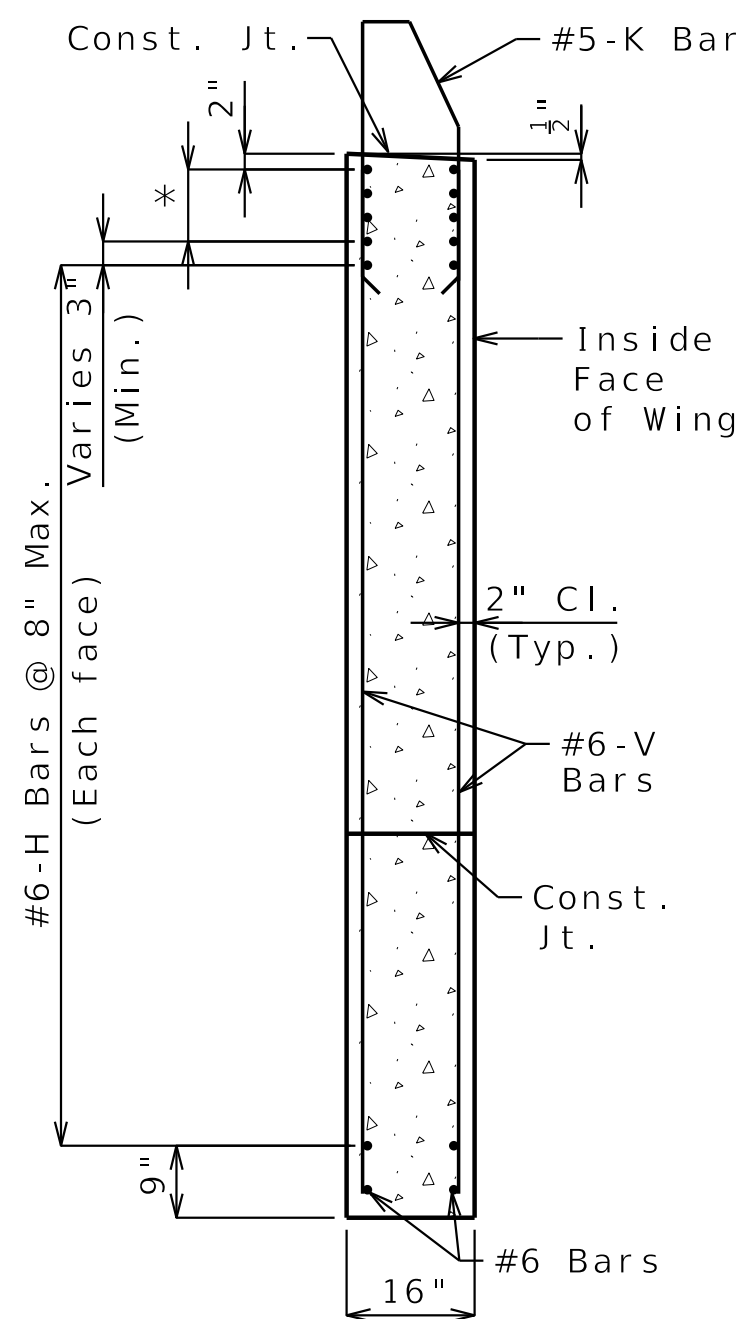
Sheet No. 23 of 74

pw:///jacobs-us-v-pw.bentley.com:jacobs-us-v-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_023_JST0021_END BENT 7-2.dgn

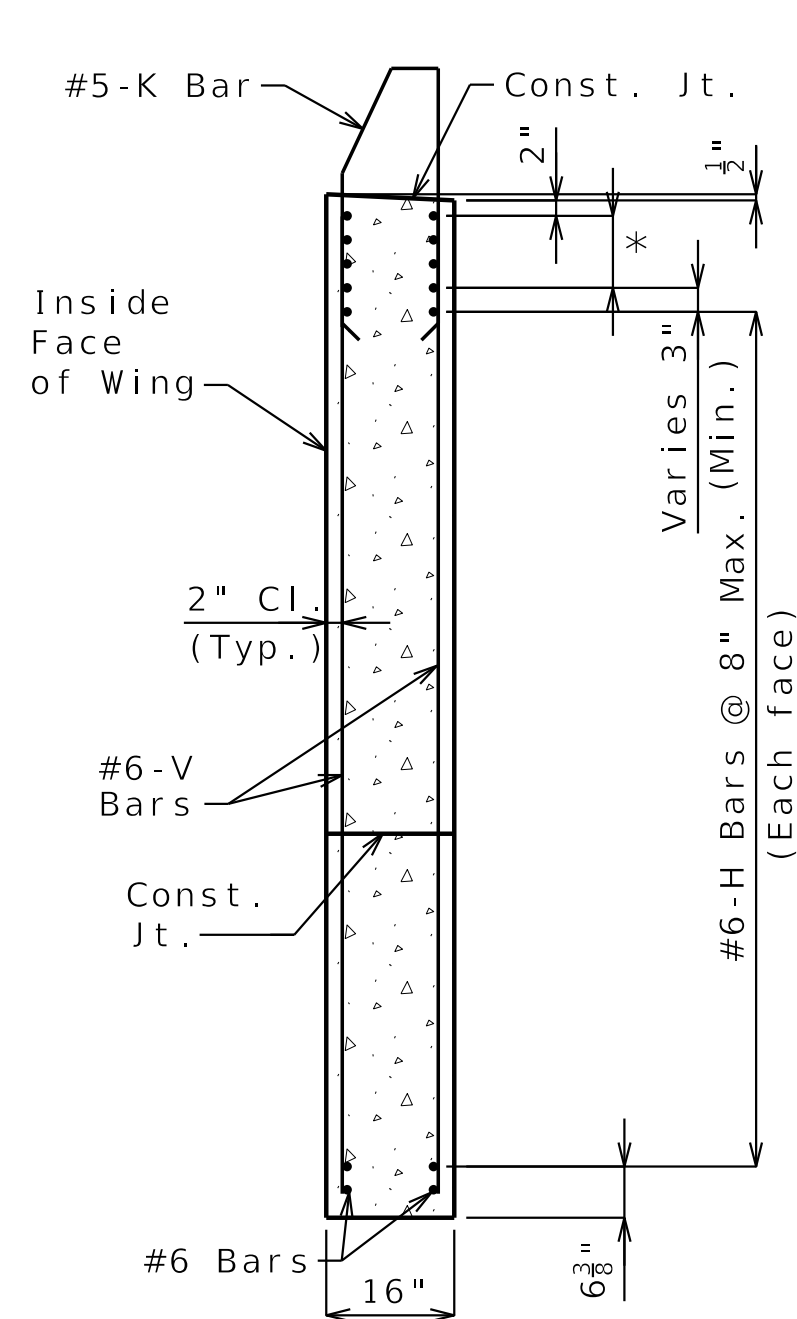
08:05 16-JAN-2025



ELEVATION A-A

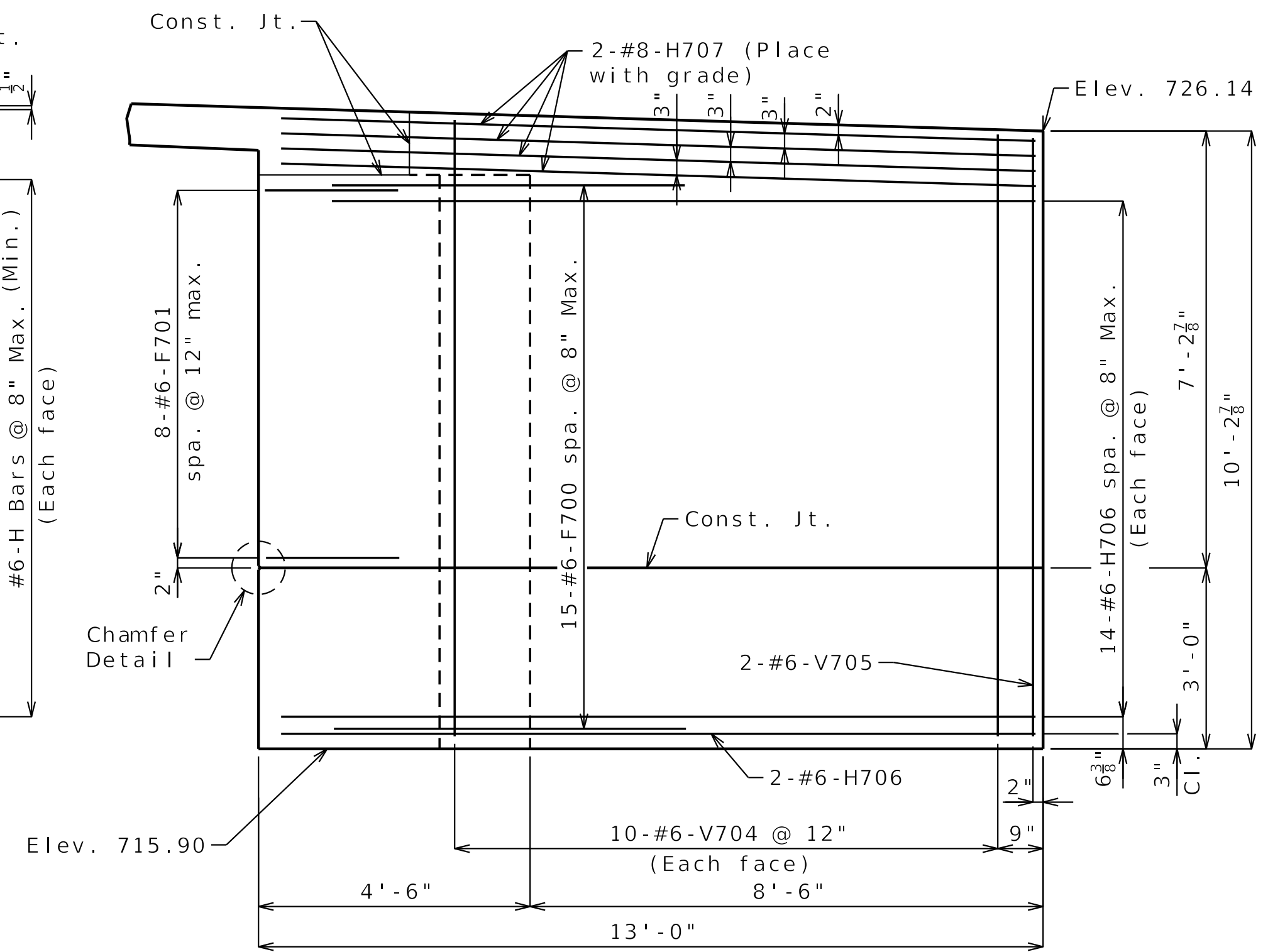


SECTION THRU
NORTH WINGWALL

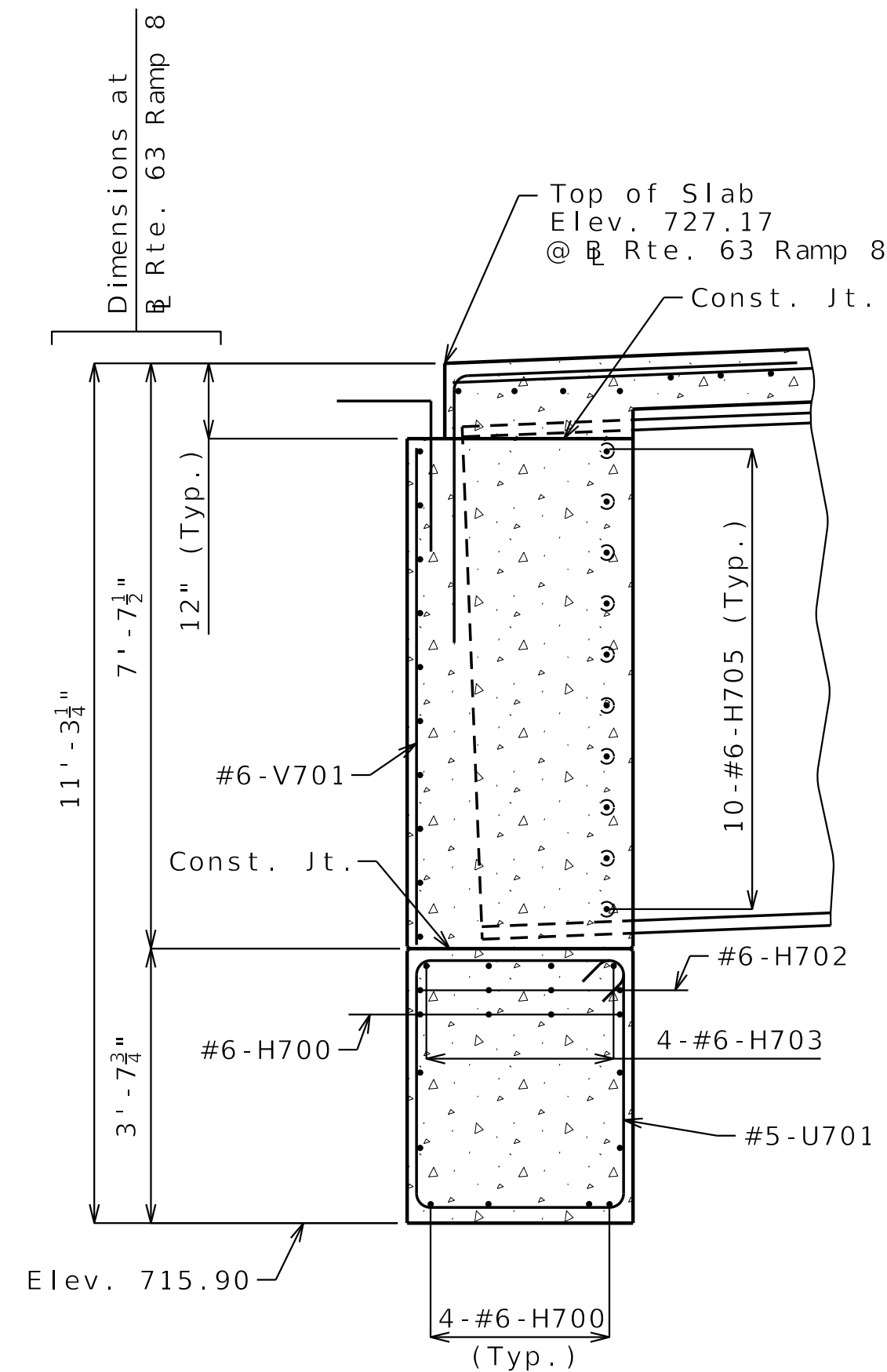


SECTION THRU
SOUTH WINGWALL

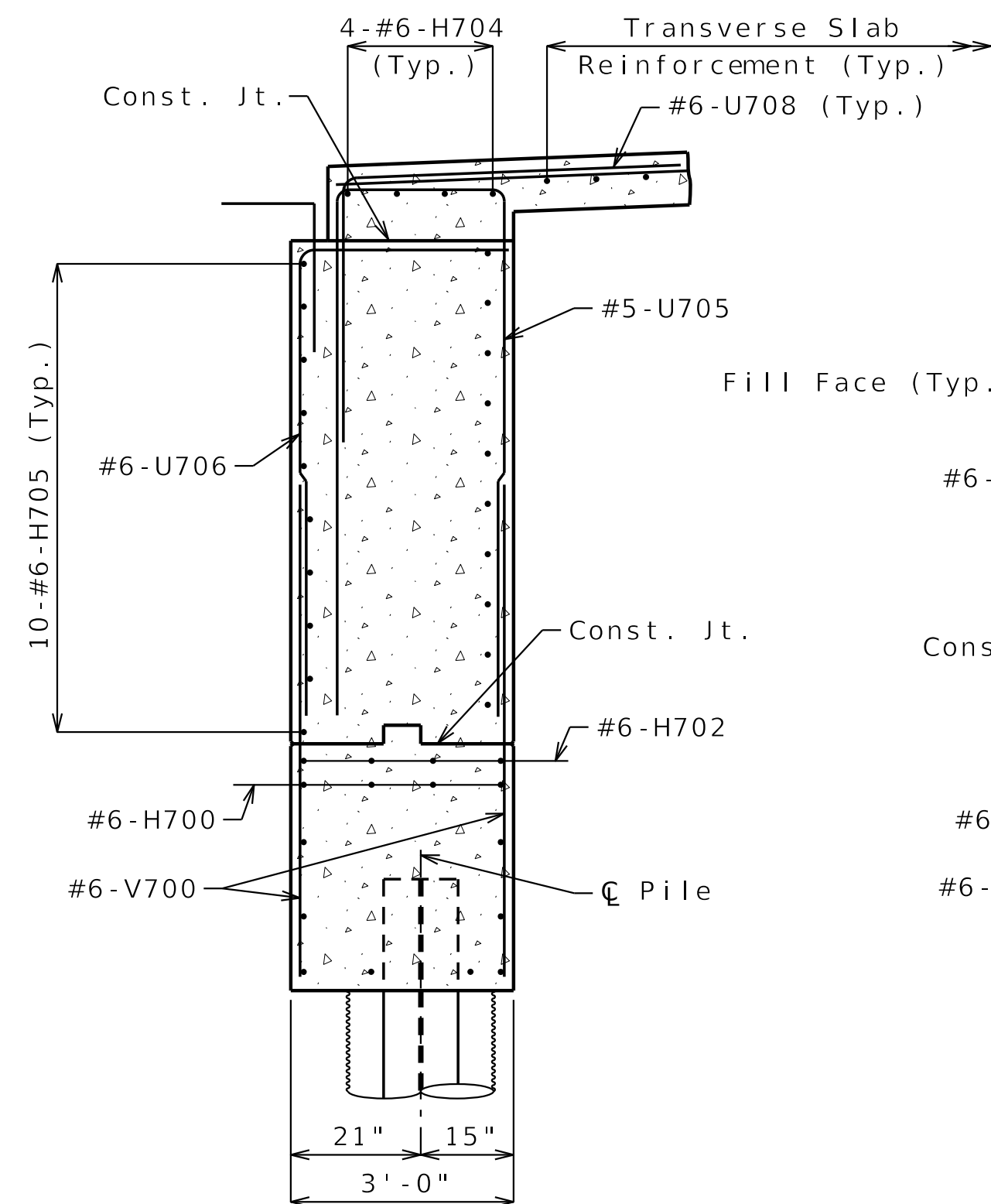
* #8-H Bars at 3" cts.
(Each face) (Place with grade)



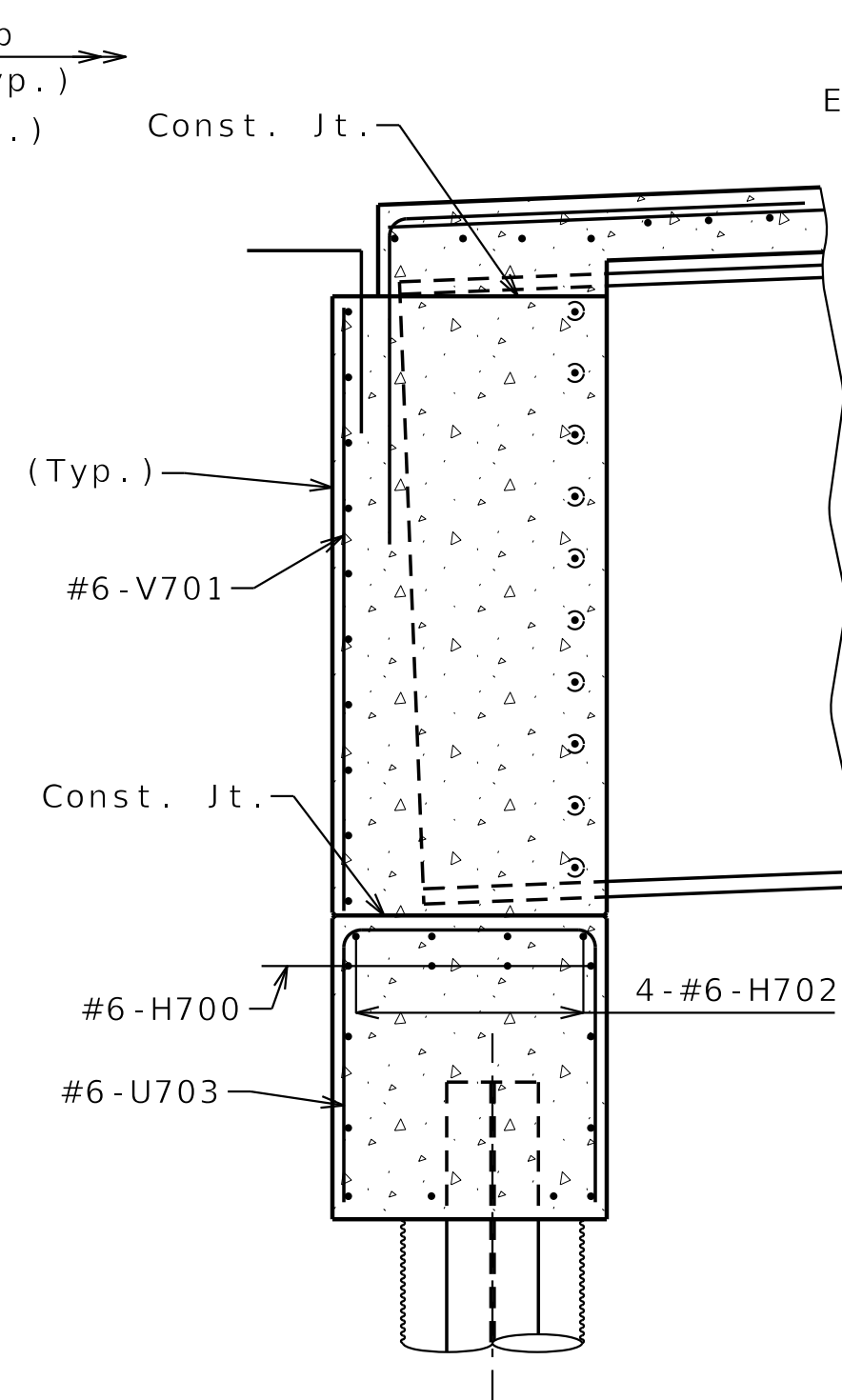
ELEVATION B-B



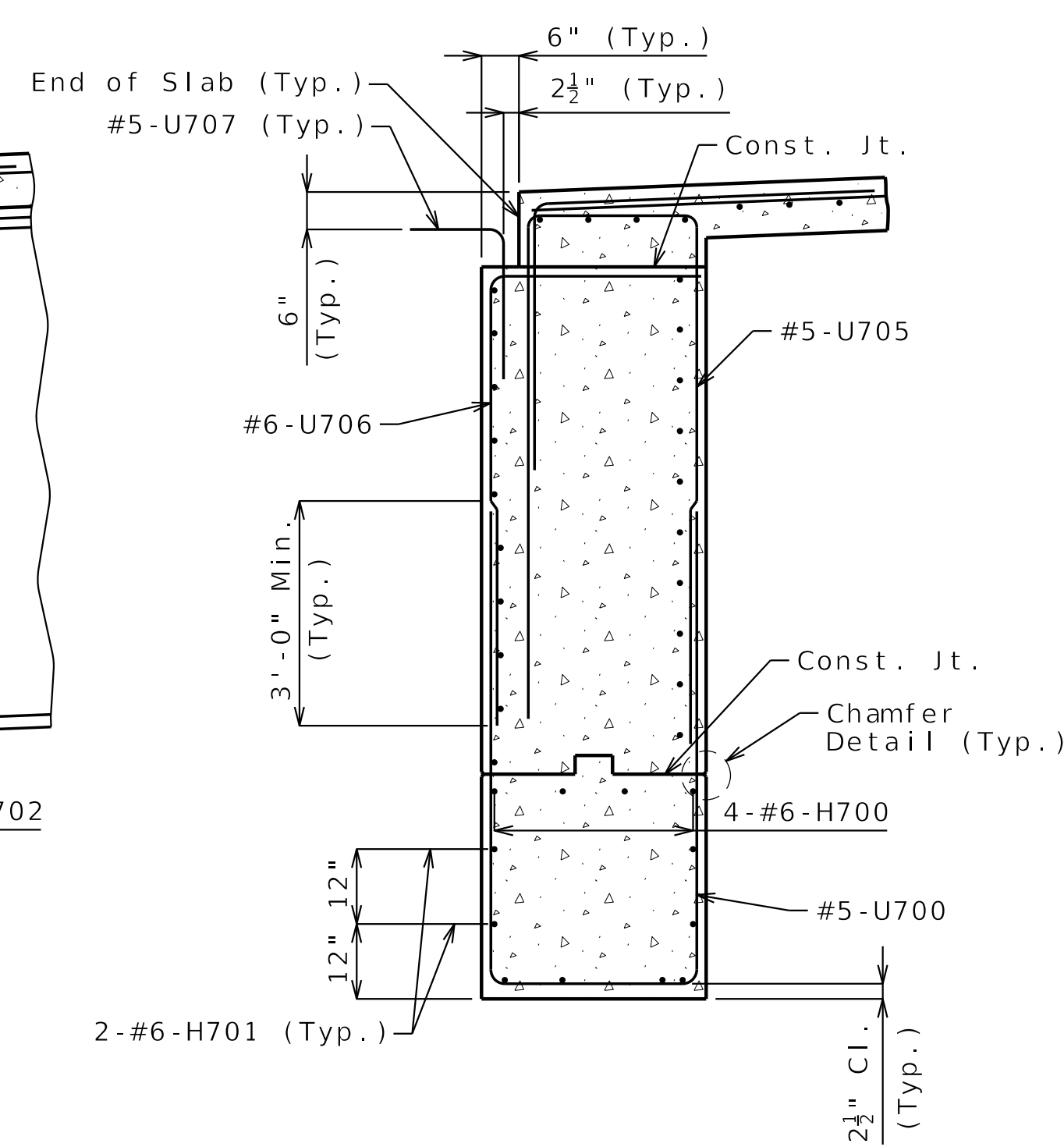
SECTION C-C



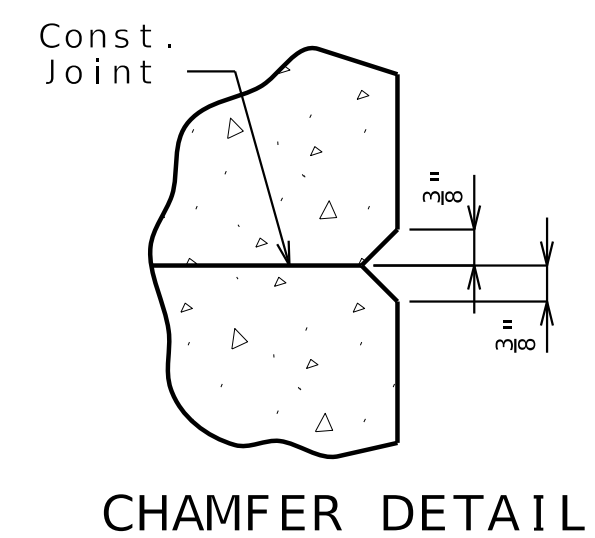
SECTION D-D



SECTION E-E



SECTION F-F



CHAMFER DETAIL

Notes:

Work this sheet with Sheet Nos. 22 and 23.

For reinforcement at the barrier, see Sheet No. 55.

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. 24 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_024_JST0021_END BENT 7-3.dgn



01/16/2025 9:47:00 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 24

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

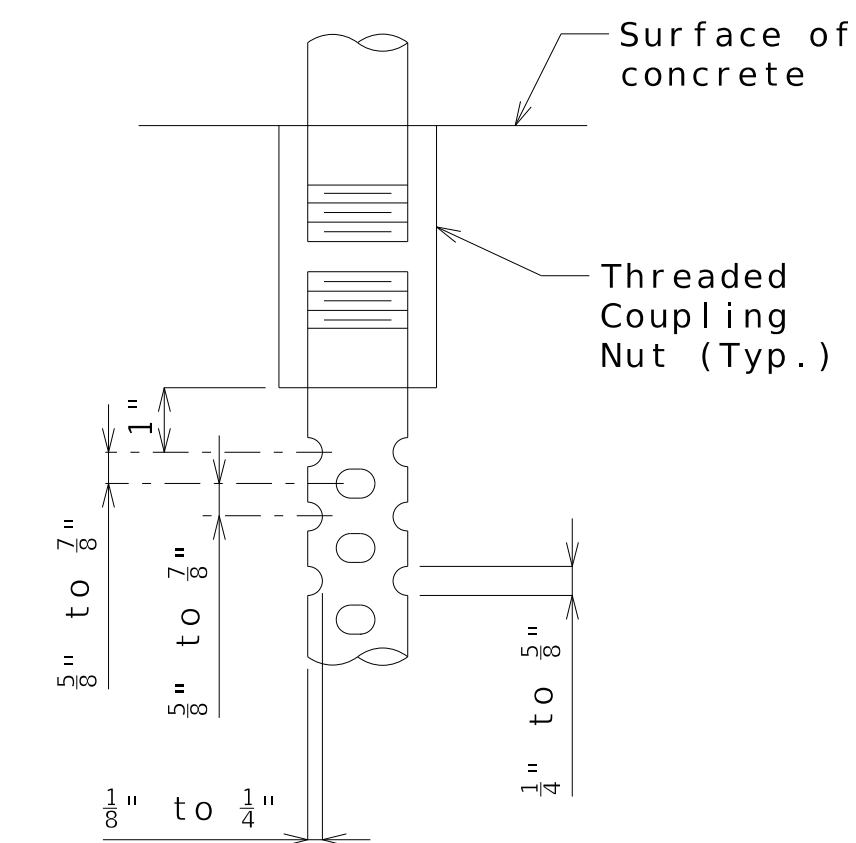
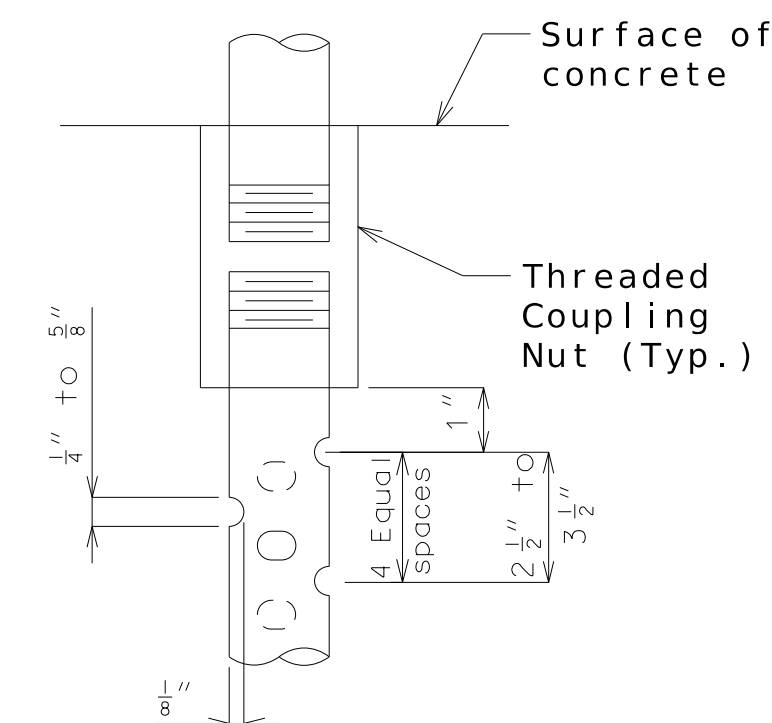
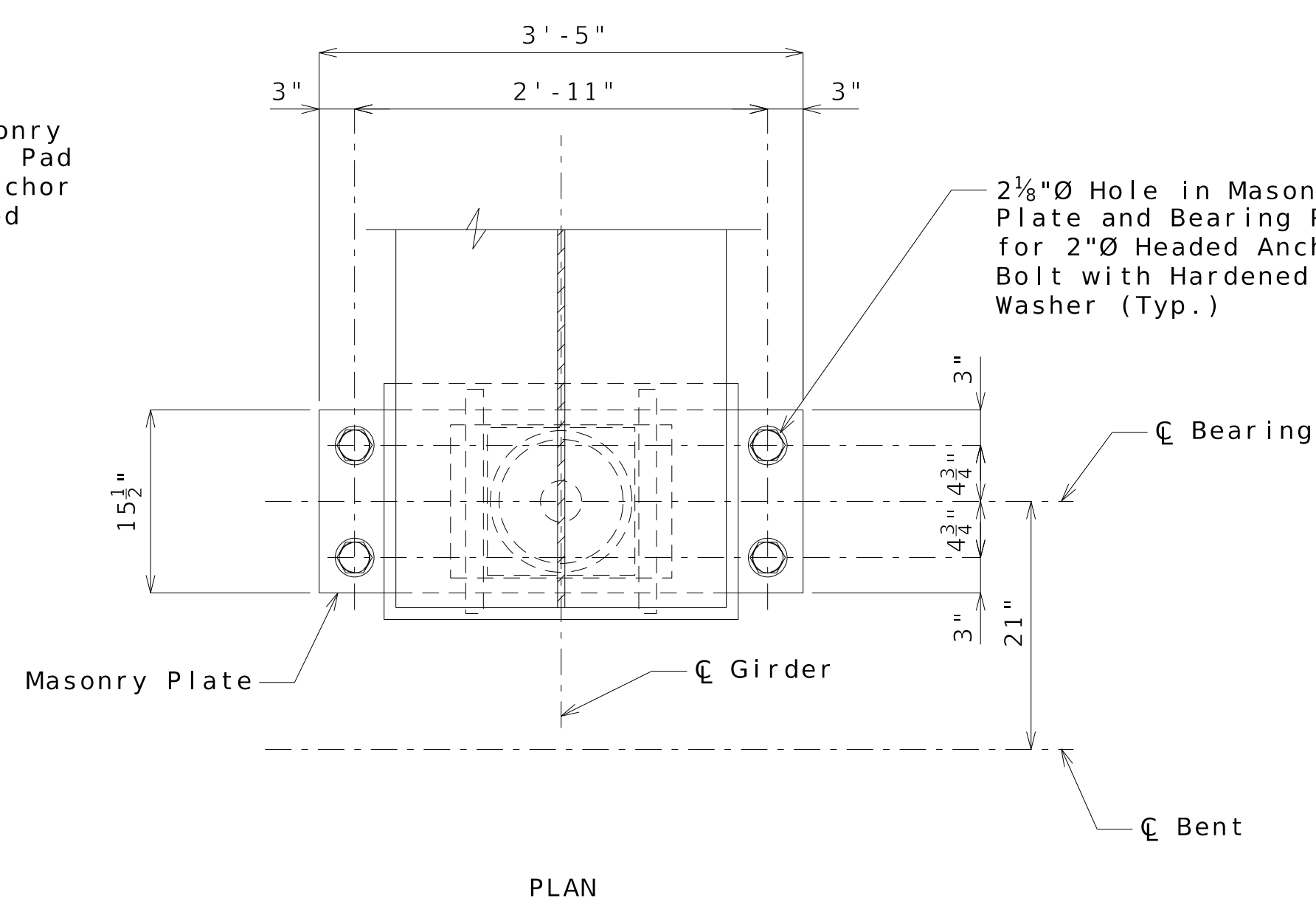
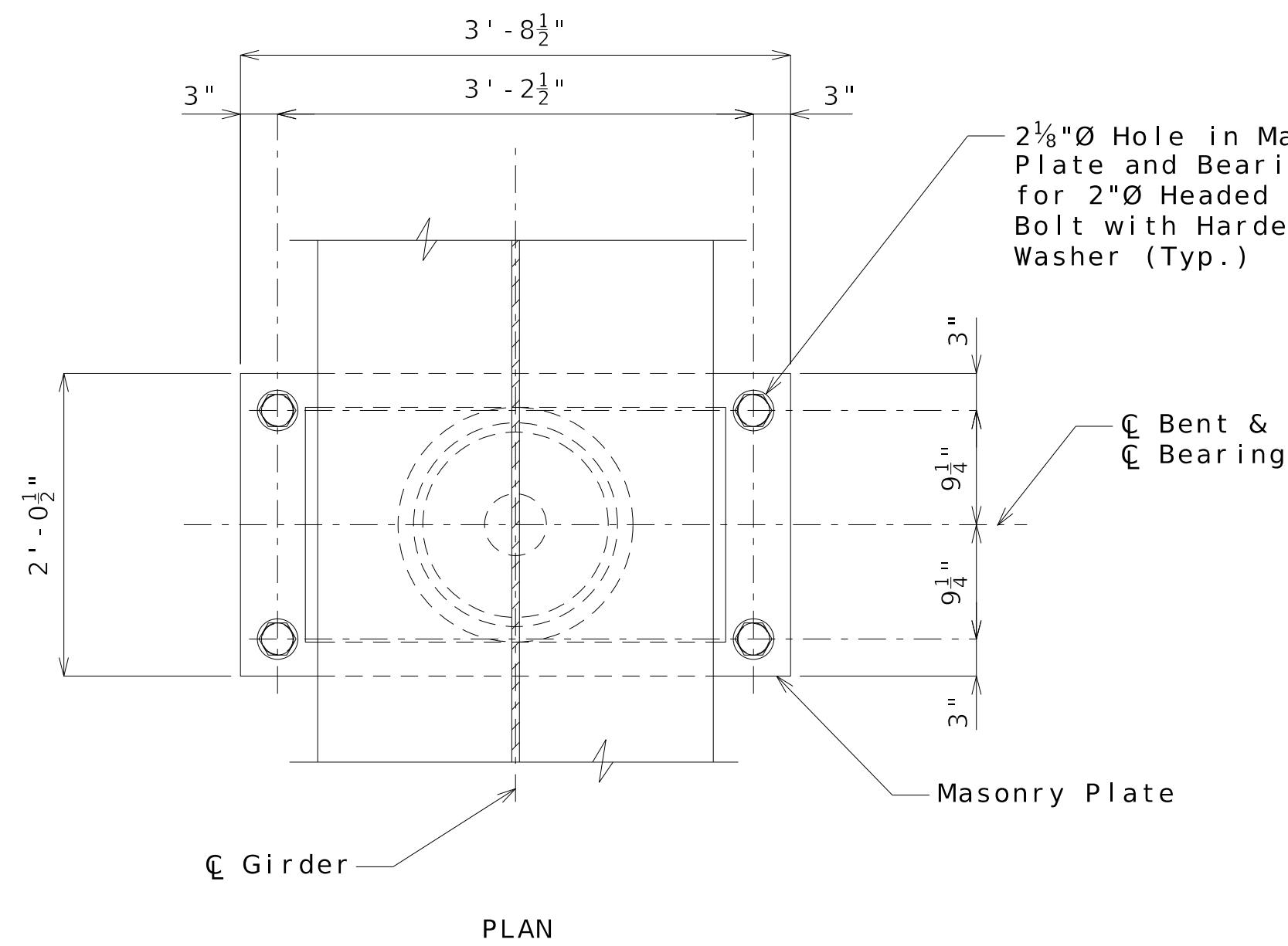
BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	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

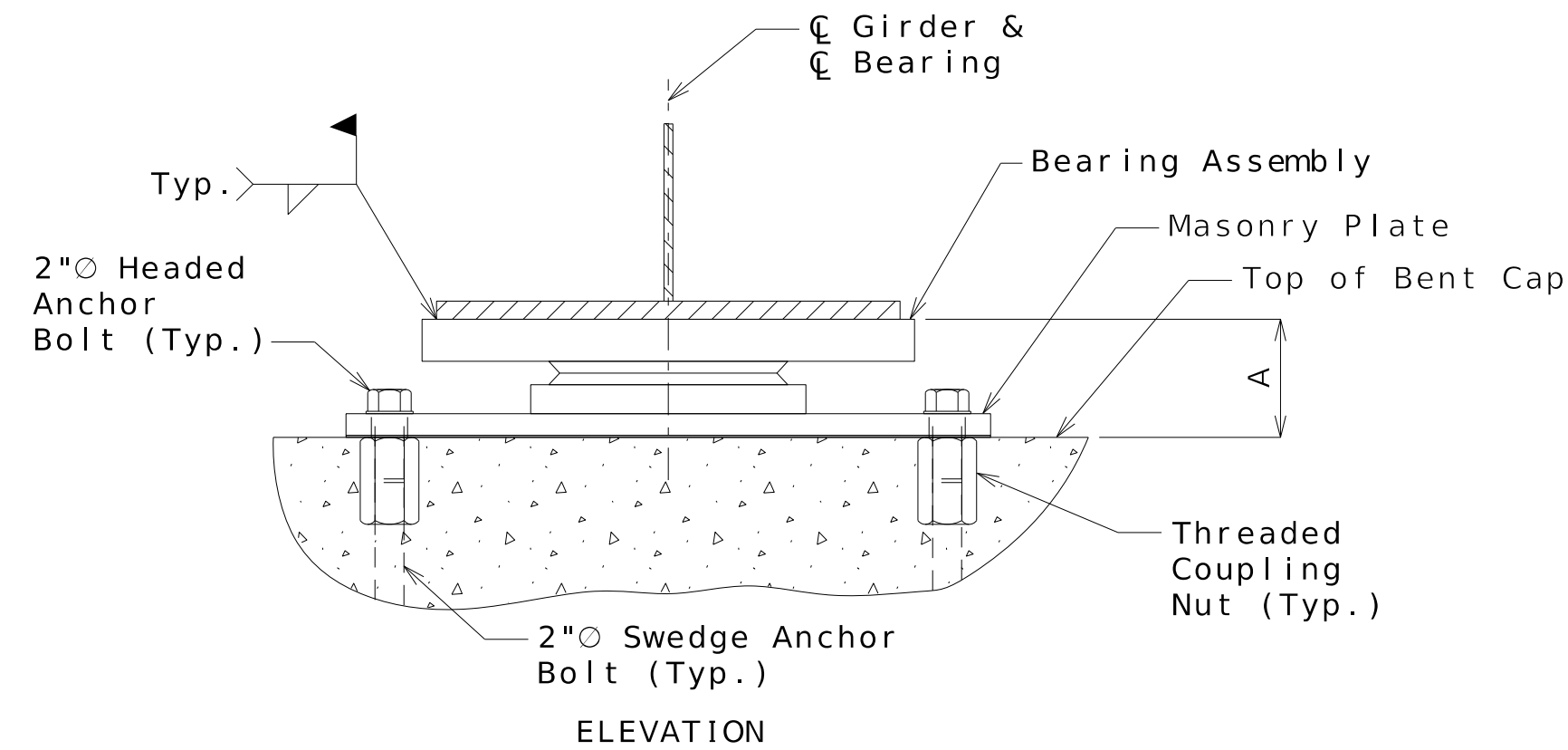
08:06 16 - JAN - 2025



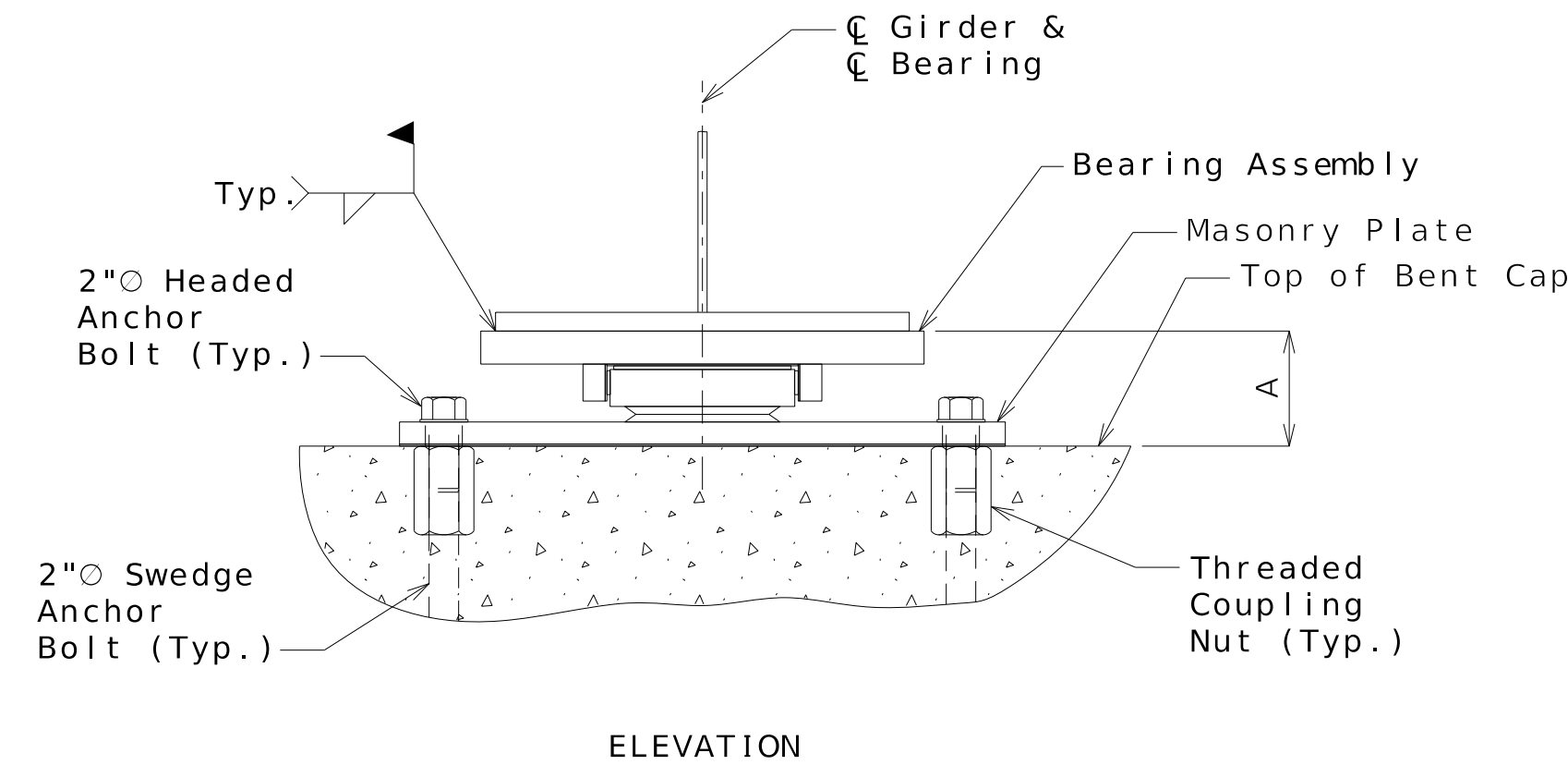
DETAIL OF ANCHOR BOLTS

OPTIONAL DETAIL OF ANCHOR BOLTS

SWEDGE ANCHOR BOLT DETAILS



BEARING AT BENT NOS. 2, 3, 5 AND 6



BEARING AT BENT NO. 4

BEARING DESIGN DATA

BEARING DESIGN DATA						
DESIGN LOADS	BENTS					
	2	3	4 (Back)	4 (Ahead)	5	6
Dim. A at C Bearing (in)	8.15	8.15	7.79	7.79	8.15	8.15
Quantity	3	3	3	3	3	3
Total Longitudinal Displacement (in)	0	0	2.118	1.994	0	0
Total Transverse Displacement (in)	0	0	.002	.001	0	0
Vertical Service Load (kips)	911	949	375	370	945	894
Vertical Dead Load (kips)	640	667	264	260	665	628
Vertical Strength (kips)	1187	1234	484	478	1231	1164
Horizontal Service Load (kips)	182	190	106	109	189	179
Horizontal Strength (kips)	237	247	97	123	246	233
Horizontal Extreme Event (kips)	0	0	0	0	0	0
Service Rotation (rad)	0.0072	0.0064	0.0100	0.0089	0.0069	0.0076
Strength Rotation (rad)	0.02	0.02	0.02	0.02	0.02	0.02

GIRDER JACKING LOADS (KIPS)					
BENTS					
2	3	4 (Back)	4 (Ahead)	5	6
1025	1050	405	405	1080	995

BEARING DETAILS - BENTS 2 THRU 6

Detailed OCT 2024
Checked JAN 2025

Checked JAN 2025

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

Sheet No. 25 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B A9546 025 JST0021 Bearing Details.dgn

08:06 16 - JAN - 2025



01/16/2025 9:47:01 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE	STATE
C2ND	MO

63NB	MO
DISTRICT	SHEET NO.

BR

25

COUNTY

BOONE

JOB NO.
IST0021

9510021
CONTRACT ID.

DATE	DESCRIPTION
10/18/24	REV A - FINAL REVIEW
01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION



MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

MoDOT IMPROVE 1-70 DB PROJECT 1

Jacobs  **MILLSTONE WEBER**

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

MoDOT IMPROVE I-70 DB PROJECT 1

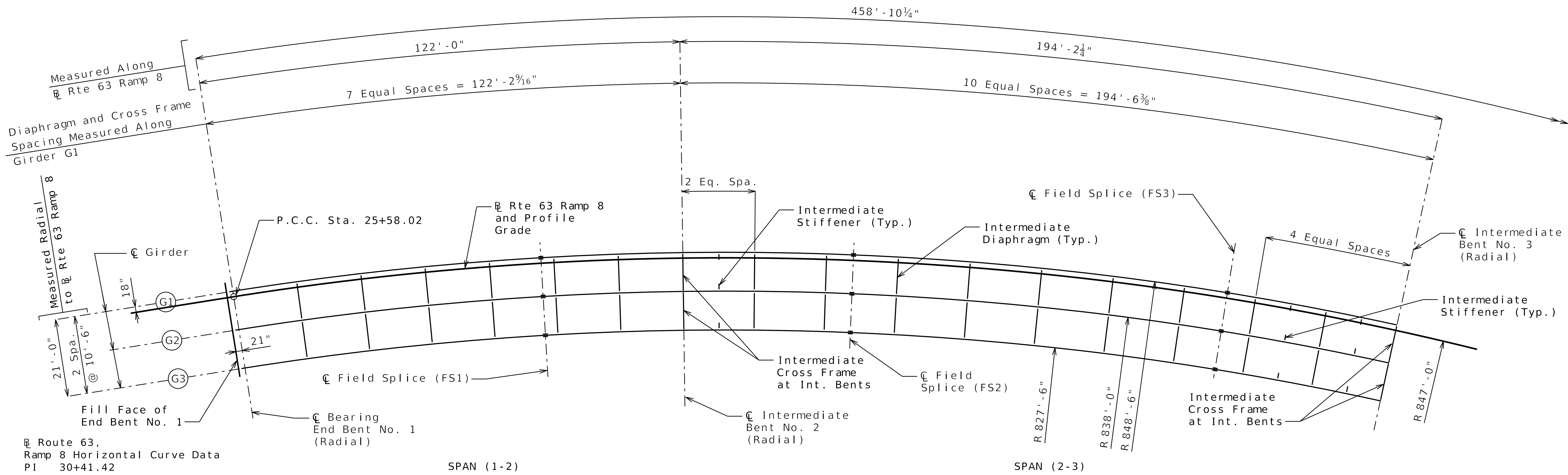
Jacobs

**MILLSTONE
WEBER**

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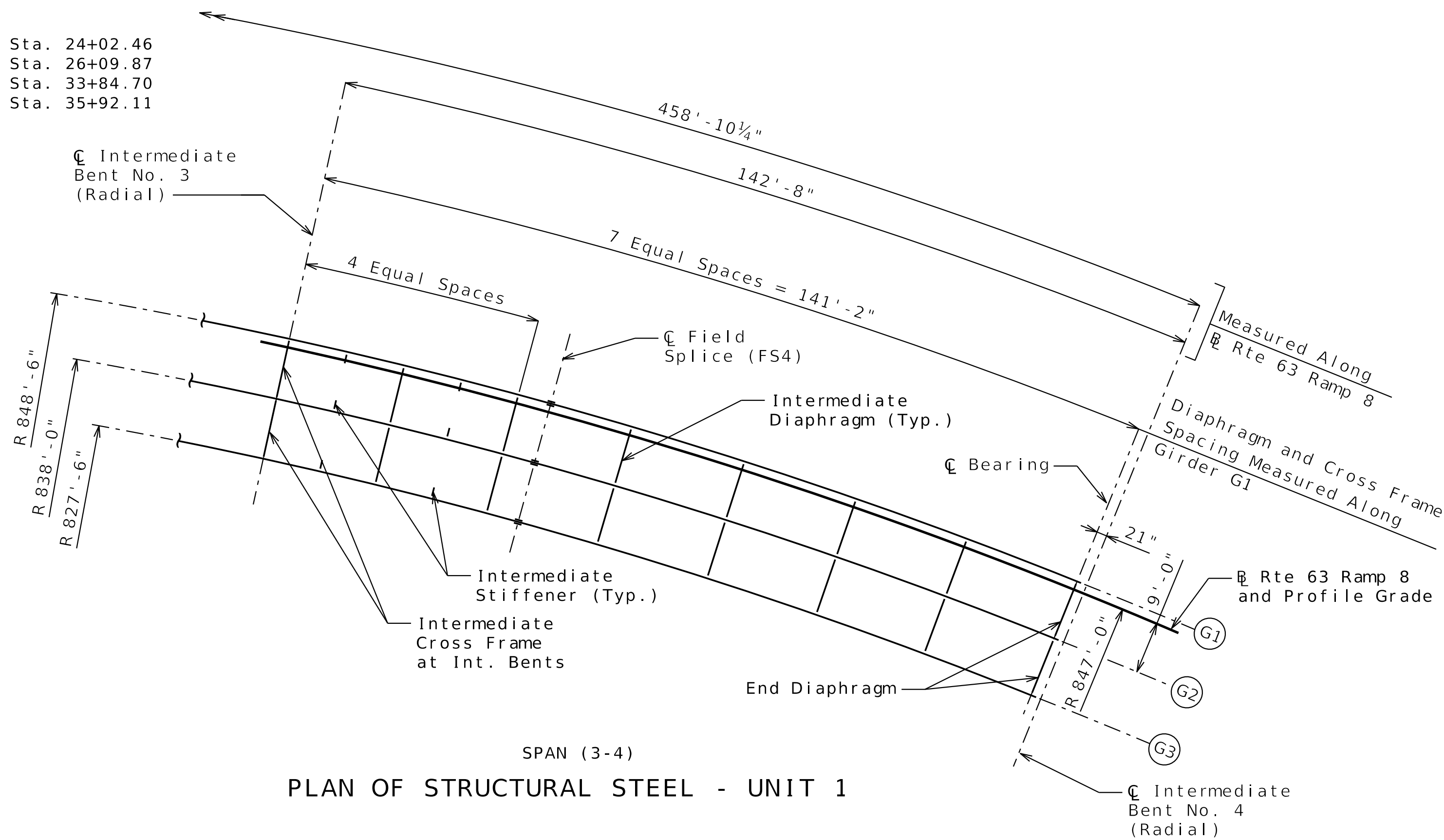
08 06 16 JAN 2025

08:06 16 - JAN - 2025



PLAN OF STRUCTURAL STEEL - UNIT 1

Route 63,
Ramp 8 Horizontal Curve Data
PI 30+41.42
PC 25+58.02
PT 34+36.55
 Δ 59°25'43.4" (RT)
D 6°45'52.4"
L 878.53' (ARC)
T 483.40'
R 847.00'
S.E. 0.02 FT/FT at Sta. 24+02.46
S.E. -0.06 FT/FT at Sta. 26+09.87
S.E. -0.06 FT/FT at Sta. 33+84.70
S.E. 0.02 FT/FT at Sta. 35+92.11



PLAN OF STRUCTURAL STEEL - UNIT 1

GIRDER LAYOUT - UNIT 1

Notes:

All diaphragms and cross frames are radial.

For details of bolted field splices, see Sheet No. 34.

For details of end diaphragms, intermediate diaphragms and cross frames, see Sheet No. 36.

Longitudinal dimensions are horizontal arc dimensions from C bearing to C bearing. See Part-Longitudinal Sections on Sheet No. 35.



Vincent K. Nganga
08/16/2024 11:10:17 AM
Vincent K. Nganga, P.E.
MO-029018

DATE PREPARED
15-AUG-2024

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 26

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DESCRIPTION	REV A - STEEL PACKAGE FINAL REVIEW	REV 0 - RELEASED FOR CONSTRUCTION	DATE
			8/6/24
			8/15/24

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

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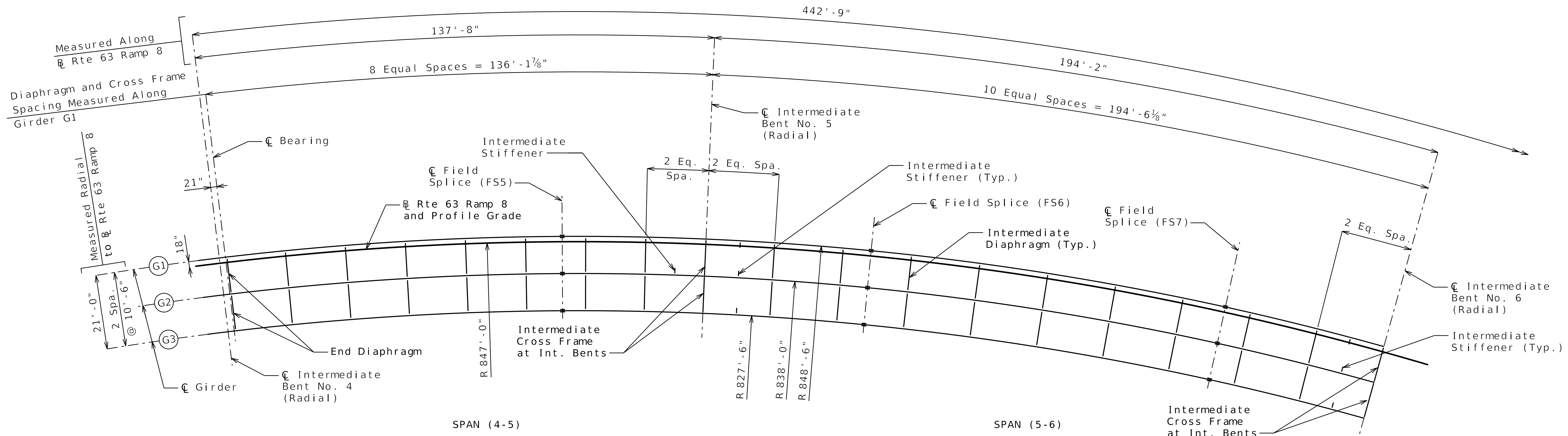
Detailed APRIL 2024
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Note: This drawing is not to scale. Follow dimensions.

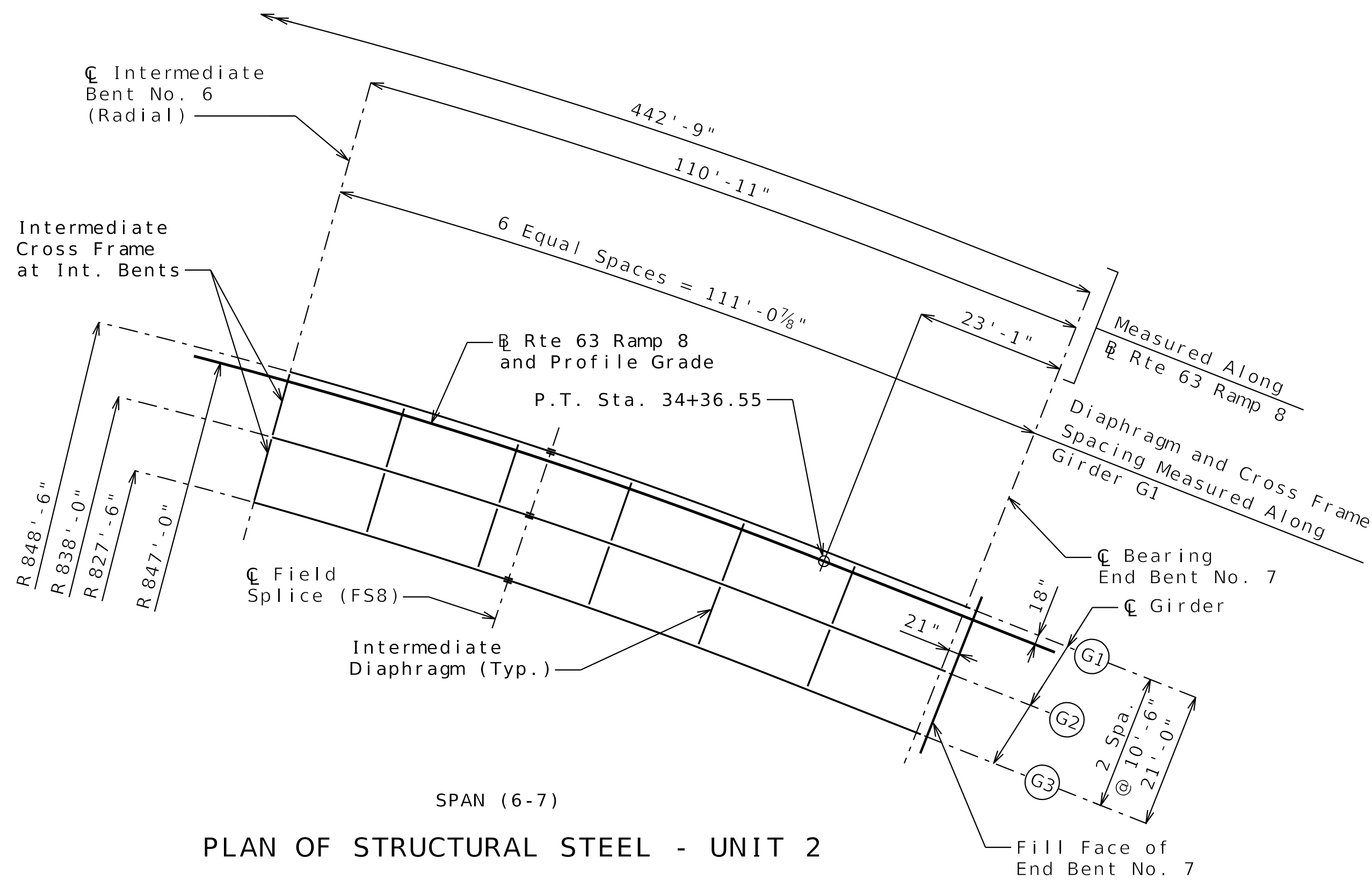
Sheet No. 26 of 74

pww:///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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_026_JST0021_GIRDER LAYOUT 1.dgn

16:29 15-AUG-2024



PLAN OF STRUCTURAL STEEL - UNIT 2



PLAN OF STRUCTURAL STEEL - UNIT 2

GIRDER LAYOUT - UNIT 2

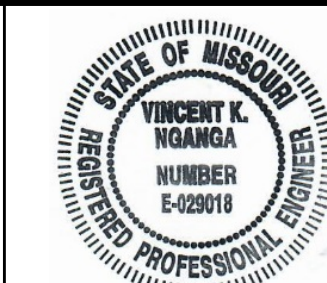
Notes:

All diaphragms and cross frames are radial.

For details of bolted field splices, see Sheet No. 34.

For details of end diaphragms, intermediate diaphragms and cross frames, see Sheet No. 36.

Longitudinal dimensions are horizontal arc dimensions from $\text{\textcircled{C}}$ bearing to $\text{\textcircled{C}}$ bearing. See Part-Longitudinal Sections on Sheet No. 35.



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08/16/2024 11:10:38 AM
Vincent K. Nganga, P.E.
MO-029018

DATE PREPARED
15-AUG-2024

ROUTE
63NB

STATE
MO

DISTRICT
BR

SHEET NO.
27

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9546

DESCRIPTION

REV A - STEEL PACKAGE FINAL REVIEW

REV 0 - RELEASED FOR CONSTRUCTION

DATE

8/6/24

8/15/24

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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MODOT

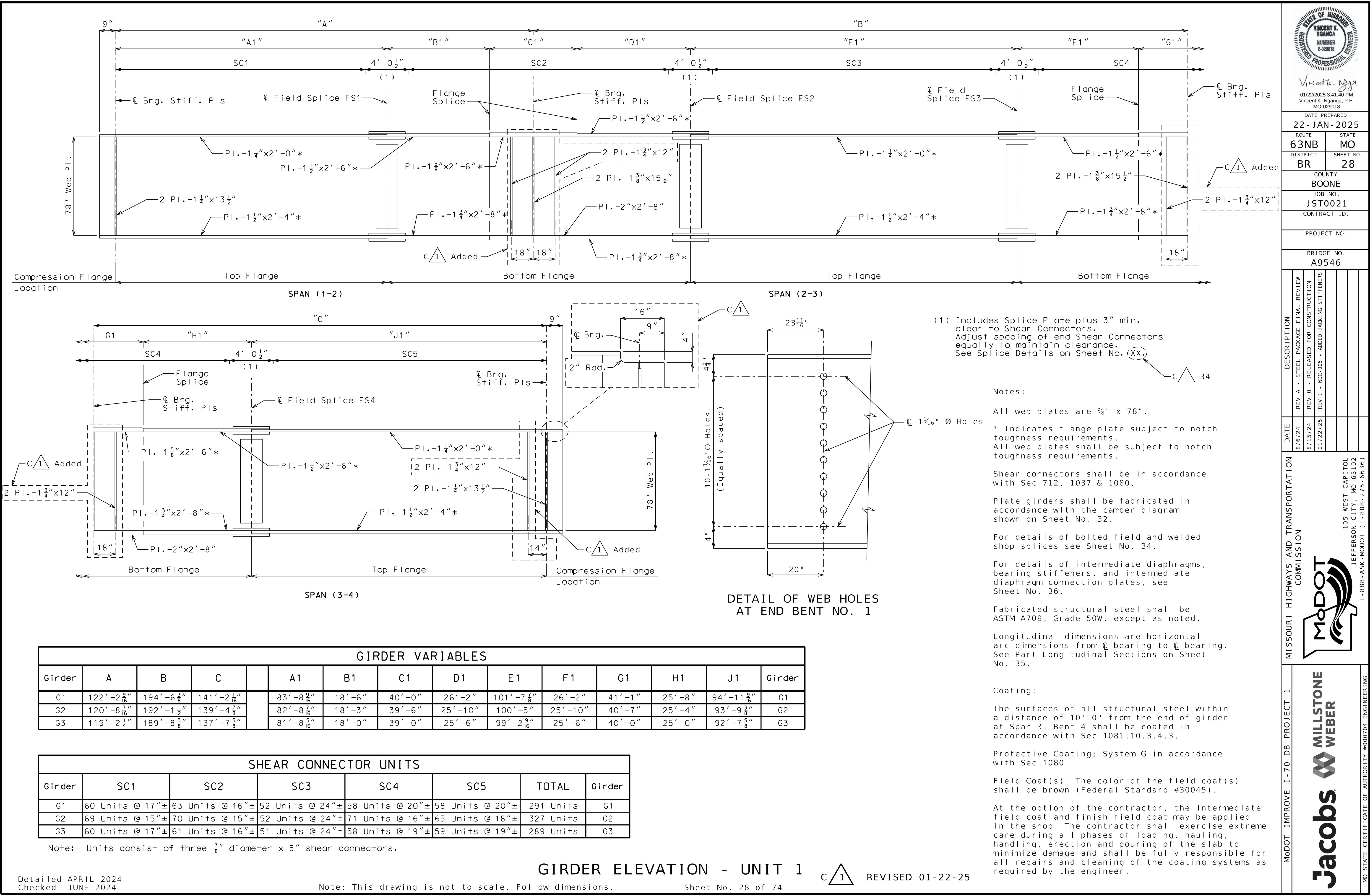
PROJECT 1

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Jacobs

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REV.



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DATE PREPARED
22 - JAN - 2025

ROUTE
63NB

DISTRICT
BR

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9546

DESCRIPTION	REV A - STEEL PACKAGE FINAL REVIEW	REV 0 - RELEASED FOR CONSTRUCTION	REV 1 - MOD-005 - ADDED JACKING STIFFENERS	DATE
				8/6/24
				8/15/24
				01/22/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

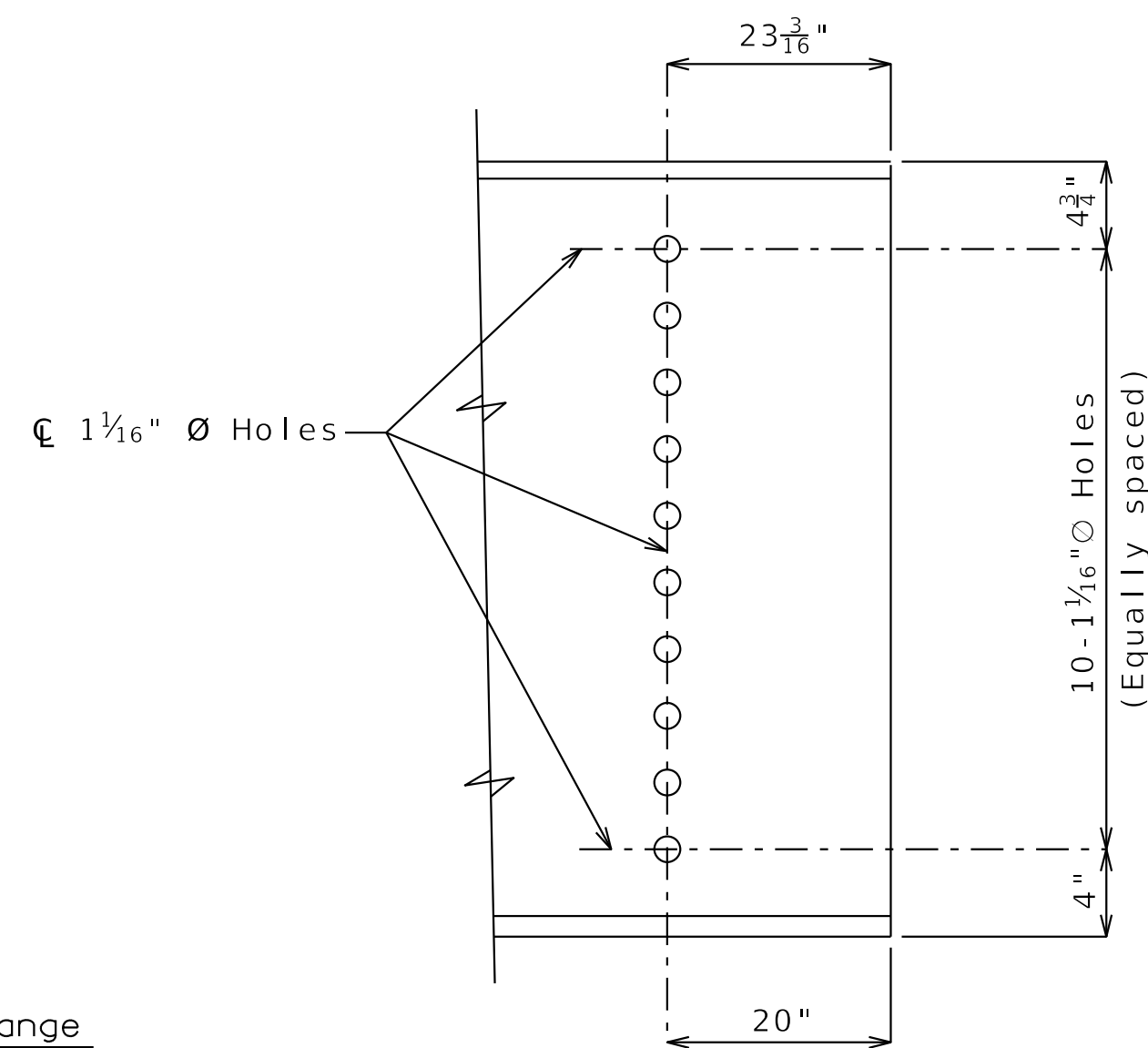
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MODOT IMPROVE I-70 DB PROJECT 1

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(1) Includes Splice Plate plus 3" min.
clear to Shear Connectors.
Adjust spacing of end Shear Connectors
equally to maintain clearance.
See Splice Details on Sheet No. (XX)

Notes:

All web plates are $\frac{5}{8}$ " x 78".

* Indicates flange plate subject to notch toughness requirements.
All web plates shall be subject to notch toughness requirements.

Shear connectors shall be in accordance with Sec 712, 1037 & 1080.

Plate girders shall be fabricated in accordance with the camber diagram shown on Sheet No. 33.

For details of bolted field and welded shop splices see Sheet No. 34.

For details of intermediate diaphragms,
bearing stiffeners, and intermediate
diaphragm connection plates, see
Sheet No. 36.

Fabricated structural steel shall be ASTM A709, Grade 50, except as noted.

Longitudinal dimensions are horizontal
arc dimensions from C bearing to C bearing.
See Part Longitudinal Sections on Sheet
No. 35.

Coating:

Protective Coating: System G in accordance with Sec 1081.

Field Coat(s): The color of the field coat(s) shall be brown (Federal Standard #30045).

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

GIRDER VARIABLES														
Girder	A	B	C		A1	B1	C1	D1	E1	F1	G1	H1	J1	Girder
G1	136' -1 $\frac{15}{8}$ "	194' -6 $\frac{1}{8}$ "	111' -0 $\frac{7}{8}$ "		95' -7 $\frac{7}{16}$ "	19' -6"	42' -1"	26' -2"	101' -7 $\frac{7}{16}$ "	26' -2"	39' -0"	23' -8"	67' -10 $\frac{7}{8}$ "	G1
G2	134' -5 $\frac{1}{2}$ "	192' -1 $\frac{1}{4}$ "	109' -11 $\frac{13}{16}$ "		94' -5"	19' -3"	41' -7"	25' -10"	100' -4 $\frac{3}{4}$ "	25' -10"	38' -6"	23' -4"	67' -4 $\frac{13}{16}$ "	G2
G3	132' -9"	189' -8 $\frac{3}{8}$ "	108' -10 $\frac{3}{4}$ "		93' -3"	19' -0"	41' -0"	25' -6"	99' -2 $\frac{1}{2}$ "	25' -6"	38' -0"	23' -0"	66' -10 $\frac{3}{4}$ "	G3

SHEAR CONNECTOR UNITS							
Girder	SC1	SC2	SC3	SC4	SC5	TOTAL	Girder
G1	58 Units @ 20"±	55 Units @ 19"±	52 Units @ 24"±	63 Units @ 17"±	61 Units @ 13"±	289 Units	G1
G2	67 Units @ 17"±	65 Units @ 16"±	57 Units @ 22"±	70 Units @ 15"±	71 Units @ 11"±	330 Units	G2
G3	58 Units @ 20"±	55 Units @ 19"±	51 Units @ 24"±	61 Units @ 17"±	62 Units @ 13"±	287 Units	G3

Note: Units consist of three $\frac{7}{8}$ " diameter x 5" shear connectors.

GIRDER ELEVATION - UNIT 2

C 1 REVISED 01-22-25

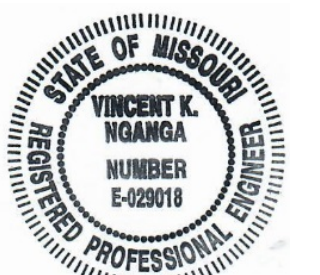
Detailed APRIL 2024
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Note: This drawing is not to scale. Follow dimensions.

Sheet No. 29 of 74

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22 - JAN - 2025



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Vincent K. Nganga, P.E.
MO-029018

DATE PREPARED
22 - JAN - 2025

ROUTE 63NB	STATE MO
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DISTRICT BR	SHEET NO. 29
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COUNTY
BOONE

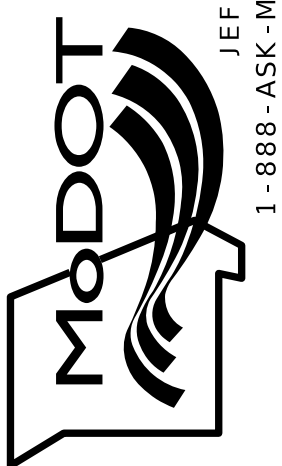
JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.	A9546
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DATE	DESCRIPTION
REV A - 8/16/24	STEEL PACKAGE FINAL REVIEW
REV 0 - 3/15/24	RELEASED FOR CONSTRUCTION
REV 1 - 01/22/25	NDC-005 - ADDED JACKING STIFFENERS

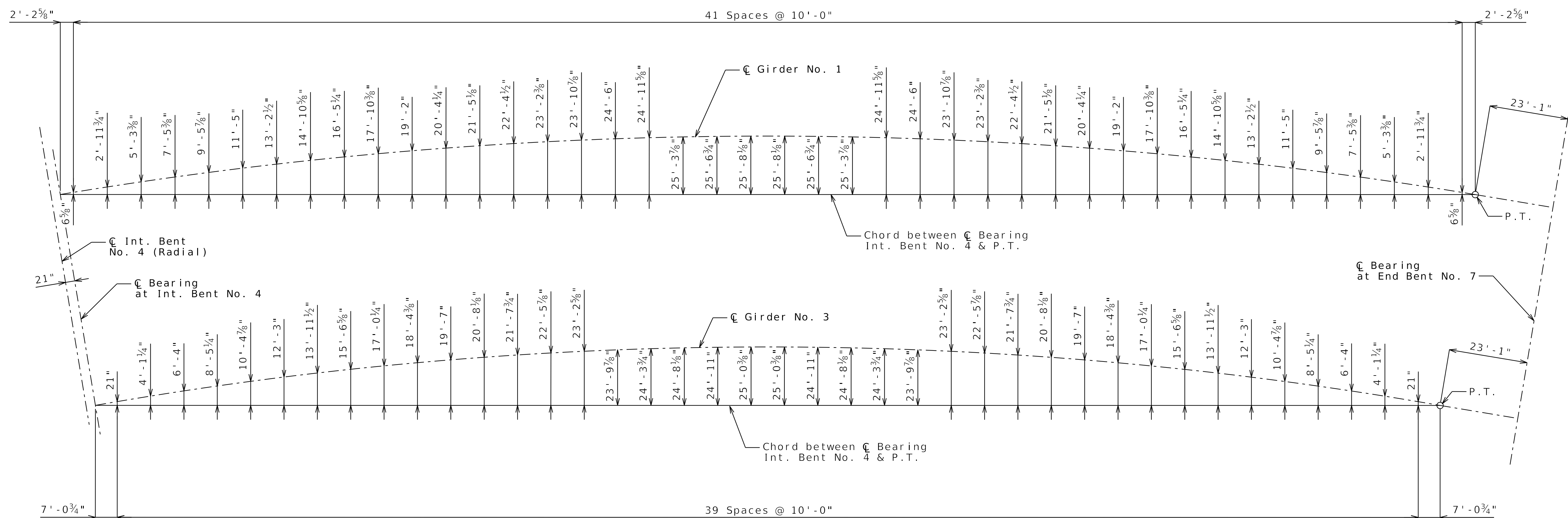
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

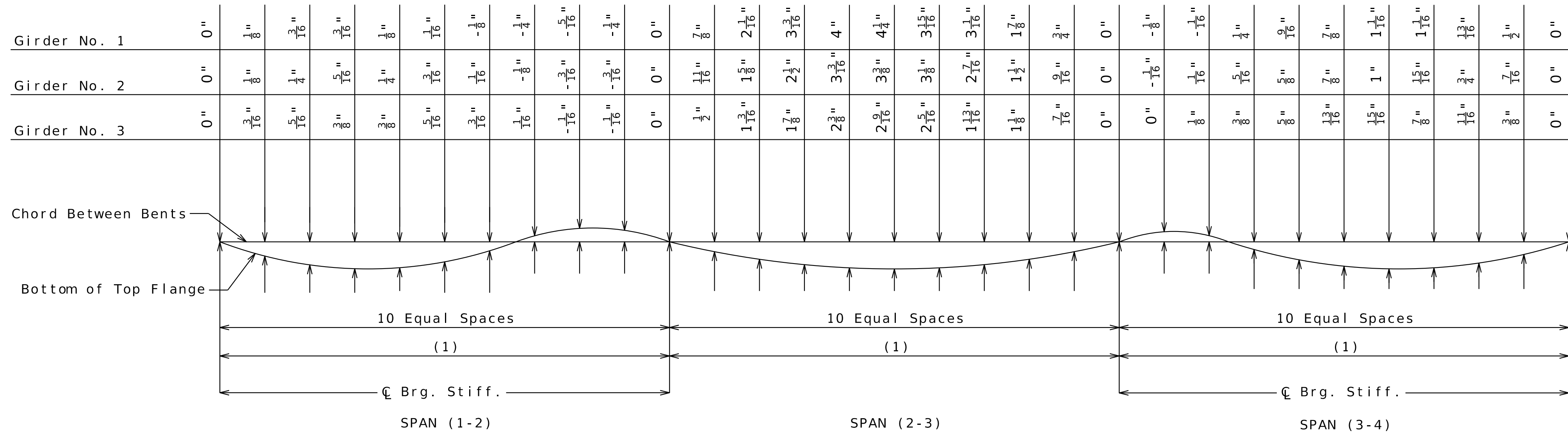
MoDOT IMPROVE I-70 DB PROJECT 1




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GIRDER CURVE OFFSETS - UNIT 2



DEAD LOAD DEFLECTION

29% of dead load deflection is due to the weight of structural steel.

Dead load deflection includes weight of structural steel, concrete slab, and barrier.

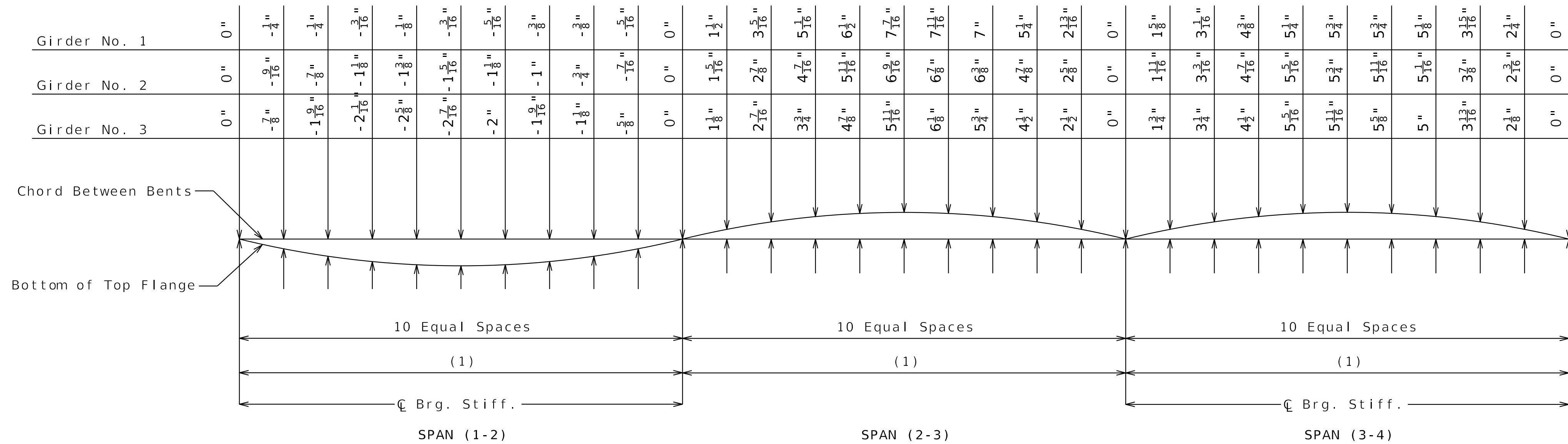
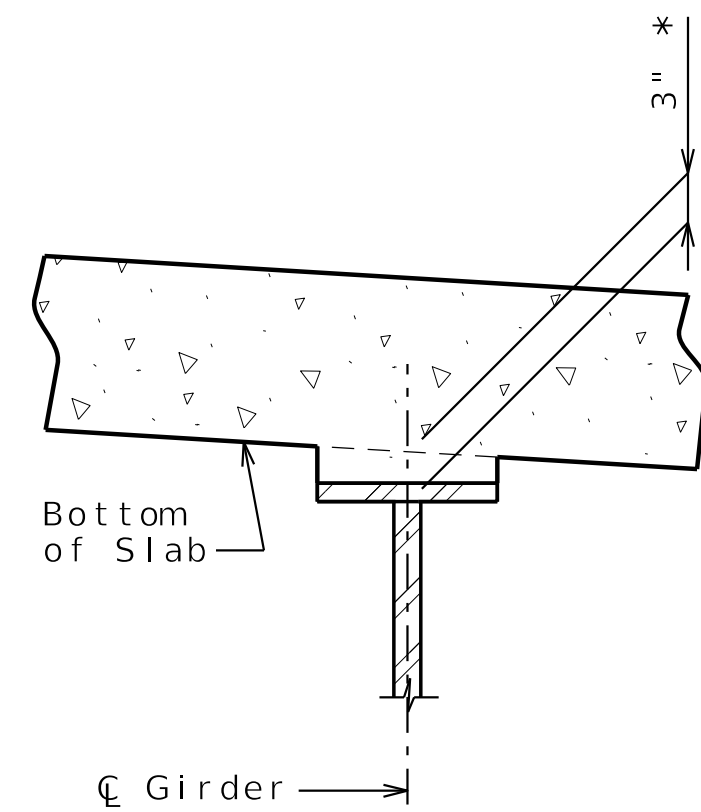


PLATE GIRDER CAMBER DIAGRAM

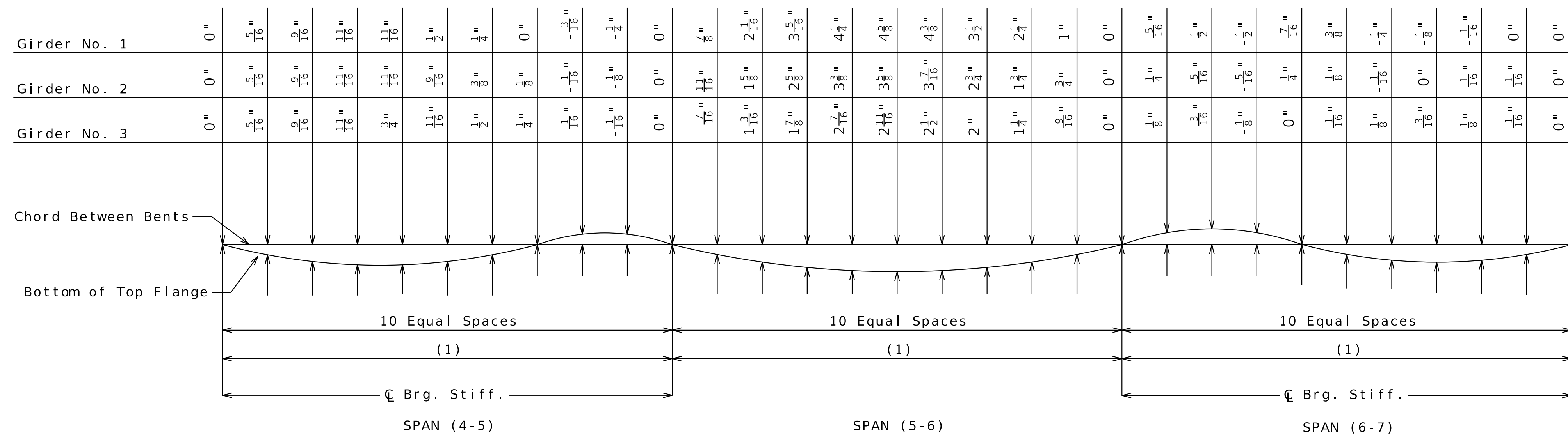
Camber includes allowance for vertical curve, and dead load deflection due to concrete slab, barrier, and structural steel.



THEORETICAL SLAB HAUNCH

* Dimension (bottom of slab to top of web) may vary if girder camber after erection differs from plan camber by more than the % of Dead Load Deflection due to weight of structural steel.

(1) Span length varies, see Girder Elevations.



DEAD LOAD DEFLECTION

29% of dead load deflection is due to the weight of structural steel.

Dead load deflection includes weight of structural steel, concrete slab, and barrier.

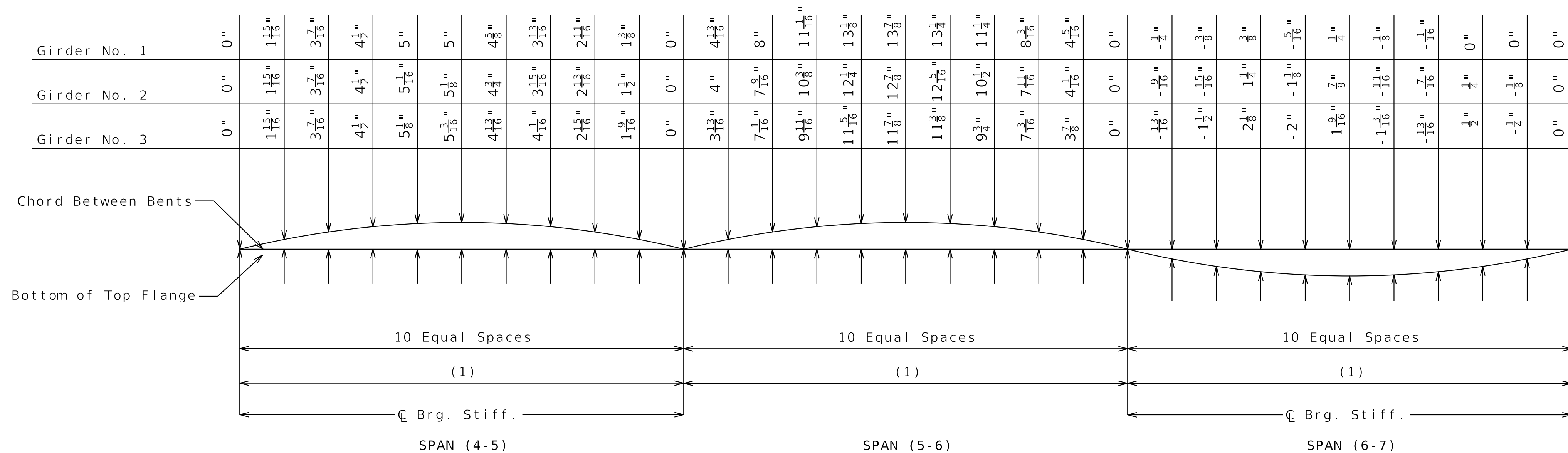
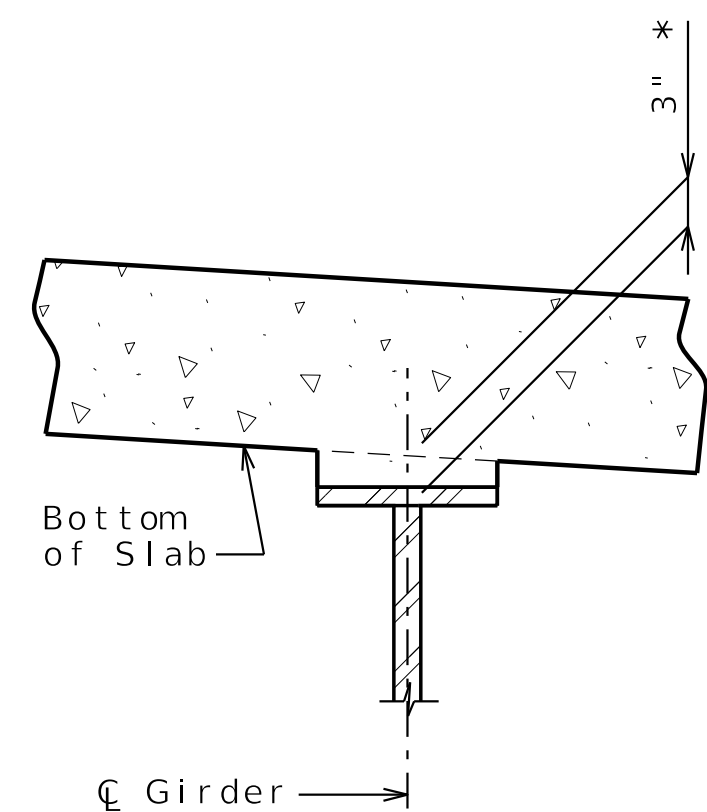


PLATE GIRDER CAMBER DIAGRAM

Camber includes allowance for vertical curve, and dead load deflection due to concrete slab, barrier, and structural steel.

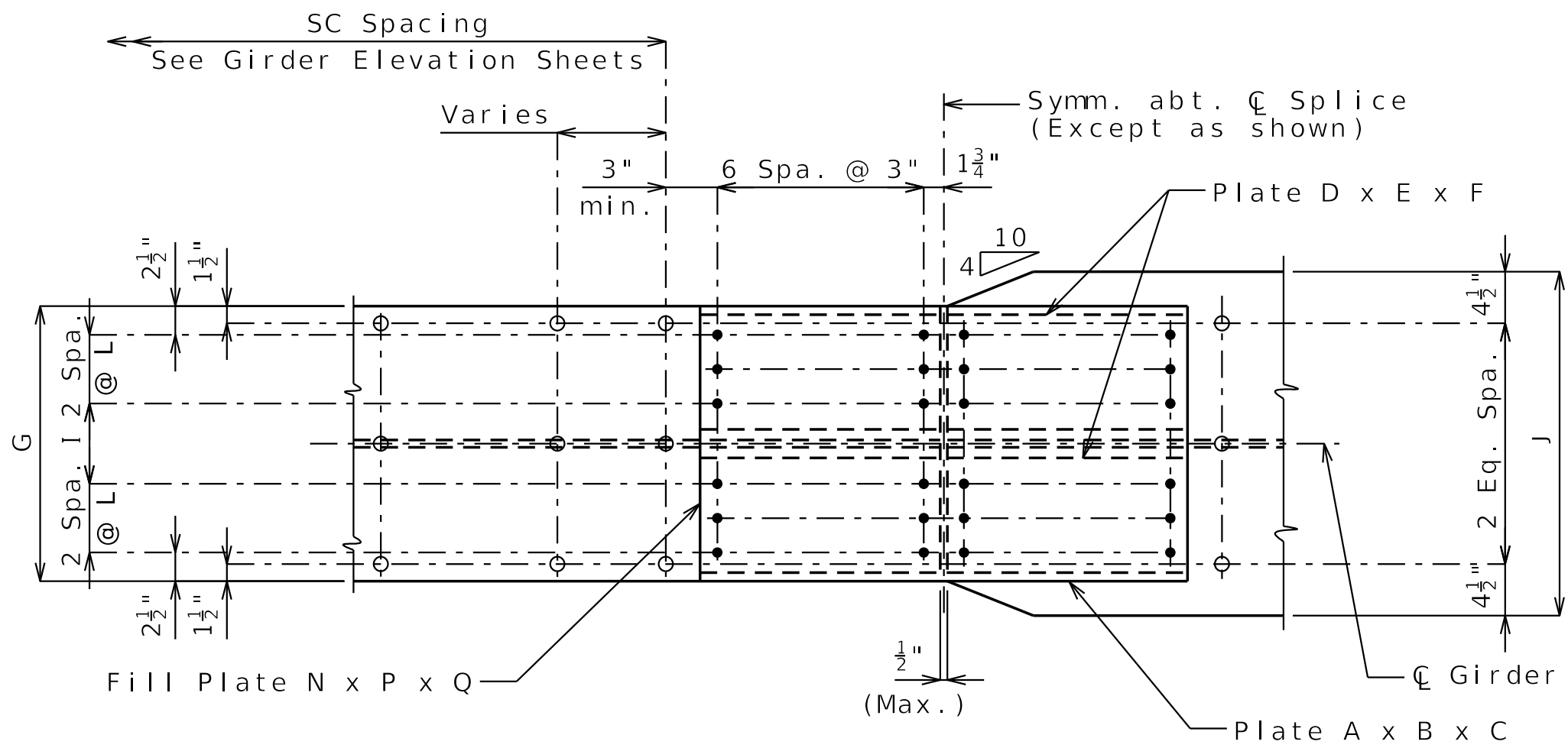


THEORETICAL SLAB HAUNCH

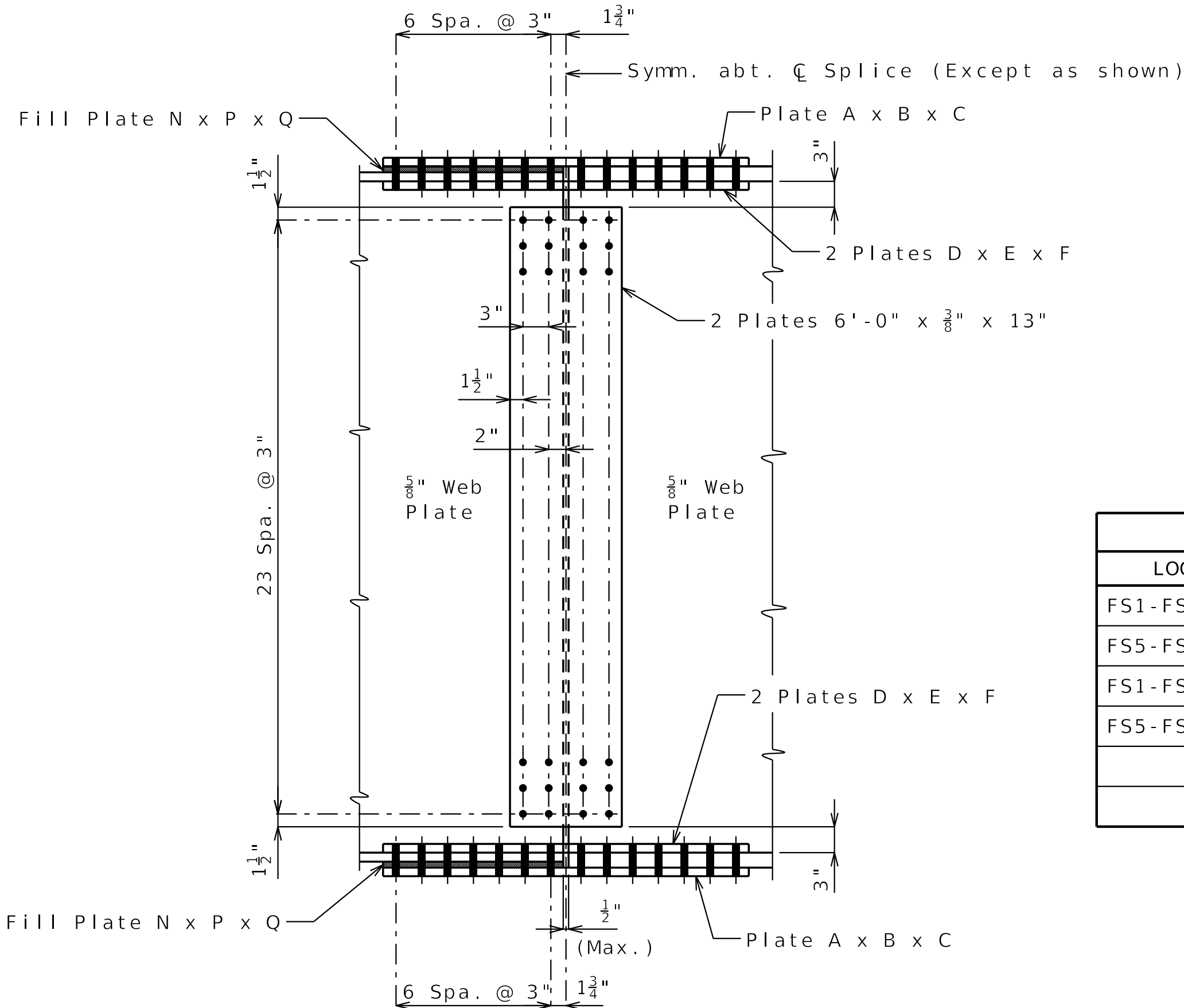
* Dimension (bottom of slab to top of web) may vary if girder camber after erection differs from plan camber by more than the % of Dead Load Deflection due to weight of structural steel.

(1) Span length varies, see Girder Elevations.

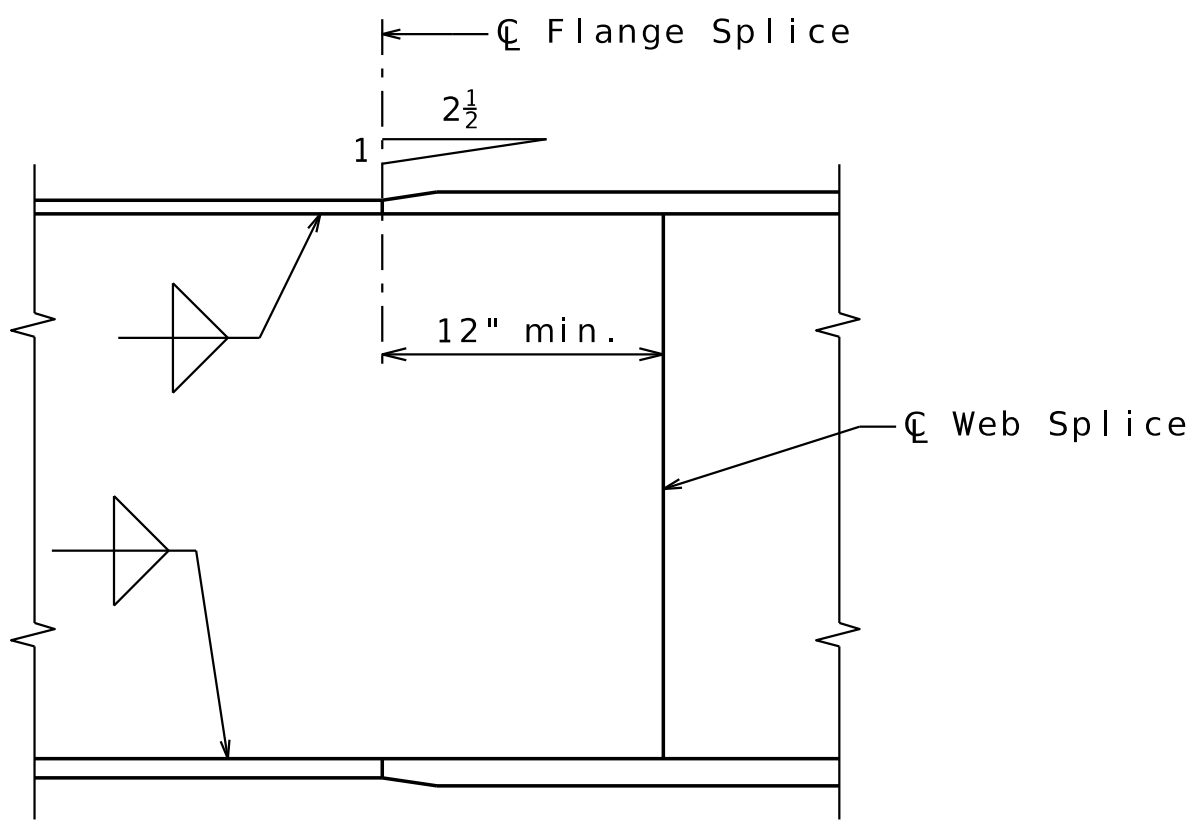
MoDOT IMPROVE I-70 DB PROJECT 1		 	
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION		 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	
DATE		DESCRIPTION	
8/6/24	REV A - STEEL PACKAGE FINAL REVIEW		
8/15/24	REV 0 - RELEASED FOR CONSTRUCTION		
BRIDGE NO. A9546			
PROJECT NO.			
CONTRACT ID.			
JOB NO. JST0021			
COUNTY BOONE			
DISTRICT BR	ROUTE 63NB	SHEET NO 33	STATE MO
DATE PREPARED 15-AUG-2024			
 Vincent K. Nganga 08/16/2024 11:10:39 AM Vincent K. Nganga, P.E. MO-029018			



PLAN OF FLANGE
FS1-FS8 (TOP & BOTTOM)



DETAIL OF BOLTED FIELD SPLICE



ELEVATION

WELDED SHOP WEB AND FLANGE SPLICE

Welded shop web and flange splices may be permitted when detailed on the shop drawings and approved by the engineer.

TABLE OF DIMENSIONS - FIELD SPLICE

LOCATION	A	B	C	D	E	F	G	I	J	L	N	P	Q
FS1-FS4 (TOP)	2'-0"	1 1/2"	3'-6 1/2"	11"	1 1/2"	3'-6 1/2"	2'-0"	7"	2'-6"	3"	2'-0"	1 1/2"	1'-9"
FS5-FS8 (TOP)	2'-0"	1 1/2"	3'-6 1/2"	11"	1 1/2"	3'-6 1/2"	2'-0"	7"	2'-6"	3"	2'-0"	1 1/2"	1'-9"
FS1-FS4 (BOTT)	2'-4"	1 1/2"	3'-6 1/2"	13"	1 1/2"	3'-6 1/2"	2'-4"	7"	2'-8"	4"	2'-4"	1 1/2"	1'-9"
FS5-FS8 (BOTT)	2'-4"	1 1/2"	3'-6 1/2"	13"	1 1/2"	3'-6 1/2"	2'-4"	7"	2'-8"	4"	2'-4"	1 1/2"	1'-9"

NOTES:

Splice and fill plates for Splices FS1 - FS4 shall be ASTM A709 Grade 50W.

Splice and fill plates for Splices FS5 - FS8 shall be ASTM A709 Grade 50.

Bolts in Unit 1 shall be 7/8-inch diameter ASTM F3125 Grade A325 Type 3 in 15/16-inch diameter holes.

Bolts in Unit 2 shall be 7/8-inch diameter ASTM F3125 Grade A325 Type 1 in 15/16-inch diameter holes.

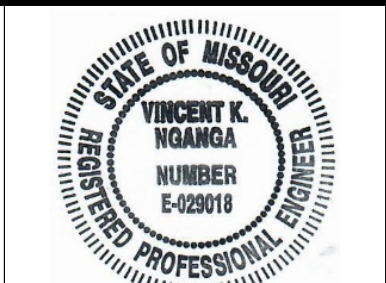
Contact surfaces shall be in accordance with Sec 1081 for surface preparation.

GIRDER SPLICE DETAILS - UNITS 1 AND 2

Detailed JULY 2024
Checked JULY 2024

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

Sheet No. 34 of 74



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Vincent K. Nganga, P.E.
MO-029018

DATE PREPARED 15-AUG-2024	
ROUTE 63NB	STATE MO
DISTRICT BR	SHEET NO. 34
COUNTY BOONE	
JOB NO. JST0021	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9546	

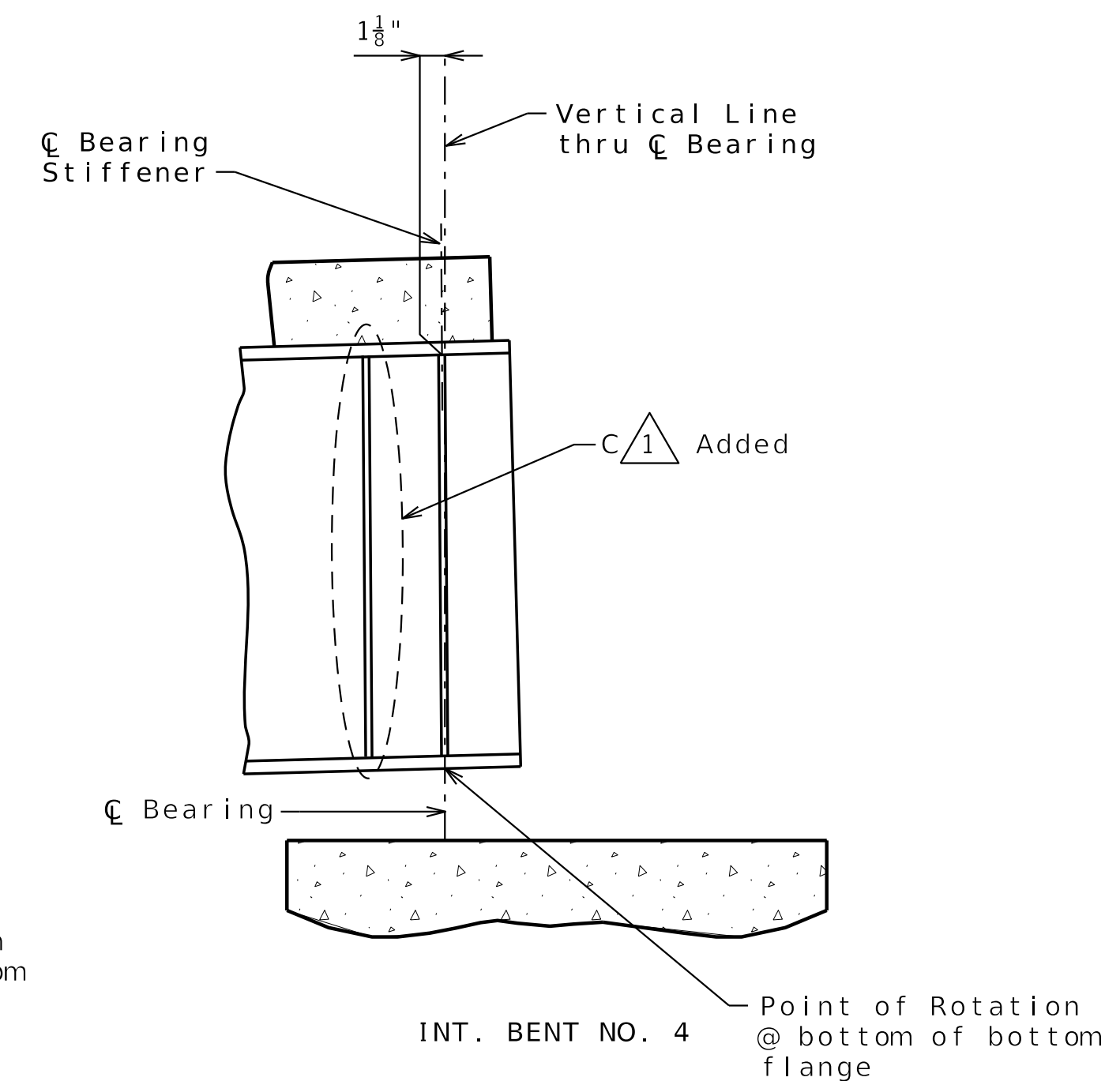
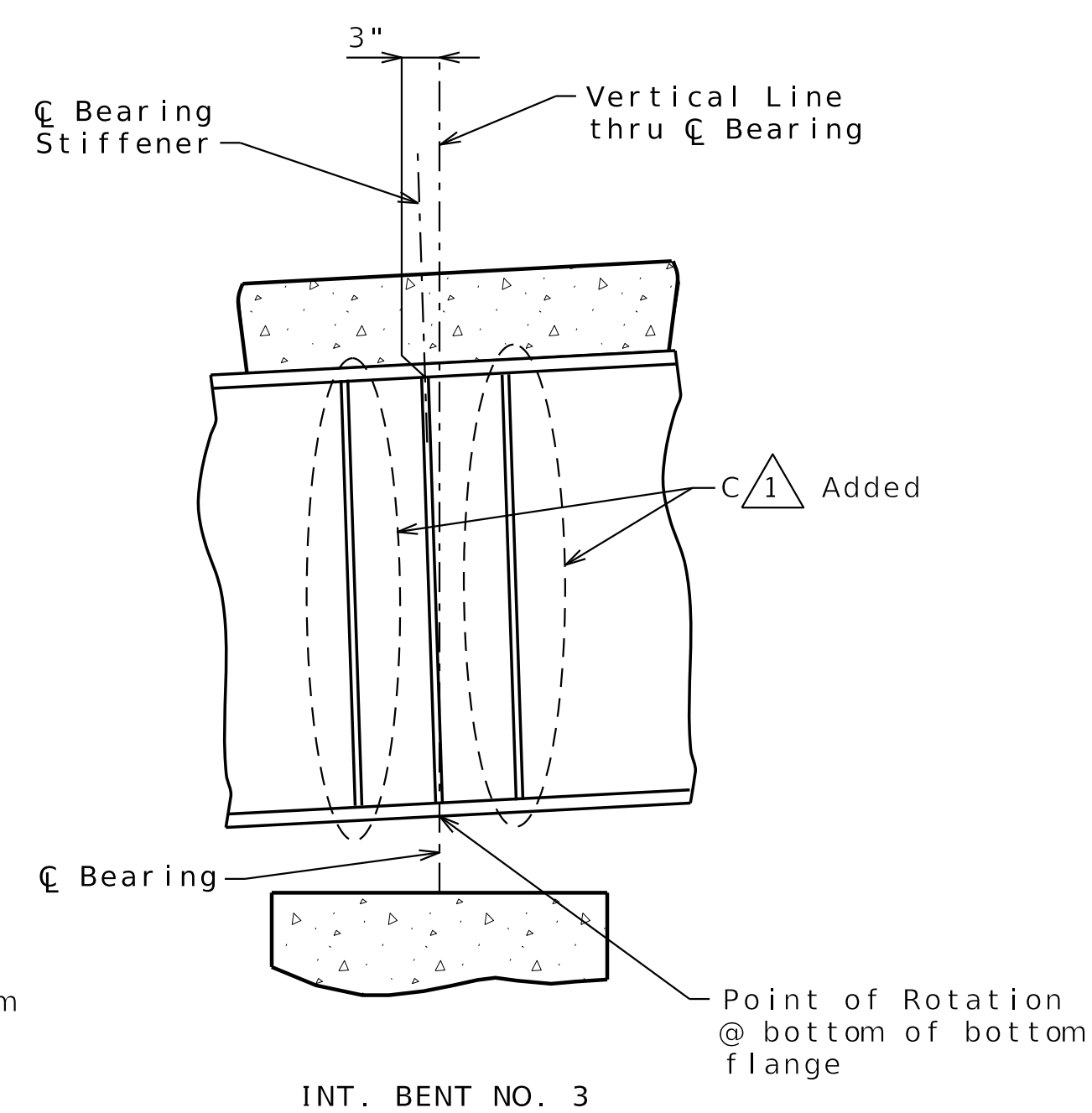
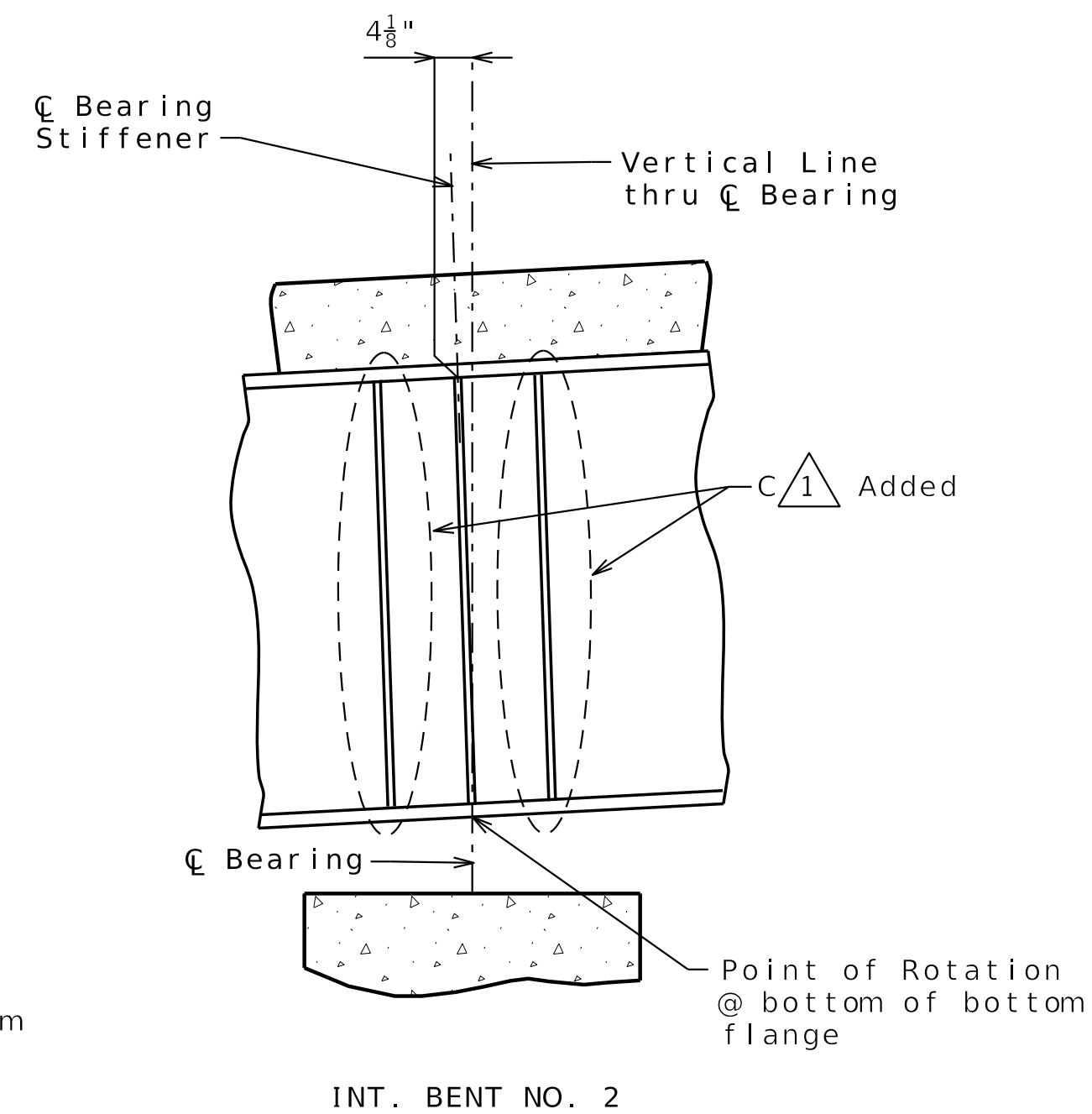
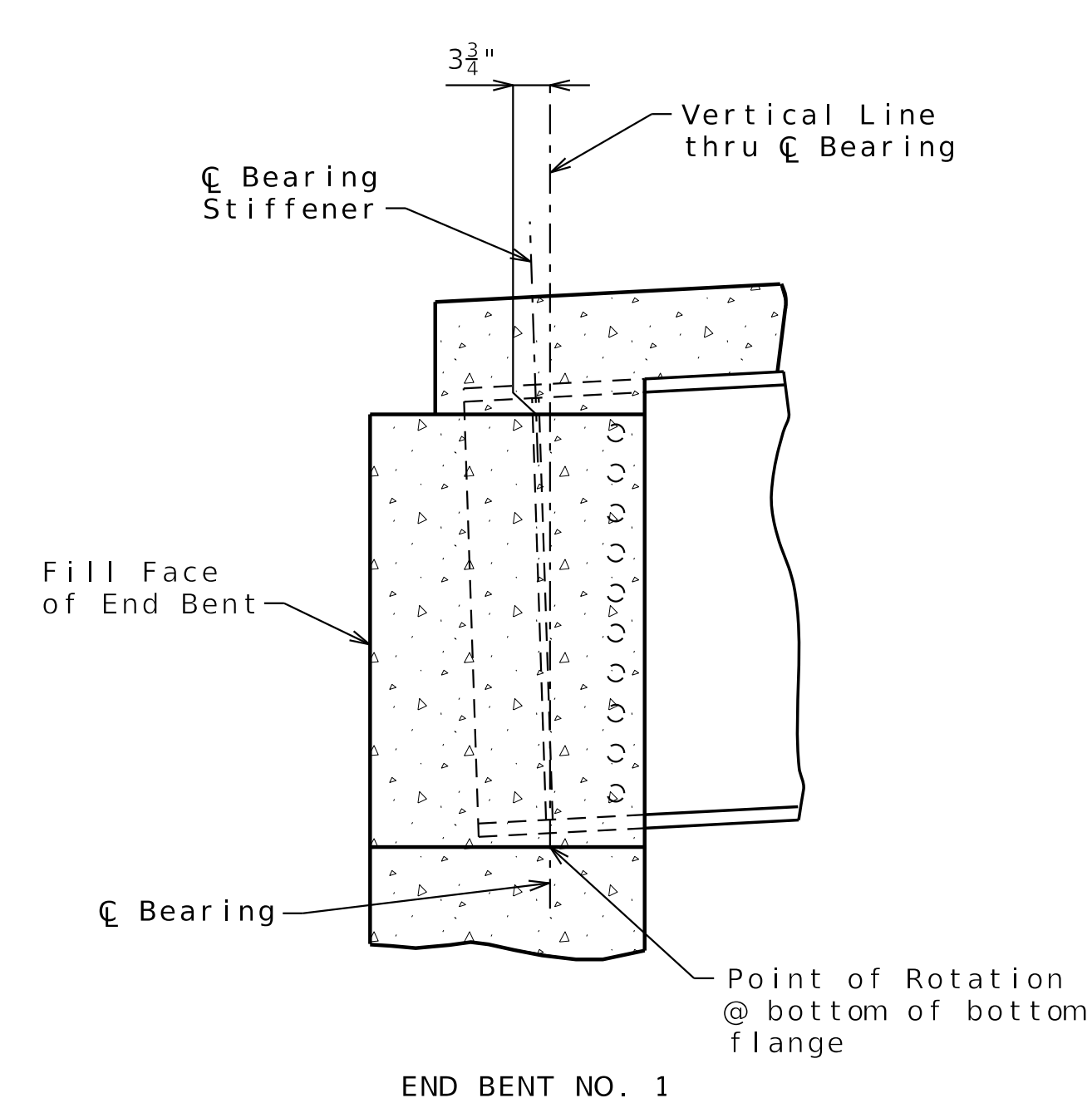
DATE	DESCRIPTION
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8/15/24	REV 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

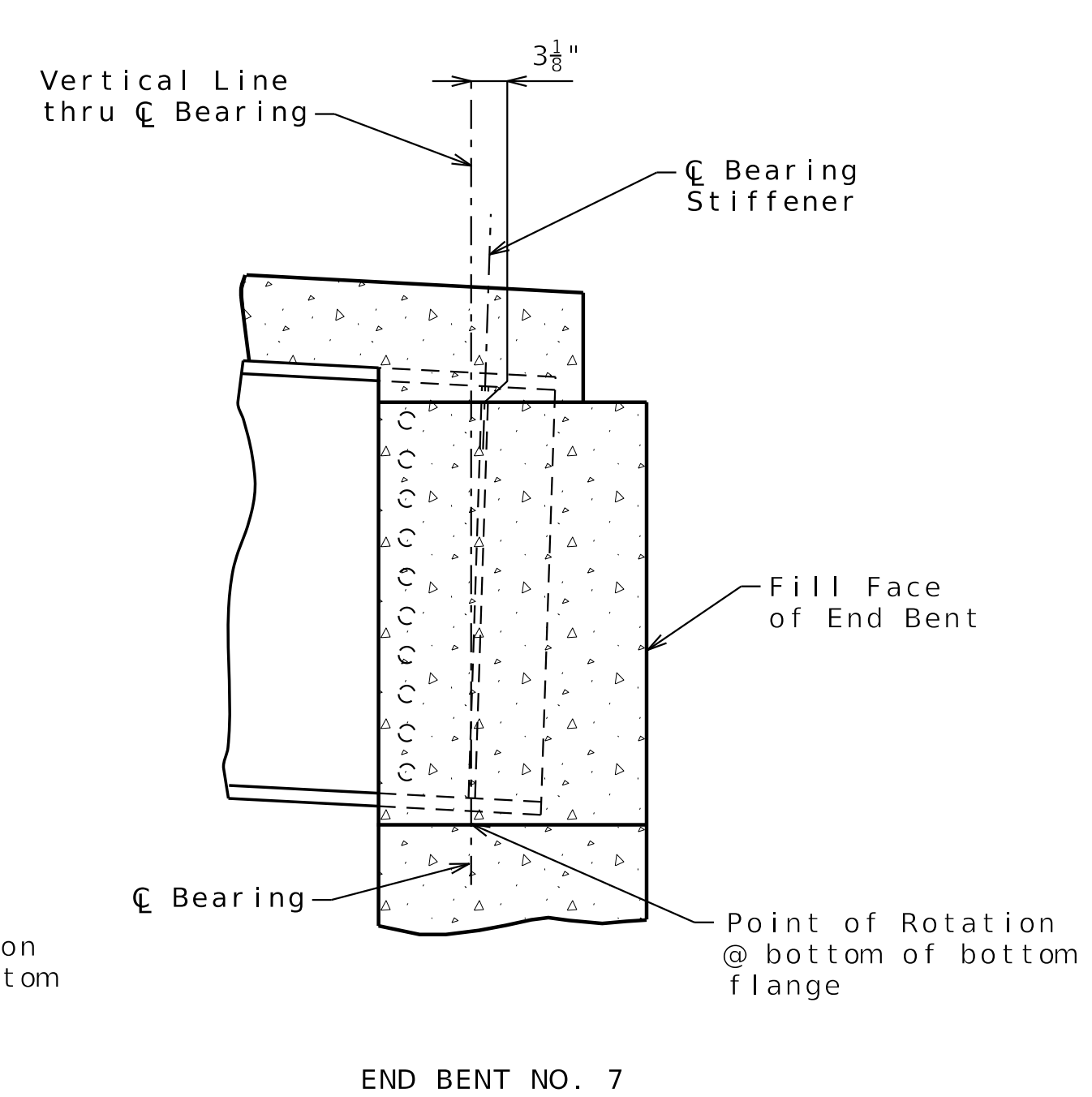
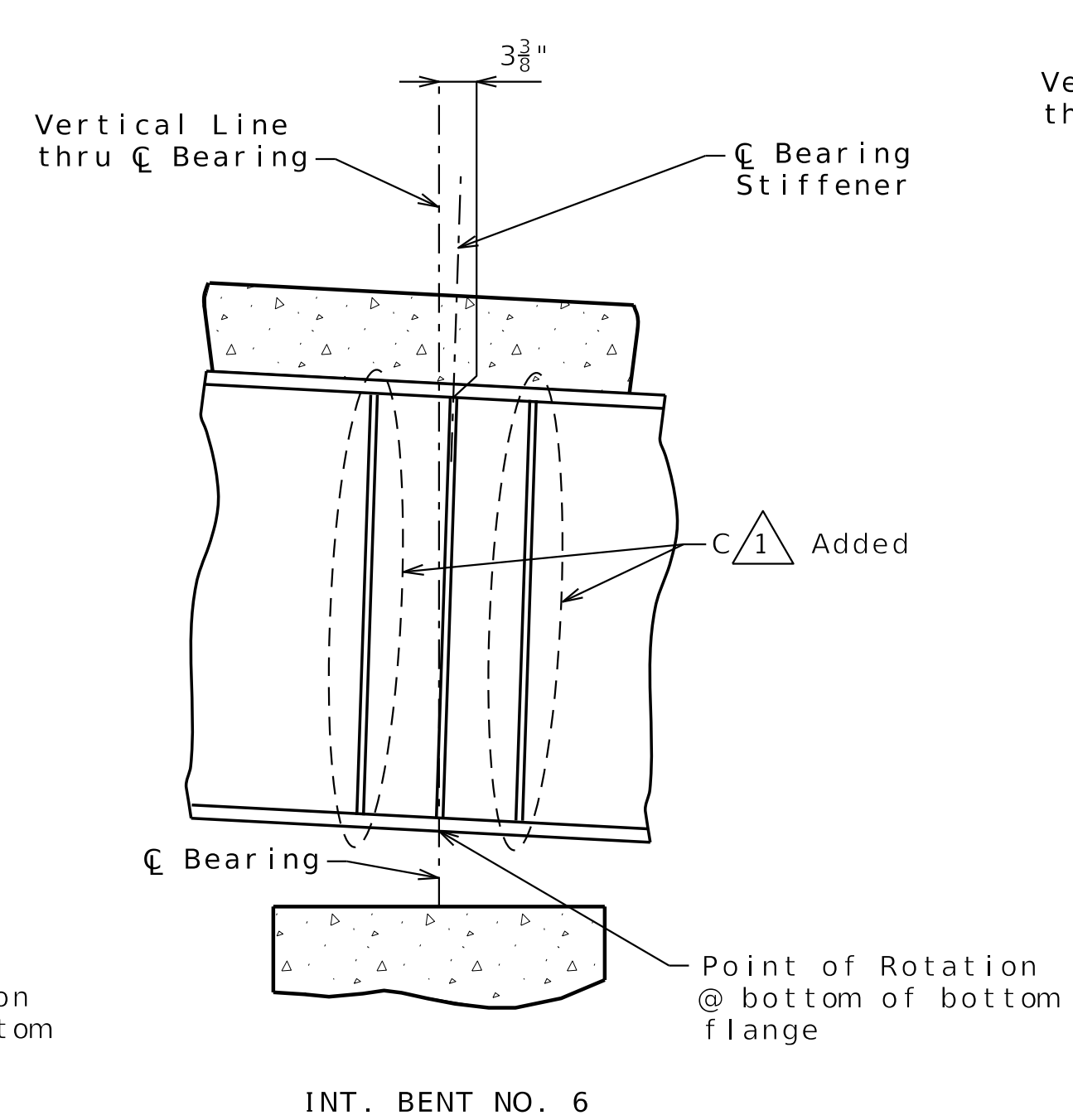
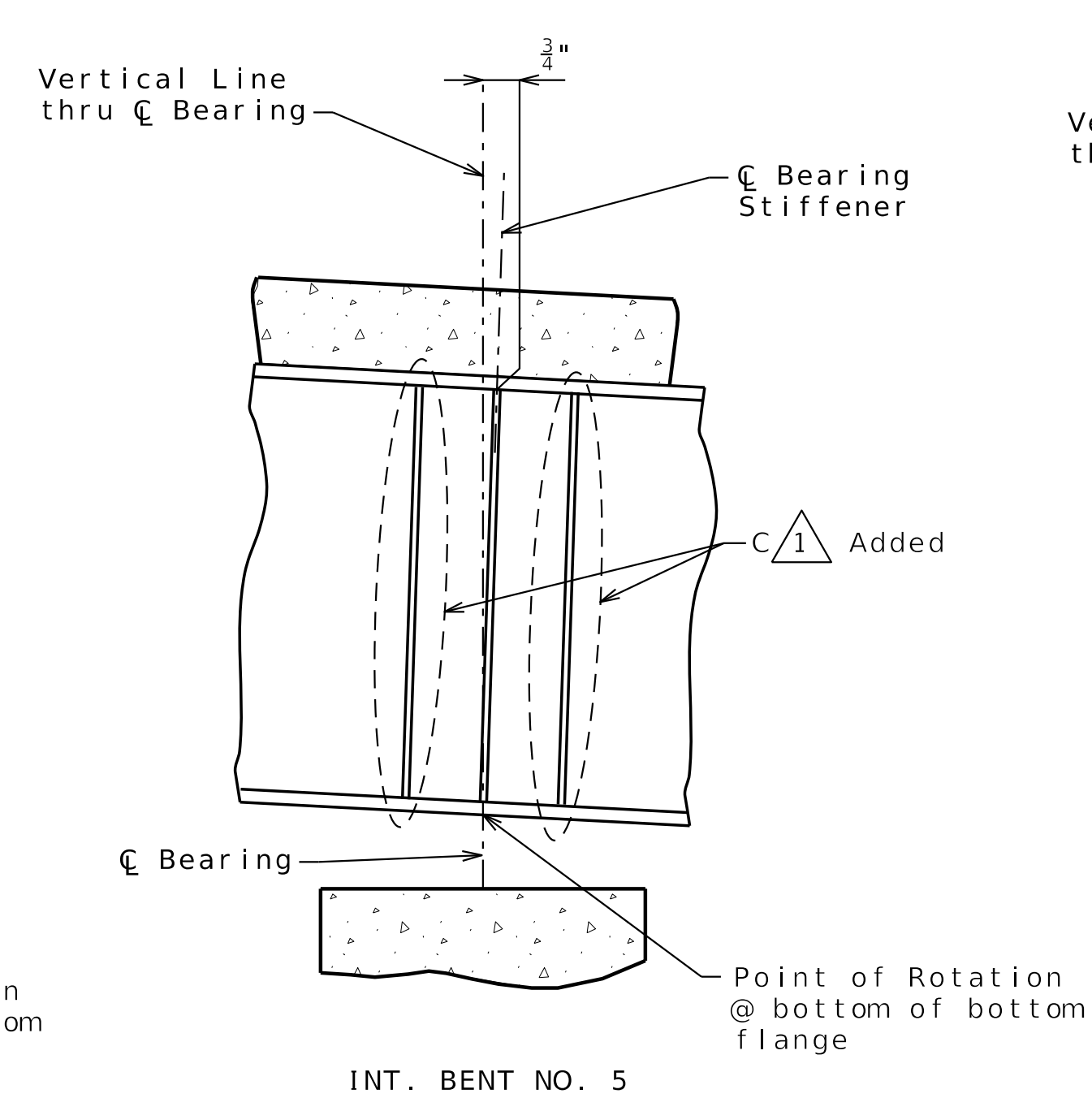
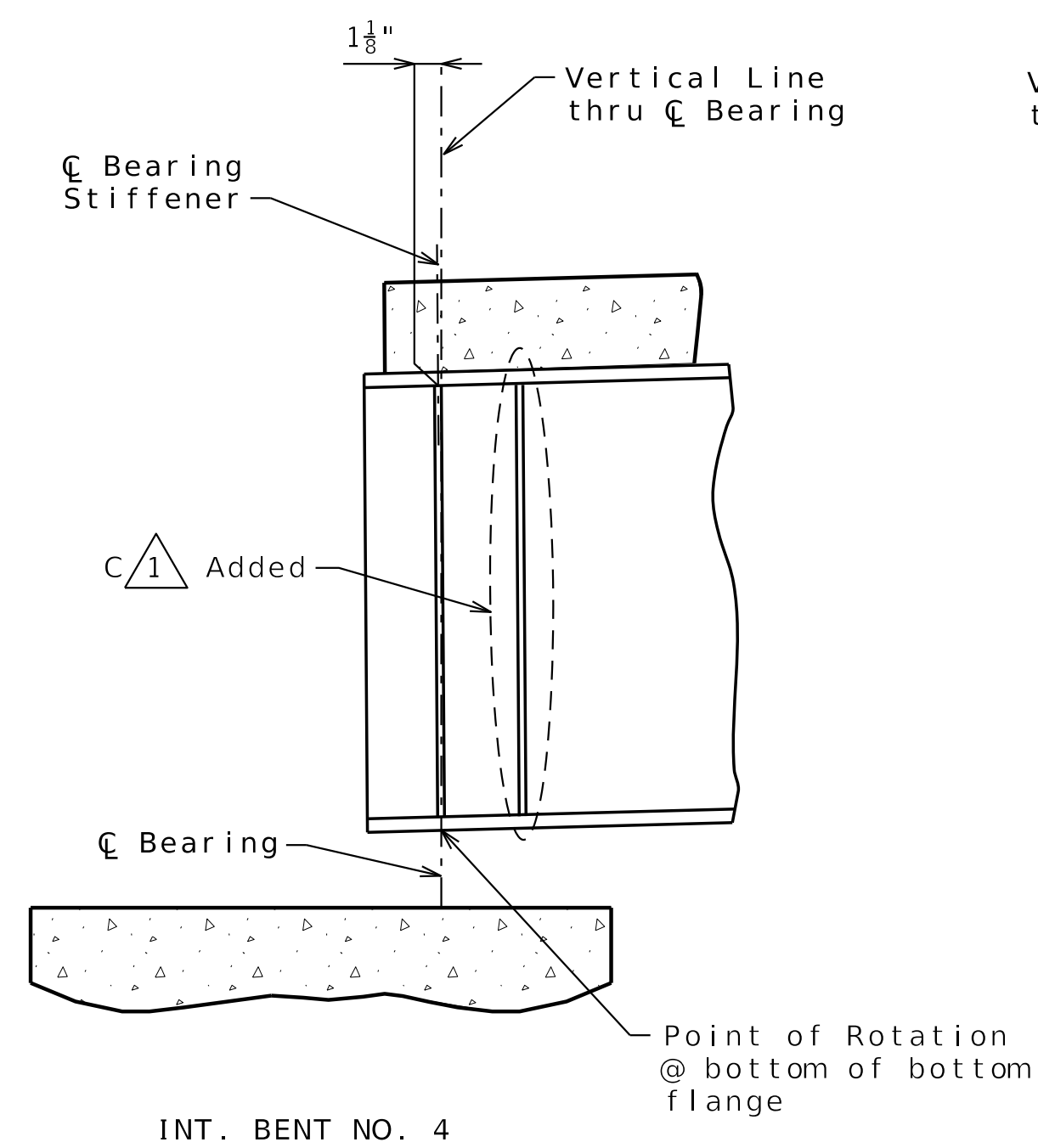
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MODOT IMPROVE I-70 DB PROJECT 1

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PART LONGITUDINAL SECTION - UNIT 1



PART LONGITUDINAL SECTION - UNIT 2

PART LONGITUDINAL SECTION

Detailed JULY 2024
Checked JULY 2024

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

Sheet No. 35 of 74

C 1 REVISED 01-22-25



Vincent K. Nganga
01/22/2025 3:42:10 PM
Vincent K. Nganga, P.E.
MO-029018

DATE PREPARED
22 - JAN - 2025

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 35

COUNTY BOONE

JOB NO. JST0021

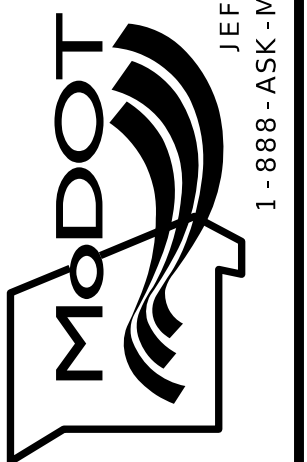
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PROJECT NO.

BRIDGE NO. A9546

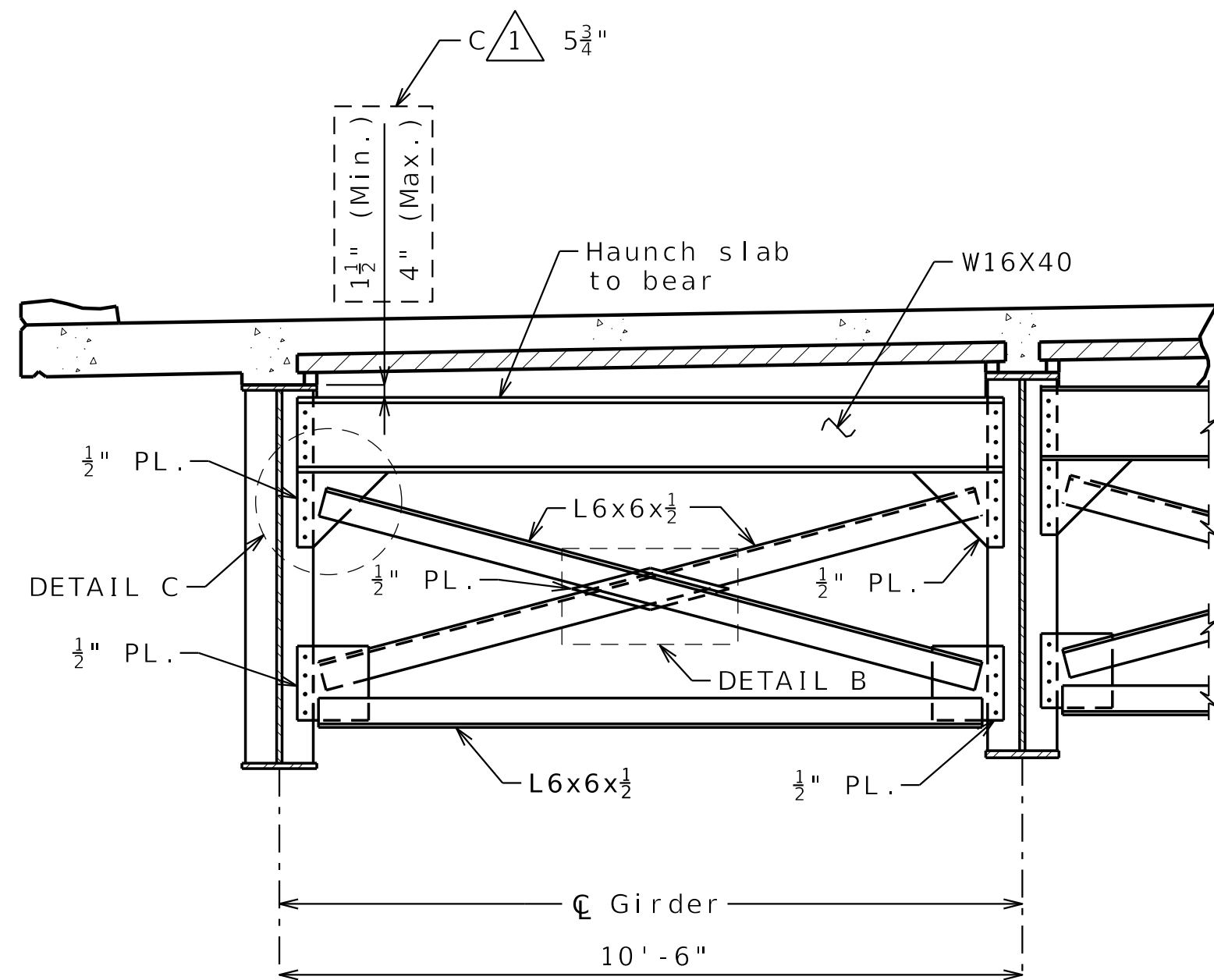
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8/6/24	REV A - STEEL PACKAGE FINAL REVIEW				
8/15/24	REV 0 - RELEASED FOR CONSTRUCTION				
01/22/25	REV 1 - NDC-005 - ADDED JACKING STIFFENERS				

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

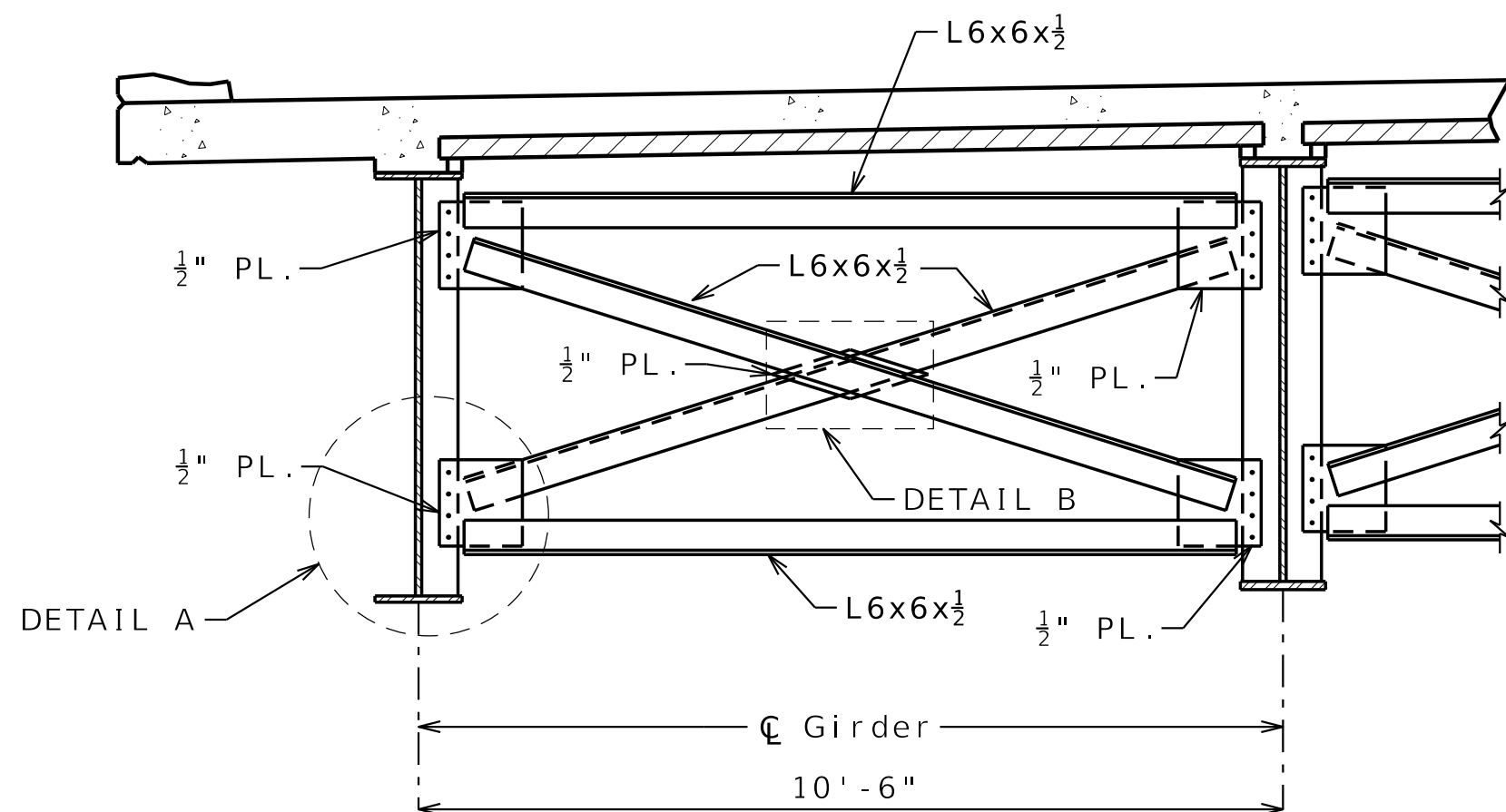


MODOT IMPROVE I-70 DB PROJECT 1
JACOBS
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

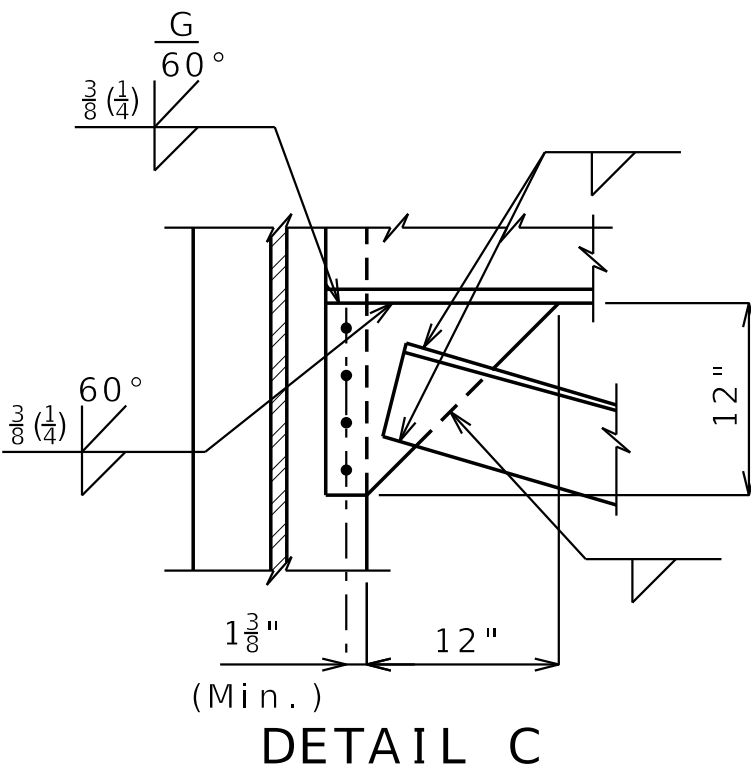
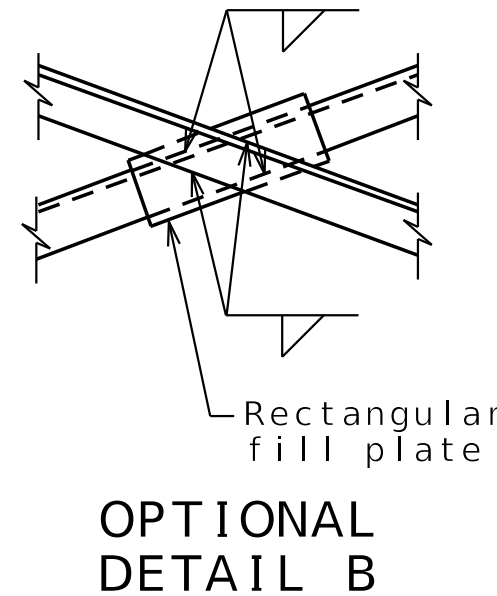
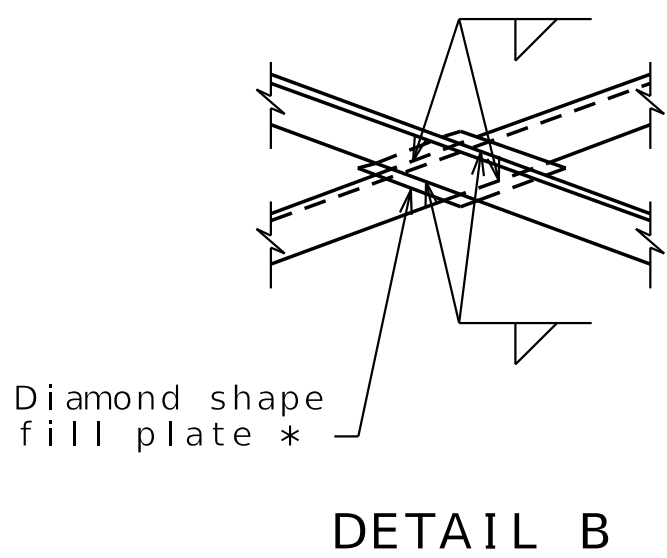
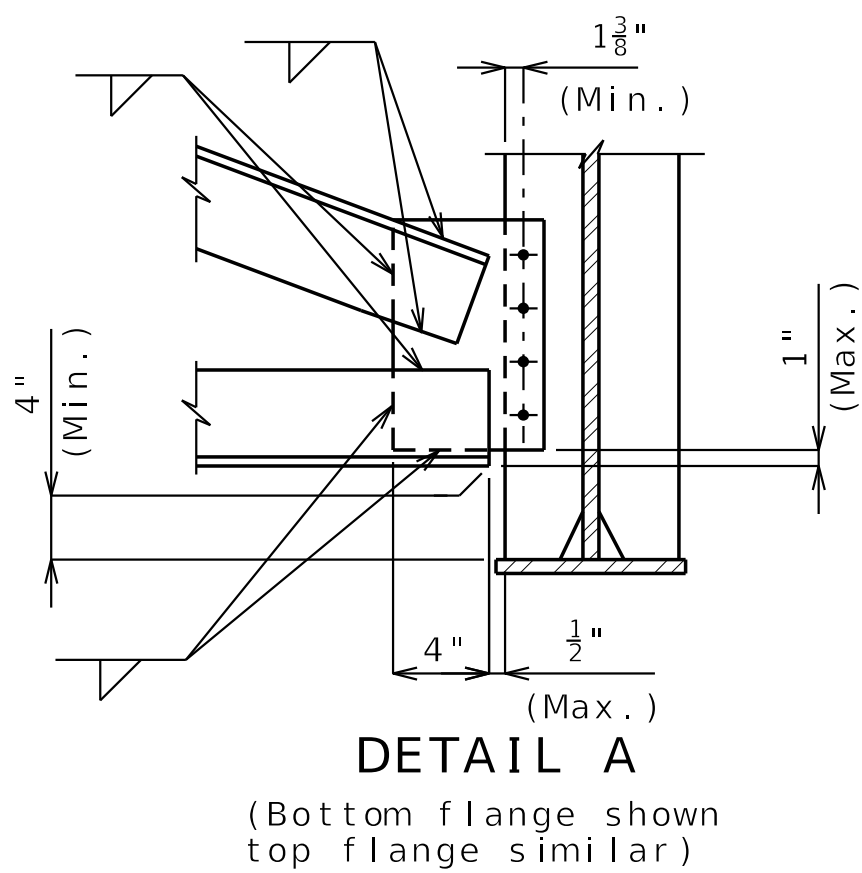
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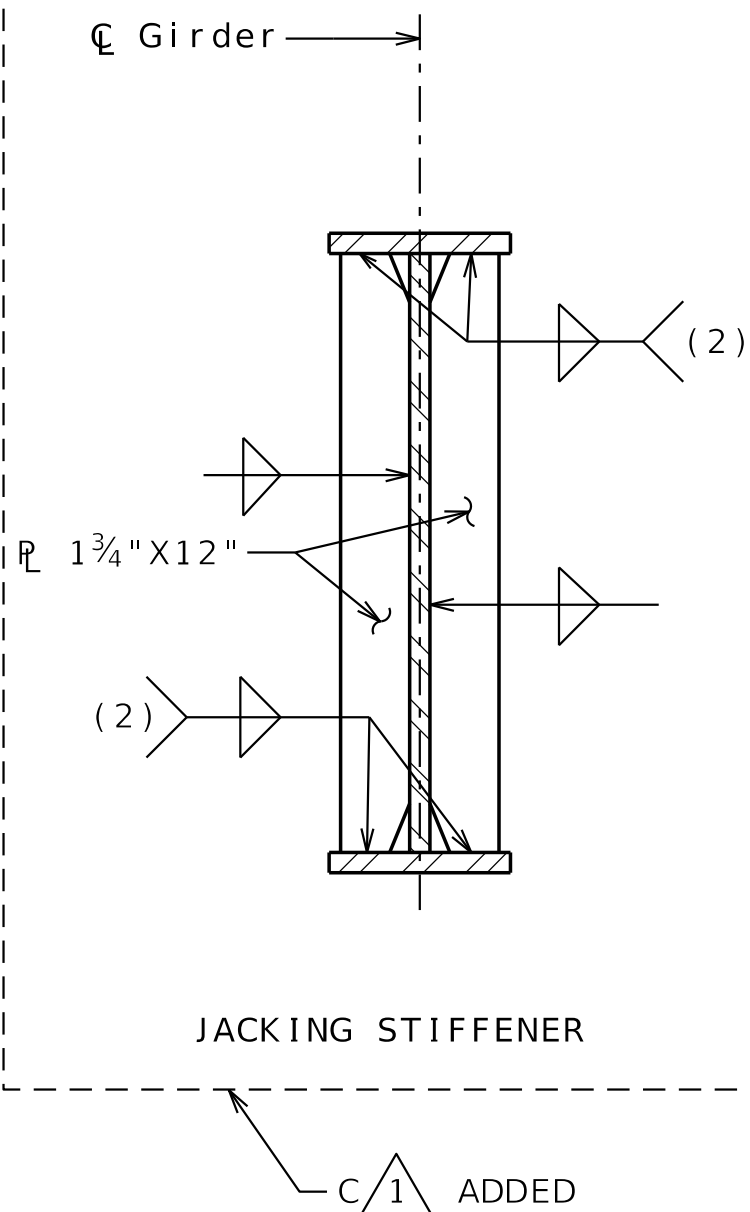
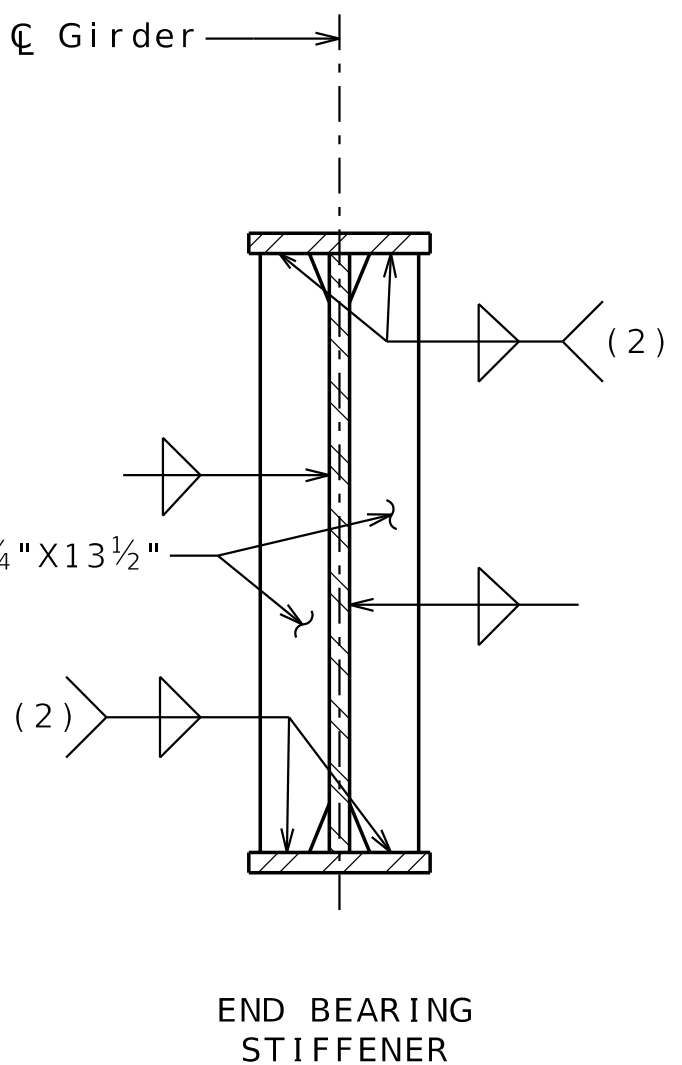
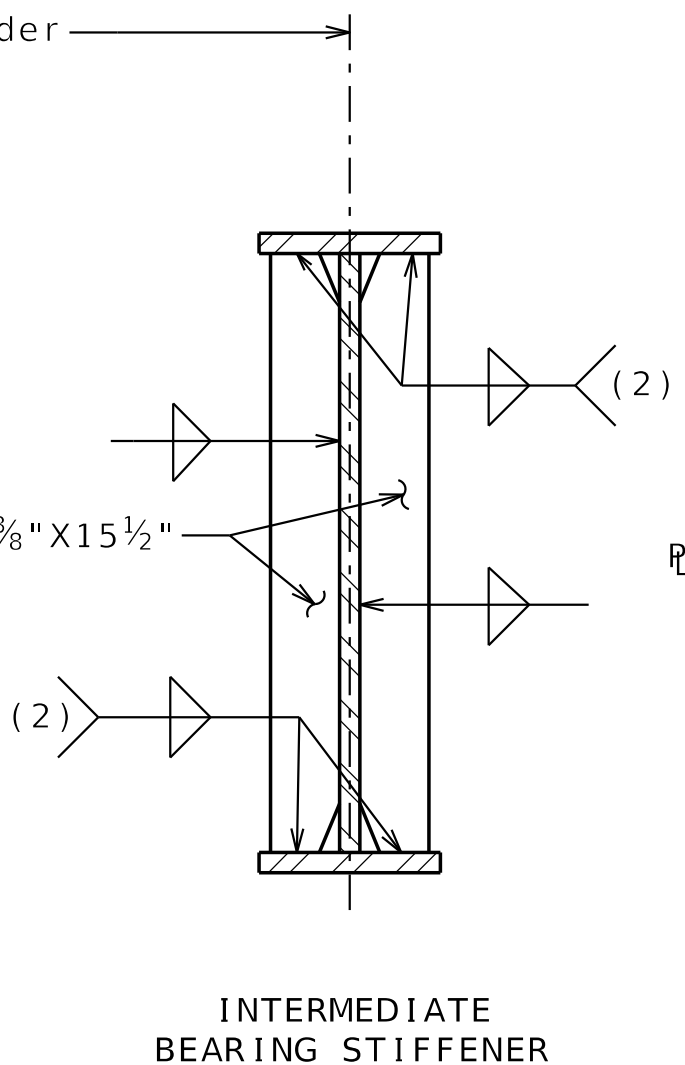
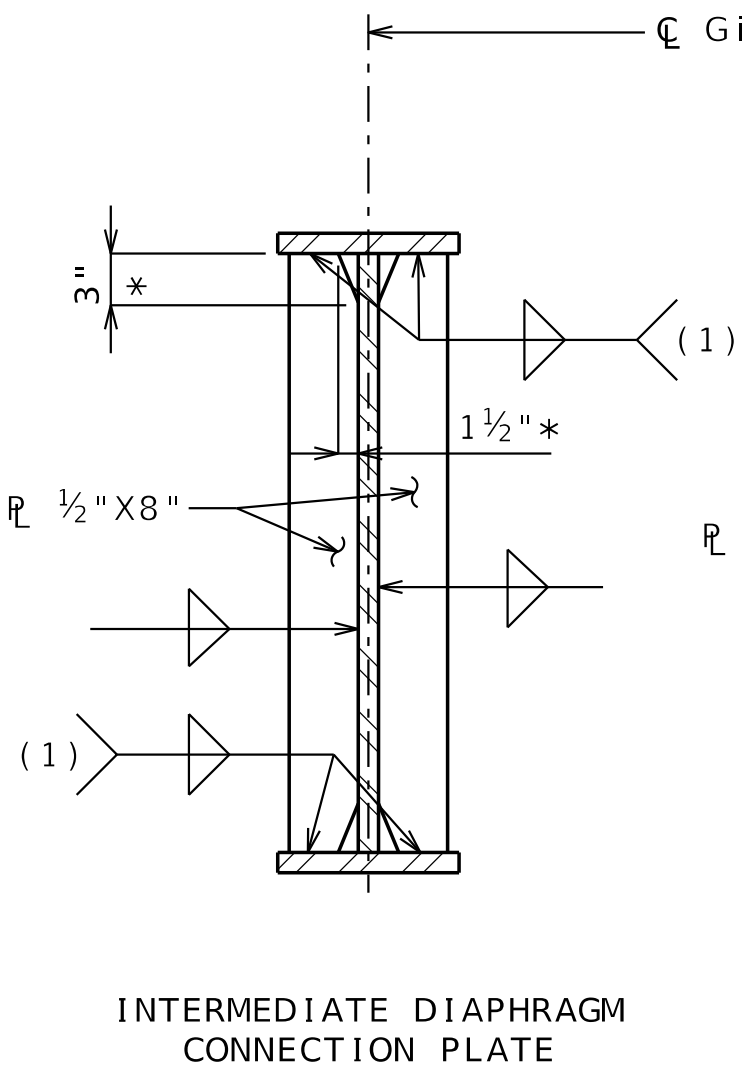
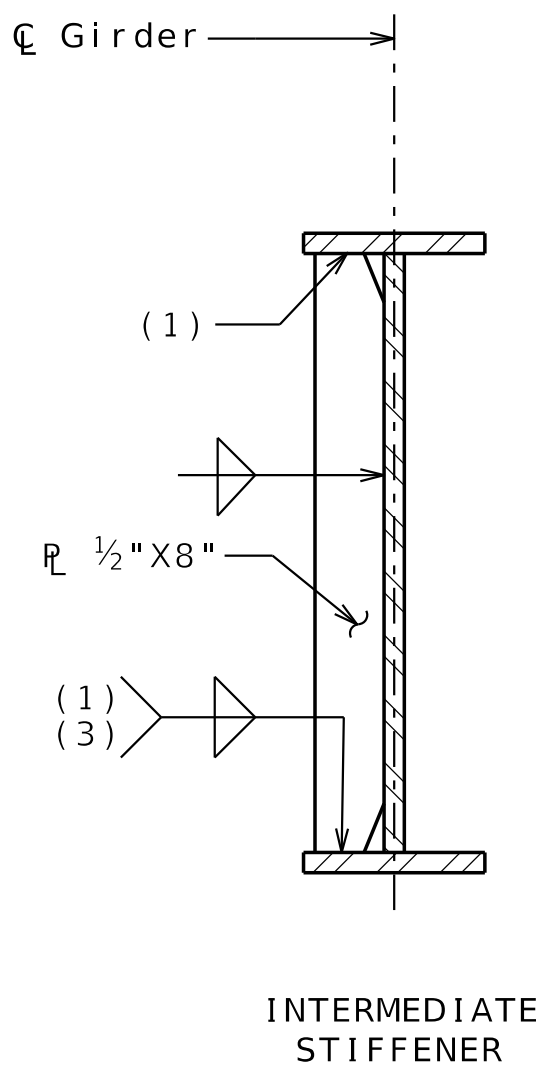
TYPICAL PART SECTION SHOWING
END DIAPHRAGMS



TYPICAL PART SECTION SHOWING
CROSS FRAMES AND INTERMEDIATE DIAPHRAGMS



* At the contractor's option, rectangular fill plates may be used in lieu of diamond fill plates as shown in Optional Detail B.



WELDING DETAILS

- (1) Tight fit
 - (2) Grind or mill to bear.
 - (3) Weld to compression flange located on Elevation of Girder.
- * Typical for all intermediate web stiffeners, intermediate diaphragm connection and bearing stiffeners.

Notes:

Unit 1 - Fabricated structural steel shall be ASTM A709, Grade 50W.

Unit 2 - Fabricated structural steel shall be ASTM A709, Grade 50.

Unit 1 - Bolts shall be 7/8" diameter ASTM F3125 Grade A325 Type 3 in 15/16" diameter holes.

Unit 2 - Bolts shall be 7/8" diameter ASTM F3125 Grade A325 Type 1 in 15/16" diameter holes.

For coating notes, see Girder Elevation Details on Sheet Nos. 28 and 29.

STEEL GIRDER CROSS FRAMES AND DIAPHRAGMS - UNITS 1 AND 2

C 1

REVISED 01-22-25



Vincent K. Nganga
01/22/2025 3:42:11 PM
Vincent K. Nganga, P.E.
MO-029018

DATE PREPARED
22 - JAN - 2025

ROUTE
63NB

DISTRICT
BR

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9546

DATE	DESCRIPTION
8/6/24	REV A - STEEL PACKAGE FINAL REVIEW
8/15/24	REV 0 - RELEASED FOR CONSTRUCTION
01/22/25	REV 1 - NDC-005 - ADDED JACKING STIFFENERS

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

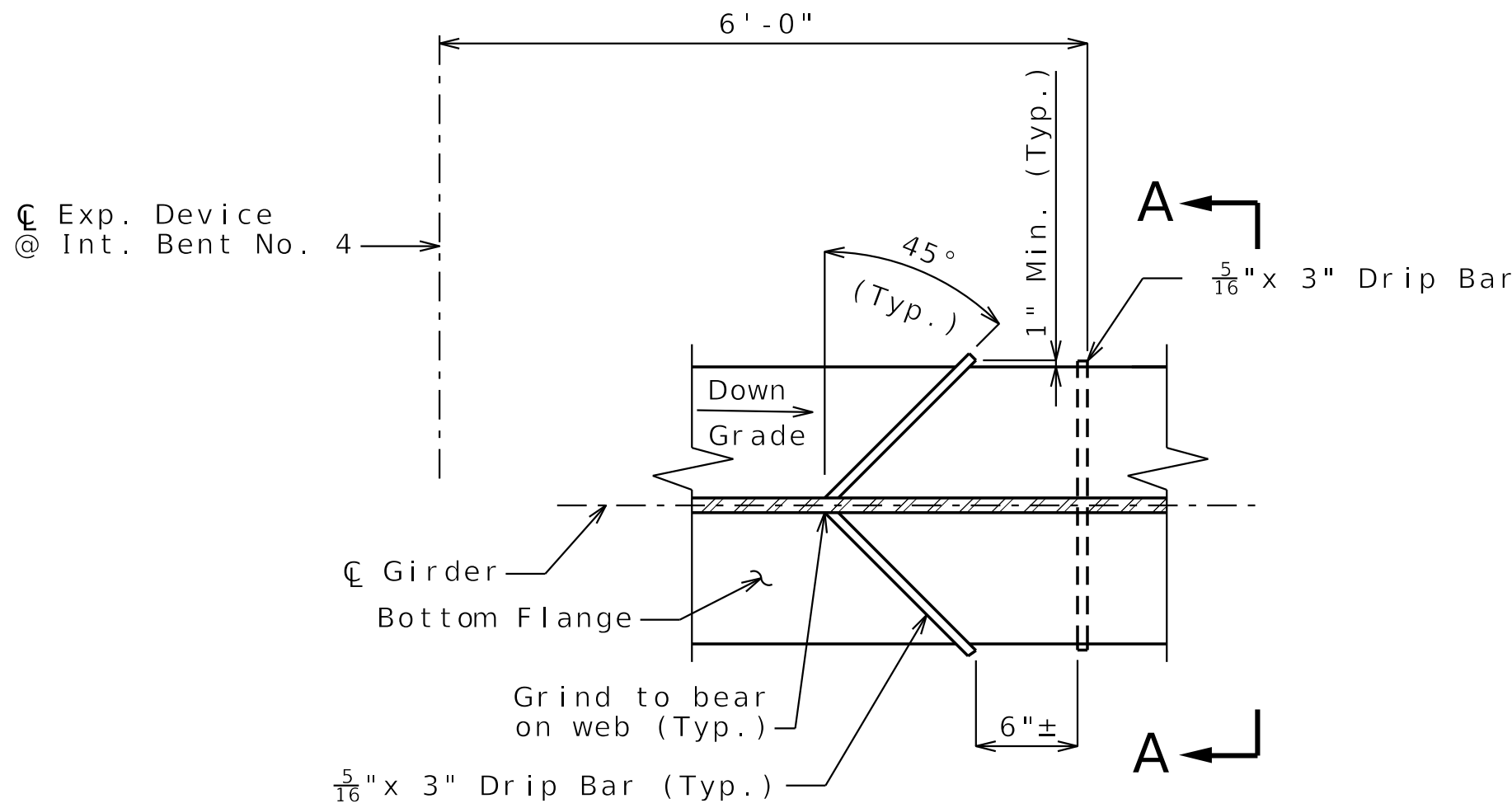
MILLSTONE
WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

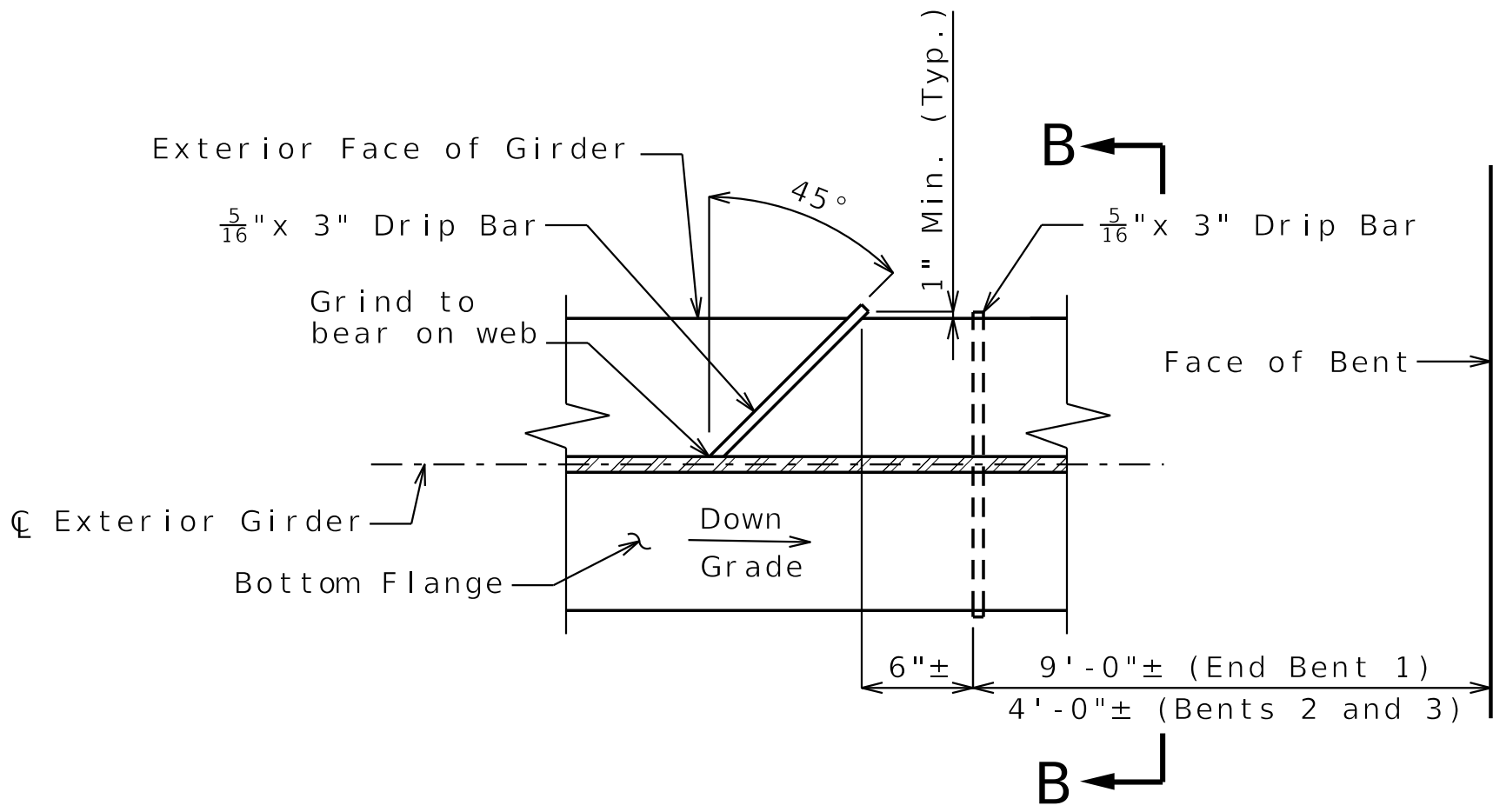
Detailed APRIL 2024
Checked JUNE 2024

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

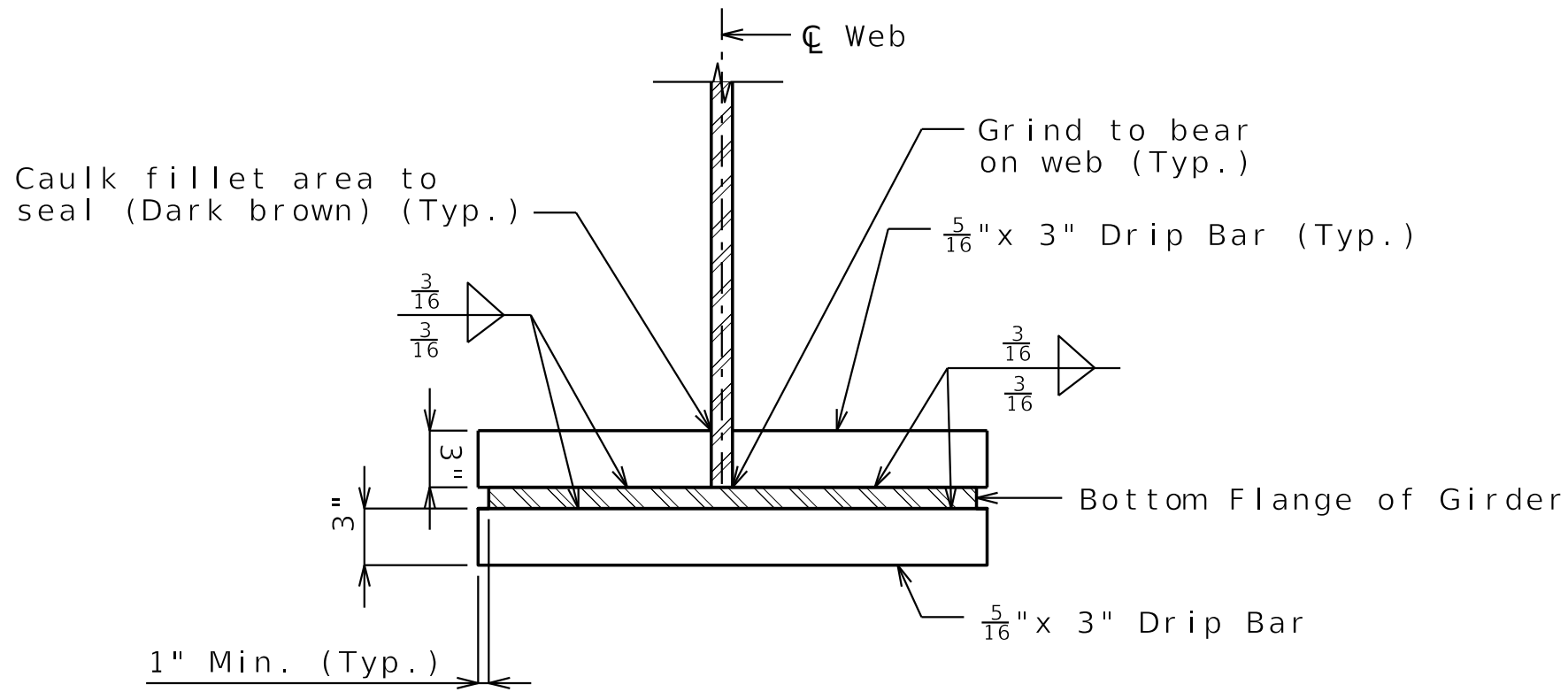
Sheet No. 36 of 74



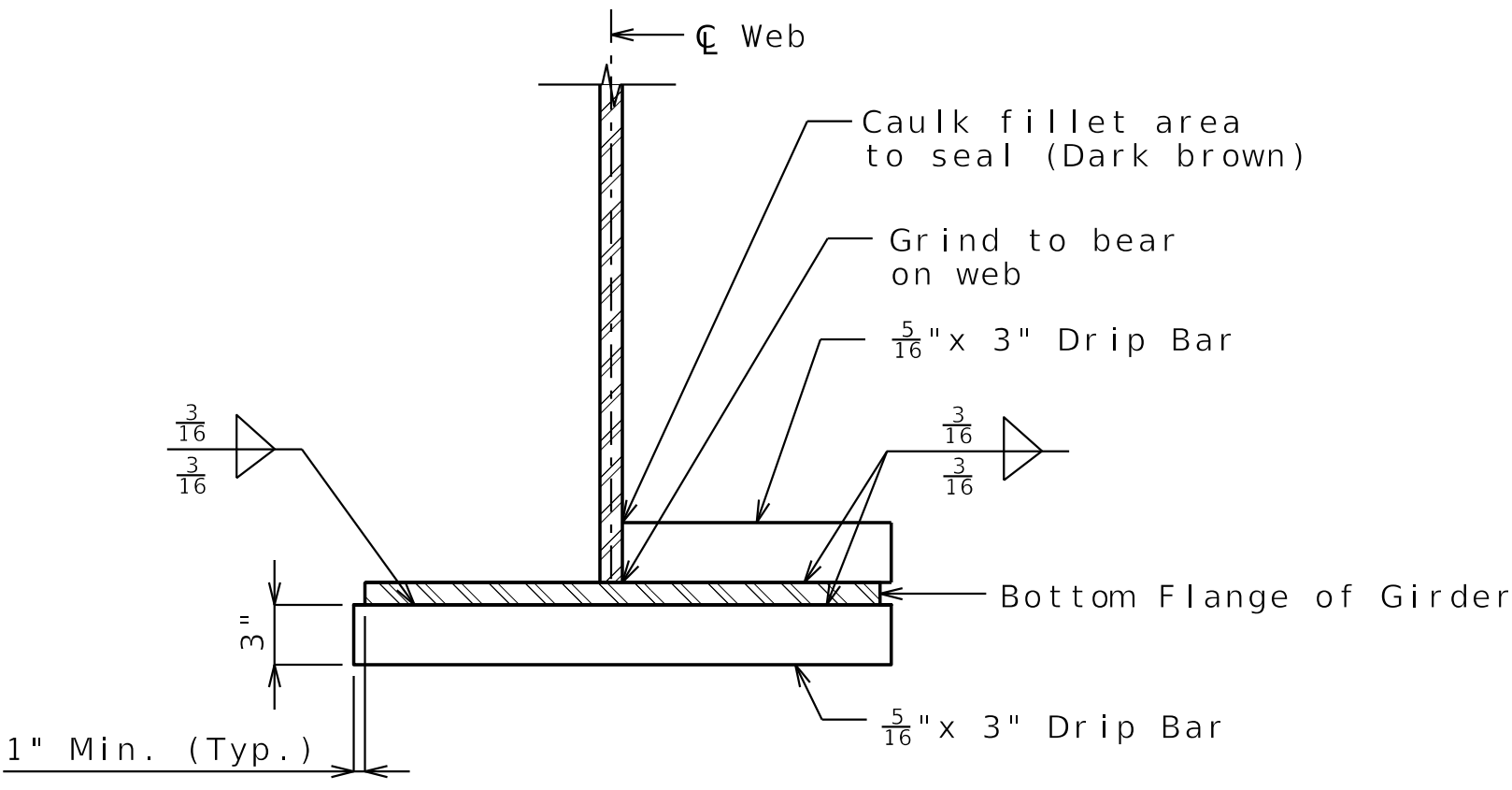
DRIP BAR DETAIL NEAR EXPANSION DEVICE



DRIP BAR DETAIL NEAR BENTS 1, 2 AND 3



SECTION A-A



SECTION B-B

Notes:
Fabricated structural steel shall be
ASTM A709, Grade 50W.



Vincent K. Nganga
08/16/2024 11:10:39 AM
Vincent K. Nganga, P.E.
MO-029018

DATE PREPARED
15-AUG-2024

ROUTE
63NB

STATE
MO

DISTRICT
BR

SHEET NO.
37

COUNTY
BOONE

JOB NO.
JST0021

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PROJECT NO.

BRIDGE NO.
A9546

DESCRIPTION	DATE
REV A - STEEL PACKAGE FINAL REVIEW	8/6/24
REV 0 - RELEASED FOR CONSTRUCTION	8/15/24

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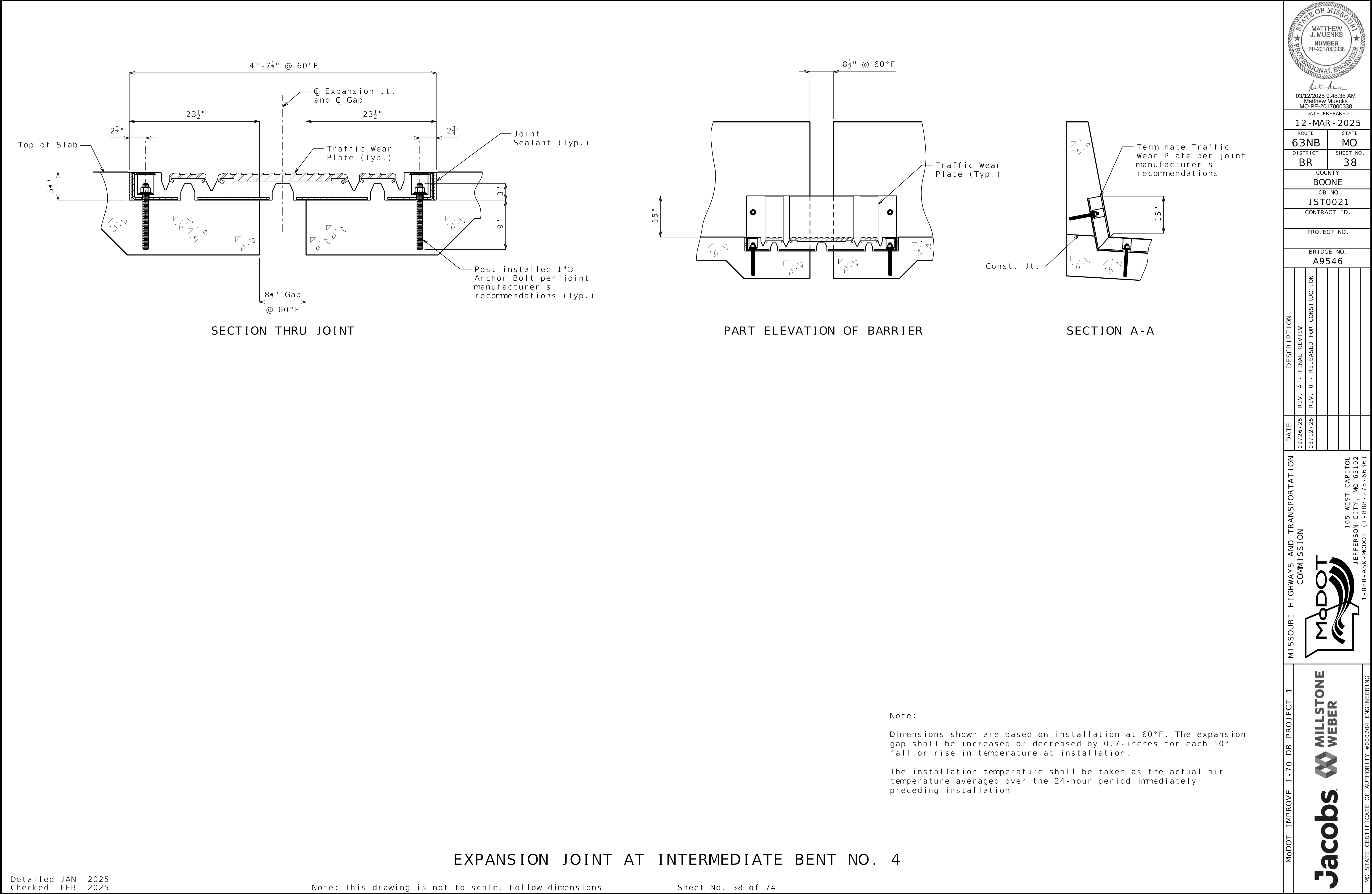
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Sheet No. 38 of 74

STATE OF MISSOURI

MATTHEW J. MUENKS

NUMBER PE-2017000338

PROFESSIONAL ENGINEER

03/12/2025 9:48:38 AM

MATTHEW MUENKS

MO PE-2017000338

DATE PREPARED

12-MAR-2025

ROUTE 63NB

DISTRICT BR

STATE MO

SHEET NO. 38

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION	REV.	
		REV.	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW		
03/12/25	REV. 0 - RELEASED FOR CONSTRUCTION		

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

MODOT IMPROVE I-70 DB PROJECT 1

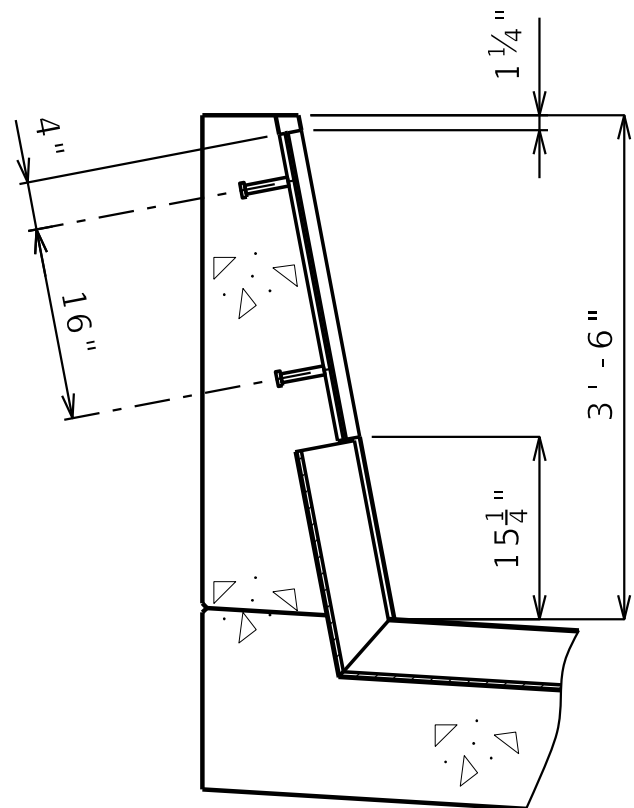
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MILLSTONE WEBER

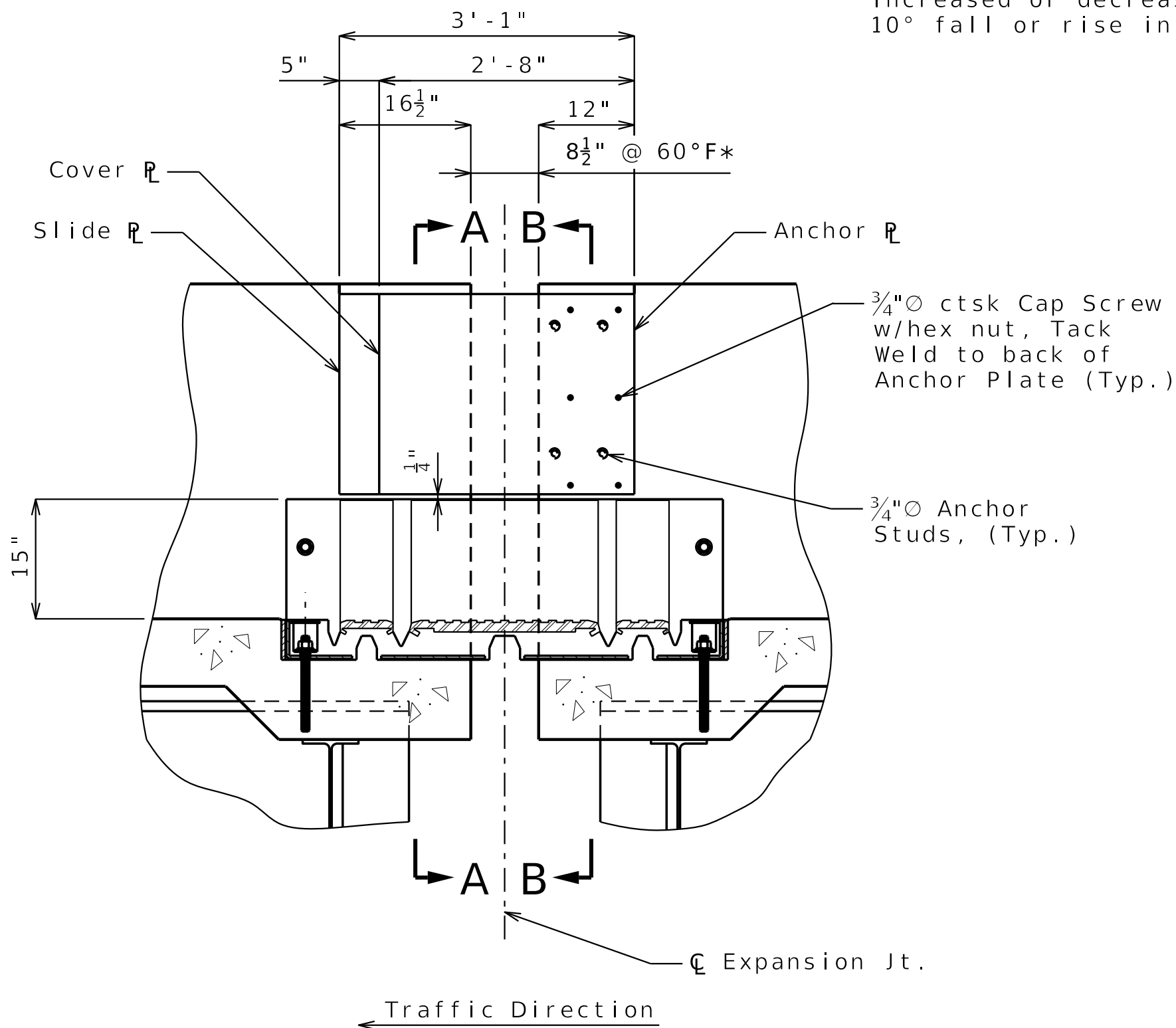
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REV.

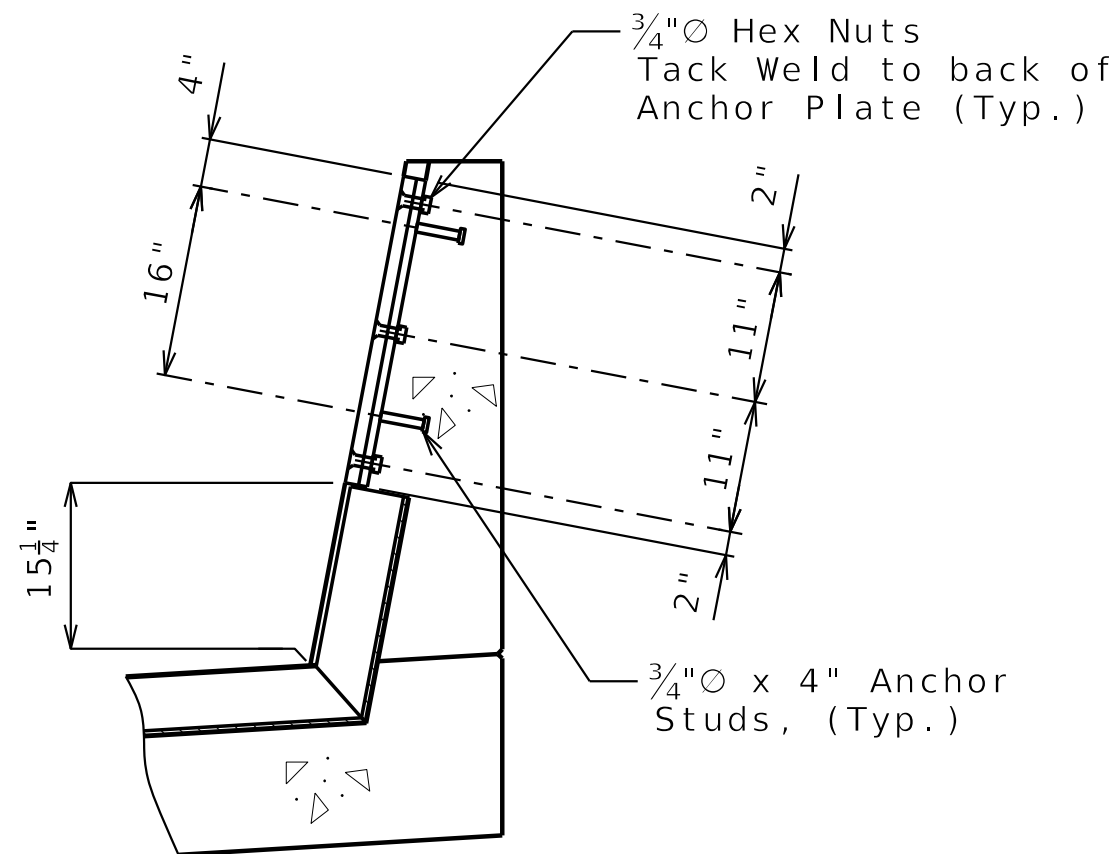
Note:
Dimensions shown are based on installation at 60°F. The expansion gap shall be increased or decreased by 0.7-inches for each 10° fall or rise in temperature at installation.
The installation temperature shall be taken as the actual air temperature averaged over the 24-hour period immediately preceding installation.



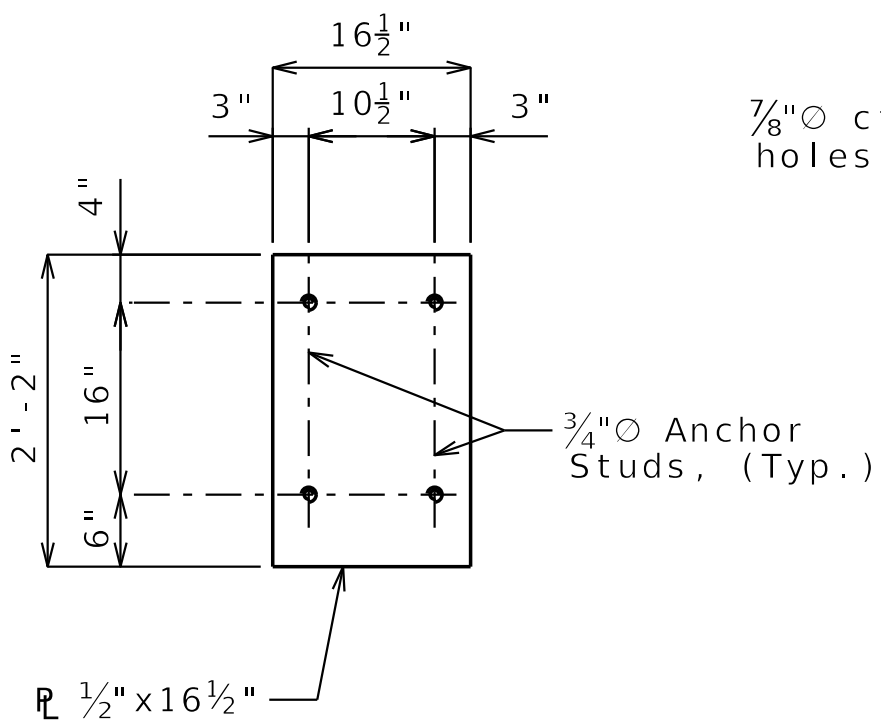
SECTION A-A



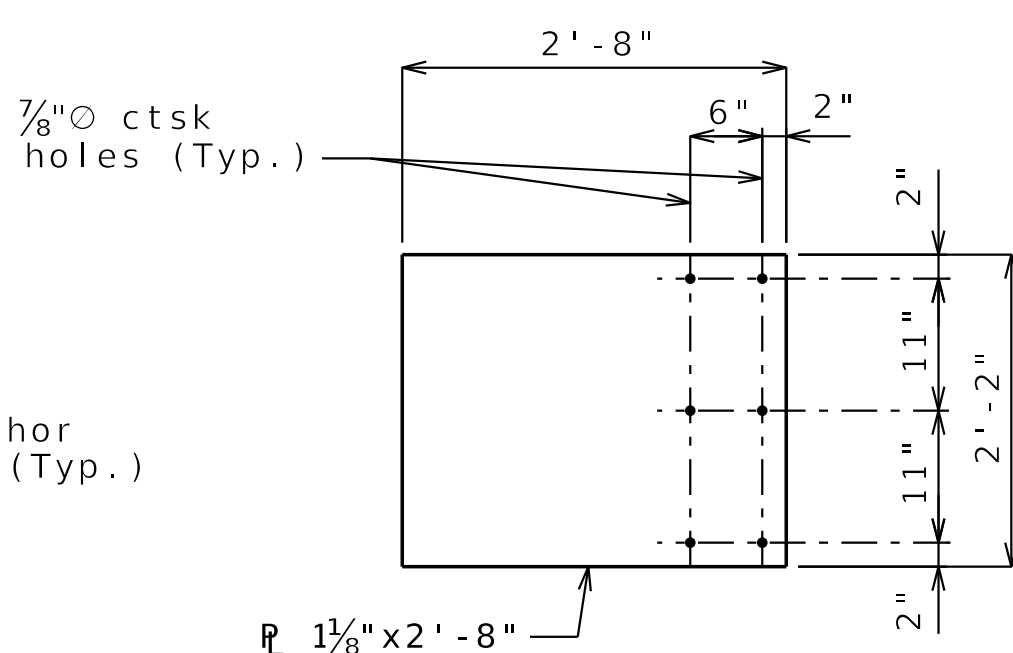
NORTH BARRIER ELEVATION AT BENT 4
Note: South Barrier opposite hand.



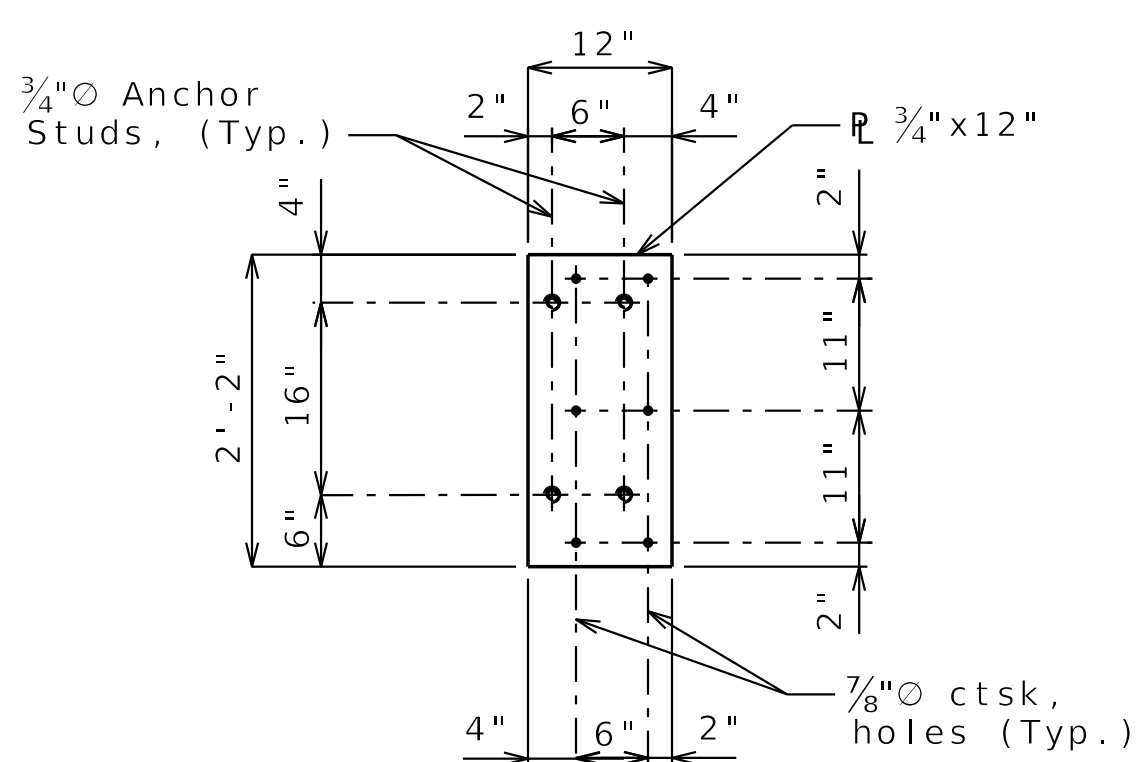
SECTION B-B



SLIDE PLATE



COVER PLATE



ANCHOR PLATE

* Dimension is based on installation of expansion device at 60°F. The total expansion gap settings shall be increased or decreased by 0.7-inches for each 10° fall or rise in temperature at installation.

Note:

All plates, except for cover plate, shall be ASTM-A36 steel and galvanized after fabrication in accordance with ASTM-A123.

Cover plate shall be ASTM-A709 Grade 50 steel and galvanized after fabrication in accordance with ASTM-A123.

Cover plates shall be mounted towards oncoming traffic.

Plastic caps shall be utilized on back of nuts to prevent concrete from entering threads.

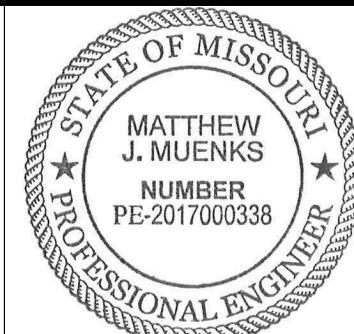
BARRIER PLATE AT EXPANSION JOINT

Detailed FEB 2025
Checked FEB 2025

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

Sheet No. 39 of 74

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Matthew Muenks
MO PE-2017000338

DATE PREPARED

12-MAR-2025

ROUTE STATE

63NB MO

DISTRICT SHEET NO.

BR 39

COUNTY

BOONE

JOB NO.

JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

02/26/25

03/12/25

03/12/25

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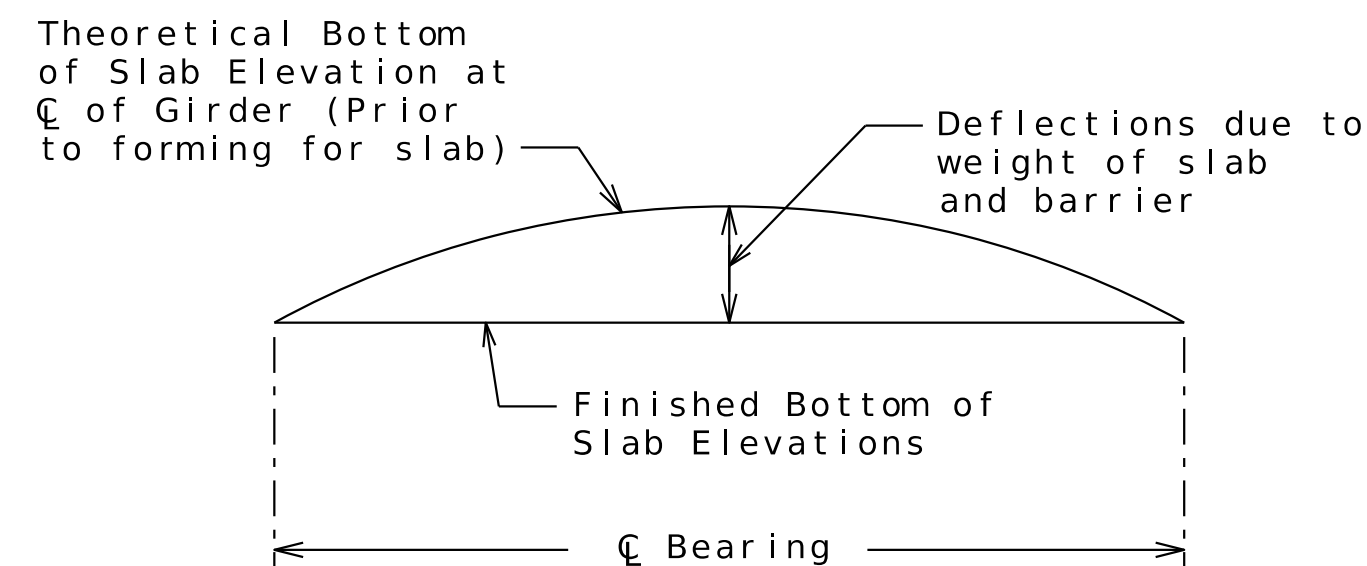
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03/12/25

Theoretical Bottom of Slab Elevations at Centerline of Girder - Unit 1 (Prior to forming for slab)											
Girder Number	Span (1-2) ((1) C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	716.69	717.27	717.87	718.49	719.10	719.70	720.30	720.91	721.51	722.13	722.75
2	716.27	716.80	717.36	717.92	718.49	719.08	719.68	720.29	720.89	721.50	722.12
3	715.85	716.33	716.84	717.36	717.88	718.46	719.06	719.66	720.27	720.88	721.49
Girder Number	Span (2-3) ((1) C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	722.75	723.77	724.81	725.85	726.87	727.86	728.81	729.69	730.49	731.23	731.94
2	722.12	723.13	724.16	725.18	726.19	727.18	728.13	729.02	729.84	730.59	731.31
3	721.49	722.49	723.50	724.51	725.51	726.50	727.45	728.36	729.19	729.95	730.68
Girder Number	Span (3-4) ((1) C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	731.94	732.43	732.91	733.37	733.79	734.18	734.54	734.84	735.11	735.33	735.51
2	731.31	731.81	732.29	732.74	733.16	733.55	733.90	734.21	734.47	734.70	734.88
3	730.68	731.18	731.66	732.11	732.53	732.92	733.27	733.57	733.84	734.06	734.22

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 SIP Steel Forms) and barrier.

(1) Span length varies, see Girder Elevations.



TYPICAL SLAB ELEVATIONS DIAGRAM

Theoretical Bottom of Slab Elevations at Centerline of Girder - Unit 2 (Prior to forming for slab)											
Girder Number	Span (4-5) ((1) C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	735.56	735.75	735.89	736.01	736.08	736.12	736.12	736.08	736.03	735.95	735.85
2	734.93	735.12	735.26	735.38	735.45	735.49	735.49	735.46	735.40	735.32	735.22
3	734.30	734.48	734.63	734.75	734.82	734.86	734.87	734.84	734.78	734.70	734.59
Girder Number	Span (5-6) ((1) C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	735.85	735.70	735.50	735.25	734.91	734.48	733.95	733.33	732.62	731.85	731.03
2	735.22	735.06	734.85	734.58	734.23	733.80	733.27	732.65	731.96	731.20	730.40
3	734.59	734.42	734.19	733.91	733.55	733.11	732.59	731.98	731.30	730.56	729.77
Girder Number	Span (6-7) ((1) C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	731.03	730.57	730.12	729.67	729.22	728.78	728.34	727.89	727.45	727.00	726.55
2	730.40	729.94	729.49	729.05	728.62	728.24	727.84	727.44	727.04	726.63	726.23
3	729.77	729.32	728.87	728.43	728.06	727.70	727.35	726.99	726.63	726.26	725.90



Vincent K. Nganga
08/16/2024 11:10:39 AM
Vincent K. Nganga, P.E.
MO-029018

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15 - AUG - 2024

ROUTE	STATE
53NB	MO

DISTRICT	SHEET NO.
BR	41

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

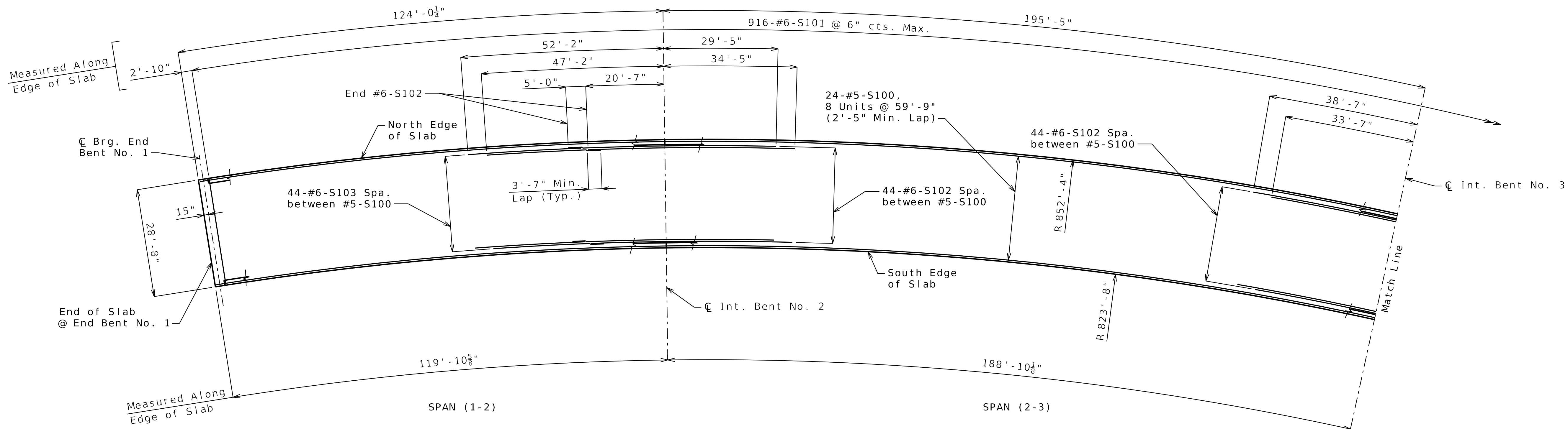
BRIDGE NO.
A9546

8/6/24	REV A - STEEL PACKAGE FINAL REVIEW
8/15/24	REV 0 - RELEASED FOR CONSTRUCTION

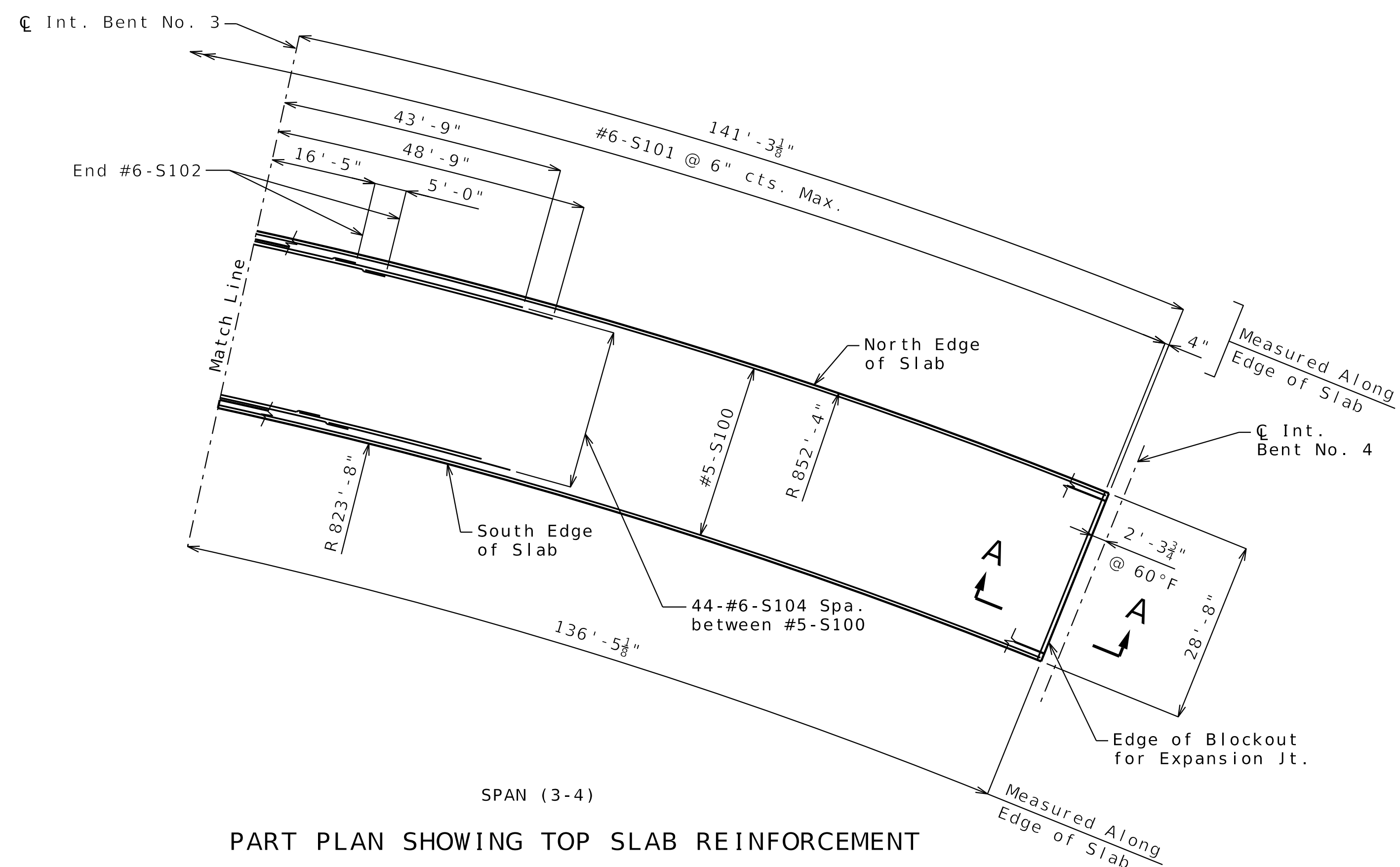
COMMISSION



STEEL GIRDER DETAILS - UNITS 1 AND 2



PART PLAN SHOWING TOP SLAB REINFORCEMENT



PART PLAN SHOWING TOP SLAB REINFORCEMENT

PLAN OF SLAB SHOWING REINFORCEMENT - UNIT 1

General Notes:

Longitudinal dimensions shown are horizontal arc dimensions.

For Bottom Slab Reinforcement Plans, see Sheet No. 43.

For Section Thru Slab and longitudinal reinforcement spacing, see Sheet No. 46.

For Details and Reinforcement of MoDOT Type D Barrier not shown, see Sheet Nos. 51 and 52.

For Girder Camber Diagrams, see Sheet No. 32.

For Details of Expansion Device, see Sheet No. 38.

For Theoretical Slab Haunching, see Sheet No. 41.

For SECTION A-A, see Sheet No. 43.

For Slab Pouring Sequence, see Sheet No. 48.

For Slab Curve Ordinates, see Sheet No. 49.

Transverse reinforcement shall be placed radially and along the north edge of slab.

Detailed DEC 2024
Checked FEB 2025

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

Sheet No. 42 of 74

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12-MAR-2025



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MO PE-2017000338

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12-MAR-2025

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 42

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PROJECT NO.

BRIDGE NO. A9546

DESCRIPTION

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02/26/25

03/12/25

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105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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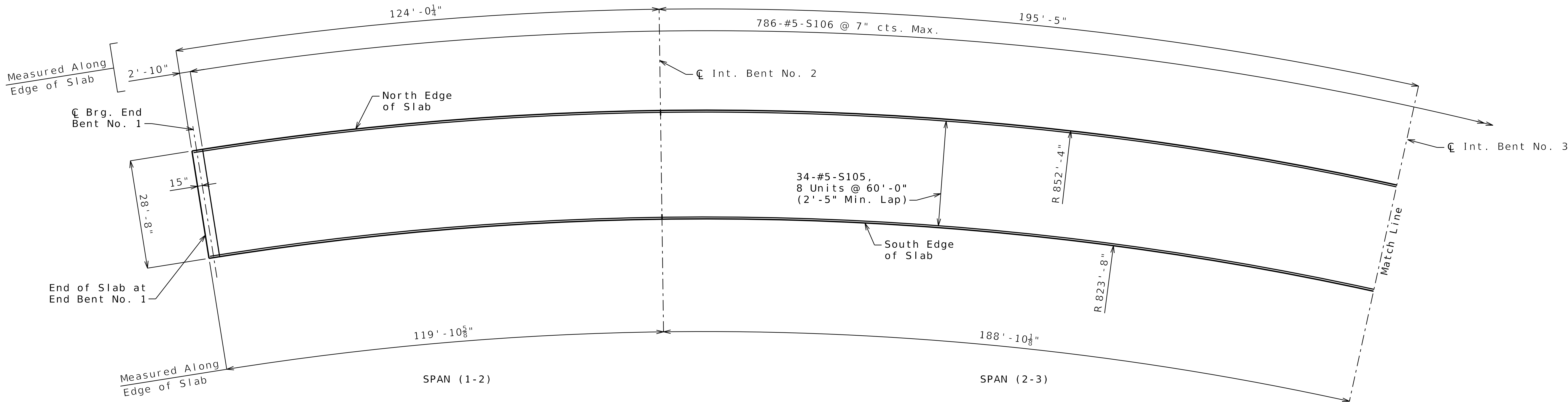
MoDOT

JACOBS

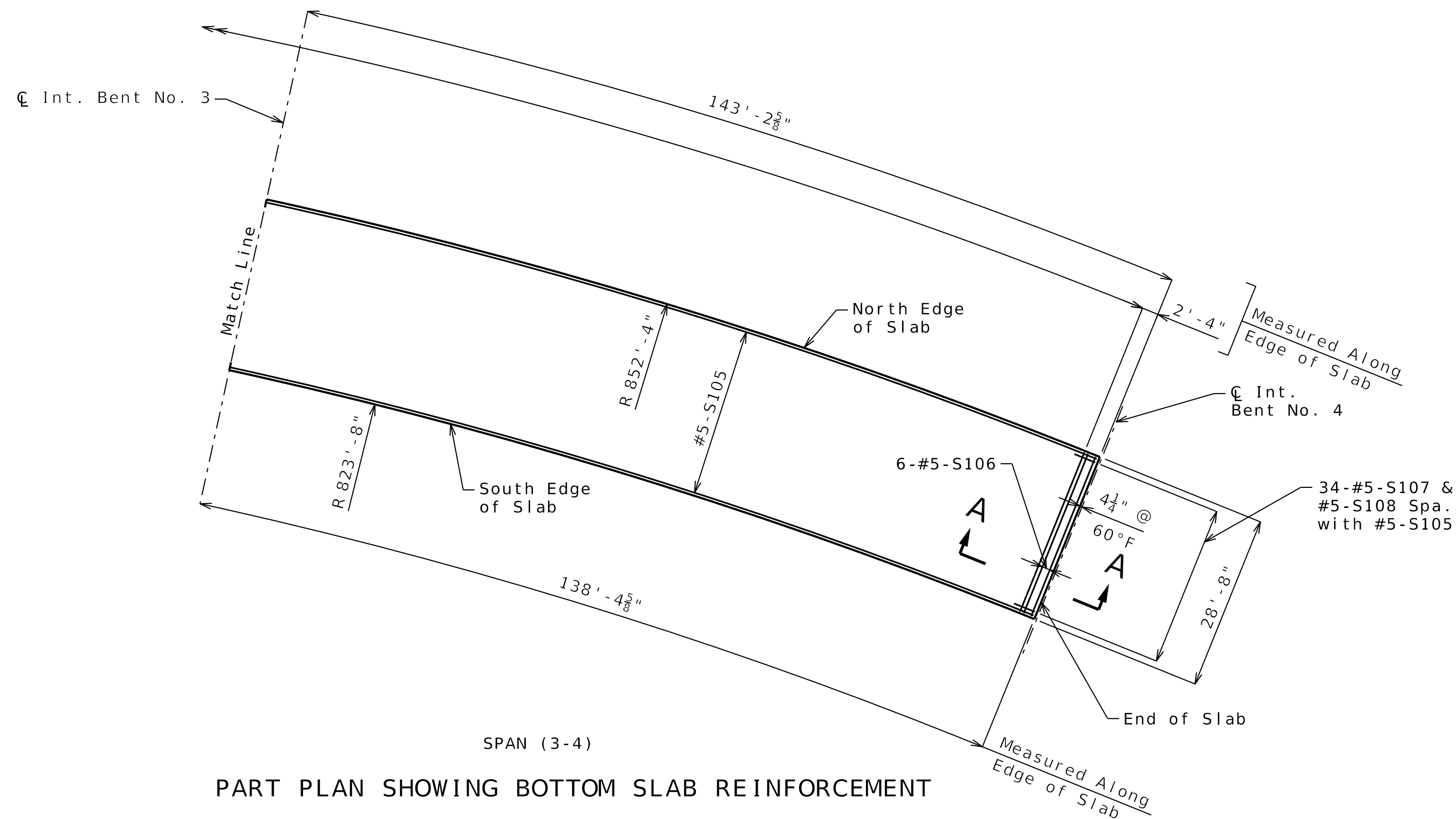
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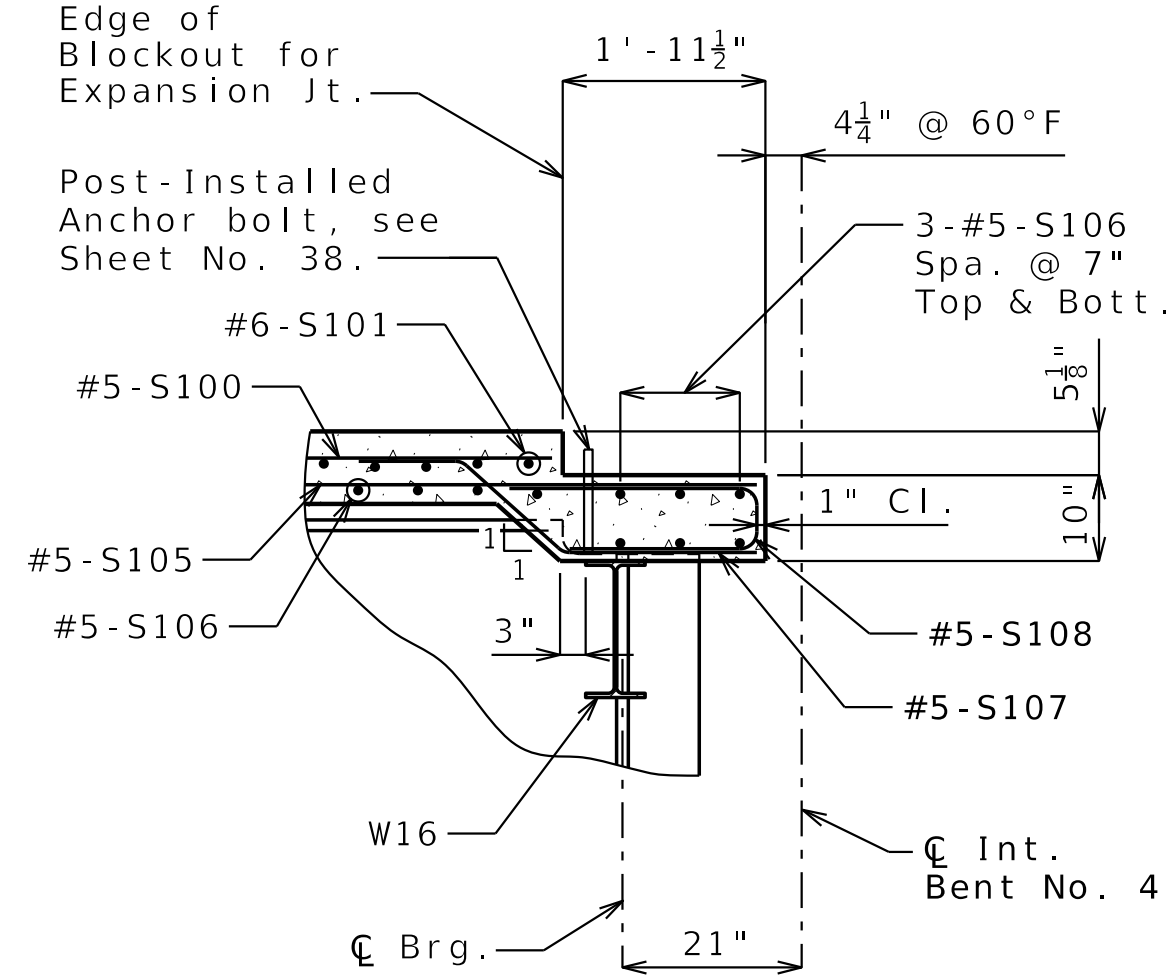
PROJECT 1



PART PLAN SHOWING BOTTOM SLAB REINFORCEMENT



PART PLAN SHOWING BOTTOM SLAB REINFORCEMENT



SECTION A-A

Notes:
For General Notes and Details not shown, See Sheet No. 42.

PLAN OF SLAB SHOWING REINFORCEMENT - UNIT 1

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ROUTE 63NB	STATE MO
DISTRICT BR	SHEET NO. 43

COUNTY
BOONE

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JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
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DATE	DESCRIPTION	REV.	A	FINAL	REVIEW
02/26/25	REV. A - FINAL REVIEW				
03/12/25	REV. 0 - RELEASED FOR CONSTRUCTION				

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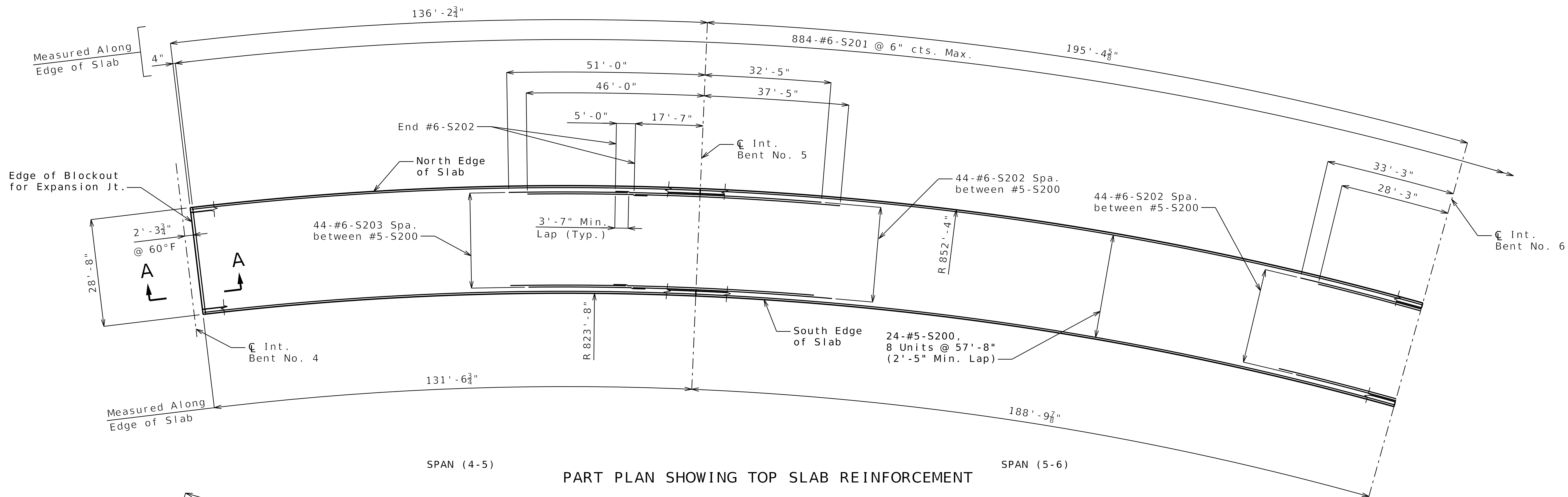
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JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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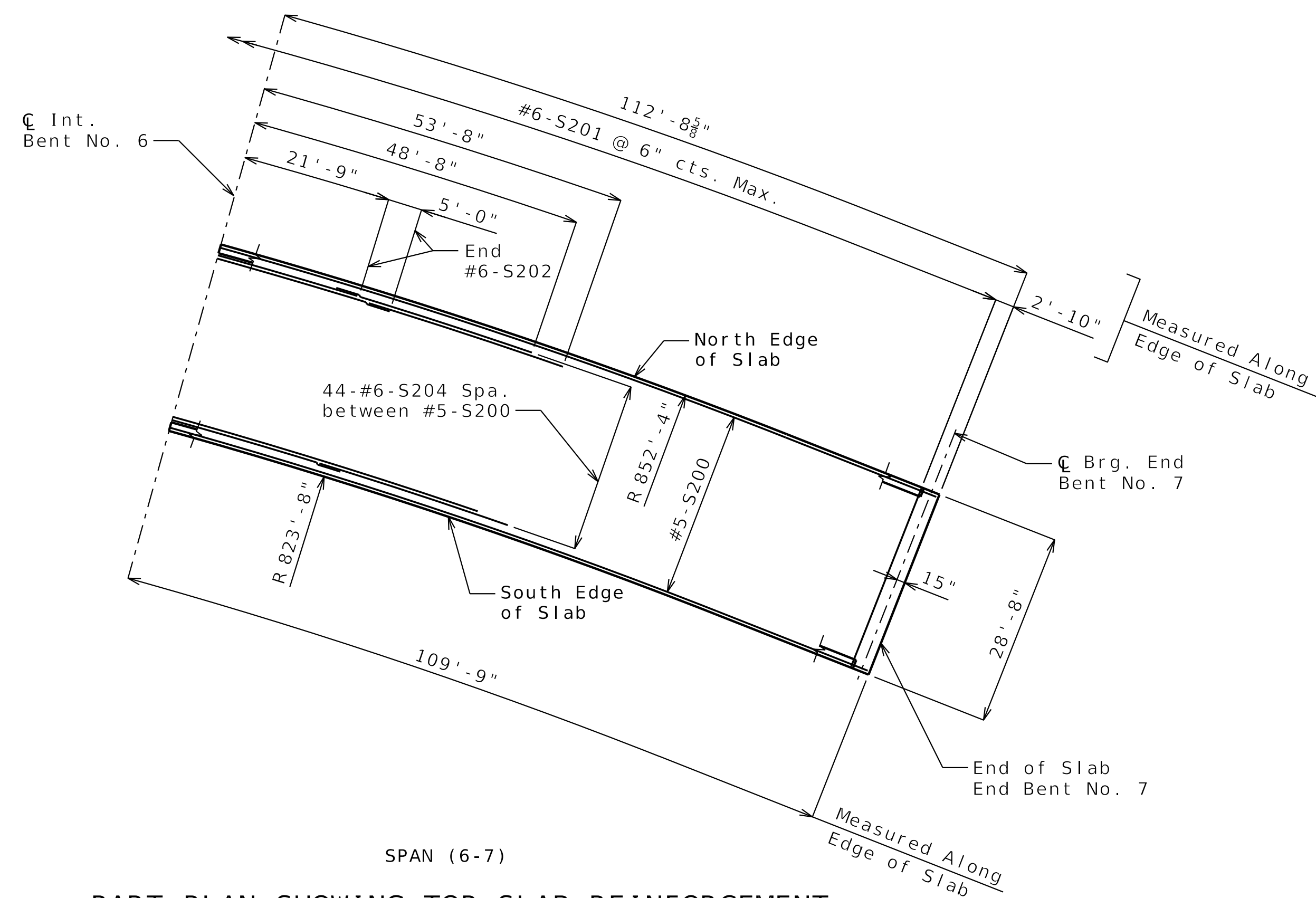
Jacobs

MILLSTONE WEBER

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PART PLAN SHOWING TOP SLAB REINFORCEMENT



PART PLAN SHOWING TOP SLAB REINFORCEMENT

PLAN OF SLAB SHOWING REINFORCEMENT - UNIT 2

General Notes:

Longitudinal dimensions shown are horizontal dimensions.

For Bottom Slab Reinforcement Plans, see Sheet No. 45.

For Section Thru Slab and longitudinal reinforcement spacing, see Sheet No. 47.

For Details and Reinforcement of MoDOT Type D Barrier not shown, see Sheet Nos. 53 and 54.

For Girder Camber Diagrams, see Sheet No. 33.

For Details of Expansion Device, see Sheet No. 38.

For Theoretical Slab Haunching, see Sheet No. 41.

For SECTION A-A, see Sheet No. 45.

For Slab Pouring Sequence, see Sheet No. 48.

For Slab Curve Ordinates, see Sheet No. 50.

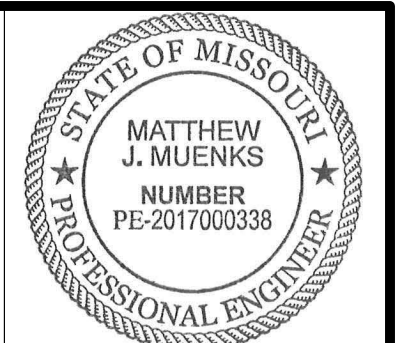
Transverse reinforcement shall be placed radially and along the north edge of slab.

Detailed JAN 2025
Checked FEB 2025

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

Sheet No. 44 of 74

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12-MAR-2025

ROUTE STATE

63NB MO

DISTRICT SHEET NO.

BR 44

COUNTY

BOONE

JOB NO.

JST0021

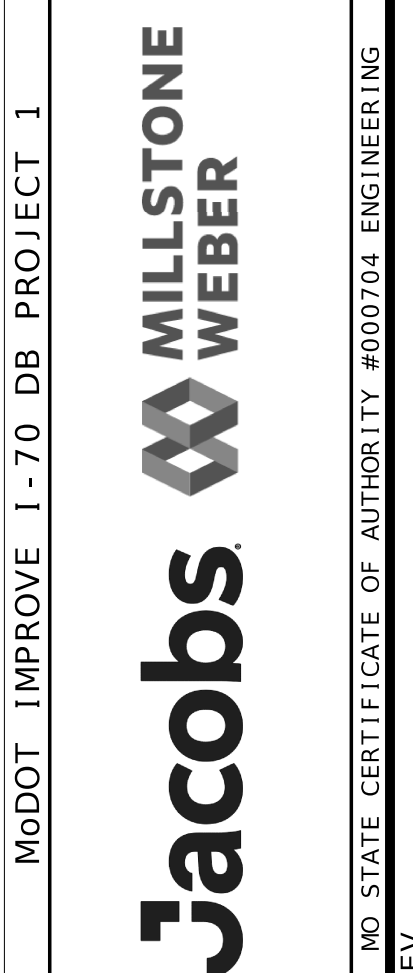
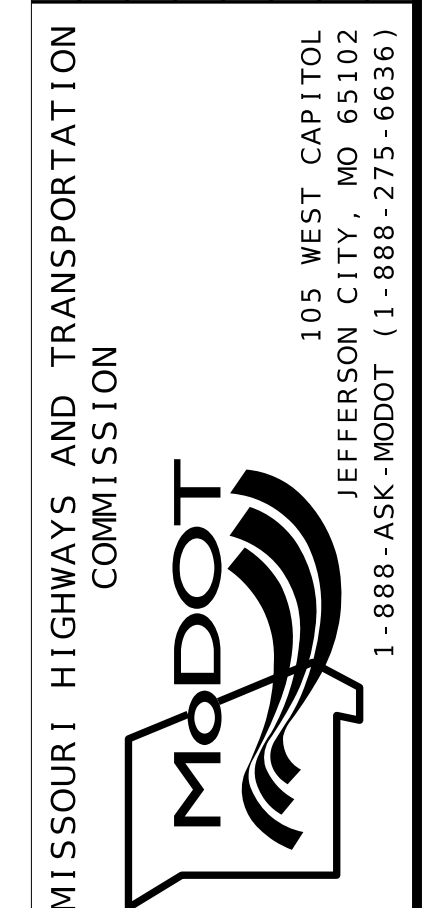
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PROJECT NO.

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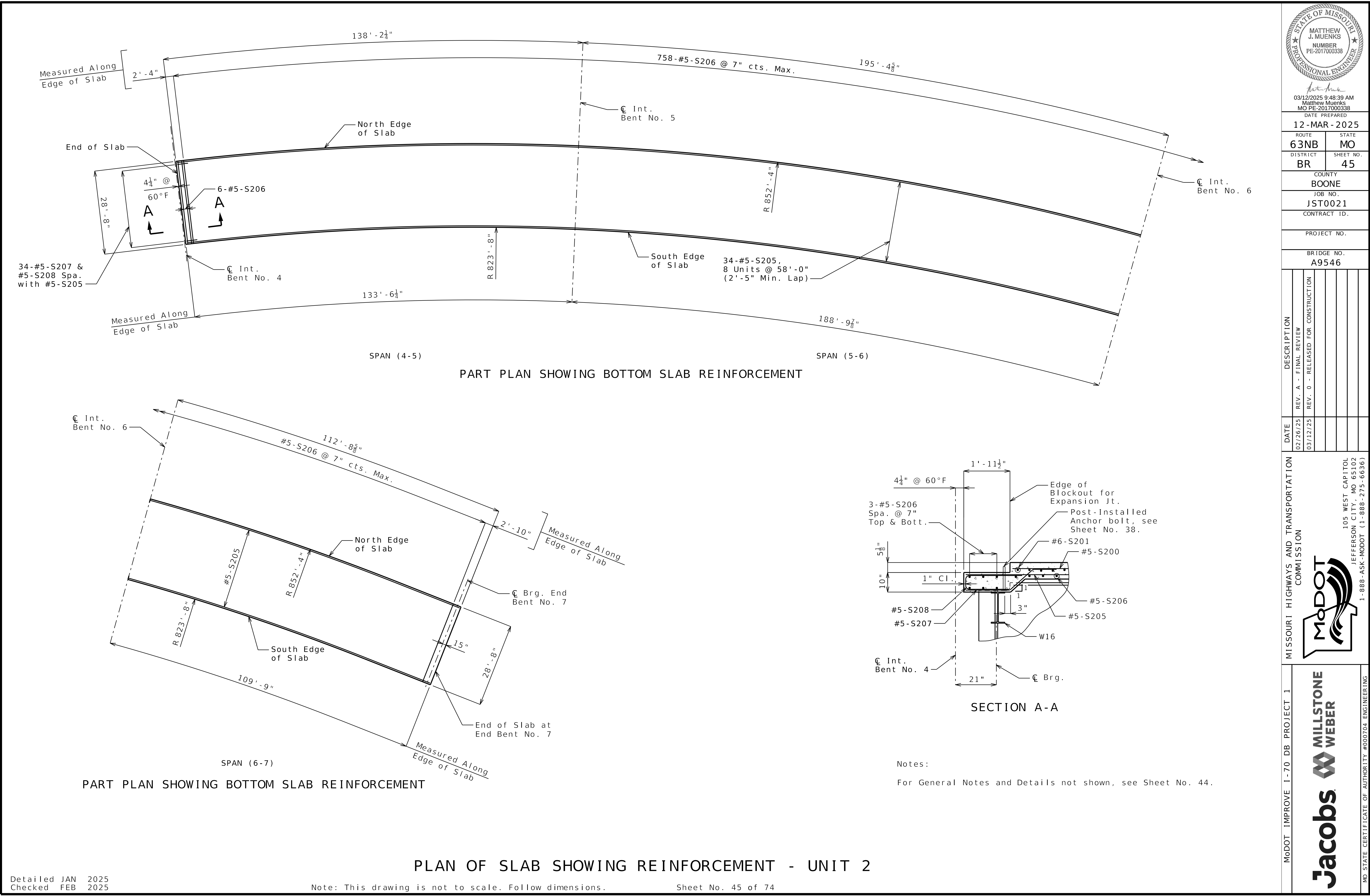
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DATE	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW
03/12/25	REV. 0 - RELEASED FOR CONSTRUCTION



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12-MAR-2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 45

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW
03/12/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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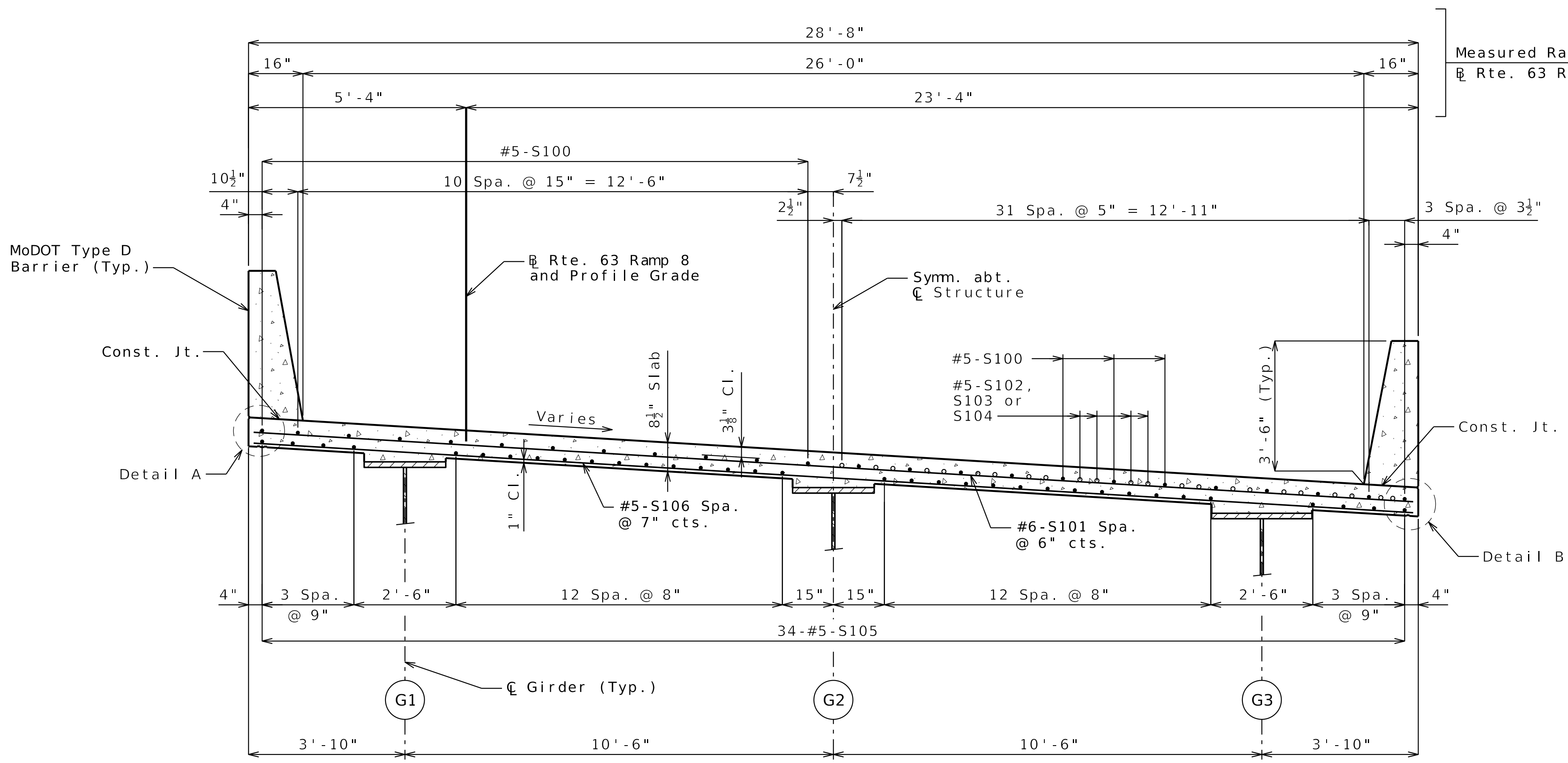
MoDOT

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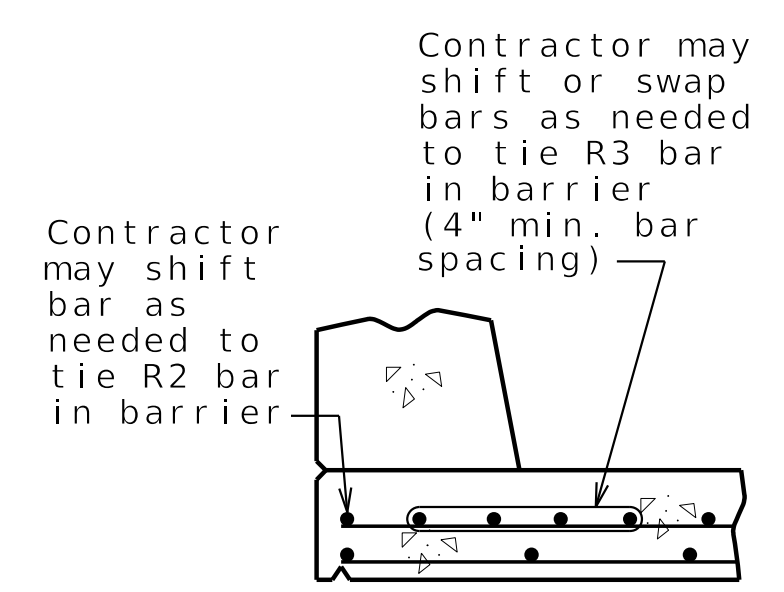
Jacobs

MILLSTONE WEBER

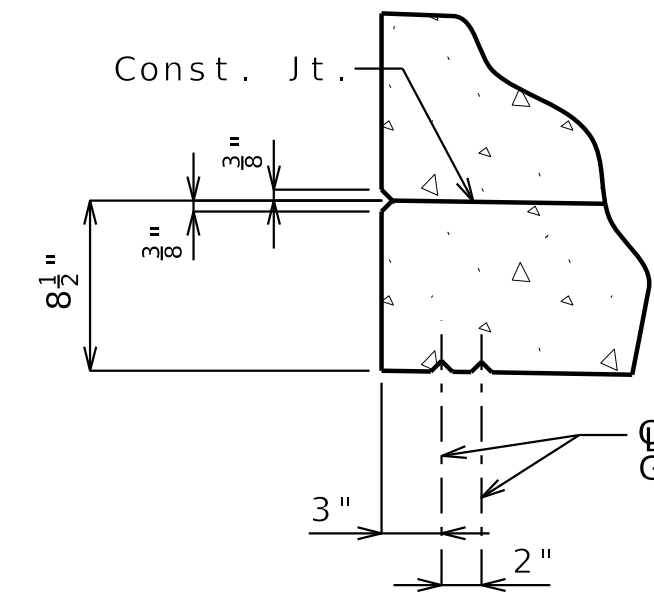
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING



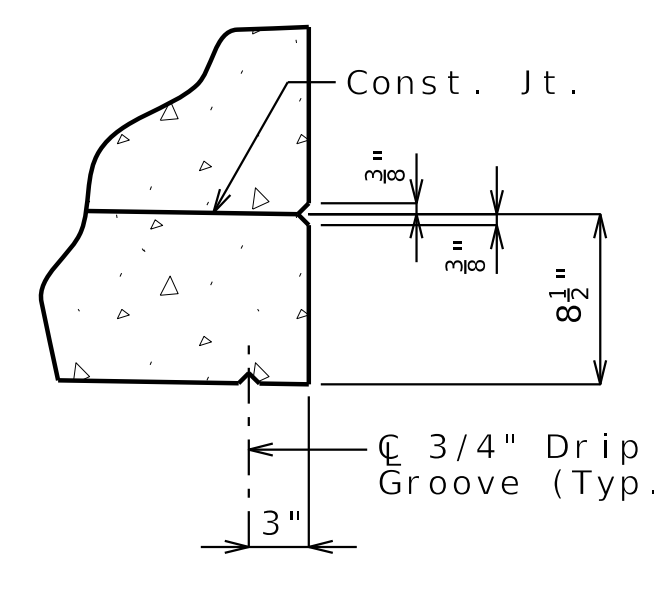
SECTION NEAR MID-SPAN
SECTION NEAR INTERMEDIATE BENTS
TYPICAL SECTION THRU ROADWAY



OPTIONAL SHIFTING TOP BARS AT BARRIER



DETAIL A



DETAIL B

SLAB DETAILS - UNIT 1

Notes:
For General Notes, see Sheet No. 42.
For Slab Plans Showing Reinforcement and Details, see Sheet Nos. 42 & 43.

Detailed NOV 2024
Checked FEB 2024

Note: This drawing is not to scale. Follow dimensions.
Sheet No. 46 of 74

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

03/12/2025 9:48:40 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED
12-MAR-2025

ROUTE	STATE
63NB	MO
DISTRICT	SHEET NO.
BR	46

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9546

DATE	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW
03/12/25	REV. 0 - RELEASED FOR CONSTRUCTION

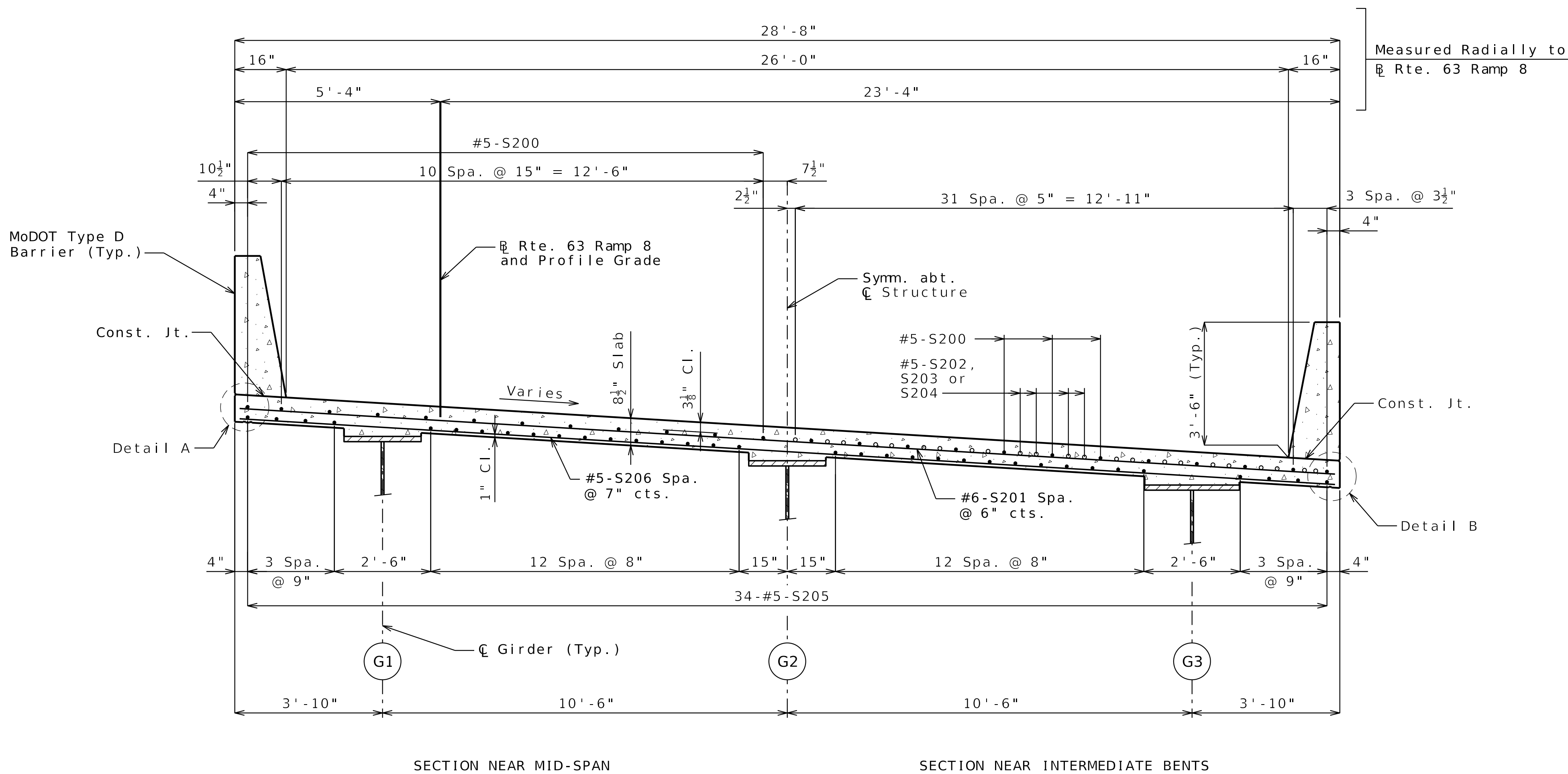
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

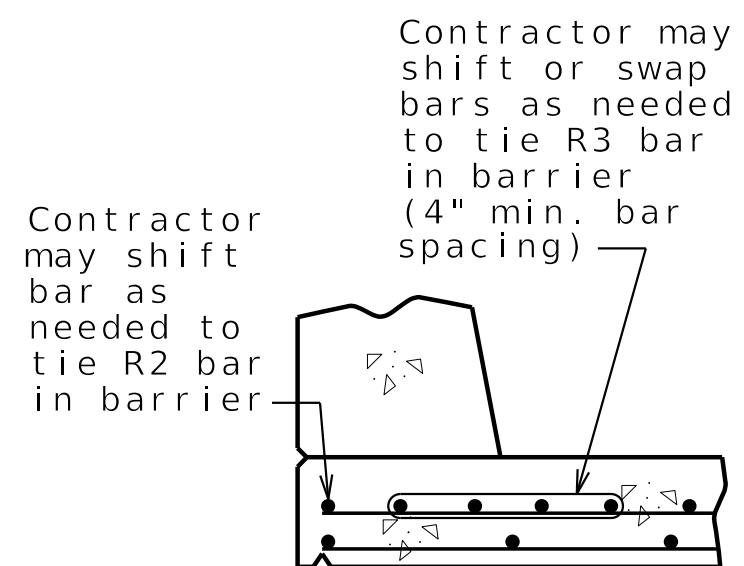
MODOT IMPROVE I-70 DB PROJECT 1

Jacobs **MILLSTONE WEBER**

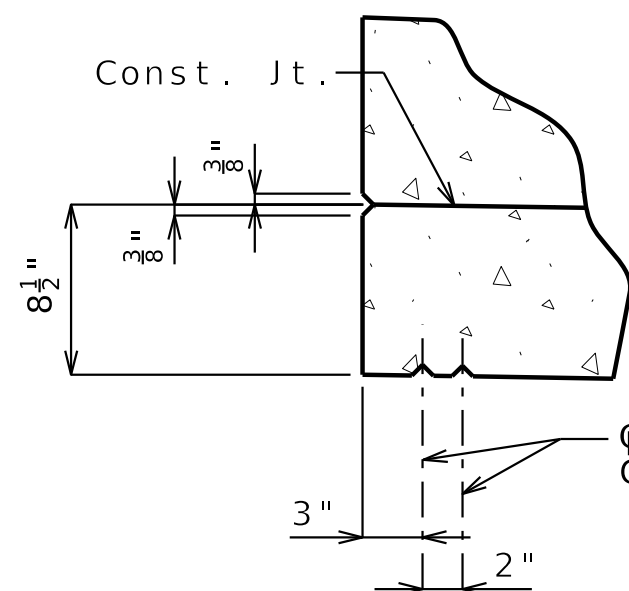
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING



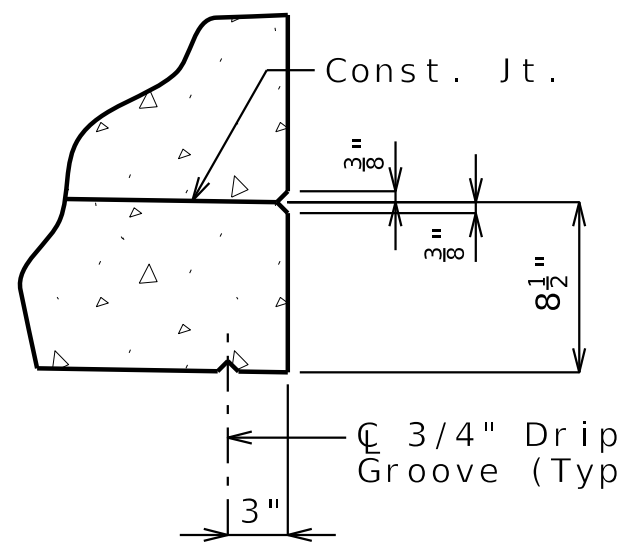
TYPICAL SECTION THRU ROADWAY



OPTIONAL SHIFTING TOP BARS AT BARRIER



DETAIL A



DETAIL B

Notes:
For General Notes, see Sheet No. 44.
For Slab Plans Showing Reinforcement and Details, see Sheet Nos. 44 & 45.

SLAB DETAILS - UNIT 2

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

Sheet No. 47 of 74



03/12/2025 9:48:40 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

12-MAR-2025

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 47

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

02/26/25

03/12/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MODOT

PROJECT 1

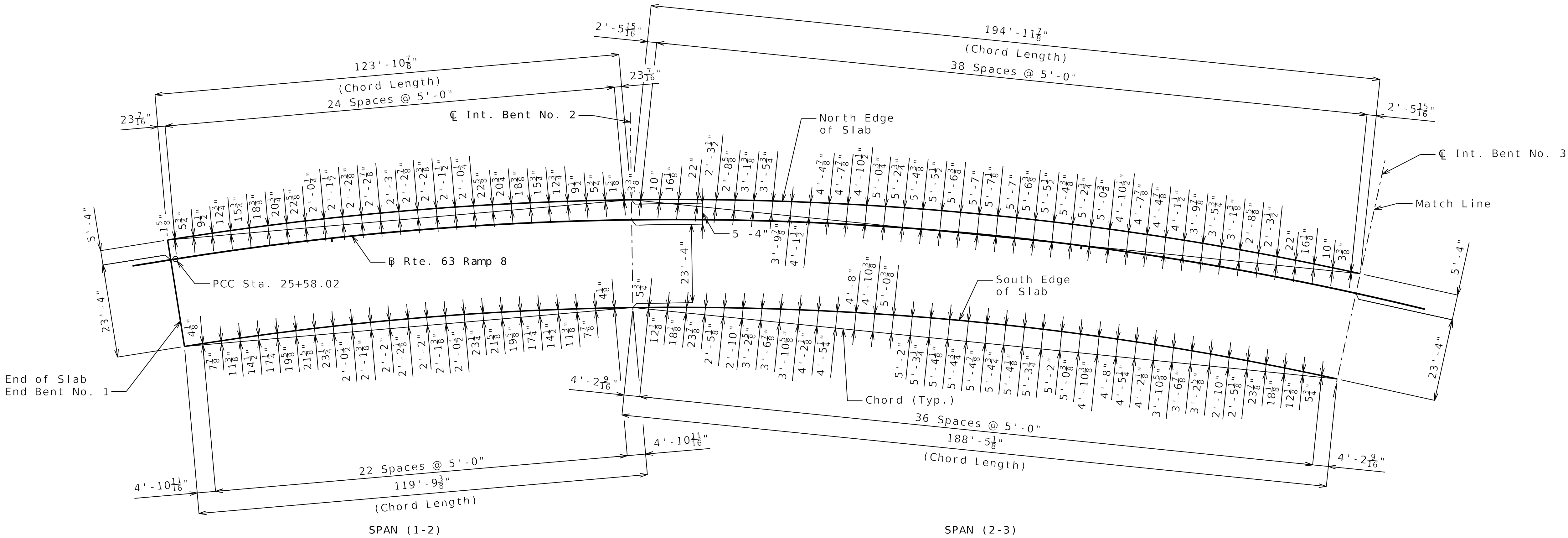
MILLSTONE WEBER

Jacobs

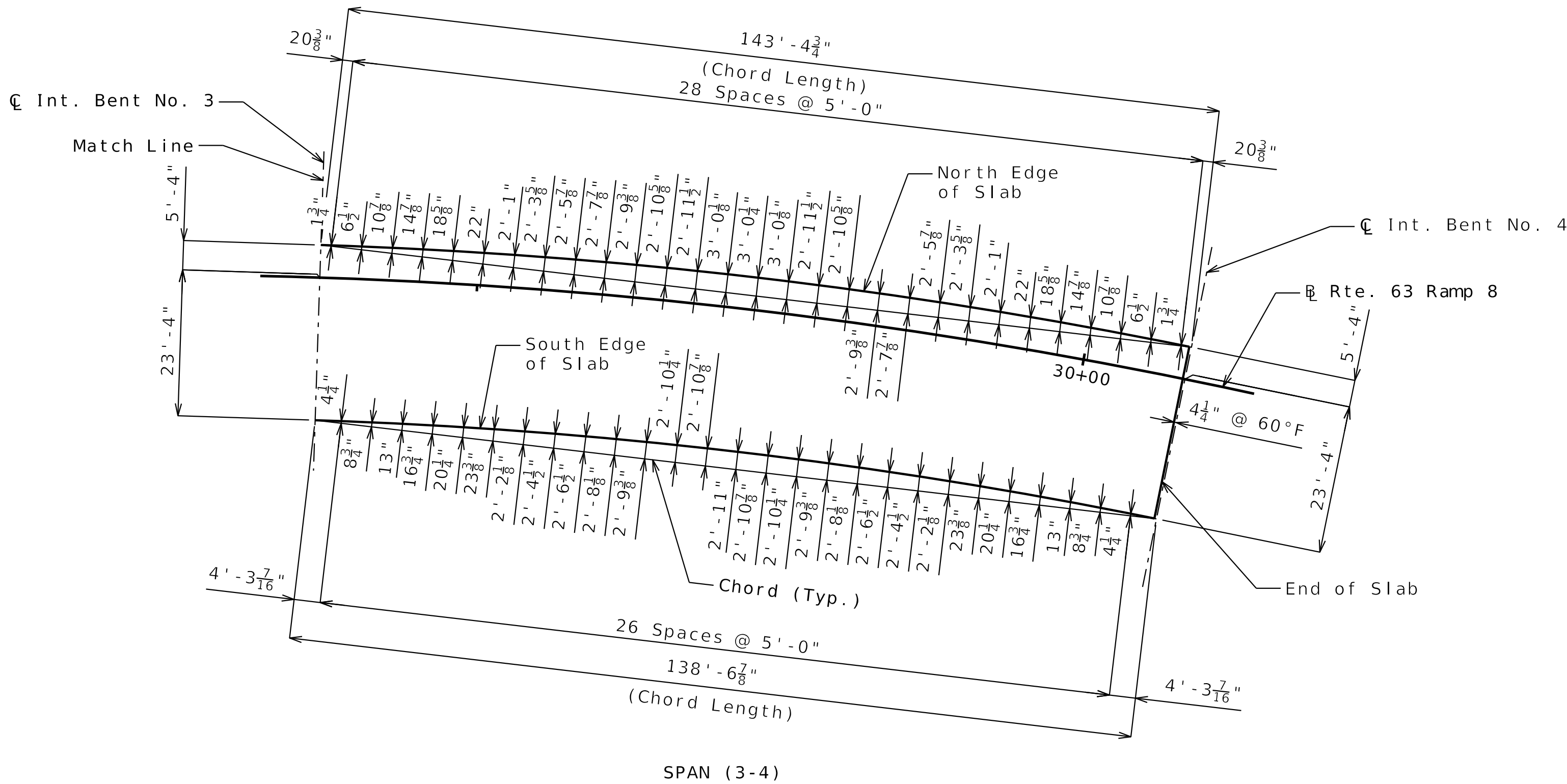
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

08:05 12-MAR-2025



PART PLAN



PART PLAN

SLAB CURVE ORDINATES - UNIT 1

Notes:

All bents are radial.

All dimensions are horizontal.

For expansion device details and joint dimensions, see Sheet No. 38.

Detailed NOV 2024
Checked FEB 2025

Note: This drawing is not to scale. Follow dimensions. Sheet No. 49 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_049_JST0021_Slab Ordinates-1.dgn



03/12/2025 9:48:41 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED
12-MAR-2025
ROUTE 63NB
STATE MO
DISTRICT BR
SHEET NO. 49
COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.
BRIDGE NO. A9546

DATE	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW
03/12/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

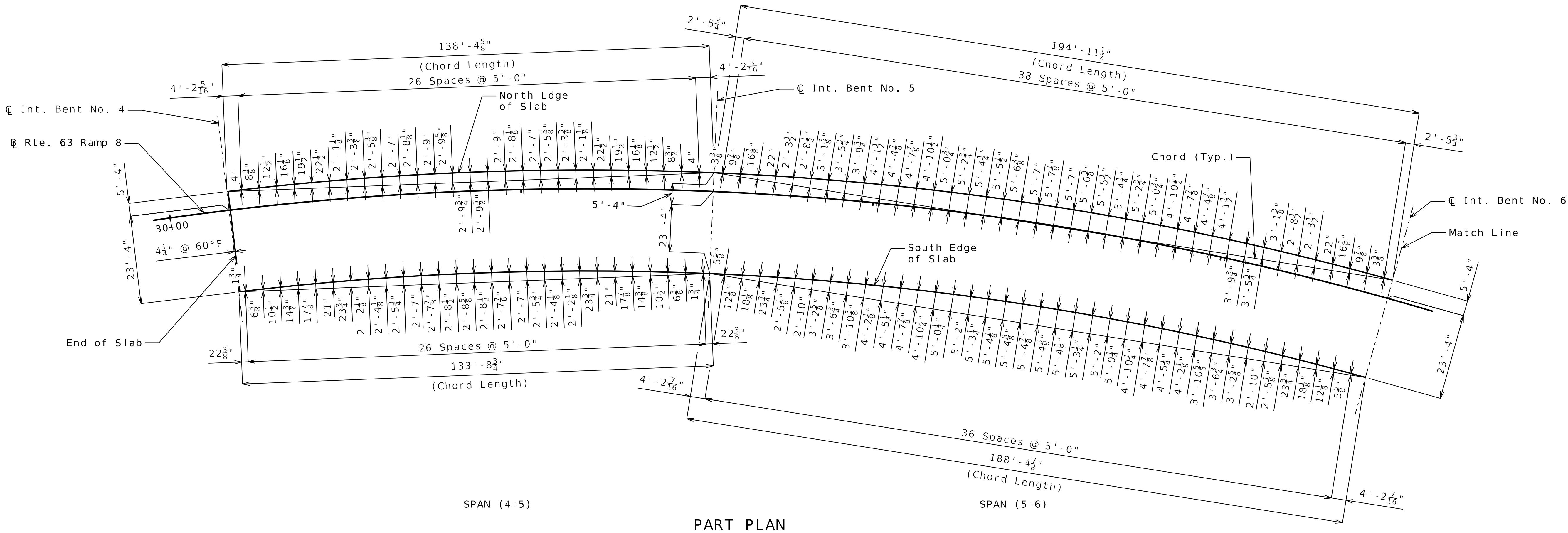
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MODOT IMPROVE I-70 DB PROJECT 1

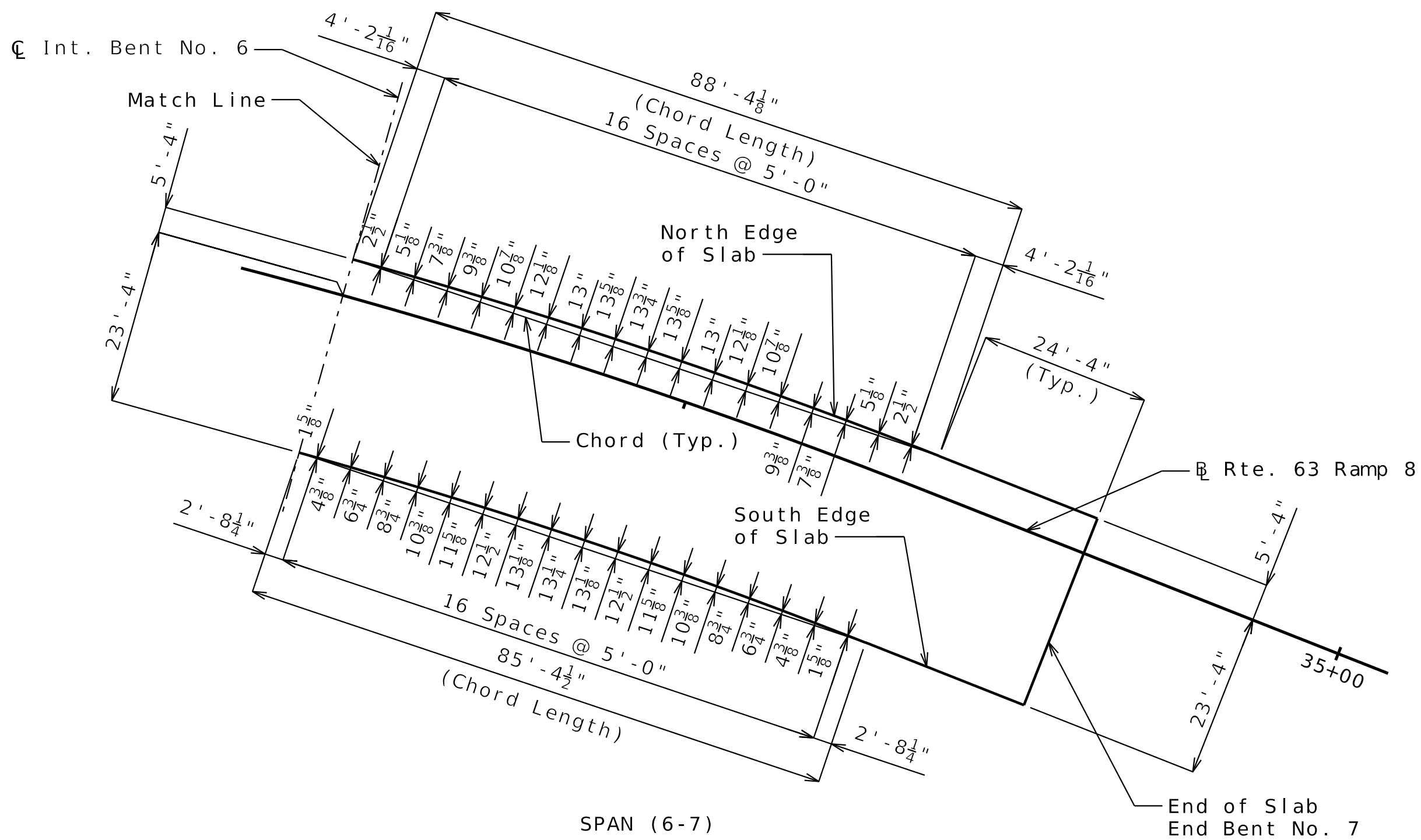
Jacobs MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

08:06 12-MAR-2025



PART PLAN



PART PLAN

PART PLAN

SLAB CURVE ORDINATES - UNIT 2

Notes:

All intermediate bents are radial.

All dimensions are horizontal.

For expansion device details and joint dimensions, see Sheet No. 38.

Detailed NOV 2024
Checked FEB 2025

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

Sheet No. 50 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_050_JST0021_Slab Ordinates-2.dgn



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Matthew Muenks
MO PE-2017000338

DATE PREPARED
12-MAR-2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 50

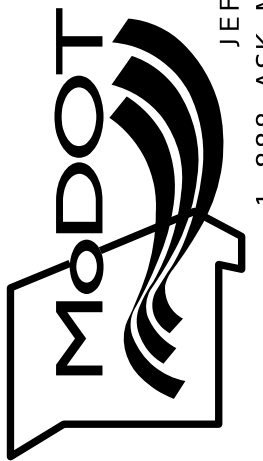
COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW
03/12/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



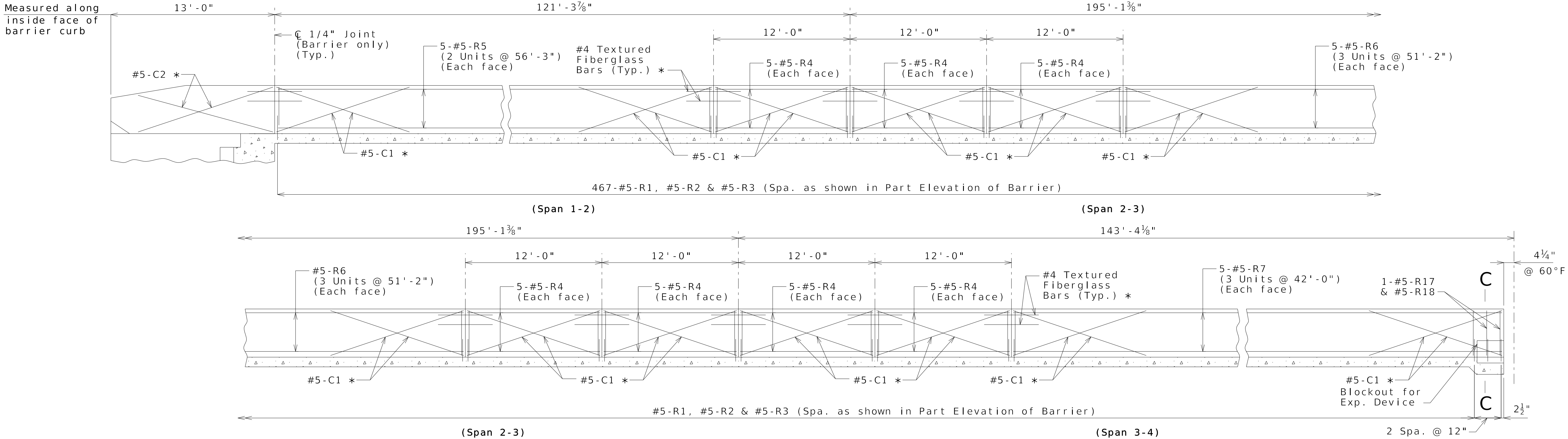
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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MODOT IMPROVE I-70 DB PROJECT 1

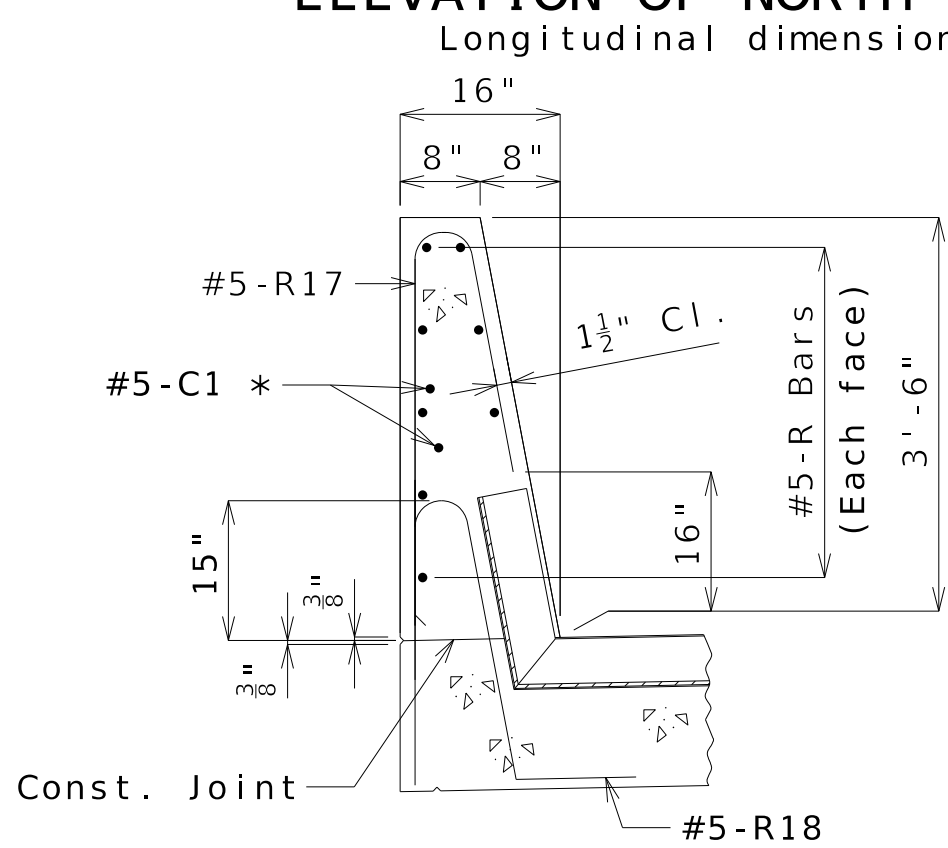
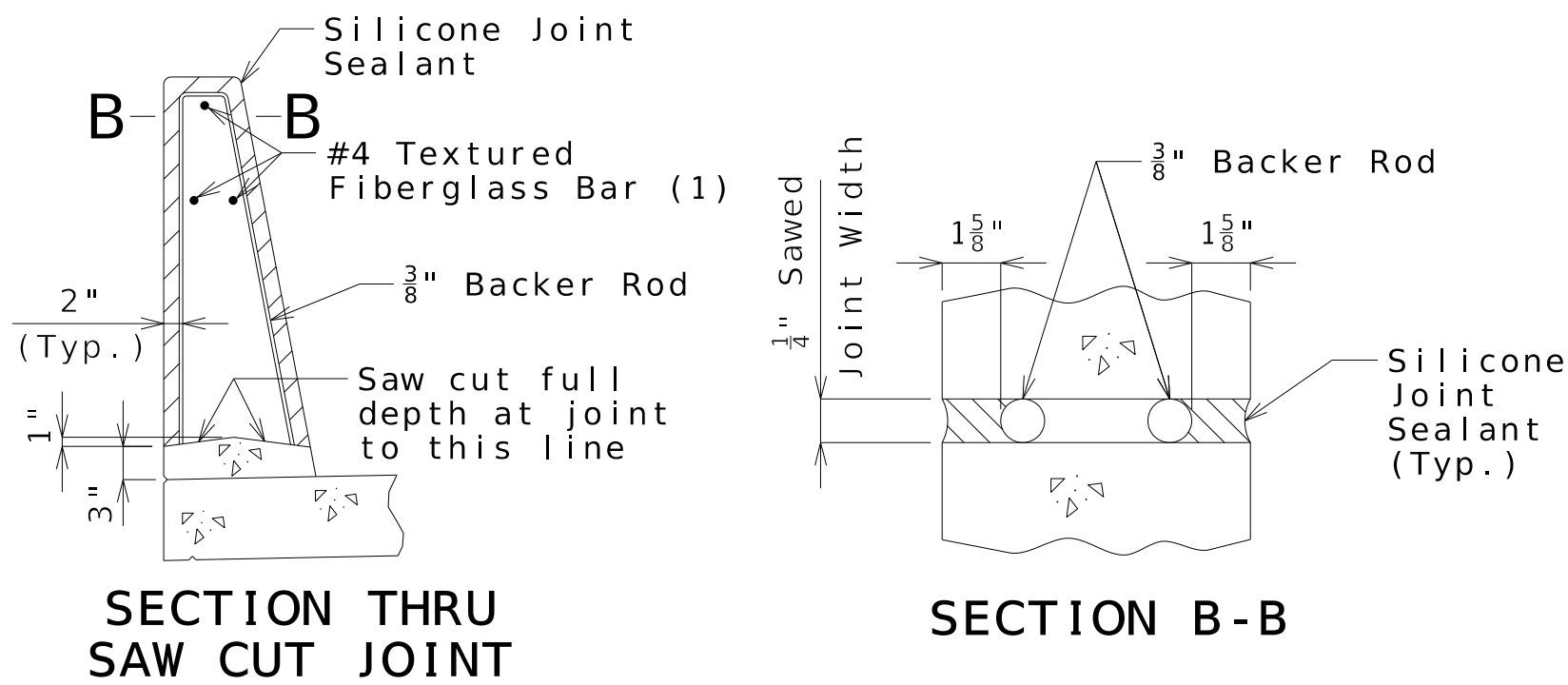
Jacobs MILLSTONE WEBER

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08:06 12-MAR-2025

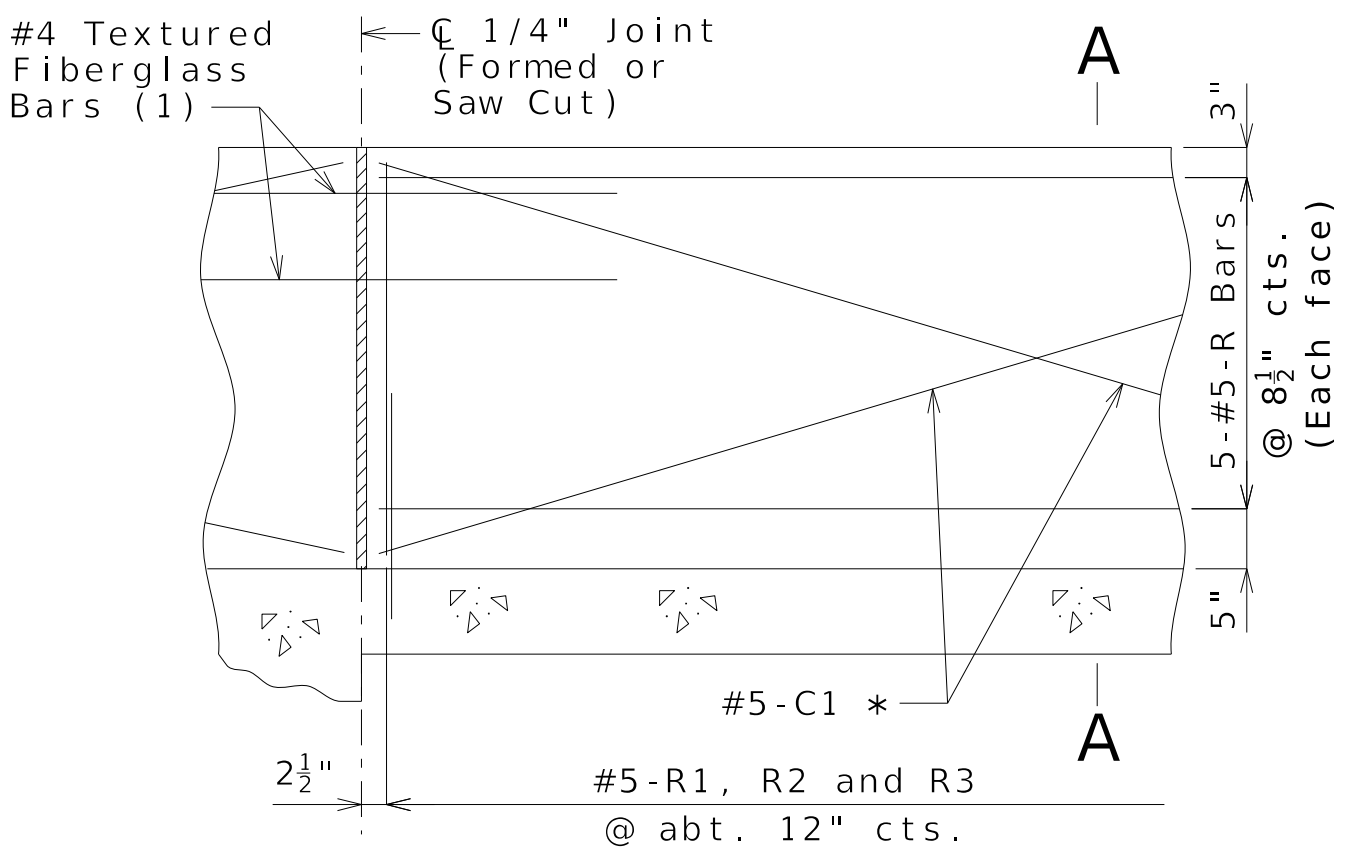


ELEVATION OF NORTH BARRIER - UNIT 1
Longitudinal dimensions are horizontal.



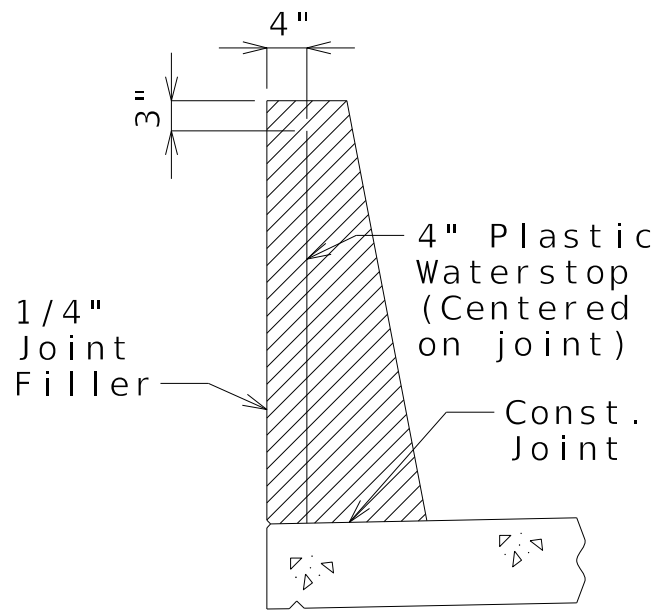
SECTION C-C

** North Barrier - Varies from 3'-5 1/4" to 3'-5 3/8"
South Barrier - Varies from 3'-7" to 3'-6 1/2"



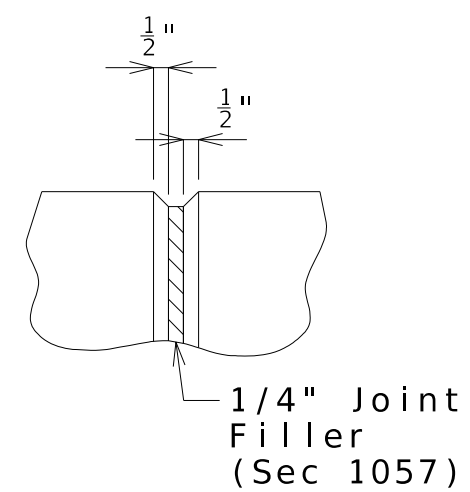
PART ELEVATION OF BARRIER

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



WATERSTOP DETAIL

Plastic waterstop shall be placed in all formed joints in South Barriers.



PART ELEVATION AT FORMED JOINT

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 - UNIT 1

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

Sheet No. 51 of 74

Detailed OCT 2024
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Matthew Muenks
MO PE-2017000338
DATE PREPARED

12-MAR-2025

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 51

COUNTY BOONE

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

02/26/25

03/12/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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MODOT

JACOBS

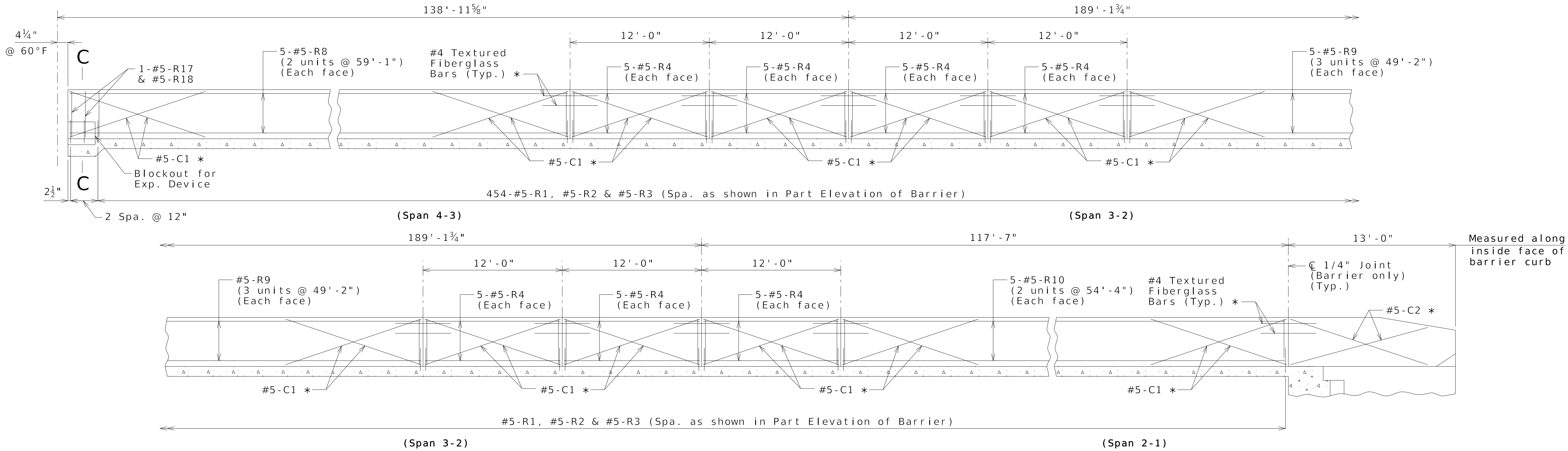
MILLSTONE WEBER

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REV.

MODOT IMPROVE I-70 DB PROJECT 1

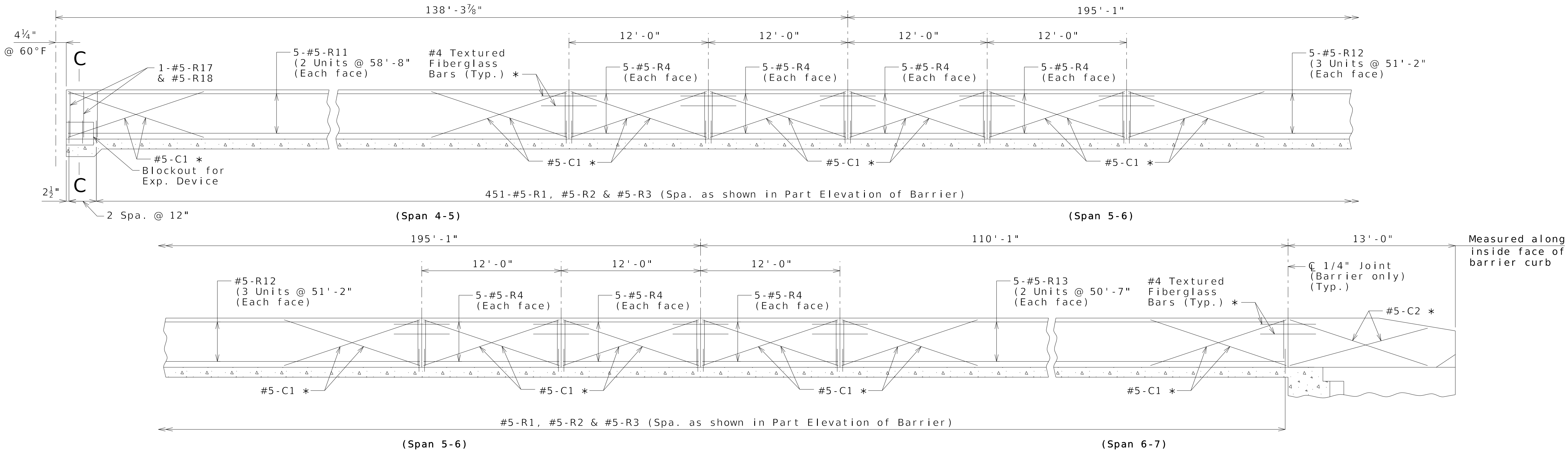
08:07 12-MAR-2025



ELEVATION OF SOUTH BARRIER - UNIT 1
Longitudinal dimensions are horizontal.

Notes:
For General Notes and Details not shown, see Sheet No. 51.

TYPE D BARRIER - UNIT 1



ELEVATION OF NORTH BARRIER - UNIT 2
Longitudinal dimensions are horizontal.

Notes:
For General Notes and Details not shown,
see Sheet No. 51.

TYPE D BARRIER - UNIT 2

Detailed OCT 2024
Checked NOV 2024

Note: This drawing is not to scale. Follow dimensions. Sheet No. 53 of 74

STATE OF MISSOURI

MATTHEW J. MUEKNS

NUMBER

PE-2017000338

PROFESSIONAL ENGINEER

03/12/2025 9:48:42 AM

Matthew Muekns

MO PE-2017000338

DATE PREPARED

12-MAR-2025

ROUTE

63NB

DISTRICT

BR

STATE

MO

SHEET NO.

53

COUNTY

BOONE

JOB NO.

JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

A9546

DATE	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW
03/12/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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MODOT

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

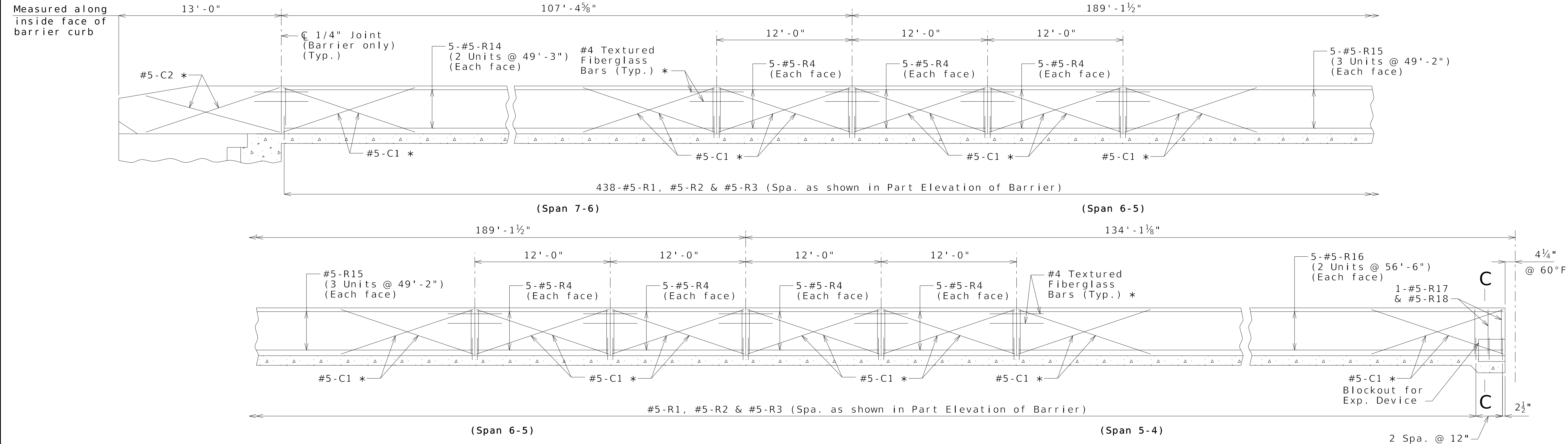
MODOT IMPROVE I-70 DB PROJECT 1

JACOBS

MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

08:08 12-MAR-2025



ELEVATION OF SOUTH BARRIER - UNIT 2
Longitudinal dimensions are horizontal.

Notes:
For General Notes and Details not shown,
see Sheet No. 51.

TYPE D BARRIER - UNIT 2

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

03/12/2025 9:48:42 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED
12-MAR-2025

ROUTE 63NB
DISTRICT BR
STATE MO
SHEET NO. 54

COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION	REV.	
		REV.	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW		
03/12/25	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

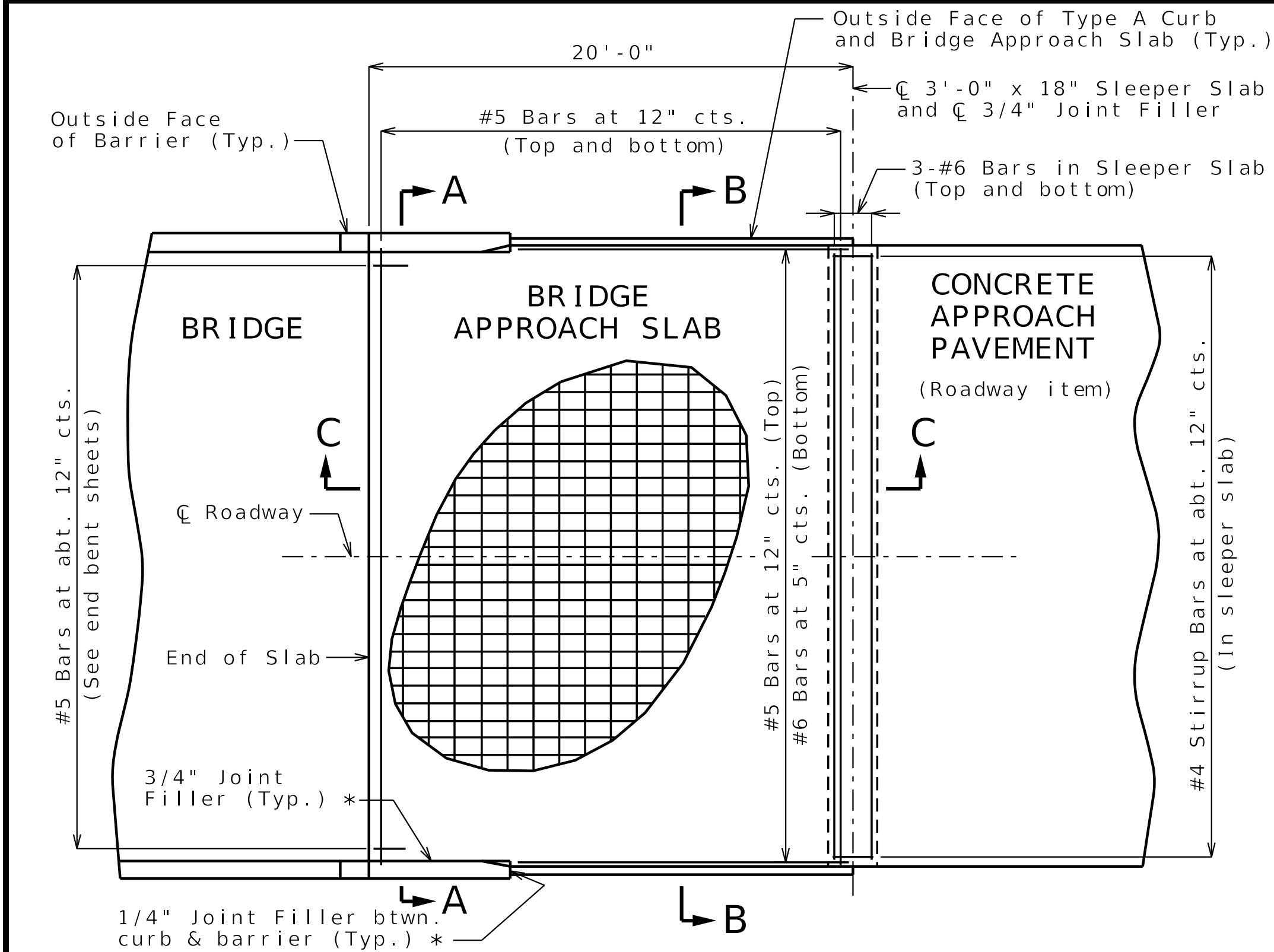
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MODOT IMPROVE I-70 DB PROJECT 1

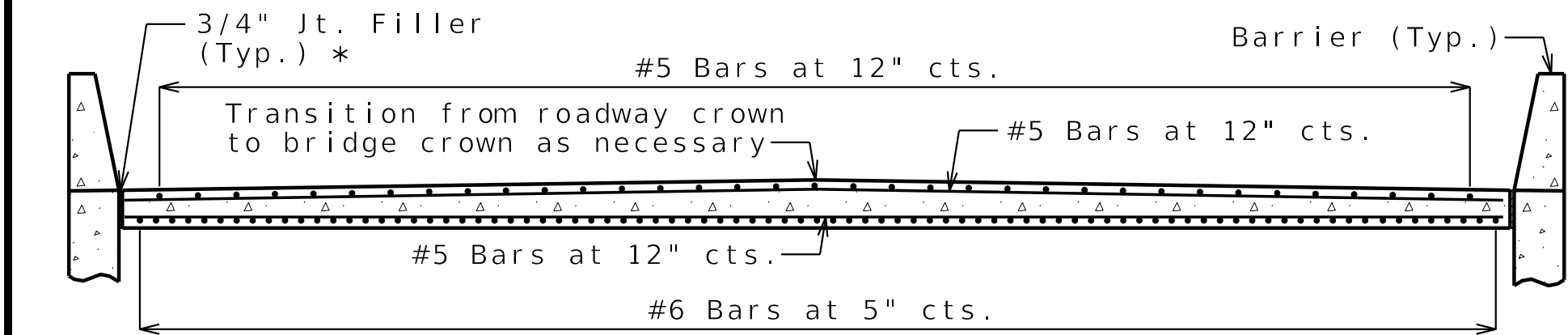
JACOBS

MILLSTONE WEBER

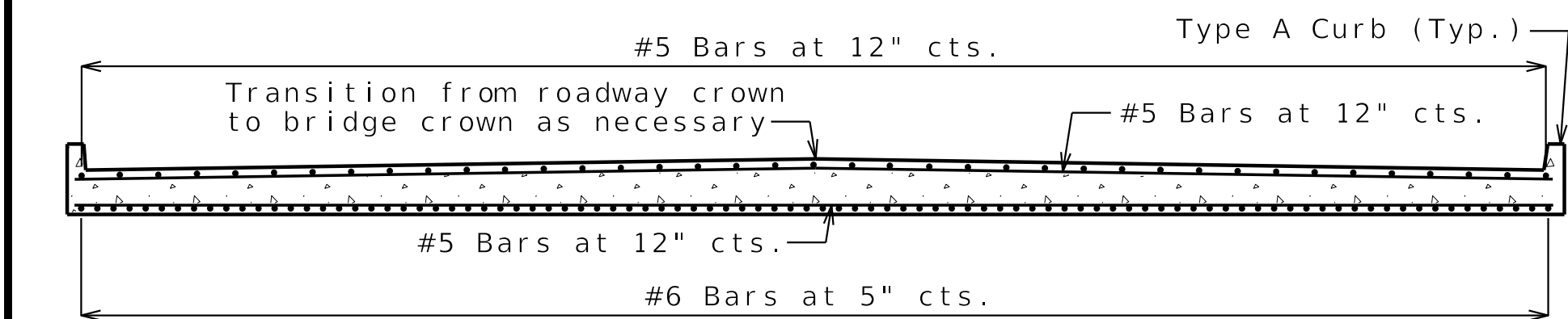
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING



PART PLAN SHOWING REINFORCEMENT

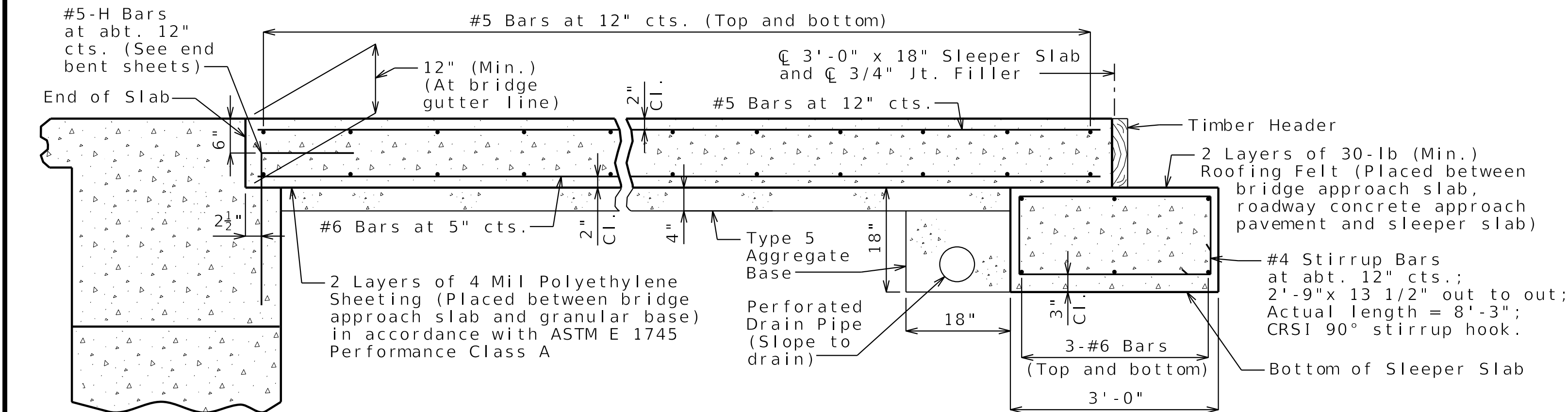


SECTION A-A



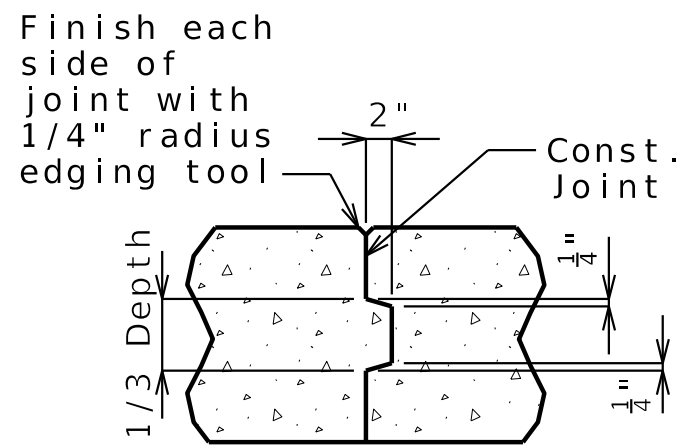
SECTION B-B

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

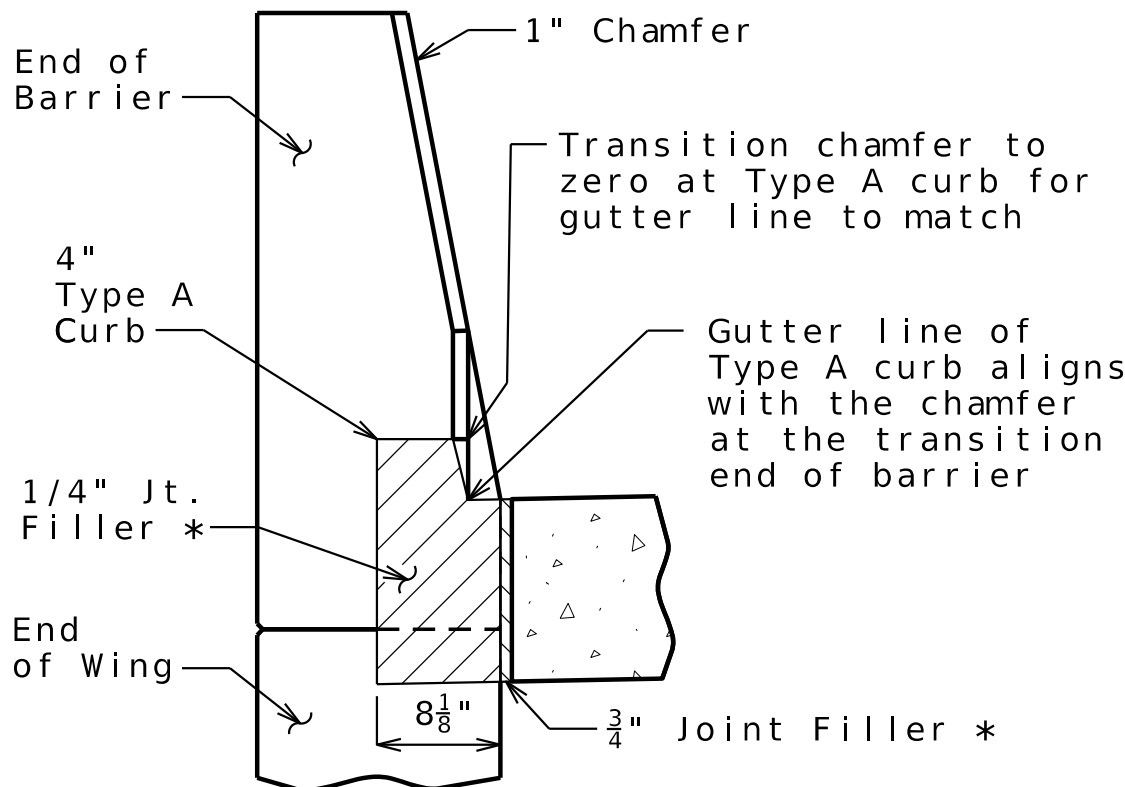


SECTION C-C

BRIDGE APPROACH SLAB (MAJOR)



CONSTRUCTION JOINT DETAIL



SECTION BETWEEN CURB AND BARRIER

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.

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.



03/12/2025 9:48:42 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

12-MAR-2025

ROUTE 63NB STATE MO

DISTRICT BR SHEET NO. 56

COUNTY BOONE

JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

02/26/25

03/12/25

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MODOT

PROJECT 1

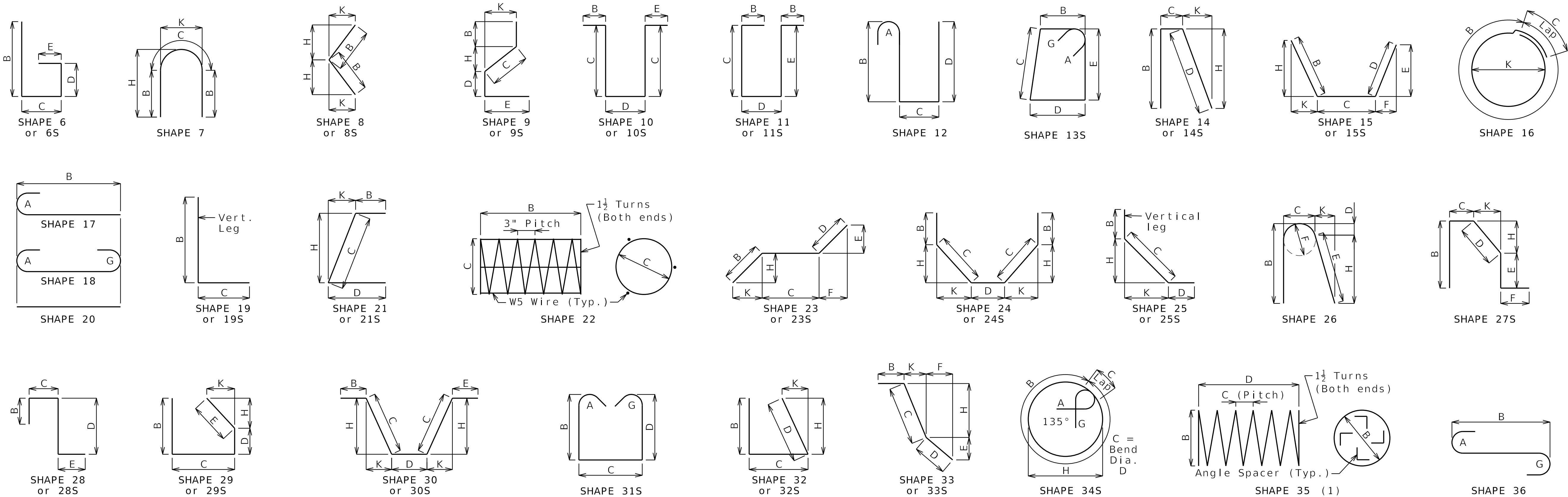
IMPROVE I-70 DB

MILLSTONE WEBER

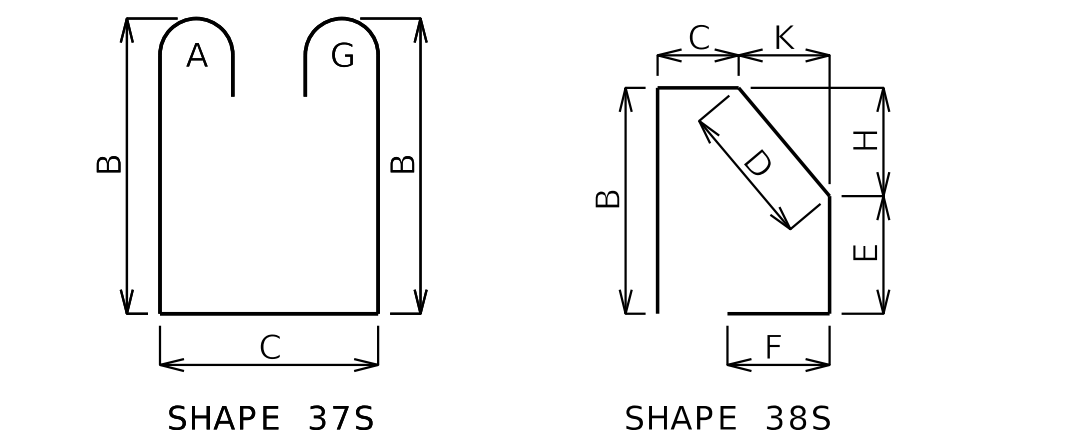
Jacobs

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.



Finished Bend Dimensions D and Hook Dimensions						
Standard Pin Bend Shapes						
Size	Case	D	A or G		J	
			90°	180°	180°	
#4	1	3"	8"	6"	4"	
#5	1	3 ³ / ₄ "	10"	7"	5"	
#6	1	4 ¹ / ₂ "	12"	8 ¹ / ₄ "	6"	
#7	2	5 ¹ / ₄ "	14"	9 ³ / ₄ "	7"	
	3	7"	15"	11 ¹ / ₂ "	8 ³ / ₄ "	
#8	2	6"	16"	11"	8"	
	3	8"	17"	13 ¹ / ₄ "	10"	
#9	1	9 ¹ / ₂ "	19 ¹ / ₂ "	15 ¹ / ₂ "	11 ³ / ₄ "	
#10	1	10 ³ / ₄ "	22"	17 ¹ / ₂ "	13 ¹ / ₄ "	
#11	1	12"	24 ¹ / ₂ "	19 ¹ / ₂ "	14 ⁷ / ₈ "	
#14	1	18 ¹ / ₄ "	31 ¹ / ₄ "	27 ¹ / ₂ "	21 ⁵ / ₈ "	
#18	1	24"	41 ¹ / ₂ "	36 ¹ / ₄ "	28 ¹ / ₂ "	
Stirrup Pin Bend Shapes (S)						
Size	Case	D	A or G			J
			90°	135°	180°	
#4	2	2"	4 ¹ / ₂ "	4 ¹ / ₂ "	5"	2 ⁷ / ₈ "
	3	3"	5"	5 ¹ / ₄ "	6"	3"
#5	2	2 ¹ / ₂ "	5 ³ / ₄ "	5 ³ / ₄ "	5 ³ / ₄ "	3 ³ / ₄ "
	3	3 ³ / ₄ "	6 ¹ / ₄ "	6 ¹ / ₄ "	7"	3 ⁵ / ₈ "
#6	1	4 ¹ / ₂ "	12"	7 ³ / ₄ "	8 ¹ / ₄ "	4 ⁵ / ₈ "
Applicable for all grades of steel.						
Case 1 applies to all reinforcement. Case 2 applies to all reinforcement except for galvanized bars. Case 3 applies to galvanized bars only.						



BENDING DIAGRAMS

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

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

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

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

Reinforcing Steel Totals (Pounds)								
Size	Substructure		Superstructure				Entire Bridge	
	Plain	Epoxy	Slab		Barrier	Slip Form	Plain	Epoxy
			Plain	Epoxy				
W5	0	318	0	0	0	0	0	318
4	0	0	0	0	0	0	0	0
5	0	1,948	0	103,851	45,050	1,390	0	152,239
6	0	65,398	0	99,536	0	0	0	164,934
7	0	0	0	0	0	0	0	0
8	0	3,215	0	0	0	0	0	3,215
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	0	65,195	0	0	0	0	0	65,195
14	0	76,810	0	0	0	0	0	76,810
18	0	0	0	0	0	0	0	0
By Type	0	212,884	0	203,387	45,050	1,390	0	462,711

All steel shall be epoxy coated unless otherwise specified.

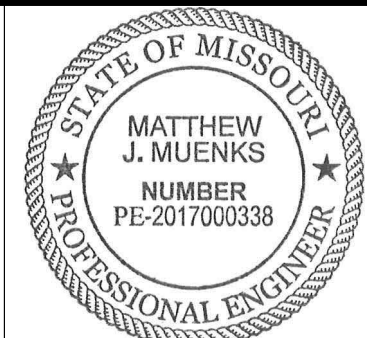
BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed OCT 2024
Checked NOV 2024

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

Sheet No. 57 of

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_057_JST0021_BarBending_C003.dgn



05/12/2025 11:22:23 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED

1-MAY-2025

ROUTE STATE

63NB MO

DISTRICT SHEET NO.

BR 57

COUNTY

BOONE

JOB NO.

JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

REV. 1 - NDC-010 - ADDED TABLE

REV. 2 - NDC-021 - UPDATED QUANTITIES

REV. 3 - NDC-021 - UPDATED QUANTITIES

DATE

11/15/24

01/16/25

03/12/25

05/02/25

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MODOT

MODOT IMPROVE I-70 DB PROJECT 1

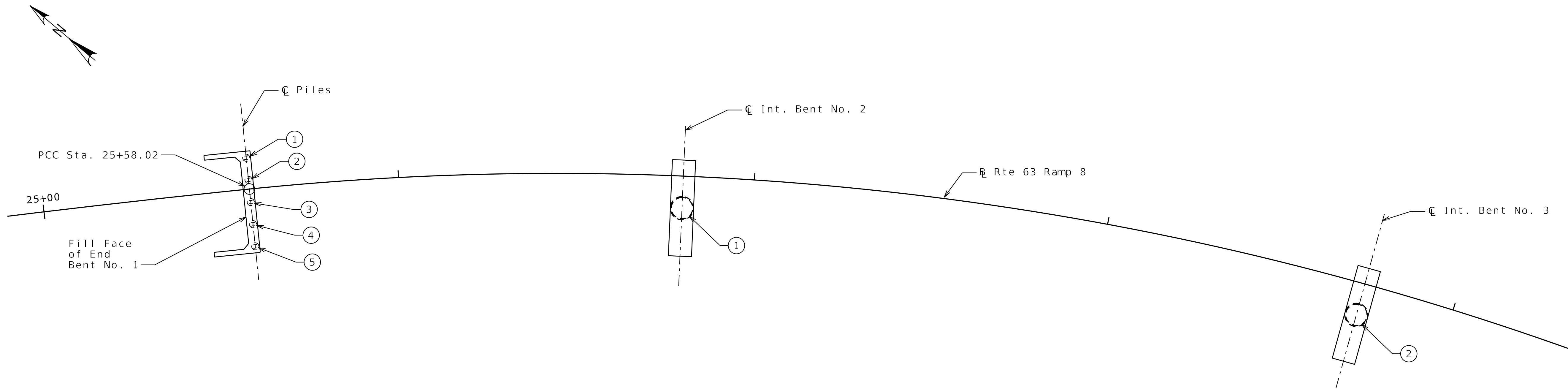
JACOBS

MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

15:29 1-MAY-2025



PART PLAN SHOWING DRILLED SHAFT AND PILE NUMBERING FOR RECORDING AS-BUILT PILE AND DRILLED SHAFT DATA - UNIT 1

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			

As-Built Drilled Shaft Data				
Shaft No.	Top of Sound Rock (Elev.)	Tip of Casing (Elev.)	Bottom of Rock Socket (Elev.)	Remarks
				INTERMEDIATE BENT NO. 2
1				
				INTERMEDIATE BENT NO. 3
2				

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

This sheet to be completed by MoDOT construction personnel.

STATE OF MISSOURI

MATTHEW J. MUENKS

NUMBER PE-2017000338

PROFESSIONAL ENGINEER

03/12/2025 9:48:43 AM

Matthew Muenks

MO PE-2017000338

DATE PREPARED

12-MAR-2025

ROUTE

63NB

DISTRICT

BR

STATE

MO

SHEET NO.

63

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9546

DATE	DESCRIPTION
02/26/25	REV. A - FINAL REVIEW
03/12/25	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)

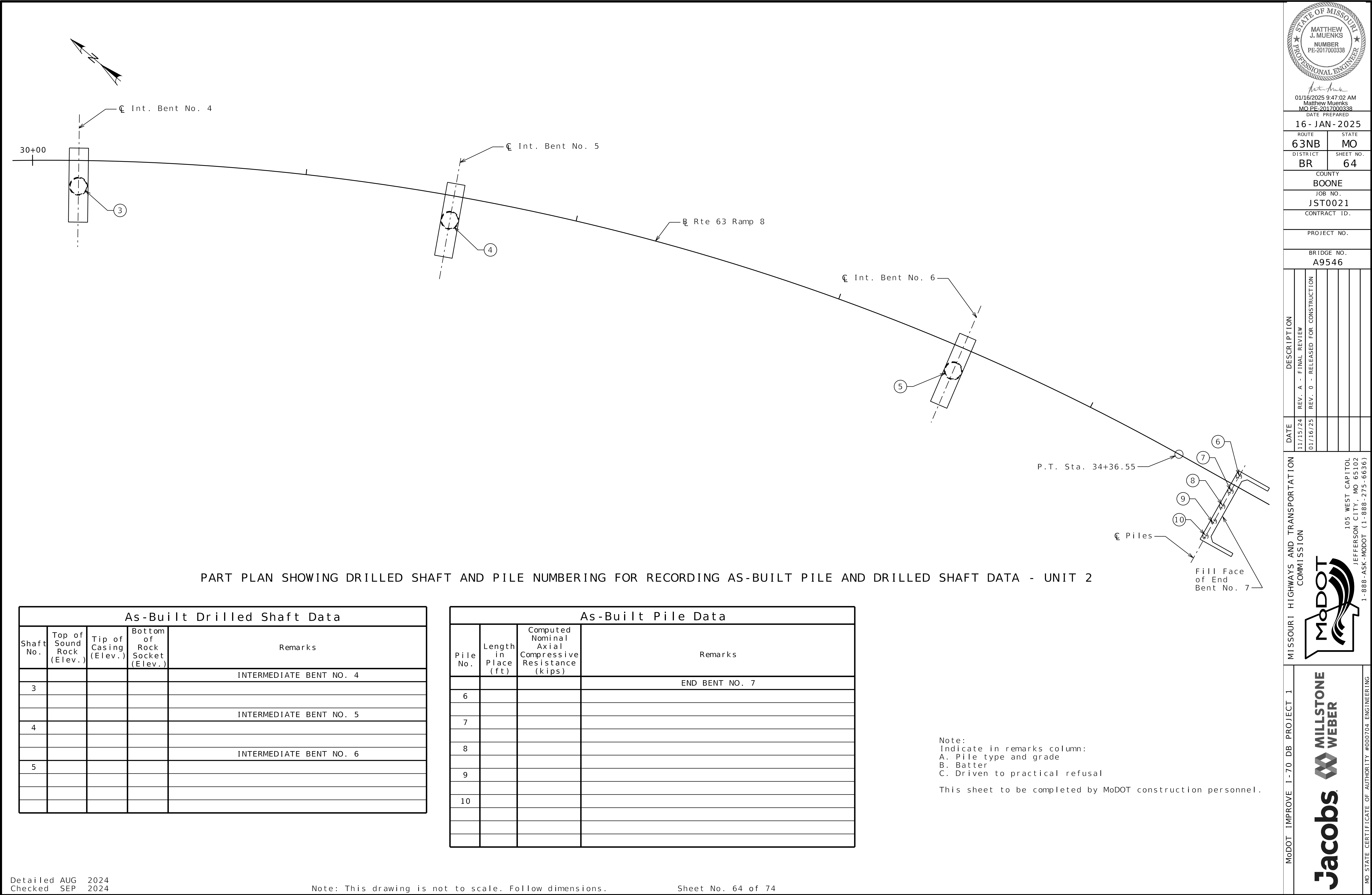
MoDOT

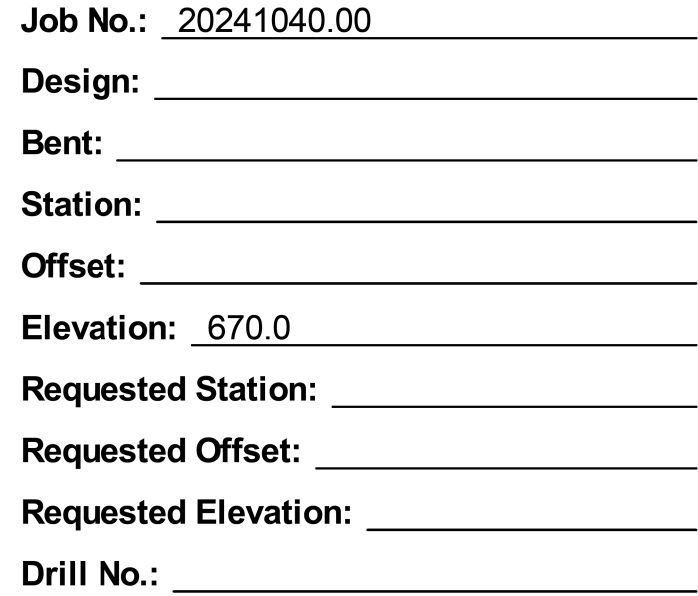
MODOT IMPROVE I-70 DB PROJECT 1

JACOBS

MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING





County: Boone

Skew: _____

Logged By: SO

Nothing: _____

Easting: _____

Requested Nothing: _____

Requested Easting: _____

Equipment: CME 550X, Split-Spoon Sampler

Location Note: (38.9624989, -92.2959726)

Hammer Efficiency: 90%

Route: I-70

Location: Columbia, Missouri

Operator: LRK

Date of Work: 06/10/24-06/10/24

Depth to Water: 8.5

Depth Hole Open:

Time Change:

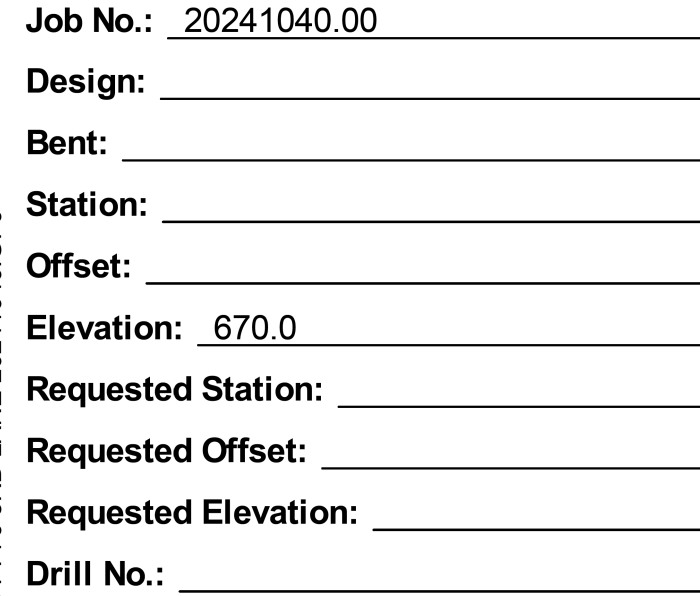
Drilling Method: HSA

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

Coordinate System: _____ **Coordinate Zone:** _____ **Coordinate Proj. Factor:** _____

Coordinate Datum: _____ **Coordinate Units:** U.S. Survey Feet

LETTER BOREHOLE - MODOT 20150728.GDT - 6/13/24 18:34 - \\SIT\PROJECTS\SIT\GEOTECH\2024 PROJECTS\2024\1040.00-1-70 THIRD LANE (KINGDOM CITY TO COLUMBIA)\WORKING FILES\MODOT 1-70 3RD LANE 2024\1040.GPJ



County: Boone

Skew: _____

Logged By: SO

Northing: _____

Easting: _____

Requested Northing: _____

Requested Easting: _____

Equipment: CME 550X, Split-Spoon Sampler

Location Note: (38.9624989, -92.2959726)

Hammer Efficiency: 90%

Route: I-70

Location: Columbia, Missouri

Operator: LRK

Date of Work: 06/10/24-06/10/24

Depth to Water: 8.5

Depth Hole Open: _____

Time Change: _____

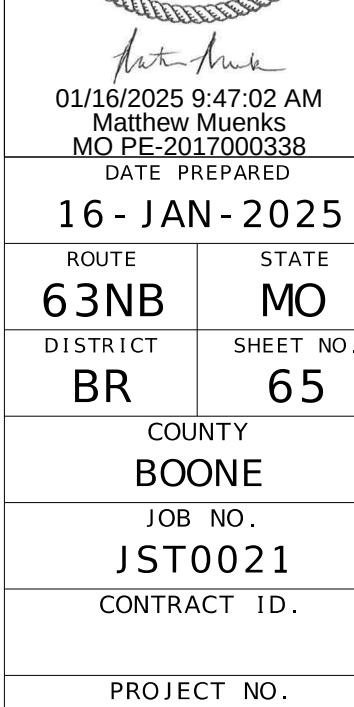
Drilling Method: HSA

$N_{60} = (Em/60)/N_m$ 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

ETTER BOREHOLE - MODOT 20150728 GDT - 6/13/24 18:34 - \\ITS\PROJECTS\GEO\2024 PROJECTS\2024\1040 00 -70 THIRD LANE (KINGDOM CITY TO COLUMBIA)WORKING EIL ESMODOT -70 3RD LANE 2024\1040 GP



DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION

MoDOT IMPROVE I-70 DB PROJECT 1

REV MO

BORING LOGS



Job No.: 20241040.00

Design: _____

Bent: _____

Station: _____

Offset: _____

Elevation: 690 Estimated

Requested Station: _____

Requested Offset: _____

Requested Elevation: _____

Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone

Skew: _____

Logged By: SO

Northing: _____

Easting: _____

Requested Northing: _____

Requested Easting: _____

Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube

Location Note: (38.9627325°, -92.2965781°)

Hammer Efficiency: 90%

Route: I-70

Location: Columbia, Missouri

Operator: LRK

Date of Work: 04/16/24-04/16/24

Depth to Water: _____

Depth Hole Open: _____

Time Change: _____

Drilling Method: HSA

BORING NO. BR 10-1
Page 1 of 2

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0		0.0'-13.5' (CL) Brown, lean CLAY	690						
		1.0' -with gravel from 1.0 to 2.5 ft.		X	33	29-8-4 (18)		PP = 2.00 tsf	MC = 10.8%
		3.5' -brown and gray from 3.5 to 7.5 ft.			83			PP = 4.50 tsf	
5		6.0' -with gravel from 6.0 to 7.5 ft.	685	X	44	7-19-41 (90)		PP = 1.75 tsf	MC = 10.6%
		8.5' -gravelly below 8.5 ft.		X	44	6-17-17 (51)		PP = 2.00 tsf	MC = 20.4%
10			680						
		13.5'-19.5' Gray, highly weathered LIMESTONE			100	50		PP = 3.75 tsf	MC = 2.4%
15		13.5' -rough drilling from 13.5 to 16.5 and below 18.5 ft.	675						
		18.5' -cherty below 18.5 ft.		X	75	50/0.3'			MC = 5.8%
20		19.5'-25.0' LIMESTONE, gray, hard to very hard, slightly weathered, finely crystalline to aphanitic, thin to thick bedded, dense, with chert nodules and seams	670		98 (82)				
25			665						

N₆₀ = (Em/60)Nm N₆₀ - 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

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



Job No.: 20241040.00

Design: _____

Bent: _____

Station: _____

Offset: _____

Elevation: 690 Estimated

Requested Station: _____

Requested Offset: _____

Requested Elevation: _____

Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone

Skew: _____

Logged By: SO

Northing: _____

Easting: _____

Requested Northing: _____

Requested Easting: _____

Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube

Location Note: (38.9627325°, -92.2965781°)

Hammer Efficiency: 90%

Route: I-70

Location: Columbia, Missouri

Operator: LRK

Date of Work: 04/16/24-04/16/24

Depth to Water: _____

Depth Hole Open: _____

Time Change: _____

Drilling Method: HSA

BORING NO. BR 10-1
Page 2 of 2

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
25		25.0'-29.5' LIMESTONE, gray, hard to very hard, slightly weathered, finely crystalline to aphanitic, thin to thick bedded, dense, with chert nodules and seams	665		98 (68)				
		Refusal at 19.5 feet. Bottom of borehole at 29.5 feet.							

N₆₀ = (Em/60)Nm N₆₀ - 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

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



03/12/2025 9:45:28 AM
Matthew Muenks
MO PE-2017000338

DATE PREPARED
12-MAR-2025

ROUTE
63NB

STATE
MO

DISTRICT
BR

SHEET NO.
(67)

COUNTY
BOONE

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9546

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

REV. 2 - NDC-010 - REVISED SHEET NUMBER

DATE

11/15/24

01/16/25

03/12/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

ModOT

JACOBS

MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

REV.

BORING LOGS

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. (67) of 74

C/2

REVISED 03-12-25

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_066_JST0021_Boring_002_C002.dgn

07:55 12-MAR-2025



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 670.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: _____
Hammer Efficiency: 90%

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 06/06/24-06/06/24
Depth to Water: 8.0
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

BORING NO. BR 10-3A
Page 1 of 3

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' (CL) Brown, lean CLAY, with sand, gravel, and coal	670		44	3-3-4 (11)		PP = 3.00 tsf	
		3.0' -with concrete below 3.0 ft.			100				
		3.5-5.0' CONCRETE			17	50/0.5'			
5		5.0-7.7' (ML) Brown and gray, sand SILT	665						
		7.7-13.8' (SP) Coarse SAND, with gravel			67	0-0-0 (0)		PP = 0.50 tsf	
					79				
10			660						
		13.8-25.0' Gray, SHALE, highly weathered	655		28	7-5-6 (17)		PP = 4.50 tsf	
15									
		18.5' -with crystalline lenses from 18.5 to 20.0 ft.	650		44	21-11-15 (39)		PP >4.50 tsf	
20									
		23.5' -slightly weathered below 23.5 ft.			100	50/0.3'		PP >4.50 tsf	
25		24.0' -rough drilling from 24.0 to 25.0 ft.	645						

N₆₀ = (Em/60)Nm N₆₀ - 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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Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 670.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: _____
Hammer Efficiency: 90%

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 06/06/24-06/06/24
Depth to Water: 8.0
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

BORING NO. BR 10-3A
Page 2 of 3

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
25		25.0-31.0' Gray, SHALE, slightly weathered	645						
		28.5' -calcareous below 28.5 ft.			100	50/0.1'			
30		30.0' -rough drilling from 30.0 to 31.0 ft.	640						
		31.0-32.0' SHALE, gray, very soft							
		32.0-50.0' Cherty LIMESTONE, gray, moderately hard to very hard, slightly weathered, fine to medium crystalline, thin bedded, dense to pitted			94 (63)				
35		35.0' -highly weathered, interbedded shale below 35.0 ft.	635						
					30 (0)				
40			630						
					20 (10)				
45			625						
					32 (8)				
50			620						

N₆₀ = (Em/60)Nm N₆₀ - 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

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



01/16/2025 9:47:02 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 67

COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	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 PROJECT 1
JACOBS
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

BORING LOGS

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. 67 of 74

pw:///jacobs-us-v-pw.bentley.com:jacobs-us-v-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_067_JST0021_Boring_003.dgn

08:11 16 - JAN - 2025



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 670.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: _____
Hammer Efficiency: 90%

BORING NO. BR 10-3A
Page 3 of 3

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 06/06/24-06/06/24
Depth to Water: 8.0
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
50			620						
		50.0-63.0' LIMESTONE, gray, moderately hard, slightly weathered, fine to coarse crystalline, medium to thick bedded, dense to pitted			100 (100)				
55			615						
					100 (100)				
60		60.0' -fine to medium crystalline, thin to medium bedded below 60.0 ft. 61.6' -7" chert seam at 61.6 ft.	610		100 (100)				
		Refusal at 31.0 feet. Bottom of borehole at 63.0 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

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



01/16/2025 9:47:03 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025
ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 68

COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	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

MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

BORING LOGS

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. 68 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_068_JST0021_Boring_004.dgn

08:12 16 - JAN - 2025



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 677.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.962078°, -92.295292)
Hammer Efficiency: 90%

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 04/29/24-04/30/24
Depth to Water: 23.5
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

BORING NO. BR 10-4
Page 1 of 3

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0		0.0-0.4' Asphaltic concrete (5") 0.4-1.1' Portland cement concrete (8") 1.1-12.0' (CH) Brown and gray, fat CLAY, with gravel	675		44	3-2-5 (11)		PP = 1.75 tsf	
5		6.0' -trace sand and gravel below 6.0 ft.	670		22	6-5-4 (14)		PP = 1.75 tsf	
10		12.0-17.0' (CL) Brown, lean CLAY, silty	665		67	2-3-4 (11)		PP = 1.75 tsf	
15		17.0-22.0' (SC) Brown, clayey SAND, with gravel	660		92			PP = 2.75 tsf	
20		22.0-25.0' Gray, highly weathered SHALE	655		89	4-6-7 (20)		PP = 2.00 tsf	
25					56	10-14-19 (50)		PP >4.50 tsf	

N₆₀ = (Em/60)Nm N₆₀ - 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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Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 677.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.962078°, -92.295292)
Hammer Efficiency: 90%

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 04/29/24-04/30/24
Depth to Water: 23.5
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

BORING NO. BR 10-4
Page 2 of 3

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
25		25.0-32.0' Gray, highly weathered SHALE	650						
30		28.5' -black, moderately to highly weathered, with coal below 28.5 ft.			44	35-50/0.3'			
35		32.0-34.0' Gray, highly weathered LIMESTONE	645						
40		34.0-37.7' LIMESTONE, gray and tan, hard, slightly weathered, finely crystalline to aphanitic, thin to medium bedded, dense			25	50/0.2'			
45		36.0' -6" shale layer at 36.0 ft.	640		94 (83)				
		37.7-39.2' SHALE			98 (85)				
		39.2-42.0' LIMESTONE, gray, hard, slightly weathered, finely crystalline to aphanitic, thin to medium bedded, dense	635		100 (77)				
		42.0-44.5' SHALE, gray, soft to very soft, highly to slightly weathered			100 (63)				
		44.5-46.6' LIMESTONE, gray, hard, slightly weathered, finely crystalline to aphanitic, thin to medium bedded, dense	630						
		46.6-50.0' SHALE, black, very soft to hard, highly to slightly weathered							
50		49.5' -gray below 49.5 ft.							

N₆₀ = (Em/60)Nm N₆₀ - 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

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



01/16/2025 9:47:03 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

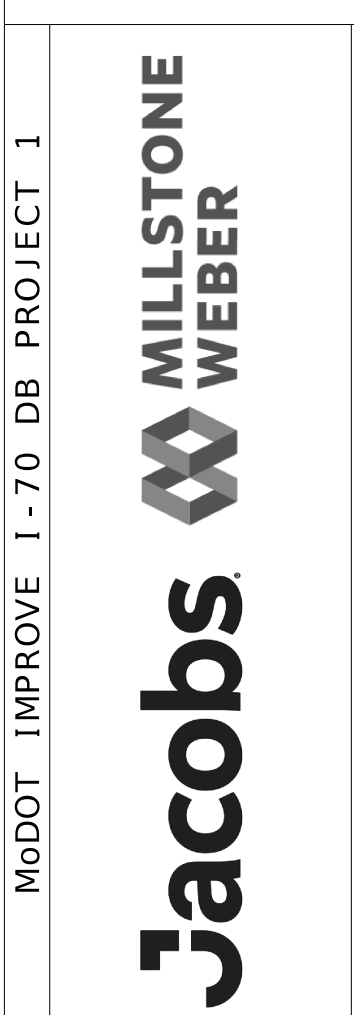
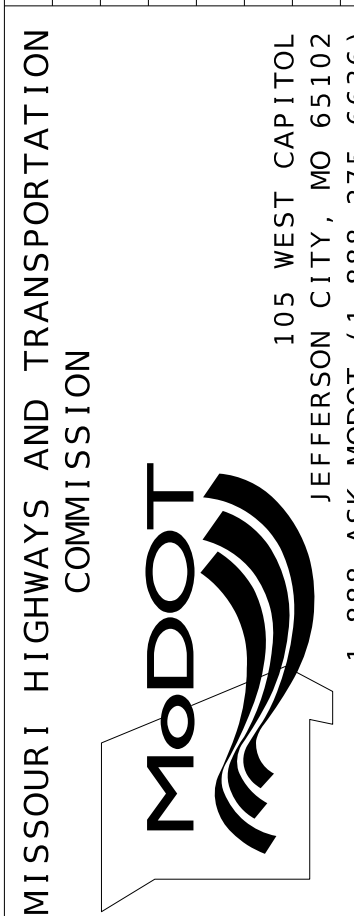
ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 69

COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION



BORING LOGS

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. 69 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_069_JST0021_Boring_005.dgn

08:13 16 - JAN - 2025



Job No.: 20241040.00
Design:
Bent:
Station:
Offset:
Elevation: 677.0
Requested Station:
Requested Offset:
Requested Elevation:
Drill No.:

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew:
Logged By: SO
Northing:
Easting:
Requested Northing:
Requested Easting:
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.962078°, -92.295292)
Hammer Efficiency: 90%

BORING NO. BR 10-4
Page 3 of 3

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 04/29/24-04/30/24
Depth to Water: 23.5
Depth Hole Open:
Time Change:
Drilling Method: HSA

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
50		50.0-54.5' SHALE, gray, very soft to soft, moderately weathered	625		100 (70)				
55		54.5-55.5' LIMESTONE, gray, moderately hard to hard, highly weathered, thin bedded, pitted to vuggy, interbedded shale	620		100 (47)				
60		55.5-70.5' SHALE, gray, soft to very soft, completely to highly weathered	615		100 (100)				
65			610		92 (58)				
70		Refusal at 34.0 feet. Bottom of borehole at 70.5 feet.							

N₆₀ = (Em/60)Nm N₆₀ - 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

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



01/16/2025 9:47:03 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025
ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 70

COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

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

BORING LOGS

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. 70 of 74

pw://jacobs-us-v-pw.bentley.com:jacobs-us-v-pw-04/Documents/F3X03001 - Improve I-70 Columbia to Kingdom City/30 Project Data/AAA_Packages/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_070_JST0021_Boring_006.dgn

08:14 16 - JAN - 2025



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 680.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: _____
Hammer Efficiency: 90%

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 06/05/24-06/05/24
Depth to Water: 8.5
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

BORING NO. BR 10-5B
Page 1 of 3

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0		0.0-12.0' (CH) Brown and gray, fat CLAY, with gravel	680						
				X	33	2-5-8 (20)		PP = 1.75 tsf	
				X	0	3-3-4 (11)			
5			675						
						67		PP = 2.00 tsf	
				X	33	12-8-8 (24)		PP = 0.75 tsf	
10			670						
		12.0-25.0' Gray, SHALE, clayey, highly weathered							
						83		PP >4.50 tsf	
15			665						
				X	89	11-20-25 (68)		PP >4.50 tsf	
20			660						
						100		PP >4.50 tsf	
25			655						

N₆₀ = (Em/60)Nm N₆₀ - 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

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 680.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: _____
Hammer Efficiency: 90%

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 06/05/24-06/05/24
Depth to Water: 8.5
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

BORING NO. BR 10-5B
Page 2 of 3

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
25		25.0-27.0' Gray, clayey SHALE, highly weathered	655						
		27.0-32.0' Black, COAL							
						100	50/0.2'		
30			650						
		32.0-36.4' LIMESTONE, gray, moderately hard, moderately to highly weathered, finely crystalline to aphanitic, thin bedded, dense to pitted				75 (0)			
35		34.7' -shale, gray from 34.7 to 35.2 ft. 35.2' -slightly weathered, thin to medium bedded below 35.2 ft. 36.4-38.0' SHALE, gray	645						
		38.0-41.7' LIMESTONE, gray, moderately hard, slightly weathered, finely crystalline to aphanitic, thin to medium bedded, dense to pitted				87 (75)			
40		41.7-43.4' SHALE, gray	640			100 (77)			
		43.4-45.6' LIMESTONE, gray, moderately hard, slightly weathered, finely crystalline to aphanitic, thin to thick bedded, dense to pitted							
45		45.6-50.0' COAL, black, very soft to moderately hard	635			92 (40)			
50			630						

N₆₀ = (Em/60)Nm N₆₀ - 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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01/16/2025 9:47:03 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 71

COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	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 PROJECT 1
JACOBS MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

BORING LOGS

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. 71 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_071_JST0021_Boring_007.dgn

08:14 16 - JAN - 2025



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 680.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: _____
Hammer Efficiency: 90%

BORING NO. BR 10-5B
Page 3 of 3

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 06/05/24-06/05/24
Depth to Water: 8.5
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
50		50.0-50.2' COAL, black, very soft to moderately hard	630						
		50.2-65.0' SHALE, gray, soft, highly weathered, clayey			100 (90)				
55		55.0' -calcareous, with limestone fragments from 55.0 to 60.0 ft.	625		75 (40)				
60			620		100 (83)				
65		Refusal at 32.0 feet. Bottom of borehole at 65.0 feet.	615						

N₆₀ = (Em/60)Nm N₆₀ - 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

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



01/16/2025 9:47:04 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025
ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 72

COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	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

BORING LOGS

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. 72 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_072_JST0021_Boring_008.dgn

08:15 16 - JAN - 2025



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 703.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Shelby Tube, Split-Spoon Sampler
Location Note: (38.9613205, -92.2946935)
Hammer Efficiency: 90%

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 05/07/24-05/08/24
Depth to Water: 33.5
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

BORING NO. BR 10-6A
Page 1 of 3

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0		0.0-12.0' (CH) Brown and gray, fat CLAY, trace sand and gravel			44	2-3-3		PP = 1.50 tsf	
5			700		71			PP = 2.75 tsf	
10			695		89	3-4-6		PP = 2.25 tsf	
15			690		61	3-2-3		PP = 1.75 tsf	
20		11.0' -rough drilling from 11.0 to 12.0 ft.							
25		12.0-17.0' (CL) Gray lean CLAY	685		100			PP = 3.75 tsf	
		17.0-22.0' (CL) Brown and gray, sandy lean CLAY, trace gravel	680		89	5-8-11		PP = 3.75 tsf	
		22.0-25.0' (CH) Gray and tan, shaley fat CLAY			44	7-10-11		PP >4.50 tsf	

N₆₀ = (Em/60)Nm N₆₀ - 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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Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 703.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Shelby Tube, Split-Spoon Sampler
Location Note: (38.9613205, -92.2946935)
Hammer Efficiency: 90%

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 05/07/24-05/08/24
Depth to Water: 33.5
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

BORING NO. BR 10-6A
Page 2 of 3

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
25		25.0-27.0' (CH) Gray and tan, shaley fat CLAY							
30		27.0-30.0' Gray, highly weathered LIMESTONE	675		18	16-50/0.4'			
35		30.0-42.5' Gray, highly weathered SHALE	670		67	25-50/0.3'		PP >4.50 tsf	
40		33.5' -with gravel from 33.5 to 34.3 ft.	665		100	50/0.4'		PP = 3.75 tsf	
45		42.5-46.6' LIMESTONE, gray and tan, hard slightly weathered, thin to thick bedded, finely crystalline, dense	660		100 (47)	50/0.0'			
50		45.3' -4" highly weathered shale layer at 45.3 ft. 45.7' -pitted to dense below 45.7 ft. 46.6-50.0' SHALE, gray, very soft to soft, highly-weathered, with limestone fragments	655		100 (27)				

N₆₀ = (Em/60)Nm N₆₀ - 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

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



01/16/2025 9:47:04 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025

ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 73

COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	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 PROJECT 1
JACOBS
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #000704 ENGINEERING

08:16 16-JAN-2025

BORING LOGS

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. 73 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_073_JST0021_Boring_009.dgn



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 703.0
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Boone
Skew: _____
Logged By: SO
Northing: _____
Easting: _____
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Shelby Tube, Split-Spoon Sampler
Location Note: (38.9613205, -92.2946935)
Hammer Efficiency: 90%

BORING NO. BR 10-6A
Page 3 of 3

Route: I-70
Location: Columbia, Missouri
Operator: LRK
Date of Work: 05/07/24-05/08/24
Depth to Water: 33.5
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
50		50.0-56.0' LIMESTONE, gray and tan, moderately hard, slightly weathered, thin to thick bedded, aphanitic to finely crystalline, dense	650		92 (52)				
55		53.5' -6" shale layer at 53.5 ft.							
		56.0-57.0' SHALE, gray, soft							
		57.0-65.0' LIMESTONE, gray and tan, moderately hard, slightly weathered, thin to thick bedded, aphanitic to finely crystalline, dense	645		92 (65)				
60									
65		65.0-72.5' SHALE, gray, very soft to soft, moderately to highly weathered	635		73 (52)				
70									
75		72.5-75.0' LIMESTONE, gray, moderately hard, slightly weathered, thin to medium bedded, aphanitic to finely crystalline, dense	630		100 (48)				

Refusal at 42.5 feet
N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual Bottom of borehole at 75.0 feet.
Coordinate System: _____ Coordinate Zone: _____ Coordinate Proj. Factor: _____
Coordinate Datum: _____ Coordinate Units: U.S. Survey Feet
* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



01/16/2025 9:47:04 AM
Matthew Muenks
MO PE-2017000338
DATE PREPARED

16 - JAN - 2025
ROUTE 63NB STATE MO
DISTRICT BR SHEET NO. 74

COUNTY BOONE
JOB NO. JST0021
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9546

DATE	DESCRIPTION
11/15/24	REV. A - FINAL REVIEW
01/16/25	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

BORING LOGS

Detailed SEP 2024
Checked SEP 2024

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

Sheet No. 74 of 74

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/B10200 (Bridge 10-NB 63 Flyover to WB I-70)/B_A9546_074_JST0021_Boring_010.dgn

08:17 16 - JAN - 2025