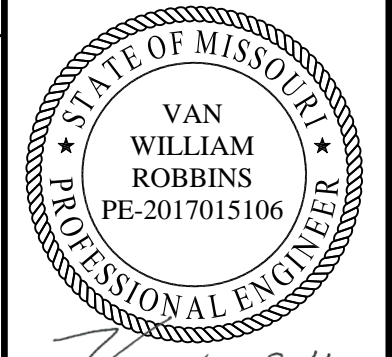


Note:  
See Civil Package 2: Early Grading for project reference points and project coordinate points.



*Van W. Robbins*  
04-11-25

DATE PREPARED  
04/11/2025

ROUTE STATE  
1 - 70 MO

DISTRICT SHEET NO.  
BR B02-01

COUNTY  
JACKSON

JOB NO.  
J411486D

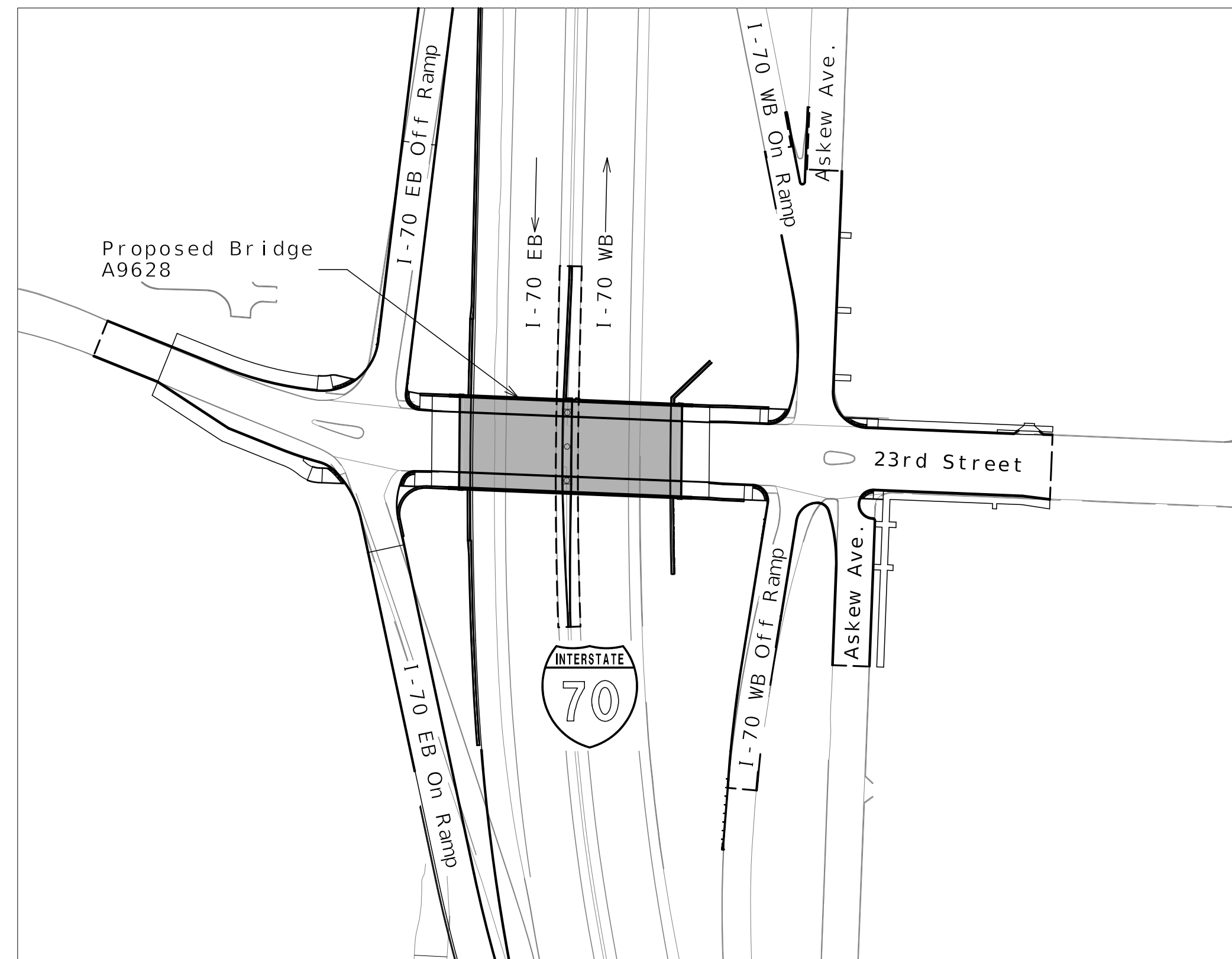
CONTRACT ID.  
240807-C01

PROJECT NO.

BRIDGE NO.  
A9628

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- B02-01 Title Sheet and Index
- B02-02 General Plan and Elevation
- B02-03 General Notes
- B02-04 Substructure Layout
- B02-05 Details of End Bent No. 1
- B02-06 Details of End Bent No. 1
- B02-07 Details of End Bent No. 1
- B02-08 Vertical Drain at End Bents
- B02-09 Details of intermediate Bent No. 2
- B02-10 Details of intermediate Bent No. 2
- B02-11 Details of intermediate Bent No. 2
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- B02-13 Details of End Bent No. 3
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- B02-15 Framing Plan
- B02-16 Adjacent Box Beams - Span (1-2)
- B02-17 Adjacent Box Beams - Span (2-3)
- B02-18 Miscellaneous Adjacent Box Beam Details
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- B02-20 Concrete Diaphragm at Intermediate Bent No. 2
- B02-21 Camber Diagram & Theoretical Cast In Place Slab Diagram
- B02-22 Theoretical Top of Beam Elevations
- B02-23 Slab Plan Showing Reinforcement
- B02-24 Slab Details
- B02-25 Type D Barrier
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- B02-29 Form Liner and Aesthetic Stain Details
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- B02-34 Boring Logs
- B02-35 Boring Logs
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LOCATION SKETCH

DATE	DESCRIPTION
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

CLARKSON  
RADMACHER  
JOINT VENTURE

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

**Released For Construction**  
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Revision: 0.0  
Date: 04/11/2025  
Package: BRD-02-23rd\_ST

BRIDGE: 23RD STREET OVER ROUTE 1-70

ROUTE 1-70 FROM ROUTE 1-670 TO ROUTE 40  
ABOUT 2.2 MILES EAST OF ROUTE 1-670  
TIE STATION 177+36.18 (☉ I-70)



Design Specifications:  
 2020 AASHTO LRFD Bridge Design Specifications (9th Ed.) and 2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd Edition)  
 Seismic Design Category = A (Nonseismic)  
 Design earthquake response spectral acceleration coefficient at 1.0 second period,  $S_{D1} = 0.15$   
 Acceleration Coefficient (effective peak ground acceleration coefficient),  $A_s = N/A$

Design Loading:  
 Vehicular = HL-93  
 Future Wearing Surface = 35 lb/sf  
 Earth - 120 lb/cf  
 Equivalent Fluid Pressure - 45 lb/cf  
 Superstructure: Simply-Supported, non-composite for dead load.  
 Continuous composite for live load.

Design Unit Stresses:  
 Class B Concrete (End Bents below Const. Jt.)  $f'_c = 3,000$  psi  
 Class B-1 Concrete (Intermediate Bents except Drilled Shafts and Rock Sockets)  $f'_c = 4,000$  psi  
 Class B-2 Concrete (Drilled Shafts and Rock Sockets)  $f'_c = 4,000$  psi  
 Class B-2 Concrete (Superstructure, except Prestressed Beams, and Type D Barrier)  $f'_c = 4,000$  psi  
 Class B-1 Concrete (Type D Barrier)  $f'_c = 4,000$  psi  
 Reinforcing Steel (ASTM A615 Grade 60)  $f_y = 60,000$  psi  
 Structural HP Steel Pile (ASTM A709 Grade 50)  $f_y = 50,000$  psi  
 For prestressed beam stresses, see Sheets No. B02-16 thru B02-17.

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.

All reinforcing in the Type D Barrier, raised sidewalks, light blisters, slab, concrete diaphragms, End Bents No. 1 and 3 and Intermediate Bent No. 2 shall be epoxy coated. Reinforcing in the rock sockets and drilled shaft shall be uncoated.

Concrete Protective Coatings:  
 Concrete and masonry protective coating shall be applied on all exposed concrete and stone areas as noted in the plans in accordance with Sec 711. See Sheet No. B02-29.

Sacrificial graffiti protective coating shall be applied on all exposed concrete and stone areas as noted in the plans in accordance with Sec 711. See Sheet No. B02-29.

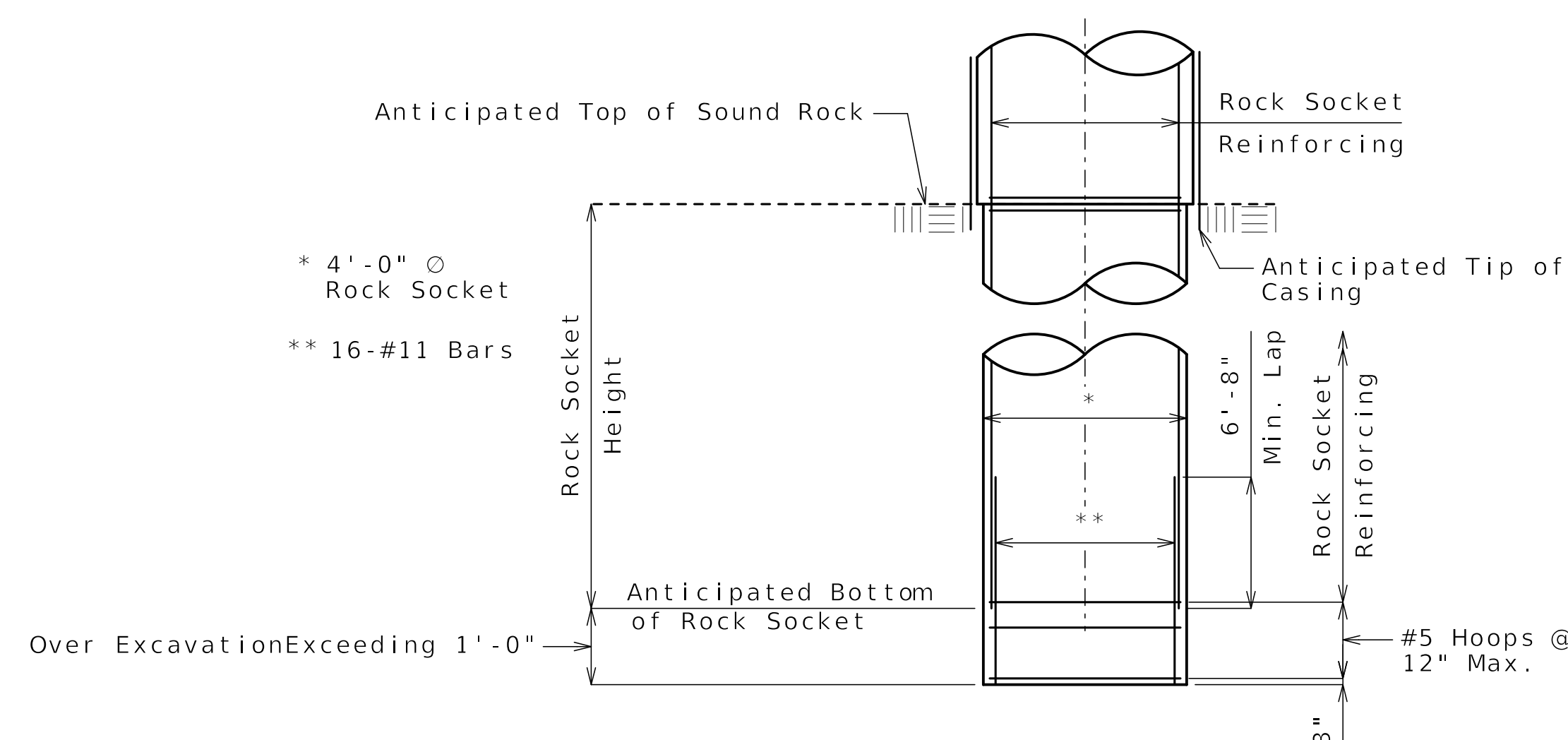
Miscellaneous:  
 Outline of old work is indicated by light dashed lines. Heavy lines indicate new work U.N.O.

Abbreviations:  
 E.F. denotes Each Face  
 N.F. denotes Near Face  
 F.F. denotes Far face  
 U.N.O. denotes Unless Noted Otherwise

Load Bearing Piles:  
 Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor  
 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.  
 Prebore for piles at Bent No. 1 to elevation 850. If optional pipe pile spacers are used, set at least 5 ft below bottom of MSE Wall leveling pad.  
 All piles shall be galvanized down to the minimum galvanized penetration (elevation).  
 Pile point reinforcement need not be galvanized. Shop drawings will not be required for pile point reinforcement.

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 minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetration is achieved on subsequent piles.  
 DT = Dynamic Testing

Rock Socket (Drilled Shafts):  
 Minimum Nominal Axial Compressive Resistance (Side Resistance + Tip Resistance) = Maximum Factored Loads/Resistance Factors  
 Thickness of permanent steel casing shall be in accordance with Project AAS.  
 Sonic logging testing shall be performed on all drilled shafts and rock sockets.  
 Drilled shafts shall be constructed in accordance with project Drilled Shaft AAS.

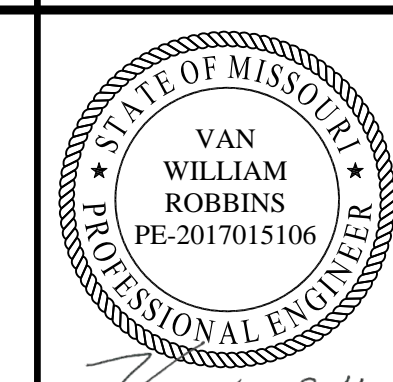


ROCK SOCKET OVER EXCAVATION DETAIL

For Rock Socket Details see Intermediate Bent Details

Foundation Data				
Type	Design Data	Bent Number		
		1	2	3
Load Bearing Pile	Pile Type and Size	HP 12x53	---	HP 12x53
	Number	ea 10	---	10
	Approximate Length Per Each	ft 37	---	44
	Pile Point Reinforcement	ea All	---	All
	Min. Galvanized Penetration (Elev.)	ft Full Length	---	Full Length
	Minimum Tip Penetration (Elev.)	ft 845	---	850
	Criteria for Min. Tip Penetration	Min Embed	---	Min Embed
	Pile Driving Verification Method	DT	---	DT
	Resistance Factor	0.65	---	0.65
	Minimum Nominal Axial Compressive Resistance	kip 371	---	371
Rock Socket	Number	ea ---	3	---
	Layer 1	Foundation Material	---	Limestone
	Elevation Range	ft ---	855.5-852	---
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf ---	14.7	---
	Layer 2	Foundation Material	---	Shale
	Elevation Range	ft ---	852-829	---
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf ---	1.3	---
	Layer 3	Foundation Material	---	Limestone
	Elevation Range	ft ---	829-819	---
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf ---	14.7	---
	*Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf ---	92	---

\*Rock Socket shall extend a minimum of 12" into Limestone.



Van W. Robbins  
04-11-25

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04/11/2025

ROUTE 1-70 STATE MO

DISTRICT BR SHEET NO. B02-03

COUNTY JACKSON

JOB NO. J411486D

CONTRACT ID. 240807-C01

PROJECT NO.

BRIDGE NO. A9628

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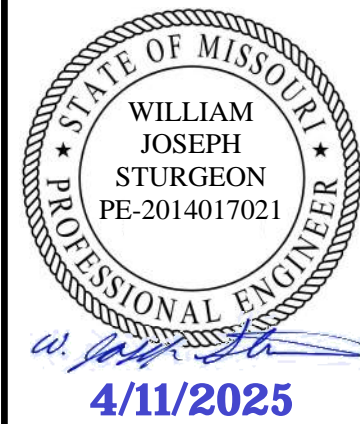
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
 105 WEST CAPITOL JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

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

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GENERAL NOTES



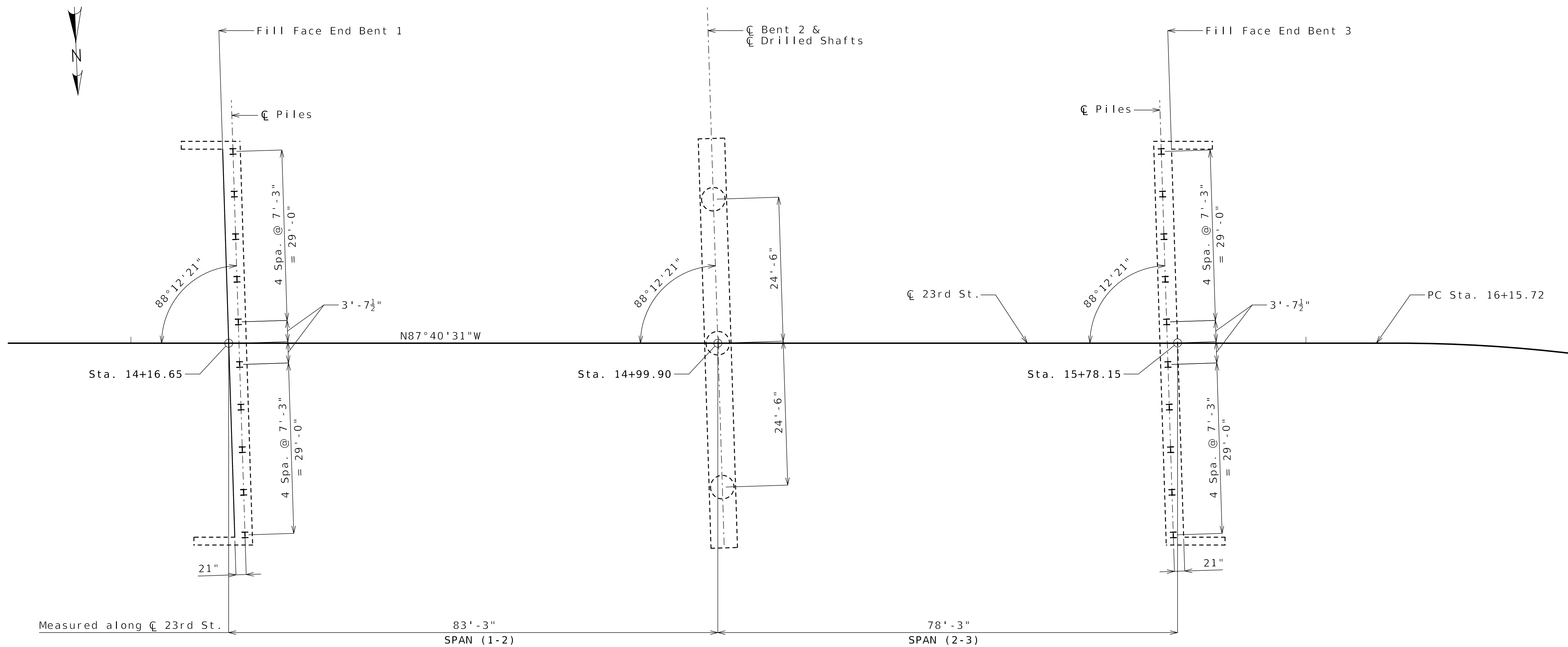
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04/11/2025	
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I-70	MO
DISTRICT	SHEET NO.
BR	B02-04
COUNTY	
JACKSON	
JOB NO.	
J411486D	
CONTRACT ID.	
240807-C01	
PROJECT NO.	

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SUBSTRUCTURE LAYOUT

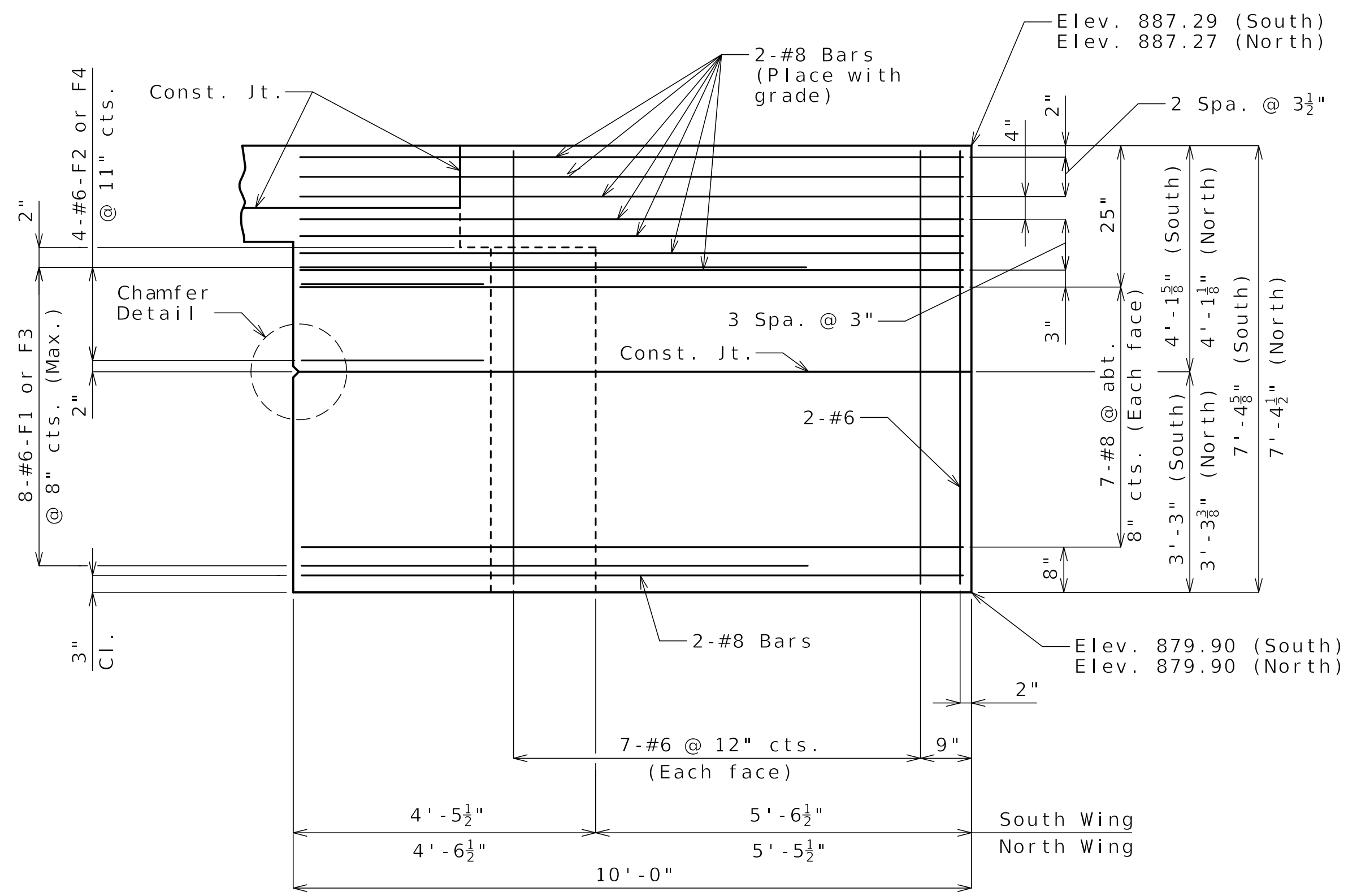
Notes:  
All dimensions are horizontal.

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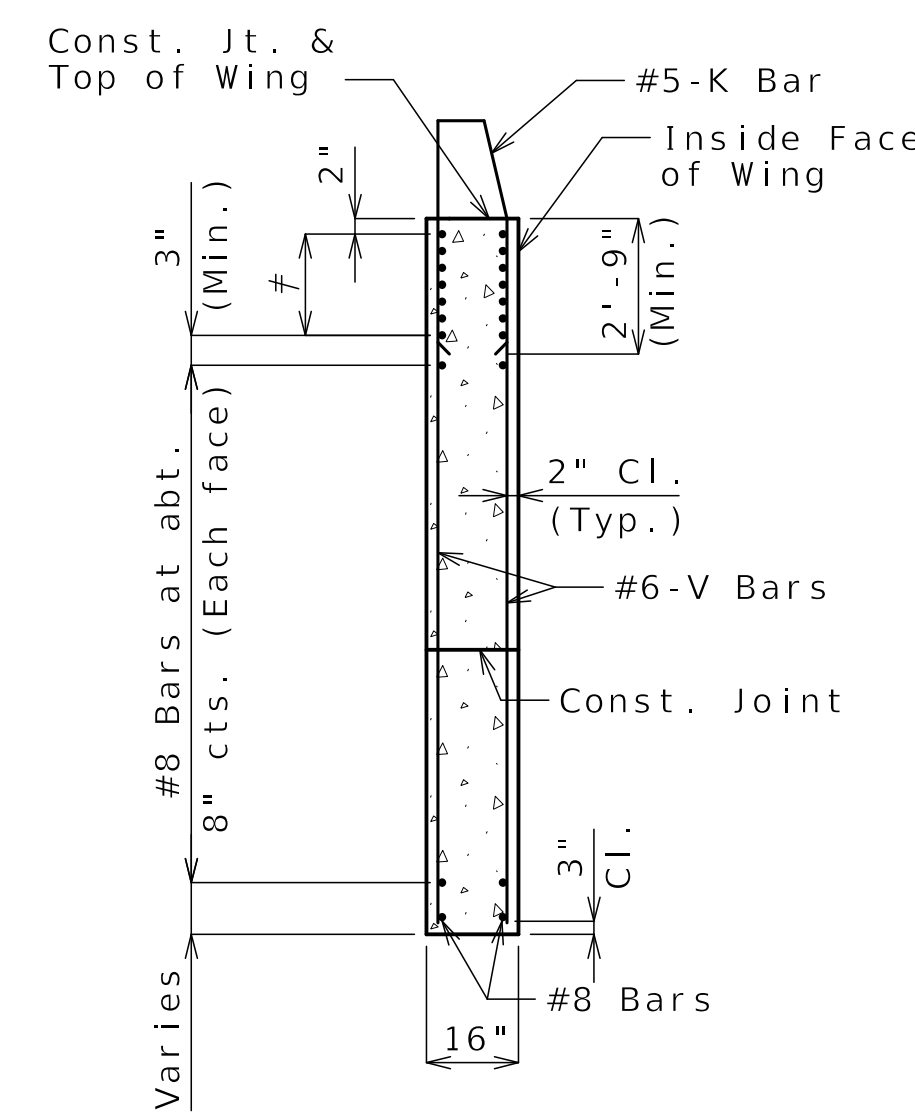
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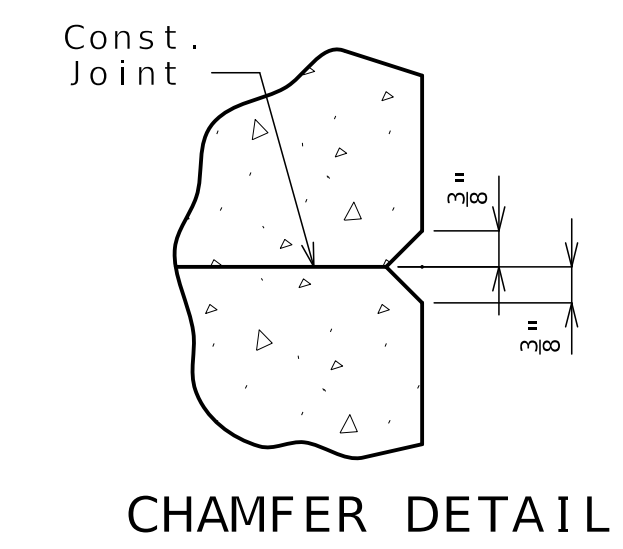




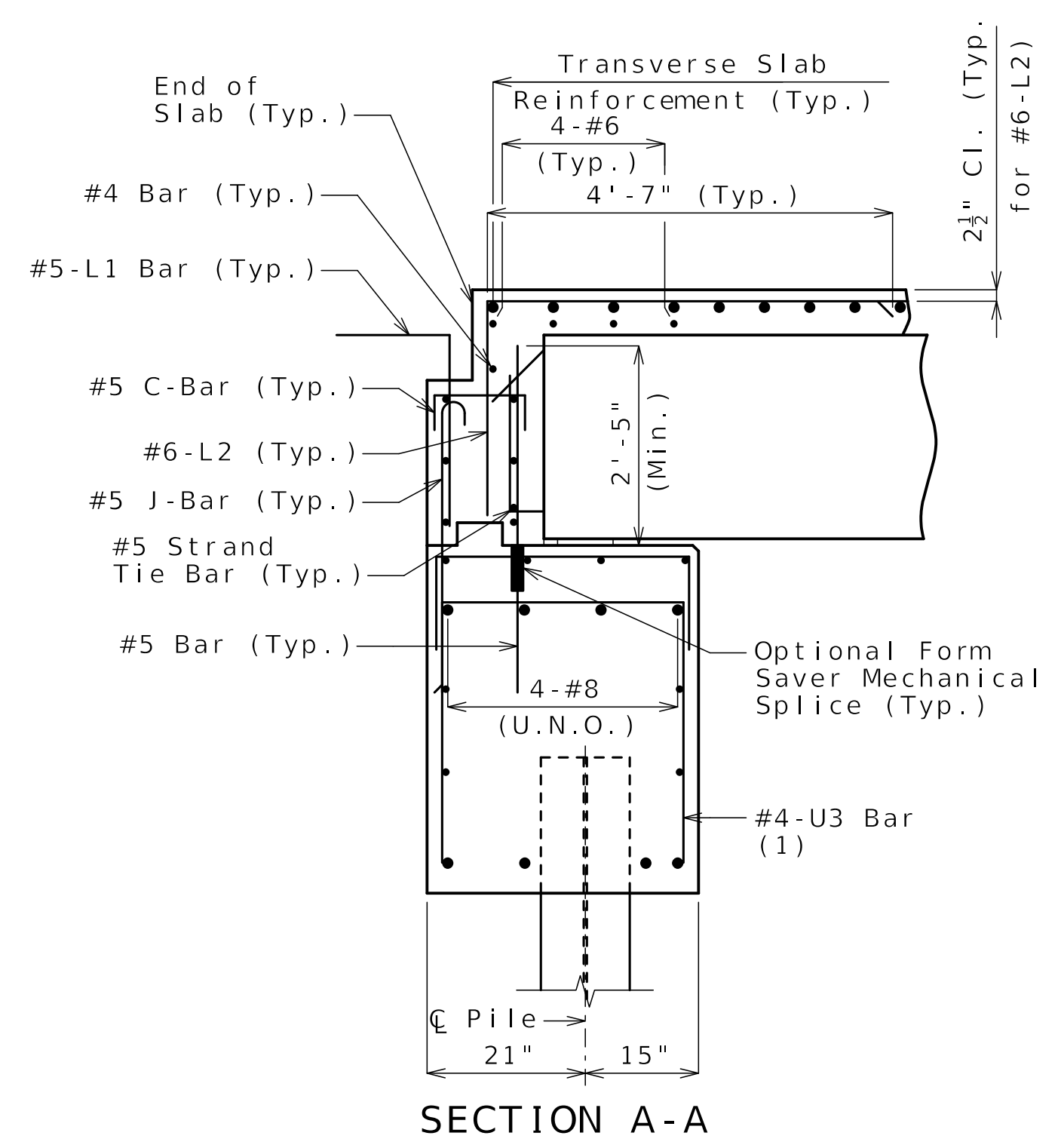
**ELEVATION D-D**  
(South wingwall shown, North wingwall similar except opposite hand)



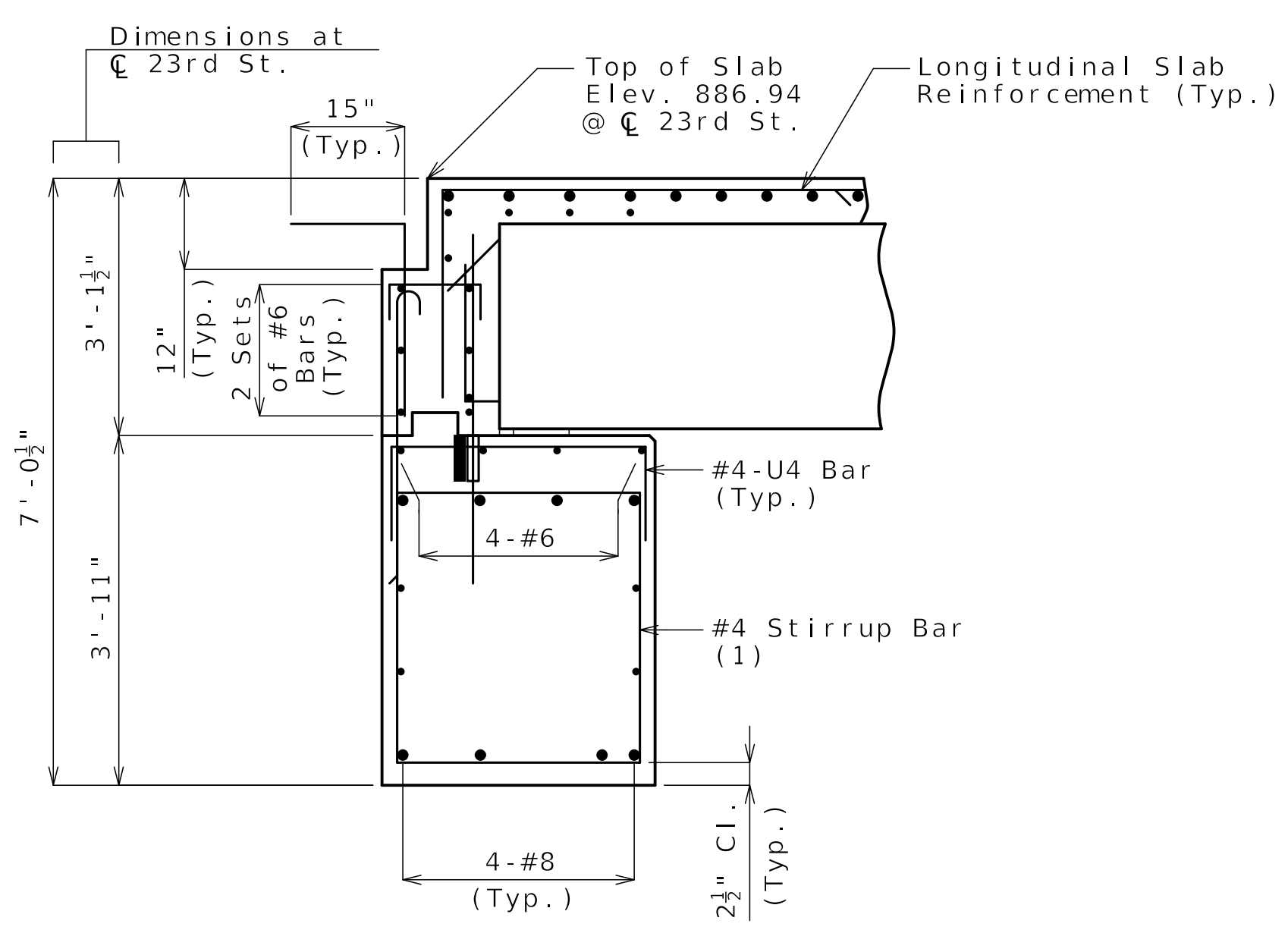
**TYPICAL SECTION THRU WING**  
#8 Bars at 3" cts. (Each face)(Place with grade)  
See Elevation D-D for number of bars



**CHAMFER DETAIL**

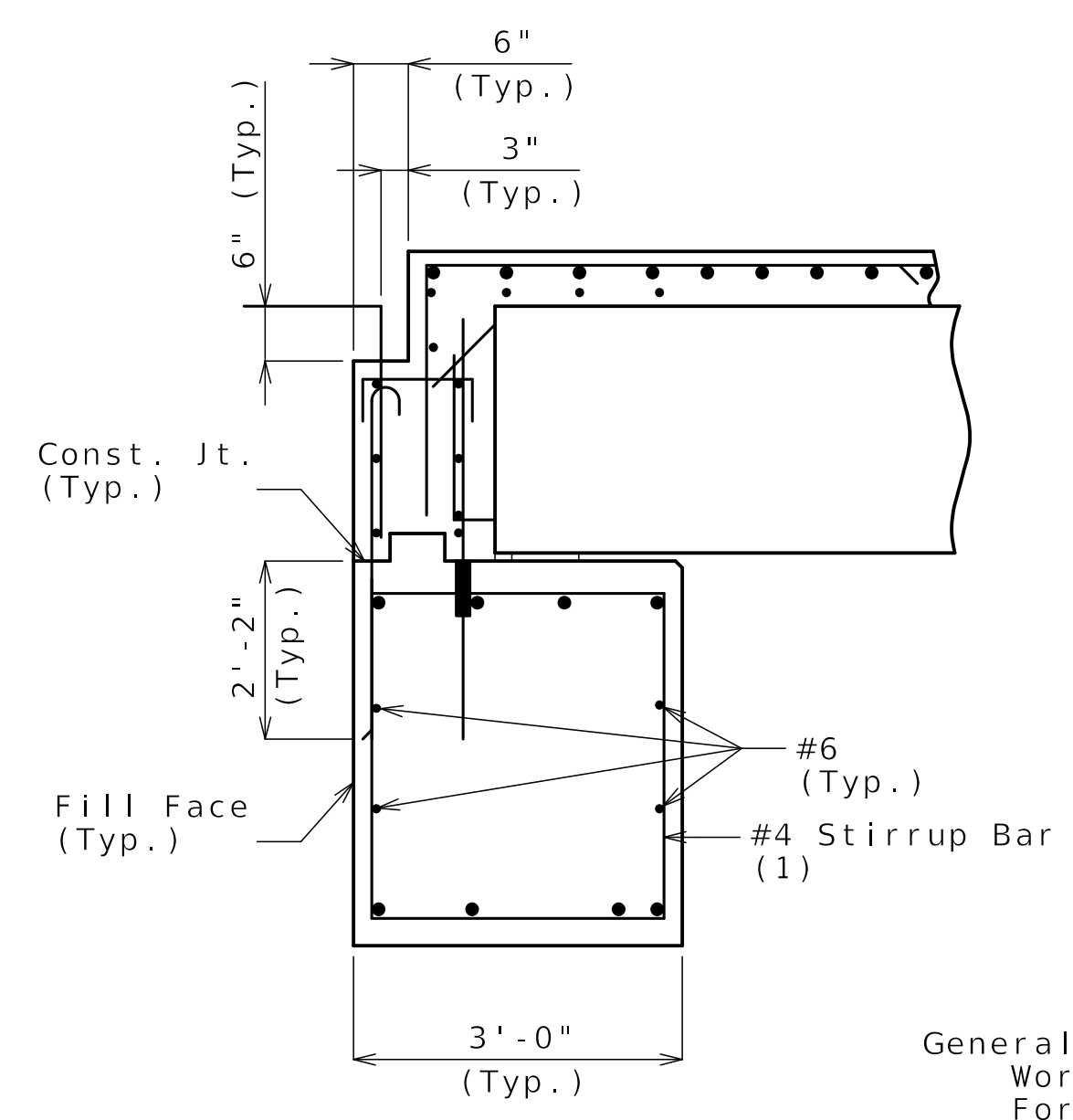


**SECTION A-A**



**SECTION B-B**

(1) U3 & #4 stirrup bar vertical leg = 2'-10"

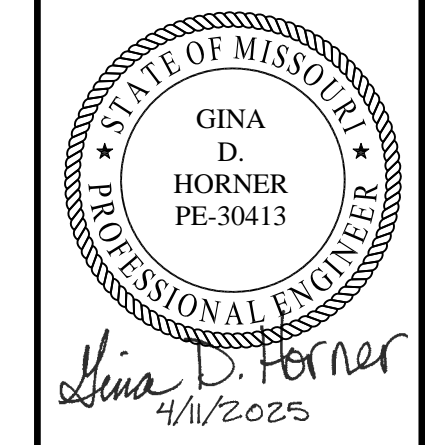


**SECTION C-C**

**General Notes:**  
Work this sheet with Sheets No. B02-05 and B02-06.  
For location of Sections A-A, B-B and C-C and Elevation D-D, see Sheet No. B02-06.  
For reinforcement of the Type D Barrier, see Sheet No. B02-26.

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**DETAILS OF END BENT NO. 1**



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DISTRICT BR	SHEET NO. B02-07
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	
BRIDGE NO. A9628	

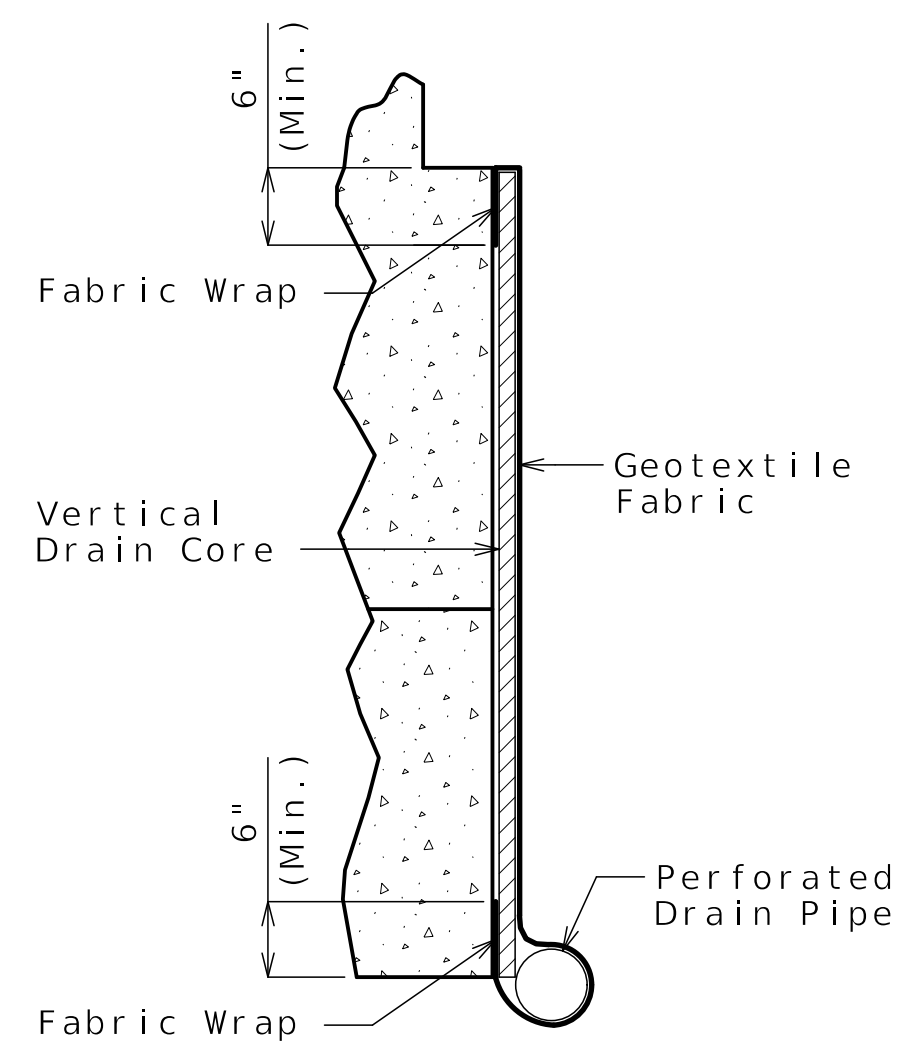
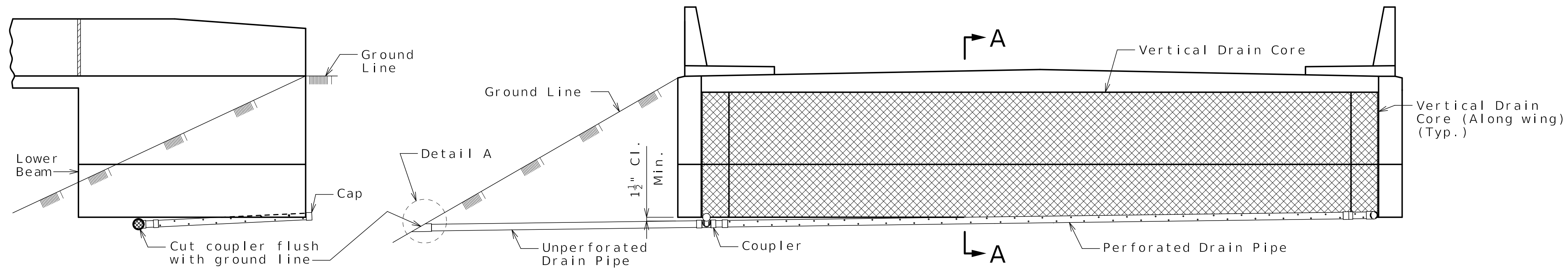
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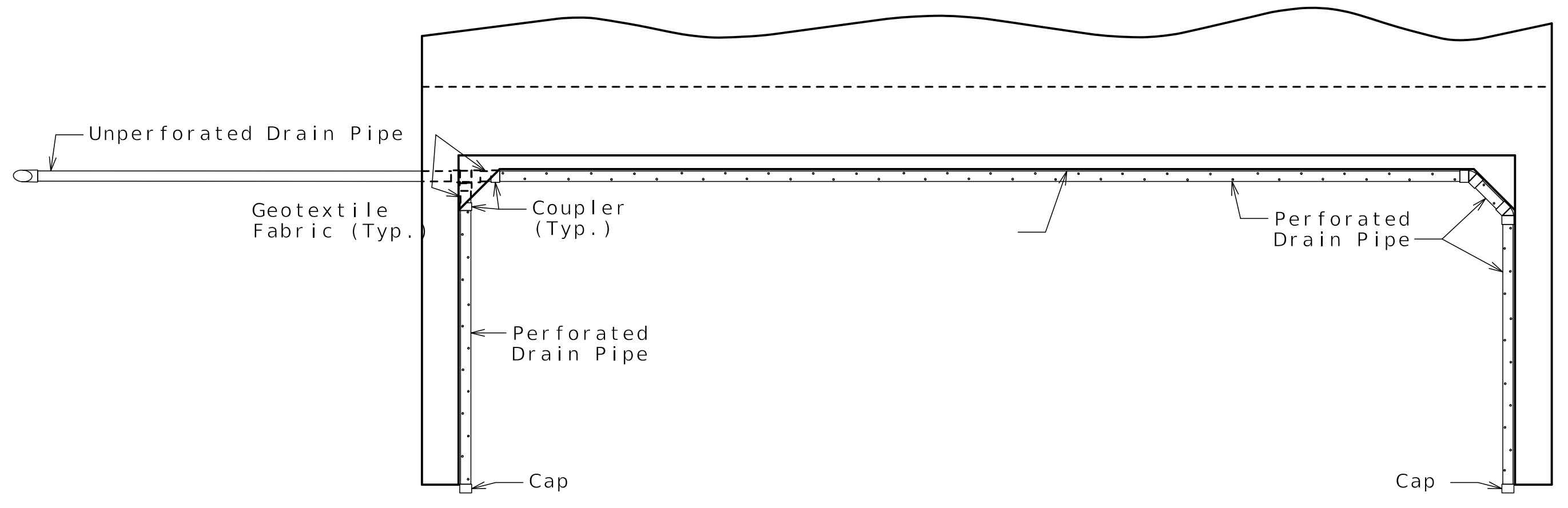
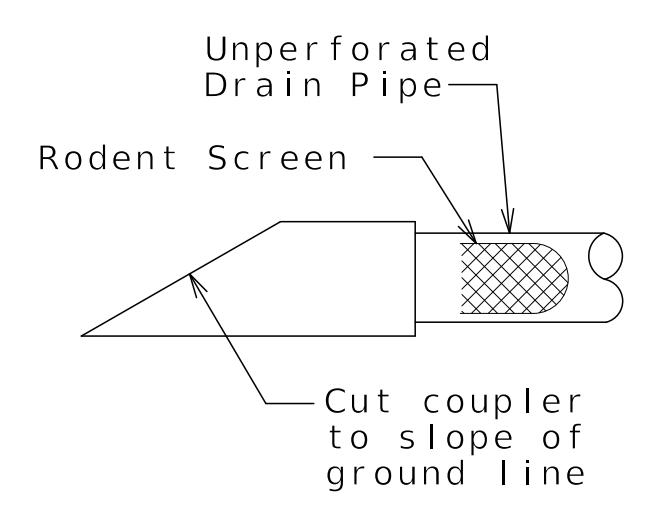
**CLARKSON RADMACHER**  
JOINT VENTURE

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

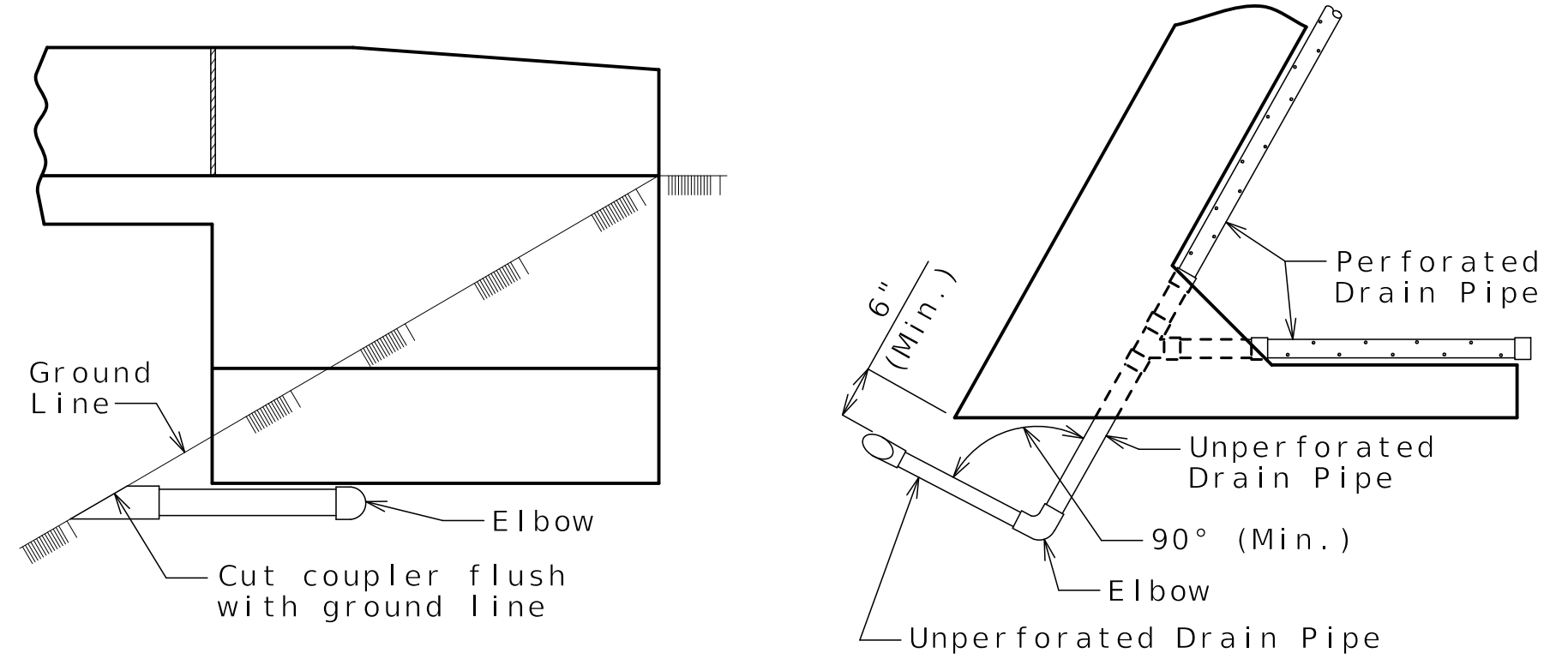


ELEVATION OF WING

ELEVATION OF END BENT



PLAN OF END BENT



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

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Not to Scale  
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Date: 04/11/2025  
Package: BRD-02-23rd\_ST

**General Notes:**

Squared end bent shown, skewed end bent similar.

All drain pipe shall be sloped 1 to 2 percent.

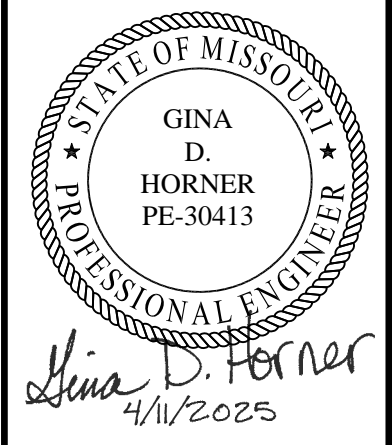
Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.

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.

If free draining granular fill material is used behind end bent and wingwalls, and if water can freely gravity drain to lower select granular backfill for structural system of MSE wall, then drain pipes are not required and internal drainage system of MSE wall can be used to collect water from Vertical Strip Drain.

**VERTICAL DRAIN AT END BENTS**



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DISTRICT BR	SHEET NO. B02-08
COUNTY JACKSON	
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CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO.  
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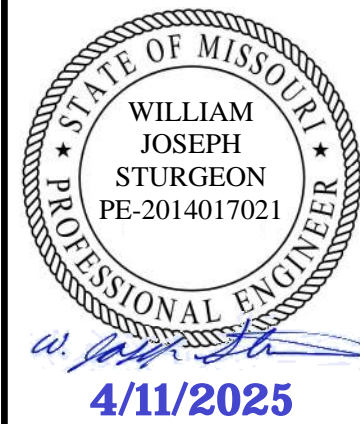
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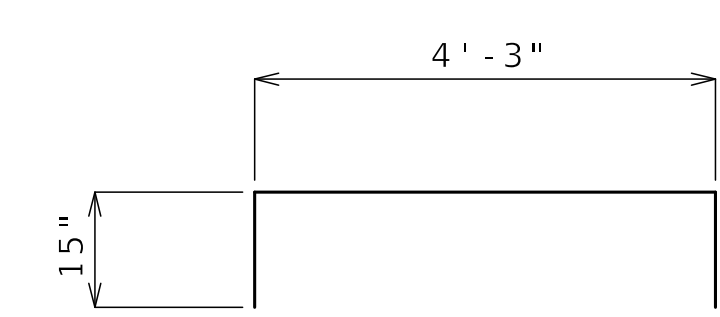
**CLARKSON RADMACHER**  
JOINT VENTURE

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

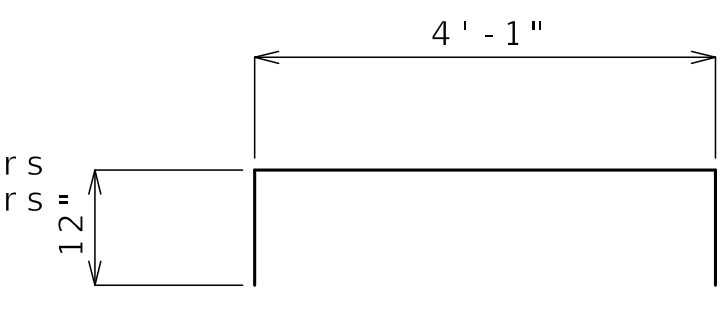
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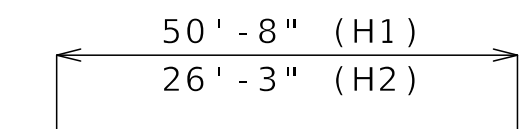
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DISTRICT BR	SHEET NO. B02-09
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	
BRIDGE NO. A9628	



#4-U4 BAR

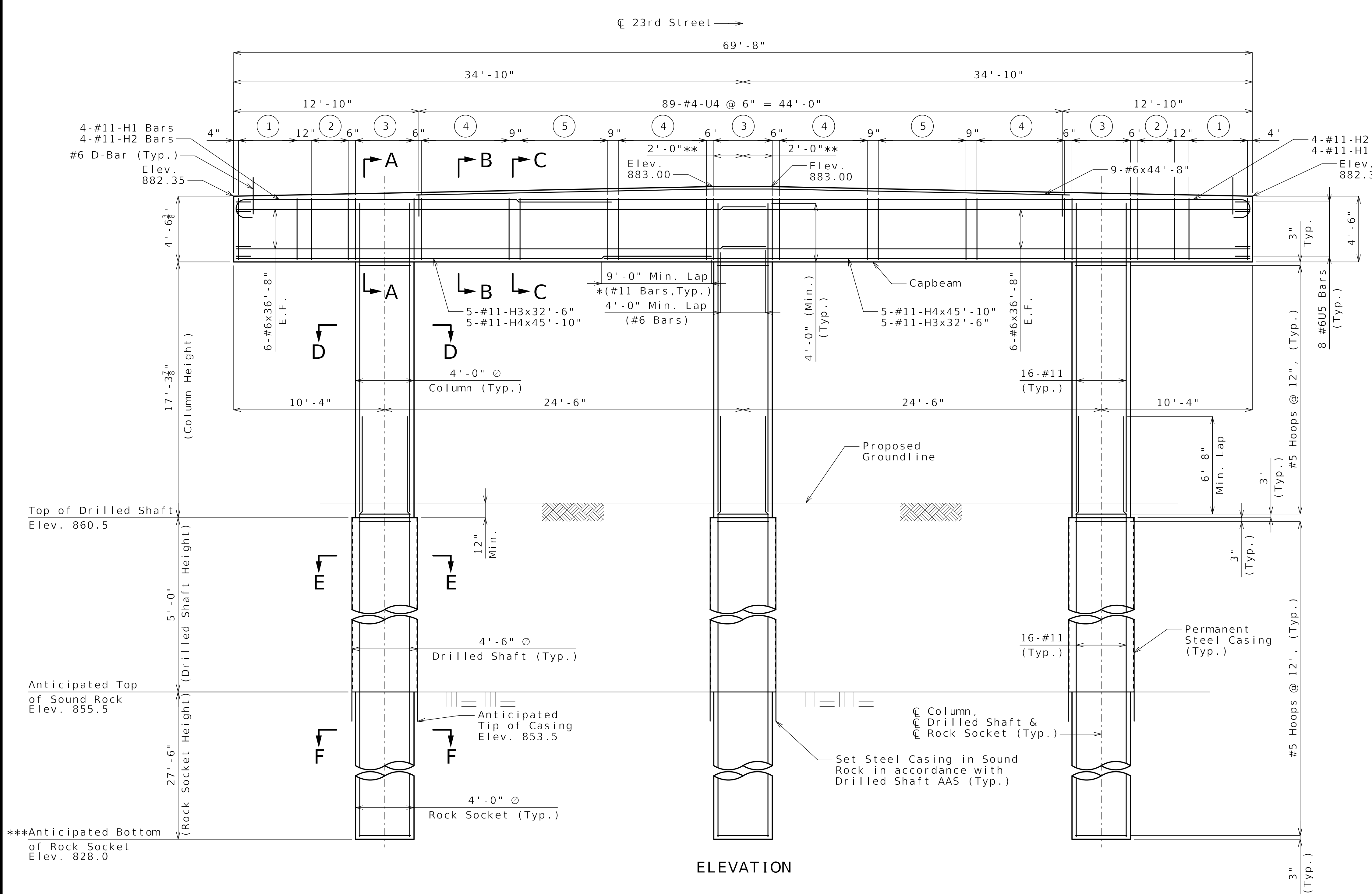


#6-U5 BAR



#11-H1 & #11-H2 BAR

- ① 5-#6-U3 @ 12" cts.
- ② 6-#6-U3 @ 6" cts.
- ③ 5-#6-U1 @ 12" cts.
- ④ 13 Sets of 1-#6 - U2 & 2-#6 Tie Bars @ 6" cts.
- ⑤ 7-#6-U3 @ 12" cts.



ELEVATION

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Notes:  
 \* Alternate location of lap splices between adjacent bars about centerline of bent. Alternate lap splice not shown.  
 Work this sheet with Sheets No. B02-10 and B02-11.  
 \*\* See Plan of Capbeam on Sheet B02-10 for plan view of skewed geometry.  
 \*\*\* For additional Rock Socket tip requirements, see Foundation Data Table on Sheet No. B02-03.  
 Prior to placing concrete for columns, position of vertical reinforcement shall be verified so as to provide clearance for capbeam reinforcement as applicable.  
 For location of drilled shafts, see Sheet No. B02-04.  
 For Sections A-A thru F-F, see Sheet No. B02-11.

DETAILS OF INTERMEDIATE BENT NO. 2

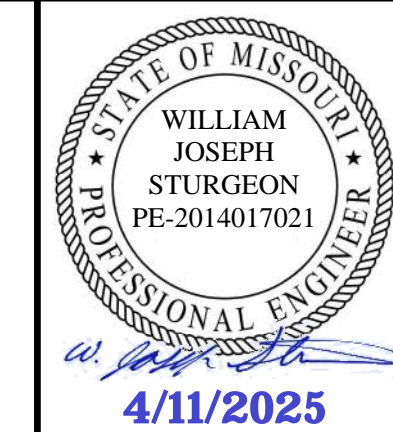
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105 WEST CAPITOL JEFFERSON CITY, MO 65102  
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CLARKSON RADMACHER JOINT VENTURE

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





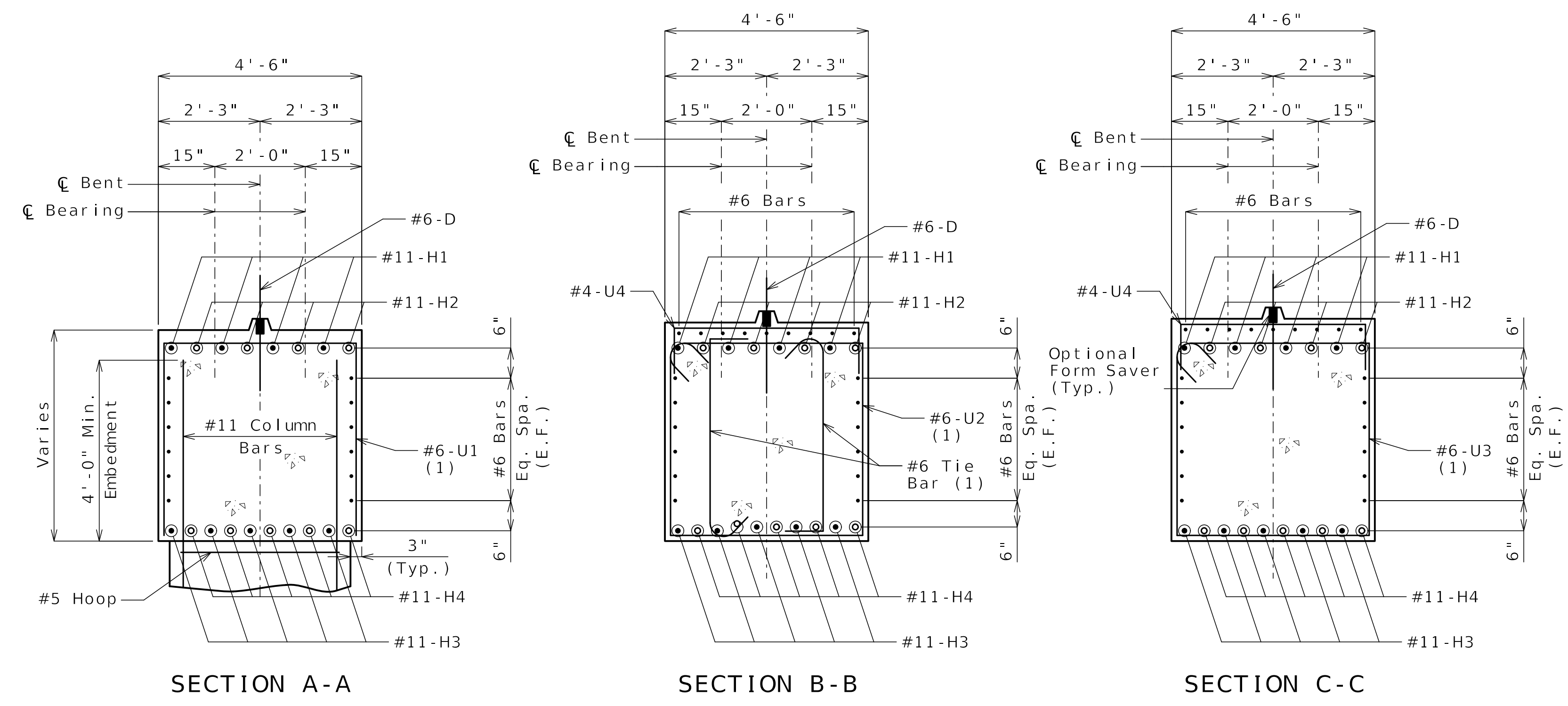
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ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B02-11
COUNTY JACKSON	
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CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO. A9628
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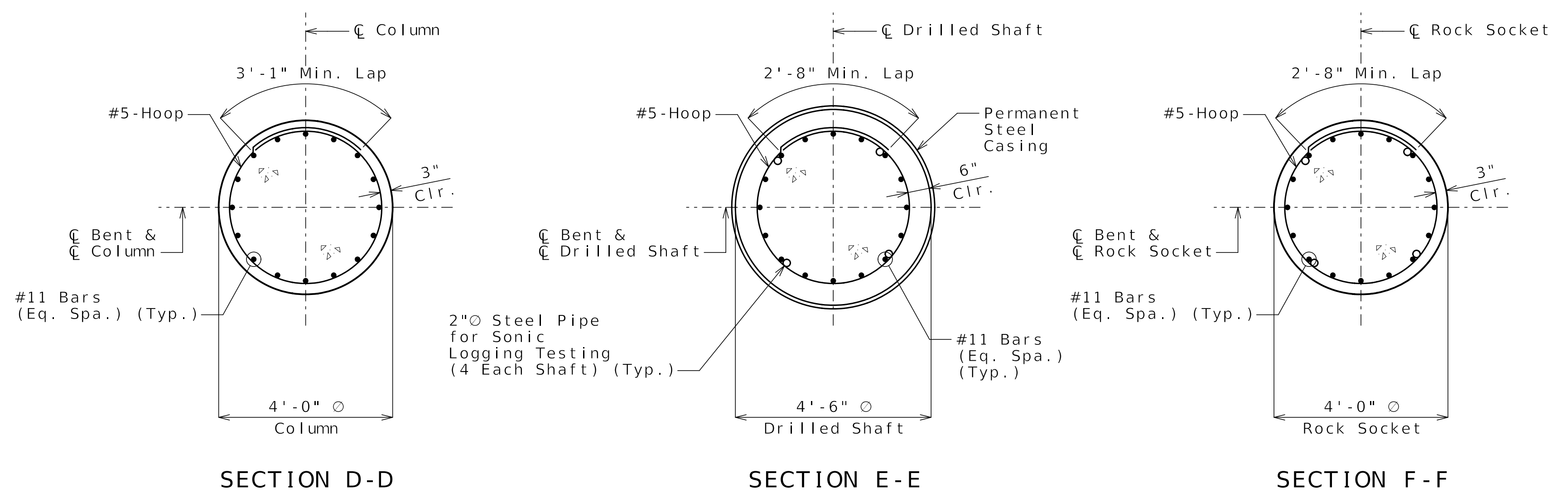
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CLARKSON RADMACHER JOINT VENTURE  
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(1) U1, U2, U3, & #6 tie bar vertical leg = 4'-3"



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 Date: 04/11/2025  
 Package: BRD-02-23rd\_ST

Notes:  
 Work this sheet with Sheets No. B02-09 and B02-10.  
 Hoop splices shall be staggered around the drilled shaft and rock socket at 90 degree intervals.

DETAILS OF INTERMEDIATE BENT NO. 2



Gina D. Horner  
4/11/2025

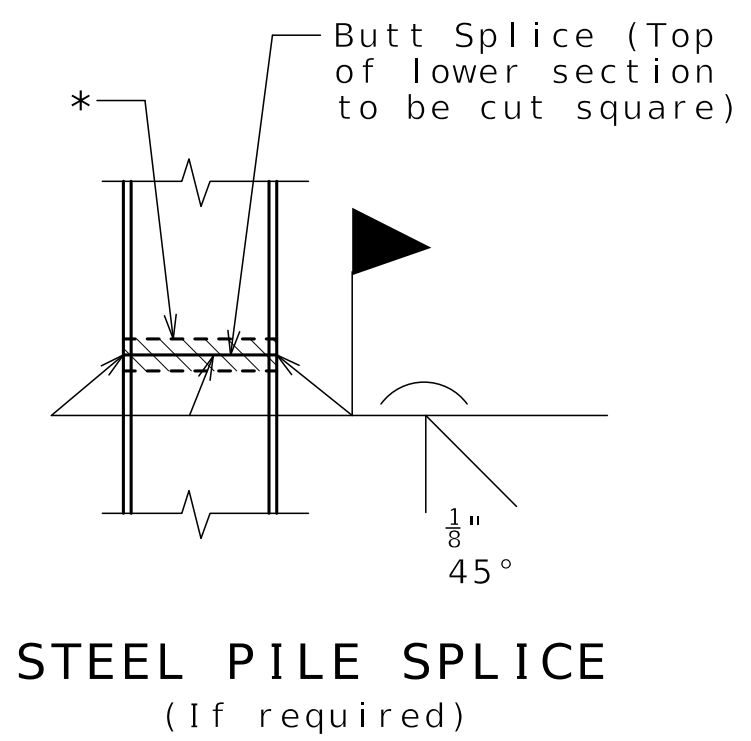
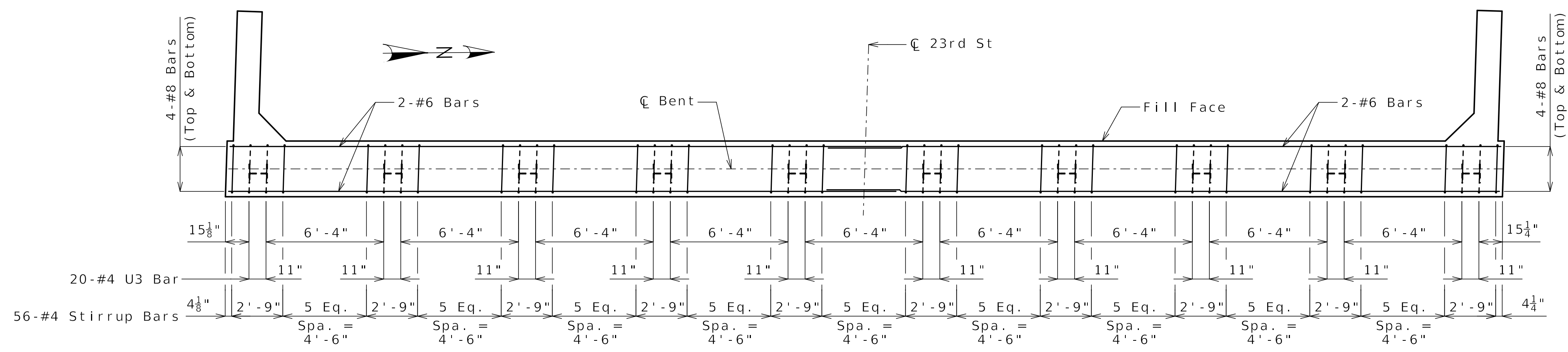
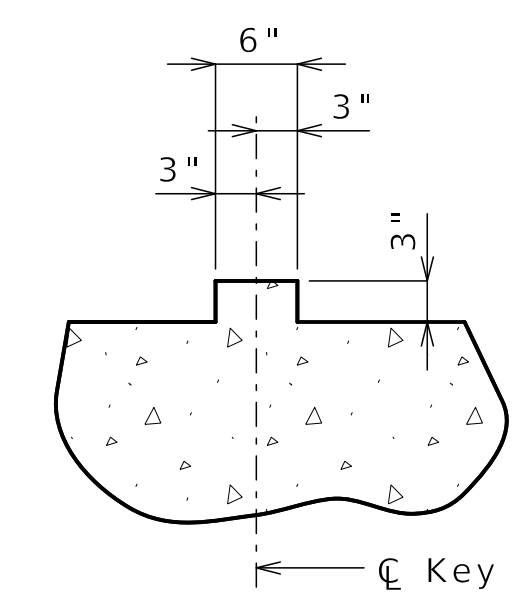
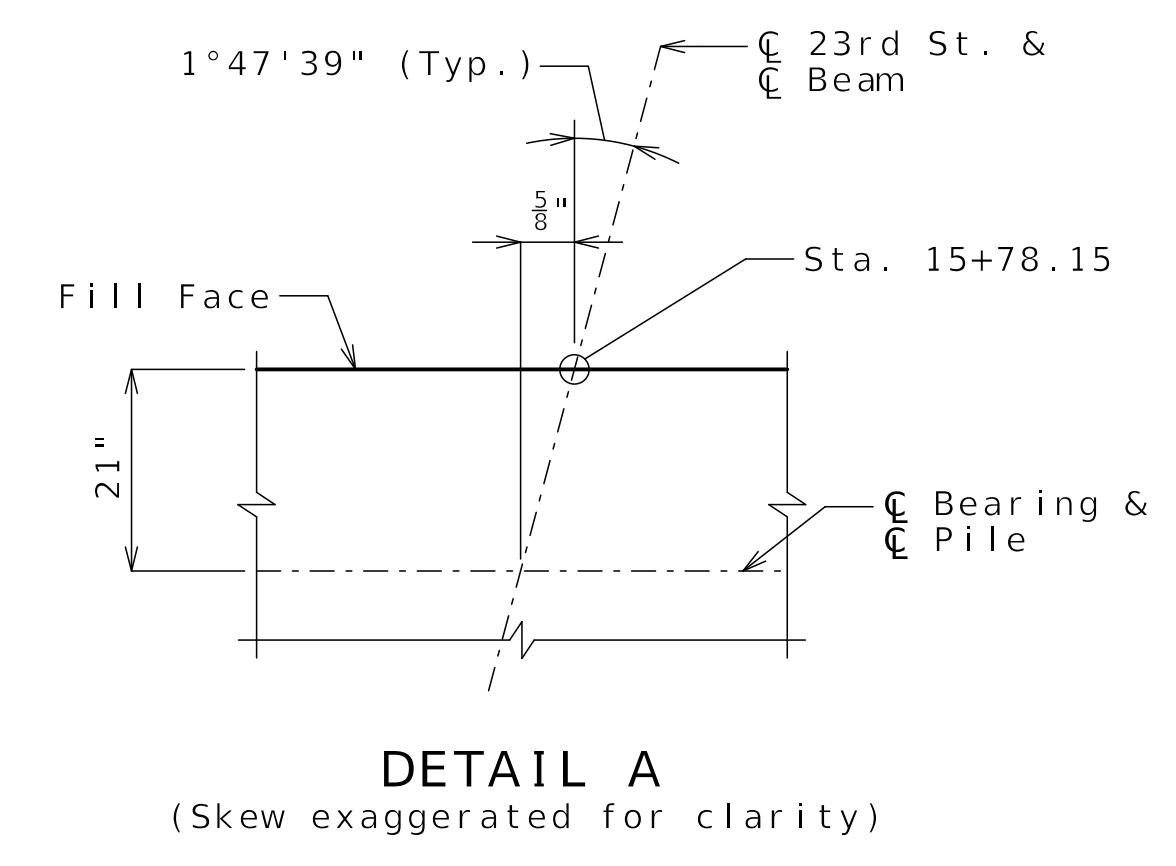
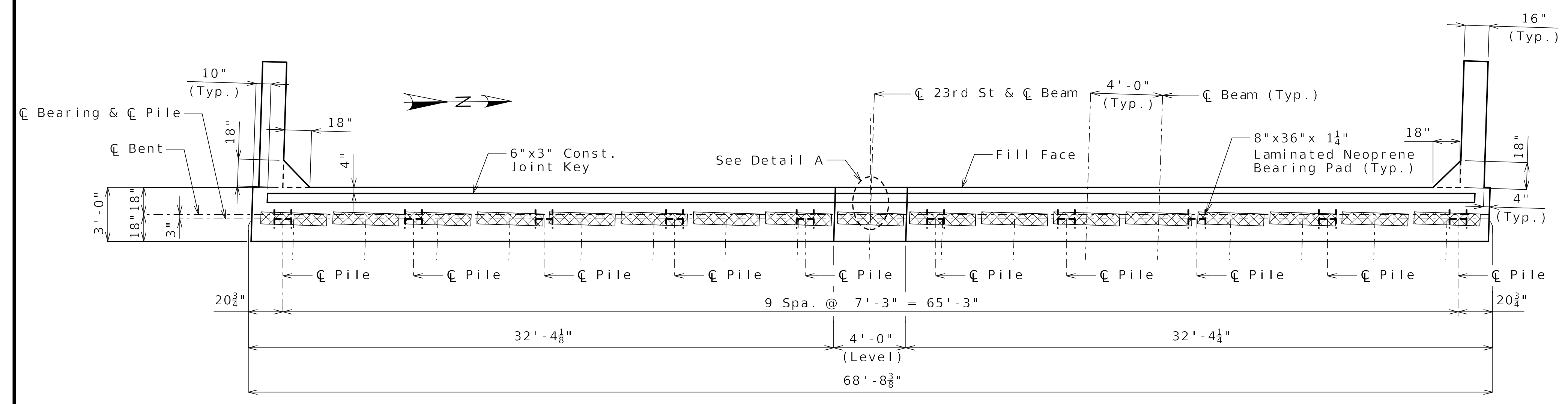
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DISTRICT BR	SHEET NO. B02-12
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CONTRACT ID. 240807-C01	
PROJECT NO.	

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**CLARKSON RADMACHER** JOINT VENTURE  
 715 KIRK DRIVE KANSAS CITY, MO 64105-1310  
 CERTIFICATE OF AUTHORITY NO. 001270  
**HNTB**



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

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Notes:  
 Work this sheet with Sheets No. B02-13 and B02-14.  
 All U bars and pairs of vertical bars shall be placed along skew.  
 Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.  
 For laminated neoprene bearing detail, see Sheet No. B02-05.  
 All concrete above the construction joint shall be Class B-2.  
 For details of bridge approach slab, see Sheet No. B02-31.

DETAILS OF END BENT NO. 3



Gina D. Horner  
4/11/2025

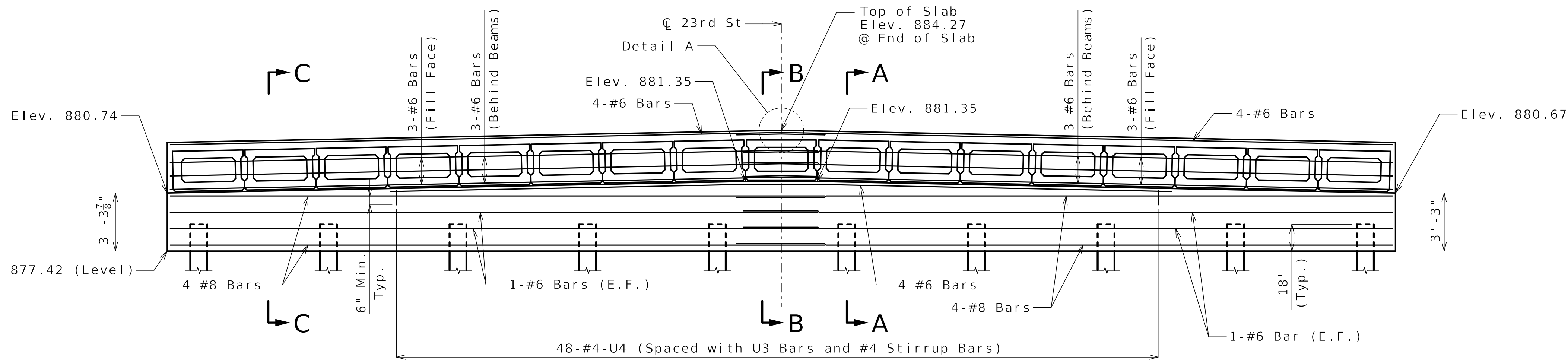
DATE PREPARED 04/11/2025	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B02-13
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO. A9628
---------------------

DATE	DESCRIPTION
04/11/25	REV 0 - RFC SUBMITTAL

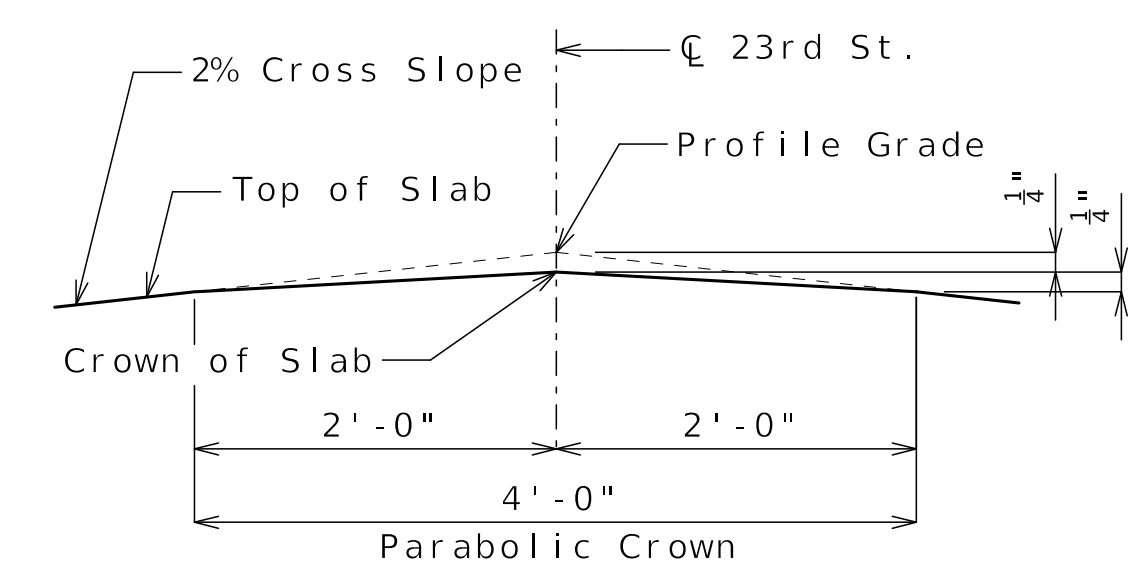
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
  
 105 WEST CAPITOL JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

**CLARKSON RADMACHER** JOINT VENTURE  
 715 KIRK DRIVE KANSAS CITY, MO 64105-1310  
 CERTIFICATE OF AUTHORITY NO. 001270

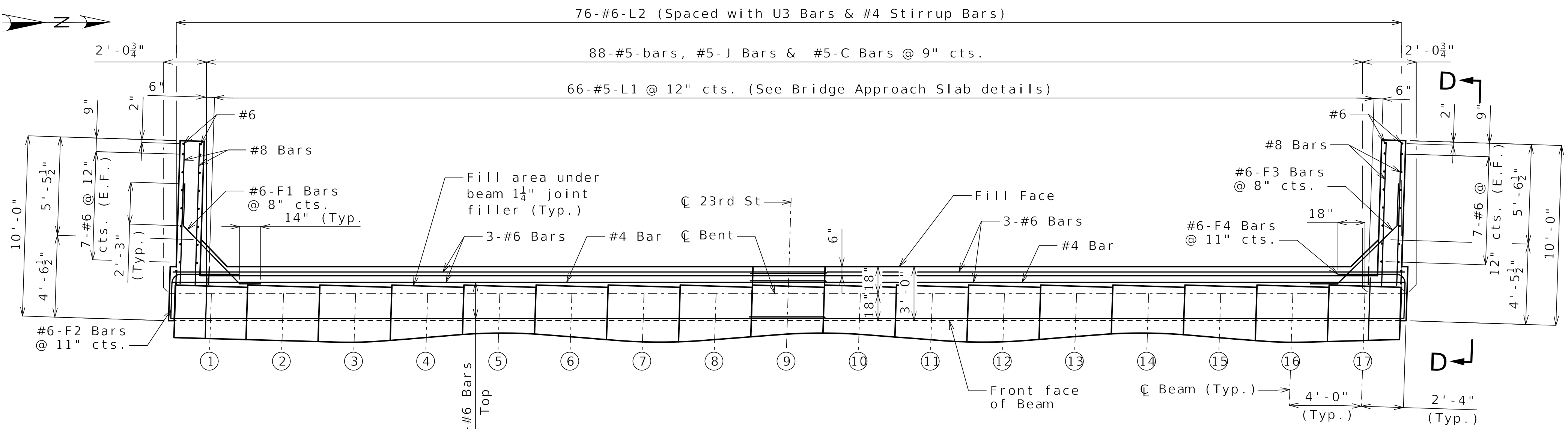


**SECTION NEAR END BENT**  
(Sidewalks and Type D Barrier not shown for clarity)

Notes:  
 Lap Splice for #4 bars = 2'-10" (Min.)  
 Lap Splice for #6 bars = 4'-3" (Min.)  
 Lap Splice for #8 bars = 5'-8" (Min.)



**DETAIL A**



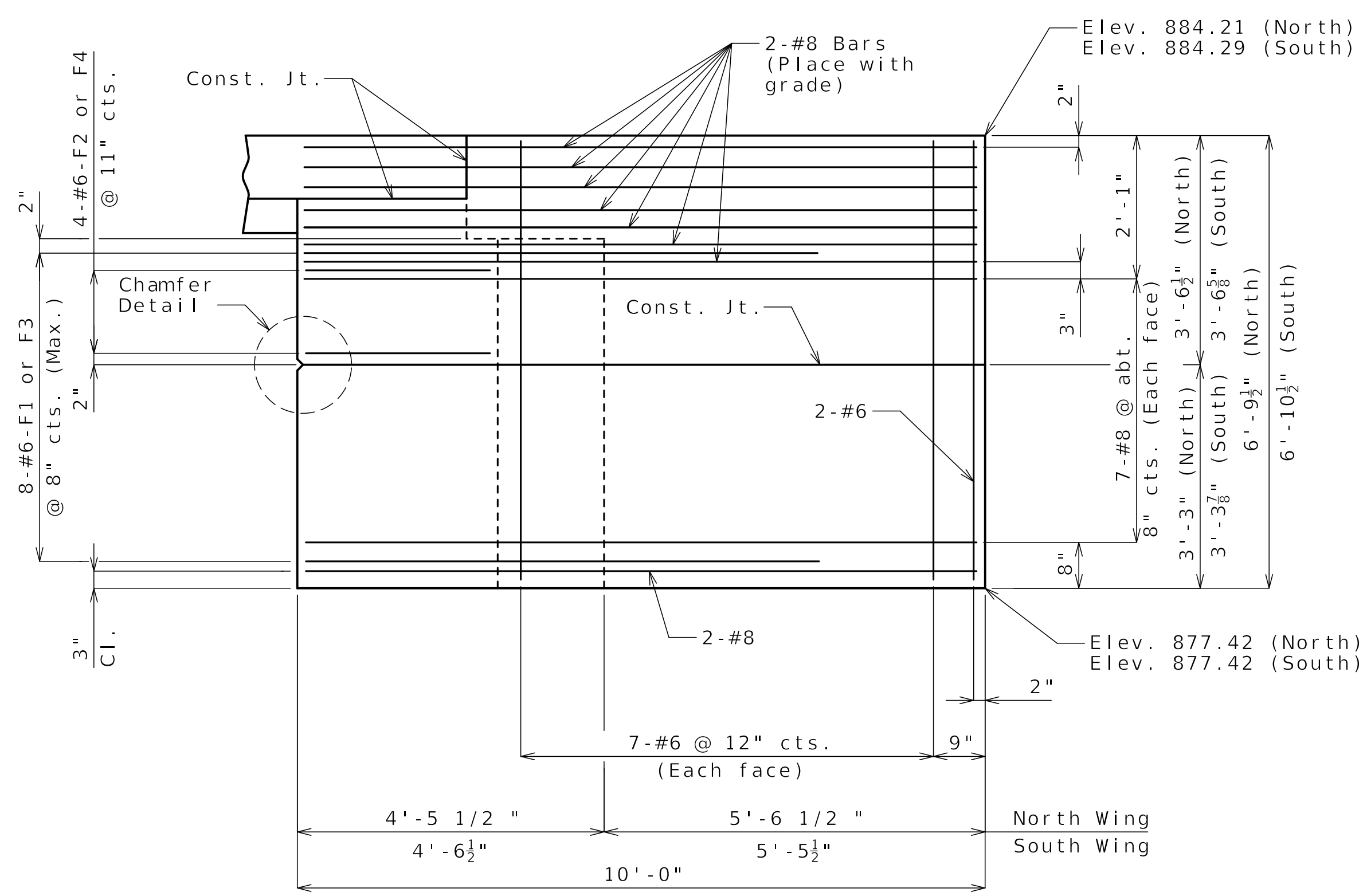
**PART PLAN**  
#5 - Strand Tie Bars not shown for clarity

**Released For Construction**  
 Not to Scale  
 Revision: 0.0  
 Date: 04/11/2025  
 Package: BRD-02-23rd\_ST

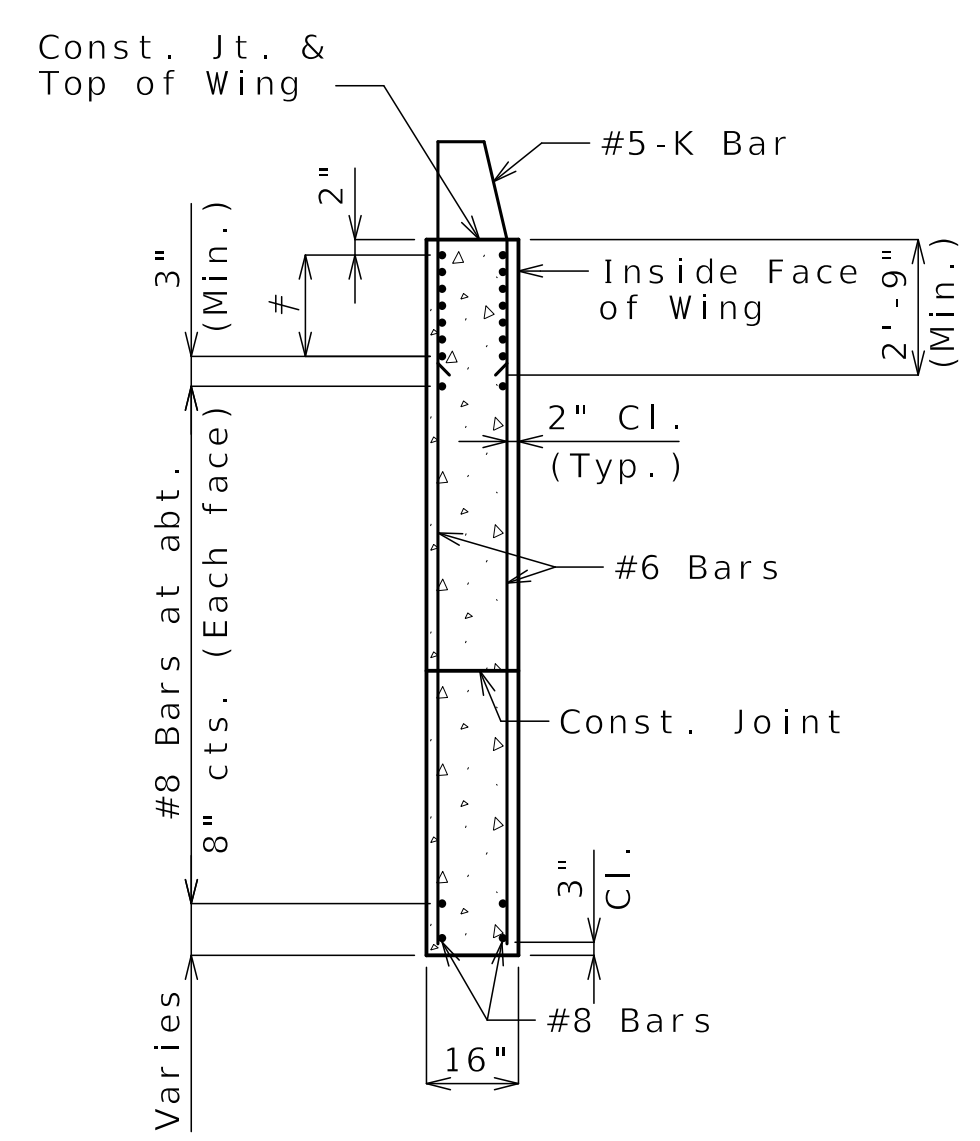
General Notes:  
 Work this sheet with Sheets No. B02-12 and B02-14.  
 For Sections A-A, B-B and C-C, and Elevation D-D, see Sheet No. B02-14.  
 Splices for the capbeam top and bottom #8 bars shall be staggered.  
 Strands at end of the beams shall be field bent or, if necessary, cut in field to maintain 1 1/2-inch minimum clearance to fill face of end bent.  
 The #6-F bars shall be bent in the field to clear beams.  
 See additional details in Retaining Walls A9643 and A9642 Plans.

⊗ Denotes beam number.

**DETAILS OF END BENT NO. 3**

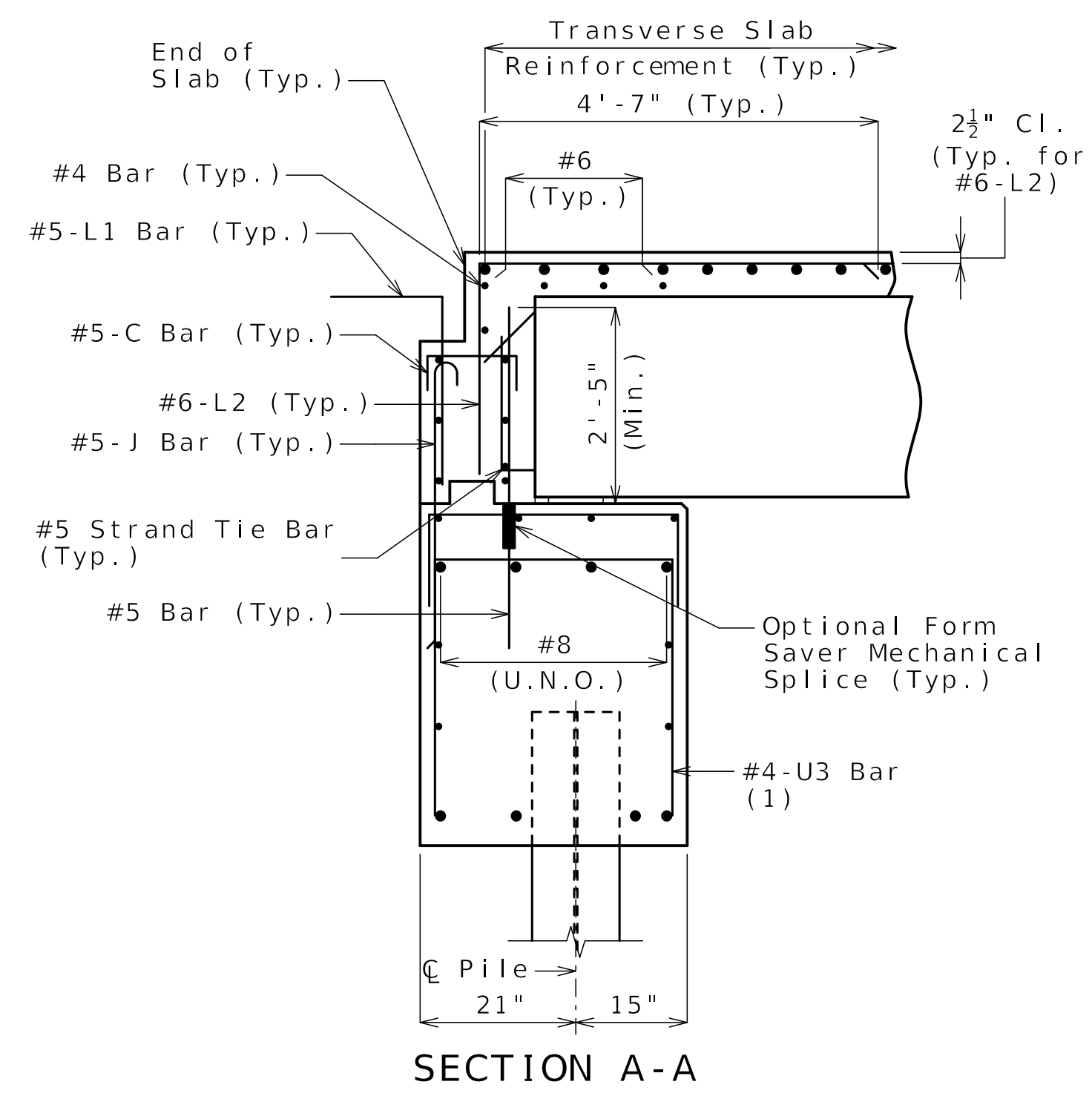
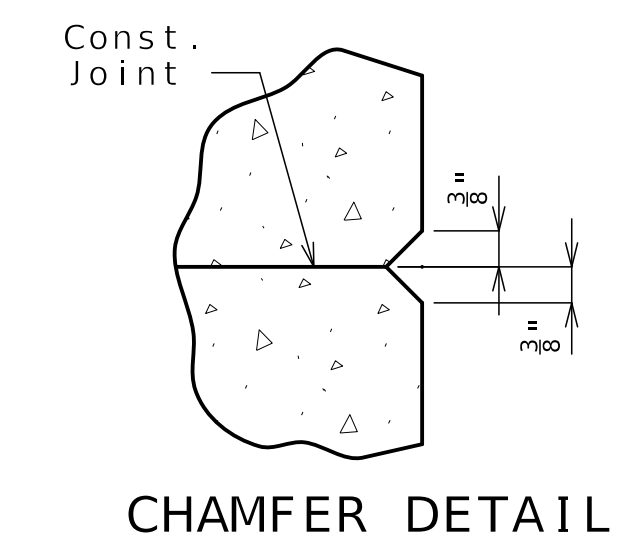


**ELEVATION D-D**  
(North wingwall shown, South wingwall similar except opposite hand)

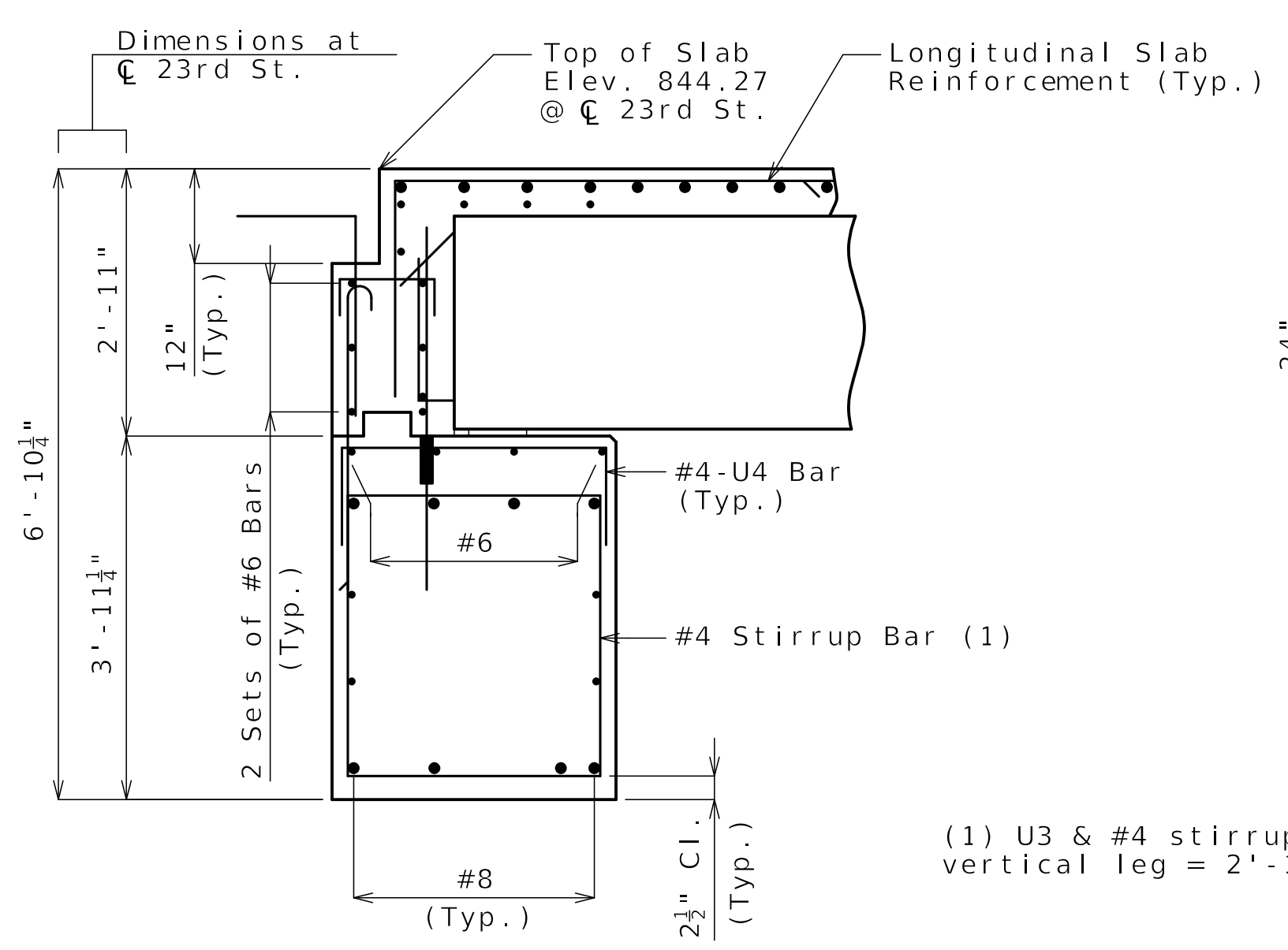


**TYPICAL SECTION THRU WING**

#8 Bars at 3" cts. (Each face) (Place with grade)  
See Elevation D-D for number of bars

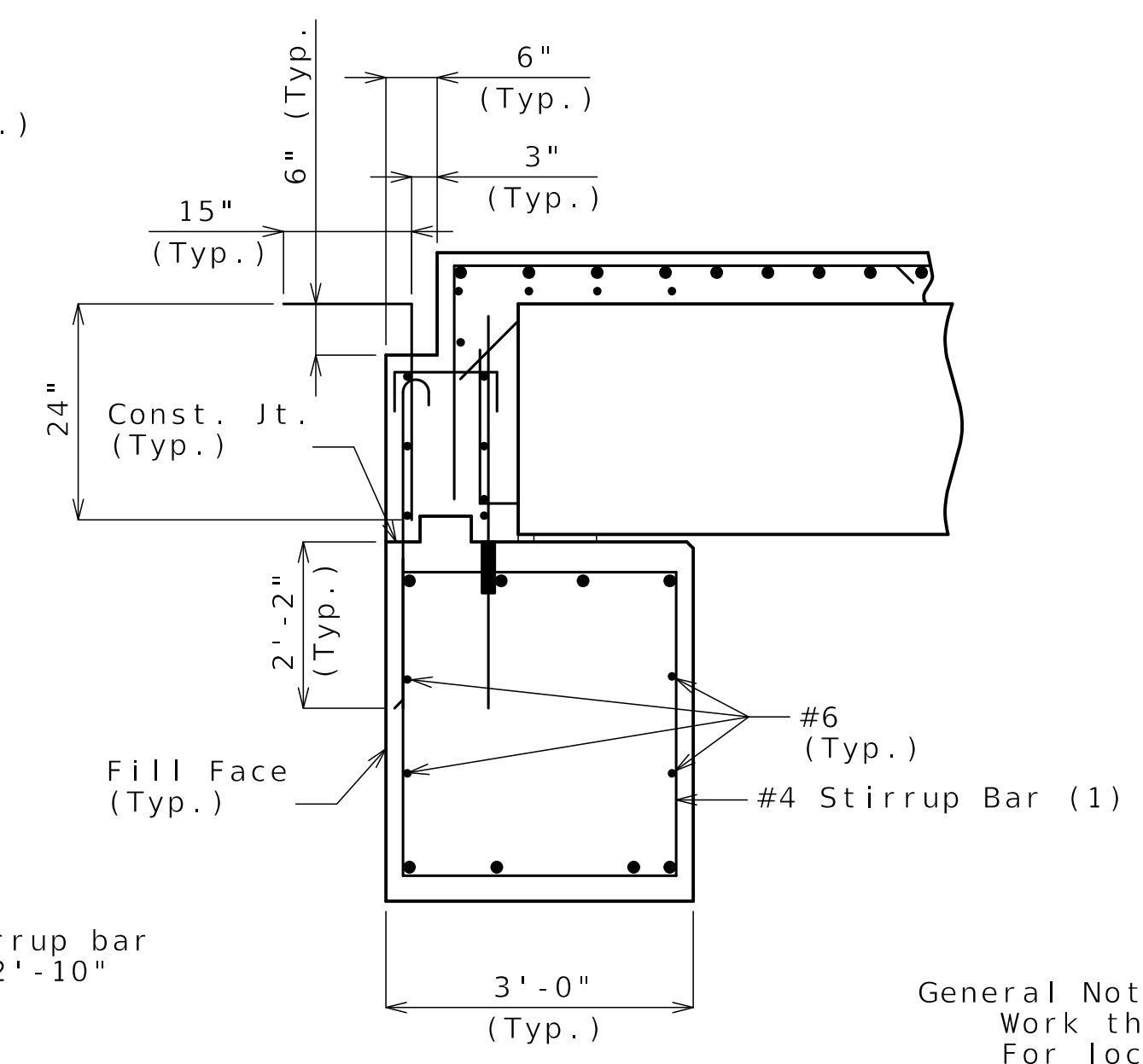


**SECTION A-A**



**SECTION B-B**

(1) U3 & #4 stirrup bar vertical leg = 2'-10"

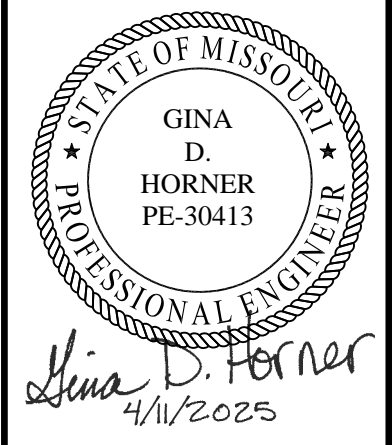


**SECTION C-C**

**General Notes:**  
Work this sheet with Sheets No. B02-12 and B02-13.  
For location of Sections A-A, B-B and C-C and Elevation D-D, see Sheet No. B02-13.  
For reinforcement of the Type D Barrier, see Sheet No. B02-26.

**Released For Construction**  
Not to Scale  
Revision: 0.0  
Date: 04/11/2025  
Package: BRD-02-23rd\_ST

**DETAILS OF END BENT NO. 3**



DATE PREPARED 04/11/2025	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B02-14
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	
BRIDGE NO. A9628	

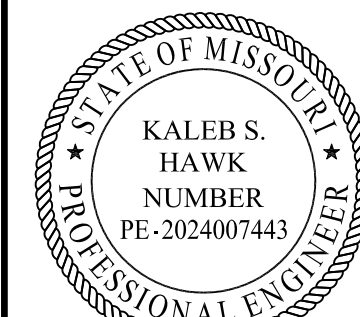
DATE	DESCRIPTION
04/11/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

**CLARKSON RADMACHER**  
JOINT VENTURE

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



Kaleb S. Hawk  
9-11-25

DATE PREPARED  
04/11/2025

ROUTE 1-70 STATE MO

DISTRICT BR SHEET NO. B02-15

COUNTY JACKSON

JOB NO. J411486D

CONTRACT ID. 240807-C01

PROJECT NO.

BRIDGE NO. A9628

DESCRIPTION

REV 0 - RFC SUBMITTAL

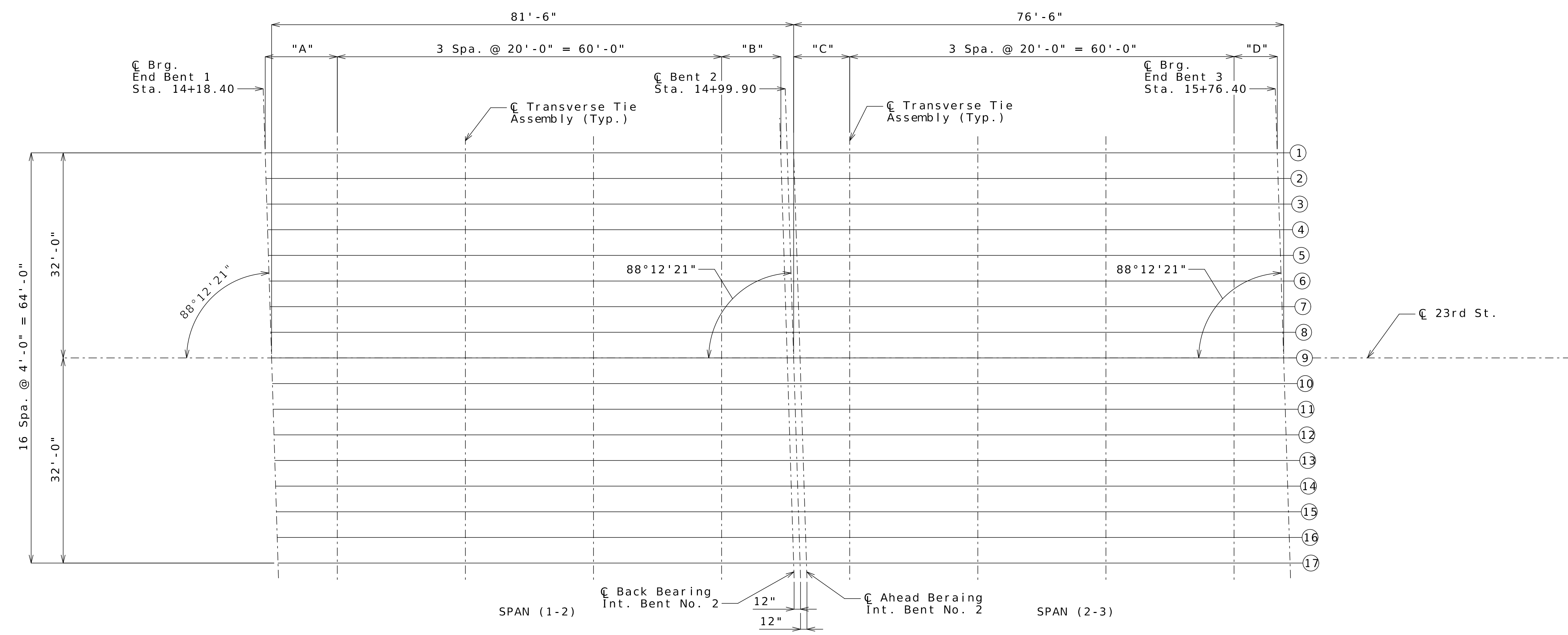
DATE 04/11/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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



FRAMING PLAN

Beam Number	"A"	"B"	"C"	"D"
1	11'-3"	9'-3"	8'-9"	6'-9"
2	11'-1 1/2"	9'-4 1/2"	8'-7 1/2"	6'-10 1/2"
3	11'-0"	9'-6"	8'-6"	7'-0"
4	10'-10 1/2"	9'-7 1/2"	8'-4 1/2"	7'-1 1/2"
5	10'-9"	9'-9"	8'-3"	7'-3"
6	10'-7 1/2"	9'-10 1/2"	8'-1 1/2"	7'-4 1/2"
7	10'-6"	10'-0"	8'-0"	7'-6"
8	10'-4 1/2"	10'-1 1/2"	7'-10 1/2"	7'-7 1/2"
9	10'-3"	10'-3"	7'-9"	7'-9"
10	10'-1 1/2"	10'-4 1/2"	7'-7 1/2"	7'-10 1/2"
11	10'-0"	10'-6"	7'-6"	8'-0"
12	9'-10 1/2"	10'-7 1/2"	7'-4 1/2"	8'-1 1/2"
13	9'-9"	10'-9"	7'-3"	8'-3"
14	9'-7 1/2"	10'-10 1/2"	7'-1 1/2"	8'-4 1/2"
15	9'-6"	11'-0"	7'-0"	8'-6"
16	9'-4 1/2"	11'-1 1/2"	6'-10 1/2"	8'-7 1/2"
17	9'-3"	11'-3"	6'-9"	8'-9"

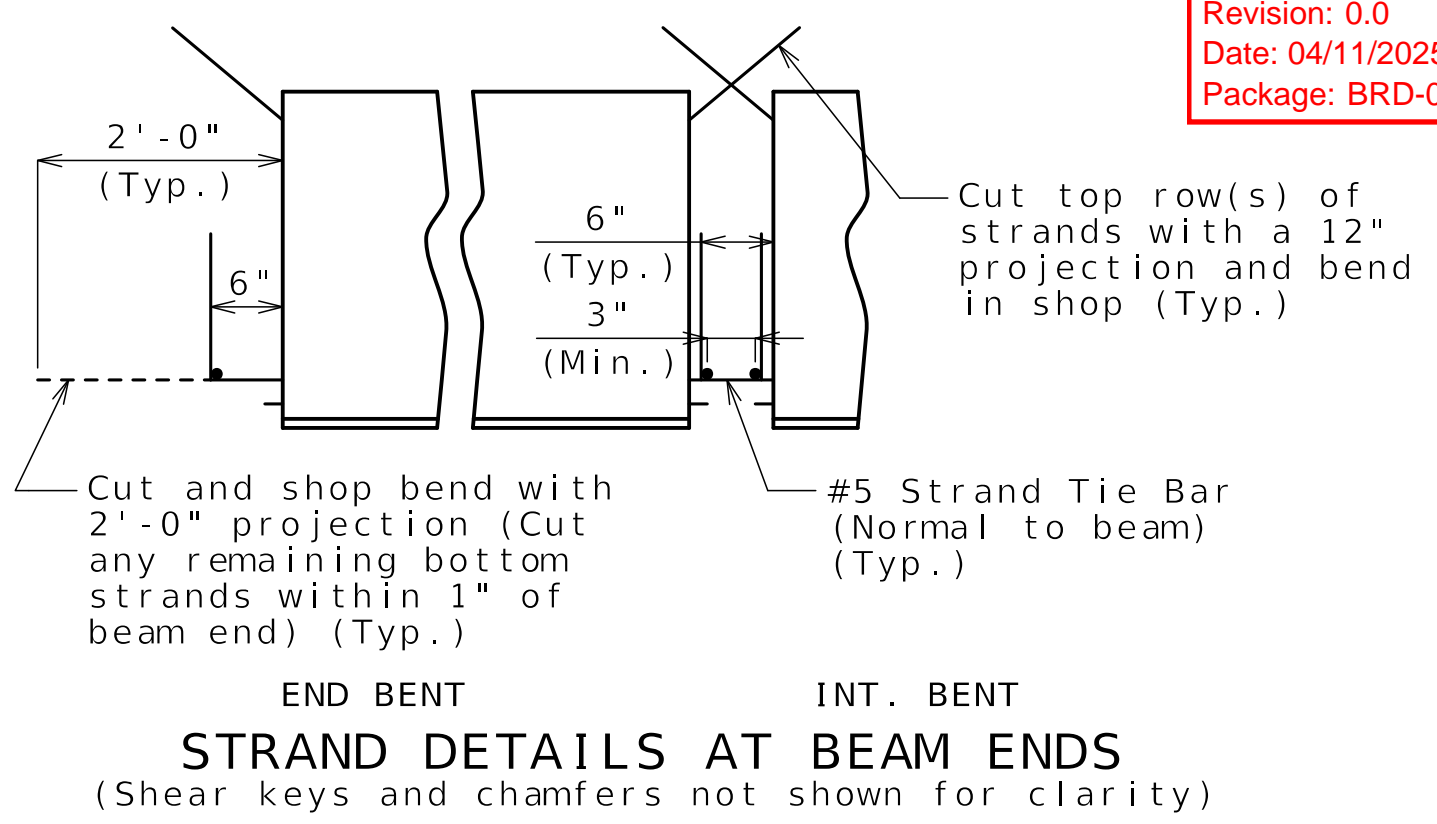
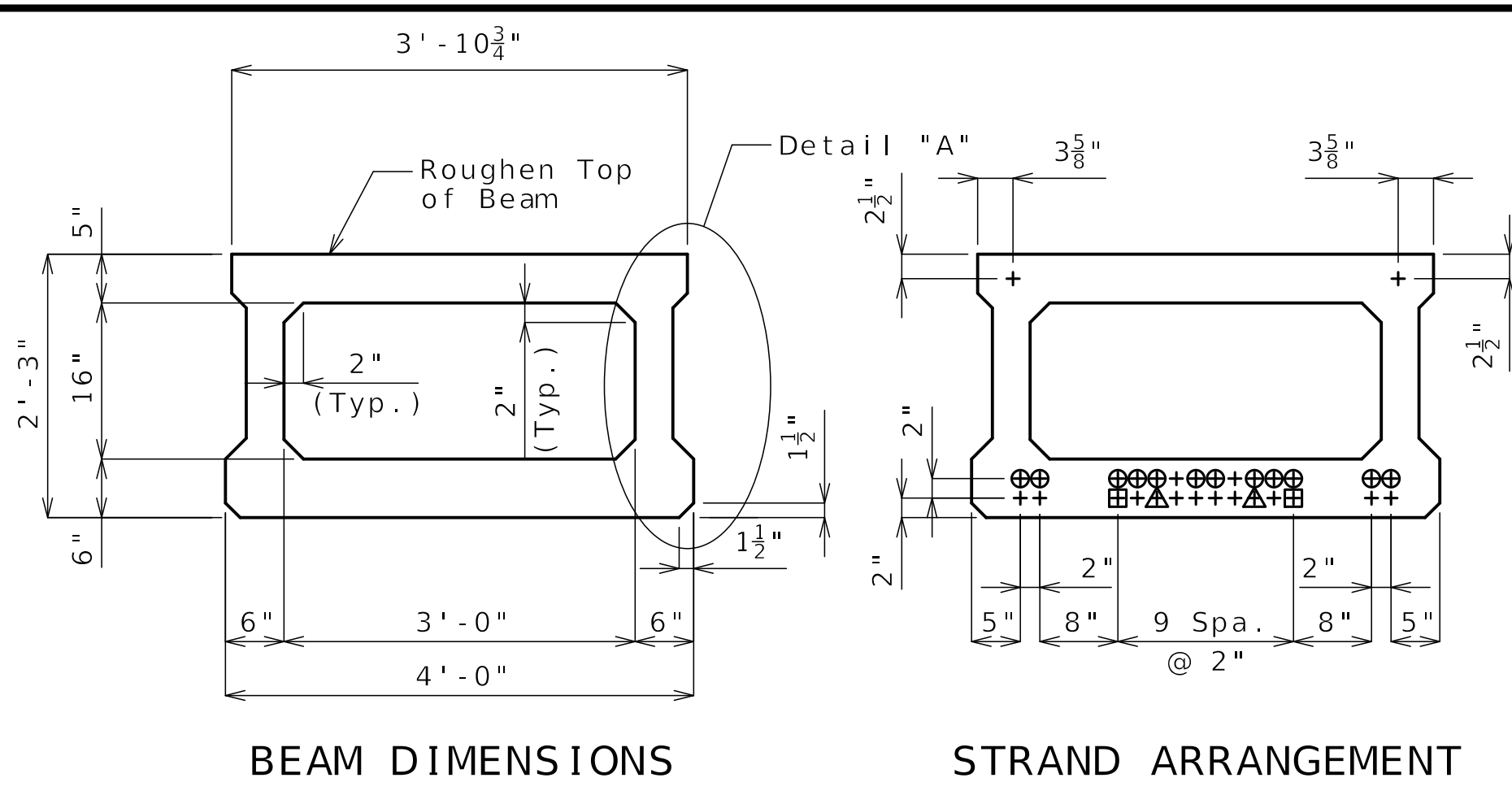
Notes:  
 Longitudinal dimensions are measured horizontally.  
 All bents are parallel.  
 (X) Denotes beam number.

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 Not to Scale  
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 Date: 04/11/2025  
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FRAMING PLAN



**Released For Construction**  
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 Date: 04/11/2025  
 Package: BRD-02-23rd\_ST

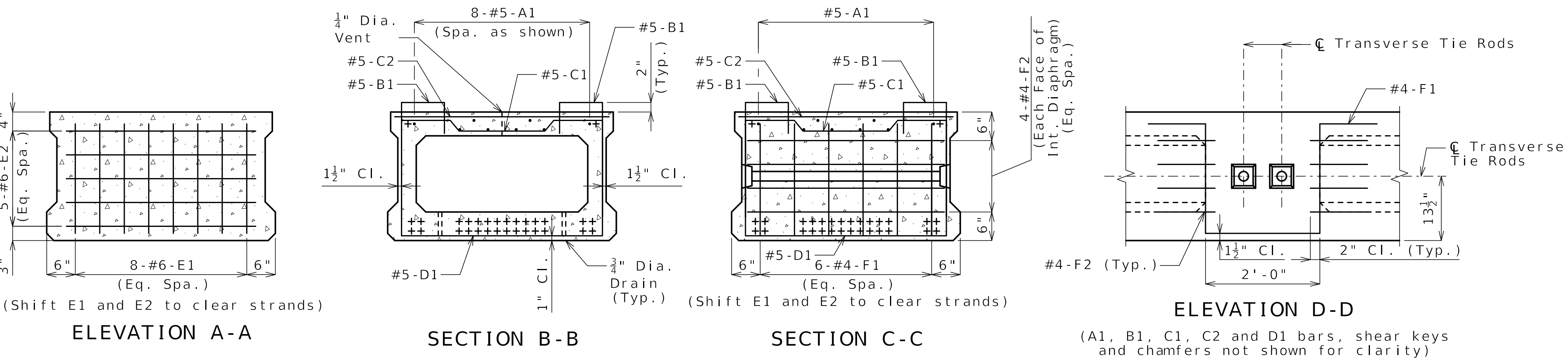


All strands are fully bonded unless otherwise noted.  
 + Indicates prestressing strand.  
 O Indicates cut and shop bend with 2'-0" projection.  
 □ Indicates debonded for 5'-0" from end of beam.  
 △ Indicates debonded for 2'-0" from end of beam.

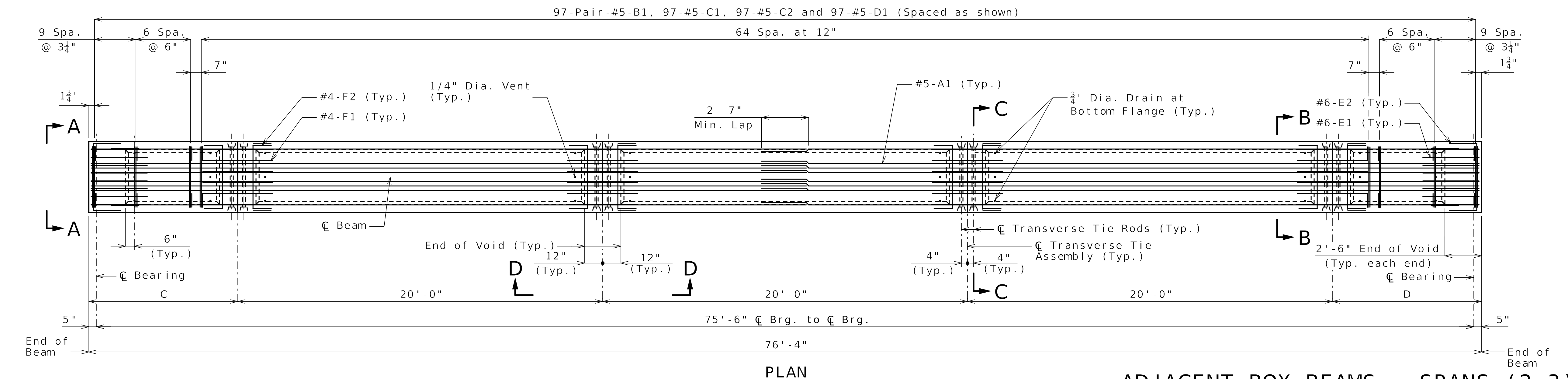
**General Notes:**  
 Concrete for prestressed beams shall be Class A-1 with  $f'_c = 10,000$  psi and  $f'_{ci} = 7,500$  psi.  
 Use 30 strands, 0.6"Ø Grade 270, with an initial prestress force of 1318 kips.  
 Pretensioned members shall be in accordance with Sec 1029. Fabricator shall be responsible for location and design of lifting devices.  
 For Detail "A" & Additional Beam Details, see Sheets No. B02-18 and B02-19.  
 For Beam Camber Diagram, see Sheet No. B02-21.  
 For dimensions C and D, see Sheet No. B02-15.

**BILL OF REINFORCING STEEL EACH BEAM**

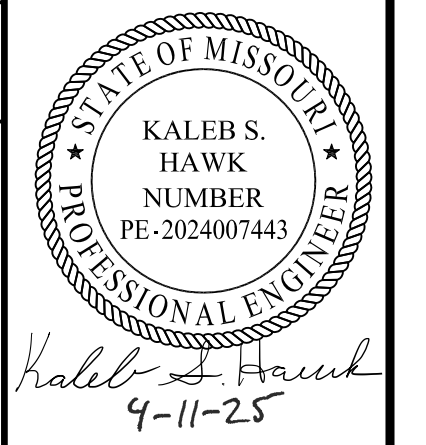
NO.	SIZE & MARK	ACTUAL LENGTH
16	5 A1	39'-6"
194	5 B1	3'-0"
97	5 C1	7'-1"
97	5 C2	3'-8"
97	5 D1	7'-0"
16	6 E1	7'-8"
10	6 E2	7'-0"
24	4 F1	7'-3"
32	4 F2	5'-3"



Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.  
 Actual lengths are measured along centerline of bar to the nearest inch.  
 Minimum clearance to reinforcing shall be to one inch, unless otherwise shown.  
 All reinforcement shall be Grade 60.  
 All B1 bars shall be epoxy coated.



**ADJACENT BOX BEAMS - SPANS (2-3)**



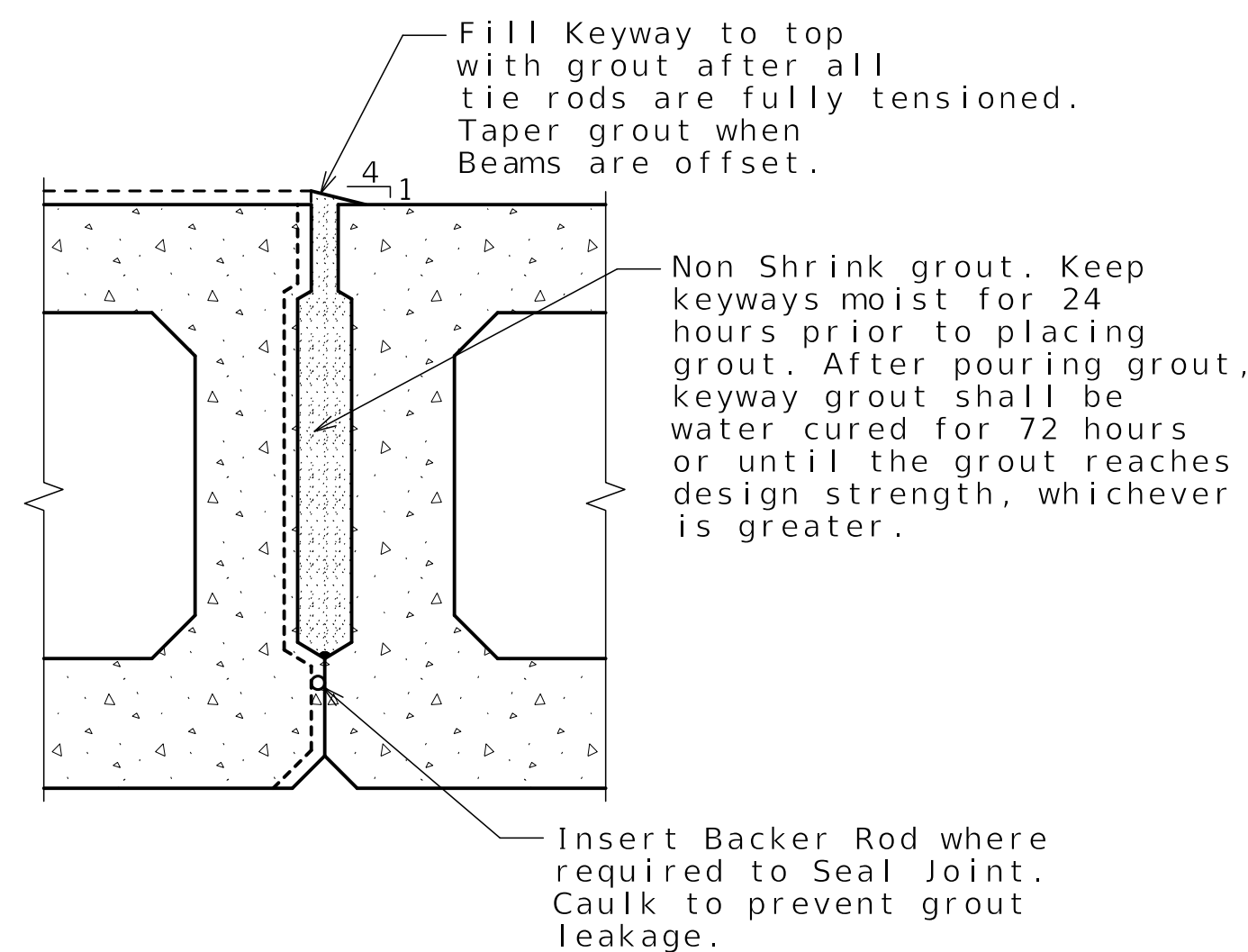
DATE PREPARED: 04/11/2025  
 ROUTE: 1-70  
 DISTRICT: BR  
 COUNTY: JACKSON  
 JOB NO.: J411486D  
 CONTRACT ID.: 240807-C01  
 PROJECT NO.:

BRIDGE NO.: A9628

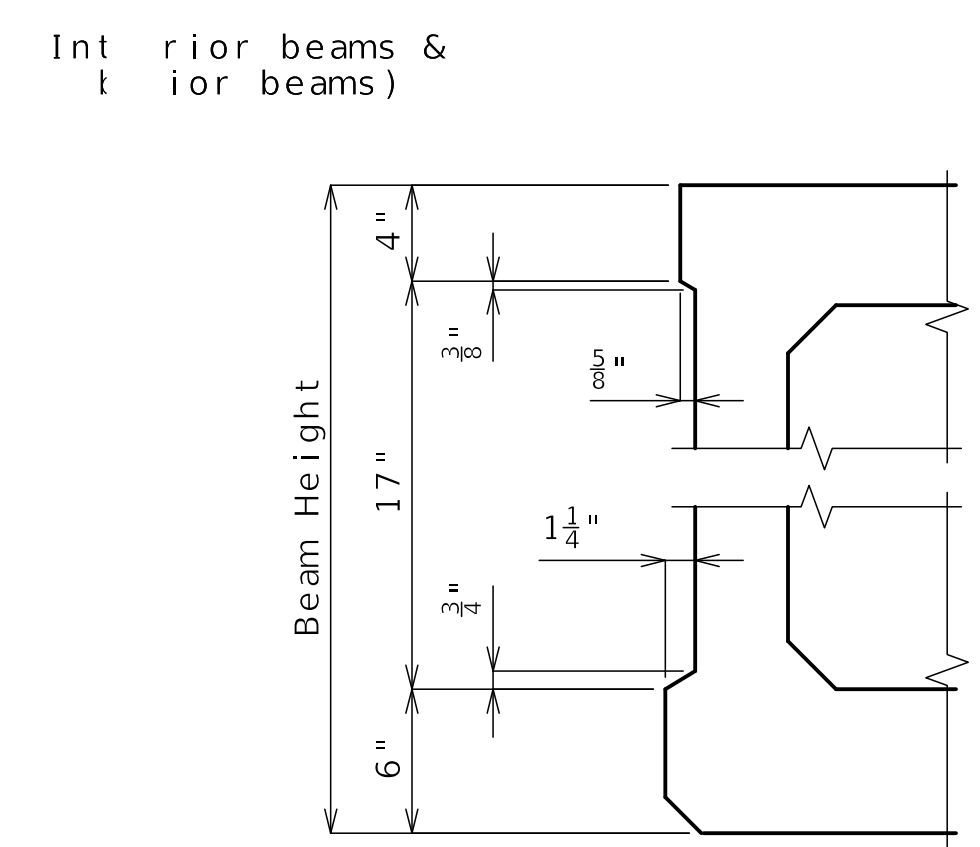
DATE	DESCRIPTION
04/11/25 <td>REV 0 - RFC SUBMITTAL</td>	REV 0 - RFC SUBMITTAL

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

**CLARKSON RADMACHER**  
 JOINT VENTURE  
 715 KIRK DRIVE KANSAS CITY, MO 64105-1310  
 CERTIFICATE OF AUTHORITY NO. 001270  
**HNTB**

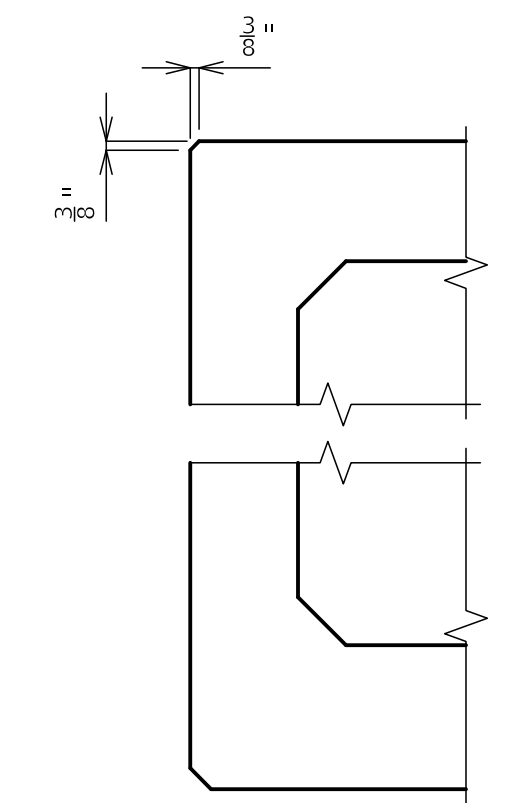


KEYWAY GROUT DETAIL

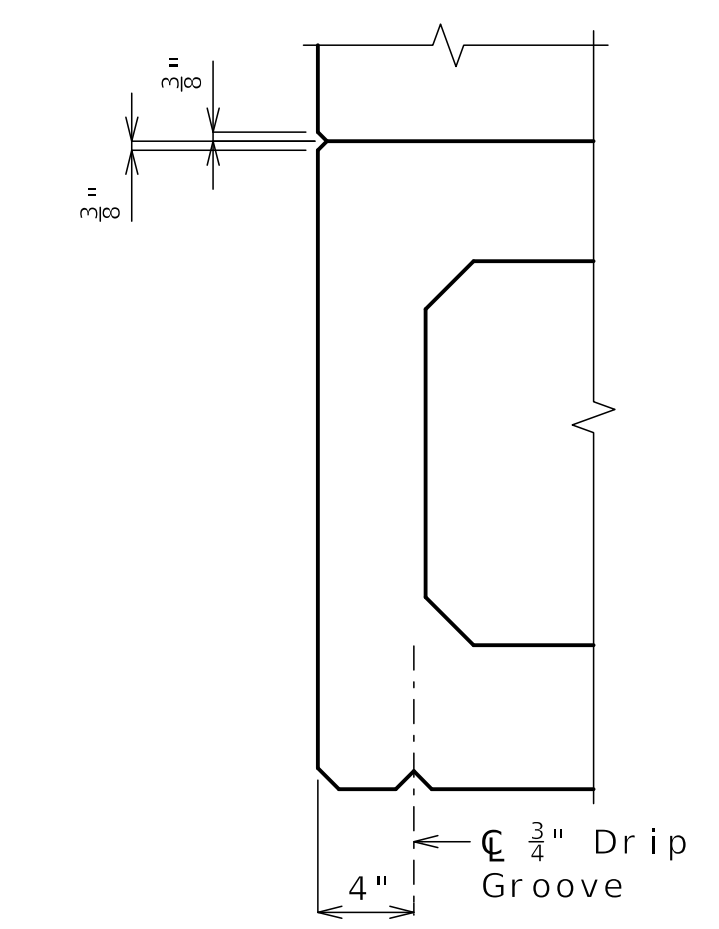


Interior face of exterior beams & both faces of interior beams)

DETAIL A



(Exterior face of exterior beams)

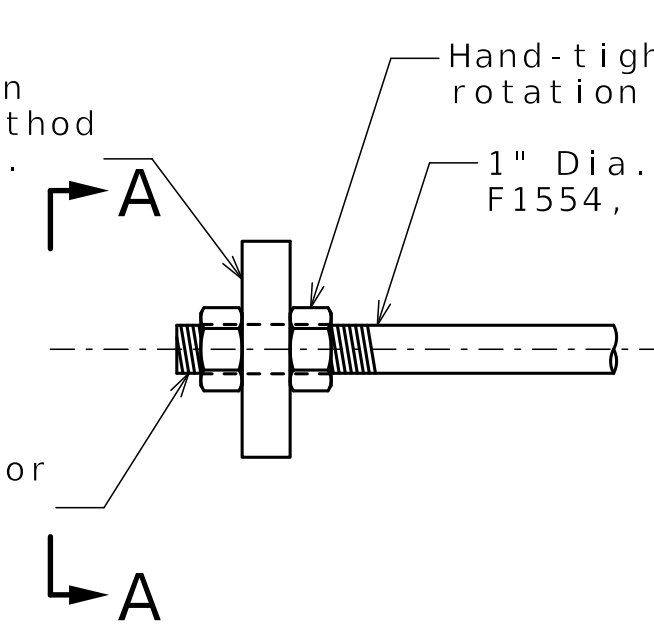


CHAMFER & DRIP BEVEL AT EXTERIOR FACE OF EXTERIOR BEAM

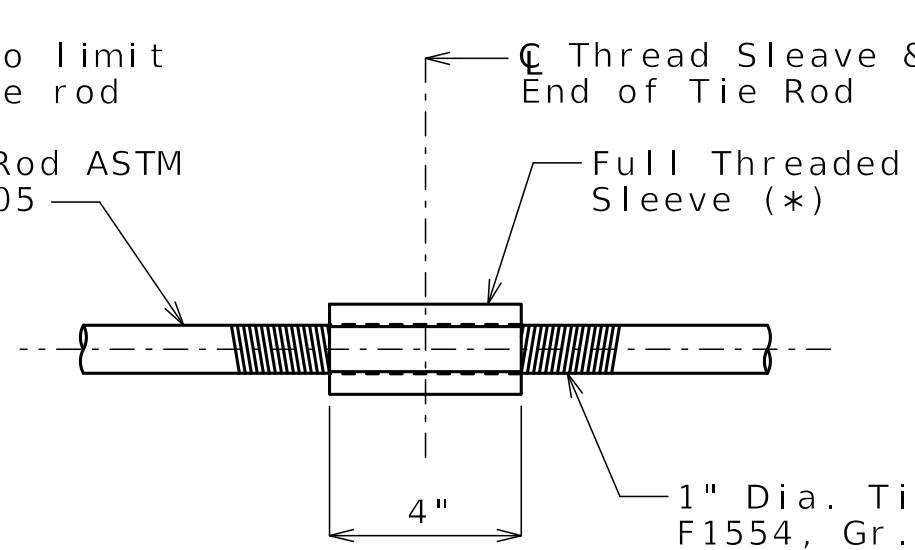
**TURN OF THE NUT REQUIREMENTS**

Beam No. 1 thru 17 - 2.25 Turn  
 Notes: From snug tight condition. 1" Dia. bolt threaded at 8 threads per inch. Pretension = 55 Kips

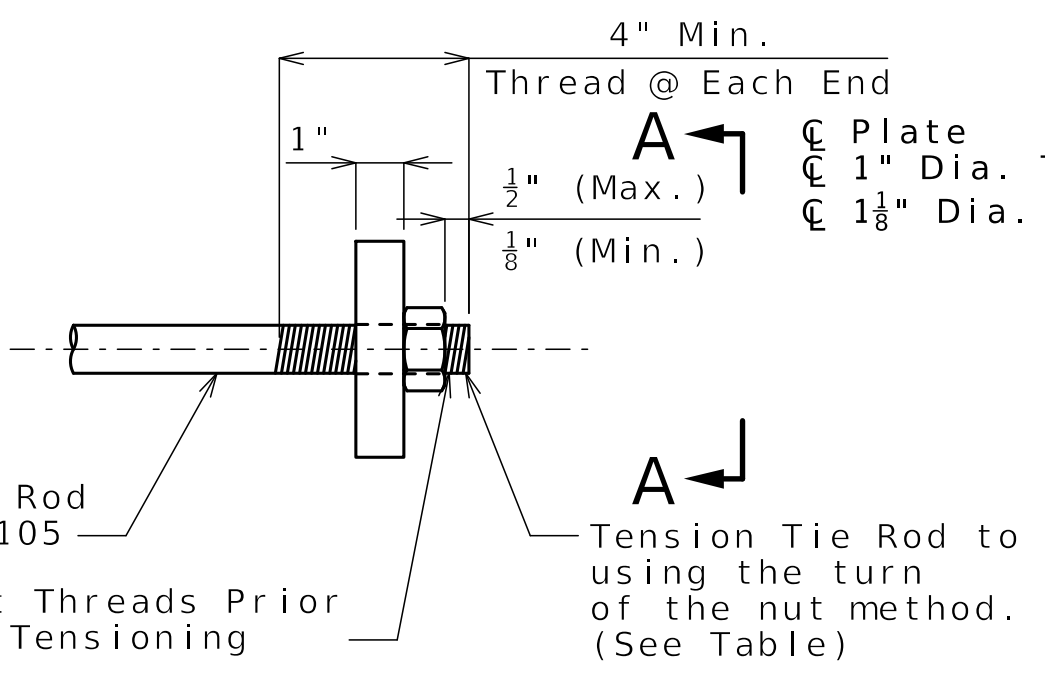
Use load indication washer for calibration of turn of the nut method of first set of Beams.



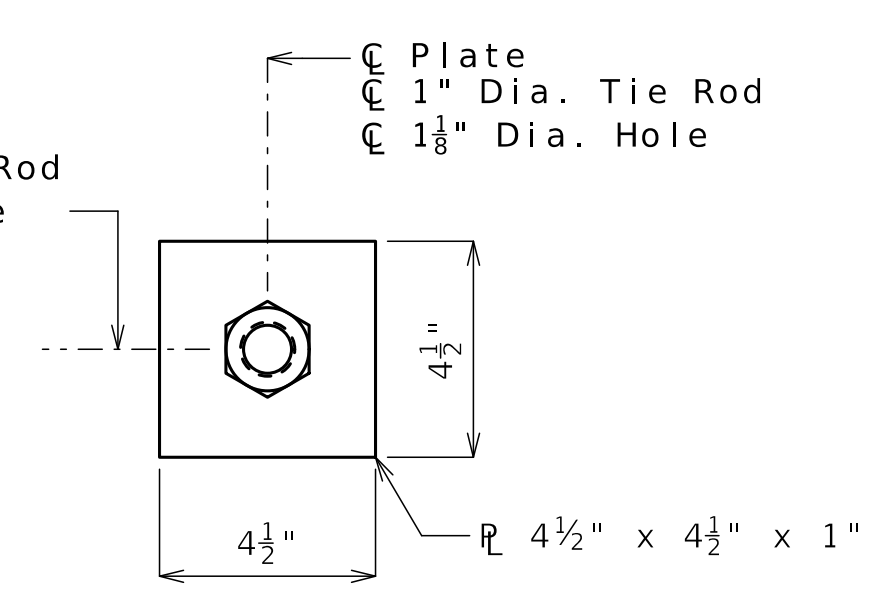
ANCHOR END



THREAD SLEEVE



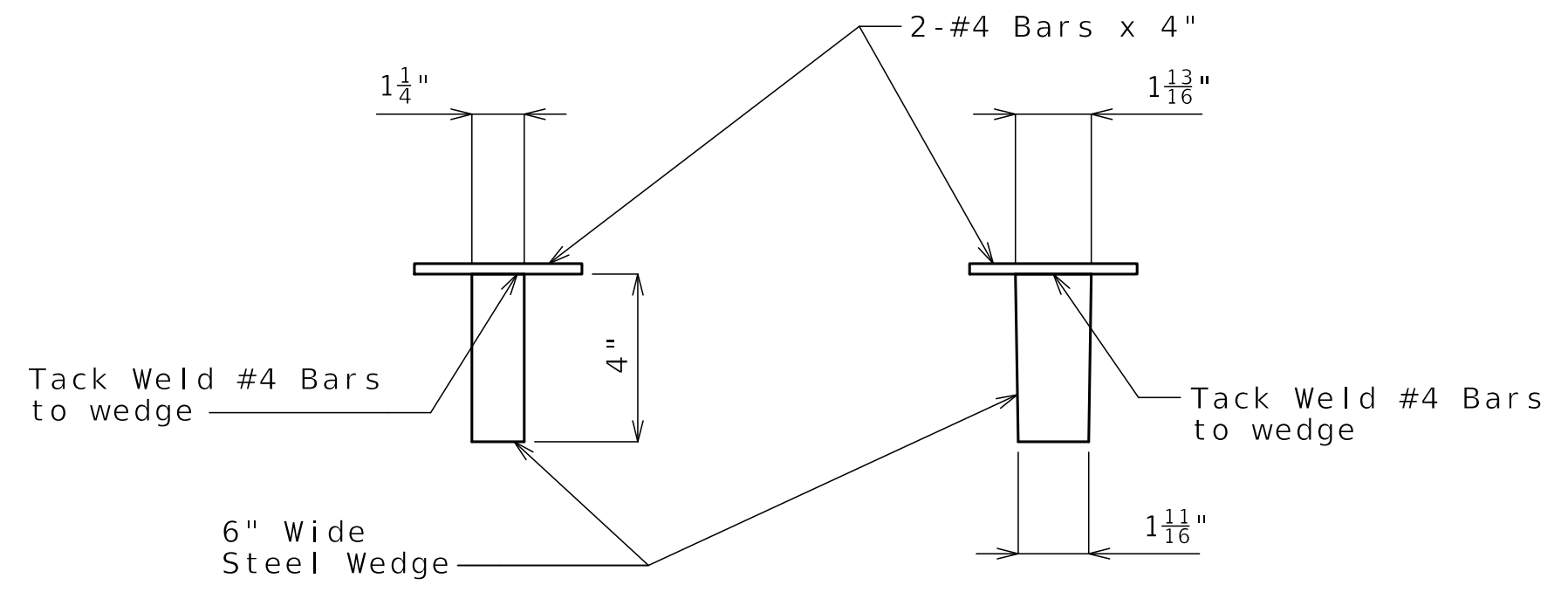
TENSIONING END



VIEW A-A

**TIE ROD & BEARING PLATE DETAILS**

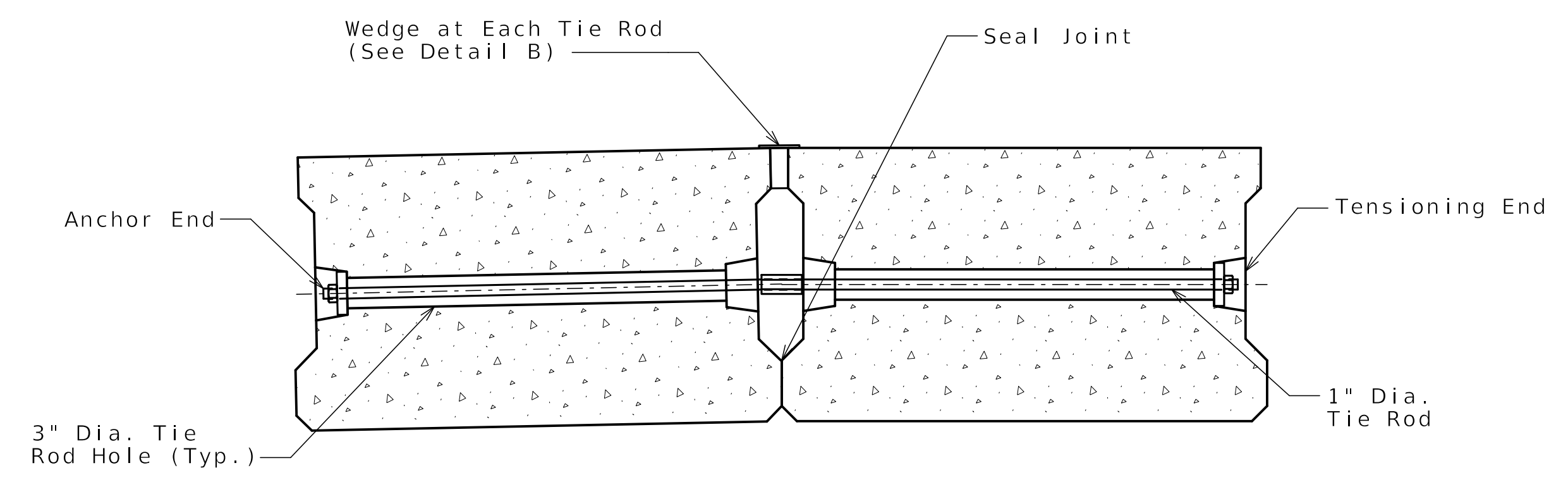
\* Full Threaded Sleeve axial capacity shall exceed capacity of tie rod.



TYPICAL WEDGE BEVELED WEDGE\*\*

DETAIL B

\*\*Beveled wedge required between beams at substructure slope breaks (Beam No. 8, 9 and 10)

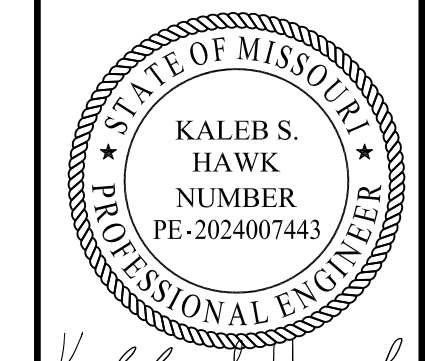


TYPICAL DETAIL FOR INSTALLING WEDGE

Note: Tighten tie rods until the bottom corners of the boxes are in contact. Loosen the tie rod and install the wedges per detail.

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 Not to Scale  
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 Date: 04/11/2025  
 Package: BRD-02-23rd\_ST

Notes:  
 Add steel wedge at each tie rod crossing tie rods. Hot-dip galvanize wedge and #4 bar assembly in accordance with ASTM A123 and Sec 1081.  
 Steel wedges shall be ASTM A709 Grade 36.



Kaleb S. Hawk  
 9-11-25

DATE PREPARED 04/11/2025	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B02-18
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO.  
A9628

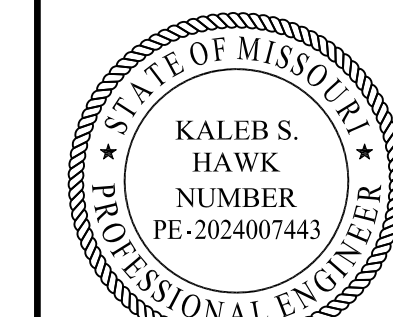
DATE	DESCRIPTION
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
 105 WEST CAPITOL JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

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



MISCELLANEOUS ADJACENT BOX BEAM DETAILS



Kaleb S. Hawk  
9-11-25

DATE PREPARED 04/11/2025	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B02-19
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

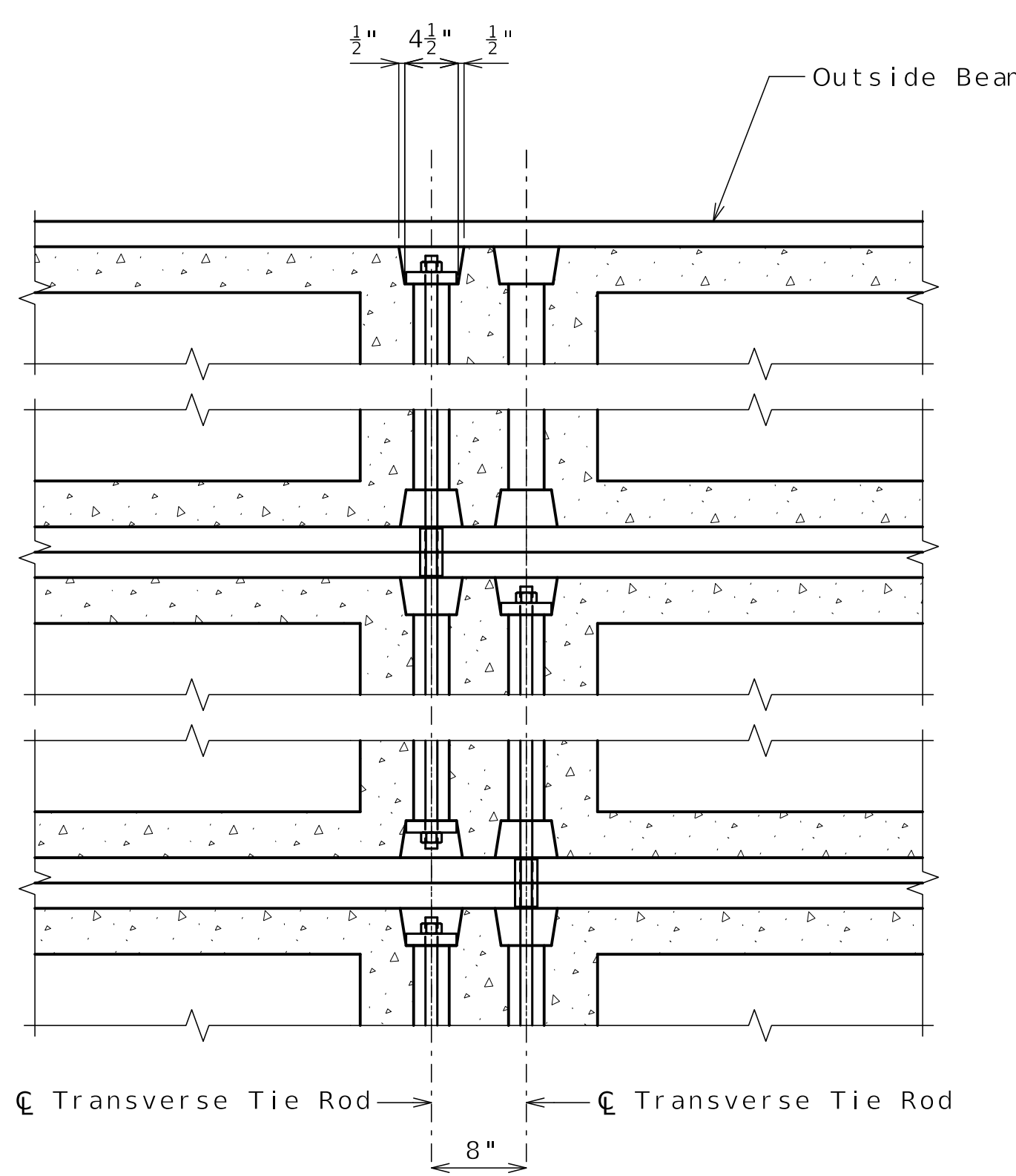
BRIDGE NO. A9628
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DATE	DESCRIPTION
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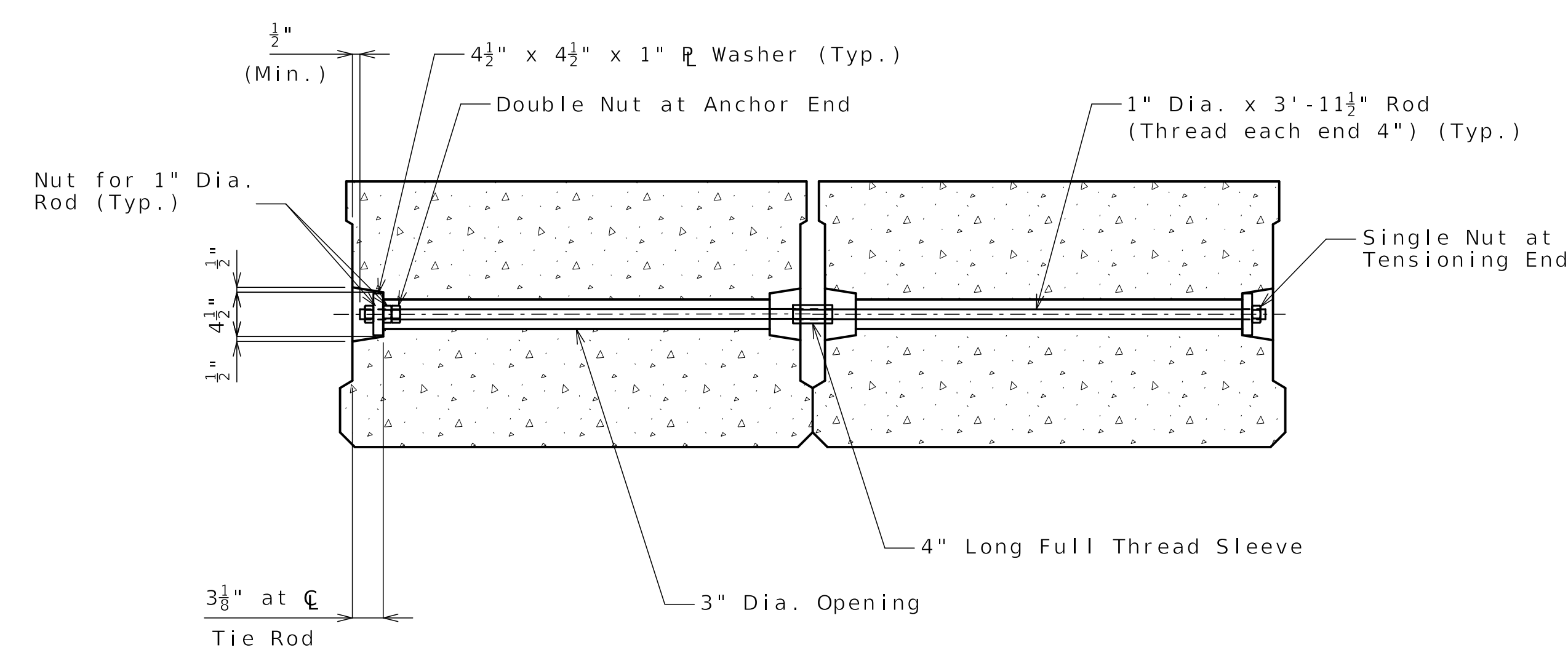
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
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 JEFFERSON CITY, MO 65102  
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CLARKSON  
 RADMACHER  
 JOINT VENTURE  
 715 KIRK DRIVE  
 KANSAS CITY, MO 64105-1310  
 CERTIFICATE OF AUTHORITY  
 NO. 001270

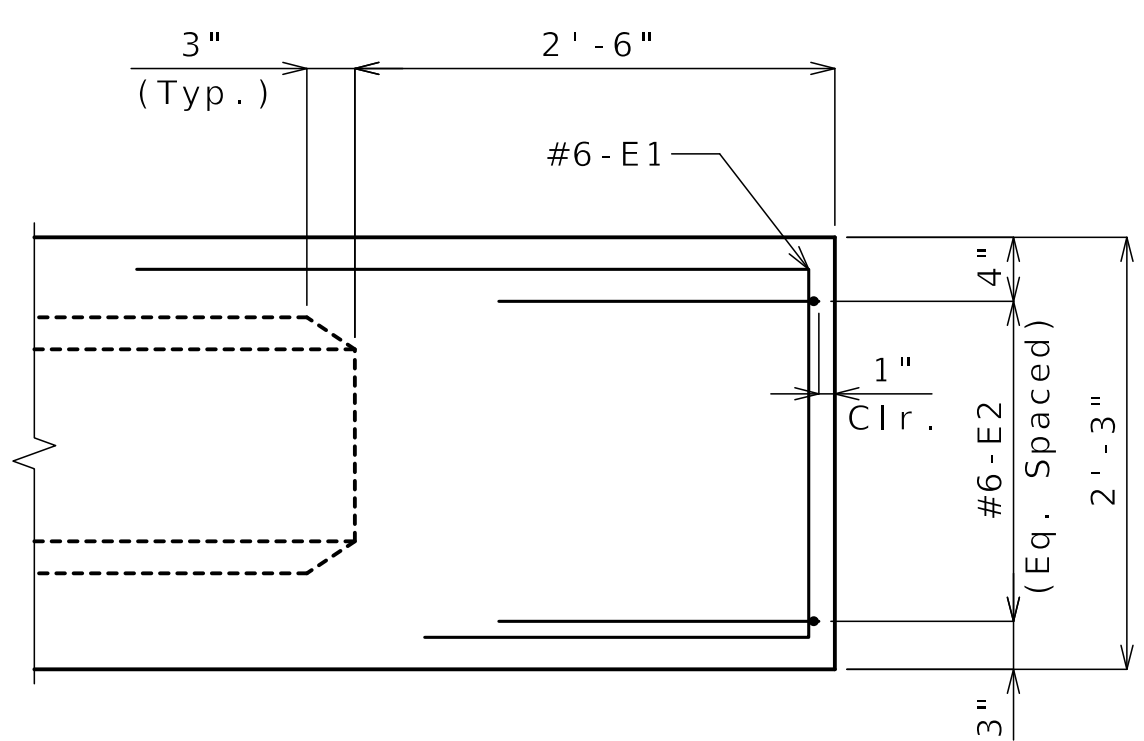


PART PLAN



PART SECTION

TYPICAL TRANSVERSE TIE ASSEMBLY  
 (Reinforcement & Strands not shown for clarity)



TYPICAL END ELEVATION  
 (Stirrups, long. reinforcement, strands, chamfers & shear keys not shown for clarity)

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 Date: 04/11/2025  
 Package: BRD-02-23rd\_ST

Notes:  
 The 1" Dia. rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place.

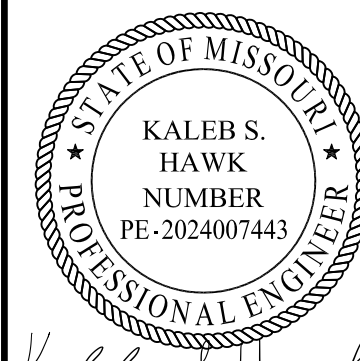
Keyway surface shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between top of the beam and the bottom edge of the key.

Use high strength tie rods that conform to ASTM F1554 Grade 105. Use heavy hexagon nuts that conform to ASTM A563. Hot-dip galvanize tie rods, plates, nuts and washers after fabrication. Tighten tie rods to a minimum tension of 30 kips using turn of the nut method.

Use mechanically galvanized load indication washers conforming to ASTM F959 when tensioning the tie rods on the first pair (8 & 9) of Beams to calibrate the turn of the nut method. The load indication washers shall be placed on the anchor end, not the tensioning end.

Tighten all tie rods (per box) to about one half of the specified tension before proceeding with the final tensioning.

MISCELLANEOUS ADJACENT BOX BEAM DETAILS



Kaleb S. Hawk  
9-11-25

DATE PREPARED  
04/11/2025

ROUTE STATE  
I-70 MO

DISTRICT SHEET NO.  
BR B02-20

COUNTY  
JACKSON

JOB NO.  
J411486D

CONTRACT ID.  
240807-C01

PROJECT NO.

BRIDGE NO.  
A9628

DESCRIPTION

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DATE

04/11/25

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105 WEST CAPITOL JEFFERSON CITY, MO 65102

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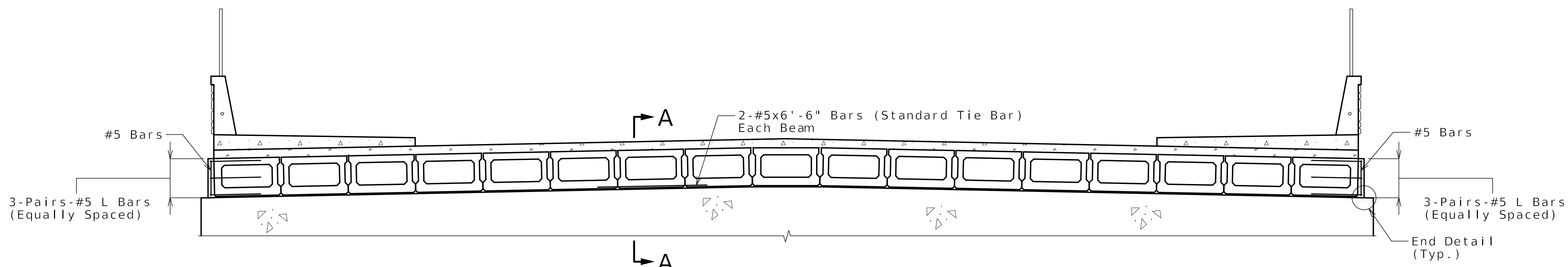
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CLARKSON RADMACHER JOINT VENTURE

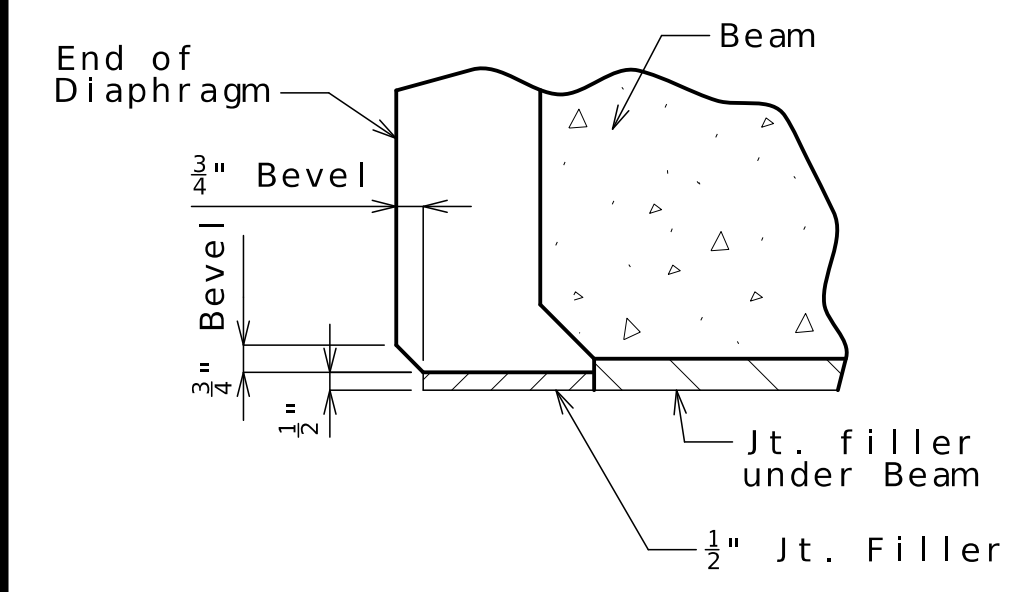
715 KIRK DRIVE KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY NO. 001270

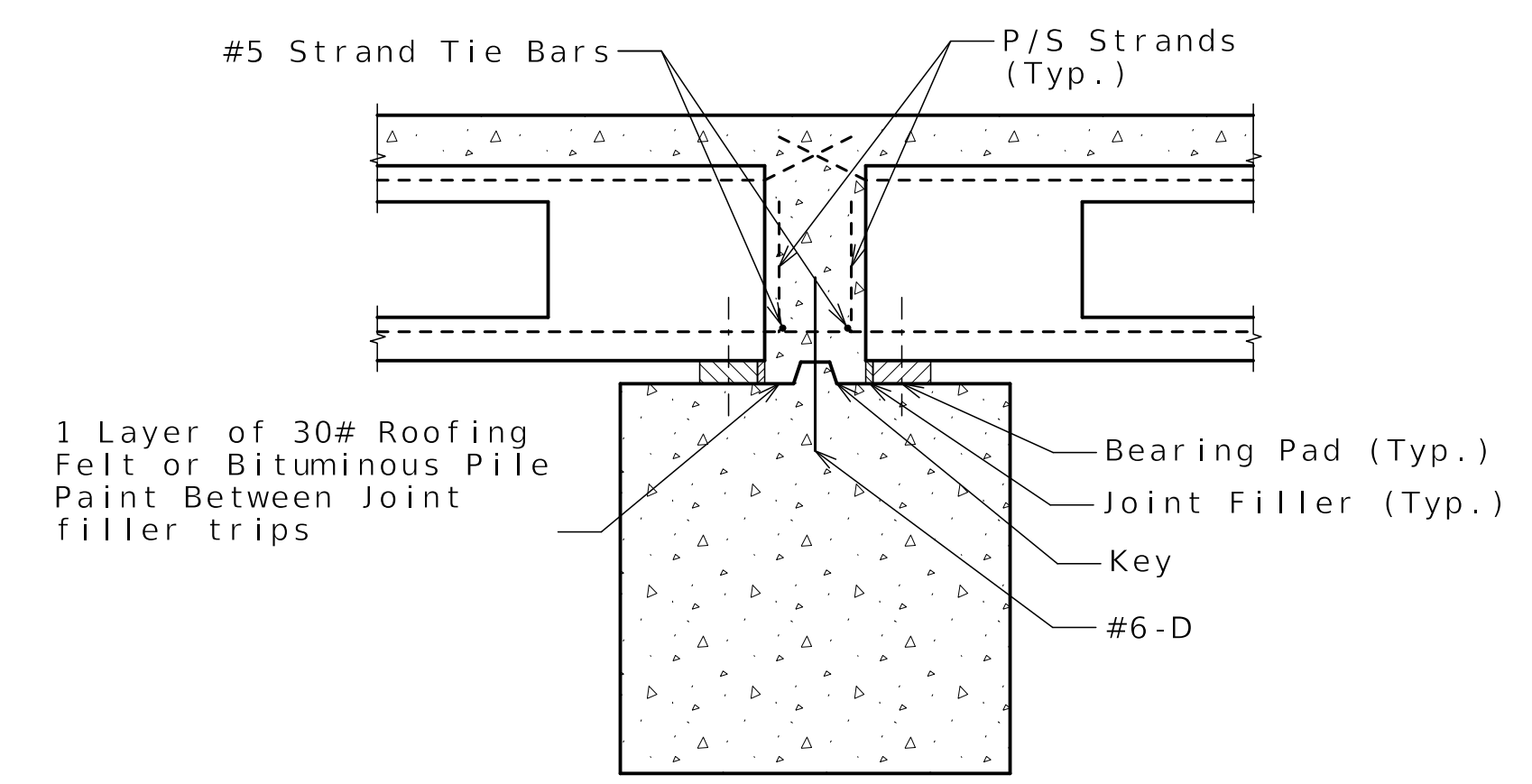
HNTB



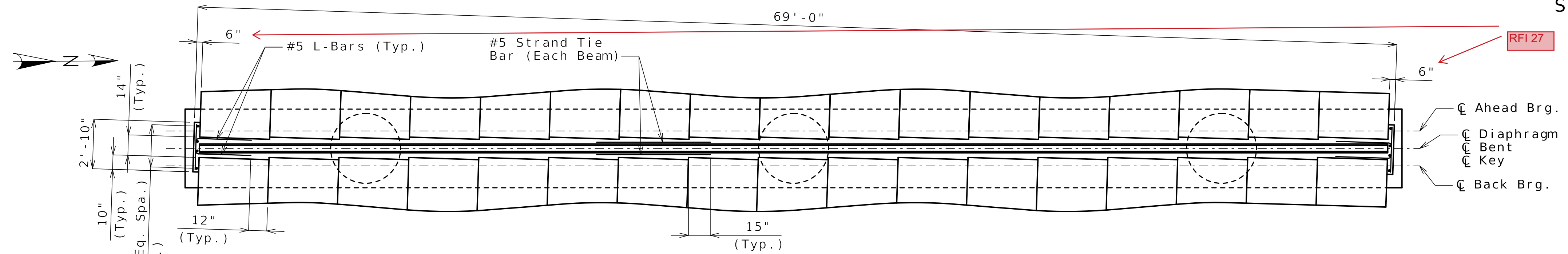
ELEVATION THRU INT. BENT DIAPHRAGM  
(Reinforcement in Bent Cap & Columns not shown for clarity)



END DETAIL



SECTION A-A



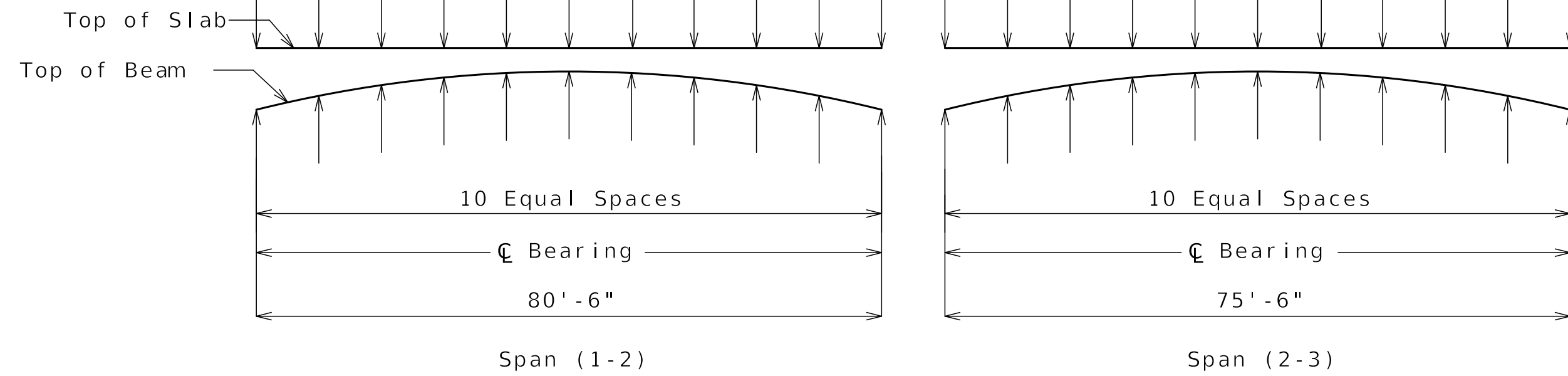
PLAN AT INT. BENT DIAPHRAGM

**Released For Construction**  
Not to Scale  
Revision: 0.0  
Date: 04/11/2025  
Package: BRD-02-23rd\_ST

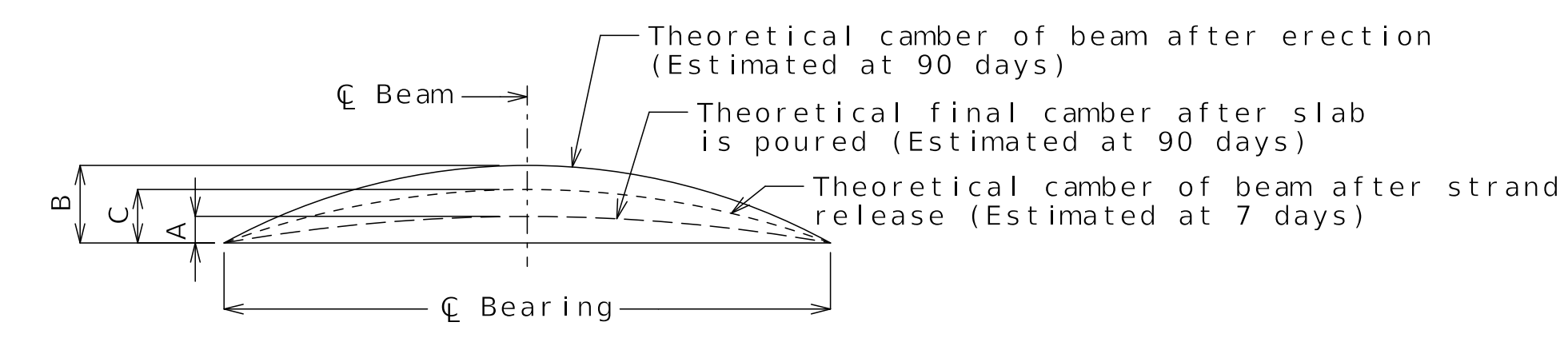
Notes:  
Reinforcing steel in the diaphragms shall be epoxy coated.  
Diaphragms shall be built vertical.  
For location of #5 Strand Tie Bars, see Sheets No. B02-16 and B02-17.  
For Bearing Details, see Sheet No. B02-10.  
For Cap beam, bearing location, dowel placement, shear key details, roofing felt details, joint filler details see Sheets No. B02-09 thru B02-11.

CONCRETE DIAPHRAGM AT INTERMEDIATE BENT NO. 2

Beam No. 1 thru 8	8 3/4"	9"	8 1/4"	8 1/4"	7 7/8"	7 3/4"	7 1/2"	7 1/4"	7 1/8"	7 1/8"	7 1/4"	7 1/2"	7 3/8"	7 3/8"	8"	8"	7 3/4"	8 1/8"	8 1/8"	8 1/4"	8 1/4"	8 3/8"	8 3/8"	8 1/2"	8 1/2"	8"	7 3/4"	7 1/2"	7 1/4"	7"
Beam No. 9	8 3/4"	9"	8 1/4"	8 1/4"	7 7/8"	7 3/4"	7 1/2"	7 1/4"	7 1/8"	7 1/8"	7 1/4"	7 1/2"	7 3/8"	7 3/8"	8"	8"	7 3/4"	8 1/8"	8 1/8"	8 1/4"	8 1/4"	8 3/8"	8 3/8"	8 1/2"	8 1/2"	8"	7 3/4"	7 1/2"	7 1/4"	7"
Beam No. 10 thru 17	8 3/4"	9"	8 1/4"	8 1/4"	7 7/8"	7 3/4"	7 1/2"	7 1/4"	7 1/8"	7 1/8"	7 1/4"	7 1/2"	7 3/8"	7 3/8"	8"	8"	7 3/4"	8 1/8"	8 1/8"	8 1/4"	8 1/4"	8 3/8"	8 3/8"	8 1/2"	8 1/2"	8"	7 3/4"	7 1/2"	7 1/4"	7"



**THEORETICAL CAST IN PLACE SLAB DIAGRAM**  
(Assumed Erection @ 90 Day Maturity)



Beam	Span (1-2)			Span (2-3)		
	A	B	C	A	B	C
1 thru 17	1 3/8"	2 3/4"	1 7/8"	1 3/4"	2 7/8"	1 7/8"

**BEAM CAMBER DIAGRAM**

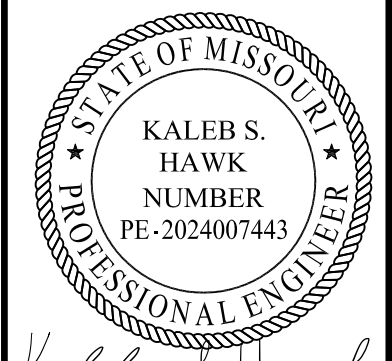
Conversion Factors for Beam Camber (Estimated at 90 days)

- 0.1 pt. = 0.314 x 0.5 pt.
- 0.2 pt. = 0.593 x 0.5 pt.
- 0.3 pt. = 0.813 x 0.5 pt.
- 0.4 pt. = 0.952 x 0.5 pt.

Note: If Beam camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, adjustment of the slab haunches, or a raise in grade uniformly throughout the structure shall be necessary.

**CAMBER DIAGRAM & THEORETICAL CAST IN PLACE SLAB DIAGRAM**

Released For Construction  
Not to Scale  
Revision: 0.0  
Date: 04/11/2025  
Package: BRD-02-23rd\_ST



Kaleb S. Hawk  
4-11-25

DATE PREPARED 04/11/2025	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B02-21
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO.  
A9628

DATE	DESCRIPTION
04/11/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

**CLARKSON RADMACHER**  
JOINT VENTURE

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

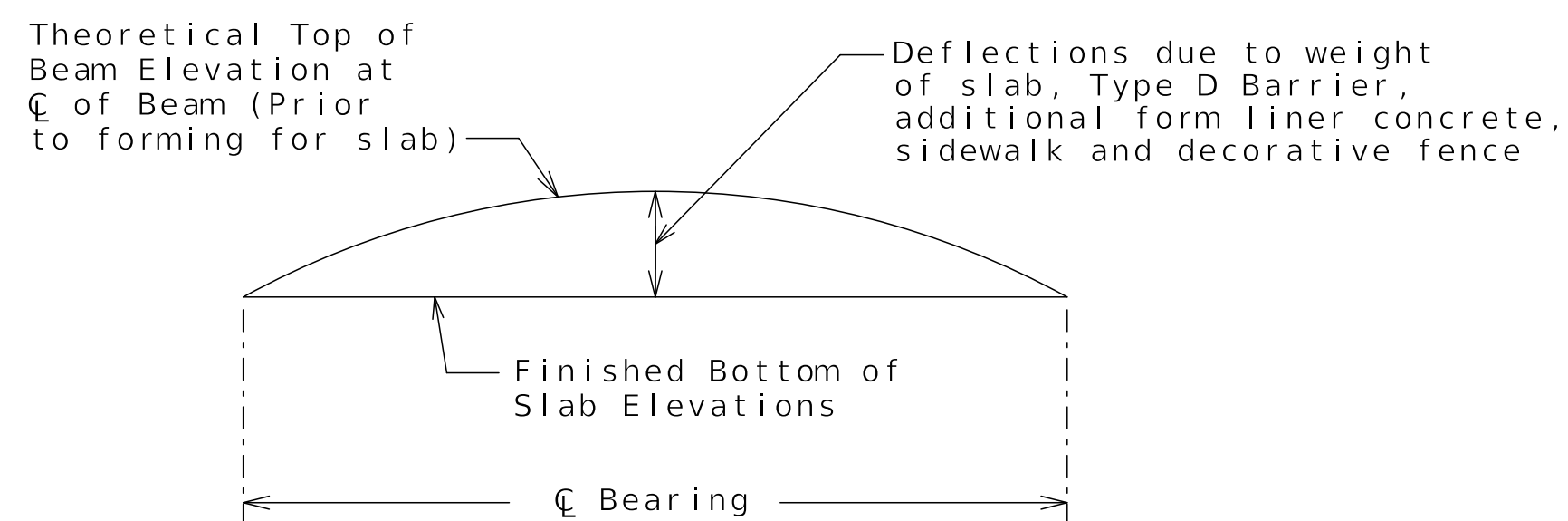
Theoretical Top of Beam Elevations at Centerline of Beam  
(Prior to forming for slab)\*\*

Beam Number	Span (1-2) (80'-6" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	885.59	885.58	885.56	885.53	885.48	885.41	885.31	885.20	885.06	884.92	884.76
2	885.66	885.65	885.64	885.61	885.56	885.48	885.39	885.28	885.14	885.00	884.84
3	885.74	885.73	885.72	885.68	885.63	885.56	885.47	885.35	885.22	885.07	884.92
4	885.82	885.81	885.79	885.76	885.71	885.64	885.55	885.43	885.30	885.15	885.00
5	885.90	885.89	885.87	885.84	885.79	885.72	885.63	885.51	885.38	885.23	885.08
6	885.98	885.97	885.95	885.92	885.87	885.80	885.71	885.59	885.46	885.31	885.16
7	886.06	886.05	886.03	886.00	885.95	885.88	885.78	885.67	885.54	885.39	885.23
8	886.14	886.13	886.11	886.08	886.03	885.96	885.86	885.75	885.62	885.47	885.31
9	886.17	886.16	886.15	886.11	886.06	885.99	885.90	885.78	885.65	885.50	885.35
10	886.13	886.12	886.11	886.07	886.02	885.95	885.86	885.75	885.61	885.47	885.31
11	886.05	886.04	886.02	885.99	885.94	885.87	885.78	885.66	885.53	885.38	885.23
12	885.97	885.96	885.94	885.91	885.86	885.79	885.70	885.58	885.45	885.30	885.15
13	885.89	885.88	885.86	885.83	885.78	885.71	885.62	885.50	885.37	885.22	885.07
14	885.81	885.80	885.78	885.75	885.70	885.63	885.53	885.42	885.29	885.14	884.98
15	885.73	885.72	885.70	885.67	885.62	885.55	885.45	885.34	885.21	885.06	884.90
16	885.65	885.64	885.62	885.59	885.54	885.46	885.37	885.26	885.12	884.98	884.82
17	885.56	885.55	885.54	885.50	885.45	885.38	885.29	885.18	885.04	884.90	884.74

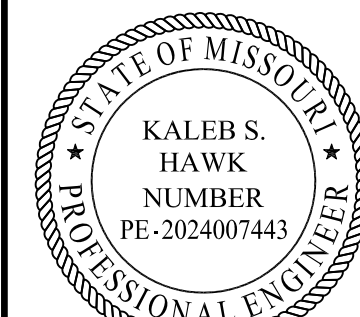
Beam Number	Span (2-3) (75'-6" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	884.76	884.67	884.58	884.47	884.34	884.19	884.01	883.82	883.61	883.38	883.14
2	884.84	884.75	884.66	884.54	884.42	884.26	884.09	883.90	883.68	883.45	883.22
3	884.92	884.83	884.73	884.62	884.49	884.34	884.17	883.97	883.76	883.53	883.29
4	885.00	884.91	884.81	884.70	884.57	884.42	884.24	884.05	883.83	883.61	883.37
5	885.08	884.99	884.89	884.78	884.65	884.50	884.32	884.13	883.91	883.68	883.44
6	885.15	885.07	884.97	884.86	884.73	884.57	884.40	884.20	883.99	883.76	883.52
7	885.23	885.14	885.05	884.93	884.80	884.65	884.48	884.28	884.06	883.83	883.60
8	885.31	885.22	885.12	885.01	884.88	884.73	884.55	884.36	884.14	883.91	883.67
9	885.35	885.26	885.16	885.05	884.92	884.76	884.59	884.39	884.17	883.94	883.71
10	885.31	885.22	885.12	885.01	884.88	884.72	884.55	884.35	884.13	883.90	883.66
11	885.23	885.14	885.04	884.92	884.79	884.64	884.46	884.27	884.05	883.82	883.58
12	885.15	885.06	884.96	884.84	884.71	884.56	884.38	884.18	883.96	883.73	883.49
13	885.06	884.97	884.87	884.76	884.63	884.47	884.30	884.10	883.88	883.65	883.41
14	884.98	884.89	884.79	884.68	884.54	884.39	884.21	884.01	883.80	883.57	883.33
15	884.90	884.81	884.71	884.60	884.46	884.31	884.13	883.93	883.71	883.48	883.24
16	884.82	884.73	884.63	884.51	884.38	884.22	884.05	883.85	883.63	883.40	883.16
17	884.74	884.65	884.55	884.43	884.30	884.14	883.96	883.76	883.55	883.31	883.07

\*\*Elevations are based on theoretical cast-in-place slab thickness and include allowance for theoretical dead load deflections due to weight of slab (including Type D Barrier, additional form liner concrete, sidewalk and decorative pedestrian fence).



TYPICAL SLAB ELEVATIONS DIAGRAM

Released For Construction  
Not to Scale  
Revision: 0.0  
Date: 04/11/2025  
Package: BRD-02-23rd\_ST



Kaleb S. Hawk  
9-11-25

DATE PREPARED  
04/11/2025

ROUTE STATE  
I-70 MO

DISTRICT SHEET NO.  
BR B02-22

COUNTY  
JACKSON

JOB NO.  
J411486D

CONTRACT ID.  
240807-C01

PROJECT NO.

BRIDGE NO.  
A9628

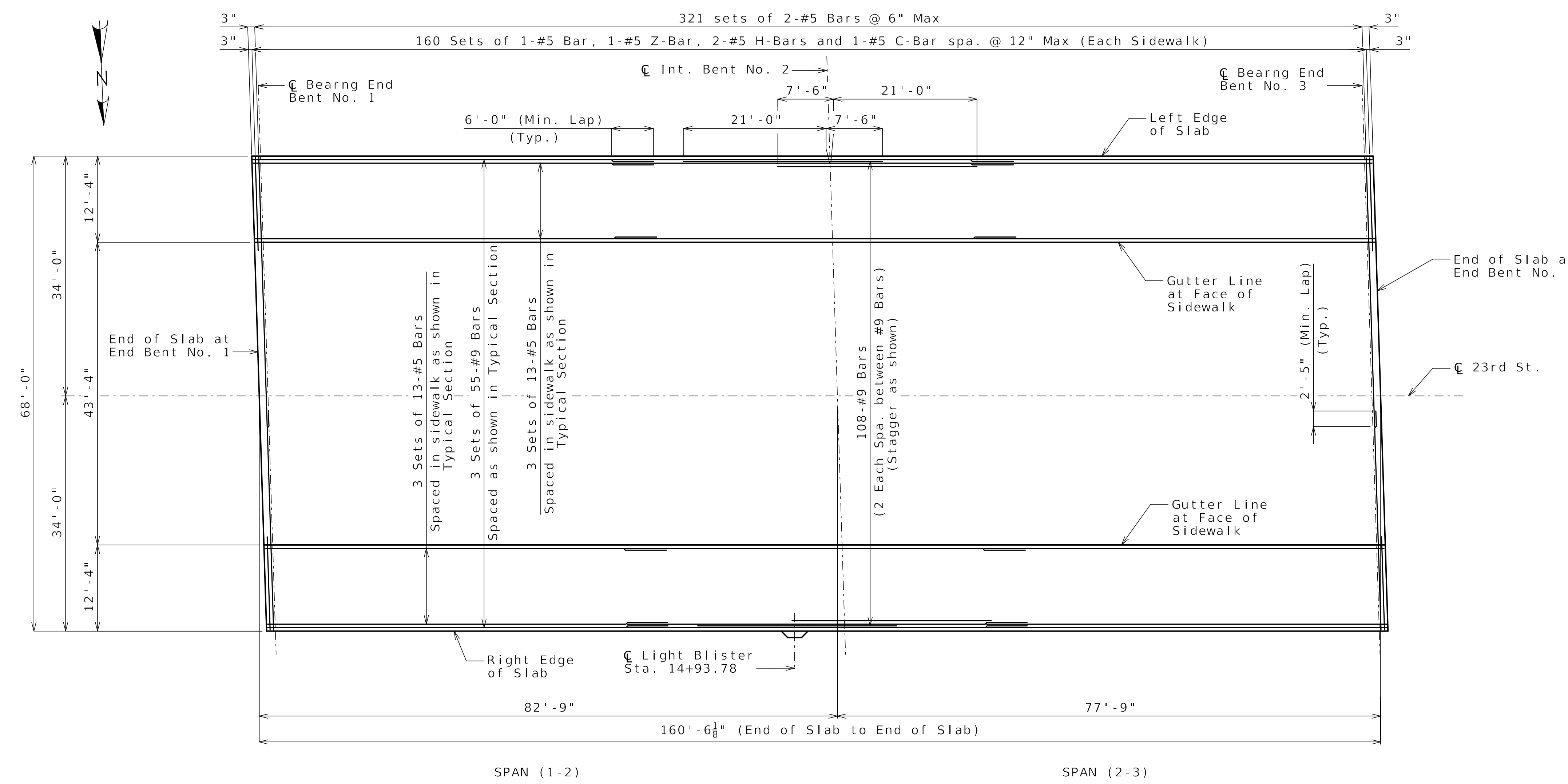
DATE	DESCRIPTION
04/11/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

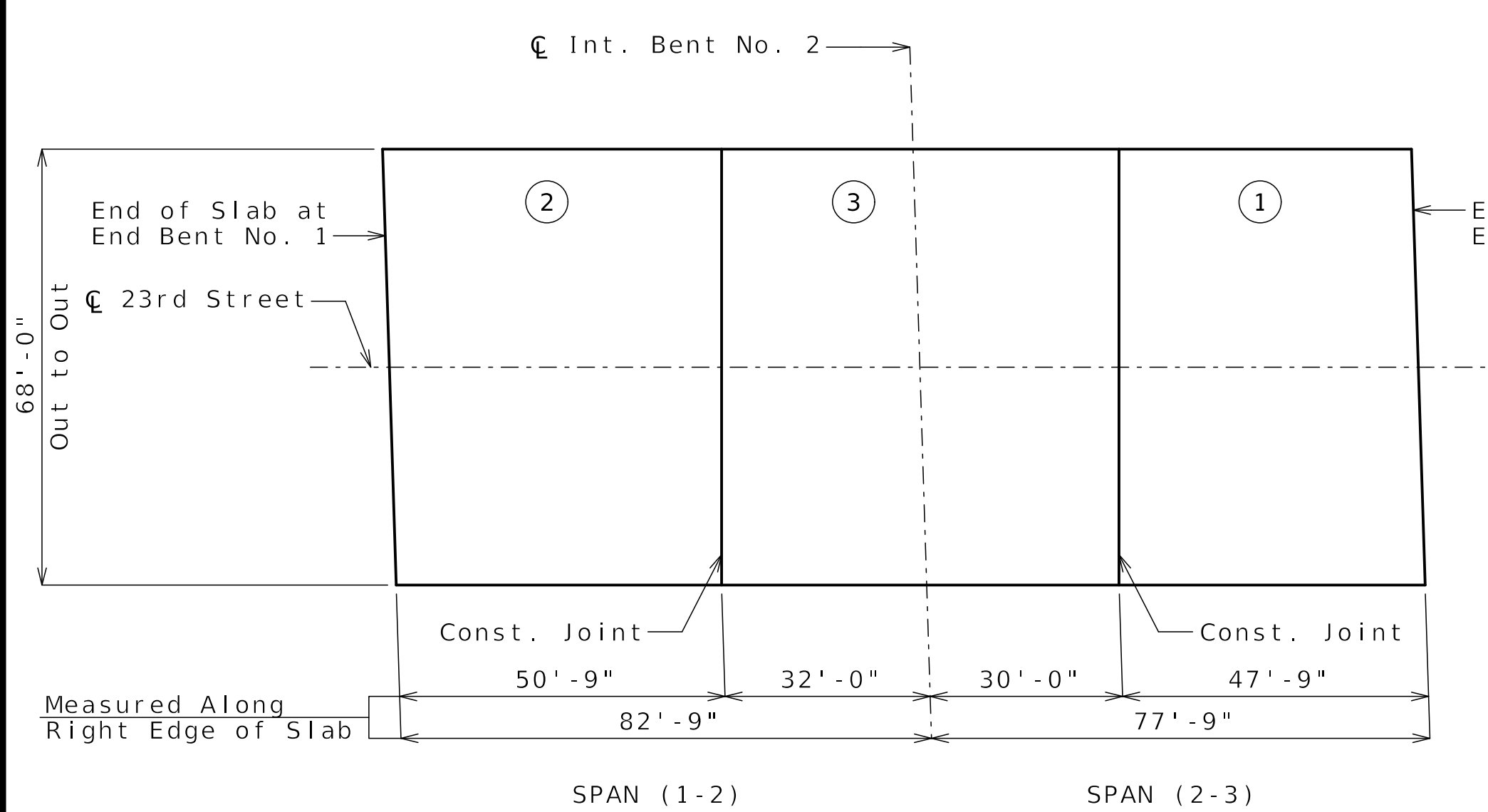
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

CLARKSON RADMACHER JOINT VENTURE

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



PLAN



	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr. With Retarder
	Direction			
Basic Sequence	1	3	2	25
	End to 3	1 to 2	3 to End	
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1	3 + 2		42
	End to 3	1 to End		
Alternate B Pours	1 + 3 + 2			42
	End to End			

The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

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

SLAB POURING SEQUENCE

Notes:  
 For Typical Section, see Sheet No. B02-24.  
 For Details and Reinforcement of Type D Barrier, see Sheet No. B02-25.  
 For Theoretical Cast in Place Slab Diagram and Beam Camber Diagram, see Sheet No. B02-21.  
 For Theoretical Top of Beam Elevations at Centerline of Beam, see Sheet B02-22.  
 Longitudinal slab dimensions are measured horizontally.  
 For Light Blister Reinforcing and details, see Sheet No. B02-27.

SLAB PLAN SHOWING REINFORCEMENT

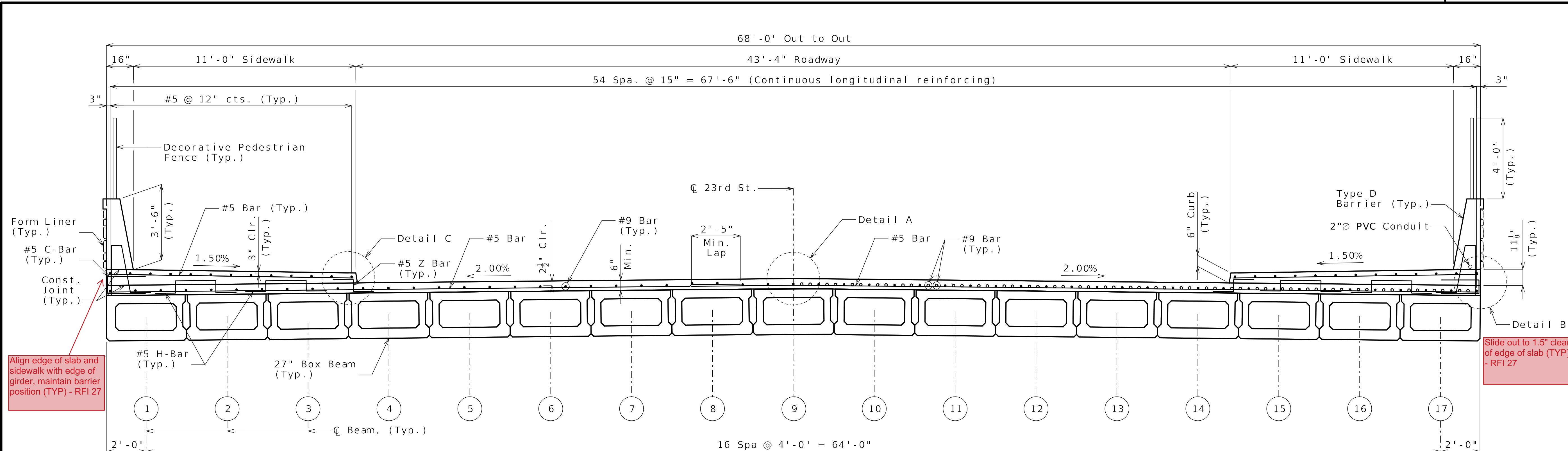
STATE OF MISSOURI  
 BENJAMIN LICHTY  
 NUMBER PE-2023038803  
 PROFESSIONAL ENGINEER  
*Benjamin Lichty*  
 04-11-2025  
 DATE PREPARED  
 04/11/2025  
 ROUTE 1-70 STATE MO  
 DISTRICT BR SHEET NO. B02-23  
 COUNTY JACKSON  
 JOB NO. J411486D  
 CONTRACT ID. 240807-C01  
 PROJECT NO.  
 BRIDGE NO. A9628

DATE	DESCRIPTION
04/11/25	REV 0 - RFC SUBMITTAL

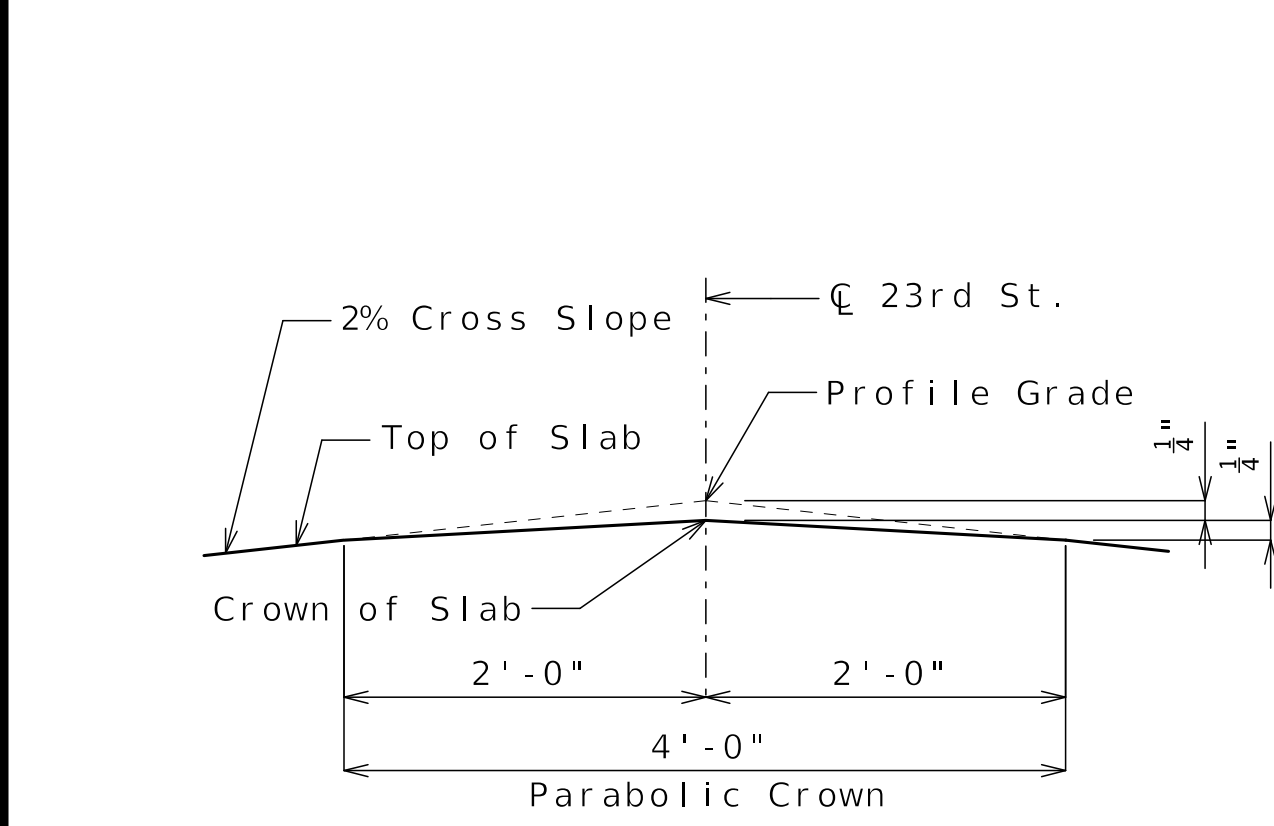
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
 MoDOT  
 105 WEST CAPITOL JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

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

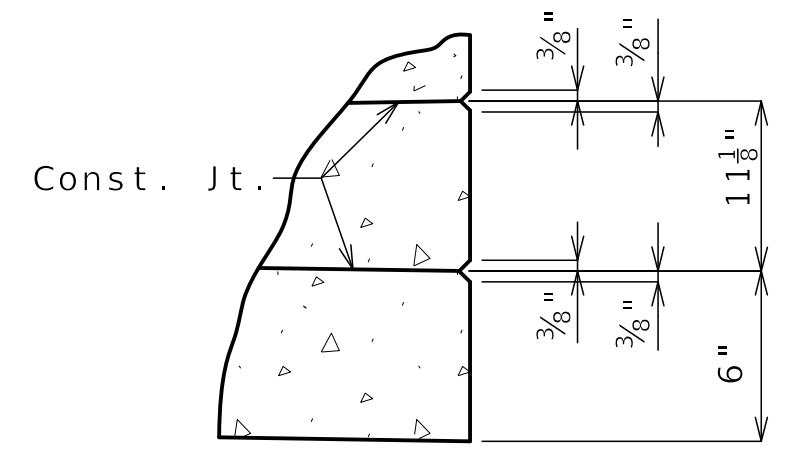
Released For Construction  
 Not to Scale  
 Revision: 0.0  
 Date: 04/11/2025  
 Package: BRD-02-23rd\_ST



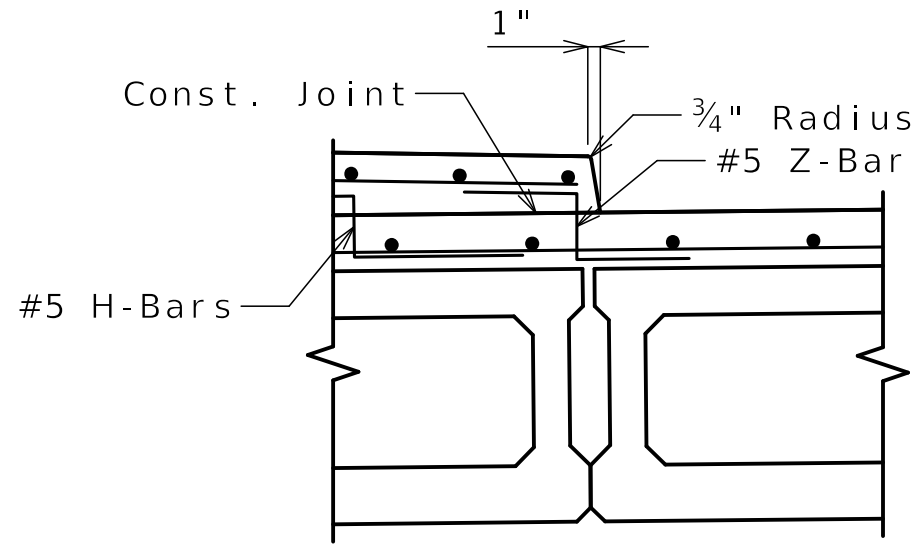
HALF SECTION NEAR MIDSPAN      TYPICAL SECTION (Looking Ahead Sta.)      HALF SECTION NEAR INTERMEDIATE BENT



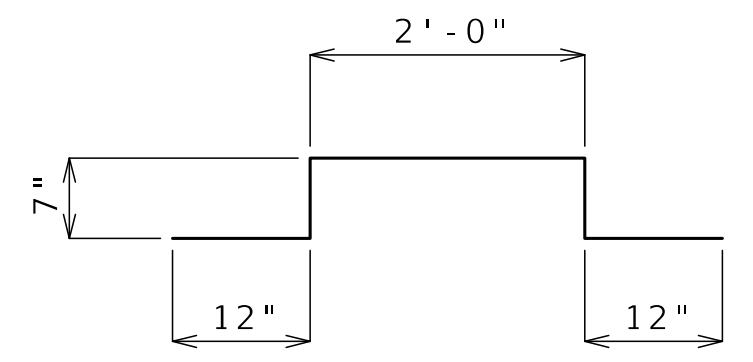
DETAIL A



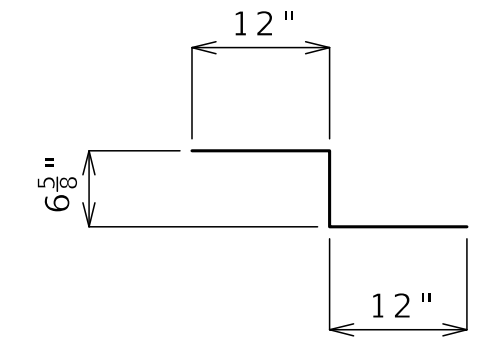
DETAIL B



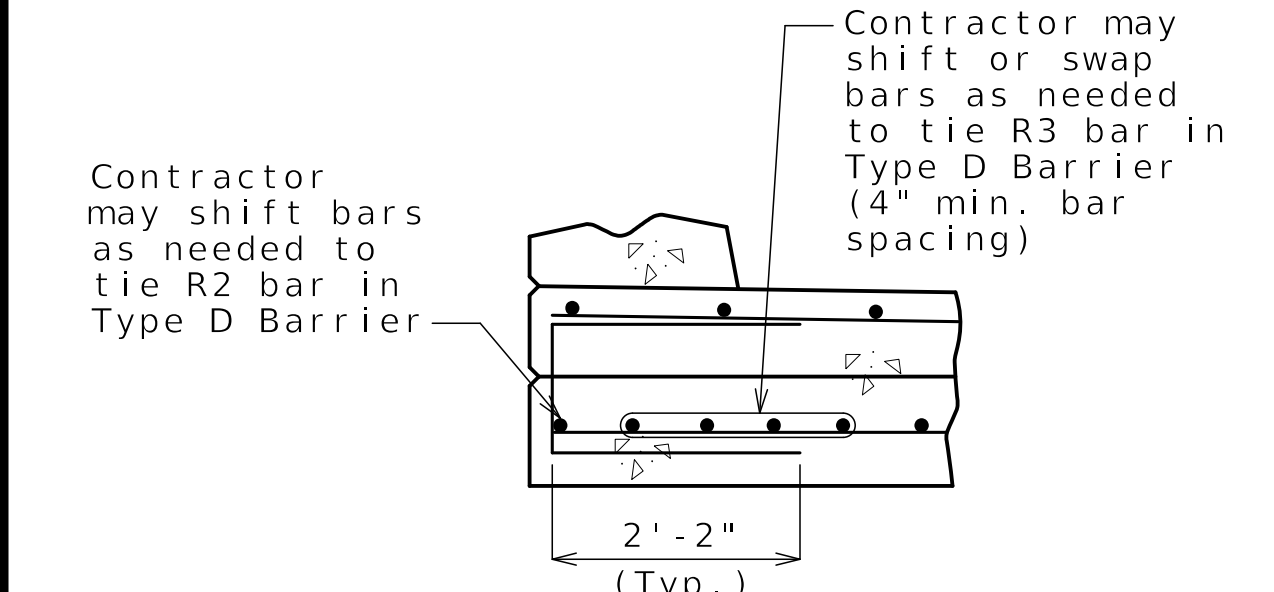
DETAIL C



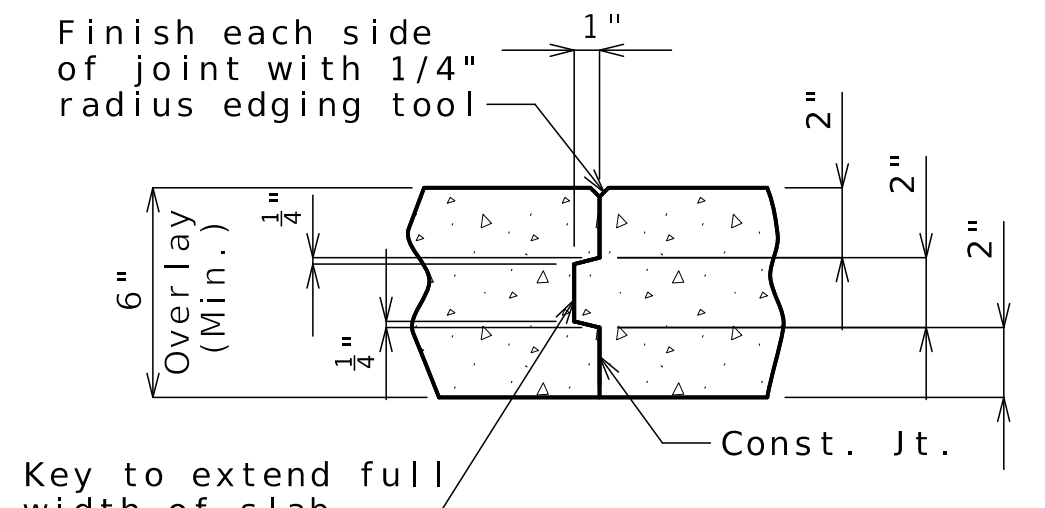
#5 H-Bar



#5 Z-Bar



OPTIONAL SHIFTING TOP BARS AT BARRIER



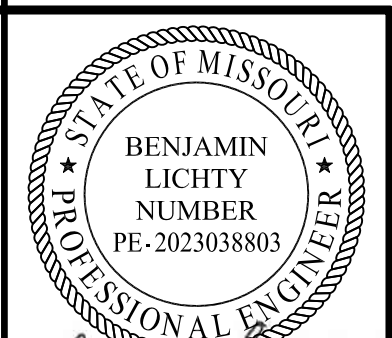
SLAB CONSTRUCTION JOINT

**Released For Construction**  
Not to Scale  
Revision: 0.0  
Date: 04/11/2025  
Package: BRD-02-23rd\_ST

Notes:  
For Slab Plan showing Reinforcement, see Sheet No. B02-23.  
For reinforcement of Type D Barrier not shown, see Sheet No. B02-25.  
For Details of Conduit System on Structure, see Sheet No. B02-30.  
For Decorative Pedestrian Fence Details, see Sheet No. B02-28.  
For Form Liner and Aesthetic Stain Details not shown, see Sheet No. B02-29.

(X) Denotes beam number.

SLAB DETAILS



Benjamin Lichty  
04-11-2025

DATE PREPARED 04/11/2025	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B02-24
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

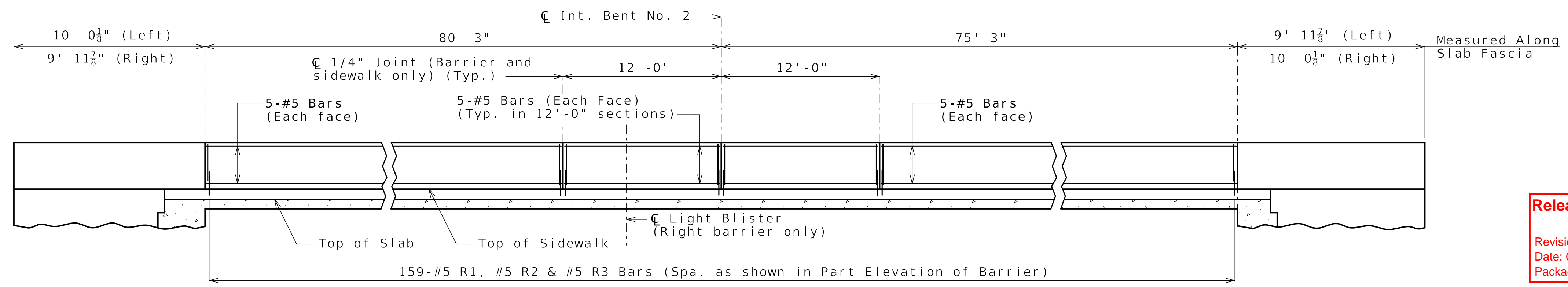
BRIDGE NO.  
A9628

DATE	DESCRIPTION
04/11/25	REV 0 - RFC SUBMITTAL

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

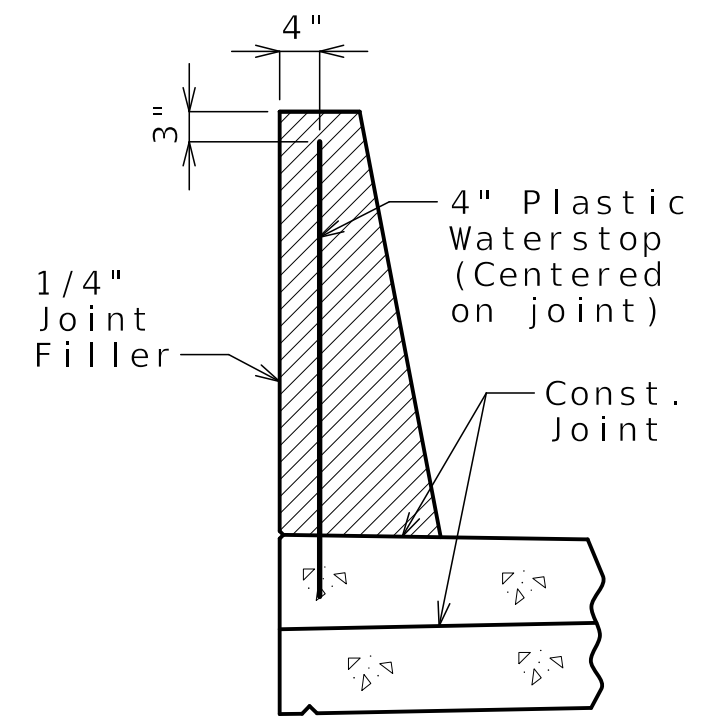
CLARKSON RADMACHER JOINT VENTURE  
715 KIRK DRIVE  
KANSAS CITY, MO 64105-1310  
CERTIFICATE OF AUTHORITY  
NO. 001270





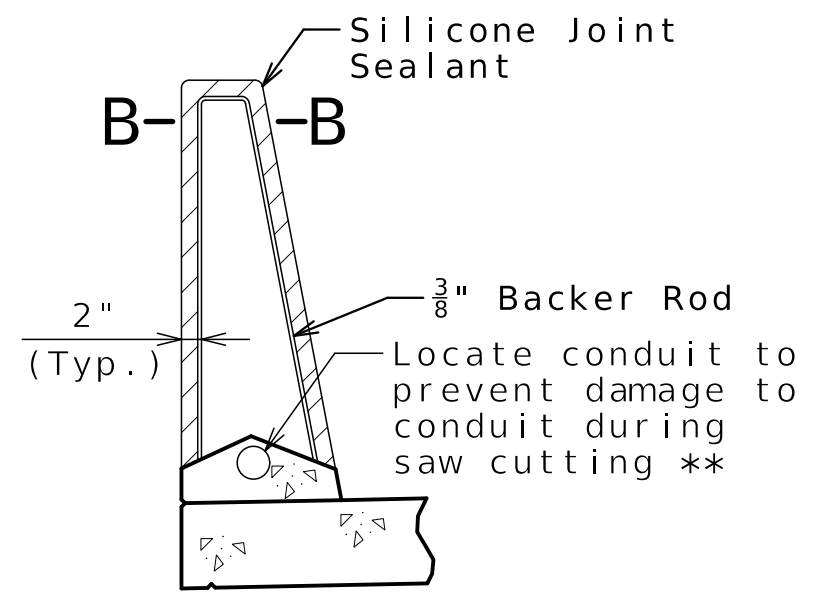
**ELEVATION OF BARRIER**  
 (Left barrier shown, right barrier similar except as noted.)  
 Longitudinal dimensions are horizontal.

**Released For Construction**  
 Not to Scale  
 Revision: 0.0  
 Date: 04/11/2025  
 Package: BRD-02-23rd\_ST



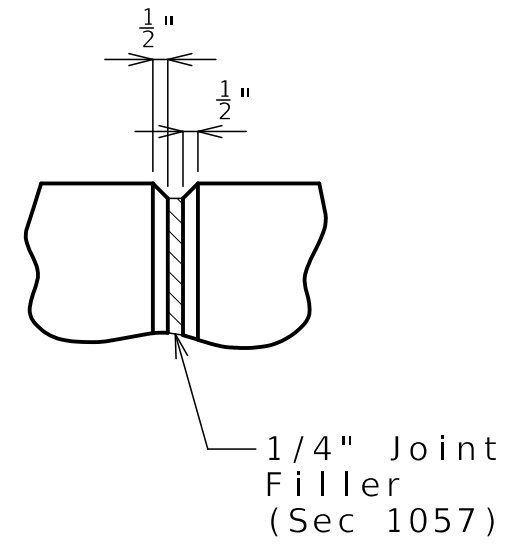
**WATERSTOP DETAIL**

Plastic waterstop shall be placed in all formed joints.

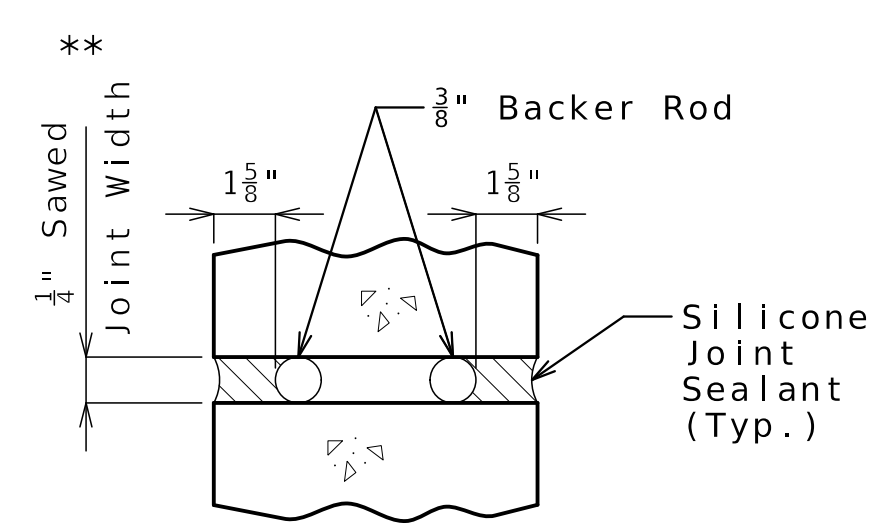


**SECTION THRU SAW CUT JOINT**

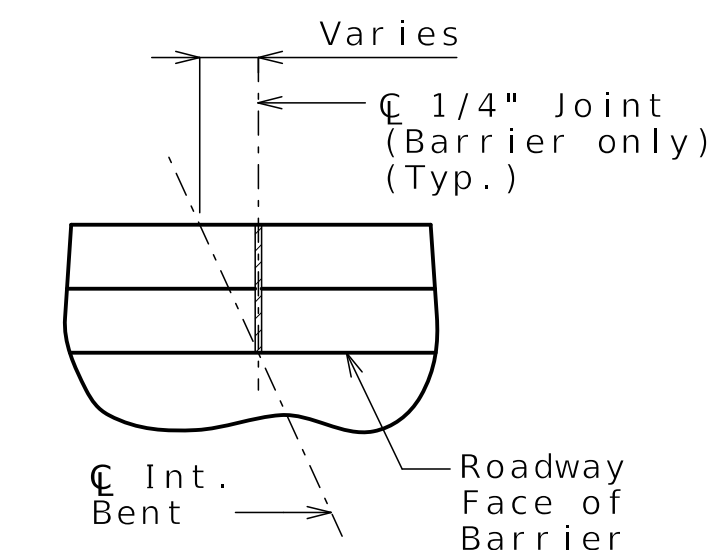
(Form liner and aesthetic details not shown.)



**PART ELEVATION AT FORMED JOINT**



**SECTION B-B**



**PART PLAN SHOWING JOINT LOCATION**

**General Notes:**

\*\* 2" Ø PVC Conduit (Right barrier only) For Details of Conduit System on Structure, see Sheet No. B02-30.

Conventional forming shall 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.

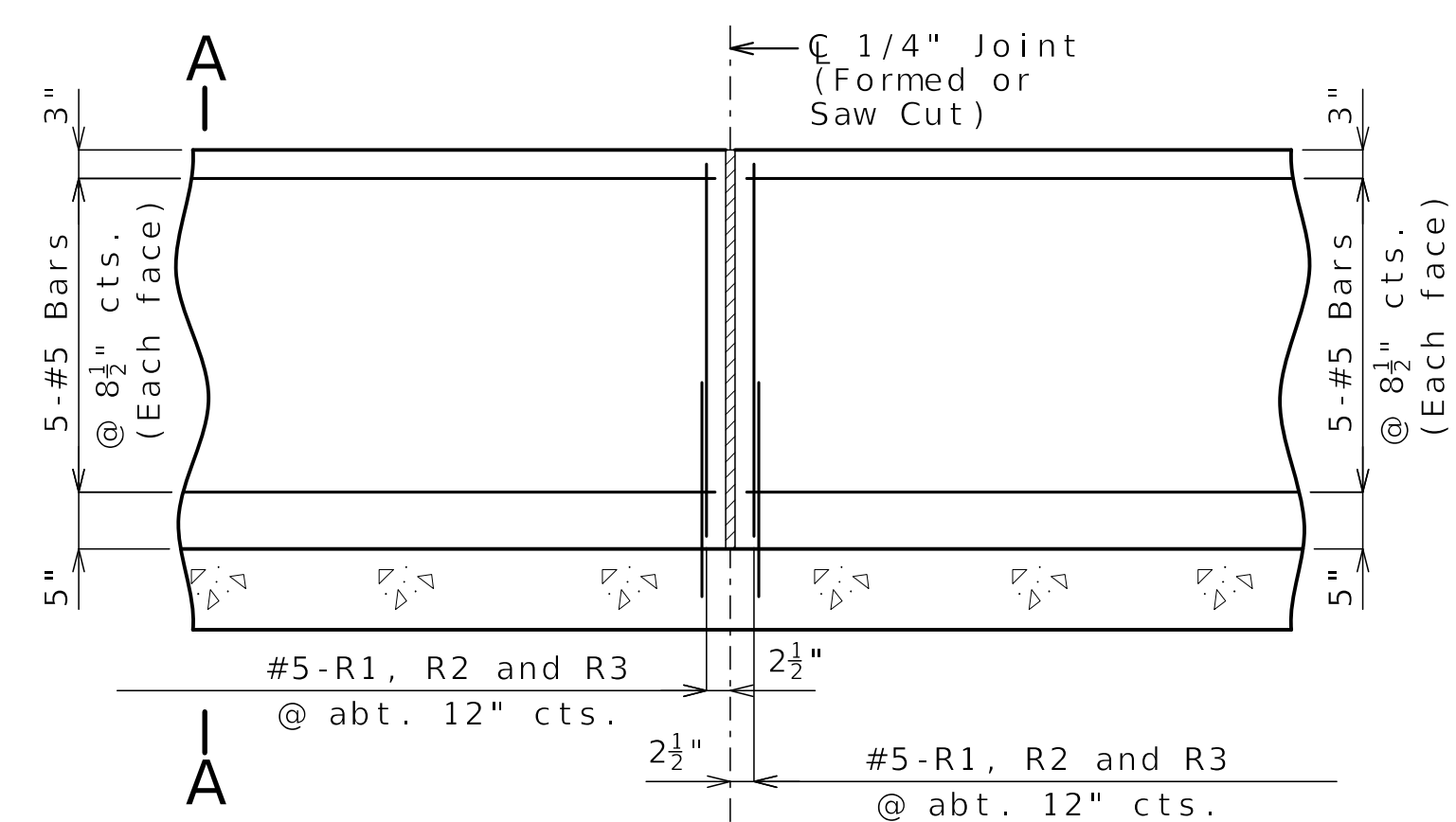
Plastic waterstop shall not be used with saw cut joints.

For Form Liner and Aesthetic Stain details of right barrier not shown, see Sheet No. B02-29.

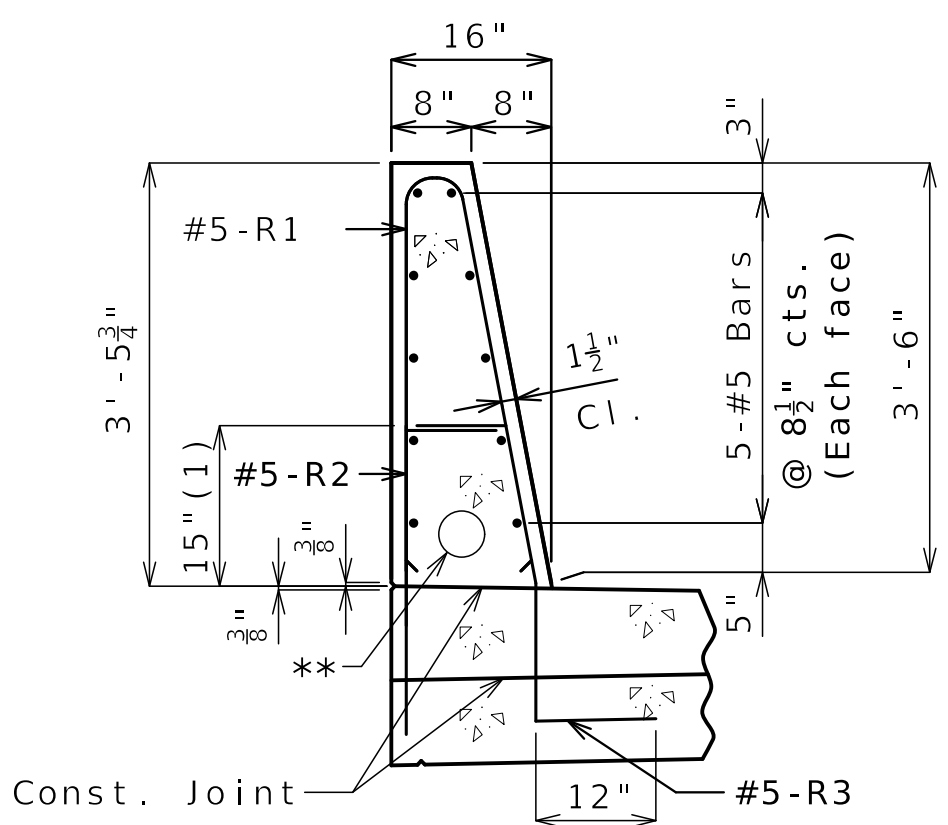
For Decorative Pedestrian Fence Details, see Sheet No. B02-28

Reinforcing steel shall be shifted in the field to clear resin anchors for decorative fence.

For Light Blister details, see Sheet No. B02-27.



**PART ELEVATION OF BARRIER**

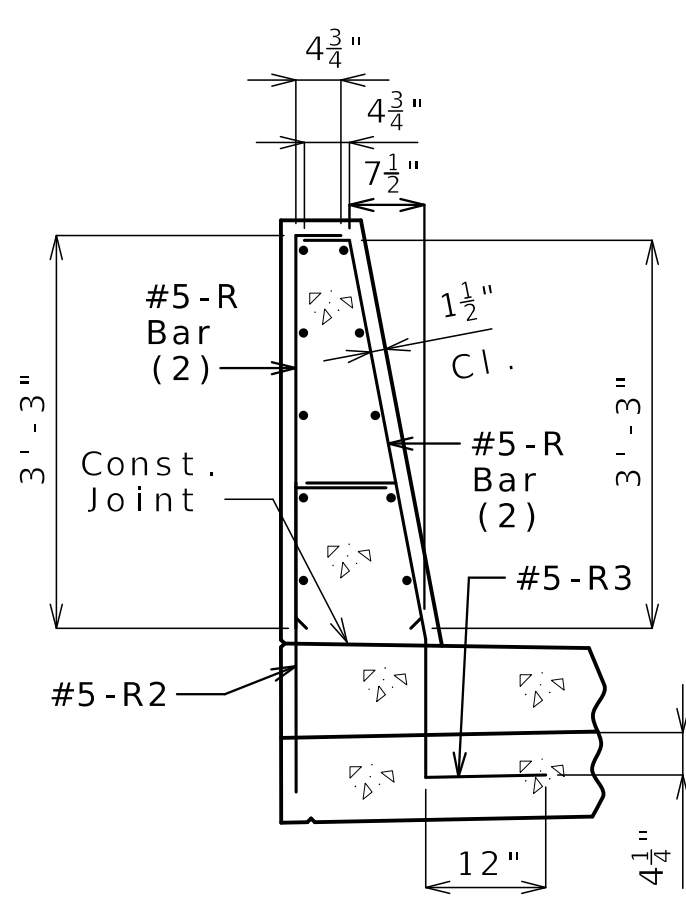


**SECTION A-A**

(Form liner aesthetic details not shown.)

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

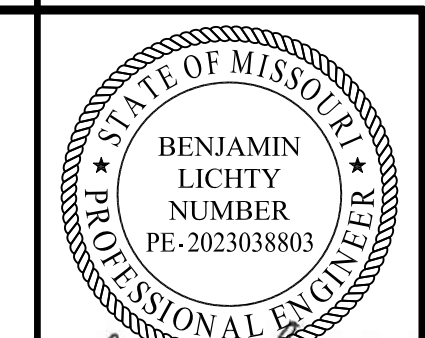
(1) To top of bar



**R-BAR PERMISSIBLE ALTERNATE SHAPE**

(Form liner aesthetic details not shown.)

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



Benjamin Lichty  
 04-11-2025

DATE PREPARED 04/11/2025	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B02-25
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO.  
A9628

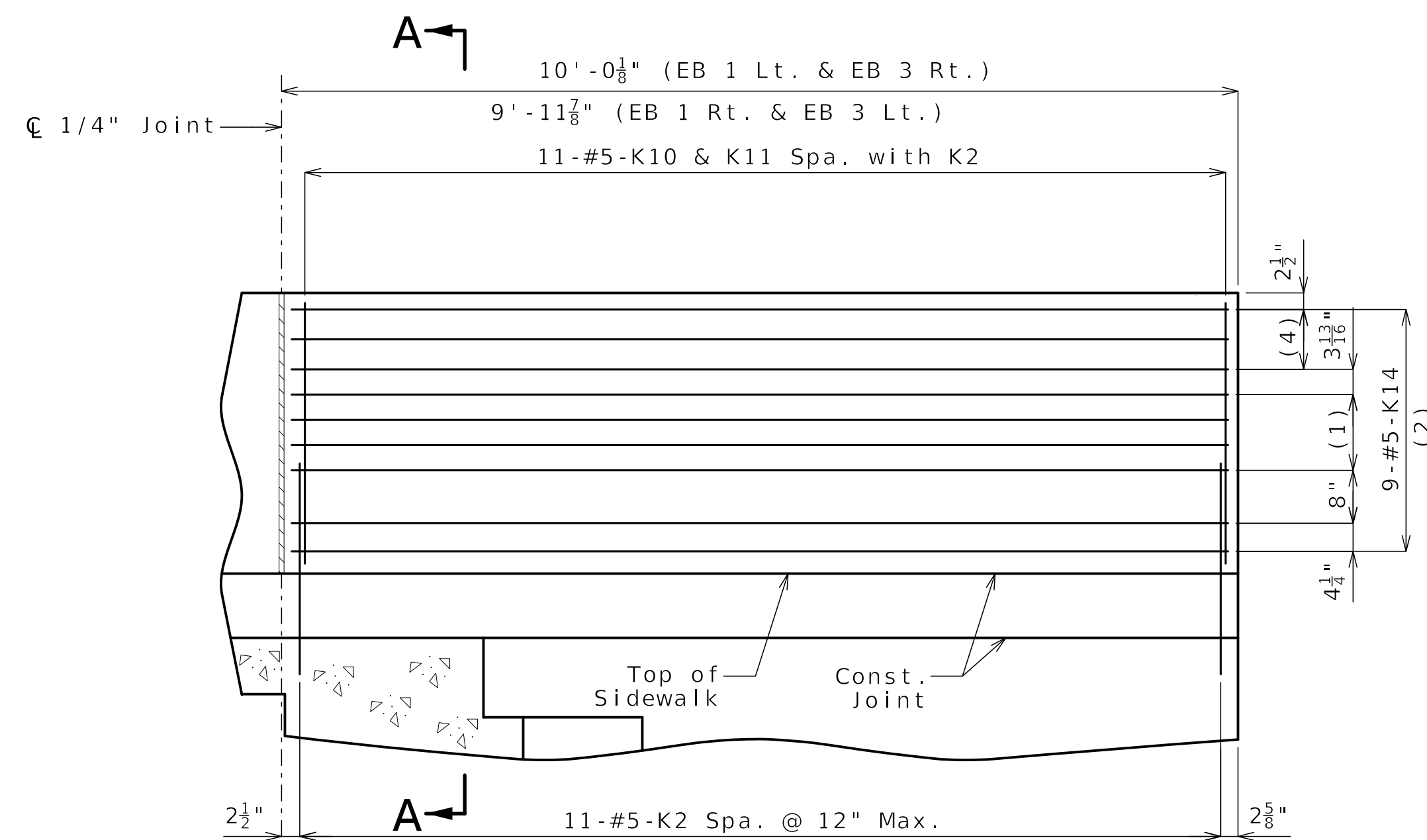
DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	04/11/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

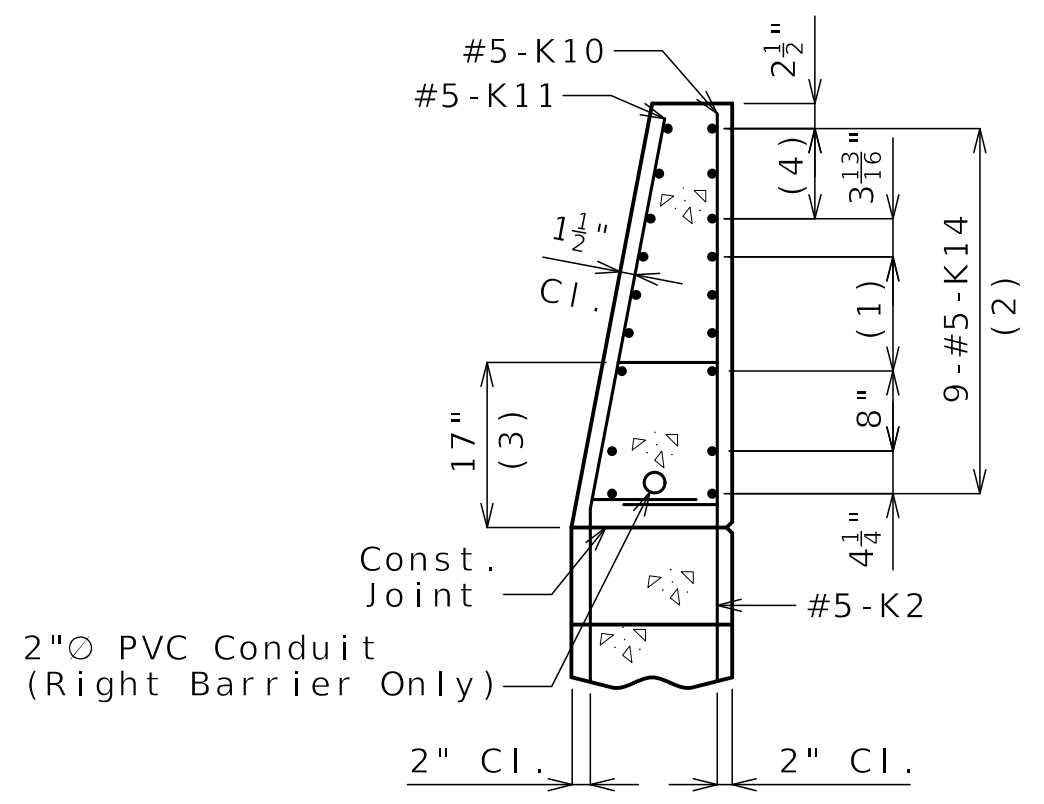
105 WEST CAPITOL JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

**CLARKSON RADMACHER** JOINT VENTURE

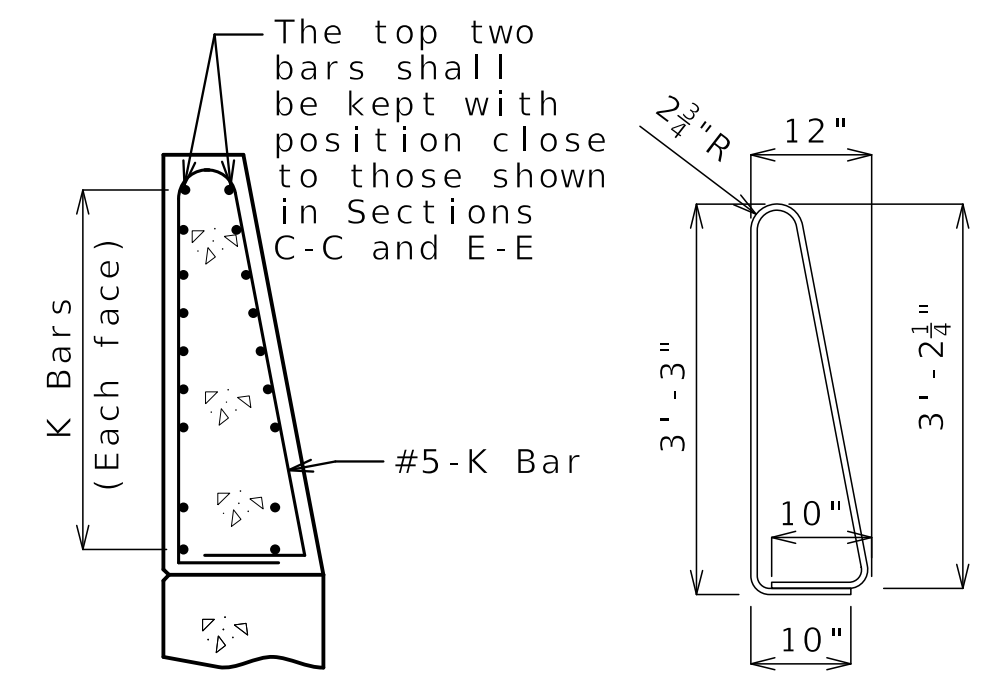
715 KIRK DRIVE KANSAS CITY, MO 64105-1310  
 CERTIFICATE OF AUTHORITY NO. 001270



PART ELEVATION



SECTION A-A



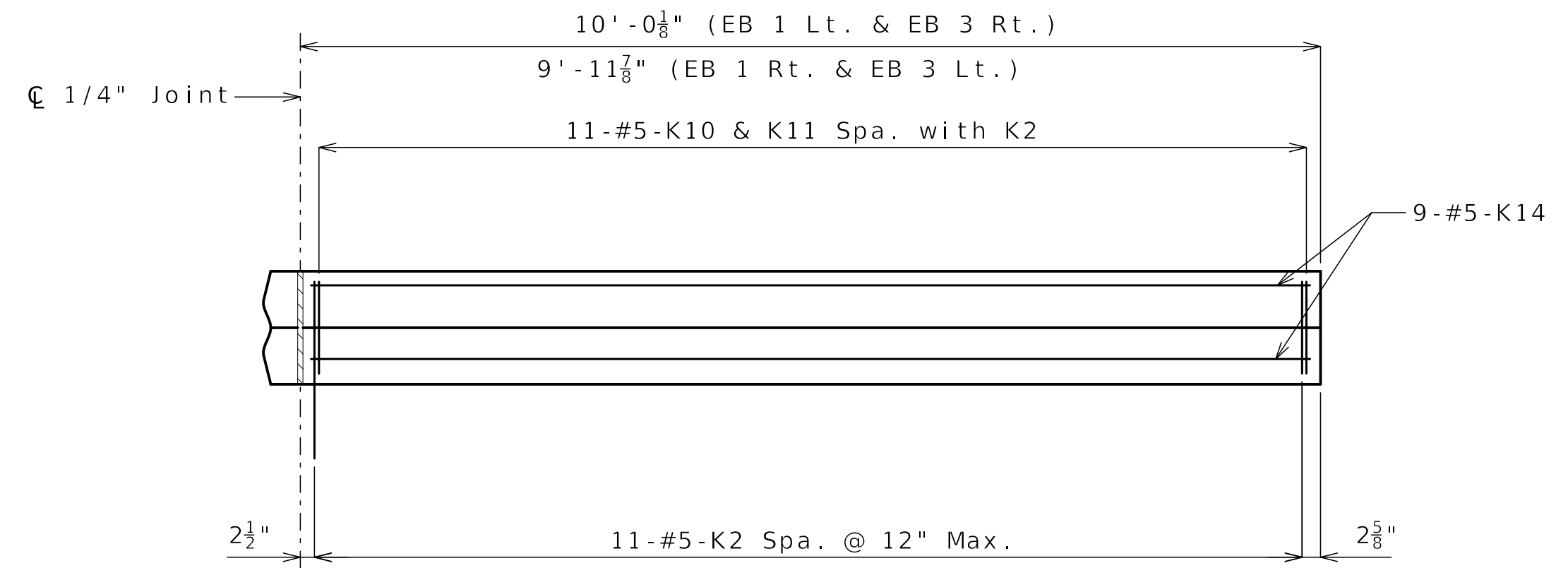
K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(Other K bars not shown for clarity)

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

All dimensions are out to out.

PVC conduit in right barrier not shown.



PART PLAN

- (1) 3 spaces @ 3 1/8"
- (2) Spaced as shown, each face
- (3) To top of bar
- (4) 2 spaces @ 4 1/2"

Released For Construction  
Not to Scale  
Revision: 0.0  
Date: 04/11/2025  
Package: BRD-02-23rd\_ST

**General Notes:**

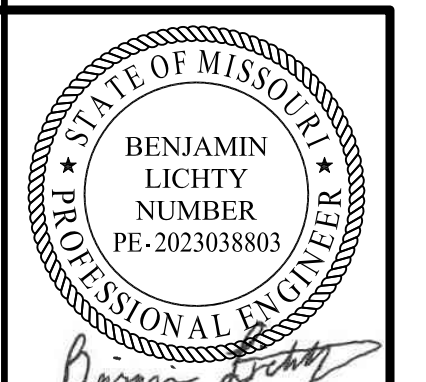
Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two way traffic shall have retroreflective sheeting on both sides.

All dimensions are out to out.

- EB 1 denotes End Bent No. 1
- EB 3 denotes End Bent No. 3

**Reinforcing Steel:**  
Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded in end bent.

**TYPE D BARRIER AT END BENTS**



*Benjamin Lichty*  
04-11-2025

DATE PREPARED 04/11/2025	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B02-26
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	
BRIDGE NO. A9628	

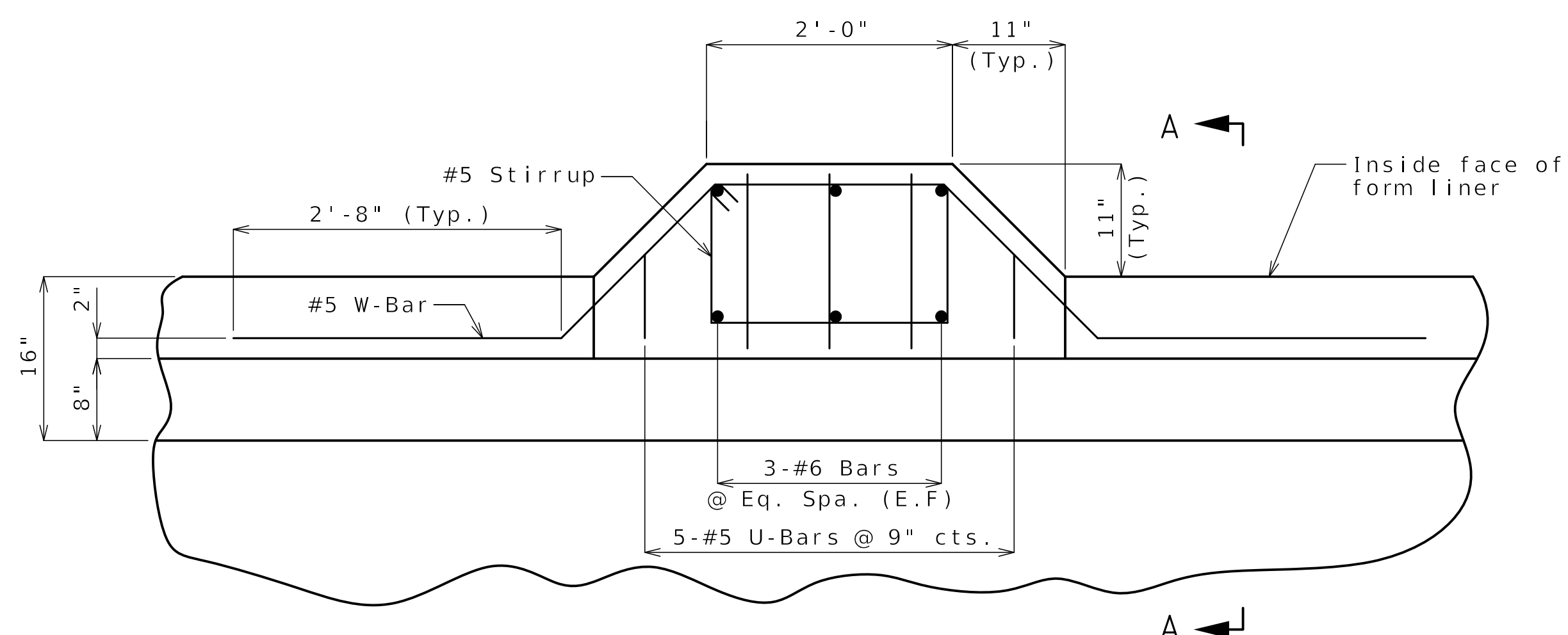
DATE	DESCRIPTION
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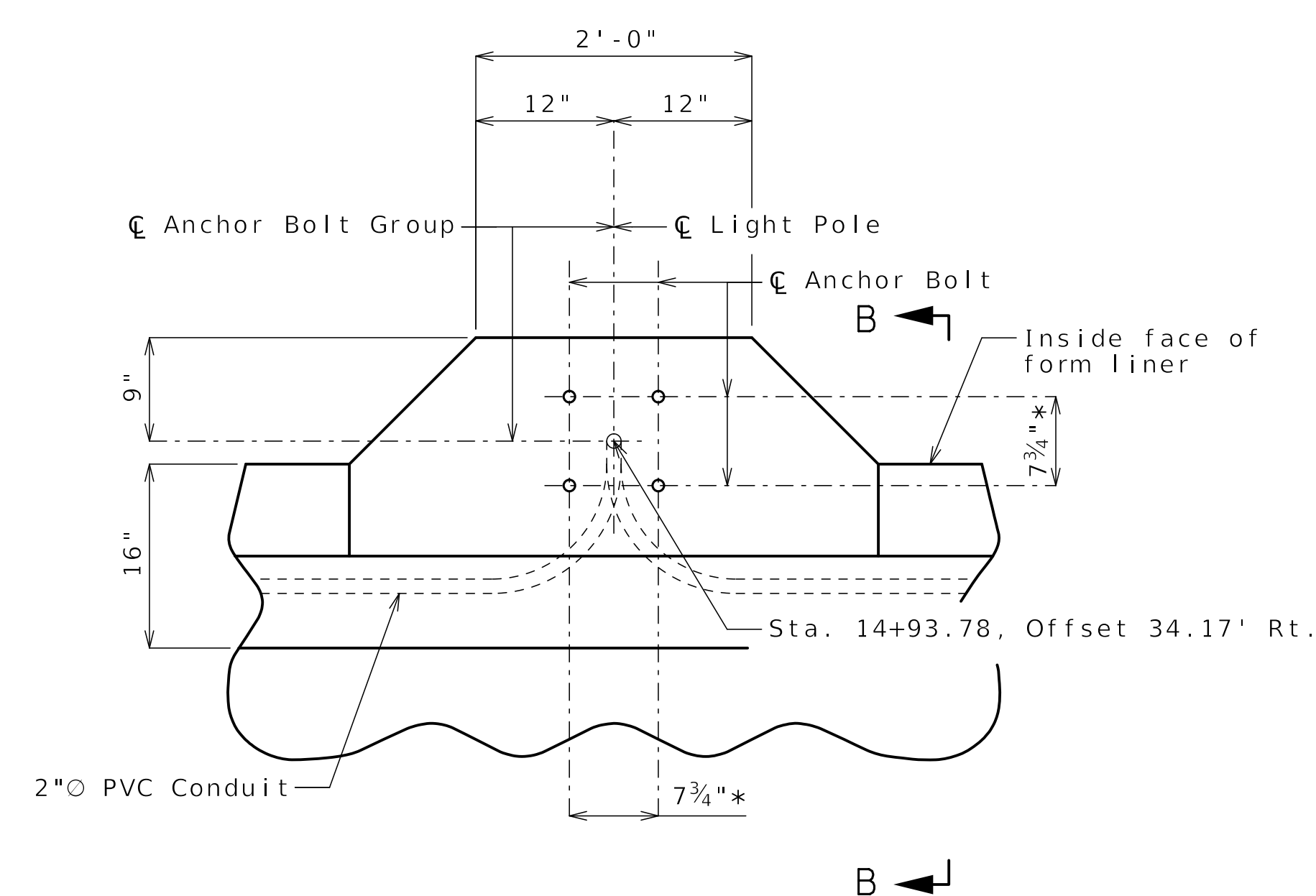
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

**CLARKSON RADMACHER**  
JOINT VENTURE

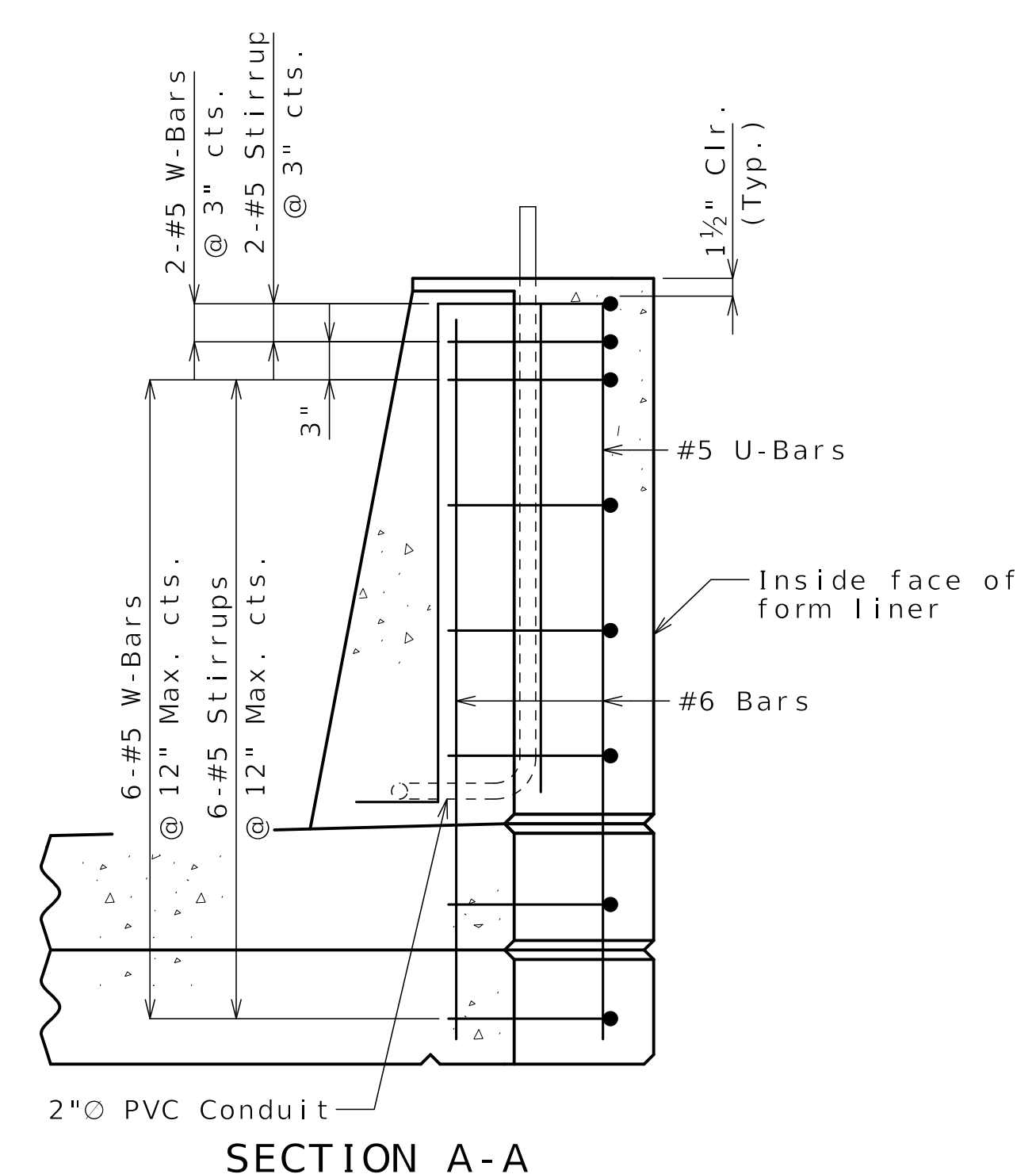
715 KIRK DRIVE  
KANSAS CITY, MO 64105-1310  
CERTIFICATE OF AUTHORITY  
NO. 001270



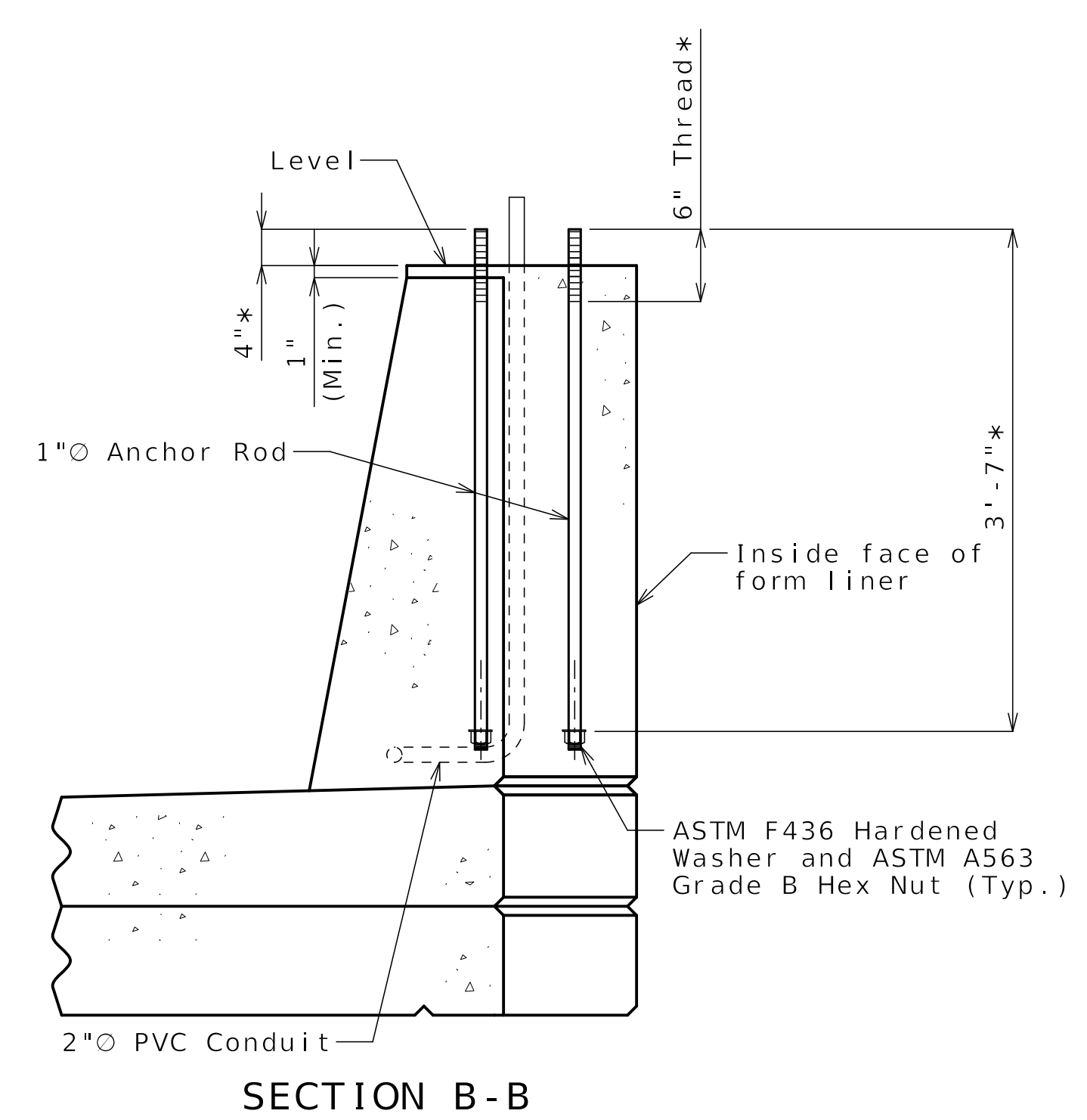
LIGHT POLE MOUNTING PLAN SHOWING REINFORCEMENT



LIGHT POLE MOUNTING PLAN



SECTION A-A

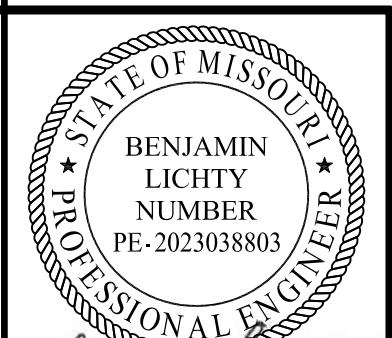


SECTION B-B

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Package: BRD-02-23rd\_ST

**Notes:**  
 \* Contractor shall confirm dimension with light pole manufacturer before setting anchor bolts.  
 Anchor bolts and nuts shall be ASTM F1554 Grade 55. Anchor bolts, nuts and washers shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C or ASTM B695, Class 55.  
 Top of light standard supports shall be made horizontal; anchor rods shall be placed vertically. Contractor has the option to splice vertical bars with mechanical bar splices. Mechanical bar splices shall be in accordance with Sec 710.  
 For locations of light blister, see Sheet No. B02-23. For Form Liner and Aesthetic Stain Details not shown, see Sheet No. B02-29.

LIGHT BLISTER DETAILS



*Benjamin Lichty*  
04-11-2025

DATE PREPARED 04/11/2025	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B02-27
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO. A9628
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CLARKSON RADMACHER JOINT VENTURE

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

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*Benjamin Lichty*  
 04-11-2025

**Notes:**

These details are a general representation of a Decorative Pedestrian Fence. The actual fence components and component positions may be different than what is shown.

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

Base plate shall be ASTM A709, Grade 50.

All base plates, resin anchors, hex nuts and washers shall be galvanized in accordance with ASTM A123 and Sec 1081.

All fence posts shall be vertical.

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

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

Shop drawings and structural calculations will not be required for the decorative pedestrian fences on the Bridge Pre-qualified Products List.

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

Decorative pedestrian fencing system shall be supplied by only one manufacturer. Decorative pedestrian fencing system shall include all components except resin anchors and hardware. The assembly of the pickets to the rails and the rails to the posts shall be the same as the style mentioned for the manufacturer.

See Bridge Pre-qualified Products List (BPPL) for a list of approved manufacturers.

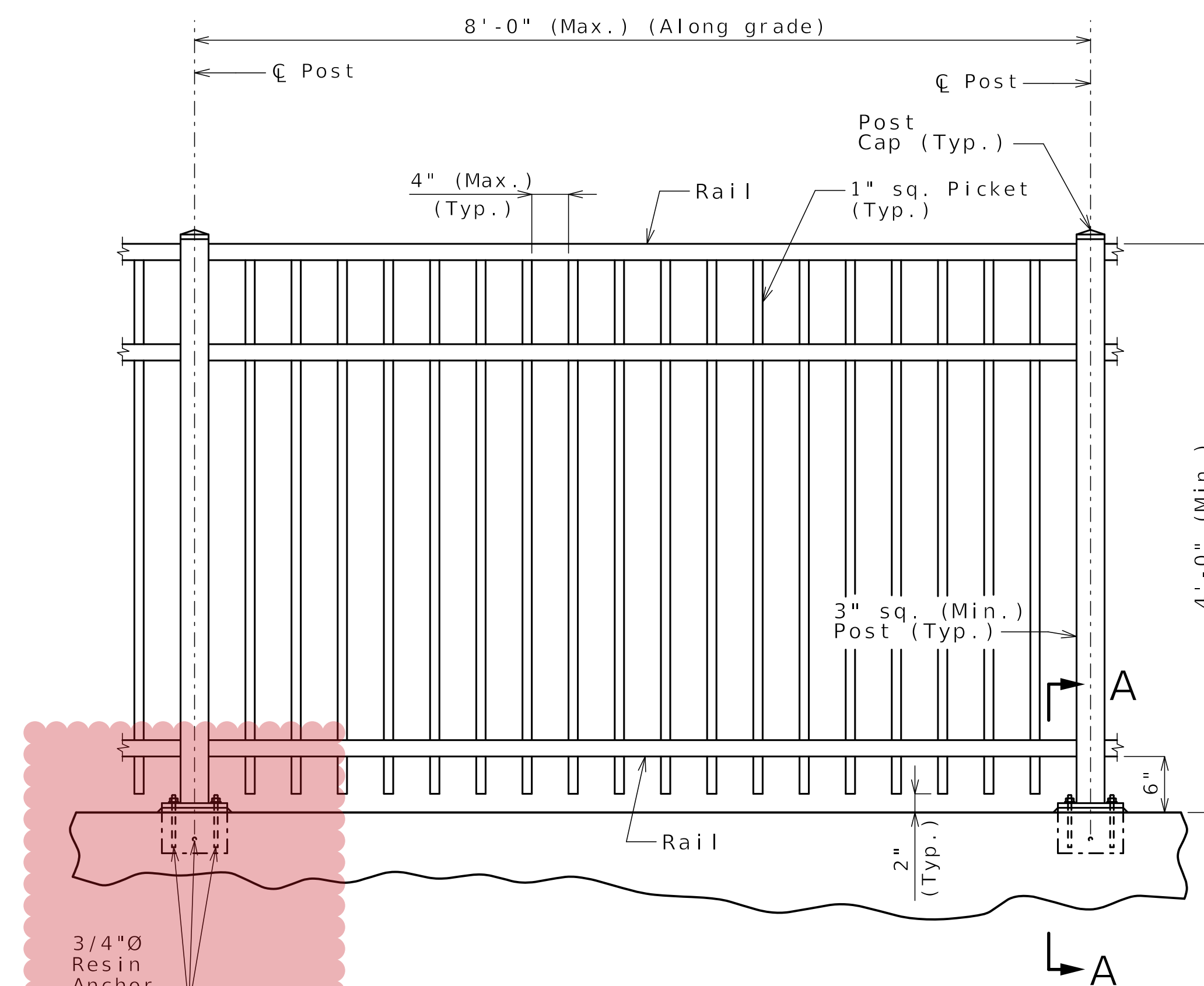
For details of Type D Barrier, see Sheet No. B02-25.

Longitudinal dimensions of fence are horizontal.

**Resin Anchor Notes:**  
 Resin anchors shall be ASTM F1554 Grade 36.

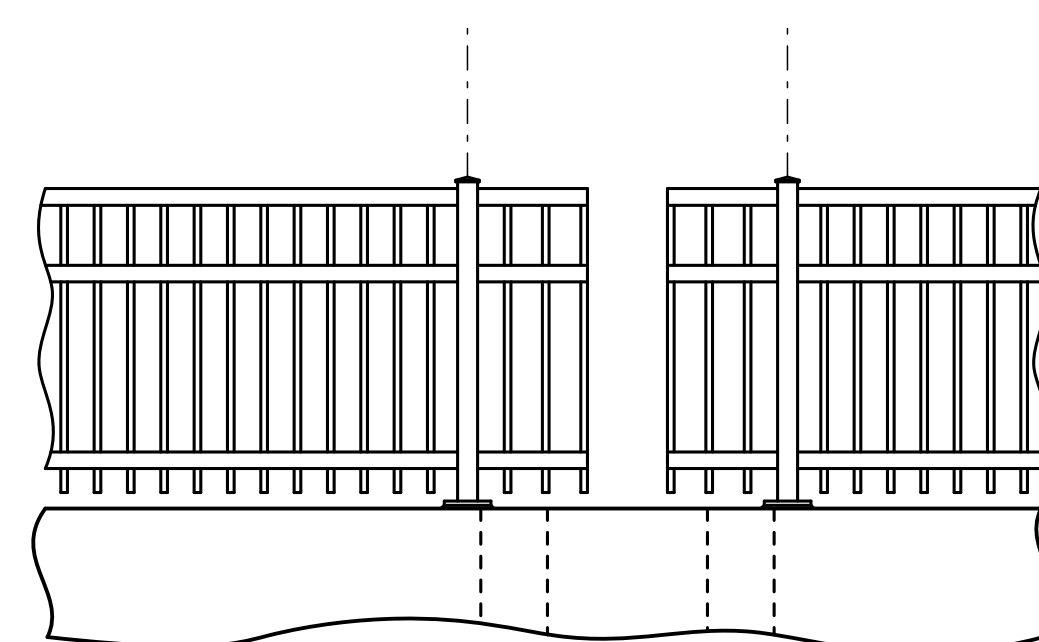
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1029.

The minimum embedment depth in concrete with  $f'c = 4,000$  psi for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5 5/8 inches.

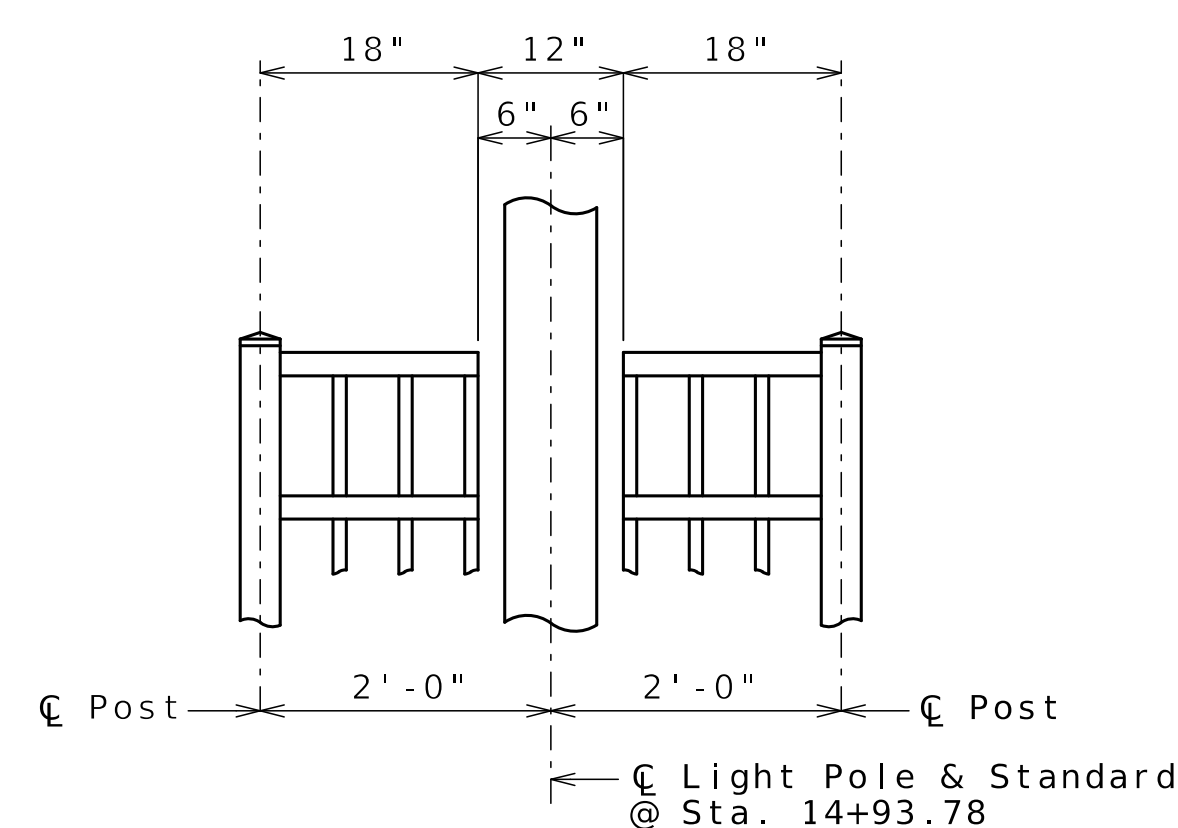


TYPICAL PART ELEVATION

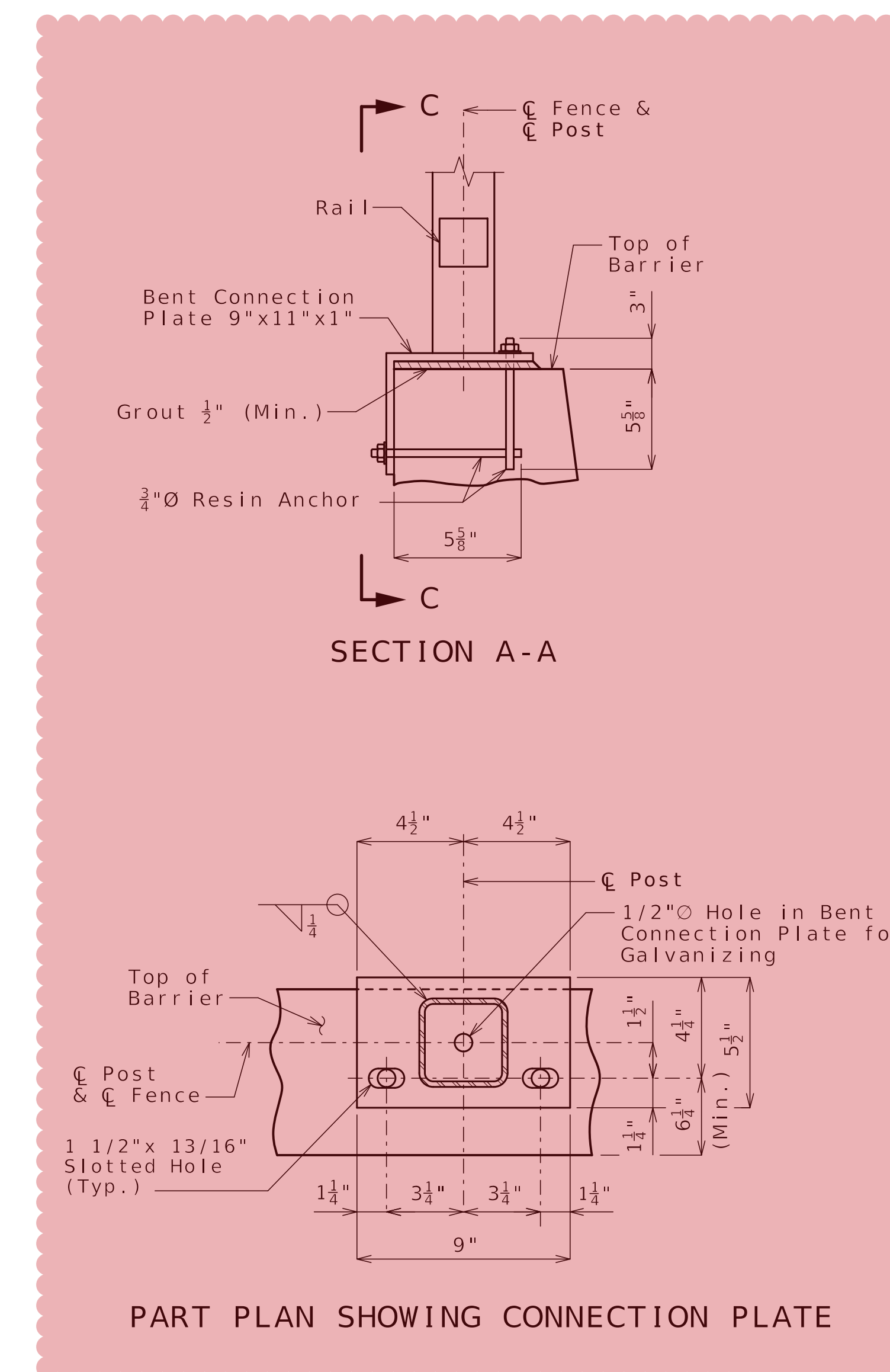
**RFI 39 FOR U-BOLT-BARRIER STEEL CONFLICT SOLUTION**



TYPICAL DETAIL OF FENCE AT LIGHT STANDARDS

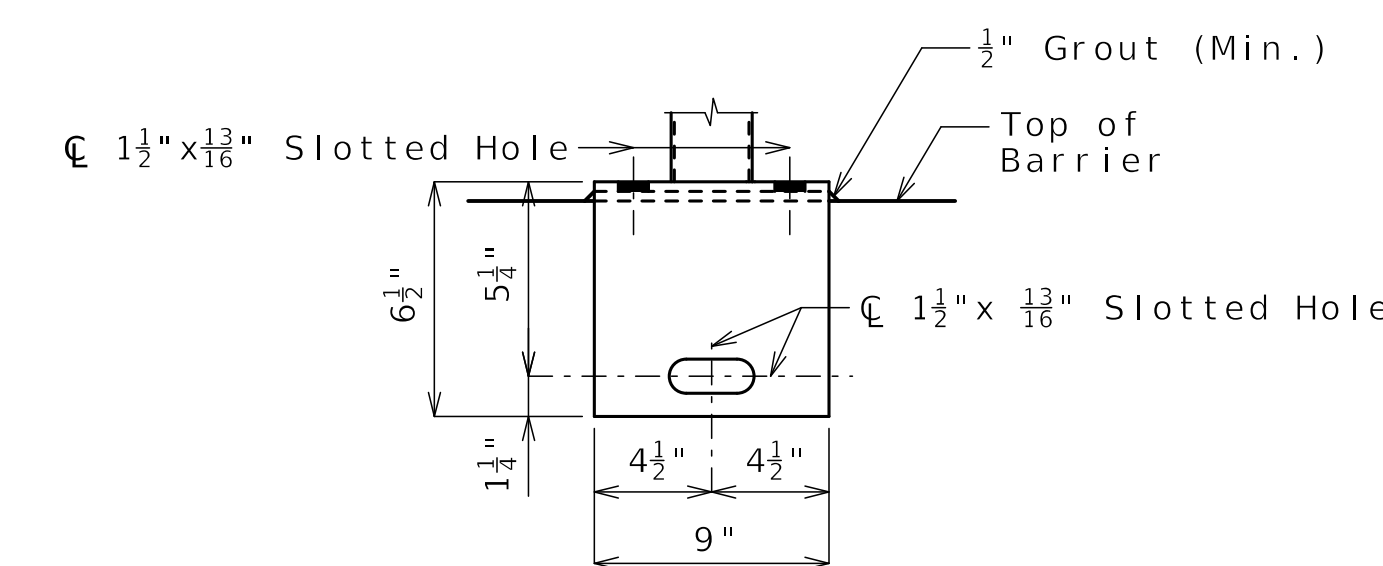


TYPICAL DETAIL OF FENCE AT LIGHT STANDARDS



SECTION A-A

PART PLAN SHOWING CONNECTION PLATE



ELEVATION C-C

1/2-inch diameter hole in bent connection plate not shown for clarity.

DECORATIVE PEDESTRIAN FENCE DETAILS

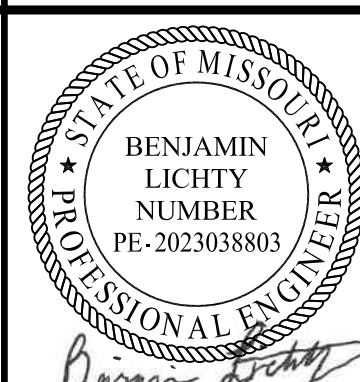
DATE	DESCRIPTION
04/11/25	REV 0 - RFC SUBMITTAL

DATE PREPARED 04/11/2025	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B02-28
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO. A9628
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
 MoDOT  
 105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

CLARKSON RADMACHER JOINT VENTURE  
 715 KIRK DRIVE  
 KANSAS CITY, MO 64105-1310  
 CERTIFICATE OF AUTHORITY  
 NO. 001270  
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Benjamin Lichty  
04-11-2025

DATE PREPARED  
04/11/2025

ROUTE 1-70 STATE MO

DISTRICT BR SHEET NO. B02-29

COUNTY JACKSON

JOB NO. J411486D

CONTRACT ID. 240807-C01

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BRIDGE NO. A9628

DESCRIPTION

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DATE 04/11/25

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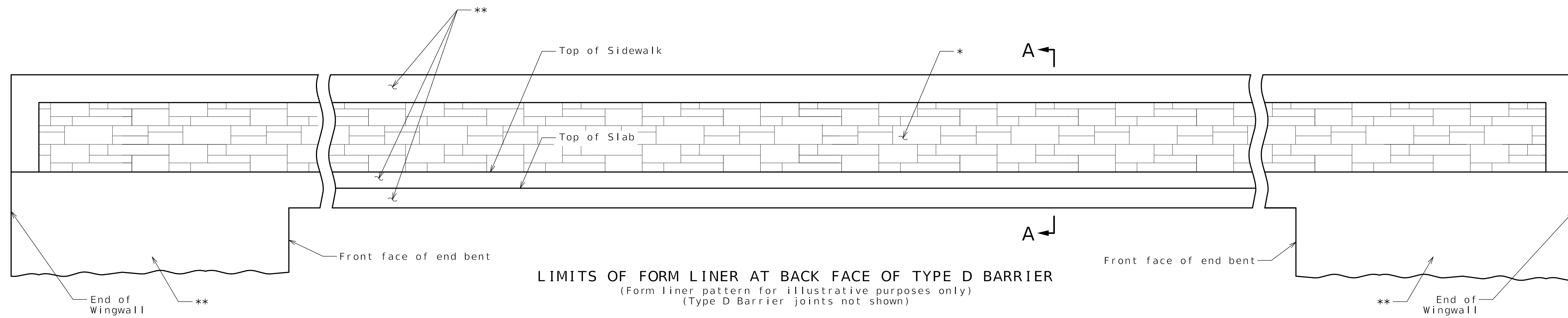
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715 KIRK DRIVE KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY NO. 001270

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**LIMITS OF FORM LINER AT BACK FACE OF TYPE D BARRIER**  
(Form liner pattern for illustrative purposes only)  
(Type D Barrier joints not shown)

Form Liner and Aesthetic Concrete Stain for bridges are not a part of the base contract and are not yet contracted for this Project with MoDOT.

**General Notes:**

\*\*Concrete and masonry protective coating and sacrificial graffiti protective coating shall be applied in accordance with Sec 711 to surfaces to receive form liner treatment and as noted in details on this sheet.

Protective coatings shall be compatible with Aesthetic Concrete Stain.

**Concrete Form Liner Notes:**

Form liner shall be constructed in accordance with Special Provisions.

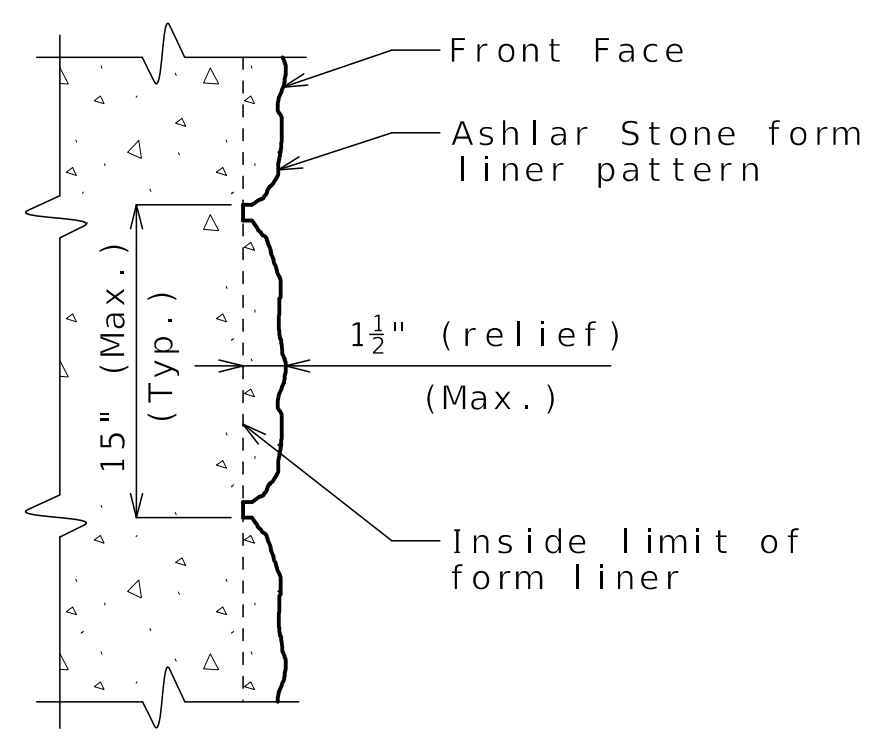
The following is a list of form liner manufacturers and types which may be used. Depth of relief for all form liner patterns shall vary up to 1 1/2". The height of any single "stone" shall be 15" maximum.

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

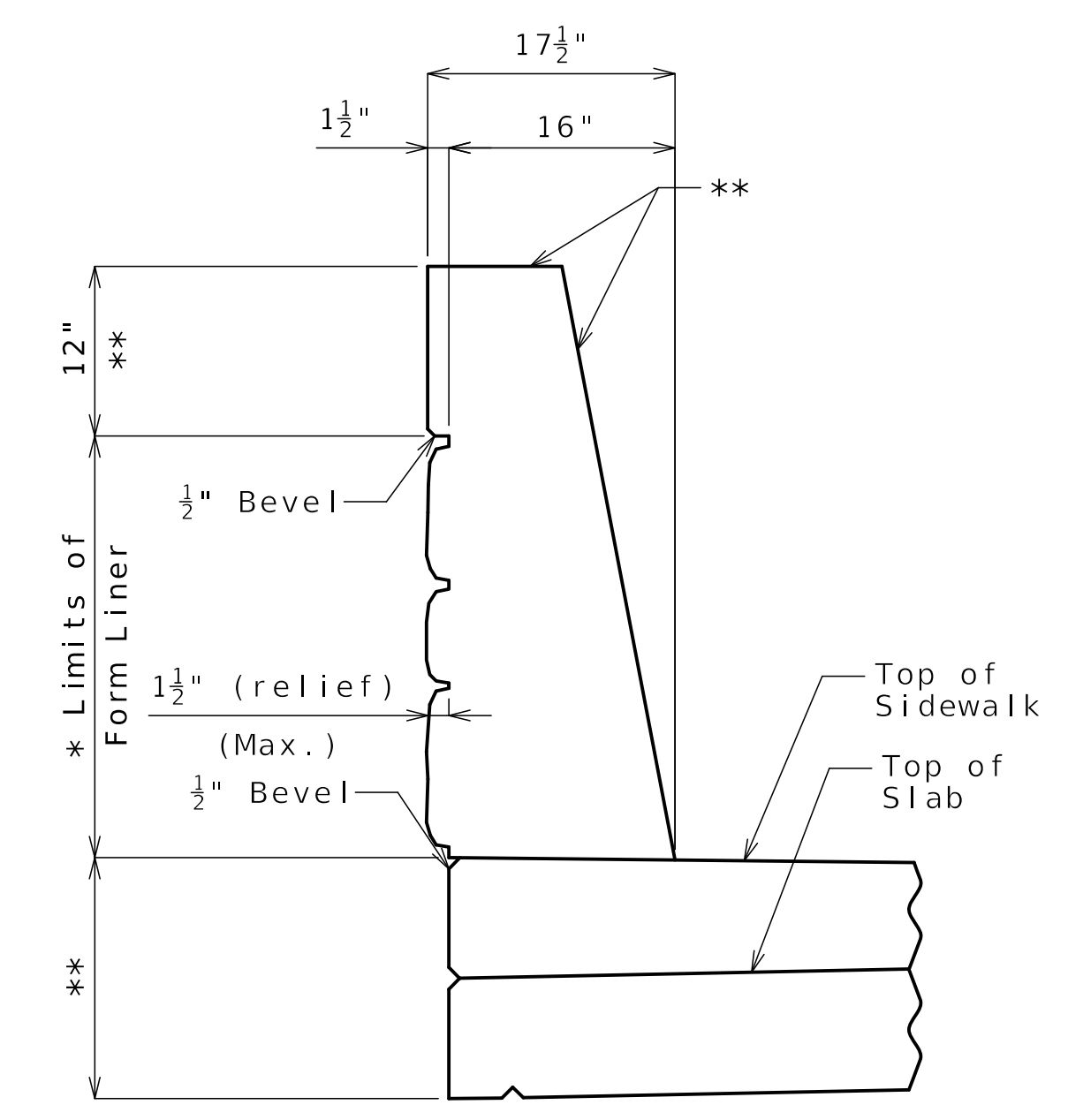
**Aesthetic Concrete Stain Notes:**

\* Surface to receive Aesthetic Concrete Stain. The color shall be Federal Standard #37150.

Aesthetic Concrete Stain shall be applied in accordance with Sec 711 as shown in the plans.



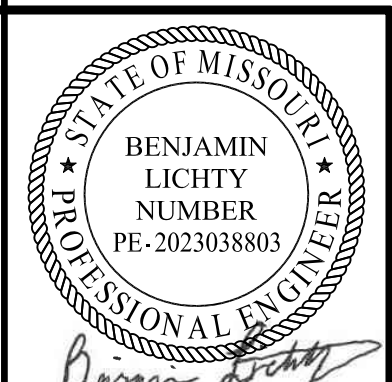
**FORM LINER DETAIL**



**SECTION A-A**

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**FORM LINER AND AESTHETIC STAIN DETAILS**



Benjamin Lichty  
04-11-2025

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COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

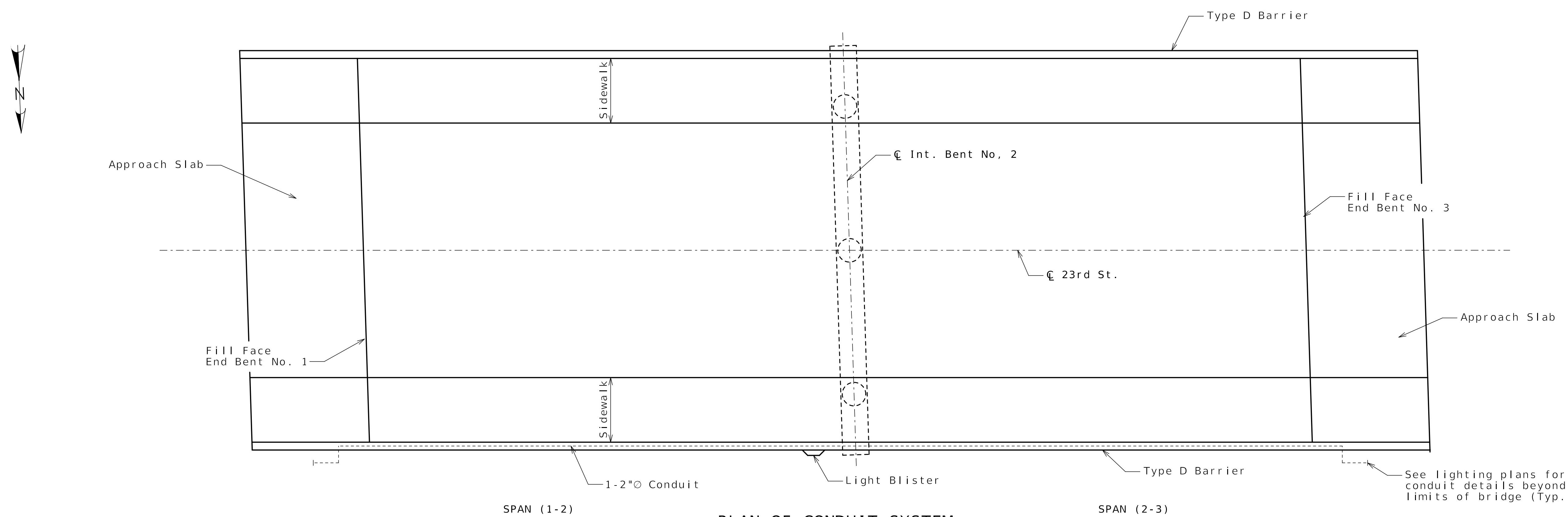
BRIDGE NO.  
A9628

DATE	DESCRIPTION
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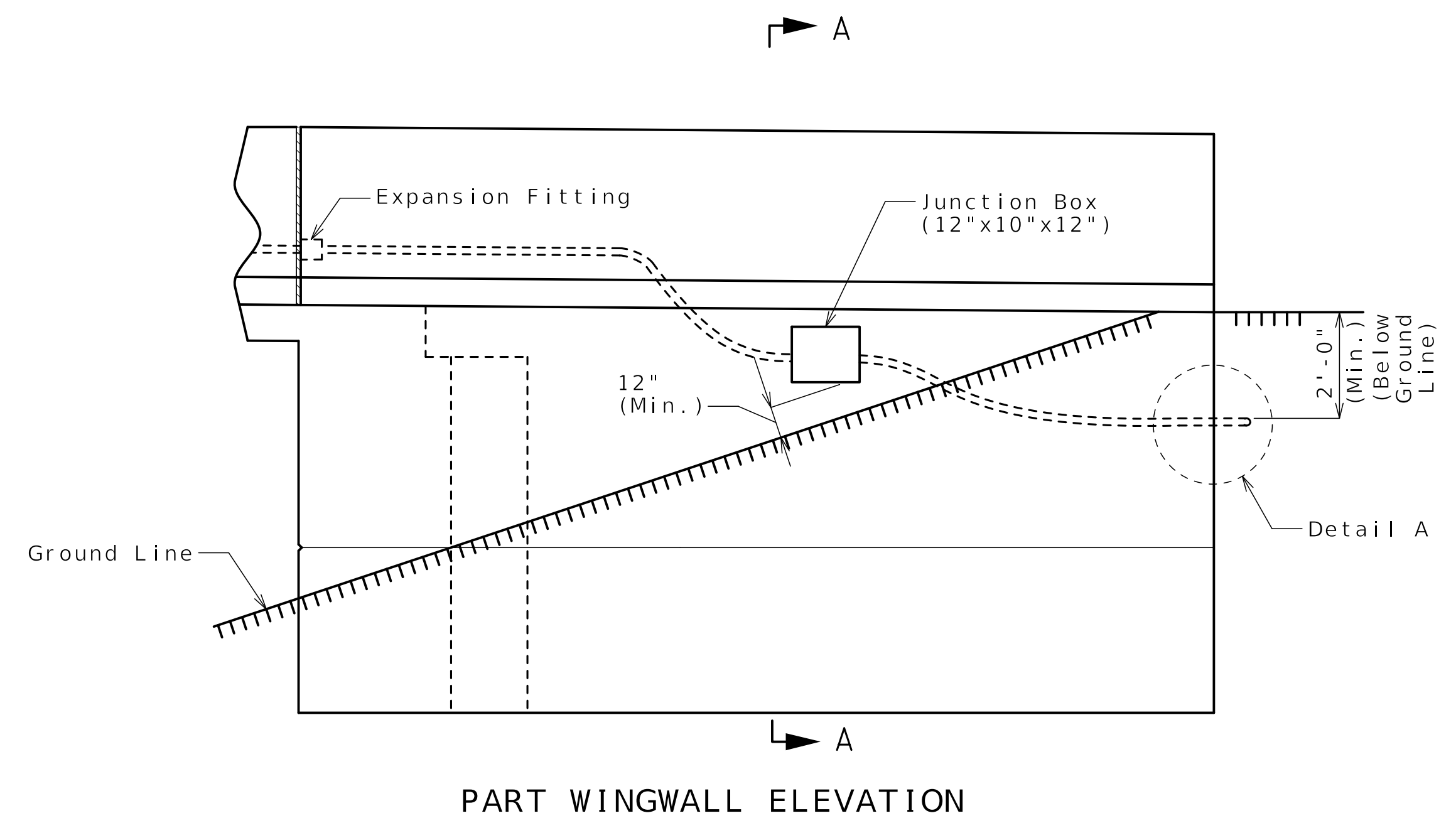
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CLARKSON RADMACHER JOINT VENTURE  
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 CERTIFICATE OF AUTHORITY NO. 001270

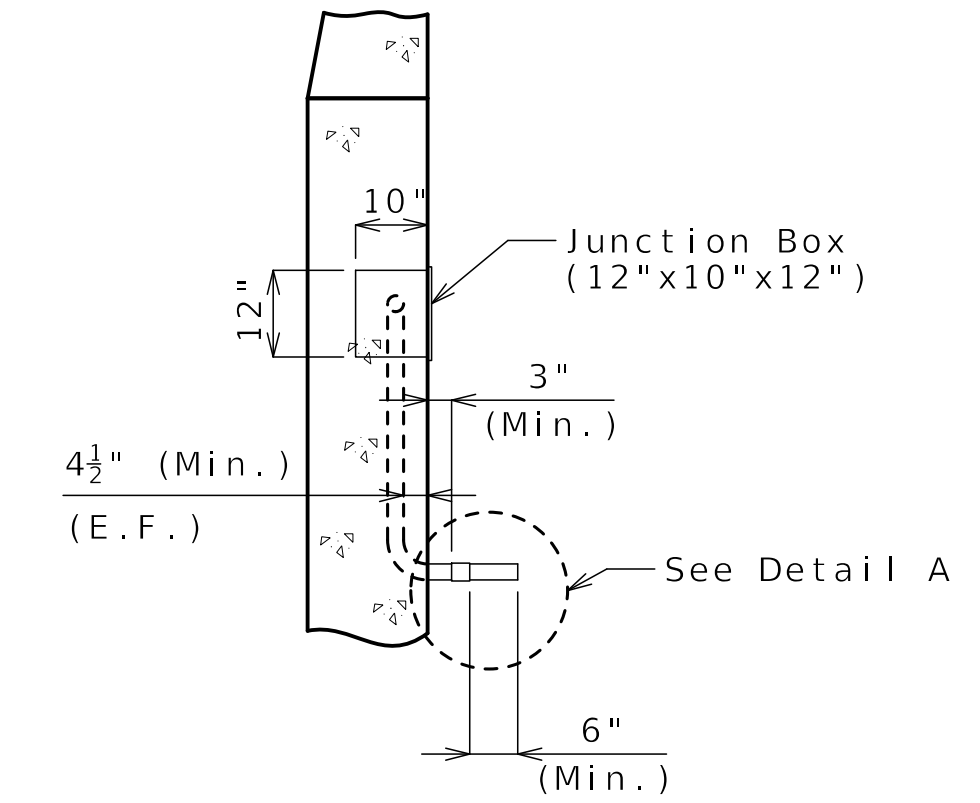
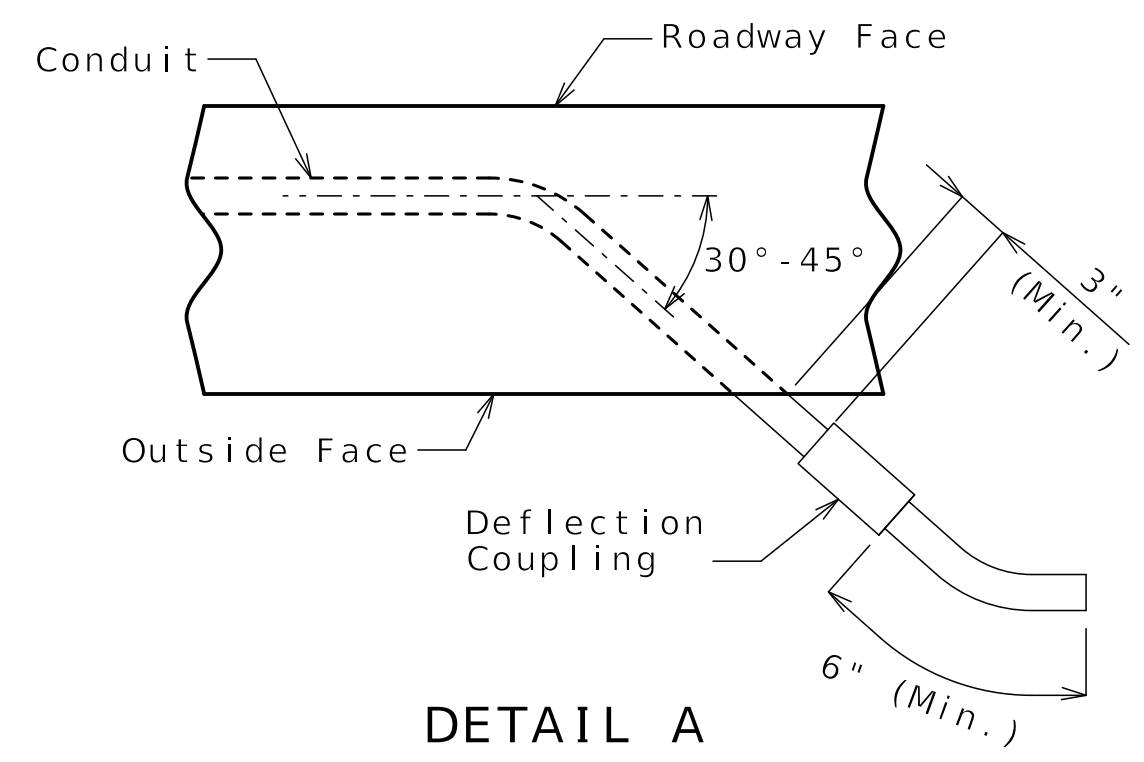
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PLAN OF CONDUIT SYSTEM



PART WINGWALL ELEVATION

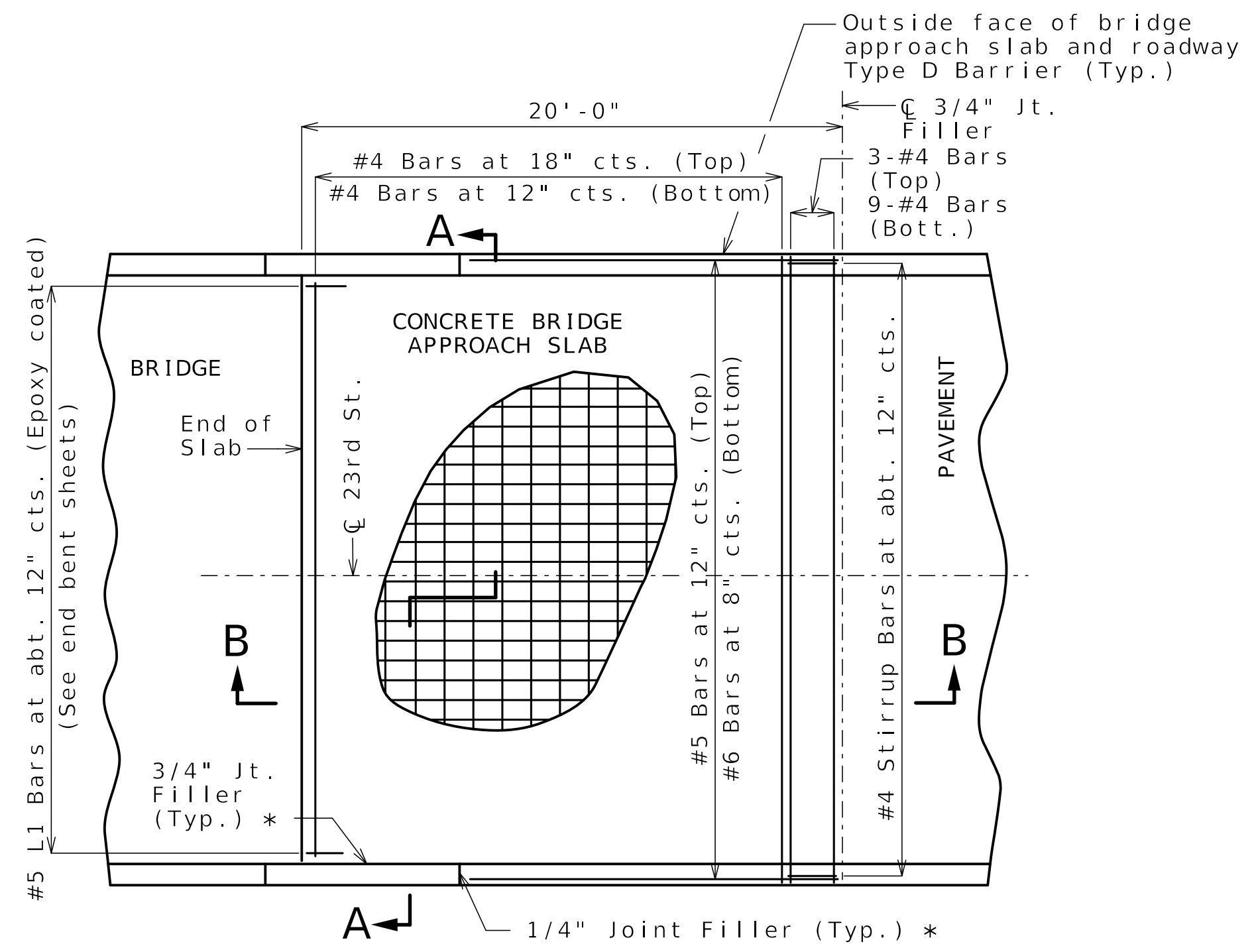


PART SECTION A-A

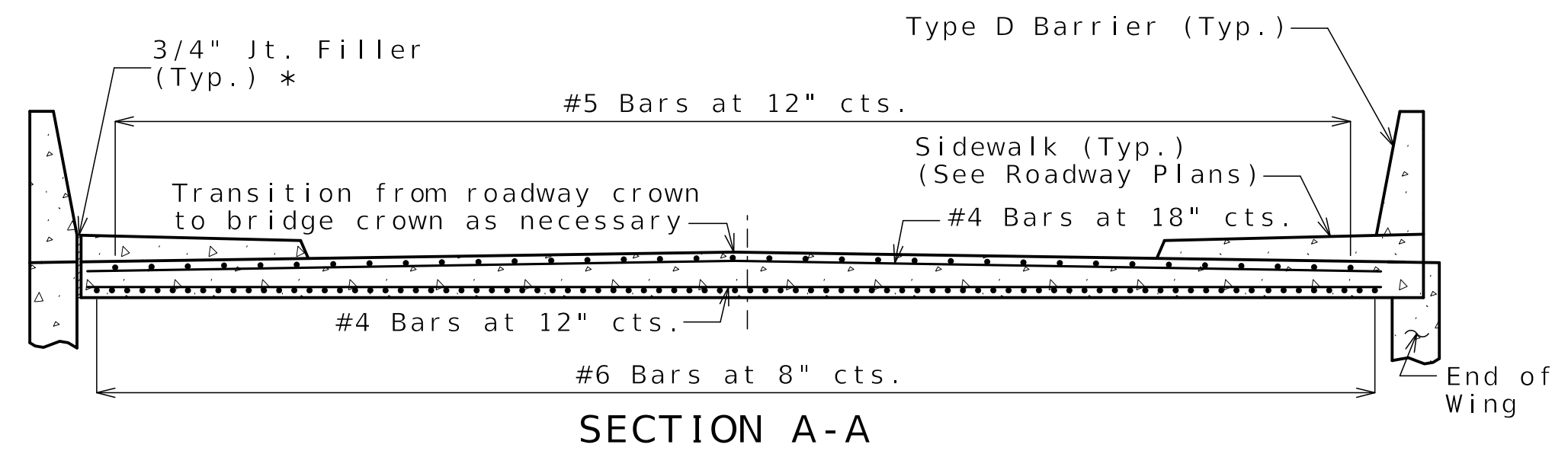
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Notes:  
 All conduit shall be rigid non-metallic schedule 40 heavy wall PVC (polyvinyl chloride plastic) with 4 1/2" minimum cover in concrete. Each section of conduit shall bear the Underwriters Laboratories (UL) label.  
 Shift reinforcing steel in field where necessary to clear conduit and junction boxes.  
 Expansion fittings shall be placed as shown and set in accordance with the manufacturer's requirements and based on the air temperature at the time of setting given an estimated total movement of 1 inch at filled joints using a maximum temperature range of 120°F and a maximum temperature of 110°F.  
 All end bent junction boxes shall be PVC molded in accordance with Sec. 1062 and designed for flush mounting. The conduit terminations shall be permanent or separable. The terminations and covers shall be of watertight construction and shall meet requirements for NEMA 4X enclosure.  
 Drainage shall be provided at low points or other critical locations of all conduits and all junction boxes in accordance with Sec 707. All conduits shall be sloped to drain where possible.  
 For additional form liner details not shown, see Sheet No. B02-29.

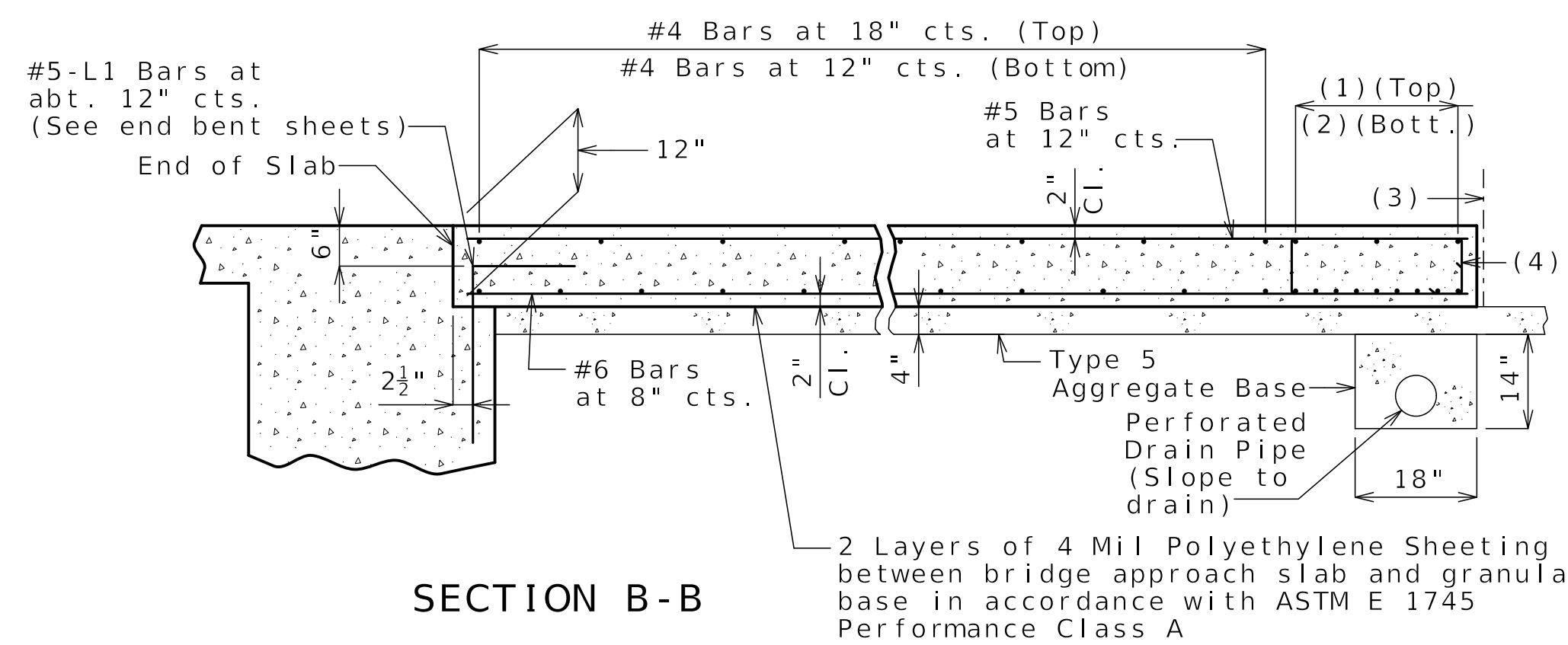
DETAILS OF CONDUIT SYSTEM ON STRUCTURE



**PART PLAN OF SQUARED STRUCTURE**  
(Skewed structure similar)  
(Sidewalk not shown)

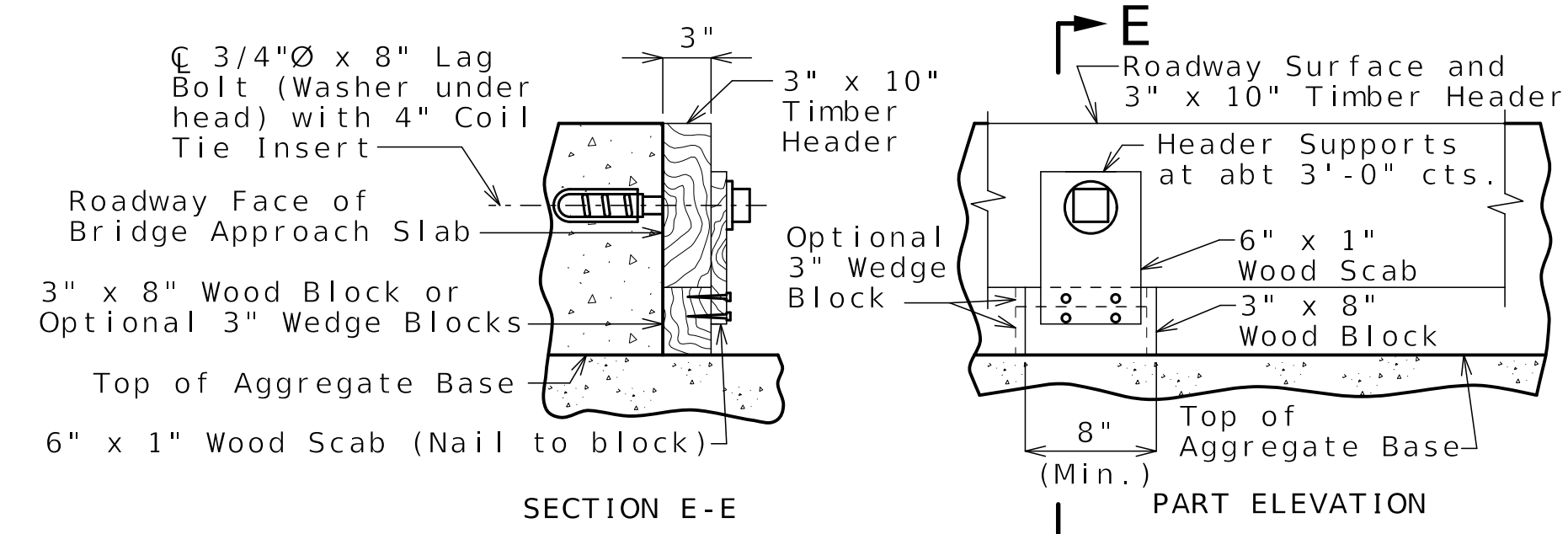


**SECTION A-A**



**SECTION B-B**

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



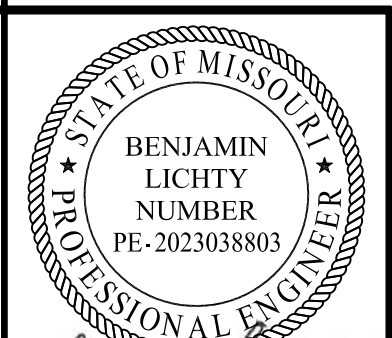
**SECTION E-E**  
**DETAILS OF TIMBER HEADER**  
Remove timber header when concrete pavement is placed.

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Package: BRD-02-23rd\_ST

**Notes:**

- All concrete for the bridge approach slab shall be in accordance with Sec 503 (f'c = 4,000 psi).
- The reinforcing steel in the bridge approach slab shall be epoxy coated Grade 60 with fy = 60,000 psi.
- Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.
- The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 23 inches for #4 bars, or by mechanical bar splice.
- All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.
- Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.
- \* Seal joint between vertical face of approach slab and wing with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

**BRIDGE APPROACH SLAB (MINOR)**



*Benjamin Lichty*  
04-11-2025

DATE PREPARED 04/11/2025	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B02-31
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JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO.  
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**CLARKSON RADMACHER** JOINT VENTURE  
715 KIRK DRIVE  
KANSAS CITY, MO 64105-1310  
CERTIFICATE OF AUTHORITY  
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