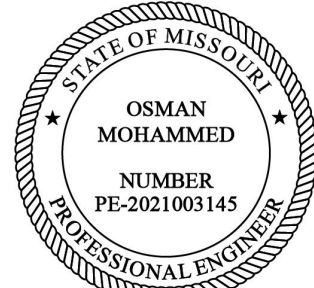


(66.8' - 66.8') CONTINUOUS PRESTRESSED CONCRETE NU-GIRDER SPANS (01°13'46" RA)

SEC/SUR 08 TWP 48N RGE 12W



DATE PREPARED
19-FEB-2025

ROUTE
54EB

STATE
MO

DISTRICT
BR

SHEET NO.
1

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DESCRIPTION	DATE
REV. A - PRELIMINARY REVIEW	09/16/2024
REV. B - FINAL REVIEW	01/21/2025
REV. 0 - RELEASED FOR CONSTRUCTION	02/19/2025

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

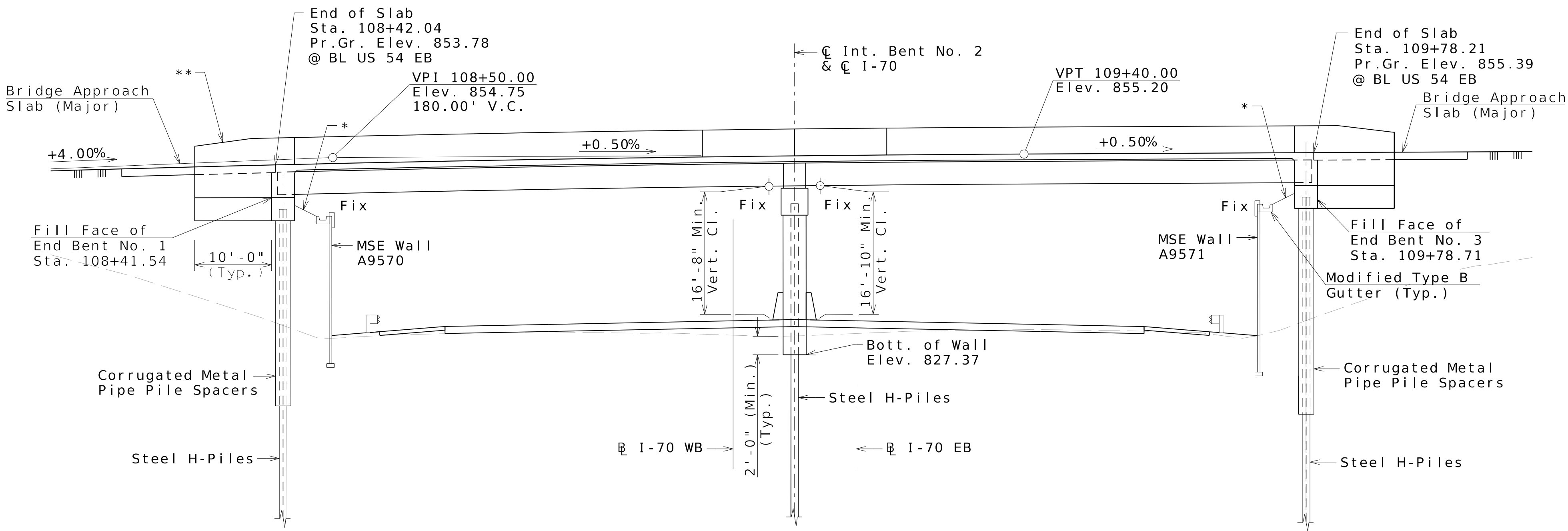
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

MODOT IMPROVE I-70 DB PROJECT 1

MILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING



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

** Taper for guardrail attachment is not required at northeast corner of Type D Barrier at End Bent No. 1

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. 27 thru 34 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.

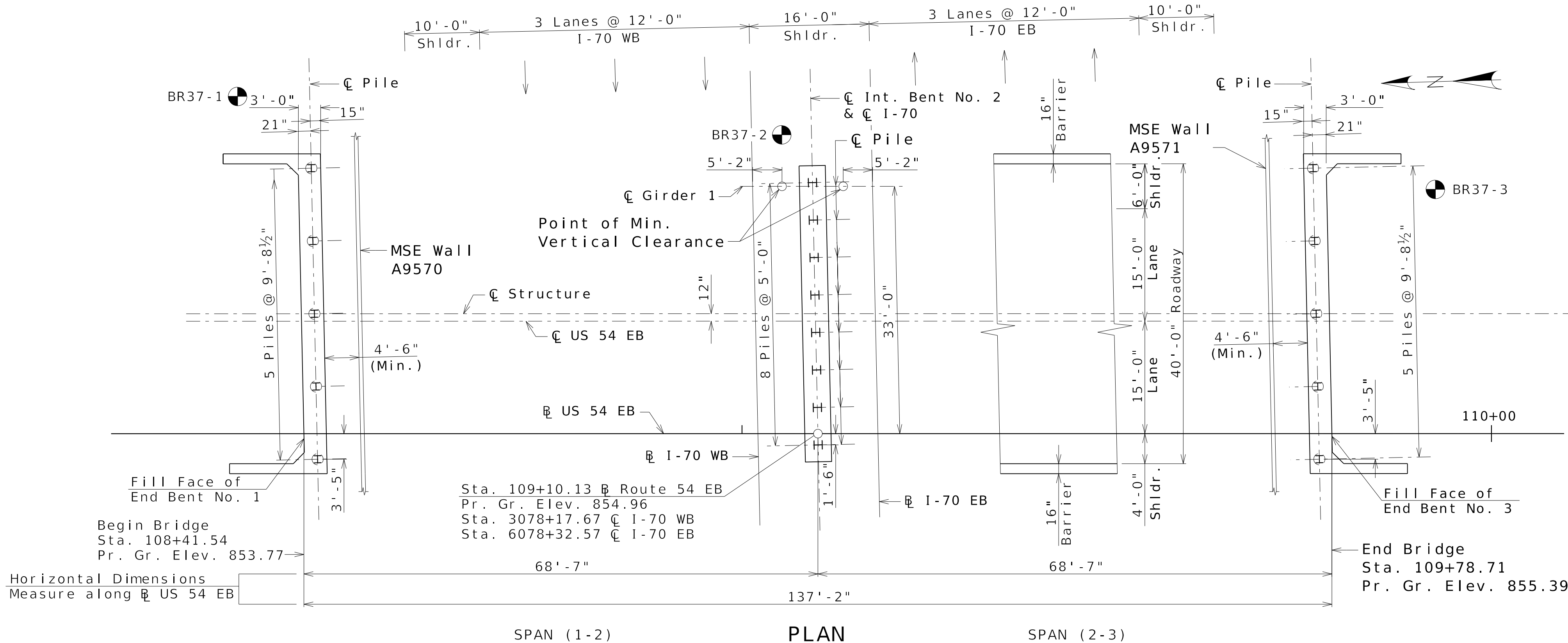
Notes:

All bents are parallel.

Stations and Elevations are measured along Baseline US 54 Eastbound.

For General Notes, Foundation Data, and Location Sketch, see Sheet No. 2.

GENERAL ELEVATION



01°13'46"

88°46'14"

90°00'00"

0.2146

B.M. 372 - ELEVATION = 858.344
STATE PLANE (1983 CENTRAL ZONE)
NORTHING 1675279.45
EASTING 857811.74
LATITUDE 38.94353056 DEGREES
LONGITUDE -91.94107778 DEGREES
POINT DESCRIPTION CUT SQUARE

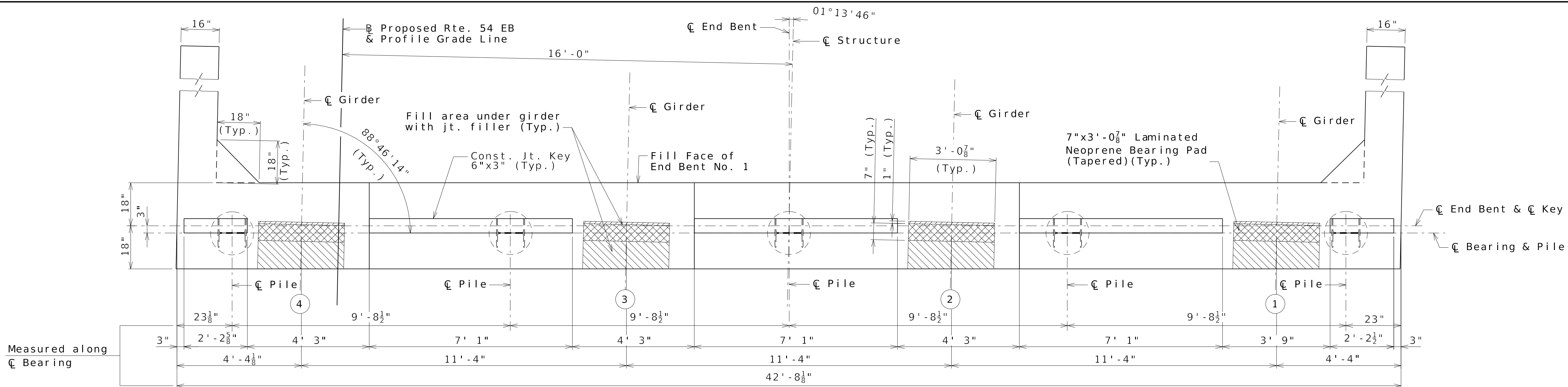
BRIDGE: ROUTE 54 EB OVER I-70

STATE ROAD: ROUTE 54
IN KINGDOM CITY
BGN. STA. 108+41.54

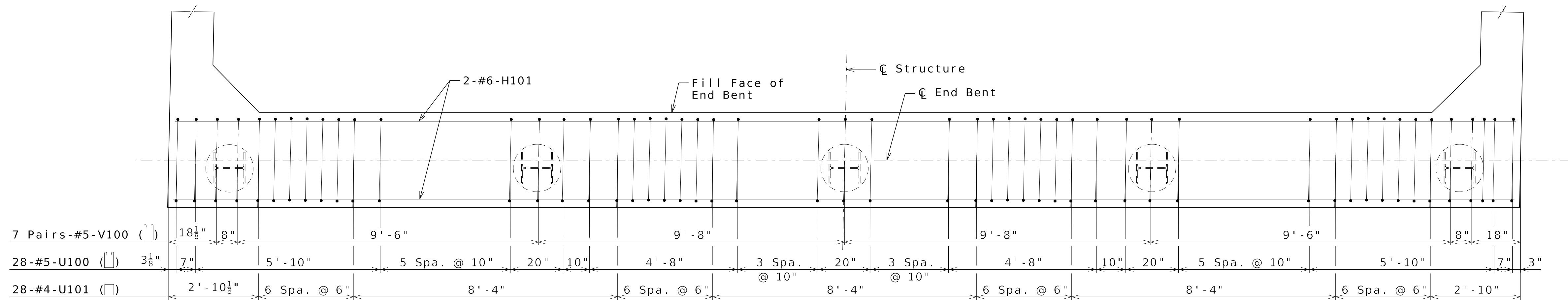
Designed July 2024
Detailed Nov 2024
Checked Jan 2025

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

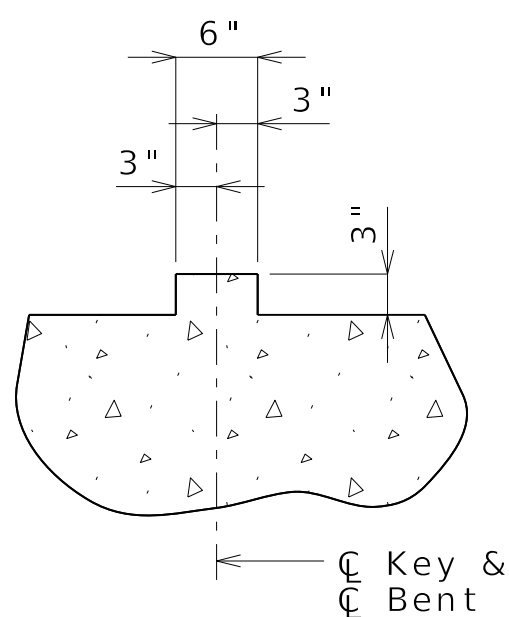
Sheet No. 1 of 34



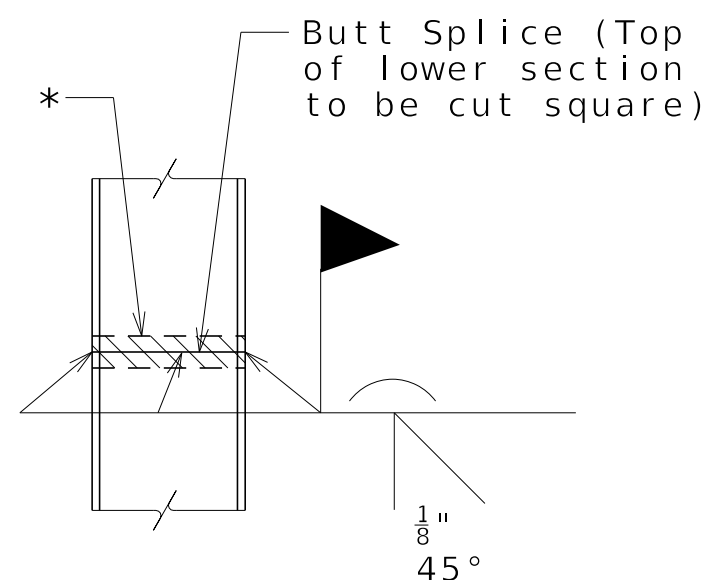
PLAN OF BEAM SHOWING DIMENSIONS



PLAN OF BEAM SHOWING REINFORCEMENT
(Key not shown for clarity)

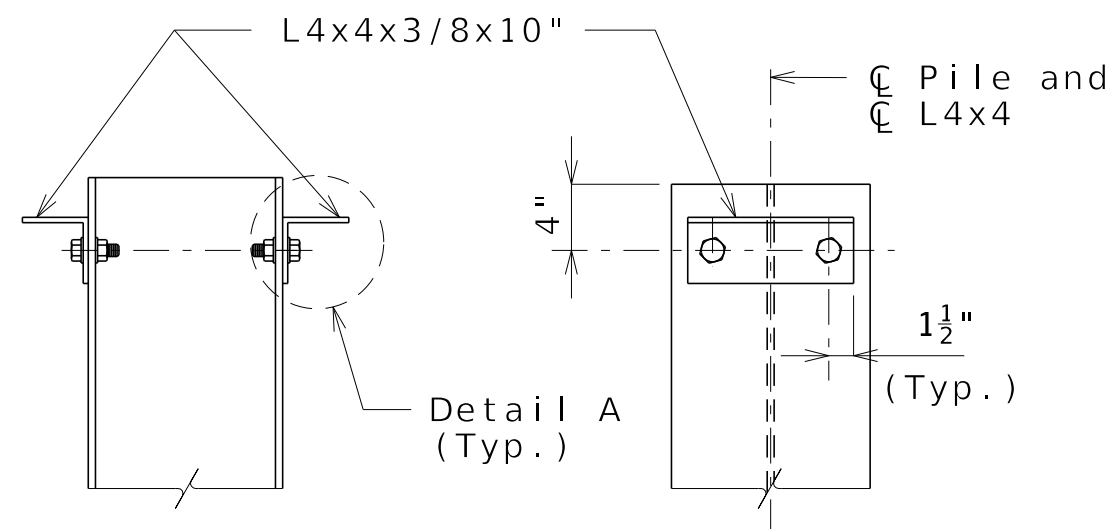


SECTION THRU KEY

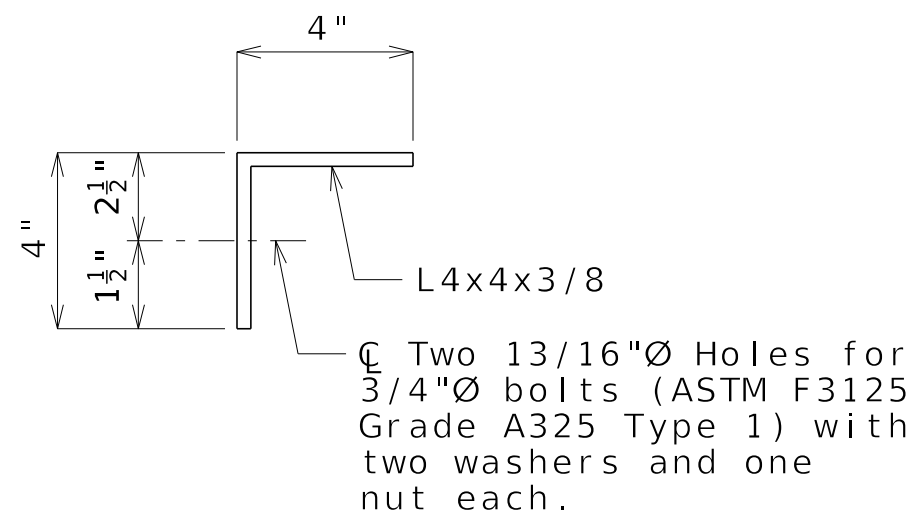


STEEL PILE SPLICE
(If required)

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



DETAILS OF HP PILE ANCHORS



DETAIL A

Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

DETAILS OF END BENT NO. 1

General Notes:

For details of End Bent No. 1 not shown, see Sheets No. 4 & 5.

All U-bars and V-bars shall be placed parallel to $\perp$ Route 54 EB.

All vertical reinforcing bars in the substructure beams or caps shall be field adjusted to clear piles by at least $1\frac{1}{2}$ ".

All Strands at end of girders shall be field bent or if necessary, cut in field to maintain $1\frac{1}{2}$ " minimum clearance to fill face of end bent.

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

For details of vertical drain at end bents, see Sheet No. 6.

For Details and Reinforcement of MoDOT Type D Barrier not shown, see Sheets No. 20-22.

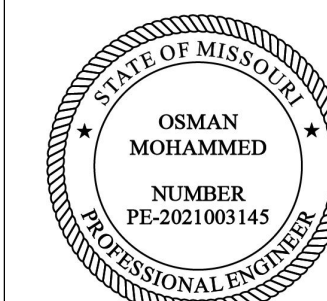
For details of approach slab, see Sheet No. 23.

Reinforcement of wingwall not shown for clarity.

Detailed Nov 2024
Checked Jan 2025

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

Sheet No. 3 of 34



Osman Mohammed
02/20/2025 8:19:38 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
19-FEB-2025

ROUTE 54EB
DISTRICT BR
STATE MO
SHEET NO. 3

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

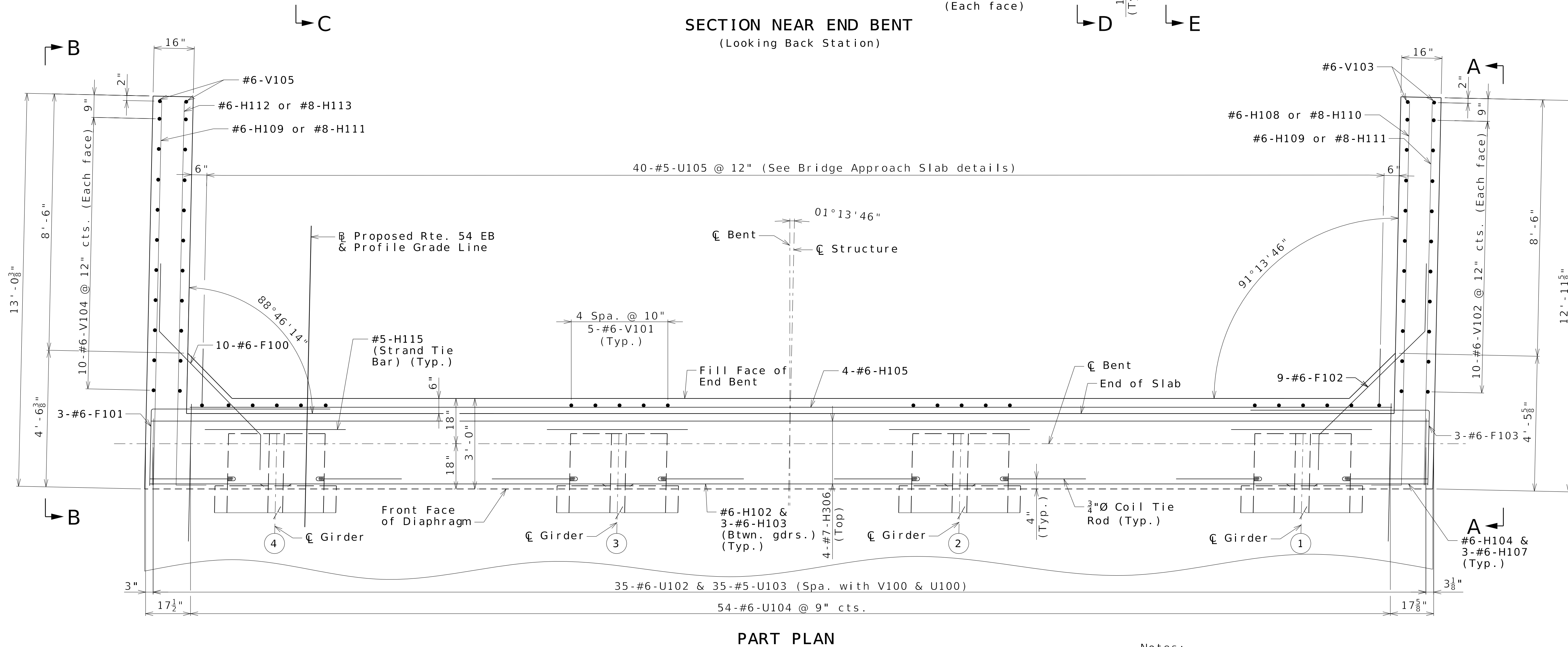
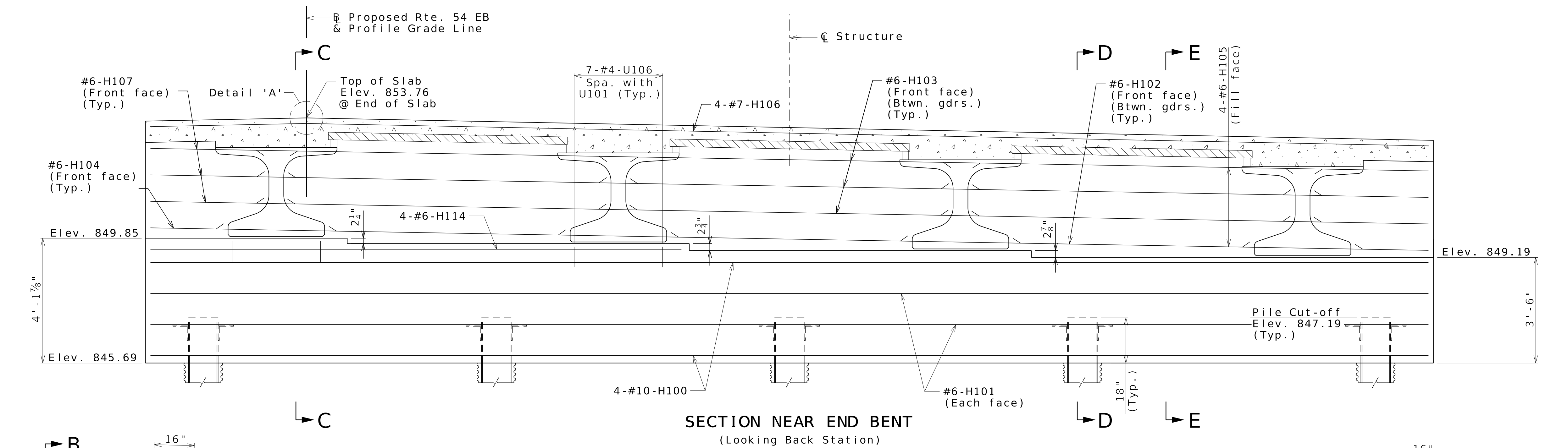
PROJECT NO.

BRIDGE NO.
A9557

DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	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
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING



DETAILS OF END BENT NO. 1

Notes:

For details of End Bent No. 1 not shown, see Sheets No. 3 & 5.

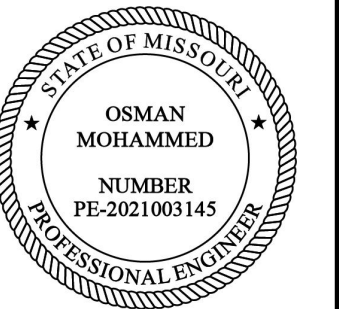
For Elevations A-A & B-B & Sections C-C, D-D & E-E, see Sheet No. 5.

For Detail 'A', see Sheet No. 19.

For location of Coil Tie Rods and #5-H115 (Strand Tie Bar), see Sheet No. 3.

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

For girder spacing, see Sheet No. 3.



Osman Mohammed
02/20/2025 8:19:38 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED

19-FEB-2025	
ROUTE 54EB	STATE MO
DISTRICT BR	SHEET NO. 4

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.	A9557
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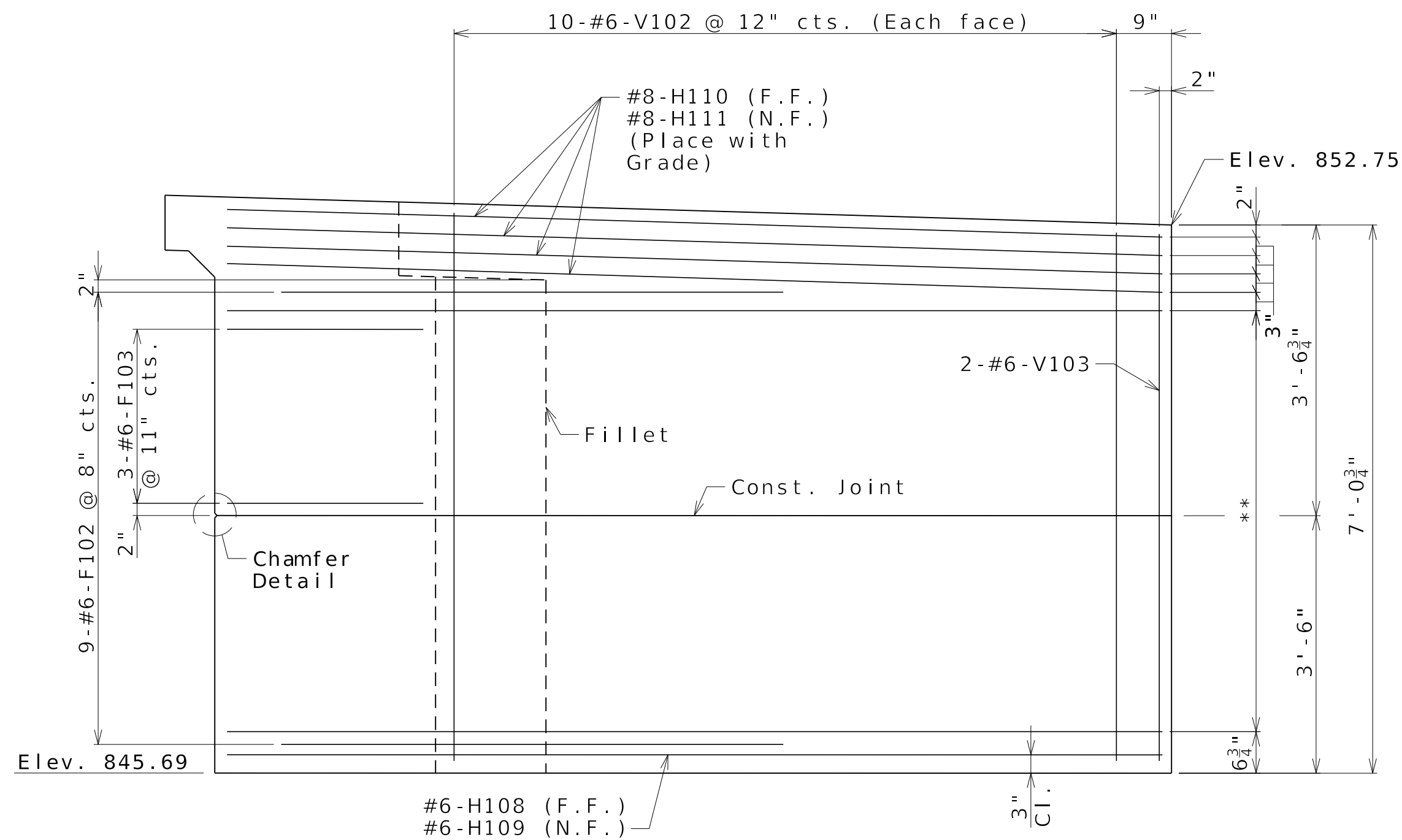
DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

**MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION**

MoDOT

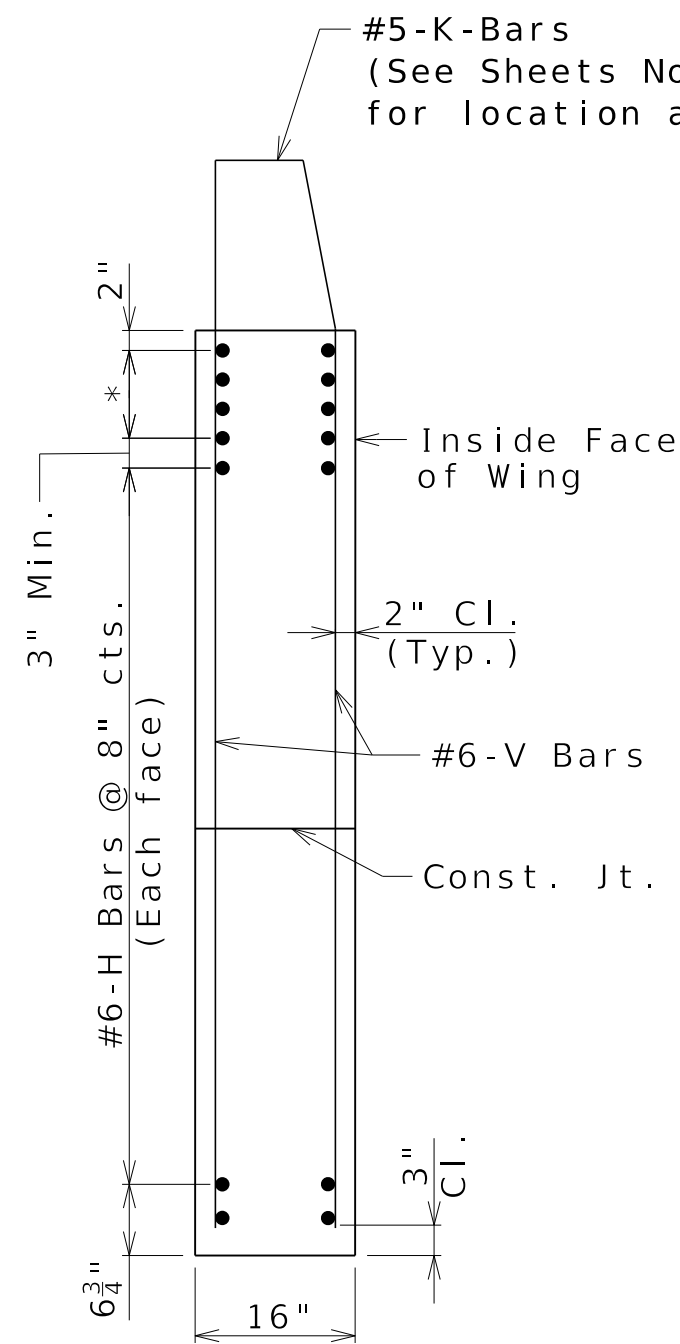
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MODOT IMPROVE 1-70 DB PROJECT 1	  MILLSTONE WEBER	MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING
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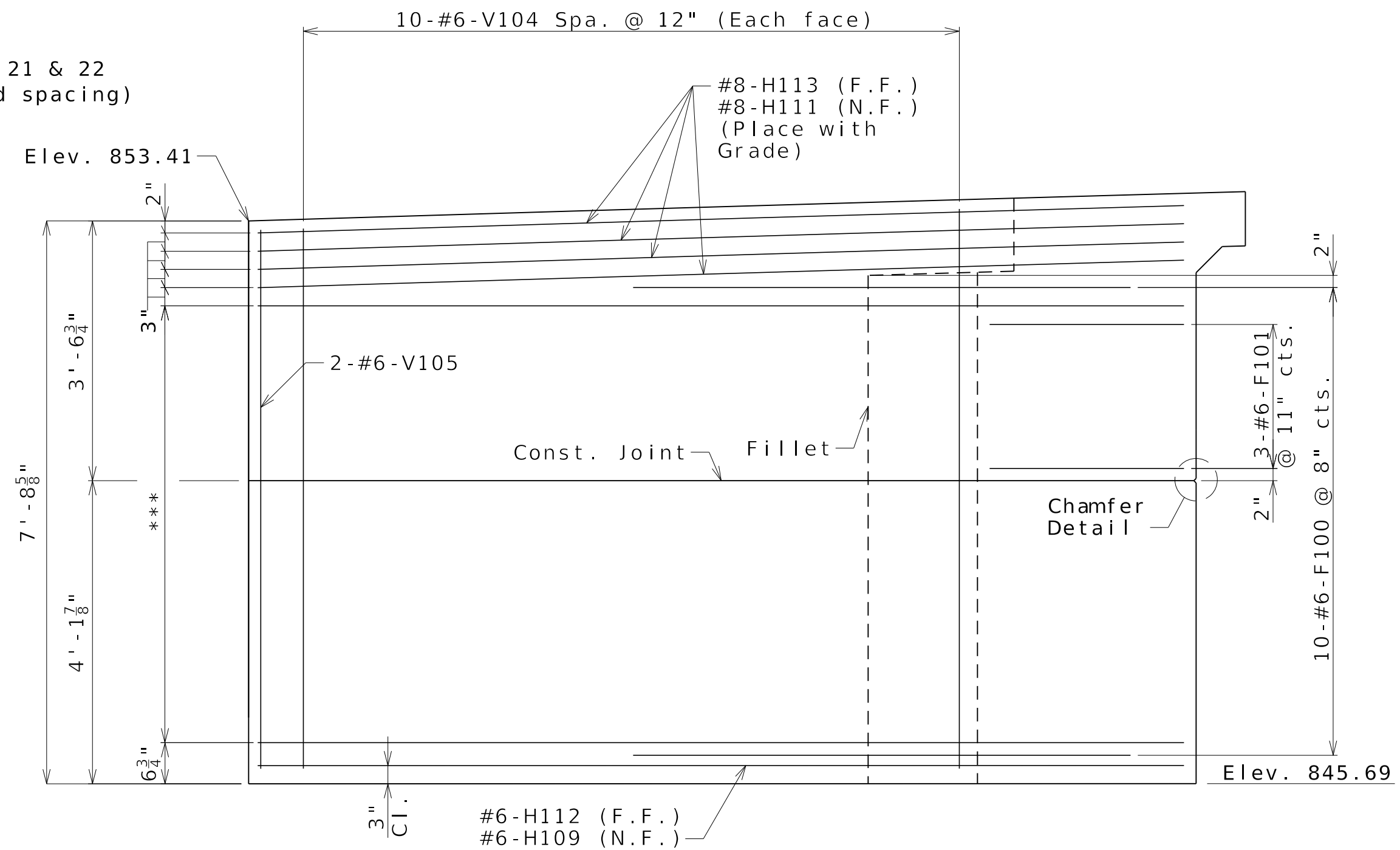
ELEVATION A-A

** 9-#6-H108 @ 8" cts. (F.F.)
9-#6-H109 @ 8" cts. (N.F.)



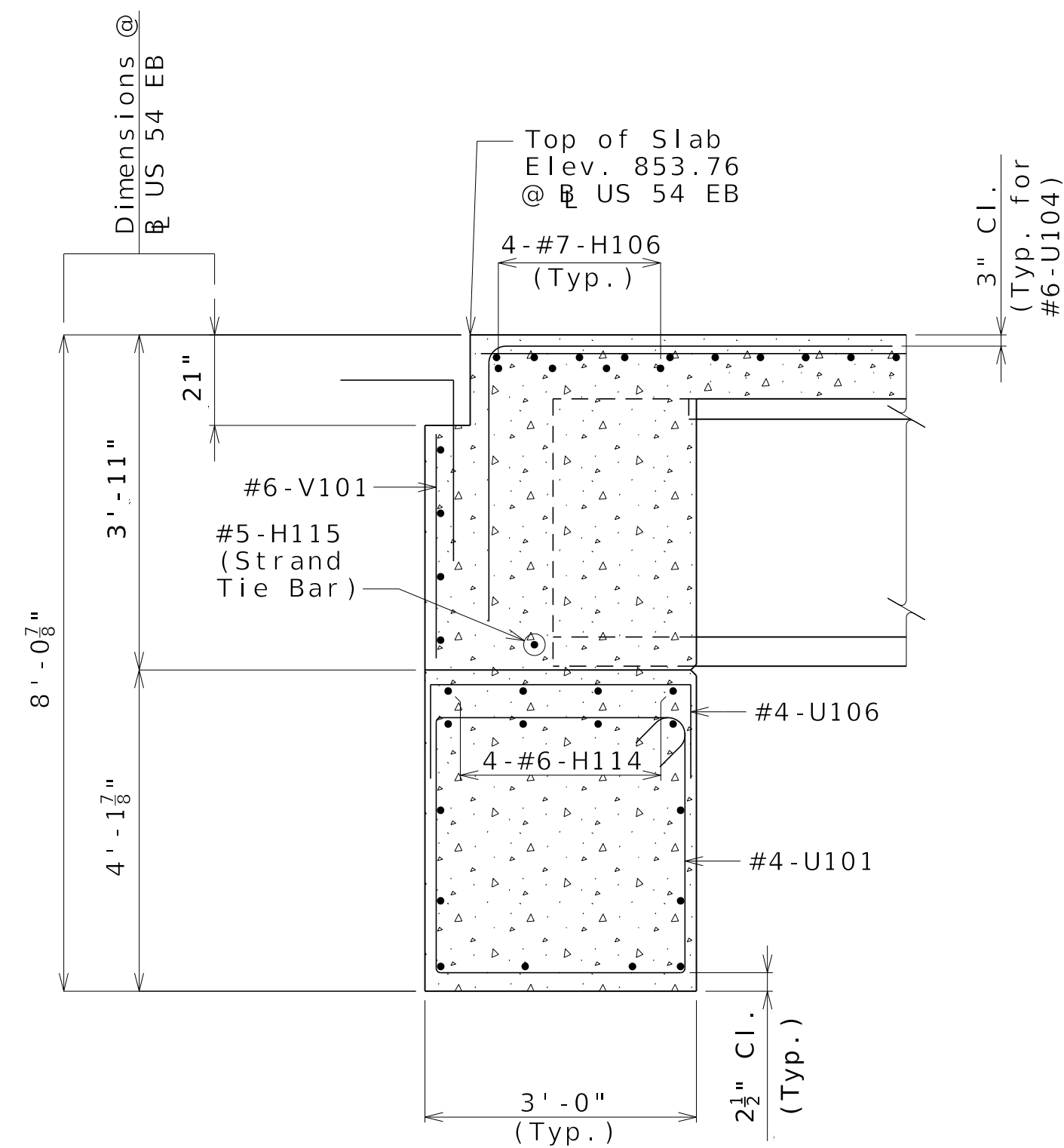
TYPICAL SECTION THRU WING

* 4-#8-H Bars at 3" cts. (Each face) (Place with grade)

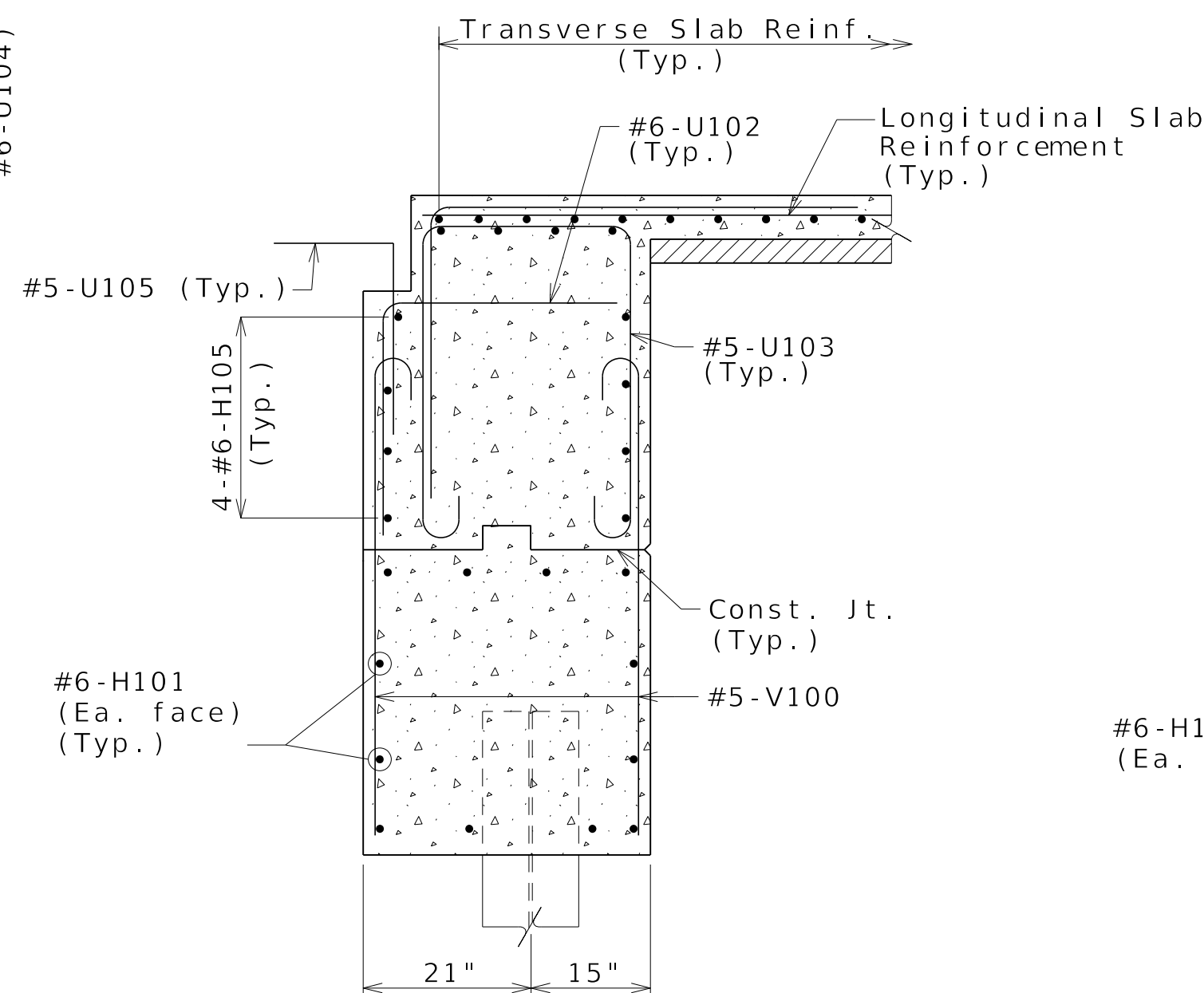


ELEVATION B-B

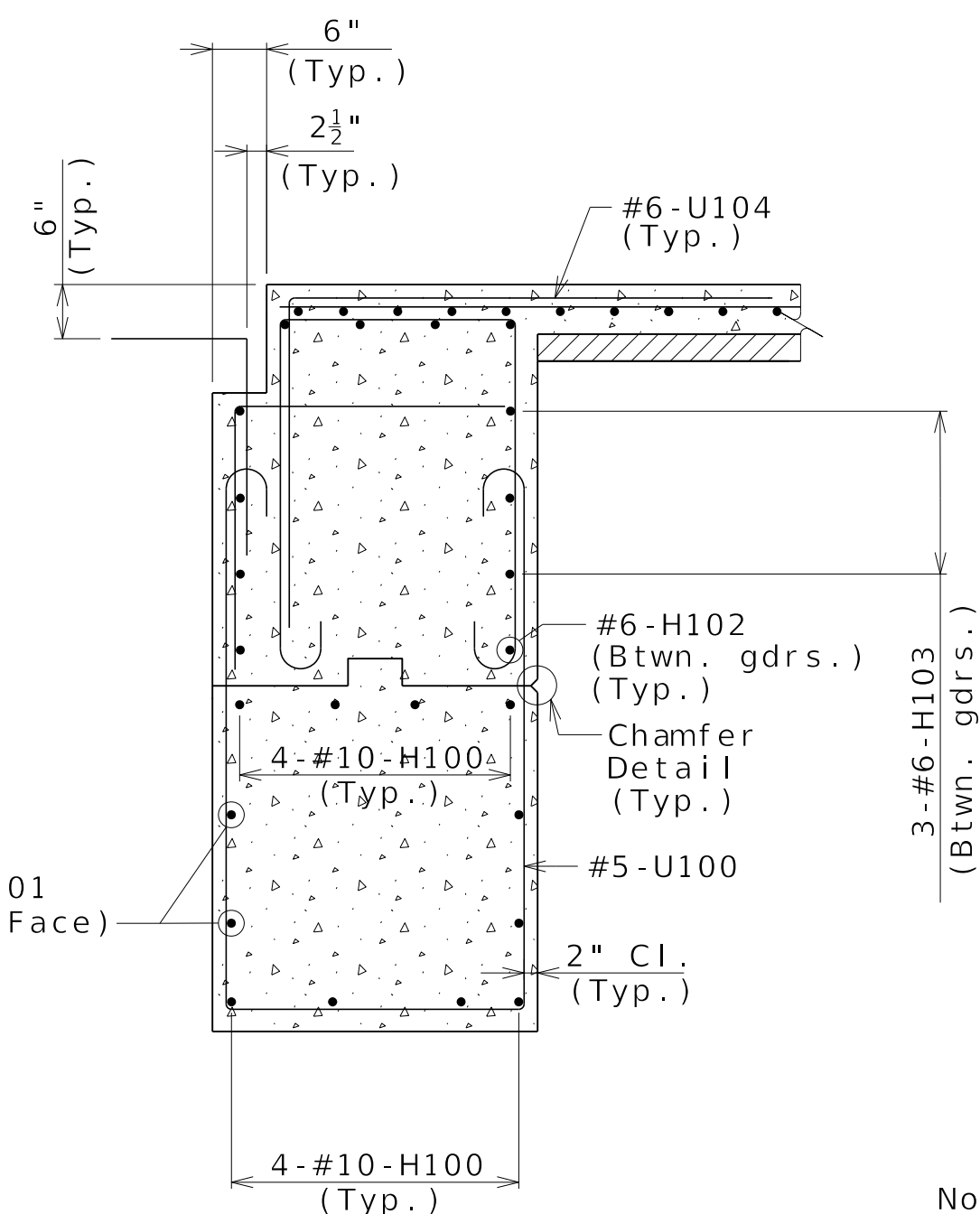
*** 10-#6-H112 @ 8" cts. (F.F.)
10-#6-H109 @ 8" cts. (N.F.)



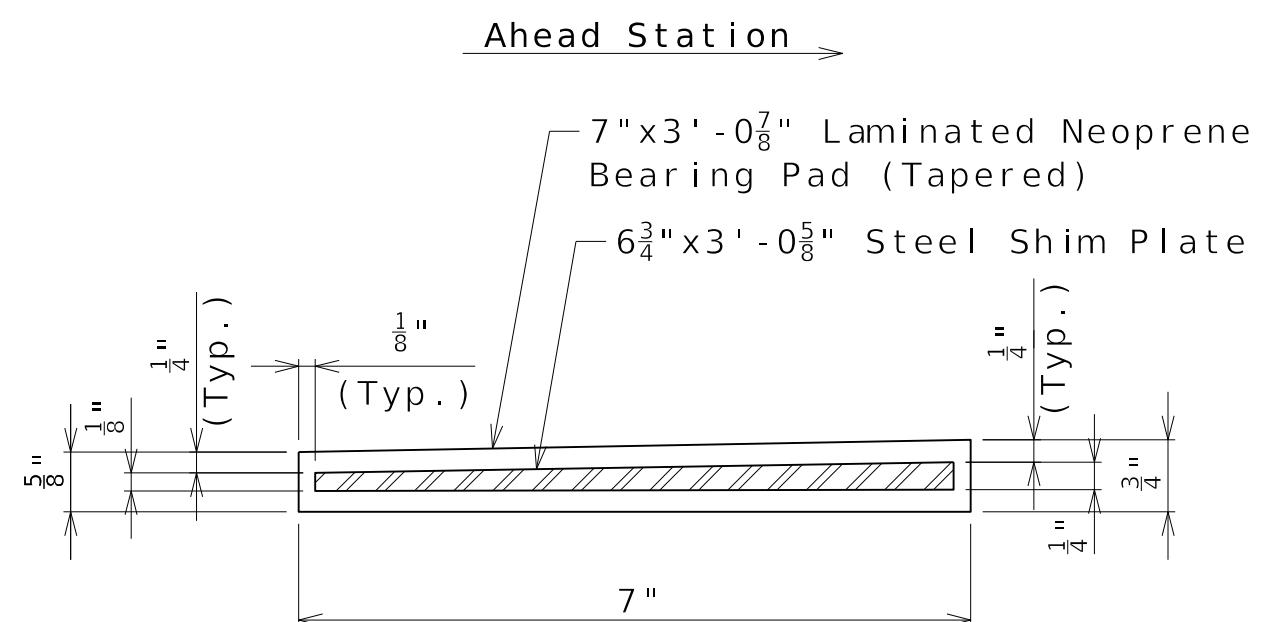
SECTION C-C



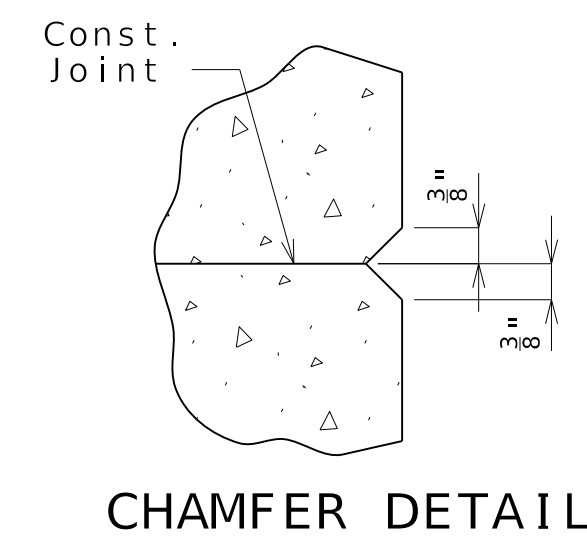
SECTION D-D



SECTION E-E



SECTION THRU LAMINATED NEOPRENE BEARING PAD
4 Required at End Bent No. 1



CHAMFER DETAIL

Notes:

For location of Elevations A-A and B-B, see Sheet No. 4.
Work this sheet with Sheets No. 3 & 4.



DATE PREPARED
19-FEB-2025
ROUTE
54EB
DISTRICT
BR
STATE
MO
SHEET NO.
5

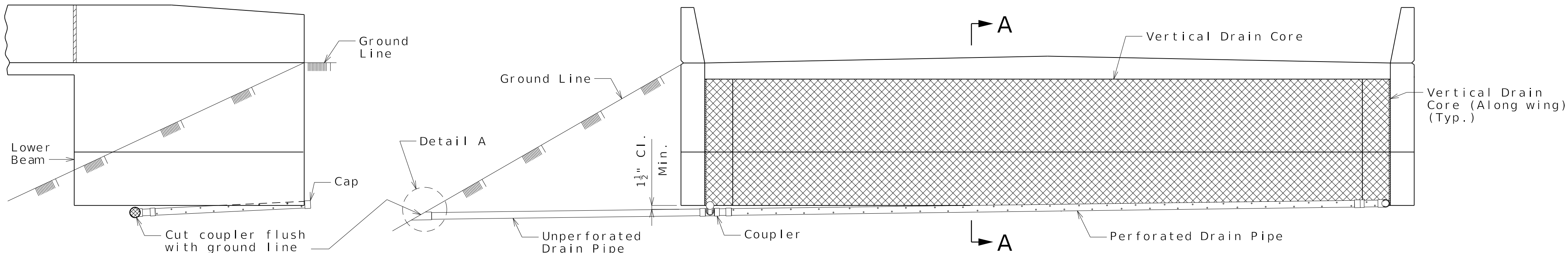
COUNTY
CALLAWAY
JOB NO.
JST0021
CONTRACT ID.

PROJECT NO.
BRIDGE NO.
A9557

DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

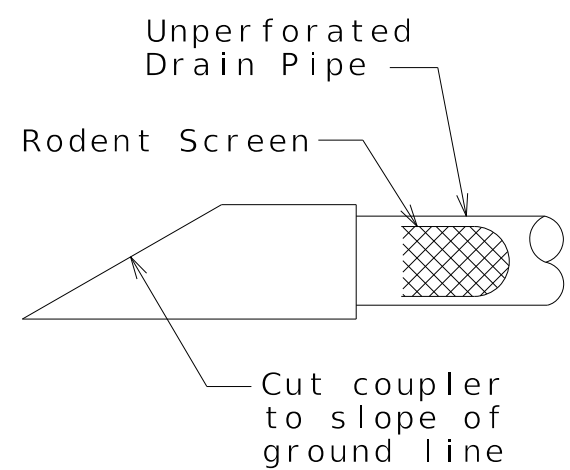
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



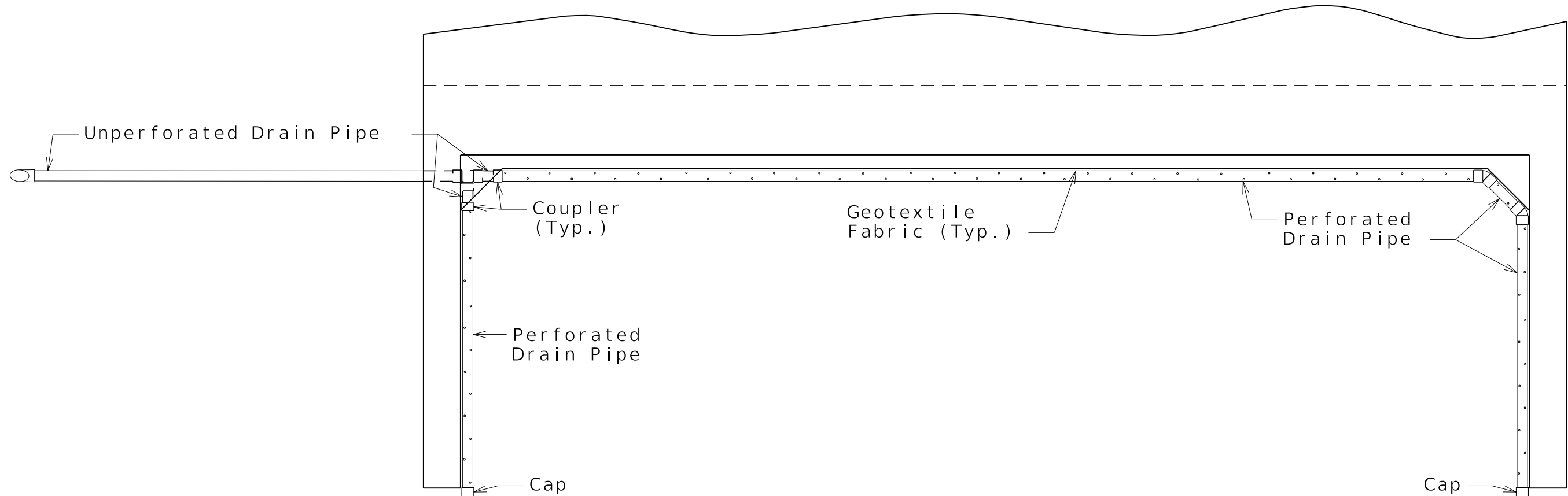


ELEVATION OF WING

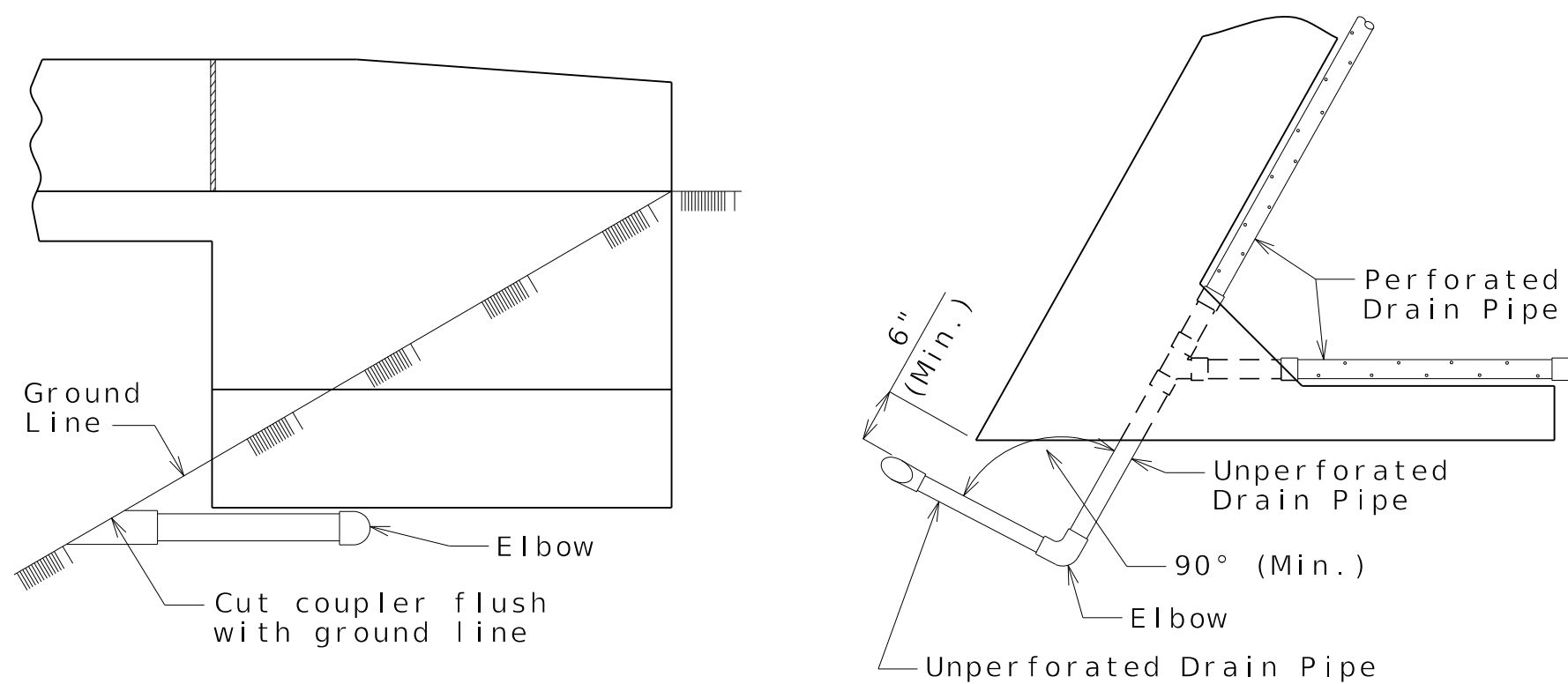
ELEVATION OF END BENT



DETAIL A



PLAN OF END BENT

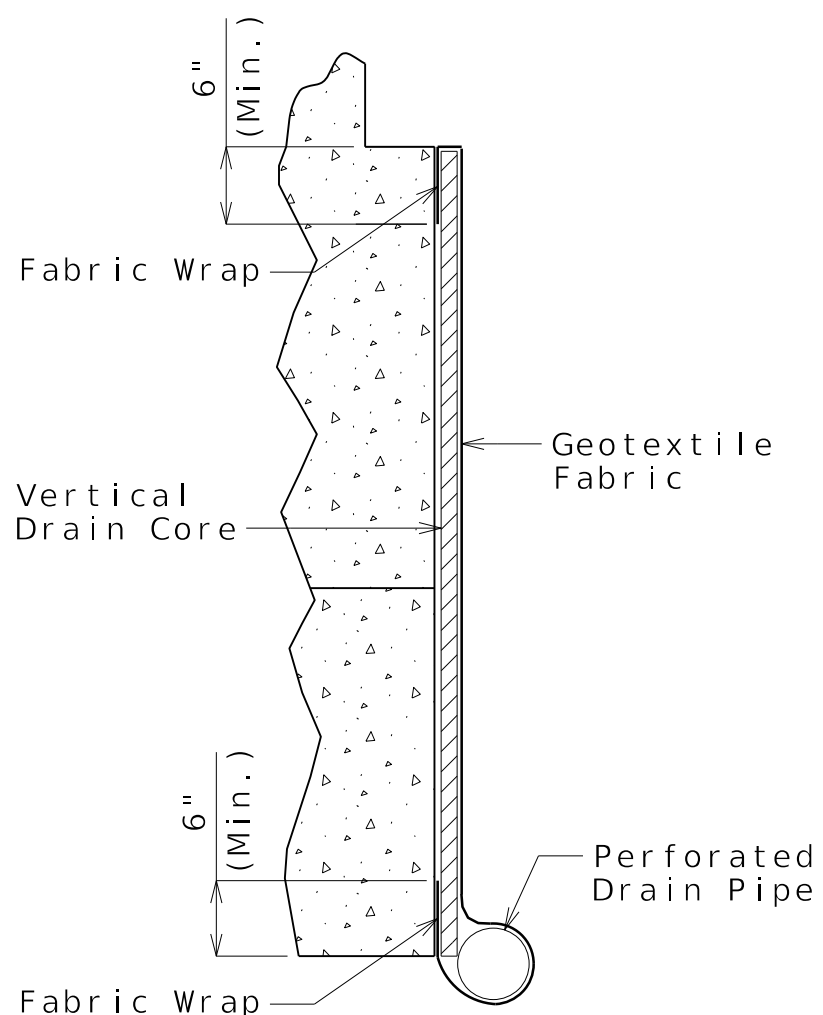


ELEVATION OF WING

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.

STATE OF MISSOURI

OSMAN MOHAMMED

NUMBER PE-2021003145

PROFESSIONAL ENGINEER

02/20/2025 8:19:38 AM

Osman Mohammed

MO PE-2021003145

DATE PREPARED
19-FEB-2025

ROUTE
54EB

STATE
MO

DISTRICT
BR

SHEET NO.
6

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

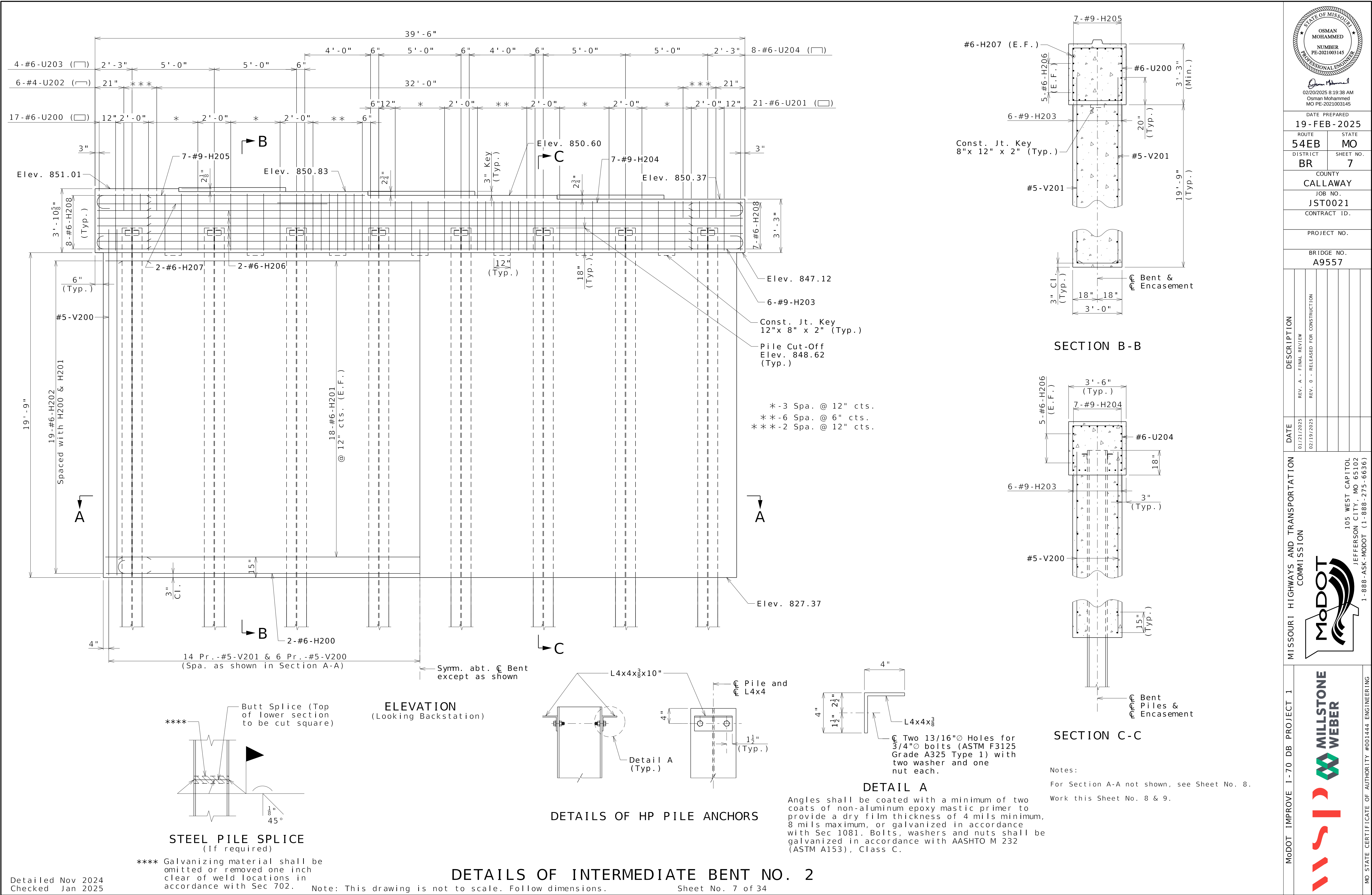
MoDOT

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

MoDOT IMPROVE I-70 DB PROJECT 1

MISSILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING

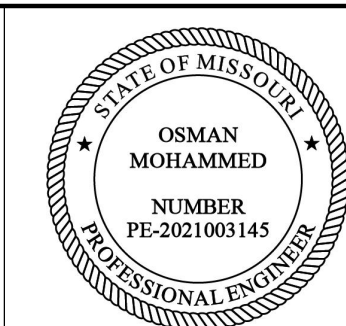


Detailed Nov 2024
Checked Jan 2025

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

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

Sheet No. 7 of 34



Osman Mohammed
02/20/2025 8:19:38 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
19-FEB-2025

ROUTE
54EB

STATE
MO

DISTRICT
BR

SHEET NO.
7

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

01/21/2025

02/19/2025

03/19/2025

04/19/2025

05/19/2025

06/19/2025

07/19/2025

08/19/2025

09/19/2025

10/19/2025

11/19/2025

12/19/2025

01/19/2026

02/19/2026

03/19/2026

04/19/2026

05/19/2026

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09/19/2026

10/19/2026

11/19/2026

12/19/2026

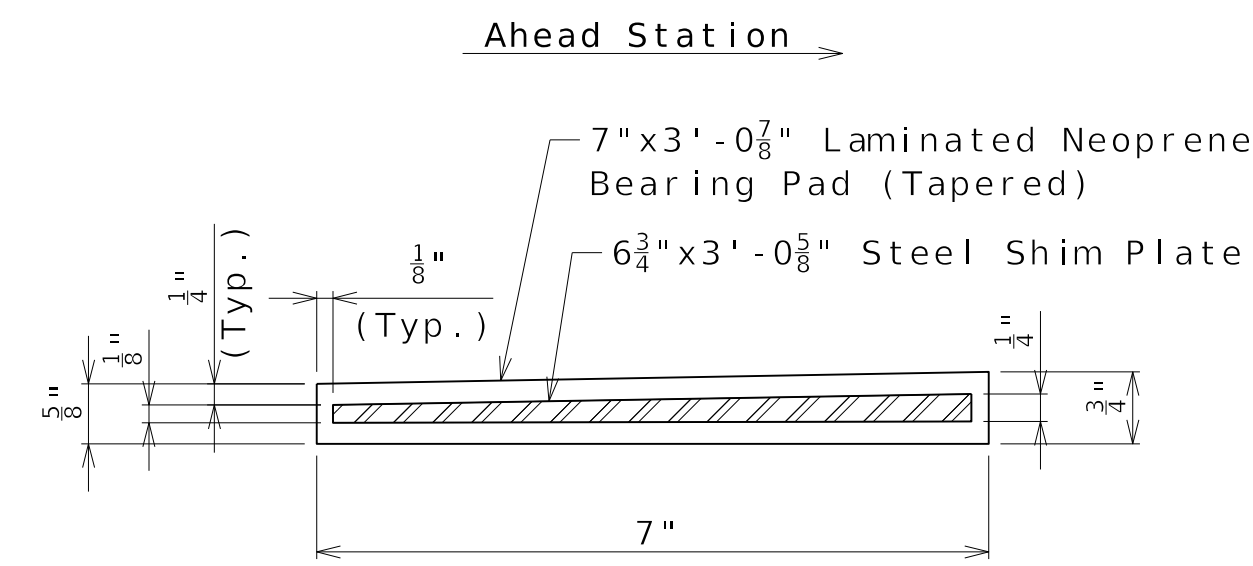
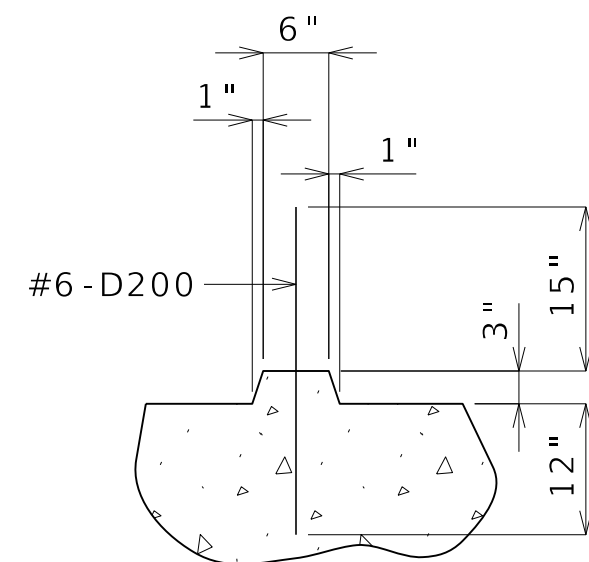
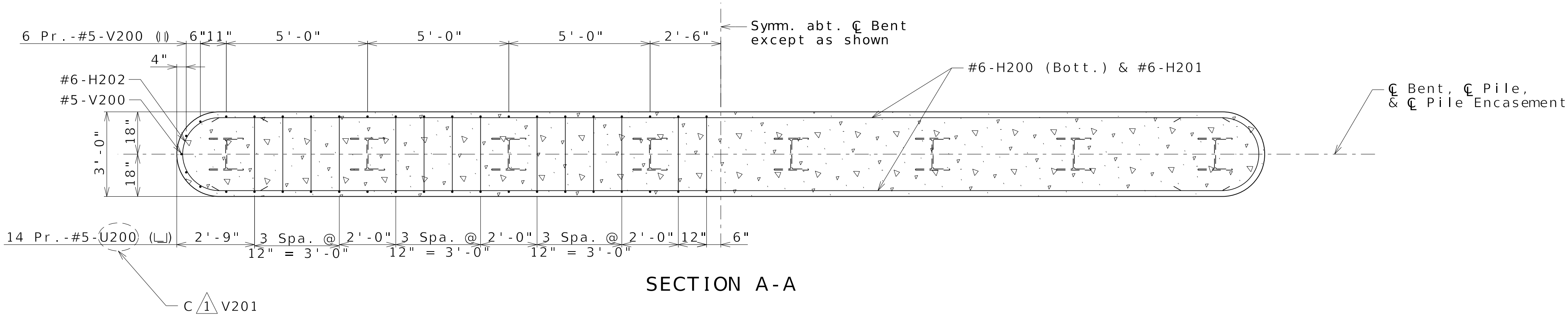
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02/19/2027

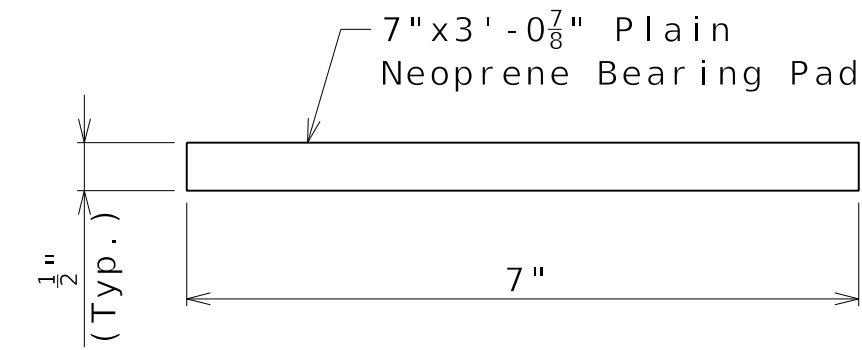
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04/19/2027

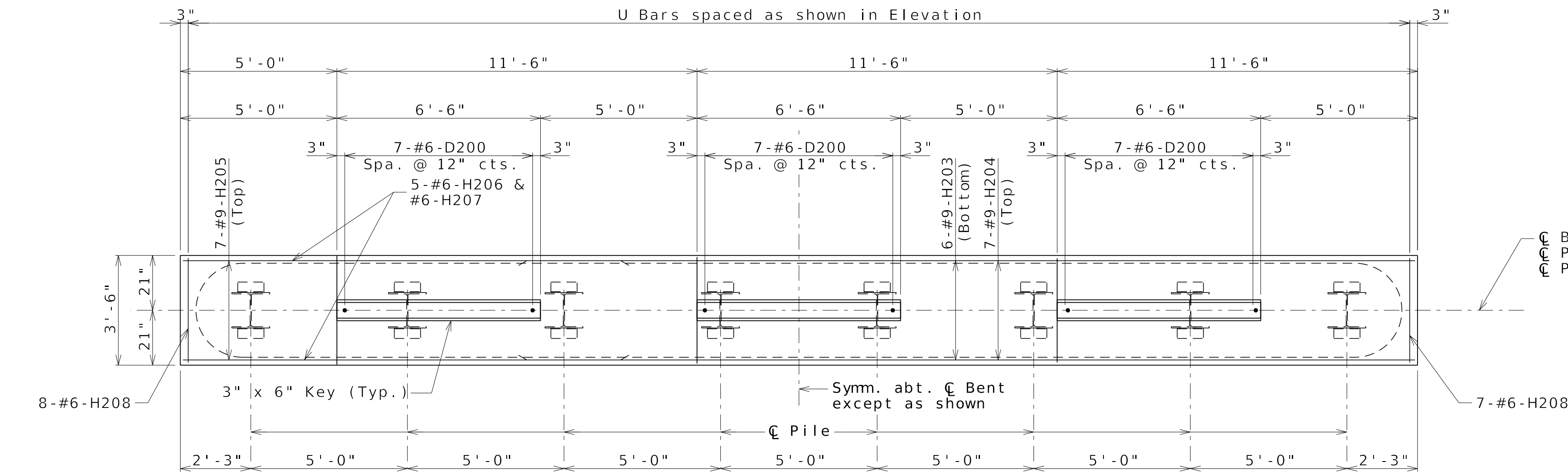
05/19/2027



SECTION THRU LAMINATED NEOPRENE BEARING PAD
4 Required at Intermediate Bent No. 2 (Ahead)



SECTION THRU PLAIN NEOPRENE BEARING PAD
4 Required at Intermediate Bent No. 2 (Back)



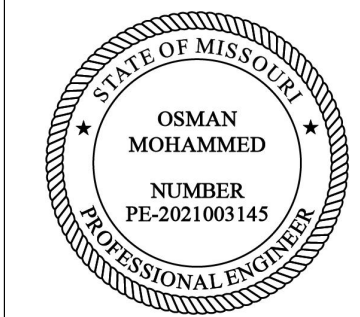
Notes:
For the location of Section A-A, see Sheet No. 7.
For Intermediate Bent Details not shown, see Sheets No. 7 & 9.

C 1 REVISED 03-14-2025

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed Nov 2024
Checked Jan 2025

Note: This drawing is not to scale. Follow dimensions. Sheet No. 8 of 34



03/14/2025 2:45:28 PM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
14-MAR-2025

ROUTE 54EB
DISTRICT BR
STATE MO
SHEET NO. 8

COUNTY
CALLAWAY

JOB NO.
JST0021

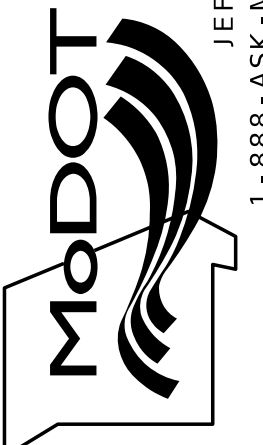
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

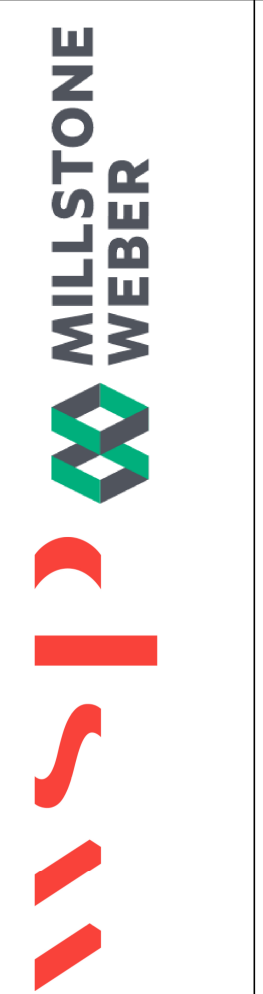
DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION
03/14/2025	REV. 1 - NDC-013 - REVISED BAR MARK

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

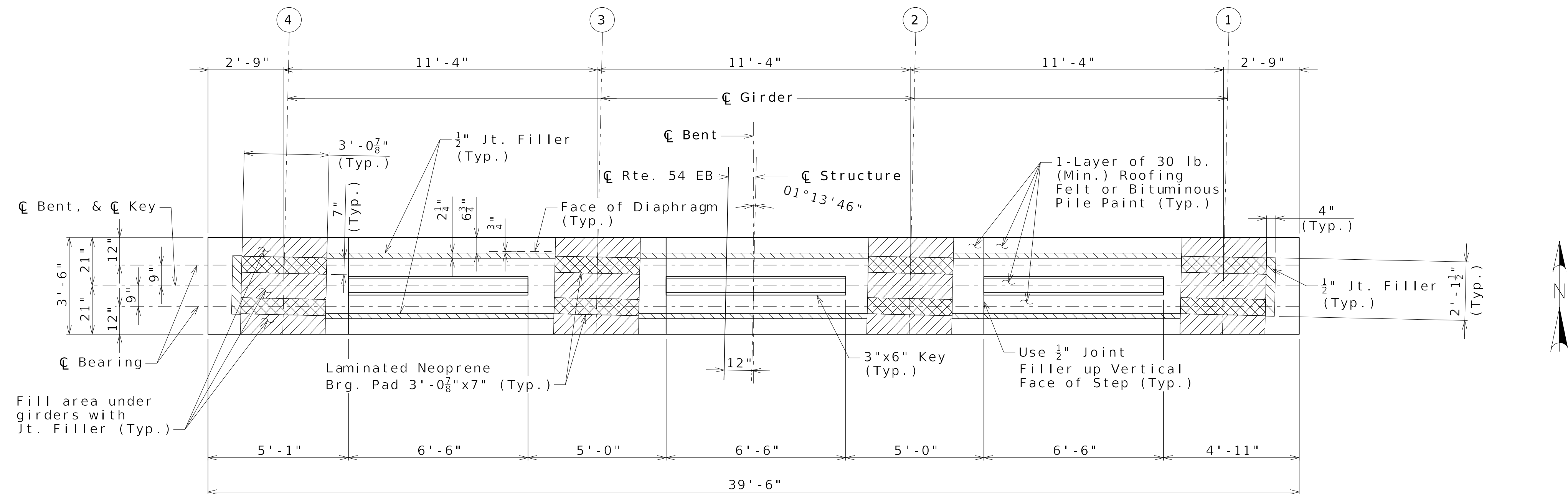


105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT IMPROVE I-70 DB PROJECT 1



MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING



PLAN OF BEAM

- Notes:
- For steps 2" or more, use 2 1/4" x 1/2" joint filler up vertical face.
 - For details of Intermediate Bent not shown, see Sheets No. 7 & 8.
 - For details of Concrete Diaphragm, see Sheet No. 15.
 - For details of Laminated Neoprene Bearing Pads, see Sheet No. 8.

DETAILS OF INTERMEDIATE BENT NO. 2

Note: This drawing is not to scale. Follow dimensions. Sheet No. 9 of 34

Detailed Nov 2024
Checked Jan 2025

STATE OF MISSOURI

OSMAN MOHAMMED

NUMBER PE-2021003145

PROFESSIONAL ENGINEER

02/20/2025 8:19:38 AM

Osman Mohammed

MO PE-2021003145

DATE PREPARED
19-FEB-2025

ROUTE
54EB

DISTRICT
BR

STATE
MO

SHEET NO.
9

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

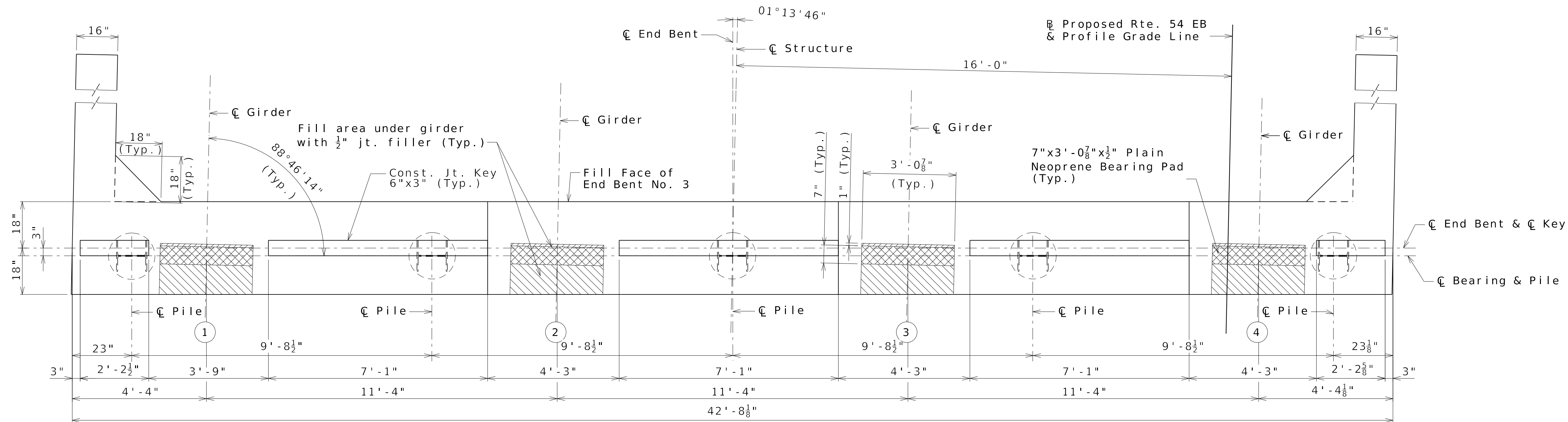
MoDOT

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

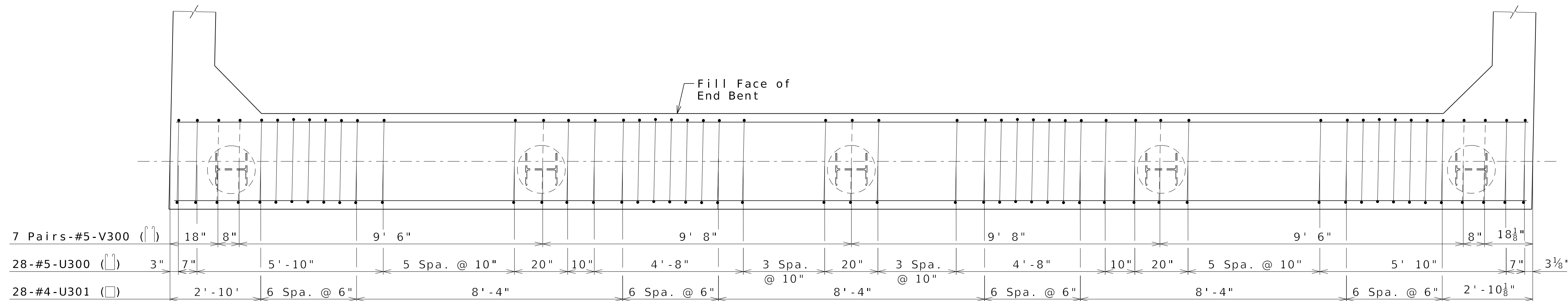
MoDOT IMPROVE I-70 DB PROJECT 1

MISSILLSTONE WEBER

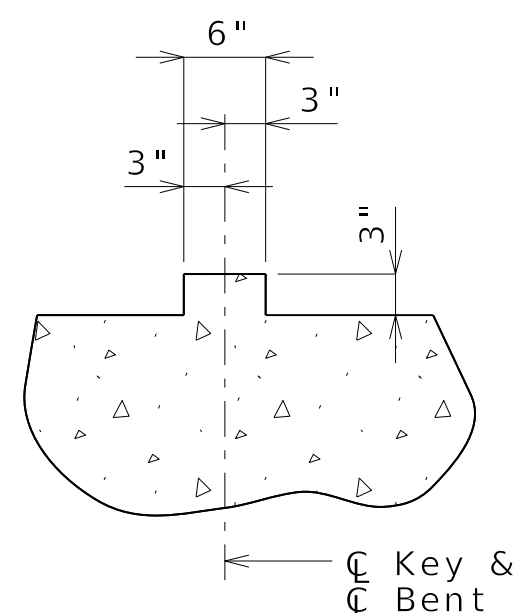
MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING



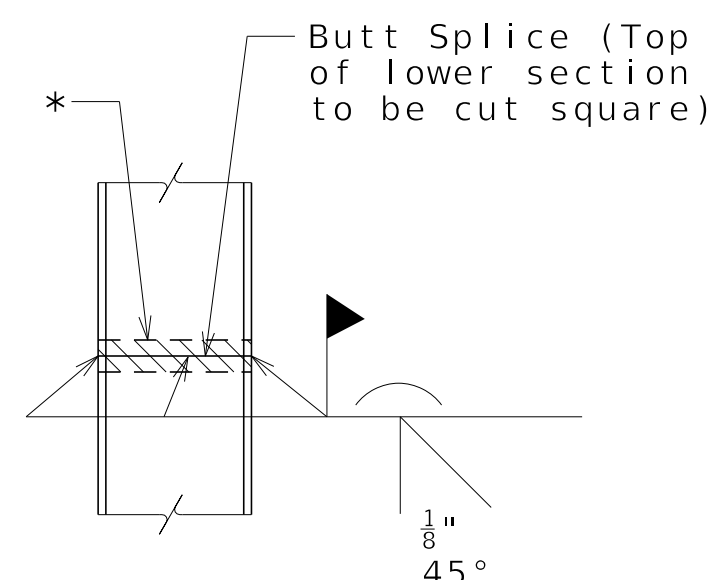
PLAN OF BEAM SHOWING DIMENSIONS



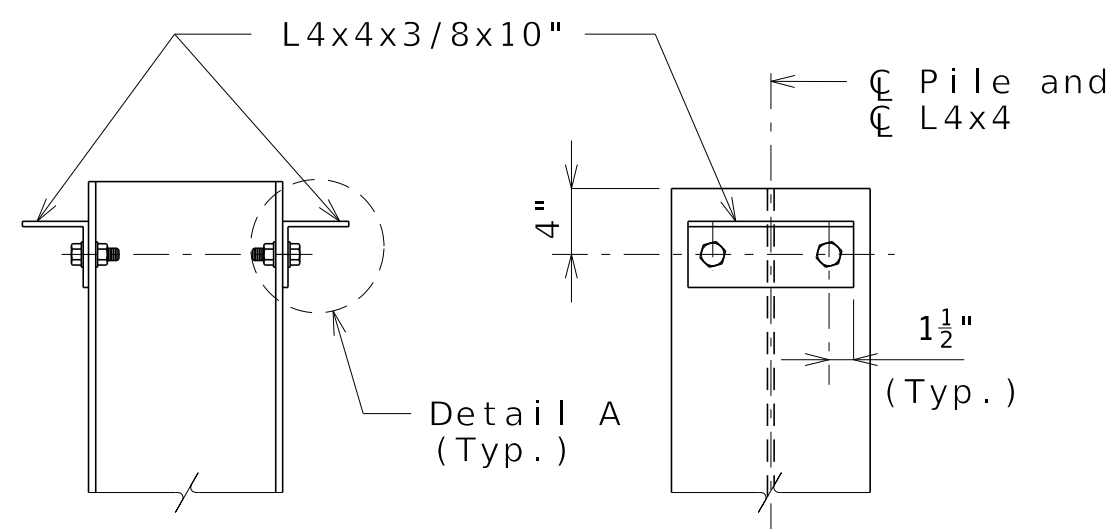
PLAN OF BEAM SHOWING REINFORCEMENT
(Key not shown for clarity)



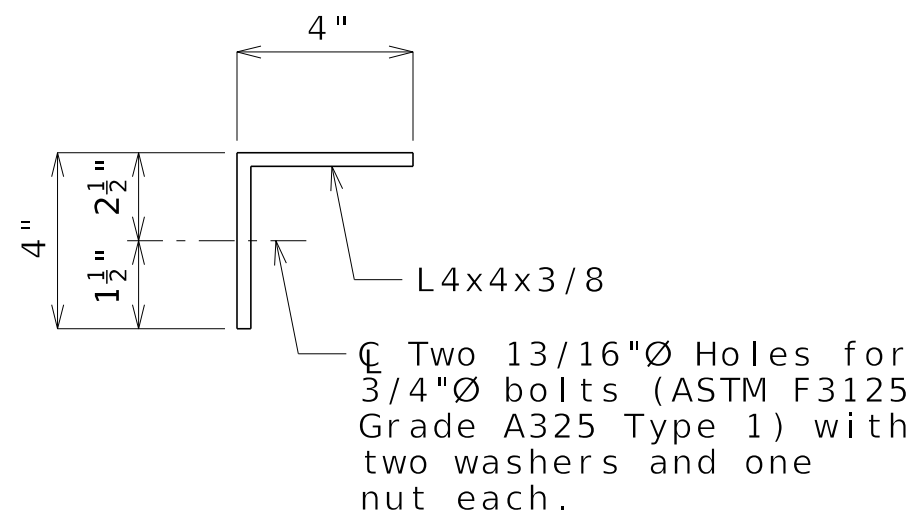
SECTION THRU KEY



STEEL PILE SPLICE
(If required)



DETAILS OF HP PILE ANCHORS



DETAIL A

Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

DETAILS OF END BENT NO. 3

General Notes:

For details of End Bent No. 3 not shown, see Sheets No. 11 & 12.

All U-bars and V-bars shall be placed parallel to Rte 54 EB.

All vertical reinforcing bars in the substructure beams or caps shall be field adjusted to clear piles by at least 1 1/2".

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

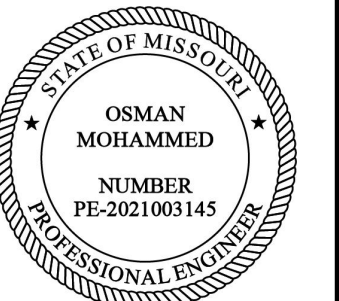
All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

For details of vertical drain at end bents, see Sheet No. 6.

For Details and Reinforcement of MoDOT Type D Barrier not shown, see Sheets No. 20-22.

For details of approach slab, see Sheet No. 23.

Reinforcement of wingwall not shown for clarity.



DATE PREPARED
19-FEB-2025

ROUTE 54EB
DISTRICT BR
STATE MO
SHEET NO. 10

COUNTY CALLAWAY
JOB NO. JST0021
CONTRACT ID.

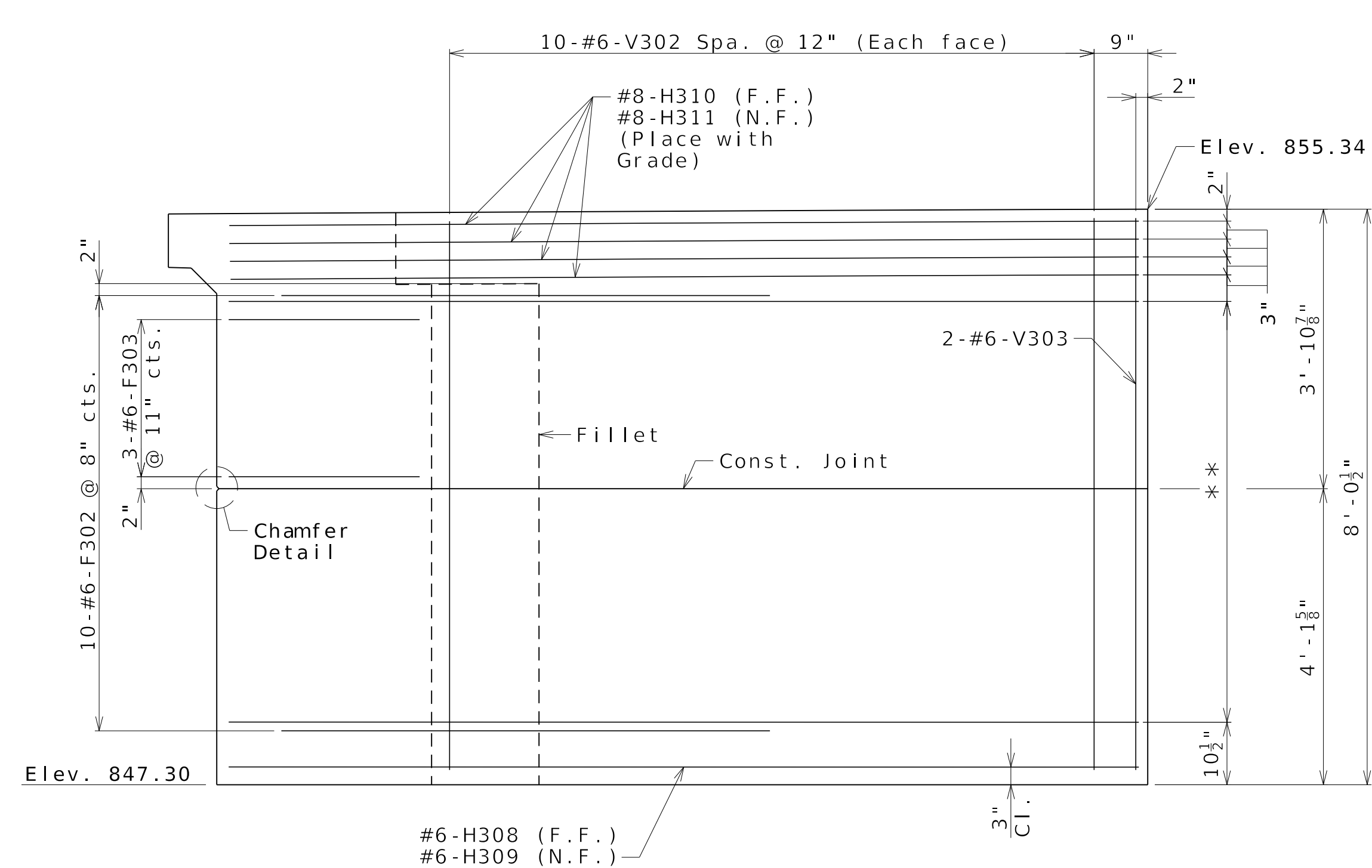
PROJECT NO.

BRIDGE NO.
A9557

DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

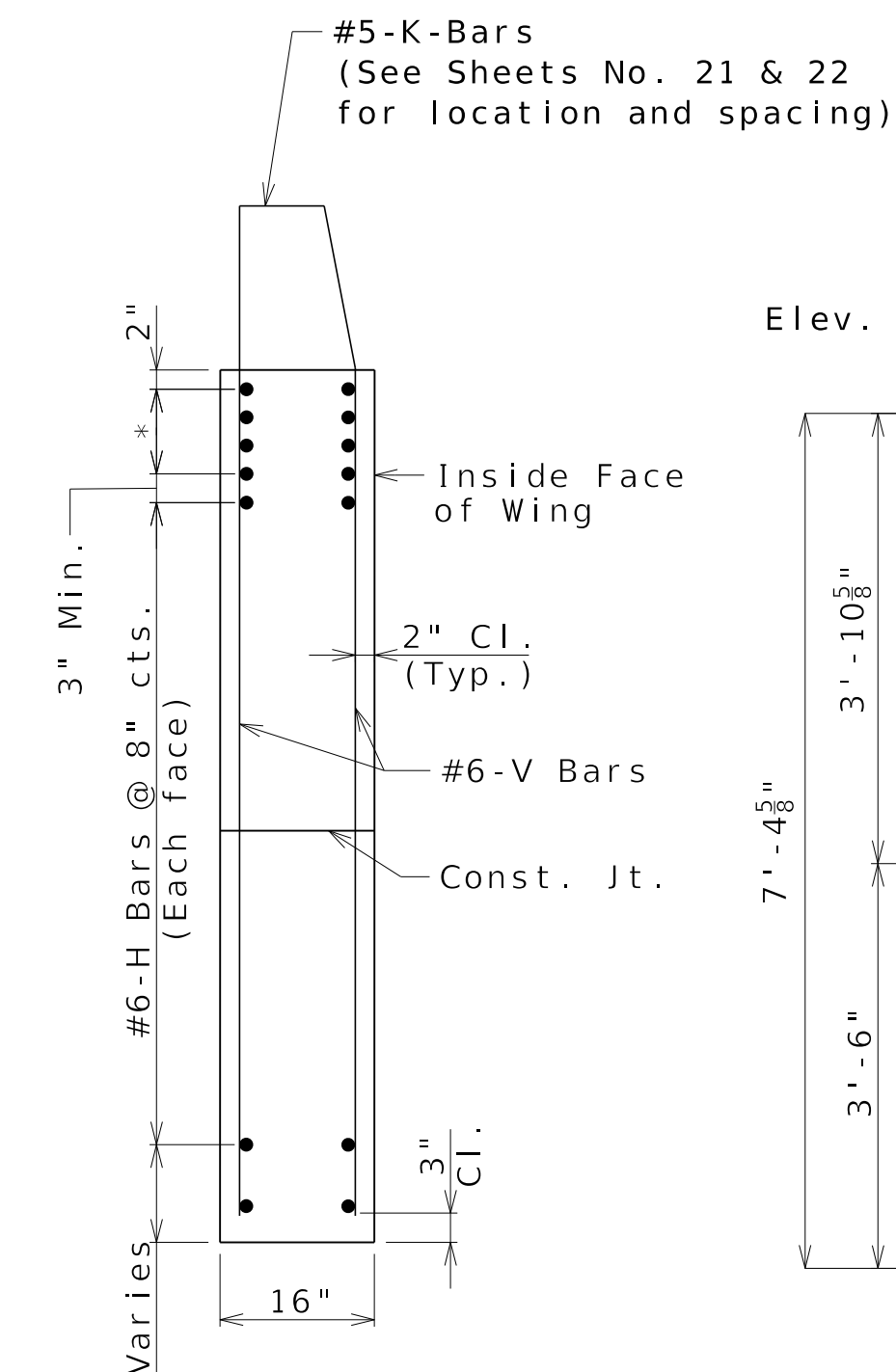
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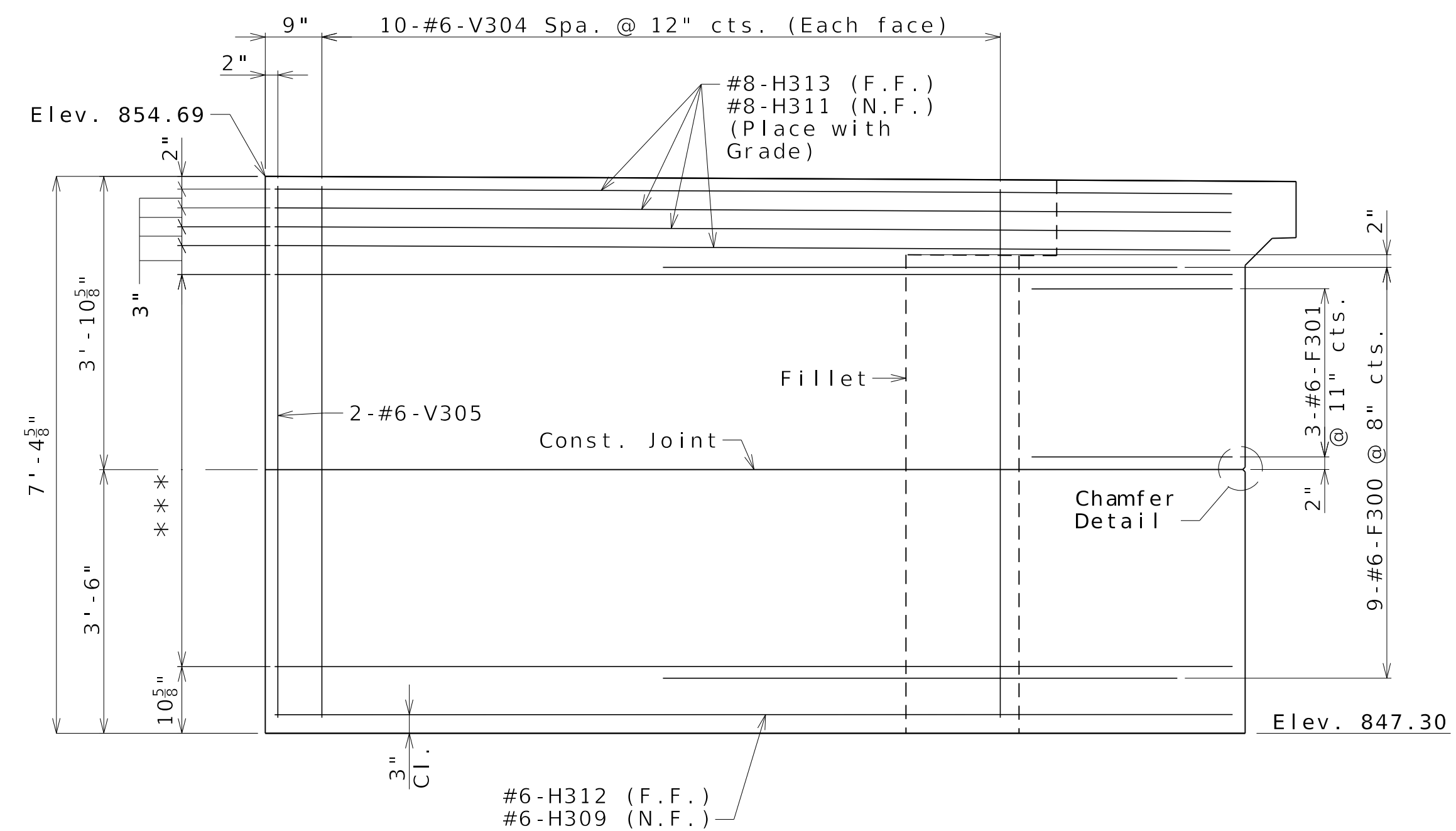
ELEVATION A-A

** 10-#6-H308 @ 8" cts. (F.F.)
10-#6-H309 @ 8" cts. (N.F.)



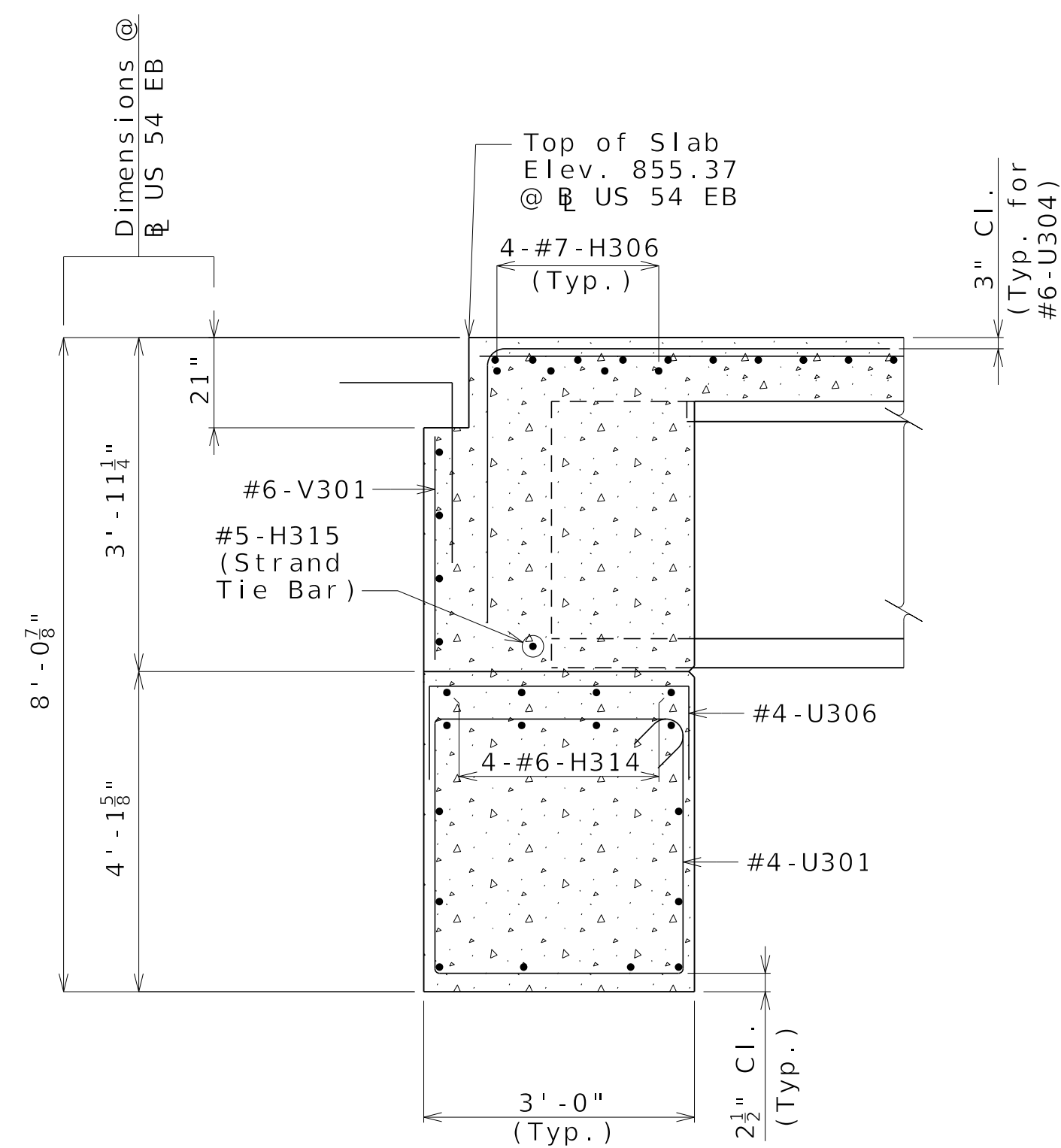
TYPICAL SECTION
THRU WING

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

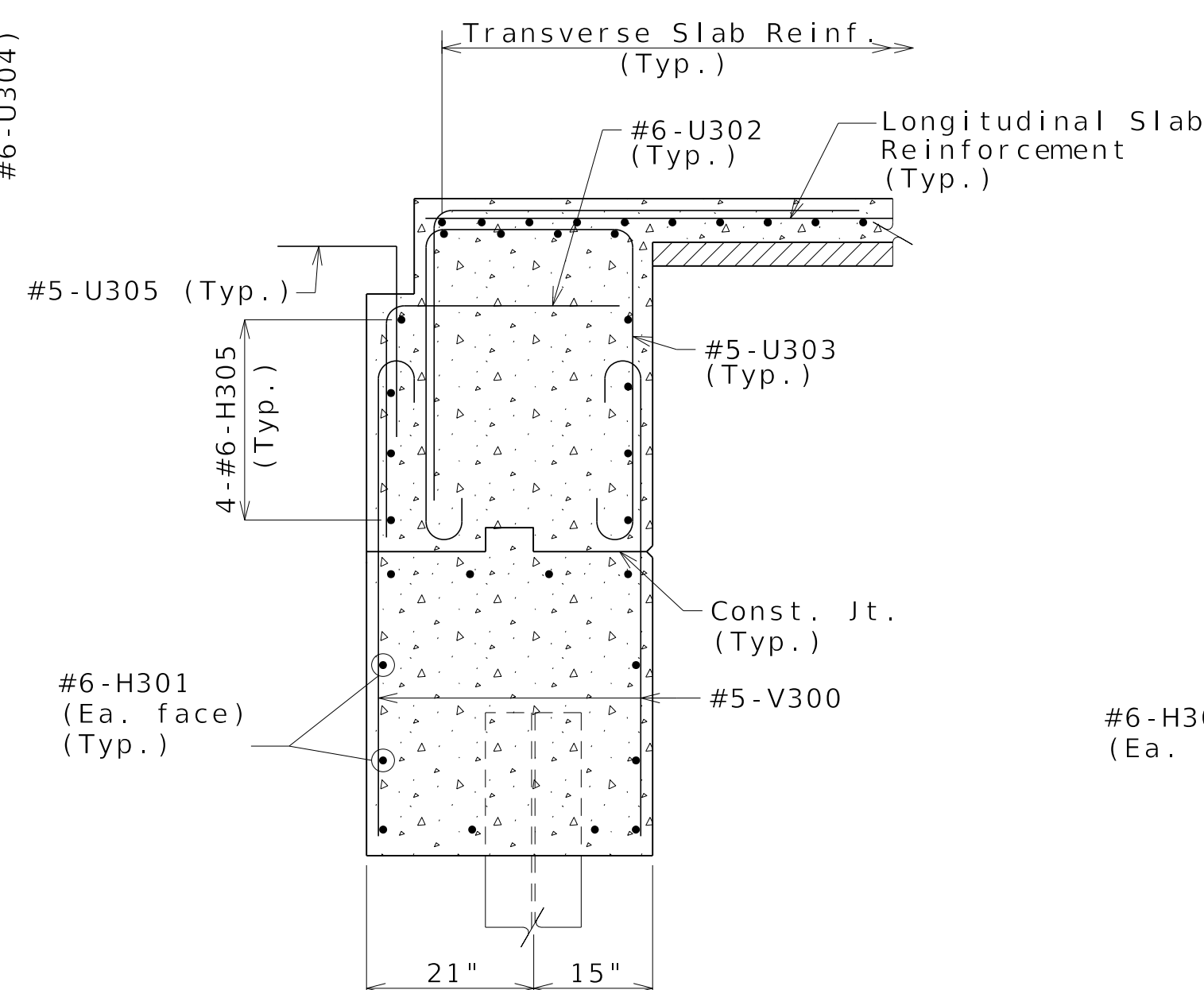


ELEVATION B-B

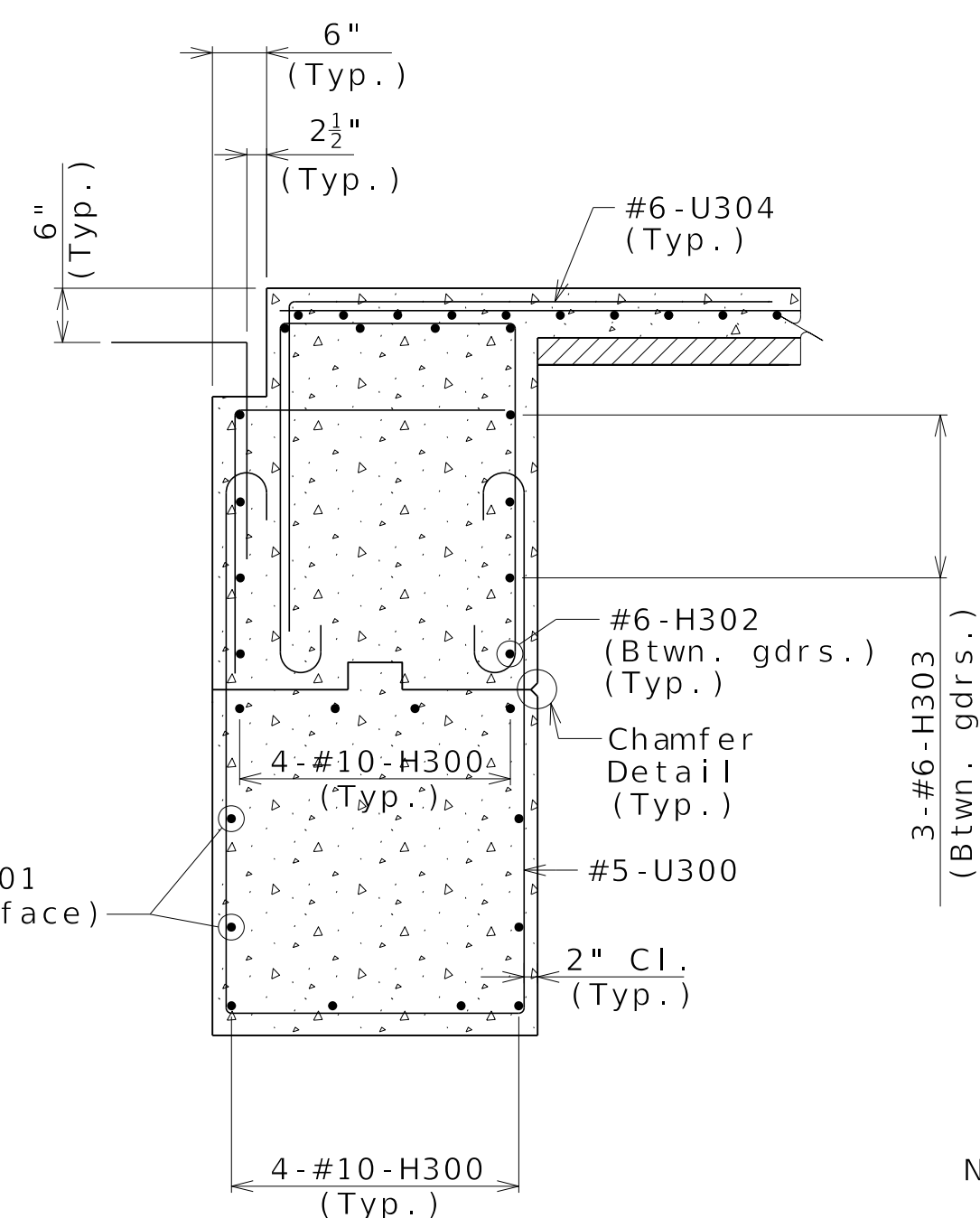
*** 9-#6-H312 @ 8" cts. (F.F.)
9-#6-H309 @ 8" cts. (N.F.)



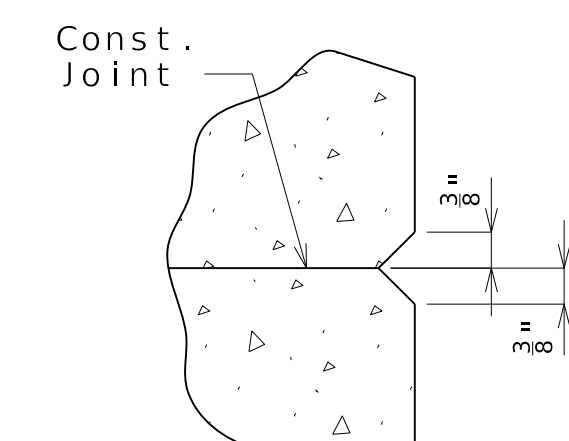
SECTION C-C



SECTION D-D



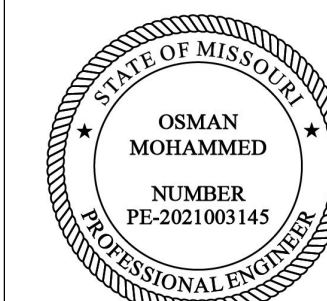
SECTION E-E



CHAMFER DETAIL

Notes:

For location of Elevations A-A and B-B, see Sheet No. 11.
Work this sheet with Sheets No. 10 & 11.



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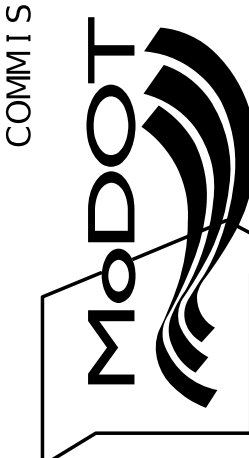
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BR	12
COUNTY	

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JOB NO.

JOB NO.
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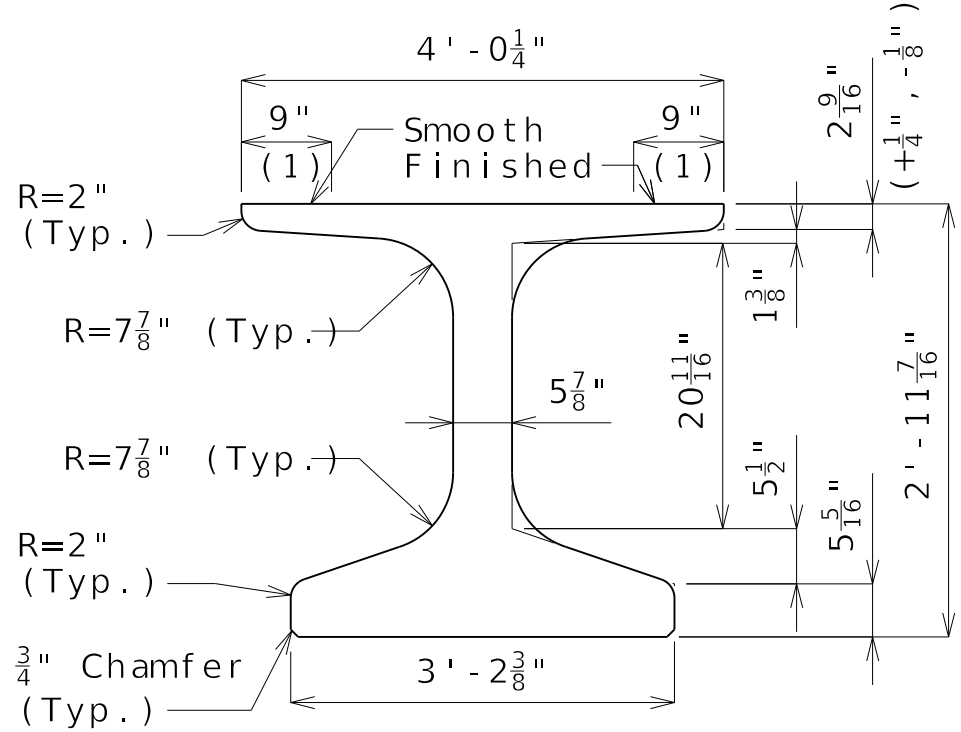
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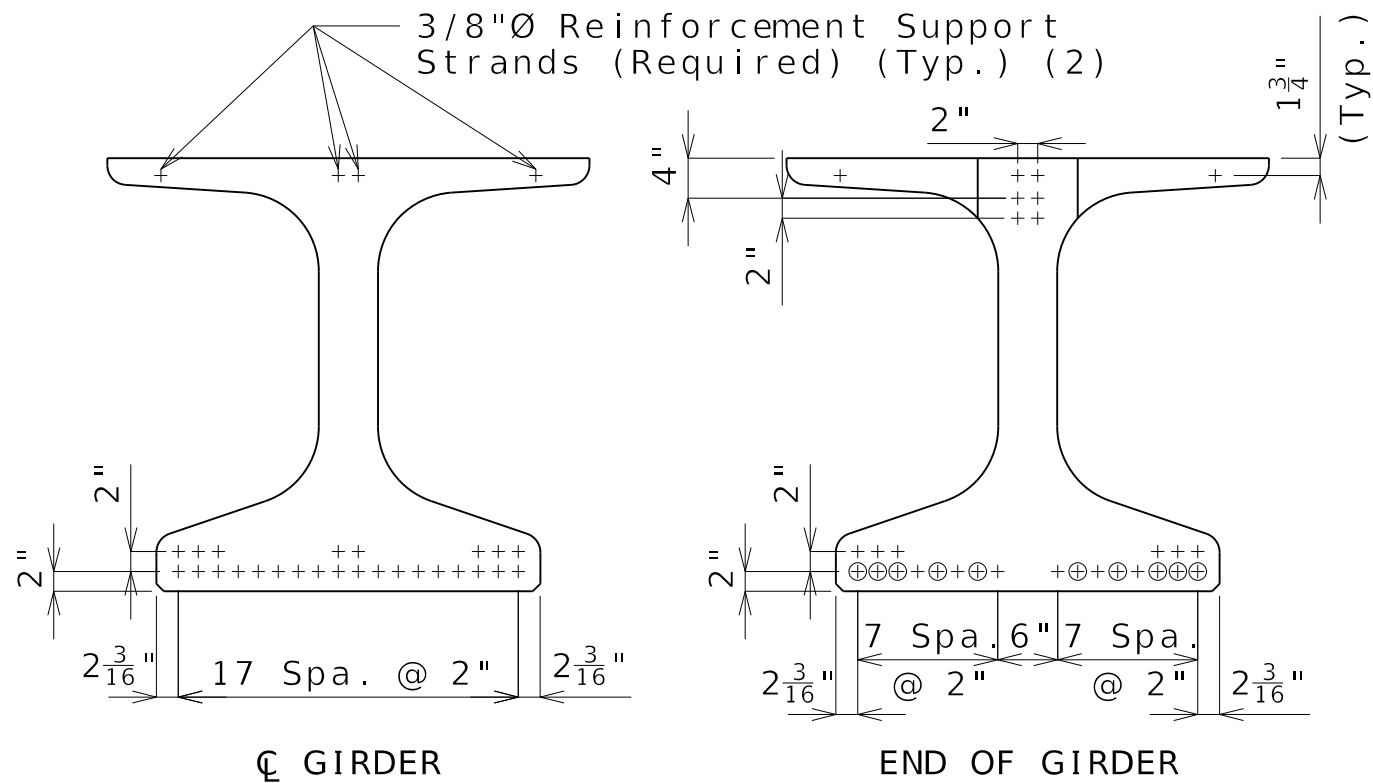
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(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about $\bar{C}$ Girder. May be moved laterally in pairs.

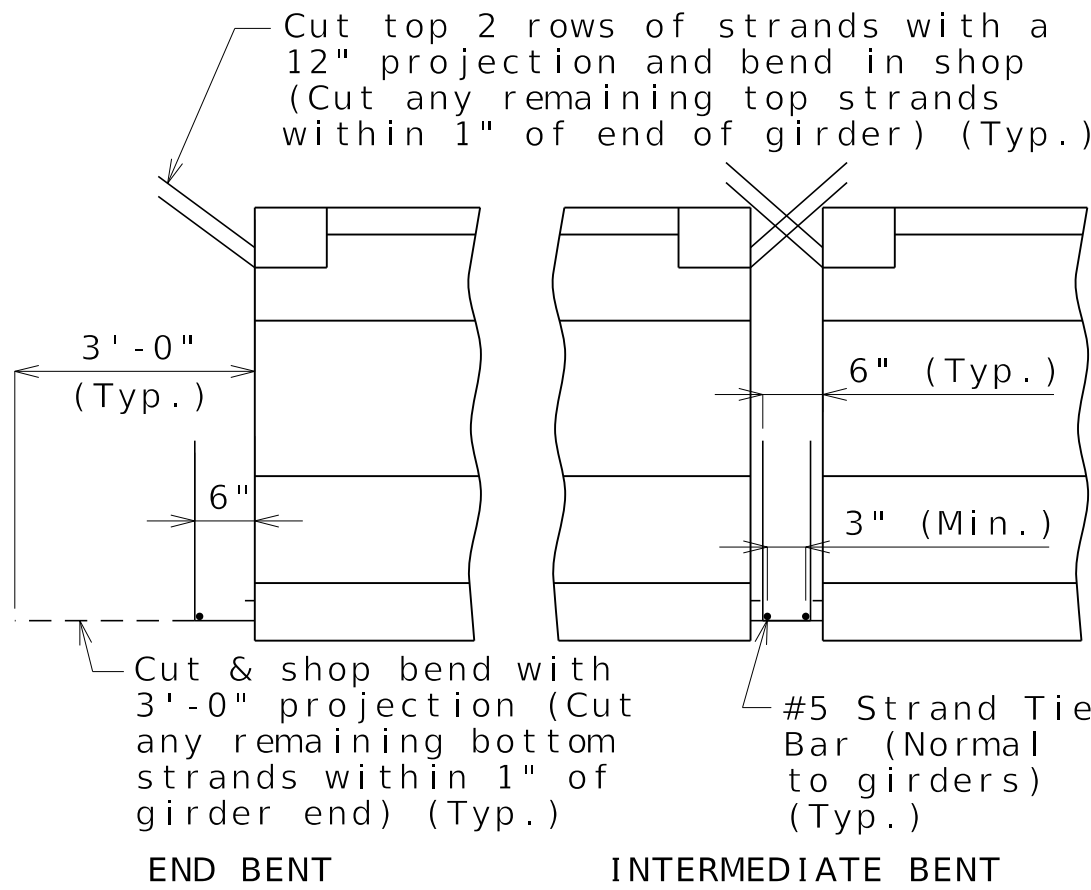


DIMENSIONS

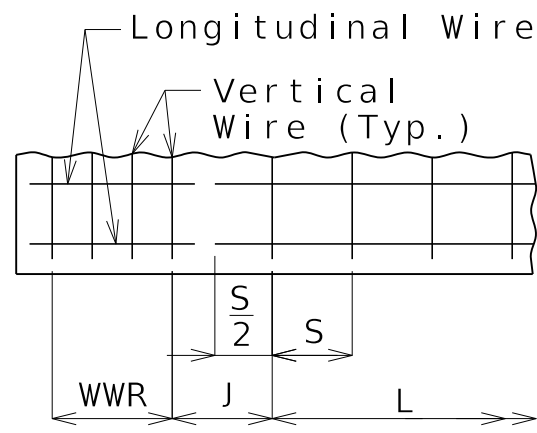


STRAND ARRANGEMENT

+ Indicates prestressing strand. ○ Indicates cut & shop bend with 3'-0" projection.

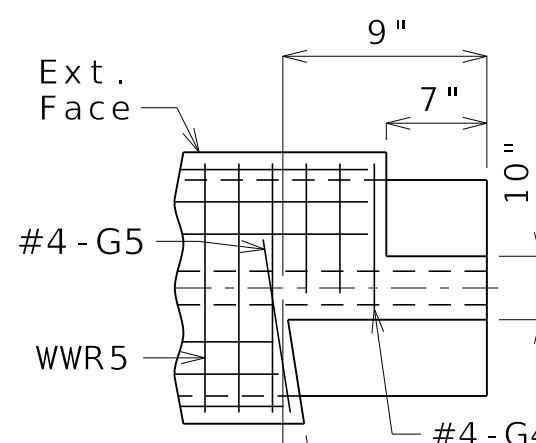


STRANDS AT GIRDER ENDS

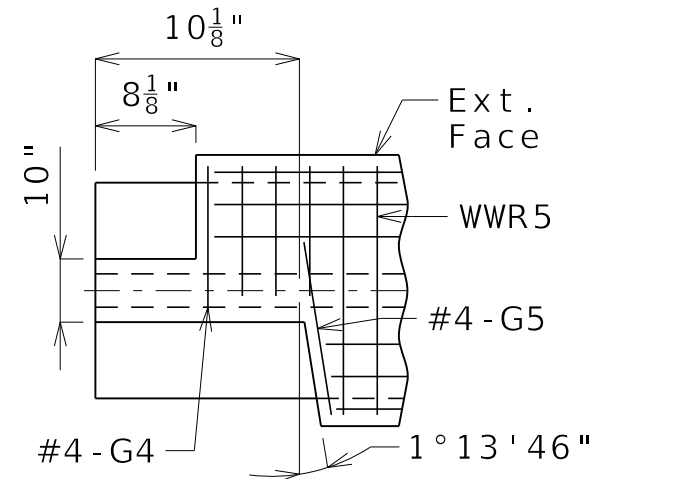


WELDED WIRE PLACEMENT

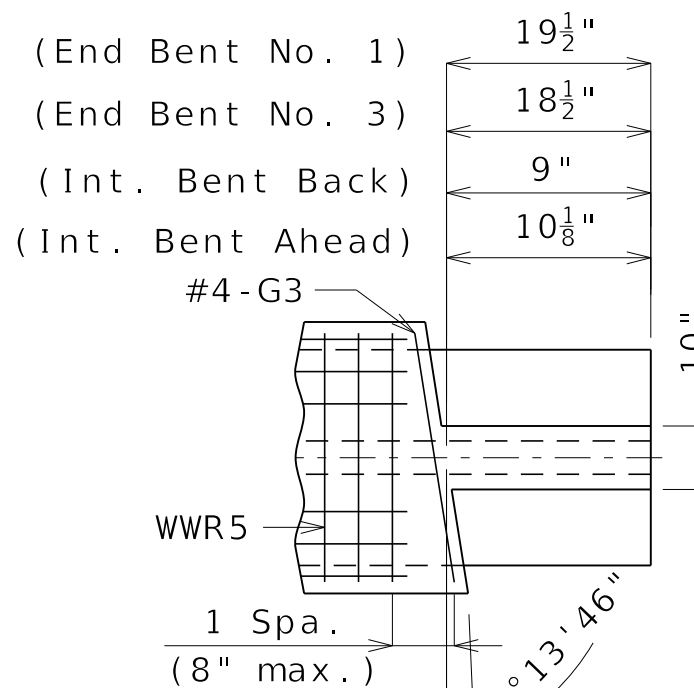
S = Vertical wire spacing
L = Length of WWR mats
J = Distance between WWR mats



Skew Angle
LEFT EXTERIOR GIRDER (BACK)
AT INTERMEDIATE BENT
Rotate 180° for right ext.



LEFT EXTERIOR GIRDER (AHEAD)
AT INTERMEDIATE BENT
Rotate 180° for right ext.



INTERIOR GIRDER AT ALL BENTS
& EXTERIOR GIRDER AT END BENT
TOP FLANGE BLOCKOUT

Bill of Reinforcing Steel					
Bars Each Girder					Bending Diagrams
No.	Size	Mark	Length	Shape	
88	3	G1	2' - 10"	8	
2	4	G3	3' - 10"	20	
2	4	G4	2' - 3"	20	
2	4	G5	2' - 8"	20	
Welded Wire Each Girder					
Mark	Size	S	W	L	J
WWR1	D31	4"	W12	5' - 8"	8"
WWR2	D31	8"	W12	6' - 8"	15 3/4"
WWR3	D31	16"	W12	34' - 8"	-
WWR6	D31	2"	W12	16"	4"

Shape 8

Shape 20

WWR1, WWR2, WWR3 & WWR6

WWR4

WWR5

All dimensions are out to out.

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

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

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

All bar reinforcement shall be Grade 60.

WWR shall not be epoxy coated.

G4 and G5 not required for interior girders. G3 and G6 not required for exterior girders of intermediate spans. Half no. of G3, G4, G5 and G6 not required for ext. girders of end spans.

General Notes:

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

Use 26 strands, 0.6"Ø Grade 270, with an initial prestress force of 1143 kips.

Pretensioned members shall be in accordance with Sec 1029.

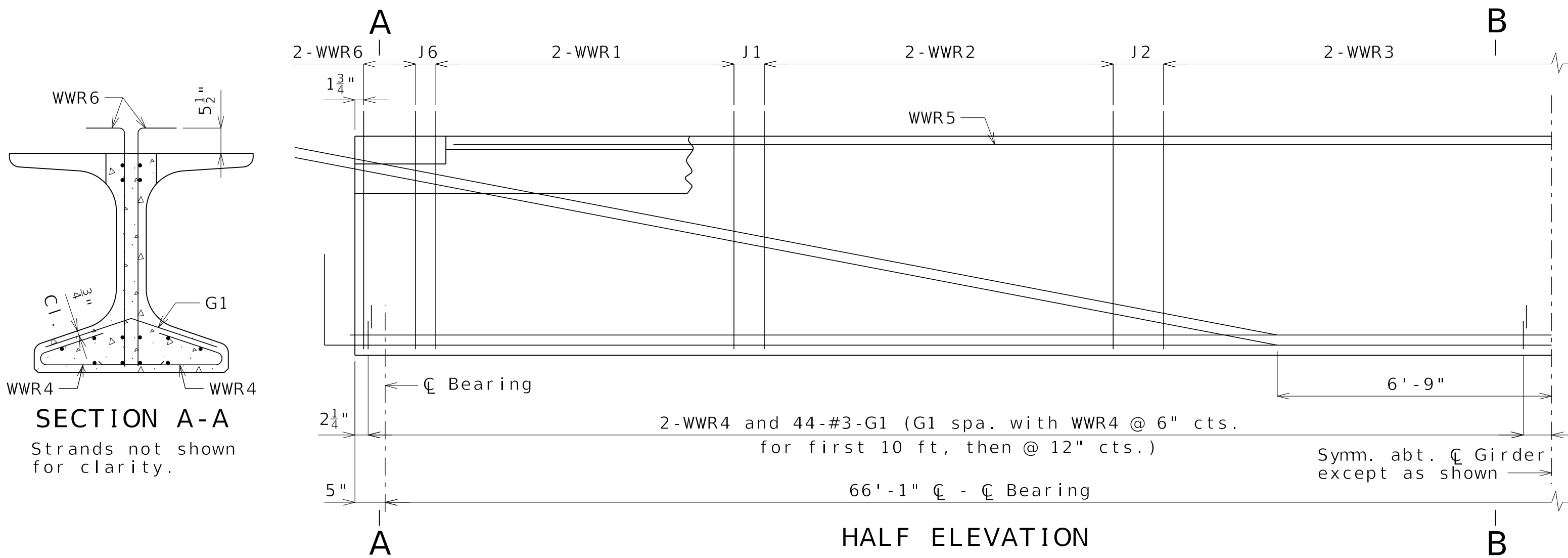
Fabricator shall be responsible for location and design of lifting devices.

Exterior and interior girders are the same except: coil ties, top flange blockout, application of bond breaker.

The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

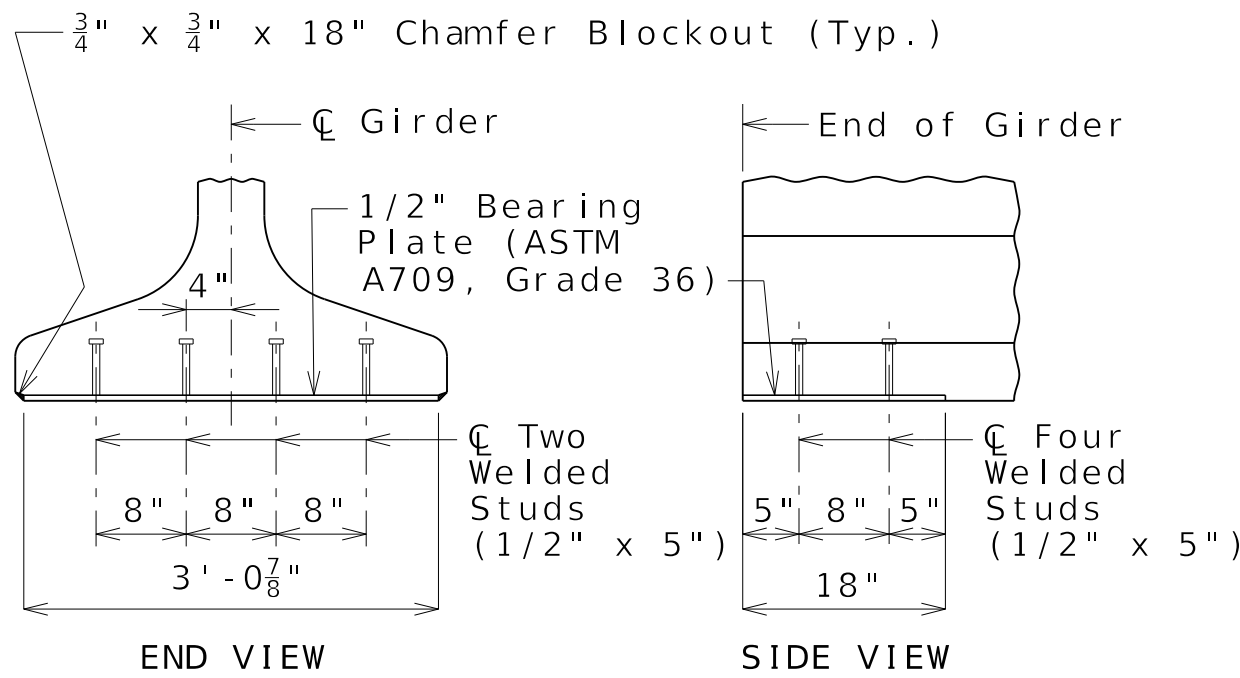
For Girder Camber Diagram, see Sheet No. 17.

For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4, 11 and 15.

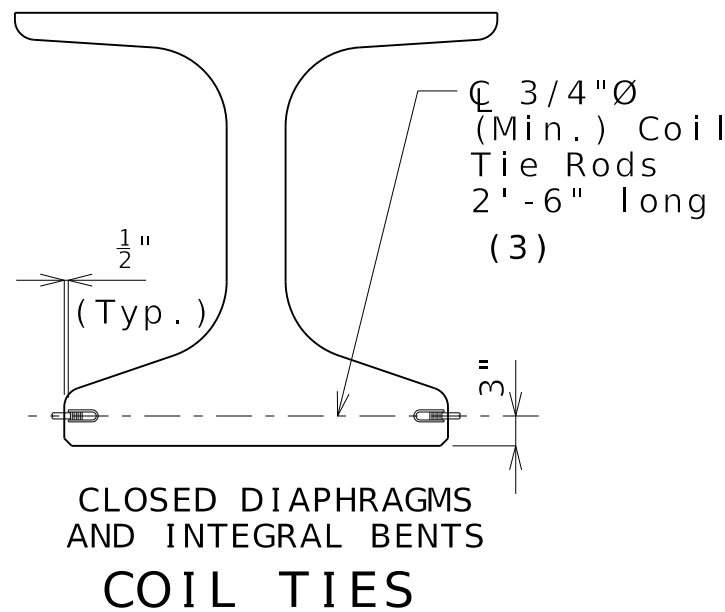


HALF ELEVATION

Reinforcement support strands not shown for clarity.



BEARING PLATE

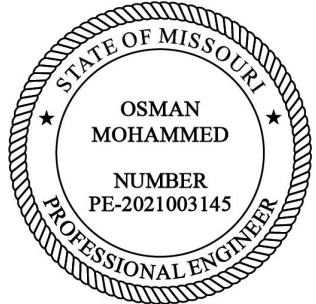


COIL TIES

Exclude coil tie at exterior face of exterior girders except at integral end bents.

(3) 2'-6" at exterior face of exterior girders at end bents

NU-GIRDERS - SPANS (1-2) AND (2-3) (WWR)



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PROJECT NO.

BRIDGE NO.
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DESCRIPTION

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PROJECT 1

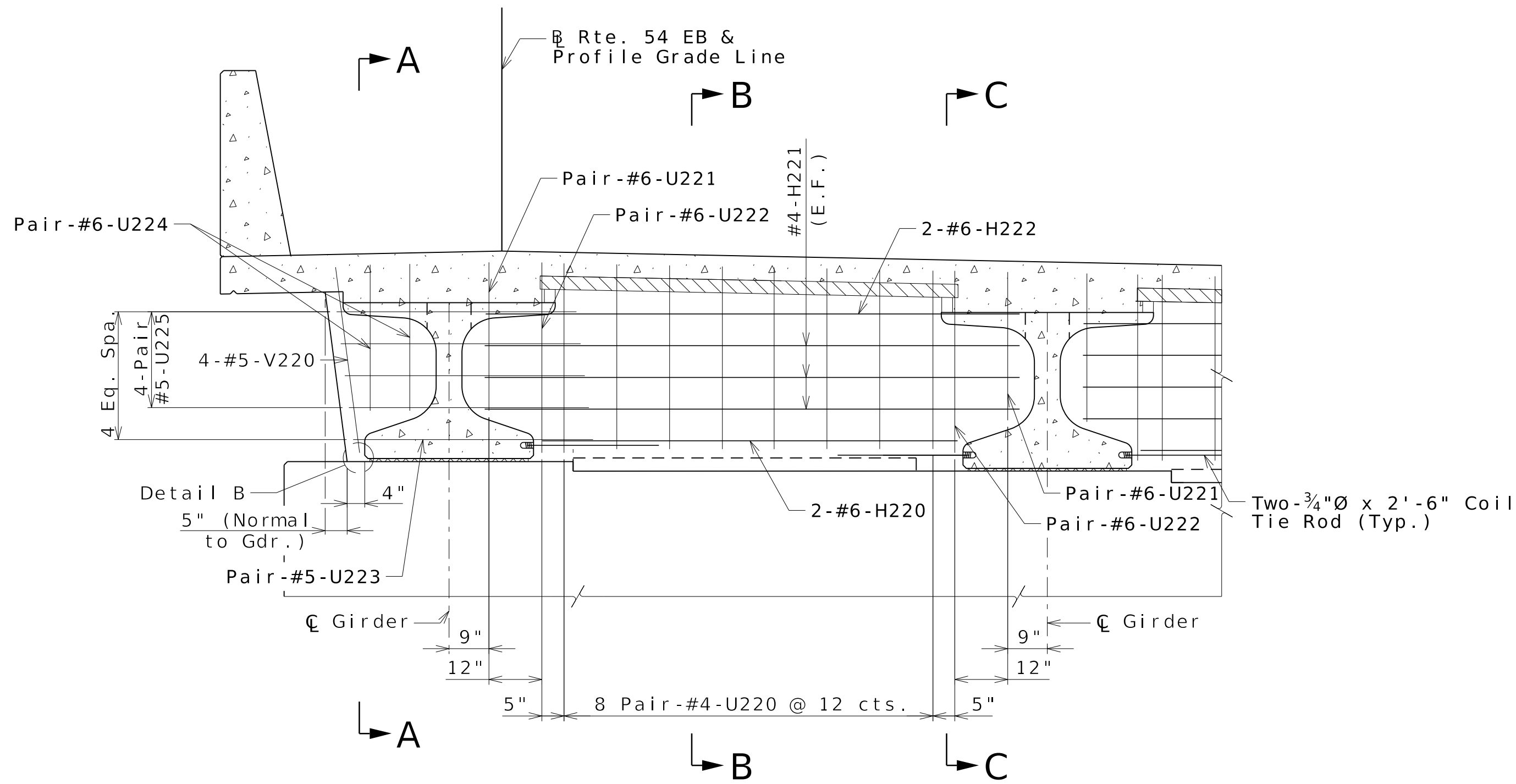
MILLSTONE WEBER

105 WEST CAPITOL

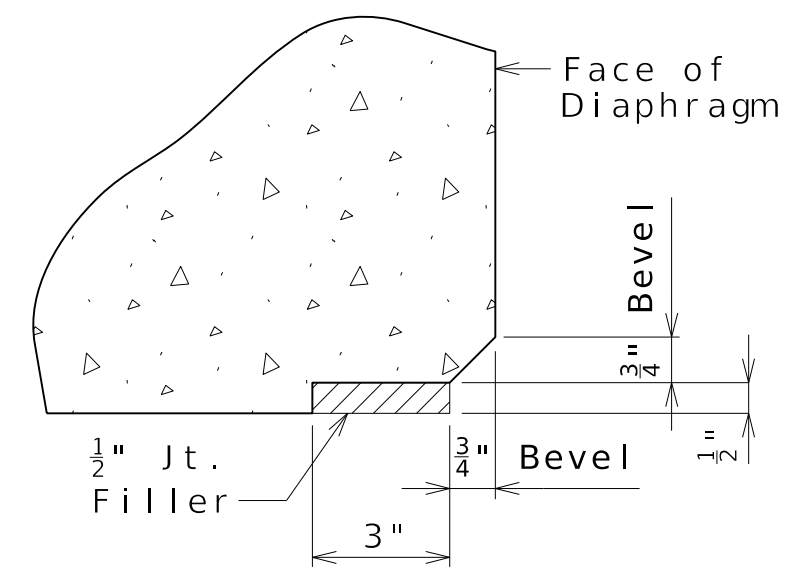
JEFFERSON CITY, MO 65102

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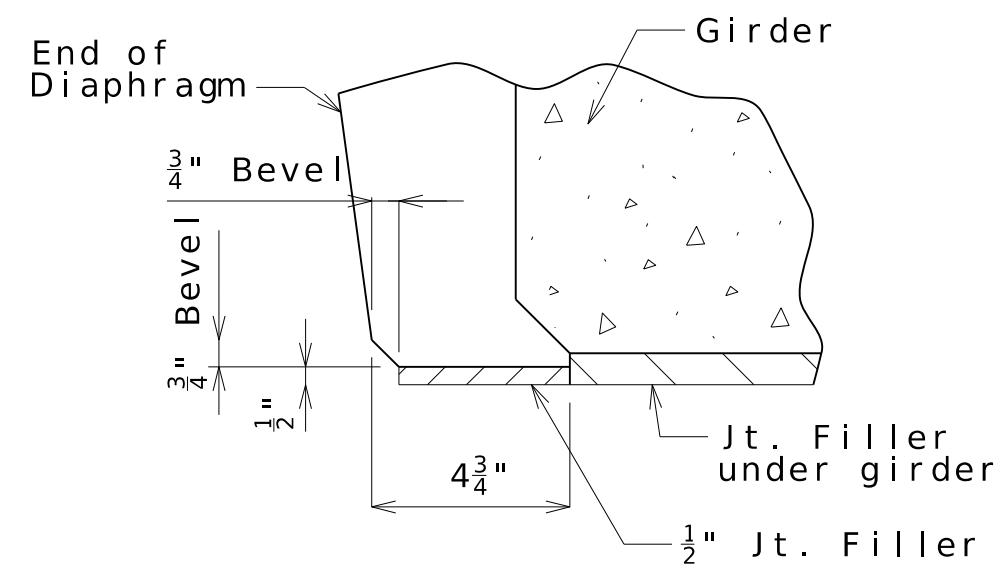
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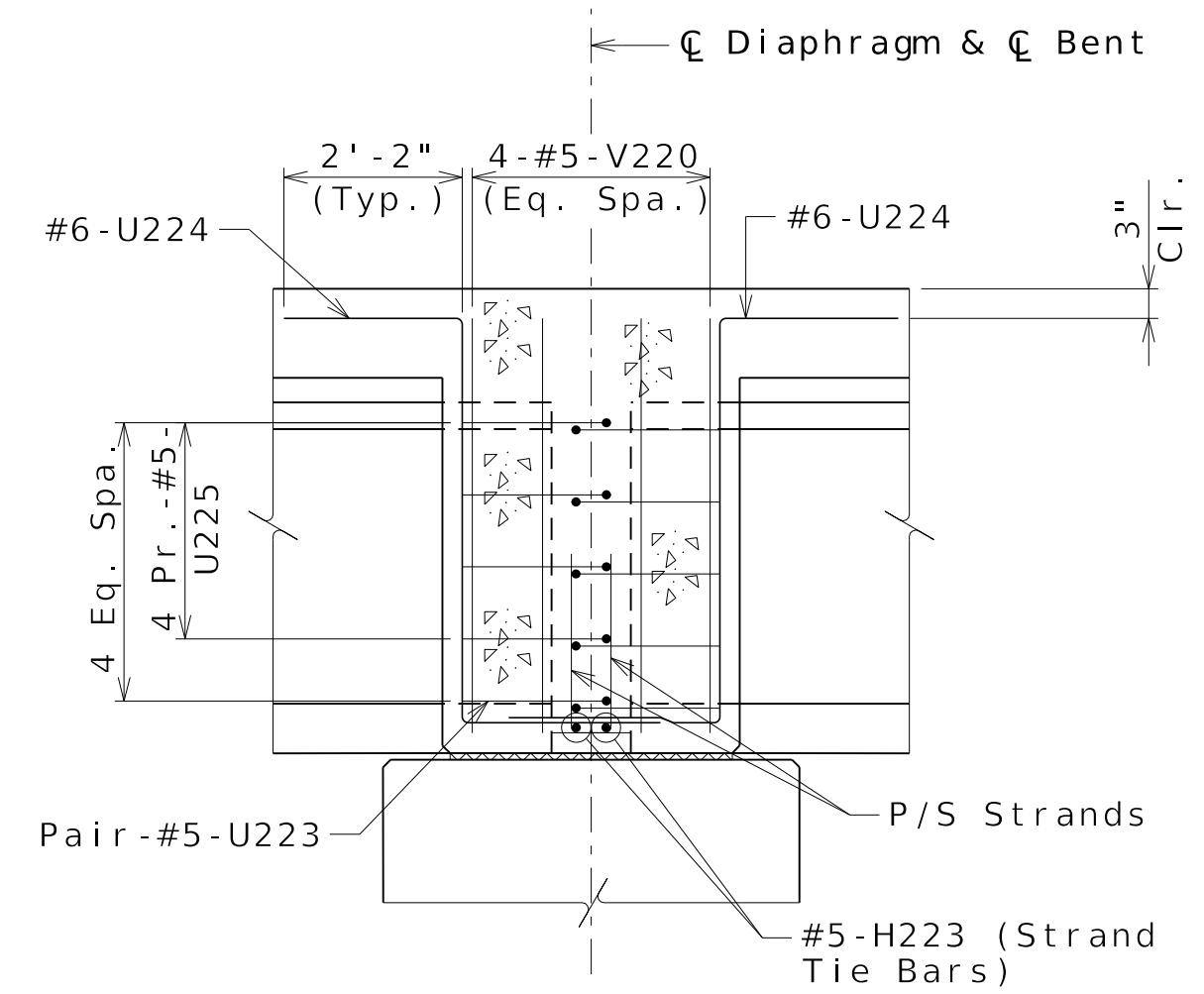
TYPICAL PART ELEVATION
(Normal to Rte. 54 EB)
(Looking Backstation)



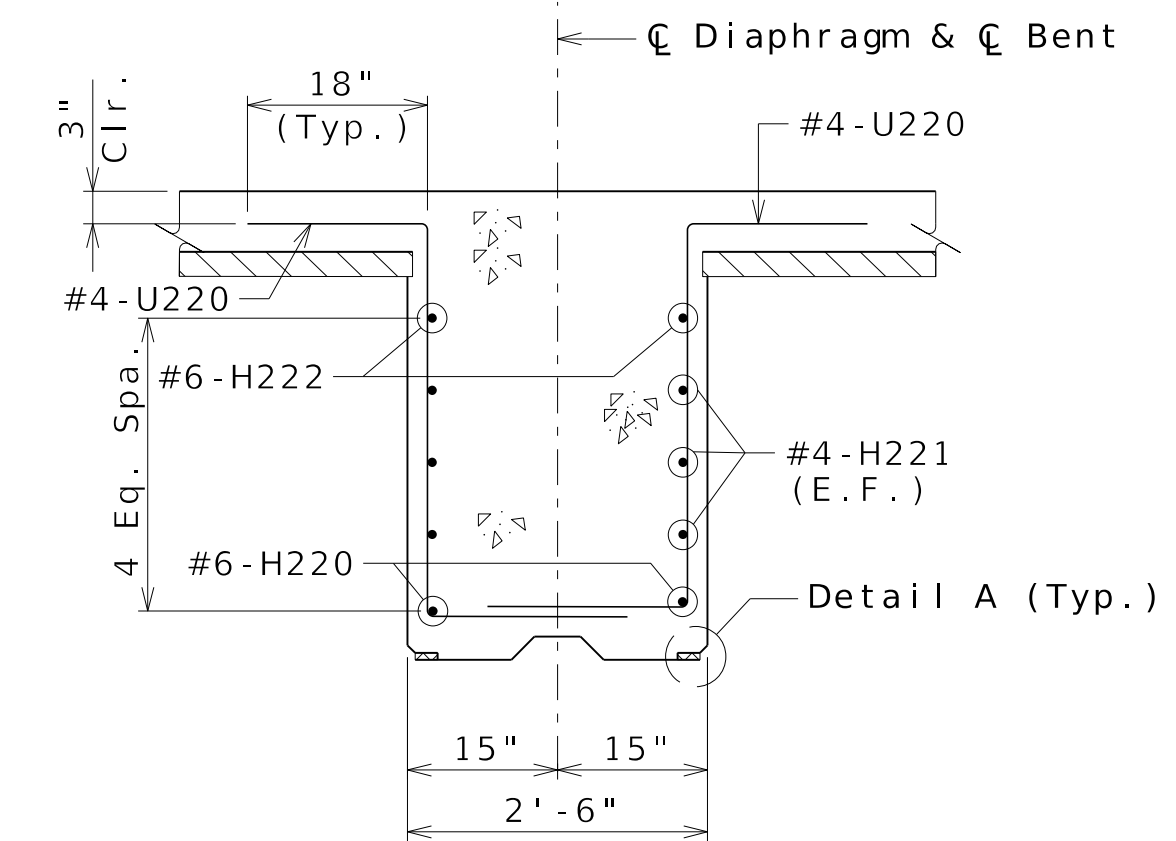
DETAIL A
(Edge Detail)



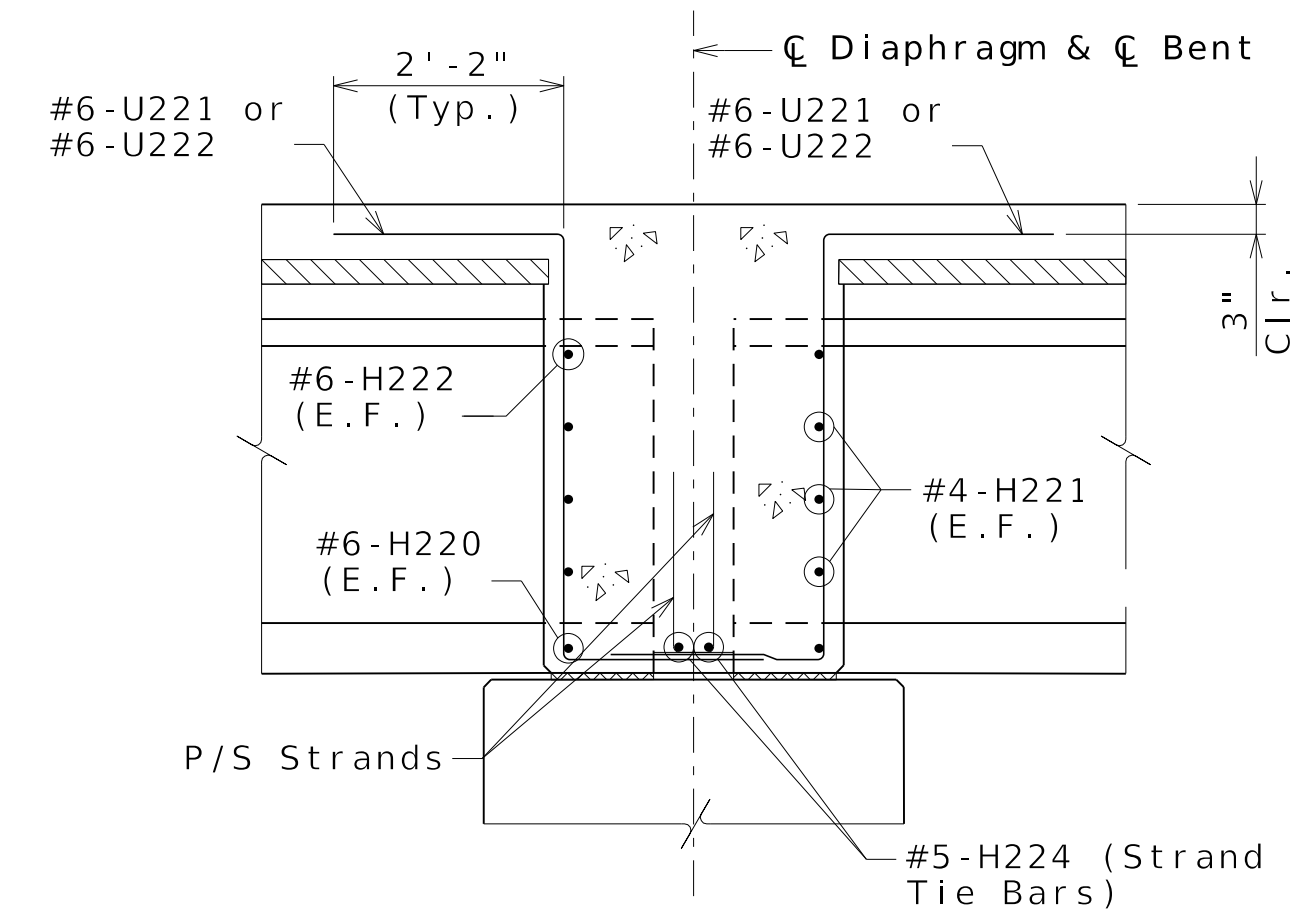
DETAIL B
(Edge Detail)



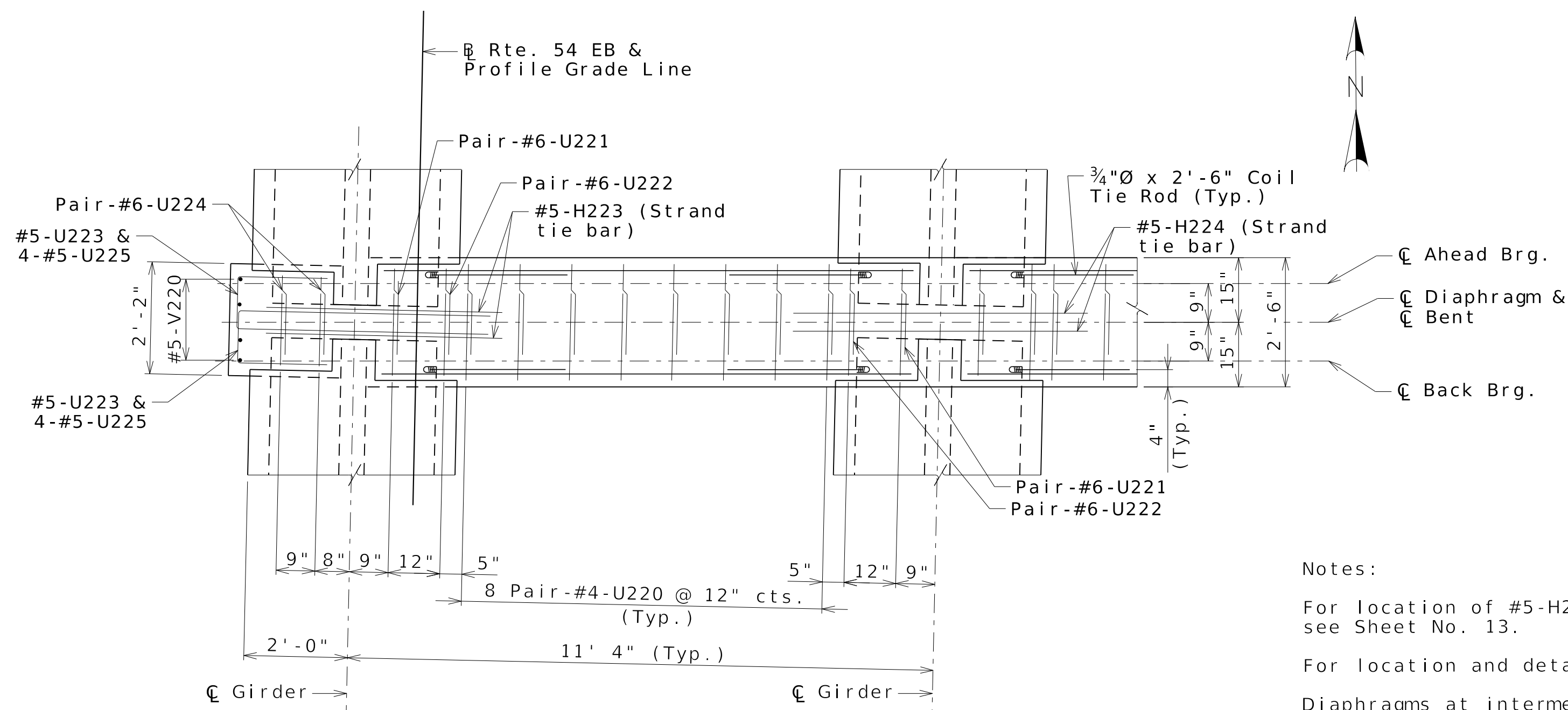
SECTION A-A



SECTION B-B



SECTION C-C



TYPICAL PART PLAN

Notes:

For location of #5-H223 and #5-H224 (Strand Tie Bars), see Sheet No. 13.

For location and details of Coil Tie Rods, see Sheet No. 13.

Diaphragms at intermediate bent shall be built vertical.

For girder spacing, see Sheet No. 14.

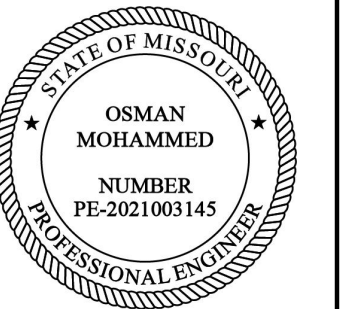
All U-Bars in diaphragm shall be placed parallel to # Girders.

DIAPHRAGM AT INTERMEDIATE BENT NO. 2

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

Sheet No.15 of 34

Detailed Nov 2024
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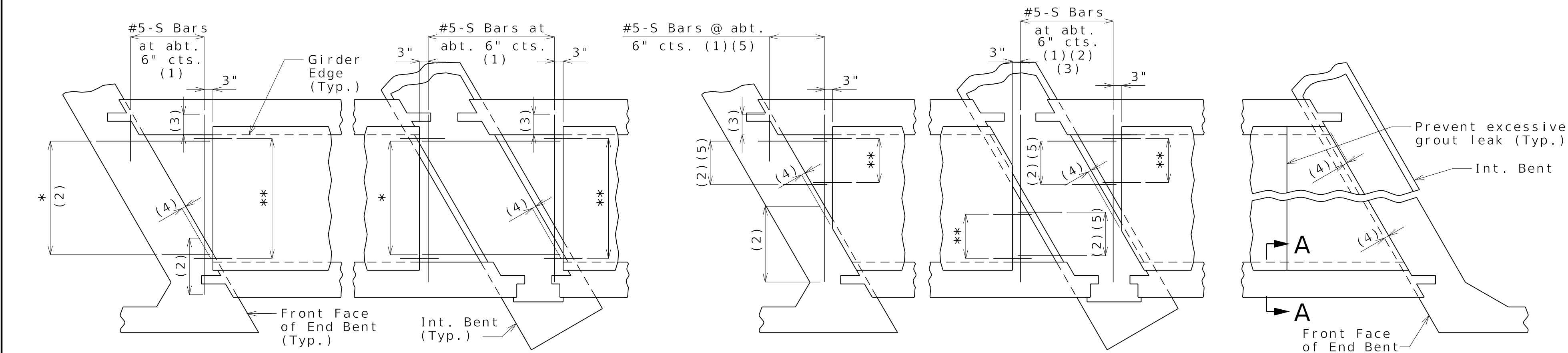
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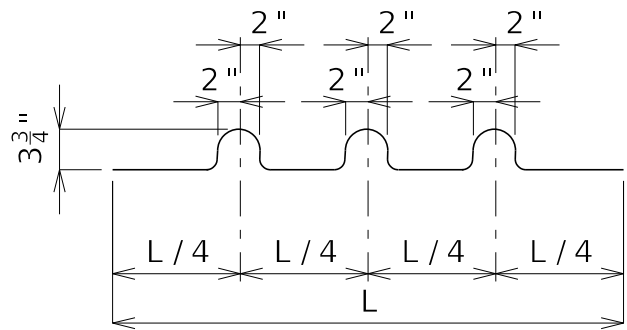
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SQUARED END PANELS OR TRUNCATED END PANELS

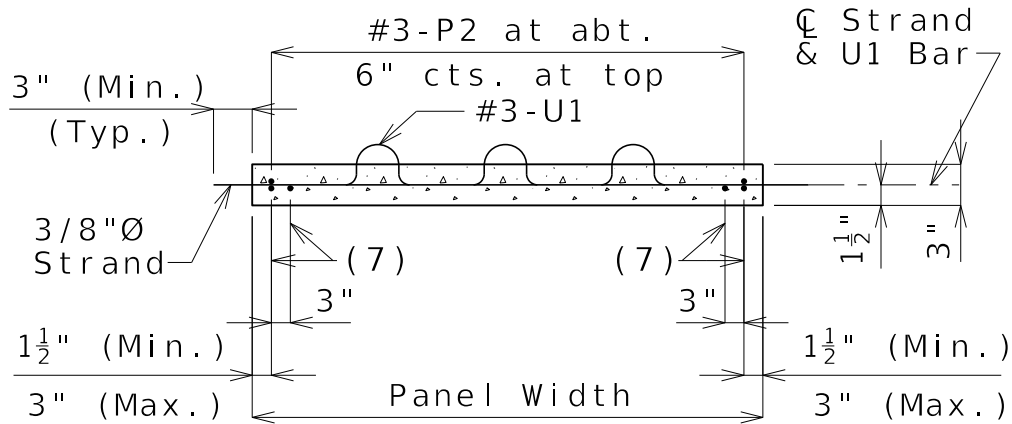
PLAN SHOWING PANEL PLACEMENT

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

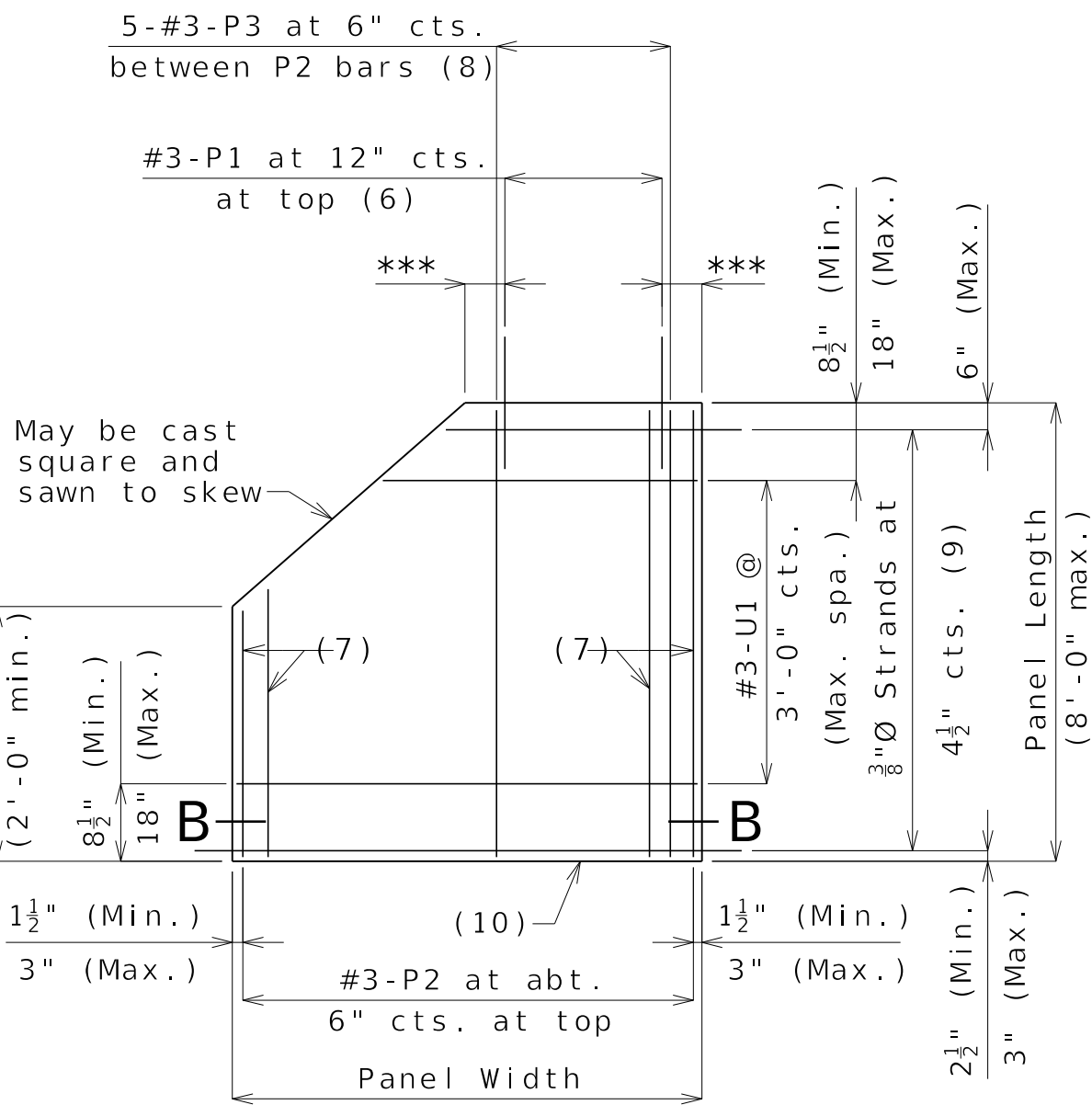


BENDING DIAGRAM FOR U1 BAR

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

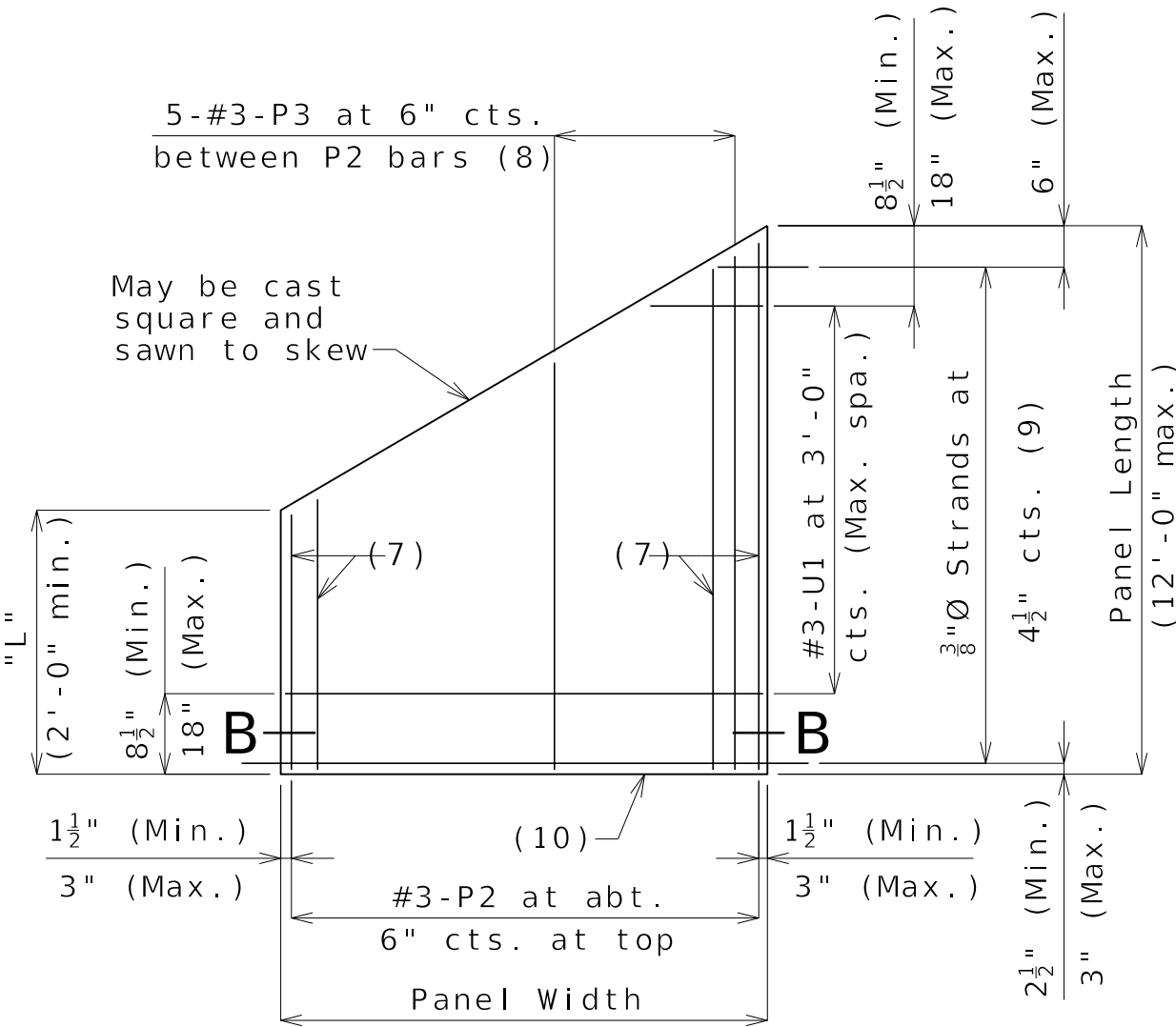


SECTION B-B

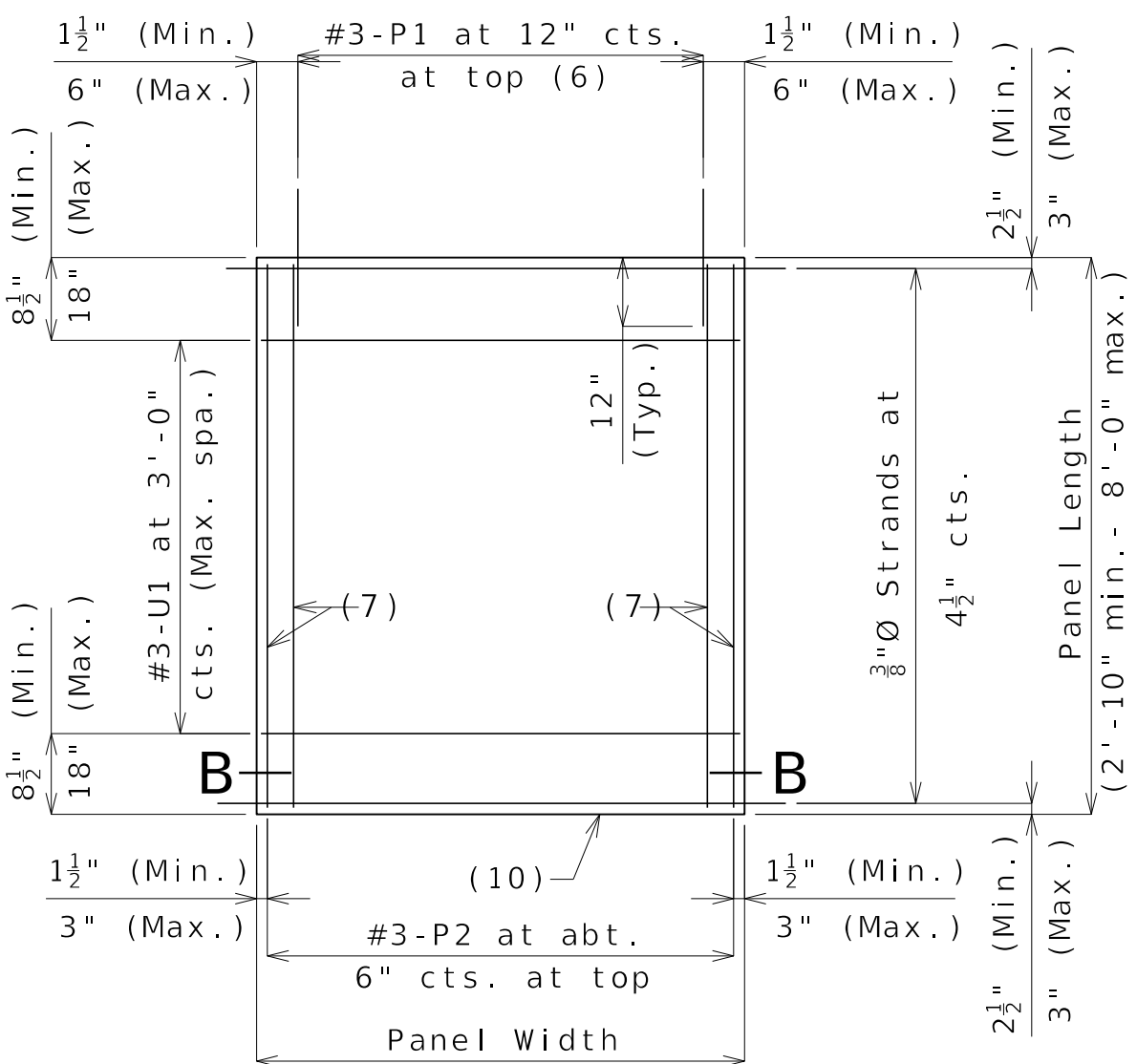


PLAN OF OPTIONAL TRUNCATED END PANEL

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



PLAN OF OPTIONAL SKEWED END PANEL

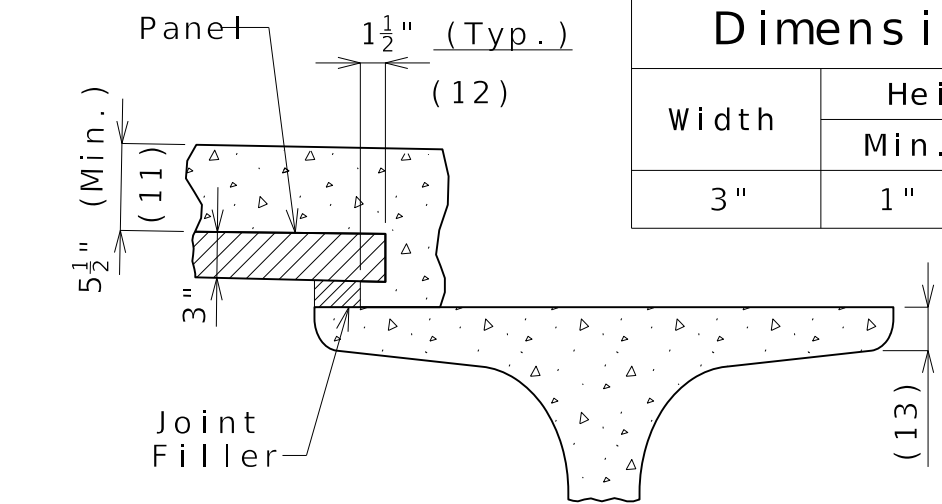


PLAN OF SQUARED PANEL

SKEWED END PANELS

Joint Filler Dimensions

Width	Height	
	Min.	Max.
3"	1"	4"



SECTION A-A

Reference Notes:

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

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

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

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

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

Plans of Panels:

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

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

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

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

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

Section A-A:

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

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

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

General Notes:

Prestressed Panels:

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

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

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

Initial prestressing force = 17.2 kips/strand.

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

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

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

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

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

Reinforcing Steel:

All dimensions are out to out.

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

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

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

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

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

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

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

All reinforcement other than prestressing strands shall be epoxy coated.

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

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

Joint Filler:

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

Use Slab Haunching Diagram on Sheet No. 17 for determining thickness of joint filler within the limits noted in the table of Joint Filler Dimensions.

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

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

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

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

PRESTRESSED PANELS

STATE OF MISSOURI

OSMAN MOHAMMED

NUMBER PE-2021003145

PROFESSIONAL ENGINEER

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Osman Mohammed

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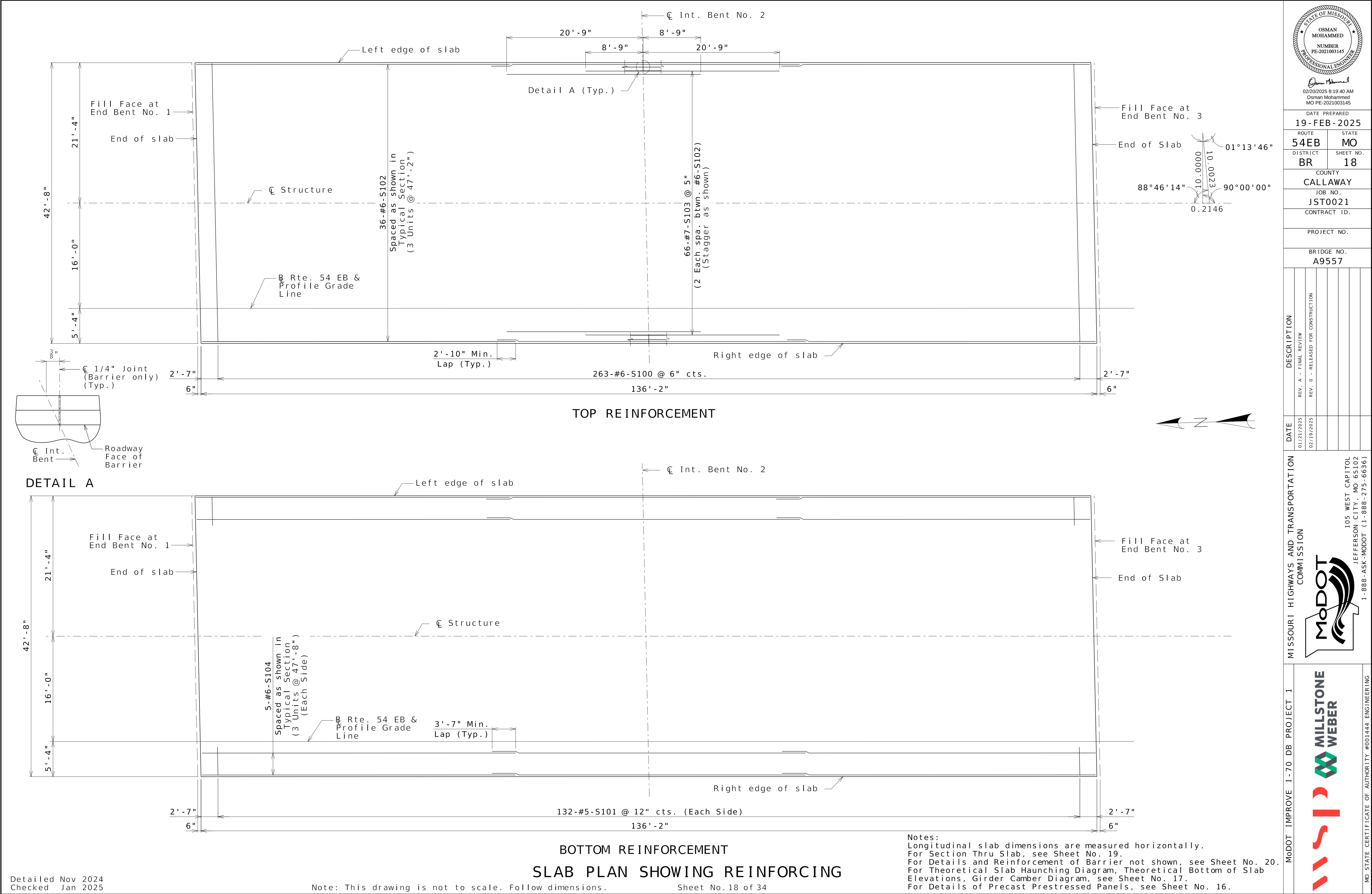
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The diagram illustrates the cross-section of a bridge deck with four girders. The dimensions for each girder are as follows:

Girder No.	1	2	3	4
Top of Slab	2 1/2"	2 5/8"	2 1/2"	2 1/2"
Bottom of Slab	2 5/8"	2 5/8"	2 1/2"	2 1/2"
Top of Girder	2 1/2"	2 1/2"	2 1/2"	2 1/2"
Bottom of Girder	2 1/2"	2 1/2"	2 1/2"	2 1/2"
Span (1-2)	10 Equal Spaces	10 Equal Spaces	10 Equal Spaces	10 Equal Spaces
Bearing	66' - 1"	66' - 1"	66' - 1"	66' - 1"

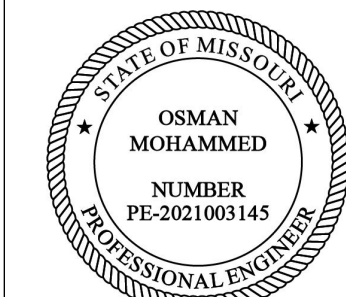
The diagram also shows the span and bearing for the bridge. The span is 10 equal spaces, and the bearing is 66' - 1".



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

Sheet No.18 of 34



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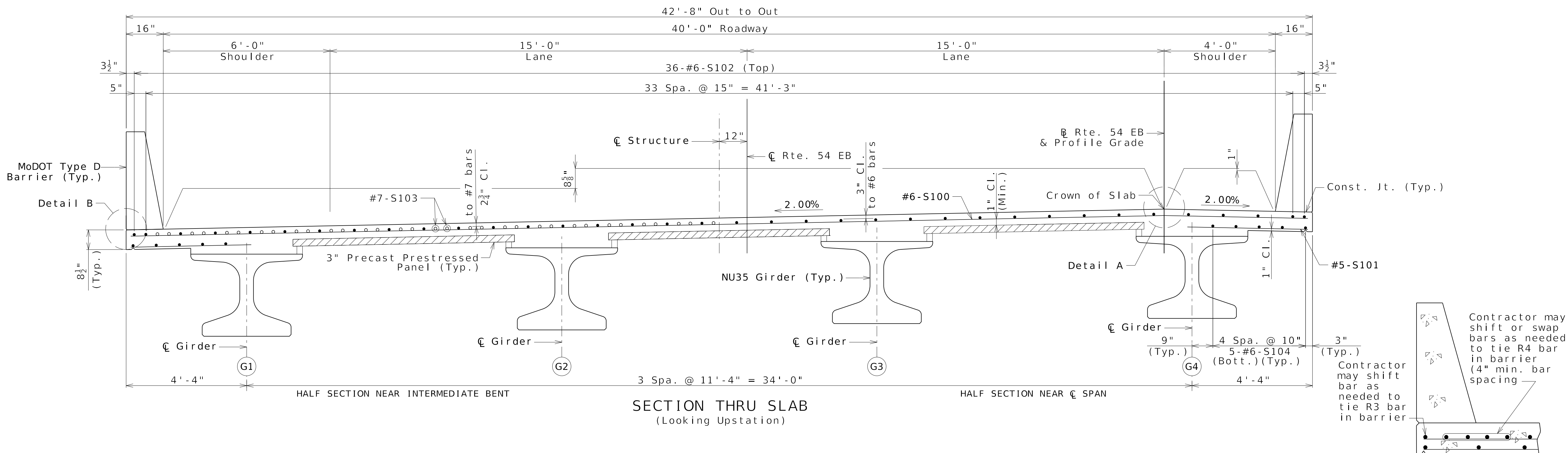
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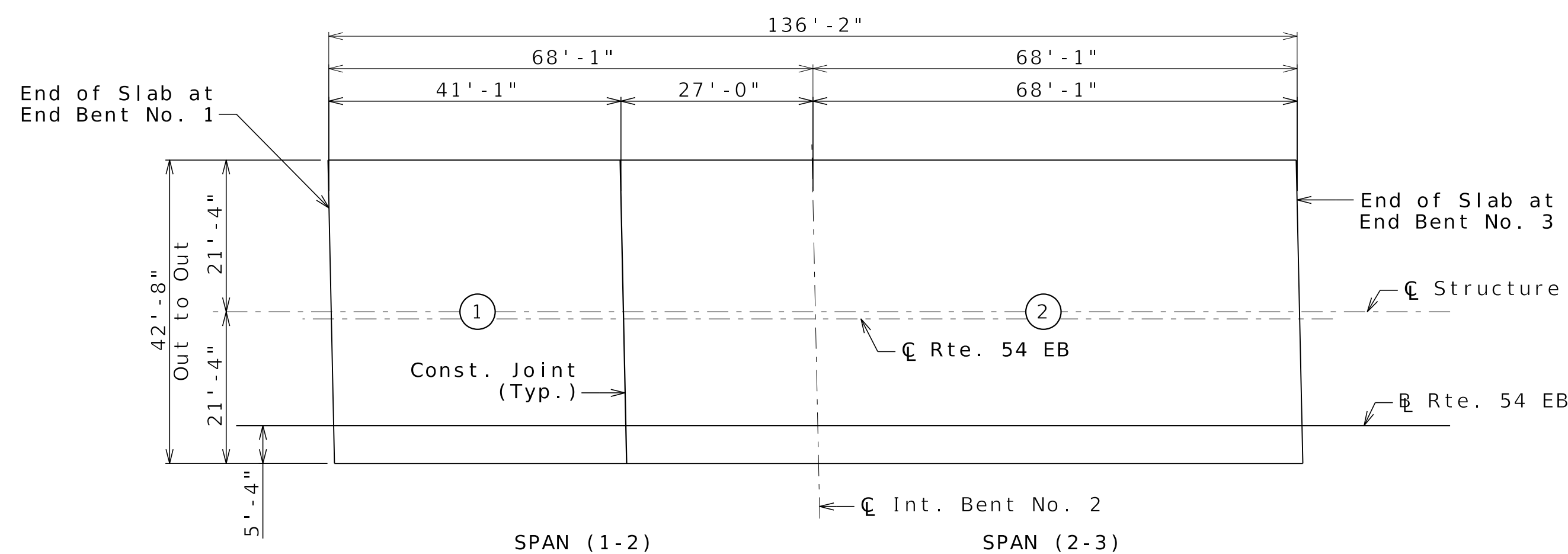
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MILLSTONE WEBER

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OPTIONAL SHIFTING TOP BARS AT BARRIER



SLAB POURING SEQUENCE

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

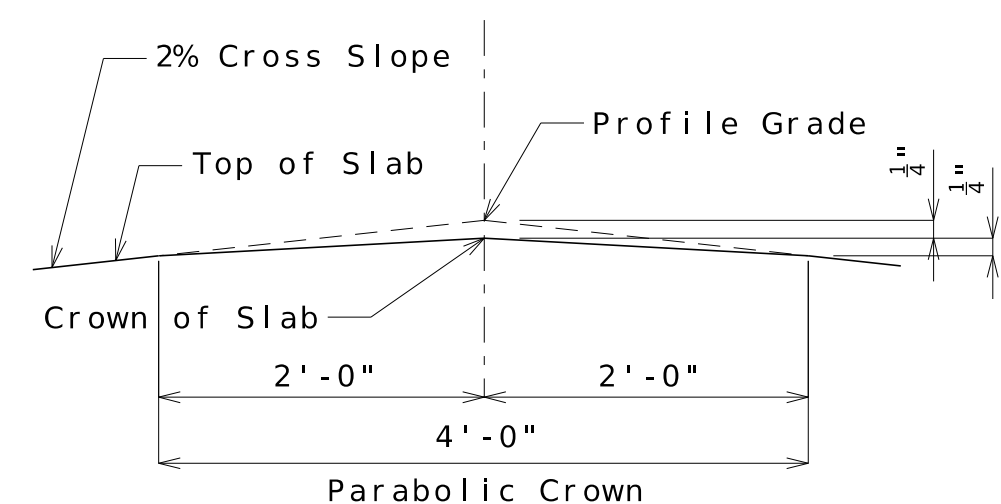
The concrete diaphragm at the intermediate bent and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE

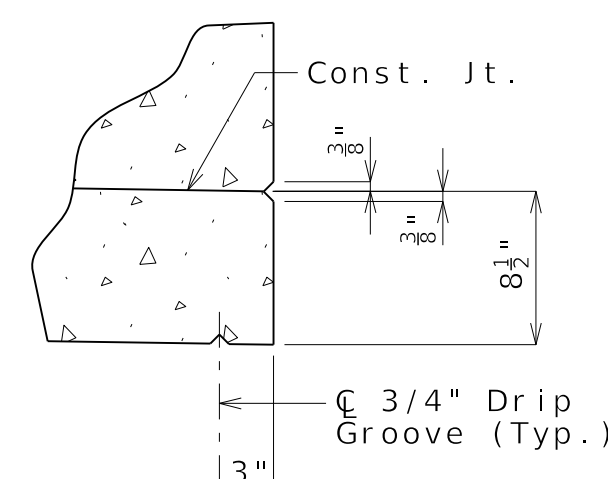
SLAB DETAILS

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

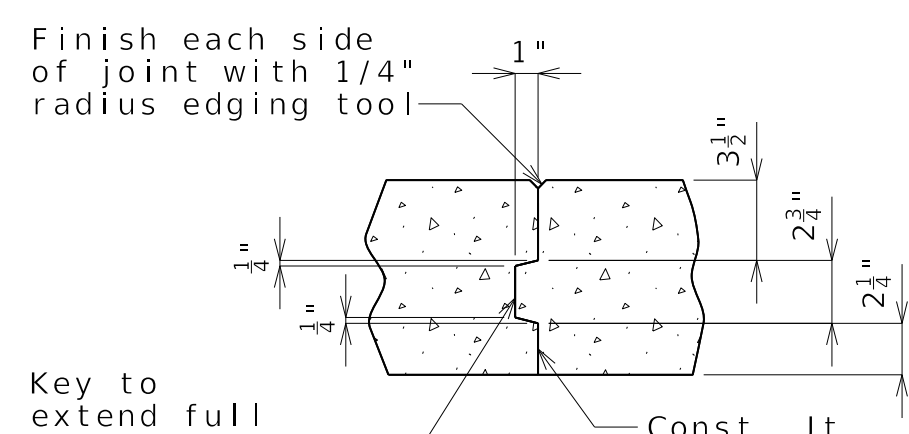
Sheet No.19 of 34



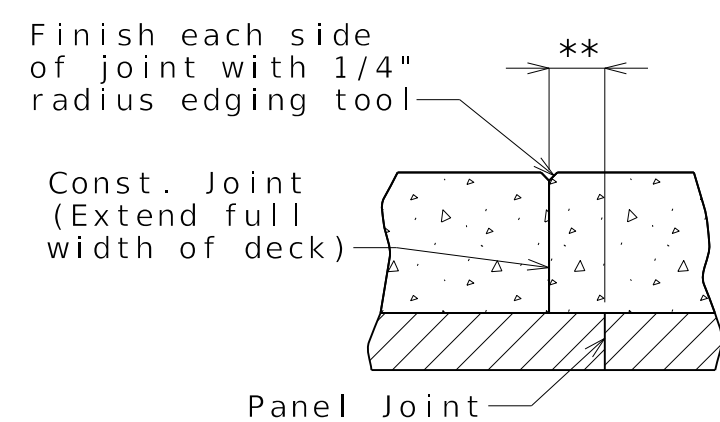
DETAIL A



DETAIL B



FULL DEPTH SLAB

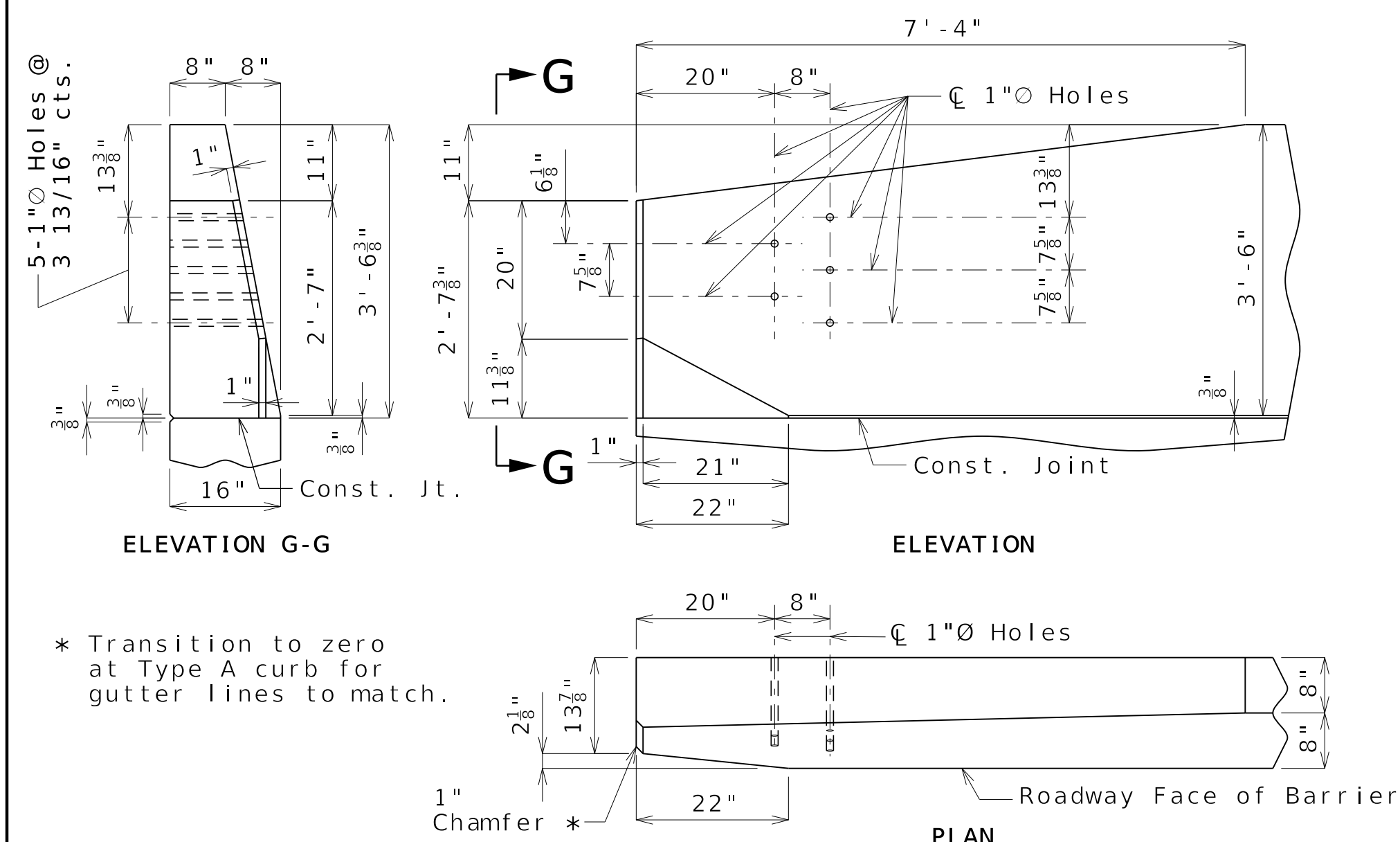
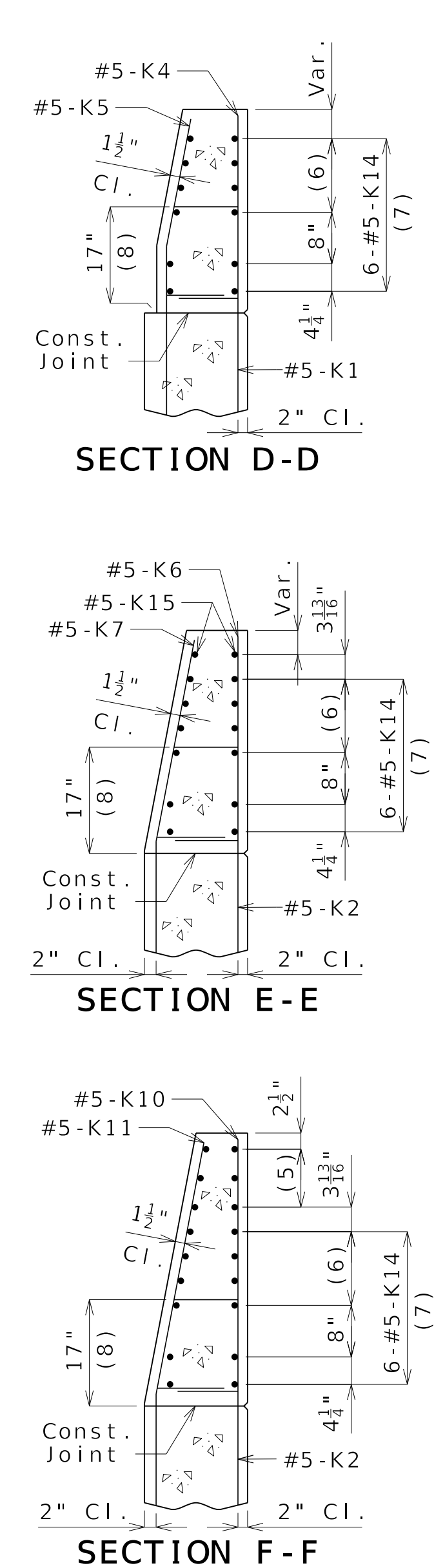
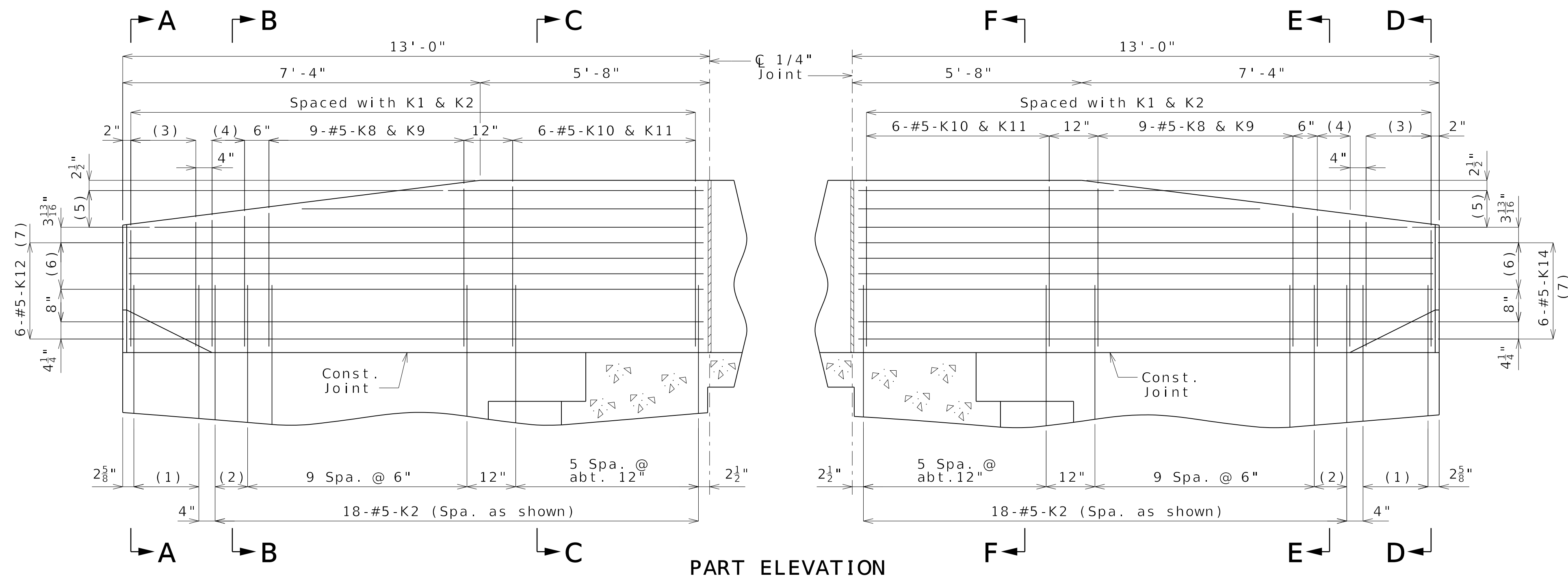
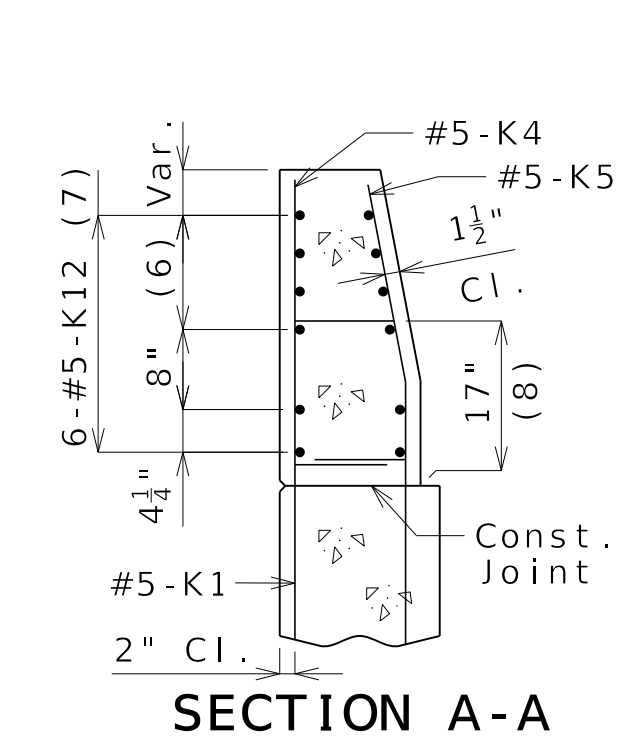


SLAB ON PANELS

SLAB CONSTRUCTION JOINT

Notes:

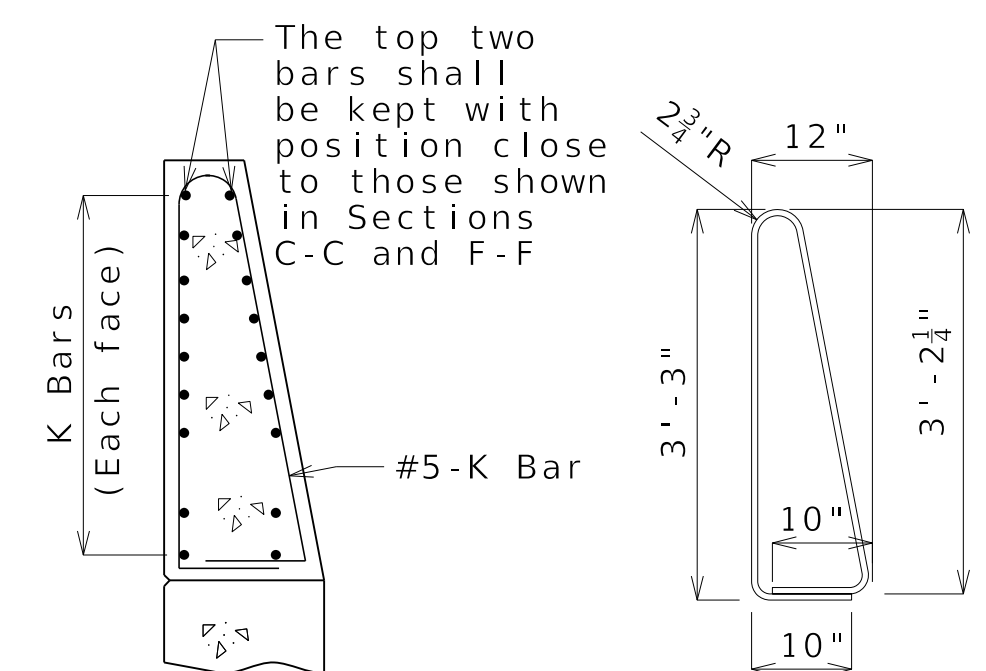
For details of Precast Prestressed Panels, see Sheet No. 16 .
For details and reinforcement of Type D Barrier not shown, see Sheet No. 20.
For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 17.
For Plan of Slab Showing Reinforcement, see Sheet No. 18.



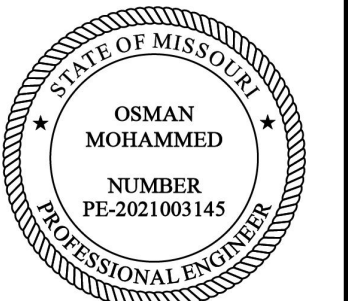
General Notes:

Reinforcing Steel :

- (1) 5-#5-K1 @ 4" cts.
- (2) 2 spaces @ 4"
- (3) 5-#5-K4 & K5
- (4) 3-#5-K6 & K7
- (5) 3-#5-K13 or K15 @ $4\frac{1}{2}$ " cts., each face
- (6) 3 spaces @ $3\frac{1}{16}$ "
- (7) Spaced as shown, each face
- (8) To top of bar



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



02/20/2025 8:19:40 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED

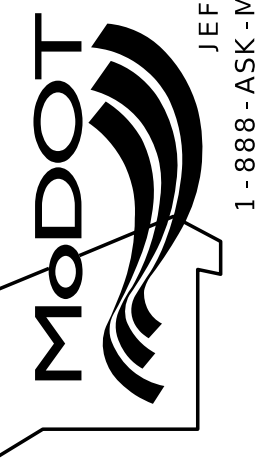
19-FEB-2025	
ROUTE 54EB	STATE MO
DISTRICT BR	SHEET NO. 22

COUNTY
CALLAWAY

PROJECT NO.

BRIDGE NO.
A9557

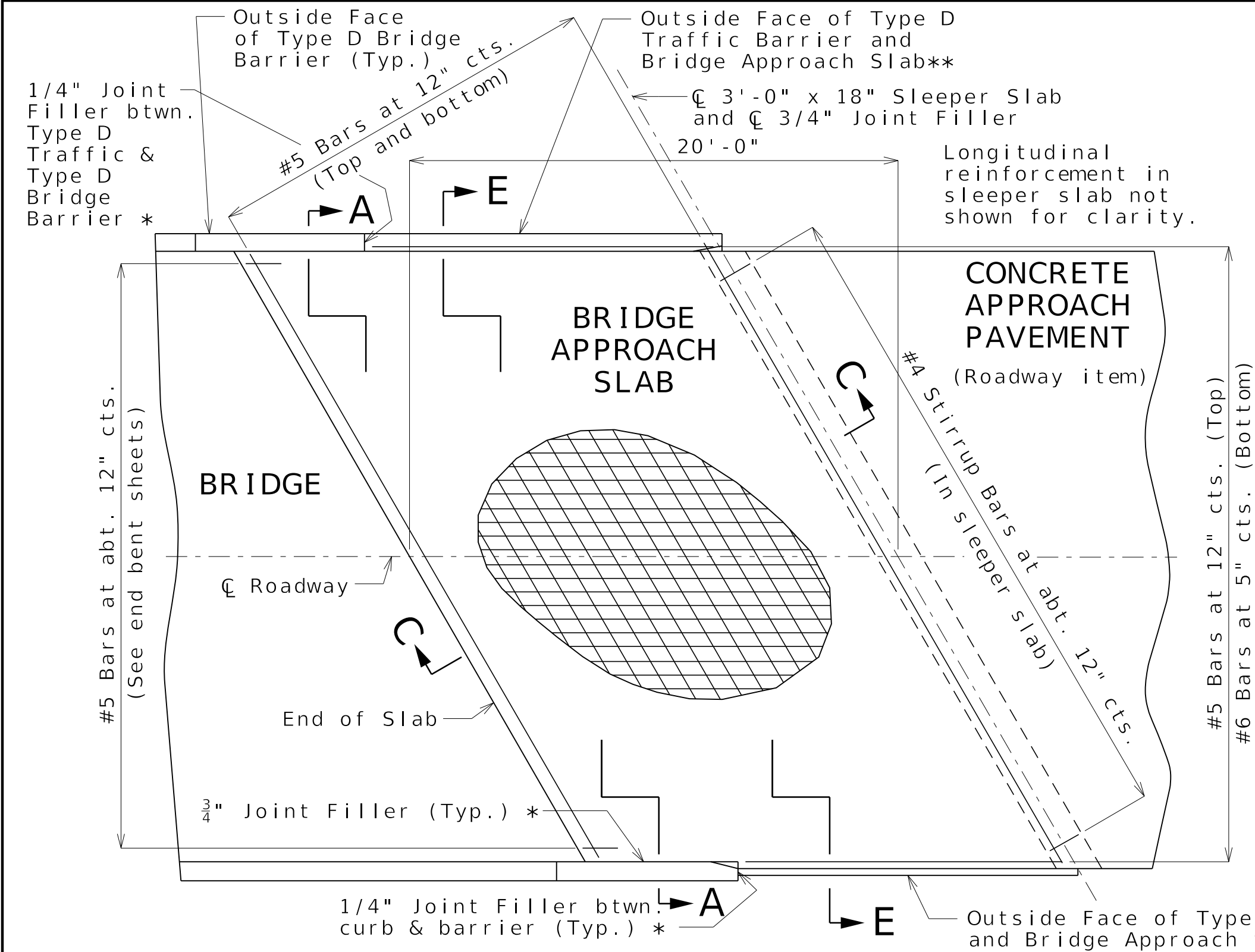
DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

MoDOT IMPROVE I-70 DB PROJECT 1

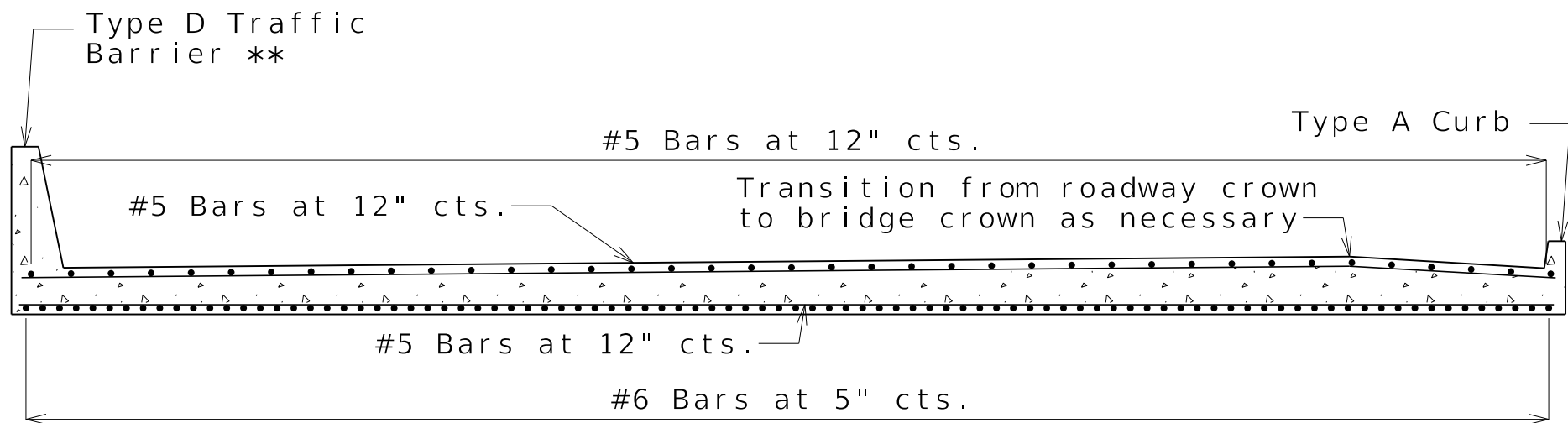


NO STATE CERTIFICATE OF ADOPTION - #000141 - ENGINEERING



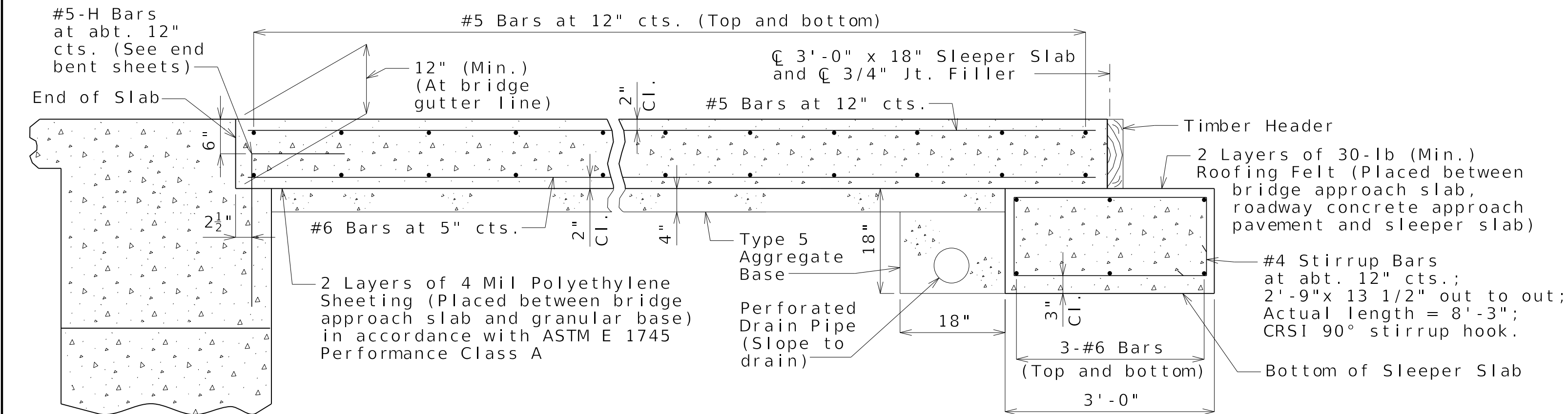
PART PLAN SHOWING REINFORCEMENT AT END BENT NO. 1

Additional moment slab reinforcement not shown for clarity.
** See Missouri Standard Plan 617.10M for details of Type D Traffic Barrier and Moment Slab reinforcement.

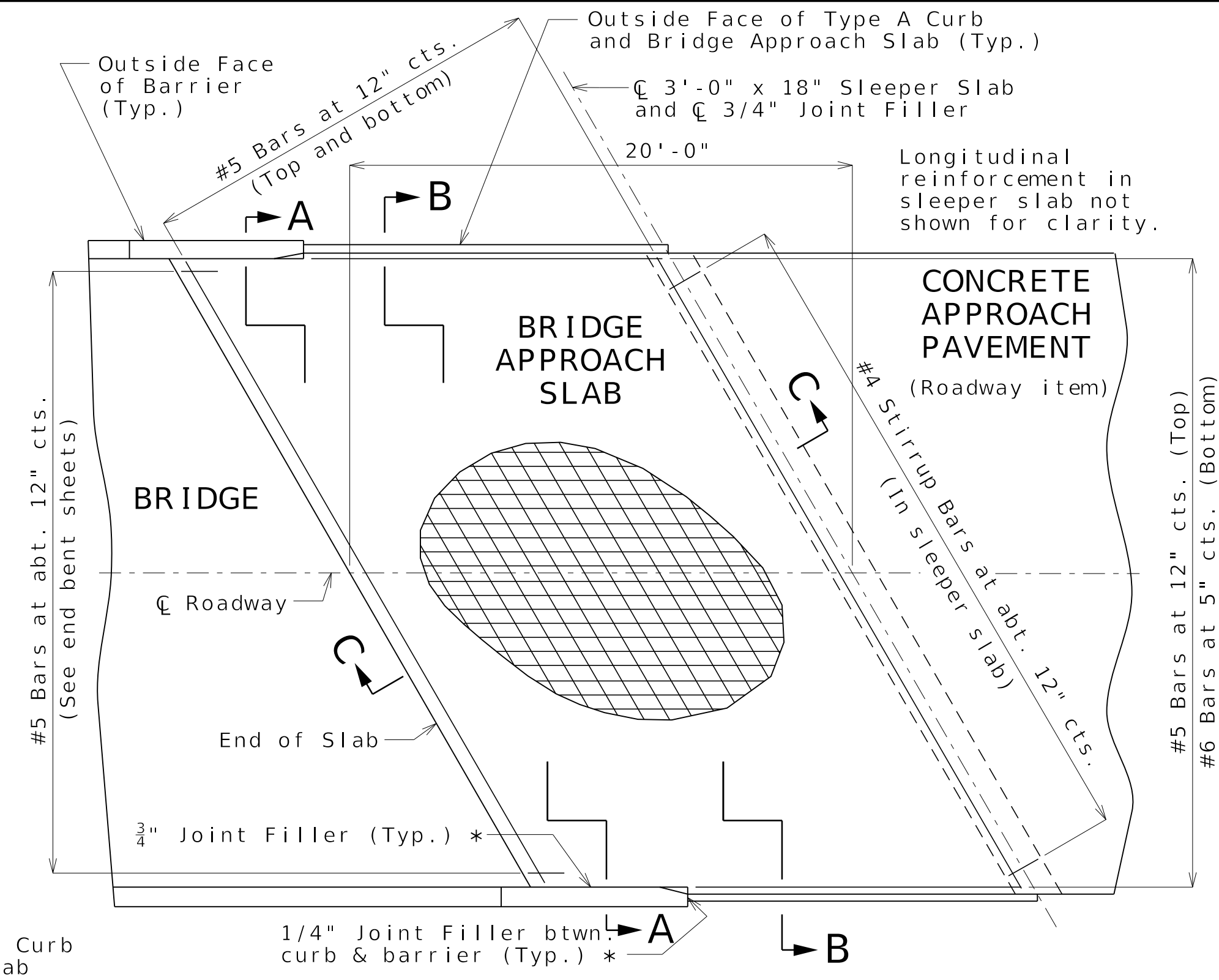


SECTION E-E

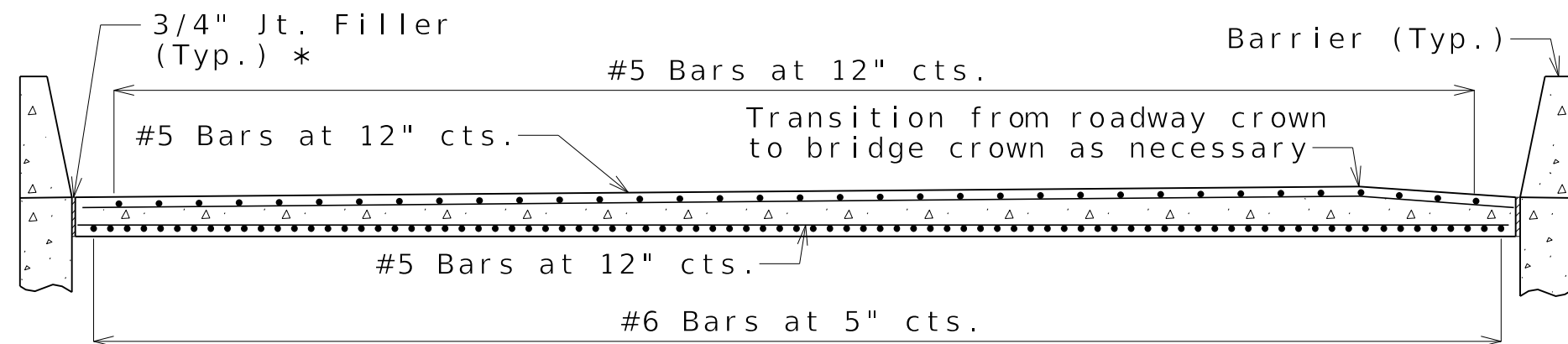
With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



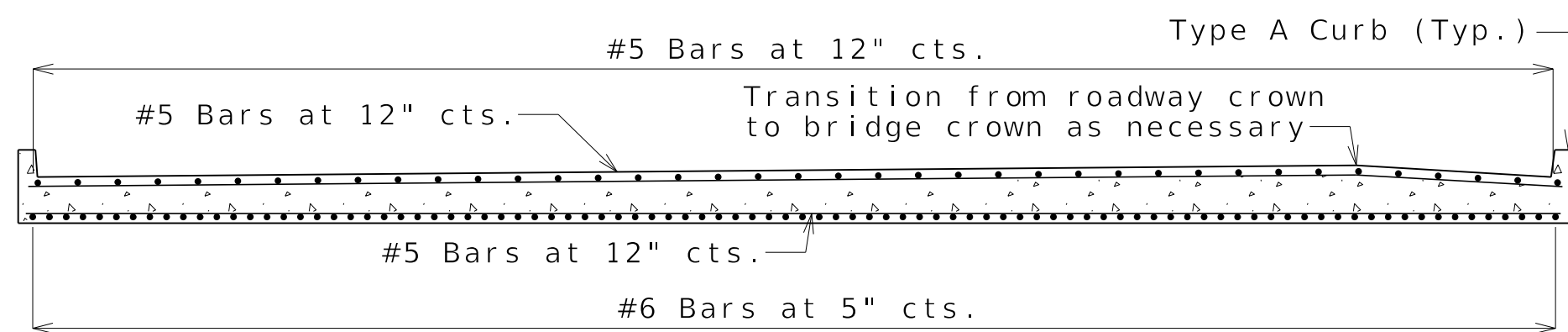
SECTION C-C



PART PLAN SHOWING REINFORCEMENT AT END BENT NO. 3



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.

General Notes:

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

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

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

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

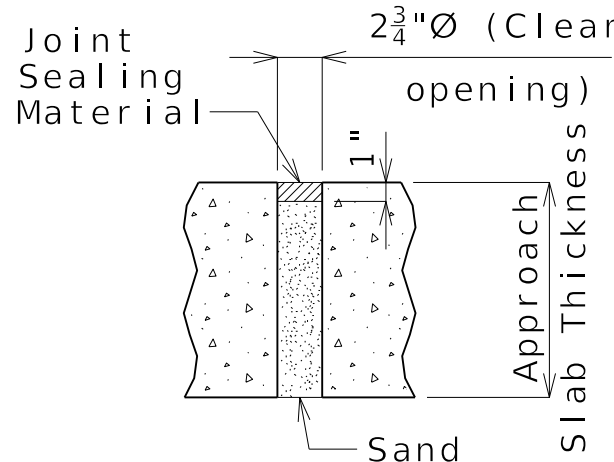
The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 29 inches for #5 bars and 44 inches for #6 bars, or by mechanical bar splice.

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

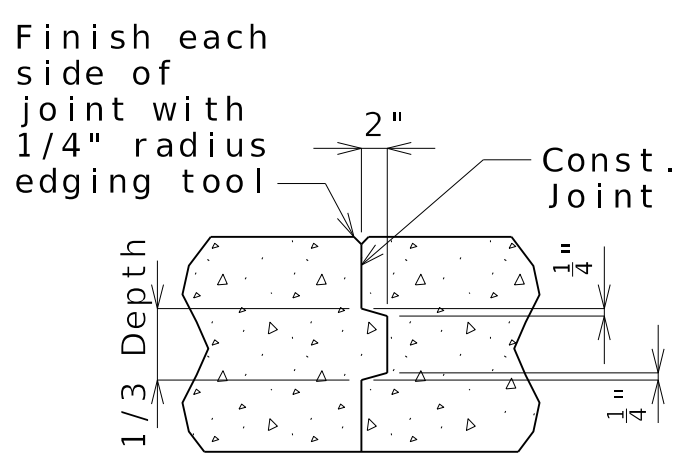
For concrete approach pavement details, see roadway plans.

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

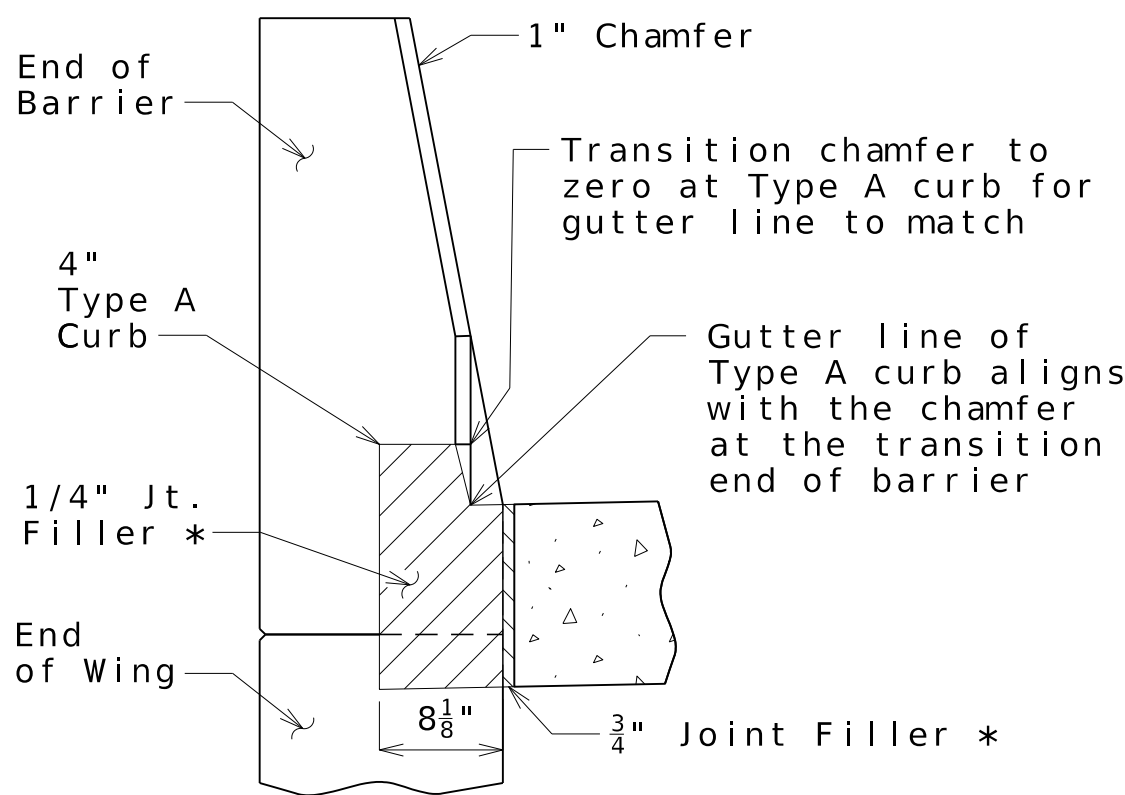
* Seal joint between vertical face of approach slab and wing with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.



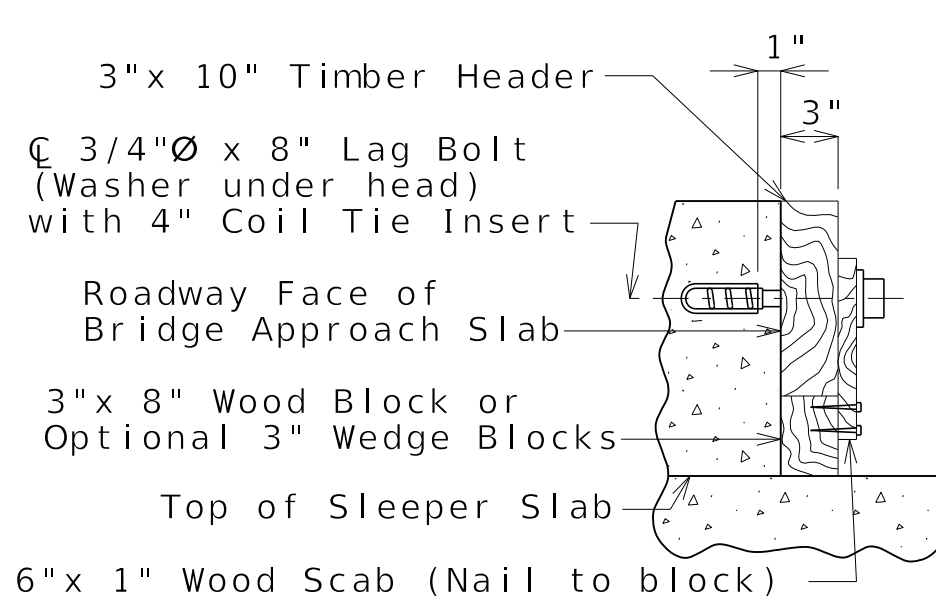
UNDERSEAL ACCESS HOLE DETAIL (If required)



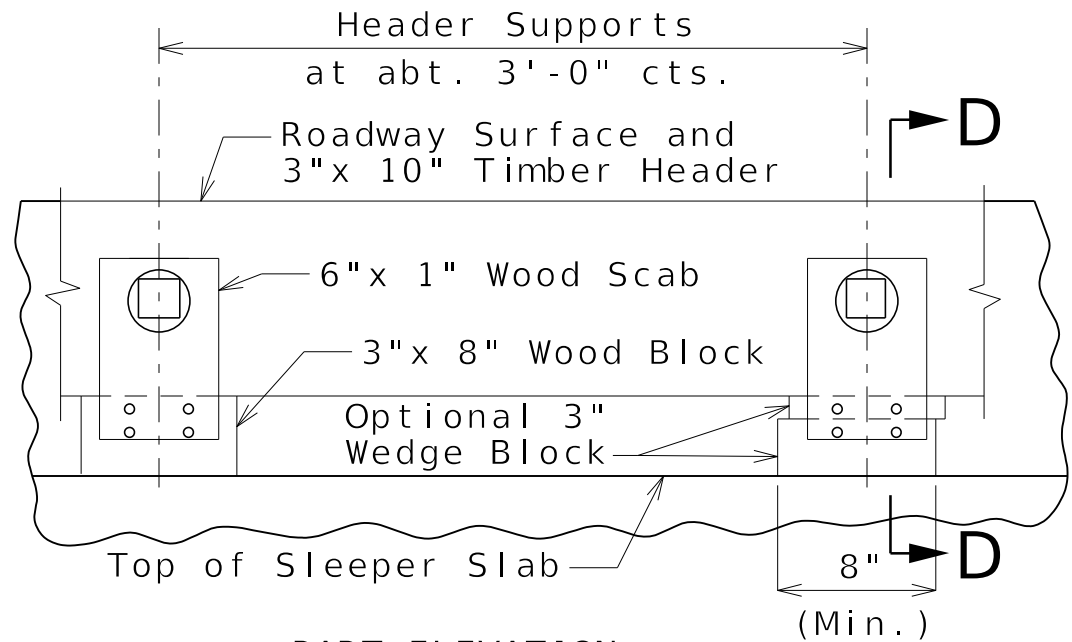
CONSTRUCTION JOINT DETAIL



SECTION BETWEEN CURB AND BARRIER



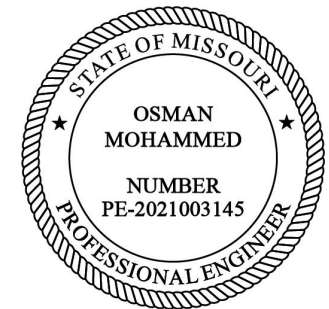
SECTION D-D



PART ELEVATION

DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.



OSMAN MOHAMMED
NUMBER PE-2021003145
02/20/2025 8:19:40 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
19-FEB-2025

ROUTE 54EB STATE MO

DISTRICT BR SHEET NO. 23

COUNTY CALLAWAY

JOB NO. JST0021

CONTRACT ID.

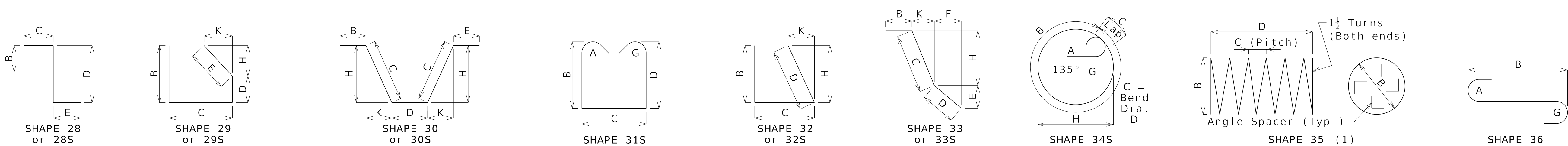
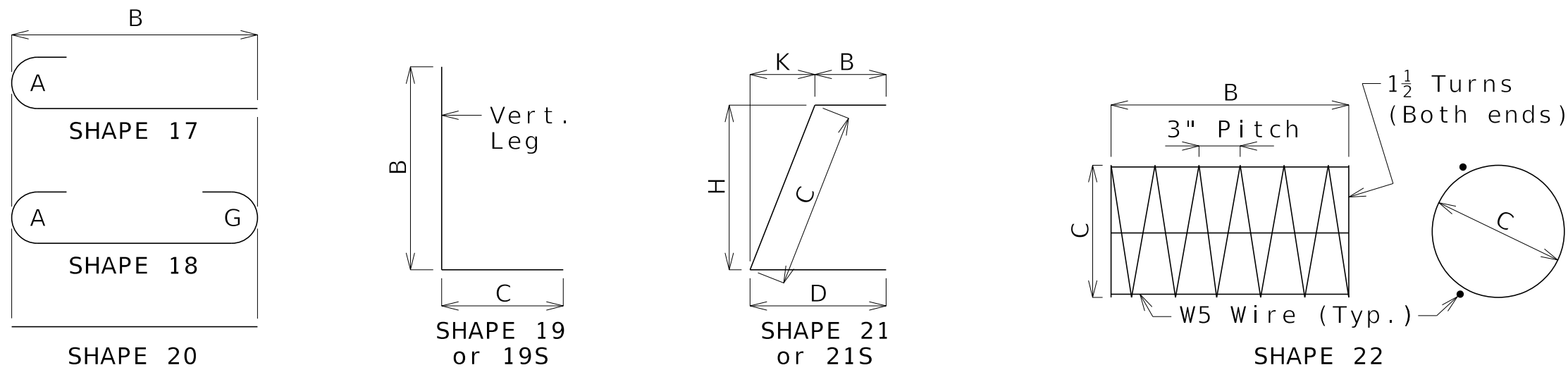
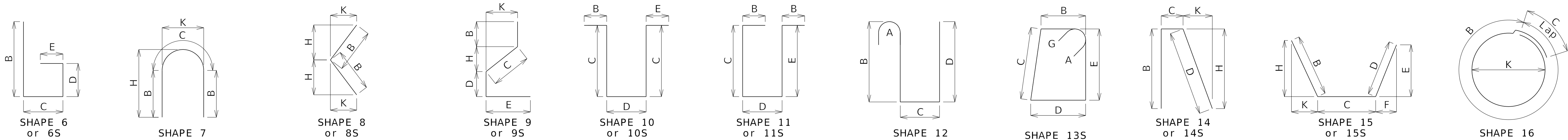
PROJECT NO.

BRIDGE NO. A9557

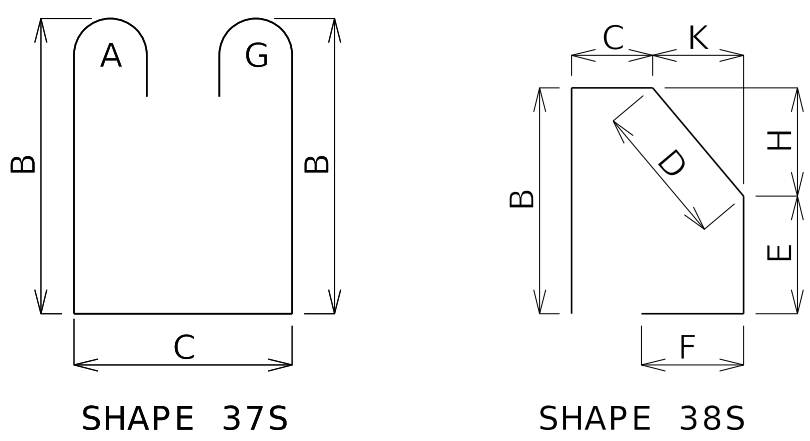
DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

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

MODOT IMPROVE I-70 DB PROJECT 1
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING



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 3/8"
	3	3 3/4"	6 1/4"	6 1/2"	7"	3 7/8"
#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	0	0	0	0	0	0	0
4	20	978	0	0	0	0	20	978
5	1966	1849	0	1239	8310	332	1966	11730
6	4069	7587	0	26456	0	0	4069	34043
7	0	694	0	3980	0	0	0	4674
8	0	1114	0	0	0	0	0	1114
9	1974	0	0	0	0	0	1974	0
10	0	2920	0	0	0	0	0	2920
11	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0
By Type	8,029	15,142	0	31,675	8,310	332	8,029	55,459

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

BAR BENDING DIAGRAMS

Detailed Nov 2024
Checked Jan 2025

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

Sheet No. 24 of 34

STATE OF MISSOURI

OSMAN MOHAMMED

NUMBER PE-2021003145

PROFESSIONAL ENGINEER

02/20/2025 8:19:40 AM

Osman Mohammed

MO PE-2021003145

DATE PREPARED

19-FEB-2025

ROUTE

54EB

STATE

MO

DISTRICT

BR

SHEET NO.

24

COUNTY

CALLAWAY

JOB NO.

JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

A9557

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

01/21/2025

02/19/2025

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

MODOT

MILLSTONE WEBER

MODOT IMPROVE I-70 DB PROJECT 1

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

Bill of Reinforcing Steel																									
No. Req.	Size/ Mark	Location	Codes			Dimensions								Nom. Length	Actual Length	Weight									
			C	SH	V	B		C		D		E					F		H		K				
						ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	lb	
	C 1 10	SUBSTRUCTURE																		C 1 129					
	C 1 9	END BENT NO. 1																		C 1 116					
9	6 F100	WING BRACE	E	23		2	3.000	5	3.000	14.000		9.875		9.875	19.500	18.625	8	8		8	7			116	
3	6 F101	DIAPHRAGM	E	19		5	10.875	2	4.000								8	3		8	1			36	
10	6 F102	DIAPHRAGM	E	23		2	3.000	5	3.000	14.000		9.875		9.875	18.625	19.500	8	8		8	7			129	
3	6 F103	DIAPHRAGM	E	19		5	10.875	2	4.000								8	3		8	1			36	
	C 1 10																			C 1 199					
8	10 H100	BEAM	E	20		42	5.000										42	5		42	5			1460	
4	6 H101	BEAM	E	20		42	5.000										42	5		42	5			255	
3	6 H102	DIAPHRAGM	E	20		7	9.625										7	10		7	10			35	
9	6 H103	DIAPHRAGM	E	20		10	7.000										10	7		10	7			143	
2	6 H104	DIAPHRAGM	E	20			23.875										2	0		2	0			6	
4	6 H105	BEAM	E	20		42	5.000										42	5		42	5			255	
4	7 H106	DIAPHRAGM	E	20		42	5.125										42	5		42	5			347	
6	6 H107	DIAPHRAGM	E	20		3	9.000										3	9		3	9			34	
11	6 H108	WINGWALL	E	15		12	8.125		9.000								13	5		13	3			219	
21	6 H109	WINGWALL	E	20		12	8.125							12	8.125	3.625	12	8		12	8			400	
4	8 H110	WINGWALL	E	15		12	8.125		12.000					12	8.125	3.625	13	8		13	6			144	
8	8 H111	WINGWALL	E	20		12	8.125										12	8		12	8			271	
10	6 H112	WINGWALL	E	21				12	8.875	9.000				12	8.875	3.625	13	6		13	2			198	
4	8 H113	WINGWALL	E	21				12	8.875	12.000				12	8.875	3.625	13	9		13	4			142	
4	6 H114	BEAM	E	20		17	8.500										17	9		17	9			107	
4	5 H115	STRAND TIE	E	20		5	8.000										5	8		5	8			24	
	C 1 11																			C 1 218					
28	5 U100	BEAM	E	37S		5	10.625	2	9.000								15	6		15	3			445	
28	4 U101	BEAM	E	13S		2	9.000	3	2.000	2	9.000	3	2.000				12	7		12	4			231	
35	6 U102	BEAM	E	19		2	4.625	2	9.000								5	2		5	0			263	
35	5 U103	DIPHRAGM	E	37S		2	2.625	2	3.000								7	8		7	5			271	
54	6 U104	DIAPHRAGM	E	19S		3	4.500	4	6.500								7	11		7	9			629	
40	5 U105	DIAPHRAGM	E	19S		2	0.000	15.000									3	3		3	2			132	
14	4 U106	BEAM	E	10S				12.000	2	9.000							4	9		4	7			43	
14	6 V100	BEAM	E	17		5	10.625										6	7		6	7			138	
20	6 V101	DIAPHRAGM	E	20			22.000											22			22			55	
20	6 V102	WINGWALL	E	20	V	6	9.125										6	9		6	9			208	
		INCR. B = 0.48"				7	1.375										7	1		7	1				
2	6 V103	WINGWALL	E	20		6	8.750										6	9		6	9			20	
20	6 V104	WINGWALL	E	20	V	7	5.000										7	5		7	5			228	
		INCR. B = 0.48"				7	9.250										7	9		7	9				
2	6 V105	WINGWALL	E	20		7	4.625										7	5		7	5			22	
		INT. BENT NO. 2																							
21	6 D200	KEY DOWEL	E	20		2	6.000										2	6		2	6			79	
2	6 H200	WEB WALL		18		35	4.000										36	8		36	8			110	
36	6 H201	WEB WALL		20		35	4.000										35	4		35	4			1911	
38	6 H202	WEB WALL		7		20.000		4	1.875						2	11.875	2	7.750		5	8		5	7	319
6	9 H203	BEAM		18		39	3.000										41	9		41	9			852	
7	9 H204	BEAM		17		28	4.000										29	7		29	7			704	
7	9 H205	BEAM		17		16	4.000										17	7		17	7			418	
10	6 H206	BEAM		20		39	3.000										39	3		39	3			590	
2	6 H207	BEAM		20		14	0.000										14	0		14	0			42	
15	6 H208	BEAM		10S				22.000	3	1.750							6	10		6	6			146	
17	6 U200	BEAM		13S		3	3.000	3	5.375	3	3.000	3	5.375				14	9		14	3			364	
21	6 U201	BEAM		13S		3	3.000	3	0.000	3	3.000	3	0.000				13	10		13	4			421	
6	4 U202	BEAM		10S				12.000	3	3.000							5	3		5	1			20	
4	6 U203	BEAM		10S				3	5.375	3	3.000						10	2		9	10			59	
8	6 U204	BEAM		10S				3	0.000	3	3.000						9	3		8	11			107	
26	5 V200	WEB WALL		20		21	2.000										21	2		21	2			574	
56	5 V201	WEB WALL		19S		21	2.000	2	9.000								23	11		23	10			1392	

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

For bending diagrams and steel reinforcing totals, see Sheet No. 24.

Detailed Jan 2025
Checked Jan 2025

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

BILL OF REINFORCING STEEL (1 OF 2)

Sheet No. 25 of 34

No. Req.	Size/ Mark	Location	Codes		Dimensions								Nom. Length	Actual Length	Weight						
					B		C		D		E					F		H		K	
			C	SH	V	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.
		END BENT NO. 3																			
9	6 F300	WING BRACE	E	23		2	3.000	5	3.000		14.000		9.875	9.875	19.500	18.625	8	8	8	7	116
3	6 F301	DIAPHRAGM	E	19		5	10.875	2	4.000								8	3	8	1	36
10	6 F302	DIAPHRAGM	E	23		2	3.000	5	3.000		14.000		9.875	9.875	18.625	19.500	8	8	8	7	129
3	6 F303	DIAPHRAGM	E	19		5	10.875	2	4.000								8	3	8	1	36
8	10 H300	BEAM	E	20		42	5.000										42	5	42	5	1460
4	6 H301	BEAM	E	20		42	5.000										42	5	42	5	255
3	6 H302	DIAPHRAGM	E	20		7	9.625										7	10	7	10	35
9	6 H303	DIAPHRAGM	E	20		10	7.000										10	7	10	7	143
2	6 H304	DIAPHRAGM	E	20			23.875										2	0	2	0	6
4	6 H305	BEAM	E	20		42	5.000										42	5	42	5	255
4	7 H306	DIAPHRAGM	E	20		42	5.125										42	5	42	5	347
6	6 H307	DIAPHRAGM	E	20		3	9.000										3	9	3	9	34
11	6 H308	WINGWALL	E	15		12	8.125		9.000					12	8.125	3.625	13	5	13	3	219
21	6 H309	WINGWALL	E	20		12	8.125										12	8	12	8	400
4	8 H310	WINGWALL	E	15		12	8.125		12.000					12	8.125	3.625	13	8	13	6	144
8	8 H311	WINGWALL	E	20		12	8.125										12	8	12	8	271
10	6 H312	WINGWALL	E	21				12	8.875	9.000				12	8.875	3.625	13	6	13	2	198
4	8 H313	WINGWALL	E	21				12	8.875	12.000				12	8.875	3.625	13	9	13	4	142
4	6 H314	BEAM	E	20		17	8.500										17	9	17	9	107
4	5 H315	STRAND TIE	E	20		5	8.000										5	8	5	8	24
28	5 U300	BEAM	E	375		5	10.625	2	9.000								15	6	15	3	445
28	4 U301	BEAM	E	135		2	9.000	3	2.000	2	9.000	3	2.000				12	7	12	4	231
35	6 U302	BEAM	E	19		2	4.625	2	9.000								5	2	5	0	263
35	5 U303	DIPHRAGM	E	375		2	2.625	2	3.000								7	8	7	5	271
54	6 U304	DIAPHRAGM	E	195		3	4.500	4	6.500								7	11	7	9	629
40	5 U305	DIAPHRAGM	E	195		2	0.000		15.000								3	3	3	2	132
14	4 U306	BEAM	E	105				12.000	2	9.000							4	9	4	7	43
14	6 V300	BEAM	E	17		5	10.625										6	7	6	7	138
20	6 V301	DIAPHRAGM	E	20			23.000											23		23	58
20	6 V302	WINGWALL	E	20		7	7.875										7	8	7	8	230
2	6 V303	WINGWALL	E	20		7	8.500										7	9	7	9	23
20	6 V304	WINGWALL	E	20		7	0.000										7	0	7	0	210
2	6 V305	WINGWALL	E	20		7	0.625										7	1	7	1	21
		SUPERSTRUCTURE																			
		DIAPH. AT INT. BENT. NO. 2																			
6	6 H220	DIAPHRAGM	E	20		7	10.625										7	11	7	11	71
18	6 H221	DIAPHRAGM	E	20		10	0.000										10	0	10	0	120
6	6 H222	DIAPHRAGM	E	20		7	0.000										7	0	7	0	63
4	5 H223	DIAPHRAGM	E	20		4	6.000										4	6	4	6	19
4	5 H224	DIAPHRAGM	E	20		5	8.000										5	8	5	8	24
48	4 U220	DIAPHRAGM	E	285				18.000	3	5.000	2	3.000					7	2	7	0	224
12	6 U221	DIAPHRAGM	E	285				18.000	2	6.000	2	3.000					6	3	5	11	107
12	6 U222	DIAPHRAGM	E	285				18.000	3	5.000	2	3.000					7	2	6	10	123
4	5 U223	DIAPHRAGM	E	65		5	0.000	22.000	15.750								8	2	7	11	33
8	6 U224	DIAPHRAGM	E	285				18.000	2	6.000	2	3.000					6	3	5	11	71
16	4 U225	DIAPHRAGM	E	65	V	5	0.000	22.000	15.750								8	2	8	0	86
		INCR. B = 1.67"				5	5.000	22.000	20.750												
		INCR. D = 1.67"																			
8	5 V220	DIAPHRAGM	E	20		3	5.750										3	6	3	6	29
		SLAB																			
263	6 S100	SLAB	E	20		42	2.000										42	2	42	2	16657
264	5 S101	SLAB	E	20		4	6.000										4	6	4	6	1239
108	6 S102	SLAB	E	20		47	2.000										47	2	47	2	7651
66	7 S103	SLAB	E	20		29	6.000										29	6	29	6	3980
30	5 S104	SLAB	E	20		47	8.000										47	8	47	8	2148

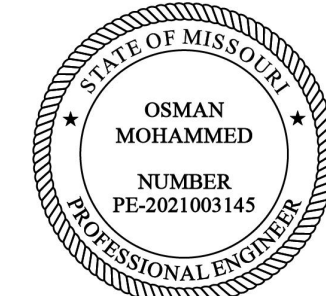
All bars shall be Grade 60.

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.

C 1

REVISED 03-14-2025 SH = Required shape, see bending diagrams.

V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.



03/14/2025 2:45:47 PM
Osman Mohammed
MO PE-2021003145

DATE PREPARED

14-MAR-2025

ROUTE	STATE
F 45B	MO

54EB	MO
DISTRICT	SHEET NO.

DISTRICT
RR

SHEET NO
25

DR	25
COUNTY	

CALLAWAY

JOB NO.

JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

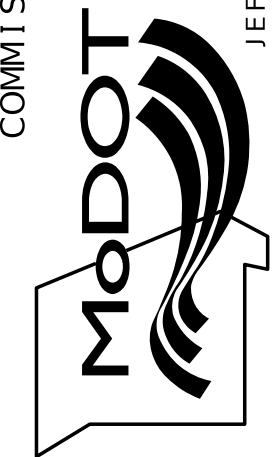
A9557

DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION
03/14/2025	REV. 1 - NDC-013 - REVISED REINFORCING



MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102



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 #001444 ENGINEERING

Bill of Reinforcing Steel																										
No. Req.	Size/ Mark	Location	Codes			Dimensions										Nom. Length	Actual Length	Weight								
			C	SH	V	B		C		D		E		F					H		K					
						ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	lb
		SUPERSTRUCTURE																								
		BARRIER																								
272	5 R1	TYPE D BARRIER	E	26S		3	3.000	5.500		2.250	3	1.375	5.500	3	0.750	6.750	6	8	6	7						1868
272	5 R2	TYPE D BARRIER	E	19S			20.500	9.500									2	6	2	5						686
272	5 R3	TYPE D BARRIER	E	27S				9.500		15.250		5.000	12.000		15.000	3.000	3	6	3	4						946
40	5 R4	TYPE D BARRIER	E	20		11	8.000										11	8	11	8						487
40	5 R5	TYPE D BARRIER	E	20		53	3.000										53	3	53	3						2222
15	5 K1	TYPE D BARRIER	E	27S		3	8.000	9.250		5.375	3	2.750			5.250	1.000	8	1	7	11						124
68	5 K2	TYPE D BARRIER	E	27S		3	8.000	9.250		14.500	2	5.750			14.250	2.750	8	2	7	11						561
15	5 K4	TYPE D BARRIER	E	19S	V	2	4.250	10.000									3	2	3	1						50
		INCR. B = 0.50"				2	6.250	10.000									3	4	3	3						
15	5 K5	TYPE D BARRIER	E	38S	V					18.500		9.500	8.250	18.000	4.000	3	0	2	9							44
		INCR. H = 0.5"								20.500		9.500	8.250	20.000	4.500	3	2	2	11							
		INCR. K = 0.125"																								
9	5 K6	TYPE D BARRIER	E	19S		2	6.750	10.000									3	5	3	3						31
9	5 K7	TYPE D BARRIER	E	21S				2	6.625	10.000					2	6.000	6.250	3	5	3	2					30
36	5 K8	TYPE D BARRIER	E	19S	V	2	8.500	10.000									3	7	3	5						103
		INCR. B = 0.75"				3	2.500	10.000									4	1	3	11						
27	5 K9	TYPE D BARRIER	E	21S	V			2	8.500	10.000					2	7.750	6.750	3	6	3	4					94
		INCR. H = 0.75"						3	2.500	10.000					3	1.750	7.750									
		INCR. K = 0.125"																								
32	5 K10	TYPE D BARRIER	E	19S		3	3.000	10.000									4	1	4	0						134
32	5 K11	TYPE D BARRIER	E	21S				3.000	10.000						3	2.250	7.750	4	1	3	10					128
24	5 K12	TYPE D BARRIER	E	20	V	12	8.000										12	8	12	8						317
12	5 K13	TYPE D BARRIER	E	20	V	5	11.000										5	11	5	11						112
		INCR. B = 36"				11	11.000										11	11	11	11						
24	5 K14	TYPE D BARRIER	E	20		12	8.000										12	8	12	8						317
6	5 K15	TYPE D BARRIER	E	20	V	5	11.000										5	11	5	11						56
		INCR. B = 36"				11	11.000										11	11	11	11						
		SLIP FORM BARRIER																								
24	5 C1	TYPE D BARRIER	E	20		9	9.000										9	9	9	9						244
8	5 C2	TYPE D BARRIER	E	20		10	6.000										10	6	10	6						88

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

All bars shall be Grade 60.

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.

SH = Required shape, see bending diagrams.

V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

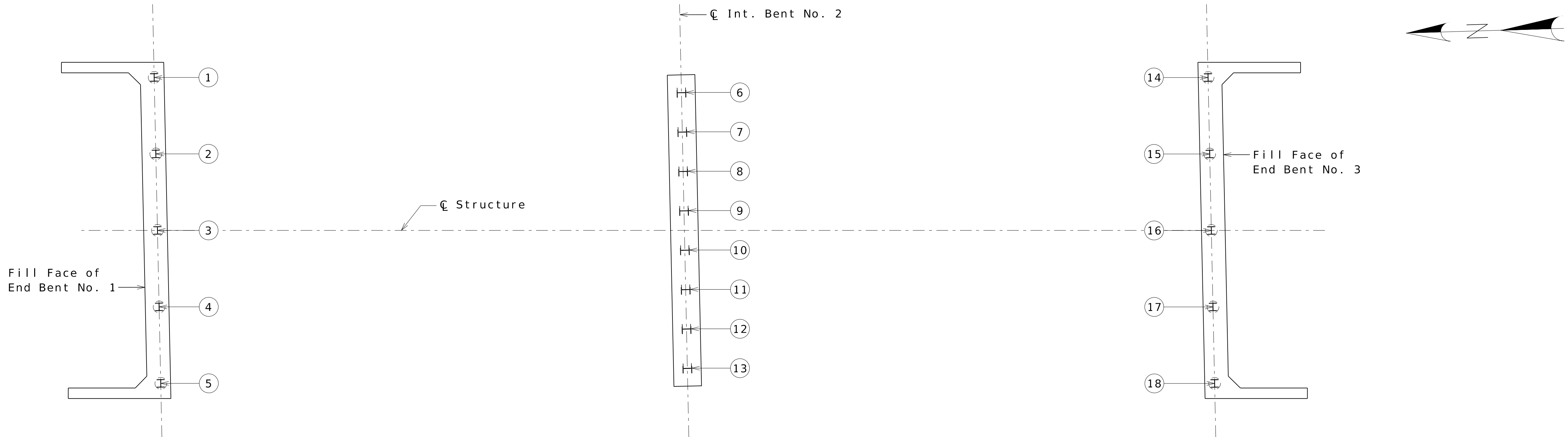
For bending diagrams and steel reinforcing totals, see Sheet No. 24.

Detailed Jan 2025
Checked Jan 2025

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

Sheet No. 26 of 34

  03/14/2025 2:45:47 PM Osman Mohammed MO PE-2021003145	DATE PREPARED		14-MAR-2025	
	ROUTE		STATE	
	54EB		MO	
	DISTRICT		SHEET NO	
	BR		26	
	COUNTY			
	CALLAWAY			
	JOB NO.			
	JST0021			
	CONTRACT I.D.			
PROJECT NO.				
BRIDGE NO.				
A9557				
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	DATE	DESCRIPTION	
		01/21/2025	REV. A - FINAL REVIEW	
		02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION	
		03/14/2025	REV. 1 - NDC-013 - REVISED REINFORCING	
  03/14/2025 2:45:47 PM Osman Mohammed MO PE-2021003145	  03/14/2025 2:45:47 PM Osman Mohammed MO PE-2021003145			
	  03/14/2025 2:45:47 PM Osman Mohammed MO PE-2021003145			



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

AS-BUILT PILE DATA			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
END BENT NO. 1			
1			
2			
3			
4			
5			

AS-BUILT PILE DATA					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
INT. BENT NO. 2					
6					
7					
8					
9					
10					
11					
12					
13					

AS-BUILT PILE DATA					
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks		
END BENT NO. 3					
14					
15					
16					
17					
18					

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal
D. PDA test pile
E. Minimum tip elevation controlled
(Use when actual blow count is less than PDA blow count due to minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating actual value is higher than PDA value.)

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE DATA

Detailed Nov 2024
Checked Jan 2025

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

Sheet No.27 of 34

STATE OF MISSOURI

OSMAN MOHAMMED

NUMBER PE-2021003145

PROFESSIONAL ENGINEER

02/20/2025 8:19:41 AM

Osman Mohammed

MO PE-2021003145

DATE PREPARED
19-FEB-2025

ROUTE
54EB

DISTRICT
BR

STATE
MO

SHEET NO.
27

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DESCRIPTION

REV. A - FINAL REVIEW

REV. 0 - RELEASED FOR CONSTRUCTION

DATE

01/21/2025

02/19/2025

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

MISSILLSTONE WEBER

MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 828.6
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Callaway Route: I-70
Skew: _____ Location: Kingdom City, Missouri
Logged By: SO Operator: LRK
Northing: 1675626.041 Date of Work: 05/16/24-05/16/24
Easting: 857942.937 Depth to Water: 3.0
Requested Northing: _____ Depth Hole Open: _____
Requested Easting: _____ Time Change: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9444720, -91.900566)
Hammer Efficiency: 90% Drilling Method: HSA

BORING NO. BR 37-1
Page 1 of 4

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0									
		0.0-2.7' (CL) Brown and gray, lean CLAY, silty, trace sand		X	94	3-3-5 (12)		PP = 2.50 tsf	MC = 18.4%
		2.7-5.0' (SC) Brown, clayey SAND, with gravel	825		100			PP = 0.50 tsf	Sieve Analysis Sieve # % Passing #200 17.6
5									
		5.0-12.0' (CL) Brown and gray, lean CLAY, with sand and gravel		X	78	13-19-12 (47)		PP = 4.50 tsf	MC = 13.1%
			820		94		Qu Test Results UCS = 11.0 ksf MC = 15.5% γ _{moist} = 136.2 pcf	PP > 4.50 tsf	LL = 44 PL = 13
10									
		12.0-22.0' (CH) Brown and gray, fat CLAY, with sand and gravel	815	X	100	7-7-7 (21)		PP = 4.25 tsf	LL = 56 PL = 16 MC = 18.7%
15									
			810	X	44	7-7-10 (26)		PP = 4.50 tsf	MC = 18.6%
20									
		22.0-25.0' (CL) Brown and gray, lean CLAY, with sand and gravel	805	X	100	4-6-9 (23)		PP = 3.00 tsf	LL = 44 PL = 15 MC = 17.8%
25									

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: 828.6
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Callaway Route: I-70
Skew: _____ Location: Kingdom City, Missouri
Logged By: SO Operator: LRK
Northing: 1675626.041 Date of Work: 05/16/24-05/16/24
Easting: 857942.937 Depth to Water: 3.0
Requested Northing: _____ Depth Hole Open: _____
Requested Easting: _____ Time Change: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9444720, -91.900566)
Hammer Efficiency: 90% Drilling Method: HSA

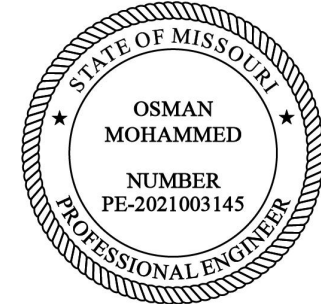
BORING NO. BR 37-1
Page 2 of 4

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
25									
		25.0-37.0' (CH) Gray, fat CLAY, with sand and gravel							
			800	X	17	8-11-12 (35)		PP = 3.25 tsf	MC = 17.0%
30									
		33.5' -with chert gravel from 33.5 to 35.0 ft.	795	X	11	31-31-37 (102)			MC = 14.0%
35									
		37.0-42.0' (CL) Gray, lean CLAY, with sand and gravel	790	X	22	13-9-10 (29)		PP = 3.25 tsf	LL = 46 PL = 15 MC = 17.8%
40									
		42.0-50.0' (CH) Gray, fat CLAY, with sand and gravel	785	X	22	12-17-8 (38)			MC = 17.6%
45									
			780	X	100	8-7-8 (23)		PP = 3.25 tsf	LL = 68 PL = 18 MC = 22.0%
50									

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.



OSMAN MOHAMMED
NUMBER PE-2021003145
02/20/2025 8:19:41 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
19 - FEB - 2025

ROUTE STATE
54EB MO
DISTRICT SHEET NO.
BR 28

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

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

MoDOT IMPROVE I-70 DB PROJECT 1
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING

BORING DATA

Note: For locations of borings, see Sheet No. 1.

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

Sheet No. 28 of 34

Detailed Nov 2024
Checked Jan 2025



Missouri Department of Transportation
Construction and Materials

BORING NO. BR 37-1
Page 3 of 4

Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 828.6
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

County: Callaway
Skew: _____
Logged By: SO
Northing: 1675626.041
Easting: 857942.937
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9444720, -91.900566)
Hammer Efficiency: 90%
Route: I-70
Location: Kingdom City, Missouri
Operator: LRK
Date of Work: 05/16/24-05/16/24
Depth to Water: 3.0
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		50.0-54.3' (CH) Gray, fat CLAY, with gravel							
			775						
55		54.3-59.5' (CL) Gray, lean CLAY, silty		X	100	10-12-14 (39)		PP = 4.00 tsf	MC = 16.2%
			770						
60		59.5-72.0' (CH) Gray and brown, fat CLAY, with gravel		X	100	5-7-9 (24)		PP = 3.00 tsf	MC = 19.1%
			765						
65		63.5' -with sand below 63.5 ft.		X	100	6-8-9 (26)		PP = 4.00 tsf	LL = 52 PL = 15 MC = 18.1%
			760						
70				X	100	4-8-8 (24)		PP = 4.00 tsf	MC = 16.8%
			755						
75		72.0-75.0' (CL) Gray and brown, lean CLAY, with sand and gravel		X	100	6-7-10 (26)		PP = 3.25 tsf	LL = 49 PL = 16 MC = 18.3%

N₆₀ = (Em/60)N_m N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - 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

* 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.



Missouri Department of Transportation
Construction and Materials

BORING NO. BR 37-1
Page 4 of 4

Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 828.6
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

County: Callaway
Skew: _____
Logged By: SO
Northing: 1675626.041
Easting: 857942.937
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9444720, -91.900566)
Hammer Efficiency: 90%
Route: I-70
Location: Kingdom City, Missouri
Operator: LRK
Date of Work: 05/16/24-05/16/24
Depth to Water: 3.0
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
75		75.0-86.0' (CH) Brown and gray, fat CLAY 75.0' -with sand and gravel from 75.0 to 80.0 ft							
			750						
80		80.0' -rough drilling from 80.0 to 81.0 ft.		X	100	5-8-50/0.5'		PP = 2.50 tsf	MC = 19.5%
			745						
85		83.5' -trace gravel below 83.5 ft.		X	100	4-6-11 (26)		PP = 3.00 tsf	MC = 20.6%
			740						
90		86.0-89.5' Gray, highly weathered LIMESTONE 86.0' -rough drilling below 86.0 ft.							
			735						
95		89.5-99.7' LIMESTONE, cherty, white and gray, moderately hard to very hard, slightly to moderately weathered, aphanitic, thin bedded, dense to pitted 90.7' -highly weathered below 90.7 ft.							
			730						
		99.2' -3" clay seam at 99.2 ft.							

N₆₀ = (Em/60)N_m N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - 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

* 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.



OSMAN MOHAMMED
NUMBER PE-2021003145
02/20/2025 8:19:41 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
19 - FEB - 2025

ROUTE 54EB
DISTRICT BR
STATE MO
SHEET NO. 29

COUNTY
CALLAWAY

JOB NO. JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

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

MoDOT IMPROVE I-70 DB PROJECT 1
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING

BORING DATA

Note: For locations of borings, see Sheet No. 1.

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

Sheet No. 29 of 34

Detailed Nov 2024
Checked Jan 2025



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 831.6
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Callaway
Skew: _____
Logged By: SO
Northing: 1675553.612
Easting: 857935.644
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9442600, -91.9406107)
Hammer Efficiency: 90%
Route: I-70
Location: Kingdom City, Missouri
Operator: LRK
Date of Work: 05/28/24-05/29/24
Depth to Water: 38.5
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

BORING NO. BR 37-2
Page 1 of 5

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0									
		0.0-3.0' (CH) Gray and brown, fat CLAY, with sand and gravel	830	X	83	3-3-4 (11)		PP = 1.25 tsf	MC = 11.7%
		3.0-5.5' (CL) Gray and brown, lean CLAY, with sand and gravel		X	100	4-6-11 (26)		PP = 4.50 tsf	MC = 15.6%
5		5.5-8.0' (SC) Brown, fine clayey SAND	825	X	83	15-22-20 (63)			MC = 16.2% Sieve Analysis Sieve # % Passing #200 20.2
		8.0-12.0' (CH) Brown and gray, fat CLAY, with sand and gravel		X	100	6-10-10 (30)		PP = 4.00 tsf	MC = 17.8%
10		12.0-17.0' (SC) Gray, clayey SAND	820	X	11	6-10-11 (32)			MC = 16.1% Sieve Analysis Sieve # % Passing #200 30.5
15		17.0-25.0' (CL) Gray, lean CLAY, with sand and gravel	815	X	100	8-9-12 (32)		PP = 2.50 tsf	MC = 15.6%
20			810	X					
25				X	100	12-20-50/0.3'		PP = 3.50 tsf	LL = 48 PL = 13 MC = 19.9%

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: 831.6
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Callaway
Skew: _____
Logged By: SO
Northing: 1675553.612
Easting: 857935.644
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9442600, -91.9406107)
Hammer Efficiency: 90%
Route: I-70
Location: Kingdom City, Missouri
Operator: LRK
Date of Work: 05/28/24-05/29/24
Depth to Water: 38.5
Depth Hole Open: _____
Time Change: _____
Drilling Method: HSA

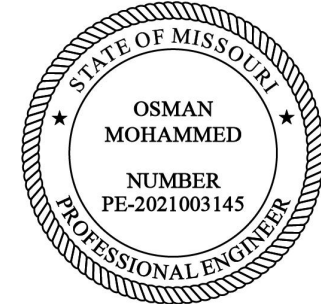
BORING NO. BR 37-2
Page 2 of 5

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
25									
		25.0-31.8' (CH) Gray, fat CLAY, with sand and gravel	805						
					31		Qu Test Results MC = 15.1%		
30									
		31.8-36.8' (CL) Gray, lean CLAY, with sand and gravel	800						
35				X	100	6-16-20 (54)		PP >4.50 tsf	LL = 40 PL = 13 MC = 17.1%
40		36.8-50.0' (CH) Gray, fat CLAY, with sand and gravel	795	X	100	35-43-31 (111)		PP = 3.25 tsf	MC = 19.3%
45			790	X	100	14-26-17 (65)		PP = 2.50 tsf	MC = 26.0%
50			785		33	50/0.3'			MC = 18.3%

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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02/20/2025 8:19:41 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
19 - FEB - 2025

ROUTE STATE
54EB MO
DISTRICT SHEET NO.
BR 30

COUNTY
CALLAWAY
JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DESCRIPTION	DATE
REV. A - FINAL REVIEW	01/21/2025
REV. 0 - RELEASED FOR CONSTRUCTION	02/19/2025

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

MoDOT IMPROVE I-70 DB PROJECT 1
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING

BORING DATA

Note: For locations of borings, see Sheet No. 1.

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

Sheet No. 30 of 34

Detailed Nov 2024
Checked Jan 2025



Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 831.6
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Callaway Route: I-70
Skew: _____ Location: Kingdom City, Missouri
Logged By: SO Operator: LRK
Northing: 1675553.612 Date of Work: 05/28/24-05/29/24
Easting: 857935.644 Depth to Water: 38.5
Requested Northing: _____ Depth Hole Open: _____
Requested Easting: _____ Time Change: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9442600, -91.9406107)
Hammer Efficiency: 90% Drilling Method: HSA

BORING NO. BR 37-2
Page 3 of 5

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
50		50.0-64.2' (CH) Gray, fat CLAY, with sand and gravel	780						
55					75		Qu Test Results MC = 24.0% γ _{moist} = 100.7 pcf	PP = 3.00 tsf	LL = 63 PL = 16
			775						
60		58.5' -gray and brown below 58.5 ft.		X	100	7-12-16 (42)		PP >4.50 tsf	MC = 14.3%
			770						
65		64.2-67.0' (CL) Gray, silty lean CLAY		X	100	21-39-24 (95)		PP = 4.25 tsf	LL = 31 PL = 15 MC = 19.9%
			765						
70		67.0-72.0' (SC) Gray, clayey SAND, with gravel		X	83	10-8-10 (27)		PP = 1.75 tsf	MC = 19.4%
			760						
75		72.0-75.0' (CL) Gray, lean CLAY, with sand and gravel		X	100	7-7-13 (30)			LL = 49 PL = 14 MC = 19.4%

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: 831.6
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

Missouri Department of Transportation
Construction and Materials

County: Callaway Route: I-70
Skew: _____ Location: Kingdom City, Missouri
Logged By: SO Operator: LRK
Northing: 1675553.612 Date of Work: 05/28/24-05/29/24
Easting: 857935.644 Depth to Water: 38.5
Requested Northing: _____ Depth Hole Open: _____
Requested Easting: _____ Time Change: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9442600, -91.9406107)
Hammer Efficiency: 90% Drilling Method: HSA

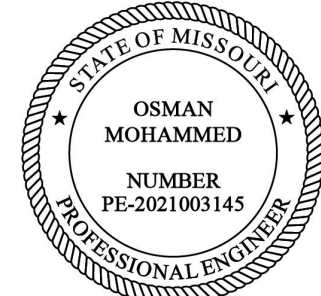
BORING NO. BR 37-2
Page 4 of 5

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
75		75.0-87.0' (CL) Gray, lean CLAY, with sand and gravel	755						
80				X	100	9-10-44 (81)		PP = 1.50 tsf	MC = 18.2%
			750						
85		83.5' -trace sand and gravel below 83.5 ft.		X	100	7-8-10 (27)		PP = 1.50 tsf	MC = 19.9%
			745						
90		87.0-94.0' (CH) Gray, fat CLAY, trace sand and gravel			100		Qu Test Results UCS = 4.99 ksf MC = 21.1% γ _{moist} = 127.1 pcf	PP = 2.50 tsf	LL = 50 PL = 14
			740						
95		94.0-94.5' Gray, fat CLAY and LIMESTONE		X	100	37-50/0.0'		PP = 1.50 tsf	MC = 20.8%
		94.5-95.5' No recovery			0 (0)				
		95.5-100.0' LIMESTONE, gray and tan, slightly to highly weathered, moderately hard to hard aphanitic, thin bedded, dense to pitted	735		38 (9)				
100									

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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02/20/2025 8:19:41 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
19 - FEB - 2025

ROUTE STATE
54EB MO
DISTRICT SHEET NO.
BR 31

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DESCRIPTION	REV.	A	FINAL REVIEW
	REV. 0		RELEASED FOR CONSTRUCTION

DATE	01/21/2025
	02/19/2025

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

MoDOT
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING

BORING DATA

Note: For locations of borings, see Sheet No. 1.

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

Sheet No. 31 of 34

Detailed Nov 2024
Checked Jan 2025



Missouri Department of Transportation
Construction and Materials

BORING NO. BR 37-2
Page 5 of 5

Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 831.6
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

County: Callaway
Skew: _____
Logged By: SO
Northing: 1675553.612
Easting: 857935.644
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9442600, -91.9406107)
Hammer Efficiency: 90%
Route: I-70
Location: Kingdom City, Missouri
Operator: LRK
Date of Work: 05/28/24-05/29/24
Depth to Water: 38.5
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
100									
		100.0-110.5' LIMESTONE, gray and tan, hard to very hard, moderately to highly weathered, thin bedded, pitted 100.0-105.5' 100.5' -cherty from 100.5 to 105.5 ft.	730		45 (8)				
105									
		105.5' -slightly to moderately weathered, moderately hard, aphanitic, dense to pitted below 105.5 ft.	725		75 (37)		Qu Test Results UCS = 1720 ksf		
110									
		Refusal at 94.5 feet. Bottom of borehole at 110.5 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

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Missouri Department of Transportation
Construction and Materials

BORING NO. BR 37-3
Page 1 of 5

Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 834.3
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

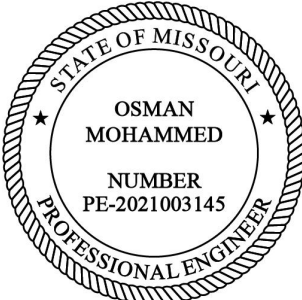
County: Callaway
Skew: _____
Logged By: SO
Northing: 1675466.664
Easting: 857925.743
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9440491, -91.9406617)
Hammer Efficiency: 90%
Route: I-70
Location: Kingdom City, Missouri
Operator: LRK
Date of Work: 05/15/24-05/16/24
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
0		0.0-2.7' (CL) Brown, sandy lean CLAY							
				X	67	2-3-5 (12)		PP = 2.50 tsf	MC = 16.7%
5		2.7-8.0' (CH) Brown and gray, fat CLAY	830		92		Qu Test Results UCS = 6.95 ksf MC = 15.3% γ _{moist} = 131.7 pcf	PP = 4.00 tsf	LL = 63 PL = 16
		6.0' -with gravel below 6.0 ft.		X	56	7-35-28 (95)		PP = 3.50 tsf	MC = 20.6%
10		8.0-17.0' (CL) Brown, lean CLAY, with sand and gravel	825	X	56	12-29-12 (62)		PP = 4.25 tsf	MC = 16.5%
15			820		100		Qu Test Results MC = 16.5% γ _{moist} = 139.2 pcf	PP >4.50 tsf	LL = 43 PL = 15
20		17.0-25.0' (CH) Gray, fat CLAY, with sand and gravel	815	X	67	9-11-11 (33)		PP = 3.25 tsf	MC = 18.6%
25		23.5' -gray and brown below 23.5 ft.	810	X	83	25-24-16 (60)		PP >4.50 tsf	LL = 51 PL = 16 MC = 16.3%

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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02/20/2025 8:19:41 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
19 - FEB - 2025

ROUTE 54EB
STATE MO
DISTRICT BR
SHEET NO. 32

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

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

MoDOT IMPROVE I-70 DB PROJECT 1
MILLSTONE WEBER
MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING

BORING DATA

Note: For locations of borings, see Sheet No. 1.

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

Sheet No. 32 of 34

Detailed Nov 2024
Checked Jan 2025



Missouri Department of Transportation
Construction and Materials

BORING NO. BR 37-3
Page 2 of 5

Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 834.3
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

County: Callaway
Skew: _____
Logged By: SO
Northing: 1675466.664
Easting: 857925.743
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9440491, -91.9406617)
Hammer Efficiency: 90%
Route: I-70
Location: Kingdom City, Missouri
Operator: LRK
Date of Work: 05/15/24-05/16/24
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
25		25.0-50.0' (CL) Gray, lean CLAY, with sand and gravel							
30			805	X	100	6-7-8 (23)		PP = 3.50 tsf	MC = 18.8%
35			800	X	100	4-7-8 (23)		PP = 3.00 tsf	LL = 41 PL = 15 MC = 16.7%
40			795	X	100	23-13-18 (47)		PP >4.50 tsf	MC = 16.2%
45			790	X	100	6-7-9 (24)		PP = 2.75 tsf	MC = 18.9%
50			785	X	100	8-7-8 (23)		PP = 2.75 tsf	LL = 48 PL = 15 MC = 19.9%

N₆₀ = (Em/60)N_m N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - 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

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Missouri Department of Transportation
Construction and Materials

BORING NO. BR 37-3
Page 3 of 5

Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 834.3
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

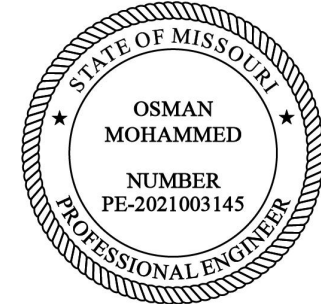
County: Callaway
Skew: _____
Logged By: SO
Northing: 1675466.664
Easting: 857925.743
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9440491, -91.9406617)
Hammer Efficiency: 90%
Route: I-70
Location: Kingdom City, Missouri
Operator: LRK
Date of Work: 05/15/24-05/16/24
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		50.0-67.0' (CH) Gray, fat CLAY, with sand and gravel							
55			780	X	100	6-9-10 (29)		PP = 2.75 tsf	MC = 19.2%
60			775	X	100	6-8-18 (39)		PP = 3.25 tsf	MC = 22.2%
65		63.5' -gray and brown below 63.5 ft.	770	X	100	12-17-20 (56)		PP >4.50 tsf	LL = 55 PL = 15 MC = 16.7%
70		67.0-72.0' (CL) Gray, lean CLAY, silty	765	X	100	7-8-12 (30)		PP = 3.50 tsf	LL = 28 PL = 17 MC = 19.6%
75		72.0-75.0' (ML) Gray, sandy SILT	760	X	100	3-4-7 (17)			MC = 25.8%

N₆₀ = (Em/60)N_m N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - 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

* 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.



OSMAN
MOHAMMED
NUMBER
PE-2021003145
02/20/2025 8:19:42 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
19 - FEB - 2025

ROUTE STATE
54EB MO
DISTRICT SHEET NO.
BR 33

COUNTY
CALLAWAY

JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

DATE	DESCRIPTION
01/21/2025	REV. A - FINAL REVIEW
02/19/2025	REV. 0 - RELEASED FOR CONSTRUCTION

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

MoDOT IMPROVE I-70 DB PROJECT 1
MILLSTONE
WEBER
MO STATE CERTIFICATE OF AUTHORITY #001444 ENGINEERING

BORING DATA

Note: For locations of borings, see Sheet No. 1.

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

Sheet No. 33 of 34

Detailed Nov 2024
Checked Jan 2025



Missouri Department of Transportation
Construction and Materials

BORING NO. BR 37-3
Page 4 of 5

Job No.: 20241040.00
Design: _____
Bent: _____
Station: _____
Offset: _____
Elevation: 834.3
Requested Station: _____
Requested Offset: _____
Requested Elevation: _____
Drill No.: _____

County: Callaway
Skew: _____
Logged By: SO
Northing: 1675466.664
Easting: 857925.743
Requested Northing: _____
Requested Easting: _____
Equipment: CME 550X, Split-Spoon Sampler, Shelby Tube
Location Note: (38.9440491, -91.9406617)
Hammer Efficiency: 90%
Route: I-70
Location: Kingdom City, Missouri
Operator: LRK
Date of Work: 05/15/24-05/16/24
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
75		75.0-77.0' (ML) Gray, sandy SILT							
		77.0-79.5' (CH) Gray and brown, fat CLAY, with sand and gravel							
80		79.5-87.0' Gray, highly weathered LIMESTONE, with shale 79.5' -rough drilling from 79.5 to 82.0 ft.	755	X	100	8-50/0.5'		PP = 2.50 tsf	
85			750	X	22	25-30-30 (90)			
90		87.0-96.0' (CL) Gray, lean CLAY, with gravel	745	X	100	9-9-8 (26)		PP = 2.50 tsf	LL = 45 PL = 14 MC = 20.8%
95			740	X	100	10-28-50/0.4'		PP = 3.00 tsf	MC = 23.7%
100		95.0' -rough drilling below 95.0 ft. 96.0-100.0' LIMESTONE, gray, moderately hard, slightly weathered, aphanitic, thin to medium bedded, dense	735		100 (71)				Qu Test Results UCS = 2510 ksf

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.



Missouri Department of Transportation
Construction and Materials

BORING NO. BR 37-3
Page 5 of 5

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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
100		100.0-106.3' LIMESTONE, gray, moderately hard, slightly weathered, aphanitic, thin to medium bedded, dense			100 (68)		Qu Test Results UCS = 1540 ksf		
105		Refusal at 96.0 feet. Bottom of borehole at 106.3 feet.	730		100 (83)				

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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OSMAN MOHAMMED
NUMBER PE-2021003145
02/20/2025 8:19:42 AM
Osman Mohammed
MO PE-2021003145

DATE PREPARED
19 - FEB - 2025

ROUTE 54EB
STATE MO
DISTRICT BR
SHEET NO. 34

COUNTY
CALLAWAY

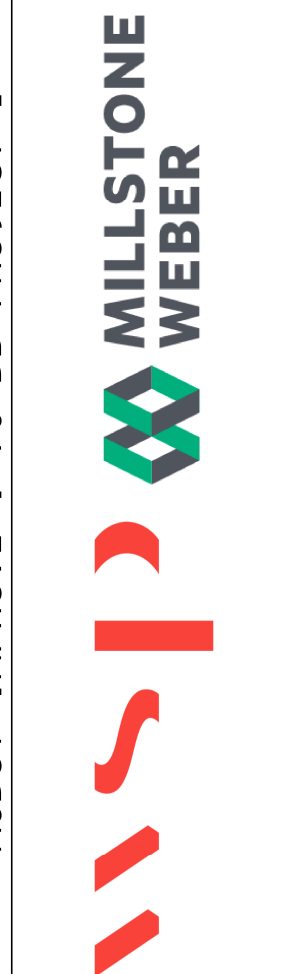
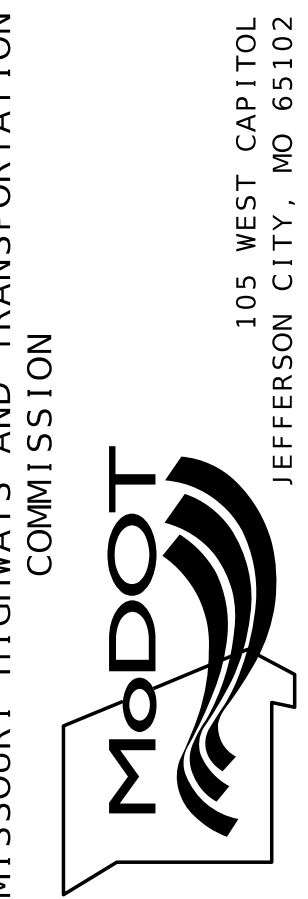
JOB NO.
JST0021

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9557

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BORING DATA

Note: For locations of borings, see Sheet No. 1.

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Sheet No. 34 of 34

Detailed Nov 2024
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